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Electronic Meeting, February 21 – March 3, 2022

Source: ZTE Corporation

Title: TP for TS 38.108 Dynamic range(7.3) and In channel selectivity(7.8)

Agenda Item: 10.13.3.4

Document for: Approval

# **Introduction**

In terms of the work split in the approved WF[1]. This contribution provides a text proposal to TS38.108 [2] on sub-clause 7.3(Dynamic range) and sub-clause 7.8 (in channel selectivity).

# **Reference**

[1] R4-2203080, Way Forward on NTN\_solutions\_Part1, THALES

[2] R4-2203086, Draft skeleton for TS 38.101-8, THALES

# Text Proposal

**----- Start of TP -----**

## 7.3 Dynamic range

### 7.3.1 General

The dynamic range is specified as a measure of the capability of the receiver to receive a wanted signal in the presence of an interfering signal at the *TAB connector* for *SAN type 1-H* inside the received *SAN channel bandwidth*. In this condition, a throughput requirement shall be met for a specified reference measurement channel. The interfering signal for the dynamic range requirement is an AWGN signal.

### 7.3.2 Minimum requirements for Satellite Access Node

The throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel as specified in annex A.2 with parameters specified in table 7.3.2-1 for LEO1200 SAN, in table 7.3.2-2 for LEO600 SAN.

Table 7.3.2-1: LEO1200 SAN dynamic range

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *SAN channel bandwidth* (MHz) | Subcarrier spacing (kHz) | Reference measurement channel | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) / BWConfig | Type of interfering signal |
| 5 | 15 | G-FR1-A2-1 | -79.4  | -91.2 | AWGN |
|  | 30 | G-FR1-A2-2  | -80.1  |  |  |
| 10 | 15 | G-FR1-A2-1 | -79.4  | -88 | AWGN |
|  | 30 | G-FR1-A2-2  | -80.1  |  |  |
|  | 60 | G-FR1-A2-3  | -77.1  |  |  |
| 15 | 15 | G-FR1-A2-1 | -79.4  | -86.2 | AWGN |
|  | 30 | G-FR1-A2-2  | -80.1  |  |  |
|  | 60 | G-FR1-A2-3 | -77.1  |  |  |
| 20 | 15 | G-FR1-A2-4 | -73.2  | -84.9 | AWGN |
|  | 30 | G-FR1-A2-5 | -73.2  |  |  |
|  | 60 | G-FR1-A2-6 | -73.5  |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *SAN channel bandwidth*. |

Table 7.3.2-2: LEO600 SAN dynamic range

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *SAN channel bandwidth* (MHz) | Subcarrier spacing (kHz) | Reference measurement channel | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) / BWConfig | Type of interfering signal |
| 5 | 15 | G-FR1-A2-1 | -73.4  | -85.2  | AWGN |
|  | 30 | G-FR1-A2-2  | -74.1  |  |  |
| 10 | 15 | G-FR1-A2-1 | -73.4  | -82.0  | AWGN |
|  | 30 | G-FR1-A2-2  | -74.1  |  |  |
|  | 60 | G-FR1-A2-3  | -71.1  |  |  |
| 15 | 15 | G-FR1-A2-1 | -73.4  | -80.2  | AWGN |
|  | 30 | G-FR1-A2-2  | -74.1  |  |  |
|  | 60 | G-FR1-A2-3 | -71.1  |  |  |
| 20 | 15 | G-FR1-A2-4 | -67.2  | -78.9  | AWGN |
|  | 30 | G-FR1-A2-5 | -67.2  |  |  |
|  | 60 | G-FR1-A2-6 | -67.5  |  |  |
| NOTE: The wanted signal mean power is the power level of a single instance of the corresponding reference measurement channel. This requirement shall be met for each consecutive application of a single instance of the reference measurement channel mapped to disjoint frequency ranges with a width corresponding to the number of resource blocks of the reference measurement channel each, except for one instance that might overlap one other instance to cover the full *SAN channel bandwidth*. |

*<next changes>*

## 7.8 In-channel selectivity

### 7.8.1 General

In-channel selectivity (ICS) is a measure of the receiver ability to receive a wanted signal at its assigned resource block locations at *TAB connector* for *SAN type 1-H* in the presence of an interfering signal received at a larger power spectral density. In this condition a throughput requirement shall be met for a specified reference measurement channel. The interfering signal shall be an NR signal which is time aligned with the wanted signal.

