

## FCC PART 15.247

### TEST REPORT

For

### Heilongjiang Huida Technology Co., Ltd

Building 1, Science and Technology Innovation Headquarters, Shenzhen (Harbin) Industrial Park,  
No. 288 Zhigu Street, Songbei District, Harbin, China

**FCC ID: 2BBNT-3WWDZ-U70A**

|                                        |                                                                                                                                                                                                                             |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Type:</b><br>Original Report | <b>Product Name:</b><br>HD580 Agricultural Drone                                                                                                                                                                            |
| <b>Report Number:</b>                  | RSHA240816001-00B                                                                                                                                                                                                           |
| <b>Report Date:</b>                    | 2025-03-04                                                                                                                                                                                                                  |
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

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**REPORT REVISION HISTORY**

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| Number of Revisions | Report No.        | Version | Issue Date | Description     |
|---------------------|-------------------|---------|------------|-----------------|
| 0                   | RSHA240816001-00B | R1V1    | 2025-03-04 | Initial Release |

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                           |                                        |
|---------------------------|----------------------------------------|
| Applicant:                | Heilongjiang Huida Technology Co., Ltd |
| Product Name:             | HD580 Agricultural Drone               |
| Tested Model:             | 3WWDZ-U70A                             |
| Power Supply:             | DC 32V                                 |
| RF Function:              | 2.4G SRD                               |
| Operating Band/Frequency: | 2411-2466 MHz                          |
| Maximum Peak Power:       | 24.87 dBm                              |
| Channel Number:           | 6                                      |
| Channel Separation:       | 11 MHz                                 |
| Modulation Type:          | BPSK                                   |
| Antenna Type:             | Rod Antenna                            |
| ★Maximum Antenna Gain:    | Antenna 1/Antenna 2: 3.34 dBi          |

*Note: The maximum antenna gain was provided by the applicant.*

*All measurement and test data in this report was gathered from production sample serial number: RSHA240816001-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-08-16)*

### Objective

This report is prepared for *Heilongjiang Huida Technology Co., Ltd* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions' rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.247 rules.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and FCC 558074 D01 15.247 Meas Guidance v05r02.

**Measurement Uncertainty**

| Item                               |                | Uncertainty |
|------------------------------------|----------------|-------------|
| AC Power Lines Conducted Emissions |                | 3.19dB      |
| RF conducted test with spectrum    |                | 0.9dB       |
| RF Output Power with Power meter   |                | 0.5dB       |
| Radiated emission                  | 9 kHz~150 kHz  | 3.8dB       |
|                                    | 150 kHz~30 MHz | 3.4dB       |
|                                    | 30MHz~1GHz     | 6.11dB      |
|                                    | 1GHz~6GHz      | 4.45dB      |
|                                    | 6GHz~18GHz     | 5.23dB      |
|                                    | 18GHz~40GHz    | 5.65dB      |
| Occupied Bandwidth                 |                | 0.5kHz      |
| Temperature                        |                | 1.0°C       |
| Humidity                           |                | 6%          |

**Test Facility**

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No.: CN5055.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

Test channel list as below:

EUT was tested with Channel 1, 4 and 6.

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 1       | 2411            | 4       | 2444            |
| 2       | 2422            | 5       | 2455            |
| 3       | 2433            | 6       | 2466            |

### Equipment Modifications

No modification was made to the EUT tested.

### EUT Exercise Software

RF Test Software: Xshell 4

| Antenna   | Mode                  | Channel | Frequency (MHz) | ★Power Level |
|-----------|-----------------------|---------|-----------------|--------------|
| Antenna 1 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 17           |
|           |                       | Middle  | 2444            | 16           |
|           |                       | High    | 2466            | 15           |
|           | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 17           |
|           |                       | Middle  | 2444            | 16           |
|           |                       | High    | 2466            | 15           |
| Antenna 2 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 14           |
|           |                       | Middle  | 2444            | 14           |
|           |                       | High    | 2466            | 14           |
|           | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 14           |
|           |                       | Middle  | 2444            | 14           |
|           |                       | High    | 2466            | 14           |

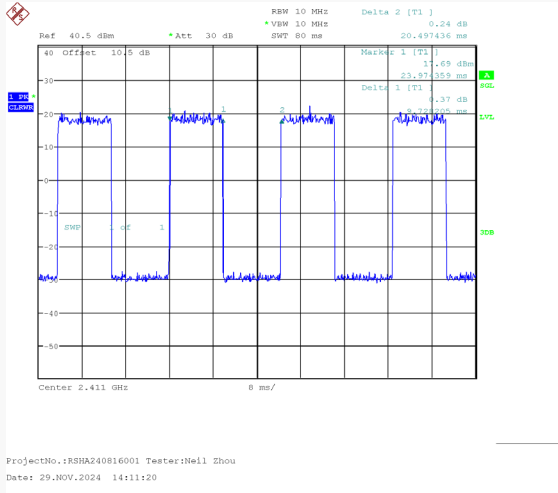
Note:

1. The power level was declared by the applicant.
2. All modes support SISO&MIMO mode.

# Duty Cycle:

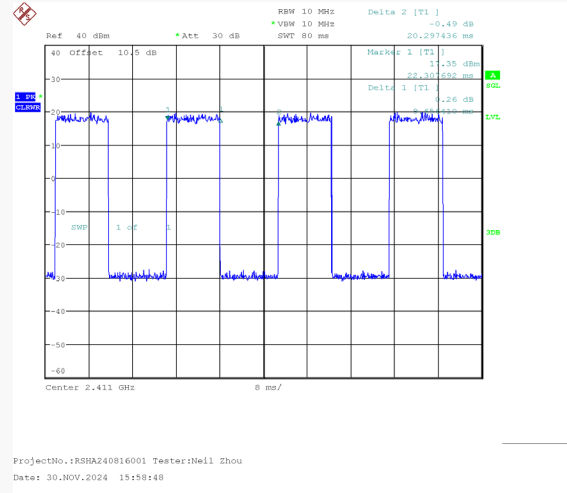
## Antenna 1 BW: 1.25 MHz

### Low Channel: 2411 MHz

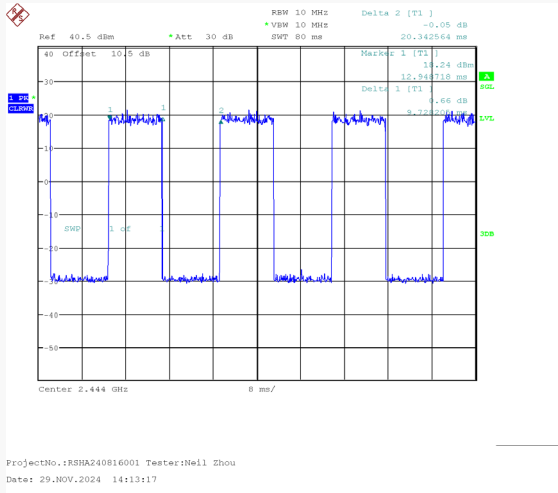


## Antenna 1 BW: 10 MHz

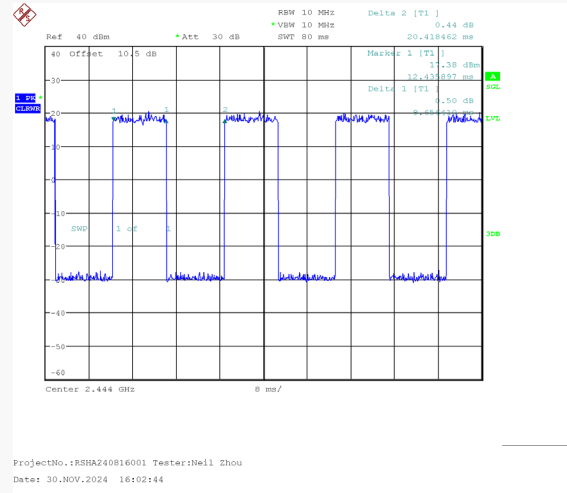
### Low Channel: 2411 MHz



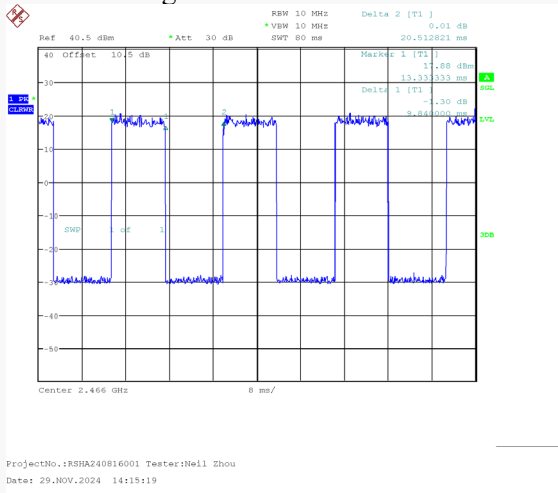
### Middle Channel: 2444 MHz



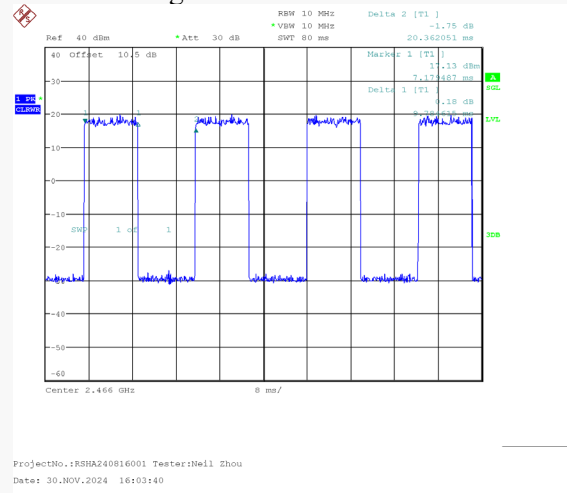
### Middle Channel: 2444 MHz



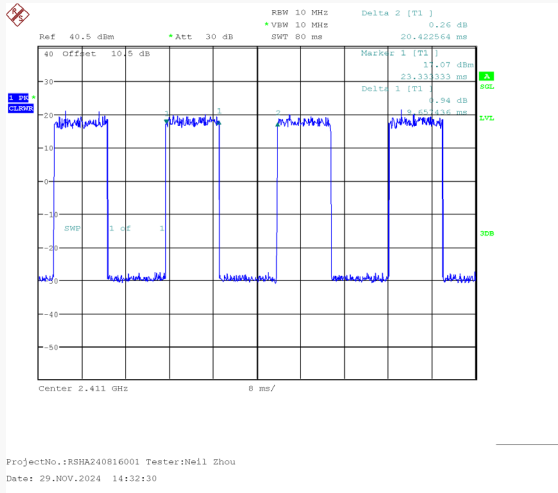
### High Channel: 2466 MHz



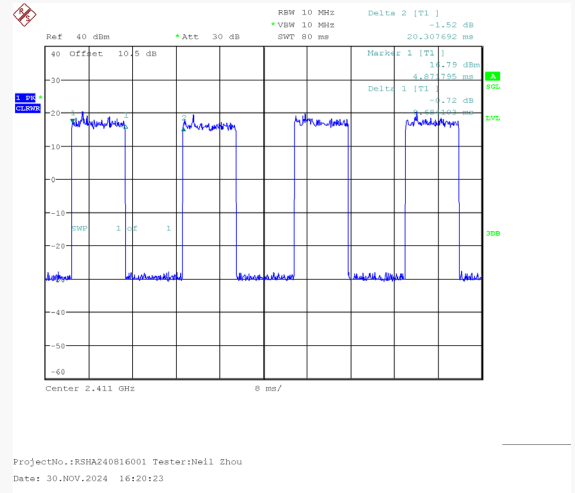
### High Channel: 2466 MHz



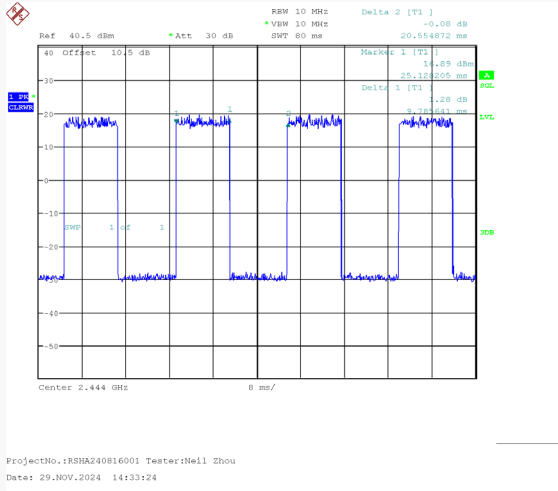
### Antenna 2 BW: 1.25 MHz Low Channel: 2411 MHz



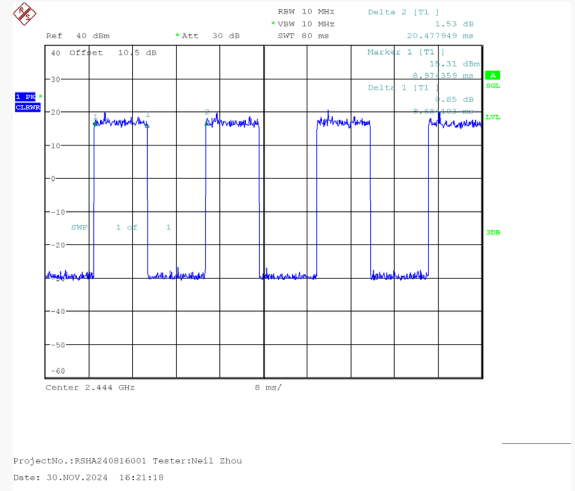
### Antenna 2 BW: 10 MHz Low Channel: 2411 MHz



