**3GPP TSG-RAN WG4 Meeting # 111 R4-240xxxx**

**Fukuoka, Japan, 20-24 May 2024**

**Agenda item:** 4.8

**Source:** Moderator (Nokia)

**Title:** Topic summary for [111][316] Demod\_Maintenance

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

The scope of this topic summary for demod maintenance is:

4 Up to Rel-17 maintenance for LTE and NR

**4.5 Demodulation and CSI requirements [WI code]**

5 Rel-18 maintenance for LTE and NR

5.2 Rel-18 non-spectrum related WI maintenance

5.2.2 NB-IoT/eMTC core & perf. requirements for NTN [LTE\_NBIOT\_eMTC\_NTN\_req]

**5.2.2.4 Demodulation requirements [LTE\_NBIOT\_eMTC\_NTN\_req-Perf]**

5 Rel-18 maintenance for LTE and NR

5.2 Rel-18 non-spectrum related WI maintenance

5.2.6 Air-to-ground network for NR [NR\_ATG]

5.2.6.4 Demodulation performance requirements [NR\_ATG-Perf]

**5.2.6.4.1 UE demodulation performance and CSI requirements [NR\_ATG-Perf]**

**5.2.6.4.2 BS demodulation performance requirements [NR\_ATG-Perf]**

5 Rel-18 maintenance for LTE and NR

5.2 Rel-18 non-spectrum related WI maintenance

5.2.8 Other Rel-18 non-spectrum related WIs

**5.2.8.4 Demodulation performance and CSI requirements [WI code]**

Additionally, the following Tdocs have been included in this thread by the chair.

|  |  |  |
| --- | --- | --- |
| [**R4-2407397**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407397.zip) | Re-inclusion of Channel Model Parameters for FR2 (Demodulation) | Nokia, Ericsson, ZTE |
| [**R4-2407441**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407441.zip) | [TEI] Re-inclusion of Channel Model Parameters for FR2 (Demodulation, Rel-18)) | Nokia, Ericsson, ZTE |

