

**CFR 47 FCC PART 15 SUBPART E**

**TEST REPORT**

*For*

**Intelligent Control System**

**MODEL NUMBER: SuperX5 Pro**

**FCC ID:2A46G-SUPERX5PRO**

**REPORT NUMBER: 4791353869-1-RF-2**

**ISSUE DATE: September 5, 2024**

*Prepared for*

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## Revision History

| Rev. | Issue Date        | Revisions     | Revised By |
|------|-------------------|---------------|------------|
| V0   | September 5, 2024 | Initial Issue |            |

### Summary of Test Results

| Test Item                                                  | Clause                                                               | Limit/Requirement                          | Result |
|------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------|--------|
| ON TIME AND DUTY CYCLE                                     | ANSI C63.10-2013, Clause 12.2                                        | None; for reporting purposes only.         | Pass   |
| 6dB AND 26dB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH | KDB 789033 D02 v02r01 Section C.1                                    | FCC Part 15.407 (a)/(e),                   | Pass   |
| CONDUCTED OUTPUT POWER                                     | KDB 789033 D02 v02r01 Section E.2.d (Method SA-2)                    | FCC 15.407 (a)                             | Pass   |
| POWER SPECTRAL DENSITY                                     | KDB 789033 D02 v02r01 Section F                                      | FCC 15.407 (a)                             | Pass   |
| AC Power Line Conducted Emission                           | ANSI C63.10-2013, Clause 6.2.                                        | FCC 15.207                                 | N/A    |
| Radiated Emissions and Band Edge Measurement               | KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6                 | FCC 15.407 (b)<br>FCC 15.209<br>FCC 15.205 | Pass   |
| FREQUENCY STABILITY                                        | ANSI C63.10-2013, Clause 6.8                                         | FCC 15.407 (g)                             | Pass   |
| Dynamic Frequency Selection (Slave)                        | KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02 | FCC Part 15.407 (h),                       | N/A    |
| Dynamic Frequency Selection (Master)                       | KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02          | FCC Part 15.407 (h),                       | N/A    |
| Antenna Requirement                                        | N/A                                                                  | FCC 47 CFR Part 15.203/ 15.407(a)(1) (2),  | Pass   |

**Note:**

1. N/A: In this whole report not applicable.

\*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

\*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART> when <Simple Acceptance> decision rule is applied.

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## 1. ATTESTATION OF TEST RESULTS

### Applicant Information

Company Name: Guangzhou Xaircraft Technology CO., LTD  
Address: Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

### Manufacturer Information

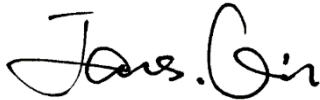
Company Name: Guangzhou Xaircraft Technology CO., LTD  
Address: Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

### EUT Information

EUT Name: Intelligent Control System  
Model: SuperX5 Pro  
Sample Received Date: June 4, 2024  
Sample Status: Normal  
Sample ID: 7284012  
Date of Tested: June 26, 2024 to September 5, 2024

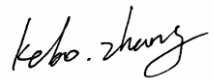
| APPLICABLE STANDARDS         |              |
|------------------------------|--------------|
| STANDARD                     | TEST RESULTS |
| CFR 47 FCC PART 15 SUBPART E | Pass         |

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Operations Manager

## 2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART, ANSI C63.10-2013, CFR 47 FCC Part 2, KDB 789033 D02 v02r01, KDB414788 D01 Radiated Test Site v01, KDB 662911 D01 Multiple Transmitter Output v02r01, KDB 905462 D03 UNII clients without radar detection New Rules v01r02, KDB 905462 D04 Operational Modes for DFS Testing New Rules v01 and KDB 905462 D06 802.11 Channel Plans New Rules v02.

## 3. FACILITIES AND ACCREDITATION

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accreditation Certificate | <p><b>A2LA (Certificate No.: 4102.01)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p><b>ISED (Company No.: 21320)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793.<br/>Facility Name:<br/>Chamber D, the VCCI registration No. is G-20192 and R-20202<br/>Shielding Room B, the VCCI registration No. is C-20153 and T-20155</p> |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note 1:

All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

Note 2:

The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3:

For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item                                                                                                                                     | Uncertainty               |
|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| Conduction emission                                                                                                                           | 3.62 dB                   |
| Radiated Emission<br>(Included Fundamental Emission) (9 kHz ~ 30 MHz)                                                                         | 2.2 dB                    |
| Radiated Emission<br>(Included Fundamental Emission) (30 MHz ~ 1 GHz)                                                                         | 4.00 dB                   |
| Radiated Emission<br>(Included Fundamental Emission) (1 GHz to 40 GHz)                                                                        | 5.78 dB (1 GHz ~ 18 GHz)  |
|                                                                                                                                               | 5.23 dB (18 GHz ~ 26 GHz) |
|                                                                                                                                               | 5.37 dB (26 GHz ~ 40 GHz) |
| Duty Cycle                                                                                                                                    | ±0.028%                   |
| Emission Bandwidth and 99% Occupied Bandwidth                                                                                                 | ±0.0196%                  |
| Maximum Conducted Output Power                                                                                                                | ±0.766 dB                 |
| Maximum Power Spectral Density Level                                                                                                          | ±1.22 dB                  |
| Frequency Stability                                                                                                                           | ±2.76%                    |
| Dynamic Frequency Selection                                                                                                                   | ±1.01 dB                  |
| Conducted Band-edge Compliance                                                                                                                | ±1.328 dB                 |
| Conducted Unwanted Emissions In Non-restricted<br>Frequency Bands                                                                             | ±0.746 dB (9 kHz ~ 1 GHz) |
|                                                                                                                                               | ±1.328dB (1 GHz ~ 26 GHz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. |                           |

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

|          |                            |
|----------|----------------------------|
| EUT Name | Intelligent Control System |
| Model    | SuperX5 Pro                |

### 5.2. CHANNEL LIST

| UNII-3<br>(For Bandwidth=20MHz) |                    | UNII-3<br>(For Bandwidth=40MHz) |                    |
|---------------------------------|--------------------|---------------------------------|--------------------|
| Channel                         | Frequency<br>(MHz) | Channel                         | Frequency<br>(MHz) |
| 149                             | 5745               | 151                             | 5755               |
| 153                             | 5765               | 159                             | 5795               |
| 157                             | 5785               |                                 |                    |
| 161                             | 5805               |                                 |                    |
| 165                             | 5825               |                                 |                    |

### 5.3. MAXIMUM POWER

#### UNII-3 BAND(FCC)

| IEEE Std. 802.11 | Frequency<br>(MHz) | Maximum Average Conducted Power<br>(dBm) |
|------------------|--------------------|------------------------------------------|
| a                | 5725 ~ 5850        | 18.41                                    |
| n HT20           |                    | 21.90                                    |
| n HT40           |                    | 21.53                                    |

### 5.4. TEST CHANNEL CONFIGURATION

| UNII-3 Test Channel Configuration |                                                                   |                                 |
|-----------------------------------|-------------------------------------------------------------------|---------------------------------|
| IEEE Std.                         | Test Channel Number                                               | Frequency                       |
| 802.11a                           | CH 149(Low Channel), CH 157(MID Channel),<br>CH 165(High Channel) | 5745 MHz, 5785 MHz,<br>5825 MHz |
| 802.11n HT20                      | CH 149(Low Channel), CH 157(MID Channel),<br>CH 165(High Channel) | 5745 MHz, 5785 MHz,<br>5825 MHz |
| 802.11n HT40                      | CH 151(Low Channel), CH 159(High Channel)                         | 5755MHz, 5795MHz                |

## 5.5. THE WORSE CASE POWER SETTING PARAMETER

| The Worse Case Power Setting Parameter |           |               |      |
|----------------------------------------|-----------|---------------|------|
| Test Software                          | ART2      |               |      |
| Mode                                   | Freq(MHz) | Power setting |      |
|                                        |           | ANT1          | ANT2 |
| 802.11a                                | 5745      | 20.5          | 19.5 |
|                                        | 5785      | 21            | 20   |
|                                        | 5825      | 22.5          | 22   |
| 802.11n 20M                            | 5745      | 20            |      |
|                                        | 5785      | 20            |      |
|                                        | 5825      | 21            |      |
| 802.11n 40M                            | 5755      | 20            |      |
|                                        | 5795      | 20            |      |

## WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.5.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

802.11a only support SISO mode.

802.11n HT20/HT40 support SISO and MIMO mode.

802.11a SISO mode, Antenna 1 and Antenna 2 has the same power setting, so only Antenna 1 worst case test data were recorded in the report.

802.11n SISO mode and MIMO mode have the same power setting, so only the worst case power mode(MIMO) will be record in the report.

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 1 and Core 2 correspond to antenna 1 and antenna 2 respectively.

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO & MIMO port combinations.

Radiated emissions tests were performed with the MIMO modes. These were found to be the worst modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest conducted output power level, it was deemed to be the worst case.

## 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

| Antenna No. | Frequency Band | Antenna Type | Max Antenna Gain (dBi) |
|-------------|----------------|--------------|------------------------|
| 1           | 5150-5850      | PCB antenna  | 3.99                   |
| 2           | 5150-5850      | PCB antenna  | 3.99                   |

The EUT support Cyclic Shift Diversity(CDD) mode.

MIMO output power port and MIMO PSD port summing were performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with the following method.

For output power measurements:

Directional gain=  $G_{ANT} + \text{Array Gain} = 3.99 \text{ dBi}$

$G_{ANT}$  : equal to the gain of the antenna having the highest gain

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$

For power spectral density (PSD) measurements:

Directional gain=  $G_{ANT} + \text{Array Gain} = 7.00 \text{ dBi}$

Array Gain =  $10 \log(N_{ANT}/N_{SS}) \text{ dB}$ .

$N_{ANT}$  : number of transmit antennas

$N_{SS}$  : number of spatial streams, The worst case directional gain will occur when  $N_{SS} = 1$

| IEE Std. 802.11 | Transmit and Receive Mode                    | Description                                                    |
|-----------------|----------------------------------------------|----------------------------------------------------------------|
| 802.11a         | <input checked="" type="checkbox"/> 2TX, 2RX | ANT 1 and ANT 2 can be used as transmitting/receiving antenna. |
| 802.11n HT20    | <input checked="" type="checkbox"/> 2TX, 2RX | ANT 1 and ANT 2 can be used as transmitting/receiving antenna. |
| 802.11n HT40    | <input checked="" type="checkbox"/> 2TX, 2RX | ANT 1 and ANT 2 can be used as transmitting/receiving antenna. |

## 5.7. SUPPORT UNITS FOR SYSTEM TEST

### SUPPORT EQUIPMENT

| Item | Equipment       | Brand Name | Model Name | Remarks  |
|------|-----------------|------------|------------|----------|
| 1    | Laptop          | Lenovo     | E42-80     | R303U5AG |
| 2    | DC power supply | SophPower  | ADC50-10D  | 50V 10A  |

### I/O CABLES

| Cable No | Port | Connector Type | Cable Type | Cable Length(m) | Remarks |
|----------|------|----------------|------------|-----------------|---------|
| 1        | RJ45 | /              | /          | 0.3             | /       |

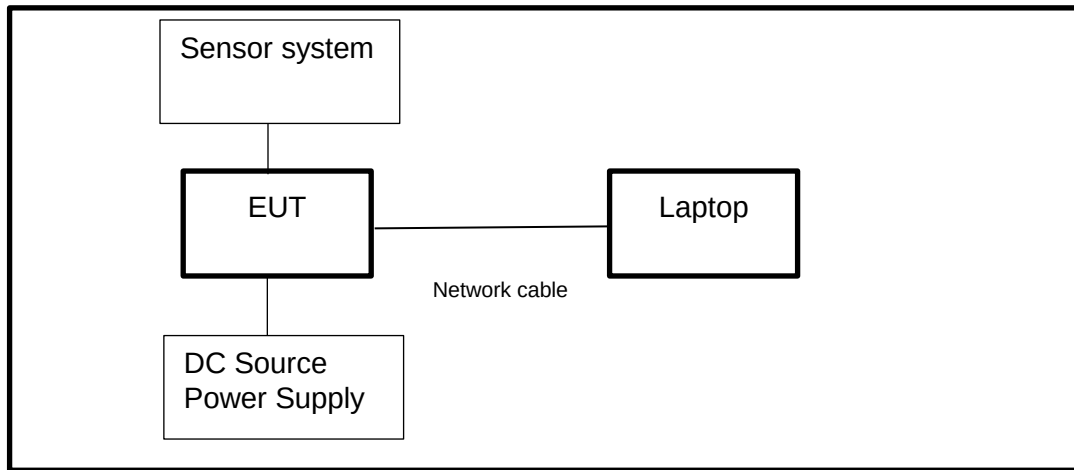
### ACCESSORIES

| Item | Accessory     | Brand Name | Model Name | Description |
|------|---------------|------------|------------|-------------|
| 1    | GPS ant.      | /          | /          | /           |
| 2    | Cellular ant. | /          | /          | /           |
| 3    | Sensor system | /          | /          | /           |
| 4    | DC cable      | /          | /          | /           |

### TEST SETUP

The EUT can work in engineering mode with a software through a laptop.

## 5.8. SETUP DIAGRAM



## 6. MEASURING EQUIPMENT AND SOFTWARE USED

| R&S TS 8997 Test System             |                 |                         |                  |              |              |
|-------------------------------------|-----------------|-------------------------|------------------|--------------|--------------|
| Equipment                           | Manufacturer    | Model No.               | Serial No.       | Last Cal.    | Due. Date    |
| Power sensor, Power Meter           | R&S             | OSP120                  | 100921           | Mar.25,2024  | Mar.24,2025  |
| Vector Signal Generator             | R&S             | SMBV100A                | 261637           | Oct.12, 2023 | Oct.11, 2024 |
| Signal Generator                    | R&S             | SMB100A                 | 178553           | Oct.12, 2023 | Oct.11, 2024 |
| Signal Analyzer                     | R&S             | FSV40                   | 101118           | Oct.12, 2023 | Oct.11, 2024 |
| Software                            |                 |                         |                  |              |              |
| Description                         | Manufacturer    |                         | Name             | Version      |              |
| For R&S TS 8997 Test System         | Rohde & Schwarz |                         | EMC 32           | 10.60.10     |              |
| Tonsend RF Test System              |                 |                         |                  |              |              |
| Equipment                           | Manufacturer    | Model No.               | Serial No.       | Last Cal.    | Due. Date    |
| Wideband Radio Communication Tester | R&S             | CMW500                  | 155523           | Oct.12, 2023 | Oct.11, 2024 |
| Wireless Connectivity Tester        | R&S             | CMW270                  | 1201.0002N75-102 | Sep.25, 2023 | Sep.24, 2024 |
| PXA Signal Analyzer                 | Keysight        | N9030A                  | MY55410512       | Oct.12, 2023 | Oct.11, 2024 |
| MXG Vector Signal Generator         | Keysight        | N5182B                  | MY56200284       | Oct.12, 2023 | Oct.11, 2024 |
| MXG Vector Signal Generator         | Keysight        | N5172B                  | MY56200301       | Oct.12, 2023 | Oct.11, 2024 |
| DC power supply                     | Keysight        | E3642A                  | MY55159130       | Oct.12, 2023 | Oct.11, 2024 |
| Temperature & Humidity Chamber      | SANMOOD         | SG-80-CC-2              | 2088             | Oct.12, 2023 | Oct.11, 2024 |
| Attenuator                          | Aglient         | 8495B                   | 2814a12853       | Oct.12, 2023 | Oct.11, 2024 |
| RF Control Unit                     | Tonscend        | JS0806-2                | 23B80620666      | Mar.25,2024  | Mar.24,2025  |
| Software                            |                 |                         |                  |              |              |
| Description                         | Manufacturer    | Name                    |                  | Version      |              |
| Tonsend SRD Test System             | Tonsend         | JS1120-3 RF Test System |                  | V3.2.22      |              |

| Radiated Emissions                   |              |                                  |               |                |                |
|--------------------------------------|--------------|----------------------------------|---------------|----------------|----------------|
| Equipment                            | Manufacturer | Model No.                        | Serial No.    | Last Cal.      | Due Date       |
| MXE EMI Receiver                     | KESIGHT      | N9038A                           | MY56400036    | Oct.12, 2023   | Oct.11, 2024   |
| Hybrid Log Periodic Antenna          | TDK          | HLP-3003C                        | 130959        | Aug.02, 2021   | Aug.01, 2024   |
| Hybrid Log Periodic Antenna          | TDK          | HLP-3003C                        | 130960        | Jun. 28, 2024  | Jun. 27, 2027  |
| Preamplifier                         | HP           | 8447D                            | 2944A09099    | Oct.12, 2023   | Oct.11, 2024   |
| EMI Measurement Receiver             | R&S          | ESR26                            | 101377        | Oct.12, 2023   | Oct.11, 2024   |
| Horn Antenna                         | TDK          | HRN-0118                         | 130939        | April 29, 2022 | April 30, 2025 |
| Preamplifier                         | TDK          | PA-02-0118                       | TRS-305-00067 | Oct.12, 2023   | Oct.11, 2024   |
| Horn Antenna                         | Schwarzbeck  | BBHA9170                         | 856           | Feb 28, 2022   | Feb 28, 2025   |
| Preamplifier                         | TDK          | PA-02-2                          | TRS-307-00003 | Oct.12, 2023   | Oct.11, 2024   |
| Preamplifier                         | TDK          | PA-02-3                          | TRS-308-00002 | Oct.12, 2023   | Oct.11, 2024   |
| Loop antenna                         | Schwarzbeck  | 1519B                            | 00008         | Dec.14, 2021   | Dec.13, 2024   |
| Preamplifier                         | TDK          | PA-02-001-3000                   | TRS-302-00050 | Oct.12, 2023   | Oct.11, 2024   |
| Highpass Filter                      | Wainwright   | WHKX10-5850-6500-1800-40SS       | 4             | Oct.12, 2023   | Oct.11, 2024   |
| Band Reject Filter                   | Wainwright   | WRCJV12-5695-5725-5850-5880-40SS | 4             | Oct.12, 2023   | Oct.11, 2024   |
| Software                             |              |                                  |               |                |                |
| Description                          |              |                                  | Manufacturer  | Name           | Version        |
| Test Software for Radiated Emissions |              |                                  | Farad         | EZ-EMC         | Ver. UL-3A1    |

| Other Instrument           |              |           |            |              |              |
|----------------------------|--------------|-----------|------------|--------------|--------------|
| Equipment                  | Manufacturer | Model No. | Serial No. | Last Cal.    | Due Date     |
| Temperature humidity probe | OMEGA        | ITHX-SD-5 | 18470007   | Oct.21, 2023 | Oct.20, 2024 |
| Barometer                  | Yiyi         | Baro      | N/A        | Oct.19, 2023 | Oct.18, 2024 |
| Attenuator                 | Agilent      | 8495B     | 2814a12853 | Oct.12, 2023 | Oct.11, 2024 |

## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

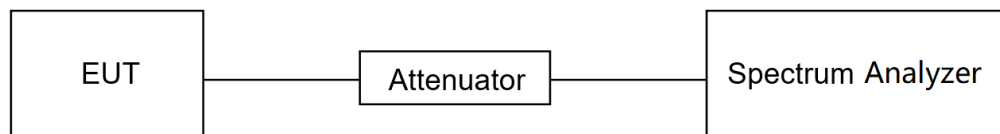
None; for reporting purposes only.

#### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW  $\geq$  EBW if possible; otherwise, set RBW to the largest available value. Set VBW  $\geq$  RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$ , where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7$  microseconds.)

#### TEST SETUP



#### TEST ENVIRONMENT

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Temperature         | 25.6°C | Relative Humidity | 61.0%   |
| Atmosphere Pressure | 101kPa | Test Voltage      | DC 24 V |

#### TEST DATE / ENGINEER

|           |               |         |             |
|-----------|---------------|---------|-------------|
| Test Date | June 27, 2024 | Test By | Bairong Liu |
|-----------|---------------|---------|-------------|

#### TEST RESULTS

Please refer to section "Test Data" - Appendix G

## 7.2. 6DB AND 26DB EMISSION BANDWIDTH AND 99% OCCUPIED BANDWIDTH

### LIMITS

| CFR 47 FCC Part15, Subpart E |                                                       |                       |
|------------------------------|-------------------------------------------------------|-----------------------|
| Test Item                    | Limit                                                 | Frequency Range (MHz) |
| 6 dB Emission Bandwidth      | The minimum 6 dB emission bandwidth shall be 500 kHz. | 5725 ~ 5850           |

### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.C1. for 26 dB Emission Bandwidth; section II.C2. for 6 dB Emission Bandwidth; section II.D. for 99 % Occupied Bandwidth.

Connect the EUT to the spectrum analyser and use the following settings:

|                  |                                                                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test                                                                                                                              |
| Detector         | Peak                                                                                                                                                                        |
| RBW              | For 6 dB Emission Bandwidth: RBW=100 kHz<br>For 26 dB Emission bandwidth: approximately 1 % of the EBW.<br>For 99 % Occupied Bandwidth: approximately 1 % ~ 5 % of the OBW. |
| VBW              | For 6 dB Bandwidth: $\geq 3 \times \text{RBW}$<br>For 26 dB Bandwidth: $> 3 \times \text{RBW}$<br>For 99 % Bandwidth: $> 3 \times \text{RBW}$                               |
| Trace            | Max hold                                                                                                                                                                    |
| Sweep            | Auto couple                                                                                                                                                                 |

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6/26 dB relative to the maximum level measured in the fundamental emission.

### **Calculation for 99 % Bandwidth of UNII-3 Straddle Channel:**

For Example: Fundamental Frequency: 5720 MHz

99 % OBW: 21.00 MHz

Turning Frequency: 5725 MHz

99 % Bandwidth of UNII-3 Band Portion =  $(5720 + (21.00/2) - 5725) = 5.50 \text{ MHz}$

**Calculation for 6dB Bandwidth of UNII-3 Straddle Channel:**

For Example: Fundamental frequency: 5720 MHz

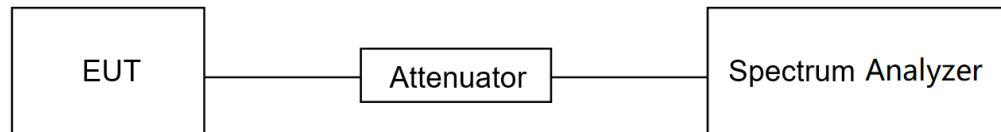
6 dB BW: 16.44 MHz

FL: 5711.76 MHz

FH: 5728.2 MHz

Turning Frequency: 5725 MHz

6 dB Bandwidth of UNII-3 band Portion =  $5728.2 - 5725 = 3.2$  MHz

**TEST SETUP****TEST ENVIRONMENT**

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Temperature         | 15.6°C | Relative Humidity | 61.0%   |
| Atmosphere Pressure | 101kPa | Test Voltage      | DC 24 V |

**TEST DATE / ENGINEER**

|           |               |         |             |
|-----------|---------------|---------|-------------|
| Test Date | June 27, 2024 | Test By | Bairong Liu |
|-----------|---------------|---------|-------------|

**TEST RESULTS**

Please refer to section "Test Data" - Appendix A

### 7.3. CONDUCTED OUTPUT POWER

#### LIMITS

| CFR 47 FCC Part15, Subpart E |                                   |                       |
|------------------------------|-----------------------------------|-----------------------|
| Test Item                    | Limit                             | Frequency Range (MHz) |
| Conducted Output Power       | Shall not exceed 1 Watt (30 dBm). | 5725 ~ 5850           |

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

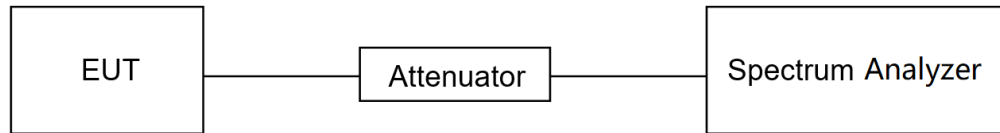
If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

#### **Method SA-2 (trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction.):**

- Measure the duty cycle D of the transmitter output signal.
- Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.
- Set RBW = 1 MHz.
- Set VBW  $\geq$  3 MHz.
- Number of points in sweep  $\geq [2 \times \text{span} / \text{RBW}]$ . (This gives bin-to-bin spacing  $\leq \text{RBW} / 2$ , so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto.
- Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- Do not use sweep triggering. Allow the sweep to “free run.”
- Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
- Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument’s band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.
- Add  $[10 \log (1 / D)]$ , where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add  $[10 \log (1 / 0.25)] = 6 \text{ dB}$  if the duty cycle is 25%.

**TEST SETUP****TEST ENVIRONMENT**

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Temperature         | 25.6℃  | Relative Humidity | 61.0%   |
| Atmosphere Pressure | 101kPa | Test Voltage      | DC 24 V |

**TEST DATE / ENGINEER**

|           |               |         |             |
|-----------|---------------|---------|-------------|
| Test Date | June 27, 2024 | Test By | Bairong Liu |
|-----------|---------------|---------|-------------|

**TEST RESULTS**

Please refer to section "Test Data" - Appendix D

## 7.4. POWER SPECTRAL DENSITY

### LIMITS

| CFR 47 FCC Part15, Subpart E |               |                       |
|------------------------------|---------------|-----------------------|
| Test Item                    | Limit         | Frequency Range (MHz) |
| Power Spectral Density       | 30 dBm/500kHz | 5725 ~ 5850           |

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyzer and use the following settings:

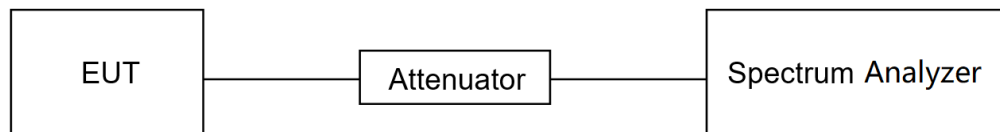
For U-NII-3:

|                  |                                                              |
|------------------|--------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test               |
| Detector         | RMS                                                          |
| RBW              | 500 kHz                                                      |
| VBW              | $\geq 3 \times \text{RBW}$                                   |
| Span             | Encompass the entire emissions bandwidth (EBW) of the signal |
| Trace            | Average                                                      |
| Sweep time       | Auto                                                         |

Allow trace to fully stabilize and use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add  $10 \log(1/x)$ , where  $x$  is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

### TEST SETUP



### TEST ENVIRONMENT

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Temperature         | 25.6°C | Relative Humidity | 61.0%   |
| Atmosphere Pressure | 101kPa | Test Voltage      | DC 24 V |

**TEST DATE / ENGINEER**

|           |               |         |             |
|-----------|---------------|---------|-------------|
| Test Date | June 27, 2024 | Test By | Bairong Liu |
|-----------|---------------|---------|-------------|

**TEST RESULTS**

Please refer to section "Test Data" - Appendix E

## 7.5. FREQUENCY STABILITY

### LIMITS

The frequency of the carrier signal shall be maintained within band of operation.

### TEST PROCEDURE

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -10 °C ~ 40 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

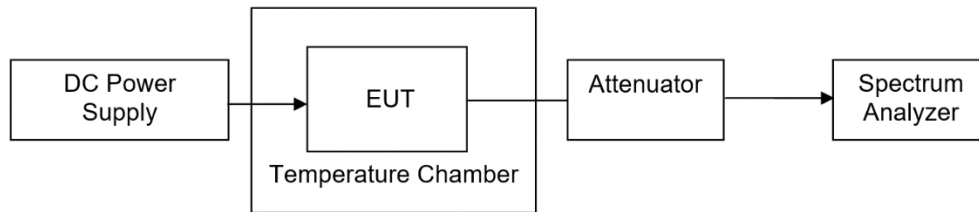
Connect the EUT to the spectrum analyzer and use the following settings:

|                  |                                                              |
|------------------|--------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test               |
| Detector         | Peak                                                         |
| RBW              | 10 kHz                                                       |
| VBW              | $\geq 3 \times \text{RBW}$                                   |
| Span             | Encompass the entire emissions bandwidth (EBW) of the signal |
| Trace            | Max hold                                                     |
| Sweep time       | Auto                                                         |

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

### TEST ENVIRONMENT

|                      | Normal Test Conditions                 | Extreme Test Conditions         |
|----------------------|----------------------------------------|---------------------------------|
| Relative Humidity    | 20 % ~ 75 %                            | /                               |
| Atmospheric Pressure | 100 kPa ~ 102 kPa                      | /                               |
| Temperature          | $T_N$ (Normal Temperature):<br>25.1 °C | $T_L$ (Low Temperature): -10 °C |
|                      |                                        | $T_H$ (High Temperature): 40 °C |
| Supply Voltage       | $V_N$ (Normal Voltage): DC 24 V        | $V_L$ (Low Voltage): DC 20.4 V  |
|                      |                                        | $V_H$ (High Voltage): DC 27.6 V |

**TEST SETUP****TEST ENVIRONMENT**

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Temperature         | 25.6°C | Relative Humidity | 61.0%   |
| Atmosphere Pressure | 101kPa | Test Voltage      | DC 24 V |

**TEST DATE / ENGINEER**

|           |               |         |             |
|-----------|---------------|---------|-------------|
| Test Date | June 27, 2024 | Test By | Bairong Liu |
|-----------|---------------|---------|-------------|

**TEST RESULTS**

Please refer to section "Test Data" - Appendix F

## 8. RADIATED TEST RESULTS

### LIMITS

Refer to CFR 47 FCC §15.205, §15.209 and §15.407 (b).

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

| Emissions radiated outside of the specified frequency bands above 30 MHz |                                       |                                         |         |
|--------------------------------------------------------------------------|---------------------------------------|-----------------------------------------|---------|
| Frequency Range<br>(MHz)                                                 | Field Strength Limit<br>(uV/m) at 3 m | Field Strength Limit<br>(dBuV/m) at 3 m |         |
|                                                                          |                                       | Quasi-Peak                              |         |
| 30 - 88                                                                  | 100                                   | 40                                      |         |
| 88 - 216                                                                 | 150                                   | 43.5                                    |         |
| 216 - 960                                                                | 200                                   | 46                                      |         |
| Above 960                                                                | 500                                   | 54                                      |         |
| Above 1000                                                               | 500                                   | Peak                                    | Average |
|                                                                          |                                       | 74                                      | 54      |

| FCC Emissions radiated outside of the specified frequency bands below 30 MHz |                                   |                               |
|------------------------------------------------------------------------------|-----------------------------------|-------------------------------|
| Frequency (MHz)                                                              | Field strength (microvolts/meter) | Measurement distance (meters) |
| 0.009-0.490                                                                  | 2400/F(kHz)                       | 300                           |
| 0.490-1.705                                                                  | 24000/F(kHz)                      | 30                            |
| 1.705-30.0                                                                   | 30                                | 30                            |

FCC Restricted bands of operation refer to FCC §15.205 (a):

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 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     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6c

Limits of unwanted/undesirable emission out of the restricted bands refer to CFR 47 FCC §15.407 (b)

| LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)                                                                                                                                                                                                                                                                                         |                                                                                             |                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Frequency Range (MHz)                                                                                                                                                                                                                                                                                                                        | EIRP Limit                                                                                  | Field Strength Limit (dBuV/m) at 3 m                                                          |
| 5150~5250 MHz                                                                                                                                                                                                                                                                                                                                | PK: -27 (dBm/MHz)                                                                           | PK:68.2(dBμV/m)                                                                               |
| 5250~5350 MHz                                                                                                                                                                                                                                                                                                                                |                                                                                             |                                                                                               |
| 5470~5725 MHz                                                                                                                                                                                                                                                                                                                                |                                                                                             |                                                                                               |
| 5725~5850 MHz                                                                                                                                                                                                                                                                                                                                | PK: -27 (dBm/MHz) *1<br>PK: 10 (dBm/MHz) *2<br>PK: 15.6 (dBm/MHz) *3<br>PK: 27 (dBm/MHz) *4 | PK: 68.2(dBμV/m) *1<br>PK: 105.2 (dBμV/m) *2<br>PK: 110.8(dBμV/m) *3<br>PK: 122.2 (dBμV/m) *4 |
| Note:<br>*1 beyond 75 MHz or more above of the band edge.<br>*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.<br>*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.<br>*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. |                                                                                             |                                                                                               |

## TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

|       |                                                                  |
|-------|------------------------------------------------------------------|
| RBW   | 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz) |
| VBW   | 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz) |
| Sweep | Auto                                                             |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of  $377\Omega$ . For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to  $Y-51.5 = Z$  dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

|          |          |
|----------|----------|
| RBW      | 120 kHz  |
| VBW      | 300 kHz  |
| Sweep    | Auto     |
| Detector | Peak/QP  |
| Trace    | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

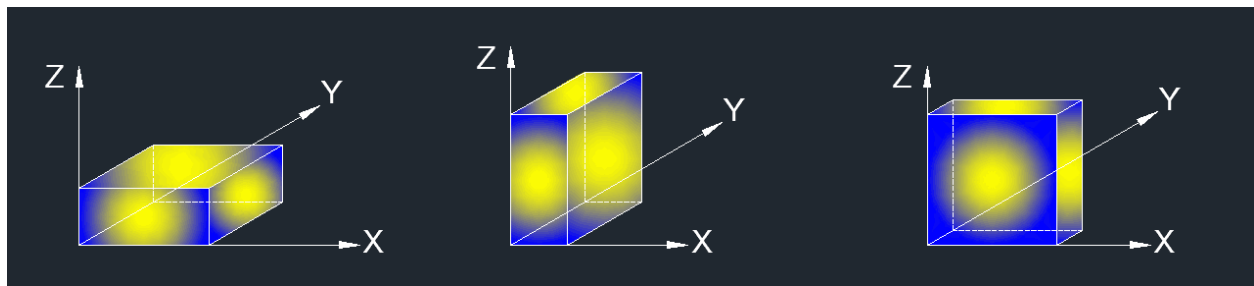
Above 1 GHz

The setting of the spectrum analyzer

|          |                                |
|----------|--------------------------------|
| RBW      | 1 MHz                          |
| VBW      | PEAK: 3 MHz<br>AVG: see note 6 |
| Sweep    | Auto                           |
| Detector | Peak                           |
| Trace    | Max hold                       |

1. The testing follows the guidelines in KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.G.3 ~ II.G.6.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 1.5 m above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1. ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

For Restricted Bandedge:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. PK=Peak: Peak detector.
4. AV=Average: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
7. Both horizontal and vertical have been tested, only the worst data was recorded in the report.
8. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious emission (9 kHz ~ 30 MHz):

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. All modes have been tested, but only the worst data was recorded in the report.
5.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}[120\pi] = \text{dBuV/m} - 51.5$

For Radiate Spurious Emission (30 MHz ~ 1 GHz):

Note:

1. Result Level = Read Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious Emission (1 GHz ~ 7 GHz):

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27 dBm/MHz (68.2 dBuV/m) limit.
9. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious Emission (7 GHz ~ 18 GHz):

Note:

1. Peak Result = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
5. For the transmitting duration, please refer to clause 7.1.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27 dBm/MHz (68.2 dBuV/m) limit.
9. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious emission (18 GHz ~ 26 GHz):

Note:

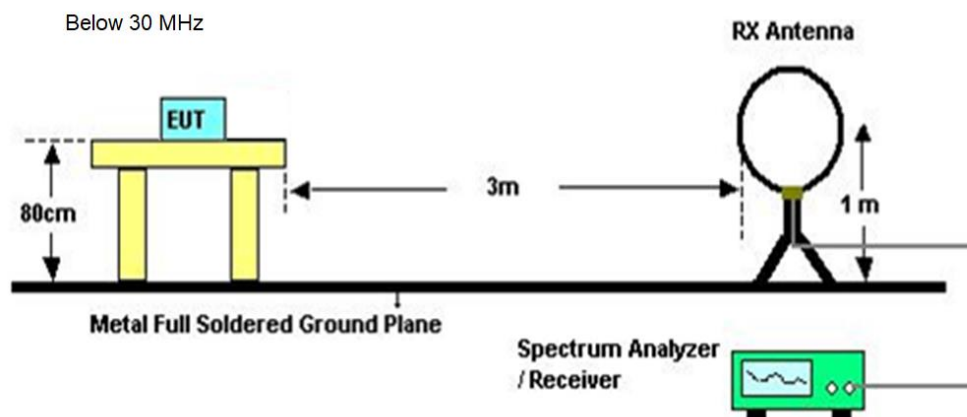
1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. All modes have been tested, but only the worst data was recorded in the report.

