

Test Report No:  
23A0721R-RFUSV03S-A

## TEST REPORT

### FCC Rules&Regulations

|                                 |                                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------------------|
| Product Name                    | DOCSIS Gateway                                                                                     |
| Brand Name                      | ARRIS                                                                                              |
| Model No.                       | G20                                                                                                |
| FCC ID                          | UIDG20                                                                                             |
| Applicant's Name / Address      | ARRIS<br>3871 Lakefield Drive Suite 300 SUWANEE Georgia United States 30024                        |
| Manufacturer's Name / Address   | ARRIS<br>3871 Lakefield Drive Suite 300 SUWANEE Georgia United States 30024                        |
| Test Method Requested, Standard | FCC CFR Title 47 Part 15 Subpart E Section 15.407<br>ANSI C63.10-2013                              |
| Verdict Summary                 | IN COMPLIANCE                                                                                      |
| Documented By                   | <br>Hailey Peng |
| Approved By                     | <br>Rueyyan Lin |
| Date of Receipt                 | Oct. 27, 2023                                                                                      |
| Date of Issue                   | Dec. 18, 2023                                                                                      |
| Report Version                  | V1.0                                                                                               |

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## Competences and Guarantees

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DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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## General Conditions

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1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

| Version | Description             | Issued Date   |
|---------|-------------------------|---------------|
| V1.0    | Initial issue of report | Dec. 18, 2023 |
|         |                         |               |
|         |                         |               |
|         |                         |               |
|         |                         |               |
|         |                         |               |
|         |                         |               |
|         |                         |               |

## Summary of Test Result

| Report Clause | Test Items                             | Result (PASS/FAIL) | Remark |
|---------------|----------------------------------------|--------------------|--------|
| 3             | AC Power Line Conducted Emission       | PASS               | -      |
| 4             | Emission Bandwidth                     | PASS               | -      |
| 5             | Maximum Conducted Output Power         | PASS               | -      |
| 6             | Maximum Power Spectral Density         | PASS               | -      |
| 7             | Transmitter Radiated Spurious Emission | PASS               | -      |

### Comments and Explanations

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

## Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

## 1. General Information

### 1.1. EUT Description

|                                      |                                                                          |                                                                                                                              |
|--------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range                      | 5150 ~ 5250 MHz<br>5250 ~ 5350 MHz<br>5470 ~ 5725 MHz<br>5725 ~ 5850 MHz |                                                                                                                              |
| Operating Frequency / Channel Number | IEEE 802.11a                                                             | 5180 ~ 5240 MHz / 4 Channels                                                                                                 |
|                                      | IEEE 802.11n/ac/ax (20 MHz)                                              | 5260 ~ 5320 MHz / 4 Channels<br>5500 ~ 5720 MHz / 12 Channels<br>5745 ~ 5825 MHz / 5 Channels                                |
|                                      | IEEE 802.11n/ac/ax (40 MHz)                                              | 5190 ~ 5230 MHz / 2 Channels<br>5270 ~ 5310 MHz / 2 Channels<br>5510 ~ 5710 MHz / 6 Channels<br>5755 ~ 5795 MHz / 2 Channels |
|                                      | IEEE 802.11ac/ax (80 MHz)                                                | 5210 MHz / 1 Channel<br>5290 MHz / 1 Channel<br>5530 ~ 5690 MHz / 3 Channels<br>5775 MHz / 1 Channel                         |
| Type of Modulation                   | IEEE 802.11a/n                                                           | OFDM-BPSK, QPSK, 16QAM, 64QAM                                                                                                |
|                                      | IEEE 802.11ac                                                            | OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM                                                                                        |
|                                      | IEEE 802.11ax                                                            | OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM                                                                              |
| Chip                                 | Manufacturer                                                             | MaxLinear                                                                                                                    |
|                                      | Model No.                                                                | WAV654A1MC                                                                                                                   |

| Accessories Information |                |            |                       |                                                              |
|-------------------------|----------------|------------|-----------------------|--------------------------------------------------------------|
| No.                     | Equipment Name | Brand Name | Model No.             | Rating                                                       |
| 1                       | Adapter 1      | FRECOM     | F24L15-120200SPAU     | INPUT: 100-240V, 50/60Hz, 0.6A<br>OUTPUT: 12.0V, 2.0A, 24.0W |
| 2                       | Adapter 2      | MOSO®      | MS-V2000R120-024Q0-US | INPUT: 100-240V, 50/60Hz, 0.7A max.<br>OUTPUT: 12.0V, 2.0A   |

| Antenna Information |            |             |      |                    |                        |
|---------------------|------------|-------------|------|--------------------|------------------------|
| Ant.                | Brand Name | Model No.   | Type | Antenna Gain (dBi) | Beamforming Gain (dBi) |
| 1                   | Wanshih    | S21WFI0072A | PIFA | 2.45               | 0                      |
| 2                   | Wanshih    | S21WFI0073A | PIFA | 3.13               |                        |

#### For IEEE 802.11a/n/ac/ax Mode: (2TX, 2RX)

Both Ant. 1 and Ant. 2 can be used as transmitting/receiving antennas, and they can transmit/receive signal simultaneously.

## 1.2. EUT Information

| EUT Power Type                    | From Adapter                        |                      |                                     |                         |
|-----------------------------------|-------------------------------------|----------------------|-------------------------------------|-------------------------|
| EUT Function                      | <input checked="" type="checkbox"/> | Point-to-multipoint  | <input type="checkbox"/>            | Point-to-point          |
| TPC Function                      | <input checked="" type="checkbox"/> | With TPC Function    | <input type="checkbox"/>            | Without TPC Function    |
| Weather Band<br>(5600 ~ 5650 MHz) | <input checked="" type="checkbox"/> | With 5600 ~ 5650 MHz | <input type="checkbox"/>            | Without 5600 ~ 5650 MHz |
| Beamforming Function              | <input checked="" type="checkbox"/> | With beamforming     | <input type="checkbox"/>            | Without beamforming     |
| Resource Unit of<br>802.11ax      | <input checked="" type="checkbox"/> | Full RU              | <input type="checkbox"/>            | Partial RU              |
| Product Type                      | <input type="checkbox"/>            | Outdoor AP           | <input checked="" type="checkbox"/> | Indoor AP               |
|                                   | <input type="checkbox"/>            | Fixed P2P AP         | <input type="checkbox"/>            | Client                  |

## 1.3. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- KDB 662911 D01 v02r01
- KDB 412172 D01 v01r01
- KDB 414788 D01 v01r01

## 1.4. Testing Location Information

| Testing Location Information                                                                                                             |                                                                                                                                                                |  |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Test Laboratory : DEKRA Testing and Certification Co., Ltd.                                                                              |                                                                                                                                                                |  |
| 1<br>(TAF: 3024)                                                                                                                         | ADD: No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.<br>TEL: +886-3-582-8001                      FAX: +886-3-582-8958 |  |
| 2<br>(TAF: 3024)                                                                                                                         | ADD: No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.<br>TEL: +886-3-582-8001                      FAX: +886-3-582-8958   |  |
| Test site number for address 1 includes HC-SR02. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12. |                                                                                                                                                                |  |

| Test Condition         | Test Site No. | Test Engineer           | Test Environment<br>(°C / %) | Test Date             |
|------------------------|---------------|-------------------------|------------------------------|-----------------------|
| AC Conduction Emission | HC-SR02       | Igor Tseng              | 20.5~21.5 / 53~56            | 2023/12/05            |
| RF Conducted Emission  | HC-SR12       | Scott Chang             | 21.1~21.5 / 53~56            | 2023/12/04~2023/12/05 |
| Radiated Emission      | HC-CB04       | Cyril Chen<br>Ling Chen | 23~25 / 63~65                | 2023/11/29~2023/12/08 |

## 1.5. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ )).

| Test Item                              | Uncertainty                                            |
|----------------------------------------|--------------------------------------------------------|
| AC Power Line Conducted Emission       | $\pm 2.34$ dB                                          |
| Emission Bandwidth                     | $\pm 636.54$ Hz                                        |
| Maximum Conducted Output Power         | $\pm 1.16$ dB                                          |
| Maximum Power Spectral Density         | $\pm 2.47$ dB                                          |
| Transmitter Radiated Spurious Emission | $\pm 3.52$ dB below 1 GHz<br>$\pm 3.56$ dB above 1 GHz |

## 1.6. List of Test Equipment

### HC-SR02

| Instrument               | Manufacturer | Model No.          | Serial No. | Characteristics        | Cal. Date  | Next Cal. Date |
|--------------------------|--------------|--------------------|------------|------------------------|------------|----------------|
| Artificial Mains Network | R&S          | ENV4200            | 848411/010 | 9kHz-30MHz, 4line/100A | 2022/12/19 | 2023/12/18     |
| EMI Test Receiver        | R&S          | ESR3               | 102608     | 9 kHz - 3.6 GHz        | 2023/09/19 | 2024/09/18     |
| Two-Line V-Network       | R&S          | ENV216             | 100096     | 9kHz-30MHz             | 2023/06/02 | 2024/06/01     |
| Coaxial Cable(9 m)       | Harbour      | RG-400             | HC-SR02    | 9 kHz-2500 MHz         | 2023/08/04 | 2024/08/03     |
| EMI Testing System       | AUDIX        | e3 210616 dekra V9 | HC-SR02    | N/A                    | N/A        | N/A            |

### HC-SR12

| Instrument                             | Manufacturer | Model No. | Serial No. | Characteristics | Cal. Date  | Next Cal. Date |
|----------------------------------------|--------------|-----------|------------|-----------------|------------|----------------|
| High Speed Peak Power Meter Dual Input | Anritsu      | ML2496A   | 1602004    | 0.3-40 GHz      | 2023/10/25 | 2024/10/24     |
| Pulse Power Sensor                     | Anritsu      | MA2411B   | 1531043    | 0.3-40 GHz      | 2023/10/25 | 2024/10/24     |
| Pulse Power Sensor                     | Anritsu      | MA2411B   | 1531044    | 0.3-40 GHz      | 2023/10/25 | 2024/10/24     |
| Signal & Spectrum Analyzer             | R&S          | FSV40     | 101869     | 10Hz-40GHz      | 2023/07/03 | 2024/07/02     |

### HC-CB04

| Instrument                   | Manufacturer  | Model No.    | Serial No.  | Characteristics  | Cal. Date  | Next Cal. Date |
|------------------------------|---------------|--------------|-------------|------------------|------------|----------------|
| Signal and Spectrum Analyzer | R&S           | FSVA40       | 101435      | 10 Hz-40 GHz     | 2023/05/29 | 2024/05/28     |
| Trilog Broadband Antenna     | Schwarzbeck   | VULB 9168    | 1209        | 30 MHz-2 GHz     | 2023/06/13 | 2024/06/12     |
| Double Ridged Horn Antenna   | RF SPIN       | DRH18-E      | 211211A18EN | 1G-18GHz         | 2023/11/09 | 2024/11/08     |
| Horn Antenna                 | Schwarzbeck   | BBHA 9170    | 203         | 18G-40GHz        | 2023/02/13 | 2024/02/12     |
| Pre-Amplifier                | EMCI          | EMC01820I    | 980364      | 30M-8 GHz,20 dB  | 2023/06/06 | 2024/06/05     |
| Pre-Amplifier                | EMEC          | EM01G18GA    | 060835      | 1-18 GHz,50 dB   | 2023/07/24 | 2024/07/23     |
| Pre-Amplifier                | DEKRA         | AP-400C      | 201801231   | 18G-40 GHz,48 dB | 2023/10/03 | 2024/10/02     |
| EMI Test Receiver            | R&S           | ESR7         | 102260      | 10 Hz-7 GHz      | 2023/11/27 | 2024/11/26     |
| Magnetic Loop Antenna        | Teseq         | HLA 6121     | 44287       | 0.01-30 MHz      | 2023/10/13 | 2024/10/12     |
| Coaxial Cable(11m)           | Suhner        | SF102_SF104  | HC-CB04     | 30M-18 GHz       | 2023/08/08 | 2024/08/07     |
| Coaxial Cable(3m)            | Suhner,Rosnol | SF102_UP0264 | HC-CB04-1   | 18G-40 GHz       | 2023/08/14 | 2024/08/13     |
| Radiated Software            | AUDIX         | e3 V9        | HC-CB04_1   | N/A              | N/A        | N/A            |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 2. Test Configuration of EUT

### 2.1. Test Condition

|                           |              |
|---------------------------|--------------|
| EUT Operational Condition |              |
| Testing Voltage           | AC 120V/60Hz |

### 2.2. Test Frequency Mode

|                       |                 |
|-----------------------|-----------------|
| Test Software Version | DUT GUI v610.59 |
|-----------------------|-----------------|

<Non-beamforming function>

| Modulation        | Frequency (MHz) | Power Setting |
|-------------------|-----------------|---------------|
| 802.11a           | 5180            | 21            |
|                   | 5220            | 21            |
|                   | 5240            | 19            |
|                   | 5260            | 20            |
|                   | 5300            | 20            |
|                   | 5320            | 19            |
|                   | 5500            | 20            |
|                   | 5580            | 20            |
|                   | 5700            | 21            |
|                   | 5720            | 19            |
|                   | 5745            | 20            |
|                   | 5785            | 20            |
|                   | 5825            | 20            |
| 802.11ax (20 MHz) | 5180            | 21            |
|                   | 5220            | 21            |
|                   | 5240            | 21            |
|                   | 5260            | 19            |
|                   | 5300            | 20            |
|                   | 5320            | 20            |
|                   | 5500            | 19            |
|                   | 5580            | 20            |
|                   | 5700            | 17            |
|                   | 5720            | 19            |
|                   | 5745            | 20            |
|                   | 5785            | 20            |
|                   | 5825            | 20            |

| Modulation         | Frequency (MHz) | Power Setting |
|--------------------|-----------------|---------------|
| 802.11ax (40 MHz)  | 5190            | 19            |
|                    | 5230            | 21            |
|                    | 5270            | 20            |
|                    | 5310            | 17            |
|                    | 5510            | 18            |
|                    | 5550            | 20            |
|                    | 5670            | 20            |
|                    | 5710            | 21            |
|                    | 5755            | 21            |
|                    | 5795            | 21            |
| 802.11ax (80 MHz)  | 5210            | 17            |
|                    | 5290            | 17            |
|                    | 5530            | 17            |
|                    | 5610            | 20            |
|                    | 5690            | 21            |
|                    | 5755            | 20            |
| 802.11ax (160 MHz) | 5250            | 17            |
|                    | 5570            | 17            |

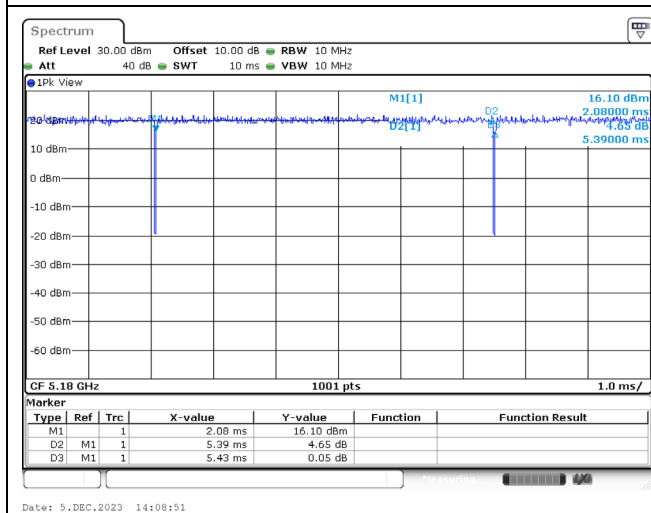
## &lt;Beamforming function&gt;

| Modulation         | Frequency (MHz) | Power Setting |
|--------------------|-----------------|---------------|
| 802.11ax (20 MHz)  | 5180            | 21            |
|                    | 5220            | 21            |
|                    | 5240            | 21            |
|                    | 5260            | 19            |
|                    | 5300            | 20            |
|                    | 5320            | 20            |
|                    | 5500            | 19            |
|                    | 5580            | 20            |
|                    | 5700            | 17            |
|                    | 5720            | 19            |
|                    | 5745            | 20            |
|                    | 5785            | 20            |
|                    | 5825            | 20            |
| 802.11ax (40 MHz)  | 5190            | 19            |
|                    | 5230            | 21            |
|                    | 5270            | 20            |
|                    | 5310            | 17            |
|                    | 5510            | 18            |
|                    | 5550            | 20            |
|                    | 5670            | 20            |
|                    | 5710            | 21            |
|                    | 5755            | 21            |
|                    | 5795            | 21            |
| 802.11ax (80 MHz)  | 5210            | 17            |
|                    | 5290            | 17            |
|                    | 5530            | 17            |
|                    | 5610            | 20            |
|                    | 5690            | 21            |
|                    | 5755            | 20            |
| 802.11ax (160 MHz) | 5250            | 17            |
|                    | 5570            | 17            |