# Topic #1: Up to Rel-17 maintenance for LTE and NR (4.5)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Proposals, Observations, Changes, Moderator remarks** | **Related WI** |
| [**R4-2407179**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407179.zip) | Anritsu Corporation | (NR\_HST-Perf) CR to FR1 HST-DPS on TCI state switching scheduling | Added Layer, Start RB, Num of RB in Note 1 of Table 5.2.2.1.10-2, Table 5.2.2.2.10-2, Table 5.2.3.1.10-2, Table 5.2.3.2.10-2 | [**NR\_HST-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840292) |
| R4-2407180 | Anritsu Corporation | (NR\_HST-Perf) CR to FR1 HST-DPS on TCI state switching scheduling | Cat A | [**NR\_HST-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840292) |
| R4-2407181 | Anritsu Corporation | (NR\_HST-Perf) CR to FR1 HST-DPS on TCI state switching scheduling | Cat A | [**NR\_HST-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840292) |
| [**R4-2407237**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407237.zip) | Apple | (NR\_perf\_enh-Perf) Editorial CR change to combine tables for requirements applicability for optional UE features | Combine tables for requirements applicability for optional UE features | [**NR\_perf\_enh-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840294) |
| [**R4-2407238**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407238.zip) | Apple | (NR\_perf\_enh-Perf) Editorial CR change to combine tables for requirements applicability for optional UE features | Combine tables for requirements applicability for optional UE features | [**NR\_perf\_enh-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840294) |
| R4-2407239 | Apple | (NR\_perf\_enh-Perf) Editorial CR change to combine tables for requirements applicability for optional UE features | Cat A | [**NR\_perf\_enh-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=840294) |
| [**R4-2407240**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407240.zip) | Apple | (NR\_newRAT-Perf) Editorial CR to Rename sub-clauses under PDCCH requirements | Renamed ‘1Tx/ 2TX Antenna performances’ to ‘Minimum requirements with 1TX/ 2TX antenna’ | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2407241 | Apple | (NR\_newRAT-Perf) Editorial CR to Rename sub-clauses under PDCCH requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2407242 | Apple | (NR\_newRAT-Perf) Editorial CR to Rename sub-clauses under PDCCH requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2407243 | Apple | (NR\_newRAT-Perf) Editorial CR to Rename sub-clauses under PDCCH requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| [**R4-2407355**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407355.zip) | Apple | (NR\_NTN\_solutions-Perf) CR to 38.101-5 to update section with PDSCH demod requirements | Corrected reference to downlink channels setup Added note for requirements for disabled HARQ | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| R4-2407356 | Apple | (NR\_NTN\_solutions-Perf) CR to 38.101-5 to update section with PDSCH demod requirements | Cat A | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| [**R4-2407398**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407398.zip) | Nokia | [NR\_newRAT-Perf] CR to TS 38.104 (Corrections on Clause 8.3.4.1.1 and 11.3.2.6.2) (rel 17) | Incomplete (and unnecessary) Sentence in Clause 8.3.4.1.1 and incorrect annex references in clause 11.3.2.6.2 | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2407399 | Nokia | [NR\_newRAT-Perf] CR to TS 38.104 (Corrections on Clause 8.3.4.1.1 and 11.3.2.6.2) (rel 18) | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2407402 | Qualcomm Incorporated | ~~[NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements [R17][Cat.A]~~  [NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements | Cat A  Mod: Same reservation as R4-2407406?  MCC: withdrawn | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| [**R4-2407403**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407403.zip)  -> R4-2409800 | Qualcomm Incorporated | ~~[NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements [R18][Cat.F]~~  [NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements | Cat A  Clarify UE Receiver Feature for requirements applicability. Clarify Requirements applicability from R.17 onwards.  MCC: revised to R4-2409800 and changed to Cat-A. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| [**R4-2407405**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407405.zip)  -> R4-2409799 | QUALCOMM Incorporated | ~~Corrections on the FRC for Table A.3.2.2.2-29 [R18][Cat.F]~~  Corrections on the FRC for Table A.3.2.2.2-29 | Cat A  Introduce field value in the FRC table  MCC: revised to R4-2409799 and changed to Cat-A. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| R4-2407406 | Qualcomm Incorporated | ~~[NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements [R17][Cat.A]~~  [NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements | Cat A  Mod: Same reservation as R4-2407402?  MCC: R4-2407402 withdrawn. This CR can stay as is. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| R4-2407407 | Qualcomm Incorporated | ~~[NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements [R16][Cat.A]~~  [NR\_demod\_enh2-Perf] Corrections related to Rel. Indep. Requirements | ~~Cat A~~ Cat F  MCC: Changed to Cat-F. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| R4-2407408 | Qualcomm Incorporated | ~~Corrections on the FRC for Table A.3.2.2.2-29 [R17][Cat.A]~~  Corrections on the FRC for Table A.3.2.2.2-29 | ~~Cat A~~ Cat F  MCC: Changed to Cat-F. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| [**R4-2408330**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408330.zip) | Ericsson | CR for 38.108 on FR1 PUCCH demodualtion requirements | Following corrections are added: Modify the first PRB index after FH for format 0. Adding CSI part 1 to UCI information for all UCI BLER requirements. | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| R4-2408331 | Ericsson | (NR\_NTN\_solutions-Perf) CR for 38.108 SAN PUCCH demodulation requirements | Cat A | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| [**R4-2408332**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408332.zip) | Ericsson | (NR\_NTN\_solutions-Perf) CR for 38.181 SAN PUCCH demodulation requirements | Following corrections are added: Adding CSI part 1 to UCI information for all UCI BLER requirements. | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| R4-2408333 | Ericsson | (NR\_NTN\_solutions-Perf) CR for 38.181 SAN PUCCH demodulation requirements | Cat A | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| [**R4-2408334**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408334.zip) | Ericsson | CR for 38.104 on FR2-2 PUSCH demodualtion requirements | Correct FRC index for FR2-2 PUSCH CP-OFDM requirements. Remove brackets from FRC table indexes. Change PRB number of FR2-2 PUSCH DFT-s-OFDM requirements from full applicable test bandwidth to 64 for both 120kHz and 480kHz SCS. Correct errors in FRC table for FR2-2 PUSCH. | [**NR\_ext\_to\_71GHz-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860241) |
| R4-2408335 | Ericsson | (NR\_ext\_to\_71GHz-Perf) CR for 38.104 FR2-2 PUSCH demodulation requirements | Cat A | [**NR\_ext\_to\_71GHz-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860241) |
| [**R4-2408336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408336.zip) | Ericsson | CR for 38.104 on FR2-2 PUSCH demodualtion requirements | Correct FRC index for FR2-2 PUSCH CP-OFDM requirements. Remove brackets from FRC table indexes. Change PRB number of FR2-2 PUSCH DFT-s-OFDM requirements from full applicable test bandwidth to 64 for both 120kHz and 480kHz SCS. Correct errors in FRC table for FR2-2 PUSCH. | [**NR\_ext\_to\_71GHz-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860241) |
| R4-2408337 | Ericsson | (NR\_ext\_to\_71GHz-Perf) CR for 38.141-2 FR2-2 PUSCH demodulation requirements | Cat A | [**NR\_ext\_to\_71GHz-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860241) |
| [**R4-2408735**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408735.zip) | Ericsson | (NR\_demod\_enh2-Perf ) CR to 38.101-4 Correction on FRC for CRS-IM requirement | Correct the FRC index in the minimum requirement table of CRS-IM Correct the FRC index in the Annex | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| R4-2408736 | Ericsson | (NR\_demod\_enh2-Perf ) CR to 38.101-4 Correction on FRC for CRS-IM requirement | Cat A | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| [**R4-2408984**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408984.zip) | Huawei,HiSilicon | [NR\_IAB-Perf] CR on IAB-MT radiated CSI reporting requirement | There is no CSI reporting requirements defined for 2Rx in clause 8.2.3, so the IAB type I-O radidated CSI reporting requirements defined in clause 11.2.3.1 should be modified. | [**NR\_IAB-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=820270) |
| R4-2408985 | Huawei,HiSilicon | [NR\_IAB-Perf] CR on IAB-MT radiated CSI reporting requirement | Cat A | [**NR\_IAB-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=820270) |
| R4-2408986 | Huawei,HiSilicon | [NR\_IAB-Perf] CR on IAB-MT radiated CSI reporting requirement | Cat A | [**NR\_IAB-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=820270) |