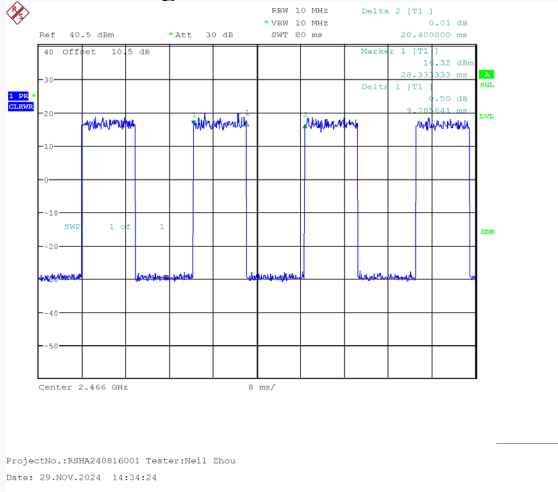
### Middle Channel: 2444 MHz



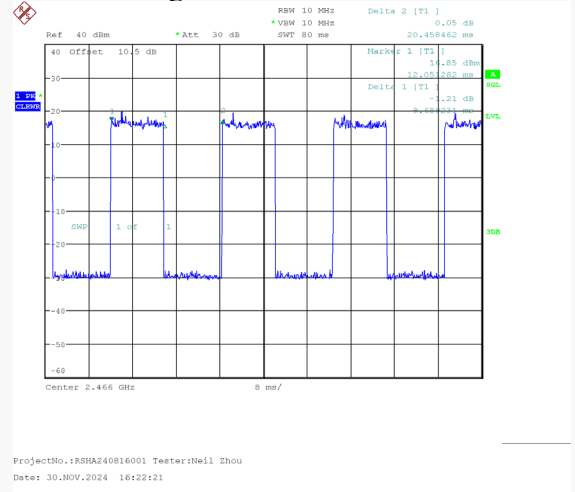
### Middle Channel: 2444 MHz



### High Channel: 2466 MHz



### High Channel: 2466 MHz



| Antenna   | Mode                  | Channel | Duty Cycle (%) | Ton (ms) | Ton+off (ms) | 10log(1/x) (dB) |
|-----------|-----------------------|---------|----------------|----------|--------------|-----------------|
| Antenna 1 | SRD<br>(BW: 1.25 MHz) | Low     | 47.46          | 9.73     | 20.50        | 3.24            |
|           |                       | Middle  | 47.82          | 9.73     | 20.34        | 3.20            |
|           |                       | High    | 47.97          | 9.84     | 20.51        | 3.19            |
|           | SRD<br>(BW: 10 MHz)   | Low     | 47.57          | 9.66     | 20.30        | 3.23            |
|           |                       | Middle  | 47.29          | 9.66     | 20.42        | 3.25            |
|           |                       | High    | 48.05          | 9.78     | 20.36        | 3.18            |
| Antenna 2 | SRD<br>(BW: 1.25 MHz) | Low     | 47.29          | 9.66     | 20.42        | 3.25            |
|           |                       | Middle  | 47.61          | 9.79     | 20.55        | 3.22            |
|           |                       | High    | 47.97          | 9.79     | 20.40        | 3.19            |
|           | SRD<br>(BW: 10 MHz)   | Low     | 47.69          | 9.68     | 20.31        | 3.22            |
|           |                       | Middle  | 47.29          | 9.68     | 20.48        | 3.25            |
|           |                       | High    | 47.36          | 9.69     | 20.46        | 3.25            |

**Note:**

1. “x” means the Duty Cycle.
2. Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

**Support Equipment List and Details**

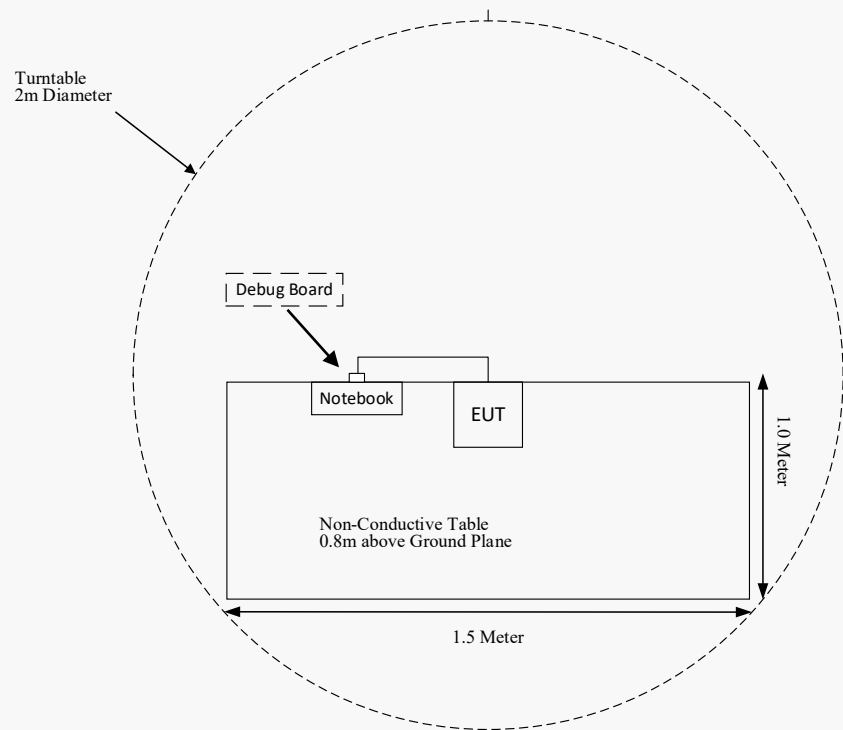
| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|-------|---------------|
| Lenovo       | Notebook    | Y700P | PF2B7PL5      |
| /            | Debug Board | /     | /             |

**External I/O Cable**

| Cable Description | Length(m) | From Port | To          |
|-------------------|-----------|-----------|-------------|
| Data Cable        | 1.5       | EUT       | Debug Board |

**Block Diagram of Test Setup**

For Radiated Emissions(Below 1GHz & Above 1GHz):



## SUMMARY OF TEST RESULTS

| FCC Rules                      | Description of Test                      | Result                       |
|--------------------------------|------------------------------------------|------------------------------|
| §15.247 (I), §1.1310 & §2.1091 | Maximum Permissible Exposure (MPE)       | Compliant                    |
| §15.203                        | Antenna Requirement                      | Compliant                    |
| §15.207 (a)                    | AC Line Conducted Emissions              | Not Applicable<br>(See Note) |
| §15.205, §15.209, §15.247(d)   | Spurious Emissions                       | Compliant                    |
| §15.247 (a)(2)                 | 6 dB Emission Bandwidth                  | Compliant                    |
| §15.247(b)(3)                  | Maximum Conducted Output Power           | Compliant                    |
| §15.247(d)                     | 100 kHz Bandwidth of Frequency Band Edge | Compliant                    |
| §15.247(e)                     | Power Spectral Density                   | Compliant                    |

Note: The EUT powered by battery.

## TEST EQUIPMENT LIST

| Manufacturer                               | Description         | Model     | Serial Number | Calibration Date | Calibration Due Date |
|--------------------------------------------|---------------------|-----------|---------------|------------------|----------------------|
| <b>Radiated Emission Test (Chamber #1)</b> |                     |           |               |                  |                      |
| Rohde & Schwarz                            | EMI Test Receiver   | ESCI      | 100195        | 2024-04-23       | 2025-04-22           |
| Sunol Sciences                             | Hybrid Antenna      | JB3       | A090314-1     | 2023-11-11       | 2024-11-10           |
| Sunol Sciences                             | Hybrid Antenna      | JB3       | A090314-1     | 2024-11-08       | 2027-11-07           |
| ETS-LINDGREN                               | Loop Antenna        | 6512      | 108100        | 2023-11-09       | 2024-11-08           |
| ETS-LINDGREN                               | Loop Antenna        | 6512      | 108100        | 2024-11-03       | 2027-11-02           |
| Sonoma Instrument                          | Amplifier           | 310N      | 171205        | 2024-04-23       | 2025-04-22           |
| Rohde & Schwarz                            | Auto test Software  | EMC32     | 100361        | N/A              | N/A                  |
| MICRO-COAX                                 | Coaxial Cable       | Cable-8   | 008           | 2024-04-23       | 2025-04-22           |
| MICRO-COAX                                 | Coaxial Cable       | Cable-9   | 009           | 2024-04-23       | 2025-04-22           |
| MICRO-COAX                                 | Coaxial Cable       | Cable-10  | 010           | 2024-04-23       | 2025-04-22           |
| Narda                                      | 6dB Attenuator      | 773-6     | 10690812-2-1  | 2023-11-11       | 2024-11-10           |
| Narda                                      | 6dB Attenuator      | 773-6     | 10690812-2-1  | 2024-11-08       | 2027-11-07           |
| <b>Radiated Emission Test (Chamber #2)</b> |                     |           |               |                  |                      |
| Rohde & Schwarz                            | EMI Test Receiver   | ESU40     | 100207/040    | 2024-04-25       | 2025-04-24           |
| ETS-LINDGREN                               | Horn Antenna        | 3115      | 9311-4159     | 2024-11-03       | 2027-11-02           |
| ETS-LINDGREN                               | Horn Antenna        | 3116      | 84159         | 2023-12-07       | 2026-12-06           |
| A.H.Systems,inc                            | Amplifier           | PAM-0118P | 512           | 2024-04-25       | 2025-04-24           |
| EM Electronics Corporation                 | Amplifier           | EM18G40G  | 060726        | 2024-04-25       | 2025-04-24           |
| MICRO-TRONICS                              | Band Reject Filter  | BRM50702  | G024          | 2024-04-23       | 2025-04-22           |
| Narda                                      | Attenuator          | 10dB      | 010           | 2024-04-23       | 2025-04-22           |
| Rohde & Schwarz                            | Auto test Software  | EMC32     | 100361        | N/A              | N/A                  |
| MICRO-COAX                                 | Coaxial Cable       | Cable-6   | 006           | 2024-04-23       | 2025-04-22           |
| MICRO-COAX                                 | Coaxial Cable       | Cable-11  | 011           | 2024-04-23       | 2025-04-22           |
| MICRO-COAX                                 | Coaxial Cable       | Cable-12  | 012           | 2024-04-23       | 2025-04-22           |
| <b>RF Conducted Test</b>                   |                     |           |               |                  |                      |
| Rohde & Schwarz                            | Spectrum Analyzer   | FSU26     | 100147        | 2024-04-01       | 2025-03-31           |
| Anritsu                                    | Power Sensor        | MA24418A  | 12621         | 2024-04-23       | 2025-04-22           |
| N/A                                        | Attenuator          | 10 dB     | N/A           | 2024-04-23       | 2025-04-22           |
| XHFDZ                                      | RG316 Coaxial Cable | SMA-316   | XHF-1175      | Each time        | N/A                  |

**Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## **FCC §1.1310 & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

### **Applicable Standard**

According to subpart §2.1091 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                      |                                      |                                          |                                 |
|----------------------------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------|---------------------------------|
| <b>Frequency Range (MHz)</b>                                   | <b>Electric Field Strength (V/m)</b> | <b>Magnetic Field Strength (A/m)</b> | <b>Power Density (mW/cm<sup>2</sup>)</b> | <b>Averaging Time (minutes)</b> |
| 0.3-1.34                                                       | 614                                  | 1.63                                 | *(100)                                   | 30                              |
| 1.34-30                                                        | 824/f                                | 2.19/f                               | *(180/f <sup>2</sup> )                   | 30                              |
| 30-300                                                         | 27.5                                 | 0.073                                | 0.2                                      | 30                              |
| 300-1500                                                       | /                                    | /                                    | f/1500                                   | 30                              |
| 1500-100,000                                                   | /                                    | /                                    | 1.0                                      | 30                              |

f = frequency in MHz; \* = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

### **Calculated Formulary**

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$  = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

**Calculated Data:**

| Mode     | Frequency Range (MHz) | Antenna Gain |           | ★Tune-up Output Power |        | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) | MPE ratio |
|----------|-----------------------|--------------|-----------|-----------------------|--------|--------------------------|-------------------------------------|---------------------------------|-----------|
|          |                       | (dBi)        | (numeric) | (dBm)                 | (mW)   |                          |                                     |                                 |           |
| 2.4G SRD | 2411-2466             | 3.34         | 2.16      | 25.0                  | 316.23 | 20                       | 0.1359                              | 1.0                             | 0.1359    |
| 5G SRD   | 5180-5240             | 3.27         | 2.12      | 18.0                  | 63.10  | 20                       | 0.0266                              | 1.0                             | 0.0266    |
|          | 5735-5805             | 2.90         | 1.95      | 22.5                  | 177.83 | 20                       | 0.0690                              | 1.0                             | 0.0690    |
| 5G Wi-Fi | 5150-5250             | 3.04         | 2.01      | 10.0                  | 10     | 20                       | 0.0040                              | 1.0                             | 0.0040    |
|          | 5725-5850             | 4.64         | 2.91      | 8.5                   | 7.08   | 20                       | 0.0041                              | 1.0                             | 0.0041    |

**Note:**

1. For the above tune up power were declared by the manufacturer.
2. SRD and Wi-Fi can transmit simultaneously, but 2.4G SRD and 5G SRD cannot transmit simultaneously.

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$= S_{5G\ Wi-Fi}/S_{limit- 5G\ Wi-Fi} + S_{2.4G\ SRD}/S_{limit- 2.4G\ SRD}$$

$$= 0.0041 + 0.1359$$

$$= 0.14$$

$$< 1.0$$

**Result:** The device meet FCC MPE at 20 cm distance.

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## FCC §15.203 - ANTENNA REQUIREMENT

---

### Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine Compliant with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### Antenna Connector Construction

The EUT has two external rubber rod antennas for SRD and the antenna gain is 3.34 dBi, the antenna was permanently attached, fulfill the requirement of this section. Please refer to the EUT photos.

