**3GPP TSG-RAN WG4 Meeting #103-e R4-221xxxx**

**Online Meeting, May 09– May 20 2022**

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

**Title:** **RAN4#103-e BS\_Demod\_Testing Session meeting minutes**

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

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

## 4 Up to Rel-16 maintenance for LTE and NR

### 4.1 NR WIs

#### 4.1.2 BS RF requirements

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

**Email discussion for [103-e][301] BSRF\_Maintenance, AI 4.1.2,5.3.1,9.6.1, 9.6.3– Johan Sköld**

**R4-2210307 Email discussion summary for [103-e][301] BSRF\_Maintenance**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208130 Draft CR for TS 38.104 R16: correction of some mistakes in the co-existence table**

*Type: draftCR For: Endorsement  
 38.104 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208131 Draft CR for TS 38.104 R17: correction of some mistakes in the co-existence table**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

##### 4.1.2.1 General

**R4-2207704 draft CR 38.104 to address compliance for spurious emissions in C-band in the US for non-contiguous aggregation between 3.45-3.55 MHz and 3.7-3.98 MHz**

*Type: draftCR For: Approval  
 38.104 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Charter Communications, Inc*

**Decision:** The document was **not treated**.

**R4-2207705 Additional BS Spurious emissions for Band n77**

*Type: discussion For: Approval  
 38.104 v CR- rev Cat: (Rel-16)  
  
 Source: Charter Communications, Inc*

**Decision:** The document was **withdrawn**.

**R4-2208535 Technical background related to sub-array parameters relevant for 6 to 10 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we have collected the antenna model extension and relevant parameter sets for base stations using sub-arrays operating around 6 GHz and 10 GHz. The parameter sets are presented as addition to previously presented parameters for single

**Decision:** The document was **not treated**.

**R4-2208536 CR to TR 38.921: Addition of additional BS antenna parameters in subclause 8.1**

*Type: CR For: Approval  
 38.921 v17.1.0 CR-0003 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

At previous ITU-R WP 5D meeting parameters to model base station array antennas with vertical sub-arrays was presented. Vertical sub-arrays are used for base stations operating between 1710 to 4990 MHz. The details are captured in TR 38.803, subclause 5.2

**Decision:** The document was **not treated**.

**R4-2209608 Additional BS Spurious emissions for Band n77**

*Type: discussion For: Approval  
 38.104 v CR- rev Cat: (Rel-16)  
  
 Source: Charter Communications, Inc*

**Decision:** The document was **not treated**.

**R4-2209646 Draft CR to TS 38.104: NR frequency band table notes corrections, Rel-16**

*Type: draftCR For: Endorsement  
 38.104 v16.11.0 CR- rev Cat: D (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Correction of references and application of the drafting rules.

**Decision:** The document was **not treated**.

**R4-2209647 Draft CR to TS 38.104: NR frequency band table notes corrections, Rel-17**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Correction of references and application of the drafting rules.

**Decision:** The document was **not treated**.

##### 4.1.2.2 TX/RX requirements (38.104)

**R4-2209648 Draft CR to TS 38.104: Additional Tx spurious emissions terminology corrections (basic limit, maximum level, minimum requirement), Rel-16**

*Type: draftCR For: Endorsement  
 38.104 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

It was observed that for the additional Tx spurious emissions requirements, various terms are used to define the same requirement, i.e. basic limit, maximum level, minimum requirement. This CR is fixing this issues to follow aligned terminology, i.e. basi

**Decision:** The document was **not treated**.

**R4-2209649 Draft CR to TS 38.104: Additional Tx spurious emissions terminology corrections (basic limit, maximum level, minimum requirement), Rel-17**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

It was observed that for the additional Tx spurious emissions requirements, various terms are used to define the same requirement, i.e. basic limit, maximum level, minimum requirement. This CR is fixing this issues to follow aligned terminology, i.e. basi

**Decision:** The document was **not treated**.

**R4-2209810 Draft CR to TS 38.104 with clarifications of BS type for band n96**

*Type: draftCR For: Approval  
 38.104 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209811 Draft CR to TS 38.104 with clarifications of BS type for band n96 and n102**

*Type: draftCR For: Approval  
 38.104 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207911 Draft CR to TS 38.104 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.104 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell, Ericsson, Huawei*

**Abstract:**

Clarify the power shall be equally divided between the supported polarizations when the power is either 46 dBm or Prated,t,TRP.

Session Chair: Move to this AI from AI 4.1.1

**Decision:** The document was **not treated**.

**R4-2207912 Draft CR to TS 38.104 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.104 v16.11.0 CR- rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell, Ericsson, Huawei*

**Abstract:**

Clarify the power shall be equally divided between the supported polarizations when the power is either 46 dBm or Prated,t,TRP.

Session Chair: Move to this AI from AI 4.1.1

**Decision:** The document was **not treated**.

**R4-2207913 Draft CR to TS 38.104 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell, Ericsson, Huawei*

**Abstract:**

Clarify the power shall be equally divided between the supported polarizations when the power is either 46 dBm or Prated,t,TRP.

Session Chair: Move to this AI from AI 4.1.1

**Decision:** The document was **not treated**.

##### 4.1.2.3 MSR and eAAS specifications

**R4-2207914 Draft CR to TS 37.141 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.141 v16.13.0 CR- rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

1) Update NTC21 to allow wider channel bandwidth and/or more carriers to be placed to reach the rated total output power.

2) Remove the “a” suffix from NTC3.

**Decision:** The document was **not treated**.

**R4-2207915 Draft CR to TS 37.141 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.141 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

1) Update NTC21 to allow wider channel bandwidth and/or more carriers to be placed to reach the rated total output power.

2) Remove the “a” suffix from NTC3.

**Decision:** The document was **not treated**.

**R4-2207916 Draft CR to TS 37.145-1 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.145-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Remove the “a” suffix from ANTC3a in places where it is referred to.

**Decision:** The document was **not treated**.

**R4-2207917 Draft CR to TS 37.145-1 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.145-1 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Remove the “a” suffix from ANTC3a in places where it is referred to.

**Decision:** The document was **not treated**.

**R4-2207918 Draft CR to TS 37.145-2 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.145-2 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Remove the “a” suffix from ANTCR3a in places where it is referred to. Correct the table heading errors in clause 7.9.5.1.

**Decision:** The document was **not treated**.

**R4-2207919 Draft CR to TS 37.145-2 on corrections of test configurations**

*Type: draftCR For: Endorsement  
 37.145-2 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Remove the “a” suffix from ANTCR3a in places where it is referred to. Correct the table heading errors in clause 7.9.5.1.

**Decision:** The document was **not treated**.

**R4-2209729 CR to 37.104: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.104 v15.16.0 CR-0965 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209730 CR to 37.104: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.104 v16.13.0 CR-0966 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209731 CR to 37.104: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.104 v17.5.0 CR-0967 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209732 CR to 37.141: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.141 v15.17.0 CR-1011 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209733 CR to 37.141: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.141 v16.13.0 CR-1012 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209734 CR to 37.141: Corrections to notes in OBUE requirements**

*Type: CR For: Agreement  
 37.141 v17.5.0 CR-1013 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2210023 Draft CR to TS 37.105 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL15)**

*Type: draftCR For: Agreement  
 37.105 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

**R4-2210024 Draft CR to TS 37.105 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL16)**

*Type: draftCR For: Agreement  
 37.105 v16.11.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

**R4-2210025 Draft CR to TS 37.105 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL17)**

*Type: draftCR For: Agreement  
 37.105 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

**R4-2210026 Draft CR to TS 37.145-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL15)**

*Type: draftCR For: Agreement  
 37.145-2 v15.14.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

**R4-2210027 Draft CR to TS 37.145-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL16)**

*Type: draftCR For: Agreement  
 37.145-2 v16.11.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

**R4-2210028 Draft CR to TS 37.145-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement (REL17)**

*Type: draftCR For: Agreement  
 37.145-2 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, Nokia, Ericsson*

**Abstract:**

Correcting the intermodulation interfering signal polarization text so it is consistent with bot signal and dual polarization and the new power level

**Decision:** The document was **not treated**.

#### 4.1.3 BS conformance testing

##### 4.1.3.1 General

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

**Email discussion for [103-e][302] NR\_Conformance\_Maintenance, AI 4.1.3– Liehai Liu**

**R4-2210308 Email discussion summary for [103-e][302] NR\_Conformance\_Maintenance**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208121 Draft CR for TS 38.176-2 R16: correction of the co-existence test requirements**

*Type: draftCR For: Endorsement  
 38.176-2 v16.3.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208123 Draft CR for TS 38.176-1 R16: add the missing contents of A.1.1**

*Type: draftCR For: Endorsement  
 38.176-1 v16.3.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208124 Draft CR for TS 38.176-1 R17: add the missing contents of A.1.1**

*Type: draftCR For: Endorsement  
 38.176-1 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208125 Draft CR for TS 38.176-2 R16: add the missing contents of A.1.1**

*Type: draftCR For: Endorsement  
 38.176-2 v16.3.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208126 Draft CR for TS 38.176-2 R17: add the missing contents of A.1.1**

*Type: draftCR For: Endorsement  
 38.176-2 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

##### 4.1.3.2 Conducted conformance testing (38.141-1)

**R4-2209812 Draft CR to TS 38.141-1 with clarifications of BS type for band n96**

*Type: draftCR For: Approval  
 38.141-1 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209813 Draft CR to TS 38.141-1 with clarifications of BS type for band n96 and n102**

*Type: draftCR For: Approval  
 38.141-1 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 4.1.3.3 Radiated conformance testing (38.141-2)

**R4-2208127 Draft CR for TS 38.141-2 R15: correction of declaration descriptions**

*Type: draftCR For: Endorsement  
 38.141-2 v15.13.0 CR- rev Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208128 Draft CR for TS 38.141-2 R16: correction of BS type 1-O co-existence table**

*Type: draftCR For: Endorsement  
 38.141-2 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208231 CR for TS 38.141-2 On sweep time for unwanted emission testing (Rel-15)**

*Type: CR For: Agreement  
 38.141-2 v15.13.0 CR-0394 rev Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208232 CR for TS 38.141-2 On sweep time for unwanted emission testing (Rel-16)**

*Type: CR For: Agreement  
 38.141-2 v16.11.0 CR-0395 rev Cat: A (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208233 CR for TS 38.141-2 On sweep time for unwanted emission testing (Rel-17)**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0396 rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208234 CR for TS 36.141 On sweep time for unwanted emission testing (Rel-15)**

*Type: CR For: Agreement  
 36.141 v15.16.0 CR-1332 rev Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208235 CR for TS 36.141 On sweep time for unwanted emission testing (Rel-16)**

*Type: CR For: Agreement  
 36.141 v16.13.0 CR-1333 rev Cat: A (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208236 CR for TS 36.141 On sweep time for unwanted emission testing (Rel-17)**

*Type: CR For: Agreement  
 36.141 v17.5.0 CR-1334 rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209080 CR for TS 37.141 On sweep time for unwanted emission testing (Rel-15)**

*Type: CR For: Agreement  
 37.141 v15.17.0 CR-1006 rev Cat: F (Rel-15)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209081 CR for TS 37.141 On sweep time for unwanted emission testing (Rel-16)**

*Type: CR For: Agreement  
 37.141 v16.13.0 CR-1007 rev Cat: A (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209082 CR for TS 37.141 On sweep time for unwanted emission testing (Rel-17)**

*Type: CR For: Agreement  
 37.141 v17.5.0 CR-1008 rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209650 Draft CR to TS 38.141-2: removal of Editor's notes, Rel-15**

*Type: draftCR For: Endorsement  
 38.141-2 v15.13.0 CR- rev Cat: D (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As a rapporteur of the specification, we provide editorial correction to remove outstanding Editor's notes.

**Decision:** The document was **not treated**.

**R4-2209651 Draft CR to TS 38.141-2: removal of Editor's notes, Rel-16**

*Type: draftCR For: Endorsement  
 38.141-2 v16.11.0 CR- rev Cat: D (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As a rapporteur of the specification, we provide editorial correction to remove outstanding Editor's notes.

**Decision:** The document was **not treated**.

**R4-2209652 Draft CR to TS 38.141-2: removal of Editor's notes, Rel-17**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As a rapporteur of the specification, we provide editorial correction to remove outstanding Editor's notes.

**Decision:** The document was **not treated**.

**R4-2210031 Draft CR to TS 38.141-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.141-2 v15.13.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson, Huawei, Nokia, Nokia Shanghai Bell*

**Abstract:**

Corrections of notes and test procedure to correctly describe the interfering signal.

**Decision:** The document was **not treated**.

**R4-2210032 Draft CR to TS 38.141-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.141-2 v16.11.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson, Huawei, Nokia, Nokia Shanghai Bell*

**Abstract:**

Corrections of notes and test procedure to correctly describe the interfering signal.

**Decision:** The document was **not treated**.

**R4-2210033 Draft CR to TS 38.141-2 on clarifications of interfering signal for the OTA transmitter intermodulation requirement**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson, Huawei, Nokia, Nokia Shanghai Bell*

**Abstract:**

Corrections of notes and test procedure to correctly describe the interfering signal.

**Decision:** The document was **not treated**.

##### 4.1.3.4 OAT BS testing

**R4-2208564 Draft CR to 37.145-1: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-1 v15.13.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2208565 Draft CR to 37.145-1: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2208566 Draft CR to 37.145-1: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-1 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2208567 Draft CR to 37.145-2: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-2 v15.14.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2208568 Draft CR to 37.145-2: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-2 v16.11.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2208569 Draft CR to 37.145-2: Clarification for unwanted emission testing**

*Type: draftCR For: Endorsement  
 37.145-2 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

#### 4.1.4 UE/BS EMC requirements

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

**Email discussion for [103-e][303] NR\_EMC, AI 4.1.4, 9.5.4– Wubin Zhou**

**R4-2210309 Email discussion summary for [103-e][303] NR\_EMC**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207894 TS 38.175: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Agreement  
 38.175 v16.3.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207895 TS 36.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Agreement  
 36.113 v15.4.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207896 TS 36.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Agreement  
 36.113 v16.2.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207897 TS 37.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Agreement  
 37.113 v15.11.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207898 TS 37.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Agreement  
 37.113 v16.2.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207899 TS 37.114: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Agreement  
 37.114 v15.9.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207900 TS 37.114: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Agreement  
 37.114 v16.0.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207901 TS 38.113: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Agreement  
 38.113 v15.15.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2207902 TS 38.113: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Agreement  
 38.113 v16.5.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2208380 Discussion on highest frequency and measurement uncertainty for NR BS radiated emission test with big size EUT**

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

**Decision:** The document was **not treated**.

**R4-2208382 Draft CR to TS 38.113 Radiated emission measurement uncertainty (R15)**

*Type: draftCR For: Endorsement  
 38.113 v15.15.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2208384 Draft CR to TS 38.113 Radiated emission measurement uncertainty (R16)**

*Type: draftCR For: Endorsement  
 38.113 v16.5.0 CR- rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2208386 Draft CR to TS 38.113 Radiated emission measurement uncertainty (R17)**

*Type: draftCR For: Endorsement  
 38.113 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2209653 CR to TS 34.124: corrections of the UTRA UE EMC specification, Rel-17**

*Type: CR For: Agreement  
 34.124 v17.0.0 CR-0047 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

This CR is related to the discussion on 25-, and 34-series specifications maintenance. As those technical specifications were agreed in SA to be further updated to Rel-17 version, there is need to fix some obvious error and technical inconsistencies obser

**Decision:** The document was **not treated**.

**R4-2209654 Draft CR to TS 38.124: addition of the missing Rx spurious emissions limits for idle mode testing, Rel-15**

*Type: draftCR For: Endorsement  
 38.124 v15.7.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon, Samsung*

**Abstract:**

Rx spurious emissions limits (enclosure port) for the idle mode testing were unintentionally removed from the NR UE EMC specification. In this CR, those are brought back, including their correction and alignment with the NR UE RF specification.

**Decision:** The document was **not treated**.

**R4-2209655 Draft CR to TS 38.124: addition of the missing Rx spurious emissions limits for idle mode testing, Rel-16**

*Type: draftCR For: Endorsement  
 38.124 v16.4.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon, Samsung*

**Abstract:**

Rx spurious emissions limits (enclosure port) for the idle mode testing were unintentionally removed from the NR UE EMC specification. In this CR, those are brought back, including their correction and alignment with the NR UE RF specification.

**Decision:** The document was **not treated**.

**R4-2209656 Draft CR to TS 38.124: addition of the missing Rx spurious emissions limits for idle mode testing, Rel-17**

*Type: draftCR For: Endorsement  
 38.124 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon, Samsung*

**Abstract:**

Rx spurious emissions limits (enclosure port) for the idle mode testing were unintentionally removed from the NR UE EMC specification. In this CR, those are brought back, including their correction and alignment with the NR UE RF specification.

**Decision:** The document was **not treated**.

**R4-2209657 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-8**

*Type: draftCR For: Endorsement  
 36.124 v8.2.0 CR- rev Cat: F (Rel-8)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209658 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-9**

*Type: draftCR For: Endorsement  
 36.124 v9.2.0 CR- rev Cat: A (Rel-9)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209659 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-10**

*Type: draftCR For: Endorsement  
 36.124 v10.3.0 CR- rev Cat: A (Rel-10)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209660 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-11**

*Type: draftCR For: Endorsement  
 36.124 v11.2.0 CR- rev Cat: A (Rel-11)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209661 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-12**

*Type: draftCR For: Endorsement  
 36.124 v12.1.0 CR- rev Cat: A (Rel-12)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209662 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-13**

*Type: draftCR For: Endorsement  
 36.124 v13.1.0 CR- rev Cat: A (Rel-13)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209663 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-14**

*Type: draftCR For: Endorsement  
 36.124 v14.1.0 CR- rev Cat: A (Rel-14)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209664 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-15**

*Type: draftCR For: Endorsement  
 36.124 v15.3.0 CR- rev Cat: A (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209665 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-16**

*Type: draftCR For: Endorsement  
 36.124 v16.2.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209666 CR to TS 38.175: updates reflecting modifications in IEC 61000-4-3:2020 for the upper frequency range of the RI test**

*Type: CR For: Agreement  
 38.175 v17.0.0 CR-0020 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Based on the updated content of the IEC 61000-4-3:2020 specification, the related 6GHz upper frequency limit for the Radiated Immunity testing is removed.

**Decision:** The document was **not treated**.

**R4-2209667 Draft CR to TS 36.124: correction of the Rx spurious exclusion band (band-agnostic), Rel-17**

*Type: draftCR For: Endorsement  
 36.124 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In order to reduce the workload related to the new bands introduction, this CR is introducing a band-agnostic way to define the Rx exclusion band. Similar correction was already introduced in other EMC specifications to reduce the workload when new bands

**Decision:** The document was **not treated**.

**R4-2209668 Further analysis of the updated IEC 61000-4-3:2020 specification: upper frequency range for radiated immunity requirements**

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

**Abstract:**

During RAN4#101-e an analysis of the updated IEC 61000-4-3 specification was presented in R4-2119132, looking into updates on the upper frequency range for radiated immunity requirements. In this contribution we provide further analysis with more details

**Decision:** The document was **not treated**.

**R4-2209669 CR to TS 38.113: updates reflecting modifications in IEC 61000-4-3:2020 for the upper frequency range of the RI test**

*Type: CR For: Agreement  
 38.113 v17.0.0 CR-0047 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Based on the updated content of the IEC 61000-4-3:2020 specification, the related 6GHz upper frequency limit for the Radiated Immunity testing is removed.

**Decision:** The document was **not treated**.

**R4-2209670 CR to TS 38.124: updates reflecting modifications in IEC 61000-4-3:2020 for the upper frequency range of the RI test, Rel-17**

*Type: CR For: Agreement  
 38.124 v17.0.0 CR-0039 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Based on the updated content of the IEC 61000-4-3:2020 specification, the related 6GHz upper frequency limit for the Radiated Immunity testing is removed.

**Decision:** The document was **not treated**.

**R4-2209671 CR to TS 38.114: updates reflecting modifications in IEC 61000-4-3:2020 for the upper frequency range of the RI test, Rel-17**

*Type: CR For: Agreement  
 38.114 v17.0.1 CR-0001 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Based on the updated content of the IEC 61000-4-3:2020 specification, the related 6GHz upper frequency limit for the Radiated Immunity testing is removed.

**Decision:** The document was **not treated**.

**R4-2210044 TS 38.175: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Endorsement  
 38.175 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2210045 TS 36.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Endorsement  
 36.113 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2210046 TS 37.113: Corrections in clause 9 Immunity**

*Type: draftCR For: Endorsement  
 37.113 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2210047 TS 37.114: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Endorsement  
 37.114 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

**R4-2210048 TS 38.113: Corrections in clause 1 Scope and clause 9 Immunity**

*Type: draftCR For: Endorsement  
 38.113 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to EMC specifications already approved for the NR Repeater specifications

**Decision:** The document was **not treated**.

#### 4.1.6 Demodulation and CSI requirements (38.101-4/38.104)

##### 4.1.6.1 UE demodulation requirements

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

**Email discussion for [103-e][316] Demod\_Maintenance\_UE, AI 4.1.6.1, 4.1.6.2, 5.3.5.1-Manasa Raghavan**

**R4-2210322 Email discussion summary for [103-e][316] Demod\_Maintenance\_UE**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 12th**

List of key open issues:

* Topic #2: Rel-17 TEI: Incorrect PMI reporting

**Background: RP-220948**

|  |
| --- |
| * RAN4 is tasked to discuss and conclude on the following topics in Q2 to enable RAN#96 to make necessary decisions.   + Existence and impact of the incorrect PMI reporting   + Usefulness of a demod requirement with no impact to other WGs.     - Discuss if it is needed to define a new UE capability, e.g., in relation to a UE reference receiver. * The following point can be discussed in RAN4 if the workload allows. Otherwise, it can be discussed in RAN#96.   + Work scope and the number of RAN4 meetings needed to develop a requirement |

**Issue 2-1: Existence of the issue of incorrect PMI reporting**

* Proposals
  + Option 1: Issue exists in certain implementations (Huawei, Nokia)
  + Option 2: Issue doesn’t exist (Apple)
  + Option 3: Need to further discuss a proper model to reveal the issue (Ericsson)
* Recommended WF
  + Collect companies’ views in 1st round.

**Issue 2-2: Impact of overlapping NZP CSI-RS and incorrect PMI reporting**

* Proposals
  + Option 1: Performance degradation is observed with ‘wrong W1 model’ or ‘wrong PMI’ reported by UE (Ericsson, MediaTek)
  + Option 2: No impact is observed with overlapping vs non-overlapping NZP CSI-RS (Apple)
* Recommended WF
  + Collect companies’ views in 1st round

**Issue 2-3: On introducing PMI reporting requirements in ICI**

* Proposals
  + Option 1: Do not define requirements for PMI reporting in ICI (Apple, Huawei, Nokia)
  + Option 2: Define requirements for PMI reporting in ICI (MediaTek)
    - Option 2a: Define requirements after further evaluation (Ericsson)
* Recommended WF
  + Collect companies’ views in 1st round

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207791 CR for mTRP demod requirements applicability (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-4 v16.8.0 CR- rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207792 CR for mTRP demod requirements applicability (Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208532 CR on PDSCH requirements for HST-972 and TDLC300-600**

*Type: CR For: Approval  
 38.101-4 v16.8.0 CR-0284 rev Cat: F (Rel-16)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208533 CR on PDSCH requirements for HST-972 and TDLC300-600**

*Type: CR For: Approval  
 38.101-4 v17.4.0 CR-0285 rev Cat: A (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208575 Correction CA configuration for PDSCH demodulation**

*Type: draftCR For: Agreement  
 38.101-4 v16.8.0 CR- rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2208576 Correction CA configuration for PDSCH demodulation**

*Type: draftCR For: Agreement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2208578 Discussion on scheduling conflicts in UE performance RMCs**

*Type: discussion For: Approval  
 Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2209851 draftCR: Updates to test parameters for NR Rel-16 UE requirements (38.101-4, Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-4 v16.8.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209852 draftCR: Updates to test parameters for NR Rel-16 UE requirements (38.101-4, Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209853 draftCR: Modification on test parameters for FR2 SDR test (38.101-4 Rel-15)**

*Type: draftCR For: Endorsement  
 38.101-4 v15.13.0 CR- rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209854 draftCR: Modification on test parameters for FR2 SDR test (38.101-4 Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-4 v16.8.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209855 draftCR: Modification on test parameters for FR2 SDR test (38.101-4 Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209856 draftCR: Modification on test parameters for eMTC test (36.101 Rel-14)**

*Type: draftCR For: Endorsement  
 36.101 v14.22.0 CR- rev Cat: F (Rel-14)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209857 draftCR: Modification on test parameters for eMTC test (36.101 Rel-15)**

*Type: draftCR For: Endorsement  
 36.101 v15.18.0 CR- rev Cat: A (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209858 draftCR: Modification on test parameters for eMTC test (36.101 Rel-16)**

*Type: draftCR For: Endorsement  
 36.101 v16.13.0 CR- rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209859 draftCR: Modification on test parameters for eMTC test (36.101 Rel-17)**

*Type: draftCR For: Endorsement  
 36.101 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209996 Draft CR on Correction in TDD LTE-NR Coexistence Tests**

*Type: draftCR For: Endorsement  
 38.101-4 v16.8.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209998 Draft CR on Correction in TDD LTE-NR Coexistence Tests**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

##### 4.1.6.2 CSI requirements

**R4-2207651 Draft CR to Reporting of Channel Quality Indicator (CQI) for CA**

*Type: draftCR For: Endorsement  
 38.101-4 v16.8.0 CR- rev Cat: F (Rel-16)  
  
 Source: Anritsu Corporation*

**Abstract:**

6.2A.3.1.1

Separated CSI Report offset settings of the CSI reports for the PCell and SCell.

**Decision:** The document was **not treated**.

**R4-2207652 Draft CR to Reporting of Channel Quality Indicator (CQI) for CA**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Anritsu Corporation*

**Abstract:**

6.2A.3.1.1

Separated CSI Report offset settings of the CSI reports for the PCell and SCell.

**Decision:** The document was **not treated**.

##### 4.1.6.3 BS demodulation requirements

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

**Email discussion for [103-e][315] Demod\_Maintenance\_BS, AI 4.1.6.3-Aijun Cao**

**R4-2210321Email discussion summary for [103-e][315] Demod\_Maintenance\_BS**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209672 Draft CR to TS 38.104: 64QAM BS demodulation FRC description correction, Rel-16**

*Type: draftCR For: Endorsement  
 38.104 v16.11.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

With the introduction of additional FR1 FRCs for the interlaced PUSCH (Table A.5-5), the annex A.5 description text was not updated.

**Decision:** The document was **not treated**.

**R4-2209673 Draft CR to TS 38.104: 64QAM BS demodulation FRC description correction, Rel-17**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

With the introduction of additional FR1 FRCs for the interlaced PUSCH (Table A.5-5), the annex A.5 description text was not updated.

**Decision:** The document was **not treated**.

**R4-2209038 [dCR] Maintenance for IAB-MT performance requirement R16**

*Type: draftCR For: Endorsement  
 38.174 v16.6.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a R16 Cat F draft CR.

Session chair Note: This t-doc moved to this AI from AI 9.16.6

**Decision:** The document was **not treated**.

**R4-2209039 [dCR] Maintenance for IAB-MT performance requirement R17 Cat A**

*Type: draftCR For: Endorsement  
 38.174 v17.0.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a R17 Cat A draft CR.

Session chair Note: This t-doc moved to this AI from AI 9.16.6

**Decision:** The document was **not treated**.

#### 4.1.7 NR MIMO OTA test methods (38.827)

**Refer to email discussion [103-e][332] NR\_MIMO\_OTA**

**R4-2208625 draft CR to TR38.827 on UE mechanical mode**

*Type: draftCR For: Approval  
 38.827 v16.6.0 CR- rev Cat: F (Rel-16)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

## 5 Rel-17 maintenance for LTE and NR

### 5.1 Rel-17 spectrum related WIs

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

**Refer to email discussion [103-e][313] RAIL\_900MHz\_RF**

**R4-2208642 Revised TR 38.852 version 0.3.0**

*Type: draft TR For: Agreement  
 38.852 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision:** The document was **not treated**.

**R4-2208902 TP to TR 38.852 - Clarification BS output power**

*Type: pCR For: Approval  
 38.852 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, UIC*

**Abstract:**

This contribution is a TP to TR 38.852 clarifying BS output power level for 5MHz channel BW

**Decision:** The document was **not treated**.

### 5.2 Rel-17 non-spectrum related WIs

### 5.3 Other WIs and Rel-17 TEI

#### 5.3.1 BS RF requirements

**Refer to email discussion for [103-e][301] BSRF\_Maintenance**

**R4-2208119 Draft CR for TS 38.174 R17: correction of the co-existence and co-location tables**

*Type: draftCR For: Endorsement  
 38.174 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208120 Draft CR for TS 38.176-1 R17: correction of the co-existence and co-location tables**

*Type: draftCR For: Endorsement  
 38.176-1 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208122 Draft CR for TS 38.176-2 R17: correction of the co-existence and co-location test requirements**

*Type: draftCR For: Endorsement  
 38.176-2 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208129 Draft CR for TS 38.141-2 R17: correction of BS type 1-O co-existence table**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208839 CR to 38.141-2: BS FR2 OBUE Cat B requirement table note clarification (6.7.4.5.2)**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0398 rev Cat: F (Rel-17)  
  
 Source: Keysight Technologies UK Ltd*

**Decision:** The document was **not treated**.

#### 5.3.4 Demodulation and CSI requirements

#### 5.3.5 Rel-17 TEI

##### 5.3.5.1 Incorrect PMI reporting

**Refer to email discussion [103-e][316] Demod\_Maintenance\_UE**

**R4-2207793 Discussion on incorrect PMI reporting**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209690 Discussion on the incorrect PMI reporting**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss the detail of incorrect PMI reporting and answer those questions raised by RAN plenary

**Decision:** The document was **not treated**.

**R4-2209796 Discussion on PMI requirements for inter-cell interference scenario**

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

**Decision:** The document was **not treated**.

**R4-2209893 Discussion on incorrect PMI reporting with inter-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2208265 On General for FeMIMO**

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

**Abstract:**

In this contribution we have provided our views to the discussion on the issue of “Incorrect PMI Reporting in MIMO Operation”.

Session chair note: Moved to this AI from AI 9.18.4.1

**Decision:** The document was **not treated**.

## 6 LS response to ITU

### 6.1 Generic unwanted emission (IMT-2020)

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

**Email discussion for [103-e][314] LS\_Response\_ITU-R, AI 6-Johan Sköld**

**R4-2210320 Email discussion summary for [103-e][314] LS\_Response\_ITU-R**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207889 LS on unwanted emissions for IMT-2020**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution unwanted emission requirements are collected

**Decision:** The document was **not treated**.

**R4-2207920 Input on LS response to ITU-R on Generic unwanted emission (IMT-2020)**

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

**Abstract:**

This contribution has provided our input according to the work split determined offline among the interested companies.

**Decision:** The document was **not treated**.

**R4-2208086 Work plan on LS response to ITU-R on Generic unwanted emission (IMT-2020)**

*Type: other For: Discussion  
 Source: Qualcomm CDMA Technologies*

**Decision:** The document was **not treated**.

**R4-2209591 Input on LS response to ITU-R on Generic unwanted emission (IMT-2020)**

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

**Decision:** The document was **not treated**.

**R4-2209645 Inputs to the ITU-R LS response on generic unwanted emission for (IMT-2020): Receiver spurious emissions**

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

**Abstract:**

In this contribution we provide inputs to the IMT-2020 generic unwanted emissions for the receiver spurious emissions, as per the agreed work-split.

**Decision:** The document was **not treated**.

### 6.2 Test methods for OTA total radiated power

**R4-2207888 LS on Test methods for over-the-air TRP field measurements of unwanted emissions from IMT radio equipment utilizing active antennas**

*Type: LS out For: Approval  
 to TSG RAN  
 Source: Ericsson, Qualcomm, Huawei, Nokia*

**Abstract:**

The LS response gives furthre responses to the questions from IRU-R WP1C.

