**3GPP TSG-RAN WG4 Meeting #100-e R4-210xxxx**

**Online Meeting, 16 August – 27 August, 2021**

**Third Generation Partnership Project (3GPP™)**

**DRAFT Meeting Report  
for  
TSG RAN WG4  
meeting: 99-e**

**Electronic Meeting, Online, 19/05/2021 to 27/05/2021**

Report generated on Friday, 2021-05-14 15:45 UTC

## 

## 1 Opening of the E-meeting

The Chairman Xizeng Dai (Huawei) opened the meeting on RAN4 reflector on 19/05/2021.

Intellectual Property Rights Declaration Policy

The attention of the delegates to the meeting of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The delegates were asked to take note that they were thereby invited:

- to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.

- to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms.

Statement regarding competition law

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

Meeting arrangements

The meeting was conducted on three parallel sessions; Main session, RRM session and BS RF Test Demod session. The Main session was chaired by RAN4 Chair Xizeng Dai (Huawei), RRM session was chaired by RAN4 Vice Chair Andrey Chervyakov (Intel) and BS RF Test Demod session was chaired by RAN4 ViceChair Haijie Qiu (Samsung). The sessions were further broken down into separate email threads to address specific technical topics lead by assigned discussion moderators. Webinar sessions were used to summarize progress, resolve controversial issues and decide way forward.

## 2 Approval of the agenda

**R4-2107600 RAN4#98-bis-e Meeting Report**

*Type: report For: Approval  
 Source: ETSI MCC*

**Decision:** The document was **Approved**.

**R4-2107601 Agenda for RAN4#99-e**

*Type: agenda For: Approval  
 Source: RAN4 Chair (Huawei)*

**Decision:** The document was **Approved**.

**R4-2107602 RAN4#99-e E-Meeting Arrangements and Guidelines**

*Type: other For: Approval  
 Source: RAN4 Chair (Huawei)*

**Decision:** The document was **Approved**.

**R4-2107603 RAN4 Meeting Efficiency Improvements**

*Type: other For: Approval  
 Source: RAN4 Chair (Huawei)*

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

## 3 Letters / reports from other groups / meetings

R4-2107604 Reply LS on uplink timing alignment for small data transmissions RAN1

R4-2107605 Further Reply LS on power control for NR-DC RAN1

R4-2107606 Reply LS on timing of neighbor cell RSS-based measurements RAN1

R4-2107608 LS to RAN4 on maximum UE conducted power and maximum UE EIRP for operation in the 52.6 – 71 GHz band RAN1

R4-2107609 Reply LS on temporary RS for efficient SCell activation in NR CA RAN1

R4-2107610 LS on UE/TRP Tx/Rx Timing Errors RAN1

R4-2107611 Reply LS on PUCCH and PUSCH repetition RAN1

R4-2107612 LS on updated Rel-16 RAN1 UE features lists for NR after RAN1#104bis-e RAN1

R4-2107613 Reply LS on Rel-17 uplink Tx switching RAN1

R4-2107614 LS on Timing Assumption for Inter-Cell DL Measurement RAN1

R4-2107615 Reply LS on TCI state indication at Direct SCell activation RAN2

R4-2107616 Reply LS to RAN4 on the capability of transparent TxD RAN2

R4-2107617 LS on BCS for contiguous and non-contiguous intra-band (NG)EN-DC RAN2

R4-2107618 Reply LS on timing of neighbor cell RSS-based measurements RAN2

R4-2107619 Reply LS related to RSS based RSRQ for LTE-MTC RAN2

R4-2107620 LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities RAN2

R4-2107621 Reply LS on single-uplink operation in more than one band pair of a band combination RAN2

R4-2107622 Reply LS to RAN4 on handover with PSCell RAN2

R4-2107623 LS on fallback applicability for UE FeatureSetDownLinkPerCC capability fields RAN2

R4-2107624 Reply LS on Introduction of DL 1024QAM for NR RAN2

**R4-2107604 Reply LS on uplink timing alignment for small data transmissions (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2102286, to RAN2, cc RAN4***Decision:** The document was **Noted**.

**R4-2107605 Further Reply LS on power control for NR-DC (RAN1) (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104018, to RAN4, cc RAN2***Decision:** The document was **Noted**.

**R4-2107606 Reply LS on timing of neighbor cell RSS-based measurements (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104033, to -, cc -***Decision:** The document was **Noted**.

**R4-2107608 LS to RAN4 on maximum UE conducted power and maximum UE EIRP for operation in the 52.6 – 71 GHz band** **(RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104061, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107609 Reply LS on temporary RS for efficient SCell activation in NR CA (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104110, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107610 LS on UE/TRP Tx/Rx Timing Errors (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104111, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107611 Reply LS on PUCCH and PUSCH repetition (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104119, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107612 LS on updated Rel-16 RAN1 UE features lists for NR after RAN1#104bis-e (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104121, to RAN4, RAN2, cc -***Decision:** The document was **Noted**.

**R4-2107613 Reply LS on Rel-17 uplink Tx switching** **(RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104137, to RAN4, cc RAN2***Decision:** The document was **Noted**.

**R4-2107614 LS on Timing Assumption for Inter-Cell DL Measurement (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2104142, to RAN4, cc RAN2***Decision:** The document was **Noted**.

**R4-2107615 Reply LS on TCI state indication at Direct SCell activation (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104326, to RAN4, RAN1, cc -***Decision:** The document was **Noted**.

**R4-2107616 Reply LS to RAN4 on the capability of transparent TxD (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: -, to RAN4, cc RAN1, RAN5***Decision:** The document was **Noted**.

**R4-2107617 LS on BCS for contiguous and non-contiguous intra-band (NG)EN-DC (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104357, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107618 Reply LS on timing of neighbor cell RSS-based measurements (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104391, to RAN4, RAN1, cc -***Decision:** The document was **Noted**.

**R4-2107619 Reply LS related to RSS based RSRQ for LTE-MTC (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104392, to RAN4, RAN1, cc -***Decision:** The document was **Noted**.

**R4-2107620 LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104550, to RAN4, RAN1, cc -***Decision:** The document was **Noted**.

**R4-2107621 Reply LS on single-uplink operation in more than one band pair of a band combination (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104557, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107622 Reply LS to RAN4 on handover with PSCell (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104580, to RAN4, cc -***Decision:** The document was **Noted**.

**R4-2107623 LS on fallback applicability for UE FeatureSetDownLinkPerCC capability fields (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104603, to RAN1, cc RAN4***Decision:** The document was **Noted**.

**R4-2107624 Reply LS on Introduction of DL 1024QAM for NR** **(RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2104645, to RAN4, RAN1, cc -***Decision:** The document was **Noted**.

**R4-2108785 3GPP’s activities related to WRC-19 Resolutions (ITU-R WP7C)**

*Type: LS in For: Information  
 Original outgoing LS: -, to RAN4, RAN, cc -***Decision:** The document was **Noted**.

## 4 Rel-15 and previous release maintenance

### 4.1 Rel-15 New radio access technology

#### 4.1.1 System Parameters Maintenance

**Email discussion summary of [99-e][101] NR\_NewRAT\_SysParameters, AI 4.1.1 – Aijun Cao**

**R4-2107628 Email discussion summary for [99-e][101]** **NR\_NewRAT\_SysParameters**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107911**.

**R4-2107911 Email discussion summary for [99-e][101]** **NR\_NewRAT\_SysParameters**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Source** | **Status** | **Comments** |
| R4-2109951 | Ericsson | Revised to R4-2107747 |  |
| R4-2107747 (Revision of R4-2109951) | Ericsson | Not pursued |  |
| R4-2109952 | Ericsson | Withdrawn |  |
| R4-2108014  (Revision of R4-2109954) | Ericsson | Not pursued |  |
| R4-2109953 | Ericsson | Withdrawn |  |
| R4-2111373 | Huawei | Not pursued |  |
| R4-2111374 | Huawei | Withdrawn |  |
| R4-2111375 | Huawei | Withdrawn |  |
| R4-2111376 | Huawei | Not pursued |  |
| R4-2111377 | Huawei | Withdrawn |  |
| R4-2111378 | Huawei | Withdrawn |  |

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**CA carrier spacing**

**CR 38.101-1**

**R4-2109951 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0794 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision:** The document was **revised to R4-2107747**.

**R4-2107747 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0794 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Not pursued**.

**R4-2109952 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0795 rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Withdrawn**

**R4-2109953 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0796 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Withdrawn.**

**R4-2111373 CR for 38.101-1 channel space for CA\_Rel15**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0858 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2111374 CR for 38.101-1 channel space for CA\_Rel16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0859 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111375 CR for 38.101-1 channel space for CA\_Rel17**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0860 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**LS**

**R4-2111372 discussion on Reply LS on CA nominal channel**

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

**Decision: Noted**

**38.101-2**

**R4-2111376 CR for 38.101-2 channel space for CA\_Rel15**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0400 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2111377 CR for 38.101-2 channel space for CA\_Rel16**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0401 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111378 CR for 38.101-2 channel space for CA\_Rel17**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0402 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**38.104**

**R4-2109954 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.104 v15.13.0 CR-0315 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision:** The document was **revised to R4-2108014**.

**R4-2108014 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.104 v15.13.0 CR-0315 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Not pursued.**

**R4-2109955 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0316 rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Withdrawn.**

**R4-2109956 Correction to nominal CA carrier spacing (no common SCS)**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0317 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the nominal carrier spacing when there is no common mu (SCS) value

**Decision: Withdrawn.**

#### 4.1.2 UE RF requirements maintenance

**Email discussion summary of [99-e][102] NR\_NewRAT\_SysParameters, AI 4.1.2 –Hisashi Onozawa**

**R4-2107629 Email discussion summary for [99-e][102]** **NR\_NewRAT\_UE\_RF\_R15**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107912**.

**R4-2107912 Email discussion summary for [99-e][102]** **NR\_NewRAT\_UE\_RF\_R15**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **New Tdoc number** | **Status** |
| WF on Additional emission requirement issues for CA/DC | Apple | R4-2107748 | Withdrawn (2nd round) |
| WF on UL MIMO EVM | Qualcomm | R4-2107749 | Noted (2nd round) |
| WF on FR2 RF requirement applicability under ETC | vivo | R4-2107750 | Noted |
| WF on Intra-band EN-DC support | Nokia | R4-2107751 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2108926](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108926.zip) | Reply LS on ambiguity in deciding TL,C | Nokia, Nokia Shanghai Bell | Noted (2nd round) |
| [R4-2108927](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108927.zip) | CR on ambiguity in deciding TL,C R15 CATF | Nokia, Nokia Shanghai Bell | Not pursued (2nd round) |
| R4-2108928 | CR on ambiguity in deciding TL,C R16 CATA | Nokia, Nokia Shanghai Bell | Withdrawn (2nd round) |
| R4-2108929 | CR on ambiguity in deciding TL,C R17 CATA | Nokia, Nokia Shanghai Bell | Withdrawn (2nd round) |
| [R4-2110389](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110389.zip) | Discussion and draft Reply LS on ambiguity in deciding TL,C | Huawei, HiSilicon | Noted (2nd round) |
| [R4-2110421](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110421.zip) | CR for 38.101-1 clarification on the lower limit of Pumax(Rel-15) | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2110422 | CR for 38.101-1 clarification on the lower limit of Pumax(Rel-16) | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2110423 | CR for 38.101-1 clarification on the lower limit of Pumax(Rel-17) | Huawei, HiSilicon | Withdrawn (2nd round) |
| [R4-2110436](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110436.zip) | Draft reply LS on ambiguity in deciding TL,C | ZTE Corporation | Noted (2nd round) |
| [R4-2109140](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109140.zip) | Clarification on additional emission requirements to 2 band UL CA/DC (R15) | SoftBank Corp. | Not pursued (2nd round) |
| [R4-2109143](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109143.zip) | Clarification on additional emission requirements to 2 band UL CA/DC (R16) | SoftBank Corp. | Not pursued (2nd round) |
| R4-2109145 | Clarification on additional emission requirements to 2 band UL CA/DC (R17) | SoftBank Corp. | Withdrawn (2nd round) |
| [R4-2109153](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109153.zip) | Follow-up on additional UE co-ex requirements | SoftBank Corp. | Noted |
| [R4-2109437](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109437.zip) | Additional emission requirement issues for CA/DC | Apple | noted |
| [R4-2110288](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110288.zip) | Discussion on applicability of additional emission requirement to CA/DC | Huawei, HiSilicon | noted |
| [R4-2110984](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110984.zip) | NS applicability for inter-band CA/DC | Qualcomm Incorporated | Noted |
| [R4-2109146](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109146.zip) | Clarification on additional emission requirements to 2 band UL CA/DC (R15) | SoftBank Corp. | Not pursued (2nd round) |
| R4-2109148 | Clarification on additional emission requirements to 2 band UL CA/DC (R16) | SoftBank Corp. | Withdrawn (2nd round) |
| [R4-2109149](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109149.zip) | Clarification on additional emission requirements to 2 band UL CA/DC (R17) | SoftBank Corp. | Not pursued (2nd round) |
| [R4-2108818](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108818.zip) | On FR1 2L UL EVM Requirement | Qualcomm Incorporated, Lenovo, Motorola Mobility | Noted |
| [R4-2108815](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108815.zip) | CR to 38.101-1: UL MIMO requirements update | Qualcomm Incorporated, Lenovo, Motorola Mobility | Not pursued (2nd round) |
| R4-2108816 | CR to 38.101-1: UL MIMO requirements update | Qualcomm Incorporated, Lenovo, Motorola Mobility | Withdrawn (2nd round) |
| R4-2108817 | CR to 38.101-1: UL MIMO requirements update | Qualcomm Incorporated, Lenovo, Motorola Mobility | Withdrawn (2nd round) |
| [R4-2109914](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109914.zip) | Discussion on FR1 UL MIMO transmit signal quality measurements | Rohde & Schwarz | Noted |
| [R4-2109379](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109379.zip) | Non-default RX-TX Frequency Separation Values and split band duplexers | Qualcomm Incorporated | Noted |
| [R4-2108790](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108790.zip) | Split band duplexer exceptions for non-default TX-RX separations | Qualcomm Incorporated | Not pursued (2nd round) |
| R4-2108791 | Split band duplexer exceptions for non-default TX-RX separations | Qualcomm Incorporated | Withdrawn (2nd round) |
| R4-2108792 | Split band duplexer exceptions for non-default TX-RX separations | Qualcomm Incorporated | Withdrawn (2nd round) |
| [R4-2108869](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108869.zip) | Update of FR1 UL RMC tables | Rohde & Schwarz | Agreed |
| R4-2108870 | Update of FR1 UL RMC tables | Rohde & Schwarz | Agreed |
| R4-2108871 | Update of FR1 UL RMC tables | Rohde & Schwarz | Agreed |
| [R4-2108977](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108977.zip) | Simplification of n70 | Dish Network | Agreed |
| [R4-2109166](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109166.zip) | CR to TS38.101-1[R15]: Addition of UE co-existence requirements for n40 | NTT DOCOMO, INC. | Agreed (2nd round). |
| R4-2109167 | CR to TS38.101-1[R16]: Addition of UE co-existence requirements for n40 | NTT DOCOMO, INC. | Agreed (2nd round). |
| R4-2109168 | CR to TS38.101-1[R17]: Addition of UE co-existence requirements for n40 | NTT DOCOMO, INC. | Agreed (2nd round). |
| [R4-2109453](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109453.zip) | Cleanup for UE co-existence 38.101-1 Rel-15 | Apple | revised to R4-2107752 |
| R4-2107752 | Cleanup for UE co-existence 38.101-1 Rel-15 | Apple | Agreed (2nd round) |
| [R4-2111367](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111367.zip) | CR on MOP for TS 38.101-1 | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2107754  (Rev of R4-2111367) | CR on MOP for TS 38.101-1 | Huawei, HiSilicon | Withdrawn |
| R4-2111368 | CR on MOP for TS 38.101-1 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111369 | CR on MOP for TS 38.101-1 | Huawei, HiSilicon | Withdrawn (2nd round) |
| [R4-2110424](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110424.zip) | CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-15) | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2110425 | CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-16) | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2110426 | CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-17) | Huawei, HiSilicon | Withdrawn (2nd round) |
| [R4-2110448](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110448.zip) | CR to TS 38.307 on the definition of the duplex-mode for the band configurations | ZTE Corporation | Revised to R4-2107995 |
| R4-2107995  (Rev of [R4-2110448](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110448.zip)) | CR to TS 38.307 on the definition of the duplex-mode for the band configurations | ZTE Corporation | Not pursued (2nd round) |
| R4-2110449 | CR to TS 38.307 on the definition of the duplex-mode for the band configurations | ZTE Corporation | Withdrawn |
| R4-2110450 | CR to TS 38.307 on the definition of the duplex-mode for the band configurations | ZTE Corporation | Withdrawn |
| [R4-2110808](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110808.zip) | R15 WRC-19 remaining issues | OPPO | Noted |
| [R4-2111509](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111509.zip) | EESS protection requirements after 2024/2027 | NTT DOCOMO INC. | Noted |
| [R4-2109671](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109671.zip) | Discussion and draft LS on applicability of RF requirements on extreme tempreture condition | vivo | Noted |
| [R4-2111508](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111508.zip) | FR2 Extreme temperature conditions applicability | Keysight Technologies UK Ltd | Noted |
| [R4-2111507](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111507.zip) | FR2 Extreme Temperature Conditions revision | Keysight Technologies UK Ltd | Not pursued (2nd round) |
| [R4-2108787](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108787.zip) | P\_cmax fix for the CA applicability | Qualcomm Incorporated | revised to R4-2107753 |
| R4-2107753 | P\_cmax fix for the CA applicability | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2108788 | P\_cmax fix for the CA applicability | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2108789 | P\_cmax fix for the CA applicability | Qualcomm Incorporated | Agreed (2nd round) |
| [R4-2108819](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108819.zip) | Discussion on FR2 UE Min. Output Power Requirement | Qualcomm Incorporated | Noted |
| [R4-2108820](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108820.zip) | CR to 38.101-2: P\_min requirements update | Qualcomm Incorporated | Not pursued (2nd round) |
| R4-2108821 | CR to 38.101-2: P\_min requirements update | Qualcomm Incorporated | Withdrawn (2nd round) |
| R4-2108822 | CR to 38.101-2: P\_min requirements update | Qualcomm Incorporated | Withdrawn (2nd round) |
| [R4-2108872](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108872.zip) | Update of FR2 UL RMC tables | Rohde & Schwarz | Agreed |
| R4-2108873 | Update of FR2 UL RMC tables | Rohde & Schwarz | Agreed |
| R4-2108874 | Update of FR2 UL RMC tables | Rohde & Schwarz | Agreed |
| [R4-2108875](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108875.zip) | Update of FR2 UL MIMO transmit signal quality requirements | Rohde & Schwarz | Not pursued (2nd round) |
| R4-2108876 | Update of FR2 UL MIMO transmit signal quality requirements | Rohde & Schwarz | Withdrawn (2nd round) |
| R4-2108877 | Update of FR2 UL MIMO transmit signal quality requirements | Rohde & Schwarz | Withdrawn (2nd round) |
| [R4-2110151](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110151.zip) | Beam Correspondence Side Conditions for SSB and CSI-RS | Apple | Noted |
| [R4-2110176](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110176.zip) | CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-15) | Apple | Not pursued (2nd round) |
| R4-2110178 | CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-16) | Apple | Withdrawn (2nd round) |
| R4-2110150 | CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-17) | Apple | Withdrawn (2nd round) |
| [R4-2111358](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111358.zip) | CR on FR2 emission requirements\_r15 | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2111359 | CR on FR2 emission requirements\_r16 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111360 | CR on FR2 emission requirements\_17 | Huawei, HiSilicon | Withdrawn (2nd round) |
| [R4-2111364](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111364.zip) | CR on MBR requirement for TS 38.101-2 | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2107754  (Rev of R4-2111364) | CR on MBR requirement for TS 38.101-2 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111365 | CR on MBR requirement for TS 38.101-2 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111366 | CR on MBR requirement for TS 38.101-2 | Huawei, HiSilicon | Withdrawn (2nd round) |
| [R4-2111415](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111415.zip) | CR to 38.101-2: CABW definition addition | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2111416 | CR to 38.101-2: CABW definition addition | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2111417 | CR to 38.101-2: CABW definition addition | Qualcomm Incorporated | Agreed (2nd round) |
| [R4-2110032](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110032.zip) | Clarification on intraBandENDC-Support and interBandContiguousMRDC | NTT DOCOMO INC. | Noted |
| [R4-2108803](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108803.zip) | CR for clarification on interBandContiguousMRDC in TS 38.101-3 | NTT DOCOMO INC. | revised to R4-2107755 |
| R4-2107755 | CR for clarification on interBandContiguousMRDC in TS 38.101-3 | NTT DOCOMO INC. | Agreed (2nd round) |
| R4-2109982 | CR for clarification on interBandContiguousMRDC in TS 38.101-3 | NTT DOCOMO INC. | Agreed |
| R4-2110031 | CR for clarification on interBandContiguousMRDC in TS 38.101-3 | NTT DOCOMO INC. | Agreed |
| [R4-2109781](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109781.zip) | Clarification of intra-bandENDC-Support | Nokia, Nokia Shanghai Bell | noted |
| [R4-2109782](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109782.zip) | CR to clarify intra-bandENDC-Support | Nokia, Nokia Shanghai Bell | Not pursued (2nd round) |
| R4-2109783 | CR to clarify intra-bandENDC-Support | Nokia, Nokia Shanghai Bell | Withdrawn (2nd round) |
| R4-2109784 | CR to clarify intra-bandENDC-Support | Nokia, Nokia Shanghai Bell | Withdrawn (2nd round) |
| [R4-2110154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110154.zip) | Clarifications on intra-band EN-DC combinations | Apple | noted |
| [R4-2110155](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110155.zip) | CR for TS 38.101-3: Corrections for intra-band EN-DC configurations | Apple | Not pursued (2nd round) |
| [R4-2110156](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110156.zip) | CR for TS 38.101-3: Corrections for intra-band EN-DC configurations | Apple | Not pursued (2nd round) |
| R4-2110157 | CR for TS 38.101-3: Corrections for intra-band EN-DC configurations | Apple | Withdrawn (2nd round) |
| [R4-2110807](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110807.zip) | R15 intra band EN-DC support | OPPO | noted |
| [R4-2110982](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110982.zip) | Intra-band EN-DC contiguous and non-contiguous capability | Qualcomm Incorporated | noted |
| [R4-2111111](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111111.zip) | Discussion on intra-band EN-DC combination | Google Inc. | noted |
| [R4-2111353](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111353.zip) | on intrabandENDC-support IE | Huawei, HiSilicon | noted |
| [R4-2108878](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108878.zip) | Corrections to EN-DC spurious emission tables | Rohde & Schwarz | revised to R4-2107756 |
| R4-2107756 | Corrections to EN-DC spurious emission tables | Rohde & Schwarz | Agreed in 2nd round |
| R4-2108879 | Corrections to EN-DC spurious emission tables | Rohde & Schwarz | Agreed |
| R4-2108880 | Corrections to EN-DC spurious emission tables | Rohde & Schwarz | Agreed |
| [R4-2109155](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109155.zip) | On the definition of CIM5 | SoftBank Corp. | noted |
| [R4-2109169](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109169.zip) | CR to TS38.101-3[R15]: Addition of UE co-existence requirements for band 40 and n40 | NTT DOCOMO, INC. | agreed |
| R4-2109170 | CR to TS38.101-3[R16]: Addition of UE co-existence requirements for band 40 and n40 | NTT DOCOMO, INC. | agreed |
| R4-2109171 | CR to TS38.101-3[R17]: Addition of UE co-existence requirements for band 40 and n40 | NTT DOCOMO, INC. | agreed |
| [R4-2109455](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109455.zip) | Cleanup for UE co-existence 38.101-3 Rel-15 | Apple | revised to R4-2107757 |
| R4-2107757 | Cleanup for UE co-existence 38.101-3 Rel-15 | Apple | Agreed in 2nd round |
| [R4-2110445](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110445.zip) | CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA | ZTE Corporation | agreed |
| R4-2110446 | CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA | ZTE Corporation | agreed |
| R4-2110447 | CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA | ZTE Corporation | agreed |
| [R4-2109968](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109968.zip) | Correction to band combinations for intra-band EN-DC | Ericsson | Not pursued (2nd round) |
| R4-2109969 | Correction to band combinations for intra-band EN-DC | Ericsson | Withdrawn (2nd round) |

**WF/LS/CRs for approval**

**R4-2107748 WF on Additional emission requirement issues for CA/DC**

*Type: other For: Approval  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2107749 WF on UL MIMO EVM**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Noted.**

**R4-2107750 WF on FR2 RF requirement applicability under ETC**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2107751 WF on Intra-band EN-DC support**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

##### 4.1.2.1 [FR1] Maintenance for 38.101-1

**Topic #1 RAN5 LS reply: Ambiguity in deciding T\_L,C**

**R4-2108926 Reply LS on ambiguity in deciding TL,C**

*Type: LS out For: Approval  
 to RAN5  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted**.

**R4-2110436 Draft reply LS on ambiguity in deciding TL,C**

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

**Decision: Noted**.

**R4-2110389 Discussion and draft Reply LS on ambiguity in deciding TL,C**

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

**Decision: Noted**.

**Related CRs**

**R4-2108927 CR on ambiguity in deciding TL,C R15 CATF**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0741 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued**.

**R4-2108928 CR on ambiguity in deciding TL,C R16 CATA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0742 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Withdrawn.**

**R4-2108929 CR on ambiguity in deciding TL,C R17 CATA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0743 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Withdrawn.**

**R4-2110421 CR for 38.101-1 clarification on the lower limit of Pumax(Rel-15)**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0817 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2110422 CR for 38.101-1 clarification on the lower limit of Pumax(Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0818 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2110423 CR for 38.101-1 clarification on the lower limit of Pumax(Rel-17)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0819 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**Topic #2: CA/DC NS**

**For 38.101-1**

**R4-2109437 Additional emission requirement issues for CA/DC**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**R4-2110288 Discussion on applicability of additional emission requirement to CA/DC**

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

**Decision: Noted**.

**R4-2110984 NS applicability for inter-band CA/DC**

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

**Decision: Noted**.

**R4-2109153 Follow-up on additional UE co-ex requirements**

*Type: other For: Approval  
 Source: SoftBank Corp.*

**Abstract:**

This paper is a follow-up of the WF agreed in Jan. meeting on 2 band UL CA/DC, i.e. (1) to clarify additional UE co-ex requirements and (2) to address how current UE co-ex assumptions can be handled.

**Decision: Noted**.

**R4-2109140 Clarification on additional emission requirements to 2 band UL CA/DC (R15)**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0761 rev Cat: F (Rel-15)  
  
 Source: SoftBank Corp.*

**Abstract:**

Applicability of additional emission requirements for 2 band CA/DC is clarified.

**Decision: Not pursued**.

**R4-2109143 Clarification on additional emission requirements to 2 band UL CA/DC (R16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0762 rev Cat: F (Rel-16)  
  
 Source: SoftBank Corp.*

**Abstract:**

Basically the same content as R15 but In R16 NR-DC section was added.

**Decision: Not pursued**.

**R4-2109145 Clarification on additional emission requirements to 2 band UL CA/DC (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0763 rev Cat: A (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

Mirror CR of R16

**Decision: Not pursued**.

**For 38.101-3 (moved from AI 4.1.2.3 to AI 4.1.2.1)**

**R4-2109146 Clarification on additional emission requirements to 2 band UL CA/DC (R15)**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0527 rev Cat: F (Rel-15)  
  
 Source: SoftBank Corp.*

**Abstract:**

Applicability of additional emission requirements for 2 band CA/DC is clarified. Discussion has been done in R15 NR Maint. Session for 101-1.

**Decision: Not pursued.**

**R4-2109148 Clarification on additional emission requirements to 2 band UL CA/DC (R16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0528 rev Cat: A (Rel-16)  
  
 Source: SoftBank Corp.*

**Abstract:**

Mirror of R15 CR

**Decision: Withdrawn.**

**R4-2109149 Clarification on additional emission requirements to 2 band UL CA/DC (R17)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0529 rev Cat: F (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

Basically the same content as R15/R16 but In R17, NE-DC section was added.

**Decision: Not pursued.**

**Topic #3 Maintenance**

**Topic #3-1 UL MIMO EVM**

**R4-2108818 On FR1 2L UL EVM Requirement**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated, Lenovo, Motorola Mobility*

**Abstract:**

2L EVM calculation detail, impact to other tests in transmit modulation quality section

**Decision: Noted**.

**R4-2109914 Discussion on FR1 UL MIMO transmit signal quality measurements**

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

**Decision: Noted**.

**R4-2108815 CR to 38.101-1: UL MIMO requirements update**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0729 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated, Lenovo, Motorola Mobility*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Not pursued.**

**R4-2108816 CR to 38.101-1: UL MIMO requirements update**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0730 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated, Lenovo, Motorola Mobility*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Withdrawn**.

**R4-2108817 CR to 38.101-1: UL MIMO requirements update**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0731 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated, Lenovo, Motorola Mobility*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Withdrawn**.

**TX-RX separations**

**R4-2109379 Non-default RX-TX Frequency Separation Values and split band duplexers**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Proposes to add a note to table 5.4.4-1: For bands n28 and n74 that UE may support only the default TX-RX frequency separation value

**Decision: Noted**.

**R4-2108790 Split band duplexer exceptions for non-default TX-RX separations**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0724 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Not pursued.**

**R4-2108791 Split band duplexer exceptions for non-default TX-RX separations**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0725 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn**.

**R4-2108792 Split band duplexer exceptions for non-default TX-RX separations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0726 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn**.

**Merge RMC tables for 15, 30, 60KHz SCS**

**R4-2108869 Update of FR1 UL RMC tables**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0734 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108870 Update of FR1 UL RMC tables**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0735 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108871 Update of FR1 UL RMC tables**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0736 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**Modifying asymmetric UL/DL configurations for n70**

**R4-2108977 Simplification of n70**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0751 rev Cat: F (Rel-17)  
  
 Source: Dish Network*

**Abstract:**

CR R4-2101992 was approved in February, but was not fully implemented in R17 specification. Similar R15 and R16 changes were implemented correctly.

**Decision: Agreed**.

**Co-exstence requirement for B12, n28, n83**

**R4-2109453 Cleanup for UE co-existence 38.101-1 Rel-15**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0777 rev Cat: F (Rel-15)  
  
 Source: Apple*

Chair: It seems that Cat A CRs are missing

**Decision:** The document was **revised to R4-2107752**.

**R4-2107752 Cleanup for UE co-existence 38.101-1 Rel-15**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0777 rev Cat: F (Rel-15)  
  
 Source: Apple*

Chair: It seems that Cat A CRs are missing

**Decision: Agreed.**

**Co-existence requirement related to n40/B40 in Japan**

**R4-2109166 CR to TS38.101-1[R15]: Addition of UE co-existence requirements for n40**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0766 rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

R15 CAT-F CR to add co-existence requirements for n40.

**Decision: Agreed.**

**R4-2109167 CR to TS38.101-1[R16]: Addition of UE co-existence requirements for n40**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0764 rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R16

**Decision: Agreed.**

**R4-2109168 CR to TS38.101-1[R17]: Addition of UE co-existence requirements for n40**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0765 rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R17

**Decision: Agreed.**

**R4-2109169 CR to TS38.101-3[R15]: Addition of UE co-existence requirements for band 40 and n40**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0530 rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

R15 CAT-F CR to add co-existence requirements for B40/n40.

**Decision: Agreed**.

**R4-2109170 CR to TS38.101-3[R16]: Addition of UE co-existence requirements for band 40 and n40**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0532 rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R16

**Decision: Agreed**.

**R4-2109171 CR to TS38.101-3[R17]: Addition of UE co-existence requirements for band 40 and n40**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0531 rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R17

**Decision: Agreed**.

**Power tolerance under close loop power control**

**R4-2111367 CR on MOP for TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0855 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2111368 CR on MOP for TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0856 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111369 CR on MOP for TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0857 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**CRs for 38.307**

**R4-2110424 CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-15)**

*Type: CR For: Agreement  
 38.307 v15.8.0 CR-0063 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued**.

**R4-2110425 CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-16)**

*Type: CR For: Agreement  
 38.307 v16.6.0 CR-0064 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2110426 CR for 38.307 to delete the redundant information "duplex mode" for band combinations(Rel-17)**

*Type: CR For: Agreement  
 38.307 v17.1.0 CR-0065 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2110448 CR to TS 38.307 on the definition of the duplex-mode for the band configurations**

*Type: CR For: Agreement  
 38.307 v15.8.0 CR-0066 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision:** The document was **revised to R4-2107995**.

**R4-2107995 CR to TS 38.307 on the definition of the duplex-mode for the band configurations**

*Type: CR For: Agreement  
 38.307 v15.8.0 CR-0066 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2110449 CR to TS 38.307 on the definition of the duplex-mode for the band configurations**

*Type: CR For: Agreement  
 38.307 v16.6.0 CR-0067 rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Withdrawn.**

**R4-2110450 CR to TS 38.307 on the definition of the duplex-mode for the band configurations**

*Type: CR For: Agreement  
 38.307 v17.1.0 CR-0068 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Withdrawn.**

**Delta\_TRxSRS**

**R4-2109258 Clarification on delta\_TRxSRS to Configured transmitted power**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Clarification of applicability of ?TRxSRS to Configured transmitted power

Chair: Tdoc is missing.

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

**R4-2109128 Correction of an improper usage of band edge relaxation for MOP**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0758 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

##### 4.1.2.2 [FR2] Maintenance for 38.101-2

**Topic#4-1: EESS protection (WRC-19)**

**R4-2110808 R15 WRC-19 remaining issues**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111509 EESS protection requirements after 2024/2027**

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

**Decision: Noted**.

**Topic#4-2: RF requirements under ETC**

**R4-2109671 Discussion and draft LS on applicability of RF requirements on extreme tempreture condition**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2111508 FR2 Extreme temperature conditions applicability**

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

**Decision: Noted**.

**R4-2111507 FR2 Extreme Temperature Conditions revision**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0406 rev Cat: F (Rel-15)  
  
 Source: Keysight Technologies UK Ltd*

**Decision: Not pursued**.

**Maintenance for 38.101-2**

**P-cmax**

**R4-2108787 P\_cmax fix for the CA applicability**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0351 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107753**.

**R4-2107753 P\_cmax fix for the CA applicability**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0351 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2108788 P\_cmax fix for the CA applicability**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0352 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2108789 P\_cmax fix for the CA applicability**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0353 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**P\_min**

**R4-2108819 Discussion on FR2 UE Min. Output Power Requirement**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated*

**Abstract:**

Establish consistency in Pmin specs across single CC, CA and UL MIMO configurations

**Decision: Noted**.

**R4-2108820 CR to 38.101-2: P\_min requirements update**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0354 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Not pursued**.

**R4-2108821 CR to 38.101-2: P\_min requirements update**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0355 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Withdrawn.**

**R4-2108822 CR to 38.101-2: P\_min requirements update**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0356 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Make 2L EVM requirement consistent with RAN1

**Decision: Withdrawn.**

**Merge RMC tables with different SCS**

**R4-2108872 Update of FR2 UL RMC tables**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0357 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108873 Update of FR2 UL RMC tables**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0358 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108874 Update of FR2 UL RMC tables**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0359 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**Change IBE requirements to the same metrics as other emission measurements.**

**R4-2108875 Update of FR2 UL MIMO transmit signal quality requirements**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0360 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Not pursued.**

**R4-2108876 Update of FR2 UL MIMO transmit signal quality requirements**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0361 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Withdrawn.**

**R4-2108877 Update of FR2 UL MIMO transmit signal quality requirements**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0362 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Withdrawn.**

**Correct side conditions for beam correspondence**

**R4-2110151 Beam Correspondence Side Conditions for SSB and CSI-RS**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted**.

**R4-2110176 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-15)**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0381 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2110178 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-16)**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0382 rev Cat: A (Rel-16)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2110150 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n257, n258, n260, n261 (Rel-17)**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0377 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn.**

**LO leakage and IQ image may land outside configured UL and DL CCs**

**R4-2111358 CR on FR2 emission requirements\_r15**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0393 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2111359 CR on FR2 emission requirements\_r16**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0394 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn**.

**R4-2111360 CR on FR2 emission requirements\_17**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0395 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**Add MBR requirements for UEs support multiple FR2 band**

**R4-2111364 CR on MBR requirement for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0397 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued**.

**R4-2107754 CR on MBR requirement for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0397 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111365 CR on MBR requirement for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0398 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111366 CR on MBR requirement for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0399 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**Add definition of CABW in section 3 and remove it in requirement text**

**R4-2111415 CR to 38.101-2: CABW definition addition**

*Type: CR For: Agreement  
 38.101-2 v15.13.0 CR-0403 rev Cat: D (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Editorial CR to add definition of cumulative aggregated BW in section 3

**Decision: Agreed**.

**R4-2111416 CR to 38.101-2: CABW definition addition**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0404 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Editorial CR to add definition of cumulative aggregated BW in section 3

**Decision: Agreed**.

**R4-2111417 CR to 38.101-2: CABW definition addition**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0405 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Editorial CR to add definition of cumulative aggregated BW in section 3

**Decision: Agreed**.

##### 4.1.2.3 Maintenance for 38.101-3

**Topic#5: Intra-band/inter-band EN-DC**

**R4-2110032 Clarification on intraBandENDC-Support and interBandContiguousMRDC**

*Type: other For: (not specified)  
 Source: NTT DOCOMO INC.*

**Decision: Noted**.

**R4-2109781 Clarification of intra-bandENDC-Support**

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

**Abstract:**

intra-bandENDC-Support is discussed.

**Decision: Noted**.

**R4-2110154 Clarifications on intra-band EN-DC combinations**

*Type: other For: Approval  
 38.101-3 v CR- rev Cat: (Rel-15)  
  
 Source: Apple*

**Decision: Noted**.

**R4-2110807 R15 intra band EN-DC support**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2110982 Intra-band EN-DC contiguous and non-contiguous capability**

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

**Decision: Noted**.

**R4-2111111 Discussion on intra-band EN-DC combination**

*Type: discussion For: Approval  
 Source: Google Inc.*

**Decision: Noted**.

**R4-2111353 on intrabandENDC-support IE**

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

**Decision: Noted**.

**CR**

**R4-2108803 CR for clarification on interBandContiguousMRDC in TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0514 rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision:** The document was **revised to R4-2107755**.

**R4-2107755 CR for clarification on interBandContiguousMRDC in TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0514 rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision: Agreed**.

**R4-2109982 CR for clarification on interBandContiguousMRDC in TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0559 rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO INC.*

**Decision: Agreed**.

**R4-2110031 CR for clarification on interBandContiguousMRDC in TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0563 rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Agreed**.

**R4-2109782 CR to clarify intra-bandENDC-Support**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0547 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Clarify intra-bandENDC-Support

**Decision: Not pursued.**

**R4-2109783 CR to clarify intra-bandENDC-Support**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0548 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Clarify intra-bandENDC-Support

**Decision: Withdrawn.**

**R4-2109784 CR to clarify intra-bandENDC-Support**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0549 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Clarify intra-bandENDC-Support

**Decision: Withdrawn.**

**R4-2110155 CR for TS 38.101-3: Corrections for intra-band EN-DC configurations**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0564 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2110156 CR for TS 38.101-3: Corrections for intra-band EN-DC configurations**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0565 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2110157 CR for TS 38.101-3: Corrections for intra-band EN-DC configurations**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0566 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn.**

**Topic#6: TS38.101-3 maintenance**

**Added missing references to other specifications**

**R4-2108878 Corrections to EN-DC spurious emission tables**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0517 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision:** The document was **not treated to R4-2107756**.

**R4-2107756 Corrections to EN-DC spurious emission tables**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0517 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108879 Corrections to EN-DC spurious emission tables**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0518 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108880 Corrections to EN-DC spurious emission tables**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0519 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**Definition of CIM5**

**R4-2109155 On the definition of CIM5**

*Type: other For: Approval  
 Source: SoftBank Corp.*

**Abstract:**

This paper is intended to discuss the definition of CIM5 as there are two different definitions of the CIM.

**Decision: Noted**.

**R4-2109154 On the definition of CIM5**

*Type: other For: Approval  
 Source: SoftBank Corp.*

**Abstract:**

This paper is intended to discuss the definition of CIM5 as there are two different definitions of the CIM.

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

**Clean-up for co-existence requirements**

**R4-2109455 Cleanup for UE co-existence 38.101-3 Rel-15**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0534 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision:** The document was **revised to R4-2107757**.

**R4-2107757 Cleanup for UE co-existence 38.101-3 Rel-15**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0534 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Agreed.**

Do we need Cat A CRs?

**Correct the ΔTIB,c description for FR1-FR2 inter-band CA combination**

**R4-2110445 CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0572 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**R4-2110446 CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0573 rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**R4-2110447 CR to TS38.101-3: Correction on ?TIB,c description for FR1-FR2 CA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0574 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**Correct UL configurations of intra-band EN-DC**

R4-2109968 and R4-2109969 are moved from AI 5.1.7.2 to AI 4.1.2.3

**R4-2109968 Correction to band combinations for intra-band EN-DC**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0557 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct UL configurations of intra-band EN-DC not compatible with the fallback specification in 38.306 and account for possible configurations using intraBandENDC-support indication

**Decision: Not pursued.**

**R4-2109969 Correction to band combinations for intra-band EN-DC**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0558 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct UL configurations of intra-band EN-DC not compatible with the fallback specification in 38.306 and account for possible configurations using intraBandENDC-support indication

**Decision: Withdrawn.**

#### 4.1.3 UE EMC requirements maintenance

#### 4.1.4 BS RF requirements maintenance

##### 4.1.4.1 General

##### 4.1.4.2 TX/RX requirements maintenance (38.104)

##### 4.1.4.3 MSR specifications maintenance

#### 4.1.5 BS conformance testing Maintenance

##### 4.1.5.1 General

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

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

##### 4.1.5.4 eAAS specifications maintenance

#### 4.1.6 BS EMC requirements Maintenance

#### 4.1.7 RRM core requirements maintenance (38.133/36.133)

#### 4.1.8 RRM performance requirements maintenance (38.133/36.133)

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

##### 4.1.9.1 UE demodulation requirements

##### 4.1.9.2 CSI requirements

##### 4.1.9.3 BS demodulation requirements

#### 4.1.10 Positioning specs maintenance (36.171, 37.171 and 38.171)

#### 4.1.11 Testability Maintenance (38.810)

### 4.2 LTE maintenance (up to Rel15)

#### 4.2.1 BS RF requirements

#### 4.2.2 UE RF requirements

**Email discussion summary of [99-e][104] LTE\_Maintenance, AI 4.2.2 & AI 5.2.2.2 – Laurent Noel**

**R4-2107631 Email discussion summary for [99-e][104]** **LTE\_Maintenance**

*Type: Other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised R4-2107914**.

**R4-2107914 Email discussion summary for [99-e][104]** **LTE\_Maintenance**

*Type: Other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted**.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc num** | **Title** | **Source** | **Satus** | **Comments** |
| R4-2108916 | CR LTE CA corrections R16 CAT F | Nokia | Agreed |  |
| R4-2108917 | CR LTE CA corrections R17 CAT F | Nokia | Agreed |  |
| R4-2109838 | CR on MSD test configurations for dual uplink LTE-A CA | LG | Agreed |  |
| R4-2111293 | CR MPR and AMPR for LTE CA 256QAM PC2 | Huawei,HiSilicon | Reivsed to R4-2108024 |  |
| R4-2108024 | CR MPR and AMPR for LTE CA 256QAM PC2 | Huawei,HiSilicon | Agreed (2nd round)  Further revised to R4-2111545 after the meeting | Need change WID code |
| R4-2111545 | CR MPR and AMPR for LTE CA 256QAM PC2 | Huawei,HiSilicon | Agreed (after meeting) | Need change WID code |
| R4-2111294 | MPR and AMPR for LTE CA 256QAM PC2 | Huawei,HiSilicon | Noted |  |
| R4-2111421 | n41 CA\_NS\_04 AMPR for 256QAM | Qualcomm Incorporated | Noted |  |
| R4-2109156 | CR to TS 36.101[R8]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Withdrawn (2nd round) | Rel-8 can not be changed. Need to define the earliest possible Release |
| R4-2107758 | CR to TS 36.101[R8]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Withdrawn (2nd round) | Mirror CR of R4-2109156 |
| R4-2109157 | CR to TS 36.101[R9]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Withdrawn (2nd round) | Mirror CR of R4-2109156 |
| R4-2109158 | CR to TS 36.101[R10]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Withdrawn (2nd round) | Mirror CR of R4-2109156 |
| R4-2109159 | CR to TS 36.101[R11]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Withdrawn (2nd round) | Mirror CR of R4-2109156 |
| R4-2109160 | CR to TS 36.101[R12]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Revised to R4-2108023 | Rel-12 Cat-F |
| R4-2108023  (revision of  R4-2109160) | CR to TS 36.101[R12]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-12 Cat-F |
| R4-2109161 | CR to TS 36.101[R13]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-13 Cat-A mirror CR of R4-2108023 |
| R4-2109162 | CR to TS 36.101[R14]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-14 Cat-A mirror CR of R4-2108023 |
| R4-2109163 | CR to TS 36.101[R15]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-15 Cat-A mirror CR of R4-2108023 |
| R4-2109164 | CR to TS 36.101[R16]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-16 Cat-A mirror CR of R4-2108023 |
| R4-2109165 | CR to TS 36.101[R17]: Addition of UE co-existence requirements for band 40 | NTT DOCOMO, INC. | Agreed (2nd round) | Rel-17 Cat-A mirror CR of R4-2108023 |
| R4-2109451 | Cleanup for UE co-existence 36.101 Rel-15 | Apple | revised to R4-2107759 |  |
| R4-2107759 | Cleanup for UE co-existence 36.101 Rel-15 | Apple | Agreed (2nd round) |  |
| R4-2109452 | Cleanup for UE co-existence 36.101 Rel-16 | Apple | revised to R4-2107760 |  |
| R4-2107760 | Cleanup for UE co-existence 36.101 Rel-16 | Apple | Agreed (2nd round) |  |
| R4-2109457 | Cleanup for UE co-existence 36.101 Rel-17 | Apple | Agreed (2nd round) | Rel-17 Cat-A mirror CR of R4-2107760 |
| R4-2108892 | No comment was received, to be agreed | Rohde & Schwarz | Agreed |  |
| R4-2108895 | Correction to NB-IoT HD-FDD RMCs | Rohde & Schwarz | Agreed |  |
| R4-2109005 | NB-IOT frequencies in stand-alone and guard-band operation | Sony | Noted |  |
| R4-2110795 | NB-IoT FCC emission requirements | Qualcomm Incorporated | Noted |  |
| R4-2111022 | CR to TS36.101: NB-IoT FCC emission requirements (Rel-14) | Qualcomm Incorporated | Not purused (2nd round) | Further discussion needed |
| R4-2110995 | CR to TS36.101: NB-IoT FCC emission requirements (Rel-15) | Qualcomm Incorporated | Withdrawn (2nd round) | Rel-15 Cat A mirror CR of R4-2111022 |
| R4-2110996 | CR to TS36.101: NB-IoT FCC emission requirements (Rel-16) | Qualcomm Incorporated | Withdrawn (2nd round) | Rel-16 Cat A mirror CR of R4-2111022 |
| R4-2110997 | CR to TS36.101: NB-IoT FCC emission requirements (Rel-17) | Qualcomm Incorporated | Withdrawn (2nd round) | Rel-17 Cat A mirror CR of R4-2111022 |
| R4-2111483 | CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA | T-Mobile USA | Revised to R4-2108012 in the second round. |  |
| R4-2108012 | CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA | T-Mobile USA | Agreed (2nd round) |  |
| R4-2111199 | CR of updating the subPRB UE aspect | Ericsson | Agreed (2nd round) |  |
| R4-2111484 | Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA | T-Mobile USA, Qualcomm | Agreed (2nd round) | Rel-15 Cat A mirror CR of R4-2108012 |
| R4-2111485 | Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA | T-Mobile USA, Qualcomm | Agreed (2nd round) | Rel-16 Cat A mirror CR of R4-2108012 |
| R4-2111486 | Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA | T-Mobile USA, Qualcomm | Agreed (2nd round) | Rel-17 Cat A mirror CR of R4-2108012 |
| R4-2109150 | Clarification on additional emission requirements to 2 bandUL CA/DC (R15) | SoftBank Corp. | Not pursued (2nd round) | Further discussion needed and dependency on [102] |
| R4-2109151 | Clarification on additional emission requirements to 2 band UL CA/DC (R16) | SoftBank Corp. | Withdrawn (2nd round) | Rel-16 Cat A mirror CR of R4-2109150 |
| R4-2109152 | Clarification on additional emission requirements to 2 band UL CA/DC (R17) | SoftBank Corp. | Withdrawn (2nd round) | Rel-17 Cat A mirror CR of R4-2109150 |
| R4-2111357 | CR on EVM requirement for TS 36.101-1 | Huawei, HiSilicon | revised to R4-2107761 |  |
| R4-2107761 | CR on EVM requirement for TS 36.101-1 | Huawei, HiSilicon | Not pursued |  |
| R4-2110817 | LTE Rel-17 REFSENS Exception Simplification | Skyworks Solutions Inc., Nokia | Noted |  |
| R4-2109739 | LS to RAN5 on LTE REFSENS Exceptions Simplification | Nokia | Approved |  |

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**Topic #2: Spurious emission clean-up for UE coexistence tables**

**Co-existence requirements**

**R4-2109451 Cleanup for UE co-existence 36.101 Rel-15**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5772 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision:** The document was **revised to R4-2107759**.

**R4-2107759 Cleanup for UE co-existence 36.101 Rel-15**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5772 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Agreed**.

**R4-2109452 Cleanup for UE co-existence 36.101 Rel-16**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5773 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision:** The document was **revised to R4-2107760**.

**R4-2107760 Cleanup for UE co-existence 36.101 Rel-16**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5773 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Agreed**.

**R4-2109457 Cleanup for UE co-existence 36.101 Rel-17**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5774 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Agreed**.

**Co-existence requirements for Band 40**

**R4-2109156 CR to TS 36.101[R8]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v8.29.0 CR-5770 rev Cat: F (Rel-8)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

R8 CAT-F CR to add co-existence requirements for B40.

**Decision: Withdrawn**.

**R4-2107758 CR to TS 36.101[R8]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v8.29.0 CR-5770 rev Cat: F (Rel-8)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

R8 CAT-F CR to add co-existence requirements for B40.

**Decision: Withdrawn.**

**R4-2109157 CR to TS 36.101[R9]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v9.25.0 CR-5762 rev Cat: A (Rel-9)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R9

**Decision: Withdrawn**.

**R4-2109158 CR to TS 36.101[R10]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v10.29.0 CR-5771 rev Cat: A (Rel-10)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R10

**Decision: Withdrawn**.

**R4-2109159 CR to TS 36.101[R11]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v11.26.0 CR-5763 rev Cat: A (Rel-11)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R11

**Decision: Withdrawn**.

**R4-2109160 CR to TS 36.101[R12]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v12.26.0 CR-5764 rev Cat: A (Rel-12)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R12

**Decision:** The document was **revised to R4-2108023**.

**R4-2108023 CR to TS 36.101[R12]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v12.26.0 CR-5764 rev Cat: F (Rel-12)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R12

Chair: the CR catgory will be changed to Cat F.

**Decision: Agreed.**

**R4-2109161 CR to TS 36.101[R13]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v13.20.0 CR-5765 rev Cat: A (Rel-13)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R13

**Decision: Agreed.**

**R4-2109162 CR to TS 36.101[R14]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5766 rev Cat: A (Rel-14)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R14

**Decision: Agreed.**

**R4-2109163 CR to TS 36.101[R15]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5767 rev Cat: A (Rel-15)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R15

**Decision: Agreed.**

**R4-2109164 CR to TS 36.101[R16]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5768 rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R16

**Decision: Agreed.**

**R4-2109165 CR to TS 36.101[R17]: Addition of UE co-existence requirements for band 40**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5769 rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Abstract:**

CAT-A CR for R17

**Decision: Agreed.**

**Topic #3: NB-IoT**

**TDD RMC**

**R4-2108892 Correction to NB-IoT TDD RMCs**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5740 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108893 Correction to NB-IoT TDD RMCs**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5741 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108894 Correction to NB-IoT TDD RMCs**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5742 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**HD-FDD RMC**

**R4-2108895 Correction to NB-IoT HD-FDD RMCs**

*Type: CR For: Agreement  
 36.101 v13.20.0 CR-5743 rev Cat: F (Rel-13)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108896 Correction to NB-IoT HD-FDD RMCs**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5744 rev Cat: A (Rel-14)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108897 Correction to NB-IoT HD-FDD RMCs**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5745 rev Cat: A (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108898 Correction to NB-IoT HD-FDD RMCs**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5746 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**R4-2108899 Correction to NB-IoT HD-FDD RMCs**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5747 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed**.

**NB-IoT frequencies in standalone and guard-band operation**

**R4-2109005 NB-IOT frequencies in stand-alone and guard-band operation**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted**.

**NB-IoT FCC emission requirements**

**R4-2110795 NB-IoT FCC emission requirements**

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

**Decision: Noted**.

**R4-2111022 CR to TS36.101: NB-IoT FCC emission requirements (Rel-14)**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5788 rev Cat: F (Rel-14)  
  
 Source: Qualcomm Incorporated*

**Decision: Not pursued**.

**R4-2110995 CR to TS36.101: NB-IoT FCC emission requirements (Rel-15)**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5784 rev Cat: A (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**R4-2110996 CR to TS36.101: NB-IoT FCC emission requirements (Rel-16)**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5785 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**R4-2110997 CR to TS36.101: NB-IoT FCC emission requirements (Rel-17)**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5786 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**Introdcution of NS signalling for NB-IoT in USA**

**R4-2111483 CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5796 rev Cat: F (Rel-14)  
  
 Source: T-Mobile USA, Qualcomm*

**Decision:** The document was **revised to R4-2108012**.

**R4-2108012 CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5796 rev Cat: F (Rel-14)  
  
 Source: T-Mobile USA, Qualcomm*

**Decision: Agreed.**

**R4-2111484 Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5797 rev Cat: A (Rel-15)  
  
 Source: T-Mobile USA, Qualcomm*

**Decision: Agreed.**

**R4-2111485 Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5798 rev Cat: A (Rel-16)  
  
 Source: T-Mobile USA, Qulacomm*

**Decision: Agreed.**

**R4-2111486 Mirror CR for 36.101: Introduction of NS Signalling for NB-IoT in the USA**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5799 rev Cat: A (Rel-17)  
  
 Source: T-Mobile USA, Qualcomm*

**Decision: Agreed.**

**SubPRB UE aspects**

**R4-2111199 CR of updating the subPRB UE aspect**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5789 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

in this CR, Remove the bracket of MPR tabel for subPRB allocation, adding the RMC for the subPRB testing for RAN5.

**Decision: Agreed**.

**R4-2111200 CR of updating the subPRB UE aspect**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5790 rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

in this CR, Remove the bracket of MPR tabel for subPRB allocation, adding the RMC for the subPRB testing for RAN5.

**Decision: Agreed**.

**R4-2111201 CR of updating the subPRB UE aspect**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5791 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

in this CR, Remove the bracket of MPR tabel for subPRB allocation, adding the RMC for the subPRB testing for RAN5.

**Decision: Agreed**.

**Topic#4: Other maintenance**

**Additional emission requirements for 2 bandUL CA/DC**

**R4-2109150 Clarification on additional emission requirements to 2 bandUL CA/DC (R15)**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5759 rev Cat: F (Rel-15)  
  
 Source: SoftBank Corp.*

**Abstract:**

Applicability of additional emission requirements for 2 band CA/DC is clarified. Discussion has been done in R15 NR Maint. Session for 101-1.

**Decision: Not pursued.**

**R4-2109151 Clarification on additional emission requirements to 2 band UL CA/DC (R16)**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5760 rev Cat: A (Rel-16)  
  
 Source: SoftBank Corp.*

**Abstract:**

Mirror CR of R15

**Decision: Withdrawn.**

**R4-2109152 Clarification on additional emission requirements to 2 band UL CA/DC (R17)**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5761 rev Cat: A (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

Mirror CR of R15/R16

**Decision: Withdrawn.**

#### 4.2.3 RRM requirementss

#### 4.2.4 Demodulation and CSI requirements

## 5 Rel-16 maintenance

### 5.1 NR maintenance

#### 5.1.1 Enhancements on MIMO for NR

##### 5.1.1.1 RRM performance requirements (38.133)

###### 5.1.1.1.1 L1-SINR measurement accuracy

###### 5.1.1.1.2 Test cases

##### 5.1.1.2 Demodulation and CSI requirements (38.101-4)

###### 5.1.1.2.1 UE Demodulation requirements

###### 5.1.1.2.2 CSI requirements

##### 5.1.1.3 Others

#### 5.1.2 UE power saving in NR

##### 5.1.2.1 Demodulation and CSI requirements (38.101-4)

##### 5.1.2.2 Others

#### 5.1.3 NR RRM requirement enhancement

##### 5.1.3.1 RRM core requirements

##### 5.1.3.2 RRM performance requirements

###### 5.1.3.2.1 General

###### 5.1.3.2.2 Test cases

5.1.3.2.2.1 SRS carrier switching requirements

5.1.3.2.2.2 Multiple Scell activation/deactivation

5.1.3.2.2.3 CGI reading requirements with autonomous gap

5.1.3.2.2.4 BWP switching on multiple CCs

5.1.3.2.2.5 Inter-frequency measurement requirement without MG

5.1.3.2.2.6 Mandatory MG patterns

5.1.3.2.2.7 UE-specific CBW change

5.1.3.2.2.8 Spatial relation switch for uplink

5.1.3.2.2.9 Inter-band CA requirement for FR2 UE measurement capability of independent Rx beam

#### 5.1.4 Physical layer enhancements for NR URLLC

##### 5.1.4.1 Demodulation and CSI requirements

###### 5.1.4.1.1 UE demodulation requirements

###### 5.1.4.1.2 CSI requirements

###### 5.1.4.1.3 BS demodulation requirements

#### 5.1.5 Add support of NR DL 256QAM for FR2

##### 5.1.5.1 Demodulation and CSI requirements (38.101-4)

###### 5.1.5.1.1 UE demodulation requirements

###### 5.1.5.1.2 CSI requirements

###### 5.1.5.1.3 SDR

#### 5.1.6 NR performance requirement enhancements

##### 5.1.6.1 UE demodulation requirements

##### 5.1.6.2 CSI requirements

##### 5.1.6.3 BS demodulation requirements

#### 5.1.7 Other WIs

##### 5.1.7.1 BS RF requirements

##### 5.1.7.2 UE RF requirements

**Email discussion summary of [99-e][103] NR\_Maintenance\_R16, AI 5.1.7.2 – James Wang**

**R4-2107630 Email discussion summary for [99-e][103]** **NR\_Maintenance\_R16**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107913**.

