**3GPP TSG-RAN4 Meeting #102-e *R4-2205058***

Electronic meeting, February 21 – March 3, 2022

**Source:** Ericsson

**Title:** pCR to TS 38.108 – Radiated general and Rx sensitivity

**Agenda item:** 10.13.3.2

**Document for:** Approval

# Background

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

* Radiated receiver characteristics – general
* OTA sensitivity

# Proposal

It is proposed that the proposed text related to radiated Rx general and Rx sensitivity 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>*

# 10 Radiated receiver characteristics

## 10.1 General

Radiated receiver characteristics are specified at RIB for *SAN type 1-H or* *SAN type 1-O*, with full complement of transceivers for the configuration in normal operating condition.

Unless otherwise stated, the following arrangements apply for the radiated receiver characteristics requirements in clause 10:

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- Requirements shall be met for any transmitter setting.

- The requirements shall be met with the transmitter unit(s) ON.

- Throughput requirements defined for the radiated receiver characteristics do not assume HARQ retransmissions.

- When SAN is configured to receive multiple carriers, all the throughput requirements are applicable for each received carrier.

- For ACS, blocking and intermodulation characteristics, the negative offsets of the interfering signal apply relative to the lower *SAN RF Bandwidth* edge, and the positive offsets of the interfering signal apply relative to the upper *Satellite Access Node RF Bandwidth* edge.

- Each requirement shall be met over the RoAoA specified.

NOTE 1: In normal operating condition the SAN in FDD operation is configured to transmit and receive at the same time.

For FR1 requirements which are to be met over the *OTA REFSENS RoAoA* absolute requirement values are offset by the following term:

 ΔOTAREFSENS = 44.1 - 10\*log10(BeWθ,REFSENS\*BeWφ,REFSENS) dB for the reference direction

and

 ΔOTAREFSENS = 41.1 - 10\*log10(BeWθ,REFSENS\*BeWφ,REFSENS) dB for all other directions

For requirements which are to be met over the *minSENS RoAoA* absolute requirement values are offset by the following term:

 ΔminSENS = PREFSENS – EISminSENS (dB)

## 10.2 OTA sensitivity

#### 10.2.1 General

The OTA sensitivity requirement is a *directional requirement* based upon the declaration of one or more *OTA sensitivity direction declarations* (OSDD), related to a *SAN type 1-H* and *SAN type 1-O* receiver.

The *SAN type 1-H* and *SAN type 1-O* may optionally be capable of redirecting/changing the *receiver target* by means of adjusting SAN settings resulting in multiple *sensitivity RoAoA*. The *sensitivity RoAoA* resulting from the current SAN settings is the active *sensitivity RoAoA*.

If the SAN is capable of redirecting the *receiver target* related to the OSDD then the OSDD shall include:

- *Satellite Access Node channel bandwidth* and declared minimum EISlevel applicable to any active *sensitivity RoAoA* inside the *receiver target redirection range* in the OSDD.

- A declared *receiver target redirection range*, describing all the angles of arrival that can be addressed for the OSDD through alternative settings in the SAN.

- Five declared *sensitivity RoAoA* comprising the conformance testing directions as detailed in TS 38.141‑2 [6].

- The *receiver target reference direction*.

NOTE 1: Some of the declared *sensitivity RoAoA* may coincide depending on the redirection capability.

NOTE 2: In addition to the declared *sensitivity RoAoA*, several *sensitivity RoAoA* may be implicitly defined by the *receiver target redirection range* without being explicitly declared in the OSDD.

If the SAN is not capable of redirecting the *receiver target* related to the OSDD, then the OSDD includes only:

- The set(s) of RAT, *SAN channel bandwidth* and declared minimum EISlevel applicable to the *sensitivity RoAoA* in the OSDD.

- One declared active *sensitivity RoAoA*.

- The *receiver target reference direction*.

NOTE 4: For SAN without target redirection capability, the declared (fixed) *sensitivity RoAoA* is always the active *sensitivity RoAoA*.

The OTA sensitivity EIS level declaration shall apply to each supported polarization, under the assumption of *polarization match*.

#### 10.2.2 Minimum requirement

For a received signal who’s AoA of the incident wave is within the active *sensitivity RoAoA* of an OSDD, the error rate criterion as described in clause 7.2 shall be met when the level of the arriving signal is equal to the minimum EIS level in the respective declared set of EIS level and *SAN channel bandwidth*.

*<End of the change>*