**3GPP TSG-RAN WG4 Meeting #112-bis R4-24xxxxx**

**Hefei, China, 14 – 18 October, 2024**

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

**DRAFT Meeting Report  
for  
TSG RAN WG4  
meeting: 112**

**Maastricht, Netherlands, 19/08/2024 to 23/08/2024**

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## 1 Opening of the meeting

The Chair Xizeng Dai (Huawei) opened the meeting at RAN4#112 on 19/08/2024 at 09:00.

Dominique Everaere (Ericsson) provided the welcome speech.

**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 Chair and Vice-Chairs 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 in 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 Shan Yang (China Telecom), and BS RF Test Demod session was chaired by RAN4 Vice Chair Gene Fong (Qualcomm). The sessions were further broken down into separate GTW sessions (separate meeting rooms in F2F meeting). Webinar sessions were made available for online particpants.

Note: One or two additional offline(s) / adhoc session(s) may be scheduled according to RAN conclusion. Total three parallel GTW sessions would be scheduled. Plus, any additonal Offline(s) / ad hoc sesion(s) = ad hoc room or breakout room in F2F meeting.

**Check-in for Registered Delegates**

The attention of the delegates to this meeting was drawn to the fact that it is not permitted to check in other delegates on their behalf. In the even of technical difficulties preventing check in, delegates are encouraged to contact in person MCC.

**Ordinary E-meeting participation**

Attendance at ordinary e-meetings now counts towards accrual and maintenance of voting rights.

- A delegate is deemed to have attended a given meeting if they confirm their participation by check in. If a delegate does not check in during the meeting, it shall be assumed that the individual did not attend.

**Face-to-Face meeting with one-way remote participation (going forward there is no longer two-way remote)**

When it is a face-to-face (ordinary) meeting with one-way remote participation.

- In a meeting designated as face to face (ordinary), those participating remotely are not to be counted toward quorum or attendance, and are not allowed to vote

**F2F network usage conditions**

The PCG has laid down the following network usage conditions as provided below:

**Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws**.

**Users shall not engage in non-work related activities that consume excessive bandwidth** or cause significant degradation of the performance of the network.

Since the **network is a shared resource**, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting Chair should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

**1. DON’T place your WiFi device in ad-hoc mode**

**2. DON’T set up a personal hotspot in the meeting room**

**3. DO try 802.11a if your WiFi device supports it**

**4. DON’T manually allocate an IP address**

**5. DON’T be a bandwidth hog by streaming video, playing online games, or downloading huge files**

**6. DON’T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)**

**Recording of RAN4 Meeting**

Recording of the GoToWebinar sessions of the present meeting is strictly prohibited. No individual or entity – including the speakers and/or the authors – may electronically record any portion of the meeting without prior written consent of the Chair and all the RAN4 meeting participants.

**Snapshot of contributions type areas submitted in 3GU before the start of the meeting: Total: 2465**

**Figure 1: Breakdown of contributions type areas for RAN4#112 pre-meeting**

At the beginning of the meeting, there are 805 CRs (60 was either withdrawn/revised) that have been submitted to the meeting.

1. There are 545 CRs that are marked as available in 3GU

2. There are 40 CRs with parsing failure issues (note: the list of tdocs have already been submitted on RAN4 reflector)

[R4-2411050](file:///D:\RAN4%23112\Docs\R4-2411050.zip)

[R4-2411051](file:///D:\RAN4%23112\Docs\R4-2411051.zip)

[R4-2411345](file:///D:\RAN4%23112\Docs\R4-2411345.zip)

[R4-2411346](file:///D:\RAN4%23112\Docs\R4-2411346.zip)

[R4-2411351](file:///D:\RAN4%23112\Docs\R4-2411351.zip)

[R4-2411363](file:///D:\RAN4%23112\Docs\R4-2411363.zip)

[R4-2411364](file:///D:\RAN4%23112\Docs\R4-2411364.zip)

[R4-2411366](file:///D:\RAN4%23112\Docs\R4-2411366.zip)

[R4-2411369](file:///D:\RAN4%23112\Docs\R4-2411369.zip)

[R4-2411371](file:///D:\RAN4%23112\Docs\R4-2411371.zip)

[R4-2411373](file:///D:\RAN4%23112\Docs\R4-2411373.zip)

[R4-2411375](file:///D:\RAN4%23112\Docs\R4-2411375.zip)

[R4-2411377](file:///D:\RAN4%23112\Docs\R4-2411377.zip)

[R4-2411378](file:///D:\RAN4%23112\Docs\R4-2411378.zip)

[R4-2411611](file:///D:\RAN4%23112\Docs\R4-2411611.zip)

[R4-2411612](file:///D:\RAN4%23112\Docs\R4-2411612.zip)

[R4-2412002](file:///D:\RAN4%23112\Docs\R4-2412002.zip)

[R4-2412155](file:///D:\RAN4%23112\Docs\R4-2412155.zip)

[R4-2412162](file:///D:\RAN4%23112\Docs\R4-2412162.zip)

[R4-2412178](file:///D:\RAN4%23112\Docs\R4-2412178.zip)

[R4-2412285](file:///D:\RAN4%23112\Docs\R4-2412285.zip)

[R4-2412287](file:///D:\RAN4%23112\Docs\R4-2412287.zip)

[R4-2412288](file:///D:\RAN4%23112\Docs\R4-2412288.zip)

[R4-2412445](file:///D:\RAN4%23112\Docs\R4-2412445.zip)

[R4-2412513](file:///D:\RAN4%23112\Docs\R4-2412513.zip)

[R4-2412516](file:///D:\RAN4%23112\Docs\R4-2412516.zip)

[R4-2412870](file:///D:\RAN4%23112\Docs\R4-2412870.zip)

[R4-2412874](file:///D:\RAN4%23112\Docs\R4-2412874.zip)

[R4-2412875](file:///D:\RAN4%23112\Docs\R4-2412875.zip)

[R4-2412876](file:///D:\RAN4%23112\Docs\R4-2412876.zip)

[R4-2413083](file:///D:\RAN4%23112\Docs\R4-2413083.zip)

[R4-2413084](file:///D:\RAN4%23112\Docs\R4-2413084.zip)

[R4-2413085](file:///D:\RAN4%23112\Docs\R4-2413085.zip)

[R4-2413086](file:///D:\RAN4%23112\Docs\R4-2413086.zip)

[R4-2413087](file:///D:\RAN4%23112\Docs\R4-2413087.zip)

[R4-2413088](file:///D:\RAN4%23112\Docs\R4-2413088.zip)

[R4-2413089](file:///D:\RAN4%23112\Docs\R4-2413089.zip)

[R4-2413090](file:///D:\RAN4%23112\Docs\R4-2413090.zip)

[R4-2413091](file:///D:\RAN4%23112\Docs\R4-2413091.zip)

[R4-2413092](file:///D:\RAN4%23112\Docs\R4-2413092.zip)

3. There are 195 CAT A CRs reserved in 3GU (note: if any CAT A CRs are missing, please notify chair or session chairs)

4. There are 60 CRs that are marked as withdrawn in 3GU

5. There are 5 CAT F CRs not made available by Huawei, HiSilicon. The tdoc numbers are:

a. [R4-2312782](file:///D:\RAN4%23112\Docs\R4-2312782.zip)

b. [R4-2412781](file:///D:\RAN4%23112\Docs\R4-2412781.zip)

c. [R4-2412779](file:///D:\RAN4%23112\Docs\R4-2412779.zip)

d. [R4-2412778](file:///D:\RAN4%23112\Docs\R4-2412778.zip)

e. [R4-2412777](file:///D:\RAN4%23112\Docs\R4-2412777.zip)

Breakdown of available CRs at start of the meeting:

- Rel-13 CR (1)

- MCC: This is for a (NB\_IOT-Perf) CR on RSRP-ThresholdsNPRACH-InfoList for NB-IoT (Cat-F Rel-13)

- Rel-14 CR (3)

- Rel-15 CRs (28)

- Rel-16 CRs (56)

- Rel-17 CRs (162)

- Rel-18 CRs (495)

- Rel-19 CR (14)

- MCC: There should not be any Rel-19 CRs for agreement at this stage. They were all withdrawn.

## 2 Meeting agenda, arrangement and meeting report

[R4-2411000](file:///D:\RAN4%23112\Docs\R4-2411000.zip) **RAN4#111 Meeting Report**

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

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Approved.**

[R4-2411001](file:///D:\RAN4%23112\Docs\R4-2411001.zip) **Agenda for RAN4#112**

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

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Approved.**

[R4-2411002](file:///D:\RAN4%23112\Docs\R4-2411002.zip) **RAN4#112 Meeting Arrangements and Guidelines**

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

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Approved.**

## 3 Incoming LS

[R4-2411003](file:///D:\RAN4%23112\Docs\R4-2411003.zip) **Reply LS on SL positioning measurement**

*Type: LS in For: Information  
 Original outgoing LS: R1-2405511, to RAN2, RAN4, cc -  
 Source: RAN1*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411004](file:///D:\RAN4%23112\Docs\R4-2411004.zip) **LS on Rel-18 RAN1 UE features list for NR after RAN1#117**

*Type: LS in For: Information  
 Original outgoing LS: R1-2405566, to RAN2, RAN4, cc -  
 Source: RAN1*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411005](file:///D:\RAN4%23112\Docs\R4-2411005.zip) **LS on Rel-18 RAN1 UE features list for LTE after RAN1#117**

*Type: LS in For: Information  
 Original outgoing LS: R1-2405569, to RAN2, cc RAN4  
 Source: RAN1*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411006](file:///D:\RAN4%23112\Docs\R4-2411006.zip) **Reply LS on Reference Point for SSB-TimeOffset**

*Type: LS in For: Information  
 Original outgoing LS: R1-2405719, to RAN2, cc RAN4  
 Source: RAN1*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411007](file:///D:\RAN4%23112\Docs\R4-2411007.zip) **LS on UE assistance information**

*Type: LS in For: Information  
 Original outgoing LS: R1-2405736, to RAN4, cc RAN2  
 Source: RAN1*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411008](file:///D:\RAN4%23112\Docs\R4-2411008.zip) **LS on RACH during uplink transmission extension**

*Type: LS in For: Information  
 Original outgoing LS: R2-2405766, to RAN1, cc RAN4  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411009](file:///D:\RAN4%23112\Docs\R4-2411009.zip) **LS on UL synchronization for contention based Msg3 transmission without Msg1/Msg2**

*Type: LS in For: Information  
 Original outgoing LS: R2-2405769, to RAN1, RAN4, cc -  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411010](file:///D:\RAN4%23112\Docs\R4-2411010.zip) **Reply LS on SL positioning measurements**

*Type: LS in For: Information  
 Original outgoing LS: R2-2405872, to RAN4, cc -  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411011](file:///D:\RAN4%23112\Docs\R4-2411011.zip) **LS reply on 3Tx SAR solution for inter-band CA with PC1.5**

*Type: LS in For: Information  
 Original outgoing LS: R2-2406022, to RAN4, cc -  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411012](file:///D:\RAN4%23112\Docs\R4-2411012.zip) **Reply LS on IE supportedBandwidthCombinationSetIntraENDC and IE intraBandENDC-Support**

*Type: LS in For: Information  
 Original outgoing LS: R2-2406111, to RAN4, cc -  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411013](file:///D:\RAN4%23112\Docs\R4-2411013.zip) **Reply LS on Rel-18 higher-layers parameter list**

*Type: LS in For: Information  
 Original outgoing LS: R2-2406148, to RAN1, cc RAN3, RAN4  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411014](file:///D:\RAN4%23112\Docs\R4-2411014.zip) **Reply LS on RAN4 vs RAN2 Cricket Match**

*Type: LS in For: Information  
 Original outgoing LS: R2-2406149, to RAN4, cc -  
 Source: RAN2*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411015](file:///D:\RAN4%23112\Docs\R4-2411015.zip) **LS on Development of NB-IoT test cases for Release 15 and Release 16**

*Type: LS in For: Information  
 Original outgoing LS: R5-243972, to GSMA TSG Internet of Things (IoT) group, cc RAN4, GCF SG, GCF CAG  
 Source: RAN5*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411016](file:///D:\RAN4%23112\Docs\R4-2411016.zip) **LS on Avoiding Cross-TSG TEI**

*Type: LS in For: Information  
 Original outgoing LS: RP-241686, to CT, CT1, CT3, CT4, CT6, SA, SA1, SA2, SA3, SA4, SA5, SA6, cc RAN1, RAN2, RAN3, RAN4, RAN5  
 Source: RAN*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

[R4-2411017](file:///D:\RAN4%23112\Docs\R4-2411017.zip) **Blocking requirements for extended L band**

*Type: LS in For: Information  
 Original outgoing LS: SES(24)000037, to RAN4, cc ETSI TC ERM  
 Source: ETSI TC SES*

**Abstract:**

[RAN4#112][100] Main Session

**Decision: Noted.**

## 4 Up to Rel-17 maintenance for LTE and NR

The following guidance are provided for maintenance work under AI 4 ~ AI 5:

‒ For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

‒ When submitting contributions to AI 4, AI 5.2, AI 5.34, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

‒ When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

‒ For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

‒ The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 9.

‒ The contributions corresponding to incoming LS for Rel-18/19 are expected to be submitted to (sub-) agenda dedicated to the individual WIs. If there is no dedicated agenda, please submit to AI 5.2 or AI 5.34 depending on whether it is spectrum related topic or non-spectrum related topic.

[R4-2412412](file:///D:\RAN4%23112\Docs\R4-2412412.zip) **CR on MSD value correction for power class 5 cross band isolation**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2430 rev Cat: F (Rel-17)  
  
 Source: LG Electronics France*

**Decision: Agreed.**

[R4-2412430](file:///D:\RAN4%23112\Docs\R4-2412430.zip) **CR on MSD value correction for power class 5 cross band isolation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2432 rev Cat: A (Rel-18)  
  
 Source: LG Electronics France*

**Decision: Agreed.**

[R4-2412425](file:///D:\RAN4%23112\Docs\R4-2412425.zip) **CR on MSD value correction for power class 5 cross band isolation**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2431 rev Cat: A (Rel-17)  
  
 Source: LG Electronics France*

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

### 4.1 Moderator summary and conclusions (for Agenda 4)

[R4-2412803](file:///D:\RAN4%23112\Docs\R4-2412803.zip) **Topic summary for [112][101] Upto\_R17\_UERF\_maintenance**

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

**Abstract:**

Summary for AI 4.2, 4.8

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

**Miniutes and conlcusions in the first round**

**Newly allocated tdocs for approval**

### 4.2 UE RF requirements

**Issue 1-1-1: About n28/n83 30MHz channel confinement**

[R4-2412614](file:///D:\RAN4%23112\Docs\R4-2412614.zip) **About n28/n83 30MHz channel confinement**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

This contribution discusses the current wording for n28/n83 30MHz channel confinement and proposes how to change it.

**Decision: Noted.**

CR

[R4-2412615](file:///D:\RAN4%23112\Docs\R4-2412615.zip) **CR on n28 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2454 rev Cat: F (Rel-16)  
  
 Source: Qualcomm France*

**Abstract:**

NWM comments:

HUAWEI: [Henry] For 30MHz BW, UE UL carrier frequency can’t be configured with larger range than 20 and 25MHz

R&S (Niels): ok to change the wording as proposed in the CRs, but in our understanding the frequency range needs to change as well.

ZTE (Wubin): Share same view with R&S, the corresponding frequency range should be changed accordingly.

Apple (Elmar): Both CRs are changing the spec for the worse. Before there is a limit for the 30MHz channel that it completely needs to be within either 703-733MHz or 718-748MHz. After the change the center frequency could be set that half the channel is outside the band. If changing this to the center frequency instead of the transmission bandwidth, the carrier frequencies need to be fixed to 718 or 733MHz, not a range.

Qualcomm (Antti): Flagging my own CR. I forgot to change the frequency range. Suggestion for modification: For the 30MHz bandwidth, the minimum requirements are specified for NR UL channel bandwidth confined to either 703-733MHz or 718-748MHz

**Decision: Revised to R4-2414352 (from R4-2412615).**

[**R4-2414352**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414352.zip) **CR on n28 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2454 rev Cat: F (Rel-16)  
  
 Source: Qualcomm France*

**Abstract:**

Changing n28 channel confinement wording to be aligned with that specified for 20MHz and 25MHz channel

Chair: this CR will be further dicussed when the conclusion for n28 40MHz channel bandwidths is made.

**Decision: Not pursued.**

[R4-2412616](file:///D:\RAN4%23112\Docs\R4-2412616.zip) **CR on n28 and n83 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2455 rev Cat: F (Rel-17)  
  
 Source: Qualcomm France*

**Abstract:**

Changing n28 and n83 channel confinement wording to be aligned with that specified for 20MHz and 25MHz channel

**Decision: Revised to R4-2414353 (from R4-2412616).**

[**R4-2414353**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414353.zip) **CR on n28 and n83 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2455 rev Cat: F (Rel-17)  
  
 Source: Qualcomm France*

**Abstract:**

Changing n28 and n83 channel confinement wording to be aligned with that specified for 20MHz and 25MHz channel

Huawei: we can postpone the discussion since n28 40MHz is under discussion.

CATT: it is unnecessary. The current wording is with on issue.

Qualcomm: it is very wiered. Transmission band is clearly defined.

**Decision: Not pursued.**

[R4-2412617](file:///D:\RAN4%23112\Docs\R4-2412617.zip) **CR on n28 and n83 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2456 rev Cat: A (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Changing n28 and n83 channel confinement wording to be aligned with that specified for 20MHz and 25MHz channel. MCC: This is CAT A CR.

**Decision: Revised to R4-2414354 (from R4-2412617).**

[**R4-2414354**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414354.zip) **CR on n28 and n83 30MHz channel confinement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2456 rev Cat: A (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Changing n28 and n83 channel confinement wording to be aligned with that specified for 20MHz and 25MHz channel. MCC: This is CAT A CR.

**Decision: Withdrawn.**

**Issue 1-2-1: MBW of Min output power for FR2 UE PC5/6**

[R4-2411717](file:///D:\RAN4%23112\Docs\R4-2411717.zip) **Discussion on Measurement Bandwidth for FR2 UE Tx**

*Type: discussion For: Discussion  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

CR

[R4-2411718](file:///D:\RAN4%23112\Docs\R4-2411718.zip) **CR to TS 38.101-2: Correction on Measurement BW for FR2 PC5, 6**

*Type: CR For: Agreement  
 38.101-2 v17.14.0 CR-0753 rev Cat: F (Rel-17)  
  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Agreed.**

[R4-2411719](file:///D:\RAN4%23112\Docs\R4-2411719.zip) **CR to TS 38.101-2: Correction on Measurement BW for FR2 PC5, 6**

*Type: CR For: Agreement  
 38.101-2 v18.6.0 CR-0754 rev Cat: A (Rel-18)  
  
 Source: Murata Manufacturing Co Ltd.*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**Issue 1-3-1: On the definition of geosynchronous satellites**

[R4-2412868](file:///D:\RAN4%23112\Docs\R4-2412868.zip) **(NR\_NTN\_Solutions) On the definition of geosynchronous satellites**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2412943](file:///D:\RAN4%23112\Docs\R4-2412943.zip) **(NR\_NTN\_solutions-Core) Discussion on clarification for Terminology GSO**

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

**Decision: Noted.**

**Issue 1-4-1/2: DMRS bundling feature for NTN**

[R4-2412985](file:///D:\RAN4%23112\Docs\R4-2412985.zip) **(NR\_NTN\_solutions-Core) DMRS bundling feature support from Rel-17**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Noted.**

CR

[R4-2412986](file:///D:\RAN4%23112\Docs\R4-2412986.zip) **(NR\_NTN\_solutions-Core) CR to 38.101-5 DMRS bundling requirement update for NTN GSO**

*Type: CR For: Agreement  
 38.101-5 v17.8.0 CR-0118 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

Apple: Ericsson CR and Apple CR are opposite. DMRS bundling is precluded. When we finish REl-17 and start Rel-18, the WID includes DMRS bundling and takes Rel-17 as baseline with RAN1 work. When all those are finished, Ericsson propose to include Rel-18 work to Rel-17. We should approve Apple CR and then if companies want to make sub-set for GSO case, …

Ericsson: What is the RAN1 really specified. GSO is from Rel-17 and feature applies from Rel-17. NGSO is another story.

Qualcomm: We would like to take it later.

**Decision: Return to.**

[R4-2411306](file:///D:\RAN4%23112\Docs\R4-2411306.zip) **(NR\_NTN\_solutions-Core) CR to 38.101-5 to clarify applicability of phase continuity requirements in R17**

*Type: CR For: Agreement  
 38.101-5 v17.8.0 CR-0105 rev Cat: F (Rel-17)  
  
 Source: Apple, Huawei, HiSilicon*

**Decision: Return to.**

**Issue 1-6-1: DL interruptions for 2Tx vs 1Tx switching**

[R4-2413319](file:///D:\RAN4%23112\Docs\R4-2413319.zip) **(NR\_RF\_FR1\_enh-Core) DL interruptions for 2Tx vs 1Tx switching**

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

**Proposal: Consider “no DL interruption” mandate for earlier releases to be dependent on the switching case.**

China Telecom: We can do it in Rel-19. We want to see if we can reach agreement that there is no impact on the early release and can have further discussion in Rel-19.

Qualcomm: not OK with it.

Nokia: we have similar understanding. The DL interruption for earlier release is not fully linked to this.

**Decision: Noted.**

**CRs for 38.101-1 (31)**

**#1**

[R4-2411036](file:///D:\RAN4%23112\Docs\R4-2411036.zip) **CR to R17 38.101-1 to add 25MHz CBW to NS\_18 emissions requirement**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2373 rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

this CR add the 25MHz CBW to the NS\_18 emissions requirement for which AMPR is defined

**Decision: Agreed.**

[R4-2411046](file:///D:\RAN4%23112\Docs\R4-2411046.zip) **CR to R18 38.101-1 to add 25MHz CBW to NS\_18 emissions requirement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2374 rev Cat: A (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

this CR add he 25MHz CBW to the NS\_18 emissions requirement for which AMPR is defined

**Decision: Agreed.**

**#2**

[R4-2411162](file:///D:\RAN4%23112\Docs\R4-2411162.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL-Core) CR for 38.101-1 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2378 rev Cat: F (Rel-17)  
  
 Source: Apple*

CHTTL: It is not critical. The spec is not broken.

**Decision: Agreed.**

[R4-2411163](file:///D:\RAN4%23112\Docs\R4-2411163.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL-Core) CR for 38.101-1 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2379 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Withdrawn.**

[**R4-2414371**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414371.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL-Core) CR for 38.101-1 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2379 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Withdrawn.**

**#3**

[R4-2411240](file:///D:\RAN4%23112\Docs\R4-2411240.zip) **(NR\_newRAT-Core) Clarification on modifiedMPR-Behaviour**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2382 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Address a raised issue in [R4-2407625](file:///D:\RAN4%23112\Docs\R4-2407625.zip).

**Decision: Not pursued.**

[R4-2411241](file:///D:\RAN4%23112\Docs\R4-2411241.zip) **(NR\_newRAT-Core) More on clarification on modifiedMPR-Behaviour**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2383 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Address a raised issue in [R4-2407625](file:///D:\RAN4%23112\Docs\R4-2407625.zip).

**Decision: Not pursued.**

**#4**

[R4-2411532](file:///D:\RAN4%23112\Docs\R4-2411532.zip) **(NR\_CADC\_R17\_2BDL\_xBUL) Removal of CA combinations containing n48(A-C)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2386 rev Cat: F (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Revised to R4-2414382 (from R4-2411532).**

[**R4-2414382**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414382.zip) **(NR\_CADC\_R17\_2BDL\_xBUL) Removal of CA combinations containing n48(A-C)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2386 rev Cat: F (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed.**

[R4-2411533](file:///D:\RAN4%23112\Docs\R4-2411533.zip) **(NR\_CADC\_R17\_2BDL\_xBUL) Removal of CA combinations containing n48(A-C)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2387 rev Cat: A (Rel-18)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed.**

**#5**

[R4-2411588](file:///D:\RAN4%23112\Docs\R4-2411588.zip) **CR for TS 38.101-1 Rel-15 correction on the terminology of emission bandwidth for NS\_04**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2388 rev Cat: F (Rel-15)  
  
 Source: Sony, Ericsson*

NWM comments:

Skyworks: we do not see the need for the CR and the change. NRB is the correct parameter, not LRB. Tables 6.5.2.3.2-1/2 titles are correct, there is no need to change. Capturing the FCC requirement may not be needed if the 3GPP requirement is tighter. maximum transmission BW is already understood as the largest BW transmitted for a given channel BW.

Skyworks: the changes from Rel-15. Not sure if changes are needed.

**Decision: Revised to R4-2414433 (from R4-2411588).**

[**R4-2414433**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414433.zip) **CR for TS 38.101-1 Rel-15 correction on the terminology of emission bandwidth for NS\_04**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2388 rev Cat: F (Rel-15)  
  
 Source: Sony, Ericsson*

NWM comments:

Skyworks: we do not see the need for the CR and the change. NRB is the correct parameter, not LRB. Tables 6.5.2.3.2-1/2 titles are correct, there is no need to change. Capturing the FCC requirement may not be needed if the 3GPP requirement is tighter. maximum transmission BW is already understood as the largest BW transmitted for a given channel BW.

Skyworks: the changes from Rel-15. Not sure if changes are needed.

**Decision: Return to.**

[R4-2411589](file:///D:\RAN4%23112\Docs\R4-2411589.zip) **CR for TS 38.101-1 Rel-16 correction on the terminology of emission bandwidth for NS\_04**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2389 rev Cat: A (Rel-16)  
  
 Source: Sony, Ericsson*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

[R4-2411590](file:///D:\RAN4%23112\Docs\R4-2411590.zip) **CR for TS 38.101-1 Rel-17 correction on the terminology of emission bandwidth for NS\_04**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2390 rev Cat: A (Rel-17)  
  
 Source: Sony, Ericsson*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

[R4-2411591](file:///D:\RAN4%23112\Docs\R4-2411591.zip) **CR for TS 38.101-1 Rel-18 correction on the terminology of emission bandwidth for NS\_04**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2391 rev Cat: A (Rel-18)  
  
 Source: Sony, Ericsson*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**#6**

[R4-2411668](file:///D:\RAN4%23112\Docs\R4-2411668.zip) **(NR\_redcap-Core) Correction of the channel raster for RedCap UEs by added entries**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2393 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the a channel raster for RedCap by adding intermediary 10 kHz entries (consistent with the enhanced raster for Rel-18) to make sure all RedCap UEs are compliant with minimum requirements for any UE specific channel bandwidth and location configurable by RRC.

NWM comments:

HUAWEI (liehai): It is a NBC change for Rel-17 since 10 KHz raster was introduced in Rel-18.

CHTTL: maybe dependent on the result of Issue 2-3-1 in thread 102, in addition, in 5.4I.2.3 the 2nd paragraph seems saying basically the same thing as the 1st paragraph?

Ericsson: we want to send LS to RAN2.

Huawei: there is NBC change.

Apple: This issue was discussed for several meetings. The feature is in Rel-18.

Nokia: We have another proposal in Rel-18 maintenance.

Ericsson: We are proposing this change to avoid network configurations for all UEs just because a few of devices cannot support. According to NBC issue in China, the band is deployed and there are no issues. Most of bands are TDD bands without 100KHz. In our understanding, there is no issue. We can avoid this configuration.

AT&T: The lack of changes will impact all the network deployment. We should agree with CR and send LS.

Verizon: This was discussed for a long time. That is the major feature and we should agree on the CRs.

CMCC: From our deployment, TDD RedCap has no NBC issue. So far we do not see the NBC issue.

DT: We do not see the NBC issue.

Apple: We can indicate and mandate this capability from Rel-17.

Ericsson: This is release-18 capability. There is no way for RAN2 to mandate the feature for the early release. There is no need to have capability.

TelecomItaly: support the CR and comment from Ericsson.

Orange: same view as TelecomItaly. There is no NBC issue. Support Ericsson.

Apple: we need basic agreement that we make Rel-18 feature be supported from Rel-17.

Ericsson: Why should we not follow the procedure and create the problem by having capability.

Apple: operators can indicate which bands to be supported.

Huawei: for this release-17, network deploys 25MHz CBW. If operators have some bands, then we can mandate enh. raster for a certain band. If mandating this from Rel-17, UE needs mandating sync raster.

Mediatek: We understand the concern. We can support this changes. We do not see the NBC issue.

AT&T: we cannot list the band and we move devices from one band to other band. We cannot identify some bands and add others in the future meeting.

CMCC: I agree with AT&T comments. For RedCap, spec has already supported all the NR bands. It is not possible to choose some NR bands for RedCap.

Huawei: mandating the bands can be done from Rel-18. We can consider mandating the support for some bands from Rel-17.

Qualcomm: For Rel-17, we do not want to add any capability. If we do this change, it should be done by mandatory and no capability.

Ericsson: if you have 30MHz UE can only use 5MHz granularity. We should do it for all bands.

**Agreement:**

* The enhanced channel raster is mandated for Rel-17 RedCap UE from Rel-17 specifcaiton version 17.15.0 onwards
  + The RedCap UE, which complies with Rel-17 specifications of verion 17.14.0 and before version 17.14.0, may support the legacy channel raster only.

**Decision: Revised to R4-2414434 (from R4-2411668).**

[**R4-2414434**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414434.zip) **(NR\_redcap-Core) Correction of the channel raster for RedCap UEs by added entries**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2393 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to correct the a channel raster for RedCap by adding intermediary 10 kHz entries (consistent with the enhanced raster for Rel-18) to make sure all RedCap UEs are compliant with minimum requirements for any UE specific channel bandwidth and location configurable by RRC.

**Decision: Return to.**

[R4-2411669](file:///D:\RAN4%23112\Docs\R4-2411669.zip) **(NR-redcap-Core) Correction of the channel raster for RedCap UEs by added entries**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2394 rev Cat: A (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

MCC: This is CAT A CR. CR to correct the a channel raster for RedCap by adding intermediary 10 kHz entries (consistent with the enhanced raster for Rel-18) to make sure all RedCap UEs are compliant with minimum requirements for any UE specific channel bandwidth and location configurable by RRC.

**Decision: Return to.**

**#7**

[R4-2411829](file:///D:\RAN4%23112\Docs\R4-2411829.zip) **(NR\_6GHz\_unlic\_EU-Core) CR for TS 38.101-1 on UE transmitter power for the Pcmax tolerance for NR unlicensed operation (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2398 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2414372 (from R4-2411829).**

[**R4-2414372**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414372.zip) **(NR\_6GHz\_unlic\_EU-Core) CR for TS 38.101-1 on UE transmitter power for the Pcmax tolerance for NR unlicensed operation (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2398 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

[R4-2411830](file:///D:\RAN4%23112\Docs\R4-2411830.zip) **(NR\_6GHz\_unlic\_EU-Core) CR for TS 38.101-1 on UE transmitter power for the Pcmax tolerance for NR unlicensed operation (R18\_CAT\_A)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2399 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#8**

[R4-2411831](file:///D:\RAN4%23112\Docs\R4-2411831.zip) **(NR\_CADC\_R17\_3BDL\_2BUL-Core) CR for TS 38.101-1 on UE configured power relaxation for special component bands (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2400 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

NWM comments:

Samsung (Tina): CA\_n3-n77-n79 is not in order, it may be good to correct it together; unclear why n25-n41-n71 is removed, the coversheet says CA\_n25-n41-n77 is duplicated but seems not?

HUAWEI (hiro): It is not clear why CA\_n25-n41-n71 was removed.

ZTE: Reply to Samsung and Huawei. For R4-2411831, a revision has been uploaded to correct the mentioned issues. The order of CA\_n3-n77-n79 is corrected. Undo the changes for CA\_n25-n41-n77.

Qualcomm [Ville]: It would be better practice not to put this note 2 in to the table 6.2F.3.1-1 but use the paragraph above to say the same thing. I know other tables have it but having a bad practice elsewhere does not mean we must repeat it here. just to clarify, one could say all of the pragraph above could be put in in the tabel as notes, these two lines: ”Table 6.2F.3.1-1 specifies the additional requirements with their associated network signalling values and the allowed A-MPR and applicable operating band(s) for each NS value. The mapping of NR frequency band numbers and values of the additionalSpectrumEmission to network signalling labels is specified in Table 6.2F.3.1-1A.” But it unnecessry inflates the notes in the tables.

CHTTL: Note that in the spec, it is mentioned that”For the UE which supports inter-band NR CA configuration, ΔTIB,c in tables below applies. Unless otherwise stated, ΔTIB,c is set to zero.” So even if some delta T = 0 is written in the previous release of the spec, it is still ok.

**Decision: Revised to R4-2414373 (from R4-2411831).**

[**R4-2414373**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414373.zip) **(NR\_CADC\_R17\_3BDL\_2BUL-Core) CR for TS 38.101-1 on UE configured power relaxation for special component bands (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2400 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**#9**

[R4-2411864](file:///D:\RAN4%23112\Docs\R4-2411864.zip) **(NR\_RF\_FR1\_enh-Core) CR for TS 38.101-1: Corrections on intra-band UL contiguous CA with UL MIMO for PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2404 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**#10**

[R4-2411890](file:///D:\RAN4%23112\Docs\R4-2411890.zip) **CR on 38.101-1 Remove the superscript NOTE 1 for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2406 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

[R4-2411891](file:///D:\RAN4%23112\Docs\R4-2411891.zip) **CR on 38.101-1 Remove the superscript NOTE 1 for intra-band contiguous CA**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2407 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#11**

[R4-2411925](file:///D:\RAN4%23112\Docs\R4-2411925.zip) **(NR\_n28\_BW-Core) Apply ?MPR to the total MOP reduction**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2408 rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation, Sanechips*

NWM comments:

CHTTL: wonder why CA is impacted in Rel.16?

ZTE(Wubin): reply the CHTTL’s flag R4-2411925: As oflfine discussed, the modification for CA would be still needed from specfication perspective, since the inter-band UL CA MPR requirements refer to requirements of the constitute band.

**Decision: Agreed.**

[R4-2411926](file:///D:\RAN4%23112\Docs\R4-2411926.zip) **(NR\_n28\_BW-Core) Apply ?MPR to the total MOP reduction**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2409 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2411927](file:///D:\RAN4%23112\Docs\R4-2411927.zip) **(NR\_n28\_BW-Core) Apply ?MPR to the total MOP reduction**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2410 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#12**

[R4-2412040](file:///D:\RAN4%23112\Docs\R4-2412040.zip) **CR on typo for A-MPR of NR unlicensed band**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2416 rev Cat: F (Rel-16)  
  
 Source: LG Electronics*

**Abstract:**

It is CR on fixing of refered table number for NR unlicensed A-MPR in Rel-16

**Decision: Agreed.**

[R4-2412043](file:///D:\RAN4%23112\Docs\R4-2412043.zip) **CR on typo for A-MPR of NR unlicensed band (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2417 rev Cat: A (Rel-17)  
  
 Source: LG Electronics*

**Abstract:**

It is CR on fixing of reference table number for NR unlicensed A-MPR in Rel-17. MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2412044](file:///D:\RAN4%23112\Docs\R4-2412044.zip) **CR on typo for A-MPR of NR unlicensed band (R18)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2418 rev Cat: A (Rel-18)  
  
 Source: LG Electronics*

**Abstract:**

It is CR on fixing of reference table number for NR unlicensed A-MPR in Rel-18. MCC: This is CAT A CR.

**Decision: Agreed.**

**#13**

[R4-2412446](file:///D:\RAN4%23112\Docs\R4-2412446.zip) **(NR\_newRAT-core) CR for TS 38.101-1 R15 correction on AMPR for NS\_10**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2433 rev Cat: D (Rel-15)  
  
 Source: Spreadtrum Communications*

**Decision: Agreed.**

[R4-2412447](file:///D:\RAN4%23112\Docs\R4-2412447.zip) **(NR\_newRAT-core) CR for TS 38.101-1 R16 correction on AMPR for NS\_10**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2434 rev Cat: A (Rel-16)  
  
 Source: Spreadtrum Communications*

**Decision: Agreed.**

[R4-2412448](file:///D:\RAN4%23112\Docs\R4-2412448.zip) **(NR\_newRAT-core) CR for TS 38.101-1 R17 correction on AMPR for NS\_10**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2435 rev Cat: A (Rel-17)  
  
 Source: Spreadtrum Communications*

**Decision: Agreed.**

[R4-2412449](file:///D:\RAN4%23112\Docs\R4-2412449.zip) **(NR\_newRAT-core) CR for TS 38.101-1 R18 correction on AMPR for NS\_10**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2436 rev Cat: A (Rel-18)  
  
 Source: Spreadtrum Communications*

**Decision: Agreed.**

**#14**

[R4-2412469](file:///D:\RAN4%23112\Docs\R4-2412469.zip) **(TEI17) CR to correct the note 1 indication from NS\_05 to NS\_05U - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2438 rev Cat: F (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Agreed.**

[R4-2412470](file:///D:\RAN4%23112\Docs\R4-2412470.zip) **(TEI17) CR to correct the note 1 indication from NS\_05 to NS\_05U - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2439 rev Cat: A (Rel-18)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#15**

[R4-2412471](file:///D:\RAN4%23112\Docs\R4-2412471.zip) **(5G\_V2X\_NRSL-Core) CR to correct the name of the feature "V2X con-current operation" to "V2X concurrent operation" - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2440 rev Cat: F (Rel-16)  
  
 Source: Anritsu Limited*

NWM comments:

CHTTL: I think this wording for V2X is used from the LTE spec?

Anritsu: Regarding the flag from CHTTL about Anritsu’s contribution R4-2412471, it is true that error is from LTE.

Still it would be good to fix it as it looks weird even more as a name (V2X con-current operation) of a feature. Also ”concurrent” is used in French with the same spelling, seeing it written as ”con-current” with ”con” word being an insult is weird.

**Decision: Agreed.**

[R4-2412472](file:///D:\RAN4%23112\Docs\R4-2412472.zip) **(5G\_V2X\_NRSL-Core) CR to correct the name of the feature "V2X con-current operation" to "V2X concurrent operation" - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2441 rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2412473](file:///D:\RAN4%23112\Docs\R4-2412473.zip) **(5G\_V2X\_NRSL-Core) CR to correct the name of the feature "V2X con-current operation" to "V2X concurrent operation" - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2442 rev Cat: A (Rel-18)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#16**

[R4-2412474](file:///D:\RAN4%23112\Docs\R4-2412474.zip) **(TEI17) CR to modify MBW definition - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2443 rev Cat: F (Rel-17)  
  
 Source: Anritsu Limited*

NWM comments:

Ericsson: why the abbreviation for the measurement bandwidth (MBW) should only be modified in Rel-17 and Rel-18? ”Measurement bandwidth” term is used in the output power dynamics clause in Rel-15 and Rel-16 as well. So either the abbreviation should be modified in all Releases or in neither of them

**Decision: Not pursued.**

[R4-2412475](file:///D:\RAN4%23112\Docs\R4-2412475.zip) **(TEI17) CR to modify MBW definition - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2444 rev Cat: A (Rel-18)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Withdrawn.**

**#17**

[R4-2412476](file:///D:\RAN4%23112\Docs\R4-2412476.zip) **(TEI16) CR to correct (typo) of the definitions of the symbols Nrb\_agg - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2445 rev Cat: F (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Agreed.**

[R4-2412477](file:///D:\RAN4%23112\Docs\R4-2412477.zip) **(TEI16) CR to correct (typo) of the definitions of the symbols Nrb\_agg - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2446 rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2412478](file:///D:\RAN4%23112\Docs\R4-2412478.zip) **(TEI16) CR to correct (typo) of the definitions of the symbols Nrb\_agg - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2447 rev Cat: A (Rel-18)  
  
 Source: Anritsu Limited*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#18**

[R4-2412479](file:///D:\RAN4%23112\Docs\R4-2412479.zip) **(NR\_newRAT-Core) CR to correct the definition of the symbol Nrb\_agg and two symbols on same line - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2448 rev Cat: F (Rel-15)  
  
 Source: Anritsu Limited*

**Decision: Agreed.**

**#20**

[R4-2412564](file:///D:\RAN4%23112\Docs\R4-2412564.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2450 rev Cat: F (Rel-16)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

NWM comments:

Huawei(Jin): It is better to stick with kHz for SCS. In TS38.101-1 Clause 3.2 Symbols, SCSc etc are defined in kHz

Qualcomm (Ville): Thank you for the CR. The Symbols in clause 3.2 says: ”SCSc SCS for the component carrier c, expressed in kHz” so better keep that aligned but we do recognice that 3.3 Abbreviations says: ”SCS: Subcarrier spacing”. CR cover sheet says ”while in other parts of the specifications SCS is expressed in Hz unless the unit is explicitely stated to be kHz.” Where are those others? It would be good to align in the specification level.

Ericsson (Christian): Not agreeable. SCS is in kHz according to the definition.

ZTE (Wubin): Similar view with other companies, SCS in kHz. Actually this issue was discussed several meeting ago (Sorry, i forgot the Tdoc number), the agreement achieved among companies at that time was to use ’SCS in kHz’ in the symbols, and keep ’/1000’ to keep consistence among specs.

Skyworks: we should be consistent across different specs.

Qualcomm: it may be different to have 38.101-1 and 38.101-3 aligned in this meeting.

**Decision: Revised to R4-2414374 (from R4-2412564).**

[**R4-2414374**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414374.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2450 rev Cat: F (Rel-16)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

**Decision: Agreed.**

[R4-2412566](file:///D:\RAN4%23112\Docs\R4-2412566.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2451 rev Cat: A (Rel-17)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

**Decision: Revised to R4-2414431 (from R4-2412566).**

[**R4-2414431**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414431.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2451 rev Cat: A (Rel-17)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

**Decision: Agreed.**

[R4-2412567](file:///D:\RAN4%23112\Docs\R4-2412567.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2452 rev Cat: A (Rel-18)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

**Decision: Revised to R4-2414432 (from R4-2412567).**

[**R4-2414432**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414432.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2452 rev Cat: A (Rel-18)  
  
 Source: LG Electronics*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

**Decision: Agreed.**

**#21**

[R4-2412946](file:///D:\RAN4%23112\Docs\R4-2412946.zip) **(NR\_SUL\_combos\_R17-Core) CR for TS 38.101-1 to clarify the applicability for NUL carriers (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2462 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

NWM comments:

Qualcomm (Ville/Antti): It is ok to add the referecen to additional tables in principle but while we are doing that, we should clarify in which cell these SULs and NULs are suceh as this. ”terminal is configured with active transmission either on UL carrier(s) or SUL carrier on same cell at any time”. It is not also very clear how the requirements apply for non-contiguous CA: for example CA\_n41(2A)-n99A with UL on SUL\_n41A-n99A, the CR text says: ”the UE requirements for single carrier and CA shall apply for the active UL carrier(s) and SUL carrier accordingly.” so which recuirements apply to the one CC on band n41?

This CR is generalising too much and then to avoid confusion in the Rel-18 where CA requirements would apply to the two NR UL bands since they can be in transmitting in dualUL option, how would the text look like? Assuming same text will come as mirror CR to rel-18 but then it is unclear and needs to be clarified.

**Decision: Revised to R4-2414425 (from R4-2412946).**

[R4-2414425](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414425.zip) **(NR\_SUL\_combos\_R17-Core) CR for TS 38.101-1 to clarify the applicability for NUL carriers (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2462 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

[R4-2412947](file:///D:\RAN4%23112\Docs\R4-2412947.zip) **(NR\_SUL\_combos\_R17-Core) CR for TS 38.101-1 to clarify the applicability for NUL carriers (R18)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2463 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**#22**

[R4-2413135](file:///D:\RAN4%23112\Docs\R4-2413135.zip) **(NR\_n41\_BW-Core) CR to TS 38.101-1: NS\_47 correction**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2479 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Inc.*

NWM comments:

Huawei (Henry): It’s better to list the other channel bandwidths with 0 AMPR clarification as what we did for NS\_17.

Apple (Daniel): The Updated Note refers to other bandwidth sizes which are not listed. This might create confusion. All applicable channel sizes should be listed.

**Decision: Revised to R4-2414443 (from R4-2413135).**

[**R4-2414443**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414443.zip) **(NR\_n41\_BW-Core) CR to TS 38.101-1: NS\_47 correction**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2479 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Inc.*

NWM comments:

Huawei (Henry): It’s better to list the other channel bandwidths with 0 AMPR clarification as what we did for NS\_17.

Apple (Daniel): The Updated Note refers to other bandwidth sizes which are not listed. This might create confusion. All applicable channel sizes should be listed.

**Decision: Return to.**

[R4-2413136](file:///D:\RAN4%23112\Docs\R4-2413136.zip) **(NR\_n41\_BW-Core) CR to TS 38.101-1: NS\_47 correction**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2480 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

[R4-2413137](file:///D:\RAN4%23112\Docs\R4-2413137.zip) **(NR\_n41\_BW-Core) CR to TS 38.101-1: NS\_47 correction**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2481 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**#23**

[R4-2413152](file:///D:\RAN4%23112\Docs\R4-2413152.zip) **(TEI) On missing BCS set definition for asymmetric FDD**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2485 rev Cat: F (Rel-15)  
  
 Source: Apple*

NWM comments:

Nokia (Petri): Too late to add this kind of infomation into REL15. Totally unnecessary to have separate CRs for FDD and TDD

Apple: In RAN2 signaling, there is BCS set, which is missing in RAN4 spec. RAN4 spec from Rel-15 onwards, it is added for TDD. There is something missing for FDD. CR is according to agreement last meeting. We consult MCC. To avoid the problem of CR category, we split them into FDD and TDD.

**Decision: Agreed.**

**#24**

[R4-2413153](file:///D:\RAN4%23112\Docs\R4-2413153.zip) **(TEI) On missing BCS set definition for asymmetric TDD**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2486 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Agreed.**

[R4-2413154](file:///D:\RAN4%23112\Docs\R4-2413154.zip) **(TEI) On missing BCS set definition for asymmetric TDD**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2487 rev Cat: A (Rel-16)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2413155](file:///D:\RAN4%23112\Docs\R4-2413155.zip) **(TEI) On missing BCS set definition for asymmetric TDD**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2488 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2413156](file:///D:\RAN4%23112\Docs\R4-2413156.zip) **(TEI) On missing BCS set definition for asymmetric TDD**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2489 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#25**

[R4-2413055](file:///D:\RAN4%23112\Docs\R4-2413055.zip) **Cat F CR to TS 38.101-1 Rel-15 Power Class 4 clean-up**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2473 rev Cat: F (Rel-15)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR replaces power "Class 4" with "Class 5" throughout several tables. Mirror CRs are proposed up to Release 18.6.0.

**Decision: Agreed.**

[R4-2413057](file:///D:\RAN4%23112\Docs\R4-2413057.zip) **Cat A CR to TS 38.101-1 Rel-16 Power Class 4 clean-up**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2474 rev Cat: A (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Mirror CR of [R4-2413055](file:///D:\RAN4%23112\Docs\R4-2413055.zip). MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2413058](file:///D:\RAN4%23112\Docs\R4-2413058.zip) **Cat A CR to TS 38.101-1 Rel-17 Power Class 4 clean-up**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2475 rev Cat: A (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Mirror CR of [R4-2413055](file:///D:\RAN4%23112\Docs\R4-2413055.zip). MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2413059](file:///D:\RAN4%23112\Docs\R4-2413059.zip) **Cat A CR to TS 38.101-1 Rel-18 Power Class 4 clean-up**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2476 rev Cat: A (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Mirror CR of [R4-2413055](file:///D:\RAN4%23112\Docs\R4-2413055.zip). MCC: This is CAT A CR.

**Decision: Agreed.**

**#26 TEI**

[R4-2413211](file:///D:\RAN4%23112\Docs\R4-2413211.zip) **Rel-15 SUL configuration correction for REFSENS alignment with subsequent releases**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2491 rev Cat: F (Rel-15)  
  
 Source: Keysight Technologies UK Ltd*

**Decision: Agreed.**

**#27 TEI**

[R4-2413241](file:///D:\RAN4%23112\Docs\R4-2413241.zip) **(NR\_n14-Core, TEI16) Correction of notes for UE output power**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2494 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As Note 6 in Table 6.2.1-1 has been reused for other bands in Rel-17/18, in this CR we provide corrections to the Note 6 wording to make it band-agnostic, while Band14-specific Note is introduced as a separate entry, i.e. Note 7. 3GPP drafting rules are implemented for the notes in Table 6.2.1-1.

NWM comments:

Samsung (Tina): It is understood this is to comply with the drafting rule, however the tables looks Not beautiful anymore, do we really really really have to make this change? If the group think the change is really needed, should be applied to the whole spec not just part of.

Nokia (Petri): Why the word Note needs to be spelled out instead of using superscript, tables become very crowded. Yes drafting rules but no need to ”fix” this late stage. There will be still superscipts in spec. Also some are proposing ”Note X” super script. We should not change this table.

Apple (James): Same view as Samsung on whether it is necessary to follow the drafting rule for the table notes as superscript notes have been used for quite a long time for many of the specifications tables.

AT&T: NOTE 6 change should not remove the text ”Generally,” as this has been accepted RAN4 text for the PC1 case.

**Decision: Revised to R4-2414375 (from R4-2413241).**

[**R4-2414375**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414375.zip) **(NR\_n14-Core, TEI16) Correction of notes for UE output power**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2494 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As Note 6 in Table 6.2.1-1 has been reused for other bands in Rel-17/18, in this CR we provide corrections to the Note 6 wording to make it band-agnostic, while Band14-specific Note is introduced as a separate entry, i.e. Note 7. 3GPP drafting rules are implemented for the notes in Table 6.2.1-1.

**Decision: Agreed.**

[R4-2413242](file:///D:\RAN4%23112\Docs\R4-2413242.zip) **(NR\_n14-Core, TEI16) Correction of notes for UE output power**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2495 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is CAT A CR. As Note 6 in Table 6.2.1-1 has been reused for other bands in Rel-17/18, in this CR we provide corrections to the Note 6 wording to make it band-agnostic, while Band14-specific Note is introduced as a separate entry, i.e. Note 7. 3GPP drafting rules are implemented for the notes in Table 6.2.1-1.

**Decision: Agreed.**

[R4-2413243](file:///D:\RAN4%23112\Docs\R4-2413243.zip) **(NR\_n14-Core, TEI16) Correction of notes for UE output power**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2496 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As Note 6 in Table 6.2.1-1 has been reused for other bands in Rel-17/18, in this CR we provide corrections to the Note 6 wording to make it band-agnostic, while Band14-specific Note is introduced as a separate entry, i.e. Note 7. 3GPP drafting rules are implemented for the notes in Table 6.2.1-1.

**Decision: Revised to R4-2414376 (from R4-2413243).**

[**R4-2414376**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414376.zip) **(NR\_n14-Core, TEI16) Correction of notes for UE output power**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2496 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

As Note 6 in Table 6.2.1-1 has been reused for other bands in Rel-17/18, in this CR we provide corrections to the Note 6 wording to make it band-agnostic, while Band14-specific Note is introduced as a separate entry, i.e. Note 7. 3GPP drafting rules are implemented for the notes in Table 6.2.1-1.

**Decision: Agreed.**

**#29 TEI**

[R4-2413334](file:///D:\RAN4%23112\Docs\R4-2413334.zip) **(TEI15) CR to 38.101-1 Rel-15: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2500 rev Cat: F (Rel-15)  
  
 Source: Ericsson India Private Limited*

**Abstract:**

This CR is a part of a series of CRs on corrections of NR operating bands clause in FR1.

NWM comments:

Huawei (Michal): I would like to highlight formal issue related to the WI code used. Instead of TEI18, it shall rather use spectrum WID code, related to the bands addressed in this CR. This topic has been mentioned by the Chair during Monday join session. Please check with MCC and Chair on their preferred approach. All TEI CRs are monitored by RAN, so better to avoid TEI code to avoid unnecessary turbulences

**Decision: Revised to R4-2414377 (from R4-2413334).**

[**R4-2414377**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414377.zip) **(TEI15) CR to 38.101-1 Rel-15: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2500 rev Cat: F (Rel-15)  
  
 Source: Ericsson India Private Limited*

**Abstract:**

This CR is a part of a series of CRs on corrections of NR operating bands clause in FR1.

NWM comments:

Huawei (Michal): I would like to highlight formal issue related to the WI code used. Instead of TEI18, it shall rather use spectrum WID code, related to the bands addressed in this CR. This topic has been mentioned by the Chair during Monday join session. Please check with MCC and Chair on their preferred approach. All TEI CRs are monitored by RAN, so better to avoid TEI code to avoid unnecessary turbulences

**Decision: Return to.**

**#30 TEI**

[R4-2413351](file:///D:\RAN4%23112\Docs\R4-2413351.zip) **(TEI16) CR to 38.101-1 Rel-16: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2501 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR is a part of a series of CRs on corrections of NR operating bands clause in FR1.

NWM comments:

Huawei (Michal): I would like to highlight formal issue related to the WI code used. Instead of TEI18, it shall rather use spectrum WID code, related to the bands addressed in this CR. This topic has been mentioned by the Chair during Monday join session. Please check with MCC and Chair on their preferred approach. All TEI CRs are monitored by RAN, so better to avoid TEI code to avoid unnecessary turbulences

**Decision: Revised to R4-2414378 (from R4-2413351).**

[**R4-2414378**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414378.zip) **(TEI16) CR to 38.101-1 Rel-16: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2501 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR is a part of a series of CRs on corrections of NR operating bands clause in FR1.

**Decision: Return to.**

[R4-2413354](file:///D:\RAN4%23112\Docs\R4-2413354.zip) **(TEI17) CR to 38.101-1 Rel-17: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2502 rev Cat: F (Rel-17)  
  
 Source: Ericsson India Private Limited*

**Abstract:**

This CR is a resubmission of the endorsed CR in RAN4#111 [R4-2410709](file:///D:\RAN4%23112\Docs\R4-2410709.zip). It is a part of series of CRs on corrections of NR operating bands clause in FR1.

**Decision: Revised to R4-2414379 (from R4-2413354).**

[R4-2414379](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414379.zip) **(TEI17) CR to 38.101-1 Rel-17: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2502 rev Cat: F (Rel-17)  
  
 Source: Ericsson India Private Limited*

**Abstract:**

This CR is a resubmission of the endorsed CR in RAN4#111 [R4-2410709](file:///D:\RAN4%23112\Docs\R4-2410709.zip). It is a part of series of CRs on corrections of NR operating bands clause in FR1.

**Decision: Return to.**

**CRs for 38.101-2 (1)**

[R4-2412944](file:///D:\RAN4%23112\Docs\R4-2412944.zip) **(NR\_redcap-Core) CR for TS 38.101-2 to modify the applicable maximum BW for PC7 RedCap UE (R17)**

*Type: CR For: Agreement  
 38.101-2 v17.14.0 CR-0756 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

NWM comments:

Qualcomm (Sumant Iyer): We understand the idea, but note that the same MPR table applies to all channel BWs <= 200 MHz. Perhaps this alternative wording might work: ’For power class 7, MPR specified in sub-clause 6.2.2.3 applies based on configured channel BW’

ZTE (Wubin): Indeed the channel bandwidth for FR2 RedCap UE is<=100MHz. However, this text aims to reuse the PC3 MPR defined in sub-clause 6.2.2.3 where <=200MHz (i.e. Table 6.2.2.3-1) for PC7 RedCap. using ’sub-clause 6.2.2.3 for channel bandwidth less than or equal to 200MHz 100MHz’ might cause confusion because ’<=100MHz’ is not aligned the Table 6.2.2.3-1 title.

**Decision: Revised to R4-2414380 (from R4-2412944).**

[**R4-2414380**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414380.zip) **(NR\_redcap-Core) CR for TS 38.101-2 to modify the applicable maximum BW for PC7 RedCap UE (R17)**

*Type: CR For: Agreement  
 38.101-2 v17.14.0 CR-0756 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon, Qualcomm, ZTE*

**Decision: Agreed.**

[R4-2412945](file:///D:\RAN4%23112\Docs\R4-2412945.zip) **(NR\_redcap-Core) CR for TS 38.101-2 to modify the applicable maximum BW for PC7 RedCap UE (R18)**

*Type: CR For: Agreement  
 38.101-2 v18.6.0 CR-0757 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**CRs for 38.101-3 (5)**

**#1**

[R4-2411160](file:///D:\RAN4%23112\Docs\R4-2411160.zip) **(DC\_R17\_2BLTE\_1BNR\_3DL2UL-Core, DC\_R17\_xBLTE\_2BNR\_yDL2UL) CR to introduce missing MSD requirements**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1263 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Agreed.**

[R4-2411161](file:///D:\RAN4%23112\Docs\R4-2411161.zip) **(DC\_R17\_2BLTE\_1BNR\_3DL2UL-Core, DC\_R17\_xBLTE\_2BNR\_yDL2UL) CR to introduce missing MSD requirements**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1264 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**#2**

[R4-2411164](file:///D:\RAN4%23112\Docs\R4-2411164.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR for 38.101-3 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1265 rev Cat: F (Rel-17)  
  
 Source: Apple*

NWM comments:

CHTTL (Tank): these changes are discussed and added during Rel.18 timeframe under Rel.18 WI, it is not necessary to add them back to Rel.17.

**Decision: Revised to R4-2414381 (from R4-2411164).**

[**R4-2414381**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414381.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR for 38.101-3 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1265 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Return to.**

[R4-2411165](file:///D:\RAN4%23112\Docs\R4-2411165.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR for 38.101-3 to add general text descriptions on higher power class(es) applicability for higher order band combinations**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1266 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**#3**

[R4-2412293](file:///D:\RAN4%23112\Docs\R4-2412293.zip) **(DC\_R17\_1BLTE\_1BNR\_2DL2UL-Core) CR to TS 38.101-3 Rel17 Removal of Unnecessary NE-DC Requirements**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1280 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**#4**

[R4-2412329](file:///D:\RAN4%23112\Docs\R4-2412329.zip) **(DC\_R16\_1BLTE\_1BNR\_2DL2UL) CR to TS 38.101-3 Rel16 Removal of Unnecessary NE-DC Requirements**

*Type: CR For: Agreement  
 38.101-3 v16.20.0 CR-1281 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**#5**

[R4-2413166](file:///D:\RAN4%23112\Docs\R4-2413166.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR 38.101-3 Clean up of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1298 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

[R4-2413194](file:///D:\RAN4%23112\Docs\R4-2413194.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR 38.101-3 Clean up of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1299 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Withdrawn.**

**CRs for 38.101-5 (1)**

[R4-2413129](file:///D:\RAN4%23112\Docs\R4-2413129.zip) **(NR\_NTN\_solutions-Core) CR to TS 38.101-5: variable duplex distance**

*Type: CR For: Agreement  
 38.101-5 v17.8.0 CR-0120 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Inc.*

**Decision: Revised to R4-2414421 (from R4-2413129).**

[R4-2414421](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414421.zip) **(NR\_NTN\_solutions-Core) CR to TS 38.101-5: variable duplex distance**

*Type: CR For: Agreement  
 38.101-5 v17.8.0 CR-0120 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Inc.*

**Decision: Return to.**

[R4-2413130](file:///D:\RAN4%23112\Docs\R4-2413130.zip) **(NR\_NTN\_solutions-Core) CR to TS 38.101-5: variable duplex distance**

*Type: CR For: Agreement  
 38.101-5 v18.6.0 CR-0121 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**CRs for 36.101 (2)**

**#1**

[R4-2412102](file:///D:\RAN4%23112\Docs\R4-2412102.zip) **(NB\_IOT-Core)Discussion on SEM and MPR requirements correction for NB-Iot**

*Type: discussion For: Discussion  
 Source: vivo*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

**Decision: Withdrawn.**

CR

[R4-2412103](file:///D:\RAN4%23112\Docs\R4-2412103.zip) **(NB\_IOT-Core)Correct the MPR requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v18.6.0 CR-6057 rev Cat: F (Rel-18)  
  
 Source: vivo*

NWM comments:

Nokia (Petri): We did not list 1 tone MPR as it is 0. CR is not needed.