**Result:** Compliant.

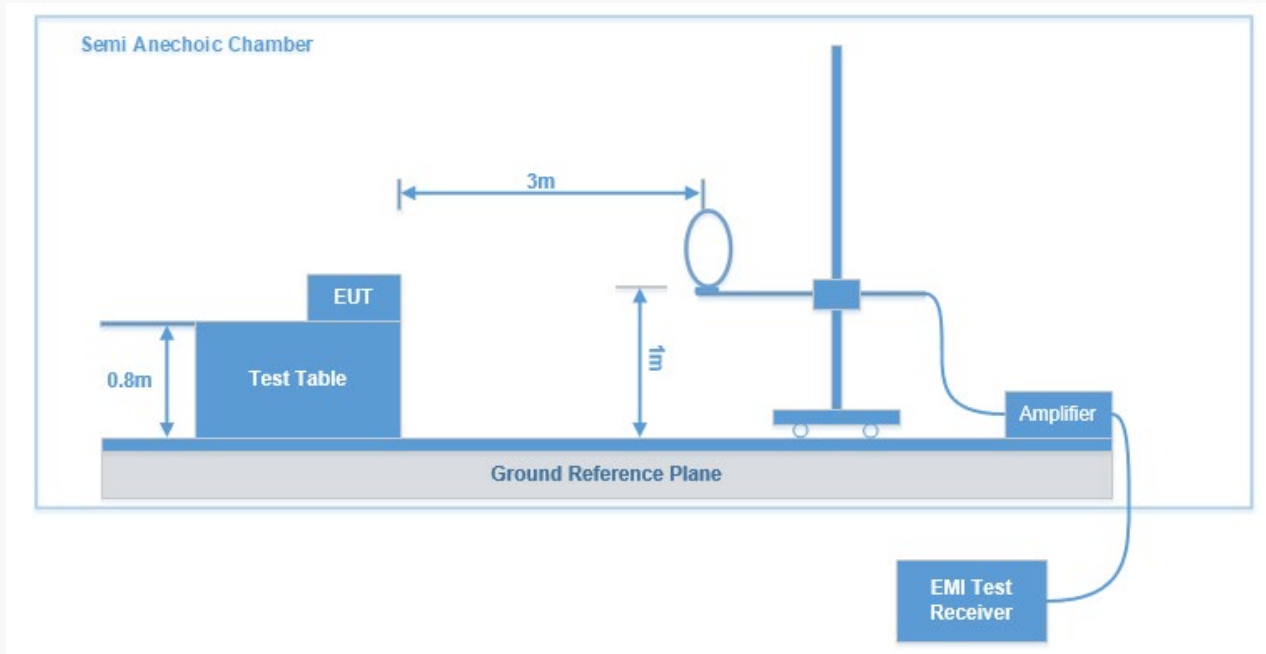
## FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

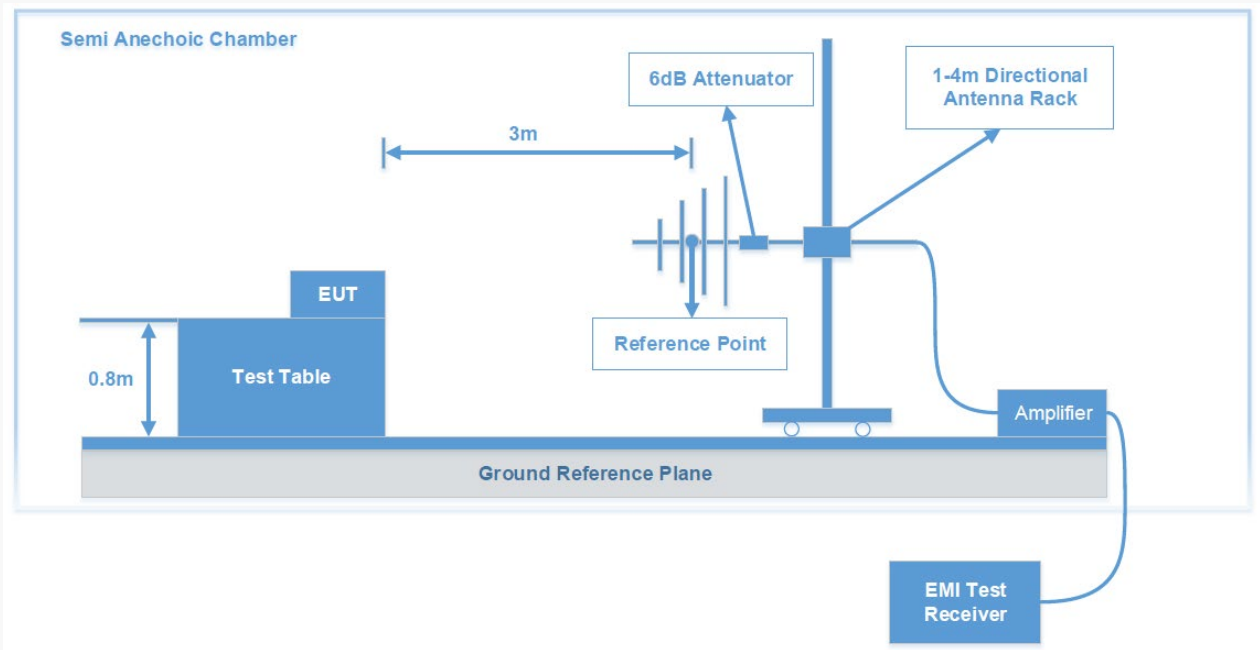
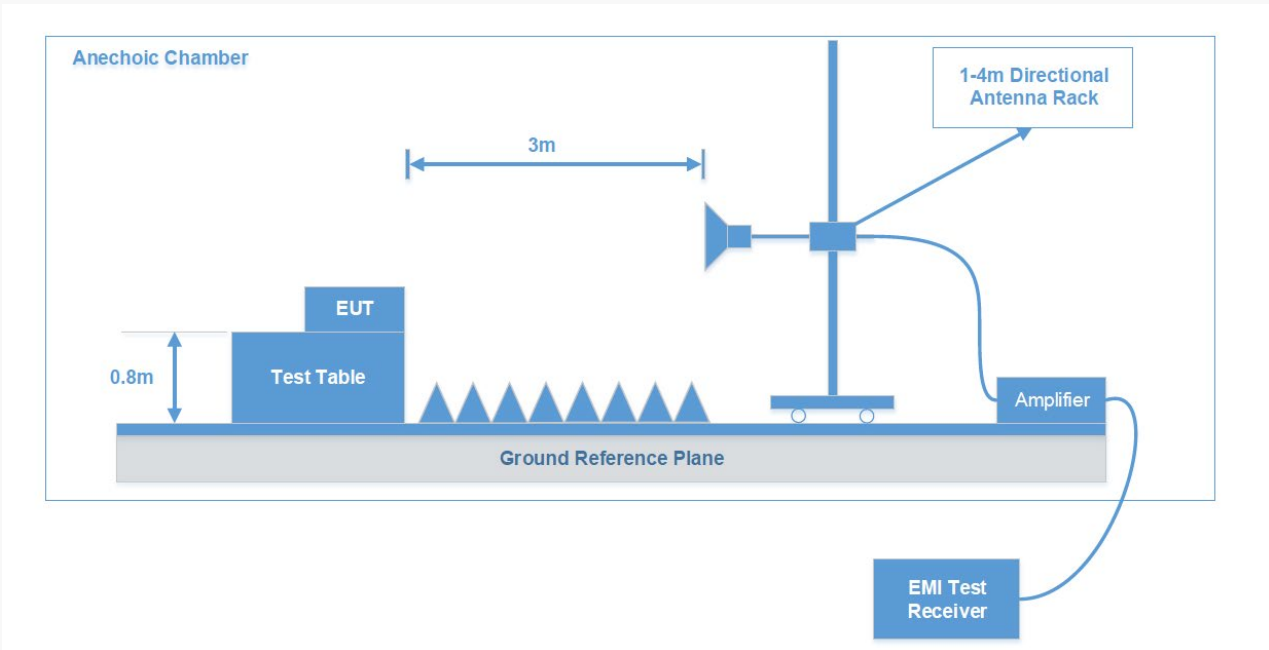
### Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

### Test System Setup

9 kHz - 30 MHz:



**30 MHz - 1 GHz:****1 GHz - 25 GHz:**

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

## EMI Test Receiver Setup

During the radiated emission test, the EMI test receiver setup was set with the following configurations:

| Frequency Range   | RBW     | VBW     | IF B/W  | Measurement |
|-------------------|---------|---------|---------|-------------|
| 9 kHz - 150 kHz   | 200 Hz  | 1 kHz   | 200 Hz  | QP/Average  |
| 150 kHz - 30 MHz  | 9 kHz   | 30 kHz  | 9 kHz   | QP/ Average |
| 30 MHz - 1000 MHz | 100 kHz | 300 kHz | /       | Peak        |
|                   | /       | /       | 120 kHz | QP          |
| Above 1GHz        | 1MHz    | 3 MHz   | /       | Peak        |
|                   | 1MHz    | 3 MHz   | /       | Average     |

For 9 kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

## Test Procedure

According to ANSI C63.10-2013 clause 6.5, 6.6 and 6.7.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30MHz - 1GHz, peak and Average detection mode for frequencies above 1 GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dB $\mu$ V/m) = Meter Reading (dB $\mu$ V) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The “**Margin**” column of the following data tables indicates the degree of Compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dB $\mu$ V/m) – Corrected Amplitude (dB $\mu$ V/m)

Note: The QuasiPeak (dB $\mu$ V/m), MaxPeak (dB $\mu$ V/m), Average (dB $\mu$ V/m) which shown in the data table are all Corrected Amplitude.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

**Test Data: See Appendix**

## FCC §15.247(A) (2) - 6 DB EMISSION BANDWIDTH

---

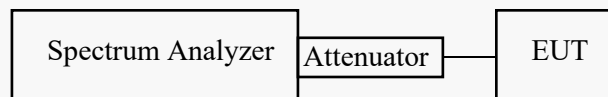
### Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### Test Procedure

According to ANSI C63.10-2013 sub-clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 * \text{RBW}$ .
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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 dB relative to the maximum level measured in the fundamental emission.



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

**Test Data: See Appendix**

## **FCC §15.247(B) (3) - MAXIMUM CONDUCTED OUTPUT POWER**

### **Applicable Standard**

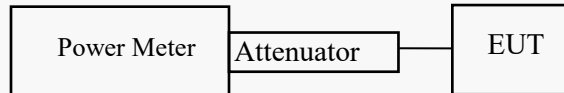
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

### **Test Procedure**

According to ANSI C63.10-2013 sub-clause 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

**Test Data: See Appendix**

## **FCC §15.247(D) - 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE**

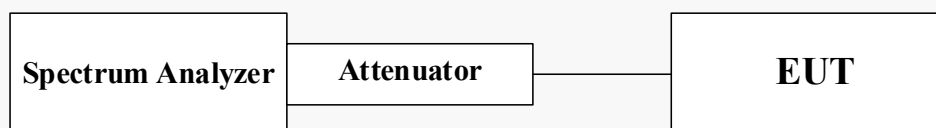
### **Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates Compliant with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### **Test Procedure**

According to ANSI C63.10-2013 sub-clause 6.10.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

**Test Data: See Appendix**

## FCC §15.247(E) - POWER SPECTRAL DENSITY

### Applicable Standard

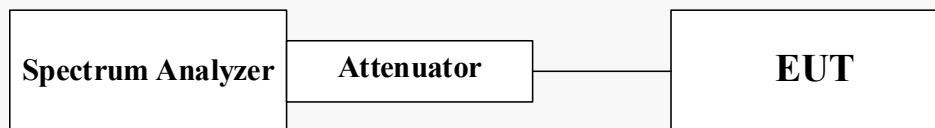
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### Test Procedure

According to ANSI C63.10-2013 sub-clause 11.10.2

The following procedure shall be used if maximum peak conducted output power was used to determine Compliant, and it is optional if the maximum conducted (average) output power was used to determine Compliant:

1. Set the RBW to:  $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$ .
2. Set the VBW  $\geq 3 * \text{RBW}$ .
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Note: Offset (10.5dB) = Attenuator (10dB)+cable loss (0.5dB)

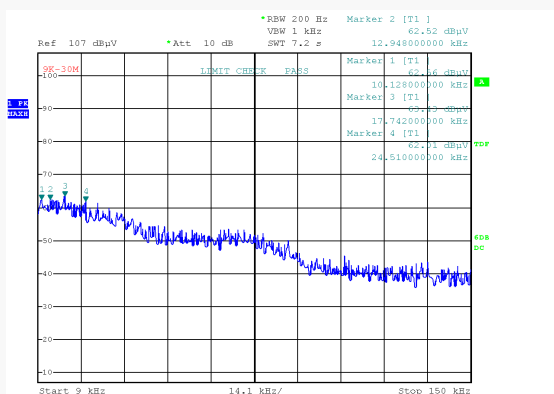
**Test Data: See Appendix**

## APPENDIX - TEST DATA

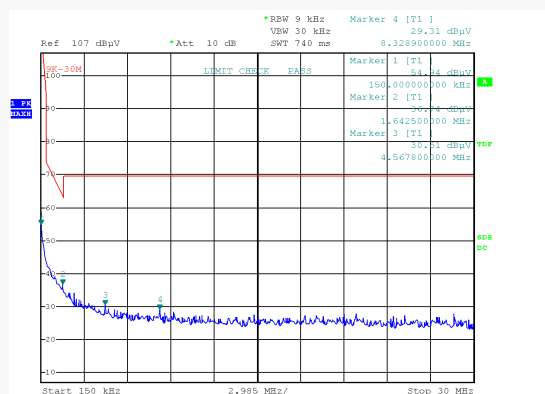
### Environmental Conditions & Test Information

| Test Item:         | SPURIOUS EMISSIONS       |                |                 | Duty Cycle               |
|--------------------|--------------------------|----------------|-----------------|--------------------------|
|                    | 9 kHz - 1GHz             | 1 GHz - 18 GHz | 18 GHz - 25 GHz |                          |
| Test Date:         | 2024-10-18 to 2024-12-06 | 2024-11-06     | 2024-12-09      | 2024-11-29 to 2024-11-30 |
| Temperature:       | 23.2 °C - 26.2 °C        | 23.8 °C        | 25.5 °C         | 24.1 to 25.2°C           |
| Relative Humidity: | 52 % - 67 %              | 53 %           | 52 %            | 47 - 52 %                |
| ATM Pressure:      | 100.7 kPa – 102.8 kPa    | 102.8kPa       | 102.9kPa        | 101.8 kPa - 102.4kPa     |
| Test Result:       | Pass                     | Pass           | Pass            | Pass                     |
| Test Engineer:     | Jerry Yan & Richard Wen  | Destine Hu     | Hugh Wu         | Neil Zhou                |

| Test Item:         | 6 DB EMISSION BANDWIDTH  | MAXIMUM CONDUCTED OUTPUT POWER | 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE | POWER SPECTRAL DENSITY |
|--------------------|--------------------------|--------------------------------|------------------------------------------|------------------------|
| Test Date:         | 2024-11-26 to 2024-11-29 | 2024-12-02                     | 2024-11-27 to 2024-11-30                 | 2025-01-13             |
| Temperature:       | 23.5 - 24.8 °C           | 24.3°C                         | 23.8 to 25.2 °C                          | 17.3                   |
| Relative Humidity: | 59 - 61 %                | 51 %                           | 47 - 52 %                                | 49 %                   |
| ATM Pressure:      | 102.4 - 102.7kPa         | 101.8kPa                       | 101.4-102.4 kPa                          | 101.6 kPa              |
| Test Result:       | Pass                     | Pass                           | Pass                                     | Pass                   |
| Test Engineer:     | Neil Zhou                | Neil Zhou                      | Neil Zhou                                | Neil Zhou              |

