

|                                                                                                                                |                                |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Product Name: Smart Phone                                                                                                      | Report No: ITEZA2-202400482RF2 |
| Product Model: Fire 6 Max, S200 Max, Fire 6 Ultra, Fire 6 Turbo, Fire 7 Max, Fire7, Fire 7 Power, Fire 7 Pro, Fire 7 Power Pro | Security Classification: Open  |
| Version: V1.0                                                                                                                  | Total Page: 74                 |

## TIRT Testing Report

| Prepared By:      | Checked By:       | Approved By:     |  |
|-------------------|-------------------|------------------|---------------------------------------------------------------------------------------|
| Aaron Long        | Stone Tang        | Joky Wang        |                                                                                       |
| <i>Aaron Long</i> | <i>Stone Tang</i> | <i>Joky Wang</i> |                                                                                       |

# RF TEST REPORT

**FCC ID: 2AX4YFIRE6MAX**

According to

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

**ANSI C63.10:2013**

|               |                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------|
| Applicant:    | Shenzhen DOOGEE Hengtong Technology CO.,LTD                                                                      |
| Address:      | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China |
| Manufacturer: | Shenzhen DOOGEE Hengtong Technology CO.,LTD                                                                      |
| Address:      | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China |
| Sample No:    | 1000052441                                                                                                       |
| Product Name: | Smart Phone                                                                                                      |
| Brand Name:   | DOOGEE                                                                                                           |
| Model No.:    | Fire 6 Max, S200 Max, Fire 6 Ultra, Fire 6 Turbo, Fire 7 Max, Fire7, Fire 7 Power, Fire 7 Pro, Fire 7 Power Pro  |
| Test No.:     | Fire 6 Max                                                                                                       |

|                  |                       |
|------------------|-----------------------|
| Date of Receipt: | 2024/12/19            |
| Date of Test:    | 2024/12/19~2025/03/04 |
| Issued Date:     | 2025/03/04            |
| Testing Lab:     | TIRT                  |

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## History of this test report

Original Report Issue Date: 2025.03.04

- No additional attachment
- Additional attachments were issued following record

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
|                |            |             |
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|                |            |             |

## 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

| Test Item                                                                                                                                                                                                                                                   | Standards Paragraph                                                | Result |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------|
| Maximum Peak Output Power                                                                                                                                                                                                                                   | FCC Part 15: 15.247(b)(1)<br>ANSI C63.10 :2013                     | P      |
| Bandwidth                                                                                                                                                                                                                                                   | FCC Part 15: 15.215<br>ANSI C63.10 :2013                           | P      |
| Carrier Frequency Separation                                                                                                                                                                                                                                | FCC Part 15: 15.247(a)(1)<br>ANSI C63.10 :2013                     | P      |
| Number Of Hopping Channel                                                                                                                                                                                                                                   | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10 :2013                | P      |
| Dwell Time                                                                                                                                                                                                                                                  | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10 :2013                | P      |
| Radiated Emission                                                                                                                                                                                                                                           | FCC Part 15: 15.209<br>FCC Part 15: 15.247(d)<br>ANSI C63.10 :2013 | P      |
| Band Edge Compliance                                                                                                                                                                                                                                        | FCC Part 15: 15.247(d)<br>ANSI C63.10 :2013                        | P      |
| Power Line Conducted Emissions                                                                                                                                                                                                                              | FCC Part 15: 15.207<br>ANSI C63.10 :2013                           | P      |
| Antenna requirement                                                                                                                                                                                                                                         | FCC Part 15: 15.203                                                | P      |
| <p>Note: 1. P is an abbreviation for Pass.<br/>2. F is an abbreviation for Fail.<br/>3. N/A is an abbreviation for Not Applicable.<br/>4. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.</p> |                                                                    |        |

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT Name : Smart Phone  
Model No. : Fire 6 Max, S200 Max, Fire 6 Ultra, Fire 6 Turbo, Fire 7 Max, Fire7, Fire 7 Power, Fire 7 Pro, Fire 7 Power Pro  
DIFF. : There is no difference except the name of the model. All tests are made with the Fire 6 Max model.  
Power supply : DC 3.87V from battery or DC11V AC Power Adapter

|                        |                                                                                           |
|------------------------|-------------------------------------------------------------------------------------------|
| Radio Technology       | : Bluetooth V5.2 EDR                                                                      |
| Operation frequency    | : 2402-2480MHz                                                                            |
| Channel No.            | : 79 Channels                                                                             |
| Channel spacing        | : 1MHz                                                                                    |
| Modulation type        | : GFSK, $\pi/4$ DQPSK, 8DPSK                                                              |
| Antenna Type           | : PIFA antenna, Maximum Gain is 0.65dBi.<br>Antenna information is provided by applicant. |
| Software version       | : DOOGEE-Fire_6_Max-EEA-Android14.0-20241202                                              |
| Hardware version       | : M162-MUB-V2                                                                             |
| Intend use environment | : Residential, commercial and light industrial environment                                |

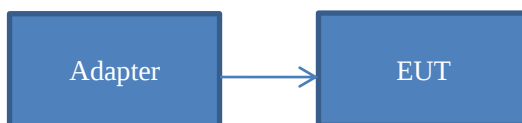
## 2.2. Accessories of Device (EUT)

|              |                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accessories  | : AC Power Adapter                                                                                                                                      |
| Manufacturer | : Shenzhen DOOGEE Hengtong Technology CO.,LTD                                                                                                           |
| Model        | : TP303C-US                                                                                                                                             |
|              | Input: AC100-240V~ 50/60Hz 0.7A Max                                                                                                                     |
| Ratings      | Output: USB-C: 5.0V=3.0A 15.0W; 9.0V=3.0A 27.0W; 12.0V=2.5A 30.0W;<br>: 15.0V=2.0A 30.0W; 20.0V=1.5A 30.0W<br>PPS: 5.0-11.0V=3.0A 33.0W<br>Power: 33.0W |

## 2.3. Tested Supporting System Details

| No. | Description | Manufacturer | Model | Serial Number | Certification or SDoC |
|-----|-------------|--------------|-------|---------------|-----------------------|
| 1.  | --          | --           | --    | --            | --                    |

## 2.4. Block Diagram of connection between EUT and simulators



## 2.5. Test Mode Description

| Tested mode, channel information |              |                 |
|----------------------------------|--------------|-----------------|
| Mode                             | Channel      | Frequency (MHz) |
| GFSK                             | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |
| $\pi/4$ DQPSK                    | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |
| 8DPSK                            | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |

## 2.6. Test Conditions

| Items              | Required  | Actual |
|--------------------|-----------|--------|
| Temperature range: | 15-35℃    | 24℃    |
| Humidity range:    | 25-75%    | 56%    |
| Pressure range:    | 86-106kPa | 980kPa |

## 2.7. Test Facility

|                                        |                                                                                                                                                                           |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company:                               | Beijing TIRT Technology Service Co.,Ltd Shenzhen                                                                                                                          |
| Address:                               | 104 Building C, Xinmingsheng Industrial Park No.132, Zhangge Old Village East Zone, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, P. R. China |
| CNAS Registration Number:              | CNAS L14158                                                                                                                                                               |
| A2LA Registration Number:              | 6049.01                                                                                                                                                                   |
| FCC Accredited Lab.Designation Number: | CN1366                                                                                                                                                                    |
| FCC Test Firm Registration Number:     | 820690                                                                                                                                                                    |
| Telephone:                             | +86-0755-27087573                                                                                                                                                         |

## 2.8. Measurement Uncertainty

(95% confidence levels, k=2)

| Uncertainty                               |             |
|-------------------------------------------|-------------|
| Parameter                                 | Uncertainty |
| Occupied Channel Bandwidth                | ±142.12 KHz |
| RF power conducted                        | ±0.74 dB    |
| RF power radiated                         | ±3.25dB     |
| Spurious emissions, conducted             | ±1.78dB     |
| Spurious emissions, radiated (9KHz~30MHz) | ±2.56dB     |
| Spurious emissions, radiated (30MHz~1GHz) | ±4.6dB      |
| Spurious emissions, radiated (Above 1GHz) | ±4.9dB      |
| Conduction Emissions(150kHz~30MHz)        | ±3.1 dB     |
| Humidity                                  | ±4.6%       |
| Temperature                               | ±0.7℃       |
| Time                                      | ±1.25       |

## 2.9. Test Equipment List

| Name of Equipment | Manufacturer    | Model Number          | Serial Number            | Last Calibration | Due Calibration |
|-------------------|-----------------|-----------------------|--------------------------|------------------|-----------------|
| EMI Receiver      | Rohde&Schwarz   | ESIB 40               | YH-TIRT-SAC-966-20220911 | 2025/01/05       | 2026/01/04      |
| Integral Antenna  | Schwarzbeck     | VULB 9163             | 01314                    | 2023/12/11       | 2025/12/10      |
| Integral Antenna  | Rohde&Schwarz   | HF907                 | RSM2991424               | 2023/12/11       | 2025/12/10      |
| Preamplifier      | Emtrace         | RP01A                 | '02017                   | 2025/01/05       | 2026/01/04      |
| Preamplifier      | Schwarzbeck     | BBV9744               | 00143                    | 2025/01/05       | 2026/01/04      |
| Loop Antenna      | ZHINAN          | ZN30900A              | 12024                    | 2025/01/05       | 2026/01/04      |
| Horn Antenna      | Schwarzbeck     | BBHA9170              | 00956                    | 2025/01/05       | 2026/01/04      |
| RF Cable          | /               | LMR400UF-NMN M-7.0M   | /                        | 2025/01/05       | 2026/01/04      |
| RF Cable          | /               | SFT2050PUR-N MNM-7.0M | /                        | 2025/01/05       | 2026/01/04      |
| EMI Receiver      | Rohde&Schwarz   | ESR7                  | 1316.3003K07-102611-mk   | 2024/11/02       | 2025/11/01      |
| LISN              | Rohde&Schwarz   | ENV216                | 3560.655.12-1 02915-Bp   | 2024/11/02       | 2025/11/01      |
| RF Cable          | \               | SFT2050PUR-N MNM-2.0M | \                        | 2025/01/05       | 2026/01/04      |
| Spectrum analyzer | ROHDE&SCHW ARZ  | FSU26                 | 200732                   | 2025/01/05       | 2026/01/04      |
| Spectrum analyzer | ROHDE&SCHW ARZ  | FSV40-N               | 101722                   | 2025/01/05       | 2026/01/04      |
| Filter            | HEWLETT PACKARD | JS0806-F              | 19K8060209               | 2025/01/05       | 2026/01/04      |

### 3. MAXIMUM PEAK OUTPUT POWER

#### 3.1. Limit

Please refer section15.247.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

#### 3.2. Test Procedure

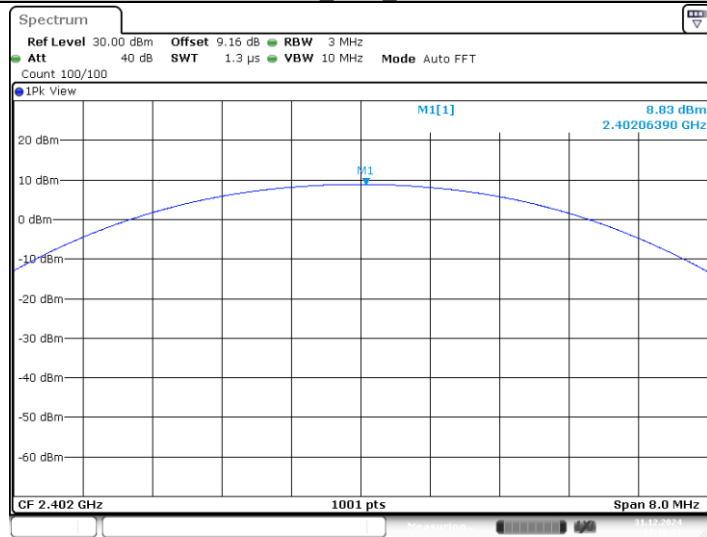
- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

| Spectrum Parameters | Setting                    |
|---------------------|----------------------------|
| Span Frequency      | $\geq 3 \times \text{RBW}$ |
| RBW                 | 3 MHz                      |
| VBW                 | 10MHz                      |
| Detector            | Peak                       |
| Trace               | Max Hold                   |
| Sweep Time          | Auto                       |

#### 3.3. Test Result

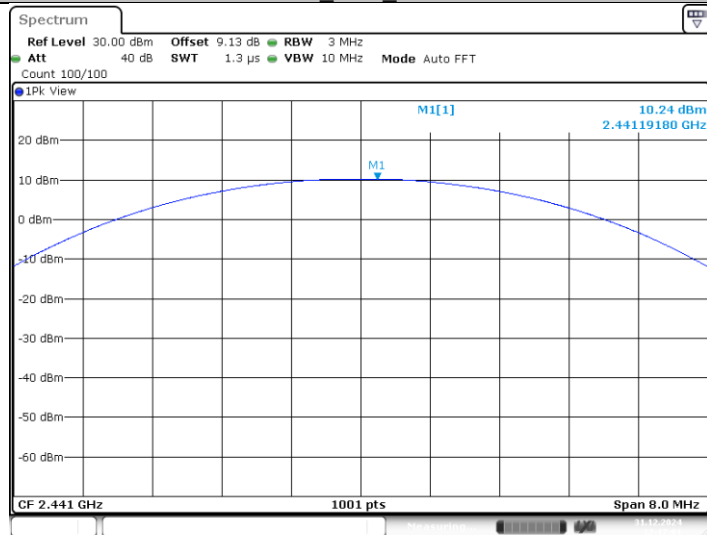
| Test Mode | Antenna | Freq(MHz) | Conducted Peak Power[dBm] | Conducted Limit[dBm] | Verdict |
|-----------|---------|-----------|---------------------------|----------------------|---------|
| DH5       | Ant1    | 2402      | 8.83                      | $\leq 30$            | PASS    |
|           |         | 2441      | 10.24                     | $\leq 30$            | PASS    |
|           |         | 2480      | 11.66                     | $\leq 30$            | PASS    |
| 2DH5      | Ant1    | 2402      | 8.86                      | $\leq 20.97$         | PASS    |
|           |         | 2441      | 9.96                      | $\leq 20.97$         | PASS    |
|           |         | 2480      | 10.83                     | $\leq 20.97$         | PASS    |
| 3DH5      | Ant1    | 2402      | 8.66                      | $\leq 20.97$         | PASS    |
|           |         | 2441      | 9.79                      | $\leq 20.97$         | PASS    |
|           |         | 2480      | 10.41                     | $\leq 20.97$         | PASS    |

## DH5\_Ant1\_2402



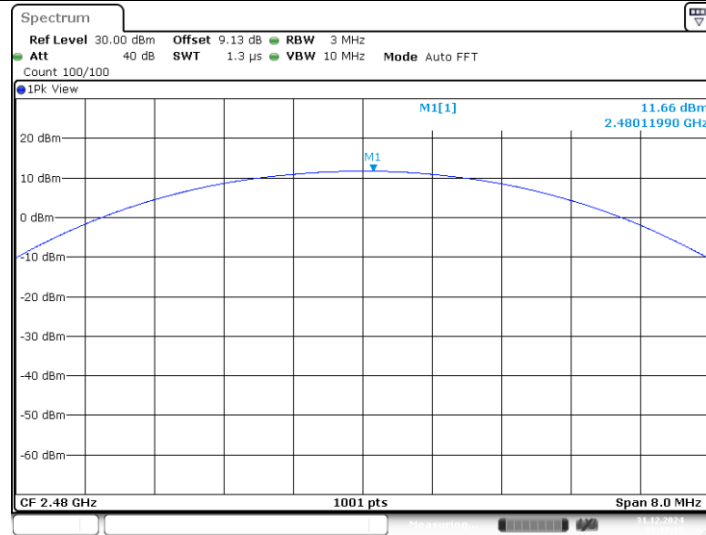
Date: 31.DEC.2024 12:16:31

## DH5\_Ant1\_2441



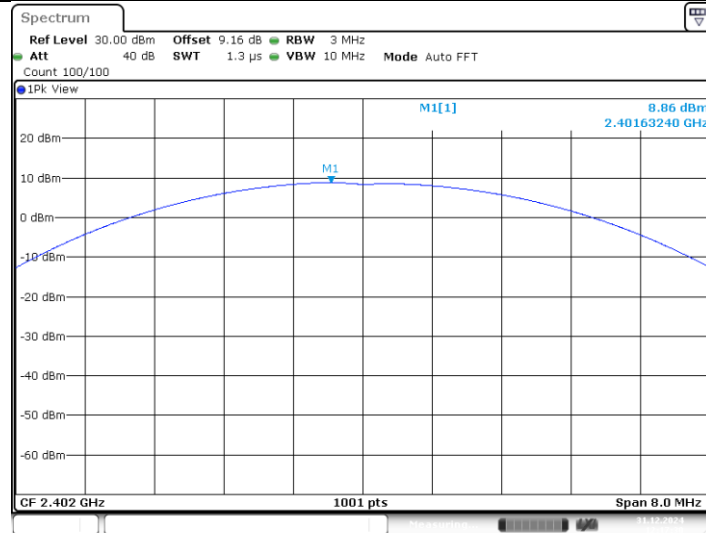
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## DH5\_Ant1\_2480



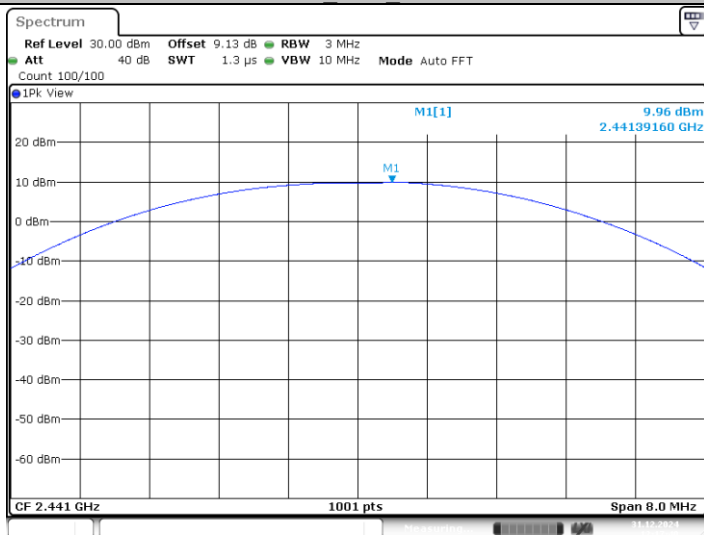
Date: 31.DEC.2024 12:17:16

## 2DH5\_Ant1\_2402



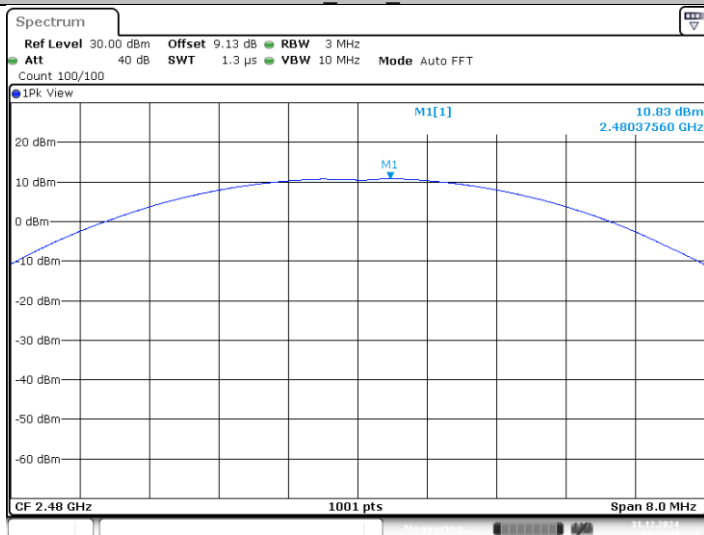
Date: 31.DEC.2024 12:17:31

## 2DH5\_Ant1\_2441



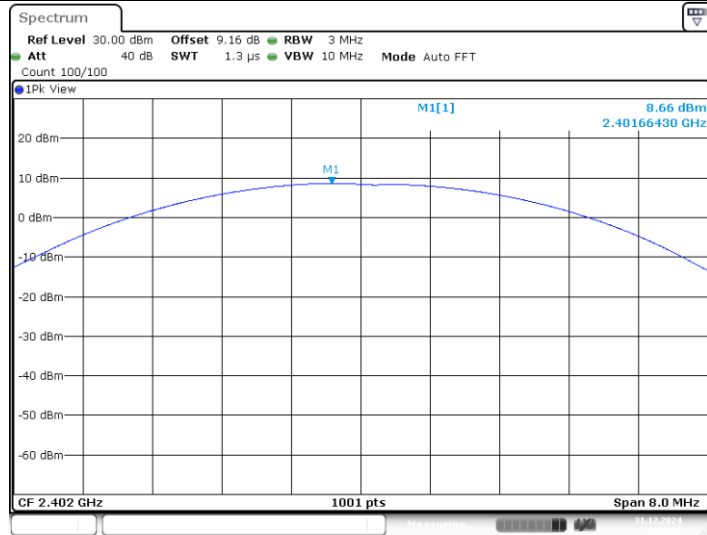
Date: 31.DEC.2024 12:17:41

## 2DH5\_Ant1\_2480



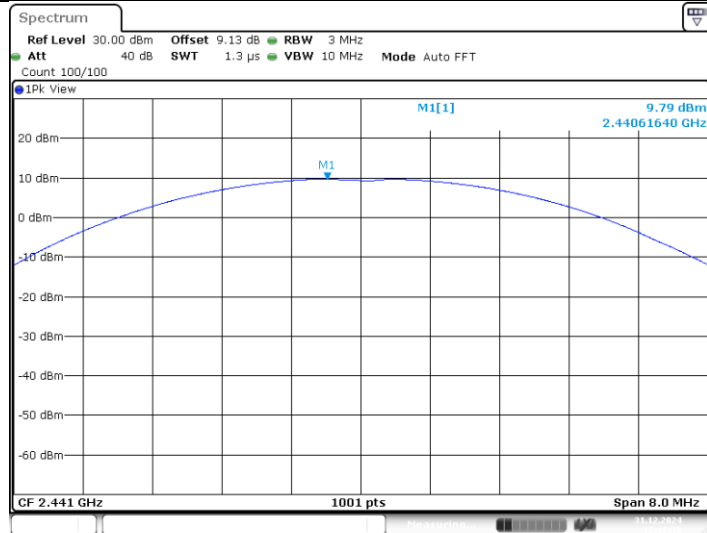
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## 3DH5\_Ant1\_2402

