**3GPP TSG-RAN WG4 Meeting #96-e R4-2012535**

**Electronic Meeting, August 17th – 28th 2020**

**Agenda item:** 4.9, 5.4, 6.5.4, 7.19.6

**Source:** Moderator (Intel Corporation)

**Title:** Email discussion summary for [96e][313] 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)
* LTE maintenance up to Rel-15 - UE demodulation and CSI requirements (AI 5.4.1)
* Note: There are no tdocs submitted in this meeting for:
  + Rel-15 NR maintenance – BS demodulation requirements (AI 4.9.3)
  + LTE maintenance up to Rel-15 - BS demodulation requirements (AI 5.4.2)
  + Rel-16 LTE maintenance (AI 6.5.4)
  + Rel-16 NR maintenance (AI 7.19.6)

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

* 1st round:
  + Collect comments for NR and LTE CRs.
* 2nd round:
  + Collect comments for revised NR and LTE 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** |
| R4-2009540 | ANRITSU LTD | Rel-15 CR with the following changes for TS 38.101-4:   * Changed Reference Channel from R.PDSCH.1-1.4 FDD to R.PDSCH.1-1.3 FDD in Table 5.2.2.1.3-3 and Table 5.2.3.1.3-3 |
| R4-2009541 | ANRITSU LTD | Rel-16 Cat A CR of R4-2009540 |
| R4-2010798 | Rohde & Schwarz | Rel-15 CR with the following changes for TS 38.101-4:   * Readded R.PDSCH.1-1.4 FDD to the specification |
| R4-2010799 | Rohde & Schwarz | Rel-16 Cat A CR of R4-2010798 |
| R4-2011401 | Qualcomm Incorporated | Rel-15 CR with the following changes for TS 38.101-4:   * PDCCH allocation for LTE-NR coexistence PDSCH tests is specified. PDCCH is allocated on symbol 2. * Number of HARQ processes for Test 2-1 in Section 5.2.3.1.1 is fixed. * PDSCH precoding configuration for FR2 SDR tests is fixed. * Editor’s notes are removed in Annex C.3.1 and C.5.1 |
| R4-2009538 | ANRITSU LTD | Rel-15 CR with the following changes for TS 38.101-4:   * Resource type of ZP CSI-RS is changed from “Aperiodic” to “Periodic” so that no DCI 1-1 (DL grant, i.e. with PDSCH) transmission is required on slot#1. * Periodicity of Periodic ZP CSI-RS is set to 8 slot with offset 1 so that it is sent on the same timing as Aperiodic NZP-CSI-RS * ZP CSI-RS trigger at ZP CSI-RS configuration is removed. |
| R4-2009539 | ANRITSU LTD | Rel-16 Cat A CR of R4-2009538 |

