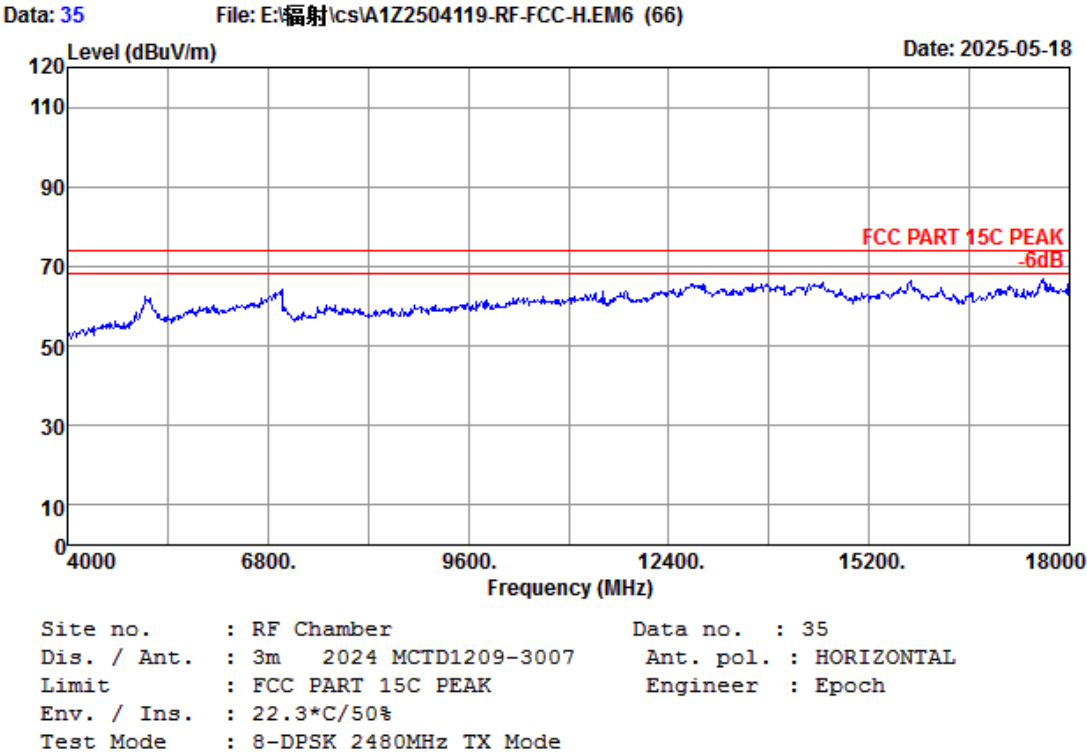
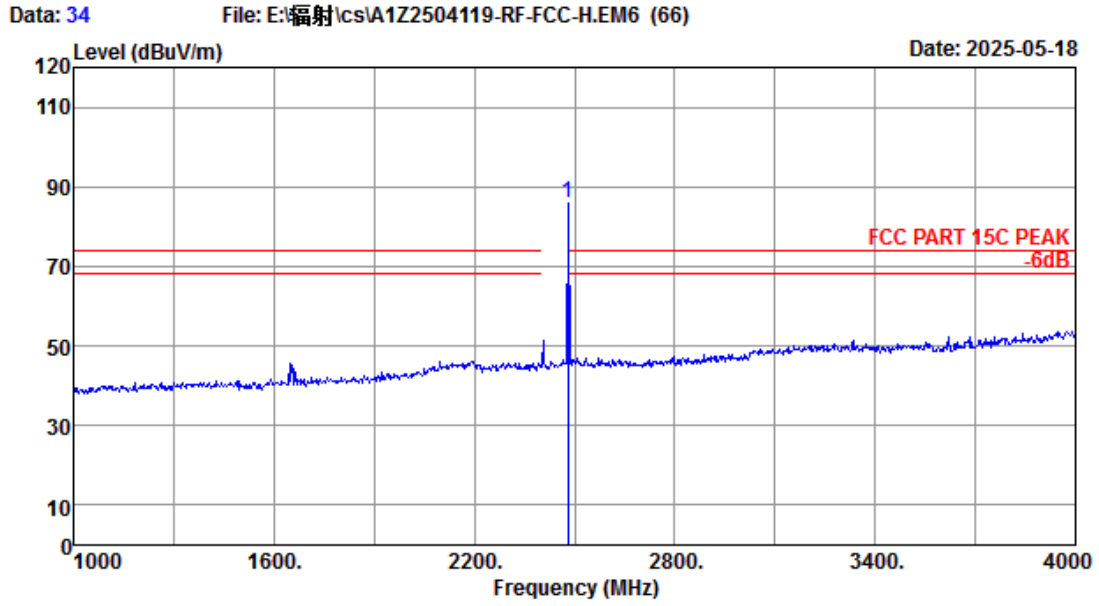


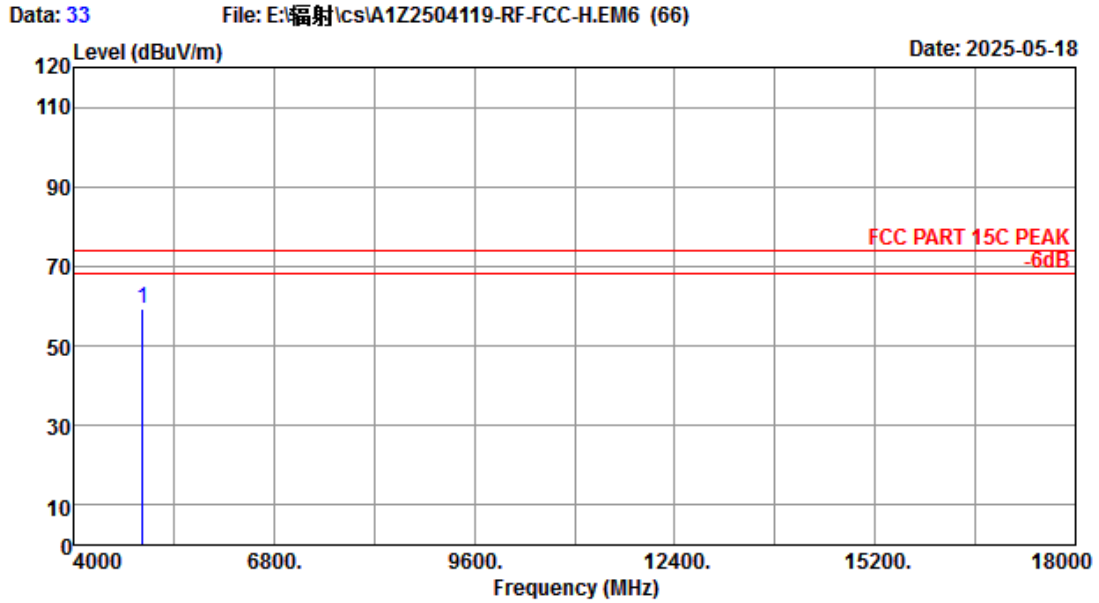




Site no. : RF Chamber Data no. : 34  
 Dis. / Ant. : 3m 2024 MCTD1209-3007 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK Engineer : Epoch  
 Env. / Ins. : 22.3°C/50%  
 Test Mode : 8-DPSK 2480MHz TX Mode

