3GPP TSG-RAN WG4 Meeting # 101bis-e R4-22xxxxx

**Electronic Meeting, Jan 17th - 25th, 2022**

**Source: RAN4 vice chair (Samsung)**

**Title:** **RAN4#101-bis-e BSRF\_Test\_Demod Session Chair notes**

**Agenda Item:** **2**

**Document for:** **Information**

## 4 Rel-17 feature list

## 5 Rel-17 spectrum related WIs for NR

### 5.4 Introduction of 900 MHz spectrum to 5G NR applicable for Rail Mobile Radio

#### 5.4.3 BS RF requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][311] RAIL\_900\_1900MHz\_BSRF, AI 5.4.3, 5.5.3– Michal Szydelko**

**R4-2202953 Email discussion summary for [101-bis-e][311] RAIL\_900\_1900MHz\_BSRF**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203095 (from R4-2202953).**

**R4-2203095 Email discussion summary for [101-bis-e][311] RAIL\_900\_1900MHz\_BSRF**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203062 WF on remaining aspects for BS RF requirements for RMR 900/1900**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203062 | WF on remaining aspects for BS RF requirements for RMR 900/1900 | Ericsson | Approved |  |
| [R4-2202026](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202026.zip) | Draft CR to TS 37.145-1: RMR implementation | Huawei | Endorsed |  |
| [R4-2202027](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202027.zip) | Draft CR to TS 37.145-2: RMR implementation | Huawei | Endorsed |  |
| [R4-2201806](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201806.zip) | draft CR to TS 38.104: consideration of regional requirements for RMR900 | Huawei | Not pursued |  |
| [R4-2202004](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202004.zip) | draft CR to 38.104 on introduction of n101 (system parameters) | Nokia, Nokia Shanghai Bell | Not pursued |  |
| [R4-2201997](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201997.zip) | draft CR to 37.104 on introduction of n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Not pursued |  |
| [R4-2202000](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2202000.zip) | draft CR to 37.141 on introduction of n101 co-existence requirements | Nokia, Nokia Shanghai Bell | Not pursued |  |
| R4-2203125 | Draft CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction | Ericsson | Approved |  |
| R4-2203126 | Draft CR to TS 36.104: RMR 900MHz and 1900MHz bands  introduction | Ericsson | Approved |  |
| R4-2203127 | Draft CR to TS 36.141: RMR 900MHz and 1900MHz bands  introduction | Ericsson | Approved |  |
| R4-2203052 | TR\_38.852\_changes\_clause 9 | Union Inter. Chemins de Fer | Approved |  |
| R4-2203053 | TR\_38.853\_changes\_clause 9 | Union Inter. Chemins de Fer | Approved |  |
| R4-2203054 | Cross-check on the implementation of ECC Decision (20)02 for RMR900 | Huawei | Approved |  |
| R4-2203055 | Draft CR to TS 38.104: RX requirements | Huawei | Endorsed |  |
| R4-2203056 | TP to TR 38.853: BS RF requirements | Huawei | Approved |  |
| R4-2203057 | Draft CR to TS 37.105: RMR implementation | Huawei | Endorsed |  |
| R4-2203058 | TP to TR 38.852: BS RF requirements | Huawei | Approved |  |
| R4-2203059 | draft CR to 37.104 on introduction of n100 co-existence requirements | Nokia, Nokia Shanghai Bell | Endorsed | Title to be update to cover both n100 and n101; sync with MCC |
| R4-2203060 | draft CR to 37.141 on introduction of n100 co-existence requirements | Nokia, Nokia Shanghai Bell | Endorsed | Title to be update to cover both n100 and n101; sync with MCC |
| R4-2203061 | draft CR to 38.104 on introduction of n100 (system parameters) | Nokia, Nokia Shanghai Bell | Endorsed | Title to be update to cover both n100 and n101; sync with MCC |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201805 Cross-check on the implementation of ECC Decision (20)02 for RMR900**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we analyse progress on translation of the ECC decision (20)02 [1] into RAN4 BS RF requirements for RMR900, and provide further proposals on the remaining issues identified after analysis of the ECC (20)02 regulations.

Session Chair Note： Move to this AI from AI 5.4.1

**Decision: Revised to R4-2203054 (from R4-2201805).**

**R4-2203054 Cross-check on the implementation of ECC Decision (20)02 for RMR900**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we analyse progress on translation of the ECC decision (20)02 [1] into RAN4 BS RF requirements for RMR900, and provide further proposals on the remaining issues identified after analysis of the ECC (20)02 regulations.

Session Chair Note： Move to this AI from AI 5.4.1

**Decision: Approved.**

**R4-2201806 draft CR to TS 38.104: consideration of regional requirements for RMR900**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Based on the related discussion paper, it was identified that certain aspects of the ECC (20)02 regulation for RMR900 are not properly reflected.

Specifically, the OOB limits specified in ECC (20)02 table 5 are subject to the follwing note: “on a case-by

Session Chair Note： Move to this AI from AI 5.4.1

**Decision: Not pursued.**

**R4-2201324 RMR 900 MHz - BS RF**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issues related to BS RF requirements when introducing the new RMR 900MHz band

**Decision: Noted.**

**R4-2201325 Draft CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 38.141-2 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203049 (from R4-2201325).**

**R4-2203049 Draft CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 38.141-2 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203125 (from R4-2203049).**

**R4-2203125 Draft CR to TS 38.141-2: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 38.141-2 introducing support for the new RMR 900MHz band

**Decision: Endorsed.**

**R4-2201326 Draft CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.104 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203050 (from R4-2201326).**

**R4-2203050 Draft CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.104 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203126 (from R4-2203050).**

**R4-2203126 Draft CR to TS 36.104: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.104 introducing support for the new RMR 900MHz band

**Decision: Endorsed.**

**R4-2201327 Draft CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.141 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203051 (from R4-2201327).**

**R4-2203051 Draft CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.141 introducing support for the new RMR 900MHz band

**Decision: Revised to R4-2203127 (from R4-2203051).**

**R4-2203127 Draft CR to TS 36.141: RMR 900MHz and 1900MHz bands introduction**

*Type: draftCR For: Endorsement  
 36.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This a draft CR to TS 36.141 introducing support for the new RMR 900MHz band

**Decision: Endorsed.**

**R4-2201807 Remaining aspects for BS RF requirements for RMR900**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we provide discussion on the remaining issues for the RMR900-specific BS RF requirements.

**Decision: Noted.**

**R4-2201808 Draft CR to TS 38.104: RX requirements**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 38.104: implementation of RMR900 and RMR1900 bands

**Decision: Revised to R4-2203055 (from R4-2201808).**

**R4-2203055 Draft CR to TS 38.104: RX requirements**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 38.104: implementation of RMR900 and RMR1900 bands

**Decision: Endorsed.**

**R4-2201809 TP to TR 38.853: BS RF requirements**

*Type: pCR For: Approval  
 38.853 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TR 38.853: BS RF requirements

**Decision: Revised to R4-2203056 (from R4-2201809).**

**R4-2203056 TP to TR 38.853: BS RF requirements**

*Type: pCR For: Approval  
 38.853 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TR 38.853: BS RF requirements

**Decision: Approved.**

**R4-2201810 Draft CR to TS 37.105: RMR implementation**

*Type: draftCR For: Endorsement  
 37.105 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 37.105: implementation of RMR900 and RMR1900 bands

**Decision: Revised to R4-2203057 (from R4-2201810).**

**R4-2203057 Draft CR to TS 37.105: RMR implementation**

*Type: draftCR For: Endorsement  
 37.105 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 37.105: implementation of RMR900 and RMR1900 bands

**Decision: Endorsed.**

**R4-2201996 draft CR to 37.104 on introduction of n100 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2203059 (from R4-2201996).**

**R4-2203059 draft CR to 37.104 on introduction of n100 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Endorsed.**

**R4-2202003 draft CR to 38.104 on introduction of n100 (system parameters)**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2203061 (from R4-2202003).**

**R4-2203061 draft CR to 38.104 on introduction of n100 (system parameters)**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Endorsed.**

**R4-2202026 Draft CR to TS 37.145-1: RMR implementation**

*Type: draftCR For: Endorsement  
 37.145-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Implementation of RMR900 and RMR1900 co-location blocking to protect AAS BS receiver.

**Decision: Endorsed.**

**R4-2202027 Draft CR to TS 37.145-2: RMR implementation**

*Type: draftCR For: Endorsement  
 37.145-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Implementation of RMR900 and RMR1900 co-location blocking to protect AAS BS receiver.

**Decision: Endorsed.**

**R4-2201689 TR\_38.853\_changes\_clause 9**

*Type: pCR For: Approval  
 38.853 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Session Chair Note: Move to this AI from 5.4.4**

**Decision: Revised to R4-2203053 (from R4-2201689).**

**R4-2203053 TR\_38.853\_changes\_clause 9**

*Type: pCR For: Approval  
 38.853 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Session Chair Note: Move to this AI from 5.4.4**

**Decision: Approved.**

**R4-2201811 Consideration of coordinated/un-coordinated deployments for the RMR900 requirements in RAN4 specifications**

*Type: discussion For: Discussion  
 Sour22ce: Huawei*

**Abstract:**

In this contribution, we discuss aspects related to the coordinated/un-coordinated deployments considerations for RMR900 BS and related implications on RAN4 specifications. Related TP to TR 38.853 is attached for approval.

**Session Chair Note: Move to this AI from 5.4.4**

**Decision: Noted.**

**R4-2201999 draft CR to 37.141 on introduction of n100 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Session Chair Note: Move to this AI from 5.4.4**

**Decision: Revised to R4-2203060 (from R4-2201999).**

**R4-2203060 draft CR to 37.141 on introduction of n100 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Session Chair Note: Move to this AI from 5.4.4**

**Decision: Endorsed.**

### 5.5 Introduction of 1900 MHz spectrum to 5G NR applicable for Rail Mobile Radio

#### 5.5.3 BS RF requirements

**Refer to Email discussion for [101-bis-e][311] RAIL\_900\_1900MHz\_BSRF**

**R4-2201812 Cross-check on the implementation of ECC Decision (20)02 for RMR1900**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we analyse progress on translation of the ECC decision (20)02 [1] into RAN4 BS RF requirements for RMR1900.

Session Chair Note: Move to this AI from AI 5.5.1

**Decision: Noted.**

**R4-2201329 RMR 1900 MHz - BS RF**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issues related to BS RF requirements when introducing the new RMR 1900MHz band

**Decision: Noted.**

**R4-2201813 Remaining aspects for BS RF requirements for RMR1900**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we provide discussion on the remaining issues for the RMR1900-specific BS RF requirements.

**Decision: Noted.**

**R4-2201814 TP to TR 38.852: BS RF requirements**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TR 38.852: BS RF requirements

**Decision: Revised to R4-2203058 (from R4-2201814).**

**R4-2203058 TP to TR 38.852: BS RF requirements**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TR 38.852: BS RF requirements

**Decision: Approved.**

**R4-2201997 draft CR to 37.104 on introduction of n101 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued.**

**R4-2202004 draft CR to 38.104 on introduction of n101 (system parameters)**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued.**

**R4-2201686 TR\_38.852\_changes\_clause 9**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

Session Chair Note: Move to this AI from AI 5.5.4

**Decision: Revised to R4-2203052 (from R4-2201686).**

**R4-2203052 TR\_38.852\_changes\_clause 9**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

Session Chair Note: Move to this AI from AI 5.5.4

**Decision: Approved.**

**R4-2201815 Consideration of coordinated/un-coordinated deployments for the RMR1900 requirements in RAN4 specifications**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution, we discuss aspects related to the coordinated/un-coordinated deployments considerations for RMR1900 BS and related implications on RAN4 specifications. Related TP to TR 38.852 is attached for approval.

Session Chair Note: Move to this AI from AI 5.5.4

**Decision: Noted.**

**R4-2202000 draft CR to 37.141 on introduction of n101 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

Session Chair Note: Move to this AI from AI 5.5.4

**Decision: Not pursued.**

## 6 Rel-17 non-spectrum related work items for NR

### 6.1 Multiple Input Multiple Output (MIMO) Over-the-Air (OTA) requirements for NR UEs

#### 6.1.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][324] NR\_MIMO\_OTA, AI 6.1– Xuan Yi**

**R4-2202954 Email discussion summary for [101-bis-e][324] NR\_MIMO\_OTA**

*Type: other For: Information  
 Source: Moderator (CAICT)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203096 (from R4-2202954).**

**R4-2203096 Email discussion summary for [101-bis-e][324] NR\_MIMO\_OTA**

*Type: other For: Information  
 Source: Moderator (CAICT)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203063 WF on MIMO OTA**

*Type: other For: Approval  
 Source: vivo, CAICT*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203063 | WF on NR MIMO OTA | vivo, CAICT | Approved |  |
| R4-2203064 | TP to TS38.151 on FR1 Spatial Channel Model Validation | Spirent Communications | Approved |  |
| R4-2203066 | FR1 MIMO OTA Lab Alignment, Channel Model Validation | Apple | Noted |  |
| R4-2203067 | Framework for FR1 MIMO OTA lab alignment activity | CAICT | Approved |  |
| R4-2201676 | Reference Channel Emulation PDP for Validation Purposes for FR1 CDL-C UMa | CAICT, CMCC, Keysight Technologies, Spirent Communications | Withdrawn |  |
| R4-2203068 | Pass/Fail Limits for FR1 Channel Model Validation | Keysight Technologies UK Ltd | Noted |  |
| R4-2200778 | Summary results for FR2 MIMO OTA simulation | Qualcomm Incorporated | Noted |  |
| R4-2203065 | Discussion on preliminary MU assessment for FR2 MIMO OTA | Qualcomm Incorporated | Noted |  |
| R4-2203045 | Further results on FR1 channel model validation | Huawei, HiSilicon | Noted |  |
| R4-2203122 | Validation results and limits for FR1 CDL-C UMa channel model-v1 | Xiaomi | Noted |  |
| R4-2200780 | TP on TS 38.151 for test parameters of FR2 performance | Qualcomm Incorporated | Approved |  |
| R4-2200967 | TP to TS38.151 on FR2 maximum downlink power and test procedure | vivo | Approved |  |
| R4-2200968 | Proposal for MU budget of FR1 MIMO OTA | vivo | Approved |  |
| R4-2201920 | Illustration of Device Orientations for Select Test Points | Keysight Technologies UK Ltd | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200966 3GPP TS 38.151 v0.7.0**

*Type: draft TS For: Approval  
 38.151 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Email approval**

**R4-2200970 Discussion on framework for FR1 MIMO OTA performance**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2201920 Illustration of Device Orientations for Select Test Points**

*Type: pCR For: Approval  
 38.151 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Keysight Technologies UK Ltd*

**Decision: Approved.**

#### 6.1.2 Performance requirements

##### 6.1.2.1 Performance Requirements for FR1

**R4-2200572 On framework for PAD alignment of NR UE FR1 MIMO OTA**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2200576 FR1 MIMO OTA channel validation**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal1: Adopt PDP pass/fail limits as below table.

