

# RADIO TEST REPORT

**REP068642**

Date of issue: December 23, 2024

Applicant:

**Andrew Wireless Systems Industriering 10, Buchdorf 86675  
Germany**

Product:

**RPM-A61L1-7E**

Model:

**7847588-00**

Model variant:

**None**

FCC ID:

**XS5-RPML2-B121314**

IC Registration number:

**NA**

Specifications:

◆ **FCC 47 CFR Part 27**

Miscellaneous Wireless Communications Services

#### Lab and test locations

|              |                      |
|--------------|----------------------|
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|             |                   |
|-------------|-------------------|
| Tested by   | O. Frau           |
| Signature   |                   |
| Reviewed by | D. Guarnone       |
| Review date | December 23, 2024 |
| Signature   |                   |

#### Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report. This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Spa ISO/IEC 17025 accreditation.

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## Section 1. Report summary

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### 1.1 Applicant and manufacturer

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|                 |                         |
|-----------------|-------------------------|
| Company name    | Andrew Wireless Systems |
| Address         | Industriering 10,       |
| City            | Buchdorf                |
| Province/State  | --                      |
| Postal/Zip code | 86675                   |
| Country         | Germany                 |

### 1.2 Test specifications

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|                    |  |
|--------------------|--|
| FCC 47 CFR Part 27 | Miscellaneous Wireless Communications Services |
|--------------------|--|

### 1.3 Statement of compliance

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In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

### 1.4 Exclusions

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None

### 1.5 Test report revision history

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| Revision # | Details of changes made to test report |
|------------|--|
| REP068642  | Original report issued                 |

## Section 2. Summary of test results

### 2.1 FCC Part 27 test results

| Part          | Test description                     | Verdict |
|---------------|--------------------------------------|---------|
| §2.1033(c)(4) | Modulation type                      | Pass    |
| §2.1049(h)    | 99% Occupied bandwidth               | Pass    |
| §27.53(h)(3)  | Frequency ranges                     | Pass    |
| §27.50(b)(4)  | Output power at RF antenna connector | Pass    |
| §27.50(d)(5)  | Peak to average power ratio          | Pass    |
| §27.53(m)     | Conducted spurious emissions         | Pass    |
| §27.53(m)     | Radiated spurious emissions          | Pass    |
| §27.53(h)(3)  | 26 dB Occupied bandwidth             | Pass    |
| §27.54        | Frequency stability                  | Pass    |

Note: None.

## Section 3. Equipment under test (EUT) details

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### 3.1 Sample information

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|                        |                  |
|------------------------|------------------|
| Receipt date           | November 7, 2024 |
| Nemko sample ID number | PRJ00630770006   |

### 3.2 EUT information

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|               |                |
|---------------|----------------|
| Product name  | RPM-A61L1-7E   |
| Model         | 7847588-00     |
| Part Number   | 7847588-00     |
| Serial number | SZRMBG24230045 |

### 3.3 Technical information

---

|                             |  |
|-----------------------------|--|
| Frequency band              | B13: 746 - 756 MHz   |
| RF power Max (W), Conducted | max Port 1 = 23.5 dBm (0.22 W) – max Port 2 = 23.0 dBm (0.20 W);<br>max comb. Port 1 + Port 2 = 26.5 dBm (0.44 W) @ 748.5 MHz (with 5 MHz bandwidth) |
| Supported bandwidths:       | 5, 10 MHz  |
| Type of modulation          | TM1.1, TM3p1, TM3p1a, TM3p3 (QPSK, 16QAM, 64QAM, 256QAM)   |
| Power requirements          | 48 Vdc   |
| Antenna information         | The EUT uses a unique antenna coupling/ non-detachable antenna to the intentional radiator.  |
| Antenna gain                | 3.7 dBi  |

### 3.4 Product description and theory of operation

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The radio unit (RU) is one of the components to configure the 4G RAN mobile communication system.

### 3.5 EUT exercise details

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A laptop computer was used to send test commands to EUT to force it to transmit the appropriate signal. Unit transmit the selected signal at full power. The unit was tested using a conducted port. The antenna installation shall be done by professionals, and they are not within the scope of the tests evaluated on this document.

### 3.6 EUT setup diagram

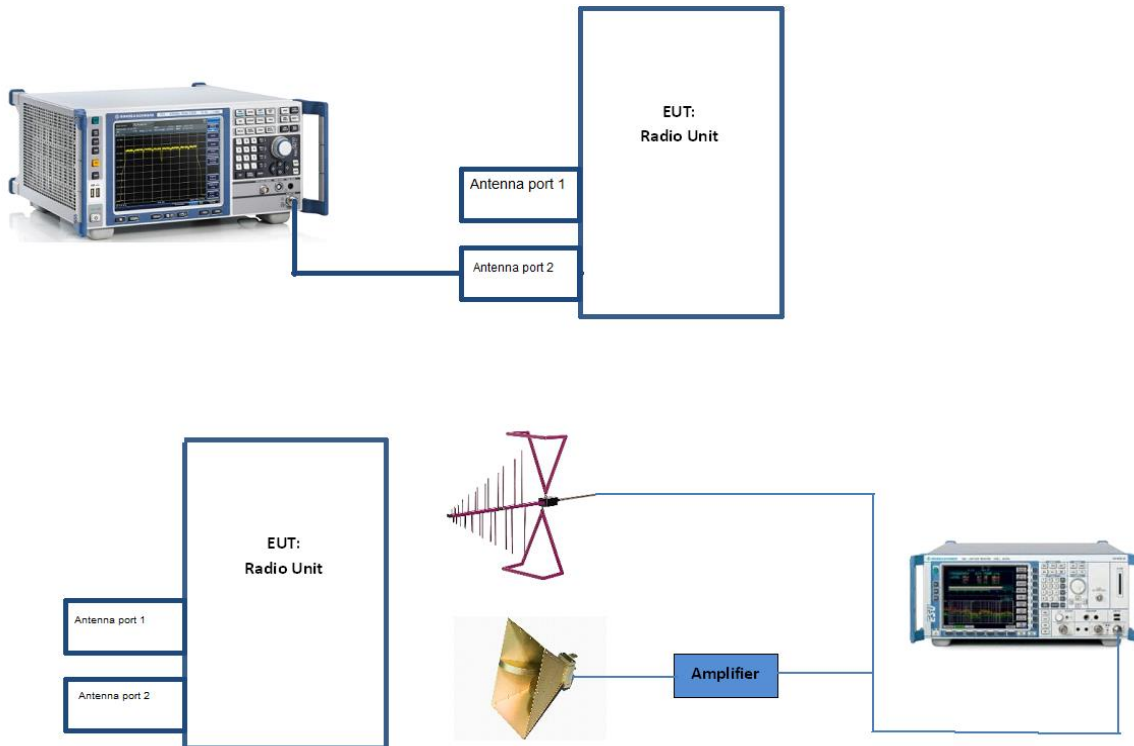


Figure 3.6-1: Setup diagram

## Section 4. Engineering considerations

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### 4.1 Modifications incorporated in the EUT

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There were no modifications performed to the EUT during this assessment.

### 4.2 Technical judgment

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None

### 4.3 Deviations from laboratory tests procedures

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No deviations were made from laboratory procedures.



## Section 5. Test conditions

### 5.1 Atmospheric conditions

|                   |   |
|-------------------|---|
| Temperature       | 15 °C – 35 °C                           |
| Relative humidity | 20 % – 75 %                             |
| Air pressure      | 86 kPa (860 mbar) – 106 kPa (1060 mbar) |

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

The following instruments are used to monitor the environmental conditions:

| Equipment                      | Manufacturer | Model no. | Asset no.    | Cal date | Next cal. |
|--------------------------------|--------------|-----------|--------------|----------|-----------|
| Thermo-hygrometer data loggers | Testo        | 175-H2    | 20012380/305 | 2022-12  | 2024-12   |
| Thermo-hygrometer data loggers | Testo        | 175-H2    | 38203337/703 | 2022-12  | 2024-12   |
| Barometer                      | Castle       | GPB 3300  | 072015       | 2024-04  | 2025-04   |

### 5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages  $\pm 5\%$ , for which the equipment was designed.

## Section 6. Measurement uncertainty

### 6.1 Uncertainty of measurement

The measurement uncertainty was calculated for each test and quantity listed in this test report, according to CISPR 16-4-2, ETSI TR 100 028-1, ETSI TR 100 028-2 and other specific test standards and is documented in Nemko Spa working manuals WML1002 and WML0078.

The assessment of conformity for each test performed on the equipment is performed not taking into account the measurement uncertainty. The two following possible verdicts are stated in the report:

P (Pass) - The measured values of the equipment respect the specification limit at the points tested. The specific risk of false accept is up to 50% when the measured result is close to the limit.

F (Fail) - One or more measured values of the equipment do not respect the specification limit at the points tested. The specific risk of false reject is up to 50% when the measured result is close to the limit.

Hereafter Nemko's measurement uncertainties are reported:

| EUT         | Type      | Test  | Range                | Measurement Uncertainty | Notes |
|-------------|-----------|---|----------------------|-------------------------|-------|
| Transmitter | Conducted | Frequency error   | 0.001 MHz ÷ 40 GHz   | 0.08 ppm                | (1)   |
|             |           | Carrier power<br>RF Output Power  | 0.009 MHz ÷ 30 MHz   | 1.1 dB                  | (1)   |
|             |           |   | 30 MHz ÷ 18 GHz      | 1.5 dB                  | (1)   |
|             |           |   | 18 MHz ÷ 40 GHz      | 3.0 dB                  | (1)   |
|             |           |   | 5 MHz ÷ 140 GHz      | 5.0 dB                  | (1)   |
|             |           | Adjacent channel power  | 1 MHz ÷ 18 GHz       | 1.4 dB                  | (1)   |
|             |           | Conducted spurious emissions  | 0.009 MHz ÷ 18 GHz   | 3.0 dB                  | (1)   |
|             |           |   | 18 GHz ÷ 40 GHz      | 4.2 dB                  | (1)   |
|             |           |   | 40 GHz ÷ 220 GHz     | 6.0 dB                  | (1)   |
|             |           | Intermodulation attenuation   | 1 MHz ÷ 18 GHz       | 2.2 dB                  | (1)   |
|             |           | Attack time – frequency behaviour   | 1 MHz ÷ 18 GHz       | 2.0 ms                  | (1)   |
|             |           | Attack time – power behaviour   | 1 MHz ÷ 18 GHz       | 2.5 ms                  | (1)   |
|             |           | Release time – frequency behaviour  | 1 MHz ÷ 18 GHz       | 2.0 ms                  | (1)   |
|             |           | Release time – power behaviour  | 1 MHz ÷ 18 GHz       | 2.5 ms                  | (1)   |
|             |           | Transient behaviour of the transmitter– Transient frequency behaviour                   | 1 MHz ÷ 18 GHz       | 0.2 kHz                 | (1)   |
|             |           | Transient behaviour of the transmitter – Power level slope                              | 1 MHz ÷ 18 GHz       | 9%                      | (1)   |
|             |           | Frequency deviation - Maximum permissible frequency deviation                           | 0.001 MHz ÷ 18 GHz   | 1.3%                    | (1)   |
|             |           | Frequency deviation - Response of the transmitter to modulation frequencies above 3 kHz | 0.001 MHz ÷ 18 GHz   | 0.5 dB                  | (1)   |
|             |           | Dwell time  | -                    | 3%                      | (1)   |
|             |           | Hopping Frequency Separation  | 0.01 MHz ÷ 18 GHz    | 1%                      | (1)   |
|             |           | Occupied Channel Bandwidth  | 0.01 MHz ÷ 18 GHz    | 2%                      | (1)   |
|             |           | Modulation Bandwidth  | 0.01 MHz ÷ 18 GHz    | 2%                      | (1)   |
|             | Radiated  | Radiated spurious emissions   | 0.009 MHz ÷ 26.5 GHz | 6.0 dB                  | (1)   |
|             |           |   | 26.5 GHz ÷ 66 GHz    | 8.0 dB                  | (1)   |
|             |           |   | 66 GHz ÷ 220 GHz     | 10 dB                   | (1)   |
|             |           | Effective radiated power transmitter  | 10 kHz ÷ 26.5 GHz    | 6.0 dB                  | (1)   |
|             |           |   | 26.5 GHz ÷ 66 GHz    | 8.0 dB                  | (1)   |
|             |           |   | 66 GHz ÷ 220 GHz     | 10 dB                   | (1)   |

#### NOTES:

(1) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

## Section 7. Test equipment

### 7.1 Test equipment list

*Table 7.1-1: Equipment list*

| Equipment                        | Manufacturer                   | Model no.                 | Asset no.     | Cal cycle | Next cal. |
|----------------------------------|--------------------------------|---------------------------|---------------|-----------|-----------|
| Spectrum Analyzer                | Rohde & Schwarz                | FSW43                     | 101767        | 2024-01   | 2025-01   |
| EMI Receiver                     | Rohde & Schwarz                | ESU8                      | 100202        | 2024-09   | 2025-09   |
| EMI Receiver                     | Rohde & Schwarz                | ESW44                     | 101620        | 2024-08   | 2025-08   |
| RF Vector Signal Generator       | Rohde & Schwarz                | SMBV100A                  | 263254        | 2024-05   | 2025-05   |
| RF Vector Signal Generator       | Rohde & Schwarz                | SMBV100A                  | 263397        | 2024-09   | 2025-09   |
| Climatic Chamber                 | MSL                            | EC500DA                   | 15022         | 2024-01   | 2025-01   |
| Antenna Trilog 25MHz - 8GHz      | Schwarzbeck Mess-Elektronik    | VULB9162                  | 9162-025      | 2024-07   | 2027-07   |
| Antenna 1 - 18 GHz               | Schwarzbeck Mess-Elektronik    | STLP9148                  | STLP 9148-152 | 2024-09   | 2027-09   |
| Double Ridge Horn Antenna        | RFSpin                         | DRH40                     | 061106A40     | 2023-04   | 2026-04   |
| Broadband Amplifier              | Schwarzbeck Mess-Elektronik    | BBV9718C                  | 00121         | 2024-01   | 2025-01   |
| Broadband Bench Top Amplifier    | Sage                           | STB-1834034030-KFKF-L1    | 18490-01      | 2024-04   | 2025-04   |
| Semi-anechoic chamber            | Nemko S.p.a.                   | 10m semi-anechoic chamber | 530           | 2023-09   | 2025-09   |
| Controller                       | Maturo                         | FCU3.0                    | 10041         | NCR       | NCR       |
| Tilt antenna mast                | Maturo                         | TAM4.0-E                  | 10042         | NCR       | NCR       |
| Turntable                        | Maturo                         | TT4.0-5T                  | 2.527         | NCR       | NCR       |
| Semi-anechoic chamber            | Comtest                        | 3m SAC                    | 1711-150      | 2024-09   | 2026-09   |
| Controller                       | Maturo                         | FCU3.0                    | 10237         | NCR       | NCR       |
| Tilt antenna mast                | Maturo                         | TAM4.0-E                  | 3466.01       | NCR       | NCR       |
| Turntable                        | Maturo                         | TT4.0                     | -             | NCR       | NCR       |
| Pyramidal Horn Antenna 40-60 GHz | Sage                           | SAR-2507-19VF-R2          | 15715-01      | 2024-06   | 2027-06   |
| Harmonic Mixer                   | Radiometer Physics             | FS-Z60                    | 100988        | 2024-01   | 2027-01   |
| Cable set                        | Rosenberger                    | ST.ALO-02                 | 1.650         | 2024-10   | 2025-10   |
| Cable set                        | Rosenberger and Huber + Suhner | RE01+RE02                 | 1.654+1.655   | 2024-09   | 2025-09   |
| Cable set                        | Rosenberger+Huber-Suhner       | RE03+RE04                 | 1.510+1.511   | 2024-09   | 2025-09   |

## Section 8. Testing data

### 8.1 FCC §2.1033(c)(4) Modulation type

#### 8.1.1 Definitions and limits

(c) Applications for equipment other than that operating under parts 15, 11 and 18 of this chapter shall be accompanied by a technical report containing the following information:

(4) Type or types of emission

#### 8.1.2 Test summary

|               |                   |                   |           |
|---------------|-------------------|-------------------|-----------|
| Test date     | November 26, 2024 | Temperature       | 22 °C     |
| Test engineer | O. Frau           | Air pressure      | 1001 mbar |
| Verdict       | Pass              | Relative humidity | 62 %      |

#### 8.1.3 Observations, settings and special notes

None

#### 8.1.4 Test data

**Band B13:**

| Bandwidth (MHz) | Emission type |
|-----------------|---------------|
| 5               | TM1.1         |
| 5               | TM3p1         |
| 5               | TM3p1a        |
| 5               | TM3p3         |
| 10              | TM1.1         |
| 10              | TM3p1         |
| 10              | TM3p1a        |
| 10              | TM3p3         |

**Table Error.** Per applicare Heading 2 al testo da visualizzare in questo punto, utilizzare la scheda Home.-1: Types of emission

## 8.2 FCC §2.1049(h) 99% Occupied Bandwidth and frequency ranges

### 8.2.1 Definitions and limits

§2.1049 (h) Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the use.

### 8.2.2 Test summary

|                 |                   |                   |           |
|-----------------|-------------------|-------------------|-----------|
| Test start date | November 26, 2024 | Temperature       | 22 °C     |
| Test end date   | December 13, 2024 | Air pressure      | 1001 mbar |
| Test engineer   | O. Frau           | Relative humidity | 62%       |
| Verdict         | Pass              |                   |           |

### 8.2.3 Observations, settings and special notes

Test method: ANSI C63.26 Section 5.4.4

Spectrum analyzer settings:

|                      |             |
|----------------------|-------------|
| Resolution bandwidth | 1% - 5% OBW |
| Video bandwidth      | 3*RBW       |
| Frequency span       | 2*OBW       |
| Detector mode        | Peak        |
| Trace mode           | Max Hold    |

### 8.2.4 Test equipment used

| Equipment         | Manufacturer    | Model no. | Asset no. |
|-------------------|-----------------|-----------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSW43     | 101767    |

## 8.2.5 Test data

## Band B13: Antenna port 1

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM1.1      | 748.5         | 4.49          |
| B13  | 5 MHz        | TM1.1      | 751.0         | 4.50          |
| B13  | 5 MHz        | TM1.1      | 753.5         | 4.50          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p1      | 748.5         | 4.52          |
| B13  | 5 MHz        | TM3p1      | 751.0         | 4.49          |
| B13  | 5 MHz        | TM3p1      | 753.5         | 4.52          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p1a     | 748.5         | 4.48          |
| B13  | 5 MHz        | TM3p1a     | 751.0         | 4.48          |
| B13  | 5 MHz        | TM3p1a     | 753.5         | 4.49          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p3      | 748.5         | 4.50          |
| B13  | 5 MHz        | TM3p3      | 751.0         | 4.49          |
| B13  | 5 MHz        | TM3p3      | 753.5         | 4.50          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM1.1      | n/a           | -             |
| B13  | 10 MHz       | TM1.1      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM1.1      | n/a           | -             |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p1      | n/a           | -             |
| B13  | 10 MHz       | TM3p1      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM3p1      | n/a           | -             |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p1a     | n/a           | -             |
| B13  | 10 MHz       | TM3p1a     | 751.0         | 8.98          |
| B13  | 10 MHz       | TM3p1a     | n/a           | -             |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p3      | n/a           | -             |
| B13  | 10 MHz       | TM3p3      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM3p3      | n/a           | -             |

# Band B13: Antenna port 2

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM1.1      | 748.5         | 4.50          |
| B13  | 5 MHz        | TM1.1      | 751.0         | 4.50          |
| B13  | 5 MHz        | TM1.1      | 753.5         | 4.50          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p1      | 748.5         | 4.49          |
| B13  | 5 MHz        | TM3p1      | 751.0         | 4.52          |
| B13  | 5 MHz        | TM3p1      | 753.5         | 4.51          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p1a     | 748.5         | 4.49          |
| B13  | 5 MHz        | TM3p1a     | 751.0         | 4.49          |
| B13  | 5 MHz        | TM3p1a     | 753.5         | 4.48          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 5 MHz        | TM3p3      | 748.5         | 4.50          |
| B13  | 5 MHz        | TM3p3      | 751.0         | 4.49          |
| B13  | 5 MHz        | TM3p3      | 753.5         | 4.48          |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM1.1      | n/a           | -             |
| B13  | 10 MHz       | TM1.1      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM1.1      | n/a           | -             |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p1      | n/a           | -             |
| B13  | 10 MHz       | TM3p1      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM3p1      | n/a           | -             |

| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p1a     | n/a           | -             |
| B13  | 10 MHz       | TM3p1a     | 751.0         | 8.98          |
| B13  | 10 MHz       | TM3p1a     | n/a           | -             |

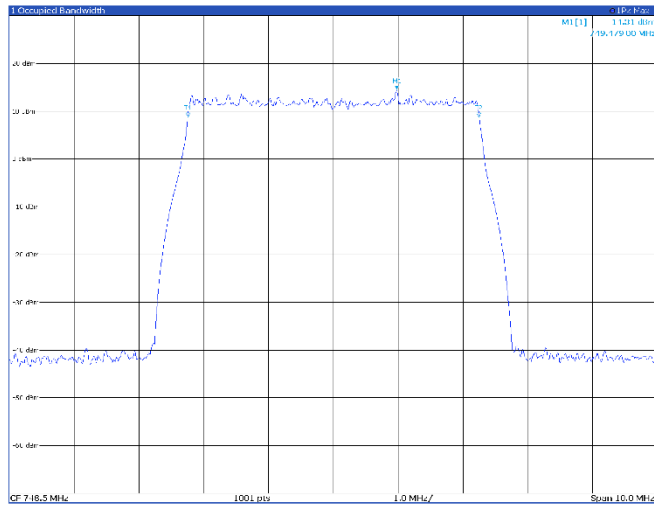
| Band | OBW Declared | Modulation | Channel (MHz) | 99% OBW (MHz) |
|------|--------------|------------|---------------|---------------|
| B13  | 10 MHz       | TM3p3      | n/a           | -             |
| B13  | 10 MHz       | TM3p3      | 751.0         | 8.97          |
| B13  | 10 MHz       | TM3p3      | n/a           | -             |

## Antenna port 1

Band B13

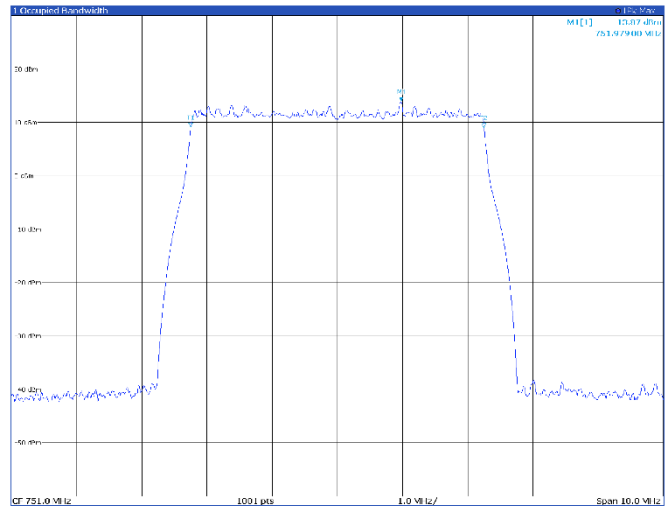
5 MHz

## TM1.1, 5 MHz, low channel



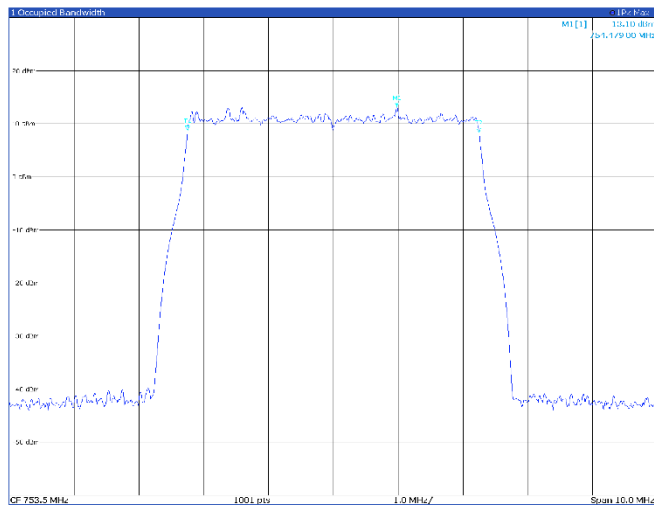
| Type | Ref | Trc | X-Value     | Y-Value   | Function       | Function Result |
|------|-----|-----|-------------|-----------|----------------|-----------------|
| M1   | 1   |     | 749.479 MHz | 14.31 dBm | Occ BW         | 4.487633964 MHz |
| T1   | 1   |     | 749.479 MHz | 8.75 dBm  | Occ BW Channel | 749.479 MHz     |
| T2   | 1   |     | 749.479 MHz | 8.75 dBm  | Occ BW Channel | 749.479 MHz     |

## TM1.1, 5 MHz, mid channel



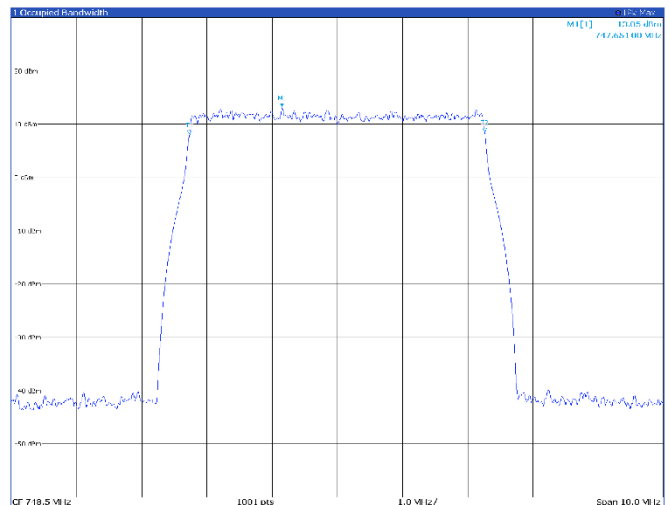
| Type | Ref | Trc | X-Value     | Y-Value   | Function       | Function Result |
|------|-----|-----|-------------|-----------|----------------|-----------------|
| M1   | 1   |     | 751.979 MHz | 13.87 dBm | Occ BW         | 4.495754862 MHz |
| T1   | 1   |     | 751.979 MHz | 8.75 dBm  | Occ BW Channel | 751.979 MHz     |
| T2   | 1   |     | 751.979 MHz | 8.75 dBm  | Occ BW Channel | 751.979 MHz     |

## TM1.1, 5 MHz, high channel



| Type | Ref | Trc | X-Value     | Y-Value   | Function       | Function Result |
|------|-----|-----|-------------|-----------|----------------|-----------------|
| M1   | 1   |     | 754.479 MHz | 13.10 dBm | Occ BW         | 4.496141595 MHz |
| T1   | 1   |     | 754.479 MHz | 8.75 dBm  | Occ BW Channel | 754.479 MHz     |
| T2   | 1   |     | 754.479 MHz | 8.75 dBm  | Occ BW Channel | 754.479 MHz     |

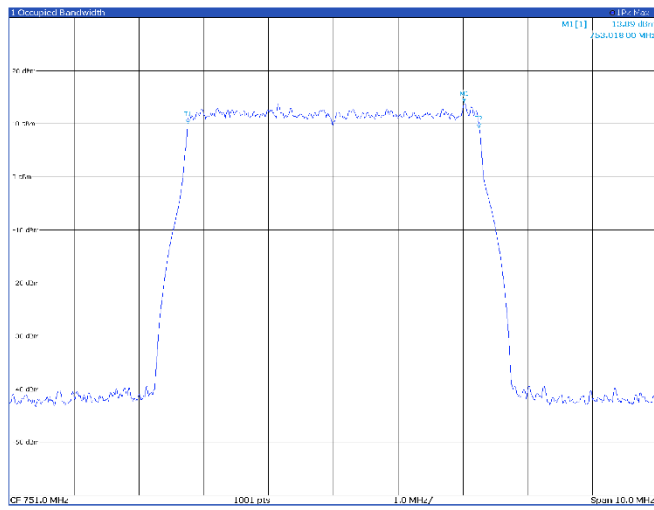
## TM3p1, 5 MHz, low channel



| Type | Ref | Trc | X-Value     | Y-Value   | Function       | Function Result |
|------|-----|-----|-------------|-----------|----------------|-----------------|
| M1   | 1   |     | 747.651 MHz | 13.05 dBm | Occ BW         | 4.520635686 MHz |
| T1   | 1   |     | 747.651 MHz | 8.75 dBm  | Occ BW Channel | 747.651 MHz     |
| T2   | 1   |     | 747.651 MHz | 8.75 dBm  | Occ BW Channel | 747.651 MHz     |

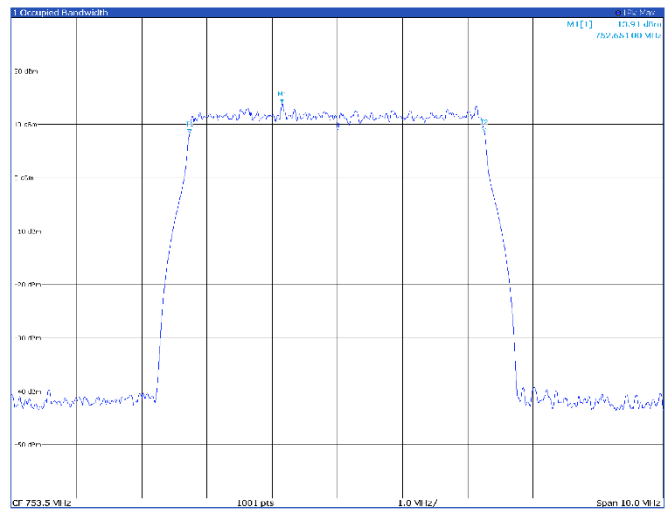


### TM3p1, 5 MHz, mid channel



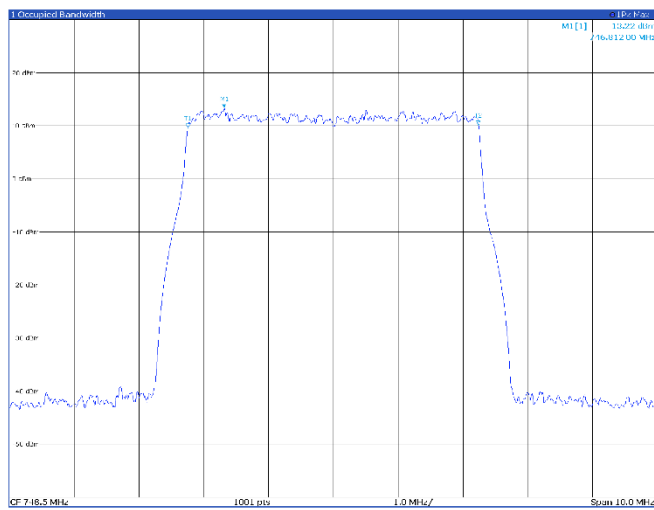
| Type | Ref | Trc | X Value     | Y Value    | Corr Sw | Function        | Function Result |
|------|-----|-----|-------------|------------|---------|-----------------|-----------------|
| M1   | 1   |     | 753.018 MHz | 13.89 dBm  | Off     | Occ BW          | 4.49218172 MHz  |
| M2   | 1   |     | 753.018 MHz | -46.48 dBm | Off     | Occ BW Canceled | 753.018 MHz     |
| M3   | 1   |     | 753.018 MHz | -46.48 dBm | Off     | Occ BW Canceled | 753.018 MHz     |

### TM3p1, 5 MHz, high channel



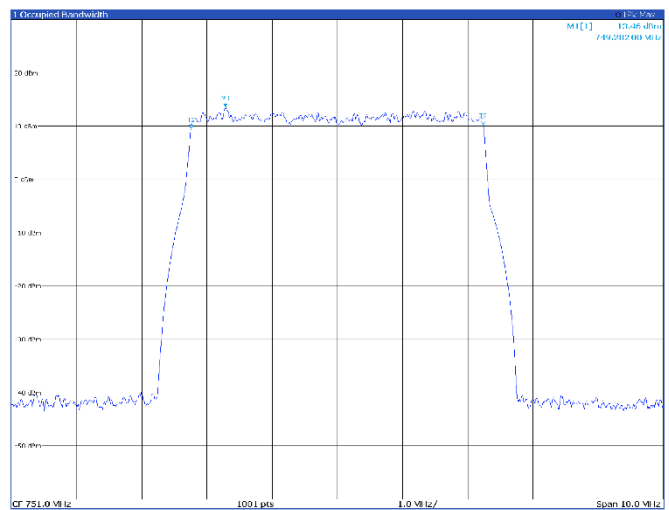
| Type | Ref | Trc | X Value     | Y Value    | Corr Sw | Function        | Function Result |
|------|-----|-----|-------------|------------|---------|-----------------|-----------------|
| M1   | 1   |     | 752.651 MHz | 13.91 dBm  | Off     | Occ BW          | 4.518371658 MHz |
| M2   | 1   |     | 752.651 MHz | -46.48 dBm | Off     | Occ BW Canceled | 752.651 MHz     |
| M3   | 1   |     | 752.651 MHz | -46.48 dBm | Off     | Occ BW Canceled | 752.651 MHz     |

### TM3p1a, 5 MHz, low channel



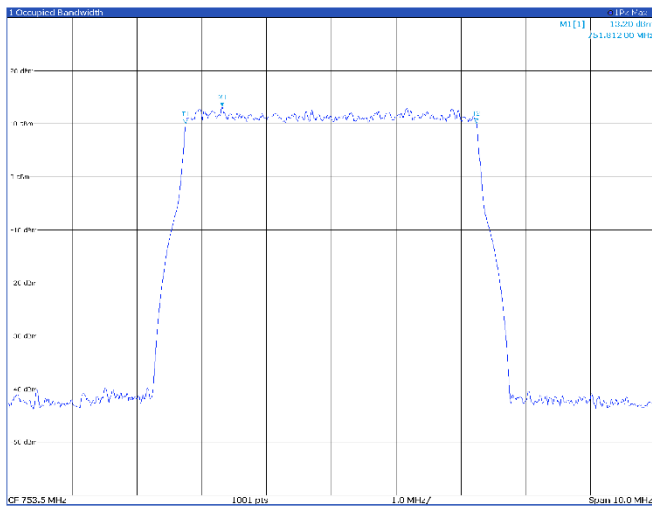
| Type | Ref | Trc | X Value     | Y Value    | Corr Sw | Function        | Function Result |
|------|-----|-----|-------------|------------|---------|-----------------|-----------------|
| M1   | 1   |     | 746.812 MHz | 13.22 dBm  | Off     | Occ BW          | 4.484957205 MHz |
| M2   | 1   |     | 746.812 MHz | -46.48 dBm | Off     | Occ BW Canceled | 746.812 MHz     |
| M3   | 1   |     | 746.812 MHz | -46.48 dBm | Off     | Occ BW Canceled | 746.812 MHz     |

### TM3p1a, 5 MHz, mid channel



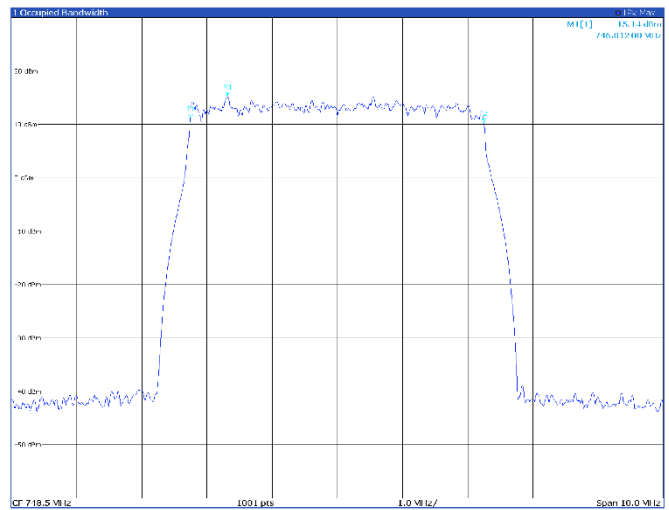
| Type | Ref | Trc | X Value     | Y Value    | Corr Sw | Function        | Function Result |
|------|-----|-----|-------------|------------|---------|-----------------|-----------------|
| M1   | 1   |     | 749.282 MHz | 13.46 dBm  | Off     | Occ BW          | 4.481711219 MHz |
| M2   | 1   |     | 749.282 MHz | -46.48 dBm | Off     | Occ BW Canceled | 749.282 MHz     |
| M3   | 1   |     | 749.282 MHz | -46.48 dBm | Off     | Occ BW Canceled | 749.282 MHz     |