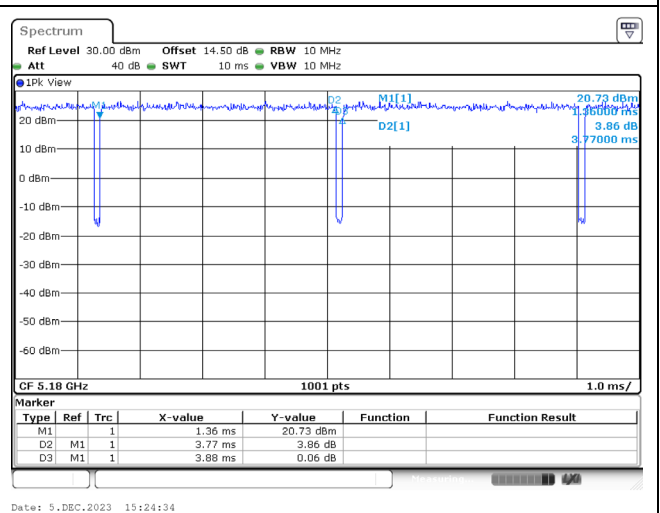
### 2.3. Duty Cycle

| Modulation         | On Time<br>(ms) | On+Off Time<br>(ms) | Duty Cycle<br>(%) | Duty Factor<br>(dB) | 1/T Minimum<br>VBW (kHz) |
|--------------------|-----------------|---------------------|-------------------|---------------------|--------------------------|
| 802.11a            | 5.390           | 5.430               | 99.26             | 0.032               | 0.010                    |
| 802.11ax (20 MHz)  | 3.770           | 3.880               | 97.16             | 0.125               | 0.265                    |
| 802.11ax (40 MHz)  | 1.930           | 2.040               | 94.61             | 0.241               | 0.518                    |
| 802.11ax (80 MHz)  | 0.950           | 1.070               | 88.79             | 0.517               | 1.053                    |
| 802.11ax (160 MHz) | 0.490           | 0.610               | 80.33             | 0.95                | 2.041                    |

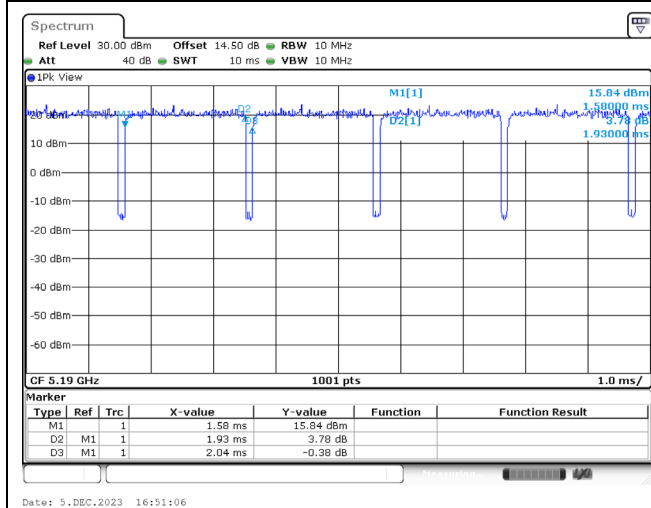
## 802.11a



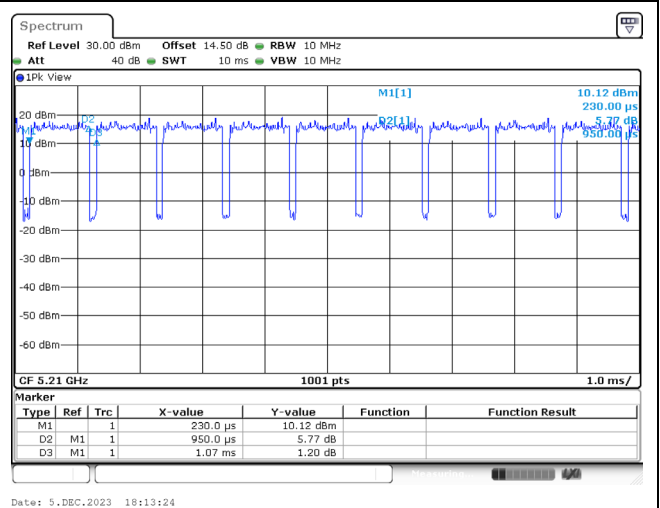
## 802.11ax (20 MHz)



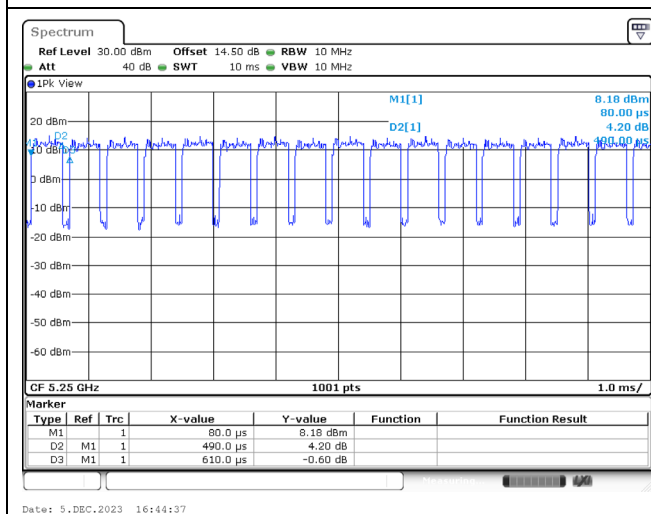
## 802.11ax (40 MHz)



## 802.11ax (80 MHz)



## 802.11ax (160 MHz)



## 2.4. The Worst Case Measurement Configuration

|                                                                 |                                                          |
|-----------------------------------------------------------------|----------------------------------------------------------|
| Tests Item                                                      | AC Power Line Conducted Emission                         |
| Test Condition                                                  | AC power line conducted measurement for line and neutral |
| Operating Mode                                                  | Transmit                                                 |
| 1                                                               | EUT + Adapter 1                                          |
| 2                                                               | EUT + Adapter 2                                          |
| Mode 1 is the worst case and it was record in this test report. |                                                          |

|                |                                                                                        |
|----------------|----------------------------------------------------------------------------------------|
| Tests Item     | Emission Bandwidth<br>Maximum Conducted Output Power<br>Maximum Power Spectral Density |
| Test Condition | Conducted measurement at transmit chains                                               |

|                                                                 |                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tests Item                                                      | Transmitter Radiated Spurious Emission                                                                                                                                                                                                              |
| Test Condition                                                  | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. |
| Operating Mode < 1GHz                                           | Transmit                                                                                                                                                                                                                                            |
| 1                                                               | EUT + Adapter 1                                                                                                                                                                                                                                     |
| 2                                                               | EUT + Adapter 2                                                                                                                                                                                                                                     |
| Mode 2 is the worst case and it was record in this test report. |                                                                                                                                                                                                                                                     |
| Operating Mode > 1GHz                                           | Transmit                                                                                                                                                                                                                                            |

|                                                        |                                                                    |
|--------------------------------------------------------|--------------------------------------------------------------------|
| Tests Item                                             | Simultaneous Transmission Analysis - Radiated Emission Co-location |
| Test Condition                                         | Radiated measurement                                               |
| Operating Mode                                         | Transmit                                                           |
| 1                                                      | WiFi 2.4 GHz + WiFi 5 GHz                                          |
| Refer to Appendix F for Radiated Emission Co-location. |                                                                    |

|                                                                                             |                                                                         |
|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Tests Item                                                                                  | Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation |
| Operating Mode                                                                              | Transmit                                                                |
| 1                                                                                           | WiFi 2.4 GHz + WiFi 5 GHz                                               |
| Refer to DEKRA Test Report No.: 23A0721R-RFUSV17S-A for Co-location RF Exposure Evaluation. |                                                                         |

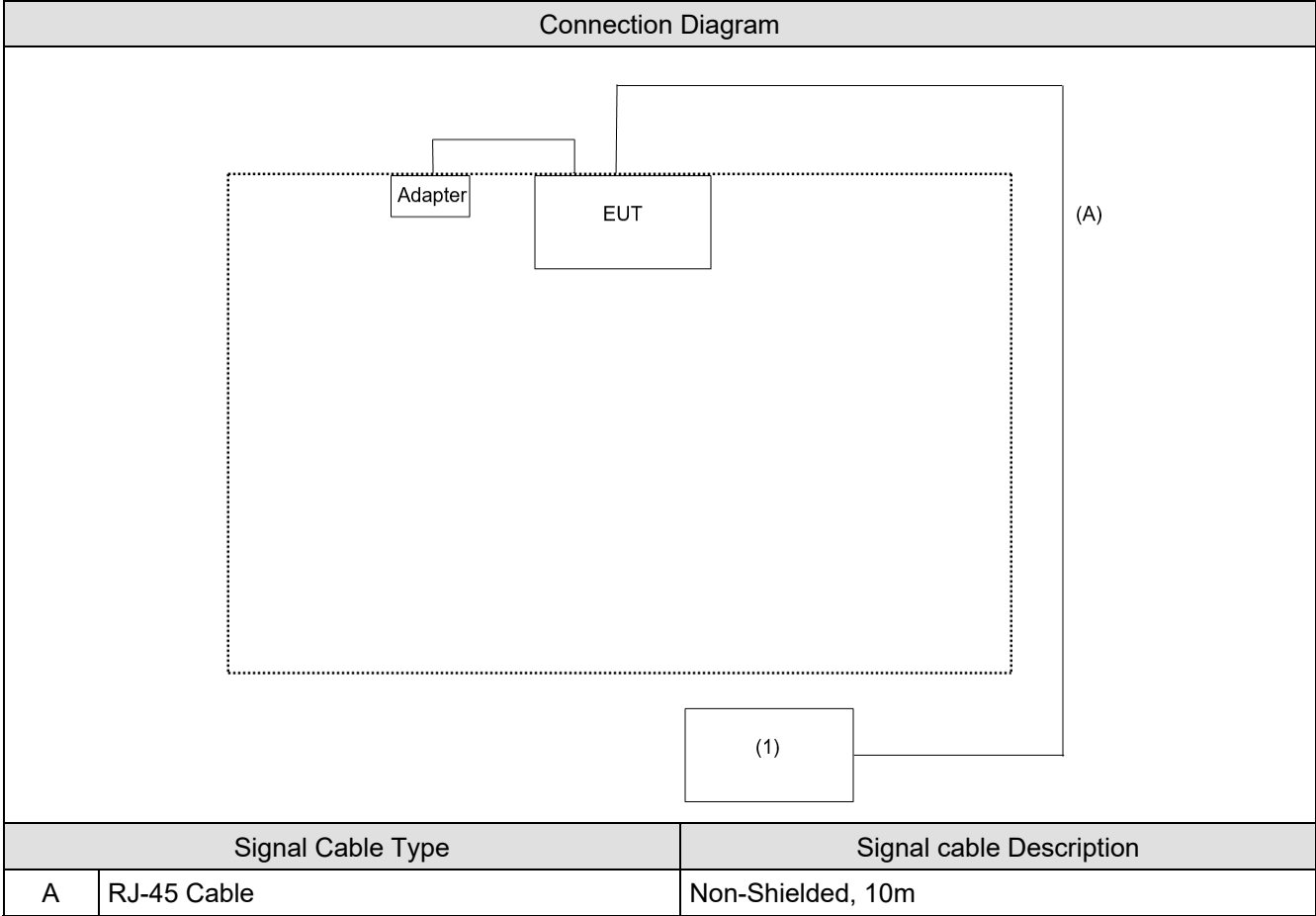
### Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For radiated spurious emission below 1 GHz and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
3. The modulation and bandwidth are similar for 802.11n mode for HT20/HT40, 802.11ac mode for VHT20/VHT40/VHT80/VHT160 and 802.11ax mode for HEW20/HEW40/HEW80/HEW160, therefore investigated worst case to representative mode in test report.
4. The EUT was performed at X axis, Y axis and Z axis position for transmitter radiated spurious emission test. The worst case was found at Y axis, so the measurement will follow this same test configuration.

2.5. Tested System Details

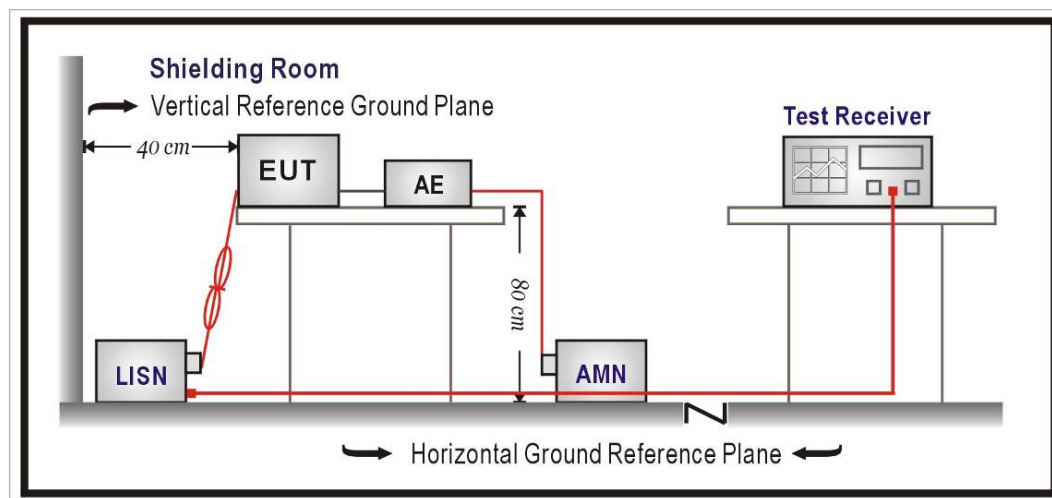
| No. | Equipment | Brand Name | Model No.                | Serial No. |
|-----|-----------|------------|--------------------------|------------|
| 1   | Notebook  | Lenovo     | Lenovo Ideapad 110 15IBR | PF01EUZD   |

2.6. Configuration of tested System



### 3. AC Power Line Conducted Emission

#### 3.1. Test Setup



#### 3.2. Test Limit

| Frequency (MHz) | QP (dBuV) | AV (dBuV) |
|-----------------|-----------|-----------|
| 0.15 - 0.50     | 66 - 56   | 56 - 46   |
| 0.50 - 5.0      | 56        | 46        |
| 5.0 - 30        | 60        | 50        |

Remark: In the above table, the tighter limit applies at the band edges.

