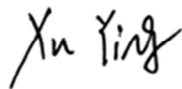


## RF TEST REPORT

**Applicant** Shanghai Sunmi Technology Co.,Ltd.  
**FCC ID** 2AH25T6F1P  
**Product** Smart POS System  
**Brand** SUNMI  
**Model** T6F1P  
**Report No.** EFTA26030124-IE-02-R3  
**Issue Date** May 9, 2026

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.



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*Approved by: Xu Kai*

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## Summary of Measurement Results

| Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Case                        | Clause in FCC rules        | Verdict |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------|---------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Peak Power Output                | 15.247(b)(1)               | PASS    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 99% Bandwidth and 20dB Bandwidth | 15.247(a)(1)<br>C63.10 6.9 | PASS    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Frequency Separation             | 15.247(a)(1)               | PASS    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Time of Occupancy (Dwell Time)   | 15.247(a)(1)(iii)          | PASS    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Band Edge Compliance             | 15.247(d)                  | PASS    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Number of Hopping Frequency      | 15.247(a)(1)(iii)          | PASS    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Spurious RF Conducted Emissions  | 15.247(d)                  | PASS    |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Unwanted Emissions               | 15.247(d),15.205,15.209    | PASS    |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Conducted Emissions              | 15.207                     | PASS    |
| Date of Testing: March 11, 2026 ~ March 18, 2026                                                                                                                                                                                                                                                                                                                                                                                                                           |                                  |                            |         |
| Date of Sample Received: March 11, 2026                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                  |                            |         |
| <p>Note: PASS: The EUT complies with the essential requirements in the standard.</p> <p>FAIL: The EUT does not comply with the essential requirements in the standard.</p> <p>All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.</p> |                                  |                            |         |

# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2. Test facility

### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

### **A2LA (Certificate Number: 3857.01)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3 Testing Location

|            |                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------|
| Company:   | Eurofins TA Technology (Shanghai) Co., Ltd.                                                                           |
| Address:   | Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China                                                            |
| City:      | Shanghai                                                                                                              |
| Post code: | 201201                                                                                                                |
| Country:   | P. R. China                                                                                                           |
| Contact:   | Xu Kai                                                                                                                |
| Telephone: | +86-021-50791141/2/3                                                                                                  |
| Fax:       | +86-021-50791141/2/3-8000                                                                                             |
| Website:   | <a href="https://www.eurofins.com/electrical-and-electronics">https://www.eurofins.com/electrical-and-electronics</a> |
| E-mail:    | Kain.Xu@cpt.eurofinscn.com                                                                                            |

## 2 General Description of Equipment under Test

### 2.1 Applicant and Manufacturer Information

|                             |                                                                  |
|-----------------------------|------------------------------------------------------------------|
| <b>Applicant</b>            | Shanghai Sunmi Technology Co.,Ltd.                               |
| <b>Applicant address</b>    | Room 505, No.388 Song Hu Road, Yang Pu District, Shanghai, China |
| <b>Manufacturer</b>         | Shanghai Sunmi Technology Co.,Ltd.                               |
| <b>Manufacturer address</b> | Room 505, No.388 Song Hu Road, Yang Pu District, Shanghai, China |

### 2.2 General information

| EUT Description                                                                                                         |                                                                                     |                         |       |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|-------|
| Model                                                                                                                   | T6F1P                                                                               |                         |       |
| SN                                                                                                                      | Conducted                                                                           | P34425CBJ2433           |       |
|                                                                                                                         | Radiated                                                                            | P34425CBJ1975           |       |
| Hardware Version                                                                                                        | V1.1.P                                                                              |                         |       |
| Software Version                                                                                                        | V4.0.1                                                                              |                         |       |
| Power Supply                                                                                                            | Battery / AC adapter                                                                |                         |       |
| Antenna Type                                                                                                            | PIFA Antenna                                                                        |                         |       |
| Antenna Connector                                                                                                       | A permanently attached antenna (meet with the standard FCC Part 15.203 requirement) |                         |       |
| Antenna Gain                                                                                                            | 2.21 dBi                                                                            |                         |       |
| Test Mode(s)                                                                                                            | Basic Rate                                                                          | Enhanced Data Rate(EDR) |       |
| Modulation Type                                                                                                         | Frequency Hopping Spread Spectrum (FHSS)                                            |                         |       |
|                                                                                                                         | GFSK                                                                                | π/4 DQPSK               | 8DPSK |
| Packet Type<br>(Maximum Payload)                                                                                        | DH5                                                                                 | 2DH5                    | 3DH5  |
| Max. Output Power                                                                                                       | 9.92 dBm                                                                            | 0.010 W                 |       |
| Operating Frequency Range(s)                                                                                            | 2402-2480 MHz                                                                       |                         |       |
| Operating voltage range                                                                                                 | 6.0 Vdc to 8.8 Vdc                                                                  |                         |       |
| State voltage                                                                                                           | 7.7 Vdc                                                                             |                         |       |
| EUT Accessory                                                                                                           |                                                                                     |                         |       |
| Adapter                                                                                                                 | Manufacturer: Shenzhen Tianyin Electronics Co.. Ltd<br>Model: TPA-141A050200UU01    |                         |       |
| Battery                                                                                                                 | Manufacturer: Guangdong Fenghua New Energy Co., Ltd.<br>Model: FHPO                 |                         |       |
| Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. |                                                                                     |                         |       |

### 3 Applied Standards

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

**Test standards:**

**FCC CFR47 Part 15C Radio Frequency Devices**

**ANSI C63.10-2020+Cor.1-2023**

**Reference standard:**

**KDB 558074 D01 15.247 Meas Guidance v05r02**

## 4 Information about the FHSS characteristics

### 4.1 Frequency Hopping System Requirement

Standard requirement:

- (g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.
- (h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

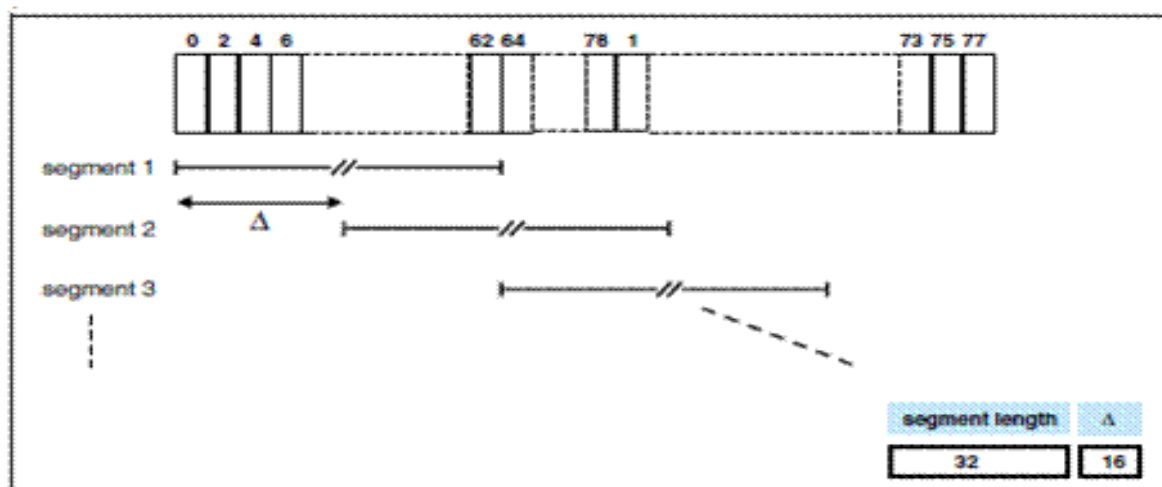
## 4.2 Pseudorandom Frequency Hopping Sequence

The Basic Rate / Enhanced Data Rate (BR/EDR) radio (physical layer or PHY) operates in the unlicensed ISM band at 2.4 GHz. The system employs a frequency hopping transceiver to combat interference and fading and provides many FHSS carriers. Basic Rate radio operation uses a shaped, binary frequency modulation to minimize transceiver complexity. The symbol rate is 1 megasymbol per second (Msym/s) supporting the bit rate of 1 megabit per second (Mb/s) or, with Enhanced Data Rate, a gross air bit rate of 2 Mb/s or 3 Mb/s. These modes are known as Basic Rate and Enhanced Data Rate respectively

Devices in a piconet use a specific frequency hopping pattern, which is algorithmically determined by certain fields in the Bluetooth address and clock of the Central. The basic hopping pattern is a pseudo-random ordering of the 79 frequencies, separated by 1 MHz, in the ISM band. The hopping pattern can be adapted – on a per-Peripheral basis – to exclude a portion of the frequencies that are used by interfering devices

Adaptive Frequency Hopping (AFH) allows Bluetooth devices to improve their immunity to interference from and avoid causing interference to other devices in the 2.4 GHz ISM band. The basic principle is that Bluetooth channels are classified into two categories, used and unused, where used channels are part of the hopping sequence and unused channels are replaced in the hopping sequence by used channels in a pseudo-random way. This classification mechanism allows for the Bluetooth device to use either all or fewer than the channels available. The minimum number of channels allowed by the Bluetooth specification is 20 on BR/EDR and 2 on LE.

The selection scheme chooses a segment of 32 hop frequencies spanning about 64 MHz and visits these hops in a pseudo-random order. Next, a different 32-hop segment is chosen, etc. In the page, Central page response, Peripheral page response, page scan, inquiry, inquiry response and inquiry scan hopping sequences, the same 32-hop segment is used all the time (the segment is selected by the address; different devices will have different paging segments). When the basic channel hopping sequence is selected, the output constitutes a pseudo-random sequence that slides through the 79 hops.



Hop selection scheme in Connection state.

### **4.3 Equal Hopping Frequency Use**

All Bluetooth units participating in the Pico net are time and hop-synchronized to the channel. Each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event.

### **4.4 System Receiver Input Bandwidth**

Each channel bandwidth is 1MHz. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

## 4.5 Test Configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

| Test Cases                      | Test Modes    |
|---------------------------------|---------------|
| Peak Power Output -Conducted    | DH5/2DH5/3DH5 |
| Occupied Bandwidth (20dB)       | DH5/2DH5/3DH5 |
| Frequency Separation            | DH5/2DH5/3DH5 |
| Time of Occupancy (Dwell Time)  | DH5/2DH5/3DH5 |
| Band Edge Compliance            | DH5/2DH5/3DH5 |
| Number of Hopping Frequency     | DH5/2DH5/3DH5 |
| Spurious RF Conducted Emissions | DH5/2DH5/3DH5 |
| Unwanted Emission               | DH5/2DH5/3DH5 |
| Conducted Emission              | DH5/2DH5/3DH5 |

## 5 Test Case

### 5.1 Peak Power Output

#### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

#### Methods of Measurement

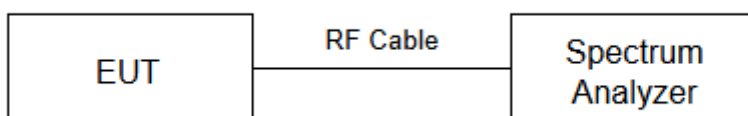
During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. The EUT is set to ensure maximum power transmission at the appropriate modulation.

Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel

RBW > 20 dB bandwidth of the emission being measured; VBW ≥ RBW; Sweep: auto time

The peak detector is used.;

#### Test Setup



#### Limits

Rule Part 15.247 (b) (1) specifies that " 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."

|                   |                  |
|-------------------|------------------|
| Peak Output Power | ≤ 125 mW (21dBm) |
|-------------------|------------------|

#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.44$  dB.

## 5.2 99% Bandwidth and 20dB Bandwidth

### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

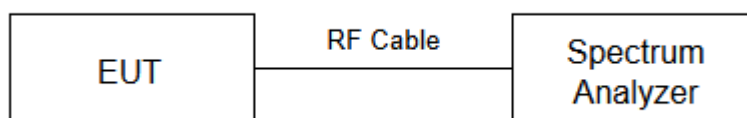
### Method of Measurement

During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. The occupied bandwidth is measured using spectrum analyzer.

The RBW is set to 1% to 5% of the OBW, the VBW is set to 3 times the RBW;

Sweep = auto; Detector function = peak; Trace = max hold.

### Test Setup



### Limits

No specific occupied bandwidth requirements in part 15.247(a) (1).

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U=936$  Hz.

### 5.3 Frequency Separation

#### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

#### Method of Measurement

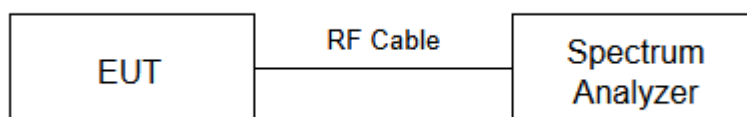
During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set EUT on Hopping on mode.

Span: Wide enough to ctwo adjacent channels.

RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary tobest identify the center of each individual channel.(RBW is set to 30 kHz)

VBW>RBW; Sweep: No faster than coupled (auto) time; Detector function: Peak; Trace: Max-hold

#### Test setup



#### Limits

Rule Part 15.247(a)(1)specifies that “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. ”

Note: The value of two-thirds of 20 dB bandwidth is always greater than 25 kHz.

#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U=936$  Hz.

## 5.4 Time of Occupancy (Dwell Time)

### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Methods of Measurement

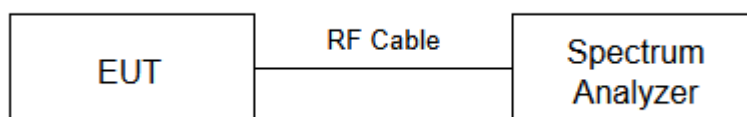
During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.. RBW is set to 1MHz and VBW is set to 1MHz on spectrum analyzer. The dwell time is calculated by:

Dwell time = Pulse Time \* Number of Pulses during the period ( $T=0.4.N_{ch}$ )

In normal mode, The selected EUT Packet type uses a slot type of DH5 packet and a hopping rate of 1600(ch\*hop/s) for all channels. So the final hopping rate for all channel is 1600/5=320(ch\*hop/s)

In AFH mode, The selected EUT Packet type uses a slot type of DH5 packet and a hopping rate of 800(ch\*hop/s) for all channels. So the final hopping rate for all channel is 800/5=160(ch\*hop/s)

### Test Setup



### Limits

Rule Part15.247(a) specifies that " Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed."

|            |                     |
|------------|---------------------|
| Dwell time | $\leq 400\text{ms}$ |
|------------|---------------------|

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .

| Requirements | Uncertainty |                   |      |                   |      |                   |
|--------------|-------------|-------------------|------|-------------------|------|-------------------|
| Dwell Time   | DH5         | $U=0.70\text{ms}$ | 2DH5 | $U=0.70\text{ms}$ | 3DH5 | $U=0.70\text{ms}$ |

## 5.5 Band Edge Compliance

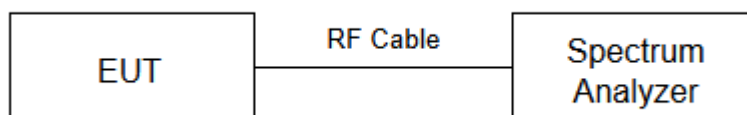
### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Method of Measurement

During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. The lowest and highest channels were measured. The peak detector is used. RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer. EUT test for Hopping On mode and Hopping Off mode.