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | AMP<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 2480.000       | 27.84                    | 4.68                  | 49.57                 | 103.11            | 86.06                         | -----              | -----          | Peak   |

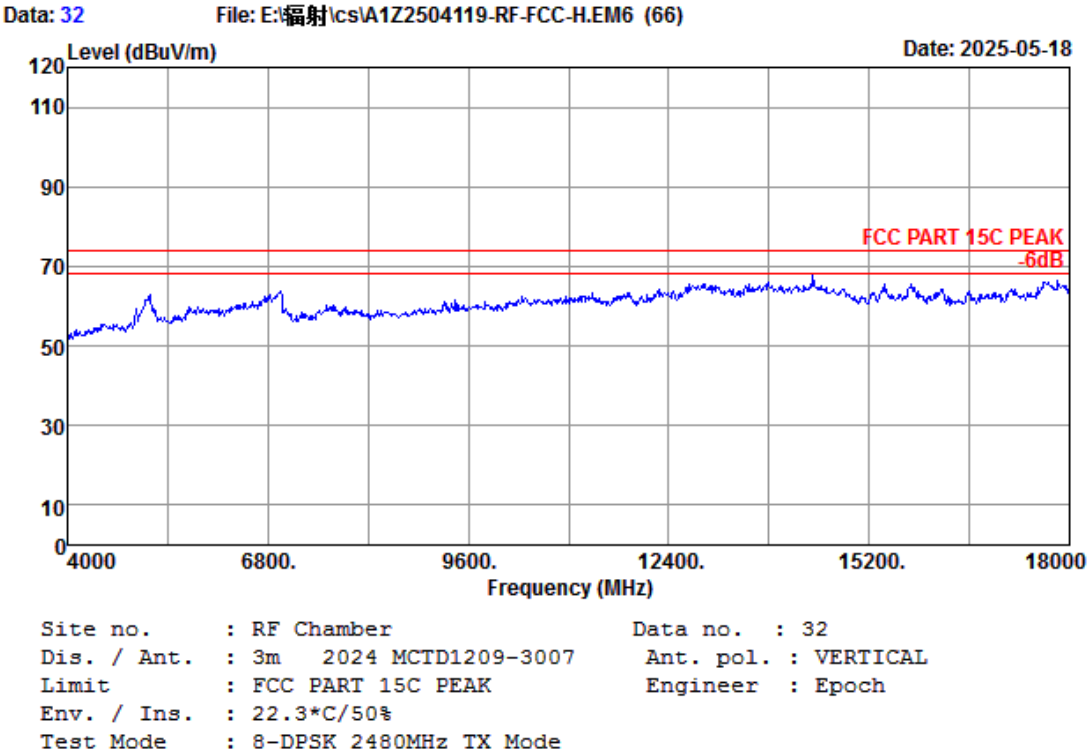
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp Factor  
 2. The emission levels that are 20dB below the official  
 limit are not reported.

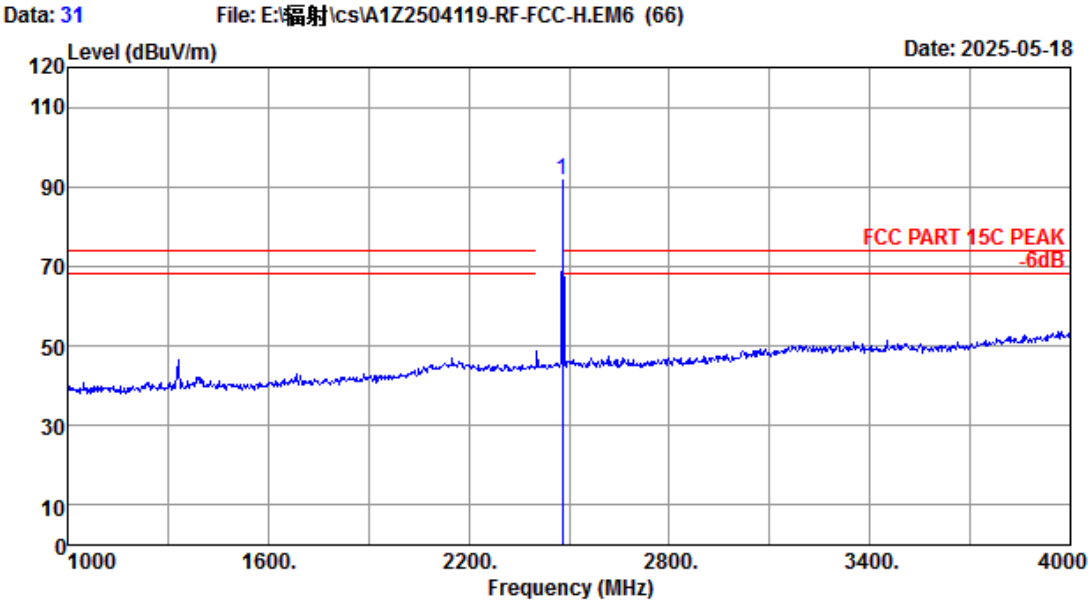


Site no. : RF Chamber Data no. : 33  
 Dis. / Ant. : 3m 2024 MCTD1209-3007 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK Engineer : Epoch  
 Env. / Ins. : 22.3°C/50%  
 Test Mode : 8-DPSK 2480MHz TX Mode

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | AMP<br>factor<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1   | 4960.000       | 33.60                    | 6.68                  | 48.20                 | 67.11             | 59.19                         | 74.00              | 14.81          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
 -Amp Factor  
 2. The emission levels that are 20dB below the official  
 limit are not reported.





|             |                          |           |            |
|-------------|--------------------------|-----------|------------|
| Site no.    | : RF Chamber             | Data no.  | : 31       |
| Dis. / Ant. | : 3m 2024 MCTD1209-3007  | Ant. pol. | : VERTICAL |
| Limit       | : FCC PART 15C PEAK      | Engineer  | : Epoch    |
| Env. / Ins. | : 22.3°C/50%             |           |            |
| Test Mode   | : 8-DPSK 2480MHz TX Mode |           |            |

| No. | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | AMP<br>factor<br>(dB) | Emission          |                   |                    |                |        |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|--------|
|     |                |                          |                       |                       | Reading<br>(dBuV) | Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
| 1   | 2480.000       | 27.84                    | 4.68                  | 49.57                 | 108.55            | 91.50             | -----              | -----          | Peak   |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading  
-Amp Factor  
2. The emission levels that are 20dB below the official  
limit are not reported.

## 5. CONDUCTED SPURIOUS EMISSIONS

### 5.1. Test Equipments

| Item | Equipment           | Manufacturer | Model No.         | Serial No.  | Last Cal. | Cal. Interval |
|------|---------------------|--------------|-------------------|-------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A            | MY51380221  | Mar.16,24 | 1 Year        |
| 2.   | NSA Cable           | HUBER+SUHNER | CFD400NL-LW       | No.3+190411 | Sep.20,23 | 1 Year        |
| 3.   | Attenuator(10dB)    | eastsheep    | 2W-SMA-JK-6G-10dB | No. 4       | Sep.19,23 | 1 Year        |

### 5.2.Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30dB instead of 20dB.

### 5.3.Test Procedure

Use the test method described in ANSI C63.10 clause 7.8.8:

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions With peak detector.