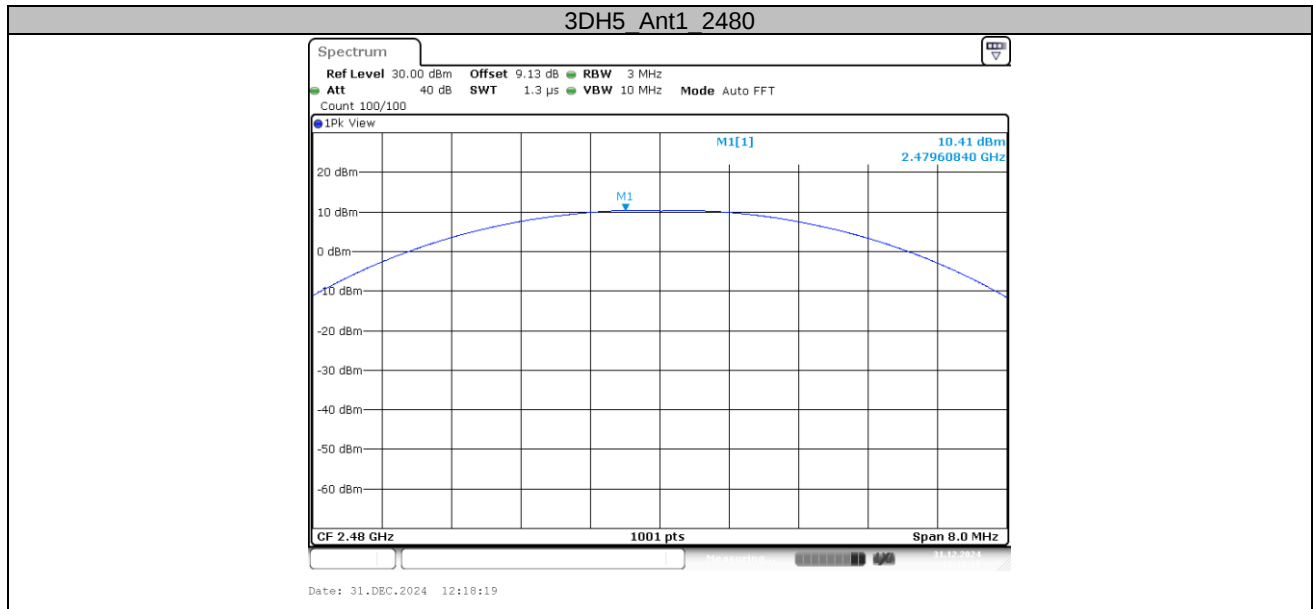


Date: 31.DEC.2024 12:18:02

## 3DH5\_Ant1\_2441



Date: 31.DEC.2024 12:18:10



## 4. BANDWIDTH

### 4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 4.2. Test Procedure

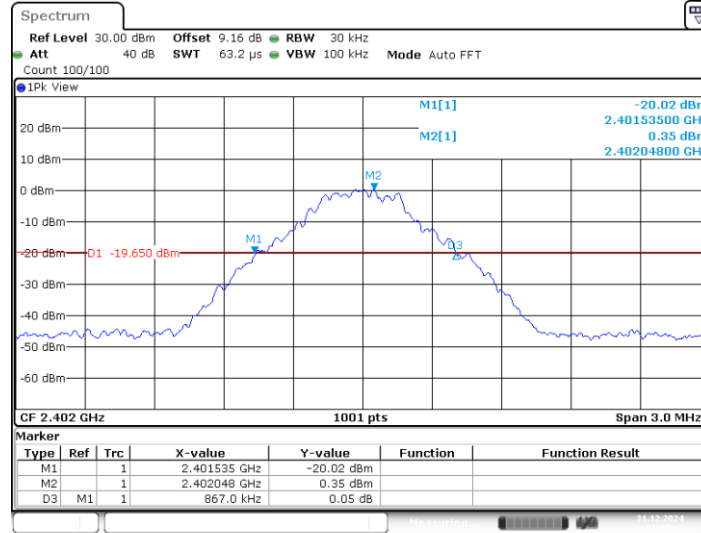
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

### 4.3. Test Result

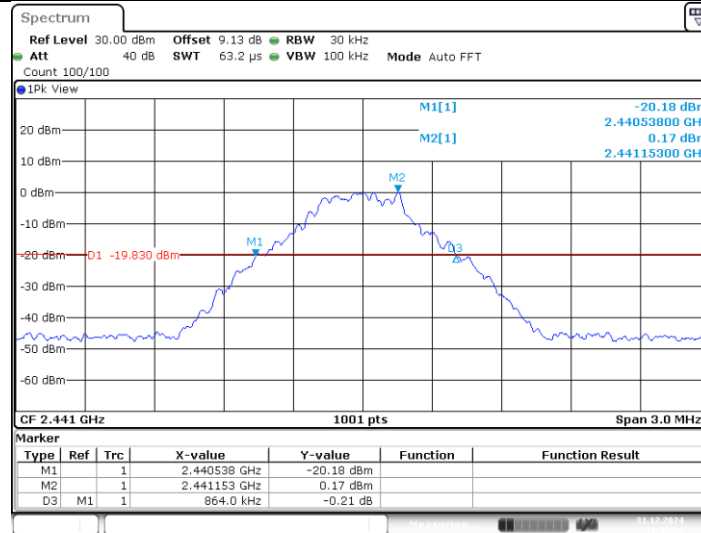
#### -20dB Bandwidth

| TestMode | Antenna | Freq(MHz) | 20dB EBW[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|----------|---------|-----------|---------------|---------|---------|------------|---------|
| DH5      | Ant1    | 2402      | 0.87          | 2401.54 | 2402.40 | ---        | ---     |
|          |         | 2441      | 0.86          | 2440.54 | 2441.40 | ---        | ---     |
|          |         | 2480      | 0.86          | 2479.54 | 2480.40 | ---        | ---     |
| 2DH5     | Ant1    | 2402      | 1.26          | 2401.36 | 2402.62 | ---        | ---     |
|          |         | 2441      | 1.26          | 2440.36 | 2441.62 | ---        | ---     |
|          |         | 2480      | 1.26          | 2479.36 | 2480.62 | ---        | ---     |
| 3DH5     | Ant1    | 2402      | 1.26          | 2401.35 | 2402.62 | ---        | ---     |
|          |         | 2441      | 1.26          | 2440.35 | 2441.61 | ---        | ---     |
|          |         | 2480      | 1.26          | 2479.35 | 2480.61 | ---        | ---     |

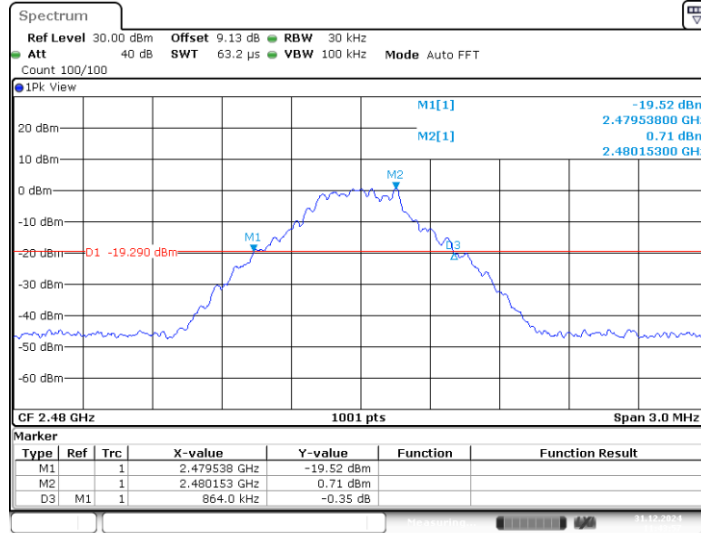
## DH5\_Ant1\_2402



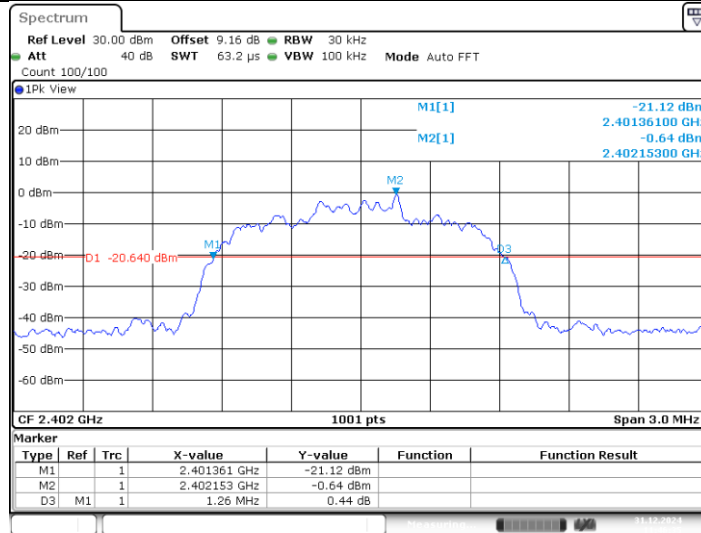
## DH5\_Ant1\_2441



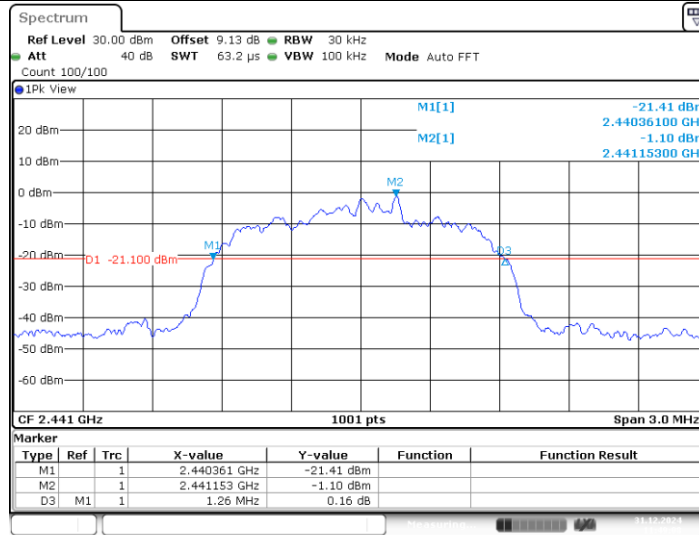
## DH5\_Ant1\_2480



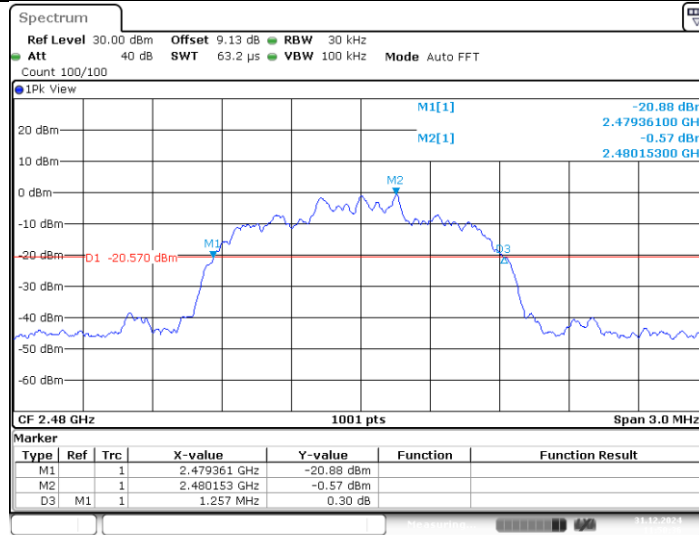
## 2DH5\_Ant1\_2402



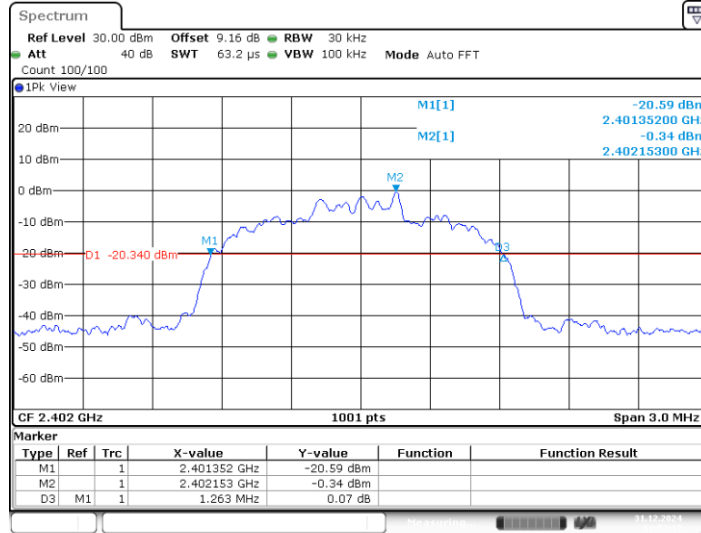
## 2DH5\_Ant1\_2441



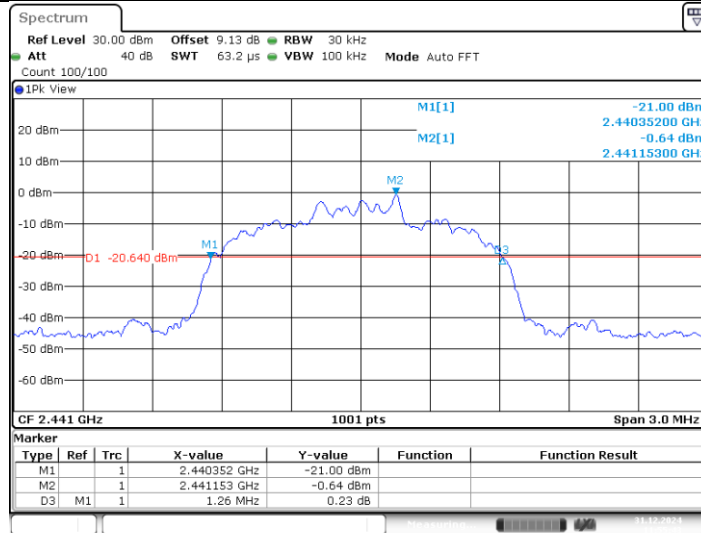
## 2DH5\_Ant1\_2480

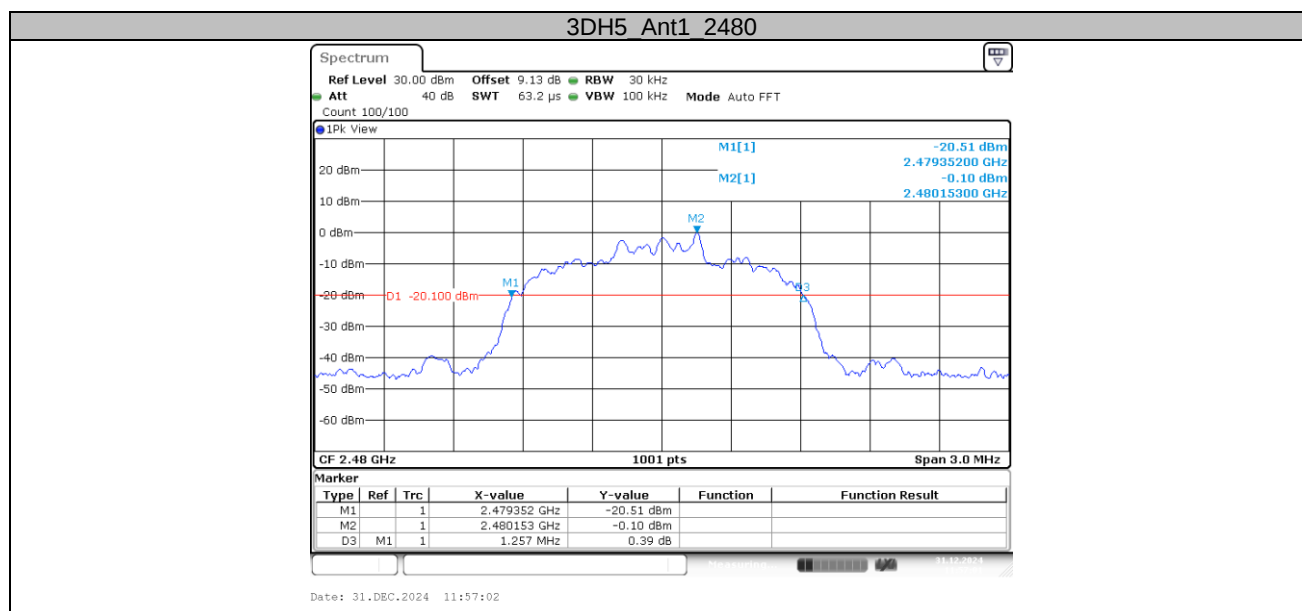


## 3DH5\_Ant1\_2402



## 3DH5\_Ant1\_2441

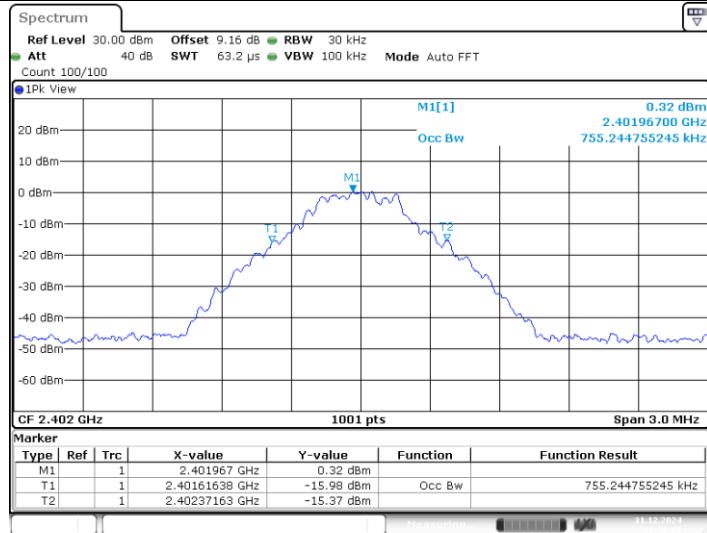




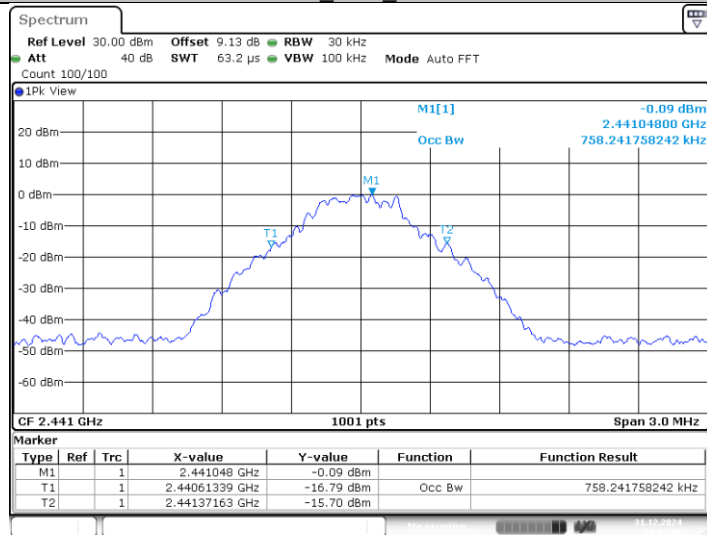
**99% Occupied Bandwidth**

| TestMode | Antenna | Freq(MHz) | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|----------|---------|-----------|-----------|-----------|-----------|------------|---------|
| DH5      | Ant1    | 2402      | 0.755     | 2401.6164 | 2402.3716 | ---        | ---     |
|          |         | 2441      | 0.758     | 2440.6134 | 2441.3716 | ---        | ---     |
|          |         | 2480      | 0.764     | 2479.6104 | 2480.3746 | ---        | ---     |
| 2DH5     | Ant1    | 2402      | 1.154     | 2401.4096 | 2402.5634 | ---        | ---     |
|          |         | 2441      | 1.154     | 2440.4096 | 2441.5634 | ---        | ---     |
|          |         | 2480      | 1.148     | 2479.4126 | 2480.5604 | ---        | ---     |
| 3DH5     | Ant1    | 2402      | 1.154     | 2401.4156 | 2402.5694 | ---        | ---     |
|          |         | 2441      | 1.154     | 2440.4156 | 2441.5694 | ---        | ---     |
|          |         | 2480      | 1.151     | 2479.4156 | 2480.5664 | ---        | ---     |