CHTTL: if it’s with no MPR, should it be 0 instead of N/A?

Apple (Daniel): If no A-MPR is applied then the value should be 0 instead of N/A. However, is there analysis/simulations done to justify 0dB MPR for single tone operation?

Qualcomm (Toni): Consider change starting from earlier release

ZTE\_Wubin: Missing ’current version’ and ’affected spec’ in the CR cover. One question for clarification: does no MPR defined means 0dB or MPR is not available (N/A)?

vivo feedback:

To Nokia: There may be confusion for 1 tone MPR since it is not listed, even currently among us;

To CHTTL & ZTE & Apple: currently we have both “N/A” and “0” for A-MPR, and ”N/A” seems appear in more cases;

To Apple, there were history that 1 tone MPR is not needed/0dB;

To Toni, we can also accept to revise from earlier release if needed, but only the latest release seems easier

**Decision: Return to.**

**#2**

[R4-2413132](file:///D:\RAN4%23112\Docs\R4-2413132.zip) **(LTE\_CA\_R16\_intra-Core) CR to TS 36.101: B41 emissions**

*Type: CR For: Agreement  
 36.101 v16.20.0 CR-6064 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Inc.*

NWM comments:

Samsung (Tina): Discussion is needed, NS\_47 is for 30MHz, while b41 does not support 30Mhz, we do not quite understand why the change is needed.

HUAWEI (Henry): For NR NS\_47, AMPR for 30MHz was specified. For LTE CA\_41C, is it possible to aggregated 30MHz bandwidth? If so, referring to the NR NS\_47 30MHz cases, the AMPR for LTE intra-band CA may be considered.

MediaTek (Daniel): Because co-existence requirements corresponding to NS\_47 for NR n41 is specified in TS 38.101-1 clause of “Additional spurious emissions”, for consistency, the the same requirement for B41 would be updated in TS 36.101 clause of “6.6.3.3 Additional spurious emissions” rather than in “6.6.3.2 Spurious emission band UE co-existence”. When ”NS\_47” is indicated in the cell, the power of any UE emission shall not exceed the levels specified. If NS\_47 is not indicated, UE is not needed to meet the additional requirement. To

put the additional spurious emissions requirement into “6.6.3.2 Spurious emission band UE co-existence” without indicating NS\_47 is not suggested.

**Decision: Return to.**

[R4-2413133](file:///D:\RAN4%23112\Docs\R4-2413133.zip) **(LTE\_CA\_R16\_intra-Core) CR to TS 36.101: B41 emissions**

*Type: CR For: Agreement  
 36.101 v17.13.0 CR-6065 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

[R4-2413134](file:///D:\RAN4%23112\Docs\R4-2413134.zip) **(LTE\_CA\_R16\_intra-Core) CR to TS 36.101: B41 emissions**

*Type: CR For: Agreement  
 36.101 v18.6.0 CR-6066 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Return to.**

**#3**

[R4-2411992](file:///D:\RAN4%23112\Docs\R4-2411992.zip) **LTE Band 88 REFSENS UL allocation is missing R17**

*Type: CR For: Agreement  
 36.101 v17.13.0 CR-6054 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed.**

[R4-2411993](file:///D:\RAN4%23112\Docs\R4-2411993.zip) **LTE Band 88 REFSENS UL allocation is missing R18**

*Type: CR For: Agreement  
 36.101 v18.6.0 CR-6055 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: This is CAT A CR.

**Decision: Agreed.**

**CRs for other spec (3)**

**#1**

[R4-2413102](file:///D:\RAN4%23112\Docs\R4-2413102.zip) **CR to TR 38.852: Clarification on PC1 Rx requirements for FRMCS operation in band n101**

*Type: CR For: Agreement  
 38.852 v17.4.0 CR-0014 rev Cat: F (Rel-17)  
  
 Source: Union Inter. Chemins de Fer, Huawei, HiSilicon*

**Abstract:**

Current version of the TR does not address the issue of the missing Rx characteristics for PC1 cab-radio.

In this CR we provide updates to clarify handling of Rx characteristics for PC1 cab-radio, as per ECC Decision (20)02.

**Decision: Agreed.**

**#2**

[R4-2413239](file:///D:\RAN4%23112\Docs\R4-2413239.zip) **(NR\_RAIL\_EU\_900MHz-Core, LTE\_NR\_HPUE\_FWVM\_R18-Core) Clarification on PC1 Rx requirements for FRMCS operation in band n100**

*Type: CR For: Agreement  
 38.853 v17.4.0 CR-0012 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon, UIC*

**Abstract:**

Current version of the TR does not address the issue of the missing Rx characteristics for PC1 cab-radio. In this CR we provide updates to clarify handling of Rx characteristics for PC1 cab-radio, as per ECC Decision (20)02.

**Decision: Agreed.**

**#3**

[R4-2413323](file:///D:\RAN4%23112\Docs\R4-2413323.zip) **(LTE410\_Europe\_PPDR-Core) Removal of FFS**

*Type: CR For: Agreement  
 36.762 v16.0.0 CR-0001 rev Cat: F (Rel-16)  
  
 Source: Huawei Technologies Sweden AB*

**Decision: Agreed.**

**Withdrawn**

[R4-2411233](file:///D:\RAN4%23112\Docs\R4-2411233.zip) **Clean up of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-3 v17.14.0 CR-1267 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

[R4-2412104](file:///D:\RAN4%23112\Docs\R4-2412104.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v13.25.0 CR-6058 rev Cat: F (Rel-13)  
  
 Source: vivo*

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

[R4-2412105](file:///D:\RAN4%23112\Docs\R4-2412105.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v14.26.0 CR-6059 rev Cat: A (Rel-14)  
  
 Source: vivo*

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

[R4-2412106](file:///D:\RAN4%23112\Docs\R4-2412106.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v15.23.0 CR-6060 rev Cat: A (Rel-15)  
  
 Source: vivo*

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

[R4-2412107](file:///D:\RAN4%23112\Docs\R4-2412107.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v16.20.0 CR-6061 rev Cat: A (Rel-16)  
  
 Source: vivo*

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

[R4-2412108](file:///D:\RAN4%23112\Docs\R4-2412108.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v17.13.0 CR-6062 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

[R4-2412109](file:///D:\RAN4%23112\Docs\R4-2412109.zip) **(NB\_IOT-Core)Correct the SEM requirements for NB-Iot**

*Type: CR For: Agreement  
 36.101 v18.6.0 CR-6063 rev Cat: A (Rel-18)  
  
 Source: vivo*

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

[R4-2412258](file:///D:\RAN4%23112\Docs\R4-2412258.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2421 rev Cat: F (Rel-16)  
  
 Source: LG Electronics Finland*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

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

[R4-2412259](file:///D:\RAN4%23112\Docs\R4-2412259.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2422 rev Cat: A (Rel-17)  
  
 Source: LG Electronics Finland*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

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

[R4-2412260](file:///D:\RAN4%23112\Docs\R4-2412260.zip) **Correction for value B for non-contiguous uplink carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2423 rev Cat: A (Rel-18)  
  
 Source: LG Electronics Finland*

**Abstract:**

Formula B is modified for both MPR and A-MPR to take into account that unit of SCS is Hz and no kHz and shall be as follows: B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2) / 1,000,000

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

[R4-2413067](file:///D:\RAN4%23112\Docs\R4-2413067.zip) **CR to TR 38.852: Clarification on PC1 Rx requirements for FRMCS operation in band n101**

*Type: CR For: Agreement  
 38.852 v17.4.0 CR-0013 rev Cat: F (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Abstract:**

Current version of the TR does not address the issue of the missing Rx characteristics for PC1 cab-radio.

In this CR we provide updates to clarify handling of Rx characteristics for PC1 cab-radio, as per ECC Decision (20)02.

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

[R4-2413160](file:///D:\RAN4%23112\Docs\R4-2413160.zip) **(ENDC\_UE\_PC2\_R17\_NR\_TDD-Core) CR 38.101-3 Clean up of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2490 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

[R4-2413261](file:///D:\RAN4%23112\Docs\R4-2413261.zip) **(LTE410\_Europe\_PPDR-Core) Removal of FFS**

*Type: discussion For: Discussion  
 36.762 v CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

During the work on NR\_bands\_n87\_n88, it was identified, that the Rel-16 TR 36.762 still includes unresolved FFS'. As technical work on this TR was concluded many years ago, those FFS' are remove, to avoid ambiguities when reuse that TR for Rel-19 analyses

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

### 4.3 BS RF requirements and BS conformance testing

### 4.4 UE/BS EMC requirements

### 4.5 RRM requirements

### 4.6 Demodulation and CSI requirements

### 4.7 OTA and TRP/TRS test aspects

### 4.8 Rel-15/16/17 TEI

[R4-2412785](file:///D:\RAN4%23112\Docs\R4-2412785.zip) **CR on introduction of new FR2 PC**

*Type: CR For: Agreement  
 38.101-2 v18.6.0 CR-0755 rev Cat: F (Rel-18)  
  
 Source: Huawei,HiSilicon*

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

## 5 Rel-18 maintenance for LTE and NR closed work items

The following guidance are provided for maintenance work under AI 4 ~ AI 5:

‒ For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

‒ When submitting contributions to AI 4, AI 5.2, AI 5.34, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

‒ When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

‒ For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

‒ The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 9.

‒ The contributions corresponding to incoming LS for Rel-18/19 are expected to be submitted to (sub-) agenda dedicated to the individual WIs. If there is no dedicated agenda, please submit to AI 5.2 or AI 5.34 depending on whether it is spectrum related topic or non-spectrum related topic.

### 5.1 Moderator summary and conclusions (for sub-AIs under AI 5 without specific agenda for moderator summary)

[R4-2412804](file:///D:\RAN4%23112\Docs\R4-2412804.zip) **Topic summary for [112][102] R18\_UERF\_maintenance\_Part1**

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

**Abstract:**

Summary for AI 5.2, 5.3, 5.4, 5.5, 5.6, 5.9.1, 5.10.1, 5.12.1

**Decision: Noted.**

[R4-2412805](file:///D:\RAN4%23112\Docs\R4-2412805.zip) **Topic summary for [112][103] R18\_UERF\_maintenance\_Part2**

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

**Abstract:**

Summary for AI 5.20.1, 5.21.1, 5.22.1, 5.34.1, 5.35

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #1: The maintenance of Rel-18 Multi-carrier enhancements for NR**

**Issue 1-2-1: feature list**

**Agreement:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type**  **(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| 38.  NR\_MC\_enh | 38-3 | Switching Period for unaffected Band for Dual UL | SwitchingPeriodUnaffectedBandDualUL indicate for a given band pair {band X and band Y}, whether/how the switching period is to be applied on band X, Y, Z, when a UL Tx switching is triggered from band pa ir {band X and band Z} to band pair {band Y and band Z}, as defined in 38.101-1. If absent for band Z, the UE is not required to transmit on any UL bands during the switching period reported for the band pair of band X and band Y, as defined in 38.101-1  -      maintainedUL-Trans-r18 indicates that the UE is capable of uplink transmission on band Z and is not required to transmit on band X and Y during the switching period reported for the band pair of band X and band Y, as specified in 38.101-1.  -      periodOnULBands-r18 indicates the switching period to be applied on any UL bands as specified in 38.101-1. n35us represents 35 us, n140us represents 140us, and n210us represents 210us.  -      Band Z corresponds to the zth entry in the uplinkTxSwitchingPeriodUnaffectedBandDualUL-List-r18, which includes the UL band of this band combination excluding band X and band Y listed in the same order of the band combination. | 38-1 | Yes | N/A | UL Tx switching with unaffected band(s) involved cannot be supported in the band combination | Per BC | No | FR1 only | Support mixture of FDD/TDD | Component 3 candidate value: {35us, 140 us, 210us} | Optional with capability signaling |
| 38.  NR\_MC\_enh | 38-4 | Additional switching Period for switching case across three or four bands for Dual UL | 0. Indicate additionally the supported Tx switching period for switching case across three or four band, when Rel-18 UL Tx switching is configured by uplinkTxSwitchingMoreBands-r18.  1. If the capability is not reported, the switching period reported in switchingPeriodFor2T-r18 or switchingPeriodFor1T-r18 applies, as specified in TS 38.214 and TS 38.101-1. | 38-1 | Yes | N/A | The larger one of the switching period of the two band pairs applies. | Per BC | No | FR1 only | Support mixture of FDD/TDD | Component 1 candidate value: {35us, 140 us, 210us} | Optional with capability signaling |

**Newly allocated tdocs for approval**

[R4-2414418](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414418.zip) **WF on introduction of FR2 power class**

*Type: other For: Approval  
 Source: Huawei*

Nokia: Is this TEI18?

Huawei: The current discussion is under TEI18.

Nokia: This proposal is like co-existence study. I do not know if TEI can do the work rather than TEI.

Huawei: The system simulation is not for co-existence evaluation to check if the target can be met including the channel bandwidth and EIRP values.

Ericsson: In our understanding, we will see the lower power for FR2. The coverage would be worry.

Huawei: In current stage FR2 network deployment is not like FR1. The current scenario is for hot spot scenario, where the cell is small and network can guarantee the performance. UE can support FR1+FR2 CA/DC operation. The uplink throughput is not so heavy. We would like to focus on downlink heavy, which is the typical service.

Ericsson: in our understanding, it is like FR2 downlink or with some uplink transmission. The concern is that for some network we see the lower power class for SA.

Huawei: This is not FR2 downlink only. But uplink traffic is not such higher than downlink. The focus scenario is stadium and hot spot area. The coverage would not be too much issue.

Ericsson: This low device UE will be in regular FR2 network.

Huawei: in the practice, the use case will focus on the hot spot.

OPPO: FR2 connection is based on best effort. Many UE has FR1 connection. FR2 is only used for high throughput case. The FR2 complexity and power consumption is the concern.

CMCC: We kind share the similar view as OPPO. We would like to support this low cost FR2. This WF is good to provide how to proceed.

China Telecom: We think the power class will apply to all the scenario. The scneairo includes hot spot and seamless coverage. For hot spot there is no issue. For such scenario the power class can be reduced.

Ericsson: we are not against to use FR2 in the hot spot. Our concern is that we should distinguish it from PC3. If it is good for FR2 deployement, nothing is against it. We do not know how to treat it. That is the concern.

Nokia: We have similar view as Ericsson. This UE should be treated not as the normal PC3. This device type should be used for some special device which is used indoor. We do not allow this for smartphone device UE.

OPPO: This is not PC3. We can add FFS how to distinguish this from normal UE.

Huawei: we define this new power class.

**Decision: Revised to R4-2414420 (from R4-2414418).**

[R4-2414420](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414420.zip) **WF on introduction of FR2 power class**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

[**R4-2414444**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414444.zip) **WF on Delta PPowerClass and TRxSRS for 4Tx**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

[R4-2412806](file:///D:\RAN4%23112\Docs\R4-2412806.zip) **Topic summary for [112][104] NR\_LTE\_Rel-18\_feature\_list**

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

**Abstract:**

Summary for AI 5.36

**Decision: Withdrawn.**

### 5.2 Spectrum related WI maintenance

**Sub-topic 1-1 NR NTN\_LS band**

[R4-2411138](file:///D:\RAN4%23112\Docs\R4-2411138.zip) **(NR\_NTN\_LSband-Core) Correction of NS\_05N in band n254**

*Type: CR For: Agreement  
 38.101-5 v18.6.0 CR-0102 rev Cat: F (Rel-18)  
  
 Source: Apple, Globalstar*

**Decision: Agreed.**

[R4-2411139](file:///D:\RAN4%23112\Docs\R4-2411139.zip) **(NR\_NTN\_LSband-Core) Correction of NS\_05N in band n254**

*Type: CR For: Agreement  
 38.741 v18.1.0 CR-0002 rev Cat: F (Rel-18)  
  
 Source: Apple, Globalstar*

**Decision: Agreed.**

**Sub-topic 1-2 Correction on NR FDD band\_ ULn28\_DLn75\_n76**

[R4-2411221](file:///D:\RAN4%23112\Docs\R4-2411221.zip) **(NR\_FDD\_ULn28\_DLn75\_n76) CR to 38.101-1 on Channel raster for Band n109**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2380 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The uplink channel raster entries for band n109 is incorrect. The last number should be changed to 146600.

**Decision: Agreed.**

[R4-2411222](file:///D:\RAN4%23112\Docs\R4-2411222.zip) **(NR\_FDD\_ULn28\_DLn75\_n76) CR to 38.104 on Channel raster for Band n109**

*Type: CR For: Agreement  
 38.104 v18.6.0 CR-0648 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The uplink channel raster entries for band n109 is incorrect. The last number should be changed to 146600.

**Decision: Agreed.**

[R4-2413203](file:///D:\RAN4%23112\Docs\R4-2413203.zip) **[NR\_FDD\_ULn28\_DLn75\_n76] CR to TS 38.141-1 with correction to co-existence requirement for Band n109**

*Type: CR For: Agreement  
 38.141-1 v18.6.0 CR-0470 rev Cat: F (Rel-18)  
  
 Source: Nokia*

*Flagged by Nokia*

**Decision: Revised to R4-2414397 (from R4-2413203).**

[R4-2414397](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414397.zip) **(NR\_FDD\_ULn28\_DLn75\_n76) CR to TS 38.141-1 with correction to co-existence requirement for Band n109**

*Type: CR For: Agreement  
 38.141-1 v18.6.0 CR-0470 rev Cat: F (Rel-18)  
  
 Source: Nokia*

*Flagged by Nokia*

**Decision: Agreed.**

**Sub-topic 1-3 LTE\_NR DC band combinations**

[R4-2411325](file:///D:\RAN4%23112\Docs\R4-2411325.zip) **(DC\_R18\_2BLTE\_1BNR\_3DL2UL-Core) Rel-18 Cat F CR for TS 38.101-3 to add PC3 MSD**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1271 rev Cat: F (Rel-18)  
  
 Source: Samsung, KDDI Corporation*

*Flagging by SKW and ZTE*

**Decision: Revised to R4-2414398 (from R4-2411325).**

[R4-2414398](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414398.zip) **(DC\_R18\_2BLTE\_1BNR\_3DL2UL-Core) Rel-18 Cat F CR for TS 38.101-3 to add PC3 MSD**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1271 rev Cat: F (Rel-18)  
  
 Source: Samsung, KDDI Corporation*

*Flagging by SKW and ZTE*

**Decision: Agreed.**

[R4-2411832](file:///D:\RAN4%23112\Docs\R4-2411832.zip) **(DC\_R18\_1BLTE\_1BNR\_2DL2UL-Core) CR for TS 38.101-3 on uplink configurations for two bands EN-DC including FR2 (R18)**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1273 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

Flagging by Apple and CHTTL

Apple: The CR content changes do not align with the "Reason for change" in the cover sheet.

CHTTL: The added content is not aligned with the cover page, and these new added configurations are marked as transferred to Rel.19 in the status report, please further check.

**Decision: Not pursued.**

[R4-2412047](file:///D:\RAN4%23112\Docs\R4-2412047.zip) **(DC\_R18\_1BLTE\_1BNR\_yDL2UL) CR for TR 37.718-11-11: Update on terms, symbols and abbreviations**

*Type: CR For: Agreement  
 37.718-11-11 v18.0.0 CR-0001 rev Cat: F (Rel-18)  
  
 Source: CHTTL*

**Decision: Agreed.**

[R4-2412347](file:///D:\RAN4%23112\Docs\R4-2412347.zip) **( DC\_R18\_2BLTE\_1BNR\_3DL2UL) CR to TS 38.101-3 Rel18 Removal of Unnecessary NE-DC Requirements**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1282 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by SKW and ZTE

SKW: Adding the sentence "The requirements for EN-DC applies for NE-DC unless otherwise specified." in clause 6.1 and 7.1 is not needed since it is already specified in clause 4.2.

ZTE: We think there is no problem to list requirments in different subclauses even the requirements for EN-DC applies for NE-DC unless otherwise specified. No changes are needed

**Decision: Revised to R4-2414426 (from R4-2412347).**

[R4-2414426](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414426.zip) **( DC\_R18\_2BLTE\_1BNR\_3DL2UL) CR to TS 38.101-3 Rel18 Removal of Unnecessary NE-DC Requirements**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1282 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by SKW and ZTE

**Decision: Agreed.**

**Sub-topic 1-4 NR single carrier/NR CA band combinations UE**

[R4-2411833](file:///D:\RAN4%23112\Docs\R4-2411833.zip) **(NR\_CADC\_R18\_3BDL\_xBUL-Core) CR for TS 38.101-1 on UE configured power relaxation for special component bands (R18)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2401 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

[R4-2412374](file:///D:\RAN4%23112\Docs\R4-2412374.zip) **CR 38.101-1 correcting the table for NR operating bands in FR1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2425 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Remove double definition of n100 and adding back the removed n102

**Decision: Agreed.**

[R4-2412375](file:///D:\RAN4%23112\Docs\R4-2412375.zip) **CR 38.101-1 correcting 2 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2426 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 correcting 2 bands NR CA configuration tables

Flagging by SKW and Qualcomm

SKW: What is the reason for removing uplink CA\_n77(2A) BCS0 in the 4th column since it is listed as a valid Uplink configuration in the 2nd column?

QC: CA\_n1A-n77(3A), if n77(2A) BCS is removed, then doesn't UL CA for n77(2A) become ambiguous?

**Decision: Agreed.**

[R4-2412376](file:///D:\RAN4%23112\Docs\R4-2412376.zip) **CR 38.101-3 correcting 2 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1283 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-3 correcting 2 bands NR CA configuration tables

**Decision: Agreed.**

[R4-2412377](file:///D:\RAN4%23112\Docs\R4-2412377.zip) **CR 38.101-1 correcting 3 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2427 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 correcting 3 bands NR CA configuration tables

**Decision: Agreed.**

[R4-2412378](file:///D:\RAN4%23112\Docs\R4-2412378.zip) **CR 38.101-3 correcting 3 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1284 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-3 correcting 3 bands NR CA configuration tables

**Decision: Agreed.**

[R4-2412379](file:///D:\RAN4%23112\Docs\R4-2412379.zip) **CR 38.101-1 correcting 4 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2428 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-1 correcting 4 bands NR CA configuration tables

**Decision: Agreed.**

[R4-2412380](file:///D:\RAN4%23112\Docs\R4-2412380.zip) **CR 38.101-3 correcting 4 bands NR CA configuration tables**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1285 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR 38.101-3 correcting 4 bands NR CA configuration tables

**Decision: Agreed.**

[R4-2412882](file:///D:\RAN4%23112\Docs\R4-2412882.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-1 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by Samsung, CHTTL and SKW

Samsung: need more offline discussion

CHTTL: we feel like configured is better here. Our understanding is the 1st and 2nd sentence are expressing slightly different meanings that 1st only focus on the meaning of “-”, the second one also covers others. And the last sentence become confusing after the revision.

SKW: Need to further discuss. In our view, there is no need to bring these corrections. The original CR that we co-signed used the term "valid configuration" rather than "specified configuration" because the goal was to remove any ambiguity about what the "-" meant in these tables. Also, the agreed text "can be configured" seems more appropriate than "is specified" because clause 5.5A.3 defines the supported (or valid) Configurations for inter-band CA, i.e. it defines which DL or which UL configuration(s) are supported.

**Decision: Revised to R4-2414399 (from R4-2412882).**

[R4-2414399](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414399.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-1 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by Samsung, CHTTL and SKW

**Decision: Return to.**

[R4-2412883](file:///D:\RAN4%23112\Docs\R4-2412883.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-2 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-2 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by Samsung, CHTTL and SKW

Samsung: need more offline discussion

CHTTL: we feel like configured is better here. Our understanding is the 1st and 2nd sentence are expressing slightly different meanings that 1st only focus on the meaning of “-”, the second one also covers others. And the last sentence become confusing after the revision.

**Decision: Revised to R4-2414400 (from R4-2412883).**

[R4-2414400](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414400.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-2 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-2 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by Samsung, CHTTL and SKW

**Decision: Return to.**

[R4-2412884](file:///D:\RAN4%23112\Docs\R4-2412884.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-3 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

*Flagging by Samsung, CHTTL and SKW*

Samsung: need more offline discussion

CHTTL: we feel like configured is better here. Our understanding is the 1st and 2nd sentence are expressing slightly different meanings that 1st only focus on the meaning of “-”, the second one also covers others. And the last sentence become confusing after the revision.

SKW: Need to further discuss. In our view, there is no need to bring these corrections. The original CR that we co-signed used the term "valid configuration" rather than "specified configuration" because the goal was to remove any ambiguity about what the "-" meant in these tables. Also, the agreed text "can be configured" seems more appropriate than "is specified" because clause 5.5A.3 defines the supported (or valid) Configurations for inter-band CA, i.e. it defines which DL or which UL configuration(s) are supported.

**Decision: Revised to R4-2414401 (from R4-2412884).**

[R4-2414401](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414401.zip) **(NR\_CADC\_R18\_yBDL\_xBUL)draft CR for TS38.101-3 to clarify single UL configuration for NR CA**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

*Flagging by Samsung, CHTTL and SKW*

**Decision: Return to.**

[R4-2413053](file:///D:\RAN4%23112\Docs\R4-2413053.zip) **CR to TS 38.101-1 Rel-18 Corrections to ACLR for CA\_NC\_NS\_100**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2472 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR introduces missing in-gap UTRA ACLR requirement for CA\_NC\_NS\_100.

Chair: There is no Cat A CRs submitted. So it should be endorsed only if agreeable.

**Decision: Revised to R4-2414389 (from R4-2413053).**

[R4-2414389](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414389.zip) **CR to TS 38.101-1 Rel-18 Corrections to ACLR for CA\_NC\_NS\_100**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2472 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR introduces missing in-gap UTRA ACLR requirement for CA\_NC\_NS\_100.

Chair: There is no Cat A CRs submitted. So it should be endorsed only if agreeable.

**Decision: Agreed.**

[R4-2413399](file:///D:\RAN4%23112\Docs\R4-2413399.zip) **CR to R18 38101-1 to add 35MHz CBW to NS\_35 definition**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2505 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

adding missing 35MHz CBW to NS\_35 definition in NS table while emission requirement and A-MPR are already defined for 35MHz CBW. MCC: The author stated pre-meeting that there are no change marks in the CR. A revision will be required to address this issue.

Flagging by Huawei, Nokia and QC.

**Decision: Revised to R4-2414393 (from R4-2413399).**

[R4-2414393](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414393.zip) **CR to R18 38101-1 to add 35MHz CBW to NS\_35 definition**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2505 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

adding missing 35MHz CBW to NS\_35 definition in NS table while emission requirement and A-MPR are already defined for 35MHz CBW. MCC: The author stated pre-meeting that there are no change marks in the CR. A revision will be required to address this issue.

Flagging by Huawei, Nokia and QC.

**Decision: Agreed.**

**Sub-topic 1-5 IoT NTN\_FDD LS bands**

[R4-2411542](file:///D:\RAN4%23112\Docs\R4-2411542.zip) **(IoT\_NTN\_FDD\_LS\_band) CR to 36.102 for IoT-NTN UE RF requirements (Rel-18)**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0038 rev Cat: D (Rel-18)  
  
 Source: Mediatek India Technology Pvt.*

*Flagging by Huawei and Qualcomm*

HW: ME on the coversheet should be selected. And can Cat D be used?

QC: The table should be introduced to NS\_05 section as it is confusing to have NS\_05 requirements under NS\_04 clause

**Decision: Revised to R4-2414402 (from R4-2411542).**

[R4-2414402](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414402.zip) **(IoT\_NTN\_FDD\_LS\_band) CR to 36.102 for IoT-NTN UE RF requirements (Rel-18)**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0038 rev Cat: D (Rel-18)  
  
 Source: Mediatek India Technology Pvt.*

Flagging by Huawei and Qualcomm

Vivo: there is overlapping with our CR

**Decision: Return to.**

[R4-2411543](file:///D:\RAN4%23112\Docs\R4-2411543.zip) **(IoT\_NTN\_FDD\_LS\_band) CR to 36.102 for IoT-NTN UE RF Multi-Tones A-MPR requirements (Rel-18)**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0039 rev Cat: F (Rel-18)  
  
 Source: Mediatek India Technology Pvt.*

*Flagging by Huawei and Qualcomm*

HW: The applicable power class should be specified, probably PC3 only. Additionally, ME on the coversheet should be selected.

QC: The A-MPR values need further checking: the requirement is more stringent than e.g. the FCC mask but A-MPR is very small. Would be good to clarify e.g. PA calibration and I-Q impairment levels which resulted in this conclusion

**Decision: Postponed.**

[R4-2411544](file:///D:\RAN4%23112\Docs\R4-2411544.zip) **(IoT\_NTN\_FDD\_LS\_band) CR to 36.102 for IoT-NTN UE RF 1-Tone A-MPR requirements (Rel-18)**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0040 rev Cat: F (Rel-18)  
  
 Source: Mediatek India Technology Pvt.*

*Flagging by Huawei, Apple and QC*

**Decision: Postponed.**

**Sub-topic 1-6 NR\_FR1\_lessthan\_5MHz\_BW**

[R4-2411834](file:///D:\RAN4%23112\Docs\R4-2411834.zip) **(NR\_FR1\_lessthan\_5MHz\_BW-Core) CR for TS 38.101-1 on narrow band blocking for 3MHz channel bandwidth**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2402 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by Nokia and SKW*

**Decision: Revised to R4-2414392 (from R4-2411834).**

[R4-2414392](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414392.zip) **(NR\_FR1\_lessthan\_5MHz\_BW-Core) CR for TS 38.101-1 on narrow band blocking for 3MHz channel bandwidth**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2402 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by Nokia and SKW*

**Decision: Agreed.**

[R4-2413212](file:///D:\RAN4%23112\Docs\R4-2413212.zip) **3MHz channel bandwidth optional for frequency bands n31 and n72**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2492 rev Cat: F (Rel-18)  
  
 Source: Keysight Technologies UK Ltd, Nokia*

**Decision: Agreed.**

**Sub-topic 1-7 Correction on High power UE related Topics**

[R4-2411928](file:///D:\RAN4%23112\Docs\R4-2411928.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL) Remove superscript NOTE 6 for PC2 TDD-TDD inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2411 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by CHTTL and QC*

CHTTL: the note 6 also mentions TDD band can be PC3 or PC2, cannot understand why note 6 need to be removed from TDD-TDD

QC: There should probably be a new note for TDD-TDD saying "UE supports either PC3 or PC2 within NR TDD band"?

**Decision: Revised to R4-2414395 (from R4-2411928).**

[R4-2414395](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414395.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL) Remove superscript NOTE 6 for PC2 TDD-TDD inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2411 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by CHTTL and QC*

**Decision: Agreed.**

[R4-2411929](file:///D:\RAN4%23112\Docs\R4-2411929.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL) Remove superscript NOTE 6 for PC2 TDD-TDD inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2412 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by CHTTL and QC*

**Decision: Revised to R4-2414396 (from R4-2411929).**

[R4-2414396](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414396.zip) **(NR\_PC2\_CA\_R17\_2BDL\_2BUL) Remove superscript NOTE 6 for PC2 TDD-TDD inter-band CA**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2412 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

*Flagging by CHTTL and QC*

**Decision: Agreed.**

[R4-2413128](file:///D:\RAN4%23112\Docs\R4-2413128.zip) **( HPUE\_FR1\_TDD\_NR\_CADC\_SUL\_R18 ) CR to TS 38.101-1 for missing HPUE TDD configurations**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2478 rev Cat: F (Rel-18)  
  
 Source: BT plc*

**Decision: Agreed.**

[R4-2413150](file:///D:\RAN4%23112\Docs\R4-2413150.zip) **( HPUE\_FR1\_FDD\_NR\_CADC\_R18 ) CR to TS 38.101-1 for missing HPUE FDD configurations**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2484 rev Cat: F (Rel-18)  
  
 Source: BT plc*

**Decision: Agreed.**

[R4-2413294](file:///D:\RAN4%23112\Docs\R4-2413294.zip) **(HPUE\_FR1\_FDD\_NR\_CADC\_R18-Core) CR for 38.850: Corrections for CA\_n71A-n77A PC2 n71**

*Type: CR For: Agreement  
 38.850 v18.0.0 CR-0001 rev Cat: F (Rel-18)  
  
 Source: T-Mobile USA*

**Decision: Agreed.**

[R4-2413295](file:///D:\RAN4%23112\Docs\R4-2413295.zip) **(HPUE\_FR1\_FDD\_NR\_CADC\_R18-Core) CR for 38.101-1: Corrections for CA\_n71A-n77A PC2 n71**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2497 rev Cat: F (Rel-18)  
  
 Source: T-Mobile USA*

**Decision: Agreed.**

[R4-2413296](file:///D:\RAN4%23112\Docs\R4-2413296.zip) **( HPUE\_NR\_FR1\_FDD) CR for 38.101-1 NS\_06 corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2498 rev Cat: F (Rel-18)  
  
 Source: T-Mobile USA, AT&T, Huawei*

**Decision: Agreed.**

[R4-2413297](file:///D:\RAN4%23112\Docs\R4-2413297.zip) **(CA and HPUE) CR for 38.101-1: Various corrections for CA and HPUE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2499 rev Cat: F (Rel-18)  
  
 Source: T-Mobile USA*

Flagging by Huawei and CHTTL

HW: MSD part must be treated by either Sky CR or QC. Otherwise, the secretary will see a problem or need a similar CR in the next meeting.

CHTTL: The changes for CA\_n2A-n71A & CA\_n2(2A)-n71A seems different from the big CR R4-2321864? And should n8 n41 ref execption to be before n8 n79?

**Decision: Revised to R4-2414417 (from R4-2413297).**

[R4-2414417](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414417.zip) **(CA and HPUE) CR for 38.101-1: Various corrections for CA and HPUE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2499 rev Cat: F (Rel-18)  
  
 Source: T-Mobile USA*

Flagging by Huawei and CHTTL

**Decision: Agreed.**

**Sub-topic 1-8 Adding ETSI TC RT in TS38.101-1**

[R4-2411994](file:///D:\RAN4%23112\Docs\R4-2411994.zip) **CR 38.101-1 addtion of ETSI TC RT based on ECC Decision(20)02 reference to NB blocking**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2413 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Agreed.**

**Sub-topic 1-9 NR-U 6GHz unlicensed bands**

[R4-2411995](file:///D:\RAN4%23112\Docs\R4-2411995.zip) **CR 38.101-1 re-establishment of n102 operating band information**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2414 rev Cat: F (Rel-18)  
  
 Source: Nokia*

The CR will be merged in CR ([R4-2412374](https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Docs/R4-2412374.zip)

**Decision: Merged (with R4-24xxxxx).**

**Sub-topic 1-10 Correction on REFSENS & MSD**

[R4-2412613](file:///D:\RAN4%23112\Docs\R4-2412613.zip) **About issue in current PC2 MSD specification**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Reviewing the most recent version of 38.101-1 we found an issue in PC2 MSD which needs to be addressed.

**Observation 1**: Recent change in PC2 Cross-band and Harmonic Mixing tables inadvertently removed MSD from all TX Diversity combinations where aggressor is TDD band so current table format with separate 1TX and 2TX tables is not correct.

**Observation 2**: In future there will be also PC2 UL harmonic cases for TDD aggressor so current table format with separate 1TX and 2TX tables are not optimal.

**Proposal 1**: Revert back to single PC2 MSD tables for Cross-band, UL Harmonic, and Harmonic mixing, and to use notes as shown above to distinguish 1TX and 2TX FDD aggressor cases.

**Proposal 2**: Implement Proposal 1 as part of BigCR to be submitted into September 2024 Plenary

Skyworks: Sams observation. At least the uplink harmonic MSD is merged into single Table in this meeting. This is addressed. Two test points for 1Tx and one test point for 2Tx are in the single table.

**Decision: Noted.**

Again, I have already mentioned to Skyworks that RAN plenary did not like it when mirror CRs did not have the same WI Code as the CAT F CR. So, they may not pass approval in RAN#105. I will add note in 3GU that mirror CR uses different WI code that CAT F CR.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [R4-2413024](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_112/Docs/R4-2413024.zip) | Cat F CR to TS 38.101-1 Rel-15 REFSENS Corrections | Skyworks Solutions Inc. | Laurent Noel | CR | Agreement | 5.2 | **available** | [Rel-15](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=190) | [38.101-1](https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3283) | [TEI15](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=750033) | F |
| R4-2413025 | Cat A CR to TS 38.101-1 Rel-16 REFSENS Corrections | Skyworks Solutions Inc. | Laurent Noel | CR | Agreement | 5.2 | reserved | [Rel-16](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=191) | [38.101-1](https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3283) | [TEI16](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=770050) | A |
| [R4-2413032](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_112/Docs/R4-2413032.zip) | Cat F CR to TS 38.101-1 Rel-17 REFSENS Corrections | Skyworks Solutions Inc. | Laurent Noel | CR | Agreement | 5.2 | **available** | [Rel-17](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=192) | [38.101-1](https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3283) | [TEI17](https://portal.3gpp.org/desktopmodules/WorkItem/WorkItemDetails.aspx?workitemId=850047) | F |
| [R4-2413034](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_112/Docs/R4-2413034.zip) | Cat F CR to TS 38.101-1 Rel-18 REFSENS Corrections | Skyworks Solutions Inc. | Laurent Noel | CR | Agreement | 5.2 | **available** | [Rel-18](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=193) | [38.101-1](https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3283) | NR\_newRAT-Core, NR\_FDD\_ULn28\_DLn75\_n76-Core | F |

CR

[R4-2412625](file:///D:\RAN4%23112\Docs\R4-2412625.zip) **CR Adding missing MSD for CA\_n2A-n66A and for CA\_n25A-n66A PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2459 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Adding missing MSD. Respective R16 and R17 CR's were implemented, but for some reason [R4-2408848](file:///D:\RAN4%23112\Docs\R4-2408848.zip) was not implemented for R18

**Decision: Revised to R4-2414383 (from R4-2412625).**

[R4-2414383](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414383.zip) **CR Adding missing MSD for CA\_n2A-n66A and for CA\_n25A-n66A PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2459 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Adding missing MSD. Respective R16 and R17 CR's were implemented, but for some reason [R4-2408848](file:///D:\RAN4%23112\Docs\R4-2408848.zip) was not implemented for R18

**Decision: Agreed.**

[R4-2413024](file:///D:\RAN4%23112\Docs\R4-2413024.zip) **Cat F CR to TS 38.101-1 Rel-15 REFSENS Corrections**

*Type: CR For: Agreement  
 38.101-1 v15.26.0 CR-2467 rev Cat: F (Rel-15)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR removes the SCS60kHz text for band n20 from Note 2.

**Decision: Agreed.**

[R4-2413025](file:///D:\RAN4%23112\Docs\R4-2413025.zip) **Cat A CR to TS 38.101-1 Rel-16 REFSENS Corrections**

*Type: CR For: Agreement  
 38.101-1 v16.20.0 CR-2468 rev Cat: A (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Mirror CR of Rel-15 Cat-F [R4-2413024](file:///D:\RAN4%23112\Docs\R4-2413024.zip). MCC: This is CAT A CR.

**Decision: Agreed.**

[R4-2413032](file:///D:\RAN4%23112\Docs\R4-2413032.zip) **Cat F CR to TS 38.101-1 Rel-17 REFSENS Corrections**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2469 rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR removes the SCS60kHz text for band n20 from Note 2 and removes brackets for band n66 UL configuration for 45MHz CBW.

**Decision: Agreed.**

[R4-2413034](file:///D:\RAN4%23112\Docs\R4-2413034.zip) **Cat F CR to TS 38.101-1 Rel-18 REFSENS Corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2470 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR removes the SCS60kHz text for band n20 from Note 2, removes brackets for band n66 UL configuration for 45MHz CBW and restores the band n109 UL configuration to the correct cells.

Flagging by SKW

CR need to revise to correct WI code and R-16 Cat A CR also needed which is missing.

**Decision: Revised to R4-2414387 (from R4-2413034).**

[R4-2414387](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414387.zip) **Cat F CR to TS 38.101-1 Rel-18 REFSENS Corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2470 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR removes the SCS60kHz text for band n20 from Note 2, removes brackets for band n66 UL configuration for 45MHz CBW and restores the band n109 UL configuration to the correct cells.

Flagging by SKW

**Decision: Agreed.**

[R4-2413035](file:///D:\RAN4%23112\Docs\R4-2413035.zip) **CR to TS 38.101-1 Rel-18 Intra-band CA REFSENS corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2471 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc., T-Mobile USA, Murata Manufacturing Corp., Qualcomm Inc.*

**Abstract:**

This CR introduces the missing 1UL intra-band CA requirements and clarfies the PC3 vs PC2 REFSENS requirements.

**Decision: Revised to R4-2414388 (from R4-2413035).**

[R4-2414388](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414388.zip) **CR to TS 38.101-1 Rel-18 Intra-band CA REFSENS corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2471 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc., T-Mobile USA, Murata Manufacturing Corp., Qualcomm Inc.*

**Abstract:**

This CR introduces the missing 1UL intra-band CA requirements and clarfies the PC3 vs PC2 REFSENS requirements.

**Decision: Agreed.**

[R4-2413060](file:///D:\RAN4%23112\Docs\R4-2413060.zip) **CR to TS 38.101-1 Rel-18 Dual-UL IMD corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2477 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR corrects typos and missing dual-IMD PC3 and PC2 test points.

**Decision: Revised to R4-2414390 (from R4-2413060).**

[R4-2414390](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414390.zip) **CR to TS 38.101-1 Rel-18 Dual-UL IMD corrections**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2477 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR corrects typos and missing dual-IMD PC3 and PC2 test points.

**Decision: Agreed.**

**Sub-topic 1-11 Correction on Rx Harmonic mixing related topics**

[R4-2412620](file:///D:\RAN4%23112\Docs\R4-2412620.zip) **About RX mixing clean-up**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Considerations on remaining issues for Harmonic mixing clean-up are provided.

Proposal 1: Use option 2 for “RBstart=0”

Proposal 2: Use the following rules to specify UL RB allocation and RB start for UL harmonic and RX mixing cases.

• LCRB\_UL=Floor(NRB\_DL/UL harmonic order)

• RBstart=Floor((NRB\_UL-LCRB\_UL)/2)

Proposal 3: UL RB allocation is listed in MSD table, and RBstart is described in a note in equation format.

**Decision: Noted.**

[R4-2413063](file:///D:\RAN4%23112\Docs\R4-2413063.zip) **Companion to CR on harmonic MSD clean-up**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This papers explains the key changes to the UL harmonic MSD requirements captured in CRs [R4-2413019](file:///D:\RAN4%23112\Docs\R4-2413019.zip), [R4-2413022](file:///D:\RAN4%23112\Docs\R4-2413022.zip) and [R4-2413023](file:///D:\RAN4%23112\Docs\R4-2413023.zip).

**Decision: Noted.**

CR

[R4-2412621](file:///D:\RAN4%23112\Docs\R4-2412621.zip) **CR for EN-DC Harmonic Mixing clean-up PC3**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1293 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Clean-up

**Decision: Revised to R4-2414403 (from R4-2412621).**

[R4-2414403](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414403.zip) **CR for EN-DC Harmonic Mixing clean-up PC3**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1293 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

**Decision: Revised to R4-2414437 (from R4-2414403).**

[**R4-2414437**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414437.zip) **CR for EN-DC Harmonic Mixing clean-up PC3**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1293 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

**Decision: Agreed.**

[R4-2412622](file:///D:\RAN4%23112\Docs\R4-2412622.zip) **CR for EN-DC Harmonic Mixing clean-up PC2**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1294 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Clean-up

Flagging by Huawei and ZTE

**Decision: Revised to R4-2414404 (from R4-2412622).**

[R4-2414404](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414404.zip) **CR for EN-DC Harmonic Mixing clean-up PC2**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1294 rev Cat: F (Rel-18)  
  
 Source:* *Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

Flagging by Huawei and ZTE

**Decision: Revised to R4-2414438 (from R4-2414404).**

[**R4-2414438**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414438.zip) **CR for EN-DC Harmonic Mixing clean-up PC2**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1294 rev Cat: F (Rel-18)  
  
 Source:* *Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

Flagging by Huawei and ZTE

**Decision: Agreed.**

[R4-2412623](file:///D:\RAN4%23112\Docs\R4-2412623.zip) **CR for NR CA Harmonic Mixing clean-up PC3 PC5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2457 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Clean-up

Flagging by Huawei and SKW

**Decision: Revised to R4-2414405 (from R4-2412623).**

[R4-2414405](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414405.zip) **CR for NR CA Harmonic Mixing clean-up PC3 PC5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2457 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

Flagging by Huawei and SKW

**Decision: Revised to R4-2414439 (from R4-2414405).**

[**R4-2414439**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414439.zip) **CR for NR CA Harmonic Mixing clean-up PC3 PC5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2457 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

**Abstract:**

Clean-up

Flagging by Huawei and SKW

**Decision: Agreed.**

[R4-2412926](file:///D:\RAN4%23112\Docs\R4-2412926.zip) **CR for NR CA Harmonic Mixing clean-up PC2 PC1.5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2460 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

Flagging by Huawei, SKW and CHTTL

**Decision: Revised to R4-2414406 (from R4-2412926).**

[R4-2414406](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414406.zip) **CR for NR CA Harmonic Mixing clean-up PC2 PC1.5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2460 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

Flagging by Huawei, SKW and CHTTL

**Decision: Revised to R4-2414440 (from R4-2414406).**

[**R4-2414440**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414440.zip) **CR for NR CA Harmonic Mixing clean-up PC2 PC1.5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2460 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France, Skyworks Inc, Nokia*

Flagging by Huawei, SKW and CHTTL

**Decision: Agreed.**

[R4-2413019](file:///D:\RAN4%23112\Docs\R4-2413019.zip) **CR to TS 38.101-1 Rel-18 NR CA Uplink Harmonic clean-up PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2465 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions, Inc.*

**Abstract:**

This CR cleans-up the PC3 UL Harmonic MSD test points.

Flagging by Huawei, CHTTL and Nokia

CHTTL: we wonder if companies remove the existing nearest MSD. We prefer to keep n3, n78/77.

Skyworks: we are not removing all. We are removing nearest when there is direct hit.

**Decision: Revised to R4-2414384 (from R4-2413019).**

[R4-2414384](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414384.zip) **CR to TS 38.101-1 Rel-18 NR CA Uplink Harmonic clean-up PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2465 rev Cat: F (Rel-18)  
  
 Source:* *Skyworks Solutions, Inc., Qualcomm France, Nokia*

**Abstract:**

This CR cleans-up the PC3 UL Harmonic MSD test points.

Flagging by Huawei, CHTTL and Nokia

**Decision: Agreed.**

[R4-2414407](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414407.zip) **CR to TS 38.101-1 Rel-18 NR CA Uplink Harmonic clean-up PC3**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2465 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions, Inc.*

**Abstract:**

This CR cleans-up the PC3 UL Harmonic MSD test points.

Flagging by Huawei, CHTTL and Nokia

**Decision: Withdrawn.**

[R4-2413022](file:///D:\RAN4%23112\Docs\R4-2413022.zip) **CR to TS 38.101-1 Rel-18 NR CA Uplink Harmonic clean-up PC2**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2466 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions, Inc.*

**Abstract:**

This CR cleans-up the PC2 UL Harmonic MSD test points.

Flagging by Huawei and Nokia

**Decision: Revised to R4-2414385 (from R4-2413022).**

[R4-2414385](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414385.zip) **CR to TS 38.101-1 Rel-18 NR CA Uplink Harmonic clean-up PC2**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2466 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions, Inc., Qualcomm France, Nokia*

**Abstract:**

This CR cleans-up the PC2 UL Harmonic MSD test points.

Flagging by Huawei and Nokia

**Decision: Agreed.**

[R4-2413023](file:///D:\RAN4%23112\Docs\R4-2413023.zip) **CR to TS 38.101-3 Rel-18 EN-DC Uplink Harmonic clean-up**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1296 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This CR cleans-up the EN-DC UL Harmonic MSD test points and ensures cross-alignment with the NR-CA test points.

Flagging by Huawei and Nokia

**Decision: Revised to R4-2414386 (from R4-2413023).**

[R4-2414386](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414386.zip) **CR to TS 38.101-3 Rel-18 EN-DC Uplink Harmonic clean-up**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1296 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions, Inc., Qualcomm France, Nokia*

**Abstract:**

This CR cleans-up the EN-DC UL Harmonic MSD test points and ensures cross-alignment with the NR-CA test points.

Flagging by Huawei and Nokia

**Decision: Agreed.**

**Withdrawn**

[R4-2411048](file:///D:\RAN4%23112\Docs\R4-2411048.zip) **CR to R18 38.101-1 to correct UL configuration table for n109**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2375 rev Cat: F (Rel-18)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

CR to correct the band n109 UL configuration table where cells are wrongly shift left

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

[R4-2412624](file:///D:\RAN4%23112\Docs\R4-2412624.zip) **CR for NR CA Harmonic Mixing clean-up PC2 PC1.5**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2458 rev Cat: F (Rel-18)  
  
 Source: Qualcomm France*

**Abstract:**

Clean-up

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

### 5.3 NR Channel raster enhancement

**Sub-topic 2-1 NR Channel raster enhancement in TN**

[R4-2411140](file:///D:\RAN4%23112\Docs\R4-2411140.zip) **Clarification for the enhanced channel raster and carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2377 rev Cat: F (Rel-18)  
  
 Source: Apple, T-Mobile, Telus*

Flagging by Huawei

HW: The change is ok but the change on channel spacing for CA (sub clause 5.4A.1) is missing.

**Decision: Revised to R4-2414408 (from R4-2411140).**

[R4-2414408](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414408.zip) **Clarification for the enhanced channel raster and carrier aggregation**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2377 rev Cat: F (Rel-18)  
  
 Source: Apple, T-Mobile, Telus*

Flagging by Huawei

HW: The change is ok but the change on channel spacing for CA (sub clause 5.4A.1) is missing.

**Decision: Agreed.**

**Sub-topic 2-2 NR Channel raster enhancement for NTN**

[R4-2411875](file:///D:\RAN4%23112\Docs\R4-2411875.zip) **(NR\_channel\_raster\_enh-Core) CR to TS38.108 Supporting enhanced channel raster for band n254**

*Type: CR For: Agreement  
 38.108 v18.3.0 CR-0082 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**Sub-topic 2-3 NR channel raster capability for RedCap**

[R4-2413273](file:///D:\RAN4%23112\Docs\R4-2413273.zip) **Redcap UE capability for enhanced channel raster**

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

**Decision: Noted.**

[R4-2411944](file:///D:\RAN4%23112\Docs\R4-2411944.zip) **Enhanced channel raster UE capability**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

LS

[R4-2411670](file:///D:\RAN4%23112\Docs\R4-2411670.zip) **Mandated support of the enhanced channel raster by RedCap UEs from Rel-17 (including Draft LS to RAN2)**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

In this contribution we propose that the enhanced channel raster is supported by all RedCap UEs from Rel-17, the only feasible solution to avoid performance degradation for all UEs in a cell wider than 20 MHz also supporting RedCap UEs. A draft LS to inform RAN2 to this end is also included. MCC: This was updated to LS out but it is a discussion paper with LS out attached. A formal LS out would be required.

**Decision: Revised to R4-2414409 (from R4-2411670).**

[R4-2414409](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414409.zip) **Mandated support of the enhanced channel raster by RedCap UEs from Rel-17 (including Draft LS to RAN2)**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

In this contribution we propose that the enhanced channel raster is supported by all RedCap UEs from Rel-17, the only feasible solution to avoid performance degradation for all UEs in a cell wider than 20 MHz also supporting RedCap UEs. A draft LS to inform RAN2 to this end is also included. MCC: This was updated to LS out but it is a discussion paper with LS out attached. A formal LS out would be required.

**Decision: Approved.**

**Withdrawn**

[R4-2411863](file:///D:\RAN4%23112\Docs\R4-2411863.zip) **(NR\_channel\_raster\_enh-Core) CR to TS38.108 Supporting enhanced channel raster for band n254**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2403 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

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

### 5.4 Low NR band 4Rx for handheld UE and 3Tx for inter-band UL CA and EN-DC

**Sub-topic 3-1 Correction on the configured Tx Power for 3Tx EN-DC UE**

[R4-2412596](file:///D:\RAN4%23112\Docs\R4-2412596.zip) **(4Rx\_low\_NR\_band\_handheld\_3Tx\_NR\_CA\_ENDC) Correction on configured output power of 3Tx EN-DC including UL MIMO and Tx diversity**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1290 rev Cat: F (Rel-18)  
  
 Source: CHTTL*

Flagging by Apple

Apple: How critical to include the delta PPowerClass part if it has never been used by UE in the field? This part would always cause the confusion that the power back-off would be double-counted as it combines with default power class with delta PPowerClass = 3dB which is a total of 6dB reduction

**Decision: Revised to R4-2414410 (from R4-2412596).**

[R4-2414410](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414410.zip) **(4Rx\_low\_NR\_band\_handheld\_3Tx\_NR\_CA\_ENDC) Correction on configured output power of 3Tx EN-DC including UL MIMO and Tx diversity**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1290 rev Cat: F (Rel-18)  
  
 Source: CHTTL*

Flagging by Apple

Apple: How critical to include the delta PPowerClass part if it has never been used by UE in the field? This part would always cause the confusion that the power back-off would be double-counted as it combines with default power class with delta PPowerClass = 3dB which is a total of 6dB reduction

**Decision: Agreed.**

**Sub-topic 3-2 NR Power class indication of 3Tx EN-DC UE combinations**

[R4-2413127](file:///D:\RAN4%23112\Docs\R4-2413127.zip) **Clean up of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1297 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by Samsung and CHTTL

Samsung: Same as Rel-17 HW clean up CR. This has been discussed previously in basket WI but no agreement in the end. For EN-DC, the note is added for both UL and DL because the bands with different configurations are in the same row, such as DC\_2A\_n77A and DC\_2A\_n77C, while in NR spec they are in different rows, and the HPUE note is added based on request just like NR-CA. In addition, Note 21 for DC\_XA-YA can be omitted because of Note 22. We are ok to re-organize the table with same way as for NR-CA.

CHTTL: This change will make the spec not aligned with the Rel.18 WID.

**Decision: Not pursued.**

**Withdrawn**

[R4-2411234](file:///D:\RAN4%23112\Docs\R4-2411234.zip) **R18 Cat-F CR 38.101-3 Correction of power class indication for DC configurations**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1268 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

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

### 5.5 NR Support for UAV

### 5.6 Enhanced LTE Support for UAV

### 5.7 Support of intra-band non-collocated EN-DC/NR-CA deployment

**The tdocs will be treated in [112][124] NonCol\_intraB\_ENDC\_NR\_CA**

[R4-2411413](file:///D:\RAN4%23112\Docs\R4-2411413.zip) **In-GAP blocker impact on type 2 UE reconfiguration**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**CR**

[R4-2414317](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414317.zip) **CR 38.101-3 Clarifications for non-collocated requirements**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-xxxx rev Cat: F (Rel-18)  
  
 Source: Huawei, Nokia, Samsung*

**Decision: Return to.**

[R4-2414318](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414318.zip) **CR 38.101-1 Clarifications for non-collocated requirements**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-xxxx rev Cat: F (Rel-18)  
  
 Source: Huawei, Nokia, Samsung*

**Decision: Return to.**

[R4-2411996](file:///D:\RAN4%23112\Docs\R4-2411996.zip) **CR 38.101-3 Clarifications for non-collocated requirements**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1276 rev Cat: F (Rel-18)  
  
 Source: Nokia, Samsung*

**Abstract:**

MCC: The WI code in database was updated to match the CR coversheet.

**Decision: Merged (with R4-24xxxxx).**

[R4-2411997](file:///D:\RAN4%23112\Docs\R4-2411997.zip) **CR 38.101-1 Clarifications for non-collocated requirements**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2415 rev Cat: F (Rel-18)  
  
 Source: Nokia, Samsung*

**Abstract:**

MCC: The database value for WI code was updated to match CR coversheet.

