**3GPP TSG- Meeting # *xxxx***

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**Agenda item: 6.16.9**

**Source:** Moderator (Ericsson)

**Title:** Topic summary for [110bis][306] NR\_NTN\_enh\_Part2

**Document for:** Information

# Introduction

This document is a summary of the proposals made in the contributions submitted under AI 7.16.3 and AI 7.16.4 for the RAN4 #111 meeting.

# Topic #1: SAN RF

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2407471**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407471.zip) | CATT | **Proposal 1: Adopt CP-OFDM type of interfering signal for ACS requirement for SAN type 2-O.**  **Proposal 2: For CP-OFDM type of interfering signal for ACS requirement for SAN type 2-O, the RBs for 50MHz CBW and 60kHz SCS should adopt 66.**  **Proposal 3: To adopt the following ACS interferer frequency offsets for CP-OFDM type of interfering signal for SAN type 2-O.** |

## Open issues summary

### Sub-topic 1-1

*Sub-topic description:* This sub-topic is related to ACS requirement

**Issue 1-1-1: ACS – Interferer type**

* Proposals: Interferer for ACS requirement (SAN type 2-O) shall be CP-OFDM type
  + Agree (CATT)
  + Disagree
* Recommended WF
  + To be further discussed.

**Issue 1-1-2: ACS – Interferer type**

* Proposals: The number of RBs for the interferer 50 MHz channel BW and 60 kHz SCS) should be 66
  + Agree (CATT)
  + Disagree
* Recommended WF
  + To be further discussed.

**Issue 1-1-3: ACS – Interferer offset**

* Proposals: The offset of the interferer (CP-OFDM) shall be according to the following table:

|  |  |  |
| --- | --- | --- |
| *SAN channel bandwidth* of the *lowest/highest carrier* received (MHz) | Interfering signal centre frequency offset from the lower/upper *SAN RF Bandwidth* *edge* or sub*-block edge* inside a *sub-block gap* (MHz) | Type of interfering signal |
| 50 | ±25.01 |  |
| 100 | ±25.03 | 50 MHz CP-OFDM NR |
| 200 | ±25.01 | signal, 60 kHz SCS, 66 RBs |
| 400 | ±25.03 |  |

* + Agree (CATT)
  + Disagree
* Recommended WF
  + To be further discussed.

**Issue 1-1-4: ACS – CR**

* Proposals: Agree with the proposed CR [**R4-2407472**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407472.zip)
  + Agree (CATT)
  + Disagree
* Recommended WF
  + If acceptable this CR should be endorsed. It would then be included in the running CR for 38.108.

### Sub-topic 1-2

*Sub-topic description:* This sub-topic is related to the other submitted CRs / draft CRs

**Issue 1-2-1: Draft CRs to TS 38.108**

* Proposals: Check if the following draft CRs could be endorsed:

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **To be Endorsed or Revised?** |
| [**R4-2409541**](https://eur02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_111%2FDocs%2FR4-2409541.zip&data=05%7C02%7Cdominique.everaere%40ericsson.com%7C4292b5bf1b50422bd6c108dc73bebbbd%7C92e84cebfbfd47abbe52080c6b87953f%7C0%7C0%7C638512511773847754%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=EodC%2FbZ4Dylu2xENtp2WGYiQuzaI3HSlxU6US7UgB20%3D&reserved=0) | Huawei, HiSilicon | CR to TS 38.108: Band-agnostic OBUE requirement | This CR is related to FR1-NTN. The WI should probably be NR\_NTN\_solutions-Core? |
| [**R4-2408697**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408697.zip) | Ericsson, Thales, CATT, Huawei, ZTE, NEC | NTN enhancement - Running CR to TS 38.108 | Should be revised  In the cover sheet, add R4-2405923 to the list of draft CRs endorsed in RAN4#110bis  Add R4-2407472 (ACS) if agreed |
| [**R4-2409553**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409553.zip) | Huawei, HiSilicon | Updated running CR to TS 38.108 NTN Ka-band | Not pursued.  All updates are already included in R4-2408697. |