#### 3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

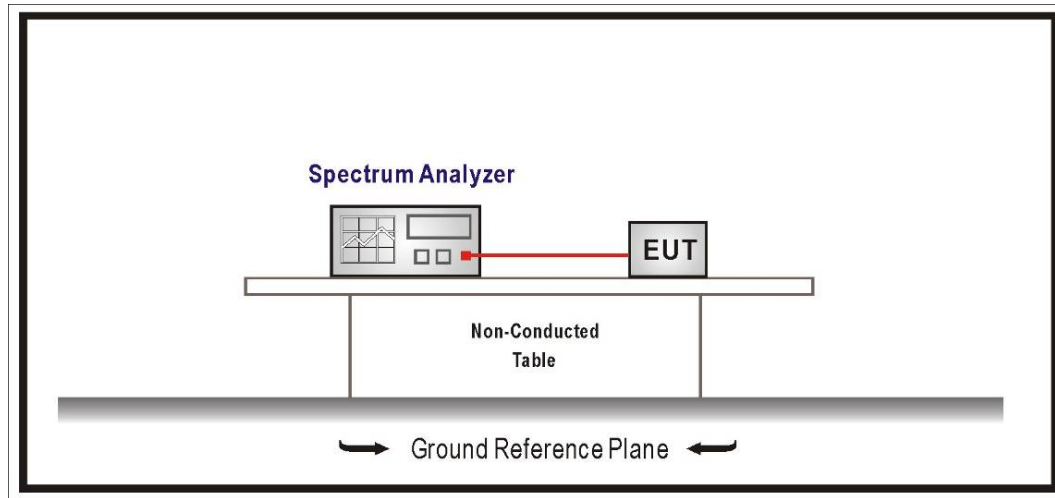
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

#### 3.4. Test Result of AC Power Line Conducted Emission

Refer as Appendix A

## 4. Emission Bandwidth

### 4.1. Test Setup



### 4.2. Test Limit

99% & 26dB Bandwidth : No Required

6dB Bandwidth  $\geq$  500kHz

### 4.3. Test Procedure

99% & 26dB Bandwidth :

The EUT was tested according to U-NII test procedure of KDB 789033.

Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

DTS Bandwidth :

Set RBW = 100kHz, VBW  $\geq$  3xRBW, Sweep time=Auto, Set Peak detector.

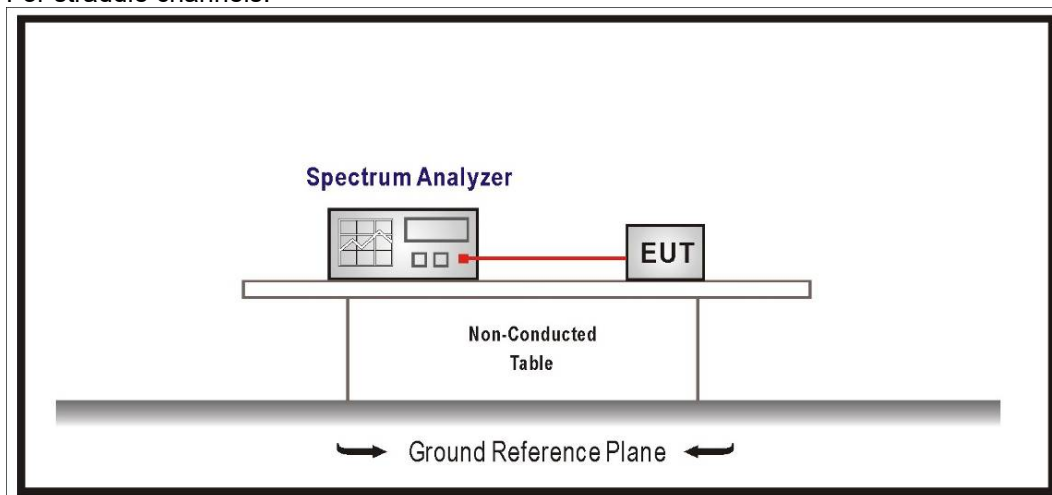
### 4.4. Test Result of Emission Bandwidth

Refer as Appendix B

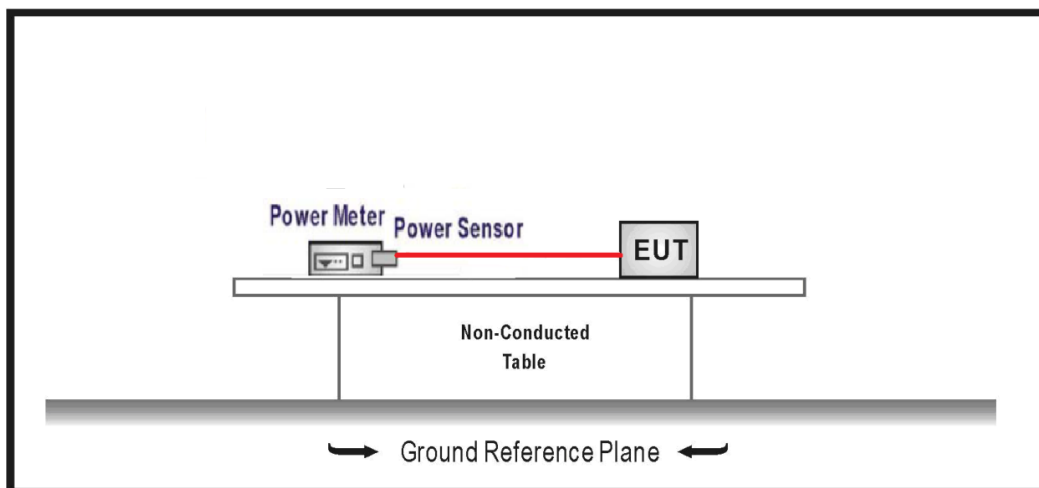
## 5. Maximum Conducted Output Power

### 5.1. Test Setup

For straddle channels:



For othes channels:



## 5.2. Test Limit

1. For an outdoor access point and an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
4. For the band 5.850–5.895 GHz:  
For an indoor access point, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm. Indoor access points operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 36 dBm.  
For client devices, the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm. Client devices operating on a channel that spans the 5.725–5.850 GHz and 5.850–5.895 GHz bands must not exceed an e.i.r.p. of 30 dBm.  
For a subordinate device, the maximum e.i.r.p. over the frequency band of operation must not exceed 36 dBm.

## 5.3. Test Procedure

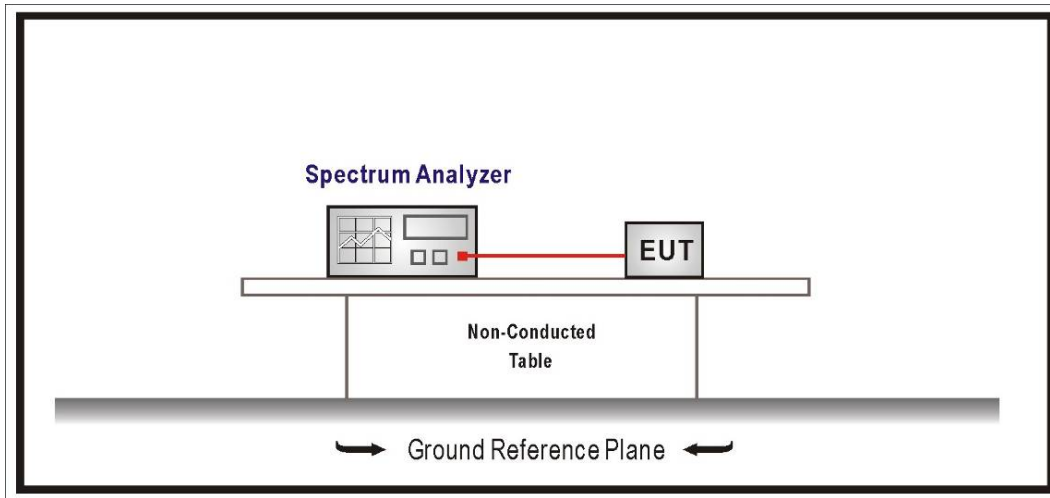
The EUT was setup to ANSI C63.10: 2013; tested according to U-NII test procedure of KDB 789033.

## 5.4. Test Result of Maximum Conducted Output Power

Refer as Appendix C

## 6. Maximum Power Spectral Density

### 6.1. Test Setup



### 6.2. Test Limit

1. For the band 5.15 ~ 5.25 GHz, the peak power spectral density shall not exceed 17 dBm in any 1 MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For client devices in the 5.15 ~ 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi
3. For the 5.25 ~ 5.35 GHz ,5470 ~ 5600 MHz and 5650 ~ 5725 MHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
4. For the band 5.725 ~ 5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
5. The frequency band 5.850 ~ 5.895 GHz:  
For an indoor access point operating in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 20 dBm e.i.r.p. in any 1–megahertz band.  
For client devices operating under the control of an indoor access point in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 14 dBm e.i.r.p. in any 1-megahertz band.  
For a subordinate device operating under the control of an indoor access point in the 5.850–5.895 GHz band, the maximum power spectral density must not exceed 20 dBm e.i.r.p in any 1–megahertz band.

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### **6.3. Test Procedure**

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033.

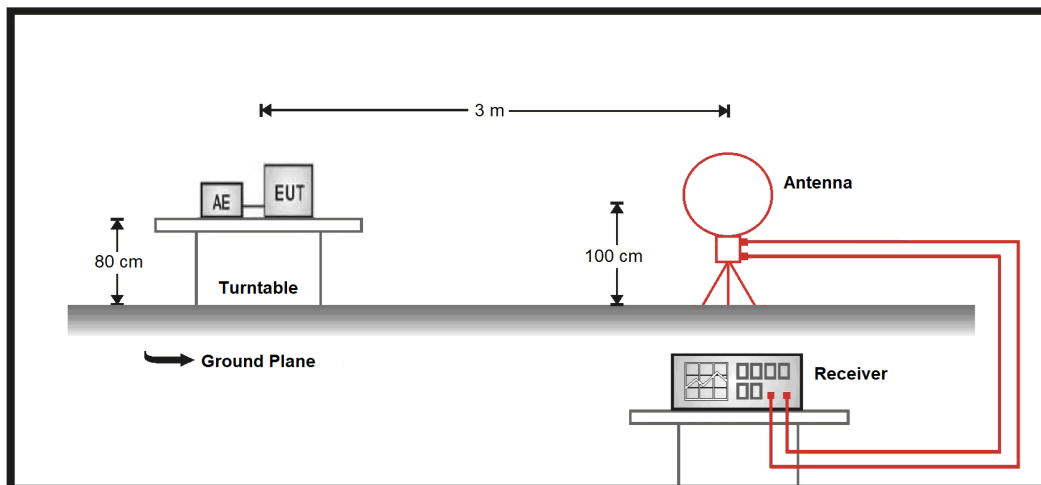
### **6.4. Test Result of Maximum Power Spectral Density**

Refer as Appendix D

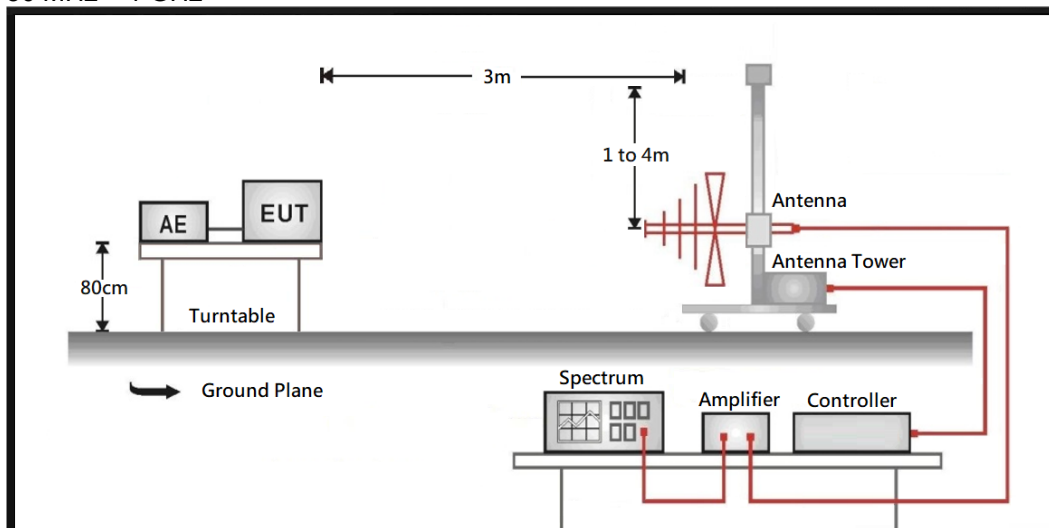
## 7. Transmitter Radiated Spurious Emission

### 7.1. Test Setup

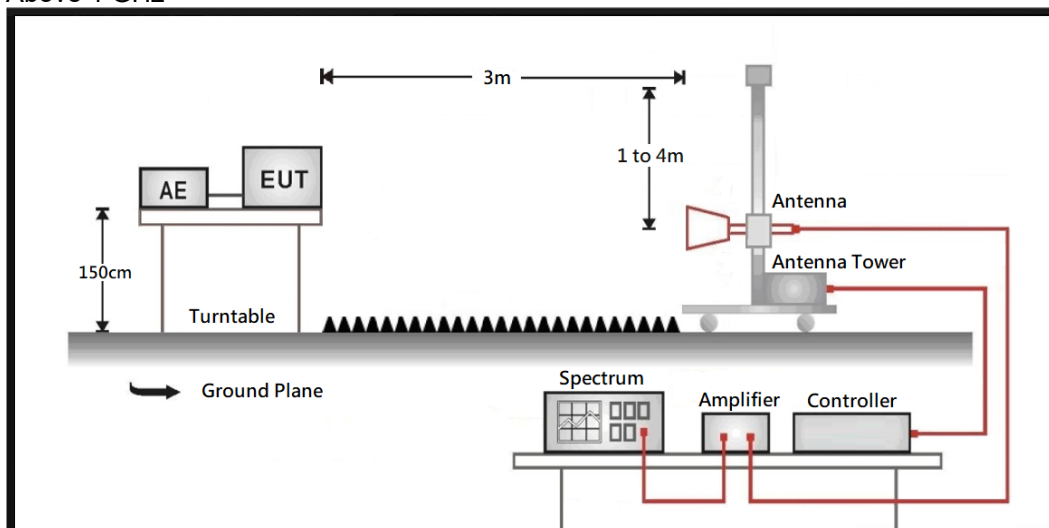
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



## 7.2. Test Limit

| Frequency (MHz) | Field strength (uV/m) | Field strength (dBuV/m) | Measurement distance (m) |
|-----------------|-----------------------|-------------------------|--------------------------|
| 0.009 – 0.490   | 2400/F(kHz)           | 20 log (2400/F(kHz))    | 300                      |
| 0.490 – 1.705   | 24000/F(kHz)          | 20 log (24000/F(kHz))   | 30                       |
| 1.705 - 30      | 30                    | 29.5                    | 30                       |
| 30 - 88         | 100                   | 40                      | 3                        |
| 88 - 216        | 150                   | 43.5                    | 3                        |
| 216 - 960       | 200                   | 46                      | 3                        |
| Above 960       | 500                   | 54                      | 3                        |

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

### Unwanted Emission out of the restricted bands Test Limit

| Frequency (MHz) | EIRP Limit (dBm/MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Equivalent Field Strength (dBuV/m@3m) |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| 5150 – 5250     | -27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 68.2                                  |
| 5250 – 5350     | -27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 68.2                                  |
| 5470 – 5725     | -27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 68.2                                  |
| 5725 – 5850     | -27 <sup>*1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 68.2 <sup>*1</sup>                    |
|                 | 10 <sup>*2</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 105.2 <sup>*2</sup>                   |
|                 | 15.6 <sup>*3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 110.8 <sup>*3</sup>                   |
|                 | 27 <sup>*4</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 122.2 <sup>*4</sup>                   |
| 5850 – 5895     | (i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of -7 dBm/MHz at or above 5.925 GHz.<br>(ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz.<br>(iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz. |                                       |

<sup>\*1</sup> beyond 75 MHz or more above of the band edge.  
<sup>\*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.  
<sup>\*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.  
<sup>\*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Remark:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ uV/m, where P is the eirp (Watts).}$$

### 7.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The additional latch filter below 1 GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1 GHz setting on the field strength meter is 120 kHz, above 1 GHz are 1 MHz.