**Decision: Merged (with R4-24xxxxx).**

[R4-2412382](file:///D:\RAN4%23112\Docs\R4-2412382.zip) **(NonCol\_intraB\_ENDC\_NR\_CA-Core) CR on 38.101-1 v18.6.0 Specifying different intra-band non-contiguous CA UE capability types**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2429 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged (with R4-24xxxxx).**

[R4-2412383](file:///D:\RAN4%23112\Docs\R4-2412383.zip) **(NonCol\_intraB\_ENDC\_NR\_CA-Core) CR on 38.101-3 v18.6.0 Specifying different inter-band EN-DC operation with overlapping or partially overlapping DL bands UE capability types**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1286 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged (with R4-24xxxxx).**

[R4-2412142](file:///D:\RAN4%23112\Docs\R4-2412142.zip) **Correction CR to intra-band non-collocated NRCA**

*Type: CR For: Agreement  
 38.133 v18.6.0 CR-4751 rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

[R4-2413157](file:///D:\RAN4%23112\Docs\R4-2413157.zip) **MTTD/MRTD requirement for type 2 UE**

*Type: CR For: Agreement  
 38.133 v18.6.0 CR-4913 rev Cat: F (Rel-18)  
  
 Source: Apple*

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

### 5.8 Air-to-ground network for NR

#### 5.8.1 UE RF requirements

**Sub-topic 4-1 4Tx power degradation for SRS antenna switching**

[R4-2413158](file:///D:\RAN4%23112\Docs\R4-2413158.zip) **Discussion on ATG Tx requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

CR

[R4-2411412](file:///D:\RAN4%23112\Docs\R4-2411412.zip) **(NR\_ATG-Core) CR for 38101-1 on ATG Rx RF requirements**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2385 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Not pursued.**

[R4-2412942](file:///D:\RAN4%23112\Docs\R4-2412942.zip) **(NR\_ATG-Core) CR for TS 38.101-1 to clarify the Tx requirements definition for ATG UE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2461 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2414321 (from R4-2412942).**

[R4-2414321](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414321.zip) **(NR\_ATG-Core) CR for TS 38.101-1 to clarify the Tx requirements definition for ATG UE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2461 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 5.8.2 BS RF requirements and conformance testing

#### 5.8.3 RRM core and performance requirements

#### 5.8.4 Demodulation performance requirements

### 5.9 Further RF requirements enhancement for NR and EN-DC in FR1

#### 5.9.1 UE RF requirements

**Sub-topic 4-1 4Tx power degradation for SRS antenna switching**

[R4-2411235](file:///D:\RAN4%23112\Docs\R4-2411235.zip) **Delta Ppowerclass and Delta TRxSRS for 4Tx**

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

**Abstract:**

This contribution discusses issues raised in [[R4-2400341](file:///D:\RAN4%23112\Docs\R4-2400341.zip)] for ?PPowerClass and ?TRxSRS for 4Tx for SRS antenna switching based on an approved WF [[R4-2406590](file:///D:\RAN4%23112\Docs\R4-2406590.zip)].

Simply put, in order to take things a step beyond, we propose to follow an approach that we have taken for 2Tx.

**Decision: Noted.**

[R4-2412089](file:///D:\RAN4%23112\Docs\R4-2412089.zip) **On 4Tx power degradation for SRS antenna switching**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2413357](file:///D:\RAN4%23112\Docs\R4-2413357.zip) **(NR\_ENDC\_RF\_FR1\_enh2-Core) On DeltaP\_PowerClass for SRS AS for 4Tx**

*Type: discussion For: Discussion  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

CR

[R4-2411236](file:///D:\RAN4%23112\Docs\R4-2411236.zip) **Introduction of Delta TRxSRS for 4Tx**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2381 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Introduction of Delta TRxSRS for 4Tx

Flagging by Ericsson and Qualcomm

Ericsson: as discussed offline, we do not support combining DeltaP\_PowerClass and DeltaT\_RxSRS to solve this issue, we prefer to only use DeltaP\_PowerClass.

QC: as discussed, we think that this paper needs further offline discussion. First the issues that are common to this CR and R4\_2413358 have to be identified, and then further discussion is needed on the issues on which they differ.

Huawei: The proposal from Ericsson and Qualcomm cannot be agreed. Our CR captures comments.

Ericsson: we narrow down to two options. Currently we cannot agree on the CR. We can have WF to capture the options, which have pros and cons. We can decide it next meeting.

**Decision: Not pursued.**

[R4-2414411](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414411.zip) **Introduction of Delta TRxSRS for 4Tx**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2381 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Introduction of Delta TRxSRS for 4Tx

Flagging by Ericsson and Qualcomm

**Decision: Withdrawn.**

[R4-2413358](file:///D:\RAN4%23112\Docs\R4-2413358.zip) **(NR\_ENDC\_RF\_FR1\_enh2-Core) CR to 38.101 Rel-18: DeltaP\_PowerClass correction for SRS AS for 4Tx**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2504 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR on how to extend the definition of Delta\_PpowerClass for SRS AS for 4Tx.

Flagging by Qualcomm

**Decision: Merged (with R4-24xxxxx).**

#### 5.9.2 RRM performance requirements

#### 5.9.3 Demodulation and CSI requirements

### 5.10 NR RF requirements enhancement for FR2, Phase 3

#### 5.10.1 UE RF requirements

**Topic #5-1: Correction of MPR requirements for 256QAM**

[R4-2411232](file:///D:\RAN4%23112\Docs\R4-2411232.zip) **CR to TS 38.101-2: correction of MPR for 256QAM**

*Type: CR For: Agreement  
 38.101-2 v18.6.0 CR-0752 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

Flagging by QC, Nokia, Ericsson and ZTE

QC: The EVM-limited MPR for PC1 is 8.0 dB, i.e. the smaller of the candidate values. Further MPR (9.5 vs 8.0) is needed for outer waveforms for compliance with SEM. We should keep the requirement as it is.

Nokia: If there is an error it is that the MPR for EDGE is too much. Inner MPR is sufficient for EVM. We can change Edge MPR to 9.5 --> 8.

Ericsson: MPR requirement has been discussed in length in this WI and it was agreed to be 3dB higher than the MPR for 64QAM based both on MPR simulation campaign results and to allow a decent dynamic range for EIRP.

ZTE: As Ericssion mentioned, for 256QAM MPR, there was agreement that 3dB higher than the MPR for 64QAM.

Skyworks: The reason to introduce Edge is that the… 9.5dB means we need more MPR.

**Decision: Not pursued.**

#### 5.10.2 BS demodulation requirements (UL 256QAM)

#### 5.10.3 Moderator summary and conclusions

### 5.11 NR support for dedicated spectrum less than 5MHz for FR1

#### 5.11.1 System parameter and UE RF requirements

**Tdocs are treated in [112][123] NR\_FR1\_5MHz\_BW\_Ph2**

**CR**

[R4-2411186](file:///D:\RAN4%23112\Docs\R4-2411186.zip) **(NR\_FR1\_lessthan\_5MHz\_BW) – CR to TS 38.101-5 : Reserved GSCN requested by RAN2**

*Type: CR For: Agreement  
 38.101-5 v18.6.0 CR-0104 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This CR add the reserved GSCN as agreed in last RAN4#111 based on RAN2 request (LS) for less than 5 MHz channel BW

Qualcomm: when defining 3MHz, it is in Rel-18 and should not impact NTN. If doing now, it cause the conflict between RAN4 and RAN2 specs.

**Decision: Postponed.**

[R4-2411187](file:///D:\RAN4%23112\Docs\R4-2411187.zip) **(NR\_FR1\_lessthan\_5MHz\_BW) – CR to TS 38.108 : Reserved GSCN requested by RAN2**

*Type: CR For: Agreement  
 38.108 v18.3.0 CR-0081 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This CR add the reserved GSCN as agreed in last RAN4#111 based on RAN2 request (LS) for less than 5 MHz channel BW

**Decision: Postponed.**

[R4-2412426](file:///D:\RAN4%23112\Docs\R4-2412426.zip) **(NR\_FR1\_lessthan\_5MHz\_BW-Core) CR on 38.307 Release independent reserved operating bands**

*Type: CR For: Agreement  
 38.307 v18.2.0 CR-0170 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

Quaclomm: the changes are not needed.

Nokia: it is not necessary. The TS rapporteur, by default, the NR band is release independent.

**Decision: Not pursued.**

#### 5.11.2 BS RF requirements and conformance testing

#### 5.11.3 RRM core and performance requirements

#### 5.11.4 Demodulation performance requirements

#### 5.11.5 Moderator summary and conclusions

### 5.12 NB-IoT/eMTC core & perf. requirements for NTN

#### 5.12.1 UE RF requirements

**Topic #6-1: Correction on LTE NTN UE emission requirements**

[R4-2412097](file:///D:\RAN4%23112\Docs\R4-2412097.zip) **Refinements of arrangment of Additional SEM and additional spurious emission**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0042 rev Cat: F (Rel-18)  
  
 Source: vivo*

Flagging by Qualcomm

QC: Some of the SEM-like requirements extend beyond the OOB region. This was handled in spurious emissions by noting that the requirement applies also closer than deltaFoob. If they are moved the SEM-section similar clarification on application also further then deltaFoob is needed to remove any ambiguity from the spec

Vivo reply to QC: There are some cases that are mixed together, however, current misalignment also exist between IoT and NR, so still propose to do some refinements. Details can be discussed.

**Decision: Revised to R4-2414412 (from R4-2412097).**

[R4-2414412](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414412.zip) **Refinements of arrangment of Additional SEM and additional spurious emission**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0042 rev Cat: F (Rel-18)  
  
 Source: vivo*

Flagging by Qualcomm

**Decision: Return to.**

[R4-2413131](file:///D:\RAN4%23112\Docs\R4-2413131.zip) **CR to TS 36.102: B255 emissions**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0045 rev Cat: F (Rel-18)  
  
 Source: Qualcomm Inc.*

Flagging by Huawei

HW: Why do we need to add this channel position restriction for Band 255. How about the other bands? In addition, it's very strange to add this channel position restriction in operating band clause.

**Decision: Postponed.**

**Sub-topic 6-2 Correction on MOP and MPR Requirements in TS36.102**

[R4-2412096](file:///D:\RAN4%23112\Docs\R4-2412096.zip) **Correction of MOP requirements on sTTI for NTN Category M1**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0041 rev Cat: F (Rel-18)  
  
 Source: vivo*

Flagging by Nokia

**Decision: Revised to R4-2414413 (from R4-2412096).**

[R4-2414413](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414413.zip) **Correction of MOP requirements on sTTI for NTN Category M1**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0041 rev Cat: F (Rel-18)  
  
 Source: vivo, Nokia, Ericsson*

Flagging by Nokia

**Decision: Revised to R4-2414445 (from R4-2414413).**

[**R4-2414445**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414445.zip) **Correction of MOP requirements on sTTI for NTN Category M1**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0041 rev Cat: F (Rel-18)  
  
 Source: vivo, Nokia, Ericsson*

Flagging by Nokia

**Decision: Return to.**

[R4-2412098](file:///D:\RAN4%23112\Docs\R4-2412098.zip) **Correct the MPR requirements for NTN Category NB1 and NB2**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0043 rev Cat: F (Rel-18)  
  
 Source: vivo*

Flagging by CHTTL and Apple

CHTTL: should it be 0 instead of N/A in MPR Table 6.2B.2-1 for single tone configuration.

Apple: If no A-MPR is applied then the value should be 0 instead of N/A. However, is there analysis/simulations done to justify 0dB MPR for single tone operation?

Vivo reply to CHTTL and Apple: It is reused from NB-IoT, similar discussion in [101];

**Decision: Revised to R4-2414414 (from R4-2412098).**

[R4-2414414](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414414.zip) **Correct the MPR requirements for NTN Category NB1 and NB2**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0043 rev Cat: F (Rel-18)  
  
 Source: vivo*

Flagging by CHTTL and Apple

**Decision: Return to.**

#### 5.12.2 SAN RF requirements and conformance testing

#### 5.12.3 RRM core and performance requirements

#### 5.12.4 Demodulation requirements

### 5.13 Requirement for NR FR2 multi-Rx chain DL reception

### 5.14 Even Further RRM enhancement for NR and MR-DC

### 5.15 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps

### 5.16 Completion of specification support for bandwidth part operation without restriction in NR

### 5.17 Enhanced NR support for high speed train scenario in frequency range 2

### 5.18 Enhancement of Multiple Input Multiple Output Over-the-Air test methodology and requirements for NR UEs

### 5.19 NR demodulation performance evolution

### 5.20 Multi-carrier enhancements for NR

#### 5.20.1 UE RF requirements

**Sub-topic 1-1 Remaining issues of Multi-carrier enhancements**

[R4-2412101](file:///D:\RAN4%23112\Docs\R4-2412101.zip) **Some remaining issues of Multi-carrier enhancements**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

**Sub-topic 1-2 the corrections for the feature list of Rel-18 Tx switching**

[R4-2412538](file:///D:\RAN4%23112\Docs\R4-2412538.zip) **Corrections on the feature list of Rel-18 Tx switching**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

#### 5.20.2 RRM core and performance requirements

#### 5.20.3 Moderator summary and conclusions

### 5.21 Further NR coverage enhancements

#### 5.21.1 UE RF requirements

**Sub-topic 2-1 Remaining issues with Rel-18 coverage enhancement**

[R4-2411156](file:///D:\RAN4%23112\Docs\R4-2411156.zip) **(NR\_cov\_enh2-Core) On remaining issues with Rel-18 coverage enhancement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

CR

[R4-2411266](file:///D:\RAN4%23112\Docs\R4-2411266.zip) **(NR\_cov\_enh2-Core) CR to 38.101-1: Clarification on receiver requirements for coverage enhancement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2384 rev Cat: F (Rel-18)  
  
 Source: Apple*

Samsung (Tina) flag Apple R4-2411266/67

- Actually increasing higher power limit feature has same situation (i.e., no new MSD are specified in addition to the ones for legacy power classes), but this is not reflected in spec. OK to add some wording for power boosting feature if it was already agreed in last meeting. But the wording may could be further discussed? One comment is the WF says "MSD" but the CR says "Rx requirements"

Nokia (Johannes) - R4-2411266/67

We do not agree with the suggested wording. The WF states that "no new MSD test case are introduced" which is not the same as saying "receiver requirements are not applicable"

Qualcomm - Sumant Iyer: Understand the principle behind Apple CRs 266 and 267, but it does not seem necessary, because Tx powers are explicitly called out in MSD requirements. Would like to understand what is lost if the proposed wording is not added to the standard.

**Decision: Not pursued.**

[R4-2411267](file:///D:\RAN4%23112\Docs\R4-2411267.zip) **(NR\_cov\_enh2-Core) CR to 38.101-3: Clarification on receiver requirements for coverage enhancement**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1269 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Not pursued.**

[R4-2411889](file:///D:\RAN4%23112\Docs\R4-2411889.zip) **CR on 38.101-1 Update the IE names for coverage enhancement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2405 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

Nokia (Johannes) - R4-2411290/91: In general OK but should the IE names not be updated?

**Decision: Agreed.**

[R4-2414416](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414416.zip) **CR on 38.101-1 Update the IE names for coverage enhancement**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2405 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

Nokia (Johannes) - R4-2411290/91: In general OK but should the IE names not be updated?

**Decision: Withdrawn.**

[R4-2412990](file:///D:\RAN4%23112\Docs\R4-2412990.zip) **(NR\_cov\_enh2-Core) CR to 38.101-3 for powerr boosting feature supporting CA**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1295 rev Cat: F (Rel-18)  
  
 Source: Ericsson, Qualcomm, Intel*

**Decision: Agreed.**

[R4-2412991](file:///D:\RAN4%23112\Docs\R4-2412991.zip) **(NR\_cov\_enh2-Core) CR to 38.101-1 for power boosting feature supporting CA**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2464 rev Cat: F (Rel-18)  
  
 Source: Ericsson, Qualcomm, Intel, Huawei*

**Decision: Revised to R4-2414429 (from R4-2412991).**

[R4-2414429](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414429.zip) **(NR\_cov\_enh2-Core) CR to 38.101-1 for power boosting feature supporting CA**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2464 rev Cat: F (Rel-18)  
  
 Source: Ericsson, Qualcomm, Intel, Huawei, ZTE*

**Decision: Return to.**

#### 5.21.2 BS demodulation performance requirements

#### 5.21.3 Moderator summary and conclusions

### 5.22 NR sidelink evolution

#### 5.22.1 UE RF requirements

**Sub-topic 3-1 CRs and TPs**

[R4-2411079](file:///D:\RAN4%23112\Docs\R4-2411079.zip) **CR for 38.101-1: Correction on the SL-U RB set and intra-cell guard band determination**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2376 rev Cat: F (Rel-18)  
  
 Source: CATT, CICTCI*

**Decision: Agreed.**

[R4-2412045](file:///D:\RAN4%23112\Docs\R4-2412045.zip) **CR on missing NS values for SL-U(R18)**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2419 rev Cat: F (Rel-18)  
  
 Source: LG Electronics*

**Abstract:**

It is CR on incorrect NS values for SL-U

**Decision: Agreed.**

#### 5.22.2 RRM core and performance requirements

#### 5.22.3 UE demodulation performance requirements

#### 5.22.4 Moderator summary and conclusions

### 5.23 NR NTN enhancement

### 5.24 Further NR mobility enhancements

### 5.25 Dual Tx/Rx Multi-SIM for NR

### 5.26 Enhanced NR Sidelink Relay

#### 5.26.1 RRM core and performance requirements

#### 5.26.2 Moderator summary and conclusions

### 5.27 NR MIMO evolution for downlink and uplink

### 5.28 Enhanced support of reduced capability NR devices

### 5.29 Network energy saving for NR

### 5.30 IoT (Internet of Things) NTN (non-terrestrial network) enhancements

### 5.31 NR Network-controlled Repeaters

### 5.32 Mobile IAB (Integrated Access and Backhaul) for NR

### 5.33 Enhancement of NR dynamic spectrum sharing

### 5.34 Other Rel-18 non-spectrum related WIs

#### 5.34.1 UE RF requirements

**Topic #4: Other Rel-18 non-spectrum related Wis**

CR

[R4-2411660](file:///D:\RAN4%23112\Docs\R4-2411660.zip) **[NR\_pos\_enh2-Core] CR to 38.101-1 on positioning IE correction**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2392 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2414415 (from R4-2411660).**

[R4-2414415](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414415.zip) **(NR\_pos\_enh2-Core) CR to 38.101-1 on positioning IE correction**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2392 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Agreed.**

[R4-2414291](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414291.zip) **(5G\_V2X\_NRSL-Core) CR to add third level clause suffixes for V2X - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.x.0 CR-xxxx rev Cat: F (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Withdrawn.**

[R4-2412481](file:///D:\\RAN4%23112\\Docs\\R4-2412481.zip) **(5G\_V2X\_NRSL-Core) CR to add third level clause suffixes for V2X - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2449 rev Cat: F (Rel-18)  
  
 Source: Anritsu Limited*

**Decision: Revised to R4-2414290 (from R4-2412481).**

[R4-2414290](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414290.zip) **(NR\_SL\_enh2-Core) CR to add third level clause suffixes for V2X - TS38.101-1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2449 rev Cat: F (Rel-18)  
  
 Source: Anritsu Limited*

**Decision: Agreed.**

[R4-2413240](file:///D:\\RAN4%23112\\Docs\\R4-2413240.zip) **(LTE\_NR\_HPUE\_FWVM\_R18-Core) Clarification on FRMCS PC1 applicability for bands n100 and n101**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2493 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon, UIC*

**Abstract:**

In this CR we introduce PC1-specific Note in Table 6.2.1-1 for RMR bands n100/n101, to clarify applicability of PC1 for FRMCS.

**Decision: Agreed.**

**Sub-topic 4-1: Draft LS to ETSI TC RT on missing receiver characteristics of the n100/n101 HPUE cab-radio based on ECC(20)02**

LS out

[R4-2413245](file:///D:\RAN4%23112\Docs\R4-2413245.zip) **Draft LS to ETSI TC RT on missing receiver characteristics of the n100/n101 HPUE cab-radio based on ECC(20)02**

*Type: LS out For: Approval  
 to ETSI TC RT  
 Source: Huawei, HiSilicon*

**Abstract:**

Draft LS to ETSI TC RT on Rx requirements for n100/n101 PC1 HPUE cab-radio.

**Decision: Revised to R4-2414419 (from R4-2413245).**

[R4-2414419](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414419.zip) **Draft LS to ETSI TC RT on missing receiver characteristics of the n100/n101 HPUE cab-radio based on ECC(20)02**

*Type: LS out For: Approval  
 to ETSI TC RT  
 Source: Huawei, HiSilicon*

**Abstract:**

Draft LS to ETSI TC RT on Rx requirements for n100/n101 PC1 HPUE cab-radio.

**Decision: Approved.**

#### 5.34.2 BS RF requirements

#### 5.34.3 RRM requirements

#### 5.34.4 Demodulation performance and CSI requirements

#### 5.34.5 OTA aspects

### 5.35 Rel-18 TEI

[MCC]: For TEI18 CAT B authors, please take a look at the guideline of TEI part from RAN4#112 meeting arrangements and guidelines document in reference to the TEI identifier needing to be present in the title of CR. If authors need assistance, please contact the Chair.

**Sub-topic 5-1 channel spacing for intra-band EN-DC**

[R4-2412536](file:///D:\RAN4%23112\Docs\R4-2412536.zip) **Discussion on the channel spacing for intra-band EN-DC**

*Type: discussion For: Discussion  
 38.101-3 v CR- rev Cat: (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

CR

[R4-2412606](file:///D:\RAN4%23112\Docs\R4-2412606.zip) **(TEI18) R18 Cat-F CR 38.101-3 channel spacing for intra-band EN-DC**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1292 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2414394 (from R4-2412606).**

[R4-2414394](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414394.zip) **R18 Cat-F CR 38.101-3 channel spacing for intra-band EN-DC [Intra-band\_EN-DC\_Channelspacing]**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1292 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

Nokia: is this CR aligned with LS to RAN2.

Huawei: CR is for the corresponding requirement.

**Decision: Revised to R4-2414423 (from R4-2414394).**

[R4-2414423](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414423.zip) **R18 Cat-F CR 38.101-3 channel spacing for intra-band EN-DC [Intra-band\_EN-DC\_Channelspacing]**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1292 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

Nokia: is this CR aligned with LS to RAN2.

Huawei: CR is for the corresponding requirement.

**Decision: Agreed.**

**Sub-topic 5-2 feasibility of FR2 UEs with low EIRP**

[R4-2412784](file:///D:\RAN4%23112\Docs\R4-2412784.zip) **Discussion on introduction of new FR2 PC**

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

**Abstract:**

MCC: Moderator would like to move [R4-2412784](file:///D:\RAN4%23112\Docs\R4-2412784.zip)/3064 from AI 4.8 to AI 5.35 and treat them in [103].

**Decision: Noted.**

[R4-2413227](file:///D:\RAN4%23112\Docs\R4-2413227.zip) **Discussion on feasibility of FR2 UEs with low EIRP**

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

**Abstract:**

Emerging FR2 markets may have denser deployment and more use cases than current practice in North America.We investigate if new scenarios will be better served by a new UE power class.

**Decision: Noted.**

CR

[R4-2413064](file:///D:\RAN4%23112\Docs\R4-2413064.zip) **CR on introduction of new FR2 power class 8**

*Type: CR For: Agreement  
 38.101-2 v18.6.0 CR-0758 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Moderator would like to move [R4-2412784](file:///D:\RAN4%23112\Docs\R4-2412784.zip)/3064 from AI 4.8 to AI 5.35 and treat them in [103].

[MCC]: Missing TEI identifier on the CR coversheet. CAT B CR TEI18.

**Decision: Not pursued.**

**Sub-topic 5-3 Essential correction to NB-IoT NTN Carrier Frequency**

[R4-2412461](file:///D:\RAN4%23112\Docs\R4-2412461.zip) **Essential correction to NB-IoT NTN Carrier Frequency to avoid breaking of forward and backward compatibility**

*Type: discussion For: Discussion  
 Source: Inmarsat, Viasat*

**Decision: Noted.**

[R4-2412444](file:///D:\RAN4%23112\Docs\R4-2412444.zip) **Flexible TX-RX Separation for NR NTN FR1 bands**

*Type: discussion For: Discussion  
 Source: Inmarsat, Viasat*

**Abstract:**

MCC: This was not made available at tdoc submission deadline. If it is made available treat [R4-2412444](file:///D:\RAN4%23112\Docs\R4-2412444.zip) in email thread [103].

**Decision: Withdrawn.**

CR

[R4-2412445](file:///D:\RAN4%23112\Docs\R4-2412445.zip) **(LTE\_NBIoT\_eMTC\_NTN\_req-Core) CR to 36.102 In-band NB-IoT NTN deployment with NR**

*Type: CR For: Agreement  
 36.102 v18.5.0 CR-0044 rev Cat: F (Rel-18)  
  
 Source: Inmarsat, Viasat*

**Abstract:**

MCC: A revision is required due to parsing failure. Change request Work Item wrong on CR cover for TDoc [R4-2412445](file:///D:\RAN4%23112\Docs\R4-2412445.zip). Database value : LTE\_NBIoT\_eMTC\_NTN\_req-Core. CR cover value : TEI18.

**Decision: Postponed.**

[R4-2412450](file:///D:\RAN4%23112\Docs\R4-2412450.zip) **(LTE\_NBIoT\_eMTC\_NTN\_req-Core) CR to 36.108 In-band NB-IoT NTN deployment with NR**

*Type: CR For: Agreement  
 36.108 v18.6.0 CR-0027 rev Cat: F (Rel-18)  
  
 Source: Inmarsat, Viasat, Omnispace, Terrestar Solutions, Thuraya, Ligado Networks, EchoStar, Thales, Skyworks*

**Decision: Postponed.**

[R4-2412443](file:///D:\RAN4%23112\Docs\R4-2412443.zip) **(NR\_NTN\_solutions-Core) CR to 38.101-5 Flexible TX-RX Separation for NR NTN Bands from Rel-17**

*Type: CR For: Agreement  
 38.101-5 v17.8.0 CR-0110 rev Cat: F (Rel-17)  
  
 Source: Inmarsat, Viasat, Omnispace, Terrestar Solutions, Thuraya, Ligado Networks, EchoStar, Thales, Skyworks*

**Abstract:**

Treat [R4-2412440](file:///D:\RAN4%23112\Docs\R4-2412440.zip)/43/44 in email thread [103].

**Decision: Not pursued.**

[R4-2412440](file:///D:\RAN4%23112\Docs\R4-2412440.zip) **(NR\_NTN\_solutions-Core) CR to 38.101-5 Flexible TX-RX Separation for NR NTN Bands from Rel-18**

*Type: CR For: Agreement  
 38.101-5 v18.6.0 CR-0109 rev Cat: A (Rel-18)  
  
 Source: Inmarsat, Viasat, Omnispace, Terrestar Solutions, Thuraya, Ligado Networks, EchoStar, Thales, Skyworks*

**Abstract:**

Treat [R4-2412440](file:///D:\RAN4%23112\Docs\R4-2412440.zip)/43/44 in email thread [103]. [MCC]: This is CR CAT A.

**Decision: Withdrawn.**

**Sub-topic 5-4 CRs and TPs**

[R4-2412090](file:///D:\RAN4%23112\Docs\R4-2412090.zip) **CR on 38.101-1 for cleanup of Delta\_powerclass related requirements for HPUE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2420 rev Cat: F (Rel-18)  
  
 Source: vivo*

*Comments from Apple and Samsung.*

**Decision: Not pursued.**

[R4-2412091](file:///D:\RAN4%23112\Docs\R4-2412091.zip) **CR on 38.101-3 for cleanup of Delta\_powerclass related requirements for HPUE**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1278 rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Not pursued.**

[R4-2413355](file:///D:\RAN4%23112\Docs\R4-2413355.zip) **(TEI18) CR to 38.101-1 Rel-18: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2503 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This CR is a resubmission of the endorsed CR in RAN4#111 [R4\_2409789](file:///D:\RAN4%23112\Docs\R4-2409789.zip). It is a part of series of CRs on corrections of NR operating bands clause in FR1.

Huawei R4\_2413355 (Michal): I would like to highlight formal issue related to the WI code used. Instead of TEI18, it shall rather use spectrum WID code, related to the bands addressed in this CR. This topic has been mentioned by the Chair during Monday join session. Please check with MCC and Chair on their preferred approach. All TEI CRs are monitored by RAN, so better to avoid TEI code to avoid unnecessary turbulences.

**Decision: Revised to R4-2414422 (from R4-2413355).**

[R4-2414422](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414422.zip) **(TEI18) CR to 38.101-1 Rel-18: Corrections of NR operating bands clause in FR1**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2503 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This CR is a resubmission of the endorsed CR in RAN4#111 [R4\_2409789](file:///D:\RAN4%23112\Docs\R4-2409789.zip). It is a part of series of CRs on corrections of NR operating bands clause in FR1.

**Decision: Return to.**

**Withdrawn**

[R4-2412537](file:///D:\RAN4%23112\Docs\R4-2412537.zip) **CR to 38.101-3: Correction on the channel spacing for intra-band EN-DC**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1289 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

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

[R4-2412598](file:///D:\RAN4%23112\Docs\R4-2412598.zip) **CR to 38.101-3: Correction on the channel spacing for intra-band EN-DC**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1291 rev Cat: F (Rel-18)  
  
 Source: Huawei Device Co., Ltd*

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

### 5.36 Rel-18 feature list

[R4-2414427](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414427.zip) **LS on RAN4 Rel-18 feature list**

*Type: LSout For: Approval  
 Source: CMCC*

**Decision: Approved.**

[R4-2414428](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414428.zip) **RAN4 Rel-18 feature list update**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Approved.**

## 6 Rel-18 on-going work items

### 6.1 Expanded and improved NR positioning

### 6.2 Enhancement of TRP and TRS requirements and test methodologies

## 7 Rel-19 on-going spectrum related work items for NR and LTE

### 7.1 Moderator summary and conclusions (for AI 6)

[R4-2412807](file:///D:\RAN4%23112\Docs\R4-2412807.zip) **Topic summary for [112][105] NR\_Baskets\_Part\_1**

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

**Abstract:**

Summary for AI 7.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

The conclusions and agreements are as follows.

**Newly allocated tdocs for approval**

[**R4-2414350**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414350.zip) **NR Basket Part 1 adhoc minutes**

*Type: other For: Approval  
 Source: Nokia*

**Agreement:**

* for August meeting, multiple official bigCRs submitted/reserved by the objective responsible Rapporteur (i.e. from both the 1st Rapporteur and the co-Rapporteurs), no overlapping changes as well as no changes to the same table in different CRs. For October meeting, use option 1. Decide final option before November meeting submission deadline.

**Decision: Noted.**

[R4-2414349](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414349.zip) **WF on DC\_(n)8AA**

*Type: other For: Approval  
 Source: Skyworks, Murata, China Unicom, CHTTL*

**Decision: Approved.**

[R4-2412808](file:///D:\RAN4%23112\Docs\R4-2412808.zip) **Topic summary for [112][106] NR\_Baskets\_Part\_2**

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

**Abstract:**

Summary for AI 7.3

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

The conclusions and agreements are as follows.

**Newly allocated tdocs for approval**

[R4-2414351](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414351.zip) **WF on intra-band UL CA interference and RF requirements**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Noted.**

[R4-2412809](file:///D:\RAN4%23112\Docs\R4-2412809.zip) **Topic summary for [112][107] LTE\_Baskets**

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

**Abstract:**

Summary for AI 7.4

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

The conclusions and agreements are as follows.

**Newly allocated tdocs for approval**

[R4-2412810](file:///D:\RAN4%23112\Docs\R4-2412810.zip) **Topic summary for [112][108] HPUE\_NR\_band**

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

**Abstract:**

Summary for AI 7.5

**Decision: Noted.**

[R4-2412811](file:///D:\RAN4%23112\Docs\R4-2412811.zip) **Topic summary for [112][109] HPUE\_LTE\_band**

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

**Abstract:**

Summary for AI 7.6

**Decision: Noted.**

[R4-2412812](file:///D:\RAN4%23112\Docs\R4-2412812.zip) **Topic summary for [112][110] HPUE\_Basket\_EN-DC**

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

**Abstract:**

Summary for AI 7.7

**Decision: Noted.**

[R4-2412813](file:///D:\RAN4%23112\Docs\R4-2412813.zip) **Topic summary for [112][111] HPUE\_Basket\_CADC\_SUL**

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

**Abstract:**

Summary for AI 7.8

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/6.%5B111%5D_R4-2412813.docx>

The conclusions and agreements are as follows.

**Topic #1: HPUE\_FR1\_TDD\_NR\_CADC\_SUL\_R18**

**Issue 1-1: General aspects of WI work procedure on band combination request and handling of draftCRs &TPs(R4-2412270, China Telecom)**

**Agreement:**

* One big CR is expected for all the band combinations in WI per applicable spec.
* Draft CRs for each band combinations with different configurations corresponding to different objectives can be merged, but TPs need to be handled separately based on the TRs to which it belongs.

**Newly allocated tdocs for approval**

[R4-2412814](file:///D:\RAN4%23112\Docs\R4-2412814.zip) **Topic summary for [112][112] LTE\_NR\_Other\_basket**

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

**Abstract:**

Summary for AI 7.9, 7.10, 7.11, 7.12

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/1.%5B112%5D_R4-2412814%20Topic%20summary%20for%20%5B112%5D%5B112%5D%20LTE_NR_Other_WI.docx>

The conclusions and agreements are as follows.

**Issue 4-2-1: Whether to add 3 MHz CBWs in the WID**

**Agreement:**

* RAN4 suggests to add optional 3MHz channel bandwidth to support single carrier operation in the basket WI “Adding channel bandwidth(s) support to existing NR bands and CA/ENDC combinations in REL-19”

**Newly allocated tdocs for approval**

[R4-2414268](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414268.zip) **WF on simulatenous Rx-Tx for CA\_n40-n41**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

[R4-2414269](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414269.zip) **WF on downlink interruption for UL Tx switching**

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

**Decision: Revised to R4-2414435 (from R4-2414269).**

[**R4-2414435**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414435.zip) **WF on downlink interruption for UL Tx switching**

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

**Decision: Return to.**

[R4-2414369](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414369.zip) **WF on NS\_27 A-MPR for larger than 40MHz UL CBW for n48**

*Type: other For: Approval  
 Source: CableLabs*

**Decision: Approved.**

[R4-2412815](file:///D:\RAN4%23112\Docs\R4-2412815.zip) **Topic summary for [112][113] NR\_LTE\_TN\_Bands**

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

**Abstract:**

Summary for AI 7.13, 7.14, 7.15, 7.16. MCC: Moderator is changed from Moderator (China Telecom) to Moderator (Nokia).

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/2.%5B113%5D_R4-2412815%20Topic%20Summary%20%5B112%5D%5B113%5D.docx>

The conclusions and agreements are as follows.

**Topic #1: Introduction of the 1.4 GHz Band**

**Issue 1-1: Band number**

**Agreement:**

* Use band number n110.

**Issue 1-2: UE REFSENS**

**Agreement:**

* UE REFSENS is [-102.2] dBm

**Issue 1-4: Synchronization raster (range of GSCN)**

* Proposals
  + Option 1: 33802-33804 (Ericsson, ZTE, Sanechips)
  + Option 2: 33802-33806 (Nokia, MidWave Wireless)
* Recommended WF
  + Option 1

**Agreement:**

* Agree on Option 1.

**Topic #2: Introduction of LTE FDD band in 1800-1830 MHz for Canada**

**Issue 2-2: Band number**

**Agreement:**

* Use band number 111.

**Issue 2-3: System parameters**

**Agreement:**

* Agree on system parameters in R4-2411220 in principle.

**Topic #3: Introduction of NR bands n87 and n88**

**Issue 3-2: System parameters**

**Agreement:**

* Use the system parameters in R4-2411086 (CATT) and R4-2413107 (Nokia) as the starting point.
* No need for enhanced channel raster

**Topic #4: Introduction of NR band n68**

**Issue 4-2: System parameters**

**Agreement:**

* Use system parameters in R4-2411900 and R4-2411946 as the starting point.

**Issue 4-3: UE RF simulations**

**Agreement:**

* Agree to perform simulations according to R4-2411633

**Newly allocated tdocs for approval**

[R4-2414270](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414270.zip) **WF on introduction of the 1.4 GHz Band**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

[R4-2414271](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414271.zip) **WF on introduction of LTE FDD band in 1800-1830 MHz for Canada**

*Type: other For: Approval  
 Source: NOVAMINT*

Nokia: 38.104, 38.141-1, 38.141-2 need be added.

**Agreement:**

* 38.104, 38.141-1, 38.141-2 need be added.

**Decision: Approved.**

[R4-2414272](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414272.zip) **WF on introduction of NR bands n87 and n88**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

[R4-2414273](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414273.zip) **WF on introduction of NR band n68**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

[R4-2412816](file:///D:\RAN4%23112\Docs\R4-2412816.zip) **Topic summary for [112][114] NR\_IoT\_NTN\_Bands**

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

**Abstract:**

Summary for AI 7.17, 7.18, 7.19

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/3a.%5B114%5D_Draft_R4-2412816%20-%20Topic%20summary%20for%20%5B112%5D%5B114%5D%20NR_IoT_NTN_Bands_v00_Moderator_DISH.docx>

The conclusions and agreements are as follows.

**Topic #1: NR\_NTN\_Sband**

**Issue 1-2-1: Band Numbering**

**Agreement:**

* Adopt n252 as the band number for the new NR NTN S-band.

**Issue 1-2-2: Band Plan**

**Agreement:**

* Proposed band plan as follows

|  |  |  |  |
| --- | --- | --- | --- |
| Satellite operating band | Uplink (UL) operating band SAN receive / UE transmit  FUL,low – FUL,high | Downlink (DL) operating band SAN transmit / UE receive  FDL,low – FDL,high | Duplex mode |
| [n252] | 2000 MHz - 2020 MHz | 2180 MHz - 2200MHz | FDD |
| NOTE: Satellite bands are numbered in descending order from n256. | | | |

**Issue 1-2-3: Intended Regions and Countries**

**Agreement:**

* Clarify that the new NTN S-band is only targeting north America.

**Issue 1-2-4: Regulatory Background**

**Agreement:**

* Capture all the applicable regulations in a new section of TR 38.863
* ATC is not applicable, hence out of scope for this work.

**Issue 1-2-5: Applicable TN Bands for Coexistence**

**Agreement:**

* Focus on coexistence of S-band UL with B2/n2 and B25/n25 DL.
* Capture the clarifications on the co-existence issues with B70/n70 and B66/n66 and that there is no 3GPP solution for them in the TR

**Issue 1-3-1: UE Channel Bandwidths**

**Agreement:**

* For the NTN FDD band with UE transmitting at 2000 - 2020 MHz and SAN transmitting at 2180 - 2200 MHz, the channel bandwidth and SCS should be defined as follows:

| NTN satellite band | SCS  kHz | UE Channel bandwidth (MHz) | | | |
| --- | --- | --- | --- | --- | --- |
| 5 | 10 | 15 | 20 |
|  | 15 | 5 | 10 | 15 | 20 |
| [n252] | 30 |  | 10 | 15 | 20 |
|  | 60 |  | 10 | 15 | 20 |

**Issue 1-3-2: Channel Raster**

**Agreement:**

* Support both 100 kHz and 10 kHz channel raster.
* Agree to mark Enhanced Channel Raster support as Mandatory as agreed in the WID Objectives.

**Issue 1-3-3: Sync Raster**

**Agreement:**

* Specifying at least Case A for the new NTN S-band GSCN.

**Issue 1-3-4: TX-RX Separation**

**Agreement:**

* Follow the conclusion of flexible Tx-Rx separation under the maintenance agenda.

**Topic #2: IoT\_NTN\_FDD\_S\_band**

**Issue 2-2-1: Band Numbering**

**Agreement:**

* Adopt 252 as the band number for the new IoT NTN S-band.

**Issue 2-2-2: Band Plan**

**Agreement:**

* Adopt the proposed band plan as follows

E-UTRA operating bands for satellite access

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E‑UTRA Operating Band | Uplink (UL) operating band BS receive UE transmit | | | Downlink (DL) operating band BS transmit  UE receive | | | Duplex Mode |
| FUL\_low – FUL\_high | | | FDL\_low – FDL\_high | | |
| 256 | 1980 MHz | – | 2010 MHz | 2170 MHz | – | 2200 MHz | FDD |
| 255 | 1626.5 MHz | – | 1660.5 MHz | 1525 MHz | – | 1559 MHz | FDD |
| 254 | 1610 MHz | - | 1626.5 MHz | 2483.5 MHz | - | 2500 MHz | FDD |
| 2532 | 1668 MHz | - | 1675 MHz | 1518 MHz | - | 1525 MHz | FDD |
| 252 | 2000 MHz | - | 2020 MHz | 2180 MHz | - | 2200 MHz | FDD |
| NOTE 1: Satellite bands are numbered in descending order from 256  NOTE 2: UE assigned to channels and allocated frequency resources in the lower portion of Band 253 may experience blocking or harmful interference from terrestrial networks in adjacent or nearby frequencies when operating in the proximity with terrestrial base stations. | | | | | | | |

**Agreement:**

* Follow the agreements in Topic #1 for issue 2-2-3, 2-2-4, 2-2-5.

**Topic #3: NR\_NTN\_combinedLband**

Issue 3-1-1: Band Plan

**Agreement:**

* Consider the following three new NR NTN bands as a starting point:

Table 1: NR-NTN satellite bands in FR1-NTN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NTN satellite operating band | Uplink (UL) operating band Satellite Access Node receive / UE transmit  FUL,low – FUL,high | Downlink (DL) operating band Satellite Access Node transmit / UE receive  FDL,low – FDL,high | | Duplex mode |
| [n253] | 1668MHz – 1675MHz | 1518MHz – 1525MHz | | FDD |
| [n251] | 1626.5MHz – 1660.5MHz | | 1518MHz – 1559MHz | FDD |
| [n250] | 1668MHz – 1675MHz | | 1518MHz – 1559MHz | FDD |
| NOTE: NTN satellite bands are numbered in descending order from n256. | | | | |

**Issue 3-1-3: General Regulatory Background**

**Agreement:**

* Consider the protection of Radio Astronomy as input to the requirements and for further discussion
* Applicable regulation shall be captured in either existing or a new section in TR 38.863 for NTN L-bands.

**Issue 3-1-4: General Coexistence Aspects**

**Agreement:**

* Reuse the assumptions from TR 38.863 as a starting point for further discussion.

**Issue 3-2-2: Asymmetric Channel Bandwidth Support**

**Agreement:**

* Agree to support for asymmetric channel bandwidths for the new NR NTN combined L-band bands and further discuss which channel bandwidth combinations can be supported.

**Issue 3-2-3: Channel Raster and NR-ARFCN**

**Agreement:**

* Consider Option 1 as a starting point for further discussion after correcting the band numbers.

**Issue 3-2-4: GSCN and Sync Raster**

**Agreement:**

* Consider Option 1 as a starting point for further discussion after correcting the band numbers.

**Issue 3-2-5: TX-RX Separation**

**Agreement:**

* The flexible TX-RX frequency separation for for the new NR-NTN bands should be defined
* FFS on how to capture flexible Tx-Rx frequency separation in the spec.

**Newly allocated tdocs for approval**

[R4-2414287](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414287.zip) **WF on Rel-19 FR1 NTN bands**

*Type: other For: Approval  
 Source: Inmarsat*

**Decision: Return to.**

[R4-2412817](file:///D:\RAN4%23112\Docs\R4-2412817.zip) **Topic summary for [112][115] NR\_n28\_PC2\_40MHz**

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

**Abstract:**

Summary for AI 7.20

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/3.%5B115%5D_R4-2412817.docx>

The conclusions and agreements are as follows.

**Topic #2: UE RF requirements**

**Issue 2-1-1: UE architecture assumption**

**Agreement:**

* No need to study the feasibility of UE architecture, companies are encouraged to provide analysis on RF requirements based on their own implementation.
* RAN4 RF requirements should accommodate different UE architecture assumption.
* FFS on whether single set of requirements for different UE architectures should be defined.

**Issue 2-1-2: A-MPR simulation assump**ti**on**

**Agreement:**

* Reuse Rel-18 A-MPR simulation assumption in this WI.

**Issue 2-2-1 PC2 RSD for 1Tx and 2Tx for BW<=30MHz**

**Agreement:**

* Define RSD requirements as following:

Table 1: Reference Sensitivity Degradation from PC3 to PC2 for FDD bands for single Tx

| Operating Band | 3  MHz (dB) | 5  MHz (dB) | 10  MHz (dB) | 15  MHz (dB) | 20  MHz (dB) | 25  MHz (dB) | 30 MHz (dB) | 35 MHz (dB) | 40  MHz (dB) | 45 MHz (dB) | 50  MHz (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n28 | 0.6 | 0.6 | 0.7 | 0.8 | 1.3 | 2.4 | 2.9 |  |  |  |  |

Table 2 Reference Sensitivity Degradation from PC3 to PC2 for FDD bands for dual Tx

| Operating Band | 3  MHz (dB) | 5  MHz (dB) | 10  MHz (dB) | 15  MHz (dB) | 20  MHz (dB) | 25  MHz (dB) | 30 MHz (dB) | 35 MHz (dB) | 40  MHz (dB) | 45 MHz (dB) | 50  MHz (dB) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n28 | 1.1 | 1.1 | 1.1 | 1.3 | 3.0 | 6.6 | 7.9 |  |  |  |  |

**Issue 2-2-3 NS\_18 A-MPR for PC2 for BW<=30MHz**

**Agreement:**

* Reuse Rel-18 requirement for NS\_18.

**Issue 2-3-1 Uplink configuration for n28 REFSENS**

**Agreement:**

* Adopt the following UL configuration for 40MHz

| Operating band / SCS (kHz) / Channel bandwidth (MHz) / Duplex mode | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Operating Band | SCS | 3 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 | 70 | 80 | 90 | 100 | Duplex Mode |
| n28 | 15 | 15 | 25 | 251 | 251 | 251 | 251 | 251 |  | 251 |  |  |  |  |  |  |  | FDD |
|  | 30 |  |  | 101 | 101 | 101 | 101 | 101 |  | 101 |  |  |  |  |  |  |  |  |
| Note 1: UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.3.2-1). | | | | | | | | | | | | | | | | | | |

**Newly allocated tdocs for approval**

[R4-2414274](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414274.zip) **WF on introduction of PC2 and 40MHz CBW in NR band n28**

*Type: other For: Approval  
 Source: CMCC, CBN, China Broadnet*

**Decision: Approved.**

**Withdrawn**

[R4-2411592](file:///D:\RAN4%23112\Docs\R4-2411592.zip) **Big CR on Introduction of completed R19 x(x<=6) DL y(y<=2) UL CA band combinations to TS 36.101**

*Type: CR For: Endorsement  
 36.101 v18.6.0 CR-6053 rev Cat: B (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

### 7.2 Rel-19 DC of x LTE band(s), y NR band(s) (x<=6) and single or two NR SUL bands

#### 7.2.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411318](file:///D:\RAN4%23112\Docs\R4-2411318.zip) **Draft TR sketelon 37.719-11-10**

*Type: draft TR For: Agreement  
 37.719-11-10 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Samsung*

**Decision: Agreed.**

[R4-2412116](file:///D:\RAN4%23112\Docs\R4-2412116.zip) **TR skeleton for TR 37.719-11-11 Rel-19 Dual Connectivity of EN-DC and NE-DC configurations consisting of 2 different bands downlink (DL) with 2 different bands uplink (UL) (1 LTE band and 1 NR band)**

*Type: draft TR For: Agreement  
 37.719-11-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: CHTTL*

**Decision: Agreed.**

[R4-2412436](file:///D:\RAN4%23112\Docs\R4-2412436.zip) **Skeleton TR37.719-21-11 v0.0.0 for DC\_R19\_xBLTE\_yBNR\_3DL2UL**

*Type: draft TR For: Agreement  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: LG Electronics Deutschland*

**Abstract:**

Skeleton TR37.719-21-11 v0.0.0 for DC\_R19\_xBLTE\_yBNR\_3DL2UL

**Decision: Agreed.**

[R4-2412157](file:///D:\RAN4%23112\Docs\R4-2412157.zip) **TR 37.719-11-11 v0.1.0 Rel-19 Dual Connectivity of EN-DC and NE-DC configurations consisting of 2 different bands downlink (DL) with 2 different bands uplink (UL) (1 LTE band and 1 NR band)**

*Type: draft TR For: Agreement  
 37.719-11-11 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: CHTTL*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2412438](file:///D:\RAN4%23112\Docs\R4-2412438.zip) **TR37.719-21-11 v0.1.0 for DC\_R19\_xBLTE\_yBNR\_3DL2UL**

*Type: draft TR For: Agreement  
 37.719-21-11 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: LG Electronics Deutschland*

**Abstract:**

For email approval : TR37.719-21-11 v0.1.0 for DC\_R19\_xBLTE\_yBNR\_3DL2UL. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**WID revision**

[R4-2413335](file:///D:\RAN4%23112\Docs\R4-2413335.zip) **Merged Excel for WID for DC\_R19\_xBLTE\_yBNR**

*Type: WID revised For: Endorsement  
 Source: Nokia*

**Abstract:**

Persentation of revised WID with merged Excel and WID revisions based on RAN secretary comments

**Decision: Noted.**

[R4-2413336](file:///D:\RAN4%23112\Docs\R4-2413336.zip) **Revised WID for DC\_R19\_xBLTE\_yBNR**

*Type: WID revised For: Endorsement  
 Source: Nokia*

**Abstract:**

Inclusion of requests provided for RAN4#112. MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Big CR**

[R4-2412487](file:///D:\RAN4%23112\Docs\R4-2412487.zip) **draft BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-1 DC\_R19\_1BLTE\_1BNR\_2DL2UL)**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CHTTL*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412483](file:///D:\RAN4%23112\Docs\R4-2412483.zip) **BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-2 DC\_R19\_xBLTE\_yBNR\_3DL2UL)**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: LG Electronics Deutschland*

**Abstract:**

For email agreement : Draft BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-2 DC\_R19\_xBLTE\_yBNR\_3DL2UL). MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2413364](file:///D:\RAN4%23112\Docs\R4-2413364.zip) **BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-3 DC\_R19\_xBLTE\_yBNR\_zDLqUL)**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Abstract:**

To capture agreed combinations at RAN4#112. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

**Withdrawn**

[R4-2412442](file:///D:\RAN4%23112\Docs\R4-2412442.zip) **BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-2 DC\_R19\_xBLTE\_yBNR\_3DL2UL)**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1287 rev Cat: B (Rel-19)  
  
 Source: LG Electronics Deutschland*

**Abstract:**

For email approval : BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-2 DC\_R19\_xBLTE\_yBNR\_3DL2UL). MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

[R4-2412240](file:///D:\RAN4%23112\Docs\R4-2412240.zip) **BigCR for DC\_R19\_xBLTE\_yBNR (OBJ-1 DC\_R19\_1BLTE\_1BNR\_2DL2UL)**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1279 rev Cat: B (Rel-19)  
  
 Source: CHTTL*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

[R4-2413337](file:///D:\RAN4%23112\Docs\R4-2413337.zip) **Big CR to introduce new combinations DC of x bands LTE inter-band CA (x345) and 1 NR band**

*Type: CR For: Agreement  
 38.101-3 v18.6.0 CR-1300 rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Abstract:**

To capture agreed combinations at RAN4#110bis and RAN4#111

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

#### 7.2.2 UE RF requirements for EN-DC and NE-DC of 2 DL with 2 UL (DC\_R19\_1BLTE\_1BNR\_2DL2UL)

[R4-2411166](file:///D:\RAN4%23112\Docs\R4-2411166.zip) **On DC\_3C\_n7B with UL DC\_3C\_n7B**

*Type: other For: Approval  
 Source: Apple*

Ericsson: we agree with Apple. There is concern. This is leftover from Rel-18.

Nokia: We take suggestions to remove this from WID.

CHTTL: This is just an example to describe the fallback.

**Agreement:**

* Remove configuration of DC\_3C\_n7B with UL DC\_3C\_n7B from the WID.

**Decision: Noted.**

[R4-2411260](file:///D:\RAN4%23112\Docs\R4-2411260.zip) **Test points for DC\_(n)8AA BCS0**

*Type: other For: Discussion  
 Source: Murata Manufacturing Co. Ltd*

**Decision: Withdrawn.**

[R4-2411319](file:///D:\RAN4%23112\Docs\R4-2411319.zip) **Test points for DC\_(n)8AA BCS0**

*Type: discussion For: Discussion  
 Source: Murata Manufacturing Co. Ltd*

**Decision: Noted.**

[R4-2413070](file:///D:\RAN4%23112\Docs\R4-2413070.zip) **DC\_(n)8AA MSD**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This document discusses MSD test point selection for DC\_(n)8AA.

**Decision: Noted.**

#### 7.2.3 UE RF requirements for EN-DC and NE-DC of 2 LTE and 1 NR, or of 1 LTE and 2 NR (DC\_R19\_xBLTE\_yBNR\_3DL2UL)

[R4-2411835](file:///D:\RAN4%23112\Docs\R4-2411835.zip) **TP for TR 37.719-21-11 DC\_20-28\_n7**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2414343 (from R4-2411835).**

[R4-2414343](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414343.zip) **TP for TR 37.719-21-11 DC\_20-28\_n7**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Approved.**

[R4-2411836](file:///D:\RAN4%23112\Docs\R4-2411836.zip) **Draft CR for TS 38.101-3 to introduce new BC for DC\_7-20\_n28**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2414344 (from R4-2411836).**

[R4-2414344](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414344.zip) **Draft CR for TS 38.101-3 to introduce new BC for DC\_7-20\_n28**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Endorsed.**

[R4-2412542](file:///D:\RAN4%23112\Docs\R4-2412542.zip) **TP to TR 37.719-21-11 DC\_1A-8A\_n41A**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414345 (from R4-2412542).**

[R4-2414345](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414345.zip) **TP to TR 37.719-21-11 DC\_1A-8A\_n41A**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

[R4-2412543](file:///D:\RAN4%23112\Docs\R4-2412543.zip) **TP to TR 37.719-21-11 DC\_8A\_n41A-n78A**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414346 (from R4-2412543).**

[R4-2414346](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414346.zip) **TP to TR 37.719-21-11 DC\_8A\_n41A-n78A**

*Type: pCR For: Approval  
 37.719-21-11 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

[R4-2412002](file:///D:\RAN4%23112\Docs\R4-2412002.zip) **draftCR 38.101-3 Addition of UL configuration DC\_7C\_n28A**

*Type: CR For: Endorsementt  
 38.101-3 v18.6.0 CR-1277 rev Cat: B (Rel-18)  
  
 Source: Nokia, AMX*

**Abstract:**

MCC: A revision is required due to parsing failure. Change request number wrong on CR cover for TDoc [R4-2412002](file:///D:\RAN4%23112\Docs\R4-2412002.zip). Database value : 1277. CR cover value : . Release number wrong on CR cover for TDoc [R4-2412002](file:///D:\RAN4%23112\Docs\R4-2412002.zip). Database value : Rel-18. CR cover value : Rel-19. Change request Work Item wrong on CR cover for TDoc [R4-2412002](file:///D:\RAN4%23112\Docs\R4-2412002.zip). Database value : DC\_R19\_xBLTE\_yBNR-Core. CR cover value : DC\_R19\_xBLTE\_yBNR. This formal CR is to be treated as draftCR based on author feedback.

Chair: it should be moved to AI 7.2.3.

**Decision: Endorsed.**

[R4-2413348](file:///D:\RAN4%23112\Docs\R4-2413348.zip) **Draft CR 38.101-3 to add new DC FR1+FR2 combinations of b40 b42 n257**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, nbn*

*Chair: it should be moved to AI 7.2.3.*

**Decision: Endorsed.**

#### 7.2.4 UE RF requirements for EN-DC and NE-DC of x LTE and y NR with total z DL bands and q UL bands (DC\_R19\_xBLTE\_yBNR\_zDLqUL)

[R4-2411837](file:///D:\RAN4%23112\Docs\R4-2411837.zip) **Draft CR for TS 38.101-3 to introduce new BC for DC\_1-3-7-20-28\_n78**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Endorsed.**

[R4-2412544](file:///D:\RAN4%23112\Docs\R4-2412544.zip) **(DC\_R19\_xBLTE\_yBNR\_zDLqUL) draftCR to 38.101-3 to include EN-DC band combination**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2414347 (from R4-2412544).**

[R4-2414347](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414347.zip) **(DC\_R19\_xBLTE\_yBNR\_zDLqUL) draftCR to 38.101-3 to include EN-DC band combination**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

[R4-2412938](file:///D:\RAN4%23112\Docs\R4-2412938.zip) **Draft CR for TS 38.101-3 to introduce ENDC combos**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, KPN*

**Decision: Revised to R4-2414348 (from R4-2412938).**

[R4-2414348](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414348.zip) **Draft CR for TS 38.101-3 to introduce ENDC combos**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, KPN*

**Decision: Endorsed.**

#### 7.2.5 UE RF requirements for EN-DC and NE-DC with one SUL and two SULs (DC\_R19\_LTE\_NR\_SUL\_combos)

### 7.3 Rel-19 NR CA/DC for x bands DL with y bands UL (x<7, y<3) and SUL/CA band combinations with a single SUL or two SUL cells

#### 7.3.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411938](file:///D:\RAN4%23112\Docs\R4-2411938.zip) **TR38.719-02-01 v0.0.0: TR skeleton**

*Type: draft TR For: Agreement  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: ZTE Corporation*

**Decision: Agreed.**

[R4-2411825](file:///D:\RAN4%23112\Docs\R4-2411825.zip) **TR template for Rel-19 NR inter-band CADC configurations including 3 bands DL with up to 2 bands UL v0.0.0**

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

**Abstract:**

Objective: NR\_CADC\_R19\_3BDL\_xBUL

**Decision: Agreed.**

[R4-2412929](file:///D:\RAN4%23112\Docs\R4-2412929.zip) **TR skeleton for 38.719-00-00 v0.0.1**

*Type: draft TR For: Agreement  
 38.719-00-00 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

[R4-2412362](file:///D:\RAN4%23112\Docs\R4-2412362.zip) **TR 38.719-01-01 v0.1.0 NR\_CA\_R19\_Intra**

*Type: draft TR For: Agreement  
 38.719-01-01 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

TR 38.719-01-01 v0.1.0 NR\_CA\_R19\_Intra. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2411939](file:///D:\RAN4%23112\Docs\R4-2411939.zip) **TR38.719-02-01 v0.1.0: Rel-19 NR inter-band CA/DC configurations including inter band CA for 2 different bands DL with up to 2 different bands UL**

*Type: draft TR For: Agreement  
 38.719-02-01 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2411826](file:///D:\RAN4%23112\Docs\R4-2411826.zip) **TR 38.719-03-01 v0.1.0 on Rel-19 NR Inter-band CA DC configurations including inter band CA for 3 different bands DL with x different bands UL (x=1,2)**

*Type: draft TR For: Agreement  
 38.719-03-01 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

Objective: NR\_CADC\_R19\_3BDL\_xBUL. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2412930](file:///D:\RAN4%23112\Docs\R4-2412930.zip) **TR for 38.719-00-00 v0.1.0**

*Type: draft TR For: Agreement  
 38.719-00-00 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**WID revision**

[R4-2412358](file:///D:\RAN4%23112\Docs\R4-2412358.zip) **Merged WID based on the RAN#104 excel sheets approved in RP-241674 NR\_CADC\_SUL\_R19**

*Type: WID revised For: Endorsement  
 Source: Ericsson, ZTE, Huawei, HiSilicon*

**Abstract:**

The individual excel sheets from RAN#104 approved in RP-241674 are merged and presented for information. This merge will be used as a baseline for the Revised WID for email approval.