### Test Setup



### Limits

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.”

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency | Uncertainty |
|-----------|-------------|
| 2GHz-3GHz | 1.407 dB    |

## 5.6 Number of hopping Frequency

### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Method of Measurement

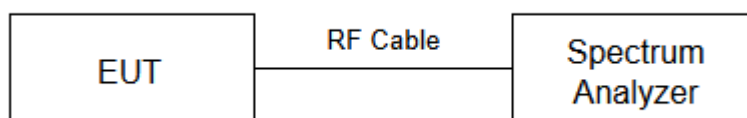
During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set EUT on Hopping on mode.

Span: The frequency band of operation. RBW is set to 100kHz and VBW>RBW. Sweep: auto time.

Detector function: Peak; Trace: Max-hold

### Test setup



### Limits

Rule Part 15.247(a) (1) (iii) specifies that" Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels."

| Limits | ≥ 15 channels |
|--------|---------------|
|--------|---------------|

## 5.7 Spurious RF Conducted Emissions

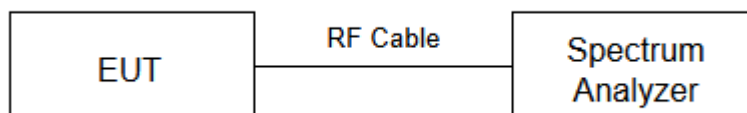
### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Method of Measurement

During the process of the testing, The EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW 100kHz and VBW 300 kHz, Sweep is set to AUTO.

### Test setup



### Limits

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.”

| Test Mode | Carrier frequency (MHz) | Reference value (dBm) | Limit  |
|-----------|-------------------------|-----------------------|--------|
| DH5       | 2402                    | 7.47                  | -12.53 |
|           | 2441                    | 5.97                  | -14.03 |
|           | 2480                    | 9.44                  | -10.56 |
| 2DH5      | 2402                    | 6.22                  | -13.78 |
|           | 2441                    | 5.00                  | -15.00 |
|           | 2480                    | 8.79                  | -11.21 |
| 3DH5      | 2402                    | 6.29                  | -13.71 |
|           | 2441                    | 5.28                  | -14.72 |
|           | 2480                    | 8.91                  | -11.09 |

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency   | Uncertainty |
|-------------|-------------|
| 100kHz-2GHz | 0.684 dB    |
| 2GHz-26GHz  | 1.407 dB    |

## 5.8 Unwanted Emission

### Ambient condition

| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m/10m below 1GHz, 3m above 1GHz between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

9kHz~150 kHz

RBW=200Hz, VBW=1kHz/ Sweep=AUTO

150 kHz~30MHz

RBW=9kHz, VBW=30kHz,/ Sweep=AUTO

Below 1GHz

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

detector; The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from  $20\log(\text{dwell time}/100 \text{ ms})$ , in an effort to demonstrate compliance with the 15.209 limit.

If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak- average correction factor, derived from the appropriate duty cycle calculation.

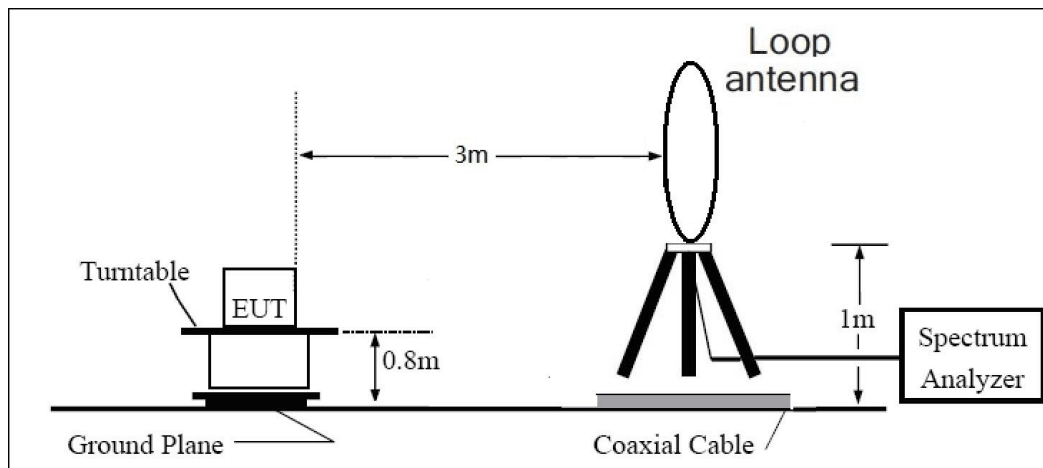
This setting method can refer to **KDB 558074 D01**.

This mode was measured in the following mode: EUT with cradle and EUT without cradle. The worst emission was found in EUT with cradle mode and the worst case was recorded.

The test is in transmitting mode.

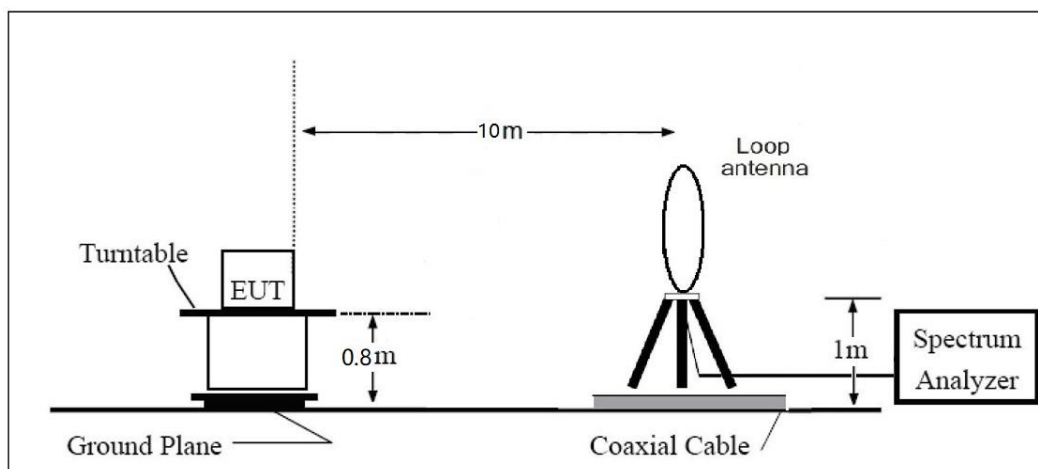
### Test setup

9kHz~ 30MHz



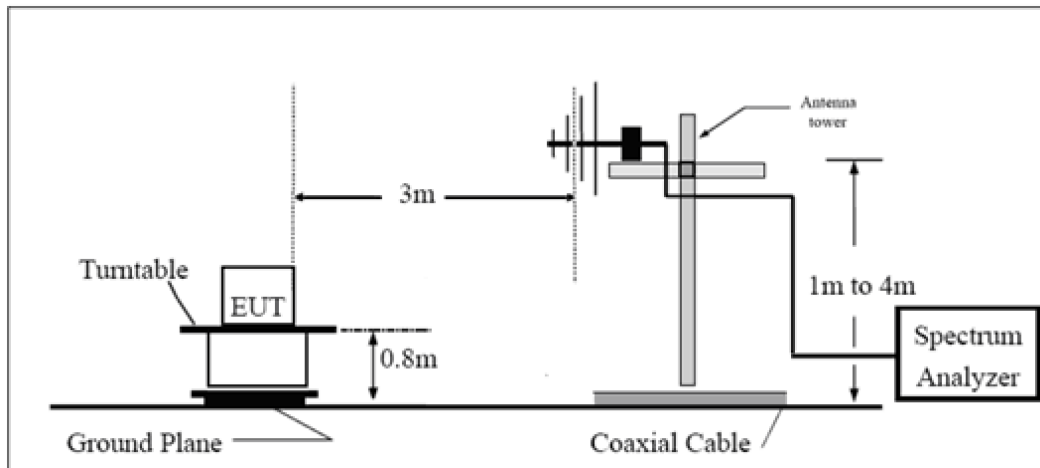
Note: Area side: 2.4mX3.6m

### Distance 10m



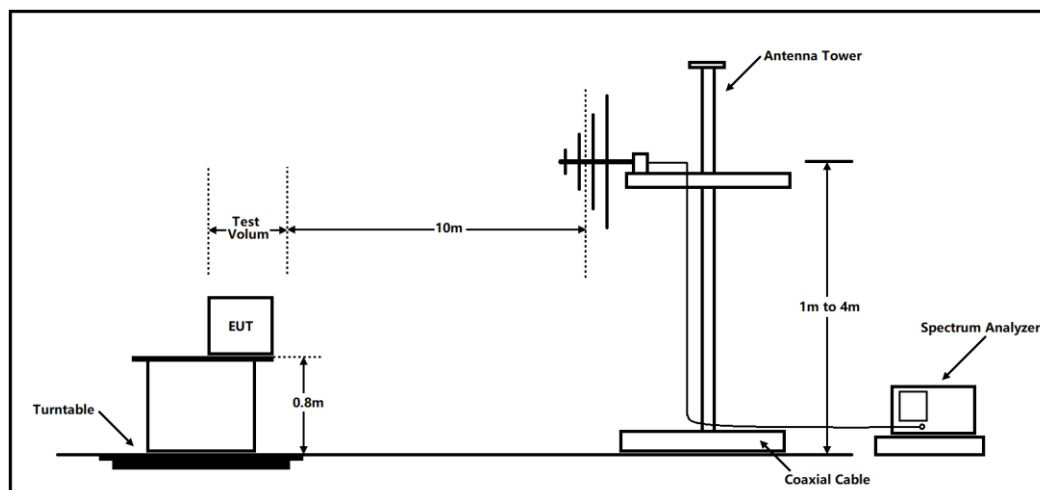
Note: Area side: 21m x 12m

30MHz~ 1GHz



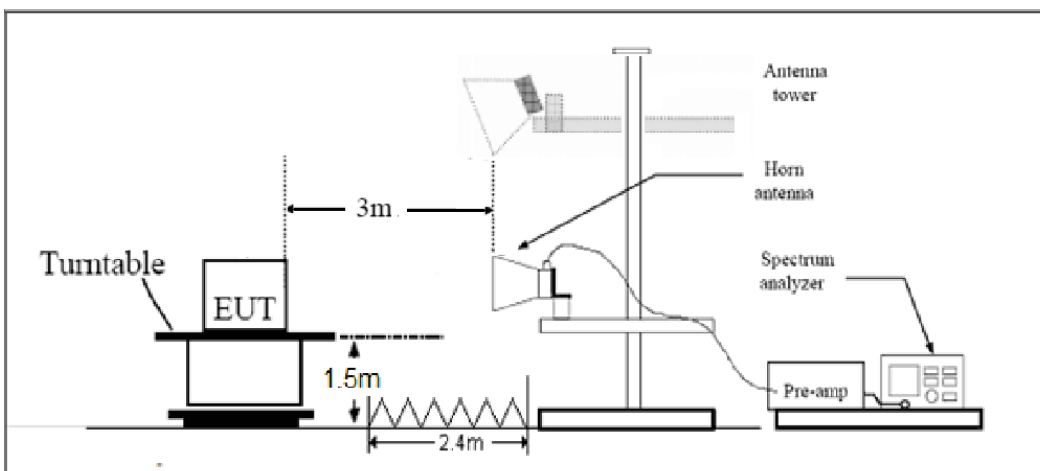
Note: Area side:2.4mX3.6m

Distance 10m



Note: Area side: 21m x 12m

Above 1GHz



Note: Area side:2.4mX3.6m

## Limits

Rule Part 15.247(d) specifies that “In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).”

Limit in restricted band

| Frequency of emission (MHz) | Field strength( $\mu$ V/m) | Field strength(dB $\mu$ V/m) |
|-----------------------------|----------------------------|------------------------------|
| 0.009–0.490                 | 2400/F(kHz)                | /                            |
| 0.490–1.705                 | 24000/F(kHz)               | /                            |
| 1.705–30.0                  | 30                         | /                            |
| 30-88                       | 100                        | 40                           |
| 88-216                      | 150                        | 43.5                         |
| 216-960                     | 200                        | 46                           |
| Above960                    | 500                        | 54                           |

## §15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74dB $\mu$ V/m

Average Limit=54dB $\mu$ V/m

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

| 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> ) |
| 13.36-13.41              |                     |               |                  |

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency      | Uncertainty for 3m  |
|----------------|---------------------|
| 9kHz-30MHz     | 3.55 dB             |
| 30MHz-200MHz   | 4.17 dB             |
| 200MHz-1GHz    | 4.84 dB             |
| 1-18GHz        | 4.35 dB             |
| 18-26.5GHz     | 5.90 dB             |
| 26.5GHz~40GHz  | 5.92 dB             |
| Frequency      | Uncertainty for 10m |
| 30MHz – 200MHz | 3.39 dB             |
| 200MHz – 1GHz  | 3.82 dB             |
| 1GHz – 18GHz   | 6.51 dB             |
| 18GHz – 40GHz  | 6.31 dB             |

## 5.9 Conducted Emission

### Ambient condition

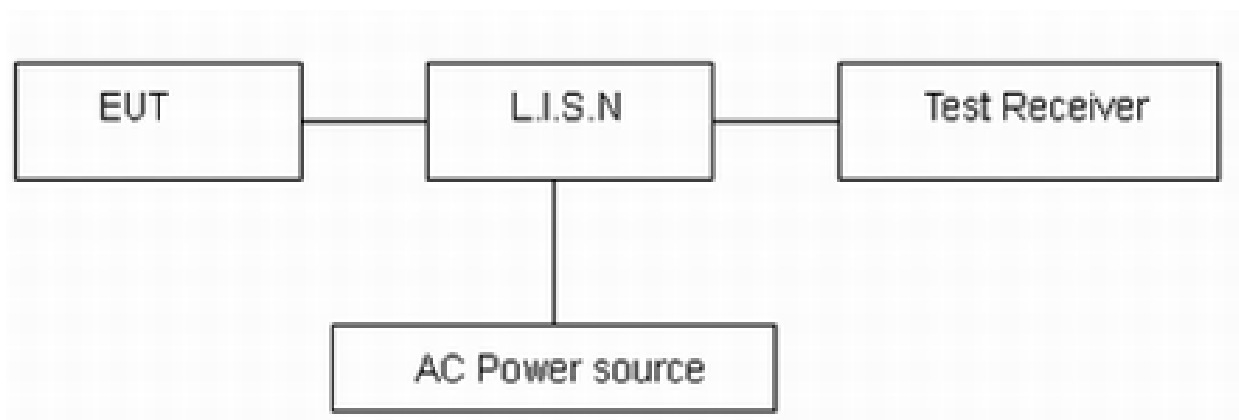
| Temperature | Relative humidity | Pressure  |
|-------------|-------------------|-----------|
| 25°C        | 57%               | 101.3 kPa |

### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

The test is in transmitting mode.