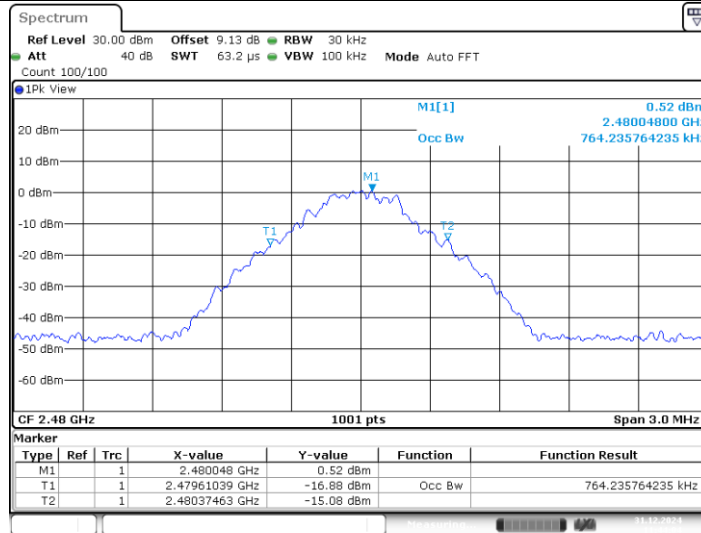
## DH5 Ant1 2402



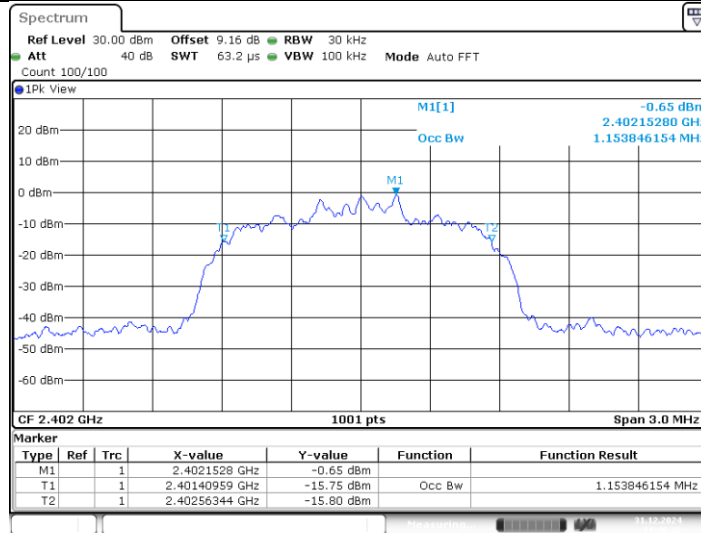
## DH5 Ant1 2441



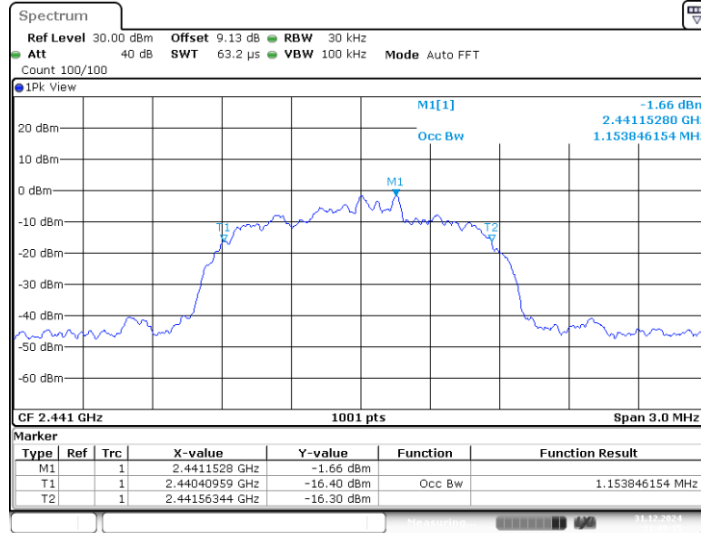
## DH5\_Ant1\_2480



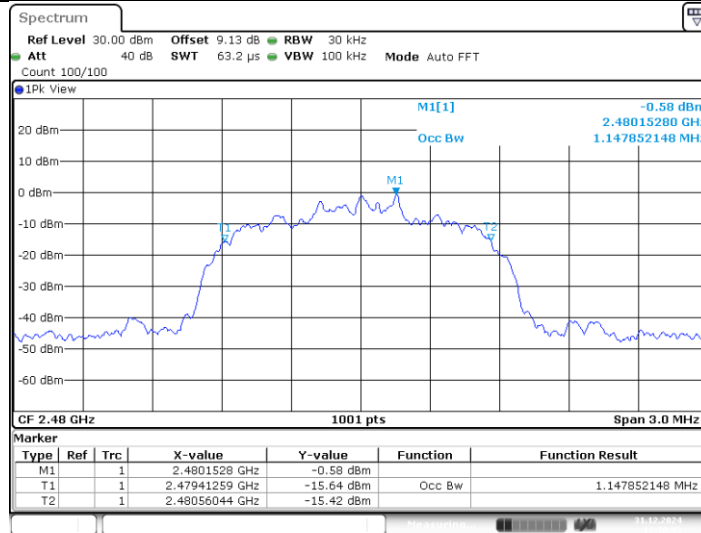
## 2DH5\_Ant1\_2402



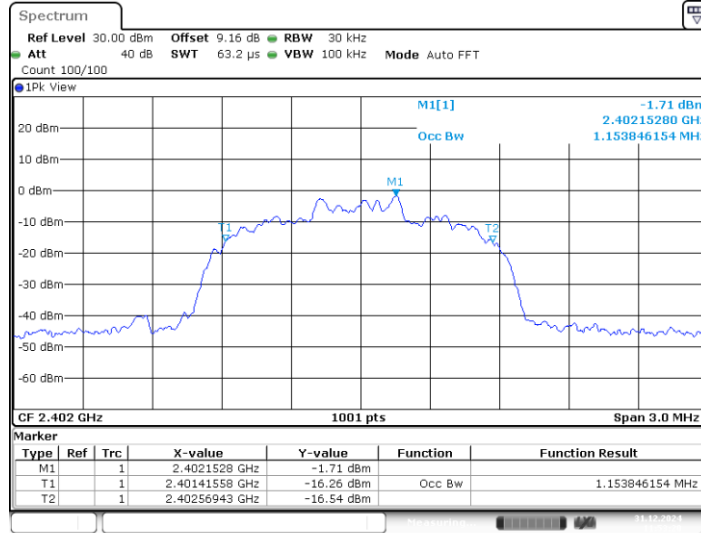
## 2DH5\_Ant1\_2441



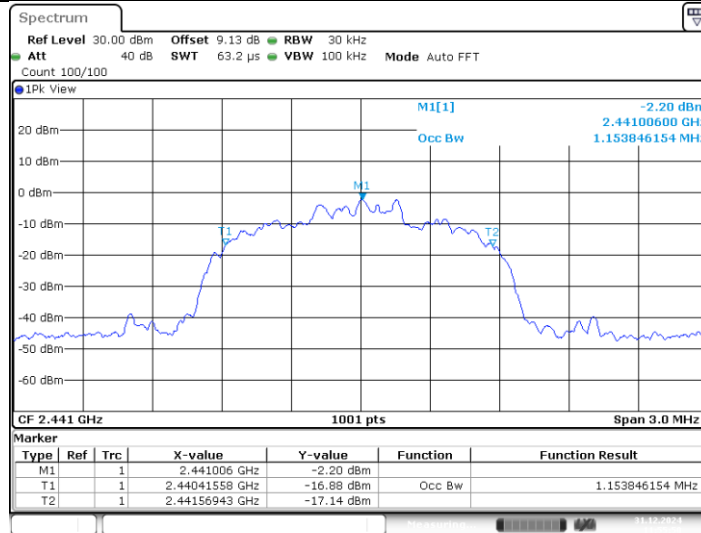
## 2DH5\_Ant1\_2480

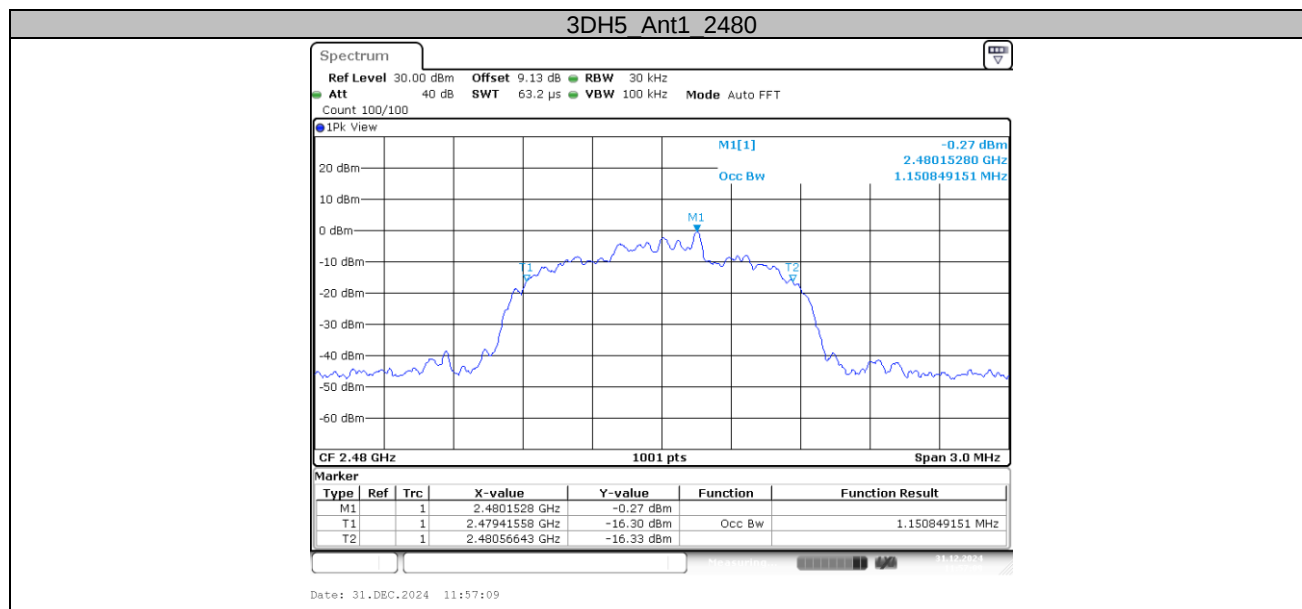


## 3DH5\_Ant1\_2402



## 3DH5\_Ant1\_2441





## 5. CARRIER FREQUENCY SEPARATION

### 5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

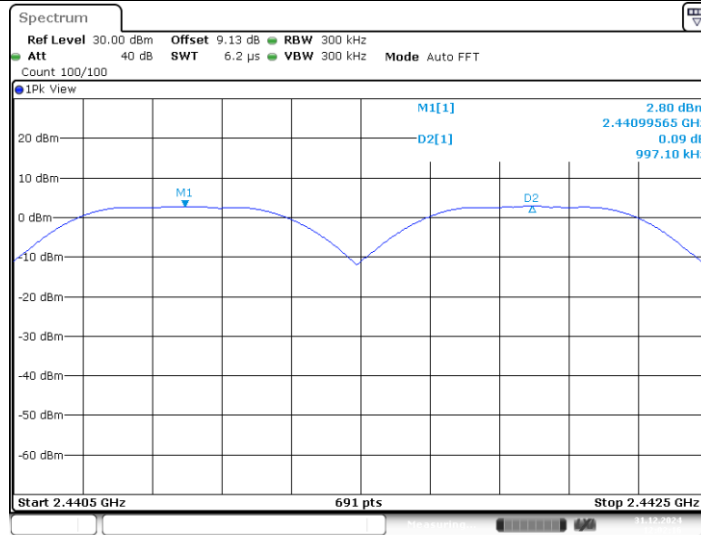
### 5.2. Test Procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

### 5.3. Test Result

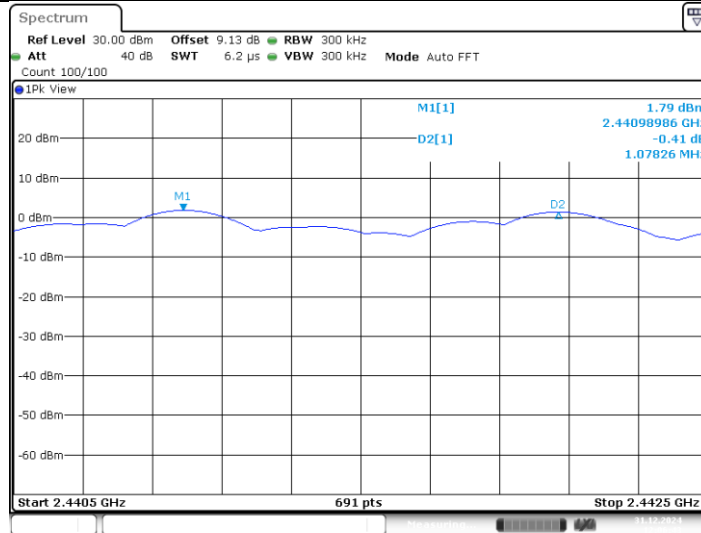
| TestMode | Antenna | Freq(MHz) | Result[MHz] | Limit[MHz]   | Verdict |
|----------|---------|-----------|-------------|--------------|---------|
| DH5      | Ant1    | Hop       | 0.997       | $\geq 0.870$ | PASS    |
| 2DH5     | Ant1    | Hop       | 1.078       | $\geq 0.840$ | PASS    |
| 3DH5     | Ant1    | Hop       | 0.843       | $\geq 0.840$ | PASS    |

## DH5 Ant1 Hop

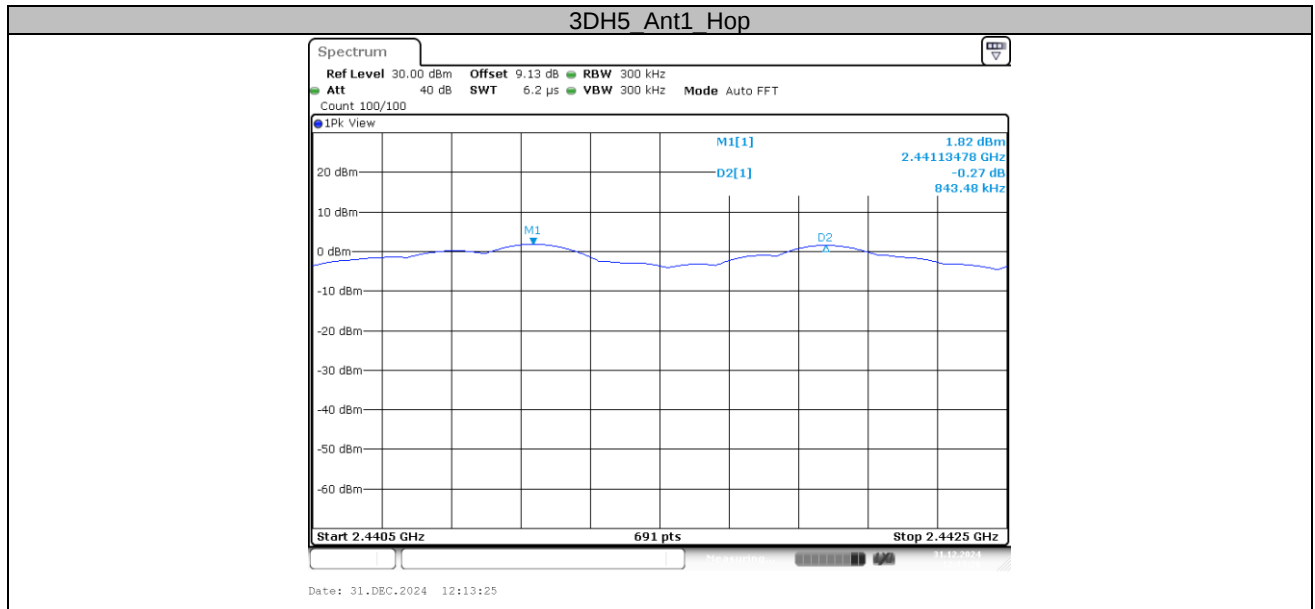


Date: 31.DEC.2024 12:02:17

## 2DH5 Ant1 Hop



Date: 31.DEC.2024 12:06:43



## 6. NUMBER OF HOPPING CHANNEL

### 6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

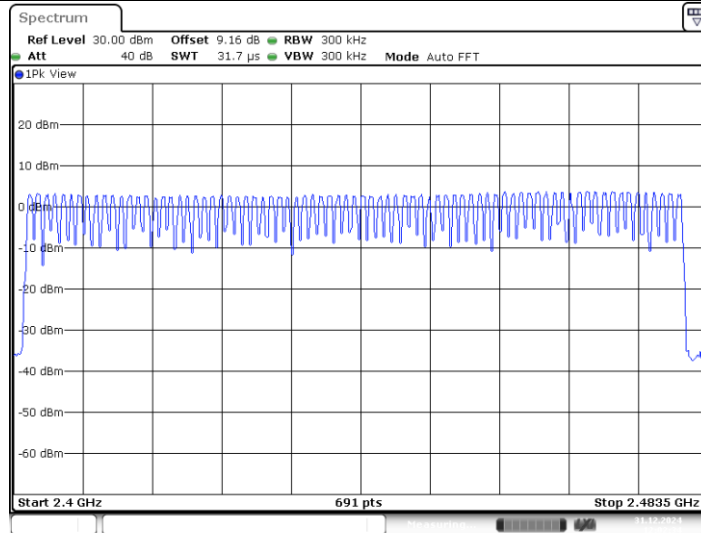
### 6.2. Test Procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 300KHz VBW.

