**3GPP TSG-RAN WG4 Meeting # 109 R4-2318108**

**Chicago, USA, November 13 – November 17, 2023**

**Agenda item:** 5.1, 5.2.1.

**Source:** Moderator (MediaTek)

**Title:** Topic summary for [109][102] R17\_UERF\_maintenance

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Moderator’s remarks** |
| [**R4-2318364**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318364.zip)  R4-2318365 | CR for TS 38.101 Rel-17 correcting the starting RB location for NS\_07 | Sony | CR to 38.101-1 |
| [**R4-2318467**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318467.zip) | [NR\_RF\_TxD-Core] Removing brackets from TxD release independent information | Huawei, HiSilicon | CR to 38.307 |
| [**R4-2318468**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318468.zip)  R4-2318469 (Rel-18) | [NR\_RF\_TxD-Core] Correction to 7.3G REFSENS for TxD (Rel-17) | Huawei, HiSilicon | CR to 38.101-1 |
| [**R4-2318742**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318742.zip) | Removing 20MHz channel raster points for 5925-5945MHz in the lower 6GHz bands | Apple, Nokia | CR to 38.104 (Rel-17), identical change in R4-2321019? |
| [**R4-2318758**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318758.zip)  R4-2318759 | CR to TS38.101-1 Rel-17 CAT-F: On harmonisation network signalling requirements | Apple | CR to 38.101-1 |
| [**R4-2318775**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318775.zip) | CR to TS 38.101-1 (Rel-17): Correction of an Fc location for a 100MHz channel bandwidth of band n77 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-1 |
| [**R4-2318776**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318776.zip) | Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC2 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318779**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318779.zip) | Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318780**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318780.zip) | CR to TS 38.101-3 (Rel-18): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318782**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318782.zip) | CR to TS 38.101-3 (Rel-18): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318783**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318783.zip) | CR to TS 38.101-1 (Rel-18): Correction of an Fc location for a 100MHz channel bandwidth of band n77 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-1 |
| [**R4-2318950**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318950.zip) | Addition of the antenna number restriction for TxD signaling in TR 38.837 for Rel-17 | vivo | CR to TR 38.837 |
| [**R4-2318988**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318988.zip) | Discussion on the restriction in R17 DC location signalling | vivo | Discussion paper:  **Observation**: Current description for R17 DC location signaling in RAN2 spec will restrict UE implementation in some cases.  **Proposal**: Send LS to RAN2 to remove the restriction from R18 and let the UE choose whether a single offset value or offset list is needed. |
| [**R4-2318989**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318989.zip) | draft LS on R17 DC location signaling | vivo | LS in line with proposals in R4-2318988. |
| [**R4-2319264**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319264.zip)  R4-2319291 | [NR\_newRAT-Core] Editorial modification CR for TS 38.101-1 | LG Electronics | CR to 38.101-1 |
| [**R4-2319427**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319427.zip)  R4-2319428 | [NR\_RF\_FR1-Core] Corrections to configured maximum power and MPR for serving cells of UL CA | Ericsson | Move to [149] |
| [**R4-2319429**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319429.zip)  R4-2319430 | [NR\_RF\_FR1\_Core] Correction to UE power classes for CA configurations for HPUE | Ericsson |
| [**R4-2319431**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319431.zip)  R4-2319432 | [NR\_RF\_FR1-Core] Applicability of exceptions to REFSENS for CA and SUL | Ericsson | CR to 38.101-1 |
| [**R4-2319449**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319449.zip)  R4-2319450 | [NR\_n13-Core] CR to correct typo for RBstart used in A-MPR regions for NS\_07 - TS38.101-1, Rel-17, Cat-F | Anritsu Limited | CR to 38.101-1, overlapped with R4-2318364 (Sony).  According to offline discussion, Anritsu agreed to merge this CR to Sony's CR. |
| [**R4-2319511**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319511.zip)  R4-2319512 | [DC\_R17\_2BLTE\_1BNR\_3DL2UL] CR for 38.101-3:Removal of wrong UL configuration for DC\_3A-32A\_n78(2A),Rel-17 | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2319513**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319513.zip)  R4-2319514 | [DC\_R17\_3BLTE\_1BNR\_4DL2UL] CR for 38.101-3: Correction on the delta\_T/R for DC\_1-7-32\_n78, Rel-17 | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2319754**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319754.zip)  R4-2319755 | Rel17 Cat F CR for 38.101-1 Add missing Uplink configurations for PC3 CA\_n46M-n48B-n96A and CA\_n46M-n48(4A)-n96D | Samsung | CR to 38.101-1 |
| [**R4-2319756**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319756.zip)  R4-2319757 | Rel17 Cat F CR for 38.101-3 Correct the Uplink configuration for DC\_2A\_n7(2A)-n66A | Samsung | CR to 38.101-3 |
| [**R4-2319766**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319766.zip)  R4-2319767 | Rel17 Cat F CR for 38.101-1 Add missing MSD due to UL harmonic interference for PC3 CA\_n71-n78 in clause 7.3A.4 | Samsung, TELUS, Bell Mobility | CR to 38.101-1 |
| [**R4-2319859**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319859.zip)  R4-2319860 | [NR\_NTN\_solutions-Core] CR for 38.101-5 to align the understanding of GEO (R17) | Huawei, HiSilicon | CR to 38.101-5 |
| [**R4-2319861**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319861.zip)  R4-2319862 | [NR\_NTN\_solutions-Core] CR for 38.101-5 to update the clause of Transmit modulation quality (R17) | Huawei, HiSilicon | CR to 38.101-5 |