### Test Setup



Note: AC Power source is used to 120V/60Hz.

### Limits

| Frequency<br>(MHz)                                | Conducted Limits(dBμV) |           |
|---------------------------------------------------|------------------------|-----------|
|                                                   | Quasi-peak             | Average   |
| 0.15 - 0.5                                        | 66 to 56 *             | 56 to 46* |
| 0.5 - 5                                           | 56                     | 46        |
| 5 - 30                                            | 60                     | 50        |
| *: Decreases with the logarithm of the frequency. |                        |           |

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ ,  $U=2.69$  dB.

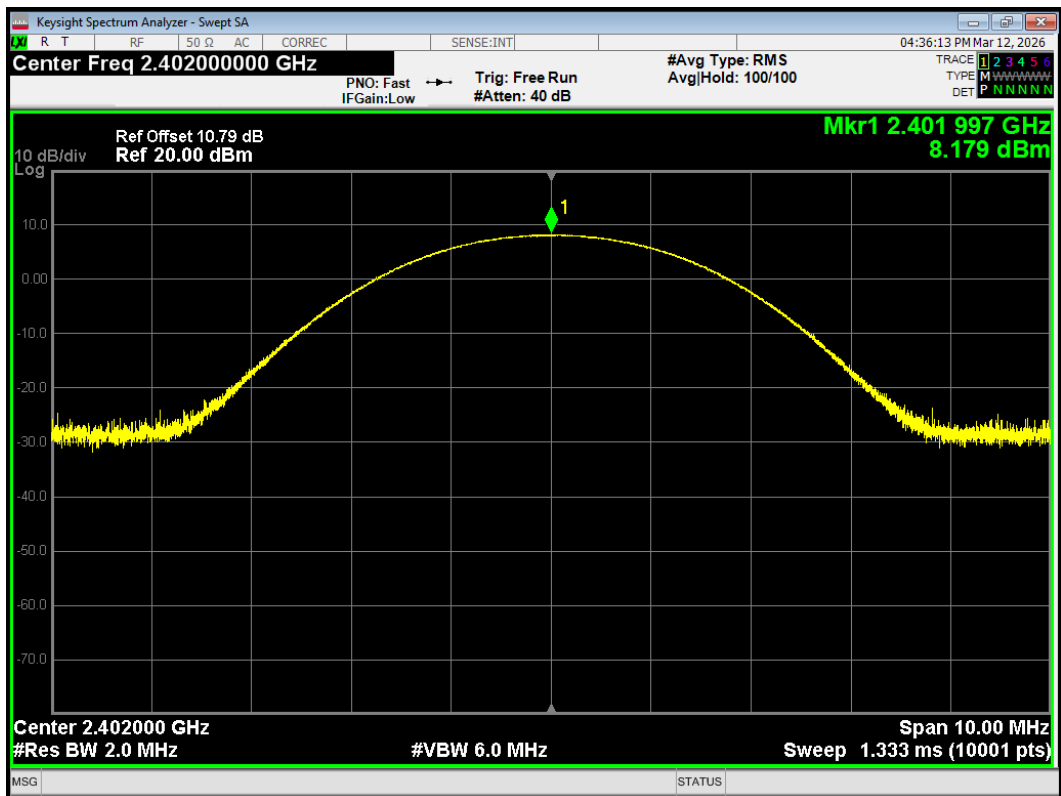
## 6 Test Results

### 6.1 Peak Power Output

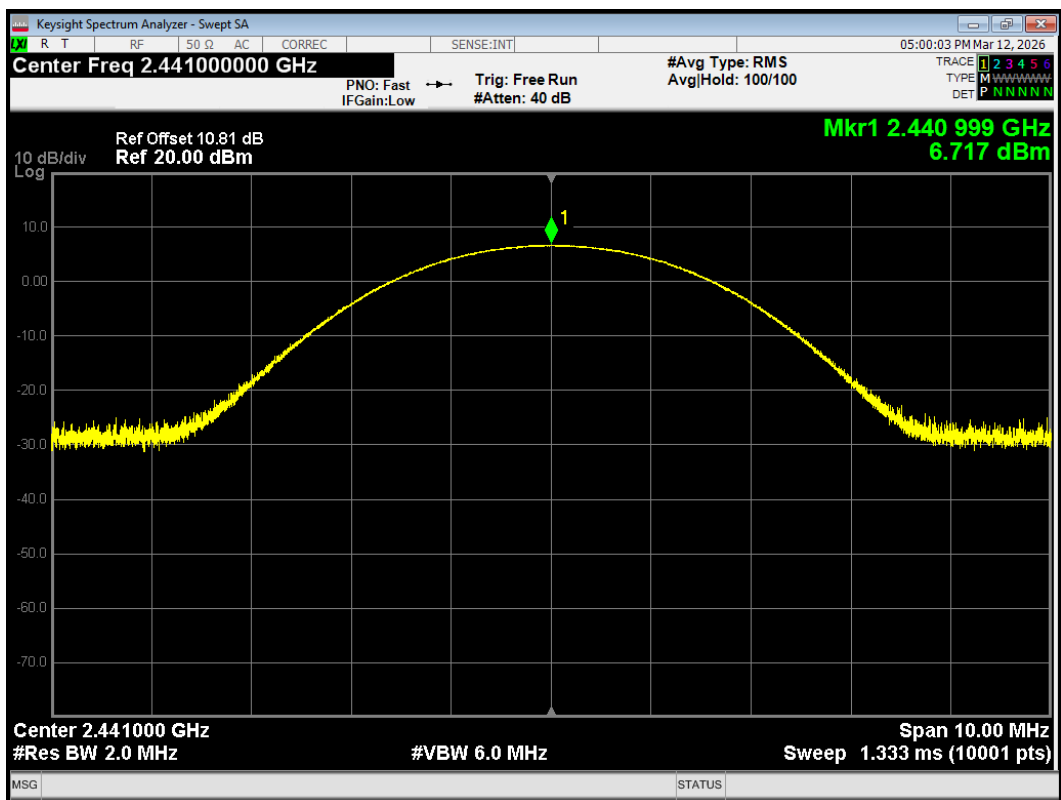
| Power Index |           |
|-------------|-----------|
| Channel     | Bluetooth |
| CH0         | default   |
| CH39        | default   |
| CH78        | default   |

| Channel | Frequency (MHz) | Peak Output Power (dBm) |      |      | Limit (dBm) | Conclusion |
|---------|-----------------|-------------------------|------|------|-------------|------------|
|         |                 | DH5                     | 2DH5 | 3DH5 |             |            |
| 0       | 2402            | 8.18                    | 7.33 | 7.29 | 21          | PASS       |
| 39      | 2441            | 6.72                    | 6.12 | 6.32 | 21          | PASS       |
| 78      | 2480            | 9.92                    | 9.38 | 9.27 | 21          | PASS       |

