**3GPP TSG-RAN WG4 Meeting #97-e R4-200xxxx**

**Electronic Meeting, November 2nd – 13th 2020**

**Agenda item:** 4.9, 7.19.6

**Source:** Moderator (Intel Corporation)

**Title:** Email discussion summary for [97e][314] NR\_Demod\_Maintenance

**Document for:** Information

# Introduction

The scope of this email thread is:

* Rel-15 NR maintenance – UE demodulation and CSI requirements (AI 4.9.1 and 4.9.2)
* Rel-15 NR maintenance – BS demodulation requirements (AI 4.9.3)
* Note: There are no tdocs submitted in this meeting for:
  + Rel-16 NR maintenance (AI 7.19.6)

Email discussion targets for the 1st round and 2nd round

* 1st round:
  + Collect comments for NR CRs.
* 2nd round:
  + Collect comments for revised NR CRs from the 1st round.

# Topic #1: Rel-15 NR maintenance - UE demodulation and CSI requirements

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2014015 | ANRITSU LTD | Rel-15 CR with the following changes for TS 38.101-4:   * Update formulae and Table notes to use per-band relaxation factors ∆MBP,n (as demodulation and CSI requirements are specified in Rx Beam peak direction, ∆MBS,n is not relevant). |
| R4-2014016 | ANRITSU LTD | Rel-16 Cat A CR of R4-2014015 |
| R4-2015824 | Ericsson | Rel-15 CR with the following changes for TS 38.101-4:   * Set the information bit payload in slots where TRS is transmitted as follows:   + FDD: 39936bits, according to channel bits of 78624 and MCS19   + TDD: 79896bits, according to channel bits of 160272 and MCS19 * Maximum throughput revised accordingly. |
| R4-2015825 | Ericsson | Rel-16 Cat A CR of R4-2015824 |
| R4-2016424 | Huawei Technologies Sweden AB | Rel-15 CR with the following changes for TS 38.101-4:   * Specified the OCNG pattern to be applied for the “Symbols for all unused REs” in the test parameters |
| R4-2016425 | Huawei Technologies Sweden AB | Rel-16 Cat A CR of R4-2016424 |
| R4-2016448 | Qualcomm, Inc. | Rel-15 CR with the following changes for TS 38.101-4:   * Clarify that OCNG pattern is not applied to PDSCH DMRS symbols. |
| R4-2016449 | Qualcomm, Inc. | Rel-16 Cat A CR of R4-2016448 |
| R4-2014050 | ANRITSU LTD | Rel-15 CR with the following changes for TS 38.101-4:   * Corrected Aperiodic Report Slot Offset value: 9 -> 8 |
| R4-2014051 | ANRITSU LTD | Rel-16 Cat A CR of R4-2014050 |
| R4-2014052 | ANRITSU LTD | Rel-15 CR with the following changes for TS 38.101-4:   * Corrected Aperiodic Report Slot Offset values for Test 1 and Test 2: Test 1: 7 -> 6, Test 2: 9 -> 8 |
| R4-2014053 | ANRITSU LTD | Rel-16 Cat A CR of R4-2014052 |