For Radiate Spurious emission (26 GHz ~ 40 GHz):

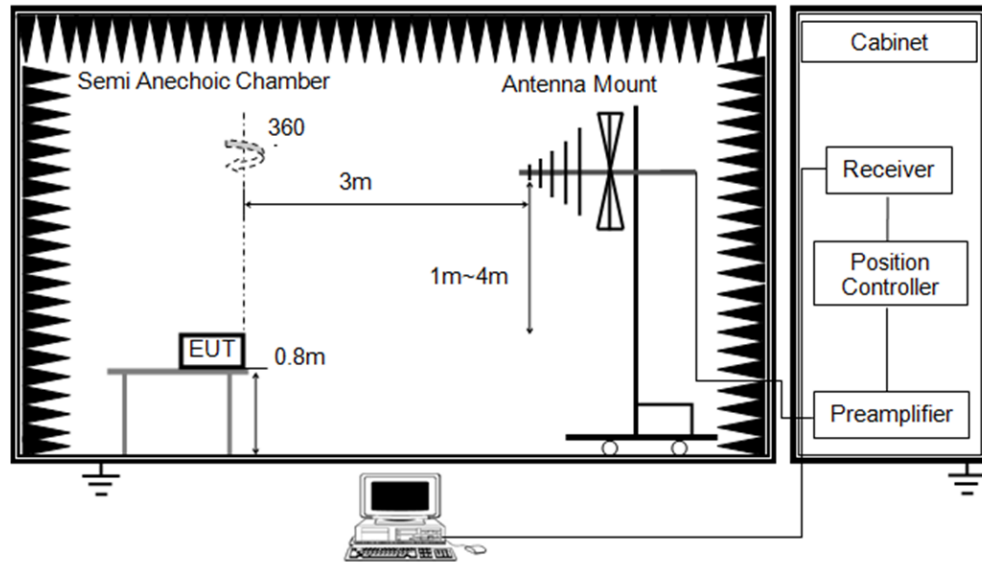
Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. All modes have been tested, but only the worst data was recorded in the report.

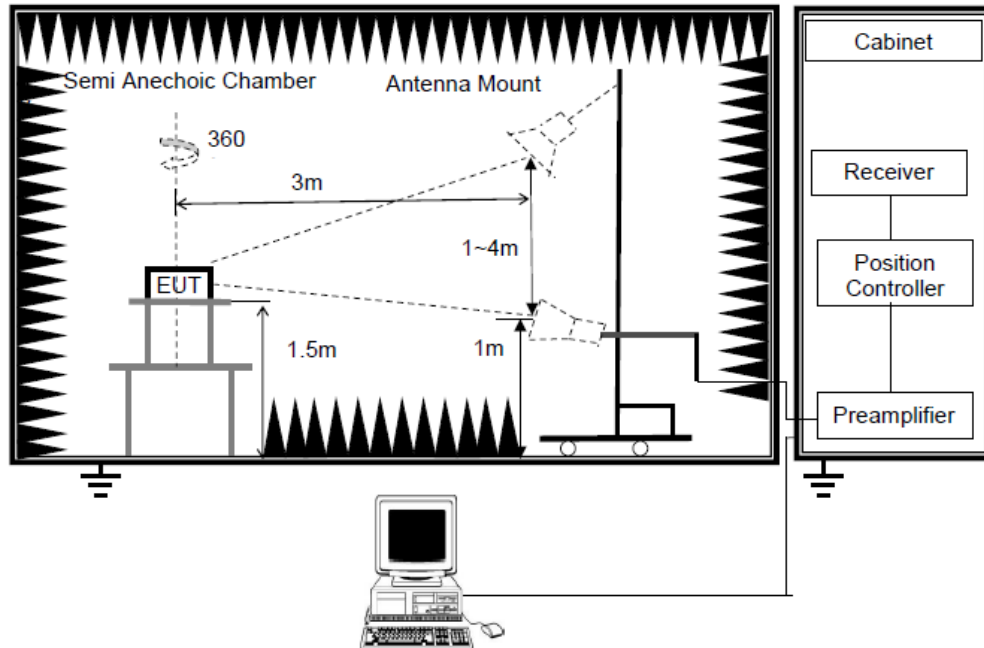
## **TEST SETUP**



Below 1 GHz and above 30 MHz



Above 1GHz



#### **TEST ENVIRONMENT**

|                     |        |                   |       |
|---------------------|--------|-------------------|-------|
| Temperature         | 23.8°C | Relative Humidity | 56.2% |
| Atmosphere Pressure | 101kPa | Test Voltage      |       |

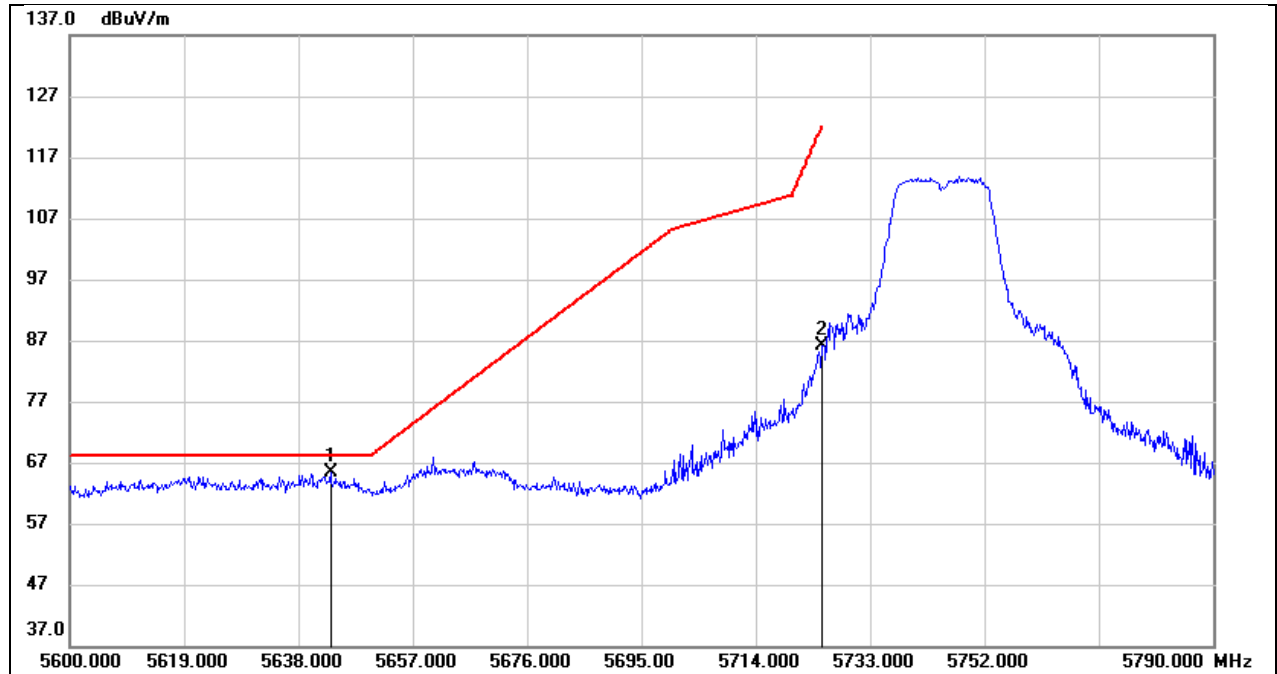
#### **TEST DATE / ENGINEER**

|           |                   |         |            |
|-----------|-------------------|---------|------------|
| Test Date | September 4, 2024 | Test By | Mason Wang |
|-----------|-------------------|---------|------------|

#### **TEST RESULTS**

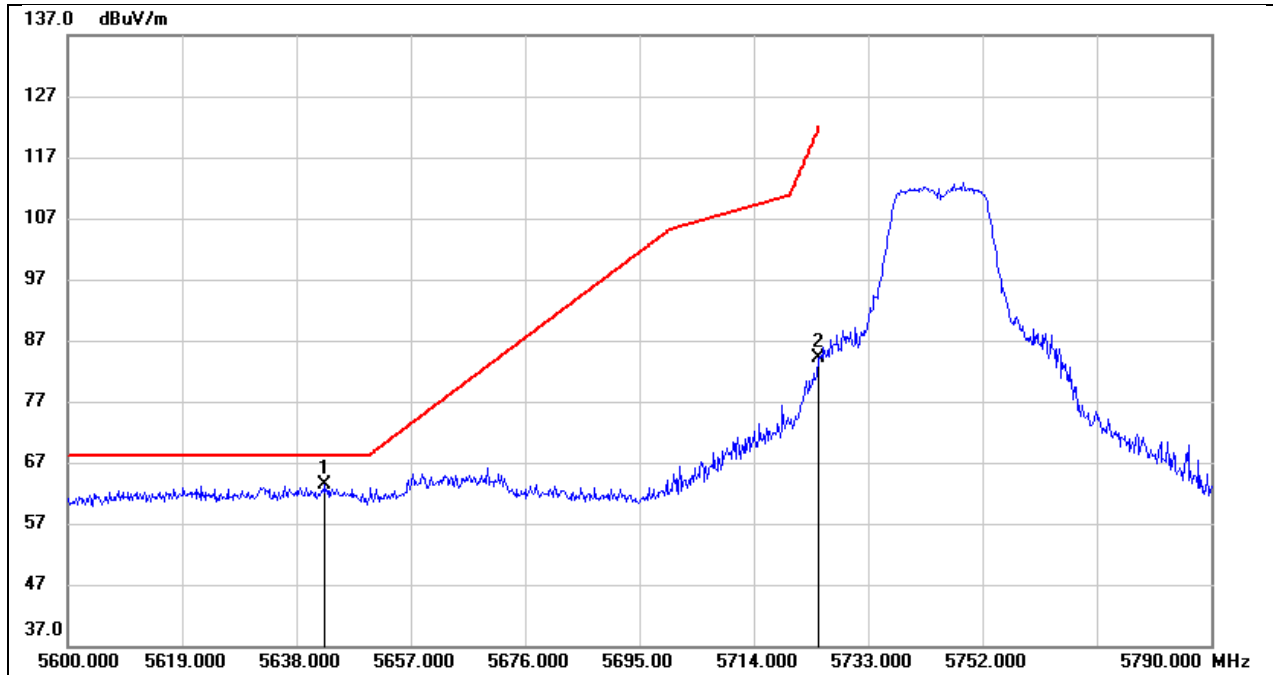
## 8.1. RESTRICTED BANDEDGE

|            |               |                 |        |
|------------|---------------|-----------------|--------|
| Test Mode: | 802.11a 20 PK | Frequency(MHz): | 5745   |
| Polarity:  | Horizontal    | Test Voltage:   | DC 24V |



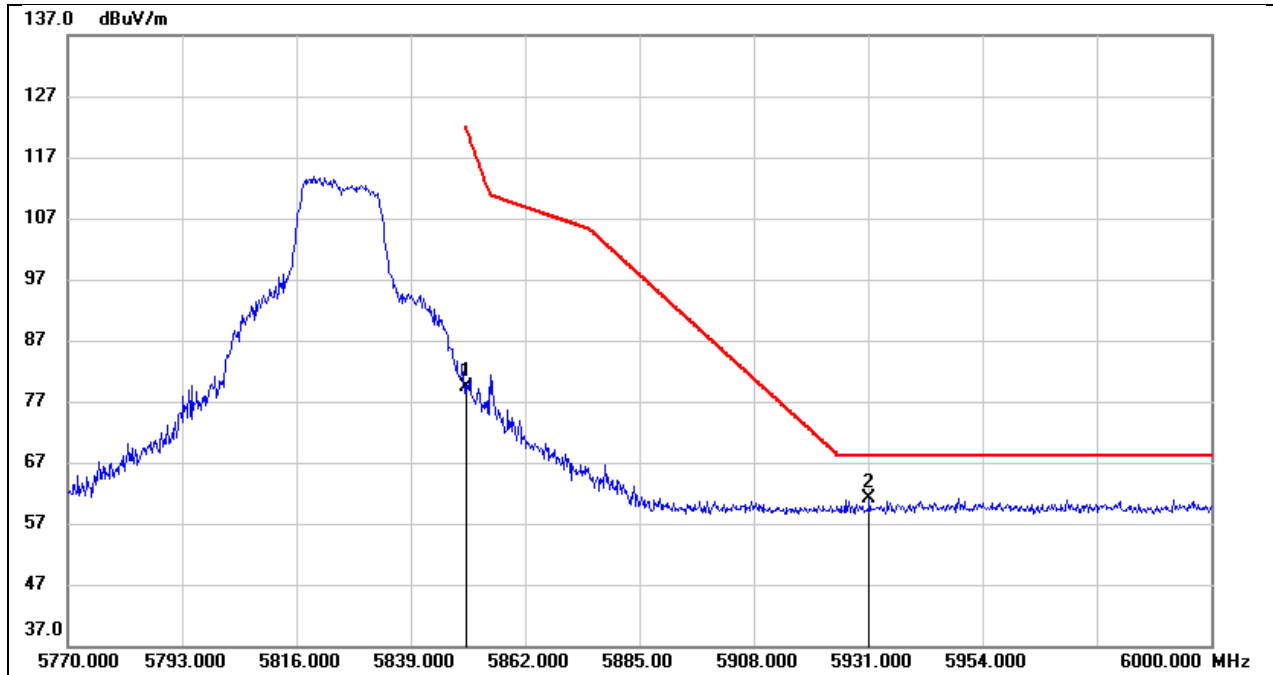
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5643.320        | 22.94          | 42.36          | 65.30           | 68.20          | -2.90       | peak   |
| 2   | 5725.000        | 43.83          | 42.28          | 86.11           | 122.20         | -36.09      | peak   |

|            |               |                 |        |
|------------|---------------|-----------------|--------|
| Test Mode: | 802.11a 20 PK | Frequency(MHz): | 5745   |
| Polarity:  | Vertical      | Test Voltage:   | DC 24V |



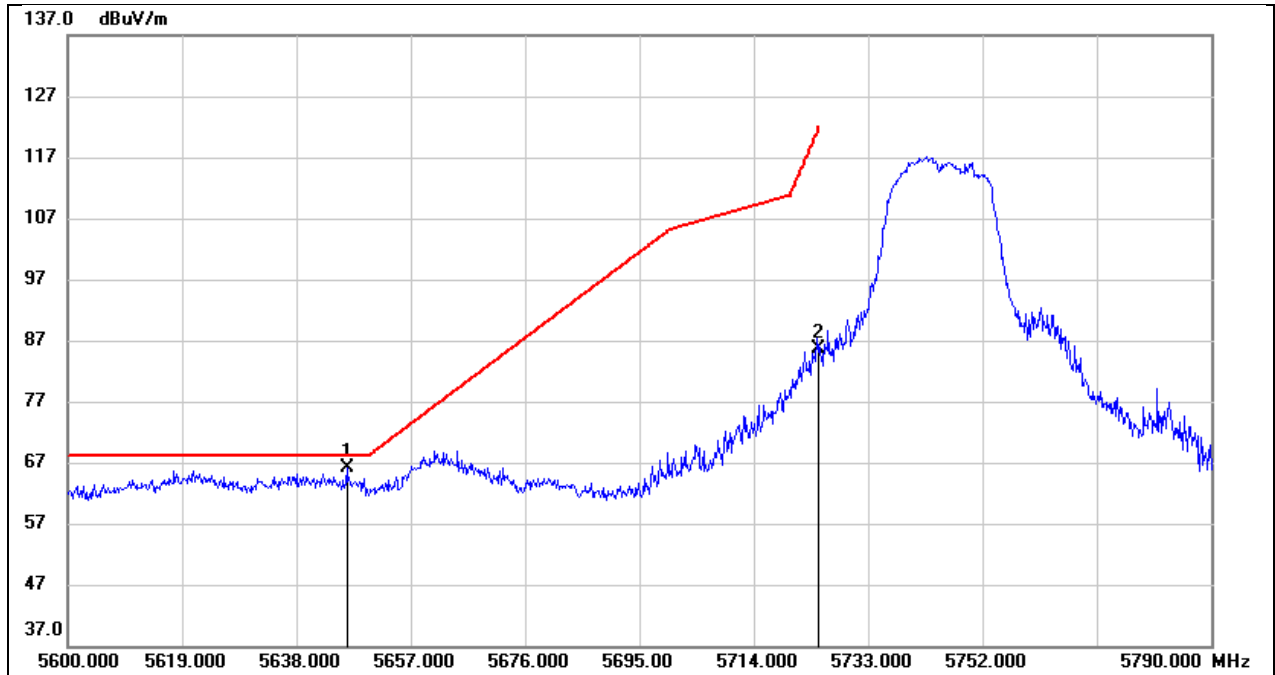
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5642.750        | 20.92          | 42.36          | 63.28           | 68.20          | -4.92       | peak   |
| 2   | 5725.000        | 41.75          | 42.28          | 84.03           | 122.20         | -38.17      | peak   |

|            |               |                 |        |
|------------|---------------|-----------------|--------|
| Test Mode: | 802.11a 20 PK | Frequency(MHz): | 5825   |
| Polarity:  | Horizontal    | Test Voltage:   | DC 24V |



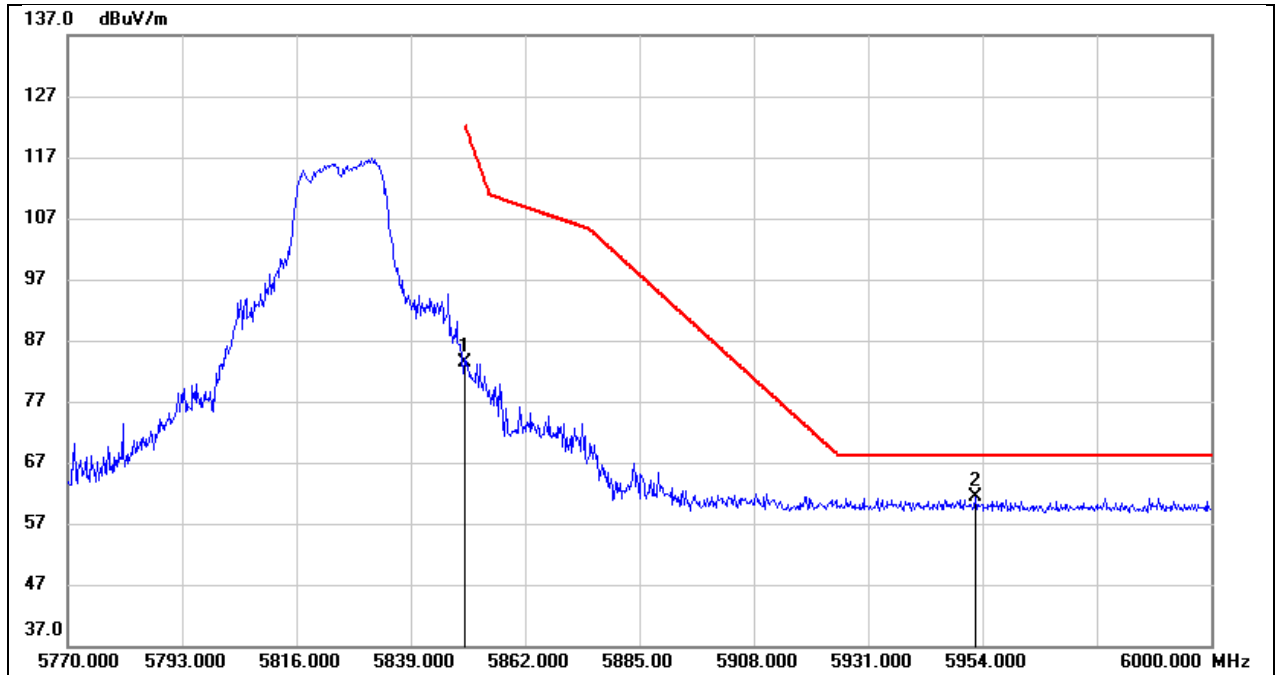
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5850.000        | 37.88          | 41.38          | 79.26           | 122.20         | -42.94      | peak   |
| 2   | 5931.230        | 19.26          | 41.80          | 61.06           | 68.20          | -7.14       | peak   |

|            |                 |                 |        |
|------------|-----------------|-----------------|--------|
| Test Mode: | 802.11n HT20 PK | Frequency(MHz): | 5745   |
| Polarity:  | Horizontal      | Test Voltage:   | DC 24V |



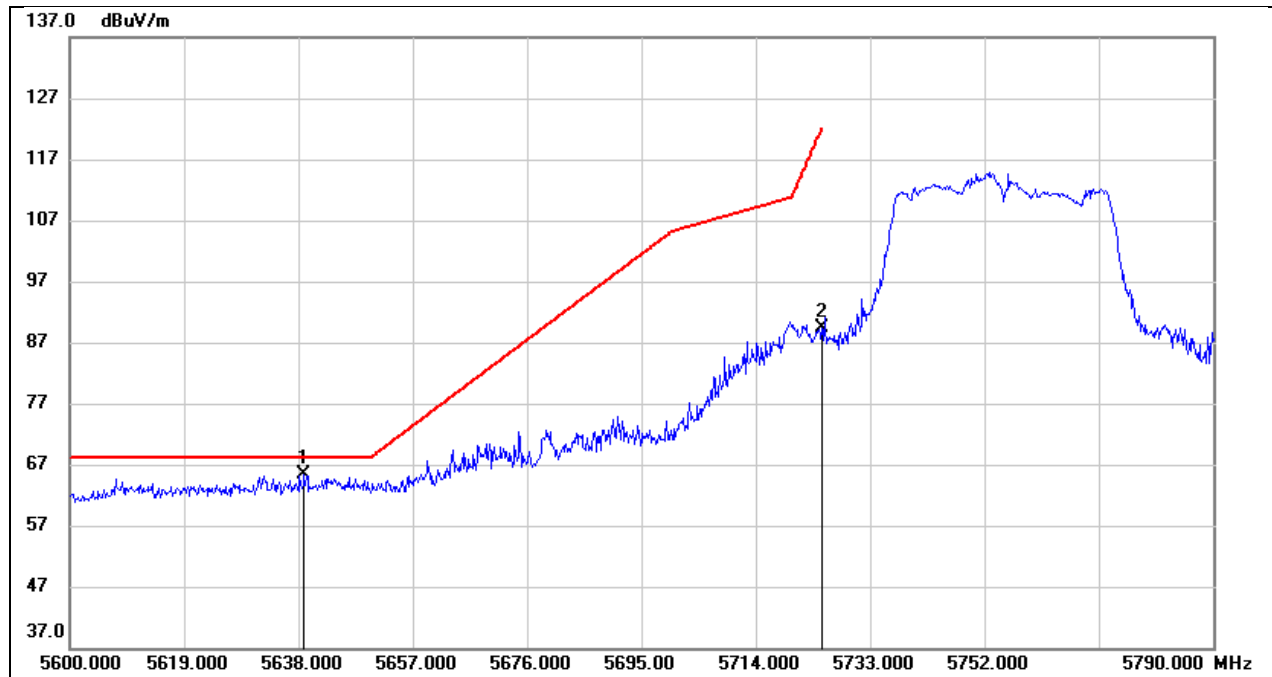
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5646.360        | 24.97          | 41.22          | 66.19           | 68.20          | -2.01       | peak   |
| 2   | 5725.000        | 44.41          | 41.17          | 85.58           | 122.20         | -36.62      | peak   |

|            |                 |                 |        |
|------------|-----------------|-----------------|--------|
| Test Mode: | 802.11n HT20 PK | Frequency(MHz): | 5825   |
| Polarity:  | Horizontal      | Test Voltage:   | DC 24V |



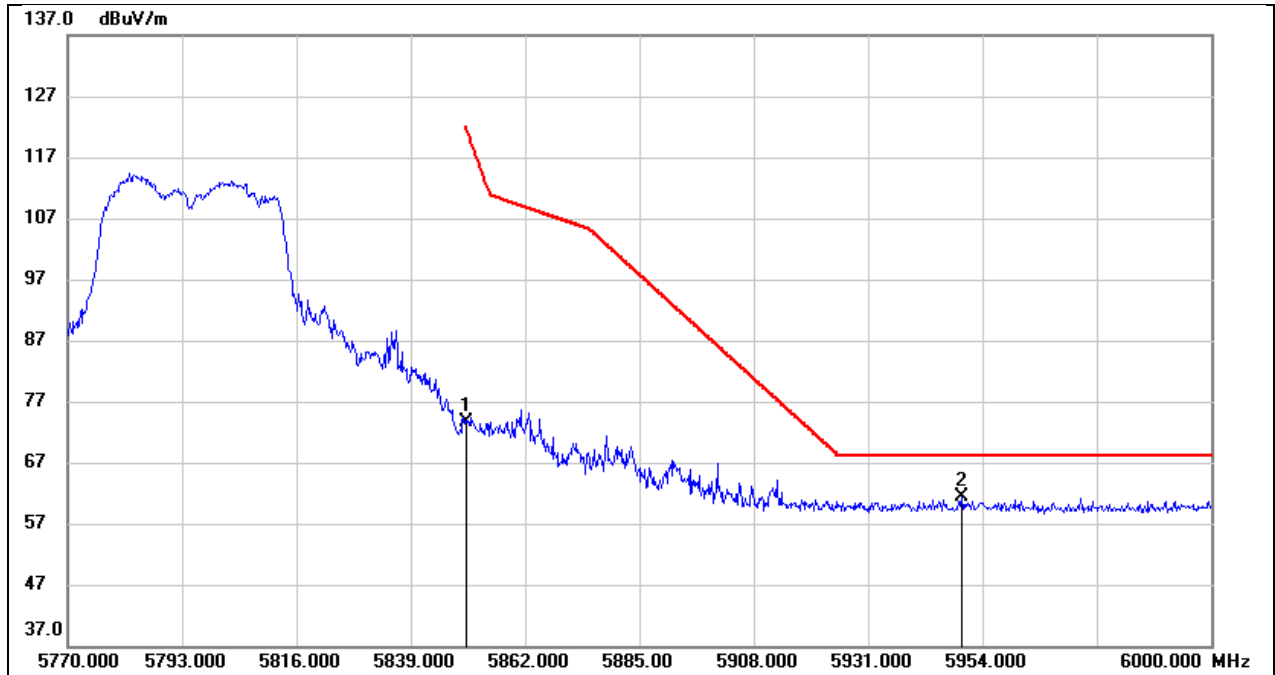
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5850.000        | 42.08          | 41.38          | 83.46           | 122.20         | -38.74      | peak   |
| 2   | 5952.620        | 19.40          | 41.90          | 61.30           | 68.20          | -6.90       | peak   |

|            |                 |                 |        |
|------------|-----------------|-----------------|--------|
| Test Mode: | 802.11n HT40 PK | Frequency(MHz): | 5755   |
| Polarity:  | Horizontal      | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5638.950        | 24.20          | 41.22          | 65.42           | 68.20          | -2.78       | peak   |
| 2   | 5725.000        | 48.15          | 41.17          | 89.32           | 122.20         | -32.88      | peak   |

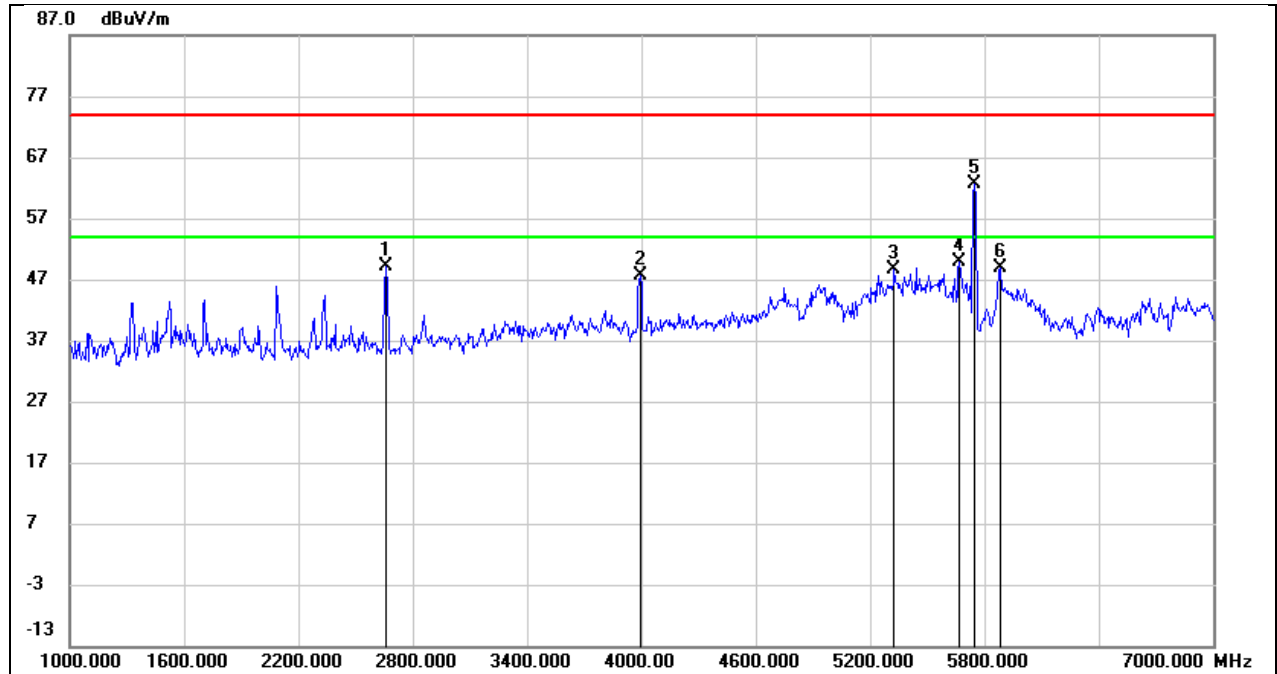
|            |                 |                 |        |
|------------|-----------------|-----------------|--------|
| Test Mode: | 802.11n HT40 PK | Frequency(MHz): | 5795   |
| Polarity:  | Horizontal      | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 5850.000        | 32.37          | 41.38          | 73.75           | 122.20         | -48.45      | peak   |
| 2   | 5949.860        | 19.55          | 41.89          | 61.44           | 68.20          | -6.76       | peak   |

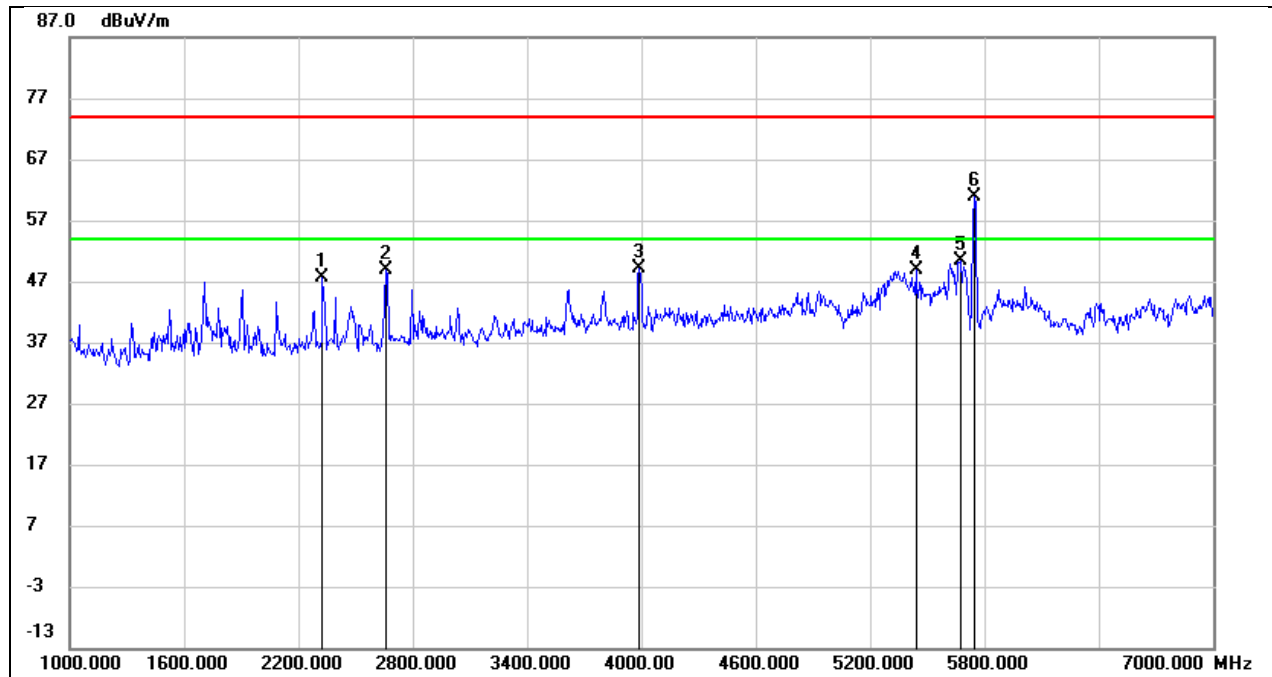
## 8.2. SPURIOUS EMISSIONS(1 GHZ~7 GHZ)

