



# RF - TEST REPORT

- FCC Part 15.407, RSS-247 -

Type / Model Name : AMN42012

Product Description : Video display unit

Applicant : TQ-Systems GmbH

Address : Gut Delling, Mühlstraße 2

82229 SEEFELD, GERMANY

Manufacturer : Amimon Ltd.

Address : Zarhin St. 26

4366250 RA'ANANA, ISRAEL

**Test Result** according to the standards  
listed in clause 1 test standards:

**POSITIVE**

**Test Report No. : 80171238-10 Rev\_2**

12. January 2024

Date of issue



Deutsche  
Akkreditierungsstelle  
D-PL-12030-01-03  
D-PL-12030-01-04

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ATTACHMENTs A, B as separate supplements

# **1 TEST STANDARDS**

The tests were performed according to following standards:

## **FCC Rules and Regulations Part 15, Subpart A - General (September 2022)**

|                                   |                                               |
|-----------------------------------|-----------------------------------------------|
| Part 15, Subpart A, Section 15.31 | Measurement standards                         |
| Part 15, Subpart A, Section 15.33 | Frequency range of radiated measurements      |
| Part 15, Subpart A, Section 15.35 | Measurement detector functions and bandwidths |

## **FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September 2022)**

|                                    |                                                                     |
|------------------------------------|---------------------------------------------------------------------|
| Part 15, Subpart C, Section 15.203 | Antenna requirement                                                 |
| Part 15, Subpart C, Section 15.204 | External radio frequency power amplifiers and antenna modifications |
| Part 15, Subpart C, Section 15.205 | Restricted bands of operation                                       |
| Part 15, Subpart C, Section 15.207 | Conducted limits                                                    |
| Part 15, Subpart C, Section 15.209 | Radiated emission limits, general requirements                      |
| Part 15, Subpart C, Section 15.212 | Modular transmitters                                                |

## **FCC Rules and Regulations Part 15, Subpart E – Unlicensed National Information Infrastructure Devices (September 2022)**

|                                    |                                                                                                    |
|------------------------------------|----------------------------------------------------------------------------------------------------|
| Part 15, Subpart E, Section 15.407 | Operation within the bands 5.15 - 5.25 GHz, 5.25 - 5.35 GHz, 5.47 - 5.725 GHz and 5.725 - 5.85 GHz |
| ANSI C63.10: 2013                  | Testing Unlicensed Wireless Devices                                                                |
| KDB 789033 D02 v02r01              | Guidelines for compliance testing of UNII-Devices<br>Part 15, Subpart E, December 14, 2017.        |

## **ISED Canada Rules and Regulations (October 2022)**

|                                    |                                                                                                                              |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| RSS-Gen, Issue 5 + Amendment 1 + 2 | General Requirements for Compliance of Radio Apparatus                                                                       |
| RSS-247, Issue 2                   | Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices |
| ANSI C63.10: 2013                  | Testing Unlicensed Wireless Devices                                                                                          |

## **2 EQUIPMENT UNDER TEST**

### **2.1 Information provided by the Client**

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

### **2.2 Sampling**

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

### **2.3 General remarks**

**This report covers the emissions of the Module “Amimon AMN42012” in combination with the host device WLV.RX.**

#### **Performed tests:**

- AC power line conducted emissions
- Maximum output power, conducted
- Undesirable emissions, radiated

### **2.4 Photo documentation of the EUT – Detailed photos see ATTACHMENT A**

### **2.5 Equipment category**

Wireless medium operating in the 5GHz band

### **2.6 Short description of the equipment under test (EUT)**

The EUT is a receiving unit which receives signals transmitted from a video source unit, which is connected to a camera to capture video signals thus creating a wireless video link. The EUT is the video display unit that receives the video information transmitted from a companion unit and transfers the image to various types of computer monitors/displays. This enables the user or camera operator to monitor the video transmitted from the remoted camera connected to the companion.

The EUT is integrated into a 4k WHDI Video Receiver WLV.RX with internal antenna.

The EUT uses modulation with 40MHz bandwidth and is carried over the 5GHz band.

It has no TPC function.

Number of tested samples: 1  
Serial number: Prototype  
Firmware version: DracoRx\_VER\_7\_6\_9

### **2.7 Variants of the EUT**

There are no variants.

## 2.8 Operation frequency and channel plan

The operating frequency is 5150 MHz to 5250 MHz, 5250 MHz to 5350 MHz, 5470 MHz to 5725 MHz and 5725 MHz to 5850 MHz.

| Channel | Frequency (MHz) |
|---------|-----------------|
| 38      | 5190            |
| 46      | 5230            |
| 54      | 5270            |
| 62      | 5310            |
| 102     | 5510            |
| 110     | 5550            |
| 118     | 5590            |
| 126     | 5630            |
| 134     | 5670            |
| 142     | 5710            |
| 150     | 5750            |
| 158     | 5790            |
| 166     | 5830            |

Note: For use in Canada channels 118 and 126 are blocked.

## 2.9 Transmit operating modes

- only the 40MHz BW is supported by the EUT

## 2.10 Antenna

The following antennas shall be used with the EUT:

| Number | Characteristic        | Name | Connector | Frequency band | Gain    |
|--------|-----------------------|------|-----------|----------------|---------|
| 1      | Wide band PCB antenna | X8   | U.FI      | 5 GHz – 7 GHz  | 1.8 dBi |
| 2      | Wide band PCB antenna | X15  | U.FI      | 5 GHz – 7 GHz  | 1.8 dBi |
| 3      | Wide band PCB antenna | X16  | U.FI      | 5 GHz – 7 GHz  | 1.8 dBi |
| 4      | Wide band PCB antenna | X17  | U.FI      | 5 GHz – 7 GHz  | 1.8 dBi |
| 5      | Wide band PCB antenna | X18  | U.FI      | 5 GHz – 7 GHz  | 1.8 dBi |

## 2.11 Power supply system utilised

Power supply voltage,  $V_{nom}$  : 12 V/DC +/-5% (AC-Adapter, 100..240 V/AC, 50Hz..60Hz)

## 2.12 Peripheral devices and interface cables

The following peripheral devices and interface cables are connected during the measurements:

- AC-Adapter \_\_\_\_\_ Model : Friwo FOX18-FW8001/12 \_\_\_\_\_

## 2.13 Determination of worst-case conditions for final measurement

Measurements have been made in all three orthogonal axes and the settings of the EUT were changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the final measurement the EUT is set in Y position.

Following channels and test modes were selected for the final test as listed below:

| Available Channel | Tested Channel   | Power Setting | Modulation | Modulation Type | BW     |
|-------------------|------------------|---------------|------------|-----------------|--------|
| 38 - 166          | 38, 62, 102, 166 | P16           | OFDM       | BPSK            | 40 MHz |

TX continuous mode, BW 40MHz

### 2.13.1 Test jig

No test jig is used.

### 2.13.2 Test software

The Amimon module can be set into test mode, simulating a continuous transmission with 100% duty cycle. The frequency and power of operation can be programmed using a PC tool and a serial communication connector provided by the customer.

### 3 TEST RESULT SUMMARY

UNII device using the operating bands 5150 MHz – 5250 MHz, 5250 MHz – 5350 MHz, 5470 MHz – 5725 MHz and 5725 MHz – 5850 MHz:

| FCC Rule Part | RSS Rule Part | Description                      | Result     |
|---------------|---------------|----------------------------------|------------|
| 15.207(a)     | RSS Gen, 8.8  | AC power line conducted emission | passed     |
| 15.407(a)     | RSS-247, 6.2  | EBW, OBW                         | Not tested |
| 15.407(a)     | RSS-247, 6.2  | Output power                     | passed     |
| 15.407(a)     | RSS-247, 6.2  | PSD                              | Not tested |
| 15.407(b)     | RSS-247, 6.2  | Undesirable emission             | passed     |
| 15.205(a)     | RSS-Gen, 8.10 | Emission in restricted bands     | passed     |
| 15.407(g)     | RSS-Gen, 6.11 | Transmitter frequency stability  | Not tested |
| 15.407(h)(1)  | RSS-247, 6.2. | TPC                              | Not tested |
| 15.203        | -             | Antenna requirement              | passed     |

#### 3.1 Revision history of test report

| Test report No | Rev. | Issue Date      | Changes                                                                                                 |
|----------------|------|-----------------|---------------------------------------------------------------------------------------------------------|
| 80171238-10    | 0    | 31 July 2023    | Initial test report                                                                                     |
| 80171238-10    | 1    | 25 October 2023 | 5.2 results updated by conducted measurement; 5.4 antenna system updated to SIMO; 6 CPC equipment added |
| 80171238-10    | 2    | 12 January 2024 | 2.8 Channel plan Canada updated                                                                         |

The test report with the highest revision number replaces the previous test reports.

#### 3.2 Final assessment

The equipment under test fulfils the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 30 June 2022

Testing concluded on : 24 October 2023

Checked by:

Tested by:

Jürgen Pessinger  
Radio Team

Sabine Kugler  
Radio Team

## **4 TEST ENVIRONMENT**

### **4.1 Address of the test laboratory**

**CSA Group Bayern GmbH  
Ohmstrasse 1-4  
94342 STRASSKIRCHEN  
GERMANY**

### **4.2 Environmental conditions**

During the measurement the environmental conditions were within the listed ranges:

|                       |                     |
|-----------------------|---------------------|
| Temperature:          | <u>15 - 35 °C</u>   |
| Humidity:             | <u>30 - 60 %</u>    |
| Atmospheric pressure: | <u>86 - 106 kPa</u> |

### **4.3 Statement of the measurement uncertainty**

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor  $k = 2$ . The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

| <b>Measurement Type</b>           | <b>Range</b>           | <b>Confidence Level</b> | <b>Calculated Uncertainty</b> |
|-----------------------------------|------------------------|-------------------------|-------------------------------|
| AC power line conducted emissions | 0.15 MHz to 30 MHz     | 95%                     | $\pm 3.29 \text{ dB}$         |
| EBW and OBW                       | 2400 MHz to 30000 MHz  | 95%                     | $\pm 2.5 \times 10^{-7}$      |
| Output power ERP, radiated        | 1000 MHz to 7000 MHz   | 95%                     | $\pm 2.71 \text{ dB}$         |
| Field strength of the fundamental | 1000 MHz to 7000 MHz   | 95%                     | $\pm 2.71 \text{ dB}$         |
| Power spectral density            | 2400 MHz to 3000 MHz   | 95%                     | $\pm 0.62 \text{ dB}$         |
| Spurious Emissions, conducted     | 9 kHz to 10000 MHz     | 95%                     | $\pm 2.15 \text{ dB}$         |
| Spurious Emissions, conducted     | 10000 MHz to 40000 MHz | 95%                     | $\pm 3.47 \text{ dB}$         |
| Spurious Emissions, radiated      | 9 kHz to 30 MHz        | 95%                     | $\pm 3.53 \text{ dB}$         |
| Spurious Emissions, radiated      | 30 MHz to 1000 MHz     | 95%                     | $\pm 4.44 \text{ dB}$         |
| Spurious Emissions, radiated      | 1000 MHz to 30000 MHz  | 95%                     | $\pm 2.34 \text{ dB}$         |
| Spurious Emissions, radiated      | 30000 MHz to 40000 MHz | 95%                     | $\pm 5.13 \text{ dB}$         |



## 4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule ( $w = 0$ ).

Details can be found in the procedure CSA\_B\_V50\_29.

## 4.5 Measurement protocol for FCC and ISCED

### 4.5.1 General information

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

**FCC: DE 0011**

**ISED: DE0009**

### 4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

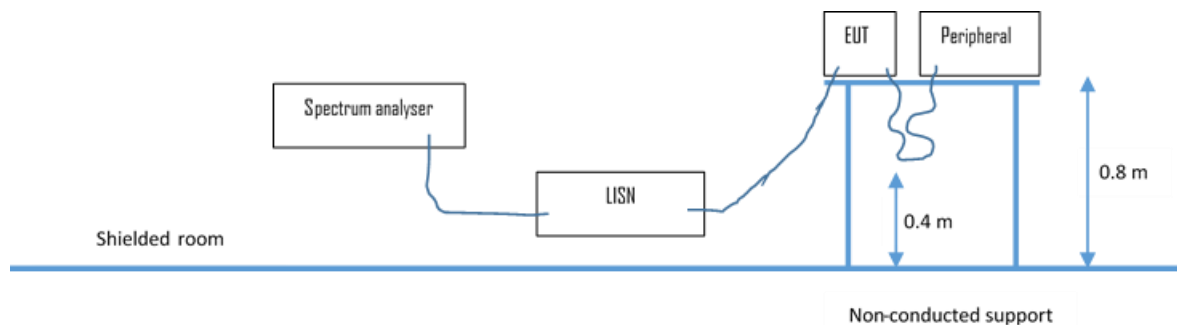
#### 4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

### 4.5.3 Details of test procedures

#### 4.5.3.1 Conducted emission

Test setup according ANSI C63.10



The final level, expressed in dB $\mu$ V, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dB $\mu$ V and  $\mu$ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

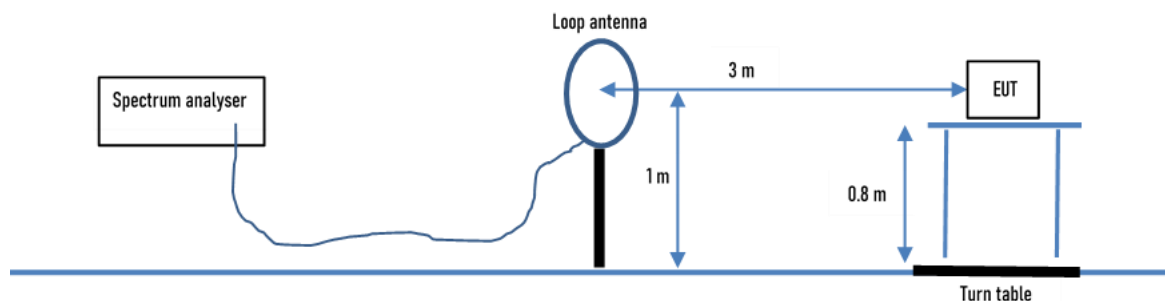
$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50  $\Omega$  / 50  $\mu$ H (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

#### 4.5.3.2 Radiated emission

##### 4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):

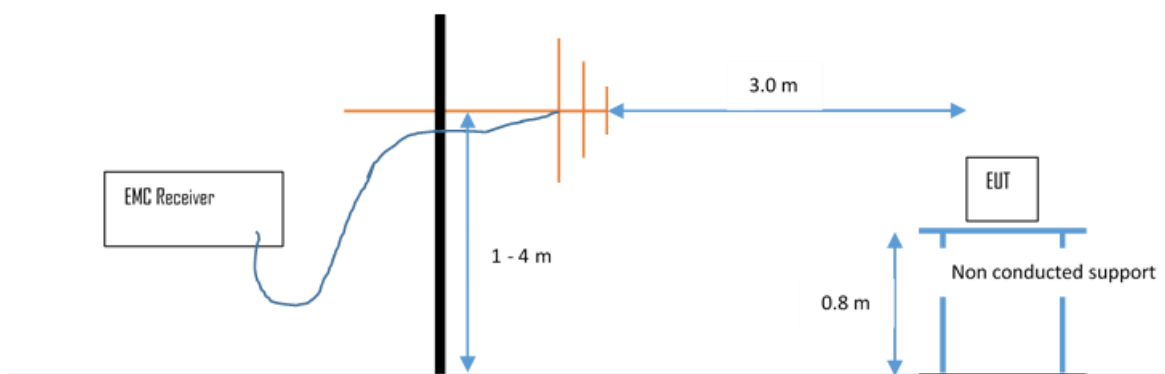
Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

##### 4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):

Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the centre of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dBμV/m is calculated by taking the reading from the EMI receiver (Level dBμV) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

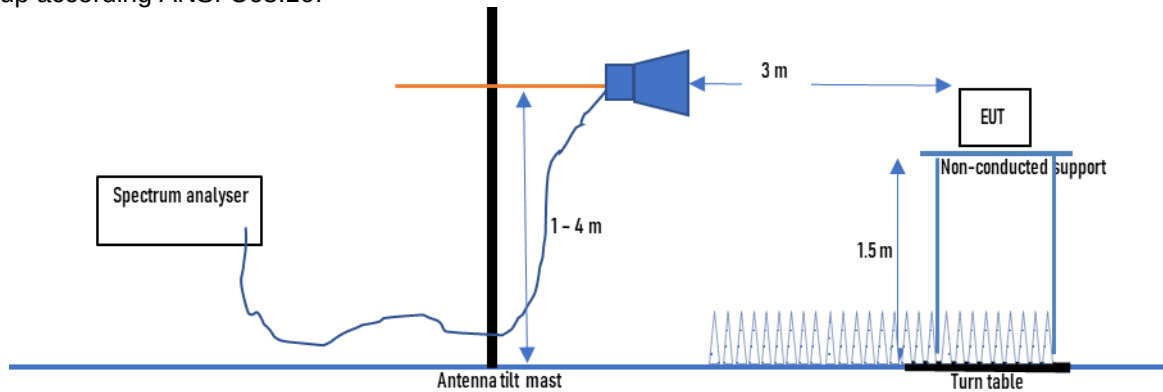
30 MHz – 1000 MHz: RBW: 120 kHz

Example:

| Frequency<br>(MHz) | Level<br>(dBμV) | + | Factor<br>(dB) | = | Level<br>(dBμV/m) | - | Limit<br>(dBμV/m) | = | Delta<br>(dB) |
|--------------------|-----------------|---|----------------|---|-------------------|---|-------------------|---|---------------|
| 719.0              | 75.0            | + | 32.6           | = | 107.6             | - | 110.0             | = | -2.4          |

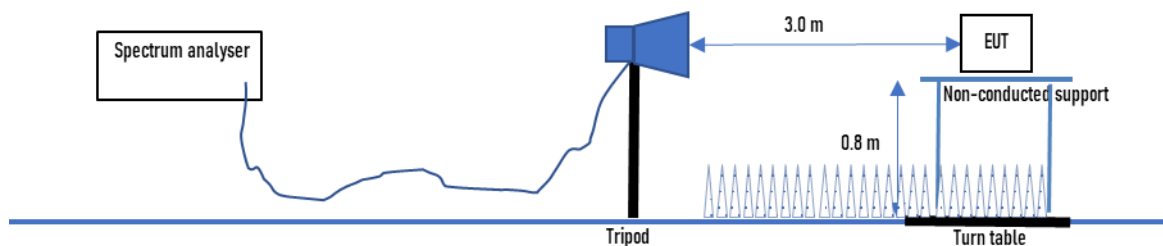
#### 4.5.3.2.3 Anechoic chamber 1 (1000 MHz – 18000 MHz)

Test setup according ANSI C63.10.



Radiated emissions from the EUT are measured in the frequency range 1 GHz up to 18 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements.

#### 4.5.3.2.4 Anechoic chamber 1 (18 GHz – 40 GHz)



Emissions from the EUT are measured in the frequency range 18 GHz up to 40 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 0.8 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty. The limit is adopted.

## **5 TEST CONDITIONS AND RESULTS**

### **5.1 AC power line conducted emissions**

For test instruments and accessories used see section 6 Part A 4.

#### **5.1.1 Description of the test location**

Test location:                      Shielded Room S2

#### **5.1.2 Photo documentation of the test set-up**

For detailed photo documentation of test set-up please refer to Attachment B.

#### **5.1.3 Applicable standard**

According to FCC Part 15, Section 15.207(a):

Except as shown in paragraphs (b) and (c) of this Section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

According to RSS-Gen 8.8:

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50  $\mu$ H / 50  $\Omega$  line impedance stabilization network.

#### **5.1.4 Description of Measurement**

The measurements are performed following the procedures set out in ANSI C63.10 described under item 4.4.3. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

### 5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin -14.6 dB at 0.422 MHz

Limit according to FCC Part 15, Section 15.207(a):

| Frequency of Emission<br>(MHz) | Conducted limit (dBμV) |            |
|--------------------------------|------------------------|------------|
|                                | Quasi-peak             | Average    |
| 0.15-0.5                       | 66 to 56 *             | 56 to 46 * |
| 0.5-5                          | 56                     | 46         |
| 5-30                           | 60                     | 50         |

\* Decreases with the logarithm of the frequency

Limit according to RSS-Gen 8.8:

| Frequency of Emission<br>(MHz) | Conducted limit (dBμV) |            |
|--------------------------------|------------------------|------------|
|                                | Quasi-peak             | Average    |
| 0.15-0.5                       | 66 to 56 *             | 56 to 46 * |
| 0.5-5                          | 56                     | 46         |
| 5-30                           | 60                     | 50         |

\* Decreases with the logarithm of the frequency

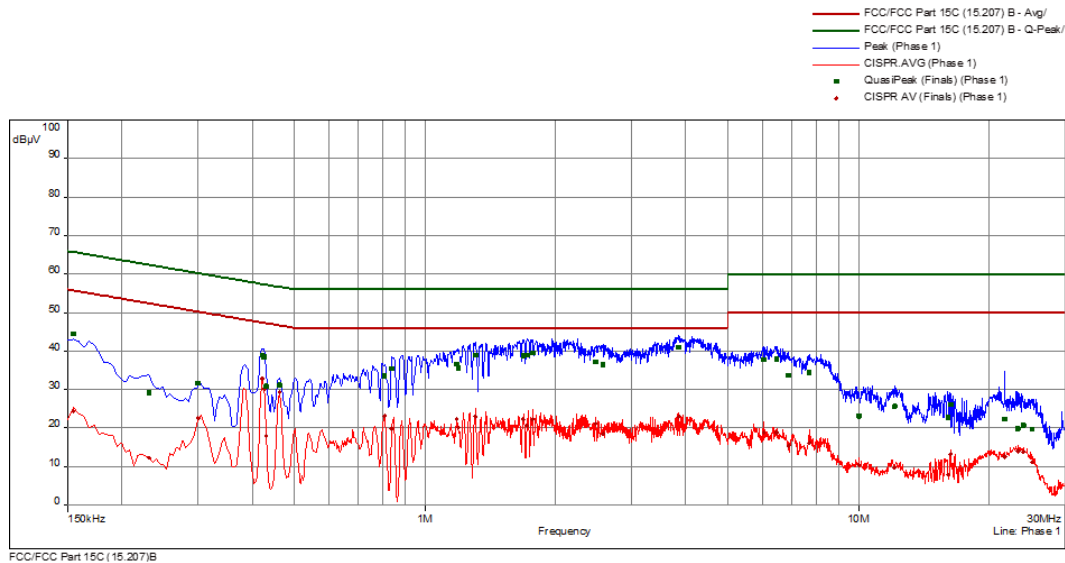
The requirements are **FULFILLED**.

**Remarks:** For detailed test result please refer to following test protocols.

### 5.1.6 Test protocol

Test point L1  
Operation mode: TX

Result: passed

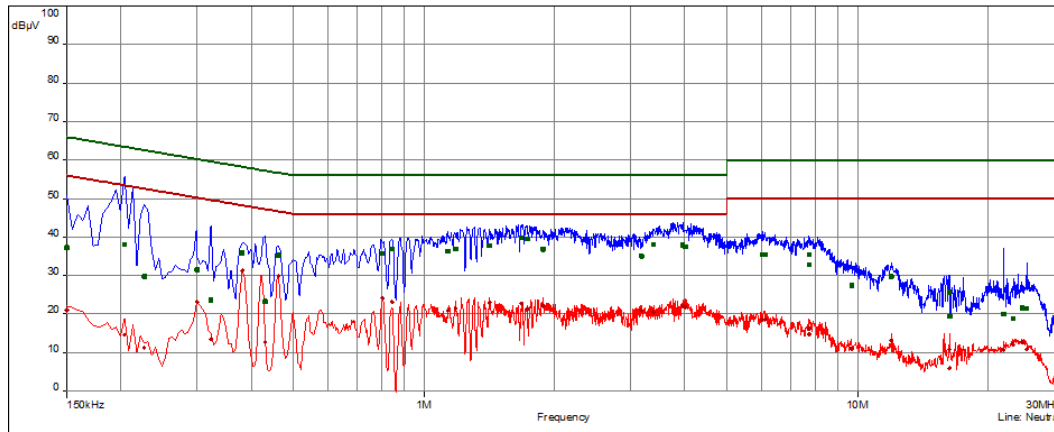


| freq   | SR | QP     | margin | limit | AV     | margin | limit | line    | corr |
|--------|----|--------|--------|-------|--------|--------|-------|---------|------|
| MHz    |    | dB(μV) | dB     | dB    | dB(μV) | dB     | dB    |         | dB   |
| 0.155  | 1  | 44.4   | -21.3  | 65.8  | 24.4   | -31.4  | 55.8  | Phase 1 | 10.1 |
| 0.231  | 1  | 29.3   | -33.2  | 62.4  | 12.3   | -40.1  | 52.4  | Phase 1 | 10.1 |
| 0.300  | 1  | 31.7   | -28.5  | 60.2  | 22.6   | -27.7  | 50.2  | Phase 1 | 10.2 |
| 0.422  | 2  | 38.9   | -18.5  | 57.4  | 32.8   | -14.6  | 47.4  | Phase 1 | 10.2 |
| 0.426  | 2  | 38.5   | -18.8  | 57.3  | 30.0   | -17.3  | 47.3  | Phase 1 | 10.2 |
| 0.431  | 2  | 30.9   | -26.3  | 57.2  | 17.9   | -29.3  | 47.2  | Phase 1 | 10.2 |
| 0.462  | 2  | 31.2   | -25.4  | 56.7  | 29.4   | -17.3  | 46.7  | Phase 1 | 10.2 |
| 0.807  | 3  | 33.5   | -22.5  | 56.0  | 23.1   | -22.9  | 46.0  | Phase 1 | 10.2 |
| 0.839  | 3  | 35.5   | -20.5  | 56.0  | 19.9   | -26.1  | 46.0  | Phase 1 | 10.2 |
| 1.185  | 3  | 36.6   | -19.4  | 56.0  | 22.4   | -23.6  | 46.0  | Phase 1 | 10.3 |
| 1.194  | 3  | 35.6   | -20.4  | 56.0  | 20.2   | -25.8  | 46.0  | Phase 1 | 10.3 |
| 1.308  | 4  | 39.0   | -17.0  | 56.0  | 23.0   | -23.0  | 46.0  | Phase 1 | 10.3 |
| 1.686  | 4  | 38.8   | -17.2  | 56.0  | 22.3   | -23.8  | 46.0  | Phase 1 | 10.3 |
| 1.722  | 4  | 38.9   | -17.1  | 56.0  | 20.7   | -25.4  | 46.0  | Phase 1 | 10.3 |
| 1.772  | 4  | 39.5   | -16.5  | 56.0  | 22.3   | -23.7  | 46.0  | Phase 1 | 10.3 |
| 2.477  | 5  | 37.3   | -18.8  | 56.0  | 21.2   | -24.8  | 46.0  | Phase 1 | 10.4 |
| 2.576  | 5  | 36.5   | -19.5  | 56.0  | 18.5   | -27.5  | 46.0  | Phase 1 | 10.4 |
| 3.854  | 5  | 41.0   | -15.0  | 56.0  | 23.1   | -23.0  | 46.0  | Phase 1 | 10.5 |
| 6.047  | 6  | 37.9   | -22.1  | 60.0  | 18.9   | -31.1  | 50.0  | Phase 1 | 10.6 |
| 6.474  | 6  | 38.0   | -22.0  | 60.0  | 18.8   | -31.2  | 50.0  | Phase 1 | 10.7 |
| 6.893  | 6  | 33.6   | -26.4  | 60.0  | 15.5   | -34.5  | 50.0  | Phase 1 | 10.7 |
| 7.707  | 6  | 34.4   | -25.6  | 60.0  | 16.1   | -33.9  | 50.0  | Phase 1 | 10.7 |
| 10.037 | 7  | 23.1   | -36.9  | 60.0  | 10.3   | -39.7  | 50.0  | Phase 1 | 10.9 |
| 12.134 | 7  | 25.7   | -34.3  | 60.0  | 9.7    | -40.3  | 50.0  | Phase 1 | 11.1 |
| 16.080 | 7  | 22.7   | -37.3  | 60.0  | 7.9    | -42.1  | 50.0  | Phase 1 | 11.4 |
| 16.332 | 7  | 26.1   | -33.9  | 60.0  | 13.2   | -36.8  | 50.0  | Phase 1 | 11.4 |
| 21.734 | 8  | 22.3   | -37.7  | 60.0  | 12.6   | -37.4  | 50.0  | Phase 1 | 11.7 |
| 23.349 | 8  | 19.9   | -40.1  | 60.0  | 14.0   | -36.0  | 50.0  | Phase 1 | 11.8 |
| 24.038 | 8  | 20.8   | -39.3  | 60.0  | 13.9   | -36.1  | 50.0  | Phase 1 | 11.8 |
| 25.158 | 8  | 19.8   | -40.3  | 60.0  | 11.2   | -38.8  | 50.0  | Phase 1 | 11.8 |

Test point: N  
Operation mode: TX

Result: passed

— FCC/ICC Part 15C (15.207) B - Avg/  
— FCC/ICC Part 15C (15.207) B - Q-Peak/  
— Peak (Neutral)  
— CISPR AVG (Neutral)  
■ Quasi Peak (Finals) (Neutral)  
• CISPR AV (Finals) (Neutral)



FCC/ICC Part 15C (15.207)B

| freq   | SR | QP     | margin | limit | AV     | margin | limit | line    | corr |
|--------|----|--------|--------|-------|--------|--------|-------|---------|------|
| MHz    |    | dB(μV) | dB     | dB    | dB(μV) | dB     | dB    |         | dB   |
| 0.150  | 9  | 37.4   | -28.6  | 66.0  | 21.1   | -34.9  | 56.0  | Neutral | 10.1 |
| 0.204  | 9  | 38.1   | -25.4  | 63.5  | 14.6   | -38.9  | 53.5  | Neutral | 10.2 |
| 0.227  | 9  | 29.7   | -32.9  | 62.6  | 11.2   | -41.3  | 52.6  | Neutral | 10.2 |
| 0.300  | 9  | 31.5   | -28.7  | 60.2  | 23.2   | -27.1  | 50.2  | Neutral | 10.2 |
| 0.323  | 10 | 23.7   | -36.0  | 59.6  | 13.5   | -36.2  | 49.6  | Neutral | 10.2 |
| 0.381  | 10 | 35.9   | -22.4  | 58.3  | 31.3   | -16.9  | 48.3  | Neutral | 10.2 |
| 0.431  | 10 | 23.3   | -34.0  | 57.2  | 12.8   | -34.4  | 47.2  | Neutral | 10.2 |
| 0.462  | 10 | 35.2   | -21.4  | 56.7  | 30.0   | -16.7  | 46.7  | Neutral | 10.2 |
| 0.803  | 11 | 35.7   | -20.3  | 56.0  | 24.1   | -21.9  | 46.0  | Neutral | 10.2 |
| 0.843  | 11 | 36.9   | -19.1  | 56.0  | 23.1   | -22.9  | 46.0  | Neutral | 10.2 |
| 1.136  | 11 | 36.3   | -19.7  | 56.0  | 20.8   | -25.2  | 46.0  | Neutral | 10.3 |
| 1.185  | 11 | 36.9   | -19.1  | 56.0  | 21.5   | -24.5  | 46.0  | Neutral | 10.3 |
| 1.416  | 12 | 37.7   | -18.3  | 56.0  | 23.0   | -23.0  | 46.0  | Neutral | 10.3 |
| 1.677  | 12 | 39.9   | -16.2  | 56.0  | 22.7   | -23.3  | 46.0  | Neutral | 10.3 |
| 1.731  | 12 | 39.6   | -16.4  | 56.0  | 21.3   | -24.8  | 46.0  | Neutral | 10.3 |
| 1.884  | 12 | 36.8   | -19.2  | 56.0  | 22.2   | -23.8  | 46.0  | Neutral | 10.3 |
| 3.174  | 13 | 35.1   | -21.0  | 56.0  | 20.9   | -25.1  | 46.0  | Neutral | 10.4 |
| 3.381  | 13 | 38.1   | -17.9  | 56.0  | 20.6   | -25.4  | 46.0  | Neutral | 10.4 |
| 3.957  | 13 | 38.0   | -18.0  | 56.0  | 22.2   | -23.8  | 46.0  | Neutral | 10.5 |
| 4.002  | 13 | 37.5   | -18.5  | 56.0  | 21.9   | -24.1  | 46.0  | Neutral | 10.5 |
| 6.029  | 14 | 35.4   | -24.6  | 60.0  | 18.5   | -31.5  | 50.0  | Neutral | 10.6 |
| 6.119  | 14 | 35.4   | -24.6  | 60.0  | 18.6   | -31.4  | 50.0  | Neutral | 10.6 |
| 7.739  | 14 | 32.8   | -27.2  | 60.0  | 14.7   | -35.3  | 50.0  | Neutral | 10.7 |
| 7.743  | 14 | 35.4   | -24.6  | 60.0  | 16.3   | -33.7  | 50.0  | Neutral | 10.7 |
| 9.704  | 15 | 27.4   | -32.6  | 60.0  | 11.1   | -38.9  | 50.0  | Neutral | 10.8 |
| 11.985 | 15 | 29.8   | -30.2  | 60.0  | 13.1   | -37.0  | 50.0  | Neutral | 10.9 |
| 16.292 | 15 | 25.7   | -34.3  | 60.0  | 10.9   | -39.1  | 50.0  | Neutral | 11.2 |
| 16.332 | 15 | 19.4   | -40.6  | 60.0  | 6.0    | -44.1  | 50.0  | Neutral | 11.2 |
| 21.738 | 16 | 20.0   | -40.1  | 60.0  | 10.8   | -39.2  | 50.0  | Neutral | 11.4 |
| 22.872 | 16 | 18.8   | -41.2  | 60.0  | 12.1   | -37.9  | 50.0  | Neutral | 11.4 |
| 24.011 | 16 | 21.6   | -38.4  | 60.0  | 12.7   | -37.3  | 50.0  | Neutral | 11.4 |
| 24.600 | 16 | 21.5   | -38.5  | 60.0  | 10.9   | -39.1  | 50.0  | Neutral | 11.4 |

## 5.2 Maximum output power, conducted

For test instruments and accessories used see section 6 Part **CPC 3**.

### 5.2.1 Description of the test location

Test location: Shielded Room S6

### 5.2.2 Photo documentation of the test set-up

For detailed photo documentation of test set-up please refer to Attachment B.

### 5.2.3 Applicable standard

According to FCC Part 15E, Section 15.407(a):

The maximum conducted output power over the frequency band of operation shall not exceed the effective values. If transmitting antennas of directional gain are greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to RSS-247 6.2:

The output power and e.i.r.p. of the equipment wanted emission shall be measured in terms of average value.

### 5.2.4 Description of Measurement

The output power is measured conducted using a spectrum analyser. The EUT has a constant duty cycle and may be smaller than 98% therefore the procedure according the KDB 789033 D02; item E d) Method SA-2 Alternative is followed. The EUT is set while measuring in TX continuous mode with a maximum duty cycle. The insertion loss of the measurement cable is taken into account with amplitude offset while measuring. The output power is integrated across the channel bandwidth.

Spectrum analyser settings:

RBW: 1 MHz, VBW: 3 MHz,  
Power mode: max hold;

Detector: RMS (power averaging),  
Band power function: OBW, Span: >OBW



### 5.2.5 Test result

| Test results conducted according to FCC §15.407(a) |                        |         |             |             |                 |                |             |             |
|----------------------------------------------------|------------------------|---------|-------------|-------------|-----------------|----------------|-------------|-------------|
| 40 MHz                                             | Output power conducted |         |             |             | Calculated EIRP |                |             |             |
| Channel                                            | Power set              | A (dBm) | Limit (dBm) | Margin (dB) | G (dBi)         | P [EIRP] (dBm) | Limit (dBm) | Margin (dB) |
| 38                                                 | P16                    | 17.0    | 24.0        | -24.0       | 1.8             | 18.8           | 30.0        | -11.2       |
| 62                                                 | P16                    | 16.7    | 24.0        | -24.0       | 1.8             | 18.5           | 30.0        | -11.5       |
| 102                                                | P16                    | 17.1    | 24.0        | -24.0       | 1.8             | 18.9           | 30.0        | -11.1       |
| 166                                                | P16                    | 15.5    | 30.0        | -30.0       | 1.8             | 17.3           | 36.0        | -18.7       |

| Test results conducted according to RSS-247 6.2 |                        |         |             |             |                 |                |             |             |
|-------------------------------------------------|------------------------|---------|-------------|-------------|-----------------|----------------|-------------|-------------|
| 40 MHz                                          | Output power conducted |         |             |             | Calculated EIRP |                |             |             |
| Channel                                         | Power set              | A (dBm) | Limit (dBm) | Margin (dB) | G (dBi)         | P [EIRP] (dBm) | Limit (dBm) | Margin (dB) |
| 38                                              | P16                    | 17.0    | N/A         | N/A         | 1.8             | 18.8           | 23.0        | -21.2       |
| 62                                              | P16                    | 16.7    | 24.0        | -7.3        | 1.8             | 18.5           | 30.0        | -28.2       |
| 102                                             | P16                    | 17.1    | 24.0        | -6.9        | 1.8             | 18.9           | 30.0        | -28.2       |
| 166                                             | P16                    | 15.5    | 24.0        | -8.5        | 1.8             | 17.3           | 30.0        | -28.2       |

Peak power limit according to FCC Part 15E, Section 15.407(a):

| Frequency     | Radiated Power Limit | Conducted Power Limit  |
|---------------|----------------------|------------------------|
| GHz           | dBm                  | dBm                    |
| 5.150 – 5.250 | 30                   | 24                     |
| 5.250 – 5.350 | 30                   | 11 + 10*log(EBW) or 24 |
| 5.470 – 5.725 | 30                   | 11 + 10*log(EBW) or 24 |
| 5.725 – 5.850 | 36                   | 30                     |

Whichever is the lesser applies.

Peak power limit according to RSS-247 6.2:

| Frequency     | Radiated Power Limit   | Conducted Power Limit  |
|---------------|------------------------|------------------------|
| GHz           | dBm                    | dBm                    |
| 5.150 – 5.250 | 11 + 10*log(OBW) or 23 | 11 + 10*log(OBW) or 23 |
| 5.250 – 5.350 | 17 + 10*log(OBW) or 30 | 11 + 10*log(OBW) or 24 |
| 5.470 – 5.600 | 17 + 10*log(OBW) or 30 | 11 + 10*log(OBW) or 24 |
| 5.650 – 5.725 | 17 + 10*log(OBW) or 30 | 11 + 10*log(OBW) or 24 |
| 5.725 – 5.850 | 36                     | 30                     |

Whichever is the lesser applies.

The requirements are **FULFILLED**.

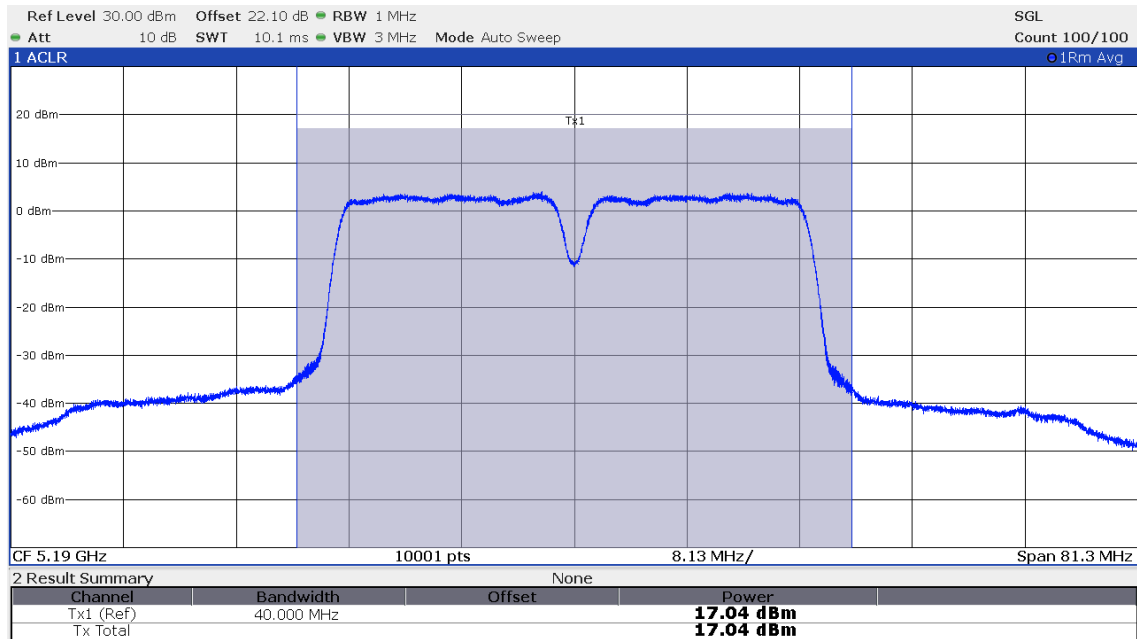
**Remarks:** For detailed test results please refer to following test protocols.

Offset composed of 20dB attenuator (02-02/50-23-003) and cable losses of Minibend cable

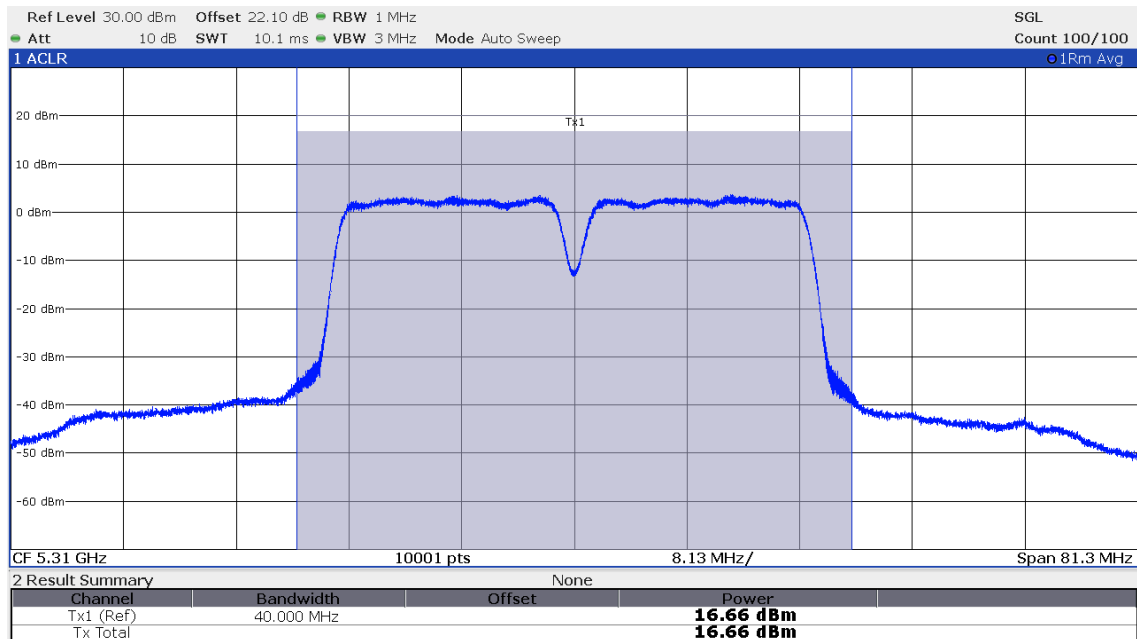
(02-02/50-16-018) and U.FI-SMA adapter cable (IL[dB]=0.34\*sqrt(f[GHz])).

## 5.2.6 Test protocols

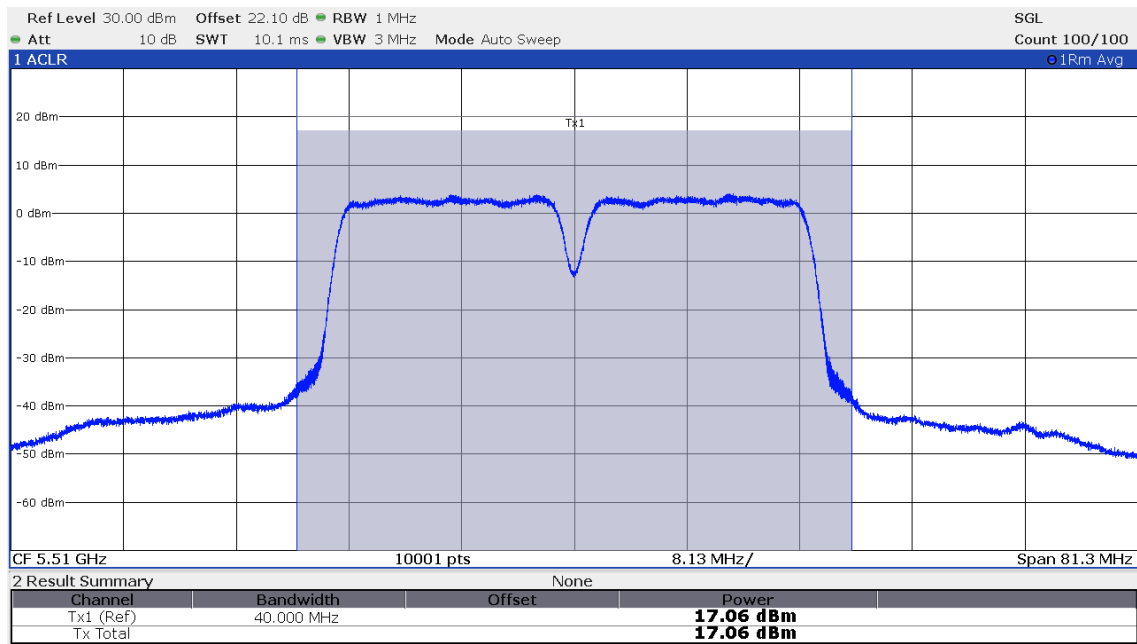
### CH38



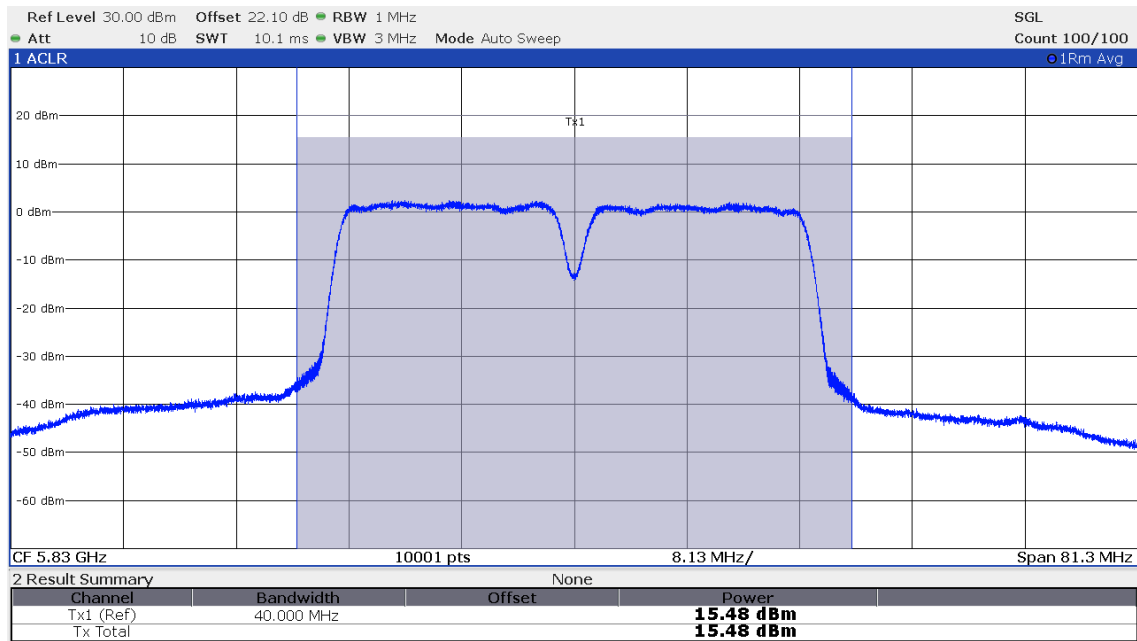
### CH62



CH102



CH166



### 5.3 Undesirable emission, radiated

For test instruments and accessories used see section 6 Part **SER 1, SER 2 and SER 3.**

#### 5.3.1 Description of the test location

Test location: OATS 1  
 Test location: Anechoic chamber 1  
 Test distance: 3 m

#### 5.3.2 Photo documentation of the test set-up

For detailed photo documentation of test set-up please refer to Attachment B.

#### 5.3.3 Applicable standard

According to FCC Part 15E, Section 15.407(b):

Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the appropriate limits.

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

According to RSS-6.2:

The power and e.i.r.p. of the equipment unwanted emission shall be measured in peak value. However, the equipment is required to comply with the provisions in RSS-Gen with respect to emissions falling within restricted frequency bands which are listed in the same standard.

#### 5.3.4 Description of Measurement

Unwanted emission is measured with the setup set out in ANSI C63.10, item 12.7. The plots show the general limit average 54 dBµV/m and the peak limit for out of band emission -27 dBm/MHz (68.3 dBµV/m). This way we are able to verify the undesirable limit and the general limit within the restricted bands in one plot.

If the emission level of the EUT in peak mode complies with the average limit then testing will be stopped and peak values of the EUT will be reported, otherwise, the emission will be measured in average mode again and reported. Up from 8 GHz a HP filter is used. A conversion EIRP to Field strength is done with the formula which applies at 3 m measurement distance only.

$$\frac{EIRP}{dBm} = \frac{FS}{dB\left(\frac{\mu V}{m}\right)} + 95.2$$

Test receiver settings for SER1, SER2:

|              |              |                       |                  |
|--------------|--------------|-----------------------|------------------|
| 9kHz-150kHz  | RBW: 200 Hz  | Detector: Quasi peak* | Meas. Time: 1 s, |
| 150kHz-30MHz | RBW: 9 kHz   | Detector: Quasi peak* | Meas. Time: 1 s, |
| 30MHz-1GHz   | RBW: 120 MHz | Detector: Quasi peak  | Meas. Time: 1 s, |

\*AV Detector in the ranges 9-90kHz and 110-490kHz

Spectrum analyser settings for SER3:

|            |            |                     |                  |             |
|------------|------------|---------------------|------------------|-------------|
| 1GHz-40GHz | RBW: 1 MHz | Detector: Max. peak | Trace: Max. hold | Sweep: Auto |
|------------|------------|---------------------|------------------|-------------|

### 5.3.5 Test result

**f < 30 MHz:**

| FCC Part 15.209 Radiated emission limits; general requirements (< 30 MHz) |                   |                   |                       |                  |                     |                         |                   |                |             |
|---------------------------------------------------------------------------|-------------------|-------------------|-----------------------|------------------|---------------------|-------------------------|-------------------|----------------|-------------|
| Frequency (kHz)                                                           | PK reading (dBμV) | QP reading (dBμV) | Duty cycle corr. (dB) | Ant. factor (dB) | Distance corr. (dB) | corr. AV level (dBμV/m) | QP level (dBμV/m) | Limit (dBμV/m) | Dlimit (dB) |
| <b>29.000</b>                                                             | 47.1              | 40.4              | 0.0                   | 20.0             | -80.0               | -12.9                   | -19.6             | 38.4           | -51.3       |
| <b>126.100</b>                                                            | 20.0              | 13.1              | 0.0                   | 20.0             | -80.0               | -40.0                   | -46.9             | 25.6           | -65.6       |
| <b>200.000</b>                                                            | 42.7              | 41.9              | 0.0                   | 20.0             | -80.0               | -17.3                   | -18.1             | 21.6           | -38.9       |
| 5000.000                                                                  | 25.3              | 10.0              | 0.0                   | 20.0             | -40.0               | 5.3                     | -10.0             | 29.5           | -39.5       |
| 20000.000                                                                 | 18.8              | 7.9               | 0.0                   | 20.0             | -40.0               | -1.2                    | -12.1             | 29.5           | -41.6       |

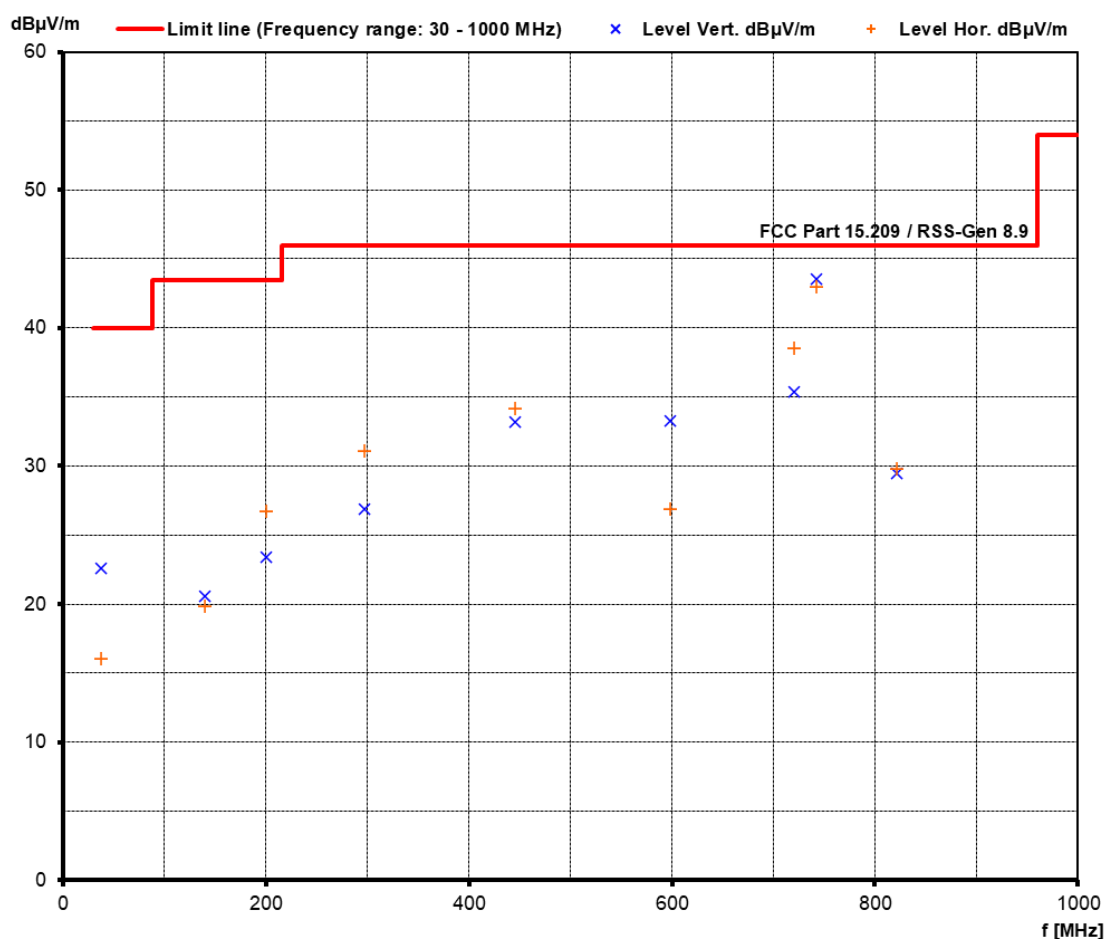
Note: frequencies in bold characters fall into AV ranges.

| RSS-Gen 8.9 Radiated emission limits; general requirements (< 30 MHz) |                   |                 |                  |                     |                         |                |             |
|-----------------------------------------------------------------------|-------------------|-----------------|------------------|---------------------|-------------------------|----------------|-------------|
| Frequency (kHz)                                                       | QP reading (dBμV) | QP calc. (dBμA) | Ant. factor (dB) | Distance corr. (dB) | Corr. QP level (dBμA/m) | Limit (dBμA/m) | Dlimit (dB) |
| 29.0                                                                  | 40.4              | -11.1           | 20.0             | -80.0               | -71.1                   | 6.8            | -77.9       |
| 126.1                                                                 | 13.1              | -38.4           | 20.0             | -80.0               | -98.4                   | -5.9           | -92.5       |
| 200.0                                                                 | 41.9              | -9.6            | 20.0             | -80.0               | -69.6                   | -9.9           | -59.7       |
| 5000.0                                                                | 10.0              | -41.5           | 20.0             | -40.0               | -61.5                   | -21.9          | -39.6       |
| 20000.0                                                               | 7.9               | -43.6           | 20.0             | -40.0               | -63.6                   | -21.9          | -41.7       |

Note: The measurement results from distance 3m are extrapolated (D factor) to the specific distance. During the measurements no emissions from the EUT could be detected in the frequency range 9 kHz to 30 MHz, given values only represent the noise floor.

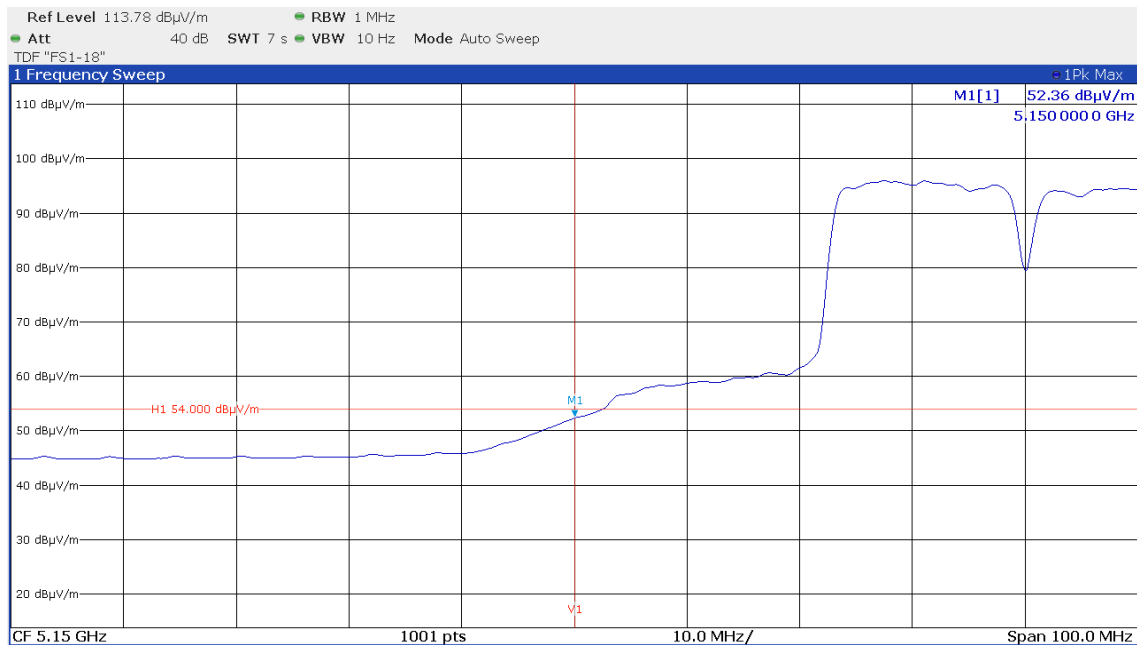
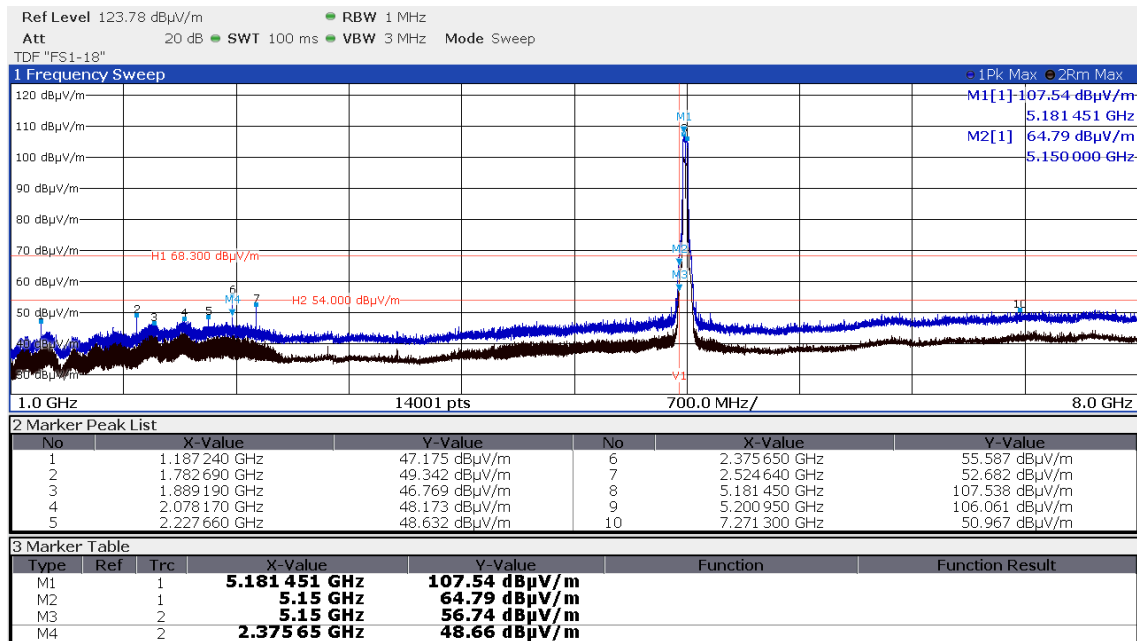
**30 MHz < f < 1000 MHz:**

| Frequency (MHz) | Reading Vert. (dBµV) | Reading Hor. (dBµV) | Correct. Vert. (dB) | Correct. Hor. (dB) | Level Vert. (dBµV/m) | Level Hor. (dBµV/m) | Limit (dBµV/m) | Dlimit (dB) |
|-----------------|----------------------|---------------------|---------------------|--------------------|----------------------|---------------------|----------------|-------------|
| 37.00           | 6.2                  | -1.5                | 16.4                | 17.5               | 22.6                 | 16.0                | 40.0           | -17.4       |
| 139.47          | 1.3                  | 1.5                 | 19.2                | 18.4               | 20.5                 | 19.9                | 43.5           | -23.0       |
| 199.97          | 6.4                  | 10.4                | 17.0                | 16.3               | 23.4                 | 26.7                | 43.5           | -16.8       |
| 296.96          | 6.8                  | 10.5                | 20.1                | 20.6               | 26.9                 | 31.1                | 46.0           | -14.9       |
| 445.50          | 8.9                  | 9.5                 | 24.3                | 24.6               | 33.2                 | 34.1                | 46.0           | -11.9       |
| 598.64          | 5.3                  | -1.5                | 28.0                | 28.4               | 33.3                 | 26.9                | 46.0           | -12.7       |
| 719.99          | 5.5                  | 8.1                 | 29.9                | 30.4               | 35.4                 | 38.5                | 46.0           | -7.5        |
| 742.49          | 13.2                 | 12.2                | 30.3                | 30.8               | 43.5                 | 43.0                | 46.0           | -2.5        |
| 822.00          | -2.2                 | -2.2                | 31.7                | 32.0               | 29.5                 | 29.8                | 46.0           | -16.2       |

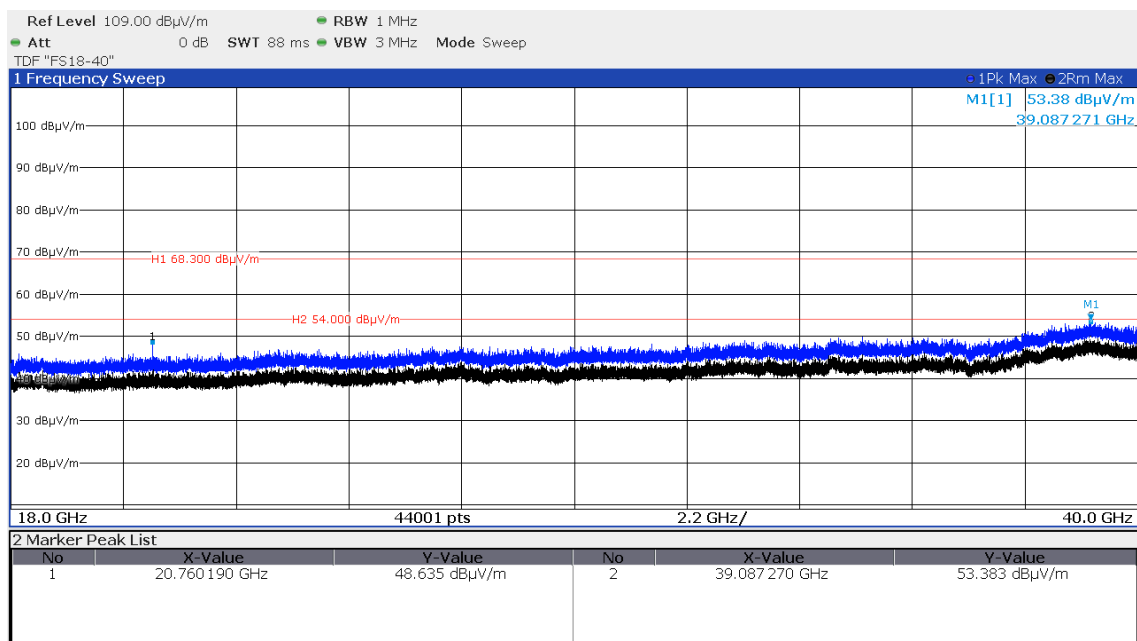
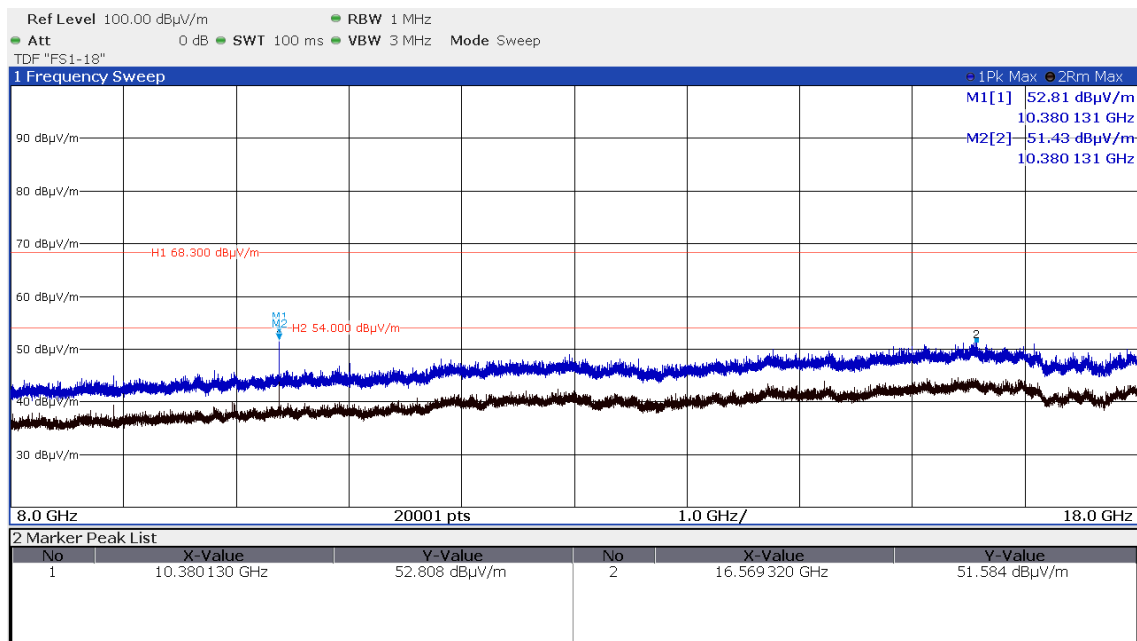


**f > 1000 MHz:**

CH38, P16, 40MHz:

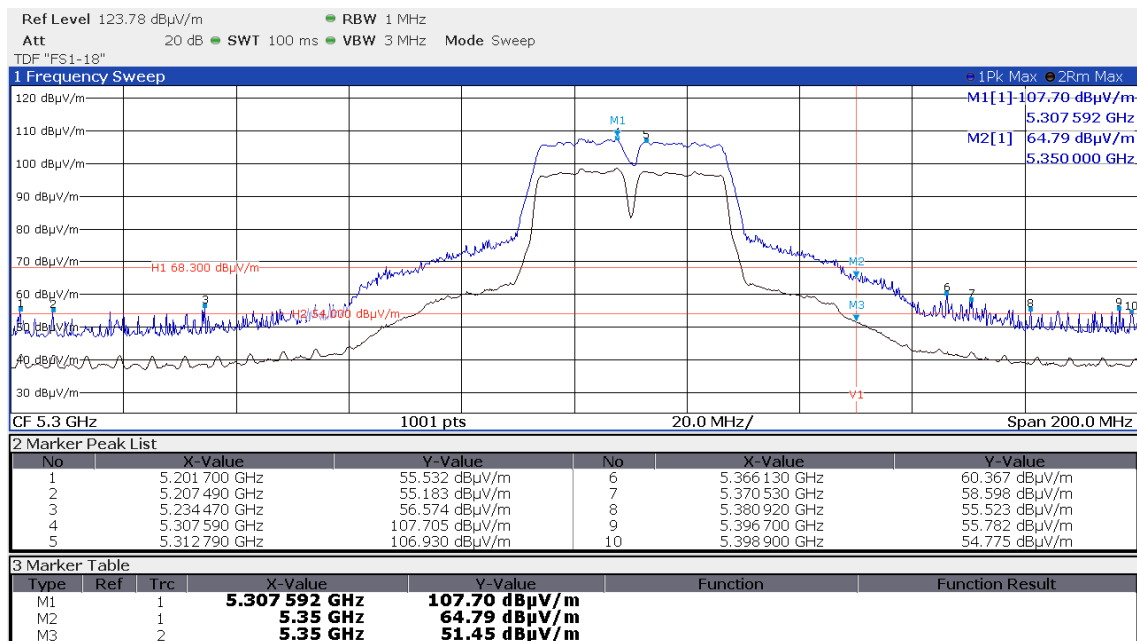
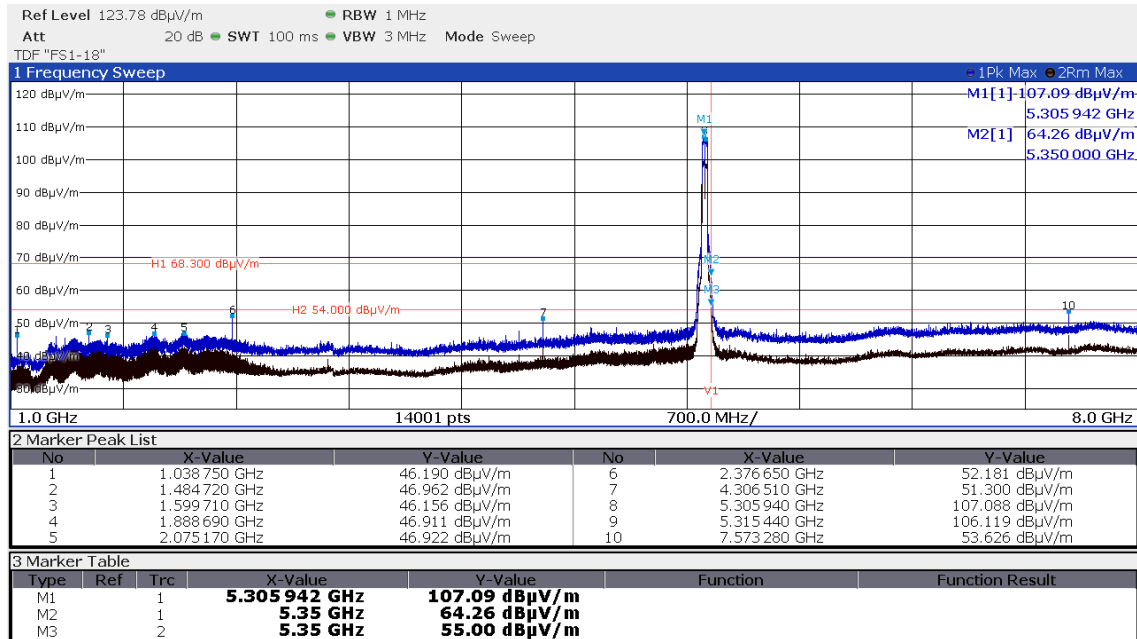


Note: Detail band edge low, average measurement

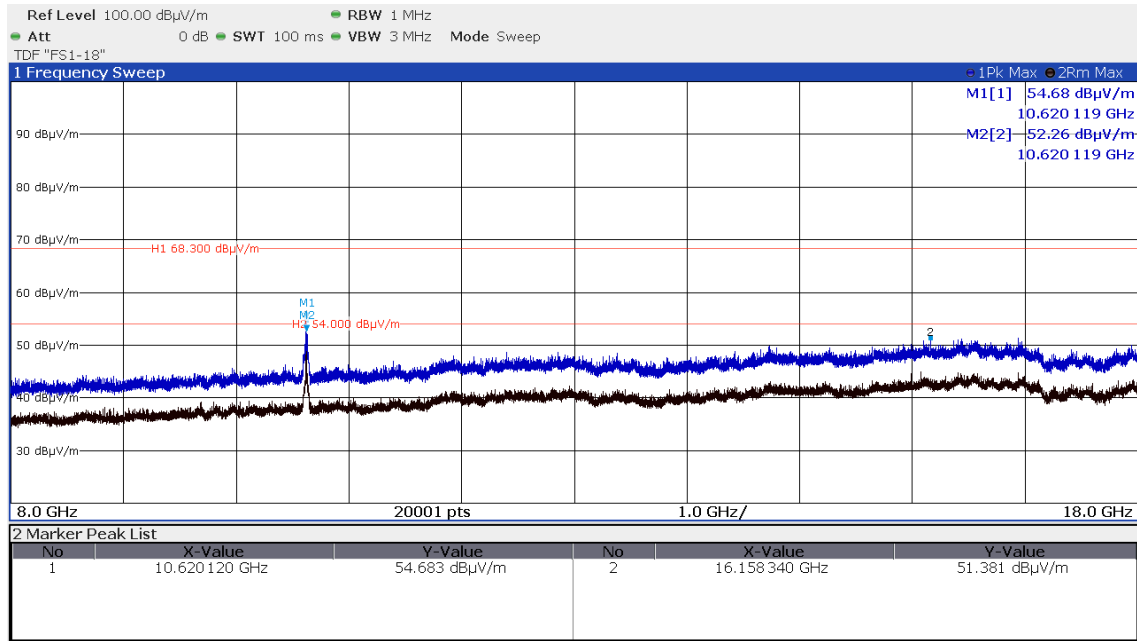




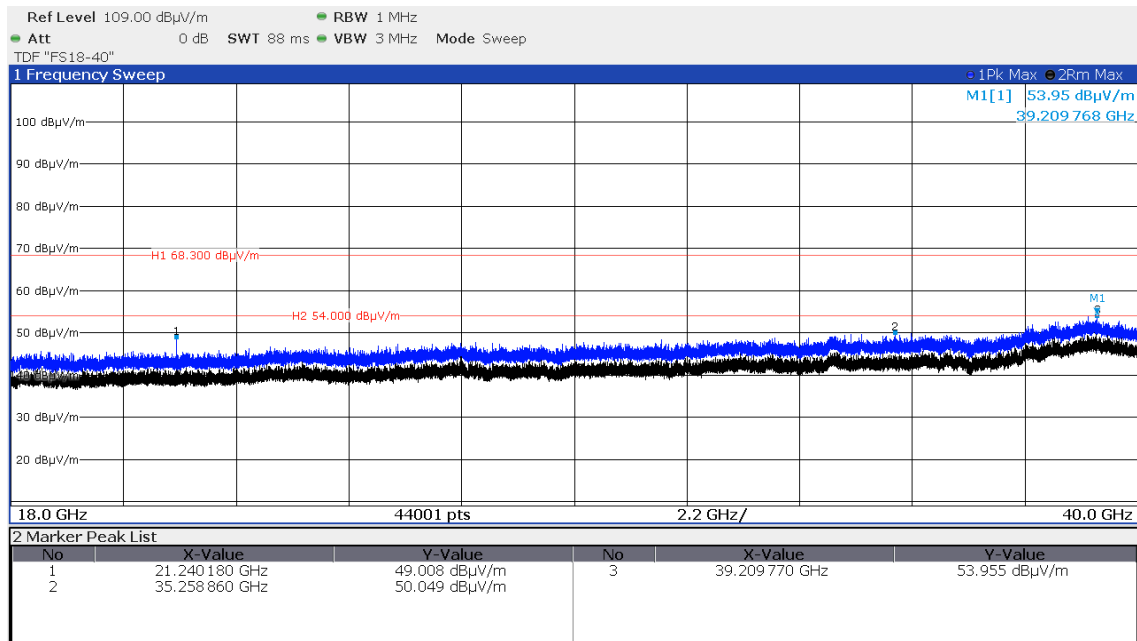
CH62, P18, 40MHz:



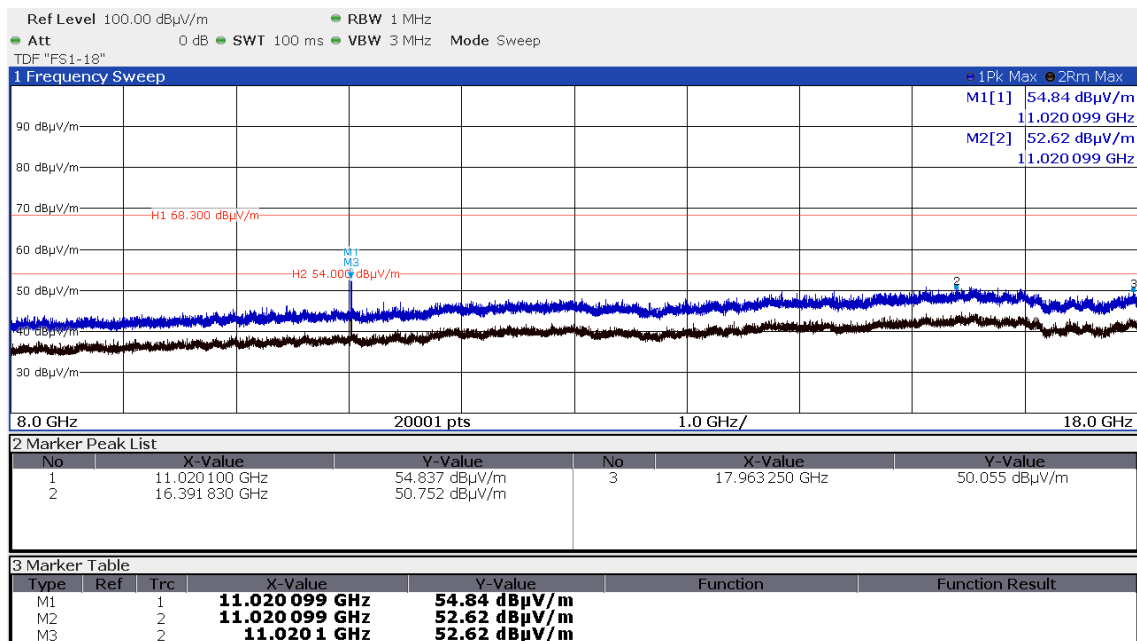
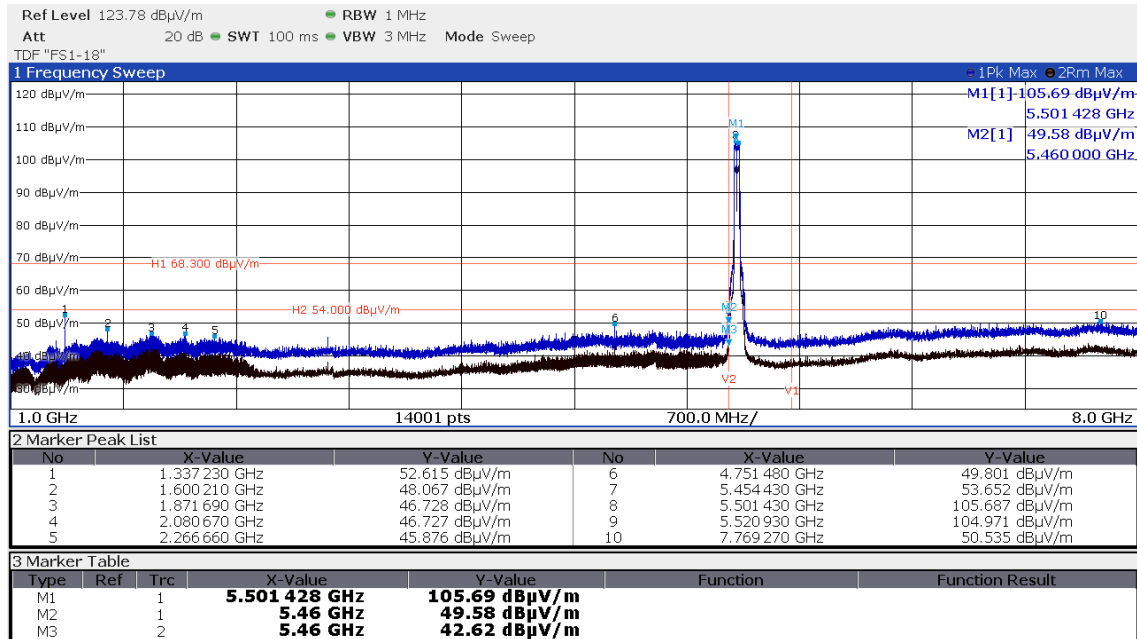
Note: Detail band edge high. Trace 2 (black) shows AV limit is met.

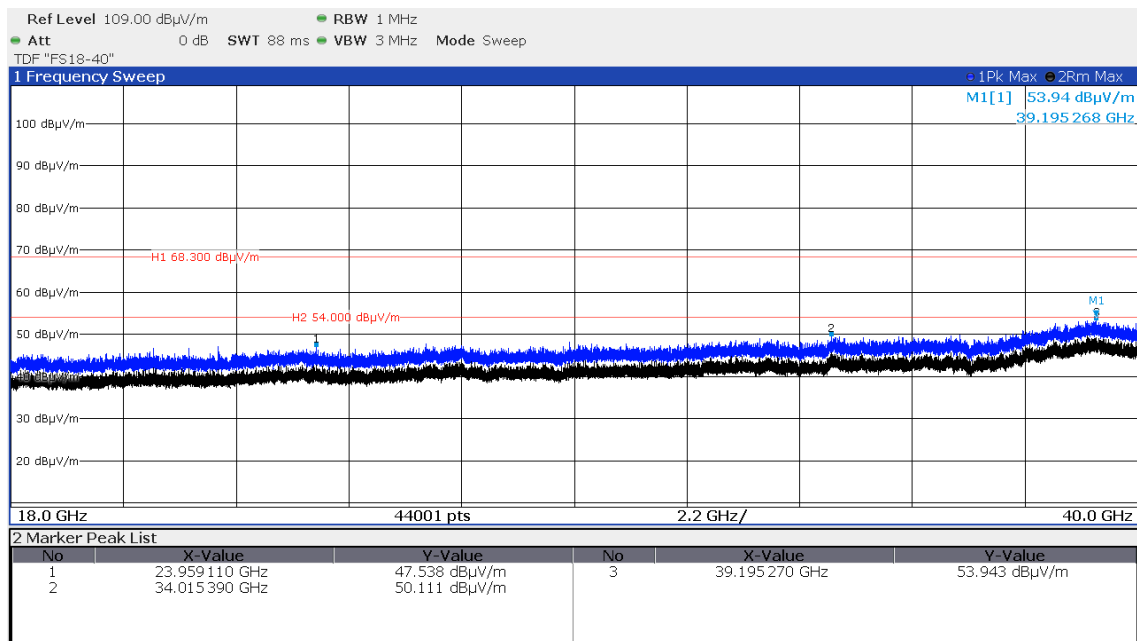


Note: Marker M2 (trace 2) shows AV limit is met.

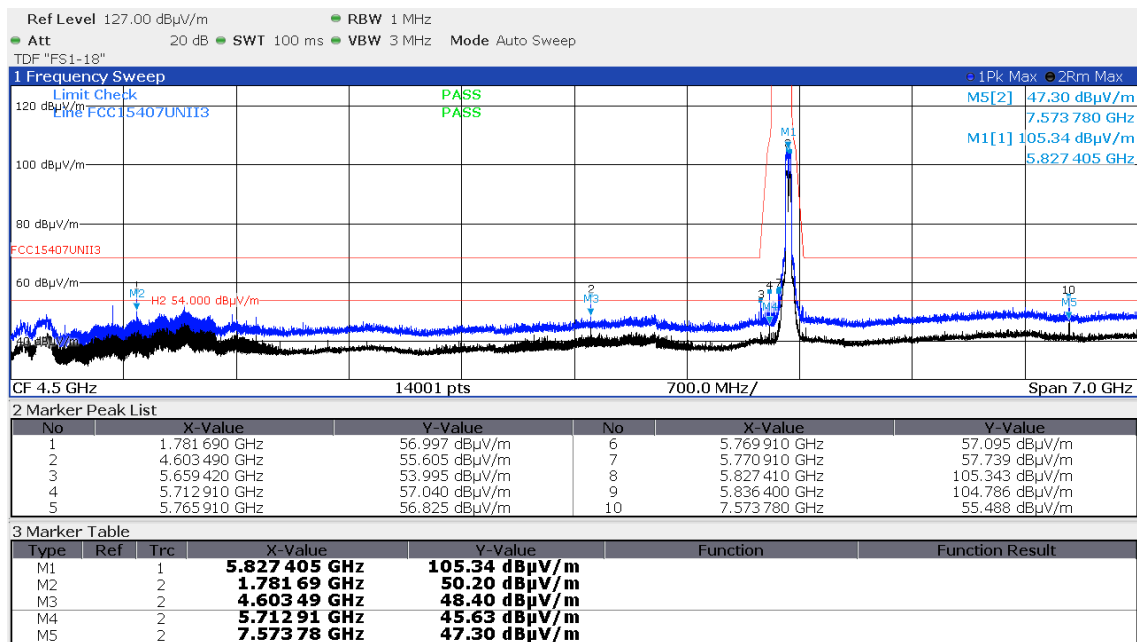


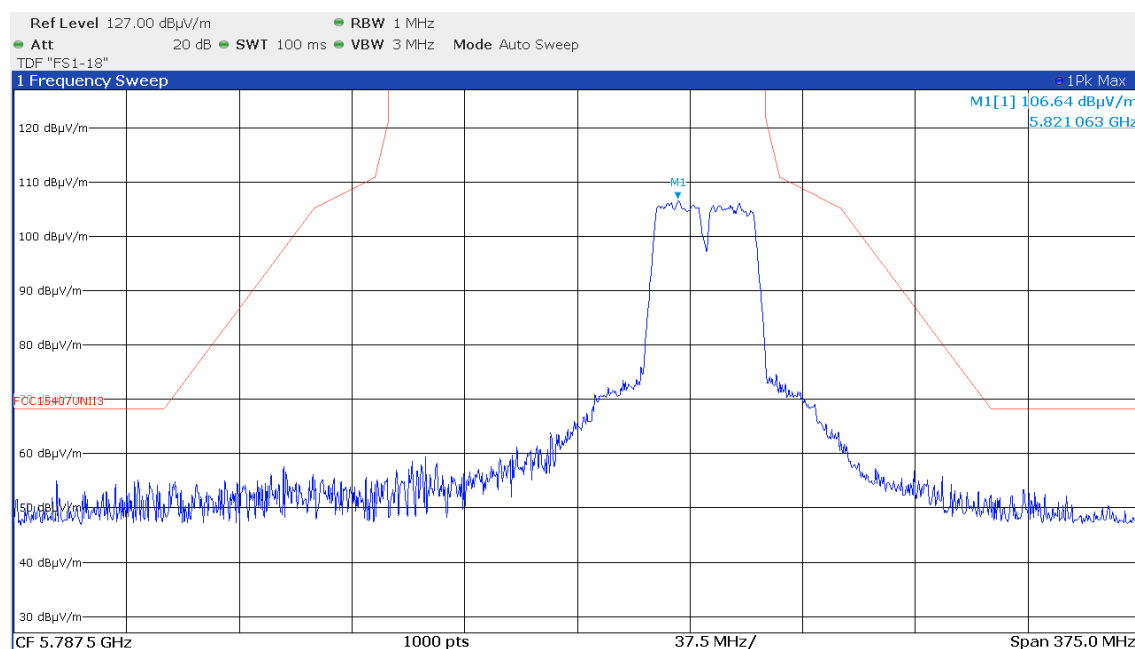
CH102, P16, 40MHz:



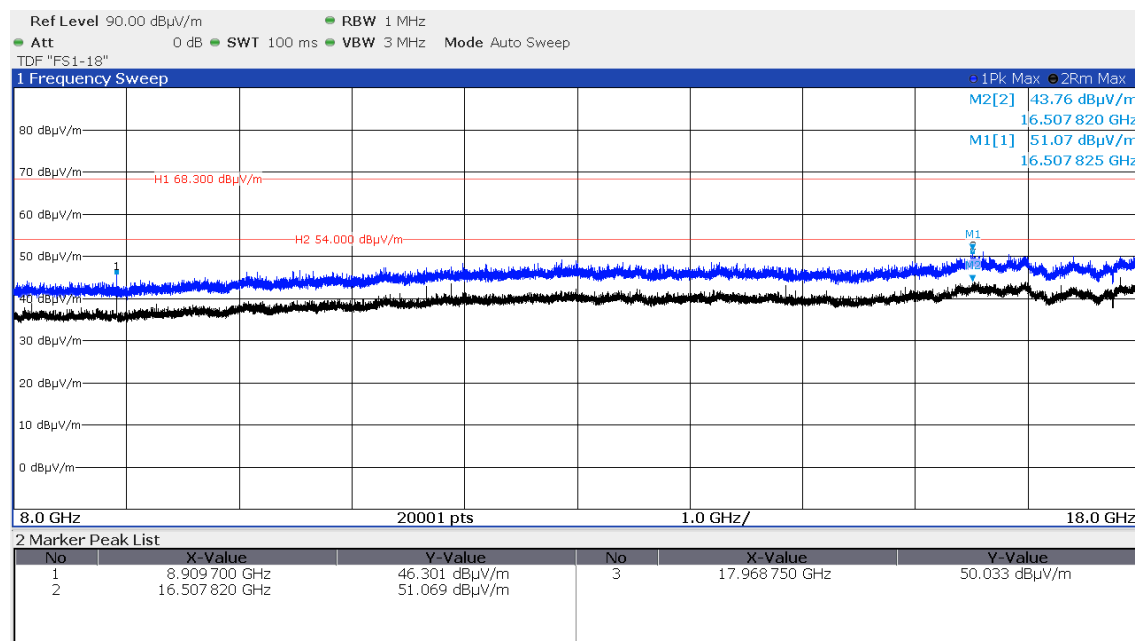


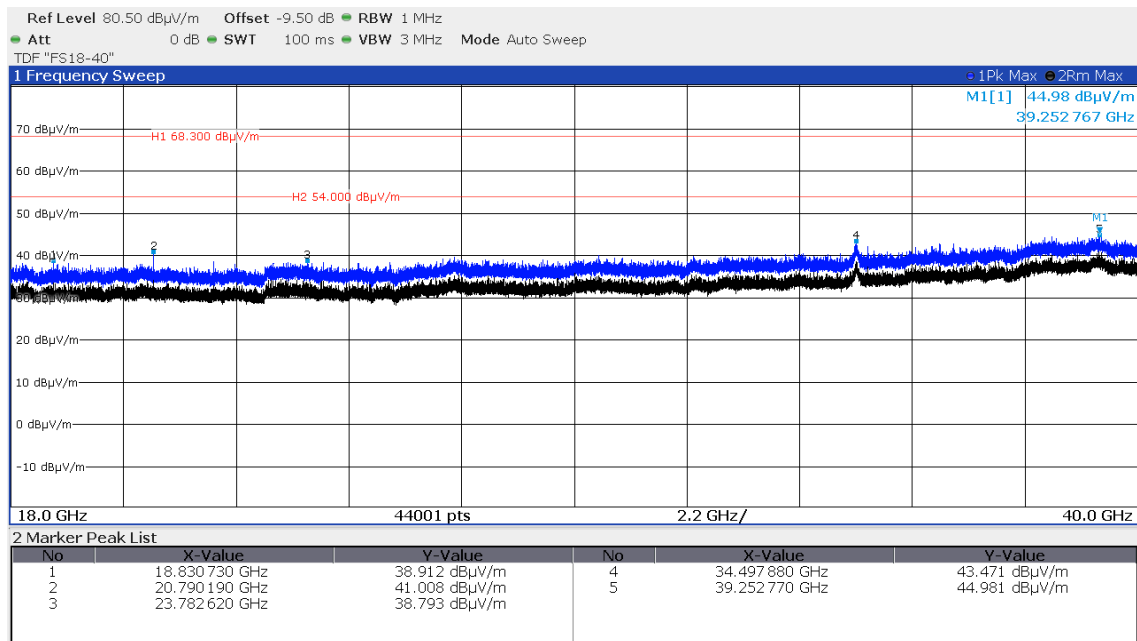
CH166, P16, 40MHz:





Note: Detail band edge operating frequency band 5725-5850 MHz





Limit according to FCC Part 15E, Section 15.407(b):

| Operating Frequency range<br>(MHz) | Frequency ranges from band edge<br>(MHz) | Undesirable emission limit, EIRP<br>(dBm / MHz) | Undesirable emission limit, EIRP<br>(dBμV/m / MHz) |
|------------------------------------|------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| 5150 - 5250                        | -                                        | -27.0                                           | 68.3                                               |
| 5250 - 5350                        | -                                        | -27.0                                           | 68.3                                               |
| 5470 - 5725                        | -                                        | -27.0                                           | 68.3                                               |
| 5725 - 5850                        | ± 5                                      | 27.0 decreasing linearly to 15.6                | 122.2 decreasing linearly to 110.8                 |
|                                    | ± 5 - ± 25                               | 15.6 decreasing linearly to 10.0                | 110.8 decreasing linearly to 105.2                 |
|                                    | ± 25 - ± 75                              | 10.0 decreasing linearly to -27.0               | 105.2 decreasing linearly to 68.3                  |
|                                    | ± 75                                     | -27.0                                           | 68.3                                               |

Limit according to RSS-247 6.2:

| Operating Frequency range<br>(MHz) | Frequency ranges from band edge<br>(MHz) | Undesirable emission limit, EIRP<br>(dBm / MHz) | Undesirable emission limit, EIRP<br>(dBμV/m / MHz) |
|------------------------------------|------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| 5150 - 5250                        | -                                        | -27.0                                           | 68.3                                               |
| 5250 - 5350                        | -                                        | -27.0                                           | 68.3                                               |
| 5470 - 5600                        | -                                        | -27.0                                           | 68.3                                               |
| 5650 - 5725                        | -                                        | -27.0                                           | 68.3                                               |
| 5725 - 5850                        | ± 5                                      | 27.0 decreasing linearly to 15.6                | 122.2 decreasing linearly to 110.8                 |
|                                    | ± 5 - ± 25                               | 15.6 decreasing linearly to 10.0                | 110.8 decreasing linearly to 105.2                 |
|                                    | ± 25 - ± 75                              | 10.0 decreasing linearly to -27.0               | 105.2 decreasing linearly to 68.3                  |
|                                    | ± 75                                     | -27.0                                           | 68.3                                               |

Radiated limits according to FCC Part 15, Section 15.209 for spurious emissions which fall in restricted bands:

| Frequency<br>(MHz) | 15.209 Limits<br>(μV/m) | Measurement distance<br>(m) |
|--------------------|-------------------------|-----------------------------|
| 0.009 - -0.49      | 2400/f(kHz)             | 300                         |
| 0.49 - 1.705       | 24000/f(kHz)            | 30                          |
| 1.705 - 30.0       | 30                      | 30                          |
| 30 - 88            | 100                     | 3                           |
| 88 - 216           | 150                     | 3                           |
| 216 - 960          | 200                     | 3                           |
| Above 960          | 500                     | 3                           |

Radiated limits according to RSS-Gen, 8.9 for spurious emissions which fall in restricted bands:

| Frequency<br>(MHz) | RSS-Gen Limits<br>(μA/m) | Measurement distance<br>(m) |
|--------------------|--------------------------|-----------------------------|
| 0.009 - -0.49      | 63.7/f(kHz)              | 300                         |
| 0.49 - 1.705       | 63.7/f(kHz)              | 30                          |
| 1.705 - 30.0       | 0.08                     | 30                          |

| Frequency<br>(MHz) | RSS-Gen Limits<br>(μV/m) | Measurement distance<br>(m) |
|--------------------|--------------------------|-----------------------------|
| 30 - 88            | 100                      | 3                           |
| 88 - 216           | 150                      | 3                           |
| 216 - 960          | 200                      | 3                           |
| Above 960          | 500                      | 3                           |

Restricted bands of operation FCC Part 15C, Section 15.205:

| MHz                 | MHz                   | MHz             | GHz           |
|---------------------|-----------------------|-----------------|---------------|
| 0.090 – 0.110       | 16.42 – 16.423        | 399.9 – 410     | 4.5 – 5.15    |
| 0.495 – 0.505       | 16.69475 – 16.69525   | 608 – 614       | 5.35 – 5.46   |
| 2.1735 – 2.1905     | 16.80425 – 16.80475   | 960 – 1240      | 7.25 – 7.75   |
| 4.125 – 4.128       | 25.5 – 25.67          | 1300 – 1427     | 8.025 – 8.5   |
| 4.17725 – 4.17775   | 37.5 – 38.25          | 1435 – 1626.5   | 9.0 – 9.2     |
| 4.20725 – 4.20775   | 73 – 74.6             | 1645.5 – 1646.5 | 9.3 – 9.5     |
| 6.215 – 6.218       | 74.8 – 75.2           | 1660 – 1710     | 10.6 – 12.7   |
| 6.26775 – 6.26825   | 108 – 121.94          | 1718.8 – 1722.2 | 13.25 – 13.4  |
| 6.31175 – 6.31225   | 123 – 138             | 2200 – 2300     | 14.47 – 14.5  |
| 8.291 – 8.294       | 149.9 – 150.05        | 2310 – 2390     | 15.35 – 16.2  |
| 8.362 – 8.366       | 156.52475 – 156.52525 | 2483.5 – 2500   | 17.7 – 21.4   |
| 8.37625 – 8.38675   | 156.7 – 156.9         | 2690 – 2900     | 22.01 – 23.12 |
| 8.41425 – 8.41475   | 162.0125 – 167.17     | 3260 – 3267     | 23.6 – 24.0   |
| 12.29 – 12.293      | 167.72 – 173.2        | 3332 – 3339     | 31.2 – 31.8   |
| 12.51975 – 12.52025 | 240 – 285             | 3345.8 – 3358   | 36.43 – 36.5  |
| 12.57675 – 12.57725 | 322 – 335.4           | 3600 – 4400     | Above 38.6    |

Restricted frequency bands RSS-Gen, Table 6:

| MHz                 | MHz                   | MHz             | GHz           |
|---------------------|-----------------------|-----------------|---------------|
| 0.090 - 0.110       | 12.57675 - 12.57725   | 399.9 - 410     | 7.250 - 7.750 |
| 0.495 - 0.505       | 13.36 - 13.41         | 608 - 614       | 8.025 – 8.500 |
| 2.1735 - 2.1905     | 16.42 - 16.423        | 960 - 1427      | 9.0 - 9.2     |
| 3.020 - 3.026       | 16.69475 - 16.69525   | 1435 - 1626.5   | 9.3 - 9.5     |
| 4.125 - 4.128       | 16.80425 - 16.80475   | 1645.5 - 1646.5 | 10.6 - 12.7   |
| 4.17725 - 4.17775   | 25.5 - 25.67          | 1660 - 1710     | 13.25 - 13.4  |
| 4.20725 - 4.20775   | 37.5 - 38.25          | 1718.8 - 1722.2 | 14.47 - 14.5  |
| 5.677 - 5.683       | 73 - 74.6             | 2200 - 2300     | 15.35 - 16.2  |
| 6.215 - 6.218       | 74.8 - 75.2           | 2310 - 2390     | 17.7 - 21.4   |
| 6.26775 - 6.26825   | 108 – 138             | 2483.5 - 2500   | 22.01 - 23.12 |
| 6.31175 - 6.31225   | 149.9 - 150.05        | 2655 - 2900     | 23.6 - 24.0   |
| 8.291 - 8.294       | 156.52475 - 156.52525 | 3260 – 3267     | 31.2 - 31.8   |
| 8.362 - 8.366       | 156.7 - 156.9         | 3332 - 3339     | 36.43 - 36.5  |
| 8.37625 - 8.38675   | 162.0125 - 167.17     | 3345.8 - 3358   | Above 38.6    |
| 8.41425 - 8.41475   | 167.72 - 173.2        | 3500 - 4400     |               |
| 12.29 - 12.293      | 240 – 285             | 4500 - 5150     |               |
| 12.51975 - 12.52025 | 322 - 335.4           | 5350 - 5460     |               |

The requirements are **FULFILLED**.

**Remarks:** The measurement was performed up to 40 GHz. Only the worst case of the plots are listed.



## 5.4 Antenna application

According to FCC Part 15C, Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

The EUT use the listed antennas for SIMO technique (1TX 5RX). The equipment connector is subject to the end product.

The supplied antenna meets the requirements of part 15.203.

The requirements are **FULFILLED**.

Remarks:

None

## 6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

| Test ID                                                                                                          | Model Type             | Equipment No.   | Next Calib. | Last Calib. | Next Verif. | Last Verif. |            |            |  |  |
|------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|-------------|-------------|-------------|-------------|------------|------------|--|--|
| CPC 3 performed on 24/10/2023:                                                                                   |                        |                 |             |             |             |             |            |            |  |  |
| CPC 3                                                                                                            | FSW43                  | 02-02/11-21-001 | 22/05/2024  | 22/05/2023  |             |             |            |            |  |  |
|                                                                                                                  | minibend KR-16         | 02-02/50-16-018 |             |             |             |             |            |            |  |  |
|                                                                                                                  | 4768-20 DC-40GHz       | 02-02/50-23-003 |             |             |             |             |            |            |  |  |
| SER3 for Channel 166 performed on 06/06/2023:                                                                    |                        |                 |             |             |             |             |            |            |  |  |
| SER 3                                                                                                            | FSW43                  | 02-02/11-21-001 | 22/05/2024  | 22/05/2023  |             |             |            |            |  |  |
|                                                                                                                  | AMF-6D-01002000-22-10P | 02-02/17-15-004 |             |             |             |             |            |            |  |  |
|                                                                                                                  | LNA-40-18004000-33-5P  | 02-02/17-20-002 |             |             |             |             |            |            |  |  |
|                                                                                                                  | BBHA 9170              | 02-02/24-05-015 | 02/03/2025  | 02/03/2022  |             |             |            |            |  |  |
|                                                                                                                  | 3117                   | 02-02/24-20-007 |             |             |             |             |            |            |  |  |
|                                                                                                                  | WHKX 7.5/18G-8SS       | 02-02/50-07-010 | 18/11/2023  | 18/11/2022  |             |             |            |            |  |  |
|                                                                                                                  | BAM 4.5-P              | 02-02/50-17-024 |             |             |             |             |            |            |  |  |
|                                                                                                                  | NCD                    | 02-02/50-17-025 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-SF106-2X11N-6,5M    | 02-02/50-18-016 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KMS116-GL140SE-KMS116- | 02-02/50-20-026 |             |             |             |             |            |            |  |  |
| All other measurements performed in the time period 30/06/2022 to 17/08/2022 (A4, SER2 performed on 17/08/2022): |                        |                 |             |             |             |             |            |            |  |  |
| A 4                                                                                                              | BAT-EMC 3.21.0.24      | 01-02/68-13-001 |             |             |             |             | 17/06/2023 | 17/06/2022 |  |  |
|                                                                                                                  | ESCI                   | 02-02/03-15-001 |             |             |             |             |            |            |  |  |
|                                                                                                                  | ESH 2 - Z 5            | 02-02/20-05-004 | 31/10/2022  | 31/10/2019  | 22/09/2022  | 22/03/2022  |            |            |  |  |
|                                                                                                                  | N-4000-BNC             | 02-02/50-05-138 |             |             |             |             |            |            |  |  |
|                                                                                                                  | ESH 3 - Z 2            | 02-02/50-05-155 | 13/11/2022  | 13/11/2019  | 10/02/2023  | 10/08/2022  |            |            |  |  |
|                                                                                                                  | 6430                   | 02-02/50-13-014 |             |             |             |             |            |            |  |  |
| SER 1                                                                                                            | ESR 7                  | 02-02/03-13-001 | 11/03/2023  | 11/03/2022  |             |             |            |            |  |  |
|                                                                                                                  | HFH 2 - Z 2            | 02-02/24-15-001 | 31/03/2023  | 31/03/2022  |             |             |            |            |  |  |
|                                                                                                                  | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-SD_7/8-2X21N-33,0M  | 02-02/50-15-028 |             |             |             |             |            |            |  |  |
| SER 2                                                                                                            | ESVS 30                | 02-02/03-05-006 | 27/07/2023  | 27/07/2022  | 03/07/2023  | 03/07/2022  |            |            |  |  |
|                                                                                                                  | VULB 9168              | 02-02/24-05-005 | 20/12/2022  | 20/12/2021  |             |             |            |            |  |  |
|                                                                                                                  | NW-2000-NB             | 02-02/50-05-113 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-EF393/U-16N-21N20 m | 02-02/50-12-018 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-SD_7/8-2X21N-33,0M  | 02-02/50-15-028 |             |             |             |             |            |            |  |  |
|                                                                                                                  | 50F-003 N 3 dB         | 02-02/50-21-010 |             |             |             |             |            |            |  |  |
| SER 3                                                                                                            | FSW43                  | 02-02/11-15-001 | 22/04/2023  | 22/04/2022  |             |             |            |            |  |  |
|                                                                                                                  | AMF-6D-01002000-22-10P | 02-02/17-15-004 |             |             |             |             |            |            |  |  |
|                                                                                                                  | LNA-40-18004000-33-5P  | 02-02/17-20-002 |             |             |             |             |            |            |  |  |
|                                                                                                                  | 3117                   | 02-02/24-05-009 | 23/06/2023  | 23/06/2022  |             |             |            |            |  |  |
|                                                                                                                  | BBHA 9170              | 02-02/24-05-013 |             |             |             |             |            |            |  |  |
|                                                                                                                  | WHKX 7.5/18G-8SS       | 02-02/50-07-010 | 19/05/2023  | 19/05/2020  |             |             |            |            |  |  |
|                                                                                                                  | BAM 4.5-P              | 02-02/50-17-024 |             |             |             |             |            |            |  |  |
|                                                                                                                  | NCD                    | 02-02/50-17-025 |             |             |             |             |            |            |  |  |
|                                                                                                                  | KK-SF106-2X11N-6,5M    | 02-02/50-18-016 |             |             |             |             |            |            |  |  |

KMS116-GL140SE-KMS116- 02-02/50-20-026

- End of test report -

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.