**R4-2107913 Email discussion summary for [99-e][103]** **NR\_Maintenance\_R16**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New Tdoc**

|  |  |  |  |
| --- | --- | --- | --- |
| **WF/LS t-doc Title** | **Source** | **Tdoc number** | **Status** |
| WF on introduction of power limits for serving cells of UL CA | Ericsson | R4-2107762 | Approved |
| LS on TX switching with multiple TAG | Ericsson | R4-2107763 | Noted |

**Existing Tdoc**

|  |  |
| --- | --- |
| **Tdoc number** | **Status** |
| [R4-2109129](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109129.zip) | Revised to R4-2108016 in the second round. |
| R4-2108016 | Agreed (2nd round) |
| [R4-2109130](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109130.zip) | Revised to R4-2108017 in the second round. |
| R4-2108017 | Agreed (2nd round) |
| R4-2109127 | Noted |
| [R4-2108945](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108945.zip) | revised to R4-2107764 |
| R4-2107764 | Agreed (2nd round) |
| R4-2108946 | Agreed (2nd round) |
| R4-2109439 | Noted |
| R4-2110397 | Noted |
| R4-2109959 | Postponed (LS) |
| R4-2109957 | Postponed (CR) |
| R4-2109958 | Withdrawn (CAT A CR) |
| R4-2109960 | Postponed (CR) |
| R4-2109961 | Withdrawn (CAT A CR) |
| R4-2109584 | revised to R4-2107765 |
| R4-2107765 | Approved (2nd round) |
| R4-2109582 | Agreed |
| R4-2109583 | Agreed (mirror CR of R4-2109582) |
| R4-2108795 | merged into R4-2109582 |
| R4-2108796 | withdrawn |
| R4-2109978 | Not pursued |
| R4-2109977 | noted |
| R4-2108853 | Not pursued |
| R4-2108854 | withdrawn (mirror CR of 8853) |
| R4-2108918 | Agreed |
| R4-2108919 | Agreed |
| R4-2108920 | Revised to R4-2107992. |
| R4-2107992 | Agreed (2nd round) |
| R4-2108921 | Agreed (mirror CR of 8920) |
| R4-2109185 | Agreed |
| R4-2109126 | Agreed (mirror of 9185) |
| R4-2109378 | Revised to R4-2107989 in 2nd round. |
| R4-2107989 | Agreed (2nd round) |
| R4-2108728 | Agreed (mirror CR of 9378) |
| R4-2109454 | Revised to R4-2107766 (agreeable after revision). R4-2107766 is agreed. |
| R4-2107766 | Agreed (2nd round) |
| R4-2109458 | Agreed (mirror CR of 9454) |
| R4-2109779 | Not pursued |
| R4-2109780 | withdrawn (mirror CR of 9779) |
| R4-2109839 | Return to. It is revised to R4-2108008 in the 2nd round. |
| R4-2108008 | Agreed (2nd round) |
| R4-2109840 | Agreed (mirror CR of 9839) |
| R4-2109878 | Not pursued (2nd round) |
| R4-2107767 Rev of R4-2109878 | Withdrawn (2nd round) |
| R4-2109962 | Revised to R4-2108013 in the second round. |
| R4-2108013 | Return to |
| R4-2109963 | Return to (mirror CR of R4-2108013) |
| R4-2110195 | Agreed |
| R4-2110196 | Agreed (mirror CR of 0195) |
| R4-2110439 | Agreed |
| R4-2110440 | Agreed (mirror CR of 0439) |
| R4-2110441 | Agreed |
| R4-2110442 | Agreed (mirror CR of 0441) |
| R4-2110990 | revised to R4-2107768 |
| R4-2107768 | Agreed (2nd round) |
| R4-2110991 | Agreed (mirror CR of 0990) |
| R4-2111084 | revised to R4-2107769 |
| R4-2107769 | Agreed (2nd round) |
| New R4-2107770 | Agreed (mirror CR of 1084). |
| R4-2111362 | merged to R4-2109962 |
| R4-2111363 | withdrawn (mirror CR of 1362) |
| R4-2111519 | revised to R4-2107771 |
| R4-2107771 | Agreed (2nd round) |
| R4-2111520 | Withdrawn (2nd round, original mirror CR of R4-2111519)  New Tdoc R4-2107976 allocated. |
| New R4-2107976 | Agreed (2nd round) |
| R4-2111526 | Agreed |
| R4-2111527 | Agreed (mirror CR of 1526) |
| R4-2110186 | Agreed |
| R4-2110187 | Agreed (mirror CR of 0186) |
| R4-2108922 | Agreed |
| R4-2108923 | Agreed (mirror CR of 8922) |
| R4-2109027 | revised to R4-2107772 |
| R4-2107772 | Agreed (2nd round) |
| R4-2109028 | Agreed (mirror CR of 9027) |
| R4-2109447 | Postponed |
| R4-2109448 | withdrawn (mirror CR of 9447) |
| R4-2109966 | Not pursued (2nd round) |
| R4-2109967 | Withdrawn (2nd round, mirror CR of 9966) |
| R4-2110180 | revised to R4-2107773(cover sheet) |
| R4-2107773 Rev of R4-2110180 | Return to |
| R4-2110152 | Return to (mirror CR of 0180) |
| R4-2110443 | Agreed (2nd round) |
| R4-2110444 | Agreed (2nd round, mirror CR of 0443) |
| R4-2111085 | merged to R4-2110188 |
| R4-2111361 | revised to R4-2107774 |
| R4-2107774 | Agreed (2nd round) |
| R4-2111524 | Agreed |
| R4-2111525 | Agreed (mirror CR of 1524) |
| R4-2110188 | revised to R4-2107775 |
| R4-2107775 | Agreed (2nd round) |
| R4-2110189 | Return to (0189 is changed from Cat F to mirror CR of 0188) revised to R4-2107974 |
| R4-2107974 | Agreed (2nd round) |
| R4-2109369 | Merged to R4-2110479 |
| R4-2108727 | Withdrawn. |
| R4-2108855 | Not pursued (2nd round) |
| R4-2108856 | Withdrawn (2nd round, mirror CR of 8855) |
| R4-2108924 | Agreed |
| R4-2108925 | Agreed (mirror CR of 8925) |
| R4-2109456 | revised to R4-2107776 |
| R4-2107776 | Agreed (2nd round) |
| R4-2109459 | Agreed (2nd round, mirror CR of 9456) |
| R4-2109533 | Agreed |
| R4-2109534 | Agreed (mirror CR of 9533) |
| R4-2109856 | Revised to R4-2108009 in the 2nd round. |
| R4-2108009 | Agreed (2nd round) |
| R4-2109913 | Agreed (2nd round, mirror CR of 9856) |
| R4-2109917 | Return to. It is revised to R4-2108010 in the 2nd round. |
| R4-2108010 | Agreed (2nd round) |
| R4-2109920 | Agreed (2nd round, mirror CR of 9917) |
| R4-2110479 | Agreed. |
| R4-2110577 | Agreed (mirror CR of 10479) |
| R4-2110988 | Agreed |
| R4-2110989 | Agreed (mirror CR of 0988) |
| R4-2111086 | Agreed |
| New R4-2107975 | Agreed (mirror CR of 1086, need a Tdoc and CR number). Please contact Carolyn for CR number |
| R4-2111522 | Return to (to address CHTTL’s question). It is revised to R4-2108011 in 2nd round. |
| R4-2108011 | Agreed (2nd round) |
| R4-2111523 | Withdrawn (2nd round). More changed needed. 11523 is withdrawn. New Tdoc R4-2107977 allcoated. |
| New R4-2107977 | Agreed (2nd round, mirror CR of R4-2108011) |
| R4-2110190 | Agreed |
| R4-2110191 | Agreed (mirror CR of 0190) |

**WF/LS/CRs for approval**

**R4-2107762 WF on introduction of power limits for serving cells of UL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**R4-2107763 LS on TX switching with multiple TAG**

*Type: LS out For: Approval  
 Source: Ericsson*

**Decision: Noted.**

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**Relaxation for MOP**

**R4-2109127 Correction of an improper usage of band edge relaxation for MOP**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correction of an improper usage of band edge relaxation for MOP

**Decision: Noted**.

**R4-2109129 Correction of an improper usage of band edge relaxation for MOP**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0759 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **revised to R4-2108016**.

**R4-2108016 Correction of an improper usage of band edge relaxation for MOP**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0759 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2109130 Correction of an improper usage of band edge relaxation for MOP**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0760 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Rel17 CR corresponds to 0759 for Rel-16. The changes for Rel17 are made based on the same principle used in 0759, but the changes are not exactly the same so that the CR is submitted as Cat F CR in the same agenda.

**Decision:** The document was **revised to R4-2108017**.

**R4-2108017 Correction of an improper usage of band edge relaxation for MOP**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0760 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Rel17 CR corresponds to 0759 for Rel-16. The changes for Rel17 are made based on the same principle used in 0759, but the changes are not exactly the same so that the CR is submitted as Cat F CR in the same agenda.

**Decision: Agreed**.

**Topic #2: n40/n41 coexistence**

**R4-2109439 Discussion on n40/n41 coexistence**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**R4-2110397 Discussion on spurious emission about UE co-existence between band n40 and n41**

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

**Decision: Noted**.

**CR**

**R4-2108945 CR on spurious emission between n40 and n41 into Rel-16 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0749 rev Cat: F (Rel-16)  
  
 Source: CMCC,Huawei, HiSilicon, ZTE, OPPO,CATT*

**Decision:** The document was **revised to** **R4-2107764**.

**R4-2107764 CR on spurious emission between n40 and n41 into Rel-16 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0749 rev Cat: F (Rel-16)  
  
 Source: CMCC,Huawei, HiSilicon, ZTE, OPPO,CATT*

**Decision: Agreed.**

**R4-2108946 CR on spurious emission between n40 and n41 into Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0750 rev Cat: A (Rel-17)  
  
 Source: CMCC,Huawei, HiSilicon,ZTE, OPPO, CATT*

**Decision: Agreed.**

**Topic #3: Power limits for serving cells of UL CA**

**R4-2109959 LS to RAN2 on power limits for serving cells of UL CA**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: Ericsson*

**Abstract:**

Draft LS to RAN2 to ask for specification of a RRC configured UE-specific power limits on a serving cell and a MAC-CE to enable/disable these limits per cell

**Decision: Postponed**.

**R4-2109957 Introduction of power limits for serving cells of UL CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0797 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Postponed**.

**R4-2109958 Introduction of power limits for serving cells of UL CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0798 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Withdrawn**.

**R4-2109960 Introduction of power limits for serving cells of UL CA**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0373 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Postponed**.

**R4-2109961 Introduction of power limits for serving cells of UL CA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0374 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Withdrawn**.

**Topic #4: UL MIMO coherence with Tx switching**

**R4-2109584 LS on UL MIMO coherence for Tx switching between two carriers**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: China Telecom*

**Decision:** The document was **revised to R4-2107765**.

**R4-2107765 LS on UL MIMO coherence for Tx switching between two carriers**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: China Telecom*

**Decision: Approved**.

**R4-2109582 UL MIMO coherence for Tx switching between two carriers (Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0782 rev Cat: F (Rel-16)  
  
 Source: China Telecom*

**Decision: Agreed.**

**R4-2109583 UL MIMO coherence for Tx switching between two carriers (Rel-17)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0783 rev Cat: A (Rel-17)  
  
 Source: China Telecom*

**Decision: Agreed.**

**R4-2108795 UL Switching and coherent UL MIMO**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0727 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

Merged into R4-2109582

**Decision: Merged**.

**R4-2108796 UL Switching and coherent UL MIMO**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0728 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn**.

**Topic #5: Tx switching for non-collocated UL CA**

**R4-2109977 TX switching for non-collocated UL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose that the restriction on collocation for UL CA with TX switching is removed (no impact on RAN1 and RAN2).

**Decision: Noted**.

**R4-2109978 Introduction of TX switching for non-collocated UL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft TR to introduce time masks for non-collocated UL CA with TX switching

**Decision: Not pursued**.

**Topic #6: Miscellaneous CRs for 38.101-1**

**Emission requirements for NS\_27**

**R4-2108853 Correction to additional spurious emissions requirements for NS\_27**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0732 rev Cat: F (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Not pursued**.

**R4-2108854 Correction to additional spurious emissions requirements for NS\_27**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0733 rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Withdrawn.**

**R4-2108918 CR Removal of square brackets from n48 NS\_27 R16 CAT F**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0737 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed**.

**R4-2108919 CR Removal of square brackets from n48 NS\_27 R17 CAT F**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0738 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed**.

**TDD Intraband CA REFSENS requirement**

**R4-2108920 CR TDD Intraband CA REFSENS requirement issue R16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0739 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision:** The document was **revised to R4-2107992**.

**R4-2107992 CR TDD Intraband CA REFSENS requirement issue R16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0739 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed.**

**R4-2108921 CR TDD Intraband CA REFSENS requirement issue R17**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0740 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed.**

**Supported channel bandwidth for CA\_n39-n41-n79**

**R4-2109185 Correction on supported channel bandwidth for CA\_n39-n41-n79**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0767 rev Cat: F (Rel-16)  
  
 Source: CATT, CMCC*

**Decision: Agreed**.

**R4-2109126 Correction on supported channel bandwidth for CA\_n39-n41-n79**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0757 rev Cat: A (Rel-17)  
  
 Source: CATT, CMCC*

**Decision: Agreed**.

**Correction of Rel-16 NR inter-band CA DC configuration for 2DL with up to 2 bands UL**

**R4-2109378 CR for correction of Rel-16 NR inter-band CA DC configuration for 2DL with up to 2 bands UL**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0774 rev Cat: F (Rel-16)  
  
 Source: Verizon Denmark*

**Decision:** The document was **revised to R4-2107989**.

**R4-2107989 CR for correction of Rel-16 NR inter-band CA DC configuration for 2DL with up to 2 bands UL**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0774 rev Cat: F (Rel-16)  
  
 Source: Verizon Denmark*

**Decision: Agreed**.

**R4-2108728 CR for correction of Rel-17 NR inter-band CA DC configuration for 2DL with up to 2 bands UL**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0871 rev Cat: A (Rel-17)  
  
 Source: Verizon Denmark*

**Abstract:**

Mirror CR CAT-A

**Decision: Agreed.**

**Cleanup for UE co-existence 38.101-1 Rel-16**

**R4-2109454 Cleanup for UE co-existence 38.101-1 Rel-16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0778 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision:** The document was **revised to R4-2107766**.

**R4-2107766 Cleanup for UE co-existence 38.101-1 Rel-16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0778 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Agreed.**

**R4-2109458 Cleanup for UE co-existence 38.101-1 Rel-17**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0779 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Agreed.**

**Correct BCS for CA\_n7-n25**

**R4-2109779 CR to TS 38.101-1 to correct BCS for CA\_n7-n25**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0789 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

50 MHz is added to n7 for consistency with higher order CA

**Decision: Not pursued**.

**R4-2109780 CR to TS 38.101-1 to correct BCS for CA\_n7-n25**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0790 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

50 MHz is added to n7 for consistency with higher order CA

**Decision: Withdrawn**.

**Mandatory simultaneous Rx/Tx capability for FR1 NR-CA combinations**

**R4-2109839 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 NR-CA combinations**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0791 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC., SoftBank Corp.*

**Decision:** The document was **revised to R4-2108008**.

**R4-2108008 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 NR-CA combinations**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0791 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC., SoftBank Corp.*

**Decision: Agreed.**

**R4-2109840 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 NR-CA combinations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0792 rev Cat: A (Rel-17)  
  
 Source: CHTTL, NTT DOCOMO, INC., SoftBank Corp.*

**Decision: Agreed.**

**Correct the configurations for intra-band CA**

**R4-2109878 CR for 38.101-1 to correct the configurations for intra-band CA (Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0793 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2107767 CR for 38.101-1 to correct the configurations for intra-band CA (Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0793 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

Chair: do we need Cat A CR?

**Correction to MPR for serving cells of intra-band UL CA**

**R4-2109962 Correction to MPR for serving cells of intra-band UL CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0799 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the MPR per serving cells for UL CA (related to PH reporting)

**Decision:** The document was **revised to R4-2108013**.

**R4-2108013 Correction to MPR for serving cells of intra-band UL CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0799 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the MPR per serving cells for UL CA (related to PH reporting)

**Decision: Agreed.**

**R4-2109963 Correction to MPR for serving cells of intra-band UL CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0800 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the MPR per serving cells for UL CA (related to PH reporting)

**Decision: Agreed.**

**R4-2111362 CR on intra-band UL CA Pcmax\_r16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0853 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

Merged into R4-2109962

**Decision: Merged**.

**R4-2111363 CR on intra-band UL CA Pcmax\_r17**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0854 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn**

**Corrections on power tolerance for intra-band contiguous CA**

**R4-2110195 CR for 38.101-1 Rel16 corrections on power tolerance for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0815 rev Cat: F (Rel-16)  
  
 Source: Xiaomi, Apple*

**Decision: Agreed**.

**R4-2110196 CR for 38.101-1 Rel17 corrections on power tolerance for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0816 rev Cat: A (Rel-17)  
  
 Source: Xiaomi, Apple*

**Decision: Agreed**.

**Correction on configured transmitted power for NR non-contiguous CA**

**R4-2110439 CR to TS38.101-1: Correction on configured transmitted power for NR non-contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0822 rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**R4-2110440 CR to TS38.101-1: Correction on configured transmitted power for NR non-contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0823 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**Add missing CA**

**R4-2110441 CR to TS38.101-1: Add missing CA\_n1A-n3A-n78A**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0824 rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation, China Telecom*

**Decision: Agreed**.

**R4-2110442 CR to TS38.101-1: Add missing CA\_n1A-n3A-n78A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0825 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation, China Telecom*

**Decision: Agreed**.

**Correction to Band n48 reference sensitivity**

**R4-2110990 Correction to Band n48 reference sensitivity**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0837 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107768**.

**R4-2107768 Correction to Band n48 reference sensitivity**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0837 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2110991 Correction to Band n48 reference sensitivity**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0838 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2111084 Rel-16 CR 38101-1-g70 corrections**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0846 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Rel-16 CR 38101-1-g70 corrections

**Decision:** The document was **revised to R4-2107769**.

**R4-2107769 Rel-16 CR 38101-1-g70 corrections**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0846 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Rel-16 CR 38101-1-g70 corrections

**Decision: Agreed**.

**R4-2107770 Rel-17 CR 38101-1-g70 corrections**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-XXXX rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-1-g70 corrections. Cat A CR for R4-2107769.

**Decision: Agreed**.

**Corrections to intra-band non-contiguous CA REFSENS**

**R4-2111519 CR for 38.101-1-g70: Corrections to intra-band non-contiguous CA REFSENS**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0867 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision:** The document was **revised to R4-2107771**

**R4-2107771 CR for 38.101-1-g70: Corrections to intra-band non-contiguous CA REFSENS**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0867 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Agreed**.

**R4-2111520 CR for 38.101-1-h10: Corrections to intra-band non-contiguous CA REFSENS**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0868 rev Cat: A (Rel-17)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Withdrawn.**

**R4-2107976 CR for 38.101-1-h10: Corrections to intra-band non-contiguous CA REFSENS**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-xxxx rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Agreed**.

**Corrections to NS\_12, NS\_13, NS\_14, NS\_15**

**R4-2111526 CR for 38.101-1-g70: Corrections to NS\_12, NS\_13, NS\_14, NS\_15**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0869 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,Dish,T-Mobile,Nokia,Qualcomm Inc.*

**Decision: Agreed**.

**R4-2111527 CR for 38.101-1-h10: Corrections to NS\_12, NS\_13, NS\_14, NS\_15**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0870 rev Cat: A (Rel-17)  
  
 Source: Skyworks Solutions Inc.,Dish,T-Mobile,Nokia,Qualcomm Inc.*

**Decision: Agreed**.

**Correct some errors in Delta TIB and Delta RIB table**

R4-2110186/187 are moved from AI 4.1.2.1 to AI 5.1.7.2

**R4-2110186 CR for Rel-16 38.101-1 to correct some errors in Delta TIB and Delta RIB table**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0813 rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**R4-2110187 CR for Rel-17 38.101-1 to correct some errors in Delta TIB and Delta RIB table**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0814 rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**Topic #7: Miscellaneous CRs for 38.101-2**

**CA\_n260**

**R4-2108922 Removal of CA\_n260(\*) notation and IE fix R16 CATF**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0363 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed**.

**R4-2108923 Removal of CA\_n260(\*) notation and IE fix R17 CATA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0364 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed**.

**Raster for n259**

**R4-2109027 Correction of the channel raster of n259 for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0365 rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **revised to R4-2107772**.

**R4-2107772 Correction of the channel raster of n259 for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0365 rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision: Agreed**.

**R4-2109028 Correction of the channel raster of n259 for TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0366 rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision: Agreed**.

**inter-band DL CA CBM and Beam Management Reference Signal location for FR2 CA**

**R4-2109447 CR to 38.101-2 on the definition for inter-band DL CA CBM and Beam Management Reference Signal location for FR2 CA**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0368 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Postponed**.

**R4-2109448 CR to 38.101-2 on the definition for inter-band DL CA CBM and Beam Management Reference Signal location for FR2 CA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0369 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn**.

**Modified MPR behaviour**

**R4-2109966 Correction to modified MPR behaviour**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0375 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct modified MPR behaviour (bits shall be set if the bit is introduced in an earlier release)

**Decision: Not pursued.**

**R4-2109967 Correction to modified MPR behaviour**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0376 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct modified MPR behaviour (bits shall be set if the bit is introduced in an earlier release)

**Decision: Withdrawn.**

**Side conditions for beam correspondence based on SSB and CSI-RS for n259 (Rel-16)**

**R4-2110180 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n259 (Rel-16)**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0383 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Agreed.**

**R4-2107773 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n259 (Rel-16)**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0383 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2110152 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n259 (Rel-17)**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0378 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Agreed.**

**CA\_n260-n261**

**R4-2110443 CR to TS38.101-2: Some Corrections on for CA\_n260-n261**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0386 rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation, Verizon*

**Decision: Agreed**.

**R4-2110444 CR to TS38.101-2: Some Corrections on for CA\_n260-n261**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0387 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation, Verizon*

**Decision: Agreed**.

**CA\_n261**

**R4-2111085 Rel-16 CR 38101-2-g70 corrections**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0390 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Rel-16 CR 38101-2-g70 corrections

**Decision: Withdrawn.**

**FR2 inter-band DL CA CBM and IBM**

**R4-2111361 CR on FR2 inter-band DL CA CBM and IBM\_R17 CatA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0396 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107774**.

**R4-2107774 CR on FR2 inter-band DL CA CBM and IBM\_R17 CatA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0396 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed**.

**Removing ambiguity on MPRnarrow for PC3 MPR**

**R4-2111524 CR for 38.101-2-g70: Removing ambiguity on MPRnarrow for PC3 MPR**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0407 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,Qualcomm Inc.*

**Decision: Agreed**.

**R4-2111525 CR for 38.101-2-h10: Removing ambiguity on MPRnarrow for PC3 MPR**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0408 rev Cat: A (Rel-17)  
  
 Source: Skyworks Solutions Inc.,Qualcomm Inc.*

**Decision: Agreed**.

**Correct the subblock divisions for CA\_n260 and CA\_n261**

R4-2110188/189 are moved from AI 4.1.2.2 to AI 5.1.7.2

**R4-2110188 CR for Rel-16 38.101-2 to correct some errors in Table 5.5A.2-2**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0384 rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision:** The document was **revised to R4-2107775**.

**R4-2107775 CR for Rel-16 38.101-2 to correct some errors in Table 5.5A.2-2**

*Type: CR For: Agreement  
 38.101-2 v16.7.0 CR-0384 rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**R4-2110189 CR Rel-17 38.101-2 to correct some errors in Table 5.5A.2-2**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0385 rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision:** The document was **revised to R4-2107974**.

**R4-2107974 CR Rel-17 38.101-2 to correct some errors in Table 5.5A.2-2**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0385 rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**Topic #7: Miscellaneous CRs for 38.101-3**

**Add the missing combos**

**R4-2109369 CR for correction of Rel-16 Dual Connectivity of 1LTE band (1DL/1UL) and 1NR band (1DL/1UL) with FR1**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0533 rev Cat: F (Rel-16)  
  
 Source: Verizon Denmark*

Merged to R4-2110479

**Decision: Merged.**

**R4-2108727 CR for correction of Rel-17 Dual Connectivity of 1LTE band (1DL/1UL) and 1NR band (1DL/1UL) with FR1**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0606 rev Cat: A (Rel-17)  
  
 Source: Verizon Denmark*

**Abstract:**

Mirror CR CAT-A

**Decision: Withdrawn.**

**R4-2110479 CR for missing delta T & delta R of EN-DC with intra-band non-contiguous LTE CA combos in Rel.16**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0578 rev Cat: F (Rel-16)  
  
 Source: CHTTL, SGS Wireless*

Merged to R4-2109369.

**Decision: Agreed**.

**R4-2110577 CR for missing delta T & delta R of EN-DC with intra-band non-contiguous LTE CA combos in Rel.16**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0580 rev Cat: A (Rel-17)  
  
 Source: CHTTL, SGS Wireless*

**Decision: Agreed**.

**DC\_39A\_nxxA**

**R4-2108855 Correction of note for DC\_39A\_nxxA**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0515 rev Cat: F (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Not pursued.**

**R4-2108856 Correction of note for DC\_39A\_nxxA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0516 rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Withdrawn.**

**DC\_7A-20A\_n3A**

**R4-2108924 CR correction to DC\_7A-20A\_n3A MSD test point R16 CATF**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0520 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed**.

**R4-2108925 CR correction to DC\_7A-20A\_n3A MSD test point R17 CATA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0521 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed**.

**UE co-existence**

**R4-2109456 Cleanup for UE co-existence 38.101-3 Rel-16**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0535 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision:** The document was **revised to R4-2107776**.

**R4-2107776 Cleanup for UE co-existence 38.101-3 Rel-16**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0535 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Agreed**.

**R4-2109459 Cleanup for UE co-existence 38.101-3 Rel-17**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0536 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Agreed**.

**Delta TIB and RIB correction**

**R4-2109533 CR to TS 38.101-3 on delta TIB and RIB correction (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0537 rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Abstract:**

In this paper, delta TIB and RIB values for some configurations are corrected.

**Decision: Agreed**.

**R4-2109534 CR to TS 38.101-3 on delta TIB and RIB corrections (Rel-17)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0538 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

In this paper, delta TIB and RIB values for some configurations are corrected.

**Decision: Agreed**.

**Simultaneous Rx/Tx capability**

**R4-2109856 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 EN-DC combinations**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0550 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision:** The document was **revised to R4-2108009.**

**R4-2108009 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 EN-DC combinations**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0550 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision: Agreed**.

**R4-2109913 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR1 EN-DC combinations**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0552 rev Cat: A (Rel-17)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision: Agreed**.

**R4-2109917 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR2 included and FR1+FR2 EN-DC and NR-CA combinations**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0553 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision:** The document was **revised to R4-2108010.**

**R4-2108010 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR2 included and FR1+FR2 EN-DC and NR-CA combinations**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0553 rev Cat: F (Rel-16)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision: Agreed**.

**R4-2109920 CR for updating the note of mandatory simultaneous Rx/Tx capability for FR2 included and FR1+FR2 EN-DC and NR-CA combinations**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0554 rev Cat: A (Rel-17)  
  
 Source: CHTTL, NTT DOCOMO, INC. , SoftBank Corp.*

**Decision: Agreed**.

**Ambiguity of UE capability maxUplinkDutyCycle**

**R4-2110988 Notational amendment and correction to PCMAX for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0587 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2110989 Notational amendment and correction to PCMAX for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0588 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**Changing DC\_XA\_(n)YAA into DC\_XA-(n)YAA**

**R4-2111086 Rel-16 CR 38101-3-g70 corrections**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0591 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Rel-16 CR 38101-3-g70 corrections

**Decision: Agreed**.

**R4-2107975 Rel-17 CR 38101-3-g70 corrections**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-XXXX rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-g70 corrections

**Decision: Agreed**.

**Intra-band non-contiguous EN-DC REFSENS**

**R4-2111522 CR for 38.101-3-g70: Corrections to intra-band non-contiguous EN-DC REFSENS**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0604 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision:** The document was **revised to R4-2108011**.

**R4-2108011 CR for 38.101-3-g70: Corrections to intra-band non-contiguous EN-DC REFSENS**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0604 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Agreed**.

**R4-2111523 CR for 38.101-3-h10: Corrections to intra-band non-contiguous EN-DC REFSENS**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0605 rev Cat: A (Rel-17)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Withdrawn.**

**R4-2107977 CR for 38.101-3-h10: Corrections to intra-band non-contiguous EN-DC REFSENS**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-xxxx rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc.,T-Mobile USA*

**Decision: Agreed**.

**Delta TIB and Delta RIB**

R4-2110190/191 are moved from AI 4.1.2.3 to AI 5.1.7.2

**R4-2110190 CR for Rel-16 38.101-3 to correct some errors in Delta TIB and Delta RIB table**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0568 rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**R4-2110191 CR for Rel-17 38.101-3 to correct some errors in Delta TIB and Delta RIB table**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0569 rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Agreed**.

**Withdrawn documents**

**R4-2110498 CR for missing delta T & delta R of EN-DC with intra-band non-contiguous LTE CA combos in Rel.16**

*Type: CR For: Approval  
 38.101-3 v16.7.0 CR-0579 rev Cat: A (Rel-16)  
  
 Source: CHTTL*

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

**R4-2109125 Correction on supported channel bandwidth for CA\_n39-n41-n79**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0756 rev Cat: F (Rel-17)  
  
 Source: CATT, CMCC*

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

##### 5.1.7.3 RRM requirements

###### 5.1.7.3.1 RRM core

###### 5.1.7.3.2 RRM performance

##### 5.1.7.4 Demodulation and CSI requirements

###### 5.1.7.4.1 UE demodulation requirements

###### 5.1.7.4.2 CSI requirements

###### 5.1.7.4.3 BS demodulation requirements

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

### 5.2 LTE maintenance

#### 5.2.1 Even further mobility enhancement

##### 5.2.1.1 RRM core requirements

##### 5.2.1.2 RRM performance requirements

#### 5.2.2 Other WIs

##### 5.2.2.1 BS RF requirements

##### 5.2.2.2 UE RF requirements

**Refer to Email discussion summary of [99-e] [104] LTE\_Maintenance – Laurent Noel**

**Topic #1: Band specific aspects**

**CA correction**

**R4-2108916 CR LTE CA corrections R16 CAT F**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5748 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed**.

**R4-2108917 CR LTE CA corrections R17 CAT F**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5749 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed**.

**MSD for dual uplink LTE-A CA**

**R4-2109838 CR on MSD test configurations for dual uplink LTE-A CA**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5777 rev Cat: F (Rel-16)  
  
 Source: LG Electronics France*

**Abstract:**

Correction CR to fix some typo in MSD test configuration in TS36.101 in Rel-16. the correction are already reflected in TS36.101 in Rel-17 at last RAN4 #98 meeting.

**Decision: Agreed**.

Chair: do we need Cat A CR?

**MPR/AMPR for LTE CA 256QAM PC2**

**R4-2111294 MPR and AMPR for LTE CA 256QAM PC2**

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

**Decision: Noted**.

**R4-2111421 n41 CA\_NS\_04 AMPR for 256QAM**

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

**Decision: Noted**.

**R4-2111293 CR MPR and AMPR for LTE CA 256QAM PC2**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5792 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision:** The document was **revised to R4-2108024**.

**R4-2108024 CR MPR and AMPR for LTE CA 256QAM PC2**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5792 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision:** The document was **revised to R4-2111545**.

**R4-2111545 CR MPR and AMPR for LTE CA 256QAM PC2**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5792 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision: Agreed.**

**Topic#4: Other maintenance**

**EVM requirements**

**R4-2111357 CR on EVM requirement for TS 36.101-1**

*Type: CR For: Agreement  
 36.101 v8.29.0 CR-5793 rev Cat: F (Rel-8)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107761**.

**R4-2107761 CR on EVM requirement for TS 36.101-1**

*Type: CR For: Agreement  
 36.101 v8.29.0 CR-5793 rev Cat: F (Rel-8)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued**.

Chair: do we need Cat A CRs?

**LTE REFSENS exceptions simplification**

**R4-2109739 LS to RAN5 on LTE REFSENS Exceptions Simplification**

*Type: LS out For: Approval  
 to RAN5  
 Source: Nokia*

**Decision: Approved**.

**R4-2110817 LTE Rel-17 REFSENS Exception Simplification**

*Type: discussion For: Approval  
 36.101 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc., Nokia*

**Abstract:**

This paper reviews the impact of WF [R4-2016940] agreement on TS 36.101 REL17 changes. There are few benefits to introduce the intended WF BigCR. We propose to send an LS to RAN5 at this meeting to seek feedback on two options to pursue the simplification

**Decision: Noted**.

##### 5.2.2.3 RRM requirements

###### 5.2.2.3.1 RRM core requirements

###### 5.2.2.3.2 RRM performance requirements

##### 5.2.2.4 Demodulation and CSI requirements

###### 5.2.2.4.1 UE demodulation requirements

###### 5.2.2.4.2 CSI requirements

###### 5.2.2.4.3 BS demodulation requirements

### 5.3 Rel-16 UE feature list maintenance

## 6 Rel-16 non-spectrum related work items for NR

### 6.1 NR-based access to unlicensed spectrum

#### 6.1.1 System parameter maintenance

**Email discussion summary of [99-e][107] NR\_unlic\_Maintenance, AI 6.1.1 & AI 6.1.2 – Gene Fong**

**R4-2107633 Email discussion summary for [99-e][107]** **NR\_unlic\_Maintenance**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107917**.

**R4-2107917 Email discussion summary for [99-e][107]** **NR\_unlic\_Maintenance**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on NR-U maintenance-related topics | Qualcomm Incorporated | R4-2107980 | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2109428 | NR-U wideband operation and intra-carrier guard bands | Apple | Noted |
| R4-2109970 | Corrections to BCS for n46 | Ericsson | Revised to R4-2107777 |
| R4-2107777 | Corrections to BCS for n46 | Ericsson | Agreed (2nd round) |
| R4-2109971 | Corrections to BCS for n46 | Ericsson | Agreed (2nd round, Cat A) |
| R4-2109972 | Applicability of minimum requirements for shared spectrum access | Ericsson | Revised to R4-2107778 |
| R4-2107778 | Applicability of minimum requirements for shared spectrum access | Ericsson | Agreed (2nd round) |
| R4-2109973 | Applicability of minimum requirements for shared spectrum access | Ericsson | Agreed (2nd round, Cat A) |
| R4-2110128 | Discussion on correction of NR-U band n46 channels for 60 MHz and 80 MHz | Nokia, Charter Communications, CableLabs | Noted |
| R4-2110129 | CR to 38.104 with correction of NR-U 60 MHz and 80 MHz channels | Nokia, Charter Communications, CableLabs | Agreed |
| R4-2110130 | CR to 38.104 with correction of NR-U 60 MHz and 80 MHz channels | Nokia, Charter Communications, CableLabs | Cat A |
| R4-2110131 | CR to 38.101-1 with correction of NR-U 60 MHz and 80 MHz channels | Nokia, Charter Communications, CableLabs | Agreeable |
| R4-2110132 | CR to 38.101-1 with correction of NR-U 60 MHz and 80 MHz channels | Nokia, Charter Communications, CableLabs | Cat A |
| R4-2110810 | NR-U - System parameters | Nokia | Withdrawn |
| R4-2110814 | NR-U - System parameters | Nokia | Noted |
| R4-2110986 | Applicability of requirements for intra-band contiguous CA | Qualcomm Incorporated | Agreeable |
| R4-2110987 | Applicability of requirements for intra-band contiguous CA | Qualcomm Incorporated | Cat A |
| R4-2111012 | Corrections of NR-U wideband operation intra-carrier guard bands | Apple | Not pursued (2nd round) |
| R4-2107779 Rev of R4-2111012 | Corrections of NR-U wideband operation intra-carrier guard bands | Apple | Withdrawn (2nd round) |
| R4-2111013 | Corrections of NR-U wideband operation intra-carrier guard bands | Apple | Withdrawn (2nd round, Cat A) |

**WF/LS/CRs for approval**

**R4-2107980 WF on NR-U maintenance-related topics**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved**.

**-----------------------------------------------------------------------------------------------------**

**Topic#1: Wideband operation**

R4-2109428 is moved from AI 6.1.2 to AI 6.1.1

**R4-2109428 NR-U wideband operation and intra-carrier guard bands**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**R4-2110814 NR-U - System parameters**

*Type: discussion For: Approval  
 Source: Nokia*

**Decision: Noted**.

**CR**

**R4-2111012 Corrections of NR-U wideband operation intra-carrier guard bands**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0840 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2107779 Corrections of NR-U wideband operation intra-carrier guard bands**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0840 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2111013 Corrections of NR-U wideband operation intra-carrier guard bands**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0841 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2109972 Applicability of minimum requirements for shared spectrum access**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0803 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to add the applicability of minimum requirements for DL (Mode 1) and UL

**Decision:** The document was **revised to R4-2107778**.

**R4-2107778 Applicability of minimum requirements for shared spectrum access**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0803 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to add the applicability of minimum requirements for DL (Mode 1) and UL

**Decision: Agreed**.

**R4-2109973 Applicability of minimum requirements for shared spectrum access**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0804 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to add the applicability of minimum requirements for DL (Mode 1) and UL

**Decision: Agreed**.

**Topic#2: Other corrections**

**BCS**

**R4-2109970 Corrections to BCS for n46**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0801 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the BCS for n46: remove impossible configurations and add a new set for n\*20 MHz aggregation.

**Decision:** The document was **revised to R4-2107777**.

**R4-2107777 Corrections to BCS for n46**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0801 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the BCS for n46: remove impossible configurations and add a new set for n\*20 MHz aggregation.

**Decision: Agreed**.

**R4-2109971 Corrections to BCS for n46**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0802 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the BCS for n46: remove impossible configurations and add a new set for n\*20 MHz aggregation.

**Decision: Agreed**.

**R4-2110810 NR-U - System parameters**

*Type: discussion For: Approval  
 Source: Nokia*

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

#### 6.1.2 UE RF requirement maintenance

**Topic#2: Other corrections**

**Correction of 60 and 80MHz channels**

**R4-2110128 Discussion on correction of NR-U band n46 channels for 60 MHz and 80 MHz**

*Type: other For: Approval  
 Source: Nokia, Charter Communications, CableLabs*

**Decision: Noted**.

**R4-2110129 CR to 38.104 with correction of NR-U 60 MHz and 80 MHz channels**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0322 rev Cat: F (Rel-16)  
  
 Source: Nokia, Charter Communications, CableLabs*

**Decision: Agreed**.

**R4-2110130 CR to 38.104 with correction of NR-U 60 MHz and 80 MHz channels**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0323 rev Cat: A (Rel-17)  
  
 Source: Nokia, Charter Communications, CableLabs*

**Decision: Agreed**.

**R4-2110131 CR to 38.101-1 with correction of NR-U 60 MHz and 80 MHz channels**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0810 rev Cat: F (Rel-16)  
  
 Source: Nokia, Charter Communications, CableLabs*

**Decision: Agreed**.

**R4-2110132 CR to 38.101-1 with correction of NR-U 60 MHz and 80 MHz channels**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0811 rev Cat: A (Rel-17)  
  
 Source: Nokia, Charter Communications, CableLabs*

**Decision: Agreed**.

**Other maintenances**

**R4-2110986 Applicability of requirements for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0835 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

**R4-2110987 Applicability of requirements for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0836 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed**.

#### 6.1.3 BS RF requirement maintenance

#### 6.1.4 BS conformance testing

##### 6.1.4.1 General

##### 6.1.4.2 Transmitter characteristics

##### 6.1.4.3 Receiver characteristics

#### 6.1.5 RRM core requirements maintenance (38.133)

##### 6.1.5.1 General

##### 6.1.5.2 RRC connection mobility control

##### 6.1.5.3 SCell activation/deactivation (delay and interruption)

##### 6.1.5.4 Active TCI state switching

##### 6.1.5.5 RLM

##### 6.1.5.6 Beam management

##### 6.1.5.7 Measurement requirements

##### 6.1.5.8 Measurement capability and reporting criteria

##### 6.1.5.9 Timing

##### 6.1.5.10 Other requirements

#### 6.1.6 RRM performance requirements (38.133)

##### 6.1.6.1 General

##### 6.1.6.2 Measurement accuracy requirements

##### 6.1.6.3 Test cases

###### 6.1.6.3.1 General

###### 6.1.6.3.2 RRC IDLE cell re-selection

###### 6.1.6.3.3 HO (delay and interruptions)

###### 6.1.6.3.4 RRC Re-establishment

###### 6.1.6.3.5 RRC Connection Release with Redirection

###### 6.1.6.3.6 Random access

###### 6.1.6.3.7 Timing (transmit timing and TA)

###### 6.1.6.3.8 BWP switching delay and interruptions

###### 6.1.6.3.9 PSCell addition/release (delay and interruption)

###### 6.1.6.3.10 SCell activation/deactivation (delay and interruption)

###### 6.1.6.3.11 Other interruptions

###### 6.1.6.3.12 RLM

###### 6.1.6.3.13 Beam management (BFD and link recovery)

###### 6.1.6.3.14 SS-RSRP/SS-RSRQ/SS-SINR/L1-RSRP measurement procedure (intra-frequency, inter-frequency, inter-RAT)

###### 6.1.6.3.15 RSSI/CO measurement procedure (intra-frequency, inter-frequency, inter-RAT)

###### 6.1.6.3.16 SFTD measurement procedure

###### 6.1.6.3.17 SS-RSRP/SS-RSRQ/SS-SINR/L1-RSRP measurement accuracy (intra-frequency, inter-frequency, inter-RAT)

###### 6.1.6.3.18 RSSI/CO measurement accuracy (intra-frequency, inter-frequency, inter-RAT)

###### 6.1.6.3.19 SFTD measurement accuracy

###### 6.1.6.3.20 Other

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

##### 6.1.7.1 General

##### 6.1.7.2 UE demodulation requirements

##### 6.1.7.3 CSI requirements

##### 6.1.7.4 BS demodulation requirements

###### 6.1.7.4.1 General

###### 6.1.7.4.2 PUSCH requirements

###### 6.1.7.4.3 PUCCH requirements

###### 6.1.7.4.4 PRACH requirements

### 6.2 5G V2X with NR sidelink

#### 6.2.1 RF core requirements maintenance

**Email discussion summary of [99-e][108] 5G\_V2X\_NRSL\_UE\_RF, AI 6.2.1 – Suhwan Lim**

**R4-2107634 Email discussion summary for [99-e][108] 5G\_V2X\_NRSL\_UE\_RF**

*Type: Other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107918**.

**R4-2107918 Email discussion summary for [99-e][108] 5G\_V2X\_NRSL\_UE\_RF**

*Type: Other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| WF on A-MPR revision for both NS\_33 and NS\_52. | Huawei | R4-2107745 | In 2nd round discussion, the A-MPR revision will be concluded in the WF. | Approved (2nd round) |
| WF on transient position and related requirements in Rel-16 | LGE | R4-2107746 | In 2nd round discussion, the transient position and related requirements will be discussed in the WF. | Approved (2nd round) |
| LS on time mask for NR V2X and LTE V2X switching in ITS band | Huawei | R4-2108019 | New request in 2nd round based on email discussion outcome | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** |
| [R4-2109044](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109044.zip) | Discussion on time mask for NR V2X and LTE V2X switching in ITS band | CATT | Noted |
| [R4-2109045](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109045.zip) | CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band | CATT | Revised to R4-2107743 |
| R4-2107743 | CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band | CATT | Agreed (2nd round) |
| [R4-2109688](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109688.zip) | Discussion on the switching period position between LTE SL and NR SL | vivo | Noted |
| [R4-2109689](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109689.zip) | CR for TS 38.101-3 Switching period position for NR V2X (Rel-16) | vivo | Not pursed |
| [R4-2109690](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109690.zip) | CR for TS 38.101-3 Switching period position for NR V2X (Rel-17) | vivo | Withdrawn |
| [R4-2109919](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109919.zip) | Switching position for TDM operation between LTE V2X and NR V2X in ITS spectrum | LG Electronics France | Noted |
| R4-2109922 | CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band | CATT | Withdrawn (2nd round) |
| [R4-2110020](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110020.zip) | CR for TS 38.101-3 switching period for V2X con-current operation | Xiaomi | Not pursed |
| R4-2110021 | CR for TS 38.101-3 switching period for V2X con-current operation | Xiaomi | Withdrawn |
| [R4-2110027](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110027.zip) | on switching period | Xiaomi | Noted |
| [R4-2110400](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110400.zip) | Discussion on Rel-16 NR V2X AMPR value for both NS\_33 and NS\_52 | Huawei, HiSilicon | Noted |
| [R4-2110427](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110427.zip) | CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-16) | Huawei, HiSilicon | Revised to R4-2107744 |
| R4-2107744 | CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-16) | Huawei, HiSilicon | Agreed (2nd round) |
| R4-2110428 | CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-17) | Huawei, HiSilicon | Agreed (2nd round, Cat A) |
| [R4-2111437](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111437.zip) | On SL switching period | Huawei,HiSilicon | Noted |
| [R4-2111438](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111438.zip) | CR for TS 38.101-3: NR V2X SL switching period (Rel-16) | Huawei,HiSilicon | Not pursed |
| R4-2111439 | CR for TS 38.101-3: NR V2X SL switching period (Rel-17) | Huawei,HiSilicon | Withdrawn |

**WF/LS/CR for approval**

**R4-2107745 WF on A-MPR revision for both NS\_33 and NS\_52**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2107746 WF on transient position and related requirements in Rel-16**

*Type: other For: Approval  
 Source: LGE*

**Decision: Approved.**

**R4-2108019 LS on time mask for NR V2X and LTE V2X switching in ITS band**

*Type: LS out For: Approval  
 Source: Huawei*

**Decision: Approved.**

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**Topic #1: Maintenance of V2X UE RF requirements**

**Topic #1-1 switching requirements**

**R4-2109044 Discussion on time mask for NR V2X and LTE V2X switching in ITS band**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2109688 Discussion on the switching period position between LTE SL and NR SL**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2109919 Switching position for TDM operation between LTE V2X and NR V2X in ITS spectrum**

*Type: other For: Approval  
 Source: LG Electronics France*

**Abstract:**

discuss the switching position for TDM operation in ITS spectrum

**Decision: Noted.**

**R4-2110027 on switching period**

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

**Decision: Noted.**

**R4-2111437 On SL switching period**

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

**Decision: Noted.**

CR

**R4-2109045 CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0525 rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision:** The document was **revised to R4-2107743**.

**R4-2107743 CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0525 rev Cat: F (Rel-16)  
  
 Source: CATT*

**Decision: Agreed.**

**R4-2109922 CR for TS 38.101-3, Time mask for NR V2X and LTE V2X switching in ITS band**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0555 rev Cat: A (Rel-17)  
  
 Source: CATT*

**Decision: Agreed.**

**R4-2109689 CR for TS 38.101-3 Switching period position for NR V2X (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0542 rev Cat: F (Rel-16)  
  
 Source: vivo*

**Abstract:**

Add Sub-clause 6.3E Output power dynamics for V2X operation to TS 38.101-3.

**Decision: Not pursued**.

**R4-2109690 CR for TS 38.101-3 Switching period position for NR V2X (Rel-17)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0543 rev Cat: A (Rel-17)  
  
 Source: vivo*

**Abstract:**

Add Sub-clause 6.3E Output power dynamics for V2X operation to TS 38.101-3.

**Decision: Withdrawn**.

**R4-2110020 CR for TS 38.101-3 switching period for V2X con-current operation**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0561 rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Not purused**.

**R4-2110021 CR for TS 38.101-3 switching period for V2X con-current operation**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0562 rev Cat: A (Rel-17)  
  
 Source: Xiaomi*

**Decision: Withdrawn**.

**R4-2111438 CR for TS 38.101-3: NR V2X SL switching period (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0601 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision: Not purused**.

**R4-2111439 CR for TS 38.101-3: NR V2X SL switching period (Rel-17)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0602 rev Cat: A (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Withdrawn**.

**Topic #1-2 A-MPR requirements**

**R4-2110400 Discussion on Rel-16 NR V2X AMPR value for both NS\_33 and NS\_52**

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

**Decision: Noted**.

**R4-2110427 CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0820 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107744**.

**R4-2107744 CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0820 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2110428 CR for 38.101-1 to correct AMPR value for NR V2X NS\_52(Rel-17)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0821 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 6.2.2 RRM core requirements maintenance (38.133)

#### 6.2.3 RRM performance requirements maintenance (38.133)

#### 6.2.4 Demodulation requirements (38.101-4)

##### 6.2.4.1 General

##### 6.2.4.2 Single link test

###### 6.2.4.2.1 PSSCH demodulation test

###### 6.2.4.2.2 PSCCH demodulation test

###### 6.2.4.2.3 PSBCH demodulation test

###### 6.2.4.2.4 PSFCH demodulation test

##### 6.2.4.3 Multiple link test

###### 6.2.4.3.1 Power imbalance requirement

###### 6.2.4.3.2 HARQ soft buffer combing test

###### 6.2.4.3.3 PSFCH decoding capability test

###### 6.2.4.3.4 PSCCH/PSSCH decoding capability

### 6.3 Integrated Access and Backhaul for NR

#### 6.3.1 RF requirements maintenance

##### 6.3.1.1 Transmitter requirements

##### 6.3.1.2 Receiver requirements

#### 6.3.2 RF conformance testing

##### 6.3.2.1 General and work plan

##### 6.3.2.2 Common test issues for conducted and radiated conformance testing

###### 6.3.2.2.1 Test configurations

###### 6.3.2.2.2 Test models

###### 6.3.2.2.3 Others

##### 6.3.2.3 Conducted conformance testing

###### 6.3.2.3.1 Transmitter characteristics

###### 6.3.2.3.2 Receiver characteristics

###### 6.3.2.3.3 Other test issues

##### 6.3.2.4 Radiated conformance testing

###### 6.3.2.4.1 Transmitter characteristics

###### 6.3.2.4.2 Receiver characteristics

###### 6.3.2.4.3 Other test issues

#### 6.3.3 RRM core requirement maintenance

#### 6.3.4 RRM performance requirements

##### 6.3.4.1 General

##### 6.3.4.2 Test cases

###### 6.3.4.2.1 RRC Re-establishment

###### 6.3.4.2.2 RRC Connection Release with Redirection

###### 6.3.4.2.3 IAB-MT transmit timing

###### 6.3.4.2.4 RLM

###### 6.3.4.2.5 Beam Failure Detection and Link Recovery

#### 6.3.5 EMC performance requirements

#### 6.3.6 Demodulation and CSI requirements

##### 6.3.6.1 General

##### 6.3.6.2 IAB-DU performance requirements

##### 6.3.6.3 IAB-MT performance requirements

### 6.4 Multi-RAT Dual-Connectivity and Carrier Aggregation enhancements

**Email discussion summary of [99-e][106] LTE\_NR\_DC\_CA\_enh\_RF\_Maintanence –Christian Bergljung**

**R4-2107632 Email discussion summary for [99-e][106]** **LTE\_NR\_DC\_CA\_enh\_RF\_Maintanence**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised R4-2107916**.

**R4-2107916 Email discussion summary for [99-e][106]** **LTE\_NR\_DC\_CA\_enh\_RF\_Maintanence**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| Reply LS on Further Reply LS on power control for NR-DC | vivo | R4-2107780 | To: RAN1; Cc: RAN2 | Noted |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2107605 | Title: Further Reply LS on power control for NR-DC | RAN1 | Noted |
| R4-2108801 | On Further Reply LS on power control for NR-DC | Qualcomm Incorporated | Noted |
| R4-2109682 | Discussion and Reply on Further Reply LS on power control for NR-DC | vivo | Noted |
| R4-2111166 | Reply LS on Further Reply LS on power control for NR-DC | Ericsson | Noted |
| R4-2111354 | discussion for Reply LS on power control for NR-DC | Huawei, HiSilicon | Noted |

**WF/LS/CRs for approval**

**R4-2107780 Reply LS on Further Reply LS on power control for NR-DC**

*Type: LS out For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2111541 Reply LS on Further Reply LS on power control for NR-DC**

*Type: LS out For: Approval  
 Source: vivo*

**Decision: Withdrawn.**

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**Paper under discussions**

**R4-2111166 Reply LS on Further Reply LS on power control for NR-DC**

*Type: LS out For: Approval  
 to RAN1, cc RAN2  
 Source: Ericsson*

**Abstract:**

Discussion and LS reply on Further Reply LS on power control for NR-DC

**Decision: Noted**.

**Refer contributions in AI 13.1**

R4-2108801 On Further Reply LS on power control for NR-DC Qualcomm

R4-2111354 discussion for Reply LS on power control for NR-DC Huawei

R4-2109682 Discussion and Reply on Further Reply LS on power control for NR-DC Vivo

#### 6.4.1 RRM core requirement maintenance (38.133/36.133)

##### 6.4.1.1 Early Measurement reporting

##### 6.4.1.2 Efficient and low latency serving cell configuration, activation and setup

#### 6.4.2 RRM performance requirements (38.133)

##### 6.4.2.1 Early Measurement reporting

###### 6.4.2.1.1 General

###### 6.4.2.1.2 Measurement accuracy requirements

###### 6.4.2.1.3 Test cases

##### 6.4.2.2 Efficient and low latency serving cell configuration, activation and setup

###### 6.4.2.2.1 General

###### 6.4.2.2.2 Test cases for direct SCell activation

###### 6.4.2.2.3 Test case for SCell Dormancy

### 6.5 NR Positioning Support

#### 6.5.1 RRM core requirement maintenance (38.133)

##### 6.5.1.1 PRS-RSTD measurement requirements

##### 6.5.1.2 PRS-RSRP measurement requirements

##### 6.5.1.3 UE Rx-Tx time difference measurement requirements

##### 6.5.1.4 Other requirements

#### 6.5.2 RRM performance requirements (38.133)

##### 6.5.2.1 General

##### 6.5.2.2 UE requirements and test cases

###### 6.5.2.2.1 General

###### 6.5.2.2.2 Measurement accuracy requirements

6.5.2.2.2.1 PRS RSTD

6.5.2.2.2.2 PRS RSRP

6.5.2.2.2.3 UE Rx-Tx time difference

###### 6.5.2.2.3 Test cases

6.5.2.2.3.1 General

6.5.2.2.3.2 Measurement requirements

###### 6.5.2.2.4 Other

##### 6.5.2.3 gNB requirements

###### 6.5.2.3.1 General

###### 6.5.2.3.2 SRS-RSRP requirements

###### 6.5.2.3.3 gNB Rx-Tx time difference requirements

### 6.6 NR RRM requirements for CSI-RS based L3 measurement

#### 6.6.1 RRM core requirements maintenance (38.133)

#### 6.6.2 RRM performance requirements (38.133)

##### 6.6.2.1 General

##### 6.6.2.2 Measurement accuracy requirements

###### 6.6.2.2.1 CSI-RSRP requirements

###### 6.6.2.2.2 CSI-RSRQ requirements

###### 6.6.2.2.3 CSI-SINR requirements

##### 6.6.2.3 Test cases

###### 6.6.2.3.1 General

###### 6.6.2.3.2 Intra-frequency measurement

###### 6.6.2.3.3 Inter-frequency measurement

###### 6.6.2.3.4 Measurement performance

### 6.7 R16 TEI

#### 6.7.1 Transmit diversity and power class related to UL MIMO

**Email discussion summary of [99-e][109] NR\_TxD, AI 6.7.1 – Sanjun Feng**

**R4-2107635 Email discussion summary for [99-e][109]** **NR\_TxD**

*Type: Other For: Information  
 Source: Moderator (Vivo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107919**.

**R4-2107919 Email discussion summary for [99-e][109]** **NR\_TxD**

*Type: Other For: Information  
 Source: Moderator (Vivo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**GTW session on May 21st**

**Issue 1-1-1: Applicable power class for capability signaling in different releases**

• Proposals

* Option 1: Applies for all Power Classes for both Rel-15 and Rel-16
* Option 2: Applies for only PC2 for Rel-15, and for all power classes in Rel-16;
* Option 3: Others

**Agreement:** Option 1 is agreeable.

**Discussion**

Huawei: we suggest to set the target completion date for this work.

Other companies thought that the technique contents discussed here are important and have to be addressed.

Chair: From management work perspective, we should set completion date for this TEI work. The tentative target completion date of this TxD work could be September 2021. But the important technique aspects could be added into the existing Rel-17 WID as a new objective. Companies can further discuss how to handle it.

Moderator/some companies expressed support for setting timeline.

**Issue 1-2-1: MPR**

The following evaluation and tentative suggestion had been provided:

1. R4-2111011 (Skyworks):
2. R4-2108794 (Qualcomm)
3. R4-2109703 (LG)
4. R4-2111440 (Huawei CR)

* Proposals
  + Companies can encourage to comment on the respective evaluation results
* Recommended WF
  + It is proposed to adopt the following offset based on 1TX

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Modulation** | | **MPR (dB)** | | |
| **Edge RB allocations** | **Outer RB allocations** | **Inner RB allocations** |
| DFT-s-OFDM | Pi/2 BPSK | ≤ 3.5 | ≤ 0.5 | 0 |
| QPSK | ≤ 3.5+D1 | ≤ 1+D2 | 0+D6 |
| 16 QAM | ≤ 3.5+D1 | ≤ 2+D2 | ≤ 1+D6 |
| 64 QAM | ≤ 3.5+D3 | ≤ 2.5+D4 | |
| 256 QAM | ≤ 4.5 + [1] | | |
| CP-OFDM | QPSK | ≤ 3.5+D1 | ≤ 3+D2 | ≤ 1.5+D6 |
| 16 QAM | ≤ 3.5+D1 | ≤ 3+D2 | ≤ 2+D6 |
| 64 QAM | ≤ 3.5+D5 | | |
| 256 QAM | ≤ 6.5 + [2] | | |

* + Tentative offset values are as following:
    - Edge MPR for QPSK/16QAM (D1): [0.5~1.5]dB
    - Outer MPR for QPSK/16QAM (D2): [0.5~1.5]dB
    - Edge DFT-S MPR for 64QAM (D3): [0.5~1.5]dB
    - Outer/Inner DFT-S MPR for 64QAM (D4): [0.5~1.5]dB
    - CP-OFDM MPR for 64QAM (D5): [0.5~1.5]dB
    - Inner (other than High order) (D6): [0~0.5]dB
    - 256QAM proposals marked in the table;
    - Pi/w BPSK currently leave unchanged

**Discussion:**

T-Mobile: need clarification for LGE results. Do we need re-evaluate MPR for PC1.5?

LGE: in previous meeting, RAN4 agreed to re-evaluate by assuming 23+23. But for PC1.5 we use different architecture 26+26. We should consider IMD issue. Maybe we can consider average value.

Apple: MPR value, it seems to be based on simulation rather measurement. Only one company provides measurement result. Is IMD considered correctly in simulation? It could be underestimated. It is too early to decide and we should come back next meeting with more measurement results.

Ericsson: the relation to full power mode. Mode 1 is TxD. No additional MPR can apply when 1Tx allowed. TxD could have some degradation in some case. There would be a concern to allow additional MPR. We would like consider the consistency with full power mode. Clarification is needed.

Huawei: we disagree with comment of Ericsson. It depends on UE implementation. Regarding evaluation, last meeting we have evaluation assumptions. Based on the assumptions, Skyworks provide initial results. TxD is discussed for a long time. There is no new implementation. Based on existing UE, company can provide the measurement based on the existing UE. We can consider the delta from 1Tx by using TxD. Minor relaxation would be possible compared to two Tx requirement. Proposals from Qualcomm are OK for us, which provides relaxation for CP-OFDM. For this meeting, we need to make conclusion as soon as possible. Other work relies on the conclusion of TxD.

Qualcomm: PC1.5, I do not think we need change. We should keep consistency. We use measurement to calibrate the simulator.

Ericsson: for full power mode,

Huawei: for full power mode, we sent LS to RAN1 to clarity implementation. RAN1 is aware that the implementation could be different. Until now we only refer to PC3 table. There is no agreement that we should consider conclusion of TxD. It is clear that PC3 requirement cannot be reused for other PC.

**Agreement:**

* In this meeting, RAN4 will try to agree on the ranges for MPR values if possible, and in the next meeting, RAN4 can down-select to concrete value within the agreed range.

**Issue 1-2-2: A-MPR Related**

* Proposals
  + Option 1: A-MPR as band specific requirements could be decoupled from the general TxD requirements
  + Option 2: Keeping the agreement of applying same MPR for UL MIMO and Tx Diversity would mean changed to the UL MIMO AMPR, too.
* Recommended WF
  + Further discussion can be proceed after MPR was set
  + The baseline can be the current requirements

**Discussion:**

Huawei: A-MPR is band specific requirements. Usually we need complete the requirement for MPR first.

LGE: second to Huawei. We should decouple. Option 2 are fine for us.

Chair: in this meeting, we focus on MPR.

**Issue 1-2-3: SRS switching requirements**

* Proposals
  + Option 1: Based on R4-2108793
    - The ∆TRxSRS needs to be increased by 3 dB overall except for the PC2 case which accommodates the use of PA with 3 dB lower power for SRS antenna switching.



* + Option 2: Based on R4-2110816: Add PC1.5 to the ∆TRxSRS specification and no need to specify TxD



* + Option 3: Others
* Recommended WF
  + Accept the following assumptions:
    - SRS antenna switching which was targeted for DL CSI would not use UL antenna virtualization, i.e. UL TxD
    - The current wording in spec, which do not suppose support of TxD capability, had a pre-assumption that a full power PA is available.
      * + Then it comes the 3dB additional loss in case a non-full power PA was selected.
    - TxD capable UE can have non full-power PAs only, while still can use SRS antenna switching
      * + Then 3dB loss would be needed even for the first / first or second SRS port for SRS antenna switching
  + Based on previous assumptions, refine the requirements based on option 1
    - Add a specific condition for UE supports TxD as in option 1
    - Other part is FFS and may need further refinements

**Discussion:**

Moderator: we can first discuss the assumption and based on the assumption we can discuss how to define the requirements.

Qualcomm: We want to consider all the signals for TxD. Considering Nokia and Ericsson, should we allow UE to do SRS antenna switching with TxD? There would be complicated implantation.

Huawei: based on the paper from Qualcomm, we share the similar view that it depends on UE implementation. There is no need to mandate UE to do antenna virtualization for SRS for at least some cases. SRS antenna switching is option feature. If there is no requirement, we may not enable SRS antenna switching for TxD.

Oppo: We support Option 2. Option 1 means that TxD is separate configuration from SRS. This is not correct.

Vivo: We prefer to Option 1. There is very important issue. Firstly SRS antenna switching should not use any antenna virtualization, which is mentioned by Qualcomm. If we have restriction on SRS antenna switching use case, it is not desirable.

Ericsson: we agree with Qualcomm. We are not disputing that additional loss is not needed. In practice, we should include different antenna difference. We should not exclude SRS antenna switching.

Huawei: We can consider combining Option 1 and 2.

**Agreement:**

* SRS antenna switching which was targeted for DL CSI would not use UL antenna virtualization, i.e. UL TxD
* SRS antenna switching functionality cannot be excluded for UE supporting TxD.

Chair: Leave discussion on concrete value for loss and how to combine Option 1 and 2 to further email discussion.

**Issue 1-2-4: TxD EVM spectrum flatness**

* Proposals
  + Option 1: Based on R4-2108793:



* + Option 2: Others
* Recommended WF
  + TBA

**Discussion:**

Motorola mobility: we have comment similar to R&S. Do they cancel each other? We think we should consider flatness.

Qualcomm: We would like to learn more about the potential problem.

Motorola mobility: It could be one value. I can share one example.

Chair: Please Motorola mobility experts share the material in the reflector.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| Way Forward on NR TxD & Power Class | vivo | R4-2107740 |  | Approved |
| Way Forward on SRS antenna switching requirements for TxD | OPPO | R4-2107780 |  | Approved |
| Correction of general description of EN-DC related power class based on the TxD capability | vivo | R4-2107781 | TS 38.101-3, Rel-15, Cat F | Agreed |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc num** | **Title** | **Source** | **Recommendation** |
| R4-2108793 | SRS switching and spectral flatness with TX diversity | Qualcomm Incorporated | Noted |
| R4-2108794 | MPR for 2Tx devices | Qualcomm Incorporated | Noted |
| R4-2108909 | Relation between TxD and ul-FullPwrModes & TxD and SRS antenna switching | Nokia, Nokia Shanghai Bell | Noted |
| R4-2109420 | On remaining issues on NR TxD | ZTE Wistron Telecom AB | Noted |
| R4-2109678 | Remaining issues in Transparent Tx Diversity | vivo | Noted |
| R4-2109703 | MPR of transmit diversity for power class2 | LG Electronics Polska | Noted |
| R4-2109974 | More on transparent TxD and a Draft Reply LS to RAN2 | Ericsson | Noted |
| R4-2110815 | R16 TxD testing issues and draft LS to RAN5 | OPPO | Noted |
| R4-2111440 | CR for TS 38.101-1 Tx diversity requirements | Huawei,HiSilicon, vivo, OPPO | Revised to R4-2107782 |
| R4-2107782 | CR for TS 38.101-1 Tx diversity requirements | Huawei,HiSilicon, vivo, OPPO | Return to |
| R4-2111502 | CR for TS 38.101-1 Tx diversity requirements | Huawei,HiSilicon, vivo, OPPO | Return to |
| R4-2111495 | On Defining EVM for Transmit Diversity using the Pseudo-Inverse | Lenovo, Motorola Mobility | Noted |
| [R4-2110816](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110816.zip) | R16 SRS IL update | OPPO | Noted |
| [R4-2110935](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110935.zip) | R16 CR on SRS IL | OPPO | Postponed |
| R4-2110936 | R17 CR on SRS IL | OPPO | Postponed |
| R4-2108859 | Handling power class ambiguity | Qualcomm Incorporated | Noted |
| R4-2109679 | Remaining issues in Power class & UL MIMO related requirments | vivo | Noted |
| R4-2111011 | MPR evaluation for PC2 transparent Tx diversity | Skyworks Solutions Inc. | Noted |
| R4-2111441 | Discussion and draft reply LS on EN-DC power class | Huawei,HiSilicon | Noted |
| R4-2111442 | CR for TS 38.101-3 correction of power class for EN-DC | Huawei,HiSilicon | Not pursued |

**WF/LS/CR for approval**

**R4-2107740 Way Forward on NR TxD & Power Class**

*Type: other For: Approval  
 Source: Vivo*

**GTW session on May 25th**

**Remaining Issues - TxD EVM spectrum flatness**

Agreement:

* + Based on R4-2108793 with the following updated equation for composite equalizer:

**Remaining Issues - Testing related issues**

* Proposals
  + Option 1: Leave these discussions to RAN5 and not pursue them before agreement of RAN4 CR.
  + Option 2: Continue discussion in RAN4.

