

# RF TEST REPORT

**FCC ID: 2AJ2LFJ03YG**

Test Report No.....: RF260128003-01-001

Product(s) Name.....: Reli Smart Aquarium F30

Model(s).....: FJ03YG, FJ03YGH

Trade Mark.....: RELI

Applicant.....: Beijing MADV Technology CO., Ltd.

Address.....: No.80, Floor4, building17, Yard30, shixingdajie  
ShijingshanDistrict, Beijing,100041, CHINA

Receipt Date.....: 2026.06.30

Test Date.....: 2026.07.01 ~ 2026.07.20

Issued Date.....: 2026.07.21

Standards.....: 47 CFR FCC Part 15, Subpart C(Section 15.247);  
ANSI C63.10: 2020

Testing Laboratory.....: Shenzhen Haiyun Standard Technical Co., Ltd.

| Prepared By:       | Checked By:       | Approved By:     |  |
|--------------------|-------------------|------------------|---------------------------------------------------------------------------------------|
| Jason Huang        | Black Ding        | Tim Zhang        |                                                                                       |
| <i>Jason Huang</i> | <i>Black Ding</i> | <i>Tim Zhang</i> |                                                                                       |

# Table of Contents

|                                                     |           |
|-----------------------------------------------------|-----------|
| <b>History of this test report.....</b>             | <b>4</b>  |
| <b>1. General Information .....</b>                 | <b>5</b>  |
| 1.1 Applicant .....                                 | 5         |
| 1.2 Manufacturer .....                              | 5         |
| 1.3 Basic Description of Equipment Under Test ..... | 5         |
| 1.4 Transmit Operating Mode .....                   | 6         |
| <b>2. Summary of Test Results .....</b>             | <b>7</b>  |
| 2.1 Summary of Test Items .....                     | 7         |
| 2.2 Application of Standard .....                   | 7         |
| 2.3 Test Instruments .....                          | 8         |
| 2.4 Test Mode .....                                 | 10        |
| 2.5 Test Condition .....                            | 11        |
| 2.6 Duty Cycle of Test Signal .....                 | 11        |
| 2.7 Measurement Uncertainty .....                   | 16        |
| 2.8 Test Location .....                             | 16        |
| 2.9 Description of Support Units .....              | 16        |
| <b>3. Test Procedure And Results .....</b>          | <b>17</b> |
| 3.1 AC Power Line Conducted Emission .....          | 17        |
| 3.1.1 Limit .....                                   | 17        |
| 3.1.2 Test Procedure .....                          | 17        |
| 3.1.3 Test Setup .....                              | 17        |
| 3.1.4 Test Result .....                             | 17        |
| 3.2 Radiated Emission and Band Edge .....           | 20        |
| 3.2.1 Limit .....                                   | 20        |
| 3.2.2 Test Procedure .....                          | 20        |
| 3.2.3 Test Setup .....                              | 21        |
| 3.2.4 Test Result .....                             | 23        |
| 3.3 Spurious Emission at Antenna Port .....         | 45        |
| 3.3.1 Limit .....                                   | 45        |
| 3.3.2 Test Procedure .....                          | 45        |
| 3.3.3 Test Setup .....                              | 46        |
| 3.3.4 The Result .....                              | 46        |

|       |                                                    |    |
|-------|----------------------------------------------------|----|
| 3.4   | 6dB Bandwidth.....                                 | 64 |
| 3.4.1 | Limit .....                                        | 64 |
| 3.4.2 | Test Procedure.....                                | 64 |
| 3.4.3 | Test Setup.....                                    | 64 |
| 3.4.4 | Test Result .....                                  | 65 |
| 3.5   | Maximum conducted output power .....               | 75 |
| 3.5.1 | Limit .....                                        | 75 |
| 3.5.2 | Test Procedure.....                                | 75 |
| 3.5.3 | Test Setup.....                                    | 75 |
| 3.5.4 | Table of Parameters of Text Software Setting ..... | 76 |
| 3.5.5 | The Result .....                                   | 77 |
| 3.6   | Power Spectral Density.....                        | 78 |
| 3.6.1 | Limit .....                                        | 78 |
| 3.6.2 | Test Procedure.....                                | 78 |
| 3.6.3 | Test Setup.....                                    | 78 |
| 3.6.4 | The Result .....                                   | 79 |

## History of this test report

Original Report Issue Date: 2026.07.21

- ☒ No additional attachment
- ☐ Additional attachments were issued following record

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
|                |            |             |
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# 1. General Information

## 1.1 Applicant

**Beijing MADV Technology CO., Ltd.**

No.80, Floor4, building17, Yard30, shixingdajie Shijingshan District, Beijing,100041, CHINA

## 1.2 Manufacturer

**Reli Technologies LLC**

919N Market St Suite 950, Wilmington, DE 19801

## 1.3 Basic Description of Equipment Under Test

|                                                       |                                                                                                                                                                                                                                                                |                                |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Sample No.                                            | POC260128003-S001, POC260128003-S002                                                                                                                                                                                                                           |                                |
| Product name                                          | Reli Smart Aquarium F30                                                                                                                                                                                                                                        |                                |
| Model name                                            | FJ03YG, FJ03YGH                                                                                                                                                                                                                                                |                                |
| Model difference                                      | Different models represent different heights of fish tanks. All parts involving the circuit are distributed on the tank lid, and the tank lids of different heights are made of the same material, so the circuit parts are the same and do not affect testing |                                |
| Trade Mark                                            | RELI                                                                                                                                                                                                                                                           |                                |
| Power supply                                          | DC 5V from adapter                                                                                                                                                                                                                                             |                                |
| Adapter information                                   | Model name: SG-0502000AU<br>Input: 100-240V~, 50-60Hz, 0.3A max<br>Output: 5.0V==2.0A; 10.0W                                                                                                                                                                   |                                |
| EUT Stage                                             | ○ Product Unit                                                                                                                                                                                                                                                 | ● Final-Sample                 |
| Operating Band and Conducted Output Power (Max power) | 2400MHz ~ 2483.5MHz                                                                                                                                                                                                                                            | ●IEEE 802.11b:14.47dBm(0.028W) |
| Product Type                                          | IEEE 802.11b/g/n/ax: WLAN (SISO)                                                                                                                                                                                                                               |                                |
| Nominal Bandwidth                                     | 20MHz                                                                                                                                                                                                                                                          |                                |
| Modulation                                            | DSSS, OFDM                                                                                                                                                                                                                                                     |                                |
| Data Rate (Mbps)                                      | IEEE 802.11b mode: 1/2/5.5/11<br>IEEE 802.11g mode: 6/9/12/18/24/36/48/54<br>IEEE 802.11n mode: up to 150<br>IEEE 802.11ax mode: up to 287                                                                                                                     |                                |
| Antenna gain                                          | 4.48dBi                                                                                                                                                                                                                                                        |                                |
| Antenna type                                          | FPC Antenna                                                                                                                                                                                                                                                    |                                |

Eleven channels are provided for 802.11b, 802.11g, 802.11n20, 802.11ax20:

| Frequency Band       | Channel No. | Frequency | Channel No. | Frequency |
|----------------------|-------------|-----------|-------------|-----------|
| 2400MHz ~ 2483.5 MHz | 01          | 2412MHz   | 07          | 2442MHz   |
|                      | 02          | 2417MHz   | 08          | 2447MHz   |
|                      | 03          | 2422MHz   | 09          | 2452MHz   |
|                      | 04          | 2427MHz   | 10          | 2457MHz   |
|                      | 05          | 2432MHz   | 11          | 2462MHz   |
|                      | 06          | 2437MHz   | /           | /         |

## 1.4 Transmit Operating Mode

| Transmit Operating Mode          |                                                        |                |                                  |     | Transmit Multiple Antennas       |     |                       |     |                       |     |
|----------------------------------|--------------------------------------------------------|----------------|----------------------------------|-----|----------------------------------|-----|-----------------------|-----|-----------------------|-----|
| <input checked="" type="radio"/> | Operating mode 1 (single antenna)                      |                |                                  |     | <input checked="" type="radio"/> | 1TX |                       |     |                       |     |
| <input type="radio"/>            | Operating mode 2 (multiple antenna, no beam forming)   |                |                                  |     | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX | <input type="radio"/> | 4TX |
| <input type="radio"/>            | Operating mode 3 (multiple antenna, with beam forming) |                |                                  |     | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX | <input type="radio"/> | 4TX |
| <input checked="" type="radio"/> | 802.11b                                                | Operating mode | <input checked="" type="radio"/> | 1TX | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX |                       |     |
| <input checked="" type="radio"/> | 802.11g                                                | Operating mode | <input checked="" type="radio"/> | 1TX | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX |                       |     |
| <input checked="" type="radio"/> | 802.11n20                                              | Operating mode | <input checked="" type="radio"/> | 1TX | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX |                       |     |
| <input checked="" type="radio"/> | 802.11ax20                                             | Operating mode | <input checked="" type="radio"/> | 1TX | <input type="radio"/>            | 2TX | <input type="radio"/> | 3TX |                       |     |

## 2. Summary of Test Results

### 2.1 Summary of Test Items

| 47 CFR FCC Part 15, Subpart C (Section 15.247)                                       |                             |            |                                   |
|--------------------------------------------------------------------------------------|-----------------------------|------------|-----------------------------------|
| Test item                                                                            | FCC Clause                  | Results    | Remarks                           |
| AC Power Conducted Emission                                                          | 15.207                      | Pass       | Meet the requirement of the limit |
| Radiated Emission and Band<br>Edge Measurement                                       | 15.205/15.209<br>/15.247(d) | Pass       | Meet the requirement of the limit |
| Spurious Emission at Antenna<br>Port                                                 | 15.247(d)                   | Pass       | Meet the requirement of the limit |
| 6dB Bandwidth                                                                        | 15.247(a)(2)                | Pass       | Meet the requirement of the limit |
| Maximum Conducted Power                                                              | 15.247(b)                   | Pass       | Meet the requirement of the limit |
| Power Spectral Density                                                               | 15.247(e)                   | Pass       | Meet the requirement of the limit |
| Antenna Requirements                                                                 | 15.203                      | Compliance | Note                              |
| Note: The EUT has one Integrated antenna arrangement which was permanently attached. |                             |            |                                   |

### 2.2 Application of Standard

47 CFR FCC Part 15, Subpart C (Section 15.247)

KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10: 2020

## 2.3 Test Instruments

| No.                    | Name of Equipment        | Manufacturer              | Model Number               | Serial Number | Inventory No. | Last Calibration | Due Calibration |
|------------------------|--------------------------|---------------------------|----------------------------|---------------|---------------|------------------|-----------------|
| Radiated Emission      |                          |                           |                            |               |               |                  |                 |
| 1                      | Test receiver            | Rohde&Schwarz             | ESU                        | 100184        | JLE011        | 2026/2/27        | 2027/2/26       |
| 2                      | Log periodic antenna     | Schwarzbeck               | VULB 9168                  | 1151          | JLE012        | 2025/4/12        | 2028/4/11       |
| 3                      | Low frequency amplifier  | /                         | LNA 0920N                  | 2014          | JLE023        | 2026/2/27        | 2027/2/26       |
| 4                      | High frequency amplifier | Schwarzbeck               | BBV 9718                   | 9718-284      | JLE024        | 2026/2/27        | 2027/2/26       |
| 5                      | Horn Antenna             | SCHWARZBECK               | BBHA 9120 D                | 02670         | JLE028        | 2025/4/12        | 2028/4/11       |
| 6                      | Temp&Humidity Recorder   | Meideshi                  | JR900                      | /             | JLE021        | 2026/4/08        | 2027/4/07       |
| 7                      | Horn Antenna             | SCHWARZBECK               | BBHA 9170                  | 9170#685      | JLE029        | 2024/7/15        | 2027/7/14       |
| 8                      | Loop Antenna             | SCHWARZBECK               | FMZB1519B                  | 00029         | JLE030        | 2024/7/15        | 2027/7/14       |
| 9                      | Broadband preamplifier   | Schwarzbeck               | BBV9721                    | 9721-019      | JLE025        | 2026/2/27        | 2027/2/26       |
| 10                     | Filter                   | dsusoft                   | ZBSF6-C5170-533<br>0-544   | 07227557      | /             | N/A              | N/A             |
| 11                     | Filter                   | dsusoft                   | ZBSF6-C5495-570<br>5-1309  | 07227558      | /             | N/A              | N/A             |
| 12                     | Filter                   | dsusoft                   | ZBSF6-C5745-583<br>0-1310  | 07227559      | /             | N/A              | N/A             |
| 13                     | Filter                   | dsusoft                   | ZBSF6-C2400-248<br>3.5-543 | 07227559      | /             | N/A              | N/A             |
| 14                     | 10dB attenuator          | dsusoft                   | 10dB                       | /             | /             | 2026/2/27        | 2027/2/26       |
| 15                     | Filter                   | dsusoft                   | ZBSF6-C3000-180<br>00-174  | 07227597      | /             | N/A              | N/A             |
| 16                     | Filter                   | dsusoft                   | ZBSF6-C6500-180<br>00-547  | 07227595      | /             | N/A              | N/A             |
| 17                     | Test software            | Farad Technology Co., Ltd | EZ-EMC Ver.TW-03A2         |               |               |                  |                 |
| RF Conducted Emissions |                          |                           |                            |               |               |                  |                 |
| 1                      | MXA Signal Analyzer      | Keysight                  | N9010A                     | MY51440158    | JLE087        | 2025/9/15        | 2026/9/14       |
| 2                      | MXA Signal Analyzer      | Agilent                   | N9020A                     | MY52220022    | JLE090        | 2026/1/19        | 2027/1/18       |
| 3                      | SPECTRUM ANALYZER        | R/S                       | FSV40-N                    | 101425        | JLE120        | 2026/1/19        | 2027/1/18       |
| 4                      | RF Control Unit          | dsusoft                   | JS0806-2                   | 21G8060449    | JLE053        | 2026/2/27        | 2027/2/26       |
| 5                      | power supply unit        | dsusoft                   | JS0806-4ADC                | N/A           | JLE055        | 2026/2/27        | 2027/2/26       |

|                              |                                     |                           |                       |                            |        |           |           |
|------------------------------|-------------------------------------|---------------------------|-----------------------|----------------------------|--------|-----------|-----------|
| 6                            | VXG Signal Generator                | Keysight                  | N5182B                | MY59100855                 | JLE068 | 2026/4/14 | 2027/4/13 |
| 7                            | EXG Analog Signal Generator         | Keysight                  | N5173B                | MY59101282                 | JLE052 | 2026/2/27 | 2027/2/26 |
| 8                            | Wideband Radio Communication Tester | Rohde&Schwarz             | CMW500                | 1201.0002K5<br>0-116064-Dt | JLE054 | 2026/2/27 | 2027/2/26 |
| 9                            | Test software                       | dsusoft                   | JS1120-3 Ver.3.2.22.0 |                            |        |           |           |
| Conducted Emission(AC mains) |                                     |                           |                       |                            |        |           |           |
| 1                            | LISN                                | Rohde&Schwarz             | ENV216                | 100075                     | JLE002 | 2026/2/27 | 2027/2/26 |
| 2                            | ISN                                 | Schwarzbeck               | CATE 5 8158           | #171                       | JLE003 | 2026/2/27 | 2027/2/26 |
| 3                            | ISN                                 | Schwarzbeck               | CAT 3 8158            | 00187                      | JLE032 | 2026/2/27 | 2027/2/26 |
| 4                            | Test receiver                       | Rohde&Schwarz             | ESCI                  | 100718                     | JLE010 | 2026/2/27 | 2027/2/26 |
| 5                            | Pulse limiter                       | Rohde&Schwarz             | ESH3-Z2               | 102299                     | JLE047 | 2026/2/27 | 2027/2/26 |
| 6                            | Temp&Humidity Recorder              | Meideshi                  | JR900                 | /                          | JLE020 | 2026/4/08 | 2027/4/07 |
| 7                            | Test software                       | Farad Technology Co., Ltd | EZ-EMC Ver.TW-03A2    |                            |        |           |           |

## 2.4 Test Mode

| Test Items                                  | Mode           | Data Rate | Channel  |
|---------------------------------------------|----------------|-----------|----------|
| Radiated Emission and Band Edge Measurement | 802.11b        | 1Mbps     | 01/06/11 |
|                                             | 802.11g        | 6Mbps     | 01/06/11 |
|                                             | 802.11n20SISO  | MCS0      | 01/06/11 |
|                                             | 802.11ax20SISO | MCS0      | 01/06/11 |
| Spurious Emission at Antenna Port           | 802.11b        | 1Mbps     | 01/06/11 |
|                                             | 802.11g        | 6Mbps     | 01/06/11 |
|                                             | 802.11n20SISO  | MCS0      | 01/06/11 |
|                                             | 802.11ax20SISO | MCS0      | 01/06/11 |
| 6dB Bandwidth                               | 802.11b        | 1Mbps     | 01/06/11 |
|                                             | 802.11g        | 6Mbps     | 01/06/11 |
|                                             | 802.11n20SISO  | MCS0      | 01/06/11 |
|                                             | 802.11ax20SISO | MCS0      | 01/06/11 |
| Maximum Conducted Power                     | 802.11b        | 1Mbps     | 01/06/11 |
|                                             | 802.11g        | 6Mbps     | 01/06/11 |
|                                             | 802.11n20SISO  | MCS0      | 01/06/11 |
|                                             | 802.11ax20SISO | MCS0      | 01/06/11 |
| Power Spectral Density                      | 802.11b        | 1Mbps     | 01/06/11 |
|                                             | 802.11g        | 6Mbps     | 01/06/11 |
|                                             | 802.11n20SISO  | MCS0      | 01/06/11 |
|                                             | 802.11ax20SISO | MCS0      | 01/06/11 |

Note: For Radiated Emission below 1GHz, only worst case was recorded.

## 2.5 Test Condition

| Applicable to                               | Environmental conditions | Input Power  | Tested by   |
|---------------------------------------------|--------------------------|--------------|-------------|
| Radiated Emission and Band Edge Measurement | 22.9°C, 49% RH           | AC 120V/60Hz | Keith Huang |
| Spurious Emission at Antenna Port           | 21.6°C, 48% RH           | AC 120V/60Hz | Lemon He    |
| 6dB Bandwidth                               | 21.6°C, 48% RH           | AC 120V/60Hz | Lemon He    |
| Maximum Conducted Power                     | 21.6°C, 48% RH           | AC 120V/60Hz | Lemon He    |
| Power Spectral Density                      | 21.6°C, 48% RH           | AC 120V/60Hz | Lemon He    |
| AC Power Line Conducted Emissions           | 22.1°C, 50% RH           | AC 120V/60Hz | Lemon He    |

Note:

The applicant declare the operating environment of EUT as below:

Normal conditions: AC 120V/60Hz, 0~40°C

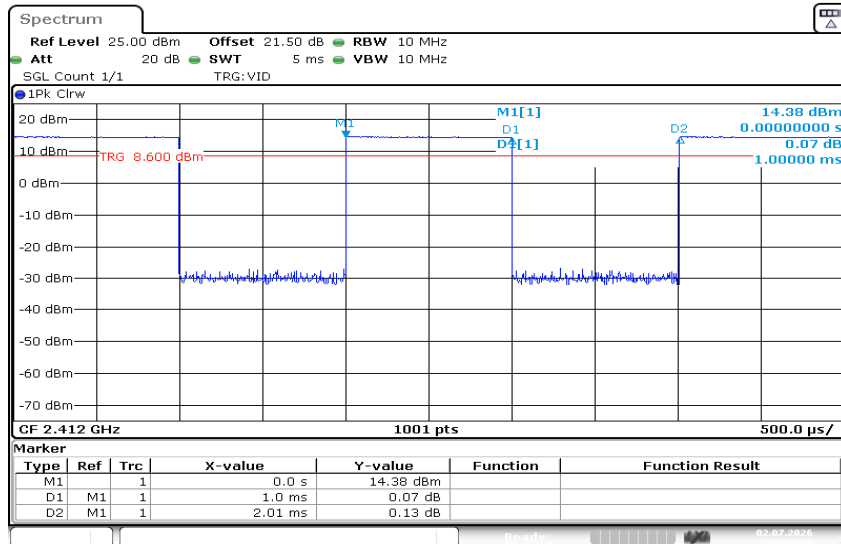
## 2.6 Duty Cycle of Test Signal

If duty cycle is  $\geq 98\%$ , duty factor is not required.

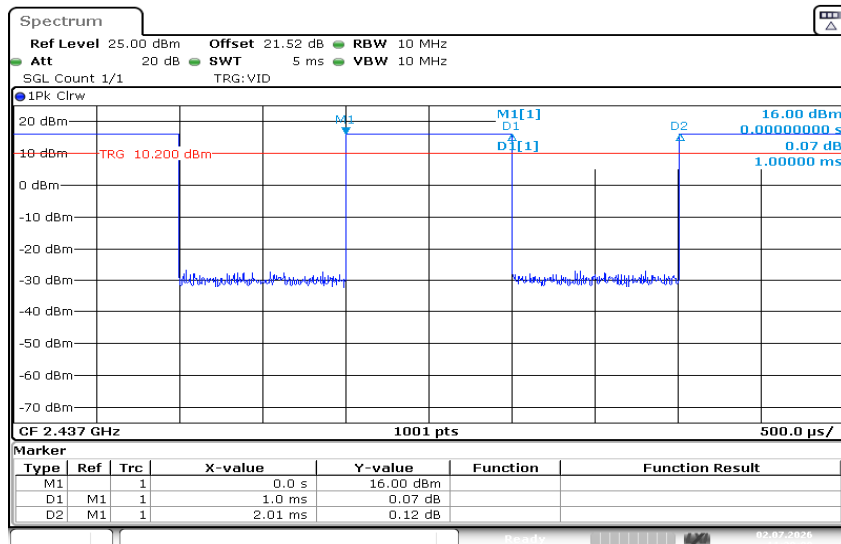
If duty cycle is  $< 98\%$ , duty factor shall be considered.

All the duty factor of other test mode have been considered.

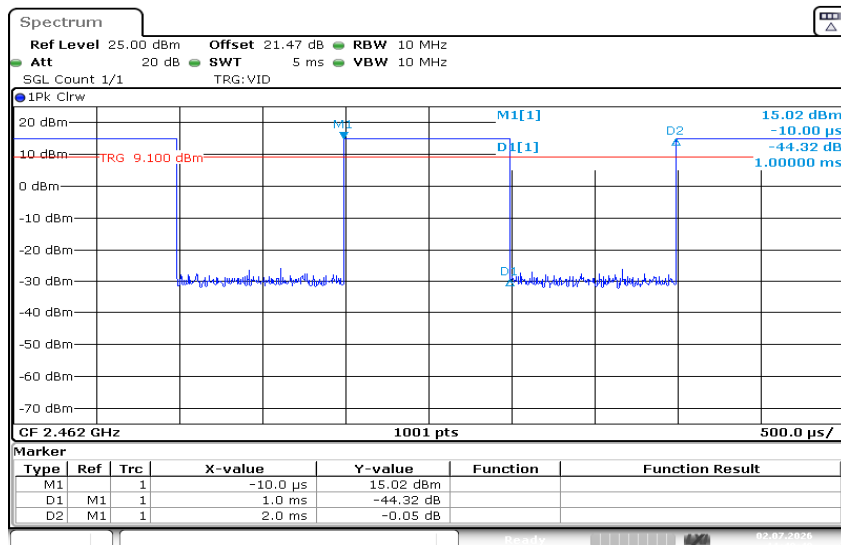
| TestMode   | Antenna | Frequency[MHz] | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | Factor |
|------------|---------|----------------|----------------------------|--------------------------|----------------|--------|
| 11B        | Ant1    | 2412           | 1.00                       | 2.01                     | 49.75          | 3.03   |
| 11B        | Ant1    | 2437           | 1.00                       | 2.01                     | 49.75          | 3.03   |
| 11B        | Ant1    | 2462           | 1.00                       | 2.00                     | 50.00          | 3.01   |
| 11G        | Ant1    | 2412           | 0.51                       | 1.01                     | 50.50          | 2.97   |
| 11G        | Ant1    | 2437           | 0.51                       | 1.01                     | 50.50          | 2.97   |
| 11G        | Ant1    | 2462           | 0.51                       | 1.01                     | 50.50          | 2.97   |
| 11N20SISO  | Ant1    | 2412           | 0.51                       | 1.03                     | 49.51          | 3.05   |
| 11N20SISO  | Ant1    | 2437           | 0.51                       | 1.03                     | 49.51          | 3.05   |
| 11N20SISO  | Ant1    | 2462           | 0.51                       | 1.03                     | 49.51          | 3.05   |
| 11AX20SISO | Ant1    | 2412           | 3.87                       | 7.96                     | 48.62          | 3.13   |
| 11AX20SISO | Ant1    | 2437           | 3.85                       | 7.96                     | 48.37          | 3.15   |
| 11AX20SISO | Ant1    | 2462           | 3.88                       | 7.97                     | 48.68          | 3.13   |



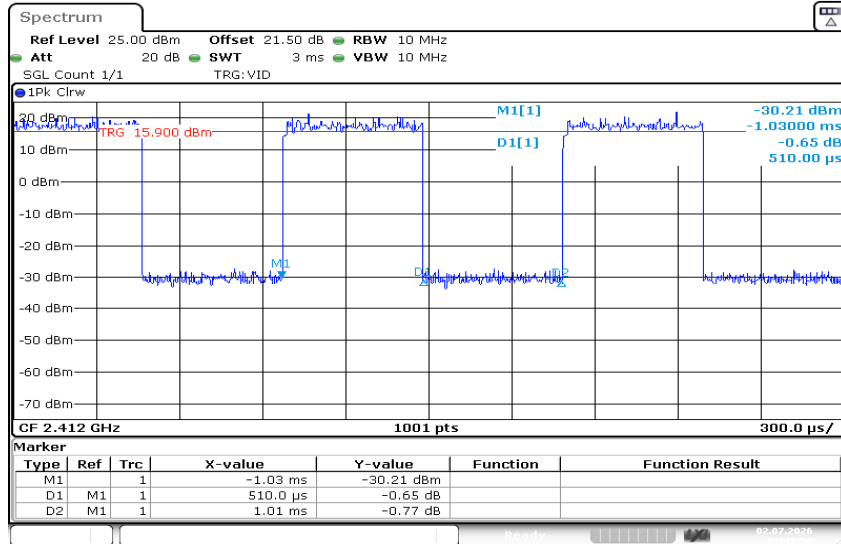
NTNV-11B-Ant1-2412



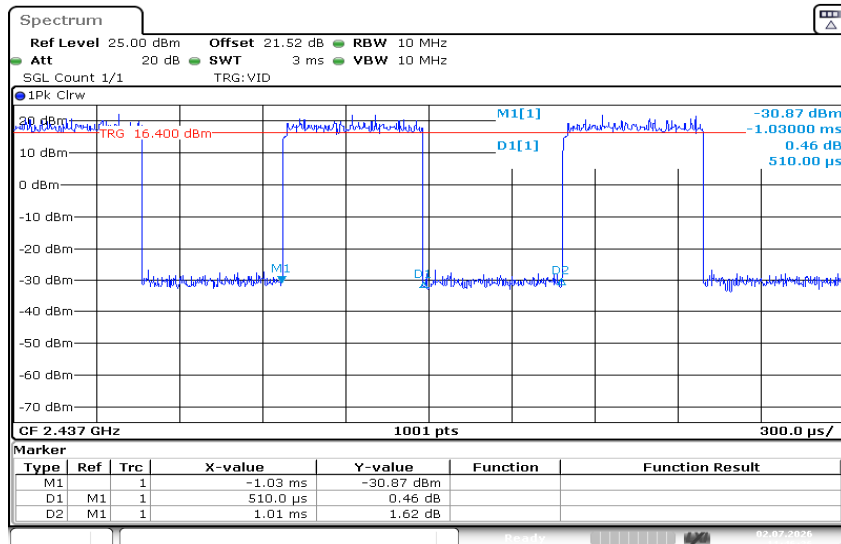
NTNV-11B-Ant1-2437



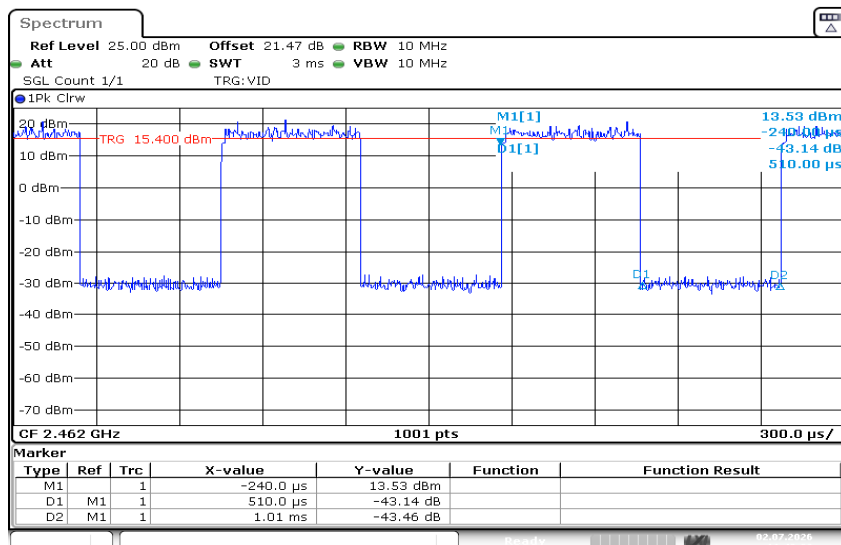
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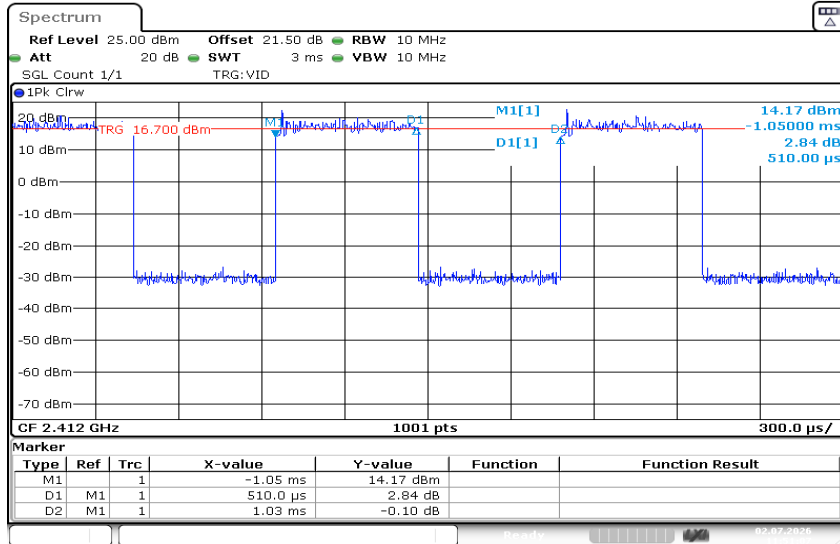
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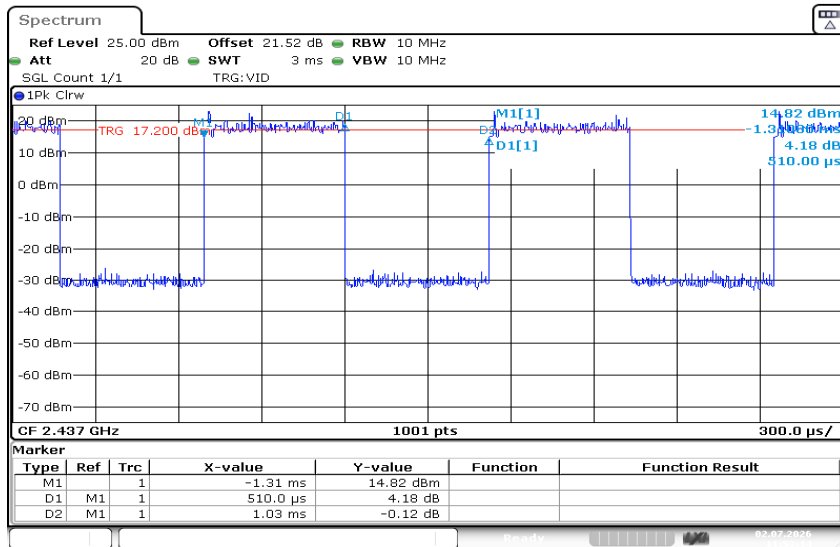
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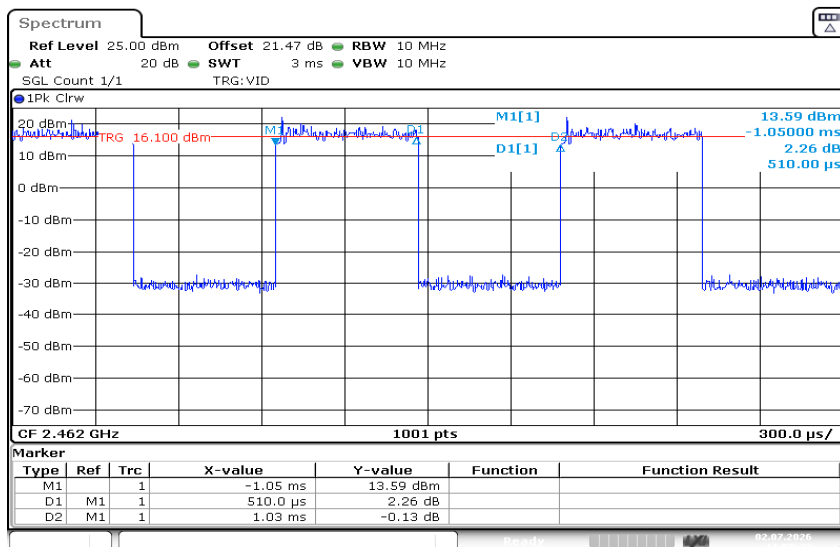
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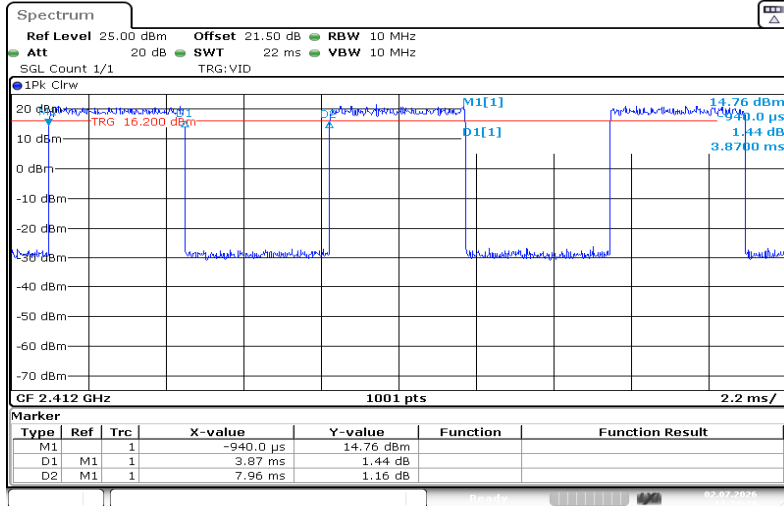
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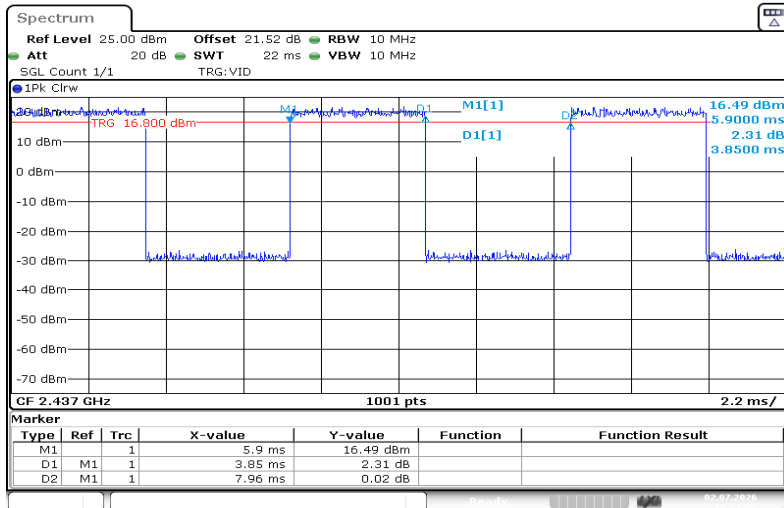
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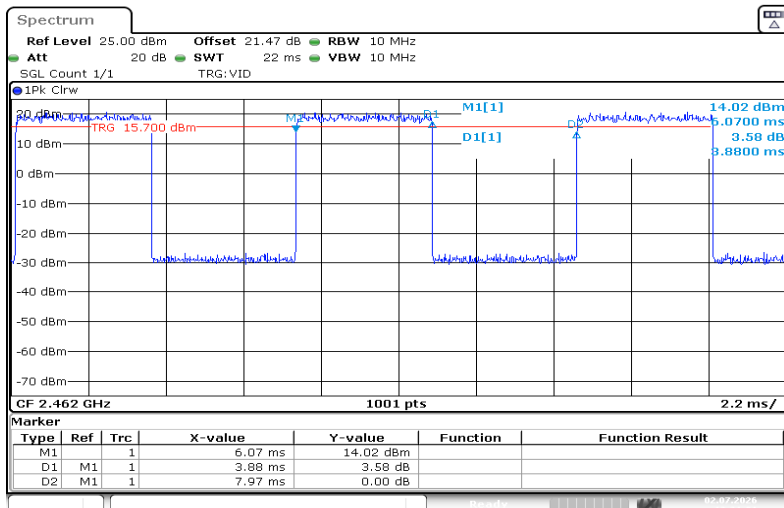
# NTNV-11N20SISO-Ant1-2462