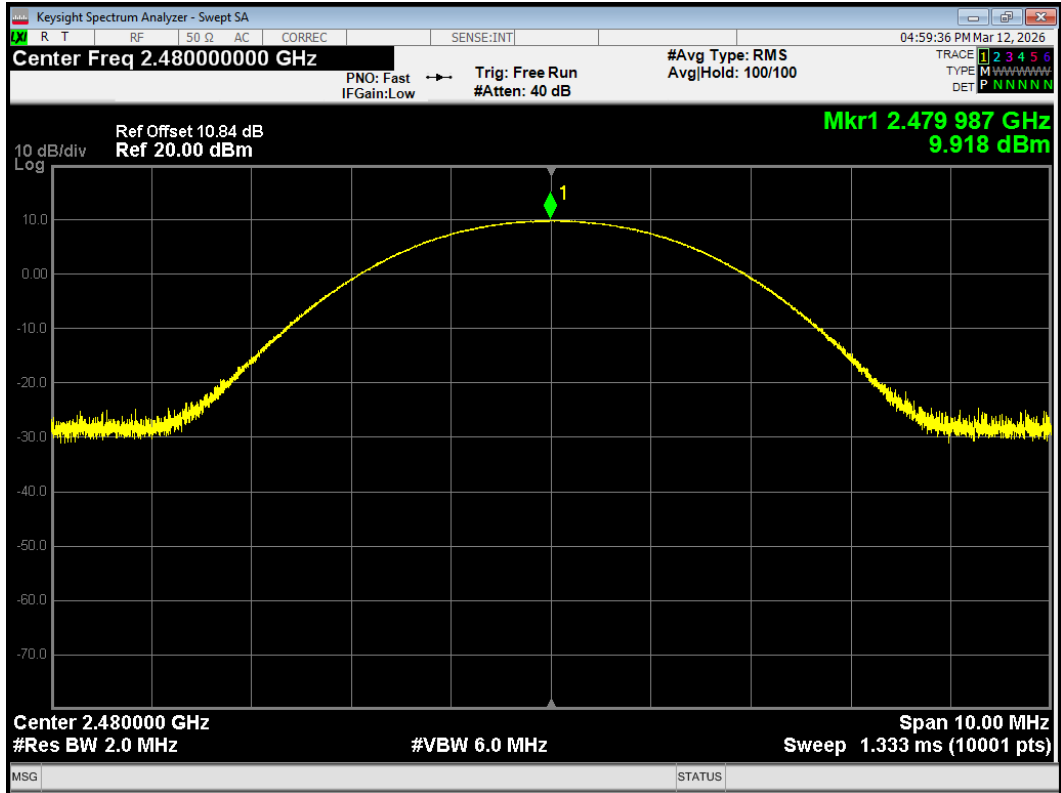
Power 1-DH5 2402MHz



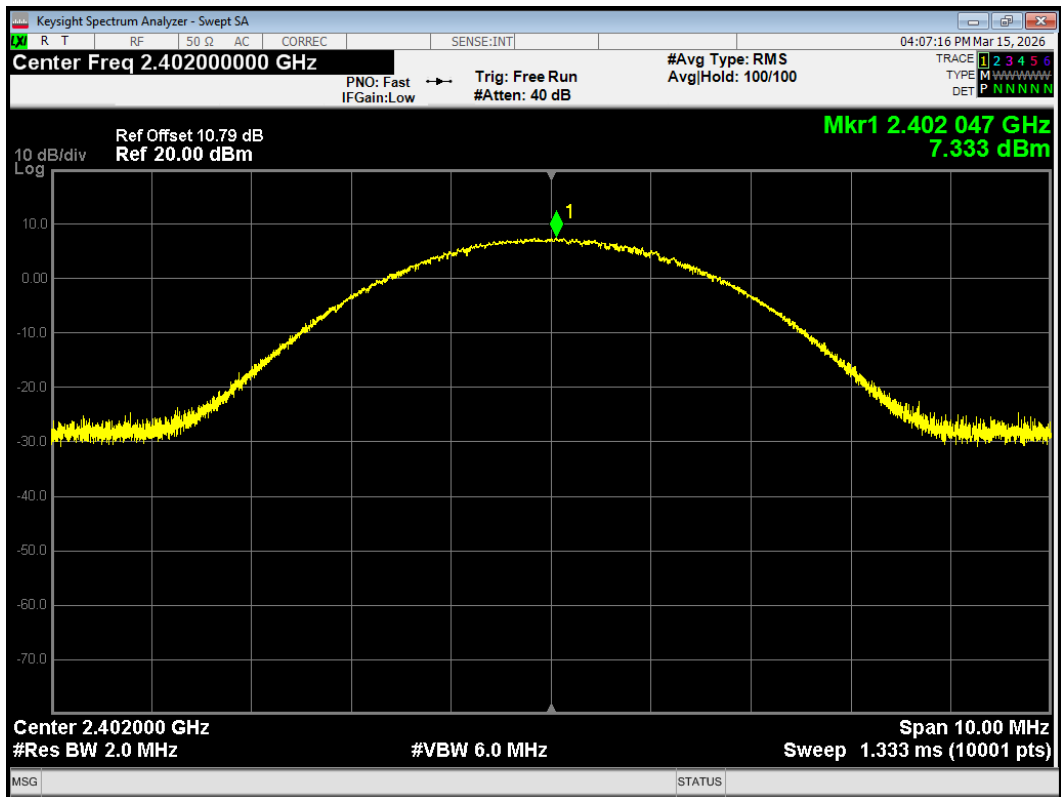
Power 1-DH5 2441MHz



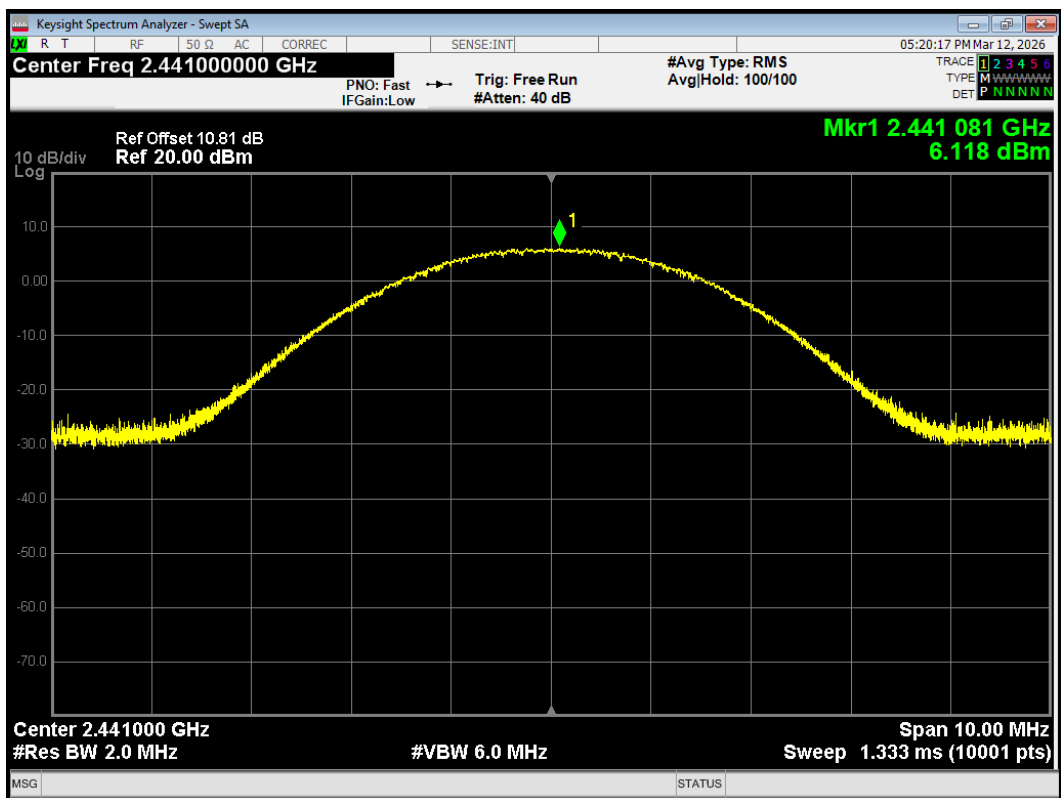
Power 1-DH5 2480MHz



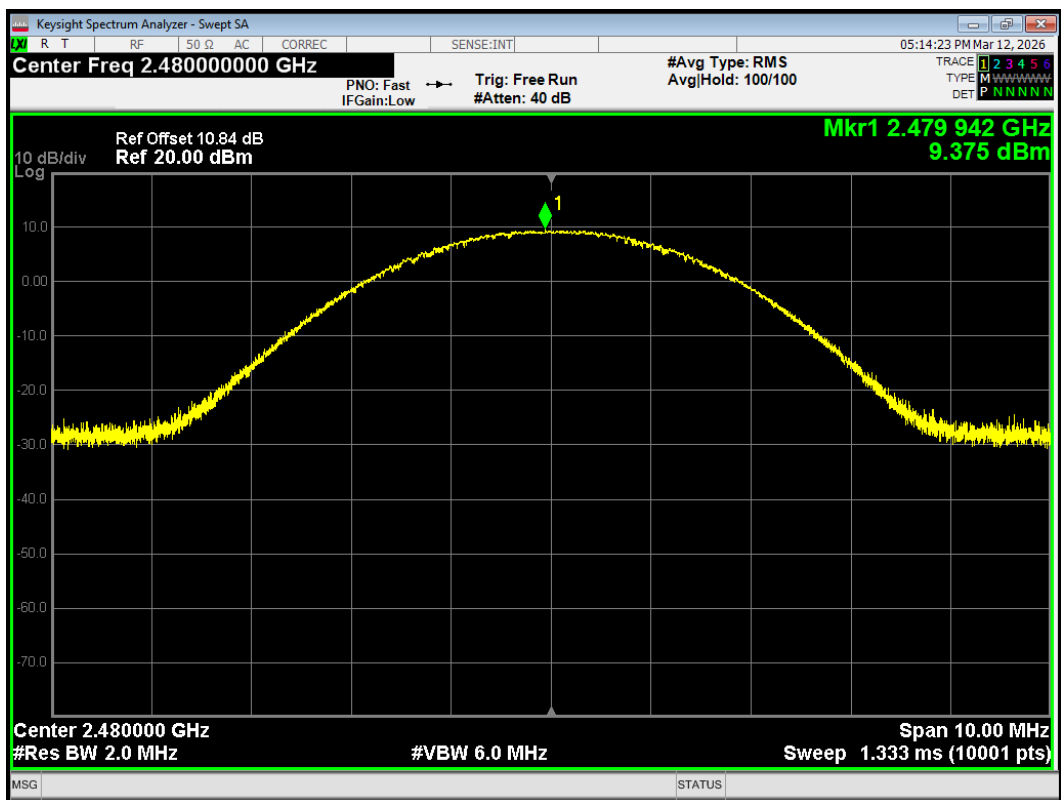
Power 2-DH5 2402MHz



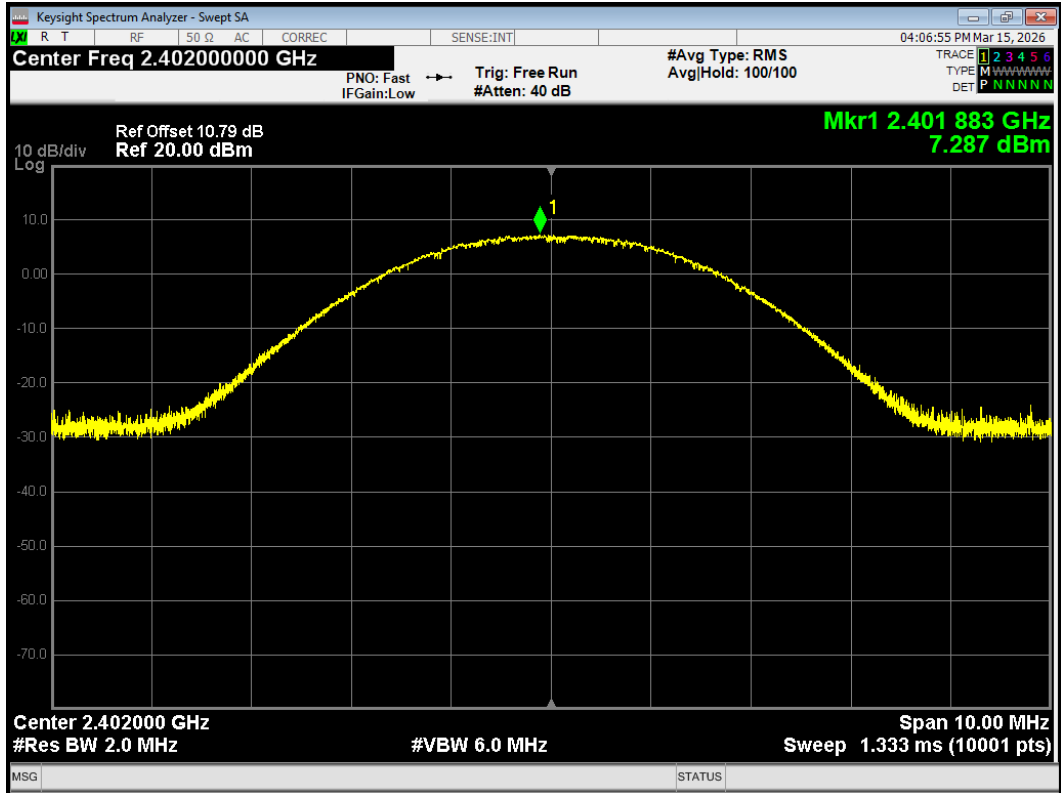
Power 2-DH5 2441MHz



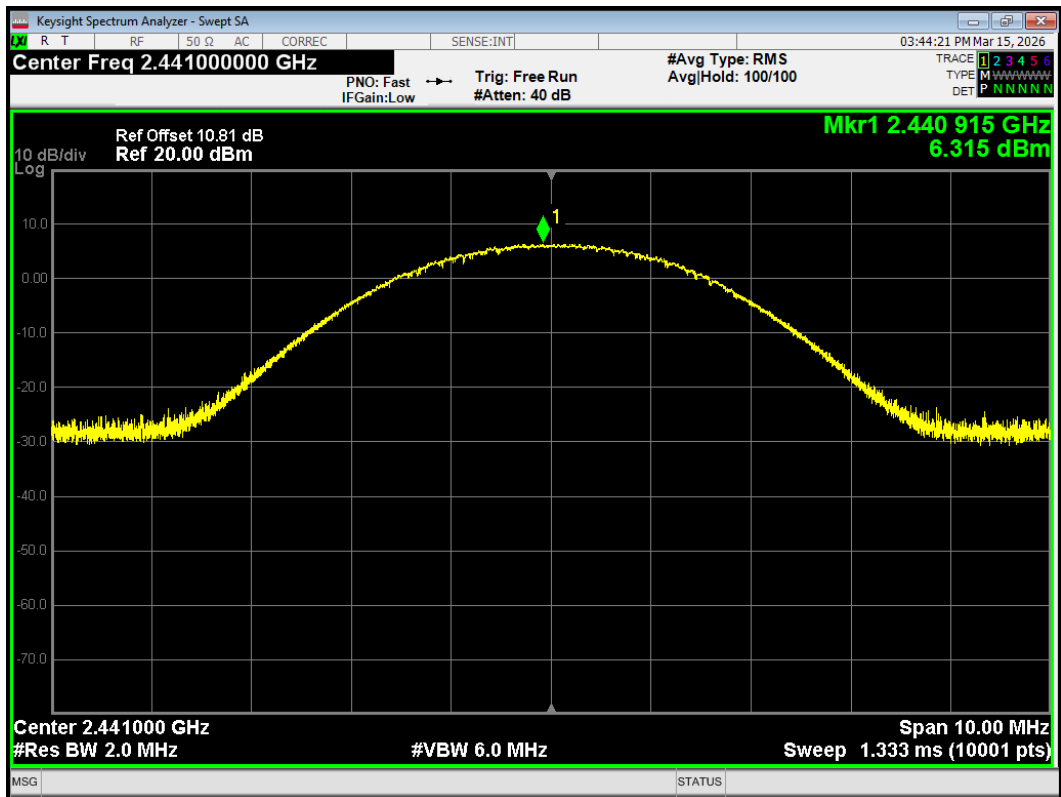
Power 2-DH5 2480MHz



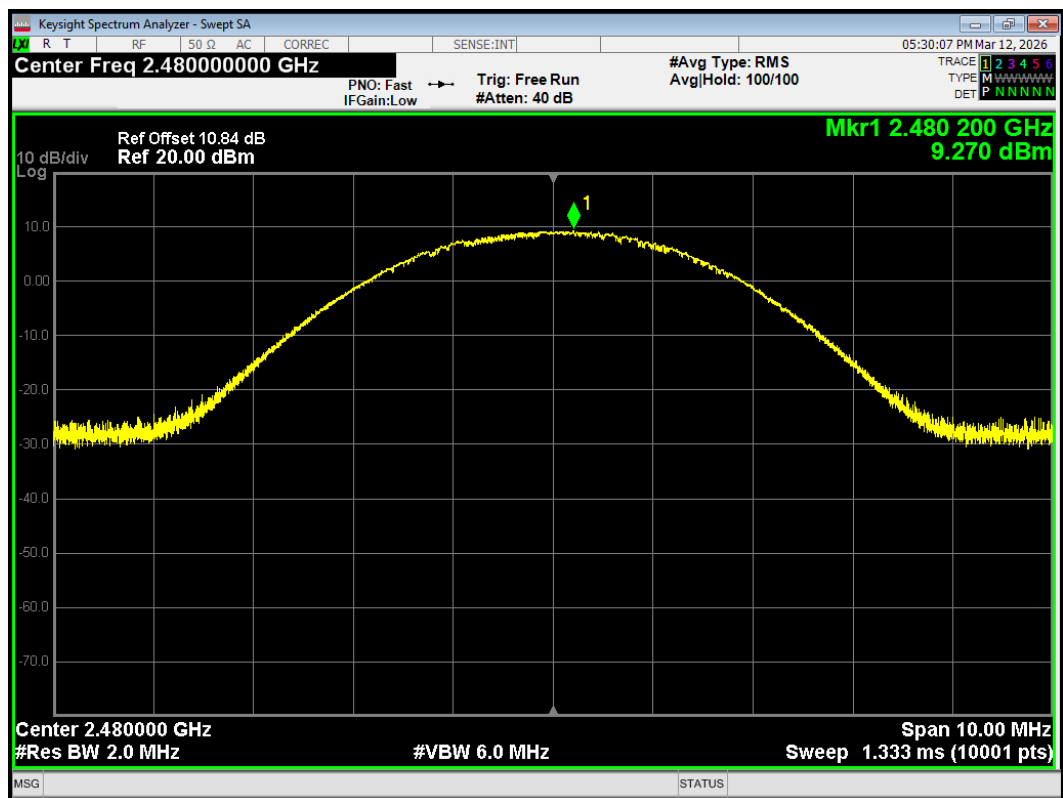
Power 3-DH5 2402MHz



Power 3-DH5 2441MHz



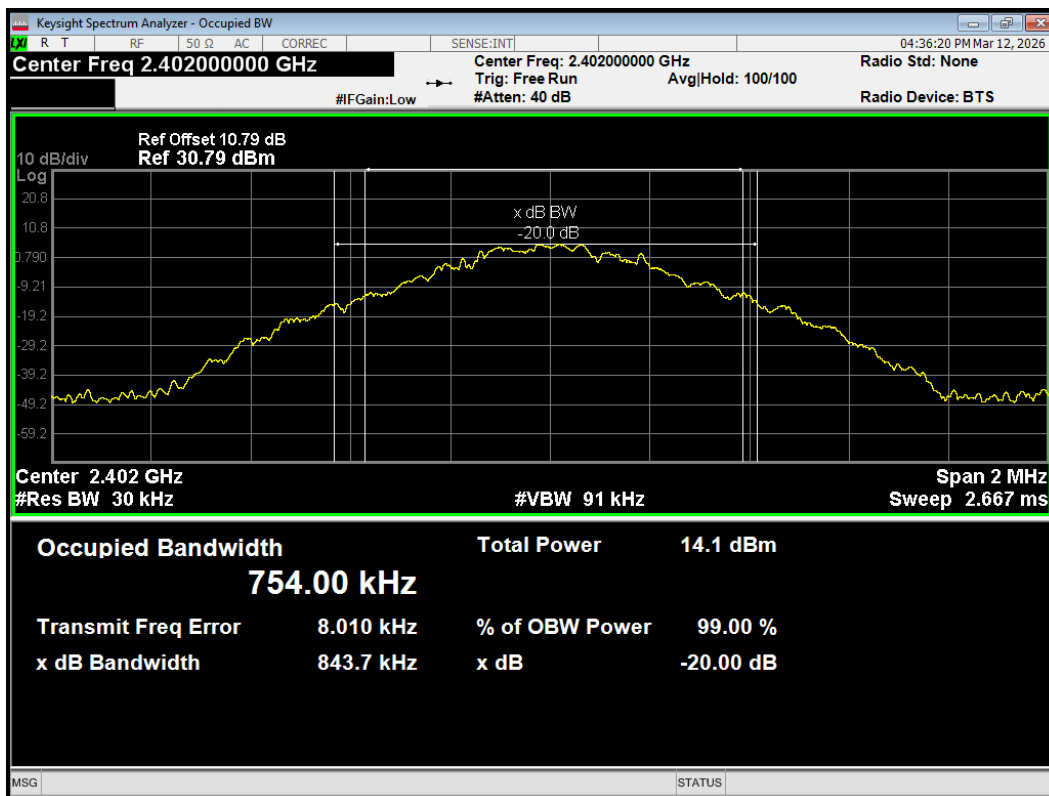
Power 3-DH5 2480MHz



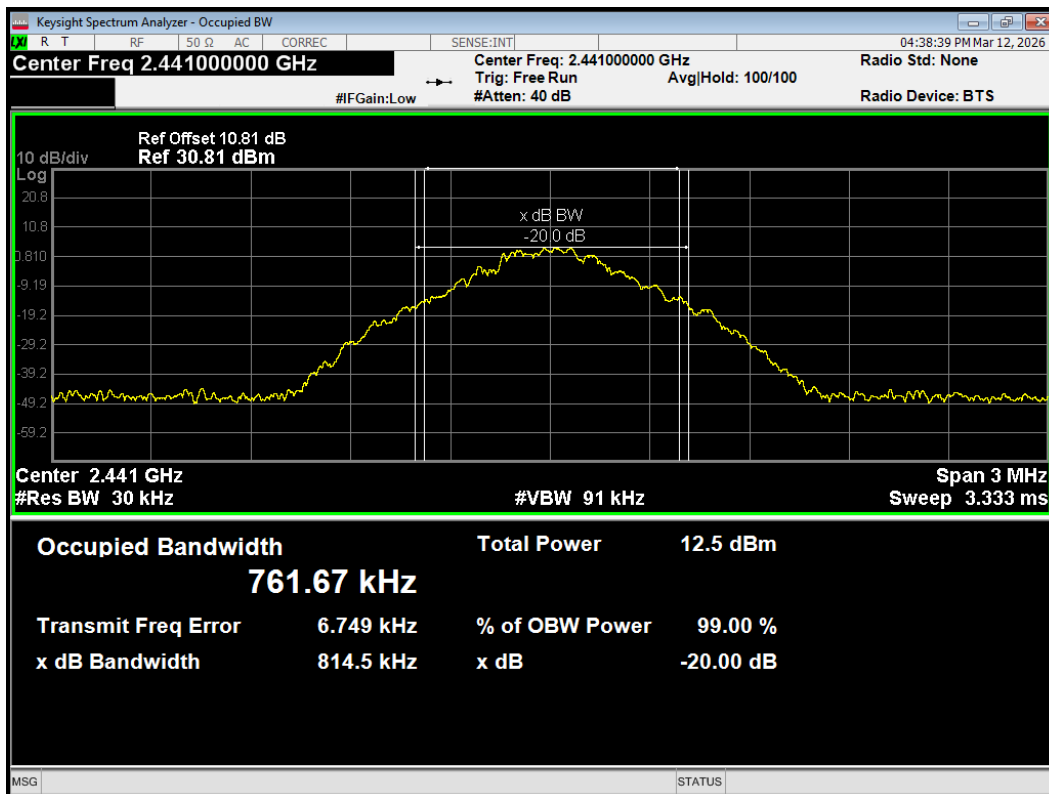
## 6.2 99% Bandwidth and 20dB Bandwidth

| Test Mode |      | Channel | Frequency (MHz) | 99% Bandwidth (MHz) | 20dB Bandwidth (MHz) |
|-----------|------|---------|-----------------|---------------------|----------------------|
| Bluetooth | DH5  | 0       | 2402            | 0.754               | 0.844                |
|           |      | 39      | 2441            | 0.762               | 0.815                |
|           |      | 78      | 2480            | 0.758               | 0.814                |
|           | 2DH5 | 0       | 2402            | 1.162               | 1.253                |
|           |      | 39      | 2441            | 1.164               | 1.280                |
|           |      | 78      | 2480            | 1.178               | 1.272                |
|           | 3DH5 | 0       | 2402            | 1.175               | 1.281                |
|           |      | 39      | 2441            | 1.172               | 1.285                |
|           |      | 78      | 2480            | 1.165               | 1.285                |