Note: The cable loss and attenuator loss were offset into spectrum analyzer as an amplitude offset.

### 5.4.Test result

**PASS** (The testing data was attached in the next pages.)

|                       |                         |                         |
|-----------------------|-------------------------|-------------------------|
| EUT: TrapMan          |                         |                         |
| M/N: TM8              |                         |                         |
| Test date: 2024-07-11 | Pressure: 102.5±1.0 kpa | Humidity: 53.6±3.0%     |
| Tested by: Lili       | Test site: RF site      | Temperature: 22.4±0.6°C |

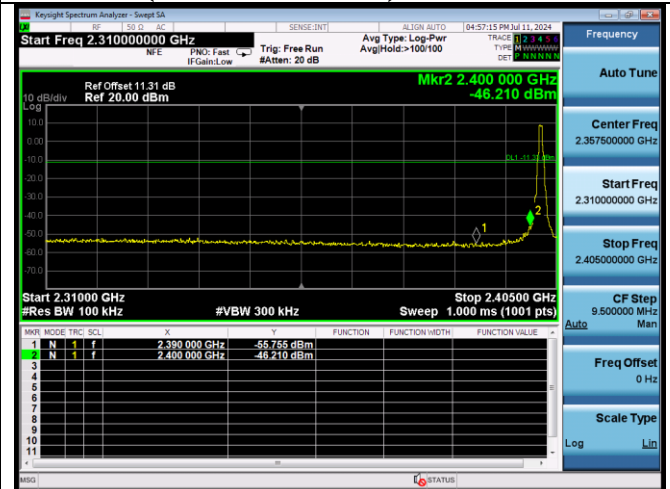
## Hopping off

### GFSK

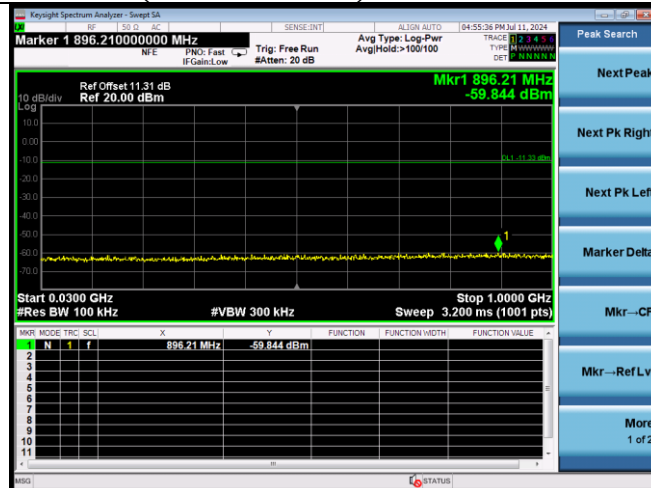
#### 2402MHz



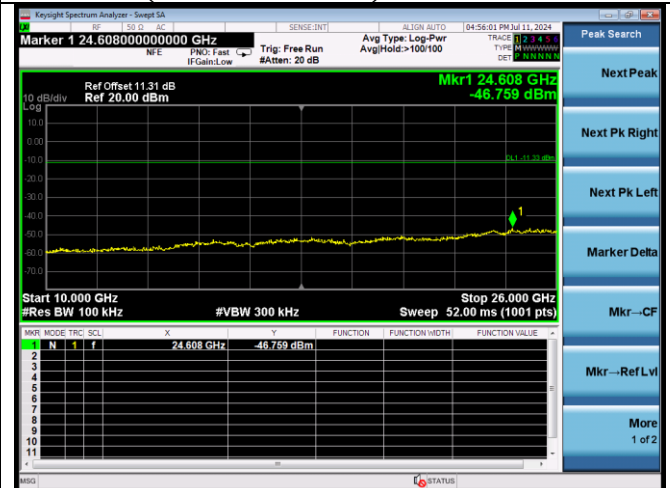
#### 2402MHz(2.3GHz – 2.4GHz)



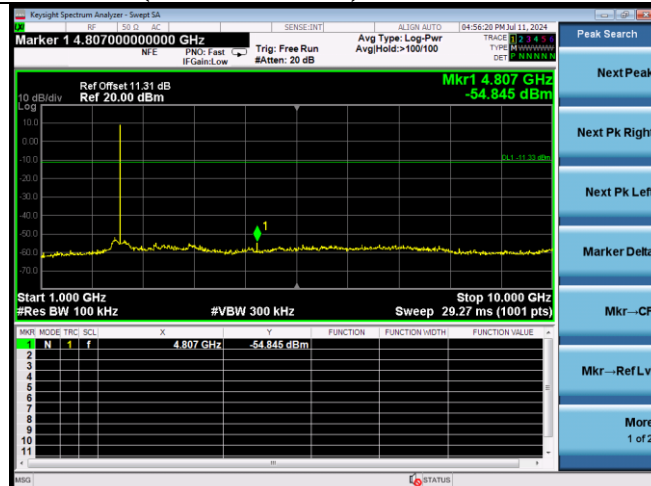
#### 2402MHz(30MHz – 1GHz)



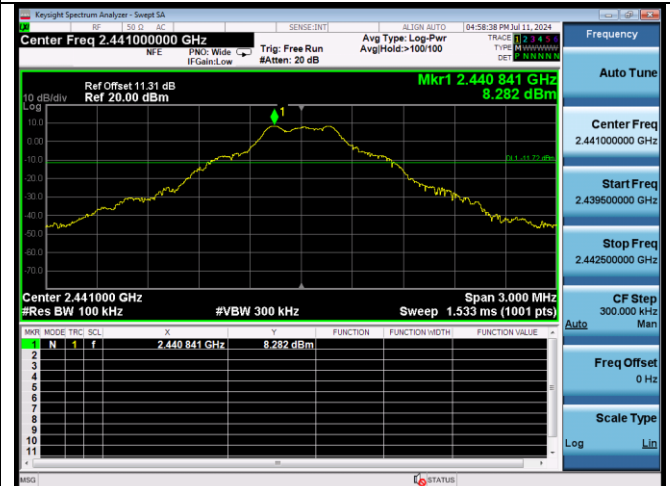
#### 2402MHz(10GHz – 26GHz)



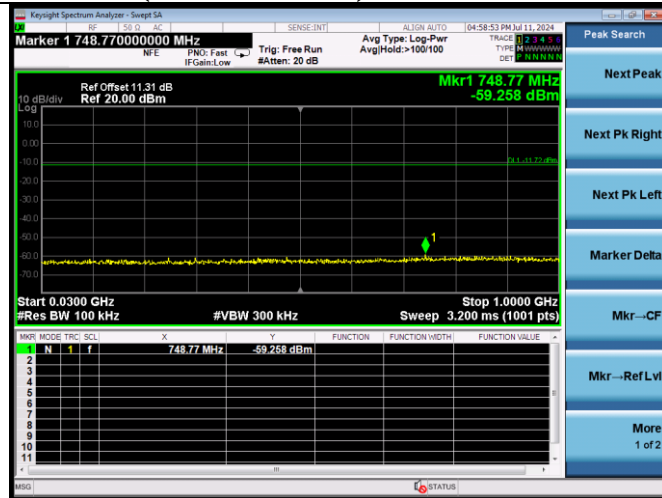
#### 2402MHz(1GHz – 10GHz)



