**3GPP TSG RAN WG4 Meeting #116 R4-2511463**

**Bengaluru, IN, 25th - 29th Aug, 2025**

**Agenda item:** 4.1.3

**Source:** Moderator (Nokia)

**Title:** Topic summary for [116][318] Demod\_Maintenance\_TEI\_Part1

**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 and TEI

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

**4.6 Rel-16/17 TEI and others (EMC, OTA, and TRP/TRS) [TEI]  
(No demod relevant submissions.)**

# Topic #1: NR\_IAB (AI 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** |
| [**R4-2509996**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509996.zip) | NEC | (NR\_IAB-Core) CR to 38.174: Removal of IAB performance requirements for 5 MHz channel bandwidth | PUSCH performance requirements for 5 MHz channel bandwidth are removed. Table number correction.  Moderator: Change related WI to NR\_IAB-Perf. |
| R4-2509997 | NEC | (NR\_IAB-Core) CR to 38.174: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2509998 | NEC | (NR\_IAB-Core) CR to 38.174: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2509999 | NEC | (NR\_IAB-Core) CR to 38.174: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| [**R4-2510000**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2510000.zip) | NEC | (NR\_IAB-Perf) CR to 38.176-1: Removal of IAB performance requirements for 5 MHz channel bandwidth | PUSCH performance requirements for 5 MHz channel bandwidth are removed. |
| R4-2510001 | NEC | (NR\_IAB-Perf) CR to 38.176-1: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2510002 | NEC | (NR\_IAB-Perf) CR to 38.176-1: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2510003 | NEC | (NR\_IAB-Perf) CR to 38.176-1: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| [**R4-2510004**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2510004.zip) | NEC | (NR\_IAB-Perf) CR to 38.176-2: Removal of IAB performance requirements for 5 MHz channel bandwidth | PUSCH performance requirements for 5 MHz channel bandwidth are removed |
| R4-2510005 | NEC | (NR\_IAB-Perf) CR to 38.176-2: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2510006 | NEC | (NR\_IAB-Perf) CR to 38.176-2: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |
| R4-2510007 | NEC | (NR\_IAB-Perf) CR to 38.176-2: Removal of IAB performance requirements for 5 MHz channel bandwidth | Cat-A. |

# Topic #2: NR\_L1enh\_URLLC (AI 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** |
| [**R4-2509825**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509825.zip) | Keysight Technologies | (NR\_L1enh\_URLLC-Perf) Update on PDSCH 0.001% BLER correlation matrix and CQI reporting with Table 3 | Updated correlation matrix and antenna configuration in PDSCH 0.001% minimum performance requirement tables to point out to static channel specified in Annex B.1  Updated First OFDM symbol in the PRB used for CSI-RS (l0) for NZP CSI-RS for CSI acquisition in 4Rx FDD CQI reporting with Table 3 requirement to be aligned with 2Rx CQI reporting with Table 3 requirement |
| R4-2509826 | Keysight Technologies UK Ltd | (NR\_L1enh\_URLLC-Perf) Update on PDSCH 0.001% BLER correlation matrix and CQI reporting with Table 3 (Rel17) | Cat-A. |
| R4-2509827 | Keysight Technologies UK Ltd | (NR\_L1enh\_URLLC-Perf) Update on PDSCH 0.001% BLER correlation matrix and CQI reporting with Table 3 (Rel18) | Cat-A. |