# NTNV-11AX20SISO-Ant1-2412



# NTNV-11AX20SISO-Ant1-2437



# NTNV-11AX20SISO-Ant1-2462

## 2.7 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated 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))

| Uncertainty                            |             |
|----------------------------------------|-------------|
| Parameter                              | Uncertainty |
| Occupied Channel Bandwidth             | ±102kHz     |
| RF power conducted                     | ±0.243dB    |
| Power Spectral Density                 | ±0.743dB    |
| Conducted Spurious Emission            | ±1.328dB    |
| Conducted emission(9kHz~30MHz) AC main | ±2.68dB     |
| Radiated emission(9kHz~30MHz)          | ±3.50dB     |
| Radiated emission (30MHz~1GHz)         | ±4.20dB     |
| Radiated emission (1GHz~18GHz)         | ±5.10dB     |
| Radiated emission (18GHz~40GHz)        | ±5.26dB     |

## 2.8 Test Location

|                           |                                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------|
| Company:                  | Shenzhen Haiyun Standard Technical Co., Ltd.                                                |
| Address:                  | No. 110-113, 115, 116, Block B, Jinyuan Business Building, Bao'an District, Shenzhen, China |
| CNAS Registration Number: | CNAS L18252                                                                                 |
| CAB identifier            | CN0145                                                                                      |
| A2LA Certificate Number   | 6823.01                                                                                     |

## 2.9 Description of Support Units

| No. | Equipment | Model  | Manufacturer | Rating | Series No    |
|-----|-----------|--------|--------------|--------|--------------|
| 1   | PC        | M4500T | Thinkpad     | /      | M032004854IT |
| 2   | /         | /      | /            | /      | /            |
| 3   | /         | /      | /            | /      | /            |

### 3. Test Procedure And Results

#### 3.1 AC Power Line Conducted Emission

##### 3.1.1 Limit

| Frequency       | Maximum RF Line Voltage          |                               |
|-----------------|----------------------------------|-------------------------------|
|                 | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
| 150kHz ~ 500kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500kHz ~ 5MHz   | 56                               | 46                            |
| 5MHz ~ 30MHz    | 60                               | 50                            |

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

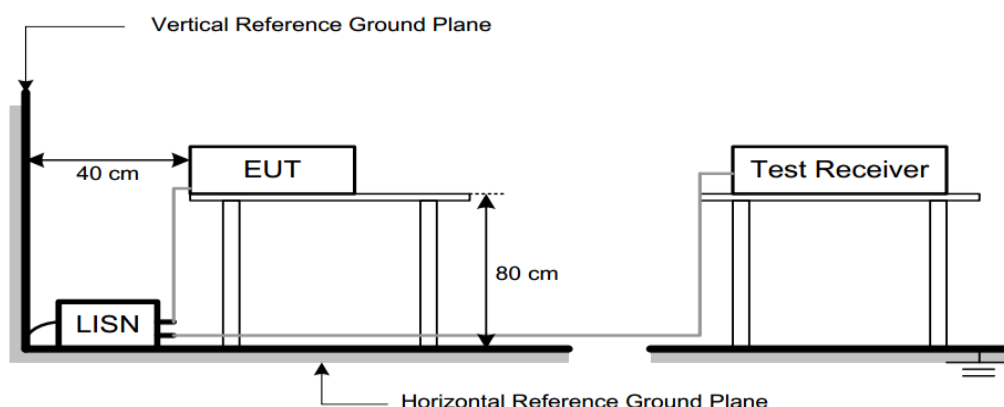
##### 3.1.2 Test Procedure

| Test Method                                              |                                                  |
|----------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement   | <input type="radio"/> Radiated Measurement       |
| Test Channels                                            |                                                  |
| <input type="radio"/> Lowest, Middle and Highest Channel | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                 |                                                  |
| <input checked="" type="radio"/> Normal                  | <input type="radio"/> Normal and Extreme         |

Note: ☒ : Test    ☐ : No Test

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

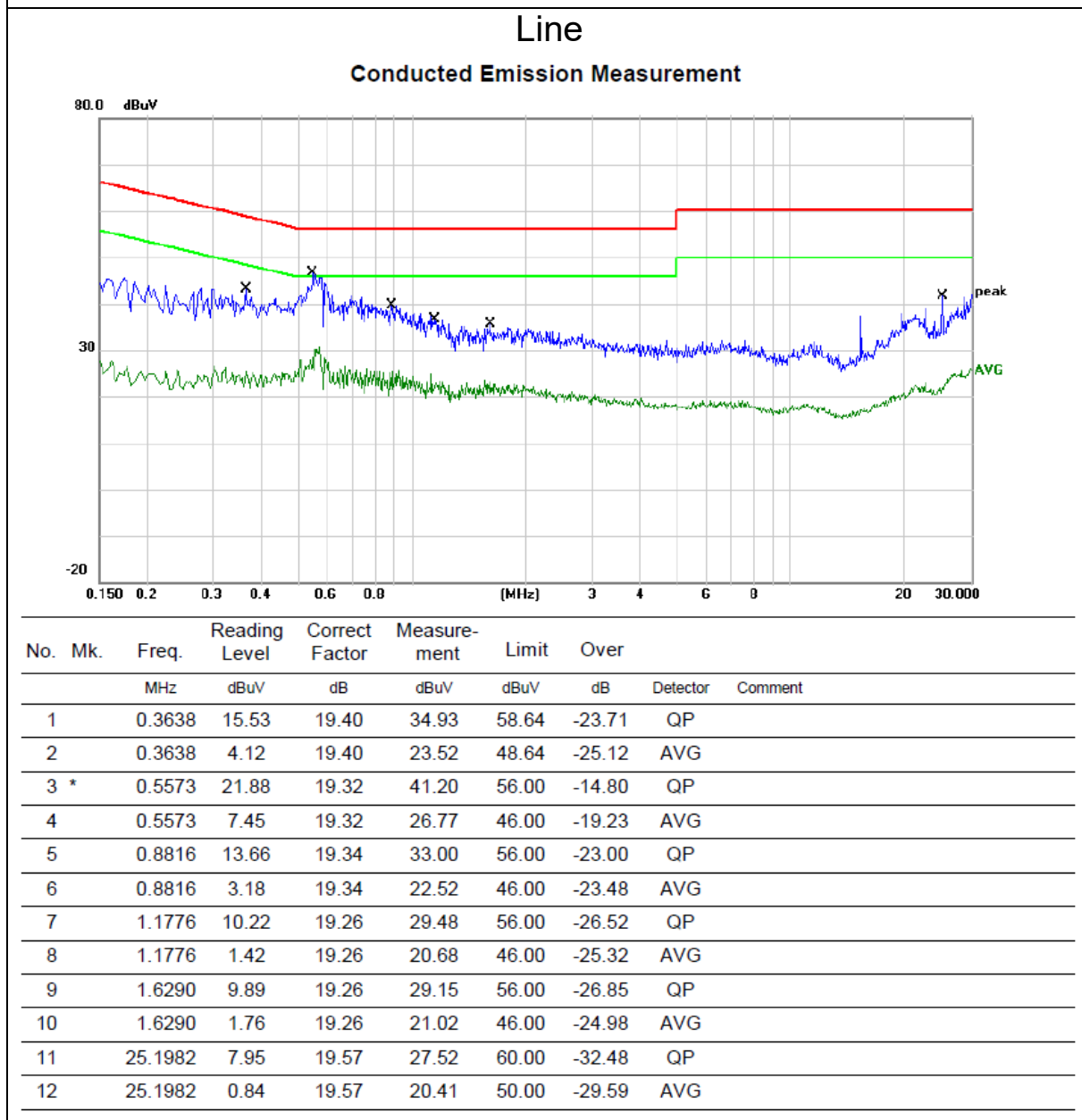
##### 3.1.3 Test Setup



##### 3.1.4 Test Result

|                          |               |              |                |
|--------------------------|---------------|--------------|----------------|
| Product Model            | FJO3YG        | RBW          | 9 kHz          |
| Environmental Conditions | 22.1℃, 50% RH | Test Mode    | 11B Channel 06 |
| Tested by                | Lemon he      | Test Results | PASS           |
| Test Date                | 2026-07-17    |              |                |

Note: AC 120V/60Hz

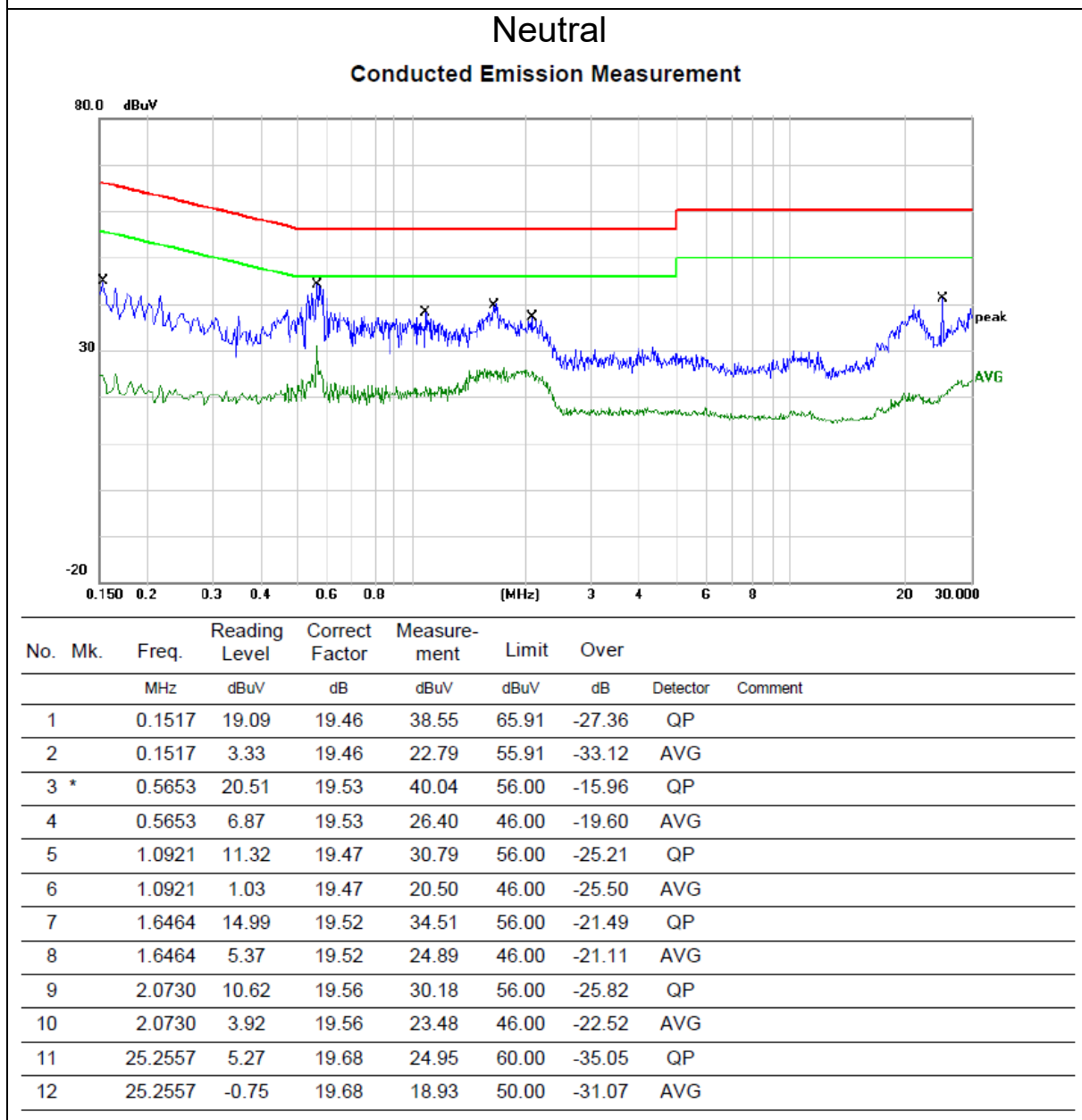


**Note:** 1.The other emission levels were very low against the limit.

2. Measurement = Reading Level+ Correct Factor, Over = Measurement- Limit

|                          |                 |              |                |
|--------------------------|-----------------|--------------|----------------|
| Product Model            | FJO3YG          | RBW          | 9 kHz          |
| Environmental Conditions | 22.1°C , 50% RH | Test Mode    | 11B Channel 06 |
| Tested by                | Lemon He        | Test Results | PASS           |
| Test Date                | 2026-07-17      |              |                |

Note: AC 120V/60Hz



**Note:** 1.The other emission levels were very low against the limit.  
2. Measurement = Reading Level+ Correct Factor, Over = Measurement- Limit

## 3.2 Radiated Emission and Band Edge

### 3.2.1 Limit

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

| Frequency<br>(MHz) | Distance<br>Meters(m) | Field Strength Limit                                                                              |                                   |
|--------------------|-----------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|
|                    |                       | $\mu\text{V}/\text{m}$                                                                            | $\text{dB}(\mu\text{V})/\text{m}$ |
| 0.009 – 0.49       | 300                   | $2400/\text{F}(\text{kHz})$                                                                       | -                                 |
| 0.490 – 1.705      | 30                    | $24000/\text{F}(\text{kHz})$                                                                      | -                                 |
| 1.705 – 30         | 30                    | 30                                                                                                | -                                 |
| 30~88              | 3                     | 100                                                                                               | 40.0                              |
| 88~216             | 3                     | 150                                                                                               | 43.5                              |
| 216~960            | 3                     | 200                                                                                               | 46.0                              |
| 960~1000           | 3                     | 500                                                                                               | 54.0                              |
| Above 1000         | 3                     | 74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)<br>54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) |                                   |

Note: (1) Emission level  $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

### 3.2.2 Test Procedure

| Test Method                                                                   |                                                       |
|-------------------------------------------------------------------------------|-------------------------------------------------------|
| <input type="radio"/> Conducted Measurement                                   | <input checked="" type="radio"/> Radiated Measurement |
| Test Channels                                                                 |                                                       |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel           | <input type="radio"/> Lowest and Highest Channel      |
| Environmental conditions                                                      |                                                       |
| <input checked="" type="radio"/> Normal                                       | <input type="radio"/> Normal and Extreme              |
| Note: <input checked="" type="radio"/> : Test <input type="radio"/> : No Test |                                                       |

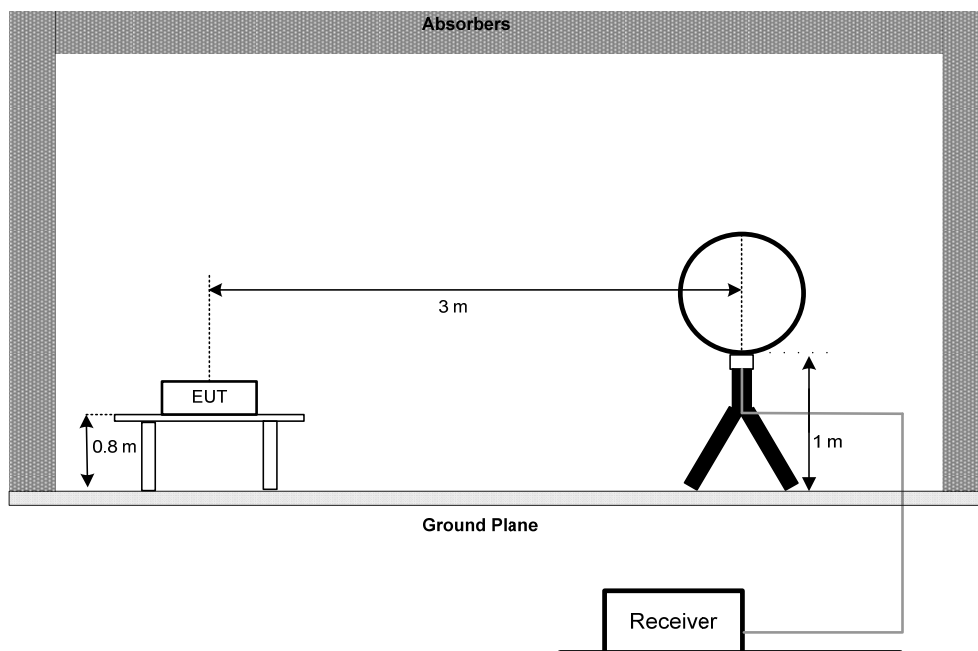
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna

was tuned to heights find the maximum reading (used Bore sight function).

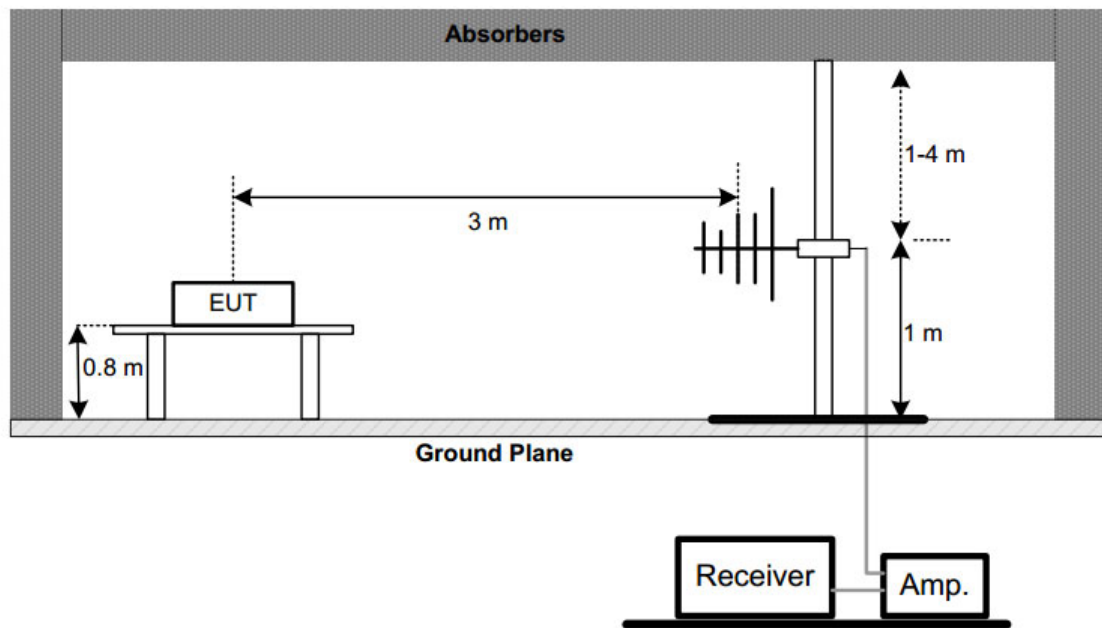
- e) The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f) The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g) All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h) All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i) For the actual test configuration, please refer to the related Item -EUT Test Photos.

### 3.2.3 Test Setup

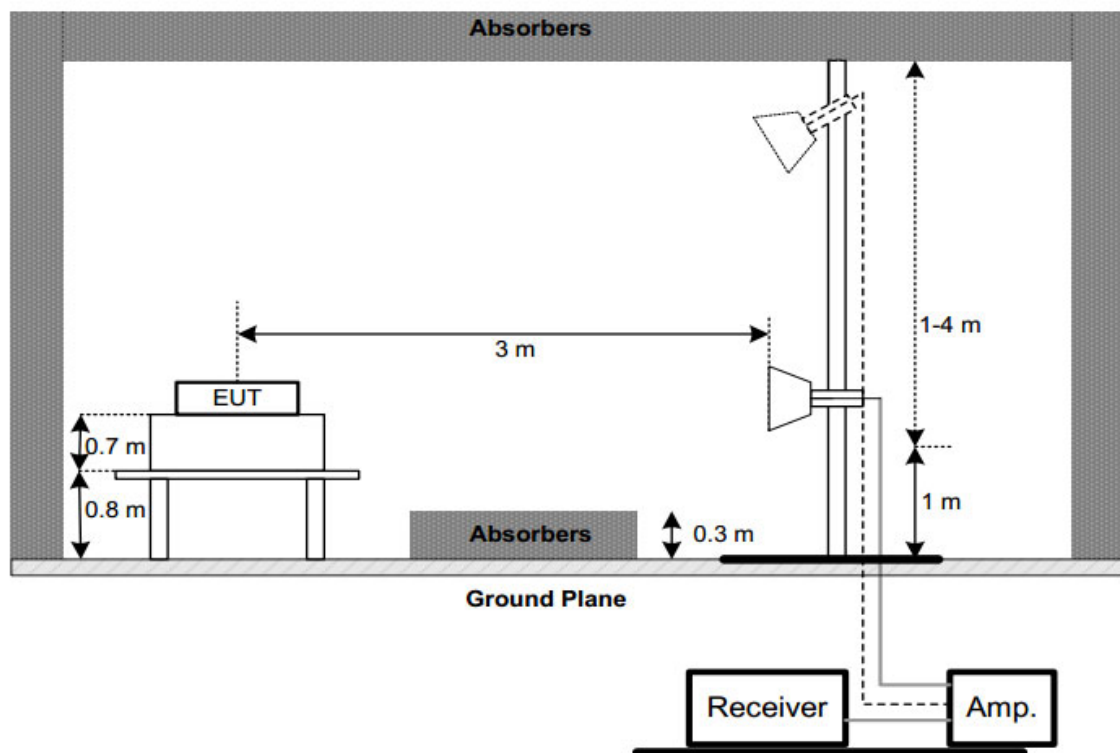
#### (A) Radiated Emission Test Set-Up Frequency Below 30 MHz



(B) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(C) Radiated Emission Test Set-Up Frequency Above 1 GHz



### 3.2.4 Test Result

#### 1) Radiated emission: 9kHz-30MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

#### 2) Radiated emission: 30MHz-1GHz

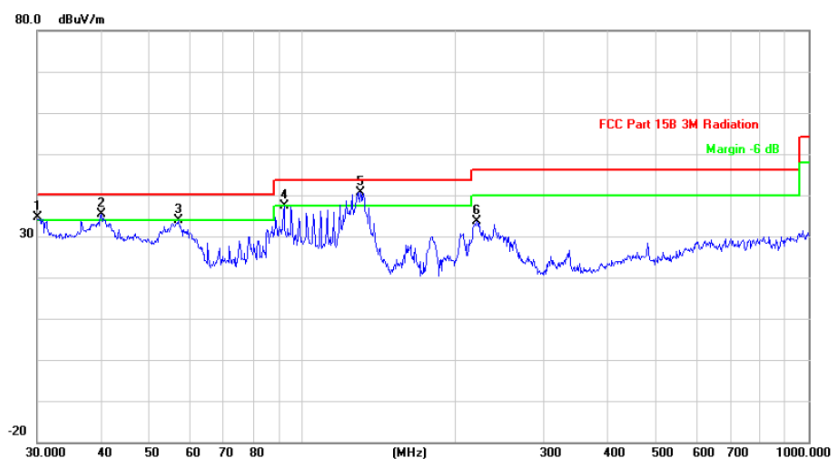
**Note:**

1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

We only recorded the data of the worst mode. Please see the following:

## VERTICAL

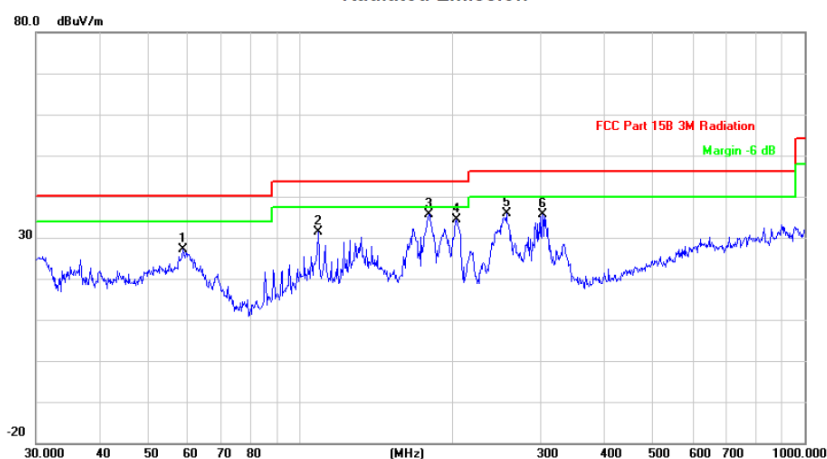
## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   | !   | 30.0000  | 45.50         | -10.97         | 34.53       | 40.00  | -5.47  | peak           |              |         |
| 2   | !   | 40.1347  | 45.22         | -9.95          | 35.27       | 40.00  | -4.73  | peak           |              |         |
| 3   |     | 56.9911  | 45.96         | -12.00         | 33.96       | 40.00  | -6.04  | peak           |              |         |
| 4   |     | 92.1386  | 51.44         | -14.13         | 37.31       | 43.50  | -6.19  | peak           |              |         |
| 5   | *   | 130.3790 | 51.11         | -10.36         | 40.75       | 43.50  | -2.75  | peak           |              |         |
| 6   |     | 221.3920 | 46.47         | -12.78         | 33.69       | 46.00  | -12.31 | peak           |              |         |

## HORIZONTAL

## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 58.6126  | 37.91         | -10.89         | 27.02       | 40.00  | -12.98 | peak           |              |         |
| 2   |     | 108.6470 | 44.01         | -12.60         | 31.41       | 43.50  | -12.09 | peak           |              |         |
| 3   | *   | 180.0164 | 48.11         | -12.38         | 35.73       | 43.50  | -7.77  | peak           |              |         |
| 4   |     | 204.2375 | 46.72         | -12.28         | 34.44       | 43.50  | -9.06  | peak           |              |         |
| 5   |     | 256.5210 | 47.69         | -11.85         | 35.84       | 46.00  | -10.16 | peak           |              |         |
| 6   |     | 302.4811 | 45.06         | -9.51          | 35.55       | 46.00  | -10.45 | peak           |              |         |

### 3) Radiated emission: Above 1GHz

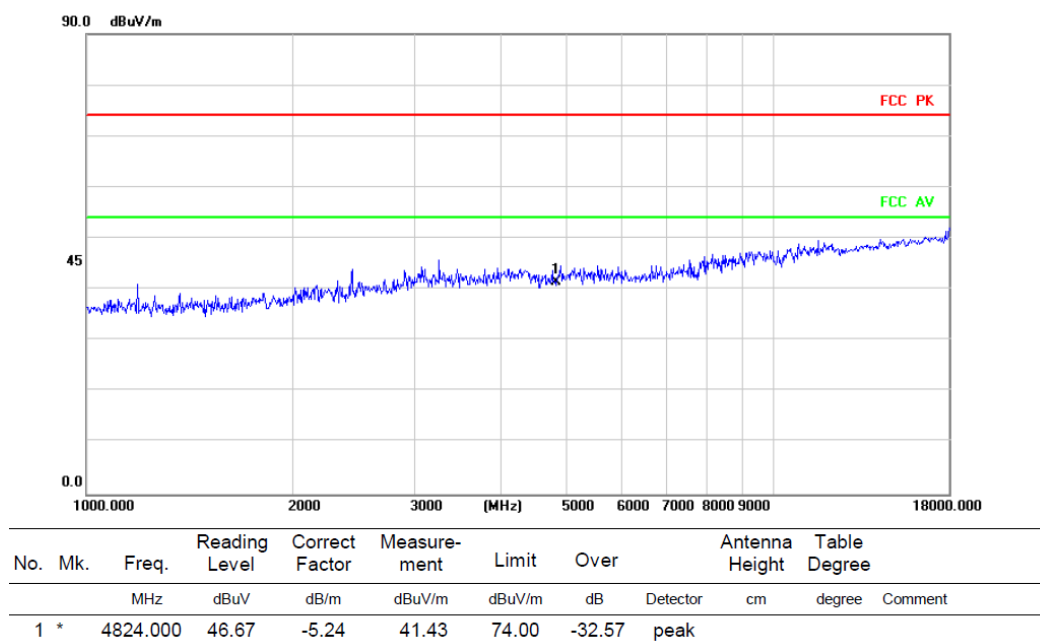
#### Note:

1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

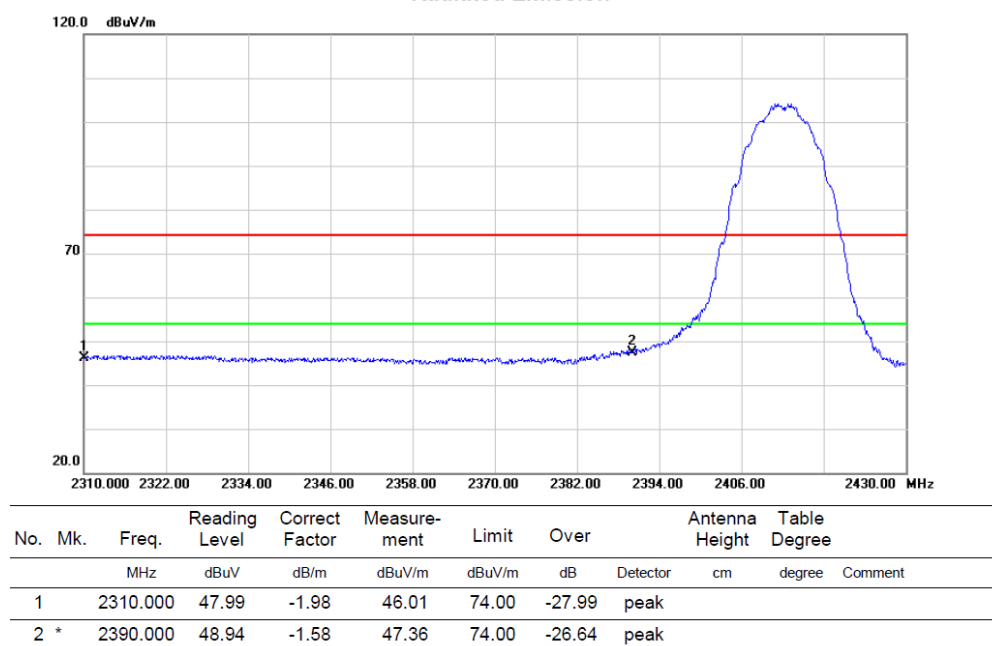
|                         |               |                |
|-------------------------|---------------|----------------|
| Above 1GHz (1GHz~18GHz) | Test mode:11B | Test Channel:1 |
|-------------------------|---------------|----------------|