#### 2441MHz



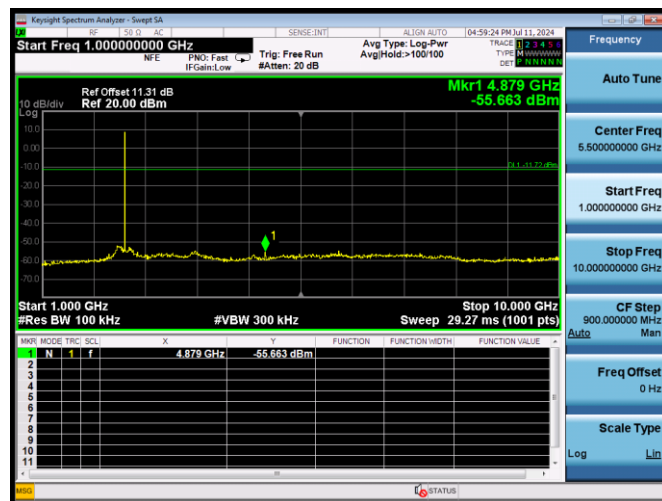
### 2441MHz(30MHz – 1GHz)



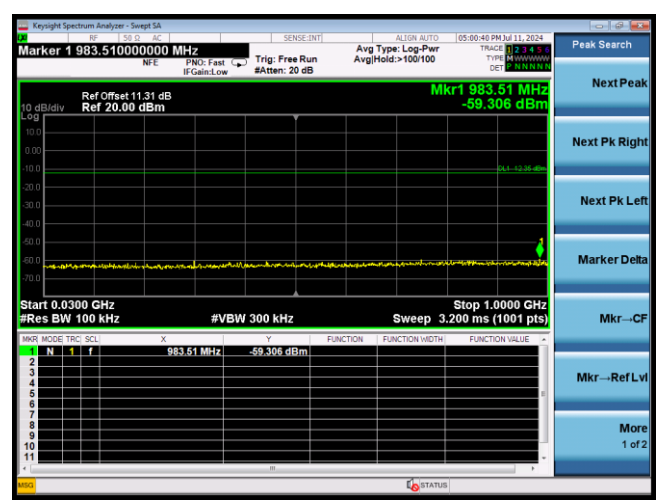
### 2480MHz



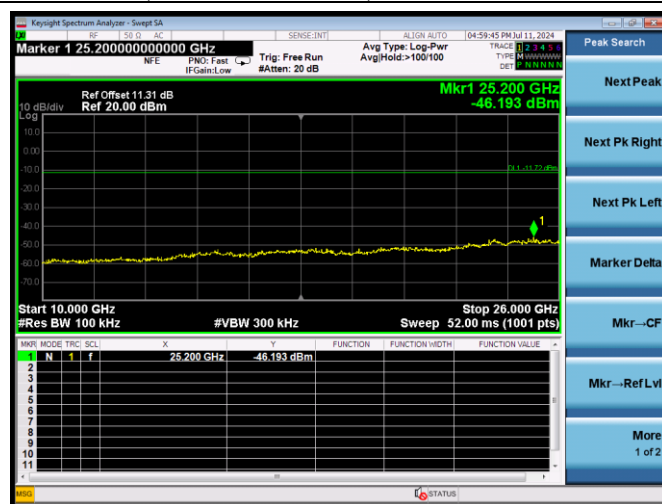
### 2441MHz(1GHz – 10GHz)



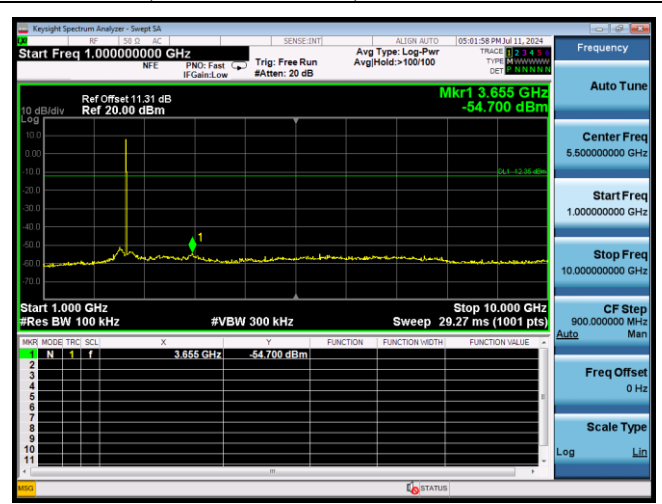
### 2480MHz(30MHz – 1GHz)



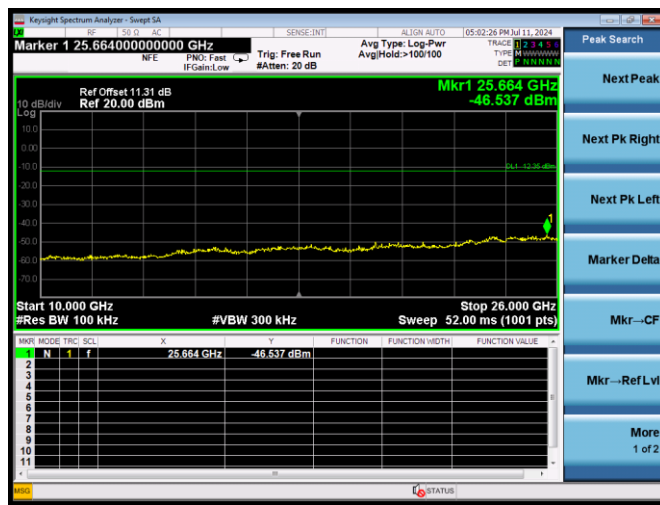
### 2441MHz(10GHz – 26GHz)



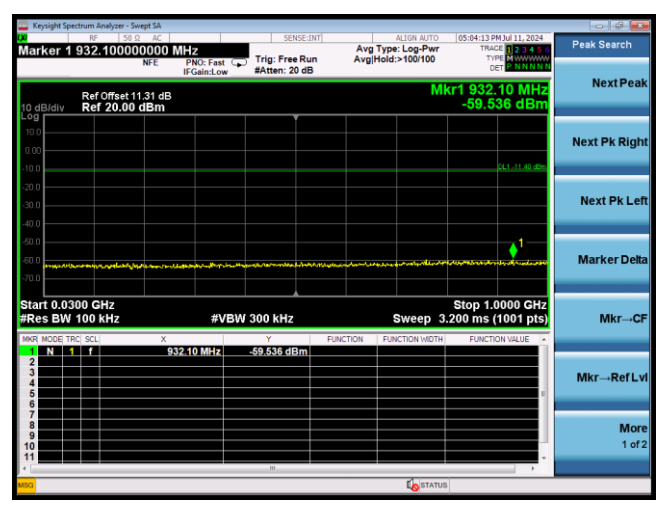
### 2480MHz(1GHz – 10GHz)