**SPURIOUS EMISSIONS***EUT operation mode: Transmitting***9 kHz - 30 MHz:** (Transmitting in maximum output power low channel Antenna 1+Antenna 2 (BW: 1.25 MHz))  
(Parallel worst)Project No.RSHA240816001  
Date: 6.DEC.2024 12:18:21

Tester:Jerry Yan

Project No.RSHA240816001  
Date: 6.DEC.2024 12:22:33

Tester:Jerry Yan

**9 kHz - 150 kHz**

| Frequency (MHz) | Corrected Amplitude (dBμV/m) @3m | Detector PK/QP/Ave. | Corrected Factor (dB/m) | Limit (dBμV/m) @3m | Margin (dB) |
|-----------------|----------------------------------|---------------------|-------------------------|--------------------|-------------|
| 0.010128        | 62.56                            | PK                  | 56.28                   | 127.49             | 64.93       |
| 0.012948        | 62.52                            | PK                  | 54.49                   | 125.36             | 62.84       |
| 0.017742        | 63.43                            | PK                  | 51.44                   | 122.62             | 59.19       |
| 0.024510        | 62.01                            | PK                  | 47.13                   | 119.82             | 57.81       |

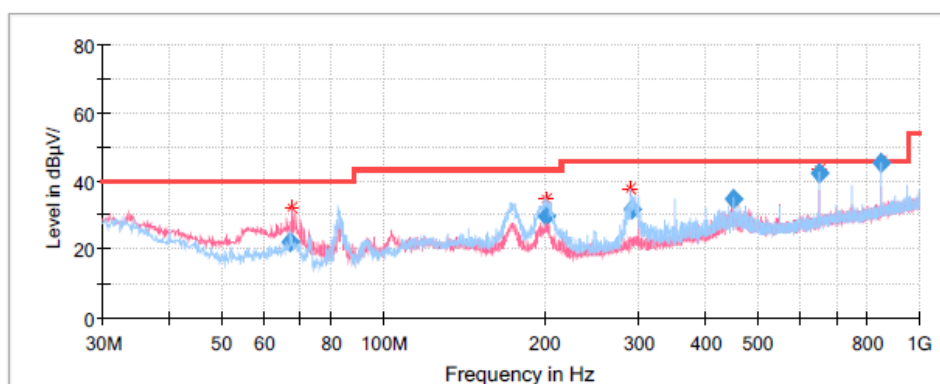
**150 kHz - 30 MHz**

| Frequency (MHz) | Corrected Amplitude (dBμV/m) @3m | Detector PK/QP/Ave. | Corrected Factor (dB/m) | Limit (dBμV/m) @3m | Margin (dB) |
|-----------------|----------------------------------|---------------------|-------------------------|--------------------|-------------|
| 0.15000         | 54.94                            | PK                  | 50.90                   | 104.08             | 49.14       |
| 1.64250         | 36.74                            | PK                  | 9.75                    | 63.29              | 26.55       |
| 4.56780         | 30.61                            | PK                  | 12.93                   | 69.54              | 38.93       |
| 8.32890         | 29.31                            | PK                  | 6.40                    | 69.54              | 40.23       |

**30MHz - 1GHz: Antenna 1+Antenna 2 SRD (BW: 1.25 MHz) (worst case)**  
**Low Channel: 2411 MHz**

### Common Information

|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Project No:          | RSHA240816001                                       |
| EUT Model:           | 3WWDZ-U70A                                          |
| Test Mode:           | Transmitting                                        |
| Standard:            | FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247 |
| Test Equipment:      | ESCI, JB3, 310N                                     |
| Temperature:         | 26.2°C                                              |
| Humidity:            | 67%                                                 |
| Barometric Pressure: | 101.9kPa                                            |
| Test Engineer:       | Richard Wen                                         |
| Test Date:           | 2024/10/18                                          |

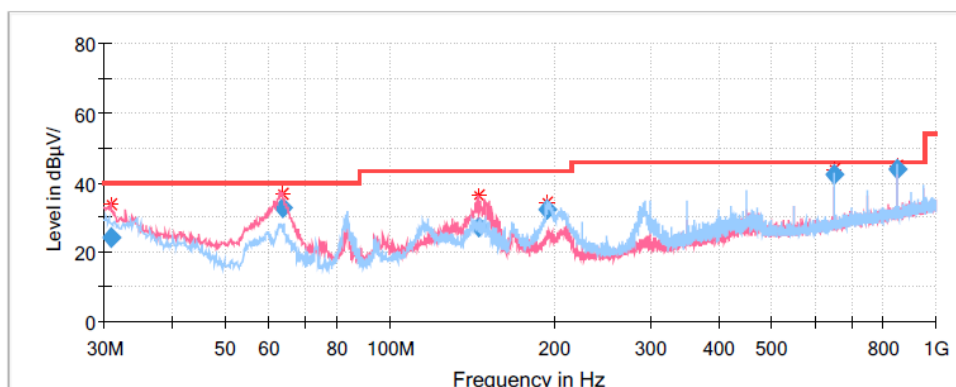


### Final Result

| Frequency (MHz) | QuasiPeak (dBμ V/m) | Limit (dBμ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|---------------------|-----------------|-------------|-----|--------------|
| 67.730765       | 22.13               | 40.00           | 17.87       | V   | -17.2        |
| 201.200225      | 29.87               | 43.50           | 13.63       | H   | -12.3        |
| 290.422000      | 31.73               | 46.00           | 14.27       | H   | -10.6        |
| 450.000400      | 34.69               | 46.00           | 11.31       | H   | -6.7         |
| 650.003450      | 42.33               | 46.00           | 3.67        | H   | -3.1         |
| 849.993650      | 45.44               | 46.00           | 0.56        | H   | 0.1          |

**Middle Channel: 2444 MHz****Common Information**

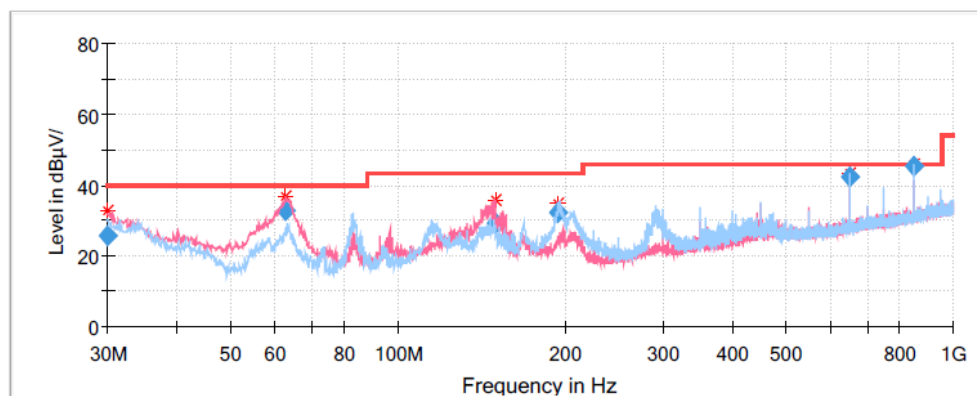
Project No: RSHA240816001  
EUT Model: 3WWDZ-U70A  
Test Mode: Transmitting  
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247  
Test Equipment: ESCI, JB3, 310N  
Temperature: 26.2°C  
Humidity: 67%  
Barometric Pressure: 101.9kPa  
Test Engineer: Richard Wen  
Test Date: 2024/10/18

**Final Result**

| Frequency (MHz) | QuasiPeak (dBμ V/m) | Limit (dBμ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|---------------------|-----------------|-------------|-----|--------------|
| 30.849090       | 24.32               | 40.00           | 15.68       | V   | -5.5         |
| 63.706950       | 32.73               | 40.00           | 7.27        | V   | -17.4        |
| 145.944550      | 27.32               | 43.50           | 16.18       | V   | -11.6        |
| 194.737450      | 31.96               | 43.50           | 11.54       | H   | -12.4        |
| 649.992100      | 42.44               | 46.00           | 3.56        | H   | -3.1         |
| 849.999350      | 43.71               | 46.00           | 2.29        | H   | 0.1          |

**High Channel: 2466 MHz****Common Information**

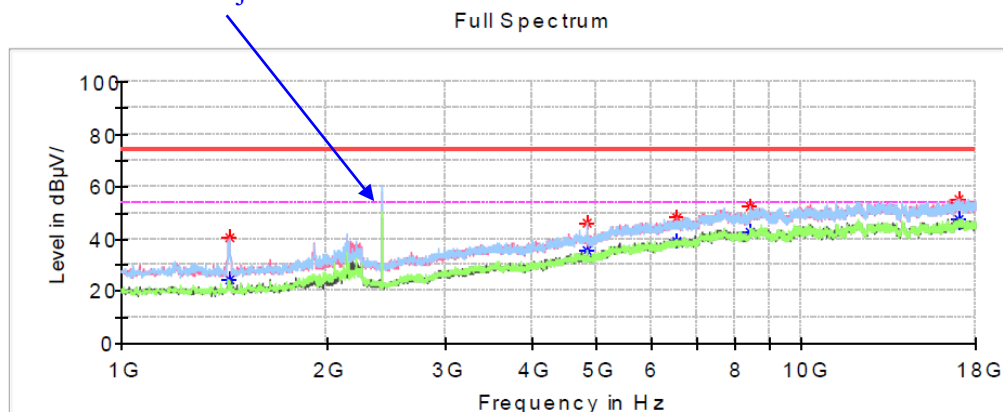
|                      |                                                     |
|----------------------|-----------------------------------------------------|
| Project No:          | RSHA240816001                                       |
| EUT Model:           | 3WWDZ-U70A                                          |
| Test Mode:           | Transmitting                                        |
| Standard:            | FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247 |
| Test Equipment:      | ESCI, JB3, 310N                                     |
| Temperature:         | 26.2°C                                              |
| Humidity:            | 67%                                                 |
| Barometric Pressure: | 101.9kPa                                            |
| Test Engineer:       | Richard Wen                                         |
| Test Date:           | 2024/10/18                                          |

**Final Result**

| Frequency (MHz) | QuasiPeak (dBμ V/m) | Limit (dBμ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|---------------------|-----------------|-------------|-----|--------------|
| 30.051802       | 25.80               | 40.00           | 14.20       | V   | -4.8         |
| 62.861400       | 32.51               | 40.00           | 7.49        | V   | -17.4        |
| 150.293050      | 29.33               | 43.50           | 14.17       | V   | -11.8        |
| 194.629100      | 32.06               | 43.50           | 11.44       | H   | -12.4        |
| 650.001700      | 42.38               | 46.00           | 3.62        | H   | -3.1         |
| 850.014050      | 45.41               | 46.00           | 0.59        | H   | 0.1          |

**1GHz - 18GHz:****Antenna 1+Antenna 2 SRD (BW: 1.25 MHz)****Low Channel: 2411 MHz****Common Information**

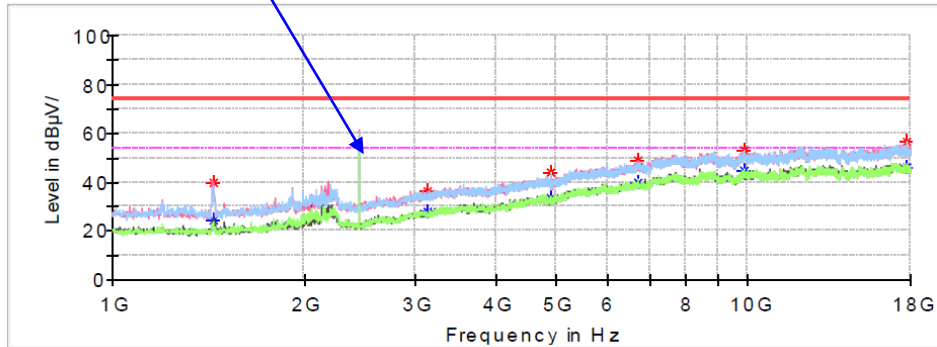
Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter****Critical Freqs**

| Frequency (MHz) | MaxPeak (dB $\mu$ V/m) | Average (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|------------------------|------------------------|----------------------|-------------|-----|--------------|
| 1438.600000     | ---                    | 24.64                  | 54.00                | 29.36       | V   | -14.8        |
| 1438.600000     | 40.42                  | ---                    | 74.00                | 33.58       | V   | -14.8        |
| 4821.600000     | ---                    | 35.76                  | 54.00                | 18.24       | H   | -3.1         |
| 4821.600000     | 46.17                  | ---                    | 74.00                | 27.83       | H   | -3.1         |
| 6555.600000     | ---                    | 39.42                  | 54.00                | 14.58       | V   | 0.8          |
| 6555.600000     | 48.59                  | ---                    | 74.00                | 25.41       | V   | 0.8          |
| 8413.700000     | ---                    | 42.47                  | 54.00                | 11.53       | H   | 5.2          |
| 8413.700000     | 52.45                  | ---                    | 74.00                | 21.55       | H   | 5.2          |
| 16983.400000    | ---                    | 46.33                  | 54.00                | 7.67        | V   | 12.2         |
| 16983.400000    | 55.51                  | ---                    | 74.00                | 18.49       | V   | 12.2         |
| 16990.200000    | 53.77                  | ---                    | 74.00                | 20.23       | V   | 12.3         |
| 16990.200000    | ---                    | 47.89                  | 54.00                | 6.11        | V   | 12.3         |