Proposal2: Define cross-polarization pass/fail limit as [±1dB].

Observation: Channel validation result are submitted for all listed items as one of Lab volunteers.

**Decision: Noted.**

**R4-2200969 Pass/Fail limit for FR1 MIMO OTA lab alignment activity**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2201282 Commercial devices preparation and data handling**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2201602 Framework for FR1 MIMO OTA lab alignment activity**

*Type: discussion For: (not specified)  
 Source: CAICT*

**Decision: Revised to R4-2203067 (from R4-2201602).**

**R4-2203067 Framework for FR1 MIMO OTA lab alignment activity**

*Type: discussion For: (not specified)  
 Source: CAICT*

**Decision: Approved.**

##### 6.1.2.2 Performance Requirements for FR2

**R4-2200580 FR2 MIMO OTA Simulation**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

We submit our FR2 MIMO OTA simulation result based on fundamental scenario for alignment.

**Decision: Noted.**

**R4-2200777 Discussion on FR2 MIMO OTA requirements**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2200778 Summary results for FR2 MIMO OTA simulation**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201441 Discussion FR2 MIMO OTA performance requirements**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

##### 6.1.2.3 MU assessment for FR1 and FR2

**R4-2200779 Discussion on preliminary MU assessment for FR2 MIMO OTA**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2203065 (from R4-2200779).**

**R4-2203065 Discussion on preliminary MU assessment for FR2 MIMO OTA**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2200968 Proposal for MU budget of FR1 MIMO OTA**

*Type: other For: Approval  
 Source: vivo*

**Decision: Approved.**

#### 6.1.3 Testing methodologies

##### 6.1.3.1 Testing parameters for Performance

**R4-2200780 TP on TS 38.151 for test parameters of FR2 performance**

*Type: pCR For: (not specified)  
 38.151 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

##### 6.1.3.2 Optimization of test methodologies

**R4-2200731 Max downlink power verification of MIMO OTA test system**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200967 TP to TS38.151 on FR2 maximum downlink power and test procedure**

*Type: pCR For: Approval  
 38.151 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Approved.**

##### 6.1.3.3 Channel model validation

**R4-2200409 TP to TS38.151 on FR1 Spatial Channel Model Validation**

*Type: other For: Approval  
 Source: Spirent Communications*

**Abstract:**

Based on the agreements in WF [1], the text proposals for updating the FR1 channel model validation annex of [2] is provided in this contribution.

**Decision: Revised to R4-2203064 (from R4-2200409).**

**R4-2203064 TP to TS38.151 on FR1 Spatial Channel Model Validation**

*Type: other For: Approval  
 Source: Spirent Communications*

**Abstract:**

Based on the agreements in WF [1], the text proposals for updating the FR1 channel model validation annex of [2] is provided in this contribution.

**Decision: Approved.**

**R4-2200573 Further results on FR1 channel model validation**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2203045 (from R4-2200573).**

**R4-2203045 Further results on FR1 channel model validation**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2200832 FR1 channel model validation results for CMCC & BUPT joint lab**

*Type: discussion For: Decision  
 Source: CMCC BUPT*

**Decision: Noted.**

**R4-2200906 FR1 MIMO OTA Lab Alignment, Channel Model Validation**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Revised to R4-2203066 (from R4-2200906).**

**R4-2203066 FR1 MIMO OTA Lab Alignment, Channel Model Validation**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2201494 Validation results and limits for FR1 CDL-C UMa channel model-v1**

*Type: discussion For: (not specified)  
 Source: Xiaomi*

**Decision: Revised to R4-2203122 (from R4-2201494).**

**R4-2203122 Validation results and limits for FR1 CDL-C UMa channel model-v1**

*Type: discussion For: (not specified)  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2201591 FR1 MIMO OTA channel model validation results and views on PDP pass/fail limits**

*Type: discussion For: (not specified)  
 Source: CAICT*

**Decision: Noted.**

**R4-2201676 Reference Channel Emulation PDP for Validation Purposes for FR1 CDL-C UMa**

*Type: discussion For: Approval  
 Source: CAICT, CMCC, Keysight Technologies, Spirent Communications*

**Decision: Withdrawn.**

**R4-2201919 Pass/Fail Limits for FR1 Channel Model Validation**

*Type: discussion For: Approval  
 Source: Keysight Technologies UK Ltd*

**Decision: Revised to R4-2203068 (from R4-2201919).**

**R4-2203068 Pass/Fail Limits for FR1 Channel Model Validation**

*Type: discussion For: Approval  
 Source: Keysight Technologies UK Ltd*

**Decision: Noted.**

### 6.2 Introduction of UE TRP (Total Radiated Power) and TRS (Total Radiated Sensitivity) requirements and test methodologies for FR1 (NR SA and EN-DC)

#### 6.2.1 General and work plan

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][325] FR1\_TRP\_TRS\_Part1, AI 6.2.1, 6.2.2.1, 6.2.2.2, 6.2.3– Ruixin Wang**

**R4-2202955 Email discussion summary for [101-bis-e][325] FR1\_TRP\_TRS\_Part1**

*Type: other For: Information  
 Source: Moderator (vivo)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203097 (from R4-2202955).**

**R4-2203097 Email discussion summary for [101-bis-e][325] FR1\_TRP\_TRS\_Part1**

*Type: other For: Information  
 Source: Moderator (vivo)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203076 WF on FR1 TRP TRS**

*Type: other For: Approval  
 Source: vivo*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203077 TP work split for TS 38.161 drafting**

*Type: other For: Approval  
 Source:* vivo, Huawei, CAICT, Xiaomi, Samsung

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| [R4-2200450](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200450.zip) | TP to TR 38.834 on P-MPR handling | Apple | Approved |  |
| R4-2203076 | WF on FR1 TRP TRS | vivo | Approved |  |
| R4-2203077 | TP work split for TS 38.161 drafting | vivo, Huawei, CAICT, Xiaomi, Samsung | Approved |  |
| [R4-2200733](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200733.zip) | TP to TR 38.834 on band parameters | Samsung | merged |  |
| [R4-2200935](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200935.zip) | TP to TR 38.834 on performance metrics | CAICT | Approved |  |
| R4-2200971 | 3GPP TS 38.161 v0.1.0 | vivo | For email approval |  |
| [R4-220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200972.zip)3071 | TP to TR 38.834 on SA TRP TRS test procedure | vivo, CAICT | Approved |  |
| [R4-220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200973.zip)3072 | Discussion and Text Proposals on EN-DC TRP TRS test procedure | vivo, CAICT | Approved |  |
| [R4-2200974](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200974.zip) | TP to TS 38.161 on requirement applicability | vivo | Approved |  |
| [R4-220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200975.zip)3073 | Discussion and Text Proposals on band parameters | vivo, CAICT | Approved |  |
| [R4-220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200976.zip)3074 | Working procedure for TRP TRS requirement development | vivo | Approved |  |
| [R4-220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200977.zip)3075 | TP to TR 38.834 on Phantom definition | vivo | Postponed |  |
| [R4-2200981](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200981.zip) | Updated workplan of TRP TRS WI | vivo | Approved |  |
| [R4-2201649](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201649.zip) | TP to TR 38.834 on skeleton for Annex B | ROHDE & SCHWARZ | Approved |  |
| R4-2202049 | TR 38.834 v0.3.0 | OPPO | For email approval |  |

------------------------------------------------------------------------------------------------------------------------------------------------

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][326] FR1\_TRP\_TRS\_Part2, AI 6.2.2.3, 6.2.2.4– Qifei Liu**

**R4-2202956 Email discussion summary for [101-bis-e][326] FR1\_TRP\_TRS\_Part2**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203098 (from R4-2202956).**

**R4-2203098 Email discussion summary for [101-bis-e][326] FR1\_TRP\_TRS\_Part2**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203070 WF on FR1 TRP TRS for UE with multi-antenna**

*Type: other For: Approval  
 Source: OPPO*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203070 | WF on FR1 TRP TRS for UE with multi-antenna | OPPO | Approved |  |
| R4-2203069 | TP to TR 38.834 on multi antenna | OPPO | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2202049 TR 38.834 v0.3.0**

*Type: draft TR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: OPPO*

**Decision:** For Email approval

**R4-2200732 Discussion on hand phantom handling in FR1 TRP TRS**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2200733 TP to TR 38.834 on band parameters**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Merged.**

**R4-2200971 3GPP TS 38.161 v0.1.0**

*Type: draft TS For: Approval  
 38.161 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision:** For email approval

**R4-2200975 Discussion and Text Proposals on band parameters**

*Type: other For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Revised to R4-2203073 (from R4-2200975).**

**R4-2203073 Discussion and Text Proposals on band parameters**

*Type: other For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Approved.**

**R4-2200977 TP to TR 38.834 on Phantom definition**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Revised to R4-2203075 (from R4-2200977).**

**R4-2203075 TP to TR 38.834 on Phantom definition**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Postponed.**

**R4-2200981 Updated workplan of TRP TRS WI**

*Type: Work Plan For: Approval  
 Source: vivo*

**Decision: Approved.**

**R4-2201285 TP to TR 38.834 on multi antenna**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: OPPO*

**Decision: Revised to R4-2203069 (from R4-2201285).**

**R4-2203069 TP to TR 38.834 on multi antenna**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: OPPO*

**Decision: Approved.**

**R4-2201606 Progress on MU and recommendations from RAN5#93-e**

*Type: discussion For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: ROHDE & SCHWARZ*

**Abstract:**

This contribution provides a brief summary of the MU progress in RAN5, together with some recommendations to RAN4 work identified during the discussion.

**Decision: Noted.**

**R4-2201649 TP to TR 38.834 on skeleton for Annex B**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: ROHDE & SCHWARZ*

**Abstract:**

This contribution provides the Text Proposal endorsed by RAN5 during RAN5#93-e on the structure of Annex B of TR 38.834 which will contain the MU estimation.

**Decision: Approved.**

#### 6.2.2 Test methodology

**R4-2200935 TP to TR 38.834 on performance metrics**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: CAICT*

**Abstract:**

This paper further refines the text proposal on performance metrics.

**Decision: Approved.**

##### 6.2.2.1 SA test methodology

**R4-2200450 TP to TR 38.834 on P-MPR handling**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Approved.**

**R4-2200972 TP to TR 38.834 on SA TRP TRS test procedure**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo, CAICT*

**Decision: Revised to R4-2203071 (from R4-2200972).**

**R4-2203071 TP to TR 38.834 on SA TRP TRS test procedure**

*Type: pCR For: Approval  
 38.834 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo, CAICT*

**Decision: Approved.**

##### 6.2.2.2 EN-DC test methodology

**R4-2200449 Views on EN-DC methodology**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200574 on remaining details of EN-DC TRP test configuration**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2200734 Discussion on ENDC power splitting for TRS**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200785 Discussion on EN-DC test methodology**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2200973 Discussion and Text Proposals on EN-DC TRP TRS test procedure**

*Type: other For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: vivo, CAICT*

**Decision: Revised to R4-2203072 (from R4-2200973).**

**R4-2203072 Discussion and Text Proposals on EN-DC TRP TRS test procedure**

*Type: other For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: vivo, CAICT*

**Decision: Approved.**

**R4-2201495 On EN-DC power split for TRS**

*Type: discussion For: (not specified)  
 Source: Xiaomi*

**Decision: Noted.**

##### 6.2.2.3 UE with multiple antennas test methodology

**R4-2200786 Discussion on TAS ON test methodology**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201284 On the influence factors of Tx antenna switch**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2201286 Consideration on Tx Diversity**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

##### 6.2.2.4 Test time reduction

**R4-2200980 Discussion on alternative test method for TRP TRS testing time reduction**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

#### 6.2.3 Performance requirements

**R4-2201283 On hand phantom selection for Rel-17 requirement**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

##### 6.2.3.1 Framework for lab alignment and requirements

**R4-2200448 Further views on manufacturing tolerances**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200575 On framework for NR UE TRP/TRS lab alignment and requirements**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2200976 Working procedure for TRP TRS requirement development**

*Type: other For: Approval  
 Source: vivo*

**Decision: Revised to R4-2203074 (from R4-2200976).**

**R4-2203074 Working procedure for TRP TRS requirement development**

*Type: other For: Approval  
 Source: vivo*

**Decision: Approved.**

##### 6.2.3.2 SA requirements

**R4-2200974 TP to TS 38.161 on requirement applicability**

*Type: pCR For: Approval  
 38.161 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Approved.**

##### 6.2.3.3 EN-DC requirements

### 6.5 NR repeater

#### 6.5.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][301] NR\_Repeater\_General, AI 6.5.1– Valentin Gheorghiu**

**R4-2202957 Email discussion summary for [101-bis-e][301] NR\_Repeater\_General**

*Type: other For: Information  
 Source: Moderator (Qualcom)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203099 (from R4-2202957).**

**R4-2203099 Email discussion summary for [101-bis-e][301] NR\_Repeater\_General**

*Type: other For: Information  
 Source: Moderator (Qualcom)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203021 WF on System Parameters**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203022 WF on TDD Repeater Switching**

*Type: other For: Approval  
 Source: Qualcomm*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203023 WF on Repeater Specifications**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2103021 | WF on System Parameters | Qualcomm | Approved |  |
| R4-2103022 | WF on TDD Repeater Switching | Ericsson | Approved |  |
| R4-2103023 | WF on Repeater Specifications | Nokia | Approved |  |
| R4-2203046 | TP for TS 38.106:Clause 4 general | CATT | Endorsed |  |
| R4-2203047 | TP for TS 38.106:Clause 5 operating bands | CATT | Endorsed |  |
| R4-2203048 | TP for TS 38.106:ON OFF mask | CATT | Postponed |  |

------------------------------------------------------------------------------------------------------------------------------------------------

##### 6.5.1.1 System parameters

**R4-2200086 TP for TS 38.106:Clause 4 general**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203046 (from R4-2200086).**

**R4-2203046 TP for TS 38.106:Clause 4 general**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200087 TP for TS 38.106:Clause 5 operating bands**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203047 (from R4-2200087).**

**R4-2203047 TP for TS 38.106:Clause 5 operating bands**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200089 Discussion of co-location requirements for multi-band repeaters**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200818 Discussion on co-located requirements for FR1 NR repeater**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2201289 Discussion on co-location requirement for multi-band repeaters**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

##### 6.5.1.2 Repeater Class/Type

##### 6.5.1.3 TDD repeater switching requirements

**R4-2200090 Discussion of TDD switching requirements**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200091 TP for TS 38.106:ON OFF mask**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203048 (from R4-2200091).**

**R4-2203048 TP for TS 38.106:ON OFF mask**

*Type: pCR For: Approval  
 38.106 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Postponed.**

