3GPP TSG-RAN WG2 Meeting #112 Electronic R2-200xxxx

**Elbonia, 02 – 13 November 2020**

**Agenda item: 5.4.2**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Summary of [AT112-e][010][NR15] LTE changes (Nokia)**

**Document for: Discussion and Decision**

1. Introduction

This is a summary of below offline discussion:

### 5.4.2 LTE changes related to NR

* [AT112-e][010][NR15] LTE changes (Nokia)

Treat R2-2009950, R2-2008823, R2-2008824, R2-2009946, R2-2010600, R2-2010601

 Intended outcome: Intermediate: Determine agreeable parts. Final: For agreeable parts, agreed CRs.

 Deadline: Intermediate deadline(s) by Rapporteur, Final: Discussion stop at Wed Nov 11, 1200 UTC

SIB19+ extension

[R2-2009950](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009950.zip) Open issues on SIB extension correction Ericsson discussion Rel-15 NR\_newRAT-Core

* This discussion is already handled online by Chairman

256QAM

[R2-2008823](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2008823.zip) Clarification to usage of ul-256QAM-r15 Nokia, Nokia Shanghai Bell CR Rel-15 36.306 15.9.0 1787 - F NR\_newRAT-Core

[R2-2008824](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2008824.zip) Clarification to usage of ul-256QAM-r15 Nokia, Nokia Shanghai Bell CR Rel-16 36.306 16.2.0 1788 - A NR\_newRAT-Core

Cell Reselection

[R2-2009946](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009946.zip) Clarification for the final check on cell selection criterion Ericsson, Qualcomm discussion Rel-15 NR\_newRAT-Core

SN Release

[R2-2010600](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010600.zip) Correction on p-MaxEUTRA upon SN release ZTE Corporation, Sanechips CR Rel-15 36.331 15.11.0 4523 - F NR\_newRAT-Core

[R2-2010601](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010601.zip) Correction on p-MaxEUTRA upon SN release ZTE Corporation, Sanechips CR Rel-16 36.331 16.2.1 4524 - A NR\_newRAT-Core

2. Discussions

## 2.1 Discussion on CRs R2-2009950

SIB19+ extension

[R2-2009950](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009950.zip) Open issues on SIB extension correction Ericsson discussion Rel-15 NR\_newRAT-Core

* This discussion is already handled online by Chairman.

## 2.2 Discussion on CRs R2-2008823 and R2-2008824

The following documents are relevant for the discussion:

256QAM

[R2-2008823](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2008823.zip) Clarification to usage of ul-256QAM-r15 Nokia, Nokia Shanghai Bell CR Rel-15 36.306 15.9.0 1787 - F NR\_newRAT-Core

[R2-2008824](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2008824.zip) Clarification to usage of ul-256QAM-r15 Nokia, Nokia Shanghai Bell CR Rel-16 36.306 16.2.0 1788 - A NR\_newRAT-Core

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| Company | Comments |
| Nokia, Nokia Shanghai Bell | [Proponent] This seems to be missed and needs an alignment. |
| QCOM | Agree with Nokia, since the 36.331 has already captured this capability in the Feature Set per CC in R15. |
| MediaTek | The intention is to add field description for *ul-256QAM-r15*, it looks ok for as. I am not whether which WI code add the ASN.1 *ul-256QAM-r15*, but it seems not related to NR. Also, for CR coversheet, “Other core specifications” is not necessary to mark. |
| Huawei | Agree with the changes. |
| Samsung  | Agree with the changes. |
| Lenovo | Agree with the intention but have following comments:* To be aligned with ASN.1 the description should be better changed to: “This field indicates whether the UE supports UL 256QAM **for MR-DC within the indicated feature set.**”
* Cover page issues (for both CRs): why is in “Other specs affected” a reference to 38.306 CR? Furthermore, in “Clauses affected” the subclause “4.3.4.xyz (new)” should be added.
* Furthermore, companion CRs to 36.331 are needed as well to introduce missing field description for ul-256QAM-r15 something like the below:

*ul-256QAM (in FeatureSetUL-PerCC)*Indicates whether the UE supports 256QAM in UL for MR-DC within the indicated feature set. This field is only present when the field ue-CategoryUL indicates UL UE category that supports 256QAM in UL, see TS 36.306 [5], Table 4.1A-2. |
| Ericsson | We agree the parameters in Feature sets were not properly covered in 36.306. Cover page mentions “Feature Set per CC”, but this is not captured in the drafted text for ul-256QAM-r15. Is there a reason?There is already existing ul-256QAM-r14 description in 36.306In the FeatureSetUL-PerCC, there is also supportedMIMO-CapabilityUL-r15. Is this field supposed to be covered by the existing description of supportedMIMO-CapabilityUL-r10?FeatureSetUL-PerCC-r15 ::= SEQUENCE { supportedMIMO-CapabilityUL-r15 MIMO-CapabilityUL-r10 OPTIONAL, ul-256QAM-r15 ENUMERATED {supported} OPTIONAL}So 36.306 seems not adapted to the Feature set concept.Cover page of Rel-15 CR seems to link to the Rel-16 Cat A CR (Other specs affected). This should not be done. |
| ZTE | Agree with the changes. |
| Intel | Agree with changes |
| Apple | We are fine with the changes |
| CATT | Agree with the changes |