**Decision:** The document was **not treated**.

## 8 Rel-17 spectrum related WIs for NR

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

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

**Email discussion for [103-e][313] RAIL\_900MHz\_RF, AI 5.1.3,8.2,8.2.1,8.2.2-Michal Szydelko**

**R4-2210319 Email discussion summary for [103-e][313] RAIL\_900MHz\_RF**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208654 Revised TR 38.853 version 0.4.0**

*Type: draft TR For: Agreement  
 38.853 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision:** The document was **not treated**.

**R4-2209270 TP 900MHz RMR band – conclusion- TR 38.853**

*Type: pCR For: Approval  
 38.853 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

(Replaces R4-2205141)

**Decision:** The document was **not treated**.

**R4-2209585 Discussion on sync raster design for railway 900MHz**

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

**Decision:** The document was **not treated**.

#### 8.2.1 UE RF requirements

**R4-2208281 Synchronisation raster for bandwidth less than 5MHz**

*Type: other For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2209721 Synchronization raster design for n100**

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

**Decision:** The document was **not treated**.

#### 8.2.2 BS RF requirements

**R4-2208896 RMR 900MHz: Remaining BS RF open issues**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining BS RF open issues for RMR 900MHz band

**Decision:** The document was **not treated**.

**R4-2208897 CR to TS 38.104 - Tx requirements: RMR 900MHz band introduction**

*Type: CR For: Agreement  
 38.104 v17.5.0 CR-0380 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 38.104 - Tx requirements: RMR n100 band introduction

**Decision:** The document was **not treated**.

**R4-2208898 CR to TS 38.141-2: RMR 900MHz band introduction**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0400 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 38.141-2: RMR n100 band introduction

**Decision:** The document was **not treated**.

**R4-2208899 CR to TS 36.104: RMR 900MHz band introduction**

*Type: CR For: Agreement  
 36.104 v17.5.0 CR-4957 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 36.104: RMR n100band introduction

**Decision:** The document was **not treated**.

**R4-2208900 CR to TS 36.141: RMR 900MHz band introduction**

*Type: CR For: Agreement  
 36.141 v17.5.0 CR-1335 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 36.141: RMR n100band introduction

**Decision:** The document was **not treated**.

**R4-2209530 CR to 37.104 on introduction of n100 co-existence requirements**

*Type: CR For: Approval  
 37.104 v17.5.0 CR-0963 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209531 CR to 37.141 on introduction of n100 co-existence requirements**

*Type: CR For: Approval  
 37.141 v17.5.0 CR-1009 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209532 CR to 38.104 on introduction of n100 (system parameters)**

*Type: CR For: Approval  
 38.104 v17.5.0 CR-0382 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209533 CR to 38.141-1 on introduction of n100 requirements**

*Type: CR For: Approval  
 38.141-1 v17.5.0 CR-0272 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209674 Draft CR to TS 38.104: RMR900 Rx requirements for band n100, Rel-17**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As per worksplit agreed among interested companies, this CR to TS 38.104 is to capture the additional out-of-band blocking requirement for RMR900 band n100, including the placeholder for the interfering signal to be decided by the ETSI TC RT.

**Decision:** The document was **not treated**.

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

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

#### 9.1.1 General

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

**Email discussion for [103-e][332] NR\_MIMO\_OTA, AI 4.1.7, 9.1– Xuan Yi**

**R4-2210338 Email discussion summary for [103-e][332] NR\_MIMO\_OTA**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207653 Our Status (SGS TW) Update for the 3GPP RAN4 5G FR1 SA MIMO OTA Lab Alignment Activity**

*Type: discussion For: (not specified)  
 Source: SGS Wireless*

**Decision:** The document was **not treated**.

**R4-2208322 3GPP NR FR1 MIMO OTA Performance Test Campaign Template**

*Type: discussion For: Approval  
 Source: CAICT*

**Decision:** The document was **not treated**.

**R4-2208670 Handling of FR2 MIMO OTA**

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

**Decision:** The document was **not treated**.

**R4-2209331 Proposal on concluding the Rel-17 NR MIMO OTA WI**

*Type: discussion For: Approval  
 Source: CAICT, OPPO, Huawei, HiSilicon, MediaTek Inc.*

**Decision:** The document was **not treated**.

#### 9.1.2 Performance requirements

##### 9.1.2.1 Lab alignment for FR1

**R4-2207654 MIMO OTA lab alignment results**

*Type: discussion For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2207690 Discussion on FR1 MIMO Lab Alignment Timeline**

*Type: discussion For: Decision  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208319 PAD test results for NR FR1 MIMO OTA lab alignment**

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

**Decision:** The document was **not treated**.

**R4-2208320 CAICT FR1 MIMO OTA lab alignment results**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision:** The document was **not treated**.

**R4-2208321 Summary of FR1 MIMO OTA lab alignment results**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision:** The document was **not treated**.

**R4-2208412 PAD testing results of CMCC & BUPT joint lab**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208480 Discussion on reference value for FR1 MIMO OTA lab alignment**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208621 Discussion on FR1 MIMO OTA lab alignment activity**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209329 Views on FR1 MIMO OTA lab alignment**

*Type: discussion For: Approval  
 Source: CAICT, SAICT*

**Decision:** The document was **not treated**.

**R4-2209433 Reference value for FR1 MIMO OTA Lab alignment**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2209512 on remaining issue for FR1 Lab alignment**

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

**Decision:** The document was **not treated**.

**R4-2209514 3GPP NR FR1 MIMO OTA Lab Alignment result from Xiaomi Lab**

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

**Decision:** The document was **not treated**.

##### 9.1.2.2 Performance Requirements for FR1

**R4-2208118 on data processing for FR1 MIMO OTA lab alignment**

*Type: discussion For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2208315 Review on FR2 MIMO OTA progress and proposal on simulation formula**

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

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

**R4-2208413 Commercial terminal testing results of CMCC & BUPT joint lab**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209330 TRMS measurement results for bands n41, n78**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision:** The document was **not treated**.

**R4-2209513 initial test result for FR1 performance requirement**

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

**Decision:** The document was **not treated**.

##### 9.1.2.3 Performance Requirements for FR2

**R4-2208317 Review on FR2 MIMO OTA progress and proposal on simulation formula**

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

**Decision:** The document was **not treated**.

**R4-2208622 Views on FR2 MIMO OTA requirements**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208671 FR2 MIMO OTA requirements**

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

**Decision:** The document was **not treated**.

**R4-2208672 Summary results for FR2 MIMO OTA**

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

**Decision:** The document was **not treated**.

**R4-2209144 Discussion FR2 MIMO OTA performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2209435 Views on performance requirement of FR2 MIMO OTA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision:** The document was **not treated**.

##### 9.1.2.4 MU assessment for FR1 and FR2

**R4-2208673 Draft CR on TS 38.151 for MU of FR2 MIMO OTA**

*Type: draftCR For: Endorsement  
 38.151 v17.0.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

#### 9.1.3 Testing methodologies

##### 9.1.3.1 Testing parameters for Performance

**R4-2208624 draft CR to TS38.151 on UE mechanical mode**

*Type: draftCR For: Approval  
 38.151 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.1.3.2 Optimization of test methodologies

**R4-2208623 Discussion on UE mechanical mode for foldable smartphones**

*Type: discussion For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.1.3.3 Channel model validation

**R4-2207689 FR1 MIMO Channel Model Validation**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208285 FR2 Channel validation targets and pass/fail limits**

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

**Abstract:**

FR2 MIMO OTA Spatial Channel validation involves measuring PDP, Autocorrelation, V/H. This contribution presents theoretical targets and pass/fail limits.

**Decision:** The document was **not treated**.

**R4-2209578 FR2 Channel Model Validation Reference and Pass/Fail Limits**

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

**Abstract:**

This contribution presents validation results of FR2 MIMO OTA test setup. Statistical characteristics to be validated are Power Delay Profile (PDP), Temporal Correlation Function (TCF), and PAS Similarity Percentage (PSP). Both theoretical reference value

**Decision:** The document was **not treated**.

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

#### 9.2.1 General and work plan

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

**Email discussion for [103-e][333] FR1\_TRP\_TRS\_Part1, AI 9.2 (except AI 9.2.2.3, 9.2.2.4) – Ruixin Wang**

**R4-2210339 Email discussion summary for [103-e][333] FR1\_TRP\_TRS\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207685 TRP-TRS work plan update due to lab alignment delays**

*Type: discussion For: Decision  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208481 TP to TS 38.161 on primary mechanical mode**

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

**Decision:** The document was **not treated**.

**R4-2208626 3GPP TS 38.161 v0.3.0**

*Type: draft TS For: Agreement  
 38.161 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208631 3GPP TRP/TRS Performance Test Campaign Template**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208639 Discussion on OTA Testing for devices with a Time-Averaging Algorithm**

*Type: discussion For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2210230 NR FR1 TRP TRS updates to test procedure for performance test activity**

*Type: discussion For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: Sporton International Inc*

**Decision:** The document was **not treated**.

#### 9.2.2 Test methodology maintenance

**R4-2207688 Discussion on Working scope for Alternative test method**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208659 Discussion on the addition of RC in test methodology**

*Type: discussion For: Approval  
 38.834 v CR- rev Cat: (Rel-17)  
  
 Source: SRTC, Bluetest*

**Decision:** The document was **not treated**.

**R4-2208661 TP to TR 38.834: addition of RC in test methodology**

*Type: draftCR For: Approval  
 38.834 v17.0.0 CR- rev Cat: (Rel-17)  
  
 Source: SRTC, Bluetest*

**Decision:** The document was **not treated**.

##### 9.2.2.1 SA test methodology

**R4-2207683 TP to 38.161 on EN-DC and PC2 test case applicability rules**

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

**Decision:** The document was **not treated**.

**R4-2207684 TP to 38.161 on TRP aspects**

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

**Decision:** The document was **not treated**.

**R4-2208630 TP to TS 38.161 on test method**

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

**Decision:** The document was **not treated**.

##### 9.2.2.2 EN-DC test methodology

**R4-2207682 Remaining issues with EN-DC configuration for TRP-TRS**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208482 Draft CR to TR 38.834 on UE mechanical mode and ENDC example band**

*Type: draftCR For: Endorsement  
 38.834 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung, OPPO*

**Decision:** The document was **not treated**.

**R4-2208638 CR to TR38.834 on TAS OFF verification procedure**

*Type: CR For: Agreement  
 38.834 v17.0.0 CR-0001 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.2.2.3 UE with multiple antennas test methodology

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

**Email discussion for [103-e][334] FR1\_TRP\_TRS\_Part2, AI AI 9.2.2.3, 9.2.2.4 – Qifei Liu**

**R4-2210340 Email discussion summary for [103-e][334] FR1\_TRP\_TRS\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207686 Discussion on Tx Diversity Active Cancellation**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207687 draft CR to 38.834 on TRP for TxD UEs**

*Type: draftCR For: Endorsement  
 38.834 v17.0.0 CR- rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208282 on TRP measurement under TxD**

*Type: discussion For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2208629 Views on test methods for TxD**

*Type: discussion For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208675 TRP test method for UEs with Tx diversity**

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

**Decision:** The document was **not treated**.

**R4-2209434 The influenced factors for Tx antenna switch ON**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision:** The document was **not treated**.

##### 9.2.2.4 Test time reduction

#### 9.2.3 Performance requirements

**R4-2208411 LADs testing results of CMCC lab**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

##### 9.2.3.1 Framework for lab alignment and requirements

**R4-2207655 TRP TRS lab alignment measurement from Huawei**

*Type: discussion For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2208280 on data processing for FR1 TRP and TRS OTA measurement**

*Type: discussion For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2208323 CAICT FR1 TRP/TRS lab alignment measurement results**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision:** The document was **not treated**.

**R4-2208483 On percentile value of FR1 TRP TRS performance campaign**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208627 Further updated Working procedure for TRP TRS requirement development**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208633 Analysis of 3GPP TRP TRS lab alignment measurement results**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209382 3GPP FR1 TRP/TRS Lab Alignment Measurement Results From SRTC**

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

**Decision:** The document was **not treated**.

**R4-2209432 Lab alignment criteria for FR1 TRP TRS campaign**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2210145 Element FR1 TRP/TRS Lab Alignment Campaign Measurement Results**

*Type: discussion For: Discussion  
 Source: Element Materials Technology*

**Abstract:**

LAD measurement results for the FR1 TRP/TRS lab alignment campaign.

**Decision:** The document was **not treated**.

**R4-2210352** **OPPO LAD test results for FR1 TRP/TRS Lab Alignment Campaign**

*Type: discusion For: discussion  
 Source: OPPO*

**Abstract:**

**Discussion:**

**Decision: Return to.**

##### 9.2.3.2 SA requirements

**R4-2208628 Measurement results for TRP TRS lab alignment activity**

*Type: other For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209431 Discussion on deriving performance requirement**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision:** The document was **not treated**.

##### 9.2.3.3 EN-DC requirements

**R4-2208283 on FR1 TRP and TRS OTA requirement for ENDC**

*Type: other For: (not specified)  
 Source: Huawei Tech.(UK) Co.. Ltd*

**Decision:** The document was **not treated**.

**R4-2208632 TP to TS 38.161 on Phantoms**

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

**Decision:** The document was **not treated**.

### 9.4 NR RF requirement enhancements for frequency range 2 (FR2)

#### 9.4.6 RRM core requirements

##### 9.4.6.1 General

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

**Email discussion for [103-e][219] NR\_RF\_FR2\_req\_enh2\_RRM, AI 9.4.6**

**9.4.6.1,9.4.6.2, 9.4.7.1-Lei Du**

**R4-2210291 Email discussion summary for [103-e][219] NR\_RF\_FR2\_req\_enh2\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues:**

* Issue 2-1 requirements on number of serving cells
* Issue 3-1 Test cases for FR2 inter-band UL CA for IBM

**Issue 2-1 requirements on number of serving cells**

* Proposals:
  + Option 1: For the requirements on number of serving carriers, we suggest not to specify the exact number of NR serving carriers in TS38.133. The number of NR serving carriers for NR SA can refer to the configurations for CA as defined in TS38.101-1/2/3. (Huawei)
  + The requirements on number of serving carriers for NR SA can be updated as follows:

|  |
| --- |
| 3.6.2.1 Number of serving carriers for SA  Requirements for standalone NR with NR PCell are applicable for the UE configured with the following number of serving NR CCs:  - with the number of NR DL CCs in total as specified in clause 5.5A of TS 38.101-1 [18], TS 38.101-2 [19] and TS 38.101-3 [18] for NR CA configuration.  - with 1 UL (or 2 UL if SUL is configured) in PCell and up to 1 UL (or 2 UL if SUL is configured) in SCell.  - SUL may be configured together with one of the UL |

* Recommended WF
  + TBA
* Discussion:

Ericsson: We bring similar CR in previous meeting and companies’ comments this is not relevant to this WI.

We should not refer to RF specification here. We prefer same approach as legacy release for RRM specs to update the value otherwise we need to change legacy release RRM specification as well.

Huawei: If we follow legacy RRM approach with exact value in specification then we need to check the detailed band combinations in RF specification which increase our work. In RF session, there are new CA band combinations are considered which may impact the value.

Nokia: We prefer to introduce exact value in RRM specification to make it easily understand; with refer to RF specification, this bring confusion and hard to understand.

Apple: We think the approach proposed from Huawei not straightforward. When RF specification introducing new band combinations, they didn’t consider the impact to RRM. With increased number of CCs, measurement delay will be increased with unreasonable value. This is generic issue for RRM not specific to FR2 RF enhancement WI.

Ericsson: We can discuss in maintenance AI and discuss together with RF and RRM.

* Agreement:

Further discuss the issue with below options

1. Option 1 as Huawei proposed
2. Keep current approach and further discuss whether the value in existing RRM specification need to be updated

The discussion on the issue has no impact on the competition of Rel-17 FR2 RF enhancement WI

**Issue 3-1 Test cases for FR2 inter-band UL CA for IBM**

* Proposals: RAN4 shall define the following test cases for inter-band UL CA for IBM
  + TC#1: Test case for UL carrier RRC reconfiguration delay (Nokia)
  + TC#2: Test case for FR2 inter-band UL CA with IBM (Nokia)
  + Option 1: Use TC5 in PUCCH SCell activation in FeRRM WI as baseline (Nokia)
  + TC#3: Test case for interruptions at UL carrier RRC reconfiguration (Ericsson)
  + TC#4: Test case for interruptions due to Active BWP switching Requirement (Ericsson)
* Recommended WF
  + Please companies provide your comments to respective TCs.
* Discussion:

Huawei: TC#2 and TC#4 not needed. We already have generic BWP switching requirements which not differentiate for intra-band or inter-band CA.

Ericsson: For TC#4, we have test case for DL active BWP but no UL BWP switching test cases.

QC: For TC#2, this is depending on different UE features. For TC#4, previous we can focus on DL BWP switching, now we discuss FR2 with TDD which DL BWP and UL BWP always associated.

Nokia: For TC#2, existing requirements only DL; for UL it’s under discussion in FeRRM WI. We can discuss whether separate test cases needed or not. For TC#4, introducing the interruption on DL during uplink BWP switching; we can update the current test cases and open if new test cases needed.

Ericsson: We can include UL BWP switching in existing test case instead of introducing new test cases.

QC: We can check the test procedure; I think it’s already covered by legacy test case.

* Agreement:

RAN4 will define the following test cases for inter-band UL CA for IBM

* TC#1: Test case for UL carrier RRC reconfiguration delay
* TC#3: Test case for interruptions at UL carrier RRC reconfiguration
* TC #1 and TC #3 merged to a single test case

Further discuss below test cases

* TC#2: Test case for FR2 inter-band UL CA SCell activation delay with IBM
* TC#4: Test case for interruptions due to UL Active BWP switching Requirement

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208498 Correction for Big CR on RRM requirements for FR2 Inter-band CA**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2321 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correct the Big CR on RRM requirements for FR2 Inter-band CA according to the agreement of RAN#95e meeting.

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

**R4-2208992 DraftCR on correction to interruption requirements for IBM R17**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209788 Correction for Big CR on RRM requirements for FR2 Inter-band CA**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correct the Big CR on RRM requirements for FR2 Inter-band CA according to the agreement of RAN#95e meeting.

**Decision:** The document was **not treated**.

**R4-2210124 Update of Big CR for RRM requirements of FR2 Inter-band CA**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2392 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

As per the updated WID, CBM requirements are removed from BIG CR

**Decision:** The document was **not treated**.

##### 9.4.6.2 Inter-band UL CA for IBM

**R4-2208499 CR on RRM requirements for IBM inter-band FR2 UL CA**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2322 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CR on RRM requirements for IBM inter-band FR2 UL CA

**Decision:** The document was **not treated**.

**R4-2208993 Discussion on carrier numbers for FR2 inter-band UL CA**

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

**Decision:** The document was **not treated**.

**R4-2208994 DraftCR on number of serving carriers for FR2 inter-band CA R17**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2210125 Draft CR on RRM requirements for FR2 inter-band UL CA for IBM UE**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Interruption requirements are provided for FR2 inter-band UL CA

**Decision:** The document was **not treated**.

#### 9.4.7 RRM performance requirements

##### 9.4.7.1 Inter-band UL CA for IBM

**R4-2209789 Discussion on RRM performance requirements for IBM inter-band FR2 UL CA**

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

**Abstract:**

Discussion on RRM test cases for IBM inter-band FR2 UL CA

**Decision:** The document was **not treated**.

**R4-2209790 dratCR on UE UL carrier RRC reconfiguration delay for FR2**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

dratCR on UE UL carrier RRC reconfiguration delay for FR2

**Decision:** The document was **not treated**.

**R4-2210128 Scope of RRM tests for UL inter-band CA for IBM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discssion on the scope of test cases needed for this feature

**Decision:** The document was **not treated**.

### 9.5 NR repeater

#### 9.5.1 General requirement maintenance

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

**Email discussion for [103-e][304] NR\_Repeater\_RFMaintenance, AI 9.5.1,9.5.2, 9.5.3 – Chunxia Guo**

**R4-2210310 Email discussion summary for [103-e][304] NR\_Repeater\_RFMaintenance**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207983 CR to 38.106: Corections to definitons, symbols and abbreviations**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0003 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Correction of definitions etc.

**Decision:** The document was **not treated**.

**R4-2208132 CR for TS 38.106 R17: clean up of clause 4**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0006 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209600 Discussion on the supported bands for NR repeater**

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

**Decision:** The document was **not treated**.

**R4-2209601 CR to TS38.106: clarification on the supported operating bands for NR repeater**

*Type: CR For: Approval  
 38.106 v17.0.0 CR-0009 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2209805 CR to TS 38.106 with corrections to repeater core specification**

*Type: CR For: Approval  
 38.106 v17.0.0 CR-0011 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2210016 Draft CR Correction to reference point diagram**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Correction to the reference point diagram

**Decision:** The document was **not treated**.

**R4-2210020 Draft CR Terms, symbols and abbreviations**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Include all terms, symbols and abbreviations in the current specification. And editorially align some of the above in relevant clauses

**Decision:** The document was **not treated**.

#### 9.5.2 Conductive RF core requirement maintenance

**R4-2207979 Repeater TX IM power level**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Explanation of need to correct TX IM

**Decision:** The document was **not treated**.

**R4-2207980 Draft CR to 38.106: Conducted requirements corrections**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0001 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Correction of TX IM and TDD off

**Decision:** The document was **not treated**.

**R4-2208133 CR for TS 38.106 R17: clean up of clause 6**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0007 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208406 Draft CR for 38.106: add co-existence requirements for input intermodulation**

*Type: draftCR For: Endorsement  
 38.106 v17.0.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208788 Discussion on the corrections of unwanted emission for FR1 repeater**

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

**Decision:** The document was **not treated**.

**R4-2208789 Draft CR for corrections on unwanted emission requirements for FR1 NR repeater**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Decision:** The document was **not treated**.

**R4-2208796 CR to 38.106: Output power definitions for NR repeaters**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0004 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208797 CR to 38.106: Regional requirements for NR repeaters**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0005 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2210017 Draft CR OBUE**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Correct the references to carrier power in the OBUE requirement]

**Decision:** The document was **not treated**.

**R4-2210019 Draft CR out of band gain**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Move the general text form the minimum requirement section to the general section for better readability. For both conducted and ITA out of band gain requirements.

**Decision:** The document was **not treated**.

**R4-2210021 Draft CR conducted output power**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Remove the square brackets form eth conducted output power requirements.

**Decision:** The document was **not treated**.

#### 9.5.3 Radiated RF core requirement maintenance

**R4-2207981 On uplink power limit for FR2**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

How to finalize power limit for FR2 UL

**Decision:** The document was **not treated**.

**R4-2207982 CR to 38.106: TDD off power radiated requirement correction**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0002 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Correction to TDD OFF

**Decision:** The document was **not treated**.

**R4-2208134 CR for TS 38.106 R17: clean up of clause 7**

*Type: CR For: Agreement  
 38.106 v17.0.0 CR-0008 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209804 CR to TS 38.106 with OTA intermodulation requirement updates**

*Type: CR For: Approval  
 38.106 v17.0.0 CR-0010 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2210018 Draft CR Correction to OTA unwanted emissions**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Correct the TX power symbols in the unwanted emissions tables

**Decision:** The document was **not treated**.

**R4-2210022 Draft CR radiated output power**

*Type: draftCR For: Agreement  
 38.106 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei*

**Abstract:**

Remove the square brackets form eth radiated output power requirements. Make some corrections to references

**Decision:** The document was **not treated**.

#### 9.5.4 EMC core requirement maintenance and performance requirement

**Refer to email discussion for [103-e][303] NR\_EMC**

**R4-2208379 Discussion on performance assessment and work split of NR Repeater EMC**

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

**Decision:** The document was **not treated**.

**R4-2209140 On TDD NR repeater EMC testing**

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

**Decision:** The document was **not treated**.

#### 9.5.5 RF Conformance testing

##### 9.5.5.1 General

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

**Email discussion for [103-e][305] NR\_Repeater\_RFConformance\_Part1**

**, AI 9.5.5.1 – Richard Kybett**

**R4-2210311 Email discussion summary for [103-e][305] NR\_Repeater\_RFConformance\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

###### 9.5.5.1.1 Stimulus signal /Test models

**R4-2207971 Repeaters test models**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considers the need and specification of test models

**Decision:** The document was **not treated**.

**R4-2208137 Discussion of stimulus signals for conducted and radiated**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209602 Discussion on NR repeater Stimulus signals**

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

**Decision:** The document was **not treated**.

**R4-2209808 Repeater stimulus signals and test models for conformance testing**

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

**Decision:** The document was **not treated**.

###### 9.5.5.1.2 Test configurations

**R4-2207970 Repeaters test configurations**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considers what is needed in the repeater specification for test configurations

**Decision:** The document was **not treated**.

**R4-2208136 Discussion of test configuration for conducted and radiated**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208410 Discussion on conducted test configurations for repeater**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209603 Discussion on NR repeater test configuration**

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

**Decision:** The document was **not treated**.

**R4-2209809 Repeaters test configurations**

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

**Decision:** The document was **not treated**.

###### 9.5.5.1.3 Others

**R4-2207972 Repeaters other aspects of conformance**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considers some other conformance aspects

**Decision:** The document was **not treated**.

**R4-2209604 Discussions on NR repeater test cases**

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

**Decision:** The document was **not treated**.

**R4-2209722 Repeater TDD switching conformance testing**

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

**Decision:** The document was **not treated**.

##### 9.5.5.2 Conductive conformance Testing

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

**Email discussion for [103-e][306] NR\_Repeater\_RFConformance\_Part2**

**, AI 9.5.5.2, 9.5.5.3 – CATT**

**R4-2210312 Email discussion summary for [103-e][306] NR\_Repeater\_RFConformance\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208135 Discussion of drafting specification related issues**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208478 Spec skeleton for TS 38.115-1**

*Type: draft TS For: Agreement  
 38.115-1 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209605 Discussion on FR1 NR repeater test conformance testing**

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

**Decision:** The document was **not treated**.

**R4-2210014 Repeater conducted testing MU**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the repeater conducted testing MU

**Decision:** The document was **not treated**.

###### 9.5.5.2.1 Transmitted power related requirements

**R4-2207973 Conformance testing for conducted power**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on power testing considerations

**Decision:** The document was **not treated**.

**R4-2208138 Discussion of test setup, MU and TT for FR1 NR repeater**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209723 Repeater conducted measurement considerations**

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

**Decision:** The document was **not treated**.

###### 9.5.5.2.2 Emission requirements

**R4-2207974 Conformance testing for conducted emissions**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considerations for unwanted emissions conformance

**Decision:** The document was **not treated**.

**R4-2208139 Discussion of FR1 repeater declaration**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209724 Applicability of conducted conformance testing**

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

**Decision:** The document was **not treated**.

###### 9.5.5.2.3 Others

**R4-2207975 Conformance testing for conducted requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considerations for other requirements conformance

**Decision:** The document was **not treated**.

**R4-2208140 Discussion of other issues for FR1 conformance test**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209725 Manufacturer declarations for NR repeater type 1-C**

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

**Decision:** The document was **not treated**.

##### 9.5.5.3 Radiated conformance Testing

**R4-2209598 Spec skeleton for TS 38.115-2 v.0.0.1**

*Type: draft TS For: Agreement  
 38.115-2 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2209599 Discussion on the skeleton of FR2 NR repeater spec and work split**

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

**Decision:** The document was **not treated**.

**R4-2209606 Discussion on FR2 NR repeater test conformance testing**

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

**Decision:** The document was **not treated**.

**R4-2210015 Repeater radiated testing MU**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the repeater radiated testing MU

**Decision:** The document was **not treated**.

###### 9.5.5.3.1 Transmitted power related requirements

**R4-2207976 Conformance testing for radiated power**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on power testing considerations

**Decision:** The document was **not treated**.

**R4-2208141 Discussion of radiated test setup, MU and TT for NR repeater**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209726 Repeater OTA measurement considerations**

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

**Decision:** The document was **not treated**.

###### 9.5.5.3.2 Emission requirements

**R4-2207977 Conformance testing for radiated emissions**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considerations for unwanted emissions conformance

**Decision:** The document was **not treated**.

**R4-2209727 Applicability of radiated conformance testing**

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

**Decision:** The document was **not treated**.

###### 9.5.5.3.3 Others

**R4-2207978 Conformance testing for radiated requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considerations for other requirements conformance

**Decision:** The document was **not treated**.

**R4-2208142 Discussion of FR2 repeater declaration**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209257 Repeaters OTA Testing**

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

**Decision:** The document was **not treated**.

**R4-2209728 Manufacturer declarations for NR repeater type 2-O**

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

**Decision:** The document was **not treated**.

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

#### 9.6.1 UE RF requirements maintenance

**Refer to email discussion [103-e][301] BSRF\_Maintenance**

**R4-2209063 CR: Introduction of RMC for 1024QAM maximum input level**

*Type: CR For: Agreement  
 38.101-1 v17.5.0 CR-1082 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces the RMC for 1024QAM maximum input level test.

**Decision:** The document was **not treated**.

#### 9.6.2 BS TX RF requirements maintenance

#### 9.6.3 BS RF conformance testing

**Refer to email discussion [103-e][301] BSRF\_Maintenance**

**R4-2208790 Discussion on BS RF conformance requirements for 1024QAM in FR1**

*Type: discussion For: Discussion  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208791 CR to 38.141-1: BS RF conformance requirements for 1024QAM in FR1**

*Type: CR For: Agreement  
 38.141-1 v17.5.0 CR-0271 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208792 CR to 38.141-2: BS RF conformance requirements for 1024QAM in FR1**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0397 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208793 CR to 37.141: BS RF conformance requirements for 1024QAM in FR1**

*Type: CR For: Agreement  
 37.141 v17.5.0 CR-1005 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208794 CR to 37.145-1: BS RF conformance requirements for 1024QAM in FR1**

*Type: CR For: Agreement  
 37.145-1 v17.5.0 CR-0287 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2208795 CR to 37.145-2: BS RF conformance requirements for 1024QAM in FR1**

*Type: CR For: Agreement  
 37.145-2 v17.5.0 CR-0329 rev Cat: F (Rel-17)  
  
 Source: NEC*

**Decision:** The document was **not treated**.

**R4-2209138 CR to TS 38.141-2: Introduction of 1024 QAM in FR1**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0401 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

resubmission after RAN4#102-e due to incorrect tdoc number

**Decision:** The document was **not treated**.

#### 9.6.4 Demodulation and CSI requirements

##### 9.6.4.1 PDSCH requirements

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

**Email discussion for [103-e][317] NR\_DL1024QAM\_Demod, AI 9.6.4– Jiakai Shi**

**R4-2210323 Email discussion summary for [103-e][317] NR\_DL1024QAM\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207794 Simulation results for PDSCH demod requirements with 1KQAM**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207795 Draft CR for PDSCH demodulation requirements for 1KQAM in TDD**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209064 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:** The document was **not treated**.

**R4-2209065 UE demodulation requirements for DL 1024QAM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides the PDSCH simulation results for DL 1024QAM.