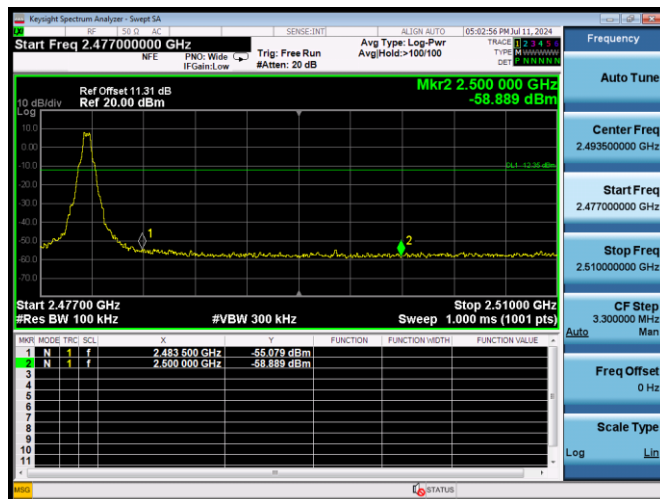
## 2480MHz(10GHz – 26GHz)



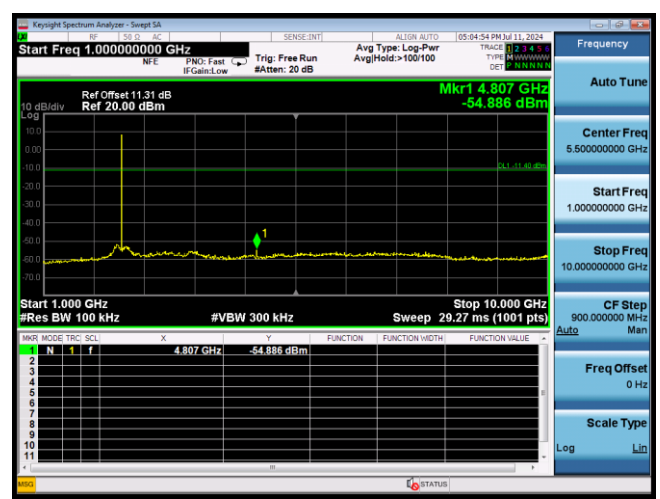
## 2402MHz(30MHz – 1GHz)



## 2480MHz(2.4GHz – 2.5GHz)

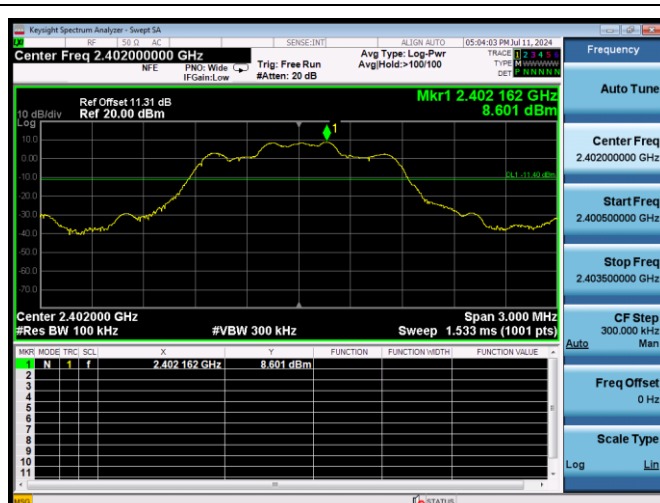


## 2402MHz(1GHz – 10GHz)

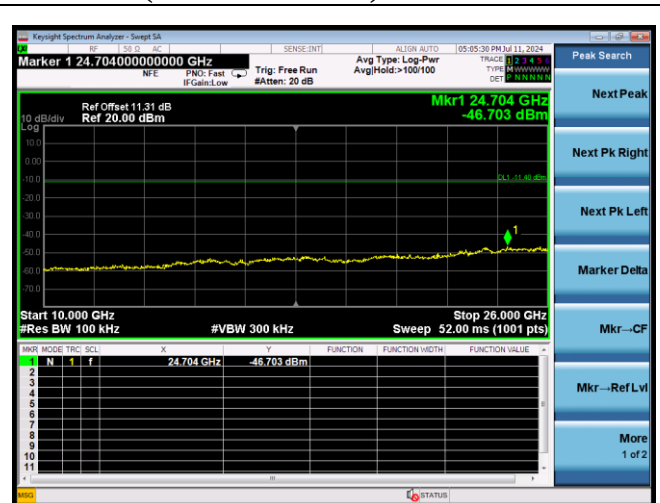


## 8-DPSK

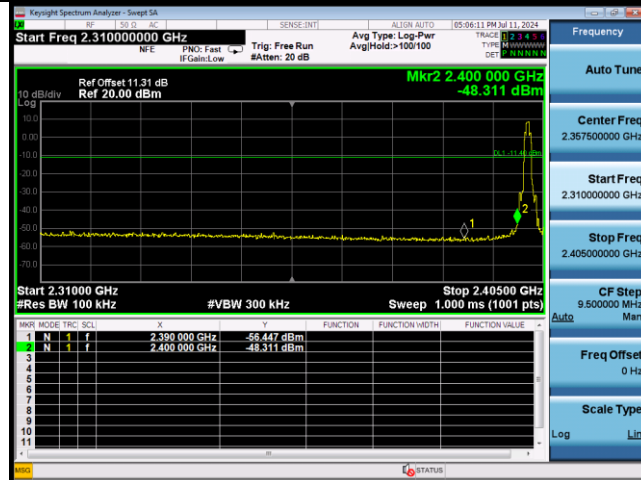
## 2402MHz



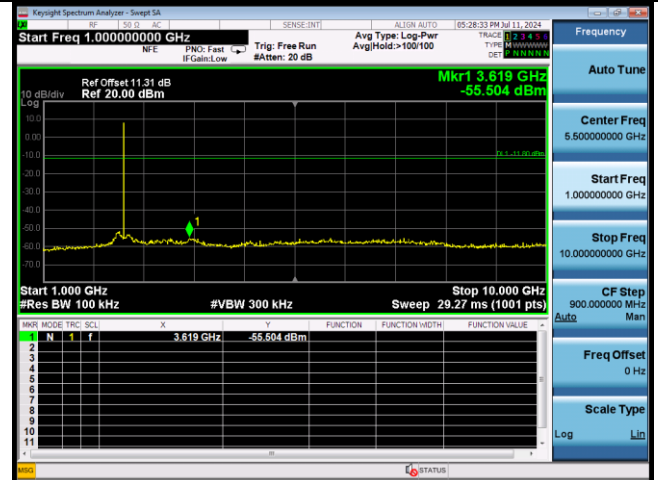
## 2402MHz(10GHz – 26GHz)



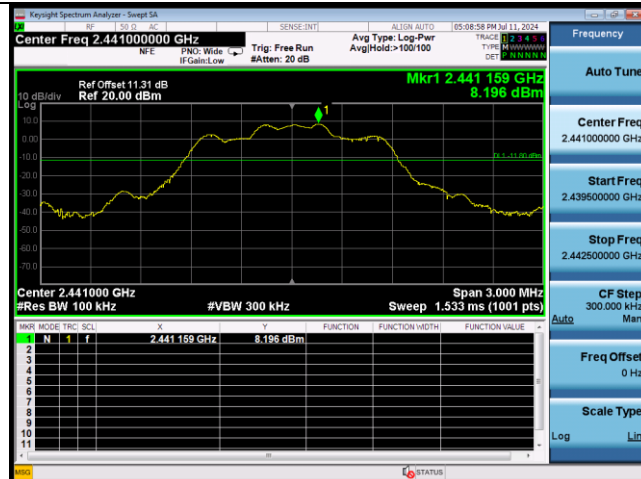
## 2402MHz(2.3GHz – 2.4GHz)