#### VERTICAL

#### Radiated Emission

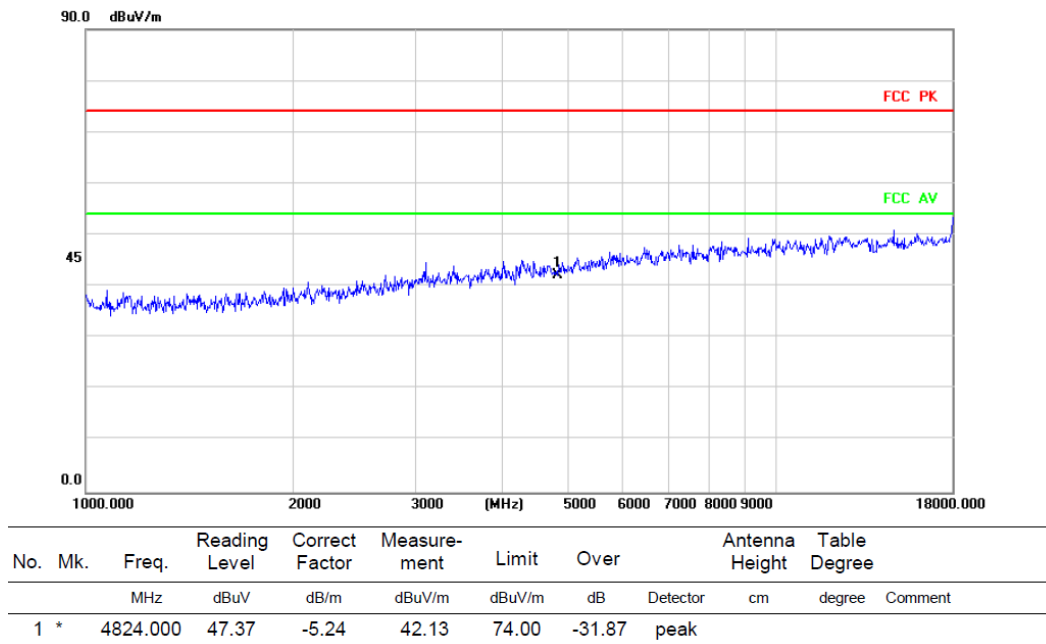


#### Radiated Emission

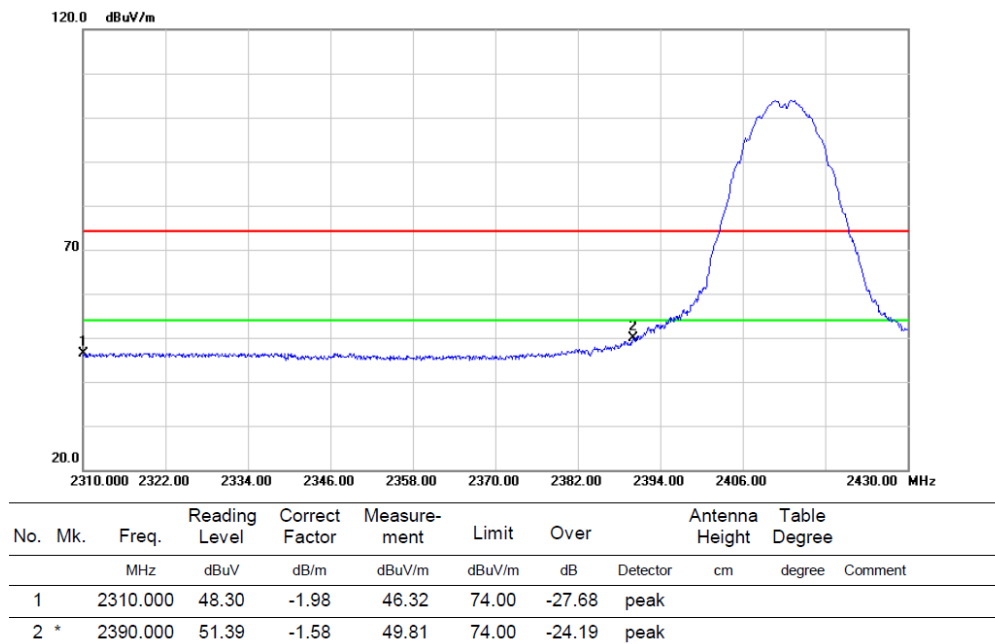


# HORIZONTALA

## Radiated Emission

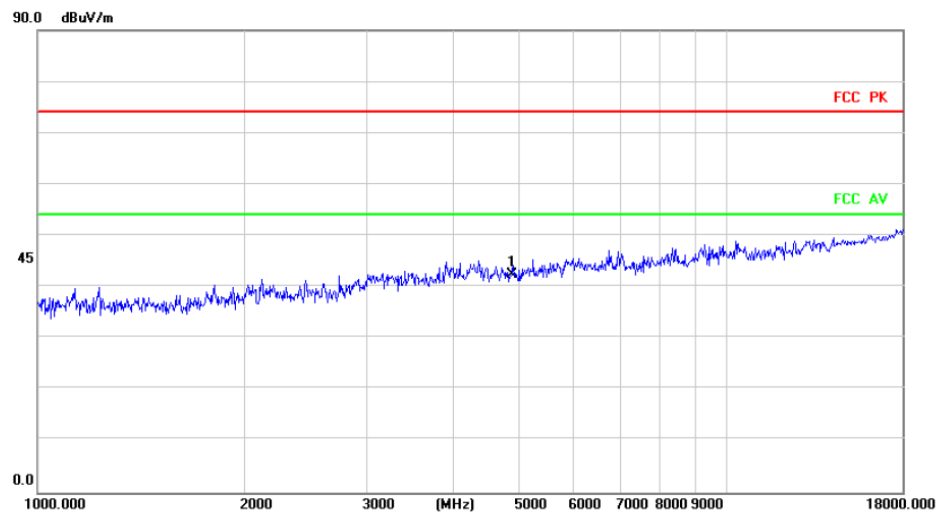


## Radiated Emission



## VERTICAL

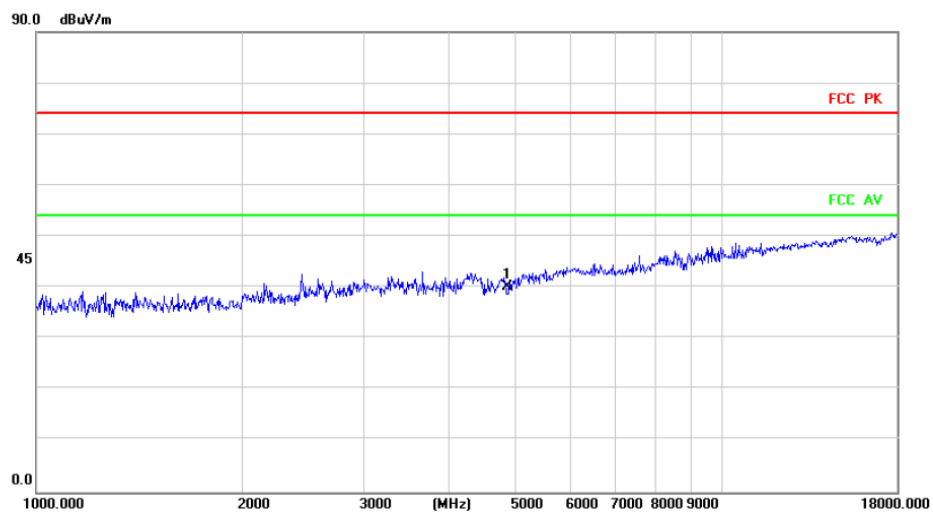
## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | cm             | degree       |
| 1   | *   | 4874.000 | 47.66         | -5.16          | 42.50       | 74.00  | -31.50 | peak           |              |

## HORIZONTAL

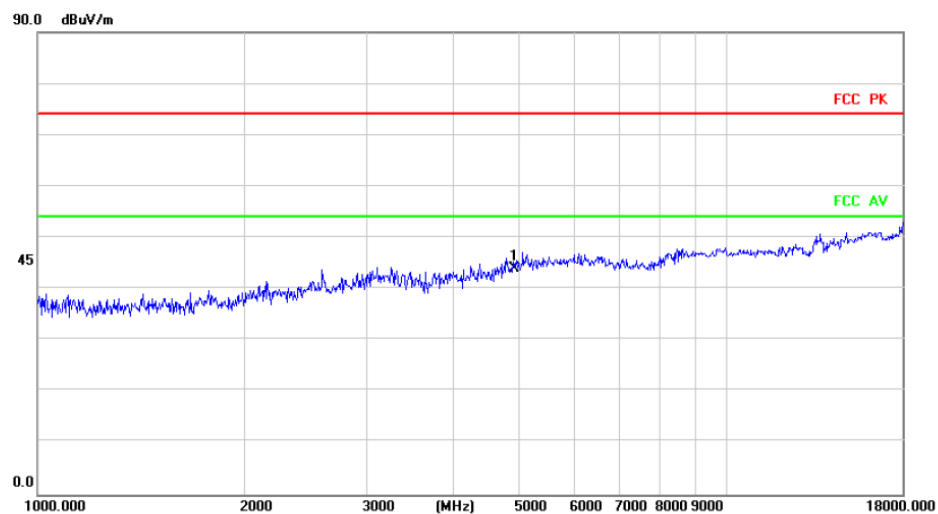
## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | cm             | degree       |
| 1   | *   | 4874.000 | 45.36         | -5.16          | 40.20       | 74.00  | -33.80 | peak           |              |

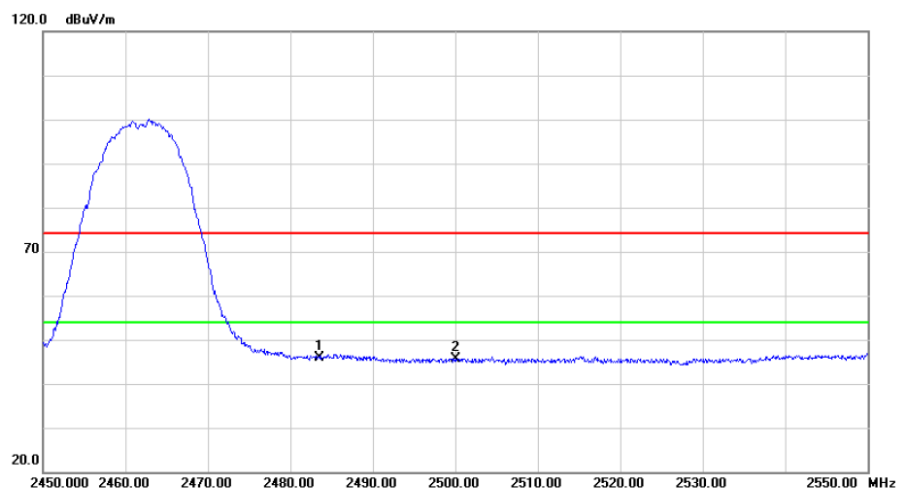
## VERTICAL

## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | cm             | degree       |
| 1   | *   | 4924.000 | 48.93         | -4.94          | 43.99       | 74.00  | -30.01 | peak           |              |

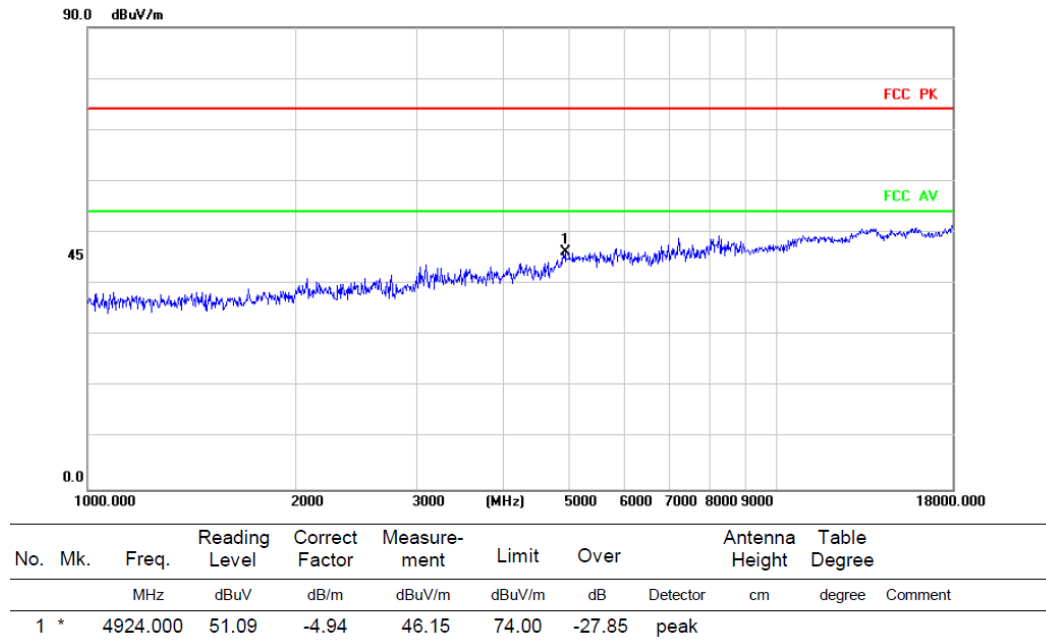
## Radiated Emission



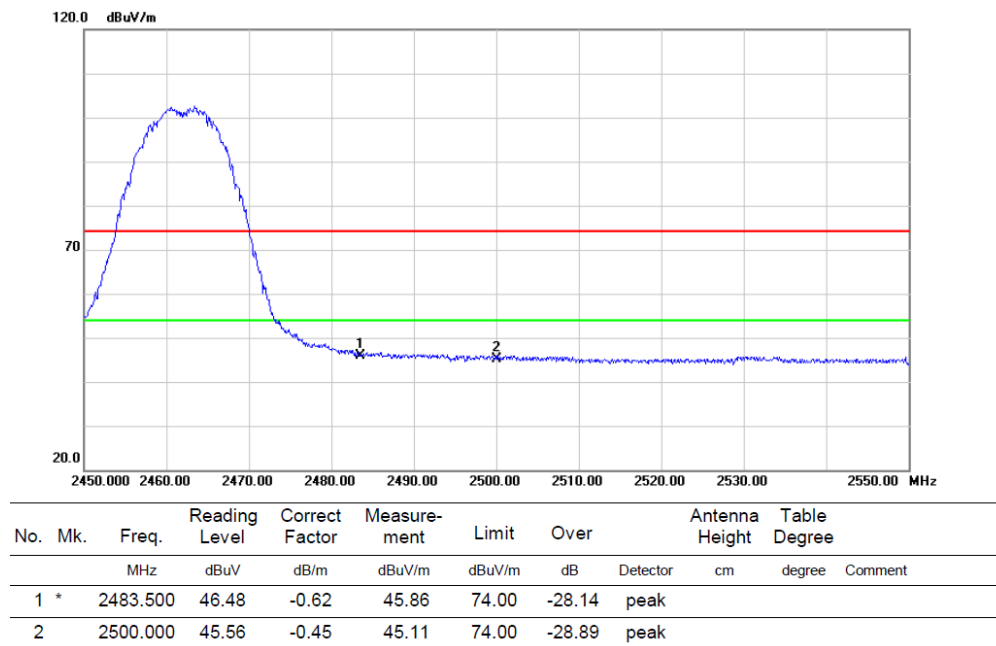
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree  |
| 1   | *   | 2483.500 | 46.46         | -0.62          | 45.84       | 74.00  | -28.16 | peak           |              | Comment |
| 2   |     | 2500.000 | 46.04         | -0.45          | 45.59       | 74.00  | -28.41 | peak           |              |         |

# HORIZONTALA

## Radiated Emission

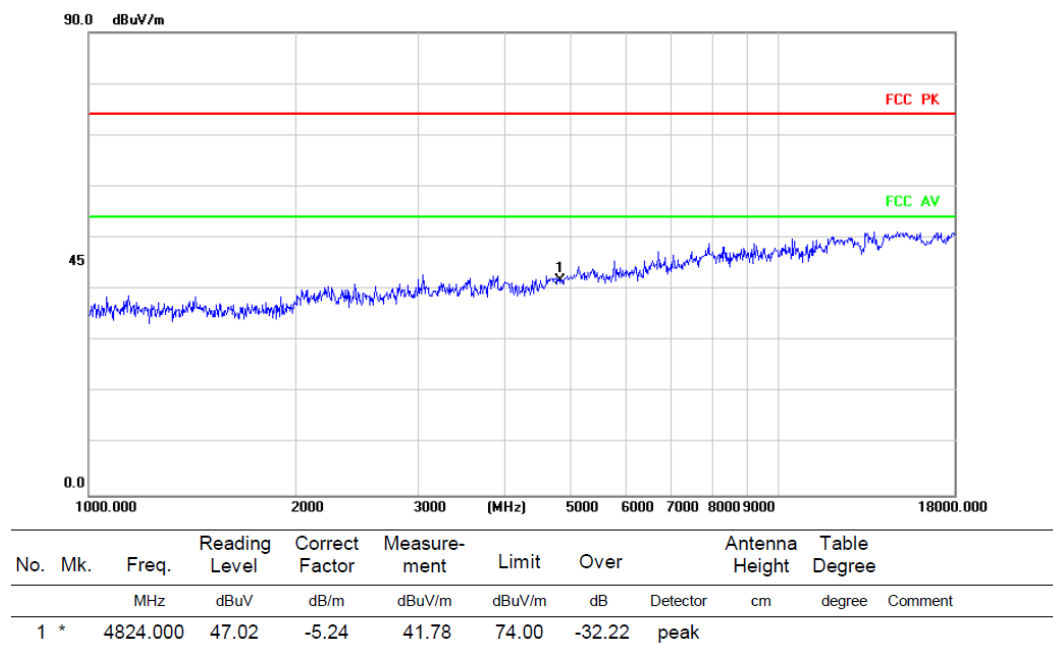


## Radiated Emission

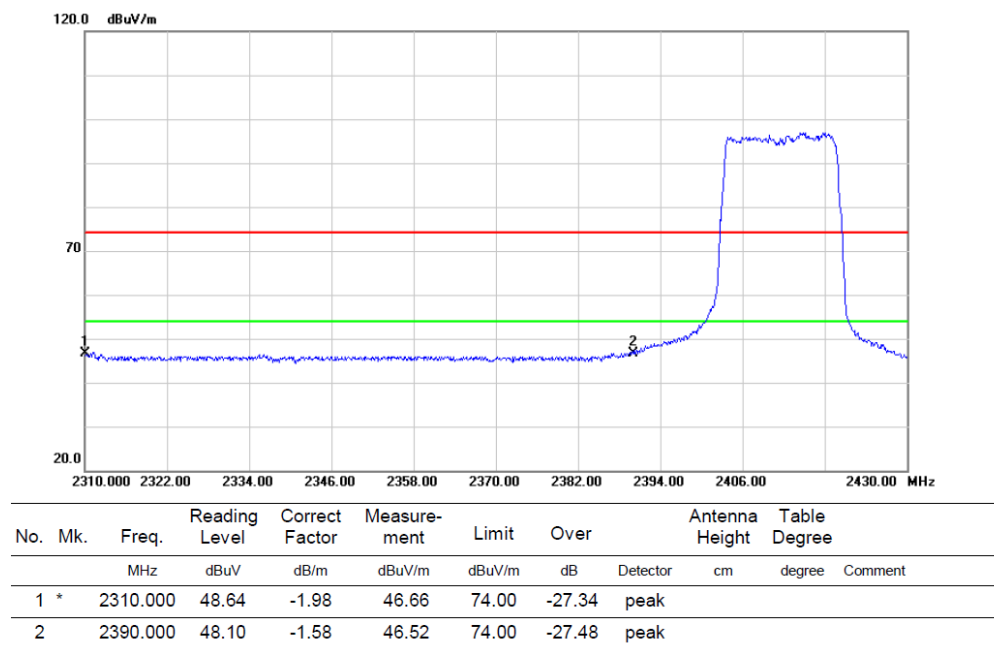


## VERTICAL

## Radiated Emission

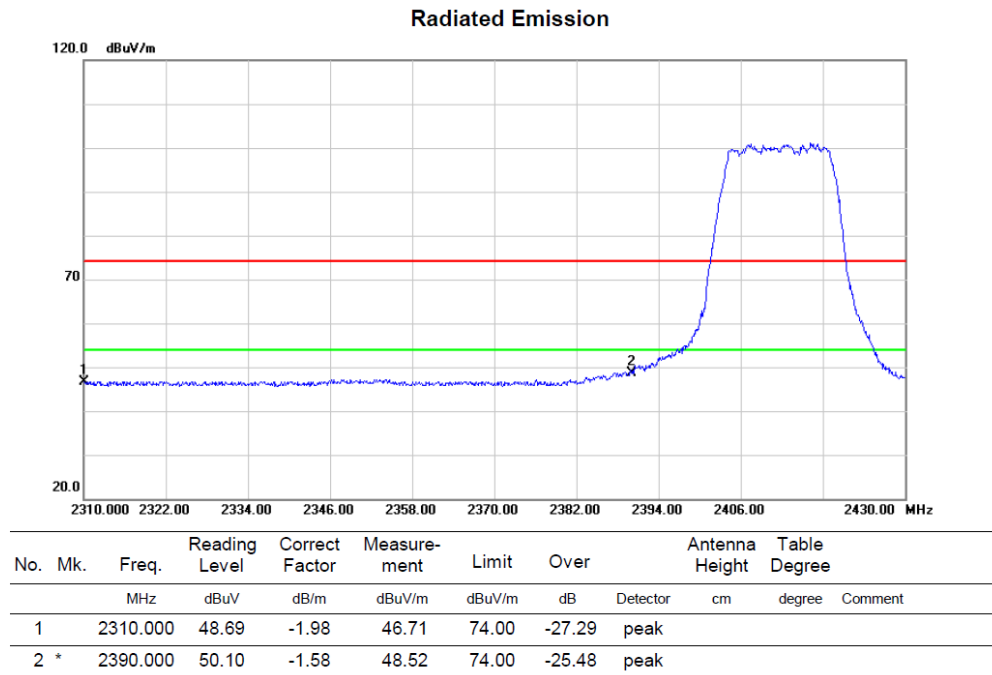
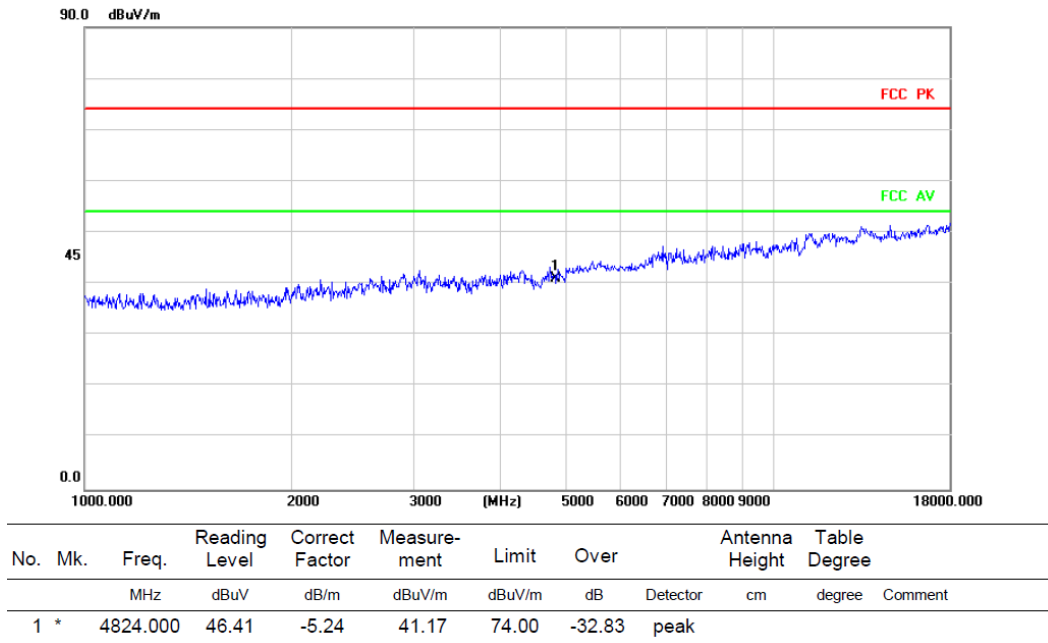


## Radiated Emission

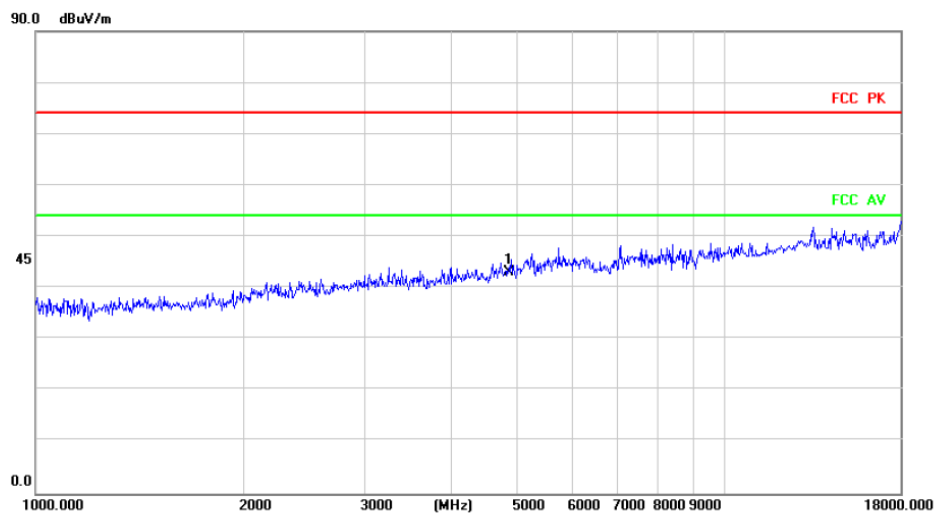


# HORIZONTALA

## Radiated Emission



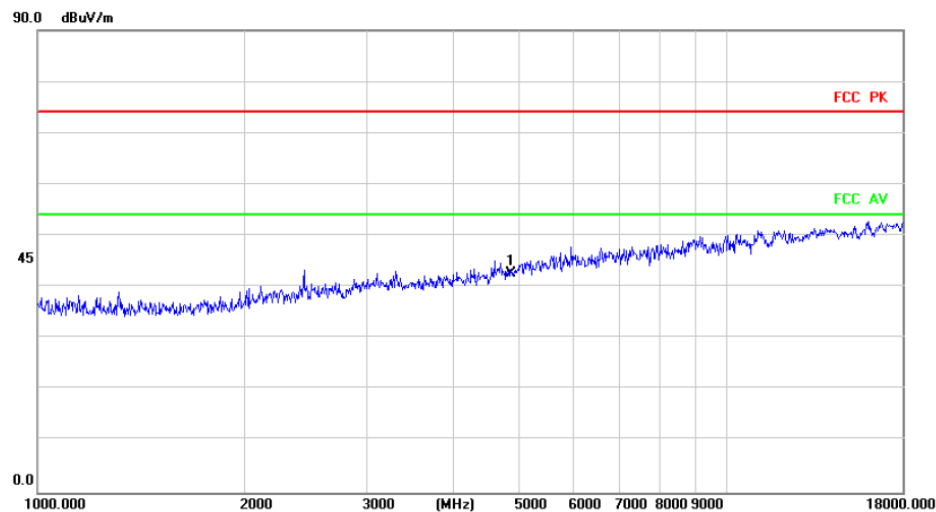
# VERTICAL Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   | *   | 4874.000 | 48.33         | -5.16          | 43.17       | 74.00  | -30.83 | peak           |              |        |

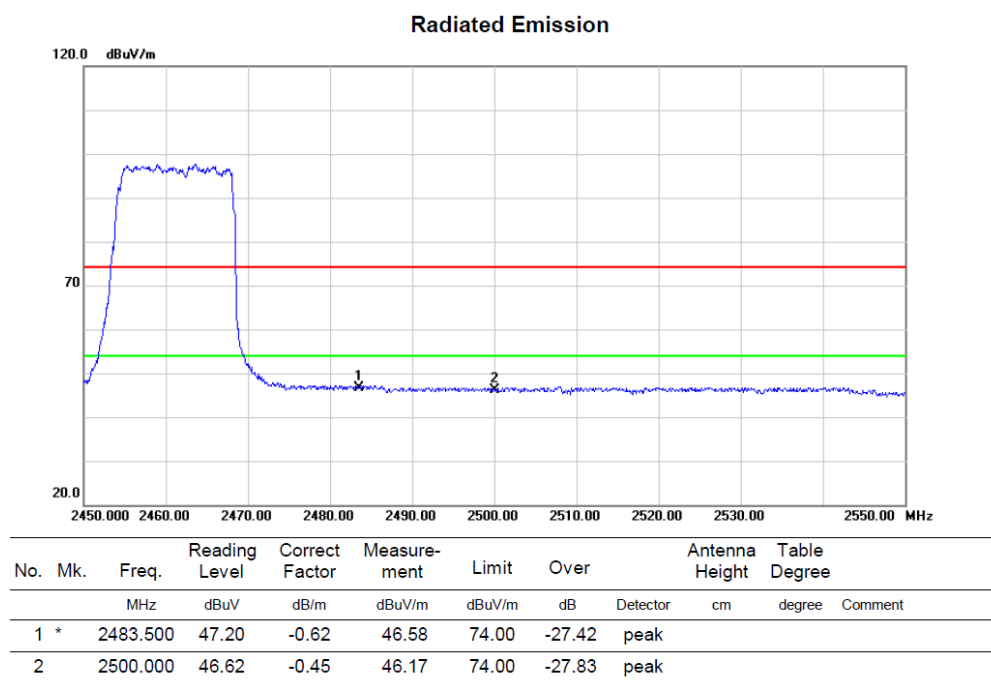
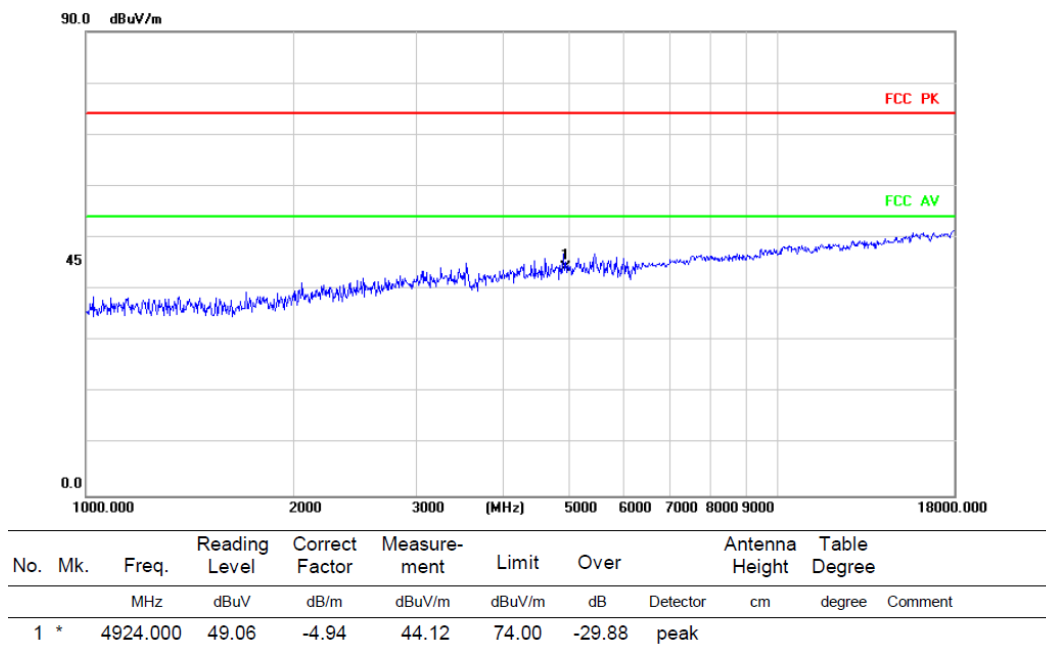
# HORIZONTAL

## Radiated Emission



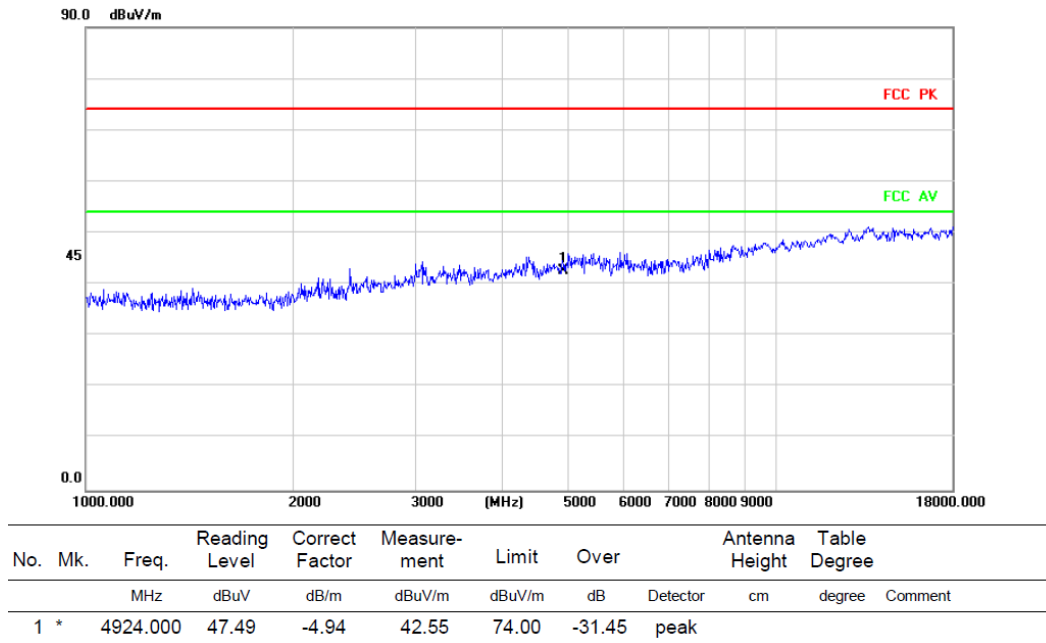
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   | *   | 4874.000 | 47.72         | -5.16          | 42.56       | 74.00  | -31.44 | peak           |              |        |