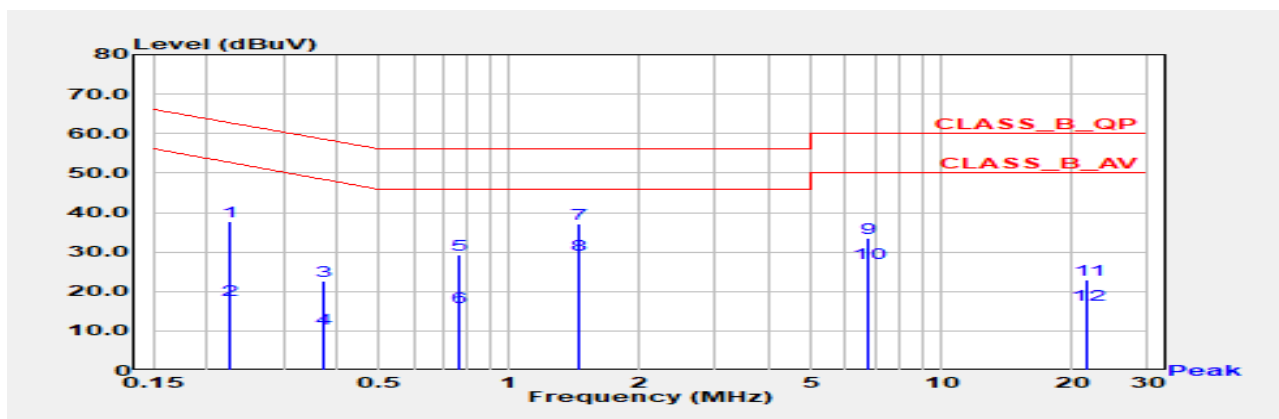
The frequency range from 9 kHz to 10th harmonics and included The frequency range from the lowest oscillator frequency generated within the device up to the 10th harmonic was checked is checked.

### 7.4. Test Result of Transmitter Radiated Spurious Emission

Refer as Appendix E

## Appendix A. Test Result of AC Power Line Conducted Emission

|                |                                      |       |      |
|----------------|--------------------------------------|-------|------|
| Test Mode      | Mode 1: EUT + Adapter 1              | Phase | Line |
| Test Condition | 802.11a / Ant. 1 + Ant. 2 / 5700 MHz |       |      |

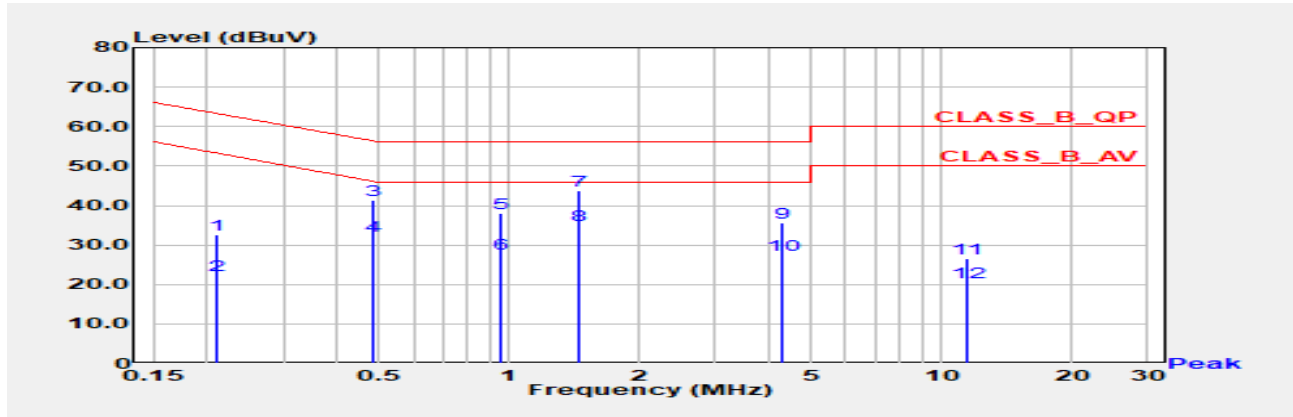


| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1  | 0.226           | 37.67                 | 62.58        | -24.90      | 28.06                | 9.62                | QP            |
| 2  | 0.226           | 17.76                 | 52.58        | -34.82      | 8.14                 | 9.62                | AV            |
| 3  | 0.370           | 22.56                 | 58.49        | -35.93      | 12.93                | 9.64                | QP            |
| 4  | 0.370           | 10.47                 | 48.49        | -38.02      | 0.83                 | 9.64                | AV            |
| 5  | 0.764           | 29.34                 | 56.00        | -26.66      | 19.66                | 9.68                | QP            |
| 6  | 0.764           | 16.04                 | 46.00        | -29.96      | 6.37                 | 9.68                | AV            |
| 7  | 1.441           | 37.18                 | 56.00        | -18.82      | 27.46                | 9.72                | QP            |
| *8 | 1.441           | 29.31                 | 46.00        | -16.69      | 19.59                | 9.72                | AV            |
| 9  | 6.724           | 33.63                 | 60.00        | -26.37      | 23.67                | 9.96                | QP            |
| 10 | 6.724           | 27.18                 | 50.00        | -22.82      | 17.22                | 9.96                | AV            |
| 11 | 21.808          | 23.04                 | 60.00        | -36.96      | 12.65                | 10.39               | QP            |
| 12 | 21.808          | 16.53                 | 50.00        | -33.47      | 6.14                 | 10.39               | AV            |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

|                |                                      |       |         |
|----------------|--------------------------------------|-------|---------|
| Test Mode      | Mode 1: EUT + Adapter 1              | Phase | Neutral |
| Test Condition | 802.11a / Ant. 1 + Ant. 2 / 5700 MHz |       |         |



| No | Frequency (MHz) | Emission Level (dBuV) | Limit (dBuV) | Margin (dB) | Reading Level (dBuV) | Correct Factor (dB) | Detector Type |
|----|-----------------|-----------------------|--------------|-------------|----------------------|---------------------|---------------|
| 1  | 0.211           | 32.50                 | 63.18        | -30.67      | 22.89                | 9.62                | QP            |
| 2  | 0.211           | 22.38                 | 53.18        | -30.79      | 12.77                | 9.62                | AV            |
| 3  | 0.485           | 41.42                 | 56.25        | -14.83      | 31.78                | 9.64                | QP            |
| 4  | 0.485           | 32.33                 | 46.25        | -13.92      | 22.69                | 9.64                | AV            |
| 5  | 0.958           | 37.93                 | 56.00        | -18.07      | 28.24                | 9.70                | QP            |
| 6  | 0.958           | 27.91                 | 46.00        | -18.09      | 18.21                | 9.70                | AV            |
| 7  | 1.441           | 43.86                 | 56.00        | -12.14      | 34.14                | 9.72                | QP            |
| *8 | 1.441           | 35.08                 | 46.00        | -10.92      | 25.35                | 9.72                | AV            |
| 9  | 4.276           | 35.58                 | 56.00        | -20.42      | 25.71                | 9.87                | QP            |
| 10 | 4.276           | 27.48                 | 46.00        | -18.52      | 17.61                | 9.87                | AV            |
| 11 | 11.391          | 26.46                 | 60.00        | -33.54      | 16.28                | 10.18               | QP            |
| 12 | 11.391          | 20.61                 | 50.00        | -29.39      | 10.43                | 10.18               | AV            |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

## Appendix B. Test Result of Emission Bandwidth

| Modulation | Frequency (MHz) | 99% Bandwidth (MHz) |        | 26dB Bandwidth (MHz) |        | Limit (MHz)          |               |
|------------|-----------------|---------------------|--------|----------------------|--------|----------------------|---------------|
|            |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% & 26dB Bandwidth |               |
| 802.11a    | 5180            | 17.902              | 17.302 | 28.492               | 23.736 | -                    |               |
|            | 5220            | 18.501              | 17.862 | 29.051               | 27.892 | -                    |               |
|            | 5240            | 18.501              | 17.822 | 29.770               | 27.013 | -                    |               |
|            | 5260            | 19.220              | 17.862 | 31.528               | 27.053 | -                    |               |
|            | 5300            | 19.340              | 19.420 | 29.890               | 29.730 | -                    |               |
|            | 5320            | 17.222              | 18.061 | 23.656               | 25.534 | -                    |               |
|            | 5500            | 17.902              | 17.182 | 25.455               | 23.816 | -                    |               |
|            | 5580            | 18.741              | 17.902 | 33.247               | 29.171 | -                    |               |
|            | 5700            | 18.141              | 17.182 | 30.490               | 24.296 | -                    |               |
|            | 5720 (U-NII-2C) | 14.031              | 13.712 | 18.507               | 19.826 | -                    |               |
| Modulation | Frequency (MHz) | 99% Bandwidth (MHz) |        | DTS Bandwidth (MHz)  |        | Limit (MHz)          |               |
|            |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% Bandwidth        | DTS Bandwidth |
| 802.11a    | 5720 (U-NII-3)  | 3.951               | 3.550  | 3.072                | 3.112  | -                    | 0.50          |
|            | 5745            | 18.261              | 17.622 | 16.304               | 16.344 | -                    | 0.50          |
|            | 5785            | 19.740              | 18.301 | 16.344               | 16.344 | -                    | 0.50          |
|            | 5825            | 18.341              | 17.662 | 16.344               | 16.344 | -                    | 0.50          |

| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | 26dB Bandwidth (MHz) |        | Limit (MHz)          |               |
|-------------------|-----------------|---------------------|--------|----------------------|--------|----------------------|---------------|
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% & 26dB Bandwidth |               |
| 802.11ax (20 MHz) | 5180            | 19.540              | 19.580 | 26.014               | 25.574 | -                    |               |
|                   | 5220            | 19.620              | 19.460 | 26.054               | 25.335 | -                    |               |
|                   | 5240            | 19.700              | 19.500 | 26.374               | 25.375 | -                    |               |
|                   | 5260            | 19.740              | 19.340 | 26.214               | 25.335 | -                    |               |
|                   | 5300            | 19.660              | 19.380 | 26.254               | 24.775 | -                    |               |
|                   | 5320            | 19.660              | 19.540 | 27.053               | 25.415 | -                    |               |
|                   | 5500            | 19.780              | 19.380 | 26.014               | 25.854 | -                    |               |
|                   | 5580            | 19.380              | 19.340 | 26.853               | 25.095 | -                    |               |
|                   | 5700            | 19.820              | 19.460 | 25.415               | 25.654 | -                    |               |
|                   | 5720 (U-NII-2C) | 14.911              | 14.831 | 18.787               | 18.107 | -                    |               |
| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | DTS Bandwidth (MHz)  |        | Limit (MHz)          |               |
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% Bandwidth        | DTS Bandwidth |
| 802.11ax (20 MHz) | 5720 (U-NII-3)  | 4.869               | 4.669  | 4.430                | 4.390  | -                    | 0.50          |
|                   | 5745            | 19.980              | 19.540 | 18.981               | 18.941 | -                    | 0.50          |
|                   | 5785            | 19.980              | 19.660 | 18.941               | 18.981 | -                    | 0.50          |
|                   | 5825            | 19.860              | 19.540 | 18.941               | 18.941 | -                    | 0.50          |

| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | 26dB Bandwidth (MHz) |        | Limit (MHz)          |               |
|-------------------|-----------------|---------------------|--------|----------------------|--------|----------------------|---------------|
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% & 26dB Bandwidth |               |
| 802.11ax (40 MHz) | 5190            | 37.962              | 38.041 | 45.075               | 43.716 | -                    |               |
|                   | 5230            | 38.021              | 38.201 | 46.034               | 44.436 | -                    |               |
|                   | 5270            | 38.121              | 38.121 | 45.874               | 42.997 | -                    |               |
|                   | 5310            | 38.041              | 38.041 | 45.315               | 44.515 | -                    |               |
|                   | 5510            | 38.121              | 38.041 | 44.595               | 44.036 | -                    |               |
|                   | 5550            | 38.201              | 38.041 | 49.471               | 44.436 | -                    |               |
|                   | 5670            | 38.201              | 38.041 | 62.737               | 44.595 | -                    |               |
| 802.11ax (40 MHz) | 5710 (U-NII-2C) | 34.501              | 34.101 | 55.000               | 40.895 | -                    |               |
| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | DTS Bandwidth (MHz)  |        | Limit (MHz)          |               |
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% Bandwidth        | DTS Bandwidth |
| 802.11ax (40 MHz) | 5710 (U-NII-3)  | 4.420               | 4.100  | 3.861                | 3.861  | -                    | 0.50          |
|                   | 5755            | 41.558              | 38.281 | 37.962               | 37.882 | -                    | 0.50          |
|                   | 5795            | 42.517              | 38.361 | 37.962               | 37.802 | -                    | 0.50          |

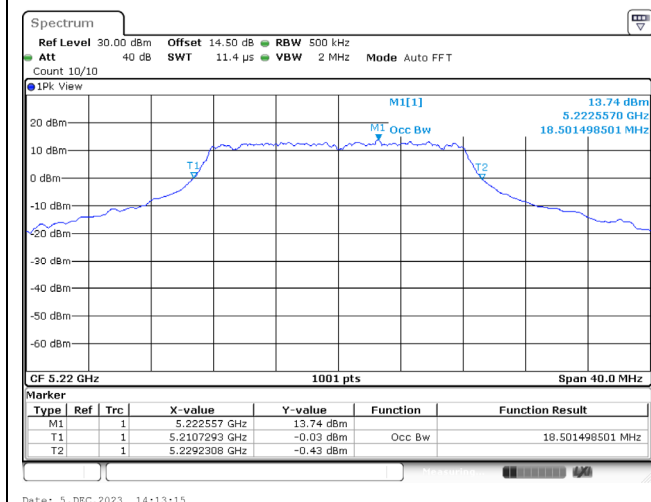
| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | 26dB Bandwidth (MHz) |        | Limit (MHz)          |               |
|-------------------|-----------------|---------------------|--------|----------------------|--------|----------------------|---------------|
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% & 26dB Bandwidth |               |
| 802.11ax (80 MHz) | 5210            | 77.842              | 77.522 | 85.670               | 83.440 | -                    |               |
|                   | 5290            | 77.842              | 77.842 | 87.750               | 84.880 | -                    |               |
|                   | 5530            | 77.522              | 77.522 | 85.510               | 84.400 | -                    |               |
|                   | 5610            | 77.682              | 77.682 | 87.750               | 85.030 | -                    |               |
|                   | 5690 (U-NII-2C) | 74.321              | 73.841 | 111.244              | 88.227 | -                    |               |
| Modulation        | Frequency (MHz) | 99% Bandwidth (MHz) |        | DTS Bandwidth (MHz)  |        | Limit (MHz)          |               |
|                   |                 | Ant. 1              | Ant. 2 | Ant. 1               | Ant. 2 | 99% Bandwidth        | DTS Bandwidth |
| 802.11ax (80 MHz) | 5690 (U-NII-3)  | 4.000               | 3.841  | 3.519                | 3.519  | -                    | 0.50          |
|                   | 5755            | 78.321              | 77.842 | 77.520               | 77.520 | -                    | 0.50          |

| Modulation         | Frequency (MHz) | 99% Bandwidth (MHz) |         | 26dB Bandwidth (MHz) |         | Limit (MHz)          |  |
|--------------------|-----------------|---------------------|---------|----------------------|---------|----------------------|--|
|                    |                 | Ant. 1              | Ant. 2  | Ant. 1               | Ant. 2  | 99% & 26dB Bandwidth |  |
| 802.11ax (160 MHz) | 5250 (U-NII-1)  | 78.322              | 78.322  | 82.797               | 81.838  | -                    |  |
|                    | 5250 (U-NII-2A) | 78.641              | 78.321  | 85.673               | 81.202  | -                    |  |
|                    | 5570            | 156.963             | 157.282 | 168.150              | 163.040 | -                    |  |