Agreement:

* + Option 1

**Remaining Issues - TxD antenna and channel models**

* Proposals
  + Option 1: No more discussion on these issues.
  + Option 2: Further discuss the relevant antenna and channel models and their impact as part of, and prior to, concluding on conformance testing methodologies and reference receivers for TxD with conducted measurements.

Agreements:

* + Option 1

**Decision: Approved.**

**R4-2107981 Way Forward on SRS antenna switching requirements for TxD**

*Type: other For: Approval  
 Source: OPPO*

**GTW session on May 25th**

Agreement:

* Introduce PC1.5 to spec
* Explicit introduce TxD for SRS antenna switching IL, but how to harmonize with the current SRS conditions are FFS, and the exact IL values are FFS
* At least following PC2 UE architectures with TxD but without antenna virtualization for all antenna ports are to be analyzed in #100e
  + 23PA+23PA
  + 26PA+23PA
  + 26PA+26PA
* At least 1T2R, 1T4R, 2T4R and 1T4R/2T4R srs-TxSwitch are to be analyzed in #100e
* A big CR will be used to capture the agreement in #100e together with other TxD issues.

**Decision: Approved.**

##### 6.7.1.1 R16 support of transmit diversity

**Remaining issues**

**R4-2108793 SRS switching and spectral flatness with TX diversity**

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

**Decision: Noted.**

**R4-2108909 Relation between TxD and ul-FullPwrModes & TxD and SRS antenna switching**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted**

**R4-2109420 On remaining issues on NR TxD**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted.**

**R4-2109678 Remaining issues in Transparent Tx Diversity**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**EVM**

**R4-2111495 On Defining EVM for Transmit Diversity using the Pseudo-Inverse**

*Type: discussion For: Approval  
 Source: Lenovo, Motorola Mobility*

**Decision: Noted**.

**LS**

**R4-2109974 More on transparent TxD and a Draft Reply LS to RAN2**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss whether the TxD capability is needed and propose that the relation of the TxD capability is made clear at a minimum. A Draft Reply LS to RAN2 is attached.

**Decision: Noted**.

**R4-2110815 R16 TxD testing issues and draft LS to RAN5**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**CR**

**R4-2111440 CR for TS 38.101-1 Tx diversity requirements**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0865 rev Cat: B (Rel-16)  
  
 Source: Huawei,HiSilicon, vivo, OPPO*

**Decision:** The document was **revised to R4-2107782**.

**R4-2107782 CR for TS 38.101-1 Tx diversity requirements**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0865 rev Cat: B (Rel-16)  
  
 Source: Huawei,HiSilicon, vivo, OPPO*

**Decision: Postponed.**

**R4-2111502 CR for TS 38.101-1 Tx diversity requirements**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0866 rev Cat: A (Rel-17)  
  
 Source: Huawei,HiSilicon, vivo, OPPO*

**Decision: Withdrawn**.

**R4-2107781 Correction of general description of EN-DC related power class based on the TxD capability**

*Type: CR For: Agreement  
 38.101-3 v15.x.y CR-xxxx rev Cat: F (Rel-15)  
  
 Source: vivo*

**Decision: Endorsed**

##### 6.7.1.2 Power class related to UL MIMO and other related req. (MPR, SEM, etc)

**Power class**

**R4-2108859 Handling power class ambiguity**

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

**Decision: Noted**

**R4-2109679 Remaining issues in Power class & UL MIMO related requirments**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**MPR**

R4-2108794 and R4-2109703 are moved from AI 6.7.1.1 to AI 6.7.1.2

**R4-2108794 MPR for 2Tx devices**

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

**Decision: Noted**.

**R4-2109703 MPR of transmit diversity for power class2**

*Type: discussion For: Discussion  
 Source: LG Electronics Polska*

**Abstract:**

It discusses MPR for transmit diversity for power class 2 with 2PA.

**Decision: Noted**.

**R4-2111011 MPR evaluation for PC2 transparent Tx diversity**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we do not provide MPR data as the time was too short between the two meetings to perform these types of cumbersome measurements, but nevertheless we have performed some experiments to provide further insights on the effect of reverse

**Decision: Noted**

**R4-2111441 Discussion and draft reply LS on EN-DC power class**

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

**Decision: Noted**.

**CR**

**R4-2111442 CR for TS 38.101-3 correction of power class for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0603 rev Cat: F (Rel-15)  
  
 Source: Huawei,HiSilicon*

**Decision: Not pursued**.

**SRS IL**

R4-2110816/935/936 are moved from AI 6.7.2 to AI 6.7.1

**R4-2110816 R16 SRS IL update**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2110935 R16 CR on SRS IL**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0831 rev Cat: F (Rel-16)  
  
 Source: OPPO*

**Decision: Postponed**.

**R4-2110936 R17 mirror CR on SRS IL**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0832 rev Cat: A (Rel-17)  
  
 Source: OPPO*

**Decision: Postponed**.

#### 6.7.2 Others

**Email discussion summary of [99-e][110] NR\_TEI\_R16, AI 6.7.2 – Peng Zhang**

**R4-2107636 Email discussion summary for [99-e][110]** **NR\_TEI\_R16**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised R4-2107920**.

**R4-2107920 Email discussion summary for [99-e][110]** **NR\_TEI\_R16**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on Transient period capability | Huawei, HiSilicon | R4-2107783 | Approved (2nd round) |
| WF on Rx Requirements for Type 2 UE | Qualcomm Incorporated | R4-2107784 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2111355 | CR for TR 38.101-1 on shorter transient\_r16 | Huawei, HiSilicon | Not pursued (2nd round) |
| R4-2107785 (Rev of R4-2111355) | CR for TR 38.101-1 on shorter transient\_r16 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111356 | CR for TR 38.101-1 on shorter transient\_r17 | Huawei, HiSilicon | Withdrawn (2nd round) |
| R4-2111418 | IBE requirement for almost contiguous allocations | Qualcomm Incorporated | Not pursued (2nd round) |
| R4-2111419 | IBE requirement for almost contiguous allocations -Mirror | Qualcomm Incorporated | Withdrawn (2nd round) |
| R4-2109964 | Requirements Type 2 UEs supporting inter-band MRDC with overlapping DL | Ericsson | Not pursued (2nd round) |
| R4-2110006 | Requirements Type 2 UEs supporting inter-band MRDC with overlapping DL | Ericsson | Withdrawn (2nd round) |
| R4-2109721 | CR to 38.101-1 for missing MSD due to receiver harmonic mixing for combos with n46 | MediaTek Inc. | Agreed |
| R4-2109722 | CR to 38.101-1 for missing MSD due to receiver harmonic mixing for combos with n46 | MediaTek Inc. | Agreed |
| R4-2109723 | CR to 38.101-3 for missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46 | MediaTek Inc. | Agreed |
| R4-2109724 | CR to 38.101-3 for missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46 | MediaTek Inc. | Agreed |
| R4-2111394 | CR for 38.101-3 missing ENDC coexistence | Qualcomm Incorporated | Revised to R4-2107786 |
| R4-2107786 | CR for 38.101-3 missing ENDC coexistence | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2111395 | CR for 38.101-3 missing ENDC coexistence -Mirror | Qualcomm Incorporated | Agreed (2nd round) |
| R4-2108857 | FFT window starting point values for EVM measurements for transient period capability | Anritsu Limited | Noted |
| R4-2109705 | DC\_n46A-n48A MSD due to receiver harmonic mixing analysis | MediaTek Inc. | Noted |
| R4-2111426 | IBE mask for almost contiguous allocations | Qualcomm Incorporated | Noted |
| R4-2111461 | Imbalance Requirement for Type 2 UE RX | Qualcomm Incorporated | Noted |
| R4-2111539 | Transient Period Capability Measurements | Skyworks Solutions Inc. | Noted |

**WF/LS/CRs for approval**

**R4-2107783 WF on Transient period capability**

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

**Decision: Approved.**

**R4-2107784 WF on Rx Requirements for Type 2 UE**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

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**Topic #1 Transient period capability**

**R4-2108857 FFT window starting point values for EVM measurements for transient period capability**

*Type: discussion For: Approval  
 Source: Anritsu Limited*

**Decision: Noted.**

**R4-2111355 CR for TR 38.101-1 on shorter transient\_r16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0851 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued**.

**R4-2107785 CR for TR 38.101-1 on shorter transient\_r16**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0851 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2111356 CR for TR 38.101-1 on shorter transient\_r17**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0852 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2111539 Transient Period Capability Measurements**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted**.

**Topic #2 IBE mask for almost contiguous allocations**

**R4-2111426 IBE mask for almost contiguous allocations**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

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

**R4-2111418 IBE requirement for almost contiguous allocations**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0861 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Not pursued.**

**R4-2111419 IBE requirement for almost contiguous allocations -Mirror**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0862 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**Topic #3 Requirement for Type 2 UE RX**

**R4-2109964 Requirements Type 2 UEs supporting inter-band MRDC with overlapping DL**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0556 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

CR to add requirements for Type 2 UE

**Decision: Not pursued.**

**R4-2110006 Requirements Type 2 UEs supporting inter-band MRDC with overlapping DL**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0560 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to add requirements for Type 2 UE

**Decision: Withdrawn.**

**R4-2111461 Imbalance Requirement for Type 2 UE RX**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**Topic #4 Others**

**DC\_n46A-n48A MSD**

**R4-2109705 DC\_n46A-n48A MSD due to receiver harmonic mixing analysis**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-16)  
  
 Source: MediaTek Inc.*

**Decision: Noted**.

**R4-2109721 CR to 38.101-1 for missing MSD due to receiver harmonic mixing for combos with n46**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0785 rev Cat: F (Rel-16)  
  
 Source: MediaTek Inc.*

**Abstract:**

Introduce missing MSD due to receiver harmonic mixing for combos with n46.

**Decision: Agreed**.

**R4-2109722 CR to 38.101-1 for missing MSD due to receiver harmonic mixing for combos with n46**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0786 rev Cat: A (Rel-17)  
  
 Source: MediaTek Inc.*

**Abstract:**

Introduce missing MSD due to receiver harmonic mixing for combos with n46.

**Decision: Agreed**.

**R4-2109723 CR to 38.101-3 for missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0544 rev Cat: F (Rel-16)  
  
 Source: MediaTek Inc.*

**Abstract:**

Introduce missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46.

**Decision: Agreed.**

**R4-2109724 CR to 38.101-3 for missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0545 rev Cat: A (Rel-17)  
  
 Source: MediaTek Inc.*

**Abstract:**

Introduce missing MSD due to cross band and MSD due to receiver harmonic mixing for combos with n46.

**Decision: Agreed.**

**ENDC coexistence**

**R4-2111394 CR for 38.101-3 missing ENDC coexistence**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0599 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107786**.

**R4-2107786 CR for 38.101-3 missing ENDC coexistence**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0599 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2111395 CR for 38.101-3 missing ENDC coexistence -Mirror**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0600 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

## 7 Rel-17 maintenance for both NR and LTE

### 7.1 Introduction of FR2 FWA UE with maximum TRP of 23dBm for n257 and n258

#### 7.1.1 UE RF requirements

#### 7.1.2 RRM core requirements

#### 7.1.3 RRM performance requirements

#### 7.1.4 Others

## 8 Rel-17 spectrum related Work Items for NR

### 8.1 Introduction of lower 6GHz NR unlicensed operation for Europe

**Email discussion summary of [99-e][111] NR\_6GHz\_unlic\_EU, AI 8.1 –Johannes Hejselbaek**

**R4-2107637 Email discussion summary for [99-e][111] NR\_6GHz\_unlic\_EU**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107921**.

**R4-2107921 Email discussion summary for [99-e][111] NR\_6GHz\_unlic\_EU**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

*Refere to WID RP-210762. Complete dates are June 2021 for Core and Sep. 2021 for Perf.*

*According to the agreed work plan, the targeta for this meeting are*

* *3GPP RAN4#99-e (May 2021)*
* *Agree or endorse TR 38.849 and revised WID if any updates;*
* *Conclude discussions related to* ***core requirements for UE and BS***
* *Endorse BIG CRs for impacted core TSs;*
* *Discussions on conformance requirements for BS testing*
* *Unfinished part in 3GPP RAN4#98-e (Jan. 2021)*
  + *Agree if the* ***frequency range*** *for unlicensed operation in Europe are best introduced to the specification by relevant updates (if any) of band n96 or whether a new band is needed.*
  + *Core requirements for UE and BS*

**GTW sessions on May 20th:**

**Issue 1-3: Inclusion of VLP deployment to 3GPP specification**

Agreement: Go with Option 2

* Send LS to regulation to check if the BS is allowed. If there is problem, RAN4 will revisit the agreement.

**Issue 2-1: MPR for LPI deployments**

* Option 1: No changes for MPR as compared to the values captured in WF R4-2105383.
* Option 2: Adopt the proposed values from R4-2109430
* Option 3: Merge/compromise the values from R4-2105383 and R4-2109430 to a combined proposal

Agreement: Option 3

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** |
| WF on introduction of lower 6GHz NR unlicensed operation for Europe | Nokia | R4-2107787 |  |
| LS on whether VLP outdoor APs/base stations is allowed | Apple | R4-2107788 | Approved |
| TP to TR 38.849 on MPR values for LPI deployments | Nokia | R4-2107789 | Approved |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2110691 | draft TR 38.849 v0.3.0 | Nokia, Nokia Shanghai Bell | To be Email approved |  |
| R4-2109429 | Band plan for lower 6GHz NR unlicensed operation in EU/CEPT | Apple, Facebook, Hewlett Packard Enterprise, Skyworks Solutions Inc. | Noted |  |
| R4-2110692 | On system parameters for the lower 6GHz NR unlicensed operation | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2111165 | On NR unlicensed operation for lower 6GHz in Europe | Ericsson | Noted |  |
| R4-2109430 | A-MPR for 6GHz NR unlicensed band in EU/CEPT | Apple | Noted |  |
| R4-2110693 | On UE RF aspects for the lower 6GHz NR unlicensed operation | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2110983 | NR-U VLP for EU 6 GHz | Qualcomm Incorporated | Noted |  |
| R4-2110617 | Discussion on BS RF requirements for Europe unlicensed 6GHz | ZTE Corporation | Noted |  |
| R4-2110618 | draft CR for introduction of Europe unlicensed 6GHz. | ZTE Corporation | Not Pursued | It is premature to endorse draftCR since discussion is still ongoing on how to capture the frequency range in specification |
| R4-2110694 | On BS RF aspects for the lower 6GHz NR unlicensed operation | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2109431 | On LPI and VLP modes for mixed indoor/outdoor scenarios | Apple | Noted |  |
| R4-2111408 | Discussion on EU band allocation | Huawei | Noted |  |

**WF/LS/CRs for approval**

**R4-2107787 WF on introduction of lower 6GHz NR unlicensed operation for Europe**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Revised to R4-2108020**.

**R4-2108020 WF on introduction of lower 6GHz NR unlicensed operation for Europe**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

**R4-2107788 LS on whether VLP outdoor APs/base stations is allowed**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted**

**R4-2107789 TP to TR 38.849 on MPR values for LPI deployments**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

#### 8.1.1 General

**TR 38.849**

**R4-2110691 draft TR 38.849 v0.3.0**

*Type: draft TR For: Agreement  
 38.849 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of agreements and TPs provided at RAN4#99

**Decision: Email approval**.

**Topic #1: Band plan and LPI & VLP deployment**

**R4-2109429 Band plan for lower 6GHz NR unlicensed operation in EU/CEPT**

*Type: discussion For: Decision  
 Source: Apple, Facebook, Hewlett Packard Enterprise, Skyworks Solutions Inc.*

**Decision: Noted**.

**R4-2110692 On system parameters for the lower 6GHz NR unlicensed operation**

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

**Decision: Noted**.

**R4-2111165 On NR unlicensed operation for lower 6GHz in Europe**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

On NR unlicensed operation for lower 6GHz in Europe

**Decision: Noted**.

R4-2109431 is moved from AI 8.1.4 to AI 8.1.1.

**R4-2109431 On LPI and VLP modes for mixed indoor/outdoor scenarios**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

Part of proposals from R4-2110617, R4-2109431, R4-2109431, and R4-2111408.

#### 8.1.2 UE RF requirements

**Topic #2: UE related requirements**

**R4-2109430 A-MPR for 6GHz NR unlicensed band in EU/CEPT**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**R4-2110693 On UE RF aspects for the lower 6GHz NR unlicensed operation**

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

**Decision: Noted**.

**R4-2110983 NR-U VLP for EU 6 GHz**

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

**Decision: Noted**.

#### 8.1.3 BS RF requirements

**Topic #3: BS related requirements**

**R4-2110617 Discussion on BS RF requirements for Europe unlicensed 6GHz**

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

**Decision: Noted**.

**R4-2110618 draft CR for introduction of Europe unlicensed 6GHz.**

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

**Decision: Not pursued**.

**R4-2110694 On BS RF aspects for the lower 6GHz NR unlicensed operation**

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

**Decision: Noted**.

R4-2111408 is moved from AI 8.11.1 to AI 8.1.3

**R4-2111408 Discussion on EU band allocation**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

Discussion on the n96 EU band assignment

**Decision: Noted**.

#### 8.1.4 Others

### 8.2 Introduction of NR 47 GHz band

#### 8.2.1 UE RF requirements (38.101-2)

**Email discussion summary of [99-e][112] NR\_47GHz\_Band, AI 8.2.1 & AI 8.2.6 –Hisashi Onozawa**

**R4-2107638 Email discussion summary for [99-e][112]** **NR\_47GHz\_Band**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107922**.

**R4-2107922 Email discussion summary for [99-e][112]** **NR\_47GHz\_Band**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210827. Completion dates are Sep 21 for Core and Perf.

Remaining open issues:

* *Whether* ***PTRS*** *is configured for UE Tx EVM measurement or not.*
* ***UE RF core requirements for UE power class 1, 2 and 4****.*
* *MU/TT budget for BS Rx RF conformance requirement*
* *RRM CR drafting aligned with RF requirement*
* *UE Demod requirement (whether PN model is revisited or not, etc)*
* *BS Demod requirement and test feasibility (link budget/test configuration)*

**GTW session on May 20th**

**Sub-topic# 1-1 Min peak EIRP**

* Agreement:
  + For PC2, 22.9dBm
  + For PC4, 28.3dBm
  + For PC1, further check the value on minimum peak EIRP
    - Alt 1: 34.5dBm (Qualcomm, DISH, T-Mobile, Sony, Ericsson)
    - Alt 2: Value in the range of 33.8~34dBm (Intel, Mediatek, Huawei, Vivo)

**Sub-topic 1-2: REFSENS**

* Agreement
  + PC2: -86.8dBm
  + PC4: -91.0dBm

**Sub-topic 1-3 Gain drop from peak to spheric**

**Gain drop from minimum peak EIRP to EIRP spherical coverage**

* Agreement
  + PC2: 11.9dBm
  + PC4: 12.1dBm

**GTW session on May 24th**

* Agreement
  + Wayforward on PC1 Min peak EIRP
    - PC1 Minimum peak EIRP
      * For PC1, 34.2 dBm
* Agreement:
  + PC1 REFSENS for 50MHz CBW
    - * For PC1, -92.5 dBm
* Agreement:
  + PC1 Gain drop from peak EIRP/REFSENS to spherical EIRP/EIS
    - * For PC1, 8.2 dB

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on n262 UE EIRP/EIS requirement | Nokia | R4-2107790 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2108813](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108813.zip) | Power class specific parameters for n262 | Qualcomm Incorporated | noted |  |
| [R4-2109007](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109007.zip) | Peak EIRP and EIRP spherical coverage for PC1, PC2, PC4 for n262 | Sony | noted |  |
| [R4-2109547](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109547.zip) | Proposal on n262 PC1/2/4 peak EIRP and EIRP spherical coverage | MediaTek Beijing Inc. | noted |  |
| [R4-2109669](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109669.zip) | Discussion on EIRP and spherical coverage for PC1,PC2 and PC4 | vivo | noted |  |
| [R4-2109789](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109789.zip) | EIRP requirements for n262 UE power class 1, 2, and 4 | Nokia, Nokia Shanghai Bell | noted |  |
| [R4-2110839](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110839.zip) | EIRP requirement of Band n262 for PC1/2/4 | OPPO | noted |  |
| [R4-2111063](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111063.zip) | Peak EIRP requirements for band n262 | Intel Corporation | noted |  |
| [R4-2111163](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111163.zip) | Peak EIRP and EIRP spherical coverage for PC1, PC2, PC4 for n262 | Ericsson | noted |  |
| [R4-2109131](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109131.zip) | Multi-band relaxation for band n262 | Murata Manufacturing Co Ltd. | noted | Proposal captured as agreement |
| [R4-2109790](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109790.zip) | Introduction of n262 UE RF requirements | Nokia, Nokia Shanghai Bell | revised to R4-2107791 |  |
| R4-2107791 | Introduction of n262 UE RF requirements | Nokia, Nokia Shanghai Bell | Agreed (2nd round) |  |
| [R4-2110153](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110153.zip) | CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n262 (Rel-17) | Apple | merged with 9790 | contents agreeable |
| [R4-2109008](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109008.zip) | REFSENS and EIS spherical coverage for PC1, PC2, PC4 for n262 | Sony | noted |  |
| [R4-2109557](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109557.zip) | Proposal on n262 PC1/2/4 REFSENS and EIS spherical coverage | MediaTek Beijing Inc. | noted |  |
| [R4-2109670](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109670.zip) | Discussion on EIS and spherical coverage for PC1,PC2 and PC4 | vivo | noted |  |
| [R4-2109791](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109791.zip) | EIS requirements for n262 UE power class 1, 2, and 4 | Nokia, Nokia Shanghai Bell | noted |  |
| [R4-2110840](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110840.zip) | EIS requirement of Band n262 for PC1/2/4 | OPPO | noted |  |
| [R4-2111064](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111064.zip) | Peak EIS requirements for band n262 | Intel Corporation | noted |  |
| [R4-2111164](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111164.zip) | REFSENS and EIS spherical coverage for PC1, PC2, PC4 for n262 | Ericsson | noted |  |
| [R4-2110087](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110087.zip) | TR 38.847 Introduction of NR Band n262 (47GHz band) | Ericsson | Agreed |  |

**R4-2107790 WF on n262 UE EIRP/EIS requirement**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved**.

##### 8.2.1.1 Peak EIRP and EIRP spherical coverage

**Topic #1: EIRP/EIS requirements for UE power class 1, 2, and 4.**

**EIRP**

R4-2108813 is moved from 8.2.1 to 8.2.1.1

**R4-2108813 Power class specific parameters for n262**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated*

**Abstract:**

peak gain, spherical coverage of gain discussed

**Decision: Noted**.

**R4-2109007 Peak EIRP and EIRP spherical coverage for PC1, PC2, PC4 for n262**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted**.

**R4-2109547 Proposal on n262 PC1/2/4 peak EIRP and EIRP spherical coverage**

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

**Decision: Noted**.

**R4-2109669 Discussion on EIRP and spherical coverage for PC1,PC2 and PC4**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2109789 EIRP requirements for n262 UE power class 1, 2, and 4**

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

**Abstract:**

n262 EIRP is proposed to be 6 dB lower than 28 GHz bands.

**Decision: Noted**.

**R4-2110839 EIRP requirement of Band n262 for PC1/2/4**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111063 Peak EIRP requirements for band n262**

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

**Decision: Noted**.

**R4-2111163 Peak EIRP and EIRP spherical coverage for PC1, PC2, PC4 for n262**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

Peak EIRP and EIRP spherical coverage for PC1, PC2, PC4 for n262

**Decision: Noted**.

##### 8.2.1.2 Other UE TX requirements

**Topic #2: MBR, Beam correspondence and UE RF CR**

**R4-2109131 Multi-band relaxation for band n262**

*Type: other For: Approval  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

Proposals in R4-2109007 and R4-2111163 are taken into account.

**CR and TR**

**R4-2110153 CR to 38.101-2 on side conditions for beam correspondence based on SSB and CSI-RS for n262 (Rel-17)**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0379 rev Cat: F (Rel-17)  
  
 Source: Apple*

Merged with R4-2109790.

**Decision: Merged**.

**R4-2109790 Introduction of n262 UE RF requirements**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0372 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Draft CR is to PC1/2/4 is added on top of the endorsed PC3 CR. Side conditions are corrected.

**Decision:** The document was **revised to R4-2107791**.

**R4-2107791 Introduction of n262 UE RF requirements**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0372 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Draft CR is to PC1/2/4 is added on top of the endorsed PC3 CR. Side conditions are corrected.

**Decision: Agreed.**

R4-2110087 is moved from AI 8.2.6 to AI 8.2.1.2

**R4-2110087 TR 38.847 Introduction of NR Band n262 (47GHz band)**

*Type: draft TR For: Agreement  
 38.847 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Updated TR to capture the work done when specifying the new NR FR2 47GHz band

**Decision: Agreed**.

##### 8.2.1.3 REFSENS and EIS spherical coverage

**Topic #1: EIRP/EIS requirements for UE power class 1, 2, and 4.**

**EIS**

**R4-2109008 REFSENS and EIS spherical coverage for PC1, PC2, PC4 for n262**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted**.

**R4-2109557 Proposal on n262 PC1/2/4 REFSENS and EIS spherical coverage**

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

**Decision: Noted.**

**R4-2109670 Discussion on EIS and spherical coverage for PC1,PC2 and PC4**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2109791 EIS requirements for n262 UE power class 1, 2, and 4**

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

**Abstract:**

n262 EIS is proposed to be 6 dB relaxed from 28 GHz bands.

**Decision: Noted**.

**R4-2110840 EIS requirement of Band n262 for PC1/2/4**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**

**R4-2111064 Peak EIS requirements for band n262**

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

**Decision: Noted**.

**R4-2111164 REFSENS and EIS spherical coverage for PC1, PC2, PC4 for n262**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

REFSENS and EIS spherical coverage for PC1, PC2, PC4 for n262

**Decision: Noted**.

##### 8.2.1.4 Other UE RX requirements

#### 8.2.2 BS RF requirements (38.104)

#### 8.2.3 BS conformance (38.141)

#### 8.2.4 RRM requirements (38.133)

#### 8.2.5 Demodulation and CSI requirements

##### 8.2.5.1 UE demodulation (38.101-4)

##### 8.2.5.2 BS demodulation (38.104)

#### 8.2.6 Others

### 8.3 Introduction of NR band n67

**Email discussion summary of [99-e][113] NR\_n67\_n85, AI 8.3 & AI 8.4 –Dominique Evereare**

**R4-2107639 Email discussion summary for [99-e][113]** **NR\_n67\_n85**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107923**.

**R4-2107923 Email discussion summary for [99-e][113]** **NR\_n67\_n85**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-202829 for n67 and the completion date is June 2021 for both Core and Perf.

Refer to WID RP-210707 for n85 and the completion date is June 2021 for both Core and Perf.

Remaining open issues

* *Agree CRs.*

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2110094 | CR to TS 38.104: Introduction of band n67 | Ericsson | revised to R4-2107792 |  |
| R4-2107792 | CR to TS 38.104: Introduction of band n67 | Ericsson | Agreed (2nd round) |  |
| R4-2110095 | CR to TS 38.101-1: Introduction of band n67 | Ericsson | revised to R4-2107793 |  |
| R4-2107793 | CR to TS 38.101-1: Introduction of band n67 | Ericsson | Agreed (2nd round) |  |
| R4-2110096 | CR to TS 38.141-1: Introduction of band n67 | Ericsson | revised to R4-2107794 |  |
| R4-2107794 | CR to TS 38.141-1: Introduction of band n67 | Ericsson | Agreed (2nd round) |  |
| R4-2110097 | CR to TS 38.141-2: Introduction of band n67 | Ericsson | revised to R4-2107795 |  |
| R4-2107795 | CR to TS 38.141-2: Introduction of band n67 | Ericsson | Agreed (2nd round) |  |
| R4-2110098 | CR to TS 38.133: Introduction of band n67 | Ericsson | (RRM session) | Agreeable if other CRs are agreed in the 2nd round, all CRs shall be agreed as a package |
| R4-2110099 | CR to TS 36.104: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110100 | CR to TS 36.141: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110101 | CR to TS 37.104: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110102 | CR to TS 37.141: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110103 | CR to TS 37.105: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110104 | CR to TS 37.145-1: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110105 | CR to TS 37.145-2: Introduction of band n67 | Ericsson | Agreed (2nd round) |
| R4-2110106 | CR to TS 38.104: Introduction of band n85 | Ericsson | revised to R4-2107796 |  |
| R4-2107796 | CR to TS 38.104: Introduction of band n85 | Ericsson | Agreed (2nd round) |  |
| R4-2110107 | CR to TS 38.101-1: Introduction of band n85 | Ericsson | Revised to R4-2107797 and further revised to R4-2107984 |  |
| R4-2107984 | CR to TS 38.101-1: Introduction of band n85 | Ericsson | Agreed (2nd round) |  |
| R4-2110108 | CR to TS 38.141-1: Introduction of band n85 | Ericsson | revised to R4-2107798 |  |
| R4-2107798 | CR to TS 38.141-1: Introduction of band n85 | Ericsson | Agreed (2nd round) |  |
| R4-2110109 | CR to TS 38.141-2: Introduction of band n85 | Ericsson | revised to R4-2107799 |  |
| R4-2107799 | CR to TS 38.141-2: Introduction of band n85 | Ericsson | Agreed (2nd round) |  |
| R4-2110110 | CR to TS 38.133: Introduction of band n85 | Ericsson | (RRM) | Agreeable if other CRs are agreed in the 2nd round, all CRs shall be agreed as a package |
| R4-2110111 | CR to TS 36.104: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110112 | CR to TS 36.141: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110113 | CR to TS 37.104: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110114 | CR to TS 37.141: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110115 | CR to TS 37.105: Introduction of band n85 | Ericsson | Revised to R4-2107993 in 2nd round. |
| R4-2107993 | CR to TS 37.105: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110116 | CR to TS 37.145-1: Introduction of band n85 | Ericsson | Revised to R4-2107994 in 2nd round. |
| R4-2107994 | CR to TS 37.145-1: Introduction of band n85 | Ericsson | Agreed (2nd round) |
| R4-2110117 | CR to TS 37.145-2: Introduction of band n85 | Ericsson | Agreed (2nd round) |

#### 8.3.1 UE RF requirements (38.101-1)

**R4-2110095 CR to TS 38.101-1: Introduction of band n67**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0808 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR UE core specifications

**Decision:** The document was **revised to R4-2107793**.

**R4-2107793 CR to TS 38.101-1: Introduction of band n67**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0808 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR UE core specifications

**Decision: Agreed.**

#### 8.3.2 BS RF requirements (38.104)

**R4-2110094 CR to TS 38.104: Introduction of band n67**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0320 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS core specifications

**Decision:** The document was **revised to R4-2107792**.

**R4-2107792 CR to TS 38.104: Introduction of band n67**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0320 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS core specifications

**Decision: Agreed.**

**R4-2110096 CR to TS 38.141-1: Introduction of band n67**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0219 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS conformance specifications

**Decision:** The document was **revised to R4-2107794**.

**R4-2107794 CR to TS 38.141-1: Introduction of band n67**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0219 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS conformance specifications

**Decision: Agreed.**

**R4-2110097 CR to TS 38.141-2: Introduction of band n67**

*Type: CR For: Agreement  
 38.141-2 v17.1.0 CR-0327 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS conformance specifications

**Decision:** The document was **revised to R4-2107795**.

**R4-2107795 CR to TS 38.141-2: Introduction of band n67**

*Type: CR For: Agreement  
 38.141-2 v17.1.0 CR-0327 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR BS conformance specifications

**Decision: Agreed.**

**R4-2110099 CR to TS 36.104: Introduction of band n67**

*Type: CR For: Agreement  
 36.104 v17.1.0 CR-4936 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110100 CR to TS 36.141: Introduction of band n67**

*Type: CR For: Agreement  
 36.141 v17.1.0 CR-1307 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110101 CR to TS 37.104: Introduction of band n67**

*Type: CR For: Agreement  
 37.104 v17.1.0 CR-0940 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110102 CR to TS 37.141: Introduction of band n67**

*Type: CR For: Agreement  
 37.141 v17.1.0 CR-0979 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110103 CR to TS 37.105: Introduction of band n67**

*Type: CR For: Agreement  
 37.105 v17.1.0 CR-0233 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110104 CR to TS 37.145-1: Introduction of band n67**

*Type: CR For: Agreement  
 37.145-1 v17.1.0 CR-0260 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

**R4-2110105 CR to TS 37.145-2: Introduction of band n67**

*Type: CR For: Agreement  
 37.145-2 v17.1.0 CR-0303 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n67

**Decision: Agreed.**

#### 8.3.3 RRM requirements (38.133)

#### 8.3.4 Others

### 8.4 Introduction of NR band n85

**Refer to Email discussion summary of [99-e][113] NR\_n67\_n85, AI 8.3 & AI 8.4 –Dominique Evereare**

#### 8.4.1 UE RF requirements (38.101-1)

**R4-2110107 CR to TS 38.101-1: Introduction of band n85**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0809 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR UE core specifications

**Decision:** The document was **revised to R4-2107797**.

**R4-2107797 CR to TS 38.101-1: Introduction of band n85**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0809 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR UE core specifications

**Decision:** The document was **revised to R4-2107984**.

**R4-2107984 CR to TS 38.101-1: Introduction of band n85**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0809 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR UE core specifications

**Decision: Agreed.**

#### 8.4.2 BS RF requirements (38.104)

**R4-2110106 CR to TS 38.104: Introduction of band n85**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0321 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS core specifications

**Decision:** The document was **revised to R4-2107796**.

**R4-2107796 CR to TS 38.104: Introduction of band n85**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0321 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS core specifications

**Decision: Agreed.**

**R4-2110108 CR to TS 38.141-1: Introduction of band n85**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0220 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS conformance specifications

**Decision:** The document was **revised to R4-2107798**.

**R4-2107798 CR to TS 38.141-1: Introduction of band n85**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0220 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS conformance specifications

**Decision: Agreed.**

**R4-2110109 CR to TS 38.141-2: Introduction of band n85**

*Type: CR For: Agreement  
 38.141-2 v17.1.0 CR-0328 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS conformance specifications

**Decision:** The document was **revised to R4-2107799**.

**R4-2107799 CR to TS 38.141-2: Introduction of band n85**

*Type: CR For: Agreement  
 38.141-2 v17.1.0 CR-0328 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n85 in NR BS conformance specifications

**Decision: Agreed.**

**R4-2110111 CR to TS 36.104: Introduction of band n85**

*Type: CR For: Agreement  
 36.104 v17.1.0 CR-4937 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110112 CR to TS 36.141: Introduction of band n85**

*Type: CR For: Agreement  
 36.141 v17.1.0 CR-1308 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110113 CR to TS 37.104: Introduction of band n85**

*Type: CR For: Agreement  
 37.104 v17.1.0 CR-0941 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110114 CR to TS 37.141: Introduction of band n85**

*Type: CR For: Agreement  
 37.141 v17.1.0 CR-0980 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110115 CR to TS 37.105: Introduction of band n85**

*Type: CR For: Agreement  
 37.105 v17.1.0 CR-0234 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision:** The document was **not revised to R4-2107993**.

**R4-2107993 CR to TS 37.105: Introduction of band n85**

*Type: CR For: Agreement  
 37.105 v17.1.0 CR-0234 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110116 CR to TS 37.145-1: Introduction of band n85**

*Type: CR For: Agreement  
 37.145-1 v17.1.0 CR-0261 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision:** The document was **not revised to R4-2107994**.

**R4-2107994 CR to TS 37.145-1: Introduction of band n85**

*Type: CR For: Agreement  
 37.145-1 v17.1.0 CR-0261 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

**R4-2110117 CR to TS 37.145-2: Introduction of band n85**

*Type: CR For: Agreement  
 37.145-2 v17.1.0 CR-0304 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces support for coexistence with band n85

**Decision: Agreed.**

#### 8.4.3 RRM requirements (38.133)

#### 8.4.4 Others

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

#### 8.5.1 General

**Email discussion summary of [99-e][114] RAIL\_900\_1900MHz AI 8.5.1, 8.5.2, 8.5.4 & AI 8.6, 8.6.1, 8.6.2 –Ingo Wendler**

**R4-2107640 Email discussion summary for [99-e][114]** **RAIL\_900\_1900MHz**

*Type: Other For: Information  
 Source: Moderator (Union Inter. Chemins de Fer)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **not revised to R4-2107924**.

**R4-2107924 Email discussion summary for [99-e][114]** **RAIL\_900\_1900MHz**

*Type: Other For: Information  
 Source: Moderator (Union Inter. Chemins de Fer)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210878 for 900MHz spectrum. Completition date is March 2022 for Core and Perf.

Refer to WID RP-210879 for 1900MHz spectrum. Completion data is March 2022 for Core and Perf.

This is the second WG meeting for them.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| Tdoc number | Title | Source | Status |
| R4-2108006 | WF on RMR 900MHz and 1900MHz | Union Inter. Chemins de Fer | Withdrawn (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| Tdoc number | Title | Source | Status |
| R4-2111051 | Discussion on general aspects of the RMR 900 WI | Huawei | Noted |
| R4-2111055 | Discussion on general aspects of the RMR 1900 WI | Huawei | Noted |
| R4-2111054 | Discussion on channel raster aspects for RMR 900 | Huawei | Noted |
| R4-2110956 | Introduction of the RMR 900 | Huawei | Noted |
| R4-2110958 | Introduction of the RMR 1900 | Huawei | Noted |
| R4-2109842 | Update WI NR\_RAIL\_EU\_900MHz, | UIC | Noted |
| R4-2109726 | R4-2109726 Update WI NR\_RAIL\_EU\_1900MHz | UIC | Noted |

**WF/LS/CRs for approval**

**R4-2108006 WF on RMR 900MHz and 1900MHz**

*Type: other For: Approval  
 Source: Union Inter. Chemins de Fer*

**Decision: Withdrawn**.

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**Topic #1: General aspects and WID updates**

**R4-2109842 Update WID on introduction of 900 MHz spectrum to 5G NR applicable for Rail Mobile Radio**

*Type: WID revised For: Endorsement  
 Source: Union Inter. Chemins de Fer*

**Decision: Noted**.

**R4-2111051 Discussion on general aspects of the RMR 900 WI**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution provide further analysis of the general aspects of the RMR900 topic.

**Decision: Noted**.

**R4-2111220 On 900MHz RMR RAN4 requirements impact due to ECC Decision (20)02**

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

**Abstract:**

**Proposal 2**: For UE power class 3, there is no impact to 38.101-1 due to ECC Decision (20)02.

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

#### 8.5.2 UE RF requirements

**Topic #2: RMR 900MHz parameters**

**R4-2110956 Consideration for RMR 900MHz band**

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

**Abstract:**

discussion on UE requirements for RMR 900MHz

**Decision: Noted**.

**R4-2110634 Consideration for RMR 900MHz band**

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

**Abstract:**

discussion on UE requirements for RMR 900MHz

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

**R4-2110635 Consideration for RMR 900MHz band**

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

**Abstract:**

discussion on UE requirements for RMR 900MHz

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

**R4-2110716 Consideration for RMR 900MHz band**

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

**Abstract:**

Discussion on UE requirements for RMR 900MHz band

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

#### 8.5.3 BS RF requirements

#### 8.5.4 Others

**Topic #2: RMR 900MHz parameters**

**Channel raster**

**R4-2111054 Discussion on channel raster aspects for RMR 900 WI**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution provide analysis of the channel raster aspects of the RMR900 topic.

**Decision: Noted**.

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

#### 8.6.1 General

**Refer to Email discussion summary of [99-e][114] RAIL\_900\_1900MHz AI 8.5.1, 8.5.2, 8.5.4 & AI 8.6, 8.6.1, 8.6.2 –Ingo Wendler**

**Topic #3: General aspects and WID updates for 1900MHz**

**R4-2109726 Update on New WID on introduction of 1900MHz spectrum to 5G NR applicable for Rail Mobile Radio**

*Type: WID revised For: Endorsement  
 Source: Union Inter. Chemins de Fer*

**Decision: Noted**.

**R4-2111055 Discussion on general aspects of the RMR 1900 WI**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution provide further analysis of the general aspects of the RMR1900 topic.

**Decision: Noted**.

**R4-2111221 On 1900MHz RMR RAN4 requirements impact due to ECC Decision (20)02**

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

**Abstract:**

**Proposal 2**: For UE power class 3, there is no impact to 38.101-1 due to ECC Decision (20)02.

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

#### 8.6.2 UE RF requirements

**Topic #4: RMR 1900MHz parameters**

**R4-2110958 Introduction of RMR 1900MHz band**

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

**Decision: Noted**.

#### 8.6.3 BS RF requirements

#### 8.6.4 Others

### 8.7 Introduction of NR band n24

**Email discussion summary of [99-e][115] NR\_LTE\_band\_n24, AI 8.7 & AI 11.8 –Ojas Choksi**

**R4-2107641 Email discussion summary for [99-e][115]** **NR\_LTE\_band\_n24**

*Type: Other For: Information  
 Source: Moderator (Ligado)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107925**.

**R4-2107925 Email discussion summary for [99-e][115]** **NR\_LTE\_band\_n24**

*Type: Other For: Information  
 Source: Moderator (Ligado)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-201357 for NR\_band\_n24-Core. Completion date is June 2021 for Core.

Refer to WID RP-201356 for LTE\_B24\_mod. Completion date is June 2021.

Remaining issues

* *Review the A-MPR values in square brackets and finalize them at the RAN4 #98e-bis meeting*.

**Conclusions after 2nd round**

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status** |
| R4-2108986 | revised to R4-2107800 |
| R4-2107800 | Agreed |
| R4-2108987 | revised to R4-2107801 |
| R4-2107801 | Agreed |

#### 8.7.1 UE RF requirements (38.101-1)

**R4-2108986 CR for updates related to n24 in 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0752 rev Cat: F (Rel-17)  
  
 Source: Ligado Networks*

**Decision:** The document was **revised to R4-2107800**

**R4-2107800 CR for updates related to n24 in 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0752 rev Cat: F (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

#### 8.7.2 BS RF requirements (38.104)

#### 8.7.3 RRM requirements (38.133)

#### 8.7.4 Others

### 8.8 Issues arising from basket WIs but not subject to block approval

**Email discussion summary of [99-e][116] NR\_Baskets\_Part\_1, AI 8.8, some contributions in AI 8.9.1, 8.16.1, 8.16.2, 8.22 –Dominique Brunel**

**R4-2107642 Email discussion summary for [99-e][116]** **NR\_Baskets\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107926**.

**R4-2107926 Email discussion summary for [99-e][116]** **NR\_Baskets\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to basket WIDs. The completion date of basket WIDs is March 2022.

**Conclusions after 2nd round**

Guidance from Chair:

* For Topic #5-3: Regarding the issue for R4-2111492, both [116] and [127] are not subject to block approval, [116] is based on basket WID scope. Improving MSD seems beyond basket WID scope. In WID corresponding to [127] there are objectives related to MSD due to PC2, and R4-2110791 was triggered by PC2. So it is suggested
  + Combine the discussions for MSD improving in 2nd round and further discuss them under [127]
  + Proponents are suggested to consider how to treat this topic in future meeting, because we seems have no corresponding WID with very clear objective for this topic. The scope for MSD improving is not small.
  + T-Mobile USA can lead the WF discussion under [127], and I will assign the Tdoc for T-Mobile USA.
* For topic #6, it seems too late to change AI and email thread. I suggest to continue discussion under [116]. I can give a Tdoc number for WF to Qualcomm. FFS on how to treat topic in future.

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc num** | **Comments** | **Status** |
| WF on MSD due to IMD of intra-band UL CA UL configurations | Skyworks, Qualcomm | R4-2107802 | WF merging R4-2107625 and R4-2111016 will be discussed in Rd2 | Approved (2nd round) |
| WF on MSD due to triple beat of intra-band UL CA UL + FDD UL configurations | Qualcomm, Skyworks | R4-2107803 | WF using R4-2107627 input to introduce triple beat MSD in 38.101-3 and 38.101-1 | Approved (2nd round) |
| WF on architecture and device type for DC\_8A-20A\_n28A | Huawei, HiSilicon, Qualcomm | R4-2107804 | WF on architecture options and links to UE form factor for feasibility | Approved (2nd round) |
| WF on DC\_(n)71AA single UL | Skyworks, MediaTek | R4-2107805 | WF on MSD test points and values for DC\_(n)71AA 1UL and rules for similar MSD. | Approved (2nd round) |
| WF on “not for block approval” AI way of working | Skyworks | R4-2107806 | Capturing agreements on the scope, WoW with basket rapporteurs and block approval moderators | Approved (2nd round) |
| WF on introduction of NR-U ULCA requirements | Qualcomm | R4-2107807 | Continue discussion under [116] | Approved (2nd round) |
| WF on MSD capability | T-Mobile US | R4-2107808 | Continue discussion under [127] | See [127] |
| CR to 38.101-1: IMD MSD only | Skyworks | R4-2107982 | Draft shared late but copied directly to experts with no comment | Agreed |
| CR to 38.101-3: IMD MSD and triple beat | Skyworks | R4-2107983 | Small issues were found on test points while trying to implement | Postponed |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2111476](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111476.zip) |  | Qualcomm Incorporated | Revised to R4-2107625 |  |
| [R4-2107625](ftp://ftp.3gpp.org/tsg_ran/WG4_Radio/TSGR4_99-e/Inbox/R4-2107625.zip) | Revision of R4-2111476 MSD due to IMD from ULCA | Qualcomm Incorporated | Noted | WF on MSD due to IMD merging R4-2107625 and R4-2111016 will be discussed in Rd2 |
| [R4-2111016](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111016.zip) | MSD Due to NR Intra-band ULCA IMD within Inter-band Combinations | Skyworks Solutions Inc. | Noted | WF on MSD due to IMD merging R4-2107625 and R4-2111016 will be discussed in Rd2 |
| [R4-2108930](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108930.zip) | MSD analysis for n77(2A) UL cases | Nokia, Skyworks Solutions Inc. | Noted | Will used averaged value with R4-2107625 for n2-n77(2A) |
| [R4-2108931](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108931.zip) | draft CR to 38.101-1: CA\_n5A-n77(2A) introduction of UL CA\_n77(2A) | Nokia, AT&T | Agreed | No MSD for CA\_n77(2A) UL configuration with n5 |
| [R4-2108932](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108932.zip) | draft CR to 38.101-1: CA\_n2-n77 | Nokia, Skyworks Solutions Inc., AT&T | revised to R4-2107809 | Update MSD due to IMD with average with R4-2107625: 2.7dB |
| R4-2107809 | draft CR to 38.101-1: CA\_n2-n77 | Nokia, Skyworks Solutions Inc., AT&T | Endorsed (2nd round) |  |
| [R4-2111475](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111475.zip) | Triple beat and 3ULCC MSD | Qualcomm Incorporated | Revised to R4-2107627 |  |
| R4-2107627 | Revision of [R4-2111475](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111475.zip) Triple beat and 3ULCC MSD | Qualcomm Incorporated | Noted | Will be used as a basis for WF on MSD due to triple beat.. |
| [R4-2109262](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109262.zip) | CR for Pcmax - NR-DC for DC cat. A-B combinations | InterDigital Communications | Agreed (2nd round) |  |
| [R4-2111478](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111478.zip) | LB\_LB\_MB MSD and LB\_LB\_LB Feasibility | Qualcomm Incorporated | Noted |  |
| [R4-2110243](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110243.zip) | TP for TR 37.717-21-11: DC\_8A-20A\_n28A | Huawei, HiSilicon | Noted | Basis for WF on architecture and device type for DC\_8A-20A\_n28A |
| [R4-2110701](https://urldefense.proofpoint.com/v2/url?u=ftp-3A__ftp.3gpp.org_tsg-5Fran_WG4-5FRadio_TSGR4-5F99-2De_Inbox_Drafts_-5B99-2De-5D-5B116-5D-2520NR-5FBaskets-5FPart-5F1_Round-25201_Rev.-25204-2520of-2520R4-2D2110701-2520TP-2520to-2520TR-252038.717-2D02-2D01-2520Addition-2520of-2520CA-5Fn5A-2Dn14A.docx&d=DwMFAg&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McI&m=n4IuTVOj1sDT8nEBTdvkEnhu4OOnT7qM-qVeLzHeqhs&s=x6fW5Kd485B_CXLNEp-rT5h0s-J6r0otLgSstECUOZU&e=) | TP to TR 38.717-02-01 Addition of CA\_n5A-n14A | Nokia, AT&T | Revised to R4-2107978 | To be revised with MSD table provided by mediatek |
| [R4-2107978](https://urldefense.proofpoint.com/v2/url?u=ftp-3A__ftp.3gpp.org_tsg-5Fran_WG4-5FRadio_TSGR4-5F99-2De_Inbox_Drafts_-5B99-2De-5D-5B116-5D-2520NR-5FBaskets-5FPart-5F1_Round-25201_Rev.-25204-2520of-2520R4-2D2110701-2520TP-2520to-2520TR-252038.717-2D02-2D01-2520Addition-2520of-2520CA-5Fn5A-2Dn14A.docx&d=DwMFAg&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McI&m=n4IuTVOj1sDT8nEBTdvkEnhu4OOnT7qM-qVeLzHeqhs&s=x6fW5Kd485B_CXLNEp-rT5h0s-J6r0otLgSstECUOZU&e=) | TP to TR 38.717-02-01 Addition of CA\_n5A-n14A | Nokia, AT&T | Approved (2nd round) |  |
| [DRAFT Rev 2 of R4-2109399](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.3gpp.org_ftp_tsg-5Fran_WG4-5FRadio_TSGR4-5F99-2De_Inbox_Drafts_-255B99-2De-255D-255B116-255D-2520NR-5FBaskets-5FPart-5F1_Round-25201_DRAFT-2520Rev-25202-2520of-2520R4-2D2109399-2520TP-2520to-2520TR-252038.717-2D02-2D01-2520Addition-2520of-2520CA-5Fn5A-2Dn12A.docx&d=DwMFAw&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McI&m=JY7CySn_1CuyNeaMs4k7EbMQLlq4jtz_Z2GFFpCK2J0&s=HNb0F9Mxmpb62B0OyF1pr9ekJQc_BsVf1iyb4dl1NME&e=) | TP to TR 38.717-02-01 Addition of CA\_n5A-n12A | Nokia, AT&T | Revised to R4-2107812. Seems agreeable. |  |
| [R4-2107812](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.3gpp.org_ftp_tsg-5Fran_WG4-5FRadio_TSGR4-5F99-2De_Inbox_Drafts_-255B99-2De-255D-255B116-255D-2520NR-5FBaskets-5FPart-5F1_Round-25201_DRAFT-2520Rev-25202-2520of-2520R4-2D2109399-2520TP-2520to-2520TR-252038.717-2D02-2D01-2520Addition-2520of-2520CA-5Fn5A-2Dn12A.docx&d=DwMFAw&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McI&m=JY7CySn_1CuyNeaMs4k7EbMQLlq4jtz_Z2GFFpCK2J0&s=HNb0F9Mxmpb62B0OyF1pr9ekJQc_BsVf1iyb4dl1NME&e=) | TP to TR 38.717-02-01 Addition of CA\_n5A-n12A | Nokia, AT&T | Approved |  |
| [R4-2110158](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110158.zip) | MSD test points for US EN-DC combinations with n77 | Apple | Noted |  |
| [R4-2110159](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110159.zip) | CR for TS 38.101-3: MSD test configurations modifications for US EN-DC combinations with Band n77 | Apple | revised to R4-2107810 | Should be revised to account for comments and further discussion on removed cases and potential changes in spectrum allocation |
| R4-2107810 | CR for TS 38.101-3: MSD test configurations modifications for US EN-DC combinations with Band n77 | Apple | Agreed |  |
| [R4-2109630](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109630.zip) | MSD for DC\_(n)71AA BCS2 | MediaTek Inc. | Noted | Basis to WF on DC\_(n)71AA single UL |
| [R4-2111534](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111534.zip) | Single Uplink REFSENS for DC\_(n)71AA | Skyworks Solutions Inc. | Revised to R4-2107626 |  |
| R4-2107626 | revision of R4-2111534 Single Uplink REFSENS for DC\_(n)71AA | Skyworks Solutions Inc. | Noted | Basis to WF on DC\_(n)71AA single UL |
| [R4-2111487](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111487.zip) | Impact on TS 38.101-3 due to the introduction of BCS2 for DC\_(n)71AA | T-Mobile USA, Skyworks Solutions | Noted | Agreed |
| [R4-2111488](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111488.zip) | Draft CR for 38.101-3: Introduction of DC\_(n)71AA\_BCS2 | T-Mobile USA, Skyworks Solutions | revised to R4-2107811 and further revised to R4-2107996 | Need to add MSD values and test points as agreed in WF on DC\_(n)71AA single UL |
| R4-2107996 | Draft CR for 38.101-3: Introduction of DC\_(n)71AA\_BCS2 | T-Mobile USA, Skyworks Solutions | Endorsed (2nd round) |  |
| [R4-2110080](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110080.zip) | discussion on the rules of NE-DC with contiguous intra-band NR and LTE carriers | Huawei,HiSilicon | Noted | Not sure it needs a way forward as only a few simple naming options can be discussed and agreed in Rd2, then agreement can be captured in chairman’s notes |
| [R4-2111537](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111537.zip) | Intra-Band Single Uplink REFSENS Simplification | Skyworks Solutions Inc. | Noted | Agreeable rules can be captured in WF on DC\_(n)71AA single UL |
| [R4-2111492](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111492.zip) | MSD and real-world implications | T-Mobile USA, Deutsche Telekom, Verizon, CHTTL, AT&T, Dish Network | Noted |  |
| [R4-2111253](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111253.zip) | Introducing NR-U Intra-band UL CA UE RF requirements | Qualcomm Incorporated | Noted, |  |
| [R4-2111481](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111481.zip) | Way of working for combination not for block approval | Skyworks Solutions Inc. | Noted | Capture agreeable part in WF |

**WF/LS/CRs for approval**

**R4-2107802 WF on MSD due to IMD of intra-band UL CA UL configurations**

*Type: other For: Approval  
 Source: Skyworks, Qualcomm*

**Decision: Approved.**

**R4-2107803 WF on MSD due to triple beat of intra-band UL CA UL + FDD UL configurations**

*Type: other For: Approval  
 Source: Skyworks, Qualcomm*

**Decision: Approved.**

**R4-2107804 WF on architecture and device type for DC\_8A-20A\_n28A**

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

**Decision: Approved.**

**R4-2107805 WF on DC\_(n)71AA single UL**

*Type: other For: Approval  
 Source:* *Skyworks, MediaTek*

**Decision: Approved.**

**R4-2107806 WF on “not for block approval” AI way of working**

*Type: other For: Approval  
 Source:* *Skyworks*

**Decision: Approved.**

**R4-2107807 WF on introduction of NR-U ULCA requirements**

*Type: other For: Approval  
 Source:* *Qualcomm*

**Decision: Approved.**

**R4-2107982 CR to 38.101-1: IMD MSD only**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR- rev Cat:F (Rel-17)  
  
 Source: Skyworks Solutions*

**Decision: Agreed**

**R4-2107983 CR to 38.101-3: IMD MSD and triple beat**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR- rev Cat:F (Rel-17)  
  
 Source: Skyworks Solutions*

**Decision: Postponed.**

#### 8.8.1 UE RF requirements

**Topic#1: Inter-band combinations with intra-band UL CA as part of UL configuration**

**R4-2111476 MSD due to IMD from ULCA**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107625**.

**R4-2107625 MSD due to IMD from ULCA**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted**.

**R4-2111016 MSD Due to NR Intra-band ULCA IMD within Inter-band Combinations**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide MSD values for inter-band combinations that have intra-band UL CA as part of the UL configuration with detailed explanation for the calculations. This can be used to generate the related CRs and as a template for the analys

**Decision: Noted**.

**R4-2108930 MSD analysis for n77(2A) UL cases**

*Type: other For: Approval  
 Source: Nokia, Skyworks Solutions Inc.*

**Decision: Noted**.

**R4-2108931 draft CR to 38.101-1: CA\_n5A-n77(2A) introduction of UL CA\_n77(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Agreed**.

**R4-2108932 draft CR to 38.101-1: CA\_n2-n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Skyworks Solutions Inc., AT&T*

**Decision:** The document was **revised to R4-2107809**.

**R4-2107809 draft CR to 38.101-1: CA\_n2-n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Skyworks Solutions Inc., AT&T*

**Decision: Agreed**.

**R4-2111475 Triple beat and 3ULCC MSD**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107627**.

**R4-2107627 Triple beat and 3ULCC MSD**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted**.

**R4-2109262 CR for Pcmax - NR-DC for DC cat. A-B combinations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0768 rev Cat: B (Rel-17)  
  
 Source: InterDigital Communications*

**Abstract:**

Introduction of specific Pcmax requirements for inter-band NR-DC category A-B combos in sub-clause 6.2B.4.1 and add the required information in sub-clauses 6.2B.2, 6.2B.3. This is the formal CR submission based on the draft CR in R4-2105340 that has been

**Decision: Agreed.**

**Topic #2: LB-LB and LB-LB-LB combinations**

**R4-2111478 LB\_LB\_MB MSD and LB\_LB\_LB Feasibility**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted**.

**R4-2110243 TP for TR 37.717-21-11: DC\_8A-20A\_n28A**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**Topic #3: Update of ENDC test points for new n77 FCC frequency range**

**R4-2110158 MSD test points for US EN-DC combinations with n77**

*Type: other For: Approval  
 38.101-3 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

It is moved from AI 8.22.

**Decision: Noted**.

**R4-2110159 CR for TS 38.101-3: MSD test configurations modifications for US EN-DC combinations with Band n77**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0567 rev Cat: F (Rel-17)  
  
 Source: Apple*

It is moved from AI 8.22.

**Decision:** The document was **revised to R4-2107810**.

**R4-2107810 CR for TS 38.101-3: MSD test configurations modifications for US EN-DC combinations with Band n77**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0567 rev Cat: F (Rel-17)  
  
 Source: Apple*

It is moved from AI 8.22.

**Decision: Agreed.**

**Topic#4: DC\_(n)71AA BCS2 and MSD test points**

**R4-2109630 MSD for DC\_(n)71AA BCS2**

*Type: pCR For: Approval  
 38.717-01-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

It is moved from AI 8.9.2.

**Decision: Noted.**

**R4-2111534 Single Uplink REFSENS for DC\_(n)71AA**

*Type: discussion For: Approval  
 38.101-3 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

It is moved from AI 8.16.2.

**Decision:** The document was **revised to R4-2107626**.

**R4-2107626 Single Uplink REFSENS for DC\_(n)71AA**

*Type: discussion For: Approval  
 38.101-3 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

It is moved from AI 8.16.2.

**Decision: Noted**.

**R4-2111487 Impact on TS 38.101-3 due to the introduction of BCS2 for DC\_(n)71AA**

*Type: discussion For: Approval  
 Source: T-Mobile USA, Skyworks Solutions*

It is moved from AI 8.16.2.

**Decision: Noted**.

**R4-2111488 Draft CR for 38.101-3: Introduction of DC\_(n)71AA\_BCS2**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: T-Mobile USA, Skyworks Solutions*

It is moved from AI 8.16.2.

**Decision:** The document was **revised to R4-2107811**.

**R4-2107811 Draft CR for 38.101-3: Introduction of DC\_(n)71AA\_BCS2**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: T-Mobile USA, Skyworks Solutions*

It is moved from AI 8.16.2.

**Decision:** The document was **revised to R4-2107996.**

**R4-2107996 Draft CR for 38.101-3: Introduction of DC\_(n)71AA\_BCS2**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: T-Mobile USA, Skyworks Solutions*

It is moved from AI 8.16.2.

**Decision: Endorsed**

**Topic #5: Discussions on band combinations MSD, rules and simplifications**

**R4-2110080 Discussion on the rules of NE-DC with contiguous intra-band NR and LTE carriers**

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

**Abstract:**

Discussion on the rules of NE-DC with contiguous intra-band NR and LTE carriers

It is moved from AI 8.16.1.

Agreement: DC\_x(n)AA is the naming convention (x is band number) for intraband contiguous NEDC combinations.

**Decision: Noted**.

**R4-2111537 Intra-Band Single Uplink REFSENS Simplification**

*Type: discussion For: Approval  
 38.101-3 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

It is moved from AI 8.16.2.

**Decision: Noted.**

**R4-2111492 MSD and real-world implications**

*Type: discussion For: Approval  
 Source: T-Mobile USA, Deutsche Telekom, Verizon, CHTTL, AT&T, Dish Network*

**Decision: Noted**.

**Topic #6: NR-U intra-band UL CA**

**R4-2111253 Introducing NR-U Intra-band UL CA UE RF requirements**

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

**Abstract:**

NR-U Intra-band UL CA UE RF requirements

**Decision: Noted**.

R4-2109399 is moved from AI 8.10.2 to AI 8.8.1

**R4-2109399 TP to TR 38.717-02-01 Addition of CA\_n5A-n12A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107812**.

**R4-2107812 TP to TR 38.717-02-01 Addition of CA\_n5A-n12A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

R4-2110701 is moved from AI 8.10.2 to AI 8.8.1

**R4-2110701 TP to TR 38.717-02-01 Addition of CA\_n5A-n14A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision:** The document was **revised to R4-2107978**.

**R4-2107978 TP to TR 38.717-02-01 Addition of CA\_n5A-n14A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

#### 8.8.2 Others

**Topic #7: Way of working for combinations not for block approval**

**R4-2111481 Way of working for combination not for block approval**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we describe the way of working for the "not for block approval" AI and its interaction with the band combination WI rapporteurs.