# VERTICAL Radiated Emission

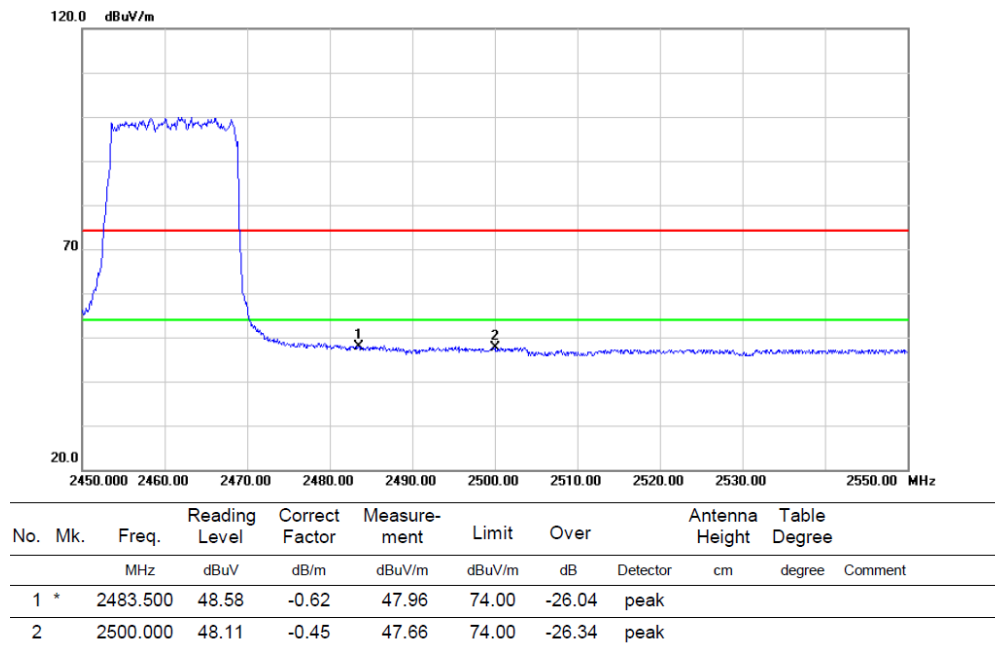


# HORIZONTALA

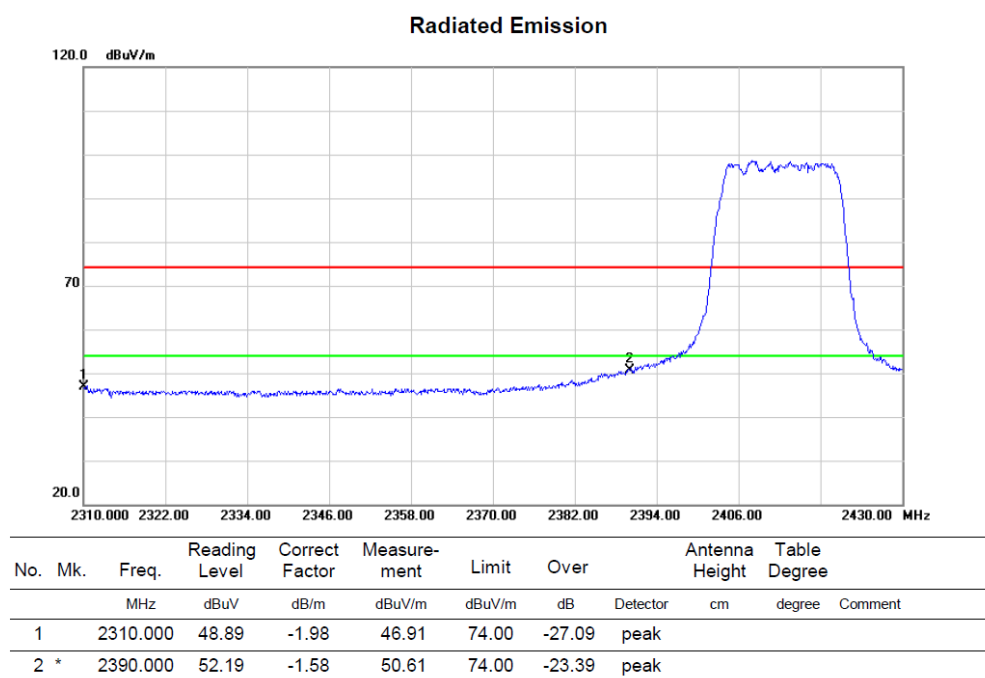
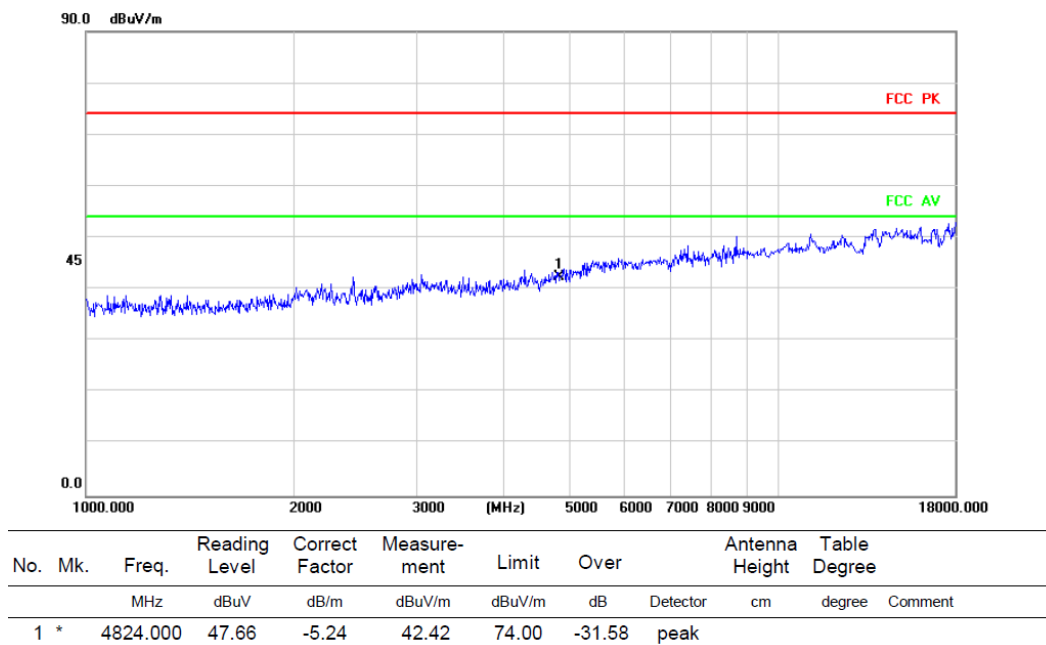
## Radiated Emission



## Radiated Emission

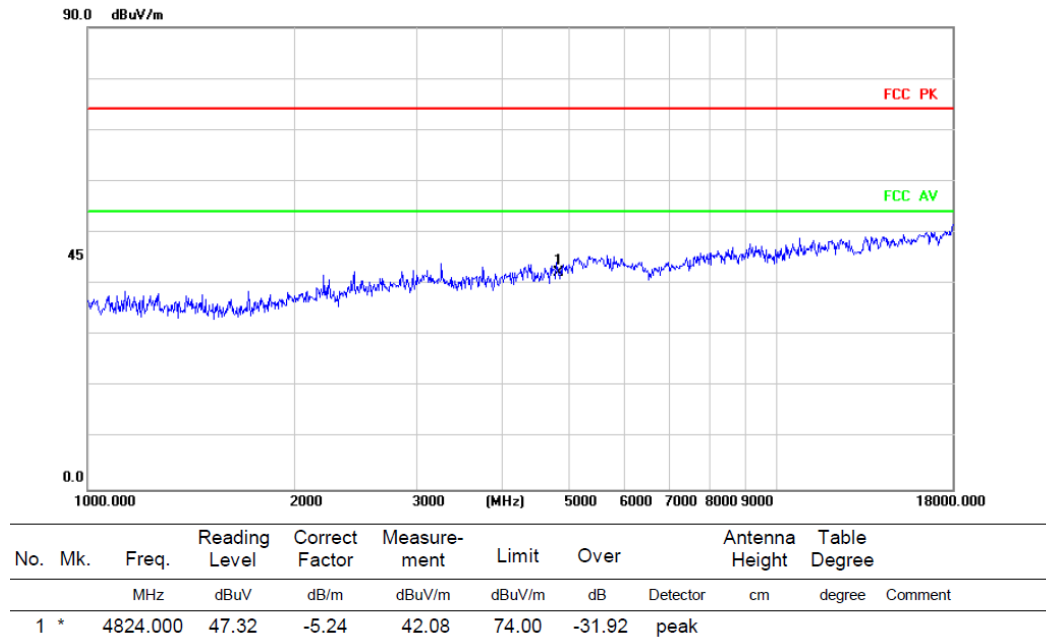


# VERTICAL Radiated Emission

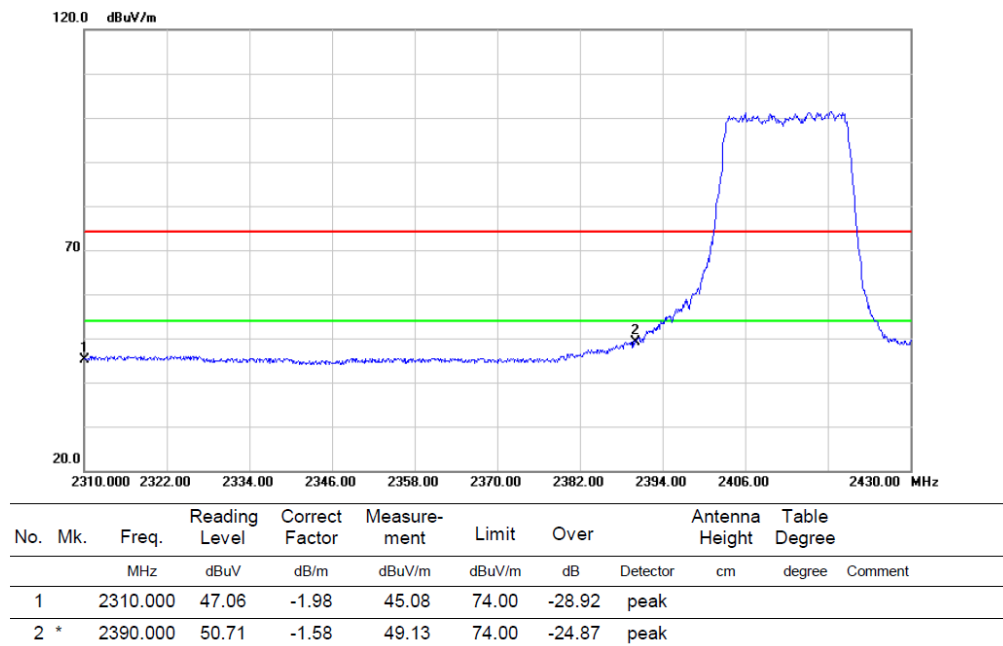


# HORIZONTALA

## Radiated Emission

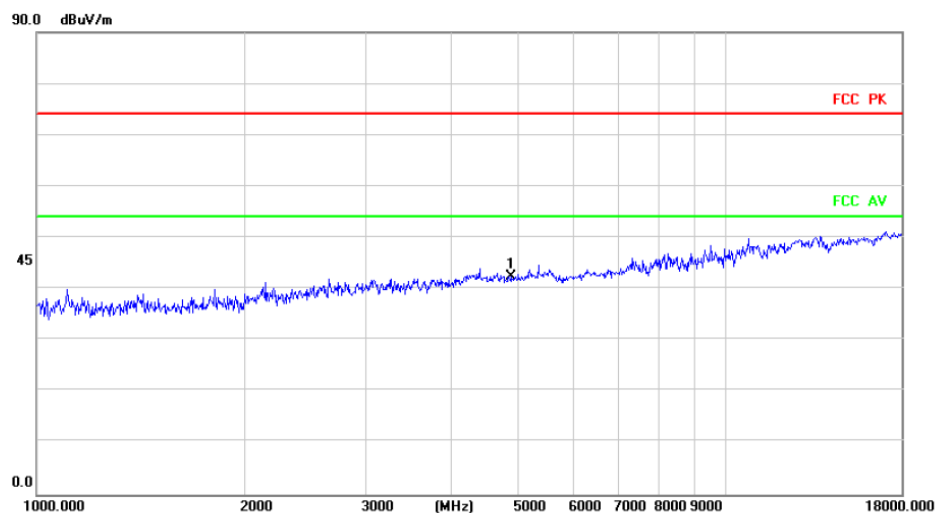


## Radiated Emission



## VERTICAL

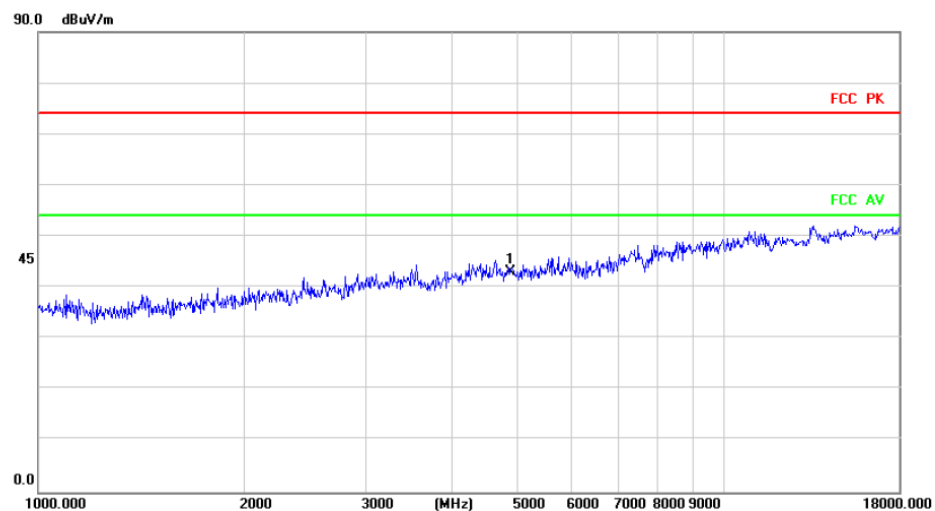
## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree  |
| 1   | *   | 4874.000 | 47.61         | -5.16          | 42.45       | 74.00  | -31.55 | peak           |              | Comment |

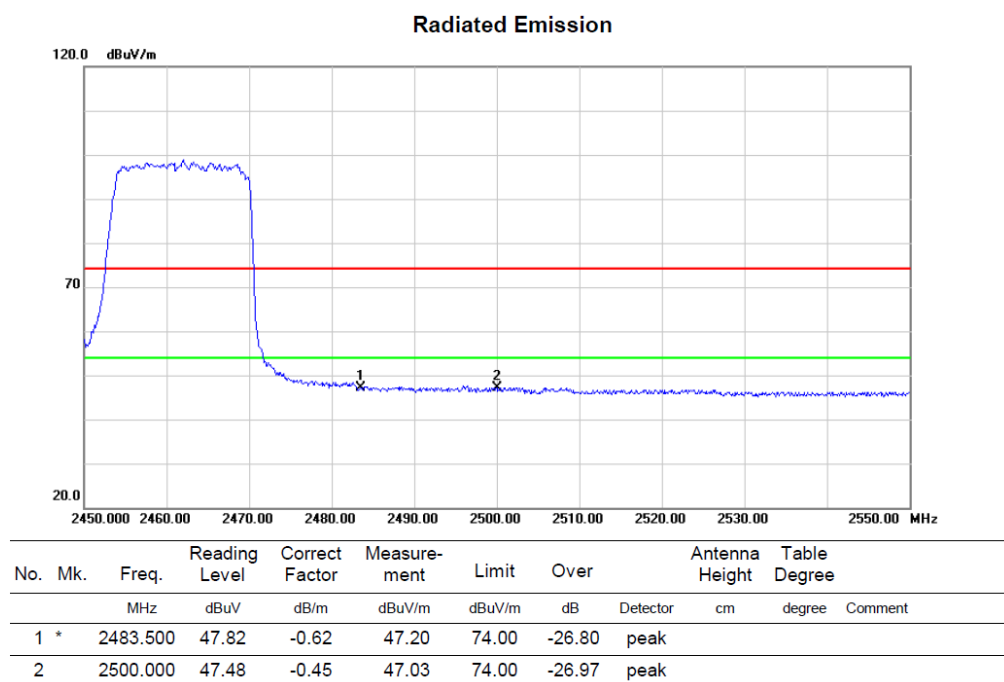
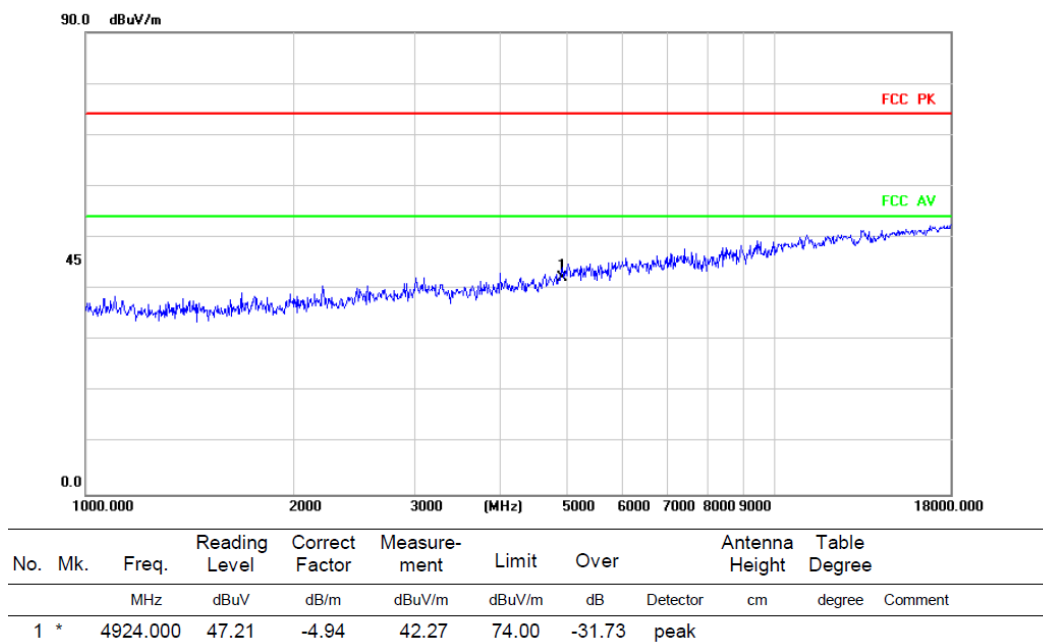
## HORIZONTAL

## Radiated Emission



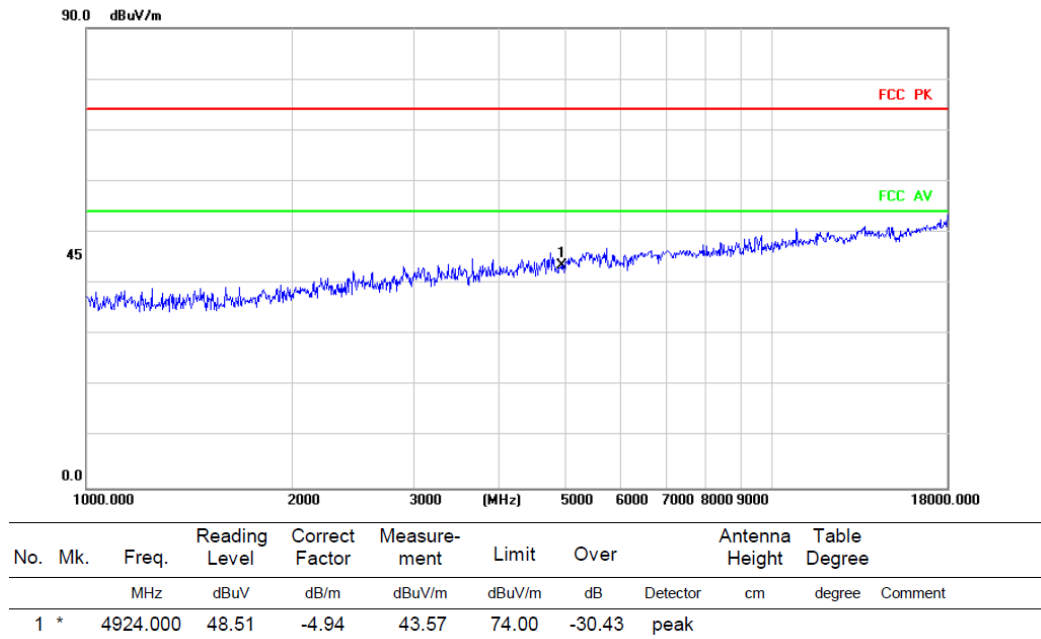
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree  |
| 1   | *   | 4874.000 | 48.25         | -5.16          | 43.09       | 74.00  | -30.91 | peak           |              | Comment |

# VERTICAL Radiated Emission

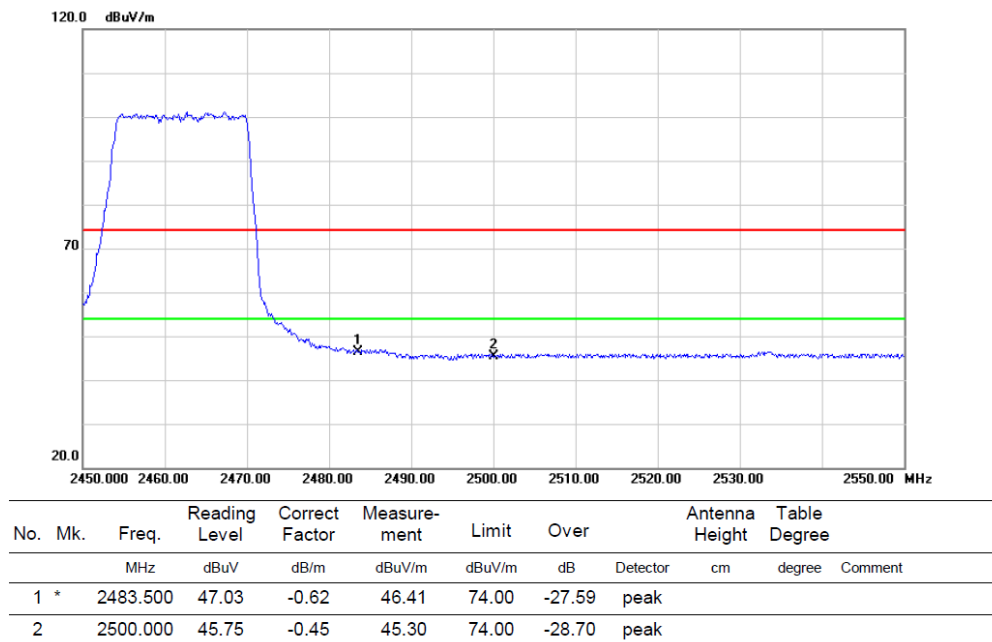


# HORIZONTALA

## Radiated Emission

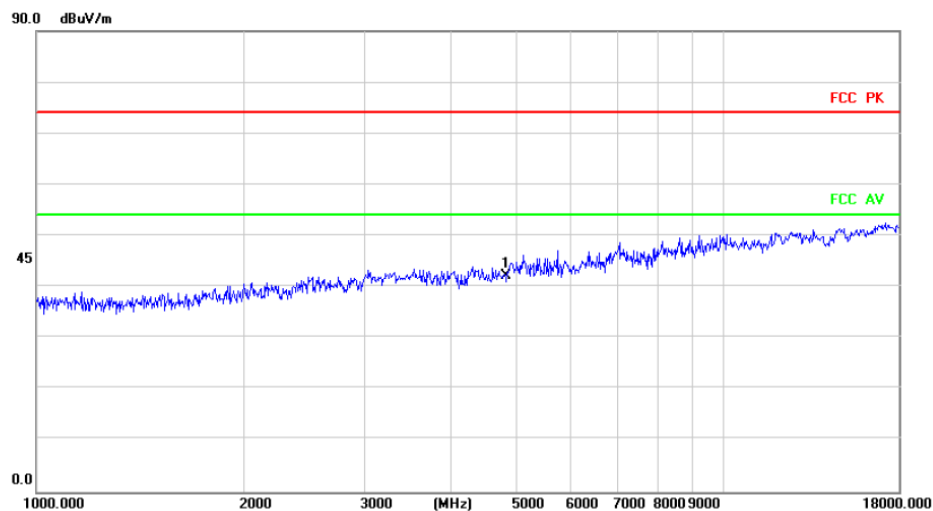


## Radiated Emission



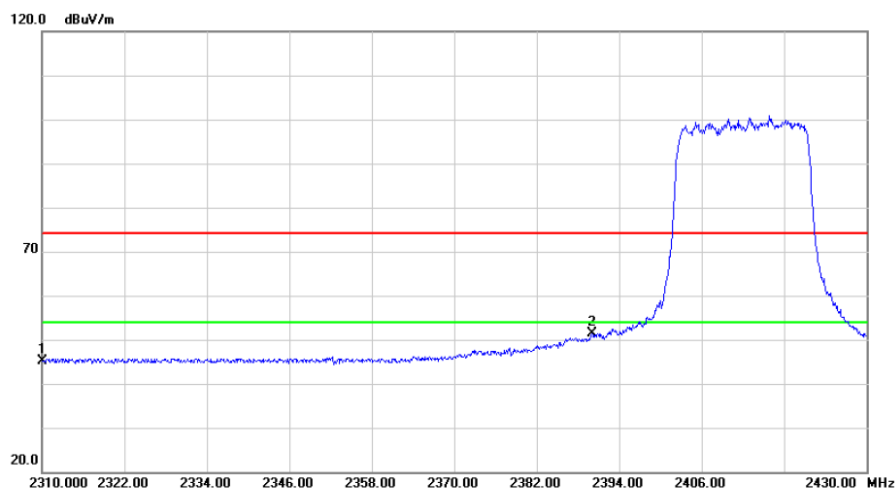
## VERTICAL

## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   | *   | 4824.000 | 47.37         | -5.24          | 42.13       | 74.00  | -31.87 | peak           |              |        |

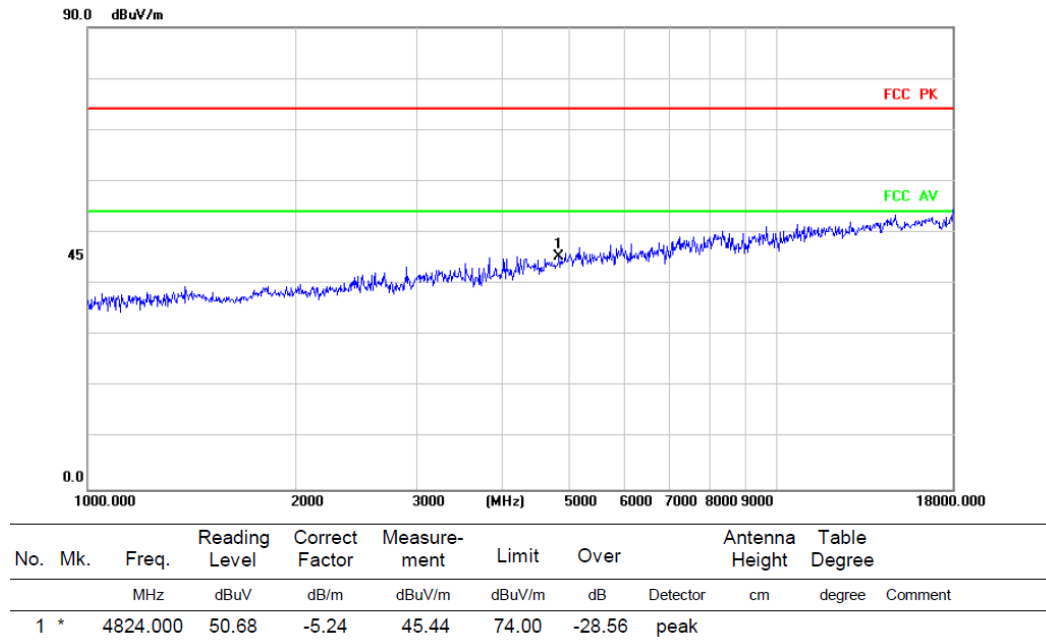
## Radiated Emission



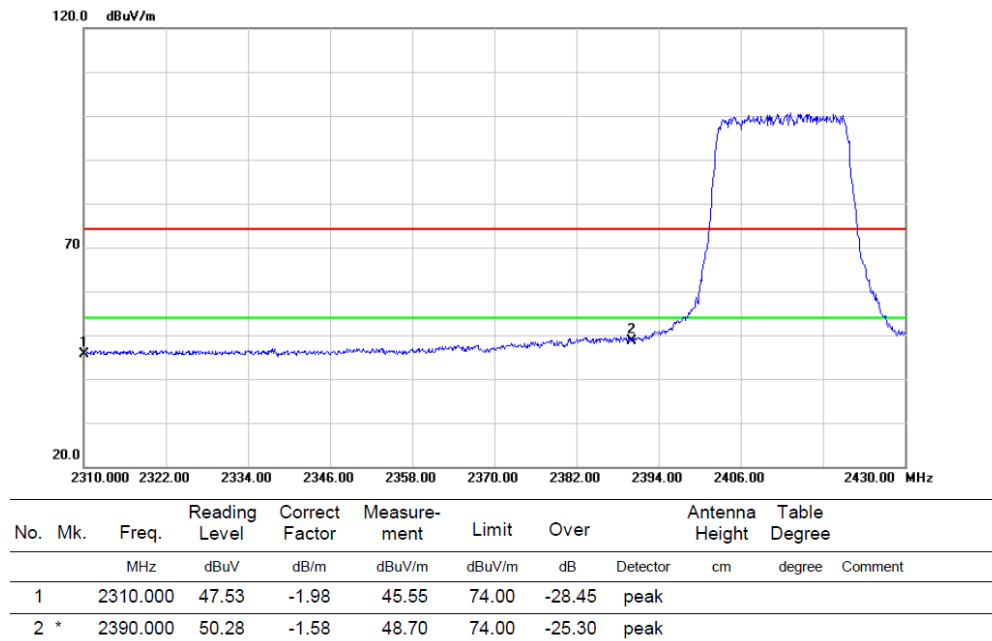
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 2310.000 | 47.05         | -1.98          | 45.07       | 74.00  | -28.93 | peak           |              |        |
| 2   | *   | 2390.000 | 53.07         | -1.58          | 51.49       | 74.00  | -22.51 | peak           |              |        |

# HORIZONTALA

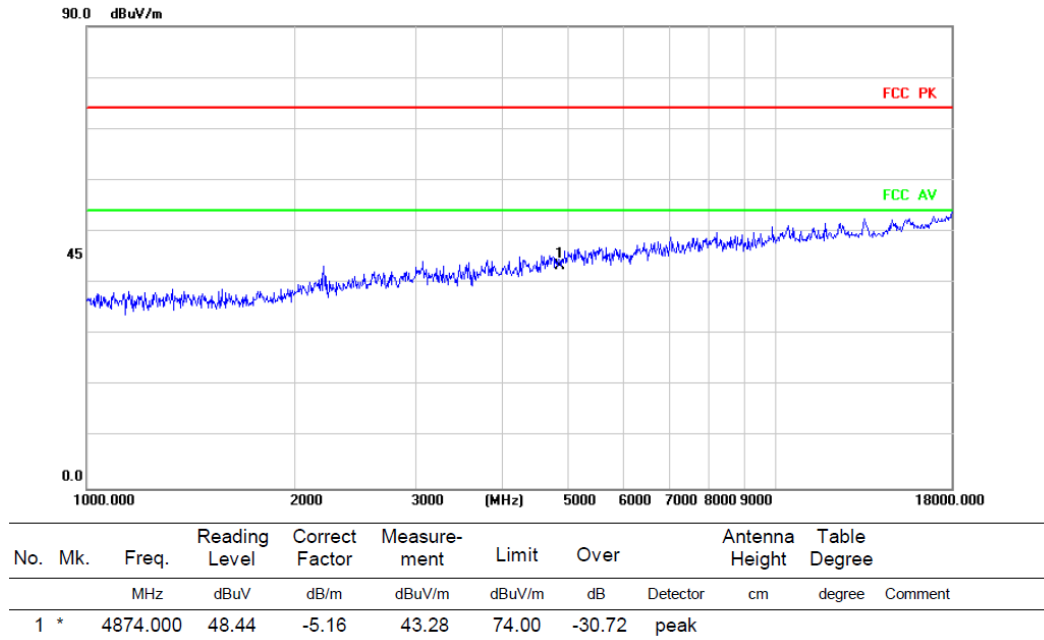
## Radiated Emission



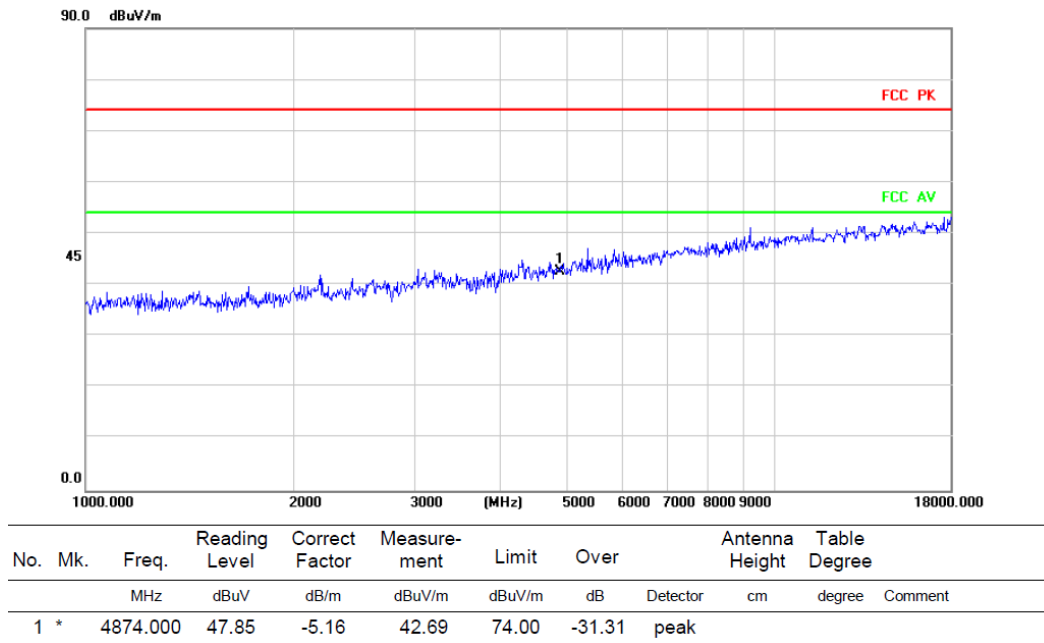
## Radiated Emission



### VERTICAL Radiated Emission

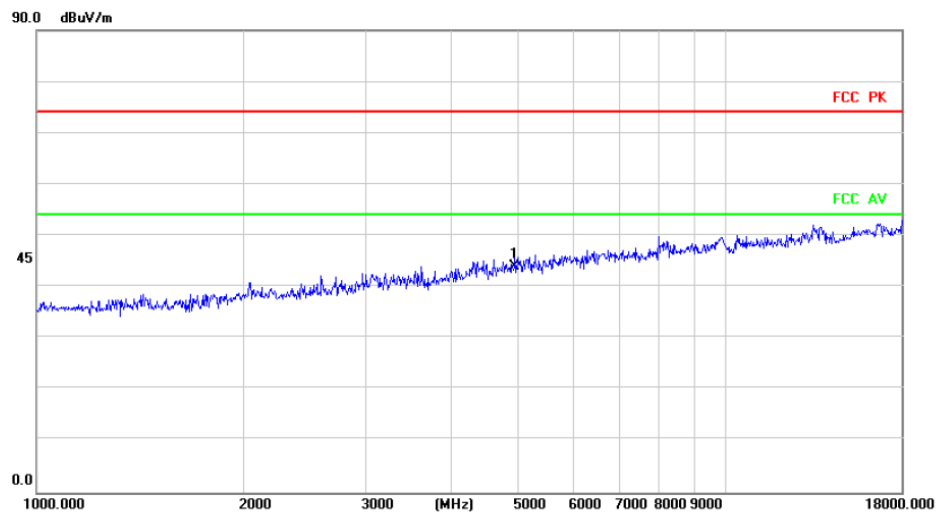


### HORIZONTAL Radiated Emission



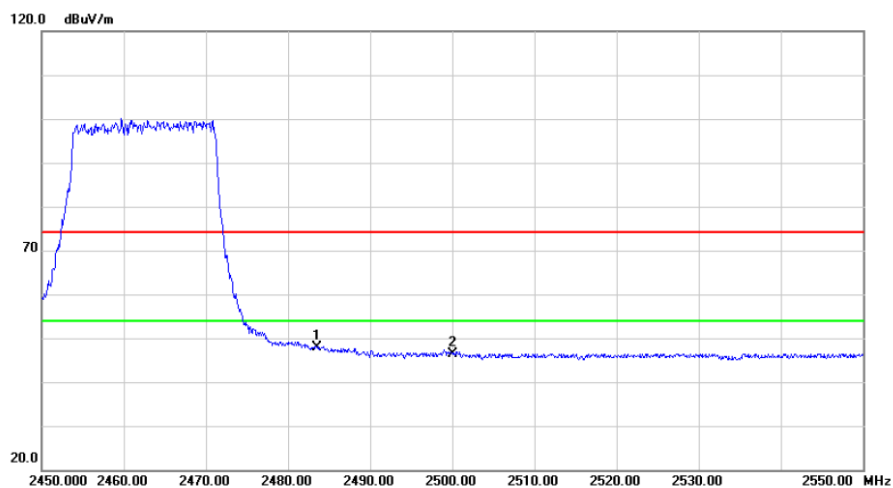
## VERTICAL

## Radiated Emission



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   | *   | 4924.000 | 48.82         | -4.94          | 43.88       | 74.00  | -30.12 | peak           |              |        |