**Middle Channel: 2444 MHz****Common Information**

Project No.: RSHA240816001  
 Test Mode: Transmitting  
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209  
 Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter**
Full Spectrum
**Critical Freqs**

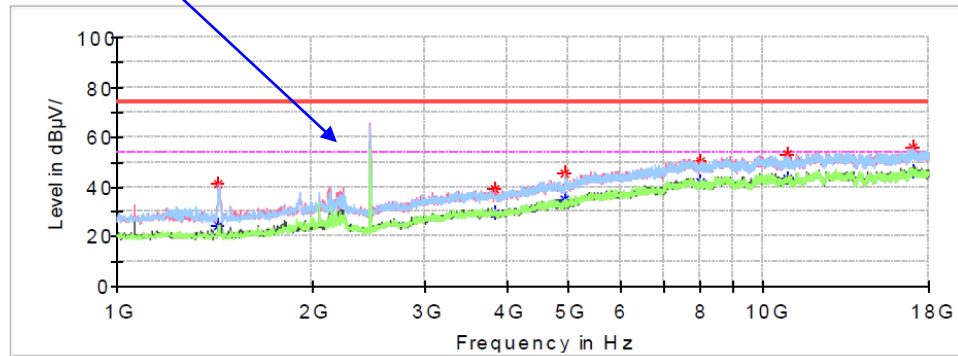
| Frequency (MHz) | MaxPeak (dB $\mu$ V/m) | Average (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|------------------------|------------------------|----------------------|-------------|-----|--------------|
| 1438.600000     | ---                    | 24.37                  | 54.00                | 29.63       | V   | -14.8        |
| 1438.600000     | 39.97                  | ---                    | 74.00                | 34.03       | V   | -14.8        |
| 3133.500000     | ---                    | 28.24                  | 54.00                | 25.76       | V   | -7.9         |
| 3133.500000     | 36.20                  | ---                    | 74.00                | 37.80       | V   | -7.9         |
| 4886.200000     | ---                    | 33.39                  | 54.00                | 20.61       | H   | -2.9         |
| 4886.200000     | 44.28                  | ---                    | 74.00                | 29.72       | H   | -2.9         |
| 6693.300000     | ---                    | 39.55                  | 54.00                | 14.45       | V   | 1.3          |
| 6693.300000     | 49.14                  | ---                    | 74.00                | 24.86       | V   | 1.3          |
| 9857.000000     | ---                    | 44.50                  | 54.00                | 9.50        | V   | 6.7          |
| 9857.000000     | 53.08                  | ---                    | 74.00                | 20.92       | V   | 6.7          |
| 17818.100000    | ---                    | 46.29                  | 54.00                | 7.71        | H   | 11.8         |
| 17818.100000    | 56.33                  | ---                    | 74.00                | 17.67       | H   | 11.8         |

**High Channel: 2466 MHz****Common Information**

Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter**

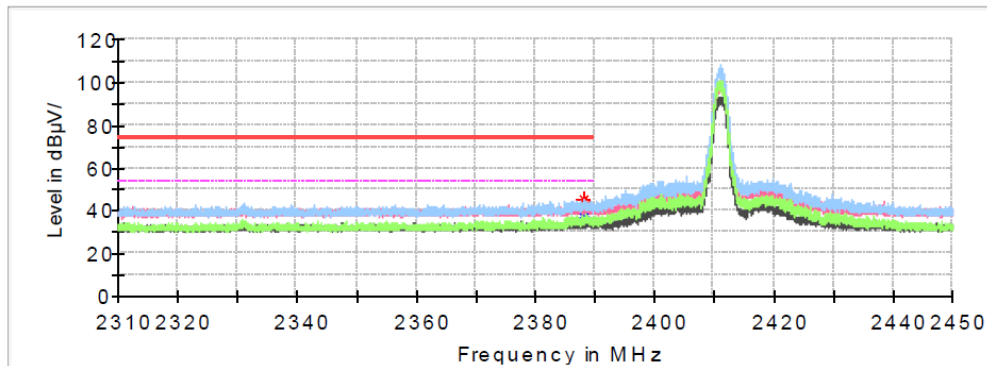
Full Spectrum

**Critical\_Freqs**

| Frequency (MHz) | MaxPeak (dB μ V/m) | Average (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 1436.900000     | ---                | 24.45              | 54.00            | 29.55       | V   | -14.8        |
| 1436.900000     | 41.32              | ---                | 74.00            | 32.68       | V   | -14.8        |
| 3849.200000     | ---                | 29.48              | 54.00            | 24.52       | V   | -6.0         |
| 3849.200000     | 39.14              | ---                | 74.00            | 34.86       | V   | -6.0         |
| 4932.100000     | ---                | 34.93              | 54.00            | 19.07       | H   | -2.7         |
| 4932.100000     | 45.14              | ---                | 74.00            | 28.86       | H   | -2.7         |
| 7964.900000     | ---                | 41.94              | 54.00            | 12.06       | V   | 3.9          |
| 7964.900000     | 50.70              | ---                | 74.00            | 23.30       | V   | 3.9          |
| 10861.700000    | ---                | 43.67              | 54.00            | 10.33       | V   | 7.3          |
| 10861.700000    | 53.14              | ---                | 74.00            | 20.86       | V   | 7.3          |
| 17065.000000    | ---                | 46.05              | 54.00            | 7.95        | H   | 12.2         |
| 17065.000000    | 55.72              | ---                | 74.00            | 18.28       | H   | 12.2         |

**Band Edge:****Low Channel****Common Information**

|                |                                                   |
|----------------|---------------------------------------------------|
| Project No.:   | RSHA240816001                                     |
| Test Mode:     | Transmitting                                      |
| Standard:      | FCC Part 15.247& FCC Part 15.205& FCC Part 15.209 |
| Test Engineer: | Destine Hu                                        |

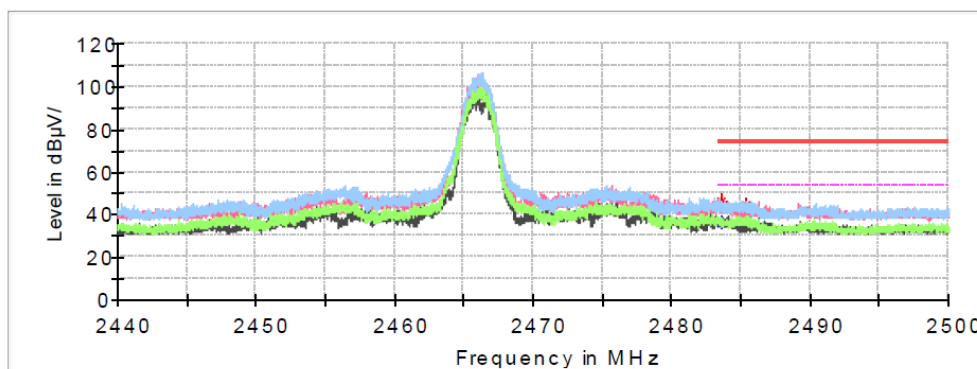
**Full Spectrum****Critical Freqs**

| Frequency (MHz) | MaxPeak (dB $\mu$ V/m) | Average (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|------------------------|------------------------|----------------------|-------------|-----|--------------|
| 2388.120000     | ---                    | 37.09                  | 54.00                | 16.91       | H   | -4.6         |
| 2388.120000     | 45.35                  | ---                    | 74.00                | 28.65       | H   | -4.6         |
| 2388.442000     | ---                    | 38.82                  | 54.00                | 15.18       | H   | -4.6         |
| 2388.442000     | 42.88                  | ---                    | 74.00                | 31.12       | H   | -4.6         |

**High Channel****Common Information**

Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209  
Test Engineer: Destine Hu

Full Spectrum

**Critical Freqs**

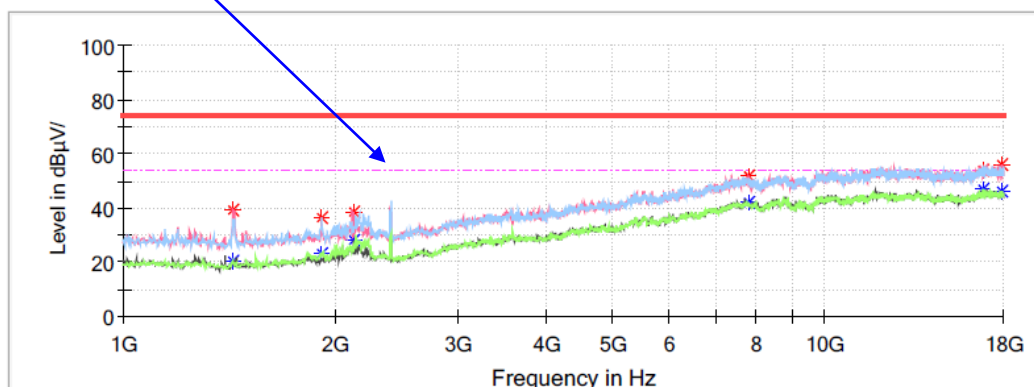
| Frequency (MHz) | MaxPeak (dB $\mu$ V/m) | Average (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|------------------------|------------------------|----------------------|-------------|-----|--------------|
| 2483.608000     | 46.56                  | ---                    | 74.00                | 27.44       | H   | -4.3         |
| 2483.608000     | ---                    | 36.26                  | 54.00                | 17.74       | H   | -4.3         |
| 2485.390000     | 44.61                  | ---                    | 74.00                | 29.39       | H   | -4.2         |
| 2485.390000     | ---                    | 39.84                  | 54.00                | 14.16       | H   | -4.2         |

**Antenna 1+Antenna 2 SRD (BW: 10 MHz)****Low Channel: 2411 MHz****Common Information**

Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter**

Full Spectrum

**Critical\_Freqs**

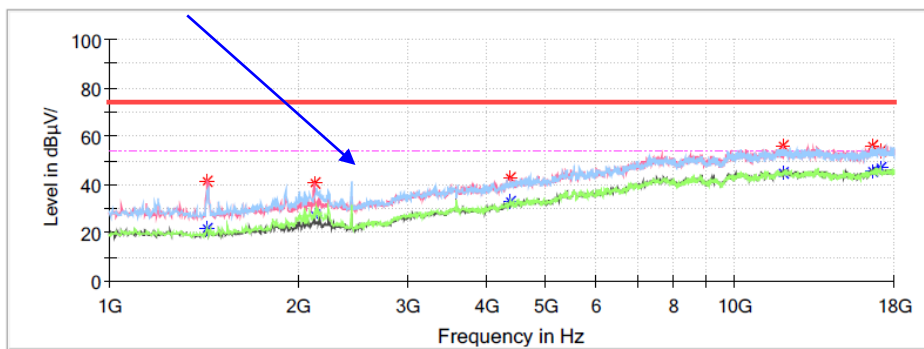
| Frequency (MHz) | MaxPeak (dB µ V/m) | Average (dB µ V/m) | Limit (dB µ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 1435.200000     | ---                | 20.20              | 54.00            | 33.80       | V   | -14.8        |
| 1435.200000     | 38.81              | ---                | 74.00            | 35.19       | V   | -14.8        |
| 1918.000000     | ---                | 23.18              | 54.00            | 30.82       | H   | -12.2        |
| 1918.000000     | 36.28              | ---                | 74.00            | 37.72       | H   | -12.2        |
| 2128.800000     | ---                | 28.02              | 54.00            | 25.98       | V   | -11.3        |
| 2128.800000     | 38.39              | ---                | 74.00            | 35.61       | V   | -11.3        |
| 7779.600000     | ---                | 41.63              | 54.00            | 12.37       | H   | 3.9          |
| 7779.600000     | 51.65              | ---                | 74.00            | 22.35       | H   | 3.9          |
| 16789.600000    | ---                | 47.01              | 54.00            | 6.99        | H   | 11.6         |
| 16789.600000    | 53.66              | ---                | 74.00            | 20.34       | H   | 11.6         |
| 17904.800000    | ---                | 45.85              | 54.00            | 8.15        | V   | 11.9         |
| 17904.800000    | 56.00              | ---                | 74.00            | 18.00       | V   | 11.9         |

**Middle Channel: 2444 MHz****Common Information**

Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter**

Full Spectrum

**Critical\_Freqs**

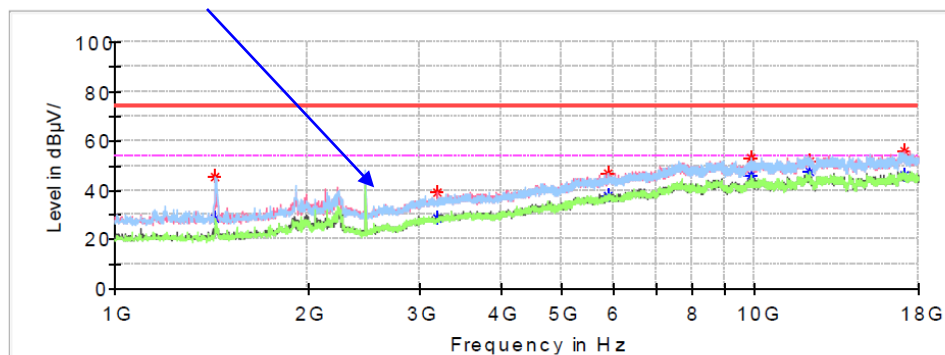
| Frequency (MHz) | MaxPeak (dB μ V/m) | Average (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 1435.200000     | ---                | 21.95              | 54.00            | 32.05       | V   | -14.8        |
| 1435.200000     | 41.19              | ---                | 74.00            | 32.81       | V   | -14.8        |
| 2125.400000     | ---                | 27.18              | 54.00            | 26.82       | V   | -11.3        |
| 2125.400000     | 40.52              | ---                | 74.00            | 33.48       | V   | -11.3        |
| 4369.400000     | ---                | 32.93              | 54.00            | 21.07       | V   | -4.7         |
| 4369.400000     | 42.45              | ---                | 74.00            | 31.55       | V   | -4.7         |
| 11971.800000    | ---                | 44.62              | 54.00            | 9.38        | V   | 9.0          |
| 11971.800000    | 55.63              | ---                | 74.00            | 18.37       | V   | 9.0          |
| 16595.800000    | 55.90              | ---                | 74.00            | 18.10       | H   | 11.1         |
| 16595.800000    | ---                | 45.51              | 54.00            | 8.49        | H   | 11.1         |
| 17088.800000    | 54.08              | ---                | 74.00            | 19.92       | H   | 12.1         |
| 17088.800000    | ---                | 47.04              | 54.00            | 6.96        | H   | 12.1         |