# Topic #3: NR\_perf\_enh (AI 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** |
| [**R4-2509027**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509027.zip) | CAICT | (NR\_perf\_enh-Perf) CR to 38.101-4 Rel-16 Cat-F for the Applicability of PMI test cases | The 38.306 IE about the number of Tx ports for the checking of the Applicability of PMI test was corrected.  Moderator: Collision with [R4-2509830]. Please check for merge. |
| R4-2509028 | CAICT | (NR\_perf\_enh-Perf) CR to 38.101-4 Rel-17 Cat-A for the Applicability of PMI test cases | Cat-A. |
| R4-2509029 | CAICT | (NR\_perf\_enh-Perf) CR to 38.101-4 Rel-18 Cat-A for the Applicability of PMI test cases | Cat-A. |
| [**R4-2509147**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509147.zip) | China Telecom | (NR\_perf\_enh-Perf) Correction on release independent rules for PMI and CA test requirements (R17 F) | Missing parts in the agreed R17 CR R4-2100789 are re-added. |
| R4-2509148 | China Telecom | (NR\_perf\_enh-Perf) Correction on release independent rules for PMI and CA test requirements (R18 A) | Cat-A. |
| R4-2509149 | China Telecom | (NR\_perf\_enh-Perf) Correction on release independent rules for PMI and CA test requirements (R19 A) | Cat-A. |
| [**R4-2509665**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509665.zip) | Rohde & Schwarz | (NR\_perf\_enh-Perf) Correction to K1 value for CA requirements | Update K1 value to {3} for TDD 30 kHz in FDD 15kHz + TDD 30kHz combination |
| R4-2509666 | Rohde & Schwarz | (NR\_perf\_enh-Perf) Correction to K1 value for CA requirements | Cat-A. |
| R4-2509667 | Rohde & Schwarz | (NR\_perf\_enh-Perf) Correction to K1 value for CA requirements | Cat-A. |
| [**R4-2509830**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509830.zip) | Keysight Technologies | (NR\_perf\_enh-Perf) Update on applicability of requirements for PMI 16 and 32Tx | Added entries in Table 6.1.1.3-1: Requirements applicability for optional features with UE capability signalling to ensure at least 16 or 32 ports per CSI-RS resource is advertised in codebookParameters via maxNumberTxPortsPerResource IE.  Added clarification for minimum number of ports per CSI-RS resource in PMI 16Tx Type II codebook.  Moderator: Collision with [R4-2509027]. Please check for merge. |
| R4-2509842 | Keysight Technologies UK Ltd | (NR\_perf\_enh-Perf) Update on applicability of requirements for PMI 16 and 32Tx (Rel17) | Cat-A. |
| R4-2509843 | Keysight Technologies UK Ltd | (NR\_perf\_enh-Perf) Update on applicability of requirements for PMI 16 and 32Tx (Rel18) | Cat-A. |
| [**R4-2510894**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2510894.zip) | Huawei, HiSilicon | CR on 38.101-4: Removal of CA performance requirements for 5MHz/30kHz | Remove all requirements for 5MHz/30kHz SCS.  Moderator: Wrongly marked as RAN instead of ME. Only to correct if revised in any case. |

# Topic #4: NR\_demod\_enh2 (AI 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** |
| [**R4-2509150**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509150.zip) | China Telecom | Discussion on UE MMSE-IRC receiver feature update | ***Observation 1:*** *In the Rel-17 WI NR\_demod\_enh2-Perf, RAN4 has defined PDSCH requirements with ICI/IUI interference with additional rule that ‘optional only for Rel-15 and Rel-16 UEs based on declaration and mandatory for all Rel-17 and forward NR UEs’.*  ***Observation 2:*** *Based on the RAN4 input, RAN2 has also introduced Rel-15 and Rel-16 optional w/o signalling UE feature MMSE-IRC receiver as specified in TS38.306 and TR38.822.*  ***Observation 3:*** *The requirements under interference scenarios are completely bundled with the UE MMSE-IRC processing capability. From the specification point of view, a R15/R16 UE can skip tests with ICI/IUI interference, if it supports more advanced receiver, e.g., SU-MIMO R-ML receiver introduced in Rel-15.*  ***Proposal 1 (Preferred):*** *Decouple the R17 requirements with interference with the UE MMSE-IRC receiver capability in the NR spec. The R17 requirements with interference can be optional for R15/16 UEs and can be executed simply based on UE declaration.*  *Therefore, RAN4 needs to send LS to RAN2 to:*   * *Update the existing UE feature list TR38.822 as below:*  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Features | Index | Feature group | Components | Xxx | | 24. NR\_demod\_enh2-Perf | 24-6 | ~~MMSE-IRC receiver for~~ scenarios with inter-cell and intra-cell inter-user interference | Support of ~~MMSE-IRC processing for~~ scenarios with inter-cell and intra-cell inter-user interference | xxx |  * *Remove the MMSE-IRC receiver capability definition in the RAN2 TS38.306 v15.x and v16.x.*   ***Proposal 2:*** *If the proposal 1 cannot be accepted, add additional note in TS38.307 that the test requirements with interference are also applicable for R15/R16 UEs supporting SU-MIMO R-ML receiver.* |