**R4-2200821 Discussion on switching requirements**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2201290 Discussion on repeater switching requirement and power transients**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201526 Repeaters TDD aspects**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Remaining aspects for TDD switching

**Decision: Noted.**

**R4-2201544 Discussion on repeater switching requirements**

*Type: other For: Approval  
 Source: NEC*

**Decision: Noted.**

**R4-2201656 TDD repeater switching requirements**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

##### 6.5.1.4 Others

**R4-2200088 Proposal to remove Annex A from the core spec**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2201529 Draft TP to TS 38.106: Frequency stability and out of band gain requirements**

*Type: pCR For: Approval  
 38.106 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft spec text according to work split

**Decision: Postponed.**

**R4-2201657 Reference points and regional requirements for NR repeaters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201932 Repeater OTA declarations and specification points**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss how to specify the repeater OTA interface

**Decision: Noted.**

#### 6.5.2 Conductive RF core requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][302] NR\_Repeater\_RF\_Part1, AI 6.5.2– Chunxia Guo**

**R4-2202958 Email discussion summary for [101-bis-e][302] NR\_Repeater\_RF\_Part1**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203100 (from R4-2202958).**

**R4-2203100 Email discussion summary for [101-bis-e][302] NR\_Repeater\_RF\_Part1**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203024 WF on OOB gain and ACRR requirement for FR1**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203025 WF on NF equivalent requirement for FR1**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203026 WF on other conducted requirements**

*Type: other For: Approval  
 Source: CMCC*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| [R4-2201930](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201930.zip) | TP to TS 38.106 6.1 and 6.2 | Huawei | Not pursued |  |
| R4-2201654 | TP to TS 38.106 clause 6.5 Unwanted emissions conducted | Nokia, Nokia Shanghai Bell | Not pursued |  |
| R4-2200825 | TP to TS 38.106 conducted EVM and input IMD | CMCC | Not pursued |  |
| R4-2203024 | WF on OOB gain and ACRR requirement for FR1 | Ericsson | Approved |  |
| R4-2203025 | WF on NF equivalent requirement for FR1 | Nokia | Approved |  |
| R4-2203026 | WF on other conducted requirements | CMCC | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201930 TP to TS 38.106 6.1 and 6.2**

*Type: pCR For: Approval  
 38.106 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TS for allocated conducted section 6.1 general and 6.2 repeater output power

**Decision: Not pursued.**

##### 6.5.2.1 Transmitted power related requirements

**R4-2200178 Views on the requirements to avoid interference of NR repeater for UL**

*Type: other For: Approval  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2200822 Discussion on repeater power related conducted requirements**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2201459 Further discussions on power related requirements for conducted repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201532 Repeater conducted power requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Open issues for power requirements

**Decision: Noted.**

**R4-2201658 Conducted power related requirements consideration for NR-Repeaters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

##### 6.5.2.2 Emission requirements

**R4-2200092 Discussion of remaining issues for FR1 emission requirements**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200823 Discussion on repeater emission related conducted requirements**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2201460 Further discussions on emission related requirements for conducted repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201528 Repeater conducted emissions requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Open issues for emissions requirements

**Decision: Noted.**

**R4-2201654 TP to TS 38.106 clause 6.5 Unwanted emissions conducted**

*Type: pCR For: Approval  
 38.106 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued.**

**R4-2201660 Repeater conducted unwanted emissions**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201933 Repeater FR1 OOB gain and ACRR**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss list of assumptions in the WF for calculating OOB gain and ACRR requirements for FR1

**Decision: Noted.**

**R4-2201935 FR1 inband passband OBUE requirements and NF requirements**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss inband OBUE requirement and their similarity with NF requirements.

**Decision: Noted.**

##### 6.5.2.3 Others

**R4-2200093 Discussion of out of band gain and ACRR requirements for FR1**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200819 Discussion on other RF conducted requirements for NR repeater**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2200825 TP to TS 38.106 conducted EVM and input IMD**

*Type: pCR For: Approval  
 38.106 v0.0.0 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Not pursued.**

**R4-2201461 Further discussions on other requirements of conducted repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201527 Repeater conducted requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Open issues for ACRR, OOB gain requirement

**Decision: Noted.**

**R4-2201661 Low-power EVM and OOB gain considerations for FR1 NR Repeaters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201934 Discuss repeater co-location requirements**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss co-location with BS and/or repeaters as discuss din WF from last meeting

**Decision: Noted.**

#### 6.5.3 Radiated RF core requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][303] NR\_Repeater\_RF\_Part2, AI 6.5.3– Richard Kybett**

**R4-2202959 Email discussion summary for [101-bis-e][303] NR\_Repeater\_RF\_Part2**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203101 (from R4-2202959).**

**R4-2203101 Email discussion summary for [101-bis-e][303] NR\_Repeater\_RF\_Part2**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203027 WF on NR Repeater radiated requirements**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**GTW discussion on Jan 20th**

**-------------Radiated RF requirements ----------------**

**Sub-topic 2-4 – OOB gain**

**Issue 2-4-2: OOB gain value for DL**

Agreement:

Frequency offset value:

-Option 1: Resuing existing BS FR2 OBUE frequency offset (Nokia, Huawei, ZTE)

-Option 2: Half of minimum CHBW supported by bands i.e. 25MHz (CMCC, Pivotal)

FFS whether OOB gain need to be specified for below the frequency offset with relaxed value

**Issue 2-4-3: OOB gain UL**

Agreement:

OOB gain requirement will be specified for FR2 UL.

**Sub-topic 2-5 – ACRR**

**Issue 2-5-1: ACRR and ACLR**

Agreement:

Take same approach as FR1, define both ACLR and ACRR core requirements.

* Detailed test case(s) can be further discussed and decided in conformance phase.

**Issue 2-5-2: DL ACRR value**

Agreement:

Set ACRR equal to ACLR for FR2 as baseline assumption.

**Final Conclusion**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203027 | WF on NR Repeater radiated requirements | Huawei | Approved |  |
| R4-2200826 | TP to TS 38.106 radiated EVM and input IMD | CMCC | Postponed | All TP’s noted, return to next meeting |
| R4-2201655 | TP to TS 38.106 clause 7.5 Unwanted emissions radiated | Nokia, Nokia Shanghai Bell | Postponed | All TP’s noted, return to next meeting |
| R4-2201931 | TP to TS 38.106 9.1and 9.2 | Huawei | Postponed | All TP’s noted, return to next meeting |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201931 TP to TS 38.106 9.1and 9.2**

*Type: pCR For: Approval  
 38.106 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

TP to TS for allocated radiated section 9.1 general and 9.2 repeater output power

**Decision: Postponed.**

##### 6.5.3.1 Transmitted power related requirements

**R4-2201462 Further discussions on power related requirements for conducted repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201659 Radiated power related requirements consideration for NR-Repeaters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

##### 6.5.3.2 Emission requirements

**R4-2200824 Discussion on repeater emission related radiated requirements**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2201463 Further discussions on emission related requirements for radiated repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201531 Repeaters radiated emissions requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Open issues for power requirement

**Decision: Noted.**

**R4-2201655 TP to TS 38.106 clause 7.5 Unwanted emissions radiated**

*Type: pCR For: Approval  
 38.106 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Postponed.**

**R4-2201662 Repeater radiated unwanted emissions**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201936 FR2 inside passband OBUE requirement and NF**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the inband OBUE and noise figure requirements for the FR2 repeater

**Decision: Noted.**

**R4-2201937 Repeater FR2 OOB gain and ACRR**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss list of assumptions in the WF for calculating OOB gain and ACRR requirements for FR2

**Decision: Noted.**

##### 6.5.3.3 Others

**R4-2200094 Discussion of out of band gain and ACRR requirements for FR2**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200820 Discussion on other RF radiated requirements for NR repeater**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2200826 TP to TS 38.106 radiated EVM and input IMD**

*Type: pCR For: Approval  
 38.106 v0.0.0 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Postponed.**

**R4-2201464 Further discussions on other requirements of radiated repeater**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201530 Repeaters radiated requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Propoals for other radiated requirements

**Decision: Noted.**

**R4-2201663 Signal quality and OOB gain considerations for FR2 NR Repeaters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201938 FR2 input IM requirements**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the FR2 input IM signals and levels.

**Decision: Noted.**

#### 6.5.4 EMC core requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][304] NR\_Repeater\_EMC, AI 6.5.4– Wubin Zhou**

**R4-2202960 Email discussion summary for [101-bis-e][304] NR\_Repeater\_EMC**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203102 (from R4-2202960).**

**R4-2203102 Email discussion summary for [101-bis-e][304] NR\_Repeater\_EMC**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2202987 WF on NR repeater EMC testing**

*Type: other For: Approval  
 Source: ZTE*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2202987 | WF on NR repeater EMC testing | ZTE | Noted |  |
| R4-2202986 | TP to TS38.114: References | ZTE | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200696 Discussion on test conditions and performance assessment for NR repeater EMC tests**

*Type: discussion For: (not specified)  
 Source: ZTE*

**Abstract:**

In this document, we give some initial discussion on some test issue for different type NR repeaters EMC based on some agreements of RF requirements.

**Decision: Noted.**

**R4-2200697 TP to TS38.114: References**

*Type: pCR For: Approval  
 38.114 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE*

**Abstract:**

In this contribution, we provide a TP to TS38.114 for the Reference issue based on TS38.114V0.1.0.

**Decision: Revised to R4-2202986 (from R4-2200697).**

**R4-2202986 TP to TS38.114: References**

*Type: pCR For: Approval  
 38.114 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE*

**Abstract:**

In this contribution, we provide a TP to TS38.114 for the Reference issue based on TS38.114V0.1.0.

**Decision: Approved.**

**R4-2200730 TS38.114V0.2.0 to capture RAN4#101-bis agreements**

*Type: draft TS For: Approval  
 38.114 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE*

**Abstract:**

[Email Approval] To reflect the approved TP into TS 38.114 v0.2.0.

**Decision: Email Approval**

### 6.6 Introduction of DL 1024QAM for NR FR1

#### 6.6.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][305] NR\_DL1024QAM\_RF, AI 6.6.1,6.6.2,6.6.3,6.6.4– Thomas Chapman**

**R4-2202961 Email discussion summary for [101-bis-e][305] NR\_DL1024QAM\_RF**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203103 (from R4-2202961).**

**R4-2203103 Email discussion summary for [101-bis-e][305] NR\_DL1024QAM\_RF**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2202996 | Draft CR to TS 38.141-1: Introduction of 1024 QAM in FR1 | ZTE | Endorsed |  |
| R4-2202998 | draft CR to TS 38.141-2: Introduction of 1024 QAM in FR1 | Ericsson | Endorsed |  |
| R4-2202995 | Draft CR for 37.145-1 on BS RF conformance testing for 1024QAM  for NR FR1 | CATT | Endorsed |  |
| R4-2202999 | Draft CR to TS 37.145-2 with 1024QAM introduction | Nokia | Endorsed |  |
| R4-2203000 | Draft CR for 37.141 on BS RF conformance testing for 1024QAM  for NR FR1 | CATT | Endorsed |  |

------------------------------------------------------------------------------------------------------------------------------------------------

#### 6.6.2 UE RF requirements maintenance

#### 6.6.3 BS TX RF requirements maintenance

#### 6.6.4 BS RF conformance testing

**R4-2203000 Draft CR for 37.141 on BS RF conformance testing for 1024QAM for NR FR1**

*Type: draftCR For: Endorsement  
 37.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200134 Discussion on BS RF conformance testing for 1024QAM for NR FR1**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200135 Draft CR for 37.145-1 on BS RF conformance testing for 1024QAM for NR FR1**

*Type: draftCR For: Endorsement  
 37.145-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2202995 (from R4-2200135).**

**R4-2202995 Draft CR for 37.145-1 on BS RF conformance testing for 1024QAM for NR FR1**

*Type: draftCR For: Endorsement  
 37.145-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2201458 Draft CR to TS 38.141-1: Introduction of 1024 QAM in FR1**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2202996 (from R4-2201458).**

**R4-2202996 Draft CR to TS 38.141-1: Introduction of 1024 QAM in FR1**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2201489 CR to TS 38.141-2: Introduction of 1024 QAM in FR1**

*Type: CR For: Endorsement  
 38.141-2 v17.4.0 CR-0380 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Based upon agreed worksplit: R4-2106121. With inputs from WF on 1024 QAM conformance testsing (R4-2120659)

**Decision: Not pursued.**

**R4-2202998 draftCR to TS 38.141-2: Introduction of 1024 QAM in FR1**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR-X rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Based upon agreed worksplit: R4-2106121. With inputs from WF on 1024 QAM conformance testsing (R4-2120659)

**Decision: Endorsed.**

**R4-2201514 Test procedure for support of 1024QAM**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201664 On 1024QAM for NR BS conformance tests**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201665 Draft CR to TS 37.145-2 with 1024QAM introduction**

*Type: draftCR For: Approval  
 37.145-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2202999 (from R4-2201665).**

**R4-2202999 Draft CR to TS 37.145-2 with 1024QAM introduction**

*Type: draftCR For: Approval  
 37.145-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Endorsed.**

#### 6.6.5 Demodulation and CSI requirements

##### 6.6.5.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][312] NR\_DL1024QAM\_Demod\_NWM, AI 6.6.5– Jiakai Shi**

**R4-2202962 Email discussion summary for [101-bis-e][312] NR\_DL1024QAM\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203104 (from R4-2202962).**

**R4-2203104 Email discussion summary for [101-bis-e][312] NR\_DL1024QAM\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203044 Way forward for NR DL1024QAM demodulation and CQI reporting requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203044 | Way forward for NR DL1024QAM demodulation and CQI reporting requirements | Ericsson | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201427 Summary of PDSCH simulation results for DL 1024QAM in FR1**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This spread sheet summarizes the simulation results of PDSCH demodulation with DL 1024QAM.

**Decision: Noted.**

**R4-2201719 Simulation Results and views on 1024QAM FR1 UE Demod Tests**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

##### 6.6.5.2 PDSCH requirements

**R4-2200265 Discussion on PDSCH demod requirements with 1KQAM**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200376 Discussion on the PDSCH requirements for 1024QAM**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2201011 Discussion and simulation results on 1024QAM PDSCH**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201428 UE demodulation requirements for DL 1024QAM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issue of UE demodulation requirements for DL 1024QAM WI.

**Decision: Revised to R4-2202980 (from R4-2201428).**

**R4-2202980 UE demodulation requirements for DL 1024QAM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issue of UE demodulation requirements for DL 1024QAM WI.

**Decision: Noted.**

**R4-2201783 Discussion on PDSCH requirements for DL 1024QAM in FR1**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

##### 6.6.5.3 SDR requirements

**R4-2200266 Discussion on SDR requirements with 1KQAM**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2201012 Discussion and simulation results on 1024QAM SDR**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201429 SDR requirements for DL 1024QAM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues on SDR for DL 1024QAM.