## Open issues summary

N/A

## Companies views’ collection for 1st round

### Open issues

N/A

### CRs comments collection

|  |  |
| --- | --- |
| **CR number** | **Comments collection** |
| R4-2009540 | R&S: This CR seems to address the same issue as R&S CR R4-2010798. From our perspective either the Anritsu or R&S CR should be agreed, Both seem to solve the issue, but in different ways (Anritsu changes the RMC, R&S adds the missing RMC). |
| Ericsson: Same comment as R&S. We support this CR (R4-2009540) because Rel-15 PDSCH Type-B test assumed to use 7 OFDM symbols if we understand correctly.  PDSCH with 9 OFDM symbols (proposed by R&S in R4-2010798) is used for LTE-NR co-existence case, and the relevant FRC is specified as R.PDSCH.1-7.1. |
| Intel: Support this CR, because it corrects typo for Type B PDSCH requirements. |
| QC: Support this CR. |
| Huawei: OK with proposed changes. |
| R4-2010798 | Ericsson: Same comments as R4-2009540. |
| Intel: R.PDSCH.1-1.4 FDD has been moved to the Table A.3.2.1.1-7 (R.PDSCH.1-7.1). R.PDSCH.1-1.4 FDD is used for PDSCH Mapping Type B requirements by mistake which is fixed by CR R4-2009540. |
| QC: Same comment as Intel |
| R4-2011401 | Ericsson: Is is ok, but Cat-A CR for rel-16 is missing. |
| Intel: Support this CR. Agree with Ericsson’s observation about Cat A CR.  *Moderator note: Cat A CR can be requested later as part of 1st round summary preparation.* |
| QC: If everyone is ok with this CR, we ask the moderator to request the tdoc for CAT-A CR as part of 1st round summary. |
| Huawei: The “Starting symbol” configured in Table 5.2.2.1.4-2 is L0=3, the left position for PDCCH is symbol#0, 1 and 2, considering CRS in symbol#0, i.e. symbols for PDCCH should be 1, 2, it is not clear if we just say 2 symbols for PDCCH. |
| R4-2009538 | Ericsson: Agree with CR. If this CR is agreeable in the 1st round, maybe consider to fix other sections also in the 2nd round rather than the next meeting. |
| QC: This change violates the spec. As per Section 5.2.1.2 in 38.214, all CSI-RS resources linked to a CSI report setting need to have same time-domain behavior. So, all resources should either be aperiodic or periodic. We think that an easier solution to solve this problem will be to schedule these resources a few slots before where PDSCH is scheduled. Below is the excerpt from 38.214:  *The time domain behavior of the CSI-RS resources within a CSI Resource Setting are indicated by the higher layer parameter resourceType and can be set to aperiodic, periodic, or semi-persistent. For periodic and semi-persistent CSI Resource Settings, the number of CSI-RS Resource Sets configured is limited to S=1. For periodic and semi-persistent CSI Resource Settings, the configured periodicity and slot offset is given in the numerology of its associated DL BWP, as given by BWP-id. When a UE is configured with multiple CSI-ResourceConfigs consisting the same NZP CSI-RS resource ID, the same time domain behavior shall be configured for the CSI-ResourceConfigs. When a UE is configured with multiple CSI-ResourceConfigs consisting the same CSI-IM resource ID, the same time-domain behavior shall be configured for the CSI-ResourceConfigs. All CSI Resource Settings linked to a CSI Report Setting shall have the same time domain behavior.* |
| Huawei: prefer to have more time to check. |

## Summary for 1st round

### Open issues

N/A

### CRs

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| --- | --- |
| **CR number** | **CRs/TPs Status update recommendation** |
| R4-2009540 | To be agreed |
| R4-2009541 | To be agreed (Rel-16 Cat A CR of R4-2009540) |
| R4-2010798 | To be noted |
| R4-2010799 | To be withdraw (Rel-16 Cat A CR of R4-2010798) |
| R4-2011401 | To be revised |
| R4-2009538 | To be revised |

New t-doc request:

* Cat A CR for R4-2011401

## 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: LTE requirements maintenance (up to Rel-15) - UE demodulation and CSI requirements

## Companies’ contributions summary

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| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2010460 | Ericsson | Rel-14 CR with the following changes for TS 36.101:   * Set OP.1 FS3 as OCNG patter for LAA CC for SDR requirements |
| R4-2010461 | Ericsson | Rel-15 Cat A CR of R4-2010460 |
| R4-2010462 | Ericsson | Rel-16 Cat A CR of R4-2010460 |
| R4-2010463 | Ericsson | Rel-15 CR with the following changes for TS 36.101:   * Add note PDSCH demodulation requirements with 64QAM for MTC UE is applicable for MTC UE capable of ce-PDSCH-64QAM. |
| R4-2010464 | Ericsson | Rel-16 Cat A CR of R4-2010463 |

## 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** |
| R4-2010460 | Huawei: OK with the changes. |
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| R4-2010463 | Huawei: Not sure if the note is proper way. We are considering to include this information in the formal text or in applicability part. |
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## Summary for 1st round

### Open issues

N/A

### CRs

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| --- | --- |
| **CR number** | **CRs/TPs Status update recommendation** |
| R4-2010460 | To be agreed |
| R4-2010461 | To be agreed (Rel-15 Cat A CR of R4-2010460) |
| R4-2010462 | To be agreed (Rel-16 Cat A CR of R4-2010460) |
| R4-2010463 | To be revised |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **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”* |