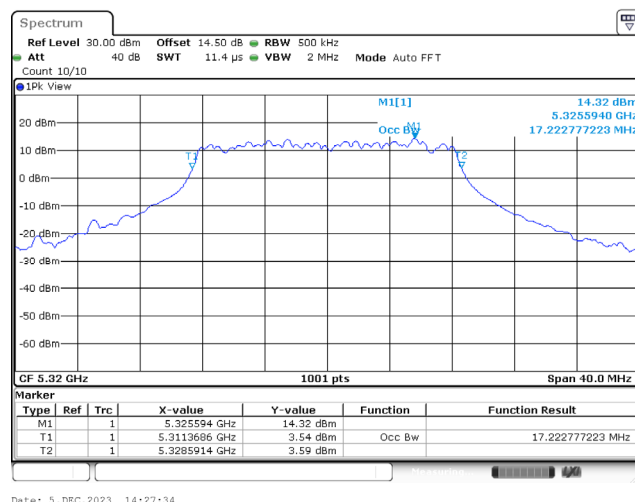
For 99% Bandwidth:

### Spectrum plot of worst value

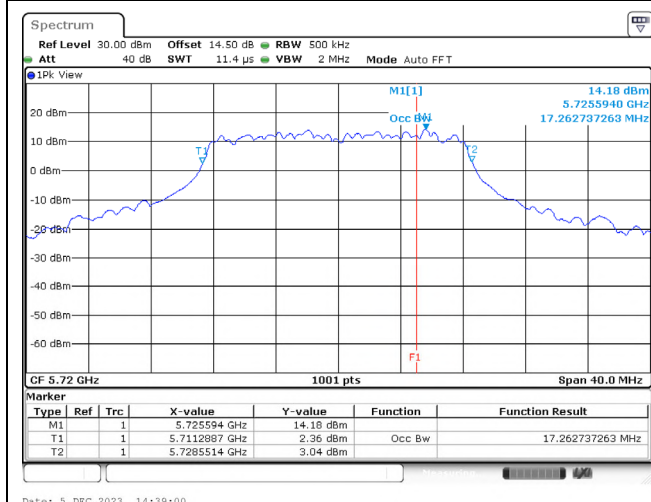
802.11a / Ant. 1 / 5220 MHz (U-NII-1)



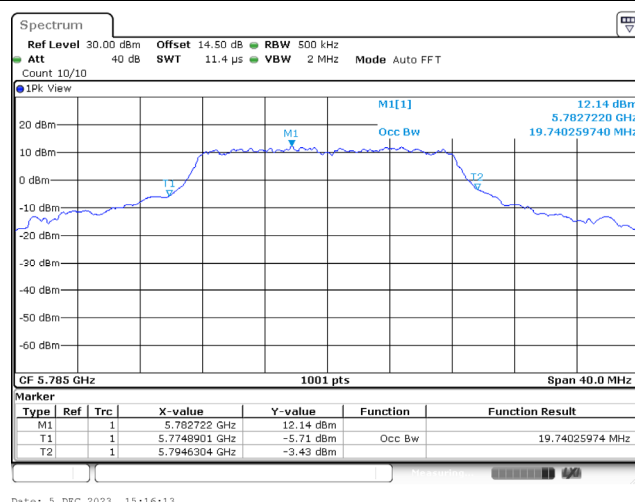
802.11a / Ant. 1 / 5320 MHz (U-NII-2A)



802.11a / Ant. 2 / 5720 MHz (U-NII-2C)

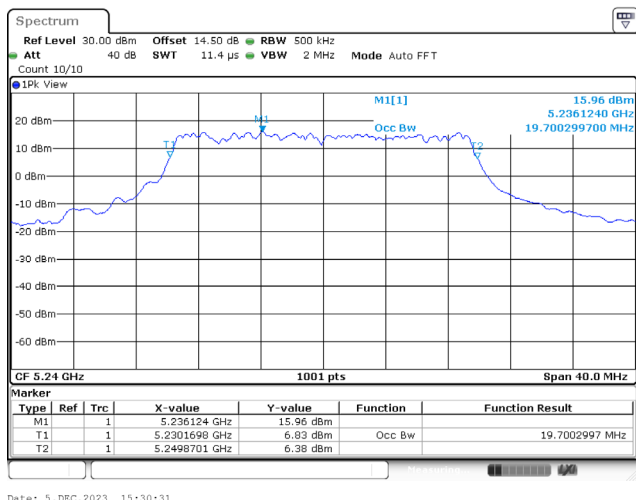


802.11a / Ant. 1 / 5785 MHz (U-NII-3)

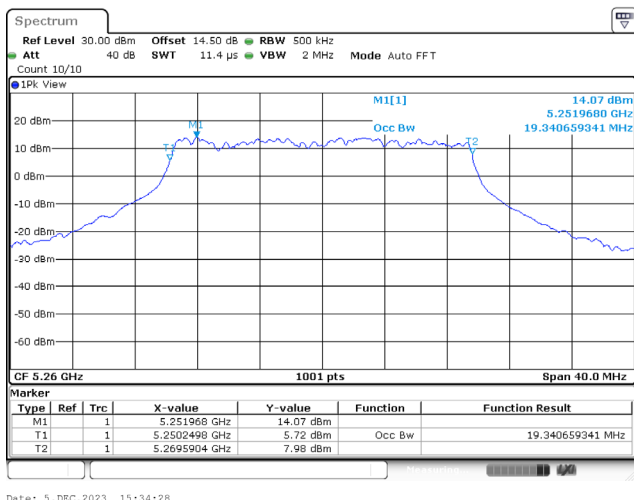


## Spectrum plot of worst value

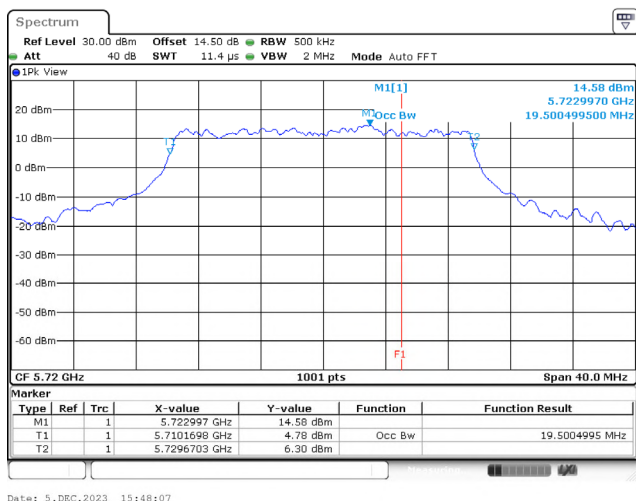
802.11ax (20 MHz) / Ant. 1 / 5240 MHz (U-NII-1)



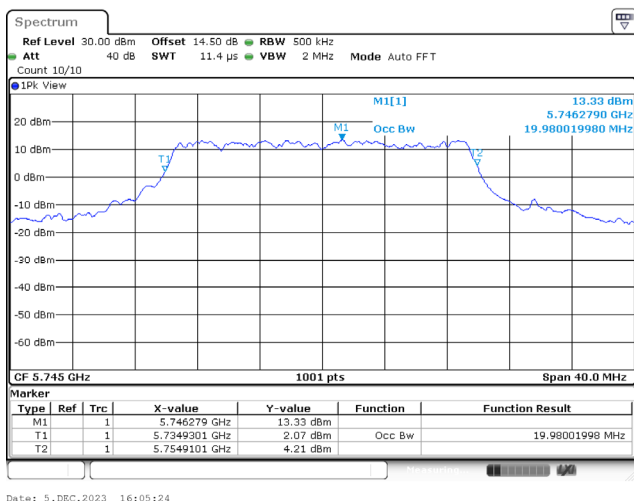
802.11ax (20 MHz) / Ant. 2 / 5260 MHz (U-NII-2A)



802.11ax (20 MHz) / Ant. 2 / 5720 MHz (U-NII-2C)

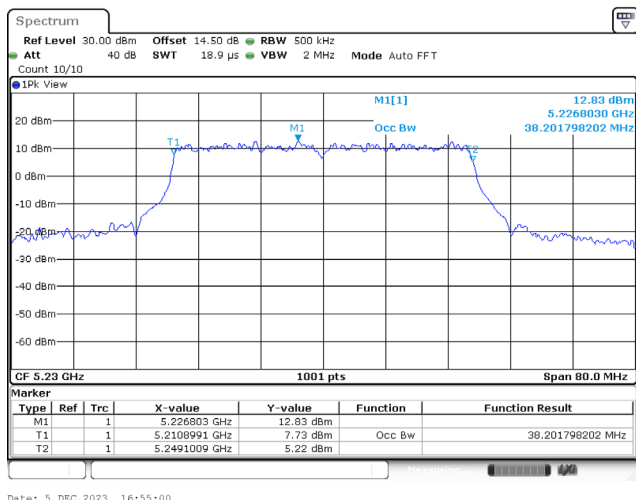


802.11ax (20 MHz) / Ant. 1 / 5745 MHz (U-NII-3)

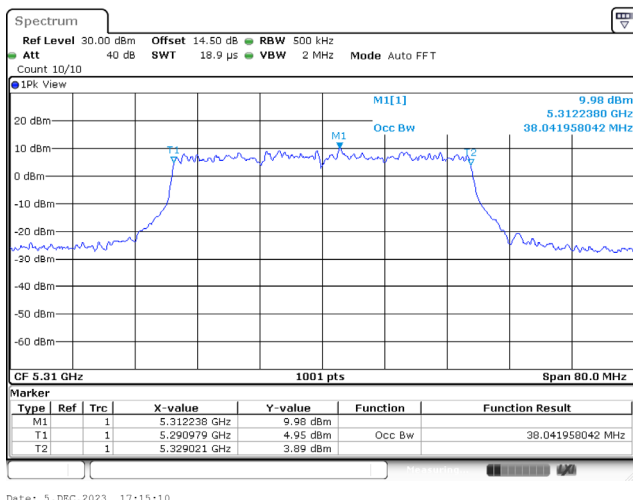


## Spectrum plot of worst value

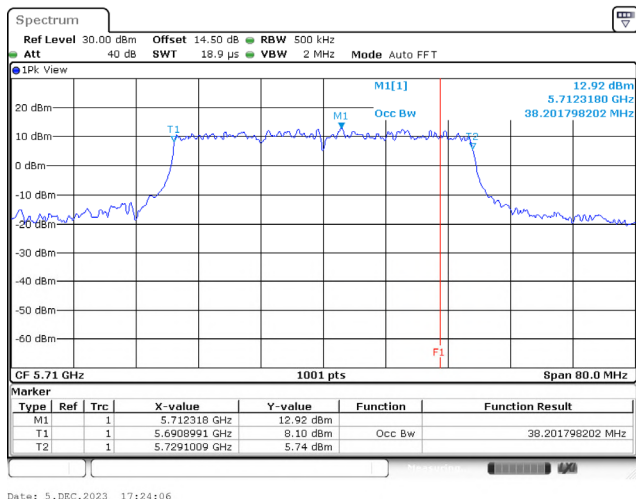
802.11ax (40 MHz) / Ant. 2 / 5230 MHz (U-NII-1)



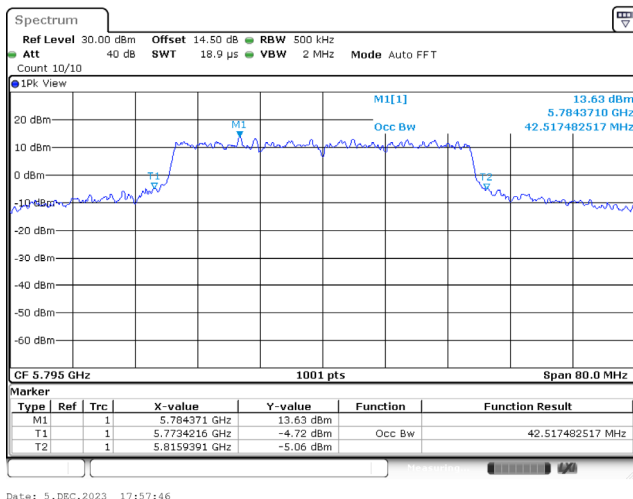
802.11ax (40 MHz) / Ant. 1 / 5310 MHz (U-NII-2A)



802.11ax (40 MHz) / Ant. 2 / 5710 MHz (U-NII-2C)

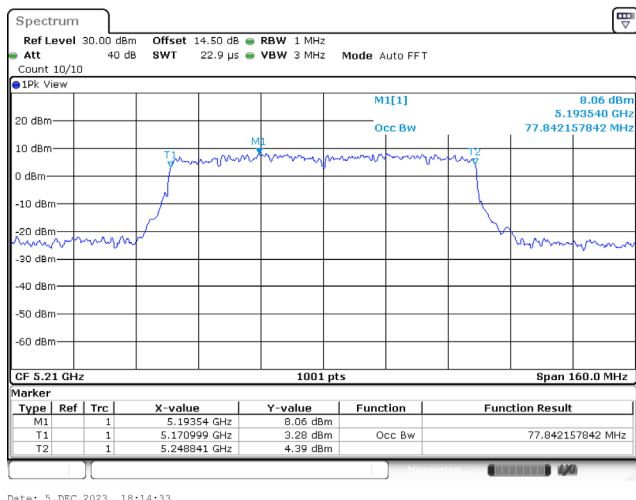


802.11ax (40 MHz) / Ant. 1 / 5795 MHz (U-NII-3)

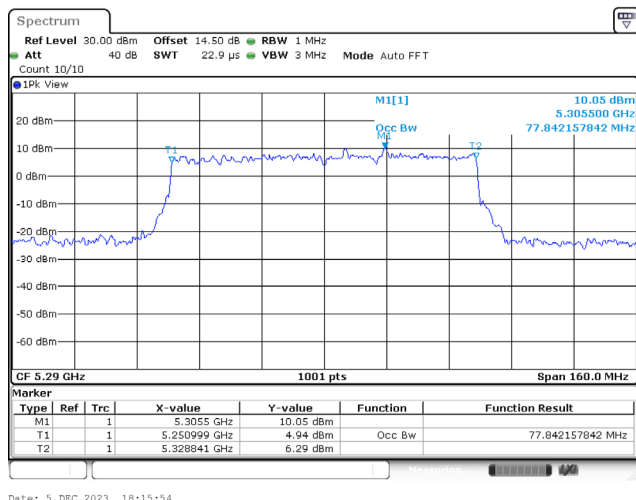


## Spectrum plot of worst value

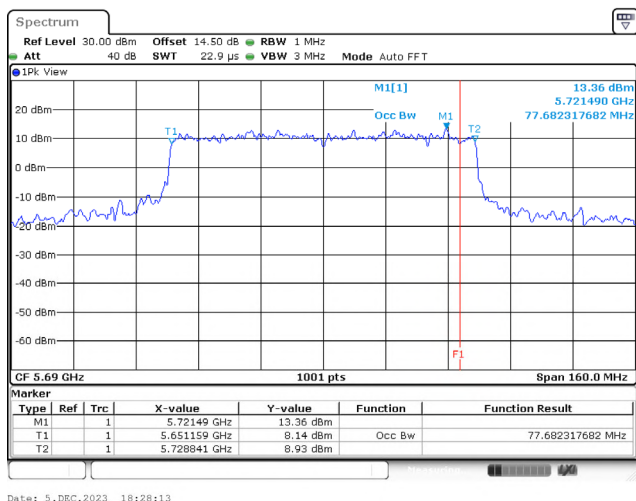
802.11ax (80 MHz) / Ant. 1 / 5210 MHz (U-NII-1)