**Decision:** The document was **not treated**.

**R4-2209175 PDSCH Simulation results for 1024QAM FR1 UE Demod Tests**

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

**Decision:** The document was **not treated**.

**R4-2209376 Draft CR on Applicability Rules and TDLD30-5 delay profile for FR1 DL 1024QAM PDSCH Requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209801 Simulation results and discussion on the PDSCH requirements for 1024QAM**

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

**Decision:** The document was **not treated**.

**R4-2209803 Draft CR to TS38.101-4, PDSCH requirements for 1024QAM in FR1 FDD**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209871 Simulation results on 1024QAM PDSCH**

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

**Decision:** The document was **not treated**.

##### 9.6.4.2 SDR requirements

**R4-2207796 Discussion on SDR requirements with 1KQAM**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209067 draft CR: Introduction of SDR requirements for DL 1024QAM**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft CR introduces the SDR requirements for DL 1024QAM in FR1

**Decision:** The document was **not treated**.

##### 9.6.4.3 CQI requirements

**R4-2209066 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:** The document was **not treated**.

**R4-2209068 draft CR: Introduction of TDD CQI reporting requirements for DL 1024QAM**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft CR introduces the TDD CQI reporting requirements for DL 1024QAM in FR1

**Decision:** The document was **not treated**.

**R4-2209176 CQI requirements for 1024QAM FR1 UE Demod Tests**

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

**Decision:** The document was **not treated**.

**R4-2209430 Draft CR on Applicability Rules for FR1 DL 1024QAM CQI Requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209802 Simulation results and discussion on the CQI requirements for 1024QAM**

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

**Decision:** The document was **not treated**.

**R4-2209872 Discussion and simulation results on 1024QAM CQI**

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

**Decision:** The document was **not treated**.

**R4-2209873 Draft CR on FDD CQI reporting cases for 1024QAM and CSI RMC (TS38.101-4, Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

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

#### 9.7.1 RRM core requirement maintenance

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

**Email discussion for [103-e][220] NR\_HST\_FR1\_enh\_RRM, AI 9.7.1,9.7.2-Jingjing Chen**

**R4-2210292 Email discussion summary for [103-e][220] NR\_HST\_FR1\_enh\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207762 On FR1 HST remaining issue**

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

**Decision:** The document was **not treated**.

**R4-2207763 CR on L1-SINR measurement in FR1 HST**

*Type: draftCR For: (not specified)  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208150 Discussion on L1-SINR measurements for FR1 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208152 CR on FR1 HST core requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2372 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208531 CR on enhanced requirements for SCell measurement for Rel-17 FR1 HST requirements**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2327 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208959 Discussion on L1-SINR in FR1 HST**

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

**Decision:** The document was **not treated**.

**R4-2208960 Correction on singaling name for FR1 HST**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2345 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

#### 9.7.2 RRM performance requirements

**R4-2207732 FR1 HST Performance**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207764 On FR1 HST test scope**

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

**Decision:** The document was **not treated**.

**R4-2207871 Discussion on Rel-17 HST in FR1**

*Type: discussion For: (not specified)  
 Source: MediaTek (Shenzhen) Inc.*

**Decision:** The document was **not treated**.

**R4-2208151 Discussion on RRM test cases for FR1 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208511 Initial discussion on performance part for FR1 HST RRM enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208512 Draft CR on release independent for FR1 HST RRM**

*Type: draftCR For: Approval  
 38.307 v16.10.0 CR- rev Cat: B (Rel-16)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208513 Draft CR on release independent for FR1 HST RRM**

*Type: draftCR For: Approval  
 38.307 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208516 Draft CR on test case for cell reselection to NR inter-frequency for FR1 HST**

*Type: draftCR For: Approval  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208961 Discussion on performance accuracy and test case for FR1 HST**

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

**Decision:** The document was **not treated**.

**R4-2208962 Draft CR on measurement accuracy for FR1 HST**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209085 Further discussion on L1-SINR measurements for Rel-17 FR1 HST CA**

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

**Abstract:**

L1-SINR accuracy requirement for FR1 HST

**Decision:** The document was **not treated**.

**R4-2209086 On RRM Tests for Rel-17 FR1 HST scenarios**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

RRM tests for Rel-17 FR2 HST.

**Decision:** The document was **not treated**.

**R4-2209097 Testing on CA enhancement RRM requirements for NR HST FR1**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Testing on CA enhancement RRM requirements for NR HST FR1

**Decision:** The document was **not treated**.

**R4-2209491 Discussion on L1-SINR measurements in R17 FR1 HST**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

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

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

**Email discussion for [103-e][318] NR\_HST\_FR1\_Demod, AI 9.7.3-Shiyuan Wang**

**R4-2210324 Email discussion summary for [103-e][318] NR\_HST\_FR1\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207797 Simulation results for PDSCH CA Requirements in HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207798 Draft CR on HST DPS CA requirements for 4Rx**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208508 CR on PDSCH requirements for HST-SFN CA requirements for 4Rx**

*Type: CR For: Approval  
 38.101-4 v17.4.0 CR-0283 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208514 Draft CR on release independent for FR1 HST demodulation**

*Type: draftCR For: Approval  
 38.307 v16.10.0 CR- rev Cat: B (Rel-16)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208515 Draft CR on release independent for FR1 HST demodulation**

*Type: draftCR For: Approval  
 38.307 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208517 Simulation results for FR1 HST CA**

*Type: discussion For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209069 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:** The document was **not treated**.

**R4-2209070 Simulation results of PDSCH demodulation requirements for CA with HST-SFN scenario**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides the simulation results of PDSCH demodulation requirements for CA with HST-SFN scenario.

**Decision:** The document was **not treated**.

**R4-2209860 Simulation results on PDSCH CA scenarios for NR UE HST FR1 performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2209861 Draft CR on HST FR1 DPS CA requirements for 2Rx (38.101-4)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209918 Draft CR on Applicability Rules for FR1 HST CA Requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2210160 Simulation results for FR1 HST PDSCH CA Tests**

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

**Decision:** The document was **not treated**.

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

#### 9.8.2 RRM core requirement maintenance

**R4-2207734 FR2 HST neighboring cell measurement requirement correction**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2286 rev Cat: F (Rel-17)  
  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2208156 CR on FR2 HST core requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2373 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

##### 9.8.2.1 General

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

**Email discussion for [103-e][221] NR\_HST\_FR2\_RRM\_1, AI 9.8.2-Dmitry Petrov**

**R4-2210293 Email discussion summary for [103-e][221] NR\_HST\_FR2\_RRM\_1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207818 Discussion on general aspect of FR2 HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208153 Discussion on remaining issues for FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208843 Further Discussion on capability and feature list for FR2 HST UE**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208844 CR to TS38.133 for the applicability of requirement for FR2 HST**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2339 rev Cat: F (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208963 Correction on singaling name for FR2 HST**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2346 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2208964 Discussion on capability for HST in FR2**

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

**Decision:** The document was **not treated**.

**R4-2209332 CR for TR 38.854 to remove the squar brackets for identified requirements**

*Type: draftCR For: Approval  
 38.854 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2209520 Discussions on remaining issues in RRM enhancements for FR2 HST**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Addressing remaining issues in FR2 HST RRM.

**Decision:** The document was **not treated**.

**R4-2210180 Introduction of FR2 HST bands for power class 6 in TS 38.133**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2402 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

The CR introduces bands for FR2 in HST for PC2 in the FR2 band group

**Decision:** The document was **not treated**.

##### 9.8.2.2 RRC Idle/Inactive and connected state mobility requirements

**R4-2207879 On Throughput and Bi-directional Scenario-A Mobility Performance**

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

**Abstract:**

This paper provides motivation for the accompanying CRs to the TR TR 38.854.

**Decision:** The document was **not treated**.

**R4-2207880 CR to TR 38.854 on Bi-directional Scenario-A Mobility Performance**

*Type: CR For: Agreement  
 38.854 v17.0.0 CR-0001 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207881 CR to TR 38.854 on Throughput Performance in HST FR2 Scenarios**

*Type: CR For: Agreement  
 38.854 v17.0.0 CR-0002 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209521 CR to TS 38.133: intra-frequency measurements with gaps for for FR2 NR HST**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2383 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Enhancements for Intra-frequency measurements with gaps in connected mode including PSS/SSS detection, and measurement period

**Decision:** The document was **not treated**.

##### 9.8.2.3 Timing requirements

**R4-2207882 CR to TR 38.854 on HST FR2 RA-Based Timing Adjustment**

*Type: CR For: Agreement  
 38.854 v17.0.0 CR-0003 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207890 CR to TS 38.133 on UL Timing Adjustment**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2295 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207891 On HST FR2 UL Timing Adjustment**

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

**Abstract:**

A discussion paper that addresses open issues in the HST FR2 UL timing adjustment requirement left for maintenance.

**Decision:** The document was **not treated**.

**R4-2208346 Discussion on timing requirements for HST FR2**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208770 Discussion on remaining issues of Timing for HST FR2**

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

**Decision:** The document was **not treated**.

**R4-2208845 Discussion on Remaining Issues on Timing Requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208846 CR to TS38.133 for the corrections on one shot large UL timing adjustment for FR2 Power Class 6 UE**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2340 rev Cat: F (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

##### 9.8.2.4 Signalling characteristics requirements

**R4-2207819 Discussion on signalling characteristics requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207821 Draft CR for SSB scheduling restriction**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208154 Discussion on scheduling restriction on SSB for FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208347 Scheduling restriction on SSB**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208769 Discussion on remaining issue of Signaling characteristics for HST FR2**

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

**Decision:** The document was **not treated**.

##### 9.8.2.5 Measurement procedure requirements

**R4-2207820 Discussion on measurement procedure requirement for FR2 HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208771 Discussion on Measurement Procedure Requirements for HST FR2**

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

**Decision:** The document was **not treated**.

**R4-2209524 CR to TS 38.133: SSB-based L1-SINR measurements for FR2 NR HST**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2384 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The enhancement for L1-SINR reporting with SSB-based CMR and dedicated IMR configured for FR2 NR HST is defined.

**Decision:** The document was **not treated**.

#### 9.8.3 RRM performance requirements

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

**Email discussion for [103-e][222] NR\_HST\_FR2\_RRM\_2, AI 9.8.3-He (Jackson) Wang**

**R4-2210294 Email discussion summary for [103-e][222] NR\_HST\_FR2\_RRM\_2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207733 FR2 HST RRM**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2208155 Discussion on RRM test cases for FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208348 Discussion on performance requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208847 Discussion on RRM Performance Requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208965 Discussion on measurement accuracy and test case for FR2 HST**

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

**Decision:** The document was **not treated**.

**R4-2208966 Simulation results of measurement accuracy for FR2 HST**

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

**Decision:** The document was **not treated**.

**R4-2209098 NR FR2 HST RRM performance requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

NR FR2 HST RRM performance requirements

**Decision:** The document was **not treated**.

**R4-2209525 Link simulation assumptions for L1 and L3 measurement accuracy for FR2 HST scenarios**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Link simulation assumptions.

**Decision:** The document was **not treated**.

**R4-2209526 On RRM Tests for Rel-17 FR2 HST scenarios**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

RRM tests for FR2 HST

**Decision:** The document was **not treated**.

**R4-2210214 Simulation results for measurement accuracy for FR2 HST**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

L1 and L3 measurement simulation results.

**Decision:** The document was **not treated**.

#### 9.8.4 Demodulation requirements

##### 9.8.4.1 UE demodulation requirements

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

**Email discussion for [103-e][319] NR\_HST\_FR2\_Demod\_Part1, AI 9.8.4.1-Yunchuan Yang**

**R4-2210325 Email discussion summary for [103-e][319] NR\_HST\_FR2\_Demod\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208074 Simulation results summary for Rel-17 FR2 HST UE demod**

*Type: other For: Information  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208079 Big CR on FR2 HST UE demodulation requirement for TS 38.101-4**

*Type: CR For: Agreement  
 38.101-4 v17.4.0 CR-0282 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209071 PDSCH demodulation requirements for HST FR2**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issues on UE demodulation requirements for HST FR2.

**Decision:** The document was **not treated**.

**R4-2209072 draft CR: FRC for PDSCH demodulation requirement for FR2 HST**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft CR provides FRC used for PDSCH demodulation requirements for FR2 HST

**Decision:** The document was **not treated**.

**R4-2209862 Draft CR on minimum requirements for FR2 PDSCH HST-DPS requirements (38.101-4, Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2210083 CR: FR2 HST channel model**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

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

**R4-2208076 Simulation results of PDSCH requirement for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209863 Discussion on UE demodulation requirements for FR2 HST Uni-directional**

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

**Decision:** The document was **not treated**.

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

**R4-2209864 Discussion on UE demodulation requirements for FR2 HST Bi-directional**

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

**Decision:** The document was **not treated**.

##### 9.8.4.2 BS demodulation requirements

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

**Email discussion for [103-e][320] NR\_HST\_FR2\_Demod\_Part2, AI 9.8.4.2-Mueller Axel**

**R4-2210326 Email discussion summary for [103-e][320] NR\_HST\_FR2\_Demod\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208075 Simulation results summary for Rel-17 FR2 HST BS demod**

*Type: other For: Information  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208078 Big CR on FR2 HST BS demodulation requirement for TS 38.104**

*Type: CR For: Agreement  
 38.104 v17.5.0 CR-0379 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209870 Draft CR on HST FR2 BS applicability rule (38.141-2, Rel-17)**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2210148 Big CR to TS 38.141-2 on HST FR2 BS Demodulation Performance Requirements**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0403 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

###### 9.8.4.2.1 PUSCH requirements

**R4-2207907 draftCR to TS 38.104 on HST FR2 Channel Conditions**

*Type: draftCR For: Agreement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207908 draftCR to TS 38.141-2 on HST FR2 Channel Conditions**

*Type: draftCR For: Agreement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2207984 PUSCH simulation results**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Final results for PUSCH

**Decision:** The document was **not treated**.

**R4-2207985 Draft CR to 38.141-2: Inttroduction of HST PUSCH requirements**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Samsung*

**Abstract:**

Draft CR to introduce PUSCH

**Decision:** The document was **not treated**.

**R4-2208077 Discussion and simulation results of PUSCH requirement for Rel-17 FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208080 Draft CR on BS Manufacturer declaration for FR2 HST for TS 38.141-2**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208223 Simulation results for PUSCH demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209865 Simulation results on PUSCH demodulation requirements for FR2 HST**

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

**Decision:** The document was **not treated**.

**R4-2210120 On HST FR2 PUSCH Requirements**

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

**Abstract:**

Paper discusses the PUSCH simulation results alignment and manufacturer declaration for HST FR2.

**Decision:** The document was **not treated**.

###### 9.8.4.2.2 PUSCH with UL timing adjustment requirements

**R4-2208195 Draft CR for TS 38.104, Introduce performance requirements for UL TA**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208224 Discussion on UL TA demodulation requirements for FR2 HST**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208225 Draft CR for TS 38.141-2, Introduce performance requirements for UL TA**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209866 Simulation results on PUSCH with UL timing adjustment requirements for FR2 HST**

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

**Decision:** The document was **not treated**.

###### 9.8.4.2.3 PRACH requirements

**R4-2209867 Simulation results on PRACH demodulation requirements for FR2 HST**

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

**Decision:** The document was **not treated**.

**R4-2209868 Draft CR on PRACH minimum requirements for high speed train (38.104, Rel-17)**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209869 Draft CR on PRACH test requirement for high speed train (38.141-2, Rel-17)**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

### 9.11 Further enhancement on NR demodulation performance

#### 9.11.1 General

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

**Email discussion for [103-e][321] NR\_perf\_enh2\_Demod\_Part1, AI 9.11.1, 9.11.2.3-Shan Yang**

**R4-2210327 Email discussion summary for [103-e][321] NR\_perf\_enh2\_Demod\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Discussion on May 12th**

List of key open issues:

* Issue 3-1: Whether to define CRS-IM requirements for 30 kHz SCS scenario
* Issue 3-3: UE feature for 30 kHz CRS-IM
* Issue 2-1-1: Whether to introduce the test with only inter-RAT MO configured
* Issue 2-1-2: Whether the same CRS-IM test requirements can be applied in the two sets of test setup in scenario 2 (if introduced)
* Issue 2-1-3: Extra time for CHBW information detection in the test with only inter-RAT MO configured (if introduced)
* Issue 2-1-4: Whether the inter-RAT MO is only configured during the beginning of the test or throughout the test

**Issue 3-1: Whether to define CRS-IM requirements for 30 kHz SCS scenario**

* *Agreements in RAN4 #102e in the WF R4-2207240*
  + *Only define CRS-IM requirements for scenario with 30 kHz SCS assuming [10%] interference loading, 4 CRS ports and 1+1 DMRS configuration under the condition with enough performance discrimination between CRS-IM on and CRS-IM off i.e. at least 1dB performance difference observed*
    - *Channel BW: 20MHz*
    - *FFS on special slot configuration*
    - *Interested companies can bring results with Rel-15 rate matching (symbol level)*
* **Summary of simulation results** 
  + 4T**2**R, 10% LTE Cell Loading, MCS 13
    - 6 companies provided simulation results. More than 1 dB gain is achieved in the results from 5 companies, and more than 1 dB gain is achieved in the average of CRS-IM gain.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Baseline receiver (dB) | LLR weighting (dB) | Gain with CRS-IM (dB) |
| Apple | 9.8 | 9.0 | 0.6 |
| Intel |  |  | ~1.4 |
| CMCC | 8.7 | 7.1 | 1.6 |
| E/// |  |  | 1.19 |
| Huawei | 9.4 | 7.8 | 1.6 |
| ZTE | 9.8 | 8.7 | 1.11 |
| **Average** |  |  | 1.25 |

* + 4T**4**R, 10% LTE Cell Loading, MCS 13
    - 5 companies provided simulation results. More than 1 dB gain is achieved in the results from 3 companies, and more than 1 dB gain is achieved in the average of CRS-IM gain.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Baseline receiver (dB) | LLR weighting (dB) | Gain with CRS-IM (dB) |
| Apple | 6 | 5.0 | 0.8 |
| Intel |  |  | ~1.5 |
| CMCC | 6.0 | 3.5 | 2.5 |
| Huawei | 6.4 | 5.3 | 1.1 |
| ZTE | 6.2 | 5.5 | 0.7 |
| **Average** |  |  | 1.32 |

* **Proposals on whether to define CRS-IM requirements for 30kHz SCS**
  + Yes (Intel, CMCC, E///, HW)
  + No (Apple)
* **Recommended WF**
  + Considering the simulation results and positions from companies, is it agreeable to define CRS-IM requirements for 30 kHz SCS?
  + Meanwhile, companies are encouraged to discuss whether the performance difference is caused by different assumptions (e.g., whether PDSCH is scheduled in the special slot) or implementation (e.g., whether CRS-IM is enabled if PDSCH is scheduled in the special slot) in the special slot.

**Issue 3-3: UE feature for 30 kHz CRS-IM**

* **Proposals**
  + Option 1: Approve the features of CRS-IM in non-DSS and 30 kHz NR SCS scenario. For the features of CRS-IM in non-DSS and 30 kHz NR SCS scenario, reuse the configuration proposed in last meeting WF in R4-2207239. (CMCC)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR\_perf\_enh2\_Demod | X-4 | CRS-IM in non-DSS and 30 kHz NR SCS scenario, without the assistance of network signaling on LTE channel bandwidth | Support of neighboring LTE cell CRS-IM in non-DSS and 30 kHz NR SCS scenario, without the assistance of network signaling on LTE channel bandwidth |  | Yes | N/A | NR UE does not support neighboring LTE cell CRS-IM in non-DSS and 30 kHz NR SCS scenario, without the assistance of network signaling on LTE channel bandwidth | Per FSPC | No | Applicable only to FR1 | Support mixture of FDD/TDD |  | Optional with capability signaling |
| NR\_perf\_enh2\_Demod | X-5 | CRS-IM in non-DSS and 30 kHz NR SCS scenario, with the assistance of network signaling on LTE channel bandwidth | Support of neighboring LTE cell CRS-IM in non-DSS and 30 kHz NR SCS scenario, with the assistance of network signaling on LTE channel bandwidth |  | Yes | N/A | NR UE does not support neighboring LTE cell CRS-IM in non-DSS and 30 kHz NR SCS scenario, with the assistance of network signaling on LTE channel bandwidth | Per FSPC | No | Applicable only to FR1 | Support mixture of FDD/TDD |  | Optional with capability signaling |

* **Recommended WF**
  + Is option 1 agreeable?

**Issue 2-1-1: Whether to introduce the test with only inter-RAT MO configured**

* *Status in RAN#102-e in the WF R4-2207239*
  + *Define one set of test setup with the new NWA signalling on LTE CBW configured.*
  + *FFS whether to define the other set of test setup with only inter-RAT MO configured:*
    - *FFS whether the same test requirements for CRS-IM can be applied in the two sets of test setup, considering that:*
      * *Whether or not to assume no error in LTE CBW detection: 1) based on PBCH decoding and/or power detection for the two interferers with different power level, or 2) based on PBCH decoding and/or power detection for the first dominant interferer.*
      * *TE does not start PDSCH scheduling of serving cell until UE acquires LTE channel bandwidth, further discuss the time needed for UE to acquire LTE channel bandwidth:*
    - *Option A: N x inter-RAT measurement period where N is the number of inter-RAT measurement configuration. One candidate value for N is 4, and other values are not precluded. FFS for the inter-RAT measurement period.*
    - *Other options are not precluded*
      * *Whether the inter-RAT MO is only configured during the beginning of the test or throughout the test*
* Proposals on whether to define the test with only inter-RAT MO configured:
  + Option 1: Yes (China Telecom, Nokia, CMCC, ZTE, E///, Huawei)
    - CTC, ZTE, HW: It is important to have a test setup to verify the UE performance of obtaining the CHBW information by power detection and/or PBCH decoding.
  + Option 2: No (Apple, QC)
    - QC: It mixes demod and RRM aspects significantly and requirements are expected to be similar to the test defined with NWA signaling.
* Recommended WF
  + Further discuss and aim to make decision in the first week of the meeting

**Issue 2-1-2: Whether the same CRS-IM test requirements can be applied in the two sets of test setup in scenario 2 (if introduced)**

* Proposals
  + Option 1: Yes (China Telecom, Nokia, CMCC, ZTE, E///, HW)
    - CTC, Nokia, CMCC: UE can always ensure high reliable PBCH decoding for the first dominant interference cell. For the second interference cell, UE can assume channel bandwidth be the same for all LTE interference cells, which is aligned with the default assumptions of the same CHBW for LTE cells in scenario 1.
    - ZTE, E///: It is reasonable to assume no error for PBCH decoding
    - HW:
      * UE can assume reliable PBCH decoding. For the second interference cell, the PBCH can be decoded successfully with probability of 99.99% assuming 5 independent PBCH transmissions.
      * UE can also do blind detection of LTE CHBW without PBCH decoding, which can achieve the similar LLR weighting performance compared to with new NWA on LTE CHBW.
  + Option 2: No (Apple)
    - Apple: Max TP would be different between test cases with and without inter-RAT MO, as inter-RAT MO would result in some unavailable subframes for PDSCH transmission. Impact of errors in detection of parameters with inter-RAT measurement may not be accounted for in simulation results.
* Recommended WF
  + Two aspects are considered:
    - Regarding the impact of errors in LTE CHBW information acquisition by PBCH decoding and/or power detection, majority companies think it is reasonable to assume error-free LTE CHBW information acquisition. Can we go with majority companies’ view?
    - Regarding the unavailable slots for NR PDSCH transmission, it is discussed in Issue 2-1-3.

**Issue 2-1-3: Extra time for CHBW information detection in the test with only inter-RAT MO configured (if introduced)**

* Proposals
  + Option 1: TE to wait N x inter-RAT measurement periods before starts PDSCH scheduling where N is the number of inter-RAT measurement configuration, and N=4 (China Telecom, CMCC, ZTE)
  + Option 2: PDSCH is scheduled after TIdentify, E-UTRAN FDD+500ms for FDD and TIdentify, E-UTRAN TDD+ 500ms for FDD, where 500ms is the time for UE to decode cell 2 PBCH within 5 coherent times (100ms for TDLA30-10) to reach 99.99% (1 - 0.145) PBCH accuracy (Huawei)
    - According to the RRM requirements, TIdentify, E-UTRAN FDD is 6240ms for gap pattern 0 for FDD and TDD.
    - With the above, PDSCH is scheduled after 6240 +500ms = 6740ms for FDD and TDD.
  + Option 3: Follow the RRM definition and consider the whole timing for UE to acquire neighboring LTE cells CBW to be the TMeasure, E-UTRAN FDD = 2s, and consider such scheduling time to be as one of the applicability rules and captured in the specification, and capture the time needed for UE to acquire LTE channel bandwidth as N x inter-RAT measurement period into the LS (E///)
* Recommended WF
  + There are 3 aspects to be discussed:
    - 1) In the test with only inter-RAT MO configured for scenario 2 (if introduced), is it agreeable to schedule NR PDSCH and measure the throughput after a certain time period?
    - 2) The length of the time period: 6.74 s (in option 2) or 2 s (in option 3)?
    - 3) Is it necessary to send LS to RAN2 and to define a timer based on the time period needed?

**Issue 2-1-4: Whether the inter-RAT MO is only configured during the beginning of the test or throughout the test**

* Proposals
  + Option 1: Inter-RAT MO is only configured during period of N x inter-RAT measurement (CMCC, ZTE)
  + Option 2: Configure inter-RAT MO through the test (Huawei)
    - HW: Taking into account it was agreed inter-RAT MO configuration is one of signalling to inform UE enable CRS-IM, there is the risk that UE will disable CRS-IM during the test that if inter-RAT MO is only configured during the beginning of the test.
* Recommended WF
  + Encourage comments to each of the options
  + For proponent of option 2, it is encouraged to feedback whether there will be unavailable slots for NR PDSCH throughout the whole test.

**Issue 2-1-5: Test applicability if two test setups are introduced for scenario 2**

* Proposals on the test applicability in case it is agreed define two sets of test setup for scenario 2
  + Option 1: If a UE supports both InterRAT MO and NWA for CRS-IM (Capability #2 and Capability #3), it is only required that the UE pass the requirements for one of the test cases (Nokia)
* Recommended WF
  + Encourage feedback

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209417 Updated work plan for Further enhancement on NR demodulation performance WI**

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

**Decision:** The document was **not treated**.

**R4-2209738 Draft CR to 38\_101-4: Abbreviations section**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

#### 9.11.2 UE demodulation and CSI requirements

**R4-2209829 Draft CR: Introduction of release independence for MMSE-IRC receiver requirements (TS 38.307 Rel-17)**

*Type: draftCR For: Endorsement  
 38.307 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

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

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

**Email discussion for [103-e][336] NR\_perf\_enh2\_Demod\_Part2, AI 9.11.2.1,9.11.2.2-Zhixun Tang**

**R4-2210342 Email discussion summary for [103-e][336] NR\_perf\_enh2\_Demod\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 12th**

**List of open issues:**

* Issue 1-1-1: Interference modelling in PDCCH region
* Issue 2-1-1: Test setup methodology for signal power
* Issue 2-1-2: SINR for 2 Rx
* Issue 2-1-4: SINR for 4 Rx
* Issue 2-1-3: T-put gain for 2 Rx

**Issue 1-1-1: Interference modelling in PDCCH region**

* Background
  + Option 1: Reuse the LTE PDSCH IRC testing approach. NR interference model to have unallocated RE’s in control region filled with QPSK randomly modulated symbols with random precoding for the number of antenna ports in the requirement scenario.
  + Option 2: Assume PDCCH transmission from interference cells
  + Option 3: Assume PDCCH transmission from interference cells and use non-overlapping PDCCH configurations. Use parameters in Table 2-4 from R4-2209820 as PDCCH configurations
  + Option 4: Assume Option 3 when SSB is non-colliding and Option 2 when SSB is colliding.
* Proposals
  + Option 1 (Nokia, China Telecom, Ericsson)
  + Option 2 (Apple, Ericsson, MediaTek)
    - Option 2a (Qualcomm) when SSB is colliding
  + Option 3 (Huawei)
    - Option 3a (Qualcomm) When SSB is not colliding
* Recommended WF
  + Collect views on options above

**Issue 2-1-1: Test setup methodology for signal power**

* Background
  + Option 1: Define test based on SINR
  + Option 2: Define test based on SNR
* Proposals
  + Option 1 (Apple, Nokia, China Telecom, Ericsson, Huawei)
  + Option 2 (MediaTek)
* Recommended WF
  + Check whether Option 1 can be considered based on majority companies views

**Issue 2-1-2: SINR for 2 Rx**

* Background
  + Option 1: -2 dB
  + Option 2: 0dB or -1 dB
* Proposals
  + Option 1 (Nokia, China Telecom, Ericsson, Huawei)
    - Option 1a (MediaTek): Option 1; or Option 2 if SINR for 4Rx should be lower than that for 2Rx
  + Option 2 (Apple): 0 dB
* Recommended WF
  + Check whether Option 1 (SINR = -2dB) can be considered based on majority companies views

**Issue 2-1-3: T-put gain for 2 Rx**

* Background
  + Option 1: 2
  + Option 2: 1.5
* Proposals
  + Option 1 (Apple, China Telecom, Ericsson, Huawei, MediaTek)
  + Option 2 (Nokia, Qualcomm)
* Recommended WF
  + Check whether Option 1 (γ = 2.0) can be considered based on majority companies views

**Issue 2-1-4: SINR for 4 Rx**

* Background
  + Option 1: -2 dB
  + Option 2: SINR requirement for 4Rx should be lower than that for 2Rx
    - Option 2a: Consider 3 dB difference for 2 and 4 Rx requirements.
* Proposals
  + Option 1 (Nokia, Ericsson, Huawei, MediaTek): -2 dB
  + Option 2 (Apple, China Telecom, MediaTek): SINR for 2Rx (Issue 2-1-2) – 3dB.
* Recommended WF
  + Discuss first whether 2Rx and 4Rx requirements should be defined for same or different SINR values

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209824 Draft CR: Introduction of general and applicability section of inter-cell MMSE-IRC receiver (TS 38.101-4 Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209831 Summary of PDSCH requirements simulation results for inter-cell MMSE-IRC receiver**

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

**Decision:** The document was **not treated**.

###### 9.11.2.1.1 PDSCH requirements

**R4-2207799 Simulation results for PDSCH requirements in intercell interference scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207800 Draft CR on PDSCH demod requirements in ICI-FDD**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208254 On general and PDSCH demodulation requirements for inter-cell interference MMSE-IRC**

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

**Abstract:**

In this contribution we have provided our views on the open topic of Interference modelling in PDCCH region.

**Decision:** The document was **not treated**.

**R4-2208256 Simulation Results on PDSCH demodulation requirements for inter-cell interference MMSE-IRC**

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

**Decision:** The document was **not treated**.

**R4-2208258 draftCR to 38\_101-4: NR Interference model for enhanced performance requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208414 Simulation results for inter-cell interference suppressing**

*Type: discussion For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208415 Draft CR for TS38.101-4 PDSCH TDD demodulation requirements for inter-cell interference MMSE-IRC**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209414 On PDSCH requirements for UE MMSE-IRC receiver for inter-cell interference suppression**

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

**Decision:** The document was **not treated**.

**R4-2209415 Simulation results on PDSCH demodulation requirements for inter-cell interference MMSE-IRC**

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

**Decision:** The document was **not treated**.

**R4-2209436 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:** The document was **not treated**.

**R4-2209437 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:** The document was **not treated**.

**R4-2209791 Simulation results and discussion on PDSCH requirements with inter-cell inter-user interference**

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

**Decision:** The document was **not treated**.

**R4-2209820 Discussion on PDSCH requirements with IRC receiver for inter-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2209821 Simulation results for PDSCH IRC performance requirements for inter-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2210156 Views and Simulation Results on Inter-cell Interference PDSCH Tests**

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

**Decision:** The document was **not treated**.

###### 9.11.2.1.2 CQI requirements

**R4-2207801 Simulation results for CSI reporting requirements in intercell interference scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208255 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 related CQI requirements setup.

**Decision:** The document was **not treated**.

**R4-2208257 Simulation Results on CQI requirements for intercell interference MMSE-IRC**

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

**Decision:** The document was **not treated**.

**R4-2209413 On CSI requirements for UE MMSE-IRC receiver for inter-cell interference suppression**

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

**Decision:** The document was **not treated**.

**R4-2209438 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:** The document was **not treated**.

**R4-2209439 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:** The document was **not treated**.

**R4-2209441 draftCR on CSI reporting test case(TDD)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draftCR introduce the new CSI reporting test case.

**Decision:** The document was **not treated**.

**R4-2209443 Summary of simulation results for Inter-cell MMSE-IRC CQI reporting**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution summarizes the CSI reporting simulation results for companies

**Decision:** The document was **not treated**.

**R4-2209529 Draft CR on Intercell Interfrence FDD CQI Requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209792 Simulation results and discussion on CQI requirements with inter-cell inter-user interference**

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

**Decision:** The document was **not treated**.

**R4-2209822 Discussion on CQI requirements with IRC receiver for inter-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2209823 Simulation results for CQI IRC requirements for inter-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2210158 Views and Simulation Results for Inter-cell Interference CQI Reporting Tests**

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

**Decision:** The document was **not treated**.

##### 9.11.2.2 MMSE-IRC receiver for intra-cell inter-user interference

**R4-2207802 Simulation results for PDSCH requirements in MU-MIMO scenarios**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209412 Draft CR on PDSCH 4Rx demod requirements for MU-MIMO IRC**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision:** The document was **not treated**.

**R4-2209416 Simulation results on UE MMSE-IRC receiver for intra-cell inter-user interference suppression**

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

**Decision:** The document was **not treated**.

**R4-2209440 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:** The document was **not treated**.

**R4-2209442 draftCR on MU-MIMO FRC**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draftCR introduce the FRC for MU-MIMO test case.