**Decision: Noted.**

[R4-2412359](file:///D:\RAN4%23112\Docs\R4-2412359.zip) **Revised WID NR\_CADC\_SUL\_R19**

*Type: WID revised For: Endorsement  
 Source: Ericsson, ZTE, Huawei, HiSilicon*

**Abstract:**

Revised WID NR\_CADC\_SUL\_R19. MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Big CR**

[R4-2412360](file:///D:\RAN4%23112\Docs\R4-2412360.zip) **draft big CR 38.101-1 new combinations Rel-19 NR Intra-band**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

draft big CR 38.101-1 new combinations Rel-19 NR Intra-band. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412361](file:///D:\RAN4%23112\Docs\R4-2412361.zip) **draft big CR 38.101-2 new combinations Rel-19 NR Intra-band**

*Type: draftCR For: Endorsement  
 38.101-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

draft big CR 38.101-2 new combinations Rel-19 NR Intra-band. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2411840](file:///D:\RAN4%23112\Docs\R4-2411840.zip) **TS 38.101-1 big draftCR for NR\_CADC\_R19\_2BDL\_xBUL**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2411841](file:///D:\RAN4%23112\Docs\R4-2411841.zip) **TS 38.101-2 big draftCR for NR\_CADC\_R19\_2BDL\_xBUL**

*Type: draftCR For: Endorsement  
 38.101-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2411940](file:///D:\RAN4%23112\Docs\R4-2411940.zip) **TS 38.101-3 draft big CR for NR\_CADC\_R19\_2BDL\_xBUL**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412526](file:///D:\RAN4%23112\Docs\R4-2412526.zip) **draft big CR 38.101-1 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

draft big CR 38.101-1 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412527](file:///D:\RAN4%23112\Docs\R4-2412527.zip) **draft big CR 38.101-3 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

draft big CR 38.101-3 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412931](file:///D:\RAN4%23112\Docs\R4-2412931.zip) **Draft Big CR on Introduction of completed SUL band combinations into TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

**Withdrawn**

[R4-2411827](file:///D:\RAN4%23112\Docs\R4-2411827.zip) **Big CR to reflect the completed NR inter-band CA DC combinations for 3 bands DL with up to 2 bands UL into TS 38.101-1**

*Type: CR For: Endorsement  
 38.101-1 v18.6.0 CR-2397 rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

Objective: NR\_CADC\_R19\_3BDL\_xBUL MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19. Since this was not submitted at submission deadline it can be withdrawn and a new "draft CR" tdoc can be assigned.

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

[R4-2411828](file:///D:\RAN4%23112\Docs\R4-2411828.zip) **Big CR to reflect the completed NR inter-band CA DC combinations for 3 bands DL with up to 2 bands UL into TS 38.101-3**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1272 rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

Objective: NR\_CADC\_R19\_3BDL\_xBUL. MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19. Since this was not submitted at submission deadline it can be withdrawn and a new "draft CR" tdoc can be assigned.

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

[R4-2412458](file:///D:\RAN4%23112\Docs\R4-2412458.zip) **draft big CR 38.101-1 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL**

*Type: CR For: Endorsement  
 38.101-1 v18.6.0 CR-2437 rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

[R4-2412459](file:///D:\RAN4%23112\Docs\R4-2412459.zip) **draft big CR 38.101-3 new combinations Rel-19 NR inter-band CA/DC configurations including inter band CA for y DL with x UL**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1288 rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

#### 7.3.2 UE RF requirements for NR intra-band CA combinations for x CC DL/y CC UL (NR\_CA\_R19\_Intra with/without UL-MIMO)

[R4-2411459](file:///D:\RAN4%23112\Docs\R4-2411459.zip) **draft CR 38.101-1 for adding intra-band NR CA BCS 4 and 5 configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Verizon*

**Abstract:**

draft CR 38.101-1 for adding intra-band NR CA BCS 4 and 5 configurations

**Decision: Revised to R4-2414324 (from R4-2411459).**

[R4-2414324](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414324.zip) **draft CR 38.101-1 for adding intra-band NR CA BCS 4 and 5 configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Verizon*

**Abstract:**

draft CR 38.101-1 for adding intra-band NR CA BCS 4 and 5 configurations

**Decision: Endorsed.**

[R4-2411932](file:///D:\RAN4%23112\Docs\R4-2411932.zip) **TP for TR38.719-01-01\_CA\_n104C**

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

**Decision: Revised to R4-2414325 (from R4-2411932).**

[R4-2414325](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414325.zip) **TP for TR38.719-01-01\_CA\_n104C**

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

**Decision: Approved.**

[R4-2411933](file:///D:\RAN4%23112\Docs\R4-2411933.zip) **draft CR to TS 38.101-1:Introduction of CA\_n79C with UL MIMO**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Endorsed.**

[R4-2412940](file:///D:\RAN4%23112\Docs\R4-2412940.zip) **Discussion on the reasonable UL RB configurations for intra-band UL CA**

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

**Decision: Noted.**

[R4-2412941](file:///D:\RAN4%23112\Docs\R4-2412941.zip) **Draft CR for TS 38.101-1 to introduce the reasonable UL RB configurations for intra-band UL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

[R4-2413069](file:///D:\RAN4%23112\Docs\R4-2413069.zip) **CA\_n5B BCS4/5 REFSENS**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Approved.**

[R4-2413233](file:///D:\RAN4%23112\Docs\R4-2413233.zip) **On DL CA\_n66(2A) and CA\_n66(3A) with UL CA\_n66(2A)**

*Type: other For: Approval  
 Source: Skyworks Solutions Inc.*

**Abstract:**

There is a request to support CA\_n66(2A) or CA\_n66(3A) in DL with CA\_n66(2A) in UL. In this contribution, we provide some clarification on the request, the work related to UL CA\_n66(2A) and its preferred implementation.

**Decision: Approved.**

#### 7.3.3 UE RF requirements for NR inter-band CA/DC configurations including inter band CA for 2 DL with up to 2UL (NR\_CADC\_R19\_2BDL\_xBUL)

[R4-2411077](file:///D:\RAN4%23112\Docs\R4-2411077.zip) **Discussion on RF requirements for 2U/2D CA\_n5-n8**

*Type: discussion For: Discussion  
 Source: CATT*

Skyworks: This combination is part of WI in Rel-18 for Low-low. It is difficult low-low band case with overlapping DL and UL. In our view, it is not clear whether it can be done within basket WI. It implies some solution in RAN2.

CATT: RAN4 task to do the study for the objective in the WI. It was approved that CA is added in this WI. We propose three proposals. I am not sure that we need discuss whether to add it or not. It was RAN decided to include it in the WID.

Qualcomm: The whole study is not to decide which option is used. There is no consensus. All the options are totally new in RAN4. Proposal 2 needs filter which is the same as introduction of new sub-band.

Huawei: In Rel-18 we have studied this band. This band combination is transferred to WI. Due to Rel-18 timeline, we handled two options but no conclusion. From RAN4 perspective, all the RF parts have been done in Rel-18. Maybe we need RAN2 design to finish all the work. We can treat it as basket or new WI

China Telecom: We support all the proposals in the paper. We think it is decided in RAN. We can refer to Rel-18 study in the basket WI. There may be need of LS.

Skyworks: There is only one solution specified due to lack of consensus. RAN4 makes RAN be aware that the solution may require other WG.

Qualcomm: The current CATT proposals to specify both option 1 and option 2. There is no consensus in the previous WI. We need decide which options to be taken.

CATT: Our understanding is that we do not need to re-discuss all the options. The decision can be made in this WID. We agreed proposal 1.

Apple: Unfortunately we feel sympathy to proponents. But we sahre the similar view as Qualcomm and Skyworks. The band combiantions in the basket WID should have well defined framework. For this particular band combination, it may need other WG. It is not suitable for basket WID.

**Decision: Noted.**

[R4-2411255](file:///D:\RAN4%23112\Docs\R4-2411255.zip) **TP for TR 38.719-02-01: PC3 NR BCS4/5 inter-band CA**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Verizon, Skyworks, Qualcomm, Ericsson, Samsung*

**Decision: Revised to R4-2414326 (from R4-2411255).**

[**R4-2414326**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414326.zip) **TP for TR 38.719-02-01: PC3 NR BCS4/5 inter-band CA**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Verizon, Skyworks, Qualcomm, Ericsson, Samsung*

**Decision: Approved.**

[R4-2411460](file:///D:\RAN4%23112\Docs\R4-2411460.zip) **draft CR 38.101-1 for adding 2 bands NR CA BCS 4 and 5 configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Verizon*

**Abstract:**

draft CR 38.101-1 for adding 2 bands NR CA BCS 4 and 5 configurations

**Decision: Revised to R4-2414327 (from R4-2411460).**

[**R4-2414327**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414327.zip) **draft CR 38.101-1 for adding 2 bands NR CA BCS 4 and 5 configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Verizon*

**Abstract:**

draft CR 38.101-1 for adding 2 bands NR CA BCS 4 and 5 configurations

**Decision: Endorsed.**

[R4-2411551](file:///D:\RAN4%23112\Docs\R4-2411551.zip) **On intra-band ULCA interference versus single ULCC**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

After discussion in in RAN4#111 there was a consensus that revisiting intra-band ULCA related MSD framework would be better tackled within Rel-19 rather than changing things right at the end of Rel-18. In this contribution, further developing from our related contribution in RAN#111, we provide technical background on intra-band ULCA related MSD and its comparison with single CC cases.

**Decision: Noted.**

[R4-2411738](file:///D:\RAN4%23112\Docs\R4-2411738.zip) **Discussion on MSD requirements with intra-band contiguous UL CA**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411887](file:///D:\RAN4%23112\Docs\R4-2411887.zip) **On MSD requirements with intra-band contiguous UL CA**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2411934](file:///D:\RAN4%23112\Docs\R4-2411934.zip) **TP for TR38.719-02-01\_CA\_n3A-n104A**

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

**Decision: Revised to R4-2414328 (from R4-2411934).**

[**R4-2414328**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414328.zip) **TP for TR38.719-02-01\_CA\_n3A-n104A**

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

**Decision: Approved.**

[R4-2411935](file:///D:\RAN4%23112\Docs\R4-2411935.zip) **TP for TR38.719-02-01\_CA\_n8A-n104A**

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

**Decision: Revised to R4-2414329 (from R4-2411935).**

[**R4-2414329**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414329.zip) **TP for TR38.719-02-01\_CA\_n8A-n104A**

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

**Decision: Approved.**

[R4-2411936](file:///D:\RAN4%23112\Docs\R4-2411936.zip) **TP for TR38.719-02-01\_CA\_n41A-n104A**

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

**Decision: Noted.**

[R4-2412369](file:///D:\RAN4%23112\Docs\R4-2412369.zip) **TP to TR 38.719-02-01 adding CA\_n78(2A) UL to CA\_n26A-n78(2A) and CA\_n26(2A)-n78(2A) DL**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP to TR 38.719-02-01 adding CA\_n78(2A) UL to CA\_n26A-n78(2A) and CA\_n26(2A)-n78(2A) DL

**Decision: Revised to R4-2414330 (from R4-2412369).**

[**R4-2414330**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414330.zip) **TP to TR 38.719-02-01 adding CA\_n78(2A) UL to CA\_n26A-n78(2A) and CA\_n26(2A)-n78(2A) DL**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP to TR 38.719-02-01 adding CA\_n78(2A) UL to CA\_n26A-n78(2A) and CA\_n26(2A)-n78(2A) DL

**Decision: Approved.**

[R4-2412370](file:///D:\RAN4%23112\Docs\R4-2412370.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 2 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 2 bands NR CA DL configurations

**Decision: Revised to R4-2414331 (from R4-2412370).**

[**R4-2414331**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414331.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 2 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 2 bands NR CA DL configurations

**Decision: Endorsed.**

[R4-2412452](file:///D:\RAN4%23112\Docs\R4-2412452.zip) **draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Rogers*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2

**Decision: Revised to R4-2414332 (from R4-2412452).**

[**R4-2414332**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414332.zip) **draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Rogers*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2

**Decision: Endorsed.**

[R4-2412453](file:///D:\RAN4%23112\Docs\R4-2412453.zip) **draft CR 38.101-1 to add new NR 2BDL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-1 to add new NR 2BDL configurations

**Decision: Revised to R4-2414333 (from R4-2412453).**

[**R4-2414333**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414333.zip) **draft CR 38.101-1 to add new NR 2BDL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-1 to add new NR 2BDL configurations

**Decision: Endorsed.**

[R4-2412456](file:///D:\RAN4%23112\Docs\R4-2412456.zip) **draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2

**Decision: Revised to R4-2414334 (from R4-2412456).**

[**R4-2414334**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414334.zip) **draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 2BDL configurations including FR2

**Decision: Endorsed.**

[R4-2412850](file:///D:\RAN4%23112\Docs\R4-2412850.zip) **TP for TR 38719-02-01 CA\_n18A-n41A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: KDDI Corporation*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Withdrawn.**

[R4-2412932](file:///D:\RAN4%23112\Docs\R4-2412932.zip) **Draft CR for TS 38.101-1 to introduce two-band inter-band CA with BCS4 and 5**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, Softbank*

**Decision: Revised to R4-2414335 (from R4-2412932).**

[**R4-2414335**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414335.zip) **Draft CR for TS 38.101-1 to introduce two-band inter-band CA with BCS4 and 5**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, Softbank*

**Decision: Endorsed.**

[R4-2412934](file:///D:\RAN4%23112\Docs\R4-2412934.zip) **Discussion on MSD for CA\_n40A-n41C with intra-band UL CA\_n41C**

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

**Decision: Noted.**

[R4-2412935](file:///D:\RAN4%23112\Docs\R4-2412935.zip) **Discussion on MSD for CA\_n41C-n79A with intra-band UL CA\_n41C**

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

**Decision: Noted.**

[R4-2413315](file:///D:\RAN4%23112\Docs\R4-2413315.zip) **On intra-band ULCA interference versus single ULCC**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

There is a request to support CA\_n48-n77 in UL. In this contribution, given that those two bands are overlapping, we discuss what would be the consequences if NS\_27 applied.

**Decision: Noted.**

[R4-2413341](file:///D:\RAN4%23112\Docs\R4-2413341.zip) **Draft CR 38.101-1 to add new CA FR1 combinations of n3**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Not pursued.**

[R4-2413342](file:///D:\RAN4%23112\Docs\R4-2413342.zip) **TP to TR 38.719-02-01 Addition of CA\_n1A-n71A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Revised to R4-2414336 (from R4-2413342).**

[**R4-2414336**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414336.zip) **TP to TR 38.719-02-01 Addition of CA\_n1A-n71A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Approved.**

[R4-2413343](file:///D:\RAN4%23112\Docs\R4-2413343.zip) **TP to TR 38.719-02-01 Addition of CA\_n3A-n71A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Revised to R4-2414337 (from R4-2413343).**

[**R4-2414337**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414337.zip) **TP to TR 38.719-02-01 Addition of CA\_n3A-n71A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Approved.**

[R4-2413344](file:///D:\RAN4%23112\Docs\R4-2413344.zip) **TP to TR 38.719-02-01 Uplink addition of CA\_n41A-n78C**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Noted.**

[R4-2413347](file:///D:\RAN4%23112\Docs\R4-2413347.zip) **TP to TR 38.719-02-01 Addition of CA\_n20A\_n77A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Mobility*

**Decision: Revised to R4-2414338 (from R4-2413347).**

[**R4-2414338**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414338.zip) **TP to TR 38.719-02-01 Addition of CA\_n20A\_n77A**

*Type: pCR For: Approval  
 38.719-02-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Mobility*

**Decision: Approved.**

#### 7.3.4 UE RF requirements for NR inter-band CA/DC configurations including inter band CA for 3 DL with x UL (NR\_CADC\_R19\_3BDL\_xBUL)

[R4-2411323](file:///D:\RAN4%23112\Docs\R4-2411323.zip) **Draft CR for TS 38.101-1 to add BCS4 and 5 for PC3 three-band inter-band CA**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Samsung, Verizon*

**Decision: Revised to R4-2414339 (from R4-2411323).**

[**R4-2414339**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414339.zip) **Draft CR for TS 38.101-1 to add BCS4 and 5 for PC3 three-band inter-band CA**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Samsung, Verizon*

**Decision: Endorsed.**

[R4-2411937](file:///D:\RAN4%23112\Docs\R4-2411937.zip) **TP for TR38.719-03-01\_CA\_n28A-n41A/C-n79A/C**

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

**Decision: Revised to R4-2414340 (from R4-2411937).**

[**R4-2414340**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414340.zip) **TP for TR38.719-03-01\_CA\_n28A-n41A/C-n79A/C**

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

**Decision: Approved.**

[R4-2412371](file:///D:\RAN4%23112\Docs\R4-2412371.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 3 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 3 bands NR CA DL configurations

**Decision: Revised to R4-2414341 (from R4-2412371).**

[**R4-2414341**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414341.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 3 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 3 bands NR CA DL configurations

**Decision: Endorsed.**

[R4-2412451](file:///D:\RAN4%23112\Docs\R4-2412451.zip) **draft CR 38.101-3 to add new NR CADC 3BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Rogers*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 3BDL configurations including FR2

**Decision: Revised to R4-2414342 (from R4-2412451).**

[**R4-2414342**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414342.zip) **draft CR 38.101-3 to add new NR CADC 3BDL configurations including FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Rogers*

**Abstract:**

draft CR 38.101-3 to add new NR CADC 3BDL configurations including FR2

**Decision: Endorsed.**

[R4-2412454](file:///D:\RAN4%23112\Docs\R4-2412454.zip) **draft CR 38.101-1 to add new NR 3BDL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-1 to add new NR 3BDL configurations

**Decision: Endorsed.**

[R4-2412457](file:///D:\RAN4%23112\Docs\R4-2412457.zip) **TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A**

*Type: draftCR For: Endorsement  
 38.719-03-01 v0.1.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A

**Decision: Withdrawn.**

[R4-2412885](file:///D:\RAN4%23112\Docs\R4-2412885.zip) **TP to TR 38.719-03-01 include CA\_n8A-n20A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414355 (from R4-2412885).**

[R4-2414355](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414355.zip) **TP to TR 38.719-03-01 include CA\_n8A-n20A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412886](file:///D:\RAN4%23112\Docs\R4-2412886.zip) **TP to TR 38.719-03-01 include CA\_n8A-n28A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414356 (from R4-2412886).**

[R4-2414356](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414356.zip) **TP to TR 38.719-03-01 include CA\_n8A-n28A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412887](file:///D:\RAN4%23112\Docs\R4-2412887.zip) **TP to TR 38.719-03-01 include CA\_n20A-n28A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414357 (from R4-2412887).**

[R4-2414357](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414357.zip) **TP to TR 38.719-03-01 include CA\_n20A-n28A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412888](file:///D:\RAN4%23112\Docs\R4-2412888.zip) **TP to TR 38.719-03-01 include CA\_n3A-n7A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414358 (from R4-2412888).**

[R4-2414358](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414358.zip) **TP to TR 38.719-03-01 include CA\_n3A-n7A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412889](file:///D:\RAN4%23112\Docs\R4-2412889.zip) **TP to TR 38.719-03-01 include CA\_n3A-n75A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414359 (from R4-2412889).**

[**R4-2414359**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414359.zip) **TP to TR 38.719-03-01 include CA\_n3A-n75A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412890](file:///D:\RAN4%23112\Docs\R4-2412890.zip) **TP to TR 38.719-03-01 include CA\_n7A-n75A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414360 (from R4-2412890).**

[**R4-2414360**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414360.zip) **TP to TR 38.719-03-01 include CA\_n7A-n75A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412891](file:///D:\RAN4%23112\Docs\R4-2412891.zip) **TP to TR 38.719-03-01 include CA\_n1A-n7A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414361 (from R4-2412891).**

[**R4-2414361**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414361.zip) **TP to TR 38.719-03-01 include CA\_n1A-n7A-n75A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412892](file:///D:\RAN4%23112\Docs\R4-2412892.zip) **TP to TR 38.719-03-01 include CA\_n1A-n3A-n7A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Revised to R4-2414362 (from R4-2412892).**

[**R4-2414362**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414362.zip) **TP to TR 38.719-03-01 include CA\_n1A-n3A-n7A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Approved.**

[R4-2412933](file:///D:\RAN4%23112\Docs\R4-2412933.zip) **Draft CR for TS 38.101-1 to introduceCA\_n3A-n8A-n39A-n41A/CA\_n3A-n8A-n39A-n79A/CA\_n3A-n39A-n41A-n79A/CA\_n3A-n8A-n39A-n41A-n79A**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, CMCC*

**Decision: Revised to R4-2414363 (from R4-2412933).**

[**R4-2414363**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414363.zip) **Draft CR for TS 38.101-1 to introduceCA\_n3A-n8A-n39A-n41A/CA\_n3A-n8A-n39A-n79A/CA\_n3A-n39A-n41A-n79A/CA\_n3A-n8A-n39A-n41A-n79A**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon, CMCC*

**Decision: Endorsed.**

[R4-2413316](file:///D:\RAN4%23112\Docs\R4-2413316.zip) **TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414364 (from R4-2413316).**

[**R4-2414364**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414364.zip) **TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Decision: Approved.**

[**R4-2414370**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414370.zip) **TP for TR 38.xxx**

**3-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

TP for 38.719-03-01 to add UL CA\_n41C-n71A and CA\_n41C-n66A for CA\_n41C-n66-n71A. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Return to.**

[R4-2413345](file:///D:\RAN4%23112\Docs\R4-2413345.zip) **TP to TR 38.719-03-01 Addition of CA\_n1A-n41A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Revised to R4-2414365 (from R4-2413345).**

[**R4-2414365**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414365.zip) **TP to TR 38.719-03-01 Addition of CA\_n1A-n41A-n78A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Etisalat*

**Decision: Approved.**

[R4-2413349](file:///D:\RAN4%23112\Docs\R4-2413349.zip) **TP to TR 38.719-03-01 Addition of CA\_n1A-n5A-n8A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Revised to R4-2414366 (from R4-2413349).**

[**R4-2414366**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414366.zip) **TP to TR 38.719-03-01 Addition of CA\_n1A-n5A-n8A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Approved.**

[R4-2413350](file:///D:\RAN4%23112\Docs\R4-2413350.zip) **TP to TR 38.719-03-01 Addition of CA\_n3A-n5A-n8A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Revised to R4-2414367 (from R4-2413350).**

[**R4-2414367**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414367.zip) **TP to TR 38.719-03-01 Addition of CA\_n3A-n5A-n8A**

*Type: pCR For: Approval  
 38.719-03-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Approved.**

#### 7.3.5 UE RF requirements for NR inter-band CA/DC configurations including inter band CA for y DL with x UL (NR\_CADC\_R19\_yBDL\_xBUL)

[R4-2411552](file:///D:\RAN4%23112\Docs\R4-2411552.zip) **draft CR 38.101-1 for adding 4 and 5 bands NR CA BCS 4 and 5 configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Verizon, Ericsson, Samsung*

**Decision: Endorsed.**

[R4-2412372](file:///D:\RAN4%23112\Docs\R4-2412372.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 4 and 5 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 4 and 5 bands NR CA DL configurations

**Decision: Revised to R4-2414368 (from R4-2412372).**

[**R4-2414368**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414368.zip) **draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 4 and 5 bands NR CA DL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding BCS 4 and 5 and UL CA\_n78(2A) to 4 and 5 bands NR CA DL configurations

**Decision: Endorsed.**

[R4-2412455](file:///D:\RAN4%23112\Docs\R4-2412455.zip) **draft CR 38.101-1 to add new NR 4BDL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, T-Mobile USA*

**Abstract:**

draft CR 38.101-1 to add new NR 4BDL configurations

**Decision: Endorsed.**

[R4-2413346](file:///D:\RAN4%23112\Docs\R4-2413346.zip) **Draft CR 38.101-1 to add new 4-band CA combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, STC*

*Chair: it should be moved to AI 7.3.5.*

**Decision: Endorsed.**

#### 7.3.6 UE RF requirements for SUL and CA band combinations with SULs (NR\_SUL\_combos\_R19)

[R4-2412936](file:///D:\RAN4%23112\Docs\R4-2412936.zip) **TP for TR 38.719-00-00 on introduction of CA\_n1A-n3A\_n78A-n80A**

*Type: pCR For: Approval  
 38.719-00-00 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Approved.**

[R4-2412937](file:///D:\RAN4%23112\Docs\R4-2412937.zip) **TP for TR 38.719-00-00 on introduction of CA\_n1A-n3A\_n78A-n84A**

*Type: pCR For: Approval  
 38.719-00-00 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Approved.**

### 7.4 Rel-19 LTE-Advanced Carrier Aggregation for x bands (x<= 6) DL with y bands (y=1, 2) UL

#### 7.4.1 Rapporteur input (WID/TR/big CR)

**TR Skeleton**

[R4-2411593](file:///D:\RAN4%23112\Docs\R4-2411593.zip) **TR 36.719-01-01 LTE-A CA for x(x=123456) DL y(y=12) UL**

*Type: draft TR For: Agreement  
 36.719-01-01 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

Moderator: the Agenda Item is changed from 7.1 to 7.4.1

**Decision:** The document was **for email approval**.

**WID revision**

[R4-2411594](file:///D:\RAN4%23112\Docs\R4-2411594.zip) **Revised WID Rel-19 LTE-A CA for x(x=123456) DL y(y=2) UL**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

Moderator: the Agenda Item is changed from 7.1 to 7.4.1

**Decision:** The document was **for email approval**.

**Big CR**

[R4-2412273](file:///D:\RAN4%23112\Docs\R4-2412273.zip) **Draft Big CR on Introduction of completed R19 x(x<=6) DL y(y<=2) UL CA band combinations to TS 36.101**

*Type: draftCR For: Endorsement  
 36.101 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

Moderator: the Agenda Item is changed from 7.1 to 7.4.1

**Decision:** The document was **for email approval**.

#### 7.4.2 UE RF requirements

[R4-2412016](file:///D:\RAN4%23112\Docs\R4-2412016.zip) **draft CR for CA\_3-3-7-7-8 related combo with UL CA\_8B**

*Type: draftCR For: Endorsement  
 36.101 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CHTTL*

**Decision: Endorsed.**

### 7.5 Rel-19 HPUE for NR FR1 TDD/FDD single band

#### 7.5.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411280](file:///D:\RAN4%23112\Docs\R4-2411280.zip) **TR skeleton for TR38.796**

*Type: draft TR For: Agreement  
 38.796 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Decision: Agreed.**

[R4-2411725](file:///D:\RAN4%23112\Docs\R4-2411725.zip) **TR skeleton 38.795 v0.0.1\_R19 HPUE NR TDD single band**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Agreed.**

[R4-2411285](file:///D:\RAN4%23112\Docs\R4-2411285.zip) **TR 38.796 v0.1.0 HPUE\_NR\_FR1\_bands\_R19-FDD**

*Type: draft TR For: Agreement  
 38.796 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision: Withdrawn.**

#### 7.5.2 HPUE in a single TDD band

##### 7.5.2.1 UE RF requirements for PC2 and PC1.5

[R4-2411739](file:///D:\RAN4%23112\Docs\R4-2411739.zip) **(HPUE\_NR\_FR1\_bands\_R19-Core) Draft CR for 38.101-1 to introduce PC1.5 n104**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: CMCC*

Qualcomm: we just agree with TR skeleton. Do we need TP in the next meeting?

CMCC: this is basket WI. There would be new band proposed. For this band, we do not need TP.

**Decision: Endorsed.**

##### 7.5.2.2 UE RF requirements for PC1 FWVM

#### 7.5.3 HPUE in a single FDD band

##### 7.5.3.1 UE RF requirements for PC2

##### 7.5.3.2 UE RF requirements for PC1 FWVM

### 7.6 Rel-19 HPUE in a single LTE band

#### 7.6.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2412003](file:///D:\RAN4%23112\Docs\R4-2412003.zip) **TR 36.767 V0.0.0**

*Type: draft TR For: Agreement  
 36.767 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Revised to R4-2414288 (from R4-2412003).**

[R4-2414288](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414288.zip) **TR 36.767 V0.0.1**

*Type: draft TR For: Agreement  
 36.767 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Agreed.**

[R4-2412004](file:///D:\RAN4%23112\Docs\R4-2412004.zip) **TR 36.767 V0.0.1**

*Type: draft TR For: Agreement  
 36.767 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision: Withdrawn.**

**WID revision**

[R4-2412005](file:///D:\RAN4%23112\Docs\R4-2412005.zip) **Revised WID Rel-19 High power UE (power class 2) and high power operation (power class 1) for fixed-wireless/vehicle-mounted use cases in a single LTE band**

*Type: WID revised For: Endorsement  
 Source: Nokia*

**Abstract:**

MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision: Withdrawn.**

**Big CR**

[R4-2412006](file:///D:\RAN4%23112\Docs\R4-2412006.zip) **Big CR for Rel-19 High power UE (power class 2) and high power operation (power class 1) for fixed-wireless/vehicle-mounted use cases in a single LTE band**

*Type: CR For: Endorsement  
 36.101 v18.6.0 CR-6056 rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

**Decision: Withdrawn.**

#### 7.6.2 UE RF requirements for PC2

#### 7.6.3 UE RF requirements for PC1 FWVM

### 7.7 Rel-19 HPUE for DC combinations of LTE band(s) and NR band(s)

#### 7.7.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411281](file:///D:\RAN4%23112\Docs\R4-2411281.zip) **TR skeleton for TR37.898**

*Type: draft TR For: Agreement  
 37.898 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Decision: Agreed.**

[R4-2411286](file:///D:\RAN4%23112\Docs\R4-2411286.zip) **TR 37.898 v0.1.0 HPUE\_DC\_LTE\_NR\_R19**

*Type: draft TR For: Agreement  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2412364](file:///D:\RAN4%23112\Docs\R4-2412364.zip) **TR 37.898 v0.1.0 Rel-19 High power UE for FR1 for DC\_R18\_xBLTE\_yBNR\_zDLnUL**

*Type: draft TR For: Agreement  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

TR 37.898 v0.1.0 Rel-19 High power UE for FR1 for DC\_R18\_xBLTE\_yBNR\_zDLnUL. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision: Withdrawn.**

**WID revision**

[R4-2411283](file:///D:\RAN4%23112\Docs\R4-2411283.zip) **Revised WID on Rel-19 High power UE (power class 1.5 or 2) for Dual Connectivity (DC) combinations of LTE band(s) and NR band(s)**

*Type: WID revised For: Endorsement  
 Source: China Unicom*

**Abstract:**

MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Big CR**

[R4-2411716](file:///D:\RAN4%23112\Docs\R4-2411716.zip) **Draft Big CR on Rel-19 HPUE for DC combinations of LTE band(s) and NR band(s)**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-18)  
  
 Source: China Unicom*

**Abstract:**

MCC: This is for post-meeting endorsement.

**Decision:** The document was **for email approval**.

[R4-2412363](file:///D:\RAN4%23112\Docs\R4-2412363.zip) **draft big CR 38.101-3 new combinations Rel-19 EN-DC HPUE**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

draft big CR 38.101-3 new combinations Rel-19 EN-DC HPUE. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2411284](file:///D:\RAN4%23112\Docs\R4-2411284.zip) **Big CR on Rel-19 HPUE for DC combinations of LTE band(s) and NR band(s)**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1270 rev Cat: B (Rel-19)  
  
 Source: China Unicom*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 should be submitted at this stage of Rel-19.

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

#### 7.7.2 UE RF requirements

[R4-2411022](file:///D:\RAN4%23112\Docs\R4-2411022.zip) **TP for TR37.898 to add HP-ENDC 3-11\_n79 and 8-42\_n79**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SoftBank Corp.*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to current version 0.1.0.

Qualcomm: MSD is unnesssary large.

**Decision: Revised to R4-2414391 (from R4-2411022).**

[R4-2414391](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414391.zip) **TP for TR37.898 to add HP-ENDC 3-11\_n79 and 8-42\_n79**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SoftBank Corp.*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to current version 0.1.0.

Qualcomm: MSD is unnesssary large.

**Decision: Approved.**

[R4-2411261](file:///D:\RAN4%23112\Docs\R4-2411261.zip) **TP for TR 37.898 to include DC\_1A\_n78A with 3Tx**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SK Telecom, Murata Manufacturing Co. Ltd*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to current version 0.1.0.

**Decision: Approved.**

[R4-2411262](file:///D:\RAN4%23112\Docs\R4-2411262.zip) **TP for TR 37.898 to include DC\_5A\_n78A with 3Tx**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SK Telecom, Murata Manufacturing Co. Ltd*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to version 0.1.0.

Qualcomm: this needs revision to capture the RB allocation.

**Decision: Revised to R4-2414289 (from R4-2411262).**

[R4-2414289](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414289.zip) **TP for TR 37.898 to include DC\_5A\_n78A with 3Tx**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SK Telecom, Murata Manufacturing Co. Ltd*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to version 0.1.0.

Qualcomm: this needs revision to capture the RB allocation.

**Decision: Revised to R4-2414442 (from R4-2414289).**

[**R4-2414442**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414442.zip) **TP for TR 37.898 to include DC\_5A\_n78A with 3Tx**

*Type: pCR For: Approval  
 37.898 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: SK Telecom, Murata Manufacturing Co. Ltd*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to version 0.1.0.

Qualcomm: this needs revision to capture the RB allocation.

**Decision: Return to.**

[R4-2412842](file:///D:\RAN4%23112\Docs\R4-2412842.zip) **Draft CR 38.101-3 for adding some power class 2 EN-DC band combinations**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-18)  
  
 Source: KDDI, Samsung*

**Decision: Endorsed.**

### 7.8 Rel-19 HPUE for NR intra-band CA and inter-band CA/DC with/without NR SUL

#### 7.8.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411107](file:///D:\RAN4%23112\Docs\R4-2411107.zip) **TR skeleton for TR38.794 on High power UE (power class 1.5 or 2) for NR Intra-band Carrier Aggregation (CA) with high power on FDD or TDD band**

*Type: draft TR For: Agreement  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: CATT*

**Decision: Agreed.**

[R4-2411282](file:///D:\RAN4%23112\Docs\R4-2411282.zip) **TR skeleton for TR38.750**

*Type: draft TR For: Agreement  
 38.750 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

T-Mobile USA:

For the 2-band table, Note 3 doesn’t look like what is in the latest version of 38.101-1, and 8 doesn’t look right to me:

5.x.1      UE maximum output power

**Table 5.5A.3.1-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (two bands)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NR CA configuration** | **Uplink CA configuration or single uplink carrier10** | **NR Band** | **Channel bandwidth (MHz)(NOTE 3)** | **Bandwidth combination set** |
|  |  |  |  |  |
|  |  |  |  |  |

NOTE 3:   The SCS of each channel bandwidth for NR band refers to Table 5.3.5-1.

NOTE 8:   Applicable when dynamic Tx switching is conducted. The DL interruption requirement is specified in clause 8.2.2.2.10 of 38.133 [13].

NOTE 10: Only single uplink carriers with power class other than PC3 are listed.

Shouldn’t Note 3 and Note 8 be:

NOTE 3:   For each channel bandwidth of each component carrier, refer to Table 5.3.5-1 for the applicable SCSs. For a given band, not all UE channel bandwidths support the same SCSs.

NOTE 8:   Minimum requirements for Power Class 2 are applicable for this uplink combination with 1Tx antenna connector in each band or single uplink carrier with up to 2Tx antenna connectors in this downlink/uplink combination

Also, for the 3-band table, shouldn’t the notes be:

6.x.1      UE maximum output power

**Table 5.5A.3.2-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (three bands)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NR CA configuration** | **Uplink CA configuration or single uplink carrier6** | **NR Band** | **Channel bandwidth (MHz)(NOTE 3)** | **Bandwidth combination set** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

NOTE 3:   For each channel bandwidth of each component carrier, refer to Table 5.3.5-1 for the applicable SCSs. For a given band, not all UE channel bandwidths support the same SCSs.

NOTE 6:   Only single uplink carriers with power class other than PC3 are listed.

NOTE 7:   Minimum requirements for Power Class 2 are applicable for this uplink combination or single uplink carrier in this downlink/uplink combination

**Decision: Revised to R4-2414292 (from R4-2411282).**

[R4-2414292](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414292.zip) **TR skeleton for TR38.750**

*Type: draft TR For: Agreement  
 38.750 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Decision: Agreed.**

[R4-2412355](file:///D:\RAN4%23112\Docs\R4-2412355.zip) **TR38.792 skeleton for PC1.5 with high power on both FDD and TDD bands**

*Type: draft TR For: Agreement  
 38.792 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Decision: Agreed.**

[R4-2411287](file:///D:\RAN4%23112\Docs\R4-2411287.zip) **TR 38.750 v0.1.0 HPUE\_NR\_CADC\_SUL\_R19-FDD**

*Type: draft TR For: Agreement  
 38.750 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: China Unicom*

**Abstract:**

MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

[R4-2412268](file:///D:\RAN4%23112\Docs\R4-2412268.zip) **draft TR skeleton for HPUE\_NR\_CADC\_SUL\_R19**

*Type: draft TR For: Agreement  
 38.746 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Telecom*

**Abstract:**

draft TR skeleton for email approval. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**WID revision**

[R4-2412266](file:///D:\RAN4%23112\Docs\R4-2412266.zip) **Revised WID for HPUE\_NR\_CADC\_SUL\_R19**

*Type: WID revised For: Endorsement  
 Source: China Telecom*

**Abstract:**

for email approval. MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Big CR**

[R4-2412843](file:///D:\RAN4%23112\Docs\R4-2412843.zip) **DraftBig CR to 38.101-1 new combinations for HPUE\_NR\_CADC\_SUL\_R19**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

Draft BigCR for email approval. MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412267](file:///D:\RAN4%23112\Docs\R4-2412267.zip) **Big CR to 38.101-1 new combinations for Rel-19 NR HPUE Inter-band**

*Type: CR For: Endorsement  
 38.101-1 v18.6.0 CR-2424 rev Cat: B (Rel-19)  
  
 Source: China Telecom*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

**Work procedure**

[R4-2412270](file:///D:\RAN4%23112\Docs\R4-2412270.zip) **Work procedure discussion for HPUE\_NR\_CADC\_SUL\_R19**

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

**Decision: Noted.**

#### 7.8.2 UE RF requirements for intra-band CA

[R4-2413298](file:///D:\RAN4%23112\Docs\R4-2413298.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations Intra**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

#### 7.8.3 UE RF requirements for inter-band CA/DC with high power on TDD band(s)

[R4-2411320](file:///D:\RAN4%23112\Docs\R4-2411320.zip) **TP for HPUE CA\_n1-n18-n41 with 2UL for TR 38.746**

*Type: pCR For: Approval  
 38.746 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Samsung, KDDI Corporation, Murata*

**Decision: Approved.**

[R4-2411321](file:///D:\RAN4%23112\Docs\R4-2411321.zip) **TP for HPUE CA\_n3-n18-n41 with 2UL for TR 38.746**

*Type: pCR For: Approval  
 38.746 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Samsung, KDDI Corporation, Qualcomm*

**Decision: Approved.**

[R4-2411322](file:///D:\RAN4%23112\Docs\R4-2411322.zip) **TP for HPUE CA\_n18-n28-n41 with 2UL for TR 38.746**

*Type: pCR For: Approval  
 38.746 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Samsung, KDDI Corporation, Murata*

**Decision: Approved.**

[R4-2412269](file:///D:\RAN4%23112\Docs\R4-2412269.zip) **Draft CR for 38.101-1 to add PC support for CA\_n28A-n41A-n77A with 2UL**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: China Telecom*

**Decision: Endorsed.**

[R4-2412271](file:///D:\RAN4%23112\Docs\R4-2412271.zip) **Draft CR for 38.101-1 to update note for NR CA configuration with 2 SUL cells**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: China Telecom*

**Decision: Endorsed.**

[R4-2412365](file:///D:\RAN4%23112\Docs\R4-2412365.zip) **TP for TR 38.794, 3Tx inter-band CA\_n1-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n1-n78

Skyworks: there is some errors to be corrected, e.g., note 4.

**Decision: Revised to R4-2414295 (from R4-2412365).**

[R4-2414295](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414295.zip) **TP for TR 38.746, 3Tx inter-band CA\_n1-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n1-n78

Skyworks: there is some errors to be corrected, e.g., note 4.

**Decision: Approved.**

[R4-2412366](file:///D:\RAN4%23112\Docs\R4-2412366.zip) **TP for TR 38.794, 3Tx inter-band CA\_n3-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n3-n78

China Telecom: TR number is wrong.

**Decision: Revised to R4-2414296 (from R4-2412366).**

[R4-2414296](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414296.zip) **TP for TR 38.746, 3Tx inter-band CA\_n3-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n3-n78

China Telecom: TR number is wrong.

**Decision: Approved.**

[R4-2412367](file:///D:\RAN4%23112\Docs\R4-2412367.zip) **TP for TR 38.794, 3Tx inter-band CA\_n7-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n7-n78. MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Revised to R4-2414297 (from R4-2412367).**

[R4-2414297](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414297.zip) **TP for TR 38.746, 3Tx inter-band CA\_n7-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n7-n78. MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Approved.**

[R4-2412368](file:///D:\RAN4%23112\Docs\R4-2412368.zip) **TP for TR 38.794, 3Tx inter-band CA\_n28-n78**

*Type: pCR For: Approval  
 38.794 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n28-n78. MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Revised to R4-2414298 (from R4-2412368).**

[R4-2414298](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414298.zip) **TP for TR 38.746, 3Tx inter-band CA\_n28-n78**

*Type: pCR For: Approval  
 38.746 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 38.792, 3Tx inter-band CA\_n28-n78. MCC: The current version of the Rel-19 draft TR is v0.0.1.

**Decision: Approved.**

[R4-2412373](file:///D:\RAN4%23112\Docs\R4-2412373.zip) **draft CR 38.101-1 for adding n78 PC2 UL to 2 and 3 bands NR CA combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-1 for adding n78 PC2 UL to 2 and 3 bands NR CA combinations

**Decision: Endorsed.**

[R4-2412841](file:///D:\RAN4%23112\Docs\R4-2412841.zip) **Draft CR 38.101-1 Rel-19 for adding some power class 2 NR CA band combinations**

*Type: draftCR For: Endorsement  
 38.746 v0.0.1 CR- rev Cat: B (Rel-19)  
  
 Source: KDDI Corporation*

**Decision: Endorsed.**

[R4-2412844](file:///D:\RAN4%23112\Docs\R4-2412844.zip) **TP for HPUE CA\_n1-n18-n77 with 2UL for TR 38.746**

*Type: pCR For: Approval  
 38.746 v0.9.0 CR- rev Cat: (Rel-19)  
  
 Source: KDDI, Samsung, LGE*

**Decision: Approved.**

[R4-2413299](file:///D:\RAN4%23112\Docs\R4-2413299.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations TDD**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

#### 7.8.4 UE RF requirements for inter-band CA/DC with high power on FDD band(s)

[R4-2413300](file:///D:\RAN4%23112\Docs\R4-2413300.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations FDD**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

Qualcomm: last meeting, we specify FDD CA. PC2 note is missing.

**Decision: Revised to R4-2414293 (from R4-2413300).**

[R4-2414293](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414293.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations FDD**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

Qualcomm: last meeting, we specify FDD CA. PC2 note is missing.

Apple: We identify other combination n25\_n66 PC2, which should be included in the power class table. The same for n25\_n71. Uplink combination for n66\_n71 PC2 needs be specified for two band combination before the higher order combination. N71-n77, the PC2 note is missing.

**Decision: Endorsed.**

[R4-2414307](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414307.zip) **TP for TR 38.750: DL CA\_n25A-n66A with PC2**

*Type: pCR For: Approval  
 38.xxx-0y-0y vx.y.z CR- rev Cat: (Rel-18)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

[R4-2413302](file:///D:\RAN4%23112\Docs\R4-2413302.zip) **TP for TR 38.750 DL CA\_n66A-n71A-n77A with PC2 UL CA\_n66A-n71A**

*Type: pCR For: Approval  
 38.750 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

[R4-2413303](file:///D:\RAN4%23112\Docs\R4-2413303.zip) **TP for TR 38.750 DL CA\_n77A-n85A with PC2 UL n85**

*Type: pCR For: Approval  
 38.750 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

[R4-2413304](file:///D:\RAN4%23112\Docs\R4-2413304.zip) **TP for TR 38.750 DL CA\_n66A-n71A with PC2 UL CA\_n66A-n71A**

*Type: pCR For: Approval  
 38.750 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

#### 7.8.5 UE RF requirements for inter-band CA/DC with high power on both FDD and TDD bands

[R4-2413301](file:///D:\RAN4%23112\Docs\R4-2413301.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations 3Tx**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

CHTTL: the PC1.5 TDD+TDD is under discussion in non-spectrum item in Rel-19. Should we introduce them now?

**Decision: Revised to R4-2414294 (from R4-2413301).**

[R4-2414294](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414294.zip) **Draft CR for 38.101-1: T-Mobile HPUE CA combinations 3Tx**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: T-Mobile USA*

CHTTL: the PC1.5 TDD+TDD is under discussion in non-spectrum item in Rel-19. Should we introduce them now?

**Decision: Endorsed.**

### 7.9 Rel-19 Additional NR bands for NR features

#### 7.9.1 Rapporteur input (WID/TR/big CR)

**WID revision**

[R4-2411941](file:///D:\RAN4%23112\Docs\R4-2411941.zip) **Revised WID: Additional NR bands for NR features in Rel-19**

*Type: WID revised For: Endorsement  
 Source: ZTE Corporation, Huawei*

**Abstract:**

MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Big draft CR**

[R4-2412132](file:///D:\RAN4%23112\Docs\R4-2412132.zip) **TS 38.101-1 draft big CR to include 4Rx**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

[R4-2412133](file:///D:\RAN4%23112\Docs\R4-2412133.zip) **TS 38.101-1 draft big CR to include 8Rx**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: This is for post-meeting endorsement. This is a Rel-19 draftCR (running CR).

**Decision:** The document was **for email approval**.

**Withdrawn**

[R4-2412578](file:///D:\RAN4%23112\Docs\R4-2412578.zip) **TS 38.101-1 big CR for NR\_bands\_xFeature\_R19 for UL-MIMO part**

*Type: CR For: Endorsement  
 38.101-1 v18.6.0 CR-2453 rev Cat: B (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19. Since this was not submitted at submission deadline it can be withdrawn and a new "draft CR" tdoc can be assigned.

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

[R4-2411942](file:///D:\RAN4%23112\Docs\R4-2411942.zip) **TS 38.101-1 draft big CR to include 4Rx**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1274 rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

[R4-2411943](file:///D:\RAN4%23112\Docs\R4-2411943.zip) **TS 38.101-1 draft big CR to include 8Rx**

*Type: CR For: Endorsement  
 38.101-3 v18.6.0 CR-1275 rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation*

**Abstract:**

MCC: There should not be any Rel-19 CRs for agreement at RAN4#112. This was changed to for "endorsement". This need to be clarified by session Chair that no Rel-19 CRs should be submitted at this stage of Rel-19.

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

#### 7.9.2 UE RF requirements for UL-MIMO in a single band

#### 7.9.3 UE RF requirements for 4Rx

[R4-2411324](file:///D:\RAN4%23112\Docs\R4-2411324.zip) **Draft CR for TS 38.101-1[R19] 4Rx handheld UE for n13**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Samsung, TELUS, Bell Mobility, ZTE Corporation*

**Decision: Endorsed.**

#### 7.9.4 UE RF requirements for 8Rx

[R4-2411740](file:///D:\RAN4%23112\Docs\R4-2411740.zip) **(NR\_bands\_xFeature\_R19-Core) Draft CR for 38.101-1 to introduce n34 support 8Rx**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: CMCC, ZTE Corporation*

**Decision: Endorsed.**

### 7.10 Rel-19 downlink interruption for NR and EN-DC band combinations at dynamic Tx Switching in Uplink

#### 7.10.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2412468](file:///D:\RAN4%23112\Docs\R4-2412468.zip) **TR 37.887 0.0.1 TR skeleton for Rel-19 downlink interruption for NR and EN-DC band combinations at dynamic Tx Switching in Uplink**

*Type: draft TR For: Agreement  
 37.887 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: China Telecom*

**Decision: Agreed.**

#### 7.10.2 UE RF requirements

[R4-2411150](file:///D:\RAN4%23112\Docs\R4-2411150.zip) **On DL interruption for Tx switching across 3 and 4 bands**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2413318](file:///D:\RAN4%23112\Docs\R4-2413318.zip) **DL interruptions for mid band combinations**

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

**Decision: Noted.**

### 7.11 Simultaneous Rx/Tx band combinations for NR CA/DC, NR SUL and LTE/NR DC in Rel-19

#### 7.11.1 Rapporteur input (WID/TR/big CR)

**WID revsion**

[R4-2412539](file:///D:\RAN4%23112\Docs\R4-2412539.zip) **Revised WID Simultaneous RxTx band combinations for NR CADC, NR SUL and LTENR DC in Rel-19**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 7.11.2 UE RF requirements

[R4-2411157](file:///D:\RAN4%23112\Docs\R4-2411157.zip) **On simultaneous Rx/Tx**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411256](file:///D:\RAN4%23112\Docs\R4-2411256.zip) **Discussion on simultaneous Rx-Tx of CA\_n40-n41**

*Type: discussion For: Discussion  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

[R4-2412540](file:///D:\RAN4%23112\Docs\R4-2412540.zip) **Discussion on Rel-19 simultaneous Rx-Tx issues**

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

**Decision: Noted.**

**Draft CR**

[R4-2411158](file:///D:\RAN4%23112\Docs\R4-2411158.zip) **Draft CR to 38.101-1 to clarify simultaneous Rx/Tx applicability for FDD-TDD combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: Apple*

Nokia: we have proposals in other CRs.

Apple: this is direct wording in the TR. We could change the wording.

**Decision: Revised to R4-2414266 (from R4-2411158).**

[R4-2414266](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414266.zip) **Draft CR to 38.101-1 to clarify simultaneous Rx/Tx applicability for FDD-TDD combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: Apple*

Nokia: we have proposals in other CRs.

Apple: this is direct wording in the TR. We could change the wording.

**Decision: Endorsed.**

[R4-2411159](file:///D:\RAN4%23112\Docs\R4-2411159.zip) **Draft CR to 38.101-3 to clarify simultaneous Rx/Tx applicability for band combinations**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: Apple*

CHTTL/Skyworks: TR for FR1+FR2, wording is “simultaenous Rx-Tx shall be mandatory”

**Decision: Revised to R4-2414267 (from R4-2411159).**

[R4-2414267](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414267.zip) **Draft CR to 38.101-3 to clarify simultaneous Rx/Tx applicability for band combinations**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: F (Rel-19)  
  
 Source: Apple*

**Decision: Endorsed.**

[R4-2412541](file:///D:\RAN4%23112\Docs\R4-2412541.zip) **drafCR to 38.101-1: On Rel-19 simultaneous Rx-Tx**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

### 7.12 Adding channel bandwidth(s) support to existing NR bands and CA/ENDC combinations in REL-19

#### 7.12.1 Rapporteur input (WID/TR/big CR)

**TR skeleton**

[R4-2411198](file:///D:\RAN4%23112\Docs\R4-2411198.zip) **TR 37862 skeleton for the basket WI on adding new channel BW in existing NR bands**

*Type: draft TR For: Agreement  
 37.862 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a draft TR skeleton to capture the work related to the basket WI on adding channel WB in existing NR bands

**Decision:** The document was **revised to** [R4-2412511](file:///D:\RAN4%23112\Docs\R4-2412511.zip).

[R4-2412511](file:///D:\RAN4%23112\Docs\R4-2412511.zip) **TR 37862 skeleton for the basket WI on adding new channel BW in existing NR bands**

*Type: draft TR For: Agreement  
 37.862 v0.0.2 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson*

(Replaces [R4-2411198](file:///D:\RAN4%23112\Docs\R4-2411198.zip))

**Abstract:**

This contribution is a draft TR skeleton to capture the work related to the basket WI on adding channel WB in existing NR bands

**Decision: Agreed.**

**WID revision**

[R4-2411197](file:///D:\RAN4%23112\Docs\R4-2411197.zip) **Draft revised basket WI on adding new channel BW in existing NR bands**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

This contribution is a revision of the basket WI on adding channel WB in existing NR bands

**Decision:** The document was **revised to** [R4-2412486](file:///D:\RAN4%23112\Docs\R4-2412486.zip).

[R4-2412486](file:///D:\RAN4%23112\Docs\R4-2412486.zip) **Draft revised basket WI on adding new channel BW in existing NR bands**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

(Replaces [R4-2411197](file:///D:\RAN4%23112\Docs\R4-2411197.zip))

**Abstract:**

This contribution is a revision of the basket WI on adding channel WB in existing NR bands

**Decision:** The document was **for email approval**.

#### 7.12.2 UE RF requirements

[R4-2411148](file:///D:\RAN4%23112\Docs\R4-2411148.zip) **n48 100MHz UL**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2413200](file:///D:\RAN4%23112\Docs\R4-2413200.zip) **On NS\_27 A-MPR for larger than 40MHz UL CBW for n48**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In RAN#104, a new band BW basket [1] was agreed upon. The only request made at the time is for the support of larger UL CBW for band n48. In this contribution, we discuss the required work and the potential impact of NS\_27.

**Decision: Noted.**

### 7.13 Introduction of the 1.4 GHz Band

#### 7.13.1 General aspects

#### 7.13.2 System parameters and UE RF requirements

[R4-2411167](file:///D:\RAN4%23112\Docs\R4-2411167.zip) **On NR new 1.4GHz band REFSENS**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411219](file:///D:\RAN4%23112\Docs\R4-2411219.zip) **NR Band 1.4 GHz - system parameters**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is discussing the system paraemters of the new NR Band 1.4 GHz

**Decision: Noted.**

[R4-2411901](file:///D:\RAN4%23112\Docs\R4-2411901.zip) **Systems parameters and RF requirements of 1.4GHz band**

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

**Decision: Noted.**

**Draft CR**

[R4-2411998](file:///D:\RAN4%23112\Docs\R4-2411998.zip) **draftCR 38.101-1 Introduction of n110**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless.*

**Decision: Postponed.**

#### 7.13.3 BS RF core requirements

**Draft CR**

38.104

[R4-2413121](file:///D:\RAN4%23112\Docs\R4-2413121.zip) **draftCR to 38.104 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.141-1

[R4-2413122](file:///D:\RAN4%23112\Docs\R4-2413122.zip) **draftCR to 38.141-1 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.141-2

[R4-2413123](file:///D:\RAN4%23112\Docs\R4-2413123.zip) **draftCR to 38.141-2 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.106

[R4-2412893](file:///D:\RAN4%23112\Docs\R4-2412893.zip) **Draft CR to 38.106 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.106 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.115-1

[R4-2412894](file:///D:\RAN4%23112\Docs\R4-2412894.zip) **Draft CR to 38.115-1 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.115-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.174

[R4-2412895](file:///D:\RAN4%23112\Docs\R4-2412895.zip) **Draft CR to 38.174 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.174 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.176-1

[R4-2412896](file:///D:\RAN4%23112\Docs\R4-2412896.zip) **Draft CR to 38.176-1 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.176-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

38.176-2

[R4-2412897](file:///D:\RAN4%23112\Docs\R4-2412897.zip) **Draft CR to 38.176-2 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 38.176-2 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

36.104

[R4-2413117](file:///D:\RAN4%23112\Docs\R4-2413117.zip) **draftCR to 36.104 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 36.104 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

36.141

[R4-2413118](file:///D:\RAN4%23112\Docs\R4-2413118.zip) **draftCR to 36.141 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 36.141 v18.4.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

37.104

[R4-2413119](file:///D:\RAN4%23112\Docs\R4-2413119.zip) **draftCR to 37.104 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 37.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

37.141

[R4-2413120](file:///D:\RAN4%23112\Docs\R4-2413120.zip) **draftCR to 37.141 on introduction of Band n110**

*Type: draftCR For: Endorsement  
 37.141 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia, MidWave Wireless*

**Decision: Postponed.**

#### 7.13.4 RRM core requirements

38.133

[R4-2412397](file:///D:\RAN4%23112\Docs\R4-2412397.zip) **draft CR to TS 38.133: Introduction of the 1.4GHz band**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

### 7.14 Introduction of LTE FDD band in 1800–1830 MHz for Canada

#### 7.14.1 General aspects

**Work plan**

[R4-2411031](file:///D:\RAN4%23112\Docs\R4-2411031.zip) **Work plan for LTE FDD new band in 1800–1830 MHz for Canada**

*Type: Work Plan For: Approval  
 Source: NOVAMINT, Ubiik, Semtech, Telit, Sequans Communications*

**Abstract:**

A spectrum-related work item was agreed to specify a new LTE band in the 1800-1830 MHz frequency range. This contribution provides a work plan to complete the technical work. MCC: The type was revised to work plan.

Qualcomm: it might be difficult to agree on the RF requirement in this meeting. Maybe we can postpone them to next meeting.

**Decision: Noted.**

**Regulation**

[R4-2411032](file:///D:\RAN4%23112\Docs\R4-2411032.zip) **Regulation for LTE FDD new band in 1800–1830 MHz for Canada**

*Type: discussion For: Discussion  
 Source: NOVAMINT, Ubiik, Semtech, Telit, Sequans Communications*

**Abstract:**

A spectrum-related work item was agreed to specify a new LTE band in the 1800-1830 MHz frequency range. This contribution provides the background on the technical regulation

**Decision: Noted.**

#### 7.14.2 System parameters and UE RF requirements

[R4-2411033](file:///D:\RAN4%23112\Docs\R4-2411033.zip) **UE RF Specification impact due to Introduction of LTE FDD new band in 1800–1830 MHz for Canada**

*Type: discussion For: Discussion  
 Source: NOVAMINT, Ubiik, Semtech, Telit, Sequans Communications*

**Abstract:**

A spectrum-related work item was agreed to specify a new LTE band in the 1800-1830 MHz frequency range. In this contribution we discuss the necessary changes into Core specifications relevant to UE RF requirements due to introduction of the new band

Skyworks: Need more time to check the number.

Qualcomm: co-existence. Band 3, we should consider differen numbers.

Apple: There are some observations about the A-MPR requirements. Why to look at uplink to uplink separation rather than uplink to downlink of other band.

**Decision: Noted.**

[R4-2411220](file:///D:\RAN4%23112\Docs\R4-2411220.zip) **LTE Band 1800-1830 MHz - system parameters**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is discussing the system paraemters of the new LTE Band 1800-1830 MHz

**Decision: Noted.**

[R4-2412618](file:///D:\RAN4%23112\Docs\R4-2412618.zip) **Initial considerations on RF filtering and UE Co-Existence**

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

**Abstract:**

Initial considerations on RF filtering and UE Co-Existence are provided.