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



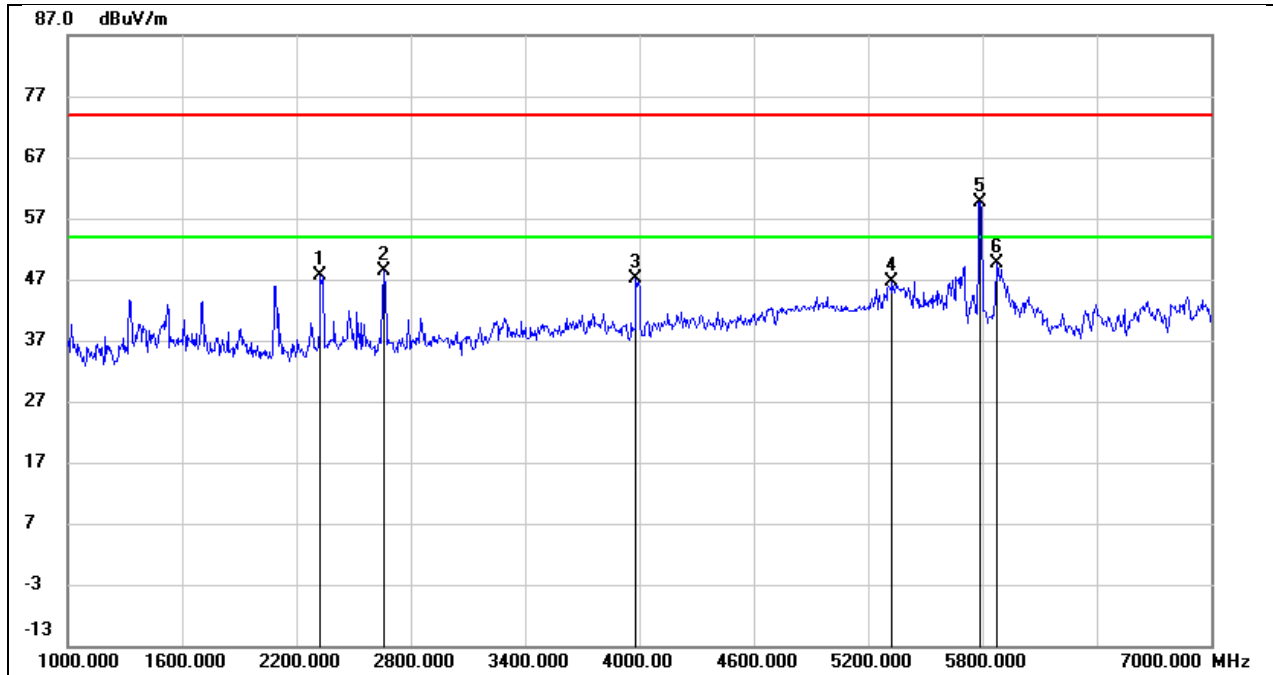
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 2656.000        | 56.74          | -7.50          | 49.24           | 74.00          | -24.76      | peak   |
| 2   | 3994.000        | 50.77          | -3.08          | 47.69           | 74.00          | -26.31      | peak   |
| 3   | 5326.000        | 47.10          | 1.55           | 48.65           | 74.00          | -25.35      | peak   |
| 4   | 5668.000        | 47.18          | 2.80           | 49.98           | 74.00          | -24.02      | peak   |
| 5   | 5746.000        | 60.03          | 2.51           | 62.54           | 74.00          | -11.46      | peak   |
| 6   | 5884.000        | 46.08          | 2.76           | 48.84           | 74.00          | -25.16      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



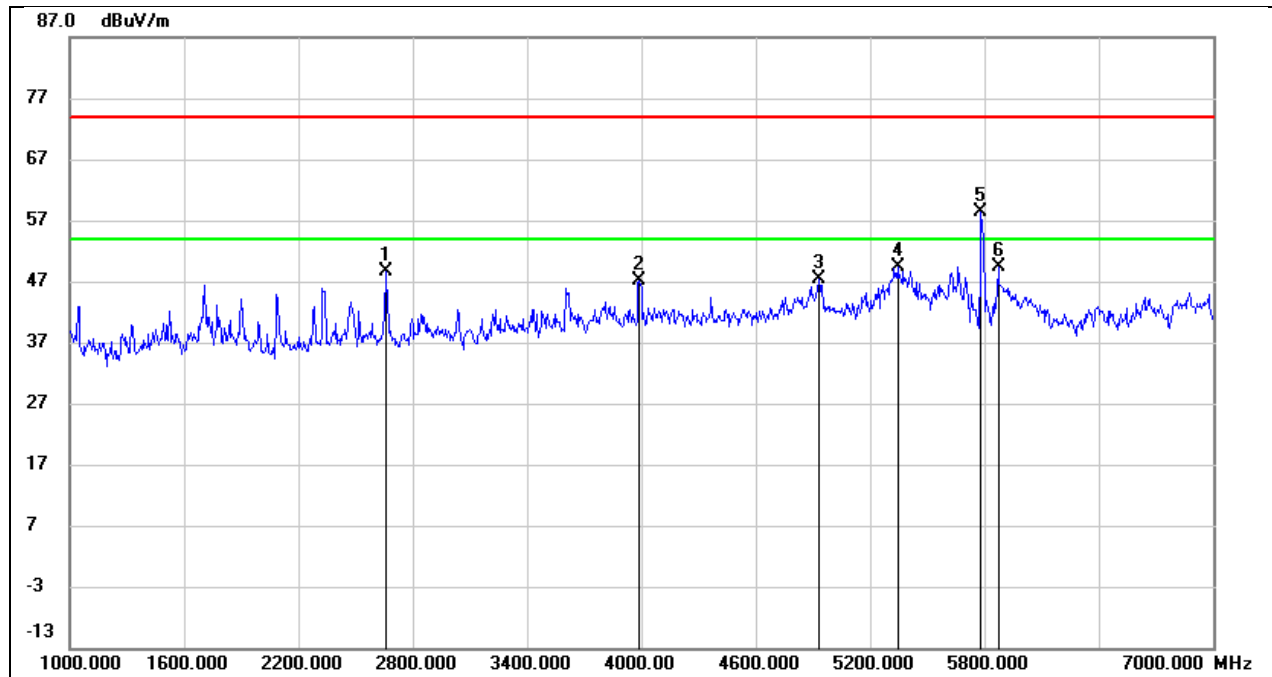
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 2326.000        | 54.90          | -7.20          | 47.70           | 74.00          | -26.30      | peak   |
| 2   | 2656.000        | 55.31          | -6.55          | 48.76           | 74.00          | -25.24      | peak   |
| 3   | 3988.000        | 50.99          | -1.97          | 49.02           | 74.00          | -24.98      | peak   |
| 4   | 5440.000        | 45.71          | 3.12           | 48.83           | 74.00          | -25.17      | peak   |
| 5   | 5674.000        | 46.49          | 3.91           | 50.40           | 74.00          | -23.60      | peak   |
| 6   | 5746.000        | 57.16          | 3.62           | 60.78           | 74.00          | -13.22      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5785   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



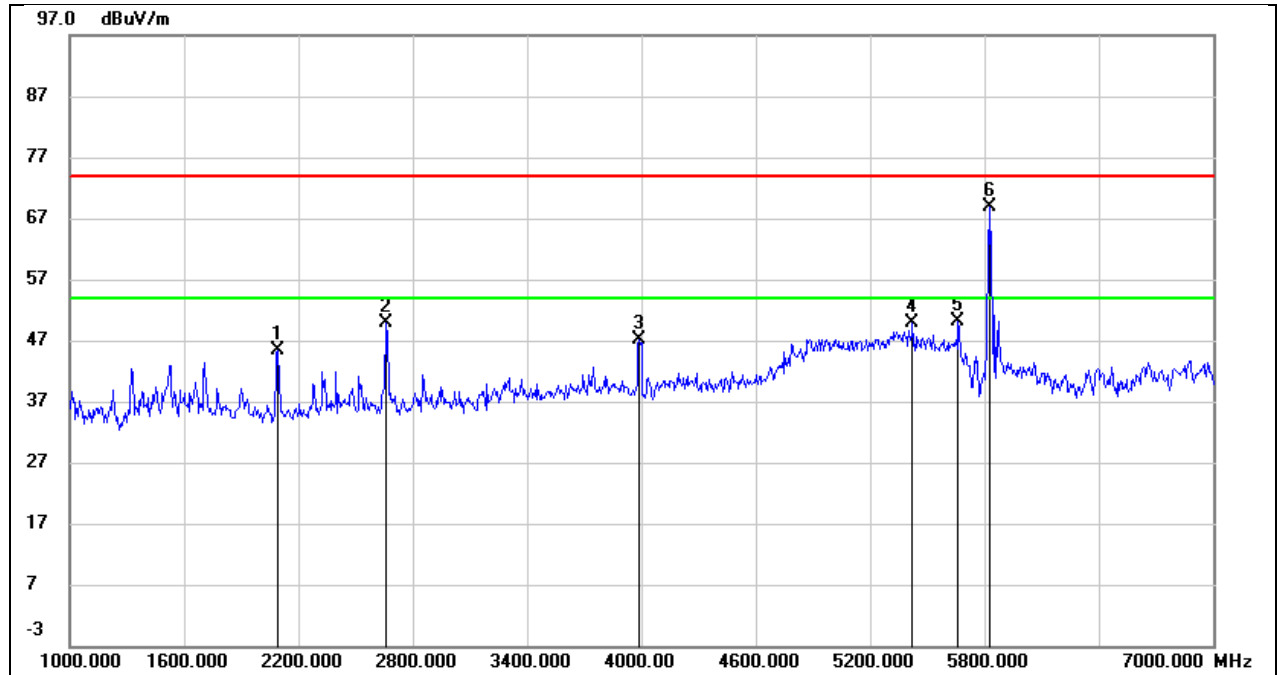
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 2326.000        | 55.69          | -8.04          | 47.65           | 74.00          | -26.35      | peak   |
| 2   | 2656.000        | 55.94          | -7.50          | 48.44           | 74.00          | -25.56      | peak   |
| 3   | 3982.000        | 50.20          | -3.05          | 47.15           | 74.00          | -26.85      | peak   |
| 4   | 5326.000        | 45.16          | 1.55           | 46.71           | 74.00          | -27.29      | peak   |
| 5   | 5788.000        | 57.38          | 2.36           | 59.74           | 74.00          | -14.26      | peak   |
| 6   | 5878.000        | 46.90          | 2.73           | 49.63           | 74.00          | -24.37      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5785   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



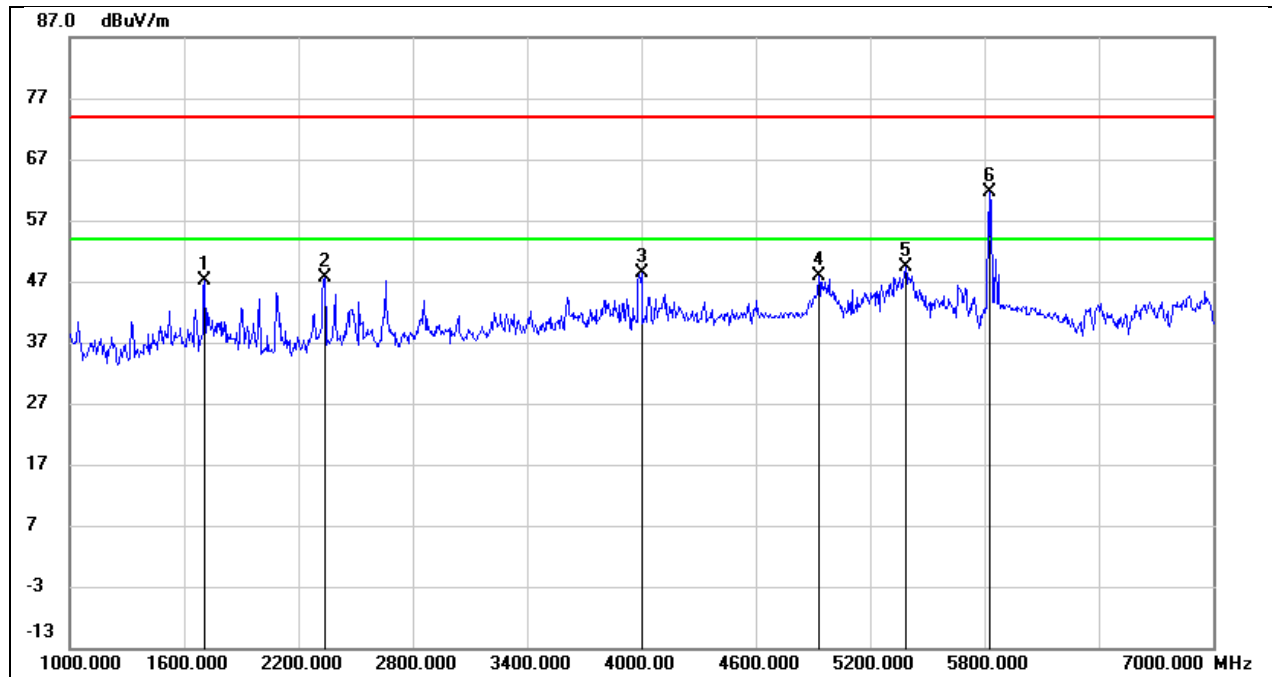
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 2656.000        | 55.09          | -6.55          | 48.54           | 74.00          | -25.46      | peak   |
| 2   | 3988.000        | 49.01          | -1.97          | 47.04           | 74.00          | -26.96      | peak   |
| 3   | 4930.000        | 45.44          | 1.87           | 47.31           | 74.00          | -26.69      | peak   |
| 4   | 5344.000        | 46.64          | 2.77           | 49.41           | 74.00          | -24.59      | peak   |
| 5   | 5782.000        | 55.00          | 3.48           | 58.48           | 74.00          | -15.52      | peak   |
| 6   | 5872.000        | 45.51          | 3.76           | 49.27           | 74.00          | -24.73      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5825   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 2092.000        | 54.87          | -9.51          | 45.36           | 74.00          | -28.64      | peak   |
| 2   | 2656.000        | 57.48          | -7.50          | 49.98           | 74.00          | -24.02      | peak   |
| 3   | 3988.000        | 50.24          | -3.07          | 47.17           | 74.00          | -26.83      | peak   |
| 4   | 5422.000        | 47.99          | 1.80           | 49.79           | 74.00          | -24.21      | peak   |
| 5   | 5662.000        | 47.41          | 2.82           | 50.23           | 74.00          | -23.77      | peak   |
| 6   | 5830.000        | 66.36          | 2.48           | 68.84           | 74.00          | -5.16       | peak   |

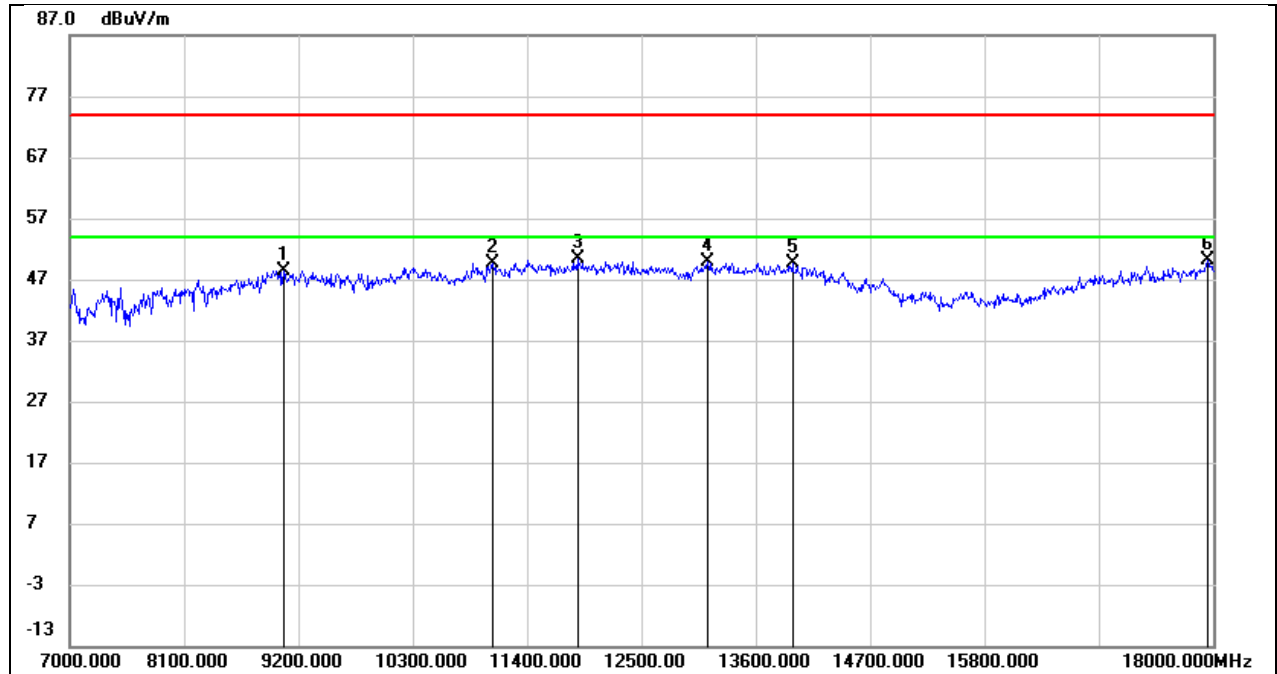
|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5825   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 1708.000        | 57.31          | -10.08         | 47.23           | 74.00          | -26.77      | peak   |
| 2   | 2338.000        | 54.77          | -7.12          | 47.65           | 74.00          | -26.35      | peak   |
| 3   | 4000.000        | 50.47          | -1.99          | 48.48           | 74.00          | -25.52      | peak   |
| 4   | 4930.000        | 45.95          | 1.87           | 47.82           | 74.00          | -26.18      | peak   |
| 5   | 5386.000        | 46.57          | 2.83           | 49.40           | 74.00          | -24.60      | peak   |
| 6   | 5830.000        | 58.18          | 3.55           | 61.73           | 74.00          | -12.27      | peak   |

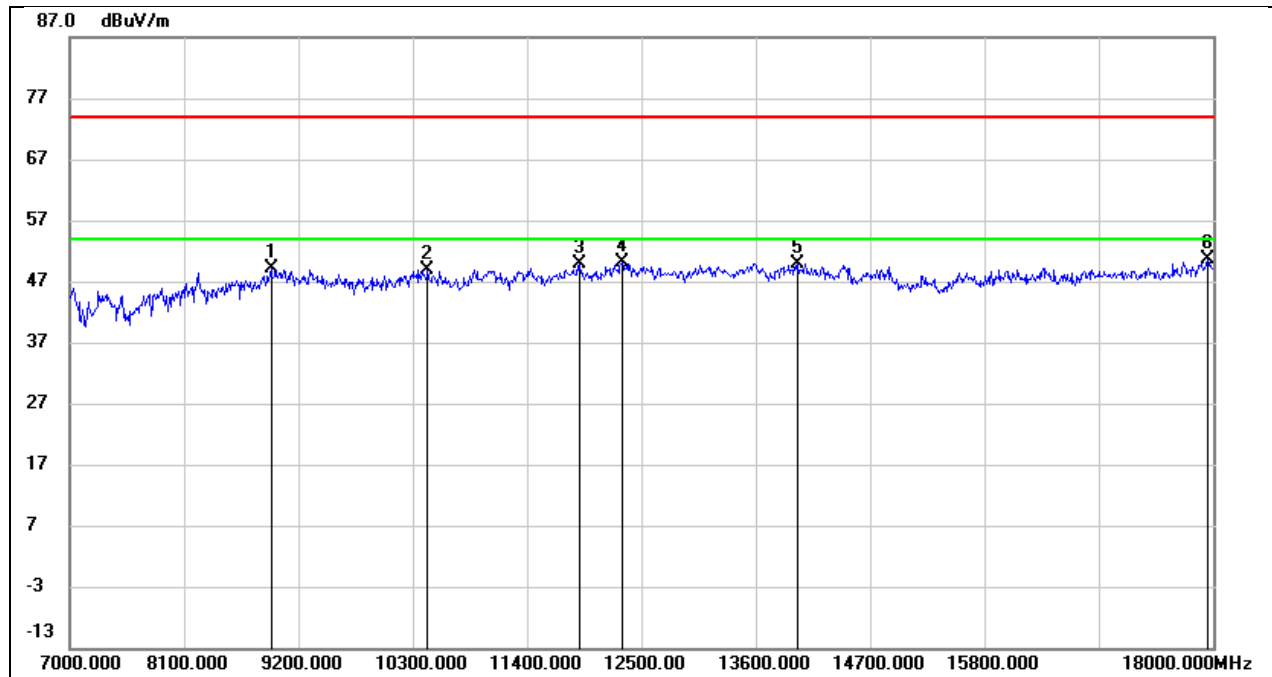
### 8.3. SPURIOUS EMISSIONS(7 GHZ~18 GHZ)

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



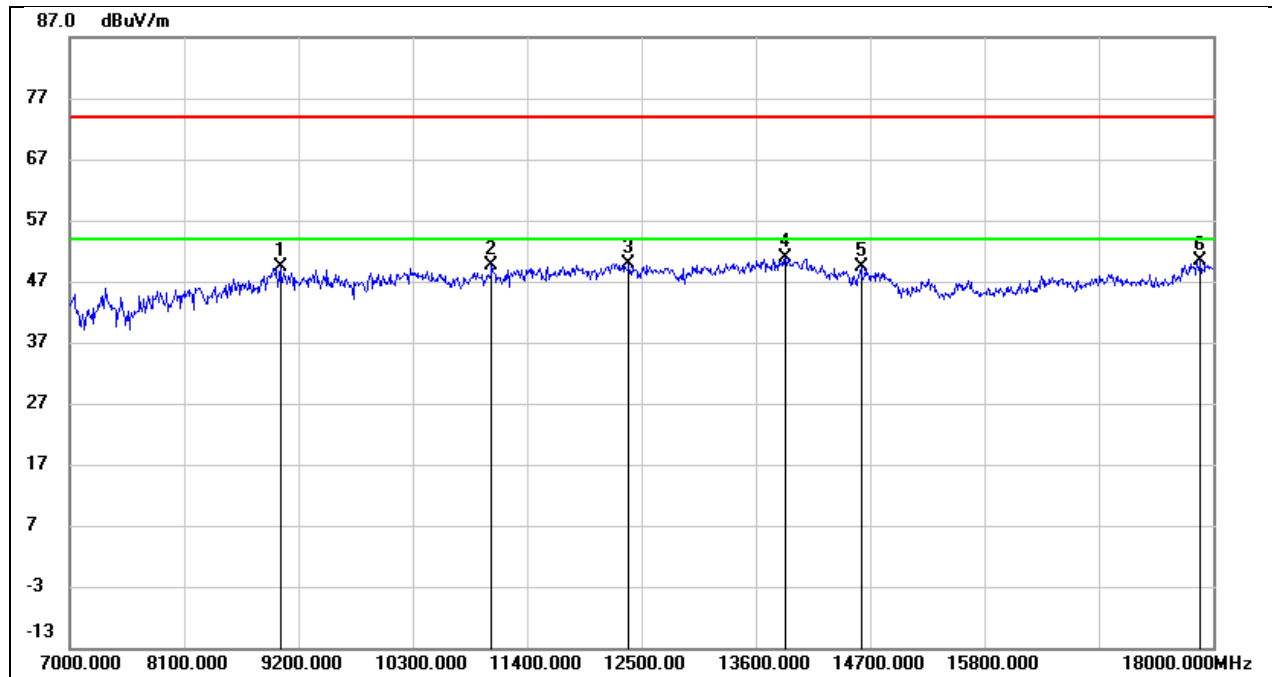
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9057.000        | 37.03          | 11.45          | 48.48           | 74.00          | -25.52      | peak   |
| 2   | 11070.000       | 34.73          | 14.91          | 49.64           | 74.00          | -24.36      | peak   |
| 3   | 11884.000       | 32.86          | 17.47          | 50.33           | 74.00          | -23.67      | peak   |
| 4   | 13138.000       | 30.45          | 19.43          | 49.88           | 74.00          | -24.12      | peak   |
| 5   | 13952.000       | 27.26          | 22.39          | 49.65           | 74.00          | -24.35      | peak   |
| 6   | 17945.000       | 22.08          | 28.15          | 50.23           | 74.00          | -23.77      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



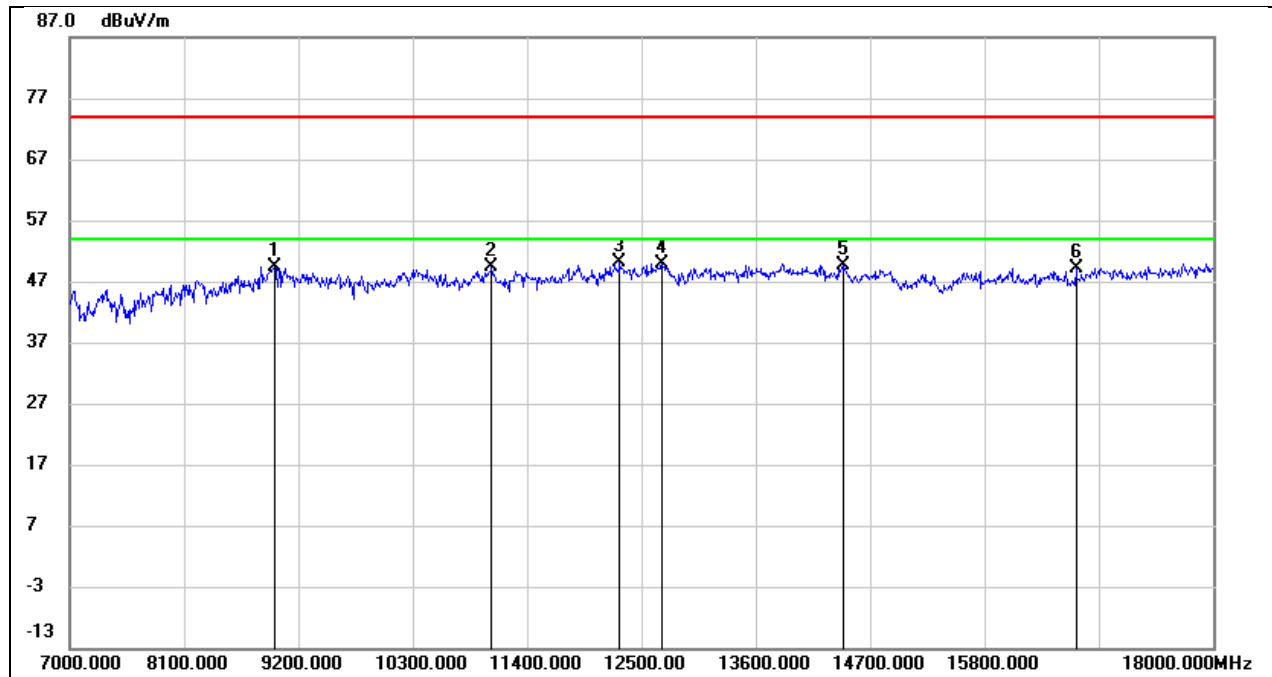
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8936.000        | 37.72          | 11.44          | 49.16           | 74.00          | -24.84      | peak   |
| 2   | 10443.000       | 36.11          | 12.84          | 48.95           | 74.00          | -25.05      | peak   |
| 3   | 11906.000       | 33.52          | 16.40          | 49.92           | 74.00          | -24.08      | peak   |
| 4   | 12313.000       | 32.77          | 17.36          | 50.13           | 74.00          | -23.87      | peak   |
| 5   | 14007.000       | 29.09          | 20.85          | 49.94           | 74.00          | -24.06      | peak   |
| 6   | 17945.000       | 24.39          | 26.19          | 50.58           | 74.00          | -23.42      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5785   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



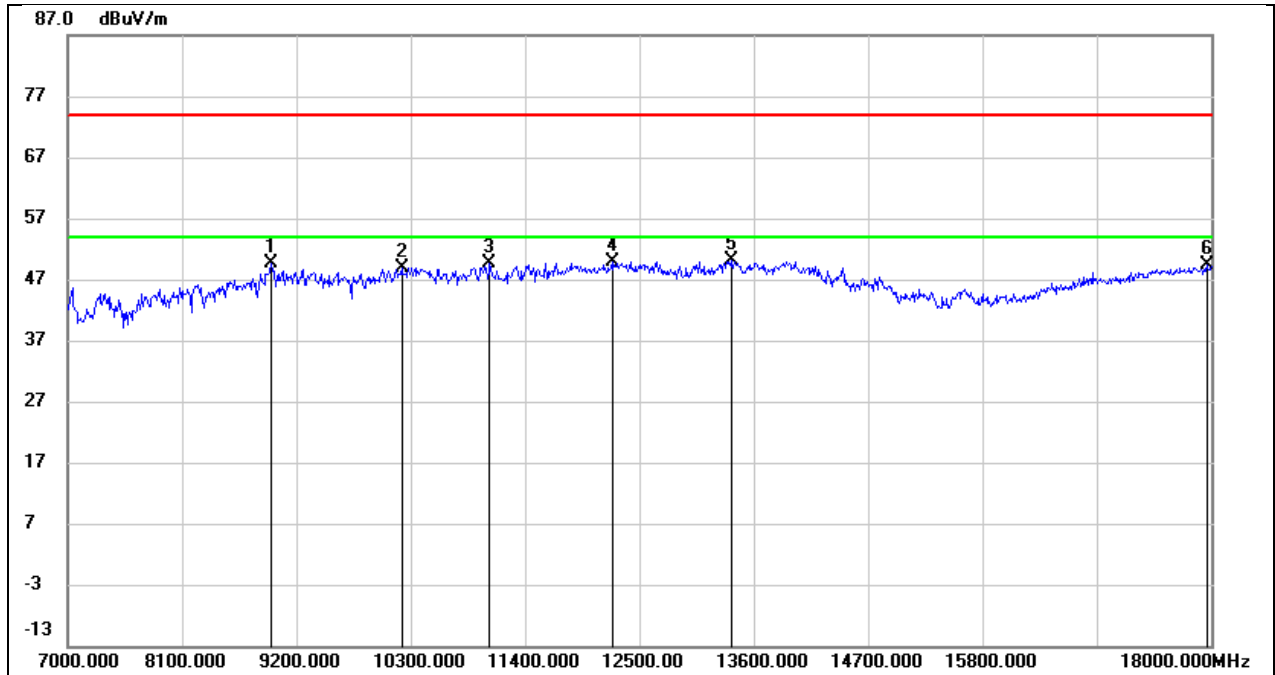
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9024.000        | 37.74          | 11.75          | 49.49           | 74.00          | -24.51      | peak   |
| 2   | 11059.000       | 34.72          | 14.90          | 49.62           | 74.00          | -24.38      | peak   |
| 3   | 12379.000       | 31.37          | 18.49          | 49.86           | 74.00          | -24.14      | peak   |
| 4   | 13886.000       | 28.49          | 22.33          | 50.82           | 74.00          | -23.18      | peak   |
| 5   | 14612.000       | 29.57          | 19.90          | 49.47           | 74.00          | -24.53      | peak   |
| 6   | 17879.000       | 22.49          | 27.77          | 50.26           | 74.00          | -23.74      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5785   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



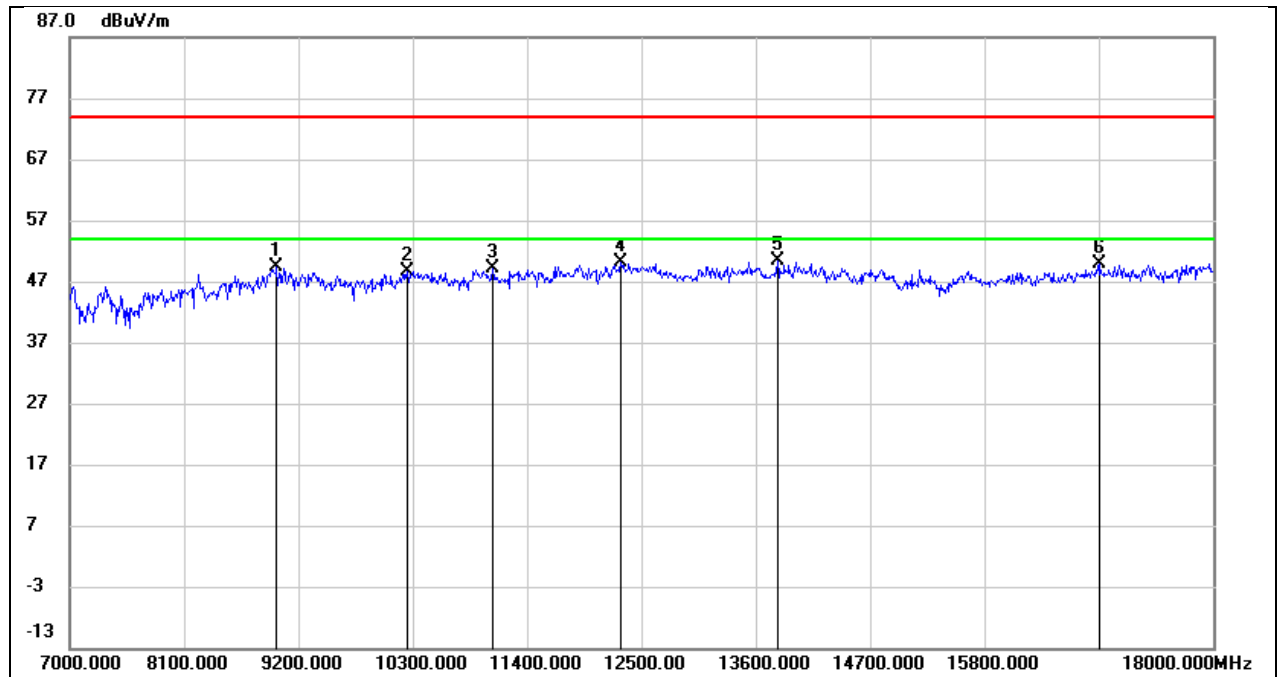
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8969.000        | 37.42          | 11.92          | 49.34           | 74.00          | -24.66      | peak   |
| 2   | 11059.000       | 35.46          | 14.02          | 49.48           | 74.00          | -24.52      | peak   |
| 3   | 12291.000       | 32.84          | 17.30          | 50.14           | 74.00          | -23.86      | peak   |
| 4   | 12698.000       | 32.81          | 17.18          | 49.99           | 74.00          | -24.01      | peak   |
| 5   | 14436.000       | 29.45          | 20.15          | 49.60           | 74.00          | -24.40      | peak   |
| 6   | 16680.000       | 26.42          | 22.79          | 49.21           | 74.00          | -24.79      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5825   |
| Polarity:  | Horizontal | Test Voltage:   | DC 24V |



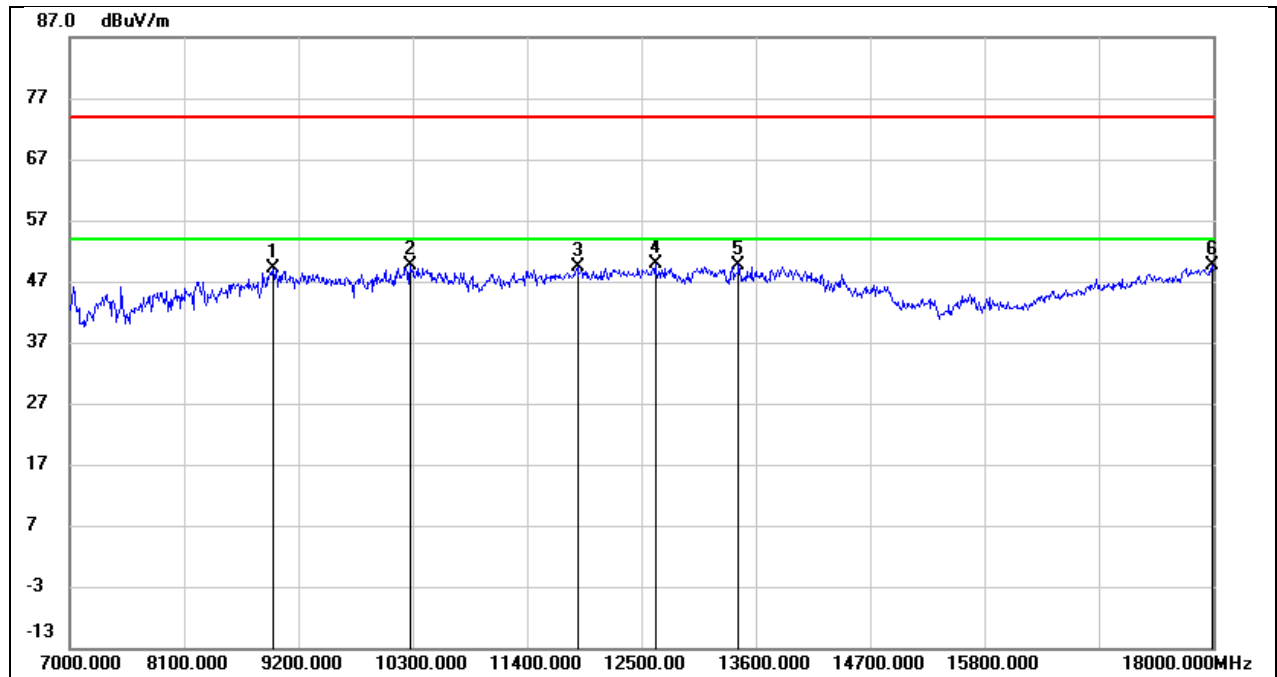
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8958.000        | 38.33          | 11.34          | 49.67           | 74.00          | -24.33      | peak   |
| 2   | 10212.000       | 36.55          | 12.32          | 48.87           | 74.00          | -25.13      | peak   |
| 3   | 11059.000       | 34.79          | 14.90          | 49.69           | 74.00          | -24.31      | peak   |
| 4   | 12236.000       | 31.67          | 18.15          | 49.82           | 74.00          | -24.18      | peak   |
| 5   | 13380.000       | 29.51          | 20.71          | 50.22           | 74.00          | -23.78      | peak   |
| 6   | 17956.000       | 21.20          | 28.21          | 49.41           | 74.00          | -24.59      | peak   |

|            |            |                 |        |
|------------|------------|-----------------|--------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5825   |
| Polarity:  | Vertical   | Test Voltage:   | DC 24V |