**Decision:** The document was **not treated**.

**R4-2209793 Simulation results for MMSE-IRC receiver with intra-cell interference**

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

**Decision:** The document was **not treated**.

**R4-2209825 Simulation results for IRC receiver for intra-cell inter-user interference**

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

**Decision:** The document was **not treated**.

**R4-2209826 Draft CR: Introduction of MU-MIMO Beamforming model (TS 38.101-4 Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209827 Draft CR: Introduction of 2Rx PDSCH demodulation requirements for MU-MIMO MMSE-IRC (TS 38.104 Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209828 BigCR for IRC for intra cell inter user MMSE receiver requirements**

*Type: CR For: Agreement  
 38.101-4 v17.4.0 CR-0286 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209830 Summary of PDSCH requirements simulation results for MU-MIMO MMSE-IRC receiver**

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

**Decision:** The document was **not treated**.

**R4-2210121 Simulation Results for Intra-cell Inter-user Interference Tests**

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

**Decision:** The document was **not treated**.

##### 9.11.2.3 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR

###### 9.11.2.3.1 General

**R4-2207803 Simulation results for CRS-IM requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208050 Discussion on CRS-IM requirements for 30 kHz SCS case**

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

**Decision:** The document was **not treated**.

**R4-2208259 On General 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 Nokia’s CR for the General and applicability sections.

**Decision:** The document was **not treated**.

**R4-2208261 draftCR to 38\_101-4: NR CRS-IM 15KHz SCS Scenario - General and applicability sections**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208416 Discussion on the CRS-IM for NR 30kHz SCS**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208417 Simulation results collection for 30kHz SCS CRS-IM**

*Type: other For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208418 LS on UE capability and network assistant signalling for CRS interference mitigation in the scenario with overlapping spectrum for LTE and NR with 30kHz SCS**

*Type: LS out For: Approval  
 to RAN2  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208419 Draft CR for introduction of general applicability section of CRS-IM with serving cell 30kHz SCS in TS38.101-4**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208420 Draft CR on TDD PDSCH CRS-IM demod requirements for Scenario2 with overlapping spectrum for LTE and NR 15kHz SCS**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209148 Draft CR for TS38.101-4 PDSCH Reference Channel for CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a R17 Cat B draft CR

**Decision:** The document was **not treated**.

**R4-2209405 Summary of CRS-IM simulation results (15 kHz SCS FDD and TDD)**

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

**Decision:** The document was **not treated**.

**R4-2209408 Simulation results for CRS-IM for 15kHz SCS scenario**

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

**Decision:** The document was **not treated**.

**R4-2209410 Draft CR on adding FRC for CRS-IM 15kHz SCS test requirements**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision:** The document was **not treated**.

**R4-2209411 Draft CR on FDD PDSCH CRS-IM demod requirements for DSS Scenario**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision:** The document was **not treated**.

**R4-2209693 Discussion on the 30kHz SCS scenario for CRS-IM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss open issues for 30kHz SCS scenrario

**Decision:** The document was **not treated**.

**R4-2209694 Simulation results for CRS-IM**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

Submit simulation results

**Decision:** The document was **not treated**.

**R4-2209695 draft CR to TS 38.101-4: TDD PDSCH CRS-IM demod requirements for DSS Scenario**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

To capture the requirement in the spec.

**Decision:** The document was **not treated**.

**R4-2209794 Simulation results and discussion on PDSCH requirements for CRS-IM receiver**

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

**Decision:** The document was **not treated**.

**R4-2209795 Draft CR to TS38.101-4, interference model for CRS-IM receiver**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209818 Discussion on CRS-IM with 30kHz SCS**

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

**Decision:** The document was **not treated**.

**R4-2209819 draftCR: Introduction of PDSCH requirements for CRS-IM scenario 2 with 30kHz**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2210003 Simulation results collection for 30kHz SCS CRS-IM**

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

**Decision:** The document was **not treated**.

###### 9.11.2.3.2 Test set-up

**R4-2208260 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 test setup for 15kHz and 30kHz SCS.

**Decision:** The document was **not treated**.

**R4-2208421 Discussion on the test setup for CRS-IM 15kHz**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209147 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR**

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

**Decision:** The document was **not treated**.

**R4-2209404 Simulation assumptions for CRS-IM (for 15kHz FDD and TDD)**

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

**Decision:** The document was **not treated**.

**R4-2209409 Discussion on the test setup for CRS-IM requirement definition**

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

**Decision:** The document was **not treated**.

**R4-2209527 Summary of CRS-IM simulation results (15 kHz SCS FDD and TDD)**

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

**Decision:** The document was **not treated**.

**R4-2209692 Discussion on the test setup for CRS-IM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss the test setup and 2 CRS ports for scenario 2

**Decision:** The document was **not treated**.

**R4-2209815 Discussion on test setup for CSI-IM with 15kHz SCS**

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

**Decision:** The document was **not treated**.

**R4-2209816 Simulation results for CRS-IM with 15kHz SCS**

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

**Decision:** The document was **not treated**.

**R4-2209817 draftCR: Introduction of PDSCH requirements for FDD CRS-IM scenario 2 with 15kHz**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2210191 Views on Test Setup for CRS Interference Mitigation in NR**

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

**Decision:** The document was **not treated**.

#### 9.11.3 BS demodulation requirements maintenance

##### 9.11.3.1 PUSCH demodulation requirements for FR1 256QAM

### 9.12 Solutions for NR to support non-terrestrial networks (NTN)

#### 9.12.1 General

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

**Email discussion for [103-e][307] NTN\_Solutions\_General , AI 9.12.1,9.12.2-Dorin Panaitopol**

**R4-2210313 Email discussion summary for 103-e][307] NTN\_Solutions\_General**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208246 Remaining issue for General aspects for SAN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208333 Draft Text Proposal to Update TR 38.863 Chapter 3,6 and 8**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Draft text proposals to update contents of Chapter 3, 6 and 8 in draft TR 38.863.

**Decision:** The document was **not treated**.

**R4-2208334 Draft Text Proposal to Update TR 38.863 structure**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Draft text proposal to update the structure of draft TR 38.863

**Decision:** The document was **not treated**.

**R4-2208640 Draft TR 38.863 v0.4.0**

*Type: draft TR For: Agreement  
 38.863 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Tdoc reserved to capture all agreed TPs towards draft TR 38.863

**Decision:** The document was **not treated**.

**R4-2208641 Draft TS 38.101-5 v0.2.0**

*Type: draft TS For: Agreement  
 38.101-5 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Tdoc reserved to capture all agreed TPs towards draft TS 38.101-5

**Decision:** The document was **not treated**.

**R4-2208889 TP to TR 38.863 - Updates**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a TP to TR 38.863 - Updates

**Decision:** The document was **not treated**.

**R4-2209676 TP to TS 38.108: TS corrections; general parts**

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

**Abstract:**

This TP to TS 38.108 provides multiple corrections to general parts of the TS.

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

**R4-2209917 NR\_NTN\_solutions work plan**

*Type: Work Plan For: Endorsement  
 Source: THALES*

**Abstract:**

At the RAN#95-e meeting, the work item “Solutions for NR to support non-terrestrial networks (NTN)” was revised, with the RAN4 core part completion by June 2022 (RAN#96-e), and the RAN4 performance part by December 2022 (RAN#98) [RP-213691]. In this contr

**Decision:** The document was **not treated**.

**R4-2209990 pCR for Annex D - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Annex D (normative): Characteristics of the interfering signals

**Decision:** The document was **not treated**.

**R4-2209992 Draft text proposal for Clause 3 - TS 38.101-5**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this document, following changes have been proposed as a TP to update TS 38.101-5:

- Section 3: Definitions of terms, symbols and abbreviations

**Decision:** The document was **not treated**.

**R4-2209994 pCR for Clause 3.3 Abbreviations - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 3.3: Abbreviations

**Decision:** The document was **not treated**.

**R4-2209995 pCR for Clause 4.3 Requirement reference points - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 4.3: Requirement reference points

**Decision:** The document was **not treated**.

**R4-2210189 Draft TS 38.108 v0.2.0**

*Type: draft TS For: Agreement  
 38.108 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

Document reserved to capture in TS 38.108 v0.2.0 the approved TPs/pCRs at RAN4#103-e

**Decision:** The document was **not treated**.

#### 9.12.2 Coexistence aspects

**R4-2209997 Draft text proposal for Clause 6.1 Coexistence Figures - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 6.1 Co-existence simulation scenario of TR 38.863 by including some visual explanations already included in the Annex of previous NTN simulation document gathering all NTN simulat

**Decision:** The document was **not treated**.

**R4-2210228 Draft text proposal for Clauses 6.4 and 6.5 Corrections Typos - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to correct a few typos in Section 6.4 and 6.5 from TR 38.863.

**Decision:** The document was **not treated**.

#### 9.12.3 Satellite Access Node RF requirements

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

**Email discussion for [103-e][308] NTN\_Solutions\_SANRF, AI 9.12.3-Yuexia Song**

**R4-2210314 Email discussion summary for [103-e][308] NTN\_Solutions\_SANRF**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 11th**

**Issue 1-1: Δ**fOBUE

* Proposals
  + Option 1: use **Δ**fOBUE=10MHz as baseline for n256 and n255
  + Option 2: The boundary between the out-of-band mask and spurious domain for SAN should be specified as 2\*BWChannel from the channel edge based on ITU regulation.
* Recommended WF
  + TBA
* Discussion:
  + ZTE: Is that possible to meet in-band spurious emission and out of band spurious emission by filtering attenuation.
  + Huawei: For NTN, spurious emission is same with in/out of band spurious which means filtering not helpful for spurious emission requirements. We don’t need the boundary.
  + Ericsson: We have same understanding as Huawei.
  + Thales: We have same understanding Huawei and Ericsson.
* Agreement: Option 2

**Issue 1-2: Δ**fOOB

* Proposals
  + Option 1: use **Δ**fOOB=20MHz as baseline for n256 and n255
  + Option 2: other, please specify
* Recommended WF
  + TBA
* Agreement: Option 1 agreed

**Issue 1-3: Spurious emission**

* Proposals
  + Option 1: spurious emission should be specified as in the following table (Ericsson)

|  |  |  |  |
| --- | --- | --- | --- |
| Spurious frequency range | Prated,c,TRP(W) | Basic limit (dBm) | Measurement bandwidth |
| 30 MHz – 12.75 GHz | ≤ 50 W | -13 | 4 kHz |
|  | > 50 W | 10 Log(Prated,c,sys(W)) – 30 |  |

* + Option 2: specify the spurious emissions as in the following table (Huawei, Thales)

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit GEO/LEO class (dBm) | Measurement bandwidth |
| 30 MHz –5th harmonic of the upper frequency edge of the DL operating band (NOTE 3, 4, 5, 6) | When Prated,c,sys ≤ 47dBm :  -13  When Prated,c,sys > 47dBm :  Prated,c,sys-60  (NOTE 1) | 4 kHz  (NOTE 2) |

* + Option 3: specify the spurious emissions as in the following table (ZTE)

|  |  |  |  |
| --- | --- | --- | --- |
| Spurious frequency range | *Basic limit (Note 5)* | *Measurement bandwidth* | Notes |
| 9 kHz – 150 kHz | When Prated,c,sys ≤ 50W :  -13  When Prated,c,sys > 50W :  10\*log(Prated,c,sys)-30 | 4 kHz | Note 1, Note 4 |
| 150 kHz – 30 MHz | 4 kHz | Note 1, Note 4 |
| 30 MHz – 1 GHz | 4 kHz | Note 1 |
| 1 GHz– 12.75 GHz | 4 kHz | Note 1, Note 2 |
| NOTE 1: Prated,c,sys (dBm) is declared by the manufacturer.  NOTE 2: Measurement bandwidths as in ITU-R SM.329 [x], s4.1.  NOTE 3: Lower and Upper frequency as in ITU-R SM.329 [x], s2.5, Table 1. Values as in ITU-R SM.329 [x], Table 10.  NOTE 4: Lower frequency limit is replaced by 800 MHz, according to ITU-R SM.329-12, when using waveguide section, spurious domain emission measurements below 0.7 times the waveguide cut-off frequency are not required.  [NOTE 5: This spurious frequency range applies only to SAN type 1-H.]  [NOTE 6: Applies only for band n255 and n256.] | | | |

* Recommended WF
  + TBA
* Discussion:
  + Thales: Frequency range from ITU-R recommendation starting with 30MHz .
  + Ligado: We share same view as Thales.
  + Huawei: Measurement bandwidth in NTN using 4kHz and in TN 1MHz used.
  + ZTE: TN specification, we also refer to same ITU-R recommendation. Any difficulty for below 30MHz considering there are system operated below 30MHz?
  + We also need to discuss the notes.
  + Ligado: We didn’t observe any issue and satellites now deployed completely follow ITU-R recommendation.
  + CATT: We can agree with option 2 and can further revisit in future if necessary.
* Agreement: Option 2 agreed

|  |  |  |
| --- | --- | --- |
| Spurious frequency range | Basic limit GEO/LEO class (dBm) | Measurement bandwidth |
| 30 MHz –5th harmonic of the upper frequency edge of the DL operating band (NOTE 3, 4, 5, 6) | When Prated,c,sys ≤ 47dBm :  -13  When Prated,c,sys > 47dBm :  Prated,c,sys-60  (NOTE 1) | 4 kHz  (NOTE 2) |

* RAN4 can further revisit the low frequency boundary (30MHz) in maintenance phase if technical justification identified.
* Further discuss the “Notes” in the table over email

**Issue 1-4-1: Principles to define OBUE requirements for SAN**

* Proposals
  + Option 1: Specify satellite access node OBUE based on TN BS OBUE/TN MSR BC1 OBUE and scaling according to ACLR
  + Option 2: Follow Annex 5 of ITU recommendation SM.1541-6 to define SAN OBUE requirements.
* Recommended WF
  + TBA
* Discussion:
  + Huawei: In previous GTW, we already have agreements that need to follow ITU recommendation (option 2).
  + Thales: We agree with option 2 as Huawei explained. During offline discussion, we already explained the detailed considerations from Satellite industry.
  + ZTE: In principle we shall respect the ITU recommendation, but in TN we also take ACLR into account.
  + Ericsson: We just agree to follow ITU recommendation for breaking point. We would like to know how to fit with ACLR requirement with option2.
  + Thales: We shall specify OBUE requirements related to EVM, not ACLR. ACLR and OBUE are sperate requirements, meanwhile more stringent requirements can be verified under conformance test cases/
  + Huawei: Seems companies fine with option 2, for the concern of the linkage between ACLR and OBUE, we believe SAN need to meet these two requirements.
  + Ligado: We share similar view as Huawei.
  + ZTE: OBUE requirement: 1st range related to EVM; 2nd range related to ACLR. For TN, OBUE always related to ACLR.
  + CATT: We slightly agree with Huawei, ACLR and OBUE requirements are different.
  + Ericsson: We think these requirements shall be consistent. We can follow ITU recommendation and further the details.
  + Samsung: We share the same view as CATT and Thales.
* Agreement: Option 2 and further discuss the OBUE requirements.

**Issue 1-4-2: OBUE requirements**

* Proposals
  + Option 1: OBUE according to TN BS OBUE/TN MSR BC1 OBUE.
* **Option 1a:**

SAN GEO Class - OBUE basic limits

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.002 MHz ≤ f\_offset < 5.002 MHz |  | 4kHz |
| 5 MHz ≤ Δf <  min(10 MHz, Δfmax) | 5.002 MHz ≤ f\_offset <  min(10.002 MHz, f\_offsetmax) | 0 dBm | 4kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.002 MHz ≤ f\_offset < f\_offsetmax | Aligned with SAN spurious limit | 4kHz |

SAN LEO Class - OBUE basic limits

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.002 MHz ≤ f\_offset < 5.002 MHz |  | 4kHz |
| 5 MHz ≤ Δf <  min(10 MHz, Δfmax) | 5.002 MHz ≤ f\_offset <  min(10.002 MHz, f\_offsetmax) | -14 dBm | 4kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.002 MHz ≤ f\_offset < f\_offsetmax | Aligned with SAN spurious limit | 4kHz |
| NOTE: *ΔLEOType* = 0dBm for LEO 600 km satellite and 6dBm for LEO 1200 km satellite | | | | |

**Option 1b:**

Table 1-1. SAN GEO Class OBUE limit values

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2)  dBm | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.002 MHz ≤ f\_offset < 5.002 MHz |  | 4kHz |
| 5 MHz ≤ Δf <  min(10 MHz, Δfmax) | 5.002 MHz ≤ f\_offset <  min(10.002 MHz, f\_offsetmax) | *-3 dBm* | 4kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.002 MHz ≤ f\_offset < f\_offsetmax | -9dBm | 4kHz |
| NOTE: Assuming with lowest achievable EVM for GEO without power backoff is similar as QPSK EVM requirements to derive the starting point of first slope of UEM with 2dB implementation margin. | | | |

Table 1-2. SAN LEO Class OBUE basic limits

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits* (Note 1, 2)  dBm | *Measurement bandwidth* |
| 0 MHz ≤ Δf < 5 MHz | 0.002 MHz ≤ f\_offset < 5.002 MHz | +X | 4kHz |
| 5 MHz ≤ Δf <  min(10 MHz, Δfmax) | 5.002 MHz ≤ f\_offset <  min(10.002 MHz, f\_offsetmax) | *-13+X* | 4kHz |
| 10 MHz ≤ Δf ≤ Δfmax | 10.002 MHz ≤ f\_offset < f\_offsetmax | -13+X | 4kHz |
| NOTE 1: For LEO600, X is equal to 0dB and LEO1200, X is equal to min(10\*log10( Prated,c,sys)+30-41 ,6);  NOTE 2: Assuming with lowest achievable EVM for LEO without power backoff is similar as 16QAM EVM requirements to derive the starting point of first slope of UEM with 2dB implementation margin. | | | |

* + Option 2: OBUE according to Annex 5 of ITU recommendation SM.1541-6

|  |  |  |  |
| --- | --- | --- | --- |
| Frequency offset of measurement filter ‑3dB point, Δf | Frequency offset of measurement filter centre frequency, f\_offset | *Basic limits*  dBm | *Measurement bandwidth* |

|  |  |  |  |
| --- | --- | --- | --- |
| 0 MHz ≤ Δf < 2\* BWChannel | 0.002 MHz ≤ f\_offset < 2\* BWChannel + 0.002 MHz |  | 4kHz |

|  |
| --- |
| NOTE 1: PSDchannel = Prated,c – 10log10(BWChannel) – 24, unit dBm/4kHz.  NOTE 2: SE limit is spurious emission limit specified in spurious emission clause.  NOTE 3: PSD attenuation as in ITU-R SM.1541-6 [3], Annex 5 OoB domain emission limits for space services. |

* Discussion:
  + Ligado: We think option 2 clear enough.
  + Thales: We already prepare TP following option 2 for TS/TR to complete the work.
  + ZTE: How to derive ACLR from this OBUE requirements?
  + Huawei: For option 2, 19 dB PSD attenuation at first adjacent channel. For the concern on how to reflect ACLR, We can adjust the value to move down the curve 2dB.
  + CATT: We agree the approach from Huawei.
  + Ericsson: What Huawei proposed is the possible way we can follow.
  + Thales: We can accept the value currently to make progress considering the margin.
  + Ligado: For GEO, 2dB not needed we believe since OBUE requirement is already stringent than ACLR.
* Agreement: Option 2

|  |  |  |  |
| --- | --- | --- | --- |
| 0 MHz ≤ Δf < 2\* BWChannel | 0.002 MHz ≤ f\_offset < 2\* BWChannel + 0.002 MHz |  | 4kHz |

* X = 3dB for LEO
* X= 0dB for GEO
* RAN4 can further revisit the requirements including the value(X) during maintenance phase with technical input from companies.

ZTE: We have concern on the approach to specify OBUE requirement which total different compared to TN.

**Issue 1-5: Absolute ACLR**

* Proposals
  + Option 1: Specify absolute ACLR requirement as -13dBm/4kHz
  + Option 2: Do not specify absolute ACLR requirement
* Agreement: Option 2

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208888 pCR to TS 38.108 - Alignement**

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

**Abstract:**

This contribution is a pCR to TS 38.108 - Alignment

**Decision:** The document was **not treated**.

##### 9.12.3.1 TX requirements for radiated characteristics

**R4-2208883 NTN - SAN TX radiated requirements: remaining issues**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issue of Satellite node access - Tx radiated requirements

**Decision:** The document was **not treated**.

**R4-2208887 pCR to TS 38.108 - Transmitter spurious requirement**

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

**Abstract:**

This contribution is a pCR to TS 38.108 - Transmitter spurious emissions subclause

**Decision:** The document was **not treated**.

**R4-2209923 On SAN Spurious Emission requirements for Radiated Characteristics**

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

**Decision:** The document was **not treated**.

##### 9.12.3.2 RX requirements for radiated characteristics

**R4-2210059 pCR for Clause 10.6.2 Minimum requirement for SAN type 1-O - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 10.6.2: Minimum requirement for SAN type 1-O

**Decision:** The document was **not treated**.

**R4-2210159 Draft text proposal for Clause 7.3.3.3.1 OTA sensitivity - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.1 OTA Sensitivity of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210161 Draft text proposal for Clause 7.3.3.3.2 OTA reference sensitivity - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.2 OTA reference Sensitivity of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210162 Draft text proposal for Clause 7.3.3.3.3 OTA dynamic range - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.3 OTA dynamic range of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210163 Draft text proposal for Clause 7.3.3.3.2 OTA reference sensitivity - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.2 OTA reference Sensitivity of TR 38.863 by including some information related to agreements for TS 38.108.

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

**R4-2210164 Draft text proposal for Clause 7.3.3.3.7 OTA receiver intermodulation - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.7 OTA receiver intermodulation of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210165 Draft text proposal for Clause 7.3.3.3.8 OTA in-channel selectivity - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.8 OTA in-channel selectivity of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210213 Draft text proposal for Clause 7.3.3.3.4 OTA in-band selectivity and blocking - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.3.3.4 OTA in-band selectivity and blocking of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

##### 9.12.3.3 Tx requirements for conducted characteristics

**R4-2208247 Open issue on conducted requirement for SAN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208248 Open issue on radiated requirement for SAN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208249 TP for 38.863: clause 7.3.2 Conducted transmission characteristics**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208250 TP for 38.108: clause 6 on unwanted emissions**

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

**Decision:** The document was **not treated**.

**R4-2208882 NTN - SAN TX conducted requirements: remaining issues**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issue of Satellite node access - Tx conducted requirements

**Decision:** The document was **not treated**.

**R4-2209361 Discussion on SAN OoB mask and spurious emission requirements**

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

**Decision:** The document was **not treated**.

**R4-2209528 TP to TS 38.108 on 6.0 Conducted transmitter characteristics**

*Type: pCR For: Approval  
 38.108 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: HUGHES Network Systems Ltd; Hughes/EchoStar*

**Decision:** The document was **not treated**.

**R4-2209592 Further discussion on conducted Tx requirements of satellite access node**

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

**Decision:** The document was **not treated**.

**R4-2209677 TP to TS 38.108: TS corrections; RF requirements**

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

**Abstract:**

This TP to TS 38.108 provides multiple corrections to RF requirements.

**Decision:** The document was **not treated**.

**R4-2209924 On SAN Spurious Emission requirements for Conducted Characteristics**

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

**Decision:** The document was **not treated**.

**R4-2209999 pCR for Clause 6.6.3 Adjacent Channel Leakage Power Ratio - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 6.6.3: Adjacent Channel Leakage Power Ratio

**Decision:** The document was **not treated**.

**R4-2210000 Tentative pCR for Clause 6.6 Unwanted emissions and Clause 6.6.4 OBUE - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- TP1 for Section 6.6: Unwanted emissions

- TP2 (Alternative 1) or TP2 (Alternative 2) for Section 6.6.4: Operating band unwanted emissions

**Decision:** The document was **not treated**.

**R4-2210001 pCR for Clause 6.6.5 Transmitter spurious emissions - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 6.6.5: Transmitter spurious emissions

**Decision:** The document was **not treated**.

**R4-2210004 Draft text proposal for Clause 7.3.2.2.5 Transmitter spurious emissions - TR38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.2.2.5 Transmitter spurious emissions for TR 38.863 taking into account latest agreements to be considered for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210082 Discussion on SAN OBUE**

*Type: discussion For: Discussion  
 Source: THALES*

**Abstract:**

Updated SAN OBUE (Option 2) from the approved Way Forward on SAN SEM and spurious emission (R4-2207456).

**Decision:** The document was **not treated**.

**R4-2210090 Discussion on SAN Spurious Emissions**

*Type: discussion For: Discussion  
 Source: THALES*

**Abstract:**

Updated SAN Spurious Emissions (Option 2) from approved Way Forward on SAN SEM and spurious emission (R4-2207456).

**Decision:** The document was **not treated**.

**R4-2210110 On SAN OBUE definition using ITU-R recommendation**

*Type: discussion For: Agreement  
 Source: THALES*

**Abstract:**

Simulation results with ITU-R recommendation SM.1541-6 (Unwanted emissions in the out-of-band domain), with frequency offset range within first two break points, and the measurement bandwidth of 4kHz.

**Decision:** The document was **not treated**.

**R4-2210116 Tentative draft pCR for Clause 7.3.2.2.4.2 Operating band unwanted emissions - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.2.2.4.2 Operating band unwanted emissions of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210154 Draft text proposal for Clause 7.3.2.2.1 SAN output power - TR 38.863**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: THALES*

**Abstract:**

In this contribution is proposed to add information with respect to Section 7.3.2.2.1 SAN output power of TR 38.863 by including some information related to agreements for TS 38.108.

**Decision:** The document was **not treated**.

**R4-2210216 Draft TP for TS 38.108 Section 6.6.4 Operating band unwanted emissions**

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

**Decision:** The document was **not treated**.

##### 9.12.3.4 Rx requirements for conducted characteristics

**R4-2208663 TP to TS 38.108 on Conducted receiver characteristics**

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

**Decision:** The document was **not treated**.

**R4-2209678 TP to TR 38.863: Conducted reference sensitivity**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In this contribution we provide TP to TR 38.863 on the reference sensitivity requirement derivation.

**Decision:** The document was **not treated**.

**R4-2209679 TP to TR 38.863: Conducted Rx dynamic range**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In this contribution we provide TP to TR 38.863 on the Rx dynamic range requirement derivation.

**Decision:** The document was **not treated**.

**R4-2210030 pCR for Clause 7.4 In-band selectivity and blocking - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 7.4: In-band selectivity and blocking

**Decision:** The document was **not treated**.

**R4-2210042 pCR for Clause 7.5 Out-of-band blocking - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 7.5: Out-of-band blocking

**Decision:** The document was **not treated**.

**R4-2210049 pCR for Clause 7.6 Receiver spurious emissions - TS 38.108**

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

**Abstract:**

In this document, following changes have been proposed as a pCR to update TS 38.108:

- Section 7.6: Receiver spurious emissions

**Decision:** The document was **not treated**.

#### 9.12.4 Satellite Access Node RF conformance testing

##### 9.12.4.1 General and work plan

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

**Email discussion for [103-e][309] NTN\_Solutions\_RFConformance**

**, AI 9.12.4-Dominique Everaere**

**R4-2210315 Email discussion summary for [103-e][309] NTN\_Solutions\_RFConformance**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208251 Skeleton for TS 38.181**

*Type: draft TS For: Agreement  
 38.181 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209593 Initial discussion on SAN conformance testing: general part**

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

**Decision:** The document was **not treated**.

**R4-2209680 Structure of the NTN SAN conformance testing specification**

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

**Abstract:**

In this contribution we provide recommendation for the NTN SAN conformance testing specification handling, to follow the approach of AAS BS and NR BS, and to split the specification into the conducted and radiated testing specifications.

**Decision:** The document was **not treated**.

**R4-2210034 Initial considerations on SAN conformance testing - general requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Several initial observations and proposals for SAN conformance testing

**Decision:** The document was **not treated**.

**R4-2210039 Further discussion on the Normal and Extreme conditions testing**

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

**Abstract:**

In this contribution, we provide further analysis of the Normal and Extreme conditions testing for NTN SAN.

**Decision:** The document was **not treated**.

**R4-2210040 TP to TS 38.108: removal of extreme conditions requirements**

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

**Abstract:**

This TP to TS 38.108 removes the extreme condition requirement from the NTN SAN specification.

**Decision:** The document was **not treated**.

##### 9.12.4.2 Conductive conformance Testing

**R4-2208252 General consideration on conductive conformance testing for SAN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209594 Initial discussion on SAN conformance testing: conducted part**

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

**Decision:** The document was **not treated**.

**R4-2210035 Initial considerations on SAN conformance testing - conducted requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Several initial observations and proposals for SAN conformance testing

**Decision:** The document was **not treated**.

##### 9.12.4.3 Radiated conformance Testing

**R4-2208253 General consideration on radiated conformance testing for SAN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2209595 Initial discussion on SAN conformance testing: radiated part**

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

**Decision:** The document was **not treated**.

**R4-2210036 Initial considerations on SAN conformance testing - OTA requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Several initial observations and proposals for SAN conformance testing

**Decision:** The document was **not treated**.

#### 9.12.5 UE RF requirements

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

**Email discussion for [103-e][310] NTN\_Solutions\_UERF**

**, AI 9.12.5-Fei Xue**

**R4-2210316 Email discussion summary for [103-e][310] NTN\_Solutions\_UERF**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 11th**

**Issue 1-1-1: A-MPR requirement defined for NS\_57**

* Proposals
  + Option 1: no requirements [Ligado, Qualcomm]
  + Option 2: no A-MPR requirement is needed fro NS\_57 if filter could provide 10dB attenuation on the protected frequency range 1559-1605MHz.[ZTE]
* Recommended WF
  + Option 1: no A-MPR requirements for NS\_57
* Agreement: Option 1: no A-MPR requirements for NS\_57

**Issue 1-1-2: Naming for satellite NS value**

* Proposals
  + Option 1: Any new NS message for UE satellite should have prefixed “N”, e.g. the new “NS\_57” should be named “NS\_57N” instead (or “NS\_56N”). [Ericsson]
* Potential agreement after the pre-meeting discussions:
  + For naming for NS\_57N, it have no impacts on RAN2 signalling and it should be okay to have differentiation between TN NS naming and NTN NS naming:
* Recommended WF:
  + Option 1: to define NS\_xxN for NTN NS naming
* Agreement: Option 1: to define NS\_xxN for NTN NS naming for all the NTN bands

**Issue 1-2-1: Duplexer assumption for n256**

* Proposals
  + Option 1: to define dedicated 30MHz duplexer (Ericsson, Hughes/Echostar)
  + Option 2: to reuse the duplexer of band n65 (MTK, ZTE, Skyworks)
  + Option 3: to specify two bands for different duplexer implementation with different RF requirements (Huawei)
* Potential agreement after the pre-meeting discussions:
  + Both 30MHz and 90MHz duplexer could be accommodated. Requirement itself would be still applicable for n256 instead of n65.
* Recommended WF
  + Both 30MHz and 90MHz duplexer could be accommodated. ~~Requirement itself would be still applicable for n256 instead of n65.~~
* Note: Requirement itself would be applicable for n256 instead of referring to band n65 in the TS 38.101-5 spec
* Agreement:
* Both 30MHz and 90MHz duplexer could be accommodated.
* Note: Requirement itself would be applicable for n256 instead of referring to band n65 in the TS 38.101-5 spec
* Note: Above assumption agreed under the condition there is no impact on the competition of NTN UE RF core requirements.