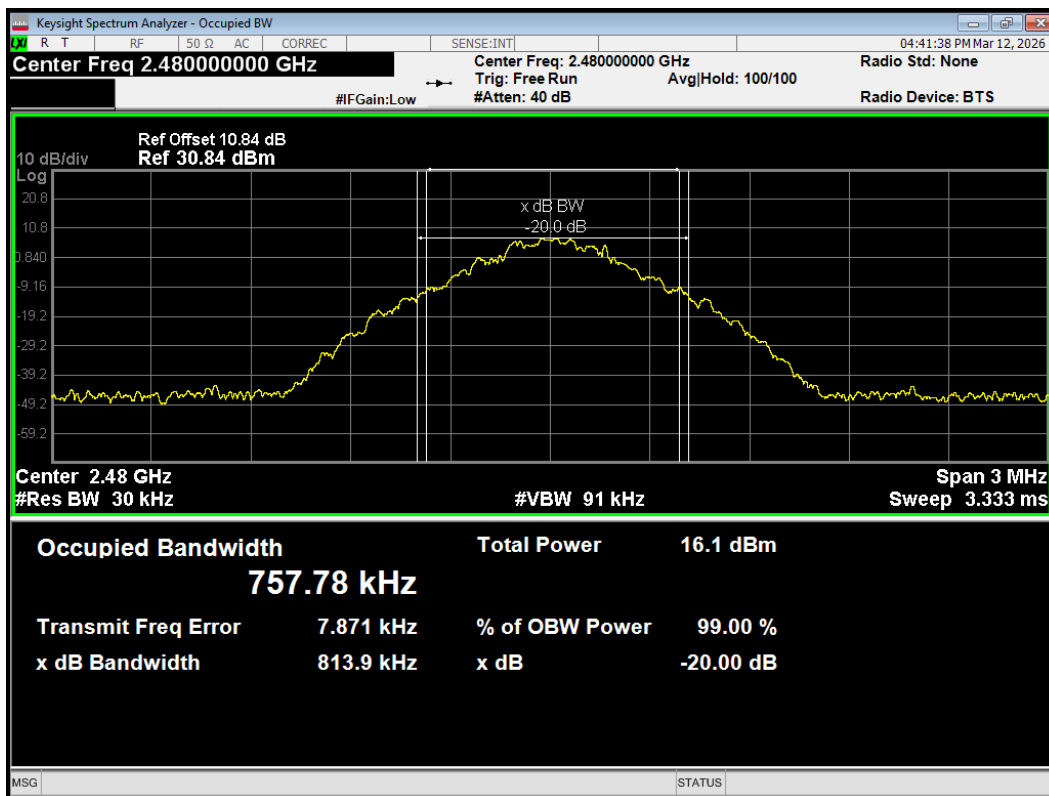
OBW 1-DH5 2402MHz



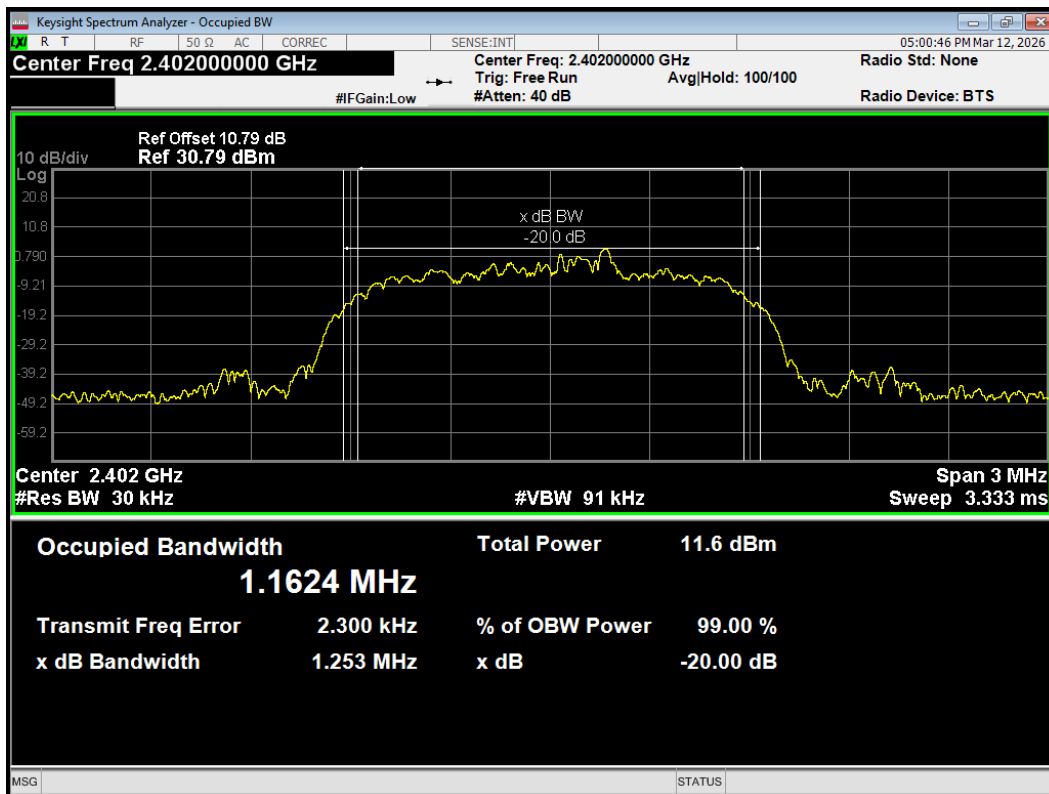
OBW 1-DH5 2441MHz



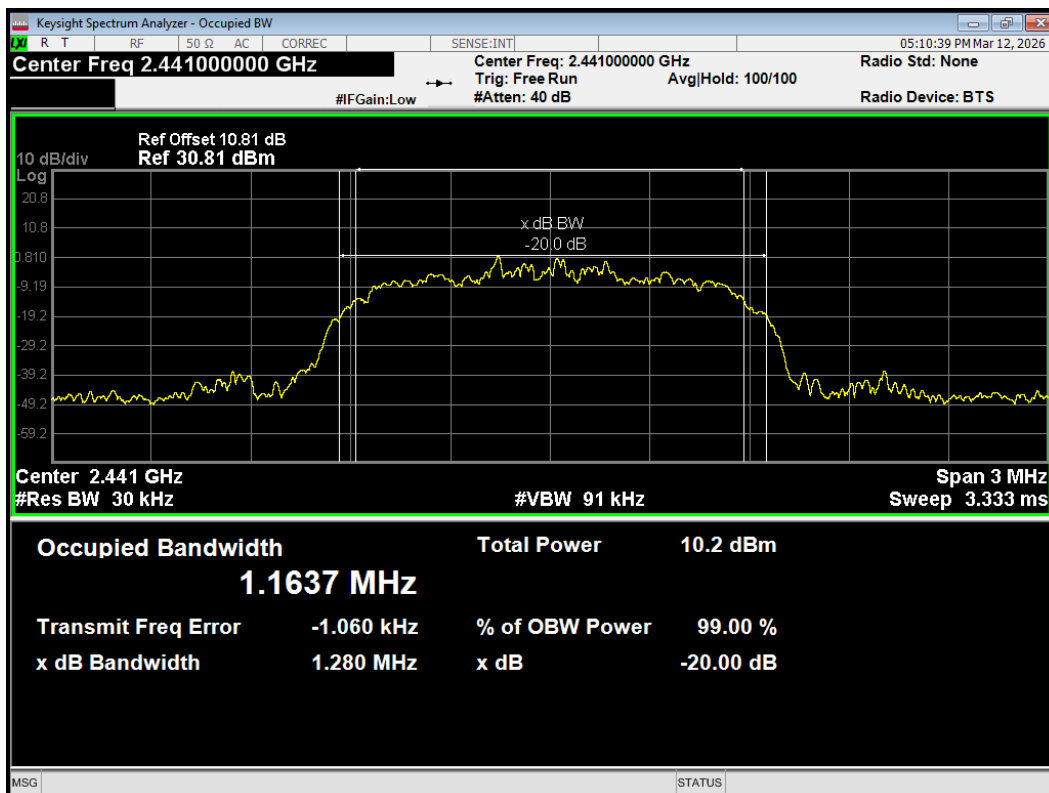
OBW 1-DH5 2480MHz



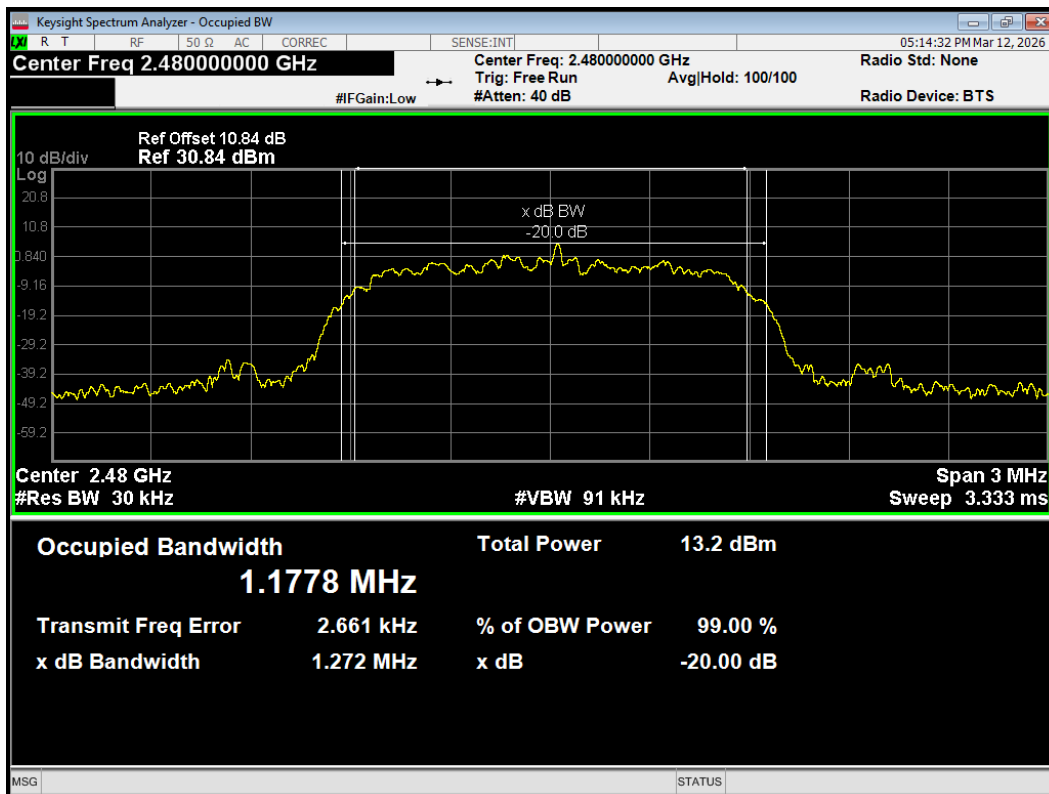
OBW 2-DH5 2402MHz



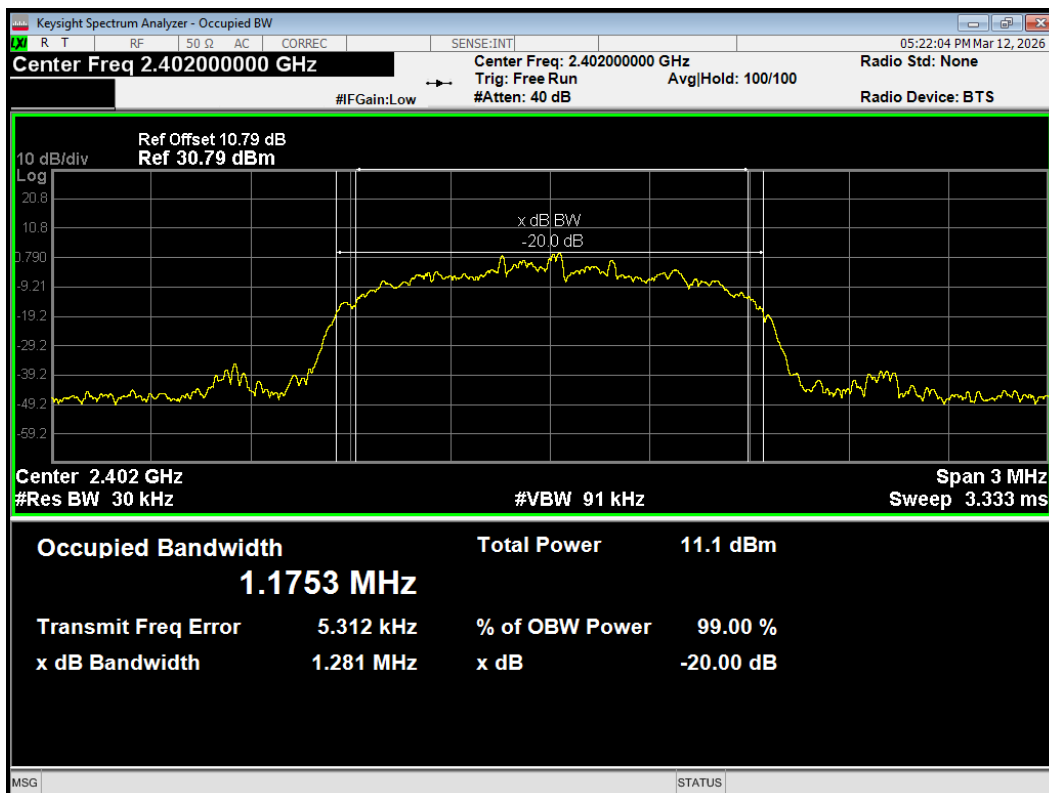
OBW 2-DH5 2441MHz



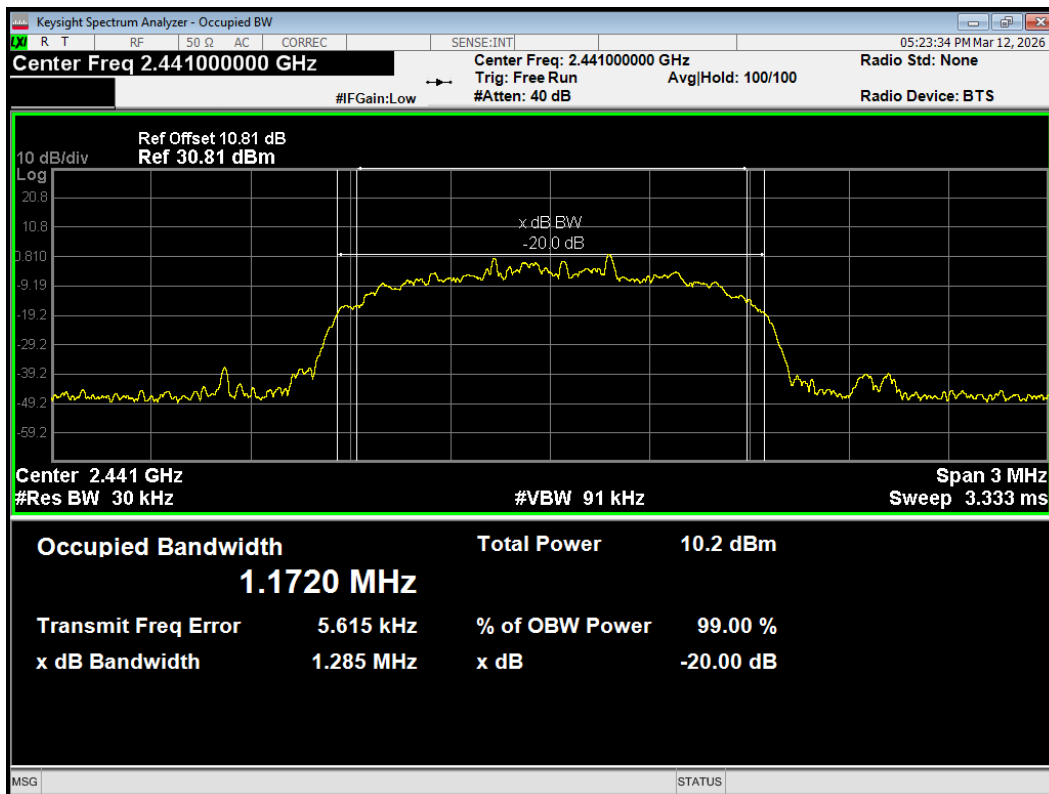
OBW 2-DH5 2480MHz



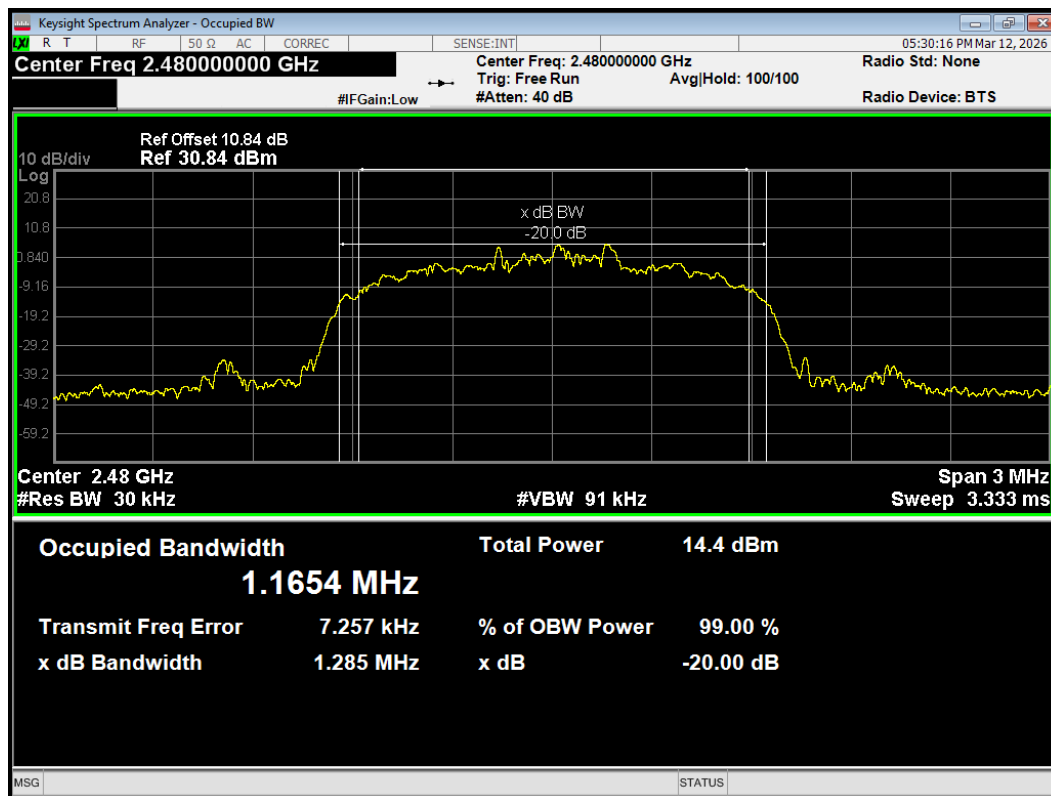
OBW 3-DH5 2402MHz



OBW 3-DH5 2441MHz



OBW 3-DH5 2480MHz



### 6.3 Frequency Separation

In normal mode:

| Test Mode | Carrier frequency (MHz) | Carrier frequency separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz) | Conclusion |
|-----------|-------------------------|------------------------------------|----------------------|-------------|------------|
| DH5       | 2402                    | 0.96                               | 0.844                | 0.563       | PASS       |
| 2DH5      | 2402                    | 1.24                               | 1.253                | 0.835       | PASS       |