**Decision: Noted.**

**R4-2201784 Discussion on SDR requirements for DL 1024QAM in FR1**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

##### 6.6.5.4 CQI requirements

**R4-2201013 Discussion and simulation results on 1024QAM CSI**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201430 CQI reporting requirements for DL 1024QAM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues of CQI reporting requirements for DL 1024QAM.

**Decision: Noted.**

### 6.8 Enhancement for NR high speed train scenario in FR1

#### 6.8.3 UE demodulation requirements (38.101-4)

##### 6.8.3.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][313] NR\_HST\_FR1\_Demod, AI 6.8.3– Xiaoran Zhang**

**R4-2202963 Email discussion summary for [101-bis-e][313] NR\_HST\_FR1\_Demod**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203105 (from R4-2202963).**

**R4-2203105 Email discussion summary for [101-bis-e][313] NR\_HST\_FR1\_Demod**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**GTW discussion on Jan 19th**

**Issue 1-1: UE capability for HST-SFN CA**

* + Option 1 (DOCOMO): define a new UE capability to indicate the support of HST-SFN CA
    - 1a (CMCC, Intel, Ericsson): the granularity of the capability is a per-UE
    - 1b (ZTE, Huawei, Qualcomm, Apple): the granularity of the capability is per band combination/feature set

Agreement: Introduce a new capability for supporting HST-SFN CA in FR1

* The granularity: [per band combination]

**Issue 1-2: UE feature list for FR1 HST demodulation**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Index | Feature group | Components | Prerequisite feature groups | Need for the gNB to know if the feature is supported | Applicable to the capability signalling exchange between UEs (V2X WI only)”. | Consequence if the feature is not supported by the UE | Type | Need of FDD/TDD differentiation | Need of FR1/FR2 differentiation | Capability interpretation for mixture of FDD/TDD and/or FR1/FR2 | Note | Mandatory/Optional |
| x-3 | Support of enhanced Demodulation requirements for CA in HST SFN FR1 | 1) Support of demodulation processing for HST SFN CA scenario in FR1 | [Rel-16 RAN4 feature 10-2] | Yes | No | UE is not able to apply demodulation processing for HST SFN CA scenario in FR1 | [per band combination] | No | FR1 only | N/A |  | Optional with capability signalling |

**Issue 1-4: Network assisted signalling**

**Agreement**

* + No need to define new HST-SFN CA network assistance signaling from RAN4 perspective
  + Send LS to RAN2 to inform that Rel-16 signaling already covers SFN demodulation CA case and new feature is defined for Rel-17 for SFN demodulation CA that is different from Rel-16.

|  |
| --- |
| Suggested wording of the LS to RAN2   * RAN4 notices that the IE *highSpeedDemodFlag-r16* is signalled per serving cell basis in both *ServingCellConfigCommonSIB* and *ServingCellConfigCommon*, however the Rel-16 HST WI only considers single carrier scenario. The enhancement of CA requirements is under discussion in Rel-17 NR FR1 HST, and RAN4 agreed that network needs to inform UE whether to apply the enhanced PDSCH requirements for CA specified in TS38.101-4. The signalling design is up to RAN2 |

**Issue 1-3: Release independent**

Agreement*:*

* HST-DPS CA requirements are release independent from Rel-15
* For Rel-17 FR1 HST PDSCH SFN CA demodulation requirements
  + Option 1: Applicable from Rel-17
  + Option 2: Aligned with RRM agreement
  + Option 3: Release independent from Rel-15 /16

**R4-2202984 LS on network assisted signaling for FR1 HST CA demodulation**

*Type: LS out For: Approval*

*To RAN2  
 Source: CMCC*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2202985 WF on FR1 HST demodulation**

*Type: other For: Approval  
 Source: CMCC*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2202985 | WF on FR1 HST demodulation | CMCC | Approved |  |
| R4-2202984 | LS on network assisted signaling for FR1 HST CA demodulation | CMCC | Approved |  |
| R4-2202981 | Draft CR on PDSCH requirements for HST-SFN CA requirements for 4Rx | CMCC | Endorsed |  |
| R4-2202982 | Draft CR on HST FR1 DPS CA requirements for 2Rx (38.101-4) | Huawei, HiSilicon | Endorsed |  |
| R4-2202983 | draft CR: FRC for CA PDSCH demodulation requirements for HST | Ericsson | Endorsed |  |
| R4-2203123 | draftCR to TS 38.101-4: HST-SFN CA requirements for 2Rx | Intel Corporation | Endorsed |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201422 Summary for FR1 HST demodulation results**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This spread sheet summarizes the simulation results of FR1 HST demodulation requirements.

**Decision: Noted.**

##### 6.8.3.2 PDSCH requirements for CA scenarios

**R4-2200267 Discussion on PDSCH CA Requirements in HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200268 Draft CR on HST DPS CA requirements for 4Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **withdrawn**.

**R4-2200364 Views on HST CA tests for FR1**

*Type: discussion For: Discussion  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2200521 Discussion on HST FR1 CA PDSCH performance requirements**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200625 Draft CR on PDSCH requirements for HST-SFN CA requirements for 4Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Revised to R4-2202981 (from R4-2200625).**

**R4-2202981 Draft CR on PDSCH requirements for HST-SFN CA requirements for 4Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2200633 Discussion on FR1 HST UE demodulation for CA scenario**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200835 Discussion on PDSCH requirements for CA scenarios**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2200998 Discussion on PDSCH CA scenarios for NR UE HST FR1 performance requirements**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2200999 Draft CR on HST FR1 DPS CA requirements for 2Rx (38.101-4)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Revised to R4-2202982 (from R4-2200999).**

**R4-2202982 Draft CR on HST FR1 DPS CA requirements for 2Rx (38.101-4)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Endorsed.**

**R4-2201423 PDSCH demodulation requirements for CA with HST-SFN scenario**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues of the PDSCH demodulation requirements for CA with HST-SFN scenario.

**Decision: Noted.**

**R4-2201424 draft CR: FRC for CA PDSCH demodulation requirements for HST**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft CR provides FRC used for PDSCH demodulation requirements for HST with CA.

**Decision: Revised to R4-2202983 (from R4-2201424).**

**R4-2202983 draft CR: FRC for CA PDSCH demodulation requirements for HST**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft CR provides FRC used for PDSCH demodulation requirements for HST with CA.

**Decision: Endorsed.**

**R4-2201876 draftCR to TS 38.101-4: HST-SFN CA requirements for 2Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2203123 (from R4-2201876).**

**R4-2203123 draftCR to TS 38.101-4: HST-SFN CA requirements for 2Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Endorsed.**

**R4-2202006 Views on FR1 HST PDSCH CA Tests**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

### 6.9 NR support for high speed train scenario in FR2

#### 6.9.2 High speed train deployment scenario in FR2

**R4-2201000 TP to TR 38.854 on Deployment Scenario Analysis for FR2 HST**

*Type: pCR For: Approval  
 38.854 v0.1.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Revised to R4-2203088 (from R4-2201000).**

**R4-2203088 TP to TR 38.854 on Deployment Scenario Analysis for FR2 HST**

*Type: pCR For: Approval  
 38.854 v0.1.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Approved.**

**R4-2201524 TP to TR 38.854: Coverage analysis**

*Type: pCR For: Approval  
 38.854 v0.1.1 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Capture coverage analysis in the TR

**Decision: Revised to R4-2203089 (from R4-2201524).**

**R4-2203089 TP to TR 38.854: Coverage analysis**

*Type: pCR For: Approval  
 38.854 v0.1.1 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Capture coverage analysis in the TR

**Decision: Approved.**

#### 6.9.5 Demodulation requirements

##### 6.9.5.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][314] NR\_HST\_FR2\_Demod\_Part1, AI 6.9.2, 6.9.5.1, 6.9.5.2– Yunchuan Yang**

**R4-2202964 Email discussion summary for [101-bis-e][314] NR\_HST\_FR2\_Demod\_Part1**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203106 (from R4-2202964).**

**R4-2203106 Email discussion summary for [101-bis-e][314] NR\_HST\_FR2\_Demod\_Part1**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**GTW discussion on Jan 20th**

**Issue 2-1-1: Network assistance signalling to indicate TCI state switching type or deployment type**

Agreement:

From demodulation requirements aspect, no need to define network assistance signalling to indicate TCI state switching type or deployment type.

* + Whether this needed or not from RRM aspect subject to RRM session discussion.
  + The pratical issue related to Rx beam switching management in test set-up subject to RRM session discussion

**Issue 2-2-1: UE capability**

Agreement

* Don’t introduce UE capability for Uni-directional and Bi-directional deployment scenario from UE demodulation aspect.

**Issue 2-2-2: Doppler Frequency for PDSCH requirement in Bi-directional scenario**

Agreement:

* Define PDSCH requirement in Bi-directional scenario with Doppler Frequency as 9722Hz

**Issue 2-3-1: whether additional signalling to indicate UE supporting of demodulation processing for FR2 HST excepting for FR2 UE power class PC6 signalling is needed**

Agreement:

* No need to define additional signalling to indicate UE supporting of demodulation requirements for FR2 HST, if UE indicates supporting FR2 HST operation with FR2 UE power class PC6 signalling

**R4-2203093 WF on UE demodulation requirement for FR2 HST**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203094 Simulation assumption for PDSCH requirement for FR2 HST**

*Type: other For: Approval  
 Source: Intel*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203093 | WF on UE demodulation requirement for FR2 HST | Samsung | Approved |  |
| R4-2203094 | Simulation assumption for PDSCH requirement for FR2 HST | Intel | Approved |  |
| R4-2203088 | TP to TR 38.854 on Deployment Scenario Analysis for FR2 HST | Huawei, HiSilicon | Approved |  |
| R4-2203089 | TP to TR 38.854: Coverage analysis | Ericsson | Approved |  |
| R4-2200744 | CR work split for Rel-17 FR2 HST | Samsung | Approved |  |
| R4-2201002 | Draft CR on minimum requirements for PDSCH HST-DPS (38.101-4) | Huawei, HiSilicon | Postponed |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200743 Simulation results summary for Rel-17 FR2 HST**

*Type: other For: Information  
 Source: Samsung*

**Decision: Noted.**

**R4-2200744 CR work split for Rel-17 FR2 HST**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Approved.**

**R4-2201001 Discussion on general UE demodulation requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201002 Draft CR on minimum requirements for PDSCH HST-DPS (38.101-4)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Postponed.**

##### 6.9.5.2 UE demodulation requirements

**R4-2200629 Discussion on UE demodulation for FR2 HST**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2201718 Addressing open issues on FR2 HST UE Demodulation**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201877 Views on FR2 HST PDSCH performance requirements**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

###### 6.9.5.2.1 PDSCH requirements under Uni-directional scenario

**R4-2200746 Discussion and simulation results of PDSCH requirement with Uni-directional scenario for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201004 Discussion on UE demodulation requirements for FR2 HST under Uni-directional scenario**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201425 PDSCH demodulation requirements for HST FR2**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the UE demodulation requirements for HST FR2.

**Decision: Noted.**

###### 6.9.5.2.2 PDSCH requirements under Bi-directional scenario

**R4-2200745 Discussion and simulation results of PDSCH requirement with Bi-directional scenario for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200837 PDSCH requirements under Bi-directional scenario**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201005 Discussion on UE demodulation requirements for FR2 HST under Bi-directional scenario**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201426 PDSCH demodulation requirements for HST FR2 bi-directional scenario**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the UE demodulation requirements for HST FR2 specific to the bi-directional scenario.

**Decision: Noted.**

##### 6.9.5.3 BS demodulation requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][315] NR\_HST\_FR2\_Demod\_Part2, AI 6.9.5.3– Axel Muller**

**R4-2202965 Email discussion summary for [101-bis-e][315] NR\_HST\_FR2\_Demod\_Part2**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203107 (from R4-2202965).**

**R4-2203107 Email discussion summary for [101-bis-e][315] NR\_HST\_FR2\_Demod\_Part2**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203006 WF on BS demodulation requirement for FR2 HST**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2201009 | Draft CR on PRACH minimum requirements for high speed train (38.104) | Huawei, HiSilicon | Postponed |  |
| R4-2201010 | Draft CR on PRACH test requirement for high speed train (38.141-2) | Huawei, HiSilicon | Postponed |  |
| R4-2201003 | Draft CR on HST FR2 BS manufacturer's declarations and applicability rule (38.141-2) | Huawei, HiSilicon | Postponed |  |
| R4-2203006 | WF on BS demodulation requirement for FR2 HST | Nokia, Nokia Shanghai Bell | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201003 Draft CR on HST FR2 BS manufacturer's declarations and applicability rule (38.141-2)**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Session chair Note: Move to this AI from AI 6.5.3**

**Decision: Postponed.**

###### 6.9.5.3.1 PUSCH requirements

**R4-2200128 Discussion on PUSCH demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200129 Simulation results for PUSCH demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200747 Discussion and simulation results of PUSCH requirement for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201006 Discussion on PUSCH demodulation requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201522 HST PUSCH requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Remaining issues for PUSCH requirement

**Decision: Noted.**

**R4-2201844 On HST FR2 PUSCH Requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201878 Views on FR2 HST PUSCH performance requirements**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

###### 6.9.5.3.2 PUSCH with UL timing adjustment requirements

**R4-2200130 Simulation results for UL timing adjustment demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200748 Simulation results of UL timing adjustment requirement for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201007 Discussion on PUSCH with UL timing adjustment requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201523 PUSCH with UL timing adjustment requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Proposed TA requirement

**Decision: Noted.**

**R4-2201845 On HST FR2 PUSCH UL Timing Adjustment Requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

###### 6.9.5.3.3 PRACH requirements

**R4-2200131 Simulation results for PRACH demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200749 Simulation results of PRACH requirement for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201008 Discussion on PRACH demodulation requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201009 Draft CR on PRACH minimum requirements for high speed train (38.104)**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Postponed.**

**R4-2201010 Draft CR on PRACH test requirement for high speed train (38.141-2)**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Postponed.**

**R4-2201521 FR2 HST PRACH requirement**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Decision: Noted.**

### 6.12 Further enhancement on NR demodulation performance

#### 6.12.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][316] NR\_perf\_enh2\_Demod\_Part1, AI 6.12.1, 6.12.2.3– Shan Yang**

**R4-2202966 Email discussion summary for [101-bis-e][316] NR\_perf\_enh2\_Demod\_Part1**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203108 (from R4-2202966).**

**R4-2203108 Email discussion summary for [101-bis-e][316] NR\_perf\_enh2\_Demod\_Part1**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**GTW discussion on Jan 19th**

**Issue 3-1-1: Need of CRS sequence information for LLR weighting**

**Agreement:**

General agreement for NWA signalling fo CRS-IM receiver

* RRC based NWA signaling shall be introduced. The details up to RAN2 with necessary input from RAN4.