| [**R4-2408987**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408987.zip) | Huawei,HiSilicon | [NR\_newRAT-Perf] Discussion on PTRS configuration for UE demodulation requirements | Discussion. **Observation 1**: There is mismatching between PTRS configuration and RMC determination / requirements derivation for all FR2 QPSK PDSCH demodulation requirements. **Observation 2**: There is negligible performance difference between PTRS present and not present using Example 2 phase noise model at 40GHz. **Proposal 1: Only modify the RMC with PTRS not present for all FR2 QPSK PDSCH demodulation requirements and keep the corresponding performance requirements unchanged.** | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| [**R4-2408988**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408988.zip) | Huawei, HiSilicon | [NR\_newRAT-Perf] CR on PTRS configuration for UE demodulation requirements | For modifying PTRS configuration for FR2 QPSK PDSCH demodulation requirements, update clause A.3.2.2.5. | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2408989 | Huawei,HiSilicon | [NR\_newRAT-Perf] CR on PTRS configuration for UE demodulation requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2408990 | Huawei,HiSilicon | [NR\_newRAT-Perf] CR on PTRS configuration for UE demodulation requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2408991 | Huawei,HiSilicon | [NR\_newRAT-Perf] CR on PTRS configuration for UE demodulation requirements | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| [**R4-2408992**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408992.zip) | Huawei,HiSilicon | [NR\_L1enh\_URLLC-Perf] CR on PTRS configuration for UE demodulation requirements | For modifying PTRS configuration for FR2 QPSK PDSCH demodulation requirements, update clause A.3.2.2.5. | [**NR\_L1enh\_URLLC-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=830274) |
| R4-2408993 | Huawei,HiSilicon | [NR\_L1enh\_URLLC-Perf] CR on PTRS configuration for UE demodulation requirements | Cat A | [**NR\_L1enh\_URLLC-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=830274) |
| R4-2408994 | Huawei,HiSilicon | [NR\_L1enh\_URLLC-Perf] CR on PTRS configuration for UE demodulation requirements | Cat A | [**NR\_L1enh\_URLLC-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=830274) |
| [**R4-2408995**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408995.zip) | Huawei, HiSilicon | [NR\_DL1024QAM\_FR1-Perf] Updates to CQI reporting definition test metric under AWGN for 1024QAM test | For the test condition of the PDSCH BLER using the transport format indicated by median CQI is less than or equal to 0.1, added one alternative metric: “, or the reported median CQI is the highest CQI value”. | [**NR\_DL1024QAM\_FR1-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890256) |
| R4-2408996 | Huawei,HiSilicon | [NR\_DL1024QAM\_FR1-Perf] CR on updates to CQI reporting under AWGN for 1024QAM | Cat A | [**NR\_DL1024QAM\_FR1-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890256) |
| [**R4-2409019**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409019.zip) | Huawei,HiSilicon | [NR\_demod\_enh2-Perf] CR for 38.101-4 Introduction of applicability rules | The applicability rules for Rel-17 CRS-IM and MU-MIMO requirements are missing. For Rel-17 CRS-IM and MU-MIMO requirments, some cases are configured with 4Tx, which means 4 CRS ports is configured, which may exceeds UE capability(maxConfigNumberPortsAcrossNZP-CSI-RS-PerCC). For Rel-17 MU-MIMO requirments, some cases are configured with Rank2, which may exceeds UE capabiliry(maxNumberMIMO-LayersPDSCH)  Mod: Collision with R4-2409007 and R4-2409021 in [324]. Please resolve and/or check with MCC. | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| R4-2409020 | Huawei,HiSilicon | [NR\_demod\_enh2-Perf] CR for 38.101-4 Introduction of applicability rules | Cat A | [**NR\_demod\_enh2-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=890255) |
| [**R4-2409022**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409022.zip) | Huawei,HiSilicon, Ericsson | [NR\_newRAT-Perf] CR for 38.101-4: Corrections on Rel-15 PMI test setup | Remove the configuration of Randomization of the principle beam direction for PMI test | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409023 | Huawei,HiSilicon,Ericsson | [NR\_newRAT-Perf] CR for 38.101-4 Corrections on PMI test setup | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409024 | Huawei,HiSilicon,Ericsson | [NR\_newRAT-Perf] CR for 38.101-4 Corrections on PMI test setup | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409025 | Huawei,HiSilicon,Ericsson | [NR\_newRAT-Perf] CR for 38.101-4 Corrections on PMI test setup | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| [**R4-2409026**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409026.zip) | Huawei,HiSilicon, Ericsson | [NR\_redcap-Perf] CR for 38.101-4: Corrections on Rel-17 RedCap PMI test setup | Remove the configuration of Randomization of the principle beam direction for 1Rx PMI test | [**NR\_redcap-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=900262) |