### TM3p1a, 5 MHz, high channel



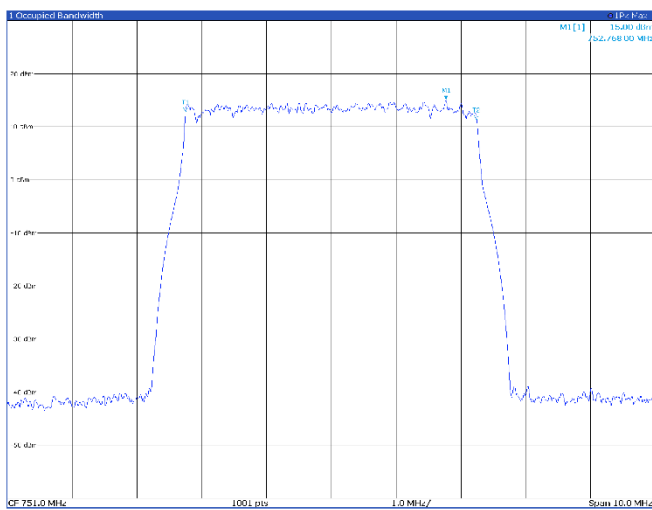
| Type | Ref | Freq | X Value            | Y Value          | Function       | Function Result          |
|------|-----|------|--------------------|------------------|----------------|--------------------------|
| M1   | 1   |      | <b>751.812 MHz</b> | <b>13.20 dBm</b> | Occ BW         | <b>4.488 407 345 MHz</b> |
| M1   | 1   |      | 751.25113 MHz      | 0.00 dBm         | Occ BW Channel | 750.952 245 775 MHz      |
| M2   | 1   |      | 752.76843 MHz      | 0.00 dBm         | Occ BW Channel | 753.069 697 669 MHz      |

### TM3p3, 5 MHz, low channel



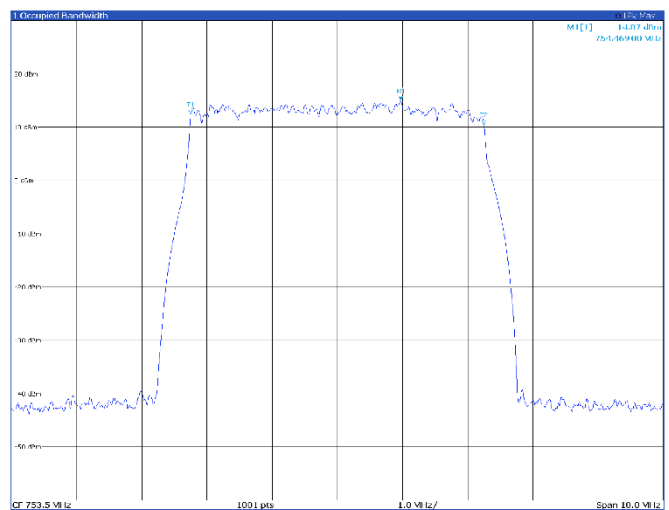
| Type | Ref | Freq | X Value            | Y Value          | Function       | Function Result          |
|------|-----|------|--------------------|------------------|----------------|--------------------------|
| M1   | 1   |      | <b>746.812 MHz</b> | <b>15.14 dBm</b> | Occ BW         | <b>4.496 697 669 MHz</b> |
| M1   | 1   |      | 746.24613 MHz      | 0.00 dBm         | Occ BW Channel | 745.947 101 007 MHz      |
| M2   | 1   |      | 747.43713 MHz      | 0.00 dBm         | Occ BW Channel | 747.738 212 112 MHz      |

### TM3p3, 5 MHz, mid channel



| Type | Ref | Freq | X Value            | Y Value          | Function       | Function Result          |
|------|-----|------|--------------------|------------------|----------------|--------------------------|
| M1   | 1   |      | <b>752.768 MHz</b> | <b>15.00 dBm</b> | Occ BW         | <b>4.487 526 001 MHz</b> |
| M1   | 1   |      | 752.20743 MHz      | 0.00 dBm         | Occ BW Channel | 751.908 245 775 MHz      |
| M2   | 1   |      | 753.32843 MHz      | 0.00 dBm         | Occ BW Channel | 753.629 697 669 MHz      |

### TM3p3, 5 MHz, high channel

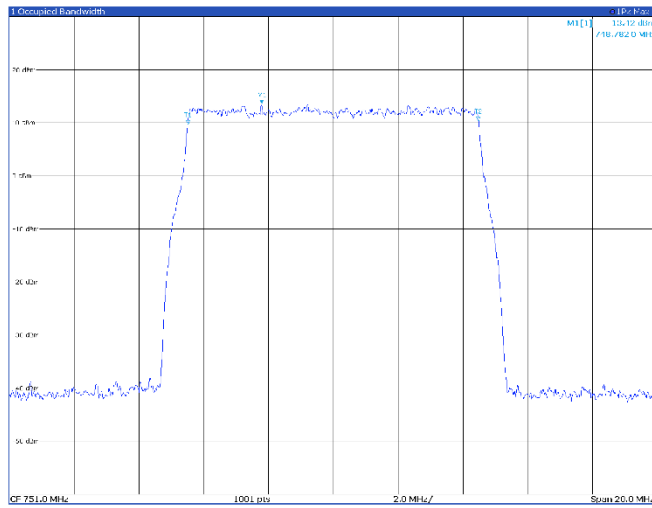


| Type | Ref | Freq | X Value            | Y Value          | Function       | Function Result          |
|------|-----|------|--------------------|------------------|----------------|--------------------------|
| M1   | 1   |      | <b>754.469 MHz</b> | <b>14.87 dBm</b> | Occ BW         | <b>4.496 824 139 MHz</b> |
| M1   | 1   |      | 753.90913 MHz      | 0.00 dBm         | Occ BW Channel | 753.610 245 775 MHz      |
| M2   | 1   |      | 755.02013 MHz      | 0.00 dBm         | Occ BW Channel | 755.321 697 669 MHz      |

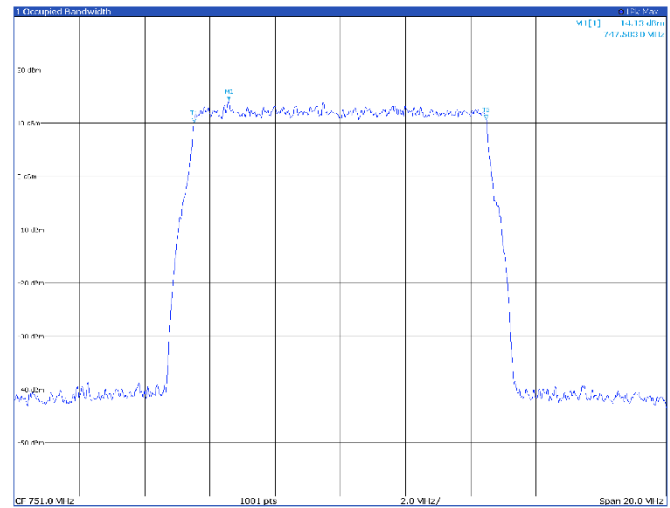
## Band B13

## 10 MHz

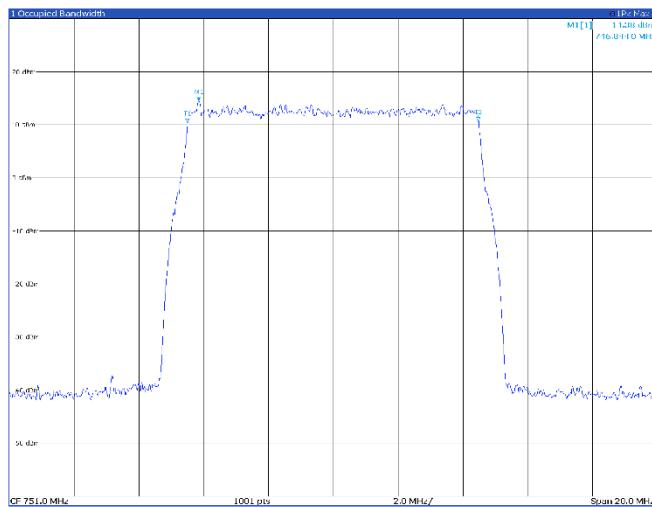
## TM1.1, 10 MHz, mid channel



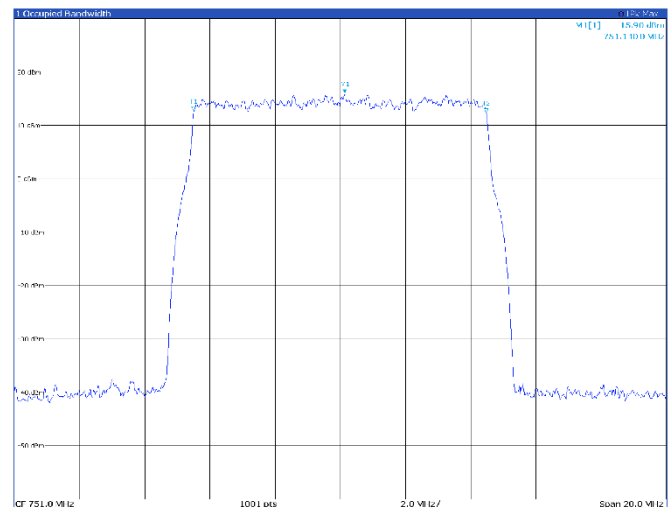
## TM3p1, 10 MHz, mid channel



## TM3p1a, 10 MHz, mid channel



## TM3p3, 10 MHz, mid channel

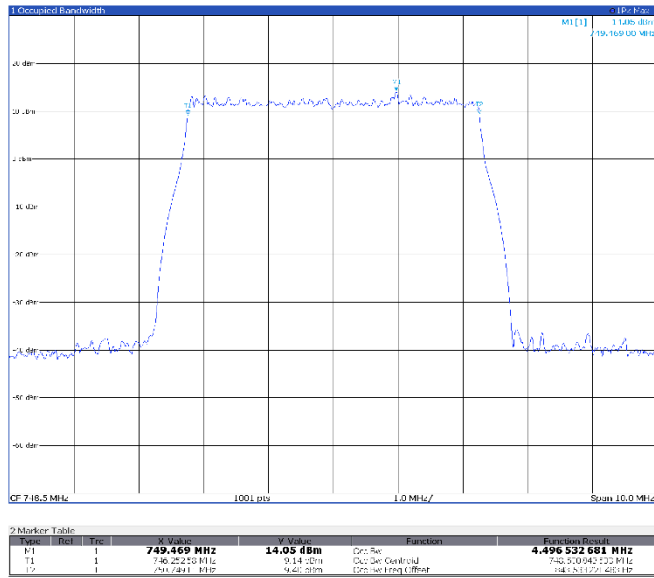


## Antenna port 2

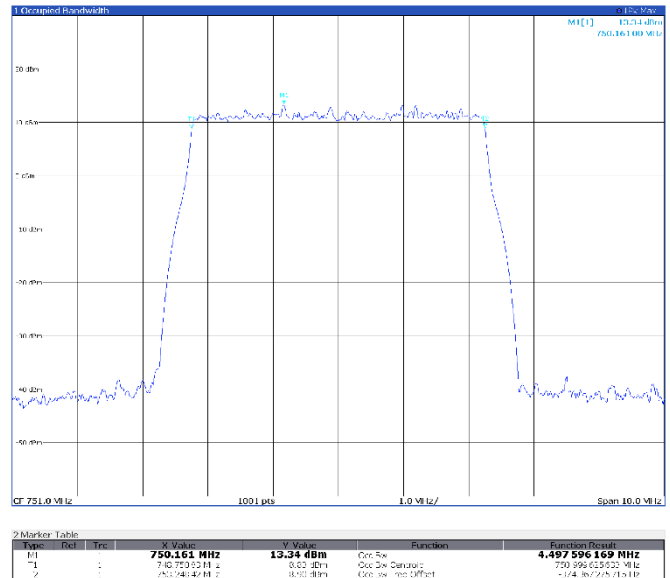
Band B13

5 MHz

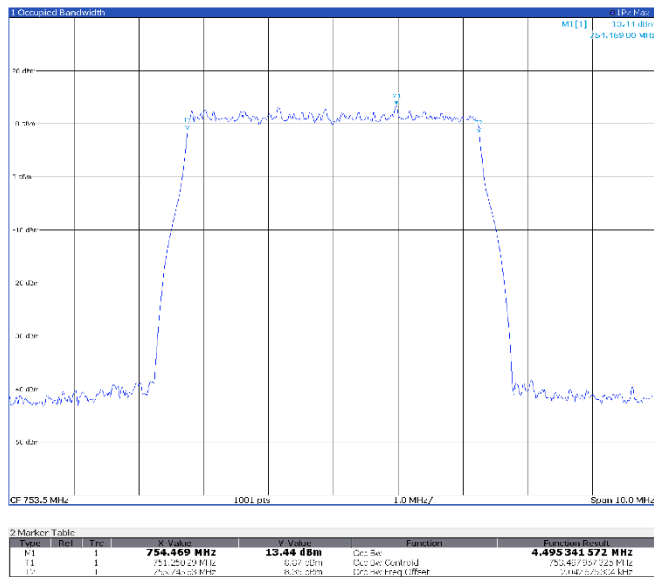
## TM1.1, 5 MHz, low channel



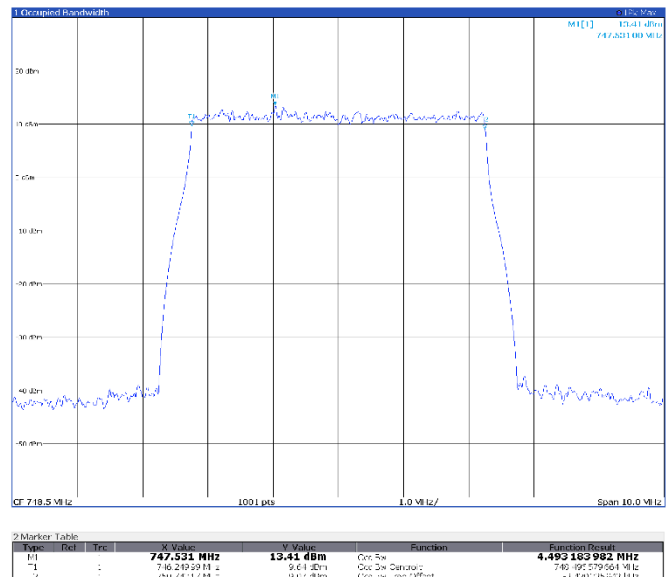
## TM1.1, 5 MHz, mid channel



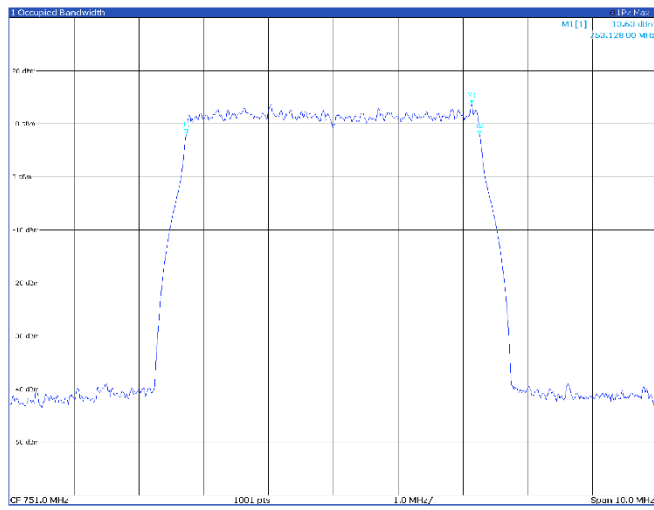
## TM1.1, 5 MHz, high channel



## TM3p1, 5 MHz, low channel

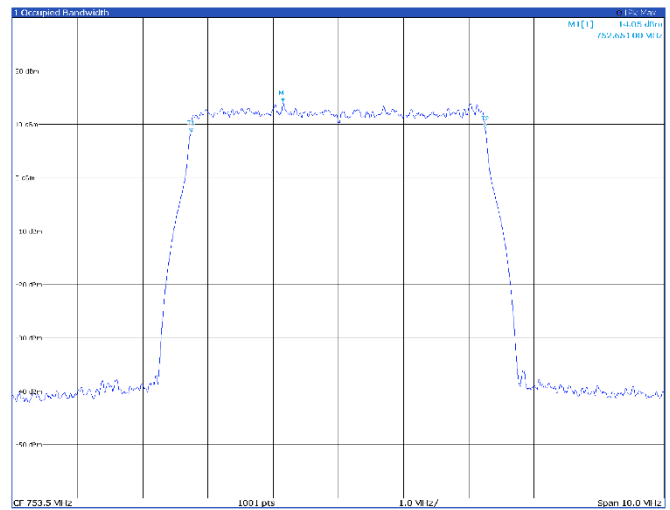


### TM3p1, 5 MHz, mid channel



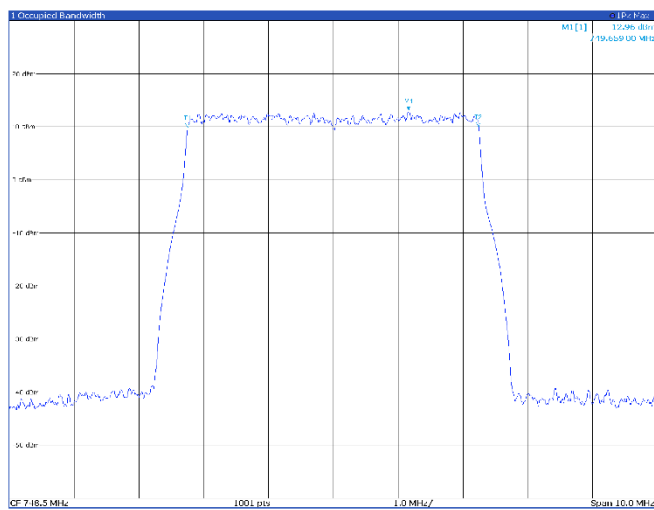
| Type | Ref | Trc | X Value        | Y Value   | Function       | Function Result     |
|------|-----|-----|----------------|-----------|----------------|---------------------|
| M1   | 1   |     | 753.128 MHz    | 13.63 dBm | Occ Sw         | 4.520 205 126 MHz   |
| T1   | 1   |     | 749.722 99 MHz | 0.11 dBm  | Occ Sw Channel | 750.952 779 120 MHz |
| T2   | 1   |     | 756.552 94 MHz | 2.26 dBm  | Occ Sw Channel | 755.188 516 052 MHz |

### TM3p1, 5 MHz, high channel



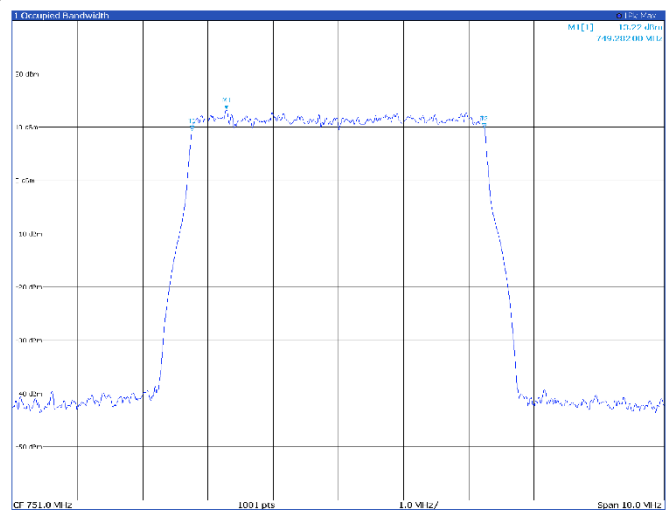
| Type | Ref | Trc | X Value        | Y Value   | Function       | Function Result     |
|------|-----|-----|----------------|-----------|----------------|---------------------|
| M1   | 1   |     | 752.651 MHz    | 14.05 dBm | Occ Sw         | 4.510 985 053 MHz   |
| T1   | 1   |     | 751.220 91 MHz | 0.41 dBm  | Occ Sw Channel | 753.494 125 777 MHz |
| T2   | 1   |     | 754.094 91 MHz | 0.17 dBm  | Occ Sw Channel | 755.544 611 051 MHz |

### TM3p1a, 5 MHz, low channel



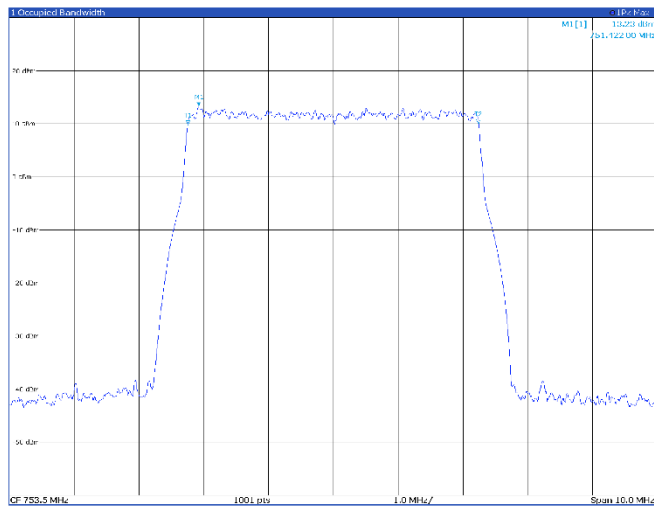
| Type | Ref | Trc | X Value        | Y Value   | Function       | Function Result     |
|------|-----|-----|----------------|-----------|----------------|---------------------|
| M1   | 1   |     | 749.659 MHz    | 12.96 dBm | Occ Sw         | 4.486 326 932 MHz   |
| T1   | 1   |     | 746.251 45 MHz | 0.07 dBm  | Occ Sw Channel | 748.494 611 051 MHz |
| T2   | 1   |     | 753.062 95 MHz | 10.00 dBm | Occ Sw Channel | 755.188 516 052 MHz |

### TM3p1a, 5 MHz, mid channel



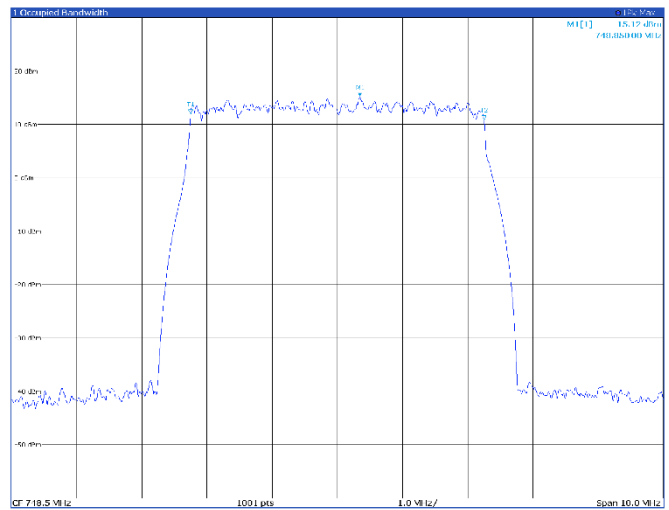
| Type | Ref | Trc | X Value        | Y Value   | Function       | Function Result     |
|------|-----|-----|----------------|-----------|----------------|---------------------|
| M1   | 1   |     | 749.282 MHz    | 13.22 dBm | Occ Sw         | 4.485 771 31 MHz    |
| T1   | 1   |     | 748.75 25 MHz  | 0.41 dBm  | Occ Sw Channel | 750.952 779 120 MHz |
| T2   | 1   |     | 752.240 12 MHz | 0.64 dBm  | Occ Sw Channel | 755.188 516 052 MHz |

### TM3p1a, 5 MHz, high channel



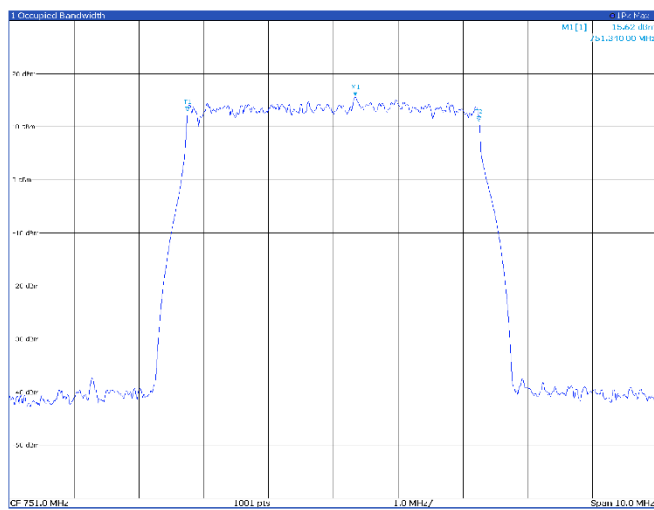
| Type | Ref | Trc | X Value     | Y Value   | Function                 | Function Result   |
|------|-----|-----|-------------|-----------|--------------------------|-------------------|
| M1   | 1   |     | 751.422 MHz | 13.23 dBm | Off Set                  | 4.463 462 009 MHz |
| T1   | 1   |     | 751.422 MHz | 13.23 dBm | Off Set Control          | 751.465932 MHz    |
| T2   | 1   |     | 751.422 MHz | 13.23 dBm | Off Set Frequency Offset | -5.162832 MHz     |

### TM3p3, 5 MHz, low channel



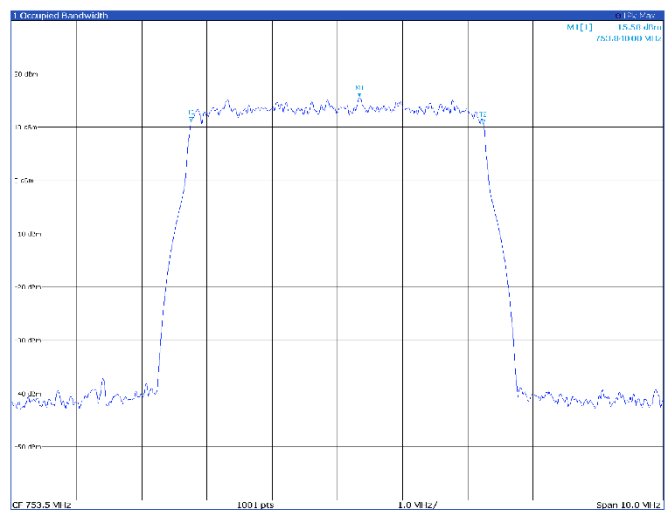
| Type | Ref | Trc | X Value    | Y Value   | Function                 | Function Result     |
|------|-----|-----|------------|-----------|--------------------------|---------------------|
| M1   | 1   |     | 749.85 MHz | 15.12 dBm | Off Set                  | 4.499 206 677 MHz   |
| T1   | 1   |     | 749.85 MHz | 15.12 dBm | Off Set Control          | 749.899 680 677 MHz |
| T2   | 1   |     | 749.85 MHz | 15.12 dBm | Off Set Frequency Offset | -4.10 85230 MHz     |

### TM3p3, 5 MHz, mid channel



| Type | Ref | Trc | X Value    | Y Value   | Function                 | Function Result     |
|------|-----|-----|------------|-----------|--------------------------|---------------------|
| M1   | 1   |     | 751.34 MHz | 15.62 dBm | Off Set                  | 4.493 998 513 MHz   |
| T1   | 1   |     | 751.34 MHz | 15.62 dBm | Off Set Control          | 751.386 942 421 MHz |
| T2   | 1   |     | 751.34 MHz | 15.62 dBm | Off Set Frequency Offset | 3.029653721 MHz     |

### TM3p3, 5 MHz, high channel

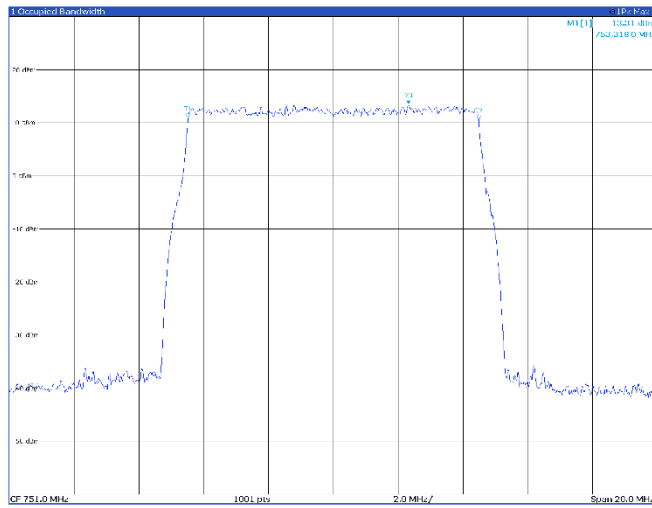


| Type | Ref | Trc | X Value    | Y Value   | Function                 | Function Result   |
|------|-----|-----|------------|-----------|--------------------------|-------------------|
| M1   | 1   |     | 753.84 MHz | 15.58 dBm | Off Set                  | 4.480 847 778 MHz |
| T1   | 1   |     | 753.84 MHz | 15.58 dBm | Off Set Control          | 753.882 11987 MHz |
| T2   | 1   |     | 753.84 MHz | 15.58 dBm | Off Set Frequency Offset | -3.030054631 MHz  |

## Band B13

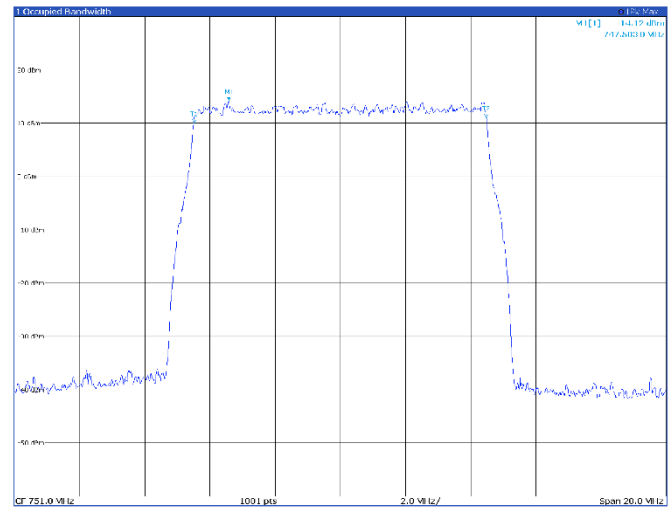
## 10 MHz

## TM1.1, 10 MHz, mid channel



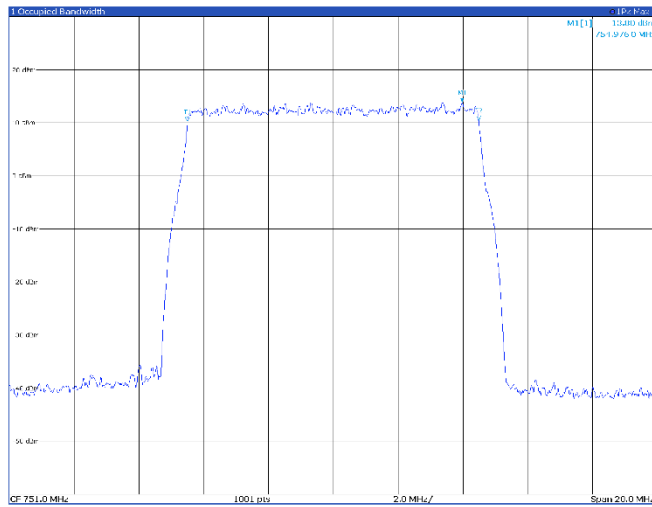
| Type | Ref | Trc | X Value     | Y Value   | Function            | Function Result    |
|------|-----|-----|-------------|-----------|---------------------|--------------------|
| M1   | 1   |     | 753.318 MHz | 13.31 dBm | Occ BW              | 8.967329 231 MHz   |
| M1   | 1   |     | 753.318 MHz | 10.76 dBm | Occ BW Channel      | 750.955195 192 MHz |
| M1   | 1   |     | 753.318 MHz | 10.30 dBm | Occ BW Noise Offset | 1.463493446 MHz    |

## TM3p1, 10 MHz, mid channel



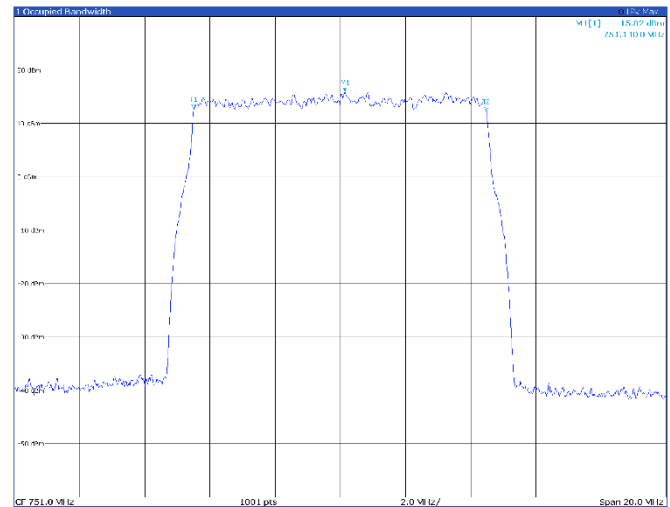
| Type | Ref | Trc | X Value     | Y Value   | Function            | Function Result    |
|------|-----|-----|-------------|-----------|---------------------|--------------------|
| M1   | 1   |     | 747.583 MHz | 14.12 dBm | Occ BW              | 8.970552 957 MHz   |
| M1   | 1   |     | 747.583 MHz | 9.93 dBm  | Occ BW Channel      | 739.892322 225 MHz |
| M1   | 1   |     | 747.583 MHz | 10.30 dBm | Occ BW Noise Offset | 1.577753111 MHz    |

## TM3p1a, 10 MHz, mid channel



| Type | Ref | Trc | X Value     | Y Value   | Function            | Function Result    |
|------|-----|-----|-------------|-----------|---------------------|--------------------|
| M1   | 1   |     | 754.976 MHz | 13.80 dBm | Occ BW              | 8.984029 134 MHz   |
| M1   | 1   |     | 754.976 MHz | 10.20 dBm | Occ BW Channel      | 750.952435 194 MHz |
| M1   | 1   |     | 754.976 MHz | 10.30 dBm | Occ BW Noise Offset | 1.463493446 MHz    |

## TM3p3, 10 MHz, mid channel



| Type | Ref | Trc | X Value    | Y Value   | Function            | Function Result    |
|------|-----|-----|------------|-----------|---------------------|--------------------|
| M1   | 1   |     | 751.14 MHz | 15.82 dBm | Occ BW              | 8.973404 075 MHz   |
| M1   | 1   |     | 751.14 MHz | 12.69 dBm | Occ BW Channel      | 750.950729 192 MHz |
| M1   | 1   |     | 751.14 MHz | 10.30 dBm | Occ BW Noise Offset | 1.463493446 MHz    |

## 8.3 FCC §27.53(h)(3) 26 dB Occupied Bandwidth

### 8.3.1 Definitions and limits

(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

### 8.3.2 Test summary

|                 |                   |                   |           |
|-----------------|-------------------|-------------------|-----------|
| Test start date | November 26, 2024 | Temperature       | 22 °C     |
| Test end date   | December 13, 2024 | Air pressure      | 1001 mbar |
| Test engineer   | O. Frau           | Relative humidity | 62%       |
| Verdict         | Pass              |                   |           |

### 8.3.3 Observations, settings and special notes

Test method: ANSI C63.26 Section 5.4.4

Spectrum analyzer settings:

|                      |             |
|----------------------|-------------|
| Resolution bandwidth | 1% - 5% OBW |
| Video bandwidth      | 3*RBW       |
| Frequency span       | 2*OBW       |
| Detector mode        | Peak        |
| Trace mode           | Max Hold    |

### 8.3.3 Test equipment used

| Equipment         | Manufacturer    | Model no. | Asset no. |
|-------------------|-----------------|-----------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSW43     | 101767    |