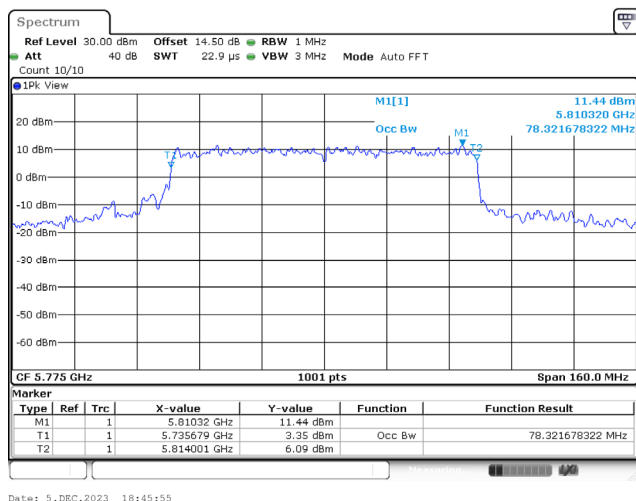
802.11ax (80 MHz) / Ant. 1 / 5290 MHz (U-NII-2A)



802.11ax (80 MHz) / Ant. 2 / 5690 MHz (U-NII-2C)

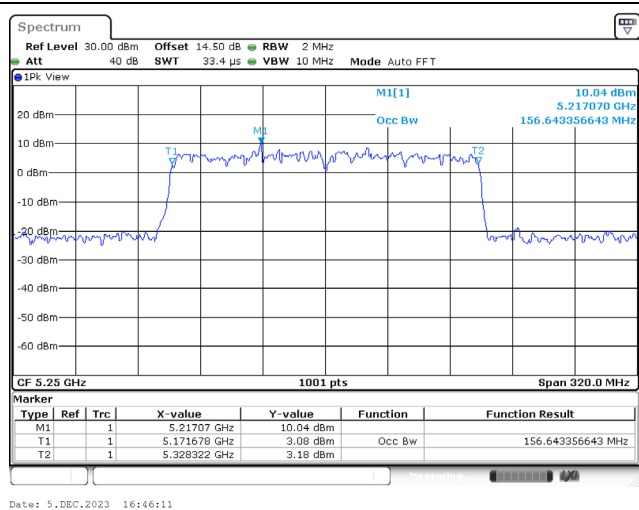


802.11ax (80 MHz) / Ant. 1 / 5775 MHz (U-NII-3)

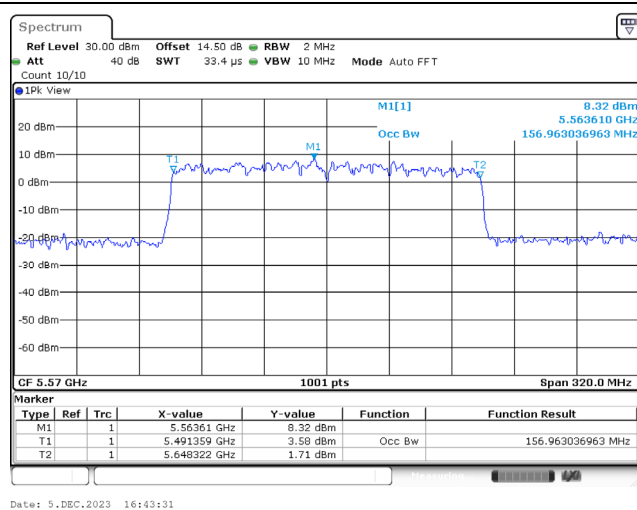


### Spectrum plot of worst value

802.11ax (160 MHz) / Ant. 2 / 5250 MHz (U-NII-1 and U-NII-2A)



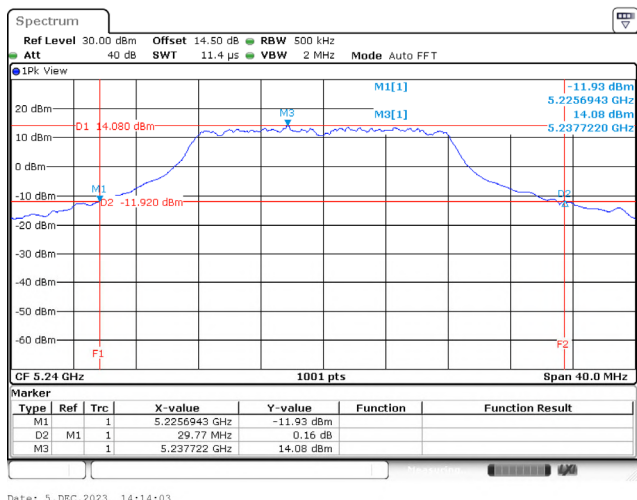
802.11ax (160 MHz) / Ant. 1 / 5570 MHz (U-NII-2C)



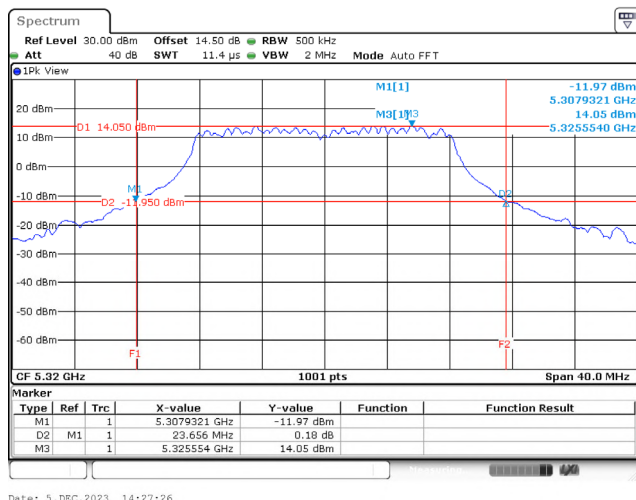
For 26dB Bandwidth:

### Spectrum plot of worst value

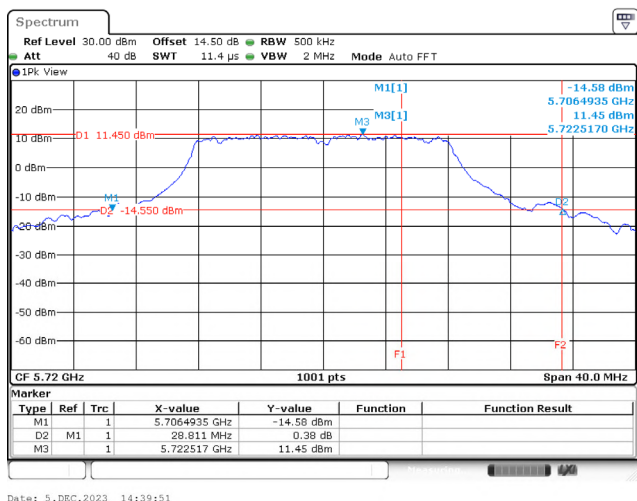
802.11a / Ant. 1 / 5240 MHz (U-NII-1)



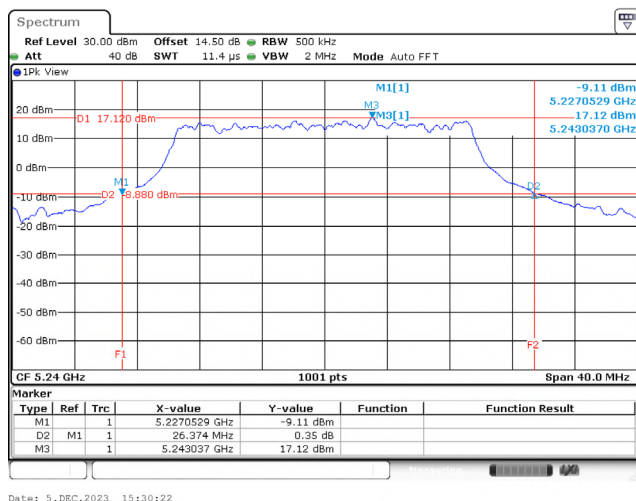
802.11a / Ant. 1 / 5320 MHz (U-NII-2A)



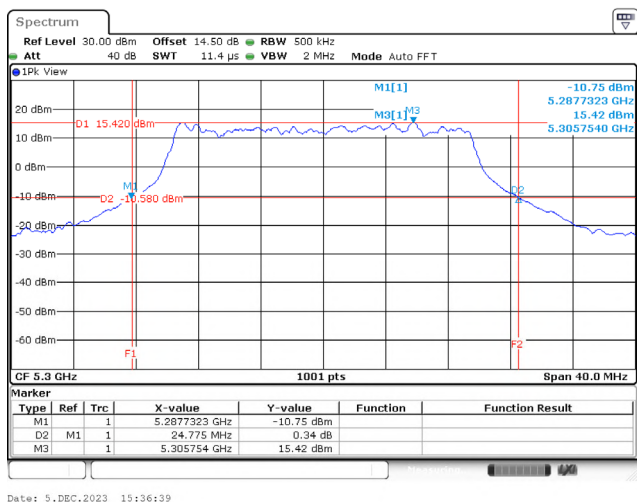
802.11a / Ant. 1 / 5720 MHz (U-NII-2C)



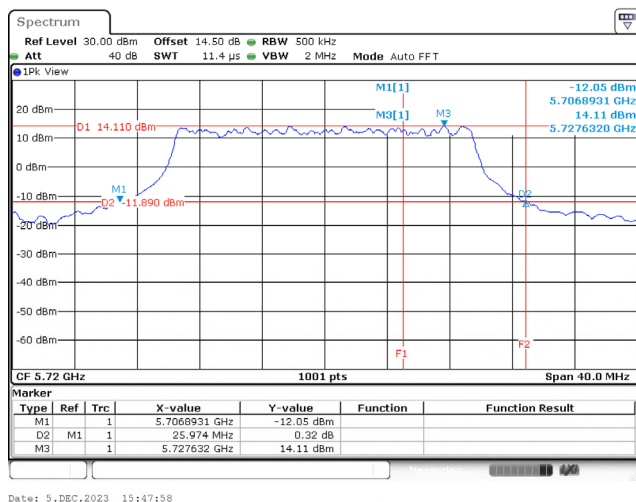
802.11ax (20 MHz) / Ant. 1 / 5240 MHz (U-NII-1)



802.11ax (20 MHz) / Ant. 2 / 5300 MHz (U-NII-2A)

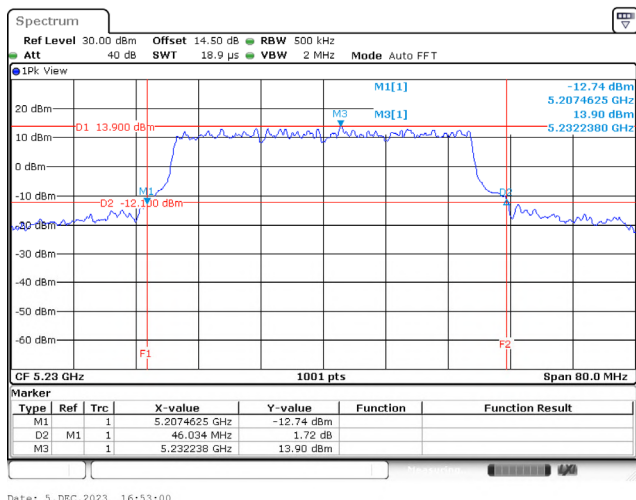


802.11ax (20 MHz) / Ant. 2 / 5720 MHz (U-NII-2C)

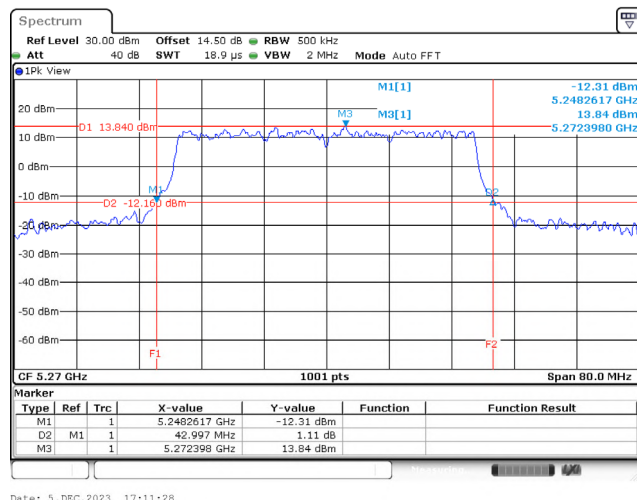


## Spectrum plot of worst value

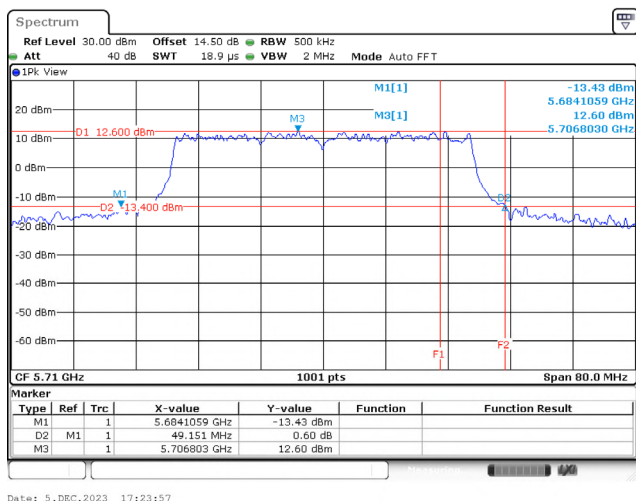
802.11ax (40 MHz) / Ant. 1 / 5230 MHz (U-NII-1)



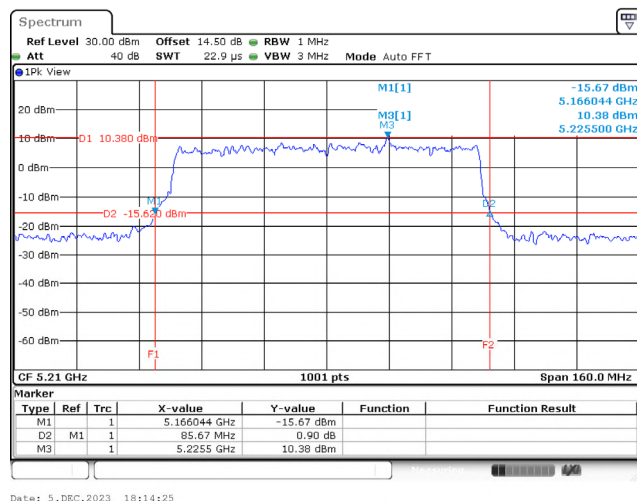
802.11ax (40 MHz) / Ant. 2 / 5270 MHz (U-NII-2A)



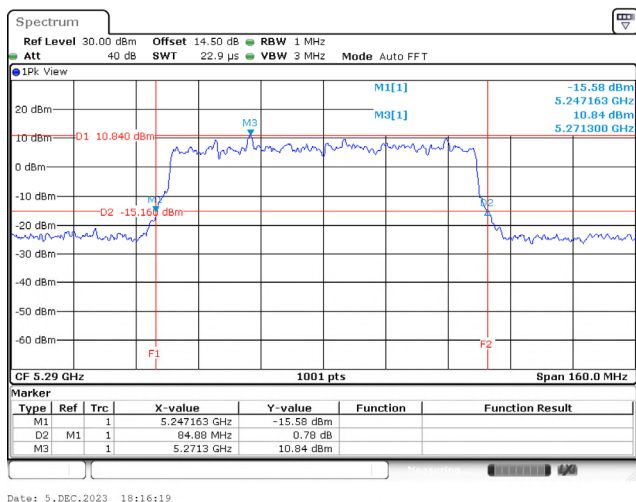
802.11ax (40 MHz) / Ant. 2 / 5710 MHz (U-NII-2C)