| R4-2409027 | Huawei,HiSilicon,Ericsson | [NR\_redcap-Perf] CR for 38.101-4 Corrections on PMI test setup | Cat A | [**NR\_redcap-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=900262) |
| [**R4-2409113**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409113.zip) | Rohde & Schwarz | (NR\_newRAT-Perf) Correction of TRS configuration for FR1 PDSCH tests | Test parameters in section 5.2.2.2.1 and 5.2.3.2.1 specify Tests 1-8, 1-9. These tests use tdd-UL-DL-Config where we configure only a single DL slot: FR1.30-5 DSUU and FR1.30-6 DSSU. For these configurations the following from TS 38.214 section 5.1.6.1.1 applies: "If no two consecutive slots are indicated as downlink slots by tdd-UL-DL-ConfigurationCommon or tdd-UL-DL-ConfigDedicated, then the UE may be configured with one or more NZP CSI-RS set(s), where a NZP-CSI-RS-ResourceSet consists of two periodic NZP CSI-RS resources in one slot." So the TRS configuration for these test points needs to be corrected. | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409114 | Rohde & Schwarz | (NR\_newRAT-Perf) Correction of TRS configuration for FR1 PDSCH tests | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409115 | Rohde & Schwarz | (NR\_newRAT-Perf) Correction of TRS configuration for FR1 PDSCH tests | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| R4-2409116 | Rohde & Schwarz | (NR\_newRAT-Perf) Correction of TRS configuration for FR1 PDSCH tests | Cat A | [**NR\_newRAT-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750267) |
| [**R4-2409438**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409438.zip) | Keysight Technologies UK Ltd | (NR\_IIoT\_URLLC\_enh-Perf) CR to 38.141-1: PUCCH format 0 demod AWGN level correction | There is an error in AWGN level definition. For 30 KHz SCS 10 MHz CBW, Noise is defined for 20 MHz BW which needs to be corrected to 10 MHz BW. Also, AWGN level is not aligned with 38.141-2 as well as other 10 MHz BW test unless it’s corrected. | [**NR\_IIOT\_URLLC\_enh-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860245) |
| R4-2409439 | Keysight Technologies UK Ltd | (NR\_IIoT\_URLLC\_enh-Perf) CR to 38.141-1: PUCCH format 0 demod AWGN level correction | Cat A | [**NR\_IIOT\_URLLC\_enh-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860245) |
| [**R4-2409440**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409440.zip) | Keysight Technologies UK Ltd | (NR\_NTN\_solutions-Perf) CR to 38.108: Correction on FRCs in demod requirement | In 8.2.2, incorrect FRCs are specified in requirement. While test objective is to test “precoding enabled” signal, however “precoding disabled” signal (FRCs) specified, which needs to be corrected. A3-1 and A3-3 is changed to A3-5 and A3-6 which is “precoding enabled” FRCs | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| R4-2409441 | Keysight Technologies UK Ltd | (NR\_NTN\_solutions-Perf) CR to 38.108: Correction on FRCs in demod requirement | Cat A | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| [**R4-2409442**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409442.zip) | Keysight Technologies UK Ltd | (NR\_NTN\_solutions-Perf) CR to 38.181: Correction on FRCs in conducted demod requirement | 8.2.1 Incorrect, A3-3 (15 kscs/5M BW) used for 30 kscs/10M BW Correction, A3-2 (30 kscs/10 M BW) 8.2.2 Incorrect, A3-5/6 (precoding disabled) used for “precoding enabled” Correction, A3-3/4 (precoding enabled, 15k scs and 30 kscs) 8.2.3 Incorrect, A3-2/4 (30k disabled, 30k enabled) used for where half RBs FRC Correction, A3-5/6 (precoding disabled, 15k scs/5M BW, 30k scs/10M BW) 8.2.4 Incorrect, A3A-2 is specified which is not exist in annex A Correction, A3A-3 (30kscs/10M BW) 11.2.4 Incorrect, A3A-2 is specified which is not exist in annex A Correction, A3A-3 (30kscs/10M BW) | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |
| R4-2409443 | Keysight Technologies UK Ltd | (NR\_NTN\_solutions-Perf) CR to 38.181: Correction on FRCs in conducted demod requirement | Cat A | [**NR\_NTN\_solutions-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=860246) |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1 NR\_newRAT