| [**R4-2319873**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319873.zip)  R4-2319874 | [NR\_BCS4-Core] CR for 38.101-1 to modify the MSD value for CA\_20-n78 harmonic mixing and NOTE2 in harmonic mixing table (R17) | Huawei, HiSilicon | CR to 38.101-1 |
| [**R4-2319875**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319875.zip)  R4-2319876 | [DC\_R17\_xBLTE\_2BNR\_yDL2UL-Core] CR for 38.101-3 to remove the ENDC combo which can't be supported by RAN2 (R17) | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2319902**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319902.zip) | R17 DC location reporting clarification | OPPO | Discussion paper:  **Observation 1**: In Rel-17 DC location reporting signaling, UE can only indicate one DC offset if the default DC location is according to the configured CC/BWP.  **Observation 2**: If UE would like to implement different DC locations corresponding to the activated CC/BWP, it can indicate default DC location determined by activated CC/BWP and report a list of DC offsets according to the activated CC/BWP.  **Observation 3**: It can simplify the DC location reporting if support Case 3 (default DC location according to the configured CC/BWP, and DC offset according to the activated CC/BWP), but this not a correction issue.  **Observation 4**: RAN2 signaling design exactly followed RAN4 DC location reporting LS.  **Proposal 1**: If the case of (default DC location according to the configured CC/BWP, and DC offset according to the activated CC/BWP) is interested by companies, it should not impact Rel-17 specs. |
| [**R4-2320181**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320181.zip) | Discussion on IE supportedBandwidthCombinationSetIntraENDC | Google Inc. | Discussion paper:  **Proposal 1**: RAN4 confirms the ambiguous signaling issue of IE supportedBandwidthCombinationSetIntraENDC to separately indicate the first and the second intra-band EN-DC BCS for the inter-band EN-DC band combinations, e.g., DC\_3A-41A\_n3A-n41A or DC\_1A-3A-41A\_n3A-n41A, with two additional intra-band EN-DC components, e.g., the first intra-band EN-DC component DC\_3A\_n3A and the second intra-band EN-DC component DC\_41A\_n41A.  **Proposal 2**: RAN4 send LS in the Annex to RAN2 to find a solution for the ambiguous signaling issue. |
| [**R4-2320241**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320241.zip) | [Draft] LS on IE supportedBandwidthCombinationSetIntraENDC | Google Inc. | Draft LS according to Proposal in R4-2320181 |
| [**R4-2320274**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320274.zip) | [NR\_CADC\_R17\_3BDL\_2BUL-Core] CR for 38.101-01 to add missing IMD5 for CA\_n48-n66-n70 with UL CA\_n48-n66 (Rel-17, Cat. F) | DISH Network, Samsung, Fujitsu, Qualcomm | CR to 38.101-1 |
| [**R4-2320299**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320299.zip) | [NR\_CADC\_R17\_3BDL\_2BUL-Core] CR for 38.101-01 to add missing IMD5 for CA\_n48-n66-n70 with UL CA\_n48-n66 (Rel-18, Cat. A) | DISH Network, Samsung, Fujitsu, Qualcomm | Cat-A CR, 🡪 Should not be uploaded!! |
| [**R4-2320378**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320378.zip) | [NR\_NTN\_solutions-Core] CR on TS 38.307 for NR NTN bands release independent | Qualcomm Incorporated, CHTTL | CR to 38.307 |
| [**R4-2320514**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320514.zip) | CR to TS 38.101-3 (Rel-17): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC2 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2320517**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320517.zip) | CR to TS 38.101-3 (Rel-17): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2320604**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320604.zip) | Addition of the antenna number restriction for TxD signaling in TR 38.837 for Rel-17 | vivo | CR to 38.837 |
| [**R4-2320650**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320650.zip)  R4-2320651 | [NR\_CADC\_R17\_2BDL\_xBUL] CR to 38.101-1, n3-n77(2A) test point correction | Qualcomm Inc. | CR to 38.101-1 |
| [**R4-2320842**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320842.zip) | [NR\_NTN\_solutions-Core] CR to TS 38.307: release independent requirements for NTN FR1, Rel-17 | Huawei, HiSilicon | CR to 38.307 |
| [**R4-2320896**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320896.zip) | Clarification for the Pi/2 BPSK modulation | THALES, Inmarsat, Ligado Networks, Hughes/Echostar, Globalstar, Apple, IITH | CR to 38.101-5 |
| [**R4-2320899**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320899.zip) | Clarification for the Pi/2 BPSK modulation | THALES, Inmarsat, Ligado Networks, Hughes/Echostar, Globalstar, Apple, IITH | Cat-A CR, should not be uploaded!! |
| [**R4-2321019**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2321019.zip) | Removing 20MHz channel raster points for 5925-5945MHz in the lower 6GHz bands | Apple Inc., Nokia | CR to 38.104 (Rel-17), identical change in R4-2318742? |
| [**R4-2319620**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319620.zip) | Flexible TX-RX Separation for NR NTN FR1 bands | Inmarsat, Viasat, Globalstar, Ligado Networks, Thales, Sateliot, Hughes/Echostar | Discussion paper:  **Observation 1**: Flexible TX-RX separation is already supported by a number of terrestrial NR operating bands.  **Observation 2**: Flexibility in allocating UL channels in respect to DL channels is a typical mode of operation for existing satellite systems and is becoming a strong requirement for NTN, in order to accommodate deployment of NTN cells around existing services and within geographical spectrum allocations, within the NTN bands frequency range  **Observation 3**: Given the minimum TX-RX separation even in the worst case, it should be possible to support flexible TX-RX separation for all of the NTN FR1 bands.  **Proposal 1**: Introduce Flexible TX-RX separation for all NR NTN FR1 bands as a mandatory release-independent requirement, starting from Release 17 |