| 3DH5      | 2402                    | 1.14                               | 1.281                | 0.854       | PASS       |

Note: The limit is two-thirds of 20 dB bandwidth.

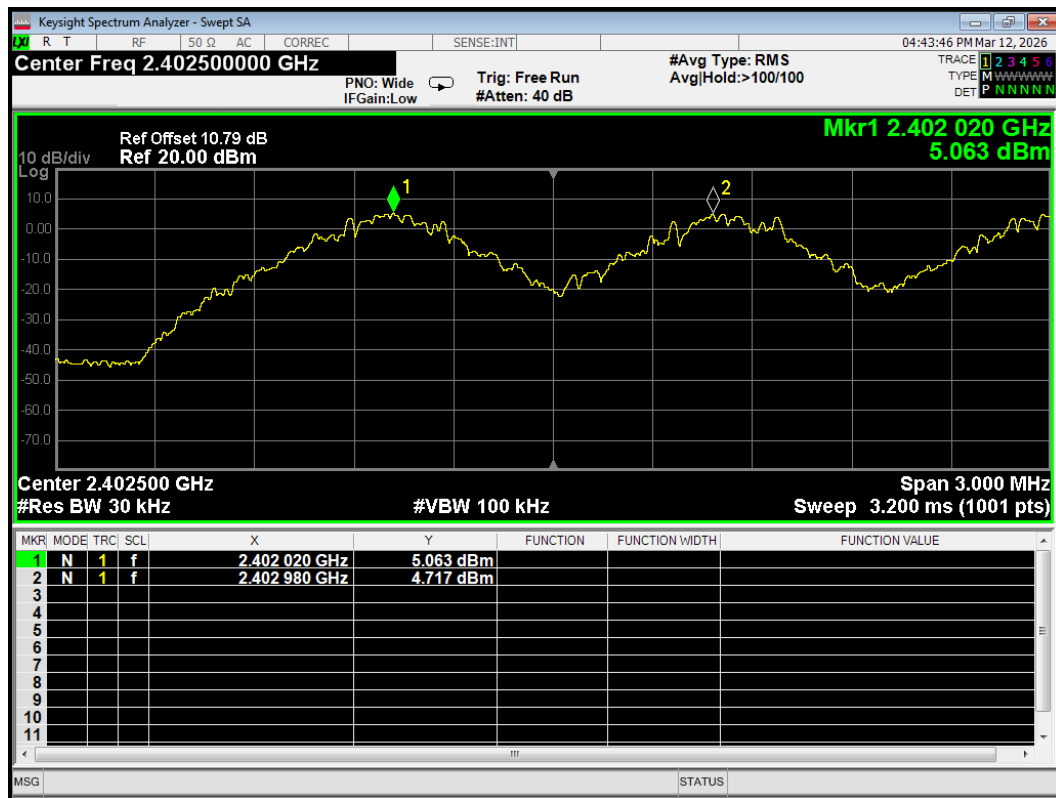
In AFH mode:

| Test Mode | Carrier frequency (MHz) | Carrier frequency separation (MHz) | 20dB Bandwidth (MHz) | Limit (MHz) | Conclusion |
|-----------|-------------------------|------------------------------------|----------------------|-------------|------------|
| DH5       | 2402                    | 1.00                               | 0.844                | 0.563       | PASS       |
| 2DH5      | 2402                    | 1.15                               | 1.253                | 0.835       | PASS       |
| 3DH5      | 2402                    | 1.00                               | 1.281                | 0.854       | PASS       |

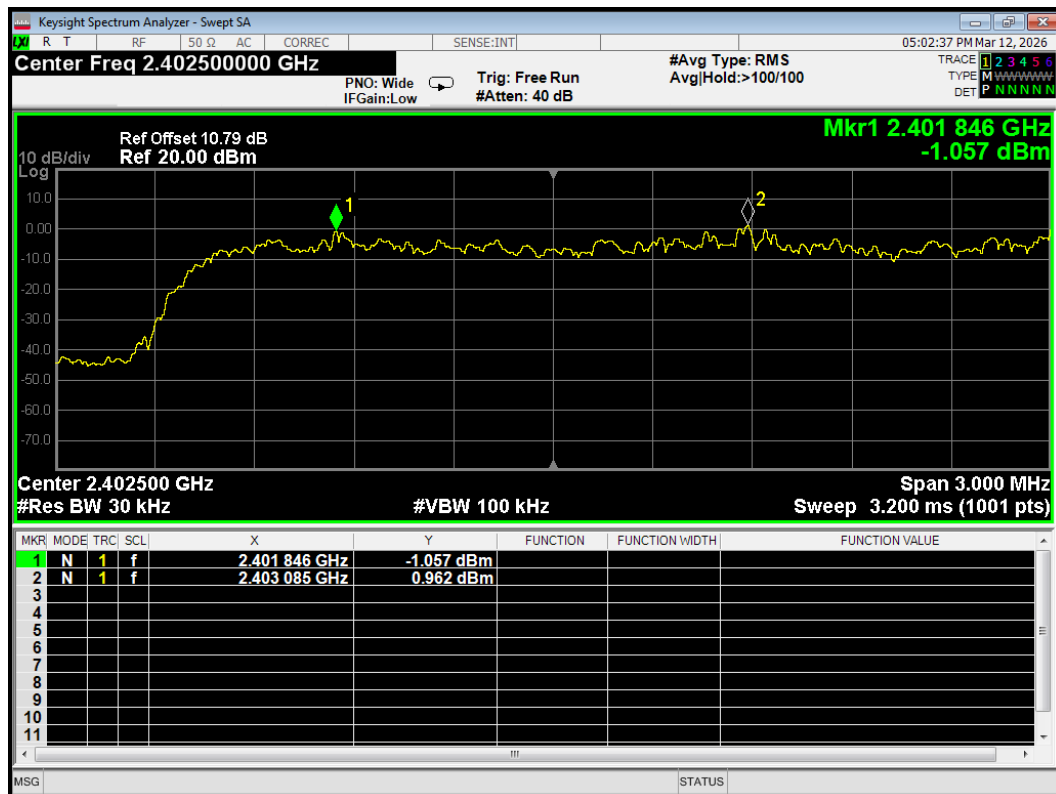
Note: The limit is two-thirds of 20 dB bandwidth.