*Sub-topic description:*

None.

*Open issues and candidate options before meeting:*

**Issue 1-1-1: FR2 requirements and RMCs with PTRS default configuration**

* Background
  + In [R4-2408987] the authors cite TS 38.213 as the UE shall assume PT-RS is not present if MCS < 10 (QPSK) when both *frequencyDensity* and *timeDensity* in *phaseTrackingRS* are not configured.
    - The authors note that TS 38.508-1 (RAN5) does not configure *frequencyDensity* and *timeDensity* in *phaseTrackingRS*, which would trigger the “not present” case.
  + The authors note that the RAN4 RMCs were derived with K=2, L=1 assumptions.
  + The authors observe that in TS 38.101-4, “the PTRS is configured with default value K = 1 and L = 2 with both *frequencyDensity* and *timeDensity* absent for all FR2 PDSCH demodulation requirements”.
    - The moderator observes that K and L are denoted “Frequency density (KPT-RS)” and “Time density (LPT-RS)” respectively.
  + In the moderators understanding, there is a mismatch between RAN4 and RAN5 specifications, where the RAN5 specifications trigger the “PTRS not present” case, while RAN4 may have intended for PTRS being present with K=2, L=1.
    - [R4-1809392]
    - Previous agreements
      * PTRS is configured when introducing performance requirements in FR2.
    - Proposals for requirements definition
      * FR2: PTRS configuration (port 1, per 2PRB in frequency domain, per symbol in time domain)
  + This mismatch should be resolved, albeit that the performance difference may be negligible according to [R4-2408987].
* Proposals
  + Option 1 (HW): Only modify the RMC with PTRS not present for all FR2 QPSK PDSCH demodulation requirements and keep the corresponding performance requirements unchanged.
  + Other options not precluded.
* Recommended WF
  + Discuss offline and online.  
    Handle R4-2408988 - R4-2408991 and R4-2408992 - R4-2408994 accordingly.

# Topic #2: NB-IoT/eMTC for NTN demodulation requirements (5.2.2.4)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Proposals, Observations, Changes, Moderator remarks** | **Related WI** |
| [**R4-2407150**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407150.zip) | Nokia | [LTE\_NBIOT\_eMTC\_NTN\_req-Perf] CR on TS 36.181 for SAN Demodulation | Updates of SNR values following alignment. Update of requirements in clause 8.2 – 8.4 | [**LTE\_NBIoT\_eMTC\_NTN\_req-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950274) |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

None.

# Topic #3: Air-to-ground network for NR demodulation performance requirements (5.2.6.4)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Proposals, Observations, Changes, Moderator remarks** | **Related WI** |
| [**R4-2407119**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407119.zip) | Qualcomm Incorporated | [NR\_ATG-Perf] Corrections related to ATG Applicability [R18][Cat.F] | Add ATG to the list of abbreviations Remove square brackets Update optional feature names Correct spec by moving Redcap table back in the correct section | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2408737**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408737.zip) | Ericsson | CR to 38.101-4: Correction on the reference measurement channel for ATG requirements | Correct the index of the PDSCH reference channel for TDD UL-DL pattern FR1.30-8 (16QAM, 64QAM, 256QAM) | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2408953**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408953.zip) | Huawei,HiSilicon | [NR\_ATG-Perf] Discussion on K1 value for new TDD pattern for ATG PDSCH demodulation performance requirements | Discussion. **Observation 1**: The K1 value for new TDD pattern for ATG PDSCH demodulation performance requirements exceeds the maximum number of different K1 value and the range of K1 value. **Proposal 1: RAN4 find solution to solve such problem.** | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2408954**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408954.zip) | Huawei,HiSilicon | [NR\_ATG-Perf] CR on ATG PDSCH demodulation performance requirements (TS38.101-4, Rel-18) | Delete clause 5.2.3.2.22 under clause 5.2.3.1 and add new clause 5.2.3.2.22 under clause 5.2.3.2. For removing square brackets for ATG PDSCH demodulation performance requirements, update clause 5.2.2.1.22, 5.2.2.2.23, 5.2.3.1.21. | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2408955**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408955.zip) | Huawei,HiSilicon | [NR\_ATG-Perf] CR on ATG PUSCH demodulation performance requirements and FRC definition (TS38.104, Rel-18) | For removing square brackets and correcting the FRC name for ATG PUSCH demodulation performance requirements, update clause 8.2.14.2, 11.2.1.4, A.13, A.14. | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2409083**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409083.zip) | ZTE Corporation, Sanechips | CR on 38.141-2 for ATG demodulation requirements | Modify section number, which according to MCC’s suggestion and remove square brackets for SNR value. | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |
| [**R4-2409486**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409486.zip) | Samsung | Correction CR on applicability of ATG performance requirements | Updated the declaration identifer in Clause 4-6 Update the declaration identifer, clause number in section 8.1.2.11-8.1.2.13 | [**NR\_ATG-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950275) |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 3-1 K1 value for (30D4S6U) TDD pattern