## 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 4-1: Release independent interference features and MMSE IRC receivers

*Sub-topic description:*

See [R4-2509150] for a summary by the proponent of this issue, including quotes from other WGs.  
The proponent requests to agree the below and send an LS to RAN2.

*Open issues and candidate options before meeting:*

**Issue 4-1: Applicability of requirements with interference and UE MMSE-IRC capability**

* Proposals
  + Option 1 (China Telecom - Preferred):   
    Decouple the R17 requirements with interference with the UE MMSE-IRC receiver capability in the NR spec. The R17 requirements with interference can be optional for R15/16 UEs and can be executed simply based on UE declaration.   
    Therefore, RAN4 needs to **send LS to RAN2** to:  
    - Update the existing UE feature list TR38.822 as below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Features | Index | Feature group | Components | Xxx |
| 24. NR\_demod\_enh2-Perf | 24-6 | ~~MMSE-IRC receiver for~~ scenarios with inter-cell and intra-cell inter-user interference | Support of ~~MMSE-IRC processing for~~ scenarios with inter-cell and intra-cell inter-user interference | xxx |

- Remove the MMSE-IRC receiver capability definition in the RAN2 TS38.306 v15.x and v16.x.

* + Option 2 (China Telecom): If the proposal 1 cannot be accepted, add additional applicability note in TS38.101-4 that the test requirements with interference are also applicable for R15/R16 UEs supporting SU-MIMO R-ML receiver.
* Recommended WF
  + Discuss early in the meeting and request LS, if corresponding agreement is reached.

# Topic #5: NR\_FR1\_35MHz\_45MHz\_BW (AI 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** |
| [**R4-2509828**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2509828.zip) | Keysight Technologies | (NR\_FR1\_35MHz\_45MHz\_BW-Perf) Addition of 35MHz CBW on aggregation level and number of candidates for SDR test parameters | Updated aggregation level and number of cadidates for considering CBW 35 MHz in Rel-17 and onwards |
| R4-2509829 | Keysight Technologies UK Ltd | (NR\_FR1\_35MHz\_45MHz\_BW-Perf) Addition of 35MHz CBW on aggregation level and number of candidates for SDR test parameters (Rel18) | Cat-A. |

# Topic #5: NR\_HST\_FR1\_enh (AI 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** |
| R4-2510432 | Samsung | CR on PDSCH Requirements for 4Rx HST CA | Cat-A. |
| [**R4-2510842**](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_116/Docs/R4-2510842.zip) | Samsung | CR on PDSCH Requirements for 4Rx HST CA | In Table 5.2A.3.4-5, the table number 5.2A.3.14-3 is wrong, should be replaced by 5.2A.3.4-3. In Table 5.2A.3.5-8, the second test number should be 2-2 instead of 2-1. |

# 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-17 maintenance for LTE and NR (4.5)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Rel-16/17 TEI and others (EMC, OTA, and TRP/TRS) (demod relevant only) (4.6)** | | |
| **T-doc Number** | **Status** | **Comments (optional)** |
| None | - | - |