**Issue 1-2-2: Coexistence protection for band n34 DL**

* Proposals
  + Option 1: except for NS\_24, some other solutions/requirements are required to resolve the co-existence issue between n256 and n34 when NTN UE is configured at 2005-2010MHz. [CMCC]
  + Option 2: RAN4 NOT to specify the UE co-existence requirements for NTN bands to protect TN bands such as n34, n39, B33, B35 and B37. Capture a note in section [6.5.3.2] of TS 38.101-5 to indicate that for the area with TN coverage, NTN UE shall not transmit to guarantee the UE co-existence between NTN and TN on the adjacent bands [Qualcomm]
  + Option 3: Apply NS\_24 A-MPR values to n256 as agreed in RAN4#102-e meeting. [Ericsson]
  + Option 4: not to define coexistence requirements and to define the isolation regions between NTN and TN coverage and leave its signalling design to RAN2. [ZTE]
  + Option 5: to define the DBT behavior : Determining whether the IMT services exist in the protected TN bands(NOTE) Before Transmitting UL signal in NTN satellite bands) and send LS to RAN1/RAN2 to check its impacts. [Huawei]
* Recommended WF
  + Option 1: RAN4 to specify the coexistence requirement and apply NS\_24 and FFS for A-MPR requirement for frequency range 2005-2010MHz [CMCC,Ericsson]
  + Option 2: not to define coexistence requirements and to define the isolation regions between NTN and TN coverage and leave its signalling design to RAN2. [ZTE]
  + Option 3: to define the DBT behavior : Determining whether the IMT services exist in the protected TN bands(NOTE) Before Transmitting UL signal in NTN satellite bands) and send LS to RAN1/RAN2 to check its impacts. [Huawei]
  + Option 4: RAN4 NOT to specify the UE co-existence requirements for NTN bands to protect TN bands such as n34, n39, B33, B35 and B37. Capture a note in section [6.5.3.2] of TS 38.101-5 to indicate that for the area with TN coverage, NTN UE shall not transmit to guarantee the UE co-existence between NTN and TN on the adjacent bands [Qualcomm]
* Recommended WF after the pre-meeting discussions:
  + For n34,  to reuse the NS\_24 including A-MPR value ~~with 5MHz guard band at the upper of n256 UL frequency range.~~
  + If not, please further clarify which options are preferred.
* Discussion:
  + Skyworks: Reuse NS\_24 shall combine with A-MPR value.
  + Huawei: We can accept the recommended WF to complete Rel-17 NTN core part meanwhile we would like to emphasize this shall not preclude the further optimized solution in future for certain region i.e. region 3.
  + Hughes: We are ok for NS\_24 but not sure A-MPR value itself since we already 5M guard band already reserved.
  + ZTE: We are fine to remove the 5MHz guard band.
  + Ericsson: Better to clarify the 5MHz guard band case.
* Agreement:
* For n34,  to reuse the NS\_24 including associated A-MPR value as specified in TS 38.101-1
  + Note: there is 5MHz guard band at the upper of n256 UL frequency range

**Issue 1-2-3: Coexistence protection for band n39 DL**

* Proposals
  + Option 1: additional NS is required to protect band n39 for n256 NTN UE when it uses n65 filter and it’s suggested to define -50dBm/MHz additional spurious emissions for NTN UE with n65 filter at frequency range of 1880-1915MHz to protect n39.[CMCC]
  + Option 2: no A-MPR requirement for coexisting with n39 if duplexer is 30MHz. [HUGHES Network Systems Ltd; Hughes/EchoStar]
  + Option 3: FFS for studied if -50dBm/MHz is reachable for a 20 MHz CBW. [Skyworks]
  + Option 4: RAN4 NOT to specify the UE co-existence requirements for NTN bands to protect TN bands such as n34, n39, B33, B35 and B37. Capture a note in section [6.5.3.2] of TS 38.101-5 to indicate that for the area with TN coverage, NTN UE shall not transmit to guarantee the UE co-existence between NTN and TN on the adjacent bands. [Qualcomm]
  + Option 5: not to define coexistence requirements and to define the isolation regions between NTN and TN coverage and leave its signalling design to RAN2. [ZTE]
  + Option 6: if reusing n65 duplexer for n256, to define the DBT behavior : Determining whether the IMT services exist in the protected TN bands(NOTE) Before Transmitting UL signal in NTN satellite bands) and send LS to RAN1/RAN2 to check its impacts. [Huawei]
* Recommended WF after the pre-meeting discussions:
  + For n39/[n101]/B33/B35, no A-MPR requirement is needed
  + If not, please further clarify which options are preferred.
* Discussion:
  + CMCC: We have concern on no A-MPR if using n65 duplex to meet the co-existence requirements with band n39.
  + Skyworks: We believe no A-MPR needed and the duplex usage pending on UE implementation.
  + QC: We have one contribution with analysis which show the feasibility without A-MPR to meet the co-existence requirements.
* Agreement:
  + For n39/n101/B33/B35,  no A-MPR requirement is needed to meet -50dBm/MHz co-existence requirement

**Issue 1-2-4: Coexistence protection for band B33, B35, B37**

* Proposals
  + Option 1: RAN4 NOT to specify the UE co-existence requirements for NTN bands to protect TN bands such as n34, n39, B33, B35 and B37. Capture a note in section [6.5.3.2] of TS 38.101-5 to indicate that for the area with TN coverage, NTN UE shall not transmit to guarantee the UE co-existence between NTN and TN on the adjacent bands. [Qualcomm]
  + Option 2:be clarified if co-existence with band 37 is still a relevant scenario [Skyworks]
* Recommended WF after the pre-meeting discussions:
  + To exclude these bands in the coexistence requirements;
* Note : For B37, ~~B35 and B33~~, based on the companies' feedback, there are no any protection requirements in the existing 38.101-1 specification for these bands, it should be fair enough to exclude it;
  + If not, please further clarify which options are preferred.
* Agreement: Exclude band 37 in the co-existence requirements

**Issue 1-2-5: coexistence protection for band n2, n25 and n70, [FFS for n23] with its DL overlapping with n256 UL**

* Proposals
  + Option 1: RAN4 NOT to specify the UE co-existence requirements for the TN bands overlapping with n256. The deployment of n256 for the countries where n2, n25 and n70 are deployed should follow the regional regulatory requirements. [Qualcomm]
  + Option 2: n256 should not operate in geographical area where n2, n25 and n70 are operating.[Ericsson]
  + Option 3: Only physical separation on the ground can guarantee co-existence between n256 and US bands n2, n25 and n70 (and 23 if relevant) [Skyworks]
  + Option 4: If there is no consensus reached for coexistence between these bands (e.g. n2, n25, n70, 33, 35 and 37 etc), we propose to leave it to future release and declare the coexistence between n256 and those TN bands is not specified in Rel-17. [ZTE]
  + Option 5:

Solution 4 is proposed to address this controversial issue and a LS can be sent to RAN1/RAN2 for checking RAN1/RAN2 spec’s impact. [Huawei]

Solution 4: Since it’s assumed that satellite UE has both TN and NTN functionality and IMT service has a higher priority than NTN service, a candidate solution (DBT: Determining whether the IMT services exist in the protected TN bands(NOTE) Before Transmitting UL signal in NTN satellite bands) was proposed.

For example, before transmitting UL band n256 signals, satellite UE should determine/be informed whether the IMT services exist for the protected TN bands(NOTE) in the vicinity. If not, it means that there is no TN coverage/service for these bands in the vicinity and satellite UE don’t need to protect these frequency bands. If yes, the UE can access the corresponding terrestrial network cell directly and no need to transmit UL signal in band n256.

* Recommended WF: (further discuss in 1st round)
  + Option 1: RAN4 NOT to specify the UE co-existence requirements for the TN bands ( e.g. n2, n25 and n70) overlapping with n256 in Rel-17. [Qualcomm]
  + Option 2: not to define coexistence requirements and to define the isolation regions between NTN and TN coverage and leave its signalling design to RAN2. [ZTE]
  + Option 3: to define the DBT behavior : Determining whether the IMT services exist in the protected TN bands(NOTE) Before Transmitting UL signal in NTN satellite bands) and send LS to RAN1/RAN2 to check its impacts. [Huawei]
  + Option 4: n256 should not operate in geographical area where n2, n25 and n70 are operating.[Ericsson]
* Discussion:
  + QC: From 3GPP technical aspect, we couldn’t handle the overlapping issue by specifying the co-existence requirement which can leave to regulation.
  + Skyworks: We share the view as QC. This rely on regional regulation. We should draw the conclusion and stop the discussion in RAN4.
  + Huawei: In 3GPP, we can try to find the solution to resolve this meanwhile we agree no solution from RAN4 perspective.
  + Ericsson: We are not against to study the possible solutions in option 3 and option 2 in future release but we need to complete the work which seems not practical with op3 and op2. We are proposing option 4 to clarify these bands can’t co-exist from 3GPP perspective.
  + ZTE: We can have a note in the co-existence table that “3GPP has not solution to resolve the co-existence with band n2, n25 and n70.
  + T-Mobile USA: We support the proposal from ZTE.
  + Hughes: We agree there is no solution in 3GPP. We can refer to TR 38.863 for the note.
  + Thales: We agree with option 1 and further improve the note.
* Agreement:
  + There is no UE co-existence requirements (-50dB/MHz) for the TN bands (i.e. n2, n25 and n70) which overlapping with n256 in Rel-17 for RAN4 specification.
    - It’s RAN4 understanding that how to handle the co-existence issue shall rely on regional regulation.
  + Add a note into TS 38.101-5 co-existence requirement table: “The co-existence between n256 and band n2, n25 and n70 subject to regional/national regulation”
  + A TP to TR can be used to capture the observations from Rel-17 RAN4 study.

Session chair note: Some RAN4 companies think it’s worth to study optimized solution for NTN- NT bands

co-existence including the overlapping bands and adjacent bands.

**Issue 1-3-1: NTN UE reference point for frequency error**

* Proposals
  + Option 1:

The NTN satellite UE basic measurement interval of modulated carrier frequency is 1 UL slot. **The NTN satellite UE modulated carrier frequency should be measured at its reception by the NR SAN~~Node B~~**. The mean value of basic measurements of NTN UE modulated carrier frequency shall be accurate to within ± 0.1 PPM observed over a period of 1 ms of cumulated measurement intervals compared to reference the carrier frequency assigned by the NR SAN~~Node B~~.

* + Option 2: others
* Discussion:
  + Huawei: For 101-1, we didn’t consider UL doppler-shift pre-compensation for Frequency error requirements.
  + We can clarify that during RAN4 requirements and test, the error on SAN side assumed as 0.
  + Ligado: There is no issue for GEO. Clarification required for the proposed text.
  + Thales: NTN UE can derive frequency based GNSS.
  + QC: The requirement is to verify UE capability. We can define the reference point for the testing.
  + Nokia: The intention was to clarify the reference point that frequency shall be corrected.

**Issue 2-1-1: REFSENS for n256**

* Proposals
  + Option 1: reusing n65 [MTK,ZTE]

| Operating band / SCS / Channel bandwidth | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS kHz | 5  MHz (dBm) | 10  MHz (dBm) | 15  MHz (dBm) | 20  MHz (dBm) | 25  MHz (dBm) | 30 MHz (dBm) | 35 MHz (dBm) | 40  MHz (dBm) | 45 MHz (dBm) | 50  MHz (dBm) |
| n256 | 15 | -99.5 | -96.3 | -94.5 | -93.3 |  |  |  |  |  |  |
| 30 |  | -96.6 | -94.6 | -93.5 |  |  |  |  |  |  |
| 60 |  | -97.0 | -94.9 | -93.7 |  |  |  |  |  |  |

* + Option 2: 30MHz dedicated filter [Ericsson,HUGHES Network Systems Ltd; Hughes/EchoStar ]

| Operating band / SCS / Channel bandwidth / Duplex-mode | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS kHz | 5  MHz (dBm) | 10  MHz (dBm) | 15  MHz (dBm) | 20  MHz (dBm) | Duplex Mode |
| n256 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | FDD |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  |
|  | 60 |  | -97.5 | -95.4 | -94.2 |  |

* Agreement: Option 2

| Operating band / SCS / Channel bandwidth / Duplex-mode | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS kHz | 5  MHz (dBm) | 10  MHz (dBm) | 15  MHz (dBm) | 20  MHz (dBm) | Duplex Mode |
| n256 | 15 | -100.0 | -96.8 | -95.0 | -93.8 | FDD |
|  | 30 |  | -97.1 | -95.1 | -94.0 |  |
|  | 60 |  | -97.5 | -95.4 | -94.2 |  |

**Issue 2-1-1: OOBB requirements for n256**

* Proposals
  + Option 1: dedicated 30MHz duplexer [Ericsson, HUGHES Network Systems Ltd; Hughes/EchoSta]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | Range 1 | Range 2 | Range 3 |
|  | Pinterferer | dBm | -44 | -30 | -15 |
| n255,  n256 | Finterferer (CW) | MHz | -60 < f – FDL\_low < -15  or  15 < f – FDL\_high < 60 | -85 < f – FDL\_low ≤ -60  or  60 ≤ f – FDL\_high < 85 | 1 ≤ f ≤ FDL\_low – 85  or  FDL\_high + 85 ≤ f  ≤ 12750 |
|  | | | | | |

* + Option 2a: reusing n65 duplexer [MTK, ZTE, Skyworks]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | Range 1 | Range 2 | Range 3 |
|  | Pinterferer | dBm | -44 | [-30] | -15 |
| n255,  n256 | Finterferer (CW) | MHz | -60 < f – FDL\_low < -15  or  15 < f – FDL\_high < 60 | -85 < f – FDL\_low ≤ -60  or  60 ≤ f – FDL\_high < 85 | 1 ≤ f ≤ FDL\_low – 85  or  FDL\_high + 85 ≤ f  ≤ 12750 |
| NOTE 1: For band n256 in Range 2 requirement, the applicable lower frequency range should be modified as -145 < f – FDL\_low ≤ -60  NOTE 2: For band n256 in Range 3 requirement, the applicable lower frequency range should be modified as 1 ≤ f ≤ FDL\_low – 145  ~~NOTE 3: For band n256 in Range 2 requirement, the P~~~~interferer~~ ~~should be the same as -30~~  ~~NOTE 4: For band n256 in Range 3 requirement, the P~~~~interferer~~ ~~should be the same as -15~~ | | | | | |

* + Option 2b: reusing n65 duplexer [Xiaomi]
* For range 3, the Pinterferer for range 3 is no need to be modified.

For range 2, with following relaxations

* Such as the Pinterferer shall be modified as -35 dBm, Or the applicable lower frequency range f – FDL\_low for n256 shall start from -90 MHz instead of -60 MHz if Pinterferer =-30dBm is kept.
* Recommended WF
* Further discuss the OOBB requirement in the intermediate round if we have the agreement on duplexer.
* Agreement:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Parameter | Unit | Range 1 | Range 2 | Range 3 |
|  | Pinterferer | dBm | -44 | [-35] | -15 |
| n256 | Finterferer (CW) | MHz | -60 < f – FDL\_low < -15  or  15 < f – FDL\_high < 60 | -85 < f – FDL\_low ≤ -60  or  60 ≤ f – FDL\_high < 85 | 1 ≤ f ≤ FDL\_low – 85  or  FDL\_high + 85 ≤ f  ≤ 12750 |
| NOTE 1: For band n256 in Range 2 requirement, the applicable lower frequency range should be modified as -145 < f – FDL\_low ≤ -60  NOTE 2: For band n256 in Range 3 requirement, the applicable lower frequency range should be modified as 1 ≤ f ≤ FDL\_low – [145] | | | | | |

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208886 pCR to TS 38.101-5 - Alignement**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a pCR to TS 38.101-5 - Alignment

**Decision:** The document was **not treated**.

##### 9.12.5.1 TX requirements

**R4-2207967 Measurements for n255 A-MPR evaluation**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision:** The document was **not treated**.

**R4-2207968 Updates to TS 38.101-5 related to n255 A-MPR clause**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision:** The document was **not treated**.

**R4-2207969 TP for TR 38.863: Updates to n255 A-MPR Clause**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision:** The document was **not treated**.

**R4-2208400 Discussion on NS signaling for n256 NTN UE**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208662 TP to TS 38.101-5 on Conducted transmitter characteristics**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2208674 Discussion on NTN UE Tx RF requirements**

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

**Decision:** The document was **not treated**.

**R4-2208884 NTN - UE RF TX: remaining issues**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issue of UE - Tx requirements

**Decision:** The document was **not treated**.

**R4-2209143 n256 co-existence and filter implementation aspects**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide further precision on the filter implementation aspects in relation to co-existence performance with neighbor TN bands to NTN band n256.

**Decision:** The document was **not treated**.

**R4-2209362 Discussion on Spurious emissions for protected bands UE co-existence with draft LS**

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

**Decision:** The document was **not treated**.

**R4-2209365 TP for 38.863 on UE antenna characteristics for satellite access**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209366 TP for 38.101-5 on Output RF spectrum emissions for satellite UE except for UE coexistence**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209367 TP for 38.101-5 on Spurious emissions for UE coexistence**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209596 Further discussion on NTN UE Tx RF requirements**

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

**Decision:** The document was **not treated**.

**R4-2209715 Requirements for spurious emissions for UE co-existence n256**

*Type: discussion For: Decision  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: HUGHES Network Systems Ltd; Hughes/EchoStar*

**Decision:** The document was **not treated**.

**R4-2209922 On NTN UE frequency error reference point**

*Type: discussion For: Approval  
 38.101-5 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 9.12.5.2 RX requirements

**R4-2208378 Discussion on UE RX REFSENS and OOBB for band n256**

*Type: discussion For: Approval  
 Source: Mediatek India Technology Pvt.*

**Decision:** The document was **not treated**.

**R4-2208476 TP to update TS 38.101-5 clause 7.6.3 on OOBB**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Mediatek India Technology Pvt.*

**Decision:** The document was **not treated**.

**R4-2208885 NTN - UE RF RX: remaining issues**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issue of UE - Rx requirements

**Decision:** The document was **not treated**.

**R4-2209087 Updates for TS38.101-5 on out of band blocking requirement for NTN UE**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2209088 Discussion on out of band blocking requirements for NTN UE**

*Type: other For: Approval  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2209089 TP for 38.863 on general part for NTN UE conducted receiver characteristics**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2209363 Discussion on UE requirements for different duplexer implementation**

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

**Decision:** The document was **not treated**.

**R4-2209364 TP for 38.863 on UE Rx spurious emission requirements for satellite access**

*Type: pCR For: Approval  
 38.863 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2209401 Selection of UE duplexer and REFSENS for band n256 in TS 38.101-5**

*Type: discussion For: Decision  
 Source: HUGHES Network Systems Ltd; Hughes/EchoStar*

**Decision:** The document was **not treated**.

**R4-2209490 TP to TS 38.101-5 on 7.3 Reference Sensitivity**

*Type: pCR For: Approval  
 38.101-5 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: HUGHES Network Systems Ltd, Hughes/EchoStar*

**Decision:** The document was **not treated**.

**R4-2209597 Further discussion on NTN UE Rx RF requirements**

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

**Decision:** The document was **not treated**.

#### 9.12.6 RRM core requirements

**R4-2208497 Draft CR for idle mode UE meausrement capability in NTN**

*Type: draftCR For: Agreement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: LG Electronics UK*

**Decision:** The document was **not treated**.

##### 9.12.6.1 General

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

**Email discussion for [103-e][223] NR\_NTN\_solutions\_RRM\_1, AI 9.12.6, 9.12.6.1,9.12.6.2,9.12.6.4 -CH Park**

**R4-2210295 Email discussion summary for [103-e][223] NR\_NTN\_solutions\_RRM\_1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues:**

* Issue 3-1-6: Measurement Gap
* Issue 3-1-3: Capability on the number of Measurement Carriers/Cells/SSBs
* Issue 3-1-4B: Measurement with multiple SMTCs (Item-2: Scaling factor)
* Issue 4-1-1: UE capability type
* Issue 4-1-2: Feature group “Parallel measurements on multiple SMTC-s for a single frequency carrier”
* Issue 4-1-3: UE capability on the number of satellites UE can simultaneously measure

**Issue 3-1-6: Measurement Gap**

* Proposal 1: MG Colliding/Proximity condition
  + Option 1-1: CMCC, Qualcomm, Xiaomi, LG, OPPO, Huawei
    - Two gap occasions are defined as colliding (overlapping) if the two gap occasions are partially overlapping in time domain or the minimum distance is less than 4 ms.
  + Option 1-2: Apple
    - For NTN measurement, two MG occasions in parallel are defined as colliding (overlapping) if the 2 MGs are partially overlapping in time domain or the minimum distance is less than 5ms (min distance between SMTC + RF tuning/retuning margin).
* Discussion:
  + QC: With option 1-1, we can also update the previous agreement on the min distance between 2 SMTCs for a collision condition. See below: (it was [4] in the agreement)
  + A condition of SMTC collision
    - Two SMTC occasions in parallel are defined as colliding (overlapping) if the 2 SMTCs are partially overlapping in time domain or the minimum distance is less than [3]ms.
  + RF tuning/retuning assumed for MG is 1ms to derive above requirements
  + Apple: For SMTC, the value shall be updated as 3ms, then considering RF retuning for MG 1ms then 4ms applied for MG case.
  + Ericsson: For option 1-1, we can define the absolute boundary on MR/SMTC. For SMTC case/MG case one option with same value as 4ms another option as Apple proposed for SMTC 3ms and MG with 4ms.
  + QC: Could you explain the ration with 3ms for SMTC ?
  + Apple: We don’t need to consider RF retuning for SMTCs without MG.
  + QC: 3ms only applied without MG.
* Agreement:

Option 1-1 agreed with additional agreement as below:

* + A condition of SMTC collision
    - Two SMTC occasions in parallel are defined as colliding (overlapping) if the 2 SMTCs are partially overlapping in time domain or the minimum distance is less than [3]ms.
  + RF tuning/retuning assumed for MG is 1ms to derive above requirements in option 1-1
* Proposal 2: Association between MG and frequency layer (Needs a reply LS to RAN2)
  + Option 2-1: CMCC, Apple, Qualcomm, Xiaomi, CATT, LG, OPPO, Ericsson, Huawei
    - One frequency layer can be associated to both concurrent measurement gaps with the same gap type
    - No need to define additional NTN UE capability for this association.

* Agreement: Option 2-1 agreed
* Proposal 3: Priority rule vs. Scaling factor for concurrent MGs when meeting colliding/proximity condition
  + Option 3-1: MediaTek, Qualcomm, CATT, LG, Huawei, Nokia
    - Priority rule
    - UE does not expect to be configured with fully overlapping concurrent MGs, i.e. it is an invalid concurrent MG configuration if a MG with a lower priority always overlaps with the other MG.
  + Option 3-2: Apple, Xiaomi, Ericsson, CMCC
    - Scaling factor
  + Option 3-3: CMCC
    - When both MGs and SMTCs are colliding, RAN4 define requirements assuming UE measures in only one MG which contains SMTC to be measured.
    - When MGs are colliding and SMTCs are not colliding, RAN4 define requirements assuming UE measures in both MGs.
* Discussion:
* Apple: If gap fully overlapped, then we will have no chance to apply measurement. Can we confirm this case can be considered as a corner case?
* CMCC: Our proposal is similar with 3-2, and we can comprise to 3-2. And we address a special case which MGs are colliding and SMTCs are not colliding. For this special case, do we need to consider and what’s the scaling factor ?
* QC: We believe fully overlapped is a corner case. This configuration seems invalid. NW always configure overlapped MGs with different priority. We think UE support NTN also supporting TN, then with option 3-2 UE need to implement two ways for NTN and TN separately which increase the implementation effort. We have strong concern for option 3-2 unless we see strong needs.
* Xiaomi: We prefer option 3-2.
* LGE: We prefer option 3-1, same issue for MG enhancement WI for cocurrent MG, we should follow same rule.
* Huawei: We prefer option 3-1. We believe fully overlapped case is a corner case and can be avoided by NW. We didn’t see the benefits on option 3-2 meanwhile it bring uncertain for specification work and also extra effort on UE side.
* Ericsson: We think fully overlapped case is corner case meanwhile proximity case is very common case. We can focus on NTN part for this issue.
* CATT: We prefer reusing same rule as option 3-1.
* QC: We believe the case overlapped MG with same priority can always be avoided by NW scheduling. If we go with option 3-2, the new signalling needed and which also impact the conclusion from MG enhancement WI.
* THALES: NTN UE shall always support TN.
* Nokia: We prefer option 3-1 to minimize the effort on NW.
* Ericsson: The co-current MG was introduced for different purpose. For NTN, how to prioritize over the overlapped MG? The RRC signalling already exists in RAN2 specification can be referred.
* Xiaomi: How about the partial overlapped case? Under some scenario, the priority rule maybe not worked.
* Apple: For NTN scenario, we have moving satellite which is different for TN with fixed gNB.
* QC: NW still have choice to resolve this issue by scheduling, and this issue already discussed in another WI.
* Huawei: We don’t think RAN2 has signalling for sharing factor between MGs. We believe NW has full control to avoid the fully overlapping case.
* Agreement: Further discuss below options and make agreement by this meeting
* Option 3-1
* Option 3-2
* Any option which can’t conclude related RAN4 core part work by this meeting and/or have additional effort for other WGs i.e. RAN2 will be deprioritized.

**Issue 3-1-3: Capability on the number of Measurement Carriers/Cells/SSBs**

* Proposal 1: UE capability for the number of target satellites the UE can monitor per carrier including serving LEO satellite
  + Option 1-1: Qualcomm, Huawei, MTK
    - shall not be larger than 4
  + Option 1-2: Ericsson
    - 4 for UE supporting 2 SMTC
    - 6 for UE supporting 4 SMTC
* Discussion:
  + Ericsson: We are open to discuss the values; how about 4 SMTC cases? There are 4 SMTCs served 3 neighbour satellites, is that reasonable?
  + QC: In serving satellite, we may have multiple cells.
  + MTK: We support option 1-1.
* Agreement:

Proposal 1 with option 1-1 agreed

* Proposal 2: Ericsson
  + Agreements on number of NTN and TN carriers UE needs to monitor doesn’t introduce TN-NTN RRM requirements. NTN UE mobility within FR1 between NTN and TN shall be precluded
* Agreement: Proposal 2 agreed

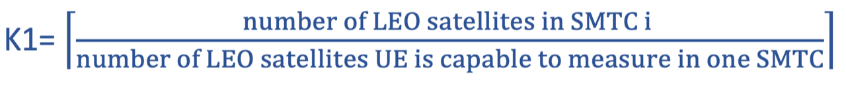
**Issue 3-1-4B: Measurement with multiple SMTCs (Item-2: Scaling factor)**

* Proposal 1: When each SMTC associated with same type of satellites
  + Option 1-1: MediaTek, LG, Ericsson, Apple
    - Option 1c of the previous agreement
  + Option 1c:
* If each SMTC associated with same type of satellites:

§ If SMTCs do not overlap with each other, a scaling factor of measurement period is

·  If LEO satellite(s) is/are required to be measured within SMTC

* + - * Scaling factor of measurement period on SMTC i is K1:



§ If SMTCs partially overlap with each other, a scaling factor of measurement period is

·  If LEO and/or GEO satellite(s) is/are required to be measured within overlapped SMTCs

* + - * Scaling factor of measurement period for overlapped SMTCs is K2



* + Option 1-2:
    - If SMTCs do not overlap with each other, and if LEO satellite(s) is/are required to be measured within SMTC
      * Option 1-2-1A: CATT
        + Scaling factor is not needed
      * Option 1-2-1B: Qualcomm, Huawei
        + , if GEO satellites are measured on the carrier
        + , if LEO satellites are measured on the carrier
    - If SMTCs partially overlap with each other, and if LEO and/or GEO satellite(s) is/are required to be measured within overlapped SMTCs, scaling factor of measurement period for overlapped SMTCs is K2
      * Option 1-2-2A: Xiaomi
      * Option 1-2-2B: CATT
        + K2=Number of overlapping SMTCs
      * Option 1-2-2C: Qualcomm, Huawei, Ericsson
        + , if only GEO satellites are measured on the carrier
        + , if only LEO satellites are measured on the carrier
* Discussion:
* Apple: We need to further discuss whether need to consider the case : mixed type of satellites on the same frequency layer.
* Thales: Mixed types of satellites case is quite complicated for Rel-17. We would like to focus on only single type of satellite on the same frequency layer.
* Agreement:
  + Rel-17 NTN RRM requirements not consider below cases:
    - An SMTC associated with mixed type of satellites
    - Mixed type of satellites on the same frequency layer
  + If SMTCs do not overlap with each other, and if LEO satellite(s) is/are required to be measured within SMTC:
    - Option 1-2-1B agreed
      * , if GEO satellites are measured on the carrier
      * , if LEO satellites are measured on the carrier
  + If SMTCs partially overlap with each other, and if LEO and/or GEO satellite(s) is/are required to be measured within overlapped SMTCs, scaling factor of measurement period for overlapped SMTCs is K2
    - Option 1-2-2C:
      * , if only GEO satellites are measured on the carrier
      * , if only LEO satellites are measured on the carrier
* Proposal 4: Scheduling restriction cap
  + Option 4-1: Huawei
    - Introduce the following scheduling restriction cap as applicability condition for the requirements
      * ~~Measurement requirements~~ Rel-17 NTN RRM requirements is not applicable when overall overhead ratio due to scheduling restriction caused by all configured SMTCs (e.g. scheduling restriction overhead of all SMTCs in one periodicity / SMTC periodicity) is larger than 75%
* Agreement:
  + Introduce the following scheduling restriction cap as applicability condition for the requirements
    - Rel-17 NTN RRM requirements is not applicable when overall overhead ratio due to scheduling restriction caused by all configured SMTCs (e.g. scheduling restriction overhead of all SMTCs in one periodicity / SMTC periodicity) is larger than 75%

**Issue 4-1-1: UE capability type**

* Proposal 1: Qualcomm
  + UE NTN capability type is ‘per band’ for all RAN4 features
* Moderator’s suggestion
  + Share your views.
* Discussion:
  + Apple: How about MG capability? We have separate capability per band ? We can add some note in the interpretation column.
  + QC: For this case, we can further discuss.
  + Ericsson: We have similar view as Apple. We prefer per UE basis.
* Agreement:

Further discuss: the capability types for NTN UE feature list case by case

* Option 1: per band
* Option 2: per UE (only applicable for FR1)

**Issue 4-1-2: Feature group “Parallel measurements on multiple SMTC-s for a single frequency carrier”**

* Proposal 1: Components of Feature group “Parallel measurements on multiple SMTC-s for a single frequency carrier” is updated as below:
  + Option 1-1: Qualcomm
    - Support of measurements on target cells belonging to maximum of 2 or 4 different satellites. GEO satellites are counted as 1
  + Option 1-2: MediaTek
    - Support of measurements on target cells belonging to maximum of 2 or 4 ~~different [NGSO satellites]~~ SMTC-s
* Moderator’s suggestion
  + Share your views.
* Agreement: Option 1-2 agreed.