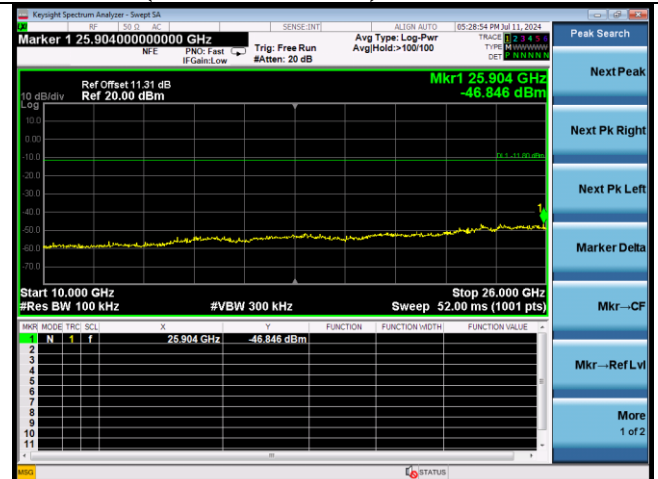
## 2441MHz(1GHz – 10GHz)



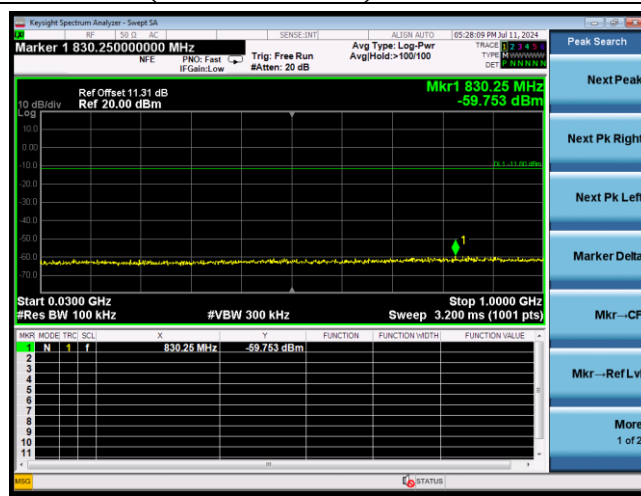
## 2441MHz



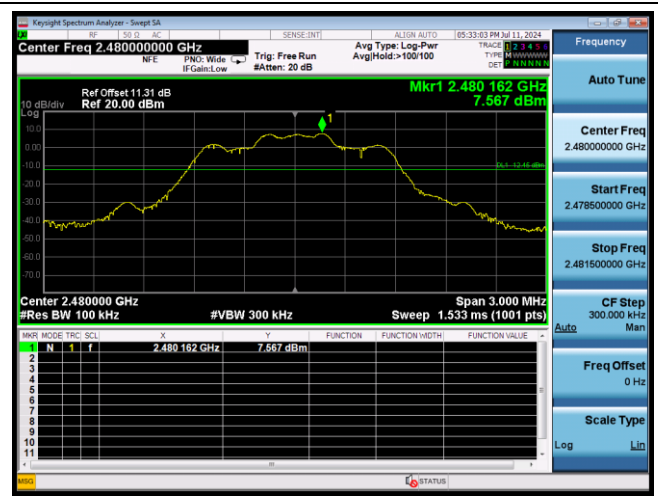
## 2441MHz(10GHz – 26GHz)



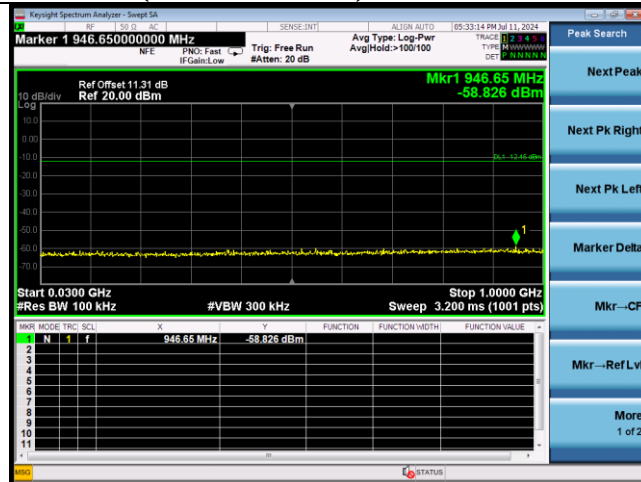
## 2441MHz (30MHz – 1GHz)



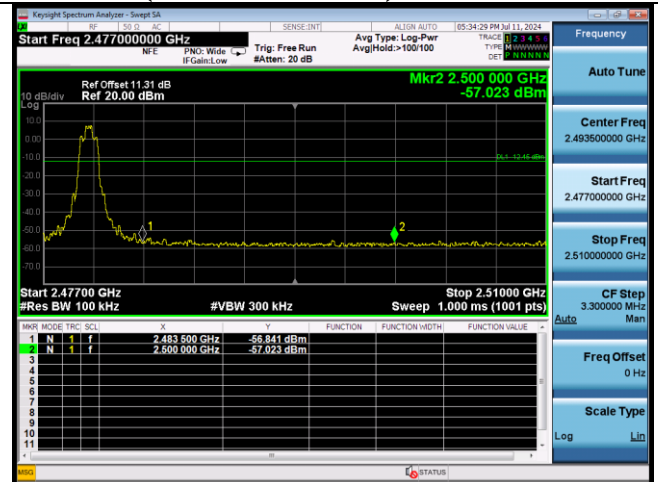
## 2480MHz



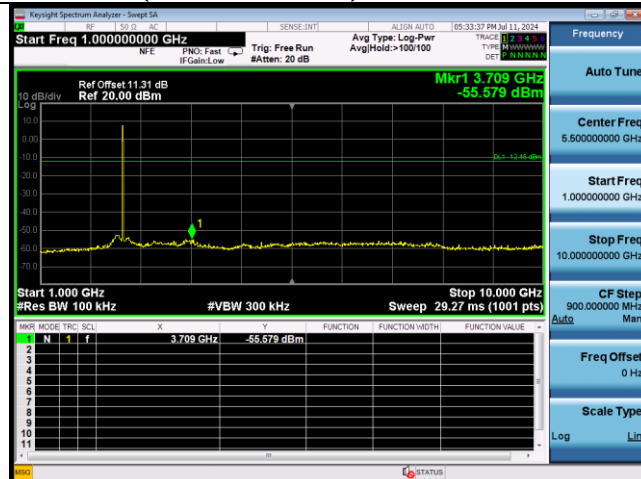
## 2480MHz(30MHz – 1GHz)