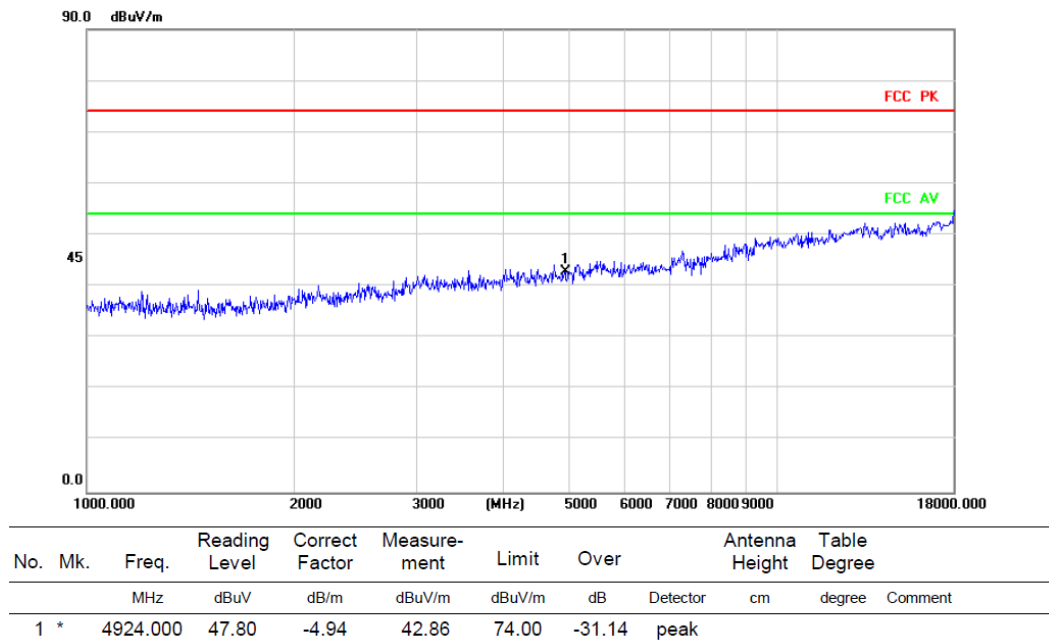
## Radiated Emission



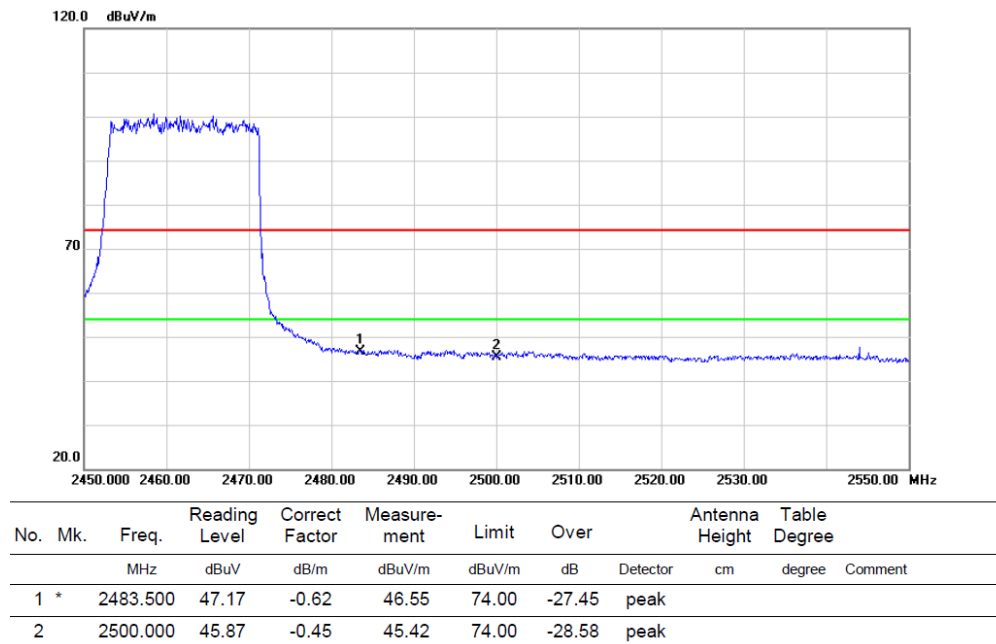
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB/m           | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   | *   | 2483.500 | 48.47         | -0.62          | 47.85       | 74.00  | -26.15 | peak           |              |        |
| 2   |     | 2500.000 | 46.73         | -0.45          | 46.28       | 74.00  | -27.72 | peak           |              |        |

## HORIZONTALA

### Radiated Emission



### Radiated Emission



The high frequency, which started from 18GHz to 26.5GHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

### 3.3 Spurious Emission at Antenna Port

#### 3.3.1 Limit

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 compliance with the peak Output Power limits. If the transmitter complies with the Output 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### 3.3.2 Test Procedure

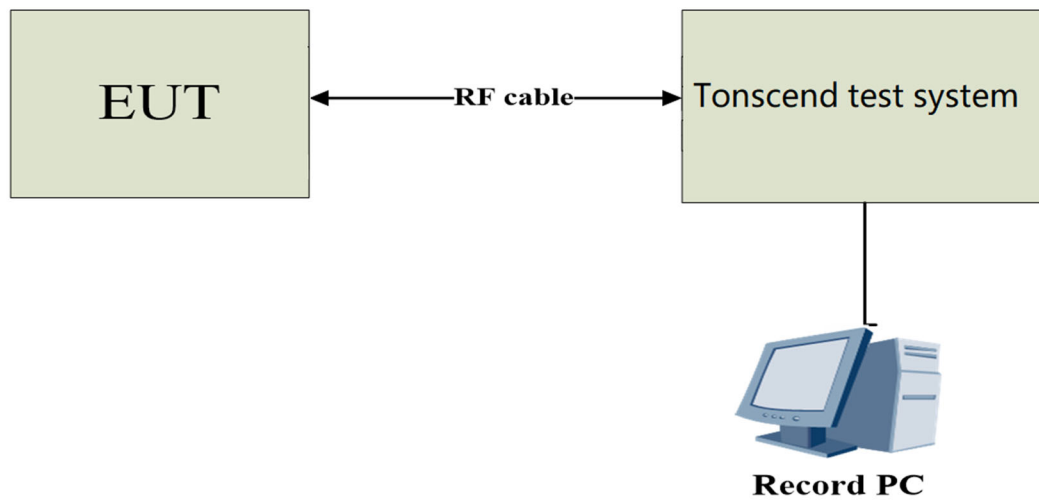
| Test Method                                                                   |                                                  |
|-------------------------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement                        | <input type="radio"/> Radiated Measurement       |
| Test Channels                                                                 |                                                  |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel           | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                                      |                                                  |
| <input checked="" type="radio"/> Normal                                       | <input type="radio"/> Normal and Extreme         |
| Note: <input checked="" type="radio"/> : Test <input type="radio"/> : No Test |                                                  |

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below.

b) Spectrum Setting as below:

|                     |                                                |
|---------------------|------------------------------------------------|
| Centre Frequency    | The centre frequency of the channel under test |
| Spectrum Parameters | Setting                                        |
| Start Frequency     | 30 MHz                                         |
| Stop Frequency      | 26.5 GHz                                       |
| RBW                 | 100 kHz                                        |
| VBW                 | 300 kHz                                        |
| Detector            | Peak                                           |
| Trace               | Max Hold                                       |
| Sweep Time          | Auto                                           |

### 3.3.3 Test Setup

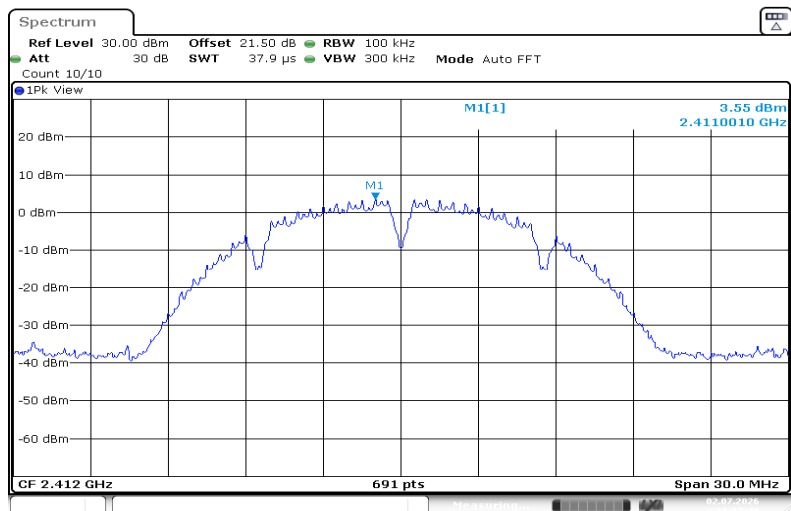


### 3.3.4 The Result

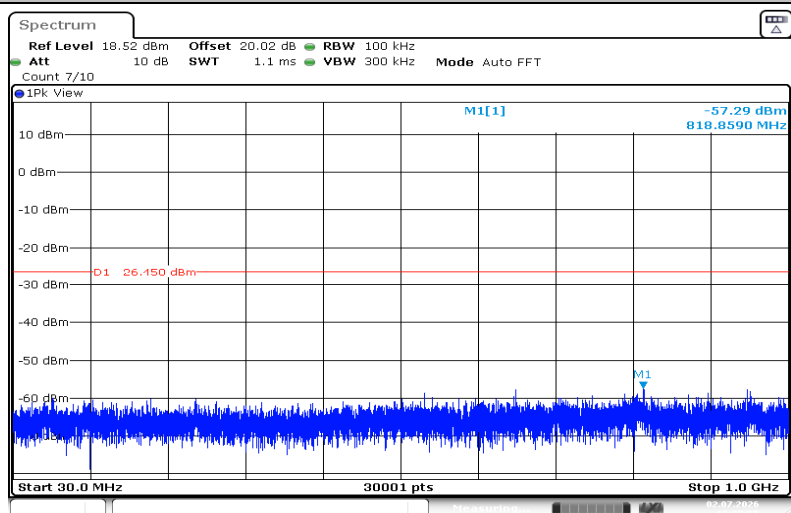
#### Conducted Spurious Emission

| TestMode  | Antenna | Frequency[MHz] | FreqRange [Mhz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|-----------|---------|----------------|-----------------|----------------|--------------|-------------|---------|
| 11B       | Ant1    | 2412           | 0~Reference     | 3.55           | 3.55         | ---         | PASS    |
| 11B       | Ant1    | 2412           | 30~1000         | 3.55           | -57.29       | ≤-26.45     | PASS    |
| 11B       | Ant1    | 2412           | 1000~26500      | 3.55           | -34.53       | ≤-26.45     | PASS    |
| 11B       | Ant1    | 2437           | 0~Reference     | 4.07           | 4.07         | ---         | PASS    |
| 11B       | Ant1    | 2437           | 30~1000         | 4.07           | -57.94       | ≤-25.93     | PASS    |
| 11B       | Ant1    | 2437           | 1000~26500      | 4.07           | -33.52       | ≤-25.93     | PASS    |
| 11B       | Ant1    | 2462           | 0~Reference     | 2.65           | 2.65         | ---         | PASS    |
| 11B       | Ant1    | 2462           | 30~1000         | 2.65           | -58.54       | ≤-27.35     | PASS    |
| 11B       | Ant1    | 2462           | 1000~26500      | 2.65           | -34.55       | ≤-27.35     | PASS    |
| 11G       | Ant1    | 2412           | 0~Reference     | 2.55           | 2.55         | ---         | PASS    |
| 11G       | Ant1    | 2412           | 30~1000         | 2.55           | -58.24       | ≤-27.45     | PASS    |
| 11G       | Ant1    | 2412           | 1000~26500      | 2.55           | -34.78       | ≤-27.45     | PASS    |
| 11G       | Ant1    | 2437           | 0~Reference     | 3.01           | 3.01         | ---         | PASS    |
| 11G       | Ant1    | 2437           | 30~1000         | 3.01           | -57.69       | ≤-26.99     | PASS    |
| 11G       | Ant1    | 2437           | 1000~26500      | 3.01           | -33.12       | ≤-26.99     | PASS    |
| 11G       | Ant1    | 2462           | 0~Reference     | 1.76           | 1.76         | ---         | PASS    |
| 11G       | Ant1    | 2462           | 30~1000         | 1.76           | -57.02       | ≤-28.24     | PASS    |
| 11G       | Ant1    | 2462           | 1000~26500      | 1.76           | -34.21       | ≤-28.24     | PASS    |
| 11N20SISO | Ant1    | 2412           | 0~Reference     | 2.39           | 2.39         | ---         | PASS    |
| 11N20SISO | Ant1    | 2412           | 30~1000         | 2.39           | -57.92       | ≤-27.61     | PASS    |
| 11N20SISO | Ant1    | 2412           | 1000~26500      | 2.39           | -34.34       | ≤-27.61     | PASS    |

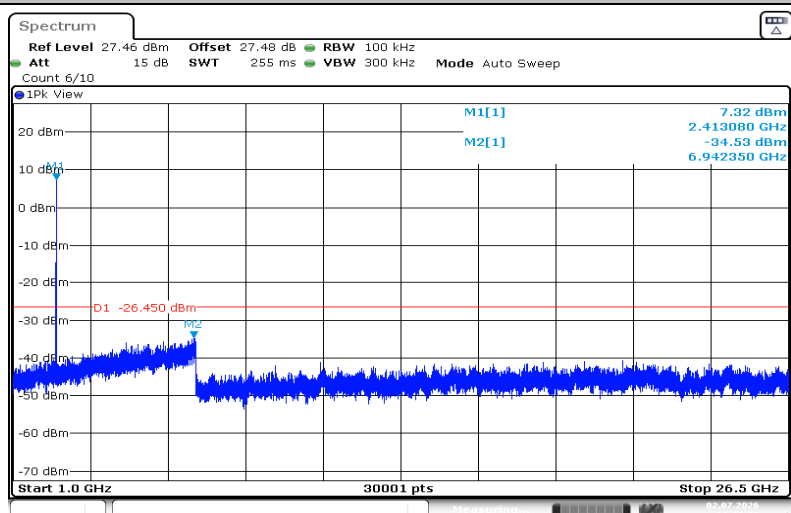
|            |      |      |             |      |        |               |      |
|------------|------|------|-------------|------|--------|---------------|------|
| 11N20SISO  | Ant1 | 2437 | 0~Reference | 3.05 | 3.05   | ---           | PASS |
| 11N20SISO  | Ant1 | 2437 | 30~1000     | 3.05 | -57.64 | $\leq -26.95$ | PASS |
| 11N20SISO  | Ant1 | 2437 | 1000~26500  | 3.05 | -32.8  | $\leq -26.95$ | PASS |
| 11N20SISO  | Ant1 | 2462 | 0~Reference | 1.65 | 1.65   | ---           | PASS |
| 11N20SISO  | Ant1 | 2462 | 30~1000     | 1.65 | -58.32 | $\leq -28.35$ | PASS |
| 11N20SISO  | Ant1 | 2462 | 1000~26500  | 1.65 | -33.61 | $\leq -28.35$ | PASS |
| 11AX20SISO | Ant1 | 2412 | 0~Reference | 0.84 | 0.84   | ---           | PASS |
| 11AX20SISO | Ant1 | 2412 | 30~1000     | 0.84 | -57.73 | $\leq -29.16$ | PASS |
| 11AX20SISO | Ant1 | 2412 | 1000~26500  | 0.84 | -34.97 | $\leq -29.16$ | PASS |
| 11AX20SISO | Ant1 | 2437 | 0~Reference | 2.78 | 2.78   | ---           | PASS |
| 11AX20SISO | Ant1 | 2437 | 30~1000     | 2.78 | -58.21 | $\leq -27.22$ | PASS |
| 11AX20SISO | Ant1 | 2437 | 1000~26500  | 2.78 | -34.73 | $\leq -27.22$ | PASS |
| 11AX20SISO | Ant1 | 2462 | 0~Reference | 1.61 | 1.61   | ---           | PASS |
| 11AX20SISO | Ant1 | 2462 | 30~1000     | 1.61 | -58.5  | $\leq -28.39$ | PASS |
| 11AX20SISO | Ant1 | 2462 | 1000~26500  | 1.61 | -35.06 | $\leq -28.39$ | PASS |