**Issue 4-1-3: UE capability on the number of satellites UE can simultaneously measure**

* Proposal 1: Qualcomm
  + Feature group “Parallel measurements on cells belonging to different [NGSO satellite] as the serving cell without scheduling restrictions” is updated as below:
    - Feature group: Parallel measurements on cells belonging to different satellite(s) than the serving cell without scheduling restrictions
    - Components: Support of measurements on cells belonging to different satellite(s) as the serving cell in parallel with normal operation (i.e. data/control transmission and/or reception, and L1 measurements) of serving cell without scheduling restrictions. If supported, UE further indicates the number of satellites for the following cases:
      * The number of neighbor satellites for measurements when the serving cell belongs to LEO, if UE supports LEO
      * The number of neighbor satellites for measurements when the serving cell belongs to GEO, if UE supports GEO
      * Note that UE capable of GEO shall be able to measure neighbor cells from different GEO satellites, hence, no additional report is necessary
      * Note that the number of neighbor satellites is the number of LEO satellites plus X. Where X = 0 if UE is incapable of GEO, otherwise X=1
* Proposal 2: MediaTek, [Xiaomi]
  + Introduce a separate UE capability for the number of LEO/NGSO satellites that UE can simultaneously measure. The draft UE capability is provided below.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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-Y-1 | Parallel measurements on multiple [NGSO] satellites within a SMTC | Support of simultaneously measurements on target cells belonging to different [NGSO satellites] within a SMTC |  | yes | no | UE does not support simultaneously measurements with multiple [NGSO satellites] within a SMTC | [Per UE] | FDD only | FR1 only | NA |  | Optional with capability signalling |

* Agreement: Proposal 2 agreed
* Candidate values for the number satellites UE supporting as {1,2,3,4}

**Issue 3-1-4A: Measurement with multiple SMTCs (Item-1: Scheduling restriction)**

**Proposals for RAN4#103**

* Proposal 1: OPPO
  + For UE not supporting parallel measurements capability, reuse the scaling factors in legacy FR2 scenarios:
    - For L1 measurements, use scaling factor P to account overlapping between L1 resources and SMTC\_n associated with non-serving satellite
    - For L3 measurements from non-serving satellite, adding factor Klayer1\_measurement to account overlapping between the associated SMTC\_n and L1 resources
    - Restrictions on the association between SMTC and satellite are required, i.e. serving satellite should be exclusively associated with one SMTC\_s, and neighbouring cells from non-serving satellites should be associated with SMTC\_n.
* Discussion:
  + Apple : In FR1, both L1 and L3 measurement can be performed in the same SMTC. If this is valid, then no need restriction.
  + OPPO: If both serving cell (GEO with L1 measurement) and neighbour cell is LEO with L3 measurement; or both cells from different LEO satellite; we think UE can not simultaneously measure both serving and neighbour cell.
  + QC: The restriction pending on UE capability.
  + MTK: We already agreed focus on single satellite type.
* Agreement:
  + For UE not supporting parallel measurements capability, reuse the scaling factors in legacy FR2 scenarios:
    - For L1 measurements, use scaling factor P to account overlapping between L1 resources and SMTC\_n associated with non-serving satellite
    - For L3 measurements from non-serving satellite, adding factor Klayer1\_measurement to account overlapping between the associated SMTC\_n and L1 resources

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

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

**Email discussion for [103-e][224] NR\_NTN\_solutions\_RRM\_2, AI 9.12.6.2,9.12.6.4,9.12.7 -Xuhua Tao**

**R4-2210296 Email discussion summary for [103-e][224] NR\_NTN\_solutions\_RRM\_2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207958 General and RRM requirements impacts**

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

**Decision:** The document was **not treated**.

**R4-2207994 draft Cat-B CR (R17) MDT in NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Korea*

**Decision:** The document was **not treated**.

**R4-2208422 Discussion and draft LS on measurement gaps enhancements for NTN.**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208470 Discussion on general RRM requirements in NTN**

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

**Decision:** The document was **not treated**.

**R4-2209099 On measurement and evaluation of serving cell for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

DraftCR On measurement and evaluation of serving cell for NTN

**Decision:** The document was **not treated**.

**R4-2209100 On signalling characteristics for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

DraftCR On signalling characteristics for NTN

**Decision:** The document was **not treated**.

**R4-2209101 General requirements for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

General requirements for NTN

**Decision:** The document was **not treated**.

**R4-2209104 DraftCR on reselection for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

DraftCR on reselection for NTN

**Decision:** The document was **not treated**.

**R4-2209212 Discussion on general issues for NTN RRM**

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

**Decision:** The document was **not treated**.

**R4-2209213 CR on general applicability of NTN RRM requirements**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2210177 On terminologies and scope in NTN RRM**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This paper discusses the use of terminologies and scope of NTN in RAN4 RRM specs

**Decision:** The document was **not treated**.

**R4-2210178 Correction to terminologies and scope in NTN RRM**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

The draft CR updates the terminologies and scope of NTN in RAN4 RRM

**Decision:** The document was **not treated**.

##### 9.12.6.2 GNSS-related requirements

**R4-2209639 On GNSS-Related requirements for UE operation**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 9.12.6.3 Mobility requirements

**R4-2208054 DraftCR for serving cell evaluation and intra-frequency measurements of NTN UE cell reselections**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2208100 DraftCR on maximum interruption in paging reception for NR NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208180 Discussion on Mobility requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208181 Requirements for RRC connected state mobility for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208359 Discussion on mobility requirements for NTN**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208496 Discussion on NTN mobility requirements**

*Type: discussion For: Discussion  
 Source: LG Electronics UK*

**Abstract:**

Discussion on NTN mobility requirements

**Decision:** The document was **not treated**.

**R4-2209102 Mobility requirements for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Mobility requirements for NTN

**Decision:** The document was **not treated**.

**R4-2209214 Discussion on mobility requirements for NTN RRM**

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

**Decision:** The document was **not treated**.

**R4-2209215 CR on IDLE mode mobility requirements for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

##### 9.12.6.4 Timing requirements

**R4-2208101 DraftCR on UE timer accuracy for NR\_NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208360 Discussion on timing requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208361 Draft CR to the timing requirements for NR NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208471 Introduction of Timing advance requirement for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2208653 Timing requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Discussion regarding clarification of N\_TA\_UE\_spcific and N\_TA\_Common and DL timing reference.

**Decision:** The document was **not treated**.

**R4-2208995 Discussion on remaining issues NTN timing related requirements**

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

**Decision:** The document was **not treated**.

**R4-2208996 DraftCR on UE transmit timing requirements for NTN R17**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209640 On NTN timing requirements**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 9.12.6.5 Measurement procedure requirements

**R4-2207777 Discussion on measurement procedure requirements for NTN**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207959 Measurement procedure requirements**

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

**Decision:** The document was **not treated**.

**R4-2208099 Discussion on the remaining issues for for NTN RRM**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208102 DraftCR on inter-frequency measurement requirements for NR NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208182 Discussion on Measurement procedure requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208310 Discussion on multiple SMTC measurement and MG in NTN**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2208362 Discussion on measurement procedure requirements for NTN**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208363 Draft CR to general measurement requirement for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2209103 Measurement requirements for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Measurement requirements for NTN

**Decision:** The document was **not treated**.

**R4-2209216 Discussion on measurement requirements for NTN**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209217 CR on intra-frequency measurement requirements for NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209643 NTN multiple SMTC**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209762 Draft CR on L1-RSRP measurements for Reporting in NTN**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

#### 9.12.7 RRM performance requirements

**R4-2207960 Performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2208103 Discussion on the performance requirements for NTN UE timing**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208423 Discussion on NTN timing test cases**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209218 Discussion on measurement accuracy and TCs for NTN**

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

**Decision:** The document was **not treated**.

#### 9.12.8 Demodulation requirements

##### 229.12.8.1 General

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

**Email discussion for** [**103-e][322] NR\_NTN\_Demod\_Part1, AI 9.12.8.1, 9.12.8.3-Bin Han**

**R4-2210328 Email discussion summary for [103-e][322] NR\_NTN\_Demod\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues**

* Issue 1-1-1: Whether to define PDCCH requirement for multi-TRP repetition transmission schemes
* Issue 1-1-2: Whether to define PDSCH requirement for Multi-TRP inter-cell operation
* Issue 2-1-1: Whether to define PDSCH requireemnt with HST-SFN scheme B
* Issue 3-1-1: Test cases for CSI reporting enhancement for m-TRP transmission
* Issue 4-1-1: Whether to define PMI requirement for Rel-17 FeTye II PS codebook

**Issue 1-1-1: Whether to define PDCCH requirement for multi-TRP repetition transmission schemes**

* Observations
  + Observation 1(Huawei): There is a great gain by performing soft-combining for non-SFN PDCCH enhancement.
  + Observation 2 (MTK):
    - When SNR of 2 TRPs is balanced we can see little gain on average.
    - When SNR of 2 TRPs is balanced we can see loss in some cases
    - When SNR of 2 TRPs is imbalanced the performance of PDCCH repetition decreases as expected.
* Proposals
  + Option 1(Ericsson, Samsung, Huawei): Yes
  + Option 2 (MTK, Qualcomm): No
* Recommended WF
  + Define PDCCH requirement for multi-TRP repetition transmission scheme?
* Discussion:

**Issue 1-1-2: Whether to define PDSCH requirement for Multi-TRP inter-cell operation**

* Proposals
  + Option 1(Samsung, Huawei): Yes
    - Option 1a(Samsung): Introduce test applicable rule between existing multi-DCI intra-cell M-TRP test case and new test case for inter-cell multi-DCI PDSCH
  + Option 2 (Ericsson, Qualcomm, MTK): No
* Recommended WF
  + Encourage comments if any.

**Issue 2-1-1: Whether to define PDSCH requireemnt with HST-SFN scheme B**

* Observations
  + Observation 1 (Ericsson):
    - The performance of HST-SFN scheme B is around 1.2~1.4dB worse than that of HST single tap
* Proposals
  + Option 1 (Samsung, Huawei, CMCC, Ericsson): Yes
    - Option1a (Samsung, CMCC): If UE pass HST-SFN scheme A test cases, UE can skip HST-SFN scheme B test cases
    - Option1b (CMCC): If UE supporting both HST SFN scheme A and B and supporting both 15kHz SCS and 30kHz SCS, then UE shall only pass scheme A 15kHz and scheme B 30kHz requirements.
    - Option 1c (CMCC): If UE passes the existing test cases (demodulation requirement for HST-SFN with high Doppler shift), UE can skip HST-SFN scheme B test cases
  + Option 2 (Qualcomm): No
* Recommended WF
  + Introduce PDSCH requirement with HST-SFN scheme B, FFS on test applicability rule
    - Option1a (Samsung, CMCC): If UE pass HST-SFN scheme A test cases, UE can skip HST-SFN scheme B test cases
    - Option1b (CMCC): If UE supporting both HST SFN scheme A and B and supporting both 15kHz SCS and 30kHz SCS, then UE shall only pass scheme A 15kHz and scheme B 30kHz requirements.
    - Option 1c (CMCC): If UE passes the existing test cases (demodulation requirement for HST-SFN with high Doppler shift), UE can skip HST-SFN scheme B test cases

**Issue 3-1-1: Test cases for CSI reporting enhancement for m-TRP transmission**

* Observations
  + Observation 1(Nokia):
    - For single-DCI cases with overlapping PDSCH resources, the optimal PMI/RI/CQI calculations differ significantly from legacy.
    - Practically used algorithms for CQI and RI derivation will likely remain the same from non-mTRP implementations, however with high impact on performance.
    - For multi-DCI cases with non-overlapping PDSCH resources, the PMI/RI calculations for each TRP are not different from legacy. CQI on the other hand is shared among TRPs, so the legacy algorithm does no longer apply
    - For multi-DCI cases with fully overlapping PDSCH resources, the PMI, CQI and RI calculations for each TRP are impacted and differ all from the legacy algorithm.
* Proposals
  + Option 1(Nokia):
    - For single-DCI M-TRP with overlapping PDSCH resources, define new CSI reporting requirement for RI and CQI
    - For Multi-DCI with overlapping PDSCH resources, define new CSI reporting requirements for PMI, CQI, RI reporting for Multi-DCI based Multi-TRP scheme, if time allows.
  + Option 2 (Huawei, Qualcomm): Only define PMI reporting cases for single-DCI based on multi-TRP
* Recommended WF
  + Encourage comments if any

**Issue 4-1-1: Whether to define PMI requirement for Rel-17 FeTye II PS codebook**

* Observations
  + Observation1(Nokia):
    - The main advantage of feTypeII port selection codebook is not only to outperform the eTypeII port selection codebook, but to reduce the computation complexity at the UE.
    - Defining PMI reporting requirements for Rel-17 feTypeII port selection codebook based on evaluation on the performance gain over eTypeII codebook does not indicate whether to define PMI requirements for Rel-17 feTypeII port selection.
    - The complexity reduction at the UE introduced by feTypeII port selection, requires a completely new implementation of the PMI calculation and selection routines in the UE.
* Proposals
  + Option 1 (Samsung, Nokia, Huawei): Yes
    - Option 1a (Huawei): Define PMI reporting requirement for Rel-17 FeTypeII port selection codebook based on evaluation on the performance gain over eTypeII codebook.
  + Option 2 (Qualcomm): No
  + Option 3 (Ericsson): Discuss the work scope together with the test setup and test metric
* Recommended WF
  + Encourage comments if any

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208014 Discussion on general issue for SAN and UE demodulation**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

Discussion on general issue for SAN and UE demodulation

**Decision:** The document was **not treated**.

**R4-2208874 Discussion on general issues for NTN demodulation requirements**

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

**Abstract:**

In this contribution we present discussion of some open issues related to NTN demodulation requirements

**Decision:** The document was **not treated**.

##### 9.12.8.2 Satellite Access Node demodulation requirements

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

**Email discussion for** [**103-e][323] NR\_NTN\_Demod\_Part2, AI 9.12.8.2-Tricia Li**

**R4-2210329 Email discussion summary for [103-e][323] NR\_NTN\_Demod\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues:**

* Issue 1-1-1: RedCap 1Rx requirements in FR2
* Issue 1-2-1: UL/DL scheduling for FR1 FDD for 1Rx UE
* Issue 2-1-1: Define 256QAM demodulation requirements (for FR1 only) or not
* Issue 2-1-3: Additional PDSCH demodulation requirements
* Issue 3-4-1: Whether to define RI reporting requirements for RedCap 2Rx UEs

**Issue 1-1-1: RedCap 1Rx requirements in FR2**

Background (R4-2209058): RF main session agreed to use suffix ‘I’ to define UE RF requirements for RedCap in TS38.101-1/2

* Proposal (Ericsson)
  + Define RedCap demodulation and CSI reporting requirements in TS38.101-4 with the suffix ‘I’, as same as TS38.101-1/2. The proposed spec structured in provided in R4-2209057.
* Recommended WF
  + Discuss the proposal is acceptable or not from demodulation requirements point of view.
  + If agreeable, 2nd round discusses the CR work split.

**Issue 1-2-1: UL/DL scheduling for FR1 FDD for 1Rx UE**

Background: According to RAN1 feature list and RAN#95-e decision, supporting half-duplex FDD is per-band capability, i.e., UE is not mandated to support full-duplex FDD if UE support half-duplex FDD.

* Proposals
  + Option 1 (Ericsson): Define FRC of UE demodulation and CSI reporting requirements for RedCap 1Rx UE in FDD by assuming the half-duplex FDD operation, that is, DDDSU.
    - Specify the applicability rule for RedCap UE supporting between half-duplex FDD and full-duplex FDD.
  + Option 2 (Nokia, Huawei): Consider Full-duplex FDD only for FDD tests for 1 Rx UE.
* Recommended WF
  + Collect inputs.

**Issue 2-1-1: Define 256QAM demodulation requirements (for FR1 only) or not**

Background: 256QAM is optional feature for RedCap UE (both 1Rx and 2Rx)

* Proposals
  + Option 1 (MediaTek?, Huawei): Specify 256QAM demodulation requirements for FR1 only
  + Option 2 (Apple, Nokia): Not to Specify 256QAM demodulation requirements
* Recommended WF
  + Collect inputs

**Issue 2-1-3: Additional PDSCH demodulation requirements**

Background (WF: R4-2207206 agreed in RAN4#102-e):

Option 1: Focus on definition of minimum set of requirements, discussed in Topic #2, to verify the mandatory features. RAN4 discuss other requirements once it is stable, and the performance part TU is allowed.

Option 2: Not define the additional PDSCH demodulation requirements other than the candidates discussed in 2.1, in Rel-17 RedCap

* Proposals
  + Option 1 (Nokia): Focus on definition of minimum set of requirements, discussed in Topic #2, to verify the mandatory features. RAN4 to potentially discuss other requirements once mandatory requirements are stable and pending remaining performance part TUs.
  + Option 2 (Huawei): Not define any additional PDSCH demodulation requirements other than those agreed in last RAN4 meeting (moderator: RAN4#102-e) in Rel-17 for RedCap
* Recommended WF
  + Collect inputs considering the updated work plain in R4-2209056.

**Issue 3-4-1: Whether to define RI reporting requirements for RedCap 2Rx UEs**

* Proposals
  + Option 1 (Nokia): Define RI reporting requirements
  + Option 2 (Apple, Ericsson, Huawei): Not define RI reporting requirements
* Recommended WF
  + Moderator would like to ask whether option 2.

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208085 View on NTN SAN demodulation requirement**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209681 TP to TS 38.108: remaining annexes for FRC (SAN demodulation requirements)**

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

**Abstract:**

This TP to TS 38.108 provides remaining FRC annexes for SAN demodulation requirements.

**Decision:** The document was **not treated**.

###### 9.12.8.2.1 PUSCH requirements

**R4-2208015 Discussion on PUSCH requirement for SAN demodulation**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

Discussion on PUSCH requirement for SAN demodulation

**Decision:** The document was **not treated**.

**R4-2208878 Discussion on PUSCH demodulation requirements for NTN**

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

**Abstract:**

Simulation results of PUSCH demodulation.

**Decision:** The document was **not treated**.

**R4-2209877 Discussion on satellite NTN demod PUSCH**

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

**Decision:** The document was **not treated**.

**R4-2209878 Simulation results on satellite NTN demod PUSCH**

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

**Decision:** The document was **not treated**.

###### 9.12.8.2.2 PUCCH requirements

**R4-2208016 Discussion on PUCCH requirement for SAN demodulation**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

Discussion on PUCCH requirement for SAN demodulation

**Decision:** The document was **not treated**.

**R4-2209879 Discussion on satellite NTN demod PUCCH**

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

**Decision:** The document was **not treated**.

**R4-2209880 Simulation results on satellite NTN demod PUCCH**

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

**Decision:** The document was **not treated**.

###### 9.12.8.2.3 PRACH requirements

**R4-2208017 Discussion on PRACH requirement for SAN demodulation**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

Discussion on PRACH requirement for SAN demodulation

**Decision:** The document was **not treated**.

**R4-2209881 Discussion on satellite NTN demod PRACH**

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

**Decision:** The document was **not treated**.

**R4-2209882 Simulation results on satellite NTN demod PRACH**

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

**Decision:** The document was **not treated**.

##### 9.12.8.3 UE demodulation requirements

###### 9.12.8.3.1 PDSCH requirements

**R4-2209874 Discussion on UE NTN demod general**

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

**Decision:** The document was **not treated**.

**R4-2207804 Discussion on PDSCH demod requirements for NTN**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208880 Discussion on PDSCH demodulation requirements for NTN**

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

**Abstract:**

Simulation results of PDSCH demod.

**Decision:** The document was **not treated**.

**R4-2209691 Discussion on PDSCH requirement for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss simulation assumptions for PDSCH requirement

**Decision:** The document was **not treated**.

**R4-2209875 Discussion on UE NTN demod PDSCH**

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

**Decision:** The document was **not treated**.

**R4-2209876 Simulation results on UE NTN demod PDSCH**

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

**Decision:** The document was **not treated**.

**R4-2210119 Views on NTN UE PDSCH Requirements**

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

**Decision:** The document was **not treated**.

### 9.13 UE Power Saving Enhancements for NR

#### 9.13.1 RRM core requirement maintenance

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

**Email discussion for [103-e][225] NR\_UE\_pow\_sav\_enh, AI 9.13.1,9.13.2 -Hsuanli Lin**

**R4-2210297 Email discussion summary for [103-e][225] NR\_UE\_pow\_sav\_enh**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207735 Power saving core maintenance**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207737 Power saving criterion clarification**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2287 rev Cat: F (Rel-17)  
  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207822 UE measurements relaxation for RLM and/or BFD**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208061 Discussions on remaining issue about UE power saving for RLM and BM**

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

**Decision:** The document was **not treated**.

**R4-2208095 Discussion about RLM/BFD measurement relaxation**

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

**Decision:** The document was **not treated**.

**R4-2208096 draftCR on introduction of relaxed RLM/BFD measurements**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208097 draftCR on minimum requirements at transition for RLM/BFD relaxation**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208110 Draft CR on RLMBFD relaxation**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2300 rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208111 Discussion on remaining issues for RLM andor BFD relaxation**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208157 Discussion on remaining issues for UE Power Saving Enhancements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208159 CR on core requirements for UE power saving enhancement**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2374 rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208364 Discussion on RRM requirements for R17 RLMBFD relaxation**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2208424 Discussion on RLM/BFD relaxation for NR power saving enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208730 RLM and RLF relaxation for UE power saving**

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

**Abstract:**

This paper discusses some open issues for the Core part of power saving enhancement in R17.

**Decision:** The document was **not treated**.

**R4-2208997 Discussion on RRM core remaning issues for RLM/BFD relaxation**

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

**Decision:** The document was **not treated**.

**R4-2208998 DraftCR on maintaining RLM/BFD relaxation requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2352 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209497 Discussion on remaining issues in R17 RLM and BFD relaxation for UE power saving**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209498 CR on R17 RLM and BFD relaxation for UE power saving**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2380 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209684 Discussion on Rel-17 RLM/BFD measurement relaxation**

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

**Decision:** The document was **not treated**.

**R4-2209685 CR on TS38.133 for applicability of RLM measurement relaxation**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2386 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209896 Discussions on UE power saving for RLM and BFD**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the remaining issues of Rel-17 UE power saving.

**Decision:** The document was **not treated**.

**R4-2209897 Corrections to relaxed RLM/BFD requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2388 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the references in the requirements agreed at last meeting.

**Decision:** The document was **not treated**.

#### 9.13.2 RRM performance requirements

**R4-2207736 Power saving performance**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207823 UE power saving enhancement: RRM performance requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208062 Discussion on UE power saving test case for RLM and BM**

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

**Decision:** The document was **not treated**.

**R4-2208098 draftCR TCs of CSI-RS based BFD and LR in FR2 PSCell**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208158 Discussion on RRM test cases for UE Power Saving Enhancements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208160 Draft CR on RRM test case for RLM relaxation based on SSB in FR2**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208425 Discussion on test cases for RLM/BFD measurement relaxation**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208729 Discussions on test cases for power saving R17**

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

**Abstract:**

This paper discusses some open issues for the Perf part of power saving enhancement in R17.

**Decision:** The document was **not treated**.

**R4-2208999 Discussion on RRM test cases for RLM/BFD relaxation**

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

**Decision:** The document was **not treated**.

**R4-2209000 DraftCR on RLM out-of-sync tests for FR2 with CSI-RS based RLM relaxation in DRX**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209499 Discussion on test cases for R17 RLM and BFD relaxation for UE power saving**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209686 Discussion on Rel-17 RLM/BFD measurement relaxation test cases**

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

**Decision:** The document was **not treated**.

**R4-2209687 CR on TS38.133 for relaxed RLM test for FR1 PSCell configured with SSB-based RLM RS in EN-DC mode (A.4.5.1.X)**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209688 CR on TS38.133 for relaxed BFD test for FR1 PSCell configured with SSB-based BFD RS in EN-DC and SA mode (A.4.5.5.X and A.6.5.5.X)**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209689 CR on TS38.133 for relaxed BFD test for FR1 PSCell configured with CSI-RS-based BFD RS in EN-DC and SA mode (A.4.5.5.X and A.6.5.5.X)**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2209898 Discussions on RRM performance requirements for UE power saving**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the performance requirements for relaxed RLM/BFD requirements.

**Decision:** The document was **not treated**.

**R4-2209914 DraftCR – Relaxed SSB-based RLM out-of-sync for FR1 PCell with DRX in SA**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft test case for relaxed SSB based RLM out-of-sync in FR1 with DRX in SA.

**Decision:** The document was **not treated**.

#### 9.13.3 Demodulation performance requirements

### 9.14 NR Sidelink enhancement

#### 9.14.4 RRM core requirement maintenance

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

**Email discussion for [103-e][226] NR\_SL\_enh\_RRM, AI 9.14.4,9.14.5 -Yoonoh Yang**

**R4-2210298 Email discussion summary for [103-e][226] NR\_SL\_enh\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207739 SL enhancement core requirement correction**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2288 rev Cat: F (Rel-17)  
  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207874 Maintenance CR for RRM requirements for NR Uu and SL intra-band con-current operation**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2294 rev Cat: F (Rel-17)  
  
 Source: MediaTek (Shenzhen) Inc.*

**Decision:** The document was **not treated**.

**R4-2208161 Discussion on remaining issues for core requirements for NR SL enhancement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208728 Discussions on DRX in NR SL enhancement**

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

**Abstract:**

This paper discusses one remaining issue related to SL DRX.

**Decision:** The document was **not treated**.

**R4-2208817 CR to TS 38.133 Correction to sidelink core requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2337 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209001 Discussion on RRM core remaining issues for NR sidelink enhancement**

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

**Decision:** The document was **not treated**.

**R4-2209002 DraftCR on maintaining RRM core requirements for R17 NR SL**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2353 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

#### 9.14.5 RRM performance requirements

**R4-2207738 SL enhancement resource selection test**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2207740 SL enhancement resource selection test configuration and RRM requirement correction**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2208582 draft CR on Test for Interruption to WAN at transitions during SL-DRX for Asynchronized case**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics*

**Abstract:**

It is draft CR to introduce Test for Interruption to WAN at transitions during SL-DRX for Asynchronized case.

**Decision:** The document was **not treated**.

**R4-2208818 Draft CR to TS 38.133: Introduction of test cases for Selection/Reselection of V2X SyncRef Source under SL-DRX**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208819 Discussion on performance requirements for sidelink enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209003 Discussion on test setup for initiation/cease SLSS transmisions in SL-DRX mode**

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

**Decision:** The document was **not treated**.

**R4-2209004 DraftCR on initiation/cease SLSS transmisions in SL-DRX mode**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

#### 9.14.6 Demodulation performance requirements

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

**Email discussion for [103-e][324] NR\_SL\_enh\_Demod, AI 9.14.6-Jin-yup Hwang**

**R4-2210330 Email discussion summary for [103-e][324] NR\_SL\_enh\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208318 Discussion on test cases for SL enhancement demodulation requirements**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2209849 Discussion on demodulation requirements for NR sidelink enhancements**

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

**Decision:** The document was **not treated**.

### 9.15 Extending current NR operation to 71GHz

#### 9.15.4 BS RF requirements

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

**Email discussion for [103-e][311] NR\_exto71GHz\_BSRF, AI 9.15.4,9.15.5-Toni lahteensuo**

**R4-2210317 Email discussion summary for [103-e][311] NR\_exto71GHz\_BSRF**  *Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

##### 9.15.4.1 TX requirements

**R4-2207923 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 has provided further proposals on BS transmitter requirements for extending current NR operation to 71 GHz based on the agreed WF.

**Decision:** The document was **not treated**.

**R4-2208227 Discussion on BS TX RF requirements for 52 6-71GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208537 On BS RF transmitter requirements for the frequency range 52.6 to 71.0 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.

**Decision:** The document was **not treated**.

**R4-2208539 Draft CR to TS 38.104: Addition of EVM window length for 480 kHz and 960 kHz SCS in Annex C.5**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

For operation within the frequency range 52.6 to 71.0 GHz new Sub-Carrier Spacing (SCS) and Carrier Bandwidth (CBW) configurations is required. In TS 38.104, annex C.5 information related to EVM window length as function of SCS and CBW is captured for FR2

**Decision:** The document was **not treated**.

**R4-2209586 Further discussion on BS Tx requirements for 52.6-71GHz**

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

**Decision:** The document was **not treated**.

**R4-2209587 Draft CR to TS 38.104: intra-band non-contiguous CA TAE requirement and EVM measurement window length**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

##### 9.15.4.2 RX requirements

**R4-2207924 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 has provided further proposals on BS receiver requirements for extending current NR operation to 71 GHz based on the agreed WF.

**Decision:** The document was **not treated**.

**R4-2208228 Discussion on BS RX RF requirements for 52 6-71GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208538 On BS RF receiver requirements for the frequency range 52.6 to 71.0 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we present an overview of BS receiver 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.

**Decision:** The document was **not treated**.

**R4-2208570 View on remaining issues for 71GHz BS RX requirements**

*Type: other For: Approval  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209588 Further discussion on BS Rx requirements for 52.6-71GHz**

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

**Decision:** The document was **not treated**.

**R4-2209589 Draft CR for TS 38.104 on introduction of BS RF Rx requirements for 57-71GHz in section 10.6 – 10.9**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

#### 9.15.5 BS RF conformance testing

##### 9.15.5.1 General

**R4-2208542 On general aspects related to FR2-2 base station OTA conformance testing**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

At last meeting we provided some initial thoughts related to OTA testing to further consider [2] when the NR frequency range is extended to 71 GHz. As guidance for this meeting a way-forward [3] was agreed last meeting. In this contribution we go a bit de

**Decision:** The document was **not treated**.

**R4-2209141 about FR2-2 BS conformance test system**

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

**Decision:** The document was **not treated**.

**R4-2209590 Discussion on BS conformance testing for 52.6-71GHz**

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

**Decision:** The document was **not treated**.

**R4-2209719 Measurement uncertainty considerations for NR in 52.6GHz – 71GHz**

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

**Decision:** The document was **not treated**.

##### 9.15.5.2 Transmitter characteristics

**R4-2207925 Proposals on BS transmitter conformance testing for extending current NR operation to 71 GHz**

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

**Abstract:**

This contribution has provided proposals on BS transmitter conformance testing requirements for extending current NR operation to 71 GHz based on the agreed WF.

**Decision:** The document was **not treated**.

**R4-2208229 Discussion on BS RFtransmitter characteristics conformance testing**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208543 BS transmitter conformance test specification impact overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we summarize the essential updates with respect to the introduction of new carrier bandwidths and sub-carrier spacings to support up to 71 GHz as well as identifying test requirements where new requirement limits are required.

**Decision:** The document was **not treated**.

**R4-2209142 about FR2-2 BS conformance test, EVM measurement and TM length**

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

**Decision:** The document was **not treated**.

##### 9.15.5.3 Receiver characteristics

**R4-2207926 Proposals on BS receiver conformance testing for extending current NR operation to 71 GHz**

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

**Abstract:**

This contribution has provided proposals on BS receiver conformance testing requirements for extending current NR operation to 71 GHz based on the agreed WF.

**Decision:** The document was **not treated**.

**R4-2208230 Discussion on BS RFreceiver characteristics conformance testing**

*Type: other For: Approval  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2208544 BS receiver conformance test specification impact overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we summarize the essential updates with respect to the introduction of new carrier bandwidths and sub-carrier spacings to support up to 71 GHz as well as identifying test requirements where new requirement limits are required.

**Decision:** The document was **not treated**.

#### 9.15.10 Demodulation and CSI requirements

##### 9.15.10.1 General

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

**Email discussion for [103-e][325] NR\_exto71GHz\_Demod\_Part1, AI 9.15.10.1,9.15.10.3-Meng Zhang**

**R4-2210331 Email discussion summary for [103-e][325] NR\_exto71GHz\_Demod\_Part1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208018 Discussion on general issue for NR extended to 71GHz demodulation requirements**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

general issue for NR extended to 71GHz demodulation requirements

**Decision:** The document was **not treated**.

**R4-2209387 Draft CR - definition of FR2-2**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209388 Discussion on general aspects of demodulation requirements for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

##### 9.15.10.2 UE Demodulation and CSI requirements

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

**Email discussion for [103-e][326] NR\_exto71GHz\_Demod\_Part2, AI 9.15.10.2-Gaurav Nigam**

**R4-2210332 Email discussion summary for [103-e][326] NR\_exto71GHz\_Demod\_Part2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207805 Discussion on UE demod and CSI reporting requirements for FR2-2**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209778 Initial Simulation results for UE demod requirements for FR2-2**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Revised to R4-2210351.**

**R4-2210351 Initial Simulation results for UE demod requirements for FR2-2**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Return to.**

###### 9.15.10.2.1 PDSCH requirements

**R4-2208262 On PDSCH requirements for the extention to 71GHz**

*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 PDSCH requirements for the extension to 71GHz.

**Decision:** The document was **not treated**.

**R4-2208324 The remaining issues of the PDSCH requirements in 52.6 – 71 GHz band**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present our view on PDSCH demodulation requirements for FR2-2.

**Decision:** The document was **not treated**.

**R4-2208325 Simulation results for PDSCH demodulation in 52.6 GHz – 71 GHz band**

*Type: other For: Information  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present the initial results on the PDSCH performance in the frequency range 52.6 GHz to 71 GHz.

**Decision:** The document was **not treated**.

**R4-2208331 draft CR on PDSCH requirements for 52.6 - 71 GHz band**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

First skeleton for DraftCR

**Decision:** The document was **not treated**.

**R4-2209737 PDSCH simulation results for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209842 Discussion on PDSCH requirements for FR2-2**

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

**Decision:** The document was **not treated**.

###### 9.15.10.2.2 PDCCH/PBCH requirements

**R4-2208263 On PDCCH and PBCH requirements for the extention to 71GHz**

*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 PDCCH and PBCH requirements for the extension to 71GHz.

**Decision:** The document was **not treated**.

**R4-2208264 draftCR to 38101-4: NR PDCCH requirements for the extention to 71GHz**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2208326 On the PDCCH and PBCH requirements in 52.6 GHz – 71 GHz band**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present our view on PDCCH and PBCH demodulation requirements for FR2-2.

**Decision:** The document was **not treated**.

**R4-2208327 Simulation results for PDCCH and PBCH demodulation in FR2-2**

*Type: other For: Information  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present the initial results on the PDSCH performance in the frequency range 52.6 GHz to 71 GHz.