# Topic #1: Rel-17 DC location

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Moderator’s remarks** |
| [**R4-2318988**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318988.zip) | Discussion on the restriction in R17 DC location signalling | vivo | Discussion paper:  **Observation**: Current description for R17 DC location signaling in RAN2 spec will restrict UE implementation in some cases.  **Proposal**: Send LS to RAN2 to remove the restriction from R18 and let the UE choose whether a single offset value or offset list is needed. |
| [**R4-2318989**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318989.zip) | draft LS on R17 DC location signaling | vivo | LS in line with proposals in R4-2318988. |
| [**R4-2319902**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319902.zip) | R17 DC location reporting clarification | OPPO | Discussion paper:  **Observation 1**: In Rel-17 DC location reporting signaling, UE can only indicate one DC offset if the default DC location is according to the configured CC/BWP.  **Observation 2**: If UE would like to implement different DC locations corresponding to the activated CC/BWP, it can indicate default DC location determined by activated CC/BWP and report a list of DC offsets according to the activated CC/BWP.  **Observation 3**: It can simplify the DC location reporting if support Case 3 (default DC location according to the configured CC/BWP, and DC offset according to the activated CC/BWP), but this not a correction issue.  **Observation 4**: RAN2 signaling design exactly followed RAN4 DC location reporting LS.  **Proposal 1**: If the case of (default DC location according to the configured CC/BWP, and DC offset according to the activated CC/BWP) is interested by companies, it should not impact Rel-17 specs. |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1