### 6.3. Test Result

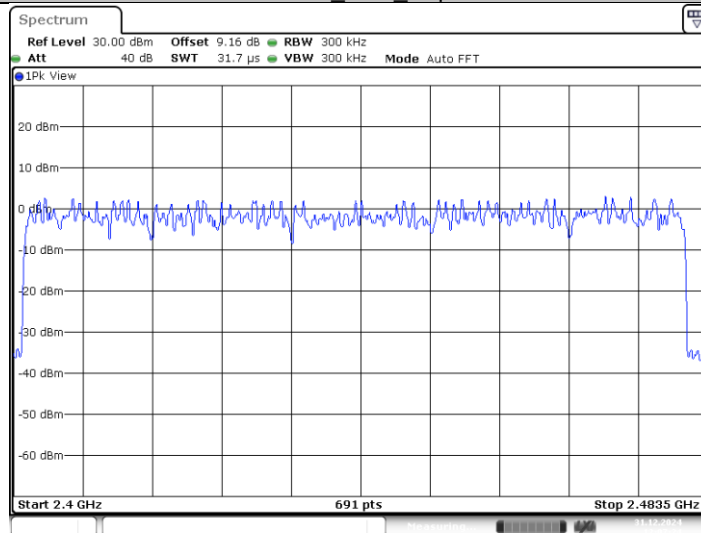
| TestMode | Antenna | Freq(MHz) | Result[Num] | Limit[Num] | Verdict |
|----------|---------|-----------|-------------|------------|---------|
| DH5      | Ant1    | Hop       | 79          | $\geq 15$  | PASS    |
| 2DH5     | Ant1    | Hop       | 79          | $\geq 15$  | PASS    |
| 3DH5     | Ant1    | Hop       | 79          | $\geq 15$  | PASS    |

## DH5\_Ant1\_Hop

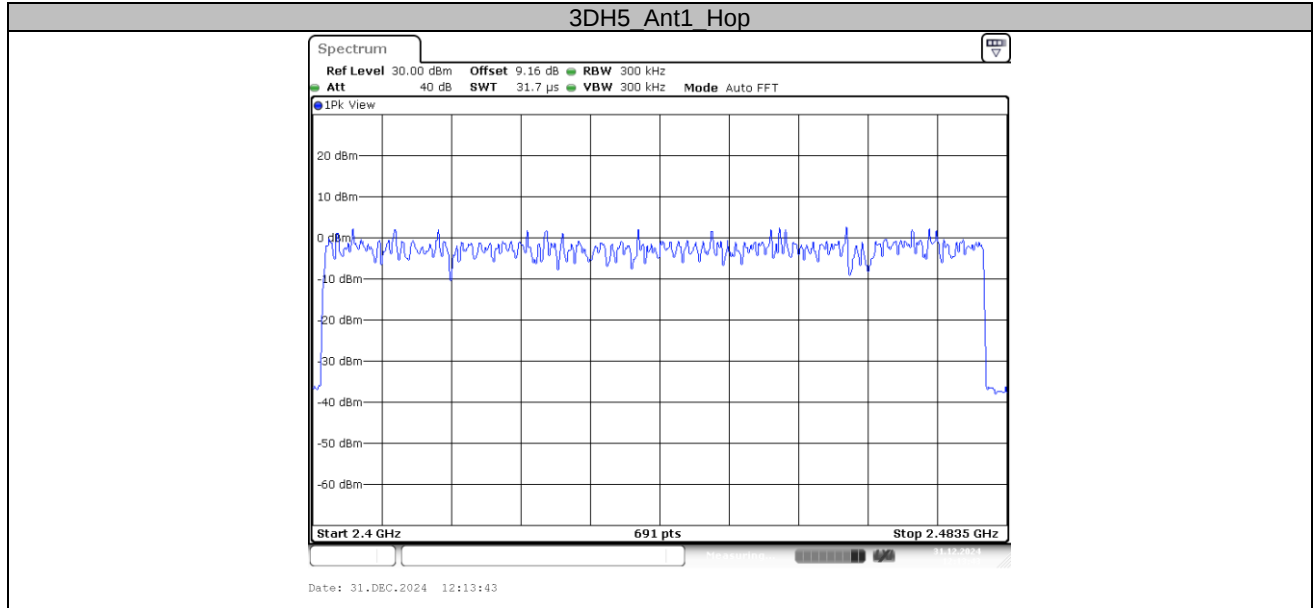


Date: 31.DEC.2024 12:02:34

## 2DH5\_Ant1\_Hop



Date: 31.DEC.2024 12:07:23



## 7. DWELL TIME

### 7.1. Test limit

Please refer section 15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz.

The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 sec- onds multiplied by the number of hopping channel employed.

### 7.2. Test Procedure

7.2.1. Place the EUT on the table and set it in transmitting mode.

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

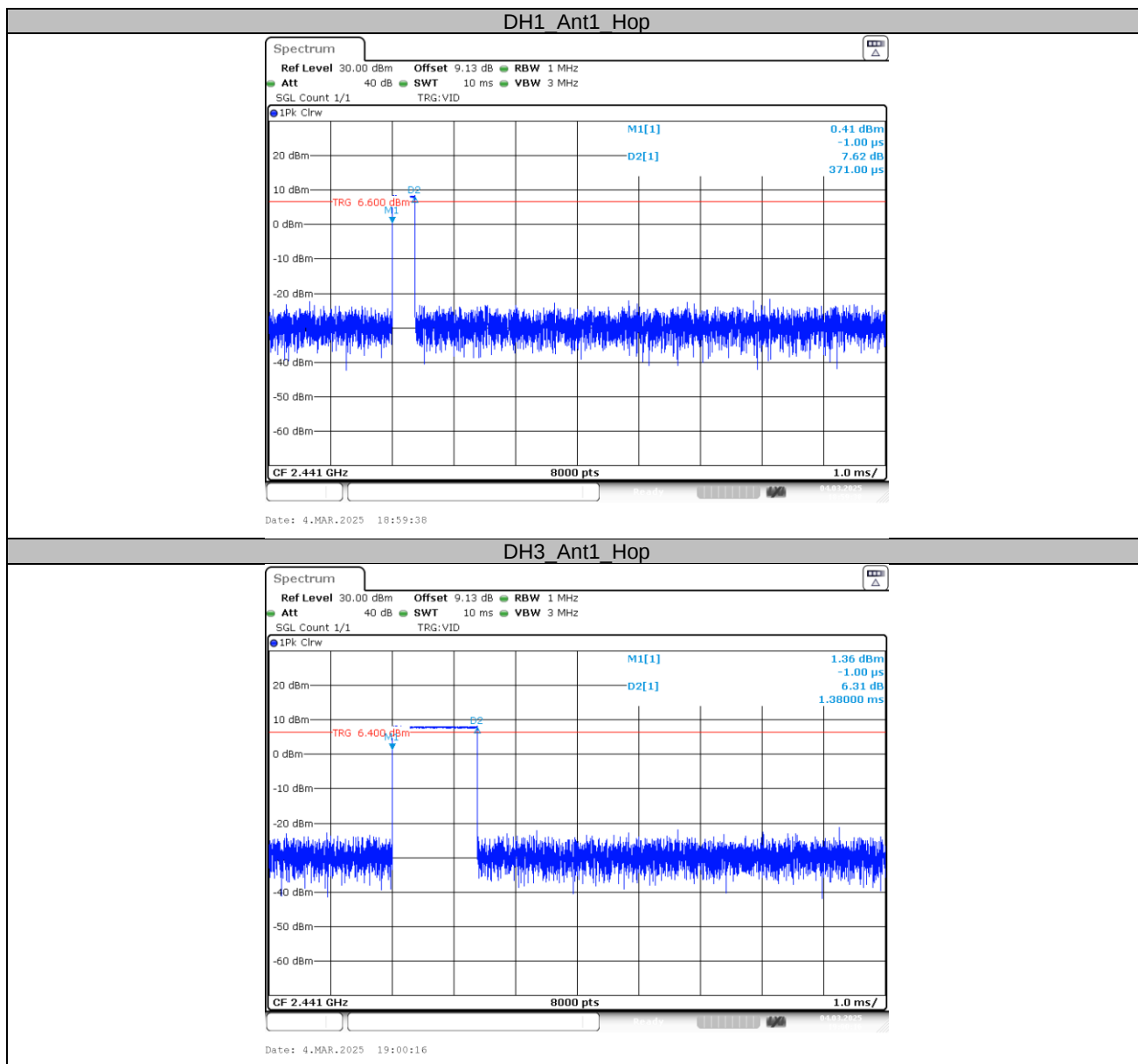
7.2.3. Set center frequency of spectrum analyzer = operating frequency.

7.2.4. Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span = 0Hz, Sweep = auto.

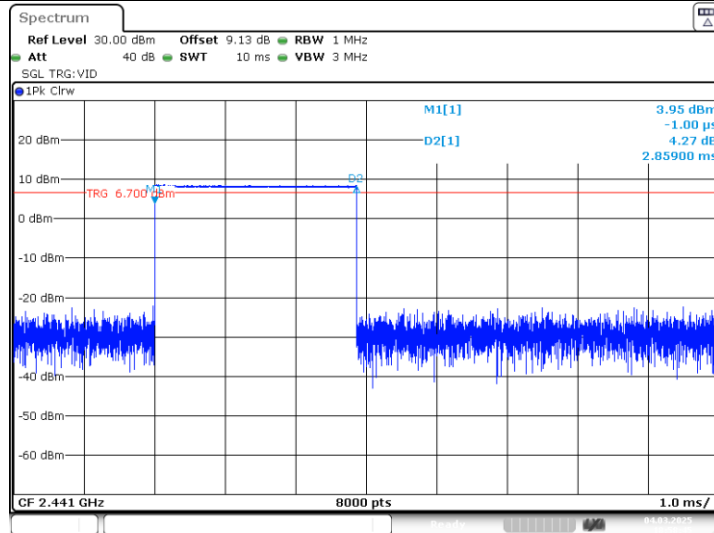
7.2.5. Repeat above procedures until all frequency measured were complete.

### 7.3. Test Result

| TestMode | Antenna | Freq(MHz) | BurstWidth<br>[ms] | TotalHops<br>[Num] | Result[s] | Limit[s] | Verdict |
|----------|---------|-----------|--------------------|--------------------|-----------|----------|---------|
| DH1      | Ant1    | Hop       | 0.371              | 320                | 0.119     | ≤0.4     | PASS    |
| DH3      | Ant1    | Hop       | 1.380              | 160                | 0.221     | ≤0.4     | PASS    |
| DH5      | Ant1    | Hop       | 2.859              | 106.67             | 0.305     | ≤0.4     | PASS    |
| 2DH1     | Ant1    | Hop       | 0.380              | 320                | 0.122     | ≤0.4     | PASS    |
| 2DH3     | Ant1    | Hop       | 1.624              | 160                | 0.26      | ≤0.4     | PASS    |
| 2DH5     | Ant1    | Hop       | 2.864              | 106.67             | 0.306     | ≤0.4     | PASS    |
| 3DH1     | Ant1    | Hop       | 0.380              | 320                | 0.122     | ≤0.4     | PASS    |
| 3DH3     | Ant1    | Hop       | 1.623              | 160                | 0.26      | ≤0.4     | PASS    |
| 3DH5     | Ant1    | Hop       | 2.867              | 106.67             | 0.306     | ≤0.4     | PASS    |

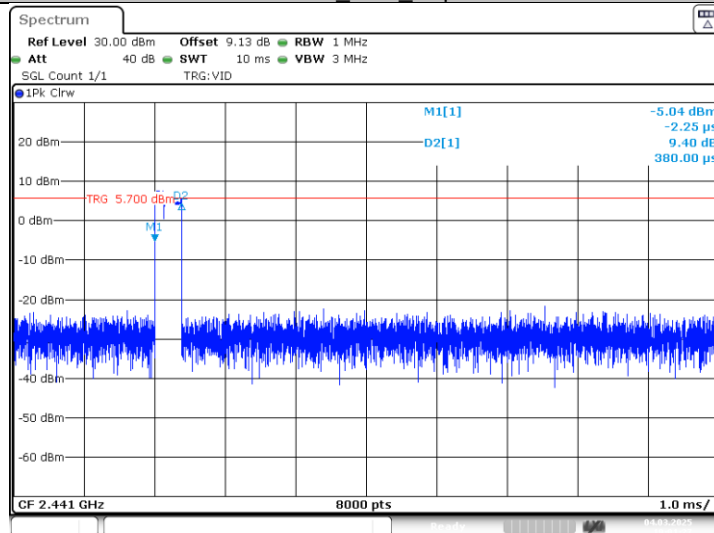


### DH5\_Ant1\_Hop

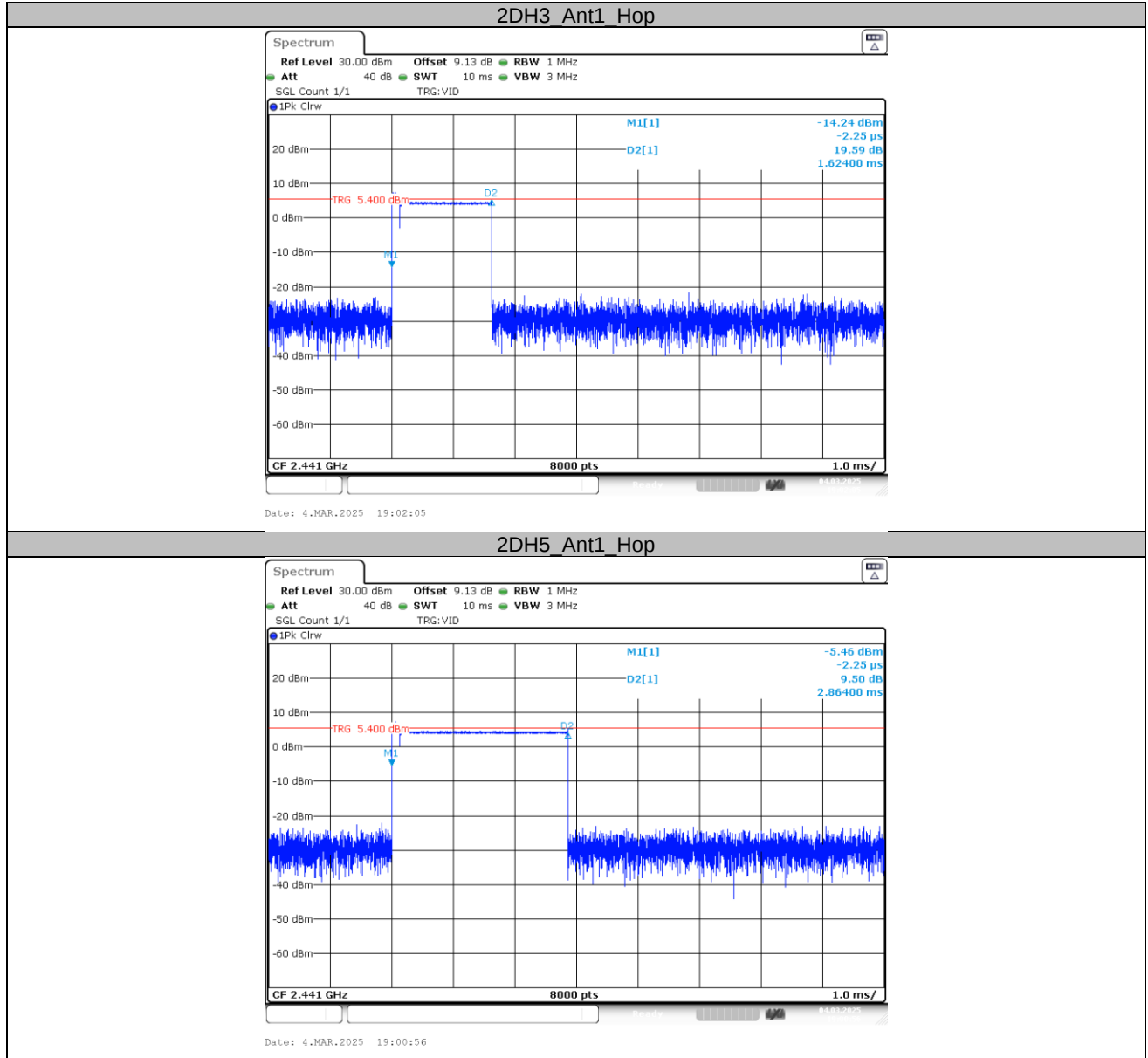


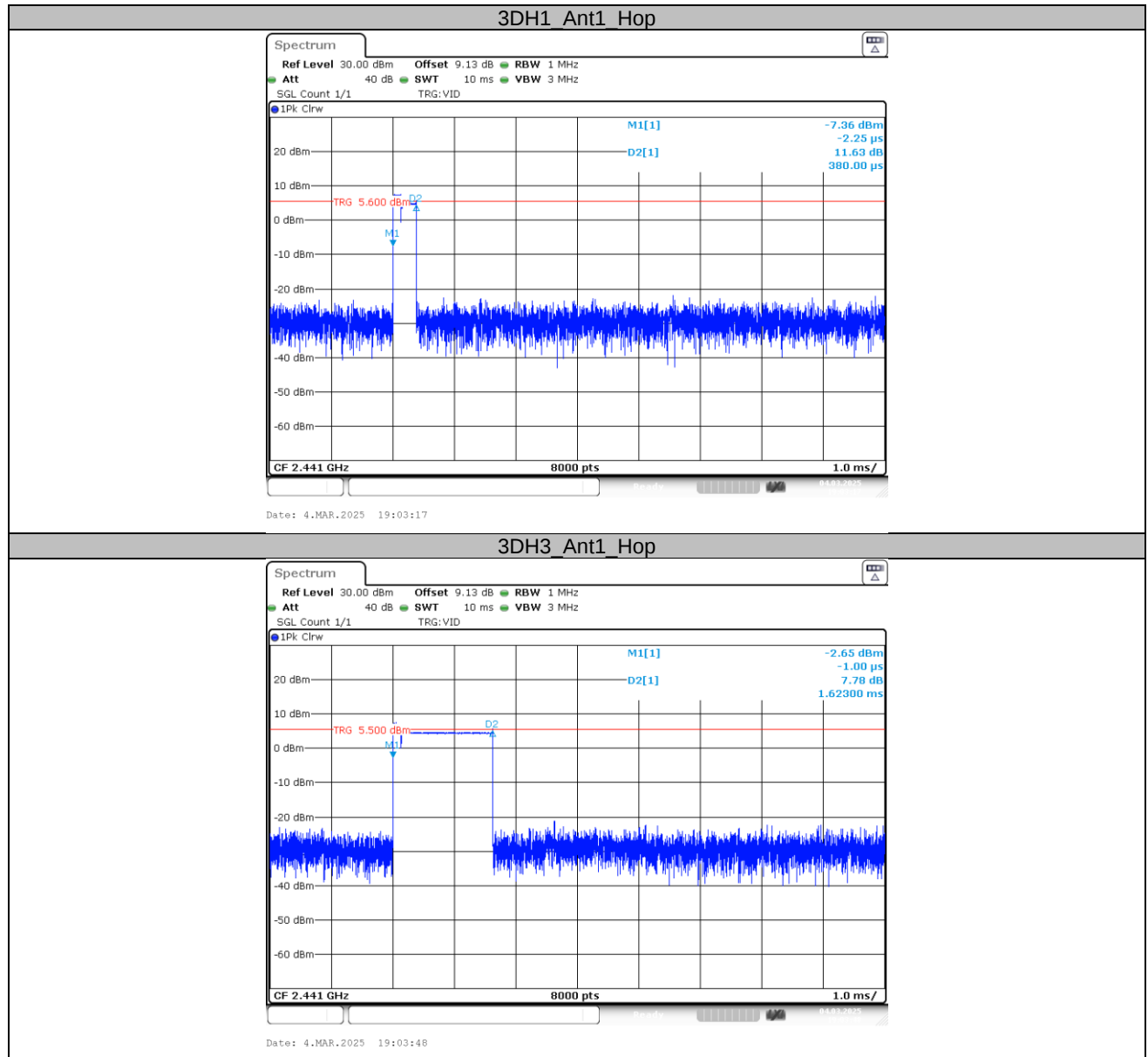
Date: 4.MAR.2025 18:58:45

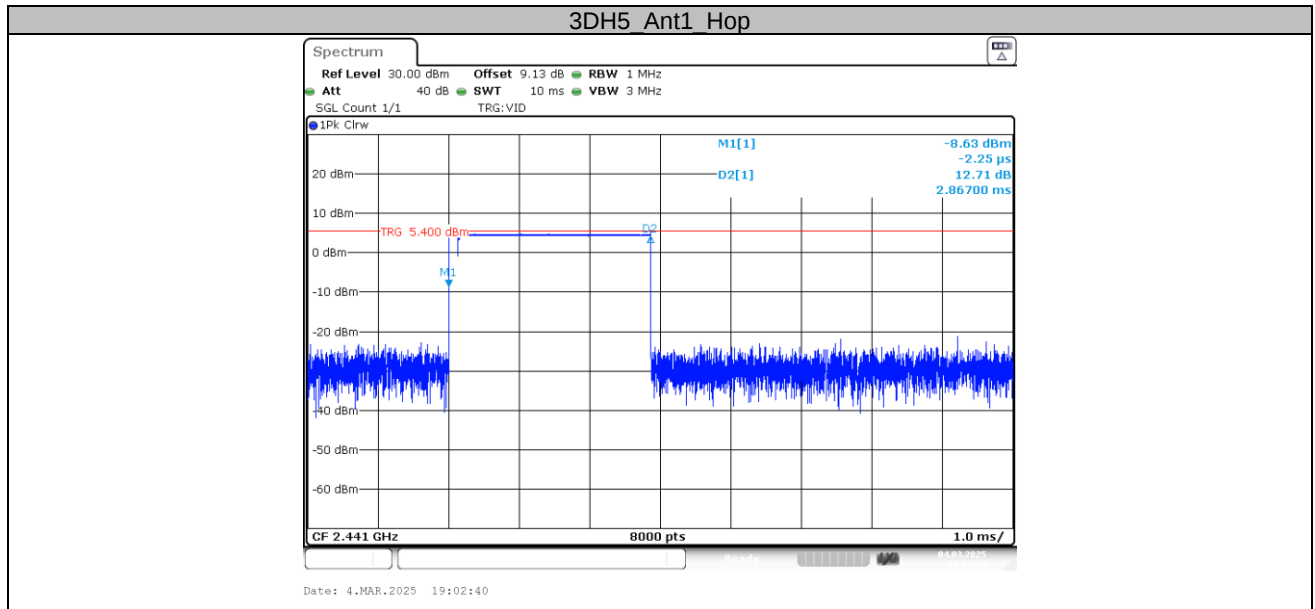
### 2DH1\_Ant1\_Hop



Date: 4.MAR.2025 19:01:27







## 8. RADIATED EMISSIONS

### 8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

#### 15.205 Restricted frequency band

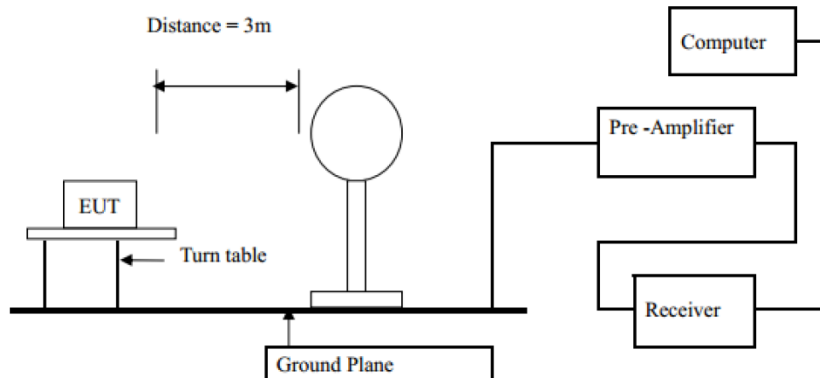
| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