**Decision: Noted.**

#### 7.14.3 BS RF core requirements

[R4-2411034](file:///D:\RAN4%23112\Docs\R4-2411034.zip) **BS RF Specification impact due to Introduction of LTE FDD new band in 1800–1830 MHz for Canada**

*Type: discussion For: Discussion  
 Source: NOVAMINT, Ubiik, Semtech, Telit, Sequans Communications*

**Abstract:**

A spectrum-related work item was agreed to specify a new LTE band in the 1800-1830 MHz frequency range. In this contribution we discuss the necessary changes into Core specifications relevant to BS RF requirements due to introduction of the new band

**Decision: Noted.**

#### 7.14.4 RRM core requirements

[R4-2411035](file:///D:\RAN4%23112\Docs\R4-2411035.zip) **RRM Specification impact due to Introduction of LTE FDD new band in 1800–1830 MHz for Canada**

*Type: discussion For: Discussion  
 Source: NOVAMINT, Ubiik, Semtech, Telit, Sequans Communications*

**Abstract:**

A spectrum-related work item was agreed to specify a new LTE band in the 1800-1830 MHz frequency range. In this contribution we discuss the necessary changes into Core specifications relevant to RRM due to introduction of the new band

Nokia: there are requirement depending on UE RF REFSENS.

**Decision: Noted.**

### 7.15 Introduction of NR bands n87 and n88

#### 7.15.1 General aspects

**WID revision**

[R4-2412000](file:///D:\RAN4%23112\Docs\R4-2412000.zip) **Revised WID for introduction of new bands n87 and n88 WI**

*Type: WID revised For: Endorsement  
 Source: Nokia*

**Abstract:**

MCC: It is assumed this is for post-meeting endorsement. [Post-Meeting]

**Decision: Withdrawn.**

**Work plan**

[R4-2411999](file:///D:\RAN4%23112\Docs\R4-2411999.zip) **Work plan for introduction of new bands n87 and n88 WI**

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

Chair: encourage companies to follow the work plan in this tdoc.

Huawei: we need discussions on the regulaton. We can agree on the starting point.

**Decision: Approved.**

[R4-2413258](file:///D:\RAN4%23112\Docs\R4-2413258.zip) **Initial discussion on general aspects for introduction of NR bands n87 and n88**

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

**Abstract:**

In this contribution we provide initial analysis of general and regulatory aspects for for introduction of NR bands n87 and n88.

**Decision: Noted.**

#### 7.15.2 System parameters and UE RF requirements

[R4-2411086](file:///D:\RAN4%23112\Docs\R4-2411086.zip) **System parameters for new NR bands n87 and n88**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

[R4-2411211](file:///D:\RAN4%23112\Docs\R4-2411211.zip) **Bands n87-n88 - UE RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is giving an overview of the UE RF impacts when introducing NR bands n87-n88. [MCC]: Move [R4-2411211](file:///D:\RAN4%23112\Docs\R4-2411211.zip) from AI 7.12.2 to AI 7.15.2, and treat it in [113].

**Decision: Noted.**

[R4-2411899](file:///D:\RAN4%23112\Docs\R4-2411899.zip) **Systems parameters and RF requirements of n87 and n88**

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

**Decision: Noted.**

[R4-2412001](file:///D:\RAN4%23112\Docs\R4-2412001.zip) **Expected changes due to introduction of new bands n87 and n88**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2413259](file:///D:\RAN4%23112\Docs\R4-2413259.zip) **Initial discussion on UE aspects for introduction of NR bands n87 and n88**

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

**Abstract:**

In this contribution we provide initial analysis of UE aspects for for introduction of NR bands n87 and n88.

**Decision: Noted.**

**Draft CR**

38.101-1

[R4-2411088](file:///D:\RAN4%23112\Docs\R4-2411088.zip) **draft CR to TS 38.101-1, introduction on system parameters for NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CATT*

**Decision: Postponed.**

[R4-2411215](file:///D:\RAN4%23112\Docs\R4-2411215.zip) **Draft CR to 38.101-1 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.101-1 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2411903](file:///D:\RAN4%23112\Docs\R4-2411903.zip) **(NR\_bands\_n87\_n88-Core) Draft CR to TS38.101-1: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.101-5

[R4-2411945](file:///D:\RAN4%23112\Docs\R4-2411945.zip) **NR band n87 and n88 system parameters**

*Type: draftCR For: Endorsement  
 38.101-5 v18.6.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

#### 7.15.3 BS RF core requirements

[R4-2411087](file:///D:\RAN4%23112\Docs\R4-2411087.zip) **BS RF requirements for new NR bands n87 and n88**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

[R4-2411210](file:///D:\RAN4%23112\Docs\R4-2411210.zip) **Bands n87-n88 - BS RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is giving an overview of the BS RF impacts when introducing NR bands n87-n88

**Decision: Noted.**

[R4-2413260](file:///D:\RAN4%23112\Docs\R4-2413260.zip) **Initial discussion on BS aspects for introduction of NR bands n87 and n88**

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

**Abstract:**

In this contribution we provide initial analysis of BS aspects for for introduction of NR bands n87 and n88.

**Decision: Noted.**

**Draft CR**

38.104

[R4-2411089](file:///D:\RAN4%23112\Docs\R4-2411089.zip) **draft CR to TS 38.104 on introduction NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CATT*

**Decision: Postponed.**

[R4-2411904](file:///D:\RAN4%23112\Docs\R4-2411904.zip) **(NR\_bands\_n87\_n88-Core) Draft CR to TS38.104: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2411214](file:///D:\RAN4%23112\Docs\R4-2411214.zip) **Draft CR to 38.104 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.104 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2413107](file:///D:\RAN4%23112\Docs\R4-2413107.zip) **draftCR to 38.104 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.141-1

[R4-2411216](file:///D:\RAN4%23112\Docs\R4-2411216.zip) **Draft CR to 38.141-1 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.141-1 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2411905](file:///D:\RAN4%23112\Docs\R4-2411905.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS38.141-1: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2413108](file:///D:\RAN4%23112\Docs\R4-2413108.zip) **draftCR to 38.141-1 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.141-2

[R4-2411217](file:///D:\RAN4%23112\Docs\R4-2411217.zip) **Draft CR to 38.141-2 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.141-2 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2411906](file:///D:\RAN4%23112\Docs\R4-2411906.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS38.141-2: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2413109](file:///D:\RAN4%23112\Docs\R4-2413109.zip) **draftCR to 38.141-2 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.307

[R4-2411902](file:///D:\RAN4%23112\Docs\R4-2411902.zip) **(NR\_bands\_n87\_n88-Core) Draft CR to TS38.307: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.307 v18.2.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.106

[R4-2411907](file:///D:\RAN4%23112\Docs\R4-2411907.zip) **(NR\_bands\_n87\_n88-Core) Draft CR to TS38.106: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.106 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.176-1

[R4-2411908](file:///D:\RAN4%23112\Docs\R4-2411908.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS38.176-1: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.176-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.176-2

[R4-2411909](file:///D:\RAN4%23112\Docs\R4-2411909.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS38.176-2: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.176-2 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.115-1

[R4-2411910](file:///D:\RAN4%23112\Docs\R4-2411910.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS38.115-1: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.115-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.174

[R4-2411911](file:///D:\RAN4%23112\Docs\R4-2411911.zip) **(NR\_bands\_n87\_n88-Core) Draft CR to TS38.174: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.174 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

36.104

[R4-2411212](file:///D:\RAN4%23112\Docs\R4-2411212.zip) **Draft CR to 36.104 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 36.104 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 36.104 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2413103](file:///D:\RAN4%23112\Docs\R4-2413103.zip) **draftCR to 36.104 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 36.104 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

36.141

[R4-2413104](file:///D:\RAN4%23112\Docs\R4-2413104.zip) **draftCR to 36.141 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 36.141 v18.4.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.104

[R4-2411213](file:///D:\RAN4%23112\Docs\R4-2411213.zip) **Draft CR to 37.104 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 37.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 37.104 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2413105](file:///D:\RAN4%23112\Docs\R4-2413105.zip) **draftCR to 37.104 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 37.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.141

[R4-2413106](file:///D:\RAN4%23112\Docs\R4-2413106.zip) **draftCR to 37.141 on introduction of Band n87 and n88**

*Type: draftCR For: Endorsement  
 37.141 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.145-1

[R4-2411912](file:///D:\RAN4%23112\Docs\R4-2411912.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS37.145-1: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 37.145-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

37.145-2

[R4-2411913](file:///D:\RAN4%23112\Docs\R4-2411913.zip) **(NR\_bands\_n87\_n88-Perf) Draft CR to TS37.145-2: Introduction of NR bands n87 and n88**

*Type: draftCR For: Endorsement  
 37.145-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

#### 7.15.4 RRM core requirements

38.133

[R4-2411218](file:///D:\RAN4%23112\Docs\R4-2411218.zip) **Draft CR to 38.133 - Introduction of bands n87-n88**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.133 for the introduction of bands n87-n88

**Decision: Postponed.**

[R4-2412395](file:///D:\RAN4%23112\Docs\R4-2412395.zip) **draft CR to TS 38.133: Introduction of NR Bands n87 and n88**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

### 7.16 Introduction of NR band n68

#### 7.16.1 General aspects

**Work plan**

[R4-2411199](file:///D:\RAN4%23112\Docs\R4-2411199.zip) **Band n68 - Work plan**

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

**Abstract:**

Thsi contrinution is a work plan related to the introduction of band n68

Chair: encourage companies to follow the work plan in this tdoc.

CATT: there is typo.

**Decision: Noted.**

#### 7.16.2 System parameters and UE RF requirements

[R4-2411201](file:///D:\RAN4%23112\Docs\R4-2411201.zip) **Band n68 - UE RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is giving an overview of the UE RF impacts when introducing NR band n68

**Decision: Noted.**

[R4-2411633](file:///D:\RAN4%23112\Docs\R4-2411633.zip) **Introduction of NR band n68**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Technologies Int*

**Abstract:**

In this paper we present our views on the work that needs to be done to introduce NR band n68

**Decision: Noted.**

[R4-2411900](file:///D:\RAN4%23112\Docs\R4-2411900.zip) **Systems parameters and RF requirements of n68**

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

**Decision: Noted.**

[R4-2411946](file:///D:\RAN4%23112\Docs\R4-2411946.zip) **NR band n68 system parameters**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

**Draft CR**

38.101-1

[R4-2411206](file:///D:\RAN4%23112\Docs\R4-2411206.zip) **Draft CR to 38.101-1 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.101-1 for the introduction of band n68

**Decision: Postponed.**

[R4-2411914](file:///D:\RAN4%23112\Docs\R4-2411914.zip) **(NR\_band\_n68-Core) Draft CR to TS38.101-1: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

#### 7.16.3 BS RF core requirements

[R4-2411200](file:///D:\RAN4%23112\Docs\R4-2411200.zip) **Band n68 - BS RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is giving an overview of the BS RF impacts when introducing NR band n68

**Decision: Postponed.**

**Draft CR**

38.104

[R4-2411205](file:///D:\RAN4%23112\Docs\R4-2411205.zip) **Draft CR to 38.104 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.104 for the introduction of band n68

**Decision: Postponed.**

[R4-2411915](file:///D:\RAN4%23112\Docs\R4-2411915.zip) **(NR\_band\_n68-Core) Draft CR to TS38.104: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2413114](file:///D:\RAN4%23112\Docs\R4-2413114.zip) **draftCR to 38.104 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 38.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.141-1

[R4-2411207](file:///D:\RAN4%23112\Docs\R4-2411207.zip) **Draft CR to 38.141-1 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.141-1 for the introduction of band n68

**Decision: Postponed.**

[R4-2411916](file:///D:\RAN4%23112\Docs\R4-2411916.zip) **(NR\_band\_n68-Perf) Draft CR to TS38.141-1: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2413115](file:///D:\RAN4%23112\Docs\R4-2413115.zip) **draftCR to 38.141-1 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 38.141-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.141-2

[R4-2411208](file:///D:\RAN4%23112\Docs\R4-2411208.zip) **Draft CR to 38.141-2 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.141-2 for the introduction of band n68

**Decision: Postponed.**

[R4-2411917](file:///D:\RAN4%23112\Docs\R4-2411917.zip) **(NR\_band\_n68-Perf) Draft CR to TS38.141-2: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

[R4-2413116](file:///D:\RAN4%23112\Docs\R4-2413116.zip) **draftCR to 38.141-2 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 38.141-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

38.106

[R4-2411918](file:///D:\RAN4%23112\Docs\R4-2411918.zip) **(NR\_band\_n68-Core) Draft CR to TS38.106: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.106 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.176-1

[R4-2411919](file:///D:\RAN4%23112\Docs\R4-2411919.zip) **(NR\_band\_n68-Perf) Draft CR to TS38.176-1: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.176-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.176-2

[R4-2411920](file:///D:\RAN4%23112\Docs\R4-2411920.zip) **(NR\_band\_n68-Perf) Draft CR to TS38.176-2: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.176-2 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.115-1

[R4-2411921](file:///D:\RAN4%23112\Docs\R4-2411921.zip) **(NR\_band\_n68-Perf) Draft CR to TS38.115-1: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.115-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.174

[R4-2411922](file:///D:\RAN4%23112\Docs\R4-2411922.zip) **(NR\_band\_n68-Core) Draft CR to TS38.174: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 38.174 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

38.145-1

[R4-2411923](file:///D:\RAN4%23112\Docs\R4-2411923.zip) **(NR\_band\_n68-Perf) Draft CR to TS37.145-1: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 37.145-1 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

37.145-2

[R4-2411924](file:///D:\RAN4%23112\Docs\R4-2411924.zip) **(NR\_band\_n68-Perf) Draft CR to TS37.145-2: Introduction of NR band n68**

*Type: draftCR For: Endorsement  
 37.145-2 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

36.104

[R4-2411202](file:///D:\RAN4%23112\Docs\R4-2411202.zip) **Draft CR to 36.104 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 36.104 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 36.104 for the introduction of band n68

**Decision: Postponed.**

[R4-2413110](file:///D:\RAN4%23112\Docs\R4-2413110.zip) **draftCR to 36.104 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 36.104 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

36.141

[R4-2413111](file:///D:\RAN4%23112\Docs\R4-2413111.zip) **draftCR to 36.141 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 36.141 v18.4.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.104

[R4-2411203](file:///D:\RAN4%23112\Docs\R4-2411203.zip) **Draft CR to 37.104 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 37.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 37.104 for the introduction of band n68

**Decision: Postponed.**

[R4-2413112](file:///D:\RAN4%23112\Docs\R4-2413112.zip) **draftCR to 37.104 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 37.104 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.141

[R4-2413113](file:///D:\RAN4%23112\Docs\R4-2413113.zip) **draftCR to 37.141 on introduction of Band n68**

*Type: draftCR For: Endorsement  
 37.141 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Nokia*

**Decision: Postponed.**

37.105

[R4-2411204](file:///D:\RAN4%23112\Docs\R4-2411204.zip) **Draft CR to 37.105 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 37.105 v18.5.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 37.105 for the introduction of band n68

**Decision: Postponed.**

#### 7.16.4 RRM core requirements

[R4-2411209](file:///D:\RAN4%23112\Docs\R4-2411209.zip) **Draft CR to 38.133 - Introduction of band n68**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

This is draft CR to TS 38.133 for the introduction of band n68

**Decision: Postponed.**

[R4-2412396](file:///D:\RAN4%23112\Docs\R4-2412396.zip) **draft CR to TS 38.133: Introduction of NR Band n68**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

### 7.17 Introduction of NR-NTN S-band (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL)

#### 7.17.1 General aspects

**Work plan**

[R4-2413146](file:///D:\RAN4%23112\Docs\R4-2413146.zip) **Workplan for new NR NTN S-band**

*Type: Work Plan For: Approval  
 Source: Qualcomm Incorporated*

Inmarsat: for some regiulation, we may not conclude.

Qualcomm: The work plan won’t be treated as normative.

Chair: encourage companies to follow work plan in this contribution.

**Decision: Noted.**

[R4-2411303](file:///D:\RAN4%23112\Docs\R4-2411303.zip) **NTN MSS S-band band plan, regulations, and deployment scenarios**

*Type: discussion For: Discussion  
 Source: EchoStar, Dish Network, TerreStar, Thales, Gatehouse, Novamint*

**Decision: Noted.**

#### 7.17.2 System parameters and UE RF requirements

[R4-2411059](file:///D:\RAN4%23112\Docs\R4-2411059.zip) **Discussion on UE RF requirements for the NTN new S-band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411196](file:///D:\RAN4%23112\Docs\R4-2411196.zip) **New NTN S-band - System parameters and UE RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the system parameters and the impacts on UE RF requirements when introducing the new NTN S-band

**Decision: Noted.**

[R4-2411842](file:///D:\RAN4%23112\Docs\R4-2411842.zip) **Discussion on system parameters and UE RF requirements for NR-NTN S band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412959](file:///D:\RAN4%23112\Docs\R4-2412959.zip) **Discussion on the NTN S band definition**

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

**Decision: Noted.**

[R4-2413147](file:///D:\RAN4%23112\Docs\R4-2413147.zip) **Co-existence considerations for the new S-band**

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

**Decision: Noted.**

[R4-2413305](file:///D:\RAN4%23112\Docs\R4-2413305.zip) **Coexistence between S-Band NTN and Terrestrial Networks**

*Type: other For: Approval  
 Source: T-Mobile USA*

**Decision: Noted.**

**Draft CR**

38.101-5

[R4-2411060](file:///D:\RAN4%23112\Docs\R4-2411060.zip) **DraftCR for TS 38.101-5, Introduction on system parameters for UE supporting new S Band**

*Type: draftCR For: Endorsement  
 38.101-5 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CATT*

**Decision: Postponed.**

#### 7.17.3 SAN RF core requirements

[R4-2411058](file:///D:\RAN4%23112\Docs\R4-2411058.zip) **Discussion on SAN RF requirements for the NTN new S-band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411195](file:///D:\RAN4%23112\Docs\R4-2411195.zip) **New NTN S-band - SAN RF requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the impact on SAN RF requirements when introducing the new NTN S-band

**Decision: Noted.**

[R4-2411843](file:///D:\RAN4%23112\Docs\R4-2411843.zip) **Discussion on SAN RF requirements for NR-NTN S band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

Draft CR

38.108

[R4-2411061](file:///D:\RAN4%23112\Docs\R4-2411061.zip) **DraftCR for TS 38.108, Introduction on system parameters for SAN supporting new S Band**

*Type: draftCR For: Endorsement  
 38.108 v18.3.0 CR- rev Cat: B (Rel-19)  
  
 Source: CATT*

**Decision: Postponed.**

[R4-2411844](file:///D:\RAN4%23112\Docs\R4-2411844.zip) **draftCR to TS38.108 Introduction of NR-NTN S band**

*Type: draftCR For: Endorsement  
 38.108 v18.3.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

#### 7.17.4 RRM core requirements

### 7.18 Introduction of IoT-NTN S-band (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL)

#### 7.18.1 General aspects

**Work plan**

[R4-2411547](file:///D:\RAN4%23112\Docs\R4-2411547.zip) **Work plan for an IoT-NTN S-band for North America (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL)**

*Type: Work Plan For: Approval  
 Source: Mediatek India Technology Pvt.*

Chair: Encourage companies to follow the work plan.

**Decision: Noted.**

[R4-2411304](file:///D:\RAN4%23112\Docs\R4-2411304.zip) **NTN MSS S-band band plan, regulations, and deployment scenarios**

*Type: discussion For: Discussion  
 Source: EchoStar, DISH Network, TerreStar, Thales, Gatehouse, Novamint*

**Decision: Noted.**

[R4-2412460](file:///D:\RAN4%23112\Docs\R4-2412460.zip) **Discussion on NTN-TN UE-coexistence issue for an IoT-NTN S-band (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL)**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

#### 7.18.2 System parameters and UE RF requirements

[R4-2411548](file:///D:\RAN4%23112\Docs\R4-2411548.zip) **Discussion on IoT-NTN S-band (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL) UE RF requirements**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

[R4-2411845](file:///D:\RAN4%23112\Docs\R4-2411845.zip) **Discussion on system parameters and UE RF requirements for IoT-NTN S band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

#### 7.18.3 SAN RF core requirements

[R4-2411846](file:///D:\RAN4%23112\Docs\R4-2411846.zip) **Discussion on SAN RF requirements for IoT-NTN S band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**Draft CR**

36.108

[R4-2411847](file:///D:\RAN4%23112\Docs\R4-2411847.zip) **draftCR to TS36.108 Introduction of IoT-NTN S band**

*Type: draftCR For: Endorsement  
 36.108 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

#### 7.18.4 RRM core requirements

### 7.19 Introduction of new NR NTN bands to support the Extended L-band (UL 1668-1675MHz, DL 1518-1525MHz) and the combined MSS L-band and Extended L-band ranges (DL 1518-1559 MHz, UL 1626.5-1660.5 MHz and 1668-1675 MHz)

#### 7.19.1 General aspects

[R4-2411550](file:///D:\RAN4%23112\Docs\R4-2411550.zip) **MSS L-band and Extended L-band band plan and background**

*Type: discussion For: Discussion  
 Source: Inmarsat, Viasat*

**Decision: Noted.**

#### 7.19.2 System parameters and UE RF requirements

[R4-2411263](file:///D:\RAN4%23112\Docs\R4-2411263.zip) **Initial considerations on the band plan for the combined L-band and extended L-band**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411848](file:///D:\RAN4%23112\Docs\R4-2411848.zip) **Discussion on system parameters and UE RF requirements for NR-NTN combined L-band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412958](file:///D:\RAN4%23112\Docs\R4-2412958.zip) **Discussion on the full NTN L band definition**

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

**Decision: Noted.**

#### 7.19.3 SAN RF core requirements

[R4-2411849](file:///D:\RAN4%23112\Docs\R4-2411849.zip) **Discussion on SAN RF requirements for NR-NTN combined L-band**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**Draft CR**

38.108

[R4-2411850](file:///D:\RAN4%23112\Docs\R4-2411850.zip) **draftCR to TS38.108 Introduction of NR-NTN combined L-band**

*Type: draftCR For: Endorsement  
 38.108 v18.3.0 CR- rev Cat: B (Rel-19)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

#### 7.19.4 RRM core requirements

### 7.20 Introduction of Power Class 2 and UE 40MHz Channel Bandwidth in NR band n28

#### 7.20.1 General and work plan

**Work plan**

[R4-2411741](file:///D:\RAN4%23112\Docs\R4-2411741.zip) **Work plan of WID on Introduction of Power Class 2 and UE 40MHz Channel Bandwidth in NR band n28**

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

Chair: encourage the companies to follow the work plan.

**Decision: Noted.**

[R4-2413027](file:///D:\RAN4%23112\Docs\R4-2413027.zip) **On Rel-19 work for band n28**

*Type: Work Plan For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[R4-2411291](file:///D:\RAN4%23112\Docs\R4-2411291.zip) **Discussion on introduction of Power Class 2 and UE 40MHz CBW in n28**

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

**Decision: Noted.**

#### 7.20.2 UE RF requirements for PC2 with UL-MIMO

[R4-2411116](file:///D:\RAN4%23112\Docs\R4-2411116.zip) **On UE RF requirements for PC2 with UL-MIMO for n28**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411154](file:///D:\RAN4%23112\Docs\R4-2411154.zip) **On PC2 for n28**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411742](file:///D:\RAN4%23112\Docs\R4-2411742.zip) **UE RF requirements for n28 PC2**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411879](file:///D:\RAN4%23112\Docs\R4-2411879.zip) **Discussion on PC2 n28 40MHz**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412042](file:///D:\RAN4%23112\Docs\R4-2412042.zip) **n28 NS\_17 and NS\_18 A-MPR simulations**

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

**Decision: Noted.**

[R4-2412083](file:///D:\RAN4%23112\Docs\R4-2412083.zip) **Discussion on PC2 with UL-MIMO for n28**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2413061](file:///D:\RAN4%23112\Docs\R4-2413061.zip) **n28 PC2 NS\_17 A-MPR**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This paper presents PA back-off measurements for band n28 PC2 NS\_17. [MCC]: Move [R4-2413061](file:///D:\RAN4%23112\Docs\R4-2413061.zip) from AI 7.5.3.1 to AI 7.20.2, and treat it in [115].

**Decision: Noted.**

#### 7.20.3 UE RF requirements for introducing 40MHz

[R4-2411117](file:///D:\RAN4%23112\Docs\R4-2411117.zip) **on UE RF requirements for introducing 40MHz channel bandwidth for n28**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411155](file:///D:\RAN4%23112\Docs\R4-2411155.zip) **On 40MHz CBW for n28**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411476](file:///D:\RAN4%23112\Docs\R4-2411476.zip) **REFSENS and RSD for n28 UL 40MHz**

*Type: discussion For: Discussion  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

[R4-2411671](file:///D:\RAN4%23112\Docs\R4-2411671.zip) **40 MHz channel bandwidth with PC2 in Band n28**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we consider deployment of 40 MHz bandwidth with PC2 in n28, regulatory aspects and bandwidth flexibility.

**Decision: Noted.**

[R4-2411743](file:///D:\RAN4%23112\Docs\R4-2411743.zip) **UE RF requirements for introducing 40MHz**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411878](file:///D:\RAN4%23112\Docs\R4-2411878.zip) **Discussion on PC3 n28 40MHz**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2411947](file:///D:\RAN4%23112\Docs\R4-2411947.zip) **Discussion on UE 40MHz channel bandwidth for NR band n28**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2412084](file:///D:\RAN4%23112\Docs\R4-2412084.zip) **Discussion on introducing 40MHz for n28**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2413062](file:///D:\RAN4%23112\Docs\R4-2413062.zip) **n28 40MHz PC2 PC3 REFSENS**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This paper presents PA emission measurements to evaluate the Band n28 40MHz PC3 PC2 REFSENS requirements.

**Decision: Noted.**

[R4-2413149](file:///D:\RAN4%23112\Docs\R4-2413149.zip) **UE RF requirements for PC2 and 40 MHz**

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

**Decision: Noted.**

#### 7.20.4 Moderator summary and conclusions

## 8 Rel-19 on-going non-spectrum related work items

### 8.1 UE RF enhancements for NR FR1/FR2 and EN-DC, Phase 4

#### 8.1.1 UE RF requirements

##### 8.1.1.1 High power UE (HPUE) for CA in terrestrial network (TN)

[R4-2412432](file:///D:\RAN4%23112\Docs\R4-2412432.zip) **Views on SAR Solution**

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

**Decision: Noted.**

###### 8.1.1.1.1 Intra-band contiguous and non-contiguous UL CA with PC1.5

[R4-2411168](file:///D:\RAN4%23112\Docs\R4-2411168.zip) **MPR for PC1.5 intra-band contiguous UL CA**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411302](file:///D:\RAN4%23112\Docs\R4-2411302.zip) **On equal PSD vs equal power spectral regrowth**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, further developing from our contribution [1] in RAN#111, we address the power limitations and the MPR validity under equal PSD and equal power sharing.

**Decision: Noted.**

[R4-2411315](file:///D:\RAN4%23112\Docs\R4-2411315.zip) **Views on HPUE intra-band CA**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411595](file:///D:\RAN4%23112\Docs\R4-2411595.zip) **Discussion on PC1.5 TDD intra-band CA**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411646](file:///D:\RAN4%23112\Docs\R4-2411646.zip) **On PC1.5 intra-band contiguous ULCA with 2Tx**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

PC1.5 intra-band ULCA feature for both contiguous and non-contiguous cases is an objective for Rel-19. In this contribution, further developing from our contribution in RAN#111, we address the MPR requirement for PC1.5 contiguous ULCA based on 2Tx architecture.

**Decision: Noted.**

[R4-2411648](file:///D:\RAN4%23112\Docs\R4-2411648.zip) **High power UE RF requirements for intra-band CA in TN**

*Type: discussion For: Discussion  
 Source: Meta Ireland*

**Abstract:**

In this paper, we suggest how to define the RF requirements for high power UE for intra-band contiguous CA i.e. n41C, n77C and other intra-band non-contiguous CA i.e. CA\_n78(2A), CA\_n77(2A).

**Decision: Noted.**

[R4-2411672](file:///D:\RAN4%23112\Docs\R4-2411672.zip) **Framework for intra-band UL CA with PC1.5**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose a framework for MPR for intra-band contiguous and non-contiguous CA with PC1.5, MPR applicability is also discussed.

**Decision: Noted.**

[R4-2411882](file:///D:\RAN4%23112\Docs\R4-2411882.zip) **Further discussion on R19 PC1.5 Intra-band UL CA**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412024](file:///D:\RAN4%23112\Docs\R4-2412024.zip) **HPUE for intra-band UL CA**

*Type: discussion For: Discussion  
 Source: LG Electronics Finland*

**Abstract:**

In this paper, we provide our views on HPUE for intra-band contiguous/non-contiguous UL CA.

**Decision: Noted.**

[R4-2412073](file:///D:\RAN4%23112\Docs\R4-2412073.zip) **Further discussion on HPUE for intra-band contiguous and non-contiguous CA**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412277](file:///D:\RAN4%23112\Docs\R4-2412277.zip) **On PC1.5 intra-band non-contiguous ULCA with dualPA**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

PC1.5 intra-band ULCA feature for both contiguous and non-contiguous cases. is introduced in Rel-19. In this contribution, further developing from our contribution in RAN#111, we address in particular the MPR requirement for PC1.5 non-contiguous ULCA based on dualPA architecture.

**Decision: Noted.**

[R4-2412349](file:///D:\RAN4%23112\Docs\R4-2412349.zip) **R19 MPR for PC1.5 contiguous CA**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412350](file:///D:\RAN4%23112\Docs\R4-2412350.zip) **R19 MPR for PC1.5 NC CA**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2413028](file:///D:\RAN4%23112\Docs\R4-2413028.zip) **Discussion on PC1.5 for intra-band CA**

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

**Decision: Revised to R4-2414448 (from R4-2413028).**

[**R4-2414448**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414448.zip) **Discussion on PC1.5 for intra-band CA**

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

**Decision: Noted.**

[R4-2413400](file:///D:\RAN4%23112\Docs\R4-2413400.zip) **RF requirements for HPUE for CA terrestrial networks**

*Type: discussion For: Discussion  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Technologies Int*

**Abstract:**

In this paper we present details on the MPR measurements done to date on contiguous CC with contiguous RBs

**Decision: Noted.**

###### 8.1.1.1.2 Inter-band UL NR-CA/EN-DC with 2 bands and 2Tx and/or 3Tx

[R4-2411169](file:///D:\RAN4%23112\Docs\R4-2411169.zip) **Rel-19 HPUE for inter-band UL CA/EN-DC with 2Tx or 3Tx**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411316](file:///D:\RAN4%23112\Docs\R4-2411316.zip) **Views on HPUE inter-band CA with 2Tx or 3Tx**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411596](file:///D:\RAN4%23112\Docs\R4-2411596.zip) **Discussion on PC1.5 UE for two band NR inter-band uplink CA**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411649](file:///D:\RAN4%23112\Docs\R4-2411649.zip) **High power inter-band CA/DC UE RF requirements including 2Tx/3Tx within 2 bands**

*Type: discussion For: Discussion  
 Source: Meta Ireland*

**Abstract:**

In this paper, we propose how to define the RF requirements for high power CA/DC UE for inter-band including 2Tx/3Tx.

**Decision: Noted.**

[R4-2411869](file:///D:\RAN4%23112\Docs\R4-2411869.zip) **HPUE for inter-band UL CA and EN-DC**

*Type: discussion For: Discussion  
 Source: LG Electronics*

**Abstract:**

It disscuses HPUE RF requirements for inter-band UL CA and EN-DC.

**Decision: Noted.**

[R4-2411881](file:///D:\RAN4%23112\Docs\R4-2411881.zip) **Further discussion on R19 2Tx/3Tx PC2/1.5 Inter-band NR CA/ENDC**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412007](file:///D:\RAN4%23112\Docs\R4-2412007.zip) **UE RF Enh 4: On necessity of additional MSD requirement for HPUE**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412092](file:///D:\RAN4%23112\Docs\R4-2412092.zip) **Discussion on UL inter-band UL CA or DC with 2Tx or 3Tx**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412264](file:///D:\RAN4%23112\Docs\R4-2412264.zip) **Discussion on SAR solutions for new Rel-19 inter-band EN-DC HPUE scenarios**

*Type: discussion For: Discussion  
 Source: CHTTL*

**Decision: Noted.**

[R4-2412619](file:///D:\RAN4%23112\Docs\R4-2412619.zip) **MSD for HPUE**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Considerations on MSD for HPUE is provided in this contribution.

**Decision: Noted.**

###### 8.1.1.1.3 Increasing UE transmission high power limit

[R4-2411170](file:///D:\RAN4%23112\Docs\R4-2411170.zip) **On Rel-19 increasing UE transmission high power limit**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411317](file:///D:\RAN4%23112\Docs\R4-2411317.zip) **Views on Increasing higher power limit feature**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411597](file:///D:\RAN4%23112\Docs\R4-2411597.zip) **Discussion on increasing high power limit for inter-band CA DC with 2Tx and or 3Tx**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411870](file:///D:\RAN4%23112\Docs\R4-2411870.zip) **HPUE for increasing high power limit**

*Type: discussion For: Discussion  
 Source: LG Electronics*

**Abstract:**

It disscuses HPUE RF requirements for increasing high power limit.

**Decision: Noted.**

[R4-2411880](file:///D:\RAN4%23112\Docs\R4-2411880.zip) **Further discussion on R19 Increasing UE transmission power limit**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412008](file:///D:\RAN4%23112\Docs\R4-2412008.zip) **UE RF Enh 4: Increasing UE transmission power**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412093](file:///D:\RAN4%23112\Docs\R4-2412093.zip) **Discussion on increasing transmission high power limit for CA HPUE**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412675](file:///D:\RAN4%23112\Docs\R4-2412675.zip) **Discussion on MSD rules and UE types for HPUE CA**

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

**Decision: Noted.**

[R4-2413029](file:///D:\RAN4%23112\Docs\R4-2413029.zip) **Discussion on Increasing UE transmission high power limit**

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

**Decision: Noted.**

[R4-2413225](file:///D:\RAN4%23112\Docs\R4-2413225.zip) **On wider applicability of higherPowerLimit-r17**

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

**Abstract:**

For Rel-19, applicability should be the rule rather than the exception.

**Decision: Noted.**

**Withdrawn**

[R4-2411673](file:///D:\RAN4%23112\Docs\R4-2411673.zip) **On the higher power limit with PC1.5 band capability**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we consider the specification of transmitter and MSD requirements with the higher power limit and PC1.5 band capability. MCC: This was not made available at tdoc submission deadline.

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

##### 8.1.1.2 Power domain enhancement for NR single carrier and NR intra-band UL CA for PC2 and PC3

###### 8.1.1.2.1 Power domain enhancements for single carrier

[R4-2411108](file:///D:\RAN4%23112\Docs\R4-2411108.zip) **Further discussion on power domain enhancements for single carrier**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411153](file:///D:\RAN4%23112\Docs\R4-2411153.zip) **On Rel-19 power domain enhancement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411326](file:///D:\RAN4%23112\Docs\R4-2411326.zip) **Discussion on MPR reduction for FR1 single carrier**

*Type: discussion For: Discussion  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Samsung*

**Decision: Noted.**

[R4-2411535](file:///D:\RAN4%23112\Docs\R4-2411535.zip) **Further Views on MPR Reduction**

*Type: discussion For: Discussion  
 Source: Sony*

**Decision: Noted.**

[R4-2411601](file:///D:\RAN4%23112\Docs\R4-2411601.zip) **Discussion on power domain enhancement for single carrier**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411631](file:///D:\RAN4%23112\Docs\R4-2411631.zip) **Power boosting and MPR reduction**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Technologies Int*

**Abstract:**

We present further views on the UE allocated BW scenarios that should be studied for this topic

**Decision: Noted.**

[R4-2411674](file:///D:\RAN4%23112\Docs\R4-2411674.zip) **Power domain enhancements for single carrier**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we consider the changes of the unwanted emissions requirements and MPR reductions for a single carrier

**Decision: Noted.**

[R4-2411851](file:///D:\RAN4%23112\Docs\R4-2411851.zip) **Discussion on power domain enhancements for single carrier**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412009](file:///D:\RAN4%23112\Docs\R4-2412009.zip) **UE RF Enh 4: Power domain enhancements for single carrier**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412085](file:///D:\RAN4%23112\Docs\R4-2412085.zip) **Discussion on power domain enhancements for NR single carrier**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412351](file:///D:\RAN4%23112\Docs\R4-2412351.zip) **R19 MPR reduction for single carrier**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412433](file:///D:\RAN4%23112\Docs\R4-2412433.zip) **Views on Power domain enhancements for single carrier**

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

**Decision: Noted.**

[R4-2412553](file:///D:\RAN4%23112\Docs\R4-2412553.zip) **Discussion on power domain enhancement for NR single carrier**

*Type: discussion For: Discussion  
 Source: MediaTek (Wuhan) Inc.*

**Decision: Noted.**

[R4-2412568](file:///D:\RAN4%23112\Docs\R4-2412568.zip) **On power domain enhancements for single carrier**

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

**Decision: Noted.**

[R4-2412579](file:///D:\RAN4%23112\Docs\R4-2412579.zip) **On reduced MPR when BS CBW is larger than UE CBW**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

Release 19 power domain enhancement covers the MPR reduction for the case where the UE CBW is smaller than the BS CBW. In this contribution, further developing from our contribution in RAN4#111, we propose a simple way reusing the inner/outer MPR concept

**Decision: Noted.**

[R4-2413457](file:///D:\RAN4%23112\Docs\R4-2413457.zip) **Discussion on Power domain enhancements for single carrier**

*Type: discussion For: Discussion  
 Source: LG Electronics UK*

**Decision: Noted.**

###### 8.1.1.2.2 MPR applicability for FR1 intra-band UL CA

[R4-2411049](file:///D:\RAN4%23112\Docs\R4-2411049.zip) **On improved MPR for intra-band ULCA when only one CC has RBs allocated**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we address in particular whether the emissions requirement should be based on a single CC or on the configured ULCA to enable the use of the single CC MPR when only one CC has active RBs

**Decision: Noted.**

[R4-2411109](file:///D:\RAN4%23112\Docs\R4-2411109.zip) **Further discussion on MPR applicability for FR1 intra-band UL CA**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411327](file:///D:\RAN4%23112\Docs\R4-2411327.zip) **Discussion on MPR reduction for FR1 intra-band UL CA**

*Type: discussion For: Discussion  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Samsung*

**Decision: Noted.**

[R4-2411632](file:///D:\RAN4%23112\Docs\R4-2411632.zip) **MPR applicability for FR1 intra-band UL CA**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Technologies Int*

**Abstract:**

We present further views on issues on MPR selection for contiguous and non-contiguous scenarios with 1 active CC

**Decision: Noted.**

[R4-2411675](file:///D:\RAN4%23112\Docs\R4-2411675.zip) **MPR applicability for non-contiguous UL CA in fragmented spectrum**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose changes to MPR with activated and deactivated cells among configured cells for FR1

**Decision: Noted.**

[R4-2411852](file:///D:\RAN4%23112\Docs\R4-2411852.zip) **Discussion on MPR applicability for FR1 intra-band UL CA**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412086](file:///D:\RAN4%23112\Docs\R4-2412086.zip) **Discussion on MPR applicability for FR1 intra-band UL CA**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412569](file:///D:\RAN4%23112\Docs\R4-2412569.zip) **On MPR applicability for FR1 intra-band UL CA**

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

**Decision: Noted.**

[R4-2413456](file:///D:\RAN4%23112\Docs\R4-2413456.zip) **Discussion on MPR applicability for FR1 intra-band UL CA**

*Type: discussion For: Discussion  
 Source: LG Electronics UK*

**Decision: Noted.**

**Draft CR**

[R4-2411314](file:///D:\RAN4%23112\Docs\R4-2411314.zip) **Draft Rel-19 CR on MPR applicability for intra-band contiguous CA with single CC with activated cell**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Samsung*

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

**Withdrawn**

[R4-2412010](file:///D:\RAN4%23112\Docs\R4-2412010.zip) **R19 UE RF Enh 4 MPR applicability for FR1 intra-band UL CA**

*Type: other For: Approval  
 Source: Nokia*

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

###### 8.1.1.2.3 MPR applicability for FR2

[R4-2411110](file:///D:\RAN4%23112\Docs\R4-2411110.zip) **Further discussion on MPR applicability for FR2**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411693](file:///D:\RAN4%23112\Docs\R4-2411693.zip) **Discussion on MPR reduction for FR2 CA**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411853](file:///D:\RAN4%23112\Docs\R4-2411853.zip) **Discussion on MPR applicability for FR2**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412356](file:///D:\RAN4%23112\Docs\R4-2412356.zip) **Discussion on FR2 CA MPR improvement**

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

**Decision: Noted.**

[R4-2412570](file:///D:\RAN4%23112\Docs\R4-2412570.zip) **On MPR applicability for FR2 CA**

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

**Decision: Noted.**

[R4-2413226](file:///D:\RAN4%23112\Docs\R4-2413226.zip) **Activation-based FR2 MPR enhancement**

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

**Abstract:**

We propose conditions for applicability of activated-CC-based MPR

**Decision: Noted.**

##### 8.1.1.3 6Rx UE

###### 8.1.1.3.1 Reference sensitivity requirements

[R4-2411456](file:///D:\RAN4%23112\Docs\R4-2411456.zip) **Discussion on reference sensitivity requirements for 6RX UE**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2411497](file:///D:\RAN4%23112\Docs\R4-2411497.zip) **Discussion on NR 6RX UE RF REFSENS requirements**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

[R4-2411608](file:///D:\RAN4%23112\Docs\R4-2411608.zip) **Discussion on reference sensitivity requirements for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411647](file:///D:\RAN4%23112\Docs\R4-2411647.zip) **Discussion on 6Rx REFSENS and other RF requirements for single carrier**

*Type: discussion For: Discussion  
 Source: Meta Ireland*

**Abstract:**

In this paper, we discuss on the 6Rx sensitivity level, SRS switching capability and SRS switching insertion loss.

**Decision: Noted.**

[R4-2411883](file:///D:\RAN4%23112\Docs\R4-2411883.zip) **Further discussion on 6Rx Reference sensitivity requirements**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412011](file:///D:\RAN4%23112\Docs\R4-2412011.zip) **UE RF Enh 4: 6Rx for handheld and FWA dRib**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412074](file:///D:\RAN4%23112\Docs\R4-2412074.zip) **Further discussion on 6Rx REFSENS requirements for FWA and Handheld UE**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412405](file:///D:\RAN4%23112\Docs\R4-2412405.zip) **Discussion for 6 Rx REFSENS**

*Type: discussion For: Discussion  
 Source: LG Electronics France*

**Decision: Noted.**

[R4-2412571](file:///D:\RAN4%23112\Docs\R4-2412571.zip) **On 6Rx reference sensitivity requirements for FR1 UE**

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

**Decision: Noted.**

[R4-2412610](file:///D:\RAN4%23112\Docs\R4-2412610.zip) **6Rx REFSENS**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Analysis and considerations 6Rx REFSENS are provided in this contribution.

**Decision: Noted.**

[R4-2412925](file:///D:\RAN4%23112\Docs\R4-2412925.zip) **Discussion on REFSENS requirement for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Google*

**Decision: Noted.**

[R4-2413268](file:///D:\RAN4%23112\Docs\R4-2413268.zip) **Discussion on reference sensitivity for 6Rx**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This paper will discuss the objectives specified in the WI with a focus on the 6Rx reference sensitivity.

**Decision: Noted.**

###### 8.1.1.3.2 MIMO layer evaluation for 6Rx UE

[R4-2411393](file:///D:\RAN4%23112\Docs\R4-2411393.zip) **Views on Maximum Number of MIMO Layers for 6Rx Ues**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Decision: Noted.**

[R4-2411525](file:///D:\RAN4%23112\Docs\R4-2411525.zip) **Discussion on MIMO layer evaluation for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2411609](file:///D:\RAN4%23112\Docs\R4-2411609.zip) **MIMO layer evaluation for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411680](file:///D:\RAN4%23112\Docs\R4-2411680.zip) **Discussion on the demodulation performance requirements for 6Rx devices**

*Type: discussion For: Discussion  
 Source: QUALCOMM Europe Inc. - Spain*

**Decision: Noted.**

[R4-2411773](file:///D:\RAN4%23112\Docs\R4-2411773.zip) **Feasibility evaluation of MIMO layer for 6Rx UE**

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

**Decision: Noted.**

[R4-2412075](file:///D:\RAN4%23112\Docs\R4-2412075.zip) **Simulation results of MIMO layer evaluation for 6Rx UE**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

[R4-2412352](file:///D:\RAN4%23112\Docs\R4-2412352.zip) **R19 Simulation results of 6Layer performance**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412572](file:///D:\RAN4%23112\Docs\R4-2412572.zip) **On MIMO layer evaluation for 6Rx UE**

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

**Decision: Noted.**

[R4-2412877](file:///D:\RAN4%23112\Docs\R4-2412877.zip) **Discussion and initial simulation results on MIMO layer evaluation for 6Rx UE**

*Type: discussion For: Discussion  
 38.101-4 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

[R4-2412928](file:///D:\RAN4%23112\Docs\R4-2412928.zip) **Discussion on MIMO layer for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Google*

**Decision: Noted.**

[R4-2413269](file:///D:\RAN4%23112\Docs\R4-2413269.zip) **Discussion on the support of MIMO layers for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This paper will discuss the objectives specified in the WI with a focus on the 6Rx MIMO layers.

**Decision: Noted.**

###### 8.1.1.3.3 SRS antenna switching requirements

[R4-2411151](file:///D:\RAN4%23112\Docs\R4-2411151.zip) **On the values of ?TRxSRS for 6Rx SRS antenna switching**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411457](file:///D:\RAN4%23112\Docs\R4-2411457.zip) **Discussion on SRS antenna switching requirements for 6RX UE**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2411884](file:///D:\RAN4%23112\Docs\R4-2411884.zip) **Further discussion on 6Rx SRS antenna switching requirements**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412076](file:///D:\RAN4%23112\Docs\R4-2412076.zip) **Further discussion on SRS antenna switching requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412406](file:///D:\RAN4%23112\Docs\R4-2412406.zip) **Discussion for 6 Rx ?TRxSRS**

*Type: discussion For: Discussion  
 Source: LG Electronics France*

**Decision: Noted.**

[R4-2412573](file:///D:\RAN4%23112\Docs\R4-2412573.zip) **On 6Rx SRS antenna switching requirements**

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

**Decision: Noted.**

[R4-2412611](file:///D:\RAN4%23112\Docs\R4-2412611.zip) **6Rx SRS antenna switching requirements**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Analysis and considerations 6Rx SRS AS requirements are provided in this contribution.

**Decision: Noted.**

[R4-2412939](file:///D:\RAN4%23112\Docs\R4-2412939.zip) **Discussion on SRS antenna switching requirements for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Google*

**Decision: Noted.**

[R4-2413359](file:///D:\RAN4%23112\Docs\R4-2413359.zip) **On DeltaT\_RxSRS requirement for 6Rx UE RF**

*Type: other For: Approval  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

**Withdrawn**

[R4-2411610](file:///D:\RAN4%23112\Docs\R4-2411610.zip) **Discussion on SRS antenna switching requirements for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

**Decision: Withdrawn.**

###### 8.1.1.3.4 SRS IL imbalance

[R4-2411152](file:///D:\RAN4%23112\Docs\R4-2411152.zip) **On SRS IL imbalance issue for 6Rx**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411458](file:///D:\RAN4%23112\Docs\R4-2411458.zip) **Discussion on SRS IL imbalance for 6RX UE**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2411774](file:///D:\RAN4%23112\Docs\R4-2411774.zip) **UE SRS IL imbalance issue for 6Rx UE**

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

**Decision: Noted.**

[R4-2411885](file:///D:\RAN4%23112\Docs\R4-2411885.zip) **Further discussion on 6Rx SRS antenna IL**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412012](file:///D:\RAN4%23112\Docs\R4-2412012.zip) **UE RF Enh 4: 6Rx for handheld and FWA UE SRS imbalance**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412094](file:///D:\RAN4%23112\Docs\R4-2412094.zip) **Discussion on SRS IL imbalance reporting**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412136](file:///D:\RAN4%23112\Docs\R4-2412136.zip) **Views on SRS IL imbalance issue based on performance measurements**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2412330](file:///D:\RAN4%23112\Docs\R4-2412330.zip) **Views on SRS insertion loss compensation and reporting enhancements**

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

**Decision: Noted.**

[R4-2412353](file:///D:\RAN4%23112\Docs\R4-2412353.zip) **R19 Simulation results of SRS IL reporting**

*Type: other For: Discussion  
 Source: OPPO*

**Decision: Noted.**

[R4-2412434](file:///D:\RAN4%23112\Docs\R4-2412434.zip) **On SRS IL imbalance**

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

**Decision: Noted.**

[R4-2412574](file:///D:\RAN4%23112\Docs\R4-2412574.zip) **On SRS IL imbalance issue**

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

**Decision: Noted.**

[R4-2412966](file:///D:\RAN4%23112\Docs\R4-2412966.zip) **Discussion on SRS IL imbalance for 6Rx UE**

*Type: discussion For: Discussion  
 Source: Google*

**Decision: Noted.**

[R4-2413306](file:///D:\RAN4%23112\Docs\R4-2413306.zip) **SRS Imbalance Determination with Reduced PHR Overhead**

*Type: discussion For: Approval  
 Source: Lenovo*

**Decision: Noted.**

[R4-2413360](file:///D:\RAN4%23112\Docs\R4-2413360.zip) **On need for SRS insertion loss imbalance reporting**

*Type: other For: Approval  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

#### 8.1.2 RRM core requirements

#### 8.1.3 Moderator summary and conclusions

[R4-2412818](file:///D:\RAN4%23112\Docs\R4-2412818.zip) **Topic summary for [112][116] NR\_ENDC\_RF\_Ph4\_part1**

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

**Abstract:**

Summary for AI 8.1.1.2

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/7.%5B116%5D_R4-2412818%20Topic%20summary%20for%20%5B112%5D%5B116%5D%20NR_ENDC_RF_Ph4_part1.docx>

The conclusions and agreements are as follows.

**Topic #3: MPR applicability for FR2**

**Issue 3-1-1: Whether new CA MPR for CABW < 400MHz should be considered in the WI**

**Agreement:**

* Hold on discussions on whether new MPR requirement is defined for CABW < 400MHz unless the WID can be updated accordingly.
* Only MPR applicability needs to be discussed in this WID, and defining new MPR requirement is out of scope.

**Issue 3-1-3: Power classes considered for FR2 MPR enhancement**

**Agreement:**

* All FR2 power classes could be considered for the MPR enhancement

**Issue 3-1-4: sub-FR2 frequency ranges**

**Agreement:**

* MPR reduction applies to both FR2-1 and FR2-2.

**Newly allocated tdocs for approval**

[R4-2414278](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414278.zip) **WF on power domain enhancement**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Revised to R4-2414441 (from R4-2414278).**

[**R4-2414441**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414441.zip) **WF on power domain enhancement**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

[R4-2412819](file:///D:\RAN4%23112\Docs\R4-2412819.zip) **Topic summary for [112][117] NR\_ENDC\_RF\_Ph4\_part2**

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

**Abstract:**

Summary for AI 8.1.1.1

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/6.%5B117%5D_Rev%20R4-2412819%20Topic%20summary%20for%20%5B112%5D%5B117%5D%20NR_ENDC_RF_Ph4_part.docx>

The conclusions and agreements are as follows.

**Topic #1: High power UE (HPUE) for CA in terrestrial network (TN)**

**Issue 1.2.1-1: MPR evaluation methodology and assumption**

**Agreement:**

* MPR and CANS\_04 A-MPR studies for PC1.5 contiguous intra-band ULCA focusses on TxD architecture and may account for PSD imbalance with up to 6dB.
* FFS on whether to define the requirements based on equal PSD or PSD imbalance with 6dB
* PC1.5 contiguous intra-band ULCA based on dualPA architecture with two LOs is not specified in R19
* MPR studies for PC1.5 non-contiguous intra-band ULCA focusses on dualPA architecture with two LOs and may account for PSD imbalance with up to 6dB.
* FFS on whether to define the requirements based on equal PSD or PSD imbalance with 6dB
* PC1.5 non-contiguous intra-band ULCA based on TxD architecture is not specified in R19

**Issue 1.2.1-3: PCMAX**

**Agreement:**

* Pcmax is 29dBm for 2Tx TxD

**Newly allocated tdocs for approval**

[R4-2414277](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414277.zip) **WF on HPUE for CA in TN**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Return to.**

[R4-2412820](file:///D:\RAN4%23112\Docs\R4-2412820.zip) **Topic summary for [112][118] NR\_ENDC\_RF\_Ph4\_part3**

*Type: other For: Information  
 Source: Moderator(AT&T)*

**Abstract:**

Summary for AI 8.1.1.3

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/1.%5B118%5D_R4-2412820_Summary_%5B112%5D%5B118%5D%20NR_ENDC_RF_Ph4_part3.docx>

The conclusions and agreements are as follows.

**Topic #1: REFSENS (delta RIB,6R)**

**Issue 1-1-1: Whether band n104 should be included in the high band (n77, n78 and n79) category for 6Rx case**

**Agreement:**

* Include n104 in the high band (n77, n78, n79) category

**Topic #2: SRS antenna switching and ΔTRxSRS**

**Issue 2-1-2: Whether to consider separate ∆TRxSRS values when the device is power class 2 in the band and ΔPPowerClass = 0 dB and not indicating Tx diversity capability**

**Agreement:**

* Have additional 3dB for power class 2 when ΔPPowerClass = 0 dB and not indicating Tx diversity capability

**Issue 2-2-1: Proposed ∆TRxSRS values**

**Agreement:**

* Take option 10 and option 11 as the starting point and further discuss the values.

**Topic #3: MIMO layer evaluation for 6Rx UE**

**Issue 3-1-1: Tightening BS EVM requirement**

**Agreement:**

* Do not tighten the minimum requirements of BS Tx EVM
* Further discuss the assumption of Tx EVM for 6-layer performance evaluation.

**Issue 3-1-4: Performance requirements for 6Rx**

**Agreement:**

* RAN4 shall discuss the performance requirements for 6Rx once the performance part commences

**Newly allocated tdocs for approval**

[R4-2414285](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414285.zip) **WF on 6Rx UE requirements**

*Type: other For: Approval  
 Source: AT&T*

**Decision: Return to.**

### 8.2 Study on IMT parameters for 4400 to 4800 MHz, 7125 to 8400 MHz and 14800 to 15350 MHz

#### 8.2.1 General aspects

**TR**

[R4-2412608](file:///D:\RAN4%23112\Docs\R4-2412608.zip) **TR 38.922 version 0.2.0**

*Type: draft TR For: Agreement  
 38.922 v0.2.0 CR- rev Cat: (Rel-19)  
  
 Source: Ericsson*

**Abstract:**

Reserved for TR update based on the meeting. MCC: This is assumed to be for post-meeting agreement. [Post-Meeting]

**Decision:** The document was **for email approval**.

**Discussions**

[R4-2411307](file:///D:\RAN4%23112\Docs\R4-2411307.zip) **Discussion on Frequency allocation in Korea**

*Type: discussion For: Discussion  
 Source: Korea Testing Laboratory*

Proposal:

* In LS, add the paragraph to clarify the multiple services may be supported.
* In TR, summarize the use cases in different regions in the TR.

CATT: OK with the second one. For the first one, we do not need if ITU does not ask.

ZTE: no need for two proposals.

Charter: These are important. It is important to capture that.

Samsung: Support capturing information in the TR. For LS, we do not support.

Ericsson: RAN4 needs to reply parameters. We prefer not to add more information to avoid confusion.

Qualcomm: Share the similar view as Ericsson. We did not do for 4GHz.

Apple: WP5D knows the services.

Cablelabs: proposal 1 is mentioning that 3GPP provides multiple solutions. The second proposal is summary.

Agreement:

* In TR, summarize the use cases in different regions.

**Decision: Return to.**

[R4-2411520](file:///D:\RAN4%23112\Docs\R4-2411520.zip) **Views on Additional AAS aspects**

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

**Decision: Noted.**

[R4-2411874](file:///D:\RAN4%23112\Docs\R4-2411874.zip) **On general aspects related to IMT parameter SI**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we provide an overview of the SI progress and other aspects to consider related to the workplan.

**Decision: Noted.**

#### 8.2.2 LS reply for NR in 4400 to 4800 MHz

**TP**

[R4-2412587](file:///D:\RAN4%23112\Docs\R4-2412587.zip) **TP to TR 38.922: Corrections and clarifications on IMT parameters for 4400 to 4800 MHz frequency range**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Abstract:**

This contribution provides a text proposal for corrections and clarifications on IMT parameters for 4400 to 4800 MHz frequency range.

**Decision: Approved.**

[R4-2413278](file:///D:\RAN4%23112\Docs\R4-2413278.zip) **TP for IMT technology related parameters for 4400 to 4800 MHz**

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

**Decision: Approved.**

#### 8.2.3 Study the IMT parameters relevant for sharing and compatibility for 7125 to 8400 MHz frequency range

[R4-2411090](file:///D:\RAN4%23112\Docs\R4-2411090.zip) **Further discussion on IMT parameters for NR in 7125 to 8400MHz**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411193](file:///D:\RAN4%23112\Docs\R4-2411193.zip) **IMT parameters relevant for sharing and compatibility for 7125 to 8400 MHz frequency range**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses parameters for the 7125-8400 MHz frequency range, addressing ITU-R WP5D LS

**Decision: Noted.**

[R4-2411518](file:///D:\RAN4%23112\Docs\R4-2411518.zip) **Views on IMT parameters for 7125 - 8400 MHz**

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

**Decision: Noted.**

[R4-2412068](file:///D:\RAN4%23112\Docs\R4-2412068.zip) **Discussion on the UE parameter for 7125 to 8400 MHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412137](file:///D:\RAN4%23112\Docs\R4-2412137.zip) **Views on IMT parameters for 7125 to 8400 MHz frequency range**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2412565](file:///D:\RAN4%23112\Docs\R4-2412565.zip) **Discussion on IMT UE parameters for 7125 to 8400 MHz**

*Type: discussion For: Discussion  
 Source: MediaTek (Wuhan) Inc.*

**Decision: Noted.**

[R4-2412588](file:///D:\RAN4%23112\Docs\R4-2412588.zip) **BS parameters for 7125 to 8400 MHz frequency range**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

This contribution provides further proposals on the BS antenna parameters in 7125 to 8400 MHz based on the discussion at TSG RAN4#110b

**Decision: Noted.**

[R4-2412710](file:///D:\RAN4%23112\Docs\R4-2412710.zip) **Discussion on IMT parameters for 7125-8400MHz**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412967](file:///D:\RAN4%23112\Docs\R4-2412967.zip) **Discussion on IMT parameters for 7125 to 8400MHz**

*Type: discussion For: Discussion  
 Source: Google*

**Decision: Noted.**

[R4-2413279](file:///D:\RAN4%23112\Docs\R4-2413279.zip) **Remaining issues for IMT parameters for range 7125 to 8400 MHz**

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

**Decision: Noted.**

**TP**

[R4-2411141](file:///D:\RAN4%23112\Docs\R4-2411141.zip) **TP for 38.922 on UE IMT parameters for 7125-8400MHz**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to current version 0.1.0.