Not restrict UE implementation, CRS sequence not needed from baseline receiver assumption for defining RAN4 minimum performance requirements

By default, Cell ID information is not needed from RAN4 performance requirements aspect; Cell ID can be included into NWA signalling as optional.

* FFS the maximum number of cell ID information

**Issue 3-1-2: Whether UE needs to be indicated the CRS port number**

**Agreement:**

From RAN4 minimum performance requirements aspect, UE follow below default assumption without blind detection as baseline assumption

* 4 CRS ports for scenario 2
* Aligned with serving cell for scenario 1

By default, number of CRS ports no need to be informed via signalling with following default assumption from RAN4 performance requirements aspect

Number of CRS ports information can be included into NWA signalling (optional)

**Issue 3-1-4: How could UE obtain the identified parameters if not signalled by the network**

**Agreement:**

The baseline assumption: No need to introduce NWA signaling for v-shift information

**Agreement:**

From RAN4 minimum performance requirements aspect, it’s not required to blind detect LTE carrier frequency information for CRS-IM receiver baseline assumption.

The information can be awared by following possible ways:

* For scenario 2, inter-RAT MO configuration information (LTE cell presence and carrier frequency) can be utilized to perform CRS-IM if configured by NW.
* LTE cell carrier frequency information can be informed to UE by NWA signaling for scenario 2 (optional)

If such information not conveyed to UE, UE not expected to enable CRS-IM receiver.

**R4-2203028 WF on general part and 15kHz NR SCS scenario for CRS-IM receiver**

*Type: other For: Approval  
 Source: China Telecom*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203131 (from R4-2203028).**

**R4-2203131 WF on general part and 15kHz NR SCS scenario for CRS-IM receiver**

*Type: other For: Approval  
 Source: China Telecom*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203029 WF on 30 kHz NR SCS scenario for CRS-IM receiver**

*Type: other For: Approval  
 Source: CMCC*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2200018 | TP to TR 38.833: Symbols and abbreviations | China Telecom | Approved |  |
| R4-2200905 | Updated work plan for Further enhancement on NR demodulation performance WI | China Telecom | Approved |  |
| R4-2203131 | WF on general part and 15kHz NR SCS scenario for CRS-IM receiver | China Telecom | Approved |  |
| R4-2203029 | WF on 30 kHz NR SCS scenario for CRS-IM receiver | CMCC | Approved |  |

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][317] NR\_perf\_enh2\_Demod\_Part2, AI 6.12.2.1, 6.12.2.2– Belov Dmitry**

**R4-2202967 Email discussion summary for [101-bis-e][317] NR\_perf\_enh2\_Demod\_Part2**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203109 (from R4-2202967).**

**R4-2203109 Email discussion summary for [101-bis-e][317] NR\_perf\_enh2\_Demod\_Part2**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**GTW discussion on Jan 19th**

Sub-topic 4-1: UE feature list MMSE-IRC requirements for scenarios with inter-cell interference

* Option 1 (Intel, CMCC,Ericsson): Define mandatory without capability signaling feature to indicate that UE supports MMSE-IRC requirements for scenarios with inter-cell interference and slot-based transmission in case requirements will be defined in a non-release independent manner.
* Option 2 (Huawei): Follow LTE to define UE capability signaling
* Option 3 (China Telecom, Intel): Define mandatory without capability signaling feature and decision for this issue does not conflict with the test requirement to be release independent from Rel-15.
* Option 4 (Qualcomm, Apple, Intel, China Telecom,Ericsson, MTK,CMCC): No need to introduce new UE feature, release independent from Rel-15

Sub-topic 4-2: UE feature list MMSE-IRC requirements for scenarios with intra-cell inter-user interference

Agreement: UE feature list MMSE-IRC requirements for scenarios with inter-cell/intra-cell interference

* Option 4: No need to introduce new UE feature, requirements release independent from Rel-15 (majority supporting)
* Option 2: [Mandatory/optional] with UE capability signaling with granularity per UE

GTW discussion on Jan 24th

**Sub-topic 4-1: UE feature list MMSE-IRC requirements for scenarios with inter-cell interference**

* Option 1 (Intel, Apple, CMCC, Ericsson, China Telecom, Qualcomm): No need to introduce new UE feature, requirements release independent from Rel-15
* Option 2 (Huawei): Optional without UE capability signalling and applicable from Rel-17
* Option 3 (MediaTek): Optional without UE capability signalling and applicable from Rel-15
* Option 3a: Optional without UE capability signalling for Rel-15/16 UE and mandatory from Rel-17

RAN4 will make decision on RAN4#102-e meeting with above options

**Sub-topic 4-2: UE feature list MMSE-IRC requirements for scenarios with intra-cell inter-user interference**

* Option 1 (Intel, Apple, CMCC, Ericsson, Qualcomm): No need to introduce new UE feature, requirements release independent from Rel-15
* Option 2 (China Telecom): Mandatory with or without UE capability signaling
* Option 3 (Huawei): Optional with or without UE capability and applicable from Rel-17
* Option 4: Optional without UE capability signalling and applicable from Rel-15

RAN4 will make decision on RAN4#102-e meeting with above options

**R4-2203008 WF on general and PDSCH demodulation requirements for inter-cell interference MMSE-IRC**

*Type: other For: Approval  
 Source: Intel*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203009 WF on CSI requirements for inter-cell interference MMSE-IRC**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203010 Summary of simulation results for Inter-cell MMSE-IRC CQI reporting**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203011 WF on MMSE-IRC receiver for intra-cell inter-user interference**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203008 | WF on general and PDSCH demodulation requirements for inter-cell interference MMSE-IRC | Intel | Approved |  |
| R4-2203009 | WF on CSI requirements for inter-cell interference MMSE-IRC | Ericsson | Approved |  |
| R4-2203010 | Summary of simulation results for Inter-cell MMSE-IRC CQI reporting | Ericsson | Noted |  |
| R4-2203011 | WF on MMSE-IRC receiver for intra-cell inter-user interference | Huawei | Approved |  |
| R4-2203007 | TP to TR 38.833: Link level simulation results for Inter-user interference suppression for MU-MIMO | Intel Corporation | Approved |  |
| R4-2200807 | TP to TR 38.833: Summary of link level evaluation for inter-user interference suppression for MU-MIMO | CMCC | Approved |  |
| R4-2200904 | TP to TR 38.833: Updated conclusion for phase I evaluation on inter-user interference suppression for MU-MIMO scenario | China Telecom | Approved |  |
| R4-2200989 | TP to TR 38.833: Introduction of simulation assumptions of intra cell inter user MMSE-IRC receiver | Huawei, HiSilicon | Approved |  |
| R4-2200380 | TP to TR 38.833: Scenario for inter-user interference suppression for MU-MIMO | MediaTek inc. | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200017 Draft TR 38.833 v1.1.0: Further enhancement on NR demodulation performance**

*Type: draft TR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Abstract:**

For email approval after the meeting, i.e., to implement the TPs approved during the meeting.

**Decision:** Email approval

**R4-2200018 TP to TR 38.833: Symbols and abbreviations**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision: Approved.**

**R4-2200905 Updated work plan for Further enhancement on NR demodulation performance WI**

*Type: Work Plan For: Approval  
 Source: China Telecom*

**Decision: Approved.**

**R4-2201603 Discussion on UE feature list and capability signalling for NR Demodulation Enhancements WI**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

#### 6.12.2 UE demodulation and CSI requirements

##### 6.12.2.1 MMSE-IRC receiver for inter-cell interference

###### 6.12.2.1.1 PDSCH requirements

**R4-2200269 Discussion on PDSCH requirements in intercell interference scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200270 Draft CR on PDSCH demod requirements in ICI-FDD**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **withdrawn**.

**R4-2200366 Views on MMSE-IRC receiver for inter-cell interference test**

*Type: discussion For: Discussion  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2200377 Discussion on the PDSCH requirements for scenarios with inter-cell inter-user interference**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2200500 On Intercell PDSCH MMSE-IRC demodulation requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have provided our views on various open issues with relation to Intercell PDSCH MMSE-IRC demodulation requirements. We make proposals concerning Common test parameters and Interference model for scenario 1.

**Decision: Noted.**

**R4-2200504 TP for 38.101-4 on NR Interference model for enhanced performance requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this TP we propose the structure for NR PUSCH performance requirements with CP-OFDM and FR1. Tables with test requirements are skeletons, an Interference model description for the NR UE enhanced performance requirements will be updated when agreements

**Decision: Noted.**

**R4-2200512 Discussion on PDSCH demodulation MMSE-IRC requirements for scenario with inter-cell interference**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200513 Summary of PDSCH simulation results for inter-cell interference suppression**

*Type: other For: Information  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200795 Draft CR for TS38.101-4 PDSCH TDD demodulation requirements for inter-cell interference MMSE-IRC**

*Type: draftCR For: Approval  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Postponed.**

**R4-2200798 Discussion on R17 demodulation enhancement for inter-cell interference suppressing**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200902 On PDSCH requirements for UE MMSE-IRC receiver for inter-cell interference suppression**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200985 Discussion on Inter cell IRC demodulation requirements**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2200986 Simulation results for Inter cell IRC demodulation requirements**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2200988 Draft CR: Introduction of general and applicability section of inter-cell MMSE-IRC receiver in TS 38.101-4**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Postponed.**

**R4-2201215 Remaining issues on PDSCH requirement for inter-cell interference**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses PDSCH requirements for inter-cell IRC

**Decision: Noted.**

**R4-2201216 Simulation results on PDSCH performance for inter-cell interference**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution submits our simulation results for PDSCH demodulation for inter-cell IRC

**Decision: Noted.**

**R4-2201965 Views on Inter-cell Interference PDSCH Tests**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

###### 6.12.2.1.2 CQI requirements

**R4-2200271 Discussion on CSI reporting requirements in intercell interference scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200378 Discussion on the CQI requirements for scenarios with inter-cell inter-user interference**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2200501 On CQI requirements for intercell interference MMSE-IRC**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have provided our views on various open issues with relation to CQI requirements for intercell interference MMSE-IRC. We make proposals concerning Antenna configuration and Requirement definition.

**Decision: Noted.**

**R4-2200514 Discussion on CSI MMSE-IRC requirements for scenario with inter-cell interference**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200799 Discussion on CQI requirements for inter-cell interference MMSE-IRC**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200901 On CSI requirements for UE MMSE-IRC receiver for inter-cell interference suppression**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200987 Discussion and simulations results for Inter cell IRC CSI**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201217 Remaining issues on CSI reporting requirements for inter-cell interference**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses CSI reporting requirements for inter-cell IRC

**Decision: Noted.**

**R4-2201218 Simulation results on CSI reporting for inter-cell interference**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution submits our simulation results for CSI reporting for inter-cell IRC

**Decision: Noted.**

**R4-2201221 draftCR on CSI reporting test case(TDD)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draftCR introduce the new CSI reporting test case.

**Decision: Postponed.**

**R4-2201975 Views on Inter-cell Interference CQI Reporting Tests**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

##### 6.12.2.2 MMSE-IRC receiver for intra-cell inter-user interference

**R4-2200272 Discussion on PDSCH requirements in MU-MIMO scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200379 Discussion on the PDSCH requirements for scenarios with intra-cell inter-user interference**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2200380 TP to TR 38.833 Scenario for inter-user interference suppression for MU-MIMO**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Approved.**

**R4-2200515 Discussion on MMSE-IRC requirements for scenario with intra-cell inter-user interference**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200516 TP to TR 38.833: Link level simulation results for Inter-user interference suppression for MU-MIMO**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2203007 (from R4-2200516).**

**R4-2203007 TP to TR 38.833: Link level simulation results for Inter-user interference suppression for MU-MIMO**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Approved.**

**R4-2200800 Discussion on R17 demodulation enhancement for intra-cell inter-user interference suppressing**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200807 TP to TR 38.833: Summary of link level evaluation for inter-user interference suppression for MU-MIMO**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Approved.**

**R4-2200903 Views on UE MMSE-IRC receiver for intra-cell inter-user interference suppression**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200904 TP to TR 38.833: Updated conclusion for phase I evaluation on inter-user interference suppression for MU-MIMO scenario**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision: Approved.**

**R4-2200989 TP to TR 38.833: Introduction of simulation assumptions of intra cell inter user MMSE-IRC receiver**

*Type: pCR For: Approval  
 38.833 v1.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Approved.**

**R4-2200990 Discussions on intra-cell inter user MMSE-IRC receiver**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2200991 Simulation results for intra cell inter user MMSE IRC receiver**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2200992 Draft CR: Introduction of MU-MIMO Beamforming model in TS 38.101-4**

*Type: draftCR For: Endorsement  
 38.101-4 v17.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Postponed.**

**R4-2200993 Summary of simulation results for intra cell inter user MMSE receiver requirements**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201219 Remaining issues on MMSE-IRC receiver for intra-cell inter-user interference**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses PDSCH requirements for MU-MIMO

**Decision: Noted.**

**R4-2201220 Simulation results on PDSCH performance for intra-cell inter-user interference**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution submits our simulation results for PDSCH demodulation for intra-cell inter-user IRC

**Decision: Noted.**

**R4-2201966 Views on Intra-cell Inter-user Interference Scenarios**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

##### 6.12.2.3 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR

**R4-2201964 Views on CRS Interference Mitigation in NR**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

###### 6.12.2.3.1 General

**R4-2200273 Discussion on CRS-IM with 30KHz SCS**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200502 On Receiver Assumptions for CRS-IM**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have provided our views on various open issues with relation to the receiver assumptions for CRS-IM.

**Decision: Noted.**

**R4-2200517 General discussion on CRS-IM requirements for scenarios with overlapping spectrum for LTE and NR**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200801 Discussion on the receiver for CRS-IM**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200898 Discussion on the receiver assumption for CRS-IM requirement definition**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200982 Discussion on CRS-IM receiver for 30kHz SCS**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201414 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201415 Simulation results on CRS-IM receiver**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201418 Discussion on remaining issues of receiver assumption for CRS-IM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discuss the remaining open issues of receiver assumption for CRS-IM

**Decision: Noted.**

###### 6.12.2.3.2 Necessity of Network assistant signaling

**R4-2200274 Discussion on Network Assistance for CRS-IM in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200381 Views on the network assistance signalling for CRS-IM receiver**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2200503 On Necessity of Network assistant signaling for CRS-IM**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have provided our views on the open issues for the subject of “Necessity of Network Assistant Signalling”. In addition, we have provided a proposal for a level of NWA, which we see as a compromise based on the previous RAN4 discuss

**Decision: Noted.**

**R4-2200518 Network assistant signaling for CRS-IM receiver for scenarios with overlapping spectrum for LTE and NR**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200802 Discussion on the network assistant signaling necessity for CRS-IM**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200899 Discussion on the necessity of network assistance signalling for CRS-IM**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200984 Discussion on necessity of NWA on CRS-IM receiver for 15kHz SCS**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201416 Discussion on the network assistance signalling for CRS-IM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the necessity of introducing the network asisstance signaling with additional simulations

**Decision: Noted.**

**R4-2201417 Simulation results for CRS interference handling**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution summarizes the additional simulations for information

**Decision: Noted.**

###### 6.12.2.3.3 Test set-up

**R4-2200275 Discussion on Test setup for CRS-IM requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200519 Test setup for CRS-IM receiver for scenarios with overlapping spectrum for LTE and NR**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200803 Discussion on the test setup for CRS-IM**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200900 Discussion on the test setup for CRS-IM requirement definition**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200983 Discussion on test setup on CRS-IM receiver for 15kHz SCS**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201419 Discussion on the remaining issues of test setup for CRS-IM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issues of test setup for CRS-IM

**Decision: Noted.**

**R4-2201601 On test setup for CRS-IM**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have provided our views on various open issues with relation to the Test Setup for CRS-IM. We make proposals concerning the area of Interference Model and Common parameters for target and interfering cells.