## 8.3.4 Test data

## Band B13: Antenna port 1

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 5 MHz        | TM1.1      | 748.5         | 5.05        |
| B13  | 5 MHz        | TM1.1      | 751.0         | 5.08        |
| B13  | 5 MHz        | TM1.1      | 753.5         | 5.08        |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 5 MHz        | TM3p1      | 748.5         | 5.13        |
| B13  | 5 MHz        | TM3p1      | 751.0         | 5.04        |
| B13  | 5 MHz        | TM3p1      | 753.5         | 5.11        |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 5 MHz        | TM3p1a     | 748.5         | 5.00        |
| B13  | 5 MHz        | TM3p1a     | 751.0         | 5.03        |
| B13  | 5 MHz        | TM3p1a     | 753.5         | 5.01        |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 5 MHz        | TM3p3      | 748.5         | 5.08        |
| B13  | 5 MHz        | TM3p3      | 751.0         | 5.04        |
| B13  | 5 MHz        | TM3p3      | 753.5         | 5.08        |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 10 MHz       | TM1.1      | n/a           | -           |
| B13  | 10 MHz       | TM1.1      | 751.0         | 10.03       |
| B13  | 10 MHz       | TM1.1      | n/a           | -           |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 10 MHz       | TM3p1      | n/a           | -           |
| B13  | 10 MHz       | TM3p1      | 751.0         | 9.99        |
| B13  | 10 MHz       | TM3p1      | n/a           | -           |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 10 MHz       | TM3p1a     | n/a           | -           |
| B13  | 10 MHz       | TM3p1a     | 751.0         | 10.03       |
| B13  | 10 MHz       | TM3p1a     | n/a           | -           |
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
| B13  | 10 MHz       | TM3p3      | n/a           | -           |
| B13  | 10 MHz       | TM3p3      | 751.0         | 10.01       |
| B13  | 10 MHz       | TM3p3      | n/a           | -           |

# Band B13: Antenna port 2

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 5 MHz        | TM1.1      | 748.5         | 5.09        |
| B13  | 5 MHz        | TM1.1      | 751.0         | 5.09        |
| B13  | 5 MHz        | TM1.1      | 753.5         | 5.09        |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 5 MHz        | TM3p1      | 748.5         | 5.05        |
| B13  | 5 MHz        | TM3p1      | 751.0         | 5.12        |
| B13  | 5 MHz        | TM3p1      | 753.5         | 5.11        |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 5 MHz        | TM3p1a     | 748.5         | 5.03        |
| B13  | 5 MHz        | TM3p1a     | 751.0         | 4.99        |
| B13  | 5 MHz        | TM3p1a     | 753.5         | 5.03        |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 5 MHz        | TM3p3      | 748.5         | 5.09        |
| B13  | 5 MHz        | TM3p3      | 751.0         | 5.05        |
| B13  | 5 MHz        | TM3p3      | 753.5         | 5.00        |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 10 MHz       | TM1.1      | n/a           | -           |
| B13  | 10 MHz       | TM1.1      | 751.0         | 10.07       |
| B13  | 10 MHz       | TM1.1      | n/a           | -           |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 10 MHz       | TM3p1      | n/a           | -           |
| B13  | 10 MHz       | TM3p1      | 751.0         | 9.99        |
| B13  | 10 MHz       | TM3p1      | n/a           | -           |

| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 10 MHz       | TM3p1a     | n/a           | -           |
| B13  | 10 MHz       | TM3p1a     | 751.0         | 10.05       |
| B13  | 10 MHz       | TM3p1a     | n/a           | -           |

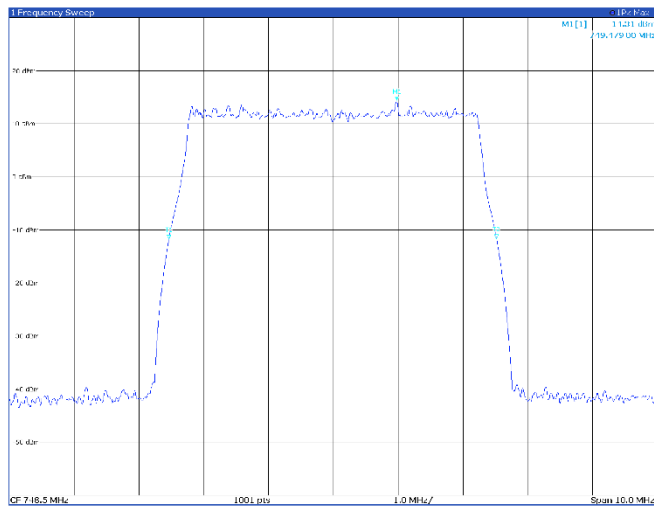
| Band | OBW Declared | Modulation | Channel (MHz) | 26 dB (MHz) |
|------|--------------|------------|---------------|-------------|
| B13  | 10 MHz       | TM3p3      | n/a           | -           |
| B13  | 10 MHz       | TM3p3      | 751.0         | 9.99        |
| B13  | 10 MHz       | TM3p3      | n/a           | -           |

## Antenna port 1

Band B13

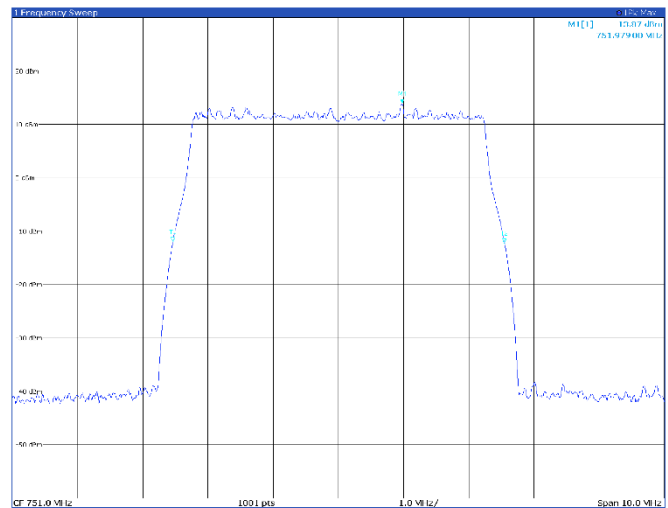
5 MHz

## TM1.1, 5 MHz, low channel



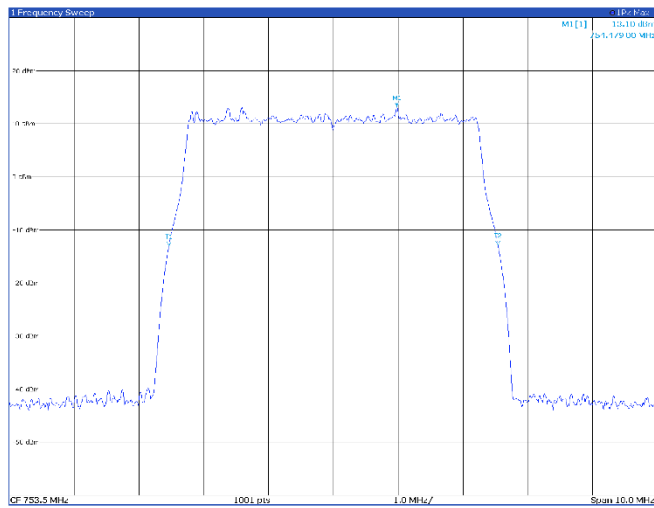
| Type | Ref | Trc | X-Value            | Y-Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>749.479 MHz</b> | <b>14.31 dBm</b> | nB         | 20.0 dB         |
| T1   | 1   |     | 748.952 MHz        | -11.00 dBm       | nB down BW | <b>5.08 MHz</b> |
| T2   | 1   |     | 750.007 MHz        | -11.00 dBm       | nB down BW | 147.0           |

## TM1.1, 5 MHz, mid channel



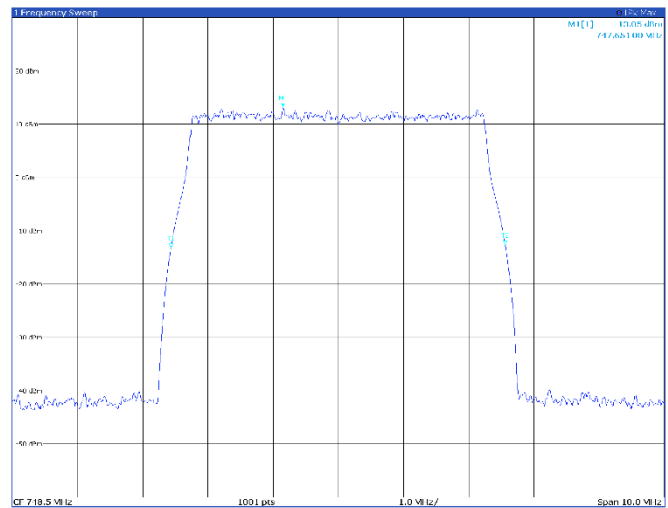
| Type | Ref | Trc | X-Value            | Y-Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>751.979 MHz</b> | <b>13.87 dBm</b> | nB         | 20.0 dB         |
| T1   | 1   |     | 748.452 MHz        | -12.00 dBm       | nB down BW | <b>5.08 MHz</b> |
| T2   | 1   |     | 753.547 MHz        | -12.00 dBm       | nB down BW | 147.0           |

## TM1.1, 5 MHz, high channel

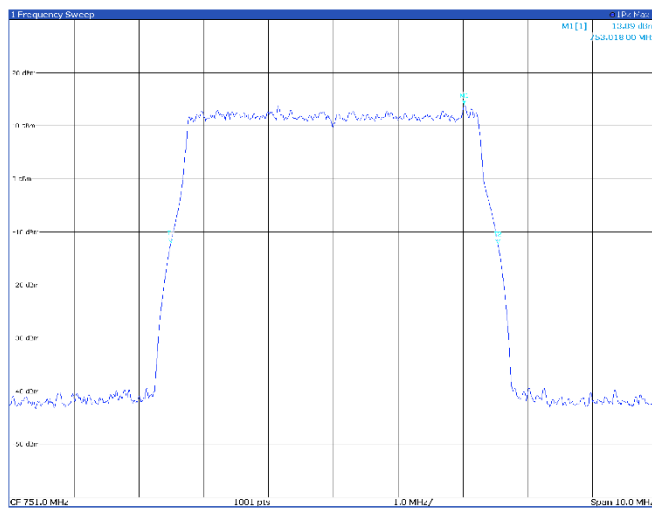


| Type | Ref | Trc | X-Value            | Y-Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>754.479 MHz</b> | <b>13.10 dBm</b> | nB         | 20.0 dB         |
| T1   | 1   |     | 750.952 MHz        | -11.00 dBm       | nB down BW | <b>5.08 MHz</b> |
| T2   | 1   |     | 756.007 MHz        | -11.00 dBm       | nB down BW | 147.0           |

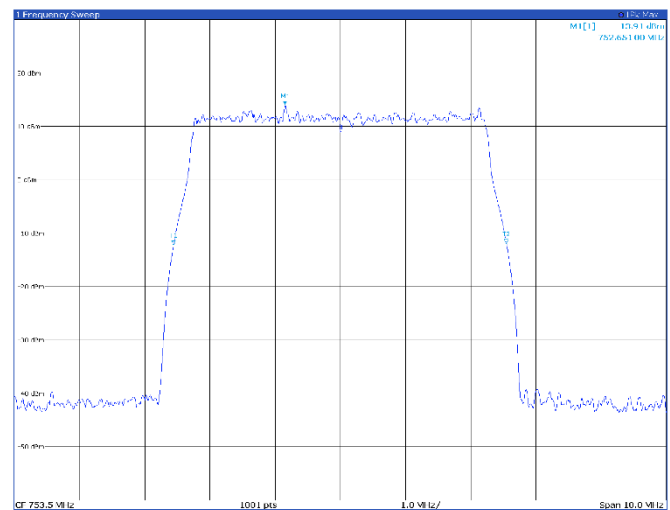
## TM3p1, 5 MHz, low channel



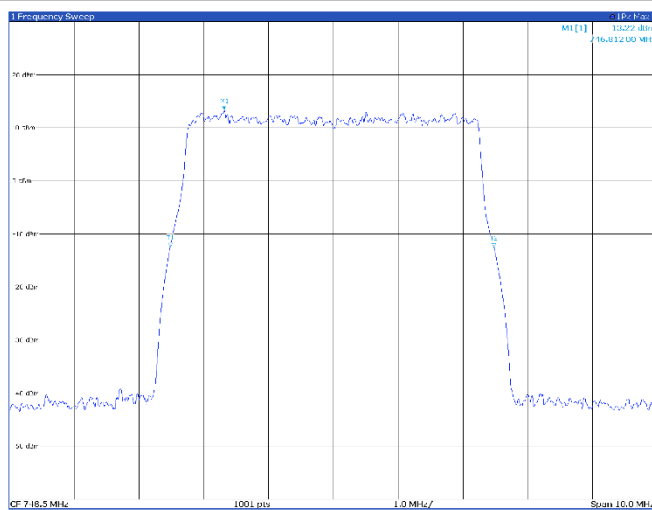
| Type | Ref | Trc | X-Value            | Y-Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>747.651 MHz</b> | <b>13.05 dBm</b> | nB         | 20.0 dB         |
| T1   | 1   |     | 747.052 MHz        | -11.00 dBm       | nB down BW | <b>5.13 MHz</b> |
| T2   | 1   |     | 748.057 MHz        | -11.00 dBm       | nB down BW | 147.0           |

**TM3p1, 5 MHz, mid channel**


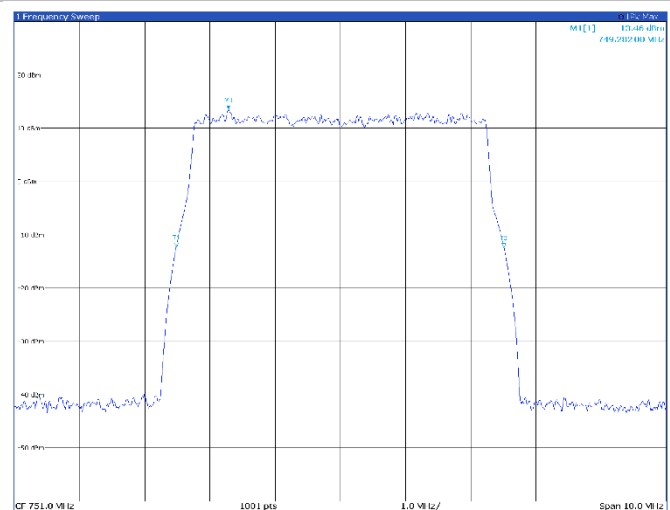
| Type | Ref | Trc | X-Value     | Y-Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   | 1   | 752.018 MHz | 13.89 dBm | nB | 20 dB    | 5.04 MHz        |
| M2   | 1   | 1   | 752.018 MHz | 13.89 dBm | nB | 20 dB    | 5.04 MHz        |
| M3   | 1   | 1   | 752.018 MHz | 13.89 dBm | nB | 20 dB    | 5.04 MHz        |

**TM3p1, 5 MHz, high channel**


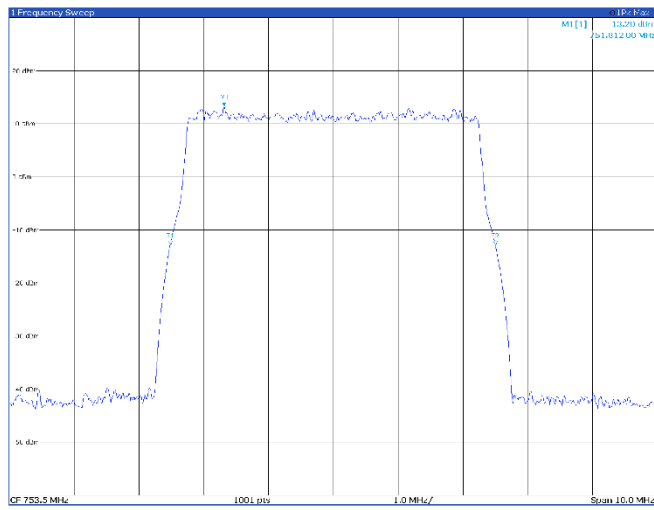
| Type | Ref | Trc | X-Value     | Y-Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   | 1   | 752.651 MHz | 13.91 dBm | nB | 20 dB    | 5.11 MHz        |
| M2   | 1   | 1   | 752.651 MHz | 13.91 dBm | nB | 20 dB    | 5.11 MHz        |
| M3   | 1   | 1   | 752.651 MHz | 13.91 dBm | nB | 20 dB    | 5.11 MHz        |

**TM3p1a, 5 MHz, low channel**


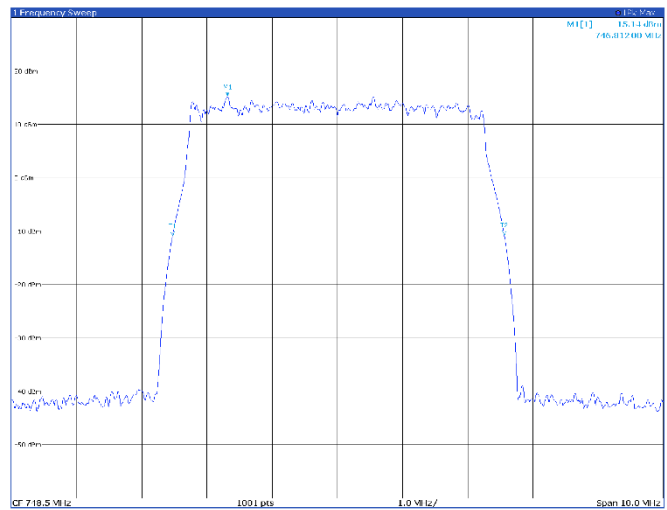
| Type | Ref | Trc | X-Value     | Y-Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   | 1   | 746.812 MHz | 13.22 dBm | nB | 20 dB    | 5.00 MHz        |
| M2   | 1   | 1   | 746.812 MHz | 13.22 dBm | nB | 20 dB    | 5.00 MHz        |
| M3   | 1   | 1   | 746.812 MHz | 13.22 dBm | nB | 20 dB    | 5.00 MHz        |

**TM3p1a, 5 MHz, mid channel**


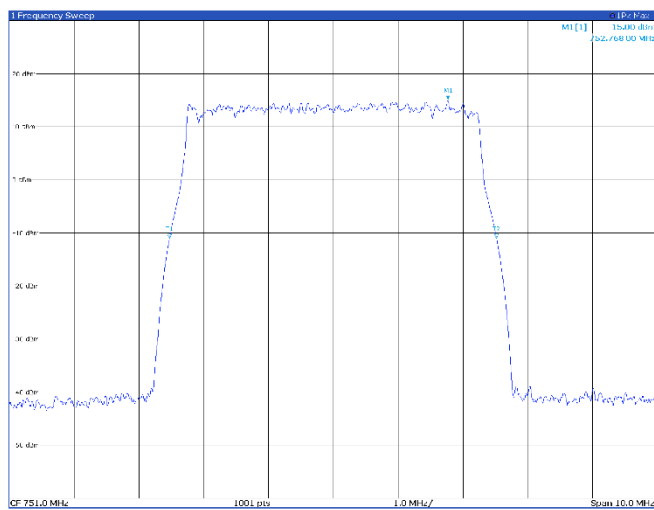
| Type | Ref | Trc | X-Value     | Y-Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   | 1   | 749.282 MHz | 13.46 dBm | nB | 20 dB    | 5.03 MHz        |
| M2   | 1   | 1   | 749.282 MHz | 13.46 dBm | nB | 20 dB    | 5.03 MHz        |
| M3   | 1   | 1   | 749.282 MHz | 13.46 dBm | nB | 20 dB    | 5.03 MHz        |

**TM3p1a, 5 MHz, high channel**


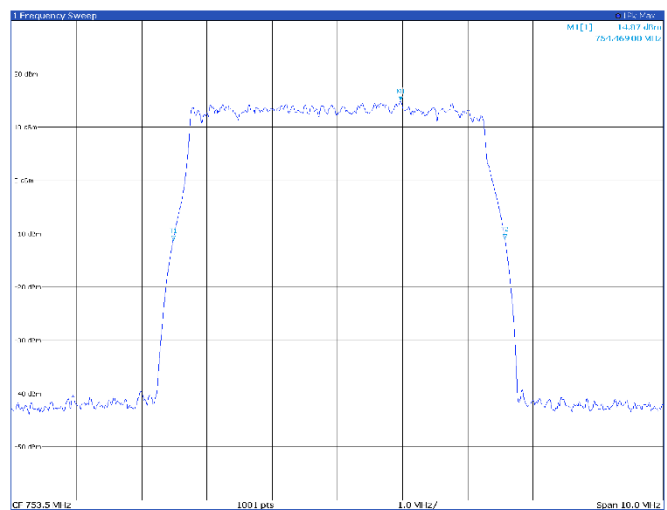
| Type | Ref | Trc | X Value            | Y Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>751.812 MHz</b> | <b>13.20 dBm</b> | nB         | 20.0 dB         |
| M1   | 1   |     | 750.952 MHz        | -12.00 dBm       | nB down BW | <b>5.01 MHz</b> |
| M2   | 1   |     | 752.668 MHz        | -12.00 dBm       | C, active  | 14.0 dB         |

**TM3p3, 5 MHz, low channel**


| Type | Ref | Trc | X Value            | Y Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>746.812 MHz</b> | <b>15.14 dBm</b> | nB         | 20.0 dB         |
| M1   | 1   |     | 745.972 MHz        | -10.00 dBm       | nB down BW | <b>5.08 MHz</b> |
| M2   | 1   |     | 747.668 MHz        | -10.00 dBm       | C, active  | 14.0 dB         |

**TM3p3, 5 MHz, mid channel**


| Type | Ref | Trc | X Value            | Y Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>752.768 MHz</b> | <b>15.00 dBm</b> | nB         | 20.0 dB         |
| M1   | 1   |     | 749.472 MHz        | -11.00 dBm       | nB down BW | <b>5.04 MHz</b> |
| M2   | 1   |     | 756.068 MHz        | -11.00 dBm       | C, active  | 14.0 dB         |

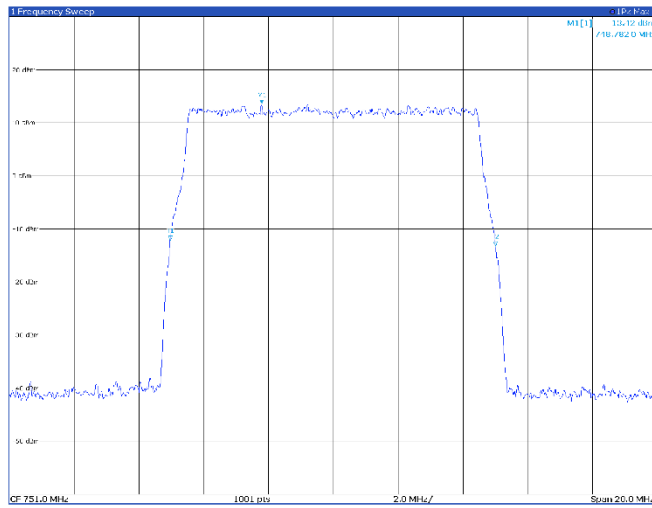
**TM3p3, 5 MHz, high channel**


| Type | Ref | Trc | X Value            | Y Value          | Function   | Function Result |
|------|-----|-----|--------------------|------------------|------------|-----------------|
| M1   | 1   |     | <b>754.469 MHz</b> | <b>14.87 dBm</b> | nB         | 20.0 dB         |
| M1   | 1   |     | 750.972 MHz        | -11.00 dBm       | nB down BW | <b>5.08 MHz</b> |
| M2   | 1   |     | 757.968 MHz        | -11.00 dBm       | C, active  | 14.0 dB         |

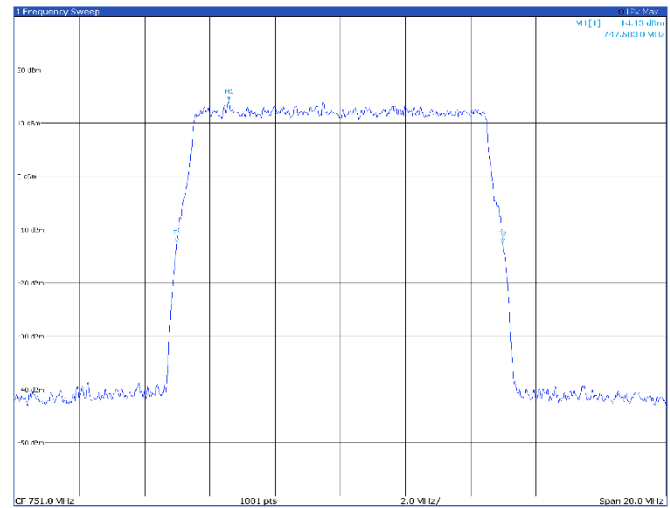
## Band B13

## 10 MHz

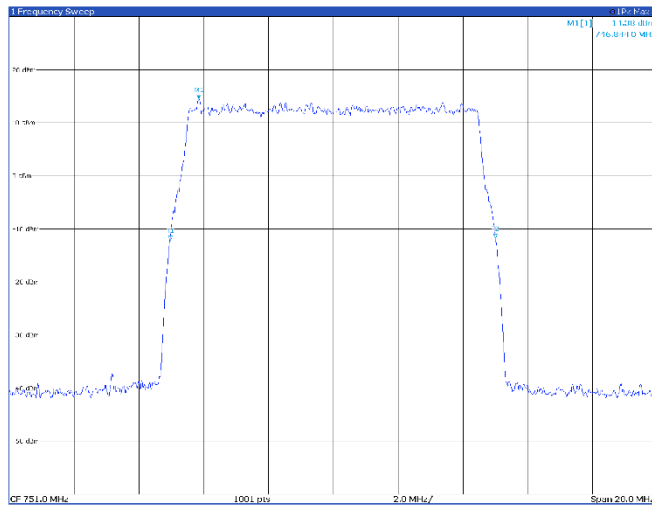
## TM1.1, 10 MHz, mid channel



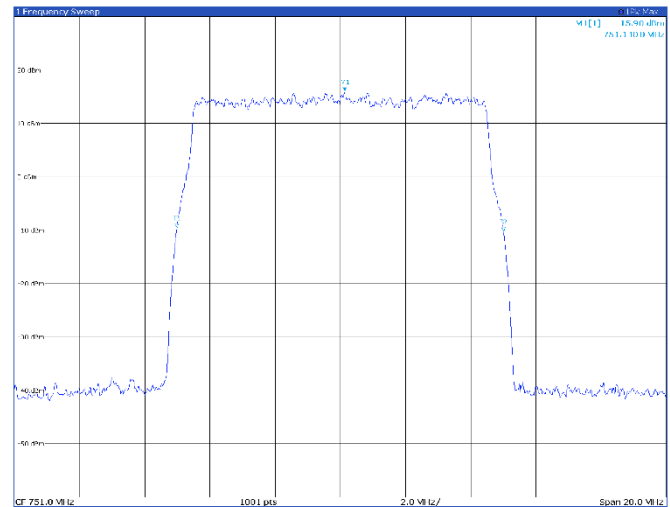
## TM3p1, 10 MHz, mid channel



## TM3p1a, 10 MHz, mid channel



## TM3p3, 10 MHz, mid channel

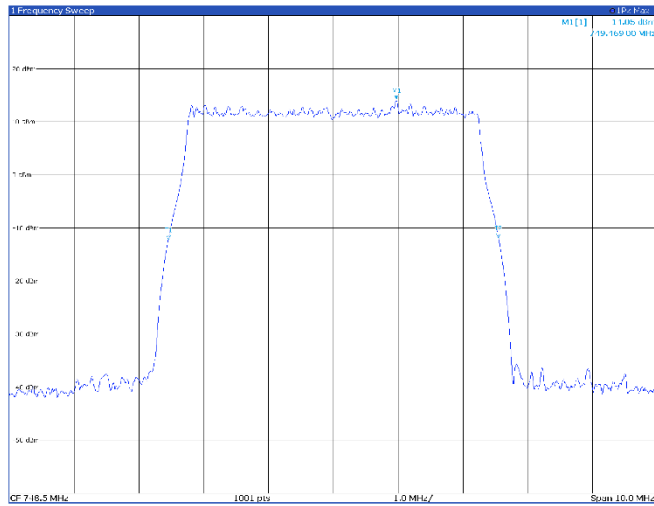


## Antenna port 2

Band B13

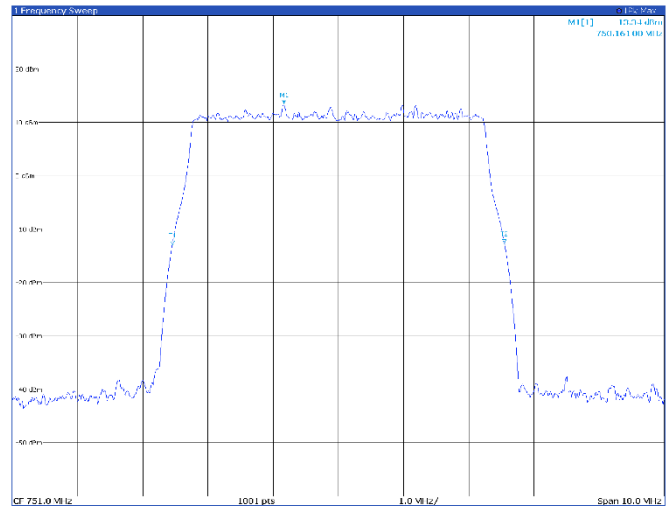
5 MHz

## TM1.1, 5 MHz, low channel



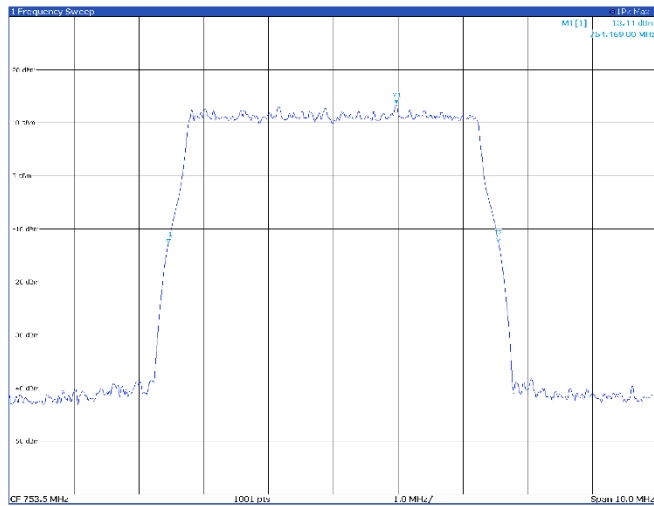
| Type | Ref | Trc | X Value     | Y Value   | nPB | Function    | Function Result |
|------|-----|-----|-------------|-----------|-----|-------------|-----------------|
| M1   | 1   |     | 749.469 MHz | 14.05 dBm | nPB | nPB down BW | 5.09 MHz        |
| M2   | 1   |     | 749.469 MHz | 14.05 dBm | nPB | nPB down BW | 5.09 MHz        |

## TM1.1, 5 MHz, mid channel



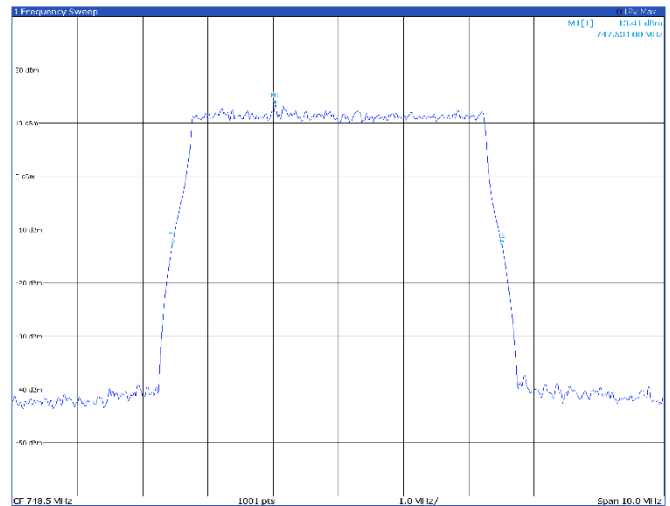
| Type | Ref | Trc | X Value     | Y Value   | nPB | Function    | Function Result |
|------|-----|-----|-------------|-----------|-----|-------------|-----------------|
| M1   | 1   |     | 750.161 MHz | 13.34 dBm | nPB | nPB down BW | 5.09 MHz        |
| M2   | 1   |     | 750.161 MHz | 13.34 dBm | nPB | nPB down BW | 5.09 MHz        |

## TM1.1, 5 MHz, high channel



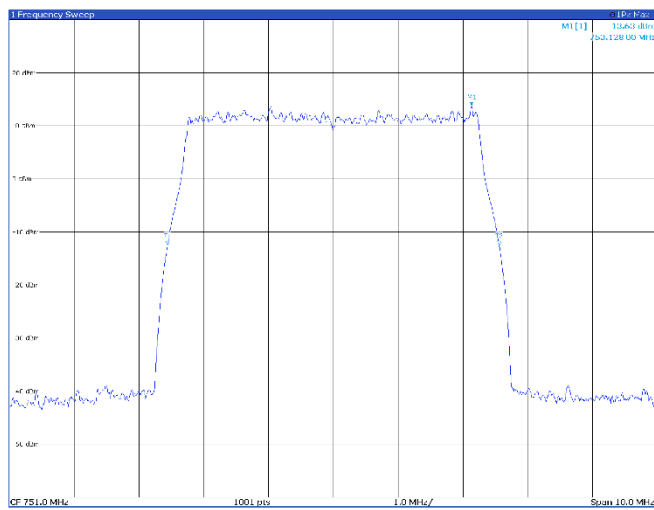
| Type | Ref | Trc | X Value   | Y Value   | nPB | Function    | Function Result |
|------|-----|-----|-----------|-----------|-----|-------------|-----------------|
| M1   | 1   |     | 753.5 MHz | 13.44 dBm | nPB | nPB down BW | 5.09 MHz        |
| M2   | 1   |     | 753.5 MHz | 13.44 dBm | nPB | nPB down BW | 5.09 MHz        |

## TM3p1, 5 MHz, low channel



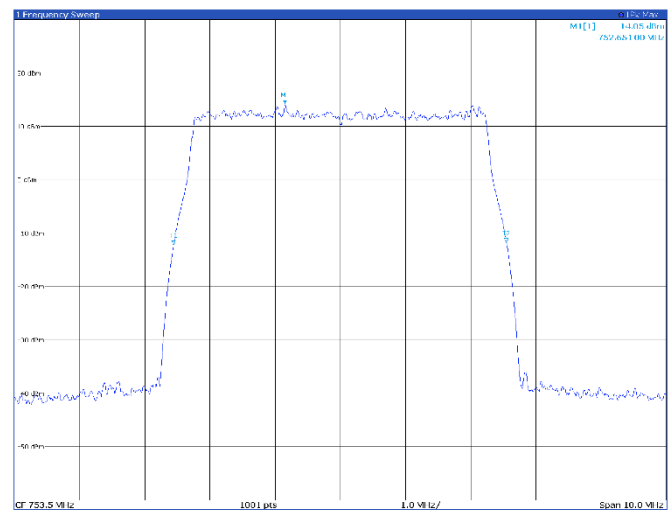
| Type | Ref | Trc | X Value     | Y Value   | nPB | Function    | Function Result |
|------|-----|-----|-------------|-----------|-----|-------------|-----------------|
| M1   | 1   |     | 747.531 MHz | 13.41 dBm | nPB | nPB down BW | 5.09 MHz        |
| M2   | 1   |     | 747.531 MHz | 13.41 dBm | nPB | nPB down BW | 5.09 MHz        |

### TM3p1, 5 MHz, mid channel



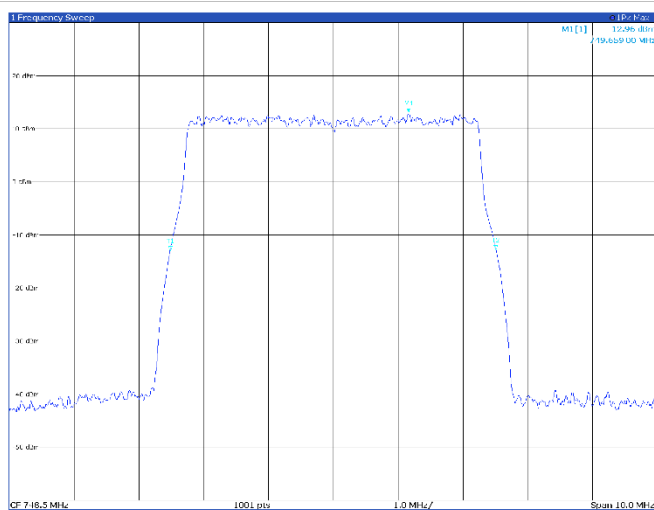
| Type | Ref | Freq | X-Value     | Y-Value    | Function   | Function Result |
|------|-----|------|-------------|------------|------------|-----------------|
| M1   | 1   |      | 752.128 MHz | 13.63 dBm  | nB         | 5.12 MHz        |
| M1   | 1   |      | 752.128 MHz | -12.47 dBm | nB down BW | 5.12 MHz        |
| M2   | 1   |      | 752.128 MHz | -12.47 dBm | Q-factor   | 14.7            |