#### 15.209 Limit

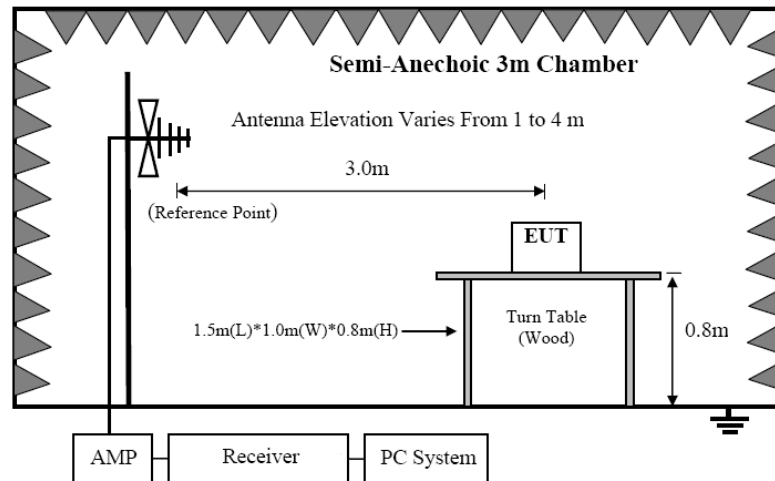
| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMIT                           |          |
|------------------|--------------------|-------------------------------------------------|----------|
|                  |                    | μV/m                                            | dB(μV)/m |
| 0.009-0.490      | 300                | 2400/F(KHz)                                     | /        |
| 0.490-1.705      | 30                 | 24000/F(KHz)                                    | /        |
| 1.705-30         | 30                 | 30                                              | 29.5     |
| 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 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) |          |

## 8.2. Block Diagram of Test setup

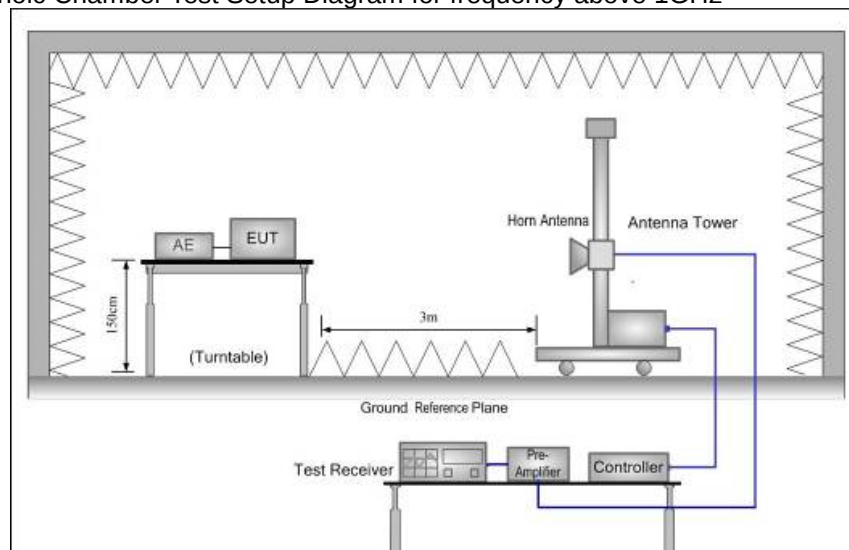
### 8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 30MHz



### 8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



### 8.2.2 In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

### 8.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and simulator as shown in section 1.4 and 6.1
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
  - (a) Change work frequency or channel of device if practicable.
  - (b) Change modulation type of device if practicable.
  - (c) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013on Radiated Emission test.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

### 8.4. Test Result

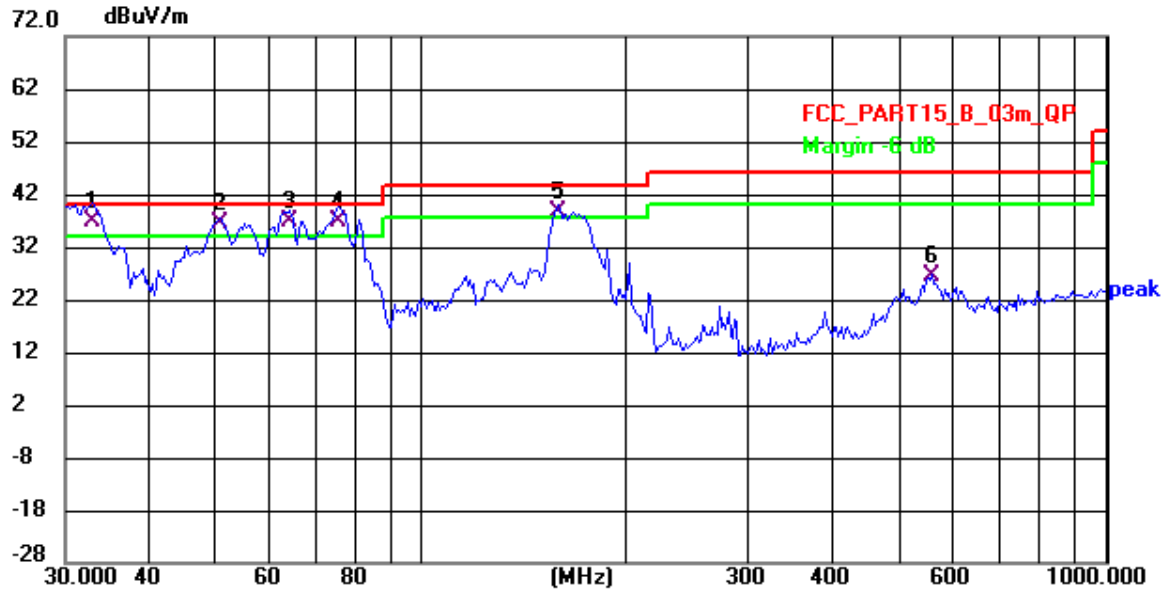
We have scanned the 10th harmonic from 9KHz to the EUT's highest frequency.  
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

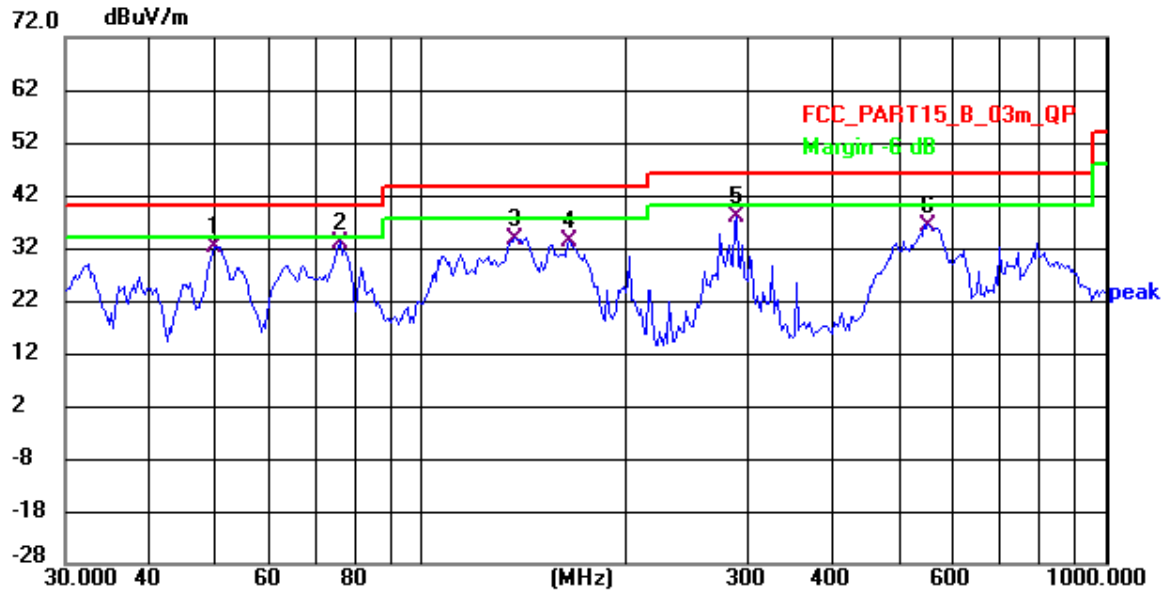
From 30MHz to 1000MHz: Conclusion: PASS

Vertical:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 ! | 32.870          | 59.93          | -23.14        | 36.79          | 40.00          | -3.21       | QP       | 100         | 360            | P   |        |
| 2 ! | 50.461          | 58.53          | -22.06        | 36.47          | 40.00          | -3.53       | QP       | 200         | 181            | P   |        |
| 3 * | 64.080          | 59.97          | -23.15        | 36.82          | 40.00          | -3.18       | QP       | 100         | 136            | P   |        |
| 4 ! | 75.321          | 61.73          | -25.01        | 36.72          | 40.00          | -3.28       | QP       | 100         | 346            | P   |        |
| 5 ! | 157.529         | 59.48          | -20.75        | 38.73          | 43.50          | -4.77       | QP       | 100         | 45             | P   |        |
| 6   | 558.079         | 41.69          | -15.18        | 26.51          | 46.00          | -19.49      | QP       | 200         | 295            | P   |        |

## Horizontal:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 49.757          | 54.04          | -22.03        | 32.01          | 40.00          | -7.99       | QP       | 100         | 248            | P   |        |
| 2 * | 75.852          | 57.90          | -25.11        | 32.79          | 40.00          | -7.21       | QP       | 200         | 191            | P   |        |
| 3   | 136.875         | 55.53          | -21.77        | 33.76          | 43.50          | -9.74       | QP       | 200         | 334            | P   |        |
| 4   | 164.313         | 54.12          | -20.85        | 33.27          | 43.50          | -10.23      | QP       | 100         | 18             | P   |        |
| 5   | 288.284         | 60.29          | -22.48        | 37.81          | 46.00          | -8.19       | QP       | 100         | 267            | P   |        |
| 6   | 550.290         | 51.70          | -15.45        | 36.25          | 46.00          | -9.75       | QP       | 200         | 93             | P   |        |

Remark: All modes have been tested, and only worst data of GFSK mode, Channel 2480MHz was listed in this report.

From 1G-25GHz

All modes had been tested, only show the worst mode GFSK

| Test Mode : GFSK TX Low  |          |          |                  |                |                 |                |        |        |
|--------------------------|----------|----------|------------------|----------------|-----------------|----------------|--------|--------|
| No.                      | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m) | Limit (dBuV/m) | Margin | Remark |
| 1                        | 4804     | V        | 88.36            | -27.21         | 61.15           | 74             | -12.85 | Peak   |
| 2                        | 4804     | V        | 69.72            | -27.21         | 42.51           | 54             | -11.49 | Avg    |
| 3                        | 7206     | --       | --               | --             |                 | --             |        | --     |
| 4                        | 9608     | --       | --               | --             |                 | --             |        | --     |
| 5                        | 4804     | H        | 90.40            | -27.21         | 63.19           | 74             | -10.81 | Peak   |
| 6                        | 4804     | H        | 68.48            | -27.21         | 41.27           | 54             | -12.73 | Avg    |
| 7                        | 7206     | --       | --               | --             |                 | --             |        | --     |
| 8                        | 9608     | --       | --               | --             |                 | --             |        | --     |
| Test Mode : GFSK TX Mid  |          |          |                  |                |                 |                |        |        |
| 1                        | 4882     | V        | 90.51            | -27.84         | 62.67           | 74             | -11.33 | Peak   |
| 2                        | 4882     | V        | 70.59            | -27.84         | 42.75           | 54             | -11.25 | Avg    |
| 3                        | 7323     | --       | --               | --             |                 | --             |        | --     |
| 4                        | 9764     | --       | --               | --             |                 | --             |        | --     |
| 5                        | 4882     | H        | 91.21            | -27.84         | 63.37           | 74             | -10.63 | Peak   |
| 6                        | 4882     | H        | 71.92            | -27.84         | 44.08           | 54             | -9.92  | Avg    |
| 7                        | 7323     | --       | --               | --             |                 | --             |        | --     |
| 8                        | 9764     | --       | --               | --             |                 | --             |        | --     |
| Test Mode : GFSK TX High |          |          |                  |                |                 |                |        |        |
| 1                        | 4960     | V        | 90.76            | -28.49         | 62.27           | 74             | -11.73 | Peak   |
| 2                        | 4960     | V        | 69.66            | -28.49         | 41.17           | 54             | -12.83 | Avg    |
| 3                        | 7440     | --       | --               | --             |                 | --             |        | --     |
| 4                        | 9920     | --       | --               | --             |                 | --             |        | --     |
| 5                        | 4960     | H        | 90.94            | -28.49         | 62.45           | 74             | -11.55 | Peak   |
| 6                        | 4960     | H        | 69.42            | -28.49         | 40.93           | 54             | -13.07 | Avg    |
| 7                        | 7440     | --       | --               | --             |                 | --             |        | --     |
| 8                        | 9920     | --       | --               | --             |                 | --             |        | --     |

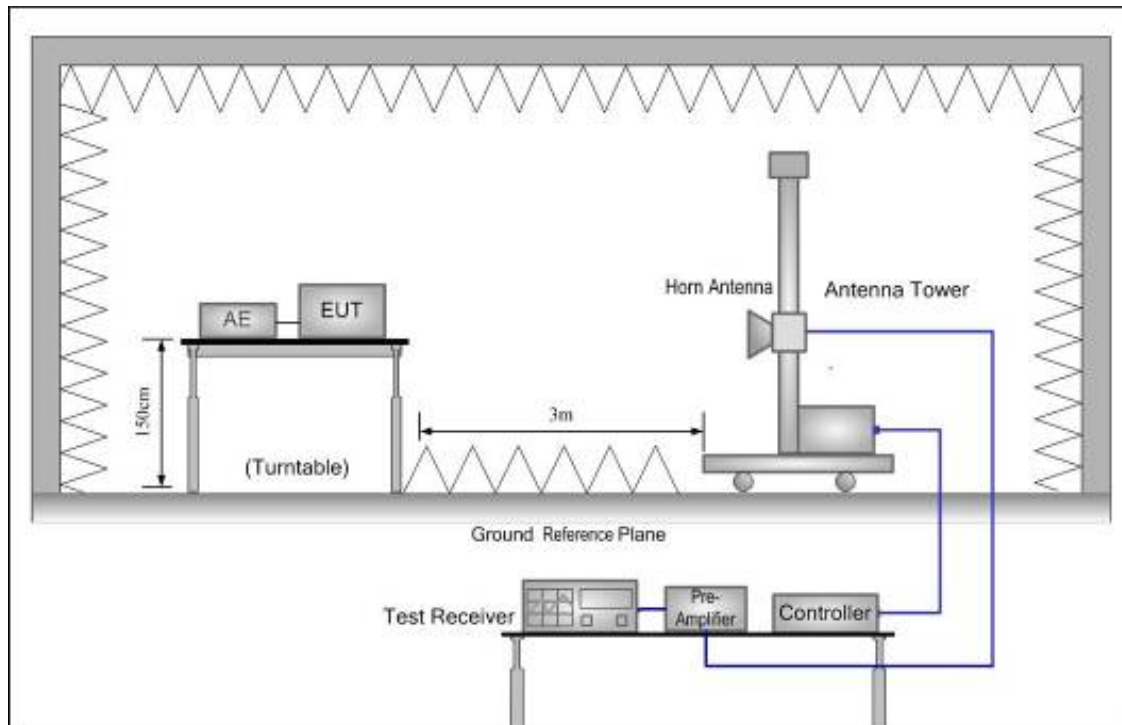
Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

## 9. BAND EDGE COMPLIANCE

### 9.1. Block Diagram of Test Setup



### 9.2. Limit

All the lower and upper band-edges emissions appearing within restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

### 9.3. Test Procedure

All restriction band and non- restriction band have been tested , only worse case is reported.

### 9.4. Test Result

PASS. (See below detailed test data)

| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|-----------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | GFSK TX 2402MHz |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m) | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 75.05            | -21.47         | 53.58           | 74.00          | -20.42 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 78.87            | -26.12         | 52.75           | 74.00          | -21.25 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --              | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 75.12            | -21.47         | 53.65           | 74.00          | -20.35 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 79.38            | -26.12         | 53.26           | 74.00          | -20.74 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --              | 54.00          | --     | Avg    |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | GFSK TX 2480MHz |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.84            | -25.29         | 53.55           | 74.00          | -20.45 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --              | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 78.70            | -25.29         | 53.41           | 74.00          | -20.59 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --              | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                 |                |        |        |

| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS                |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|---------------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz     |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | #4 DQPSK TX 2402MHz |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m)     | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 75.15            | -21.47         | 53.68               | 74.00          | -20.32 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --                  | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 79.42            | -26.12         | 53.30               | 74.00          | -20.70 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --                  | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 75.08            | -21.47         | 53.61               | 74.00          | -20.39 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --                  | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 79.19            | -26.12         | 53.07               | 74.00          | -20.93 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --                  | 54.00          | --     | Avg    |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS                |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz     |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | #4 DQPSK TX 2480MHz |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.99            | -25.29         | 53.70               | 74.00          | -20.30 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --                  | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 78.53            | -25.29         | 53.24               | 74.00          | -20.76 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --                  | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                     |                |        |        |

| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS             |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|------------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz  |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 8DPSK TX 2402MHz |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m)  | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 74.80            | -21.47         | 53.33            | 74.00          | -20.67 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --               | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 78.78            | -26.12         | 52.66            | 74.00          | -21.34 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --               | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 74.79            | -21.47         | 53.32            | 74.00          | -20.68 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --               | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 79.54            | -26.12         | 53.42            | 74.00          | -20.58 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --               | 54.00          | --     | Avg    |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS             |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz  |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 8DPSK TX 2480MHz |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.68            | -25.29         | 53.39            | 74.00          | -20.61 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --               | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 79.28            | -25.29         | 53.99            | 74.00          | -20.01 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --               | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                  |                |        |        |

| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|-----------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | GFSK Hopping    |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m) | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 74.64            | -21.47         | 53.17           | 74.00          | -20.83 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 78.83            | -26.12         | 52.71           | 74.00          | -21.29 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --              | 54.00          | --     | Avg    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                |                 |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 74.32            | -21.47         | 52.85           | 74.00          | -21.15 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 78.85            | -26.12         | 52.73           | 74.00          | -21.27 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --              | 54.00          | --     | Avg    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                |                 |                |        |        |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | GFSK Hopping    |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.89            | -25.29         | 53.60           | 74.00          | -20.40 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --              | 54.00          | --     | Avg    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                |                 |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 78.48            | -25.29         | 53.19           | 74.00          | -20.81 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --              | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                 |                |        |        |