**Decision: Noted**.

### 8.9 NR intra band Carrier Aggregation for xCC DL/yCC UL including contiguous and non-contiguous spectrum (x>=y)

**Email discussion summary of [99-e][117] NR\_Baskets\_Part\_2, AI 8.9, AI 8.16~8.20 –Iwo Angelow**

**R4-2107643 Email discussion summary for [99-e][117]** **NR\_Baskets\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107927**.

**R4-2107927 Email discussion summary for [99-e][117]** **NR\_Baskets\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions**

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Status** |
| [R4-2108864](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108864.zip) | Draft CR on EN-DC of B1,B8 and n258 | China Unicom | Endorsed |
| [R4-2109463](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109463.zip) | TP update for TR 37.717-21-11: EN-DC\_1-11\_n41 | SoftBank Corp., Samsung, KDDI | Approved |
| R4-2109626 | CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL) | Samsung | e-mail approval |
| R4-2109627 | Revised WID on Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL) | Samsung | e-mail approval |
| R4-2109737 | TR 37.717-51-11 update version 0.2.0 | Samsung | e-mail approval |
| [R4-2109746](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109746.zip) | dCR to 38.101-3 addition on CA\_n258 intrband CA combinations | Nokia, T-Mobile USA, Qualcomm Incorporated | Endorsed |
| [R4-2109792](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109792.zip) | TP to TR 37.717-21-11 DC\_13-48\_n77 | Nokia, Verizon | Noted |
| [R4-2109793](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109793.zip) | TP to TR 37.717-21-11 DC\_48-66\_n77 | Nokia, Verizon | Noted |
| [R4-2109918](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109918.zip) | MSD results for PC3 NR inter-band DC band combinations | LG Electronics France | Approved |
| [R4-2110038](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110038.zip) | Draft CR for new 2UL2DL EN-DC including DL n77(2A) or DL n78(2A) | NTT DOCOMO INC. | Endorsed |
| R4-2110047 | draft CR for new 2UL3DL EN-DC including n77(2A) or n78(2A) | NTT DOCOMO INC. | withdrawn |
| R4-2110048 | draft CR for new 2UL3DL EN-DC including n77(2A) or n78(2A) | NTT DOCOMO INC. | withdrawn |
| [R4-2110076](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110076.zip) | draft CR for new 2UL3DL EN-DC including DL n77(2A) or DL n78(2A) | NTT DOCOMO INC. | Endorsed |
| [R4-2110078](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110078.zip) | draft CR for new 2UL4DL EN-DC including DL n77(2A) or DL n78(2A) | NTT DOCOMO INC. | Endorsed |
| [R4-2110240](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110240.zip) | TP for TR 37.717-21-11: DC\_20A-28A\_n1A | Huawei, HiSilicon | Approved |
| [R4-2110241](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110241.zip) | TP for TR 37.717-21-11: DC\_8A-20A\_n1A | Huawei, HiSilicon, Vodafone | Approved |
| [R4-2110242](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110242.zip) | TP for TR 37.717-21-11: DC\_8A-20A\_n3A | Huawei, HiSilicon, Vodafone | flagged by Skyworks  Revised to R4-2107688 |
| [R4-2110244](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110244.zip) | Draft CR for 38.101-3 to add the configuration DC\_1A-32A\_n78C | Huawei, HiSilicon | Endorsed |
| [R4-2110245](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110245.zip) | Draft CR for 38.101-3 to add the configuration DC\_3A-32A\_n78C | Huawei, HiSilicon | Endorsed |
| [R4-2110246](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110246.zip) | Draft CR for 38.101-3 to add the configuration DC\_20A-32A\_n78C | Huawei, HiSilicon | Endorsed |
| [R4-2110247](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110247.zip) | Draft CR for 38.101-3 to add the configuration DC\_1A-3A-32A\_n78C | Huawei, HiSilicon | Endorsed |
| [R4-2110248](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110248.zip) | TP for TR 37.717-31-11: DC\_3A-20A-28A\_n1A | Huawei, HiSilicon | Approved |
| [R4-2110249](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110249.zip) | TP for TR 37.717-31-11: DC\_7A-20A-28A\_n1A | Huawei, HiSilicon | Approved |
| [R4-2110250](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110250.zip) | TP for TR 37.717-41-11: DC\_3A-7A-20A-28A\_n1A | Huawei, HiSilicon | Approved |
| [R4-2110287](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110287.zip) | Draft CR for 38.101-3 to add the configuration DC\_20A\_n78C | Huawei, HiSilicon | Endorsed |
| R4-2110580 | TR 37.717-11-11 v0.5.0 Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL) | CHTTL | e-mail approval |
| R4-2110595 | Revised WID for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL) | CHTTL | e-mail approval |
| R4-2110658 | Revised Rel-17 WID on DC of 4 bands LTE inter-band CA (4DL1UL) and 1 NR band (1DL1UL) | Nokia, Nokia Shanghai Bell | e-mail approval |
| R4-2110665 | TR 37.717-21-11 V0.5.0 for DC of 2 LTE band and 1 NR band | Huawei, HiSilicon | e-mail approval |
| R4-2110666 | Revised WID: Dual Connectivity (DC) of 2 bands LTE inter-band CA (2DL/1UL) and 1 NR band (1DL/1UL) | Huawei, HiSilicon | e-mail approval |
| R4-2110683 | CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3 | Nokia, Nokia Shanghai Bell | e-mail approval |
| R4-2110714 | Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL) | CHTTL | e-mail approval |
| R4-2110715 | draft TR 37.717-41-11-050 | Nokia | e-mail approval |
| [R4-2110775](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110775.zip) | draft CR for DC\_3-7-8\_n257, DC\_3-3-7-8\_n257, DC\_3-7-7-8\_n257, DC\_3-3-7-7-8\_n257 | CHTTL | Endorsed |
| R4-2111069 | Revised WID NR Intra-band Rel-17 | Ericsson | e-mail approval |
| R4-2111070 | Revised WID LTE 3DL and one NR band Rel-17 | Ericsson | e-mail approval |
| R4-2111073 | CR 38.101-1 new combinations Rel-17 NR Intra-band | Ericsson | e-mail approval |
| R4-2111074 | CR 38.101-2 new combinations Rel-17 NR Intra-band | Ericsson | e-mail approval |
| R4-2111079 | TR 38.717-01-01 v0.5.0 Rel-17 NR Intra-band | Ericsson | e-mail approval |
| R4-2111080 | TR 37.717-31-11 v0.5.0 Rel-17 DC combinations LTE 3DL and one NR band | Ericsson | e-mail approval |
| [R4-2111089](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111089.zip) | Rel-17 CR 38101-2-h10 corrections intra-band CA | Ericsson | flagged by Xiaomi  Revised to R4-2107689 |
| R4-2107689 | Rel-17 CR 38101-2-h10 corrections intra-band CA | Ericsson | Agreed |
| [R4-2111093](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111093.zip) | Rel-17 CR 38101-3-h10 corrections EN-DC 1 band LTE + 1 band NR | Ericsson | Agreed |
| [R4-2111094](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111094.zip) | Rel-17 CR 38101-3-h10 corrections EN-DC 2 band LTE + 1 band NR | Ericsson | Agreed |
| [R4-2111095](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111095.zip) | Rel-17 CR 38101-3-h10 corrections EN-DC 3 band LTE + 1 band NR | Ericsson | Noted |
| [R4-2111096](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111096.zip) | Rel-17 CR 38101-3-h10 corrections EN-DC 4 band LTE + 1 band NR | Ericsson | Agreed |
| [R4-2111104](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111104.zip) | CR 38101-1-h10 correction non-contiguous intra-band config table | Ericsson | Agreed |
| [R4-2111157](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111157.zip) | draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260 | Ericsson | flagged by Apple  Revised to R4-2107690. |
| R4-2107690 | draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260 | Ericsson | Endorsed. |
| [R4-2111158](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111158.zip) | draft CR to 38.101-3 to add configurations for DC\_3\_n258 | Ericsson, Telstra | Endorsed |

#### 8.9.1 Rapporteur Input (WID/TR/CR)

**R4-2111069 Revised WID NR Intra-band Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID NR Intra-band Rel-17

**Decision: Email approval**.

**R4-2111073 CR 38.101-1 new combinations Rel-17 NR Intra-band**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0843 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 new combinations Rel-17 NR Intra-band

**Decision: Email approval**.

**R4-2111074 CR 38.101-2 new combinations Rel-17 NR Intra-band**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0389 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-2 new combinations Rel-17 NR Intra-band

**Decision: Email approval**.

**R4-2111079 TR 38.717-01-01 v0.5.0 Rel-17 NR Intra-band**

*Type: draft TR For: Endorsement  
 38.717-01-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TR 38.717-01-01 v0.5.0 Rel-17 NR Intra-band

**Decision: Email approval**.

**R4-2111104 CR 38101-1-h10 correction non-contiguous intra-band config table**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0849 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38101-1-h10 correction non-contiguous intra-band config table

**Decision: Agreed**.

#### 8.9.2 UE RF requirements for FR1

#### 8.9.3 UE RF requirements for FR2

**R4-2109746 dCR to 38.101-3 addition on CA\_n258 intrband CA combinations**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA, Qualcomm Incorporated*

**Decision: Endorsed**.

**R4-2111089 Rel-17 CR 38101-2-h10 corrections intra-band CA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0391 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-2-h10 corrections intra-band CA

**Decision:** The document was **revised to R4-2107689**.

**R4-2107689 Rel-17 CR 38101-2-h10 corrections intra-band CA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0391 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-2-h10 corrections intra-band CA

**Decision: Agreed**.

### 8.10 NR inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1, 2)

**Email discussion summary of [99-e][118] NR\_Baskets\_Part\_3, AI 8.10~8.15, AI 8.21~8.25 – Johannes Hejselbaek**

**R4-2107644 Email discussion summary for [99-e][118]** **NR\_Baskets\_Part\_3**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107928**.

**R4-2107928 Email discussion summary for [99-e][118]** **NR\_Baskets\_Part\_3**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after May 23rd**

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Status** |
| R4-2110461 | Revised WID on Rel-17 NR Inter-band CA\_DC xUL\_2DL (x=1,2) | ZTE Corporation | For email approval |
| R4-2110462 | CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-1 | ZTE Corporation | For email approval |
| R4-2110463 | CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-2 | ZTE Corporation | For email approval |
| R4-2110464 | CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3 | ZTE Corporation | For email approval |
| R4-2110999 | TR 38.717-02-01 v0.5.0 | ZTE Wistron Telecom AB | For email approval |
| [R4-2109778](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109778.zip) | draft CR to fix BCS for CA\_n7-n66 | Nokia, Nokia Shanghai Bell | Endorsed |
| [R4-2108861](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108861.zip) | Draft CR on CA\_n1-n3, CA\_n1-n78, CA\_n3-n78 | China Unicom, ZTE | Revised to R4-2107691 |
| R4-2107691 | Draft CR on CA\_n1-n3, CA\_n1-n78, CA\_n3-n78 | China Unicom, ZTE | Endorsed |
| R4-2109264 | Add channel bandwidth configuration for CA\_n46A-n48A | Charter Communications, Inc | To be Withdrawn |
| [R4-2109265](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109265.zip) | Add channel bandwidth configuration for CA\_n46A-n48A | Charter Communications, Inc | Revised to R4-2107692 |
| R4-2107692 | Add channel bandwidth configuration for CA\_n46A-n48A | Charter Communications, Inc | Agreed |
| R4-2109266 | Adding new CA\_n46N-n48A configurations | Charter Communications, Inc | Withdrawn |
| R4-2109267 | Adding new CA\_n46N-n48A configurations | Charter Communications, Inc | Withdrawn |
| [R4-2109268](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109268.zip) | Adding new CA\_n46N-n48A configurations | Charter Communications, Inc | Revised to R4-2107693 |
| R4-2107693 | Adding new CA\_n46N-n48A configurations | Charter Communications, Inc | Agreed |
| R4-2109273 | TP to TR 38.717.02-01 for CA\_n48-n96 and DC\_n48-n96 | Charter Communications, Inc | Withdrawn |
| [R4-2109397](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109397.zip) | TP to TR 38.717-02-01 Addition of CA\_n2A-n12A | AT&T, Nokia | Approved |
| [R4-2109398](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109398.zip) | TP to TR 38.717-02-01 Addition of CA\_n2A-n14A | AT&T, Nokia | Approved |
| [R4-2109400](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109400.zip) | TP to TR 38.717-02-01 Addition of CA\_n12A-n30A | AT&T, Nokia | Revised to R4-2107694 |
| R4-2107694 | TP to TR 38.717-02-01 Addition of CA\_n12A-n30A | AT&T, Nokia | Approved |
| [R4-2109401](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109401.zip) | TP to TR 38.717-02-01 Addition of CA\_n12A-n66A | AT&T, Nokia | Revised to R4-2107695 |
| R4-2107695 | TP to TR 38.717-02-01 Addition of CA\_n12A-n66A | AT&T, Nokia | Approved |
| [R4-2109402](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109402.zip) | TP to TR 38.717-02-01 Addition of CA\_n14A-n30A | AT&T, Nokia | Approved |
| [R4-2109403](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109403.zip) | TP to TR 38.717-02-01 Addition of CA\_n14A-n66A | AT&T, Nokia | Approved |
| [R4-2109468](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109468.zip) | Draft CR for TS 38.101-1: Support of n77(2A) in DC\_n77-n79 | SoftBank Corp. | Endorsed |
| [R4-2109776](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109776.zip) | draft CR CA\_n25\_n66\_n77 to TS 38.101-1 | Nokia, Nokia Shanghai Bell | Endorsed |
| [R4-2109777](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109777.zip) | draft CR to add new BCS for CA\_n7-n78 to TS 38.101-1 | Nokia, Nokia Shanghai Bell | Endorsed |
| [R4-2109876](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109876.zip) | TP for TR 38.717-02-01: CA\_n28-n74 | Huawei, HiSilicon, KDDI | Revised to R4-2107697 |
| R4-2107697 | TP for TR 38.717-02-01: CA\_n28-n74 | Huawei, HiSilicon, KDDI | Approved |
| [R4-2109877](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109877.zip) | TP for TR 38.717-02-01: CA\_n74-n77 | Huawei, HiSilicon, KDDI | Revised to R4-2107698 |
| R4-2107698 | TP for TR 38.717-02-01: CA\_n74-n77 | Huawei, HiSilicon, KDDI | Approved |
| [R4-2110452](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110452.zip) | TP for TR 38.717-02-01: CA\_n3A-n34A | ZTE Corporation | Revised to R4-2107699 |
| R4-2107699 | TP for TR 38.717-02-01: CA\_n3A-n34A | ZTE Corporation | Approved |
| [R4-2110453](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110453.zip) | TP for TR 38.717-02-01: CA\_n8A-n34A | ZTE Corporation | Approved |
| [R4-2110668](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110668.zip) | DraftCR for 38.101-1: CA\_n66A-n78(2A) | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110696](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110696.zip) | TP to TR 38.717-02-01 Addition of CA\_n25-n48 | Nokia, T-Mobile USA | Revised to R4-2107700 |
| R4-2107700 | TP to TR 38.717-02-01 Addition of CA\_n25-n48 | Nokia, T-Mobile USA | Approved |
| R4-2111010 | draft CR to 38.101-1: CA\_n48-n71 | CableLabs | Withdrawn |
| R4-2111017 | draft CR to 38.101-1: DC\_n48-n71 | CableLabs | Withdrawn |
| [R4-2111020](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111020.zip) | TP to TR 38.717-02-01: CA\_n48-n71 and DC\_n48-n71 | CableLabs, Comcast | Noted |
| [R4-2111024](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111024.zip) | draft CR to 38.101-1: CA\_n48-n71 | CableLabs, Comcast | Not pursued |
| [R4-2111026](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111026.zip) | draft CR to 38.101-1: DC\_n48-n71 | CableLabs, Comcast | Not pursued |
| [R4-2111087](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111087.zip) | Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA | Ericsson | Revised to R4-2107701 |
| R4-2107701 | Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA | Ericsson | Ageed |
| [R4-2111090](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111090.zip) | Rel-17 CR 38101-2-h10 corrections 2 band NR CA | Ericsson | Not pursued |
| [R4-2111103](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111103.zip) | draft CR to 38.101-1 to add new BCS for CA\_n7-n78 | Ericsson, Telstra | Endorsed |
| [R4-2108862](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108862.zip) | Draft CR on CA-DC of n1,n3,n78 and n258 | China Unicom, ZTE | Endorsed |
| [R4-2110451](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110451.zip) | draft CR to TS38.101-3: Adding CA\_n34A/n39A/n40A-n258A | ZTE Corporation | Endorsed |
| [R4-2111091](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111091.zip) | Rel-17 CR 38101-3-h10 corrections 2 band NR CA | Ericsson | Revised to R4-2107702 |
| R4-2107702 | Rel-17 CR 38101-3-h10 corrections 2 band NR CA | Ericsson | Agreed |
| [R4-2111162](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111162.zip) | TP for TR 38.717-02-01 to include DC\_n78-n258 | Ericsson,Telstra | Revised to R4-2107703 |
| R4-2107703 | TP for TR 38.717-02-01 to include DC\_n78-n258 | Ericsson,Telstra | Approved |
| R4-2109121 | TR 38.717-03-01 on Rel-17 NR inter-band Carrier Aggregation (CA) for 3 Down Link (DL) / 1 Up Link (UL) | CATT | For email approval |
| R4-2109122 | Revised WID on Rel-17 NR inter-band CA of 3DL bands and 1UL band | CATT | For email approval |
| [R4-2108863](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108863.zip) | Draft CR on CA\_n1-n3-n78 | China Unicom | Revised to R4-2107704 |
| R4-2107704 | Draft CR on CA\_n1-n3-n78 | China Unicom | Endorsed |
| [R4-2108935](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108935.zip) | TP to TR 38.717-03-01: CA\_n2-n30-n66 | Nokia, AT&T | Approved |
| [R4-2108936](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108936.zip) | TP to TR 38.717-03-01: CA\_n5-n30-n66 | Nokia, AT&T | Revised to R4-2107705 |
| R4-2107705 | TP to TR 38.717-03-01: CA\_n5-n30-n66 | Nokia, AT&T | Approved |
| [R4-2108979](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108979.zip) | TP for TR 38.717-03-01 for single uplink CA\_n2-n77-n260 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108980](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108980.zip) | TP for TR 38.717-03-01 for single uplink CA\_n2-n77-n261 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108981](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108981.zip) | TP for TR 38.717-03-01 for single uplink CA\_n5-n77-n260 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108982](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108982.zip) | TP for TR 38.717-03-01 for single uplink CA\_n5-n77-n261 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108983](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108983.zip) | TP for TR 38.717-03-01 for single uplink CA\_n66-n77-n260 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108984](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108984.zip) | TP for TR 38.717-03-01 for single uplink CA\_n66-n77-n261 Carrier Aggregation requirements | Verizon Denmark | Approved |
| [R4-2108985](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108985.zip) | DraftCR for inter band 3DL/1UL NR CA combinations for 38.101-3 | Verizon Denmark | Endorsed |
| [R4-2108995](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108995.zip) | TP for TR 38.717-03-01: CA\_n24-n41-n48 combinations | Ligado Networks | Not pursued |
| [R4-2108996](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108996.zip) | TP for TR 38.717-03-01: CA\_n24-n41-n77 combinations | Ligado Networks | Revised to R4-2107707 |
| R4-2107707 | TP for TR 38.717-03-01: CA\_n24-n41-n77 combinations | Ligado Networks | Approved |
| [R4-2108997](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108997.zip) | TP for TR 38.717-03-01: CA\_n24-n48-n77 combinations | Ligado Networks | Not pursued |
| R4-2109123 | CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-1 | CATT | For email approval |
| R4-2109124 | CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3 | CATT | For email approval |
| [R4-2109470](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109470.zip) | TP for TR 38.717-03-01: CA\_n3-n77-n79 | SoftBank Corp. | Revised to R4-2107709 |
| R4-2107709 | TP for TR 38.717-03-01: CA\_n3-n77-n79 | SoftBank Corp. | Approved |
| [R4-2110458](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110458.zip) | TP for TR38.717-03-01\_CA\_n41A-n79A-n258A | ZTE Corporation | Revised to R4-2107710 |
| R4-2107710 | TP for TR38.717-03-01\_CA\_n41A-n79A-n258A | ZTE Corporation | Approved |
| [R4-2110676](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110676.zip) | TP for TR 38.717-03-01: CA\_n25-n71-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2110702](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110702.zip) | TP to TR 38.717-03-01 Addition of CA\_n14-n66-n77 | Nokia, AT&T | Approved |
| [R4-2110703](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110703.zip) | TP to TR 38.717-03-01 Addition of CA\_n14-n30-n77 | Nokia, AT&T | Approved |
| [R4-2110704](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110704.zip) | TP to TR 38.717-03-01 Addition of CA\_n5-n14-n77 | Nokia, AT&T | Revised to R4-2107711 |
| R4-2107711 | TP to TR 38.717-03-01 Addition of CA\_n5-n14-n77 | Nokia, AT&T | Approved. |
| [R4-2110705](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110705.zip) | TP to TR 38.717-03-01 Addition of CA\_n2-n14-n77 | Nokia, AT&T | Revised to R4-2107712 |
| R4-2107712 | TP to TR 38.717-03-01 Addition of CA\_n2-n14-n77 | Nokia, AT&T | Approved |
| [R4-2110706](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110706.zip) | TP to TR 38.717-03-01 Addition of CA\_n12-n66-n77 | Nokia, AT&T | Approved |
| [R4-2110707](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110707.zip) | TP to TR 38.717-03-01 Addition of CA\_n12-n30-n77 | Nokia, AT&T | Approved |
| [R4-2110708](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110708.zip) | TP to TR 38.717-03-01 Addition of CA\_n2-n12-n77 | Nokia, AT&T | Approved |
| [R4-2110709](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110709.zip) | TP to TR 38.717-03-01 Addition of CA\_n5-n12-n77 | Nokia, AT&T | Approved |
| [R4-2110710](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110710.zip) | TP to TR 38.717-03-01 Addition of CA\_n2-n5-n77 | Nokia, AT&T | Approved |
| [R4-2110711](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110711.zip) | TP to TR 38.717-03-01 Addition of CA\_n5-n30-n77 | Nokia, AT&T | Approved |
| [R4-2110712](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110712.zip) | TP to TR 38.717-03-01 Addition of CA\_n2-n30-n77 | Nokia, AT&T | Approved |
| [R4-2110713](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110713.zip) | TP to TR 38.717-03-01 Addition of CA\_n30-n66-n77 | Nokia, AT&T | Approved |
| [R4-2111099](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111099.zip) | TP for TR 38.717-03-01 to include CA\_n7-n25-n78 | Ericsson, Bell Mobility | Approved |
| [R4-2111160](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111160.zip) | TP for TR 38.717-03-01 to include CA\_n7-n78-n258 | Ericsson,Telstra | Approved |
| R4-2111071 | Revised WID 4 bands NR CA Rel-17 | Ericsson | For email approval |
| R4-2111076 | CR 38.101-1 new combinations NR Inter-band 4 bands CA | Ericsson | For email approval |
| R4-2111077 | CR 38.101-3 new combinations NR Inter-band 4 bands CA | Ericsson | For email approval |
| R4-2111081 | TR 38.717-04-01 v0.5.0 Rel-17 NR Inter-band 4 bands CA | Ericsson | For email approval |
| [R4-2110677](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110677.zip) | TP for TR 38.717-04-01: CA\_n5-n25-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2110679](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110679.zip) | DraftCR for 38.101-1:CA\_n7-n25-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110681](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110681.zip) | TP for TR 38.717-04-01: CA\_n13A-n25A-n66A-N77a | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2111101](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111101.zip) | TP for TR 38.717-04-01 to include CA\_n25-n41-n66-n77 | Ericsson, Bell Mobility | Approved |
| R4-2110465 | Revised WID on Rel-17 NR Inter-band Carrier AggregationDual Connectivity for 3 bands DL with 2 bands UL | ZTE Corporation | For email approval |
| R4-2110466 | CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-1 | ZTE Corporation | For email approval |
| R4-2107979 | CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3 | ZTE Corporation | For email approval |
| R4-2111000 | TR 38.717-03-02 v0.5.0 | ZTE Wistron Telecom AB | For email approval |
| [R4-2108933](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108933.zip) | TP to TR 38.717-03-02: CA\_n2-n30-n66 | Nokia, AT&T | Approved |
| [R4-2108934](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108934.zip) | TP to TR 38.717-03-02: CA\_n5-n30-n66 | Nokia, AT&T | Revised to R4-2107713 |
| R4-2107713 | TP to TR 38.717-03-02: CA\_n5-n30-n66 | Nokia, AT&T | Approved |
| [R4-2109292](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109292.zip) | DraftCR for inter band 3DL/2UL NR CA DC combinations | Verizon Denmark | Endorsed |
| [R4-2109404](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109404.zip) | TP to TR 38.717-03-02 Addition of CA\_n2A-n5A-n77A | AT&T, Nokia | Revised to R4-2107714 |
| R4-2107714 | TP to TR 38.717-03-02 Addition of CA\_n2A-n5A-n77A | AT&T, Nokia | Approved |
| [R4-2109405](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109405.zip) | TP to TR 38.717-03-02 Addition of CA\_n2A-n12A-n77A | AT&T, Nokia | Revised to R4-2107715 |
| R4-2107715 | TP to TR 38.717-03-02 Addition of CA\_n2A-n12A-n77A | AT&T, Nokia | Approved |
| [R4-2109406](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109406.zip) | TP to TR 38.717-03-02 Addition of CA\_n2A-n14A-n77A | AT&T, Nokia | Revised to R4-2107716 |
| R4-2107716 | TP to TR 38.717-03-02 Addition of CA\_n2A-n14A-n77A | AT&T, Nokia | Approved |
| [R4-2109407](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109407.zip) | TP to TR 38.717-03-02 Addition of CA\_n2A-n30A-n77A | AT&T, Nokia | Revised to R4-2107717 |
| R4-2107717 | TP to TR 38.717-03-02 Addition of CA\_n2A-n30A-n77A | AT&T, Nokia | Approved |
| [R4-2109408](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109408.zip) | TP to TR 38.717-03-02 Addition of CA\_n5A-n12A-n77A | AT&T, Nokia | Approved |
| R4-2107718 | TP to TR 38.717-03-02 Addition of CA\_n5A-n12A-n77A | AT&T, Nokia | Withdrawn |
| [R4-2109409](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109409.zip) | TP to TR 38.717-03-02 Addition of CA\_n5A-n14A-n77A | AT&T, Nokia | Revised to R4-2107719 |
| R4-2107719 | TP to TR 38.717-03-02 Addition of CA\_n5A-n14A-n77A | AT&T, Nokia | Approved |
| [R4-2109410](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109410.zip) | TP to TR 38.717-03-02 Addition of CA\_n5A-n30A-n77A | AT&T, Nokia | Revised to R4-2107720 |
| R4-2107720 | TP to TR 38.717-03-02 Addition of CA\_n5A-n30A-n77A | AT&T, Nokia | Approved |
| [R4-2109411](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109411.zip) | TP to TR 38.717-03-02 Addition of CA\_n12A-n30A-n77A | AT&T, Nokia | Revised to R4-2107721 |
| R4-2107721 | TP to TR 38.717-03-02 Addition of CA\_n12A-n30A-n77A | AT&T, Nokia | Approved |
| [R4-2109412](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109412.zip) | TP to TR 38.717-03-02 Addition of CA\_n12A-n66A-n77A | AT&T, Nokia | Revised to R4-2107722 |
| R4-2107722 | TP to TR 38.717-03-02 Addition of CA\_n12A-n66A-n77A | AT&T, Nokia | Approved |
| [R4-2109413](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109413.zip) | TP to TR 38.717-03-02 Addition of CA\_n14A-n30A-n77A | AT&T, Nokia | Revised to R4-2107723 |
| R4-2107723 | TP to TR 38.717-03-02 Addition of CA\_n14A-n30A-n77A | AT&T, Nokia | Approved |
| [R4-2109414](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109414.zip) | TP to TR 38.717-03-02 Addition of CA\_n14A-n66A-n77A | AT&T, Nokia | Revised to R4-2107724 |
| R4-2107724 | TP to TR 38.717-03-02 Addition of CA\_n14A-n66A-n77A | AT&T, Nokia | Approved |
| [R4-2109415](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109415.zip) | TP to TR 38.717-03-02 Addition of CA\_n30A-n66A-n77A | AT&T, Nokia | Revised to R4-2107725 |
| R4-2107725 | TP to TR 38.717-03-02 Addition of CA\_n30A-n66A-n77A | AT&T, Nokia | Approved |
| [R4-2109467](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109467.zip) | Draft CR for TS 38.101-3: Support of n77(2A) in CA\_n77-n79-n257 | SoftBank Corp. | Endorsed |
| [R4-2109469](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109469.zip) | TP for TR 38.717-03-02: CA\_n3-n28-n79 | SoftBank Corp. | Approved |
| [R4-2109471](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109471.zip) | TP for TR 38.717-03-02: CA\_n3-n79-n257 | SoftBank Corp. | Approved |
| [R4-2109472](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109472.zip) | TP for TR 38.717-03-02: CA\_n28-n77-n79 | SoftBank Corp. | Revised to R4-2107726 |
| R4-2107726 | TP for TR 38.717-03-02: CA\_n28-n77-n79 | SoftBank Corp. | Approved |
| [R4-2109473](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109473.zip) | TP for TR 38.717-03-01: CA\_n28-n79-n257 | SoftBank Corp. | Approved |
| [R4-2110459](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110459.zip) | TP for TR38.717-03-02\_CA\_n41A-n79A-n258A | ZTE Corporation | Revised to R4-2107727 |
| R4-2107727 | TP for TR38.717-03-02\_CA\_n41A-n79A-n258A | ZTE Corporation | Approved |
| [R4-2110669](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110669.zip) | DraftCR for 38.101-1 to add BCS1 for CA\_n25-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110670](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110670.zip) | DraftCR for 38.101-1 to add additional combinations for CA\_n7-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110671](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110671.zip) | DraftCR for 38.101-1 to add additional combinations for CA\_n5-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110672](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110672.zip) | DraftCR for 38.101-1: CA\_n7-n25-n66 | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110673](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110673.zip) | DraftCR for 38.101-1: CA\_n25A-n66(2A)-n71A | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110674](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110674.zip) | DraftCR for 38.101-1 to add CA\_n5A-n25(2A)-n78(2A) | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110675](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110675.zip) | DraftCR for 38.101-1: CA\_n2A-n66A-n77(2A) | Huawei, HiSilicon, Bell Mobility, Telus | Endorsed |
| [R4-2110697](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110697.zip) | TP to TR 38.717-03-02 Addition of CA\_n25-n48-n66 | Nokia, T-Mobile USA | Revised to R4-2107728 |
| R4-2107728 | TP to TR 38.717-03-02 Addition of CA\_n25-n48-n66 | Nokia, T-Mobile USA | Approved |
| [R4-2111083](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111083.zip) | CR 38.101-1 to re-introduce the 3DL/2UL configuration accidently deleted in R4-2102320 | Ericsson | Agreed |
| [R4-2111088](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111088.zip) | Rel-17 CR 38101-1-h10 corrections 3 band NR CA | Ericsson | Revised to R4-2107729 |
| R4-2107729 | Rel-17 CR 38101-1-h10 corrections 3 band NR CA | Ericsson | Agreed |
| [R4-2111092](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111092.zip) | Rel-17 CR 38101-3-h10 corrections 3 band NR DC | Ericsson | Agreed |
| [R4-2111098](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111098.zip) | draft CR 38.101-1 to include new configurations for n25-n41-n77, CA\_n41-n66-n77 | Ericsson, Bell Mobility | Endorsed |
| [R4-2111100](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111100.zip) | TP for TR 38.717-03-02 to include CA\_n7-n25-n78 | Ericsson, Bell Mobility | Revised to R4-2107730 |
| R4-2107730 | TP for TR 38.717-03-02 to include CA\_n7-n25-n78 | Ericsson, Bell Mobility | Approved |
| [R4-2111161](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111161.zip) | TP for TR 38.717-03-02 to include CA\_n7-n78-n258 | Ericsson,Telstra | Revised to R4-2107731 |
| R4-2107731 | TP for TR 38.717-03-02 to include CA\_n7-n78-n258 | Ericsson,Telstra | Approved |
| R4-2109611 | CR on introduction of completed NR CA/DC combs with 4DL/2UL within FR1 | Samsung | Agreed |
| R4-2109624 | CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2 | Samsung | Agreed |
| R4-2109625 | Revised WID on NR CA/DC with 4DL/2UL | Samsung | Endorsed |
| R4-2109736 | TR 38.717-04-02 update version 0.5.0 | Samsung | Approved |
| [R4-2110678](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110678.zip) | TP for TR 38.717-04-02:CA\_n5-n25-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2110680](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110680.zip) | TP for TR 38.717-04-02: CA\_n7-n25-n66-n78 | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2110682](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110682.zip) | TP for TR 38.717-04-02: CA\_n13A-n25A-n66A-n77A | Huawei, HiSilicon, Bell Mobility, Telus | Approved |
| [R4-2110698](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110698.zip) | TP to TR 38.717-04-02 Addition of CA\_n25\_n66\_n71\_n77 | Nokia, T-Mobile USA | Revised to R4-2107732 |
| R4-2107732 | TP to TR 38.717-04-02 Addition of CA\_n25\_n66\_n71\_n77 | Nokia, T-Mobile USA | Approved |
| [R4-2110699](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110699.zip) | TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n71\_n77 | Nokia, T-Mobile USA | Revised to R4-2107733 |
| R4-2107733 | TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n71\_n77 | Nokia, T-Mobile USA | Approved |
| [R4-2110700](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110700.zip) | TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n66\_n77 | Nokia, T-Mobile USA | Revised to R4-2107734 |
| R4-2107734 | TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n66\_n77 | Nokia, T-Mobile USA | Approved |
| [R4-2111102](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111102.zip) | TP for TR 38.717-04-02 to include CA\_n25-n41-n66-n77 | Ericsson, Bell Mobility | Merged to R4-2110700 |
| R4-2109770 | Revised WID on NR inter-band CA for 5 bands DL with x bands UL (x=1, 2) | Huawei, HiSilicon | For email approval |
| R4-2109771 | TR 38.717-05-01 v0.3.0 | Huawei, HiSilicon | Withdrawn |
| R4-2109772 | CR on Introduction of completed 5 bands inter-band CA into TS 38.101-1 | Huawei, HiSilicon | For email approval |
| R4-2109841 | TR 37.717-11-21 v0.5.0 TR update: LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-17 | LG Electronics France | For email approval |
| R4-2109857 | Revised WID on LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC in Rel-17 | LG Electronics France | For email approval |
| R4-2109875 | Introduction CR on new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) band combinations in Rel-17 | LG Electronics France | For email approval |
| R4-2110748 | TP for TR 37.717-11-21: UE requirements for DC\_3-7\_n1-n8, DC\_3-3-7\_n1-n8, DC\_3-7-7\_n1-n8, DC\_3-3-7-7\_n1-n8 | CHTTL | Withdrawn |
| [R4-2110454](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110454.zip) | TP for TR 37.717-11-21: DC\_8A\_n39A-n40A | ZTE Corporation | Revised to R4-2107735 |
| R4-2107735 | TP for TR 37.717-11-21: DC\_8A\_n39A-n40A | ZTE Corporation | Approved |
| [R4-2110455](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110455.zip) | TP for TR 37.717-11-21: DC\_8A\_n39A-n79A | ZTE Corporation | Approved |
| [R4-2110744](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110744.zip) | TP for TR 37.717-11-21: UE requirements for DC\_3\_n1-n8, DC\_3-3\_n1-n8, DC\_7\_n1-n8, DC\_7-7\_n1-n8 | CHTTL | Approved |
| [R4-2110757](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110757.zip) | TP for TR 37.717-11-21: UE requirements for DC\_3-7\_n1-n8, DC\_3-3-7\_n1-n8, DC\_3-7-7\_n1-n8, DC\_3-3-7-7\_n1-n8 | CHTTL | Approved |
| [R4-2111097](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111097.zip) | Rel-17 CR 38101-3-h10 corrections EN-DC x band LTE + 2 band NR | Ericsson | Agreed |
| [R4-2111159](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111159.zip) | draft CR to 38.101-3 to add UL configurations for DC\_7\_n78-n258 | Ericsson, Telstra | Endorsed |
| R4-2110468 | Revised WID on Rel-17 Dual Connectivity (DC) x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA | ZTE Corporation | For email approval |
| R4-2110469 | CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into TS 38.101-3 | ZTE Corporation | For email approval |
| R4-2110470 | TR 37.717-33 v0.4.0 | ZTE Corporation | For email approval |
| [R4-2110457](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110457.zip) | TP for TR 37.717-33\_DC\_39A\_n79A-n258A | ZTE Corporation | Approved |
| R4-2110471 | Revised WID on Rel-17 Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) | ZTE Corporation | For email approval |
| R4-2110472 | CR to reflect the completed DC of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) into TS 38.101-3 | ZTE Corporation | For email approval |
| R4-2110473 | TR 37.717-11-31\_v0.3.0 | ZTE Corporation | For email approval |
| [R4-2110456](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110456.zip) | TP for 37.717-11-31\_DC\_8A\_n39A-n40A-n79A | ZTE Corporation | Approved |
| R4-2109628 | CR introduction completed band combinations for Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL) | Samsung | For email approval |
| R4-2109629 | Revised WID on Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL) | Samsung | For email approval |
| R4-2109738 | TR 37.717-21-22 update version 0.2.0 | Samsung | For email approval |

#### 8.10.1 Rapporteur Input (WID/TR/CR)

**R4-2110461 Revised WID on Rel-17 NR Inter-band CA\_DC xUL\_2DL (x=1,2)**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110462 CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0826 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110463 CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0388 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110464 CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0575 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110999 TR 38.717-02-01 v0.5.0**

*Type: draft TR For: Discussion  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Email approval**.

#### 8.10.2 NR inter band CA requirements without any FR2 band(s)

**R4-2108861 Draft CR on CA\_n1-n3, CA\_n1-n78, CA\_n3-n78**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom, ZTE*

**Decision:** The document was **revised to R4-2107691**.

**R4-2107691 Draft CR on CA\_n1-n3, CA\_n1-n78, CA\_n3-n78**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom, ZTE*

**Decision: Endorsed**.

**R4-2109264 Add channel bandwidth configuration for CA\_n46A-n48A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0769 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding CA\_n46N-n48A channel bandwidth configuration

**Decision: Withdrawn**.

**R4-2109265 Add channel bandwidth configuration for CA\_n46A-n48A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0770 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding CA\_n46N-n48A channel bandwidth configuration

**Decision:** The document was **revised to R4-2107692**.

**R4-2107692 Add channel bandwidth configuration for CA\_n46A-n48A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0770 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding CA\_n46N-n48A channel bandwidth configuration

**Decision: Agreed**.

**R4-2109266 Adding new CA\_n46N-n48A configurations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0771 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding:

CA\_n46N-n48A

CA\_n46N-n48B

CA\_n46N-n48C

**Decision: Withdrawn**.

**R4-2109267 Adding new CA\_n46N-n48A configurations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0772 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding:

CA\_n46N-n48A

CA\_n46N-n48B

CA\_n46N-n48C

**Decision: Withdrawn**.

**R4-2109268 Adding new CA\_n46N-n48A configurations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0773 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding:

CA\_n46N-n48A

CA\_n46N-n48B

CA\_n46N-n48C

**Decision:** The document was **revised to R4-2107693**.

**R4-2107693 Adding new CA\_n46N-n48A configurations**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0773 rev Cat: B (Rel-17)  
  
 Source: Charter Communications, Inc*

**Abstract:**

Adding:

CA\_n46N-n48A

CA\_n46N-n48B

CA\_n46N-n48C

**Decision: Agreed**.

**R4-2109273 TP to TR 38.717.02-01 for CA\_n48-n96 and DC\_n48-n96**

*Type: Work Plan For: Approval  
 Source: Charter Communications, Inc*

**Decision: Withdrawn**.

**R4-2109397 TP to TR 38.717-02-01 Addition of CA\_n2A-n12A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109398 TP to TR 38.717-02-01 Addition of CA\_n2A-n14A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109400 TP to TR 38.717-02-01 Addition of CA\_n12A-n30A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107694**.

**R4-2107694 TP to TR 38.717-02-01 Addition of CA\_n12A-n30A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109401 TP to TR 38.717-02-01 Addition of CA\_n12A-n66A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107695**.

**R4-2107695 TP to TR 38.717-02-01 Addition of CA\_n12A-n66A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109402 TP to TR 38.717-02-01 Addition of CA\_n14A-n30A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2107696 TP to TR 38.717-02-01 Addition of CA\_n14A-n30A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Withdrawn**.

**R4-2109403 TP to TR 38.717-02-01 Addition of CA\_n14A-n66A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109468 Draft CR for TS 38.101-1: Support of n77(2A) in DC\_n77-n79**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Endorsed**.

**R4-2109776 draft CR CA\_n25\_n66\_n77 to TS 38.101-1**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CA\_n25(2A)-n66(2A)-n77A,

CA\_n25(2A)-n66A-n77(2A), and CA\_n25(2A)-n66(2A)-n77(2A) are introduced.

**Decision: Endorsed**.

**R4-2109777 draft CR to add new BCS for CA\_n7-n78 to TS 38.101-1**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

BCS1 for CA\_n7(2A)-n78A and CA\_n7(2A)-n78(2A) are introduced.

**Decision: Endorsed**.

**R4-2109876 TP for TR 38.717-02-01: CA\_n28-n74**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, KDDI*

**Decision:** The document was **revised to R4-2107697**.

**R4-2107697 TP for TR 38.717-02-01: CA\_n28-n74**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, KDDI*

**Decision: Approved**.

**R4-2109877 TP for TR 38.717-02-01: CA\_n74-n77**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, KDDI*

**Decision:** The document was **revised to R4-2107698**.

**R4-2107698 TP for TR 38.717-02-01: CA\_n74-n77**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, KDDI*

**Decision: Approved**.

**R4-2110452 TP for TR 38.717-02-01: CA\_n3A-n34A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **revised to R4-2107699**.

**R4-2107699 TP for TR 38.717-02-01: CA\_n3A-n34A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2110453 TP for TR 38.717-02-01: CA\_n8A-n34A**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2110668 DraftCR for 38.101-1: CA\_n66A-n78(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110696 TP to TR 38.717-02-01 Addition of CA\_n25-n48**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision:** The document was **revised to R4-2107700**.

**R4-2107700 TP to TR 38.717-02-01 Addition of CA\_n25-n48**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision: Approved**.

**R4-2111010 draft CR to 38.101-1: CA\_n48-n71**

*Type: CR For: Approval  
 38.101-1 v17.1.0 CR-0839 rev Cat: B (Rel-17)  
  
 Source: CableLabs*

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

**R4-2111017 draft CR to 38.101-1: DC\_n48-n71**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0842 rev Cat: B (Rel-17)  
  
 Source: CableLabs*

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

**R4-2111020 TP to TR 38.717-02-01: CA\_n48-n71 and DC\_n48-n71**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CableLabs, Comcast*

**Decision: Noted**.

**R4-2111024 draft CR to 38.101-1: CA\_n48-n71**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: CableLabs, Comcast*

**Decision: Not purused**.

**R4-2111026 draft CR to 38.101-1: DC\_n48-n71**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: CableLabs, Comcast*

**Decision: Not pursued**.

**R4-2111087 Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0847 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA

**Decision:** The document was **revised to R4-2107701**.

**R4-2107701 Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0847 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-1-h10 corrections 1 band NR and 2 band NR CA

**Decision: Agreed**.

**R4-2111090 Rel-17 CR 38101-2-h10 corrections 2 band NR CA**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0392 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-2-h10 corrections 2 band NR CA

**Decision: Not pursued**.

**R4-2111103 draft CR to 38.101-1 to add new BCS for CA\_n7-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR to 38.101-1 to add new BCS for CA\_n7-n78

**Decision: Endorsed**.

R4-2109778 is moved from AI 5.1.7.2 to AI 8.10.2

**R4-2109778 draft CR to fix BCS for CA\_n7-n66**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Typos in BCS of CA\_n7A-n66A, CA\_n7A-n66(2A), CA\_n7(2A)-n66A are corrected.

**Decision: Endorsed**.

#### 8.10.3 NR inter band CA requirements with at least one FR2 band

**R4-2108862 Draft CR on CA-DC of n1,n3,n78 and n258**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom, ZTE*

**Decision: Endorsed**.

**R4-2110451 draft CR to TS38.101-3: Adding CA\_n34A/n39A/n40A-n258A**

*Type: draftCR For: Approval  
 38.101-2 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed**.

**R4-2111091 Rel-17 CR 38101-3-h10 corrections 2 band NR CA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0592 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections 2 band NR CA

**Decision:** The document was **revised to R4-2107702**.

**R4-2107702 Rel-17 CR 38101-3-h10 corrections 2 band NR CA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0592 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections 2 band NR CA

**Decision: Agreed**.

**R4-2111162 TP for TR 38.717-02-01 to include DC\_n78-n258**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson,Telstra*

**Abstract:**

TP for TR 38.717-02-01 to include DC\_n78-n258

**Decision:** The document was **revised to R4-2107703**.

**R4-2107703 TP for TR 38.717-02-01 to include DC\_n78-n258**

*Type: pCR For: Approval  
 38.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson,Telstra*

**Abstract:**

TP for TR 38.717-02-01 to include DC\_n78-n258

**Decision: Approved**.

### 8.11 NR Inter-band Carrier Aggregation for 3 bands DL with 1 band UL

#### 8.11.1 Rapporteur Input (WID/TR/CR)

**R4-2109121 TR 38.717-03-01 on Rel-17 NR inter-band Carrier Aggregation (CA) for 3 Down Link (DL) / 1 Up Link (UL)**

*Type: draft TR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Email approval**.

**R4-2109122 Revised WID on Rel-17 NR inter-band CA of 3DL bands and 1UL band**

*Type: WID revised For: Approval  
 Source: CATT*

**Decision: Email approval**.

#### 8.11.2 UE RF requirements

**R4-2108863 Draft CR on CA\_n1-n3-n78**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Decision:** The document was **revised to R4-2107704**.

**R4-2107704 Draft CR on CA\_n1-n3-n78**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Decision: Endorsed**.

**R4-2108935 TP to TR 38.717-03-01: CA\_n2-n30-n66**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2108936 TP to TR 38.717-03-01: CA\_n5-n30-n66**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision:** The document was **revised to R4-2107705**.

**R4-2107705 TP to TR 38.717-03-01: CA\_n5-n30-n66**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2108979 TP for TR 38.717-03-01 for single uplink CA\_n2-n77-n260 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108980 TP for TR 38.717-03-01 for single uplink CA\_n2-n77-n261 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108981 TP for TR 38.717-03-01 for single uplink CA\_n5-n77-n260 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108982 TP for TR 38.717-03-01 for single uplink CA\_n5-n77-n261 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108983 TP for TR 38.717-03-01 for single uplink CA\_n66-n77-n260 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108984 TP for TR 38.717-03-01 for single uplink CA\_n66-n77-n261 Carrier Aggregation requirements**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108985 DraftCR for inter band 3DL/1UL NR CA combinations for 38.101-3**

*Type: draftCR For: Approval  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Endorsed**.

**R4-2108995 TP for TR 38.717-03-01: CA\_n24-n41-n48 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Not pursued**.

**R4-2107706 TP for TR 38.717-03-01: CA\_n24-n41-n48 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Withdrawn**.

**R4-2108996 TP for TR 38.717-03-01: CA\_n24-n41-n77 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision:** The document was **revised to R4-2107707**.

**R4-2107707 TP for TR 38.717-03-01: CA\_n24-n41-n77 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Approved**.

**R4-2108997 TP for TR 38.717-03-01: CA\_n24-n48-n77 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Not pursued**.

**R4-2107708 TP for TR 38.717-03-01: CA\_n24-n48-n77 combinations**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Withdrawn**.

**R4-2109123 CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0755 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Email approval**.

**R4-2109124 CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0526 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Email approval**.

**R4-2109470 TP for TR 38.717-03-01: CA\_n3-n77-n79**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision:** The document was **revised to R4-2107709**.

**R4-2107709 TP for TR 38.717-03-01: CA\_n3-n77-n79**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved**.

**R4-2110458 TP for TR38.717-03-01\_CA\_n41A-n79A-n258A**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **revised to R4-2107710**.

**R4-2107710 TP for TR38.717-03-01\_CA\_n41A-n79A-n258A**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2110676 TP for TR 38.717-03-01: CA\_n25-n71-n78**

*Type: pCR For: Approval  
 38.717-03-01 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2110702 TP to TR 38.717-03-01 Addition of CA\_n14-n66-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**..

**R4-2110703 TP to TR 38.717-03-01 Addition of CA\_n14-n30-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110704 TP to TR 38.717-03-01 Addition of CA\_n5-n14-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision:** The document was **revised to R4-2107711**.

**R4-2107711 TP to TR 38.717-03-01 Addition of CA\_n5-n14-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

Pending Fallback

**Decision: Approved.**

**R4-2110705 TP to TR 38.717-03-01 Addition of CA\_n2-n14-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision:** The document was **revised to R4-2107712**.

**R4-2107712 TP to TR 38.717-03-01 Addition of CA\_n2-n14-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110706 TP to TR 38.717-03-01 Addition of CA\_n12-n66-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110707 TP to TR 38.717-03-01 Addition of CA\_n12-n30-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110708 TP to TR 38.717-03-01 Addition of CA\_n2-n12-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110709 TP to TR 38.717-03-01 Addition of CA\_n5-n12-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110710 TP to TR 38.717-03-01 Addition of CA\_n2-n5-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110711 TP to TR 38.717-03-01 Addition of CA\_n5-n30-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110712 TP to TR 38.717-03-01 Addition of CA\_n2-n30-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2110713 TP to TR 38.717-03-01 Addition of CA\_n30-n66-n77**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2111099 TP for TR 38.717-03-01 to include CA\_n7-n25-n78**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 38.717-03-01 to include CA\_n7-n25-n78

**Decision: Approved**.

**R4-2111160 TP for TR 38.717-03-01 to include CA\_n7-n78-n258**

*Type: pCR For: Approval  
 38.717-03-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson,Telstra*

**Abstract:**

TP for TR 38.717-03-01 to include CA\_n7-n78-n258

**Decision: Approved**.

### 8.12 NR Inter-band Carrier Aggregation for 4 bands DL with 1 band UL

#### 8.12.1 Rapporteur Input (WID/TR/CR)

**R4-2111071 Revised WID 4 bands NR CA Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID 4 bands NR CA Rel-17

**Decision: Email approval**.

**R4-2111076 CR 38.101-1 new combinations NR Inter-band 4 bands CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0844 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 new combinations NR Inter-band 4 bands CA

**Decision: Email approval**.

**R4-2111077 CR 38.101-3 new combinations NR Inter-band 4 bands CA**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0589 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-3 new combinations NR Inter-band 4 bands CA

**Decision: Email approval**.

**R4-2111081 TR 38.717-04-01 v0.5.0 Rel-17 NR Inter-band 4 bands CA**

*Type: draft TR For: Endorsement  
 38.717-04-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TR 38.717-04-01 v0.5.0 Rel-17 NR Inter-band 4 bands CA

**Decision: Email approval**.

#### 8.12.2 UE RF requirements

**R4-2110677 TP for TR 38.717-04-01: CA\_n5-n25-n66-n78**

*Type: pCR For: Approval  
 38.717-04-01 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2110679 DraftCR for 38.101-1:CA\_n7-n25-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110681 TP for TR 38.717-04-01: CA\_n13A-n25A-n66A-N77a**

*Type: pCR For: Approval  
 38.717-04-01 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2111101 TP for TR 38.717-04-01 to include CA\_n25-n41-n66-n77**

*Type: pCR For: Approval  
 38.717-04-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 38.717-04-01 to include CA\_n25-n41-n66-n77

**Decision: Approved**.

### 8.13 NR Inter-band Carrier Aggregation/Dual connectivity for 3 bands DL with 2 bands UL

#### 8.13.1 Rapporteur Input (WID/TR/CR)

**R4-2110465 Revised WID on Rel-17 NR Inter-band Carrier AggregationDual Connectivity for 3 bands DL with 2 bands UL**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110466 CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0827 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2111000 TR 38.717-03-02 v0.5.0**

*Type: draft TR For: Discussion  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Email approval**.

#### 8.13.2 UE RF requirements

**R4-2108933 TP to TR 38.717-03-02: CA\_n2-n30-n66**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2108934 TP to TR 38.717-03-02: CA\_n5-n30-n66**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision:** The document was **revised to R4-2107713**.

**R4-2107713 TP to TR 38.717-03-02: CA\_n5-n30-n66**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, AT&T*

**Decision: Approved**.

**R4-2109292 DraftCR for inter band 3DL/2UL NR CA DC combinations**

*Type: draftCR For: Approval  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Endorsed**.

**R4-2109404 TP to TR 38.717-03-02 Addition of CA\_n2A-n5A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107714**.

**R4-2107714 TP to TR 38.717-03-02 Addition of CA\_n2A-n5A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109405 TP to TR 38.717-03-02 Addition of CA\_n2A-n12A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107715**.

**R4-2107715 TP to TR 38.717-03-02 Addition of CA\_n2A-n12A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109406 TP to TR 38.717-03-02 Addition of CA\_n2A-n14A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107716**.

**R4-2107716 TP to TR 38.717-03-02 Addition of CA\_n2A-n14A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109407 TP to TR 38.717-03-02 Addition of CA\_n2A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107717**.

**R4-2107717 TP to TR 38.717-03-02 Addition of CA\_n2A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109408 TP to TR 38.717-03-02 Addition of CA\_n5A-n12A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2107718 TP to TR 38.717-03-02 Addition of CA\_n5A-n12A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Withdrawn**.

**R4-2109409 TP to TR 38.717-03-02 Addition of CA\_n5A-n14A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107719**.

**R4-2107719 TP to TR 38.717-03-02 Addition of CA\_n5A-n14A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109410 TP to TR 38.717-03-02 Addition of CA\_n5A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107720**.

**R4-2107720 TP to TR 38.717-03-02 Addition of CA\_n5A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109411 TP to TR 38.717-03-02 Addition of CA\_n12A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107721**.

**R4-2107721 TP to TR 38.717-03-02 Addition of CA\_n12A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109412 TP to TR 38.717-03-02 Addition of CA\_n12A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107722**.

**R4-2107722 TP to TR 38.717-03-02 Addition of CA\_n12A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109413 TP to TR 38.717-03-02 Addition of CA\_n14A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107723**.

**R4-2107723 TP to TR 38.717-03-02 Addition of CA\_n14A-n30A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109414 TP to TR 38.717-03-02 Addition of CA\_n14A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107724**.

**R4-2107724 TP to TR 38.717-03-02 Addition of CA\_n14A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109415 TP to TR 38.717-03-02 Addition of CA\_n30A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision:** The document was **revised to R4-2107725**.

**R4-2107725 TP to TR 38.717-03-02 Addition of CA\_n30A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T, Nokia*

**Decision: Approved**.

**R4-2109467 Draft CR for TS 38.101-3: Support of n77(2A) in CA\_n77-n79-n257**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Endorsed**.

**R4-2109469 TP for TR 38.717-03-02: CA\_n3-n28-n79**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved**.

**R4-2109471 TP for TR 38.717-03-02: CA\_n3-n79-n257**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved**.

**R4-2109472 TP for TR 38.717-03-02: CA\_n28-n77-n79**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision:** The document was **revised to R4-2107726**.

**R4-2107726 TP for TR 38.717-03-02: CA\_n28-n77-n79**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved**.

**R4-2109473 TP for TR 38.717-03-01: CA\_n28-n79-n257**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved**.

**R4-2110459 TP for TR38.717-03-02\_CA\_n41A-n79A-n258A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **revised to R4-2107727**.

**R4-2107727 TP for TR38.717-03-02\_CA\_n41A-n79A-n258A**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2110669 DraftCR for 38.101-1 to add BCS1 for CA\_n25-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110670 DraftCR for 38.101-1 to add additional combinations for CA\_n7-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110671 DraftCR for 38.101-1 to add additional combinations for CA\_n5-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110672 DraftCR for 38.101-1: CA\_n7-n25-n66**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110673 DraftCR for 38.101-1: CA\_n25A-n66(2A)-n71A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110674 DraftCR for 38.101-1 to add CA\_n5A-n25(2A)-n78(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110675 DraftCR for 38.101-1: CA\_n2A-n66A-n77(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed**.

**R4-2110697 TP to TR 38.717-03-02 Addition of CA\_n25-n48-n66**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision:** The document was **revised to R4-2107728**.

**R4-2107728 TP to TR 38.717-03-02 Addition of CA\_n25-n48-n66**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision: Approved**.

**R4-2111083 CR 38.101-1 to re-introduce the 3DL/2UL configuration accidently deleted in R4-2102320**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0845 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 to re-introduce the 3DL/2UL configuration accidently deleted in R4-2102320

**Decision: Agreed**.

**R4-2111088 Rel-17 CR 38101-1-h10 corrections 3 band NR CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0848 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-1-h10 corrections 3 band NR CA

**Decision:** The document was **revised to R4-2107729**.

**R4-2107729 Rel-17 CR 38101-1-h10 corrections 3 band NR CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0848 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-1-h10 corrections 3 band NR CA

**Decision: Agreed**.

**R4-2111092 Rel-17 CR 38101-3-h10 corrections 3 band NR DC**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0593 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections 3 band NR DC

**Decision: Agreed**.

**R4-2111098 draft CR 38.101-1 to include new configurations for n25-n41-n77, CA\_n41-n66-n77**

*Type: draftCR For: Endorsement  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

draft CR 38.101-1 to include new configurations for n25-n41-n77, CA\_n41-n66-n77

**Decision: Endorsed**.

**R4-2111100 TP for TR 38.717-03-02 to include CA\_n7-n25-n78**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n7-n25-n78

**Decision:** The document was **revised to R4-2107730**.

**R4-2107730 TP for TR 38.717-03-02 to include CA\_n7-n25-n78**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n7-n25-n78

**Decision: Approved**.

**R4-2111161 TP for TR 38.717-03-02 to include CA\_n7-n78-n258**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson,Telstra*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n7-n78-n258

**Decision:** The document was **revised to R4-2107731**.

**R4-2107731 TP for TR 38.717-03-02 to include CA\_n7-n78-n258**

*Type: pCR For: Approval  
 38.717-03-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson,Telstra*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n7-n78-n258

**Decision: Approved**.

**R4-2107979 CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 TS 38.101-3 CR-XXXX rev Cat:B (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

Moderator] A CR for 38.101-3 was not requested but is needed to capture the agreed combinations as this meeting. Hence, a Tdoc is requested by Chair

-> Proposed for email approval after meeting

**Decision: Email approval.**

### 8.14 NR inter-band Carrier Aggregation and Dual connectivity for DL 4 bands and 2UL bands

#### 8.14.1 Rapporteur Input (WID/TR/CR)

**R4-2109611 CR on introduction of completed NR CA/DC combs with 4DL/2UL within FR1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0784 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109624 CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0539 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109625 Revised WID on NR CA/DC with 4DL/2UL**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109736 TR 38.717-04-02 update version 0.5.0**

*Type: draft TR For: Agreement  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

#### 8.14.2 UE RF requirements

**R4-2110678 TP for TR 38.717-04-02:CA\_n5-n25-n66-n78**

*Type: pCR For: Approval  
 38.717-04-02 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2110680 TP for TR 38.717-04-02: CA\_n7-n25-n66-n78**

*Type: pCR For: Approval  
 38.717-04-02 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2110682 TP for TR 38.717-04-02: CA\_n13A-n25A-n66A-n77A**

*Type: pCR For: Approval  
 38.717-04-02 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved**.

**R4-2110698 TP to TR 38.717-04-02 Addition of CA\_n25\_n66\_n71\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision:** The document was **revised to R4-2107732**.

**R4-2107732 TP to TR 38.717-04-02 Addition of CA\_n25\_n66\_n71\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision: Approved**.

**R4-2110699 TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n71\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision:** The document was **revised to R4-2107733**.

**R4-2107733 TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n71\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision: Approved**.

**R4-2110700 TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n66\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision:** The document was **revised to R4-2107734**.

**R4-2107734 TP to TR 38.717-04-02 Addition of CA\_n25\_n41\_n66\_n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, T-Mobile USA*

**Decision: Approved**.

**R4-2111102 TP for TR 38.717-04-02 to include CA\_n25-n41-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 38.717-04-02 to include CA\_n25-n41-n66-n77

Merged to R4-2110700.

**Decision: Merged**.

### 8.15 NR inter-band CA for 5 bands DL with x bands UL (x=1, 2)

#### 8.15.1 Rapporteur Input (WID/TR/CR)

**R4-2109770 Revised WID on NR inter-band CA for 5 bands DL with x bands UL (x=1, 2)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2109771 TR 38.717-05-01 v0.3.0**

*Type: draft TR For: Approval  
 38.717-05-01 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

To capture the approved TPs in this meeting

**Decision: Withdrawn**.

**R4-2109772 CR on Introduction of completed 5 bands inter-band CA into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0788 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

#### 8.15.2 UE RF requirements

### 8.16 DC of 1 LTE band and 1 NR band

#### 8.16.1 Rapporteur Input (WID/TR/CR)

**R4-2110580 TR 37.717-11-11 v0.5.0 Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: draft TR For: Approval  
 37.717-11-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Email approval**.

**R4-2110595 Revised WID for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Approval  
 Source: CHTTL*

**Decision: Email approval**.

**R4-2110714 Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0583 rev Cat: B (Rel-17)  
  
 Source: CHTTL*

**Decision: Email approval**.

#### 8.16.2 EN-DC requirements without FR2 band

**R4-2110038 Draft CR for new 2UL2DL EN-DC including DL n77(2A) or DL n78(2A)**

*Type: draftCR For: (not specified)  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed**.

**R4-2110287 Draft CR for 38.101-3 to add the configuration DC\_20A\_n78C**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

#### 8.16.3 EN-DC requirements with FR2 band

**R4-2108864 Draft CR on EN-DC of B1,B8 and n258**

*Type: draftCR For: Approval  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Decision: Endorsed**.