In normal mode:

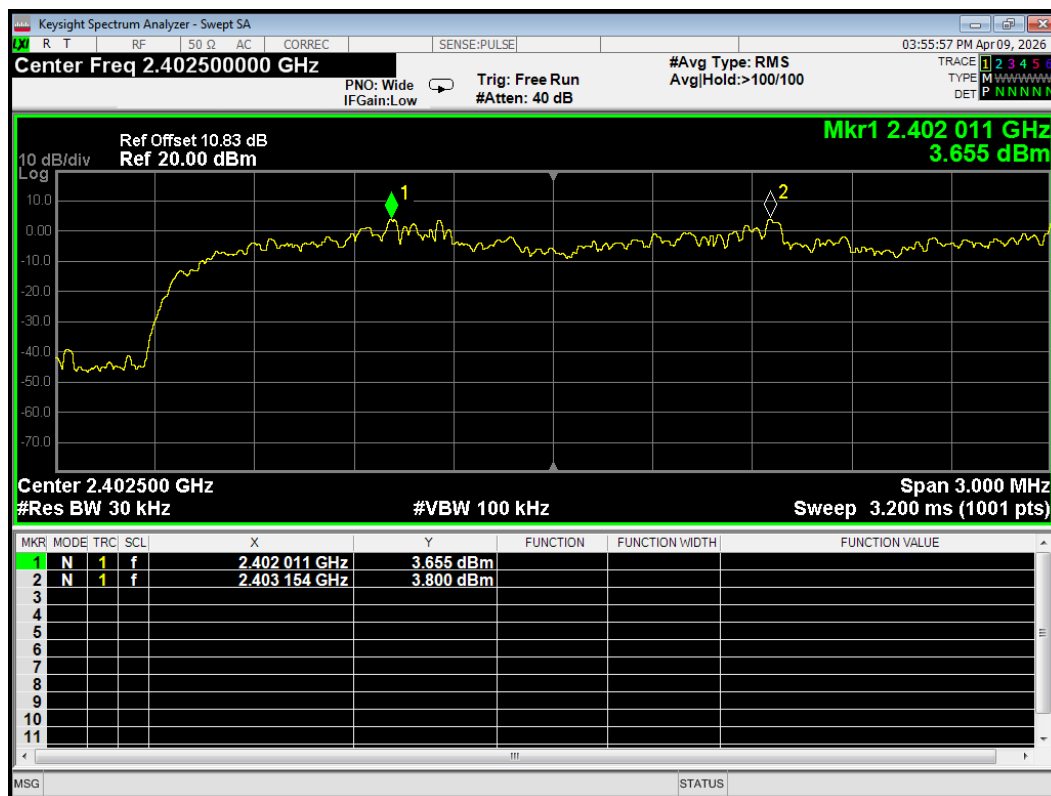
### CFS 1-DH5 2402MHz



### CFS 2-DH5 2402MHz

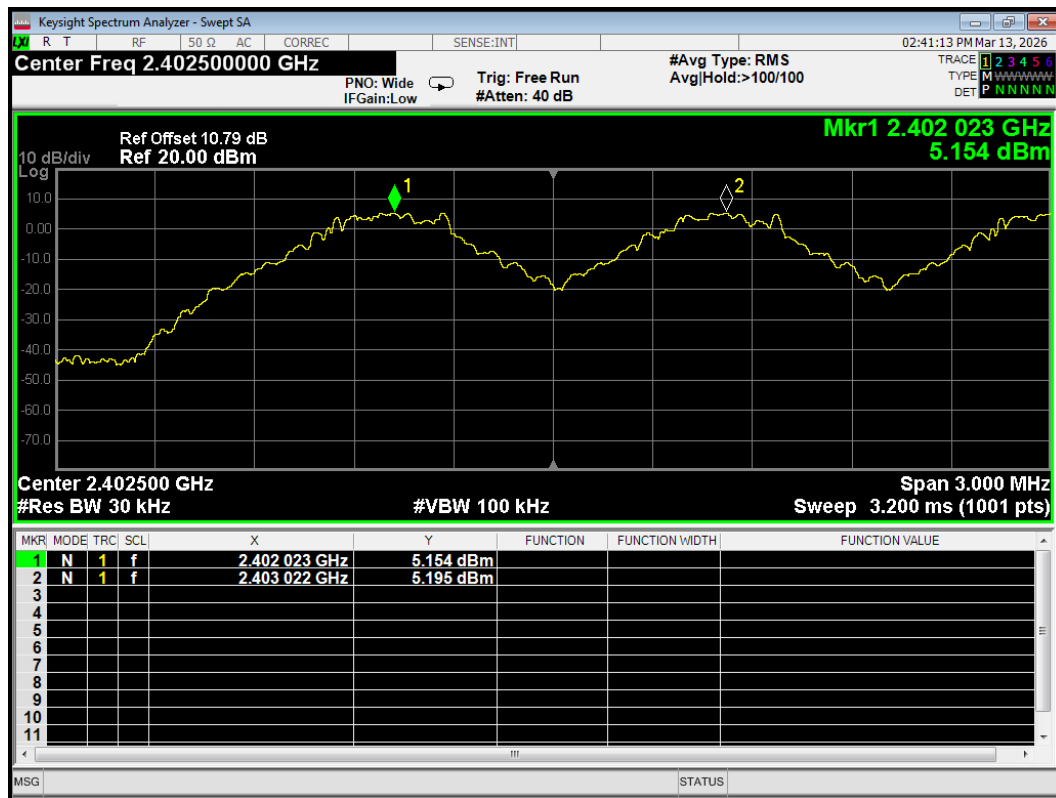


CFS 3-DH5 2402MHz

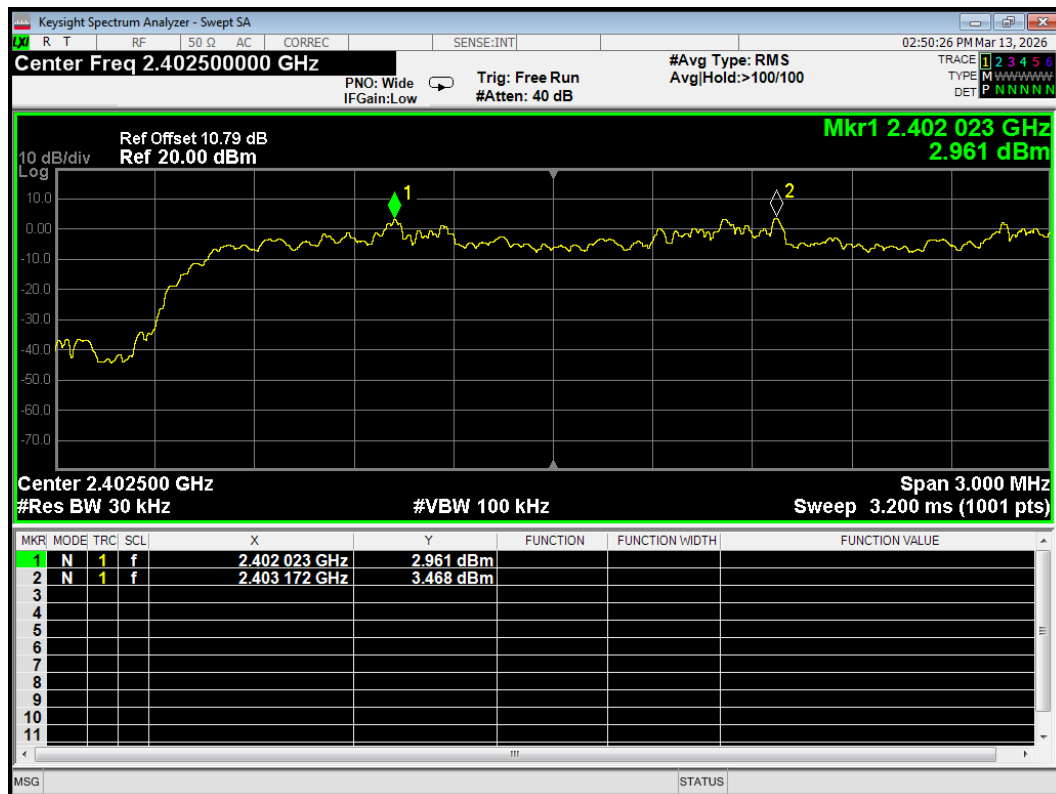


In AFH mode:

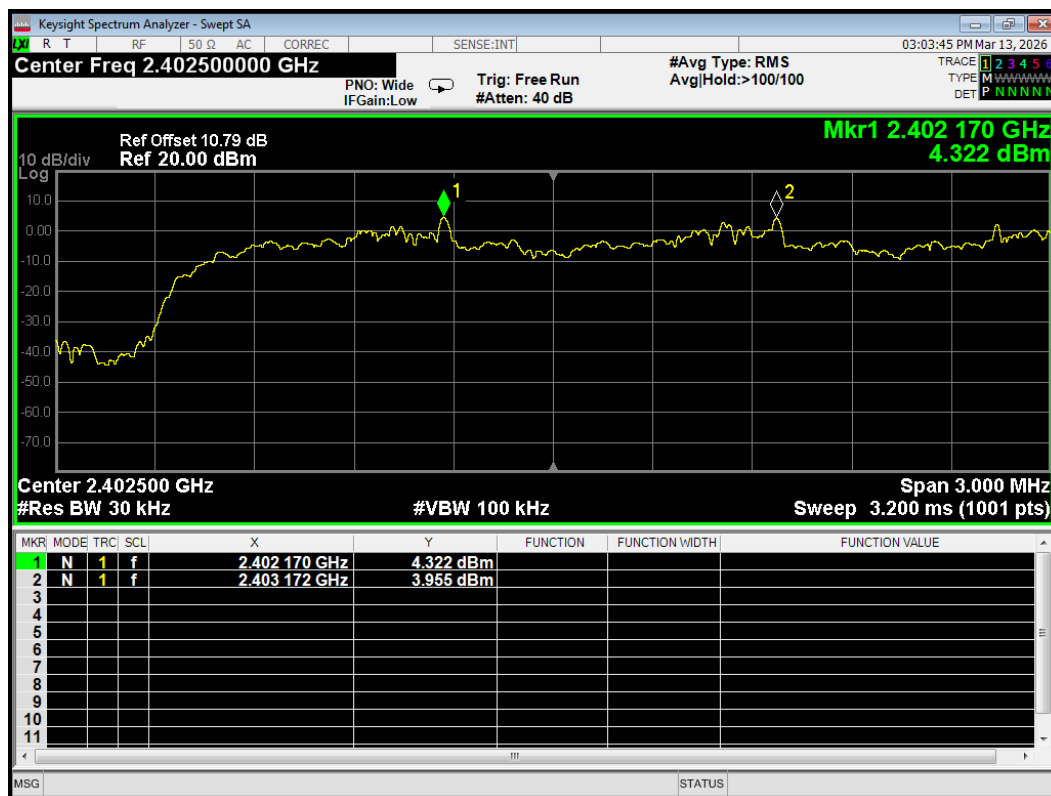
CFS 1-DH5 2402MHz



CFS 2-DH5 2402MHz



CFS 3-DH5 2402MHz



## 6.4 Time of Occupancy (Dwell Time)

In normal mode:

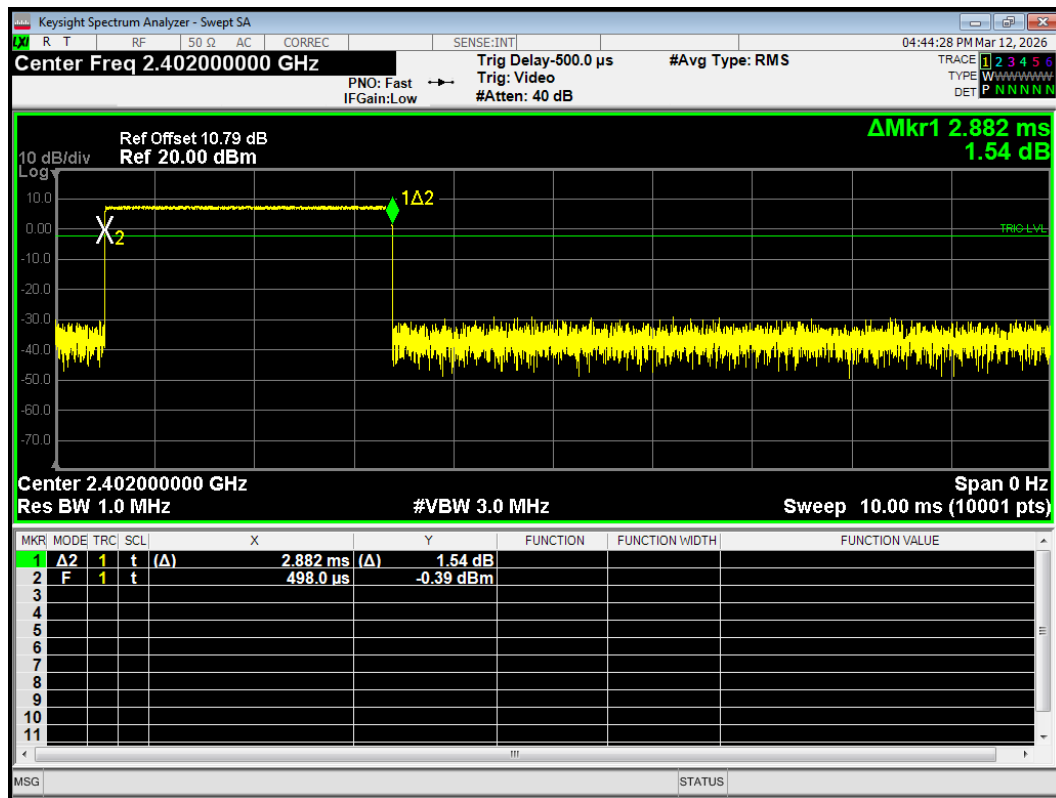
| Test Mode                                                        | Number of Pulses<br>in 31.6 seconds | Pulse Time<br>(ms) | Dwell time<br>(ms) | Limit<br>(ms) | Conclusion |
|------------------------------------------------------------------|-------------------------------------|--------------------|--------------------|---------------|------------|
| DH5                                                              | 106                                 | 2.882              | 305.492            | 400           | PASS       |
| 2DH5                                                             | 99                                  | 2.884              | 285.516            | 400           | PASS       |
| 3DH5                                                             | 112                                 | 2.886              | 323.232            | 400           | PASS       |
| Note: Dwell time = Pulse Time * Number of Pulses in 31.6 seconds |                                     |                    |                    |               |            |

In AFH mode:

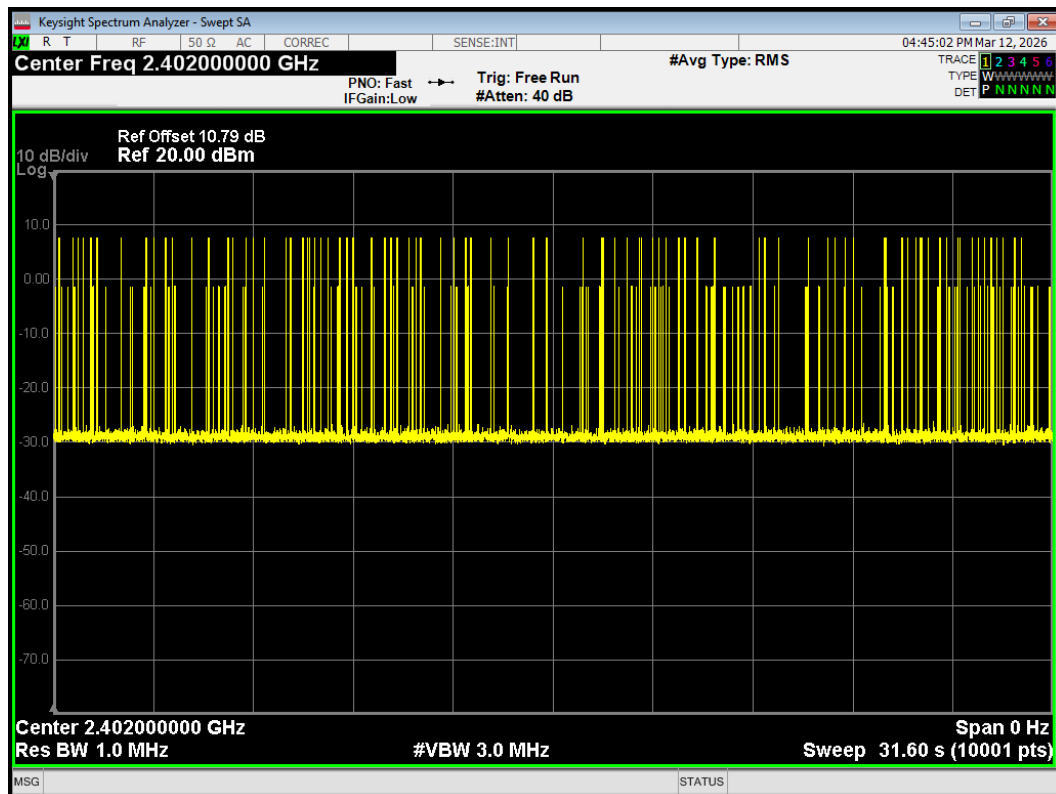
| Test Mode                                                     | Number of Pulses<br>in 8 seconds | Pulse Time<br>(ms) | Dwell time<br>(ms) | Limit<br>(ms) | Conclusion |
|---------------------------------------------------------------|----------------------------------|--------------------|--------------------|---------------|------------|
| DH5                                                           | 92                               | 2.882              | 265.144            | 400           | PASS       |
| 2DH5                                                          | 94                               | 2.881              | 270.814            | 400           | PASS       |
| 3DH5                                                          | 120                              | 2.887              | 346.440            | 400           | PASS       |
| Note: Dwell time = Pulse Time * Number of Pulses in 8 seconds |                                  |                    |                    |               |            |