### TM3p1, 5 MHz, high channel



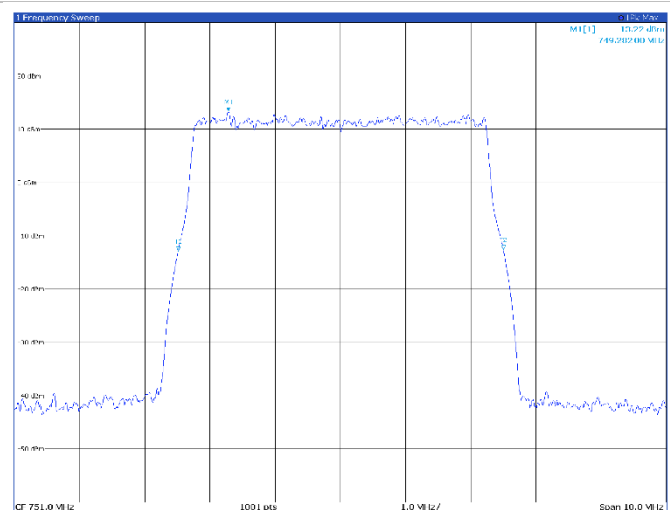
| Type | Ref | Freq | X-Value     | Y-Value    | Function   | Function Result |
|------|-----|------|-------------|------------|------------|-----------------|
| M1   | 1   |      | 753.128 MHz | 14.05 dBm  | nB         | 5.11 MHz        |
| M1   | 1   |      | 753.128 MHz | -12.25 dBm | nB down BW | 5.11 MHz        |
| M2   | 1   |      | 753.128 MHz | -12.25 dBm | Q-factor   | 14.7            |

### TM3p1a, 5 MHz, low channel



| Type | Ref | Freq | X-Value     | Y-Value    | Function   | Function Result |
|------|-----|------|-------------|------------|------------|-----------------|
| M1   | 1   |      | 749.582 MHz | 12.96 dBm  | nB         | 5.03 MHz        |
| M1   | 1   |      | 749.582 MHz | -12.96 dBm | nB down BW | 5.03 MHz        |
| M2   | 1   |      | 749.582 MHz | -12.96 dBm | Q-factor   | 14.7            |

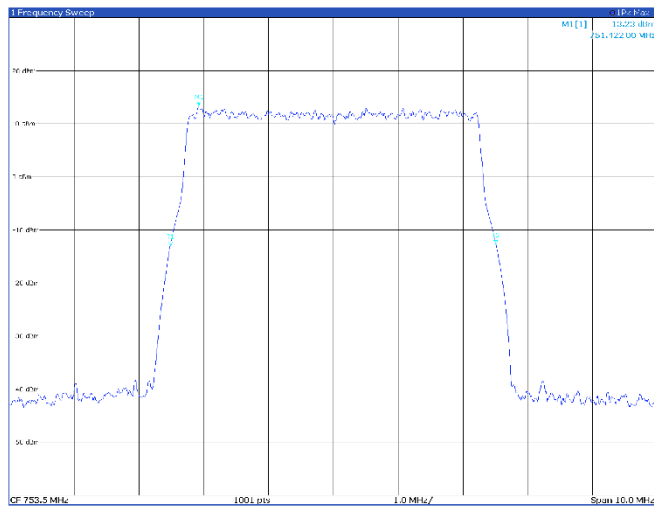
### TM3p1a, 5 MHz, mid channel



| Type | Ref | Freq | X-Value     | Y-Value    | Function   | Function Result |
|------|-----|------|-------------|------------|------------|-----------------|
| M1   | 1   |      | 749.582 MHz | 13.22 dBm  | nB         | 4.99 MHz        |
| M1   | 1   |      | 749.582 MHz | -12.96 dBm | nB down BW | 4.99 MHz        |
| M2   | 1   |      | 749.582 MHz | -12.96 dBm | Q-factor   | 14.7            |

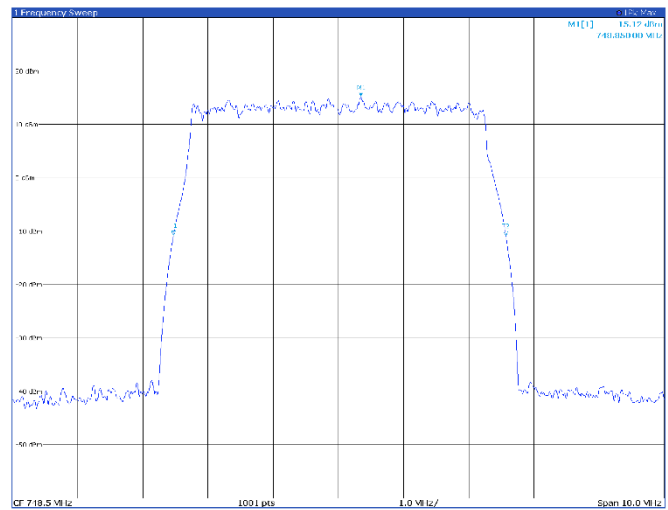


TM3p1a, 5 MHz, high channel



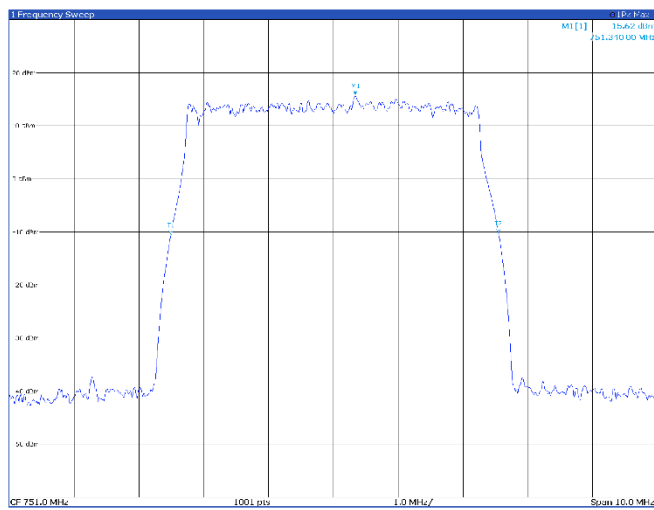
| Type | Ref | Trc | X Value     | Y Value    | nB | Function | Function Result |
|------|-----|-----|-------------|------------|----|----------|-----------------|
| M1   | 1   | 1   | 751.422 MHz | 13.23 dBm  | nB | 30.0 dB  | 5.03 MHz        |
| M1   | 1   | 1   | 750.952 MHz | -10.00 dBm | nB | down BW  | 147.0           |
| M2   | 1   | 1   | 751.892 MHz | -10.00 dBm | nB | down BW  | 147.0           |

TM3p3, 5 MHz, low channel



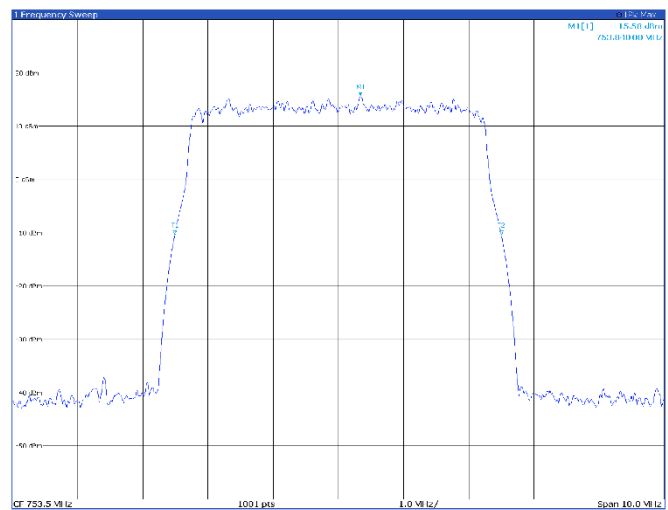
| Type | Ref | Trc | X Value     | Y Value    | nB | Function | Function Result |
|------|-----|-----|-------------|------------|----|----------|-----------------|
| M1   | 1   | 1   | 749.85 MHz  | 15.12 dBm  | nB | 30.0 dB  | 5.09 MHz        |
| M1   | 1   | 1   | 749.372 MHz | -10.00 dBm | nB | down BW  | 147.0           |
| M2   | 1   | 1   | 750.328 MHz | -10.00 dBm | nB | down BW  | 147.0           |

TM3p3, 5 MHz, mid channel



| Type | Ref | Trc | X Value     | Y Value    | nB | Function | Function Result |
|------|-----|-----|-------------|------------|----|----------|-----------------|
| M1   | 1   | 1   | 751.34 MHz  | 15.62 dBm  | nB | 30.0 dB  | 5.05 MHz        |
| M1   | 1   | 1   | 750.862 MHz | -10.00 dBm | nB | down BW  | 147.0           |
| M2   | 1   | 1   | 751.818 MHz | -10.00 dBm | nB | down BW  | 147.0           |

TM3p3, 5 MHz, high channel

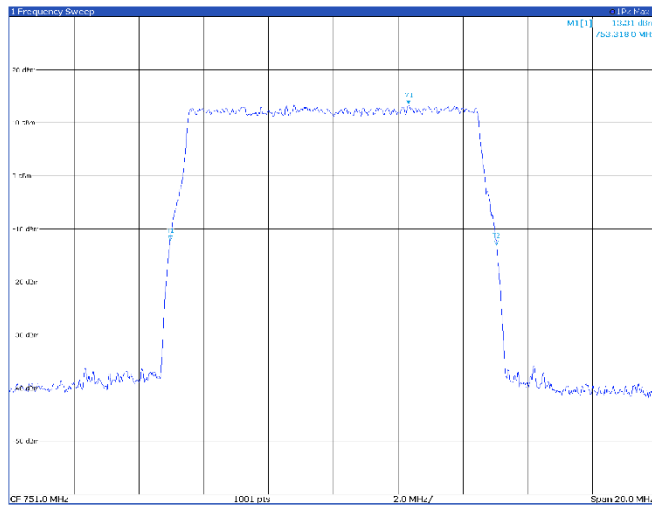


| Type | Ref | Trc | X Value     | Y Value    | nB | Function | Function Result |
|------|-----|-----|-------------|------------|----|----------|-----------------|
| M1   | 1   | 1   | 753.84 MHz  | 15.58 dBm  | nB | 30.0 dB  | 5.00 MHz        |
| M1   | 1   | 1   | 753.362 MHz | -10.00 dBm | nB | down BW  | 147.0           |
| M2   | 1   | 1   | 754.318 MHz | -10.00 dBm | nB | down BW  | 147.0           |

## Band B13

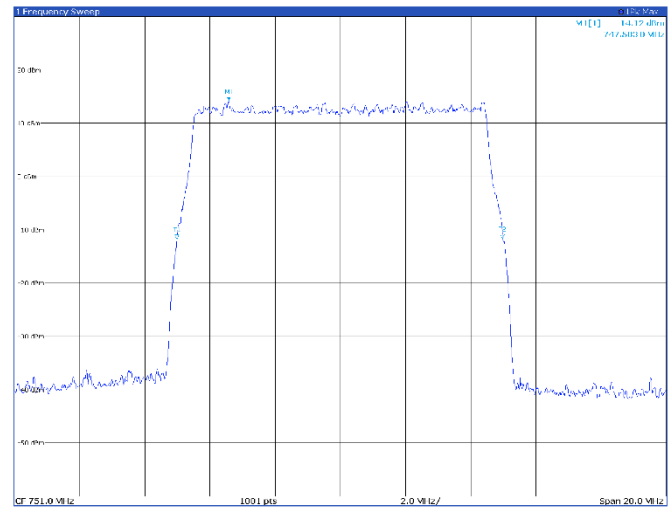
## 10 MHz

## TM1.1, 10 MHz, mid channel



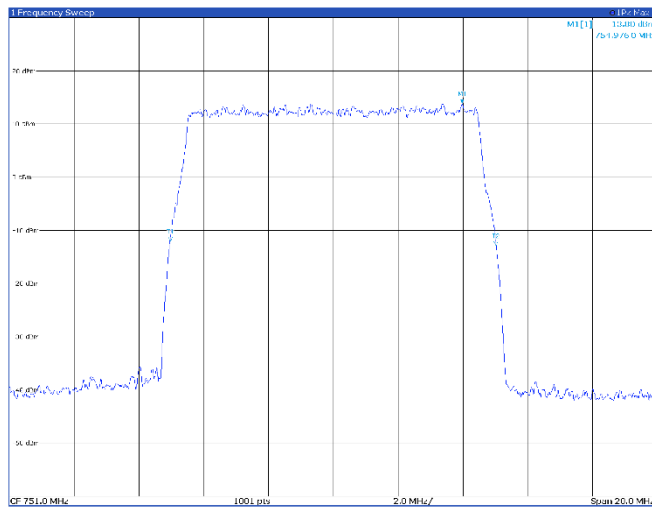
| Type | Ref | Trc | X Value     | Y Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   |     | 753.318 MHz | 13.51 dBm | nB | 20.0 dB  | 10.07 MHz       |
| M1   | 1   |     | 753.318 MHz | 13.51 dBm | nB | 20.0 dB  | 10.07 MHz       |
| M1   | 1   |     | 753.318 MHz | 13.51 dBm | nB | 20.0 dB  | 10.07 MHz       |

## TM3p1, 10 MHz, mid channel



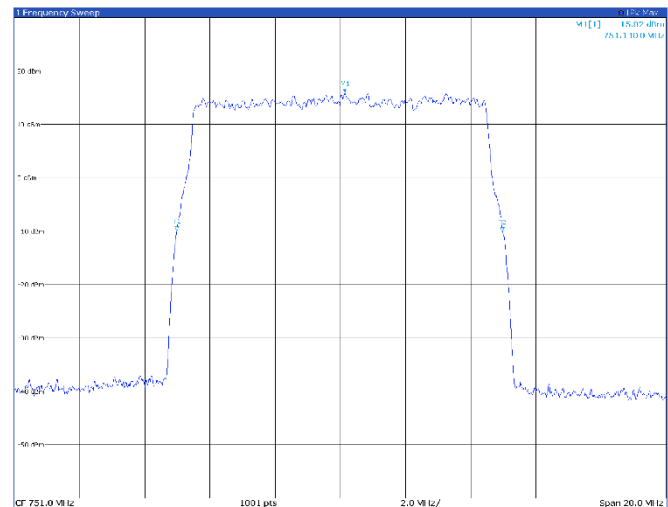
| Type | Ref | Trc | X Value     | Y Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   |     | 747.583 MHz | 14.12 dBm | nB | 20.0 dB  | 9.99 MHz        |
| M1   | 1   |     | 747.583 MHz | 14.12 dBm | nB | 20.0 dB  | 9.99 MHz        |
| M1   | 1   |     | 747.583 MHz | 14.12 dBm | nB | 20.0 dB  | 9.99 MHz        |

## TM3p1a, 10 MHz, mid channel



| Type | Ref | Trc | X Value     | Y Value   | nB | Function | Function Result |
|------|-----|-----|-------------|-----------|----|----------|-----------------|
| M1   | 1   |     | 754.976 MHz | 13.80 dBm | nB | 20.0 dB  | 10.05 MHz       |
| M1   | 1   |     | 754.976 MHz | 13.80 dBm | nB | 20.0 dB  | 10.05 MHz       |
| M1   | 1   |     | 754.976 MHz | 13.80 dBm | nB | 20.0 dB  | 10.05 MHz       |

## TM3p3, 10 MHz, mid channel



| Type | Ref | Trc | X Value    | Y Value   | nB | Function | Function Result |
|------|-----|-----|------------|-----------|----|----------|-----------------|
| M1   | 1   |     | 751.14 MHz | 15.02 dBm | nB | 20.0 dB  | 9.99 MHz        |
| M1   | 1   |     | 751.14 MHz | 15.02 dBm | nB | 20.0 dB  | 9.99 MHz        |
| M1   | 1   |     | 751.14 MHz | 15.02 dBm | nB | 20.0 dB  | 9.99 MHz        |

## 8.4 FCC §27.50(b)(4) Output power

### 8.4.1 Definitions and limits

(b) The following power and antenna height limits apply to transmitters operating in the **746-758 MHz**, 775-788 MHz and 805-806 MHz bands:

(4) Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of **1000 watts/MHz (60 dBm/MHz)** and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section.

(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

### 8.4.2 Test summary

|                 |                   |                   |           |
|-----------------|-------------------|-------------------|-----------|
| Test start date | November 26, 2024 | Temperature       | 22 °C     |
| Test end date   | December 13, 2024 | Air pressure      | 1001 mbar |
| Test engineer   | O. Frau           | Relative humidity | 62%       |
| Verdict         | Pass              |                   |           |

### 8.4.3 Observations, settings and special notes

Test method: ANSI C63.26 Section 5.2.4.5

Spectrum analyzer settings:

|                      |             |
|----------------------|-------------|
| Resolution bandwidth | 1 MHz       |
| Video bandwidth      | 3 MHz       |
| Frequency span       | >= 1.5* OBW |
| Detector mode        | Peak        |
| Trace mode           | Max Hold    |

This test was made across the conducted port and using a sensor power. An offset of 30 dB was added to the measurement to compensate the loss of the external 30 dB attenuator. Interconnecting cable losses were included as a transducer factor in the spectrum analyzer.

### 8.4.4 Test equipment used

| Equipment         | Manufacturer    | Model no. | Asset no. |
|-------------------|-----------------|-----------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSW43     | 101767    |

## 8.4.5 Test data

## Band B13:

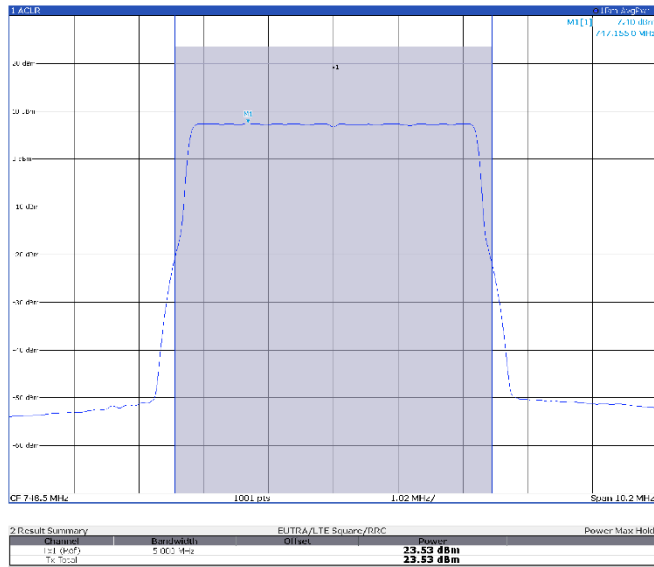
| Modulation | OBW<br>(MHz) | Frequency<br>(MHz) | Measured Power<br>Density<br>(dBm/MHz)<br>port 1 | Measured Power<br>Density<br>(dBm/MHz)<br>port 2 | Antenna<br>Gain<br>Max<br>(dBi) | Total EIRP<br>Power<br>Density<br>(dBm/MHz) | Measured<br>Power<br>(dBm)<br>port 1 | Measured<br>Power<br>(dBm)<br>port 2 | Limits<br>Power<br>(dBm) | Margin<br>(dB) |
|------------|--------------|--------------------|--|--|---------------------------------|---|--------------------------------------|--------------------------------------|--------------------------|----------------|
| TM1.1      | 5            | 748.5              | 7.40   | 7.16   | 3.7                             | 13.99                                       | 23.53                                | 23.39                                | 60.0                     | -46.01         |
| TM3p1      | 5            | 748.5              | 6.71   | 6.58   | 3.7                             | 13.36                                       | 22.89                                | 22.70                                | 60.0                     | -46.64         |
| TM3p1a     | 5            | 748.5              | 6.74   | 6.69   | 3.7                             | 13.43                                       | 22.91                                | 22.78                                | 60.0                     | -46.57         |
| TM3p3      | 5            | 748.5              | 8.16   | 8.08   | 3.7                             | 14.83                                       | 22.83                                | 22.72                                | 60.0                     | -45.17         |
| TM1.1      | 5            | 751.0              | 6.95   | 6.87   | 3.7                             | 13.62                                       | 23.45                                | 23.00                                | 60.0                     | -46.38         |
| TM3p1      | 5            | 751.0              | 6.84   | 6.73   | 3.7                             | 13.50                                       | 22.93                                | 22.84                                | 60.0                     | -46.50         |
| TM3p1a     | 5            | 751.0              | 6.88   | 6.86   | 3.7                             | 13.58                                       | 23.00                                | 22.99                                | 60.0                     | -46.42         |
| TM3p3      | 5            | 751.0              | 8.21   | 8.22   | 3.7                             | 14.93                                       | 22.96                                | 22.84                                | 60.0                     | -45.07         |
| TM1.1      | 5            | 753.5              | 6.82   | 6.81   | 3.7                             | 13.53                                       | 23.00                                | 22.95                                | 60.0                     | -46.47         |
| TM3p1      | 5            | 753.5              | 6.86   | 6.92   | 3.7                             | 13.60                                       | 22.90                                | 22.96                                | 60.0                     | -46.40         |
| TM3p1a     | 5            | 753.5              | 6.84   | 6.93   | 3.7                             | 13.60                                       | 22.87                                | 22.97                                | 60.0                     | -46.40         |
| TM3p3      | 5            | 753.5              | 8.22   | 8.28   | 3.7                             | 14.96                                       | 22.88                                | 22.96                                | 60.0                     | -45.04         |
| TM1.1      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p1      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p1a     | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p3      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM1.1      | 10           | 751.0              | 3.70   | 3.80   | 3.7                             | 10.46                                       | 22.91                                | 22.88                                | 60.0                     | -49.54         |
| TM3p1      | 10           | 751.0              | 3.73   | 3.96   | 3.7                             | 10.56                                       | 22.85                                | 22.95                                | 60.0                     | -49.44         |
| TM3p1a     | 10           | 751.0              | 3.82   | 3.89   | 3.7                             | 10.57                                       | 22.88                                | 22.81                                | 60.0                     | -49.43         |
| TM3p3      | 10           | 751.0              | 5.40   | 5.40   | 3.7                             | 12.11                                       | 22.88                                | 22.86                                | 60.0                     | -47.89         |
| TM1.1      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p1      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p1a     | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |
| TM3p3      | 10           | n/a                | -  | -  | -                               | -   | -                                    | -                                    | -                        | -              |

## Antenna port 1

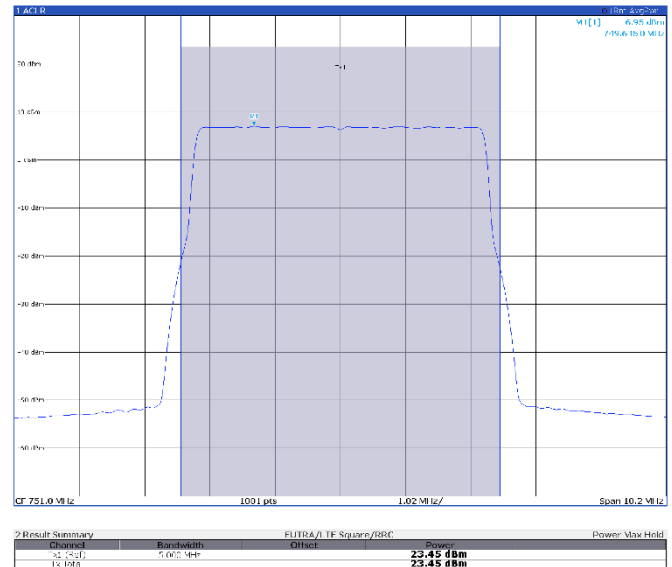
Band B13

5 MHz

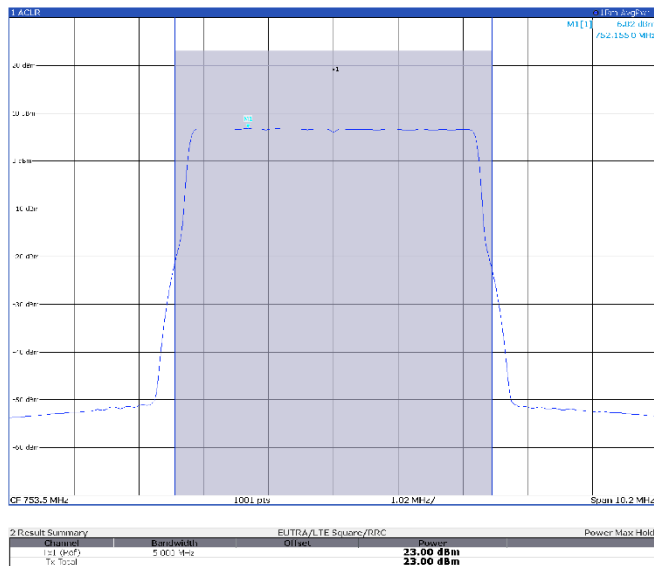
TM1.1, 5 MHz, low channel



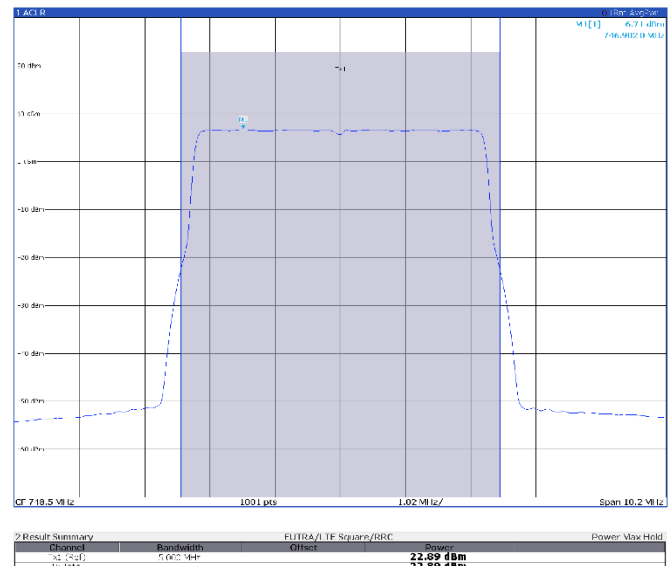
TM1.1, 5 MHz, mid channel



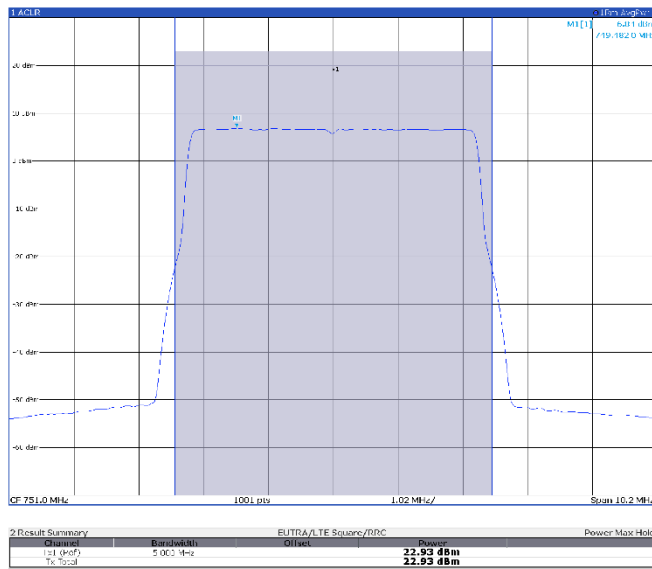
TM1.1, 5 MHz, high channel



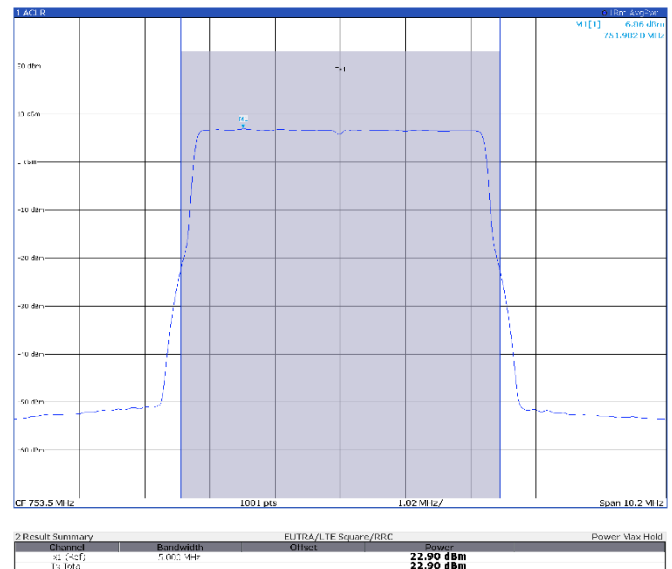
TM3p1, 5 MHz, low channel



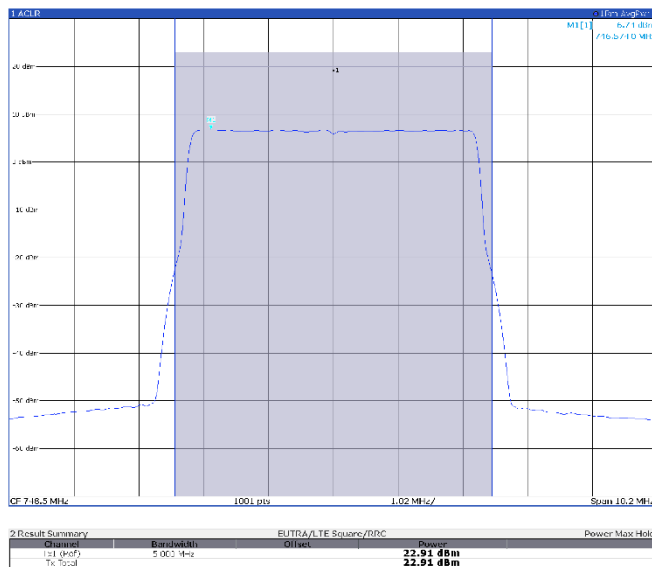
TM3p1, 5 MHz, mid channel



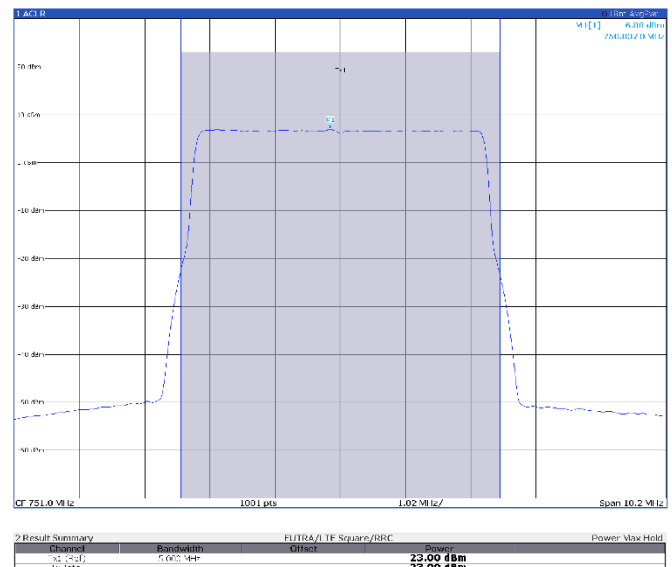
TM3p1, 5 MHz, high channel



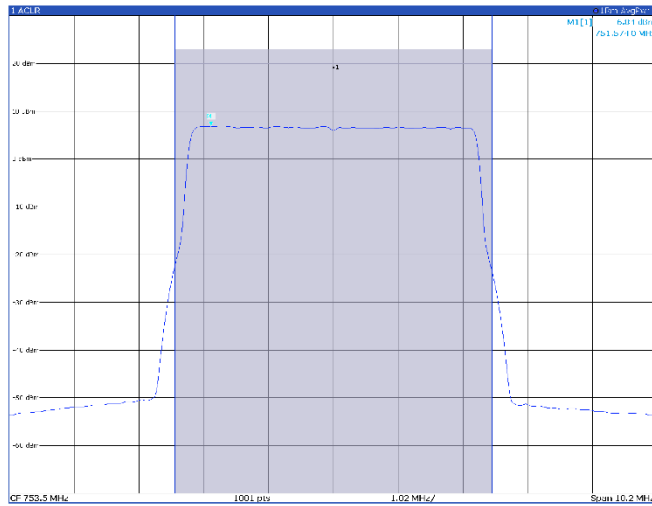
TM3p1a, 5 MHz, low channel



TM3p1a, 5 MHz, mid channel

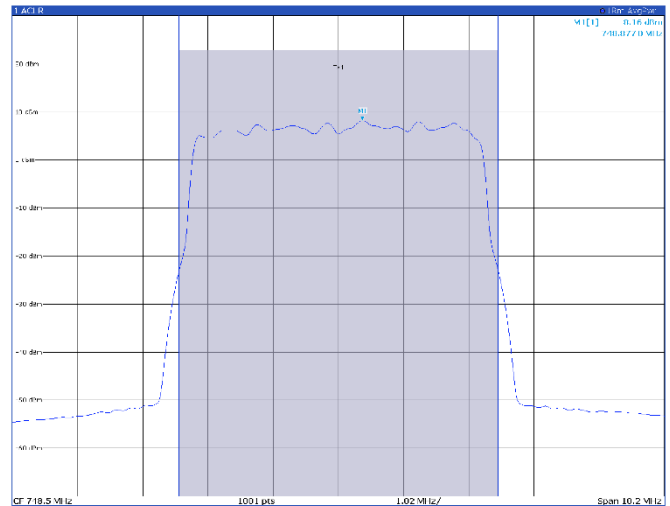


### TM3p1a, 5 MHz, high channel



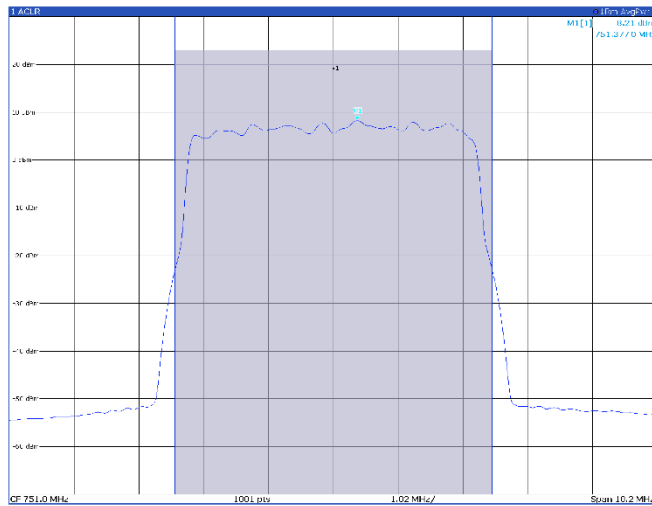
| 2 Result Summary |           |        |                  |
|------------------|-----------|--------|------------------|
| Channel          | Bandwidth | Offset | Power            |
| (1) (dof)        | 5.000 MHz |        | <b>22.87 dBm</b> |
| Tx Total         |           |        | <b>22.87 dBm</b> |

### TM3p3, 5 MHz, low channel



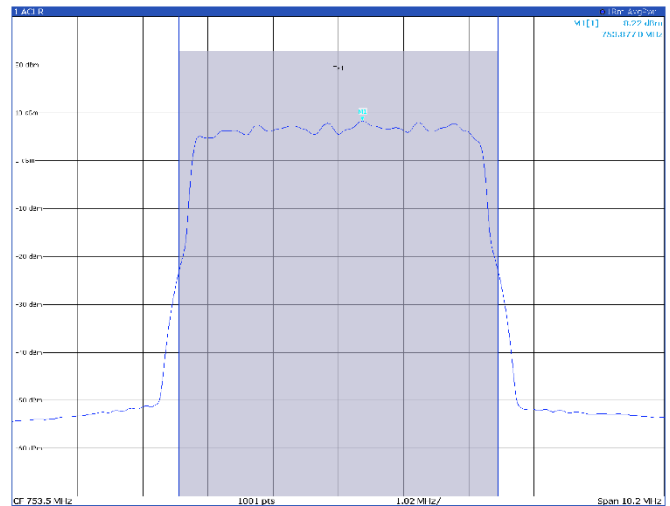
| 2 Result Summary |           |        |                  |
|------------------|-----------|--------|------------------|
| Channel          | Bandwidth | Offset | Power            |
| (1) (dof)        | 5.000 MHz |        | <b>22.83 dBm</b> |
| Tx Total         |           |        | <b>22.83 dBm</b> |

### TM3p3, 5 MHz, mid channel



| 2 Result Summary |           |        |                  |
|------------------|-----------|--------|------------------|
| Channel          | Bandwidth | Offset | Power            |
| (1) (dof)        | 5.000 MHz |        | <b>22.96 dBm</b> |
| Tx Total         |           |        | <b>22.96 dBm</b> |