**Decision: Revised to R4-2414300 (from R4-2411141).**

[R4-2414300](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414300.zip) **TP for 38.922 on UE IMT parameters for 7125-8400MHz**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to current version 0.1.0.

**Decision: Approved.**

[R4-2413280](file:///D:\RAN4%23112\Docs\R4-2413280.zip) **TP for BS IMT parameters for range 7125 to 8400 MHz**

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

**Decision: Revised to R4-2414301 (from R4-2413280).**

[R4-2414301](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414301.zip) **TP for BS IMT parameters for range 7125 to 8400 MHz**

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

**Decision: Approved.**

**LS**

[R4-2411194](file:///D:\RAN4%23112\Docs\R4-2411194.zip) **LS Reply on Parameters for 7125 to 8400 MHz of terrestrial component of IMT for sharing and compatibility studies in preparation for WRC-27**

*Type: LS out For: Approval  
 to ITU-R WP 5D, cc RAN  
 Source: Ericsson*

**Abstract:**

This contribution is a LS Reply to ITU-R sharing the IMT parameters for the 7125 to 8400 MHz frequency range.

**Decision: Revised to R4-2414302 (from R4-2411194).**

[R4-2414302](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414302.zip) **LS Reply on Parameters for 7125 to 8400 MHz of terrestrial component of IMT for sharing and compatibility studies in preparation for WRC-27**

*Type: LS out For: Approval  
 to ITU-R WP 5D, cc RAN  
 Source: Ericsson*

**Abstract:**

This contribution is a LS Reply to ITU-R sharing the IMT parameters for the 7125 to 8400 MHz frequency range.

**Decision: Revised to R4-2414449 (from R4-2414302).**

[**R4-2414449**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414449.zip) **LS Reply on Parameters for 7125 to 8400 MHz of terrestrial component of IMT for sharing and compatibility studies in preparation for WRC-27**

*Type: LS out For: Approval  
 to ITU-R WP 5D, cc RAN  
 Source: Ericsson*

**Abstract:**

This contribution is a LS Reply to ITU-R sharing the IMT parameters for the 7125 to 8400 MHz frequency range.

**Decision: Return to.**

#### 8.2.4 Study the IMT parameters relevant for sharing and compatibility for 14800 to 15350 MHz frequency range

[R4-2411091](file:///D:\RAN4%23112\Docs\R4-2411091.zip) **Further discussion on IMT parameters for NR in 14.8GHz to 15.35GHz**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**TP**

[R4-2411092](file:///D:\RAN4%23112\Docs\R4-2411092.zip) **TP to TR 38.922 for 15GHz BS RF parameters**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

##### 8.2.4.1 Co-existence assumptions/simulation

[R4-2411522](file:///D:\RAN4%23112\Docs\R4-2411522.zip) **Views on co-existence parameters for 14800 - 15350 MHz**

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

**Decision: Noted.**

[R4-2411720](file:///D:\RAN4%23112\Docs\R4-2411720.zip) **Discussion on ACLR Calculation Procedure for 14800 - 15350 MHz with Beamforming and MIMO**

*Type: discussion For: Discussion  
 Source: ISSDU*

**Abstract:**

This contribution proposes simulation assumptions to perform the ACLR Calculation Procedure for the 14800 - 15350 MHz frequency range.

**Decision: Noted.**

[R4-2411775](file:///D:\RAN4%23112\Docs\R4-2411775.zip) **Coexistence study for 14800 to 15350 MHz**

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

**Decision: Noted.**

[R4-2412069](file:///D:\RAN4%23112\Docs\R4-2412069.zip) **Discussion on the coexistence for 14800 to 15350 MHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412126](file:///D:\RAN4%23112\Docs\R4-2412126.zip) **On Co-existence simulation assumptions for 14800 to 15350 MHz frequency range**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution triggers discussion on open issues related to co-existence simulation assumptions.

**Decision: Noted.**

[R4-2412127](file:///D:\RAN4%23112\Docs\R4-2412127.zip) **On Urban Macro and Indoor Co-existence simulation results for 14800 to 15350 MHz frequency range**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution provides the simulation results for Urban Macro and Indoor scenario as per the latest agreements.

**Decision: Noted.**

[R4-2412138](file:///D:\RAN4%23112\Docs\R4-2412138.zip) **Initial simulation results of co-existence scenarios for 14800 – 15350 MHz**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2412589](file:///D:\RAN4%23112\Docs\R4-2412589.zip) **Urban macro coexistence simulation results for 14800 to 15350 MHz frequency range**

*Type: discussion For: Discussion  
 Source: Nokia*

**Abstract:**

This contribution provides the urban macro coexistence simulation results for 14800 to 15350 MHz frequency range according to the agreed assumptions.

**Decision: Noted.**

[R4-2412711](file:///D:\RAN4%23112\Docs\R4-2412711.zip) **Discussion on co-existence evaluation for 14800 to 15350 MHz**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**TP**

[R4-2412590](file:///D:\RAN4%23112\Docs\R4-2412590.zip) **TP to TR 38.922: Revisions of system level simulation assumptions for study on IMT parameters for 14800 to 15350 MHz frequency range**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Fujitsu*

**Abstract:**

This contribution proposes revisions to the agreed assumptions in TR 39.822 [8] based on the simulation results and proposals .

**Decision: Revised to R4-2414303 (from R4-2412590).**

[R4-2414303](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414303.zip) **TP to TR 38.922: Revisions of system level simulation assumptions for study on IMT parameters for 14800 to 15350 MHz frequency range**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Nokia, Fujitsu*

**Abstract:**

This contribution proposes revisions to the agreed assumptions in TR 39.822 [8] based on the simulation results and proposals .

**Decision: Approved.**

##### 8.2.4.2 Radio and antenna parameters

[R4-2411142](file:///D:\RAN4%23112\Docs\R4-2411142.zip) **On UE antenna parameters for 14800-15350MHz**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411521](file:///D:\RAN4%23112\Docs\R4-2411521.zip) **Views on Radio parameters for 14800 - 15350 MHz**

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

**Decision: Noted.**

[R4-2411776](file:///D:\RAN4%23112\Docs\R4-2411776.zip) **Coverage study for 14800 to 15350 MHz**

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

**Decision: Noted.**

[R4-2412070](file:///D:\RAN4%23112\Docs\R4-2412070.zip) **Discussion on the UE parameter for 14800 to 15350 MHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412128](file:///D:\RAN4%23112\Docs\R4-2412128.zip) **On Antenna feasibility and RF parameters for 14800 to 15350 MHz frequency range**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution provides further discussion points on the feasibility of BS – UE antenna model and IMT parameters relevant for 14800 to 15350 MHz frequency range.

**Decision: Noted.**

[R4-2412139](file:///D:\RAN4%23112\Docs\R4-2412139.zip) **Views on UE type for 14800 to 15350 MHz frequency range**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2412591](file:///D:\RAN4%23112\Docs\R4-2412591.zip) **BS antenna and simulation parameters for 14800 to 15350 MHz frequency range**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

This contribution further discusses the BS antenna and simulation parameters based on the agreed WF and the simulation results.

**Decision: Noted.**

[R4-2412712](file:///D:\RAN4%23112\Docs\R4-2412712.zip) **Discussion on radio and antenna parameters for 14800 to 15350 MHz**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**TP**

[R4-2411143](file:///D:\RAN4%23112\Docs\R4-2411143.zip) **TP on UE antenna parameters for 14800-15350MHz**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Abstract:**

MCC: Updated the version of Rel-19 draft TR to the current version 0.1.0.

**Decision: Noted.**

#### 8.2.5 Other aspects

[R4-2411873](file:///D:\RAN4%23112\Docs\R4-2411873.zip) **On the topic of additional information requested by ITU-R WP 5D**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In addition to parameter assumptions ITU-R WP 5D have also requested information related to some additional topics. In this contribution we will provide information related to modelling of antenna gain outside the wanted carrier and simulation results con

**Decision: Noted.**

[R4-2411948](file:///D:\RAN4%23112\Docs\R4-2411948.zip) **IMT parameters: General system and UE aspects**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2412592](file:///D:\RAN4%23112\Docs\R4-2412592.zip) **Study of AAS performance in adjacent bands**

*Type: discussion For: Discussion  
 Source: Nokia*

**Abstract:**

This contribution provides the urban macro coexistence simulation results for 14800 to 15350 MHz frequency range according to the agreed assumptions to study the AAS performance in adjacent bands.

**Decision: Noted.**

[R4-2412593](file:///D:\RAN4%23112\Docs\R4-2412593.zip) **Impact of beamforming schemes on the coexistence of IMT with other services**

*Type: discussion For: Discussion  
 Source: Nokia*

**Abstract:**

This study presents simulation results comparing the levels of interference measured at different spatial points (reflecting possible locations of victim terminals) with respect to the (aggressor) BSs due to different BS digital beamforming techniques.

**Decision:** The document was **revised to** [R4-2413368](file:///D:\RAN4%23112\Docs\R4-2413368.zip).

[R4-2413368](file:///D:\RAN4%23112\Docs\R4-2413368.zip) **Impact of beamforming schemes on the coexistence of IMT with other services**

*Type: discussion For: Discussion  
 Source: Nokia*

(Replaces [R4-2412593](file:///D:\RAN4%23112\Docs\R4-2412593.zip))

**Abstract:**

This study presents simulation results comparing the levels of interference measured at different spatial points (reflecting possible locations of victim terminals) with respect to the (aggressor) BSs due to different BS digital beamforming techniques.

**Decision: Noted.**

[R4-2412713](file:///D:\RAN4%23112\Docs\R4-2412713.zip) **Discussion on other issues in ITU-R LS**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2413281](file:///D:\RAN4%23112\Docs\R4-2413281.zip) **AAS modelling considerations for IMT base stations**

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

**Decision: Noted.**

**TP**

[R4-2411093](file:///D:\RAN4%23112\Docs\R4-2411093.zip) **TP for other issues (Adjacent channel modelling)**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

[R4-2411519](file:///D:\RAN4%23112\Docs\R4-2411519.zip) **Text proposal on 7125 – 8400 MHz IMT parameters in TR 38.922**

*Type: pCR For: Approval  
 38.922 v0.1.0 CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Germany*

**Abstract:**

MCC: Updated the Rel-19 draft TR version to current version 0.1.0.

**Decision: Noted.**

[R4-2411021](file:///D:\RAN4%23112\Docs\R4-2411021.zip) **Text Proposals on MIMO models and PA nonlinearity impacts and ACLR**

*Type: other For: Approval  
 Source: Spark NZ Ltd*

**Abstract:**

This contribution provides text proposals for calculating beamforming weights, and modelling of PA non linearities needed to characterize adjacent channel impacts

**Decision: Noted.**

#### 8.2.6 Moderator summary and conclusions

[R4-2412821](file:///D:\RAN4%23112\Docs\R4-2412821.zip) **Topic summary for [112][119] FS\_NR\_IMT\_part1**

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

**Abstract:**

Summary for AI 8.2.1, 8.2.2, 8.2.3

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/7.%5B119%5D_R4-2412821.docx>

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/7.%5B119%5D_R4-2414279%20Ad-hoc%20minutes%20after%20ad-hoc.docx>

The conclusions and agreements are as follows.

**Issue 1-2: Timescale for responding on other issues**

Spark: the completion of IMT parameters should be done by Feb 2025. That is regulation deadline.

Apple: Respect to 5D timeline, in principle we should make decision on December.

Qualcomm: similar view as Apple.

CATT: for other issues, they are not easy. We suggest following the work plan. We can add the check point in the Oct meeting.

Nokia: RAN plenary set target by December.

**Topic #3: 8GHz LS reply**

**Issue 3-1: Duplex mode**

**Agreement:**

* Capture the following text in the TR (Qualcomm, TP R4-2411519)

**“**There is no defined 3GPP band for the 7125 - 8400 MHz frequency range up to the current release, however, it is adjacent to existing TDD band n104 (6425 – 7125 MHz). Similar to the 4400 – 4800 MHz frequency range, SBFD can be a candidate duplexing method for this frequency range. The core requirements for Rel-19 SBFD work item can be tracked through the list of impacted specs captured in [6]. To provide a timely response to WP5D regarding the requested RF parameters, RAN4 assumed TDD as a baseline duplexing for the 7125 – 8400 MHz frequency range.***.”***

**Issue 3-2: Typical channel bandwidth**

**Agreement during ad-hoc:**

* LS indicates 100MHz as typical CBW and indicates wider channel bandwidths (documented in TR)

**Issue 3-3: Typical signal bandwidth**

**Agreement:**

* Quote formula of RBs \* SCS without number of RBs

**Issue 3-4: SINR operating range**

**Agreement:**

* Same as 4GHz response

**Issue 3-5: BS output power**

**Agreement:**

* Refer to AAS/non-AAS in LS.

**Issue 3-6: Power dynamic range**

**Agreement:**

* 0dB

**Issue 3-7: Emissions mask**

**Agreement during ad-hoc:**

* 100MHz delta\_f\_obue
* Agree n104 for both AAS and non-AAS. Delta\_f\_OBUE 100MHz for AAS and as in 38.104 for non-AAS

**Issue 3-12: Blocking response**

**Agreement:**

* 100MHz for delta\_f\_oobb

**Issue 3-14: BS antenna parameters**

**Agreement:**

* For IMT2030 parameter LS, set sub-array size 3.
* The larger sub-array size is not precluded when defining the BS requirements for this frequency range in the future in RAN4, which will be captured in the TR.

**Agreement:**

* For urban Macro, 8\*16
* For Micro, 8\*8

**Agreement on indoor at ad-hoc:**

* For indoor small cell, consider non-AAS only

**Issue 3-15: UE output power**

Agreement during ad-hoc (exact wording for the yellow part should be checked offline):

* 23dBm indicated in LS as typical value of maximum output power
* LS contains a generic statement about referring to the TR, mentioning power
* Nothing precluded for 15GHz

**Issue 3-16: Power dynamic range**

**Agreement:**

* 56dB for 100MHz assuming 23dBm

**Issue 3-18: ACLR**

**Agreement during ad-hoc:**

* ITU-R reply is 26dB ACLR
* This does not preclude considering 30dB when making actual requirements, and further discussing relation of 26/30dB to MPR/A-MPR (to be documented in TR)

**Issue 3-20: Noise figure**

**Agreement during ad-hoc:**

* Reply with noise figure 13dB

**Issue 3-21: Sensitivity**

**Agreement during ad-hoc**

* We can write “to be specified” in the LS
* Add a reference to n104 sensitivity in the TR

**Issue 3-22: Blocking and spurious response**

**Agreement during ad-hoc:**

* For LS response: Follow 38.101-1 for NR bands with FDL\_low ≥ 3300 MHz and FUL\_low ≥ 3300 MHz (Tables 7.6.2-2 and 7.6.2-4, 7.6.3-2 and 7.6.3-4 and 7.7-2)
* Check the actual list and number of tables is correct
* In the TR, capture that depending on the band plan and possibly Hardware re-use or not, the actual requirement may differ

**Issue 3-23: ACS**

Agreement during ad-hoc:

* 32dB (previous study TR)

**Newly allocated tdocs for approval**

[R4-2414279](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414279.zip) **Ad hoc miniutes on study of IMT parameters**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Noted.**

[R4-2414281](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414281.zip) **WF on 8GHz BS parameters**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

[R4-2414282](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414282.zip) **WF on 8GHz UE parameters**

*Type: other For: Approval  
 Source: Vivo*

**Decision: Approved.**

[R4-2412822](file:///D:\RAN4%23112\Docs\R4-2412822.zip) **Topic summary for [112][120] FS\_NR\_IMT\_part2**

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

**Abstract:**

Summary for AI 8.2.4, 8.2.5

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/8.%5B120%5D_R4-2412822%20Topic%20summary%20for%20%5B112%5D%5B120%5D%20FS_NR_IMT_part2.docx>

The conclusions and agreements are as follows.

**Topic #1: General Parameters**

**Issue 1-1: Duplex Mode**

**Agreement:**

* TDD as a baseline.
* Suggestion for TR text found in R4-2411521 which can be further discussed

**Issue 1-2: Channel Bandwidth**

**Agreement:**

* For LS about 15GHz, choose the single value out of 100MHz, 200MHz or 400MHz as baseline with understanding that the other channel bandwidths are not precluded.

**Issue 1-6: Clarify in TR if Indoor deployments have 1 sector or 3 sector per node**

**Agreement:**

* 1 sector per node and capture in TR

**Issue 1-8: Co-existence simulation assumptions** **and Adjacent channel modelling update to TR 38.922**

**Agreement:**

* Revise R4-2412590 to capture co-existence simulation assumptions and R4-2411093 to capture Adjacent channel modelling in the TR

**Newly allocated tdocs for approval**

[R4-2414283](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414283.zip) **WF on 15GHz BS parameters**

*Type: other For: Approval  
 Source: ZTE*

**Decision: Return to.**

[R4-2414284](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414284.zip) **WF on 15GHz UE parameters**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Return to.**

[R4-2414299](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414299.zip) **WF on other issues (MIMO)**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Withdrawn.**

### 8.3 NR sidelink Intra-band Carrier Aggregation in ITS band

#### 8.3.1 General aspects

**TP**

[R4-2411650](file:///D:\RAN4%23112\Docs\R4-2411650.zip) **TP on TR38.787 Updated Reference and Objectives for SL Intra-band CA in ITS spectrum**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Meta Ireland*

**Abstract:**

This contribution is a text proposal to update the scope, reference and Rel-19 SL WI objectives in TR38.787 in Rel-19. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

Chair: do we need a Tdoc for TR for email approval?

#### 8.3.2 UE RF requirements for intra-band non-contiguous CA

##### 8.3.2.1 System parameters

[R4-2412014](file:///D:\RAN4%23112\Docs\R4-2412014.zip) **NR side link requirements and European regulation for band n47**

*Type: discussion For: Discussion  
 Source: LG Electronics Finland*

**Abstract:**

Since the NR side link requirements were defined for Rel-17 the regulation in Europe for band n47 has been updated. This contribution discussed these updates and the impacts to NR side link minimum performance requirements.

**Decision: Noted.**

**TP**

[R4-2411651](file:///D:\RAN4%23112\Docs\R4-2411651.zip) **TP on TR38.787: Operating bands and UE RF requirements for intra-band non-contiguous SL CA UE**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Meta Ireland*

**Abstract:**

This contribution is a text proposal to add the operating bands and UE RF requirements for intra-band non-contiguous SL CA UE in TR38.787. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414313 (from R4-2411651).**

[R4-2414313](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414313.zip) **TP on TR38.787 Updated Reference and Objectives for SL Intra-band CA in ITS spectrum**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Meta Ireland*

**Abstract:**

This contribution is a text proposal to add the operating bands and UE RF requirements for intra-band non-contiguous SL CA UE in TR38.787. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

[R4-2412737](file:///D:\RAN4%23112\Docs\R4-2412737.zip) **TP on TR38.787 on system parameter for intra-band non-contiguous SL CA**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

##### 8.3.2.2 Tx requirements (incl. MPR/A-MPR)

[R4-2412017](file:///D:\RAN4%23112\Docs\R4-2412017.zip) **Tx requirements for SL intra-band non-contiguous CA**

*Type: discussion For: Discussion  
 Source: LG Electronics Finland*

**Abstract:**

In this paper, we provide our views on UE RF requirements for intra-band non-contiguous SL CA for the Band n47 based on the approved WF.

**Decision: Noted.**

[R4-2412733](file:///D:\RAN4%23112\Docs\R4-2412733.zip) **SL Intra-band non-contiguous CA simulation results**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**TP**

[R4-2412739](file:///D:\RAN4%23112\Docs\R4-2412739.zip) **TP on TR38.787 to capture the intra-band non-contiguous SL CA simulation result**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Noted.**

##### 8.3.2.3 Rx requirements

[R4-2412732](file:///D:\RAN4%23112\Docs\R4-2412732.zip) **SL Intra-band non-contiguous CA RX requirements**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**TP**

[R4-2412735](file:///D:\RAN4%23112\Docs\R4-2412735.zip) **TP on TR38.787 on RX requirement for intra-band non-contiguous SL CA**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414314 (from R4-2412735).**

[R4-2414314](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414314.zip) **TP on TR38.787 on RX requirement for intra-band non-contiguous SL CA**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

#### 8.3.3 UE RF requirements for intra-band contiguous CA

##### 8.3.3.1 System parameters

**TP**

[R4-2411652](file:///D:\RAN4%23112\Docs\R4-2411652.zip) **TP on TR38.787: Operating bands and UE RF requirements for intra-band contiguous SL CA UE**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Meta Ireland*

**Abstract:**

This contribution is a text proposal to add the operating bands and UE RF requirements for intra-band contiguous SL CA UE in TR38.787. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Revised to R4-2414315 (from R4-2411652).**

[R4-2414315](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414315.zip) **TP on TR38.787: Operating bands and UE RF requirements for intra-band contiguous SL CA UE**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: Meta Ireland*

**Abstract:**

This contribution is a text proposal to add the operating bands and UE RF requirements for intra-band contiguous SL CA UE in TR38.787. MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

[R4-2412736](file:///D:\RAN4%23112\Docs\R4-2412736.zip) **TP on TR38.787 on system parameter for intra-band contiguous SL CA**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

##### 8.3.3.2 Tx requirements (incl. MPR/A-MPR)

[R4-2411871](file:///D:\RAN4%23112\Docs\R4-2411871.zip) **Tx requirements for intra-band contiguous CA**

*Type: discussion For: Discussion  
 Source: LG Electronics*

**Abstract:**

It disscuses UE RF requirements (MPR) for SL intra-band contiguous CA.

**Decision: Noted.**

[R4-2412731](file:///D:\RAN4%23112\Docs\R4-2412731.zip) **SL Intra-band contiguous CA simulation results**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**TP**

[R4-2412738](file:///D:\RAN4%23112\Docs\R4-2412738.zip) **TP on TR38.787 to capture the intra-band contiguous SL CA simulation result**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Noted.**

##### 8.3.3.3 Rx requirements

**TP**

[R4-2412734](file:///D:\RAN4%23112\Docs\R4-2412734.zip) **TP on TR38.787 on RX requirement for intra-band contiguous SL CA**

*Type: pCR For: Approval  
 38.787 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: OPPO*

**Abstract:**

MCC: The current version of the Rel-19 draft TR is v0.0.0.

**Decision: Approved.**

#### 8.3.4 Moderator summary and conclusions

[R4-2412823](file:///D:\RAN4%23112\Docs\R4-2412823.zip) **Topic summary for [112][121] NR\_SL\_ intraB\_CA\_ITS\_part1**

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

**Abstract:**

Summary for AI 8.3, 8.3.1, 8.3.2

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

**Miniutes and conlcusions in the first round**

**Topic #1: System Parameter**

**Issue 2-1-1: Operating band**

**Agreement:**

* Merge two tables.

Table 5.1.2-1 Intra-band non-contiguous SL CA operating bands in FR1

|  |  |  |
| --- | --- | --- |
| NR intra-band non-contiguous SL CA operating Band | NR SL Operating Band | Interface |
| SL\_n47(2A) | n47 | PC5 |
| NOTE 1: The minimum requirements only apply for non simultaneous Tx/Rx between all carriers in n47 band. | | |

Table 5.1.1-1: Intra-band contiguous CA operating bands for SL CA in FR1

|  |  |  |
| --- | --- | --- |
| NR SL CA Band | NR Band | Interface |
| SL\_n47 | n47 | PC5 |

**Issue 2-1-2: Channel bandwidth**

**Agreement:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sidelink CA configuration / Bandwidth combination set | | | | | | | | |
| Sidelink CA configuration | Sidelink CA configuration for TX | Component carriers in order of increasing carrier frequency | | | | Maximum aggregated  bandwidth [MHz] | Bandwidth combination set | |
| Channel bandwidths for carrier [MHz] | Channel bandwidths for carrier [MHz] | Channel bandwidths for carrier [MHz] | Channel bandwidths for carrier [MHz] |  |  |
| SL\_n47(2A) | SL\_n47(2A) | 10 | 10, 20 |  |  | 30 | 0 |

**Topic #2: UE TX RF requirement**

**Issue 2-1-2: How to define the requirement**

**Agreement:**

* Define MPR to meet -13dBm/MHz and MPR to meet -30dBm/MHz as NR intra-band non-contiguous CA
* Consider B = (LCRB1\* 12\* SCS1 + LCRB2 \* 12 \* SCS2)/1,000 for PSSCH as NR intra-band non-contiguous CA

**Issue 2-2-2: PSSCH/PSCCH with 2x20dBm PA + 1LO**

**Agreement:**

* use PSSCH/PSCCH with 2x20dBm PA for PC3 sidelink non-contiguous CA evaluation.

**Newly allocated tdocs for approval**

[R4-2414312](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414312.zip) **WF on NR sidelink for intra-band non-contiguous CA**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Approved.**

[R4-2414424](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414424.zip) **TP for TR 38.787 V0.0.1**

*Type: pCR For: Approval  
 38.786 vx.y.z CR- rev Cat: (Rel-18)  
  
 Source: OPPO*

**Decision: for email approval.**

[R4-2412824](file:///D:\RAN4%23112\Docs\R4-2412824.zip) **Topic summary for [112][122] NR\_SL\_ intraB\_CA\_ITS\_part2**

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

**Abstract:**

Summary for AI 8.3.3

**Decision: Noted.**

### 8.4 NR channel BW less than 5MHz for FR1 Phase 2

#### 8.4.1 General aspects

[R4-2412272](file:///D:\RAN4%23112\Docs\R4-2412272.zip) **CA/DC using PC1 in bands n100 and n101**

*Type: discussion For: Discussion  
 Source: Union Inter. Chemins de Fer*

**Abstract:**

This contribution provides a motivation to enable the simultaneous use of PC1 in bands n100 and n101 for NR CA/DC and requests discussion in RAN4 how to proceed.

**Decision: Noted.**

#### 8.4.2 UE RF requirements for inter-band NR CA/DC with 3MHz CBW

[R4-2411096](file:///D:\RAN4%23112\Docs\R4-2411096.zip) **Further discussion on UE RF requirements for Rel-19 NR channel BW less than 5MHz for FR1 Phase 2**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411854](file:///D:\RAN4%23112\Docs\R4-2411854.zip) **Discussion on UE RF requirements for inter-band NR CADC with 3MHz CBW**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412411](file:///D:\RAN4%23112\Docs\R4-2412411.zip) **Remaining open issues for NR CA\_DC with 3MHz CBW**

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

**Decision: Noted.**

[R4-2412413](file:///D:\RAN4%23112\Docs\R4-2412413.zip) **Discussion on the remaining issues for Rel-19 less than 5MHz work item for TN phase 2**

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

**Decision: Noted.**

[R4-2412594](file:///D:\RAN4%23112\Docs\R4-2412594.zip) **UE RF requirements for inter-band NR CA/DC with 3MHz CBW**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

This contribution provides proposals to progress the issues that were FFS in the agreed WF.

**Decision: Noted.**

[R4-2413148](file:///D:\RAN4%23112\Docs\R4-2413148.zip) **Scell bandwidth and sync raster**

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

**Decision: Noted.**

**Draft CR**

[R4-2411097](file:///D:\RAN4%23112\Docs\R4-2411097.zip) **draftCR on CA configuration for less than 5MHz UE RF requirements in Rel-19**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: CATT*

**Decision: Merged (with R4-24xxxxx).**

[R4-2412414](file:///D:\RAN4%23112\Docs\R4-2412414.zip) **Big draftCR for less than 5MHz UE RF requirements in Rel-19**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2414319 (from R4-2412414).**

[R4-2414319](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414319.zip) **Big draftCR for less than 5MHz UE RF requirements in Rel-19**

*Type: draftCR For: Endorsement  
 38.133 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**LS out**

[R4-2412429](file:///D:\RAN4%23112\Docs\R4-2412429.zip) **LS on inclusion of 3MHz CBW in inter band NR CA\_DC applications**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei, HiSilicon*

**Decision: Postponed.**

#### 8.4.3 RRM core requirements

#### 8.4.4 Moderator summary and conclusions

[R4-2412825](file:///D:\RAN4%23112\Docs\R4-2412825.zip) **Topic summary for [112][123] NR\_FR1\_5MHz\_BW\_Ph2**

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

**Abstract:**

Summary for AI 5.11.1, 8.4, 8.4.1, 8.4.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #2: Rel-19 NR\_FR1\_5MHz\_BW\_Ph2**

**Issue 2-1: Support of 5MHz CBW in band n100**

**Agreement:**

* 5MHz channel bandwidth in band n100 included in CRs but with square brackets, and brackets can be removed after the update is approved in the revised WID

**Issue 2-3: Network signaling on Scell transmission bandiwdth**

**Agreement:**

* No new signalling from network to inform UE the number of PRB transmission is required in the RF scope of this item

**Newly allocated tdocs for approval**

[R4-2414320](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414320.zip) **WF on NR channel BW less than 5MHz for FR1 Phase 2**

*Type: other For: Approval  
 Source: Intel*

**Decision: Return to.**

### 8.5 Support of intra-band non-collocated EN-DC/NR-CA deployment Phase2: new receiver type(s)

#### 8.5.1 General aspects

**WID revision**

[R4-2411288](file:///D:\RAN4%23112\Docs\R4-2411288.zip) **R19 Revised WID\_Intra-band non-collocated EN-DC and NR-CA**

*Type: WID revised For: Endorsement  
 Source: KDDI Corporation*

**Decision: Noted.**

**LS out**

[R4-2411419](file:///D:\RAN4%23112\Docs\R4-2411419.zip) **LS on freqeuncy separation for type 4 UE**

*Type: LS out For: Approval  
 to RAN5  
 Source: Apple*

**Decision: Postponed.**

#### 8.5.2 UE RF requirements

[R4-2412612](file:///D:\RAN4%23112\Docs\R4-2412612.zip) **Non-collocated Intra-band NR CA/EN-DC UE requirements**

*Type: other For: Approval  
 Source: Qualcomm France*

**Abstract:**

Considerations on open aspects for Non-collocated NR CA/EN-DC UE are provided in this contribution.

**Decision: Noted.**

##### 8.5.2.1 UE RF requirements for Type 4a/4b capable FWA UE for EN-DC/NR-CA

[R4-2411414](file:///D:\RAN4%23112\Docs\R4-2411414.zip) **On RF requirement for type 4 UE**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411892](file:///D:\RAN4%23112\Docs\R4-2411892.zip) **Discussion on UE RF for type 4a and type 4b for NonCol\_intraB\_ENDC\_NR\_CA**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412431](file:///D:\RAN4%23112\Docs\R4-2412431.zip) **Remaining open RF discussions for type 4 UEs**

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

**Decision: Noted.**

[R4-2412512](file:///D:\RAN4%23112\Docs\R4-2412512.zip) **Minimum DL frequency separation for Rel-19 non-collocated**

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

**Decision: Noted.**

[R4-2412730](file:///D:\RAN4%23112\Docs\R4-2412730.zip) **on intra-band non-collocated UE RF requirement**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412847](file:///D:\RAN4%23112\Docs\R4-2412847.zip) **UE RF requirements for type 4a/4b capable FWA UE for EN-DC/NR-CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Observations and proposals based on approved WF from RAN4#111.

**Decision: Noted.**

**Draft CR**

[R4-2411417](file:///D:\RAN4%23112\Docs\R4-2411417.zip) **Draft CR on RF requirement update for type 4 UE**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Apple*

**Abstract:**

MCC: This was not made available at tdoc submission deadline. This is a Rel-19 draftCR.

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

[R4-2411418](file:///D:\RAN4%23112\Docs\R4-2411418.zip) **Draft CR on RF requirement update for type 4 UE**

*Type: draftCR For: Endorsement  
 38.101-3 v18.6.0 CR- rev Cat: B (Rel-19)  
  
 Source: Apple*

**Abstract:**

MCC: This was not made available at tdoc submission deadline. This is a Rel-19 draftCR.

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

##### 8.5.2.2 UE Capability/UE behavior and network signaling for Type 4 EN-DC/NR-CA

[R4-2411290](file:///D:\RAN4%23112\Docs\R4-2411290.zip) **Discussion on UE Capability and BS Signaling for non-collocated Type 4a4b**

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

**Decision: Noted.**

[R4-2411312](file:///D:\RAN4%23112\Docs\R4-2411312.zip) **Views on non-collocated deployment**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411415](file:///D:\RAN4%23112\Docs\R4-2411415.zip) **On type 4 UE capability**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411893](file:///D:\RAN4%23112\Docs\R4-2411893.zip) **Discussion on UE Capability UE behavior and network signaling for Type 4a Type 4b EN-DCNR-CA**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412013](file:///D:\RAN4%23112\Docs\R4-2412013.zip) **Discussion intra-band non-collocated deployment Phase2 UE Capability/UE behavior and network signaling**

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

**Decision: Noted.**

[R4-2412439](file:///D:\RAN4%23112\Docs\R4-2412439.zip) **Remaining open UE capability discussions for type 4 UEs**

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

**Decision: Noted.**

[R4-2412729](file:///D:\RAN4%23112\Docs\R4-2412729.zip) **on intra-band non-collocated UE behavior and capability**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412848](file:///D:\RAN4%23112\Docs\R4-2412848.zip) **UE behavior and network signaling for type 4a/4b capable FWA UE for EN-DC/NR-CA**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Observations and proposals based on approved WF from RAN4#111.

**Decision: Noted.**

##### 8.5.2.3 Other aspects (incl. clarification of contiguous LTE CCs)

[R4-2411289](file:///D:\RAN4%23112\Docs\R4-2411289.zip) **Discussion on the number of CCs for non-collocated EN-DC,NR-CA Type 4a4b**

*Type: discussion For: Discussion  
 Source: KDDI, LG Uplus, NTT DOCOMO INC., SoftBank*

**Decision: Noted.**

[R4-2411416](file:///D:\RAN4%23112\Docs\R4-2411416.zip) **On number of LTE carriers for intra-band non-collocated EN-DC**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2412728](file:///D:\RAN4%23112\Docs\R4-2412728.zip) **on intra-band non-collocated other aspects**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

#### 8.5.3 RRM core requirements

#### 8.5.4 Moderator summary and conclusions

[R4-2412826](file:///D:\RAN4%23112\Docs\R4-2412826.zip) **Topic summary for [112][124] NonCol\_intraB\_ENDC\_NR\_CA**

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

**Abstract:**

Summary for AI 5.7, 8.5.1, 8.5.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #2: Rel-19 Type 4**

**Issue 2-1: Revised WID for Type 4**

**Agreement:**

* RAN4 suggests to revise WID to clarify the max number of CCs for Type 4 EN-DC/NR-CA.

**Issue 2-2-2: Minimum DL frequency separation**

**Agreement:**

* Assume that Center of BWanother relative to edge of BWwanted is at least 80MHz+BWanother/2 away from the edge of the wanted CC.
* For Type 4 UE, minimum DL separation is not reflected in RAN4.

**Issue 2-3-1: New UE Capability for Type 4a(6Rx/UE) and 4b(8Rx/UE) for EN-DC/NR-CA**

**Tentative agreement:**

* Define one capability for NR CA and one capability for EN-DC
  + FFS on how to differentiate type 4a and 4b.

**Issue 2-3-3: New BS Signaling to switch between Type 4a/4b and Type 2**

**Agreement:**

* No new NW signaling needed from Type-4 to Type-2 switch and maxMIMO-layer can be used.

**Issue 2-4-1: The number of B42 CCs for Type 4 EN-DC**

**Agreement:**

* B42: multiple contiguous CCs, all collocated
  + Based on the requested band combinations (see R4-2406628)

**Issue 2-4-2: The number of NR CCs for Type 4 EN-DC and NR-CA**

**Agreement:**

* Prioritize the following number of NR CCs same as Type 2.
  + Non-collocated Type 4 EN-DC
    - n77/n78: one CC
  + Non-collocated Type 4 NR-CA
    - n77/n78: Non-contiguous two CCs, non-collocated
  + If TU is remained in Rel-19, discuss other scenario(s) of the number of CCs and contiguous cases later.

**Newly allocated tdocs for approval**

[R4-2414316](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414316.zip) **WF on Rel-19 non-collocated scenario**

*Type: other For: Approval  
 Source: KDDI*

**Decision: Return to.**

### 8.6 Study on NR FR1 DL Fragmented Carriers

#### 8.6.1 General aspects and work plan

**Work plan**

[R4-2411554](file:///D:\RAN4%23112\Docs\R4-2411554.zip) **Work plan for fragment carriers study**

*Type: Work Plan For: Approval  
 Source: MediaTek Inc.*

Chair: encourage companies to follow the work plan in this contribution.

**Decision: Noted.**

**TR skeleton**

[R4-2411553](file:///D:\RAN4%23112\Docs\R4-2411553.zip) **TR 38.755 skeleton FR1 Fragmented carriers**

*Type: draft TR For: Agreement  
 38.755 v0.0.0 CR- rev Cat: (Rel-19)  
  
 Source: MediaTek Inc.*

Ericsson: We are not clear about the chapter 6.

Mediatek: there are some comments on the PSD.

Apple: this is aligned with WID and this is what we want to study.

**Decision: Agreed.**

#### 8.6.2 Methods for reducing the number of UE Rx chains

[R4-2411310](file:///D:\RAN4%23112\Docs\R4-2411310.zip) **Views on UE RF architecture and NW deployment assumption for fragmented carriers**

*Type: discussion For: Discussion  
 Source: Samsung, TELUS, Bell mobility*

**Decision: Noted.**

[R4-2411404](file:///D:\RAN4%23112\Docs\R4-2411404.zip) **On methods for reducing the number of UE Rx chains for fragmented carriers**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411555](file:///D:\RAN4%23112\Docs\R4-2411555.zip) **Discussion on methods for reducing the number of UE Rx chains**

*Type: discussion For: Discussion  
 38.755 v CR- rev Cat: ()  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

[R4-2411691](file:///D:\RAN4%23112\Docs\R4-2411691.zip) **On general aspects of fragmented carriers**

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

**Decision: Noted.**

[R4-2412087](file:///D:\RAN4%23112\Docs\R4-2412087.zip) **Discussion on methods for reducing the number of UE RX chains**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412274](file:///D:\RAN4%23112\Docs\R4-2412274.zip) **Discussion on methods for reducing the number of UE RX chains**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2412278](file:///D:\RAN4%23112\Docs\R4-2412278.zip) **Operator’s initial views on FR1 fragmented carriers study**

*Type: discussion For: Discussion  
 Source: CHTTL*

**Decision: Noted.**

[R4-2413031](file:///D:\RAN4%23112\Docs\R4-2413031.zip) **On architecture options for fragmented spectrum reception**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

An R-19 SID aim at enhancing UE receiver capability to receive fragmented spectrum within one band. In this contribution, we explore possible architecture enhancements and their limitations.

**Decision: Noted.**

[R4-2413270](file:///D:\RAN4%23112\Docs\R4-2413270.zip) **Discussion on UE Rx chains of Fragmented Carriers**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper will discuss some issues of the number of UE Rx chains of fragmented carriers.

**Decision: Noted.**

[R4-2413339](file:///D:\RAN4%23112\Docs\R4-2413339.zip) **Discussion on methods for reducing the number of UE Rx chains for Fragmented Carriers**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

#### 8.6.3 Impacts on UE RF requirements and DL performance

[R4-2411114](file:///D:\RAN4%23112\Docs\R4-2411114.zip) **Discussion on impacts on UE RF requirements and DL performance for fragmented carriers**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411311](file:///D:\RAN4%23112\Docs\R4-2411311.zip) **Views on UE RF requirements for fragmented carriers**

*Type: discussion For: Discussion  
 Source: Samsung, TELUS, Bell mobility*

**Decision: Noted.**

[R4-2411405](file:///D:\RAN4%23112\Docs\R4-2411405.zip) **On UE RF requirements for fragmented carriers**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411556](file:///D:\RAN4%23112\Docs\R4-2411556.zip) **Discussion on UE RF requirements and DL performance impacts**

*Type: discussion For: Discussion  
 38.755 v CR- rev Cat: ()  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

[R4-2411692](file:///D:\RAN4%23112\Docs\R4-2411692.zip) **On RF requirements of fragmented carriers**

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

**Decision: Noted.**

[R4-2411886](file:///D:\RAN4%23112\Docs\R4-2411886.zip) **View on Fragmented carrier**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412088](file:///D:\RAN4%23112\Docs\R4-2412088.zip) **Discussion on impacts on UE RF requirements and DL performance**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2413271](file:///D:\RAN4%23112\Docs\R4-2413271.zip) **Discusson on impact on UE RF requirement of fragmented carriers**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

The paper will discuss the impact on UE RF requirements of fragmented carriers.

**Decision: Noted.**

[R4-2413340](file:///D:\RAN4%23112\Docs\R4-2413340.zip) **Discussion on impacts on UE RF requirements and DL performance for Fragmented Carriers**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

#### 8.6.4 Moderator summary and conclusions

[R4-2412827](file:///D:\RAN4%23112\Docs\R4-2412827.zip) **Topic summary for [112][125] FS\_NR\_DL\_Frag\_Carrier**

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

**Abstract:**

Summary for AI 8.6

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #2: Methods for reducing the number of UE Rx chains\**

**Issue 2-1-1: Applicability and clarification on the scope**

Agreement:

* The goal of the DL fragmented carrier study is to study the method to enable support of DL non-contiguous 2CC by using a single Rx RF chain
  + The two non-contiguous CCs is still under the current DL non-contiguous CA framework
    - Each fragment is treated as an individual CC
  + The study should be future-proof for the higher order inter/intra-band combinations or additional CC(s) within the same band with fragments within 100MHz.
  + Any features introduced before Rel-19 are not precluded.
  + [The scope should be those bands, where the fragments are fully confined within 100MHz, which includes all FDD/SDL bands and TDD bands
    - Consider n2/n25, n3, n7, n66, n41, n39 as the example bands.
      * Provide the details related to gap between fragmented DL blocks]

**Newly allocated tdocs for approval**

[R4-2414311](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414311.zip) **WF on fragmented DL**

*Type: other For: Approval  
 Source: Mediatek*

**Decision: Return to.**

### 8.7 NR power class 2 RedCap (Reduced Capability) UE in FR1

#### 8.7.1 General aspects and work plan

**Work plan**

[R4-2412465](file:///D:\RAN4%23112\Docs\R4-2412465.zip) **Work plan on power class 2 RedCap in FR1**

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

**Abstract:**

MCC: The type was revised to work plan.

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

#### 8.7.2 UE RF requirements

[R4-2411115](file:///D:\RAN4%23112\Docs\R4-2411115.zip) **On UE RF requirements for PC2 RedCap**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411171](file:///D:\RAN4%23112\Docs\R4-2411171.zip) **On PC2 RedCap UE in FR1**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411242](file:///D:\RAN4%23112\Docs\R4-2411242.zip) **Enabling PC2 RedCap UEs in TDD and FDD bands**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we discuss which requirements are relevant for both TDD, HD-FDD and FD-FDD 1Tx PC2 RedCap UEs.

**Decision: Noted.**

[R4-2411744](file:///D:\RAN4%23112\Docs\R4-2411744.zip) **PC2 requirements for TDD RedCap and eRedCap**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412466](file:///D:\RAN4%23112\Docs\R4-2412466.zip) **Discussion on PC2 RedCap for TDD bands**

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

**Decision: Noted.**

[R4-2412957](file:///D:\RAN4%23112\Docs\R4-2412957.zip) **Discussion on the RF impacts for Rel-19 PC2 TDD RedCap UE**

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

**Decision: Noted.**

[R4-2412984](file:///D:\RAN4%23112\Docs\R4-2412984.zip) **PC2 RedCap RF overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on PC2 RedCap UE RF.

**Decision: Noted.**

**Draft CR**

[R4-2412467](file:///D:\RAN4%23112\Docs\R4-2412467.zip) **draft CR on power class 2 RedCap for TDD bands**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: (Rel-18)  
  
 Source: China Telecom, ZTE*

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

#### 8.7.3 Moderator summary and conclusions

[R4-2412828](file:///D:\RAN4%23112\Docs\R4-2412828.zip) **Topic summary for [112][126] NR\_PC2\_RedCap\_UE**

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

**Abstract:**

Summary for AI 8.7

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/2.%5B126%5D_draft%20R4-2412828%20Topic%20summary%20for%20%5B112%5D%5B126%5D%20NR_PC2_RedCap_UE_v0.docx>

The conclusions and agreements are as follows.

**Topic #1: [8.7] PC2 RedCap**

**Issue 1-1-1: PC2 RedCap UE for TDD bands**

**Agreement:**

* Add one sentence in the clause of 6.2I.1 to state that PC2 also applies for RedCap/eRedCap UE in a band agnostic way for TDD bands.

**Newly allocated tdocs for approval**

[R4-2414286](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414286.zip) **WF on RedCap PC2 requirements**

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

**Decision: Approved.**

### 8.8 Enhanced requirements and conductive test methodology for NR NTN and IoT NTN

[R4-2411467](file:///D:\RAN4%23112\Docs\R4-2411467.zip) **Discussion on Enhanced RRM requirements and conductive test methodology for NTN**

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

**Abstract:**

MCC: The moderator stated that this is under topic thread [127] agenda 8.8. In this tdoc, it carries two proposals: Proposal 1 is to discuss the less than 5MHz RRM topics, which the moderator believes it should be handled in topic thread [216] agenda 8.8.

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

#### 8.8.1 General aspects and work plan

**Work plan**

[R4-2412554](file:///D:\RAN4%23112\Docs\R4-2412554.zip) **Workplan for enhanced requirements and conductive test methodology for NR-NTN and IoT-NTN**

*Type: Work Plan For: Approval  
 Source: Samsung, Xiaomi*

**Abstract:**

work plan for HPUE, less than 5MHz and NGSO testing

**Decision: Approved.**

#### 8.8.2 UE RF requirements for NTN HPUE

[R4-2411505](file:///D:\RAN4%23112\Docs\R4-2411505.zip) **Discussion on RF requirements in NR\_IoT\_NTN\_req\_test\_enh WI for NTN HPUE**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

**Withdrawn**

[R4-2411549](file:///D:\RAN4%23112\Docs\R4-2411549.zip) **Initial views on HPUE for NTN in bands n253, n255 and n256**

*Type: discussion For: Discussion  
 Source: Inmarsat, Viasat*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

**Decision: Withdrawn.**

##### 8.8.2.1 Coexistence study for example bands

[R4-2411066](file:///D:\RAN4%23112\Docs\R4-2411066.zip) **Discussion on coexistence study for NTN support HPUE**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411602](file:///D:\RAN4%23112\Docs\R4-2411602.zip) **Discussion on co-existence of NTN HPUE**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411771](file:///D:\RAN4%23112\Docs\R4-2411771.zip) **coexistence study of NTN HPUE**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412071](file:///D:\RAN4%23112\Docs\R4-2412071.zip) **Discussion on the co-existence simulation assumptions for NTN HPUE**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412125](file:///D:\RAN4%23112\Docs\R4-2412125.zip) **On Co-existence considerations for NR and IoT NTN related to High Power UE (HPUE) for NTN**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution intends to trigger the discussion on co-existence studies assumptions for evaluation of ACLR and ACS corresponding to the specified power classes.

**Decision: Noted.**

[R4-2412463](file:///D:\RAN4%23112\Docs\R4-2412463.zip) **Simulation for NTN co-existence study**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

[R4-2412555](file:///D:\RAN4%23112\Docs\R4-2412555.zip) **Discussion on coexistence study scenarios and assumptions**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

HPUE coex assumptions

**Decision: Noted.**

[R4-2412556](file:///D:\RAN4%23112\Docs\R4-2412556.zip) **Preliminary HPUE NR-NTN and IoT-NTN co-ex results for information**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

HPUE coex results

**Decision: Noted.**

[R4-2412557](file:///D:\RAN4%23112\Docs\R4-2412557.zip) **Running documents for co-ex assumptions**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

HPUE coex assumptions running document

**Decision: Noted.**

[R4-2412718](file:///D:\RAN4%23112\Docs\R4-2412718.zip) **Discussion on coexistence study for NTN HPUE**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412838](file:///D:\RAN4%23112\Docs\R4-2412838.zip) **Discussion on NTN HPUE co-existence study**

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

**Decision: Noted.**

[R4-2412922](file:///D:\RAN4%23112\Docs\R4-2412922.zip) **Coexistence study for NTN HPUE**

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

**Decision: Noted.**

[R4-2412963](file:///D:\RAN4%23112\Docs\R4-2412963.zip) **General discussion on coexistence study for NR NTN HPUE**

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

**Decision: Noted.**

[R4-2413352](file:///D:\RAN4%23112\Docs\R4-2413352.zip) **Discussion on FR1-NTN High Power UE (HPUE)**

*Type: discussion For: Discussion  
 Source: THALES, Magister Solutions Ltd*

**Abstract:**

As described in RP-240857 (New WID: Enhanced requirements and test methodology for NR and IoT NTN), until Rel-18, the 3GPP specifications limit maximum non-terrestrial network (NTN) UE transmission (Tx) power to the level of 23dBm, which may not allow to

**Decision: Noted.**

##### 8.8.2.2 Tx requirements

[R4-2411067](file:///D:\RAN4%23112\Docs\R4-2411067.zip) **Discussion on UE Tx requirement for NTN support HPUE**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411144](file:///D:\RAN4%23112\Docs\R4-2411144.zip) **On restricted set of A-MPR simulations for the satellite band UE Tx requirements**

*Type: other For: Approval  
 Source: Apple*

**Decision: Noted.**

[R4-2411145](file:///D:\RAN4%23112\Docs\R4-2411145.zip) **Initial A-MPR results for PC2 on NTN L-/S-band**

*Type: discussion For: Discussion  
 Source: Apple*

**Abstract:**

Initial A-MPR results for the NTN band n254 with PC2. This meeting, it is only for information.

**Decision: Noted.**

[R4-2411499](file:///D:\RAN4%23112\Docs\R4-2411499.zip) **Discussion on NTN HPUE TX RF requirements**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

[R4-2411540](file:///D:\RAN4%23112\Docs\R4-2411540.zip) **emission limit for HPUE in IoT NTN**

*Type: discussion For: Discussion  
 Source: Sony*

**Decision: Noted.**

[R4-2411603](file:///D:\RAN4%23112\Docs\R4-2411603.zip) **Discussion onTx requirements of NTN HPUE**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411659](file:///D:\RAN4%23112\Docs\R4-2411659.zip) **Discussion on HPUE TX requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2412099](file:///D:\RAN4%23112\Docs\R4-2412099.zip) **Feasibility study and Initial analysis for NTN HPUE RF Tx Requirements**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

[R4-2412357](file:///D:\RAN4%23112\Docs\R4-2412357.zip) **Discussion on Tx requirements for NTN HPUE**

*Type: discussion For: Discussion  
 Source: LG Electronics France*

**Decision: Noted.**

[R4-2412558](file:///D:\RAN4%23112\Docs\R4-2412558.zip) **Discussion on NTN HPUE Tx requirements**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

NTN HPUE Tx

**Decision: Noted.**

[R4-2412719](file:///D:\RAN4%23112\Docs\R4-2412719.zip) **Discussion on Tx requirements for NTN UE**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412726](file:///D:\RAN4%23112\Docs\R4-2412726.zip) **Initial discussion on HPUE NTN TX requirement**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision: Noted.**

[R4-2412839](file:///D:\RAN4%23112\Docs\R4-2412839.zip) **Discussion on NTN HPUE TX requirements**

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

**Decision: Noted.**

[R4-2412964](file:///D:\RAN4%23112\Docs\R4-2412964.zip) **General discussion on Tx requirements for NR NTN HPUE**

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

**Decision: Noted.**

[R4-2413144](file:///D:\RAN4%23112\Docs\R4-2413144.zip) **Support for NTN high power UE**

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

**Decision: Noted.**

[R4-2413365](file:///D:\RAN4%23112\Docs\R4-2413365.zip) **On UE RF Tx requirements for NTN HPUE**

*Type: other For: Approval  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

##### 8.8.2.3 Rx requirements

[R4-2411500](file:///D:\RAN4%23112\Docs\R4-2411500.zip) **Discussion on NTN HPUE RX RSD requirements**

*Type: discussion For: Discussion  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

[R4-2412100](file:///D:\RAN4%23112\Docs\R4-2412100.zip) **Initial analysis for NTN HPUE RF Rx Requirements**

*Type: other For: Approval  
 Source: vivo*

**Decision: Noted.**

[R4-2412559](file:///D:\RAN4%23112\Docs\R4-2412559.zip) **Discussion on NTN HPUE Rx requirements**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

NTN HPUE Rx

**Decision: Noted.**

[R4-2412720](file:///D:\RAN4%23112\Docs\R4-2412720.zip) **Discussion on Rx requirements for NTN UE**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412725](file:///D:\RAN4%23112\Docs\R4-2412725.zip) **Initial discussion on HPUE NTN RX requirement**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision: Noted.**

[R4-2412840](file:///D:\RAN4%23112\Docs\R4-2412840.zip) **Discussion on NTN HPUE RX requirements**

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

**Decision: Noted.**

[R4-2412965](file:///D:\RAN4%23112\Docs\R4-2412965.zip) **General discussion on Rx requirements for NR NTN HPUE**

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

**Decision: Noted.**

[R4-2413366](file:///D:\RAN4%23112\Docs\R4-2413366.zip) **On UE RF Rx requirements for NTN HPUE**

*Type: other For: Approval  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

#### 8.8.3 Less than 5MHz for NTN

#### 8.8.4 NTN testing for NGSO

#### 8.8.5 Moderator summary and conclusions

[R4-2412829](file:///D:\RAN4%23112\Docs\R4-2412829.zip) **Topic summary for [112][127] NR\_IoT\_NTN\_HPUE**

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

**Abstract:**

Summary for AI 8.8, 8.8.1, 8.8.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/1.Monday/5.%5B127%5D_R4-2412829%20Topic%20Summary%20for%20%5B112%5D%5B127%5D%20NR_IoT_NTN_HPUE_v02_QC2_Moderator2.docx>

The conclusions and agreements are as follows.

**Topic #2: HPUE co-existence study**

**Issue 2-1: General starting point for co-ex assumptions and scenarios**

**Agreement:**

* Agree to use TR 38.863 and WF R4-2217473 for NR-NTN and IoT-NTN HPUE coex study assumptions and scenarios as starting point.
* The detailed modifications to these references will be discussed and agreed in case-by-case manner.

**Issue 2-2-1: NTN scenarios for co-ex study**

**Agreement:**

* For the scenario, consider the scenarios in TR 38.863 as a baseline
* Prioritize GEO and LEO1200 for co-existence evaluation
  + LEO600 is not precluded for the requirements and the conclusion for LEO1200 can be applied to LEO600

**Issue 2-2-3: Co-ex scenario # to be studied**

**Agreement:**

* Consider both Scenario 4 and 5 for co-existence study
* Prioritize scenario 4 since it is the worst case
* Do not consider Scenario 1, 2, 3 and 6

**Issue 2-3-1 NTN and TN network isolation distance**

**Agreement:**

* Consider isolation distance in scenario 4 and 5 for both NR-NTN HPUE coex and IoT-NTN HPUE coex.
* Use the isolation distance 1.5km as the starting point
* Other values for isolation distance are not precluded

**Issue 2-5-2: Handheld and non-handheld type**

**Agreement:**

* To use TR 38.863 UE characteristics as starting point for NTN HPUE co-ex studies.

**Topic #3: HPUE Tx requirements**

**Issue 3-1-2: Consideration of band(s)**

**Agreement:**

* Use 2GHz for the co-existence study
* WI can be completed when the band specific requirements for one pair of {n256,256}and {n255, 255} are completed in this WI
* Specify the band specific requirements for other potential NTN bands in the separate spectrum WI

**Issue 3-3-4: SAR for handheld**

**Tentative agreement:**

* Using P-MPR as the starting point
* The other solutions are not precluded
* E.g., the solution similar to TN duty cycle based on UE capability and network scheduling

**Newly allocated tdocs for approval**

[R4-2414275](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414275.zip) **WF on UE RF requirements for NTN HPUE**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Return to.**

[R4-2414276](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414276.zip) **Simulation assumption for co-existence study**

*Type: other For: Information  
 Source: Samsung*

**Decision: Return to.**

### 8.9 Introduction of Ku Band for NR NTN

### 8.10 Enhancements for Air-to-ground network for NR

#### 8.10.1 General aspects

#### 8.10.2 UE RF requirements for CA and UL-MIMO

##### 8.10.2.1 Intra-band contiguous CA

[R4-2411728](file:///D:\RAN4%23112\Docs\R4-2411728.zip) **(NR\_ATG\_enh-Core) Discussion on UE RF requirements for ATG with intra-band contiguous CA**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412701](file:///D:\RAN4%23112\Docs\R4-2412701.zip) **RF requirement for Intra-band contiguous CA of ATG UE in Rel-19**

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

**Decision: Noted.**

[R4-2412954](file:///D:\RAN4%23112\Docs\R4-2412954.zip) **Discussion on Rel-19 ATG UE RF with DL intra-band contiguous CA**

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

**Decision: Noted.**

[R4-2413264](file:///D:\RAN4%23112\Docs\R4-2413264.zip) **Discussion on RF requirement of ATG UE intra-band contiguous CA**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This paper will delve into some RF considerations for defining requirements for ATG CA and UL MIMO

**Decision: Noted.**

##### 8.10.2.2 Inter-band CA

[R4-2411727](file:///D:\RAN4%23112\Docs\R4-2411727.zip) **(NR\_ATG\_enh-Core) Discussion on UE RF requirements for ATG with inter-band CA**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412702](file:///D:\RAN4%23112\Docs\R4-2412702.zip) **Discussion on RF requirement for Inter-band CA for ATG UE in Rel-19**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412955](file:///D:\RAN4%23112\Docs\R4-2412955.zip) **Discussion on Rel-19 ATG UE RF with DL inter-band CA\_n3-n39**

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

**Decision: Noted.**

[R4-2413262](file:///D:\RAN4%23112\Docs\R4-2413262.zip) **Views on Rel-19 ATG UE RF requirements**

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

**Decision: Noted.**

[R4-2413265](file:///D:\RAN4%23112\Docs\R4-2413265.zip) **Discussion on RF requirement of ATG UE inter-band CA**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

There remain numerous unresolved matters requiring attention, and this paper will delve into the RF requirement for ATG UE inter-band CA.