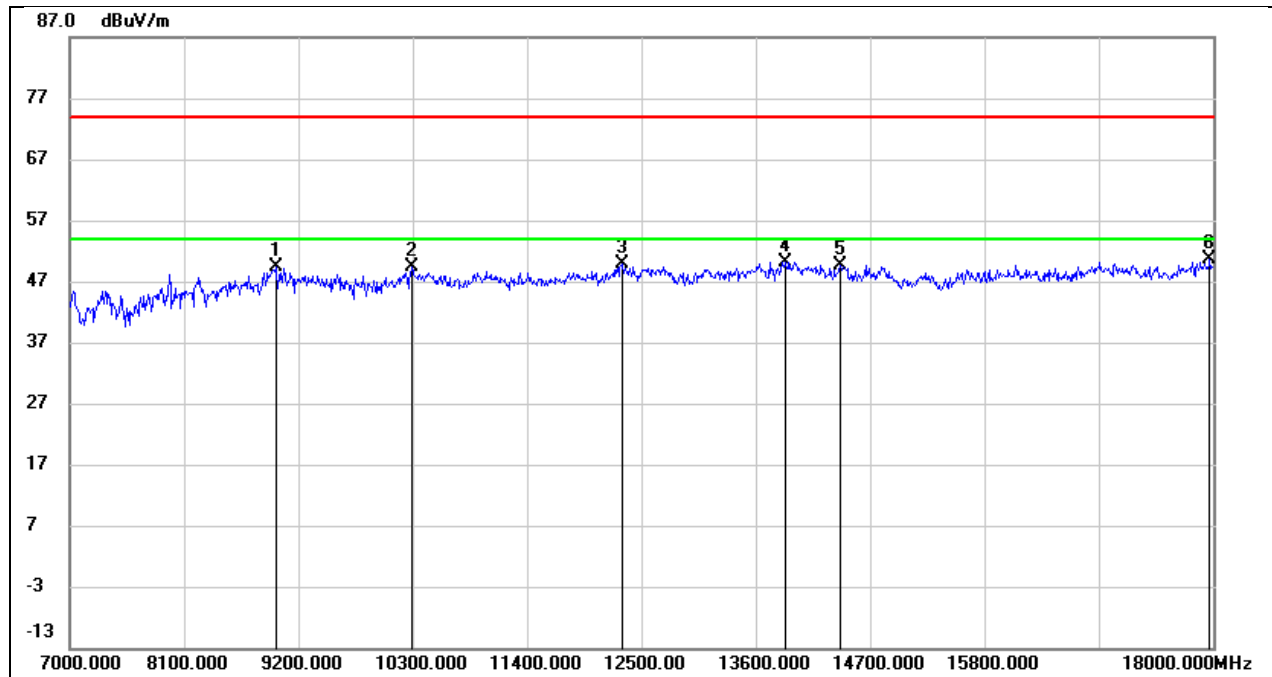
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8991.000        | 37.06          | 12.23          | 49.29           | 74.00          | -24.71      | peak   |
| 2   | 10245.000       | 36.61          | 11.99          | 48.60           | 74.00          | -25.40      | peak   |
| 3   | 11070.000       | 35.16          | 14.02          | 49.18           | 74.00          | -24.82      | peak   |
| 4   | 12302.000       | 32.72          | 17.33          | 50.05           | 74.00          | -23.95      | peak   |
| 5   | 13809.000       | 29.76          | 20.61          | 50.37           | 74.00          | -23.63      | peak   |
| 6   | 16911.000       | 26.62          | 23.26          | 49.88           | 74.00          | -24.12      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5745   |
| Polarity:  | Horizontal   | Test Voltage:   | DC 24V |



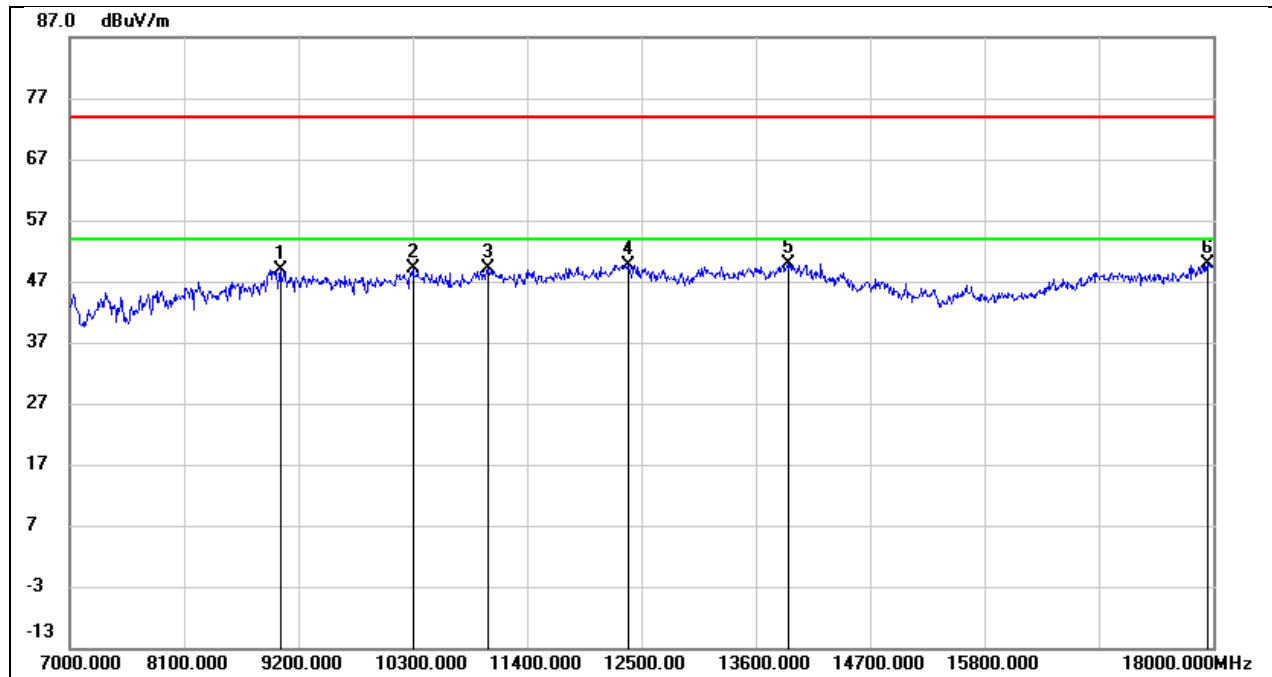
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8958.000        | 37.67          | 11.34          | 49.01           | 74.00          | -24.99      | peak   |
| 2   | 10278.000       | 36.95          | 12.57          | 49.52           | 74.00          | -24.48      | peak   |
| 3   | 11884.000       | 31.82          | 17.47          | 49.29           | 74.00          | -24.71      | peak   |
| 4   | 12632.000       | 31.95          | 18.02          | 49.97           | 74.00          | -24.03      | peak   |
| 5   | 13435.000       | 28.83          | 20.92          | 49.75           | 74.00          | -24.25      | peak   |
| 6   | 17989.000       | 21.12          | 28.41          | 49.53           | 74.00          | -24.47      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5745   |
| Polarity:  | Vertical     | Test Voltage:   | DC 24V |



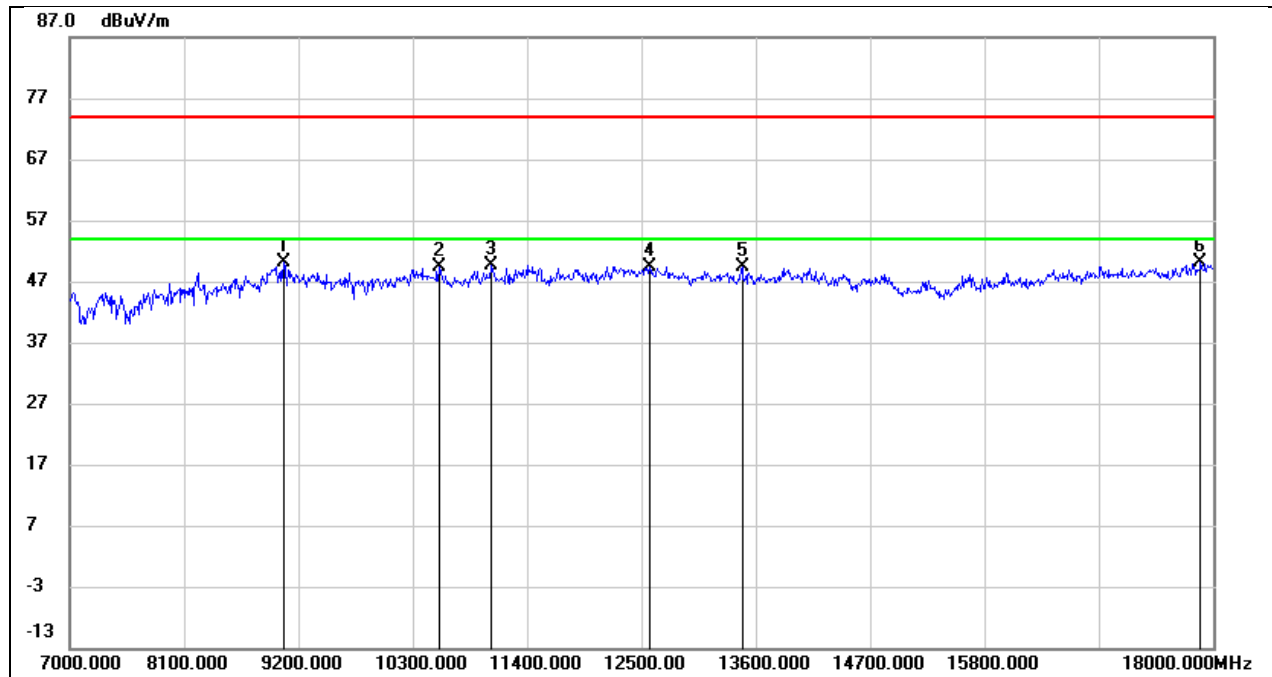
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8980.000        | 37.29          | 12.07          | 49.36           | 74.00          | -24.64      | peak   |
| 2   | 10289.000       | 37.20          | 12.20          | 49.40           | 74.00          | -24.60      | peak   |
| 3   | 12313.000       | 32.53          | 17.36          | 49.89           | 74.00          | -24.11      | peak   |
| 4   | 13886.000       | 29.48          | 20.71          | 50.19           | 74.00          | -23.81      | peak   |
| 5   | 14414.000       | 29.50          | 20.18          | 49.68           | 74.00          | -24.32      | peak   |
| 6   | 17967.000       | 24.34          | 26.22          | 50.56           | 74.00          | -23.44      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5785   |
| Polarity:  | Horizontal   | Test Voltage:   | DC 24V |



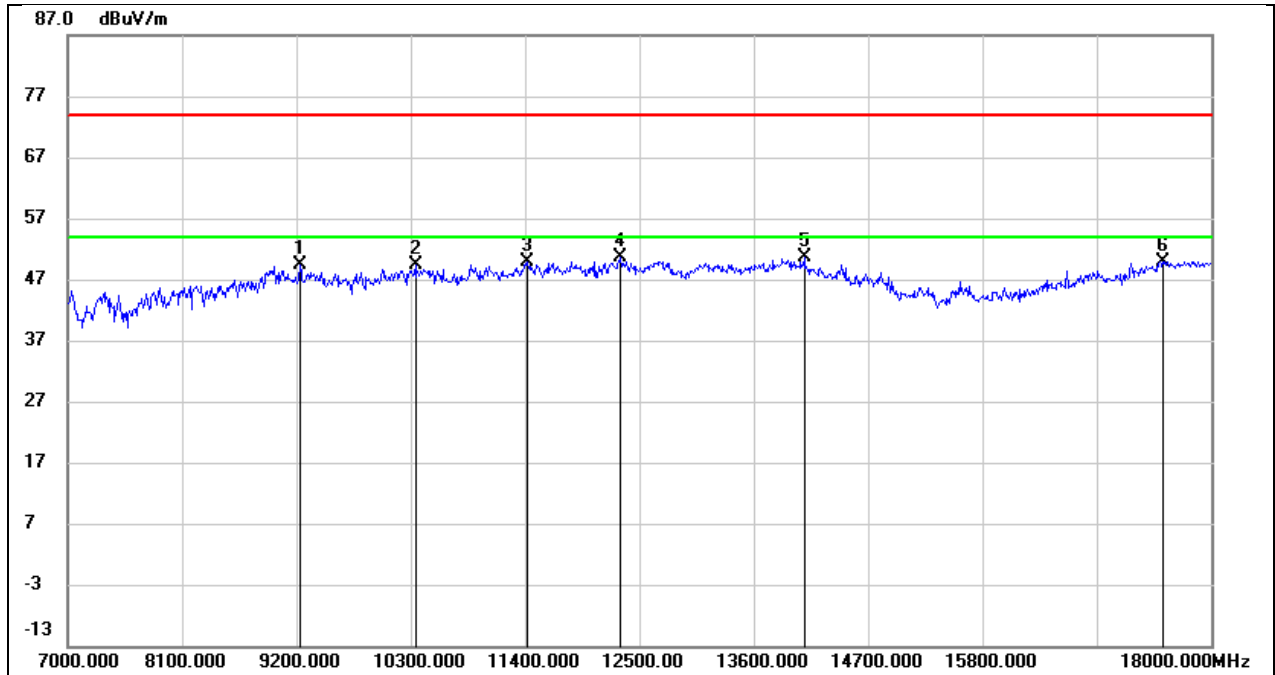
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9024.000        | 37.16          | 11.75          | 48.91           | 74.00          | -25.09      | peak   |
| 2   | 10300.000       | 36.41          | 12.64          | 49.05           | 74.00          | -24.95      | peak   |
| 3   | 11026.000       | 34.32          | 14.84          | 49.16           | 74.00          | -24.84      | peak   |
| 4   | 12368.000       | 31.18          | 18.47          | 49.65           | 74.00          | -24.35      | peak   |
| 5   | 13919.000       | 27.55          | 22.36          | 49.91           | 74.00          | -24.09      | peak   |
| 6   | 17945.000       | 21.84          | 28.15          | 49.99           | 74.00          | -24.01      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5785   |
| Polarity:  | Vertical     | Test Voltage:   | DC 24V |



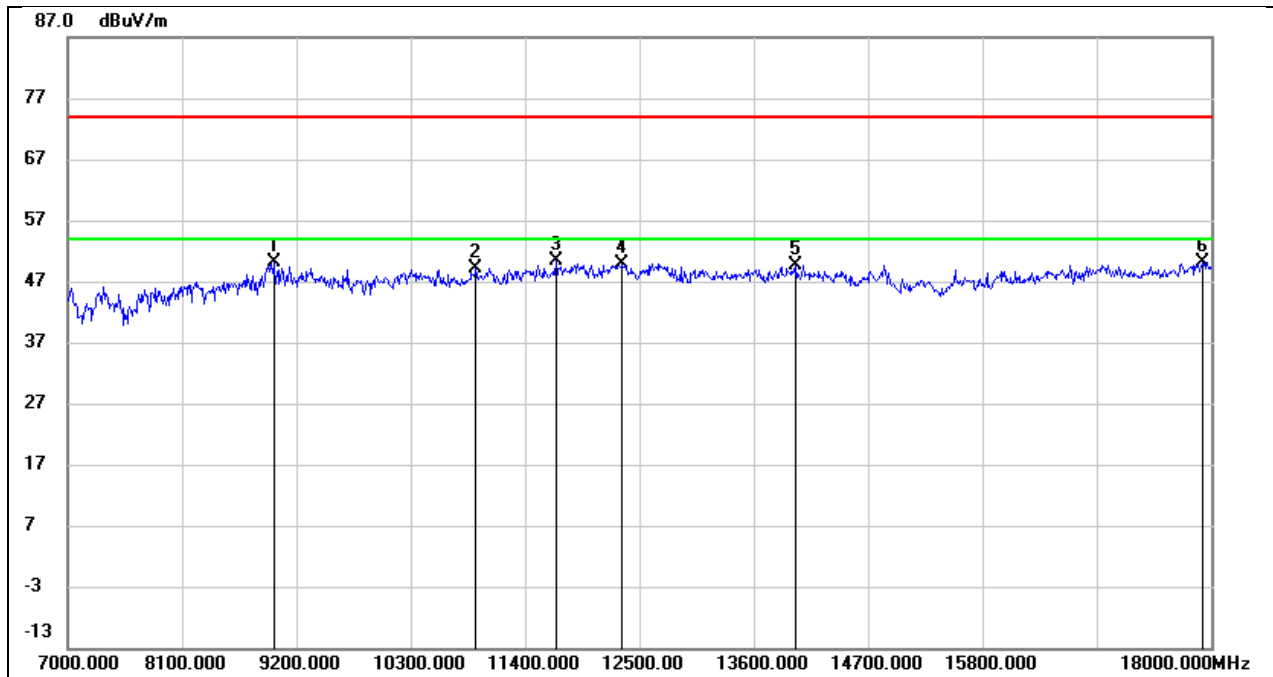
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9057.000        | 38.42          | 11.81          | 50.23           | 74.00          | -23.77      | peak   |
| 2   | 10553.000       | 36.23          | 13.10          | 49.33           | 74.00          | -24.67      | peak   |
| 3   | 11059.000       | 35.71          | 14.02          | 49.73           | 74.00          | -24.27      | peak   |
| 4   | 12577.000       | 32.44          | 17.04          | 49.48           | 74.00          | -24.52      | peak   |
| 5   | 13468.000       | 30.06          | 19.34          | 49.40           | 74.00          | -24.60      | peak   |
| 6   | 17879.000       | 23.93          | 26.10          | 50.03           | 74.00          | -23.97      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5825   |
| Polarity:  | Horizontal   | Test Voltage:   | DC 24V |



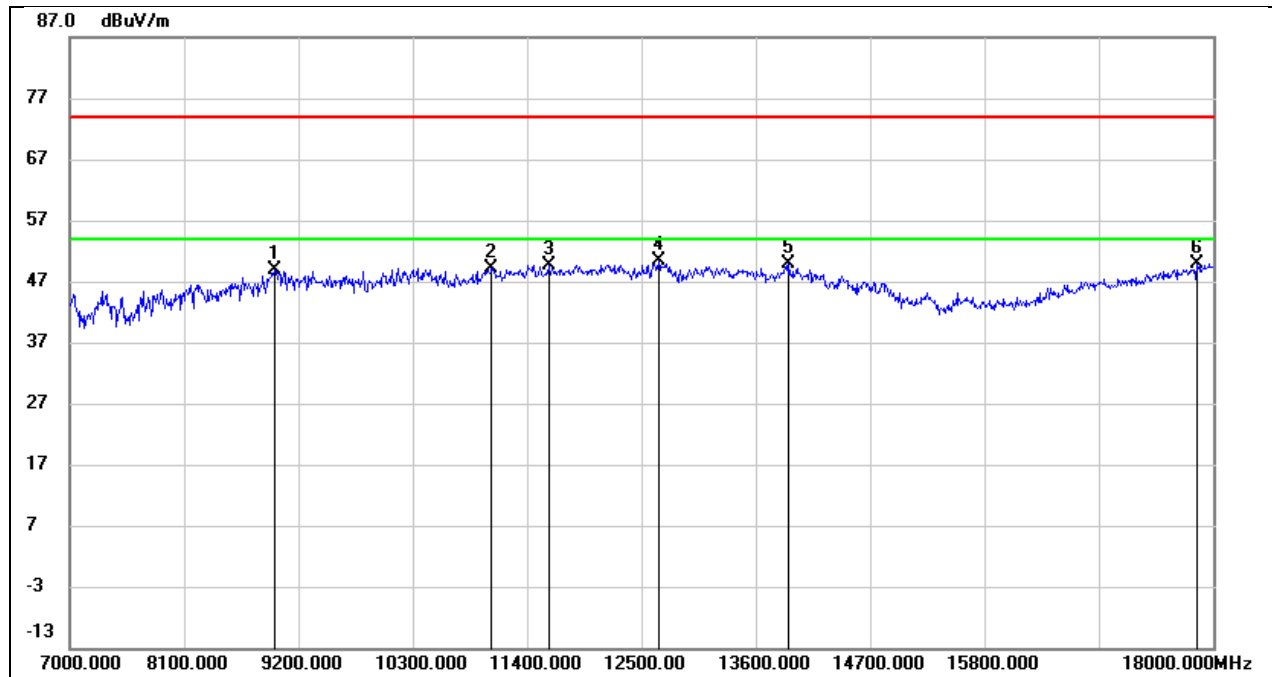
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9233.000        | 39.20          | 10.24          | 49.44           | 74.00          | -24.56      | peak   |
| 2   | 10344.000       | 36.47          | 12.81          | 49.28           | 74.00          | -24.72      | peak   |
| 3   | 11422.000       | 33.51          | 16.37          | 49.88           | 74.00          | -24.12      | peak   |
| 4   | 12313.000       | 32.19          | 18.34          | 50.53           | 74.00          | -23.47      | peak   |
| 5   | 14084.000       | 28.40          | 22.20          | 50.60           | 74.00          | -23.40      | peak   |
| 6   | 17538.000       | 25.50          | 24.36          | 49.86           | 74.00          | -24.14      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT20 | Frequency(MHz): | 5825   |
| Polarity:  | Vertical     | Test Voltage:   | DC 24V |



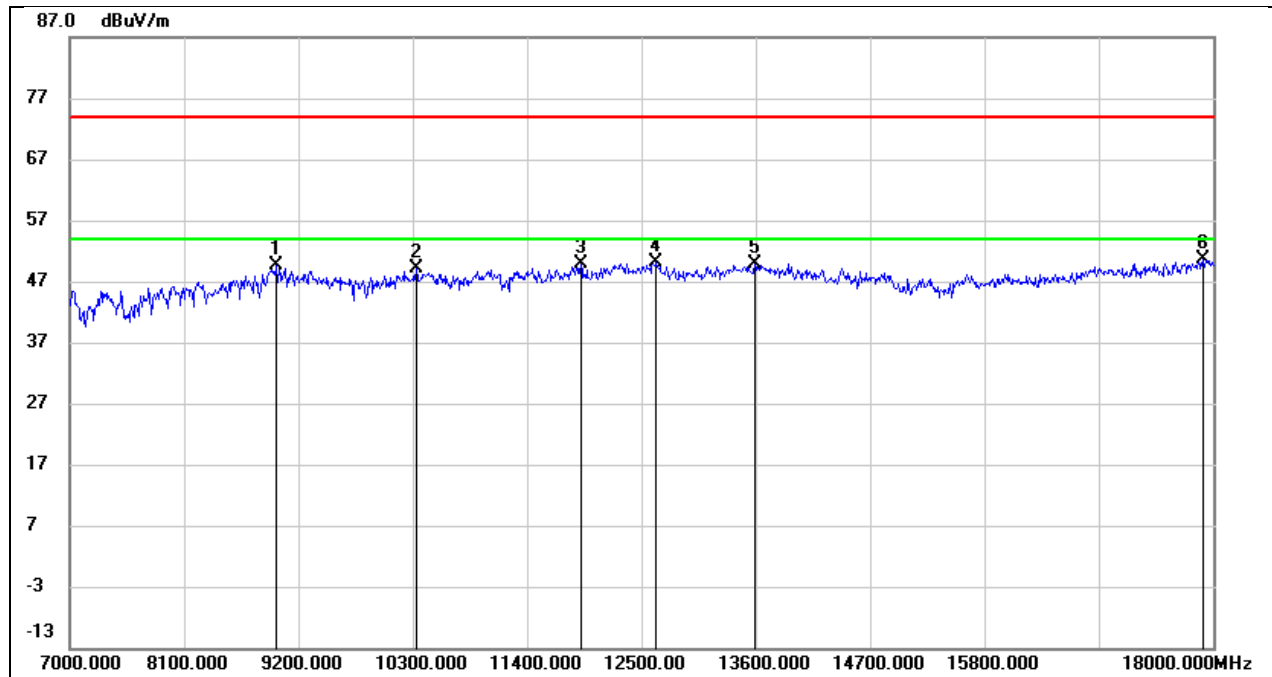
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8980.000        | 37.94          | 12.07          | 50.01           | 74.00          | -23.99      | peak   |
| 2   | 10927.000       | 35.48          | 13.67          | 49.15           | 74.00          | -24.85      | peak   |
| 3   | 11697.000       | 34.83          | 15.53          | 50.36           | 74.00          | -23.64      | peak   |
| 4   | 12335.000       | 32.54          | 17.43          | 49.97           | 74.00          | -24.03      | peak   |
| 5   | 14007.000       | 28.79          | 20.85          | 49.64           | 74.00          | -24.36      | peak   |
| 6   | 17923.000       | 24.05          | 26.15          | 50.20           | 74.00          | -23.80      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT40 | Frequency(MHz): | 5755   |
| Polarity:  | Horizontal   | Test Voltage:   | DC 24V |



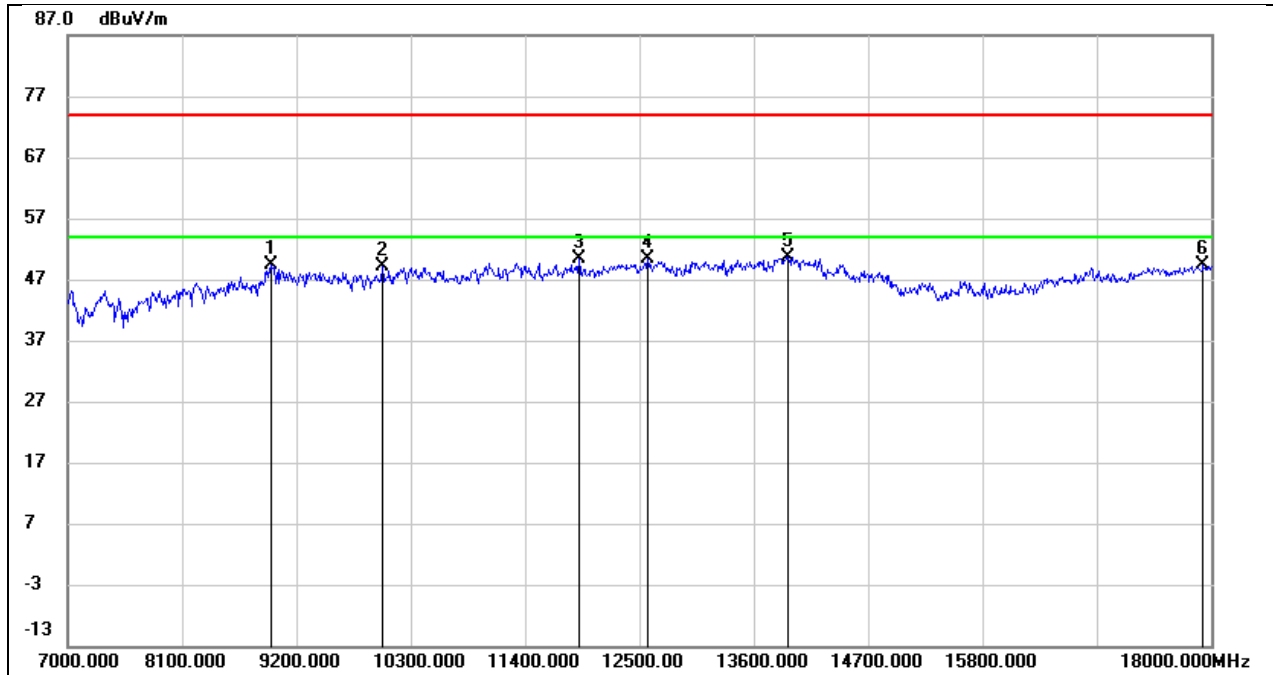
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8969.000        | 37.39          | 11.50          | 48.89           | 74.00          | -25.11      | peak   |
| 2   | 11059.000       | 34.29          | 14.90          | 49.19           | 74.00          | -24.81      | peak   |
| 3   | 11609.000       | 33.05          | 16.68          | 49.73           | 74.00          | -24.27      | peak   |
| 4   | 12665.000       | 32.17          | 18.11          | 50.28           | 74.00          | -23.72      | peak   |
| 5   | 13919.000       | 27.51          | 22.36          | 49.87           | 74.00          | -24.13      | peak   |
| 6   | 17846.000       | 22.37          | 27.57          | 49.94           | 74.00          | -24.06      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT40 | Frequency(MHz): | 5755   |
| Polarity:  | Vertical     | Test Voltage:   | DC 24V |



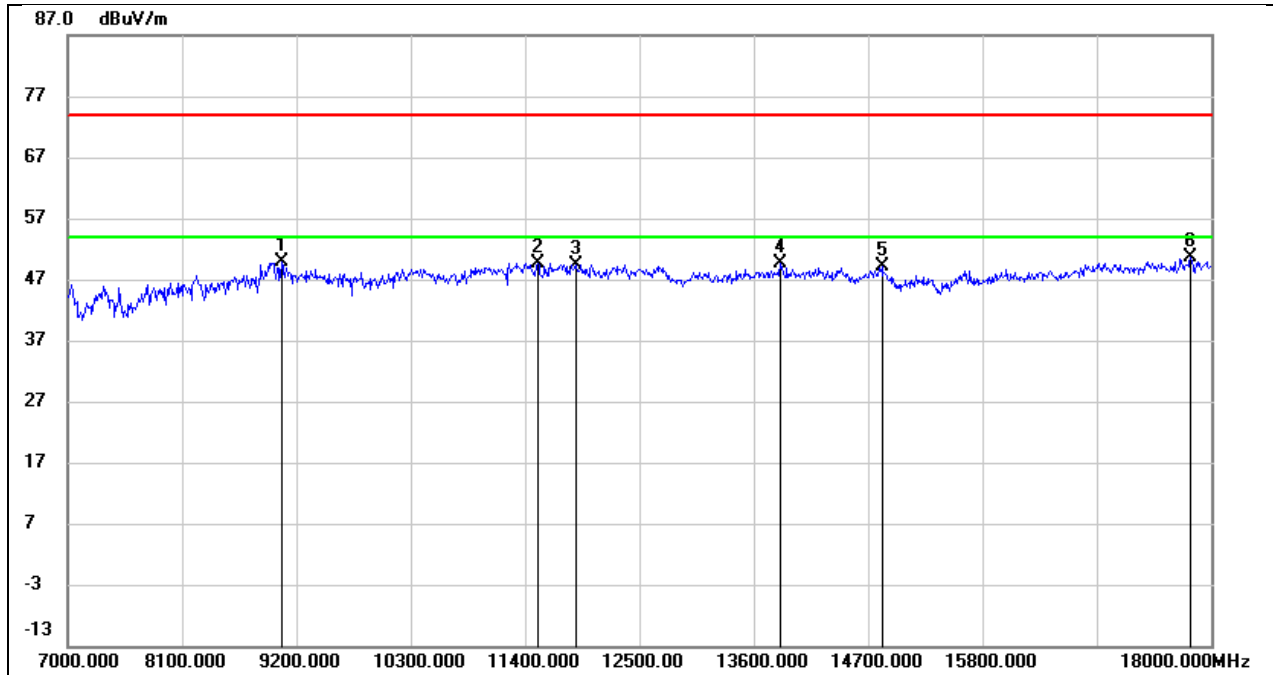
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8991.000        | 37.37          | 12.23          | 49.60           | 74.00          | -24.40      | peak   |
| 2   | 10333.000       | 36.80          | 12.39          | 49.19           | 74.00          | -24.81      | peak   |
| 3   | 11917.000       | 33.37          | 16.45          | 49.82           | 74.00          | -24.18      | peak   |
| 4   | 12643.000       | 33.09          | 17.07          | 50.16           | 74.00          | -23.84      | peak   |
| 5   | 13589.000       | 30.37          | 19.47          | 49.84           | 74.00          | -24.16      | peak   |
| 6   | 17901.000       | 24.55          | 26.12          | 50.67           | 74.00          | -23.33      | peak   |

|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT40 | Frequency(MHz): | 5795   |
| Polarity:  | Horizontal   | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 8958.000        | 38.09          | 11.34          | 49.43           | 74.00          | -24.57      | peak   |
| 2   | 10025.000       | 36.92          | 12.28          | 49.20           | 74.00          | -24.80      | peak   |
| 3   | 11917.000       | 32.66          | 17.61          | 50.27           | 74.00          | -23.73      | peak   |
| 4   | 12577.000       | 32.34          | 17.99          | 50.33           | 74.00          | -23.67      | peak   |
| 5   | 13930.000       | 28.21          | 22.37          | 50.58           | 74.00          | -23.42      | peak   |
| 6   | 17923.000       | 21.30          | 28.01          | 49.31           | 74.00          | -24.69      | peak   |