# Topic #2: SAN RF conformance

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| [**R4-2407474**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407474.zip) | CATT | **Proposal 1: Option1 (Do not consider extreme conditions testing) in Way Forward 1 is agreed.**  **Proposal 2: If Option 2 in Way Forward 1 is agreed, add declaration identifier using DE.x in the appendix, not in the Manufacturers declarations’ Table 4.6-1.** |
| [**R4-2408195**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408195.zip) | NEC | **Proposal 1:**  **Not to consider extreme conditions testing**  **Proposal 2:**  **To remove text on extreme conditions from TS 38.181** |
| [**R4-2409556**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409556.zip) | Huawei, HiSilicon | **Proposal 1**: As both the Rel-17 and Rel-18 versions of TS 38.181 are already capturing the same approach to the Environmental requirements for SAN, there is no need for further updates related to Ka band extreme conditions testing.  **Proposal 2**: Any updates to the test conditions for NTN shall be aligned among FR1-NTN and for FR2-NTN, and covered under Rel-17 Maintenance agenda. |

## Open issues summary

### Sub-topic 2-1

*Sub-topic description:* This sub-topic is related to testing under extreme conditions.

**Issue 2-1-1: Extreme conditions alignment**

* Proposals: Align extreme conditions consideration between FR1-NTN and FR2-NTN:
  + Agree (Huawei)
  + Disagree
* Recommended WF

Moderator expects following agreement without discussion:

Extreme considerations should be aligned between FR1-NTN and FR2-NTN.

**Issue 2-1-2: Extreme conditions in TS 38.181 for FR2-NTN**

* Proposals: Do not consider extreme conditions testing for FR2-NTN:
  + Agree (CATT, NEC)
  + Disagree
* Recommended WF
  + To be further discussed.

**Issue 2-1-3a: Extreme conditions (if issue 2-1-2 is agreed).**

* Proposals: Issue 2-1-1 is agreed (no extreme conditions), remove the text on extreme conditions in TS 38.181
  + Agree (NEC)
  + Disagree, no need to further update TS 38.181 Rel-17 and Rel-18, they are already aligned. Any update should then be done in maintenance (Huawei)
* Recommended WF
  + To be further discussed.

**Issue 2-1-3b: Extreme conditions (if issue 2-1-2 is not agreed).**

* Proposals: Issue 2-1-1 is not agreed (extreme conditions shall be considered), add declaration identifier using DE.x in the appendix, not in the Manufacturers declarations’ Table 4.6-1
  + Agree (CATT)
  + Disagree, no need to further update TS 38.181 Rel-17 and Rel-18, they are already aligned. Any update should then be done in maintenance. (Huawei)
* Recommended WF

To be further discussed.

### Sub-topic 2-3

*Sub-topic description:* This sub-topic is related to the submitted draft CRs

**Issue 2-3-1: Draft CRs to TS 38.181**

* Proposals: Check if the following draft CRs could be endorsed:

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Company** | **Title** | **To be Endorsed or Revised?** |
| [**R4-2409542**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409542.zip) | Huawei, HiSilicon | CR to TS 38.181: Band-agnostic OBUE requirement | This CR is related to FR1-NTN. The WI should probably NR\_NTN\_solutions-Perf? |
| [**R4-2407473**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407473.zip) | CATT | Draft CR for TS 38.181, On manufacturer declarations in clause 4.6 for Ka-band NTN | Status to be checked in 1st round |
| [**R4-2407475**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407475.zip) | CATT | (NR\_NTN\_enh-Perf)CR for TS 38.181, Add Declaration identifier for SAN extreme testing condition declaration | Pending on issues 2-1-2 and 2-1-3b |
| [**R4-2408196**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408196.zip) | NEC | CR to 38.181: Removal of extreme conditions from SAN conformance specifications | Pending on issues 2-1-2 and 2-1-3a |
| [**R4-2408696**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408696.zip) | Ericsson, CATT, Thales | NTN enhancement - Running CR to TS 38.181 | To be revised to add all endorsed draft CRs in this meeting.  Revision should be for email approval. |
| [**R4-2409117**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409117.zip) | Ericsson, Thales | Draft CR for TS 38.181: FR2 intro in clause 9.7.5 spurious emissions | Status to be checked in 1st round |
| [**R4-2409444**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409444.zip) | Keysight Technologies UK Ltd | DraftCR to 38.181: Additional correction on FR2-NTN introduction MU table | Status to be checked in 1st round |
| [**R4-2409561**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409561.zip) | Huawei, HiSilicon | Updated running draft CR to TS 38.181: missing SAN type 2-O corrections | Status to be checked in 1st round |
| [**R4-2409619**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409619.zip) | ZTE Corporation, Sanechips | DraftCR for TS 38.181: Clause 10.5 OTA in-band selectivity and blocking | Status to be checked in 1st round |
| [**R4-2409620**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409620.zip) | ZTE Corporation, Sanechips | DraftCR for TS 38.181: Clause 10.6 OTA out-of-band blocking | Status to be checked in 1st round |
| [**R4-2409621**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409621.zip) | ZTE Corporation, Sanechips | DraftCR for TS 38.181: Clause 10.9 OTA in-channel selectivity | Status to be checked in 1st round |
| [**R4-2409668**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409668.zip) | THALES, Ericsson | DraftCR for TS 38.181: FR2-NTN introduction in Clause 9.2 Radiated transmit power | Status to be checked in 1st round |
| [**R4-2409670**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409670.zip) | THALES, Ericsson | DraftCR for TS 38.181: FR2-NTN introduction in Clause 9.3 OTA SAN output power | Status to be checked in 1st round |
| [**R4-2409674**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409674.zip) | THALES | DraftCR for TS 38.181: FR2-NTN introduction in Clause 9.6 OTA transmitted signal quality | Status to be checked in 1st round |
| [**R4-2409735**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409735.zip) | THALES | DraftCR for TS 38.181: FR2-NTN introduction in Clause 9.7.4 OTA out-of-band emissions | Status to be checked in 1st round |
| [**R4-2409737**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409737.zip) | THALES | DraftCR for TS 38.181: FR2-NTN introduction in Clauses 9.7.1 General 9.7.2 OTA occupied bandwidth 9.7.3 ACLR | Status to be checked in 1st round |