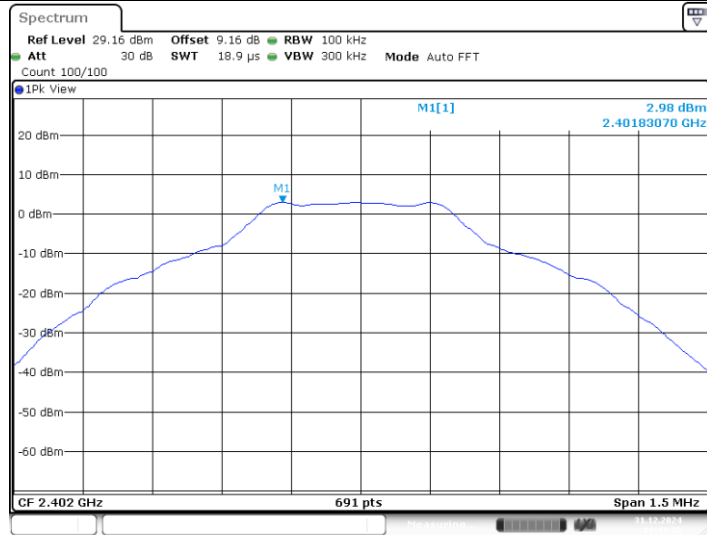
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS             |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|------------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz  |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 14 DQPSK Hopping |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m)  | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 74.56            | -21.47         | 53.09            | 74.00          | -20.91 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --               | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 78.64            | -26.12         | 52.52            | 74.00          | -21.48 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --               | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 75.22            | -21.47         | 53.75            | 74.00          | -20.25 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --               | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 79.54            | -26.12         | 53.42            | 74.00          | -20.58 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --               | 54.00          | --     | Avg    |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS             |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz  |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 14 DQPSK Hopping |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.81            | -25.29         | 53.52            | 74.00          | -20.48 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --               | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 78.80            | -25.29         | 53.51            | 74.00          | -20.49 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --               | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                  |                |        |        |

| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------------|----------------|-----------------|----------------|--------|--------|
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2310MHz~2410MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 8DPSK Hopping   |                |        |        |
| N o.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Freq MHz | Polarity | Reading (dBuV/m) | Correct Factor | Result (dBuV/m) | Limit (dBuV/m) | Margin | Remark |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | 74.52            | -21.47         | 53.05           | 74.00          | -20.95 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | H        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | 79.49            | -26.12         | 53.37           | 74.00          | -20.63 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | H        | --               | -26.12         | --              | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | 75.19            | -21.47         | 53.72           | 74.00          | -20.28 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2390     | V        | --               | -21.47         | --              | 54.00          | --     | Avg    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | 79.54            | -26.12         | 53.42           | 74.00          | -20.58 | Peak   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2400     | V        | --               | -26.12         | --              | 54.00          | --     | Avg    |
| Test Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |          |                  |                | PASS            |                |        |        |
| Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |          |                  |                | 2450MHz~2550MHz |                |        |        |
| Test Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |                  |                | 8DPSK Hopping   |                |        |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | 78.71            | -25.29         | 53.42           | 74.00          | -20.58 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | H        | --               | -25.29         | --              | 54.00          | --     | Avg    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | 78.94            | -25.29         | 53.65           | 74.00          | -20.35 | Peak   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2483.5   | V        | --               | -25.29         | --              | 54.00          | --     | Avg    |
| Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.<br>2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.<br>Result=Reading + Correct Factor.<br>Margin= Result-Limit.<br>3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. |          |          |                  |                |                 |                |        |        |

**Reference level measurement**

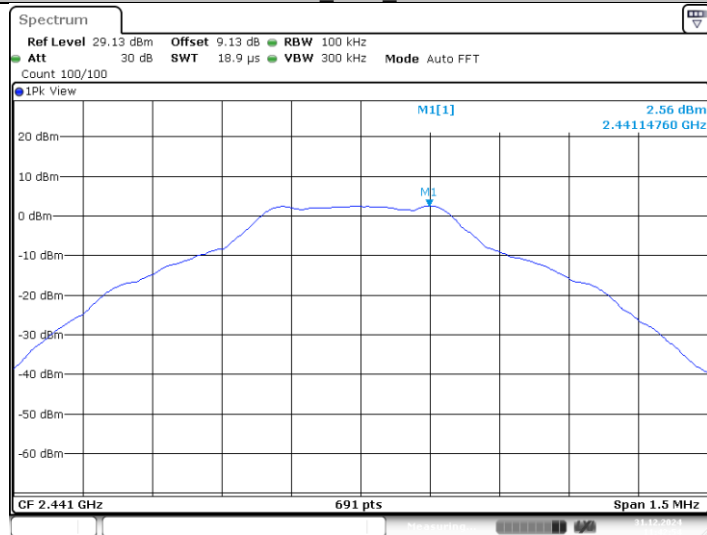
| TestMode | Antenna | Freq(MHz) | Max.Point[MHz] | Result[dBm] |
|----------|---------|-----------|----------------|-------------|
| DH5      | Ant1    | 2402      | 2401.83        | 2.98        |
|          |         | 2441      | 2441.15        | 2.56        |
|          |         | 2480      | 2480.15        | 3.14        |
| 2DH5     | Ant1    | 2402      | 2401.83        | 2.51        |
|          |         | 2441      | 2440.83        | 1.99        |
|          |         | 2480      | 2479.83        | 2.54        |
| 3DH5     | Ant1    | 2402      | 2402.15        | 2.32        |
|          |         | 2441      | 2441.15        | 1.76        |
|          |         | 2480      | 2480.15        | 2.29        |