*Sub-topic description: To confirm whether there is an issue restricting UE implementation in the Rel-17 DC location reporting signaling: if default DC location is set to the configured CC/BWP, there is only one offset value that can be reported)*



*(Excerpt from R4-2318988)*

*Three cases (Excerpt from R4-2319902):*

* *Case 1: default DC location and DC offset both according to the configure CC/BWP*
* *Case 2: default DC location and DC offset both according to the activated CC/BWP*
* *Case 3: default DC location according to the configured CC/BWP, and DC offset according to the activated CC/BWP*

*Case 1 and 2 are supported in the current Rel-17 DC location reporting.*

*Open issues and candidate options before meeting:*

**Issue 1-1: Whether or not to confirm the issue in the Rel-17 DC location reporting signaling that UE can only indicate one DC offset if the default DC location is according to the configured CC/BWP, thus impose a restriction on UE implementation?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* Recommended WF
  + Option 1?

OPPO: we have no strong view.

Moderator: let us confirm whether there is issue. If confirming the issue, we should discuss how to handle it. The current signalling does not address the issue.

OPPO: This is not an issue. It is optimization. It should not impact Rel-17.

### Sub-topic 1-2

*Sub-topic description: If the issue is confirmed, how to handle the issue?*

*Open issues and candidate options before meeting:*

**Issue 1-2: If Issue 1-1 is confirmed, how should RAN4 handle this issue?**

* Proposals
  + Option 1: Send LS to RAN2 to remove the restriction from R18 and let the UE choose whether a single offset value or offset list is needed
  + Option 2: Any solution if introduced should not impact Rel-17 specs
* Recommended WF
  + TBA

Moderator: If Option 1 is agreed in the first round, then we could focus on the LS contents in the second round.

# Topic #2: BCS ambiguity for intra-band EN-DC

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Moderator’s remarks** |
| [**R4-2320181**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320181.zip) | Discussion on IE supportedBandwidthCombinationSetIntraENDC | Google Inc. | Discussion paper:  **Proposal 1**: RAN4 confirms the ambiguous signaling issue of IE supportedBandwidthCombinationSetIntraENDC to separately indicate the first and the second intra-band EN-DC BCS for the inter-band EN-DC band combinations, e.g., DC\_3A-41A\_n3A-n41A or DC\_1A-3A-41A\_n3A-n41A, with two additional intra-band EN-DC components, e.g., the first intra-band EN-DC component DC\_3A\_n3A and the second intra-band EN-DC component DC\_41A\_n41A.  **Proposal 2**: RAN4 send LS in the Annex to RAN2 to find a solution for the ambiguous signaling issue. |
| [**R4-2320241**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320241.zip) | [Draft] LS on IE supportedBandwidthCombinationSetIntraENDC | Google Inc. | Draft LS according to Proposal in R4-2320181 |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 2-1

*Sub-topic description: To confirm whether there is an ambiguity issue related to BCS capability on intra-band EN-DC*

*Open issues and candidate options before meeting:*

**Issue 2-1: Whether or not to confirm the issue that there is an ambiguity issue in the IE supportedBandwidthCombinationSetIntraENDC for an inter-band EN-DC band combination consisting of two different intra-band EN-DC components?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* Recommended WF
  + Option 1?

### Sub-topic 2-2

*Sub-topic description: Handling of the issue*

*Open issues and candidate options before meeting:*

**Issue 2-2: If Issue 2-1 is confirmed, how should RAN4 handle the ambiguity issue**

* Proposals
  + Option 1: Ask RAN2 to solve the issue by sending an LS
  + Option 2: Others, please elaborate
* Recommended WF
  + Option 1?

Moderator: If Option 1 is agreed in the first round, then we could focus on the LS contents in the second round.

# Topic #3: Flexible TX-RX Separation for NR NTN FR1 bands

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Moderator’s remarks** |
| [**R4-2319620**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319620.zip) | Flexible TX-RX Separation for NR NTN FR1 bands | Inmarsat, Viasat, Globalstar, Ligado Networks, Thales, Sateliot, Hughes/Echostar | Discussion paper:  **Observation 1**: Flexible TX-RX separation is already supported by a number of terrestrial NR operating bands.  **Observation 2**: Flexibility in allocating UL channels in respect to DL channels is a typical mode of operation for existing satellite systems and is becoming a strong requirement for NTN, in order to accommodate deployment of NTN cells around existing services and within geographical spectrum allocations, within the NTN bands frequency range  **Observation 3**: Given the minimum TX-RX separation even in the worst case, it should be possible to support flexible TX-RX separation for all of the NTN FR1 bands.  **Proposal 1**: Introduce Flexible TX-RX separation for all NR NTN FR1 bands as a mandatory release-independent requirement, starting from Release 17 |