**Decision: Noted.**

#### 6.12.3 BS demodulation requirements

##### 6.12.3.1 PUSCH demodulation requirements for FR1 256QAM

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][318] NR\_perf\_enh2\_Demod\_Part3, AI 6.12.3– Tricia Li**

**R4-2202968 Email discussion summary for [101-bis-e][318] NR\_perf\_enh2\_Demod\_Part3**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203110 (from R4-2202968).**

**R4-2203110 Email discussion summary for [101-bis-e][318] NR\_perf\_enh2\_Demod\_Part3**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203005 WF for FR1 PUSCH with 256QAM performance requirements**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** |
| R4-2203005 | WF for FR1 PUSCH with 256QAM performance requirements | Huawei, HiSilicon | Approved |
| R4-2203001 | Draft CR for TS 38.141-2, Introduction of manufacture declaration, MU and TT for FR1 PUSCH 256QAM performance requirements | CATT | Endorsed |
| [R4-2200474](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200474.zip) | draftCR for 38.141-1 MU and TT for PUSCH with 256QAM | Ericsson | Not Pursued |
| R4-2203002 | Draft CR for TS 38.104: FR1 256QAM PUSCH requirements | Intel Corporation | Endorsed |
| R4-2203003 | DraftCR for TS38.141-2 Requirements for PUSCH with transform precoding disabled for BS type 1-O | CMCC | Endorsed |
| R4-2203004 | draftCR: Introduction of conformance testing for FR1 PUSCH 256QAM with transform precoding disabled in TS 38.141-1 | Huawei, HiSilicon | Endorsed |
| [R4-2200132](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200132.zip) | Draft CR for TS 38.141-1 on manufacture declaration for FR1 PUSCH 256QAM performance requirements | CATT | Endorsed |
| R4-2200752 | draft CR on FR1 PUSCH 256QAM FRC for TS 38.104 | Samsung | Withdrawn |
| [R4-2200753](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200753.zip) | draft CR on FR1 PUSCH 256QAM FRC for TS 38.141-1 | Samsung | Endorsed |
| [R4-2200754](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200754.zip) | draft CR on FR1 PUSCH 256QAM FRC for TS 38.141-2 | Samsung | Endorsed |
| [R4-2201802](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201802.zip) | draftCR on FR1 PUSCH 256QAM FRC for TS 38.104 | ZTE Wistron Telecom AB | Endorsed |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200132 Draft CR for TS 38.141-1 on manufacture declaration for FR1 PUSCH 256QAM performance requirements**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200133 Simulation results for FR1 PUSCH 256QAM performance requirement**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200148 Draft CR for TS 38.141-2, Introduction of manufacture declaration, MU and TT for FR1 PUSCH 256QAM performance requirements**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203001 (from R4-2200148).**

**R4-2203001 Draft CR for TS 38.141-2, Introduction of manufacture declaration, MU and TT for FR1 PUSCH 256QAM performance requirements**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200474 draftCR for 38.141-1 MU and TT for PUSCH with 256QAM**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Measurement uncertainty and test torlerance for PUSCH with 256QAM

**Decision: Not pursued.**

**R4-2200520 Draft CR for TS 38.104: FR1 256QAM PUSCH requirements**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2203002 (from R4-2200520).**

**R4-2203002 Draft CR for TS 38.104: FR1 256QAM PUSCH requirements**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Endorsed.**

**R4-2200752 draft CR on FR1 PUSCH 256QAM FRC for TS 38.104**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Withdrawn.**

**R4-2200753 draft CR on FR1 PUSCH 256QAM FRC for TS 38.141-1**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Endorsed.**

**R4-2200754 draft CR on FR1 PUSCH 256QAM FRC for TS 38.141-2**

*Type: draftCR For: Endorsement  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Endorsed.**

**R4-2200755 Simulation results for FR1 PUSCH with 256QAM**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200796 Draft CR for TS38.141-2 Requirements for PUSCH with transform precoding disabled for BS type 1-O**

*Type: draftCR For: Approval  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Revised to R4-2203003 (from R4-2200796).**

**R4-2203003 Draft CR for TS38.141-2 Requirements for PUSCH with transform precoding disabled for BS type 1-O**

*Type: draftCR For: Approval  
 38.141-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2200838 Simulation results for FR1 UL 256QAM demodulation requirement**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Withdrawn.**

**R4-2201018 Updated simulation results for FR1 PUSCH 256QAM performance requirements**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201019 Summary of simulation results for FR1 PUSCH 256QAM performance requirements**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201020 draftCR: Introduction of conformance testing for FR1 PUSCH 256QAM with transform precoding disabled in TS 38.141-1**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Revised to R4-2203004 (from R4-2201020).**

**R4-2203004 draftCR: Introduction of conformance testing for FR1 PUSCH 256QAM with transform precoding disabled in TS 38.141-1**

*Type: draftCR For: Endorsement  
 38.141-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Endorsed.**

**R4-2201801 Simulation results for FR1 UL 256QAM demodulation requirement**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted.**

**R4-2201802 draftCR on FR1 PUSCH 256QAM FRC for TS 38.104**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Endorsed.**

### 6.13 Solutions for NR to support non-terrestrial networks (NTN)

#### 6.13.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][306] NTN\_Solutions\_Part1, AI 6.13.1– Dorin Panaitopol**

**R4-2202969 Email discussion summary for [101-bis-e][306] NTN\_Solutions\_Part1**

*Type: other For: Information  
 Source: Moderator (Thales)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203111 (from R4-2202969).**

**R4-2203111 Email discussion summary for [101-bis-e][306] NTN\_Solutions\_Part1**

*Type: other For: Information  
 Source: Moderator (Thales)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**Conclusion after 1st round**

**R4-2203080 Way Forward on NTN\_solutions\_Part1**

*Type: other For: Approval  
 Source: THALES*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203080 | Way Forward on NTN\_solutions\_Part1 | THALES | Approved |  |
| [R4-2203081](https://protect2.fireeye.com/v1/url?k=0c4048a8-53db71a3-0c41c3e7-002590f5b904-3202cb3cee34bde3&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2201170.zip) | Draft text proposal to update TR 38.863 | Samsung | Approved |  |
| [R4-2203040](https://protect2.fireeye.com/v1/url?k=0b617ee6-54fa47ed-0b60f5a9-002590f5b904-51f92ca675f62892&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2200479.zip) | TP to TR 38.863 on transmitter characteristics for satellite access node | CATT | Approved |  |
| [R4-2203082](https://protect2.fireeye.com/v1/url?k=9266fa2a-cdfdc321-92677165-002590f5b904-0dd44ec74be21a6f&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2200163.zip) | TP to TR 38.863 on channel raster and sync raster | CATT | Approved |  |
| R4-2203129 | NTN - Regulatory information - TP to TR 38.863 | Ericsson | Approved |  |
| R4-2203084 | TP to TR 38.863 on regulatory aspects for HAPS | Nokia, Nokia Shanghai Bell | Approved |  |
| [R4-2203085](https://protect2.fireeye.com/v1/url?k=1e560ab7-41cd33bc-1e5781f8-002590f5b904-84fcb3a35a8fa497&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2200163.zip) | TP to TR 38.863 on general aspects | Nokia, Nokia Shanghai Bell | Approved |  |
| [R4-2203086](https://protect2.fireeye.com/v1/url?k=c3609238-9cfbab33-c3611977-002590f5b904-5921023a6fbc4803&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2200163.zip) | Draft skeleton for TS 38.101-5 | Samsung | Approved |  |
| [R4-2201257](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201257.zip) | TP for 38.863 on system parameters to clarify “NTN satellite bands” | Huawei, HiSilicon | Approved |  |
| [R4-2201838](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201838.zip) | Draft proposal to update TR 38.863 NTN related RF and co-existence aspects | THALES | Approved |  |
| [R4-2203087](https://protect2.fireeye.com/v1/url?k=1b83278e-44181e85-1b82acc1-002590f5b904-4b79542627ddd9a1&q=1&e=a021b36e-64d2-4a2f-a905-c1cd5c17b7b0&u=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_101-bis-e%2FDocs%2FR4-2200163.zip) | Skeleton for TS 38.108 NR Satellite Access Node radio transmission and reception v0.0.1 | THALES | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2203132 Draft TR 38.863 update v0.2.0**

*Type: draft TR For: Approval  
 38.863 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

For email approval after the meeting, i.e., to implement the TPs approved during the meeting.

**Decision:** Email approval

**R4-2201170 Draft text proposal to update TR 38.863**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Revised to R4-2203081 (from R4-2201170).**

**R4-2203081 Draft text proposal to update TR 38.863**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Approved.**

**R4-2201991 Considerations for TS 38.101-5 development**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

##### 6.13.1.1 System parameters

**R4-2200162 On remaining open issue for NTN system parameters**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200163 TP to TR 38.863 on channel raster and sync raster**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203082 (from R4-2200163).**

**R4-2203082 TP to TR 38.863 on channel raster and sync raster**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved.**

**R4-2200478 TP to TR 38.863 on operating bands and channel bandwidth**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Merged (with R4-2200163).**

**R4-2200479 TP to TR 38.863 on transmitter characteristics for satellite access node**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203040 (from R4-2200479).**

**R4-2203040 TP to TR 38.863 on transmitter characteristics for satellite access node**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved.**

**R4-2201074 On NTN System parameters**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201257 TP for 38.863 on system parameters to clarify “NTN satellite bands”**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2201989 NTN system parameters remaining issues for n255**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

##### 6.13.1.2 NTN Satellite Access Node Class/Type

**R4-2201465 Further discussion on NTN gNB class**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2200165 Satellite Access Node Class/Type**

*Type: discussion For: Discussion  
 Source: CATT*

Session chair note: Move to this AI from AI 6.3.2.2

**Decision: Noted.**

##### 6.13.1.3 Regulatory information

**R4-2201075 TP to TR 38.863 on regulatory aspects for HAPS**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2203084 (from R4-2201075).**

**R4-2203084 TP to TR 38.863 on regulatory aspects for HAPS**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

**R4-2201314 NTN - Regulatory information - TP to TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP is suggesting text for the Regulatory section in TR 38.863

**Decision: Revised to R4-2203083 (from R4-2201314).**

**R4-2203083 NTN - Regulatory information - TP to TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP is suggesting text for the Regulatory section in TR 38.863

**Decision: Revised to R4-2203129 (from R4-2203083).**

**R4-2203129 NTN - Regulatory information - TP to TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP is suggesting text for the Regulatory section in TR 38.863

**Decision: Approved.**

##### 6.13.1.4 Others

**R4-2200363 Considerations on HAPS specific technical requirements**

*Type: discussion For: Discussion  
 Source: SoftBank Corp., KDDI Corporation, Intelsat*

**Decision: Noted.**

**R4-2201076 TP to TR 38.863 on general aspects**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2203085 (from R4-2201076).**

**R4-2203085 TP to TR 38.863 on general aspects**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

**R4-2201263 Draft skeleton for TS 38.101-5**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **withdrawn**.

**R4-2201288 Draft skeleton for TS 38.101-5**

*Type: draft TS For: Approval  
 38.101-5 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Revised to R4-2203086 (from R4-2201288).**

**R4-2203086 Draft skeleton for TS 38.101-5**

*Type: draft TS For: Approval  
 38.101-5 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Approved.**

**R4-2201315 NTN - General aspects related to BS and UE requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This TP is discussing general aspects when capturing requirements in BS and UE RF requirements

**Decision: Noted.**

**R4-2201830 Skeleton for TS 38.108 NR Satellite Access Node radio transmission and reception v0.0.1**

*Type: draft TS For: Approval  
 38.108 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

The attached skeleton is based on previous approved Way Forwards in RAN4#100-e (R4-2115641) and RAN4#101-e (R4-2120674, R4-2120675), as well as other RAN4#101-bis-e pre-meeting discussions. For further information please also check the Way Forwards on NTN

**Decision: Revised to R4-2203087 (from R4-2201830).**

**R4-2203087 Skeleton for TS 38.108 NR Satellite Access Node radio transmission and reception v0.0.1**

*Type: draft TS For: Approval  
 38.108 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

The attached skeleton is based on previous approved Way Forwards in RAN4#100-e (R4-2115641) and RAN4#101-e (R4-2120674, R4-2120675), as well as other RAN4#101-bis-e pre-meeting discussions. For further information please also check the Way Forwards on NTN

**Decision: Approved.**

**R4-2201838 Draft proposal to update TR 38.863 NTN related RF and co-existence aspects**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

This pCR is to provide B2 (Annex) Calibration Results of TN components with THALES calibration information provided prior to RAN4#101-e meeting before Sept. 30 2021, together with new variance and mean values.

**Decision: Approved.**

#### 6.13.2 Coexistence aspects

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][307] NTN\_Solutions\_Part2, AI 6.13.2– Yiran Jin**

**R4-2202970 Email discussion summary for [101-bis-e][307] NTN\_Solutions\_Part2**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203112 (from R4-2202970).**

**R4-2203112 Email discussion summary for [101-bis-e][307] NTN\_Solutions\_Part2**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2202990 WF on [307] NTN\_Solutions\_Part2**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203130 (from R4-2202990).**

**R4-2203130 WF on [307] NTN\_Solutions\_Part2**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2202991 Simulation assumptions for NTN co-existence**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2202992 Simulation assumptions for HAPS co-existence**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2202993 Summary of NTN co-existence study**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2202994 Summary of HAPS co-existence study**

*Type: other For: Apporval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2202988 | Draft Text Proposal for TR 38.863 | Samsung | Approved |  |
| R4-2203130 | WF on [307] NTN \_Solutions\_Part2 | Samsung | Approved | The WF agreeable, we will discuss the WF in final round GTW to make decision on NTN SAN ACLR/ACS. |
| R4-2202991 | Simulation assumptions for NTN co-existence | Samsung, CATT | Approved |  |
| R4-2202992 | Simulation assumptions for HAPS co-existence | Nokia | Approved |  |
| R4-2202993 | Summary of NTN co-existence study | Samsung | Approved |  |
| R4-2202994 | Summary of HAPS co-existence study | Nokia | Approved |  |
| R4-2201078 | TP to TR 38.863 on HAPS coexistence study | Nokia, Nokia Shanghai Bell | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

##### 6.13.2.1 NTN coexistence scenarios and simulations

**R4-2200164 NTN coexistence simulations**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200781 Coexistence simulation results for TN-NTN**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201072 NR-NTN co-ex study results**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2201124 Collected NR-NTN co-ex results**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201222 Simulation result for coexistence study on NR to support non-terrestrial networks**

*Type: discussion For: Information  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2201255 NR NTN co-existence simulation Results**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201262 NTN coexistence results and observations**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

**R4-2201316 NTN - Coexistence simulation results**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our simulation results based on the agreed assumptions

**Decision: Noted.**

**R4-2201466 Simulation results for NTN coexistence study**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201842 NTN Simulation Assumptions**

*Type: discussion For: Discussion  
 Source: THALES*

**Abstract:**

In this contribution we propose to discuss and modify some TN-NTN coexistence simulation assumptions/simulation methodologies from previous RAN4 meetings (see for example RAN4#101-e with approved R4-2120670, R4-2120671).