## 2.3 Discussion on CR [R2-2009946](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009946.zip)

Cell Reselection

[R2-2009946](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2009946.zip) Clarification for the final check on cell selection criterion Ericsson, Qualcomm discussion Rel-15 NR\_newRAT-Core

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| Company | Comments |
| Nokia, Nokia Shanghai Bell | Question for clarification, is this a real issue in network from Rel-8? |
| QCOM | It’s a clarification to ensure a common understanding. It’s an expected behaviour by the UE when camping on the reselected target cell, to use the parameters configured by the target cell to do a final suitability check |
| MediaTek | We also agree that the UE shall do the final checking based on target cell SIB before camping on the cell. However, it seems this is a legacy behaviour (not just in LTE Rel-15). We are not sure it is really needed to clarify now (but fine to have it if majorities prefer)In addition, we don’t know this could avoid the ping-pong effect. Maybe the proponent could clarify. |
| Huawei | The text related to final suitability check in 38.304 is applicable to the scenarios where the target cell is an NR cell (including NR reselecting to NR and LTE reselecting to NR). Therefore, we think the “LTE reselection to NR” case has already been handled, and the CR is not needed.As for the case of LTE reselecting to LTE, we believe it’s out of the scope of this agenda. |
| Samsung | LTE seems to have worked well for many years, so why do we still need to clarify this after all these years? It seems mandating all Rel-15 UEs to always perform the final check in any cell reselection case. |
| Lenovo | The evaluation for cell reselection is based on parameters provided by serving cell as specified in 36.304, 5.2.4.2:*When evaluating Srxlev and Squal of non-serving cells for reselection purposes, the UE shall use parameters provided by the serving cell.*Therefore, we are hesitant in changing the behaviour unless there are real issues observed in the field with the existing behaviour. |
| Ericsson | @MDTK: We agree that a sensible UE would implement like this. But this requirement was explicitly introduced in NR when the cell specific minimum offset values were introduced in REL-15. With these cell specific offsets it is perhaps more likely that there could be a mismatch when one of the neighbour cells is not correctly configured. In our understanding/definition there is a “ping-pong” when the UE would camp on the cell, and then check SI for final suitability check. There would be a risk that the UE accesses a cell that is not suitable when it would camp on it temporarily. The UE cannot avoid acquiring SI of the target cell during cell re-selection. @HW/@SS: We agree that the suitability check / cell selection criterion of the NR cell is defined in 38.304. But the final check in 38.304 is mentioned in the context of cell reselection. We think that the same requirement applies for intra-NR, intra-LTE and LTE<->NR, but that this has not been captured in LTE, i.e. 38.304 and 36.304 are not aligned.  |
| ZTE | The motivation makes sense to us, as explained by Ericsson, the requirement became strong due to the introduction of cell specific minimum offset values. Then we are fine with the proposed change. And we undertand there should be no NBC issue. |
| Intel | The change looks OK to us and there is some justification for it for alignment (as clarified by the proponents) though it is not that essential.  |
| Apple | We agree with the intention to clarify this legacy behavior that UE shall do the final checking based on target cell SIB before camping on the cell. We support to have the 38.304 and 36.304 spec aligned.  |
| CATT | We think it is a legacy behaviour. We are not sure it is really needed to clarify now (but fine to have it if majorities prefer) |

## 2.4 Discussion on CR [R2-2010600](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010600.zip) and [R2-2010601](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010601.zip)

SN Release

[R2-2010600](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010600.zip) Correction on p-MaxEUTRA upon SN release ZTE Corporation, Sanechips CR Rel-15 36.331 15.11.0 4523 - F NR\_newRAT-Core

[R2-2010601](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_112-e%5CDocs%5CR2-2010601.zip) Correction on p-MaxEUTRA upon SN release ZTE Corporation, Sanechips CR Rel-16 36.331 16.2.1 4524 - A NR\_newRAT-Core