## 2480MHz(2.4GHz – 2.5GHz)

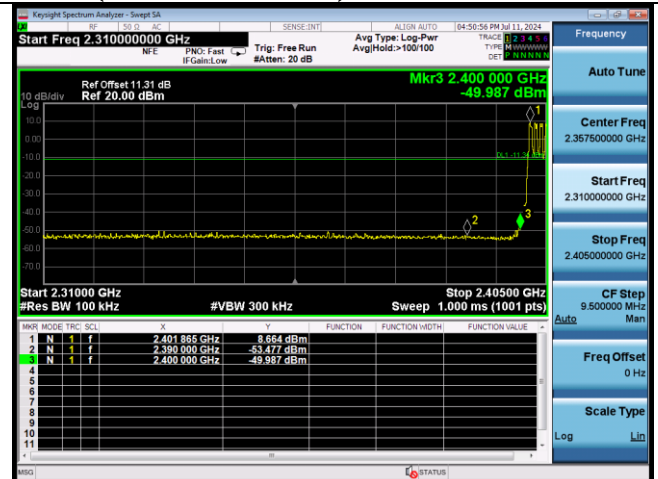


## 2480MHz(1GHz – 10GHz)

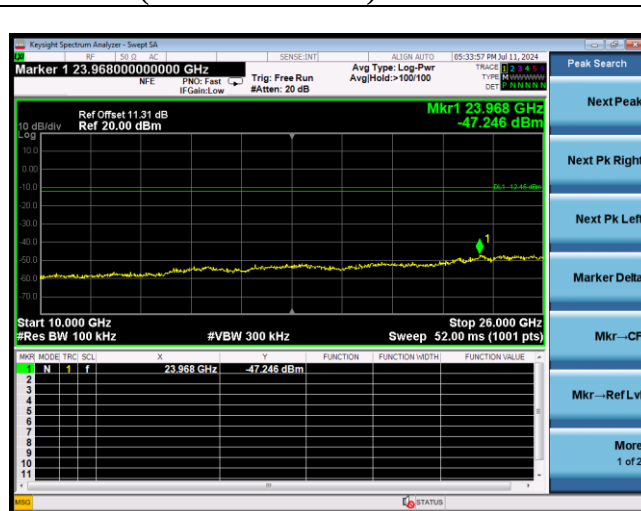


## Hopping on

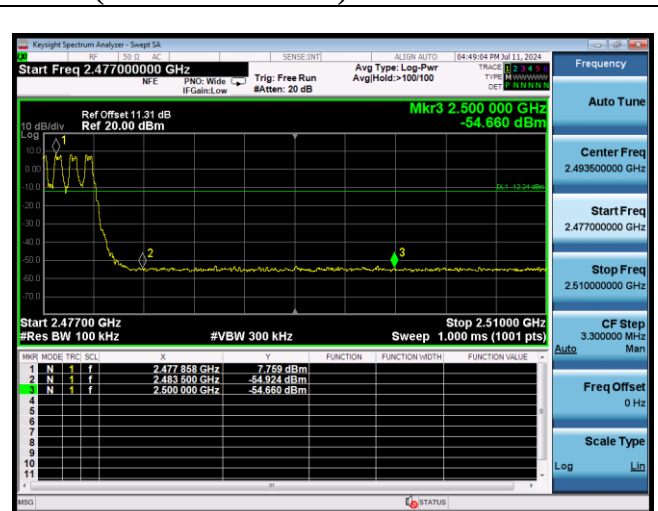
## GFSK(2.3GHz – 2.4GHz)



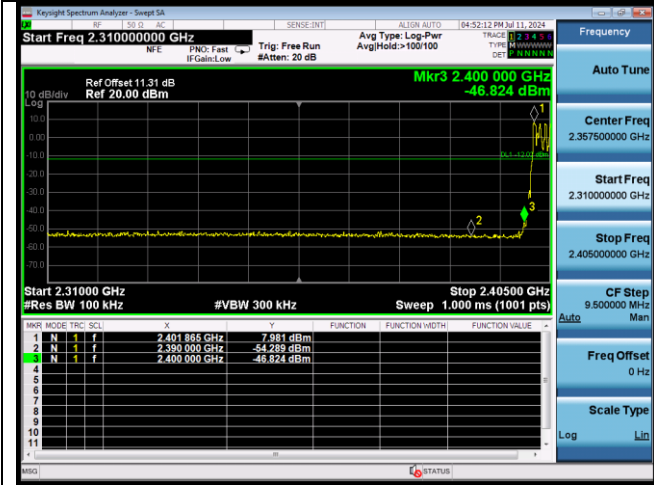
## 2480MHz(10GHz – 26GHz)



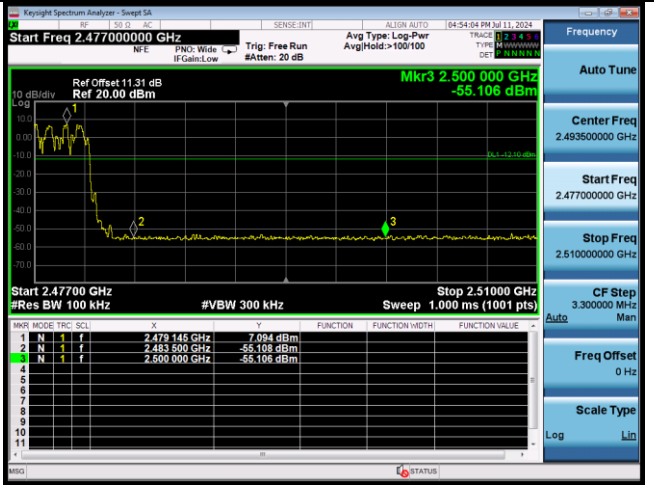
## GFSK(2.4GHz – 2.5GHz)



### 8-DPSK(2.3GHz – 2.4GHz)



### 8-DPSK(2.4GHz – 2.5GHz)



## **6. 20 DB & 99% BANDWIDTH TEST**

### **6.1.Test Equipments**

| Item | Equipment           | Manufacturer | Model No.             | Serial No.  | Last Cal. | Cal. Interval |
|------|---------------------|--------------|-----------------------|-------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A                | MY51380221  | Mar.16,24 | 1 Year        |
| 2.   | NSA Cable           | HUBER+SUHNER | CFD400NL<br>-LW       | No.3+190411 | Sep.20,23 | 1 Year        |
| 3.   | Attenuator(10dB)    | eastsheep    | 2W-SMA-J<br>K-6G-10dB | No. 4       | Sep.19,23 | 1 Year        |

### **6.2.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.

### **6.3.Test Procedure**

Use the test method described in ANSI C63.10 clause 7.8.7:

1. Connect the antenna port of the EUT to the spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel with test software.
3. Setting of SA is following as: RBW: 30kHz / VBW: 100kHz  
Sweep Mode: Continuous sweep  
Detect mode: Positive peak  
Trace mode: Max hold.
4. Use the occupied bandwidth function of the SA measure the 20dB bandwidth directly.