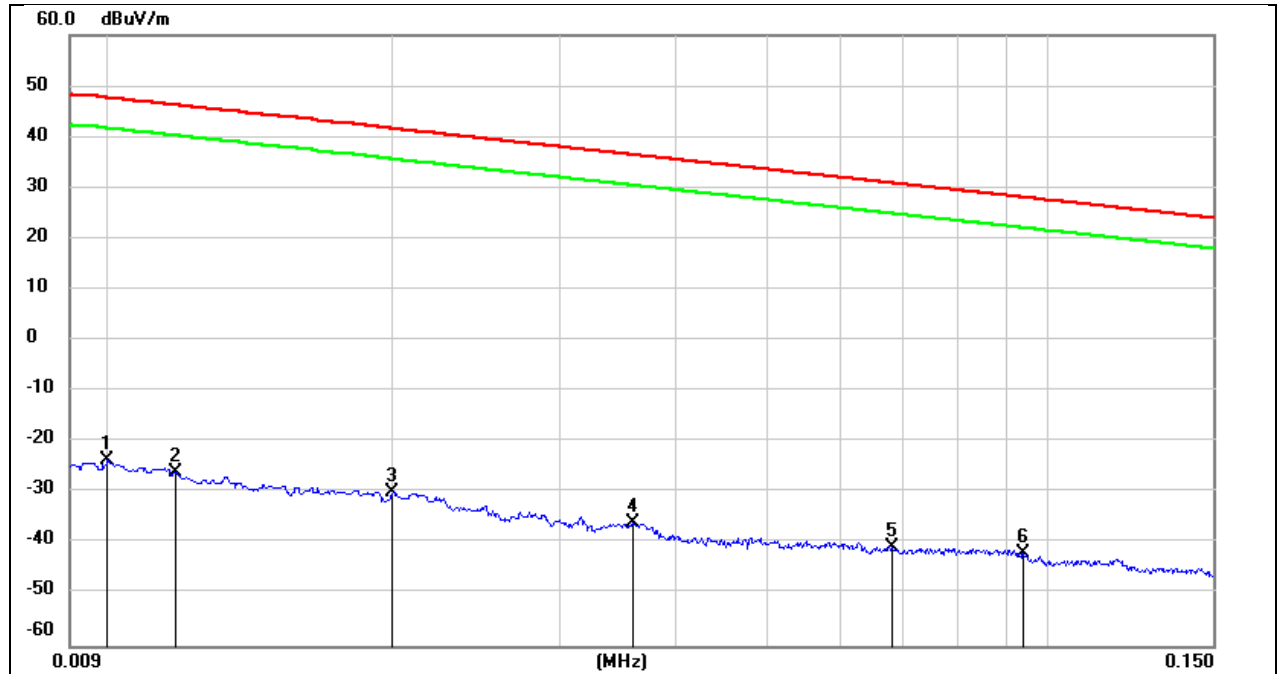
|            |              |                 |        |
|------------|--------------|-----------------|--------|
| Test Mode: | 802.11n HT40 | Frequency(MHz): | 5795   |
| Polarity:  | Vertical     | Test Voltage:   | DC 24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 9057.000        | 37.99          | 11.81          | 49.80           | 74.00          | -24.20      | peak   |
| 2   | 11521.000       | 34.60          | 15.12          | 49.72           | 74.00          | -24.28      | peak   |
| 3   | 11884.000       | 33.21          | 16.27          | 49.48           | 74.00          | -24.52      | peak   |
| 4   | 13853.000       | 28.88          | 20.67          | 49.55           | 74.00          | -24.45      | peak   |
| 5   | 14832.000       | 29.51          | 19.58          | 49.09           | 74.00          | -24.91      | peak   |
| 6   | 17802.000       | 24.60          | 25.99          | 50.59           | 74.00          | -23.41      | peak   |

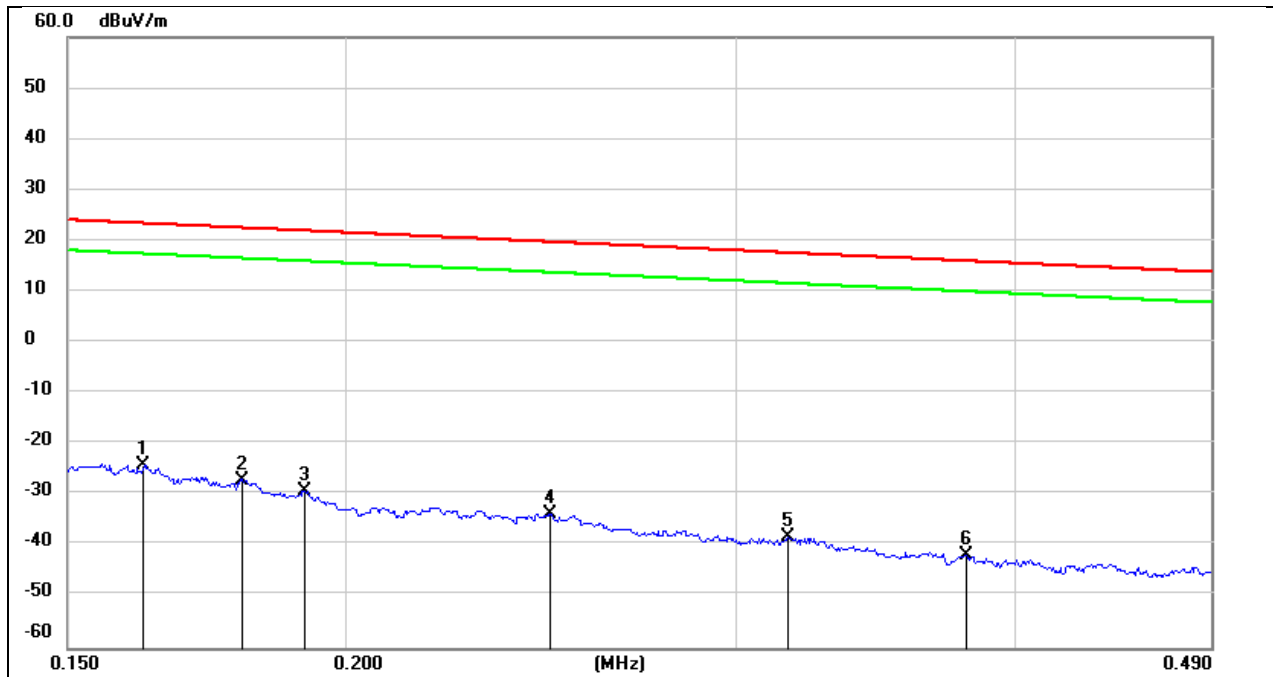
## 8.4. SPURIOUS EMISSIONS(9 KHZ~30 MHZ)

|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Horizontal | Test Voltage:   | DC 24 V |



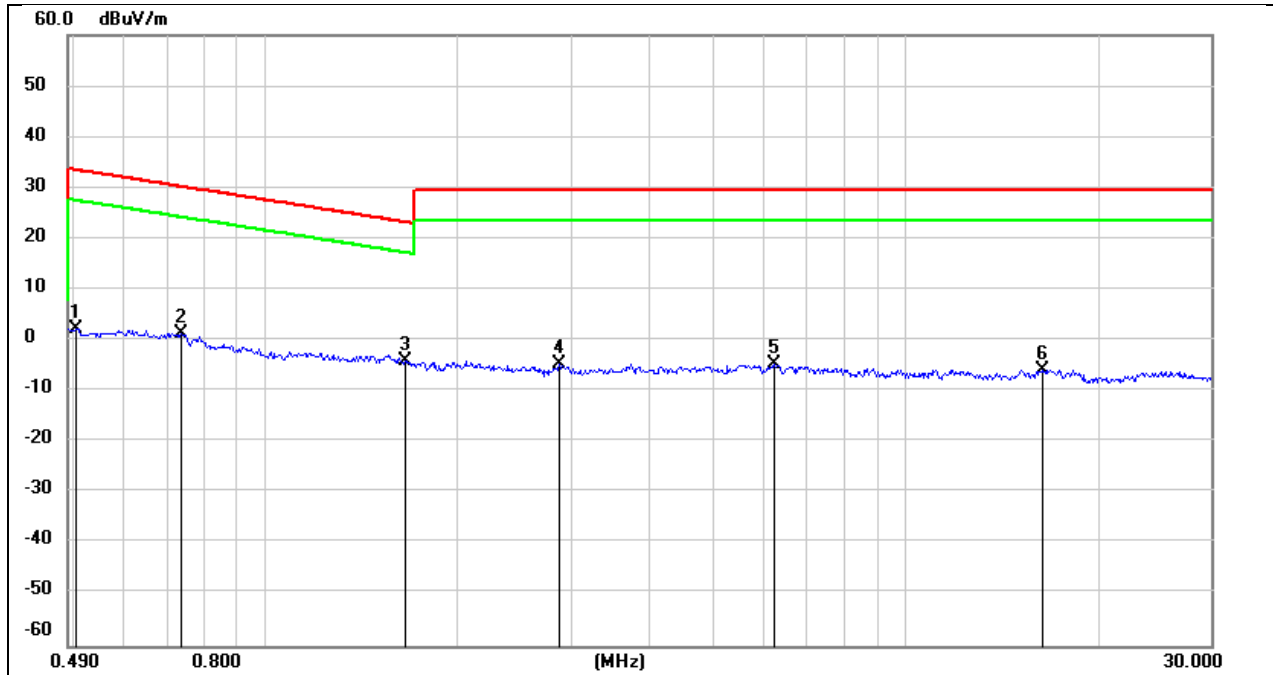
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 0.0100          | 77.72          | -101.40        | -23.68          | 47.60          | -71.28      | peak   |
| 2   | 0.0117          | 75.44          | -101.39        | -25.95          | 46.24          | -72.19      | peak   |
| 3   | 0.0200          | 71.36          | -101.34        | -29.98          | 41.58          | -71.56      | peak   |
| 4   | 0.0359          | 65.56          | -101.42        | -35.86          | 36.50          | -72.36      | peak   |
| 5   | 0.0680          | 61.04          | -101.56        | -40.52          | 30.95          | -71.47      | peak   |
| 6   | 0.0942          | 59.83          | -101.75        | -41.92          | 28.12          | -70.04      | peak   |

|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Horizontal | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 0.1621          | 77.42          | -101.65        | -24.23          | 23.41          | -47.64      | peak   |
| 2   | 0.1800          | 74.65          | -101.68        | -27.03          | 22.50          | -49.53      | peak   |
| 3   | 0.1917          | 72.54          | -101.70        | -29.16          | 21.95          | -51.11      | peak   |
| 4   | 0.2472          | 67.95          | -101.80        | -33.85          | 19.74          | -53.59      | peak   |
| 5   | 0.3163          | 63.70          | -101.87        | -38.17          | 17.60          | -55.77      | peak   |
| 6   | 0.3805          | 59.99          | -101.94        | -41.95          | 15.99          | -57.94      | peak   |

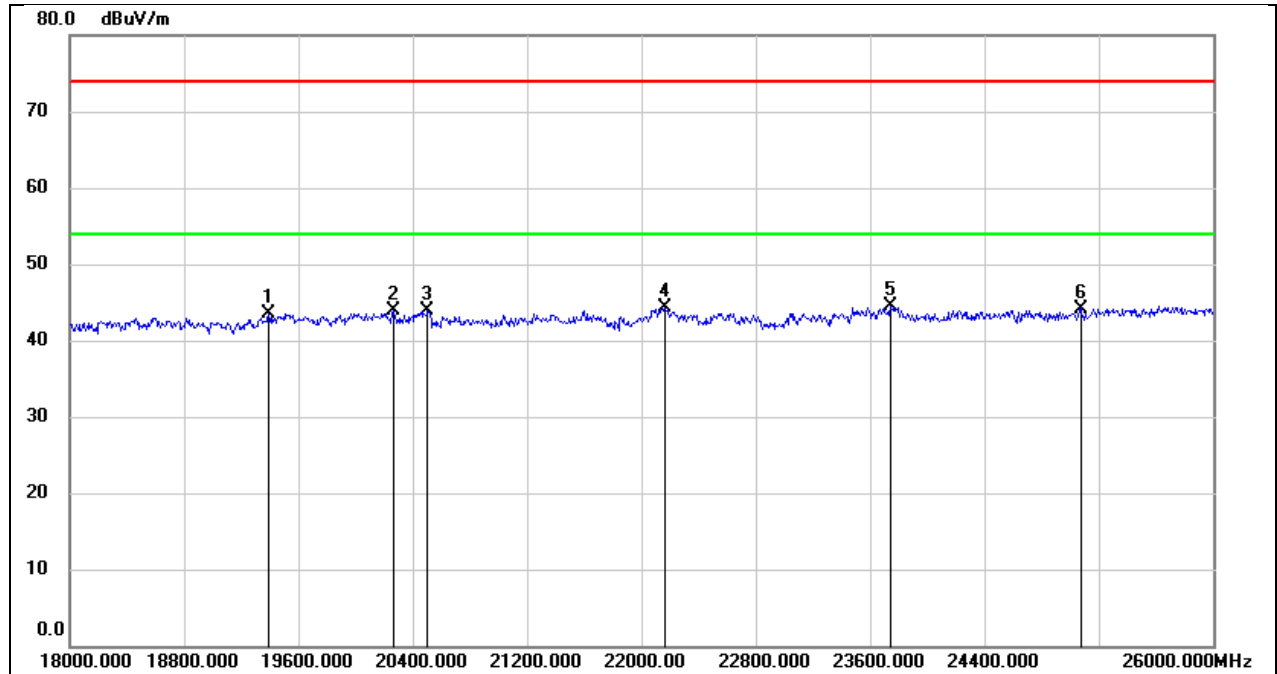
|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Horizontal | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 0.5039          | 64.43          | -62.07         | 2.36            | 33.56          | -31.20      | peak   |
| 2   | 0.7364          | 63.37          | -62.11         | 1.26            | 30.26          | -29.00      | peak   |
| 3   | 1.6491          | 58.05          | -61.98         | -3.93           | 23.26          | -27.19      | peak   |
| 4   | 2.8803          | 56.84          | -61.60         | -4.76           | 29.54          | -34.30      | peak   |
| 5   | 6.2445          | 56.63          | -61.32         | -4.69           | 29.54          | -34.23      | peak   |
| 6   | 16.3959         | 55.17          | -60.96         | -5.79           | 29.54          | -35.33      | peak   |

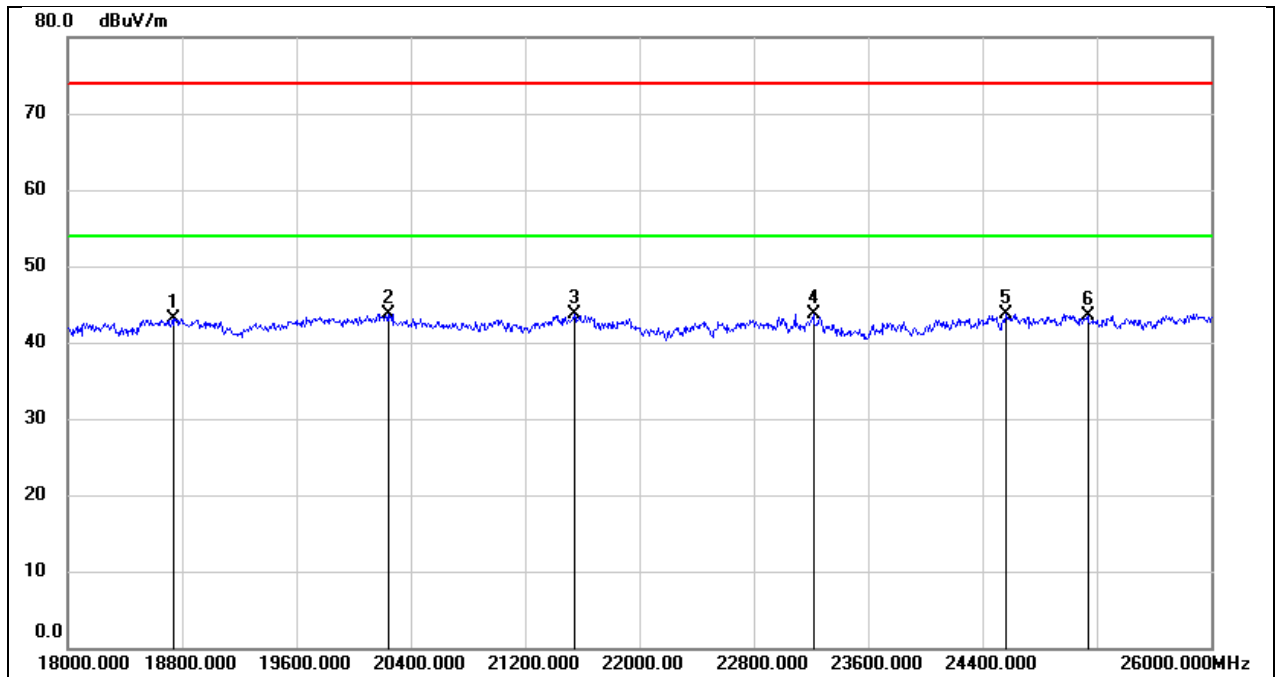
## 8.5. SPURIOUS EMISSIONS(18 GHZ~26 GHZ)

|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Horizontal | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 19392.000       | 49.12          | -5.57          | 43.55           | 74.00          | -30.45      | peak   |
| 2   | 20264.000       | 49.47          | -5.60          | 43.87           | 74.00          | -30.13      | peak   |
| 3   | 20504.000       | 49.21          | -5.35          | 43.86           | 74.00          | -30.14      | peak   |
| 4   | 22160.000       | 48.58          | -4.31          | 44.27           | 74.00          | -29.73      | peak   |
| 5   | 23744.000       | 47.65          | -3.20          | 44.45           | 74.00          | -29.55      | peak   |
| 6   | 25072.000       | 46.17          | -1.97          | 44.20           | 74.00          | -29.80      | peak   |

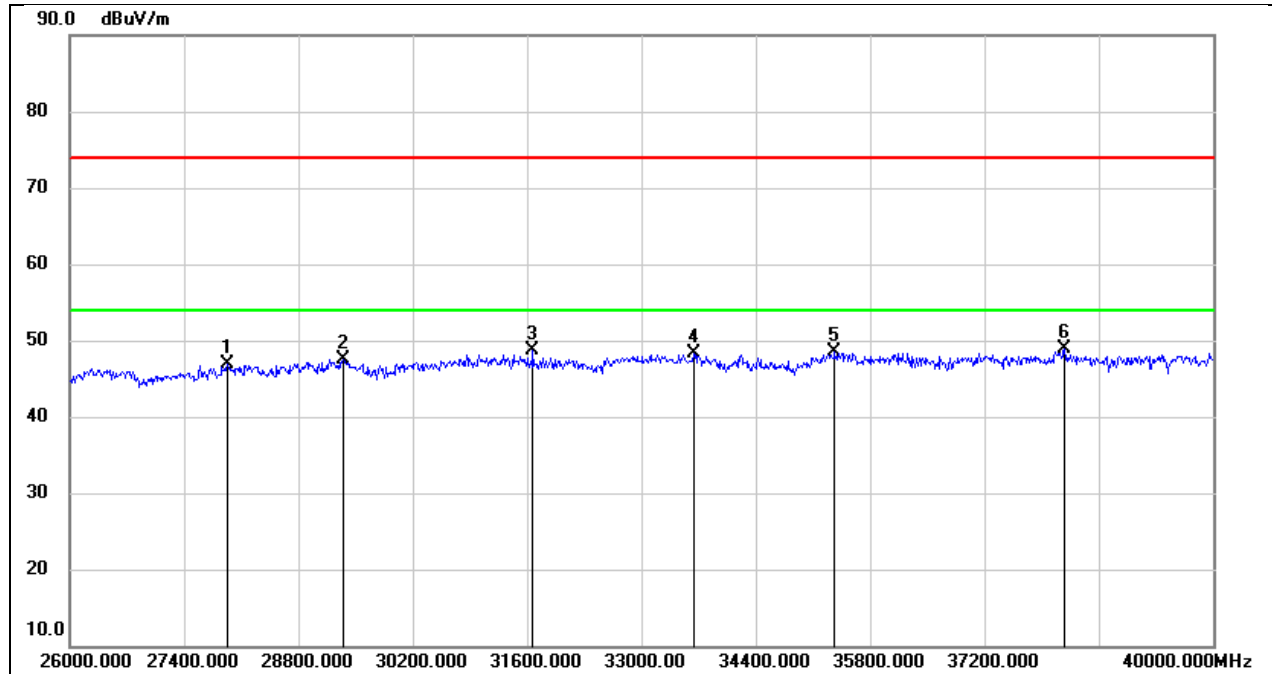
|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Vertical   | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 18736.000       | 48.51          | -5.41          | 43.10           | 74.00          | -30.90      | peak   |
| 2   | 20240.000       | 49.32          | -5.61          | 43.71           | 74.00          | -30.29      | peak   |
| 3   | 21544.000       | 48.26          | -4.63          | 43.63           | 74.00          | -30.37      | peak   |
| 4   | 23216.000       | 47.01          | -3.38          | 43.63           | 74.00          | -30.37      | peak   |
| 5   | 24568.000       | 46.10          | -2.33          | 43.77           | 74.00          | -30.23      | peak   |
| 6   | 25136.000       | 45.42          | -1.87          | 43.55           | 74.00          | -30.45      | peak   |

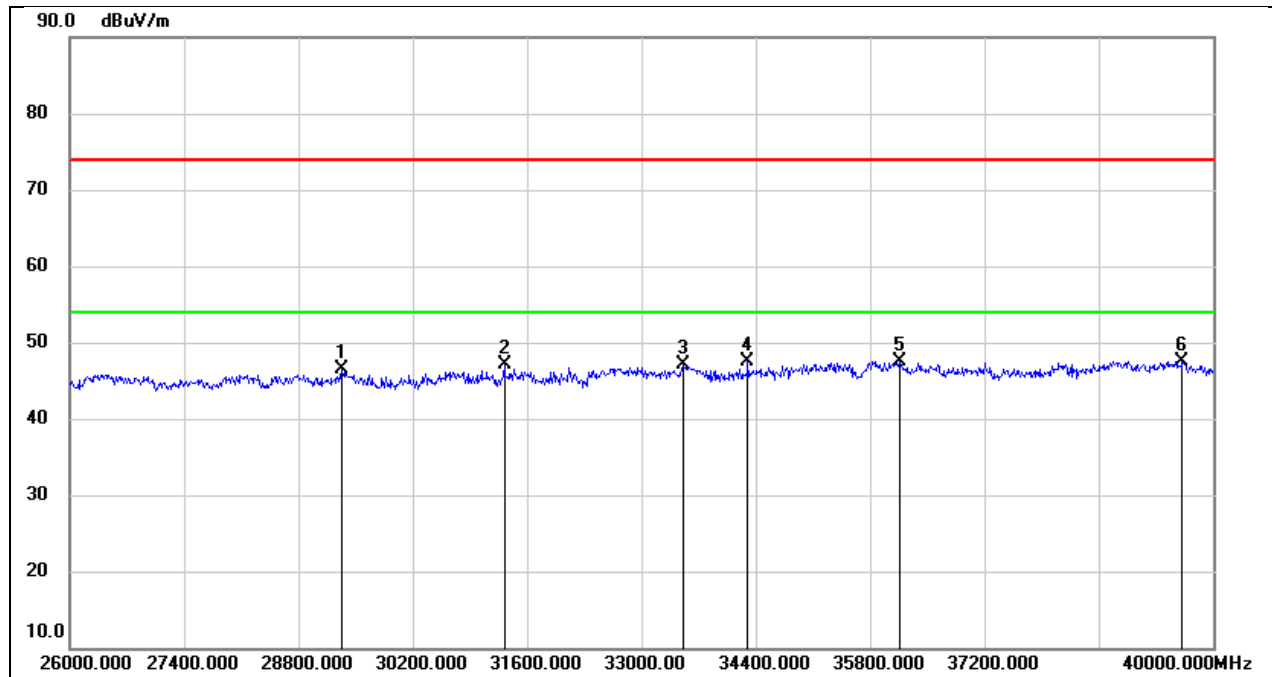
## 8.6. SPURIOUS EMISSIONS(26 GHZ~40 GHZ)

|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Horizontal | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 27932.000       | 50.92          | -3.93          | 46.99           | 74.00          | -27.01      | peak   |
| 2   | 29346.000       | 48.38          | -0.91          | 47.47           | 74.00          | -26.53      | peak   |
| 3   | 31670.000       | 49.86          | -1.21          | 48.65           | 74.00          | -25.35      | peak   |
| 4   | 33644.000       | 47.81          | 0.42           | 48.23           | 74.00          | -25.77      | peak   |
| 5   | 35366.000       | 45.90          | 2.59           | 48.49           | 74.00          | -25.51      | peak   |
| 6   | 38180.000       | 45.14          | 3.69           | 48.83           | 74.00          | -25.17      | peak   |

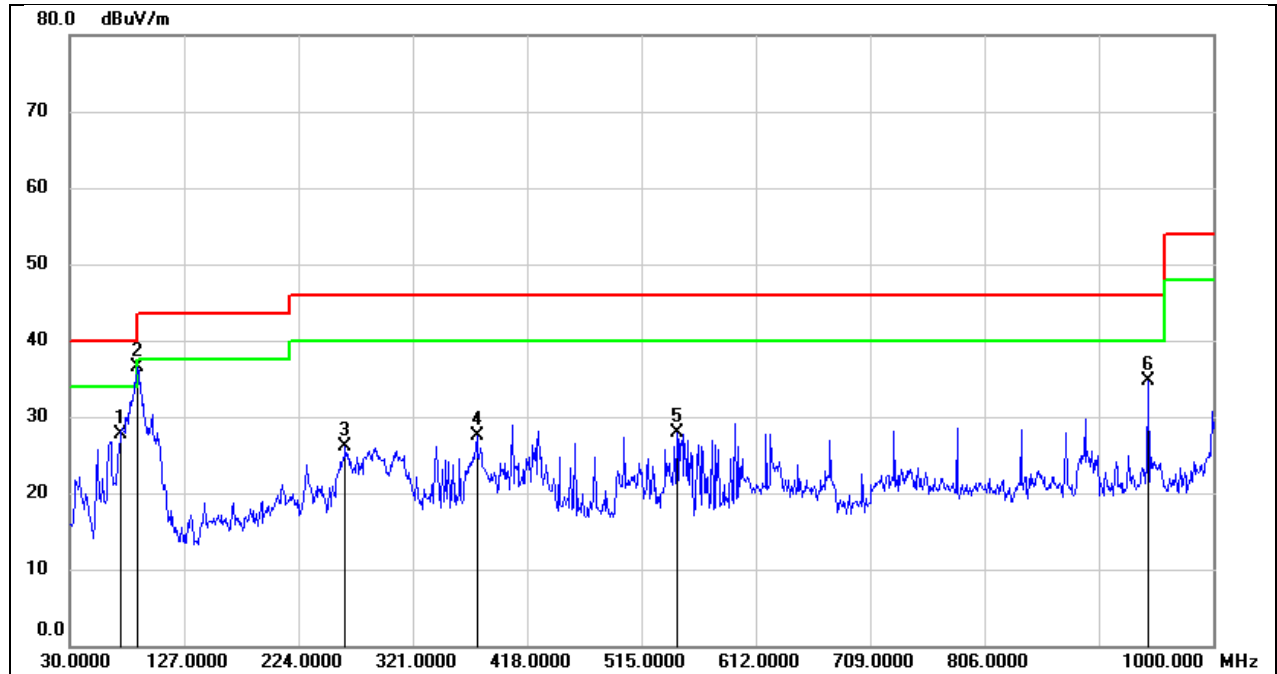
|            |            |                 |         |
|------------|------------|-----------------|---------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5745    |
| Polarity:  | Vertical   | Test Voltage:   | DC 24 V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 29332.000       | 47.38          | -0.93          | 46.45           | 74.00          | -27.55      | peak   |
| 2   | 31320.000       | 48.11          | -0.93          | 47.18           | 74.00          | -26.82      | peak   |
| 3   | 33504.000       | 46.48          | 0.58           | 47.06           | 74.00          | -26.94      | peak   |
| 4   | 34302.000       | 46.45          | 1.10           | 47.55           | 74.00          | -26.45      | peak   |
| 5   | 36164.000       | 44.06          | 3.52           | 47.58           | 74.00          | -26.42      | peak   |
| 6   | 39622.000       | 42.65          | 4.92           | 47.57           | 74.00          | -26.43      | peak   |

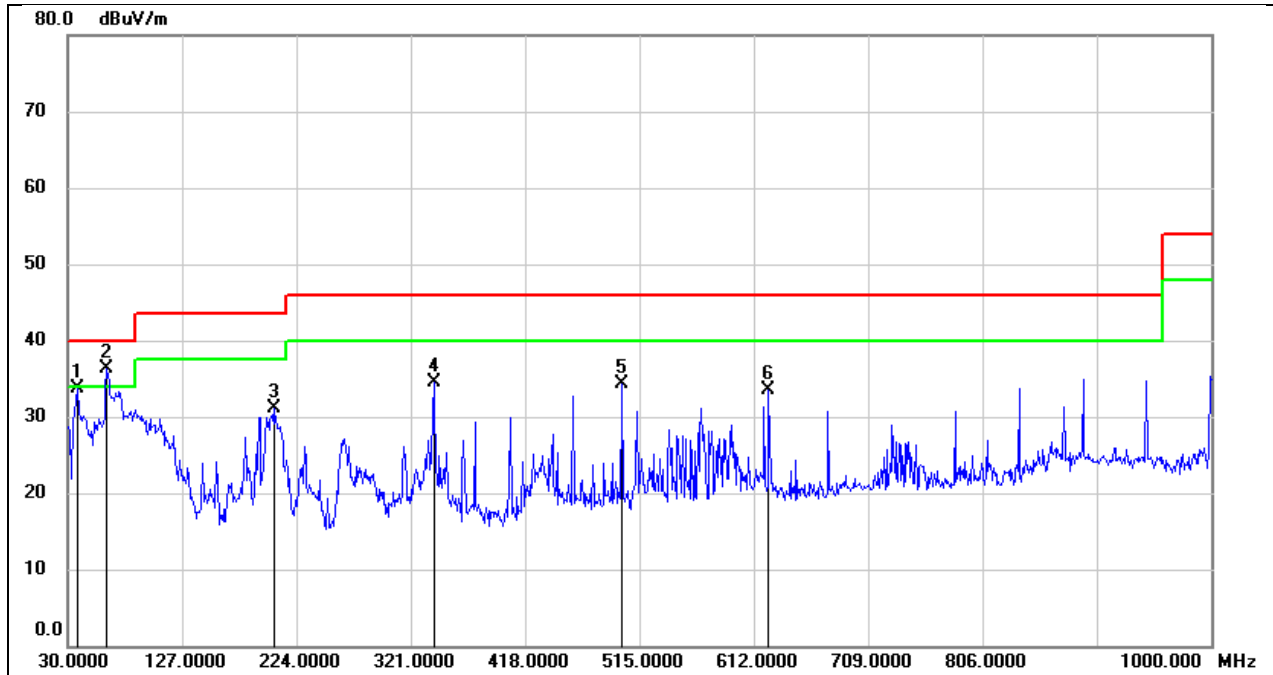
## 8.7. SPURIOUS EMISSIONS(30 MHZ~1 GHZ)

|            |            |                 |       |
|------------|------------|-----------------|-------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5180  |
| Polarity:  | Horizontal | Test Voltage:   | DC24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 73.6500         | 43.35          | -15.71         | 27.64           | 40.00          | -12.36      | QP     |
| 2   | 87.2300         | 53.22          | -16.77         | 36.45           | 40.00          | -3.55       | QP     |
| 3   | 263.7700        | 39.76          | -13.74         | 26.02           | 46.00          | -19.98      | QP     |
| 4   | 375.3200        | 37.34          | -9.79          | 27.55           | 46.00          | -18.45      | QP     |
| 5   | 545.0700        | 35.34          | -7.48          | 27.86           | 46.00          | -18.14      | QP     |
| 6   | 944.7100        | 36.31          | -1.59          | 34.72           | 46.00          | -11.28      | QP     |

|            |            |                 |       |
|------------|------------|-----------------|-------|
| Test Mode: | 802.11a 20 | Frequency(MHz): | 5180  |
| Polarity:  | Vertical   | Test Voltage:   | DC24V |



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1   | 37.7599         | 48.72          | -15.09         | 33.63           | 40.00          | -6.37       | QP     |
| 2   | 62.9800         | 51.51          | -15.25         | 36.26           | 40.00          | -3.74       | QP     |
| 3   | 204.6000        | 43.50          | -12.39         | 31.11           | 43.50          | -12.39      | QP     |
| 4   | 340.4000        | 44.49          | -9.97          | 34.52           | 46.00          | -11.48      | QP     |
| 5   | 500.4500        | 42.33          | -8.07          | 34.26           | 46.00          | -11.74      | QP     |
| 6   | 624.6100        | 39.61          | -6.19          | 33.42           | 46.00          | -12.58      | QP     |

## 9. ANTENNA REQUIREMENT

### REQUIREMENT

### DESCRIPTION

Pass

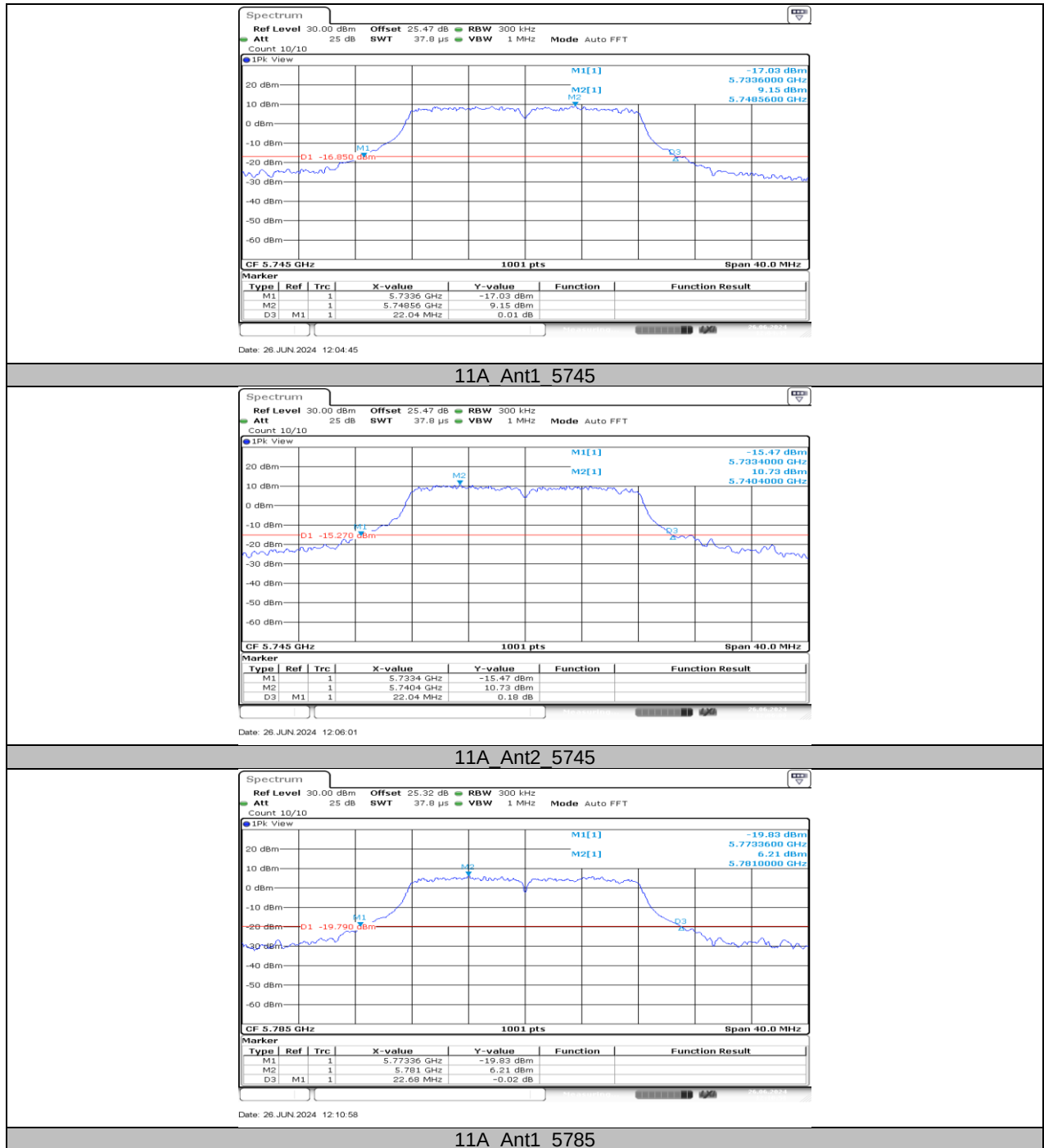
## 10. TEST DATA

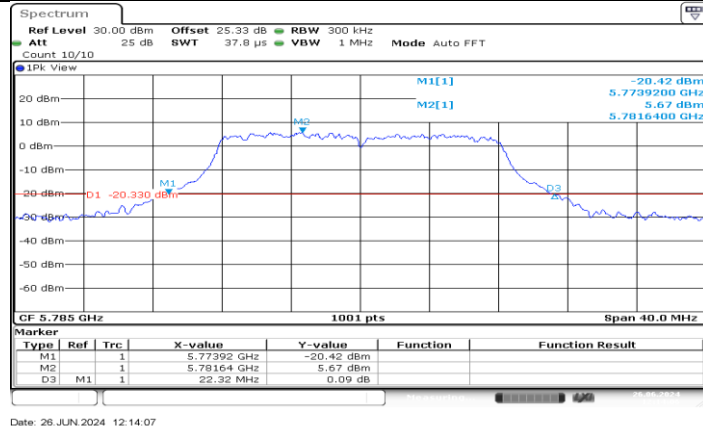
### 10.1. APPENDIX A: EMISSION BANDWIDTH