### TM3p3, 5 MHz, high channel

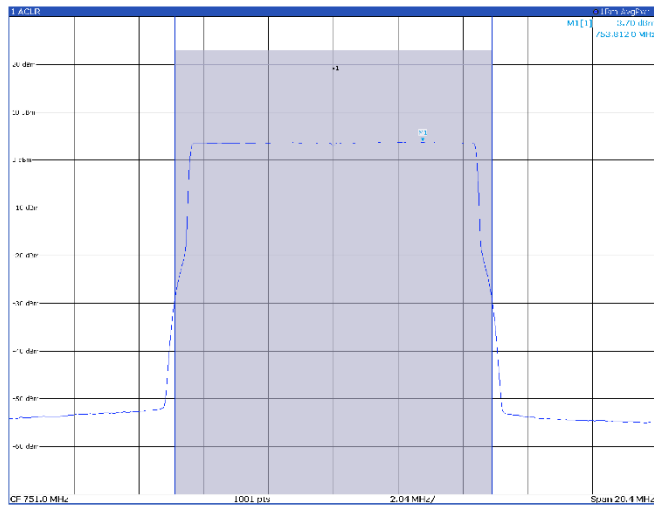


| 2 Result Summary |           |        |                  |
|------------------|-----------|--------|------------------|
| Channel          | Bandwidth | Offset | Power            |
| (1) (dof)        | 5.000 MHz |        | <b>22.88 dBm</b> |
| Tx Total         |           |        | <b>22.88 dBm</b> |

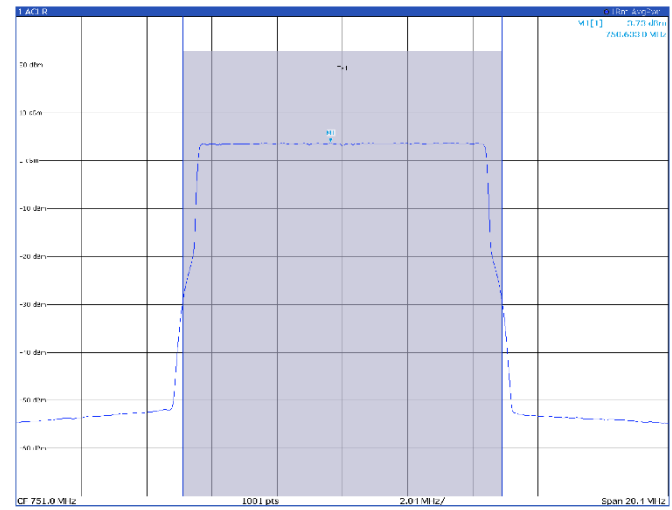
## Band B13

## 10 MHz

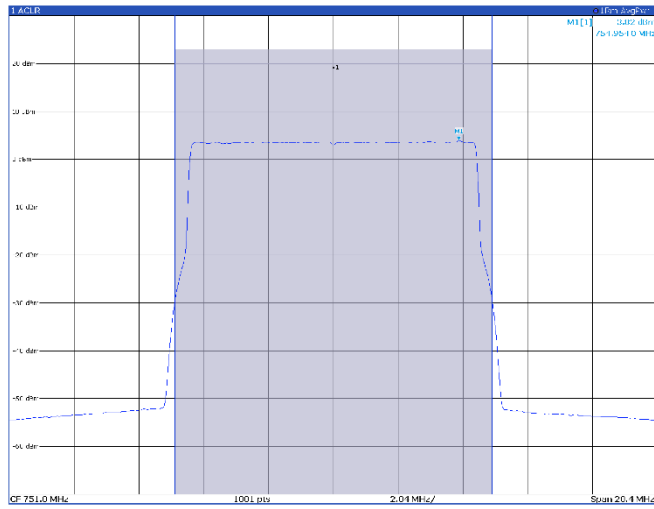
## TM1.1, 10 MHz, mid channel



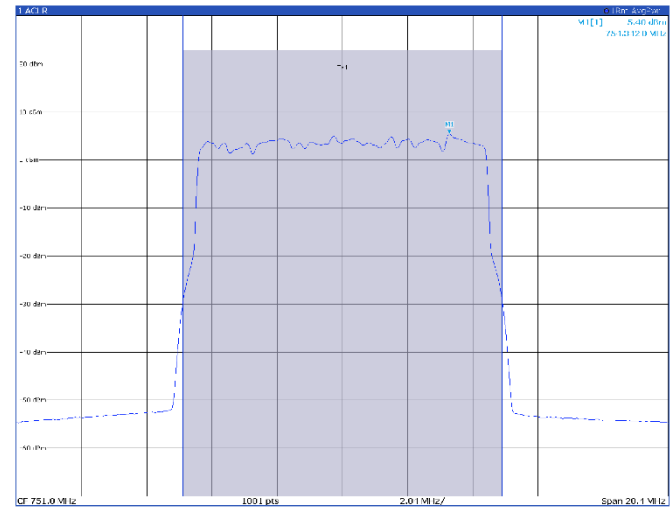
## TM3p1, 10 MHz, mid channel



## TM3p1a, 10 MHz, mid channel



## TM3p3, 10 MHz, mid channel



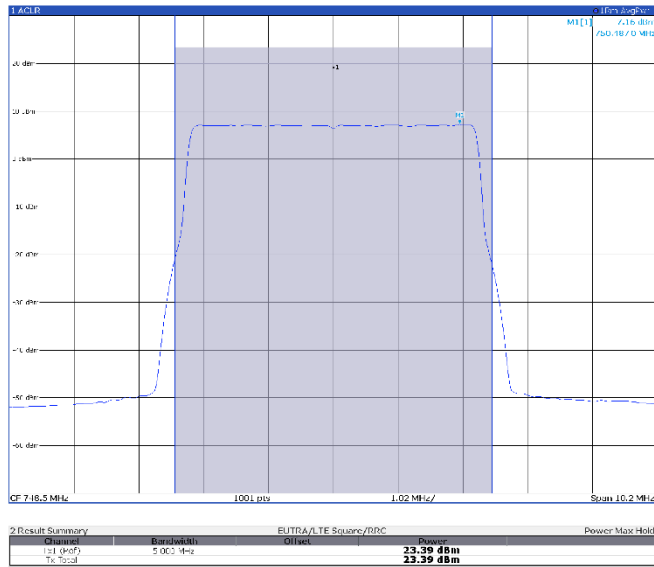


## Antenna port 2

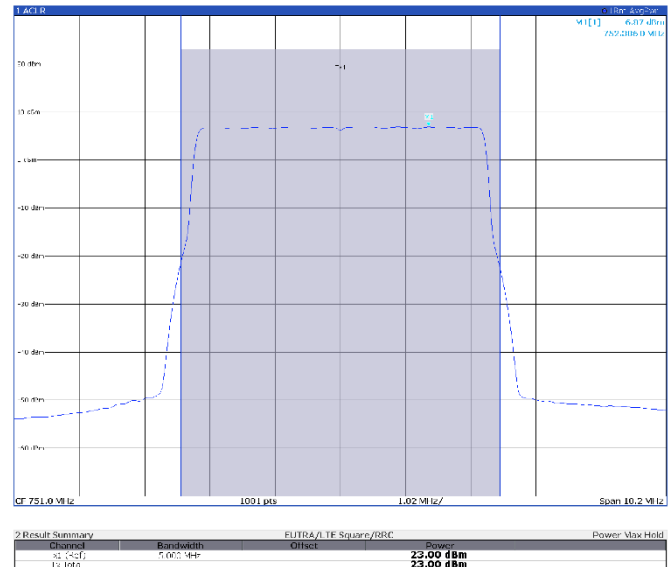
Band B13

5 MHz

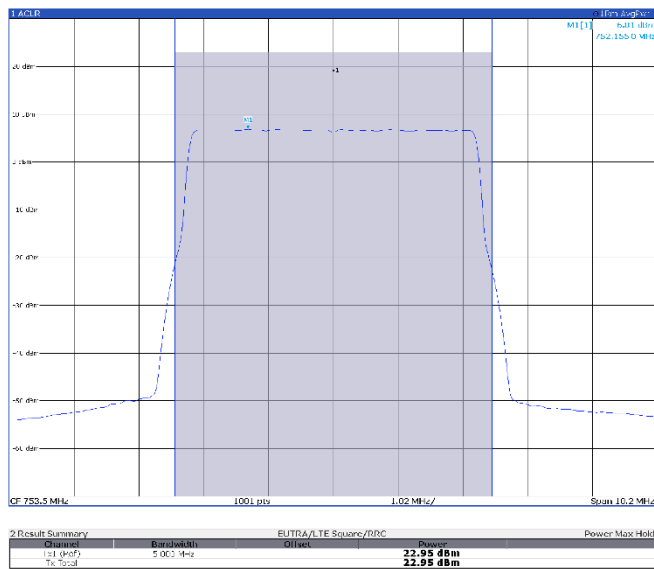
TM1.1, 5 MHz, low channel



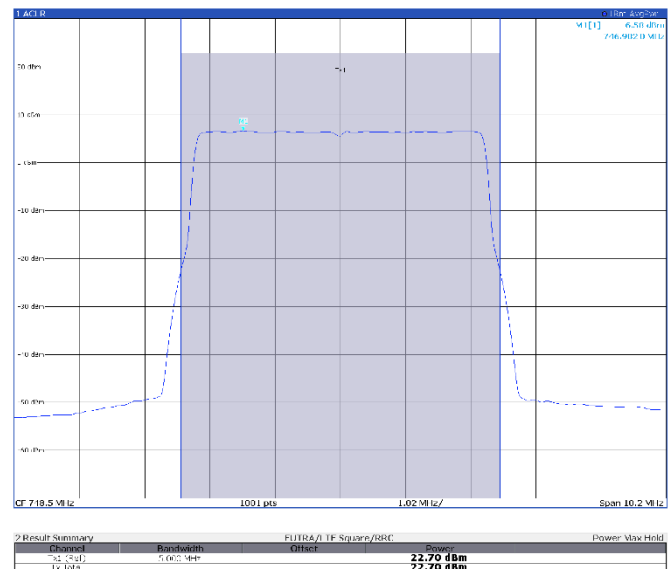
TM1.1, 5 MHz, mid channel



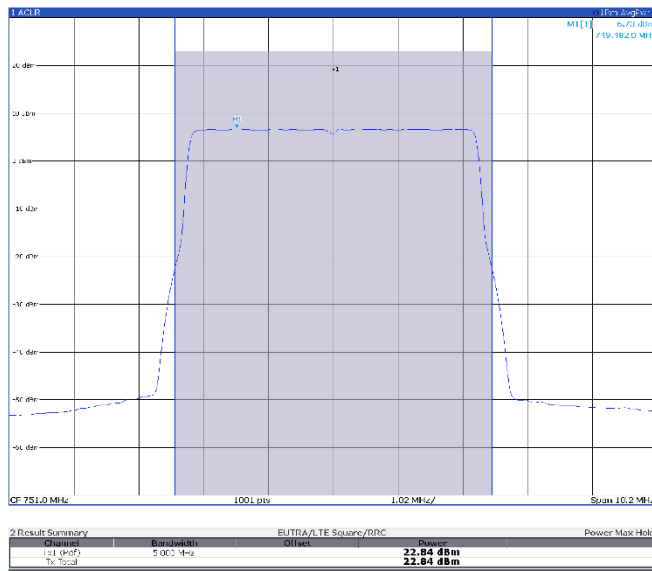
TM1.1, 5 MHz, high channel



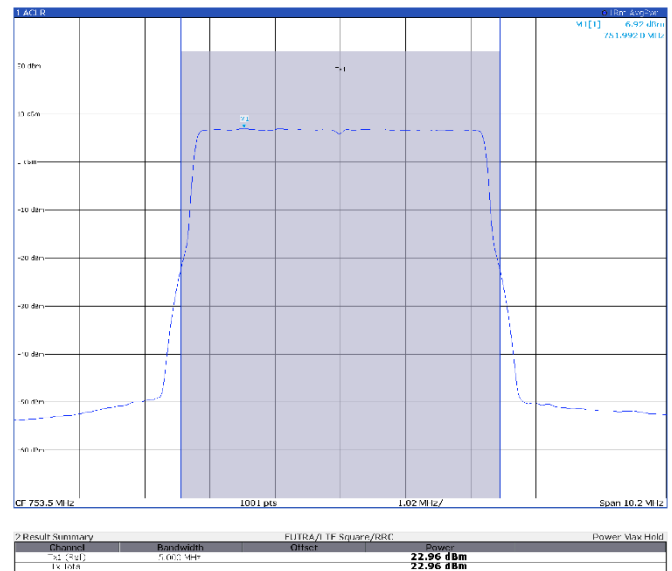
TM3p1, 5 MHz, low channel



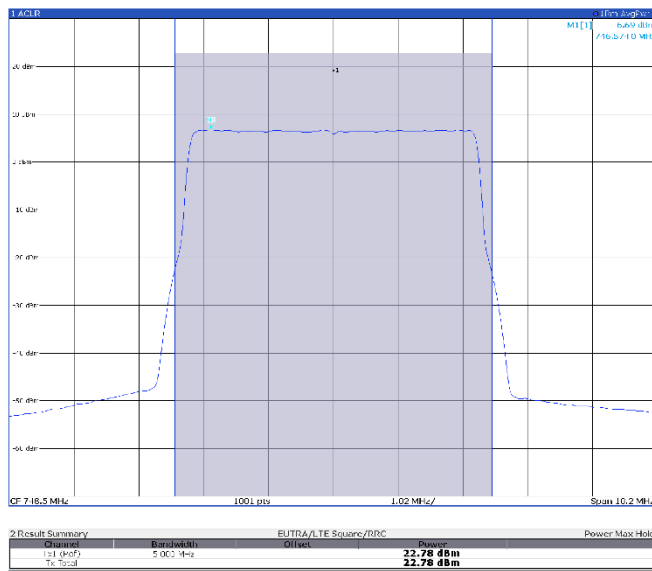
TM3p1, 5 MHz, mid channel



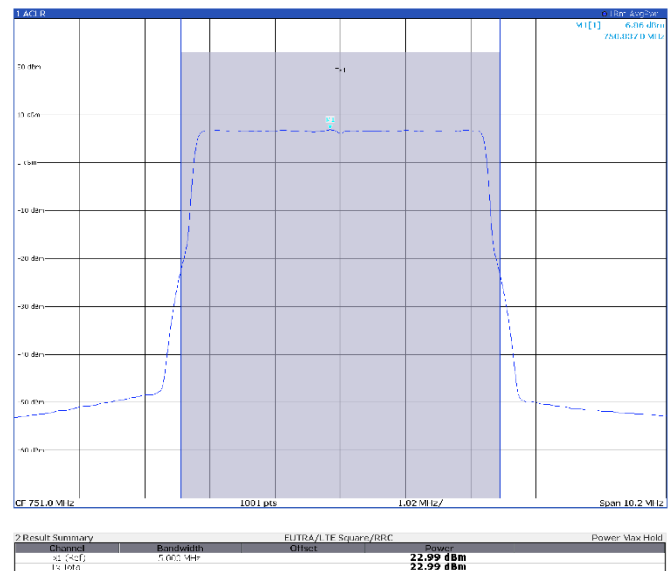
TM3p1, 5 MHz, high channel



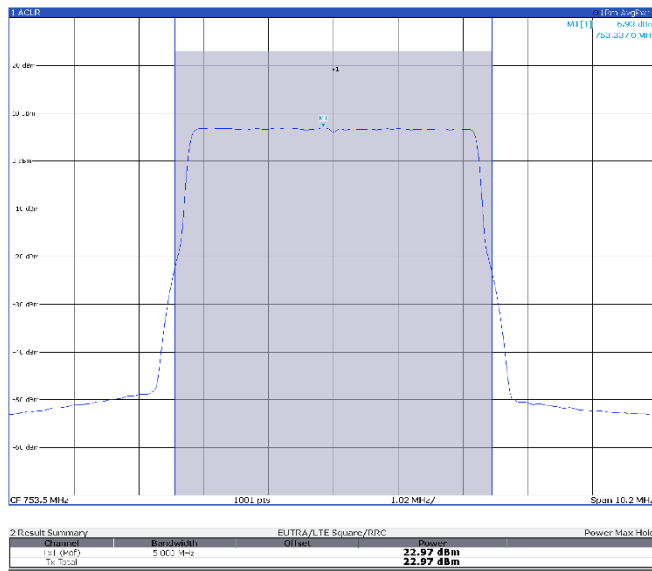
TM3p1a, 5 MHz, low channel



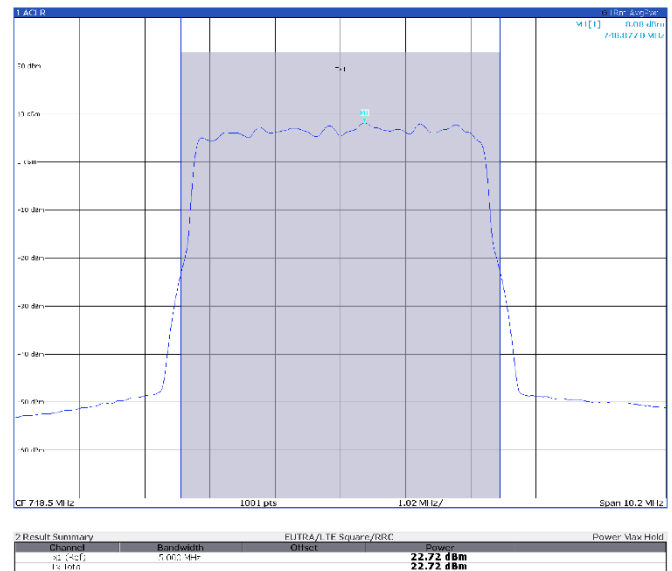
TM3p1a, 5 MHz, mid channel



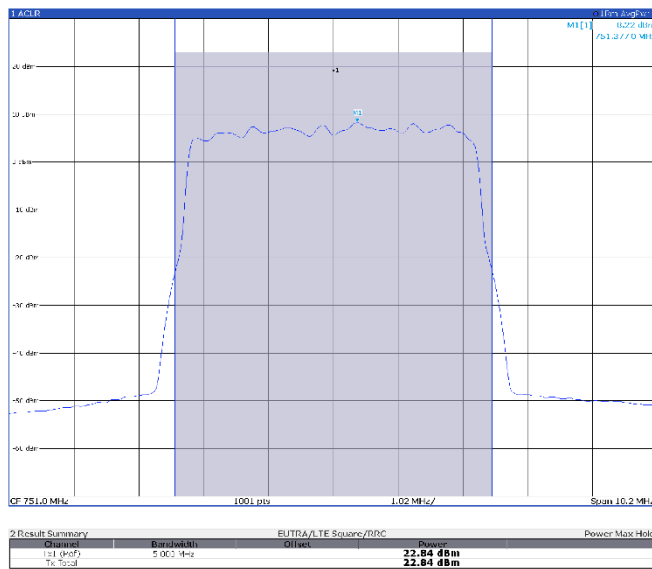
TM3p1a, 5 MHz, high channel



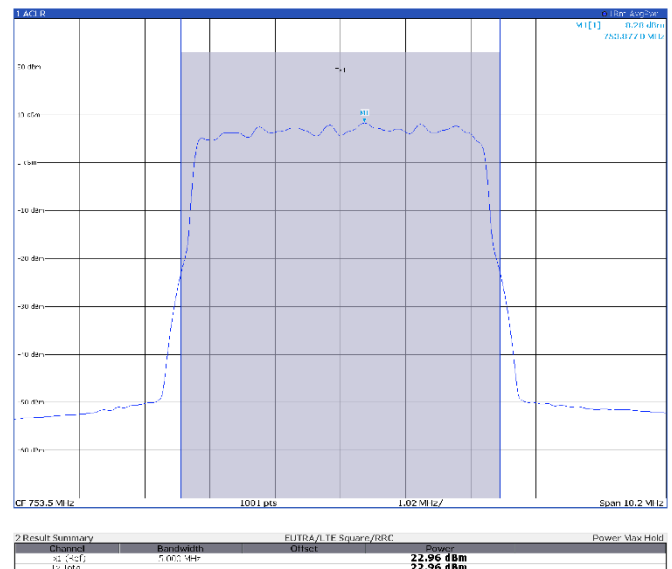
TM3p3, 5 MHz, low channel



TM3p3, 5 MHz, mid channel



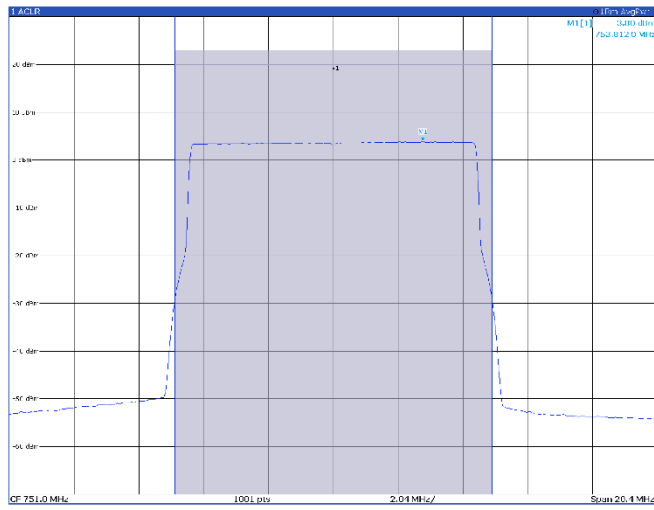
TM3p3, 5 MHz, high channel



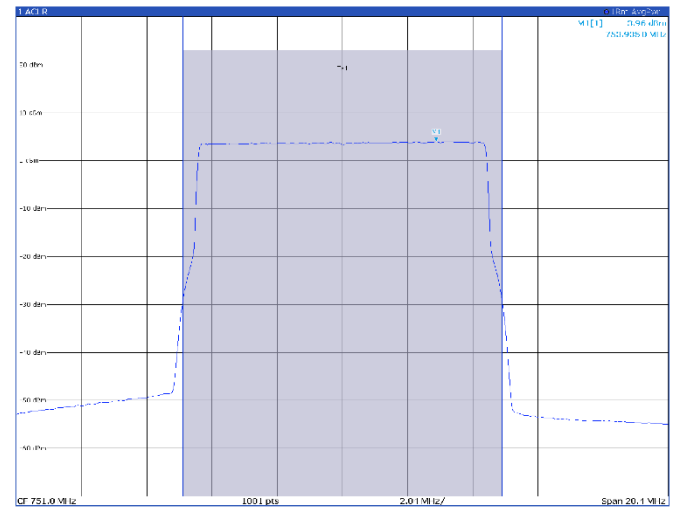
## Band B13

## 10 MHz

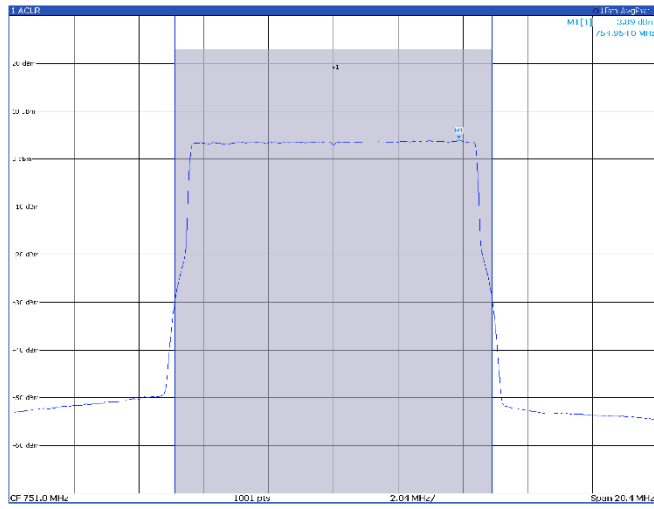
## TM1.1, 10 MHz, mid channel



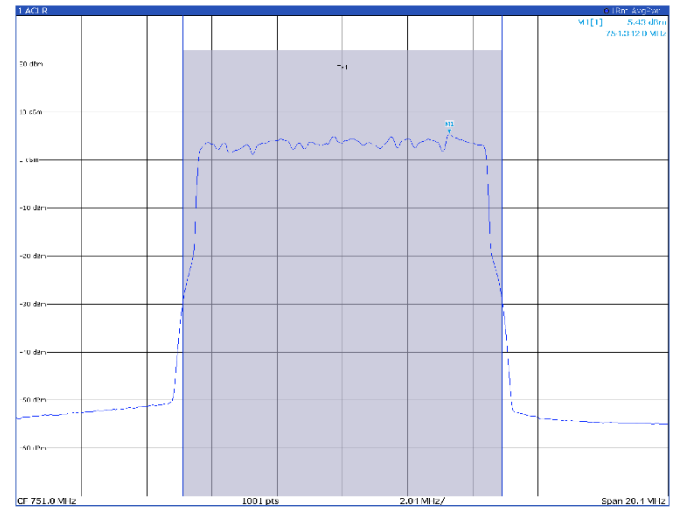
## TM3p1, 10 MHz, mid channel



## TM3p1a, 10 MHz, mid channel



## TM3p3, 10 MHz, mid channel



## 8.5 FCC §27.50(d)(5) Peak to Average Power Ratio

### 8.5.1 Definitions and limits

d) (5) Equipment employed must be authorized in accordance with the provisions of § 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(6) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, and any other relevant factors, so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

### 8.5.2 Test summary

|                 |                   |                   |           |
|-----------------|-------------------|-------------------|-----------|
| Test start date | November 26, 2024 | Temperature       | 22 °C     |
| Test end date   | December 13, 2024 | Air pressure      | 1001 mbar |
| Test engineer   | O. Frau           | Relative humidity | 62%       |
| Verdict         | Pass              |                   |           |

### 8.5.3 Observations, settings and special notes

Test method: ANSI C63.26 Section 5.2.3.4.

Spectrum analyzer settings:

|                      |  |
|----------------------|--|
| Resolution bandwidth | ≥ OBW  |
| Number of counts     | The necessary number up to stabilizes the measured |
| Trace mode           | Clear/Write  |

### 8.5.4 Test equipment used

| Equipment         | Manufacturer    | Model no. | Asset no. |
|-------------------|-----------------|-----------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSW43     | 101767    |

## 8.5.5 Test data

## Antenna 1

## Band B13:

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 1    | 748.5         | 8.46      | 13              | -4.54       |
| B13  | 5 MHz        | 1    | 751.0         | 8.56      | 13              | -4.44       |
| B13  | 5 MHz        | 1    | 753.5         | 8.56      | 13              | -4.44       |

Peak to average power ratio, TM1.1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 1    | 748.5         | 8.48      | 13              | -4.52       |
| B13  | 5 MHz        | 1    | 751.0         | 8.44      | 13              | -4.56       |
| B13  | 5 MHz        | 1    | 753.5         | 8.46      | 13              | -4.54       |

Peak to average power ratio, TM3p1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 1    | 748.5         | 8.28      | 13              | -4.72       |
| B13  | 5 MHz        | 1    | 751.0         | 8.32      | 13              | -4.68       |
| B13  | 5 MHz        | 1    | 753.5         | 8.26      | 13              | -4.74       |

Peak to average power ratio, TM3p1a

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 1    | 748.5         | 8.36      | 13              | -4.64       |
| B13  | 5 MHz        | 1    | 751.0         | 8.38      | 13              | -4.62       |
| B13  | 5 MHz        | 1    | 753.5         | 8.34      | 13              | -4.66       |

Peak to average power ratio, TM3p3

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 1    | 751.0         | 8.38      | 13              | -4.62       |
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |

Peak to average power ratio, TM1.1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 1    | 751.0         | 8.32      | 13              | -4.68       |
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |

Peak to average power ratio, TM3p1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 1    | 751.0         | 8.40      | 13              | -4.60       |
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |

Peak to average power ratio, TM3p1a

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 1    | 751.0         | 8.48      | 13              | -4.52       |
| B13  | 10 MHz       | 1    | n/a           | -         | -               | -           |

Peak to average power ratio, TM3p3

## Antenna 2

### Band B13:

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 2    | 748.5         | 8.48      | 13              | -4.52       |
| B13  | 5 MHz        | 2    | 751.0         | 8.54      | 13              | -4.46       |
| B13  | 5 MHz        | 2    | 753.5         | 8.56      | 13              | -4.44       |

Peak to average power ratio, TM1.1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 2    | 748.5         | 8.44      | 13              | -4.56       |
| B13  | 5 MHz        | 2    | 751.0         | 8.48      | 13              | -4.52       |
| B13  | 5 MHz        | 2    | 753.5         | 8.42      | 13              | -4.58       |

Peak to average power ratio, TM3p1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 2    | 748.5         | 8.26      | 13              | -4.74       |
| B13  | 5 MHz        | 2    | 751.0         | 8.32      | 13              | -4.68       |
| B13  | 5 MHz        | 2    | 753.5         | 8.28      | 13              | -4.72       |

Peak to average power ratio, TM3p1a

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 5 MHz        | 2    | 748.5         | 8.38      | 13              | -4.62       |
| B13  | 5 MHz        | 2    | 751.0         | 8.38      | 13              | -4.62       |
| B13  | 5 MHz        | 2    | 753.5         | 8.40      | 13              | -4.52       |

Peak to average power ratio, TM3p3

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 2    | 751.0         | 8.58      | 13              | -4.42       |
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |

Peak to average power ratio, TM1.1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 2    | 751.0         | 8.52      | 13              | -4.48       |
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |

Peak to average power ratio, TM3p1

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 2    | 751.0         | 8.38      | 13              | -4.62       |
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |

Peak to average power ratio, TM3p1a

| Band | OBW Declared | Port | Channel (MHz) | 0.1% (dB) | 0.1% Limit (dB) | Margin (dB) |
|------|--------------|------|---------------|-----------|-----------------|-------------|
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |
| B13  | 10 MHz       | 2    | 751.0         | 8.46      | 13              | -4.54       |
| B13  | 10 MHz       | 2    | n/a           | -         | -               | -           |

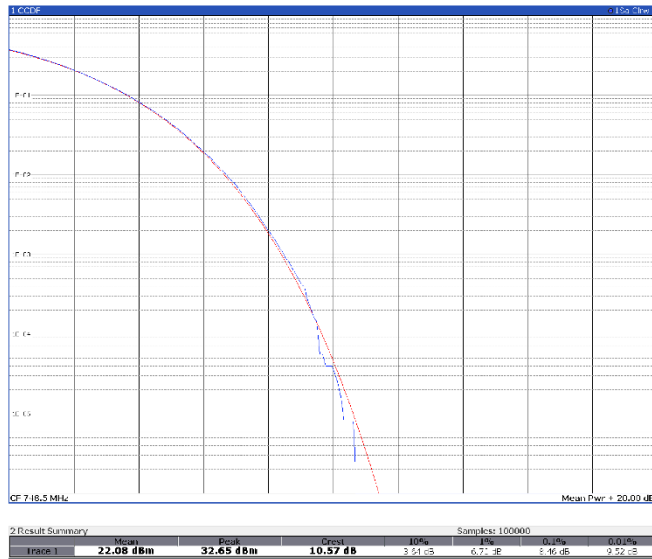
Peak to average power ratio, TM3p3

## Antenna port 1

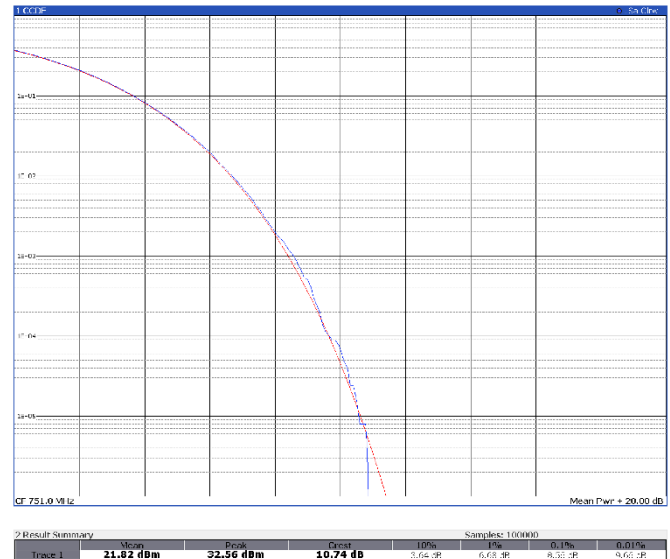
Band B13

5 MHz

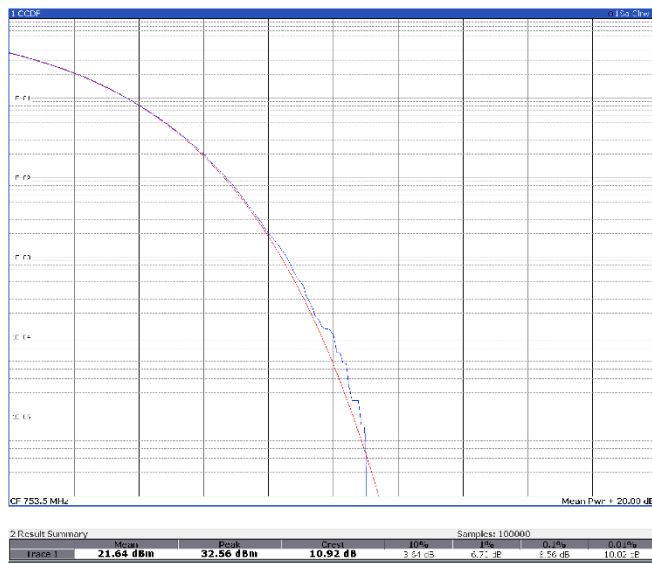
## TM1.1, 5 MHz, low channel



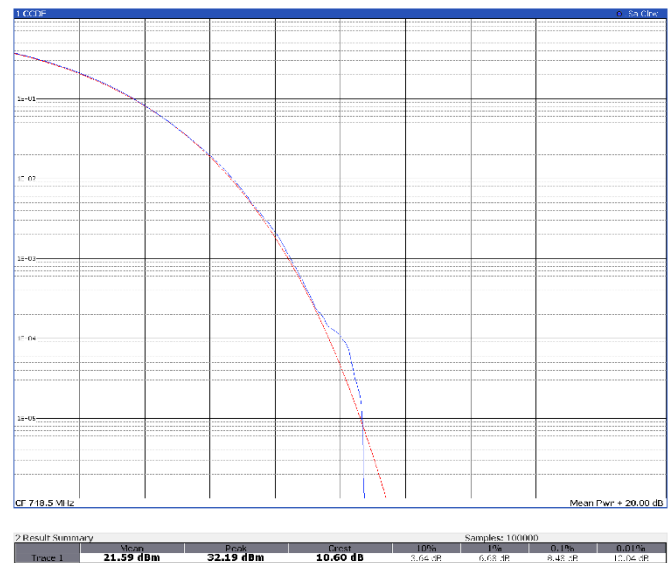
## TM1.1, 5 MHz, mid channel



## TM1.1, 5 MHz, high channel

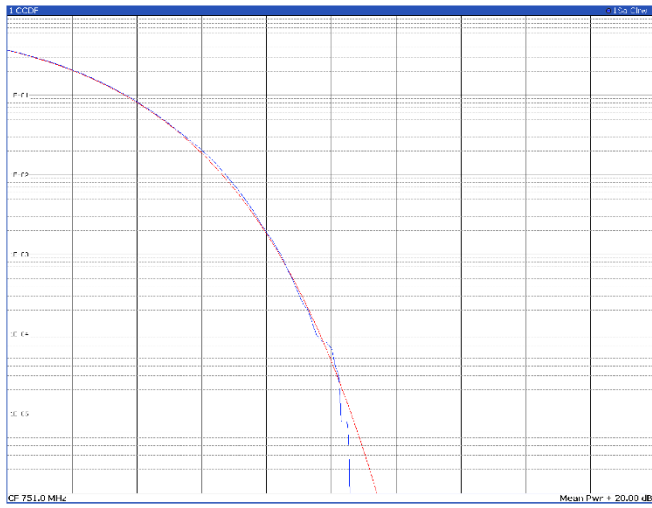


## TM3p1, 5 MHz, low channel



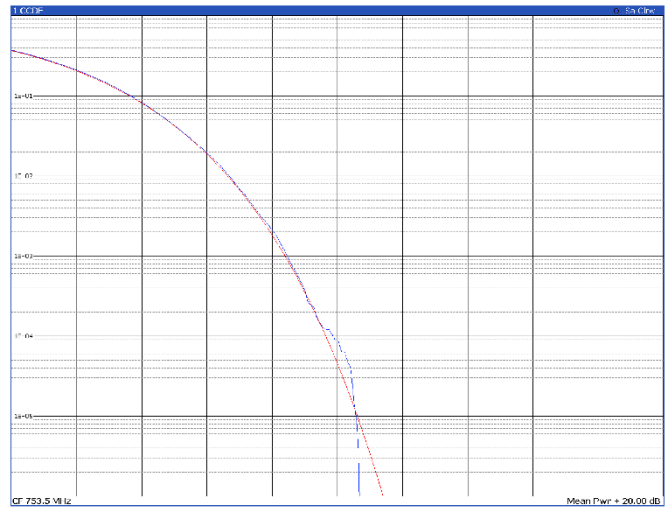


TM3p1, 5 MHz, mid channel



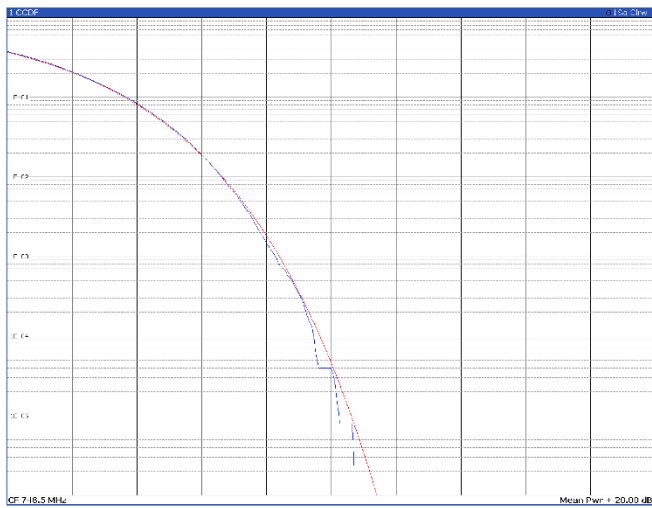
| 2 Result Summary |           |           |          |         |         |         |
|------------------|-----------|-----------|----------|---------|---------|---------|
|                  | Mean      | Peak      | Crest    | 10%     | 1%      | 0.01%   |
| Trace 1          | 21.64 dBm | 32.12 dBm | 10.48 dB | 3.56 dB | 6.74 dB | 9.51 dB |