### 7.8.2 Minimum requirements for Satellite Access Node

For *SAN type* *1-H*, the throughput shall be ≥ 95% of the maximum throughput of the reference measurement channel as specified in annex A.1 with parameters specified in table 7.8.2-1 for GEO SAN, in table 7.8.2-2 for LEO1200KM SAN and in table 7.8.2-3 for LEO600KM SAN. The characteristic of the interfering signal is further specified in annex D.

Table 7.8.2-1: GEO SAN ICS requirement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *SAN channel bandwidth* (MHz) | Subcarrier spacing (kHz) | Reference measurement channel | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) | Type of interfering signal |
| 5 | 15 | G-FR1-A1-7 | -98.2  | -95.0  | DFT-s-OFDM NR signal, 15 kHz SCS,10 RBs |
| 10,15,20 | 15 | G-FR1-A1-1 | -96.3  | -91.1  | DFT-s-OFDM NR signal, 15 kHz SCS,25 RBs |
| 5 | 30 | G-FR1-A1-8 | -98.9  | -95.0  | DFT-s-OFDM NR signal, 30 kHz SCS,5 RBs |
| 10,15,20 | 30 | G-FR1-A1-2 | -96.4  | -92.0  | DFT-s-OFDM NR signal, 30 kHz SCS,10 RBs |
| 10,15,20 | 60 | G-FR1-A1-9 | -95.8  | -92.0  | DFT-s-OFDM NR signal, 60 kHz SCS,5 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *SAN channel bandwidth* ofthe wanted signalaccording to the table 5.4.2.2-1. The aggregated wanted and interferer signal shall be centred in the *SAN channel bandwidth* of the wanted signal. |

Table 7.8.2-2: LEO1200 SAN ICS requirement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *SAN channel bandwidth* (MHz) | Subcarrier spacing (kHz) | Reference measurement channel | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) | Type of interfering signal |
| 5 | 15 | G-FR1-A1-7 | -101.3  | -86.1  | DFT-s-OFDM NR signal, 15 kHz SCS,10 RBs |
| 10,15,20 | 15 | G-FR1-A1-1 | -99.4  | -82.2  | DFT-s-OFDM NR signal, 15 kHz SCS,25 RBs |
| 5 | 30 | G-FR1-A1-8 | -102.0  | -86.1  | DFT-s-OFDM NR signal, 30 kHz SCS,5 RBs |
| 10,15,20 | 30 | G-FR1-A1-2 | -99.5  | -83.1  | DFT-s-OFDM NR signal, 30 kHz SCS,10 RBs |
| 10,15,20 | 60 | G-FR1-A1-9 | -98.9  | -83.1  | DFT-s-OFDM NR signal, 60 kHz SCS,5 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *SAN channel bandwidth* ofthe wanted signalaccording to the table 5.4.2.2-1. The aggregated wanted and interferer signal shall be centred in the *SAN channel bandwidth* of the wanted signal. |

Table 7.8.2-3: LEO600 SAN ICS requirement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *SAN channel bandwidth* (MHz) | Subcarrier spacing (kHz) | Reference measurement channel | Wanted signal mean power (dBm) | Interfering signal mean power (dBm) | Type of interfering signal |
| 5 | 15 | G-FR1-A1-7 | -101.3  | -80.1  | DFT-s-OFDM NR signal, 15 kHz SCS,10 RBs |
| 10,15,20 | 15 | G-FR1-A1-1 | -99.4  | -76.2  | DFT-s-OFDM NR signal, 15 kHz SCS,25 RBs |
| 5 | 30 | G-FR1-A1-8 | -102.0  | -80.1  | DFT-s-OFDM NR signal, 30 kHz SCS,5 RBs |
| 10,15,20 | 30 | G-FR1-A1-2 | -99.5  | -77.1  | DFT-s-OFDM NR signal, 30 kHz SCS,10 RBs |
| 10,15,20 | 60 | G-FR1-A1-9 | -98.9  | -77.1  | DFT-s-OFDM NR signal, 60 kHz SCS,5 RBs |
| NOTE: Wanted and interfering signal are placed adjacently around Fc, where the Fc is defined for *SAN channel bandwidth* ofthe wanted signalaccording to the table 5.4.2.2-1. The aggregated wanted and interferer signal shall be centred in the *SAN channel bandwidth* of the wanted signal. |

**----- End of TP -----**