## Open issues summary

*Before Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 3-1

*Sub-topic description:*

*Open issues and candidate options before meeting:*

**Issue 3-1: Whether or not to introduce flexible TX-RX separation for all NR NTN in FR1 bands as a mandatory release-independent requirement, starting from Release 17?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* Recommended WF
  + TBA

Moderator: it is bandwidth parameters. We do not think we need the agreement and it is not doable.

# Topic #4: CRs

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

Handled in NWM process at:

https://nwm-trial.etsi.org/#/documents/8733

|  |  |  |  |
| --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Moderator’s remarks** |
| [**R4-2318364**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318364.zip)  R4-2318365 | CR for TS 38.101 Rel-17 correcting the starting RB location for NS\_07 | Sony | CR to 38.101-1 |
| [**R4-2318468**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318468.zip)  R4-2318469 (Rel-18) | [NR\_RF\_TxD-Core] Correction to 7.3G REFSENS for TxD (Rel-17) | Huawei, HiSilicon | CR to 38.101-1 |
| [**R4-2318758**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318758.zip)  R4-2318759 | CR to TS38.101-1 Rel-17 CAT-F: On harmonisation network signalling requirements | Apple | CR to 38.101-1 |
| [**R4-2320650**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320650.zip)  R4-2320651 | [NR\_CADC\_R17\_2BDL\_xBUL] CR to 38.101-1, n3-n77(2A) test point correction | Qualcomm Inc. | CR to 38.101-1 |
| [**R4-2318775**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318775.zip) | CR to TS 38.101-1 (Rel-17): Correction of an Fc location for a 100MHz channel bandwidth of band n77 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-1 |
| [**R4-2319754**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319754.zip)  R4-2319755 | Rel17 Cat F CR for 38.101-1 Add missing Uplink configurations for PC3 CA\_n46M-n48B-n96A and CA\_n46M-n48(4A)-n96D | Samsung | CR to 38.101-1 |
| [**R4-2318783**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318783.zip) | CR to TS 38.101-1 (Rel-18): Correction of an Fc location for a 100MHz channel bandwidth of band n77 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-1 |
| [**R4-2319264**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319264.zip)  R4-2319291 | [NR\_newRAT-Core] Editorial modification CR for TS 38.101-1 | LG Electronics | CR to 38.101-1 |
| [**R4-2319431**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319431.zip)  R4-2319432 | [NR\_RF\_FR1-Core] Applicability of exceptions to REFSENS for CA and SUL | Ericsson | CR to 38.101-1 |
| [**R4-2319449**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319449.zip)  R4-2319450 | [NR\_n13-Core] CR to correct typo for RBstart used in A-MPR regions for NS\_07 - TS38.101-1, Rel-17, Cat-F | Anritsu Limited | CR to 38.101-1, overlapped with R4-2318364 (Sony).  According to offline discussion, Anritsu agreed to merge this CR to Sony's CR. |
| [**R4-2319766**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319766.zip)  R4-2319767 | Rel17 Cat F CR for 38.101-1 Add missing MSD due to UL harmonic interference for PC3 CA\_n71-n78 in clause 7.3A.4 | Samsung, TELUS, Bell Mobility | CR to 38.101-1 |
| [**R4-2319873**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319873.zip)  R4-2319874 | [NR\_BCS4-Core] CR for 38.101-1 to modify the MSD value for CA\_20-n78 harmonic mixing and NOTE2 in harmonic mixing table (R17) | Huawei, HiSilicon | CR to 38.101-1 |
| [**R4-2320274**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320274.zip) | [NR\_CADC\_R17\_3BDL\_2BUL-Core] CR for 38.101-01 to add missing IMD5 for CA\_n48-n66-n70 with UL CA\_n48-n66 (Rel-17, Cat. F) | DISH Network, Samsung, Fujitsu, Qualcomm | CR to 38.101-1 |
| [**R4-2320299**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320299.zip) | [NR\_CADC\_R17\_3BDL\_2BUL-Core] CR for 38.101-01 to add missing IMD5 for CA\_n48-n66-n70 with UL CA\_n48-n66 (Rel-18, Cat. A) | DISH Network, Samsung, Fujitsu, Qualcomm | Cat-A CR, 🡪 Should not be uploaded!! |