TM3p1, 5 MHz, high channel



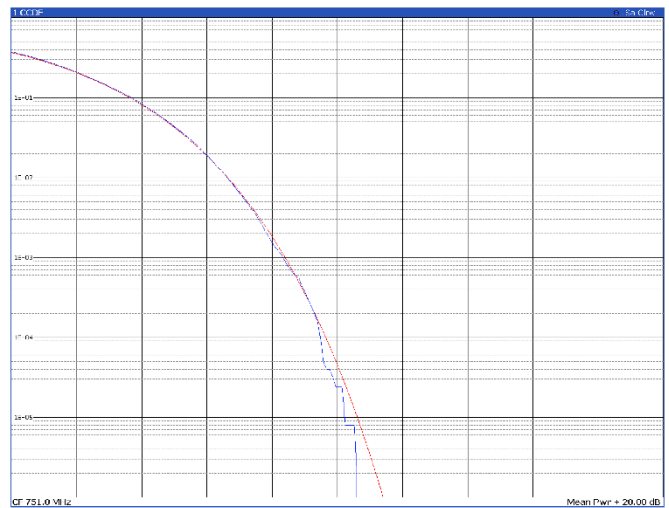
| 2 Result Summary |           |           |          |         |         |         |
|------------------|-----------|-----------|----------|---------|---------|---------|
|                  | Mean      | Peak      | Crest    | 10%     | 1%      | 0.01%   |
| Trace 1          | 21.62 dBm | 32.19 dBm | 10.57 dB | 3.65 dB | 6.83 dB | 9.61 dB |

TM3p1a, 5 MHz, low channel



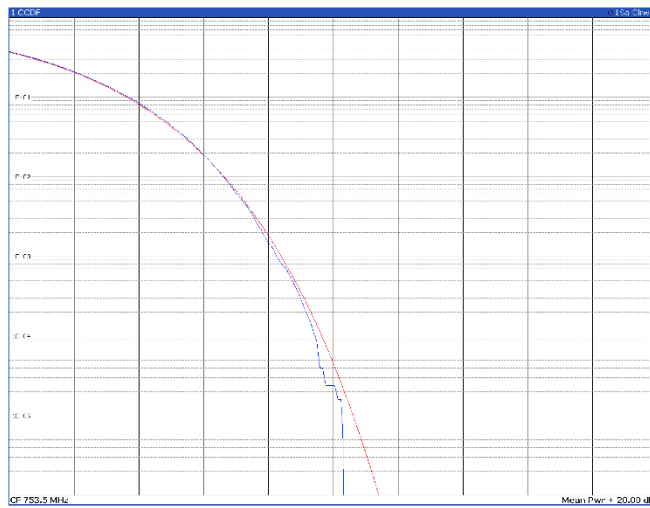
| 2 Result Summary |           |           |          |         |         |         |
|------------------|-----------|-----------|----------|---------|---------|---------|
|                  | Mean      | Peak      | Crest    | 10%     | 1%      | 0.01%   |
| Trace 1          | 21.58 dBm | 32.24 dBm | 10.66 dB | 3.59 dB | 6.62 dB | 9.46 dB |

TM3p1a, 5 MHz, mid channel



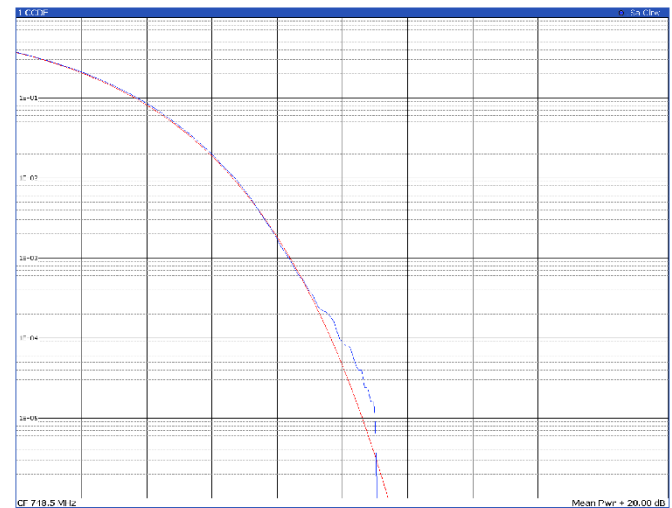
| 2 Result Summary |           |           |          |         |         |         |
|------------------|-----------|-----------|----------|---------|---------|---------|
|                  | Mean      | Peak      | Crest    | 10%     | 1%      | 0.01%   |
| Trace 1          | 21.70 dBm | 32.21 dBm | 10.50 dB | 3.63 dB | 6.62 dB | 9.35 dB |

TM3p1a, 5 MHz, high channel



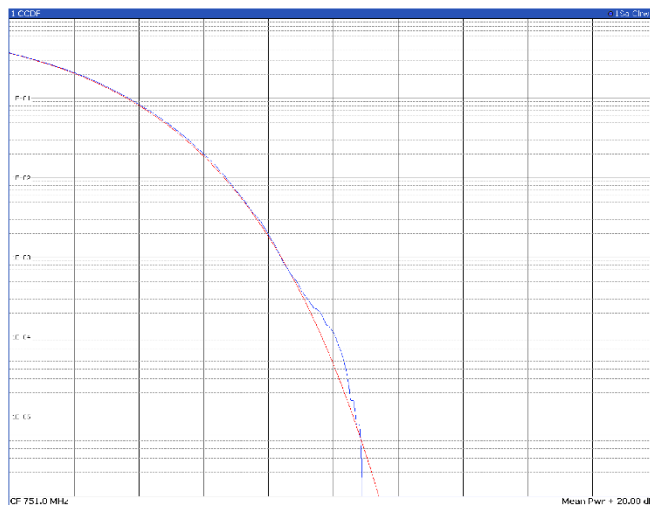
| 2 Result Summary |           | Sample: 100000 |               |
|------------------|-----------|----------------|---------------|
| Trace 1          | Mean      | Peak           | Crest         |
|                  | 21.61 dBm | 31.86 dBm      | 10.25 dB      |
|                  |           |                | 10% 9.58 dB   |
|                  |           |                | 1% 6.05 dB    |
|                  |           |                | 0.1% 3.56 dB  |
|                  |           |                | 0.01% 0.04 dB |

TM3p3, 5 MHz, low channel



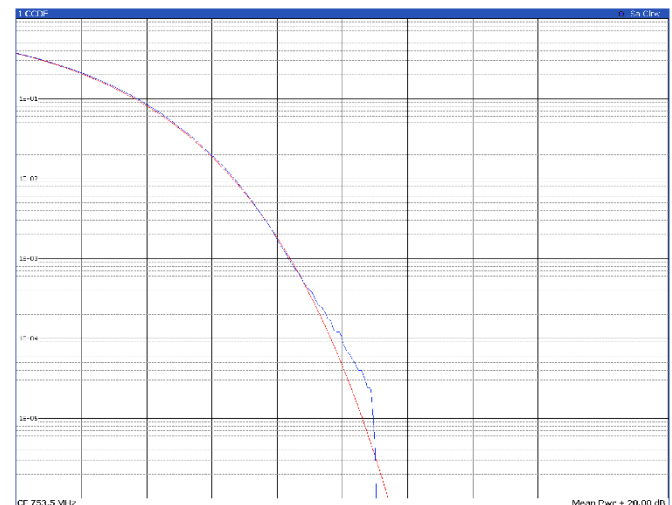
| 2 Result Summary |           | Sample: 100000 |               |
|------------------|-----------|----------------|---------------|
| Trace 1          | Mean      | Peak           | Crest         |
|                  | 21.82 dBm | 32.81 dBm      | 10.99 dB      |
|                  |           |                | 10% 9.71 dB   |
|                  |           |                | 1% 6.22 dB    |
|                  |           |                | 0.1% 3.31 dB  |
|                  |           |                | 0.01% 0.01 dB |

TM3p3, 5 MHz, mid channel



| 2 Result Summary |           | Sample: 100000 |               |
|------------------|-----------|----------------|---------------|
| Trace 1          | Mean      | Peak           | Crest         |
|                  | 21.88 dBm | 32.65 dBm      | 10.77 dB      |
|                  |           |                | 10% 9.58 dB   |
|                  |           |                | 1% 6.32 dB    |
|                  |           |                | 0.1% 3.58 dB  |
|                  |           |                | 0.01% 0.00 dB |

TM3p3, 5 MHz, high channel

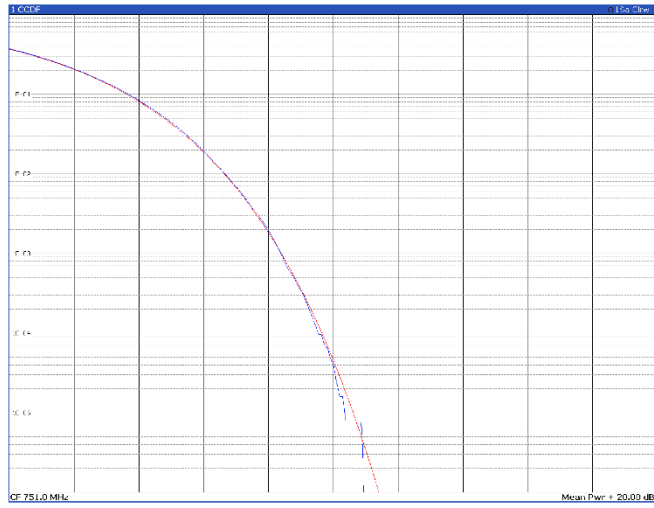


| 2 Result Summary |           | Sample: 100000 |               |
|------------------|-----------|----------------|---------------|
| Trace 1          | Mean      | Peak           | Crest         |
|                  | 21.73 dBm | 32.71 dBm      | 10.98 dB      |
|                  |           |                | 10% 9.71 dB   |
|                  |           |                | 1% 6.13 dB    |
|                  |           |                | 0.1% 3.34 dB  |
|                  |           |                | 0.01% 0.00 dB |

## Band B13

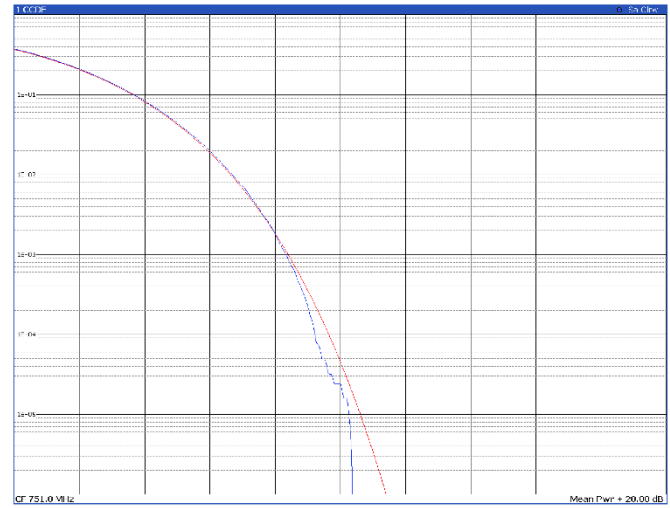
## 10 MHz

## TM1.1, 10 MHz, mid channel



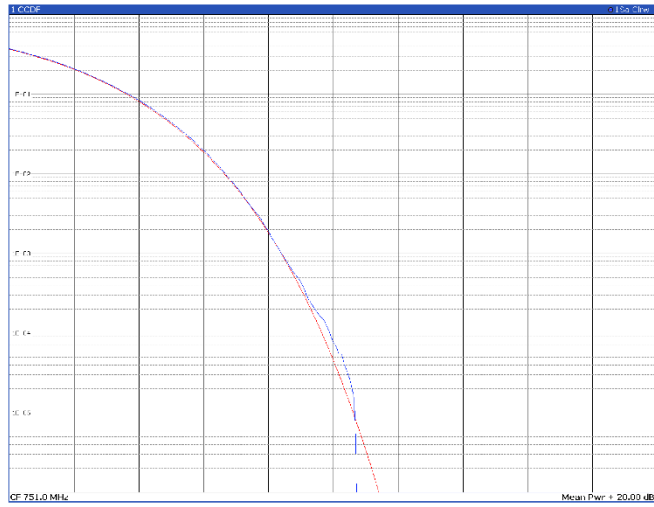
| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Mean             | Peak      | Crest           | 10%      | 1%      | 0.1%    | 0.01%   |         |
| Trace 1          | 18.64 dBm | 29.45 dBm       | 10.61 dB | 3.58 dB | 6.65 dB | 8.18 dB | 9.57 dB |

## TM3p1, 10 MHz, mid channel



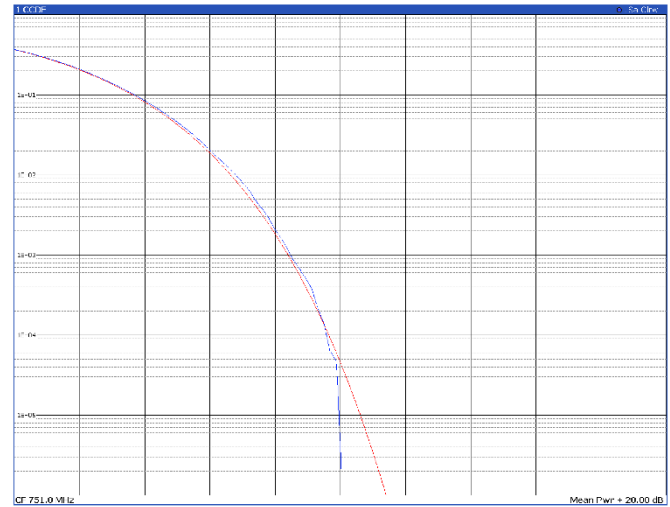
| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Mean             | Peak      | Crest           | 10%      | 1%      | 0.1%    | 0.01%   |         |
| Trace 1          | 18.54 dBm | 28.81 dBm       | 10.26 dB | 3.60 dB | 6.63 dB | 8.32 dB | 9.70 dB |

## TM3p1a, 10 MHz, mid channel



| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Mean             | Peak      | Crest           | 10%      | 1%      | 0.1%    | 0.01%   |         |
| Trace 1          | 18.58 dBm | 29.24 dBm       | 10.66 dB | 3.58 dB | 6.65 dB | 8.40 dB | 9.88 dB |

## TM3p3, 10 MHz, mid channel



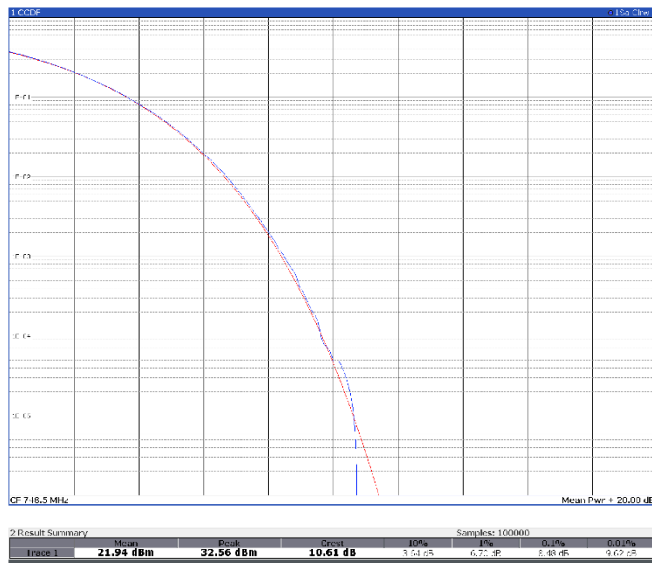
| 2 Result Summary |           | Samples: 100000 |         |         |         |         |         |
|------------------|-----------|-----------------|---------|---------|---------|---------|---------|
| Mean             | Peak      | Crest           | 10%     | 1%      | 0.1%    | 0.01%   |         |
| Trace 1          | 18.63 dBm | 28.67 dBm       | 9.96 dB | 3.63 dB | 6.73 dB | 8.45 dB | 9.51 dB |

## Antenna port 2

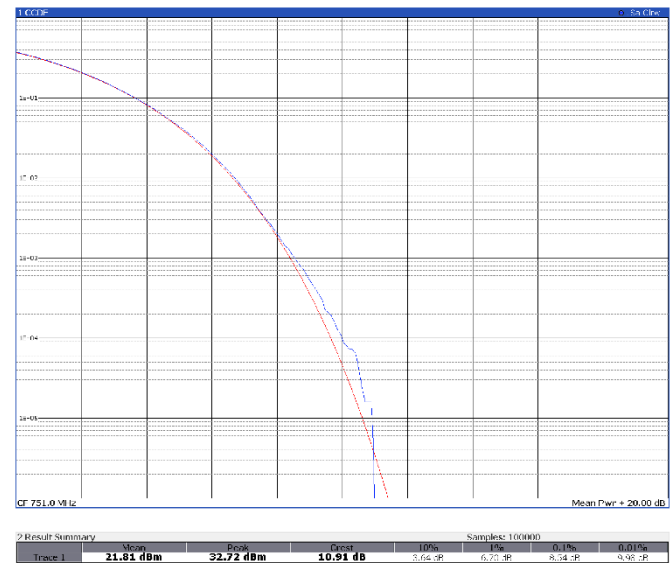
Band B13

5 MHz

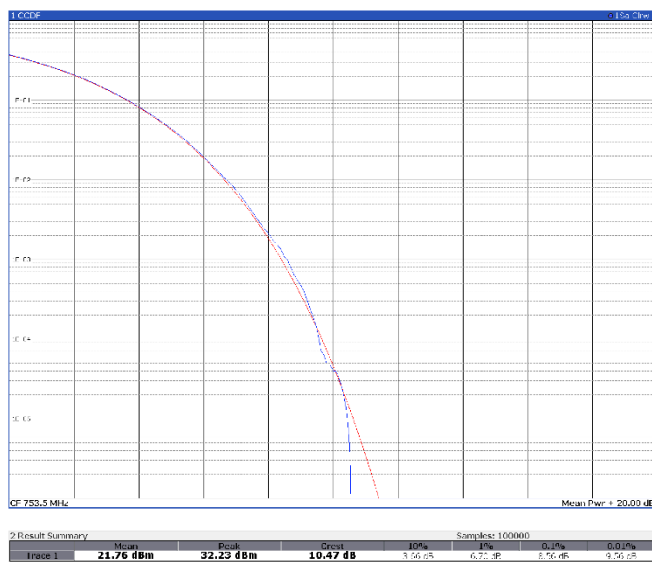
## TM1.1, 5 MHz, low channel



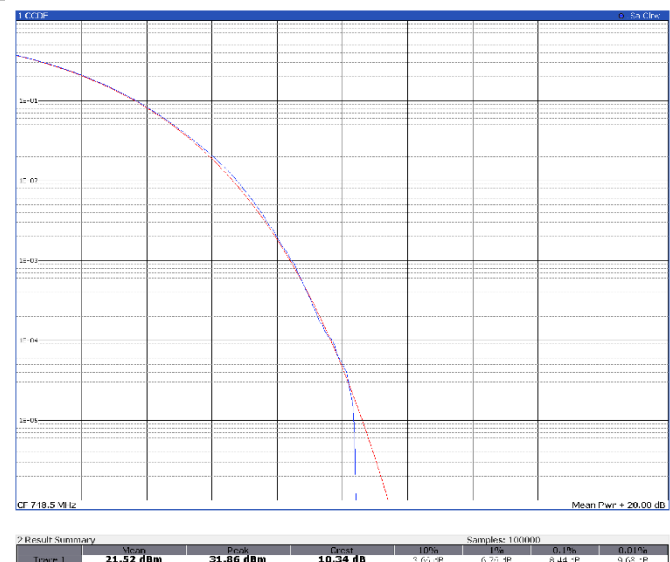
## TM1.1, 5 MHz, mid channel



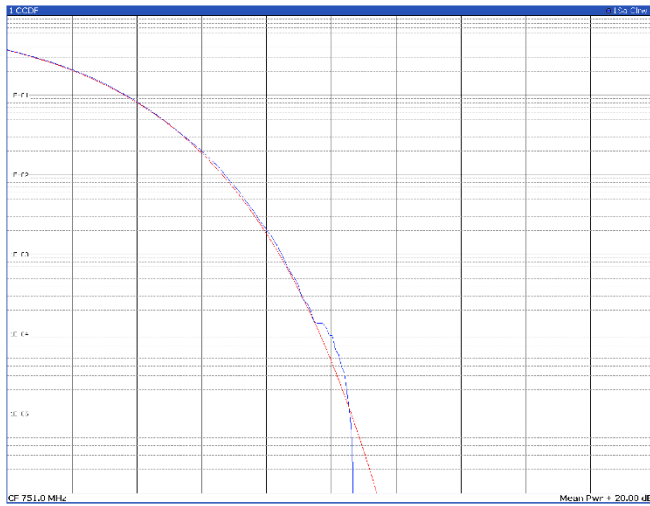
## TM1.1, 5 MHz, high channel



## TM3p1, 5 MHz, low channel

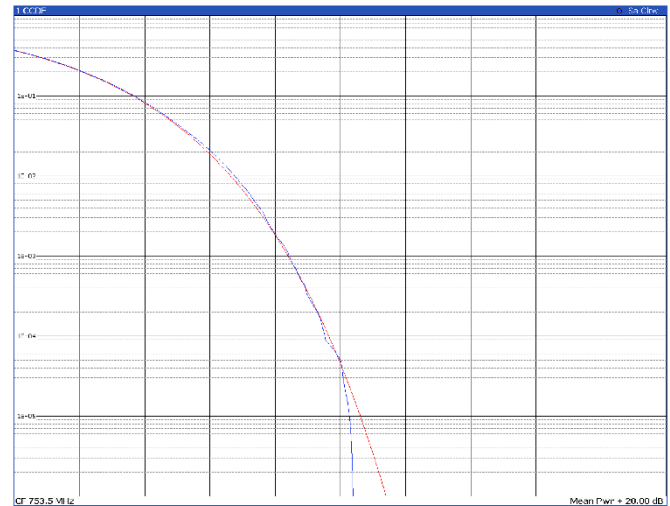


TM3p1, 5 MHz, mid channel



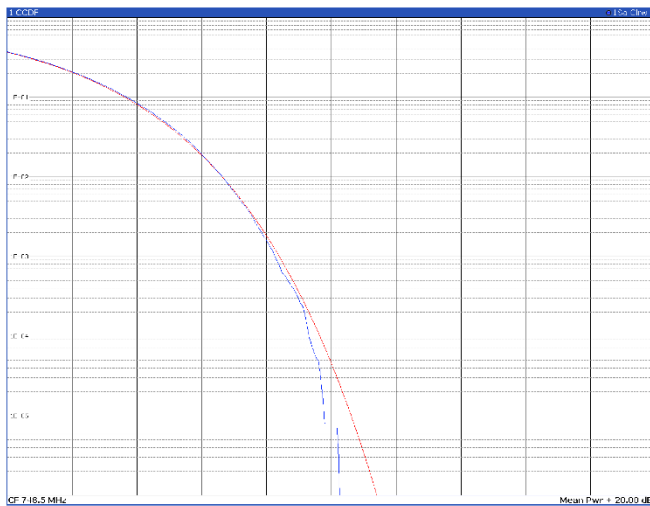
| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Dist           | 10%      |
| Trace 1          | 21.63 dBm | 32.21 dBm      | 10.58 dB |
|                  |           |                | 10%      |
|                  |           |                | 1%       |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p1, 5 MHz, high channel



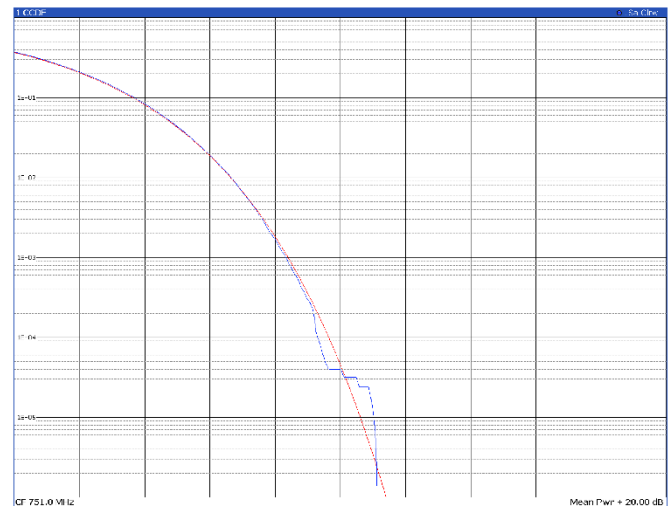
| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Dist           | 10%      |
| Trace 1          | 21.73 dBm | 31.98 dBm      | 10.25 dB |
|                  |           |                | 10%      |
|                  |           |                | 1%       |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p1a, 5 MHz, low channel



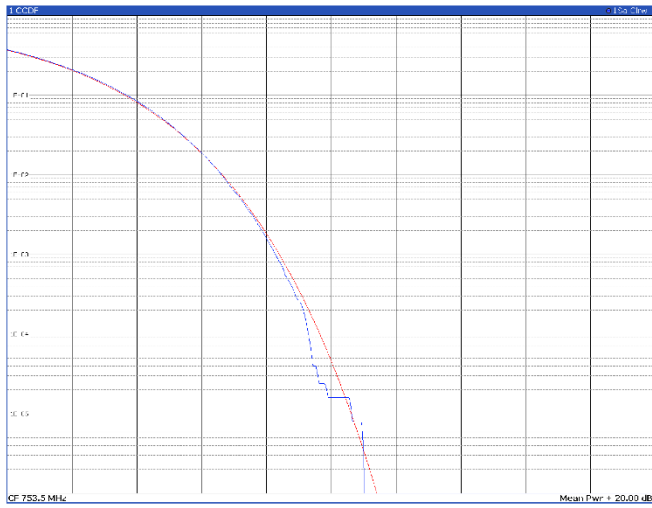
| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Dist           | 10%      |
| Trace 1          | 21.49 dBm | 31.67 dBm      | 10.18 dB |
|                  |           |                | 10%      |
|                  |           |                | 1%       |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p1a, 5 MHz, mid channel



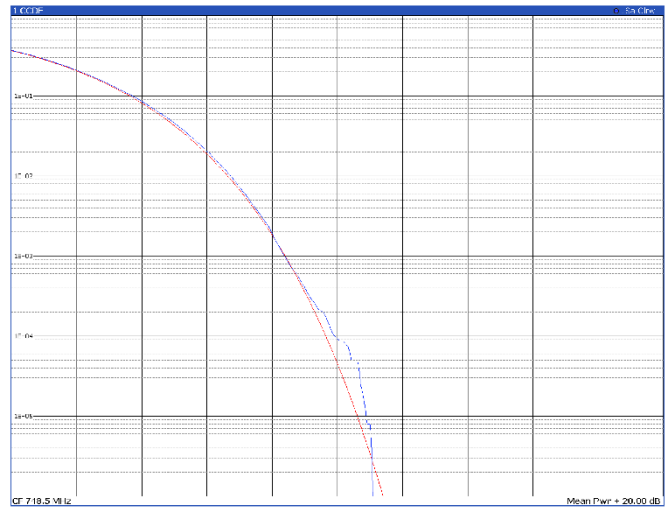
| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Dist           | 10%      |
| Trace 1          | 21.64 dBm | 32.67 dBm      | 11.03 dB |
|                  |           |                | 10%      |
|                  |           |                | 1%       |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p1a, 5 MHz, high channel



| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Crest          | 10%      |
| Trace 1          | 21.75 dBm | 32.72 dBm      | 10.96 dB |
|                  |           |                | 10%      |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p3, 5 MHz, low channel



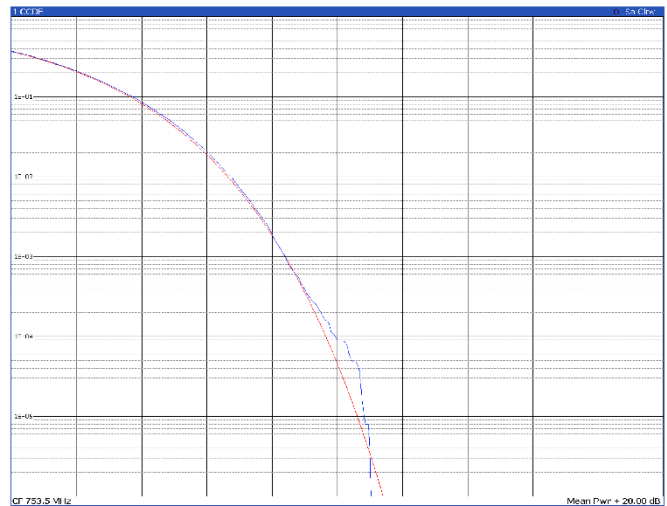
| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Crest          | 10%      |
| Trace 1          | 21.69 dBm | 32.71 dBm      | 11.02 dB |
|                  |           |                | 10%      |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p3, 5 MHz, mid channel



| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Crest          | 10%      |
| Trace 1          | 21.68 dBm | 32.66 dBm      | 10.98 dB |
|                  |           |                | 10%      |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

TM3p3, 5 MHz, high channel

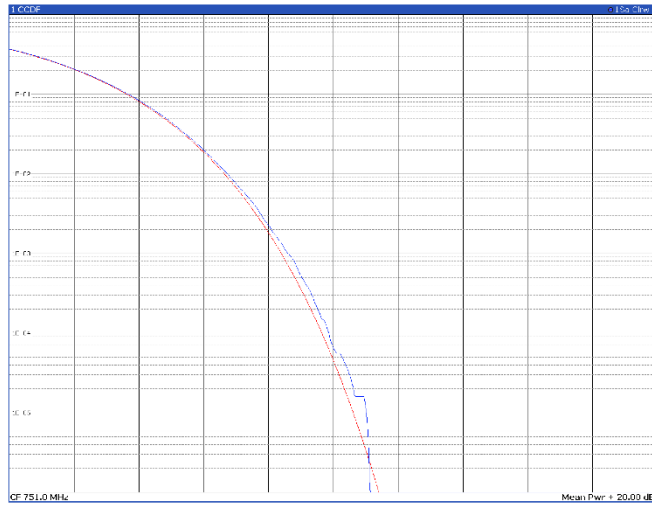


| 2 Result Summary |           | Sample: 100000 |          |
|------------------|-----------|----------------|----------|
| Mean             | Peak      | Crest          | 10%      |
| Trace 1          | 21.93 dBm | 32.90 dBm      | 10.97 dB |
|                  |           |                | 10%      |
|                  |           |                | 0.1%     |
|                  |           |                | 0.01%    |

## Band B13

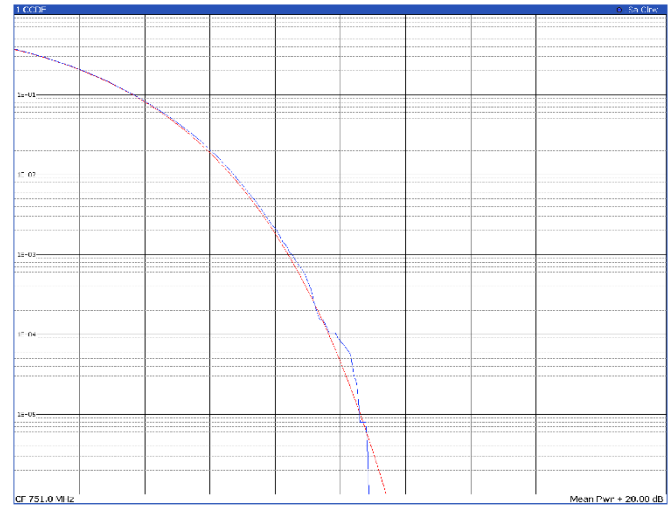
## 10 MHz

## TM1.1, 10 MHz, mid channel



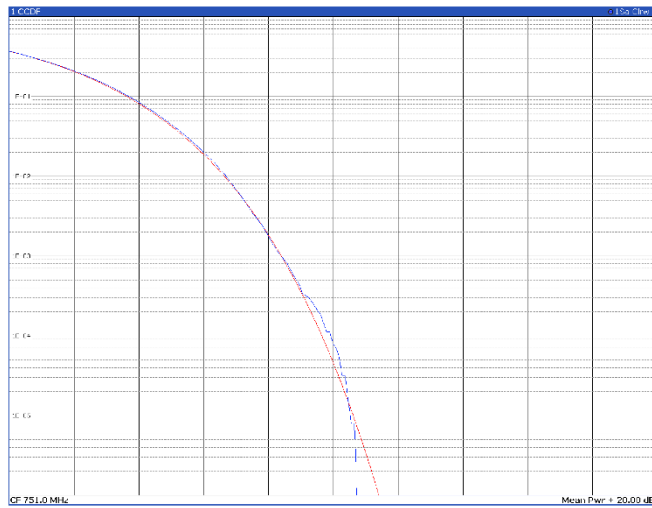
| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Trace 1          | Mean      | Peak            | Crest    | 10%     | 1%      | 0.1%    | 0.01%   |
|                  | 18.54 dBm | 29.61 dBm       | 11.06 dB | 5.58 dB | 6.74 dB | 8.78 dB | 9.86 dB |

## TM3p1, 10 MHz, mid channel



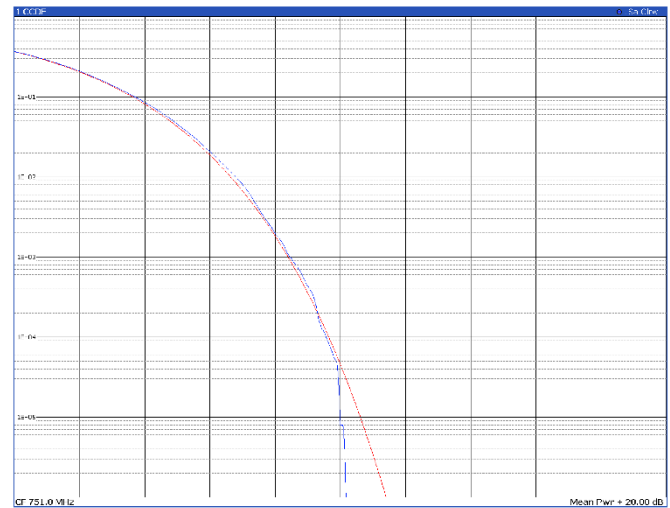
| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Trace 1          | Mean      | Peak            | Crest    | 10%     | 1%      | 0.1%    | 0.01%   |
|                  | 18.71 dBm | 29.45 dBm       | 10.74 dB | 5.66 dB | 6.77 dB | 8.77 dB | 9.80 dB |

## TM3p1a, 10 MHz, mid channel



| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Trace 1          | Mean      | Peak            | Crest    | 10%     | 1%      | 0.1%    | 0.01%   |
|                  | 18.57 dBm | 29.16 dBm       | 10.59 dB | 5.70 dB | 6.65 dB | 8.58 dB | 9.47 dB |

## TM3p3, 10 MHz, mid channel



| 2 Result Summary |           | Samples: 100000 |          |         |         |         |         |
|------------------|-----------|-----------------|----------|---------|---------|---------|---------|
| Trace 1          | Mean      | Peak            | Crest    | 10%     | 1%      | 0.1%    | 0.01%   |
|                  | 18.65 dBm | 28.70 dBm       | 10.04 dB | 5.70 dB | 6.78 dB | 8.43 dB | 9.30 dB |



## 8.6 FCC §27.53(m) Emission Limits

### 8.6.1 Definitions and limits

(m) For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

(2) For digital base stations, the attenuation shall be not less than  $43 + 10 \log (P)$  dB, unless a documented interference complaint is received from an adjacent channel licensee with an overlapping Geographic Service Area. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS No. 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Provided that a documented interference complaint cannot be mutually resolved between the parties prior to the applicable deadline, then the following additional attenuation requirements shall apply:

(v) For all fixed digital user stations, the attenuation factor shall be not less than  $43 + 10 \log (P)$  dB at the channel edge.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

### 8.6.2 Test summary

|                 |                   |                   |           |
|-----------------|-------------------|-------------------|-----------|
| Test start date | November 26, 2024 | Temperature       | 21 °C     |
| Test end date   | December 13, 2024 | Air pressure      | 1005 mbar |
| Test engineer   | O. Frau           | Relative humidity | 64%       |
| Verdict         | Pass              |                   |           |

### 8.6.3 Observations, settings and special notes

|                          |  |
|--------------------------|--|
| EUT setup configuration  | Table top  |
| Test facility            | 3 m Semi anechoic chamber  |
| Measuring distance       | 3m   |
| Antenna height variation | 1–4 m  |
| Turn table position      | 0–360°   |
| Measurement details      | A preview measurement was generated with receiver in continuous scan or sweep mode while the EUT was rotated and antenna adjusted to maximize radiated emission. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement. |

Receiver/spectrum analyzer settings for frequencies below 1 GHz:

|                      |   |
|----------------------|---|
| Resolution bandwidth | 120 kHz   |
| Video bandwidth      | 300 kHz   |
| Detector mode        | – Peak (Preview measurement)<br>– Quasi-peak (Final measurement)                |
| Trace mode           | Max Hold  |
| Measurement time     | – 100 ms (Peak preview measurement)<br>– 5000 ms (Quasi-peak final measurement) |



Receiver/spectrum analyzer settings for frequencies above 1 GHz:

|                      |  |
|----------------------|--|
| Resolution bandwidth | 1 MHz  |
| Video bandwidth      | 3 MHz  |
| Detector mode        | Peak (Preview measurement)<br>Peak and Coverage (Final measurement)                    |
| Trace mode           | Max Hold   |
| Measurement time     | – 100 ms (Peak preview measurement)<br>– 5000 ms (Peak and Coverage final measurement) |

Spectrum analyzer settings (conducted test):

|                      |   |
|----------------------|---|
| Resolution bandwidth | 1 MHz   |
| Video bandwidth      | 3 MHz   |
| Frequency span       | Sufficient for making an accurate measurement |
| Detector mode        | RMS   |
| Trace mode           | Max Hold                                      |

This test was realized in two parts: one with a conducted setup and another one with a radiated setup.