## Open issues summary

N/A

## Companies views’ collection for 1st round

### Open issues

N/A

### CRs comments collection

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| **CR number** | **Comments collection** |
| R4-2014015 |  |
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| R4-2015824 | Intel: Based on our understanding, TBS determination procedure does not take into account whether TRS is transmitted or not in slot for which TBS is calculated. TBS can be changed only if MCS is changed. Same time, same MCS is used for all slots in test. Therefore, we think that original version of 64QAM FRC is correct. |
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| R4-2016424 | Intel: We prefer to keep information about OCNG pattern configuration in general section to avoid cope/paste of same information in all tables with test configuration. Also, it is not clear what is confusing in the existing version. Therefore, more clarification is needed.  Cover page typo: Current CR version is 15.7.0, not 15.07.0. |
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| R4-2016448 | Intel: We’ve realized that the current version of this note is rather confusing: “Unused available REs refer to REs in PRBs not allocated for any physical channels, CORESETs, synchronization signals or reference signals in channel bandwidth”. Based on our understanding, it is not clear whether condition “not allocated…” is related to term “REs” or “PRBs”. If it is related to term “PRBs” then OCNG will not be mapped in most of empty REs and there will be no issue with empty REs on DMRS symbols because CORESET usually have wideband allocation in test and there will be no PRBs not allocated for CORESETs. If it is related to term “REs” then it is not clear what is the purpose of sentence “in PRBs” in this note and we understand the intention of proposal from QC. Same time, if we say that OCNG is mapped on REs are not on PDSCH DMRS symbols then it means that OCNG will not mapped in all PRBs on symbols with PDSCH DMRS.  Therefore, we would like to check the understanding of this note from other companies.  As for possible modification of this note, we suggest the following:  Unused available REs refer to REs belonging to PRBs not allocated for PDSCH and REs not allocated for any other physical channels (except PDSCH), CORESETs, synchronization signals or reference signals in channel bandwidth |
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| R4-2014050 |  |
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| R4-2014052 |  |
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## Summary for 1st round

### Open issues

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| **Status summary** |
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### CRs

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| **CR number** | **CRs/TPs Status update recommendation** |
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## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

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| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #2: Rel-15 NR maintenance - BS demodulation requirements

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2014494 | Nokia, Nokia Shanghai Bell | Rel-15 CR with the following changes for TS 38.141-2:   * Added note in PUSCH minimum perfromance requirement OTA test setup, following the text agreed in TR 37.941 (section 15.3) on HARQ feedback, to allow HARQ feedback on an error-free feedback link in OTA testing. Note adapted from TS 38.141-1. |
| R4-2014509 | Nokia, Nokia Shanghai Bell | Rel-16 Cat A CR of R4-2014494 |
| R4-2015843 | Ericsson | Rel-15 CR with the following changes for TS 38.104:   * Adding MCS12 requirements for 2-O PUSCH performance * Adding 30% throughput requirements for 2-O PUSCH performance * Adding corresponding FRC tables for 2-O PUSCH performance * Adjust table format |
| R4-2015844 | Ericsson | Rel-15 CR with the following changes for TS 38.141-2:   * Adding applicability rule for 30% throughput requirement * Adding MCS12 requirements for 2-O PUSCH performance * Adding 30% throughput requirements for 2-O PUSCH performance * Adding corresponding FRC tables for 2-O PUSCH performance * Adjust table format |

## Open issues summary

N/A

## Companies views’ collection for 1st round

### Open issues

N/A

### CRs comments collection

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| **CR number** | **Comments collection** |
| R4-2014494 |  |
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| R4-2015843 | China Telecom:  For PUSCH FR2 2T2R with MCS 12, we raised this issue in the last year, and the agreement at RAN4 #92bis is copied as below (captured in ad-hoc minutes in R4-1912722):  The PUSCH FR2 2T2R with MCS 12 requirements are applicable from Rel-16.  But we are fully ok to re-open this issue to see if the proposal from E/// can be agreeable. |
| Nokia:  In the interest of not re-opening the already finished type approval for Rel-15 products, we are very much not in favour of back-porting Rel-16 requirements to Rel-15 specification at this point in time. As pointed out by CTC, the agreement on MCS12 was quite clear in [R4-1912722] and should not be reopened after closure of Rel-15. The handling of >20dB tests in rel-15, is also technically solved in [R4-1907239] and the corresponding applicability rule in 38.141-2 8.1.2.0.  Discussion on this topic would need to be explicitly brought to the attention of the companies involved in the Rel-15 discussions. |
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| R4-2015844 | China Telecom:  Same comment as to the 38.104 CR. |
| Nokia: Same as above. |
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## Summary for 1st round

### Open issues

N/A

### CRs

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| **CR number** | **CRs/TPs Status update recommendation** |
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## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

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| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |