# Test Report

Test Report No.: CQC-IVTS-2023-00376

| | |
|---|---|
| Product Name | Interactive Flat Panel |
| Model Number | RP7504 |
| Applicant | BenQ Corporation |
| Approval Types | FCC ID: JVPRP7504<br>IC: 6175A-RP7504 |

**CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd.**

**National Quality Inspection and Testing Center for Internet of Vehicles Products**

# TEST REPORT DECLARATION

| | | |
|---|---|---|
| Equipment under Test | : | **Interactive Flat Panel** |
| Test Model | : | RP7504 |
| Listed Models | : | RP7504,RP7504B,RP7504C,RP7504D,RP7504E |
| **Applicant** | : | **BenQ Corporation** |
| Address | : | 16 Jihu Road, Neihu, Taipei 114, Taiwan, China |
| **Manufacturer** | : | **BenQ Corporation** |
| Address | : | 16 Jihu Road, Neihu, Taipei 114, Taiwan, China |

The EUT described above is tested by CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd. to determine the maximum emissions from the EUT. CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy of the test results.

| | | |
|---|---|---|
| Project Engineer: | Yankun Wang<br>(Yankun Wang 王炎坤) | Date: 2023-10-11 |
| Checked by: | Haohao Li<br>(Haohao Li 李昊昊) | Date: 2023-10-11 |
| Approved by: | WenWang<br>(Wenliang Li 李文亮) | Date: 2023-10-11 |

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# 1. TEST STANDARDS

The tests were performed according to following standards: The equipment under test (EUT) has been tested at CQC-IVTS's (own or subcontracted) laboratories according to the leading reference documents giving table below:

| No | Identify | Document Title | Version/Date |
|---|---|---|---|
| 1 | FCC Part 15 C § 15.249 | Operation within the bands 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHZ, and 24.0–24.25 GHz. | 5/16/2023 |
| 2 | RSS-210 Annex B.10 | Licence-Exempt Radio Apparatus: Category I Equipment - Bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz and 24-24.25 GHz | Issue 10/December 2019 |
| 3 | RSS-Gen | General Requirements for Compliance of Radio Apparatus | Issue 5/April 2018 |
| 4 | ANSI C63.4 | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2014 |
| 5 | ANSI C63.10 | American National Standard for Testing Unlicensed Wireless Devices | 2013 |

# 2. SUMMARY

## 2.1. General Remarks

| | | |
|---|---|---|
| Date of receipt of test sample | : | July 30, 2023 |
| | | |
| Testing commenced on | : | July 30, 2023 |
| | | |
| Testing concluded on | : | August 20, 2023 |

## 2.2. Product Description*

| | |
|---|---|
| Product Name: | Interactive Flat Panel |
| Trade Mark | BenQ |
| Model/Type reference: | RP7504 |
| List Model: | RP7504,RP7504B,RP7504C,RP7504D,RP7504E |
| FCC ID: | JVPRP7504 |
| IC: | 6175A-RP7504 |
| HMN: | -/- |
| PMN: | Interactive Flat Panel |
| HVIN: | RP7504, RP7504B, RP7504C, RP7504D, RP7504E |
| FVIN: | RP750420230822_010435 |
| Hardware Version: | V1.0 |
| Software Version: | RP750420230822_010435 |
| Frequency range: | 24.00 – 24.25 GHz |
| Nominal Frequency: | Low Channel: 24.016 GHz; Middle Channel: 24.122 GHz; High Channel: 24.220 GHz |
| Number of Channels: | 3 |
| Modulation Type: | No modulation (CW only) |
| Antenna: | Integrated patch antenna |
| Antenna Gain: | 4.00 dBi |
| Power Supply: | AC 120V/60Hz |
| IC Classification: | Motion sensor device |
| Emission Designator: | N0N |
| Difference Declaration | The difference of Model: RP7504,RP7504B,RP7504C,RP7504D,RP7504E only model name difference. Hardware and software are same.<br>The difference of Model: RP7504,RP7504B,RP7504C,RP7504D,RP7504E and model: RP8604 (FCC ID: JVPRP8604 / IC: 6175A-RP8604) are only panel side difference, this changes not effect Radar sensor Radio parameters. Refer to Annex A for difference declaration |

*: declared by the applicant. CQC-IVTS not responsible for accuary.

## 2.3. EUT Operation Mode*

| EUT operating mode no | Description of operating modes | Additional information |
|---|---|---|
| op. 1 | Continuously transmitting and receiving mode | Carrier modulation (normal mode). 24.016 GHz, a continuous wave with 100% duty cycle |
| op. 2 | Continuously transmitting and receiving mode | Carrier modulation (normal mode). 24.122 GHz, a continuous wave with 100% duty cycle |
| op. 3 | Continuously transmitting and receiving mode | Carrier modulation (normal mode). 24.220 GHz, a continuous wave with 100% duty cycle |

*: declared by the applicant

## 2.4. Modifications

No modifications were implemented to meet testing criteria

## 2.5. Test Item (Equipment Under Test) Description*

| Short designation | EUT Name | EUT Description | Serial number | Hardware status | Software status |
|---|---|---|---|---|---|
| EUT A | RP8604 | Interactive Flat Panel | -/- | V1.0 | RP860420230822_011151 |
| EUT B | RP7504 | Interactive Flat Panel | -/- | V1.0 | RP750420230822_010435 |
| | | | | | |

*: declared by the applicant.

## 2.6. Auxiliary Equipment (AE) Description*

| AE short designation | EUT Name (if available) | EUT Description | Serial number (if available) | Software (if used) |
|---|---|---|---|---|
| AE 1 | AC Power Cable | Length: 1m | -/- | -/- |
| -/- | -/- | -/- | -/- | -/- |
| | | | | |

*: declared by the applicant.

## 2.7. Test Item Set-ups Description

| | | |
|---|---|---|
| set. 1 | EUT A + AE 1 | EUT operating mode 1 |
| set. 2 | EUT A + AE 1 | EUT operating mode 2 |
| set. 3 | EUT A + AE 1 | EUT operating mode 3 |
| | | |

## 2.8. Test Conditions*

| Temperature, [°C] | | Voltage, [V] | |
|---|---|---|---|
| $T_{nom}$ | 25.0 | $V_{nom}$ | AC 120.0 V |
| $T_{min}$ | -10.0 | $V_{min}$ | AC 132.0 V |
| $T_{max}$ | 50.0 | $V_{max}$ | AC 108.0 V |

*: declared by the applicant

## 2.9. Additional Information

| | |
|---|---|
| Test items differences | None |
| Additional application considerations to test a component or sub-assembly | Laptop with test software |

## 2.10. Test Channel

| Test Channel | Frequency [MHz] | Test Channel | Frequency [MHz] |
|---|---|---|---|
| Low | 24016.00 | Middle | 24122.00 |
| High | 24220.00 | | |

## 2.11. Test Location

Location 1

| | |
|---|---|
| Company: | CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd. |
| Address: | Building G5, TCL International E City, Xili Street, Nanshan District, Shenzhen, China |
| Post code: | 518112 |
| Contact Person: | Wenliang Li |
| Telephone: | +86-755-8618 9654 |
| e-Mail: | liwenliang@cqc.com.cn |

## 2.12. Abnormalities from Standard Conditions

None

## 2.13. Possible verdicts of the results

| | |
|---|---|
| Test sample meets the requirements | P (PASS) ± the measured value is below the acceptance limit, AL = TL |
| Test sample does not meet the requirements | F (FAIL) ± the measured value is above the acceptance limit, AL = TL |
| Test case does not apply to the test sample | N/A (Not applicable) |
| Test case not performed | N/P (Not performed) |

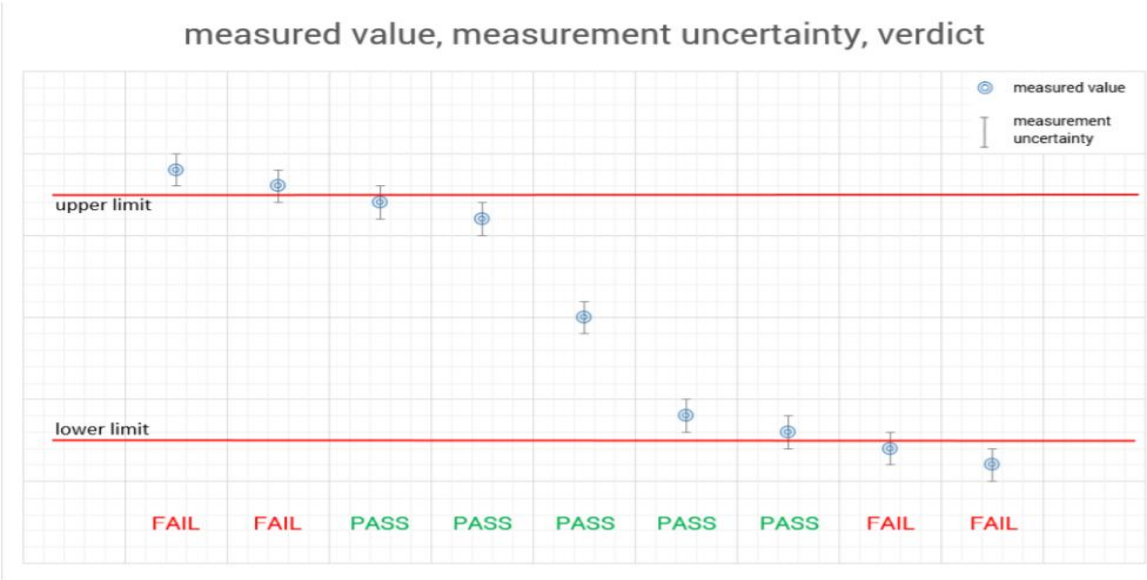
## 2.14. Formula for determination of correction values ($E_c$)

$E_C = E_R + AF + C_L + D_F - G_A$ (1)
$M = L_T - E_C$ (2)

$E_C$ = Electrical field ± corrected value
$E_R$ = Receiver reading
M = Margin
$L_T$ = Limit
AF = Antenna factor
$C_L$ = Cable loss
$D_F$ = Distance correction factor (if used)
$G_A$ = Gain of pre-amplifier (if used)
All units are dB-units, positive margin means value is below limit.

## 2.15. Reporting Statements of Conformity – Decision Rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed. The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong."



## 2.16. Radiated Emission Measurement Distance

The measurement antenna is in the far field of the EUT per formula $2D^2/\lambda$, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, “D” is the largest dimension of the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use and for both polarities of the measurement antenna in order to achieve the highest signal level. The worst-case position found was used for all radiated testing.

| Frequency Range [GHz] | Wavelength [centimetres] | Far Field Distance [meters] | Measurement Distance [meters] |
|---|---|---|---|
| 18 – 40 | 0.750 | 0.65 | 1.00 |
| 40 – 60 | 0.522 | 0.97 | 1.00 |
| 60 – 90 | 0.322 | 0.69 | 1.00 |
| 90 – 140 | 0.210 | 0.52 | 1.00 |
| 140 – 220 | 0.148 | 0.37 | 1.00 |
| 220 – 325 | 0.101 | 0.24 | 1.00 |

# 3. TEST ENVIRONMENT

## 3.1. Address of the test laboratory

**CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd.**
Building G5, TCL International E City, Xili Street, Nanshan District, Shenzhen, China
CQC-IVTS A2LA Certification Number: 6645.01;
FCC Designation Number: CN1329
ISED test lab CAB identifier: 27979

## 3.2. Environmental conditions

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

| | |
|---|---|
| Normal Temperature: | 25°C |
| Lative Humidity | 55 % |
| Air Pressure | 989 hPa |

## 3.3. Test Description

| Test Specification Clause | Test Case | Temperature Condition | Power Supply | PASS | FAIL | NA | NP | Results |
|---|---|---|---|---|---|---|---|---|
| FCC Part 15C § 15.249 (a) RSS-210 B.10 (a) | Field strength of emissions (wanted signal) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | |
| RSS-Gen | Occupied bandwidth (20dB) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | |
| §2.1049 RSS-Gen | Occupied bandwidth (99%) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | |
| §15.209(a) §15.249(a) (d) RSS-210 B.10 (a) (b) RSS-Gen | Field strength of emissions (spurious & harmonics) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | |
| §15.207 RSS-Gen | AC power-line conducted emissions limits | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | |
| §15.203 RSS-Gen | Antenna requirement | -/- | -/- | ☒ | ☐ | ☐ | ☐ | |

Remark:1. NA means “not applicable”; NP means Not Performed;
2.The measurement uncertainty is not included in the test result.

According to KDB 484596 D01 Referencing Test Data v01, the difference of Model: RP7504 (FCC ID: JVPRP7504 / IC: 6175A-RP7504) and model: RP8604 (FCC ID: JVPRP8604 / IC: 6175A-RP8604) are only panel side difference, this changes not effect Radar sensor Radio parameters. Model: RP7504 (FCC ID: JVPRP7504 / IC: 6175A-RP7504) test report (Test Report No. CQC-IVTS-2023-00376) will referencing test data from original Model: RP8604 (FCC ID: JVPRP8604 / IC: 6175A-RP8604) test report (Test Report No.: CQC-IVTS-2023-00379) after spot check Field strength of emissions (wanted signal), Occupied bandwidth (20dB), Occupied bandwidth (99%), worst case of Field strength of emissions (spurious &harmonics), model RP7504 spot check values not higher than model RP8604; Model: RP7504 (FCC ID: JVPRP7504 / IC: 6175A-RP7504) test report (Test Report No. CQC-IVTS-2023-00376) will referencing test data from original model: RP8604 (FCC ID: JVPRP8604 / IC: 6175A-RP8604) test report (Test Report No.: CQC-IVTS-2023-00379) as: Occupied bandwidth (20dB), Occupied bandwidth (99%) and Field strength of emissions (spurious & harmonics) above 1 GHz.

## 3.4. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was

calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd..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.

Hereafter the best measurement capability for CQC Internet of Vehicles Technical Service (Shenzhen) Co., Ltd.:

| Test | Range | Measurement Uncertainty | Notes |
|---|---|---|---|
| Radiated Emission | 30~1000MHz | 4.90 dB | (1) |
| Radiated Emission | 1~6GHz | 4.20 dB | (1) |
| Radiated Emission | 6~18GHz | 4.50 dB | (1) |
| Radiated Emission | 18-40GHz | 5.42 dB | (1) |
| Radiated Emission | Above 40 GHz | 5.50 dB | (1) |
| Conducted Disturbance | 0.15~30MHz | 3.30 dB | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 3.5. Equipments Used during the Test

| Radiated Emission | | | | | | |
|---|---|---|---|---|---|---|
| Item | Test Equipment | Manufacturer | Model No. | Equipment No. | Last Cal. | Cal.Due |
| 1 | EMI Test Receiver | R&S | ESW26 | 103003 | 2022/08/25 | 2023/08/24 |
| 2 | Spectrum Analyzer | R&S | FSW43 | 10182 | 2022/08/25 | 2023/08/24 |
| 3 | Ultra-Broadband Antenna | Schwarzbeck | VULB9168 | 1291 | 2021/09/05 | 2024/09/04 |
| 4 | Horn Antenna | ETS-Lindgren | 3117 | 102732 | 2021/09/05 | 2024/09/04 |
| 5 | Amplifier | R&S | SCU01F | 100369 | 2022/08/25 | 2023/08/24 |
| 6 | Amplifier | R&S | SCU18F | 100868 | 2022/08/25 | 2023/08/24 |
| 7 | Amplifier | R&S | SCU26F | 100781 | 2022/08/25 | 2023/08/24 |
| 8 | Amplifier | R&S | SCU40F | 102713 | 2022/08/25 | 2023/08/24 |
| 8 | Horn Antenna | A-INFO | LB-180500H-2.4F | 2110081000089 | 2021/09/05 | 2024/09/04 |
| 9 | EMI Test Software | R&S | EMC32 | N/A | N/A | N/A |
| 10 | TC-RX50 | Tonscond | Receive Unit | 1544 | N/A | N/A |
| 11 | TC-RX75 | Tonscond | Receive Unit | 1545 | N/A | N/A |
| 12 | TC-RX110 | Tonscond | Receive Unit | 1546 | N/A | N/A |
| 13 | TC-RX170 | Tonscond | Receive Unit | 1547 | N/A | N/A |
| 14 | TC-RX240 | Tonscond | Receive Unit | 1548 | N/A | N/A |
| 15 | TC-RX40 | Tonscond | Receive Unit | 1543 | N/A | N/A |
| 16 | Antenna Mast | Maturo | BAM4.0 | N/A | N/A | N/A |
| 17 | Turntable | Maturo | TT3.5 | N/A | N/A | N/A |
| 18 | Loop Antenna | R&S | HFH2-Z2E | 101066 | 2021/09/05 | 2024/09/04 |

# 4. TEST CONDITIONS AND RESULTS

## 4.1. Field Strength of Emissions

### 4.1.1. LIMITS

(a) According to § 15.249(a) and RSS-210 B.10 (a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

| Fundamental frequency (MHz) | Field strength of fundamental (millivolts/meter) | Field strength of harmonics (microvolts/meter) |
|---|---|---|
| 902 – 928 | 50 | 500 |
| 2400 – 2482.5 | 50 | 500 |
| 5725 – 5875 | 50 | 500 |
| 24000 – 24250 | 250 | 2500 |

(b) According to § 15.249(c) and RSS-210 B.10 (a):Field strength limits are specified at a distance of 3 meters.:

(c) According to § 15.249(d): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

(d) According to RSS-210 B.10 (b): Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

(e) According to § 15.249(b): Fixed, point-to-point operation as referred to in this paragraph shall be limited to systems employing a fixed transmitter transmitting to a fixed remote location. Point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information are not allowed. Fixed, point-to-point operation is permitted in the 24.05–24.25 GHz band subject to the following conditions:

(1) The field strength of emissions in this band shall not exceed 2500 millivolts/meter.

(2) The frequency tolerance of the carrier signal shall be maintained within ±0.001% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(3) Antenna gain must be at least 33 dBi. Alternatively, the main lobe beamwidth must not exceed 3.5 degrees. The beamwidth limit shall apply to both the azimuth and elevation planes. At antenna gains over 33 dBi or beamwidths narrower than 3.5 degrees, power must be reduced to ensure that the field strength does not exceed 2500 millivolts/meter.

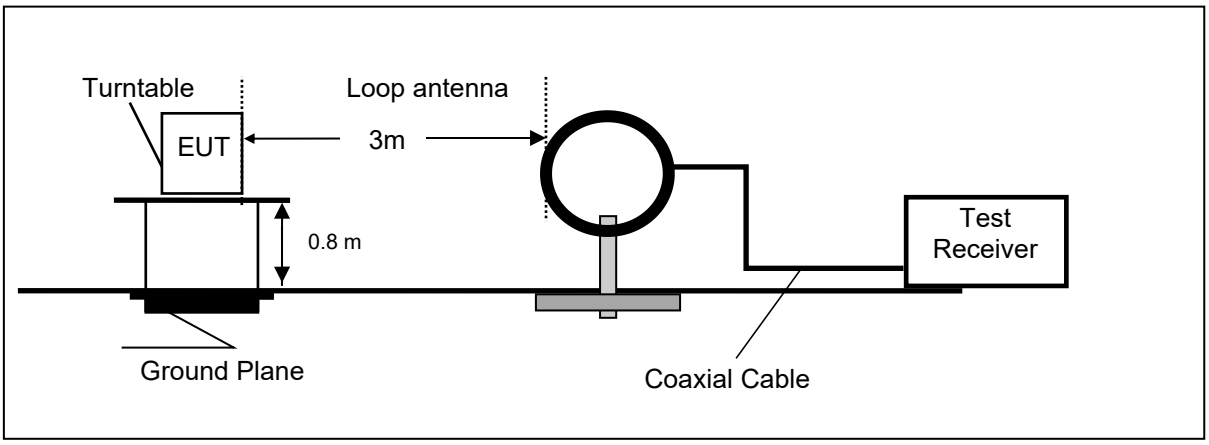
| Frequency (MHz) | Distance (Meters) | Radiated (dBμV/m) | Radiated (μV/m) |
|---|---|---|---|
| 0.009-0.49 | 3 | 20log(2400/F(KHz))+40log(300/3) | 2400/F(KHz) |
| 0.49-1.705 | 3 | 20log(24000/F(KHz))+ 40log(30/3) | 24000/F(KHz) |
| 1.705-30 | 3 | 20log(30)+ 40log(30/3) | 30 |
| 30-88 | 3 | 40.0 | 100 |
| 88-216 | 3 | 43.5 | 150 |
| 216-960 | 3 | 46.0 | 200 |
| Above 960 | 3 | 54.0 | 500 |

(1) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209 and RSS-Gen, whichever is the lesser attenuation.

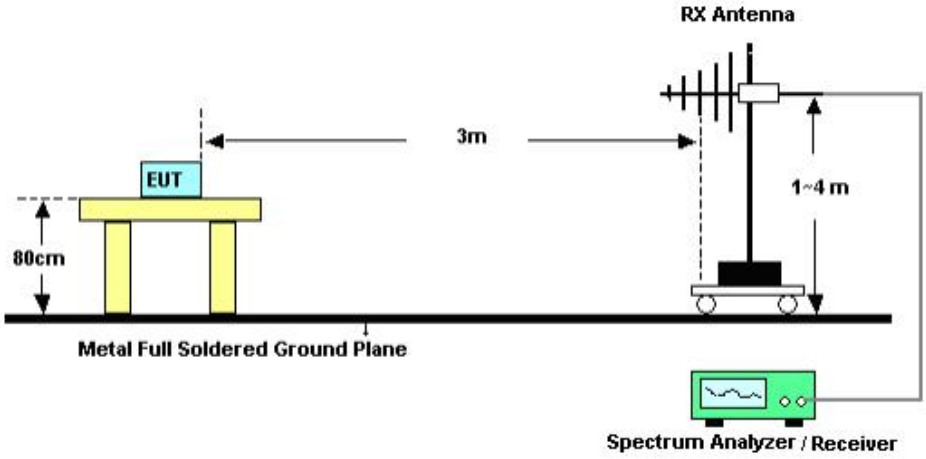
(2) The emission limits shown above are based on measurement instrumentation employing an average detector. The provisions in § 15.35 and RSS-Gen for limiting peak emissions apply.

### 4.1.2. TEST CONFIGURATION

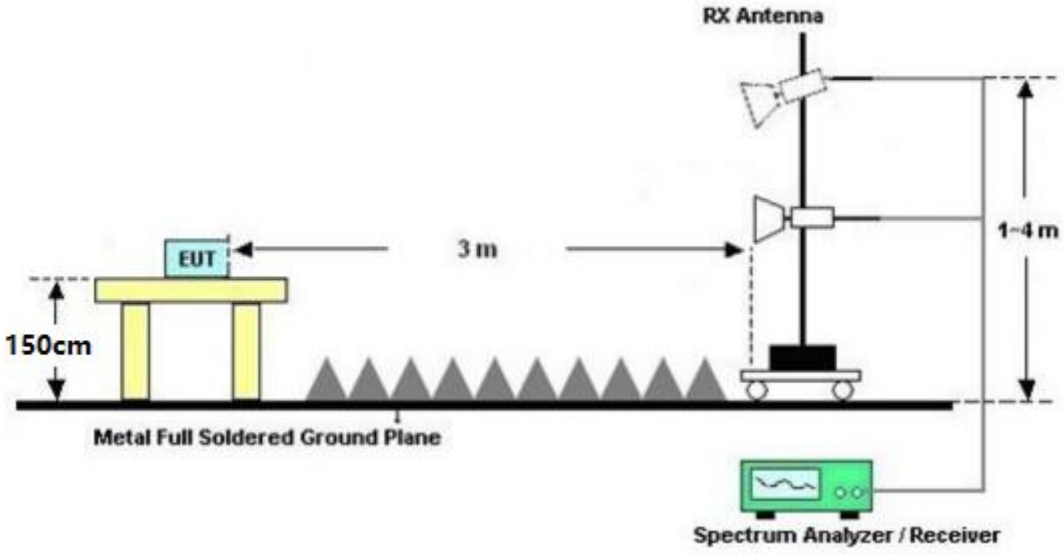
(a) Frequency range 9 KHz – 30MHz



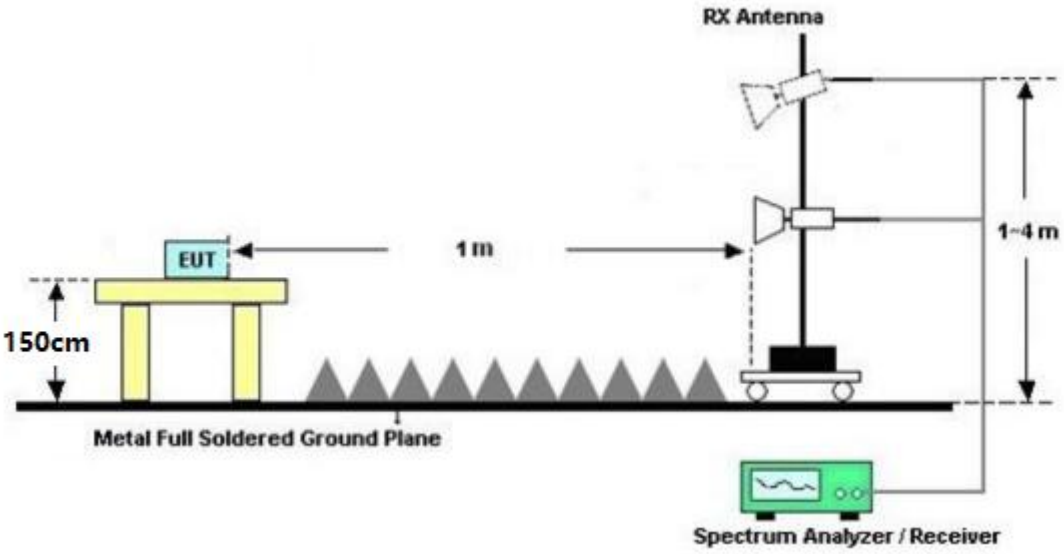

(b) Radiated emission test set-up, frequency range: 30 - 1000MHz




(c) Radiated emission test set-up, frequency range 1GHz – 18 GHz




(d) Radiated emission test set-up, frequency range above 18GHz




### 4.1.3. TEST PROCEDURE

#### 4.1.3.1 Sequence of testing radiated spurious 9 KHz to 30 MHz

**Setup**

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 3m (see ANSI C63.4) – see test details.
- EUT is set into operation.

**Premeasurement**

- The turntable rotates from 0 degree to 360 degree.
- The antenna height is 1m.
- Set RBW = 200 Hz / VBW = 1 KHz, sweep time: Auto
- At each turntable position the anzlyer sweeps with position-peak detector to find the maximum of all emissions.

**Final measurement**

- Identified emissions during the premeaurement are maximized by the software by rotating the turntable from 0 degree to 360 degree.
- The final measurement is done in the position (turntable and elevation) causing the highest emissions with quasi-peak (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, conrrection factor, margin to the limit and limit will be recorded. A plot with the graph of the measurement and the limit is stored.

#### 4.1.3.2 Sequence of testing radiated spurious 30 MHz to 1 GHz

**Setup**

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 0.8 m height is used, which is placed on the ground plance.
- If the EUT is a floor standing device, it is placed directly on the ground plane.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 3m (see ANSI C63.4) – see test details.
- EUT is set into operation.

**Premeasurement**
- The turntable rotates from 0 degree to 360 degree.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set RBW = 120 KHz / VBW = 1 MHz, sweep time: Auto
- At each turntable position the anzlyer sweeps with position-peak detector to find the maximum of all emissions.

**Final measurement**
- The final neasurement is perormed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable and antenna height between 1 and 4 m.
- The final measurement is done with quasi-peak detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, conrrection factor, margin to the limit and limit will be recorded. A plot with the graph of the measurement and the limit is stored.

#### 4.1.3.3 Sequence of testing radiated spurious 1 GHz to 18 GHz

**Setup**
- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 3m (see ANSI C63.4) – see test details.
- EUT is set into operation.

**Premeasurement**
- The turntable rotates from 0 degree to 360 degree.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Peak for Peak, RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Average for Average.
- At each turntable position the anzlyer sweeps with position-peak detector to find the maximum of all emissions.

**Final measurement**
- The final neasurement us perormed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable and antenna height between 1 and 4 m.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the height emissions with Peak and Average detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, conrrection factor, margin to the limit and limit will be recorded. A plot with the graph of the measurement and the limit is stored.

#### 4.1.3.4 Sequence of testing radiated spurious above 18 GHz

**Setup**
- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 1m (see ANSI C63.4) – see test details.
- EUT is set into operation.

**Premeasurement**

- The turntable rotates from 0 degree to 360 degree.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Peak for Peak, RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Average for Average.
- At each turntable position the anzlyer sweeps with position-peak detector to find the maximum of all emissions.

**Final measurement**

- The final neasurement is perormed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable and antenna height between 1 and 4 m.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the height emissions with Peak and RMS detector (as described in ANSI C 63.4).
- All final levels should consider distance conversion factor as format: Final values (3 m) = Measurement values (1 m) + Distance conversion factor
  Distance conversion factor = 20 x $Log_{10}$ (d/3), where d = measurement distance in m
  - Distance conversion factor = 20 x $Log_{10}$ (1/3) = -9.54 [dB]
- Final levels, frequency, measuring time, bandwidth, turntable position, conrrection factor, margin to the limit and limit will be recorded. A plot with the graph of the measurement and the limit is stored.

#### 4.1.3.5 Sequence of testing radiated spurious above 40 GHz with external mixers

**Setup**

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 1m (see ANSI C63.4) – see test details.
- EUT is set into operation.

**Premeasurement**

- The turntable rotates from 0 degree to 360 degree.
- The antenna with external mixer is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Peak for Peak, RBW = 1 MHz / VBW = 3 MHz, sweep time: Auto, detector: Average for Average.
- At each turntable position the anzlyer sweeps with position-peak detector to find the maximum of all emissions.

**Final measurement**

- The final neasurement is perormed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable and antenna height between 1 and 4 m.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the height emissions with Peak and RMS detector (as described in ANSI C 63.4).
- All final levels should consider distance conversion factor as format: Final values (3 m) = Measurement values (1 m) + Distance conversion factor
  Distance conversion factor = 20 x $Log_{10}$ (d/3), where d = measurement distance in m
  - Distance conversion factor = 20 x $Log_{10}$ (1/3) = -9.54 [dB]
- Final levels, frequency, measuring time, bandwidth, turntable position, conrrection factor, margin to the limit and limit will be recorded. A plot with the graph of the measurement and the limit is stored.

### 4.1.4. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

**FS (dBuV/m) = RA (dBuV) + AF (dB/m) + CL (dB) – AG (dB)**

| | |
|---|---|
| Where FS = Field Strength | CL = Cable Attenuation Factor (Cable Loss) |
| RA = Reading Amplitude | AG = Amplifier Gain |
| AF = Antenna Factor | |

### 4.1.5. TEST RESULTS

EIRP measurements were ensured to be taken in the Far-Field test distance are shown in Section 2.15.

**Sample Calculations**

*Calculating Field Strength from substitution power:*

$$E(dBuV/m) = 126.8 - 20\log(\lambda) + P - G$$

*Where;*
*E is the field strength of the emission at the measurement distance, in dBuV/m*
*P is the power measured at the output of the test antenna, in dBm; where P includes all applicable instrument correction factors up to the connections to the test antenna.*
*$\lambda$ is the wavelength of the emission under investigation [300 / $f_{MHz}$], in m.*
*G is the gain of the test antenna, in dBi.*

*Calculating EIRP from Field Strength;*

$$EIRP_{[dBm]} = E_{measurement} + 20\log(D_{measured}) - 104.7$$

*Where;*
*EIRP is the equivalent isotropic radiated power in dBm*
*$E_{measured}$ is the field strength of the emission at the measurement distance, in dBuV/m*
*$D_{measure}$d is the measurement distance in meters.*

***74 dBuV/m @ 3m measurement distance = -21.250 dBm @ 1m measurement distance***
***54 dBuV/m @ 3m measurement distance = -41.250 dBm @ 1m measurement distance***
***Harmonics level 2500 uV/m @ 3m measurement distance = 67.96 dBuV/m @ 3m measurement distance = -27.27 dBm @ 1m measurement distance***
***87.96 dBuV/m @ 3m measurement distance = -7.27 dBm @ 1m measurement distance***

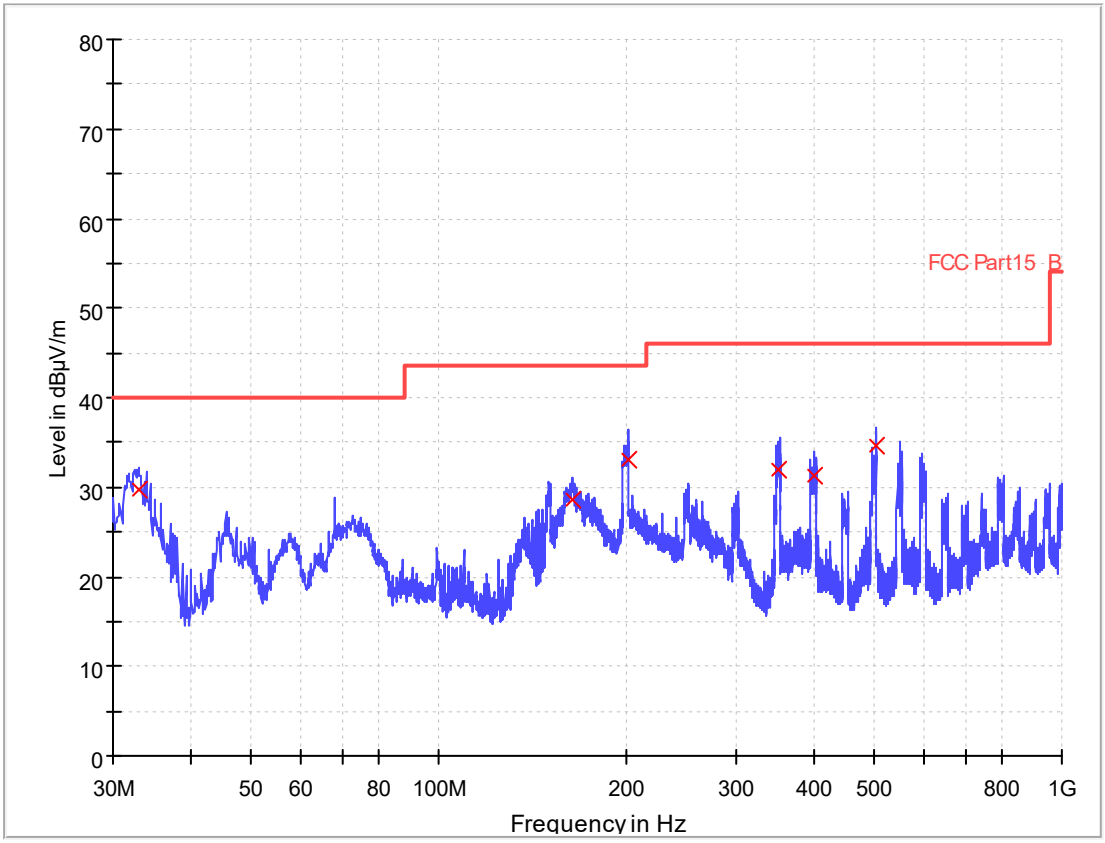
PASS

*Remark:*

1. Not recorded values after pre-test below 30 MHz (9 KHz – 30 MHz), values at least 20 dB below limit.
2. Measured all channels from 30 MHz – 18 GHz, only recorded worst case at high channel.

| Test Condictions | Test Channel | Nominal Frequency [MHz] | EUT/Antenna Orientation | Maximum Field Strength [dBuV/m @ 3m] | | | | Test Results |
|---|---|---|---|---|---|---|---|---|
| | | | | Peak | Peak Limit | Average | Average Limit | |
| $T_{nom}$ / $V_{nom}$ | Low | 24016.00 | X/H&V | 96.25 | 127.96 | 95.35 | 107.96 | PASS |
| $T_{nom}$ / $V_{nom}$ | Middle | 24122.00 | X/H&V | 101.33 | 127.96 | 100.97 | 107.96 | PASS |
| $T_{nom}$ / $V_{nom}$ | High | 24220.00 | X/H&V | 105.29 | 127.96 | 105.01 | 107.96 | PASS |

Plots No. 1: 30 MHz to 1 GHz, Horizontal / Vertical Polarization _ High Channel



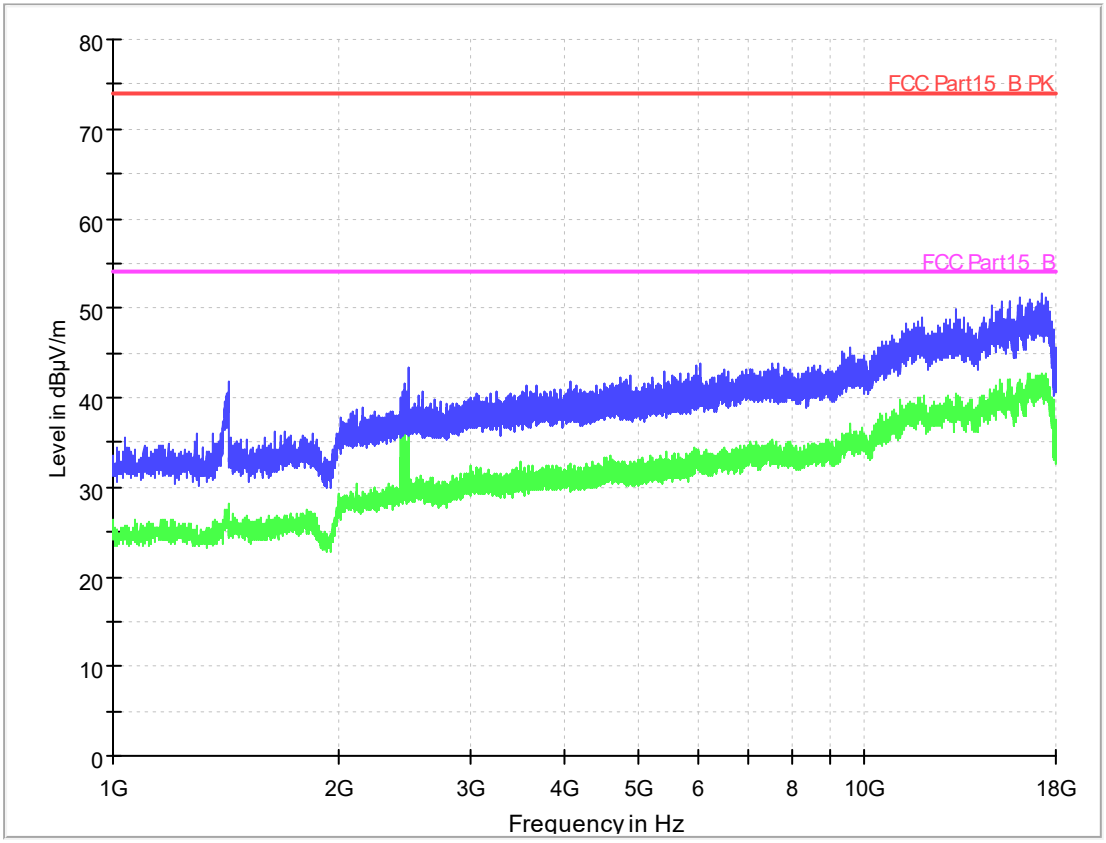

## Limit and Margin

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) | Margin - QPK (dB) |
|---|---|---|---|---|---|---|---|---|
| 33.000000 | 29.7 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -25.3 | 10.3 |
| 163.840000 | 28.6 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -23.3 | 15.0 |
| 200.800000 | 33.1 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -26.7 | 10.4 |
| 350.600000 | 32.0 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -21.8 | 14.0 |
| 401.720000 | 31.2 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -20.7 | 14.8 |
| 504.040000 | 34.7 | 1000.0 | 120.000 | 150.0 | H | 180.0 | -18.2 | 11.3 |

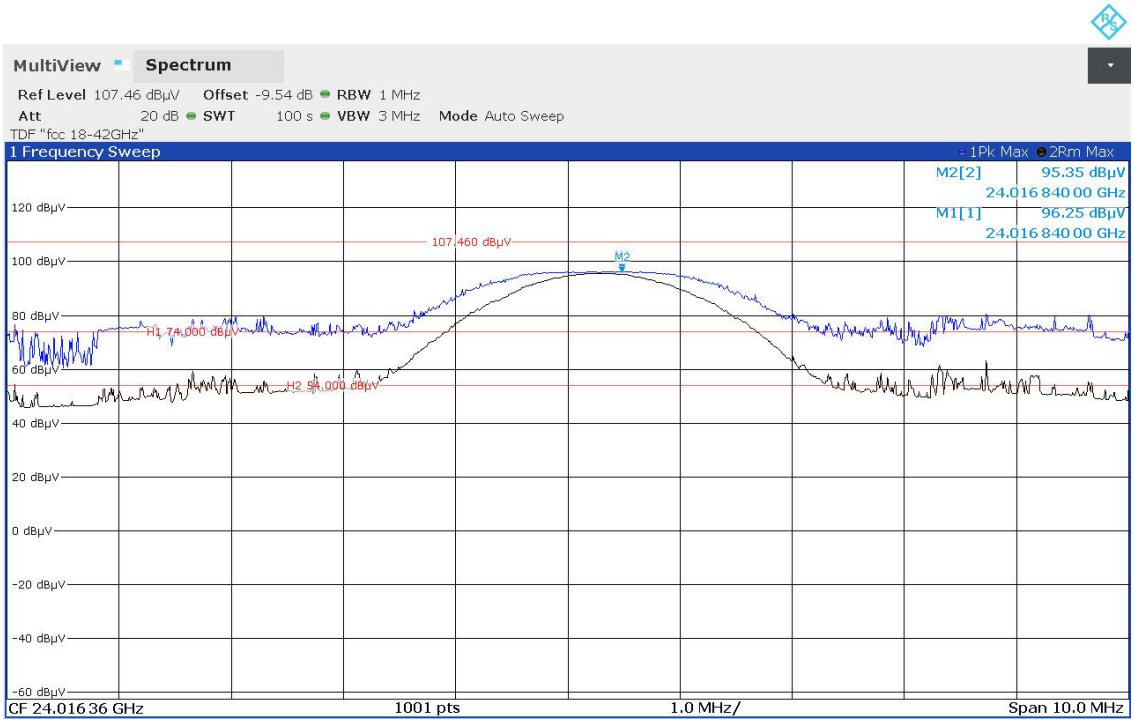
**(continuation of the "Limit and Margin" table from column 16 ...)**

| Frequency (MHz) | Limit - QPK (dBµV/m) | Comment |
|---|---|---|
| 33.000000 | 40.0 | |
| 163.840000 | 43.5 | |
| 200.800000 | 43.5 | |
| 350.600000 | 46.0 | |

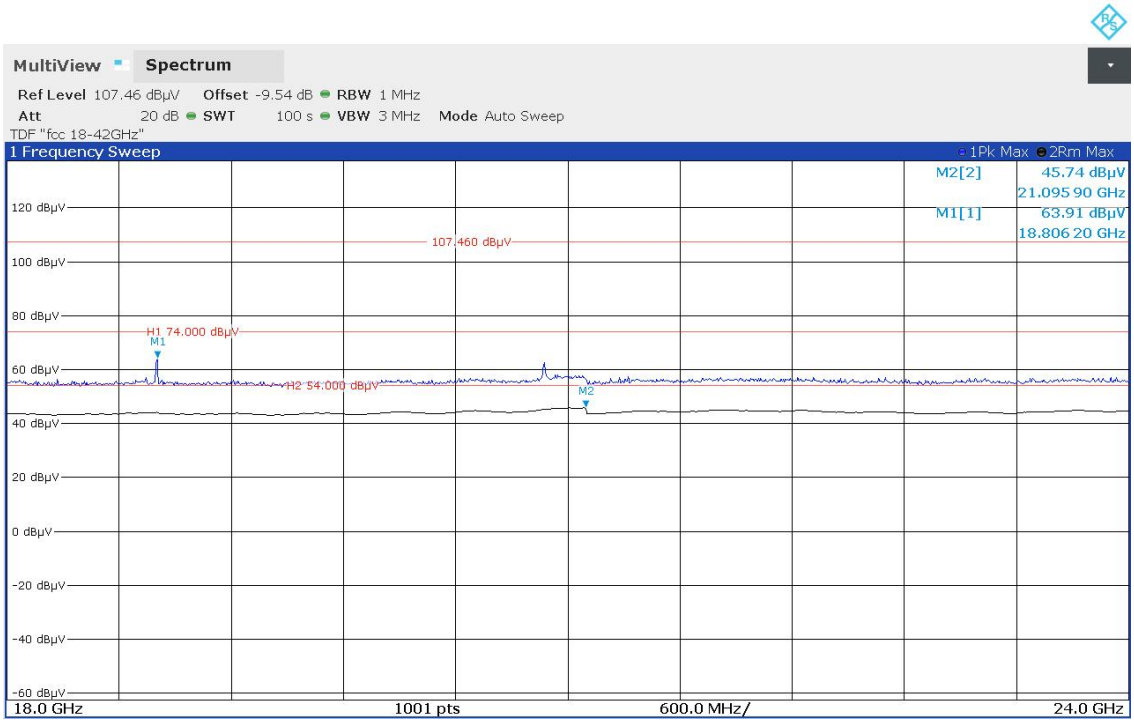
Plots No. 2: 1 GHz to 18 GHz, Horizontal / Vertical Polarization _ High Channel



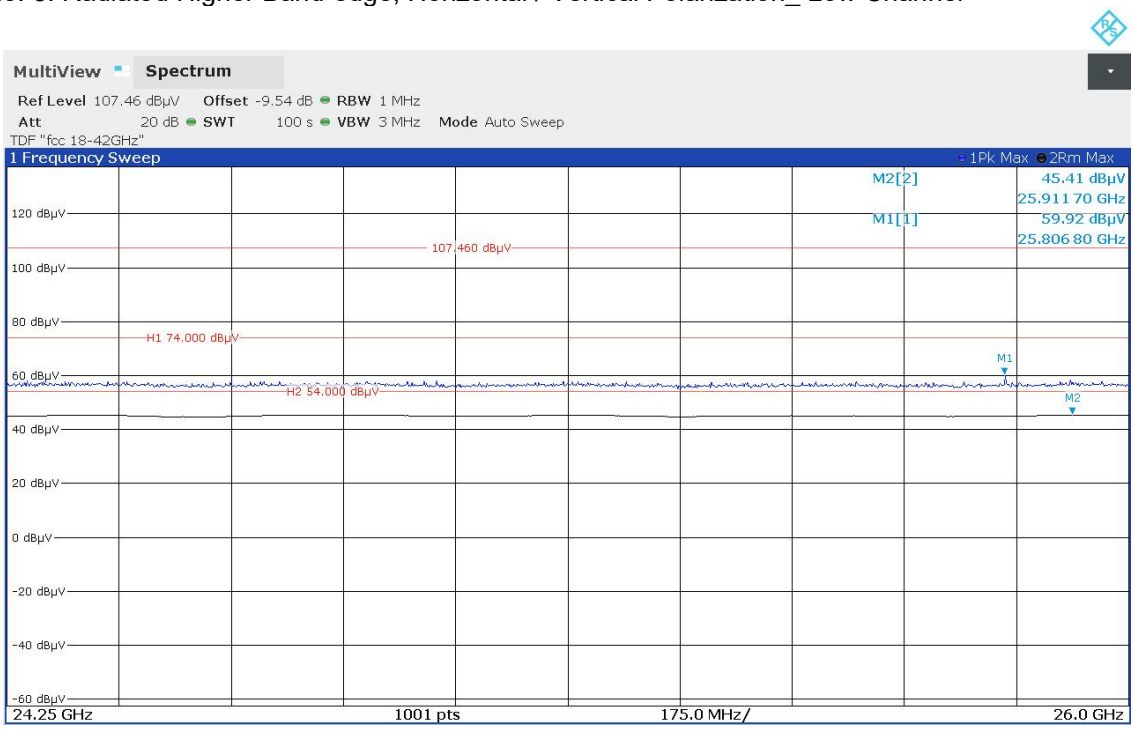

Plots No. 3: Radiated Maximum Field Strength, Horizontal / Vertical Polarization _ Low Channel



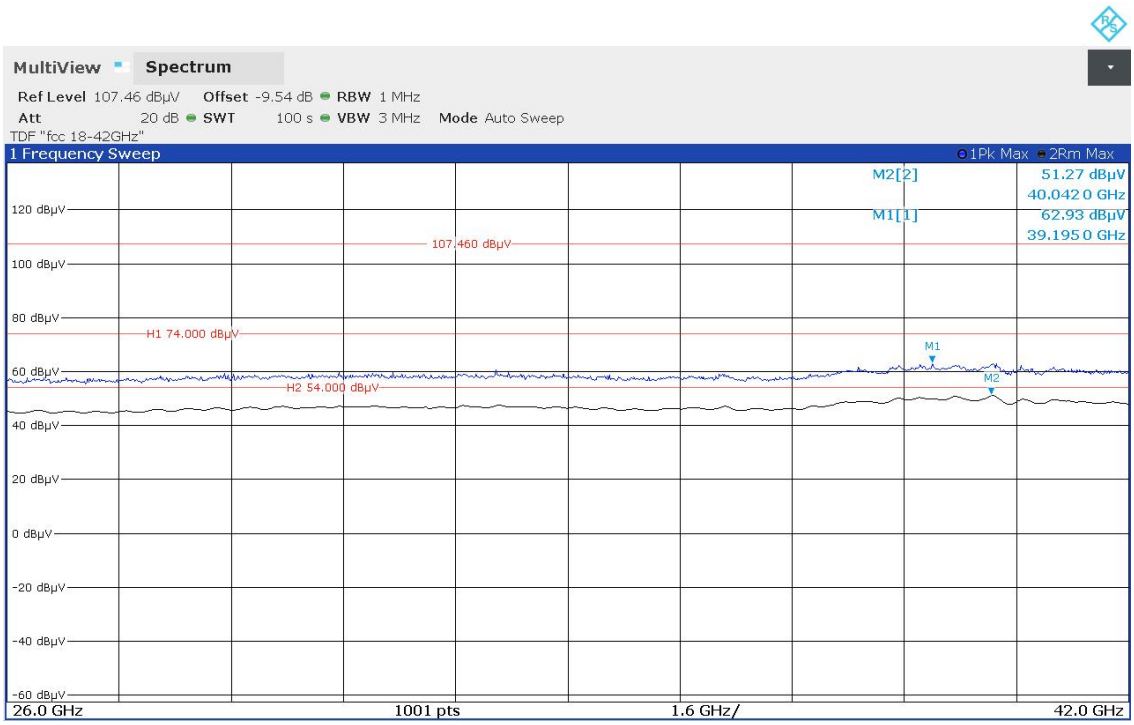
Plots No. 4: Radiated Lower Band-edge, Horizontal / Vertical Polarization _ Low Channel



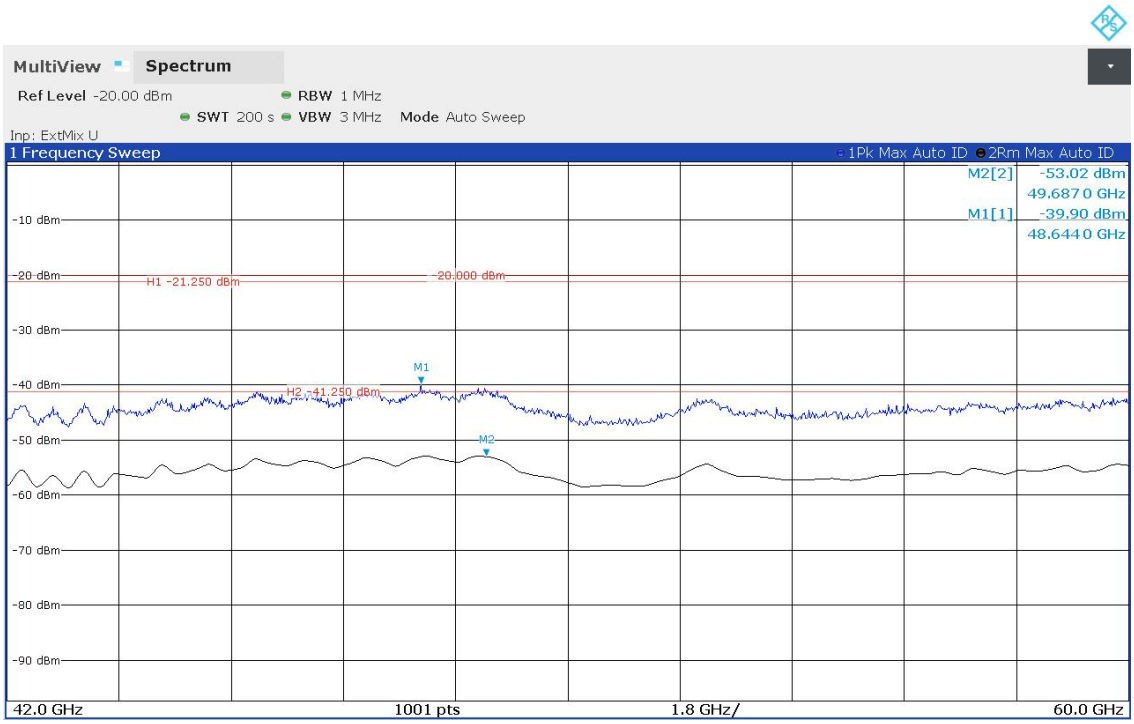

Plots No. 5: Radiated Higher Band-edge, Horizontal / Vertical Polarization_ Low Channel



Plots No. 6: 26.5 GHz to 42 GHz, Horizontal / Vertical Polarization _ Low Channel

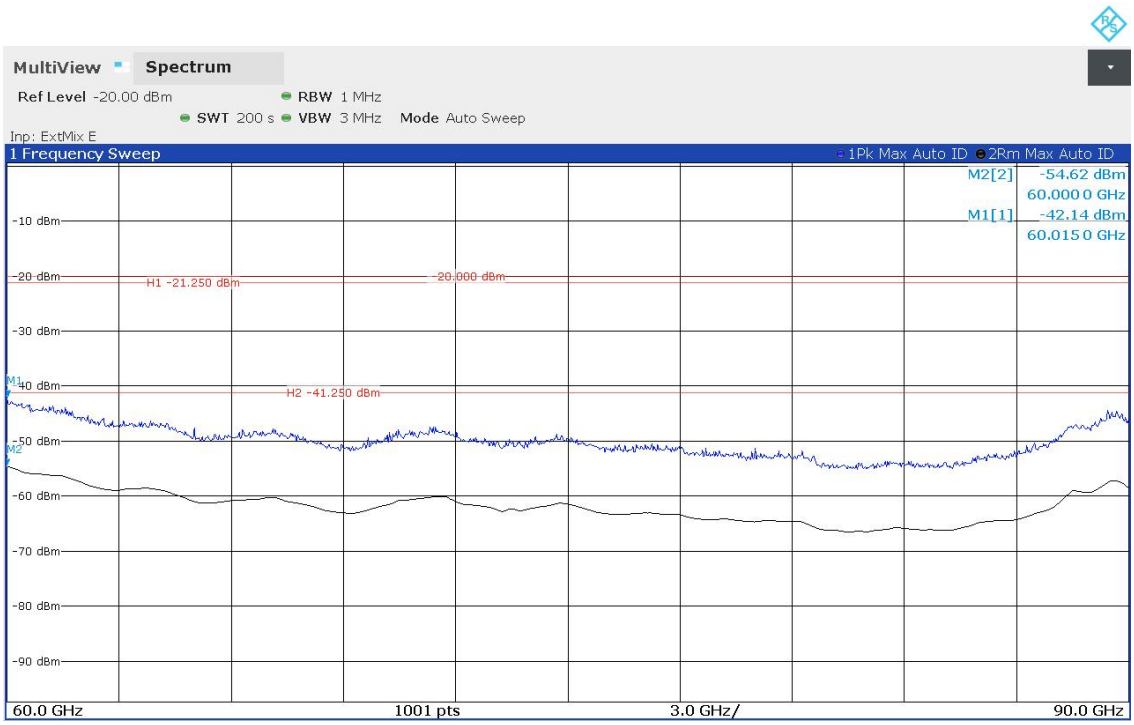



Plots No. 7: 42 GHz to 60 GHz, Horizontal / Vertical Polarization _ Low Channel

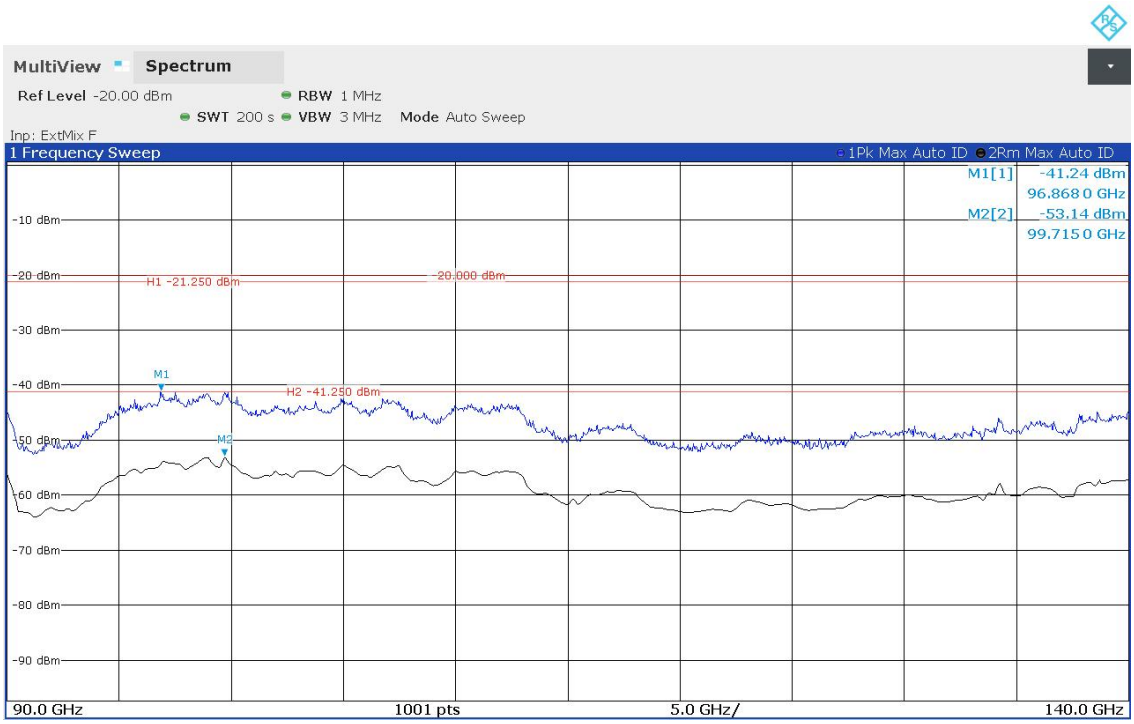



Note: Harmonics limit is -7.27 dBm (Peak mode) and -27.27 dBm (Average mode)

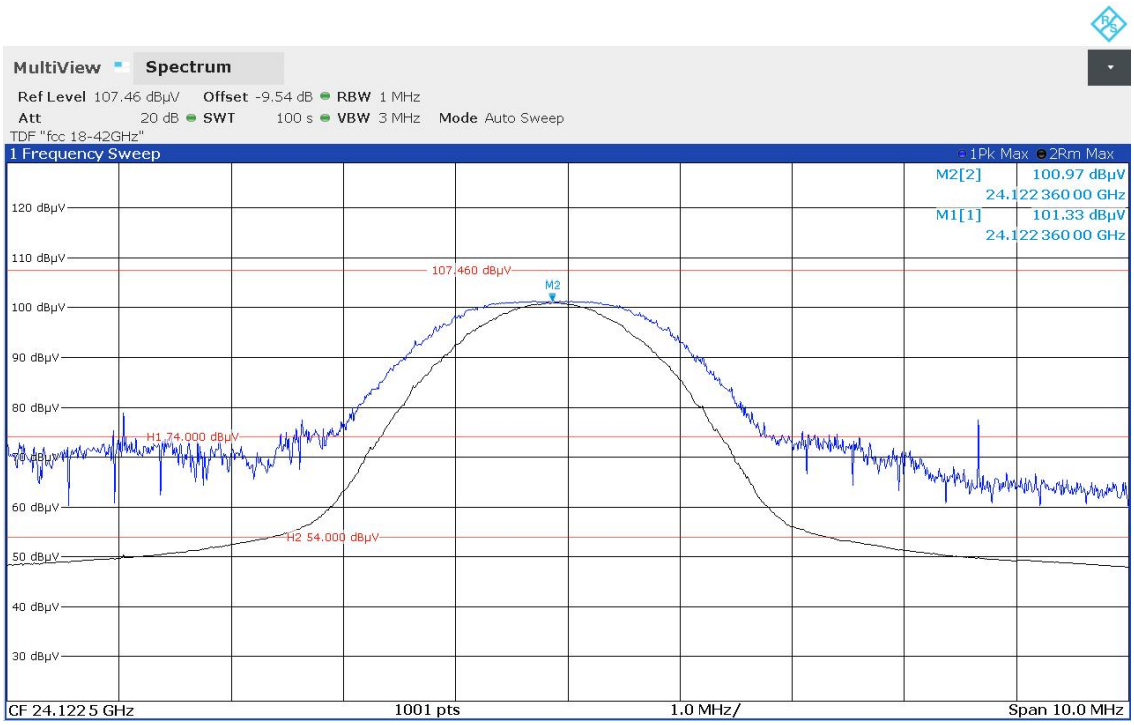
Plots No. 8: 60 GHz to 90 GHz, Horizontal / Vertical Polarization _ Low Channel



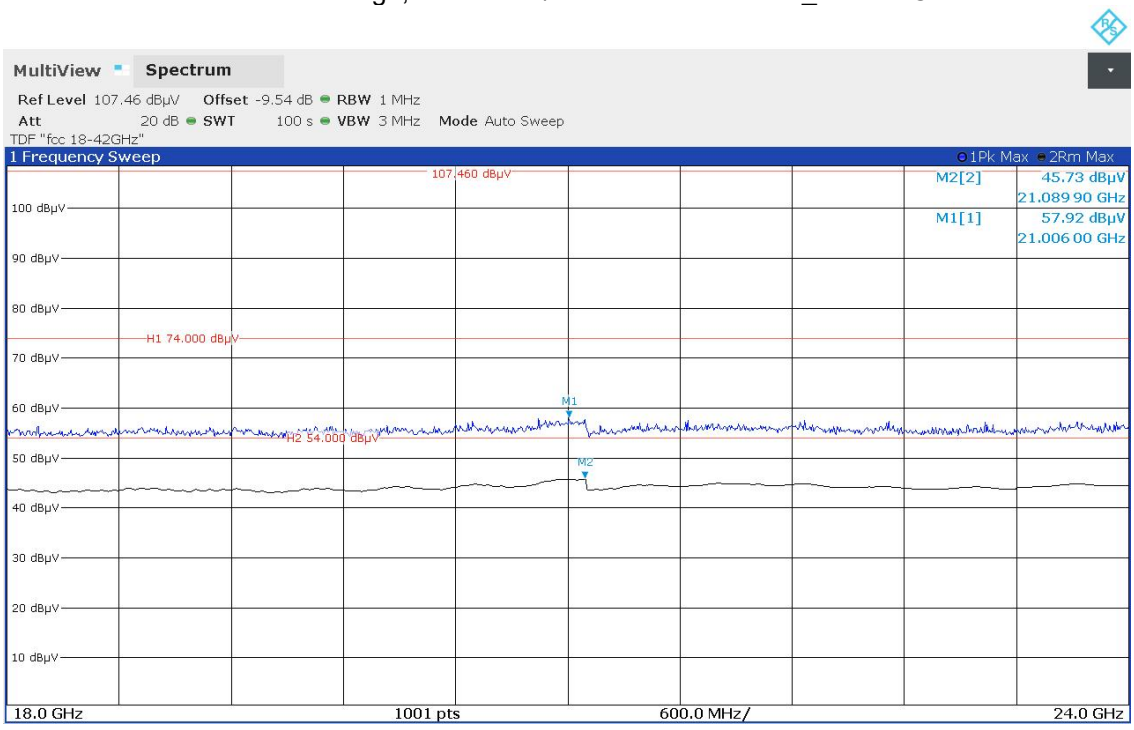

Plots No. 9: 90 GHz to 140 GHz, Horizontal / Vertical Polarization _ Low Channel



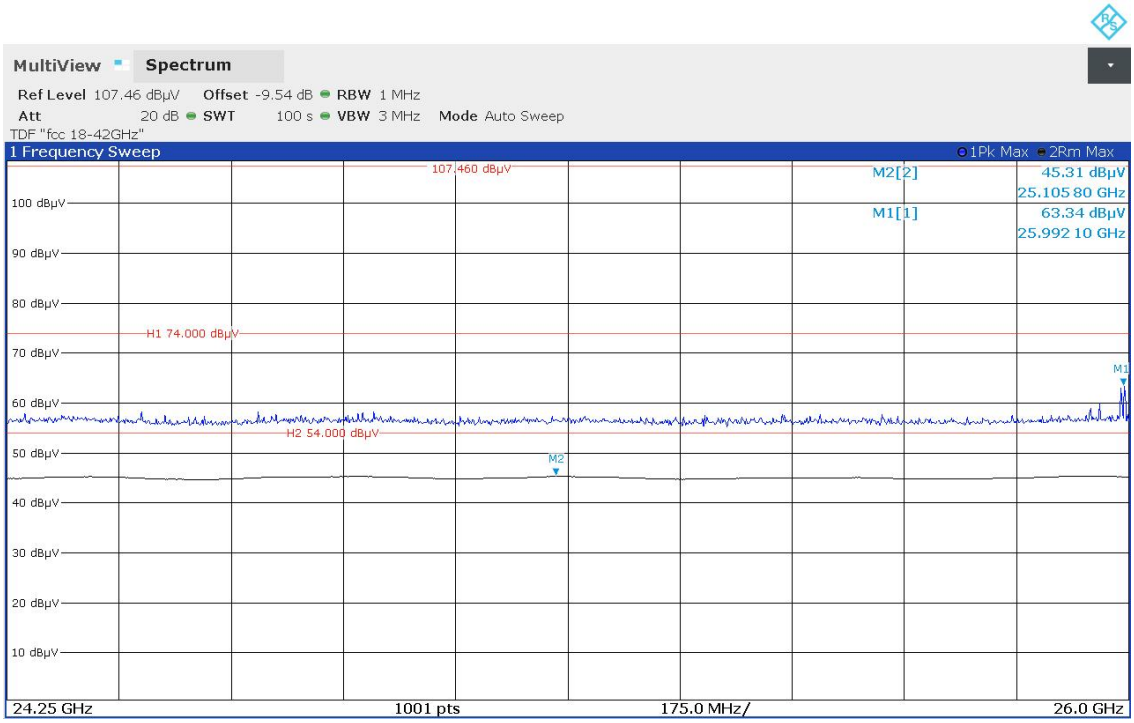
Plots No. 10: Radiated Maximum Field Strength, Horizontal / Vertical Polarization _ Middle Channel



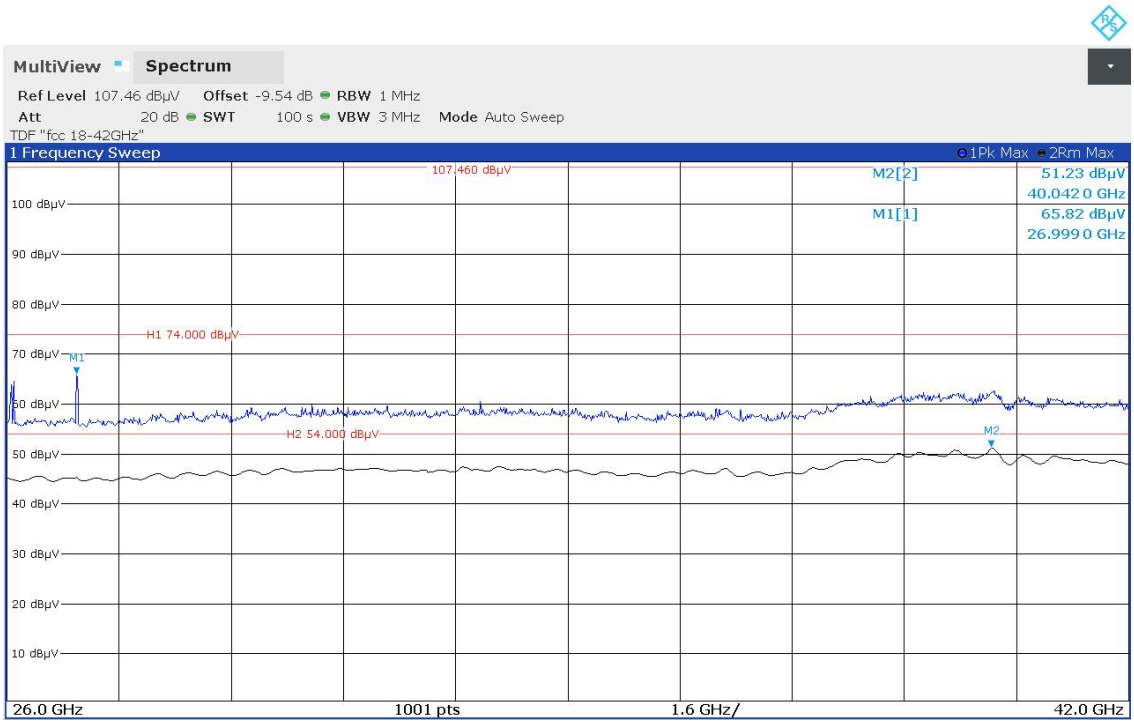

Plots No. 11: Radiated Lower Band-edge, Horizontal / Vertical Polarization _ Middle Channel



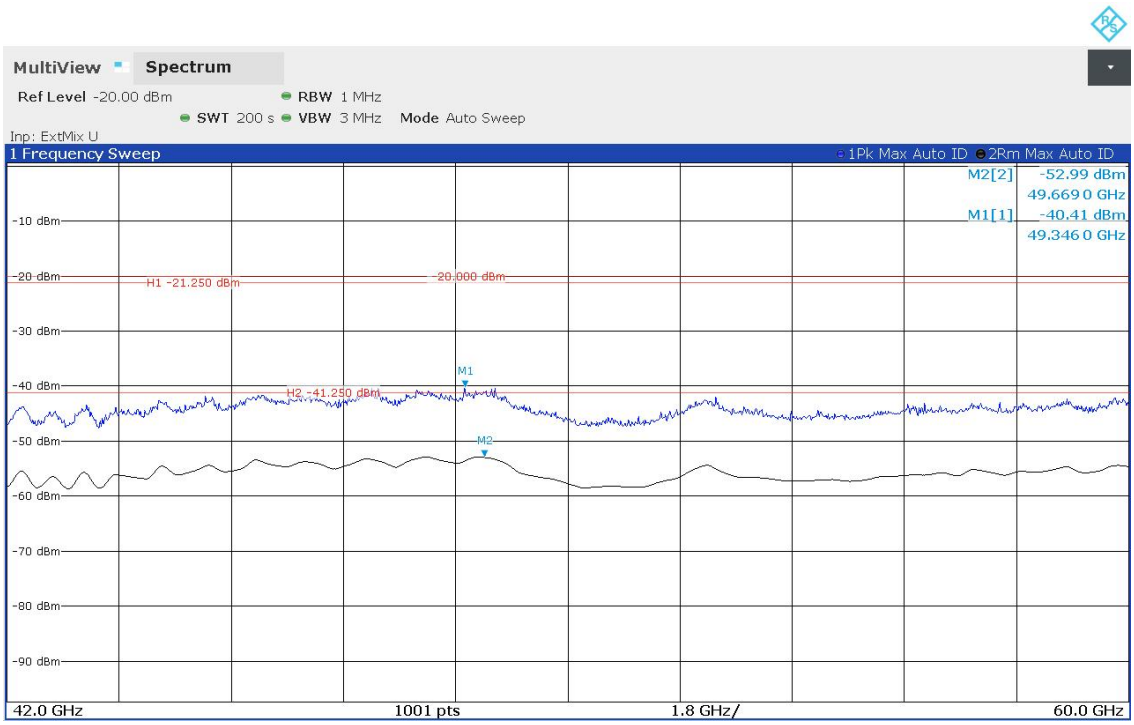
Plots No. 12: Radiated Higher Band-edge, Horizontal / Vertical Polarization_ Middle Channel




Plots No. 13: 26.5 GHz to 42 GHz, Horizontal / Vertical Polarization _ Middle Channel

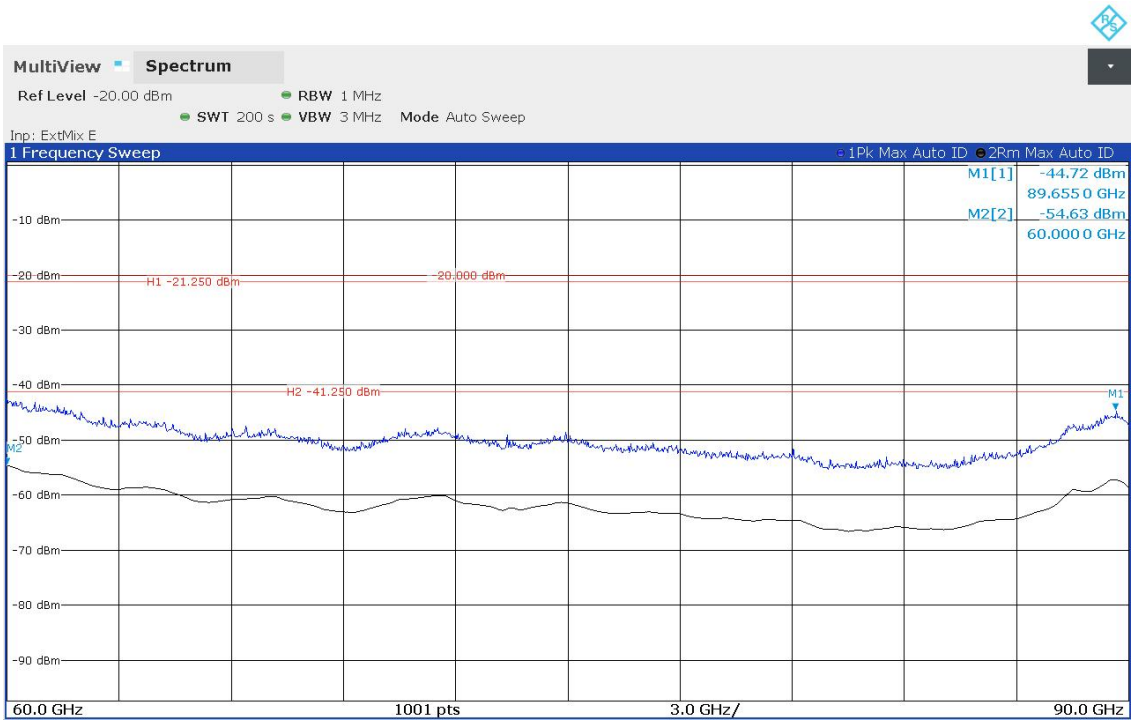


Plots No. 14: 42 GHz to 60 GHz, Horizontal / Vertical Polarization _ Low Channel

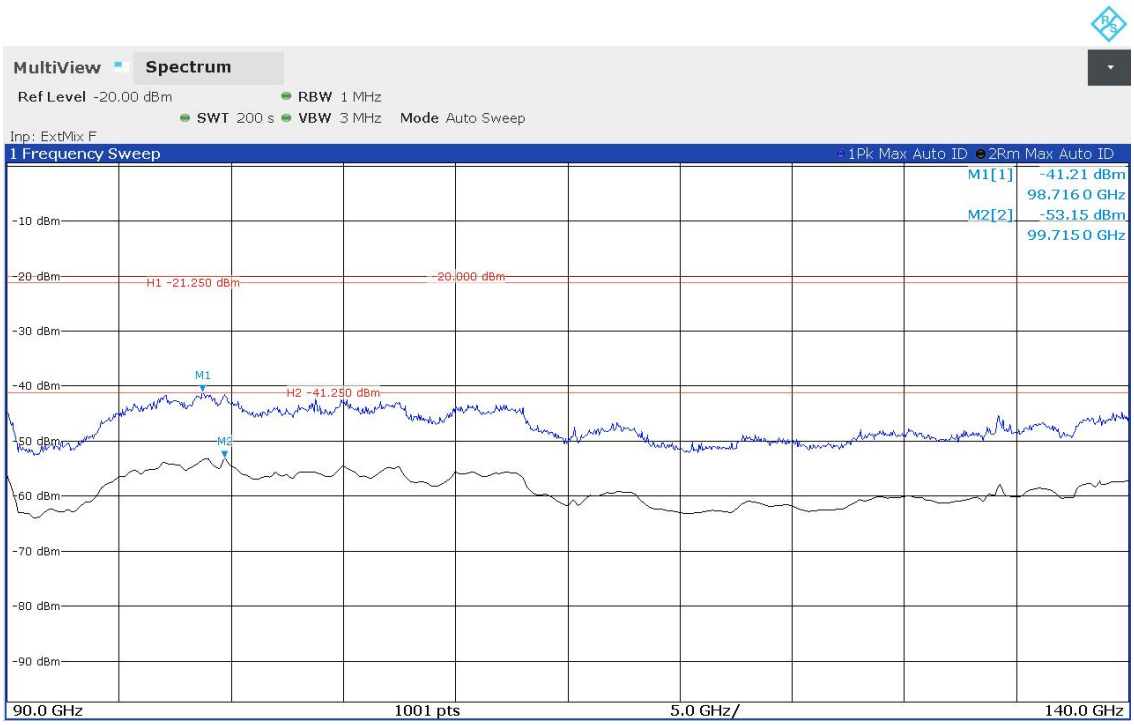



Note: Harmonics limit is -7.27 dBm (Peak mode) and -27.27 dBm (Average mode)

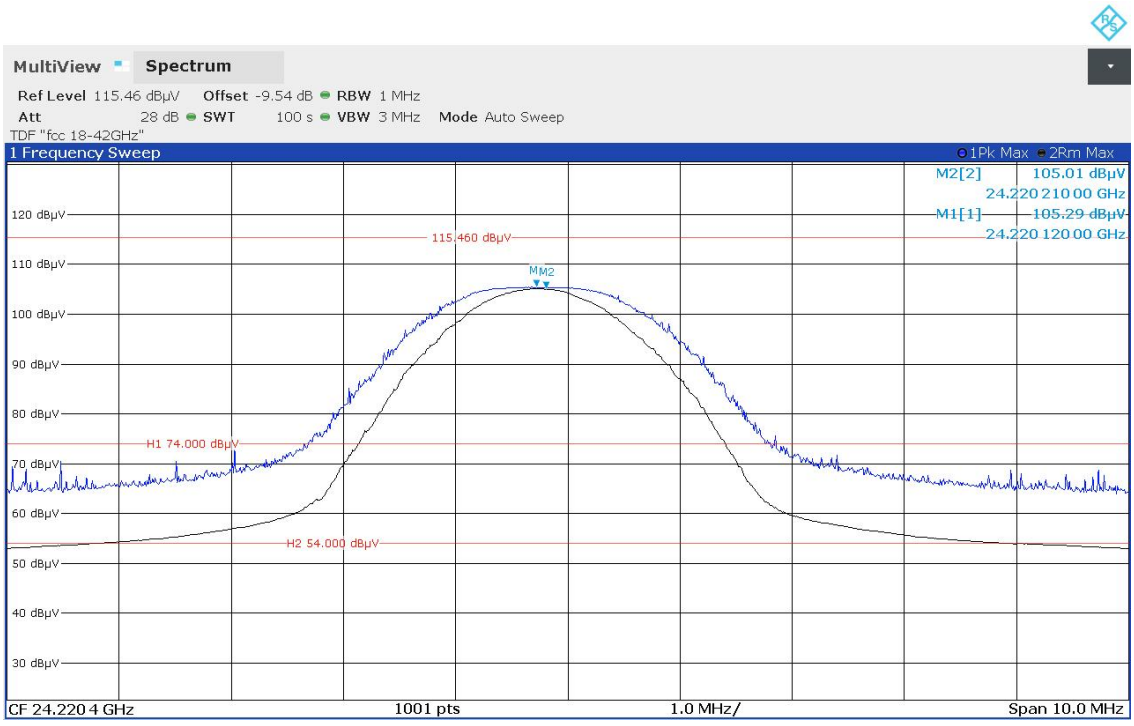
Plots No. 15: 60 GHz to 90 GHz, Horizontal / Vertical Polarization _ Middle Channel



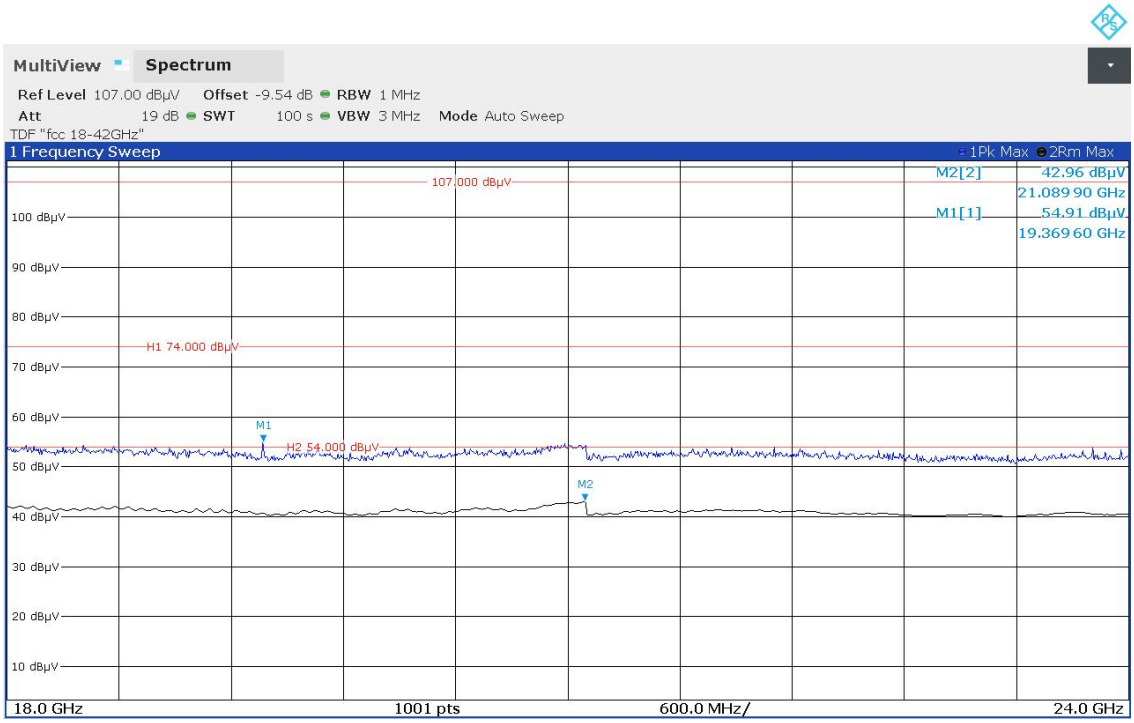
Plots No. 16: 90 GHz to 140 GHz, Horizontal / Vertical Polarization _ Middle Channel



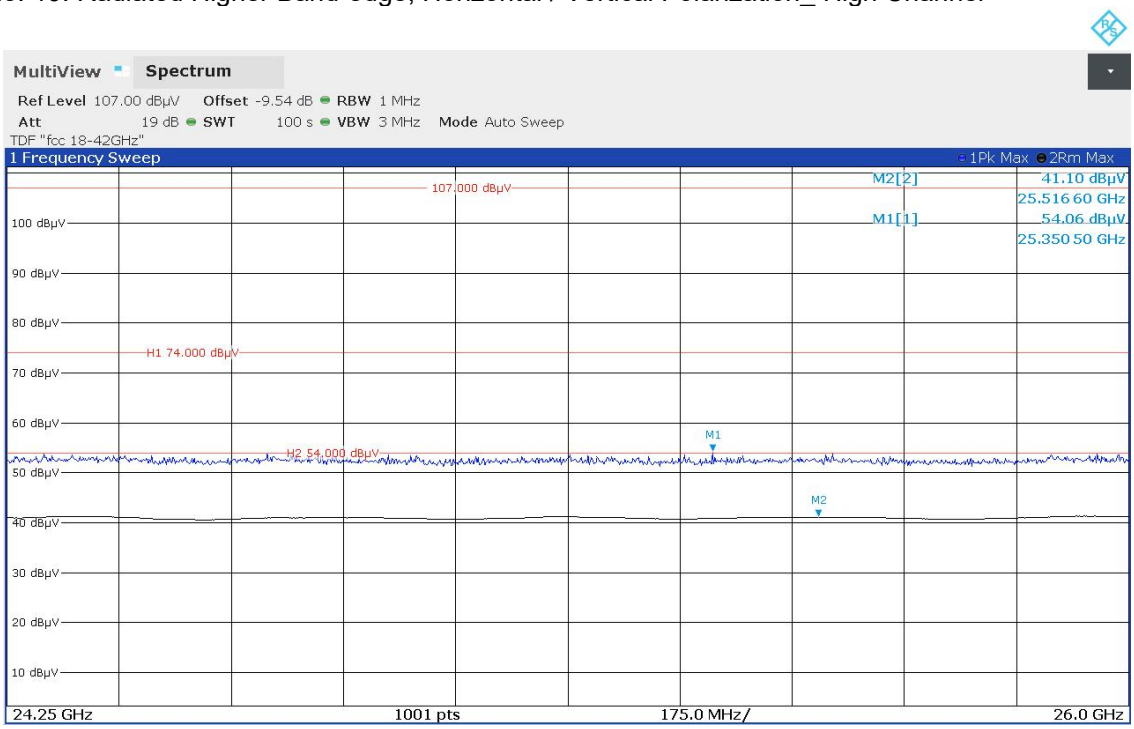

Plots No. 17: Radiated Maximum Field Strength, Horizontal / Vertical Polarization _ High Channel



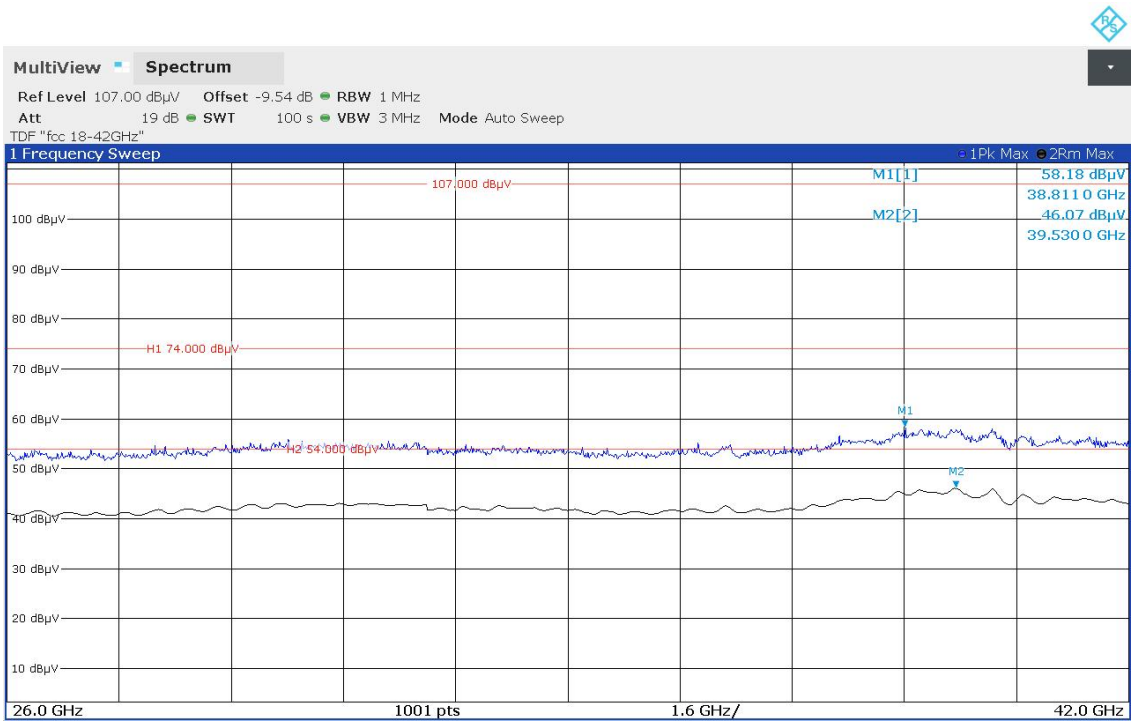
Plots No. 18: Radiated Lower Band-edge, Horizontal / Vertical Polarization _ High Channel



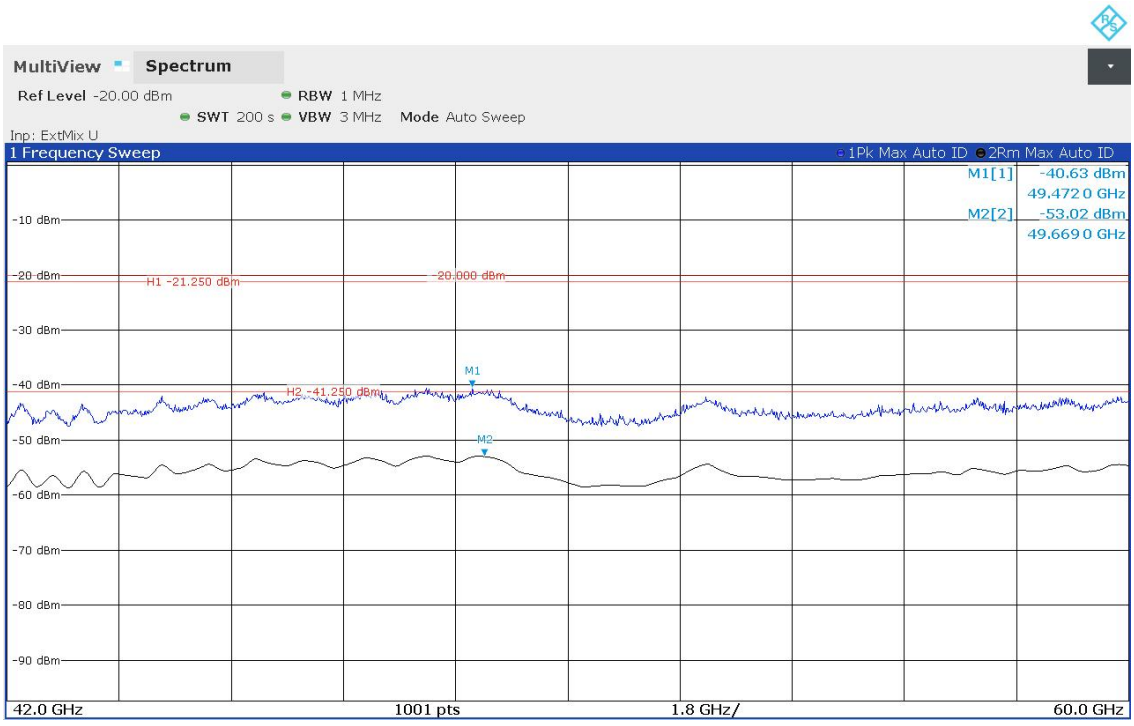

Plots No. 19: Radiated Higher Band-edge, Horizontal / Vertical Polarization_ High Channel



Plots No. 20: 26.5 GHz to 42 GHz, Horizontal / Vertical Polarization _ High Channel

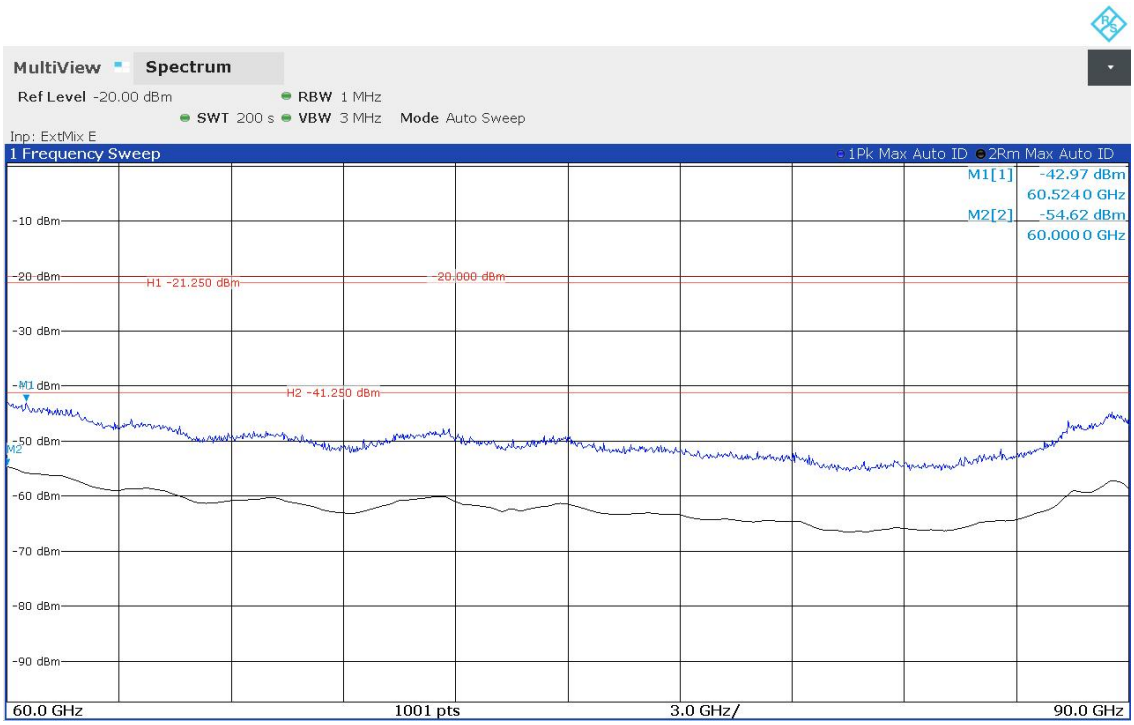



Plots No. 21: 42 GHz to 60 GHz, Horizontal / Vertical Polarization _ High Channel

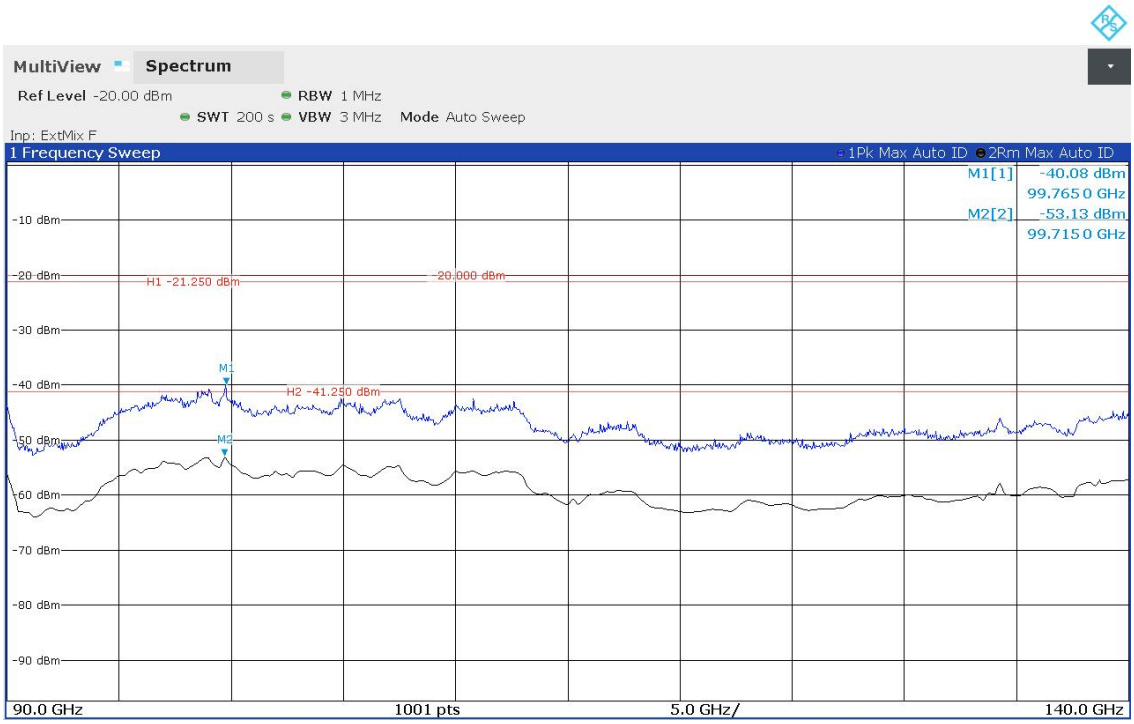



Note: Harmonics limit is -7.27 dBm (Peak mode) and -27.27 dBm (Average mode)

Plots No. 23: 60 GHz to 90 GHz, Horizontal / Vertical Polarization _ High Channel




Plots No. 23: 90 GHz to 140 GHz, Horizontal / Vertical Polarization _ High Channel



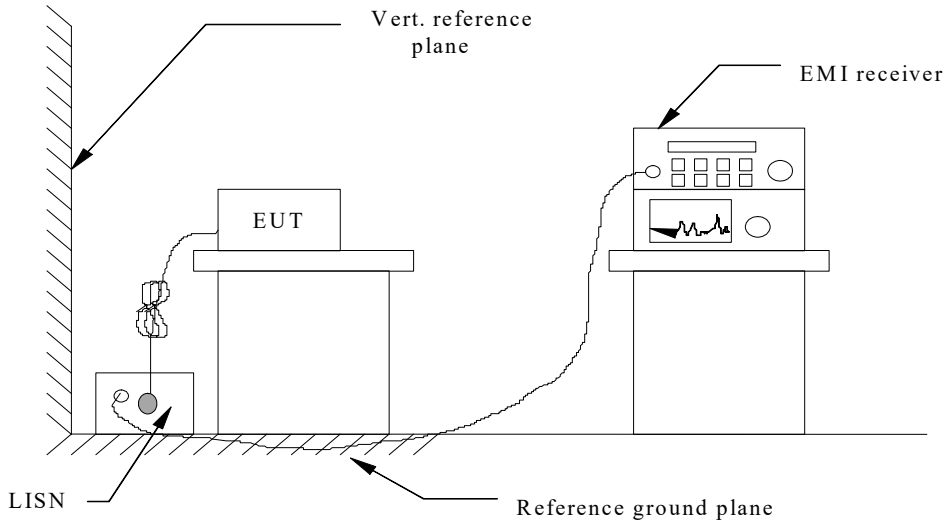
## 4.2. AC Conducted Emission

### 4.2.1. LIMITS OF DISTURBANCE

According to RSS Gen 8.8 and § 15.207(a) Line Conducted Emission Limits is as following:

| Frequency range (MHz) | Limit (dBuV) | |
|---|---|---|
| | 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. | | |

### 4.2.2. TEST CONFIGURATION




### 4.2.3. TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
2. Support equipment, if needed, was placed as per ANSI C63.10-2013
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
4. The EUT received DC 12V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipment received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50-ohm load; the second scan had Line 1 connected to a 50-ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

### 4.2.4. DISTURBANCE CALCULATION

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

**CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)**

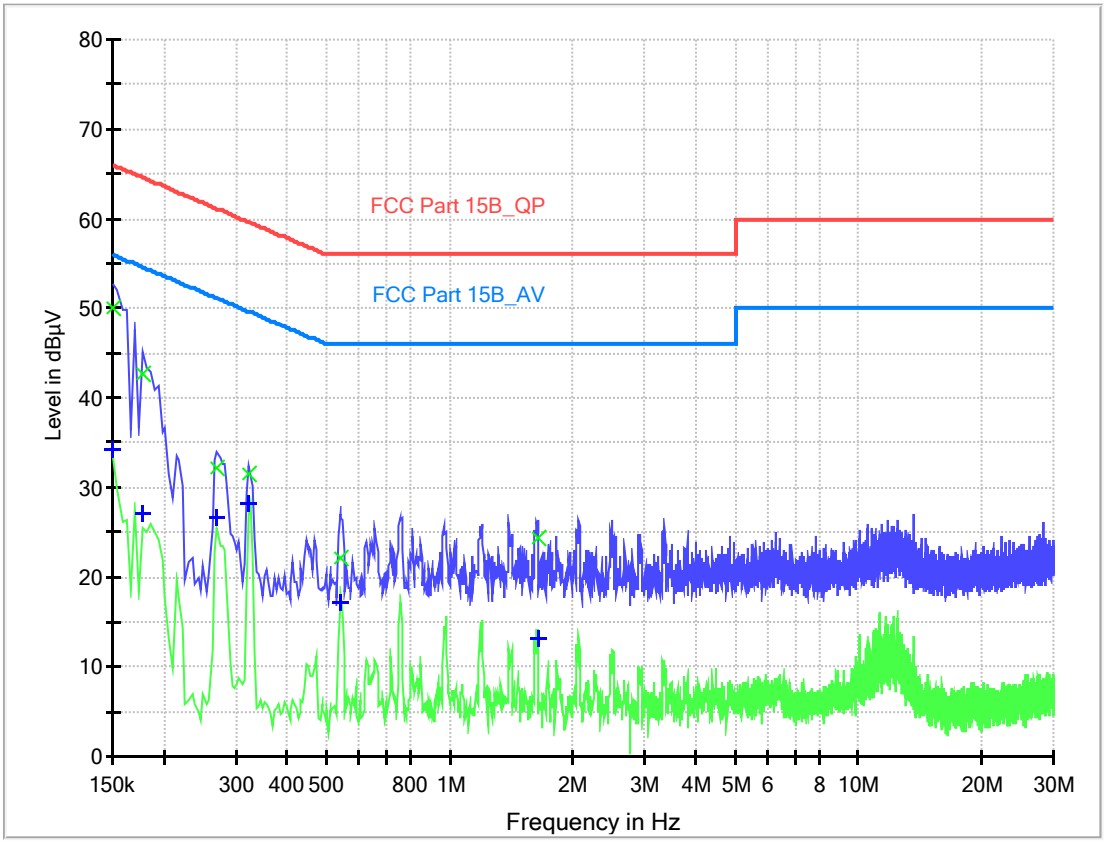
| | |
|---|---|
| Where CD = Conducted Disturbance | CL = Cable Attenuation Factor (Cable Loss) |
| RA = Reading Amplitude | PL = 10 dB Pulse Limiter Factor |

### 4.2.5. TEST RESULTS

PASS

*Remark:*
1. *Measured both AC 120V/60Hz and AC 230V/50Hz, recorded worst case at AC 120V/60Hz.*
2. *Measured all channels and recorded worst case at high channel.*

Plots No. 24: AC Mains Conducted Emission _ AC 120V/60Hz _ High Channel _ Line



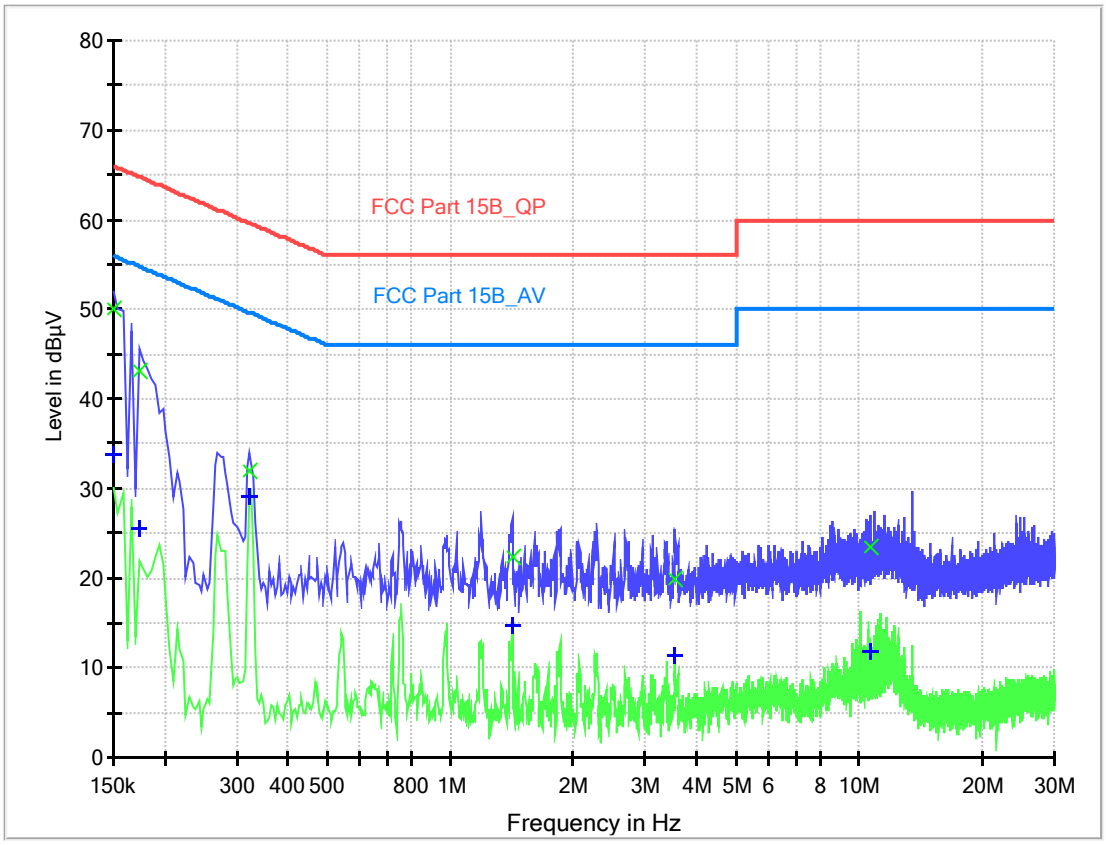

## Limit and Margin

| Frequency (MHz) | MaxPeak (dBµV) | QuasiPeak (dBµV) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Line | Filter | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.150000 | --- | 50.1 | 34.3 | 10.0 | 9.000 | LOCAL | OFF | 9.6 |
| 0.178000 | --- | 42.8 | 27.1 | 10.0 | 9.000 | LOCAL | OFF | 9.6 |
| 0.270000 | --- | 32.2 | 26.6 | 10.0 | 9.000 | LOCAL | OFF | 9.7 |
| 0.322000 | --- | 31.6 | 28.2 | 10.0 | 9.000 | LOCAL | OFF | 9.7 |
| 0.538000 | --- | 22.0 | 17.3 | 10.0 | 9.000 | LOCAL | OFF | 9.8 |
| 1.642000 | --- | 24.3 | 13.2 | 10.0 | 9.000 | LOCAL | OFF | 9.9 |

**(continuation of the "Limit and Margin" table from column 14 ...)**

| Frequency (MHz) | Margin - QPK (dB) | Limit - QPK (dBµV) | Margin - AVG (dB) | Limit - AVG (dBµV) | Comment |
|---|---|---|---|---|---|
| 0.150000 | 15.9 | 66.0 | 21.7 | 56.0 | |
| 0.178000 | 21.8 | 64.6 | 27.5 | 54.6 | |
| 0.270000 | 28.9 | 61.1 | 24.5 | 51.1 | |
| 0.322000 | 28.1 | 59.7 | 21.5 | 49.7 | |
| 0.538000 | 34.0 | 56.0 | 28.7 | 46.0 | |
| 1.642000 | 31.7 | 56.0 | 32.8 | 46.0 | |

Plots No. 25: AC Mains Conducted Emission _ AC 120V/60Hz _ High Channel _ Neutral




3.
4.

## 5. Limit and Margin

| Frequency (MHz) | MaxPeak (dBµV) | QuasiPeak (dBµV) | Average (dBµV) | Meas. Time (ms) | Bandwidth (kHz) | Line | Filter | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.150000 | --- | 50.1 | 33.7 | 10.0 | 9.000 | LOCAL | OFF | 9.6 |
| 0.174000 | --- | 43.1 | 25.5 | 10.0 | 9.000 | LOCAL | OFF | 9.6 |
| 0.322000 | --- | 32.0 | 29.1 | 10.0 | 9.000 | LOCAL | OFF | 9.7 |
| 1.418000 | --- | 22.3 | 14.8 | 10.0 | 9.000 | LOCAL | OFF | 9.9 |
| 3.538000 | --- | 19.9 | 11.4 | 10.0 | 9.000 | LOCAL | OFF | 10.1 |
| 10.618000 | --- | 23.5 | 11.9 | 10.0 | 9.000 | LOCAL | OFF | 10.4 |

**6.**
**7. (continuation of the "Limit and Margin" table from column 14 ...)**
**8.**

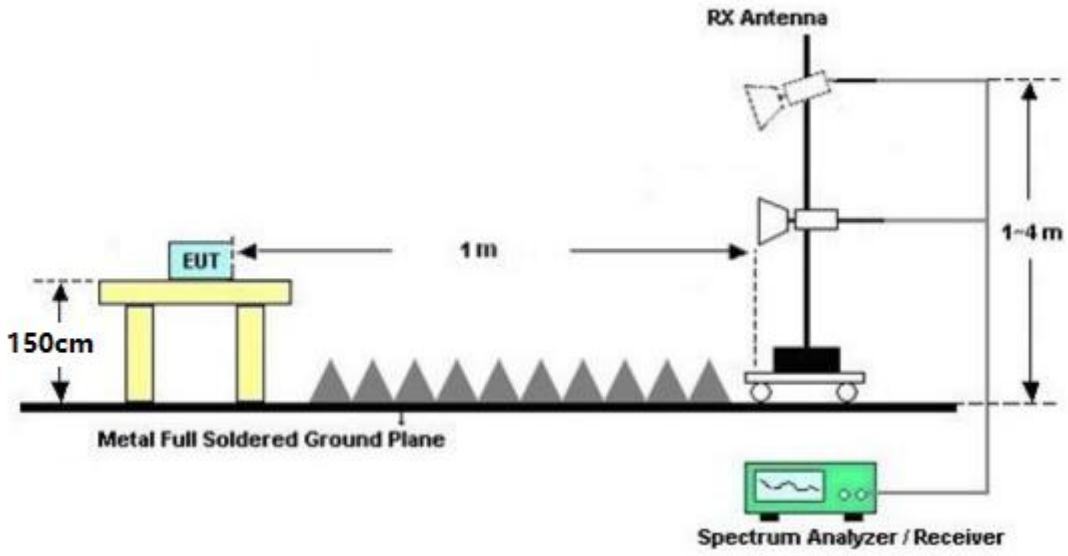
| Frequency (MHz) | Margin - QPK (dB) | Limit - QPK (dBµV) | Margin - AVG (dB) | Limit - AVG (dBµV) | Comment |
|---|---|---|---|---|---|
| 0.150000 | 15.9 | 66.0 | 22.3 | 56.0 | |
| 0.174000 | 21.7 | 64.8 | 29.3 | 54.8 | |
| 0.322000 | 27.7 | 59.7 | 20.6 | 49.7 | |
| 1.418000 | 33.7 | 56.0 | 31.2 | 46.0 | |
| 3.538000 | 36.1 | 56.0 | 34.6 | 46.0 | |
| 10.618000 | 36.5 | 60.0 | 38.1 | 50.0 | |

## 8.1. Occupied Bandwidth (99% Bandwidth)

### 8.1.1. LIMITS

The occupied bandwidth is defined as the 99% bandwidth.
According to § 2.1049 and RSS-Gen section 6.7: The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

### 8.1.2. TEST CONFIGURATION



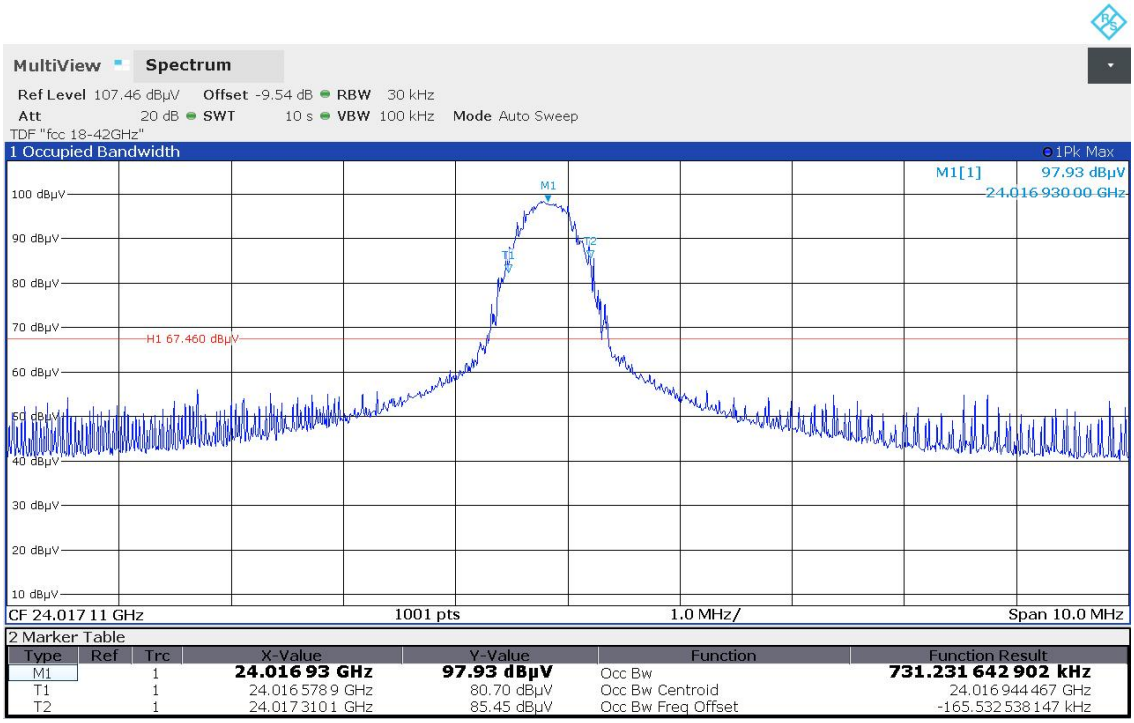

### 8.1.3. TEST PROCEDURE

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 1m (see ANSI C63.4) – see test details.
- EUT is set into operation.
- The turntable rotates from 0 degree to 360 degree.
- The antenna with external mixer is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set the resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

### 8.1.4. TEST RESULTS

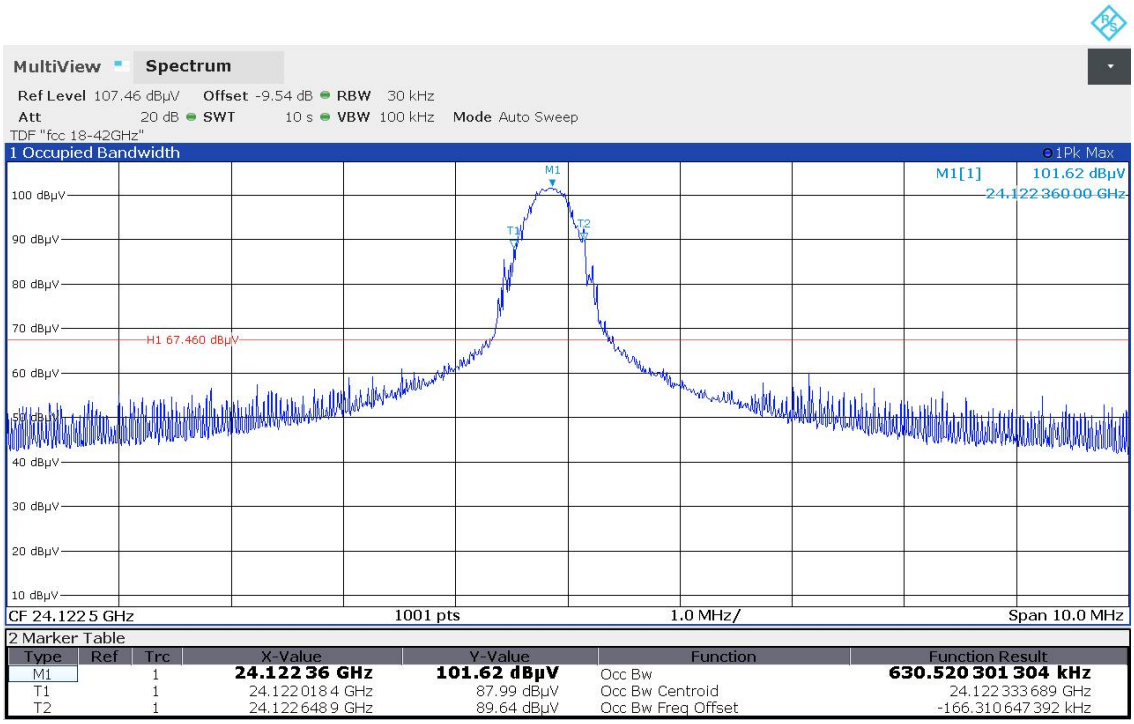
| Test Condictions | Test Channel | Nominal Frequency [MHz] | EUT/Antenna Orientation | Occupied Bandwidth (99%) [MHz] | Test Results |
|---|---|---|---|---|---|
| $T_{nom}$ / $V_{nom}$ | Low | 24016.00 | X/H&V | 0.73123 | PASS |
| $T_{nom}$ / $V_{nom}$ | Middle | 24122.00 | X/H&V | 0.63052 | PASS |
| $T_{nom}$ / $V_{nom}$ | High | 24220.00 | X/H&V | 0.56782 | PASS |

Plots No. 26: 99% Occupied Bandwidth, Horizontal / Vertical Polarization _ Low Channel



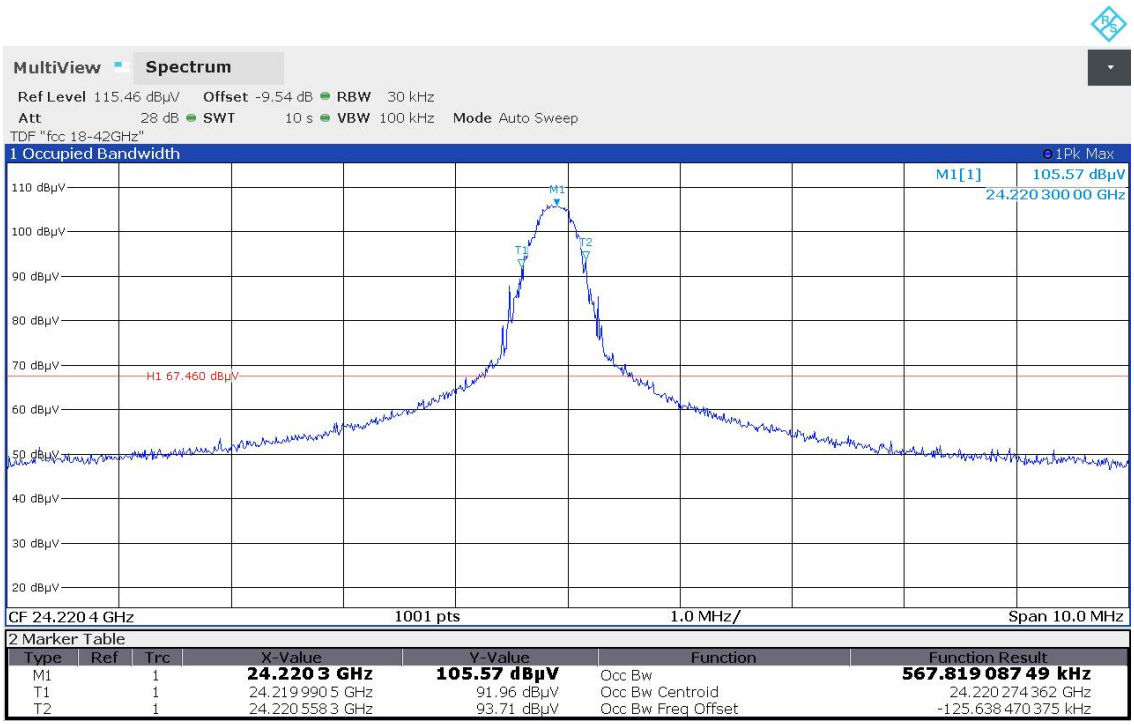

Notes: The RBW was set to 4.12% of OBW. (30 KHz / 731.23 KHz) x 100% = 4.12%

Plots No. 27: 99% Occupied Bandwidth, Horizontal / Vertical Polarization _ Middle Channel




Notes: The RBW was set to 4.76% of OBW. (30 KHz / 630.52 KHz) x 100% = 4.76%

Plots No. 28: 99% Occupied Bandwidth, Horizontal / Vertical Polarization _ High Channel



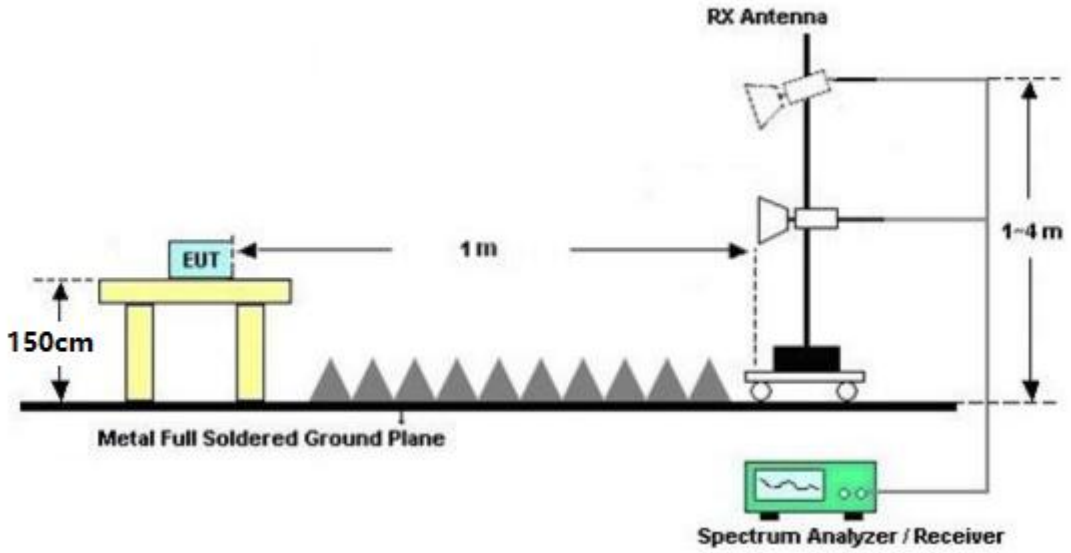

Notes: The RBW was set to 5.28% of OBW. (30 KHz / 567.82 KHz) x 100% = 5.28%

## 8.2. 20dB Bandwidth

### 8.2.1. LIMITS

According to § 15.215 (c): Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

### 8.2.2. TEST CONFIGURATION



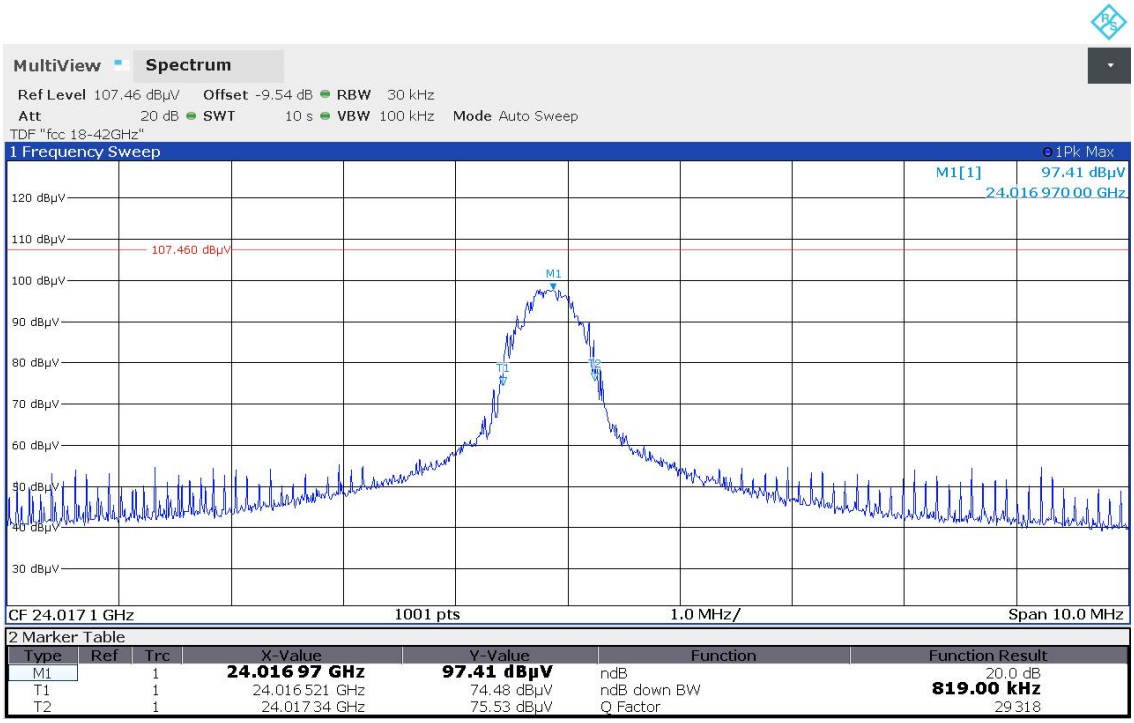

### 8.2.3. TEST PROCEDURE

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measuremet distance is 1m (see ANSI C63.4) – see test details.
- EUT is set into operation.
- The turntable rotates from 0 degree to 360 degree.
- The antenna with external mixer is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set the resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

### 8.2.4. TEST RESULTS

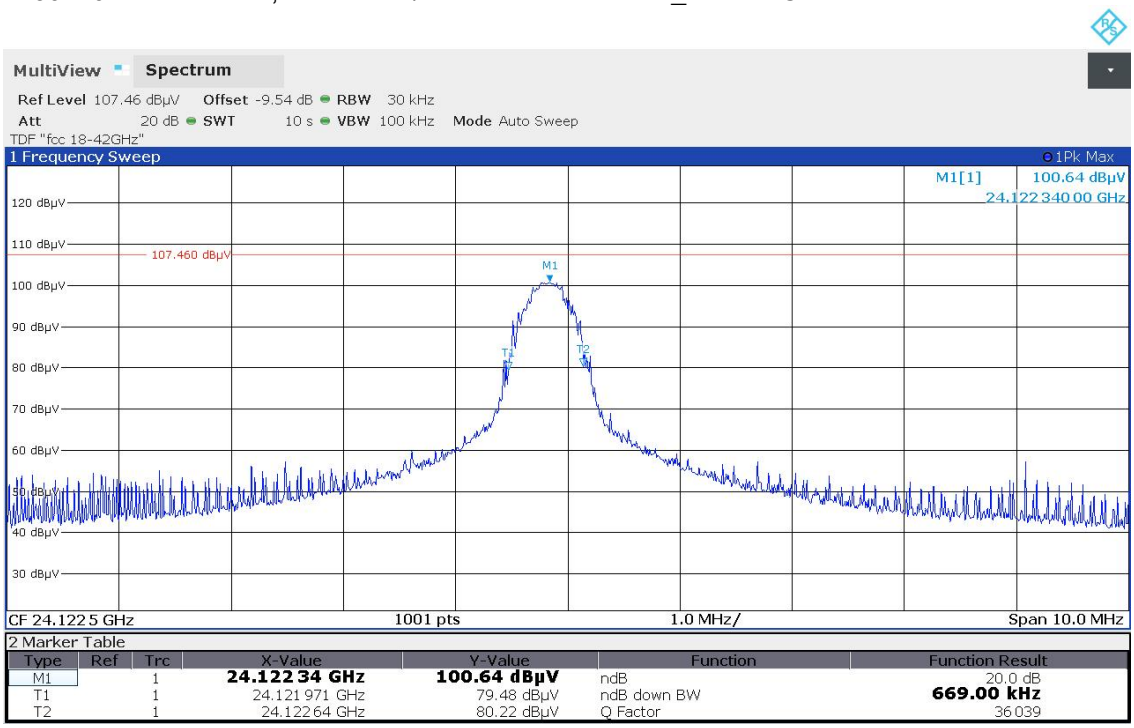
| Test Condictions | Test Channel | Nominal Frequency [MHz] | EUT/Antenna Orientation | 20dB Bandwidth | | | | | Test Results |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $F_L$ [GHz] | $F_L$ Limit [GHz] | $F_H$ [GHz] | $F_H$ Limit [GHz] | 20dB Bandwidth [MHz] | |
| $T_{nom}$ / $V_{nom}$ | Low | 24016.00 | X/H&V | 24.01652 | 24.00 | 24.01734 | 24.25 | 0.819 | PASS |
| $T_{nom}$ / $V_{nom}$ | Middle | 24122.00 | X/H&V | 24.12197 | 24.00 | 24.12164 | 24.25 | 0.669 | PASS |
| $T_{nom}$ / $V_{nom}$ | High | 24220.00 | X/H&V | 24.21992 | 24.00 | 24.22051 | 24.25 | 0.589 | PASS |

Plots No. 29: 20dB Bandwidth, Horizontal / Vertical Polarization _ Low Channel



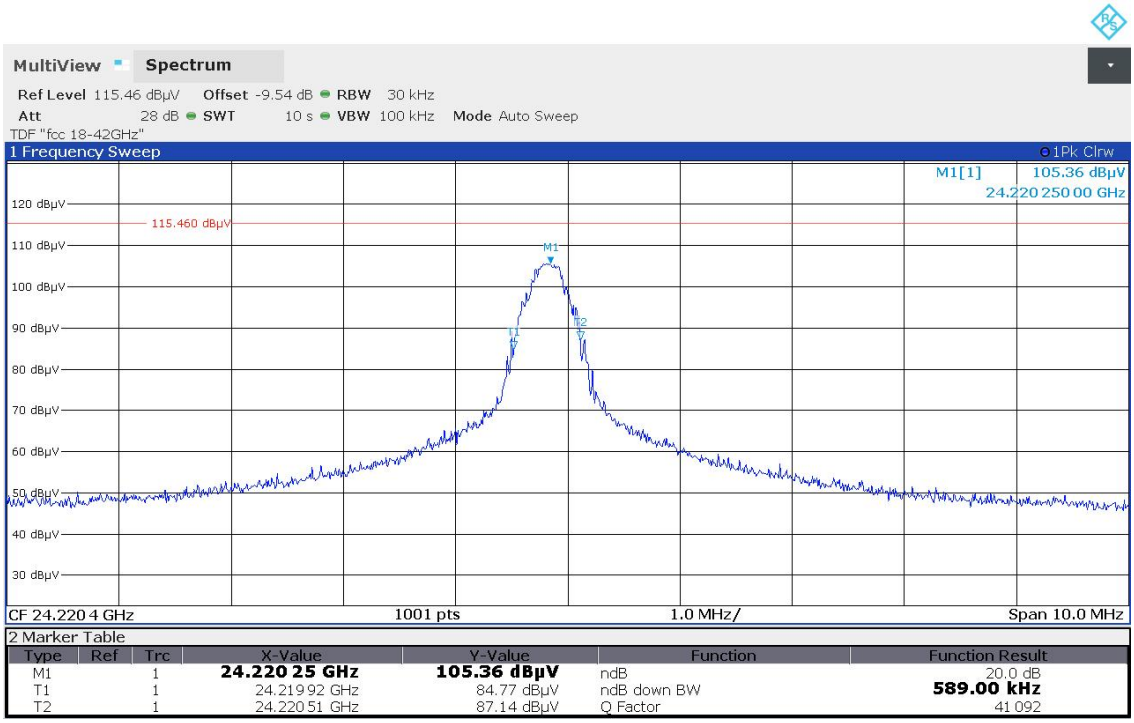

Notes: The 20 dB bandwidth of the emission is contained within the frequency band.

Plots No. 30: 20dB Bandwidth, Horizontal / Vertical Polarization _ Middle Channel




Notes: The 20 dB bandwidth of the emission is contained within the frequency band.

Plots No. 31: 20dB Bandwidth, Horizontal / Vertical Polarization _ High Channel




Notes: The 20 dB bandwidth of the emission is contained within the frequency band.

## 8.3. Antenna Requirement

### 8.3.1. REQUIREMENT

According to § 15.203 and RSS-Gen: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

### 8.3.2. VERDICT

The EUT has an internal antenna which is not user accessible. Hence it compliances with the antenna requirements.

***Annex A Model Difference Declaration Letter***

# Declaration on model difference

## 产品差异声明

**We the undersigned hereby confirm that any of our production units bearing the following model numbers are identical in circuitry and electrical, mechanical and physical construction; the only difference is model no. for trading purpose.**

我们在下面签名并据此确认:以下产品型号之间的差异仅为型号不同，其它设计完全相同.

Because the product is going to be marketed under different HVINs.

| **Production name** 产品名称 | **Trade name** 商标 | **Model no.** 型号 |
|---|---|---|
| Interactive Flat Panel | BenQ | RP7504, RP7504B, RP7504C, RP7504D, RP7504E |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**Confirmed by**

**Authorized Signature:**
授权人签字

Wenny Lan

**Company Stamp :**
公司盖章

**Date: 2023.09.26**
日期

# Revision History

| Revision | Issue Date | Revisions | Revised By |
|---|---|---|---|
| 1.0 | 2023-08-25 | Original Issue<br>Rreferencing test data from original model: RP8604 (FCC ID: JVPRP8604 / IC: 6175A-RP8604) test report (Test Report No.: CQC-IVTS-2023-00373) | Wenliang Li |
| | | | |
| | | | |
| | | | |

********** End of Report **********

# DECLARATION

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
If you have any questions on this report, please contact us within 15 days after issue this report.

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