**3GPP TSG-RAN4 Meeting #102-e *R4-2205055***

Electronic meeting, February 21 – March 3, 2022

**Source:** Ericsson

**Title:** pCR to TS 38.108 – Transmitter spurious

**Agenda item:** 10.13.3.3

**Document for:** Approval

# Background

Based on the various agreements from past RAN4 meetings, the following test is proposed for TS 38.108:

* Transmitter spurious emissions
* OTA sensitivity

Note the text highlighted in yellow is reference number which might be updated later by the Rapporteur of TS 38.108 when all pCRs will be agreed, to keep reference number consistent.

Note the text highlighted in blue is symbol that should be added to the list of symbols by the Rapporteur of TS 38.108.

Yellow and blue hightlight should be removed by the Rapporteur of TS 38.108 when merging all pCRs in the TS.

# Proposal

It is proposed that the proposed text related to transmitter spurious requirements here after is included in TS 38.108 [1].

# References

1. TS 38.108, Satellite Access Node radio transmission and reception

# Text proposal

*<Start of the change>*

# 2 References

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] ITU-R Recommendation SM.329: "Unwanted emissions in the spurious domain".

*<End of the change>*

*<Start of the change>*

### 6.6.5 Transmitter spurious emissions

#### 6.6.5.1 General

The transmitter spurious emission limits shall apply from 9 kHz to 12.75 GHz, excluding the frequency range from ΔfOBUE below the lowest frequency of each supported downlink *operating band*, up to ΔfOBUE above the highest frequency of each supported downlink *operating band*, where the ΔfOBUE is defined in table 6.6.1-1. For some *operating bands*, the upper limit is higher than 12.75 GHz in order to comply with the 5th harmonic limit of the downlink *operating band*, as specified in ITU-R recommendation SM.329 [2].

The requirements shall apply whatever the type of transmitter considered (single carrier or multi-carrier). It applies for all transmission modes foreseen by the manufacturer's specification.

Unless otherwise stated, all requirements are measured as mean power (RMS).

#### 6.6.5.2 Basic Limits

##### 6.6.5.2.1 General transmitter spurious emissions requirements

The *basic limits* of table 6.6.5.2.1-1 shall apply. The application of those limits shall be the same as for operating band unwanted emissions in clause 6.6.4.

Table 6.6.5.2.1-1: General SAN transmitter spurious emission limits in FR1

|  |  |  |  |
| --- | --- | --- | --- |
| Spurious frequency range | *Basic limit* | *Measurement bandwidth* | Notes |
| 9 kHz – 150 kHz |  | 1 kHz | Note 1 |
| 150 kHz – 30 MHz |  | 10 kHz  | Note 1 |
| 30 MHz – 1 GHz |  | 100 kHz | Note 1 |
| 1 GHz 12.75 GHz | -13 dBm | 1 MHz | Note 1, Note 2 |
| 12.75 GHz – 5th harmonic of the upper frequency edge of the DL *operating band* in GHz |  | 1 MHz | Note 1, Note 2, Note 3 |
| NOTE 1: *Measurement bandwidth*s as in ITU-R SM.329 [2], s4.1.NOTE 2: Upper frequency as in ITU-R SM.329 [2], s2.5 table 1.NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the DL *operating band* is reaching beyond 12.75 GHz. |

##### 6.6.5.2.2 Protection of the own Satellite Access Node receiver

This requirement shall be applied for NR FDD operation in order to prevent the receivers of the SANs being desensitised by emissions from a SAN transmitter. It is measured at the *TAB connector* for *SAN type 1-H* for any type of SAN which has common or separate Tx/Rx *TAB connectors*.

The spurious emission *basic limits* are provided in table 6.6.5.2.2-1.

Table 6.6.5.2.2-1: SAN spurious emissions *basic limits* for protection of the SAN receiver

|  |  |  |
| --- | --- | --- |
| Frequency range | *Basic limits* | *Measurement bandwidth* |
| FUL,low – FUL,high | -96 dBm | 100 kHz |

##### 6.6.5.2.3 Additional spurious emissions requirements

Additional spurious emissions requirement is not applicable for SAN.

##### 6.6.5.2.4 Co-location with other Satellite Access Nodes

Co-location requirement is not applicable for SAN.

#### 6.6.5.3 Minimum requirement for Satellite Access Node

The Tx spurious emissions requirements for *SAN type 1-H* are that for each *TAB connector TX min cell group* and each applicable *basic limit* in clause 6.6.5.2, the power summation emissions at the *TAB connectors* of the *TAB connectors* of the *TAB connector TX min cell group* shall not exceed a limit specified as the *basic limit*, unless stated differently in regional regulation.

NOTE: Conformance to the *SAN type 1-H* spurious emission requirement can be demonstrated by meeting at least one of the following criteria as determined by the manufacturer:

 1) The sum of the emissions power measured on each *TAB connector* in the *TAB connector TX min cell group* shall be less than or equal to the limit as defined in this clause for the respective frequency span.

 Or

 2) The unwanted emissions power at each *TAB connector* shall be less than or equal to the *SAN type 1-H* limit as defined in this clause for the respective frequency span.

*<End of the change>*