## 6.4.Test Results

|                       |                         |                         |
|-----------------------|-------------------------|-------------------------|
| EUT: TrapMan          |                         |                         |
| M/N: TM8              |                         |                         |
| Test date: 2024-07-11 | Pressure: 102.5±1.0 kpa | Humidity: 53.6±3.0%     |
| Tested by: Lili       | Test site: RF site      | Temperature: 22.4±0.6°C |

| Test Mode       | CH   | -20dB Bandwidth (KHz) | Limit (KHz) |
|-----------------|------|-----------------------|-------------|
| GFSK            | CH0  | 698.1                 | N/A         |
|                 | CH39 | 694.2                 |             |
|                 | CH78 | 696.6                 |             |
| 8-DPSK          | CH0  | 1160                  | N/A         |
|                 | CH39 | 1161                  |             |
|                 | CH78 | 1163                  |             |
| Conclusion:Pass |      |                       |             |

| Test Mode       | CH   | 99% Bandwidth (KHz) | Limit (KHz) |
|-----------------|------|---------------------|-------------|
| GFSK            | CH0  | 824.35              | N/A         |
|                 | CH39 | 824.72              |             |
|                 | CH78 | 821.82              |             |
| 8-DPSK          | CH0  | 1084.8              | N/A         |
|                 | CH39 | 1086.2              |             |
|                 | CH78 | 1087.6              |             |
| Conclusion:Pass |      |                     |             |

## GFSK

2402MHz



## 8-DPSK

2402MHz



2441MHz



2441MHz



2480MHz



2480MHz



## 7. CARRIER FREQUENCY SEPARATION TEST

### 7.1. Test Equipments

| Item | Equipment           | Manufacturer | Model No.   | Serial No.  | Last Cal. | Cal. Interval |
|------|---------------------|--------------|-------------|-------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A      | MY51380221  | Mar.16,24 | 1Year         |
| 2.   | NSA Cable           | HUBER+SUHNER | CFD400NL-LW | No.3+190411 | Sep.20,23 | 1 Year        |

### 7.2. Limit

Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB 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.

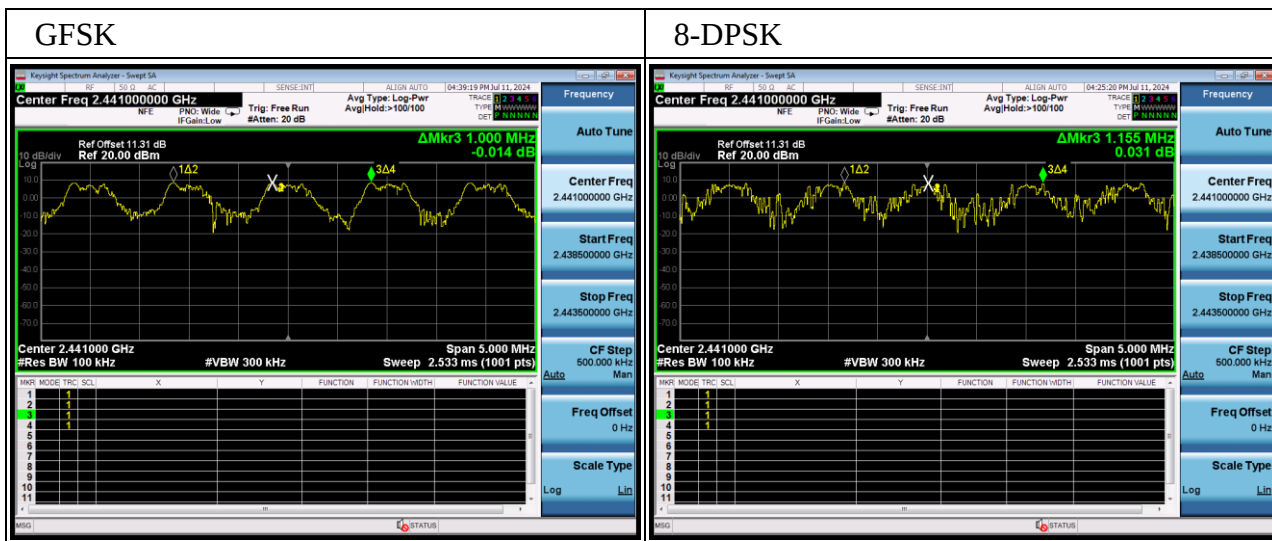
### 7.3. Test Procedure

Use the test method described in ANSI C63.10 clause 7.8.2:

1. Connect the antenna port of the EUT to the Spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel.
3. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz.Span: 5MHz
4. Use the mark Delta function of the SA measure out the channel separation.

## 7.4. Test Results.

|                       |                    |                         |                         |
|-----------------------|--------------------|-------------------------|-------------------------|
| EUT: TrapMan          |                    |                         |                         |
| M/N: TM8              |                    |                         |                         |
| Test date: 2024-07-11 |                    | Pressure: 102.5±1.0 kpa | Humidity: 53.6±3.0%     |
| Tested by: Lili       |                    | Test site: RF site      | Temperature: 22.4±0.6°C |
| Test Mode             | Channel separation | Limit(KHz)              | Conclusion              |
| GFSK                  | 1.0MHz             | 465.4                   | PASS                    |
| 8-DPSK                | 1.155MHz           | 775.3                   | PASS                    |



## **8. NUMBER OF HOPPING FREQUENCY TEST**

### **8.1. Test Equipments**

| Item | Equipment           | Manufacturer | Model No.         | Serial No.  | Last Cal. | Cal. Interval |
|------|---------------------|--------------|-------------------|-------------|-----------|---------------|
| 1.   | PXA Signal Analyzer | Agilent      | N9030A            | MY51380221  | Mar.16,24 | 1 Year        |
| 2.   | NSA Cable           | HUBER+SUHNER | CFD400NL-LW       | No.3+190411 | Sep.20,23 | 1 Year        |
| 3.   | Attenuator(10dB)    | eastsheep    | 2W-SMA-JK-6G-10dB | No. 4       | Sep.19,23 | 1 Year        |

### **8.2. Limit**

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

### **8.3. Test Procedure**

Use the test method described in ANSI C63.10 clause 7.8.3:

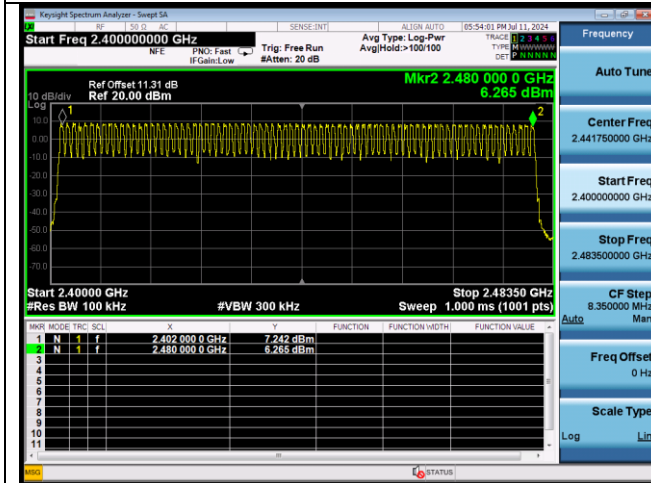
1. Connect the antenna of the EUT to Spectrum analyzer and let the EUT working at hopping mode.
2. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz,  
Start frequency: 2390MHz  
Stop frequency: 2483.5MHz  
And waiting for the hopping trace until stability, count out the number of the hopping.

## 8.4. Test Results

|                       |                         |                         |
|-----------------------|-------------------------|-------------------------|
| EUT: TrapMan          |                         |                         |
| M/N: TM8              |                         |                         |
| Test date: 2024-07-11 | Pressure: 102.5±1.0 kpa | Humidity: 53.6±3.0%     |
| Tested by: Lili       | Test site: RF site      | Temperature: 22.4±0.6°C |

| Test Mode | Number of channel | Limit | Conclusion |
|-----------|-------------------|-------|------------|
| GFSK      | 79                | ≥15   | PASS       |
| 8-DPSK    | 79                | ≥15   | PASS       |

### GFSK



### 8-DPSK

