3GPP TSG-RAN WG4 Meeting # 102-e R4-2205983

Electronic Meeting, 21 Feb – 03 Mar, 2022

**Source:** Huawei

**Title:** TP to TS 38.108: section 6.4 (Tx ON/OFF) and 6.5 (TX signal quality)

**Agenda Item:** 10.13.3.3

**Document for:** Approval

# Introduction

Based on the worksplit agreed in [1] (Issue 3-3-2), in this contribution a TP to TS 38.108 section 6.4 (Tx ON/OFF) and 6.5 (TX signal quality) is provided for approval.

TS 38.108 skeleton in [2] was used as the starting point.

# Conclusions

**Proposal 1**: Approve the attached TP to TS 38.108.

# References

[1] R4-2203080 Way Forward on NTN\_solutions\_Part1, RAN4#101bis-e

[2] R4-2203087 Skeleton for TS 38.108 NR Satellite Access Node radio transmission and reception v0.0.1, RAN4#101bis-e

# Annex A: TP to TS 38.108

*------------------------------ Modified sections ------------------------------*

## 6.4 Transmit ON/OFF power

The requirement is not applicable in Release-17.

## 6.5 Transmitted signal quality

### 6.5.1 Frequency error

#### 6.5.1.1 General

Frequency error is the measure of the difference between the actual SAN transmit frequency and the assigned frequency. The same source shall be used for RF frequency and data clock generation.

For *SAN type 1-H* this requirement shall be applied at each *TAB connector* supporting transmission in the *operating band.*

#### 6.5.1.2 Minimum requirement for *SAN type 1-H*

The modulated carrier frequency of each carrier configured by the SAN shall be accurate to within 0.05 ppm observed over 1 ms.

### 6.5.2 Modulation quality

#### 6.5.2.1 General

Modulation quality is defined by the difference between the measured carrier signal and an ideal signal. Modulation quality can e.g. be expressed as Error Vector Magnitude (EVM). The Error Vector Magnitude is a measure of the difference between the ideal symbols and the measured symbols after the equalization. This difference is called the error vector. Details about how the EVM is determined are specified in Annex B.

For *SAN type 1-H* this requirement shall be applied at each *TAB connector* supporting transmission in the *operating band.*

#### 6.5.2.2 Minimum Requirement for *SAN type 1-H*

The EVM levels of each carrier for different modulation schemes on PDSCH outlined in table 6.5.2.2-1 shall be met using the frame structure described in clause 6.5.2.3.

Table 6.5.2.2-1: EVM requirements for *SAN type 1-H* carrier

|  |  |
| --- | --- |
| Modulation scheme for PDSCH | Required EVM |
| QPSK | 17.5 % |
| 16QAM | 12.5 % |
| 64QAM (NOTE) | [8 %] |
| NOTE: EVM requirement for 64QAM is optional. |

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#### 6.5.2.3 EVM frame structure for measurement

EVM shall be evaluated for each carrier over all allocated resource blocks and downlink subframes. Different modulation schemes listed in table 6.5.2.2-1 shall be considered for rank 1.

For all bandwidths, the EVM measurement shall be performed for each carrier over all allocated resource blocks and downlink subframes within 10 ms measurement periods. The boundaries of the EVM measurement periods need not be aligned with radio frame boundaries.

### 6.5.3 Time alignment error

The requirement is not applicable in this version of the specification.

*------------------------------ End of modified section ------------------------------*