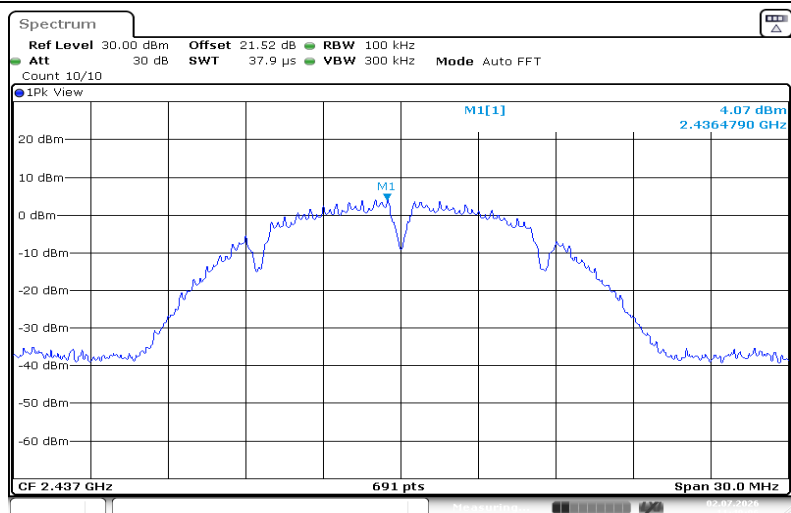
11B-Ant1-2412-0~Reference-PASS



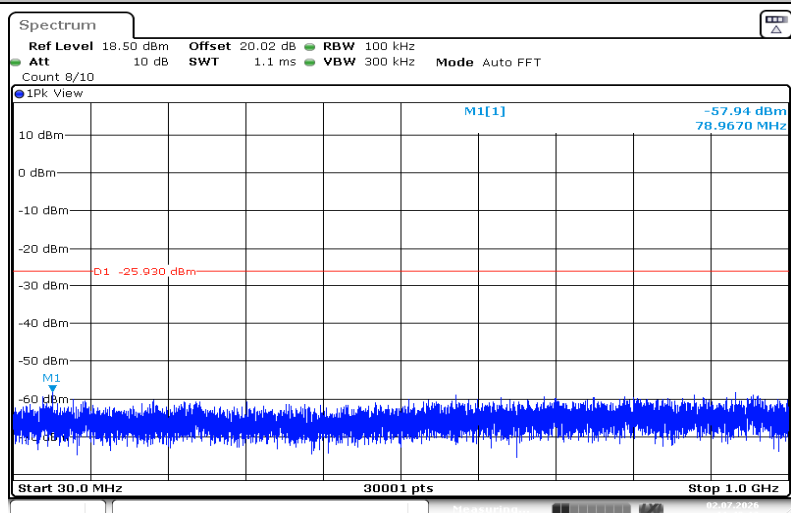
11B-Ant1-2412-30~1000-PASS



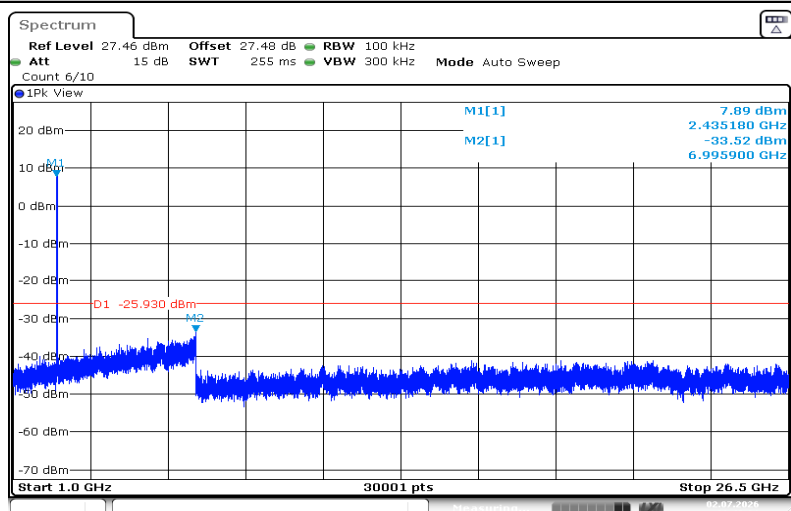
11B-Ant1-2412-1000~26500-PASS



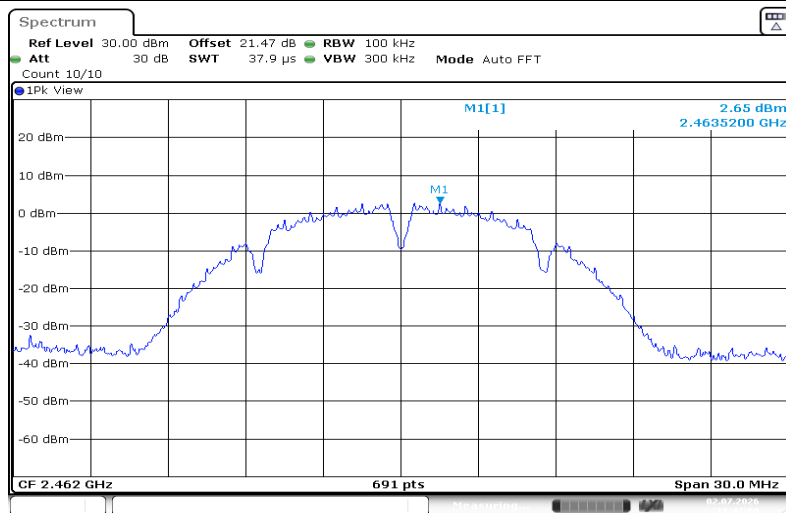
11B-Ant1-2437-0~Reference-PASS



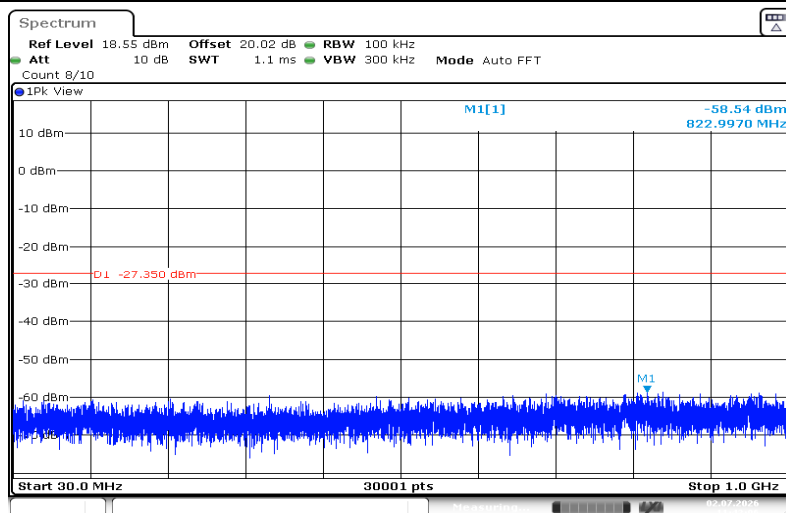
11B-Ant1-2437-30~1000-PASS



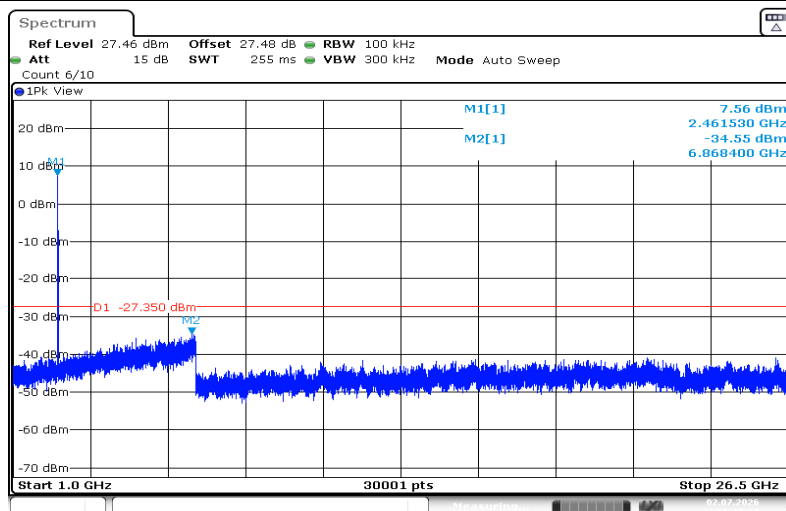
11B-Ant1-2437-1000~26500-PASS



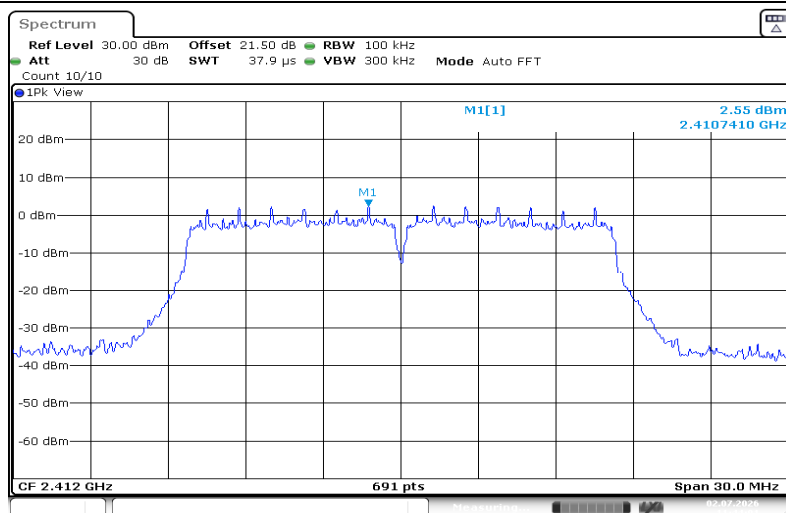
11B-Ant1-2462-0~Reference-PASS



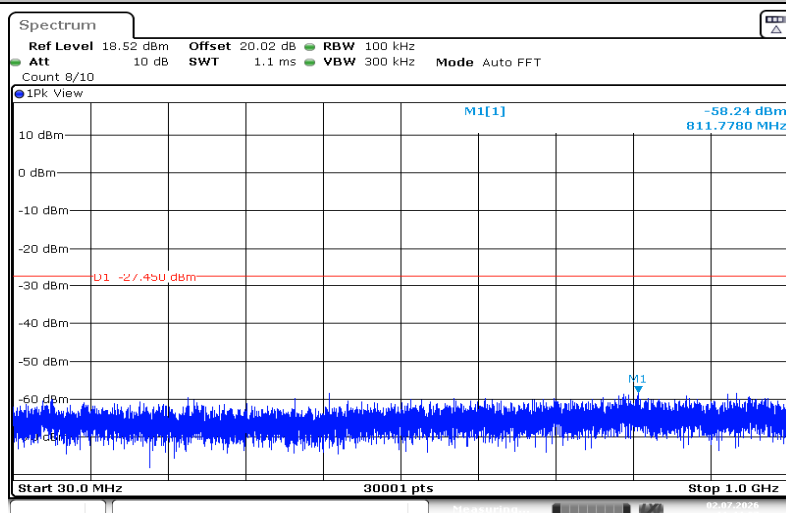
11B-Ant1-2462-30~1000-PASS



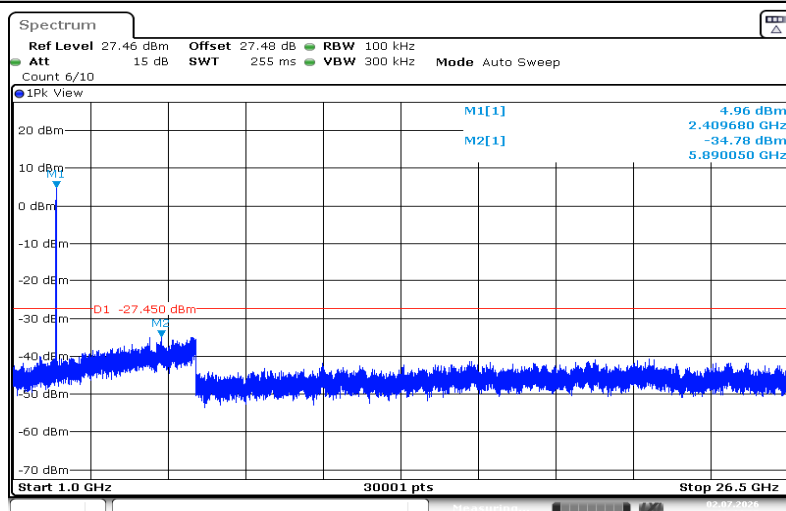
11B-Ant1-2462-1000~26500-PASS



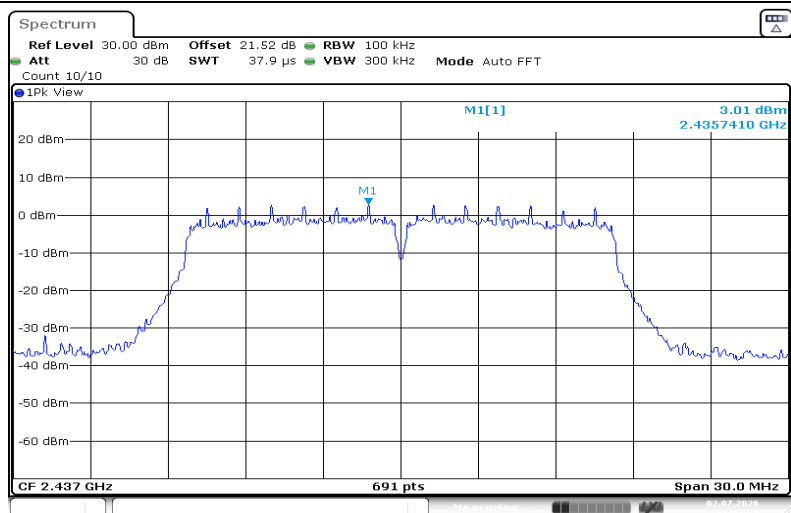
11G-Ant1-2412-0~Reference-PASS



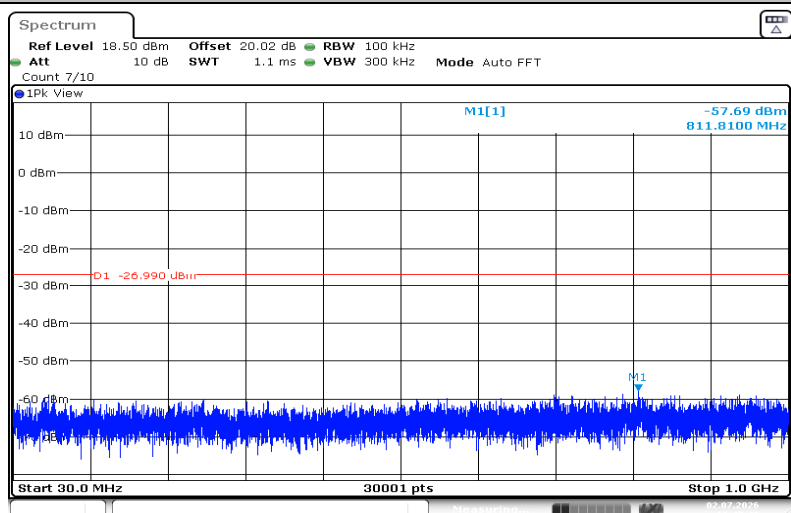
11G-Ant1-2412-30~1000-PASS



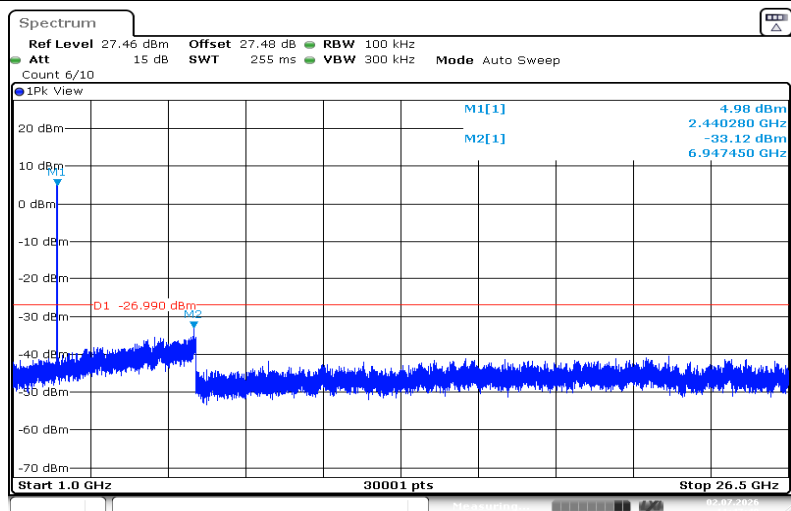
11G-Ant1-2412-1000~26500-PASS



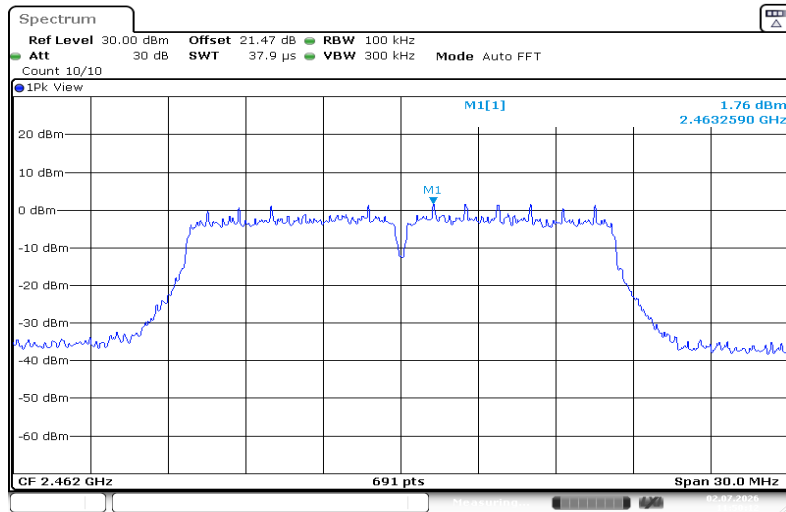
11G-Ant1-2437-0~Reference-PASS



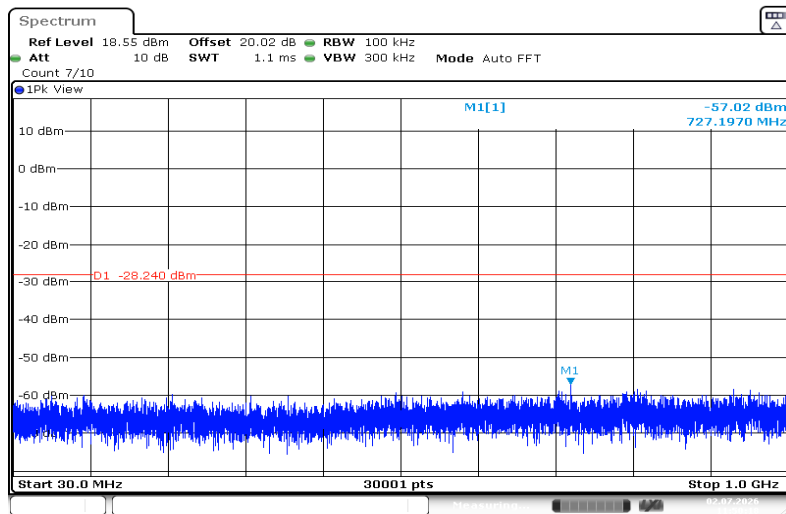
11G-Ant1-2437-30~1000-PASS



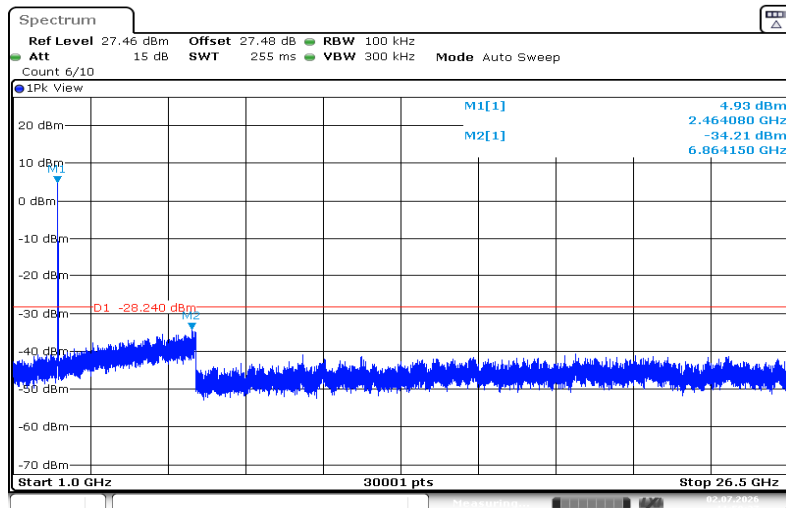
11G-Ant1-2437-1000~26500-PASS



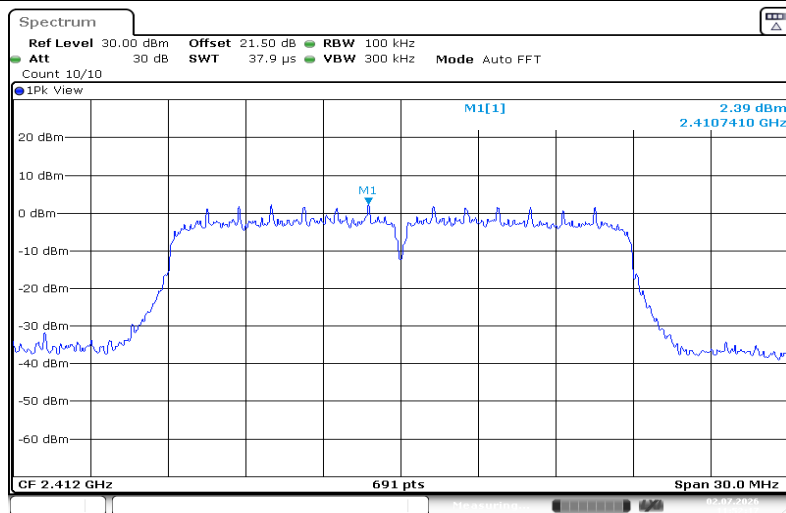
11G-Ant1-2462-0~Reference-PASS



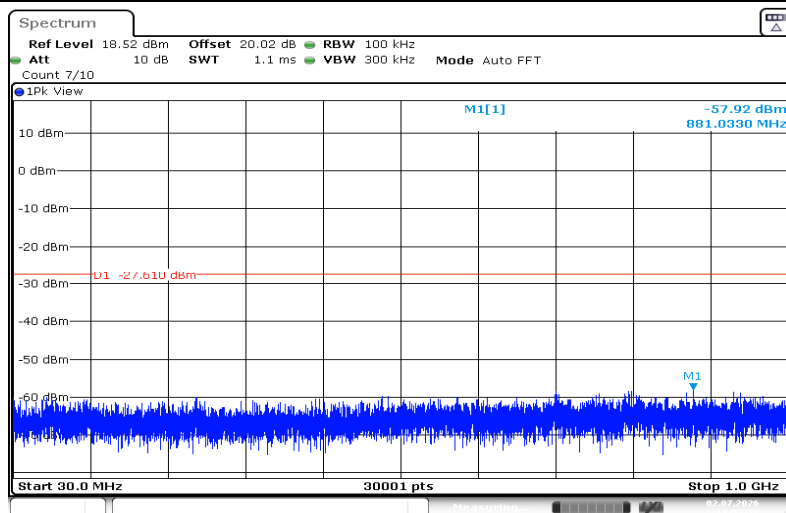
11G-Ant1-2462-30~1000-PASS



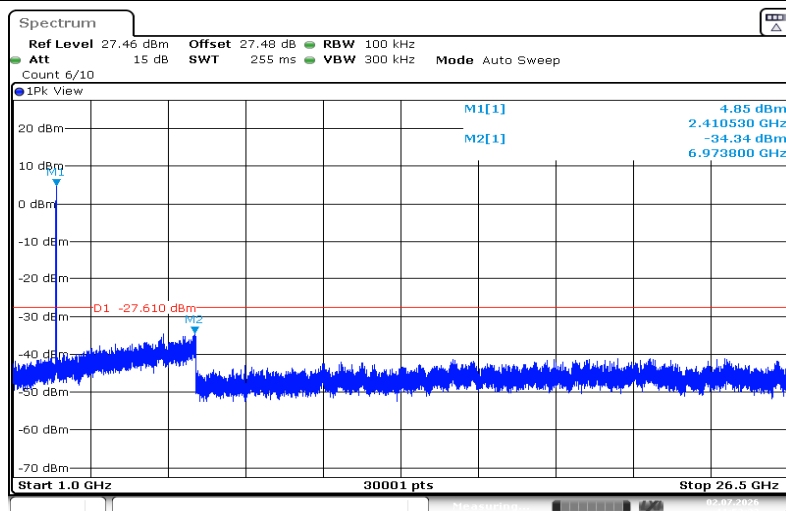
11G-Ant1-2462-1000~26500-PASS



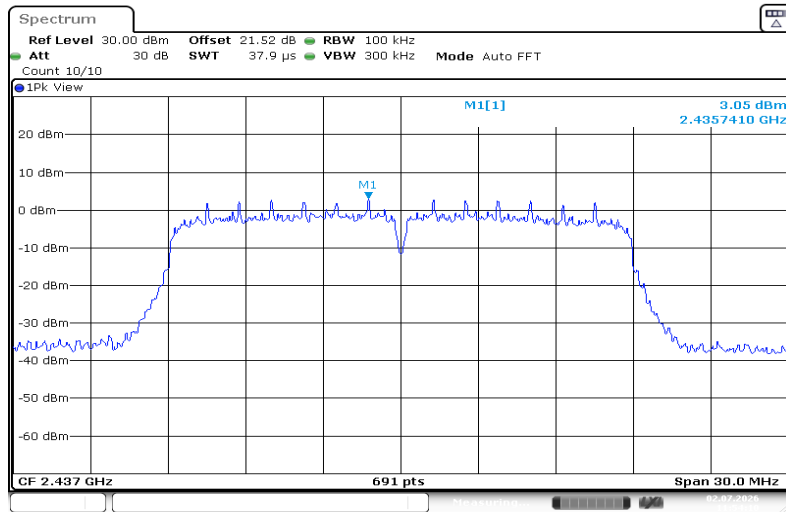
11N20SISO-Ant1-2412-0~Reference-PASS



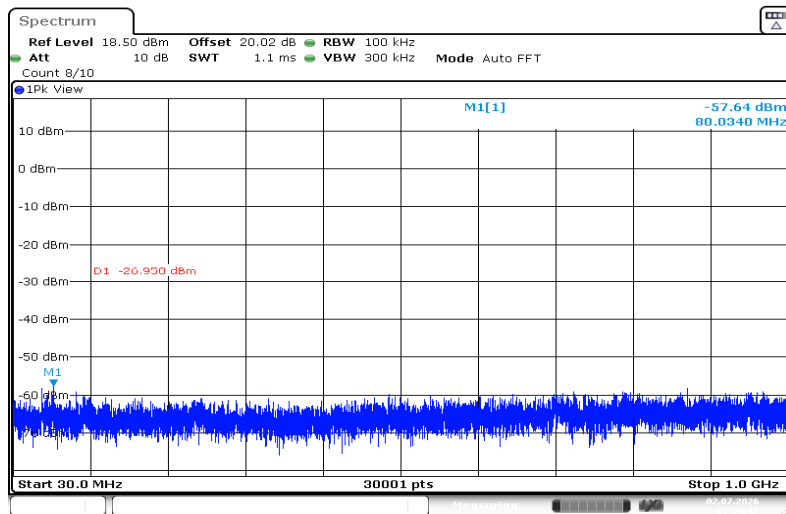
11N20SISO-Ant1-2412-30~1000-PASS



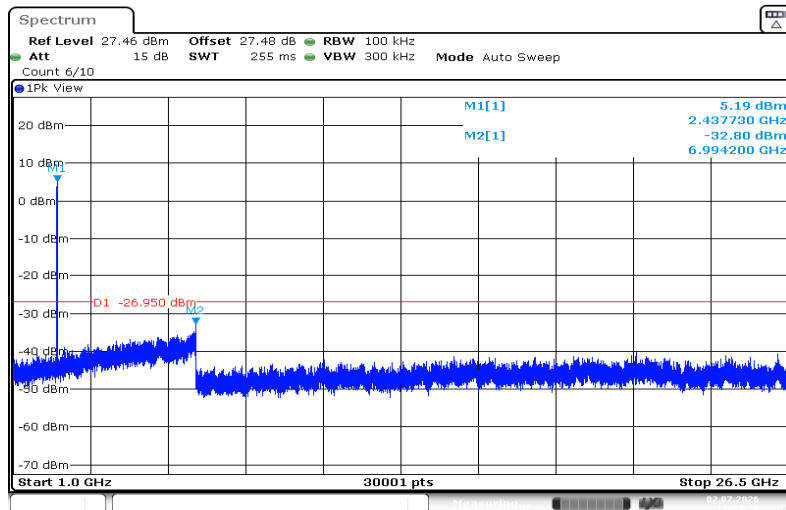
11N20SISO-Ant1-2412-1000~26500-PASS



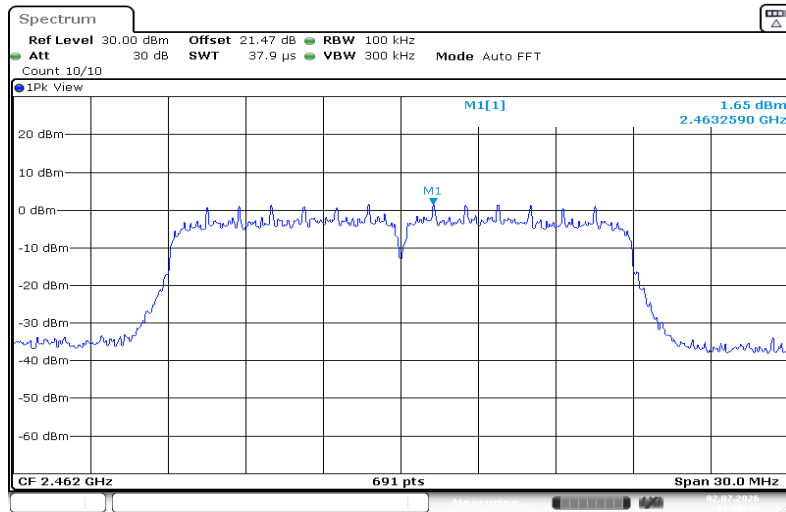
### 11N20SISO-Ant1-2437-0~Reference-PASS



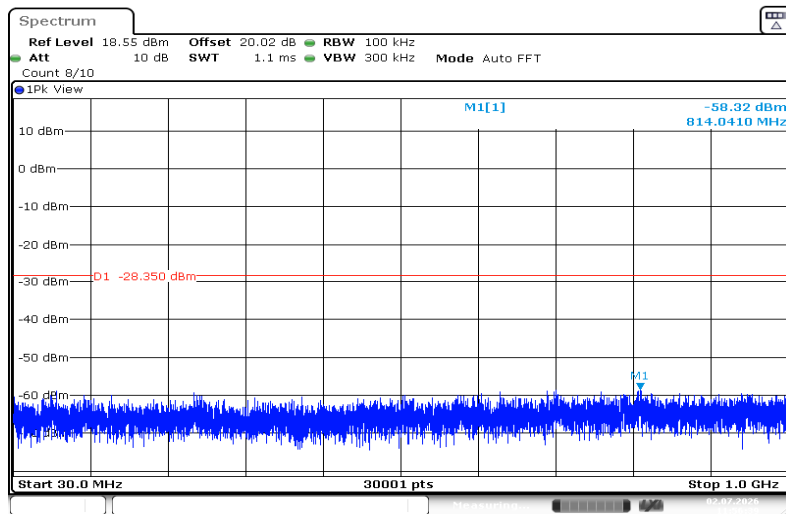
### 11N20SISO-Ant1-2437-30~1000-PASS



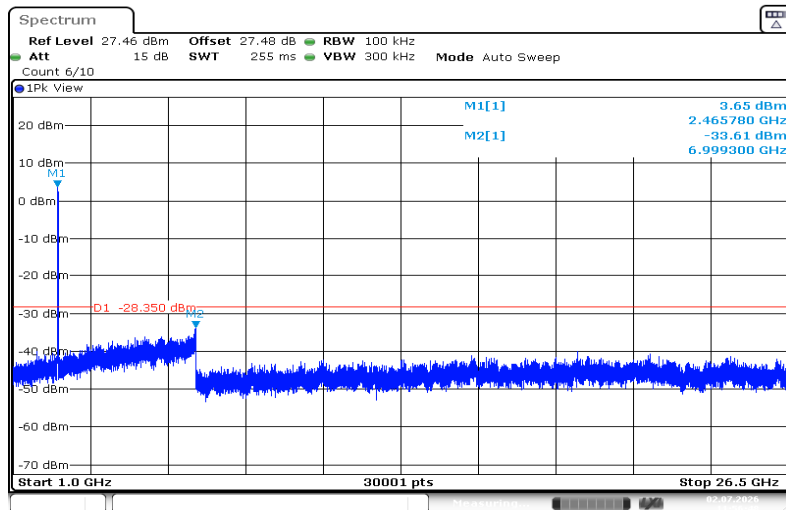
### 11N20SISO-Ant1-2437-1000~26500-PASS



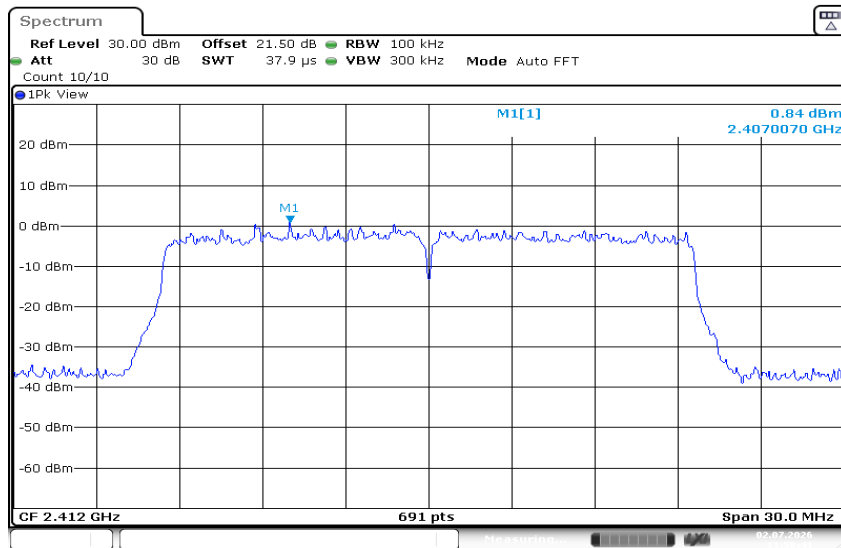
11N20SISO-Ant1-2462-0~Reference-PASS



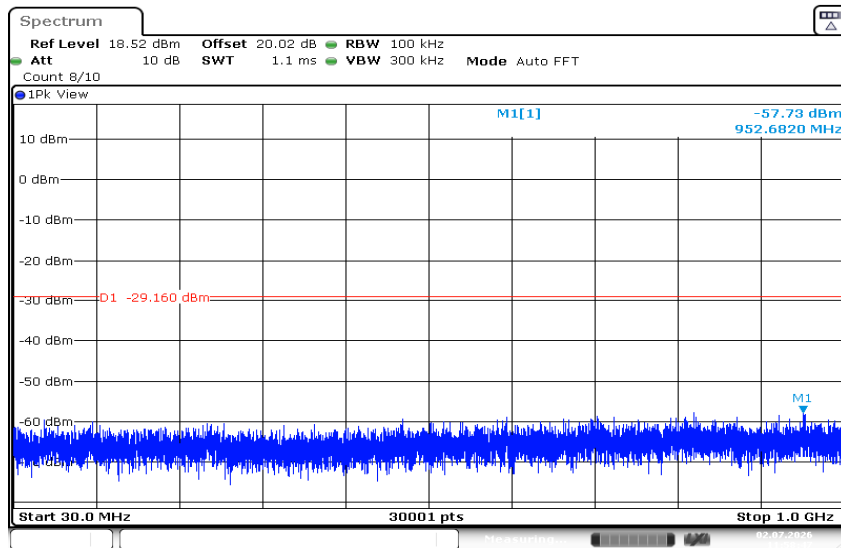
11N20SISO-Ant1-2462-30~1000-PASS



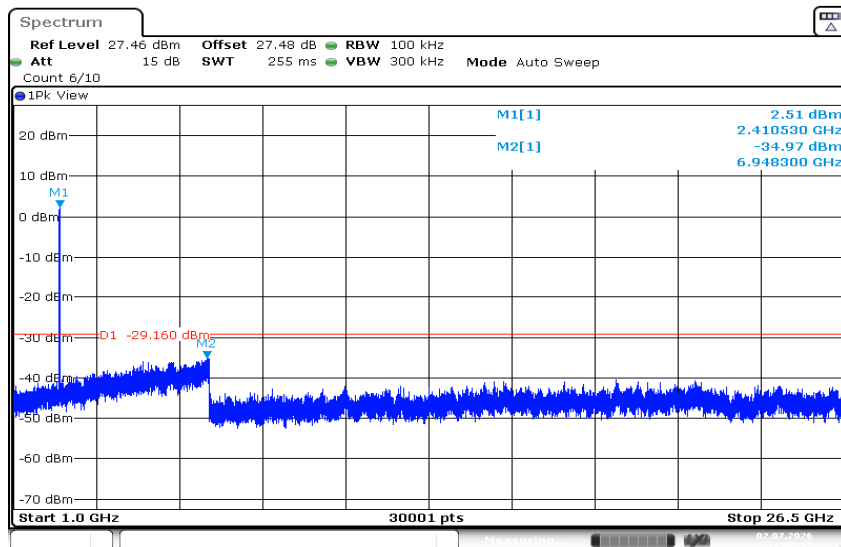
11N20SISO-Ant1-2462-1000~26500-PASS



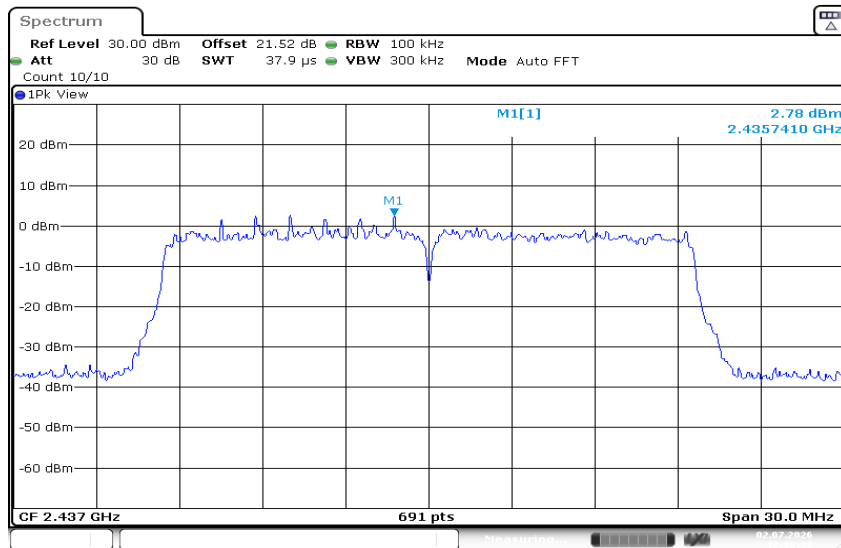
11AX20SISO-Ant1-2412-0~Reference-PASS



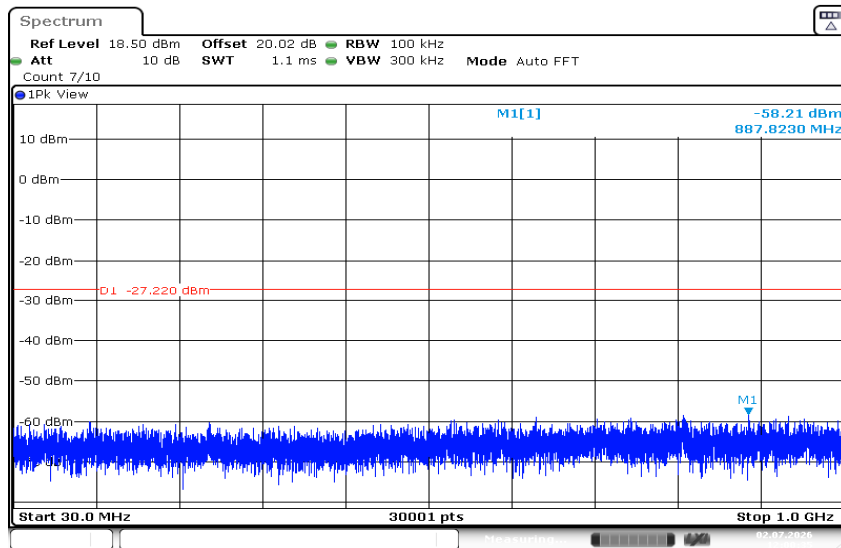
11AX20SISO-Ant1-2412-30~1000-PASS



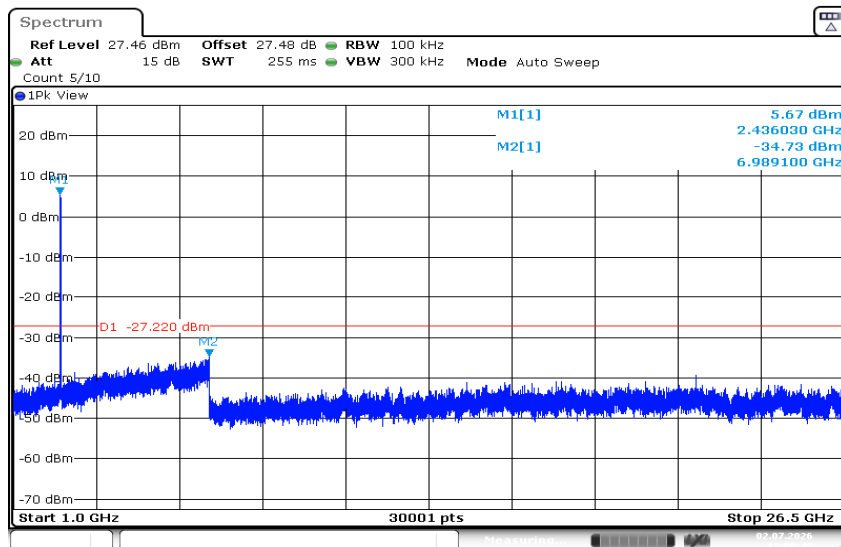
11AX20SISO-Ant1-2412-1000~26500-PASS



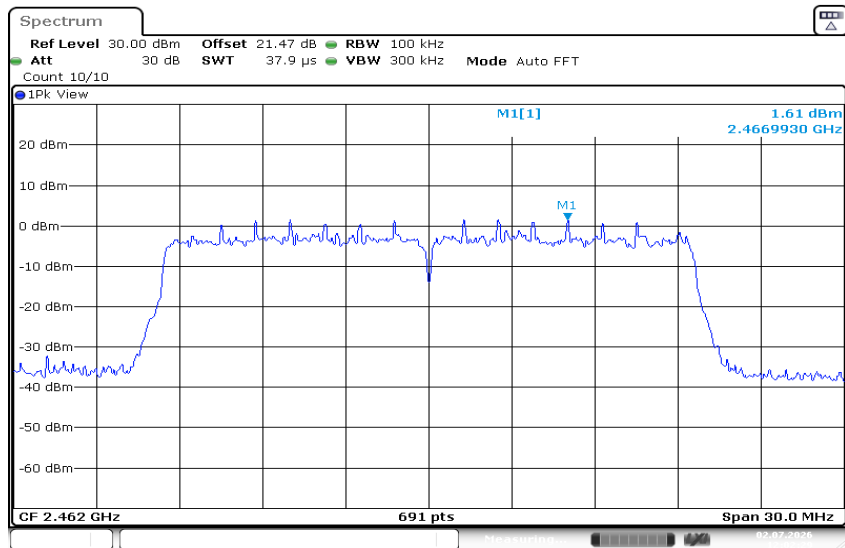
11AX20SISO-Ant1-2437-0~Reference-PASS



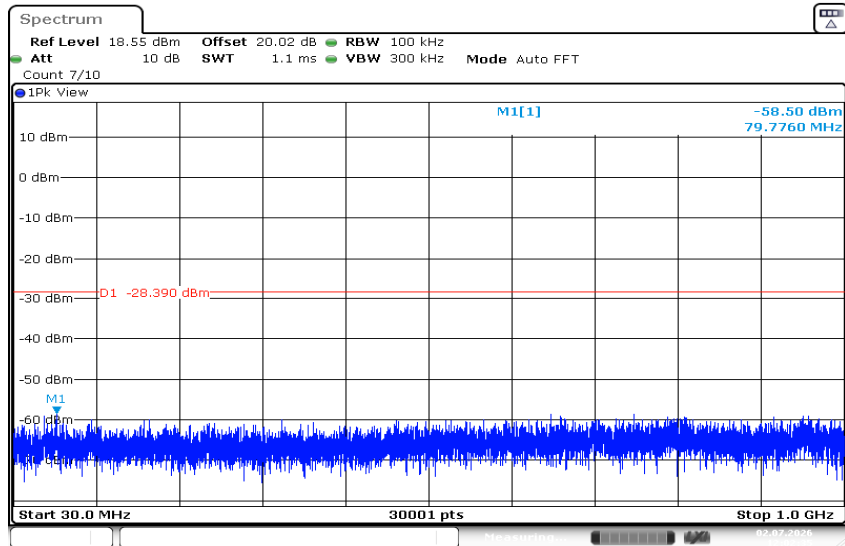
11AX20SISO-Ant1-2437-30~1000-PASS



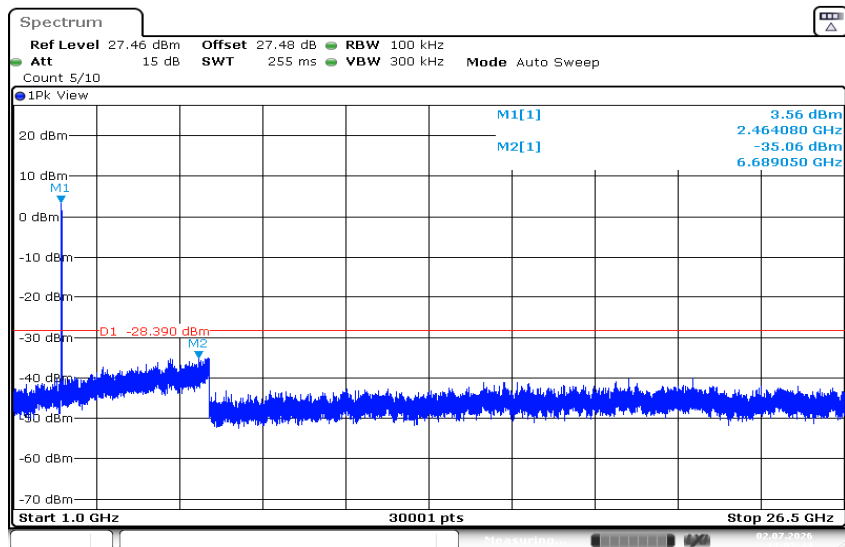
11AX20SISO-Ant1-2437-1000~26500-PASS



11AX20SISO-Ant1-2462-0~Reference-PASS



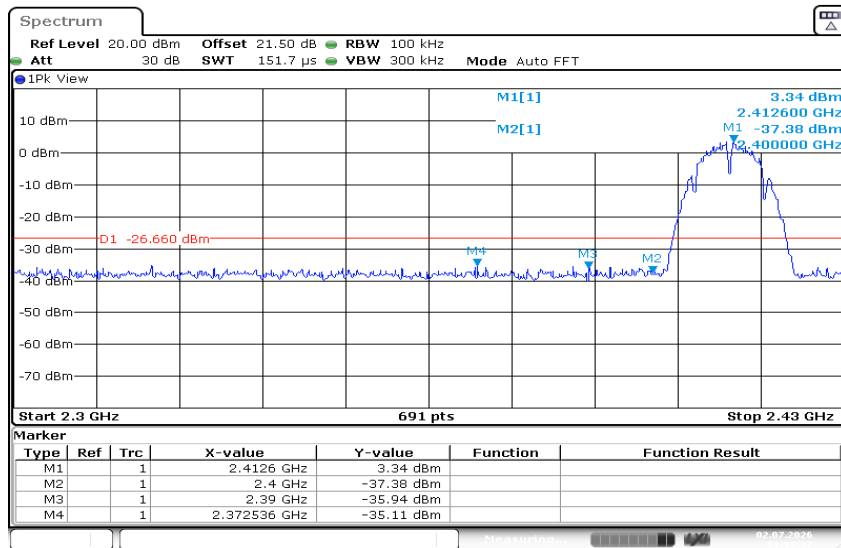
11AX20SISO-Ant1-2462-30~1000-PASS



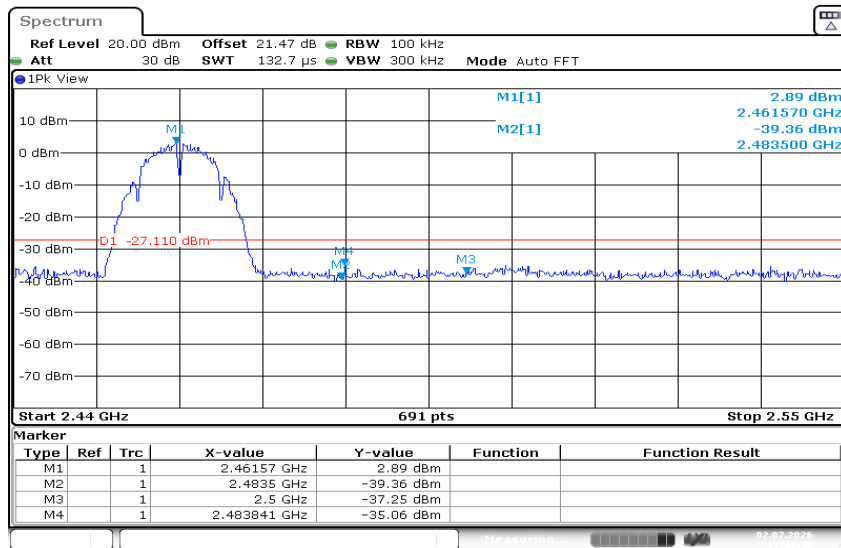
11AX20SISO-Ant1-2462-1000~26500-PASS

## Band edge

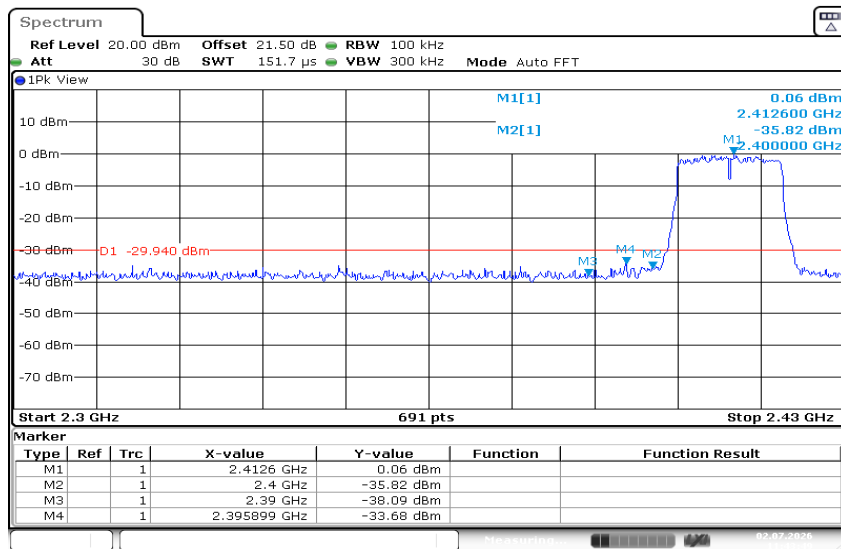
| Test Mode  | Antenna | Ch Name | Frequency[MHz] | Ref Level[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|------------|---------|---------|----------------|----------------|-------------|------------|---------|
| 11B        | Ant1    | Low     | 2412           | 3.34           | -35.11      | ≤-26.66    | PASS    |
| 11B        | Ant1    | High    | 2462           | 2.89           | -35.06      | ≤-27.11    | PASS    |
| 11G        | Ant1    | Low     | 2412           | 0.06           | -33.68      | ≤-29.94    | PASS    |
| 11G        | Ant1    | High    | 2462           | 1.76           | -34.61      | ≤-28.24    | PASS    |
| 11N20SISO  | Ant1    | Low     | 2412           | 2.22           | -34.94      | ≤-27.78    | PASS    |
| 11N20SISO  | Ant1    | High    | 2462           | 0.04           | -35.25      | ≤-29.96    | PASS    |
| 11AX20SISO | Ant1    | Low     | 2412           | 1.76           | -34.68      | ≤-28.24    | PASS    |
| 11AX20SISO | Ant1    | High    | 2462           | -1.42          | -34.79      | ≤-31.42    | PASS    |