#### 10.1.1. Test Result

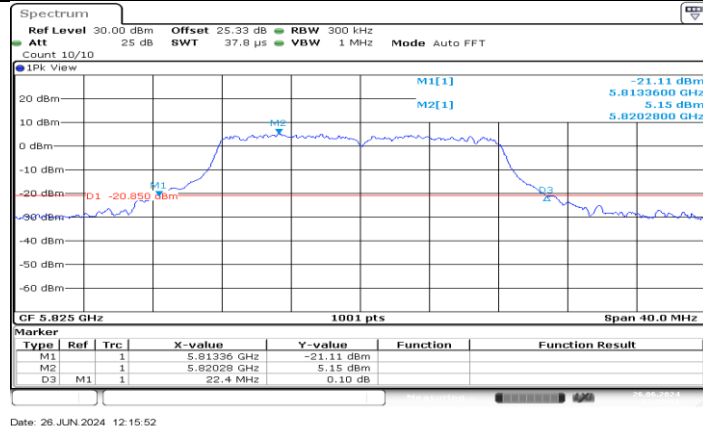
| Test Mode | Antenna | Frequency[MHz] | 26db EBW [MHz] | FL[MHz] | FH[MHz] |
|-----------|---------|----------------|----------------|---------|---------|
| 11A       | Ant1    | 5745           | 22.04          | 5733.60 | 5755.64 |
|           | Ant2    | 5745           | 22.04          | 5733.40 | 5755.44 |
|           | Ant1    | 5785           | 22.68          | 5773.36 | 5796.04 |
|           | Ant2    | 5785           | 22.32          | 5773.92 | 5796.24 |
|           | Ant1    | 5825           | 22.40          | 5813.36 | 5835.76 |
|           | Ant2    | 5825           | 21.92          | 5813.84 | 5835.76 |
| 11N20MIMO | Ant1    | 5745           | 22.76          | 5733.56 | 5756.32 |
|           | Ant2    | 5745           | 22.16          | 5733.88 | 5756.04 |
|           | Ant1    | 5785           | 23.16          | 5773.24 | 5796.40 |
|           | Ant2    | 5785           | 22.64          | 5773.76 | 5796.40 |
|           | Ant1    | 5825           | 22.40          | 5813.60 | 5836.00 |
|           | Ant2    | 5825           | 23.00          | 5813.84 | 5836.84 |
| 11N40MIMO | Ant1    | 5755           | 48.08          | 5729.72 | 5777.80 |
|           | Ant2    | 5755           | 46.72          | 5731.40 | 5778.12 |
|           | Ant1    | 5795           | 47.68          | 5770.68 | 5818.36 |
|           | Ant2    | 5795           | 50.72          | 5770.52 | 5821.24 |

## 10.1.2. Test Graphs

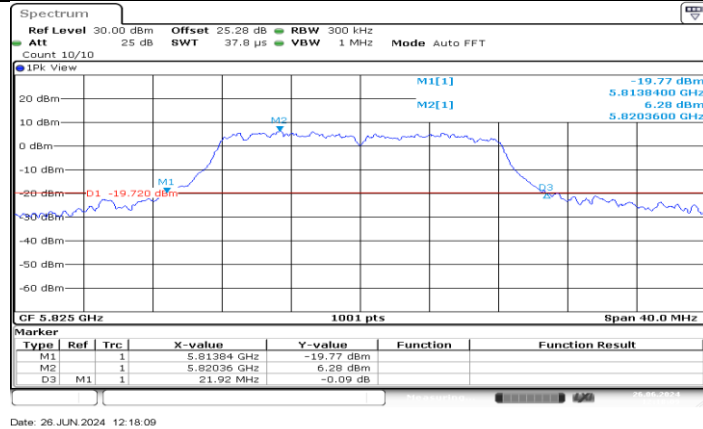




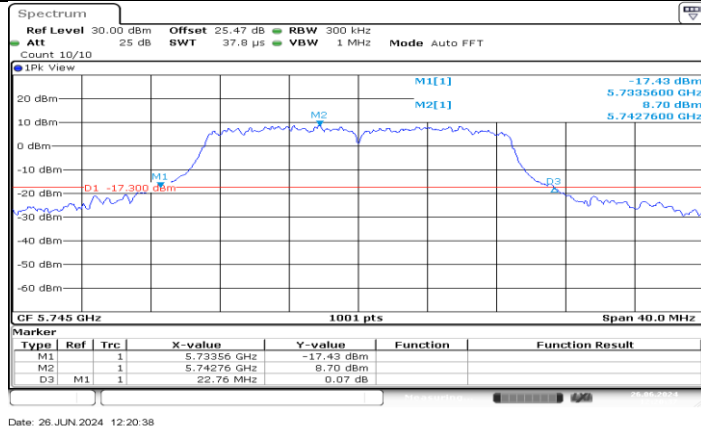
11A\_Ant2\_5785



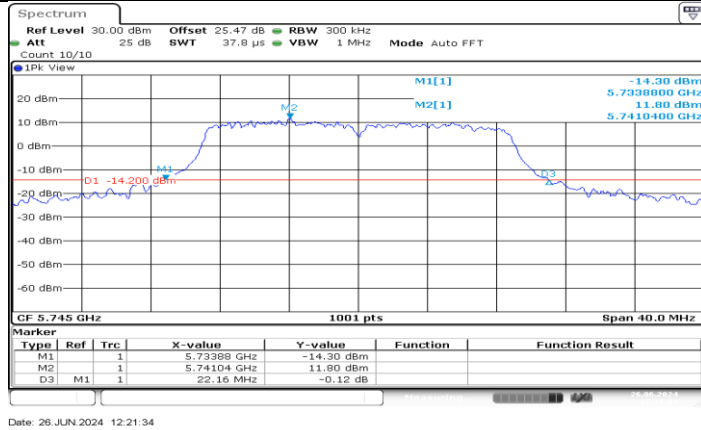
11A\_Ant1\_5825



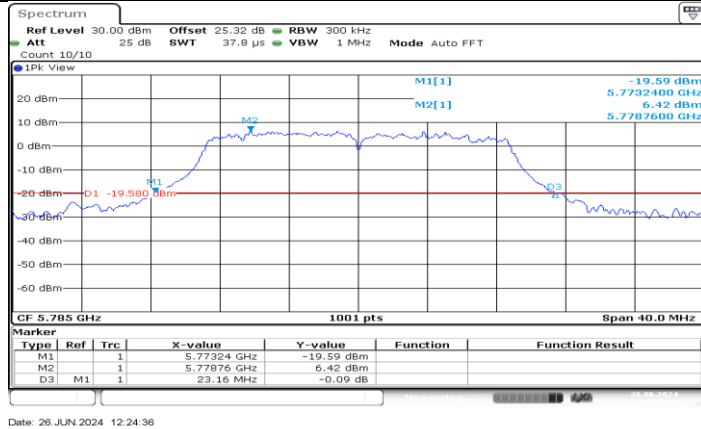
11A\_Ant2\_5825



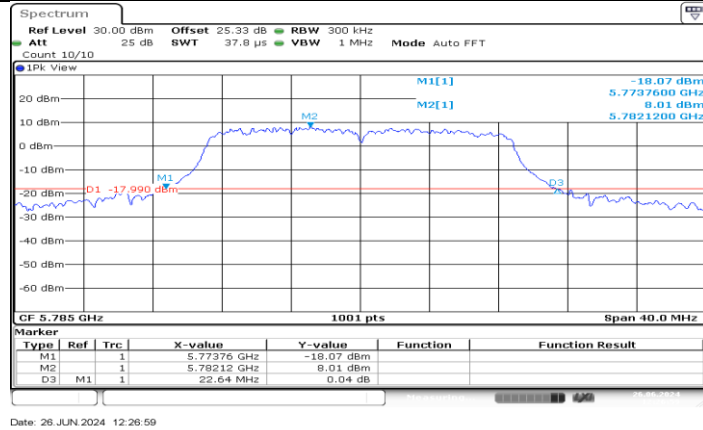
11N20MIMO\_Ant1\_5745



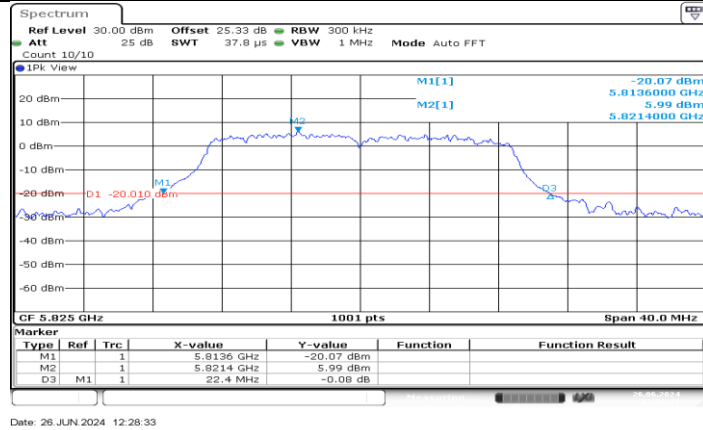
11N20MIMO\_Ant2\_5745



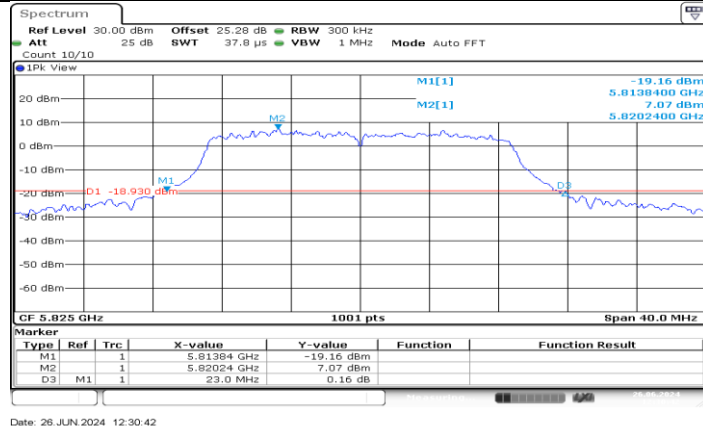
11N20MIMO\_Ant1\_5785



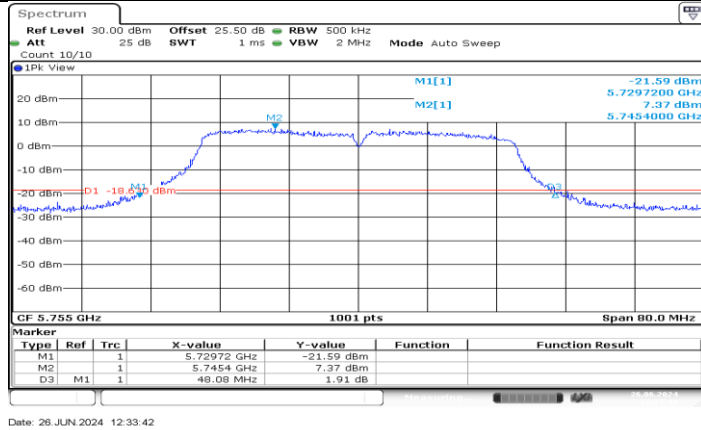
11N20MIMO\_Ant2\_5785



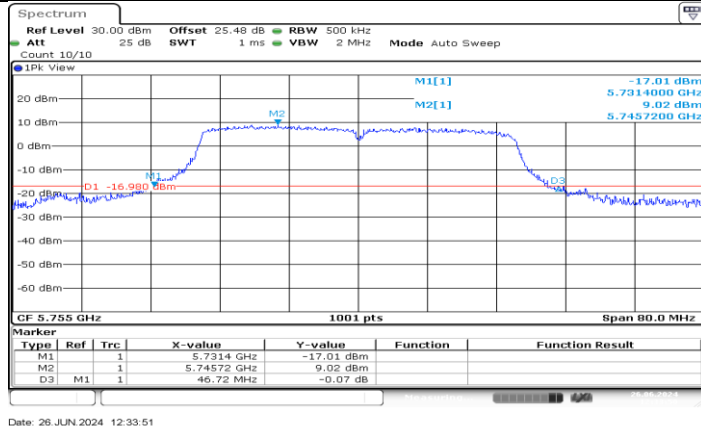
11N20MIMO\_Ant1\_5825



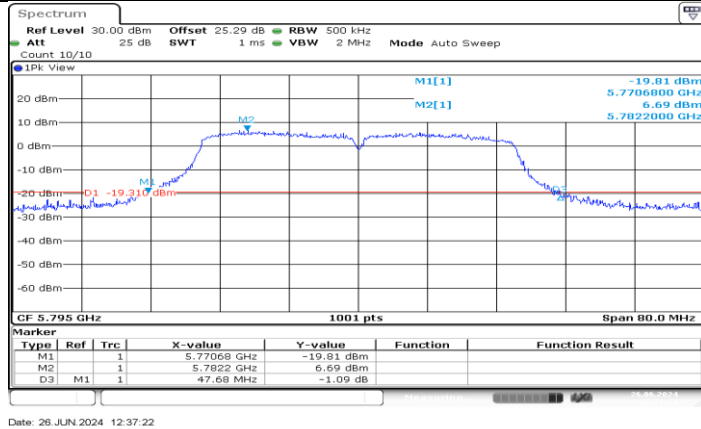
11N20MIMO\_Ant2\_5825



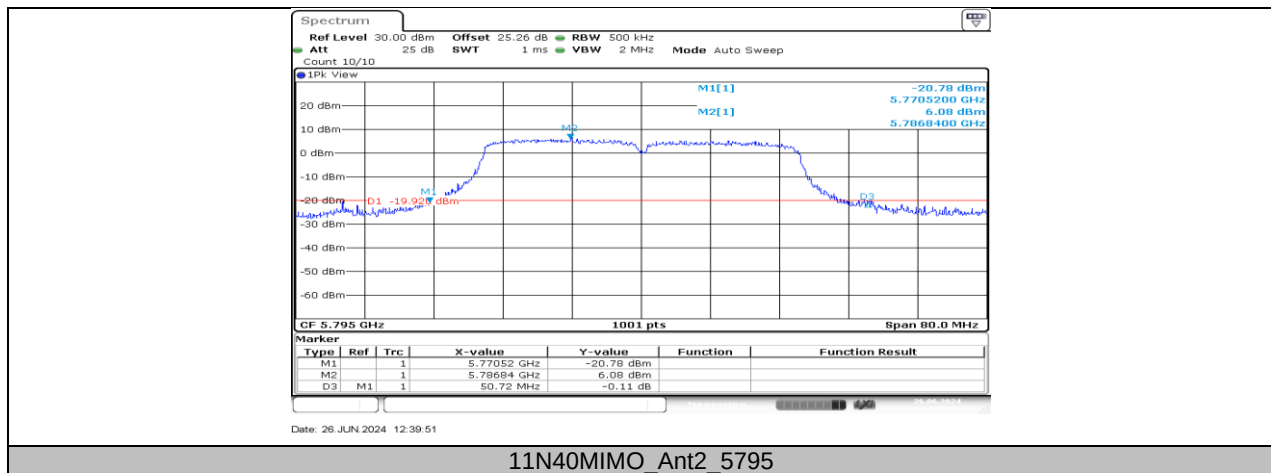
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795



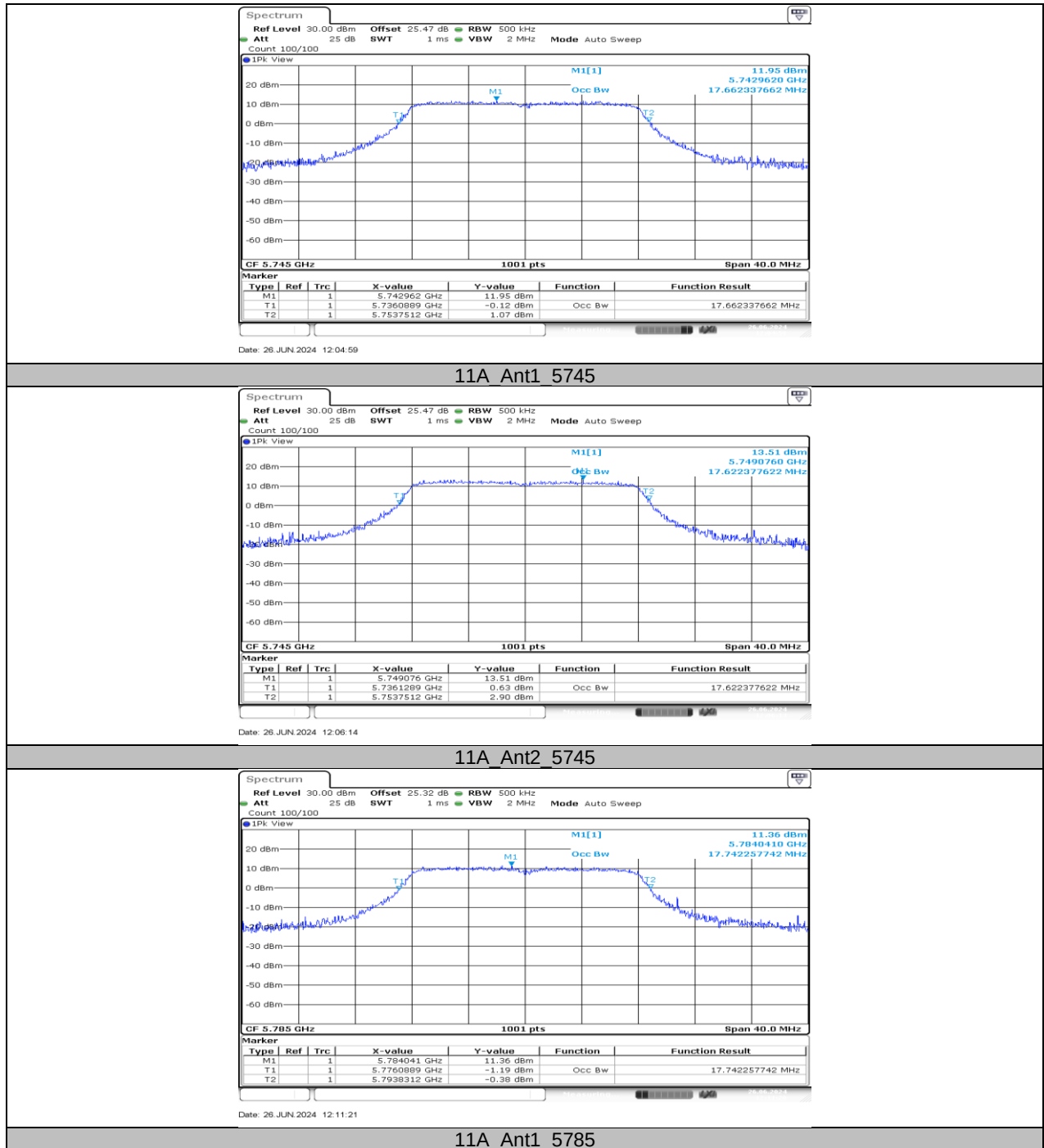
11N40MIMO\_Ant2\_5795

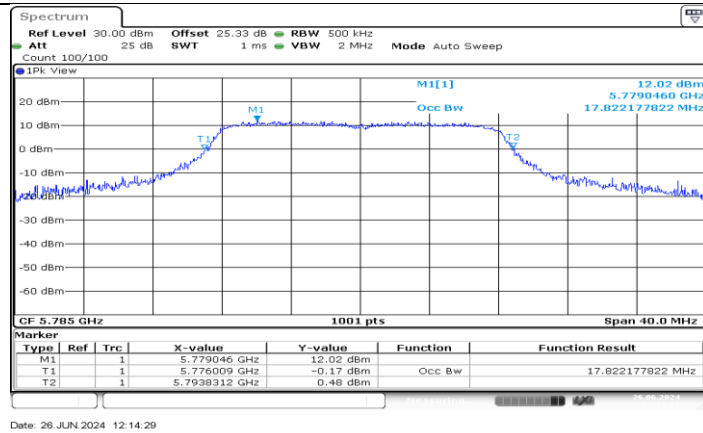
## 10.2. APPENDIX B: OCCUPIED CHANNEL BANDWIDTH

### 10.2.1. Test Result

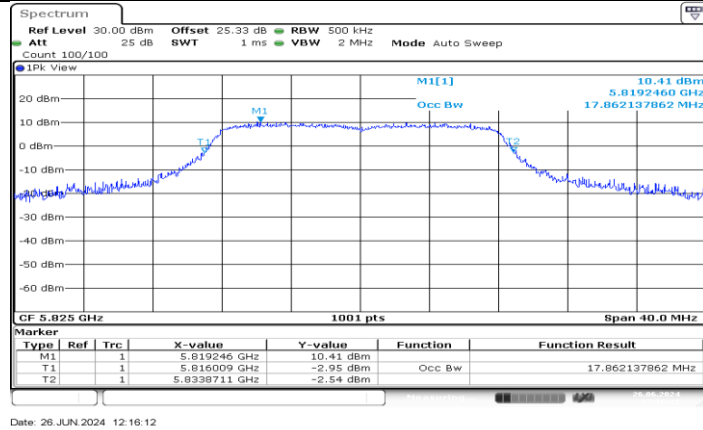
| Test Mode | Antenna | Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   |
|-----------|---------|----------------|-----------|-----------|-----------|
| 11A       | Ant1    | 5745           | 17.662    | 5736.0889 | 5753.7512 |
|           | Ant2    | 5745           | 17.622    | 5736.1289 | 5753.7512 |
|           | Ant1    | 5785           | 17.742    | 5776.0889 | 5793.8312 |
|           | Ant2    | 5785           | 17.822    | 5776.0090 | 5793.8312 |
|           | Ant1    | 5825           | 17.862    | 5816.0090 | 5833.8711 |
|           | Ant2    | 5825           | 18.821    | 5815.4895 | 5834.3107 |
| 11N20MIMO | Ant1    | 5745           | 18.581    | 5735.6893 | 5754.2707 |
|           | Ant2    | 5745           | 18.581    | 5735.6494 | 5754.2308 |
|           | Ant1    | 5785           | 18.701    | 5775.6094 | 5794.3107 |
|           | Ant2    | 5785           | 18.901    | 5775.4895 | 5794.3906 |
|           | Ant1    | 5825           | 18.901    | 5815.5295 | 5834.4306 |
|           | Ant2    | 5825           | 20.3      | 5814.6104 | 5834.9101 |
| 11N40MIMO | Ant1    | 5755           | 37.642    | 5735.8991 | 5773.5415 |
|           | Ant2    | 5755           | 37.722    | 5735.8192 | 5773.5415 |
|           | Ant1    | 5795           | 37.882    | 5775.8192 | 5813.7013 |
|           | Ant2    | 5795           | 38.761    | 5775.2597 | 5814.0210 |

## 10.2.2. Test Graphs

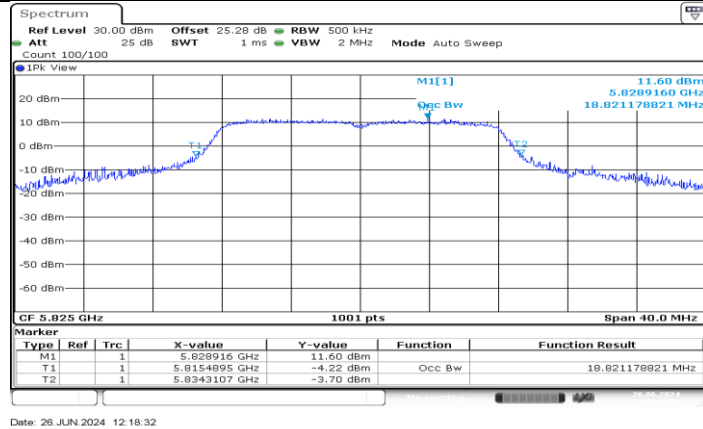




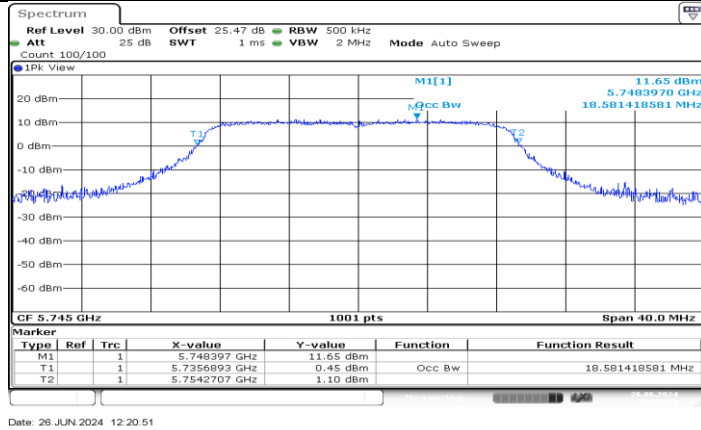
11A\_Ant2\_5785



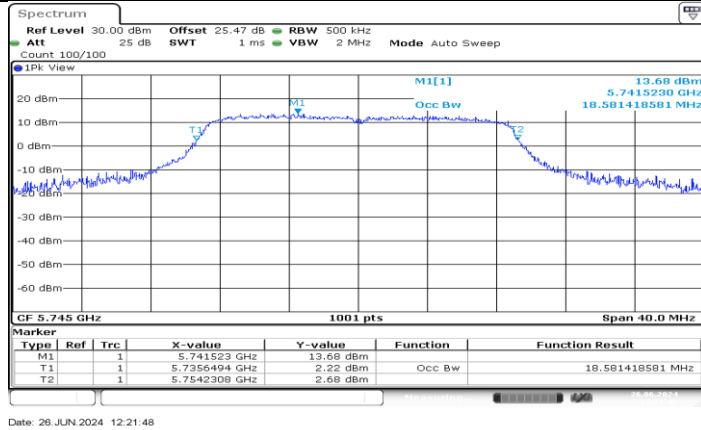
11A\_Ant1\_5825



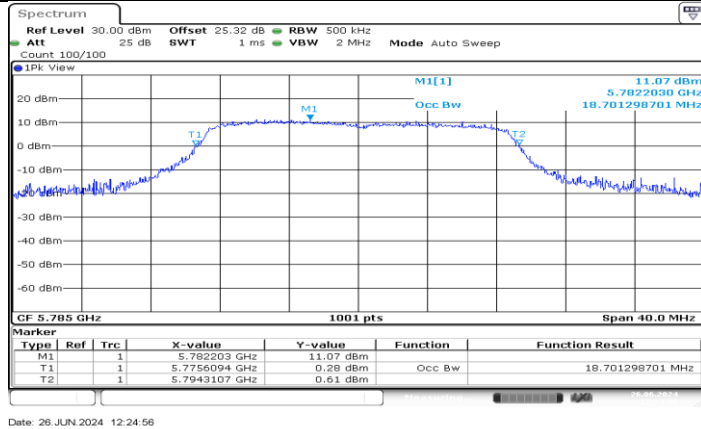
11A\_Ant2\_5825



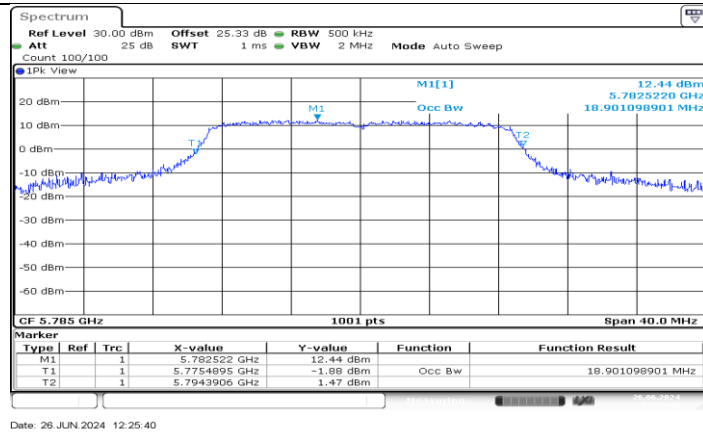
11N20MIMO\_Ant1\_5745



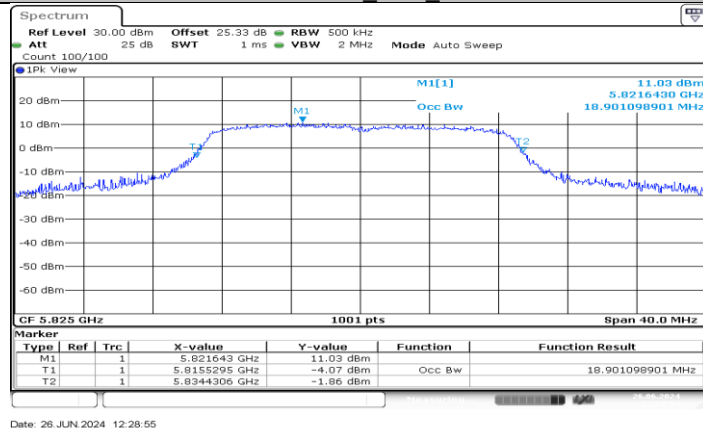
11N20MIMO\_Ant2\_5745



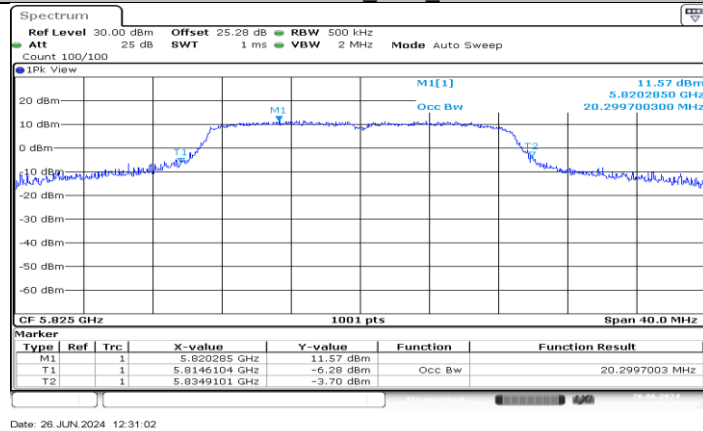
11N20MIMO\_Ant1\_5785



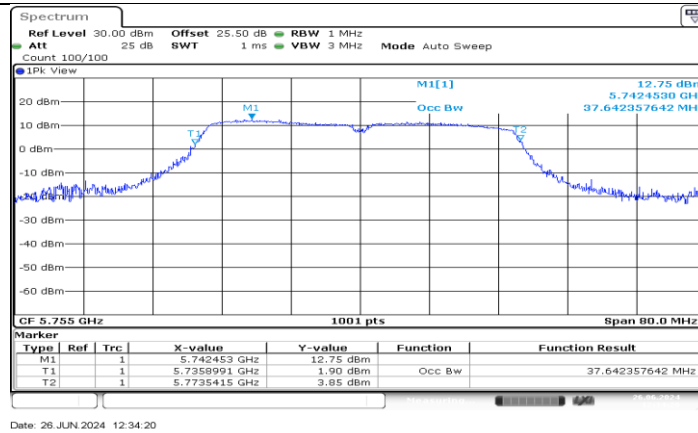
11N20MIMO\_Ant2\_5785



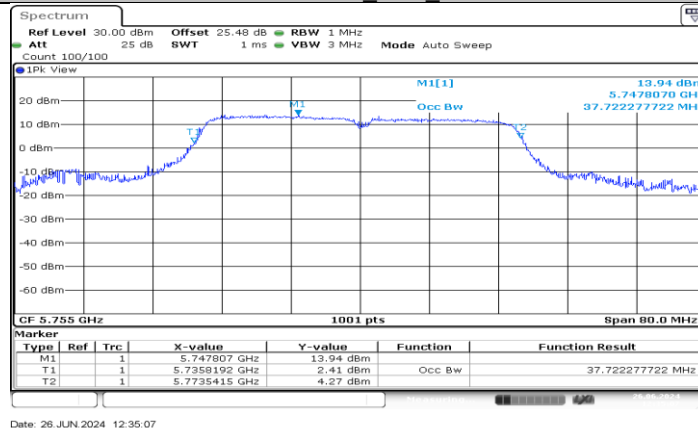
11N20MIMO\_Ant1\_5825



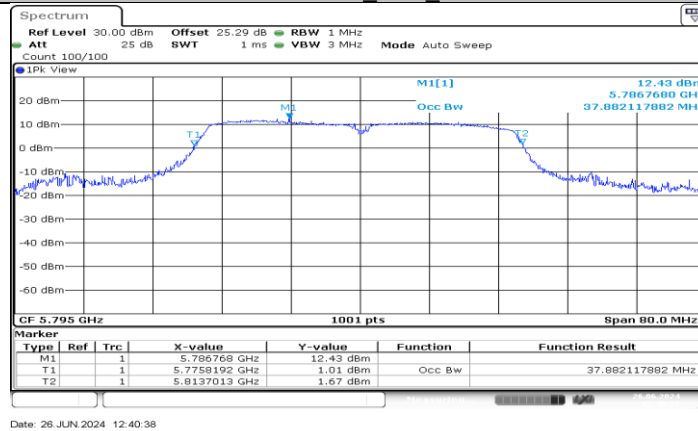
11N20MIMO\_Ant2\_5825



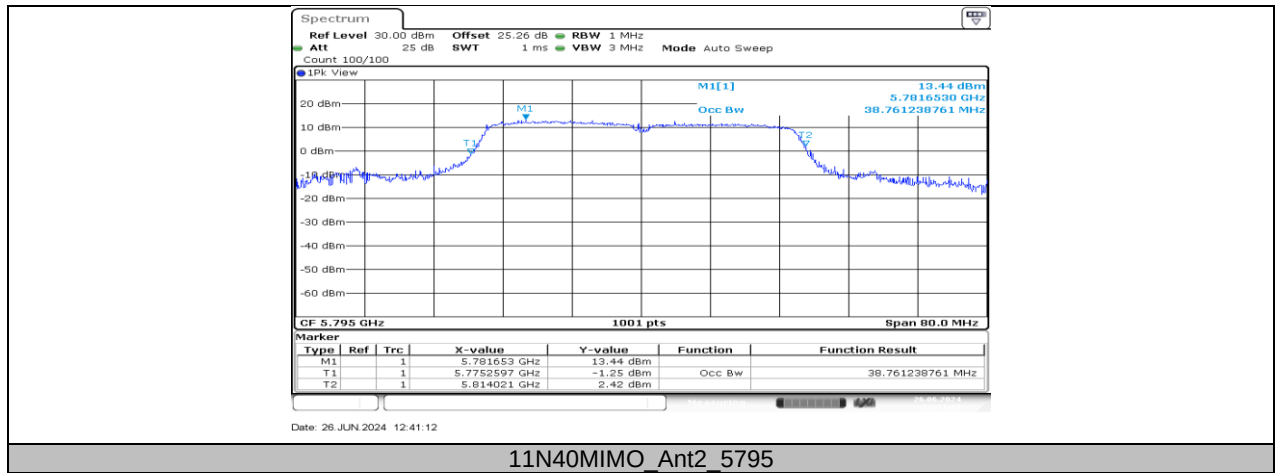
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795