**R4-2111093 Rel-17 CR 38101-3-h10 corrections EN-DC 1 band LTE + 1 band NR**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0594 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections EN-DC 1 band LTE + 1 band NR

**Decision: Agreed**.

**R4-2111158 draft CR to 38.101-3 to add configurations for DC\_3\_n258**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR to 38.101-3 to add configurations for DC\_3\_n258

**Decision: Agreed**.

### 8.17 DC of 2 LTE band and 1 NR band

#### 8.17.1 Rapporteur Input (WID/TR/CR)

**R4-2110665 TR 37.717-21-11 V0.5.0 for DC of 2 LTE band and 1 NR band**

*Type: draft TR For: Approval  
 37.717-21-11 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2110666 Revised WID: Dual Connectivity (DC) of 2 bands LTE inter-band CA (2DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2110667 CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#99-e and RAN4#98-bis-e into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0581 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

#### 8.17.2 EN-DC requirements without FR2 band

**R4-2109463 TP update for TR 37.717-21-11: EN-DC\_1-11\_n41**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp., Samsung, KDDI*

**Decision: Approved**.

**R4-2109918 MSD results for PC3 NR inter-band DC band combinations**

*Type: discussion For: Approval  
 Source: LG Electronics France*

**Abstract:**

Provide MSD results for DC\_1A-11A\_n41A in DC\_2band LTE and 1 band NR combinations.

**Decision: Approved.**

**R4-2109792 TP to TR 37.717-21-11 DC\_13-48\_n77**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Verizon*

**Abstract:**

DC config DC\_13A-48A\_n77A is introduced.

**Decision: Noted**.

**R4-2109793 TP to TR 37.717-21-11 DC\_48-66\_n77**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Verizon*

**Abstract:**

DC config DC\_48A-66A\_n77A is introduced.

**Decision: Noted**.

**R4-2110047 draft CR for new 2UL3DL EN-DC including n77(2A) or n78(2A)**

*Type: draftCR For: (not specified)  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

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

**R4-2110048 draft CR for new 2UL3DL EN-DC including n77(2A) or n78(2A)**

*Type: draftCR For: (not specified)  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

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

**R4-2110076 draft CR for new 2UL3DL EN-DC including DL n77(2A) or DL n78(2A)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed**.

**R4-2110240 TP for TR 37.717-21-11: DC\_20A-28A\_n1A**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

**R4-2110241 TP for TR 37.717-21-11: DC\_8A-20A\_n1A**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Vodafone*

**Decision: Approved**.

**R4-2110242 TP for TR 37.717-21-11: DC\_8A-20A\_n3A**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Vodafone*

**Decision:** The document was **revised to R4-2107688**.

**R4-2107688 TP for TR 37.717-21-11: DC\_8A-20A\_n3A**

*Type: pCR For: Approval  
 37.717-21-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Vodafone*

**Decision: Approved**

**R4-2110244 Draft CR for 38.101-3 to add the configuration DC\_1A-32A\_n78C**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

**R4-2110245 Draft CR for 38.101-3 to add the configuration DC\_3A-32A\_n78C**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

**R4-2110246 Draft CR for 38.101-3 to add the configuration DC\_20A-32A\_n78C**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

#### 8.17.3 DMEN-DC requirements with FR2 band

**R4-2111094 Rel-17 CR 38101-3-h10 corrections EN-DC 2 band LTE + 1 band NR**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0595 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections EN-DC 2 band LTE + 1 band NR

**Decision: Agreed**.

### 8.18 DC of 3 LTE band and 1 NR band

#### 8.18.1 Rapporteur Input (WID/TR/CR)

**R4-2111070 Revised WID LTE 3DL and one NR band Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID LTE 3DL and one NR band Rel-17

**Decision: Email approval**.

**R4-2111080 TR 37.717-31-11 v0.5.0 Rel-17 DC combinations LTE 3DL and one NR band**

*Type: draft TR For: Endorsement  
 37.717-31-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TR 37.717-31-11 v0.5.0 Rel-17 DC combinations LTE 3DL and one NR band

**Decision: Email approval**.

**R4-2111546 Big CR 38.101-3 new combinations LTE 3DL and one NR band**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Decision: Email approval.**

#### 8.18.2 EN-DC requirements without FR2 band

**R4-2110078 draft CR for new 2UL4DL EN-DC including DL n77(2A) or DL n78(2A)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed**.

**R4-2110247 Draft CR for 38.101-3 to add the configuration DC\_1A-3A-32A\_n78C**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

**R4-2110248 TP for TR 37.717-31-11: DC\_3A-20A-28A\_n1A**

*Type: pCR For: Approval  
 37.717-31-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

**R4-2110249 TP for TR 37.717-31-11: DC\_7A-20A-28A\_n1A**

*Type: pCR For: Approval  
 37.717-31-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

#### 8.18.3 EN-DC requirements with FR2 band

**R4-2110775 draft CR for DC\_3-7-8\_n257, DC\_3-3-7-8\_n257, DC\_3-7-7-8\_n257, DC\_3-3-7-7-8\_n257**

*Type: draftCR For: (not specified)  
 38.101-3 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: CHTTL*

**Decision: Endorsed**.

**R4-2111095 Rel-17 CR 38101-3-h10 corrections EN-DC 3 band LTE + 1 band NR**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0596 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections EN-DC 3 band LTE + 1 band NR

**Decision: Noted**.

### 8.19 DC of 4 LTE band and 1 NR band

#### 8.19.1 Rapporteur Input (WID/TR/CR)

**R4-2110658 Revised Rel-17 WID on DC of 4 bands LTE inter-band CA (4DL1UL) and 1 NR band (1DL1UL)**

*Type: WID revised For: Endorsement  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of requests provided at RAN4#99

**Decision: Email approval**.

**R4-2110683 CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0582 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of approved combinations provided at RAN4#98bis and 99

**Decision: Email approval**.

**R4-2110715 draft TR 37.717-41-11-050**

*Type: draft TR For: Agreement  
 37.717-41-11 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Abstract:**

Inclusion of TPs provided at RAN4#99

**Decision: Email approval**.

#### 8.19.2 EN-DC requirements without FR2 band

**R4-2110250 TP for TR 37.717-41-11: DC\_3A-7A-20A-28A\_n1A**

*Type: pCR For: Approval  
 37.717-41-11 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

#### 8.19.3 EN-DC requirements with FR2 band

**R4-2111096 Rel-17 CR 38101-3-h10 corrections EN-DC 4 band LTE + 1 band NR**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0597 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections EN-DC 4 band LTE + 1 band NR

**Decision: Agreed**.

**R4-2111157 draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260

**Decision:** The document was **revised to R4-2107690**.

**R4-2107690 draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR to 38.101-3 to add configurations for DC\_2-29-30-66\_n260

**Decision: Endorsed**.

### 8.20 DC of 5 bands LTE inter-band CA (5DL/1L) and 1 NR band (1DL/1UL)

#### 8.20.1 Rapporteur Input (WID/TR/CR)

**R4-2109626 CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0540 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109627 Revised WID on Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109737 TR 37.717-51-11 update version 0.2.0**

*Type: draft TR For: Agreement  
 37.717-51-11 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

#### 8.20.2 UE RF requirements

### 8.21 DC of x bands (x=1,2, 3, 4) LTE inter-band CA and 2 bands NR inter-band CA

#### 8.21.1 Rapporteur Input (WID/TR/CR)

**R4-2109841 TR 37.717-11-21 v0.5.0 TR update: LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-17**

*Type: draft TR For: Agreement  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Update TR to capture the approved TPs in this meeting.

**Decision: Email approval**.

**R4-2109857 Revised WID on LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC in Rel-17**

*Type: WID revised For: Agreement  
 Source: LG Electronics France*

**Abstract:**

Revised WID to update DC band combos and add new DC band combos in Rel-17

**Decision: Email approval**.

**R4-2109875 Introduction CR on new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) band combinations in Rel-17**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0551 rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Big CR to capture new DC band combinations in TS38.101-3 in Rel-17

**Decision: Email approval**.

**R4-2110748 TP for TR 37.717-11-21: UE requirements for DC\_3-7\_n1-n8, DC\_3-3-7\_n1-n8, DC\_3-7-7\_n1-n8, DC\_3-3-7-7\_n1-n8**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Withdrawn.**

#### 8.21.2 EN-DC requirements including NR inter CA without FR2 band

**R4-2110454 TP for TR 37.717-11-21: DC\_8A\_n39A-n40A**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **revised to R4-2107735**.

**R4-2107735 TP for TR 37.717-11-21: DC\_8A\_n39A-n40A**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2110455 TP for TR 37.717-11-21: DC\_8A\_n39A-n79A**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Agreed**.

**R4-2110744 TP for TR 37.717-11-21: UE requirements for DC\_3\_n1-n8, DC\_3-3\_n1-n8, DC\_7\_n1-n8, DC\_7-7\_n1-n8**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Approved**.

**R4-2110757 TP for TR 37.717-11-21: UE requirements for DC\_3-7\_n1-n8, DC\_3-3-7\_n1-n8, DC\_3-7-7\_n1-n8, DC\_3-3-7-7\_n1-n8**

*Type: pCR For: Approval  
 37.717-11-21 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Approved**.

#### 8.21.3 EN-DC requirements including NR inter CA with FR2 band

**R4-2111097 Rel-17 CR 38101-3-h10 corrections EN-DC x band LTE + 2 band NR**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0598 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Rel-17 CR 38101-3-h10 corrections EN-DC x band LTE + 2 band NR

**Decision: Agreed**.

**R4-2111159 draft CR to 38.101-3 to add UL configurations for DC\_7\_n78-n258**

*Type: draftCR For: Endorsement  
 38.101-3 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR to 38.101-3 to add UL configurations for DC\_7\_n78-n258

**Decision: Endorsed**.

### 8.22 DC of x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA

#### 8.22.1 Rapporteur Input (WID/TR/CR)

**R4-2110468 Revised WID on Rel-17 Dual Connectivity (DC) x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110469 CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0576 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110470 TR 37.717-33 v0.4.0**

*Type: draft TR For: Approval  
 37.717-33 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

#### 8.22.2 UE RF requirements

**R4-2110457 TP for TR 37.717-33\_DC\_39A\_n79A-n258A**

*Type: pCR For: Approval  
 37.717-33 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

### 8.23 DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 3 bands NR inter-band CA (3DL/1UL)

#### 8.23.1 Rapporteur Input (WID/TR/CR)

**R4-2110471 Revised WID on Rel-17 Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110472 CR to reflect the completed DC of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0577 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

**R4-2110473 TR 37.717-11-31\_v0.3.0**

*Type: draft TR For: Approval  
 37.717-11-31 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Email approval**.

#### 8.23.2 UE RF requirements

**R4-2110456 TP for 37.717-11-31\_DC\_8A\_n39A-n40A-n79A**

*Type: pCR For: Approval  
 37.717-11-31 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

### 8.24 DC of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)

#### 8.24.1 Rapporteur Input (WID/TR/CR)

**R4-2109628 CR introduction completed band combinations for Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0541 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109629 Revised WID on Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision: Email approval**.

**R4-2109738 TR 37.717-21-22 update version 0.2.0**

*Type: draft TR For: Agreement  
 37.717-21-22 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision: Email approval**.

#### 8.24.2 UE RF requirements

### 8.25 Band combinations for SA NR supplementary uplink (SUL) NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP)

#### 8.25.1 Rapporteur Input (WID/TR/CR)

**R4-2109766 Revised WID on Band combinations for SA NR Supplementary uplink (SUL), NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2109767 TR 37.717-00-00 v0.5.0**

*Type: draft TR For: Approval  
 37.717-00-00 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

To capture the approved TPs in this meeting

**Decision: Email approval**.

**R4-2109768 CR on Introduction of completed SUL band combinations into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0787 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2109769 CR on Introduction of completed SUL band combinations into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0546 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

#### 8.25.2 UE RF requirements

**R4-2108939 TP to TR 37.717-00-00 for SUL\_n41A-n97A**

*Type: pCR For: Approval  
 37.717-00-00 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Approved**.

**R4-2110251 Draft CR for 38.101-1 to add the configuration SUL\_n41C-n83A SUL\_n41C-n80A and SUL\_n78C-n84A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2110252 Updated TP for TR 37.717-00-00 for CA\_n3\_SUL\_n78-n80**

*Type: pCR For: Approval  
 37.717-00-00 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

**R4-2110253 TP for TR 37.717-00-00 for CA\_n3A\_SUL\_n79A-n80A / CA\_n3A\_SUL\_n79C-n80A**

*Type: pCR For: Approval  
 37.717-00-00 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

**R4-2110254 TP for TR 37.717-00-00 for CA\_n3A\_SUL\_n41A-n80A / CA\_n3A\_SUL\_n41C-n80A**

*Type: pCR For: Approval  
 37.717-00-00 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved**.

### 8.26 Band combinations for Uu and V2X con-current operation

**Email discussion summary of [99-e][119] NR\_LTE\_V2X\_PC5\_combos, AI 8.26 – Yuan Gao**

**R4-2107645 Email discussion summary for [99-e][119]** **NR\_LTE\_V2X\_PC5\_combos**

*Type: Other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107929**.

**R4-2107929 Email discussion summary for [99-e][119]** **NR\_LTE\_V2X\_PC5\_combos**

*Type: Other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210588. Completion date is March 2022 for Core and Perf.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| Big CR for 38.101, Introduce new band combinations for V2X con-current operation | CATT | R4-2107813 | Please contact MCC for CR number | Email approval |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2111427](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111427.zip) | TP for 37.875: Scope of NR V2X R17 combinations | Huawei, HiSilicon | Revised to R4-2107814 |  |
| R4-2107814 | TP for 37.875: Scope of NR V2X R17 combinations | Huawei, HiSilicon | Approved |  |
| [R4-2109038](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109038.zip) | TP on V2X\_n78A-n47A and V2X\_n78A-47A coexistence study | CATT | Approved |  |
| [R4-2109039](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109039.zip) | CR for TS 38.101-1, Introduce new band combination of V2X\_n78A-n47A | CATT | Endorsed | This formal CR can be endorsed as it has overlaps with another endorsed CR (R4-2110403). To avoid CR implementation problem, a big CR will be used. |
| [R4-2109041](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109041.zip) | CR for TS 38.101-1, Introduce new band combination of V2X\_n79A-n47A | CATT | Endorsed | This formal CR can be endorsed as it has overlaps with another endorsed CR (R4-2110403). To avoid CR implementation problem, a big CR will be used. |
| [R4-2110403](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110403.zip) | Draft CR for 38.101-1 to simplify the configuration and REFSENS for V2X band combinations | Huawei, HiSilicon | Endorsed |  |
| [R4-2110404](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110404.zip) | Discussion and TP for TR 37.875 on MSD for V2X\_n79A-n47A and V2X\_n79A\_47A | Huawei, HiSilicon | Revised to R4-2107815 |  |
| R4-2107815 | Discussion and TP for TR 37.875 on MSD for V2X\_n79A-n47A and V2X\_n79A\_47A | Huawei, HiSilicon | Approved. |  |
| [R4-2109040](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109040.zip) | CR for TS 38.101-3, Introduce new band combination of V2X\_n78A-47A | CATT | Agreed |  |
| [R4-2109042](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109042.zip) | CR for TS 38.101-3, Introduce new band combination of V2X\_n79A-47A | CATT | Agreed |  |

**WF/LS/CRs for approval**

**R4-2107813 Big CR for 38.101, Introduce new band combinations for V2X con-current operation**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-XXXX rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Email approval.**

#### 8.26.1 General and Rapporteur Input (WID/TR/CR)

**TR 37.875**

**R4-2109043 TR 37.875, Band combinations for V2X con-current operation**

*Type: draft TR For: Approval  
 37.875 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Email approval**.

**R4-2111427 TP for 37.875: Scope of NR V2X R17 combinations**

*Type: pCR For: Approval  
 37.875 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision:** The document was **revised to R4-2107814**.

**R4-2107814 TP for 37.875: Scope of NR V2X R17 combinations**

*Type: pCR For: Approval  
 37.875 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Approved.**

#### 8.26.2 UE RF requirement for concurrent operation between NR Uu band and NR PC5 band

**Topic #1-1: Sensitivity degradation for V2X\_n79A-n47A and V2X\_n79A-47A**

**R4-2109370 Calculation of delta RIB,V2X for V2X\_n79A-n47A and V2X\_n79A-47A**

*Type: discussion For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Provides calculation of ?RIB,V2X for V2X\_n79A-n47A and V2X\_n79A-47A

**Decision: Noted**

**R4-2110404 Discussion and TP for TR 37.875 on MSD for V2X\_n79A-n47A and V2X\_n79A\_47A**

*Type: pCR For: Approval  
 37.875 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107815**.

**R4-2107815 Discussion and TP for TR 37.875 on MSD for V2X\_n79A-n47A and V2X\_n79A\_47A**

*Type: pCR For: Approval  
 37.875 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2109041 CR for TS 38.101-1, Introduce new band combination of V2X\_n79A-n47A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0754 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed**.

**Other contributions**

**R4-2109038 TP on V2X\_n78A-n47A and V2X\_n78A-47A coexistence study**

*Type: pCR For: Approval  
 37.875 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved**.

**R4-2109039 CR for TS 38.101-1, Introduce new band combination of V2X\_n78A-n47A**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0753 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed**.

**R4-2110403 Draft CR for 38.101-1 to simplify the configuratin and REFSENS for V2X band combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed**.

#### 8.26.3 UE RF requirement for concurrent operation between LTE Uu band and NR PC5 band

#### 8.26.4 UE RF requirement for concurrent operation between NR Uu band and LTE PC5 band

**R4-2109040 CR for TS 38.101-3, Introduce new band combination of V2X\_n78A-47A**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0523 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Agreed**.

**R4-2109042 CR for TS 38.101-3, Introduce new band combination of V2X\_n79A-47A**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0524 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Agreed**.

#### 8.26.5 UE RF requirement for concurrent operation of LTE/NR CA/DC band combinations + PC5 V2X

### 8.27 Adding channel bandwidth support to existing NR bands

**Email discussion summary of [99-e][120] NR\_bands\_R17\_BWs, AI 8.27 –Dominique Evereare**

**R4-2107646 Email discussion summary for [99-e][120]** **NR\_bands\_R17\_BWs**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **not revised to R4-2107930**.

**R4-2107930 Email discussion summary for [99-e][120]** **NR\_bands\_R17\_BWs**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210917. Completion date is Sep. 2021 for Core.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on adding 25, 30 and 40MHz channel BW to band n2 | AT&T | R4-2107816 | Approved (2nd round) |
| WF on adding 25 MHz channel BW to band n5 | AT&T | R4-2107817 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2110091 | Revised Basket WID on adding channel bandwidth support to existing NR bands | Ericsson | Endorsed |  |
| R4-2110092 | Big CR to TS 38.104: Adding channel BW support in existing NR bands | Ericsson | e-mail approval | To consolidate all endorsed draft CRs |
| R4-2110093 | Big CR to TS 38.101-1: Adding channel BW support in existing NR bands | Ericsson | e-mail approval | To consolidate all endorsed draft CRs |
| R4-2109440 | Discussion on new CBW 90MHz and 100MHz for n40 | Apple | Noted |  |
| R4-2110649 | Adding 90 and 100MHz bandwidth for band n40 | Huawei, HiSilicon, CMCC | Noted |  |
| R4-2110650 | Draft CR to 38.104: Adding 90 MHz for band n40 | Huawei, HiSilicon, CMCC | Endorsed |  |
| R4-2110656 | Draft CR to 38.101-1: Adding 90 MHz and 100 MHz for band n40 | Huawei, HiSilicon, CMCC | Endorsed |  |
| R4-2111467 | R17 BWs REFSENS | Qualcomm | Noted |  |
| R4-2109449 | MSD calculation for band n5 with 20 MHz UL BW | Apple | Noted |  |
| R4-2111532 | n5 25MHz REFSENS | Skyworks | Noted |  |
| R4-2110073 | Further discussion on RefSens for Band n3 50MHz CBW | China Telecom, China Unicom | Noted |  |
| R4-2110074 | Draft CR to 38.101-1 Introduce 50MHz CBW for Band n3 | China Telecom, China Unicom | Revised to R4-2107818 |  |
| R4-2107818 | Draft CR to 38.101-1 Introduce 50MHz CBW for Band n3 | China Telecom, China Unicom | Endorsed (2nd round) |  |
| R4-2110075 | Draft CR to 38.104 Introduce 50MHz CBW for Band n3 | China Telecom, China Unicom | Endorsed (2nd round) | Agreeable if draft CR to 36.101-1 is endorsed in the 2nd round |
| R4-2111528 | n3 50MHz REFSENS | Skyworks | Noted |  |
| R4-2109867 | Introducing NR-U 100 MHz carrier bandwidth in bands n46 and n96 | Qualcomm | Noted |  |

**WF/LS/CRs for approval**

**R4-2107816 WF on adding 25, 30 and 40MHz channel BW to band n2**

*Type: other For: Approval  
 Source: AT&T*

**Decision: Approved.**

**R4-2107817 WF on adding 25 MHz channel BW to band n5**

*Type: other For: Approval  
 Source: AT&T*

**Decision: Approved.**

#### 8.27.1 General and Rapporteur Input (WID/TR/CR)

**Topic #1: Rapporteur inputs**

**R4-2110091 Revised Basket WID on adding channel bandwidth support to existing NR bands**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

This contribution is the revision of the basket WI to include the new requests received before RAN4#99-e meeting and update status of previous requests

**Decision: Endorsed**.

**R4-2110092 Big CR to TS 38.104: Adding channel BW support in existing NR bands**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0319 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This big CR will capture all draft CRs endorsed in RAN4#99-e meeting

**Decision: Email approval**.

**R4-2110093 Big CR to TS 38.101-1: Adding channel BW support in existing NR bands**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0807 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This big CR will capture all draft CRs endorsed in RAN4#99-e meeting

**Decision: Email approval**.

#### 8.27.2 UE RF requirements

**Topic #2: Band n40 90 and 100MHz CBW**

R4-2109440 is moved from AI 8.27.2.2 to 8.27.2

**R4-2109440 Discussion on new CBW 90MHz and 100MHz for n40**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**

**R4-2110649 Adding 90 and 100MHz bandwidth for band n40**

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

**Decision: Noted.**

**R4-2110656 Draft CR to 38.101-1: Adding 90 MHz and 100 MHz for band n40**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, CMCC*

**Decision: Endorsed**.

**Topic #3: Band n2 25, 30 and 40MHz CBW**

**R4-2111467 R17 BWs REFSENS**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

##### 8.27.2.1 Reference sensitivity

**Topic #4: Band n5 25MHz CBW**

**R4-2109449 MSD calculation for band n5 with 20 MHz UL BW**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted.**

**R4-2111532 n5 25MHz REFSENS**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

**Topic #5: Band n3 50MHz CBW**

**R4-2110073 Further discussion on RefSens for Band n3 50MHz CBW**

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

**Decision: Noted.**

**R4-2110074 Draft CR to 38.101-1 Introduce 50MHz CBW for Band n3**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom, China Unicom*

**Decision:** The document was **revised to R4-2107818**.

**R4-2107818 Draft CR to 38.101-1 Introduce 50MHz CBW for Band n3**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom, China Unicom*

**Decision: Endorsed.**

**R4-2110075 Draft CR to 38.104 Introduce 50MHz CBW for Band n3**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom, China Unicom*

**Decision: Endorsed.**

**R4-2111528 n3 50MHz REFSENS**

*Type: discussion For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted**.

##### 8.27.2.2 MPR/A-MPR/NS signaling

##### 8.27.2.3 others

R4-2109867 is moved from AI 8.27 to AI 8.27.2.3

**R4-2109867 Introducing NR-U 100 MHz carrier bandwidth in bands n46 and n96**

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

Chair: this Tdoc won’t be treated since it is not included in NR\_bands\_R17\_Bws.

**Decision: Noted.**

#### 8.27.3 BS RF requirements

**Topic #2: Band n40 90 and 100MHz CBW**

**R4-2110650 Draft CR to 38.104: Adding 90 MHz for band n40**

*Type: draftCR For: Endorsement  
 38.104 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, CMCC*

**Decision: Endorsed**.

### 8.28 Introduction of channel bandwidths 35MHz and 45MHz for NR

#### 8.28.1 General and Rapporteur Input (WID/TR/CR)

**Email discussion summary of [99-e][121] NR\_FR1\_35MHz\_45MHz\_BW, AI 8.28.2 & AI 8.28.3 – Liehai Liu**

**R4-2107647 Email discussion summary for [99-e][121]** **NR\_FR1\_35MHz\_45MHz\_BW**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **not revised to R4-2107931**.

**R4-2107931 Email discussion summary for [99-e][121]** **NR\_FR1\_35MHz\_45MHz\_BW**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210722. Completion date is June 2021 for Core and Perf.

Remaining issues

* *UE Band specific requirements.*

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on REFSENS for Asymmetric Uplink Downlink | Huawei | R4-2107819 | Approved (2nd round) |
| WF on REFSENS table split and simplication | Apple | R4-2107820 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2110160 | CR for TS 38.101-1: FR1 REFSENS table split and simplication | Apple | not pursued |
| R4-2110657 | On asymmetric Uplink /Downlink scenarios | Huawei, HiSilicon | Noted |
| R4-2111149 | REFSENS table structure, band groups | Ericsson | Noted |
| R4-2111150 | Draft CR to add 35 and 45MHz BW to TS38.101-1 | Ericsson | Withdrawn |
| R4-2111471 | 35MHz and 45MHz REFSENS | Qualcomm Incorporated | Noted |
| R4-2111530 | Remaining n8 n71 Asymmetric Uplink Downlink Requirements | Skyworks Solutions Inc. | Noted |
| R4-2111538 | FR1 FDD SDL REFSENS Table Simplification | Skyworks Solutions Inc. | Noted |
| R4-2109418 | A unified equation for specifying REFSENS for both TDD and FDD bands | ZTE Wistron Telecom AB | Noted |
| R4-2109419 | Draft CR for specifying REFSENS based on a unified equation method | ZTE Wistron Telecom AB | Noted |
| R4-2110485 | CR to TS 37.105: Intoduction of 35 MHz and 45 MHz | Ericsson | Postponed (2nd) |
| R4-2110486 | CR to TS 38.141-1: Introduction of CBWs 35 MHz and 45 MHz | Ericsson | Postponed (2nd) |
| R4-2110598 | CR to TS 38.141-2: Introduction of 35MHz and 45MHz | ZTE Corporation | Postponed (2nd) |
| R4-2110599 | CR to TS 37.145-1: introduction of 35MHz and 45MHz | ZTE Corporation | Postponed (2nd) |
| R4-2110659 | CR for TS 37.141: introduction of channel bandwidths 35MHz and 45MHz | Huawei, HiSilicon | Postponed (2nd) |
| R4-2110660 | CR for TS 37.145-2: introduction of channel bandwidths 35MHz and 45MHz | Huawei, HiSilicon | Postponed (2nd) |
| R4-2110747 | CR for TS 38.104: introduction of channel bandwidths 35MHz and 45MHz | Huawei, HiSilicon | Postponed (2nd) |
| R4-2111222 | CR to 37.104: Introduction of requirements for 35 and 45MHz channel bandwidths | Nokia, Nokia Shanghai Bell | Postponed (2nd) |

**WF/LS/CRs for approval**

**R4-2107819 WF on REFSENS for Asymmetric Uplink Downlink**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2107820 WF on REFSENS table split and simplication**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

#### 8.28.2 UE RF requirements

**Topic #1: UE RF requirements**

**UE REFSENS**

**R4-2110657 On asymmetric Uplink /Downlink scenarios**

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

**Decision: Noted**.

**R4-2111471 35MHz and 45MHz REFSENS**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted**.

**R4-2111530 Remaining n8 n71 Asymmetric Uplink Downlink Requirements**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted**.

**UE REFSENS table split and simplification**

R4-2109418 and R4-2109419 are moved from AI 8.27.2 to AI 8.28.2

**R4-2109418 A unified equation for specifying REFSENS for both TDD and FDD bands**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2111538 FR1 FDD SDL REFSENS Table Simplification**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted**.

LS

**R4-2111149 REFSENS table structure, band groups**

*Type: LS out For: Approval  
 to TSG RAN5  
 Source: Ericsson*

**Abstract:**

LS out to RAN5 to seek their input on restructuring of REFSENS tables in 38.101-x

**Decision: Noted**.

CR/Draft CR

**R4-2109419 Draft CR for specifying REFSENS based on a unified equation method**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2110160 CR for TS 38.101-1: FR1 REFSENS table split and simplication**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0812 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Not pursued**.

**R4-2111150 Draft CR to add 35 and 45MHz BW to TS38.101-1**

*Type: draftCR For: Agreement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to add 35 and 45MHz BW to TS38.101-1

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

#### 8.28.3 BS RF requirements

**Topic #2: BS CRs**

**R4-2110485 CR to TS 37.105: Intoduction of 35 MHz and 45 MHz**

*Type: CR For: Agreement  
 37.105 v17.1.0 CR-0235 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

BS RF requirements for 35 MHz and 45 MHz channel bandwidths were added. Technically endorsed CR: R4-2103193

**Decision: Postponed**.

**R4-2110486 CR to TS 38.141-1: Introduction of CBWs 35 MHz and 45 MHz**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0225 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

BS RF requirements which are bandwidth specific require updating to include 35 MHz and 45 MHz bandwidths. Technically endorsed CR: R4-2103194

**Decision: Postponed**.

**R4-2110598 CR to TS 38.141-2: Introduction of 35MHz and 45MHz**

*Type: CR For: Agreement  
 38.141-2 v17.1.0 CR-0340 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Postponed**.

**R4-2110599 CR to TS 37.145-1: introduction of 35MHz and 45MHz**

*Type: CR For: Agreement  
 37.145-1 v17.1.0 CR-0262 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Postponed**.

**R4-2110659 CR for TS 37.141: introduction of channel bandwidths 35MHz and 45MHz**

*Type: CR For: Agreement  
 37.141 v17.1.0 CR-0981 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Postponed**.

**R4-2110660 CR for TS 37.145-2: introduction of channel bandwidths 35MHz and 45MHz**

*Type: CR For: Agreement  
 37.145-2 v17.1.0 CR-0305 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Postponed**.

**R4-2110747 CR for TS 38.104: introduction of channel bandwidths 35MHz and 45MHz**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0332 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Postponed**.

**R4-2111222 CR to 37.104: Introduction of requirements for 35 and 45MHz channel bandwidths**

*Type: CR For: Agreement  
 37.104 v17.1.0 CR-0948 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Postponed**.

#### 8.28.4 RRM requirements

#### 8.28.5 UE demodulation and CSI requirements

### 8.29 Introduction of bandwidth combination set 4 (BCS4) for NR

**Email discussion summary of [99-e][122] NR\_BCS4, AI 8.29 – Per Lindell**

**R4-2107648 Email discussion summary for [99-e][122]** **NR\_BCS4**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107932**.

**R4-2107932 Email discussion summary for [99-e][122]** **NR\_BCS4**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted**

**Information:**

Refer to WID RP-202832. Completion date is March 2022 for Core.

*Way forward R4-2103271 was agreed, and which are stating:*

* ***To be further discussed if BCS4 applies for all combinations***
* ***To be further discussed on how to apply BCS4 in configuration tables***
* ***MSD*** *due to UL harmonics agreed and draft CR R4-2103394 was endorsed, but remaining MSD remains to be discussed*
* *To be further discussed on if and how* ***signaling*** *shall apply*

**Conclusions**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| Way forward for general questions for BCS4 (excluding MSD) | T-Mobile US | R4-2107821 |  |
| WF for possible improvements on MSD in relation to BCS4 | Huawei | R4-2107822 | Approved |
| LS on NR CA capability for BCS5 | Xoaomi | R4-2108002 | Approved |

**GTW session on May 25**

**Signalling**

Agreement

* Agreement: Introduce BCS4 release independent with no new signalling, and BCS5 with new signalling in Rel-17.
  + BCS5 is the same as BCS4 except that there is new signaling for BCS5 for minimal channel bandwidth
  + FFS BCS5 to indicate minimal channel bandwidth or CA bandwidth for UL and/or DL per CC per band and per band configurations
    - * FFS whether to send LS to RAN2 to ask them to evaluate the alternative solutions.

**WF/LS/CRs for approval**

**R4-2107821 Way forward for general questions for BCS4 (excluding MSD)**

*Type: other For: Approval  
 Source: T-Mobile US*

**Decision: Approved.**

**R4-2107822 WF for possible improvements on MSD in relation to BCS4**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2108004 LS on NR CA capability for BCS5**

*Type: LS out For: Approval  
 Source: Xiaomi*

Tdoc is allocated in 2nd round.

**Decision:** The document was **revised to R4-2108002**.

**R4-2108002 LS on NR CA capability for BCS5**

*Type: LS out For: Approval  
 Source: Xiaomi*

Tdoc is allocated in 2nd round.

**Decision: Approved.**

#### 8.29.1 General and Rapporteur Input (WID/TR/CR)

**Topic #1: General part—signalling, BSC4 mandatory, How to indicate BCS4**

R4-2110181 is moved from AI 8.29.3 to AI 8.29.1

**R4-2110181 The signalling for BCS4**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**.

**R4-2110407 General discussion on introduction of BCS4**

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

**Decision: Noted**.

R4-2110408 is moved from AI 8.29.3 to AI 8.29.1

**R4-2110408 Discussion on UE capability for BCS4**

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

**Decision: Noted**.

R4-2110432 is moved from AI 8.29.2.2 to AI 8.29.1

**R4-2110432 Discussion on BCS4**

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

**Decision: Noted**.

**R4-2110797 BCS4 discussion**

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

**Decision: Noted**.

**R4-2111482 Proposals for BCS4 Open Issues**

*Type: discussion For: Approval  
 Source: T-Mobile USA*

**Decision: Noted**.

#### 8.29.2 UE RF requirements

##### 8.29.2.1 MSD

**Topic #2: MSD**

**R4-2110405 Discussion on how to simplify MSD due to harmonic interference using bandwidth-agnostic approach**

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

**Decision: Noted**.

R4-2110406 is moved from AI 8.29.2.2 to AI 8.29.2.1

**R4-2110406 Discussion on MSD due to cross band isolation and counter intermodulations**

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

**Decision: Noted.**

**R4-2111479 BCS4 Equation based MSD**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

Chair: This Tdoc is not available.

**Decision: Noted.**

##### 8.29.2.2 Others (in case MPR/A-MPR is needed)

#### 8.29.3 Signalling

### 8.30 Addition of MSD (Maximum Sensitivity Degradation) for inter-band EN-DC combinations (1 band LTE+1 band NR FR1) due to added channel bandwidths

**Email discussion summary of [99-e][123] NR\_MSD\_Inter\_Band\_ENDC, AI 8.30 – Peng Zhang**

**R4-2107649 Email discussion summary for [99-e][123] NR\_MSD\_Inter\_Band\_ENDC**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107933**.

**R4-2107933 Email discussion summary for [99-e][123] NR\_MSD\_Inter\_Band\_ENDC**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210891. Completion date is March 2022 for Core.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2110429 | CR for 38.101-3 to introduce the missing MSD requirements | Huawei, HiSilicon | Revised to R4-2107823 |
| R4-2107823 | CR for 38.101-3 to introduce the missing MSD requirements | Huawei, HiSilicon | Agreed |
| R4-2110430 | CR for 38.101-3 to introduce the missing MSD requirements | Huawei, HiSilicon | Agreed |

#### 8.30.1 General and Rapporteur Input (WID/TR/CR)

#### 8.30.2 UE RF requirements

**Topic #1: missing MSD requirements**

**R4-2110429 CR for 38.101-3 to introduce the missing MSD requirements (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0570 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107823**.

**R4-2107823 CR for 38.101-3 to introduce the missing MSD requirements (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0570 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2110430 CR for 38.101-3 to introduce the missing MSD requirements (Rel-17)**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0571 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 8.30.3 Others

### 8.31 High-power UE operation for use cases in Band n77 and n78

**Email discussion summary of [99-e][124] HPUE\_PC1\_5\_n77\_n78\_n79, AI 8.31 & AI 8.32 – Gene Fong**

**R4-2107650 Email discussion summary for [99-e][124]** **HPUE\_PC1\_5\_n77\_n78\_n79**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107934**.

**R4-2107934 Email discussion summary for [99-e][124]** **HPUE\_PC1\_5\_n77\_n78\_n79**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**.

**Information:**

Refer to WID RP-202912 for High-power UE (PC1.5) operation in NR bands n77 and n78. The completion date is June 2021 for Core.

Remaining open issues:

* *UE RF requirements still need to be completed, including possibly MPR for FWA devices.*
* *RF exposure for FWA still requires further study.*

Refer to WID RP-210843 for High power UE (power class 1.5) for NR band n79. The completion date is Sep. 2021.

**GTW session on May 21st**

**Issue 2-2: Capability signaling**

* Proposals
  + Option 1: Signal the device type, i.e., Type A, Type B, Type C. A set of performance requirements would be associated with each device type. (OPPO, Apple, LGE)
  + Option 2: Signal the performance items separately, i.e., MPR1, MPR2, MPR3, Refsens1, Refsens2, A-MPR1
  + Option 3: Prefer not to have any signaling. Prefer not to have different requirements for FWA. (Huawei)
  + Option 4: Other ideas, or still needs more study. Please offer ideas for future discussion. (Qualcomm, Nokia, CMCC, Samsung, AT&T)
* Aspects of signaling
  + Characteristics: Form factor size, frequency range, device type (smartphone, FWA, etc), …
  + Requirements: MPR, sensitivity (MSD), …

**Discussion:**

Huawei: it is too early to discuss the signaling before closing MPR requirements. The current scope is extended. In our view, Option 3 can still work.

Skyworks: we did not have preference to signaling. Beyond MPR of PC1.5, we have put note on FWA device. For FR1, we do see the large form factor is the way to improvement for MPR and other requirements. We need consider the capability signaling.

Qualcomm: agree with Skyworks. Even Huawei mentioned that the performance could be different between larger form factor FWA and smart phone. In the agreement, we propose to use Option 1 as starting point.

LGE: We almost have same view as Skyworks and Qualcomm. We see the reason to define the capability signaling to differentiate different type UE with different form factor.

Huawei: To Qualcomm, we recognize the performance difference between different form factors. But it does not mean that we need different capability signaling. We would like to see the evaluation resutls for MPR first.

Samsung: We have similar understanding as moderator.

Verizon: we fully support Qualcomm comments. The scope here exactly reflect the WF agreed. It is not harmful to discuss signaling. It is time.

Apple: add Option 3 as sub-option.

AT&T: Struggle for “ use Option 1 as starting point”. We can consider different type of devices.

**Tentative agreement #1 for further discussion:**

* Use Option 1 as starting point and also take MPR evaluation results into account for further discussion whether the capability signaling is needed.

**Tentative agreement #2 for further discussion:**

* Further discuss defining different device types signaling
  + Understand what different requirements are needed, take the MPR evaluation into account
    - Compare whether the MPR requirements will be different before discussing the signaling
  + Further discuss whether the different device type is needed considering the following options
    - Option 1 : Signal the device type, i.e., Type A, Type B, Type C. A set of performance requirements would be associated with each device type.
    - Option 3: Prefer not to have any signalling. Prefer not to have different requirements for FWA.
  + Discussion are limited to PC1.5

**Sub-topic 3-1: FWA MPE**

* + Option 1: Adopt the FR1 maxUplinkDutyCycle-PC2-FR1 (SAR-based duty cycle) Qualcomm, CMCC, OPPO, Skyworks, Huawei, LGE, Vivo)
  + Option 2: Adopt the FR2 maxUplinkDutyCycle-FR2 (MPR-based duty cycle)
  + Option 3: Adopt the hybrid maxUplinkDutyCycle-FWA-FR1 (new signaling) Samsung, OPPO, LGE



* Proponents of option 1 suggest that some modification may be needed to range of reported values, evaluation period, etc.

**Discussion:**

Vivo: support option 1.

Huawei: what is difference between Option 1 and Option 3.

Oppo: Option 1 may be the same value will be used. If the new value is needed, maybe Option 3 is better.

Samsung: Option 3 is similar to Option 1. As FR2 duty cycle.

**Agreement:**

* + Down-select to Option 1 and Option 3.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on MPR for PC1.5 smartphones and FWA | Qualcomm Incorporated | R4-2107739 ->  R4-2111544 |  |
| WF on device type signaling for PC1.5 | Apple | R4-2107824 | Approved (2nd round) |
| WF on duty cycle signaling for RF exposure mitigation for PC1.5 FWA | Samsung | R4-2107825 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2108940](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108940.zip) | CR on PC1.5 HPUE SAR issue into Rel-16 TS 38.101-1 | CMCC | Revised to R4-2107826 |  |
| R4-2107826 | CR on PC1.5 HPUE SAR issue into Rel-16 TS 38.101-1 | CMCC | Agreed (2nd round) |  |
| [R4-2108941](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108941.zip) | CR on PC1.5 HPUE SAR issue into Rel-17 TS 38.101-1 | CMCC | Revised to R4-2107827 |  |
| R4-2107827 | CR on PC1.5 HPUE SAR issue into Rel-17 TS 38.101-1 | CMCC | Agreed (2nd round) |  |
| [R4-2108942](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108942.zip) | CR on PC1.5 UE RF requirements of n79 in Rel-17 TS 38.101-1 | CMCC | Endorsed (2nd round) | Should we agree the band-specific CR now? Or wait for PC1.5 general requirements to be completed and submit all at once? |
| [R4-2108974](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108974.zip) | Discussion on the UE RF requirements of PC1.5 n79 | CMCC | Noted |  |
| [R4-2109441](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109441.zip) | Considerations on n77 and n78 | Apple | Noted |  |
| [R4-2109843](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109843.zip) | MPE handling for high power FWA UE in FR1 | Samsung | Noted |  |
| [R4-2110832](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110832.zip) | R17 PC1.5 FWA | OPPO | Noted |  |
| [R4-2110985](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110985.zip) | A reconsideration of PC1.5 MPR for smartphones | Qualcomm Incorporated | Noted |  |
| [R4-2111009](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111009.zip) | Evaluation of Reverse IMD versus antenna isolation and its impact to MPR | Skyworks Solutions Inc. | Noted |  |
| [R4-2111297](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111297.zip) | Discussion on MPR requirements for PC1.5 FWA | Huawei,HiSilicon | Noted |  |

**WF/LS/CRs for approval**

**GTW session on May 25**

**Smartphone MPR**

* Tentative agreements
  + Previously reported data is assumed to be valid unless proven otherwise
  + The analysis in R4-2110985 is correct for the data available
  + The previous data set is sufficient to derive MPR
    - It was already used to derive MPR once with no objections raised that it was insufficient
    - Additional data can be considered if provided
  + Proposal (as a starting point, not a final agreement)

Discussion:

Huawei: we cannot endorse this slide.

LGE: we also have comment in the email thread. The tighten value should not.

Qualcomm: we do not understand Huawei comment. To LGE, we understand the intention is not to improve MPR.

Skyworks: did not agree with bullet #3 about sufficent. We need the simulation. In the outter, some thing may not be tested. We should have full data before deciding improvement.

Huawei: It is difficult to decide whether data is sufficient. It is unneccesary to discuss whether it is sufficient or not. We need new measurement and there is no short cut.

T-Mobile USA: we are interested in the improvement and we understand the issue raised by Skyworks about outter.

Apple: Have similar concern on bullet “sufficient” . We need new measurement. Allocation for outter…

Qualcomm: Have concern with Huawei comments. To Skyworks, the concern is about the outter. The outter waveform is provided by Qovro which picks the worst data. To Apple, by saying sufficient does not make sense. Apple provided the data for entire allocation. The value is much tighter.

Verizon: we support enhancement of MPR value. We see some companies to provide the input in next meeting. We support Qualcomm comment here to ask companies to provide clear answer.

Nokia: at least can we agree the proposed values for inner case.

Huawei: we are not against the evaluation.

**FWA MPR**

* Tentative Agreements
  + The method of data collection as companies have followed before is still appropriate
    - Companies are encouraged to provide more details on test setups and method of data collection and to be mindful of the pitfalls when 2Tx streams interact with one another

Discussion:

Huawei: as commented in the email thread, the sub-bullet is OK. The first one we have concern. It is difficult to approve the method is appropriate. We can compare the new data and old data.

Skyworks: Simliar comment. We should make it clear which waveform and architecture they used.

Qualcomm: First bullet is important. Maybe there is misunderstanding. For Skyworks, I include the sub-bullet.

Huawei: We raise the point bout PA calibration.

Qualcomm: what about the data collection for PC2 TxD. The method is the same.

Skyworks: to Qualcomm, it is not only TxD for PC2 and UL-MIMO.

**R4-2107739 WF on MPR for PC1.5 smartphones and FWA**

*Type: Others For: Approval  
 Source: Qualcomm*

**Decision:** The document was **revised to R4-2111544.**

**R4-2111544 WF on MPR for PC1.5 smartphones and FWA**

*Type: Others For: Approval  
 Source: Qualcomm*

Based on GTW online version

**Decision: Approved.**

**R4-2107824 WF on device type signaling for PC1.5**

*Type: Others For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2107825 WF on duty cycle signaling for RF exposure mitigation for PC1.5 FWA**

*Type: Others For: Approval  
 Source: Samsung*

**GTW session on May 25**

**Way Forward: FWA MPE**

Agreement:

* + In [2], it is presented that Gtx based specification is found to be challenging due to the uncertainty and variation in Gtx as well as the possible declared value of distance, R, by the manufacturer for compliance
  + In RAN4#99-e, following options were discussed for FWA MPE handling. Option 2 is discarded based upon the discussion (See Annex for detail)
* Option 1: Adopt the FR1 maxUplinkDutyCycle-PC2-FR1
* Option 3: Adopt the hybrid maxUplinkDutyCycle-FWA-FR1
  + RAN4 will further discuss how to define the optional solutions along with the signaling method for FWA devices in RAN4#100-e

Discussion

Skyworks: for Option 1 when PC1.5 is assumed, the twice signaling period is needed. For MPE, the maximum duty cycle is 50%?

T-Mobile: for option 3, FWA. FWA, should we mention power class.

Samsung: to skyworks, for option 1, it is just to use the same for smart phone 25%. The final conclusion in next meeting. To T-mobile, option 3 is like FR2. Companies can declare the maximum duty cycle.

Nokia: for option 1, in case the signaling is indicated, the range for duty cycle should be restricted in the range defined now.

Skyworks: UE can declare 100% in PC2 mode.

**Decision: Approved.**

#### 8.31.1 General

#### 8.31.2 PC1.5 UE RF requirements

**Topic #1 MPR for smartphone**

R4-2109441 is moved from AI 8.31.2.2 to AI 8.31.2

**R4-2109441 Considerations on n77 and n78**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

R4-2110985 is moved from AI 8.31.2.1 to AI 8.31.2

**R4-2110985 A reconsideration of PC1.5 MPR for smartphones**

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

**Decision: Noted**.

**R4-2111009 Evaluation of Reverse IMD versus antenna isolation and its impact to MPR**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we do not provide MPR data as the time was too short between the two meetings to perform these types of cumbersome measurements, but nevertheless we have performed some experiments to provide further insights on the effect of reverse

**Decision: Noted**.

##### 8.31.2.1 A-MPR

##### 8.31.2.2 others

**Topic #2 MPR for FWA**

**R4-2111297 Discussion on MPR requirements for PC1.5 FWA**

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

**Decision: Noted**.

**R4-2110832 R17 PC1.5 FWA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**Topic #3 SAR and MPE**

**R4-2109843 MPE handling for high power FWA UE in FR1**

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

**Decision: Noted**.

### 8.32 High power UE (power class 1.5) for NR band n79

**Refer to Email discussion summary of [99-e][124] HPUE\_PC1\_5\_n77\_n78\_n79, AI 8.31 & AI 8.32 – Gene Fong**

#### 8.32.1 General

**Topic #3 SAR and MPE**

**R4-2108940 CR on PC1.5 HPUE SAR issue into Rel-16 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0744 rev Cat: F (Rel-16)  
  
 Source: CMCC*

**Decision:** The document was **revised to R4-2107826**.

**R4-2107826 CR on PC1.5 HPUE SAR issue into Rel-16 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0744 rev Cat: F (Rel-16)  
  
 Source: CMCC*

**Decision: Agreed.**

**R4-2108941 CR on PC1.5 HPUE SAR issue into Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0745 rev Cat: A (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **revised to R4-2107827**.

**R4-2107827 CR on PC1.5 HPUE SAR issue into Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0745 rev Cat: A (Rel-17)  
  
 Source: CMCC*

**Decision: Agreed.**

#### 8.32.2 PC1.5 UE RF requirements

**Topic #1 MPR for smartphone & FWA**

**R4-2108974 Discussion on the UE RF requirements of PC1.5 n79**

*Type: discussion For: Approval  
 Source: CMCC*

**Decision: Noted**.

**CR**

**R4-2108942 CR on PC1.5 UE RF requirements of n79 in Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0746 rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Endorsed.**

##### 8.32.2.1 A-MPR

##### 8.32.2.2 others

### 8.33 High power UE (power class 2) for NR band n34

**Email discussion summary of [99-e][125] HPUE\_PC2\_n34\_n39, AI 8.33 and AI 8.34 – Zhe Shao**

**R4-2107651 Email discussion summary for [99-e][125]** **HPUE\_PC2\_n34\_n39**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107935**.

**R4-2107935 Email discussion summary for [99-e][125]** **HPUE\_PC2\_n34\_n39**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210844 for High power UE (power class 2) for NR band n34. The completion date is Sep. 2021.

Refer to WID RP-210845 for High power UE (power class 2) for NR band n39. The completion date is Sep. 2021.

**GTW session on May 21st**

**Issue 1-1-1: UE MOP and Tx power tolerance for n34/n39 of Power class 2**

* Proposals
  + Option1:
    - The MOP and Tolerance for single antenna port are to be specified as 26dBm ±2 dB for band n34/n39 of power class 2
    - The MOP and Tolerance for UL MIMO are to be specified as 26dBm +2/-3 dB for band n34/n39 of power class 2
  + Option2: The power tolerance for PC2 for n34 is +2/-3dB. Regardless of single antenna port or UL MIMO case. (Huwei, Apple, Vivo)
  + Option3: PC2 n34/n39 MOP lower tolerance should be +2/-2 dB.

**Discussion:**

Huawei: perfer to Option 2.

Apple: Option 2.

CMCC: why does single port have the similar requirement as 2PA case. I have not see the technique analysis.

Vivo: we also prefer to Option 2. We do not see particular reason.

CMCC: Option 3 is reasonable.

Huawei: for single antenna port like TxD, TxD is single antenna port. We prefer Option 2.

**Agreement:**

* Down-select to Option 1 and Option 2.

**Issue 2-1-3: MPR**

* Proposals
  + Option1: No changes to 1Tx PC2 MPR general requirements. (The agreement captured in the WF R4-2105386 has been approved in RAN4#98-bis-e meeting)
  + Option2: To comply with emission limits, add a new note which allows 2dB power backoff for outer allocations and 1dB for inner allocations in case of RBstart <= 4.32MHz and PC2, DFT-s-OFDM and CBW larger than 5MHz.
  + Option 3: have further study.

**Discussion:**

Moderator: in fact, we have conclusion in the last meeting. There is new change. PC2 MPR is general requirement. We need check MPR for PC2 carefully.

Apple: For PC2 the more is needed for DFT-s-OFDM. Last meeting, we say that we need to know whether the additional MPR is needed. That is why we ask the revisiting. We are happy to discuss other solutions.

Huawei: add option 3: further study this issue. We have no additional signaling. We need carefully check the co-existence table.

Nokia: We support Option1. We think that it comes to MPR results comparing ours and Huawei’s one. The MPR behavior is different. It is better to focus on MPR and figure out what causes the differences. At this moment we should keep Option 1. We do not need to think about UE-UE co-existence.

Huawei: for band n39 there is only two network signaling, NS-01 and NS\_50. NS\_50 only considers the larger bandwidth. Adding note can only work for PC3.

CMCC: Is there any other company who want to change the MPR for PC2? In the scope of WID, the is no MPR. We need focus on A-MPR.

Apple: we do not propose to change MPR rather having some relexation for lower bandwidth. We can cut down some RBs.

Qualcomm: I do not think we should change MPR. But we recognize the problem. The solution is A-MPR.

Vivo: UE co-existence is limitation for band n39. We just need change MPR requirement for this band.

Skyworks: echo Qualcomm. We can basically define the A-MPR. We do not need side note for MPR.

Apple: it would be a good solution. For lower bandwidth.

CMCC: Share the similar view as Qualcomm. We do not need touch MPR.

Nokia: Including restriction of PRB put a lot of burden for network. MPR is general and common to all the UEs. MPR is not correct direction.

Skyworks: NS\_50 would be an option. We just need to extend NS\_50.

**Agreement**

* + Keep MPR requirements for PC2 unchanged
  + Work on A-MPR requirements or other solutions to address the potential issues if the issues are fully justified.
    - * Try to avoid the change of general requirements

**Issue 2-1-2: A-MPR**

* + Option1: No changes to PC2 A-MPR requirements for n39.
  + Option2: Re-use NS\_50 PC3 A-MPR regions for PC2 A-MPR. For 40 MHz CIM3 A-MPR use values defined in A1 column of the PC3 A-MPR.
  + Option3: Use allocations regions found in Table 1 and A-MPR proposed in Table 2 for 25MHz, 30MHz and 40MHz CBW NS\_50. T

**Discussion：**

Moderator: we can see companies view. We can continue email discussion.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** |
| AMPR for n39 NS\_50 PC2.docx | Huawei，HiSilicon | R4-2107828 | late submission for information |
| WF on Tx power tolerance for PC2 n34 and n39 | CMCC | R4-2107829 | Approved (2nd round) |
| WF on A-MPR for PC2 n39 | Huawei，HiSilicon | R4-2107738 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2108943](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108943.zip) | CR on PC2 UE RF requirements of n34 in Rel-17 TS 38.101-1 | CMCC | Revised to R4-2107830 |
| R4-2107830 | CR on PC2 UE RF requirements of n34 in Rel-17 TS 38.101-1 | CMCC | Endorsed (2nd round) |
| [R4-2108975](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108975.zip) | Discussion on the UE RF requirements of PC2 n34 | CMCC | Noted |
| [R4-2109003](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109003.zip) | PC2 MOP lower tolerance for n34/n39 | Nokia, Nokia Shanghai Bell | Noted |
| [R4-2109677](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109677.zip) | Discussion on Tx power tolerance for n34 | vivo | Noted |
| [R4-2110474](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110474.zip) | Discussion on HPUE band n34 | ZTE Corporation | Noted |
| [R4-2108944](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108944.zip) | CR on PC2 UE RF requirements of n39 in Rel-17 TS 38.101-1 | CMCC | Revised to R4-2107831 |
| R4-2107831 | CR on PC2 UE RF requirements of n39 in Rel-17 TS 38.101-1 | CMCC | Endorsed (2nd round) |
| [R4-2108976](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108976.zip) | Discussion on the UE RF requirements of PC2 n39 | CMCC | Noted |
| [R4-2109257](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109257.zip) | PC2 A-MPR simulation results for NS\_50 on n39 | Nokia, Nokia Shanghai Bell | Noted |
| [R4-2109259](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109259.zip) | PC2 A-MPR for NS\_50 on n39 | Nokia, Nokia Shanghai Bell | Noted |
| [R4-2110475](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110475.zip) | Discussion on HPUE band n39 | ZTE Corporation | Noted |
| [R4-2111014](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111014.zip) | Considerations for PC2 n39 and A-MPR results | Apple | Noted |

**WF/LS/CR for approval**

**R4-2107738 WF on A-MPR for PC2 n39**

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

**GTW session on May 25th**

**Way Forward for CBW > 20MHz**

* + The A-MPR regions and values in the tables on the right are the merged results based on the contributions submitted to this meeting.
  + Companies are encouraged to perform further check and RAN4 is expected to decide the A-MPR in the next meeting.

Discussion:

Nokia: for values, the values are exact the same as Apple shared in offline (Yes)

Huawei: not exactly the same. I try to do some averaging among three proposals. For A1 and A2 our proposals is higher than Apple’s.

Apple: it is not what we proposed directly.

Qualcomm: for simulation results from different companies, what method is used , what PA calibration,… Are there any details available?

Huawei: I can confirm that we use the common 3GPP assumptions, like carrier leakage, following the same PA calibration.

Apple: we confirm QPSK, calibration to 1dB…

Qualcomm: Huawei does not indicate what kind of PA they use. It is derived on ATP. The data is insufficient to draw conclusion for AMPR.

Skyworks: One of aspect is clear at least.

**Way Forward for CBW <= 20MHz**

* + FFS modify the ASE requirements signalled by NS\_50 to include CBW <= 20MHz
  + FFS A-MPR regions/values for CBW <= 20MHz

Discussion:

Nokia: we have not use MPR in case for CBW <=20MHz. The message

Chair: further improve the wording.

**Decision: Approved.**

**R4-2107829 WF on Tx power tolerance for PC2 n34 and n39**

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

**GTW session on May 25th**

**Issue 1-1-1: UE MOP and Tx power tolerance for n34/n39 of Power class 2**

* + Proposals
  + Option1:
    - The MOP and Tolerance for single antenna port are to be specified as 26dBm ±2 dB for band n34/n39 of power class 2
    - The MOP and Tolerance for UL MIMO are to be specified as 26dBm +2/-3 dB for band n34/n39 of power class 2
  + Option2: The power tolerance for PC2 for n34/n39 is +2/-3dB. Regardless of single antenna port or UL MIMO case.
  + Option3: PC2 n34/n39 MOP lower tolerance should be +2/-2 dB.

**Tentative discussion:**

* + The power tolerance for PC2 for n34/n39 is +2/-3dB. Regardless of single antenna port or UL MIMO case..
  + PC2 power tolerance for one PA case will be re-evaluated in future.
    - FFS tolerance value

Discussion:

CMCC: can compromise with Option 2 with note PC2 tolerance for one PA can be evaluated in future.

Mediatek: could clarify what PC2 tolerance for one PA should be evaluated?

CMCC: to Mediatek, UE power class for one antenna port is in the table …. We need fix TxD value. We should identify.

**Decision: Approved.**

#### 8.33.1 General

#### 8.33.2 UE RF requirements

**Topic #1: Introduction of PC2 n34 for NR**

**MOP and Tx power tolerance**

**R4-2108975 Discussion on the UE RF requirements of PC2 n34**

*Type: discussion For: Approval  
 Source: CMCC*

**Decision: Noted**.

**R4-2109003 PC2 MOP lower tolerance for n34/n39**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted**.

**R4-2109677 Discussion on Tx power tolerance for n34**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2110474 Discussion on HPUE band n34**

*Type: other For: (not specified)  
 Source: ZTE Corporation*

**Decision: Noted**.

**R4-2109438 Considerations for PC2 n39 and A-MPR results**

*Type: discussion For: Decision  
 Source: Apple*

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

**R4-2109438 Considerations for PC2 n39 and A-MPR results**

*Type: discussion For: Decision  
 Source: Apple*

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

**CR**

**R4-2108943 CR on PC2 UE RF requirements of n34 in Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0747 rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **revised to R4-2107830**.

**R4-2107830 CR on PC2 UE RF requirements of n34 in Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0747 rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2107828 AMPR for n39 NS\_50 PC2**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0747 rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Noted**

#### 8.33.3 Others

### 8.34 High power UE (power class 2) for NR band n39

#### 8.34.1 General

#### 8.34.2 UE RF requirements

**Topic #2: Introduction of PC2 n39 for NR**

**MOP & Tx power tolerance, A-MPR, MPR**

**R4-2108976 Discussion on the UE RF requirements of PC2 n39**

*Type: discussion For: Approval  
 Source: CMCC*

**Decision: Noted**.

**R4-2109257 PC2 A-MPR simulation results for NS\_50 on n39**

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

**Decision: Noted**.

**R4-2109259 PC2 A-MPR for NS\_50 on n39**

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

**Decision: Noted**.

**R4-2110475 Discussion on HPUE band n39**

*Type: other For: (not specified)  
 Source: ZTE Corporation*

**Decision: Noted**.

**R4-2111014 Considerations for PC2 n39 and A-MPR results**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**CR**

**R4-2108944 CR on PC2 UE RF requirements of n39 in Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0748 rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **revised to R4-2107831**.

**R4-2107831 CR on PC2 UE RF requirements of n39 in Rel-17 TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0748 rev Cat: B (Rel-17)  
  
 Source: CMCC*

**Decision: Endorsed.**

#### 8.34.3 Others

### 8.35 SAR schemes for UE power class 2 (PC2) for NR inter-band Carrier Aggregation and supplemental uplink (SUL) configurations with 2 bands UL

**Email discussion summary of [99-e][126] NR\_SAR\_PC2\_interB\_SUL\_2BUL, AI 8.35 – Bo Liu**

**R4-2107652 Email discussion summary for [99-e][126]** **NR\_SAR\_PC2\_interB\_SUL\_2BUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107936**.

**R4-2107936 Email discussion summary for [99-e][126]** **NR\_SAR\_PC2\_interB\_SUL\_2BUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-201584. Completion date is Sep 2021 for Core.

Remaining issues

* *Network centralized SAR solutions for PC2 NR inter-band CA and SUL configurations*

**GTW session on May 21st**

**Sub-topic 2-1: Increasing UE maximum power high limit**

Companies standpoints for options for Issue 2-1-1: How to increase UE maximum power high limit:

* **Option 1:** Remove PPowerClass constraint from PCMAX\_H
* Qualcomm, ZTE
* **Option 2:** Replace PPowerClass with sum or modified sum in both PCMAX\_H and PCMAX\_L
* Nokia, Qualcomm, vivo
* **Option 2a:** Define a new power class where the requirements are based on per-band power capability (no need to further define separate MSD requirements)
* [Apple, vivo]
* **Option 3:** Define a new power class per band-combination
* [Huawei (have slightly different proposal), Xiaomi, CHTTL, Ericsson, vivo, Samsung]
* **Option 4:** Consider power boosting approach
* Xiaomi, OPPO, ZTE, Ericsson

**Discussion:**

Huawei: We propose to define a new power class for band combination which not only indicate maximal output power but indicate the power configuration for the CA, e.g., 23+23 or 23+26. It is not limited to PC2. Our proposal is different from companies although we support to define new power class.

Mediatek: We are OK to define the new power class. Regarding Option 2a we see the benefit. We need more clarification. We may not need re-evaluation. We wonder if we can further consider Option 2a and Option 3. Notication of Option 3 will be helpful.

Apple: for Option 3, the idea is to list the power class for each band. There is no new information for total power. We prefer to Option 2a. We avoid complicated case like 20+2x if Option 3 is used. Option 3 does not provide any new information. We have already had requirements.

Huawei: We cannot simplify the sum of power per bands to decide power class. UE may have different implementation by choosing different number of PA and use different power configuration of PA for CA. Option 2a could limit UE implementation.