*Sub-topic description:*

None.

*Open issues and candidate options before meeting:*

**Issue 3-1-1: K1 configuration for (30D4S6U) TDD pattern**

* Background:
  + According to the authors of [R4-2408953], “the K1 value for new TDD pattern for ATG PDSCH demodulation performance requirements exceeds the maximum number of different K1 value and the range of K1 value.”
* Proposals
  + Option 1 (HW): RAN4 find solution to solve such problem.
  + Other options not precluded.
* Recommended WF
  + Discuss offline and online.

# Topic #4: Rel-18 demodulation performance and CSI requirements (5.2.8.4)

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **Proposals, Observations, Changes, Moderator remarks** | **Related WI** |
| [**R4-2408773**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408773.zip) | Ericsson, Nokia | (NonCol\_intraB\_ENDC\_NR\_CA-Perf) Correction of PDSCH demodulation requirements for Non-colocated CA | Change 1: Correct format (fonts) for Applicability notes in Table 5.1.1.3-1 Change 2: Removal of [] from Table 5.2A.2.6-3 and Table 5.2A.2.6-4 Change 3: Correct format (fonts) for R.PDSCH.2-4.4 TDD | [**NonCol\_intraB\_ENDC\_NR\_CA-Perf**](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=950281) |
| [**R4-2407441**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407441.zip) | Nokia, Ericsson, ZTE | [TEI] Re-inclusion of Channel Model Parameters for FR2 (Demodulation, Rel-18)) | Originally submitted to AI 5.4  Reintroduction of Channel model parameters in Table J.2.2-2 following removal for an unkown reason. The channel model parameters which were removed are used in the specification, and should be included both due to them being used, but also for alignment with TS 38.141-1. Re-introduction as well of TDLD 30-35 to align with TS 38.104. | **[TEI18]** |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

None.

# Tdoc and CR suggested status

Modified procedure

* Similar to the procedure during e-meetings, the moderator will provide a table at the end of the moderator summary listing all documents and their suggested status
* The format of this table should be 3 columns
  + First column is the tdoc number
  + Second column is the suggested status -> see options in the table on the right
  + Third column is any comments (optional)
* Please use this format because chair will try to directly import into chair’s spreadsheet

**Moderator’s note:**  
Note that these suggested statuses will only be created after the NWM flagging process. All non-flagged CRs will be recommended as “agreed”. All discussion tdocs will be proposed as “noted”.

|  |  |  |
| --- | --- | --- |
| **Up to Rel-16 maintenance for LTE and NR (4.5)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Rel-17 maintenance for LTE and NR (5.2.4)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Up to Rel-16 maintenance for LTE and NR (4.5)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Rel-17 maintenance for LTE and NR (5.2.4)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
|  |  |  |