**Decision: Noted.**

##### 8.10.2.3 UL-MIMO

[R4-2411729](file:///D:\RAN4%23112\Docs\R4-2411729.zip) **(NR\_ATG\_enh-Core) Discussion on UE RF requirements for ATG with UL-MIMO**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411876](file:///D:\RAN4%23112\Docs\R4-2411876.zip) **ATG UE RF requirements for UL-MIMO**

*Type: discussion For: Discussion  
 Source: LG Electronics*

**Abstract:**

It disscuses ATG UE RF requirements for UL-MIMO.

**Decision: Noted.**

[R4-2412703](file:///D:\RAN4%23112\Docs\R4-2412703.zip) **Discussion on RF requirement for UL-MIMO for ATG UE in Rel-19**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412956](file:///D:\RAN4%23112\Docs\R4-2412956.zip) **Discussion on Rel-19 ATG UE RF with UL MIMO**

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

**Decision: Noted.**

[R4-2413159](file:///D:\RAN4%23112\Docs\R4-2413159.zip) **Remaining issue on MIMO for ATG UE**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2413266](file:///D:\RAN4%23112\Docs\R4-2413266.zip) **Discussion on RF requirement of ATG UE UL MIMO**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on RF requirement of ATG UE UL MIMO

**Decision: Noted.**

##### 8.10.2.4 Others

#### 8.10.3 BS RF requirements for CA

#### 8.10.4 RRM core requirements for CA

#### 8.10.5 Moderator summary and conclusions

[R4-2412830](file:///D:\RAN4%23112\Docs\R4-2412830.zip) **Topic summary for [112][128] NR\_ATG\_enh**

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

**Abstract:**

Summary for AI 5.8.1, 8.10.1, 8.10.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #1: R18 UE RF requirements maintenance**

**Issue 1-1: Tx requirements applicability for ATG Tx requirements for two types of antenna**

* There is two types of antenna type for R18 ATG UE. For omni-direction antenna, the requirements should be measured at antenna connectors but for antenna array, the requirements should be measured at TAB connectors.
* Following requirements are defined as the sum of all antenna connectors/TAB connectors
  + 6.3J.1 Minimum output power for ATG
  + 6.3J.4 Power control for ATG
  + 6.5J.1 Occupied bandwidth for ATG
  + 6.5J.2 Out of band emission for ATG
  + 6.5J.3 Spurious emissions for ATG
* Following requirements are defined at each antenna connector/TAB connector
  + 6.3J.2 Transmit OFF power for ATG
  + 6.3J.3 Transmit ON/OFF time mask for ATG
  + 6.4J.1 Frequency error for ATG
  + EVM requirements

**Topic #2: R19 UE RF for intra-band contiguous CA**

**Issue 2-1: BCS for DL CA\_n79C**

Agreement:

* BCS 4 and 5 also needs to be specified besides BCS0.

**Table 1: BCS for CA\_n79C**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NR CA configuration / Bandwidth combination set** | | | | | | | | |
| **NR CA configuration** | **Uplink CA configurations or single uplink carrier5** | **Channel bandwidths for carrier (MHz)** | **Channel bandwidths for carrier (MHz)** | **Channel bandwidths for carrier (MHz)** | **Channel bandwidths for carrier (MHz)** | **Channel bandwidths for carrier (MHz)** | **Maximum aggregated  bandwidth (MHz)** | **Bandwidth combination set** |
| CA\_n79C | CA\_n79C | 50 | 60, 80, 100 |  |  |  | 200 | 0 |
|  |  | 60 | 60, 80, 100 |  |  |  |  |  |
|  |  | 80 | 80, 100 |  |  |  |  |  |
|  |  | 100 | 100 |  |  |  |  |  |
|  |  | See n79 channel bandwidths in Table 5.3.5-1 for each carrier2 | |  |  |  | 200 | 4 and 5 |

**Topic #3: R19 UE RF for inter-band CA**

**Issue 3-1-1: clarify the antenna type for DL CA\_n3-n39**

Agreement:

* Omni-antenna type can be assumed for both band n3 and n39.

**Issue 3-1-2: whether new capability is needed for ATG CA**

**Agreement:**

* no need for new capability for UE antenna type for ATG CA
* Antenna type per band could be applied to the same band in the band combination.

**Issue 3-3: BCS for DL CA\_n3\_n39**

Agreement:

**Table 1: BCS for CA\_n3A-n39A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NR CA configuration** | **Uplink CA configuration or single uplink carrier** | **NR Band** | **Channel bandwidth (MHz)** | **Bandwidth combination set** |
| CA\_n3A-n39A | - | n3 | 5, 10, 15, 20, 25, 30 | 0 |
|  |  | n39 | 5, 10, 15, 20, 25, 30, 35, 40 |  |

**Issue 3-4-1: delta RIB for CA\_n3A-n39A**

Agreement:

* delta RIB for NR CA\_n3A-n39A could be used as the baseline

Table 3: ΔRIB,c

|  |  |  |
| --- | --- | --- |
| Inter-band CA combination | ΔRIB,c for NR bands (dB)\* | |
| Component band in order of bands in configuration\*\* | |
| CA\_n3-n39 | - | - |
| NOTE \*: “-” denotes ΔRIB,c = 0.  NOTE \*\*: The component band order in the configuration should be listed by the order of NR bands, such as for CA\_n1-n77 the band order from left to right is n1 and n77. | | |

**Issue 3-2-1: OOB exception for CA\_n3A-n39A**

Agreement:

* No need to specify OOB blocking exception for CA\_n3-n39 since the second order intermodulation product of the n3 UL carrier and the CW interfering signal will not overlaps with the n39 DL carrier.

**Topic #4: R19 UE RF for UL-MIMO**

**Issue 4-2-1: how to modify the NR UL MIMO requirement with ATG capability antennaArrayType-r18**

Agreement:

* If the legacy requirement for UL MIMO is defined **at each antenna connector,**
  + For ATG UE with antenna array, the requirement should be updated [at each TAB connector]
* If the legacy requirement for UL MIMO is defined **per layer, FFS**
  + Option 1: for ATG UE with capability antennaArrayType-r18, the requirement should be updated as **sum of all TAB connectors per layer**
  + Option 2: for ATG UE with capability antennaArrayType-r18, the requirement should be updated **per layer without explicitly emphasize the TAB connector**

**Issue 4-3: receiver requirements**

Agreement:

* reuse ATG single carrier requirements for following Rx requirements (ZTE, Ericsson)
  + REFSENSE
  + Max input level
  + ACS
  + Blocking
  + Spurious emission
  + Intermodulation
  + FFS whether to test the Rx requirements under the UL MIMO scenario since Rx requirements is the same for R18 ATG UE and R19 ATG UE supporting UL-MIMO.

**Newly allocated tdocs for approval**

[R4-2414322](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414322.zip) **WF on Rel-19 ATG UE RF requirements**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Return to.**

### 8.11 NR base station (BS) RF requirement evolution for FR1/FR2 and testing

### 8.12 TRP (Total Radiated Power), TRS (Total Radiated Sensitivity) and MIMO OTA (Over the Air) testing enhancement Phase 3

### 8.13 Study on NR FR2 OTA (Over the Air) testing enhancement Phase 3

### 8.14 Study on spatial channel model for demodulation performance requirements

### 8.15 NR Radio Resource Management (RRM) Phase 5

### 8.16 NR demodulation performance Phase 5

### 8.17 Artificial Intelligence (AI)/Machine Learning (ML) for NR Air Interface

#### 8.17.1 General aspects

[R4-2411258](file:///D:\RAN4%23112\Docs\R4-2411258.zip) **Discussion on general aspects of AIML for NR air interface**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision: Noted.**

[R4-2411340](file:///D:\RAN4%23112\Docs\R4-2411340.zip) **Discussion on general aspects for AIML for NR air**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411408](file:///D:\RAN4%23112\Docs\R4-2411408.zip) **General aspects on AI/ML for NR Air Interface**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411625](file:///D:\RAN4%23112\Docs\R4-2411625.zip) **Discussion on general aspects of AI/ML testability and interoperability**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411980](file:///D:\RAN4%23112\Docs\R4-2411980.zip) **Discussion on generalization**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412021](file:///D:\RAN4%23112\Docs\R4-2412021.zip) **On General Aspects of AI/ML for Air Interface**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2412249](file:///D:\RAN4%23112\Docs\R4-2412249.zip) **Discussion on general aspects for AIML**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412331](file:///D:\RAN4%23112\Docs\R4-2412331.zip) **Views on general aspects of AI/ML testability and interoperability**

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

**Decision: Noted.**

[R4-2412765](file:///D:\RAN4%23112\Docs\R4-2412765.zip) **Discussion on general aspects for AIML**

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

**Decision: Noted.**

[R4-2413040](file:///D:\RAN4%23112\Docs\R4-2413040.zip) **Discussion on the AI/ML general aspects**

*Type: discussion For: Discussion  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[R4-2413391](file:///D:\RAN4%23112\Docs\R4-2413391.zip) **On general AI/ML aspects**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On general AI/ML aspects

**Decision: Noted.**

**Draft CR**

[R4-2412023](file:///D:\RAN4%23112\Docs\R4-2412023.zip) **Draft CR on Correction in AIML Term Definitions**

*Type: draftCR For: Endorsement  
 38.843 v18.0.0 CR- rev Cat: F (Rel-19)  
  
 Source: Nokia*

**Decision: Revised to R4-2414308 (from R4-2412023).**

[R4-2414308](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414308.zip) **Draft CR on Correction in AIML Term Definitions**

*Type: draftCR For: Endorsement  
 38.843 v18.0.0 CR- rev Cat: F (Rel-19)  
  
 Source: Nokia*

**Decision: Return to.**

#### 8.17.2 Testability and interoperability issues for beam management

[R4-2411177](file:///D:\RAN4%23112\Docs\R4-2411177.zip) **Testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: Korea Testing Laboratory*

**Decision: Noted.**

[R4-2411254](file:///D:\RAN4%23112\Docs\R4-2411254.zip) **OTA Test System/Testability Considerations for FR2 AI/ML Beam Management Use Cases**

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

**Decision: Noted.**

[R4-2411259](file:///D:\RAN4%23112\Docs\R4-2411259.zip) **Discussion on testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: CAICT*

**Decision: Noted.**

[R4-2411279](file:///D:\RAN4%23112\Docs\R4-2411279.zip) **Study on CDL channel model for AI/ML beam management in FR2**

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

**Abstract:**

In this contribution we share our findings on the conditions to apply the CDL channel model to the beam management verification.

**Decision: Noted.**

[R4-2411292](file:///D:\RAN4%23112\Docs\R4-2411292.zip) **Testability and interoperability issues for beam management**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2411341](file:///D:\RAN4%23112\Docs\R4-2411341.zip) **Discussion on testability and interoperability issues for BM**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411409](file:///D:\RAN4%23112\Docs\R4-2411409.zip) **Discussion on Testability and Interoperability issues for Beam Management**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411587](file:///D:\RAN4%23112\Docs\R4-2411587.zip) **Discussion on test setup for AI/ML based beam management**

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

**Decision: Noted.**

[R4-2411626](file:///D:\RAN4%23112\Docs\R4-2411626.zip) **Discussion on testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411635](file:///D:\RAN4%23112\Docs\R4-2411635.zip) **Further discussion on testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411706](file:///D:\RAN4%23112\Docs\R4-2411706.zip) **Discussion on AI/ML RAN4 BM use case**

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

**Decision: Noted.**

[R4-2411978](file:///D:\RAN4%23112\Docs\R4-2411978.zip) **Discussion on testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412231](file:///D:\RAN4%23112\Docs\R4-2412231.zip) **Testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discuss AIML for beam management relevant issuses.

**Decision: Noted.**

[R4-2412250](file:///D:\RAN4%23112\Docs\R4-2412250.zip) **Discussion on testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412766](file:///D:\RAN4%23112\Docs\R4-2412766.zip) **Discussion on testability and interoperability issues for beam management**

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

**Decision: Noted.**

[R4-2412994](file:///D:\RAN4%23112\Docs\R4-2412994.zip) **Testability and interoperability issues for beam management**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2413038](file:///D:\RAN4%23112\Docs\R4-2413038.zip) **Discussion on the Interoperability and testability aspects of AI/ML Beam management**

*Type: discussion For: Discussion  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[R4-2413168](file:///D:\RAN4%23112\Docs\R4-2413168.zip) **On AI/ML RAN4 Use Cases: Beam Management**

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

**Decision: Noted.**

#### 8.17.3 Testability and interoperability issues for positioning accuracy enhancement

[R4-2411293](file:///D:\RAN4%23112\Docs\R4-2411293.zip) **Testability and interoperability issues for positioning accuracy enhancement**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2411342](file:///D:\RAN4%23112\Docs\R4-2411342.zip) **Discussion on testability and interoperability issues for positioning**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411410](file:///D:\RAN4%23112\Docs\R4-2411410.zip) **Discussion on Testability and Interoperability issues for positioning accuracy enhancement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411627](file:///D:\RAN4%23112\Docs\R4-2411627.zip) **Discussion on testability and interoperability issues for positioning**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411682](file:///D:\RAN4%23112\Docs\R4-2411682.zip) **Discussions on testability and interoperability for positioning**

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

**Decision: Noted.**

[R4-2411981](file:///D:\RAN4%23112\Docs\R4-2411981.zip) **Discussion on testability and interoperability issues for positioning**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412251](file:///D:\RAN4%23112\Docs\R4-2412251.zip) **Discussion on testability and interoperability issues for positioning accuracy enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412695](file:///D:\RAN4%23112\Docs\R4-2412695.zip) **On AI/ML for positioning**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Discussion paper on AI/ML for positioning. Issues related to use case 2a and 2b are primarily discussed.

**Decision: Noted.**

[R4-2412767](file:///D:\RAN4%23112\Docs\R4-2412767.zip) **Discussion on Testability and interoperability issues for positioning accuracy enhancement**

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

**Decision: Noted.**

[R4-2413039](file:///D:\RAN4%23112\Docs\R4-2413039.zip) **Discussion on the Interoperability and testability aspects of AI/ML positioning**

*Type: discussion For: Discussion  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

[R4-2413291](file:///D:\RAN4%23112\Docs\R4-2413291.zip) **Testability and interoperability issues for positioning accuracy enhancement**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

#### 8.17.4 Testability and interoperability issues for CSI compression and CSI prediction

[R4-2411178](file:///D:\RAN4%23112\Docs\R4-2411178.zip) **Testability and interoperability issues for CSI compression and CSI prediction**

*Type: discussion For: Discussion  
 Source: Korea Testing Laboratory*

**Decision: Noted.**

[R4-2411294](file:///D:\RAN4%23112\Docs\R4-2411294.zip) **Testability and interoperability issues for CSI compression and CSI prediction**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2411343](file:///D:\RAN4%23112\Docs\R4-2411343.zip) **Discussion on testability and interoperability issues for CSI enh**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411411](file:///D:\RAN4%23112\Docs\R4-2411411.zip) **Discussion on Testability and Interoperability issues for CSI Compression and Prediction**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411534](file:///D:\RAN4%23112\Docs\R4-2411534.zip) **Discussion on reference decoder for CSI compression**

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

**Decision: Noted.**

[R4-2411628](file:///D:\RAN4%23112\Docs\R4-2411628.zip) **Discussion on testability and interoperability issues for CSI compression**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411636](file:///D:\RAN4%23112\Docs\R4-2411636.zip) **Further study on testability and interoperability issues for AI-CSI**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Noted.**

[R4-2411711](file:///D:\RAN4%23112\Docs\R4-2411711.zip) **Discussion on AIML RAN4 CSI Interoperability and testability**

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

**Decision: Noted.**

[R4-2411786](file:///D:\RAN4%23112\Docs\R4-2411786.zip) **Summary of e-mail discussion on AI/ML Model for CSI testing Option 3 feasibility study**

*Type: other For: Information  
 Source: Moderator (Qualcomm Incorporated)*

**Decision: Noted.**

[R4-2411979](file:///D:\RAN4%23112\Docs\R4-2411979.zip) **Discussion on testability and interoperability issues for CSI compression and CSI prediction**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412022](file:///D:\RAN4%23112\Docs\R4-2412022.zip) **On AI/ML-based CSI Feedback**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2412130](file:///D:\RAN4%23112\Docs\R4-2412130.zip) **On AI/ML Interoperability and Standardization of Testing and Verification for CSI Use Case**

*Type: discussion For: Discussion  
 Source: NTU*

**Decision: Noted.**

[R4-2412252](file:///D:\RAN4%23112\Docs\R4-2412252.zip) **Discussion on testability and interoperability issues for CSI compression and CSI prediction**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412332](file:///D:\RAN4%23112\Docs\R4-2412332.zip) **Views on AI/ML testability for CSI compression and prediction**

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

**Decision: Noted.**

[R4-2412609](file:///D:\RAN4%23112\Docs\R4-2412609.zip) **CSI compression option 3 and option 4 considerations**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution considers issues for CSI compression and presents results for the reference model.

**Decision: Noted.**

[R4-2412768](file:///D:\RAN4%23112\Docs\R4-2412768.zip) **Discussion on Testability and interoperability issues for CSI compression and CSI prediction**

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

**Decision: Noted.**

[R4-2412792](file:///D:\RAN4%23112\Docs\R4-2412792.zip) **Discussion on testability and interoperability issues for AI-CSI**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2413169](file:///D:\RAN4%23112\Docs\R4-2413169.zip) **On AI/ML RAN4 Use Cases: CSI Interoperability**

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

**Decision: Noted.**

#### 8.17.5 Moderator summary and conclusions

[R4-2412831](file:///D:\RAN4%23112\Docs\R4-2412831.zip) **Topic summary for [112][129] NR\_AIML\_air**

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

**Abstract:**

Summary for AI 8.17

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

**Miniutes and conlcusions in the first round**

**Topic #1: General aspects**

**Issue 1-1: Post deployment testing**

Nokia: inform other WGs.

ZTE: consider scalability limitation.

Apple: we should do it step by step. Focus on the pre-deployment. One group is to do conductive test. Other is to rely on LCM. Can we focus on the existing deployment? There are many parallel discussions.

Intel: This is important topic and we need reach conclusion. We disagree with Apple comment. We cannot handle it in the late stage. Option 2 we have impact on core requirement and on other WGs. We try to find the way to choose part of them or all of them. We see the good support that UE should have fallback mode.

Samsung: Curious about the feasibility study. How can we do it and claim feasible or not? We did not see the concrete justification. For option 2, even with or without this, we see no difference. If the intention is to refine the TR, would be OK. But otherwise, no need to discuss.

Vivo: We would like to postpone discussion. RAN1 had discussions.

Ericsson: It is important to discuss it. We should differentiate two things: 1) mechanism to understand the performance 2) fall back to ensure the performance.

OPPO: We do not have any justification. If supporting companies do not know how to do it, no need to discuss.

CATT: it is related to LCM procedure. Monitoring is not sufficient to guarantee the performance. RAN1 and RAN2 cannot finish the spec. We prefer to focus on critical deployment for test.

NTT DOCOMO: We understand the current situation: option 1 is to do in the next work; option 2 is to do test; option 3 is for post-deployment. We are OK with three approachs. For option 3, we need make sure which model and how long test is?

CMCC: This is important test. It is not a good way to only reply on test and LCM. The fallback is another way to try.

Moderator: we would like to see the concrete proposal for how these options work.

**Tentative agreement:**

* Option 1: Conduct the ~~conformance~~ testing for new/updated AI model/functionality before its deployment in already deployed UEs (considering the UE hardware that it will be used in)
  + FFS on the feasibility
* Option 2: Design the test to verify the performance monitoring and proactive recovery from potential performance degradation
  + Depend on the other WG progress
  + Monitoring can be used for managing fallback, model update/model switching/model transfer, if applicable
* Option 3: Capture model input during conformance testing for later testing of new models.
* Other options are not precluded

**Issue 1-2: Channel modeling**

Nokia: Field data can provide more information. The main challenging is how to verify the data. Either to agree to mechanism to collect field data. It is related to RAN2 discussions. Synthetic channel is alternative.

Intel: Agree with Nokia. Field data needs study. Realistically we should focus on synthetic model.

Ericsson: Option 1 is good. But we should check synthetic is reliable. So we need option 2.

OPPO: Option1. For field data, we need understand what the field data is. Worry about the reliability.

Huawei: We encourage companies to provide the field data. We welcome to field data.

ZTE: Option 1 is fine for us. How to verify field data is difficult.

CATT: the data is just for training.

**Agreement:**

* Use synthetic channels as the default assumption for conformance requirements/test.
  + RAN4 may conduct an analysis for each use case to determine the reliability of using synthetic channels for test data in evaluating models trained on real data.
    - The field data can be considered for the analysis.

**Issue 1-3: Testing goals**

**Agreement:**

* The testing goal is to verify whether the minimum performance of AI/ML functionality/feature can be achieved
  + FFS on whether and how many different test configurations/parameters are used for tests.
  + LCM would be tested

**Topic #2: Testability and interoperability issues for beam management**

**Issue 2-3: Channel models**

**Agreement:**

* Further discuss and down-select the following options considering TE feasibility
  + Option 2: TDL
  + Option 5: simplified CDL
    - CDL channel model with a small number of clusters. CDL simplification needs to be further discussed

**Issue 2-4: Test setup needs**

**Tentative agreement:**

* **Test setup needs**
* set B Tx beams; set A Tx beams
  + Does the TE need to broadcast all Tx beams in the same test?
* AoA
* AoD
* UE rotation during the test
* ~~multiple TRP (or reflections from another direction)~~

**Newly allocated tdocs for approval**

[**R4-2414446**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414446.zip) **Ad hoc minutes for AI/ML**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Return to.**

[R4-2414323](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414323.zip) **WF on testability and requirements for AIML air interface**

*Type: other For: Approval  
 Source: Qulacomm*

**Decision: Return to.**

[**R4-2414447**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414447.zip) **Alignement of model training and data set parameters for AI/ML based CSI compression**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Return to.**

### 8.18 NR MIMO Phase 5

#### 8.18.1 General aspects and work plan

**Work plan**

[R4-2412134](file:///D:\RAN4%23112\Docs\R4-2412134.zip) **Work plan for Rel-19 NR MIMO Phase 5**

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

Chair: encourage companies to follow the work plan in this document.

**Decision: Noted.**

#### 8.18.2 UE RF requirements

[R4-2411634](file:///D:\RAN4%23112\Docs\R4-2411634.zip) **Introduction of 3 Tx to NR specifications**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Qualcomm Technologies Int*

**Abstract:**

In this paper we present our preliminary views on the work that needs to be done to introduce 3 Tx into the NR specifications

**Decision: Noted.**

[R4-2412095](file:///D:\RAN4%23112\Docs\R4-2412095.zip) **Discussion of UE RF impact for NR MIMO phase 5**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412135](file:///D:\RAN4%23112\Docs\R4-2412135.zip) **Views on UE RF impact of NR MIMO Phase 5**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2412348](file:///D:\RAN4%23112\Docs\R4-2412348.zip) **R19 3Tx single band**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412575](file:///D:\RAN4%23112\Docs\R4-2412575.zip) **On RF requirements for Rel-19 NR-MIMO**

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

**Decision: Noted.**

[R4-2413199](file:///D:\RAN4%23112\Docs\R4-2413199.zip) **UE RF requirements (MIMO Phase5**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2413224](file:///D:\RAN4%23112\Docs\R4-2413224.zip) **On asymmetric connection scenarios for NR MIMO Phase 5**

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

**Abstract:**

We discuss how the objective can be translated to a RAN4 requirement concept, while respecting the associated constraints in the WID

**Decision: Noted.**

[R4-2413367](file:///D:\RAN4%23112\Docs\R4-2413367.zip) **On UE RF requirements impact for NR MIMO Phase 5**

*Type: other For: Approval  
 Source: Ericsson India Private Limited*

**Decision: Noted.**

#### 8.18.3 RRM core requirements

#### 8.18.4 Moderator summary and conclusions

[R4-2412832](file:///D:\RAN4%23112\Docs\R4-2412832.zip) **Topic summary for [112][130] NR\_MIMO\_Ph5\_UE**

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

**Abstract:**

Summary for AI 8.18.1, 8.18.2

**Decision: Noted.**

**Miniutes and conlcusions in the first round**

**Topic #1: General**

**Issue 1-2: UE RF impact of 3Tx**

Agreement:

* RAN4 will analyse the impact of 3Tx on UE RF requirements.

**Topic #2: 3-antenna-port transmissions (3Tx)**

**Issue 2-1: Applicable UE types**

Agreement:

* Both handheld and non-handheld UEs will be considered for UE RF requirements
* FFS on whether a single set or two sets of UE RF requirements, e.g., MPR, will be specified.

**Issue 2-2: Applicable Frequency Ranges**

Agreement:

* Both FR1 and FR2 will be considered for potential UL mTRP requiremetns
* Only FR1 is considered for 3Tx objective

**Issue 2-5: Non ULFPTx mode**

Agreement:

* 3-layer with precoding matrix of

**Issue 2-6: ULFPTx mode 0**

Tentative agreement:

* For the 3Tx UE RF requirements with ULFPTx mode 0
* Take 1-layer as baseline
* Further discuss whether 2-layer is needed

**Newly allocated tdocs for approval**

[R4-2414310](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414310.zip) **WF on UE RF requirements for Rel-19 MIMO enhancement**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

### 8.19 Evolution of NR duplex operation: Sub-band full duplex (SBFD)

### 8.20 Study on solutions for Ambient IoT (Internet of Things) in NR

MCC: This ia a RAN1-led SID. The TR 38.769 is under RAN1 control as it is a RAN1-led TR and all TPs that are approved in RAN4 need to be sent to RAN1 for including it into their TR 38.769.

#### 8.20.1 General aspects

[R4-2411071](file:///D:\RAN4%23112\Docs\R4-2411071.zip) **Discussion on the AIoT LLS for passive devices in RAN4**

*Type: discussion For: Discussion  
 Source: CATT*

**Abstract:**

MCC: This paper discusses the AIoT co-existence simulation is on-going. SINR is agreed to be used for the performance metric for calibration purpose. CATT thinks it should be discussed how to handle this issue in the limited timeline. As the co-existence simulation focuses on passive devices, this contribution only discusses RAN4 LLS for passive devices, i.e. Device 1 and Device 2a.

**Decision: Noted.**

[R4-2412970](file:///D:\RAN4%23112\Docs\R4-2412970.zip) **A-IoT general overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our thoughts on some of general issues for A-IoT RAN4 study

**Decision: Noted.**

**TP**

[R4-2412879](file:///D:\RAN4%23112\Docs\R4-2412879.zip) **draft TP to TR 38.769 for Co-existence evaluation assumptions**

*Type: pCR For: Approval  
 38.769 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The TR 38.769 is under RAN1 as it is a RAN1-led TR and all TPs that are approved need to be sent to RAN1 for including it into their TR 38.769.

**Decision: Revised to R4-2414306 (from R4-2412879).**

[R4-2414306](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414306.zip) **draft TP to TR 38.769 for Co-existence evaluation assumptions**

*Type: pCR For: Approval  
 38.769 v0.0.1 CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The TR 38.769 is under RAN1 as it is a RAN1-led TR and all TPs that are approved need to be sent to RAN1 for including it into their TR 38.769.

**Decision: Approved.**

#### 8.20.2 Co-existence study for ambient IoT and NR/LTE

[R4-2411770](file:///D:\RAN4%23112\Docs\R4-2411770.zip) **collection of calibration data for A-IoT**

*Type: discussion For: Discussion  
 Source: CMCC*

**Abstract:**

MCC: This contribution is collection of calibration data. It is assumed that it will be made available during the meeting.

**Decision: Noted.**

##### 8.20.2.1 Deployment scenarios and spectrum usage

[R4-2411536](file:///D:\RAN4%23112\Docs\R4-2411536.zip) **AIoT deployment scenario for D1T1**

*Type: discussion For: Discussion  
 Source: Sony*

**Decision: Noted.**

[R4-2411606](file:///D:\RAN4%23112\Docs\R4-2411606.zip) **Discussion on the deployment scenarios and spectrum usage of Ambient IoT and NR**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411767](file:///D:\RAN4%23112\Docs\R4-2411767.zip) **Deployment scenario and spectrum usage**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411865](file:///D:\RAN4%23112\Docs\R4-2411865.zip) **Discussion on deployment scenarios and spectrum usage for ambient IoT**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2412015](file:///D:\RAN4%23112\Docs\R4-2412015.zip) **Discussion on deployment scenarios and spectrum usage for AIoT**

*Type: discussion For: Discussion  
 Source: China Telecom Corporation Ltd.*

**Decision: Noted.**

[R4-2412063](file:///D:\RAN4%23112\Docs\R4-2412063.zip) **Discussion on the deployment and spectrum usage of AIoT**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412562](file:///D:\RAN4%23112\Docs\R4-2412562.zip) **Discussion on Ambient IoT deployment scenarios and spectrum usage**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

AIoT scenarios discussion

**Decision: Noted.**

[R4-2412676](file:///D:\RAN4%23112\Docs\R4-2412676.zip) **Discussion on Ambient IoT deployment scenarios for D1T1**

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

**Decision: Noted.**

[R4-2412696](file:///D:\RAN4%23112\Docs\R4-2412696.zip) **Discussion on deployment scenarios and spectrum usage**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412727](file:///D:\RAN4%23112\Docs\R4-2412727.zip) **on deployment scenarios and spectrum usage for A-IoT**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

[R4-2412880](file:///D:\RAN4%23112\Docs\R4-2412880.zip) **Discussion on A-IoT deployment scenarios and spectrum usage**

*Type: discussion For: Discussion  
 38.769 v CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[R4-2412917](file:///D:\RAN4%23112\Docs\R4-2412917.zip) **On AIoT deployment scenarios and spectrum usage**

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

**Decision: Noted.**

[R4-2412969](file:///D:\RAN4%23112\Docs\R4-2412969.zip) **A-IoT deployment scenario and spectrum usage**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview for A-IoT deployment scenario and spectrum usage.

**Decision: Noted.**

**Withdrawn**

[R4-2411951](file:///D:\RAN4%23112\Docs\R4-2411951.zip) **Discussion on deployment scenarios and spectrum usage for AIoT**

*Type: discussion For: Discussion  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

**Decision: Withdrawn.**

##### 8.20.2.2 Co-existence evaluations

[R4-2411123](file:///D:\RAN4%23112\Docs\R4-2411123.zip) **Discussion co-existence evaluations for Ambient IoT in NR**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411124](file:///D:\RAN4%23112\Docs\R4-2411124.zip) **Co-existence calibration results for Ambient IoT in NR**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

[R4-2411607](file:///D:\RAN4%23112\Docs\R4-2411607.zip) **Discussion on the coexistence study of Ambient IoT and NR**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

[R4-2411765](file:///D:\RAN4%23112\Docs\R4-2411765.zip) **Discussion on A-IoT co-existence evaluation**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411866](file:///D:\RAN4%23112\Docs\R4-2411866.zip) **Discussion on co-existence evaluation for ambient IoT and NR-LTE**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2412064](file:///D:\RAN4%23112\Docs\R4-2412064.zip) **Discussion on the co-existence of AIoT**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412563](file:///D:\RAN4%23112\Docs\R4-2412563.zip) **Discussion on coex evaluation assumptions**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

AIoT coex assumptions

**Decision: Noted.**

[R4-2412697](file:///D:\RAN4%23112\Docs\R4-2412697.zip) **Discussion on Co-existence evaluations**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412881](file:///D:\RAN4%23112\Docs\R4-2412881.zip) **A-IoT co-existence evaluations**

*Type: other For: Approval  
 38.769 v CR- rev Cat: (Rel-19)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

[R4-2412918](file:///D:\RAN4%23112\Docs\R4-2412918.zip) **On Ambient IoT Coexistence Evaluation**

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

**Decision: Noted.**

[R4-2412973](file:///D:\RAN4%23112\Docs\R4-2412973.zip) **Coexisting study simulation assumptions and initial results**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we discuss the simulation assumptions for coexisting for A-IoT

**Decision: Noted.**

#### 8.20.3 RF requirement impact

##### 8.20.3.1 Ambient IoT BS

[R4-2411084](file:///D:\RAN4%23112\Docs\R4-2411084.zip) **A-IoT BS feasibility and requirements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411766](file:///D:\RAN4%23112\Docs\R4-2411766.zip) **Discussion on A-IoT BS RF requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2412065](file:///D:\RAN4%23112\Docs\R4-2412065.zip) **Discussion on the RF requirement of AIoT BS**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412698](file:///D:\RAN4%23112\Docs\R4-2412698.zip) **Discussion on RF requirement of Ambient IoT BS**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412968](file:///D:\RAN4%23112\Docs\R4-2412968.zip) **A-IoT BS RF overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview for A-IoT BS RF requirements.

**Decision: Noted.**

[R4-2413282](file:///D:\RAN4%23112\Docs\R4-2413282.zip) **RF requirements for Ambient IoT BS**

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

**Decision: Noted.**

##### 8.20.3.2 Ambient IoT device

[R4-2411072](file:///D:\RAN4%23112\Docs\R4-2411072.zip) **Discussion on AIoT device RF requirement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411537](file:///D:\RAN4%23112\Docs\R4-2411537.zip) **Further considerations on the ambient IoT device implementation and RF aspect**

*Type: discussion For: Discussion  
 Source: Sony*

**Decision: Noted.**

[R4-2411768](file:///D:\RAN4%23112\Docs\R4-2411768.zip) **Discussion on A-IoT device RF requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411867](file:///D:\RAN4%23112\Docs\R4-2411867.zip) **Discussion on RF requirements impact for ambient IoT device**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2412066](file:///D:\RAN4%23112\Docs\R4-2412066.zip) **Discussion on the RF requirement of AIoT device**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412699](file:///D:\RAN4%23112\Docs\R4-2412699.zip) **Discussion on RF requirement of Ambient IoT device**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412972](file:///D:\RAN4%23112\Docs\R4-2412972.zip) **A-IoT UE RF overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview for A-IoT UE RF.

**Decision: Noted.**

[R4-2413030](file:///D:\RAN4%23112\Docs\R4-2413030.zip) **On the RF requirements for Ambient IoT Device**

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

**Decision: Noted.**

[R4-2413321](file:///D:\RAN4%23112\Docs\R4-2413321.zip) **Energy harvesting considerations**

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

**Decision: Noted.**

[R4-2413455](file:///D:\RAN4%23112\Docs\R4-2413455.zip) **Discussion on Ambient IoT Device RF requirement impact**

*Type: discussion For: Discussion  
 Source: LG Electronics UK*

**Decision: Noted.**

##### 8.20.3.3 Intermediate note (UE)

[R4-2411085](file:///D:\RAN4%23112\Docs\R4-2411085.zip) **A-IoT intermediate UE feasibility and requirements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411769](file:///D:\RAN4%23112\Docs\R4-2411769.zip) **Discussion on A-IoT intermediate UE RF requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411868](file:///D:\RAN4%23112\Docs\R4-2411868.zip) **Discussion on RF requirements impact for intermediate node (UE)**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2412067](file:///D:\RAN4%23112\Docs\R4-2412067.zip) **Discussion on the RF requirement of intermediate UE**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412700](file:///D:\RAN4%23112\Docs\R4-2412700.zip) **Discussion on RF requirement of Intermediate node (UE)**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412971](file:///D:\RAN4%23112\Docs\R4-2412971.zip) **A-IoT UE as intermediate node RF overview**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview for A-IoT UE as intermediate node RF.

**Decision: Noted.**

[R4-2413322](file:///D:\RAN4%23112\Docs\R4-2413322.zip) **CW cancellation capability**

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

**Decision: Noted.**

#### 8.20.4 Moderator summary and conclusions

[R4-2412833](file:///D:\RAN4%23112\Docs\R4-2412833.zip) **Topic summary for [112][131] FS\_Ambient\_IoT\_solutions\_part1**

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

**Abstract:**

Summary for AI 8.20, 8.20.1, 8.20.2

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/9.%5B131%5D_R4-2412833.docx>

The conclusions and agreements are as follows.

**Topic #1: A-IoT System Parameters**

**Issue 1-1: System parameter**

**Agreement in ad-hoc:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **System parameter for A-IoT** | | | | **Whether requirements are needed or not** |
| System parameter | Operating band | | Band n8 as example band |  |
| Channel bandwidth | Transmission bandwidth configuration | NA (R4-2411768, CMCC) | FFS |
| channel bandwidth | Standalone: 5MHz bandwidth is enough based on current assumed data rate and modulation scheme.  In-band/ guard-band: may be needed. | Yes |
| Channel arrangement | Channel spacing | Standalone： Applicable  In-band/ Guard-band：NA | FFS |
| Channel raster | Standalone/ In-band：Applicable (R4-2411768, CMCC)  Guard-band：NA （R4-2411768, CMCC)  If needed, reuse the enhanced channel raster (i.e. 10 kHz)（R4-2413282, Huawei） | FFS |
| Synchronization raster | NA | NA |
| ~~Minimum receiver bandwidth~~ | | ~~Discuss whether needed considering the spectrum of backscattering signal（R4-2408093, vivo）~~ |  |
| Guard band/Guard RB | | discuss whether any guard band is needed or not (R4-2411768, CMCC) | NA  Note: Guard band/RB can be considered as part of RF requirements and/or test cases |

**Issue 2-2: A-IoT BS class and BS type**

**Agreement during ad-hoc:**

* BS class: Use Micro-BS as baseline in SI stage (reference to SID RP-240826).
* BS type: Priority A-IoT BS type 1-C, FFS for 1-H.

**Issue 2-4: TX**

**Agreement during ad-hoc:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **RF Requirement for A-IoT BS- TX part** | | | | | **Whether requirements are needed or not?** |
| TX requirement | Base station output power | | | Option 1: MR A-IoT BS reuse current transmit output power and max output power of 1-C MR BS. (R4-2411769, CMCC; R4-2413282, Huawei)  Option 2: To follow the FR1 MR and LA BS output power limitation and power accuracy requirement; (R4-2412698, ZTE)  Requirement necessary（R4-2411084, CATT） | YES |
| Output power dynamic | | RE power control dynamic range | Option 1: NA. The power boosting for BS support both Ambient IOT and NR can be discussed in future release. (R4-2413282, Huawei）  Option 2: define power boosting for OOK signal might be needed for in-band/guard band operation for hardware share; (R4-2412698, ZTE; R4-2412065, vivo; R4-2411769, CMCC) | FFS |
| Total power dynamic range | need to be updated accordingly based on conclusion of channel bandwidth and SCS. (R4-2411769, CMCC)  FFS（R4-2411084，CATT） | FFS |
| Some requirements like Transmit ON/OFF power | | | Option1: some transition period might be needed for the switch between R2D signal transmission and CW transmission in D1T1-A1 and D1T1-A2. (R4-2412698, ZTE)  Option 2: It is a TDD requirements and not applicable to Ambient IOT BS. (R4-2413282, Huawei） | FFS |
| Transmitter transient period | | | Requirement necessary（R4-2411084, CATT）  define transient period related requirements for A-IoT reader. Details value can refer to RFID rise/fall time. (R4-2411769, CMCC)  RAN4 further discuss whether settling time as defined in RFID spec is needed or not to evaluate RF envelop ripple characteristics. (R4-2411769, CMCC) | FFS |
| Transmission times (requirements from RF ID reader) | | | Not applicable. (R4-2413282, Huawei） | NA |
| ~~Transmit signal quality~~ | | | ~~define RF envelope mask as the transmit signal quality requirement. (R4-2413282, Huawei）~~ | ~~YES~~ |
| Transmit signal quality | Frequency error | | Requirement necessary（R4-2411084, CATT）  Reused from NR BS (R4-2413282, Huawei; R4-2412698, ZTE, R4-2411769, CMCC） | YES |
| Some requirements like EVM | | Requirement necessary（R4-2411084, CATT）  refer to RFID RF envelop related parameters to define signal transmission quality requirement, such as:   1. modulation depth, RF envelop ripple, RF plusewidth. (R4-2411769, CMCC) 2. RF envelope mask (R4-2413282, Huawei） 3. power stability or power accuracy for OOK ON signal and OOK OFF signal, power difference between OOK ON and OOK OFF (R4-2412698, ZTE) | YES |
| TAE | | Not needed for R2D signal transmission or CW signal transmission. （R4-2411084,CATT; R4-2412698, ZTE, R4-2413282, Huawei; R4-2411085, CATT） | NA |
| Unwanted emissions | Occupied bandwidth | | Requirement necessary（R4-2411084, CATT）  The legacy OBW requirement could be reused for A-IoT BS (R4-2412698, ZTE) | YES |
| ACLR | | Depends on co-existence study (R4-2412698, ZTE; R4-2413282, Huawei ; R4-2412968, Ericsson; R4-2411084, CATT) | YES |
| IBE | | if finally approve that A-IoT reader support multiple-RAT, IBE equivalent requirement needs to be defined. (R4-2411769, CMCC) | FFS |
| Operating band unwanted emissions | | depends on coexistence study (R4-2412698, ZTE; R4-2411769, CMCC; R4-2411084, CATT; R4-2413282, Huawei) | YES |
| Transmitter spurious emissions | | Requirement necessary（R4-2411084, CATT）  Existing spurious emission requirement is applicable (R4-2413282, Huawei; R4-2412698, ZTE; R4-2411769, CMCC） | YES |
| Transmitter intermodulation | | | For 900M: not needed (R4-2413282, Huawei; R4-2412698, ZTE）  For 2GHz: FFS (R4-2412698, ZTE)  FFS（R4-2411084，CATT） | FFS |

**Topic #2: Deployment scenarios and spectrum usage**

**Issue 2-1-1: deployment scenarios for D1T1**

**Agreement:**

* Feasibility of option 2-1/2-2 for device 1 and 2a should be evaluated with LLS simulation. Parameters for LLS are based on company report.
* Encourage companies to provide the co-existence simulation results.

**Issue 2-2-1: Spectrum usage for R2D in D1T1**

**Agreement:**

* Use FDD DL as baseline for co-existence evaluation for R2D in D1T1

**Issue 2-2-2: CW spectrum for D2T2**

**Agreement:**

* For D2T2, CW transmitted in UL is baseline for co-existence evaluation, CW transmitted in DL (i.e. case 2-3) can be considered once RAN4 agreed on the CW distribution for outside topology.

**Issue 3-1-1: LLS to derive guard RBs**

**Agreement:**

* perform the study within the scope of the feasibility study in issue 2-1-1.

**Issue 3-1-2: SINR vs BLER**

**Agreement:**

* RAN4 does not perform LLS to derive SINR values for R2D and D2R.
* RAN4 can take RAN1 LLS as the reference to derive SINR values for R2D and D2R

**Issue 3-1-3: Assumption of R2D transmission and CW transmission for evaluation**

**Agreement:**

* Assume transmission timeline for R2D and CW signal among different A-IoT BS/CW node transmission are aligned for co-existence evaluation.

**Issue 3-1-4: Assumption of R2D and NR UL for D2T2**

**Agreement:**

* Assume intermediate UE in D2T2 transmit R2D and NR intermediate UE UL in TDM manner for co-existence evaluation.

**Issue 3-1-5: whether to study interference mitigation scheme for scenario option 1-2**

**Agreement:**

* RAN4 focus on the co-existence evaluation in this study item.

**Issue 3-2-1: Performance metric for AIOT**

**Tentative agreements:**

**For Performance metric for AIOT:**

For inter-system interference (between AIOT and NR):

* If SINR degradation is smaller than [1]dB, it can be considered that no impact for the inter-system interference
  + SINR threshold for decoding should be taken into account
* If SINR degradation is lager than [1]dB, consider following criteria:
  + Option 1: [10%] BLER based on RAN1 LLS results
  + Option 2: wanted signal level or SINR level

For intra-system interference (between AIOT and AIOT), following criteria can be considered:

* Option 1: [10%] BLER based on RAN1 LLS results
* Option 2: wanted signal level or SINR level

Above SINR refers to the 5% and 50% CDF SINR

**Issue 3-2-2: SINR definition for D2R**

**Agreement:**

* SINR includes CW interference is used as the baseline reference for co-existence evaluation for CW reader.

**Issue 3-2-3: SINR definition for R2D**

**Agreement:**

* signal power of device to the noise and interference within 10MHz is baseline assumption
* Consider [180KHz] noise and interference bandwidth as optional

**Issue 3-3-1: Layout of CW for outside topology**

**Agreement and tentative agreement during ad-hoc:**

* Simulate CW outside topology case, FFS on the layout of CW
* For the CW outside topology layout:
* For every reader, the outside topology CW node is always located at the nearest neighboring reader location. If the CW node is co-located with other readers, CW node and reader are not transmitted simultaneously.
* Note: This proposal is based on some further offline discussion. Companies please further check

**Issue 3-3-2: CW cancellation capability**

**Agreements during ad-hoc**

* For the CW cancellation capability, companies to report the CW cancellation capability used for co-existence evaluation, CW cancellation capability for inside topology and outside topology can be different.
* total interference cancellation capability = spatial isolation + RF cancellation + digital cancellation
* CW transmission impact on the received SINR, e.g. degradation

**Issue 3-4-3: Device type**

**Agreement:**

* Prioritize device 1 and 2a without a frequency shifter for coexistence evaluation.

**Issue 3-4-4: Multi-operator scenario**

**Agreement:**

* Focus on the co-existence study between A-IoT and NR in this study item.
* The scenario of multiple A-IOT operators in the same band can be considered in the WI phase or in the study of the future release.

**Topic#4 Evaluation parameters**

**Issue 4-1-1: A-IOT reader and NR BS**

**Agreement during ad-hoc:**

* Following values are used for formal simulation. More discussion is required for NR BS.

|  |  |  |
| --- | --- | --- |
|  | In-band | |
| Tx | Rx |
| NR UE/A-IOT Intermediate UE | Legacy UE IBE | ACS |
| NR BS | Option 1: ACLR of legacy gNB (45dB)  Option 2: 40dB  Option 3: 17dB or other values | ACS of legacy gNB |
| A-IOT BS | ACLR of legacy NB -IOT gNB  (i.e. ACLR1:40dB，ACLR2:50dB) | ACS of legacy gNB |

**Issue 4-1-2: Tx for device 1 and 2a**

**Tentative agreement:**

* Discuss which one or both should be used for formal simulation
* Option 1: 25dBc (based on 5kbps, Manchester code)
* Option 2: 16dBc (based on 7kbps, Manchester code, 1/3 code rate convolution code)

**Issue 4-1-3: Rx for device 1 and 2a**

**Tentative agreement:**

* Use R2D without LPF as baseline for co-existence evaluation
* R2D with LPF as optional. FFS on the values (More offline this week).

**Issue 4-1-4: Scaling factor**

**Tentative agreement during ad-hoc:**

* when A-IoT reader as victim, the scaling factor is suggested as below to compensate different aggressor and victim bandwidth when calculating inter-system interference.
* Scaling factor =
* FFS on whether to evaluate individual RB. (check whether this bullet can be removed).

**Issue 4-2-1: Active rate of reader for D1T1**

**Tentative agreement for active rate of readers for D1T1 and D2T2 during ad-hoc**

* ~~1 reader is activated in one drop~~
* ~~2 readers are activated in one drop, 1 reader per block are activated simultaneously~~
* ~~Active reader number depending on minimum distance between active readers~~
* Minimum distance between active readers: 60m, other values can be reported by other companies.
* 2 readers are activated in one drop, companies can use larger values

**Issue 4-2-3: Indoor UE percentage for scenario option 1-2**

**Agreement during ad-hoc:**

* Choose two options for co-existence evaluation for NR UE indoor ratio:
  + Option 1: 10%
  + Option 2: 100%

**Issue 4-2-4: transmission bandwidth of R2D**

**Tentative agreement during ad-hoc:**

* R2D: 180KHz for formal simulation.

**Issue 4-2-5: Minimum NR BS-NR UE distance (2D)**

**Agreement during ad-hoc**

* For formal simulation:
* Use MCL of 70 dB for Minimum NR BS – NR UE distance

**Issue 4-2-6: NR RB allocation**

**Agreement during ad-hoc**

* For RB allocation, each UE is scheduled with 17PRB and A-IoT using 1PRB is located between the most two UEs. Detailed illustration is listed as below:

**Issue 4-2-7: Penetration loss for O2I**

**Agreement and tentative agreement during ad-hoc**

* Use the equation of 7.4-2 in 38.901
* PLin = 0.5 \* d2D-in where d2D-in is the distance to nearest factory/office boundary on the line between Tx and Rx point.
* Check whether to set maximum value of d2D-in as [25m]

**Issue 4-2-8: Pathloss**

**Tentative agreement:**

* Following pathloss is used for calibration. It is recommended to reuse for formal simulation

|  |  |  |
| --- | --- | --- |
|  | **D1T1** | **D2T2** |
| Indoor legacy UE <-> indoor device | Indoor office | |
|  |  | |
| Indoor legacy UE <-> indoor reader | Indoor factory DH | Indoor office |
| Outdoor macro gNB <-> indoor device/indoor reader | PLb: Uma | |
| Outdoor UE <-> indoor device/ D2T2 UE, i.e. UE<->UE | PLb: Umi | |
| Outdoor UE <-> indoor D1T1 reader, i.e. UE<-> reader | PLb: UMi | |
| Note: For other indoor factory related parameters that are not listed, it’s suggested to refer to 7.8.4 of TR 38.901. | | |

**Issue 4-3-1: AIOT micro-BS parameters for D1T1**

**Tentative agreement:**

* Following parameters are used for calibration. It is recommended to reuse for formal simulation

|  |  |
| --- | --- |
| **A-IoT micro BS parameters** | **Values for calibration purposes** |
| A-IoT micro-BS total Tx power | 33dBm |
| A-IoT micro-BS receiver Noise Figure（dB） | 10 |
| A-IoT micro-BS antenna gain (dBi) | 6 dBi |
| Antenna pattern | Antenna Array Geometry：   * 1\*1\*1 antenna element * equals to omni-directional antenna pattern in GCG in horizontal   图示, 示意图  描述已自动生成   |  |  | | --- | --- | | **Parameter** | **Assumption** | | Antenna pattern (horizontal) | ,  = 90°, *Am* = 15 dB | | Antenna pattern (vertical) | ,  = 90°, *SLAv* = 15 dB | | Combining method in 3D antenna pattern |  | | BS antenna gain (dBi) (including feeder loss) | 6 | |

**Issue 4-3-2: Intermediate UE parameters for D2T2**

**Tentative agreement:**

* Following parameters are used for calibration. It is recommended to reuse for formal simulation.

|  |  |
| --- | --- |
| **intermediate UE parameters** | **Values for calibration purposes** |
| intermediate UE total Tx power（dBm） | 23dBm |
| gain of antenna intermediate UE (dBi) | 0 |
| intermediate UE receiver Noise Figure（dB） | 9 |
| Antenna configuration | Omni direction antenna |

**Issue 4-3-3: AIOT device parameters**

**Agreements**

|  |  |  |  |
| --- | --- | --- | --- |
| **A-IoT device parameters** | **Device 1**  **Values used for calibration** | **Device 2a** | **RAN1 assumption**  **(R1-2406752)** |
| A-IoT device effective antenna gain per Tx or Rx branch (dBi) | 0 | [0] | For A-IoT device, 0dBi |
| A-IoT device reflection （backscatter）loss (dB)  ~~Note: due to, e.g., impedance mismatch~~ | OOK: -6 dB | OOK: -6 dB | OOK: 6 dB  PSK: 0 dB  FSK: Y dB  It is applicable for device 1 and 2a.  Companies to report and justify their assumptions for Y.  Companies to report in row 3D if they assume any additional related loss. |
| A-IoT device power gain of reflection amplifier (dB) | N/A | 10(M),15(O) | 10 dB (M)  15 dB (O)  Note: Only for device 2a |
| A-IoT Device receiver sensitivity (dBm)  Use this value to determine whether device can camp on the cell. | -36 | [-45] | For Budget-Alt1  For device 1 (RF-ED), for example:  {‑30 dBm, ‑36 dBm, ‑40 dBm, etc}  For device 2 (RF-ED), for example:  {-40 dBm, -45 dBm, etc}  For Budget-Alt2  Calculated (see note1) |
| A-IoT device noise figure (dB) | 24 | [20] | For RF-ED receiver   * 20dB, Device 2 * FFS other values |
| Guard band | 0PRB | 0PRB |  |

**Issue 4-4-1: NR macro BS parameters**

**Tentative agreement:**

* Following pathloss is used for calibration. It is recommended to reuse for formal simulation

|  |  |
| --- | --- |
| **NR macro-BS Parameter** | **Values for calibration purposes** |
| Macro-BS Tx power (dBm) | 46 |
| BS antenna gain (dBi) and antenna pattern | Antenna Array Geometry：   * 1\*1\*1 antenna element * BS point at fixed beam direction   + vertical: θtilt + 90°   + horizontal: 0, 120, 240 °      |  |  | | --- | --- | | **Parameter** | **Assumption** | | Antenna pattern (horizontal)  (For 3-sector cell sites with fixed antenna patterns) | = 65 degrees, *Am* = 25 dB | | | Antenna pattern (vertical)  (For 3-sector cell sites with fixed antenna patterns) | = 10 degrees, *SLAv* = 25 dB, = 9 degrees | | | Combining method in 3D antenna pattern |  | | | BS antenna gain (dBi) (including feeder loss) | 15 | | |
| Height of macro NR BS (m) | 25 |
| NR Macro-BS Noise Figure(dB) | 5 |
| Network location | outdoor |

**Issue 4-4-2: NR UE parameters**

**Tentative agreement:**

* Following parameters are used for calibration. It is recommended to reuse for formal simulation

|  |  |
| --- | --- |
| **NR UE Parameter** | **Values for calibration purposes** |
| UE TX power in dBm | -40 to 23 |
| NR UE Antenna gain (dBi) | 0 |
| Height of UE antenna (m) | 1.5 |
| NR UE ACLR（dB） | 30 |
| NR UE Noise Figure（dB） | 9 |
| Antenna configuration | Omni direction antenna |

**Issue 4-5-1: Other CW parameters**

**Tentative agreement:**

* Following parameters are used for formal simulation.

|  |  |  |
| --- | --- | --- |
| **CW parameters** | **D1T1** | **D2T2** |
| Tx power（dBm） | If UL spectrum is used, UE Tx power is assumed, i.e. 23dB  If DL spectrum is used, AIOT micro-BS Tx power is assumed. | Inter-mediate UE Tx power is assumed. |
| Antenna gain | Same as AIOT reader | Same as inter-mediate UE |

**Newly allocated tdocs for approval**

[R4-2414280](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414280.zip) **Ad hoc minutes on A-IoT**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Noted.**

[R4-2414304](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414304.zip) **WF on Co-existence study for ambient IoT**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Approved.**

[R4-2412834](file:///D:\RAN4%23112\Docs\R4-2412834.zip) **Topic summary for [112][132] FS\_Ambient\_IoT\_solutions\_part2**

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

**Abstract:**

Summary for AI 8.20.3

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

**Miniutes and conlcusions in the first round**

Please refer to the following hyperlinks for detailed minutes:

<https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_112/Inbox/Drafts/%5B112%5D%5B100%5D%20Main%20Session/2.Tuesday/A.%5B132%5D_R4-2412834%20Topic%20summary%20for%20%5B112%5D%5B132%5D%20FS_Ambient_IoT_solutions_part2.docx>

The conclusions and agreements are as follows.