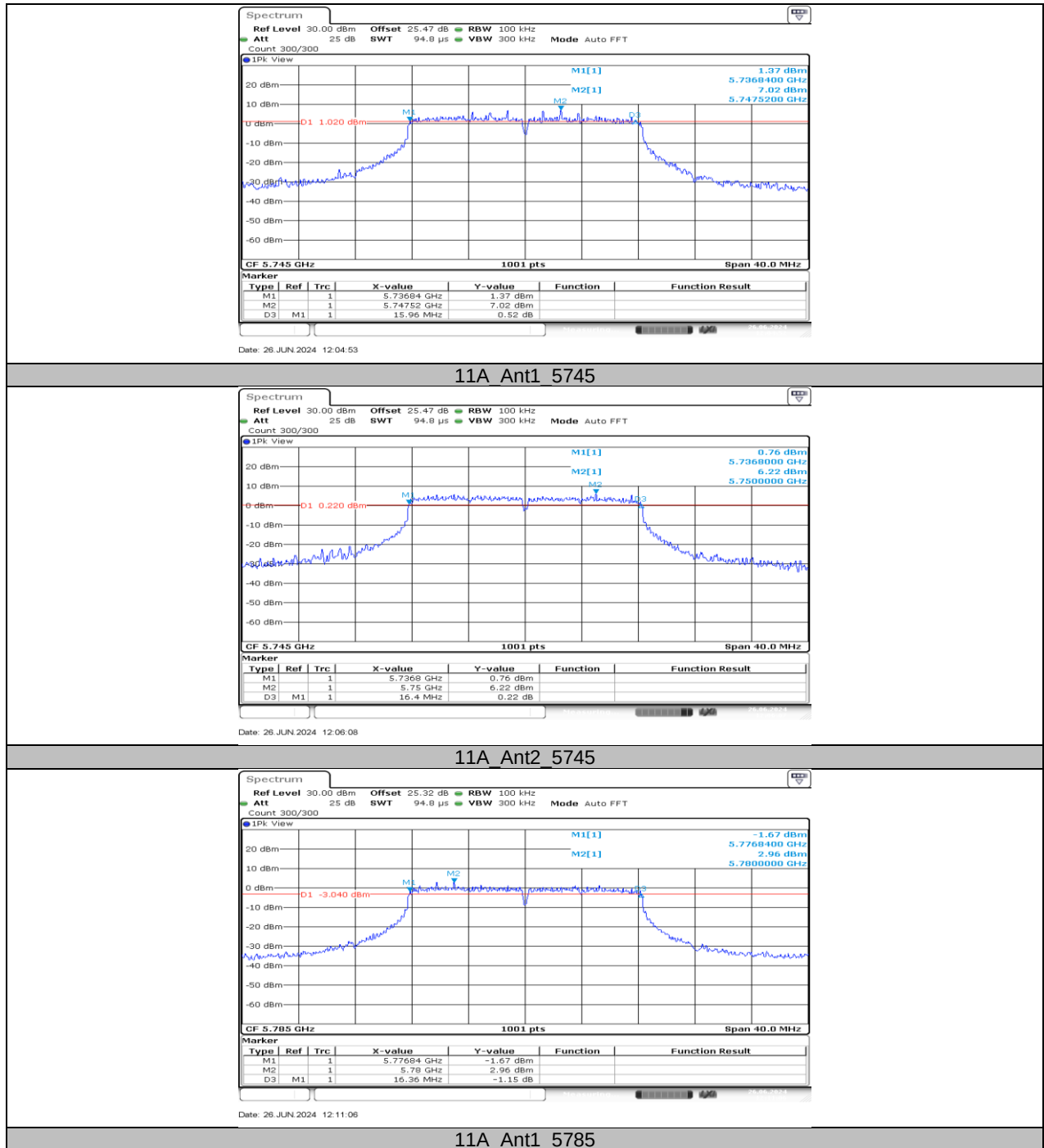


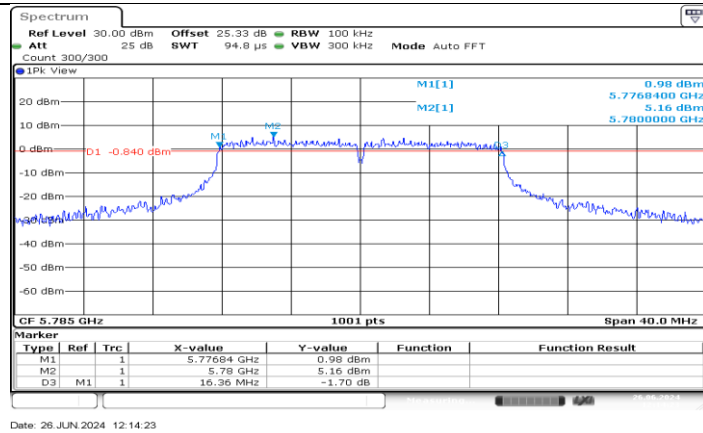
### 10.3. APPENDIX C: MIN EMISSION BANDWIDTH

#### 10.3.1. Test Result

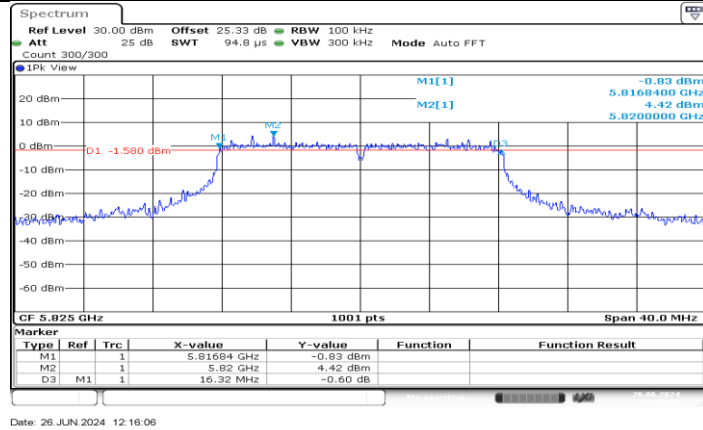
| Test Mode | Antenna | Frequency[MHz] | 6db EBW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|---------------|---------|---------|------------|---------|
| 11A       | Ant1    | 5745           | 15.96         | 5736.84 | 5752.80 | ≥0.5       | PASS    |
|           | Ant2    | 5745           | 16.40         | 5736.80 | 5753.20 | ≥0.5       | PASS    |
|           | Ant1    | 5785           | 16.36         | 5776.84 | 5793.20 | ≥0.5       | PASS    |
|           | Ant2    | 5785           | 16.36         | 5776.84 | 5793.20 | ≥0.5       | PASS    |
|           | Ant1    | 5825           | 16.32         | 5816.84 | 5833.16 | ≥0.5       | PASS    |
|           | Ant2    | 5825           | 15.48         | 5817.12 | 5832.60 | ≥0.5       | PASS    |
| 11N20MIMO | Ant1    | 5745           | 17.56         | 5736.24 | 5753.80 | ≥0.5       | PASS    |
|           | Ant2    | 5745           | 16.56         | 5736.24 | 5752.80 | ≥0.5       | PASS    |
|           | Ant1    | 5785           | 16.12         | 5776.48 | 5792.60 | ≥0.5       | PASS    |
|           | Ant2    | 5785           | 16.04         | 5776.88 | 5792.92 | ≥0.5       | PASS    |
|           | Ant1    | 5825           | 15.64         | 5816.88 | 5832.52 | ≥0.5       | PASS    |
|           | Ant2    | 5825           | 15.48         | 5817.12 | 5832.60 | ≥0.5       | PASS    |
| 11N40MIMO | Ant1    | 5755           | 35.68         | 5736.92 | 5772.60 | ≥0.5       | PASS    |
|           | Ant2    | 5755           | 35.68         | 5736.92 | 5772.60 | ≥0.5       | PASS    |
|           | Ant1    | 5795           | 35.36         | 5777.24 | 5812.60 | ≥0.5       | PASS    |
|           | Ant2    | 5795           | 35.68         | 5776.92 | 5812.60 | ≥0.5       | PASS    |

### 10.3.2. Test Graphs

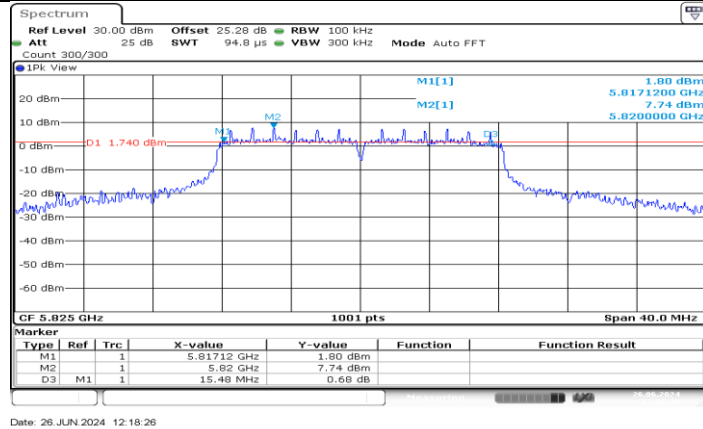




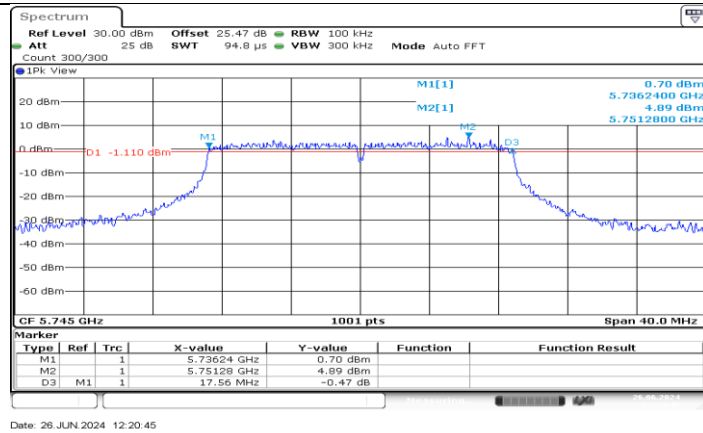
11A\_Ant2\_5785



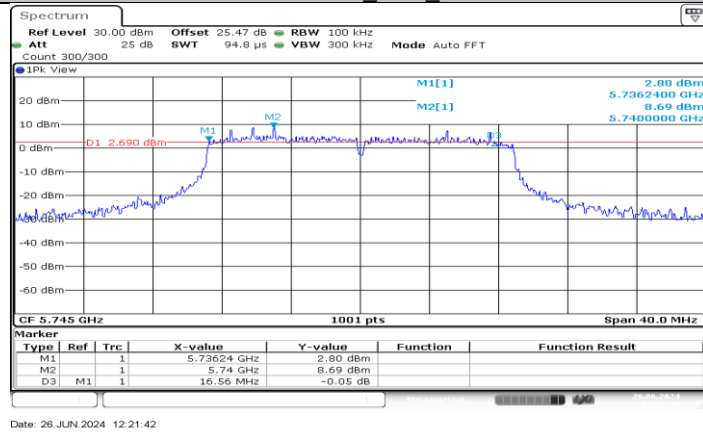
11A\_Ant1\_5825



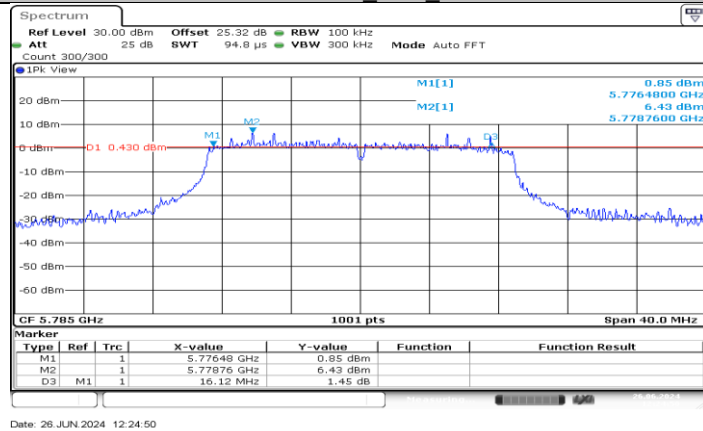
11A\_Ant2\_5825



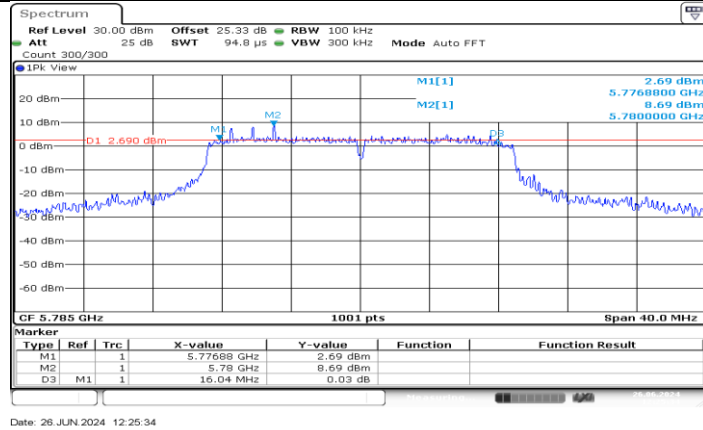
11N20MIMO\_Ant1\_5745



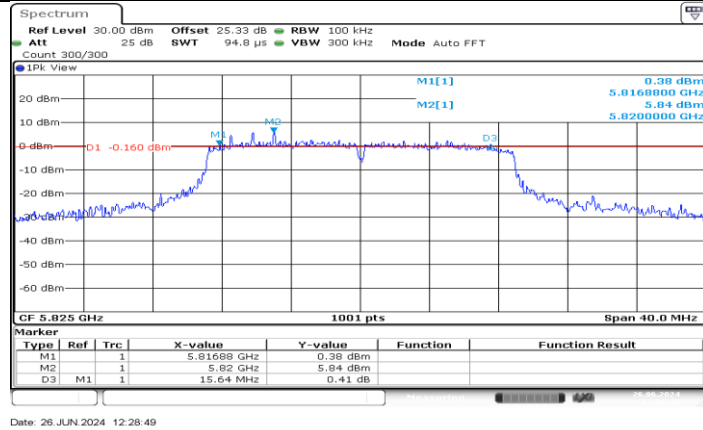
11N20MIMO\_Ant2\_5745



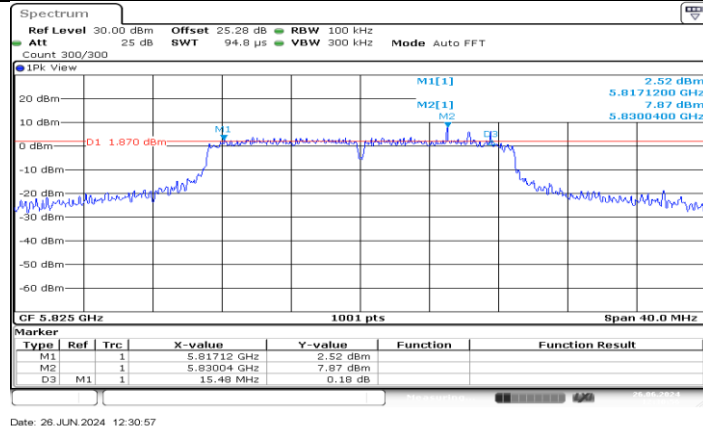
11N20MIMO\_Ant1\_5785



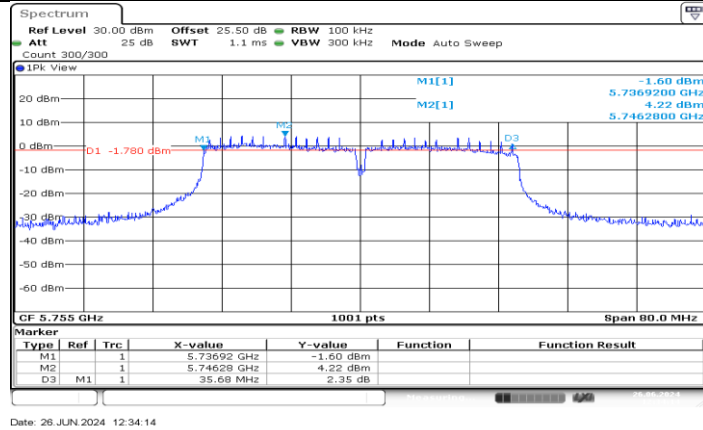
11N20MIMO\_Ant2\_5785



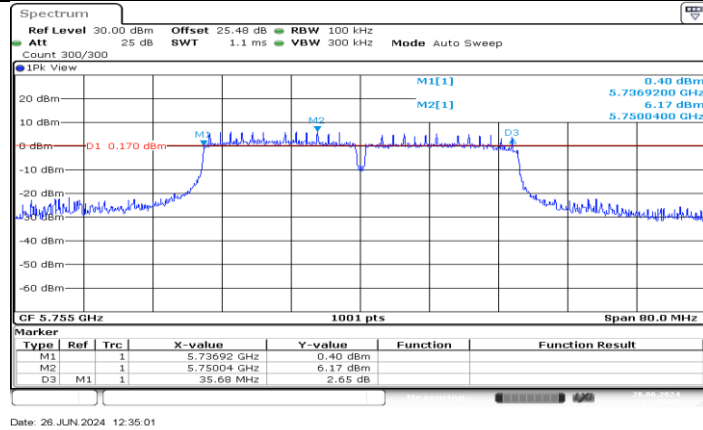
11N20MIMO\_Ant1\_5825



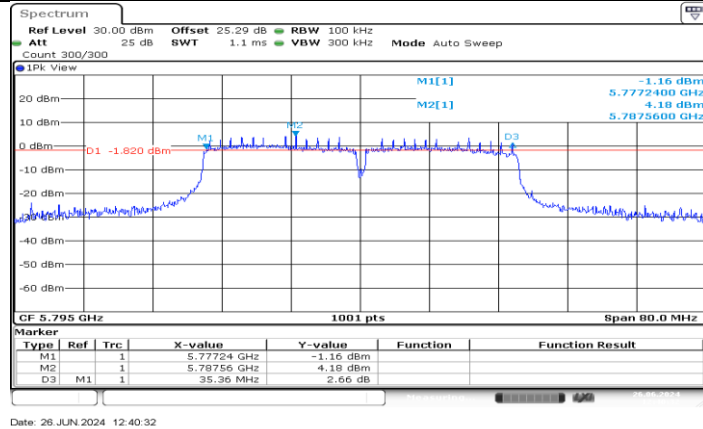
11N20MIMO\_Ant2\_5825



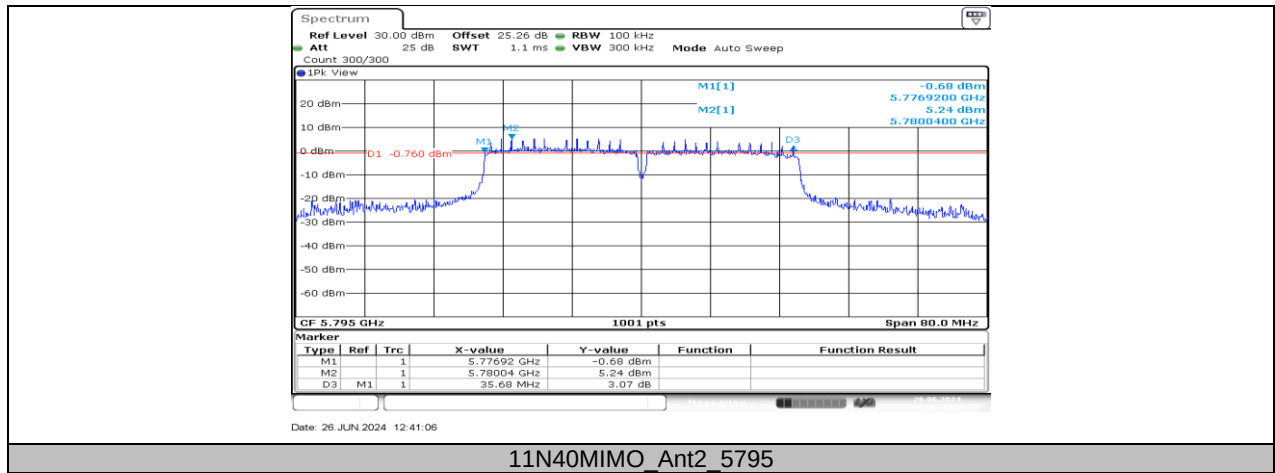
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795



## 10.4. APPENDIX D: MAXIMUM CONDUCTED OUTPUT POWER

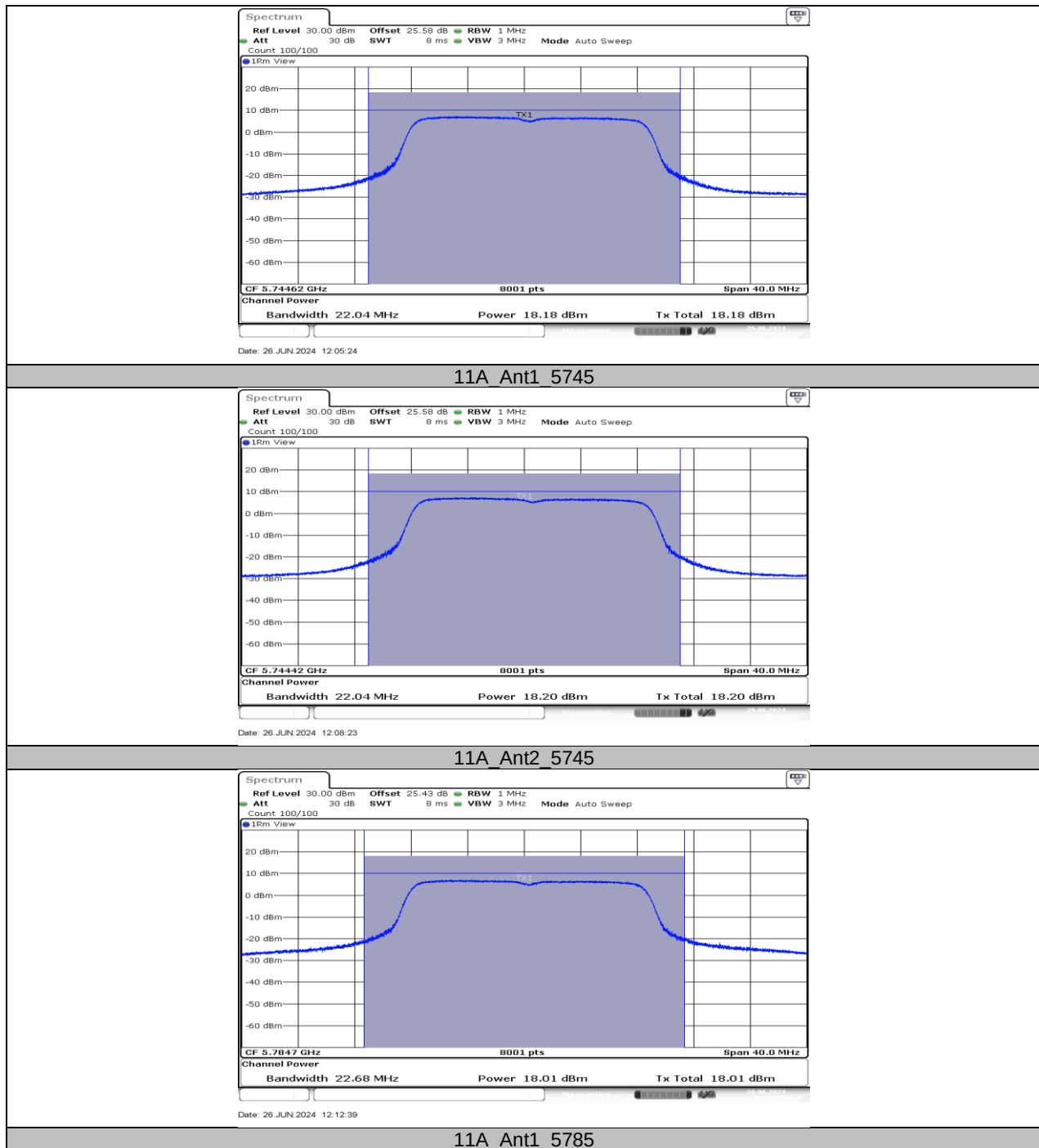
### 10.4.1. Test Result

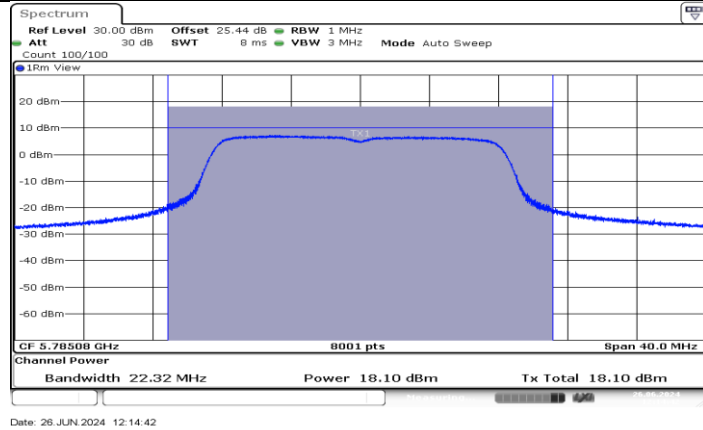
| Test Mode | Antenna | Frequency[MHz] | Power [dBm] | FCC Limit [dBm] | Verdict |
|-----------|---------|----------------|-------------|-----------------|---------|
| 11A       | Ant1    | 5745           | 18.18       | ≤30.00          | PASS    |
|           | Ant2    | 5745           | 18.20       | ≤30.00          | PASS    |
|           | Ant1    | 5785           | 18.01       | ≤30.00          | PASS    |
|           | Ant2    | 5785           | 18.10       | ≤30.00          | PASS    |
|           | Ant1    | 5825           | 18.41       | ≤30.00          | PASS    |
|           | Ant2    | 5825           | 18.05       | ≤30.00          | PASS    |
| 11N20MIMO | Ant1    | 5745           | 17.91       | ≤30.00          | PASS    |
|           | Ant2    | 5745           | 19.69       | ≤30.00          | PASS    |
|           | total   | 5745           | 21.90       | ≤30.00          | PASS    |
|           | Ant1    | 5785           | 17.29       | ≤30.00          | PASS    |
|           | Ant2    | 5785           | 18.76       | ≤30.00          | PASS    |
|           | total   | 5785           | 21.10       | ≤30.00          | PASS    |
|           | Ant1    | 5825           | 17.36       | ≤30.00          | PASS    |
|           | Ant2    | 5825           | 18.16       | ≤30.00          | PASS    |
|           | total   | 5825           | 20.79       | ≤30.00          | PASS    |
| 11N40MIMO | Ant1    | 5755           | 17.61       | ≤30.00          | PASS    |
|           | Ant2    | 5755           | 19.27       | ≤30.00          | PASS    |
|           | total   | 5755           | 21.53       | ≤30.00          | PASS    |
|           | Ant1    | 5795           | 17.31       | ≤30.00          | PASS    |
|           | Ant2    | 5795           | 18.37       | ≤30.00          | PASS    |
|           | total   | 5795           | 20.88       | ≤30.00          | PASS    |

Note: 1. Conducted Power=Meas. Level+ Correction Factor

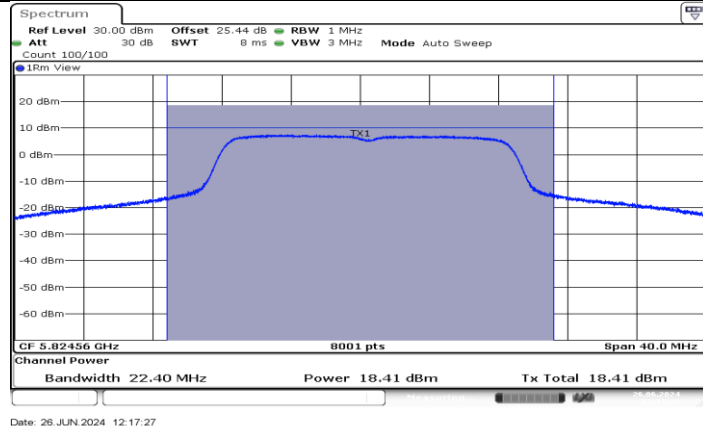
2. The Duty Cycle Factor (refer to section 7.1) had already compensated to the test data.