CHTTL: In our regulation, there is a limit on upper power. We are not sure if there is change for regulation if we do not define the new power class.

Ericsson: We prefer to Option 3 and also need consider RAN2 signaling.

Nokia: Option 2 does not require reporting the power for each band. Sum is just used for power calculation. Option 2 and Option 2a are the same.

**Agreement:** down-select to Option 2 and Option 3.

Chair: we should conclude the techqniue issue before discussing how and in which WID we will treat this power class related topic.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** |
| WF on UE PC2 SAR solutions and UE maximum power | China Telecom | R4-2107741 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2108805 | On UL Duty Cycle method for NR uplink inter band CA | Nokia, Nokia Shanghai Bell | Noted |
| R4-2108806 | On increasing UE maximum power high limit for NR uplink inter band CA | Nokia, Nokia Shanghai Bell | Noted |
| [R4-2109173](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2109173.zip) | Discussion on increasing maximum output power for UE PC2 CA | Mediatek India Technology Pvt. | Noted |
| [R4-2109676](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2109676.zip) | Discussion on SAR ratio in duty cycle solution | vivo | Noted |
| [R4-2109975](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2109975.zip) | More on methods for faciliating SAR compliance for inter-band UL CA | Ericsson | Noted |
| [R4-2109976](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2109976.zip) | Higher BC power class for UL CA | Ericsson | Noted |
| [R4-2110049](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110049.zip) | Further discussion on SAR schemes for UE power class 2 NR inter-band CA with 2UL | China Telecom | Noted |
| [R4-2110050](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110050.zip) | Further discussion on SAR schemes for UE power class 2 NR SUL configurations | China Telecom | Noted |
| [R4-2110192](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110192.zip) | Discussion on SAR issue for HP UE inter-band UL CA | Xiaomi | Noted |
| [R4-2110438](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110438.zip) | Further discussion on SAR solution for NR PC2 inter-band CA | ZTE Corporation | Noted |
| [R4-2110830](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110830.zip) | R17 Inter band CA HPUE SAR | OPPO | Noted |
| [R4-2110831](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2110831.zip) | R17 power class report for NR in CA | OPPO | Noted |
| [R4-2111298](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2111298.zip) | Discussion on New Power Limits for Inter-band CA or DC | Huawei,HiSilicon | Noted |
| [R4-2111501](file:///E:\01%20标准\14%20HPUE\02%20UL_interCA\RAN4_99_e\Docs\R4-2111501.zip) | Power class consideration for NR inter-band UL CA | Apple | Noted |

**WF/LS/CRs for approval**

**R4-2107741 WF on UE PC2 SAR solutions and UE maximum power**

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

**Abstract:**

This contribution focuses on discussing Duty Cycle based solutions, specifically on how to handle SARratioNR.

**Decision: Approved.**

#### 8.35.1 General and Rapporteur Input (WID/TR/CR)

#### 8.35.2 PC2 requirements for inter-band CA

**Topic #1: PC2 SAR solutions**

**Dutycycle solution for CA and SUL**

**R4-2108805 On UL Duty Cycle method for NR uplink inter band CA**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution focuses on discussing Duty Cycle based solutions, specifically on how to handle SARratioNR.

**Decision: Noted**.

**R4-2109676 Discussion on SAR ratio in duty cycle solution**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**R4-2110049 Further discussion on SAR schemes for UE power class 2 NR inter-band CA with 2UL**

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

**Decision: Noted**.

**R4-2110192 Discussion on SAR issue for HP UE inter-band UL CA**

*Type: other For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2110438 Further discussion on SAR solution for NR PC2 inter-band CA**

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

**Decision: Noted**.

**R4-2110830 R17 Inter band CA HPUE SAR**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

R4-2110831 is moved from AI 8.35.4 to AI 8.35.2

**R4-2110831 R17 power class report for NR in CA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**Blind scheme solution**

**R4-2109975 More on methods for faciliating SAR compliance for inter-band UL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we reiterate the proposal that duty-cycle reporting should not be specified, it is not viable. Power limits combined with the P-MPR method should be used instead.

**Decision: Noted**.

**R4-2110201 Discussion on increasing UE maximum power high limit**

*Type: discussion For: Approval  
 Source: Xiaomi*

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

#### 8.35.3 PC2 requirements for SUL

**R4-2110050 Further discussion on SAR schemes for UE power class 2 NR SUL configurations**

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

**Decision: Noted**.

#### 8.35.4 Others

**Topic #2: Increasing UE maximum power high limit**

**R4-2108806 On increasing UE maximum power high limit for NR uplink inter band CA**

*Type: other For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on how to fully take advantage of the hardware capability already present in the UE and ways to lift the restriction on maximum output power imposed by the power class for uplink inter-band CA.

**Decision: Noted.**

R4-2109173 is moved from AI 8.35.2 to AI 8.35.4

**R4-2109173 Discussion on increasing maximum output power for UE PC2 CA**

*Type: discussion For: Approval  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted**.

**R4-2109976 Higher BC power class for UL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose that a power capability of a band combination higher than 26 dBm is specified as a new power class.

**Decision: Noted.**

**R4-2111298 Discussion on New Power Limits for Inter-band CA or DC**

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

**Decision: Noted**.

R4-2111501 is moved from AI 8.35.2 to AI 8.35.4

**R4-2111501 Power class consideration for NR inter-band UL CA**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted**.

### 8.36 High power UE (power class 2) for NR inter-band Carrier Aggregation with 2 bands downlink and 2 bands uplink

**Email discussion summary of [99-e][127] NR\_PC2\_CA\_R17\_2BDL\_2BUL, AI 8.36 – Bo Liu**

**R4-2107653 Email discussion summary for [99-e][127]** **NR\_PC2\_CA\_R17\_2BDL\_2BUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107937**

**R4-2107937 Email discussion summary for [99-e][127]** **NR\_PC2\_CA\_R17\_2BDL\_2BUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210476. Completion date is March 2021 for Core.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on Reflecting HPUE CA with 1 uplink in 38101 | China Telecom | R4-2107832 | Approved (2nd round) |
| WF on MSD capability | T-Mobile US | Noted | Noted (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** |
| R4-2110051 | Draft TR 38.841 v0.4.0: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2) | China Telecom | For email approval |
| R4-2110052 | CR to 38.101-1 Introduce RF requirements for HPUE CA with 2 bands downlink and x bands uplink (x =1,2) | China Telecom | For email approval |
| R4-2110070 | TP to 38.841: MSD requirement due to harmonic mixing for PC2 CA\_n3A-n78A with up to 2 uplink | China Telecom | Revised to R4-2107833 |
| R4-2107833 | TP to 38.841: MSD requirement due to harmonic mixing for PC2 CA\_n3A-n78A with up to 2 uplink | China Telecom | Approved (2nd round) |
| R4-2110460 | TP for TR38.841\_ PC2 CA\_n41A-n79A | ZTE Corporation | Approved |
| R4-2110790 | Discussion on how to reflect HPUE CA with 1 up link in 38101 | China Telecom | Noted |
| R4-2110791 | Discussion on UE capability for improved PC2 MSD for EN-DC and NR CA | CHTTL | Noted |
| R4-2111489 | TP for TR38.841: PC2 CA\_n25A-n77A | T-Mobile USA | Approved |
| R4-2111490 | TP for TR38.841: PC2 CA\_n41A-n77A | T-Mobile USA | Revised to R4-2107834 |
| R4-2107834 | TP for TR38.841: PC2 CA\_n41A-n77A | T-Mobile USA | Approved (2nd round) |
| R4-2111491 | TP for TR38.841: PC2 CA\_n71A-n77A | T-Mobile USA | Revised to R4-2107835 |
| R4-2107835 | TP for TR38.841: PC2 CA\_n71A-n77A | T-Mobile USA | Approved (2nd round) |

**WF/LS/CRs for approval**

**R4-2107832 WF on Reflecting HPUE CA with 1 uplink in 38101**

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

**Decision: Approved.**

Move discussion on MSD improvement from [116] to [127]

**R4-2107808 WF on MSD capability**

*Type: other For: Approval  
 Source:* *T-Mobile US*

**Decision: Noted.**

#### 8.36.1 Rapporteur Input (WID/TR/CR)

**Topic #1: draft TR and big CR**

**R4-2110051 Draft TR 38.841 v0.4.0: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2)**

*Type: draft TR For: Agreement  
 38.841 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision: Email approval**.

**R4-2110052 CR to 38.101-1 Introduce RF requirements for HPUE CA with 2 bands downlink and x bands uplink (x =1,2)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0805 rev Cat: B (Rel-17)  
  
 Source: China Telecom*

**Decision: Email approval**.

#### 8.36.2 UE RF requirements

**Topic #2: UE RF requirements**

**R4-2110790 Discussion on how to reflect HPUE CA with 1 up link in 38101**

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

**Decision: Noted**.

**R4-2110791 Discussion on UE capability for improved PC2 MSD for EN-DC and NR CA**

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

**Decision: Noted**.

**R4-2110786 Discussion on how to reflect HPUE CA with 1 up link in 38101**

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

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

**R4-2110787 Discussion on how to reflect HPUE CA with 1 up link in 38101**

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

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

**TP**

**R4-2110070 TP to 38.841: MSD requirement due to harmonic mixing for PC2 CA\_n3A-n78A with up to 2 uplink**

*Type: pCR For: Approval  
 38.841 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision:** The document was **revised to R4-2107833**.

**R4-2107833 TP to 38.841: MSD requirement due to harmonic mixing for PC2 CA\_n3A-n78A with up to 2 uplink**

*Type: pCR For: Approval  
 38.841 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision: Approved**.

**R4-2110460 TP for TR38.841\_ PC2 CA\_n41A-n79A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved**.

**R4-2111490 TP for TR38.841: PC2 CA\_n41A-n77A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision:** The document was **revised to R4-2107834**.

**R4-2107834 TP for TR38.841: PC2 CA\_n41A-n77A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved**.

**R4-2111491 TP for TR38.841: PC2 CA\_n71A-n77A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision:** The document was **revised to R4-2107835**.

**R4-2107835 TP for TR38.841: PC2 CA\_n71A-n77A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved**.

**R4-2111489 TP for TR38.841: PC2 CA\_n25A-n77A**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved**.

### 8.37 High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band

**Email discussion summary of [99-e][128] ENDC\_UE\_PC2\_R17\_NR\_TDD, AI 8.37 –Basaier Jialade**

**R4-2107654 Email discussion summary for [99-e][128]** **ENDC\_UE\_PC2\_R17\_NR\_TDD**

*Type: Other For: Information  
 Source: Moderator (China Unicom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107938**.

**R4-2107938 Email discussion summary for [99-e][128]** **ENDC\_UE\_PC2\_R17\_NR\_TDD**

*Type: Other For: Information  
 Source: Moderator (China Unicom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210327. The completion date is March 2022.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2108865 | TR 37.826 v0.4.0 ENDC\_UE\_PC2\_R17\_NR\_TDD | China Unicom | Withdrawn | No new TPs in this meeting |
| R4-2108937 | Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band | China Unicom | Email approval |  |
| R4-2108938 | Revised WID on High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band | China Unicom | Endorsed (2nd round) |  |
| R4-2111425 | PC2 MSD for DC\_3A\_n78A | Qualcomm | Noted (2nd round) |  |

#### 8.37.1 Rapporteur Input (WID/TR/CR)

**Topic #2: TR and revised WID review**

**R4-2108865 TR 37.826 v0.4.0 ENDC\_UE\_PC2\_R17\_NR\_TDD**

*Type: draft TR For: Approval  
 37.826 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: China Unicom*

**Decision: Withdrawn.**

**R4-2108937 Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0522 rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Decision: Email approval**.

**R4-2108938 Revised WID on High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band**

*Type: WID revised For: Approval  
 Source: China Unicom*

**Decision: Endorsed.**

#### 8.37.2 UE RF requirements

**Topic #1: PC2 MSD for DC\_3A\_n78A**

**R4-2111425 PC2 MSD for DC\_3A\_n78A**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

### 8.38 Power Class 2 UE for NR inter-band CA and SUL configurations with x (x>2) bands DL and y (y=1, 2) bands UL

**Email discussion summary of [99-e][129] NR\_UE\_PC2\_CA\_SUL\_xBDL\_yBUL, AI 8.38 – Jin Wang**

**R4-2107655 Email discussion summary for [99-e][129]** **NR\_UE\_PC2\_CA\_SUL\_xBDL\_yBUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107939**.

**R4-2107939 Email discussion summary for [99-e][129]** **NR\_UE\_PC2\_CA\_SUL\_xBDL\_yBUL**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210543. The completion date is March 2022.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2111292 | Revised WID on NR\_UE\_PC2\_R17\_CADC\_SUL\_xBDL\_yBUL | Huawei,HiSilicon | Noted (2nd round) |  |
| R4-2111420 | TP for 38.842 for CA\_n1-n3-n78 | Huawei, HiSilicon | Approved |  |
| R4-2111422 | draft TR 38.842 v0.0.2 | Huawei, HiSilicon | Revised to R4-2107836  and email approval | Revise the TR to include the agreed TP. |

#### 8.38.1 Rapporteur Input (WID/TR/CR)

**Topic #1: Rapporteur input**

**R4-2111422 draft TR 38.842 v0.0.2**

*Type: draft TR For: Approval  
 38.842 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107836**.

**R4-2107836 draft TR 38.842 v0.0.2**

*Type: draft TR For: Approval  
 38.842 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**

**R4-2111292 Revised WID on NR\_UE\_PC2\_R17\_CADC\_SUL\_xBDL\_yBUL**

*Type: WID revised For: Discussion  
 Source: Huawei, HiSilicon*

Qualcomm had comment in the 2nd round. More discussion is needed.

**Decision: Noted.**

#### 8.38.2 UE RF requirements

**Topic #2: TP of BCS for PC2 CA**

**R4-2111420 TP for 38.842 for CA\_n1-n3-n78**

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

**Decision: Approved**.

### 8.39 Power Class 2 for EN-DC with xLTE band + yNR DL with 1LTE+1(TDD) NR UL band (x= 2, 3, 4, y=1; x=1, 2, y=2)

**Email discussion summary of [99-e][130] ENDC\_PC2\_R17\_xLTE\_yNR, AI 8.39 – Per Lindell**

**R4-2107656 Email discussion summary for [99-e][130]** **ENDC\_PC2\_R17\_xLTE\_yNR**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107940**.

**R4-2107940 Email discussion summary for [99-e][130]** **ENDC\_PC2\_R17\_xLTE\_yNR**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information**

Refer to WID RP-210816. The completion date is September 2021.

**Conclusions after 2nd round**

**Existing Tdocs**

|  |  |
| --- | --- |
| **CR/TP number** | **Status** |
| [R4-2108901](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108901.zip) | Approved. |
| [R4-2108902](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108902.zip) | Approved. |
| [R4-2108903](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108903.zip) | Approved. |
| [R4-2108904](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108904.zip) | Approved. |
| [R4-2108905](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108905.zip) | Approved. |
| [R4-2108906](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108906.zip) | Revised to R4-2107837 |
| R4-2107837 | Approved (2nd round) |
| [R4-2108907](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108907.zip) | Revised to R4-2107838 |
| R4-2107838 | Approved (2nd round) |
| [R4-2110745](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110745.zip) | Withdrawn |
| [R4-2110957](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110957.zip) | Approved. |
| R4-2108804 | Approved |

For R4-2108804, it is suggested that Nokia provides Notes that can be agreed during 2nd round, The intention is that these notes can be agreed during 2nd round so that they can be implemented by the rapporteur together with the new combinations in the big CR for email approval.

#### 8.39.1 Rapporteur Input (WID/TR/CR)

**Topic #2: Notification in TS on completed PC2 combinations**

R4-2108804 is moved from AI 8.39 to AI 8.39.1

**R4-2108804 Handling of PC2 uplink configurations with more than 2 DL bands**

*Type: other For: Approval  
 38.101-3 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell, CHTTL, Verizon*

**Abstract:**

Discussion on how to clarify which PC2 configurations with more than two DL bands are completed or not.

The notes agreed in R4-2108804 are to be implemented by the rapporteur in the big CR R4-2111078 for email approval.

**Decision: Approved.**

**TR and revised WID**

**R4-2111072 Revised WID EN-DC PC2**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID EN-DC PC2

**Decision: Withdrawn**.

**R4-2111078 CR 38.101-3 EN-DC PC2**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0590 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-3 EN-DC PC2

**Decision: Email approval**.

**R4-2111082 TR 37.827 v0.1.0 ENDC\_PC2\_R17\_xLTE\_yNR**

*Type: draft TR For: Endorsement  
 37.827 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TR 37.827 v0.1.0 ENDC\_PC2\_R17\_xLTE\_yNR

**Decision: Withdrawn**.

#### 8.39.2 UE RF requirements

**Topic #1: General TPs for band combiantions**

**R4-2108901 TP for TR 37.827 for DC\_2-13\_n66-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108902 TP for TR 37.827 for DC\_2-13-66\_n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108903 TP for TR 37.827 for DC\_13-66\_n2-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108904 TP for TR 37.827 for DC\_2-66\_n5-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108905 TP for TR 37.827 for DC\_2-5-66\_n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved**.

**R4-2108906 TP for TR 37.827 for DC\_13\_n66-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision:** The document was **revised to R4-2107837**.

**R4-2107837 TP for TR 37.827 for DC\_13\_n66-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved.**

**R4-2108907 TP for TR 37.827 for DC\_13\_n2-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision:** The document was **revised to R4-2107838**.

**R4-2107838 TP for TR 37.827 for DC\_13\_n2-n77**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Approved.**

**R4-2110745 TP for PC2 DC\_2\_66-n41**

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

**Abstract:**

Text proposal for PC2 DC\_2\_66-n41

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

**R4-2110957 TP for PC2 DC\_2\_66-n41**

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

**Abstract:**

Text proposal for PC2 DC\_2\_66-n41

**Decision: Approved**.

### 8.40 High power UE for NR TDD intra-band carrier aggregation in frequency range FR1

#### 8.40.1 General and Rapporteur Input (WID/TR/CR)

#### 8.40.2 PC2 UE RF requirements

##### 8.40.2.1 Maximum output power

##### 8.40.2.2 A-MPR

##### 8.40.2.3 others

### 8.41 Introduction of FR2 FWA UE with maximum TRP of 23dBm for band n259

**Email discussion summary of [99-e][132] NR\_FR2\_FWA\_Bn259\_Bn257\_Bn258, AI 8.41, AI 7.1.1 – Sumant Iyer**

**R4-2107657 Email discussion summary for [99-e][132]** **NR\_NewRAT\_SysParameters**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107942**.

**R4-2107942 Email discussion summary for [99-e][132]** **NR\_NewRAT\_SysParameters**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210875. The completion date is September 2021.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| WF on PC5 requirements in n259 | Qualcomm | R4-2107839 |  | Approved. |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2108814 | PC5 RF requirements in n259 | Qualcomm Incorporated | noted | Discussion paper |
| R4-2109006 | Views on RF requirement for FWA | Sony, Ericsson | noted | Discussion paper |
| R4-2109147 | On new FWA UE RF requirement | Murata Manufacturing Co Ltd. | noted | Discussion paper |
| R4-2109505 | Proposal on n259 PC5 Tx and Rx requirements | MediaTek Beijing Inc. | withdrawn |  |
| R4-2109543 | Proposal on n259 PC5 Tx and Rx requirements | MediaTek Beijing Inc. | noted | Discussion paper |
| R4-2110019 | FR2 PC5 requirements for n259 | Samsung | noted | Discussion paper |
| R4-2110836 | R17 n259 FWA | OPPO | noted | Discussion paper |
| R4-2111062 | RF requirements of power class 5 for band n259 | Intel Corporation | noted | Discussion paper |

**WF/LS/CRs for approval**

**R4-2107839 WF on PC5 requirements in n259**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2107998 WF on PC5 requirements in n259**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Withdrawn**.

#### 8.41.1 UE RF requirements

**R4-2108814 PC5 RF requirements in n259**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated*

**Abstract:**

PC5 n259 proposals for RF requirements

**Decision: Noted**.

**R4-2109006 Views on RF requirement for FWA**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted**.

**R4-2109147 On new FWA UE RF requirement**

*Type: discussion For: Approval  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted**.

**R4-2109543 Proposal on n259 PC5 Tx and Rx requirements**

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

**Decision: Noted**.

**R4-2110019 FR2 PC5 requirements for n259**

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

**Decision: Noted**.

**R4-2110836 R17 n259 FWA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111062 RF requirements of power class 5 for band n259**

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

**Decision: Noted**.

**R4-2109505 Proposal on n259 PC5 Tx and Rx requirements**

*Type: discussion For: (not specified)  
 Source: MediaTek Beijing Inc.*

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

#### 8.41.2 RRM performance requirements

#### 8.41.3 Others

### 8.42 Additional NR bands for UL-MIMO

**Email discussion summary of [99-e][131]** **NR\_intra\_HPUE\_UL\_MIMO\_bands, AI 8.40, AI 8.42 – Qian Zhang**

**R4-2107658 Email discussion summary for [99-e][131]** **NR\_intra\_HPUE\_UL\_MIMO\_bands**

*Type: Other For: Information  
 Source: Moderator (Huawei, HiSilicon)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107941.**

**R4-2107941 Email discussion summary for [99-e][131]** **NR\_intra\_HPUE\_UL\_MIMO\_bands**

*Type: Other For: Information  
 Source: Moderator (Huawei, HiSilicon)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210555 for HPUE for NR TDD intra-band CA. The completion date is March 2022.

Refer to WID RP-210557 for Additional NR bands for UL-MIMO power class 3 (PC3). The completion date is March 2022.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** |
| WF on AMPR for UL MIMO | Huawei, HiSilicon | R4-2107840 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2111444 | On requirements for n40 supporting PC2 UL MIMO | Huawei, HiSilicon | noted |  |
| R4-2111445 | revised WID on Additional NR bands for UL-MIMO in Rel-17 | Huawei, HiSilicon | noted |  |

**WF/LS/CRs for approval**

**R4-2107840 WF on AMPR for UL MIMO**

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

**Decision: Approved.**

#### 8.42.1 General and Rapporteur Input (WID/TR/CR)

**Topic #1: New NR bands for UL-MIMO**

**R4-2111445 revised WID on Additional NR bands for UL-MIMO in Rel-17**

*Type: WID revised For: Endorsement  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

#### 8.42.2 MPR/A-MPR requirements

**R4-2111444 On requirements for n40 supporting PC2 UL MIMO**

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

**Decision: Noted**.

#### 8.42.3 Others

### 8.43 Downlink interruption for band combinations to conduct dynamic Tx Switching

**Email discussion summary of [99-e][133]** **DL\_intrpt\_combos\_TxSW\_R17, AI 8.43 – Bo Liu**

**R4-2107659 Email discussion summary for [99-e][133]** **DL\_intrpt\_combos\_TxSW\_R17**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted**.

**R4-2107943 Email discussion summary for [99-e][133]** **DL\_intrpt\_combos\_TxSW\_R17**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Withdrawn.**

**Informations:**

Refer to WID RP-210478. The completion date is March 2022.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2109031 | TR37.867v0.3.0 | CATT | Email approval |  |
| R4-2109578 | DL interruptionfor TX switching discussion | Mediatek | Noted |  |
| R4-2110071 | CR to 38.101-1 Introduce DL interruption clarification for CA conduting Tx Switching | China Telecom | Email approval |  |
| R4-2110072 | TP to 37.867 DL interruption clarification for CA\_n1n3-n78 to conduct Txswitching | China Telecom | Approved |  |

#### 8.43.1 General and Rapporteur Input (WID/TR/CR)

**R4-2109031 TR 37.867 v0.3.0**

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

**Decision: Email approval**.

**R4-2110071 CR to 38.101-1 Introduce DL interruption clarification for CA conduting Tx Switching**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0806 rev Cat: B (Rel-17)  
  
 Source: China Telecom*

**Decision: Email approval**.

#### 8.43.2 Determination of inter-band uplink CA and EN-DC combinations for which DL interruption is not allowed

**R4-2109578 DL interruption for TX switching discussion**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Noted**.

**R4-2110072 TP to 37.867 DL interruption clarification for CA\_n1-n3-n78 to conduct Tx switching**

*Type: pCR For: Approval  
 37.867 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Decision: Approved**.

#### 8.43.3 Others

### 8.44 Simultaneous Rx/Tx band combinations for CA, SUL, MR-DC and NR-DC

**Email discussion summary of [99-e][134]** **Simultaneous\_RxTx, AI 8.44 AI 13.2 selected Tdocs –Ye(Leo) Liu**

**R4-2107660 Email discussion summary for [99-e][134]** **Simultaneous\_RxTx**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107944**.

**R4-2107944 Email discussion summary for [99-e][134]** **Simultaneous\_RxTx**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Information:**

Refer to WID RP-210890. The completion date is March 2022.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on applicability and rules for simultaneous RxTx | Huawei, HiSilicon | R4-2107841 | Approved (2nd round) |
| WF on release independent for simultaneous Rx/Tx | CHTTL | R4-2107842 | Approved (2nd round) |
| WF on simultaneous Rx/Tx for the inter-band combinations having more than two bands | Qualcomm | R4-2107843 | Approved (2nd round) |
| WF on simultaneous Rx/Tx for synchronous/asynchronous NR-DC | Apple | R4-2108007 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2109506](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109506.zip) | Discussion on the UE capability of simultaneous RxTx with partially applicable band pairs | SoftBank Corp. | Noted |  |
| [R4-2109575](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109575.zip) | Draft Reply LS on simultaneous Rx/Tx capability | Qualcomm Incorporated | Revied to R4-2108003 | depends on 2nd round discussion |
| R4-2108003 | Draft Reply LS on simultaneous Rx/Tx capability | Qualcomm Incorporated | Approved (2nd round) |  |
| [R4-2109686](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109686.zip) | Discussion on criteria of Simultaneous RxTx | vivo | Noted |  |
| [R4-2110164](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110164.zip) | Discussion and draft reply LS on simultaneous Rx/Tx capability | Apple | Noted |  |
| [R4-2110200](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110200.zip) | Discussion on principle for simultaneous Rx Tx band combinations for CA, SUL, MR-DC and NR-DC | Xiaomi | Noted |  |
| [R4-2110478](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110478.zip) | Further discussion on Simultaneous RxTx | ZTE Corporation | Noted |  |
| [R4-2110776](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110776.zip) | Further discussion on general principle for simultaneous Rx/Tx band combinations | CHTTL | Noted |  |
| [R4-2110835](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110835.zip) | R17 simultaneous RxTx | OPPO | Noted |  |
| [R4-2110929](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110929.zip) | R15 CR on simultaneous Tx-Rx for EN-DC | Guangdong OPPO Mobile Telecom. | Revised to R4-2107845 |  |
| R4-2107845 | R15 CR on simultaneous Tx-Rx for EN-DC | Guangdong OPPO Mobile Telecom. | Postponed (2nd round) |  |
| R4-2110930 | R16 mirror CR on simultaneous Tx-Rx for EN-DC | OPPO | Withdrawn (2nd round) | Cat-A CR, not treated yet |
| R4-2110931 | R17 mirror CR on simultaneous Tx-Rx for EN-DC | OPPO | Withdrawn (2nd round) | Cat-A CR, not treated yet |
| [R4-2110932](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110932.zip) | R15 CR on simultaneous Tx-Rx for CA | OPPO | Revised to R4-2107846 |  |
| R4-2107846 | R15 CR on simultaneous Tx-Rx for CA | OPPO | Revised to R4-2107846 |  |
| R4-2110933 | R16 mirror CR on simultaneous Tx-Rx for CA | OPPO | Withdrawn (2nd round) | Cat-A CR, not treated yet |
| R4-2110934 | R17 mirror CR on simultaneous Tx-Rx for CA | OPPO | Withdrawn (2nd round) | Cat-A CR, not treated yet |
| [R4-2111447](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111447.zip) | Revised WID on simultaneous Rx/Tx | Huawei,HiSilicon | Noted | for information in RAN4 |
| [R4-2111448](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111448.zip) | On principles for deciding simultaneous RxTx capability | Huawei,HiSilicon | Noted |  |
| [R4-2111452](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111452.zip) | draft Reply LS on simultaneous RxTx capability | Huawei,HiSilicon | Approved (2nd round) | depends on 2nd round discussion |

**WF/LS/CRs for approval**

**R4-2107841 WF on applicability and rules for simultaneous RxTx**

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

**Decision: Approved**.

**R4-2107842 WF on release independent for simultaneous Rx/Tx**

*Type: other For: Approval  
 Source: CHTTL*

**Decision: Approved**.

**R4-2107843 WF on simultaneous Rx/Tx for the inter-band combinations having more than two bands**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved**.

**R4-2107844 WF on simultaneous Rx/Tx for synchronous/asynchronous NR-DC**

*Type: other For: Approval  
 Source: Apple*

**Decision:** The document was **revised to R4-2108007.**

**R4-2108007 WF on simultaneous Rx/Tx for synchronous/asynchronous NR-DC**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved**.

#### 8.44.1 General and Rapporteur Input (WID/TR/CR)

**R4-2111447 Revised WID on simultaneous Rx/Tx**

*Type: WID revised For: Endorsement  
 Source: Huawei,HiSilicon*

**Decision: Noted**.

#### 8.44.2 Criteria and analysis of Sim.RX/TX

**Topic #1: Issues related to PC2 HPUE for SL enhancement**

**R4-2109686 Discussion on criteria of Simultaneous RxTx**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**R4-2110200 Discussion on principle for simultaneous Rx Tx band combinations for CA, SUL, MR-DC and NR-DC**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**

**R4-2110478 Further discussion on Simultaneous RxTx**

*Type: other For: (not specified)  
 Source: ZTE Corporation*

**Decision: Noted**.

**R4-2110776 Further discussion on general principle for simultaneous Rx/Tx band combinations**

*Type: discussion For: Discussion  
 Source: CHTTL*

**Decision: Noted**.

**R4-2110835 R17 simultaneous RxTx**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

R4-2111448 is moved from AI 8.44.3 to AI 8.44.2.

**R4-2111448 On principles for deciding simultaneous RxTx capability**

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

**Decision: Noted**.

**R4-2110467 Further discussion on Simultaneous RxTx**

*Type: other For: (not specified)  
 Source: ZTE Corporation*

**Decision:** The document was **Withdrawn**.

#### 8.44.3 Others

**Topic #2: Reply LS to RAN2 on simulatenous Rx/Tx**

**R4-2111452 draft Reply LS on simultaneous RxTx capability**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei,HiSilicon*

**Decision: Approved.**

**R4-2109506 Discussion on the UE capability of simultaneous RxTx with partially applicable band pairs**

*Type: discussion For: (not specified)  
 Source: SoftBank Corp.*

**Decision: Noted**.

## 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

#### 9.1.2 Performance requirements

##### 9.1.2.1 Performance Requirements for FR1

##### 9.1.2.2 Performance Requirements for FR2

#### 9.1.3 Testing methodologies

##### 9.1.3.1 Testing parameters for Performance

##### 9.1.3.2 Optimization of test methodologies

##### 9.1.3.3 Channel model validation

### 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

#### 9.2.2 SA test methodology

#### 9.2.3 EN-DC test methodology

### 9.3 RF requirements enhancement for NR frequency range 1 (FR1)

#### 9.3.1 General

#### 9.3.2 RF core requirements

##### 9.3.2.1 UL MIMO configuration for SUL band configurations

##### 9.3.2.2 2Tx switching between carrier 1 and carrier 2

**Email discussion summary of [99-e][136] NR\_RF\_FR1\_enh\_Part\_2, AI 9.3.2.2, AI 9.3.2.3 – Shan Yang**

**R4-2107662 Email discussion summary for [99-e][136]** **NR\_RF\_FR1\_enh\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-217046**.

**R4-2107946 Email discussion summary for [99-e][136]** **NR\_RF\_FR1\_enh\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| Reply LS on Rel-17 uplink Tx switching | China Telecom | R4-2107847 | To: RAN1, RAN2 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2109422 | Further discussion on UL Tx switching between 2 uplink carriers in Rel-17 | ZTE Wistron Telecom AB | Noted |
| R4-2109424 | DraftCR on Rel-17 UL Tx switching time mask for 2Tx-2Tx switching between two carriers | ZTE Wistron Telecom AB | Not Pursued |
| R4-2109586 | Discussion on 2Tx-2Tx switching time and draft reply LS | China Telecom | Noted |
| R4-2111451 | draft reply LS on Rel-17 uplink Tx switching | Huawei,HiSilicon | Noted |
| R4-2109421 | Draft CR to 38.101-1 Correction on DL interruption applicability for inter-band CA | ZTE Wistron Telecom AB | Merged |
| R4-2109423 | Further discussion on UL Tx switching between 2 uplink bands in Rel-17 | ZTE Wistron Telecom AB | Noted |
| R4-2109477 | Correction on DL interruption applicability for inter-band CA | CMCC | Revised to R4-2107848 |
| R4-2107848 | Correction on DL interruption applicability for inter-band CA | CMCC | Agreed (2nd round) |

**WF/LS/CRs for approval**

**R4-2107847 Reply LS on Rel-17 uplink Tx switching**

*Type: LS out For: Approval  
 Source:* *China Telecom*

**GTW session on May 24**

**Discussion:**

ZTE: 2Tx-2Tx and 1Tx-2Tx switching belong to two separate capabilities. The first two paragraphs are enough.

Huawei: if UE can only report support of 2Tx-2Tx, what is the switching value for 1Tx-2Tx switching?

ZTE: if the values of 2Tx-2Tx and 1Tx-2Tx are different, it means that UE has different implementations.

Huawei: we do not think they conflict with each other.

**Agreement:**

* For UL Tx switching in a band pair of a band combination, the set of candidate switching time for 2Tx-2Tx switching is the same as that for 1Tx-2Tx switching, i.e., the same set of {35us, 140us, 210us}.
* The exact reported value of switching time for a band pair of a band combination can be different for 2Tx-2Tx switching and 1Tx-2Tx switching.
* Meanwhile, for UE supporting 2Tx-2Tx switching, it can consider that the UE supports 1Tx-2Tx as well. In the case that UE only reports the capability for 2Tx-2Tx switching, the same switching time can also be applied to 1Tx-2Tx switching.

**Decision: Approved.**

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**Topic**

**R4-2109422 Further discussion on UL Tx switching between 2 uplink carriers in Rel-17**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2109424 DraftCR on Rel-17 UL Tx switching time mask for 2Tx-2Tx switching between two carriers**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Not pursued**.

**R4-2109586 Discussion on 2Tx-2Tx switching time and draft reply LS**

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

**Decision: Noted**.

**R4-2111451 draft reply LS on Rel-17 uplink Tx switching**

*Type: LS out For: Approval  
 to RAN1, cc RAN2  
 Source: Huawei,HiSilicon*

**Decision: Noted**.

##### 9.3.2.3 Tx switching between 1 carrier on band A and 2 contiguous aggregated carriers on band B

**R4-2109421 Draft CR to 38.101-1 Correction on DL interruption applicability for inter-band CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Merged**.

**R4-2109423 Further discussion on UL Tx switching between 2 uplink bands in Rel-17**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2109477 Correction on DL interruption applicability for inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0780 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Decision:** The document was **revised to R4-2107848**.

**R4-2107848 Correction on DL interruption applicability for inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0780 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Decision: Agreed.**

##### 9.3.2.4 HPUE for TDD intra-band contiguous UL CA

**Email discussion summary of [99-e][135] NR\_RF\_FR1\_enh\_Part\_1, AI 9.3.2.4, AI 9.3.2.5, AI 9.3.2.6 – Qian Zhang**

**R4-2107661 Email discussion summary for [99-e][135]** **NR\_RF\_FR1\_enh\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (Huawei, HiSilicon)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107945**.

**R4-2107945 Email discussion summary for [99-e][135]** **NR\_RF\_FR1\_enh\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (Huawei, HiSilicon)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

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

**Conclusions after 2nd round:**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on Pcmax,c definition for FR1 intra-band contiguous and non-contiguous UL CA | Ericsson | R4-2107849 | Postponed (2nd round) |
| WF on PC2 intra-band UL NC CA architecture options and MPR requirements | Skyworks | R4-2107850 | Approved (2nd round) |
| WF on intra-band UL contiguous CA for UL MIMO | Huawei, HiSilicon | R4-2107851 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2109979 | Power reduction for contigous (and non-contiguous) UL CA with HPUE: MPR and power prioritization | Ericsson | Noted |
| R4-2111351 | CR for PC2 intra-band UL contiguous CA requirement | Huawei, HiSilicon | Revised to R4-2107852 |
| R4-2107852 | CR for PC2 intra-band UL contiguous CA requirement | Huawei, HiSilicon | Endorsed (2nd round) |
| R4-2108799 | 26+23 dBm w 2Los and 1LO architecture considerations | Qualcomm | Noted |
| R4-2109260 | PC2 1PA Intra-band UL NC CA MPR Simulations | Nokia | Noted |
| R4-2109261 | PC2 1PA Intra-band UL NC CA MPR | Nokia | Noted |
| R4-2109965 | MPR simulation results for NR intra-band non-contiguous CA according to candidate RF architectures | LGE | Noted |
| R4-2110820 | R17 FR1 UL NC CA | OPPO | Noted |
| R4-2111384 | on intra-band UL NC CA architecture and MPR | Huawei, HiSilicon | Noted |
| R4-2111480 | Input on exceptions for non-baseline PC2 NC UL CA architectures | Skyworks | Noted |
| R4-2109425 | Discussion on intra-band UL contiguous CA for UL MIMO | ZTE | Noted |
| R4-2109680 | Further discussion for Intra-band UL contiguous CA for UL-MIMO | vivo | Noted |
| R4-2110819 | R17 FR1 UL CA with MIMO and draft LS | OPPO | Noted |
| R4-2111023 | PC2 contiguous UL CA using transparent Tx Diversity or UL MIMO | Skyworks | Noted |
| R4-2111380 | draft CR on contiguous CA with UL MIMO for power class 3 | Huawei, HiSilicon | Noted |

**GTW session on May 24th**

**Sub-topic 2-2: Architecture options handling**

|  |  |  |
| --- | --- | --- |
| Arch | description | Additional RF requirement need to be considered |
| #1 | 2x26dBm PA + 2LO  with 100MHz BW |  |
| #2 | 1x26dBm PA + 1LO  with 200MHz BW | In-gap requirement when LO or image fall inside |
| #3 | 2x23dBm PA + 1LO  with 200MHz BW | In-gap requirement when LO or image fall inside |
| #4 | 1x23dBm+1x26dBm + 2LO  with 100MHz BW | PA swap time |

**Issue 2-2-1: For 1x26dBm PA + 1LO with 200MHz BW and 2x23dBm PA + 1LO with 200MHz BW, how to handle in-gap requirement when LO or image fall inside?**

* Proposals
  + - Option 1: remove exceptions for ACLR/SEM/SE when LO or image fall inside the gap
    - Option 2:
      * In-gap exceptions are only allowed for CC configurations where the gap bandwidth is less or equal than the two CC aggregated bandwidth
      * In-gap exceptions are only allowed for UEs also supporting UL MIMO together with NC UL CA
    - Option 3: reuse in-gap exception under some conditions (e.g. Sync) as defined for PC3 for the architecture #2 and #3.
    - Option 4:
      * For PC2 intra-band UL NC CA, in-gap exception follows the agreement made in Rel-16. For ACLR, 3dB relaxation is proposed to be reused for PC2 intra-band UL NC CA. For SEM requirement, exception refers to the requirement for LO leakage or image requirement applies.
      * Introduce new UE capability for intra-band UL NC CA, to indicate the network that whether UE can support CA without RF requirement exception.

**Discussion**

LGE: We prefer #3 to reuse the existing requirement with the same isolation. Option #1 is fine for us.

Skyworks: for the difference between #1 and #4 we can use delta MPR. There may be interruption if we swap #1 and #4. The exception is allowed only if the gap is larger than aggregation bandwidth. Any exception should be clear in terms of interference to adjacent band.

Intel: Question on #4. OK with #1~3. We have MPR for switching too. #4 is more challenge.

Apple: What does mean exception here? Does it mean that there is no requirement in gap or some relaxation inside gap? About Arch#4, it implies there is PA swapping between two CCs. This may not be valid architecture. PA swapping means the power headroom for each CC may change continuously to cause some confusion on BS.

Huawei: exception is introduced because operator want to uplink MIMO feature even for NC CA combination. We introduce exception for arch #2, #3 to enable UL-MIMO. Expection means leakage or image falls in emission requirements part then image rejection requirement is applied. For Arch#4, we need understand if the additional switching time is needed.

Nokia: for exception, we would like to hear operator opinion on regulation aspects. Regarding comment from skyworks, in some cases like narrow sub-block, it may help.

DOCOMO: Our preference is Option 1 to remove exception. We would like to know if the exception can be removed. If not, we would like to know the condition.

Verizon: we think Arch #4 should be included.

LGE: The best is Arch #1. Arch #2, #3 and #4 all have drawbacks. #4 has some benefit for intra-band NC CA. In colocation scenario, the larger power imbalance may not exist. PA swapping time should be considered when PA#1 supporting serving cell, PA#2 supporting second cell, and the problem is less for collocation scenario.

Skyworks: Arch#4 is not supported for UL-MIMO + CA. Arch #3 is only way to support NC CA+UL-MIMO.

Huawei: we need further check the regulation for Arch#2 and Arch#3.

Skyworks: we cannot define the requirements just for worst case such that the performance is worse than PC3.

Huawei: can US operator clarify the use case for n77.

**Agreement:**

* Further evaluate all the optional architectures to ensure the performance is not worse than PC3, considering
  + MPR values
  + In-gap relaxation requirements and applicable conditions
  + Regulations, considering
    - n77 PC2 with n48 in-gap, (to check if it is valid use case or not)
  + Swapping time for Arch#4
  + In-gap exception requirements (only for ACLR) for Rel-16 legacy power class 3 UE

**Sub topic 3-1: RF requirements framework**

**Issue 3-1-1: MIMO Configurations for CA+UL MIMO requirements**

* Proposals
  + Option 1: 2 layer configuration and 1 layer 2 port configuration are included, transparent TxD configuration is excluded
  + Option 2: Do not include 1 layer 2 port UL MIMO configuration and Transparent TxD configuration
  + Option 3: 2 layer configuration , 1 layer 2 port configuration and transparent TxD configuration are all considered

**Discussion:**

Skyworks: for the time being, we do not need preclude other options. We prefer Option 3. In future, if we see that we can restrict the application, we could have some restriction.

Huawei: support Skyworks

Vivo: We can live with Option 3.

Agreement:

* Option 3
  + If we find the problematic case, we could revisit the agreement.

**Sub topic 3-1: RF requirements framework**

**Issue 3-1-2: RF requirements items**

**Discussion:**

Skyworks: we prefer to follow single CC agreement as baseline. Why do we not follow the single CC requirement.

Qualcomm: we have the similar comment as skywork. We do not need re-define the requirements shown here rather referring the requirement and defining the necessary requirement for MIMO.

Vivo: the table comes from us and we follow single CC requirement.

**Agreement:**

* Follow the single CC requirements as baseline
  + Identify the UL-MIMO+CA specific requirements
  + Refer to the CA requirement, e.g., configured output power, power control tolerance, if needed

**WF/LS/CRs for approval**

**R4-2107849 WF on Pcmax,c definition for FR1 intra-band contiguous and non-contiguous UL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Postponed.**

**R4-2107850 WF on PC2 intra-band UL NC CA architecture options and MPR requirements**

*Type: other For: Approval  
 Source: Skyworks*

**Decision: Approved.**

**R4-2107851 WF on intra-band UL contiguous CA for UL MIMO**

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

**Decision: Approved.**

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

**Topic**

**R4-2109979 Power reduction for contigous (and non-contiguous) UL CA with HPUE: MPR and power prioritization**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the MPR for intra-band non-contigous UL CA, the impact om PHR and the power prioritization when the UE is power limited.

**Decision: Noted**.

**R4-2111351 CR for PC2 intra-band UL contiguous CA requirement**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0850 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **revised to R4-2107852**.

**R4-2107852 CR for PC2 intra-band UL contiguous CA requirement**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0850 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

##### 9.3.2.5 HPUE for TDD intra-band non-contiguous UL CA

**R4-2108799 26+23 dBm w 2Los and 1LO architecture considerations**

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

**Decision: Noted**.

**R4-2109260 PC2 1PA Intra-band UL NC CA MPR Simulations**

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

**Decision: Noted**.

**R4-2109261 PC2 1PA Intra-band UL NC CA MPR**

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

**Decision: Noted**.

**R4-2109965 MPR simulation results for NR intra-band non-contiguous CA according to candidate RF architectures**

*Type: other For: Approval  
 Source: LG Electronics France*

**Abstract:**

provide MPR results for NR PC2 intra-band NC-CA UE

**Decision: Noted**.

**R4-2110820 R17 FR1 UL NC CA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111384 on intra-band UL NC CA architecture and MPR**

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

**Decision: Noted**.

**R4-2111480 Input on exceptions for non-baseline PC2 NC UL CA architectures**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we further discuss from our last meeting paper how to dimension the exceptions needed to enable the non-baseline architectures in order to make them valuable options for the specification.

**Decision: Noted**.

##### 9.3.2.6 Intra-band UL contiguous CA for UL MIMO (n41C and n78C)

**R4-2109425 Discussion on intra-band UL contiguous CA for UL MIMO**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2109680 Further discussion for Intra-band UL contiguous CA for UL-MIMO**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**R4-2110819 R17 FR1 UL CA with MIMO and draft LS**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111023 PC2 contiguous UL CA using transparent Tx Diversity or UL MIMO**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we discuss the status of the TxDiv and UL MIMO MPR for single CC and its impact to the PC2 contiguous UL CA MPR work and suggest that separate MPR requirement is set for this two cases from the already agreed baseline architecture MP

**Decision: Noted**.

**R4-2111380 draft CR on contiguous CA with UL MIMO for power class 3**

*Type: draftCR For: Approval  
 38.101-1 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted**.

#### 9.3.3 RRM core requirements

### 9.4 NR RF requirement enhancements for frequency range 2 (FR2)

#### 9.4.1 General

**Email discussion summary of [99-e][137] NR\_RF\_FR2\_req\_enh2\_Part\_1, AI 9.4.1, AI 9.4.2, AI 9.4.3 – Petri Vasenkari**

**R4-2107663 Email discussion summary for [99-e][137]** **NR\_RF\_FR2\_req\_enh2\_Part\_1**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107947**.

**R4-2107947 Email discussion summary for [99-e][137]** **NR\_RF\_FR2\_req\_enh2\_Part\_1**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on CBM UE architecture | Qualcomm | [R4-210](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108912.zip)7988 | Noted |
| WF on FR2 interband UL CA | Samsung | [R4-210](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108912.zip)7854 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2108912](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108912.zip) | TR 38.851-010 | Nokia, Nokia Shanghai Bell | Approved |
| [R4-2109980](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109980.zip) | On MRTD and CBM capability for inter-band DL CA | Ericsson | Noted |
| [R4-2109889](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109889.zip) | Discussion on RX beam switch delay for FR2 inter-band DL CA | NEC | Noted |
| [R4-2109450](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109450.zip) | Inter-band DL CA for FR2 | Apple | Noted |
| [R4-2108914](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108914.zip) | TP to TR 38.851 Applicability of CBM IBM for different CA configurations | Nokia, Nokia Shanghai Bell | Approved |
| [R4-2109539](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109539.zip) | Discussion on UE capability supporting both IBM and CBM | Samsung | Noted |
| [R4-2110182](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110182.zip) | UE capability of IBM and CBM | Xiaomi | Noted |
| [R4-2110435](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110435.zip) | Further discussion on CBM&IBM for FR2 Inter-band DL CA | ZTE Corporation | Noted |
| [R4-2108910](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108910.zip) | CR to 38.307 to add interband CA R16 CATF | Nokia, Nokia Shanghai Bell, NTT DOCOMO | Agreed |
| R4-2108911 | CR to 38.307 to add interband CA R17 CATA | Nokia, Nokia Shanghai Bell, NTT DOCOMO | Agreed |
| [R4-2109183](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109183.zip) | Relaxation values of spherical coverage requirement for n257-n259 | NTT DOCOMO INC., Nokia, Nokia Shanghai Bell | Noted |
| R4-2109184 | CR to TS38.101-2[R17]: Addition of requirements for n257+n259 and n258+n260 | NTT DOCOMO INC. | Withdrawn |
| [R4-2109787](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109787.zip) | Introduction of FR2 DL CA\_n257+n259 and CA\_n258-n260 | Nokia, Nokia Shanghai Bell, NTT DOCOMO, INC. | Agreed |
| [R4-2110822](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110822.zip) | R17 FR2 Inter-band DL CA with IBM | OPPO | Noted |
| [R4-2111370](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111370.zip) | On Rel-17 inter band DL CA with IBM \_FR2 | Huawei, HiSilicon | Noted |
| [R4-2108812](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108812.zip) | Requirement framework for Inter-band CA with CBM | Qualcomm Incorporated | Noted (2nd round) |
| [R4-210](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108912.zip)7855 (Rev of [R4-2108812](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108812.zip)) | Requirement framework for Inter-band CA with CBM | Qualcomm Incorporated | Withdrawn (2nd round) |
| [R4-2108913](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108913.zip) | CA with IBM within same frequency group | Nokia, Nokia Shanghai Bell | Noted |
| [R4-2109009](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109009.zip) | UE requirements for CBM | Sony, Ericsson | Noted |
| [R4-2109540](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109540.zip) | Discussion on CBM requirements of inter-band DL CA | Samsung | Noted |
| [R4-2109558](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109558.zip) | View on Inter-band DL CA based on CBM within same frequency group | MediaTek Beijing Inc. | Noted |
| [R4-2109653](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109653.zip) | Discussion on RF requirements for inter-band DL CA based on CBM | LG Electronics Polska | Noted |
| [R4-2109655](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109655.zip) | Discussion on CBM architecture and requirement | vivo | Noted |
| [R4-2110183](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110183.zip) | Rx requirements for inter-band DL CA with CBM | Xiaomi | Noted |
| [R4-2110824](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110824.zip) | R17 FR2 Inter-band DL CA within same frequency group based on CBM | OPPO | Noted |
| [R4-2111169](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111169.zip) | Discussion on FR2 inter-band DL CA with CBM | Google Inc. | Noted |
| [R4-2109656](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109656.zip) | Discussion on FR2 inter-band UL CA | vivo | Noted |
| [R4-2109010](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109010.zip) | UE UL CA requirements based on IBM | Sony, Ericsson | Noted |
| [R4-2109330](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109330.zip) | Definition of FR2 EIRP and spherical coverage for ULCA non-overlapping bands n257 and n259 | Qualcomm Incorporated | Noted |
| [R4-2109559](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109559.zip) | View on Inter-band UL CA based on IBM within different frequency groups | MediaTek Beijing Inc. | Noted |
| [R4-2109654](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109654.zip) | Discussion on RF requirements for inter-band UL CA based on IBM | LG Electronics Polska | Noted |
| [R4-2109788](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109788.zip) | On FR2 inter-band UL CA for different frequency group based on IBM | Nokia, Nokia Shanghai Bell | Noted (2nd round) |
| [R4-210](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108912.zip)7856 (Rev of [R4-2109788](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109788.zip)) | On FR2 inter-band UL CA for different frequency group based on IBM | Nokia, Nokia Shanghai Bell | Withdrawn (2nd round) |
| [R4-2110184](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110184.zip) | Tx requirements for inter-band UL CA between different frequency groups based on IBM | Xiaomi | Noted |
| [R4-2110434](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110434.zip) | Discussion on Max EIRP limit for FR2 ULCA | ZTE Corporation | Noted |
| [R4-2110825](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110825.zip) | R17 FR2 Inter-band UL CA | OPPO | Noted |
| [R4-2109701](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109701.zip) | Discussion on feasibility for inter-band DL CA | LG Electronics Polska | Noted |
| [R4-2109560](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109560.zip) | View on Inter-band DL CA based on IBM within same frequency group | MediaTek Beijing Inc. | Noted |
| [R4-2110823](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110823.zip) | R17 FR2 Inter-band DL CA with IBM for same freq group | OPPO | Noted |
| [R4-2109576](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109576.zip) | View on Inter-band DL CA based on CBM within different frequency groups | MediaTek Beijing Inc. | Noted |
| [R4-2111371](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111371.zip) | On Rel-17 inter band DL CA with CBM \_FR2 | Huawei, HiSilicon | Noted |

**WF/LS/CRs for approval**

**R4-2107853 WF on CBM UE architecture**

*Type: other For: Approval  
 Source: Qualcomm*

**GTW session on May 25th**

**WF – General**

Discussion:

Mediatek: support this verions.

Huawei: for first bullet we are OK. For second, we need check further. This issue is not on the first round discussion. I just see the table in this afternoon.

Qualcomm: this type of table is provided by Mediatek in the last meeting.

Verizon: Support.

Agreement

* RAN4 agrees to define CBM requirements in such manner that both single chain and multi chain architectures are possible.

**WF – CBM Tx/Rx requirement framework**

Agreements:

* The requirement framework and PSD condition of each below requirement shall be FFS for each one, respectively.
* REFSENS requirement
* EIS spherical coverage requirement
* ACS and IBB requirement
* Max. input power requirement
* Others
* Potential requirement framework as starting point
* Option 1: Intra-band NC framework including relaxations
* Option 2: Inter-band CA framework including relaxations (∆RIB)
* Other framework is not precluded

**Decision:** The document was **revised to R4-2107988**.

**R4-2107988 WF on CBM UE architecture**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Noted**

**R4-2107854 WF on FR2 interband UL CA**

*Type: other For: Approval  
 Source: Samsung*

**GTW session on May 25th**

**Max EIRP for IBM between different frequency group**

* Options
  + Option 1: per UE (refer to R4-2109656)
  + Option 2: per band with max EIRP limit of each band set to 43 dBm (PC3/PC4) and 55 dBm (PC1).

Agreement:

* Option 2: per band with max EIRP limit of each band set to 43 dBm (PC3/PC4) and 55 dBm (PC1).

**Min peak EIRP for CA\_n257A\_n259A based on IBM**

Discussion:

Qualcomm: for option 2, there is unideal case that we should consider. More analysis for option 2 is needed.

Mediatek: Option 3

LGE: support Option 4.2. In the case we need consider the relaxation of 3dB comparing to single cc case. For intra-band CA, it depend on implementation. 3dB can be considered.

Sony: we are happy to down-select 4.1, which is derived based on option 2. As alternative, we can first agree on which aspects we should consider.

Huawei: our preference is 4.3. for intra-band uplink we should look into the issues for 4.3.

Samsung: 4.2 and 4.3 make sense. I agree with Sony. It is not easy to down-select. We should focus on relaxation factors. For which one we should do down-selection.

Qualcomm: We need consider option 1 as well.

Oppo: 4.1 is proposed by us. We consider the relaxation is needed to meet the requirement of coverage and multiple band relaxation. We can drop 4.1.

Sony: we can use page #4.

**Agreement: Spherical coverage for CA\_n257A\_n259A based on IBM**

Agreement:

* Specify EIRP spherical coverage requirements per band with relaxed requirement compared to single-CC.
  + At least following terms shall be quantified to obtain the individual n257 and n259 EIRP relaxations:
    - MBR
    - Degradation for multi-band to PA-PA interaction
    - EIRP Common coverage relaxation
  + Further study other relaxation terms:
    - Total UE power concept

**Decision: Approved.**

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

**Topic**

**R4-2108912 TR 38.851-010**

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

**Decision: Approved**.

**R4-2109980 On MRTD and CBM capability for inter-band DL CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we ask if the MRTD is important for the BM and a possible relation to a frequency-separation capability

**Decision: Noted**

#### 9.4.2 RF core requirements

**R4-2109889 Discussion on RX beam switch delay for FR2 inter-band DL CA**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We provide our views on RX beam switch delay for FR2 inter-band CA

**Decision: Noted**.

##### 9.4.2.1 Inter-band DL CA enhancements

**R4-2109450 Inter-band DL CA for FR2**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted**.

###### 9.4.2.1.1 Applicability of CBM/IBM for different CA configurations

**R4-2108914 TP to TR 38.851 Applicability of CBM IBM for different CA configurations**

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

**Decision: Approved**..

**R4-2109539 Discussion on UE capability supporting both IBM and CBM**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted**.

**R4-2110182 UE capability of IBM and CBM**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**.

**R4-2110435 Further discussion on CBM&IBM for FR2 Inter-band DL CA**

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

**Decision: Noted**.

###### 9.4.2.1.2 UE requirements for CA configurations CA\_n258A-n260A and CA\_n257A-n259A based on IBM

**R4-2108910 CR to 38.307 to add interband CA R16 CATF**

*Type: CR For: Agreement  
 38.307 v16.6.0 CR-0061 rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell, NTT DOCOMO*

**Decision: Agreed**.

**R4-2108911 CR to 38.307 to add interband CA R17 CATA**

*Type: CR For: Agreement  
 38.307 v17.1.0 CR-0062 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell, NTT DOCOMO*

**Decision: Agreed**.

**R4-2109183 Relaxation values of spherical coverage requirement for n257-n259**

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

**Decision: Noted**.

**R4-2109184 CR to TS38.101-2[R17]: Addition of requirements for n257+n259 and n258+n260**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0367 rev Cat: B (Rel-17)  
  
 Source: NTT DOCOMO INC.*

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

**R4-2109787 Introduction of FR2 DL CA\_n257+n259 and CA\_n258-n260**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0371 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell, NTT DOCOMO, INC.*

**Abstract:**

FR2 DLCA based on IBM CA\_n257+n259 and CA\_n258-n260 are introduced

**Decision: Agreed**.

**R4-2110822 R17 FR2 Inter-band DL CA with IBM**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111370 On Rel-17 inter band DL CA with IBM \_FR2**

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

**Decision: Noted**.

###### 9.4.2.1.3 UE requirements for CA configurations within the same frequency group based on CBM

**R4-2108812 Requirement framework for Inter-band CA with CBM**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated*

**Abstract:**

Requirement framework which does not preclude any implemention

**Decision: Noted**.

**R4-2107855 Requirement framework for Inter-band CA with CBM**

*Type: other For: Agreement  
 Source: Qualcomm Incorporated*

**Abstract:**

Requirement framework which does not preclude any implemention

**Decision: Withdrawn.**

**R4-2108913 CA with IBM within same frequency group**

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

**Decision: Noted**.

**R4-2109009 UE requirements for CBM**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted**.

**R4-2109540 Discussion on CBM requirements of inter-band DL CA**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted**.

**R4-2109558 View on Inter-band DL CA based on CBM within same frequency group**

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

**Decision: Noted**.

**R4-2109653 Discussion on RF requirements for inter-band DL CA based on CBM**

*Type: discussion For: Discussion  
 Source: LG Electronics Polska*

**Abstract:**

It discusses RF requirements for FR2 inter-band DL CA based on CBM.

**Decision: Noted**.

**R4-2109655 Discussion on CBM architecture and requirement**

*Type: discussion For: Decision  
 Source: vivo*

**Decision: Noted**.

**R4-2110183 Rx requirements for inter-band DL CA with CBM**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**.

**R4-2110824 R17 FR2 Inter-band DL CA within same frequency group based on CBM**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111169 Discussion on FR2 inter-band DL CA with CBM**

*Type: discussion For: Approval  
 Source: Google Inc.*

**Decision: Noted**.

##### 9.4.2.2 Inter-band UL CA

**R4-2109656 Discussion on FR2 inter-band UL CA**

*Type: discussion For: Decision  
 Source: vivo*

**Decision: Noted**.

###### 9.4.2.2.1 UE requirements for CA configuration CA\_n257A-n259A based on IBM

**R4-2109010 UE UL CA requirements based on IBM**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted**.

**R4-2109330 Definition of FR2 EIRP and spherical coverage for ULCA non-overlapping bands n257 and n259**

*Type: discussion For: Approval  
 38.101-2 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Provides definition for EIRP and spherical coverage for FR2 ULCA

**Decision: Noted**.

**R4-2109559 View on Inter-band UL CA based on IBM within different frequency groups**

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

**Decision: Noted**.

**R4-2109654 Discussion on RF requirements for inter-band UL CA based on IBM**

*Type: discussion For: (not specified)  
 Source: LG Electronics Polska*

**Abstract:**

It discusses RF requirements for FR2 inter-band UL CA based on IBM.

**Decision: Noted**.

**R4-2109788 On FR2 inter-band UL CA for different frequency group based on IBM**

*Type: pCR For: Approval  
 38.851 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

FR2 UL CA is discussed. TP is proposed.

**Decision: Noted**.

**R4-2107856 On FR2 inter-band UL CA for different frequency group based on IBM**

*Type: pCR For: Approval  
 38.851 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

FR2 UL CA is discussed. TP is proposed.

**Decision: Withdrawn**.

**R4-2110184 Tx requirements for inter-band UL CA between different frequency groups based on IBM**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**

**R4-2110434 Discussion on Max EIRP limit for FR2 ULCA**

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

**Decision: Noted**.

**R4-2110825 R17 FR2 Inter-band UL CA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

#### 9.4.3 Feasibility study

##### 9.4.3.1 Inter-band DL CA enhancements

**R4-2109701 Discussion on feasibility for inter-band DL CA**

*Type: discussion For: Discussion  
 Source: LG Electronics Polska*

**Abstract:**

It discusses feasibility for inter-band DL CA.

**Decision: Noted**.

###### 9.4.3.1.1 Feasibility study for CA configurations within same frequency group based on IBM

**R4-2109560 View on Inter-band DL CA based on IBM within same frequency group**

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

**Decision: Noted**.

**R4-2110823 R17 FR2 Inter-band DL CA with IBM for same freq group**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

###### 9.4.3.1.2 Feasibility study for CA configurations between different frequency groups based on CBM

**R4-2109576 View on Inter-band DL CA based on CBM within different frequency groups**

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

**Decision: Noted**.

**R4-2111371 On Rel-17 inter band DL CA with CBM \_FR2**

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

**Decision: Noted**.

#### 9.4.4 UL gaps for self-calibration and monitoring

**Email discussion summary of [99-e][138] NR\_RF\_FR2\_req\_enh2\_Part\_2, AI 9.4.4 – Yang Tang**

**R4-2107664 Email discussion summary for [99-e][138]** **NR\_RF\_FR2\_req\_enh2\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised R4-2107948**.