**Decision:** The document was **not treated**.

**R4-2209843 Discussion on PDCCH/PBCH requirements**

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

**Decision:** The document was **not treated**.

###### 9.15.10.2.3 SDR requirements

**R4-2208328 SDR requirements in 52.6 – 71 GHz band**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present our view on the SDR requirements for FR2-2

**Decision:** The document was **not treated**.

**R4-2208329 Simulation results for SDR requirements in 52.6 – 71 GHz band**

*Type: other For: Information  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present some initial simulation results to support our view on the CSI reporting requirements for 52.6 – 71 GHz band.

**Decision:** The document was **not treated**.

**R4-2208332 draft CR on SDR requirements for 52.6 - 71 GHz band**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

First skeleton for DraftCR

**Decision:** The document was **not treated**.

**R4-2209844 Discussion on SDR requirements for FR2-2**

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

**Decision:** The document was **not treated**.

###### 9.15.10.2.4 CSI reporting requirements

**R4-2208330 CSI reporting requirements in 52.6 GHz – 71 GHz band**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We present our view on the CSI reporting requirements in 52.5 GHz – 71 GHz band

**Decision:** The document was **not treated**.

**R4-2209845 Discussion on CSI reporting requirements for FR2\_2**

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

**Decision:** The document was **not treated**.

##### 9.15.10.3 BS demodulation requirements

**R4-2208084 View on BS demodulation requirement for NR extended to 71GHz**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

###### 9.15.10.3.1 PUSCH requirements

**R4-2208019 Discussion on PUSCH demodulation requirements for NR extended to 71GHz**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

PUSCH demodulation requirements for NR extended to 71GHz

**Decision:** The document was **not treated**.

**R4-2208022 Simulation results on PUSCH demodulation requirements for NR extended to 71GHz**

*Type: other For: Information  
 Source: Ericssion*

**Abstract:**

simulation results on PUSCH demodulation requirements for NR extended to 71GHz

**Decision:** The document was **not treated**.

**R4-2209389 Discussion on PUSCH demodulation requirements for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209390 PUSCH simulation results for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209397 Big CR Introduction fo FR2-2 BS Radiated demodulation requirements for TS 38.141-2**

*Type: CR For: Agreement  
 38.141-2 v17.5.0 CR-0402 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209846 Discussion on PUSCH requirements for FR2-2**

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

**Decision:** The document was **not treated**.

###### 9.15.10.3.2 PUCCH requirements

**R4-2208020 Discussion on PUCCH demodulation requirements for NR extended to 71GHz**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

PUCCH demodulation requirements for NR extended to 71GHz

**Decision:** The document was **not treated**.

**R4-2208023 Simulation results on PUCCH demodulation requirements for NR extended to 71GHz**

*Type: other For: Information  
 Source: Ericssion*

**Abstract:**

simulation results on PUCCH demodulation requirements for NR extended to 71GHz

**Decision:** The document was **not treated**.

**R4-2209391 Discussion on PUCCH demodulation requirements for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209392 PUCCH simulation results for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209847 Discussion on PUCCH requirements for FR2-2**

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

**Decision:** The document was **not treated**.

###### 9.15.10.3.3 PRACH requirements

**R4-2208021 Discussion on PRACH demodulation requirements for NR extended to 71GHz**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

PRACH demodulation requirements for NR extended to 71GHz

**Decision:** The document was **not treated**.

**R4-2209393 Discussion on PRACH demodulation requirements for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209394 PRACH simulation results for the extension to 71 GHz**

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

**Decision:** The document was **not treated**.

**R4-2209395 Draft CR 38.104: PRACH requirements for FR2-2**

*Type: draftCR For: Endorsement  
 38.104 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209396 Draft CR 38.141-2: PRACH requirements for FR2-2**

*Type: draftCR For: Endorsement  
 38.141-2 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209848 Discussion on PRACH requirements for FR2-2**

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

**Decision:** The document was **not treated**.

### 9.16 Enhancements to Integrated Access and Backhaul (IAB) for NR

#### 9.16.1 General

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

**Email discussion for [103-e][312] NR\_eIAB\_RF, AI 9.16.1, 9.16.2,9.16.3-Yankun Li**

**R4-2210318 Email discussion summary for [103-e][312] NR\_eIAB\_RF**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208571 Updated work plan for eIAB performance part**

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

**Decision:** The document was **not treated**.

**R4-2209806 CR to TS 38.174 with bracket removal for timing error between IAB-DU and IAB-MT**

*Type: CR For: Approval  
 38.174 v17.0.0 CR-0029 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

#### 9.16.2 RF requirements maintenance

**R4-2208505 Discussion on timing issues for simultaneous operation of IAB**

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

**Decision:** The document was **not treated**.

**R4-2208506 Reply LS to Reply LS on power control parameters for eIAB**

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

**Decision:** The document was **not treated**.

**R4-2208572 Draft CR for eIAB clean up**

*Type: draftCR For: Endorsement  
 38.174 v17.0.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208573 Discussion on reply LS for range of power control parameters**

*Type: other For: Approval  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209462 IAB MT /DU Case-6 timing**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the TAE number of the requirement.

**Decision:** The document was **not treated**.

**R4-2209463 LS response on range of power control parameters for eIAB**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on RAN LS questions.

**Decision:** The document was **not treated**.

**R4-2209464 CR on case-6 timing for eIAB\_RF**

*Type: CR For: Agreement  
 38.174 v17.0.0 CR-0028 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

this CR provide update on the case6 timing requrimeents

**Decision:** The document was **not treated**.

**R4-2209720 Discussion on range of power control parameters**

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

**Decision:** The document was **not treated**.

#### 9.16.3 RF conformance testing

**R4-2208507 Discussion on conformance test of IAB**

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

**Decision:** The document was **not treated**.

**R4-2208574 Discussion on RF conformance testing for eIAB**

*Type: other For: Approval  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209465 eIAB conformance test**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

We provide our view on eIAB conformance testing aspects

**Decision:** The document was **not treated**.

**R4-2209466 CR on Test configuration for eIAB conformance testing 38.176-1**

*Type: draftCR For: Endorsement  
 38.176-1 v17.0.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In CR, the update of the eIAB conformance testing aspect is proposed

**Decision:** The document was **not treated**.

**R4-2209467 CR on Test configuration for eIAB conformance testing 38.176-2**

*Type: draftCR For: Endorsement  
 38.176-2 v17.0.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In CR, the update of the eIAB conformance testing aspect is proposed

**Decision:** The document was **not treated**.

**R4-2209807 On eIAB simultaneous operation testing**

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

**Decision:** The document was **not treated**.

**R4-2210029 eIAB testing case#6 intra node TAE**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discuss the testing of the case#6 intra node TAE

Session chair Note: Move to this AI from AI 9.17.1.2

**Decision:** The document was **not treated**.

#### 9.16.4 RRM core requirements maintenance

#### 9.16.5 RRM performance requirements

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

**Email discussion for [103-e][227] NR\_IAB\_enh\_RRM, AI 9.16.5 -Richie Leo**

**R4-2210299 Email discussion summary for [103-e][227] NR\_IAB\_enh\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207905 On eIAB RRM Performance Requirements**

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

**Decision:** The document was **not treated**.

**R4-2208951 Discussion on performance requirements for eIAB**

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

**Decision:** The document was **not treated**.

**R4-2210174 Impact on RRM performance requirements for enhanced IAB**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

The paper further analyzes the need for performance requirements related to IAB enhancement

**Decision:** The document was **not treated**.

#### 9.16.6 Demodulation requirements

### 9.17 NR coverage enhancements

#### 9.17.2 BS demodulation requirements

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

**Email discussion for [103-e][327] NR\_cov\_enh\_Demod, AI 9.17.2-Jingzhou Wu**

**R4-2210333 Email discussion summary for [103-e][327] NR\_cov\_enh\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues:**

* Issue 1-3-1: Actual TDW length for JCE in BS PUSCH demod requirements
* Issue 1-3-2: PUSCH repetition number for BS PUSCH demod requirements with JCE
* Issue 1-3-3: Configured TDW number for JCE in BS PUSCH demod requirement
* Issue 1-3-9: Antenna configuration for BS PUSCH demod requirements with JCE
* Issue 1-3-5: TDD UL-DL pattern for BS PUSCH demod requirements with JCE
* Issue 1-2-1: Physical/available slots for BS requirements for PUSCH TBoMS
* Issue 1-2-3: TDD UL-DL pattern and test applicability for BS requirements for PUSCH TBoMS
* Issue 1-2-8: Antenna configuration for TBoMS PUSCH demod test
* Issue 2-1-1: Configured TDW length for JCE in BS PUCCH demod requirements
* Issue 2-1-2: Number of repetitions for BS PUCCH demodulation requirements with JCE

**Issue 1-3-1: Actual TDW length for JCE in BS PUSCH demod requirements**

* Proposals:
  + For TDD
    - 2 consecutive slots (Nokia, Samsung, Huawei)
  + For FDD
    - Option 1: 2 consecutive slots (Samsung)
    - Option 2: 4 consecutive slots (Samsung)
    - Option 3: 8 consecutive slots (E///, Huawei, Nokia)
    - Option 4: 16 consecutive slots (CTC)
* Moderator’s recommendation
  + For TDD:
    - Confirm 2 consecutive slots for TDD.
  + For FDD:
    - From the simulation result from HW and Nokia, moderator observes that JCE with aTDW of 8 slots can achieve larger performance gain compared to 2 or 4 slots.
    - Considering the above, can we follow majority view and agree 8 consecutive slots for FDD?
* Discussion:
  + - Samsung: We need to ensure phase continuity across slots when defining requirements.
    - China Telecom: We proposed 16 for FDD, we can comprise to 8.
    - China Telecom: In RF session, we already define RF core requirements for phase continuity across 16 slots.
    - Samsung: RF core requirements with 16 slot is subject to UE capability
    - Ericsson: For FDD, we support option 3. For TDD 30kHz SCS, 2 slots is OK. For other SCS, we suggest to discuss TDD pattern first.
    - Nokia: We already comprise to 8 for FDD.
    - Huawei: We think option 3 can observe more gain over 2,4 cases.
* Agreement:
  + For TDD:
    - Confirm 2 consecutive slots for TDD 30kHz SCS.
  + For FDD:
    - Option 3: 8 (baseline)
    - Option 2: 4

**Issue 1-3-2: PUSCH repetition number for BS PUSCH demod requirements with JCE**

* Proposals:
  + Option 1: the same as aTDW length for JCE (Samsung, Huawei)
  + Option 2: 8 for TDD and 8 for FDD (E///)
  + Option 3: 4 for TDD and 8 for FDD (Nokia)
* Moderator’s recommendation
  + For FDD:
    - E/// and Nokia propose to use repetitionnumber of 8 slots which is same with the proposed aTDW length.
    - Therefore, can we agree to use ‘PUSCH repetition number same as aTDW length’?
  + For TDD:
    - Can we follow majority view and agree option 1 (PUSCH repetition number same as aTDW length)?
* Discussion:
  + - Nokia: aTDW still not agreed for FDD case.
    - Ericsson: We think 8 for TDD can bring more gain.
    - China Telecom: we support option 1 for TDD.
    - Huawei: We prefer to actual TDW length. Repetition performance already be verified in existing Rel-15 test cases, now we are focused on to verify JCE performance.
    - Samsung: We think same value as aTDW length can serve test purpose. With large repetition number it may bring difficulty that how the performance gain from.
    - Nokia: We are fine both proposals.
* Agreement:
  + For TDD: same as aTDW length 2 for 30kHz
* Further discuss test parameters to ensure performance gain can be observed by test cases
  + For FDD: 8 if aTDW length confirmed as 8 for PUSCH

**Issue 1-3-3: Configured TDW number for JCE in BS PUSCH demod requirements**

* Proposals:
  + For TDD
    - Option 1: cTDW length is configured same as the aTDW length (E///, Samsung, CTC, Huawei)
    - Option 2: Use the cTDW length to be 16 slots (Nokia)
    - Nokia: By setting a cTDW same as aTDW, we ignore all segmentation framework and BS behavior will not be tested.
  + For FDD
    - Option 1: cTDW length is configured same as the aTDW length (Agreed parameter in the last meeting, E///, Samsung, CTC, Huawei, Nokia same with the proposed aTDW length)
* Moderator’s recommendation
  + For TDD:
    - From demodulation performance perspective, it looks no difference between the two options. Can we follow majority view and use option 1?
  + For FDD:
    - cTDW length is configured same as the aTDW length.
* Agreement:
  + For FDD:
    - cTDW length is configured same as the aTDW length.
  + For TDD:
    - Option 1: cTDW length is configured same as the aTDW length (baseline)
    - Option 2: Use the cTDW length to be 16 slots

**Issue 1-3-9: Antenna configuration for BS PUSCH demod requirements with JCE**

* Proposals:
  + Option 1: 1T2R for FR1 and FR2 (E///, Samsung, Huawei)
  + Option 2: Cover 2Rx 4Rx and 8Rx for FR1 (CTC, Nokia)
    - CTC: 1) 4Rx and 8Rx are both typical BS deployments for NR. Especially for coverage limited scenario, 4Rx and 8Rx is very likely to be used in addition to TBoMS and/or JCE. 2) PUSCH JCE provide larger performance with the increasing of Rx number.
    - Nokia: The largest JCE gain is achieved using 8Rx
* Moderator’s recommendation
  + For FR1, further discuss on the GTW session
  + For FR2, use 1T2R
* Discussion:
  + - Nokia: We support option 2, the coverage scenario is more typical with more Rx to achieve larger performance gain with JCE.
    - Huawei: We think 1T2Rx already ensure test coverage.
    - Ericsson: We prefer option 1, the performance gain already enough under 2Rx case.

**Issue 1-3-5: TDD UL-DL pattern for BS PUSCH demod requirements with JCE**

* Proposals:
  + For FR1 15KHz SCS
    - Option 1: Define new TDD pattern with multiple contiguous UL slots (E///, Samsung, CTC, Nokia)

Option 1A: DSUUU (Samsung, CTC)

Option 1B: 7D1S2U, S=6D:4G:4U (E///)

Option 1C: DDSUU (Nokia)

* + - Option 2: No PUSCH requirement for 15kHz SCS (Samsung, Huawei)
  + For FR2 60/120 kHz SCS:
    - Option 1: Define new TDD pattern with multiple contiguous UL slots (E///, Samsung, CTC, Nokia)

Option 1A: DSUUU (Samsung, CTC)

Option 1B: 5D1S4U (E///)

Option 1C: DDSUU (Nokia)

* + - Option 2: No PUSCH requirement for FR2 60/120 kHz SCS (Samsung, Huawei)
  + HW: If 15/60/120kHz SCS is considered finally, we propose to define manufacture declaration for support of JCE with corresponding SCS{15kHz, 30kHz, 60kHz 120kHz}
* Moderator’s recommendation
  + For FR1 15KHz SCS, define new TDD pattern with multiple contiguous UL slots and further discuss the exact TDD pattern
  + For FR2 60/120 kHz SCS, define new TDD pattern with multiple contiguous UL slots and further discuss the exact TDD pattern
* Agreement:
  + For FR1 15KHz SCS, define new TDD pattern with multiple contiguous UL slots and further discuss the exact TDD pattern
  + For FR2 60/120 kHz SCS, define new TDD pattern with multiple contiguous UL slots and further discuss the exact TDD pattern
  + Manufacture declaration can be introduced for supporting JCE with corresponding SCS

**Issue 2-1-1: Configured TDW length for JCE in BS PUCCH demod requirements**

* Proposals:
  + For TDD
    - Option 1: 8 slots (Nokia)
    - Option 2: cTDW length is configured same as the aTDW length (E///, Samsung, CTC, HW)
  + For FDD
    - Option 1: 8 slots (Nokia)
    - Option 2: cTDW length is configured same as the aTDW length (E///, Samsung, CTC, HW)
* Moderator’s recommendation
  + Companies have similar proposals for PUSCH JCE test, can we agree to use the same value as PUSCH JCE to avoid duplicate discussion? (Agreed by HW and Nokia)
* Agreement: Follow PUSCH conclusion.

**Issue 2-1-2: Number of repetitions for BS PUCCH demodulation requirements with JCE**

* Proposals:
  + Option 1: 8 for FDD and TDD (E///)
  + Option 2: 2 (Samsung)
  + Option 3: Same with aTDW length (HW)
  + Option 3: larger than 4 (Nokia)
    - Nokia: To be able to test the segmentation framework of cTDW in at least of 2 aTDWs of more than 1 slot, for TDD pattern DDSUU.
* Moderator’s recommendation
  + Companies have similar proposals for PUSCH JCE test, can we agree to use the same value as PUSCH JCE to avoid duplicate discussion? (Agreed by HW and Nokia)
* Agreement: Follow PUSCH conclusion.

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

##### 9.17.2.1 PUSCH requirements

**R4-2207742 PUSCH demodulation performance of Rel-17 NR coverage enhancements**

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

**Abstract:**

In this contribution, we have provided parameters to test PUSCH enhancements performance.

**Decision:** The document was **not treated**.

**R4-2208009 PUSCH demodulation performance of Rel-17 NR coverage enhancements: simulation results**

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

**Abstract:**

In this contribution, we have provided simulation results parameters for PUSCH enhancements performance.

**Decision:** The document was **not treated**.

**R4-2208010 Discussion on PUSCH demodulation for NR coverage enhancement**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

PUSCH demodulation requirements for NR coverage enhancement

**Decision:** The document was **not treated**.

**R4-2208011 Simulation results for PUSCH demodulation for NR coverage enhancement**

*Type: other For: Information  
 Source: Ericssion*

**Abstract:**

simulation results for PUSCH demodulation requirements for NR coverage enhancement

**Decision:** The document was **not treated**.

**R4-2208082 View on PUSCH demodulation requirement for Rel-17 coverage enhancement**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209407 On BS PUSCH demodulation requirements for NR coverage enhancements**

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

**Decision:** The document was **not treated**.

**R4-2209883 Discussion on BS coverage enhancement demod PUSCH**

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

**Decision:** The document was **not treated**.

**R4-2209884 Simulation results on BS coverage enhancement demod PUSCH**

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

**Decision:** The document was **not treated**.

##### 9.17.2.2 PUCCH requirements

**R4-2207743 PUCCH demodulation performance of Rel-17 NR coverage enhancements**

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

**Abstract:**

In this contribution, we have provided parameters to test PUSCH enhancements performance.

**Decision:** The document was **not treated**.

**R4-2208012 Discussion on PUCCH demodulation for NR coverage enhancement**

*Type: discussion For: Discussion  
 Source: Ericssion*

**Abstract:**

PUCCH demodulation requirements for NR coverage enhancement

**Decision:** The document was **not treated**.

**R4-2208013 Simulation results for PUCCH demodulation for NR coverage enhancement**

*Type: other For: Information  
 Source: Ericssion*

**Abstract:**

simulation results for PUCCH demodulation requirements for NR coverage enhancement

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

**R4-2208083 View on PUCCH demodulation requirement for Rel-17 coverage enhancement**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209406 On BS PUCCH demodulation requirements for NR coverage enhancements**

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

**Decision:** The document was **not treated**.

**R4-2209885 Discussion on BS coverage enhancement demod PUCCH**

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

**Decision:** The document was **not treated**.

**R4-2209886 Simulation results on BS coverage enhancement demod PUCCH**

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

**Decision:** The document was **not treated**.

### 9.18 Further enhancements on MIMO for NR

#### 9.18.2 RRM core requirement maintenance

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

**Email discussion for [103-e][228] NR\_feMIMO\_RRM\_1, AI 9.18.2-Hua Li**

**R4-2210300 Email discussion summary for [103-e][228] NR\_feMIMO\_RRM\_1**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

##### 9.18.2.1 Unified TCI for DL and UL

**R4-2207806 Discussion on RRM requirements for Unified TCI**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208058 Discussion on remaining issue about Unified TCI state in FeMIMO**

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

**Decision:** The document was **not treated**.

**R4-2208279 Draft CR to TS38.133 Corrections on R17 unified TCI requirement**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208465 Discussion on unified TCI for DL and UL**

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

**Decision:** The document was **not treated**.

**R4-2208466 CR on known condition of unified TCI for UL**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2319 rev Cat: F (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2208776 Discussion on Unified TCI for DL and UL**

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

**Decision:** The document was **not treated**.

**R4-2209005 Discussion on RRM remaining issues for R17 unified TCI framework**

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

**Decision:** The document was **not treated**.

**R4-2209006 DraftCR on maintaining TCI state switching requirements for R17 unified TCI**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2354 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209500 Discussion on remaining issues in RRM requirements for unified TCI in R17 feMIMO**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209501 CR on unified TCI in R17 feMIMO**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2381 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2210052 Remaining issues on unified TCI switching delay requirement**

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

**Decision:** The document was **not treated**.

**R4-2210053 DraftCR on DCI based DL and UL TCI switching delay requirements**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2210138 RRM requirements of unified TCI state for FeMIMO**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the remaining issues on Unified TCI for DL and UL

**Decision:** The document was **not treated**.

**R4-2210139 CR on unified TCI state switching requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2395 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Based on the discussion we provide the CR for unified TCI state switching requirements

**Decision:** The document was **not treated**.

##### 9.18.2.2 Inter-cell beam management

**R4-2207807 Discussion on RRM requirements for inter-cell beam management**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2207808 CR on maintenance of Inter-cell L1-RSRP measurement requirements**

*Type: CR For: Approval  
 38.133 v17.5.0 CR-2292 rev Cat: F (Rel-17)  
  
 Source: Apple*

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

**R4-2208059 Discussion on remaining issue about inter-cell beam management in FeMIMO**

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

**Decision:** The document was **not treated**.

**R4-2208278 Draft CR to TS38.133 Corrections on R17 L1-SINR requirement on NSC**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208467 Discussion on inter cell beam management**

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

**Decision:** The document was **not treated**.

**R4-2208468 CR on measurement restriction and scheduling availability for inter cell L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2320 rev Cat: F (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2209007 Discussion on RRM remaining issues for R17 inter-cell beam managements**

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

**Decision:** The document was **not treated**.

**R4-2209008 DraftCR on maintaining L1-RSRP measurement requirements for R17 inter-cell beam managements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2209134 DraftCR on maintaining L1-RSRP measurement requirements for R17 inter-cell beam managements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2356 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209502 Discussion on remaining issues in RRM requirements for inter-cell L1 beam measurements in R17 feMIMO**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209503 CR on L1-RSRP measurement requirements for inter-cell BM in R17**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2382 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209786 DraftCR on maintenance of Inter-cell L1-RSRP measurement requirements**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2210054 Remaining issues on inter-cell beam management**

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

**Decision:** The document was **not treated**.

**R4-2210140 RRM requirements for inter-cell BM in FeMIMO**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

We discuss the remaining issues on Inter-cell beam management

**Decision:** The document was **not treated**.

**R4-2210141 CR on L1-RSRP measurements for a cell with different PCI from serving cell**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2396 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Based on the discussion we provide the CR on L1-RSRP measurements for a cell with different PCI from serving cell

**Decision:** The document was **not treated**.

##### 9.18.2.3 Others

**R4-2207809 Discussion on other RRM requirements for FeMIMO**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209009 Discussion on remaining issues for R17 TRP specific BFR**

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

**Decision:** The document was **not treated**.

**R4-2209010 DraftCR on maintaining R17 TRP specific BFR requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2209135 DraftCR on maintaining R17 TRP specific BFR requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2357 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209504 Discussion on remaining issues in other RRM impacts in R17 feMIMO**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2210050 DraftCR on maintenance of TRP specific BFD requirements**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2210055 Remaining issues on other items of Rel-17 feMIMO RRM**

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

**Decision:** The document was **not treated**.

**R4-2210142 Discussion on TRP specific link recovery procedures**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

We discuss CBD requirements and BFRQ requirements as part of TRP specific link receovery procedures.

**Decision:** The document was **not treated**.

**R4-2210143 CR on TRP specific CBD and BFR requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2397 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We provide CR on TRP specific CBD and BFR requirements

**Decision:** The document was **not treated**.

#### 9.18.3 RRM performance requirements

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

**Email discussion for [103-e][229] NR\_feMIMO\_RRM\_2, AI 9.18.3-Yiyan Zhang**

**R4-2210301 Email discussion summary for [103-e][229] NR\_feMIMO\_RRM\_2**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208060 Discussion on FeMIMO test case**

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

**Decision:** The document was **not treated**.

**R4-2208276 Discussion on RRM Performance part for Rel-17 NR FeMIMO**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

Work plan for FeMIMO RRM Perf. Part

**Decision:** The document was **not treated**.

**R4-2208277 Draft CR to TS38.133 Accuracy Requirement for R17 L1-SINR Measurement on NSC**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2208510 Discussion on test cases for further enhancement on MIMO for NR**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209011 Discussion on RRM test cases for R17 NR FeMIMO**

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

**Decision:** The document was **not treated**.

**R4-2209505 Discussion on perf requirements and test cases in R17 feMIMO**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209779 Discussion on RRM performance requirements for FeMIMO**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2210144 Scope of RRM test cases for FeMIMO**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discssion on the scope of test cases needed for this feature

**Decision:** The document was **not treated**.

#### 29.18.4 UE Demodulation and CSI requirements

##### 29.18.4.1 General

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

**Email discussion for [103-e][328] NR\_FeMIMO\_Demod, AI 9.18.4-Yunchuan Yang**

**R4-2210334 Email discussion summary for [103-e][328] NR\_FeMIMO\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

List of key open issues:

* Issue 1-1-1: Whether to define PDCCH requirement for multi-TRP repetition transmission schemes
* Issue 1-1-2: Whether to define PDSCH requirement for Multi-TRP inter-cell operation
* Issue 2-1-1: Whether to define PDSCH requireemnt with HST-SFN scheme B
* Issue 3-1-1: Test cases for CSI reporting enhancement for m-TRP transmission
* Issue 4-1-1: Whether to define PMI requirement for Rel-17 FeTye II PS codebook

**Issue 1-1-1: Whether to define PDCCH requirement for multi-TRP repetition transmission schemes**

* Observations
  + Observation 1(Huawei): There is a great gain by performing soft-combining for non-SFN PDCCH enhancement.
  + Observation 2 (MTK):
    - When SNR of 2 TRPs is balanced we can see little gain on average.
    - When SNR of 2 TRPs is balanced we can see loss in some cases
    - When SNR of 2 TRPs is imbalanced the performance of PDCCH repetition decreases as expected.
* Proposals
  + Option 1(Ericsson, Samsung, Huawei): Yes
  + Option 2 (MTK, Qualcomm, Apple): No
* Recommended WF
  + Define PDCCH requirement for multi-TRP repetition transmission scheme?
* Discussion:
  + Apple: We prefer not to introduce test case, as no much performance gain compared to legacy transmission schemes.
  + QC: We share similar view as Apple.
  + MTK: With imbalanced SNR, we will observe less gain. We prefer not to introduce test cases.
  + Huawei: This feature is important to improve PDCCH robust performance. In our evaluation, we observe the gain. We prefer to introduce test case as the deployment scenario can be cell-edge case.
  + Samsung: We think from UE receiver processing, it’s different compared to legacy transmission schemes; and we observe performance gain from companies’ results.
  + Ericsson: We support option 1.

**Issue 1-1-2: Whether to define PDSCH requirement for Multi-TRP inter-cell operation**

* Proposals
  + Option 1(Samsung, Huawei): Yes
    - Option 1a(Samsung): Introduce test applicable rule between existing multi-DCI intra-cell M-TRP test case and new test case for inter-cell multi-DCI PDSCH
  + Option 2 (Ericsson, Qualcomm, MTK): No
* Recommended WF
  + Encourage comments if any.
* Agreement:

Starting point for further checking:

* Introduce requirements for PDCCH multi-TRP transmission (only single test case) and no new PDSCH requirements PDSCH m-TRP inter-cell operation.

**Issue 2-1-1: Whether to define PDSCH requireemnt with HST-SFN scheme B**

* Observations
  + Observation 1 (Ericsson):
    - The performance of HST-SFN scheme B is around 1.2~1.4dB worse than that of HST single tap
* Proposals
  + Option 1 (Samsung, Huawei, CMCC, Ericsson): Yes
    - Option1a (Samsung, CMCC): If UE pass HST-SFN scheme A test cases, UE can skip HST-SFN scheme B test cases
    - Option1b (CMCC): If UE supporting both HST SFN scheme A and B and supporting both 15kHz SCS and 30kHz SCS, then UE shall only pass scheme A 15kHz and scheme B 30kHz requirements.
    - Option 1c (CMCC): If UE passes the existing test cases (demodulation requirement for HST-SFN with high Doppler shift), UE can skip HST-SFN scheme B test cases
  + Option 2 (Qualcomm, Apple, MTK): No
* Recommended WF
  + Introduce PDSCH requirement with HST-SFN scheme B, FFS on test applicability rule
    - Option1a (Samsung, CMCC): If UE pass HST-SFN scheme A test cases, UE can skip HST-SFN scheme B test cases
    - Option1b (CMCC): If UE supporting both HST SFN scheme A and B and supporting both 15kHz SCS and 30kHz SCS, then UE shall only pass scheme A 15kHz and scheme B 30kHz requirements.
    - Option 1c (CMCC): If UE passes the existing test cases (demodulation requirement for HST-SFN with high Doppler shift), UE can skip HST-SFN scheme B test cases
* Discussion:
  + CMCC: We support to define requirements for HST scheme B and open to further discuss test applicable rule.
  + Apple: We support option 2. For HST scheme B will be similar as single Tap channel from UE processing aspect. We would like to focus on other test cases.
  + QC: We share similar view as Apple. UE can handle residual doppler shift and we didn’t discuss how to model doppler-pre-compensation in BS side.
  + MTK: We share similar view as QC and Apple.
  + Huawei: we prefer option 1.
  + Ericsson: According RAN1 conclusion, the pre-compensation only applied for doppler shift and no pre-compensation for delay from 2nd RRH. We think this is separate UE feature with different UE processing. We don’t support to have test applicable rule.
  + Apple: From UE processing aspect, SFN scheme A has big impact; but for scheme B, we don’t have different doppler shift.
  + Huawei: We are fine to have test case with test applicable rule with option 1b.
* Agreement:
  + Further discuss test case design for HST scheme B and FFS whether dedicated test cases need to be introduced for HST scheme B.