**High Channel: 2466 MHz****Common Information**

Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247& FCC Part 15.205& FCC Part 15.209  
Test Engineer: Destine Hu

**Fundamental Test with Band Reject Filter**

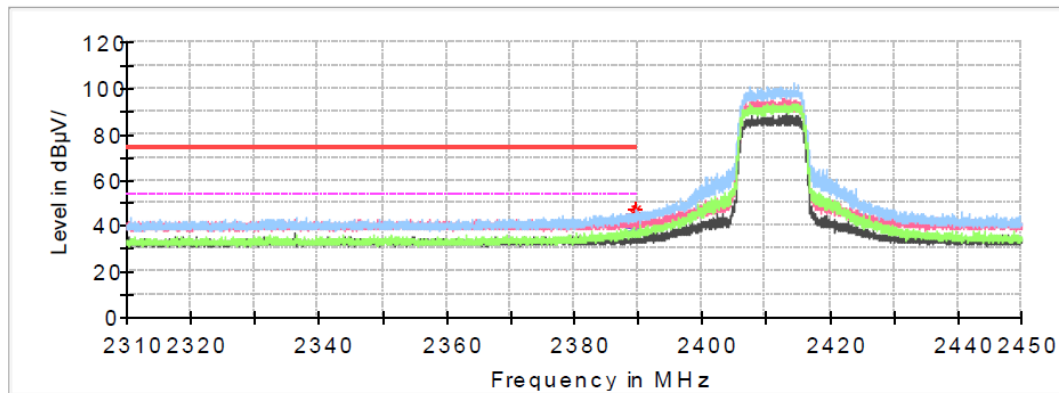
Full Spectrum

**Critical Freqs**

| Frequency (MHz) | MaxPeak (dB µ V/m) | Average (dB µ V/m) | Limit (dB µ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 1436.900000     | 45.75              | ---                | 74.00            | 28.25       | H   | -14.8        |
| 1436.900000     | ---                | 28.33              | 54.00            | 25.67       | H   | -14.8        |
| 3189.600000     | 38.86              | ---                | 74.00            | 35.14       | V   | -7.6         |
| 3189.600000     | ---                | 28.90              | 54.00            | 25.10       | V   | -7.6         |
| 5899.400000     | ---                | 37.42              | 54.00            | 16.58       | H   | -0.1         |
| 5899.400000     | 47.02              | ---                | 74.00            | 26.98       | H   | -0.1         |
| 9863.800000     | ---                | 45.97              | 54.00            | 8.03        | H   | 6.7          |
| 9863.800000     | 53.07              | ---                | 74.00            | 20.93       | H   | 6.7          |
| 12152.000000    | 51.99              | ---                | 74.00            | 22.01       | V   | 9.2          |
| 12152.000000    | ---                | 47.79              | 54.00            | 6.21        | V   | 9.2          |
| 17076.900000    | ---                | 46.40              | 54.00            | 7.60        | V   | 12.2         |
| 17076.900000    | 55.80              | ---                | 74.00            | 18.20       | V   | 12.2         |

**Band Edge:****Low Channel****Common Information**

|                |                                                   |
|----------------|---------------------------------------------------|
| Project No.:   | RSHA240816001                                     |
| Test Mode:     | Transmitting                                      |
| Standard:      | FCC Part 15.247& FCC Part 15.205& FCC Part 15.209 |
| Test Engineer: | Destine Hu                                        |

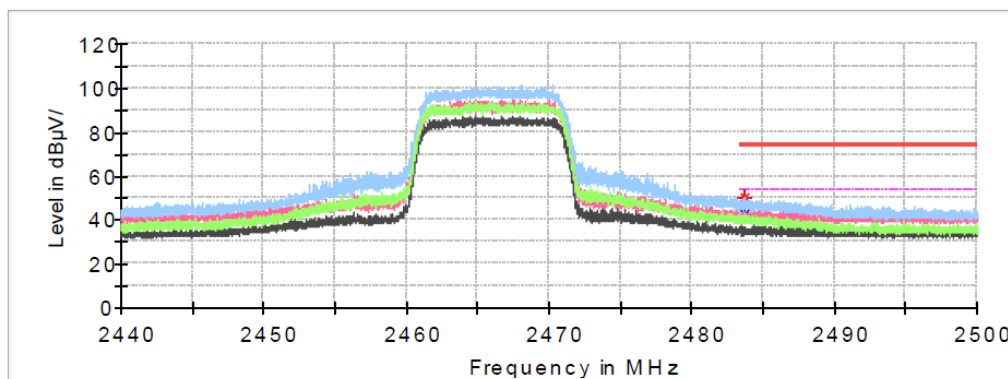
**Full Spectrum****Critical Freqs**

| Frequency (MHz) | MaxPeak (dB µ V/m) | Average (dB µ V/m) | Limit (dB µ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 2389.352000     | ---                | 39.07              | 54.00            | 14.93       | H   | -4.6         |
| 2389.352000     | 45.07              | ---                | 74.00            | 28.93       | H   | -4.6         |
| 2389.576000     | ---                | 37.76              | 54.00            | 16.24       | H   | -4.6         |
| 2389.576000     | 46.68              | ---                | 74.00            | 27.32       | H   | -4.6         |

**High Channel****Common Information**

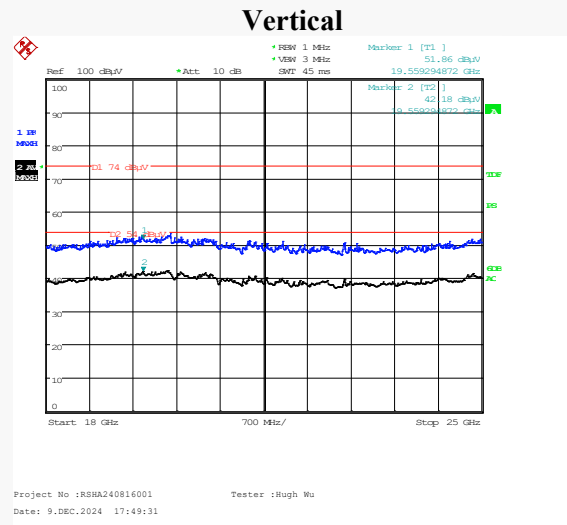
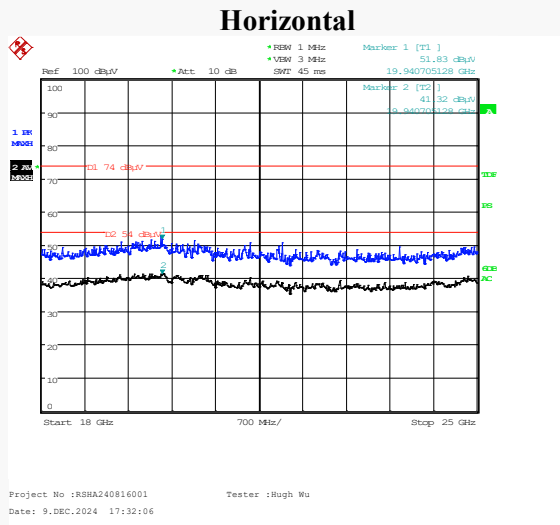
Project No.: RSHA240816001  
Test Mode: Transmitting  
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209  
Test Engineer: Destine Hu

Full Spectrum

**Critical Freqs**

| Frequency (MHz) | MaxPeak (dB µ V/m) | Average (dB µ V/m) | Limit (dB µ V/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|--------------------|--------------------|------------------|-------------|-----|--------------|
| 2483.662000     | ---                | 42.52              | 54.00            | 11.48       | H   | -4.3         |
| 2483.662000     | 47.05              | ---                | 74.00            | 26.95       | H   | -4.3         |
| 2483.698000     | ---                | 42.50              | 54.00            | 11.50       | H   | -4.3         |
| 2483.698000     | 50.12              | ---                | 74.00            | 23.88       | H   | -4.3         |

18GHz-25GHz: Antenna 1+Antenna 2 SRD (BW: 1.25 MHz) low Channel



Note: The test distance is 3m. The limit is 74dBμV/m (Peak) and 54dBμV/m (Average).

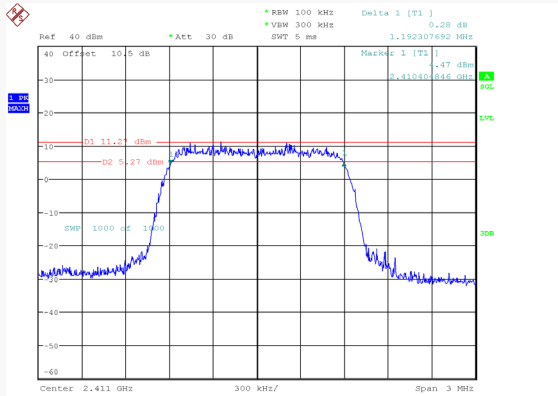
| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Pol | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-----|--------------|
| 19559.29        | ---              | 42.18            | 54             | 11.82       | V   | 11.01        |
| 19559.29        | 51.86            | ---              | 74             | 22.14       | V   | 11.01        |
| 19940.71        | ---              | 41.32            | 54             | 12.68       | H   | 12.11        |
| 19940.71        | 51.83            | ---              | 74             | 22.17       | H   | 12.11        |

**6 dB EMISSION BANDWIDTH***EUT operation mode: Transmitting*

| Antenna   | Mode                  | Channel | Frequency (MHz) | Result (MHz) | Limit (MHz) |
|-----------|-----------------------|---------|-----------------|--------------|-------------|
| Antenna 1 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 1.192        | 0.5         |
|           |                       | Middle  | 2444            | 1.197        |             |
|           |                       | High    | 2466            | 1.178        |             |
|           | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 9.495        | 0.5         |
|           |                       | Middle  | 2444            | 9.535        |             |
|           |                       | High    | 2466            | 9.455        |             |
| Antenna 2 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 1.231        | 0.5         |
|           |                       | Middle  | 2444            | 1.221        |             |
|           |                       | High    | 2466            | 1.221        |             |
|           | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 9.495        | 0.5         |
|           |                       | Middle  | 2444            | 9.495        |             |
|           |                       | High    | 2466            | 9.535        |             |

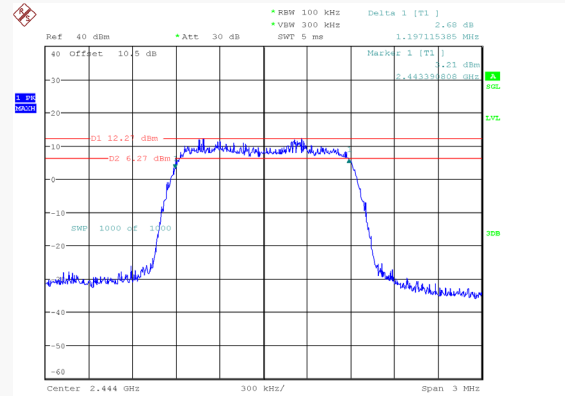
# Antenna 1 1.25 MHz

## Low Channel



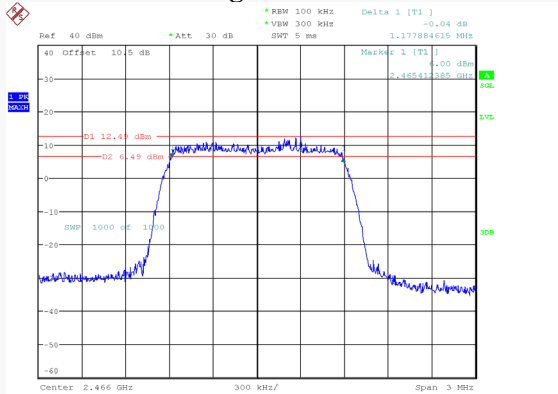
ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 19:15:40

## Middle Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 19:18:59

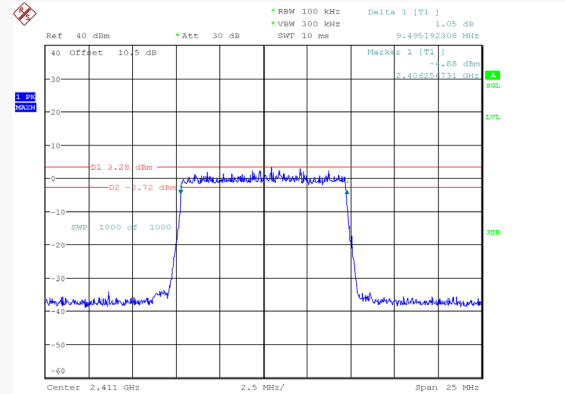
## High Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 19:21:23