**Decision: Noted.**

**R4-2201843 NTN coexistence calibration data - THALES 28\_09\_2021**

*Type: discussion For: Information  
 Source: THALES*

**Abstract:**

The Excel file with NTN calibration data provided by THALES prior to RAN4#101-e meeting (Nov. 2021). The document is for information only.

**Decision: Noted.**

**R4-2201852 NR-NTN coexistence results - THALES updates 10\_01\_2022**

*Type: discussion For: Information  
 Source: THALES*

**Abstract:**

The Excel file contains TN-NTN coexistence results provided by THALES prior to RAN4#101-bis-e meeting (10th of January 2022). The contribution is for information purpose only.

**Decision: Noted.**

##### 6.13.2.2 HAPS coexistence scenarios and simulations

**R4-2200782 Coexistence simulation restuls for HAPS**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201077 HAPS simulation assumptions for coexistence study**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201078 TP to TR 38.863 on HAPS coexistence study**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

**R4-2201254 Discussion on HAPS requirements**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

##### 6.13.2.3 ACLR/ACS proposals

**R4-2200166 ACLR/ACS proposal**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2201079 ACLR and ACS proposal for HAPS**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2201126 NR-NTN co-ex results analysis and ACLR ACS proposal**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2201127 Draft Text Proposal for TR 38.863 Chapter 6.3 and 6.4**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Revised to R4-2202988 (from R4-2201127).**

**R4-2202988 Draft Text Proposal for TR 38.863 Chapter 6.3 and 6.4**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Approved.**

**R4-2201256 Discussion on ACLR and ACS for NR NTN**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201317 NTN - ACLR/ACS proposals**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Based on our simulation results, this contribution is proposing ACLR and ACS limits for NTN satellite access node and NTN UE.

**Decision: Noted.**

**R4-2201467 Discussion on ACLR and ACS requirements for NTN**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201839 TN-NTN Coexistence Results Updates**

*Type: discussion For: Agreement  
 Source: THALES, Magister Solutions Ltd*

**Abstract:**

New results based on new methodology from R4-2120671 (simulation assumptions RAN4#101-e), R4-2120670 (WF NTN\_Solutions\_Part2 RAN4#101-e).

**Decision: Noted.**

#### 6.13.3 Satellite Access Node RF requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][308] NTN\_Solutions\_Part3, AI 6.13.3, 6.13.4– Yuexia Song**

**R4-2202971 Email discussion summary for [101-bis-e][308] NTN\_Solutions\_Part3**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203113 (from R4-2202971).**

**R4-2203113 Email discussion summary for [101-bis-e][308] NTN\_Solutions\_Part3**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203033 WF on BS RF requirements for SAN type 1-H**

*Type: other For: Approval  
 Source: CATT*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203124 (from R4-2203033).**

**R4-2203124 WF on BS RF requirements for SAN type 1-H**

*Type: other For: Approval  
 Source: CATT*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203034 WF on Tx RF requirement for SAN type 1-O**

*Type: other For: Approval  
 Source: ZTE*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203035 WF on Rx RF requirement for SAN type 1-O**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203036 WF on UE RF requirement for NTN UE**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203124 | WF on BS RF requirements for SAN type 1-H | CATT | Approved |  |
| R4-2203034 | WF on Tx RF requirement for SAN type 1-O | ZTE | Approved |  |
| R4-2203035 | WF on Rx RF requirement for SAN type 1-O | Ericsson | Approved |  |
| R4-2203036 | WF on UE RF requirement for NTN UE | Huawei | Approved |  |
| R4-2203037 | TP for 38.863 on UE transmission characteristics for satellite access | Huawei | Approved |  |
| R4-2203038 | TP for 38.863 on maximum input level for NTN UE | Xiaomi | Approved |  |
| R4-2203039 | TP for 38.863 on UE Receiver characteristics for satellite access | Huawei | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200167 Remaining issue for satellite access node RF requirement - Tx part**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200168 Remaining issue for satellite access node RF requirement - Rx part**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

Session Chair Note: R4-2201206/1207 moved to RRM session AI 6.17.3

##### 6.13.3.1 TX requirements for radiated characteristics

**R4-2200169 Discussion on NTN BS RF requriement for type 1-O - Tx part**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2201258 Discussion on UE Tx requirements for satellite access**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision:** The document was **withdrawn**.

**R4-2201260 TP for 38.863 on UE transmitter characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **withdrawn**.

**R4-2201468 Discussion on radiated Tx requirements of satellite access node**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201816 Discussion on Satellite Access Node radiated RF requirements: Tx**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further discussion on the radiated Tx requirements for the Satellite Access Node.

**Decision: Noted.**

**R4-2201320 NTN - Satellite Node Access - OTA Tx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses Satellite node access - OTA Tx requirements

**Decision: Noted.**

##### 6.13.3.2 RX requirements for radiated characteristics

**R4-2200170 Discussion on NTN BS RF reqruiement for type 1-O - Rx part**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2201259 Discussion on UE Rx requirements for satellite access**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision:** The document was **withdrawn**.

**R4-2201261 TP for 38.863 on UE Receiver characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **withdrawn**.

**R4-2201469 Discussion on radiated Rx requirements of satellite access node**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201817 Discussion on Satellite Access Node radiated RF requirements: Rx**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further discussion on the radiated Rx requirements for the Satellite Access Node.

**Decision: Noted.**

**R4-2201321 NTN - Satellite Node Access - OTA Rx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses Satellite node access - OTA Rx requirements

**Decision: Noted.**

##### 6.13.3.3 Tx requirements for conducted characteristics

**R4-2201318 NTN - Satellite Node Access - Tx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses Satellite node access - Tx requirements

**Decision: Noted.**

**R4-2201470 Discussion on conducted Tx requirements of satellite access node**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201818 Discussion on Satellite Access Node conducted RF requirements: Tx**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further discussion on the conducted Tx requirements for the Satellite Access Node.

**Decision: Noted.**

**R4-2201819 Discussion on 64QAM support for the Satellite Access Node operation in FR1**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Abstract:**

In this contribution we provide simulation results and related discussion to justify the performance gains of DL 64QAM support for the NTN Satellite Access Node operation in FR1.

**Decision: Noted.**

##### 6.13.3.4 Rx requirements for conducted characteristics

**R4-2201471 Discussion on conducted RF requirements from satellite network perspective**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201820 Discussion on Satellite Access Node conducted RF requirements: Rx**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further discussion on the conducted Rx requirements for the Satellite Access Node.

**Decision: Noted.**

**R4-2201319 NTN - Satellite Node Access - Rx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses Satellite node access - Rx requirements

**Decision: Noted.**

#### 6.13.4 UE RF requirements

##### 6.13.4.1 TX requirements

**R4-2200073 Further discussion on UE Tx RF requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200331 Discussion on UE TX requirements for NTN**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

**R4-2200783 Considerations on NTN UE Tx requirements**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201310 Discussion on UE Tx requirements for satellite access**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201312 TP for 38.863 on UE transmitter characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2203037 (from R4-2201312).**

**R4-2203037 TP for 38.863 on UE transmitter characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2201322 NTN - UE - Tx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses UE - Tx requirements

**Decision: Noted.**

**R4-2201472 Discussion on NTN UE Tx RF requirements**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

##### 6.13.4.2 RX requirements

**R4-2200074 Further discussion on UE Rx RF requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200332 Discussion on UE RX requirements for NTN**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

**R4-2200784 Considerations on NTN UE Rx requirements**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2201223 TP for 38.863 on maximum input power for NTN UE**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2203038 (from R4-2201223).**

**R4-2203038 TP for 38.863 on maximum input power for NTN UE**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Approved.**

**R4-2201224 Discussion on Maximum input level for NTN UE**

*Type: other For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2201311 Discussion on UE Rx requirements for satellite access**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2201313 TP for 38.863 on UE Receiver characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2203039 (from R4-2201313).**

**R4-2203039 TP for 38.863 on UE Receiver characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2201323 NTN - UE - Rx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses UE - Rx requirements

**Decision: Noted.**

**R4-2201473 Discussion on NTN UE Rx RF requirements**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

#### 6.13.6 Demodulation requirements

##### 6.13.6.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][322] NR\_NTN\_Demod\_NWM, AI 6.13.6– Bin Han**

**R4-2202972 Email discussion summary for [101-bis-e][322] NR\_NTN\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Qualcom)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203114 (from R4-2202972).**

**R4-2203114 Email discussion summary for [101-bis-e][322] NR\_NTN\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Qualcom)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203042 WF on general and NTN UE demodulation requirements**

*Type: other For: Approval  
 Source: Qualcom*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203043 WF on NTN SAN demodulation requirements**

*Type: other For: Information  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203042 | WF on general and NTN UE demodulation requirements | Qualcomm Incorporated | Approved |  |
| R4-2203043 | WF on NTN SAN demodulation requirements | Huawei, HiSilicon | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200475 Discussion on general issue for NTN NR**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

General issue discussion for NTN NR

**Decision: Noted.**

##### 6.13.6.2 Satellite Access Node demodulation requirements

**R4-2200171 Discussion on Satellite Access Node demodulation requirements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2200476 Discussion on satellite access node demodulation requirement for NTN NR**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Satellite access node demodulation issue discussion for NTN NR

**Decision: Noted.**

**R4-2201785 Discussion on Satellite Access Node demodulation requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2201016 Discussion on satellite NTN demod**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

Session Chair Note: Move to this AI from AI 6.13.6.3

**Decision: Noted.**

##### 6.13.6.3 UE demodulation requirements

**R4-2201420 Discussion on UE demodulation for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the general aspects for UE demodulation for NTN

**Decision: Noted.**

**R4-2201786 Discussion on UE demodulation requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2201015 Discussion on UE NTN demod**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

Session chair note: move to this AI from AI 6.13.6.2

**Decision: Noted.**

### 6.16 Extending current NR operation to 71GHz

#### 6.16.4 BS RF requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][309] NR\_exto71GHz\_BSRF, AI 6.16.4– Toni lahteensuo**

**R4-2202973 Email discussion summary for [101-bis-e][309] NR\_exto71GHz\_BSRF**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203115 (from R4-2202973).**

**R4-2203115 Email discussion summary for [101-bis-e][309] NR\_exto71GHz\_BSRF**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203016 WF on BS RF Tx requirements**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203017 WF on BS RF Rx requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203012 | Draft CR to TR 38.104: Clauses 9.1 to 9.5 | Nokia, Nokia Shanghai Bell | Endorsed |  |
| R4-2203013 | Draft CR to TS 38.104: Addition of requirements for NR extension up to 71 GHz in subclause 9.6 to 9.8 | Ericsson | Endorsed |  |
| R4-2203015 | Draft CR for TS 38.104 on introduction of BS RF Rx requirements for 57-71GHz in section 10.1 – 10.5 | CATT | Endorsed |  |
| R4-2203014 | Draft CR to TS 38.104: implementation of FR2-2 requirements: FRC annex | Huawei | Endorsed |  |
| R4-2203016 | WF on BS RF Tx requirements | Nokia, Nokia Shanghai Bell | Approved |  |
| R4-2203017 | WF on BS RF Rx requirements | Ericsson | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

##### 6.16.4.1 TX requirements

**R4-2200136 Discussion on BS TX RF requirements for 52 6-71GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200411 Proposals on BS transmitter requirements for extending current NR operation to 71 GHz**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides further proposals on BS transmitter requirements for extending current NR operation to 71 GHz according to the approved WF and the findings in the corresponding study item as recorded in TR 38.808.

**Decision: Noted.**

**R4-2200414 Draft CR to TR 38.104: Clauses 9.1 to 9.5**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Required changes to clauses 9.1 to 9.5 for extending current NR operation to 71 GHz

**Decision: Revised to R4-2203012 (from R4-2200414).**

**R4-2203012 Draft CR to TR 38.104: Clauses 9.1 to 9.5**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Required changes to clauses 9.1 to 9.5 for extending current NR operation to 71 GHz

**Decision: Endorsed.**

**R4-2200843 On BS RF transmitter requirements for the frequency range 52 to 71 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we present an overview of BS transmitter requirements, additional information and some proposals necessary to progress the work related to defining RF core requirements for the NR extension up to 71 GHz. To further stimulate the discu

**Decision: Noted.**

**R4-2200845 Draft CR to TS 38.104: Addition of requirements for NR extension up to 71 GHz in subclause 9.6 to 9.8**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

As part of the work to extend NR frequency range up to 71 GHz this draft CR adds requirements to subclauses 9.6 to 9.8. Additions will be collected in a “big” CR for the complete update of TS 38.104.

**Decision: Revised to R4-2203013 (from R4-2200845).**

**R4-2203013 Draft CR to TS 38.104: Addition of requirements for NR extension up to 71 GHz in subclause 9.6 to 9.8**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

As part of the work to extend NR frequency range up to 71 GHz this draft CR adds requirements to subclauses 9.6 to 9.8. Additions will be collected in a “big” CR for the complete update of TS 38.104.

**Decision: Endorsed.**

**R4-2201456 Further discussion on BS Tx requirements for 52.6-71GHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201821 Discussion on the remaining BS RF requirements for FR2-2: Tx requirements**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further inputs to the discussion on the BS RF transmitter requirements for the NR operation in FR2-2.

**Decision: Noted.**

##### 6.16.4.2 RX requirements

**R4-2200137 Discussion on BS RX RF requirements for 52 6-71GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2200151 Draft CR for TS 38.104 on introduction of BS RF Rx requirements for 57-71GHz in section 10.1 – 10.5**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2203015 (from R4-2200151).**

**R4-2203015 Draft CR for TS 38.104 on introduction of BS RF Rx requirements for 57-71GHz in section 10.1 – 10.5**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2200412 Proposals on BS receiver requirements for extending current NR operation to 71 GHz**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides further proposals on BS receiver requirements for extending current NR operation to 71 GHz according to the approved WF and the findings in the corresponding study item as recorded in TR 38.808.