## DH5\_Ant1\_2402



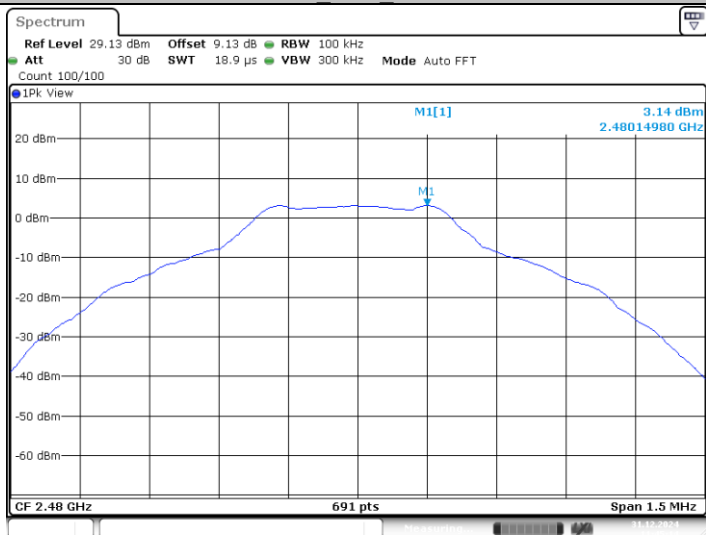
Date: 31.DEC.2024 11:41:19

## DH5\_Ant1\_2441



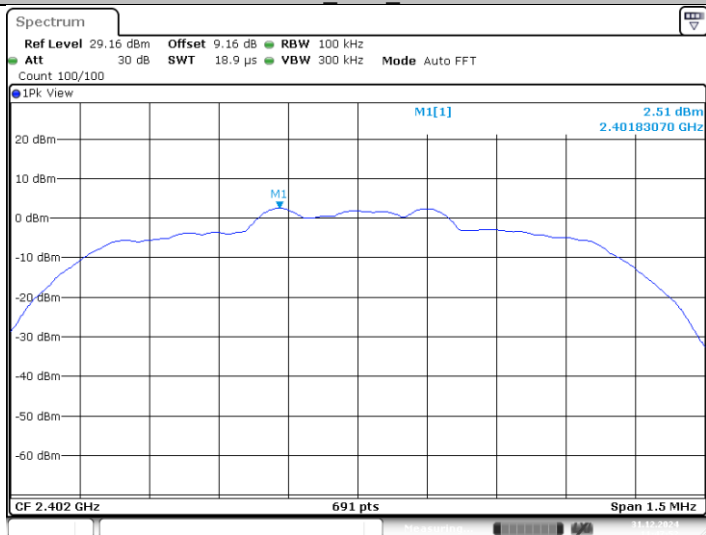
Date: 31.DEC.2024 11:42:55

## DH5\_Ant1\_2480



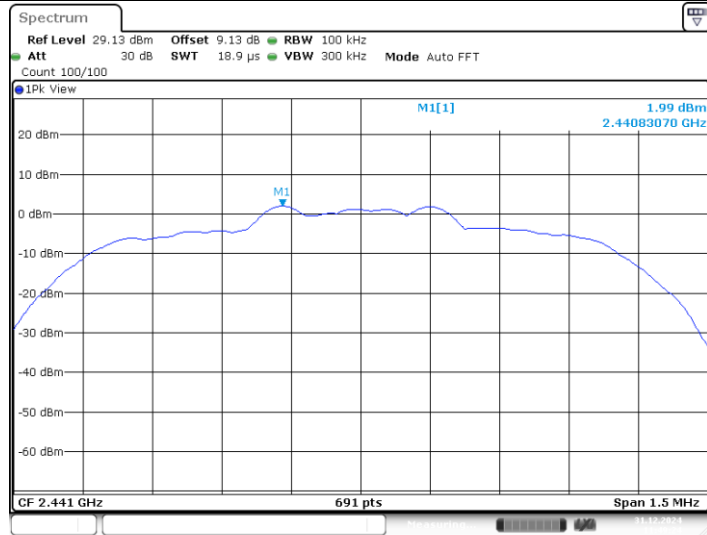
Date: 31.DEC.2024 11:45:14

## 2DH5\_Ant1\_2402



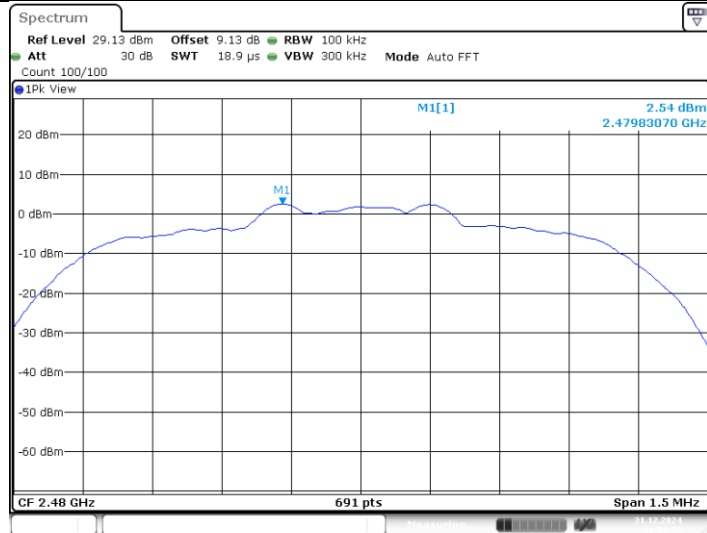
Date: 31.DEC.2024 11:47:52

## 2DH5\_Ant1\_2441



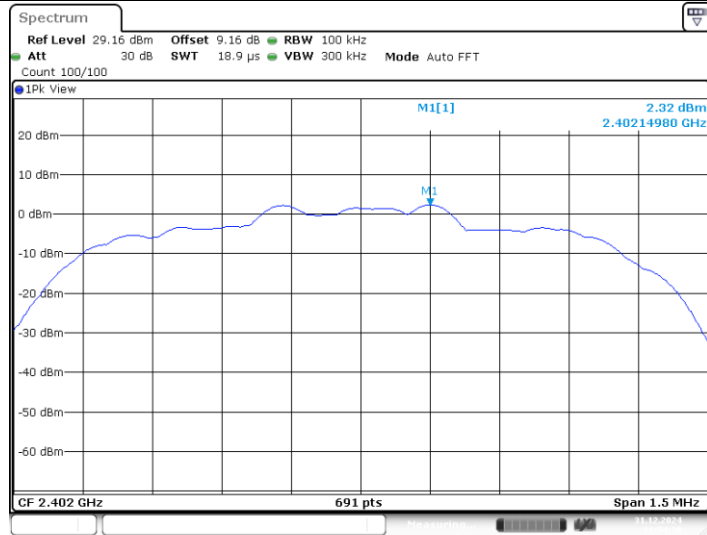
Date: 31.DEC.2024 11:49:24

## 2DH5\_Ant1\_2480



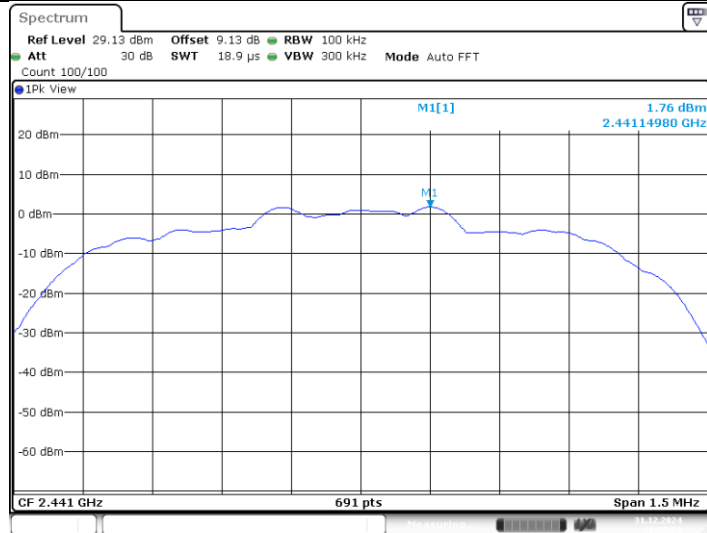
Date: 31.DEC.2024 11:51:53

## 3DH5\_Ant1\_2402

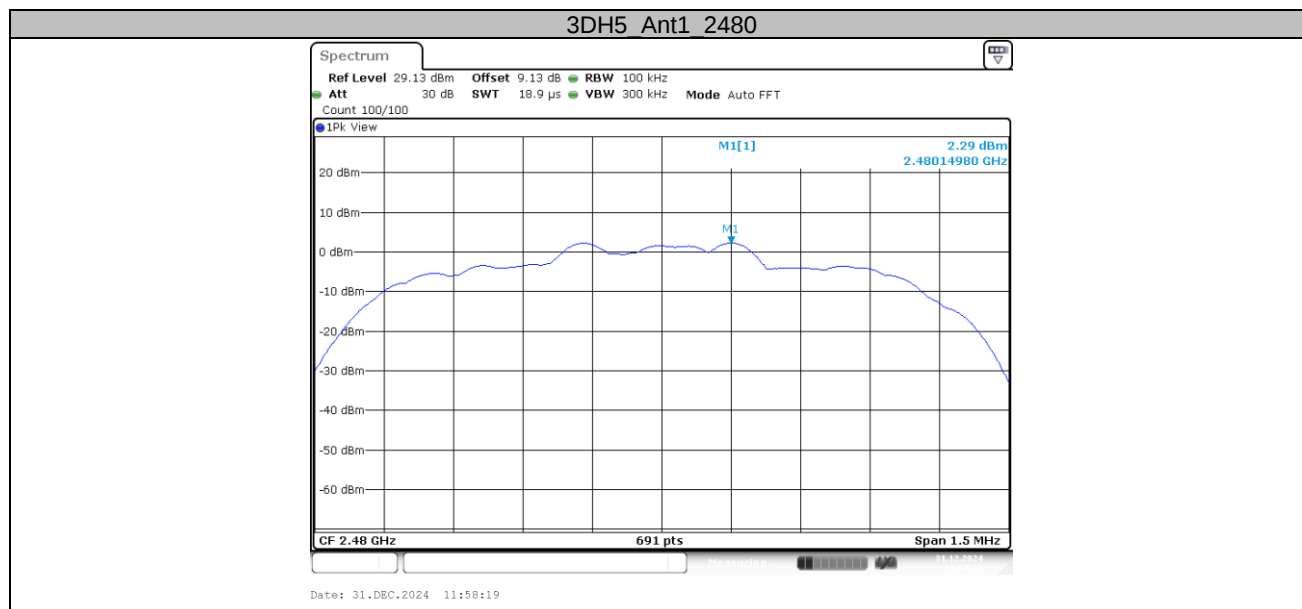


Date: 31.DEC.2024 11:54:31

## 3DH5\_Ant1\_2441

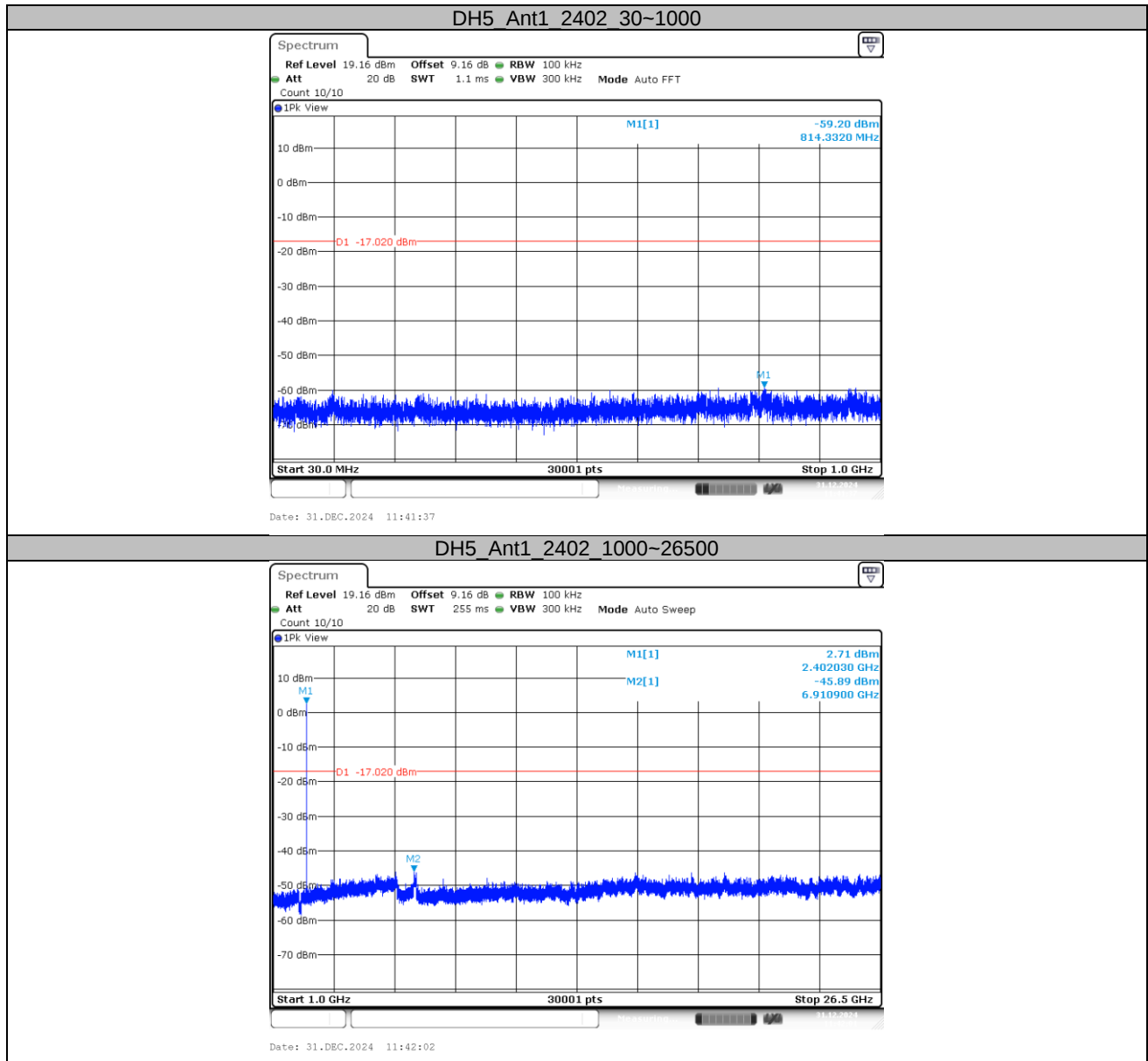


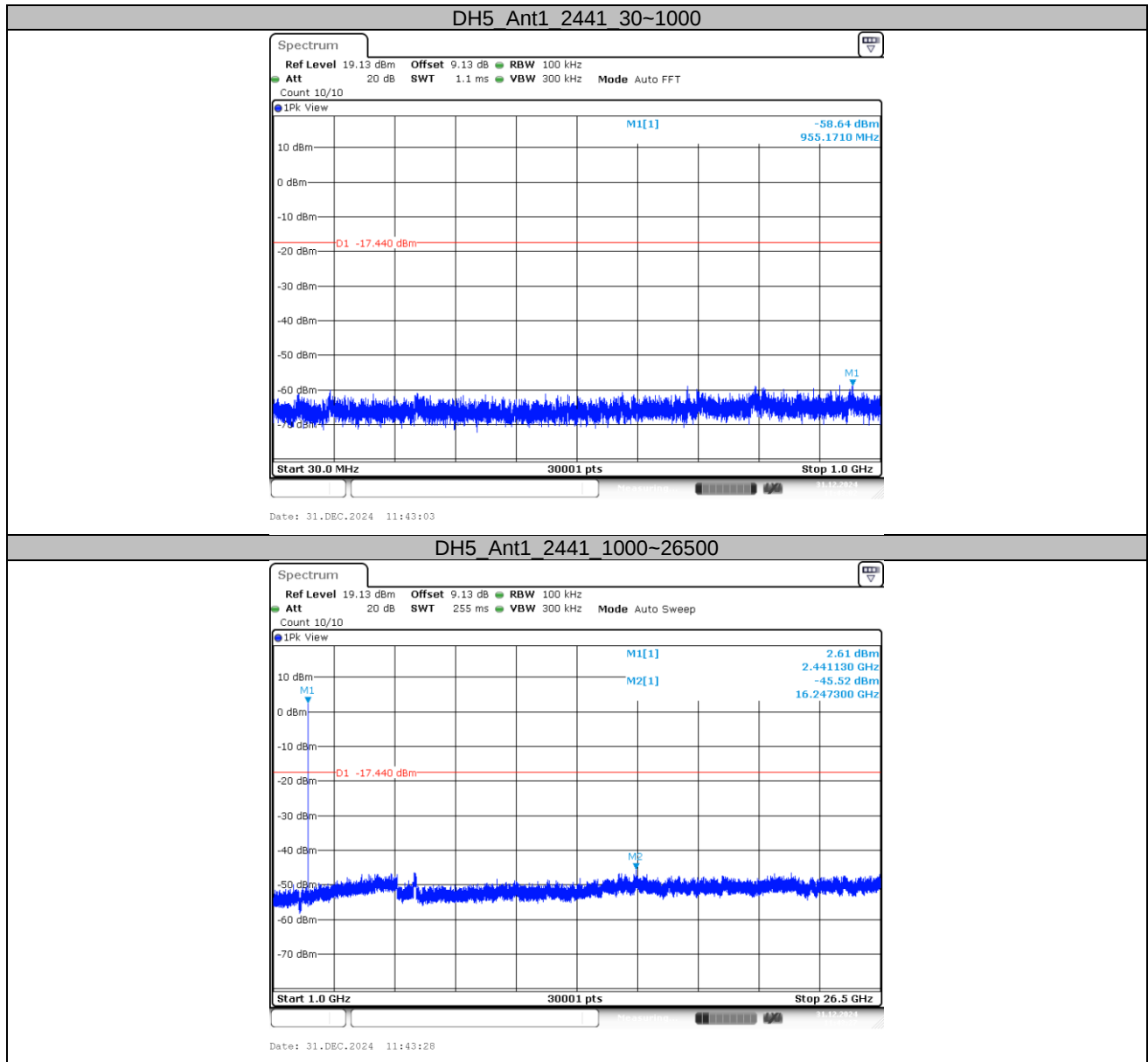
Date: 31.DEC.2024 11:55:59

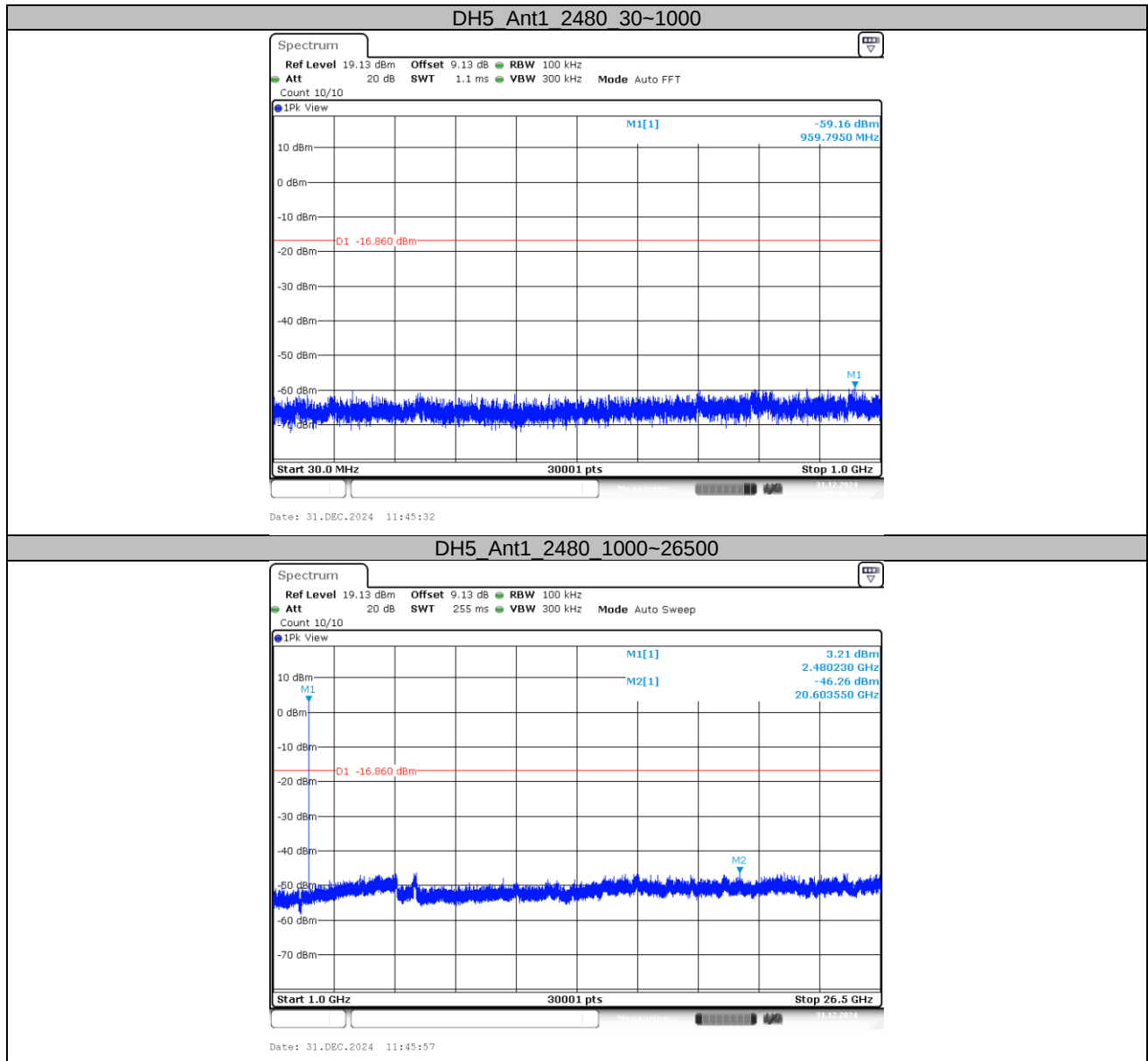


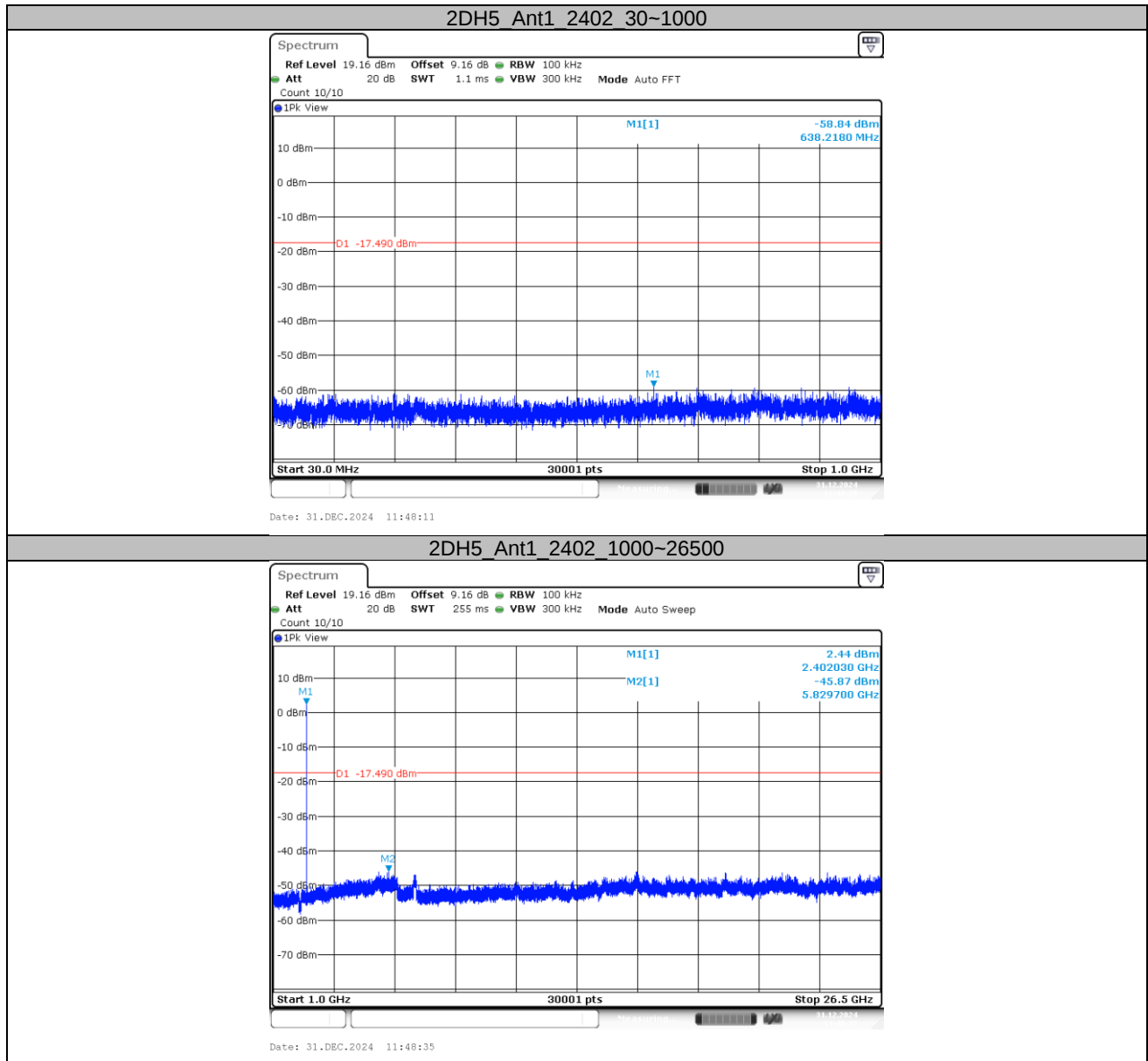
**Conducted Method**

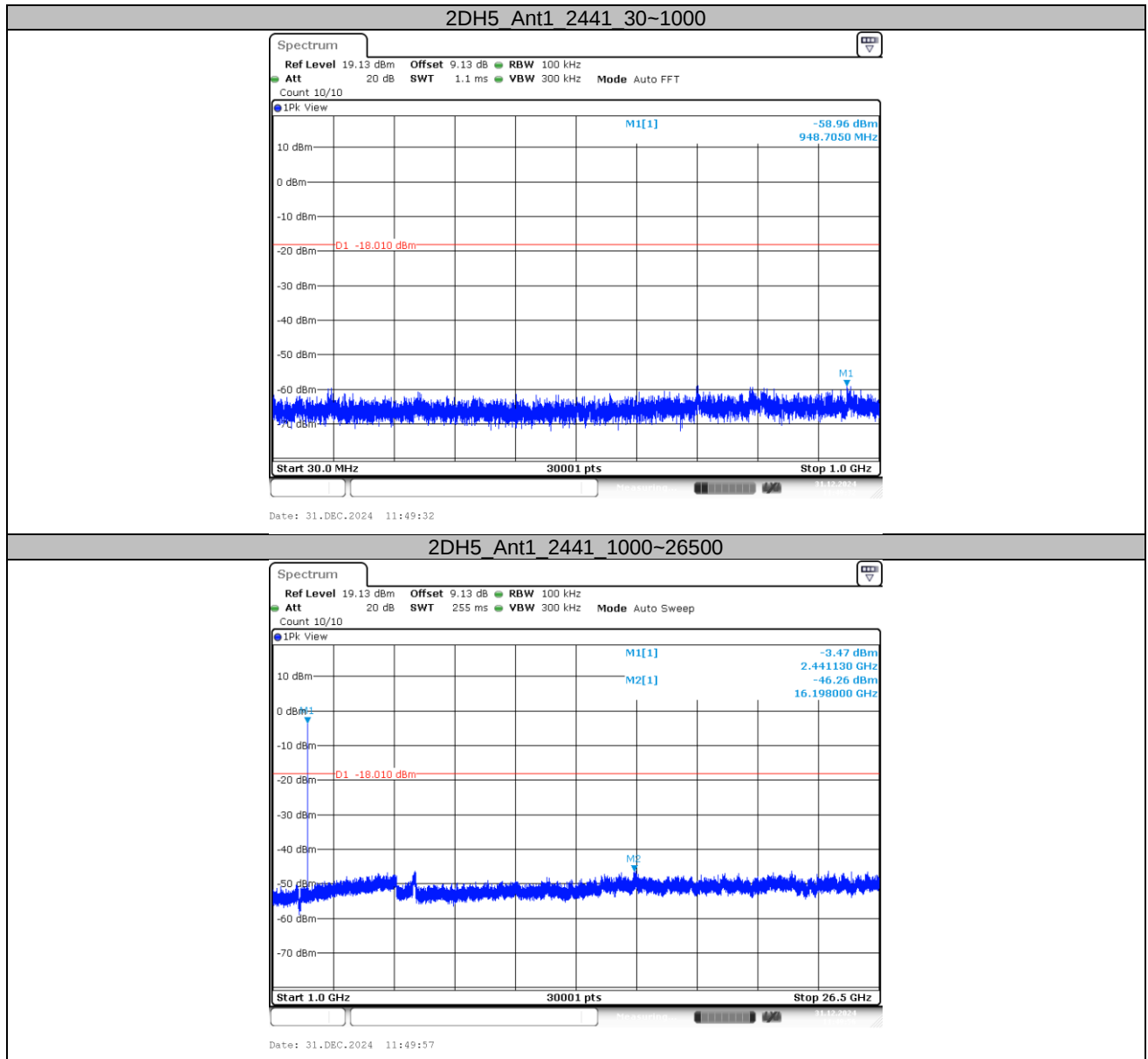
| TestMode | Antenna | Freq(MHz) | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|-----------|-----------------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | 2402      | 30~1000         | 2.98           | -59.2        | ≤-17.02     | PASS    |
|          |         |           | 1000~26500      | 2.98           | -45.89       | ≤-17.02     | PASS    |
|          |         | 2441      | 30~1000         | 2.56           | -58.64       | ≤-17.44     | PASS    |
|          |         |           | 1000~26500      | 2.56           | -45.52       | ≤-17.44     | PASS    |
|          |         | 2480      | 30~1000         | 3.14           | -59.16       | ≤-16.86     | PASS    |
|          |         |           | 1000~26500      | 3.14           | -46.26       | ≤-16.86     | PASS    |
| 2DH5     | Ant1    | 2402      | 30~1000         | 2.51           | -58.84       | ≤-17.49     | PASS    |
|          |         |           | 1000~26500      | 2.51           | -45.87       | ≤-17.49     | PASS    |
|          |         | 2441      | 30~1000         | 1.99           | -58.96       | ≤-18.01     | PASS    |
|          |         |           | 1000~26500      | 1.99           | -46.26       | ≤-18.01     | PASS    |
|          |         | 2480      | 30~1000         | 2.54           | -59.44       | ≤-17.46     | PASS    |
|          |         |           | 1000~26500      | 2.54           | -45.42       | ≤-17.46     | PASS    |
| 3DH5     | Ant1    | 2402      | 30~1000         | 2.32           | -59.69       | ≤-17.68     | PASS    |
|          |         |           | 1000~26500      | 2.32           | -45.94       | ≤-17.68     | PASS    |
|          |         | 2441      | 30~1000         | 1.76           | -57.73       | ≤-18.24     | PASS    |
|          |         |           | 1000~26500      | 1.76           | -45.53       | ≤-18.24     | PASS    |
|          |         | 2480      | 30~1000         | 2.29           | -58.19       | ≤-17.71     | PASS    |
|          |         |           | 1000~26500      | 2.29           | -45.99       | ≤-17.71     | PASS    |