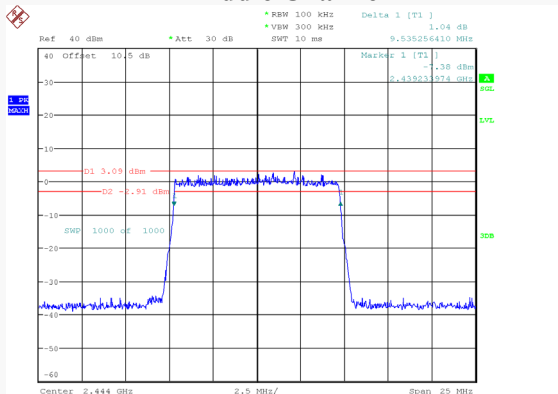
# Antenna 1 BW: 10 MHz

## Low Channel



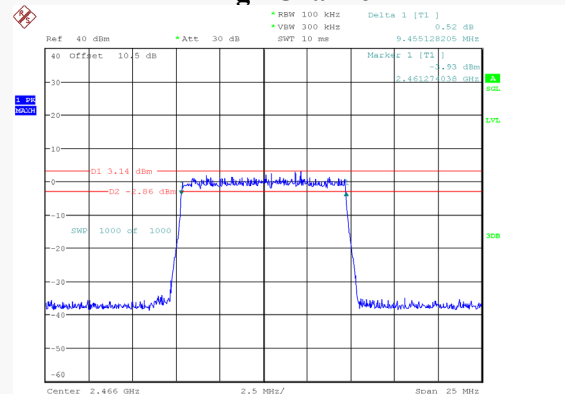
ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 16:50:40

## Middle Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 16:54:23

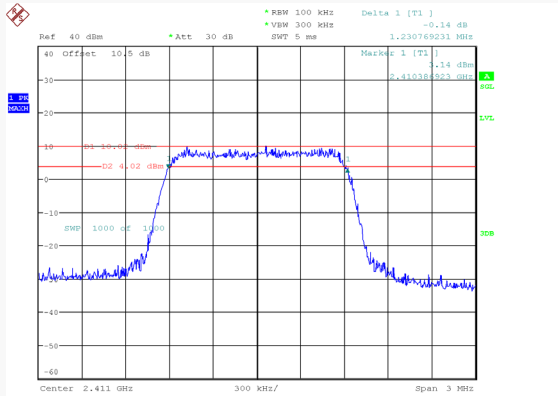
## High Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 16:59:40

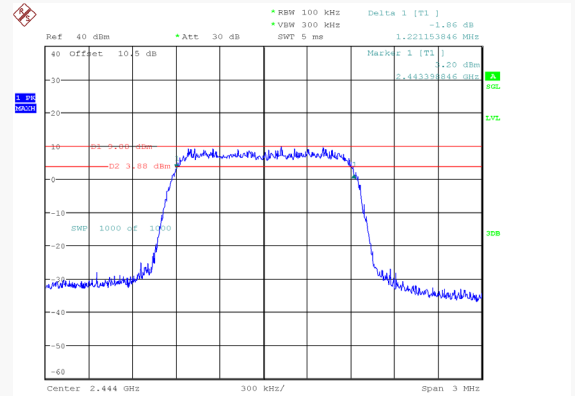
## Antenna 2 1.25 MHz

### Low Channel



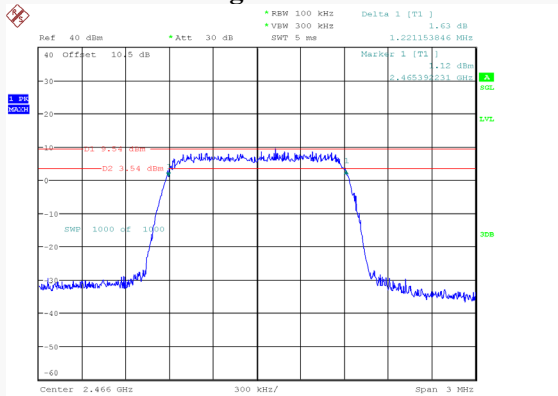
ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 20:00:46

### Middle Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 20:03:09

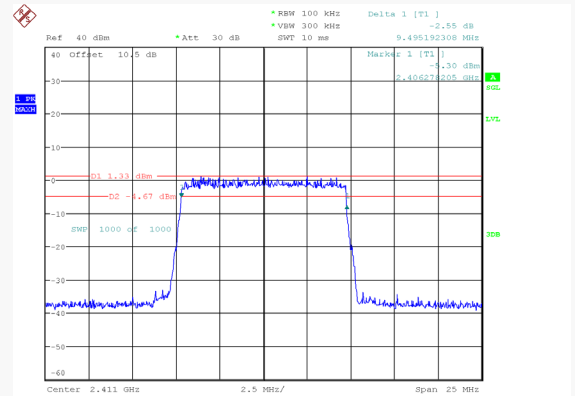
### High Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 26.NOV.2024 20:05:17

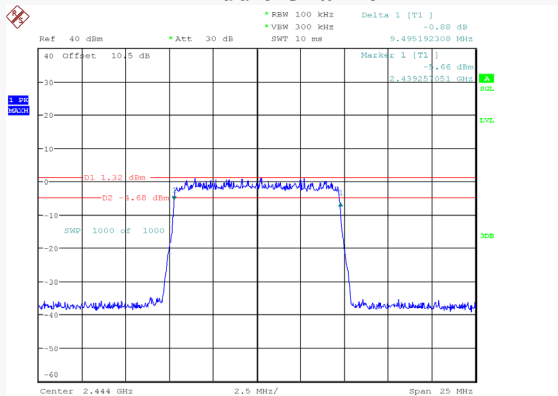
## Antenna 2 BW: 10 MHz

### Low Channel



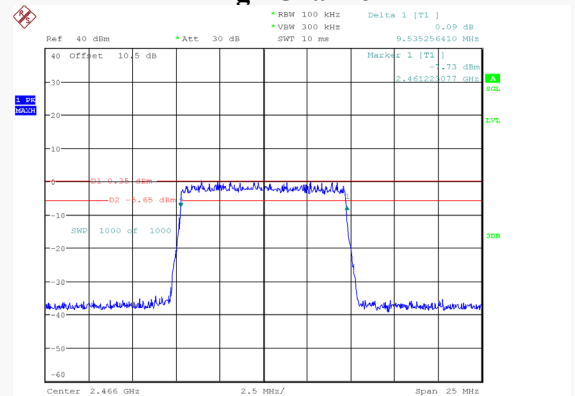
ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 17:15:10

### Middle Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 17:17:59

### High Channel



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 29.NOV.2024 17:20:59

**MAXIMUM CONDUCTED OUTPUT POWER***EUT operation mode: Transmitting*

| Antenna             | Mode                  | Channel | Frequency (MHz) | Max Conducted Peak Output Power (dBm) | Limit (dBm) |
|---------------------|-----------------------|---------|-----------------|---------------------------------------|-------------|
| Antenna 1           | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 22.32                                 | 30          |
|                     |                       | Middle  | 2444            | 22.29                                 |             |
|                     |                       | High    | 2466            | 22.25                                 |             |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 19.73                                 | 30          |
|                     |                       | Middle  | 2444            | 20.28                                 |             |
|                     |                       | High    | 2466            | 20.24                                 |             |
| Antenna 2           | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 21.35                                 | 30          |
|                     |                       | Middle  | 2444            | 20.51                                 |             |
|                     |                       | High    | 2466            | 20.56                                 |             |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 20.53                                 | 30          |
|                     |                       | Middle  | 2444            | 20.25                                 |             |
|                     |                       | High    | 2466            | 19.44                                 |             |
| Antenna 1+Antenna 2 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | 24.87                                 | 30          |
|                     |                       | Middle  | 2444            | 24.50                                 |             |
|                     |                       | High    | 2466            | 24.50                                 |             |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | 23.16                                 | 30          |
|                     |                       | Middle  | 2444            | 23.28                                 |             |
|                     |                       | High    | 2466            | 22.87                                 |             |

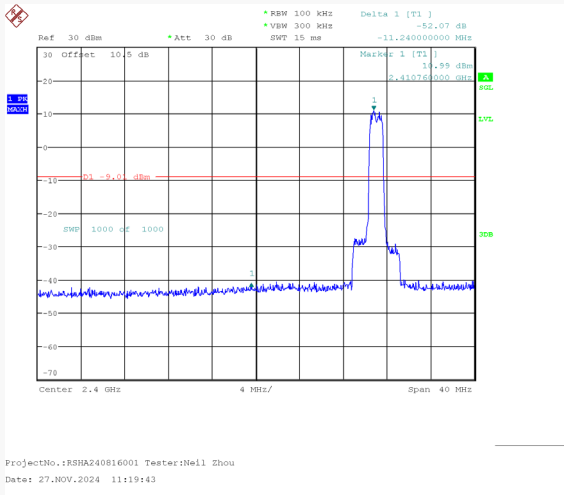
**Note:** 1.simultaneous =  $10 \cdot \log_{10}(10^{\text{Antenna 1/10}} + 10^{\text{Antenna 2/10}})$ 2. All transmit signals are completely uncorrelated with each other, Directional gain =  $G_{\text{ANT}}$