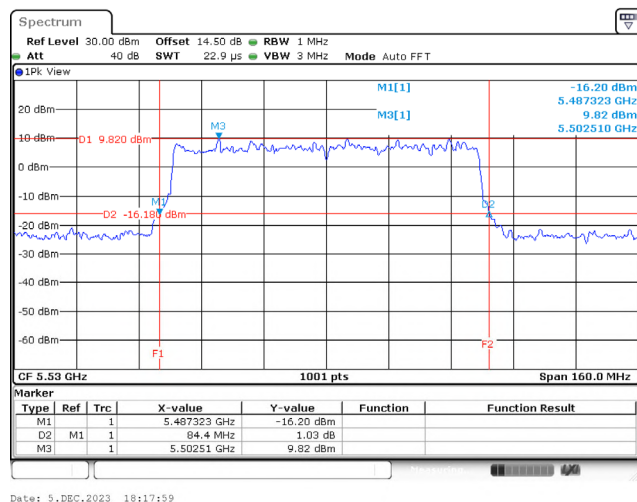
802.11ax (80 MHz) / Ant. 1 / 5210 MHz (U-NII-1)



802.11ax (80 MHz) / Ant. 2 / 5290 MHz (U-NII-2A)

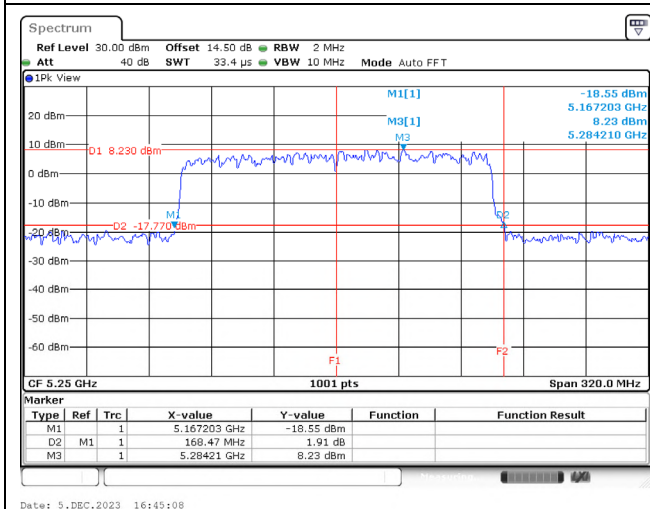


802.11ax (80 MHz) / Ant. 2 / 5530 MHz (U-NII-2C)

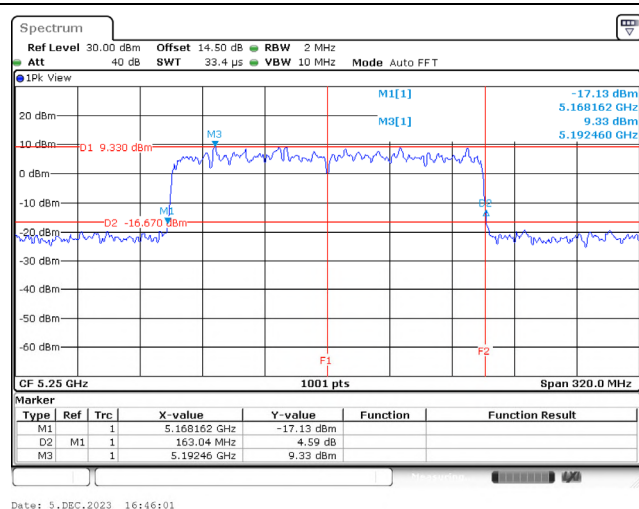


## Spectrum plot of worst value

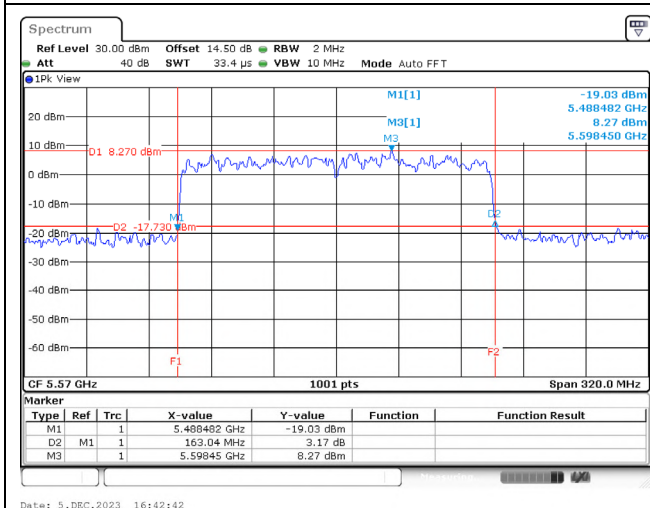
802.11ax (160 MHz) / Ant. 1 / 5250 MHz (U-NII-1)



802.11ax (160 MHz) / Ant. 2 / 5250 MHz (U-NII-2A)



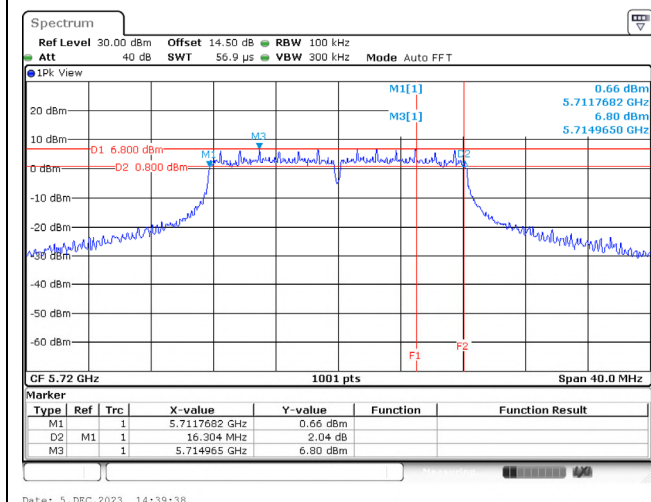
802.11ax (160 MHz) / Ant. 2 / 5570 MHz (U-NII-2C)



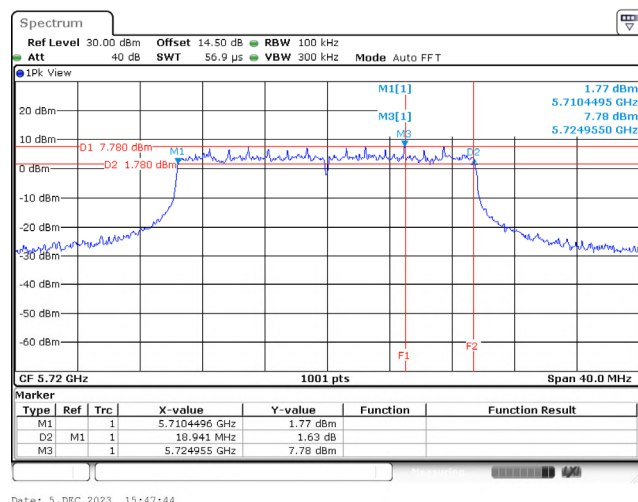
# For DTS Bandwidth:

## Spectrum plot of worst value

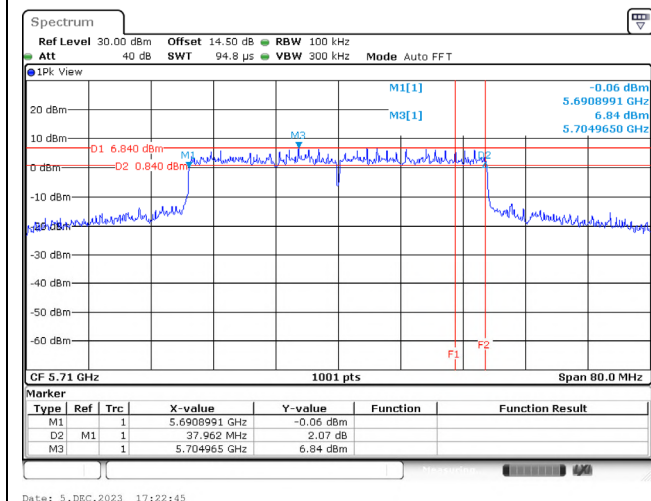
802.11a / Ant. 1 / 5720 MHz



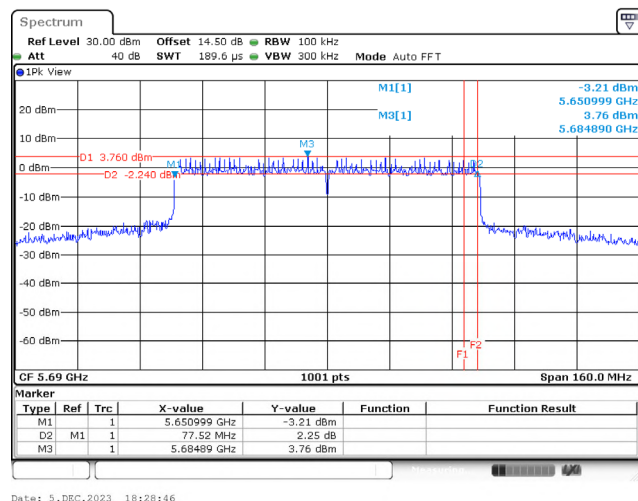
802.11ax (20 MHz) / Ant. 2 / 5720 MHz



802.11ax (40 MHz) / Ant. 1 / 5710 MHz



802.11ax (80 MHz) / Ant. 1 / 5690 MHz



## Appendix C. Test Result of Maximum Conducted Output Power

<Non-beamforming function>

| Modulation        | Frequency (MHz) | Maximum Conducted Output Power (dBm) |        |        |       |
|-------------------|-----------------|--------------------------------------|--------|--------|-------|
|                   |                 | Ant. 1                               | Ant. 2 | Total  | Limit |
| 802.11a           | 5180            | 20.820                               | 21.250 | 24.051 | 30.00 |
|                   | 5220            | 21.030                               | 21.160 | 24.106 | 30.00 |
|                   | 5240            | 21.260                               | 20.910 | 24.099 | 30.00 |
|                   | 5260            | 19.190                               | 19.250 | 22.230 | 24.00 |
|                   | 5300            | 20.010                               | 20.030 | 23.030 | 24.00 |
|                   | 5320            | 20.060                               | 20.020 | 23.050 | 24.00 |
|                   | 5500            | 18.880                               | 18.680 | 21.791 | 24.00 |
|                   | 5580            | 19.010                               | 19.140 | 22.086 | 24.00 |
|                   | 5700            | 18.910                               | 19.130 | 22.032 | 24.00 |
|                   | 5720 (U-NII-2C) | 17.300                               | 18.140 | 20.783 | 23.67 |
|                   | 5720 (U-NII-3)  | 11.200                               | 12.100 | 14.716 | 30.00 |
|                   | 5745            | 19.510                               | 20.170 | 22.863 | 30.00 |
|                   | 5785            | 19.310                               | 20.060 | 22.711 | 30.00 |
|                   | 5825            | 19.270                               | 20.050 | 22.688 | 30.00 |
| 802.11ax (20 MHz) | 5180            | 21.220                               | 21.660 | 24.456 | 30.00 |
|                   | 5220            | 21.250                               | 21.740 | 24.512 | 30.00 |
|                   | 5240            | 21.810                               | 21.580 | 24.707 | 30.00 |
|                   | 5260            | 19.540                               | 19.430 | 22.496 | 24.00 |
|                   | 5300            | 20.480                               | 20.550 | 23.525 | 24.00 |
|                   | 5320            | 20.660                               | 20.610 | 23.645 | 24.00 |
|                   | 5500            | 19.280                               | 19.190 | 22.246 | 24.00 |
|                   | 5580            | 19.890                               | 19.610 | 22.763 | 24.00 |
|                   | 5700            | 17.330                               | 17.450 | 20.401 | 24.00 |
|                   | 5720 (U-NII-2C) | 17.360                               | 18.190 | 20.930 | 23.58 |
|                   | 5720 (U-NII-3)  | 12.300                               | 13.260 | 15.942 | 30.00 |
|                   | 5745            | 19.880                               | 20.720 | 23.331 | 30.00 |
|                   | 5785            | 19.730                               | 20.620 | 23.208 | 30.00 |
|                   | 5825            | 19.510                               | 20.390 | 22.983 | 30.00 |
| 802.11ax (40 MHz) | 5190            | 19.690                               | 19.430 | 22.572 | 30.00 |
|                   | 5230            | 21.880                               | 21.610 | 24.757 | 30.00 |
|                   | 5270            | 20.890                               | 20.820 | 23.865 | 24.00 |
|                   | 5310            | 18.170                               | 17.910 | 21.052 | 24.00 |
|                   | 5510            | 18.550                               | 18.590 | 21.580 | 24.00 |
|                   | 5550            | 20.540                               | 20.150 | 23.360 | 24.00 |
|                   | 5670            | 20.810                               | 20.610 | 23.721 | 24.00 |
|                   | 5710 (U-NII-2C) | 20.450                               | 20.090 | 23.525 | 24.00 |
|                   | 5710 (U-NII-3)  | 11.190                               | 10.590 | 14.151 | 30.00 |
|                   | 5755            | 22.150                               | 22.220 | 25.195 | 30.00 |
|                   | 5795            | 21.660                               | 21.750 | 24.716 | 30.00 |

| Modulation         | Frequency (MHz) | Maximum Conducted Output Power (dBm) |        |        |       |
|--------------------|-----------------|--------------------------------------|--------|--------|-------|
|                    |                 | Ant. 1                               | Ant. 2 | Total  | Limit |
| 802.11ax (80 MHz)  | 5210            | 17.610                               | 17.810 | 20.721 | 30.00 |
|                    | 5290            | 18.310                               | 17.770 | 21.059 | 24.00 |
|                    | 5530            | 17.370                               | 17.650 | 20.523 | 24.00 |
|                    | 5610            | 20.240                               | 20.010 | 23.137 | 24.00 |
|                    | 5690 (U-NII-2C) | 20.490                               | 20.410 | 23.977 | 24.00 |
|                    | 5690 (U-NII-3)  | 7.690                                | 7.430  | 11.089 | 30.00 |
|                    | 5775            | 20.220                               | 20.150 | 23.195 | 30.00 |
| 802.11ax (160 MHz) | 5250 (U-NII-1)  | 13.020                               | 13.280 | 17.114 | 30.00 |
|                    | 5250 (U-NII-2A) | 13.760                               | 13.230 | 17.465 | 24.00 |
|                    | 5570            | 17.250                               | 17.460 | 20.367 | 24.00 |

Note:

1. 802.11a, 5720 MHz (U-NII-2C) limit =  $11 + 10 \cdot \log(B)$  or 24 dBm;  $11 + 10 \cdot \log(18.507) = 23.67 \text{ dBm} < 24 \text{ dBm}$ , so limit = 23.67 dBm.
2. 802.11ax (20 MHz), 5720 MHz (U-NII-2C) limit =  $11 + 10 \cdot \log(B)$  or 24 dBm;  $11 + 10 \cdot \log(18.107) = 23.58 \text{ dBm} < 24 \text{ dBm}$ , so limit = 23.58 dBm.
3. For straddle channels, the total power = conducted output power + duty factor, and the duty factor refer to section 2.3.