**Decision: Noted.**

**R4-2200844 On BS RF receiver requirements for the frequency range 52 to 71 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we continue the discussion from [2] on BS RF receiver requirements relevant for the NR extension to support up to 71 GHz. The contribution presents an overview of base station receiver requirement changes compared to current version o

**Decision: Noted.**

**R4-2201457 Further discussion on BS Rx requirements for 52.6-71GHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2201822 Discussion on the remaining BS RF requirements for FR2-2: Rx requirements**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide further inputs to the discussion on the BS RF receiver requirements for the NR operation in FR2-2.

**Decision: Noted.**

**R4-2201823 Draft CR to TS 38.104: implementation of FR2-2 requirements: FRC annex**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 38.104 fot the FRC annex.

**Decision: Revised to R4-2203014 (from R4-2201823).**

**R4-2203014 Draft CR to TS 38.104: implementation of FR2-2 requirements: FRC annex**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Draft CR to TS 38.104 fot the FRC annex.

**Decision: Endorsed.**

### 6.17 Enhancements to Integrated Access and Backhaul (IAB) for NR

#### 6.17.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][310] NR\_eIAB, AI 6.17.1, 6.17.2– Yankun Li**

**R4-2202974 Email discussion summary for [101-bis-e][310] NR\_eIAB**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203116 (from R4-2202974).**

**R4-2203116 Email discussion summary for [101-bis-e][310] NR\_eIAB**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203018 WF on work split for eIAB RF impact to TS38.174**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203019 WF on timing enhancement for eIAB**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203020 Reply LS on range of power control parameters**

*Type: LS out For: Approval*

*To: RAN1; CC: RAN2  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203108 | WF on work split for eIAB RF impact to TS38.174 | Samsung | Approved |  |
| R4-2203019 | WF on timing enhancement for eIAB | Nokia | Approved |  |
| R4-2203020 | Reply LS on range of power control parameters | Samsung | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2201702 LS response on range of power control parameters for eIAB**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present LS response on power control parameters

**Decision: Noted.**

#### 6.17.2 RF requirements

##### 6.17.2.1 Impact for Simultaneous operation of IAB child and parent links

**R4-2200936 Specification impact due to IAB simultaneous operation**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2201595 RF requirements due to Tx power imbalance between IAB-MT and IAB-DU**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution power imbalance between IAB-MT and IAB-DU is discussed in it is proposed how to capture the restrictions to core specifications.

**Decision: Noted.**

**R4-2201700 RF core specification impact for Simultaneous operation of DU and MT**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on RF core spec for simultaneous operation of DU and MT

**Decision: Noted.**

##### 6.17.2.2 Impact for Timing enhancement

**R4-2200839 Discussion on timing issues for simultaneous operation of IAB**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2200937 Discussion on timing enhancement**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2201596 Discussion on timing error for eIAB**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we further discuss issue of IAB timing error between IAB-DU and IAB-MT and propose how to specify the requirements.

**Decision: Noted.**

**R4-2201701 IAB MT /DU case 6 timing**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on RF impact on simultaneous operation of DU and MT.

**Decision: Noted.**

**R4-2201939 eIAB Timing error between MT TX and DU TX**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the open issue on the IAB MT Tx to DU TX timing error.

**Decision: Noted.**

##### 6.17.2.3 Others

**R4-2200938 Discussion on range of power control parameters for Rel-17 eIAB**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2201597 Draft reply LS to RAN1 on Power control parameters**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

RAN1 has sent a LS to RAN4 asking RAN4 to provide recommendation on min and max values for the desired DL Tx power adjustment, the actual DL Tx power adjustment and the desired UL Tx PSD range. In this contribution we discuss these and provide a draft rep

**Decision: Noted.**

### 6.18 NR coverage enhancements

#### 6.18.3 BS demodulation requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][319] NR\_cov\_enh\_Demod\_NWM, AI 6.18.3– Jingzhou Wu**

**R4-2202975 Email discussion summary for [101-bis-e][319] NR\_cov\_enh\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203117 (from R4-2202975).**

**R4-2203117 Email discussion summary for [101-bis-e][319] NR\_cov\_enh\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203030 WF on PUSCH demodulation performance of Rel-17 NR coverage enhancement**

*Type: other For: Approval  
 Source:China Telecom*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203031 WF on PUCCH demodulation performance of Rel-17 NR coverage enhancement**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203030 | WF on PUSCH demodulation performance of Rel-17 NR coverage enhancement | China Telecom | Approved |  |
| R4-2203031 | WF on PUCCH demodulation performance of Rel-17 NR coverage enhancement | Nokia | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200025 BS demodulation requirements for NR coverage enhancements**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2200408 BS demodulation requirements for NR coverage enhancements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution, we have provided an overview of NR coverage enhancements features and scenarios with a potential impact on the receiver demodulation performance.

**Decision: Noted.**

**R4-2200477 Discussion on BS demodulation requirements for NR coverage enhancement**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

BS demodulatlion discussion for NR coverage enhancement

**Decision: Noted.**

**R4-2200756 View on demodulation requirement for Rel-17 coverage enhancement**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201017 Discussion on BS coverage enhancement demod**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201604 Discussion on scope of BS demodulation requirements for NR coverage enhancements WI**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

### 6.19 Further enhancements on MIMO for NR

#### 6.19.4 UE Demodulation and CSI requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][320] NR\_FeMIMO\_Demod\_NWM, AI 6.19.4— Yunchuan Yang**

**R4-2202976 Email discussion summary for [101-bis-e][320] NR\_FeMIMO\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203118 (from R4-2202976).**

**R4-2203118 Email discussion summary for [101-bis-e][320] NR\_FeMIMO\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203090 WF on general and CSI requirement for Rel-17 FeMIMO**

*Type: other For: Approval  
 Source: Samsung*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203091 WF on demodulation requirement for Enhancement on HST-SFN deployment**

*Type: other For: Approval  
 Source: Intel*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203092 WF on demodulation requirement for Enhancement on Multi-TRP**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203090 | WF on general and CSI requirement for Rel-17 FeMIMO | Samsung | Approved |  |
| R4-2203091 | WF on demodulation requirement for Enhancement on HST-SFN deployment | Intel | Approved |  |
| R4-2203092 | WF on demodulation requirement for Enhancement on Multi-TRP | Huawei | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200280 On scope of demod requirements for FeMIMO**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200365 Views on Rel-17 HST-SFN scheme 1**

*Type: discussion For: Discussion  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2200522 Discussion on demodulation performance requirements definition for Rel-17 NR feMIMO**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2200644 Discussion on demodulation requirements for enhancement to support HST-SFN**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2200767 Overview and work plan on performance requirements of Rel-17 FeMIMO WI**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2201014 Discussion on UE FeMIMO demod**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201421 Discussion on UE demodulation and CSI requirement for FeMIMO**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution goes through all the new features of FeMIMO studied in RAN1 that are related to RAN4 UE demodulation, and proposes to define several requirements.

**Decision: Noted.**

**R4-2201841 Views on FeMIMO Tests**

*Type: discussion For: Discussion  
 Source: Qualcomm CDMA Technologies*

**Decision: Noted.**

**R4-2201922 On UE Demodulation and CSI requirements for feMIMO**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution we have presented Nokia’s point of view concerning the CSI reporting performance requirement impact of the Rel-17 “further enhanced type II port selection codebook”, after giving some background on the new features and inner workings

**Decision: Noted.**

### 6.20 Support of reduced capability NR devices

#### 6.20.1 General

**R4-2200407 On NR RedCap general BS demodulation performance requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution, we have provided an overview of RedCap-related features and scenarios. We see that there is no potential impact on the BS demodulation performance.

**Decision: Noted.**

#### 6.20.4 UE demodulation and CSI requirements

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][321] NR\_RedCap\_Demod\_NWM, AI 6.20.4, 6.20.1 (R4-2200407)– Kazuyoshi Uesaka**

**R4-2202977 Email discussion summary for [101-bis-e][321] NR\_RedCap\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203119 (from R4-2202977).**

**R4-2203119 Email discussion summary for [101-bis-e][321] NR\_RedCap\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203032 WF on RedCap demodulation and CQI reporting requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203032 | WF on RedCap demodulation and CQI reporting requirements | Ericsson | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2200281 On impact to demod requirements for Reduced capability devices in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2200382 Views on UE demodulation requirements for RedCap**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2200406 On NR RedCap general UE demodulation and CSI performance requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution, we have provided an overview of RedCap-related features with their potential impact on the UE demodulation and CSI performance requirements.

**Decision: Noted.**

**R4-2200816 On UE demodulation and CSI requirements for RedCap UE**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision: Noted.**

**R4-2200994 Discussion on UE demodulation and CSI requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201435 Work plan for UE demodulation requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution proposes the work plan of the demodulation performance part for RedCap WI.

**Decision: Noted.**

**R4-2201436 UE demodulation and CSI reporting requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our view on RedCap UE demodulation requirements.

**Decision: Noted.**

**R4-2201605 Discussion on scope of UE demodulation and CSI requirements for reduced capability NR devices**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2201720 Introduction of RedCap Demodulation Requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

## 7 Rel-17 Study Items for NR

### 7.1 Study on enhanced test methods for FR2 in NR

#### 7.1.1 Maintenance on objectives 1~6

**R4-2200452 TP to TR 38.884 on release independence applicability of test method enhancements**

*Type: pCR For: Approval  
 38.884 v1.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Approved.**

#### 7.1.2 OTA test methods for UE RF, RRM and demodulation for 52.6~71GHz

##### 7.1.2.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][327] FR2\_enhTestMethods, AI 7.1— Aida Vera Lopez**

**R4-2202978 Email discussion summary for [101-bis-e][327] FR2\_enhTestMethods**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203120 (from R4-2202978).**

**R4-2203120 Email discussion summary for [101-bis-e][327] FR2\_enhTestMethods**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203079 WF on OTA test methods for FR2-2**

*Type: other For: Approval  
 Source: Intel*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**R4-2203128 Draft TR 38.884 v1.2.0: Study on enhanced test methods for FR2 NR UEs**

*Type: draft TR For: Approval  
 38.884 v1.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple, vivo, Intel*

**Abstract:**

For email approval after the meeting, i.e., to implement the TPs approved during the meeting.

**Decision:** Email approval

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2200452 | TP to TR 38.884 on release independence applicability of test method enhancements | Apple | Approved |  |
| R4-2203078 | TP to TR 38.884 on extension of NR test methods to FR2-2 | Intel Corporation | Approved |  |
| R4-2203079 | WF on OTA test methods for FR2-2 | Intel Corporation | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

###### 7.1.2.1.1 Test system assumption

###### 7.1.2.1.2 UE types

**R4-2201921 On Vehicular UEs**

*Type: discussion For: Approval  
 Source: Keysight Technologies UK Ltd*

**Decision: Noted.**

###### 7.1.2.1.3 MU assessment

###### 7.1.2.1.4 Others

**R4-2201873 TP to TR 38.884 on extension of NR test methods to FR2-2**

*Type: pCR For: Approval  
 38.884 v1.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2203078 (from R4-2201873).**

**R4-2203078 TP to TR 38.884 on extension of NR test methods to FR2-2**

*Type: pCR For: Approval  
 38.884 v1.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Approved.**

**R4-2201927 UE types and permitted methods for FR2-2**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

##### 7.1.2.2 Test methodology for UE RF

**R4-2201990 Issues with MIMO EVM Measurement Using the Pseudo-Inverse**

*Type: discussion For: Approval  
 Source: Lenovo, Motorola Mobility*

**Decision: Noted.**

##### 7.1.2.3 Test methodology for RRM

**R4-2201874 NR FR2-2 OTA test methods for RRM**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

##### 7.1.2.4 Test methodology for UE demodulation and CSI

**R4-2200907 On permitted test methods for demodulation in FR2-2**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2201875 NR FR2-2 OTA test methods for UE demodulation**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

## 8 Rel-17 Work Items for LTE

### 8.9 Additional enhancements for NB-IoT and LTE-MTC

#### 8.9.6 Demodulation requirements

##### 8.9.6.1 General

-----------------------------------------------------------------------------------------------------------------------------------------------

**Email discussion for [101-bis-e][323] NB-IOT\_MTC\_Demod\_NWM, AI 8.9.6— Tricia Li**

**R4-2202979 Email discussion summary for [101-bis-e][323] NB-IOT\_MTC\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Revised to R4-2203121 (from R4-2202979).**

**R4-2203121 Email discussion summary for [101-bis-e][323] NB-IOT\_MTC\_Demod\_NWM**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Noted.**

**R4-2203041 WF on Rel-17 NB-IOT and eMTC performance requirements**

*Type: other For: Approval  
 Source: Huawei*

**Abstract:**

**Discussion:**

**Decision: Approved.**

**Conclusion after 2nd round**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Decision** | **Comments** |
| R4-2203041 | WF on Rel-17 NB-IOT and eMTC performance requirements | Huawei, HiSilicon | Approved |  |

------------------------------------------------------------------------------------------------------------------------------------------------

##### 8.9.6.2 Demodulation requirements for NB-IoT

###### 8.9.6.2.1 UE demodulation requirements

**R4-2200763 On UE demodulation requirements for 16-QAM NB-IoT**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2200995 Discussion on UE demodulation requirements for additional enhancements of NB-IoT**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201432 View on Rel-17 NB-IoT UE demodulation requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our view on Rel-17 NB-IoT UE demodulation requirements.

**Decision: Noted.**

###### 8.9.6.2.2 BS demodulation requirements

**R4-2200751 View on demodulation requirement for Rel-17 NB-IoT**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200996 Discussion on BS demodulation requirements for additional enhancements of NB-IoT**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201433 View on Rel-17 NB-IoT BS demodulation requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our view on Rel-17 NB-IoT BS demodulation requirements.

**Decision: Noted.**

**R4-2201984 Discussion on BS demodulation requirements for Additional enhancements for NB-IoT**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on BS demodulation requirements for NB-IoT 16QAM

**Decision: Noted.**

##### 8.9.6.3 Demodulation requirements for MTC

**R4-2200750 View on demodulation requirement for Rel-17 eMTC**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2200997 Discussion on UE demodulation requirements for additional enhancements of LTE-MTC**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2201434 View on Rel-17 LTE-MTC demodulation requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our view on Rel-17 eMTC UE/BS demodulation requirements.

**Decision: Noted.**

## 9 Liaison and output to other groups

## 10 Any other business

## BACKUP

**R4-22AAAAA Email discussion summary for**

*Type: other For: Information  
 Source: Moderator (TBA)*

**Abstract:**

**Discussion:**

**Decision: Return to.**