## 10.4.2. Test Graphs

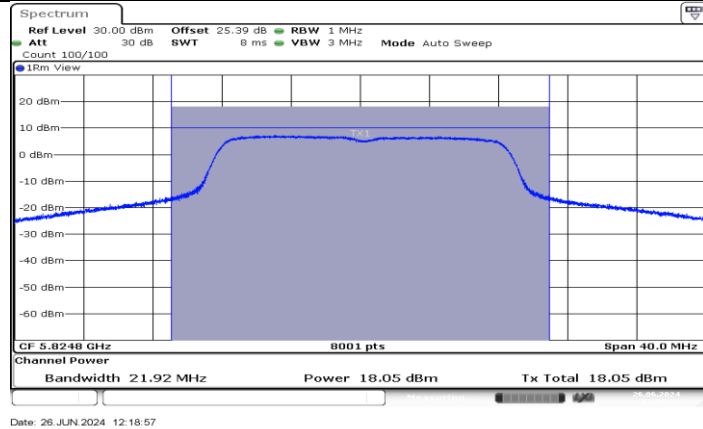




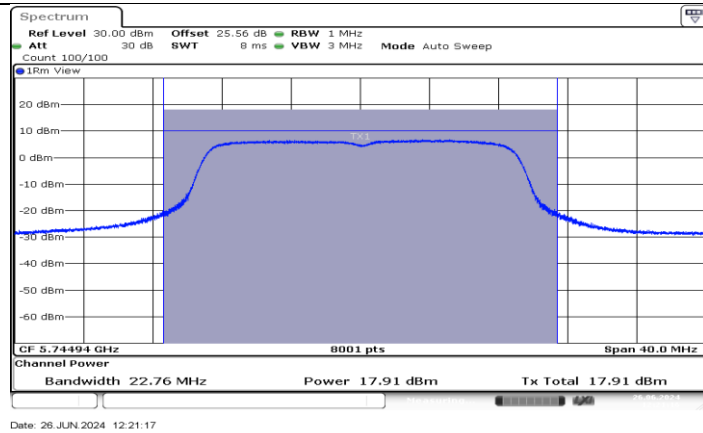
11A\_Ant2\_5785



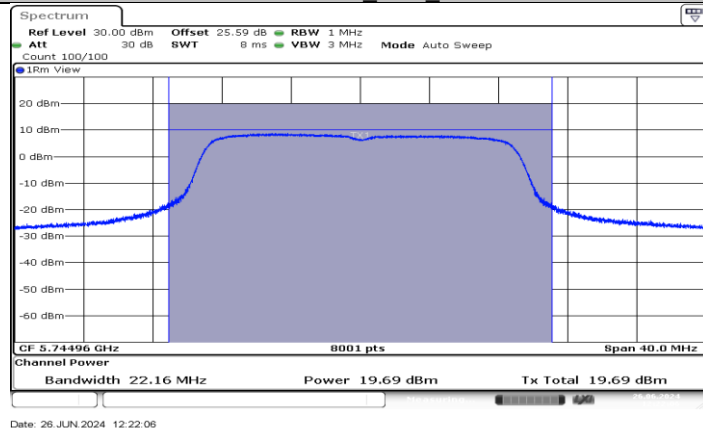
11A\_Ant1\_5825



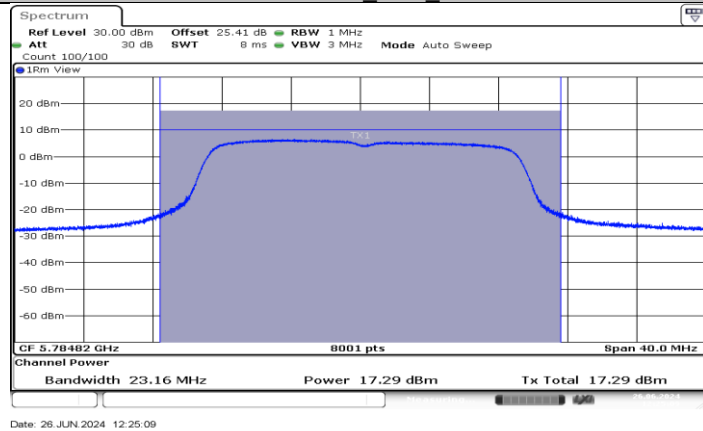
11A\_Ant2\_5825



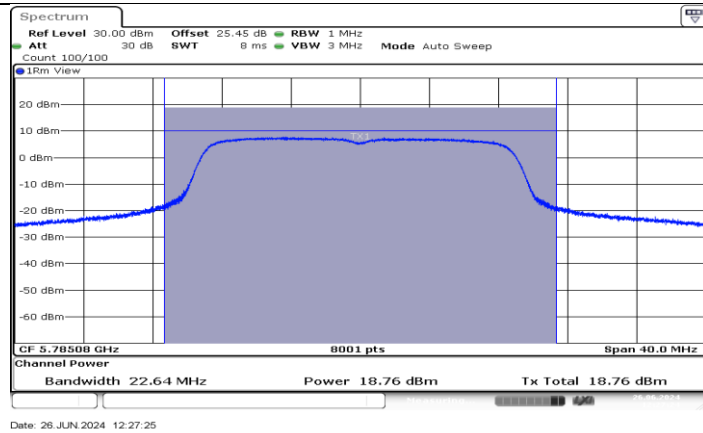
11N20MIMO\_Ant1\_5745



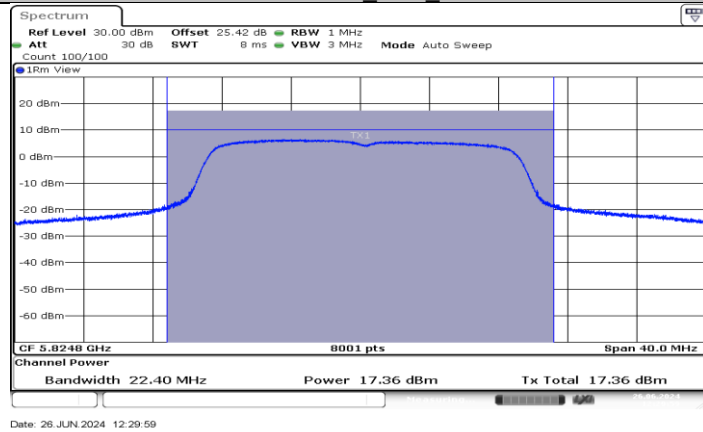
11N20MIMO\_Ant2\_5745



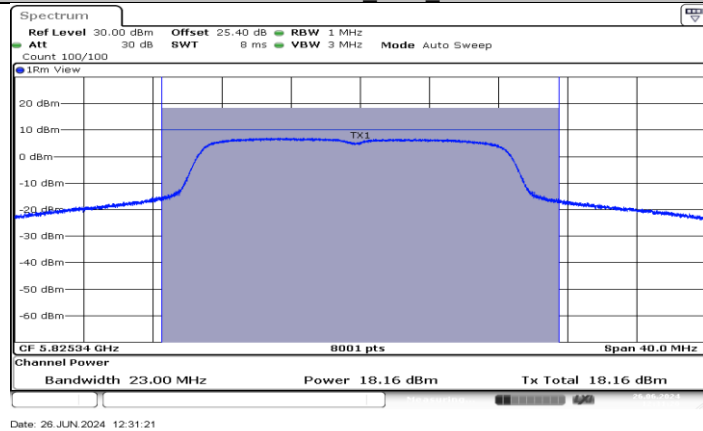
11N20MIMO\_Ant1\_5785



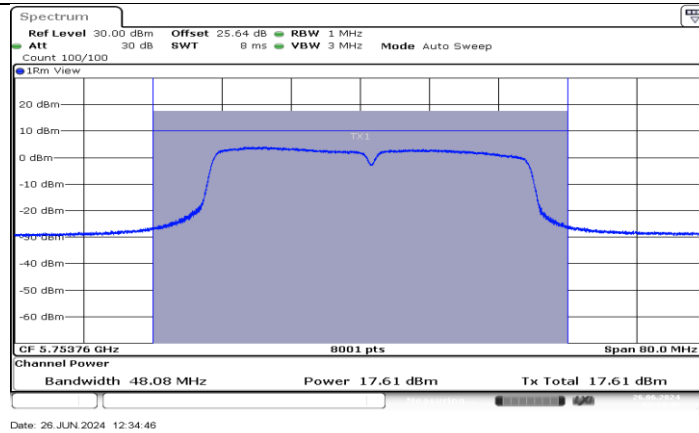
11N20MIMO\_Ant2\_5785



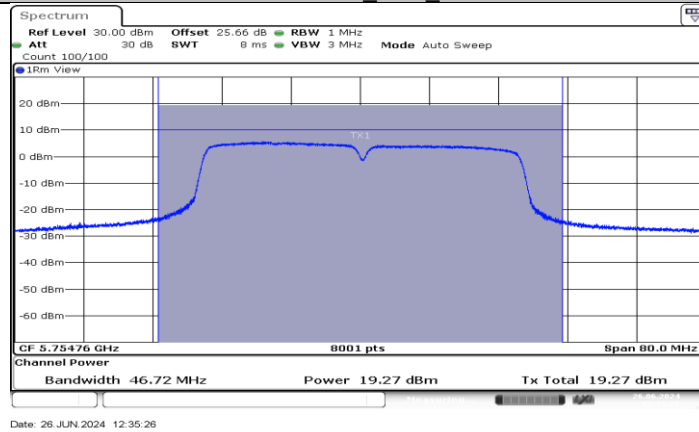
11N20MIMO\_Ant1\_5825



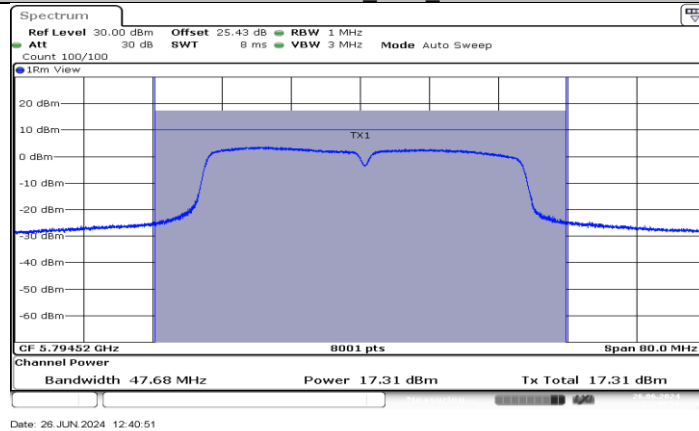
11N20MIMO\_Ant2\_5825



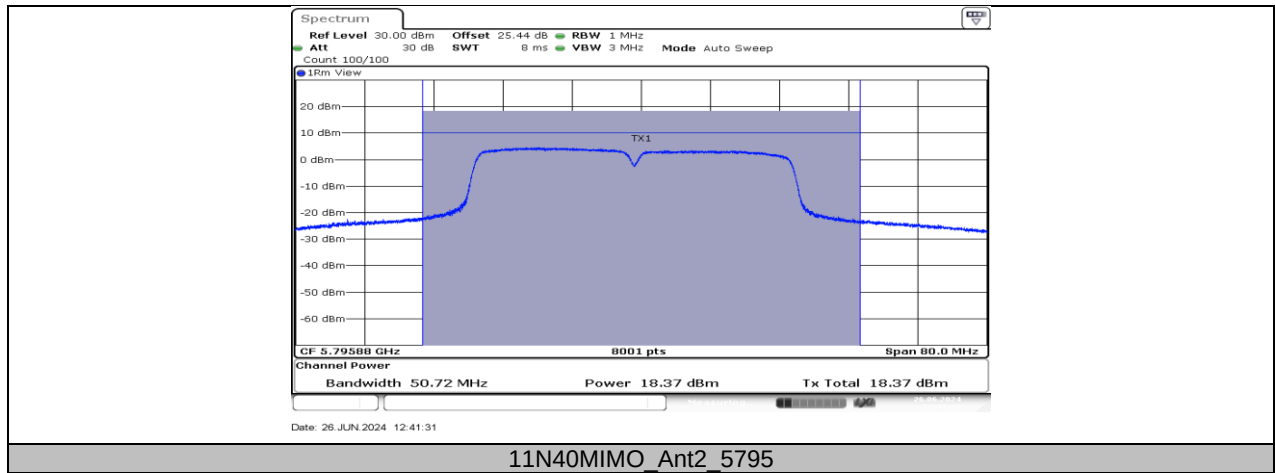
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795



## 10.5. APPENDIX E: MAXIMUM POWER SPECTRAL DENSITY

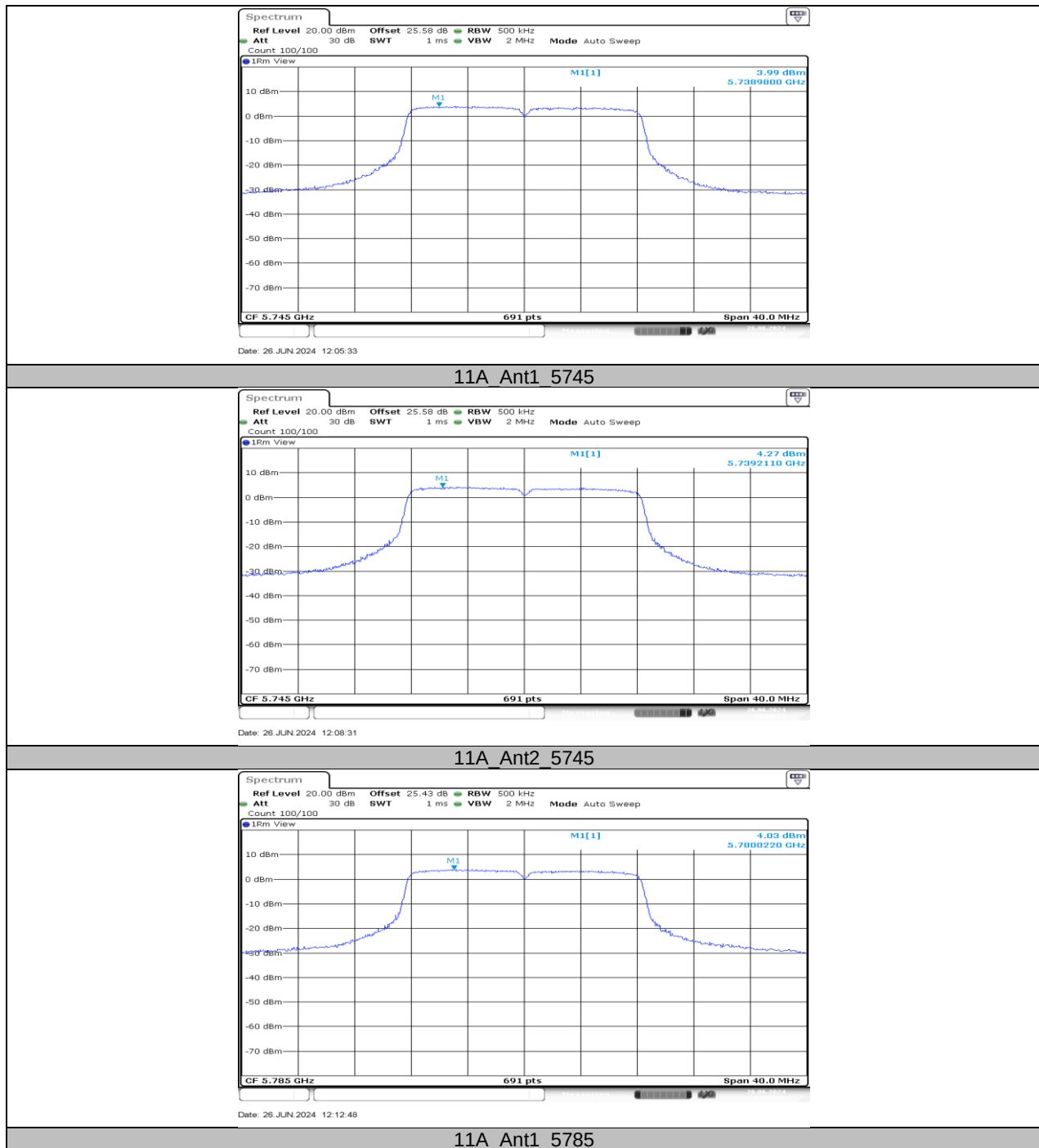
### 10.5.1. Test Result

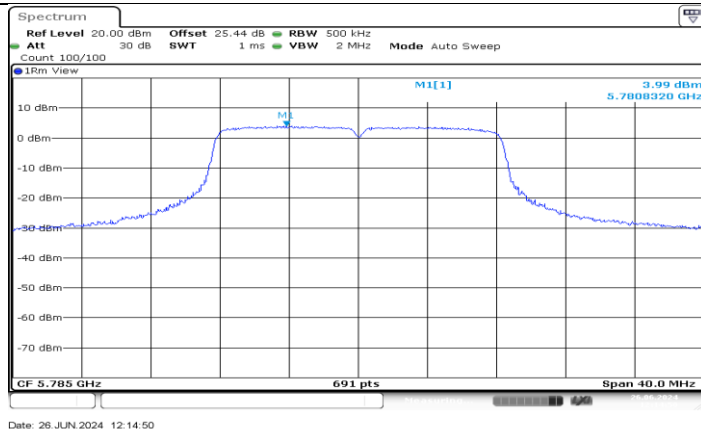
| Test Mode | Antenna | Frequency [MHz] | Power [dBm/500 kHz] | Limit [dBm/500 kHz] | EIRP [dBm/500 kHz] | Limit [dBm/500 kHz] | Verdict |
|-----------|---------|-----------------|---------------------|---------------------|--------------------|---------------------|---------|
| 11A       | Ant1    | 5745            | 3.99                | ≤30.00              | 7.98               | ---                 | PASS    |
|           | Ant2    | 5745            | 4.27                | ≤30.00              | 4.27               | ---                 | PASS    |
|           | Ant1    | 5785            | 4.03                | ≤30.00              | 8.02               | ---                 | PASS    |
|           | Ant2    | 5785            | 3.99                | ≤30.00              | 3.99               | ---                 | PASS    |
|           | Ant1    | 5825            | 4.43                | ≤30.00              | 8.42               | ---                 | PASS    |
|           | Ant2    | 5825            | 4.21                | ≤30.00              | 4.21               | ---                 | PASS    |
| 11N20MIMO | Ant1    | 5745            | 3.59                | ≤30.00              | 7.58               | ---                 | PASS    |
|           | Ant2    | 5745            | 5.59                | ≤30.00              | 5.59               | ---                 | PASS    |
|           | total   | 5745            | 7.71                | ≤30.00              | 9.71               | ---                 | PASS    |
|           | Ant1    | 5785            | 3.47                | ≤30.00              | 7.46               | ---                 | PASS    |
|           | Ant2    | 5785            | 4.52                | ≤30.00              | 4.52               | ---                 | PASS    |
|           | total   | 5785            | 7.04                | ≤30.00              | 9.24               | ---                 | PASS    |
|           | Ant1    | 5825            | 3.49                | ≤30.00              | 7.48               | ---                 | PASS    |
|           | Ant2    | 5825            | 4.02                | ≤30.00              | 4.02               | ---                 | PASS    |
| 11N40MIMO | total   | 5825            | 6.77                | ≤30.00              | 9.10               | ---                 | PASS    |
|           | Ant1    | 5755            | 1.13                | ≤30.00              | 5.12               | ---                 | PASS    |
|           | Ant2    | 5755            | 2.25                | ≤30.00              | 2.25               | ---                 | PASS    |
|           | total   | 5755            | 4.74                | ≤30.00              | 6.93               | ---                 | PASS    |
|           | Ant1    | 5795            | 0.54                | ≤30.00              | 4.53               | ---                 | PASS    |
|           | Ant2    | 5795            | 1.35                | ≤30.00              | 1.35               | ---                 | PASS    |
|           | total   | 5795            | 3.97                | ≤30.00              | 6.24               | ---                 | PASS    |

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

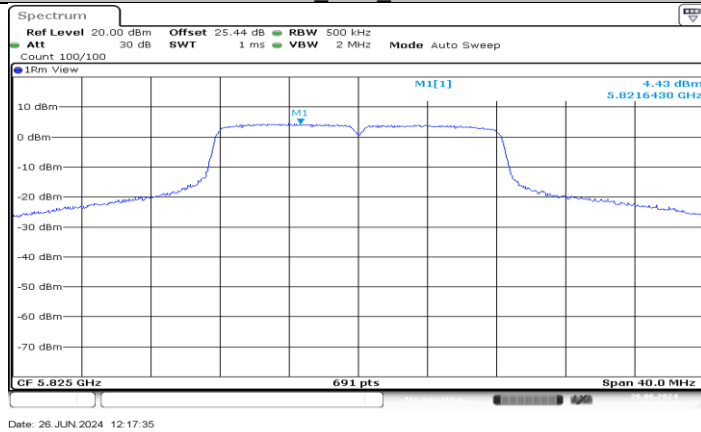
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

## 10.5.2. Test Graphs

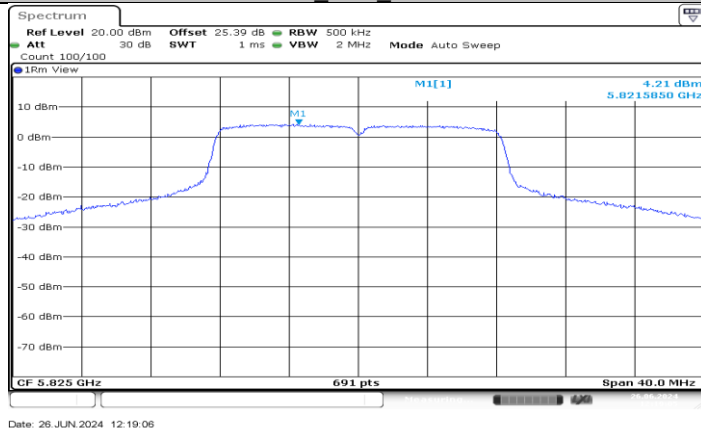




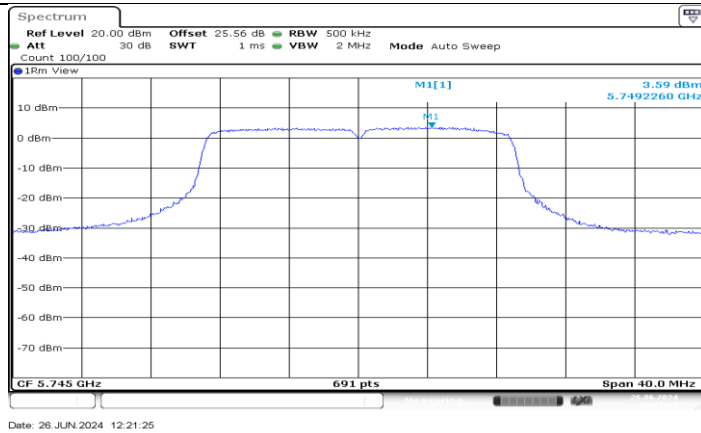
11A\_Ant2\_5785



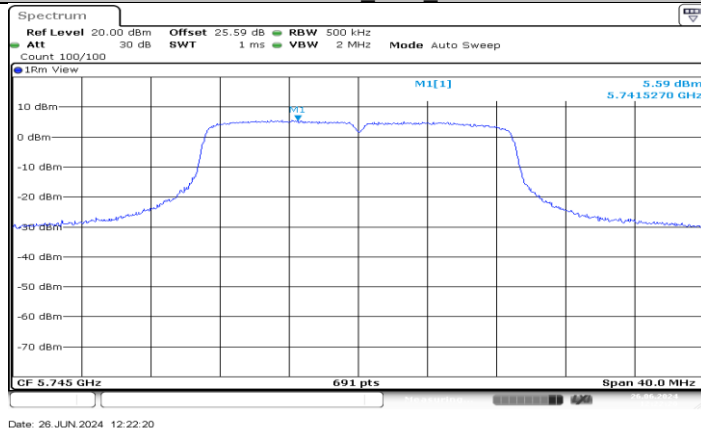
11A\_Ant1\_5825



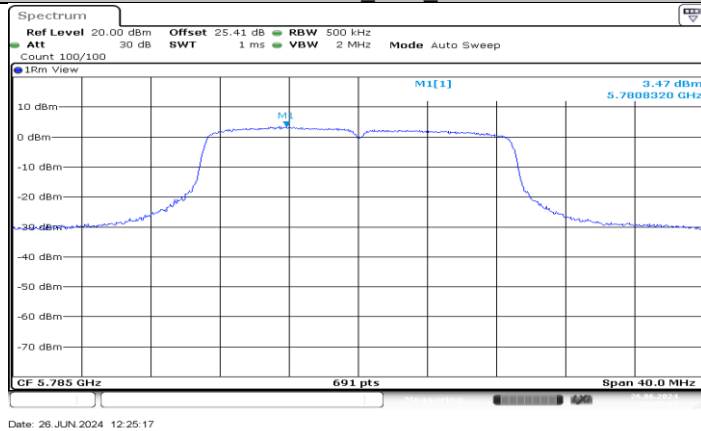
11A\_Ant2\_5825



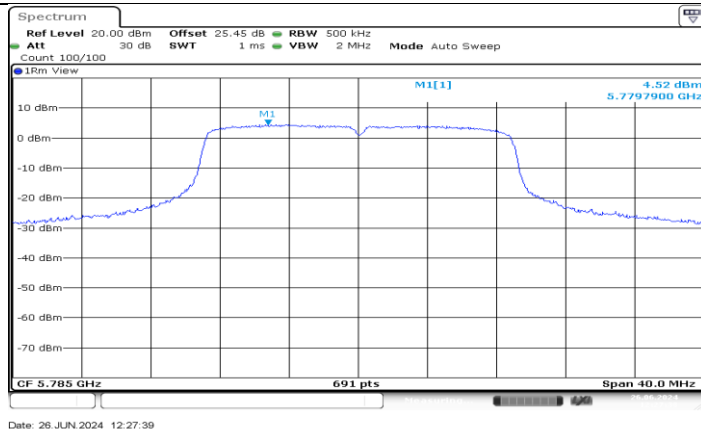
11N20MIMO\_Ant1\_5745



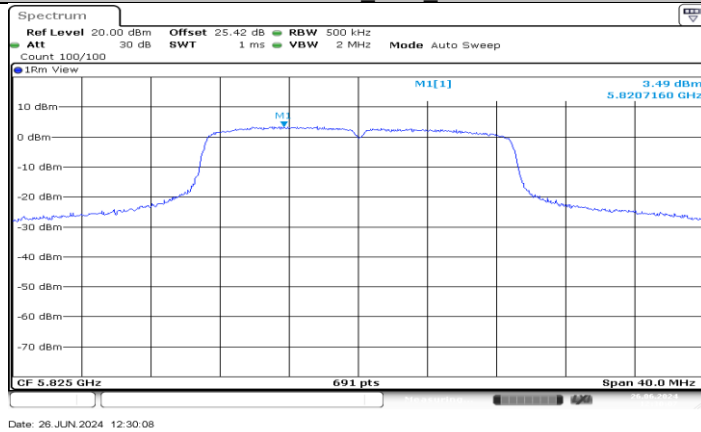
11N20MIMO\_Ant2\_5745



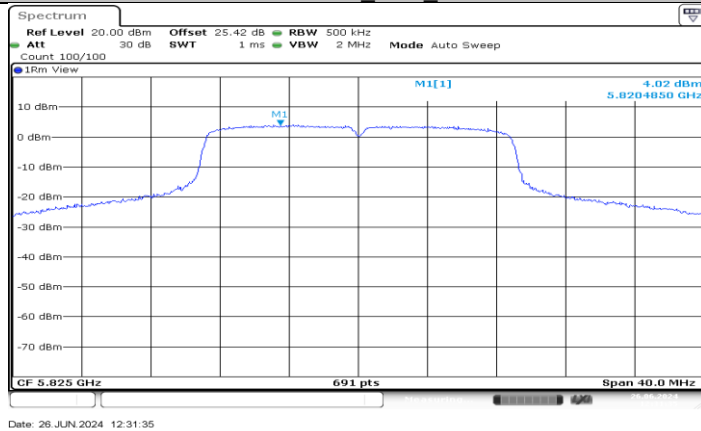
11N20MIMO\_Ant1\_5785



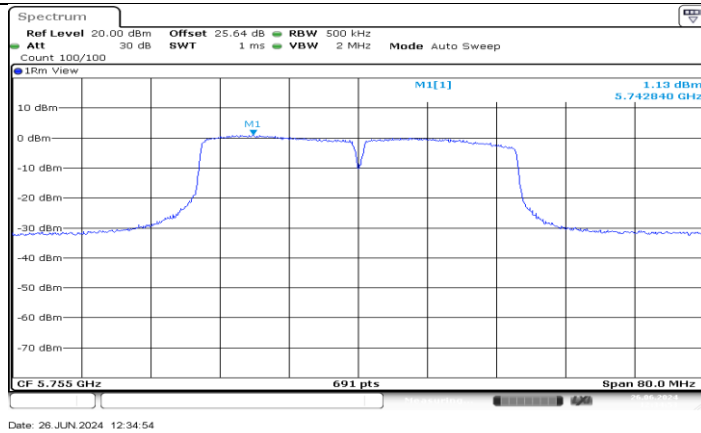
11N20MIMO\_Ant2\_5785



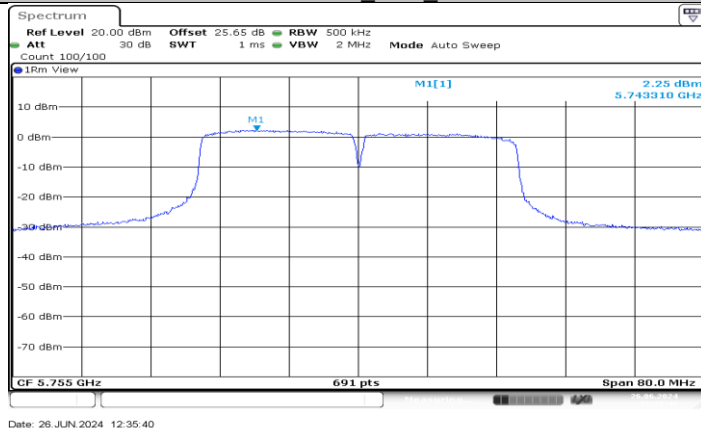
11N20MIMO\_Ant1\_5825



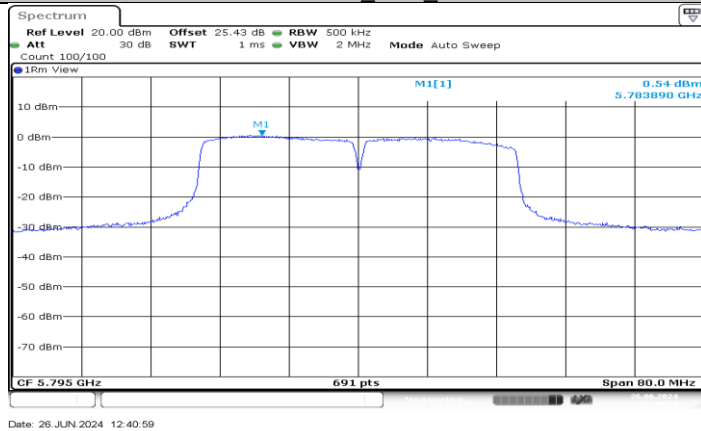
11N20MIMO\_Ant2\_5825



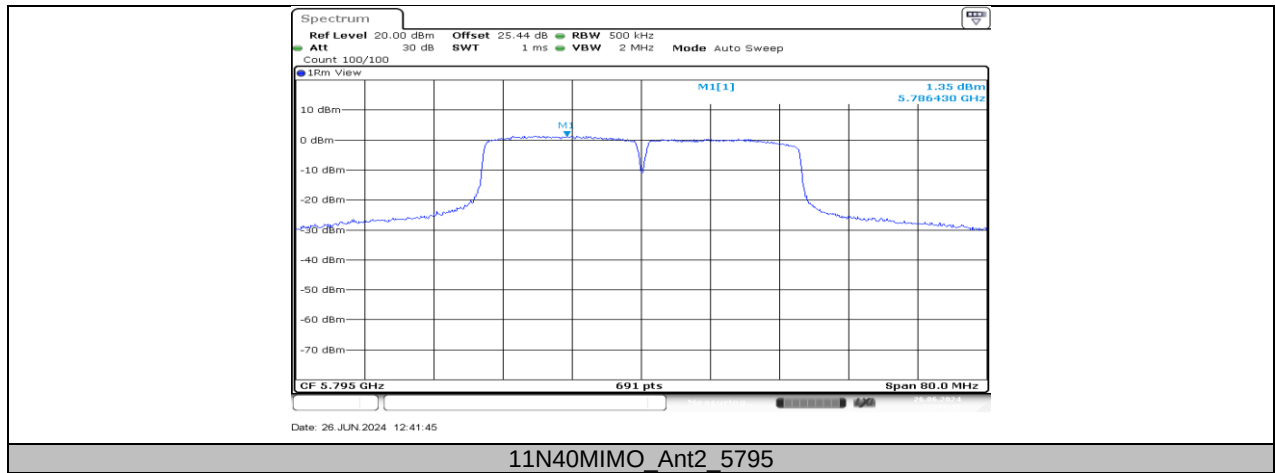
11N40MIMO\_Ant1\_5755



11N40MIMO\_Ant2\_5755



11N40MIMO\_Ant1\_5795



## 10.6. APPENDIX I: FREQUENCY STABILITY

### 10.6.1. Test Result

| Frequency Error vs. Voltage     |       |                  |                 |                  |                 |                  |                 |                  |                 |
|---------------------------------|-------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|
| 802.11a:5825MHz                 |       |                  |                 |                  |                 |                  |                 |                  |                 |
| Temp.                           | Volt. | 0 Minute         |                 | 2 Minute         |                 | 5 Minute         |                 | 10 Minute        |                 |
|                                 |       | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) |
| TN                              | VL    | 5824.9943        | -0.98           | 5824.9914        | -1.48           | 5825.0153        | 2.62            | 5824.9896        | -1.78           |
| TN                              | VN    | 5824.9988        | -0.21           | 5825.0224        | 3.84            | 5825.0079        | 1.35            | 5825.0165        | 2.83            |
| TN                              | VH    | 5824.9795        | -3.53           | 5824.9869        | -2.25           | 5824.9897        | -1.78           | 5825.0073        | 1.26            |
| Frequency Error vs. Temperature |       |                  |                 |                  |                 |                  |                 |                  |                 |
| 802.11a:5200MHz                 |       |                  |                 |                  |                 |                  |                 |                  |                 |
| Temp.                           | Volt. | 0 Minute         |                 | 2 Minute         |                 | 5 Minute         |                 | 10 Minute        |                 |
|                                 |       | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) | Freq.Error (MHz) | Tolerance (ppm) |
| 40                              | VN    | 5825.0017        | 0.28            | 5825.0001        | 0.02            | 5825.0236        | 4.06            | 5824.9932        | -1.16           |
| 30                              | VN    | 5824.9784        | -3.70           | 5825.0199        | 3.41            | 5825.0021        | 0.37            | 5824.9950        | -0.85           |
| 20                              | VN    | 5825.0017        | 0.30            | 5825.0161        | 2.76            | 5825.0017        | 0.29            | 5825.0153        | 2.63            |
| 10                              | VN    | 5824.9952        | -0.82           | 5825.0090        | 1.55            | 5824.9886        | -1.96           | 5825.0185        | 3.17            |
| 0                               | VN    | 5824.9806        | -3.32           | 5824.9866        | -2.30           | 5825.0048        | 0.82            | 5824.9787        | -3.66           |
| -10                             | VN    | 5824.9804        | -3.36           | 5824.9801        | -3.41           | 5824.9985        | -0.25           | 5825.0007        | 0.12            |

Note:

1. All antennas, test modes and test channels have been tested, only the worst data record in the report.
2. For the detail Test Conditions, please refer to section 7.5 TEST ENVIRONMENT.

**10.7. APPENDIX J: DUTY CYCLE****10.7.1. Test Result**

| Test Mode | On Time<br>(msec) | Period<br>(msec) | Duty<br>Cycle<br>x<br>(Linear) | Duty<br>Cycle<br>(%) | Duty Cycle<br>Correction<br>Factor<br>(dB) | 1/T<br>Minimum<br>VBW<br>(kHz) | Final<br>setting<br>For VBW<br>(kHz) |
|-----------|-------------------|------------------|--------------------------------|----------------------|--------------------------------------------|--------------------------------|--------------------------------------|
| 11A       | 1.99              | 2.04             | 0.9755                         | 97.55                | 0.11                                       | 0.50                           | 1                                    |
| 11N20MIMO | 1.87              | 1.91             | 0.9791                         | 97.91                | 0.09                                       | 0.53                           | 1                                    |
| 11N40MIMO | 0.92              | 0.95             | 0.9684                         | 96.84                | 0.14                                       | 1.09                           | 2                                    |

Note:

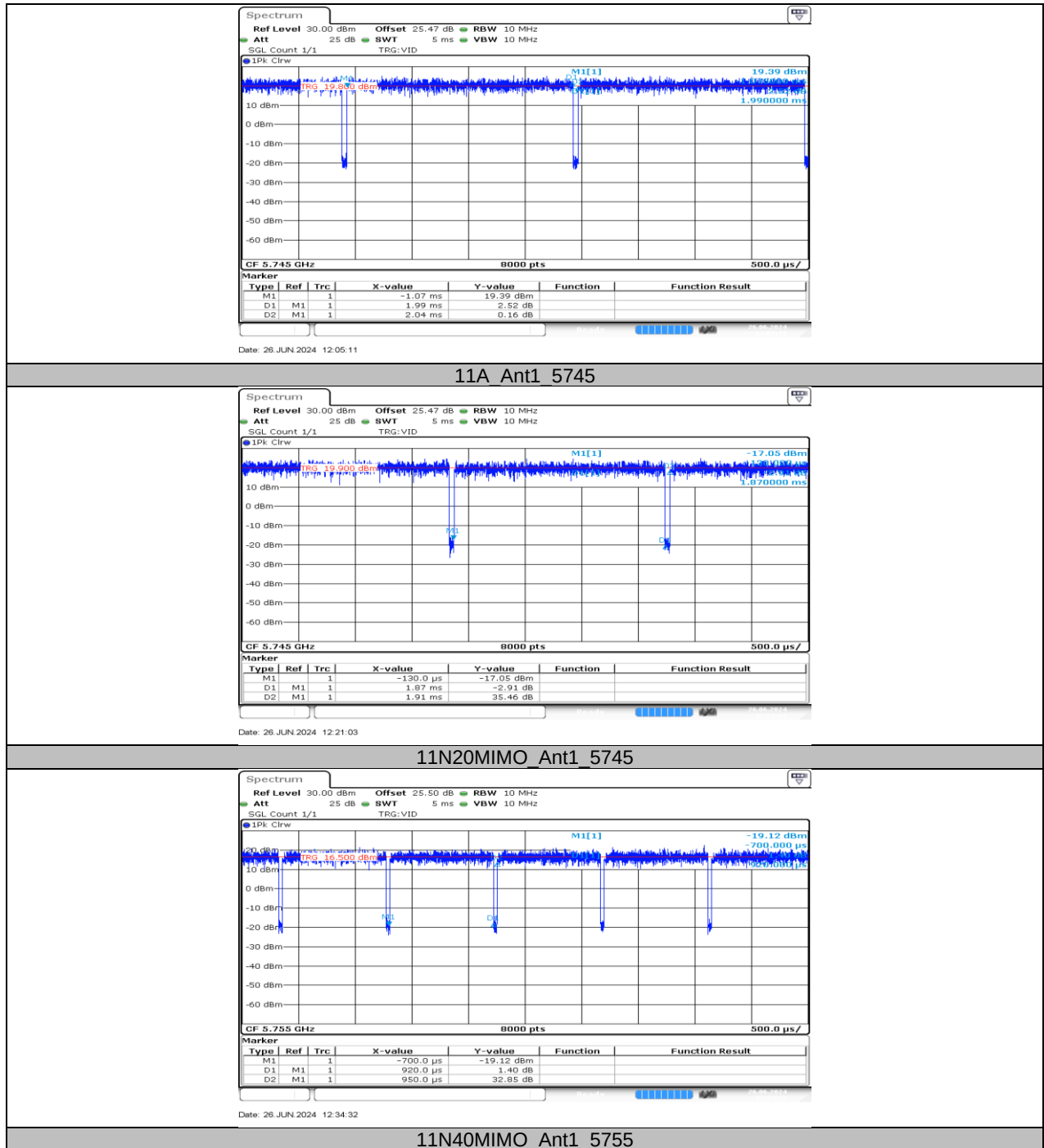
Duty Cycle Correction Factor=10log (1/x).

Where: x is Duty Cycle (Linear)

Where: T is On Time

If that calculated VBW is not available on the analyzer then the next higher value should be used.

## 10.7.2. Test Graphs



## **APPENDIX: PHOTOGRAPHS OF TEST CONFIGURATION**

4791353869-1\_Appendix\_SetupPhoto\_Intelligent Control System

## **APPENDIX: PHOTOGRAPHS OF THE EUT**

4791353869-1\_Appendix\_EUTPhoto\_External\_intelligent Control System

4791353869-1\_Appendix\_EUTPhoto\_Internal\_Intelligent Control System