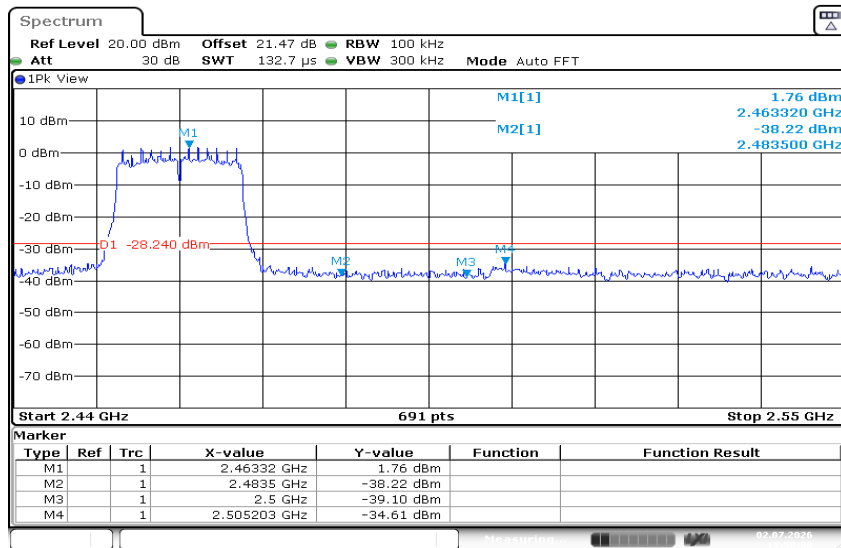
11B-Ant1-2412-PASS



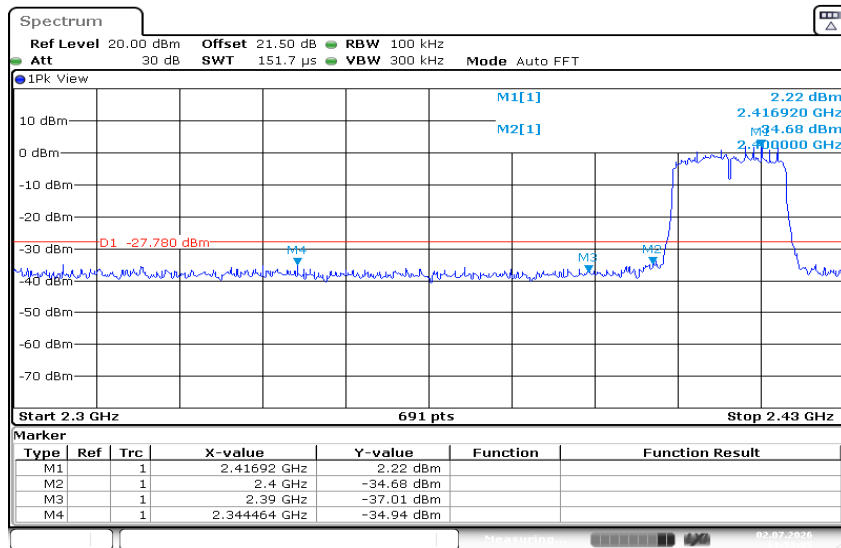
11B-Ant1-2462-PASS



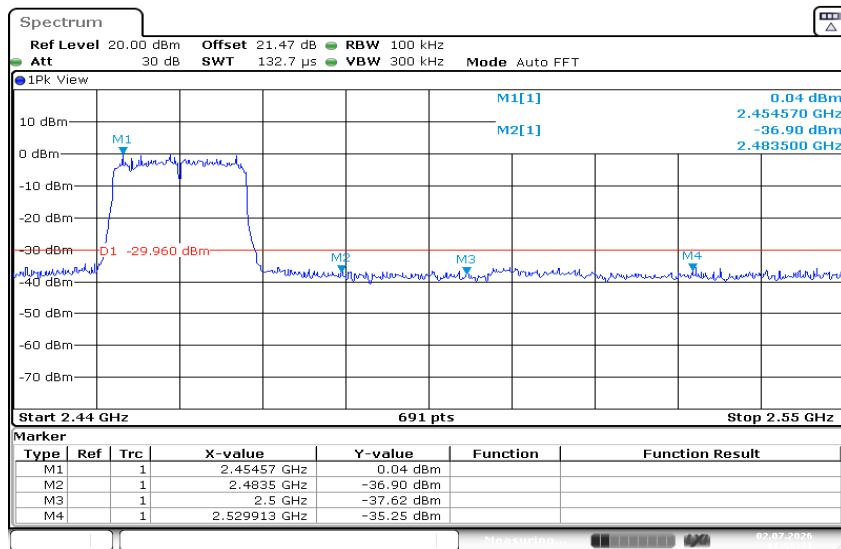
11G-Ant1-2412-PASS



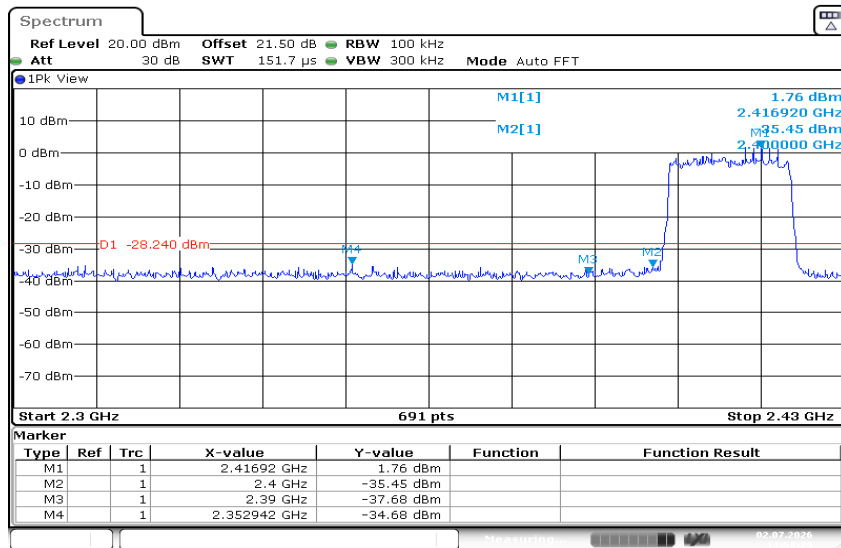
11G-Ant1-2462-PASS



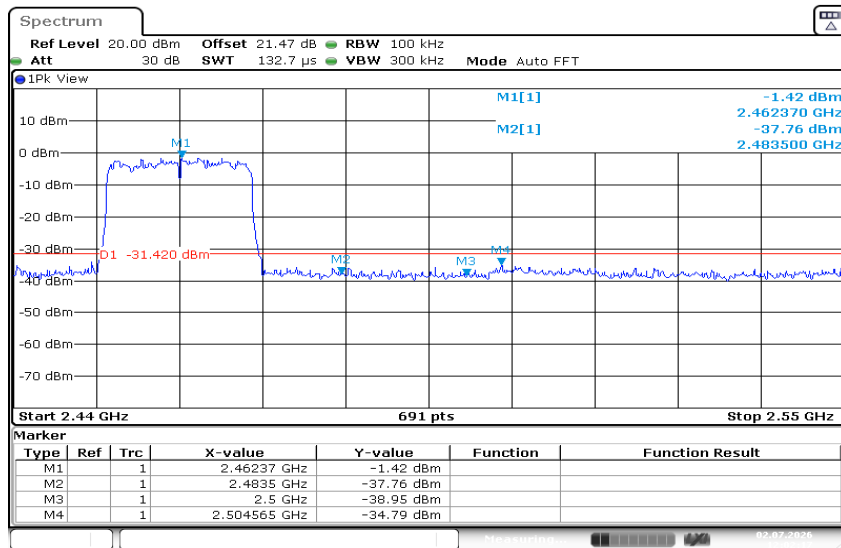
11N20SISO-Ant1-2412-PASS



11N20SISO-Ant1-2462-PASS



11AX20SISO-Ant1-2412-PASS



11AX20SISO-Ant1-2462-PASS

### 3.4 6dB Bandwidth

#### 3.4.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

#### 3.4.2 Test Procedure

| Test Method                                                                   |                                                  |
|-------------------------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement                        | <input type="radio"/> Radiated Measurement       |
| Test Channels                                                                 |                                                  |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel           | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                                      |                                                  |
| <input checked="" type="radio"/> Normal                                       | <input type="radio"/> Normal and Extreme         |
| Note: <input checked="" type="radio"/> : Test <input type="radio"/> : No Test |                                                  |

a) The EUT was connected to the tonscend test system, and the spectrum analyser is set as follow:

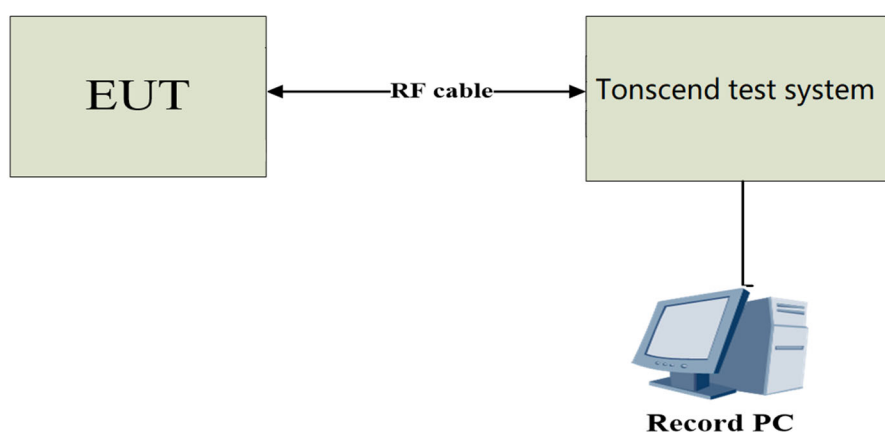
|                  |                                                |
|------------------|------------------------------------------------|
| Centre Frequency | The centre frequency of the channel under test |
| RBW              | 1%~5% OBW but not less than 100 kHz.           |
| VBW              | $\geq 3$ RBW                                   |
| Frequency span   | 2x Nominal Channel Bandwidth                   |
| Detector Mode    | Peak                                           |
| Trace Mode       | Max Hold                                       |
| Sweep Time       | Auto Couple                                    |

b) Wait for the trace to stabilize then find the peak value of the trace and place the analyser marker on this peak.

c) Use the -6dB bandwidth function of the spectrum analyser to measure the 6dB Bandwidth of the EUT. This value shall be recorded.

d) Make sure that the power envelope is sufficiently above the noise floor of the analyser to avoid the noise signals left and right from the power envelope being taken into account by this measurement.

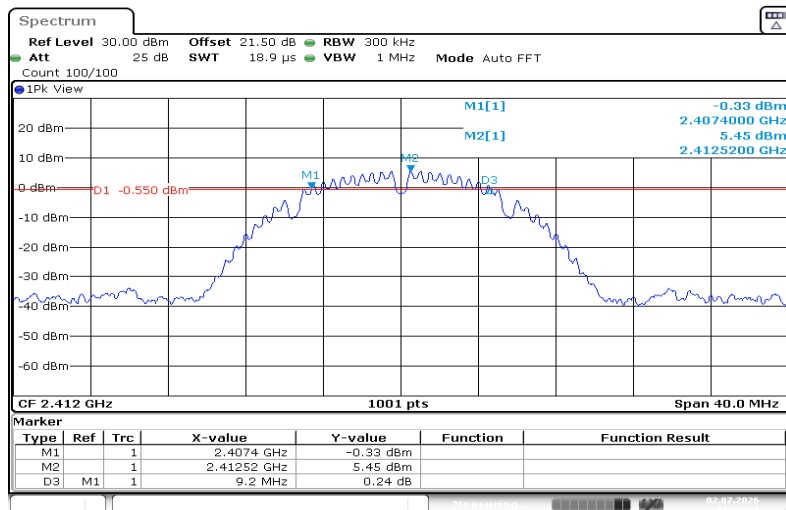
#### 3.4.3 Test Setup



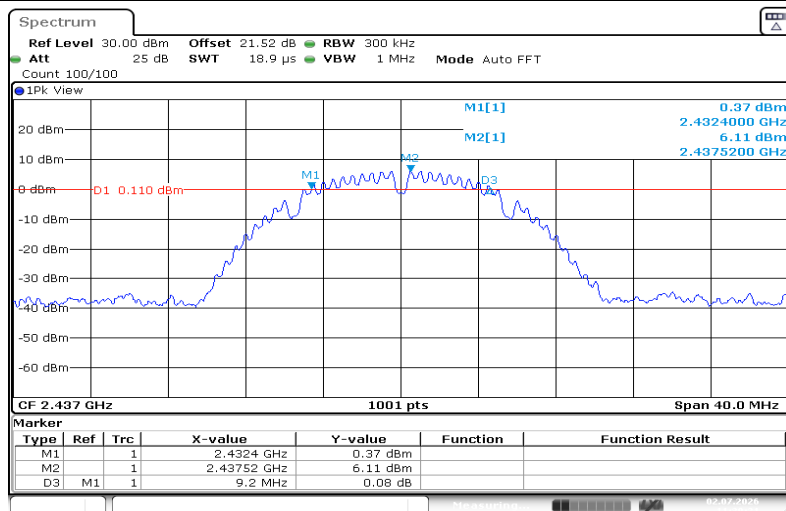
### 3.4.4 Test Result

#### DTS Bandwidth

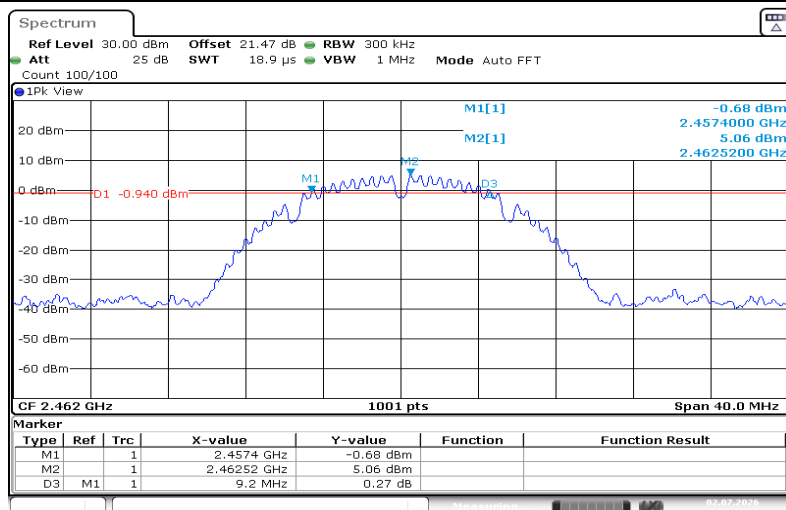
| TestMode   | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|------------|---------|----------------|--------------|---------|---------|------------|---------|
| 11B        | Ant1    | 2412           | 9.20         | 2407.40 | 2416.60 | 0.5        | PASS    |
| 11B        | Ant1    | 2437           | 9.20         | 2432.40 | 2441.60 | 0.5        | PASS    |
| 11B        | Ant1    | 2462           | 9.20         | 2457.40 | 2466.60 | 0.5        | PASS    |
| 11G        | Ant1    | 2412           | 16.32        | 2403.84 | 2420.16 | 0.5        | PASS    |
| 11G        | Ant1    | 2437           | 16.24        | 2428.88 | 2445.12 | 0.5        | PASS    |
| 11G        | Ant1    | 2462           | 16.40        | 2453.84 | 2470.24 | 0.5        | PASS    |
| 11N20SISO  | Ant1    | 2412           | 17.52        | 2403.24 | 2420.76 | 0.5        | PASS    |
| 11N20SISO  | Ant1    | 2437           | 17.32        | 2428.28 | 2445.60 | 0.5        | PASS    |
| 11N20SISO  | Ant1    | 2462           | 17.32        | 2453.32 | 2470.64 | 0.5        | PASS    |
| 11AX20SISO | Ant1    | 2412           | 19.00        | 2402.52 | 2421.52 | 0.5        | PASS    |
| 11AX20SISO | Ant1    | 2437           | 19.00        | 2427.48 | 2446.48 | 0.5        | PASS    |
| 11AX20SISO | Ant1    | 2462           | 18.76        | 2452.80 | 2471.56 | 0.5        | PASS    |



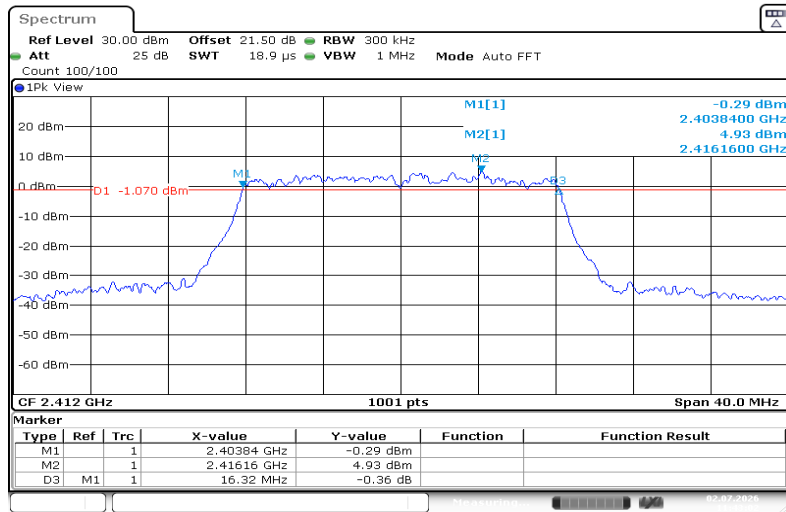
11B-Ant1-2412-PASS



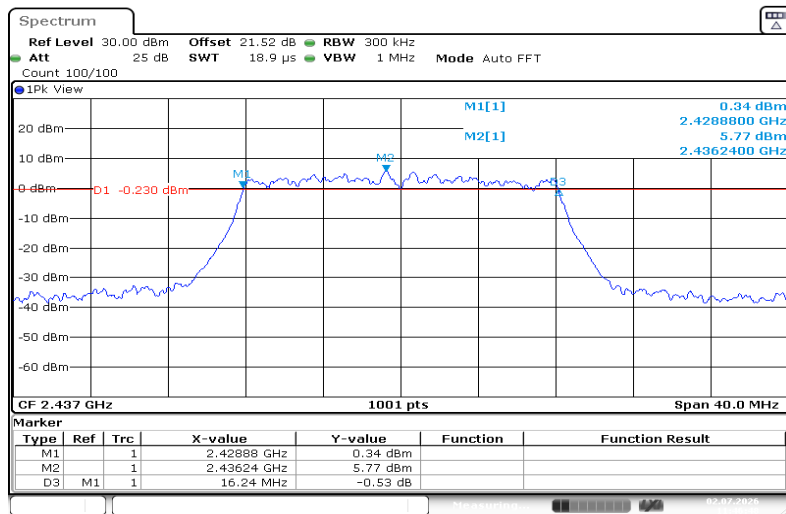
11B-Ant1-2437-PASS



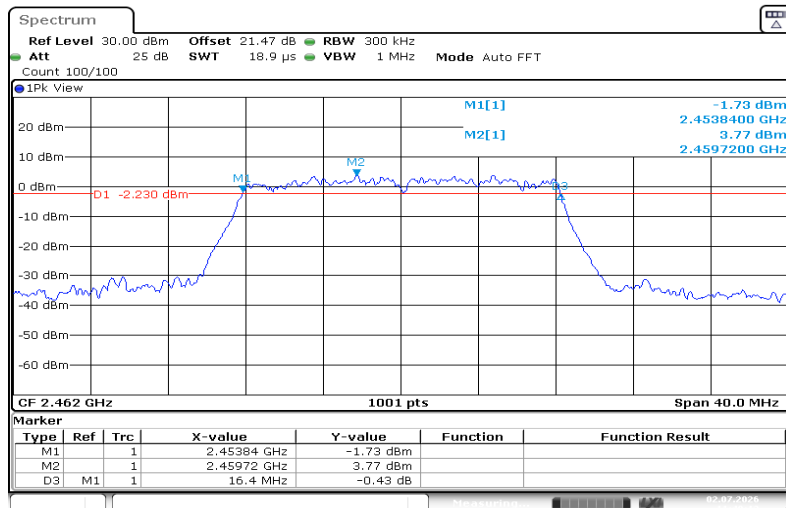
11B-Ant1-2462-PASS



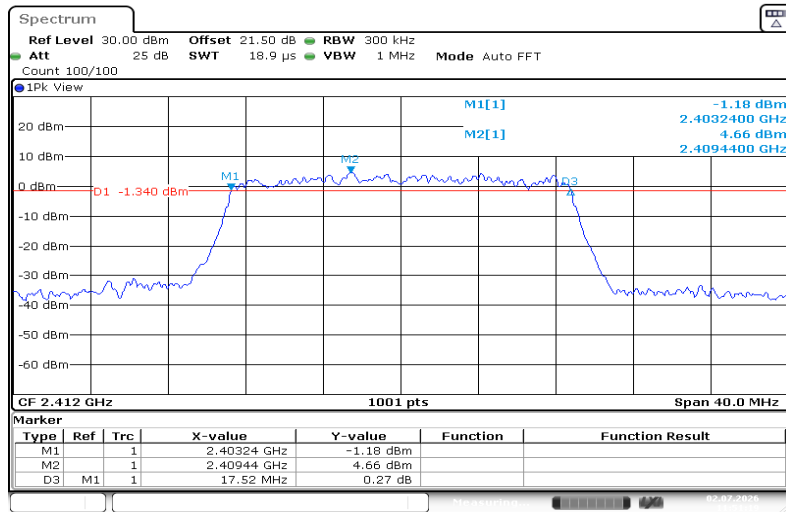
11G-Ant1-2412-PASS



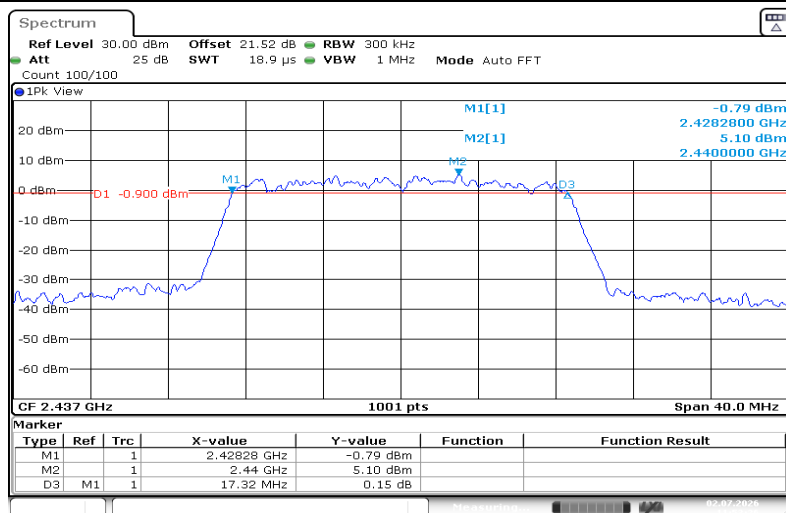
11G-Ant1-2437-PASS



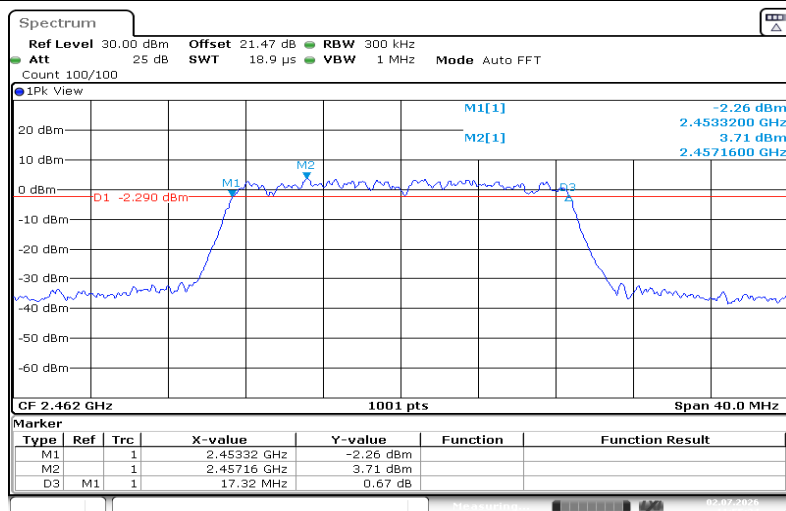
11G-Ant1-2462-PASS



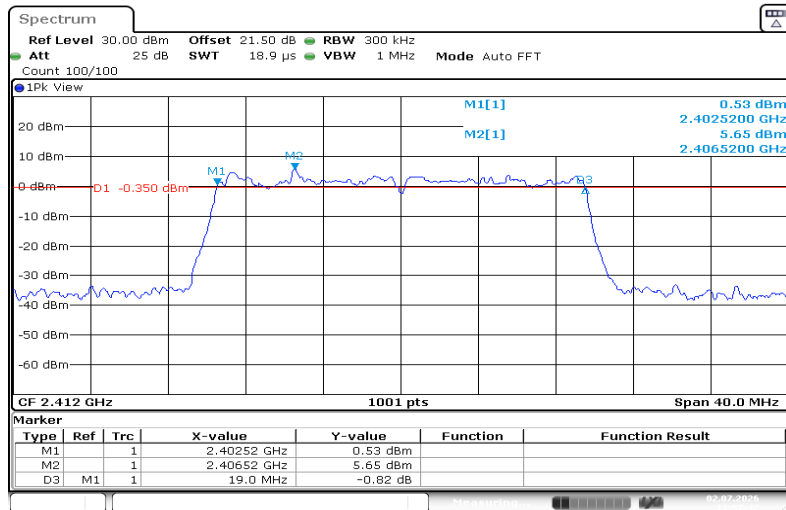
11N20SISO-Ant1-2412-PASS



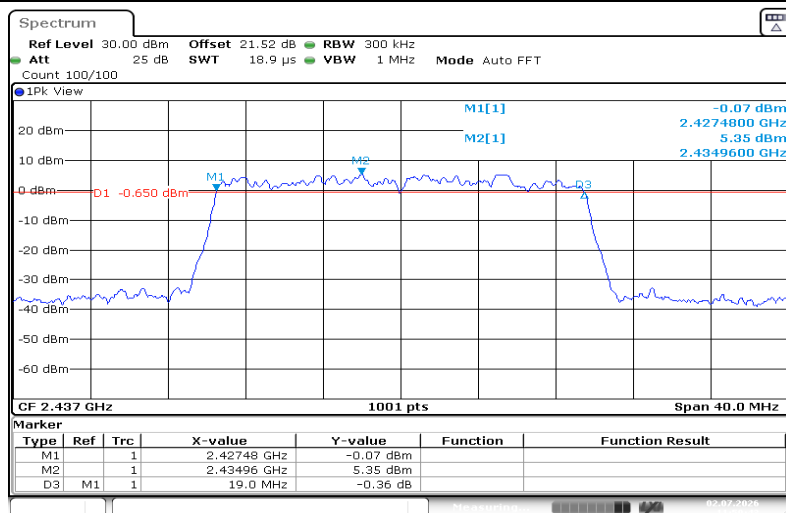
11N20SISO-Ant1-2437-PASS



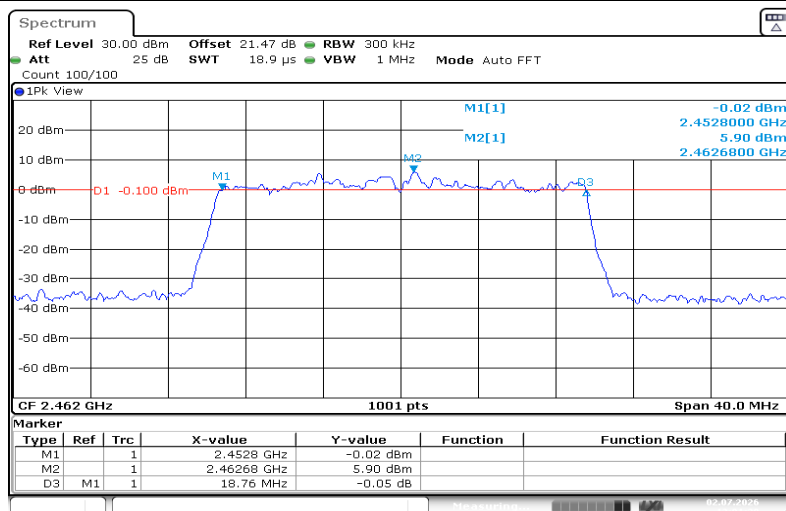
11N20SISO-Ant1-2462-PASS



11AX20SISO-Ant1-2412-PASS



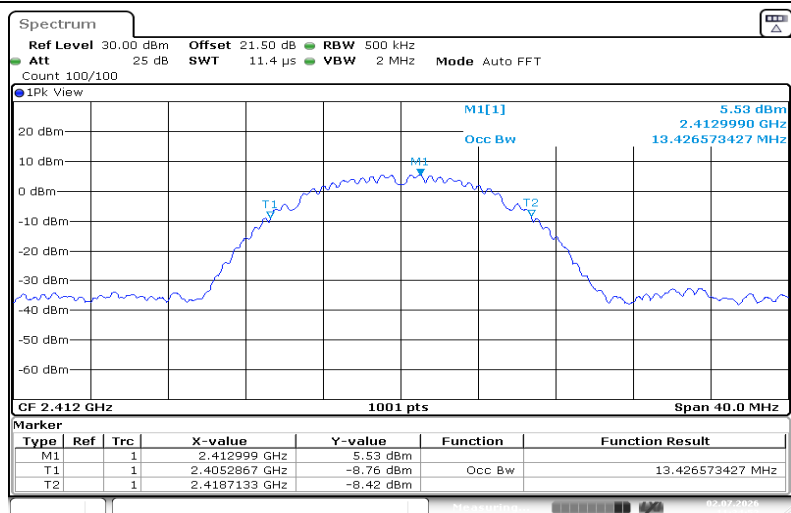
11AX20SISO-Ant1-2437-PASS



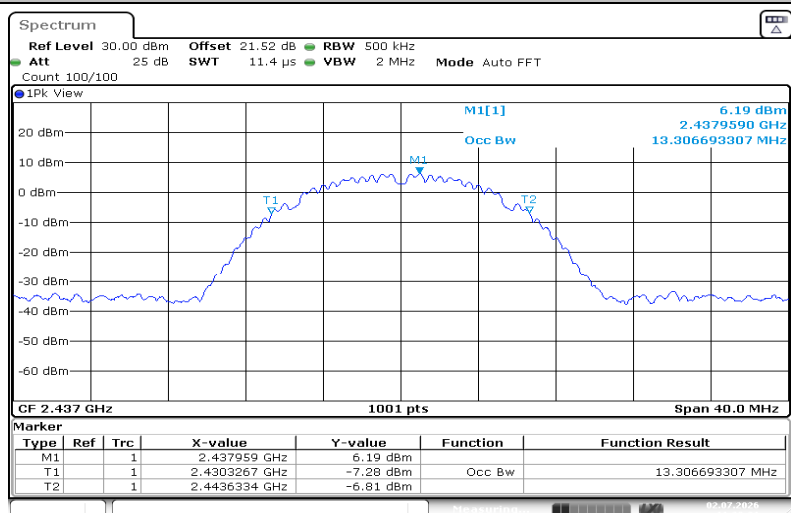
11AX20SISO-Ant1-2462-PASS

## Occupied Channel Bandwidth

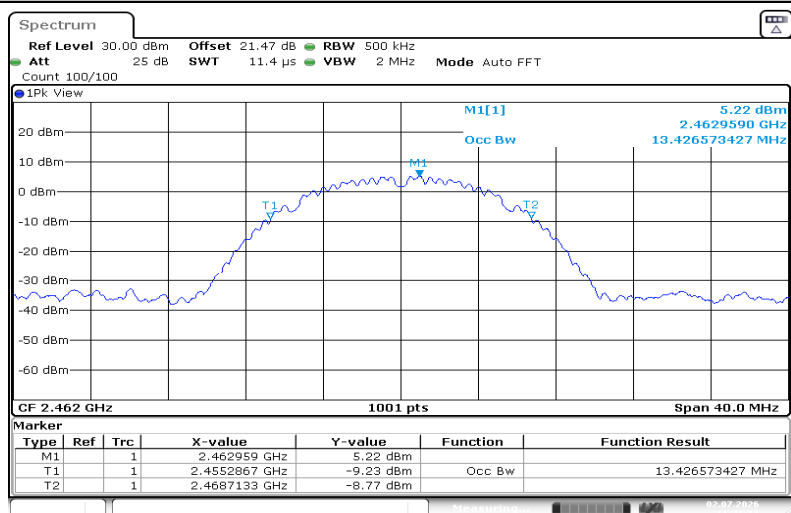
| Test Mode  | Antenna | Channel Frequency[MHz] | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|------------|---------|------------------------|-----------|-----------|-----------|------------|---------|
| 11B        | Ant1    | 2412                   | 13.427    | 2405.2867 | 2418.7133 | ---        | ---     |
| 11B        | Ant1    | 2437                   | 13.307    | 2430.3267 | 2443.6334 | ---        | ---     |
| 11B        | Ant1    | 2462                   | 13.427    | 2455.2867 | 2468.7133 | ---        | ---     |
| 11G        | Ant1    | 2412                   | 17.023    | 2403.4086 | 2420.4316 | ---        | ---     |
| 11G        | Ant1    | 2437                   | 16.783    | 2428.5684 | 2445.3516 | ---        | ---     |
| 11G        | Ant1    | 2462                   | 16.623    | 2453.6484 | 2470.2717 | ---        | ---     |
| 11N20SISO  | Ant1    | 2412                   | 17.582    | 2403.2488 | 2420.8312 | ---        | ---     |
| 11N20SISO  | Ant1    | 2437                   | 17.582    | 2428.1289 | 2445.7113 | ---        | ---     |
| 11N20SISO  | Ant1    | 2462                   | 17.782    | 2453.0889 | 2470.8711 | ---        | ---     |
| 11AX20SISO | Ant1    | 2412                   | 18.981    | 2402.5295 | 2421.5105 | ---        | ---     |
| 11AX20SISO | Ant1    | 2437                   | 18.901    | 2427.6094 | 2446.5105 | ---        | ---     |
| 11AX20SISO | Ant1    | 2462                   | 19.061    | 2452.4895 | 2471.5504 | ---        | ---     |