<Beamforming function>

| Modulation         | Frequency (MHz) | Maximum Conducted Output Power (dBm) |        |        |       |
|--------------------|-----------------|--------------------------------------|--------|--------|-------|
|                    |                 | Ant. 1                               | Ant. 2 | Total  | Limit |
| 802.11ax (20 MHz)  | 5180            | 21.220                               | 21.660 | 24.456 | 30.00 |
|                    | 5220            | 21.250                               | 21.740 | 24.512 | 30.00 |
|                    | 5240            | 21.810                               | 21.580 | 24.707 | 30.00 |
|                    | 5260            | 19.540                               | 19.430 | 22.496 | 24.00 |
|                    | 5300            | 20.480                               | 20.550 | 23.525 | 24.00 |
|                    | 5320            | 20.660                               | 20.610 | 23.645 | 24.00 |
|                    | 5500            | 19.280                               | 19.190 | 22.246 | 24.00 |
|                    | 5580            | 19.890                               | 19.610 | 22.763 | 24.00 |
|                    | 5700            | 17.330                               | 17.450 | 20.401 | 24.00 |
|                    | 5720 (U-NII-2C) | 17.360                               | 18.190 | 20.930 | 23.58 |
|                    | 5720 (U-NII-3)  | 12.300                               | 13.260 | 15.942 | 30.00 |
|                    | 5745            | 19.880                               | 20.720 | 23.331 | 30.00 |
|                    | 5785            | 19.730                               | 20.620 | 23.208 | 30.00 |
|                    | 5825            | 19.510                               | 20.390 | 22.983 | 30.00 |
| 802.11ax (40 MHz)  | 5190            | 19.690                               | 19.430 | 22.572 | 30.00 |
|                    | 5230            | 21.880                               | 21.610 | 24.757 | 30.00 |
|                    | 5270            | 20.890                               | 20.820 | 23.865 | 24.00 |
|                    | 5310            | 18.170                               | 17.910 | 21.052 | 24.00 |
|                    | 5510            | 18.550                               | 18.590 | 21.580 | 24.00 |
|                    | 5550            | 20.540                               | 20.150 | 23.360 | 24.00 |
|                    | 5670            | 20.810                               | 20.610 | 23.721 | 24.00 |
|                    | 5710 (U-NII-2C) | 20.450                               | 20.090 | 23.525 | 24.00 |
|                    | 5710 (U-NII-3)  | 11.190                               | 10.590 | 14.151 | 30.00 |
|                    | 5755            | 22.150                               | 22.220 | 25.195 | 30.00 |
| 802.11ax (80 MHz)  | 5210            | 17.610                               | 17.810 | 20.721 | 30.00 |
|                    | 5290            | 18.310                               | 17.770 | 21.059 | 24.00 |
|                    | 5530            | 17.370                               | 17.650 | 20.523 | 24.00 |
|                    | 5610            | 20.240                               | 20.010 | 23.137 | 24.00 |
|                    | 5690 (U-NII-2C) | 20.490                               | 20.410 | 23.977 | 24.00 |
|                    | 5690 (U-NII-3)  | 7.690                                | 7.430  | 11.089 | 30.00 |
|                    | 5775            | 20.220                               | 20.150 | 23.195 | 30.00 |
| 802.11ax (160 MHz) | 5250 (U-NII-1)  | 13.020                               | 13.280 | 17.114 | 30.00 |
|                    | 5250 (U-NII-2A) | 13.760                               | 13.230 | 17.465 | 24.00 |
|                    | 5570            | 17.250                               | 17.460 | 20.367 | 24.00 |

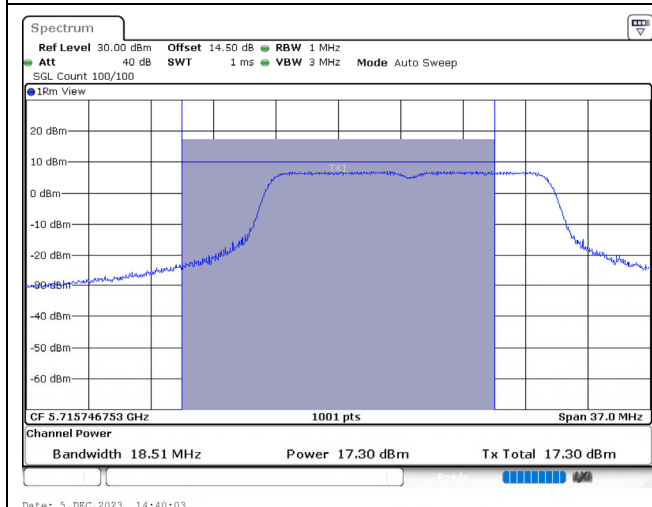
Note:

1. 802.11a, 5720 MHz (U-NII-2C) limit =  $11 + 10 \cdot \log(B)$  or 24 dBm;  $11 + 10 \cdot \log(18.507) = 23.67 \text{ dBm} < 24 \text{ dBm}$ , so limit = 23.67 dBm.
2. 802.11ax (20 MHz), 5720 MHz (U-NII-2C) limit =  $11 + 10 \cdot \log(B)$  or 24 dBm;  $11 + 10 \cdot \log(18.107) = 23.58 \text{ dBm} < 24 \text{ dBm}$ , so limit = 23.58 dBm.
3. For straddle channels, the total power = conducted output power + duty factor, and the duty factor refer to section 2.3.

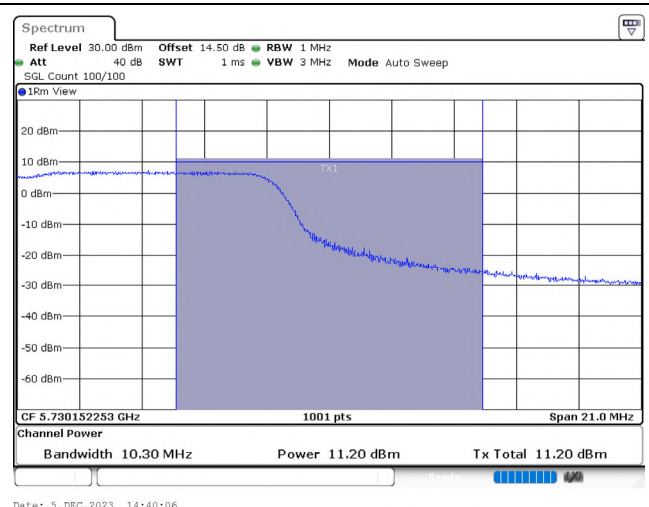
# For Straddle Channels:

## Spectrum plot value of power

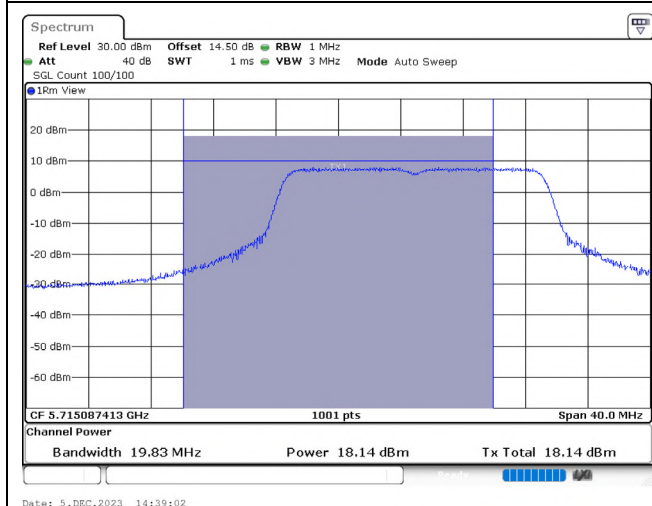
802.11a / Ant. 1 / 5720 MHz (U-NII-2C)



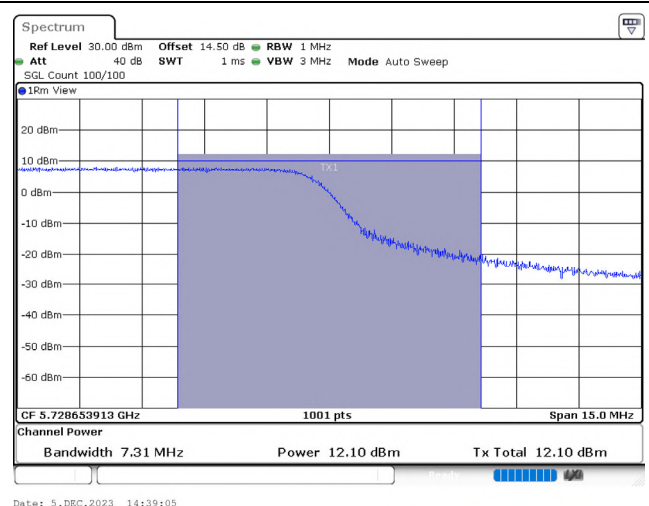
802.11a / Ant. 1 / 5720 MHz (U-NII-3)



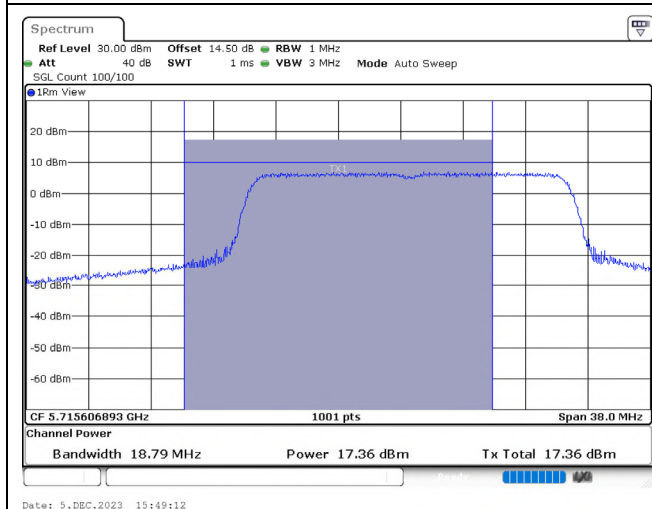
802.11a / Ant. 2 / 5720 MHz (U-NII-2C)



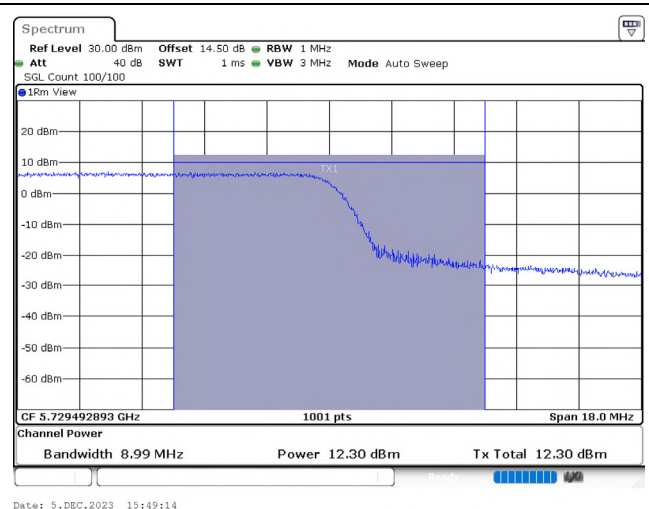
802.11a / Ant. 2 / 5720 MHz (U-NII-3)



802.11ax (20 MHz) / Ant. 1 / 5720 MHz (U-NII-2C)

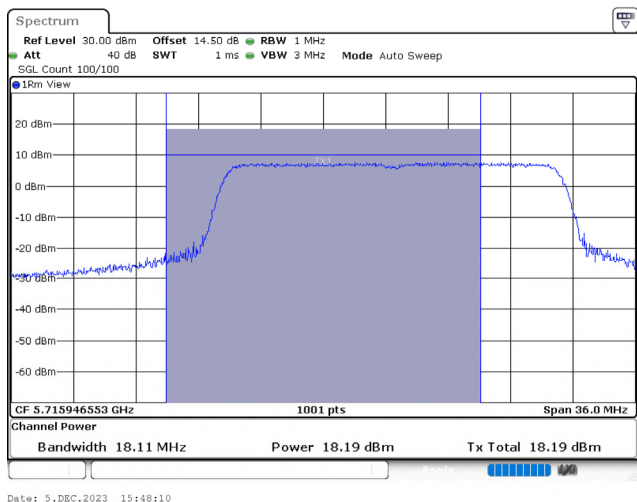


802.11ax (20 MHz) / Ant. 1 / 5720 MHz (U-NII-3)

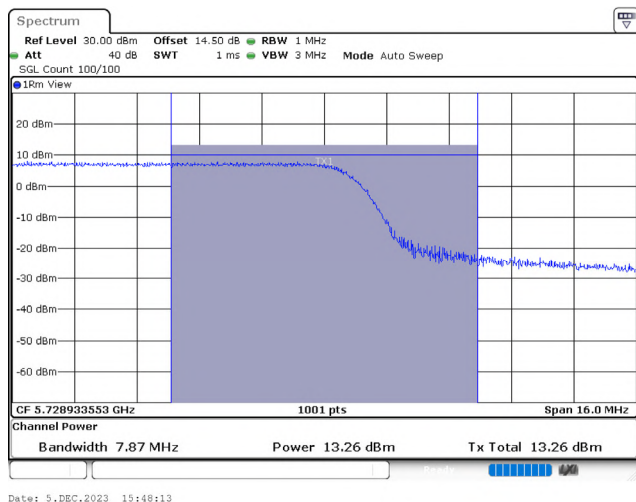


## Spectrum plot value of power

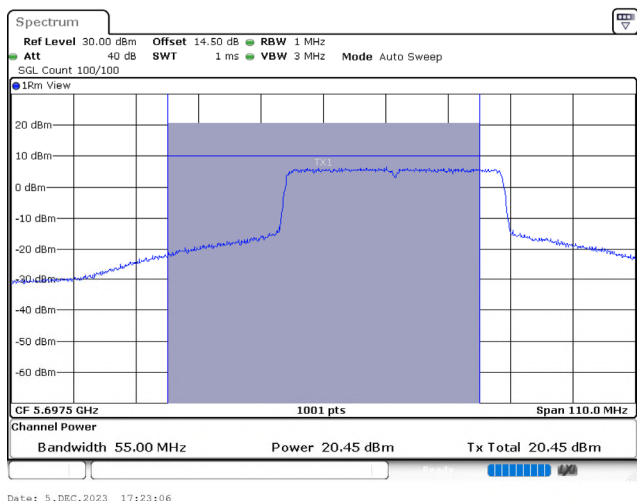
802.11ax (20 MHz) / Ant. 2 / 5720 MHz (U-NII-2C)



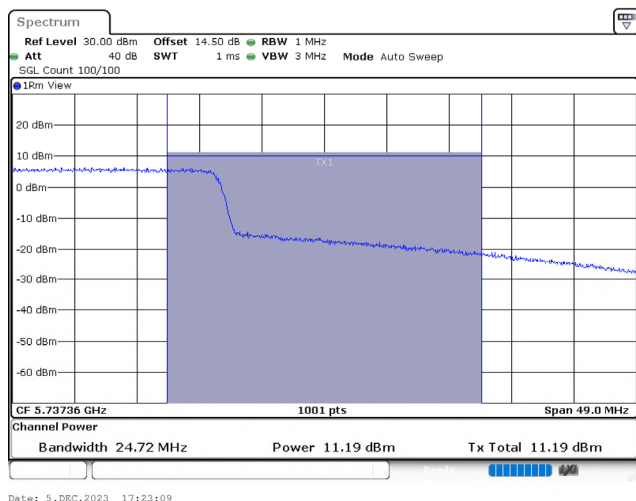
802.11ax (20 MHz) / Ant. 2 / 5720 MHz (U-NII-3)



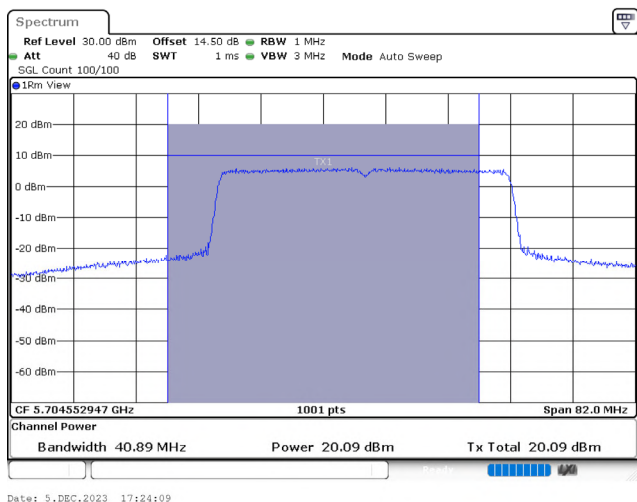
802.11ax (40 MHz) / Ant. 1 / 5710 MHz (U-NII-2C)



802.11ax (40 MHz) / Ant. 1 / 5710 MHz (U-NII-3)



802.11ax (40 MHz) / Ant. 2 / 5710 MHz (U-NII-2C)



802.11ax (40 MHz) / Ant. 2 / 5710 MHz (U-NII-3)