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| Company | Comments |
| Nokia, Nokia Shanghai Bell | We are not sure/remember in which meeting this was discussed but the decision was that this would be the assumption that the restriction of EN-DC is automatically removed due to SCG release. Could you please confirm? |
| QC | We agree with the concept, but not sure if this CR is needed, as it’s already clear that p-MaxEUTRA will be released when nr-Config = release is received. |
| Ericsson | Exactly the same issue was discussed in the RAN2#107bis meeting within the offline 025 (we were leading it). The common understanding at that time was that we have the release of TDM-pattern and the power fields in case of RRC re-establishment because the target eNB does not know whether the UE is configured with the TDM-pattern and the power fields until the network obtains the UE context. The same problem was then identified and corrected in case of resume procedure (we had a CR in the RAN2#108 meeting to fix this).However, for the case of RRC Connection Reconfiguration, the common understanding was that the network knows whether the UE is configured with TDM-pattern and the power fields. Therefore, there is no need of releasing them implicitly but the network should release them explicitly. For this reason, we think this (that by the way, is a big NBC change) should not be discussed again and the CR should not be agreed. |
| MediaTek | We agree with QC. If we set nr-Config = release, it implies that the “setup” part is released. So, the p-MaxEUTRA is already released. The CR is not necessary.nr-Config-r15 CHOICE { release NULL, setup SEQUENCE { endc-ReleaseAndAdd-r15 BOOLEAN, nr-SecondaryCellGroupConfig-r15 OCTET STRING OPTIONAL, -- Need ON p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON }There may be some limitation while doing release and add via (endc-ReleaseAndAdd-r15). In this case, the p-MaxEUTRA is not releasable. But that is different issue. |
| Huawei | Similar changes (releasing p-MaxEUTRA for SCG release) were proposed in R2-1913309 and R2-2002788, and were not approved. We should not revisit the issue. |
| Samsung | Agree with the intention but we share the view of Qualcomm and MediaTeck. |
| ZTE | Proponent.We proposed the CR because the spec is unclear how UE behaves when nr-Config-r15 is set to release. And it is impossible for network to explicitly release the field. But as long as companies have the same understanding that p-MaxEUTRA will be released by UE autonomously in this case, we are fine to not pursue the CRs. |
| Intel | Agree with MediaTek that with a Setup Release structure set to release, everything in the setup is released (this is not really an implicit release in our understanding).  |
| Apple | Agree with the intention fo the CR but we share the view of QC and MTK that the change is not needed. Maybe a NOTE to clarify the understanding is sufficient. |
| CATT | In 36.331 it is specified as following:1> if the received *RRCConnectionReconfiguration* includes the *nr-Config* and it is set to *release*: or1> if the received *RRCConnectionReconfiguration* includes *endc-ReleaseAndAdd* and it is set to *TRUE*:2> perform MR-DC release as specified in TS 38.331 [82], clause 5.3.5.10;In 38.331, the MR-DC release in 5.3.5.10 is as following:5.3.5.10 MR-DC releaseThe UE shall:1> as a result of MR-DC release triggered by E-UTRA or NR:2> release SRB3, if established, as specified in 5.3.5.6.2;2> release *measConfig* associated with SCG;2> if the UE is configured with NR SCG:3> release the SCG configuration as specified in clause 5.3.5.4;3> release *otherConfig* associated with the SCG;3> stop timers T346a, T346b, T346c, T346d and T346e associated with the SCG, if running;2> else if the UE is configured with E-UTRA SCG:3> release the SCG configuration as specified in TS 36.331 [10], clause 5.3.10.19 to release the E-UTRA SCG;Due to it is EN-DC case, so the highlight by yellow will be performed, 5.3.5.4 is as following:5.3.5.4 Secondary cell group releaseThe UE shall:1> as a result of SCG release triggered by E-UTRA (i.e. (NG)EN-DC case) or NR (i.e. NR-DC case):2> reset SCG MAC, if configured;2> for each RLC bearer that is part of the SCG configuration:3> perform RLC bearer release procedure as specified in 5.3.5.5.3;2> release the SCG configuration;2> if CPC was configured,3> remove all the entries within *VarConditionalReconfig*, if any;2> stop timer T310 for the corresponding SpCell, if running;2> stop timer T312 for the corresponding SpCell, if running;2> stop timer T304 for the corresponding SpCell, if running.In our understanding, the SCG configuration refer to the secondary cell group configuration. Due to the p-MaxEUTRA-r15 is configured in eutra RRC reconfiguration, so as the current spec it is not released in 38.331, and it is also not been released in 36.331, as it is only trigger to perform the RRC release according 38.331. So we agree to clarify the release of the field clear in 36.331.RRCConnectionReconfiguration-v1510-IEs ::= SEQUENCE { nr-Config-r15 CHOICE { release NULL, setup SEQUENCE { endc-ReleaseAndAdd-r15 BOOLEAN, nr-SecondaryCellGroupConfig-r15 OCTET STRING OPTIONAL, -- Need ON p-MaxEUTRA-r15 P-Max OPTIONAL -- Need ON } } OPTIONAL, -- Need ON sk-Counter-r15 INTEGER (0.. 65535) OPTIONAL, -- Need ON nr-RadioBearerConfig1-r15 OCTET STRING OPTIONAL, -- Need ON nr-RadioBearerConfig2-r15 OCTET STRING OPTIONAL, -- Need ON tdm-PatternConfig-r15 TDM-PatternConfig-r15 OPTIONAL, -- Cond FDD-Pcell nonCriticalExtension RRCConnectionReconfiguration-v1530-Ies OPTIONAL} |

# 3. Conclusion

Summary to be provided at end of the discussion.

# 4. Contact Information

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