# Recommendations for Tdocs

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Source** | **Recommendation** | **Comments** |
| **SAN RF** | | | |
| [**R4-2407471**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407471.zip) | CATT | To be noted |  |
| [**R4-2407472**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407472.zip) | CATT | See above | Pending on issues 1-1-1, 1-1-2 and 1-1-3 |
| [**R4-2408697**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408697.zip) | Ericsson, Thales, CATT, Huawei, ZTE, NEC | To be revised |  |
| [**R4-2409541**](https://eur02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.3gpp.org%2Fftp%2FTSG_RAN%2FWG4_Radio%2FTSGR4_111%2FDocs%2FR4-2409541.zip&data=05%7C02%7Cdominique.everaere%40ericsson.com%7C4292b5bf1b50422bd6c108dc73bebbbd%7C92e84cebfbfd47abbe52080c6b87953f%7C0%7C0%7C638512511773847754%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=EodC%2FbZ4Dylu2xENtp2WGYiQuzaI3HSlxU6US7UgB20%3D&reserved=0) | Huawei, HiSilicon | To be revised? | WI? |
| [**R4-2409553**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409553.zip) | Huawei, HiSilicon | Not pursued |  |
| **SAN Conformance** | | | |
|  |  |  | Status to be checked in 1st round |
| [**R4-2407474**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407474.zip) | CATT | To be noted |  |
| [**R4-2407473**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407473.zip) | CATT |  | Status to be checked in 1st round |
| [**R4-2407475**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407475.zip) | CATT | See above | Pending on issues 2-1-2 and 2-1-3b |
| [**R4-2408195**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408195.zip) | NEC | To be noted |  |
| [**R4-2408196**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408196.zip) | NEC | See above | Pending on issues 2-1-2 and 2-1-3a |
| [**R4-2408696**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408696.zip) | Ericsson, CATT, Thales | To be revised |  |
| [**R4-2409117**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409117.zip) | Ericsson, Thales |  | Status to be checked in 1st round |
| [**R4-2409444**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409444.zip) | Keysight Technologies UK Ltd |  | Status to be checked in 1st round |
| [**R4-2409561**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409561.zip) | Huawei, HiSilicon |  | Status to be checked in 1st round |
| [**R4-2409619**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409619.zip) | ZTE Corporation, Sanechips |  | Status to be checked in 1st round |
| [**R4-2409620**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409620.zip) | ZTE Corporation, Sanechips |  | Status to be checked in 1st round |
| [**R4-2409621**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409621.zip) | ZTE Corporation, Sanechips |  | Status to be checked in 1st round |
| [**R4-2409668**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409668.zip) | THALES, Ericsson |  | Status to be checked in 1st round |
| [**R4-2409670**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409670.zip) | THALES, Ericsson |  | Status to be checked in 1st round |
| [**R4-2409674**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409674.zip) | THALES |  | Status to be checked in 1st round |
| [**R4-2409735**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409735.zip) | THALES |  | Status to be checked in 1st round |
| [**R4-2409737**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409737.zip) | THALES |  | Status to be checked in 1st round |