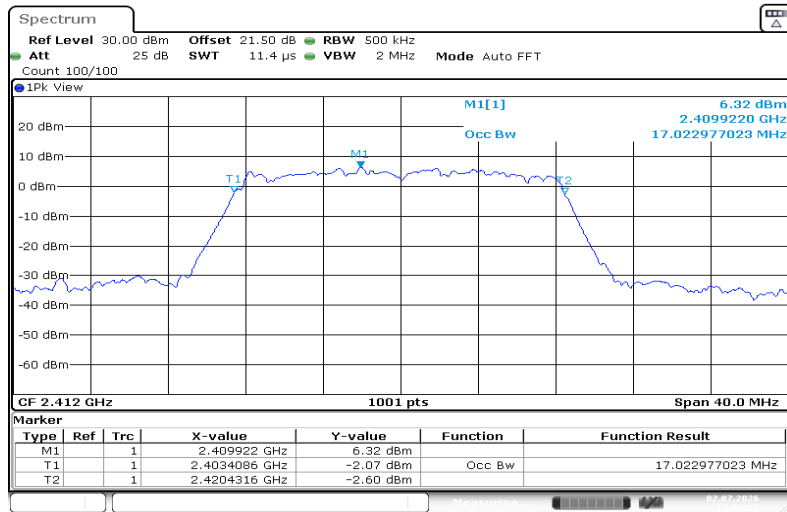
11B-Ant1-2412



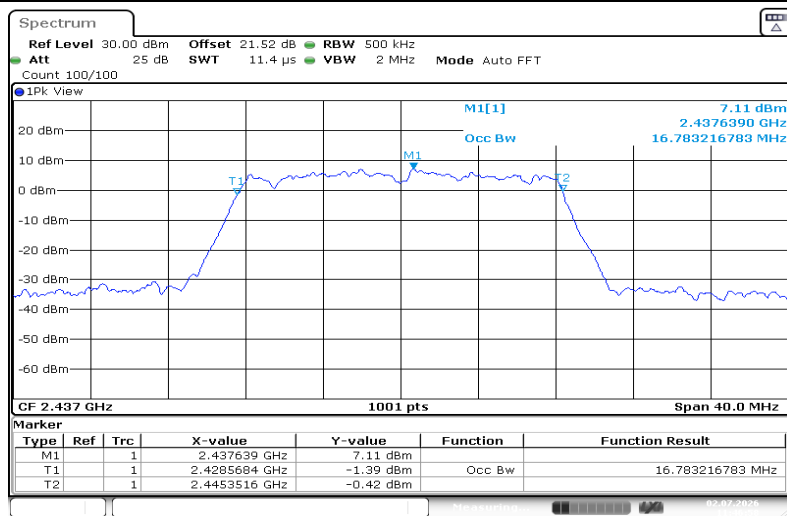
11B-Ant1-2437



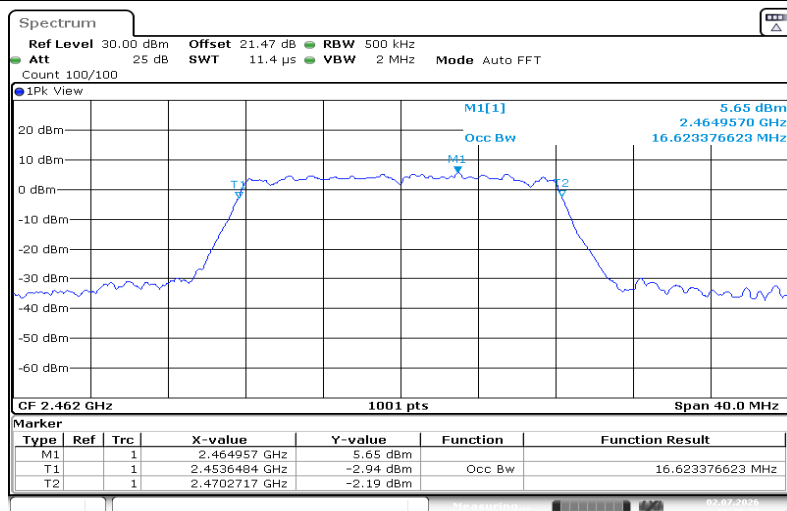
11B-Ant1-2462



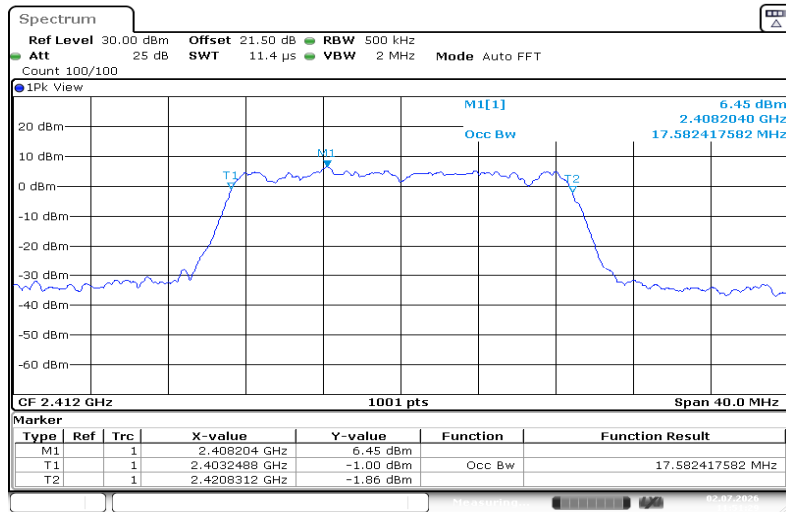
11G-Ant1-2412



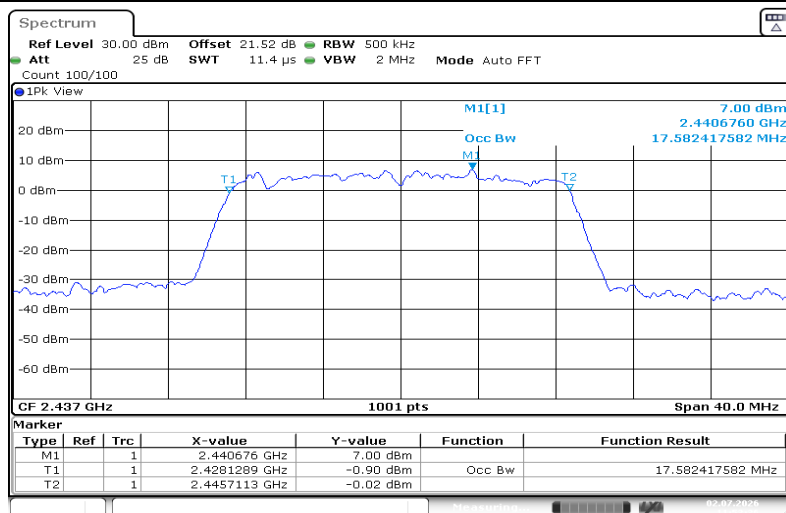
11G-Ant1-2437



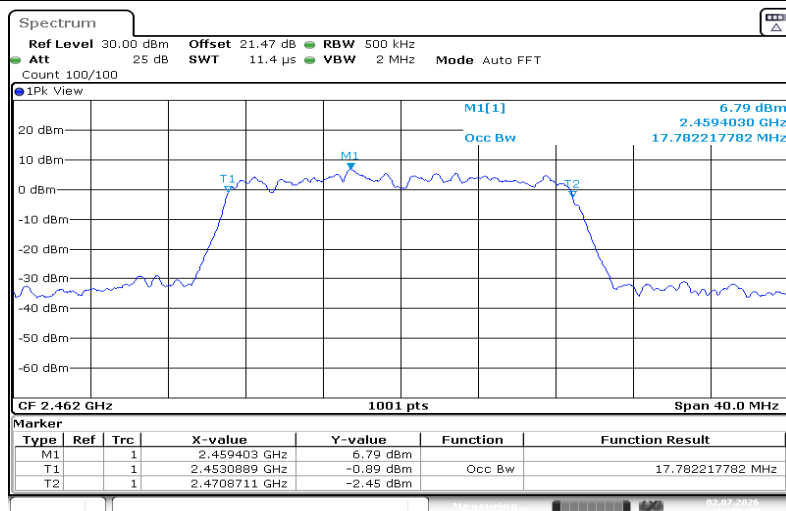
11G-Ant1-2462



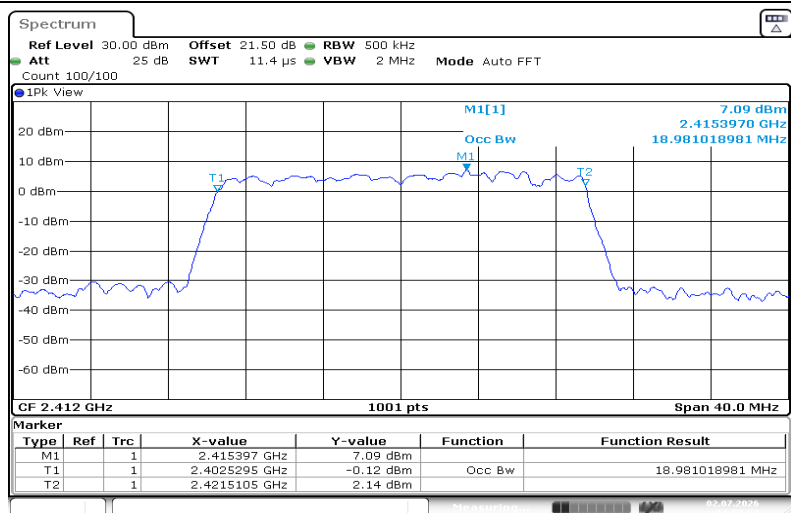
11N20SISO-Ant1-2412



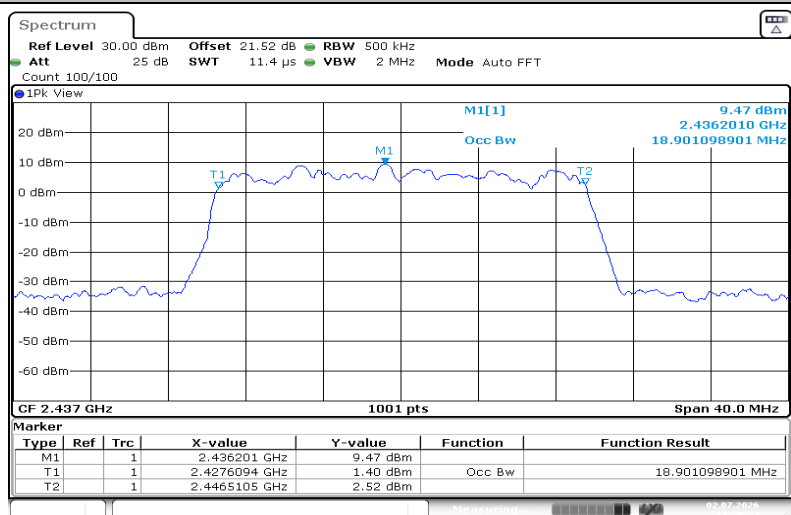
11N20SISO-Ant1-2437



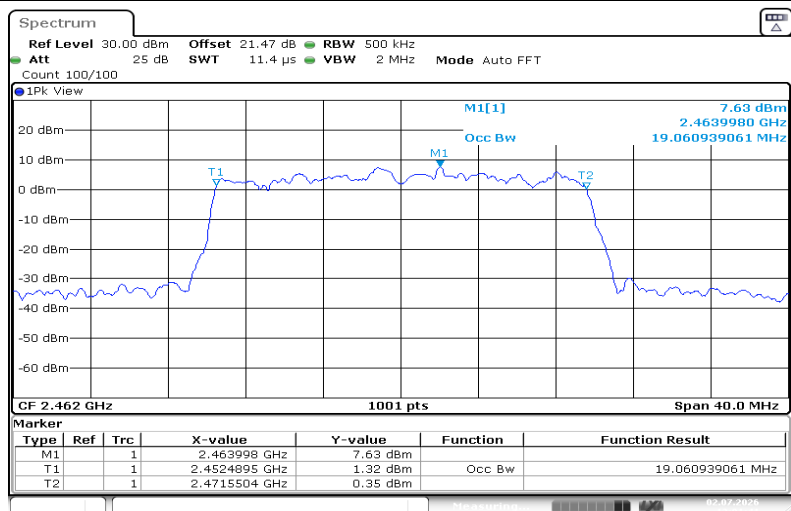
11N20SISO-Ant1-2462



11AX20SISO-Ant1-2412



11AX20SISO-Ant1-2437



11AX20SISO-Ant1-2462

### 3.5 Maximum conducted output power

#### 3.5.1 Limit

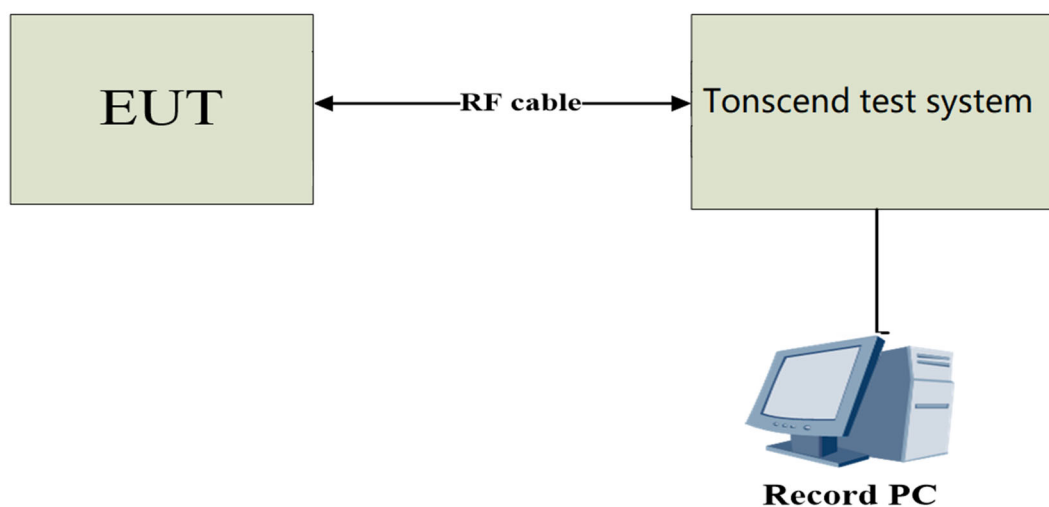
For systems using digital modulation in the 2400~2483.5MHz, The Maximum output Power shall not exceed 1W(30dBm)

#### 3.5.2 Test Procedure

| Test Method                                                         |                                                  |
|---------------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement              | <input type="radio"/> Radiated Measurement       |
| Test Channels                                                       |                                                  |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                            |                                                  |
| <input checked="" type="radio"/> Normal                             | <input type="radio"/> Normal and Extreme         |
| Note: ● : Test    ○ : No Test                                       |                                                  |

- a) The EUT was directly connected to the tonskend test system and antenna output port as show in the block diagram below.
- b) The maximum conducted output power was performed in accordance with method 11.9.1.2 (for peak power) of ANSI C63.10-2020.

#### 3.5.3 Test Setup



### 3.5.4 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

| For Power setting value |                                             |         |         |
|-------------------------|---------------------------------------------|---------|---------|
| Test Mode               | Power Level Setting defined by Manufacturer |         |         |
| Test Software Version   | Bouffalo Lab Dev Cube 1.8.7                 |         |         |
| Frequency (MHz)         | 2412                                        | 2437    | 2462    |
| IEEE 802.11b            | Default                                     | Default | Default |
| IEEE 802.11g            | Default                                     | Default | Default |
| IEEE 802.11n(20)        | Default                                     | Default | Default |
| IEEE 802.11ax(20)       | Default                                     | Default | Default |

### 3.5.5 The Result

| Test Mode  | Antenna | Frequency[MHz] | Maximum conducted output Power [dBm] | Limit [dBm] | Verdict |
|------------|---------|----------------|--------------------------------------|-------------|---------|
| 11B        | Ant1    | 2412           | 13.84                                | ≤30.00      | PASS    |
|            |         | 2437           | 14.47                                | ≤30.00      | PASS    |
|            |         | 2462           | 13.33                                | ≤30.00      | PASS    |
| 11G        | Ant1    | 2412           | 13.95                                | ≤30.00      | PASS    |
|            |         | 2437           | 14.36                                | ≤30.00      | PASS    |
|            |         | 2462           | 13.45                                | ≤30.00      | PASS    |
| 11N20SISO  | Ant1    | 2412           | 13.87                                | ≤30.00      | PASS    |
|            |         | 2437           | 14.30                                | ≤30.00      | PASS    |
|            |         | 2462           | 13.43                                | ≤30.00      | PASS    |
| 11AX20SISO | Ant1    | 2412           | 13.82                                | ≤30.00      | PASS    |
|            |         | 2437           | 13.76                                | ≤30.00      | PASS    |
|            |         | 2462           | 13.38                                | ≤30.00      | PASS    |

## 3.6 Power Spectral Density

### 3.6.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmitting.

### 3.6.2 Test Procedure

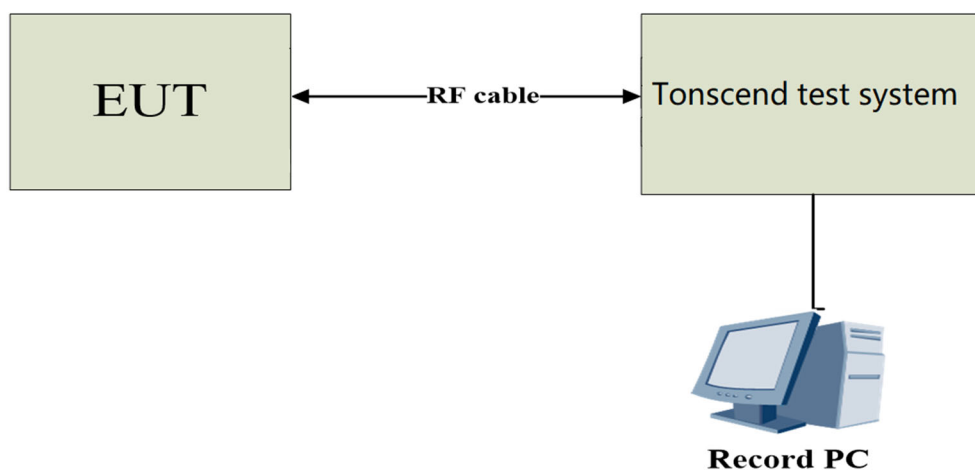
| Test Method                                                                   |                                                  |
|-------------------------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement                        | <input type="radio"/> Radiated Measurement       |
| Test Channels                                                                 |                                                  |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel           | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                                      |                                                  |
| <input checked="" type="radio"/> Normal                                       | <input type="radio"/> Normal and Extreme         |
| Note: <input checked="" type="radio"/> : Test <input type="radio"/> : No Test |                                                  |

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below.

b) Spectrum analyser settings as following:

| Spectrum Parameters | Setting                     |
|---------------------|-----------------------------|
| Span Frequency      | 1.5 times the DTS bandwidth |
| RBW                 | 3 kHz                       |
| VBW                 | 10 kHz                      |
| Detector            | RMS                         |
| Trace               | Max Hold                    |
| Sweep Time          | Auto                        |

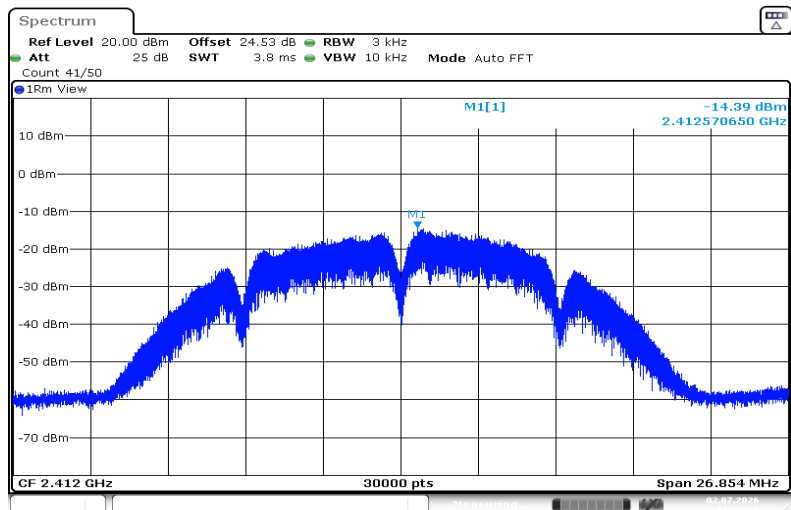
### 3.6.3 Test Setup



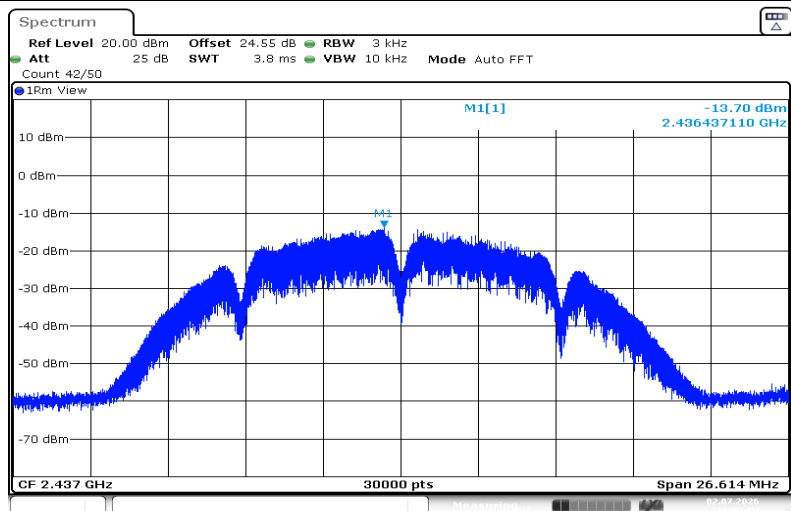
### 3.6.4 The Result

| Test Mode  | Antenna | Frequency[MHz] | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|------------|---------|----------------|------------------|-----------------|---------|
| 11B        | Ant1    | 2412           | -14.39           | ≤8.00           | PASS    |
|            |         | 2437           | -13.70           | ≤8.00           | PASS    |
|            |         | 2462           | -13.83           | ≤8.00           | PASS    |
| 11G        | Ant1    | 2412           | -18.68           | ≤8.00           | PASS    |
|            |         | 2437           | -17.61           | ≤8.00           | PASS    |
|            |         | 2462           | -17.69           | ≤8.00           | PASS    |
| 11N20SISO  | Ant1    | 2412           | -17.65           | ≤8.00           | PASS    |
|            |         | 2437           | -17.18           | ≤8.00           | PASS    |
|            |         | 2462           | -16.85           | ≤8.00           | PASS    |
| 11AX20SISO | Ant1    | 2412           | -18.55           | ≤8.00           | PASS    |
|            |         | 2437           | -18.60           | ≤8.00           | PASS    |
|            |         | 2462           | -19.78           | ≤8.00           | PASS    |

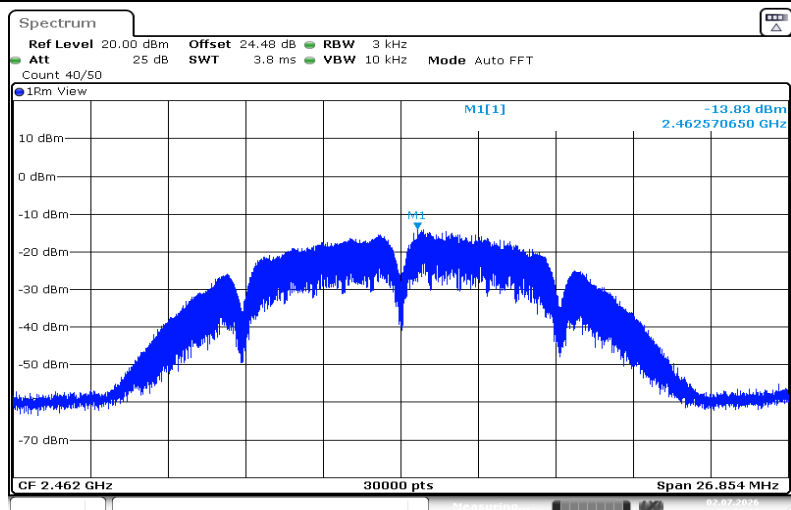
Note: The duty cycle factor and line loss are compensated in the Test result.



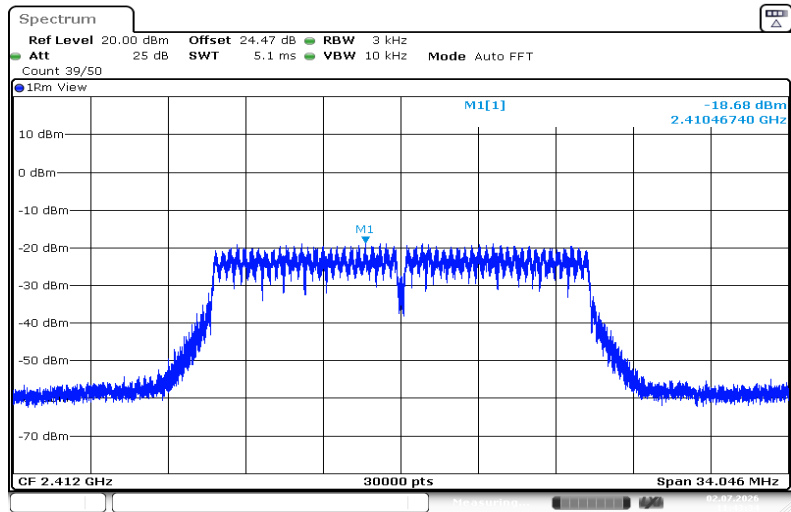
11B-Ant1-2412-PASS



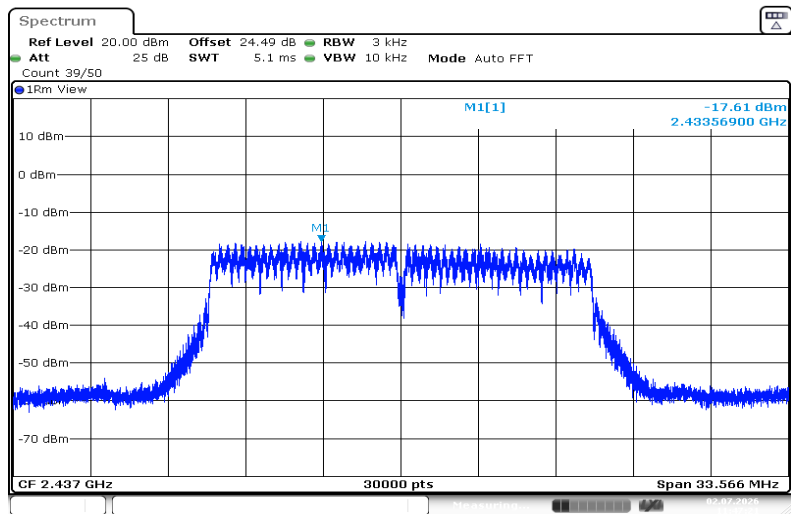
11B-Ant1-2437-PASS



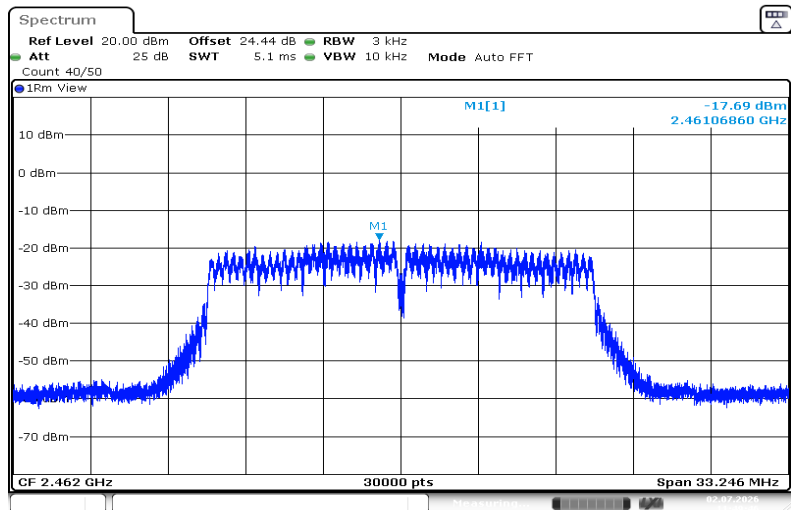
11B-Ant1-2462-PASS



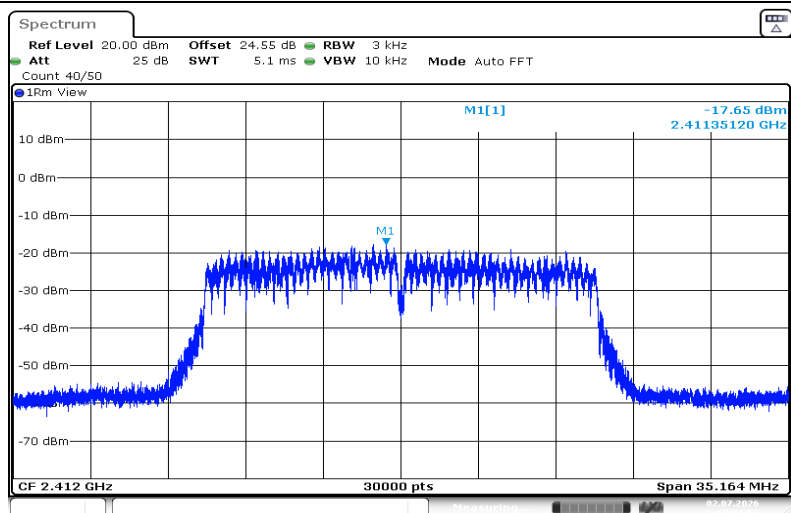
11G-Ant1-2412-PASS



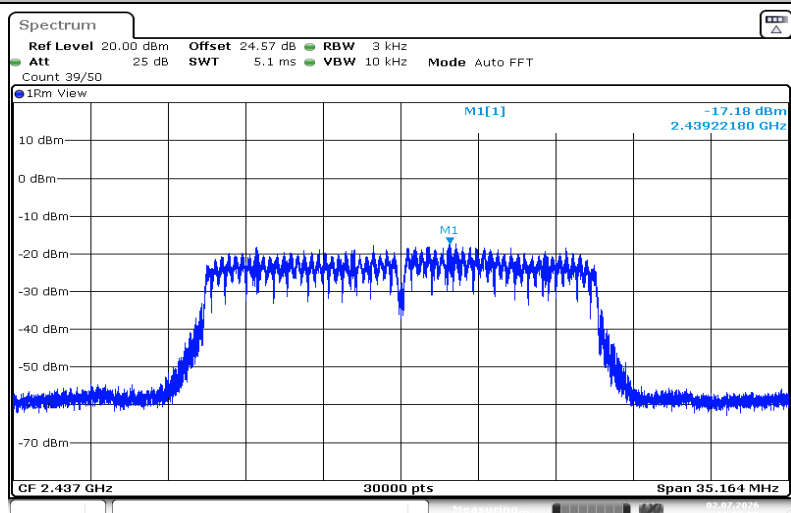
11G-Ant1-2437-PASS



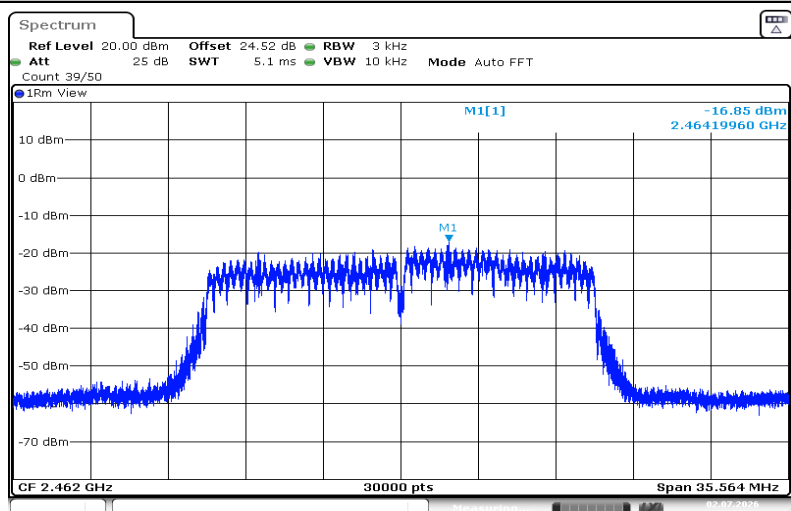
11G-Ant1-2462-PASS



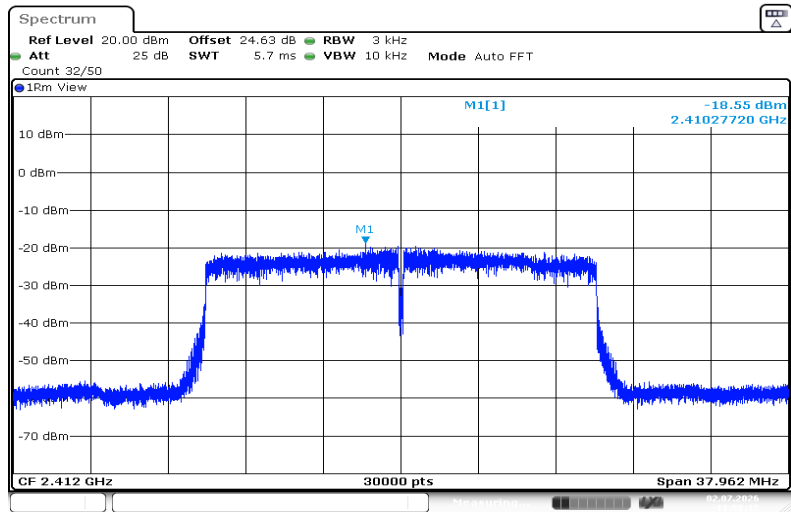
11N20SISO-Ant1-2412-PASS



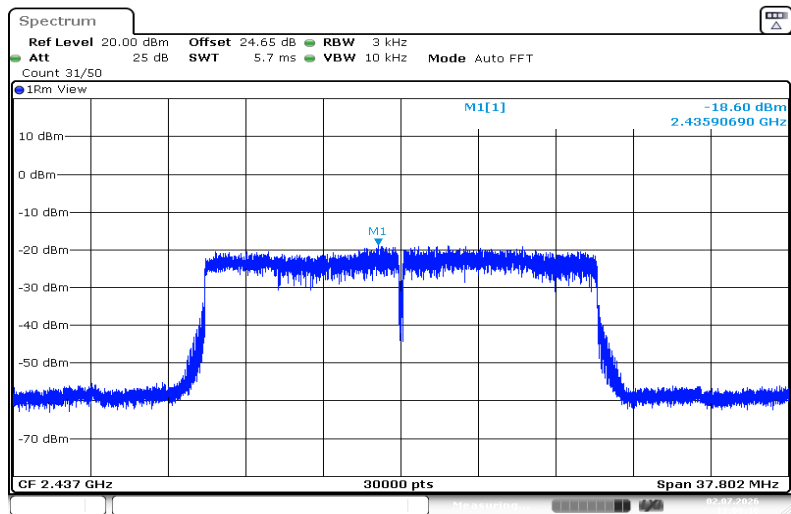
11N20SISO-Ant1-2437-PASS



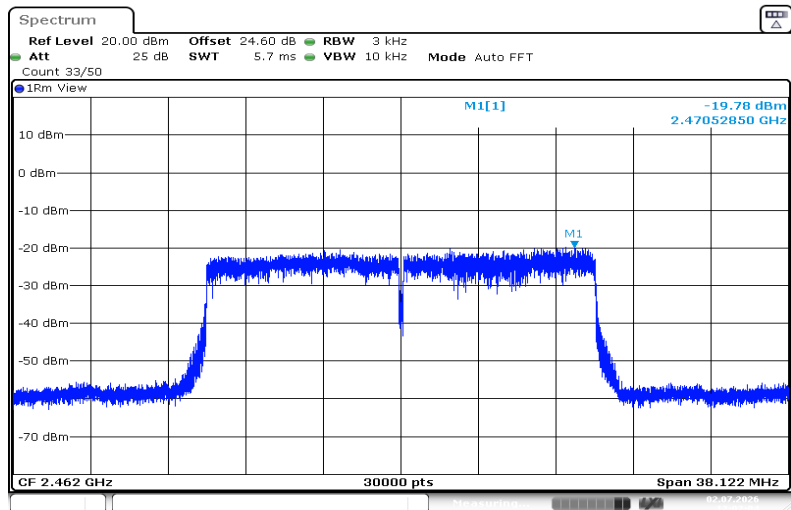
11N20SISO-Ant1-2462-PASS



11AX20SISO-Ant1-2412-PASS



11AX20SISO-Ant1-2437-PASS



11AX20SISO-Ant1-2462-PASS

## Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

## Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

**End of Test Report**