| [**R4-2319511**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319511.zip)  R4-2319512 | [DC\_R17\_2BLTE\_1BNR\_3DL2UL] CR for 38.101-3:Removal of wrong UL configuration for DC\_3A-32A\_n78(2A),Rel-17 | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2319513**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319513.zip)  R4-2319514 | [DC\_R17\_3BLTE\_1BNR\_4DL2UL] CR for 38.101-3: Correction on the delta\_T/R for DC\_1-7-32\_n78, Rel-17 | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2318776**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318776.zip) | Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC2 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318779**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318779.zip) | Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318780**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318780.zip) | CR to TS 38.101-3 (Rel-18): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2318782**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318782.zip) | CR to TS 38.101-3 (Rel-18): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2319756**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319756.zip)  R4-2319757 | Rel17 Cat F CR for 38.101-3 Correct the Uplink configuration for DC\_2A\_n7(2A)-n66A | Samsung | CR to 38.101-3 |
| [**R4-2319875**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319875.zip)  R4-2319876 | [DC\_R17\_xBLTE\_2BNR\_yDL2UL-Core] CR for 38.101-3 to remove the ENDC combo which can't be supported by RAN2 (R17) | Huawei, HiSilicon | CR to 38.101-3 |
| [**R4-2320514**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320514.zip) | CR to TS 38.101-3 (Rel-17): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC2 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2320517**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320517.zip) | CR to TS 38.101-3 (Rel-17): Correction of an invalid channel bandwidth in 3DL/2UL inter-band reference sensitivity testing for PC3 | Verizon, Ericsson, Samsung, Nokia | CR to 38.101-3 |
| [**R4-2319859**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319859.zip)  R4-2319860 | [NR\_NTN\_solutions-Core] CR for 38.101-5 to align the understanding of GEO (R17) | Huawei, HiSilicon | CR to 38.101-5 |
| [**R4-2319861**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2319861.zip)  R4-2319862 | [NR\_NTN\_solutions-Core] CR for 38.101-5 to update the clause of Transmit modulation quality (R17) | Huawei, HiSilicon | CR to 38.101-5 |
| [**R4-2320896**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320896.zip) | Clarification for the Pi/2 BPSK modulation | THALES, Inmarsat, Ligado Networks, Hughes/Echostar, Globalstar, Apple, IITH | CR to 38.101-5 |
| [**R4-2320899**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320899.zip) | Clarification for the Pi/2 BPSK modulation | THALES, Inmarsat, Ligado Networks, Hughes/Echostar, Globalstar, Apple, IITH | Cat-A CR, should not be uploaded!! |
| [**R4-2320842**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320842.zip) | [NR\_NTN\_solutions-Core] CR to TS 38.307: release independent requirements for NTN FR1, Rel-17 | Huawei, HiSilicon | CR to 38.307 |
| [**R4-2318467**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318467.zip) | [NR\_RF\_TxD-Core] Removing brackets from TxD release independent information | Huawei, HiSilicon | CR to 38.307 |
| [**R4-2320378**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320378.zip) | [NR\_NTN\_solutions-Core] CR on TS 38.307 for NR NTN bands release independent | Qualcomm Incorporated, CHTTL | CR to 38.307 |
| [**R4-2318742**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318742.zip) | Removing 20MHz channel raster points for 5925-5945MHz in the lower 6GHz bands | Apple, Nokia | CR to 38.104 (Rel-17), identical change in R4-2321019? |
| [**R4-2321019**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2321019.zip) | Removing 20MHz channel raster points for 5925-5945MHz in the lower 6GHz bands | Apple Inc., Nokia | CR to 38.104 (Rel-17), identical change in R4-2318742? |
| [**R4-2320604**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2320604.zip) | Addition of the antenna number restriction for TxD signaling in TR 38.837 for Rel-17 | vivo | CR to 38.837 |
| [**R4-2318950**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_109/Docs/R4-2318950.zip) | Addition of the antenna number restriction for TxD signaling in TR 38.837 for Rel-17 | vivo | CR to TR 38.837 |