**Topic #2: A-IoT BS**

**Issue 2-5: RX**

**Agreement:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **RF Requirement for A-IoT BS- RX part** | | **Whether the requirements is needed** |
| TX requirement | Reference sensitivity level | The REFSENS requirement might be not based on the throughput metric and it should be dependent on the miss detection ratio and false alarm detection ratio instead if without any HARQ-ACK feedback. In addition, the impacts on CW signal transmission should be also taken into account especially for D1T1-A2. (R4-2412698, ZTE)  IoT due the residual CW interference should be considered when define RX reference sensitivity (R4-2413282, Huawei）  Requirement necessary（R4-2411084, CATT） | Need |
| Dynamic range | Similar analysis for REFSENS requirement. IoT level could be further discussed in the WI phase. (R4-2412698, ZTE)  Requirement necessary（R4-2411084, CATT）  FFS (R4-2413282, Huawei） | FFS |
| In-channel selectivity | FFS whether requirement necessary（R4-2411084, CATT）  ICS requirement is needed if reader support multi-RAT or device support FDM operation. (R4-2411769, CMCC)  We don’t see the necessity to have this requirement for standalone A-IoT BS or in-band/guard band operation with the individual RF hardware similar as standalone NB-IoT ICS requirement. (R4-2412698, ZTE)  NA (R4-2413282, Huawei） | FFS |
| Adjacent Channel Selectivity | depends on coexistence study. (R4-2412698, ZTE; R4-2413282, Huawei; R4-2412968, Ericsson; R4-2411769, CMCC; R4-2411084, CATT) | Depend on coexistence study |
| Blocking requirement | This depends on co-existence study. (R4-2412698, ZTE)  blocking related requirements of A-IoT BS is based on co-existence evaluation. It’s noted we should consider FDM operation between devices if RAN1 has approved such operation. (R4-2411769, CMCC) | Depend on coexistence study |
| In-band blocking | FFS whether requirement necessary（R4-2411084, CATT）（The scenario needs more discussion. ）  need more study after ACS is defined (R4-2413282, Huawei） | FFS |
| Narrow-band blocking | Requirement not necessary （R4-2411084, CATT）  ZTE: what is the reason?  CATT: narrow band is based on 1 RB. For reader, it is corner case. | FFS |
| Out-of-band blocking | FFS whether requirement necessary（R4-2411084, CATT）（The scenario needs more discussion. ）  Reuse the -15dBm CW signal as interference signal of OOBB requirement. For f\_OOBB requirement, this could be further discussed once we have more clear assumption on A-IoT BS. (R4-2412698, ZTE)  Existing out-of-band blocking requirement is applicable (R4-2413282, Huawei） | FFS |
| Receiver intermodulation | This is somehow similar as Tx intermodulation requirement. (R4-2412698, ZTE)  FFS whether requirement necessary（R4-2411084, CATT）（The scenario needs more discussion. ） | FFS |
| Narrowband intermodulation | FFS whether requirement necessary（R4-2411084, CATT; R4-2413282, Huawei）（The scenario needs more discussion. ） | FFS |
| Rx spurious emission | The legacy receiver spurious emission requirement could be applicable. (R4-2412698, ZTE; R4-2413282, Huawei)  Requirement necessary（R4-2411084, CATT） | Need |
| Receiver intermodulation | RAN4 should wait for RAN1 CW signal design conclusion and then decide whether/how to consider the IMD product of multiple-tone CW when defining Rx requirements for reader. (R4-2411769, CMCC)  FFS (R4-2413282, Huawei） | FFS |

**Topic #3: AIoT device**

**Issue 3-1: General**

**Agreement:**

* Different RF requirement for Ambient IoT Device 1, Device 2a and Device 2b can be specified

**Issue 3-3: TX(D2R)**

**Agreement:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **RF Requirement for A-IoT device- TX part** | | | | **Whether to define the requirements** |
| TX requirement | Transmit output power | Maximum output power | defined Radiated power for Device 1 and Device 2a (R4-2411072, CATT)  For device type 2b, a similar approach as legacy UEs can be used to define its maximum output power.  **Device 1:**  Device 1: consider -20 to -10 dBm as a starting point (R4-2411537, Sony)  For device 1: transmit output power up to CW, need to meet the coverage target of 10 meters and regulatory requirement (R4-2411867, Spreadtrum; R4-2412699, ZTE)  **Device 2a:**  Device 2a: All three kinds of device have different output power level. RAN4 further discuss how to define power class based on different device type and architecture. (R4-2411768, CMCC)  Device 2a: consider -10 to 0 dBm as a starting point (R4-2411537, Sony)  For device 2a: transmit output power up to CW, need to meet the coverage target of 10 meters and regulatory requirement (R4-2411867, Spreadtrum; R4-2412699, ZTE)  **Device 2b:**  Device 2b: need to define max output power, PC3 as a starting point (R4-2411867, Spreadtrum)  Device 2b: maximum output power should be specified agnostic with the input CW power. (R4-2412699, ZTE)  Device 2b: A bit lower power level as device 2a (-10 dBm to -5 dBm dBm) might be a starting point (R4-2411537, Sony) | FFS |
| ~~Output power dynamic~~ |  | **~~Device 2a~~**~~: NA (R4-2411768, CMCC)~~  **~~Device 2b~~**~~: need to be specified. (R4-2411537, Sony)~~ |  |
| Output power dynamic | Transmit OFF power | For all device types, consider the same level as NR and LTE, e.g., -50 dBm.  For the backscattering type of the device, this power level can be defined as the emission level from the device when there is no incoming CW signal. (R4-2411537, Sony)  **Device 1:**  Not for device 1（R4-2412066, Vivo; R4-2411867, Spreadtrum; R4- 2413455, LGE）  **Device 2a:**  Not for device 2a（R4-2412066, Vivo）  For device 2a: Need to define (R4-2411867, Spreadtrum)  **Device 2b:**  For device 2b: Need to define (R4-2411867, Spreadtrum) | FFS for device 1  FFS for device 2a  Yes for device 2b |
| Transmit time mask | It may not be necessary for backscattering types of AIoT device (1 and 2a), but it is only specified for the CW node.  Needs to be specified for device 2b. (R4-2411537, Sony)  Repeated with transmit ON/OFF time mask (R4-2411867, Spreadtrum) | FFS |
| Minimum output power | Consider the same level as NR and LTE for all AIoT device types, e.g., -40 dBm. Further study should be conducted on the corresponding CW power level in this case. (R4-2411537, Sony)  This requirement might be still needed. e.g. with -45dBm as lowest input power and 9/12/15dBi backscattering gain for Device 1 and 2a. (R4-2412699, ZTE)  **Device 1:**  For device 1: Need to define, to ensure that signal is not submerged by noise (R4-2411867, Spreadtrum)  Not for device 1（R4-2412066, Vivo）  **Device 2a:**  Not for device 2a（R4-2412066, Vivo）  For device 2a: need to define minimum output power (R4-2411867, Spreadtrum)  **Device 2b:**  For device 2b: need to define minimum output power (R4-2411867, Spreadtrum) | FFS |
| Power control requirement | **Device 1:**  not necessary for device 1 (R4-2411537, Sony; R4-2412699, ZTE; R4-2412066, Vivo; R4-2411867, Spreadtrum)  **Device 2a:**  NA for device 2a (R4-2411768, CMCC; R4-2412066, Vivo; R4-2411867, Spreadtrum)  **Device 2b:**  Needs to be specified for device 2b. (R4-2411537, Sony; R4-2412699, ZTE)  Need to define, legacy UE requirements as a starting point (R4-2411867, Spreadtrum) | **No for Device 1 and 2a**  **Yes for Device 2b** |
| Transmit ON/OFF power | ON/OFF time mask | **Device 1:**  not necessary for device 1 (R4-2407523, CATT; R4-2411867, Spreadtrum)  **Device 2a:**  not necessary for device 2a (R4-2411867, Spreadtrum)  **Device 2b:**  Need to define for device 2b (R4-2411867, Spreadtrum) | **No for Device 1 and 2a**  **Yes for Device 2b** |
| Transmit signal quality | Frequency error | This could be further discussed based on the some practical measurement results for it. (R4-2412699, ZTE)  **Device 1:**  For device 1: No need to consider carrier frequency error. Need to consider sample frequency error. (R4-2411867, Spreadtrum)  **Device 2a:**  For device 2a: No need to consider carrier frequency error. Need to consider sample frequency error. (R4-2411867, Spreadtrum)  The frequency shift function of device 2a needs to be studied, as it may affect the frequency accuracy of the performance. (R4-2411537, Sony) Device 2a: wait for modulation scheme conclusion (R4-2411768, CMCC)  **Device 2b:**  For device 2b: Need to define, consider CFO (R4-2411867, Spreadtrum)  The frequency shift function of device 2a needs to be studied, as it may affect the frequency accuracy of the performance. (R4-2411537, Sony) | No for device 1  FFS for device 2a  Yes for device 2b |
| EVM | Transmit signal quality requirements shall be specified for all AIoT device types to ensure the device's nonlinearity component can operate properly. (R4-2411537, Sony)  Device 2a: wait for modulation scheme conclusion (R4-2411768, CMCC)  EVM for backscattering OOK signal is not needed since OOK signal is not mapped by the legacy constellation, instead it’s reflected in the envelope level as following. The power stability or power accuracy for OOK ON signal and OOK OFF signal is important and also power difference between OOK ON and OOK OFF is essential to ensure the tag OOK detection performance. (R4-2412699, ZTE)  Need to define (R4-2411867, Spreadtrum)  It is suggested to discuss how to define the modulation quality for OOK waveform in time domain in SI, e.g., the power ratio between ON symbol and OFF symbol. （R4-2412066, Vivo） | Yes |
| In band emissions (IBE) | Needed (R4-2411768, CMCC)  Transmit signal quality requirements shall be specified for all AIoT device types to ensure the device's nonlinearity component can operate properly. (R4-2411537, Sony)  **For device 1**: No need to consider image suppression, just need to consider general requirement (R4-2411867, Spreadtrum)  **For device 2a**: If device2a support large shift, image suppression need to consider; general requirement need to consider (R4-2411867, Spreadtrum)  **For device 2b**: The legacy UE requirement as a starting point (R4-2411867, Spreadtrum) | No for device 1  FFS for device 2a  Yes for device 2b |
| Carrier leakage | Transmit signal quality requirements shall be specified for all AIoT device types to ensure the device's nonlinearity component can operate properly. (R4-2411537, Sony)  **Device 1:** no need to define（R4-2412066, Vivo; R4-2411867, Spreadtrum）  **Device 2a:**  may be needed based on the design of small frequency shift in baseband (R4-2411768, CMCC)  no need to define (R4-2411867, Spreadtrum)  **Device 2b:** the legacy carrier leakage requirement as a starting point (R4-2411867, Spreadtrum) | No for device 1  FFS for device 2a  Yes for device 2b |
| Output RF spectrum emissions | Occupied bandwidth | depends on chip rate (R4-2411867, Spreadtrum) | FFS |
| SEM | This depends on the outcome of coexistence study and regulatory requirement as part of input. (R4-2412699, ZTE; R4-2411867, Spreadtrum) | Depending on co-existence study. |
| ACLR | depends on co-existence study (R4-2411867, Spreadtrum; R4- 2413455, LGE; R4-2411537, Sony) | Depending on co-existence study. |
| Spurious emissions | The legacy transmitter spurious emission requirement could be used as starting point. (R4-2412699, ZTE)  depends on co-existence study and related regulatory requirements (R4-2411867, Spreadtrum; R4- 2413455, LGE) | Depending on co-existence study. |
| Unwanted emissions | | Define Unwanted emissions for Device 1 and Device 2a (R4-2411072, CATT)  For device 1, taking RFID RF requirements as reference which only define output power and unwanted emission requirements. Besides, REFSENSE requirement is also needed. (R4-2411768, CMCC) | Yes |
| Transmit intermodulation | | at 900MHz is not needed. FFS for other frequency e.g. 2GHz. (R4-2409598, ZTE) (R4-2412699, ZTE)  **Device 1:**  Not for device 1（R4-2412066, Vivo）  Need to consider CW with two tone intermodulation (R4-2411867, Spreadtrum)  **Device 2a:**  For device 2a: Need to consider CW with two tone intermodulation (R4-2411867, Spreadtrum)  **Device 2b:**  For device 2b: Need to consider intermodulation (R4-2411867, Spreadtrum) | FFS |

**Issue 3-4: RX(R2D)**

**Agreement:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **RF Requirement for A-IoT device- RX part** | | **Whether to define the requirements** |
| RX requirement | Reference sensitivity | Define Reference sensitivity for different AIoT device types (R4-2411072, CATT; R4-2411537, Sony; R4-2411768, CMCC)  For device receivers based on RF envelop detector and comparator, the effects of both target SNR and the threshold voltage should be considered when determining the Rx sensitivity.（R4- 2413030, Huawei）  The REFSENS requirement might be not based on the throughput metric and it should be dependent on the miss detection ratio and false alarm detection ratio instead if without any HARQ-ACK feedback. e.g. -45dBm. (R4-2412699, ZTE)  For device 1: Refer to co-existence simulation parameters (e.g.,-36dBm) (R4-2411867, Spreadtrum)  For device 2a /b: Refer to RAN1’s LLS result, the traditional sensitivity formula as a starting point (R4-2411867, Spreadtrum) | Yes |
| Maximum input power | different maximum input power levels can be specified for different types of devices. (R4-2411537, Sony; R4- 2413030, Huawei)  At least the following two aspects need to be considered:  1)Maximum input power for CW signal with measurement metric as backscattering output power which might be covered by Maximum output power/Output to input power gain within A-IoT carrier;  2)Maximum input power for R2D signal reception e.g. with OOK signal detection with measurement metric as miss detection ration and false alarm detection ratio; (R4-2412699, ZTE)  For device 1/2a: Need to consider to meet the dynamic range of envelop detection (R4-2411867, Spreadtrum)  For device 2a: Necessary and may needs to be separately defined for different devices types. (R4-2411768, CMCC)  For device 2b: Legacy UE requirement as a starting point (R4-2411867, Spreadtrum) | FFS |
| ACS | depends on co-existence study (R4-2411867, Spreadtrum; R4- 2413455, LGE; R4-2412699, ZTE;)  No ACS and blocking requirements for device 1 and device 2a. (R4-2411072, CATT)  different sizes of guard band/RB may be considered for different device types. (R4-2411537, Sony)  Not for **device 1**（R4-2412066, Vivo）  For **device 2a:**  For standalone, FFS and details based on architecture. (R4-2411768, CMCC)  Not for device 2a（R4-2412066, Vivo） | Depending on co-existence study |
| ACSC | depends on coexistence study. (R4-2412699, ZTE; R4-2411867, Spreadtrum; R4- 2413455, LGE)  different sizes of guard band/RB may be considered for different device types. (R4-2411537, Sony)  No ACS and blocking requirements for device 1 and device 2a. (R4-2411072, CATT)  Not for **device 1**（R4-2412066, Vivo）  Not for **device 2a**（R4-2412066, Vivo） | Depending on co-existence study |
| In-band blocking | Depends on coexistence study. (R4-2412699, ZTE; R4-2411867, Spreadtrum; R4-2411537, Sony)  For device 2a: necessary (R4-2411768, CMCC) | Depending on co-existence study |
| Out-of-band blocking | reuse the -15dBm CW signal as interference signal of OOBB requirement (R4-2412699, ZTE)  Depends on coexistence study. (R4-2411867, Spreadtrum; R4-2411537, Sony)  For **device 2a**: Further discuss the out of band blocking performance based on RF architecture discussion (R4-2411768, CMCC) | Depending on co-existence study |
| Receiver intermodulation | The analysis is somehow similar as Tx intermodulation requirement. (R4-2412699, ZTE)  Not necessary (R4-2407523, CATT)  Not for device 1（R4-2412066, Vivo）  Need to consider CW intermodulation (R4-2411867, Spreadtrum) | FFS |
| Rx spurious emission | The legacy receiver spurious emission requirement might be needed for R2D reception and backscattering signal transmission with CW signal as input at antenna connector. (R4-2412699, ZTE)  For **device 2a**: to meet regulatory requirement (R4-2411768, CMCC)  depends on co-existence study and related regulatory requirements (R4-2411867, Spreadtrum) | FFS |
| Spurious response | For **device 2a**: The same analysis as out of band blocking. ( Further discuss the out of band blocking performance based on RF architecture discussion (R4-2411768, CMCC))  This might be needed for R2D reception only. For backscattering transmission requirement, receiver spurious response requirement is not relevant anymore. (R4-2412699, ZTE) | FFS |

**Issue 3-5: testability**

**Agreement:**

* Take OTA test as the baseline for at least Devices 1 and 2a

**Topic #4: Intermediate node(UE)**

**Issue 4-2: TX**

**Agreement:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **RF Requirement for AIoT intermediate UE- TX part** | | |
| TX requirement | Maximum output power  Yes | | max supported power class per band of intermediate UE is only limited to PC3 as baseline.（R4-2411769, CMCC; ZTE, R4-2412700）  Refer to RAN1’s LLS result, take a large value between RAN1’s LLS result and legacy UE.（R4-2411868, Spreadtrum） |
| Output power dynamics  FFS | | Option 1: no minimum output power nor power control requirement are needed for intermediate UE. (R4-2411769, CMCC）  Option 2: Minimum output power：The legacy UE requirement as a starting point（R4-2411868, Spreadtrum）  Power boosting for OOK signal might be needed（ZTE, R4-2412700; R4-2411868, Spreadtrum）  FFS whether requirement necessary. More inputs from AIoT physical channel design is needed.（CATT, R4-2411085） |
| Transmit ON/OFF power  FFS | | some transition period might be needed for the switch between R2D signal transmission and CW transmission in D2T2. or switch between R2D signal transmission, CW transmission and other eMBB transmission in in-band/guard band scenario under the shared RF architecture.（ZTE, R4-2412700）  it’s suggested to define transient period related requirements for A-IoT reader. Details value can refer to RFID rise/fall time. (R4-2411769, CMCC）  RAN4 further discuss whether settling time as defined in RFID spec is needed or not to evaluate RF envelop ripple characteristics. (R4-2411769, CMCC）  Transmit OFF power :The legacy UE requirement as a starting point(e.g., -50dBm) （R4-2411868, Spreadtrum） |
| Transmit ON/OFF time mask  FFS | | The legacy UE requirement as a starting point（R4-2411868, Spreadtrum） |
| Transmitted signal quality | Frequency error  Yes | Frequency error ：Requirement necessary (CATT, R4-2411085）  The legacy UE of frequency error as a starting point（R4-2411868, Spreadtrum）  The legacy UE transmit frequency error requirement could be reused for A-IoT intermediate node. (R4-2412700, ZTE) |
| EVM  Yes | EVM：Requirement necessary, AIoT waveform is different with NR, new requirement and test approach is needed.（CATT, R4-2411085）  Refer to RFID RF envelop related parameters to define signal transmission quality requirement, such as:  1) modulation depth, RF envelop ripple, RF plusewidth. Besides, the RF requirements for BS reader and UE reader can be the same (R4-2411769, CMCC)  2)power stability or power accuracy for OOK ON signal and OOK OFF signal, power difference between OOK ON and OOK OFF (R4-2412698, ZTE) |
| Transmission times  No need | | The definition needs further clarification（R4-2411868, Spreadtrum） |
| Occupied bandwidth  Yes | | The legacy UE OBW requirement could be reused for A-IoT intermediate node;（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  Wait for RAN1 progress on R2D（R4-2411868, Spreadtrum） |
| Spectrum emission mask  Yes | | Requirement necessary (CATT, R4-2411085） |
| Transmitter  Intermodulation  Yes | | The legacy UE transmitter intermodulation requirement is somehow agnostic to certain bands, therefore from our understanding, the legacy Tx intermodulation requirement is still applicable for Ambient intermediate node which is somehow different from A-IoT BS and A-IoT device.（ZTE, R4-2412700）  FFS whether requirement necessary, IMD scenario needs more discussion.（CATT, R4-2411085）  The legacy UE requirement as a starting point（R4-2411868, Spreadtrum） |
| IBE  FFS | | it’s suggested to assume that legacy IBE requirements of UE still applies for intermediate UE as starting point. (R4-2411769, CMCC） |
| ACLR  Depending on the co-existence study | | Depends on co-existence study（R4-2411868, Spreadtrum; ZTE, R4-2412700; R4-2411769, CMCC）  Requirement necessary (CATT, R4-2411085） |
| Operating band unwanted emissions  Yes | | Depends on co-existence study and regulatory requirements（R4-2411868, Spreadtrum; ZTE, R4-2412700） |
| Transmitter spurious emissions  Yes | | Reuse the legacy transmitter spurious emission requirement（ZTE, R4-2412700; R4-2411868, Spreadtrum）  Requirement necessary (CATT, R4-2411085） |

**Issue 4-3: RX**

**Agreement:**

|  |  |  |
| --- | --- | --- |
|  | **RF Requirement for A-IoT intermediate UE- RX part** | |
| RX requirement | Reference sensitivity power level  Yes | The REFSENS requirement might be not based on the throughput metric and it should be dependent on the miss detection ratio and false alarm detection ratio instead if without any HARQ-ACK feedback.（ZTE, R4-2412700）  In addition, the impacts on CW signal transmission should be also taken into account especially for D2T2. （ZTE, R4-2412700）  For D2T2-A2 deployment scenarios, some self interference on Ambient intermediate node should be taken into account.（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  The legacy UE requirement as a starting point, but need to consider CW interference cancellation and R2D waveform (R4-2411868, Spreadtrum） |
| Maximum input power  Yes | Similar analysis for backscattering signal should be specified with measurement metric as miss detection ratio or false alarm detection ratio.（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  The legacy UE requirement as a starting point (R4-2411868, Spreadtrum） |
| ICS  No | FFS whether Requirement necessary（CATT, R4-2411085）  Depends on co-existence study (R4-2411868, Spreadtrum） |
| ACS  FFS | This depends on further coexistence study.（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  Proposal 11: for ACS requirement   * + Once final co-existence evaluation show that A-IoT system could co-exist with NR system for in-band spectrum mode, then we can conclude legacy UE ACS requirement applies for A-IoT UE reader.   + But if certain interference occurs for in-band spectrum deployment mode, further evaluation is needed for corresponding interference case. But we can leave such analysis to work phase to define corresponding requirements. (R4-2411769, CMCC）   Depends on co-existence study (R4-2411868, Spreadtrum） |
| In-band blocking  FFS | FFS whether Requirement necessary（CATT, R4-2411085）  Depends on co-existence study (R4-2411868, Spreadtrum） |
| Out-of-band blocking  FFS | FFS whether Requirement necessary（CATT, R4-2411085）  Depends on co-existence study (R4-2411868, Spreadtrum）  Don’t see the reason not to reuse the -15dBm CW signal as interference signal of OOBB requirement. For f\_OOBB requirement, this could be further discussed once we have more clear assumption on A-IoT intermediate node. （ZTE, R4-2412700） |
| Narrow band blocking  FFS | Not needed（CATT, R4-2411085） |
| Blocking requirement  Depending on co-existence | depends on coexistence study.（ZTE, R4-2412700） |
| Receiver intermodulation  Yes | This is somehow similar as Tx intermodulation requirement.（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  The legacy UE requirement as a starting point (R4-2411868, Spreadtrum） |
| Receiver spurious response  FFS | This might be needed for D2R reception only.（ZTE, R4-2412700） |
| Rx spurious emission  FFS | The legacy UE receiver spurious emission requirement could be applicable.（ZTE, R4-2412700）  Requirement necessary (CATT, R4-2411085）  The legacy UE requirement as a starting point (R4-2411868, Spreadtrum） |

**Issue 4-4: CW for D2T2**

**Agreement:**

|  |  |  |
| --- | --- | --- |
| **RF Requirement for CW node** (unless otherwise noted, from R4-2408946, CMCC） | | **Whether to define the requirements** |
| requirement | Applicable or not |  |
| Operation bands | Single FDD DL or UL bands(R4-2411769, CMCC） | FFS |
| Channel bandwidth related requirements | NA (R4-2411769, CMCC） | FFS |
| Channel arrangement related | NA (R4-2411769, CMCC） | FFS |
| Output power | Applicable. Further check the power limit(R4-2411769, CMCC）  MPR/A-MPR NA (R4-2411769, CMCC）  Configured output power, NA (R4-2411769, CMCC）  Output power: Requirement necessary (CATT, R4-2411085）  Higher CW output power can be considered (e.g., 26dBm or 29dBm). (R4-2411868, Spreadtrum） | Yes |
| Output power dynamic range | Minimum output power: NA (R4-2411769, CMCC）  ON/OFF time mask: may NA (R4-2411769, CMCC）  Power control: NA (R4-2411769, CMCC） | No need |
| Transmit signal quality | Frequency error: NA (R4-2411769, CMCC）  Transmit modulation quality: NA (R4-2411769, CMCC）  CW signal quality：FFS, If phase noise or emissions should be defined FFS.（CATT, R4-2411085）  It is suggested to discuss whether the phase noise of CW need to be restricted by RF requirement. ( vivo, R4-2412067) | FFS |
| RF spectrum emission | Occupied bandwidth: NA (R4-2411769, CMCC）  Out of band emission: not applicable if we assume CW nodes have almost perfect out of band emission? (R4-2411769, CMCC）  Spurious emission: current may still applicable to meet regulatory requirement (R4-2411769, CMCC）  Transmit inter-modulation: applies at least for inside topology case (R4-2411769, CMCC） | Yes |

**Newly allocated tdocs for approval**

[R4-2414305](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414305.zip) **WF on RF requirements for A-IoT**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

### 8.21 Enhancements of network energy savings for NR

### 8.22 Low-power wake-up signal and receiver for NR (LP-WUS/WUR)

#### 8.22.1 General aspects

[R4-2411227](file:///D:\RAN4%23112\Docs\R4-2411227.zip) **Further consideration on general aspects for Rel-19 LP-WUS**

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

**Decision: Noted.**

[R4-2412057](file:///D:\RAN4%23112\Docs\R4-2412057.zip) **Discussion on LP-WUS general**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412975](file:///D:\RAN4%23112\Docs\R4-2412975.zip) **On general issues for WUR**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview for WUR.

**Decision: Noted.**

#### 8.22.2 UE RF requirements for LP-WUS/WUR

[R4-2411538](file:///D:\RAN4%23112\Docs\R4-2411538.zip) **views on requirements of the low-power wake-up receiver**

*Type: discussion For: Discussion  
 Source: Sony*

**Decision: Noted.**

##### 8.22.2.1 System parameters

[R4-2411095](file:///D:\RAN4%23112\Docs\R4-2411095.zip) **Further discussion on system parameters for LP-WUS**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411495](file:///D:\RAN4%23112\Docs\R4-2411495.zip) **Discussion on systems parameters for LP-WUR**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2411653](file:///D:\RAN4%23112\Docs\R4-2411653.zip) **System parameters for LP-WUR**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2411730](file:///D:\RAN4%23112\Docs\R4-2411730.zip) **(NR\_LPWUS-Core) Discussion on LP-WUS UE system parameters requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411895](file:///D:\RAN4%23112\Docs\R4-2411895.zip) **Discussion on system parameters for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412058](file:///D:\RAN4%23112\Docs\R4-2412058.zip) **Discussions on LP-WUS system parameters**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412976](file:///D:\RAN4%23112\Docs\R4-2412976.zip) **On system paramter for WUR**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview on the system parameter for WUR RF requirement perspective.

**Decision: Noted.**

##### 8.22.2.2 Rx requirements of REFSENS, ASCS and ACS

[R4-2411228](file:///D:\RAN4%23112\Docs\R4-2411228.zip) **Further consideration on UE RF REFSENS, ACS, ASCS requirements for Rel-19 LP-WUS**

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

**Decision: Noted.**

[R4-2411494](file:///D:\RAN4%23112\Docs\R4-2411494.zip) **Discussion on RX requirements of REFSENS for LP-WUR**

*Type: discussion For: Discussion  
 Source: Spreadtrum Communications*

**Decision: Noted.**

[R4-2411645](file:///D:\RAN4%23112\Docs\R4-2411645.zip) **On Low-power Wake-up Receiver for NR**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411654](file:///D:\RAN4%23112\Docs\R4-2411654.zip) **Fundamental RX requirements for LP-WUR**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2411694](file:///D:\RAN4%23112\Docs\R4-2411694.zip) **Discussion on UE RF requirements for LP-WUR**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

[R4-2411731](file:///D:\RAN4%23112\Docs\R4-2411731.zip) **(NR\_LPWUS-Core) Discussion on LP-WUS UE RF Rx requirements of REFSENS, ASCS and ACS**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411896](file:///D:\RAN4%23112\Docs\R4-2411896.zip) **Discussion on REFSENS, ASCS, ACS for LP-WUR**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412059](file:///D:\RAN4%23112\Docs\R4-2412059.zip) **Discussions on LP-WUS REFSENS, ASCS and ACS**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412276](file:///D:\RAN4%23112\Docs\R4-2412276.zip) **Discussion on REFSENS and ASCS for the LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: LG Electronics France*

**Decision: Noted.**

[R4-2412979](file:///D:\RAN4%23112\Docs\R4-2412979.zip) **WUR RF requirement REFSESN ASC ASCS**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the WUR RF requirement of REFSENS, ASC, ASCS

**Decision: Noted.**

[R4-2413223](file:///D:\RAN4%23112\Docs\R4-2413223.zip) **On UE Rx requirements for the LPWUR**

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

**Abstract:**

We propose including connected mode and FR2 bands, along with identifying a need to establish the definition of SNR for OOK signals to facilitate future work.

**Decision: Noted.**

##### 8.22.2.3 Rx requirements of IBB, OBB, intermodulation, spurious emissions and others

[R4-2411229](file:///D:\RAN4%23112\Docs\R4-2411229.zip) **Further consideration on UE RF other Rx requirements for Rel-19 LP-WUS**

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

**Decision: Noted.**

[R4-2411655](file:///D:\RAN4%23112\Docs\R4-2411655.zip) **Other RX requirements for LP-WUR**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

[R4-2411732](file:///D:\RAN4%23112\Docs\R4-2411732.zip) **(NR\_LPWUS-Core) Discussion on LP-WUS UE RF Rx requirements of IBB, OBB, intermodulation, spurious emissions and others**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

[R4-2411897](file:///D:\RAN4%23112\Docs\R4-2411897.zip) **Discussion on receiver characteristics for LP-WUR**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412275](file:///D:\RAN4%23112\Docs\R4-2412275.zip) **Discussion on IBB and OBB requirements for LP-WUS**

*Type: discussion For: Discussion  
 Source: LG Electronics France*

**Decision: Noted.**

[R4-2412978](file:///D:\RAN4%23112\Docs\R4-2412978.zip) **WUR RF requirement other than REFSENS**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the WUR RF requirement of IBB, OBB, intermodulation, spurious emissions and others .

**Decision: Noted.**

##### 8.22.2.4 Testability for UE RF requirements

[R4-2411230](file:///D:\RAN4%23112\Docs\R4-2411230.zip) **Further consideration on UE RF testability issue for Rel-19 LP-WUS**

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

**Decision: Noted.**

[R4-2411656](file:///D:\RAN4%23112\Docs\R4-2411656.zip) **Testability aspects of LP-WUR**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Noted.**

[R4-2411898](file:///D:\RAN4%23112\Docs\R4-2411898.zip) **Discussion on testability for UE RF requirements**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2412061](file:///D:\RAN4%23112\Docs\R4-2412061.zip) **Discussions on LP-WUS Testability**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

[R4-2412977](file:///D:\RAN4%23112\Docs\R4-2412977.zip) **On WUR RF requirement testability**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our overview on the WUR RF requirement testability issue

**Decision: Noted.**

#### 8.22.3 BS RF requirements for LP-WUS/WUR

#### 8.22.4 RRM core requirements for LP-WUS/WUR

#### 8.22.5 Moderator summary and conclusions

[R4-2412835](file:///D:\RAN4%23112\Docs\R4-2412835.zip) **Topic summary for [112][133] NR\_LPWUS\_UERF**

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

**Abstract:**

Summary for AI 8.22, 8.22.1, 8.22.2

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

**Miniutes and conlcusions in the first round**

**Topic #1: General and system parameters**

**Issue 1-1-1: New RAN4 TR to capture simulation and analysis of LP-WUS receiver and requirements**

Agreement:

* RAN4 suggest having a new RAN4 TR to capture the simulations and analysis for LP-WUS RF.

**Issue 1-1-2: Performance metric for Rx RF requirements**

**Agreement:**

* **1% MDR for evaluation [and core requirements]**
* **FFS on the testability issue.**

**Issue 1-1-3: Performance metric for Demodulation requirements**

**Agreement:**

* **[1% or 0.1%] FAR as assumption for MDR result calibration.**

**Topic #2: REFSENS, ASCS and ACS requirements**

**Issue 2-1-1: Channel model to specify LP-WUS RF requirements**

**Agreement:**

* **For Channel model to specify LP-WUS RF requirements**
  + Follow typical RF requirements approach, AWGN should be selected.

**Issue 2-1-2: Target SNR simulation condition**

Agreement:

* **Target SNR simulation condition** 
  + Follow similar approach of MR NR, no repetition should be used when simulate target SNR.

**Issue 2-1-3: Whether RAN4 should conclude a target SNR first**

**Agreement:**

* Target SNR is the basis for many Rx requirements discussion. Group should conclude SNR definition and SNR values first.

**Issue 2-2-2: Baseline architecture for OOK-based LP-WUS**

**Agreement:**

* **use zero-IF receiver as a baseline architecture for envelop based LP\_WUR**

**Issue 2-2-4: whether different NF for OOK-based and OFDM-based**

**Agreement:**

* Differentiate NF for OOK-based and OFDM-based receiver.

**Newly allocated tdocs for approval**

[R4-2414309](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414309.zip) **WF on LP-WUS UE RF requirements**

*Type: other For: Approval  
 Source: Vivo*

**Decision: Return to.**

### 8.23 NR mobility enhancements Phase 4

### 8.24 XR for NR Phase 3

### 8.25 Non-Terrestrial Networks (NTN) for NR Phase 3

### 8.26 Non-Terrestrial Networks (NTN) for Internet of Things (IoT) Phase 3

## 9 Liaison output to other groups and related issues

The following guidance are provided for maintenance work under AI 4 ~ AI 5:

‒ For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

‒ When submitting contributions to AI 4, AI 5.2, AI 5.34, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

‒ When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

‒ For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

‒ The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 9.

‒ The contributions corresponding to incoming LS for Rel-18/19 are expected to be submitted to (sub-) agenda dedicated to the individual WIs. If there is no dedicated agenda, please submit to AI 5.2 or AI 5.34 depending on whether it is spectrum related topic or non-spectrum related topic.

### 9.1 R17 related

[R4-2412923](file:///D:\\RAN4%23112\\Docs\\R4-2412923.zip) **Reply to LS on IE supportedBandwidthCombinationSetIntraENDC and IE intraBandENDC-Support**

*Type: LS out For: Approval  
 to RAN2  
 Source: Google*

[MCC]: This will be treated in email thread [134].

**Decision: Approved.**

### 9.2 R15, R16 related

### 9.3 Moderator summary and conclusions

[R4-2412836](file:///D:\\RAN4%23112\\Docs\\R4-2412836.zip) **Topic summary for [112][134] NR\_reply\_LS\_UE\_RF**

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

**Abstract:**

Summary for AI 9.1, 9.2

**Decision: Noted.**

## 10 RAN task and other topics

### 10.1 Specification quality improvement (RP-240782)

It is expected to focus on identifying the key issues. No CR or draft CR is expected for TS 38.101-1/-2/-3. The draft CR for TS 38.133 can be submitted according to the work split for offline discussion only. No need to propose an SI to capture the agreements.

[R4-2412837](file:///D:\RAN4%23112\Docs\R4-2412837.zip) **Topic summary for [112][135] UERF\_Spec\_Improvement**

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

**Abstract:**

Summary for AI 10.1.1

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

**Miniutes and conlcusions in the first round**

**Topic #1: Technical wording ambiguities and Table modifications**

**Issue 1-1: dual Tx vs 2Tx meaning and usage is overlapping and not clear what is the difference**

**Agreement:**

* Replace “dual Tx” with “2Tx”
  + Changes should be from Rel-15

**Issue 1-2: Modified MPR**

Agreement:

* no change of the current specification.

**Issue 1-3: Notes usage**

**Agreement:**

* Use Option 1, Option 2 and Option 4 as baseline, and further work on how to implement them.
  + Companies are encouraged to provide draft examples for option 1, 2, and 4 in the next meeting.
  + Discuss the changes for the existing tables case by case.

**Topic #2: Work practice enhancements**

**Issue 2-1: PRD usage**

**Agreement:**

* Companies come up with concrete proposals on the scope of the first PRD for band combinations with PRD skeleton, if possible.
  + Ericsson can lead the discussions for the first PRD.
* Based on the initial version of PRD, RAN4 will decide whether to have PRD and how to organize the discussions.

**Newly allocated tdocs for approval**

[R4-2414430](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414430.zip) **WF on UE RF Specification quality improvement**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Return to.**

#### 10.1.1 UE RF specifications TS 38.101-1/-2/-3

[R4-2411146](file:///D:\\RAN4%23112\\Docs\\R4-2411146.zip) **Simplifying ?RIB,c and ?TIB,c tables**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2411147](file:///D:\RAN4%23112\Docs\R4-2411147.zip) **Simplifying or removing MSD tables**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

[R4-2412482](file:///D:\RAN4%23112\Docs\R4-2412482.zip) **RF specification quality improvement**

*Type: discussion For: Discussion  
 Source: Anritsu Limited*

**Decision: Noted.**

##### 10.1.1.1 Technical wording ambiguities and Table modifications

[R4-2411111](file:///D:\\RAN4%23112\\Docs\\R4-2411111.zip) **On technical wording ambiguities and table modifications for UE RF specs improvement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411237](file:///D:\RAN4%23112\Docs\R4-2411237.zip) **Technical wording ambiguities and Table modifications handling**

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

**Abstract:**

This contribution discusses handling of delta TIBC and RIBC, wording ambiguities, modifiedMPR and NOTEs in a table.

**Decision: Noted.**

[R4-2411313](file:///D:\RAN4%23112\Docs\R4-2411313.zip) **Views on technical wording ambiguities**

*Type: discussion For: Discussion  
 Source: Samsung,CHTTL*

**Decision: Noted.**

[R4-2411676](file:///D:\RAN4%23112\Docs\R4-2411676.zip) **Spec improvements: technical wording ambiguities**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose that changes to technical wording are minimized.

**Decision: Noted.**

[R4-2411838](file:///D:\RAN4%23112\Docs\R4-2411838.zip) **Considerations on specification improvement for table modification**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

[R4-2413066](file:///D:\RAN4%23112\Docs\R4-2413066.zip) **Further MSD simplifications**

*Type: other For: Discussion  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This paper presents views on simplifying HPUE inter-band MSD requirements.

**Decision: Noted.**

[R4-2413068](file:///D:\RAN4%23112\Docs\R4-2413068.zip) **Update on Harmonic MSD simplification**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This document proposes additional harmonic measurement toward simplifying MSD requirements due to harmonic interference.

**Decision: Noted.**

[R4-2413338](file:///D:\RAN4%23112\Docs\R4-2413338.zip) **On UE RF specifications table improvement**

*Type: other For: Approval  
 Source: Nokia*

**Abstract:**

Listing of supported band combinations

When opening RAN4 UE specification TS 38.101-1 it is evident that the dominant part of the specification content is tables listing band combinations. The first tables list simply what DL and UL configurations are supported and as one moves on in the specification additional information is added on e.g. supported channel bandwidths within the listed DL and UL bands. Listing the same band combinations multiple times just adding additional information is needed simply because it is not currently practical to condense all the information and requirements for a single DL configuration into a single table.

- Observation 1: Currently it is not possible to condense all the information and requirements for a single DL configuration into a single table.

As a result, RAN#102 commissioned an activity to identify a new methodology with a small working party in conjunction with ETSI MCC to handle capturing a large number of band combinations. The status of this work was last presented at RAN#103 in [4]. The intention of this work is in long term to shift the listing of the band combinations from the Word-based specification to a database managed by MCC and then simply reference from the written Word-based specification.

- Observation 2: The long-term goal is to move the listing of band combinations to a database managed by MCC.

However, due to the complexity of the information related to the band combinations, this may take significant time and RAN4 can in the meantime investigate whether additional simplification and removal of redundancy can be achieved.

Definition of UE relaxations per band combination

A starting point to reduce the length and number of tables for band combinations is, as suggested in [3], to investigate if some of the information/requirements now spread across multiple tables listing band combinations can be merged into a single table listing the band combination.

- Observation 3: Multiple tables are now listing band combinations meaning that there are numerous long tables in the specification.

UE relaxations per band combination, e.g. ΔTIB,c and ΔRIB,c and even MSD in many cases, have the same value dependent on the type of issue, e.g. harmonics, creating the need for the relaxation. Even so, these relaxation values are currently listed per band combination in multiple tables for each type of issue.

- Observation 4: Currently the RAN4 UE RF specification has separate tables for each UE relaxation type, e.g. MSD due to harmonica mixing issues.

A suggestion is to list relaxation per UE issue/type in a single table and then list all the types of issues for the specific band combinations in list of supported band combinations. By grouping a list of issues per band combination would provide an overview of the individual band combinations combined need for UE relaxation.

- Observation 5: Providing a list of supported band combinations together with their “issues” requiring relaxation would provide an overview instead of spreading the information over multiple tables in the specification.

In a practical example for TS 38.101-1 only targeting Clause 7 this would mean introducing the following 8 as shown in the following in Table 1-8. The Reasoning for the values proposed in these tables is given in Annex A which shows the statistics and investigations conducted for the currently defined UE relaxations in TS 38.101-1.

With the agreement of the LowerMSD capability signaling only a worst-case MSD value is required for each MSD type and order, including band-group relations Table 1 to Table 8 in the following has been made using the highest MSD for each MSD type and MSD order. If the MSD is expected to be much better than specified in the generic requirements it is expected that UE vendors signal the improved MSD Class for the combination.

- Observation 6: Annex A show the statistics and investigations conducted for the currently defined UE relaxations in TS 38.101-1 clause 7.

This contribution also proposes new table structure for 38.101-1 presented in Table 1-9:

**Decision: Noted.**

[R4-2413065](file:///D:\RAN4%23112\Docs\R4-2413065.zip) **Cross-band isolation MSD simplification**

*Type: other For: Approval  
 38.101-1 v CR- rev Cat: (Rel-19)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

This document proposes some simplifications for cross-band isolation MSD.

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

##### 10.1.1.2 Work practice enhancements

[R4-2411112](file:///D:\\RAN4%23112\\Docs\\R4-2411112.zip) **On work practice enhancements for UE RF specs improvement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411238](file:///D:\RAN4%23112\Docs\R4-2411238.zip) **On PRD approach**

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

**Abstract:**

This contribution discusses if we should adopt PRD concept in RAN4.

Huawei provides the following observations and proposals:

- Observation 1: PRDs in RAN5 do not contain technical aspects, e.g., technical recommendation, while the proposed PRDs in [[R4-2407581](file:///D:\RAN4%23112\Docs\R4-2407581.zip)] intend to contain technical aspects. Thus, the concept of RAN5 PRDs may not be introduced into RAN4 as they are.

- Observation 2: PRDs including technical instructions may impact on the outcome of T-Doc following the instructions in the PRDs. Hence, once we start the new approach, we need to commit to the sustainability of the PRDs.

- Observation 3: Sustainability should be ensured. Otherwise, the situation in the future may be worse than now.

- Observation 4: Developing and sustaining the PRDs doesn’t come for free so that the gain of the introduction of the PRDs must be positive. Hence, topic and its scope selections must need great care.

- Observation 5: In principle, PRDs should contain the latest information and well documented in a way to give people who are not familiar with RAN4 clear instructions. Otherwise, we don’t need PRDs (A list of the approved WF would be enough).

- Observation 6: At least when the endorsed content for a PRD is reflected in the corresponding PRD and how do we promote utilization of the PRD should be sufficiently discussed before introducing the PRD.

- Proposal 1: Before making a decision of the introduction of the PRD, we should start with a trial (the corresponding PRD is not in 3gpp ftp server) with a limited scope to check if it is manageable and the usefulness of it. Depending on the outcome, we make a decision.

- Proposal 2: Encourage companies to share possible areas with issues that they have encountered and expected outcome with specific details if we further discuss the introduction of the PRD in the future meetings.

**Decision: Noted.**

[R4-2413320](file:///D:\RAN4%23112\Docs\R4-2413320.zip) **Specification writing and CR practices for better efficiency and transparency**

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

**Abstract:**

Qualcomm discussed specification drafting issues and CR handling for the benefit of the whole WG and made the following proposals:

- Proposal 1: Do not create hanging paragraphs even if it seems harmless at the time of creating one

- Proposal 2: Do not use notes in tables for requirements that apply every cell/line in the table. Use text above the table instead

- Proposal 3: Use short and clear sentences and create a table with matrix of conditions if requirement needs one

- Proposal 4: If the functional objective of the requirement is already in the specification, refer to existing clauses with added conditions or expansions instead of duplicating same text or tables or figures.

- Proposal 5: Submit Cat F CR only to earliest release where feature has been specified and handle changes that have same functional objective as mirror CRs

- Proposal 6: Do not included mirrored changes from eaerlier releases in the later release cat F CRs

- Proposal 7: Share MPR/AMPR proposals as matlab code as text in the submission document for verification purposes

As a conclusion, the correct knowledge of the contents of drafting rules [2] and working methods [3] should be in every delegates skillset.

**Decision: Noted.**

##### 10.1.1.3 Larger specification structure enhancementsf

[R4-2411113](file:///D:\\RAN4%23112\\Docs\\R4-2411113.zip) **On larger specification structure enhancements for UE RF specs improvement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

[R4-2411239](file:///D:\RAN4%23112\Docs\R4-2411239.zip) **Necessity of key aspects to select a specification structure**

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

**Abstract:**

This paper discusses some aspects when we make a decision on which specification structure should be selected.

The contribution derived following one observation and one proposal.

- Observation: In order to decide which specification structure option RAN4 adopts and to develop a new specification structure(s) if any, RAN4 may need key aspects/criteria for evaluation for each of the candidate specification structures.

- Proposal: RAN4 should discuss possible key aspects to evaluate and compare each of the possible specification structures before selecting one specification structure when developing new specifications like 6G.

**Decision: Noted.**

[R4-2413317](file:///D:\RAN4%23112\Docs\R4-2413317.zip) **Further considerations on specification structure enhancement**

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

**Abstract:**

In this paper, ZTE provide views on specification structure enhancement. The following proposals are provided.

Optimization at this stage.

- Proposal 1. It is suggested to add a number for the constituent sub-file name in the zip file so as to have the zip file in order (See figure 2) with blue colour highlighted.

- Proposal 2. It is suggested to fix or add the missing definitions, symbols and abbreviations in the spec.

Optimization for future spec structure.

- Proposal 3. For future spec structure optimization, it can be optimized with the guidelines as below.

­ Re-organize the specification zip file by the features, each of the constituent sub-file specifies a certain feature, such as single carrier, CA, DC, etc.

­ All of the requirements corresponding to a certain feature will be specified in a certain sub-file.

­ In each sub-file, the clauses could be further specified with a second level sub-clause to reflect the requirements of a sub-feature.

­ Capture the above optimization as one of the candidate for future spec structure.

**Decision: Noted.**

#### 10.1.2 RRM specification TS 38.133

### 10.2 Solution to enable HPUE maximum transmit power in downlink CA with single UL transmission (RP-241625)

**The tdocs under this agenda won’t be treated in the first round and the way forward after offline discussions can be treated in the 2nd round**

[**R4-2414436**](http://10.10.10.10/ftp/RAN/RAN4/Inbox/R4-2414436.zip) **Way forwards for RAN task on HPUE with 1UL and DL CA**

*Type: other For: Approval  
 Source: Qualcomm, AT7T, Verizion, Ericsson, Nokia, Samsung, T-Mobile uSA, Deutsche Telekom, Dish network*

**Decision: Return to.**

[R4-2411098](file:///D:\RAN4%23112\Docs\R4-2411098.zip) **On solution to enable HPUE maximum transmit power in downlink CA with single UL transmission**

*Type: discussion For: Discussion  
 Source: CATT*

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

[R4-2411173](file:///D:\RAN4%23112\Docs\R4-2411173.zip) **Views on RAN task for CA power class support**

*Type: discussion For: Discussion  
 Source: Apple*

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

[R4-2411677](file:///D:\RAN4%23112\Docs\R4-2411677.zip) **Enabling HPUE maximum transmit power in downlink CA with a single configured UL**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we propose to enable HPUE maximum transmit power for DL-only CA without new or redefined capabilties.

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

[R4-2411888](file:///D:\RAN4%23112\Docs\R4-2411888.zip) **Views on power class indication for HPUE DL CA with single UL transmission**

*Type: discussion For: Discussion  
 Source: ZTE Corporation, Sanechips*

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

[R4-2412082](file:///D:\RAN4%23112\Docs\R4-2412082.zip) **Discussion on enable maximum transmit power in downlink CA with single UL transmission**

*Type: discussion For: Discussion  
 Source: vivo*

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

[R4-2412354](file:///D:\RAN4%23112\Docs\R4-2412354.zip) **RAN task R17 power class applicability related**

*Type: other For: Approval  
 Source: OPPO*

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

[R4-2413026](file:///D:\RAN4%23112\Docs\R4-2413026.zip) **Discussion on NR CA power class for single configured UL**

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

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

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

[R4-2413140](file:///D:\RAN4%23112\Docs\R4-2413140.zip) **Support for HPUE with DL CA with single UL CC configured**

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

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

**Draft CR**

[R4-2411099](file:///D:\RAN4%23112\Docs\R4-2411099.zip) **draftCR to TS 38.101-1 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-15)**

*Type: draftCR For: Endorsement  
 38.101-1 v15.26.0 CR- rev Cat: F (Rel-15)  
  
 Source: CATT*

**Abstract:**

Solution to enable HPUE maximum transmission power for downlink CA with single uplink transmission.

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

[R4-2411100](file:///D:\RAN4%23112\Docs\R4-2411100.zip) **draftCR to TS 38.101-2 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-15)**

*Type: draftCR For: Endorsement  
 38.101-2 v15.26.0 CR- rev Cat: F (Rel-15)  
  
 Source: CATT*

**Abstract:**

Solution to enable HPUE maximum transmission power for downlink CA with single uplink transmission.

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

[R4-2411101](file:///D:\RAN4%23112\Docs\R4-2411101.zip) **draftCR to TS 38.101-1 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.20.0 CR- rev Cat: F (Rel-16)  
  
 Source: CATT*

**Abstract:**

Involved texts in subclause 6.2A.1.3 is not the same as in Rel-15, hence it is Cat-F

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

[R4-2411102](file:///D:\RAN4%23112\Docs\R4-2411102.zip) **draftCR to TS 38.101-2 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-2 v16.20.0 CR- rev Cat: A (Rel-16)  
  
 Source: CATT*

**Abstract:**

MCC: This was not made available at tdoc submission deadline. This is a Rel-16 draftCR.

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

[R4-2411103](file:///D:\RAN4%23112\Docs\R4-2411103.zip) **draftCR to TS 38.101-1 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.14.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Abstract:**

Involved texts in subclause 6.2A.1.3 is not the same as in Rel-16, hence it is Cat-F

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

[R4-2411104](file:///D:\RAN4%23112\Docs\R4-2411104.zip) **draftCR to TS 38.101-2 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-2 v17.14.0 CR- rev Cat: F (Rel-17)  
  
 Source: CATT*

**Abstract:**

Involved texts in subclause 6.2A.1.3 is not the same as in Rel-16, hence it is Cat-F

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

[R4-2411105](file:///D:\RAN4%23112\Docs\R4-2411105.zip) **draftCR to TS 38.101-1 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-18)**

*Type: draftCR For: Endorsement  
 38.101-1 v18.6.0 CR- rev Cat: A (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

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

[R4-2411106](file:///D:\RAN4%23112\Docs\R4-2411106.zip) **draftCR to TS 38.101-2 on enabling HPUE maximum transmission power for downlink CA with single uplink transmission(Rel-18)**

*Type: draftCR For: Endorsement  
 38.101-2 v18.6.0 CR- rev Cat: A (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: This was not made available at tdoc submission deadline.

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

[R4-2411678](file:///D:\RAN4%23112\Docs\R4-2411678.zip) **HPUE maximum transmit power in downlink CA with a single configured UL**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2395 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR to enable HPUE maximum output power for DL-only CA

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

[R4-2411679](file:///D:\RAN4%23112\Docs\R4-2411679.zip) **HPUE maximum transmit power in downlink CA with a single configured UL**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2396 rev Cat: A (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR to enable HPUE maximum output power for DL-only CA. MCC: This is CAT A CR.

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

[R4-2413138](file:///D:\RAN4%23112\Docs\R4-2413138.zip) **(Power\_Limit\_CA\_DC-Core) CR to TS 38.101-1: DL CA HPUE**

*Type: CR For: Agreement  
 38.101-1 v17.14.0 CR-2482 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Inc.*

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

[R4-2413139](file:///D:\RAN4%23112\Docs\R4-2413139.zip) **(Power\_Limit\_CA\_DC-Core) CR to TS 38.101-1: DL CA HPUE**

*Type: CR For: Agreement  
 38.101-1 v18.6.0 CR-2483 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: This is CAT A CR.

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

## 11 New or revised WID/SID

[R4-2411174](file:///D:\\RAN4%23112\\Docs\\R4-2411174.zip) **Motivation for MSD reporting enhancement in Rel-19**

*Type: other For: Information  
 Source: Apple*

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper summarize the drawbacks of the Rel-18 lower MSD capability signaling and propose a more effective and efficient MSD/SIR measurement and reporting scheme based on real carrier configurations as part of Rel-19 RAN4 objectives for consideration.

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

[R4-2411175](file:///D:\RAN4%23112\Docs\R4-2411175.zip) **Motivation for UL Tx switching for FR1 intra-band non-contiguous UL CA in Rel-19**

*Type: other For: Information  
 Source: Apple*

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper discusses how the feature UL Tx switching provides the benefits of coverage improvement, UL throughput enhancement, and latency reduction. Considering that the same feature can very well be applied to FR1 intra-band non-contiguous UL CA where UE is typically limited with two Tx paths for simultaneous transmission, Apple provide the motivation on introducing the UL Tx switching feature for FR1 intra-band non-contiguous UL CA as part of the Rel-19 RAN4 objectives.

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

[R4-2411176](file:///D:\RAN4%23112\Docs\R4-2411176.zip) **Motivation for a new work item on LB+LB CA based on switching in Rel-19**

*Type: other For: Information  
 Source: Apple, Skyworks Solutions Inc., BT plc, TELUS, Bell Mobility, Anterix, Southern Linc*

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper discusses LB+LB CA based on switching in Rel-19 During the RAN #104 meeting an operator request for low band + low band (LB+LB) carrier aggregation based on switching. This contribution describes the relevant LB+LB CA scenarios and provides the motivation for a new Rel-19 work item to specify a switching solution to enable their adoption into practical handset front end architectures.

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

[R4-2411268](file:///D:\RAN4%23112\Docs\R4-2411268.zip) **Motivation for supporting irregular channels with the next larger channel bandwidth in Rel-19**

*Type: other For: Information  
 Source: Apple*

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper discusses the support of irregular channels with the next larger channel bandwidth in Rel-19. In response to that limitation RAN4 contemplated so-called "next larger channel" solution, which allows a UE to use all RBs spanning the irregular spectrum block. This approach was not pursued in Rel-18 because companies preferred to focus on enhanced channel raster. Thus, in this discussion paper Apple present further considerations on benefits of the "next larger channel" and suggest considering the corresponding normative work in Rel-19.

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

[R4-2411269](file:///D:\RAN4%23112\Docs\R4-2411269.zip) **Motivation paper for band plan for satellite communication in terrestrial bands**

*Type: other For: Information  
 Source: Apple*

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper present further details of the FCC R&O and outline next action points for 3GPP to analyze designated spectrum blocks and how they can be used in the final band plan.

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

[R4-2411783](file:///D:\RAN4%23112\Docs\R4-2411783.zip) **Evolution path of 3Tx UEs**

*Type: discussion For: Discussion  
 Source: MediaTek Inc., China Telecom, China Unicom, OPPO, Softbank, T-Mobile USA, Verizon*

**Abstract:**

MCC: This paper discusses the need in Rel-19 to consider the evolution path to further utilize the 3Tx architecture to achieve even better performance. In the newly approved Rel-19 WI NR\_ENDC\_RF\_Ph4, one objective for HPUE with CA was introduced to discuss the general requirements for 3Tx UE.

On spectrum-related WIs, according to the approved RP-240894, the 3Tx requirements will be distributed into multiple baskets, such as PC3: DC\_R19\_xBLTE\_yBNR/NR\_CADC\_SUL\_R19 for PC3 and HPUE\_DC\_LTE\_NR\_R19/HPUE\_NR\_CADC\_SUL\_R19 for HPUE.

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

[R4-2412129](file:///D:\RAN4%23112\Docs\R4-2412129.zip) **New WID Proposal: Introduction of HAPS additional operating bands**

*Type: WID new For: Information  
 Source: SoftBank Corp.*

**Abstract:**

This contribution proposes additional frequency bands for HAPS operation based on the results of the ITU's World Radio Communication Conference 2023(WRC-23.) As with the addition of the 2 GHz band as an operating band for HAPS, we will establish a WI and conduct a study to add bands. MCC: From November to December 2023, the ITU’s WRC-23 was held in Dubai, United Arab Emirates. At the conference, an official decision was reached to add and modify frequency bands which could be used for HAPS base stations. By making it possible for operators to select frequency bands with flexibility, it is expected that the introduction and development of HAPS-based mobile broadband communications will spread across various countries and regions.

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

[R4-2412262](file:///D:\RAN4%23112\Docs\R4-2412262.zip) **New WID on mmWave UE spurious emssion**

*Type: WID new For: Information  
 Source: China Unicom*

**Abstract:**

MCC: draft WID on mmWave spurious emission. This WID highlight that in order to facilitate the mmWave industry maturity, this WI is proposed to specify relevant requirements that meet the latest UE emission demand from regulation.

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

[R4-2412462](file:///D:\RAN4%23112\Docs\R4-2412462.zip) **Rel-19 AI Mobility – RAN4 Scope**

*Type: other For: Discussion  
 Source: Shanghai Chen Si Electronics*

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

[R4-2412786](file:///D:\RAN4%23112\Docs\R4-2412786.zip) **Motivation on introduction of new FR2 PC**

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

**Abstract:**

MCC: This is motivation paper for new or revised WID/SID. This paper discusses why FR2 PC acceleration will promote the spread of FR2 market in China as well as lead to the expansion of the FR2 industry development around the world, given that the proposed new FR2 power class with low complexity with clear targeted use cases will shorten the time to market of such FR2 devices, and thus help to speed up FR2 network deployment.

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

[R4-2412787](file:///D:\RAN4%23112\Docs\R4-2412787.zip) **Draft WID for introduction of new FR2 PC**

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

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

[R4-2412924](file:///D:\RAN4%23112\Docs\R4-2412924.zip) **New WID proposal: Intra-SAN Carrier Aggregation (CA) for NR-NTN**

*Type: WID new For: Information  
 Source: Inmarsat, Viasat*

**Abstract:**

MCC: This was not submitted by tdoc submission deadline.

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

[R4-2413125](file:///D:\RAN4%23112\Docs\R4-2413125.zip) **New SID on VSAT test methods**

*Type: SID new For: Information  
 Source: Eutelsat Group*

**Abstract:**

MCC: This is a draft SID on VSAT test methods. This SID states that the next phase of the work is to consider performance requirements and then testability. Current test methods defined for TN FR2 UE and BS may not be suitable for testing VSAT for two reasons: 1. VSAT device sizes are much larger than FR2 UE handsets; 2. The lower frequency range of VSAT is 10.7 GHz, well below the current TN FR2 frequency range.

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

[R4-2413228](file:///D:\RAN4%23112\Docs\R4-2413228.zip) **Revised WID on Introduction of an IoT-NTN S-band for North America (MSS band 2000-2020 MHz UL and 2180-2200 MHz DL)**

*Type: WID revised For: Endorsement  
 Source: Mediatek India Technology Pvt.*

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

## 12 Any other business

## 13 Close of the meeting

[R4-2411299](file:///D:\\RAN4%23112\\Docs\\R4-2411299.zip) **Rel-19 draft new SID: Study on spatial channel model for demodulation performance requirements**

*Type: SID new For: Information  
 Source: Nokia, BT plc*

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

The RAN4 Chair Xizeng Dai (Huawei) formally closed the RAN4#112 meeting on Friday, 23/08/2024 at 16h30.

Report prepared by: MCC

BACKUP

-------------------------- Constant values for Chair Tool, please keep them in your notes ----------------------------

**R4-2****4AAACR Draft big CR for**

*Type: draftCR For: Endorsement  
 38.1xx-0y v18.x.0 CR- rev Cat: B (Rel-1x)  
  
 Source:*

**Decision: Return to.**

**R4-24AAASU Topic summary for [112][10x] x**

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

**Abstract:**

This contribution provides the summary of topics and recommended summary.

**Decision: Return to.**

**R4-2****4AAAWF WF on**

*Type: other For: Approval  
 Source:*

**Decision: Return to.**

**R4-24AAATP TP for TR 38.xxx**

*Type: pCR For: Approval  
 38.xxx-0y-0y vx.y.z CR- rev Cat: (Rel-18)  
  
 Source:*

**Decision: Return to.**

**LatestTdocNumber: R4-2414450**

-------------------------- Constant values for Chair Tool, please keep them in your notes ----------------------------

-------------------------- Update the Tdoc status by a batch processing ----------------------------

**Update\_Tdoc\_Status\_By\_Batch:**

[R4-2405003](file:///D:\RAN4%23112\Docs\R4-2405003.zip) agreed

[R4-2415024](file:///D:\RAN4%23112\Docs\R4-2415024.zip) ENDprocessing

-------------------------- Update the Tdoc status by a batch processing ----------------------------