The conducted test was made on one port at time, transmitting at max power and with the other one loaded with 50  $\Omega$  loads. For capturing the signal with the equipment, it was divided in two ranges, using a transducer factor to compensate the losses caused by a cable and attenuator used to protect the test equipment. The first range was measured from 30 MHz to 1 GHz where the fundamental signal is visible; the second range was selected from 1 GHz to 8 GHz. The evaluation was made using the three channels and all the modulations (TM1.1, TM3p1, TM3p1a, and TM3p3).

A 30 dB attenuator was placed between the EUT and spectrum analyzer and compensated for as a reference level offset. Additionally, to correct for MIMO consideration, an additional offset of  $10\log(2) = -3.01$  dB was included to compensate for 2 correlated antennas output.

For band edge tests, in the 1 MHz region immediately outside of the authorized band, a resolution bandwidth of approximately 1 – 5 % of the 26 dB bandwidth measured was used.

The radiated test was made transmitting to max power too with the two ports terminated with 50  $\Omega$  loads. The scans were made from 30 MHz to 8 GHz considering all the channels but only the bandwidth and modulation with the highest power was showed.

Based on equation  $43 + 10 \log_{10}(P)$  dB, the general emission limit is -13 dBm (conducted and radiated test) or the equivalent at 3m is 82.23 dB $\mu$ V/m above 1 GHz and 84.38 dB $\mu$ V/m below 1 GHz.

## 8.6.4 Test equipment used

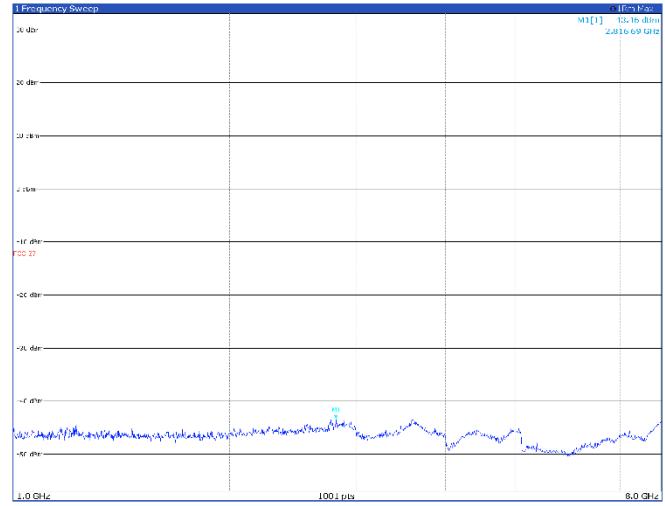
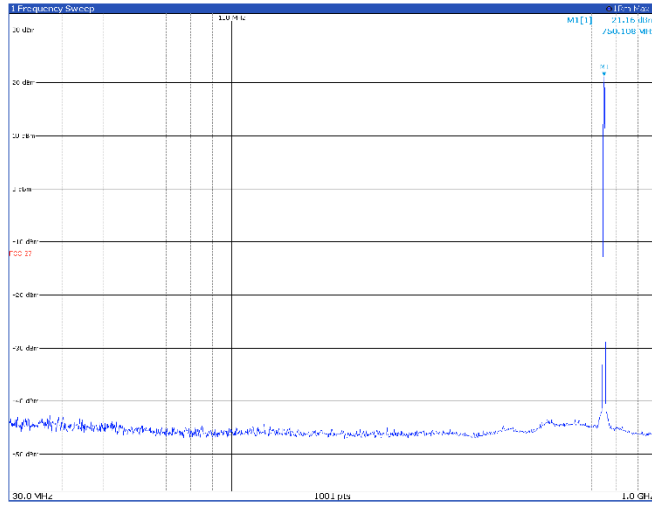
| Equipment                     | Manufacturer                | Model no.              | Asset no.     |
|-------------------------------|-----------------------------|------------------------|---------------|
| Spectrum Analyzer             | Rohde & Schwarz             | FSW43                  | 101767        |
| EMI Receiver                  | Rohde & Schwarz             | ESW44                  | 101620        |
| RF Vector Signal Generator    | Rohde & Schwarz             | SMBV100A               | 263254        |
| RF Vector Signal Generator    | Rohde & Schwarz             | SMBV100A               | 263397        |
| Antenna Trilog 25MHz – 8GHz   | Schwarzbeck Mess-Elektronik | VULB9162               | 9162-025      |
| Antenna 1 – 18 GHz            | Schwarzbeck Mess-Elektronik | STLP9148               | STLP 9148-152 |
| Double Ridge Horn Antenna     | RFSpin                      | DRH40                  | 061106A40     |
| Broadband Amplifier           | Schwarzbeck Mess-Elektronik | BBV9718C               | 00121         |
| Broadband Bench Top Amplifier | Sage                        | STB-1834034030-KFKF-L1 | 18490-01      |
| Controller                    | Maturo                      | FCU3.0                 | 10041         |
| Tilt antenna mast             | Maturo                      | TAM4.0-E               | 10042         |
| Turntable                     | Maturo                      | TT4.0-5T               | 2.527         |

## 8.6.5 Test data

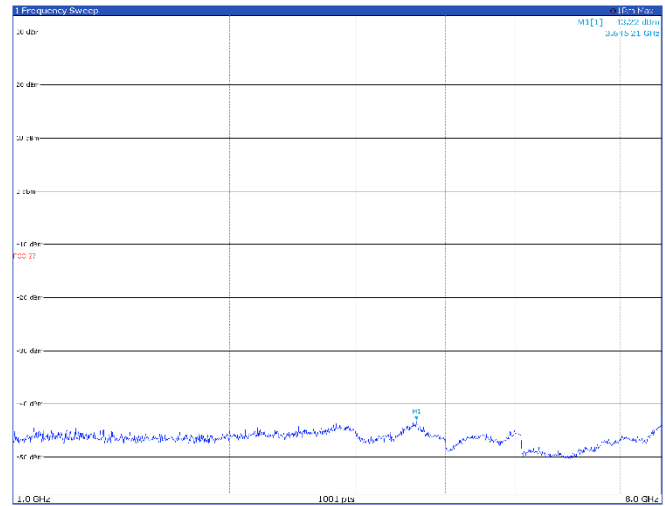
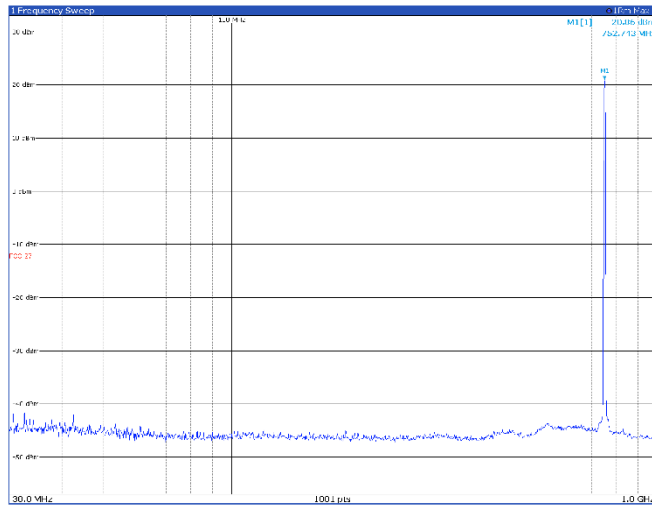
## Band B13 – conducted emissions Antenna port 1

5 MHz

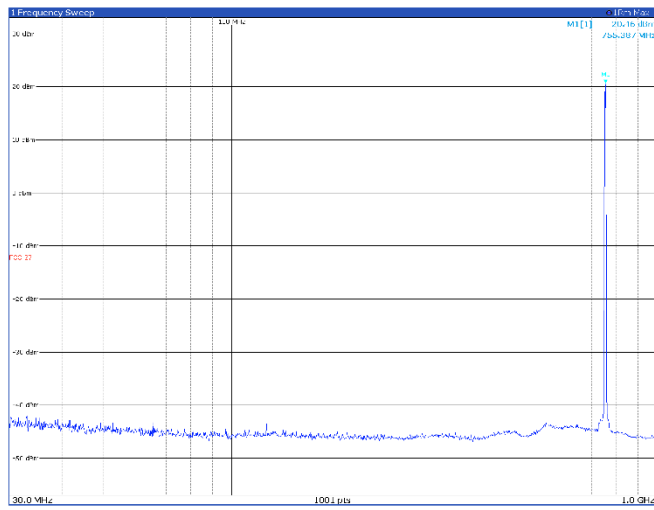
## TM1.1, 5 MHz, low channel



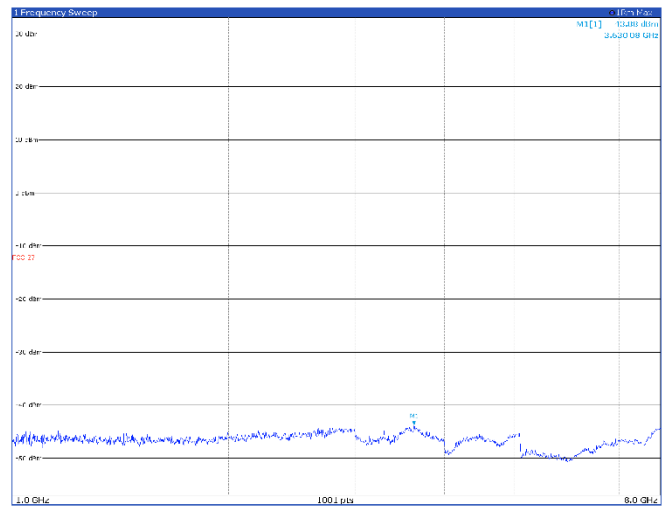
## TM1.1, 5 MHz, mid channel



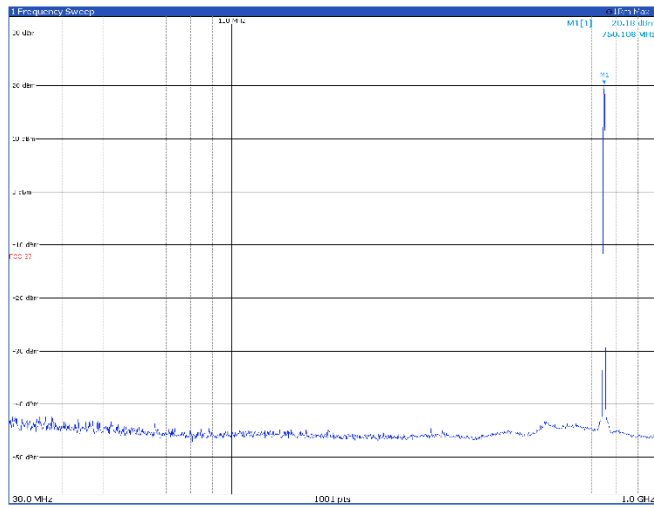
### TM1.1, 5 MHz, high channel



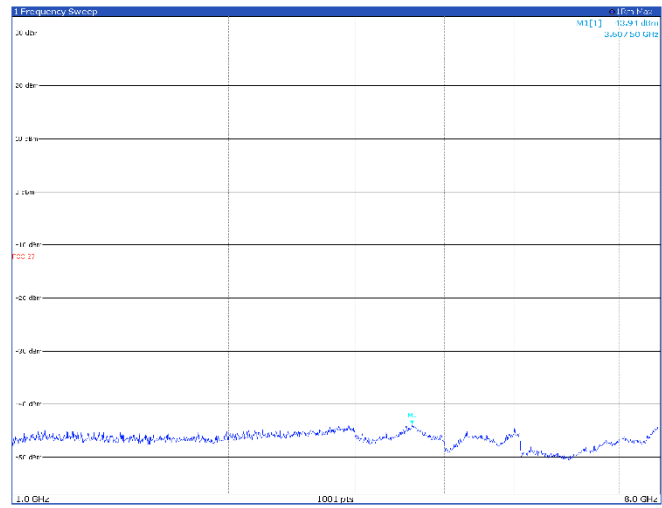
Limit exceeded by the carrier



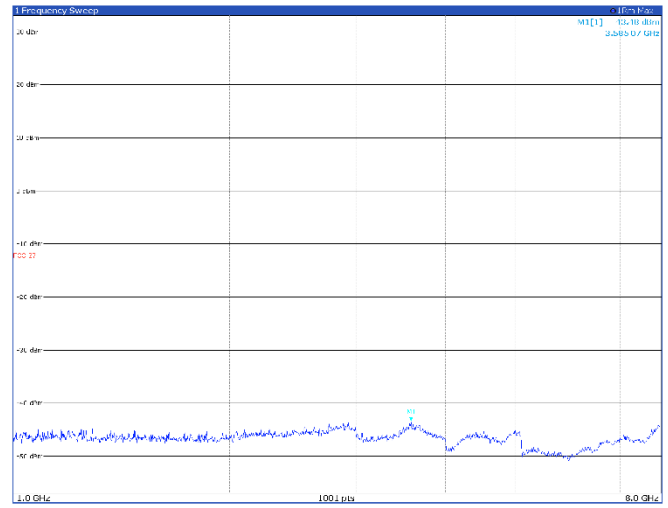
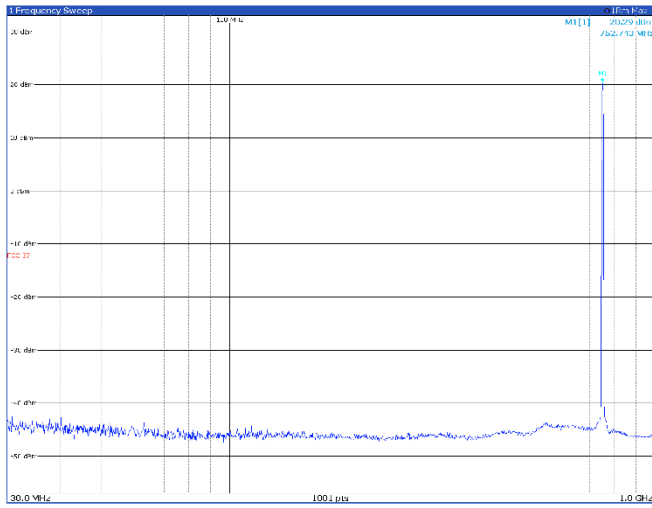
### TM3p1, 5 MHz, low channel



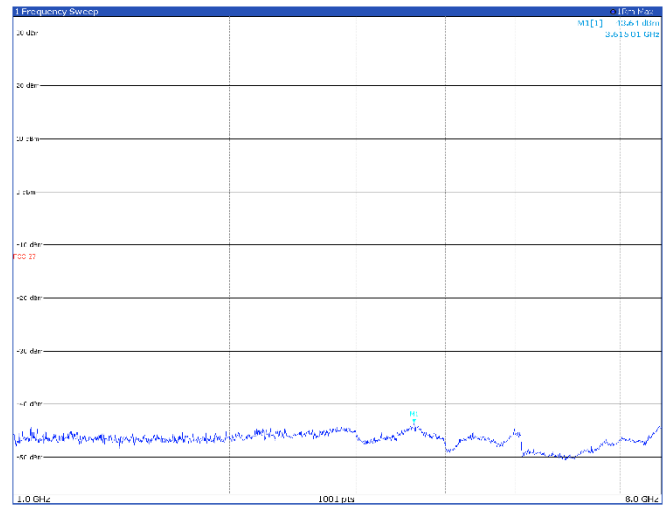
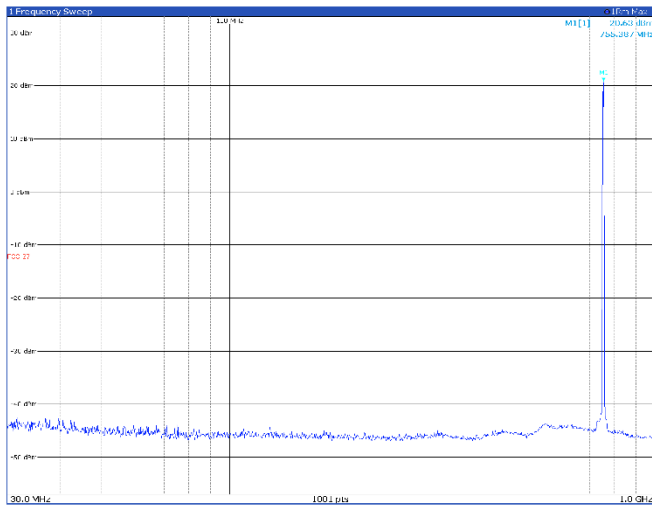
Limit exceeded by the carrier



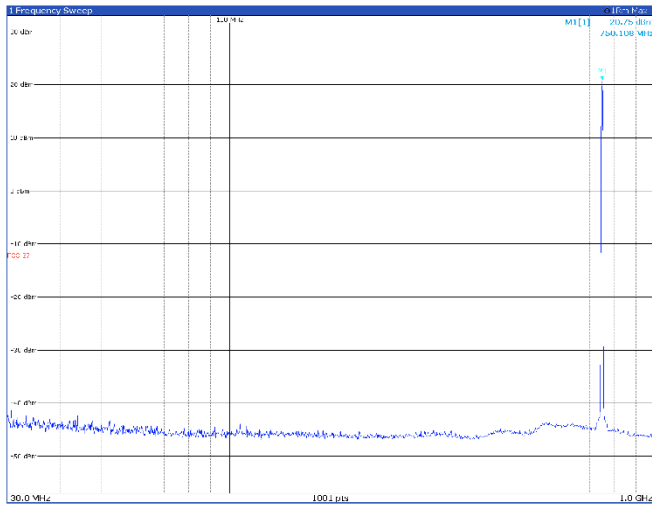
### TM3p1, 5 MHz, mid channel



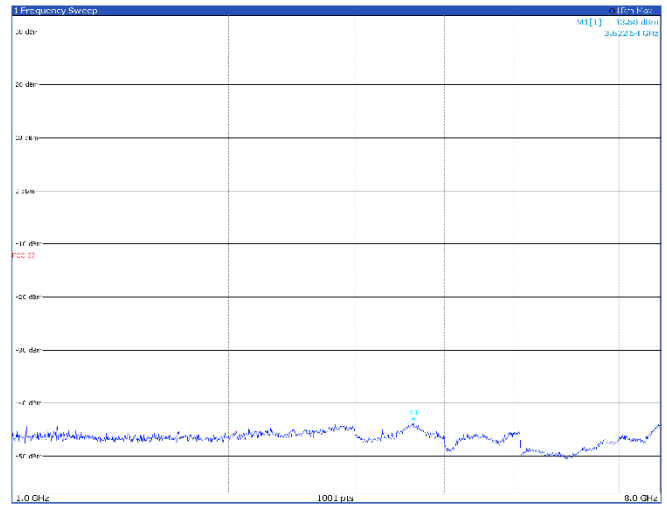
### TM3p1, 5 MHz, high channel



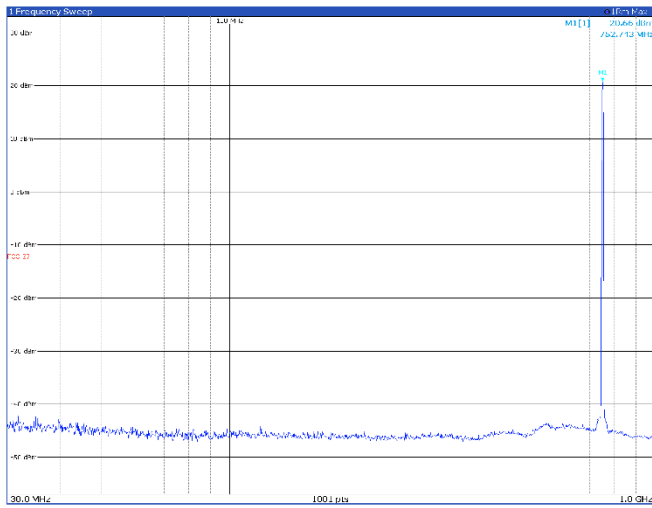
### TM3p1a, 5 MHz, low channel



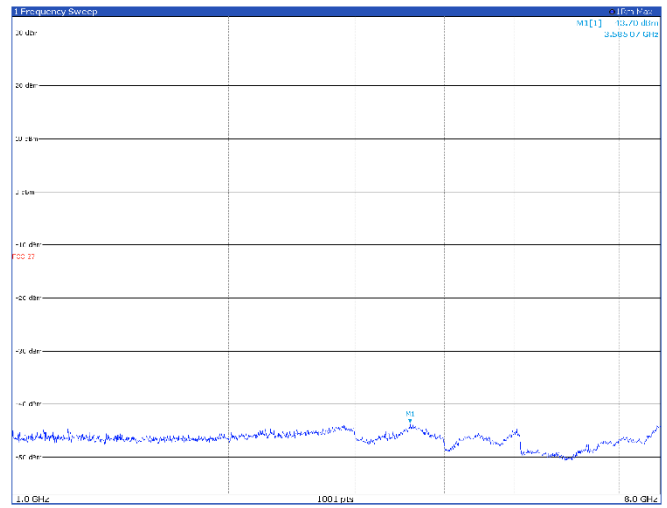
Limit exceeded by the carrier



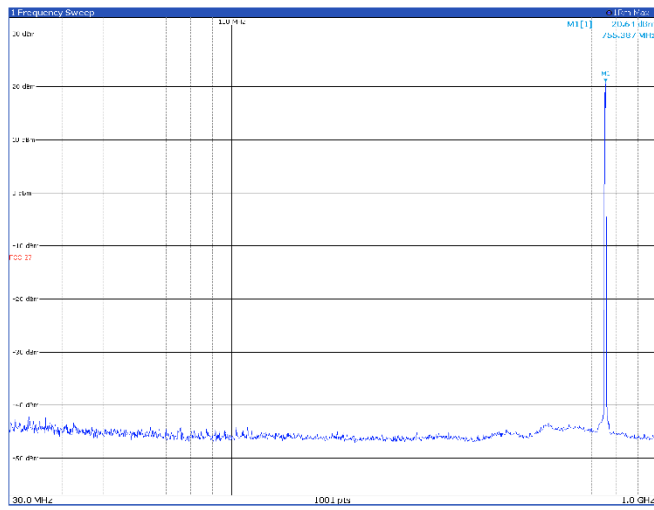
### TM3p1a, 5 MHz, mid channel



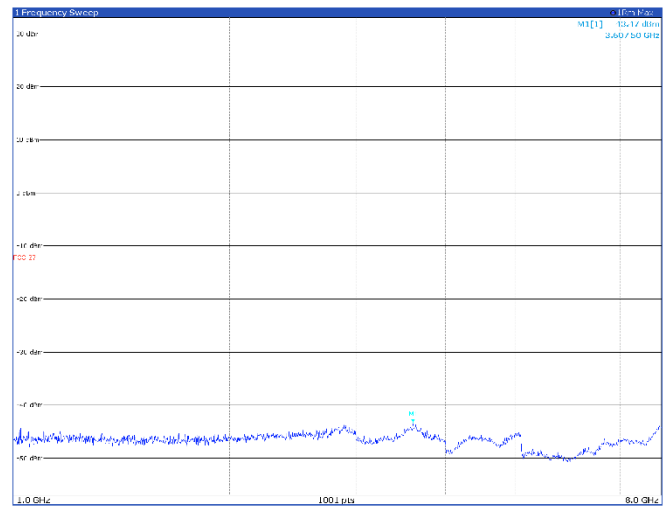
Limit exceeded by the carrier



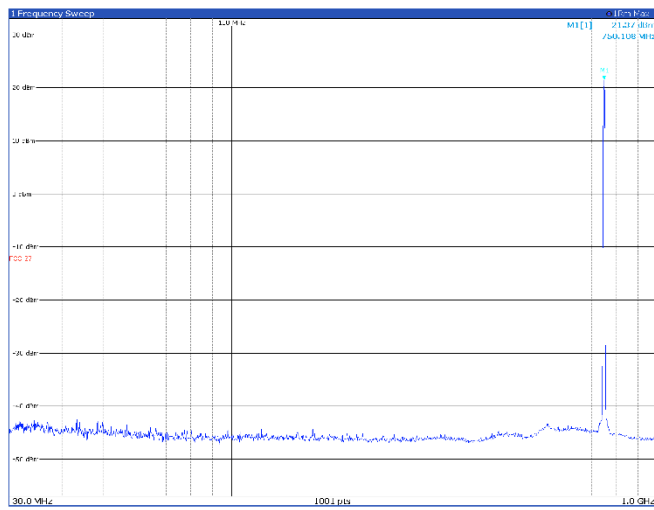
### TM3p1a, 5 MHz, high channel



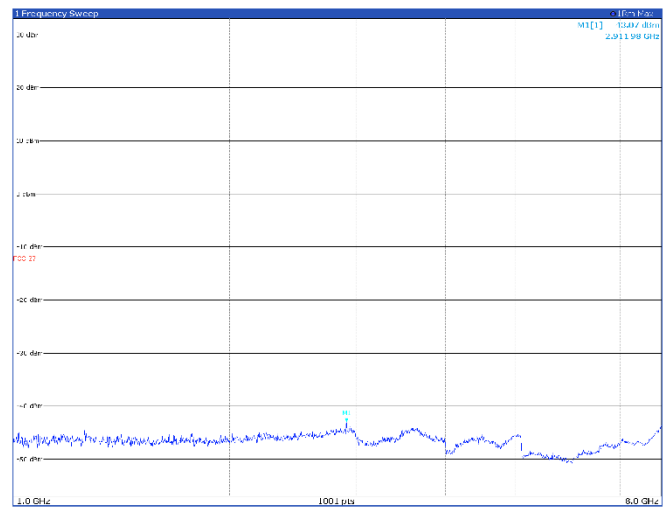
Limit exceeded by the carrier



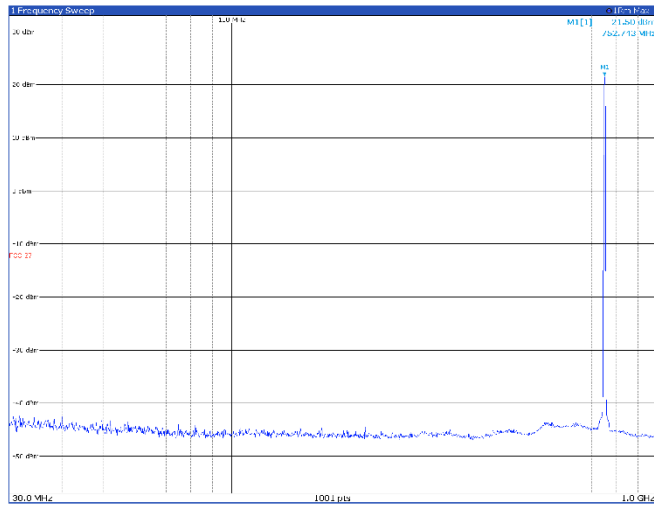
### TM3p3, 5 MHz, low channel



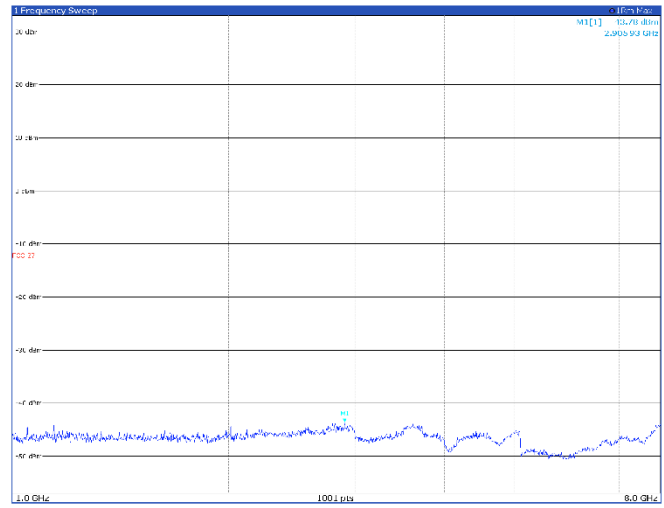
Limit exceeded by the carrier



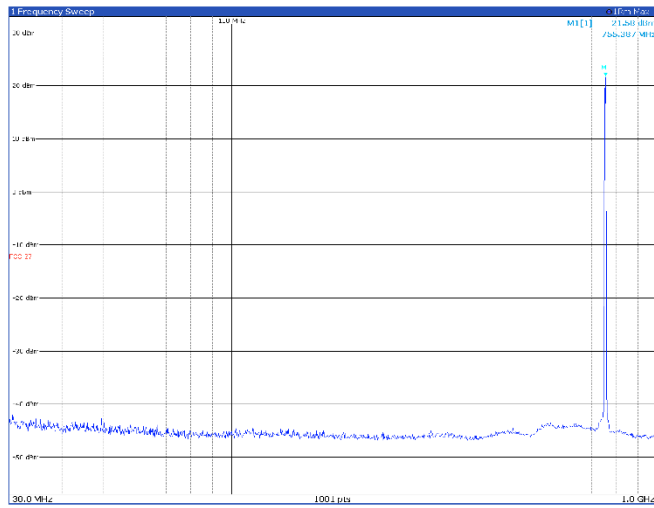
### TM3p3, 5 MHz, mid channel



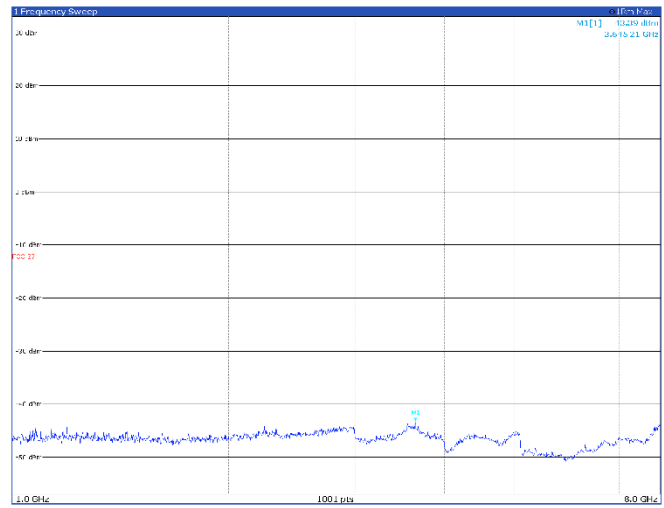
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### TM3p3, 5 MHz, high channel



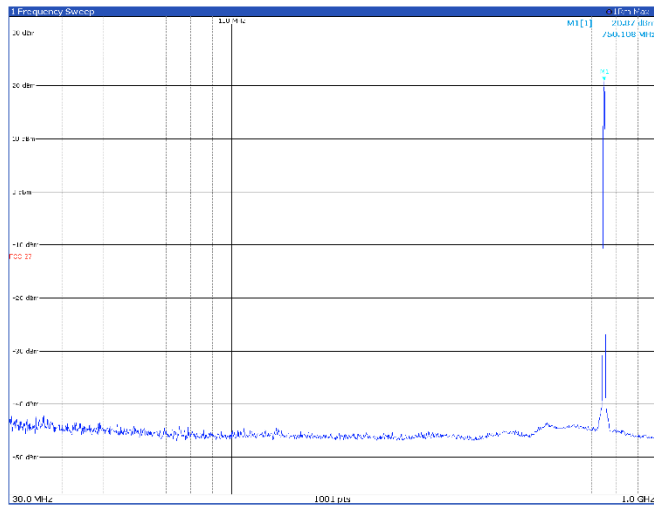
Limit exceeded by the carrier



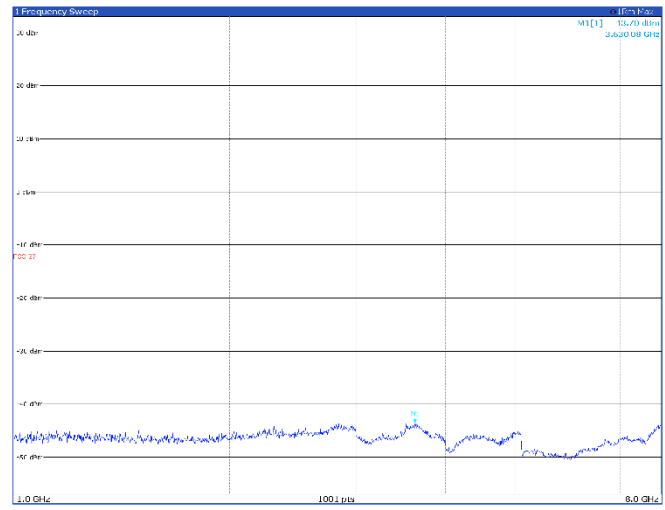
## Band B13 – conducted emissions Antenna port 2

5 MHz

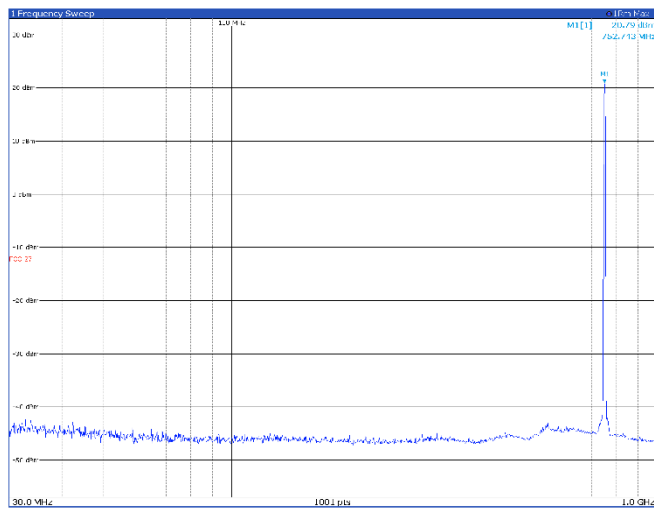
## TM1.1, 5 MHz, low channel



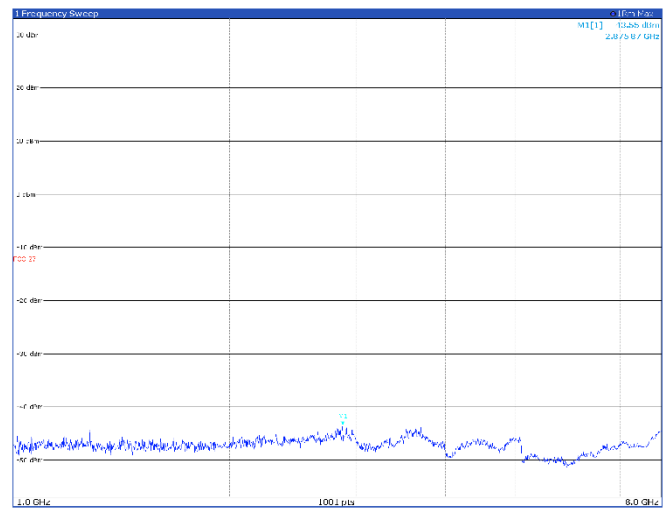
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## TM1.1, 5 MHz, mid channel