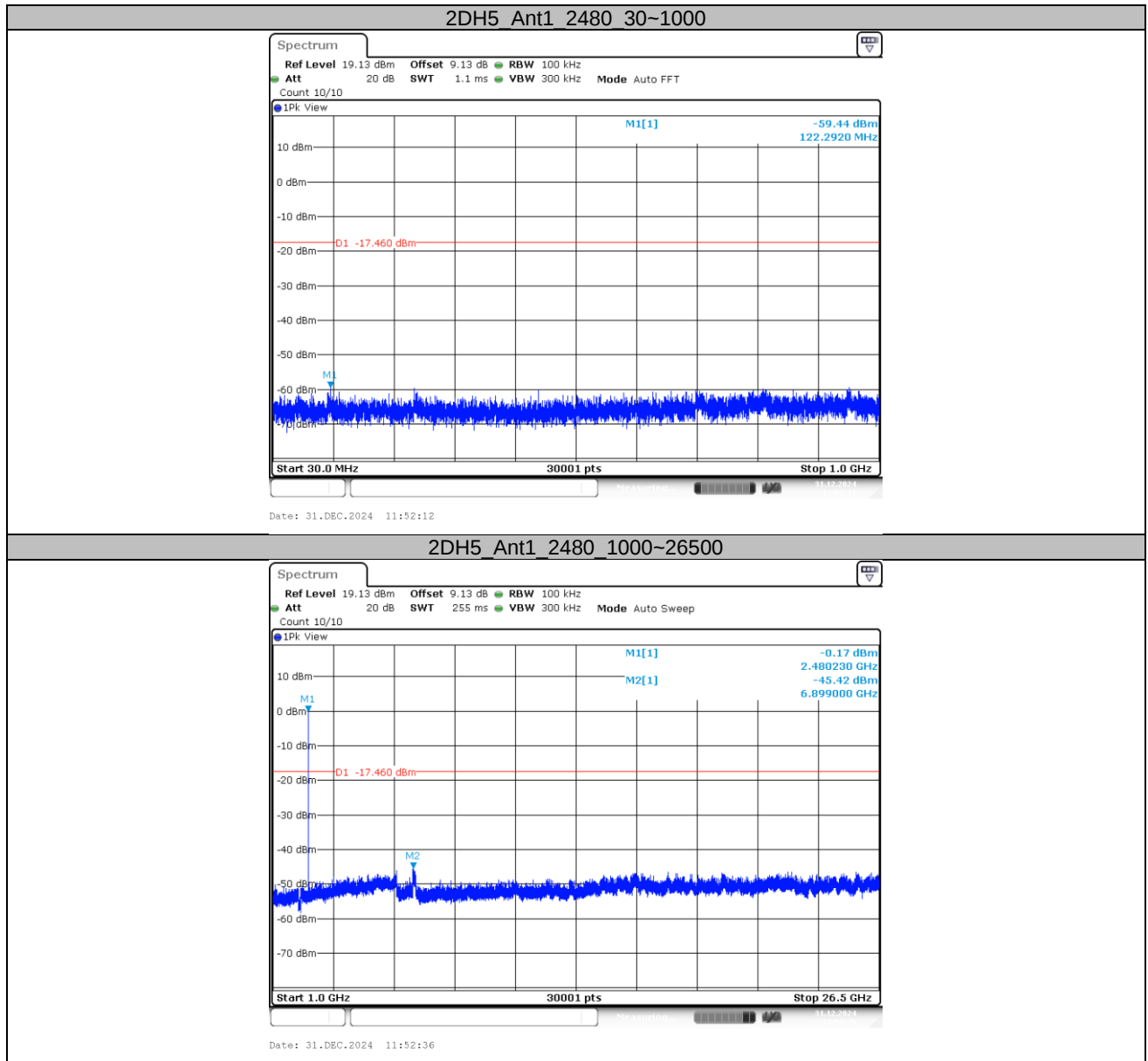


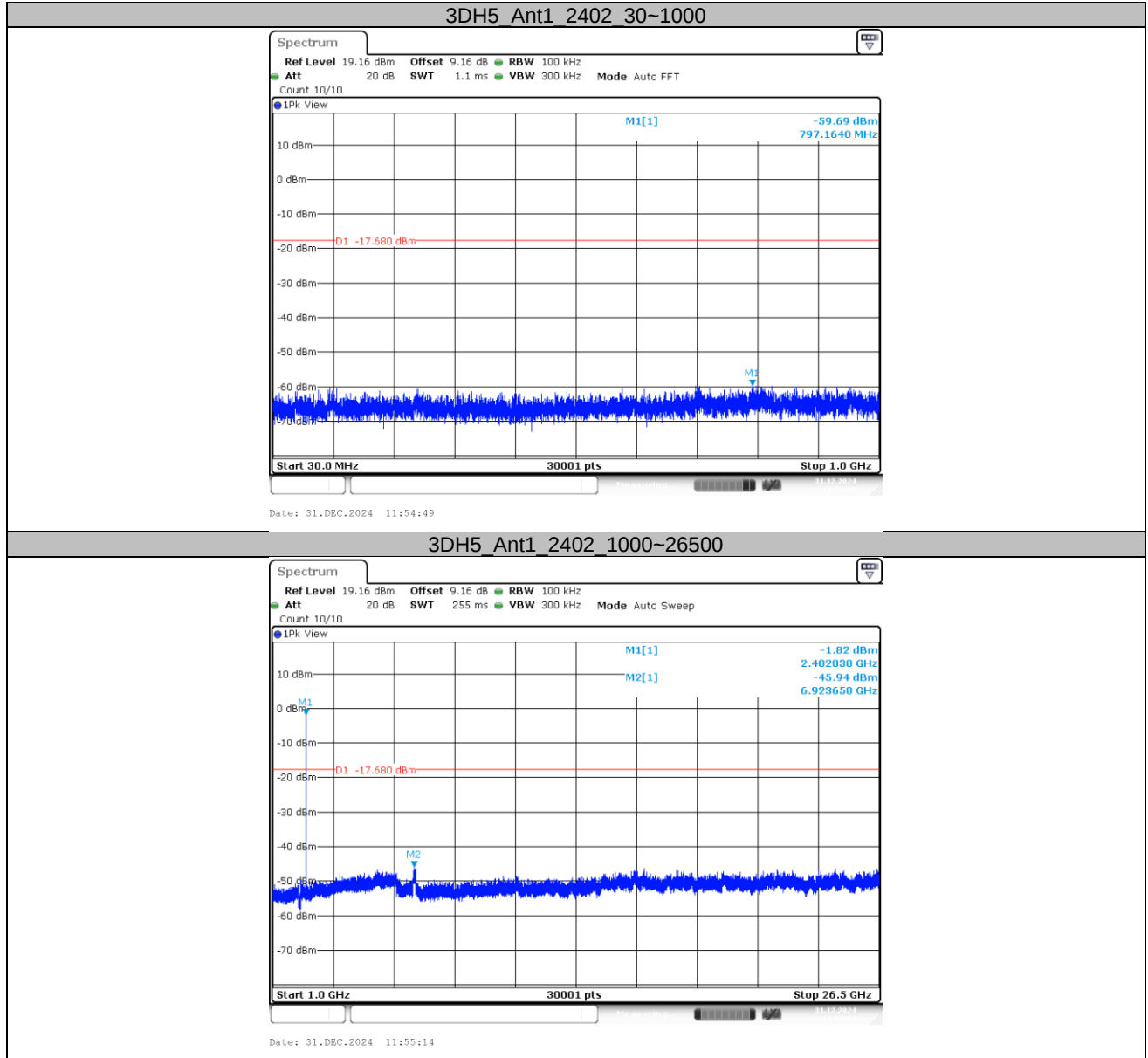


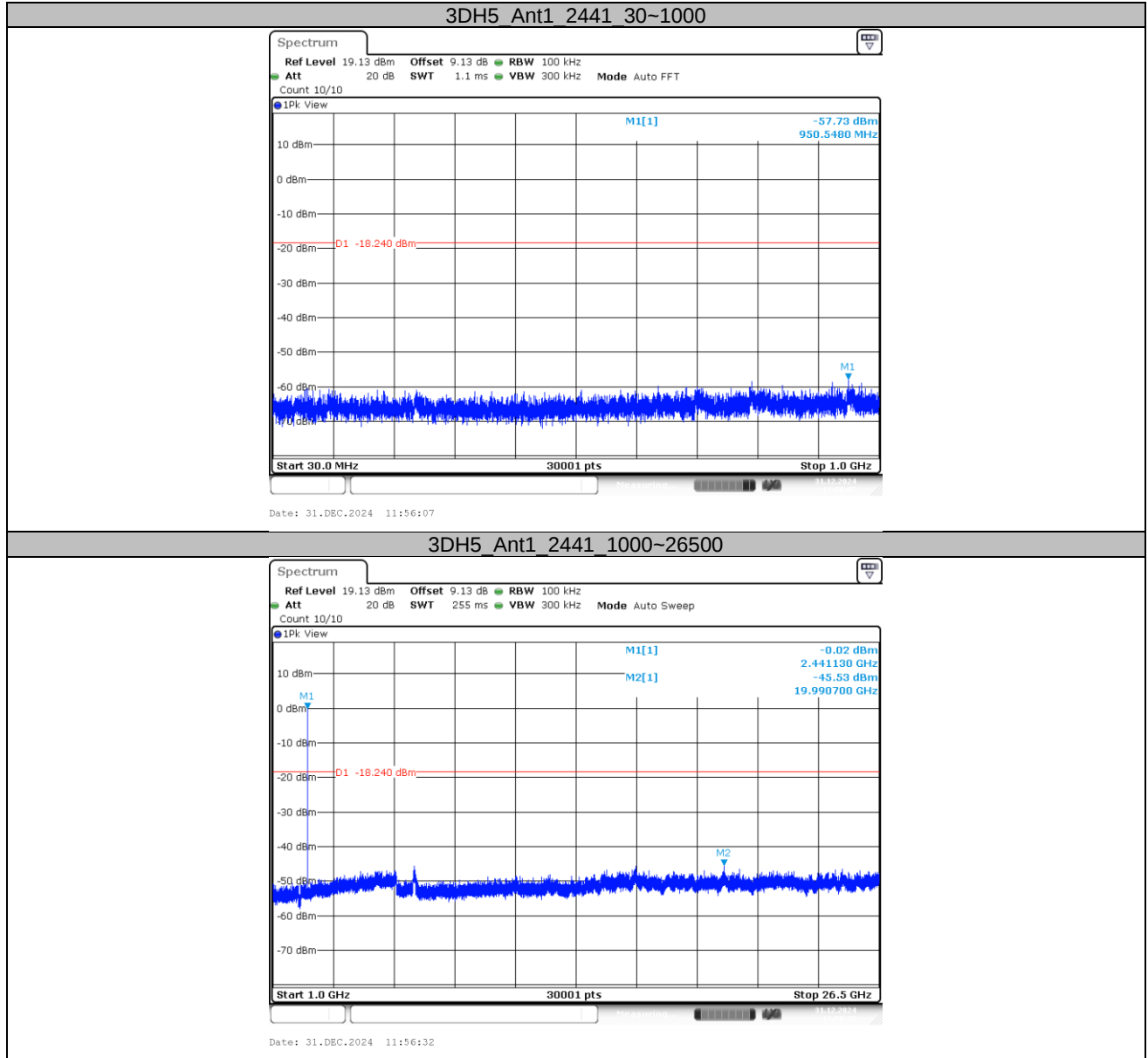


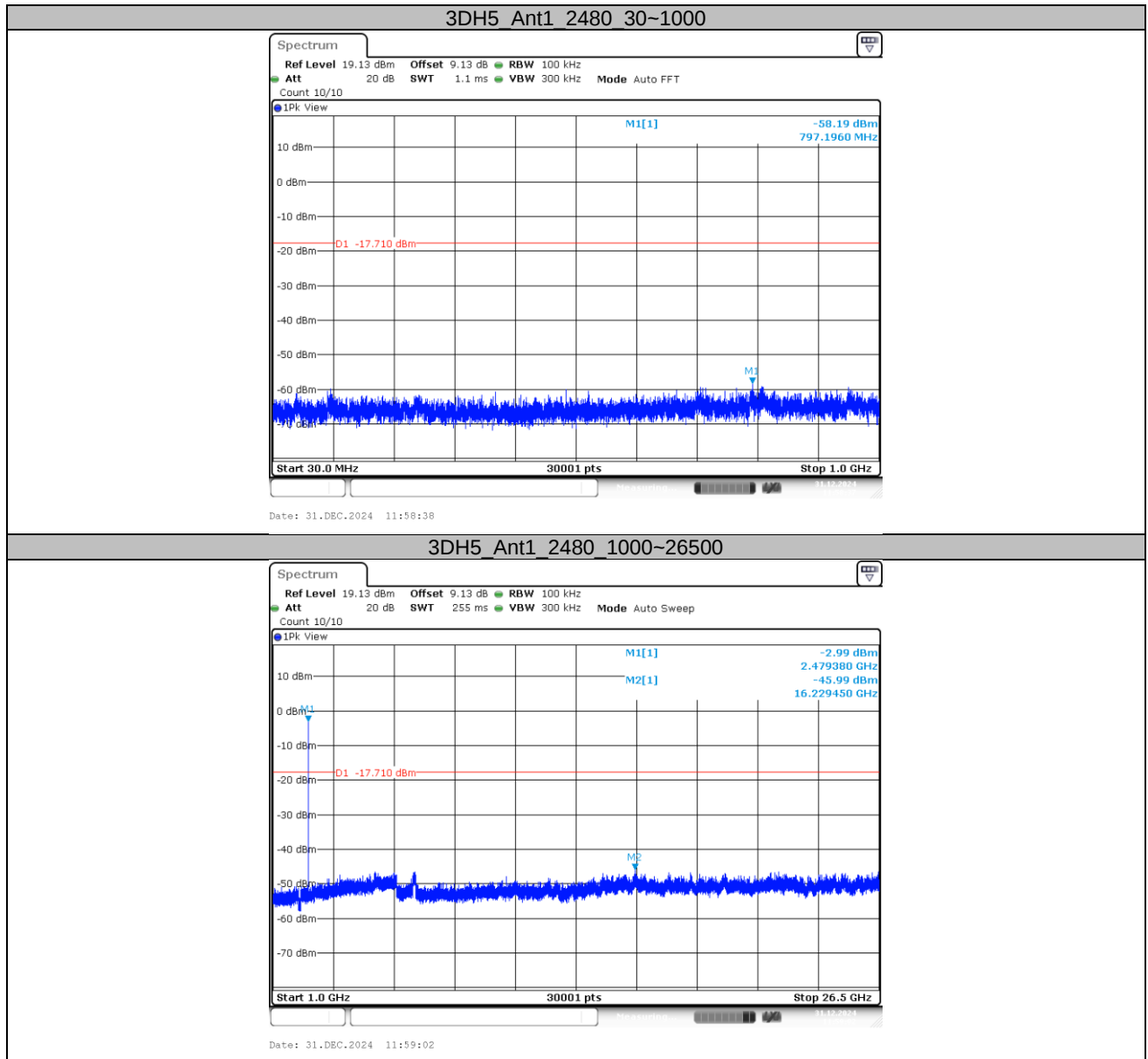






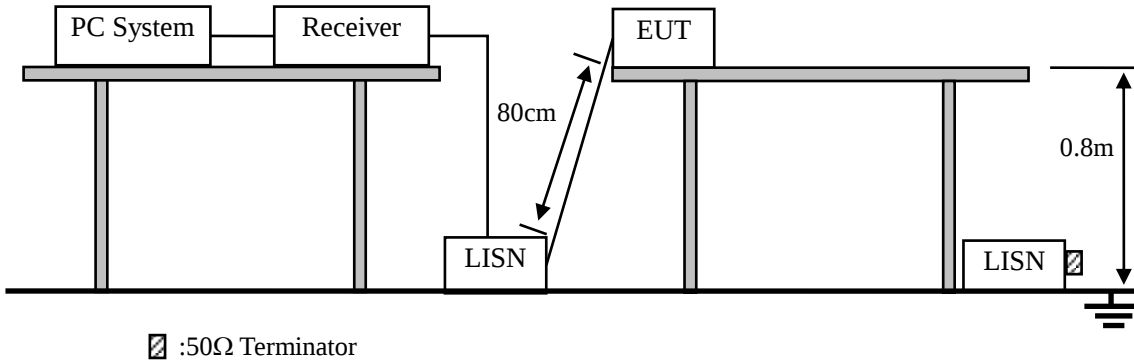






## 10. POWER LINE CONDUCTED EMISSIONS

### 10.1. Block Diagram of Test Setup



### 10.2. Limit

| Frequency       | Maximum RF Line Voltage    |                         |
|-----------------|----------------------------|-------------------------|
|                 | Quasi-Peak Level<br>dB(μV) | Average Level<br>dB(μV) |
| 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.

### 10.3. Test Procedure

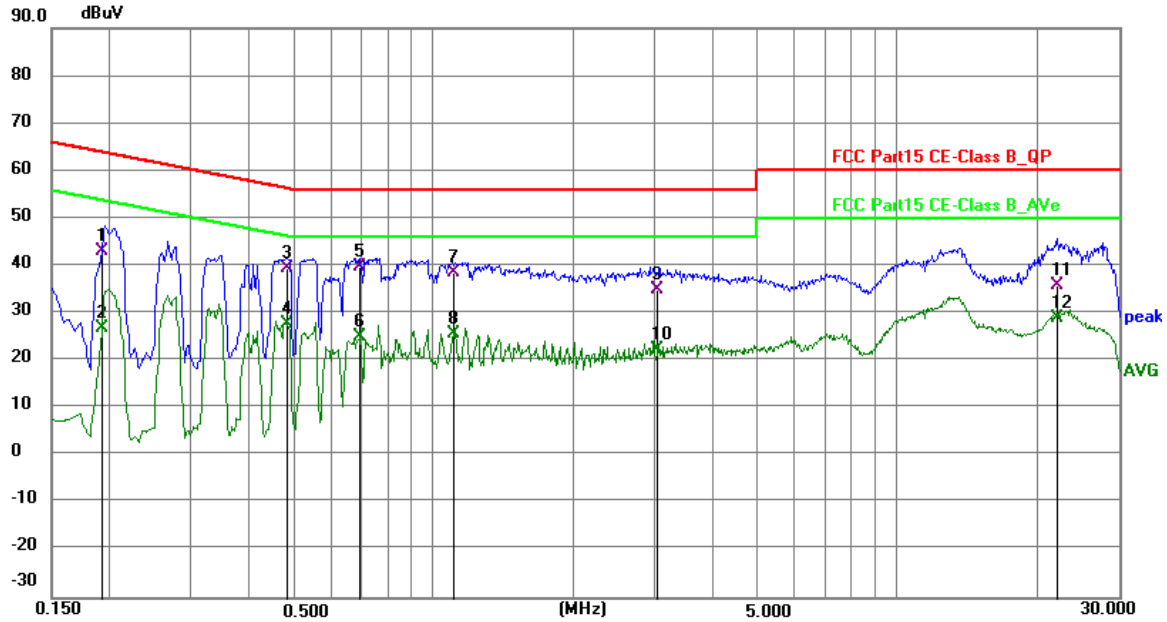
- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

## 10.4.Test Result

Pass

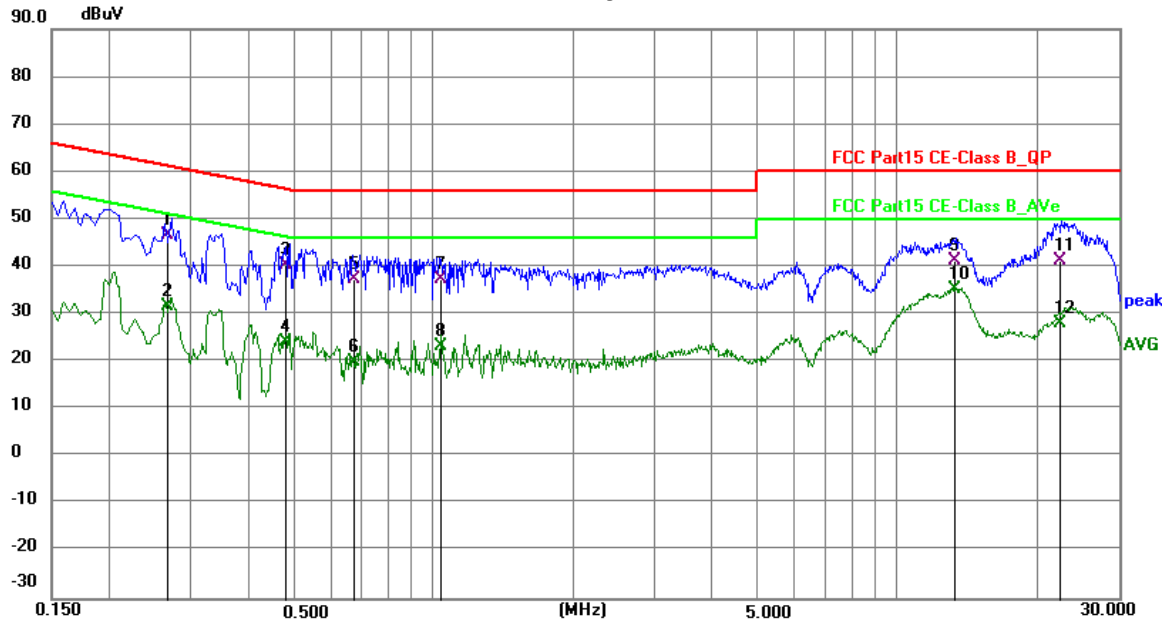
Remark: All modes have been tested, and only worst data of GFSK mode CH79 was listed in this report.

Polarity: L



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.1931          | 33.31          | 9.63        | 42.94        | 63.90        | -20.96      | QP       | P   |        |
| 2   | 0.1931          | 17.22          | 9.63        | 26.85        | 53.90        | -27.05      | AVG      | P   |        |
| 3   | 0.4812          | 29.81          | 9.62        | 39.43        | 56.32        | -16.89      | QP       | P   |        |
| 4   | 0.4812          | 18.17          | 9.62        | 27.79        | 46.32        | -18.53      | AVG      | P   |        |
| 5 * | 0.6943          | 30.10          | 9.63        | 39.73        | 56.00        | -16.27      | QP       | P   |        |
| 6   | 0.6943          | 15.36          | 9.63        | 24.99        | 46.00        | -21.01      | AVG      | P   |        |
| 7   | 1.1115          | 28.91          | 9.64        | 38.55        | 56.00        | -17.45      | QP       | P   |        |
| 8   | 1.1115          | 16.12          | 9.64        | 25.76        | 46.00        | -20.24      | AVG      | P   |        |
| 9   | 3.0534          | 25.33          | 9.67        | 35.00        | 56.00        | -21.00      | QP       | P   |        |
| 10  | 3.0534          | 12.65          | 9.67        | 22.32        | 46.00        | -23.68      | AVG      | P   |        |
| 11  | 22.1636         | 26.11          | 9.77        | 35.88        | 60.00        | -24.12      | QP       | P   |        |
| 12  | 22.1636         | 19.27          | 9.77        | 29.04        | 50.00        | -20.96      | AVG      | P   |        |

Polarity: N



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1 * | 0.2661          | 36.97          | 9.62        | 46.59        | 61.24        | -14.65      | QP       | P   |        |
| 2   | 0.2661          | 21.99          | 9.62        | 31.61        | 51.24        | -19.63      | AVG      | P   |        |
| 3   | 0.4809          | 30.66          | 9.62        | 40.28        | 56.32        | -16.04      | QP       | P   |        |
| 4   | 0.4809          | 14.54          | 9.62        | 24.16        | 46.32        | -22.16      | AVG      | P   |        |
| 5   | 0.6722          | 27.86          | 9.62        | 37.48        | 56.00        | -18.52      | QP       | P   |        |
| 6   | 0.6722          | 10.24          | 9.62        | 19.86        | 46.00        | -26.14      | AVG      | P   |        |
| 7   | 1.0356          | 27.86          | 9.64        | 37.50        | 56.00        | -18.50      | QP       | P   |        |
| 8   | 1.0356          | 13.53          | 9.64        | 23.17        | 46.00        | -22.83      | AVG      | P   |        |
| 9   | 13.3349         | 31.48          | 9.75        | 41.23        | 60.00        | -18.77      | QP       | P   |        |
| 10  | 13.3349         | 25.55          | 9.75        | 35.30        | 50.00        | -14.70      | AVG      | P   |        |
| 11  | 22.5545         | 31.51          | 9.83        | 41.34        | 60.00        | -18.66      | QP       | P   |        |
| 12  | 22.5545         | 18.11          | 9.83        | 27.94        | 50.00        | -22.06      | AVG      | P   |        |

## **11. ANTENNA REQUIREMENTS**

### **11.1.Limit**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **11.2.Result**

The EUT antenna is PIFA Antenna. It comply with the standard requirement.

## 12. TEST SETUP PHOTO

Please reference to the appendix I Test Setup Photo for details.

## 13. PHOTOS OF EUT

Please reference to the appendix II external photos and appendix III internal photos for details.

**-----END OF REPORT-----**