**3GPP TSG-RAN4 Meeting #102-e *R4-2205057***

Electronic meeting, February 21 – March 3, 2022

**Source:** Ericsson

**Title:** pCR to TS 38.108 – Radiated Tx general and transmit power

**Agenda item:** 10.13.3.1

**Document for:** Approval

# Background

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

* Radiated transmitter characteristics – general
* Radiated transmit power

# Proposal

It is proposed that the proposed text related to radiated Tx general and transmit power requirements here after is included in TS 38.108 [1].

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.

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

# References

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

# Text proposal

*<Start of the change>*

# 9 Radiated transmitter characteristics

## 9.1 General

Radiated transmitter characteristics requirements apply on the *SAN type 1-H or* *SAN type 1-O* including all its functional components active and for all foreseen modes of operation of the SAN unless otherwise stated.

## 9.2 Radiated transmit power

### 9.2.1 General

*SAN type 1-H and SAN type 1-O* are declared to support one or more beams, as per manufacturer's declarations specified in TS 38.181 [2]. Radiated transmit power is defined as the EIRP level for a declared beam at a specific *beam peak direction*.

For each beam, the requirement is based on declaration of a beam identity, *reference beam direction pair*, beamwidth, *rated beam EIRP*, *OTA peak directions set*, the *beam direction pairs* at the maximum steering directions and their associated *rated beam EIRP* and beamwidth(s).

For a declared beam and *beam direction pair*, the *rated beam EIRP* level is the maximum power that the base station is declared to radiate at the associated *beam peak direction* during the *transmitter ON period*.

For each *beam peak direction* associated with a *beam direction pair* within the *OTA peak directions set*, a specific *rated beam EIRP* level may be claimed. Any claimed value shall be met within the accuracy requirement as described below. *Rated beam EIRP* is only required to be declared for the *beam direction pairs* subject to conformance testing as detailed in TS 38.181 [2].

NOTE 1: *OTA peak directions set* is set of *beam peak directions* for which the EIRP accuracy requirement is intended to be met. The *beam peak directions* are related to a corresponding contiguous range or discrete list of *beam centre directions* by the *beam direction pairs* included in the set.

NOTE 2: A *beam direction pair* is data set consisting of the *beam centre direction* and the related *beam peak direction.*

NOTE 3: A declared EIRP value is a value provided by the manufacturer for verification according to the conformance specification declaration requirements, whereas a claimed EIRP value is provided by the manufacturer to the equipment user for normal operation of the equipment and is not subject to formal conformance testing.

For *operating bands* where the supported *fractional bandwidth* (FBW) is larger than 6%, two rated carrier EIRP may be declared by manufacturer:

- Prated,c,FBWlow for lower supported frequency range, and

- Prated,c,FBWhigh for higher supported frequency range.

For frequencies in between FFBWlow and FFBWhigh the rated carrier EIRP is:

- Prated,c,FBWlow, for the carrier whose carrier frequency is within frequency range FFBWlow ≤ f < (FFBWlow +FFBWhigh) / 2,

- Prated,c,FBWhigh, for the carrier whose carrier frequency is within frequency range (FFBWlow +FFBWhigh) / 2 ≤ f ≤FFBWhigh.

### 9.2.2 Minimum requirement for *SAN type 1-H* and *SAN type 1-O*

For each declared beam, in normal conditions, for any specific *beam peak direction* associated with a *beam direction pair* within the *OTA peak directions set*, a manufacturer claimed EIRP level in the corresponding *beam peak direction* shall be achievable to within ±2.2 dB of the claimed value.

For *SAN type 1-O* only, for each declared beam, in extreme conditions, for any specific *beam peak direction* associated with a *beam direction pair* within the *OTA peak directions set*, a manufacturer claimed EIRP level in the corresponding *beam peak direction* shall be achievable to within ±2.7 dB of the claimed value.

Normal and extreme conditions are defined in TS 38.181, annex B [2].

In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.

*<End of the change>*