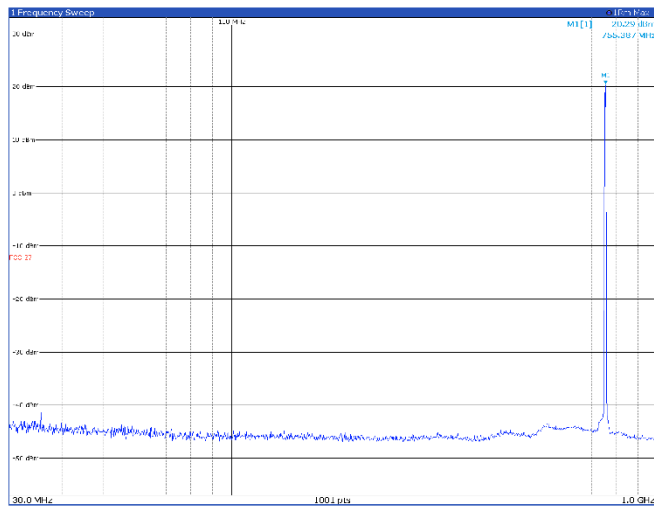


Limit exceeded by the carrier

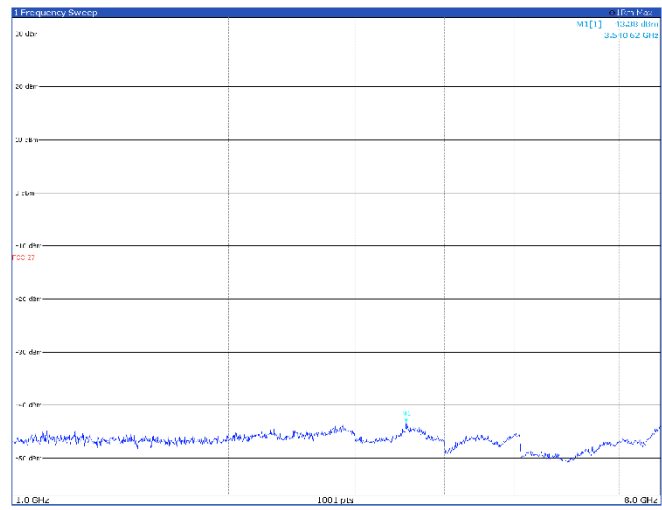




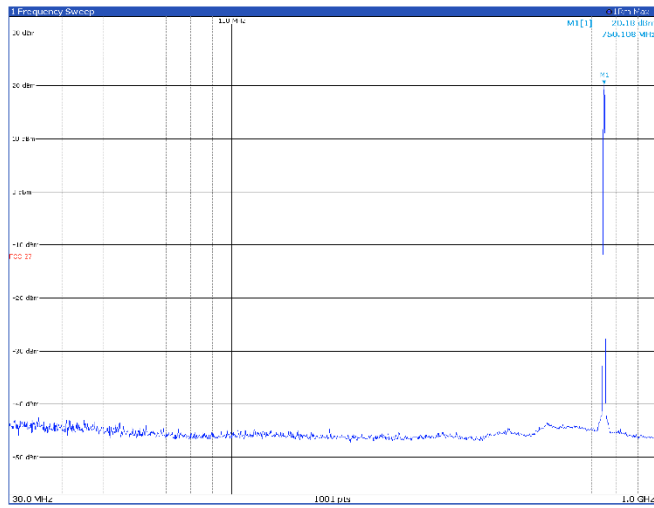
### TM1.1, 5 MHz, high channel



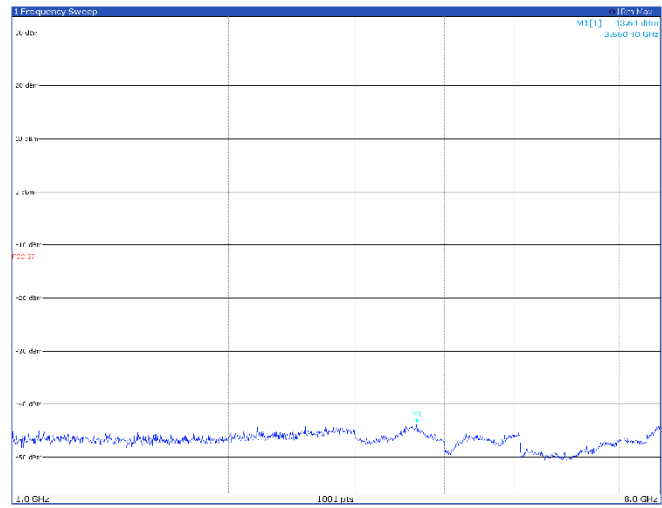
Limit exceeded by the carrier



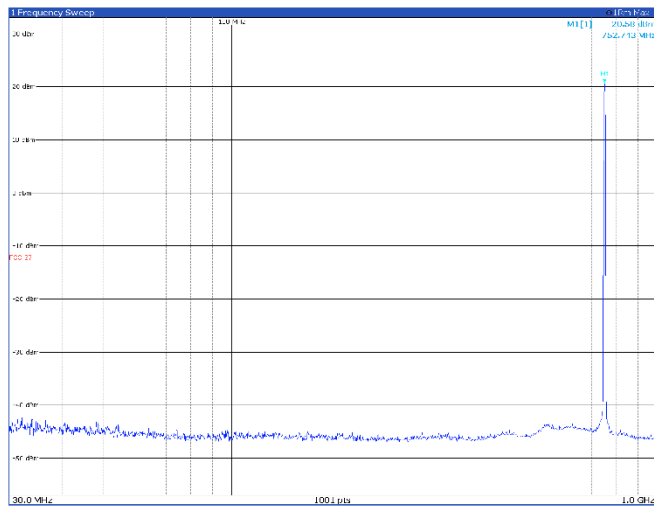
### TM3p1, 5 MHz, low channel



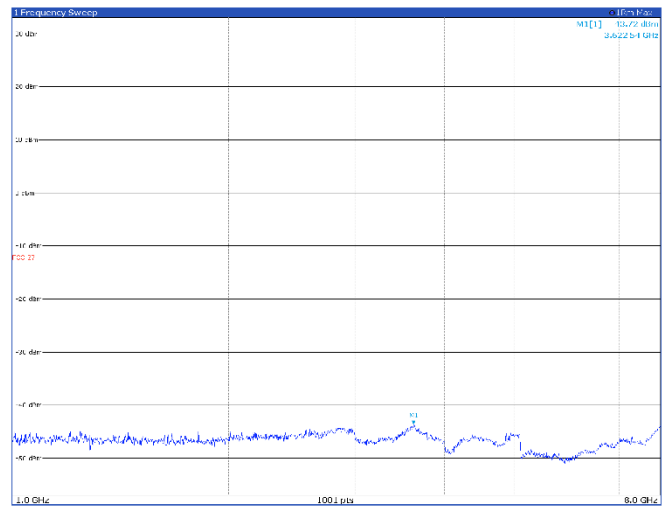
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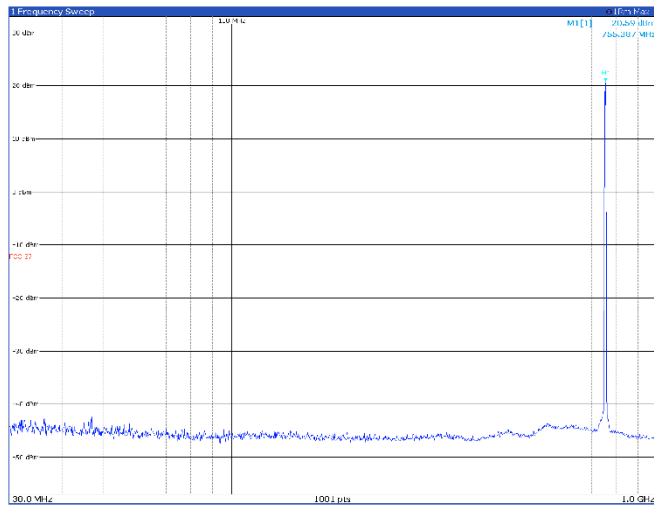
### TM3p1, 5 MHz, mid channel



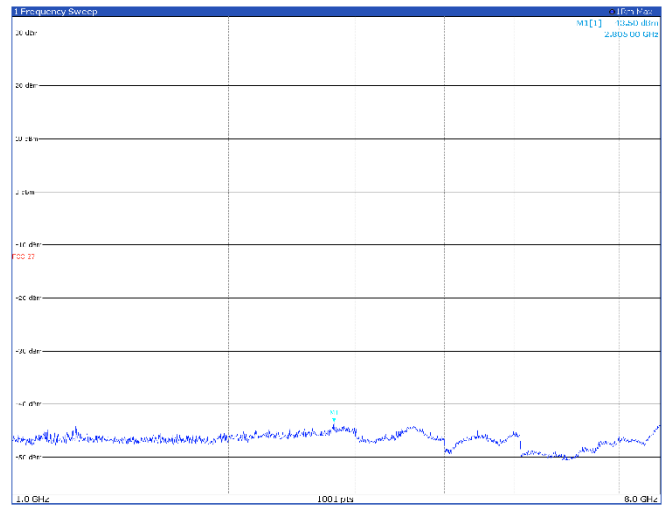
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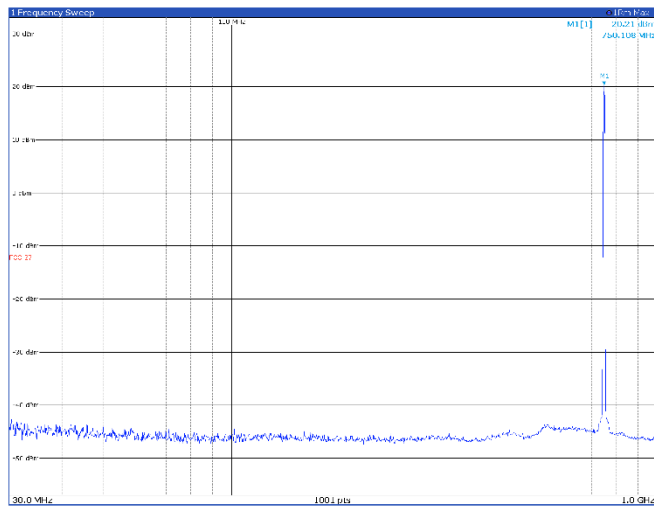
### TM3p1, 5 MHz, high channel



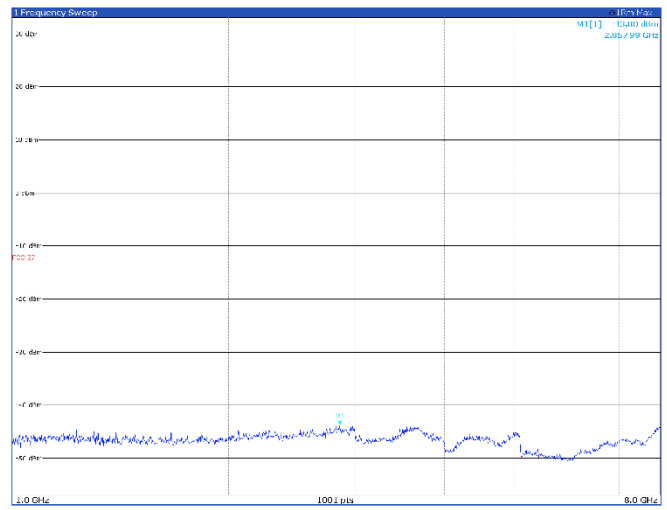
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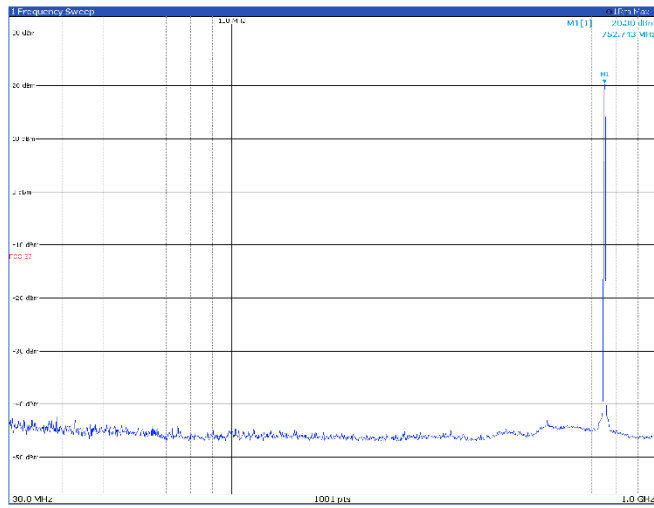
### TM3p1a, 5 MHz, low channel



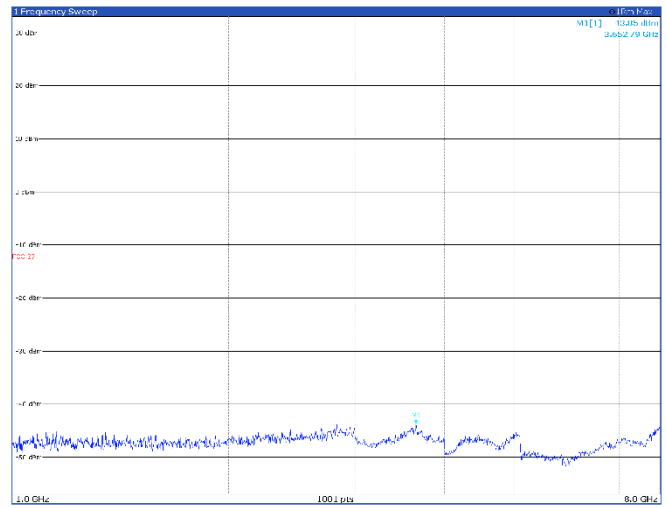
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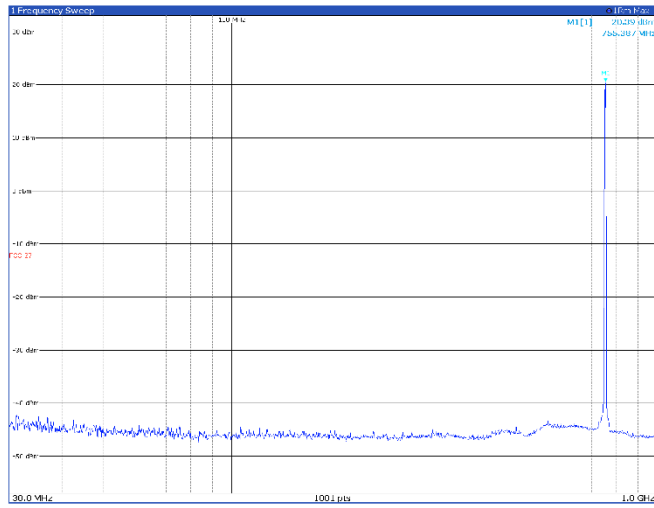
### TM3p1a, 5 MHz, mid channel



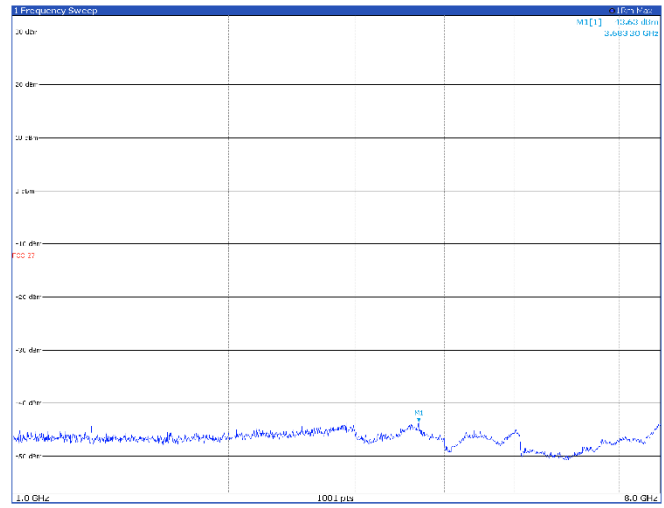
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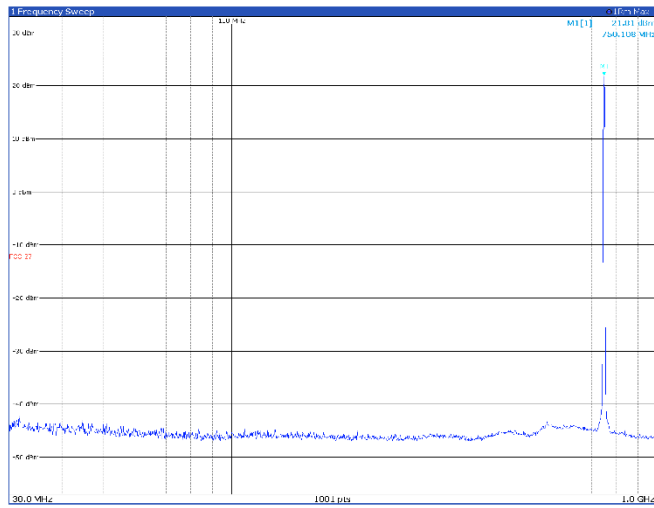
### TM3p1a, 5 MHz, high channel



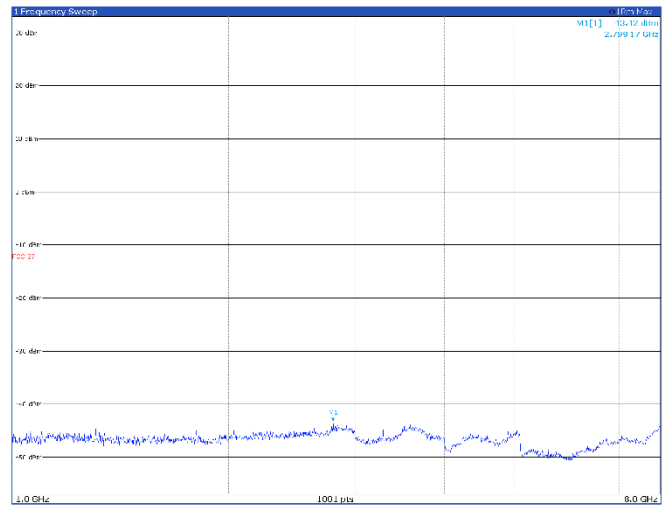
Limit exceeded by the carrier



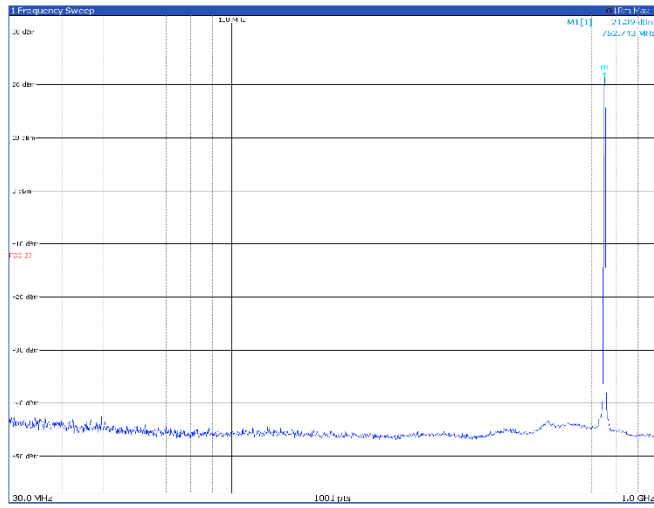
### TM3p3, 5 MHz, low channel



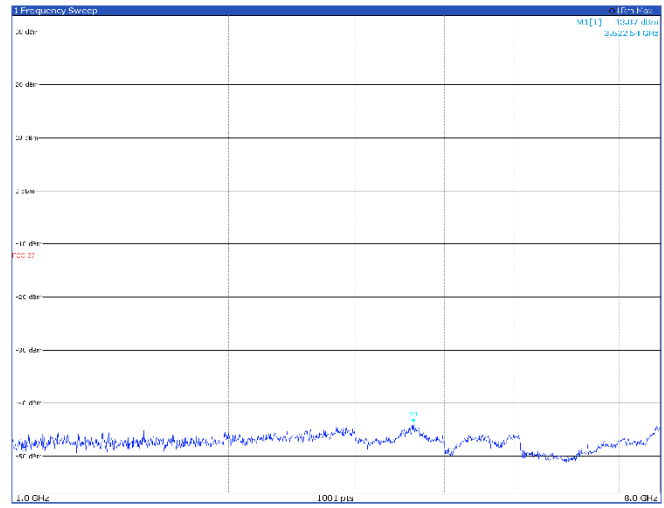
Limit exceeded by the carrier



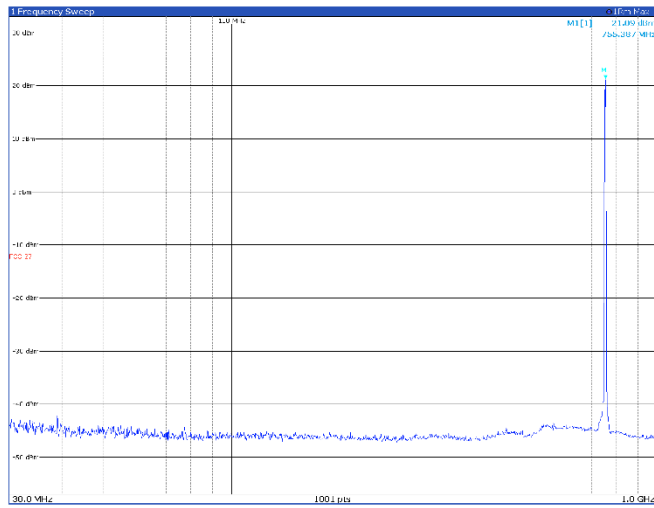
### TM3p3, 5 MHz, mid channel



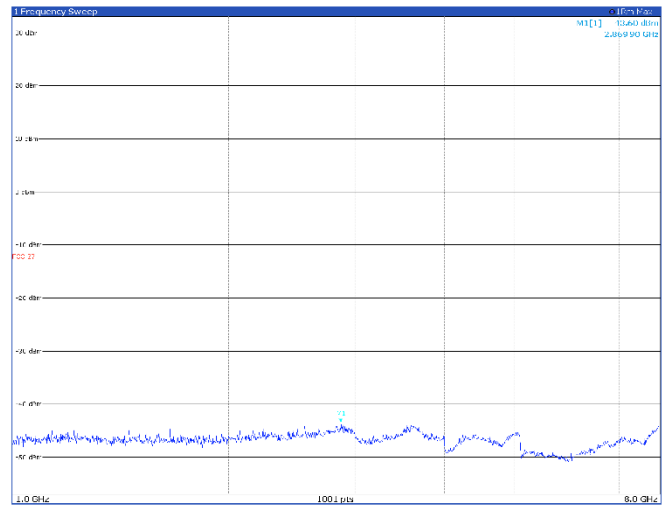
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### TM3p3, 5 MHz, high channel



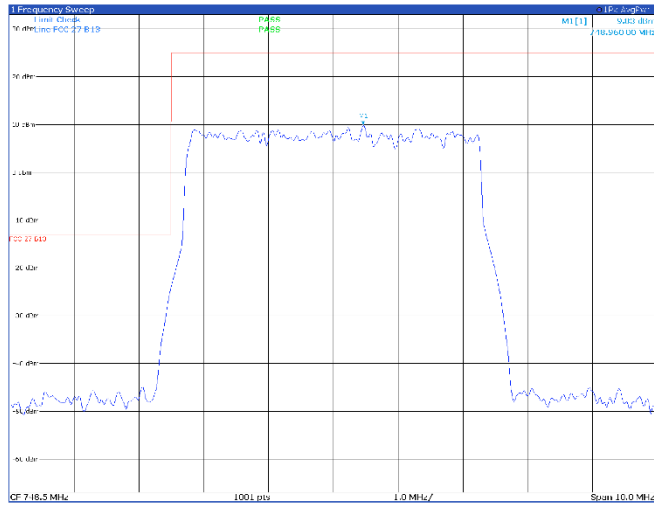
Limit exceeded by the carrier



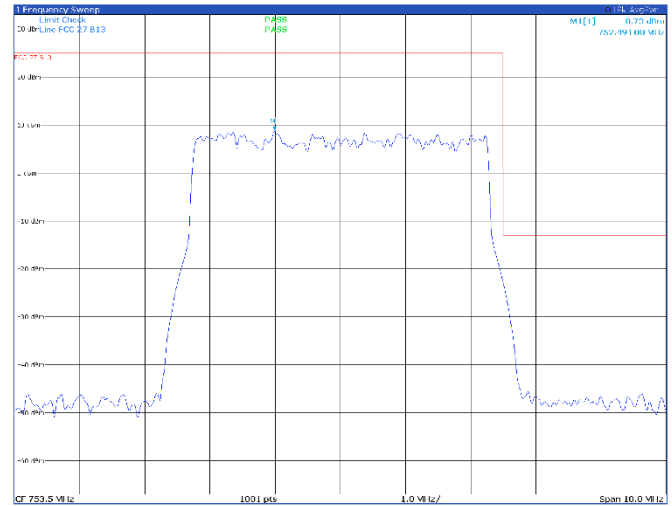
## Band B13 – band edge Antenna port 1

5 MHz

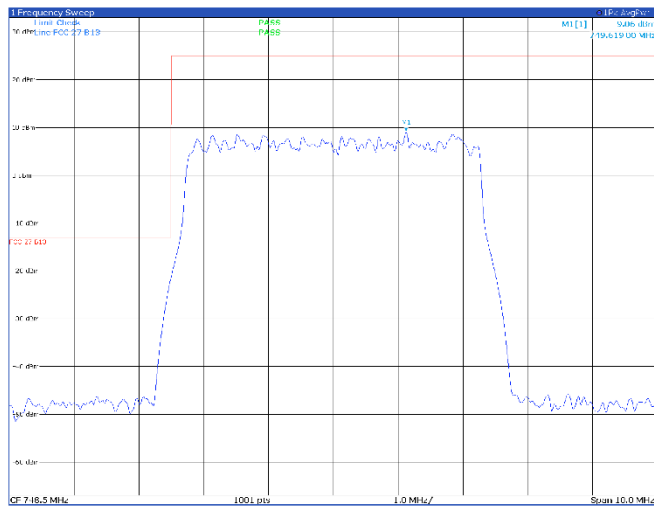
TM1.1, 5 MHz, low channel



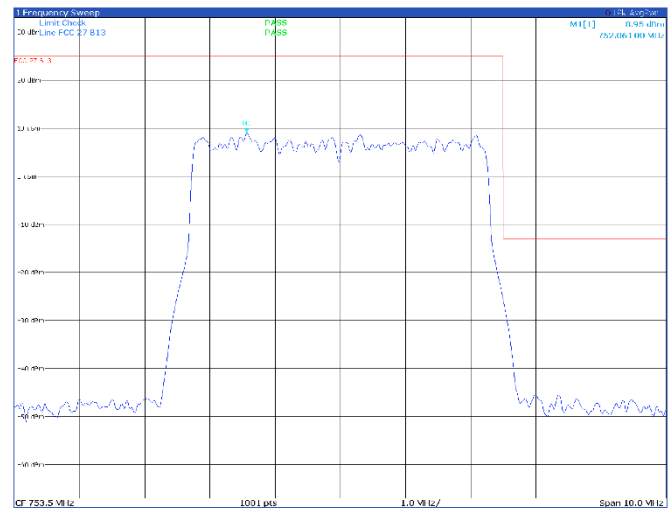
TM1.1, 5 MHz, high channel



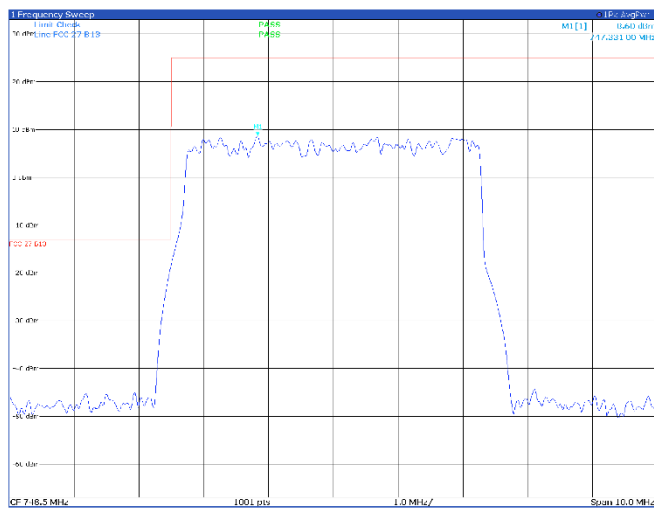
TM3p1, 5 MHz, low channel



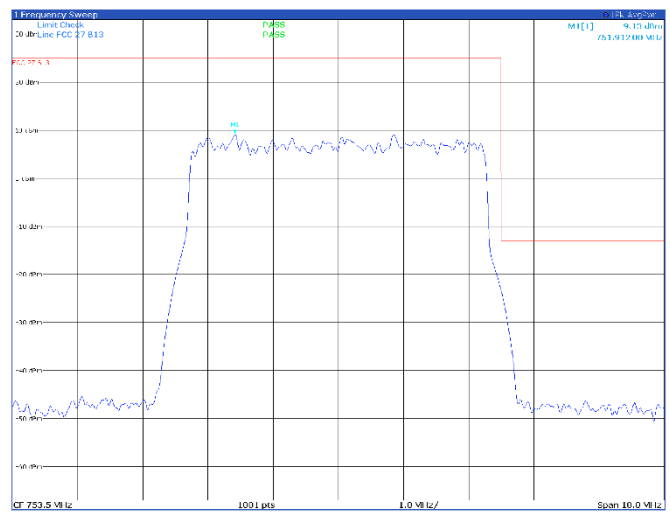
TM3p1, 5 MHz, high channel



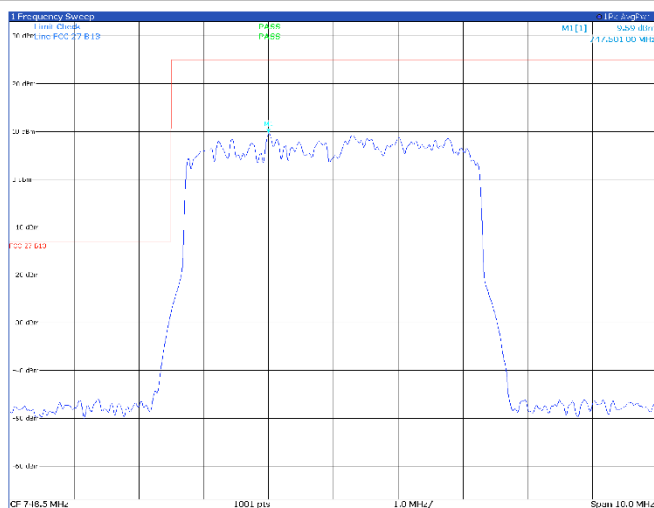
TM3p1a, 5 MHz, low channel



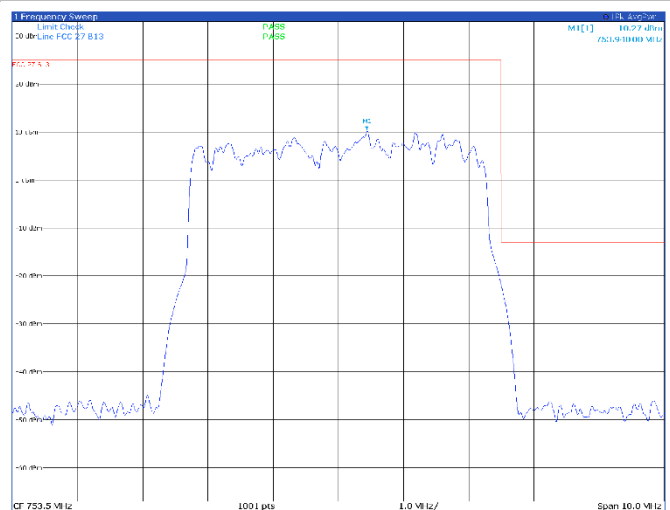
TM3p1a, 5 MHz, high channel



TM3p3, 5 MHz, low channel



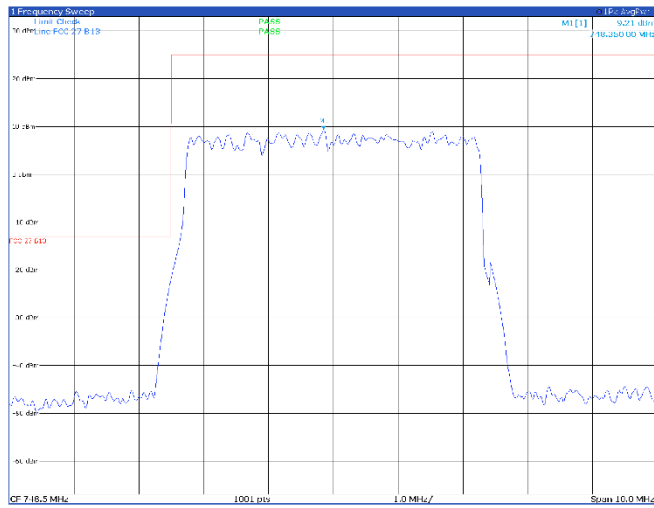
TM3p3, 5 MHz, high channel



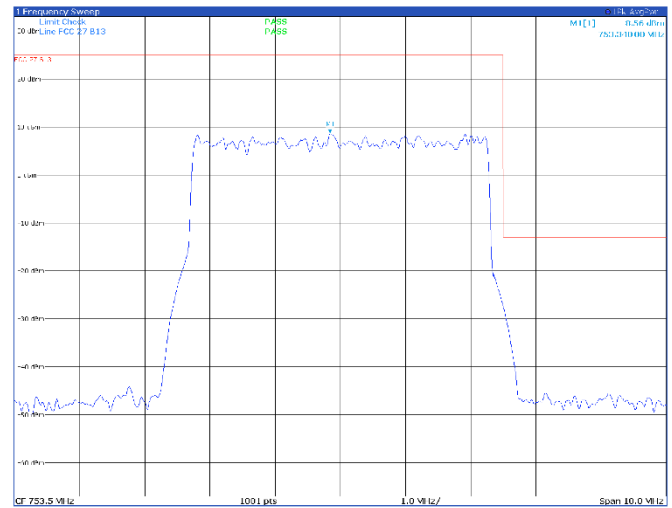
## Band B13 – band edge Antenna port 2

5 MHz

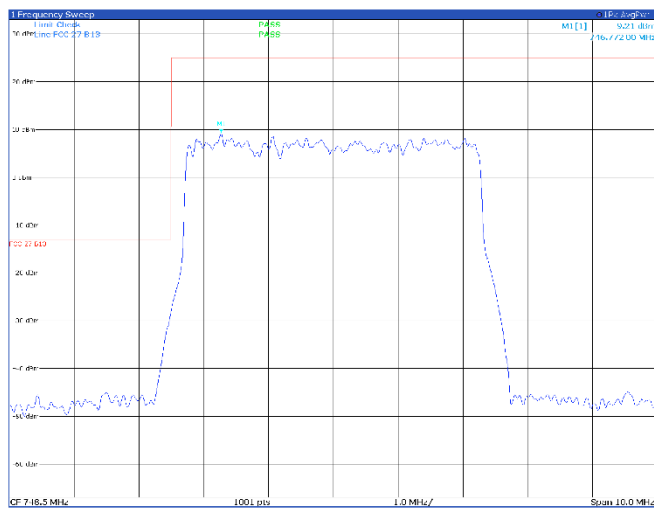
TM1.1, 5 MHz, low channel



TM1.1, 5 MHz, high channel



TM3p1, 5 MHz, low channel



TM3p1, 5 MHz, high channel