**Issue 3-1-1: Test cases for CSI reporting enhancement for m-TRP transmission**

* Observations
  + Observation 1(Nokia):
    - For single-DCI cases with overlapping PDSCH resources, the optimal PMI/RI/CQI calculations differ significantly from legacy.
    - Practically used algorithms for CQI and RI derivation will likely remain the same from non-mTRP implementations, however with high impact on performance.
    - For multi-DCI cases with non-overlapping PDSCH resources, the PMI/RI calculations for each TRP are not different from legacy. CQI on the other hand is shared among TRPs, so the legacy algorithm does no longer apply
    - For multi-DCI cases with fully overlapping PDSCH resources, the PMI, CQI and RI calculations for each TRP are impacted and differ all from the legacy algorithm.
* Proposals
  + Option 1(Nokia):
    - For single-DCI M-TRP with overlapping PDSCH resources, define new CSI reporting requirement for RI and CQI
    - For Multi-DCI with overlapping PDSCH resources, define new CSI reporting requirements for PMI, CQI, RI reporting for Multi-DCI based Multi-TRP scheme, if time allows.
  + Option 2 (Huawei, Qualcomm, Apple): Only define PMI reporting cases for single-DCI based on multi-TRP
* Recommended WF
  + Encourage comments if any
* Discussion:
  + Nokia: We still prefer to have CQI test case since the calculation behaviour different compared to legacy single TRP test case. Introduce CQI reporting test case in additional PMI test case.
  + Intel: We agree with Nokia. UE need to report a single CQI for m-TRP transmission; but we prefer to cover both single-DIC and multi-DCI schemes.
  + QC: We don’t see benefits to have CQI test case. We believe multi-DCI is not in the scope of WID for CSI reporting.
  + Ericsson: We share similar view as Qualcomm for multi-DCI part.
  + Huawei: For multi-DCI case, we share similar view as QC.
  + Apple: We share similar view as QC and Huawei, this applied only single-DCI SDM case.
  + Nokia: With multi-TRP transmission, single CQI will be reporting with CSI enhancement under multi-TRP transmission hypothesis. CQI key reporting content for NW scheduling.
  + QC: We think PMI reporting already serve test purpose from UE processing aspect.
* Agreement:
  + FFS for introducing CQI reporting test case with multi-TRP transmission
  + Further check whether multi-DCI scheme supported for CSI enhancement with multi-TRP transmission

**Issue 4-1-1: Whether to define PMI requirement for Rel-17 FeTye II PS codebook**

* Observations
  + Observation1(Nokia):
    - The main advantage of feTypeII port selection codebook is not only to outperform the eTypeII port selection codebook, but to reduce the computation complexity at the UE.
    - Defining PMI reporting requirements for Rel-17 feTypeII port selection codebook based on evaluation on the performance gain over eTypeII codebook does not indicate whether to define PMI requirements for Rel-17 feTypeII port selection.
    - The complexity reduction at the UE introduced by feTypeII port selection, requires a completely new implementation of the PMI calculation and selection routines in the UE.
* Proposals
  + Option 1 (Samsung, Nokia, Huawei): Yes
    - Option 1a (Huawei): Define PMI reporting requirement for Rel-17 FeTypeII port selection codebook based on evaluation on the performance gain over eTypeII codebook.
  + Option 2 (Qualcomm, Apple): No
  + Option 3 (Ericsson): Discuss the work scope together with the test setup and test metric
* Recommended WF
  + Encourage comments if any
* Discussion:
  + Apple: This feature only workable with BS using BF CSI-RS. And we didn’t define requirements even for Rel-15 PS codebook.
  + QC: We think BF implementation in BS side is not standardized which not feasible to have test case. We don’t have performance requirements for legacy PS codebook.
  + Nokia: We didn’t define the requirement for Rel-16 PS codebook. For Rel-17 PS codebook applicable for single user and multi-user, we believe it’s useful to specify requirements. Regarding BS implementation for BF, we can simplify test case design to verify UE by W2 part only.
* Agreement:
  + Further discuss test case design especially for BF modelling in BS side, RAN4 will not introduce requirements for Rel-17 FeType II PS codebook if RAN4 can’t identify proper test case set-up by end of Aug RAN4 meeting.

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

##### 9.18.4.2 Demodulation requirements

**R4-2208494 Views on FeMIMO Demodulation requirements**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

###### 9.18.4.2.1 Enhancement on HST-SFN scenario

**R4-2208477 Views on Rel-17 HST-SFN scheme**

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

**Decision:** The document was **not treated**.

**R4-2208509 Discussion on demodulation requirements for enhancement to support HST-SFN**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2209696 Discussion on the PDSCH requirement for HST-SFN scenario**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss the open issues for scheme A and scheme B

**Decision:** The document was **not treated**.

**R4-2209887 Discussion on UE FeMIMO demod HST-SFN**

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

**Decision:** The document was **not treated**.

**R4-2209888 Simulation results on UE FeMIMO demod HST-SFN**

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

**Decision:** The document was **not treated**.

**R4-2210151 Views on FeMIMO HST Performance Requirements**

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

**Decision:** The document was **not treated**.

###### 9.18.4.2.2 Enhancement on Multi-TRP

**R4-2208840 Discussion on demodulation performance requirements definition for Rel17 multi-TRP**

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

**Decision:** The document was **not treated**.

**R4-2209697 Discussion on the enhancement on Multi-TRP**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss whether to introduce PDCCH/PDSCH requirement for Multi-TRP

**Decision:** The document was **not treated**.

**R4-2209889 Discussion on UE FeMIMO demod mTRP**

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

**Decision:** The document was **not treated**.

**R4-2209890 Simulation results on UE FeMIMO demod mTRP**

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

**Decision:** The document was **not treated**.

**R4-2210152 Views on Performance Requirements for Enhanced Multi-TRP**

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

**Decision:** The document was **not treated**.

##### 9.18.4.3 CSI requirements

**R4-2208495 Discussion and simulation results for Rel-17 CSI reporting under FeMIMO WI**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

###### 9.18.4.3.1 CSI reporting for Multi-TRP transmission

**R4-2209698 Discussion on the CSI reporting for Multi-TRP transmission**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss the simulation assumptions for CSI reporting for Multi-TRP transmission

**Decision:** The document was **not treated**.

**R4-2209735 On CSI reporting for Multi-TRP transmission for FeMIMO**

*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 CSI reporting for Multi-TRP transmission for FeMIMO.

**Decision:** The document was **not treated**.

**R4-2209891 Discussion on UE FeMIMO CSI mTRP**

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

**Decision:** The document was **not treated**.

**R4-2210149 Views on m-TRP CSI Performance Requirements**

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

**Decision:** The document was **not treated**.

###### 9.18.4.3.2 Rel-17 eType II port selection codebook

**R4-2209699 Discussion on the Rel-17 eType II port selection codebook**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss whether to introduce requirement for Rel-17 eType II port selection codebook

**Decision:** The document was **not treated**.

**R4-2209736 On Rel-17 eType II port selection codebook for FeMIMO**

*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 Rel-17 eType II port selection codebook for FeMIMO.

**Decision:** The document was **not treated**.

**R4-2209892 Discussion on UE FeMIMO CSI FeTypeII PS codebook**

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

**Decision:** The document was **not treated**.

**R4-2210150 Views on Performance Requirements for Further Enhanced TypeII Port Selection Codebook**

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

**Decision:** The document was **not treated**.

### 9.19 Support of reduced capability NR devices

#### 9.19.5 UE demodulation and CSI requirements

##### 9.19.5.1 General

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

**Email discussion for [103-e][329] NR\_RedCap\_Demod, AI 9.19.5-Kazuyoshi Uesaka**

**R4-2210335 Email discussion summary for [103-e][329] NR\_RedCap\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**GTW discussion on May 10th**

**List of key open issues:**

* Issue 1-1-1: Spec structure of UE demodulation and CSI reporting requirements for RedCap
* Issue 1-2-1: UL/DL scheduling for FR1 FDD for 1Rx UE
* Issue 2-1-1: Define 256QAM demodulation requirements (for FR1 only) or not
* Issue 2-1-3: Additional PDSCH demodulation requirements
* Issue 3-4-1: Whether to define RI reporting requirements for RedCap 2Rx UEs
* Issue 2-1-3: Additional PDSCH demodulation requirements

**Issue 1-1-1: Spec structure of UE demodulation and CSI reporting requirements for RedCap**

Background (R4-2209058): RF main session agreed to use suffix ‘I’ to define UE RF requirements for RedCap in TS38.101-1/2

* Proposal (Ericsson)
  + Define RedCap demodulation and CSI reporting requirements in TS38.101-4 with the suffix ‘I’, as same as TS38.101-1/2. The proposed spec structured in provided in R4-2209057.
* Recommended WF
  + Discuss the proposal is acceptable or not from demodulation requirements point of view.
  + If agreeable, 2nd round discusses the CR work split.
* Discussion:

Option 1: New Suffix “I”

Option 2: No new suffix with existing structure.

* + QC: We prefer to keep in existing section without new suffix “I” to avoid confusing since we have 2Rx,1Rx requirements for Redcap UE.
  + Apple: We prefer option 2.
  + Nokia: We support option 1 to be aligned with RF specification for the consistency.
  + Huawei: We are fine with suffix “I”. With option 2, more deeper sub-clauses required.
  + Apple: Instead of “I”, continued with “D” ?
  + Ericsson: Our intention was to be aligned with core specification. We also realize NR-U, v2X didn’t align with 101-1/-2 for 101-4.
* Agreement:
* Further discuss below two options considering specification drafting effort, spec structure and test applicable rule drafting:
  + Option 1: New Suffix “I”
  + Option 2: No new suffix with existing structure.

**Issue 1-2-1: UL/DL scheduling for FR1 FDD for 1Rx UE**

Background: According to RAN1 feature list and RAN#95-e decision, supporting half-duplex FDD is per-band capability, i.e., UE is not mandated to support full-duplex FDD if UE support half-duplex FDD.

* Proposals
  + Option 1 (Ericsson, Nokia): Define the single test case set of UE demodulation and CSI reporting requirements for RedCap 1Rx UE in FDD, which is applicable for both half-duplex FDD UE and full-duplex FDD UE. The applied FRC is based on half-duplex FDD operation, that is, DDDSU.
    - If RedCap UE support only HD-FDD in a FDD band, this UE is tested with HD-FDD mode.
    - If RedCap UE support only FD-FDD in a FDD band, this UE is tested with FD-FDD mode.
    - If RedCap UE support both FD-FDD and HD-FDD in a FDD band, this UE is tested with FD-FDD mode.
  + Option 2 (~~Nokia,~~ Huawei): Consider Full-duplex FDD only for FDD tests for 1 Rx UE.
* Recommended WF
  + Collect inputs.
* Discussion:
  + Huawei: We think no need to define requirements for HD-FDD since HD-FDD will decrease TP and bring complexity for NW.
  + Nokia: After RAN-P decision, we think requirements shall cover HD-FDD case, the open question is can we define single set requirements for FD-FDD and HD-FDD with common FRC or separate requirements with different FRC.
  + Apple: We are fine with option 1. We assume single set requirements will be applicable for both HD-FDD and FD-FDD with changes on FRC.
  + QC: The difference between FD-FDD and HD-FDD is FRC, not sure how to test UE if UE only support HD-FDD.
  + CMCC: We generally fine with option 1. If UE supporting HD-FDD on one band and FD-FDD in another band, then how to apply test case.
  + Ericsson: We can have single set requirements for FD-FDD and HD-FDD with different FRC. We are ok to remove third bullet if it’s not a valid case. For CMCC question, it subject to UE declaration as design in RAN5.
  + QC: DDDSU also applicable for FD-FDD with same FRC.
  + Ericsson: For FD-FDD, we can reuse existing FDD pattern (all DL slots) . We will have separate FRC for FD-FDD and HD-FDD with same requirements.
* Agreement:

Introduce demodulation/CSI requirements covering both FD-FDD and HD-FDD.

* DDDSU applied for HD-FDD
* Existing pattern applied for FD-FDD
* Same demodulation requirement applied for FD-FDD and HD-FDD with different FRCs
* For CSI requirements: Further discuss the CSI feedback scheduling pattern applicable for both FD-FDD and HD-FDD

Test applicable rule:

* If RedCap UE support only HD-FDD in a FDD band, this UE is tested with HD-FDD mode otherwise UE is tested with FD-FDD mode

**Issue 2-1-1: Define 256QAM demodulation requirements (for FR1 only) or not**

Background: 256QAM is optional feature for RedCap UE (both 1Rx and 2Rx)

* Proposals
  + Option 1 (MediaTek, Huawei, Qualcomm): Specify 256QAM demodulation requirements for FR1 only
  + Option 2 (Apple, Nokia): Not to Specify 256QAM demodulation requirements
* Recommended WF
  + Collect inputs
* Discussion:
  + Ericsson: Option 3: Only introduce 256QAM requirement for 2Rx.
  + CMCC: We support option 1 to introduce requirements for both 1Rx and 2 Rx cases.
  + MTK: We think it’s important to verify high TP with 256QAM to achieve high SE.
  + Huawei: Share same view as MTK. We can choose lowest 256QM MCS i.e. MCS 20.
  + Apple: We have another issue 2-1-3. We are wondering the use case with 256QAM for Redcap.
  + QC: We are open to choose low MCS to have a reasonable SNR point to enable 256QAM test cases.
  + Nokia: We have similar view as Apple, 256QAM will increase complexity.
* Agreement:

Introduce 256QAM requirement for 2Rx

FFS whether introduce requirement for 1Rx

**Issue 2-1-3: Additional PDSCH demodulation requirements**

Background (WF: R4-2207206 agreed in RAN4#102-e):

Option 1: Focus on definition of minimum set of requirements, discussed in Topic #2, to verify the mandatory features. RAN4 discuss other requirements once it is stable, and the performance part TU is allowed.

Option 2: Not define the additional PDSCH demodulation requirements other than the candidates discussed in 2.1, in Rel-17 RedCap

* Proposals
  + Option 1 (Nokia): Focus on definition of minimum set of requirements, discussed in Topic #2, to verify the mandatory features. RAN4 to potentially discuss other requirements once mandatory requirements are stable and pending remaining performance part TUs.
  + Option 2 (Huawei): Not define any additional PDSCH demodulation requirements other than those agreed in last RAN4 meeting (moderator: RAN4#102-e) in Rel-17 for RedCap
* Recommended WF
  + Collect inputs considering the updated work plain in R4-2209056.
* Agreement: Option 2 agreed.

**Issue 3-4-1: Whether to define RI reporting requirements for RedCap 2Rx UEs**

* Proposals
  + Option 1 (Nokia, CMCC): Define RI reporting requirements
  + Option 2 (Apple, Ericsson, Huawei, Qualcomm, MTK): Not define RI reporting requirements
* Recommended WF
  + Moderator would like to ask whether option 2.
* Discussion:
  + Nokia: We think it’s a key feature which need to be verified.
  + CMCC: We also support to have RI test for 2Rx. We need to ensure the performance for RI reporting.
  + Ericsson: CSI reporting from UE is the recommended value, but still up to NW to decide the schedule value. We already have demod and SDR requirements covering Rank2 case.
  + Apple: We share same view as Ericsson.
  + Huawei: We have same view as Apple and Ericsson.
  + QC: We support option 2.
  + MTK: We support option 2.
  + Nokia: For legacy UE, we have RI requirements for 2Rx UE.
  + CMCC: RI reporting can’t be verified by SDR and demod requirements with fixed rank 2 during the test for throughput performance. We think this test case is essential and we didn’t see any critical issue to have dedicated test case for RI.
  + Huawei: For existing RI test case, the requirement (TP ratio gain with follow RI reporting /fixed RI) is limited.

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209055 Summary of simulation results for RedCap**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This spread sheet summarizes the simulation results for RedCap UE demodulation requirements.

**Decision:** The document was **not treated**.

**R4-2209056 Update of work plan for RedCap demodulation performance part**

*Type: Work Plan For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution updates the work plan of the RedCap demodulation performance part. This work plan also discusses the CR work split.

**Decision:** The document was **not treated**.

**R4-2209057 draft big CR: Introduction of UE demodulation and CSI reporting requirements for RedCap**

*Type: draftCR For: Endorsement  
 38.101-4 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This draft big CR provides the skeleton of CR for UE demodulation and CSI reporting requirements for RedCap.

**Decision:** The document was **not treated**.

**R4-2209058 Open issues on UE demodulation and CSI requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues for both UE demodulation requirements and CSI reporting requirements for RedCap.

**Decision:** The document was **not treated**.

**R4-2209705 On RedCap general UE demodulation and CSI reporting requirements**

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

**Abstract:**

Discussion on open issues for general UE demodulation requirements

**Decision:** The document was **not treated**.

##### 9.19.5.2 Demodulation requirements

###### 9.19.5.2.1 PDSCH/SDR requirements

**R4-2207810 On PDSCH Demod Requirements for Reduced Capability Devices in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209059 PDSCH demodulation requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our simulation results and discuss the open issues on PDSCH demodulation requirements fo RedCap UE

**Decision:** The document was **not treated**.

**R4-2209706 Discussion on PDSCH requirements**

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

**Abstract:**

Discussion on open issues for PDSCH demod requirements

**Decision:** The document was **not treated**.

**R4-2209707 Simulation results for Redcap PDSCH**

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

**Abstract:**

provides our simulation results for PDSCH for RedCap

**Decision:** The document was **not treated**.

**R4-2209797 Simulation results and discussion on PDSCH requirements for RedCap**

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

**Decision:** The document was **not treated**.

**R4-2209832 Discussion on open issues for RedCap PDSCH and SDR requirements**

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

**Decision:** The document was **not treated**.

**R4-2209833 Simulation results for RedCap PDSCH and SDR performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2210146 Views on RedCap PDSCH/SDR Requirements**

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

**Decision:** The document was **not treated**.

###### 9.19.5.2.2 PDCCH/PBCH requirements

**R4-2207811 On PDCCH PBCH Demod Requirements for Reduced Capability Devices in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209060 PDCCH/PBCH demodulation requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our simulation results and discusses the open issues on PDCCH/PBCH demodulation requirements fo RedCap UE

**Decision:** The document was **not treated**.

**R4-2209708 Discussion on PDCCH/PBCH requirements**

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

**Abstract:**

Discussion on open issues for PDCCH / PBCH demod requirements

**Decision:** The document was **not treated**.

**R4-2209709 Simulation results for Redcap PDCCH and PBCH**

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

**Abstract:**

provides our simulation results for PDCCH / PBCH for RedCap

**Decision:** The document was **not treated**.

**R4-2209798 Simulation results and discussion on PDCCH requirements for RedCap**

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

**Decision:** The document was **not treated**.

**R4-2209834 Discussion and simulation results for RedCap PDCCH and PBCH performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2210147 Views on RedCap PDCCH/PBCH requirements**

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

**Decision:** The document was **not treated**.

##### 9.19.5.3 CSI requirements

###### 9.19.5.3.1 CQI requirements

**R4-2207812 On CQI Reporting Requirements for Reduced Capability Devices in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209061 CQI reporting requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our simulation results and discusses the open issues on CQI reporting requirements fo RedCap UE

**Decision:** The document was **not treated**.

**R4-2209799 Simulation results and discussion on the CQI requirements for RedCap**

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

**Decision:** The document was **not treated**.

**R4-2209835 Discussion and simulation results for RedCap CQI reporting requirements**

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

**Decision:** The document was **not treated**.

###### 9.19.5.3.2 PMI/RI requirements

**R4-2207813 On PMI Reporting Requirements for Reduced Capability Devices in NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2209062 PMI/RI reporting requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides our simulation results and discusses the open issues on PMI/RI reporting requirements fo RedCap UE

**Decision:** The document was **not treated**.

**R4-2209710 Discussion on RI requirements**

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

**Abstract:**

Discussion on open issues for RI reporting requirements

**Decision:** The document was **not treated**.

**R4-2209800 Simulation results and discussion for the PMI requirements for RedCap**

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

**Decision:** The document was **not treated**.

**R4-2209836 Discussion and simulation results for RedCap PMI and RI**

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

**Decision:** The document was **not treated**.

### 9.22 Enhanced IIoT and URLLC support

#### 9.22.1 RRM core requirement maintenance

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

**Email discussion for [103-e][230] NR\_IIOT\_URLLC\_enh, AI 9.22.1,9.22.2-Lars Dalsgaard**

**R4-2210302 Email discussion summary for [103-e][230] NR\_IIOT\_URLLC\_enh**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

##### 9.22.1.1 Propagation delay compensation enhancements

**R4-2208820 Remaining issues for PDC enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208821 Updated simulation results for TRS based PDC**

*Type: discussion For: Information  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208822 CR to TS 38.133 Correction to measurements requirements for PDC**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2338 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2209235 On RRM requirements for PDC enhancements**

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

**Decision:** The document was **not treated**.

**R4-2209236 CR on requirements for UE Rx-Tx measurement for PDC**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2368 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209506 Discussion of RRM Requirements for Propagation Delay Compensation Enhancements**

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

**Decision:** The document was **not treated**.

**R4-2209615 CR on correction for RTT-based PDC measurement requirements in 38.133**

*Type: CR For: (not specified)  
 38.133 v17.5.0 CR-2385 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision:** The document was **not treated**.

##### 9.22.1.2 Reference point for Te requirements

**R4-2208055 draftCR to clarify timing reference point for UE UL timing test cases**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2208823 Discussion on performance requirements for PDC enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208824 Draft CR to TS 38.133 Introduction of accuracy requirements for PDC**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.22.1.3 Others

#### 9.22.2 RRM performance requirements

**R4-2208651 Simulation results for perfromance part of WI**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Simulation results related to UE Rx-Tx time difference using TRS for PDC.

**Decision:** The document was **not treated**.

**R4-2208652 Scope of RRM tests and RMC for TRS**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Specification sections and contents for UE Rx-Tx time difference using TRS for PDC.

**Decision:** The document was **not treated**.

**R4-2209237 Simulation results for TRS based PDC**

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

**Decision:** The document was **not treated**.

**R4-2209238 Discussion on accuracy and TCs for PDC**

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

**Decision:** The document was **not treated**.

**R4-2209519 Simulation Results for TRS measurement Accuracy**

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

**Decision:** The document was **not treated**.

**R4-2209641 draftCR on UE Rx-Tx time difference measurement accuracy requirements for RTT-based PDC**

*Type: draftCR For: (not specified)  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision:** The document was **not treated**.

**R4-2209642 draftCR on test cases for RTT-based PDC UE Rx-Tx time difference measurement requirements**

*Type: draftCR For: Discussion  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision:** The document was **not treated**.

**R4-2210226 On performance requirements for RTT-based propagation delay compensation**

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

**Decision:** The document was **not treated**.

#### 9.22.3 Demodulation performance and CSI requirements

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

**Email discussion for [103-e][330] NR\_IIOT\_URLLC\_enh\_Demod, AI 9.22.3-Mueller Axel**

**R4-2210336 Email discussion summary for [103-e][330] NR\_IIOT\_URLLC\_enh\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209523 Sub-slot based PUCCH repetition performance requirements**

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

**Decision:** The document was **not treated**.

**R4-2209850 Discussion on demodulation and CSI requirements for Rel-17 enhanced IIOT and URLLC support**

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

**Decision:** The document was **not treated**.

### 9.23 NR Sidelink Relay

#### 9.23.1 RRM core requirement maintenance

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

**Email discussion for [103-e][231] NR\_SL\_relay, AI 9.23-Roy Hu**

**R4-2210303 Email discussion summary for [103-e][231] NR\_SL\_relay**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208375 CR to maintain Selection Reselection of relay UE in TS 38.133**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2317 rev Cat: F (Rel-17)  
  
 Source: OPPO*

**Decision:** The document was **not treated**.

#### 9.23.2 RRM performance requirements

**R4-2207741 SL relay test scope**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2208376 draft CR on test case for Selection/Reselection of relay UE**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2209012 Discussion on RRM test cases for NR SL relay**

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

**Decision:** The document was **not treated**.

**R4-2209013 DraftCR on test cases of interruption requirements for NR sidelink relay**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

### 9.24 NR small data transmissions in INACTIVE state

#### 9.24.1 RRM core requirement maintenance

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

**Email discussion for [103-e][232] NR\_SmallData\_INACTIVE, AI 9.24-Aijun Cao**

**R4-2210304 Email discussion summary for [103-e][232] NR\_SmallData\_INACTIVE**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207776 On remaining issues for SDT requirement**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2208305 RSRP measurement reference for TA validation in NR small data transmissions**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2208307 CR on TA validation for Rel-17 NR SDT in INACTIVE sate**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2309 rev Cat: F (Rel-17)  
  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2208455 Further discussion on RRM requirements for CG-SDT**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209028 Remaining open issue for NR SDT**

*Type: discussion For: Agreement  
 Source: ZTE Wistron Telecom AB*

**Decision:** The document was **not treated**.

**R4-2209029 Draft reply LS to RAN2 on TA validation for CG-SDT**

*Type: discussion For: Agreement  
 Source: ZTE Wistron Telecom AB*

**Decision:** The document was **not treated**.

**R4-2209239 Discussion on remaining issues for SDT RRM**

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

**Decision:** The document was **not treated**.

**R4-2209240 CR on SDT RRM requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2369 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209398 TA validation window requirements for CG-SDT**

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

**Decision:** The document was **not treated**.

**R4-2209399 CR update SDT RRM core requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2371 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2209899 Discussions on RRM requirements for Small Data Transmissions**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we provide an overview of the RRM requirements for CG-SDT that RAN4 needs to introduce.

**Decision:** The document was **not treated**.

**R4-2209900 Changes to SDT requirements**

*Type: CR For: Agreement  
 38.133 v17.5.0 CR-2389 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR captures the RS-SDT requirements as well as applicability conditions of SDT requirements.raft CR to show our view on how to capture the TA validation requirements.

**Decision:** The document was **not treated**.

**R4-2210111 Further discussion on RRM requirements for CG-SDT**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2210115 CR on RRM requirements NR SDT in INACTIVE state for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v17.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2210157 Discussion on the remaining issues for CG-SDT**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

#### 9.24.2 RRM performance requirements

**R4-2208456 RRM performance requirements for CG-SDT**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2209030 RRM test cases for NR SDT**

*Type: discussion For: Agreement  
 Source: ZTE Wistron Telecom AB*

**Decision:** The document was **not treated**.

**R4-2209241 Discussion on TCs for SDT**

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

**Decision:** The document was **not treated**.

**R4-2209400 RRM performance requirements for SDT**

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

**Decision:** The document was **not treated**.

**R4-2209901 Discussions on RRM performance requirements for SDT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the performance requirements for SDT.

**Decision:** The document was **not treated**.

**R4-2210112 RRM performance requirements for CG-SDT**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

## 10 Rel-17 Work Items for LTE

### 10.8 Additional enhancements for NB-IoT and LTE-MTC

#### 10.8.4 RRM core requirements maintenance

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

**Email discussion for [103-e][233] NB\_IOTenh4\_LTE\_eMTC6\_RRM, AI 10.8.4,10.8.5-Zhongyi Shen**

**R4-2210305 Email discussion summary for [103-e][233] NB\_IOTenh4\_LTE\_eMTC6\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2208035 Open issues in core requirements for NB-IoT neighbor cell measurements in RRC\_CONNECTED**

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

**Decision:** The document was **not treated**.

**R4-2208952 Discussion on Maintenance for Rel-17 NB-IoT**

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

**Decision:** The document was **not treated**.

**R4-2208953 CR on maintenance for NB-IoT R17**

*Type: CR For: Agreement  
 36.133 v17.5.0 CR-7156 rev Cat: F (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209894 Discussions on remaining issues of RRM requirements for NB-IoT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contriution we discuss the open issues of Rel-17 NB-IoT.

**Decision:** The document was **not treated**.

#### 10.8.5 RRM performance requirements

**R4-2208954 Discussion on performance requirements for Rel-17 NB-IoT**

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

**Decision:** The document was **not treated**.

**R4-2208955 Draft CR on conditions for NB-IoT connected mode neighbour cell measurement R17**

*Type: draftCR For: Endorsement  
 36.133 v17.5.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209895 Discussions on performance requirements for NB-IoT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussions on performance requirements for NB-IoT.

**Decision:** The document was **not treated**.

#### 10.8.6 Demodulation requirements

##### 10.8.6.1 General

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

**Email discussion for [103-e][331] NB-IOT\_MTC\_Demod, AI 10.8.6-Tricia Li**

**R4-2210337 Email discussion summary for [103-e][331] NB-IOT\_MTC\_Demod**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2209841 Summary of simulation results for Rel-17 NB-IOT and eMTC performance requirements**

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

**Decision:** The document was **not treated**.

##### 10.8.6.2 Demodulation requirements for NB-IoT

###### 10.8.6.2.1 UE demodulation requirements

**R4-2208034 On UE performance requirements for 16-QAM NB-IoT**

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

**Decision:** The document was **not treated**.

**R4-2209073 UE demodulation requirements for Rel-17 NB-IoT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues on Rel-17 NB-IoT UE demodulation and CQI reporting requirements.

**Decision:** The document was **not treated**.

**R4-2209837 Discussion on NPDSCH performance requirements for Rel-17 NB-IOT**

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

**Decision:** The document was **not treated**.

**R4-2209838 Discussion on CQI reporting requirements for Rel-17 NB-IOT**

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

**Decision:** The document was **not treated**.

###### 10.8.6.2.2 BS demodulation requirements

**R4-2208081 Discussion and simulation results for Rel-17 NB-IoT**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2209074 BS demodulation requirements for Rel-17 NB-IoT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusees the open issues on Rel-17 NB-IoT BS demodulation requirements.

**Decision:** The document was **not treated**.

**R4-2209713 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:** The document was **not treated**.

**R4-2209839 Discussion on NPUSCH format 1 requirements for Rel-17 NB-IOT**

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

**Decision:** The document was **not treated**.

##### 10.8.6.3 Demodulation requirements for MTC

**R4-2209075 UE demodulation requirements for Rel-17 LTE-MTC**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues on Rel-17 eMTC UE demodulation requirements.

**Decision:** The document was **not treated**.

**R4-2209840 Discussion on PDSCH requirements for Rel-17 eMTC**

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

**Decision:** The document was **not treated**.

## 11 Rel-18 Study Items for NR

### 11.1 Study on enhanced test methods for FR2 in NR

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

**Email discussion for [103-e][335] FR2\_enhTestMethods, AI 11.1-Aida Vera Lopez**

**R4-2210341 Email discussion summary for [103-e][335] FR2\_enhTestMethods**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207691 Proposal to conclude the study on enhanced test methods for FR2 in NR**

*Type: discussion For: Decision  
 Source: Apple*

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

**R4-2207692 Draft CR to 38.884 on finalizing the study outcomes**

*Type: draftCR For: Endorsement  
 38.884 v18.0.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

#### 11.1.1 Maintenance on objectives 1~6

#### 11.1.2 OTA test methods for UE RF, RRM and demodulation for 52.6~71GHz

##### 11.1.2.1 General

**R4-2210194 General aspects of test methods for 52.6~71GHz**

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

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

**R4-2210212 General aspects of test methods for 52.6~71GHz**

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

**Decision:** The document was **not treated**.

###### 11.1.2.1.1 Test system assumption

###### 11.1.2.1.2 UE types

###### 11.1.2.1.3 MU assessment

**R4-2207927 On FR2-2 Measurement Grids**

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

**Decision:** The document was **not treated**.

###### 11.1.2.1.4 Others

##### 11.1.2.2 Test methodology for UE RF

##### 11.1.2.3 Test methodology for RRM

##### 11.1.2.4 Test methodology for UE demodulation and CSI

## 12 Rel-18 Work Items for LTE

## 13 Liaison and output to other groups

### 13.1 R17 related

#### 13.1.1 Coordination of R17 gap features (R2-2203879)

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

**Email discussion for [103-e][234] LS\_reply, AI 13.1.1, 13.2.1-Jerry Cui**

**R4-2210306 Email discussion summary for [103-e][234] LS\_reply**

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

**Abstract:**

**Discussion:**

**Decision: Return to**

**Conclusion after 1st round**

|  |  |  |  |
| --- | --- | --- | --- |
| **New Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**New tdocs**

**Existing tdocs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Tdoc number** | **Revised to** | **Title** | **Source** | **Status** | **Comments** |
|  |  |  |  |  |  |

--------------------------------------------------------------End--------------------------------------------------------------------------

**R4-2207761 On coordination of R17 gap features**

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

**Decision:** The document was **not treated**.

**R4-2208105 Discussion on the coordination of R17 gap features**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2208274 Discussion on coordination of R17 gap features**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2208303 Discussion on LS on coordination of R17 gap features**

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

**Decision:** The document was **not treated**.

**R4-2208377 Discussion on coordination of R17 gap features**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2209244 reply LS on coordination of R17 gap features**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209452 Reply LS on gap coordination**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the reply LS for gap coordination

**Decision:** The document was **not treated**.

### 13.2 R15, R16 related

#### 13.2.1 BWP operation without bandwidth restriction (R2-2204009)

**Refer to email discussion [103-e][234] LS\_reply**

**R4-2207760 On BWP operation without bandwidth restriction**

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

**Decision:** The document was **not treated**.

**R4-2208399 Reply LS On BWP operation without bandwidth restriction**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2208736 Reply LS on BWP operation without bandwidth restriction**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: ZTE Corporation*

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

**R4-2209245 reply LS on BWP operation without bandwidth restriction**

*Type: LS out For: Approval  
 to RAN2, RAN1  
 Source: Huawei, Hisilicon*

**Decision:** The document was **not treated**.

**R4-2209253 BWP operation without bandwidth restriction**

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

**Decision:** The document was **not treated**.

**R4-2209769 Discussion on incoming LS from other WGs**

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

**Decision:** The document was **not treated**.

**R4-2209916 Discussion of BWP operation without bandwidth restriction**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

Discussions and draft LS realted to RAN2 incoming LS related to BWP operation without bandwidth restriction.

**Decision:** The document was **not treated**.

**R4-2208828 Reply LS on BWP operation without bandwidth restriction**

*Type: discussion For: Discussion  
 Source: vivo*

**Session Chair Note: Move to this AI from AI 4.1.5**

**Decision:** The document was **not treated**.

## BACKUP

**R4-22AAAAA Email discussion summary for**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**