**R4-2107948 Email discussion summary for [99-e][138]** **NR\_RF\_FR2\_req\_enh2\_Part\_2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| WF on UL gap for FR2 | Apple | R4-2107857 | To be revised to capture the updates after the 2nd round discussion.  If the recommended agreements after the 2nd round are not agreeable. R4-2107857 is recommended to be approved. | Approved (2nd round) |

**WF/LS/CRs for approval**

**R4-2107857 WF on UL gap for FR2**

*Type: other For: Approval  
 Source: Apple*

**GTW session on May 25**

**Way forward – Tx power management: RF aspect**

Discussion:

Nokia: there are other options to propose.

AT&T: on mandatating P-MPR, support option 3. If there is no agreement on option 1 for test setup, we do not see the need for P-MPR reporting to be mandated.

Apple: about the blocking, we need think the planning and impact on the test setup. Considering the work item to be concluded in Q1, we should draw conclusion by this year. We should consider if we cannot reach agreement how we can do. We do not see phantom blocking is necessary.

Nokia: we have concern on the wording about phantom.

Qualcomm: We agree with Nokia on the previous comment.

Agreements:

* + It is feasible to enable non-zero P-MPR in Tx power management and BPS related UL gap testing.
  + zero P-MPR assumption for the existing test cases keeps unchanged
* On the test setups for UL gap based Tx power management.
  + Option 1: Based on P-MPR report with/without blocking
  + Option 2: Based on peak EIRP measurement with/without blocking
  + Option 3: other method like jamming

**Way forward – Tx power management: RRM aspect**

Agreements:

* The baseline assumption for UL gap related configurations:
  + UL gap is configured by NW via RRC signaling. Once UL gap is configured, it can be additionally activated or deactivated.
    - It is up to network decision on whether to configure UL gap or not.
  + It is FFS that the configured UL gap(s) can be activated/deactivated via MAC CE and/or DCI
* Gap configuration candidates:
  + Candidates for gap periodicity: 5ms, 10ms, 20ms, 40ms, 80ms, 160ms, 320ms
  + Candidates for gap duration: 62.5us, 125us, 250us, 500us, 1000us,
  + Implicit activation to minimizing signaling, e.g., depending on PHR report.

**Way forward – Coherent UL MIMO**

Discussion:

Nokia: we have not identify how to improve the requirement. But no one show the requirement improvement. We have agreed to focus on phase I. After we know how the requirement can be improved then we can evaluate the testability. We have not done what we are supposed to do in this meeting.

Ericsson: similar view.

Huawei: UE requirement improvement is to enhance the phase and power consistency for antenna.

Nokia: I do not see the comparison. How much the gain is between with gap and without gap.

Apple: Maybe we can focus on the gain discussion in the second round to show the gain. We need discuss the performance gain. In our view, we should consider coherernt UL MIMO into objective, which is included in “others’ objective.

Huawei: for improvement, we could provide some data in the second round. At least Nokia view is that no testability is identified for coherent UL-MIMO. For the revision of WID, actually coherent MIMO is useful feature.

Nokia: We should identify the requirement improvement. Without knowing what the improved requirement is, we cannot evaluate testibility. For WID, we have agreement that it is included in “others” we should follow the agreement made.

OPPO: Regarding gain, currently no UE can support coherent MIMO. UL gap can enable coherent UL-MIMO.

Huawei: we question whether coherent MIMO can be supported by UE without UL gap because there are a lot of conditions impacting RF requirements.

Agreements:

* UL gap for coherent UL MIMO is within the scope of WI for FR2 enhancement.
* We should follow the previous agreement for the further discussion in phase I.

**Decision: Approved.**

**GTW session on May 27**

**Recommended agreements:**

1. Subject to RAN plenary decision, RAN4 agrees to revise WID scope by deprioritizing gaps for TRX calibration

2. Regarding P-MPR reporting, the baseline assumption is UE who is configured with UL gap for BPS based Tx power management is mandated for P-MPR reporting. The eventual decision should be also dependent on the requirements and test.

3. Regarding EIRP/P-MPR gain for the UE configured with BPS gap, the interested companies are encouraged to provide more details in next meeting, including the side conditions where 6dB or other values can be specified,  e.g. the assumptions of UL duty cycle, UL gap overhead/configurations, peak EIRP, etc.

4. Regarding the legacy requirements and test for the UE configured with BPS gap, it has been agreed in the past meetings that UE configured with BPS gaps is subject to fulfill all existing RF requirements. It is FFS to introduce the related test cases and if UE configured with BPS gap can skip the test without gap activated if it can pass the same test with gap activated.

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

**Topic**

##### 9.4.4.1 Gap use cases and performance evaluation

**R4-2109341 UL gaps for Tx power management RF aspect**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted**.

**R4-2109657 Discussion on gap for PMPR calibration**

*Type: discussion For: Decision  
 Source: vivo*

**Decision: Noted**.

**R4-2109744 Network impact of UE FR2 UL Gap for UE Tx power enhancement**

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

**Decision: Noted**.

**R4-2109762 Discussion on UL gap for self-calibration and monitoring**

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

**Decision: Noted**.

**R4-2110033 FR2 UL gap for power management (P-MPR) and Tx calibration (peak EIRP)**

*Type: other For: (not specified)  
 Source: NTT DOCOMO INC.*

**Decision: Noted**.

**R4-2110826 R17 FR2 UL gap for coherent UL MIMO**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111151 Further consideration on UL calibration gaps**

*Type: discussion For: Decision  
 Source: Ericsson*

**Decision: Noted**.

**R4-2111383 On FR2 UL gap for coherence calibration**

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

**Decision: Noted**.

**R4-2109363 UL gaps for Tx power management RRM aspect**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted**.

**R4-2111260 Discussion on RRM impacts of UL gaps for self-calibration and monitoring**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

##### 9.4.4.2 Others

**R4-2108797 UL Gap testability and configuration aspects**

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

**Decision: Noted**.

**R4-2109745 Requirements and test cases of for P-MPR/EIRP enhancements for UE FR2 UL Gap**

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

**Decision: Noted**.

**R4-2110827 R17 FR2 UL gap for power management**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

#### 9.4.5 Support of contiguous downlink aggregated channel BW up to 1600 MHz

**Email discussion summary of [99-e][139] NR\_RF\_FR2\_req\_enh2\_Part\_3, AI 9.4.5, AI 9.4.6 –Ville Vintola**

**R4-2107665 Email discussion summary for [99-e][139]** **NR\_RF\_FR2\_req\_enh2\_Part\_3**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107949**.

**R4-2107949 Email discussion summary for [99-e][139]** **NR\_RF\_FR2\_req\_enh2\_Part\_3**

*Type: Other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on default DC location and offset signalling | Nokia | R4-2107858 | Approved (2nd round) |
| WF on CA BW classes | Xiaomi | R4-2107859 | Approved (2nd round) |
| CR for TS 38.101-2: Introduction of FR2 new CA BW classes | Qualcomm | R4-2107860 | Agreed (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2110162](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110162.zip) | CR for TS 38.101-2: Introduction of FR2 new CA BW classes | Apple | Not pursued |  |

**GTW session on May 25**

Agreement:

* The CR “CR to introduce FR2 new CA BW classes Rel-17\_v2\_after GTW May 25.docx” is endorsed.

**WF/LS/CRs for approval**

**R4-2107858 WF on default DC location and offset signalling**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

**R4-2107859 WF on CA BW classes**

*Type: other For: Approval  
 Source: Xiaomi*

**GTW session on May 25**

More discussion is needed for FGB3.

**Decision: Approved.**

##### 9.4.5.1 New FR2 CA BW classes

**R4-2109528 Considerations on new CA BW class notation**

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

**Abstract:**

In this paper, we’d like to share our views on the denotation to new CA BW classes.

**Decision: Noted**.

**R4-2110161 New FR2 CA BW classes**

*Type: other For: Approval  
 38.101-2 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Noted**.

**R4-2110162 CR for TS 38.101-2: Introduction of FR2 new CA BW classes**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0380 rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision: Not pursued**.

**R4-2107860 CR for TS 38.101-2: Introduction of FR2 new CA BW classes**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2110185 Discussion on FR2 new CA BW class denotation and definition**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**.

**R4-2111381 on FR2 CA bandwidth class**

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

**Decision: Noted.**

##### 9.4.5.2 UE Rx requirements

#### 9.4.6 DC location reporting scheme for intra-band UL CA with more than 2 CCs for both FR2 and FR1

**R4-2108798 DC location solution RAN4 aspects**

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

**Decision: Noted**.

**R4-2109004 DC location parameters for both FR1 and FR2**

*Type: other For: Approval  
 38.101-2 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted**.

**R4-2109658 Discussion on DC location of FR2 intra-band CA**

*Type: discussion For: Decision  
 Source: vivo*

**Decision: Noted**.

**R4-2110821 R17 DC reporting for more than 2CCs**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

#### 9.4.7 RRM core requirements

##### 9.4.7.1 Inter-band DL CA enhancements

##### 9.4.7.2 Inter-band UL CA for IBM capable UEs

##### 9.4.7.3 UL gaps for self-calibration and monitoring

### 9.5 NR repeater

#### 9.5.1 General

##### 9.5.1.1 System parameters

##### 9.5.1.2 Repeater Class/Type

##### 9.5.1.3 TDD repeater synchronization assumption

##### 9.5.1.4 Others

#### 9.5.2 Conductive RF core requirements

##### 9.5.2.1 Transmitted power related requirements

##### 9.5.2.2 Emission requirements

##### 9.5.2.3 Others

#### 9.5.3 Radiated RF core requirements

##### 9.5.3.1 Transmitted power related requirements

##### 9.5.3.2 Emission requirements

##### 9.5.3.3 Others

#### 9.5.4 EMC core requirements

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

#### 9.6.1 General

#### 9.6.2 BS TX RF requirements

##### 9.6.2.1 Deployment and link level simulation

##### 9.6.2.2 EVM requirements

##### 9.6.2.3 Others

#### 9.6.3 UE RX RF requirements

**Email discussion summary of [99-e][140] NR\_DL1024QAM\_FR1, AI 9.6.3 – Fredrik Sundström**

**R4-2107666 Email discussion summary for [99-e][140]** **NR\_DL1024QAM\_FR1**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted**.

**Conclusions after 2nd round**

**Sub-topic 1-2: MCS index for new RMC**

Agreement:

* Companies support suggested WF (Postpone RMC definition discussion until RMC are developed in the performance part of the Work Item.)

Email thread of [140] is closed

**Topic**

**R4-2109109 Discussion on the UE RX RF requirements for 1024QAM for NR FR1**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2109110 Draft CR for 38.101-1: Introduction of maximum input level for 1024QAM for NR FR1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.1.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

Agreement:

* Content of CR is technically endorsed.

**Decision: Noted**.

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

#### 9.7.1 General

#### 9.7.2 RRM core requirements

##### 9.7.2.1 UE RRM core requirements for CA scenario

###### 9.7.2.1.1 General

###### 9.7.2.1.2 Intra-frequency measurements

###### 9.7.2.1.3 Inter-frequency measurements

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

##### 9.7.3.1 General

##### 9.7.3.2 PDSCH requirements for CA scenarios

##### 9.7.3.3 Enhanced transmission schemes

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

#### 9.8.1 General

**Email discussion summary of [99-e][141] NR\_HST\_FR2\_enh, AI 9.8.1, AI 9.8.3 – He Wang**

**R4-2107667 Email discussion summary for [99-e][141]** **NR\_HST\_FR2\_enh**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107951**.

**R4-2107951 Email discussion summary for [99-e][141]** **NR\_HST\_FR2\_enh**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on UE RF requirement for FR2 HST | Samsung | R4-2107861 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2111282 | General TP to TR 38.854 | Nokia, Nokia Shanghai Bell | Noted | Revised to R4-2107862 |
| R4-2107862 | General TP to TR 38.854 | Nokia, Nokia Shanghai Bell | Withdrawn | Not available |

**WF/LS/CRs for approval**

**R4-2107861 WF on UE RF requirement for FR2 HST**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

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

**R4-2111282 TR for FR2 HST**

*Type: draft TR For: Endorsement  
 38.854 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2107862 TR for FR2 HST**

*Type: draft TR For: Endorsement  
 38.854 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Withdrawn.**

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

##### 9.8.2.1 Deployment Scenario-A

##### 9.8.2.2 Deployment Scenario-B

##### 9.8.2.3 Channel modeling

##### 9.8.2.4 Others

#### 9.8.3 UE RF core requirements

**R4-2109570 On FR2 HST RF Requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision: Noted**.

##### 9.8.3.1 Baseline power class and UE RF requirement

**R4-2110236 Further Discussion on UE RF requirement for FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted**.

**R4-2111128 Consideration on UE beam and pwr requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Further discussion on the need for beams and UE pwr requirements

**Decision: Noted**.

**R4-2111387 on RF requirement for NR FR2 HST**

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

**Decision: Noted**.

##### 9.8.3.2 Beam correspondence

**R4-2110237 Further Discussion on Beam Correspondence for FR2 HST UE**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted**.

**R4-2111008 UE beam correspondence for FR2 HST**

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

**Decision: Noted**

**R4-2111146 Views on Beam Correspondence requirements for FR2 HST UE**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Considerations on Beam correspondance for HST FR2 Ues

**Decision: Noted**.

##### 9.8.3.3 Others

#### 9.8.4 RRM core requirements

##### 9.8.4.1 General

##### 9.8.4.2 Number of RX beams

##### 9.8.4.3 RRM requirements impacts

#### 9.8.5 Demodulation requirements

##### 9.8.5.1 General

##### 9.8.5.2 UE demodulation requirements

##### 9.8.5.3 BS demodulation requirements

### 9.9 Further RRM enhancement for NR and MR-DC

#### 9.9.1 General

#### 9.9.2 RRM core requirements

##### 9.9.2.1 SRS antenna port switching

##### 9.9.2.2 HO with PSCell

##### 9.9.2.3 PUCCH SCell activation/deactivation

### 9.10 NR and MR-DC measurement gap enhancements

#### 9.10.1 General

#### 9.10.2 RRM core requirements

##### 9.10.2.1 Pre-configured MG pattern(s)

##### 9.10.2.2 Multiple concurrent and independent MG patterns

##### 9.10.2.3 Network Controlled Small Gap

### 9.11 Further enhancement on NR demodulation performance

#### 9.11.1 General

#### 9.11.2 UE demodulation and CSI requirements

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

##### 9.11.2.2 MMSE-IRC receiver for intra-cell inter-user interference

##### 9.11.2.3 Evaluation on CRS interference in scenarios with overlapping spectrum for LTE and NR

#### 9.11.3 BS demodulation requirements

##### 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 and work plan

##### 9.12.1.1 System parameters

##### 9.12.1.2 NTN architecture

##### 9.12.1.3 Regulatory information

##### 9.12.1.4 Others

#### 9.12.2 Coexistence aspects

##### 9.12.2.1 Coexistence scenarios and Simulation assumptions

##### 9.12.2.2 Simulation results

#### 9.12.3 RF requirements

##### 9.12.3.1 Network side requirements

##### 9.12.3.2 UE requirements

#### 9.12.4 RRM core requirements

##### 9.12.4.1 General

##### 9.12.4.2 GNSS-related requirements

##### 9.12.4.3 Timing requirements

##### 9.12.4.4 Measurement requirements

### 9.13 UE Power Saving Enhancements

#### 9.13.1 General and work plan

#### 9.13.2 UE measurements relaxation for RLM and/or BFD

### 9.14 NR Sidelink enhancement

#### 9.14.1 General and work plan

**Email discussion summary of [99-e][142] NRSL\_enh\_Part\_1, AI 9.14.1, AI 9.14.2, AI 9.14.3, AI 9.14.4, AI 9.14.7 – Suhwan Lim**

**R4-2107668 Email discussion summary for [99-e][142]** **NRSL\_enh\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107952**.

**R4-2107952 Email discussion summary for [99-e][142]** **NRSL\_enh\_Part\_1**

*Type: Other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| WF on coexistence evaluation necessity in n14 | LGE | R4-2107863 | n14 in-coverage NW scenarios | Approved (2nd round) |
| WF on Feasibility of DL frequency range in FDD band used for SL operation | vivo | R4-2107864 | DL band feasibility for SL operation in FDD band in out-of coverage | Approved (2nd round) |
| WF on remaining issues for system parameters in NRSL\_enh\_Part1 | LGE | R4-2108001 | TR38.785 structure and system parameters | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2109032](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109032.zip) | TP on UE Rx RF requirement for NR SL enhancement | CATT | Revised to R4-2107865 |  |
| R4-2107865 | TP on UE Rx RF requirement for NR SL enhancement | CATT | Approved (2nd round) | To capture Rx requirements for SL enh. |
| [R4-2109691](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109691.zip) | TP on operating bands and channel arrangement for SL enhancement | vivo | Noted |  |
| [R4-2109692](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109692.zip) | Discussion on system parameters for SL enhancement | vivo | Noted |  |
| R4-2109921 | TR38.785 v0.2.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | Agreed (2nd round) | To capture all agreeable TPs in TR38.785 |
| [R4-2110175](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110175.zip) | TP on channel bandwidth for newly introduced SL bands | CATT | Revised to R4-2107866 |  |
| R4-2107866 | TP on channel bandwidth for newly introduced SL bands | CATT | Approved (2nd round) | To add operating band and CBW for SL enh. |
| [R4-2111428](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111428.zip) | TP for 38.785: CBW for licensed band supporting NR V2X | Huawei,HiSilicon | Noted. | Contents are fine. It will be captured in CATT TP. |
| R4-2111535 | NR Sidelink in NR Band n14 and Coexistence Studies | AT&T | Revised to R4-2107867 |  |
| R4-2107867 | NR Sidelink in NR Band n14 and Coexistence Studies | AT&T | Noted | New PS scenarios in n14 |

**WF/LS/CRs for approval**

**R4-2107863 WF on coexistence evaluation necessity in n14**

*Type: other For: Approval  
 Source: LGE*

**Decision: Approved.**

**R4-2107864 WF on Feasibility of DL frequency range in FDD band used for SL operation**

*Type: other For: Approval  
 Source: vivo*

**Decision: Approved.**

**R4-2107986 WF on remaining issues for system parameters in NRSL\_enh\_Part1**

*Type: other For: Approval  
 Source: LGE*

Tdoc is assigned after GTW session to capture the agreements for remaing topics.

**GTW session on May 26**

**Issue 1-1-1: Operating bands & CBW for SL enhancement**

* Proposals
  + Option 1: All operating band & CBW can be captured in section 7. But the related RF requirements and coexistence evaluation is described in the different sections in TR38.785.
  + Option 2: same section will be used according to SL enh. operation
    - In section 5.1, PC2 V2X UE, the operating band and the related RF requirements will be captured.
    - In section 5.2, Intra-band con-current operating band and the related RF requirements will be captured
    - In section 7, SL enh operating band will be captured. Section 8 and section 9 will be captured the Tx and Rx requirements for SL enhancement.

Agreement:

* + Option 2
    - Editor can change the TR accordingly

**Issue 1-1-3: Channel raster & sync. Raster in licensed band**

* Proposals
  + Option 1: Channel raster for SL enhancement follows that for NR Uu. But, sync raster for SL enhancement follows that for NR V2X
  + Option 2: Both Channel raster & synch raster for SL enhancement follows that for NR Uu.

Agreement:

* + Option 2

**Decision:** The document was **R4-2108001**.

**R4-2108001 WF on remaining issues for system parameters in NRSL\_enh\_Part1**

*Type: other For: Approval  
 Source: LGE*

Tdoc is assigned after GTW session to capture the agreements for remaing topics.

**Decision: Approved.**

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**R4-2109691 TP on operating bands and channel arrangement for SL enhancement**

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

**Abstract:**

The operating bands for SL enhancement and system parameters is captured for the TR 38.785.

**Decision: Noted.**

**R4-2109704 Work Plan of RRM requirements for Rel-17 SL enhancement**

*Type: Work Plan For: Approval  
 Source: LG Electronics Polska*

**Abstract:**

It discusses work plan on RRM requirement for SL enhancement.

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

**R4-2109921 TR38.785 v0.2.0 TR Update for SL enhancement in Rel-17**

*Type: draft TR For: Agreement  
 38.785 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

update TR to capture the approved TPs in this meeting

It will be updated in 2nd round to capture the approved TPs

**Decision:** The document was **revised to R4-2111543**

**R4-2111543 TR38.785 v0.2.0 TR Update for SL enhancement in Rel-17**

*Type: draft TR For: Agreement  
 38.785 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

update TR to capture the approved TPs in this meeting

It will be updated in 2nd round to capture the approved TPs

**Decision: Approved.**

#### 9.14.2 Spectrum request for SL operation

**R4-2111535 NR Sidelink in NR Band n14 and Coexistence Studies**

*Type: discussion For: Approval  
 Source: AT&T*

**Decision:** The document was **revised to R4-2107867**.

**R4-2107867 NR Sidelink in NR Band n14 and Coexistence Studies**

*Type: discussion For: Approval  
 Source: AT&T, FirstNet*

**Decision: Noted.**

#### 9.14.3 System parameters (numerologies, rasters, CBW, etc)

**R4-2109692 Discussion on system parameters for SL enhancement**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2110175 TP on channel bandwidth for newly introduced SL bands**

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

**Decision:** The document was **revised to R4-2107866**.

**R4-2107866 TP on channel bandwidth for newly introduced SL bands**

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

**Decision: Approved.**

**R4-2111428 TP for 38.785: CBW for licensed band supporting NR V2X**

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

Contents are fine. It will be captured in CATT TP

**Decision: Noted.**

#### 9.14.4 UE RF requirements for NR SL enhancement

##### 9.14.4.1 TX requirements

##### 9.14.4.2 RX requirements

**R4-2109032 TP on UE Rx RF requirement for NR SL enhancement**

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

**Decision:** The document was **revised to R4-2107865**.

**R4-2107865 TP on UE Rx RF requirement for NR SL enhancement**

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

**Decision: Approved.**

#### 9.14.5 Partially used SL operation with NR Uu operating bands

**Email discussion summary of [99-e][143] NRSL\_enh\_Part\_2, AI 9.14.5 – Yuan Gao**

**R4-2107669 Email discussion summary for [99-e][143]** **NRSL\_enh\_Part\_2**

*Type: Other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107953.**

**R4-2107953 Email discussion summary for [99-e][143]** **NRSL\_enh\_Part\_2**

*Type: Other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on operating scenarios for Uu and SL operating in the same license band | CATT | R4-2107868 | Approved (2nd round) |
| WF on synchronous operation for Uu and SL operating in the same licensed band | Huawei, HiSilicon | R4-2107869 | Approved (2nd round) |
| WF on MPR for intra-band V2X con-current operation | LG Electronics | R4-2107870 | Approved (2nd round) |
| LS on synchronous operation between Uu and SL in TDD band n79 | CATT | R4-2111542 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2111542 | LS on synchronous operation between Uu and SL in TDD band n79 | CATT | Approved |
| R4-2111431 | TP for 38.785: synchronization reference source for SL enhancements | Huawei, HiSilicon | Approved |
| [R4-2109950](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109950.zip) | TP on RF requirements for intra-band con-current V2X operation in licensed band | LG Electronics | Revised to R4-2107871 |
| R4-2107871 | TP on RF requirements for intra-band con-current V2X operation in licensed band | LG Electronics | Noted |

**WF/LS/CRs for approval**

**R4-2107868 WF on operating scenarios for Uu and SL operating in the same license band**

*Type: other For: Approval  
 Source: CATT*

**Decision: Approved.**

**R4-2107869 WF on synchronous operation for Uu and SL operating in the same licensed band**

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

**GTW session on May 26**

**2-1-2: SL transmission timing**

Discussion:

Huawei: we have to send LS to RAN1 for clarification.

LGE: in RAN1 specification, they only consider NTA=0 case. They do not consider non-zero value for N\_TA. We need check RAN1 view about which one is feasible. I agree to send LS. Currently our understanding is that RAN1 spec only allows Option 4.

CATT: Support Option 2a for the time being. The situation for is the Uu and SL operate in the same band. Almost all companies recognize the advantage that SL timing is aligned with Uu uplink timing.

Ericsson: Support Option 2a. We provides analysis of pros and cons. We think this is benefit for system. And we can improve Uu system efficiency.

Xiaomi: We analyze pros and cons. Even with timing alignment there is still issue with switching period. Option 4 is OK for us. But we are OK with sending LS. The pros and cons are not fully discussed. We can further check RAn1.

Qualcomm: currently RAN1 understanding is Option 4. If we want to change we need input from RAN1.

LGE: We also provide pros and cons for DL timing cases compared to DL. There are so many benefits for DL. Other solution is to increase gap symbols. And also in n79 there is NR band only. For this scenario, the intereference problem can be solved by other solutions. RAN1 supports V2X and SL enh. This is for V2X enhancement.

Huawei: in RAN4, only is to align with RAN1 agreement. But RAN1 agreement is based on the assumption that PC5 is on ITS band only. We need consider different scenario. For optons to align timing with uplink, we need select one for RAN1. We still have no consensus whether to use different timing. We need to know if there is feasibility to change RAN1 spec. We can work in RAN4 in parallel for other solutions.

Ericsson: We need for option 2a. We remove the same carrier compared to option 2. In RAN1 current spec, for the same carrier of UL and Uu, the same timing is used. This conflicts with Option 4. In RAN1 they allow UL timing but only for same carrier case. We see the benefit to extend uplink timing.

LGE: We understand Ericsson and Huawei have different interpretation. RAN1 considers both incoverage and ITS. They consider in-coverage and then it means RAN1 consider the con-current scenario.

Xiaomi: we do not see any agreement to align uplink timing from RAN1 spec.

**Issue 2-3-1: LS on SL timing**

Agreement:

* + Send LS to RAN1 to check their understanding about the timing issues

**Decision: Approved.**

**R4-2109036 LS on synchronous operation between Uu and SL in TDD band n79**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**GTW session on May 26**

**Agreement:**

* + Capture option 2/2a and option 4 in the LS.
  + Keep n79 as an example

**Decision:** The document was **revised to R4-2107987**.

**R4-2107987 LS on synchronous operation between Uu and SL in TDD band n79**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision:** The document was **revised to R4-2111542**.

**R4-2111542 LS on synchronous operation between Uu and SL in TDD band n79**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision: Approved.**

**R4-2107870 WF on MPR for intra-band V2X con-current operation**

*Type: other For: Approval  
 Source: LGE*

**Decision: Approved.**

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**R4-2109947 RF requirements for partial used licensed band bewteen NR Uu and NR SL operation**

*Type: other For: Approval  
 Source: LG Electronics France*

**Abstract:**

provide detail RF requirements for intra-band con-current V2X operation

**Decision: Noted.**

**R4-2109950 TP on RF requirements for intra-band con-current V2X operation in licensed band**

*Type: pCR For: Approval  
 38.785 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

TP to capture the detail RF requirements in TR38.785 in Rel-17

**Decision:** The document was **revised to R4-2107871**.

**R4-2107871 TP on RF requirements for intra-band con-current V2X operation in licensed band**

*Type: pCR For: Approval  
 38.785 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

TP to capture the detail RF requirements in TR38.785 in Rel-17

**Decision: Noted.**

**R4-2110025 on full half duplex and TDM FDM operation scenario for intra-band con-current operation**

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

**Decision: Noted**.

##### 9.14.5.1 FDM operation

**R4-2109034 Discussion on FDM operation between SL and Uu**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2110024 on FDM intra-band concurrent operation**

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

**Decision: Noted**.

**R4-2111187 FDM operation for partially used SL operation in licensed band**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the FDM operation remaining issues

**Decision: Noted**.

##### 9.14.5.2 TDM operation

**R4-2109033 Discussion on TDM operation between SL and Uu**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2110028 on TDM intra-band concurrent operation**

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

**Decision: Noted**.

##### 9.14.5.3 Synchronous operation between NR Uu and NR SL in a TDD band

**R4-2109035 Discussion on synchronous operation between SL and Uu**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2109380 Timing reference for NR SL on SL enhancements**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Reference timing for NR SL is discussed

**Decision: Noted**.

**R4-2109693 Further discussion on synchronization issues for intra-band V2X operation**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110026 on SL transmission timing**

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

**Decision: Noted**.

**R4-2110834 R17 SL transmission timing**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111189 SL UE synchronization issue for licensed operation**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on synchronization issue in licensed band operation

**Decision: Noted**.

**R4-2111429 Further consideration on SL timing alignment**

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

**Decision: Noted**.

##### 9.14.5.4 Others

**R4-2109702 MPR for NR V2X intra-band con-current operation with Uu**

*Type: discussion For: Discussion  
 Source: LG Electronics Polska*

**Abstract:**

It discusses MPR for NR V2X intra-band con-current operation with Uu based on simulation results.

**Decision: Noted**.

**R4-2111430 On synchronization reference source**

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

**Decision: Noted.**

**R4-2111431 TP for 38.785: synchronization reference source for SL enhancements**

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

**Decision: Approved**.

#### 9.14.6 High power UE(PC2) for SL

**Email discussion summary of [99-e][144] NRSL\_enh\_Part\_3, AI 9.14.6 – Ye Liu**

**R4-2107670 Email discussion summary for [99-e][144]** **NRSL\_enh\_Part\_3**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107954.**.

**R4-2107954 Email discussion summary for [99-e][144]** **NRSL\_enh\_Part\_3**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on PC2 NR V2X | Huawei, HiSilicon | R4-2107872 | Approved (2nd round) |
| WF on MPR/A-MPR for PC2 NR V2X | LG Electronics | R4-2107873 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| [R4-2109694](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109694.zip) | Further discussion on PC2 NR V2X | vivo | Noted |  |
| [R4-2109695](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109695.zip) | TP on coexistence evaluation for PC2 SL UE in licensed band n38 | vivo | Revised to R4-2107874 | Conclusion part is not considered in this meeting. Other parts depend on 2nd round discussion |
| R4-2107874 | TP on coexistence evaluation for PC2 SL UE in licensed band n38 | vivo | Endorsed (2nd round) |  |
| [R4-2110022](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110022.zip) | further discussion on HPUE signalling issue | Xiaomi | Noted |  |
| [R4-2110398](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110398.zip) | Discussion on n47 PC2 MPR simulation results | Huawei, HiSilicon | Noted |  |
| [R4-2110399](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110399.zip) | Discussion on n47 PC2 AMPR simulation results | Huawei, HiSilicon | Noted |  |
| [R4-2110833](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110833.zip) | R17 SL PC2 | OPPO | Noted |  |
| [R4-211118](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111187.zip)8 | Co-channel co-existence between SL and Uu | Ericsson | Noted |  |
| [R4-2111432](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111432.zip) | CR for TS 38.101-1 update configured transmitted power for V2X (R16) | Huawei, HiSilicon | Revised to R4-2107875 |  |
| R4-2107875 | CR for TS 38.101-1 update configured transmitted power for V2X (R16) | Huawei, HiSilicon | Agreed (2nd round) |  |
| R4-2111433 | CR for TS 38.101-1 update configured transmitted power for V2X (R17) | Huawei, HiSilicon | Agreed | CAT-A CR, not treated yet |
| [R4-2111434](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111434.zip) | Consideration on co-existence study for n38 (SL) and adjacent band n7 (Uu) | Huawei, HiSilicon | Noted |  |
| [R4-2111435](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111435.zip) | Consideration on specific HPUE power class capability for NR V2X | Huawei, HiSilicon | Noted |  |
| [R4-2111436](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111436.zip) | draft LS on new power class 2 capability for NR-V2X | Huawei, HiSilicon | Noted (2nd round) |  |

**WF/LS/CRs for approval**

**R4-2107872 WF on PC2 NR V2X**

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

**Decision: Approved.**

**R4-2107873 WF on MPR/A-MPR for PC2 NR V2X**

*Type: other For: Approval  
 Source: LGE*

**Decision: Approved.**

##### 9.14.6.1 TX requirements

**R4-2109037 Discussion on HPUE for NR SL enhancement**

*Type: other For: Approval  
 Source: CATT*

**Decision: Withdrawn**.

**R4-2110398 Discussion on n47 PC2 MPR simulation results**

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

**Decision: Noted**.

**R4-2111432 CR for TS 38.101-1 update configured transmitted power for V2X (R16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0863 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision:** The document was **revised to R4-2107875**.

**R4-2107875 CR for TS 38.101-1 update configured transmitted power for V2X (R16)**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0863 rev Cat: F (Rel-16)  
  
 Source: Huawei,HiSilicon*

**Decision: Agreed.**

**R4-2111433 CR for TS 38.101-1 update configured transmitted power for V2X (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0864 rev Cat: A (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Agreed.**

##### 9.14.6.2 Coexistence study

**R4-2109695 TP on coexistence evaluation for PC2 SL UE in licensed band n38**

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

**Abstract:**

In this text proposal, the coexistence evaluation for PC2 SL UE in licensed band n38 is captured for the TR 38.785.

**Decision:** The document was **revised to R4-2107874**.

**R4-2107874 TP on coexistence evaluation for PC2 SL UE in licensed band n38**

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

**Abstract:**

In this text proposal, the coexistence evaluation for PC2 SL UE in licensed band n38 is captured for the TR 38.785.

**Decision: Endorsed.**

**R4-2111188 Co-channel co-existence between SL and Uu**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our views on PC2 V2X UE in n38 from the regulatory/co-existence aspect

**Decision: Noted**.

**R4-2111434 Consideration on co-existence study for n38 (SL) and adjacent band n7 (Uu)**

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

**Decision: Noted**.

##### 9.14.6.3 Others

**R4-2109694 Further discussion on PC2 NR V2X**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110022 further discussion on HPUE signalling issue**

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

**Decision: Noted**.

**R4-2110399 Discussion on n47 PC2 AMPR simulation results**

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

**Decision: Noted**.

**R4-2110833 R17 SL PC2**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2111435 Consideration on specific HPUE power class capability for NR V2X**

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

**Decision: Noted**.

**R4-2111436 draft LS on new power class 2 capability for NR-V2X**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

#### 9.14.7 Other RF/general requirements for New SL enhancement

#### 9.14.8 RRM core requirements

### 9.15 Extending current NR operation to 71GHz

#### 9.15.1 General and work plan

**Email discussion summary of [99-e][145] NR\_ext\_to\_71GHz\_Part\_1, AI 9.15.1, AI 9.15.2, AI 9.15.3, AI 9.15.7 – Jiwoo Kim**

**R4-2107671 Email discussion summary for [99-e][145]** **NR\_ext\_to\_71GHz\_Part\_1**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-210755**.

**R4-2107955 Email discussion summary for [99-e][145]** **NR\_ext\_to\_71GHz\_Part\_1**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on [145] NR\_ext\_to\_71GHz\_Part1 | Intel | R4-2107997 | Approved (2nd round) |
| Reply LS on the maximum channel bandwidth and channelization for NR operation in 52.6 to 71 GHz | Intel | R4-2107877 | Withdrawn |
| LS on UE OTA test method in 52.6 – 71 GHz | Apple | R4-2107878 | Approved (2nd round) |
| LS on FR definition on 52.6 – 71 GHz | Huawei | R4-2107879 | Approved (2nd round) |

**WF/LS/CRs for approval**

**R4-2107876 WF on [145] NR\_ext\_to\_71GHz\_Part1**

*Type: other For: Approval  
 Source: Intel*

**GTW session on May 26**

**FR definition in 60 GHz (1)**

* Options:
  + Option 1: Introduce FR2-1 (24.25 – 52.6 GHz) and FR2-2 (52.6 – 71 GHz) (Apple, Intel, Huawei, Charter, LG)
    - Use the unique term FR2 to cover FR2-1 and FR2-2
    - Within option 1, indicate on the preferred approach:
      * “FR2-1 and FR2-2” (Apple, Intel), or
      * “FR2.1 and FR2.2” (Huawei)
  + Option 2: Introduce FR2-2 (52.6 – 71 GHz) in addition to FR2 (24.25 – 52.6 GHz) (Intel, ZTE, MediaTek, Qualcomm)
  + Option 4: Ericsson, Charter, CMCC, Samsung, AT&T
    - All UE RF/demod requirements defined as function of band, BW, PC or band combo within FR2;
    - BS requirements can be updated to cater for an extension of FR2 to include 52.6 – 71 GHz;
    - All RRM requirements for higher SCS applicable for 52.6 – 71 GHz can be defined as function of SCS within FR2;
  + Option 5: Nokia, R&S, MediaTek
    - Keep FR2 definition as it is
    - Introduce FR2x (52.6 – 71 GHz) and FR2-comb (24.25 – 71 GHz)

Agreement:

* RAN4 agrees FR3 is not required and for BS operating in 52.6 – 71 GHz current terminology like BS type 2-O can be re-used

Agreement:

* RAN4 should further discuss the issue based on concepts of Option 1, Option 2/5 and Option 4.

**Decision:** The document was **revised to R4-2107997**.

**R4-2107997 WF on [145] NR\_ext\_to\_71GHz\_Part1**

*Type: other For: Approval  
 Source: Intel*

**Decision: Approved.**

**R4-2107877 Reply LS on the maximum channel bandwidth and channelization for NR operation in 52.6 to 71 GHz**

*Type: LS Out For: Approval  
 Source: Intel*

**Decision: Withdrawn.**

**R4-2107878 LS on UE OTA test method in 52.6 – 71 GHz**

*Type: LS Out For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2107879 LS on FR definition on 52.6 – 71 GHz**

*Type: LS Out For: Approval  
 Source: Huawei*

**Decision: Approved.**

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**R4-2109383 Proposals on coexistence simulation for extending current NR operation to 71 GHz**

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

**Abstract:**

This contribution provides some preliminary simulation results based on the proposed assumptions and parameters and provides some proposals on coexistence simulation for extending current NR operation to 71.

**Decision: Noted**.

**R4-2109474 60 GHz UE switching times**

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

**Abstract:**

Discussion of UE switching times and response LS to RAN1

**Decision: Noted**.

**R4-2109697 Further discussion on channel bandwidths and corresponding spectrum utilization for B52.6GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110950 NR 52.6 -71 GHz workplan (RRM)**

*Type: Work Plan For: Approval  
 Source: Intel Corporation*

**Decision: Noted**.

**R4-2111057 Further discussion on the FR2-extension vs. FR3 introduction for NR operation in 52.6 - 71 GHz range**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we continue the discussion on RAN4 aspects related to the 60 GHz frequency range designator, providing analysis and recommendations. Based on the discussion, it is also proposed to provide RAN4 feedback and recommendation to RAN. Rela

**Decision: Noted**.

**R4-2111152 Further consideration on extension of FR2 or new Frequency Range (FR3) to introduce 52.6-71 GHz**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

Discussions and example of extending FR2

**Decision: Noted**.

**R4-2111510 UE OTA test methods for 52.6 to 71 GHz frequency range**

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

**Decision: Noted**.

#### 9.15.2 Band plans and regulatory requirements

**R4-2109433 Overview of the regulatory parameters the 52.6 GHz to 71 GHz frequency range**

*Type: discussion For: Information  
 Source: Apple*

**Decision: Noted**.

**R4-2109696 Further discussion on band plan for B52.6GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110684 Bandplan for a NR band in the range 52.6GHz – 71GHz**

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

**Decision: Noted**.

**R4-2111058 Analysis of the exemplary new band introduction to TS 38.104 specification**

*Type: discussion For: Discussion  
 Source: Huawei*

**Abstract:**

In this contribution we provide an analysis of the exemplary new band introduction to TS 38.104 specification, in order to highlight the arising issues due to differences in the system parameters for FR2 bands below/above 52.6 GHz. Related Draft CR to TS

**Decision: Noted**.

**R4-2111059 Draft CR to TS 38.104: exemplary implementation of new bands with FR2.1 and FR2.2 frequency ranges**

*Type: draftCR For: Endorsement  
 38.104 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Abstract:**

This Draft CR is provided as to show the implemenation of the proposed solution for the 52.6-71GHz range inclusion into the FR2. It is based on the proposal of two new frequency sub-ranges to be defined for FR2: FR2.1 and FR2.2.

**Decision: Noted**.

#### 9.15.3 System parameters (numerologies, rasters, CBW, etc)

**R4-2109014 Discussion on the system parameters for 52.6-71 GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2109325 System parameters for NR operation in 52.6GHz - 71GHz**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted**.

**R4-2109475 60 GHz channel bandwidths, raster, and carrier aggregation**

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

**Abstract:**

Discuss what channel bandwidths to support for different SCS and what to support for intraband contiguous carrier aggregation. Discuss raster choice to coexist with 802.11 ad/ay

**Decision: Noted**.

**R4-2109479 On system parameters for NR in 52.6GHz ~ 71GHz**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted**.

**R4-2109698 Further discussion on channel raster and sync raster for B52.6GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110001 View on Maximum Channel Bandwidth for 960kHz SCS**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Noted**.

**R4-2110023 on channelization for licensed and un-licensed band**

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

**Decision: Noted**.

**R4-2110171 On system parameters in 60 GHz NR**

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

**Decision: Noted**.

**R4-2110483 52.6-71 GHz System Parameters**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

The focus of this contribution is to provide analysis on impacts of the agree bandwidths on, channel raster and spectrum utilization selections.

**Decision: Noted**.

**R4-2110600 Discussion on system parameters for 52.6-71GHz**

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

**Decision: Noted**.

**R4-2110685 System parameters for a NR band in the range 52.6GHz – 71GHz**

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

**Decision: Noted**.

**R4-2110992 Discussion maximum bandwidth for NR 52.6 to 71 GHz**

*Type: discussion For: (not specified)  
 Source: LG Electronics Finland*

**Decision: Noted**.

**R4-2111170 Channelization aspects for 57-71GHz unlicensed band**

*Type: discussion For: Decision  
 Source: MediaTek Inc.*

**Abstract:**

This document provides some views and analysis to progress the channelization details for the 57-71GHz frequency range.

**Decision: Noted**.

#### 9.15.4 UE RF requirements

**Email discussion summary of [99-e][146] NR\_ext\_to\_71GHz\_Part\_2, AI 9.15.4 + co-existence study –Phil Coan**

**R4-2107672 Email discussion summary for [99-e][146]** **NR\_ext\_to\_71GHz\_Part\_2**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107956**.

**R4-2107956 Email discussion summary for [99-e][146]** **NR\_ext\_to\_71GHz\_Part\_2**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on 60 GHz coexistence, ACLR, and ACS | Qualcomm | R4-2107915 | Approved (2nd round) |
| LS on maximum UE EIRP and conducted power | Intel | R4-2107950 | Approved (2nd round) |
| WF on 60 GHz Time-related issues | Apple | R4-2107972 | Approved (2nd round) |
| LS on 60 GHz Time-related issues | Apple | R4-2107985 | Approved (2nd round) |
| WF on 60 GHz UE TX requirements | Intel | R4-2107973 | Approved (2nd round) |

**GTW session on May 26**

**Topic 2: [146] NR\_ext\_to\_71GHz\_Part2: Sub-topic #2.2.1 RX requirements**

* Agreement
  + The framework of FR2 UE Rx requirements can be reused, i.e., REFSENS, spherical coverage EIS, maximum input level, ACS, and in-band blocking are considered as baseline Rx requirements. The maximum DL modulation order can be further discussed.

**WF/LS/CRs for approval**

**R4-2107915 WF on 60 GHz coexistence, ACLR, and ACS**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2107950 LS on maximum UE EIRP and conducted power**

*Type: LS Out For: Approval  
 Source: Intel*

**Decision: Approved.**

**R4-2107972 WF on 60 GHz Time-related issues**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2107985 LS on 60 GHz Time-related issues**

*Type: LS out For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2107973 WF on 60 GHz UE TX requirements**

*Type: LS Out For: Approval  
 Source: Intel*

**GTW session on May 26**

**Tx Power classes for spec**

* Proposal 1: to adopt the maximum EIRP/TRP and PSD in ETSI EN 303 753 for UE power class definition in unlicensed operation;
* Proposal 2: to start with maximum TRP/EIRP in the existing TS 38.101-2 PC3 for UE power class definition in licensed operation;
* Proposal 3: For an unlicensed NR band adopt the power limits given in Table 2 as a baseline (R4-2110686)
* Proposal 4: Further discuss which, if any, of the existing power classes in 38.101-2 can be reused for an unlicensed NR band or a new power class is needed. As basis for power class definition, it is beneficial to discuss what are representative antenna array sizes in this frequency range.
* Proposal 5: Postpone discussing RF output limits for a licensed band until spectrum and regulations becomes available

Agreement: Proposal 4

**UE types**

Agreement

* + Consider handheld, FWA and vehicular type of UE
  + Other UE types are not precluded
  + The discussion can happen in parallel

**Maximum UL modulation order**

Agreement:

* Higher order modulation would result in challenging RF requirement, i.e., ACLR, due to RF impairments in 60 GHz, and RAN4 needs to consider a reduced max UL modulation order compared to FR2
  + To decide the max UL modulation order, companies are encouraged to study the following:
    - MPR analysis for different modulation schemes
    - Link level performance comparison of achievable throughput for different modulation schemes for high SNR region
  + Optionality of 64 QAM is FFS, depending on the outcome of the above study

**Decision: Approved.**

##### 9.15.4.1 TX requirements

**R4-2109011 Views on UE Array and EIRP level at 60 GHz**

*Type: other For: Discussion  
 Source: Sony*

**Decision: Noted**.

**R4-2109015 Co-existence simulation assumptions and some simulation results**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted**.

**R4-2109446 On UE RF requirements for NR in the 52.6 - 71 GHz frequency range**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted**.

**R4-2109476 60GHz UE TX emissions and EIRP**

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

**Abstract:**

Compare EU mask with ACLR and discuss Typical EIRP for smartphone UE

**Decision: Noted**.

**R4-2109981 On UE TX requirements for operations up to 71 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we consider the UE power capability, unwanted emissions and spectrum utilization for operations in 57-71 GHz.

**Decision: Noted**.

**R4-2110030 on UE TX requirement and regulation requirement**

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

**Decision: Noted**.

**R4-2110172 On UE TX requirements in 60 GHz NR**

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

**Decision: Noted**.

**R4-2110604 Discussion on UE power class for 60GHz**

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

**Decision: Noted**.

**R4-2110686 On UE Tx RF aspects for a NR band in the range 52.6GHz – 71GHz**

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

**Decision: Noted**.

**R4-2110828 Reply LS of max UE conducted power and max UE EIRP for operation in the 52.6 – 71 GHz band**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**R4-2110960 Discussion on maximum conducted and radiated output power**

*Type: discussion For: (not specified)  
 Source: LG Electronics Finland*

**Abstract:**

RAN1 has sent an LS to RAN4 [1], where RAN1 is asking RAN4 to provide more information on conducted and radiated power foreseen to be used within the 52.6 to 71 GHz frequency range.

This contribution provides information for the response LS to RAN1.

**Decision: Noted**.

**R4-2110977 Discussion on maximum conducted and radiated output power**

*Type: discussion For: (not specified)  
 Source: LG Electronics Finland*

**Decision: Noted**.

**R4-2111352 on 60GHz UE Tx RF requirements**

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

**Decision: Noted**.

**R4-2111379 on beam switching for 60GHz Band**

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

**Decision: Noted**.

##### 9.15.4.2 RX requirements

**R4-2110687 On UE Rx RF aspects for a NR band in the range 52.6GHz – 71GHz**

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

**Decision: Noted**.

#### 9.15.5 BS RF requirements

##### 9.15.5.1 TX requirements

##### 9.15.5.2 RX requirements

#### 9.15.6 RRM core requirements

#### 9.15.7 Others

**R4-2108786 Discussions on system simulations and results for 60GHz**

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

**Decision: Noted**.

**R4-2109375 On frequency range definition between 52.6GHz and 71GHz**

*Type: discussion For: Agreement  
 Source: Apple*

**Decision: Noted**.

**R4-2109445 Testability aspects for the 52.6 GHz to 71 GHz frequency range**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**R4-2109835 On frequency range definition for 52.6 - 71 GHz**

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

**Decision: Noted**.

**R4-2109874 Draft LS to RAN1 on beam switching gap for the frequency range 52 to 71 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we present some background information for beam switching time relevant for the frequency range 52 to 71 GHz. At the end of the contribution a draft LS is attached for discussion.

**Decision: Noted**.

**R4-2110173 On frequency range definition for 60 GHz NR**

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

**Decision: Noted**.

**R4-2110484 On 52.6 to 71 GHz maximum channel bandwidth for 960 kHz, draft LS to RAN1**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

There is a need to conclude the maximum channel bandwidth for 960 kHz SCS and to send feedback to RAN1. In this contribution the discussion and analysis is given with draft LS reply.

**Decision: Noted**.

**R4-2110603 Discussion on frequency range definition for 52.6-71GHz**

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

**Decision: Noted**.

**R4-2110605 Discussion on switching delay for 52.6-71GHz**

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

**Decision: Noted**.

**R4-2111060 Draft LS to RAN: RAN4 recommendation for the 52.6 - 71 GHz frequency range designation**

*Type: LS out For: Approval  
 to 3GPP TSG RAN, cc 3GPP RAN WG1, 3GPP RAN WG2, 3GPP RAN WG5  
 Source: Huawei*

**Abstract:**

Draft LS to RAN, providing RAN4 recommendation on the 52.6 - 71 GHz frequency range designation.

**Decision: Noted**.

### 9.16 Enhancements to Integrated Access and Backhaul (IAB) for NR

#### 9.16.1 General and work plan

#### 9.16.2 RF requirements

#### 9.16.3 RRM core requirements

#### 9.16.4 Others

### 9.17 NR coverage enhancements

**Email discussion summary of [99-e][147] NR\_cov\_enh, AI 9.17 – Shan Yang**

**R4-2107673 Email discussion summary for [99-e][147]** **NR\_cov\_enh**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107957**.

**R4-2107957 Email discussion summary for [99-e][147]** **NR\_cov\_enh**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| Reply LS on PUCCH and PUSCH repetition | Qualcomm Incorporated | R4-2107880 | Approved (2nd round) |
| WF on phase continuity and power consistency for PUCCH and PUSCH repetition | Huawei, HiSilicon | R4-2107881 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2108800 | Phase continuity with the other channels in the gap | Qualcomm Incorporated | Noted |
| R4-2109012 | Views on phase continuity and power consistency for PUSCH and PUCCH repetition | Sony | Noted |
| R4-2109263 | Further discussion on phase continuity for LS reply | InterDigital Communications | Noted |
| R4-2109581 | On phase continuity and power consistency for PUCCH and PUSCH repetition | China Telecom | Noted |
| R4-2109743 | Phase continuity and power consistency for PUSCH and PUCCH repetition | Nokia, Nokia Shanghai Bell | Noted |
| R4-2110611 | Discussion on reply LS on NR coverage enhancement | ZTE Corporation | Noted |
| R4-2110612 | Discussion on phase discontinuity and power inconsistency tolerance across different repetitions | ZTE Corporation | Noted |
| R4-2111156 | Further analysis on PUSCH/PUCCH repetition impacts | MediaTek Inc. | Noted |
| R4-2111194 | Reply LS to RAN1 latest question on phase discontinuity | Ericsson | Noted |
| R4-2111195 | Simulation assumption for phase tolerance for PUSCH PUCCH repeition | Ericsson | Noted |
| R4-2111385 | on phase continuty for multiple transmissions | Huawei, HiSilicon | Noted |
| R4-2111386 | simulation assumption for phase tolerance Cov\_enh | Huawei, HiSilicon | Noted |

**WF/LS/CRs for approval**

**R4-2107880 Reply LS on PUCCH and PUSCH repetition**

*Type: LS out For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2107881 WF on phase continuity and power consistency for PUCCH and PUSCH repetition**

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

Agreement: For feasibility study of phase continuity, the impact of CFO will be further studied.

**Decision: Approved**

#### 9.17.1 General and work plan for RF core requirements

**R4-2111194 Reply LS to RAN1 latest question on phase discontinuity**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

In this paper, the questions in by RAN1 LS is discussed and proposal of LS is followed

**Decision: Noted**.

#### 9.17.2 Phase continuity and power consistency for PUSCH and PUCCH repetition

**R4-2108800 Phase continuity with the other channels in the gap**

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

**Decision: Noted**.

**R4-2109012 Views on phase continuity and power consistency for PUSCH and PUCCH repetition**

*Type: other For: Discussion  
 Source: Sony*

**Decision: Noted**.

**R4-2109263 Further discussion on phase continuity for LS reply**

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

**Abstract:**

In this contribution we are discussing the new questions asked by RAN1 and suggest answers.

**Decision: Noted**.

**R4-2109581 On phase continuity and power consistency for PUCCH and PUSCH repetition**

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

**Decision: Noted**.

**R4-2109743 Phase continuity and power consistency for PUSCH and PUCCH repetition**

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

**Decision: Noted**.

**R4-2110611 Discussion on reply LS on NR coverage enhancement**

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

**Decision: Noted**.

**R4-2110612 Discussion on phase discontinuity and power inconsistency tolerance across different repetitions**

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

**Decision: Noted.**

**R4-2111156 Further analysis on PUSCH/PUCCH repetition impacts**

*Type: discussion For: Decision  
 Source: MediaTek Inc.*

**Abstract:**

Further analysis on PUSCH/PUCCH repetition impacts.

**Decision: Noted**.

**R4-2111195 Simulation assumption for phase tolerance for PUSCH PUCCH repeition**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

in this paper, the simulation assumption for LLS for phase discontinuity tolerance is proposed

**Decision: Noted**.

**R4-2111385 on phase continuty for multiple transmissions**

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

**Decision: Noted**.

**R4-2111386 simulation assumption for phase tolerance Cov\_enh**

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

**Decision: Noted**.

### 9.18 Rel-17 enhancements on MIMO for NR

#### 9.18.1 General and work plan for RF core requirements

**Email discussion summary of [99-e][148] NR\_feMIMO, AI 9.18.1 – Xutao Zhou**

**R4-2107674 Email discussion summary for [99-e][148]** **NR\_feMIMO**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107958**.

**R4-2107958 Email discussion summary for [99-e][148]** **NR\_feMIMO**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Return to.**.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on impact to RF requirements for FeMIMO | Samsung | R4-2107882 | Approved (2nd round) |

**WF/LS/CRs for approval**

**R4-2107882 WF on impact to RF requirements for FeMIMO**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

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**R4-2109681 Initial analysis on Enhancements on MIMO for NR RF requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2109836 Impact to RF requirements for further enhancements on MIMO**

*Type: discussion For: Approval  
 Source: Samsung*

**Abstract:**

Initial analysis on impac to RF requirements and work plan

**Decision: Noted.**

#### 9.18.2 General and work plan for RRM core requirements

### 9.19 Support of reduced capability NR devices

**Email discussion summary of [99-e][149] NR\_RedCap, AI 9.19, AI 9.19.1 –Dominique Evereare**

**R4-2107675 Email discussion summary for [99-e][149] NR\_RedCap**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107959**

**R4-2107959 Email discussion summary for [99-e][149] NR\_RedCap**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on RedCap | Ericsson | R4-2108005 | Approved (2nd round) |
| WF on clarification RedCap WI scope including SUL support | Huawei | R4-2107884 | Noted (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| [R4-2109675](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109675.zip) | General views on Redcap UE RF requirements | vivo | noted |  |
| [R4-2109747](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109747.zip) | On the scope of work on RF core requirements Redcap | Nokia, Nokia Shanghai Bell | noted |  |
| [R4-2109879](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109879.zip) | Draft Reply LS on Half-duplex FDD switching time for RedCap UE | Huawei, HiSilicon | Noted |  |
| [R4-2109880](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109880.zip) | General discussion for RedCap UE | Huawei, HiSilicon | Noted |  |
| [R4-2111196](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111196.zip) | RAN4 RF WI work plan for RedCap | Ericsson | Noted | To be revised for next meeting |
| [R4-2111197](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111197.zip) | RF impact analysis on R17 RedCap | Ericsson | Noted |  |
| [R4-2111198](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111198.zip) | Reply LS to Half-duplex FDD switching for RedCap UE | Ericsson | Noted |  |
| [R4-2111424](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111424.zip) | RedCap RF Issues | Qualcomm Incorporated | Noted |  |
| [R4-2109683](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109683.zip) | Discussion and reply LS on Half-duplex FDD switching time for RedCap UE | vivo | Noted |  |

**WF/LS/CRs for approval**

**R4-2107883 WF on RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Decision:** The document was **revised to R4-2108005.**

**R4-2108005 WF on RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**R4-2107884 WF on clarification RedCap WI scope including SUL support**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Noted.**

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**R4-2109879 Draft Reply LS on Half-duplex FDD switching time for RedCap UE**

*Type: LS out For: Approval  
 to RAN1  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

#### 9.19.1 General and work plan for RF core requirements

**R4-2109675 General views on Redcap UE RF requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted**.

**R4-2109747 On the scope of work on RF core requirements Redcap**

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

**Decision: Noted**.

**R4-2109880 General discussion for RedCap UE**

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

**Decision: Noted**

**R4-2111196 RAN4 RF WI work plan for RedCap**

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

**Abstract:**

the work plan for RedCap for RF work is proposed

**Decision: Noted**.

**R4-2111197 RF impact analysis on R17 RedCap**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

in this paper, the RF impact is proposed for RedCap Work

**Decision: Noted**.

**R4-2111198 Reply LS to Half-duplex FDD switching for RedCap UE**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

In this paper, the questions in by RAN1 is discussed and proposal of LS is followed

**Decision: Noted**.

**R4-2111424 RedCap RF Issues**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Abstract:**

Discuss plan/proposal for guard times and REFSENS and others

**Decision: Noted**.

**R4-2109683 Discussion and reply LS on Half-duplex FDD switching time for RedCap UE**

*Type: LS out For: Discussion  
 to RAN1  
 Source: vivo*

**Decision: Noted.**

#### 9.19.2 General and work plan for RRM core requirements

### 9.20 Positioning enhancements for NR

#### 9.20.1 General and work plan for RRM core requirements

### 9.21 Multi-Radio Dual-Connectivity enhancements

#### 9.21.1 General and work plan for RRM core requirements

### 9.22 Enhanced IIoT and URLLC support

#### 9.22.1 General and work plan for RRM core requirements

## 10 Rel-17 Study Items for NR

### 10.1 Study on enhanced test methods for FR2 in NR

#### 10.1.1 General

#### 10.1.2 Test methodology for high DL power and low UL power test cases

#### 10.1.3 Polarization basis mismatch

#### 10.1.4 Enhanced test methods for inter-band (FR2+FR2) CA

#### 10.1.5 Extreme temperature conditions

#### 10.1.6 Test time reduction

#### 10.1.7 Extension of frequency applicability of permitted methods in 38.810 for band n262

### 10.2 Study on Efficient utilization of licensed spectrum that is not aligned with existing NR channel bandwidths

**Email discussion summary of [99-e][150] FS\_NR\_eff\_BW\_util, AI 10.2 – Esther Sienkiewicz**

**R4-2107676 Email discussion summary for [99-e][150]** **FS\_NR\_eff\_BW\_util**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107960**.

**R4-2107960 Email discussion summary for [99-e][150]** **FS\_NR\_eff\_BW\_util**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**.

**GTW session on May 20th:**

**Issue 2-2: irregularBW in UL**

* Agreement
  + For all the potential approaches, to support UL for irregularBW from UE perspective needs further discussion in future release,
  + For widerCHBW approach, to support irregular CBW for DL only the following discussions are needed
    - Need further discussion on support of asymmetric bandwidths
    - Need further discussion on support of TX-RX separation

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2108021 | TP on the use of overlapping channel bandwidths from UE perspective | Nokia, | Approved |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2110487 | Updated draft TR 38.844 after RAN4#98bis-e | Ericsson | Approve |  |
| R4-2111148 | Draft TP to TR38.844 on wider channel BW method | Ericsson | Revised to R4-2107885 | Aim to capture any agreeable high level aspects of approach into TR |
| R4-2107885 | Draft TP to TR38.844 on wider channel BW method | Ericsson | Revised to R4-2108022 | Proposed Clause 6.1 Only. |
| R4-2108022 | Draft TP to TR38.844 on wider channel BW method | Ericsson | Approved |  |
| R4-2109435 | TP on using next larger channel bandwidth solution | Apple | Noted. | Content to be merged into Revision of R4-2111148 |
| R4-2111219 | On the use of overlapping channel bandwidths from UE perspective | Nokia, Nokia Shanghai Bell | Revised to R4-2107886 | Aim to capture any agreeable high level aspects of approach into TR |
| R4-2107886 | On the use of overlapping channel bandwidths from UE perspective | Nokia, Nokia Shanghai Bell |  | Proposed Clause 6.2 Only |
| R4-2109436 | TP on using overlapping channels from the network perspective solution | Apple, Ericsson, Skyworks Solutions Inc. | Revised to R4-2107887 | Aim to capture any agreeable high level aspects of approach into TR |
| R4-2107887 | TP on using overlapping channels from the network perspective solution | Apple, Ericsson, Skyworks Solutions Inc. |  | Proposed Clause 6.2.1 Only |

**WF/LS/CRs for approval**

**R4-2108015 LS on specification impact for methods on efficient utilization of licensed spectrum that is not aligned with existing NR channel bandwidths**

*Type: LS out For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

*Nokia: no sending LS in this meeting will impact the completion of this SI.*

**Decision: Noted**.

#### 10.2.1 General and work plan

**R4-2110487 Updated draft TR 38.844**

*Type: draft TR For: Agreement  
 38.844 v0.0.3 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

update after RAN4#98bis-e

**Decision: Approved**.

#### 10.2.2 Evaluation of use of larger channel bandwidths than operator licensed bandwidth

**R4-2109427 On the use of intermediate wider channel bandwidth**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**

**R4-2110661 Evaluation for use of larger channel bandwidth**

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

**Decision: Noted**.

**R4-2111147 Update of utilizing immediate wider bandwidth**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

Update of utilizing immediate wider bandwidth

**Decision: Noted**.

#### 10.2.3 Evaluation of use of overlapping UE channel bandwidths

**R4-2109245 Comparison of alternate methods for Irregular CBW**

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

**Decision: Noted**

**R4-2109426 On overlapping UE channel bandwidth**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted**.

**R4-2109484 Discussion on the approaches of overlapping channel bandwidths**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted**.

**R4-2109579 On the Schemes Related to Overlapping Channel Bandwidths**

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

**Decision: Noted**.

**R4-2110488 Evaluating Overlapping Channel Bandwidth Approaches**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution further discussion on details relating to Overlapping channel bandwidth approaches is analyzed both from UE and BS perspectives

**Decision: Noted**.

**R4-2110662 Evaluation for overlapping UE channel bandwidths**

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

**Decision: Noted**.

**R4-2111219 On the use of overlapping channel bandwidths from UE perspective**

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

**Decision:** The document was **revised to R4-2107886**.

**R4-2107886 On the use of overlapping channel bandwidths from UE perspective**

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

**Decision:** Noted

**R4-2108021 TP on the use of overlapping channel bandwidths from UE perspective**

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

**Agreement:** The further study on UE feasibility from UE architecture perspective and from perspective of RAN1/2 impact is needed in the next meeing.