100 kHz Bandwidth of Frequency Band Edge

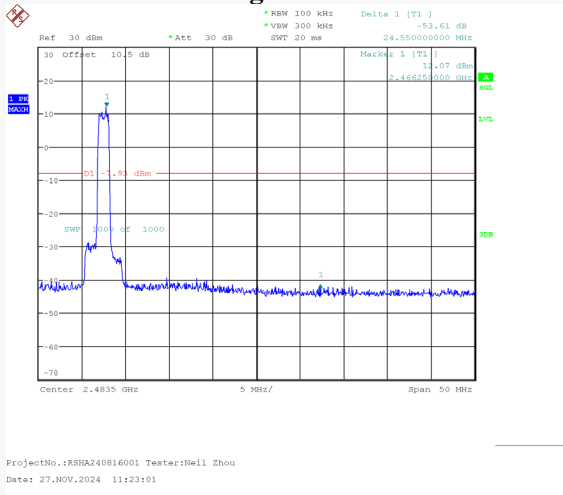
EUT operation mode: Transmitting

Antenna 1 1.25 MHz

Left Side

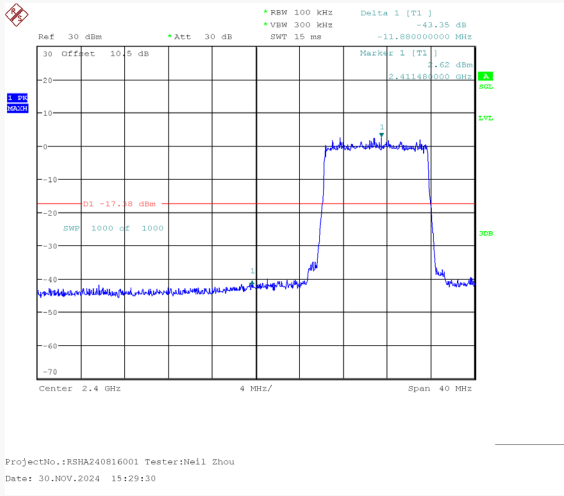


Right Side

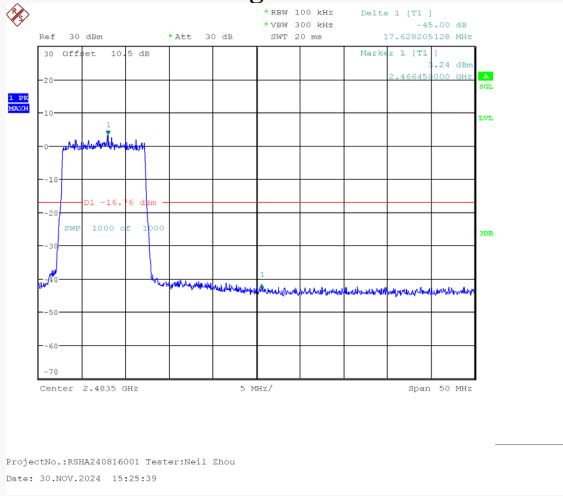


Antenna 1 BW: 10 MHz

Left Side

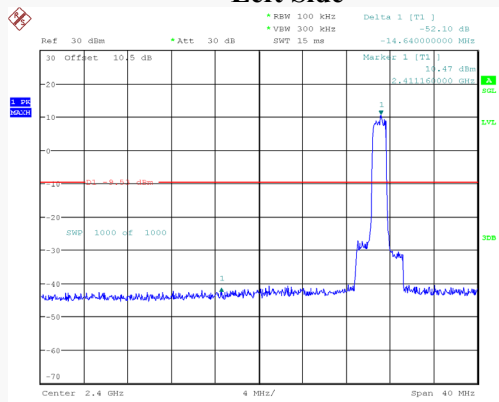


Right Side



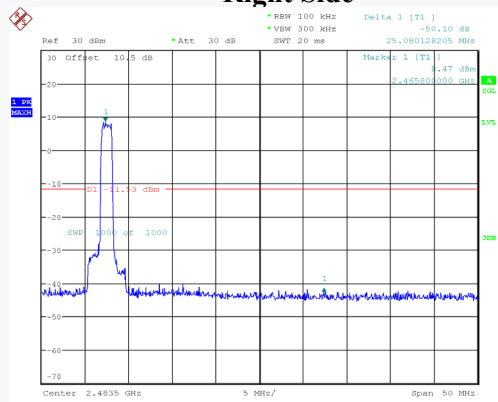
Antenna 2 1.25 MHz

Left Side



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 27.NOV.2024 11:57:16

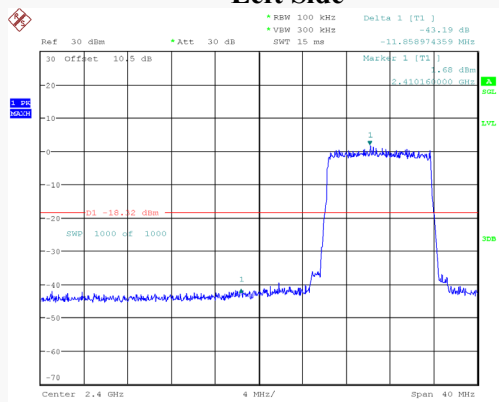
Right Side



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 27.NOV.2024 12:01:32

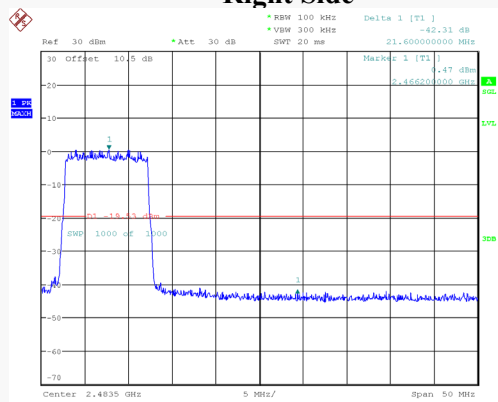
Antenna 2 BW: 10 MHz

Left Side



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 30.NOV.2024 15:32:56

Right Side



ProjectNo.:RSHA240816001 Tester:Neil Zhou  
Date: 30.NOV.2024 15:35:57

## Power Spectral Density

EUT operation mode: Transmitting

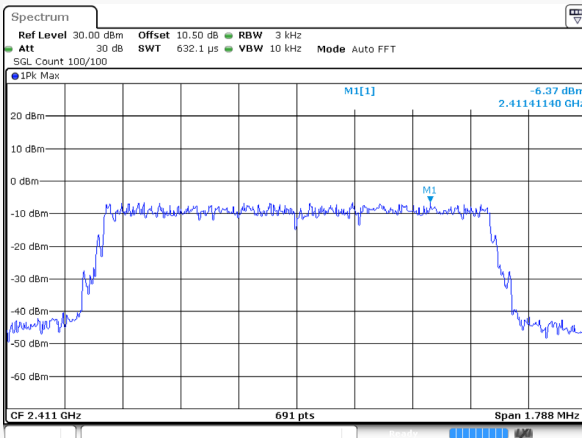
| Antenna             | Mode                  | Channel | Frequency (MHz) | Result (dBm/3kHz) | Limit (dBm/3kHz) |
|---------------------|-----------------------|---------|-----------------|-------------------|------------------|
| Antenna 1           | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | -6.37             | 8                |
|                     |                       | Middle  | 2444            | -5.40             |                  |
|                     |                       | High    | 2466            | -5.71             |                  |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | -14.27            | 8                |
|                     |                       | Middle  | 2444            | -13.71            |                  |
|                     |                       | High    | 2466            | -13.40            |                  |
| Antenna 2           | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | -6.03             | 8                |
|                     |                       | Middle  | 2444            | -6.76             |                  |
|                     |                       | High    | 2466            | -7.39             |                  |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | -14.35            | 8                |
|                     |                       | Middle  | 2444            | -15.20            |                  |
|                     |                       | High    | 2466            | -15.87            |                  |
| Antenna 1+Antenna 2 | SRD<br>(BW: 1.25 MHz) | Low     | 2411            | -3.19             | 8                |
|                     |                       | Middle  | 2444            | -3.02             |                  |
|                     |                       | High    | 2466            | -3.46             |                  |
|                     | SRD<br>(BW: 10 MHz)   | Low     | 2411            | -11.30            | 8                |
|                     |                       | Middle  | 2444            | -11.38            |                  |
|                     |                       | High    | 2466            | -11.45            |                  |

**Note:**

1. simultaneous =  $10 \cdot \log_{10}(10^{\text{Antenna 1}/10} + 10^{\text{Antenna 2}/10})$
2. All transmit signals are completely uncorrelated with each other, Directional gain =  $G_{\text{ANT}}$

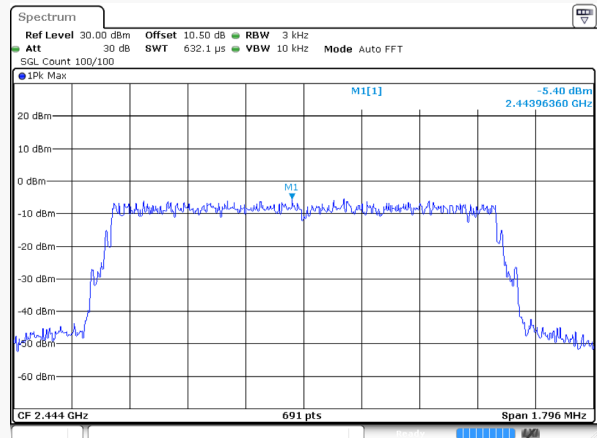
# Antenna 1 1.25 MHz

## Low Channel



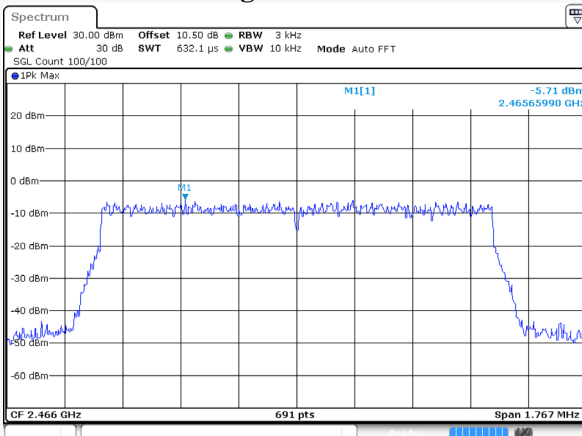
ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:52:40

## Middle Channel



ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:53:21

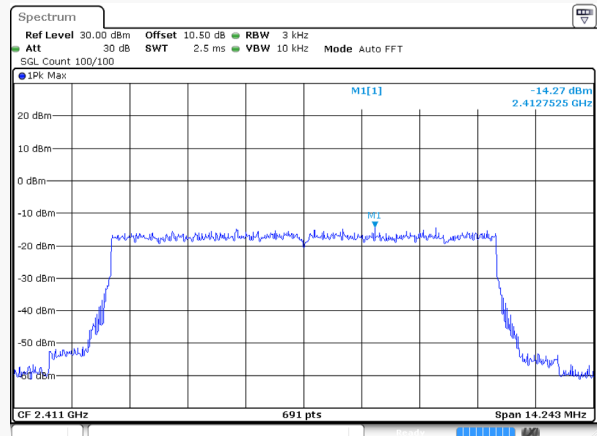
## High Channel



ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:54:02

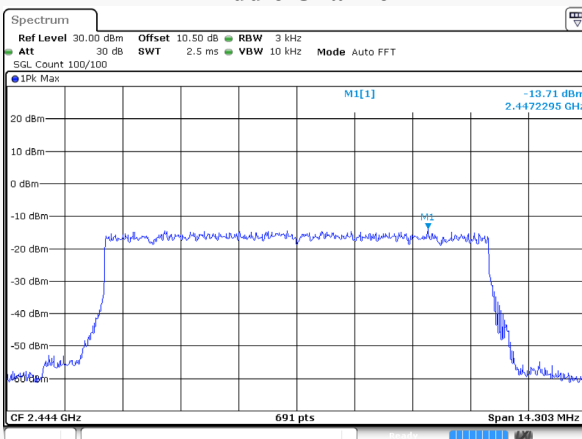
# Antenna 1 BW: 10 MHz

## Low Channel



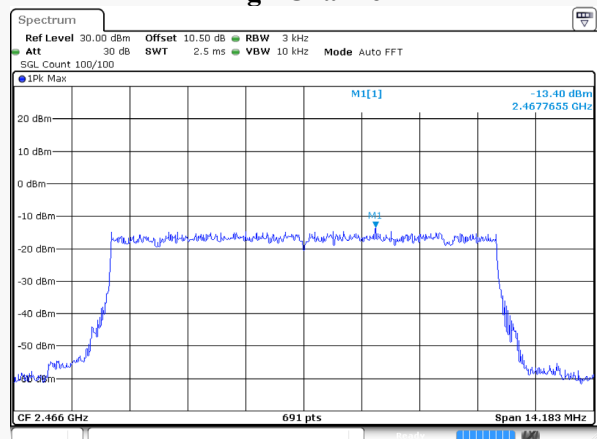
ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:37:27

## Middle Channel



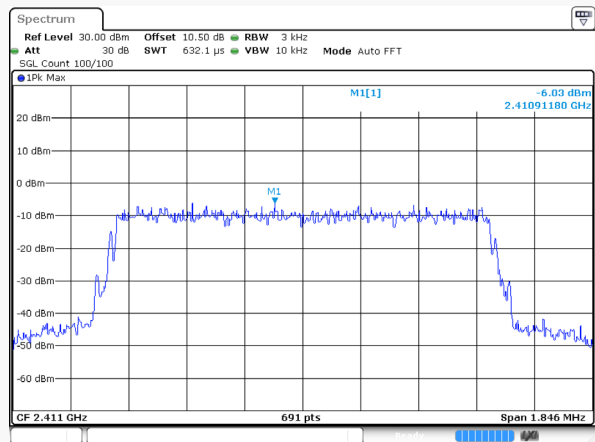
ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:39:55

## High Channel

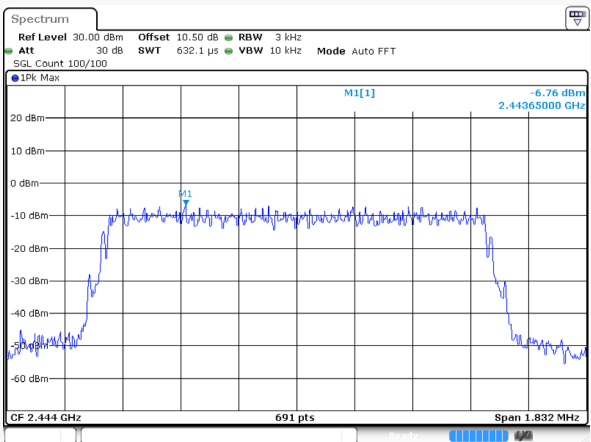


ProjectNo.: RSHA240816001 Tester: Neil Zhou  
Date: 13 JAN 2025 15:41:02

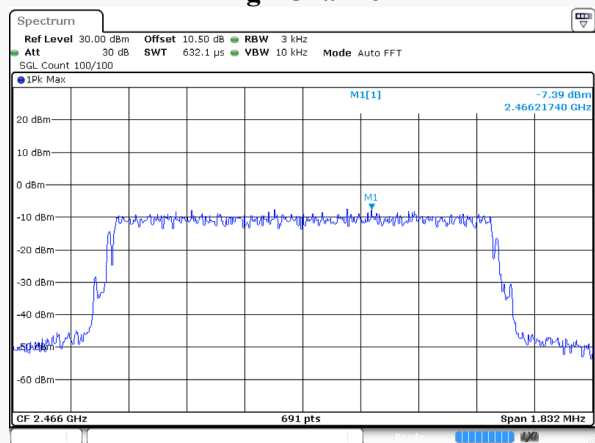
Antenna 2 1.25 MHz  
Low Channel



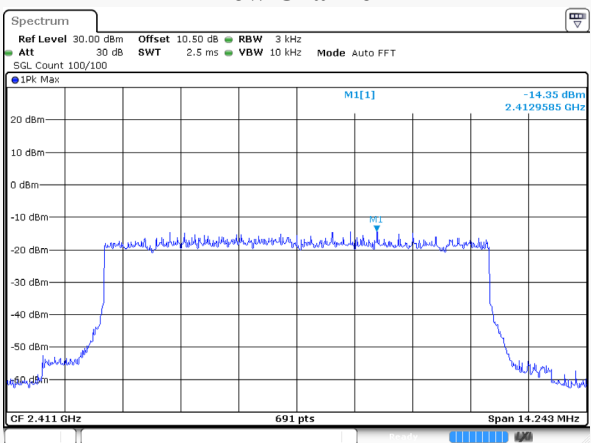
Middle Channel



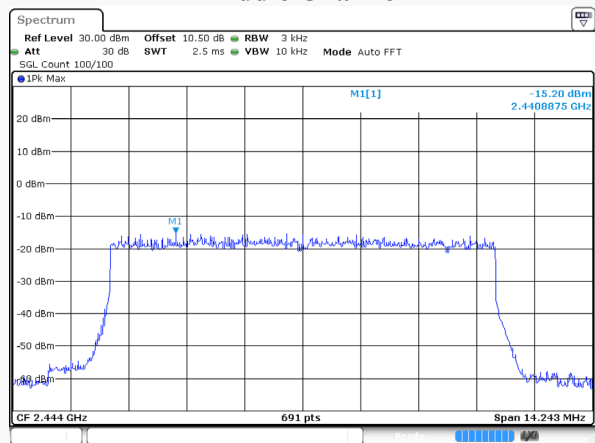
High Channel



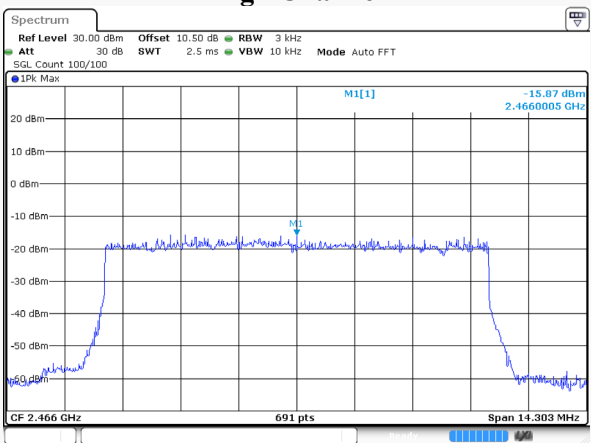
Antenna 2 BW: 10 MHz  
Low Channel



Middle Channel



High Channel



## **EUT PHOTOGRAPHS**

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Please refer to the attachment EXHIBIT A - EUT EXTERNAL PHOTOGRAPHS and EXHIBIT B - EUT INTERNAL PHOTOGRAPHS.

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## **TEST SETUP PHOTOGRAPHS**

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Please refer to the attachment EXHIBIT C - TEST SETUP PHOTOGRAPHS.

### **Declarations**

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with “★”.
2. The test data was only valid for the test sample(s).
3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor  $k=2$  with the 95.45% confidence interval.

**\*\*\*\*\* END OF REPORT \*\*\*\*\***