The content of TP discussed in GTW is approved.

**Decision: Approved.**

#### 10.2.4 Others

**R4-2109587 Comparison of Different Schemes**

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

**Decision: Noted**.

**R4-2111148 Draft TP to TR38.844 on wider channel BW method**

*Type: discussion For: Approval  
 Source: Ericsson*

**Decision:** The document was **revised to R4-2107885**.

**R4-2107885 Draft TP to TR38.844 on wider channel BW method**

*Type: discussion For: Approval  
 Source: Ericsson*

**Decision: Revised to** **R4-2108022** .

**R4-2108022 Draft TP to TR38.844 on wider channel BW method**

*Type: discussion For: Approval  
 Source: Ericsson*

**Agreement:** Further discussion is needed in next meeting on how many RB will be blanked for the channel fitler assumption, if there is impact on RAN1 and RAN2, and how to guarantee the co-existence from UE side especially for ACS and blocking.

**Decision: Approved.**

**R4-2109435 TP on using next larger channel bandwidth solution**

*Type: pCR For: Decision  
 38.844 v0.0.2 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Noted**.

**R4-2109436 TP on using overlapping channels from the network perspective solution**

*Type: pCR For: Decision  
 38.844 v0.0.2 CR- rev Cat: (Rel-17)  
  
 Source: Apple, Ericsson, Skyworks Solutions Inc.*

**Decision:** The document was **revised to R4-2107887**.

**R4-2107887 TP on using overlapping channels from the network perspective solution**

*Type: pCR For: Decision  
 38.844 v0.0.2 CR- rev Cat: (Rel-17)  
  
 Source: Apple, Ericsson, Skyworks Solutions Inc.*

**Decision:** The document was **revised to R4-2111540**

**R4-2111540 TP on using overlapping channels from the network perspective solution**

*Type: pCR For: Decision  
 38.844 v0.0.2 CR- rev Cat: (Rel-17)  
  
 Source: Apple, Ericsson, Skyworks Solutions Inc.*

Agreement: FFS whether and how we specify a new channel bandwidth the BS side.

**Decision: Approved.**

### 10.3 Study on band combination handling in RAN4

**Email discussion summary of [99-e][151] FS\_BC\_handling, AI 10.3 + some Tdocs in AI 15 – Zhifeng Ma**

**R4-2107677 Email discussion summary for [99-e][151]** **FS\_BC\_handling**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised R4-2107961**.

**R4-2107961 Email discussion summary for [99-e][151]** **FS\_BC\_handling**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on rule based approach for delta TIB and RIB | Nokia | R4-2107888 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2108915 | New way for defining dTib and dRib | Nokia, Nokia Shanghai Bell | Noted |
| R4-2109535 | TR 38.XXX V010 Band combination handling | ZTE Corporation | Agreed |
| R4-2109536 | Simplifications on delta TIB and RIB tables | ZTE Corporation | Noted |
| R4-2109537 | TP on rules of CA configuration table | ZTE Corporation | Revised to R4-2107889 |
| R4-2107889 | TP on rules of CA configuration table | ZTE Corporation | Approved (2nd round) |
| R4-2110411 | TP for 38.xxx to capture the request's template and workflow | Huawei, HiSilicon | Revised to R4-2107890 |
| R4-2107890 | TP for 38.xxx to capture the request's template and workflow | Huawei, HiSilicon | Approved (2nd round) |
| R4-2109529 | Optimization to channel bandwidth per operating band | ZTE Corporation | Noted |
| R4-2109530 | CR to TS 38.101-1 on UE channel bandwidth per operating band | ZTE Corporation | Agreed |
| R4-2109531 | CR to TS 38.101-2 on UE channel bandwidth per operating band | ZTE Corporation | Agreed |
| R4-2109532 | CR to TS 38.104 on BS channel bandwidth per operating band | ZTE Corporation | Agreed |

**WF/LS/CRs for approval**

**R4-2107888 WF on rule based approach for delta TIB and RIB**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

#### 10.3.1 General and TR

**R4-2109535 TR 38.XXX V010 Band combination handling**

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

**Abstract:**

This paper is to provide TR 38.XXX V010 for band combination handling.

**Decision: Approved**.

#### 10.3.2 How to introduce band combinations including TP format

**R4-2110411 TP for 38.xxx to captuer the request's template and workflow**

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

**Decision:** The document was **revised to R4-2107890**.

**R4-2107890 TP for 38.xxx to captuer the request's template and workflow**

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

**Decision: Approved.**

#### 10.3.3 Rules and guidelines of specifying band combinations including notations of CA/DC combinations

**R4-2109537 TP on rules of CA configuration table**

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

**Abstract:**

In this proposal, we provides the rules of CA configuration table as a text proposal to the new TR.

**Decision:** The document was **revised to R4-2107889**.

**R4-2107889 TP on rules of CA configuration table**

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

**Abstract:**

In this proposal, we provides the rules of CA configuration table as a text proposal to the new TR.

**Decision: Approved.**

#### 10.3.4 Improving RAN4 specification structures and reducing redundant contents

**R4-2108915 New way for defining dTib and dRib**

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

**Decision: Noted**.

**R4-2109536 Simplifications on delta TIB and RIB tables**

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

**Abstract:**

In this paper, we’d like to share our further considerations on the simplification for ?TIB,c and ?RIB,c table.

**Decision: Noted**.

#### 10.3.5 Others

### 10.4 Study on extended 600MHz NR band

**Email discussion summary of [99-e][152] FS\_NR\_600MHz\_ext, AI 10.4 – Christian Bergljung**

**R4-2107678 Email discussion summary for [99-e][152]** **FS\_NR\_600MHz\_ext**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107962**.

**R4-2107962 Email discussion summary for [99-e][152]** **FS\_NR\_600MHz\_ext**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**GTW session on May 20th:**

* Agreement:
  + Provide neutral decriptions of pros and cons for each optional solution in TR.
  + RAN4 should minimize any direct or indirect indication of preference among solutions in TPs

**GTW session on May 24th**

**Moderator input:**

* Five TPs to the 38.860 for approval:
  + Text proposal for 38.860, Spark NZ Ltd, TP Sections 3, 4 and 6.1
  + TP to TR 38.860: coexistence with other services, Huawei, HiSilicon, TP Sections 6.2 and 6.3
  + TP for TR 38.860:  Filter option B1, Qualcomm Incorporated, TP Section 6.4.1 of 38.860
  + TP for TR 38.860:  Filter option B2 (new), Nokia, Nokia Shanghai Bell, TP Section 6.4.2 of 38.860
  + TP to TR38.860 on band plan and duplex filter considerations for 600 MHz, Apple

TP Section 6.4.3 of 38.860

* The aim is to include agreeable text in the 38.860 that can be used as a basis for completing the TR at the August meeting following the guidance from the chair
  + Provide neutral descriptions of pros and cons for each optional solution in TR.
  + RAN4 should minimize any direct or indirect indication of preference among solutions in TPs
* The moderator proposes that the TPs on the frequency arrangements also incorporate results on B1 and B2 from R4-2111018 where applicable (e.g. filter characteristics for B1/B2) observing the general guidance from the chair

**Discussion:**

Apple: for Bullet #3, do we include Apple results for B1.

Skyworks: On co-existence TP, in some cases, there are sentences that the service will be impacted by some option. Is it neural enough?

Huawei: For co-existence, we do not tend to compare the different options. The reason to capture some sentence is that we capture the TPs from other companies.

Skyworks: We should be neutral in recommendation.

Chair: Come back to TPs on Thursday.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** | **Status** |
| TP for TR 38.860: Filter option B2 | Nokia, Nokia Shanghai Bell | R4-2107891 | TP Section 6.4.3 | Approved (2nd round) |

**Existing tdocs**

Moderator: tdocs in yellow highlight are multiple contributions under a sub-agenda item

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** | **Comments** |
| R4-2108908 | Filter options for B1 | Spark NZ Ltd | Noted |  |
| R4-2109132 | Text proposal for 38.860 | Spark NZ Ltd | Revised to R4-2107892 | TP Sections 3, 4 and 6.1 |
| R4-2107892 | Text proposal for 38.860 | Spark NZ Ltd | Approved |  |
| R4-2109462 | Study on extended 600MHz NR band | Spark NZ Ltd | Noted |  |
| R4-2109753 | Coexistence study for extended 600 MHz NR frequency band | ZTE Corporation | Noted |  |
| R4-2109785 | TP to TR 38.860 on Coexistence for APT 600 MHz | Nokia, Nokia Shanghai Bell | Noted (partly incorporated in revision of R4-2111044) |  |
| R4-2109786 | Frequency arrangements for APT 600 MHz | Nokia, Nokia Shanghai Bell | Noted |  |
| R4-2110090 | TP to TR 38.860 - Coexistence aspects | Ericsson | Noted (partly incorporated in revision of R4-2111044) |  |
| R4-2110165 | TP to TR38.860 on band plan and duplex filter considerations for 600 MHz | Apple | Revised to R4-2107893 and further to R4-2107999 | TP Section 6.4.3 of 38.860 |
| R4-2107999 | TP to TR38.860 on band plan and duplex filter considerations for 600 MHz | Apple | Approved (2nd round) |  |
| R4-2110978 | TP for TR 38.860: Filter option B1 | Qualcomm Incorporated | Revised to R4-2107894 and further to R4-2108000 | TP Section 6.4.1 of 38.860 |
| R4-2108000 | TP for TR 38.860: Filter option B1 | Qualcomm Incorporated | Approved (2nd round) |  |
| R4-2111018 | Extended 600MHz duplexers and band definitions options evaluation | Skyworks Solutions Inc | Noted |  |
| R4-2111043 | Title: TP to TR 38.860: B1/B2 background | Huawei, HiSilicon | Noted (partly incorporated in revision of R4-2109132) |  |
| R4-2111044 | TP to TR 38.860: coexistence with other services | Huawei, HiSilicon | Revised to R4-2107895 | TP Sections 6.2 and 6.3 |
| R4-2107895 | TP to TR 38.860: coexistence with other services | Huawei, HiSilicon | Approved |  |
| R4-2111045 | TP to TR 38.860: B1 full band filter feasibility analysis | Huawei, HiSilicon | Noted (partly incorporated in R4-2110978) |  |
| R4-2111443 | Further evaluation on 600MHz duplexer schemes | Huawei, HiSilicon | Noted |  |

**WF/LS/CRs for approval**

**R4-2107891 TP for TR 38.860: Filter option B2**

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

**Decision: Approved.**

#### 10.4.1 General

**R4-2109132 Text Proposal for TR 38 860**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides text proposal for TR 38 860

**Decision:** The document was **revised to R4-2107892**.

**R4-2107892 Text Proposal for TR 38 860**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides text proposal for TR 38 860

**Decision: Approved**.

**R4-2111043 TP to TR 38.860: B1/B2 background**

*Type: pCR For: Agreement  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

In this TP to TR38.860 we provide background information on the B1 and B2 options, plus editorials corrections identified in the TR.

**Decision: Noted**.

#### 10.4.2 Regulatory study

#### 10.4.3 Coexistence study

**R4-2109753 Coexistence study for extended 600 MHz NR frequency band**

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

**Decision: Noted.**

**R4-2109785 TP to TR 38.860 on Coexistence for APT 600 MHz**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

TP on coexistence is proposed.

**Decision: Noted**.

**R4-2110090 TP to TR 38.860 - Coexistence aspects**

*Type: pCR For: Agreement  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP to TR is capturing agreements related to coexistence

**Decision: Noted**.

**R4-2111044 TP to TR 38.860: coexistence with other services**

*Type: pCR For: Agreement  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

In this TP to TR38.860 we provide inputs to the co-existence analysis with non-3GPP services, based on the WF agreed last meeting in R4-2105421.

**Decision: Revised to R4-2107895**.

**R4-2107895 TP to TR 38.860: coexistence with other services**

*Type: pCR For: Agreement  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

In this TP to TR38.860 we provide inputs to the co-existence analysis with non-3GPP services, based on the WF agreed last meeting in R4-2105421.

**Decision: Approved**.

#### 10.4.4 Study on frequency arrangements (such as options B1 and B2)

**R4-2108908 Filter options for B1**

*Type: discussion For: Discussion  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution seeks guidance on duplexer arrangements of filter option B1 that uses dual duplexers

**Decision: Noted**.

**R4-2109460 Study on extended 600MHz NR band**

*Type: report For: Agreement  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides guidance on filter options that are not aligned with the AWG request and should not be further studied

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

**R4-2109461 Study on extended 600MHz NR band**

*Type: report For: Agreement  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides guidance on filter options that are not aligned with the AWG request and should not be further studied

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

**R4-2109462 Study on extended 600MHz NR band**

*Type: other For: Agreement  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution discusses option B2a and suggests that this is not aligned with the request from AWG and should not be further studied

**Decision: Noted**.

**R4-2109786 Frequency arrangements for APT 600 MHz**

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

**Abstract:**

Option B1/B2/B2a is discussed.

**Decision: Noted**.

**R4-2110165 TP to TR38.860 on band plan and duplex filter considerations for 600 MHz**

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

**Decision:** The document was **revised to R4-2107893**.

**R4-2107893 TP to TR38.860 on band plan and duplex filter considerations for 600 MHz**

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

**Decision:** The document was **revised to R4-2107999**.

**R4-2107999 TP to TR38.860 on band plan and duplex filter considerations for 600 MHz**

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

Agreement: put [] on general part.

**Decision: Approved**

**R4-2110978 TP for TR 38.860: Filter option B1**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2107894**.

**R4-2107894 TP for TR 38.860: Filter option B1**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2108000**.

**R4-2108000 TP for TR 38.860: Filter option B1**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Agreement:**

With this, option B1 was confirmed to be technically feasible based on simulations for the available requirements.

**Decision: Approved.**

**R4-2111018 Extended 600MHz duplexers and band definitions options evaluation**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Since it was possible to extrapolate the additional filter options from our B28 full and n71 full duplexer performance using the same principles than in last meeting and for the sake of completeness this contribution provides the additional filter options

**Decision: Noted**.

**R4-2111045 TP to TR 38.860: B1 full band filter feasibility analysis**

*Type: pCR For: Agreement  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Abstract:**

In this TP to TR38.860 we provide B1 full band filter feasibility analysis. Based on further evaluation results with an optimized design, the full band duplexer for option B1 was recognized as being able to provide equivalent rejection capability as that

**Decision: Noted**.

**R4-2111443 Further evaluation on 600MHz duplexer schemes**

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

**Decision: Noted.**

#### 10.4.5 Others

**R4-2108860 Study on extended 600MHz NR band**

*Type: pCR For: Approval  
 38.860 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides text for TR 38 860

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

### 10.5 Study on high power UE (power class 2) for one NR FDD band

**Email discussion summary of [99-e][153] FS\_NR\_PC2\_UE\_FDD, AI 10.5 – Basaier Jialade**

**R4-2107679 Email discussion summary for [99-e][153] FS\_NR\_PC2\_UE\_FDD**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107963.**.

**R4-2107963 Email discussion summary for [99-e][153] FS\_NR\_PC2\_UE\_FDD**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**GTW session on May 21st**

**Sub-topic 1-1 SAR Scheme(s)**

Sub-topic description:

Open issues and candidate options before e-meeting:

**Issue 1-1-1: How to handle evaluation period for duty cycle solution**

* Proposals
  + Option 1: Using UE implementation based method to handle duty cycle capability. (i.e. FDD duty cycle capability is only required to be applied by UE)
  + Option 2: UE and network using unified evaluation period, with the last MSG1/MSGA of RACH before connection setup is proposed as the starting point of evaluation period.
  + Option 3: Reuse the existing duty cycle capability as other HPUEs since R15 and R16.
* Recommended WF
  + TBA

**Discussion:**

Huawei: we prefer Option 3. We use the similar mechanism as HPUE in other WIs. Option 2 is to define the specific UE behaviour.

Ericsson: We do not prefer to introduction of any artificial approach. We prefer Option 1. We have test case to ensure P-MPR works and average value is kept within a certain value.

Vivo: Support Option 3. Option 3 and Option 2 do not conflict. Even if we have duty cycle we still have problem to sync network and UE.

Skyworks: For FDD PC2, we have comments that not only duty cycle but also how long. P-PMR may be used with duty cycle.

LGE: both P-MPR and duty cycle can be used for PC2 FDD. Option 1 is more preferable approach.

Huawei: P-MPR is agreed to be as baseline. We do not repeat discussion on P-MPR here. Option 1 is similar to P-MPR solution. What is additional benefit that Option 1 can provide?

Oppo: we are also OK with Option 1. Duty cycle can only be implemented by UE. For Option 3, it is quite confusing. How the exact duty cycle can be evaluated.

Apple: regarding Option 3, the existing duty cycle capability, if UE reports it to network, what does network do? Network may not do anything according to previous comment.

Ericsson: To Huawei, Oppo actually answer the question. Network does not have exact value of output power. It is artificial approach if network only consider duty cycle without considering power.

Huawei: Duty cycle capability is introduced from Rel-15. It is used in many other WIs. If network is willing to address the SAR issue, network can do it by using duty cycle.

Ericsson: Option 3 is not feasible.

Vivo: Duty cycle is still needed. It will break the link if network has no information but UE has fallback.

Oppo: What is the meaning for “left to UE implementation”.

**Discussion points:**

* ~~How to handle SAR issue is left to UE implementation.~~
* Using UE implementation based method to handle duty cycle capability. (i.e. FDD duty cycle capability is only required to be applied by UE)
  + The existing duty cycle solution defined in other WIs can apply to FDD.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Comments** |
| WF on PC2 for NR FDD band | China Unicom | R4-2107742 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| R4-2110163 | Half duplex operation for PC2 FDD bands | Apple | Noted |  |
| R4-2110197 | Discussion on HP UE for FDD bands | Xiaomi | Noted |  |
| R4-2110829 | R17 FDD HPUE | OPPO | Noted |  |
| R4-2109700 | Discussion on SAR scheme of FDD HPUE | vivo | Noted |  |
| R4-2110433 | Discussion on interference for HPUE FDD band | ZTE | Noted |  |
| R4-2111446 | Further system level simulation for FDD HPUE | Huawei, HiSilicon | Noted |  |
| R4-2109699 | System performance evaluation on FDD HPUE | vivo | Noted |  |
| R4-2109763 | System performance evaluation on FDD HPUE | ZTE | Noted |  |
| R4-2109998 | TP on Sensitivity degradation in NR n3 for PC2 UE in FDD band | LGE | Revised to R4-2107896 | Depending on 2nd round discussion |
| R4-2107896 | TP on Sensitivity degradation in NR n3 for PC2 UE in FDD band | LGE | Noted (2nd round) |  |
| R4-2110798 | TP to TR38.861: Simulaiton results for FDD HPUE | Qualcomm | Approved |  |
| R4-2108866 | TR 38.861 v0.1.0 FS\_NR\_PC2\_UE\_FDD | China Unicom | Post-meeting approval | To capture agreed TPs in this meeting |

**WF/LS/CRs for approval:**

**SAR scheme**

* Recommended agreement:
  + Using UE implementation based method to handle duty cycle capability, UE can still report the capability to the network.

Discussion:

Ericsson: we do not understand the reason to put burden on BS.

China Unicom: it is beneficial for network to know UE capability.

**Half-duplex Operation**

* Agreement:
  + Companies are encouraged to assess the benefits and downside of the half-duplex operation for PC2 FDD bands under HPUE scenario over PC3 for FDD bands.
  + Half-duplex operation is only activated when UL power is above 23 dBm

Discussion:

China Unicom: we are not ready to accept HD-FDD in this WF.

Apple: include this idea in the way forward. In our view, it is study item phase. We have a lot of concern on SAR. We continue discussion on it. HD-FDD may be optional solution. We see the concern on the impact on downlink throughput. We have some solution e.g., RB restriction.

Huawei: we share similar view as China Unicom. HD-FDD impacts DL performance. It is not like P-MPR solution. HD-FDD may need input from other WGs, which is out of scope.

**R4-2107742 WF on PC2 for NR FDD band**

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

**Decision: Noted**.

#### 10.5.1 General

**R4-2108866 TR 38.861 v0.1.0 FS\_NR\_PC2\_UE\_FDD**

*Type: draft TR For: Approval  
 38.861 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: China Unicom*

**Decision: Email approval**.

**R4-2110163 Half duplex operation for PC2 FDD bands**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted**.

**R4-2110197 Discussion on HP UE for FDD bands**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted**.

#### 10.5.2 Scheme(s) to comply with the SAR limits

**R4-2109700 Discussion on SAR scheme of FDD HPUE**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted**.

**R4-2110829 R17 FDD HPUE**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

#### 10.5.3 Interference issues

**R4-2109998 TP on Sensitivity degradation in NR n3 for PC2 UE in FDD band**

*Type: pCR For: Approval  
 38.861 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Provide RF component current status in FDD band and provide sensitivity degradation for PC2 UE in n1/n3.

**Decision:** The document was **revised to R4-2107896**.

**R4-2107896 TP on Sensitivity degradation in NR n3 for PC2 UE in FDD band**

*Type: pCR For: Approval  
 38.861 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Provide RF component current status in FDD band and provide sensitivity degradation for PC2 UE in n1/n3.

**Decision: Noted.**

**R4-2110433 Discussion on interference for HPUE FDD band**

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

**Decision: Noted**.

#### 10.5.4 System performance evaluations

**R4-2109699 System performance evaluation on FDD HPUE**

*Type: discussion For: Decision  
 Source: vivo*

**Decision: Noted**.

**R4-2109763 System performance evaluation on FDD HPUE**

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

**Decision: Noted**.

**R4-2110798 TP to TR38.861: Simulaiton results for FDD HPUE**

*Type: pCR For: (not specified)  
 38.861 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Approved**.

**R4-2111446 Further system level simulation for FDD HPUE**

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

**Decision: Noted**.

### 10.6 Optimizations of pi/2 BPSK uplink power in NR

**Email discussion summary of [99-e][154] FS\_NR\_Opt\_pi2BPSK, AI 10.6 – Chan Fernando**

**R4-2107680 Email discussion summary for [99-e][154]** **FS\_NR\_Opt\_pi2BPSK**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107964**.

**R4-2107964 Email discussion summary for [99-e][154]** **FS\_NR\_Opt\_pi2BPSK**

*Type: Other For: Information  
 Source: Moderator (Qulacomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc** | **Status** |
| WF on waveform configuration, parameters for link simulations and agreements | Qualcomm | R4-2108018 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
| [R4-2109373](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109373.zip) | TR Skeleton for SI on optimizations of pi/2 BPSK uplink power | Qualcomm Incorporated | Revised to R4-2107898 |  |
| R4-2107898 | TR Skeleton for SI on optimizations of pi/2 BPSK uplink power | Qualcomm Incorporated | Approved |  |
| [R4-2109372](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109372.zip) | Workplan for SI on optimizations of pi/2 BPSK uplink power in NR | Qualcomm Incorporated | Revised to R4-2107899 |  |
| R4-2107899 | Workplan for SI on optimizations of pi/2 BPSK uplink power in NR | Qualcomm Incorporated | Approved |  |
| [R4-2109377](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109377.zip) | TP to TR on optimizations of pi/2 BPSK uplink power in NR | Qualcomm Incorporated | Approved |  |
| [R4-2109371](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109371.zip) | Inputs for analysing pi/2 BPSK uplink power | Qualcomm Incorporated | Noted |  |
| [R4-2109725](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109725.zip) | Considerations for pi/2 BPSK with spectrum shaping study | IITH, CEWiT, Reliance Jio, IITM, Tejas Networks | Noted |  |
| [R4-2109740](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109740.zip) | Simulation assumptions for pi/2 BPSK with spectrum shaping | Nokia | Noted |  |
| [R4-2109741](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109741.zip) | Receiver performance for pi/2 BPSK with spectral shaping | Nokia | Noted |  |
| [R4-2109742](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2109742.zip) | Achievable UE Tx power for pi/2 BPSK with different shaping filters | Nokia | Noted |  |
| [R4-2111449](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_99-e/Docs/R4-2111449.zip) | On feasibility of power enhancement for Pi/2 BPSK | Huawei, HiSilicon | Noted |  |

**WF/LS/CRs for approval**

**R4-2107897 WF on waveform configuration, parameters for link simulations and agreements**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision:** The document was **revised to R4-2108018**.

**R4-2108018 WF on waveform configuration, parameters for link simulations and agreements**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

#### 10.6.1 General and work plan

**R4-2109372 Workplan for SI on optimizations of pi/2 BPSK uplink power in NR**

*Type: Work Plan For: Approval  
 Source: Qualcomm Incorporated*

**Abstract:**

Workplan for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision:** The document was **revised to R4-2107899**.

**R4-2107899 Workplan for SI on optimizations of pi/2 BPSK uplink power in NR**

*Type: Work Plan For: Approval  
 Source: Qualcomm Incorporated*

**Abstract:**

Workplan for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision: Approved.**

**R4-2109373 TR skeleton for SI on optimizations of pi\_2 BPSK uplink power**

*Type: discussion For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

TR for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision:** The document was **revised to R4-2107898**.

**R4-2107898 TR skeleton for SI on optimizations of pi\_2 BPSK uplink power**

*Type: discussion For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

TR for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision: Approved.**

**R4-2109377 TP to TR on optimizations of pi/2 BPSK uplink power in NR**

*Type: discussion For: Approval  
 38.101-1 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

TP to TR for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision: Approved**.

**R4-2109740 Simulation assumptions for pi/2 BPSK with spectrum shaping**

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

**Decision: Noted**.

#### 10.6.2 UE Tx power for pi/2 BPSK

**R4-2109371 Inputs for analysing pi/2 BPSK uplink power**

*Type: discussion For: Approval  
 38.101 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Input waveforms, pulse shaping filters and link simulations for evaluating higher UL powers are presented

**Decision: Noted**.

**R4-2109725 Considerations for pi/2 BPSK with spectrum shaping study**

*Type: discussion For: (not specified)  
 Source: Indian Institute of Tech (H)*

**Decision: Noted**.

**R4-2109742 Achievable UE Tx power for pi/2 BPSK with different shaping filters**

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

**Decision: Noted**.

**R4-2111449 On feasibility of power enhancement for Pi/2 BPSK**

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

**Decision: Noted**.

#### 10.6.3 SAR analysis

#### 10.6.4 Shaping filter characteristics

**R4-2109741 Receiver performance for pi/2 BPSK with different  spectral shaping filters**

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

**Decision: Noted.**

### 10.7 Study on 5G NR UE Application Layer Data Throughput Performance

#### 10.7.1 General and work plan

#### 10.7.2 Test methodology

#### 10.7.3 Test parameters

## 11 Rel-17 Work Items for LTE

### 11.1 LTE inter-band Carrier Aggregation for 2 bands DL with 1 band UL

**Email discussion summary of [99-e][155] LTE\_Baskets, AI 11.1 ~ AI 11.5 – Per Lindell**

**R4-2107681 Email discussion summary for [99-e][155]** **LTE\_Baskets**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107965**.

**R4-2107965 Email discussion summary for [99-e][155]** **LTE\_Baskets**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Status** |
| [R4-2108867](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108867.zip) | TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-20A | VODAFONE Group Plc | comments resolved. document ready for submission and approval  Revised to R4-2107736 |
| [R4-2108868](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2108868.zip) | TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-28A | VODAFONE Group Plc | comments resolved. document ready for submission and approval  Revised to R4-2107737 |
| R4-2109773 | TR 36.717-03-02 v0.4.0 TR update for LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17 | LG Electronics France | email approval |
| R4-2109774 | Revised WID on LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17 | LG Electronics France | email approval |
| R4-2109775 | Introduction of LTE inter-band Carrier Aggregation for x bands DL (x=4, 5) with 1 band UL to TS36.101 | Nokia, Nokia Shanghai Bell | email approval |
| R4-2109814 | Introduction of LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL to TS36.101 | LG Electronics France | email approval |
| R4-2110788 | Revised WID: Rel17 LTE inter-band CA for 2 bands DL with 1 band UL | Qualcomm Incorporated | email approval |
| R4-2110789 | TR 36.717-02-01 Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA | Qualcomm Incorporated | email approval |
| R4-2111021 | Big CR to TS36.101: Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA | Qualcomm Incorporated | email approval |
| R4-2111208 | Revised WID: LTE Advanced inter-band CA Rel-17 for x bands DL (x=4, 5, 6) with 1 band UL | Nokia, Nokia Shanghai Bell | email approval |
| [R4-2111209](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111209.zip) | TR 36.717-04-01 v0.5.0 | Nokia, Nokia Shanghai Bell | Agreed |
| R4-2111392 | Introduction of completed R17 3DL band combinations to TS 36.101 | Huawei, HiSilicon | email approval |
| R4-2111393 | Revised WID for LTE inter-band CA for 3 bands DL with 1 bands UL | Huawei, HiSilicon | email approval |
| R4-2111414 | TR 37.717-03-01 0.3.0 | Huawei, HiSilicon | email approval |
| R4-2111453 | Introduction of completed LTE CA for 2 bands DL with 2 bands UL into Rel-17 TS 36.101 | Huawei,HiSilicon | email approval |
| [R4-2111454](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111454.zip) | Revised WID for LTE inter-band CA for 2 bands DL with 2 bands UL | Huawei,HiSilicon | Endorsed |
| [R4-2111455](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111455.zip) | TR 36.717-02-02 v0.1.0 | Huawei,HiSilicon | Agreed |
| [R4-2111456](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111456.zip) | Updated scope of inter-band CA with 2DL and 2UL bands | Huawei,HiSilicon | Approved |

**Topic**

#### 11.1.1 Rapporteur Input (WID/TR/CR)

**R4-2110788 Revised WID: Rel17 LTE inter-band CA for 2 bands DL with 1 band UL**

*Type: WID revised For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Email approval**.

**R4-2110789 TR 36.717-02-01 Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA**

*Type: draft TR For: (not specified)  
 36.717-02-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Email approval**.

**R4-2111021 Big CR to TS36.101: Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5787 rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Email approval**.

#### 11.1.2 UE RF with harmonic, close proximity and isolation issues

#### 11.1.3 UE RF without specific issues

### 11.2 LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL

#### 11.2.1 Rapporteur Input (WID/TR/CR)

**R4-2111392 Introduction of completed R17 3DL band combinations to TS 36.101**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5794 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2111393 Revised WID for LTE inter-band CA for 3 bands DL with 1 bands UL**

*Type: WID revised For: Agreement  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

**R4-2111414 TR 37.717-03-01 0.3.0**

*Type: draft TR For: Approval  
 36.717-03-01 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Email approval**.

#### 11.2.2 UE RF with harmonic, close proximity and isolation issues

#### 11.2.3 UE RF without specific issues

### 11.3 LTE inter-band Carrier Aggregation for x bands DL (x=4, 5) with 1 band UL

#### 11.3.1 Rapporteur Input (WID/TR/CR)

**R4-2109775 Introduction of LTE inter-band Carrier Aggregation for x bands DL (x=4, 5) with 1 band UL to TS36.101**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5775 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This is a big CR for the basket work item on LTE CA 4DL/1UL and 5DL/1UL.

**Decision: Email approval**.

**R4-2111208 Revised WID: LTE Advanced inter-band CA Rel-17 for x bands DL (x=4, 5, 6) with 1 band UL**

*Type: WID revised For: Endorsement  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Email approval**.

**R4-2111209 TR 36.717-04-01 v0.5.0**

*Type: draft TR For: Approval  
 36.717-04-01 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed**.

#### 11.3.2 UE RF with 4 LTE bands CA

#### 11.3.3 UE RF with 5 LTE bands CA

### 11.4 LTE inter-band Carrier Aggregation for 2 bands DL with 2 band UL

#### 11.4.1 Rapporteur Input (WID/TR/CR)

**R4-2111453 Introduction of completed LTE CA for 2 bands DL with 2 bands UL into Rel-17 TS 36.101**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5795 rev Cat: B (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Email approval**.

**R4-2111454 Revised WID for LTE inter-band CA for 2 bands DL with 2 bands UL**

*Type: WID revised For: Endorsement  
 Source: Huawei,HiSilicon*

**Decision: Endorsed**.

**R4-2111455 TR 36.717-02-02 v0.1.0**

*Type: draft TR For: Endorsement  
 36.717-02-02 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Agreed**.

**R4-2111456 Updated scope of inter-band CA with 2DL and 2UL bands**

*Type: pCR For: Approval  
 36.717-02-02 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Approved**.

#### 11.4.2 UE RF with harmonic, close proximity and isolation issues

#### 11.4.3 UE RF without specific issues

**R4-2108867 TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-20A**

*Type: pCR For: Approval  
 36.717-02-02 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution proposes a co-existence requirements table for LTE UL configuration CA\_8A-20A based on the existing single carrier requirements for band 8 and 20. It was missing in the initial TP approved in RAN4#98-bis-e.

**Decision:** The document was **revised to R4-2107736**.

**R4-2107736 TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-20A**

*Type: pCR For: Approval  
 36.717-02-02 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution proposes a co-existence requirements table for LTE UL configuration CA\_8A-20A based on the existing single carrier requirements for band 8 and 20. It was missing in the initial TP approved in RAN4#98-bis-e.

**Decision: Approved.**

**R4-2108868 TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-28A**

*Type: pCR For: Approval  
 36.717-02-02 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution proposes a co-existence requirements table for LTE UL configuration CA\_8A-28A based on the existing single carrier requirements for band 8 and 28. It was missing in the initial TP approved in RAN4#98-bis-e.

**Decision:** The document was **revised to R4-2107737**.

**R4-2107737 TP for TR 36.717-02-02 to add coexistence table for LTE UL CA\_8A-28A**

*Type: pCR For: Approval  
 36.717-02-02 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution proposes a co-existence requirements table for LTE UL configuration CA\_8A-28A based on the existing single carrier requirements for band 8 and 28. It was missing in the initial TP approved in RAN4#98-bis-e.

**Decision: Approved.**

### 11.5 LTE inter-band Carrier Aggregation for x bands DL (x= 3, 4, 5) with 2 band UL

#### 11.5.1 Rapporteur Input (WID/TR/CR)

**R4-2109773 TR 36.717-03-02 v0.4.0 TR update for LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17**

*Type: draft TR For: Agreement  
 36.717-03-02 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Draft TR to capture the approved TPs in this meeting

**Decision: Email approval**.

**R4-2109774 Revised WID on LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17**

*Type: WID revised For: Endorsement  
 Source: LG Electronics France*

**Abstract:**

update WID to reflect progress and capture new DC band combos in this meeting

**Decision: Email approval**.

**R4-2109814 Introduction of LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL to TS36.101**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5776 rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Big CR to capture new LTE-A CA band combination in rel-17

**Decision: Email approval**.

#### 11.5.2 UE RF with MSD

#### 11.5.3 UE RF without MSD

### 11.6 RRM for LTE CA basket WIs

#### 11.6.1 RRM Core (36.133)

#### 11.6.2 RRM Perf (36.133)

### 11.7 New WID on Additional LTE bands for UE category M1&M2 and/or NB1&NB2 in Rel-17

**Email discussion summary of [99-e][156] LTE\_bands\_R17\_M1\_M2\_NB1\_NB2, AI 11.7 – Chunhui Zhang**

**R4-2107682 Email discussion summary for [99-e][156] LTE\_bands\_R17\_M1\_M2\_NB1\_NB2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107966**.

**R4-2107966 Email discussion summary for [99-e][156] LTE\_bands\_R17\_M1\_M2\_NB1\_NB2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on the A-MPR for Cat-M2 for B24 | Ericsson | R4-2107902 | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2111193](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111193.zip) | On B24 A-MPR for CAT-M1/M2 | Ericsson | Noted |

**WF/LS/CRs for approval**

**R4-2107902 WF on the A-MPR for Cat-M2 for B24**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

#### 11.7.1 Rapporteur Input (WID/TR/CR)

#### 11.7.2 RF

**R4-2111193 On B24 A-MPR for CAT-M1/M2**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

in this paper, we present our view on A-MPR for the LTE Cat-M1/M2 device

**Decision: Noted**.

#### 11.7.3 Others

### 11.8 Modification of LTE Band 24 specifications to comply with updated regulatory emission limits

**Refer to Email discussion summary of [99-e][115] NR\_LTE\_band\_n24, AI 8.7 & AI 11.8 –Ojas Choksi**

#### 11.8.1 UE RF requirements

**R4-2108987 CR for updates related to LTE band 24 in 36.101 (Rel-10)**

*Type: CR For: Agreement  
 36.101 v10.29.0 CR-5751 rev Cat: F (Rel-10)  
  
 Source: Ligado Networks*

**Decision:** The document was **revised to R4-2107801**.

**R4-2107801 CR for updates related to LTE band 24 in 36.101 (Rel-10)**

*Type: CR For: Agreement  
 36.101 v10.29.0 CR-5751 rev Cat: F (Rel-10)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108988 CR for updates related to LTE band 24 in 36.101 (Rel-11)**

*Type: CR For: Agreement  
 36.101 v11.26.0 CR-5752 rev Cat: A (Rel-11)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108989 CR for updates related to LTE band 24 in 36.101 (Rel-12)**

*Type: CR For: Agreement  
 36.101 v12.26.0 CR-5753 rev Cat: A (Rel-12)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108990 CR for updates related to LTE band 24 in 36.101 (Rel-13)**

*Type: CR For: Agreement  
 36.101 v13.20.0 CR-5754 rev Cat: A (Rel-13)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108991 CR for updates related to LTE band 24 in 36.101 (Rel-14)**

*Type: CR For: Agreement  
 36.101 v14.18.0 CR-5755 rev Cat: A (Rel-14)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108992 CR for updates related to LTE band 24 in 36.101 (Rel-15)**

*Type: CR For: Agreement  
 36.101 v15.14.0 CR-5756 rev Cat: A (Rel-15)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108993 CR for updates related to LTE band 24 in 36.101 (Rel-16)**

*Type: CR For: Agreement  
 36.101 v16.9.0 CR-5757 rev Cat: A (Rel-16)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

**R4-2108994 CR for updates related to LTE band 24 in 36.101 (Rel-17)**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5758 rev Cat: A (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

#### 11.8.2 BS RF requirements

#### 11.8.3 RRM requirements

#### 11.8.4 Others

### 11.9 Additional enhancements for NB-IoT and LTE-MTC

#### 11.9.1 General and work plan

#### 11.9.2 Support of 16QAM in NB-IoT

**Email discussion summary of [99-e]** **[157] NB\_IOTenh4\_LTE\_eMTC6, AI 11.9.2, AI 11.9.3 AI 11.9.5 – Jin Wang**

**R4-2107683 Email discussion summary for [99-e][157]** **NB\_IOTenh4\_LTE\_eMTC6**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107967**.

**R4-2107967 Email discussion summary for [99-e][157]** **NB\_IOTenh4\_LTE\_eMTC6**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted**.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| WF on max power reduction for PRACH, PUCCH, and full-PRB PUSCH | Ericsson | R4-2107901 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2108978 | EVM limit in NB-IoT IBE mask | Nokia, Nokia Shanghai Bell | Postponed |
| R4-2109386 | Proposals on BS RF requirements for support of 16QAM in NB-IoT | Nokia, Nokia Shanghai Bell | Noted |
| R4-2109387 | Proposals on support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC | Nokia, Nokia Shanghai Bell | Noted |
| R4-2109948 | MPR for NB-IoT 16-QAM | Nokia, Nokia Shanghai Bell | Noted |
| R4-2111061 | Proposals on support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC | Nokia, Nokia Shanghai Bell | Noted |
| R4-2111190 | RF impact analysis on Rel-17 eMTC WID | Ericsson | Noted |
| R4-2111191 | BS RF impact analysis on R17 NB\_IoT | Ericsson | Noted |
| R4-2111192 | UE RF impact analysis on R17 NB\_IoT | Ericsson | Noted |
| R4-2111295 | Discussion on UE RF requirements for 16QAM NB-IoT uplink | Huawei,HiSilicon | Noted |
| R4-2111296 | Discussion on BS RF requirements for 16QAM NB-IoT DL | Huawei,HiSilicon | Noted |

**WF/LS/CRs for approval**

**R4-2107901 WF on max power reduction for PRACH, PUCCH, and full-PRB PUSCH**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

##### 11.9.2.1 BS RF requirements

**R4-2109386 Proposals on BS RF requirements for support of 16QAM in NB-IoT**

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

**Abstract:**

This contribution provides further proposals on BS RF requirements for support 16-QAM in NB-IoT unicast in UL and DL according to the approved WF and the agreements in RAN1.

**Decision: Noted**.

**R4-2111191 BS RF impact analysis on R17 NB\_IoT**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the BS RF impact on NB-IoT for this objective.

**Decision: Noted**.

**R4-2111296 Discussion on BS RF requirements for 16QAM NB-IoT DL**

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

**Decision: Noted**.

##### 11.9.2.2 UE RF requirements

**R4-2108978 EVM limit in NB-IoT IBE mask**

*Type: CR For: Agreement  
 36.101 v17.1.0 CR-5750 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Postponed**.

**R4-2109948 MPR for NB-IoT 16-QAM**

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

**Decision: Noted**.

**R4-2111192 UE RF impact analysis on R17 NB\_IoT**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the UE RF impact on NB-IoT for this objective.

**Decision: Noted**.

**R4-2111295 Discussion on UE RF requirements for 16QAM NB-IoT uplink**

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

**Decision: Noted**.

#### 11.9.3 Support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC

##### 11.9.3.1 UE RF requirements

**R4-2109387 Proposals on support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC**

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

**Abstract:**

This contribution provides some information on the related moderated email discussion in RAN and proposes the WF to complete this objective in RAN4.

**Decision: Noted**.

**R4-2111061 Proposals on support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC**

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

**Abstract:**

This contribution provides some information on the related moderated email discussion in RAN and proposes the WF to complete this objective in RAN4.

**Decision: Noted**.

**R4-2111190 RF impact analysis on Rel-17 eMTC WID**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the RF impact for the Rel-17 eMTC.

**Decision: Noted**.

#### 11.9.4 RRM requirements

#### 11.9.5 Others

## 12 Rel-17 Study Items for LTE

### 12.1 High-power UE operation for fixed-wireless/vehicle-mounted use cases in LTE bands 5 and 12 and NR band n71

**Email discussion summary of [99-e][158] FS\_LTE\_NR\_HPUE\_FWVM, AI 12.1 – Man Hung Ng**

**R4-2107900 Email discussion summary for [99-e][158] FS\_LTE\_NR\_HPUE\_FWVM**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document revised to **R42107968**.

**R4-2107968 Email discussion summary for [99-e][158] FS\_LTE\_NR\_HPUE\_FWVM**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| TR 37.880 V1.2.0: High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Nokia, Nokia Shanghai Bell | R4-2107905 | Approved (2nd round) |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2111007 | TR 37.880 V1.1.1: High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Nokia, Nokia Shanghai Bell | Agreed |
| R4-2109390 | TP to TR 37.880: Coexistence studies for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Nokia, Nokia Shanghai Bell | Agreed |
| R4-2019391 | TP to TR 37.880: Modem software changes for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Nokia, Nokia Shanghai Bell | Agreed |
| R4-2110946 | TP to TR 37.880 UL harmonic analysis for fixed-wireless vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Huawei Technologies France | Revised to R4-2107906 |
| R4-2107906 | TP to TR 37.880 UL harmonic analysis for fixed-wireless vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Huawei Technologies France | Approved |
| R4-2111109 | TP to TR 37.880: Conclusion on feasibility studies for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71 | Nokia, Nokia Shanghai Bell | Agreed |

**WF/LS/CRs for approval**

**R4-2107905 TR 37.880 V1.2.0: High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: draft TR For: Approval  
 37.880 v1. 1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

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

**R4-2110946 TP to TR 37.880 UL harmonic analysis for fixed-wireless vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei Technologies France*

**Decision:** The document was **revised to R4-2107906**.

**R4-2107906 TP to TR 37.880 UL harmonic analysis for fixed-wireless vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei Technologies France*

**Decision: Approved.**

#### 12.1.1 General

**R4-2109388 TR 37.880 V1.1.1: High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: draft TR For: Approval  
 37.880 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

TR 37.880 V1.1.1 for approval

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

**R4-2109389 TP to TR 37.880: Conclusion on feasibility studies for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides the conclusion of this study item from the recorded findings and a text proposal for approval to include the conclusion into TR 37.880.

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

**R4-2111007 TR 37.880 V1.1.1: High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: draft TR For: Approval  
 37.880 v1.1.1 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

TR 37.880 V1.1.1 for approval

**Decision: Agreed**.

**R4-2111109 TP to TR 37.880: Conclusion on feasibility studies for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides the conclusion of this study item from the recorded findings and a text proposal for approval to include the conclusion into TR 37.880.

**Decision: Agreed**.

#### 12.1.2 Coexistence study

**R4-2109390 TP to TR 37.880: Coexistence studies for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides some discussion on the coexistence studies for this scenario and a text proposal for approval to record the discussion into TR 37.880.

**Decision: Agreed**.

#### 12.1.3 UE RF

**R4-2109391 TP to TR 37.880: Modem software changes for High-power UE Vs Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, and Band n71**

*Type: pCR For: Approval  
 37.880 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides some discussion on the required SW changes for HPUE implementation and a text proposal for approval to record the discussion into TR 37.880.

**Decision: Agreed**.

## 13 Liaison and output to other groups

### 13.1 R17 related

**LS reply on power control for NR-DC**

**R4-2108801 On Further Reply LS on power control for NR-DC**

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

**Decision: Noted**

**R4-2111354 discussion for Reply LS on power control for NR-DC**

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

**Decision: Noted**

**R4-2109682 Discussion and Reply on Further Reply LS on power control for NR-DC**

*Type: LS out For: Discussion  
 to RAN1, cc RAN2  
 Source: vivo*

**Decision: Noted**

### 13.2 Others

**Email discussion summary of [99-e][159] NR\_reply\_LS\_RF\_Part1 – Jinqiang Xing**

**R4-2107684 Email discussion summary for [99-e][159] NR\_reply\_LS\_RF\_Part1**

*Type: Other For: Information  
 Source: Moderator (Oppo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107969**.

**R4-2107969 Email discussion summary for [99-e][159] NR\_reply\_LS\_RF\_Part1**

*Type: Other For: Information  
 Source: Moderator (Oppo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| Reply LS on DC location reporting for intra-band UL CA | Huawei | R4-2107903 | Approved |
| Reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1 | OPPO | R4-2107904 | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2108802 | ON/OFF time mask inconsistency issue | Qualcomm | Noted |
| R4-2109368 | Reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1 | Qualcomm | Noted |
| R4-2109684 | Discussion and reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1 | vivo | Noted |
| R4-2110805 | Reply LS of UL MIMO ON OFF time mask | OPPO | Noted |
| R4-2111390 | Reply LS to RAN2 on DC location | Huawei | Noted |

**WF/LS/CRs for approval**

**R4-2107903 Reply LS on DC location reporting for intra-band UL CA**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved**

**R4-2107904 Reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Approved.**

**Topic #1: LS reply: ON/OFF time mask**

**R4-2108802 ON/OFF time mask inconsistency issue**

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

**Decision: Noted**.

**R4-2109684 Discussion and reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1**

*Type: LS out For: Discussion  
 to RAN5  
 Source: vivo*

**Decision: Noted**.

**LS**

**R4-2109368 Reply LS On minimum requirements for Transmit ON/OFF time mask in UL MIMO FR1**

*Type: LS out For: (not specified)  
 to RAN5  
 Source: Qualcomm India Pvt Ltd*

**Decision: Noted**.

**R4-2110805 Reply LS of UL MIMO ON OFF time mask**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**Topic #2: DC location**

**R4-2111390 Reply LS to RAN2 on DC location**

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

**Decision: Noted**.

**Email discussion summary of [99-e][160] NR\_reply\_LS\_RF\_Part2 – Aijun Cao**

**R4-2107686 Email discussion summary for [99-e][160] NR\_reply\_LS\_RF\_Part2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2105970**.

**R4-2107970 Email discussion summary for [99-e][160] NR\_reply\_LS\_RF\_Part2**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Source** | **Tdoc number** | **Status** |
| Reply LS to R2-2104550 on the intra-band and inter-band (NG)EN-DC or NE-DC Capabilities | ZTE | R4-2107907 | Approved |
| Reply LS to R5-211609 on exception requirements for Intermodulation due to Dual uplink (IMD) | Xiaomi | R4-2107908 | Noted |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2109417](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109417.zip) | On draft reply LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities | ZTE Wistron Telecom AB | Noted |
| [R4-2109687](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109687.zip) | Reply LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities | vivo | Noted |
| [R4-2111450](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111450.zip) | draft reply LS on Intra-band and Inter-band (NG)EN-DC NE-DC Capabilities | Huawei,HiSilicon | Noted |
| [R4-2109685](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109685.zip) | Discussion and reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD) | vivo | Noted |
| [R4-2110198](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110198.zip) | Discussion on reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD) | Xiaomi | Noted |
| [R4-2110437](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110437.zip) | Discussion on reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD) | ZTE | Noted |
| [R4-2111105](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110959.zip) | Discussion on requirements without MSD in 2UL IMD scenario | Ericsson | Noted |
| [R4-2110806](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110806.zip) | Discussion on RAN5 LS of exception requirements | Oppo | Noted |
| [R4-2110396](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110396.zip) | Discussion and draft Reply LS on exception requirements for Intermodulation due to Dual uplink (IMD) | Huawei | Noted |
| [R4-2110597](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2110648.zip) | TP to TR 38.921: MR/LA BS UEM requirements | ZTE | Not pursued |

**WF/LS/CRs for approval**

**R4-2107907 Reply LS to R2-2104550 on the intra-band and inter-band (NG)EN-DC or NE-DC Capabilities**

*Type: LS out For: Approval  
 Source: ZTE*

**Decision: Approved.**

**R4-2107908 Reply LS to R5-211609 on exception requirements for Intermodulation due to Dual uplink (IMD)**

*Type: LS out For: Approval  
 Source: Xiaomi*

**Decision: Noted**

**Topic#1: Dual uplink IMD**

**R4-2109685 Discussion and reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD)**

*Type: LS out For: Discussion  
 to RAN5  
 Source: vivo*

**Decision: Noted**.

**R4-2110198 Discussion on reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD)**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted**.

R4-2110396 is moved from AI 4.1.2.3 to AI 13.2

**R4-2110396 Discussion and draft Reply LS on exception requirements for Intermodulation due to Dual uplink (IMD)**

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

**Decision: Noted**.

**R4-2110437 Discussion on reply LS on Clarification on exception requirements for Intermodulation due to Dual uplink (IMD)**

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

**Decision: Noted**.

**R4-2111105 Discussion on requirements without MSD in 2UL IMD scenario**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on requirements without MSD in 2UL IMD scenario

**Decision: Noted**.

**R4-2110806 Discussion on RAN5 LS of exception requirements**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted**.

**Topic #2: Rel-15 LS reply related to Inter-band (NG)EN-DC/NE-DC Capabilities**

**R4-2109417 On draft reply LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Abstract:**

For reply to RAN2 LS (R2-2104550/R4-2107620) on UE intra-band and inter-band (NG) EN-DC/NE-DC UE capabilities

**Decision: Noted**.

**R4-2109687 Reply LS on the Intra-band and Inter-band (NG)EN-DC/NE-DC Capabilities**

*Type: LS out For: Discussion  
 to RAN2, cc RAN1  
 Source: vivo*

**Decision: Noted**.

**R4-2111450 draft reply LS on Intra-band and Inter-band (NG)EN-DC NE-DC Capabilities**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: Huawei,HiSilicon*

**Decision: Noted**.

**R4-2110597 TP to TR 38.921: MR/LA BS UEM requirements**

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

**Decision: Not pursued**.

**Simultaneous Rx/Tx capabilities and Rel-15 reply LS**

**Refer to Email discussion summary of [99-e][134] Simultaneous\_RxTx.**

**Topic #2: Reply LS to RAN2 on simultaneous Rx/Tx**

**R4-2109575 Draft Reply LS on simultaneous Rx/Tx capability**

*Type: LS out For: Approval  
 to RAN2  
 Source: Qualcomm Incorporated*

**Decision:** The document was **revised to R4-2108003**.

**R4-2108003 Draft Reply LS on simultaneous Rx/Tx capability**

*Type: LS out For: Approval  
 to RAN2  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

**R4-2110164 Discussion and draft reply LS on simultaneous Rx/Tx capability**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted**.

**Topic #3: CR for simultaneous Rx/Tx**

R4-2110932~934 are moved from AI 4.1.2.1 to AI 13.2

**R4-2110932 R15 CR on** **simultaneous Tx-Rx for CA**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0828 rev Cat: F (Rel-15)  
  
 Source: OPPO*

**Decision:** The document was **revised to R4-2107846**.

**R4-2107846 R15 CR on simultaneous Tx-Rx for CA**

*Type: CR For: Agreement  
 38.101-1 v15.13.0 CR-0828 rev Cat: F (Rel-15)  
  
 Source: OPPO*

**Decision: Postponed.**

**R4-2110933 R16 mirror CR on simultaneous Tx-Rx for CA**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0829 rev Cat: A (Rel-16)  
  
 Source: OPPO*

**Decision: Withdrawn.**

**R4-2110934 R17 mirror CR on simultaneous Tx-Rx for CA**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0830 rev Cat: A (Rel-17)  
  
 Source: OPPO*

**Decision: Withdrawn.**

R4-2110929~931 are moved from AI 4.1.2.3 to AI 13.2

**R4-2110929 R15 CR on simultaneous Tx-Rx for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0584 rev Cat: F (Rel-15)  
  
 Source: Guangdong OPPO Mobile Telecom.*

**Decision:** The document was **revised to R4-2107845**.

**R4-2107845 R15 CR on simultaneous Tx-Rx for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v15.13.0 CR-0584 rev Cat: F (Rel-15)  
  
 Source: Guangdong OPPO Mobile Telecom.*

**Decision: Postponed.**

**R4-2110930 R16 mirror CR on simultaneous Tx-Rx for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v16.7.0 CR-0585 rev Cat: A (Rel-16)  
  
 Source: OPPO*

**Decision: Withdrawn.**

**R4-2110931 R17 mirror CR on simultaneous Tx-Rx for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v17.1.0 CR-0586 rev Cat: A (Rel-17)  
  
 Source: OPPO*

**Decision: Withdrawn.**

## 14 Revision of the Work Plan

### 14.1 R17 new proposals

#### 14.1.1 Spectrum related

**R4-2109142 Motivation on new WI of intra-band non-contiguous NR-DC using band n77**

*Type: discussion For: (not specified)  
 Source: SoftBank Corp.*

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

**R4-2109432 Supporting the 6GHz band in other countries/regions**

*Type: discussion For: Information  
 Source: Apple*

**Abstract:**

For information only. The paper outlines other countries/regions where 6GHz band was opened by local regulators.

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

**R4-2109486 LTE/NR spectrum sharing in Band 34/n34**

*Type: other For: Information  
 Source: CMCC*

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

**R4-2109487 LTE/NR spectrum sharing in Band 39/n39**

*Type: other For: Information  
 Source: CMCC*

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

**R4-2110079 New WID on DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 4 bands NR inter-band CA (4DL/1UL)**

*Type: WID new For: Information  
 Source: Huawei,HiSilicon*

**Abstract:**

DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 4 bands NR inter-band CA (4DL/1UL)

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

#### 14.1.2 Non-spectrum related

**R4-2108725 Motivation for UE EMC enhancement**

*Type: WID new For: Information  
 Source: Xiaomi*

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

**R4-2108726 New WID: BS/UE EMC enhancements**

*Type: WID new For: Information  
 Source: Ericsson, Xiaomi*

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

**R4-2108947 Motivation for new WI on air-to-ground network for NR**

*Type: WID new For: Information  
 Source: CMCC*

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

**R4-2108948 New WID on air-to-ground network for NR**

*Type: WID new For: Information  
 Source: CMCC*

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

**R4-2109141 Motivation on defining 8Rx performance requirements for NR**

*Type: discussion For: (not specified)  
 Source: SoftBank Corp.*

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

**R4-2109144 Motivation for supporting non-colocated scenarios for band 42 and n77/n78**

*Type: discussion For: (not specified)  
 Source: SoftBank Corp.*

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

### 14.2 Others

## 15 Any other business

**Email discussion summary of [99-e][161] US\_n77, AI 15 —James Wang**

**R4-2107687 Email discussion summary for [99-e][161] US\_n77**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision:** The document was **revised to R4-2107971.**

**R4-2107971 Email discussion summary for [99-e][161] US\_n77**

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

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

|  |  |
| --- | --- |
| **Tdoc No.** | **Status** |
| R4-2109174 | Noted |
| R4-2109442 | Noted |
| R4-2110979 | Noted |
| R4-2111533 | Noted |
| R4-2109443 | Postponed (2nd round) |
| R4-2109444 | Withdrawn (mirror CR of R4-2109443) |
| R4-2110980 | Postponed (2nd round) |
| R4-2110981 | Withdrawn (mirror CR of R4-2110980) |
| R4-2109393 | To be revised. R4-2107990 (Revision of R4-2109393, R4-2107909) |
| R4-2107990 | Endorsed. But CR is postponed as UE and BS CRs are to be agreed as a package. |
| R4-2109394 | Withdrawn (mirror CR of R4-2109393) |
| R4-2109395 | To be revised. R4-2107991 (Revision of R4-2109395, R4-2107910) |
| R4-2107991 | Endorsed. But CR is postponed as UE and BS CRs are to be agreed as a package |
| R4-2109396 | Withdrawn (mirror CR of R4-2109395) |
| R4-2111536 | Noted |
| R4-2111531 | Withdrawn (mirror CR of R4-2111536) |
| R4-2111066 | Withdrawn |

**Discussion papers**

**R4-2109174 Discussion on enabling US 3.45 – 3.55GHz in Band n77**

*Type: discussion For: Approval  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted**.

**R4-2109442 Supporting evolving regulation in band n77 for US 3.45 to 3.55 GHz usage**

*Type: discussion For: Approval  
 Source: Apple, Skyworks Solutions Inc., T-Mobile USA*

**Decision: Noted**.

**R4-2110980 Addition of new spectrum in Band n77 for US**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0833 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Postponed**

**R4-2110981 Addition of new spectrum in Band n77 for US**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0834 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**R4-2110979 Enabling usage of Band n77 for US 3.45 – 3.55 GHz**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated, AT&T*

**Decision: Noted**.

**R4-2111533 TDD synchronization between bands n48 and n77**

*Type: discussion For: Approval  
 38.104 v CR- rev Cat: (Rel-16)  
  
 Source: CableLabs, Charter Communications, Comcast, Google, Qualcomm and DISH Network*

**Decision: Noted**.

**CRs**

38.101-1 CR

**R4-2109443 Addition of 3.45-3.55 GHz and modifiedMPR behavior in Band n77 for the US**

*Type: CR For: Agreement  
 38.101-1 v16.7.0 CR-0775 rev Cat: F (Rel-16)  
  
 Source: Apple, Skyworks Solutions Inc., T-Mobile USA*

**Decision: Postponed.**

**R4-2109444 Addition of 3.45-3.55 GHz and modifiedMPR behavior in Band n77 for the US**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0776 rev Cat: A (Rel-17)  
  
 Source: Apple, Skyworks Solutions Inc., T-Mobile USA*

**Decision: Withdrawn.**

38.104 CR

**R4-2109393 CR to TS 38.104: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0308 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Revised to R4-2107909**.

**R4-2107909 CR to TS 38.104: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0308 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Revised to R4-2107990**.

**R4-2107990 CR to TS 38.104: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0308 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Endorsed.**

**R4-2109394 CR to TS 38.104: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0309 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Withdrawn.**

**R4-2111536 CR to TS 38.104: adding a note on inter-band TDD synchronization between n48 and n77**

*Type: CR For: Agreement  
 38.104 v16.7.0 CR-0337 rev Cat: B (Rel-16)  
  
 Source: CableLabs*

**Decision: Noted**.

**R4-2111531 CR to TS 38.104: adding a note on inter-band TDD synchronization between n48 and n77**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0336 rev Cat: B (Rel-17)  
  
 Source: CableLabs, Charter Communications, Comcast, Google, Qualcomm, DISH Network*

**Decision: Withdrawn.**

38.141-1 CR

**R4-2109395 CR to TS 38.141-1: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.141-1 v16.7.0 CR-0206 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision:** The document was **revised to R4-2107910**.

**R4-2107910 CR to TS 38.141-1: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.141-1 v16.7.0 CR-0206 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision:** The document was **revised to R4-2107991**.

**R4-2107991 CR to TS 38.141-1: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.141-1 v16.7.0 CR-0206 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Endorsed.**

**R4-2109396 CR to TS 38.141-1: Additional of FCC emission limits on US 3.45-3.55 GHz band**

*Type: CR For: Agreement  
 38.141-1 v17.1.0 CR-0207 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Specify the FCC emission limits in US 3.45-3.55 GHz band as additional regional operating band unwanted emissions requirements for Band n77.

**Decision: Withdrawn.**

**R4-2111066 Draft CR to TS 38.104: adding a note on inter-band TDD synchronization between n48 and n77**

*Type: draftCR For: Endorsement  
 38.104 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CableLabs, Charter Communications, Comcast, Google, Qualcomm, DISH Network*

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

**R4-2111068 TDD synchronization between bands n48 and n77**

*Type: discussion For: Approval  
 Source: CableLabs, Charter Communications, Comcast, Google, Qualcomm, DISH Network*

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

**Refer to Email discussion summary of [99-e][151] FS\_BC\_handling**

**CR related to band combination simplification**

**R4-2109529 Optimization to channel bandwidth per operating band**

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

**Abstract:**

In this paper, we discuss the optimization to channel bandwidth per operating band in Rel-17.

**Decision: Noted**.

**R4-2109530 CR to TS 38.101-1 on UE channel bandwidth per operating band**

*Type: CR For: Agreement  
 38.101-1 v17.1.0 CR-0781 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

In this paper, we discuss the optimization on UE channel bandwidth per operating band in 38.101-1.

**Decision: Agreed**.

**R4-2109531 CR to TS 38.101-2 on UE channel bandwidth per operating band**

*Type: CR For: Agreement  
 38.101-2 v17.1.0 CR-0370 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

In this paper, we discuss the optimization on UE channel bandwidth per operating band in 38.101-2.

**Decision: Agreed**.

**R4-2109532 CR to TS 38.104 on BS channel bandwidth per operating band**

*Type: CR For: Agreement  
 38.104 v17.1.0 CR-0310 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

In this paper, we discuss the optimization on BS channel bandwidth per operating band in 38.104.

**Decision: Agreed**.

## 16 Close of the E-meeting

Report prepared by: MCC