In normal mode:

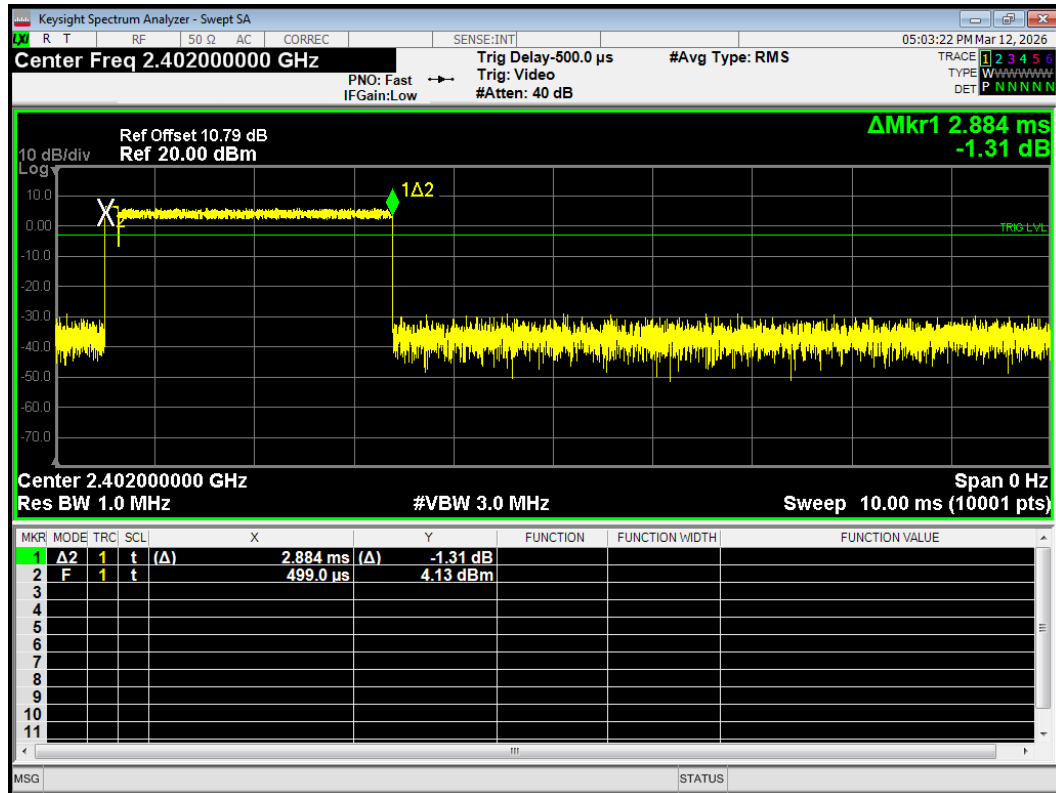
### Dwell 1-DH5 2402MHz One Burst



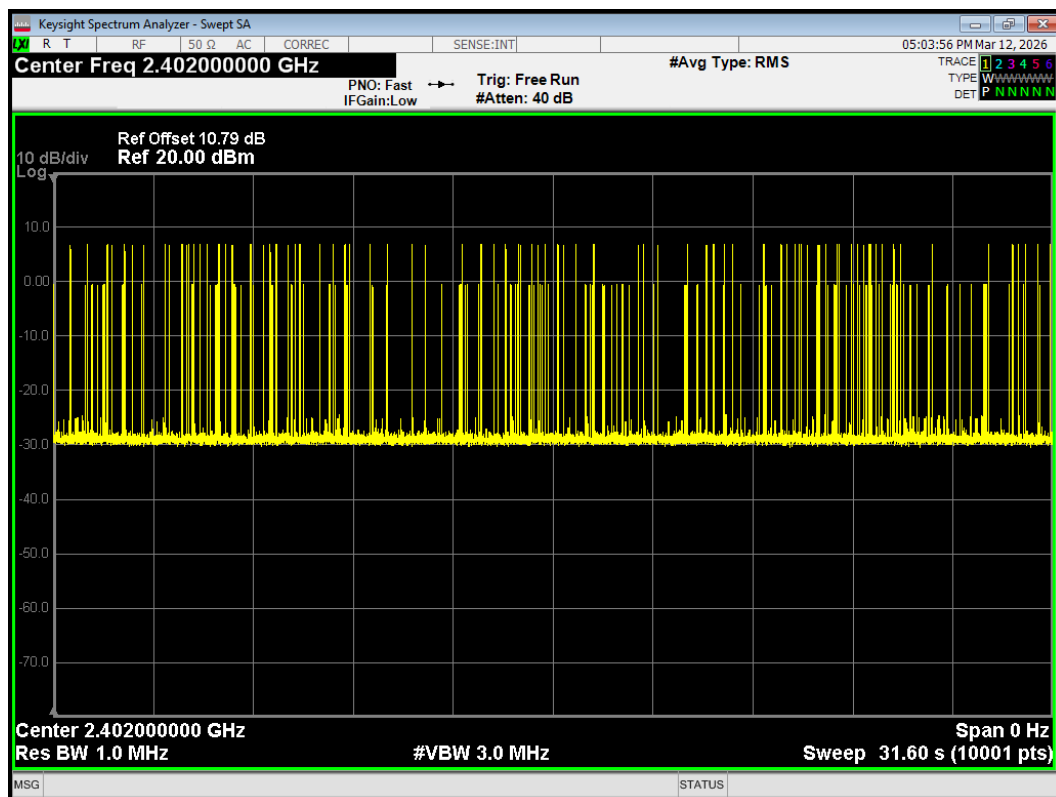
### Dwell 1-DH5 2402MHz Accumulated



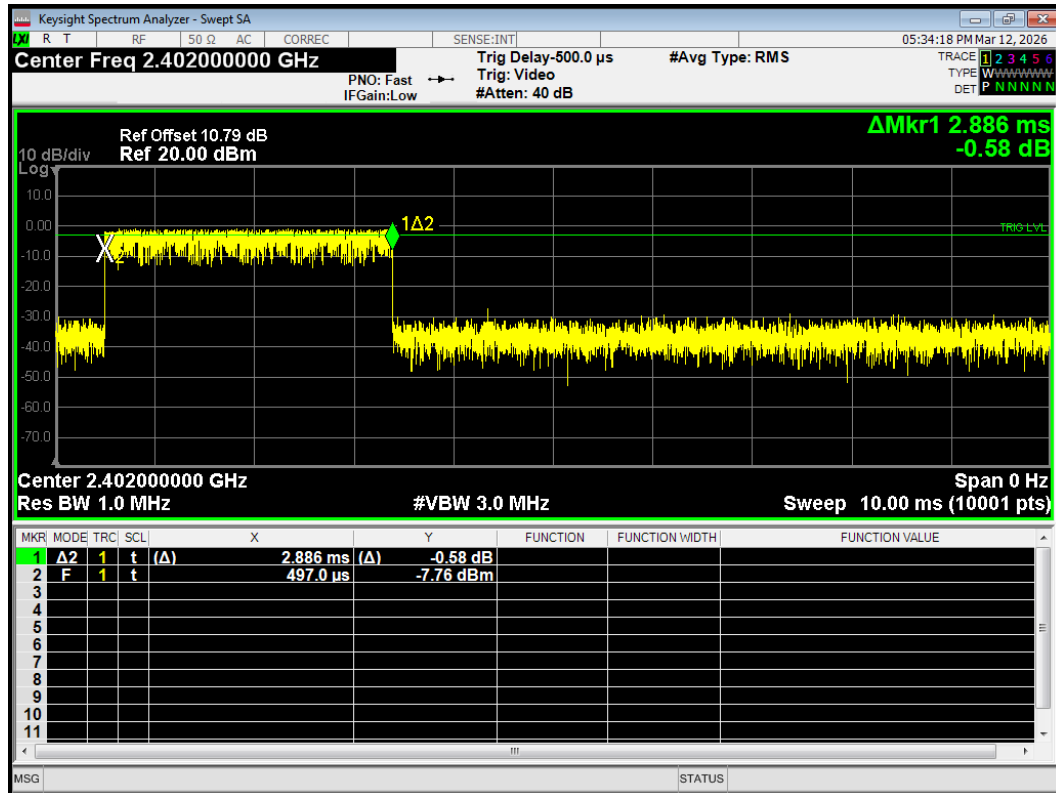
Dwell 2-DH5 2402MHz One Burst



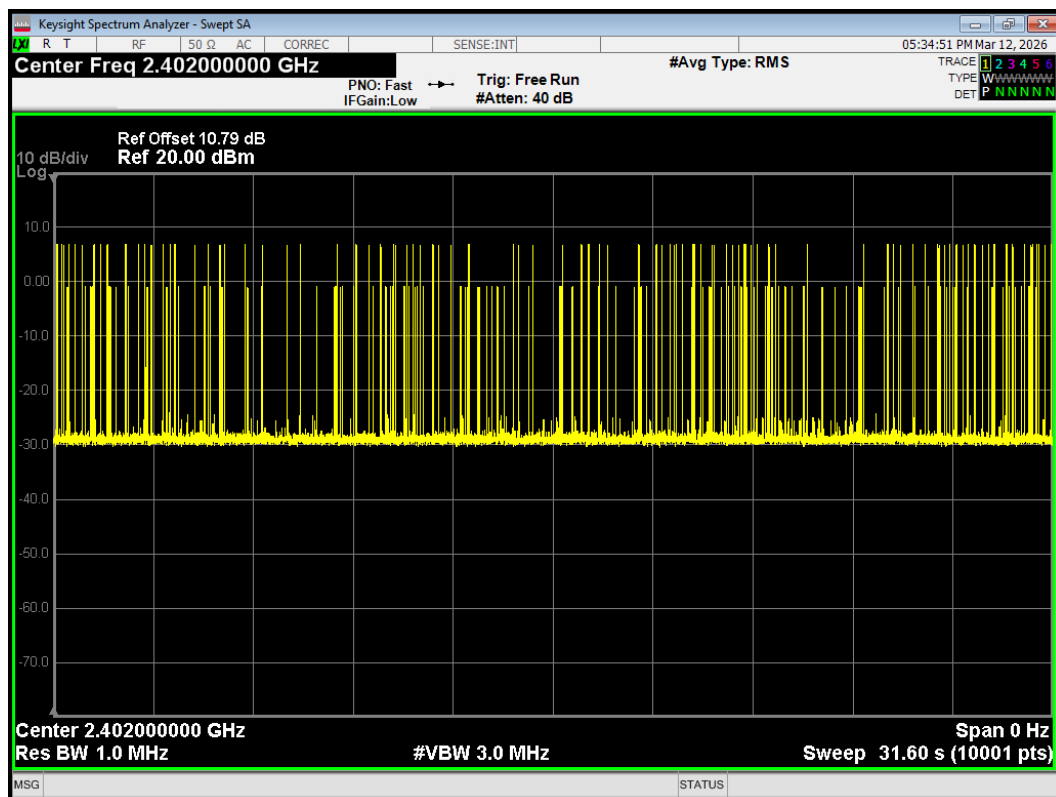
Dwell 2-DH5 2402MHz Accumulated



Dwell 3-DH5 2402MHz One Burst

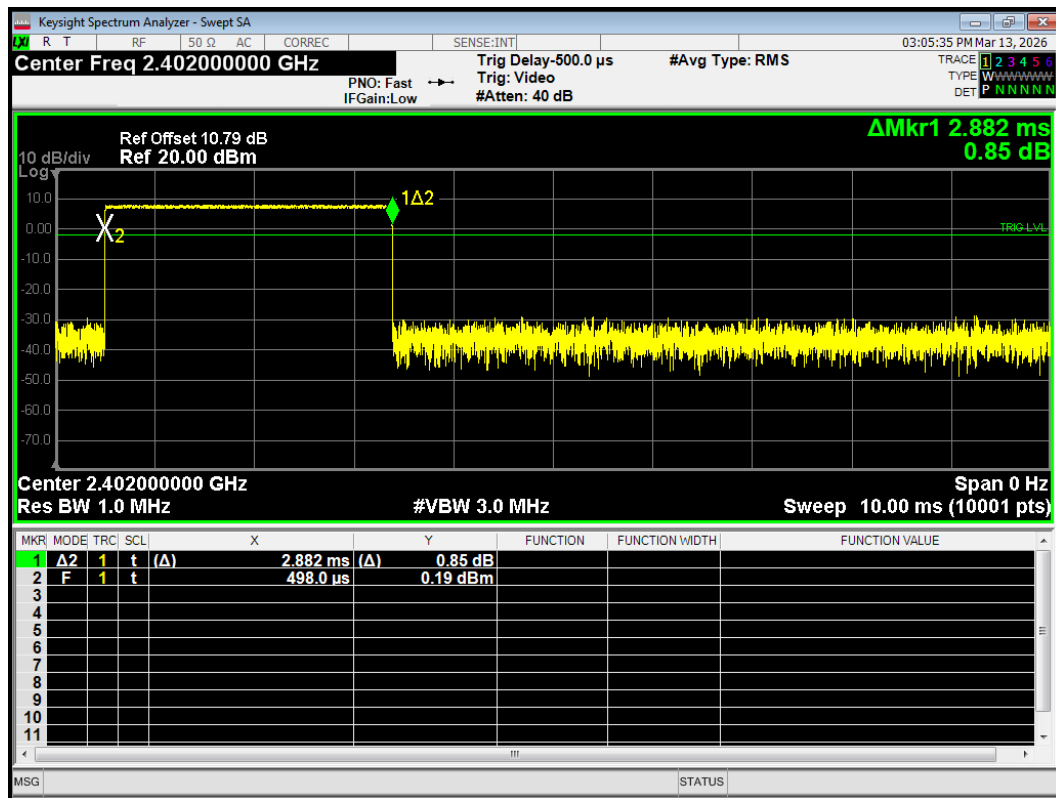


Dwell 3-DH5 2402MHz Accumulated

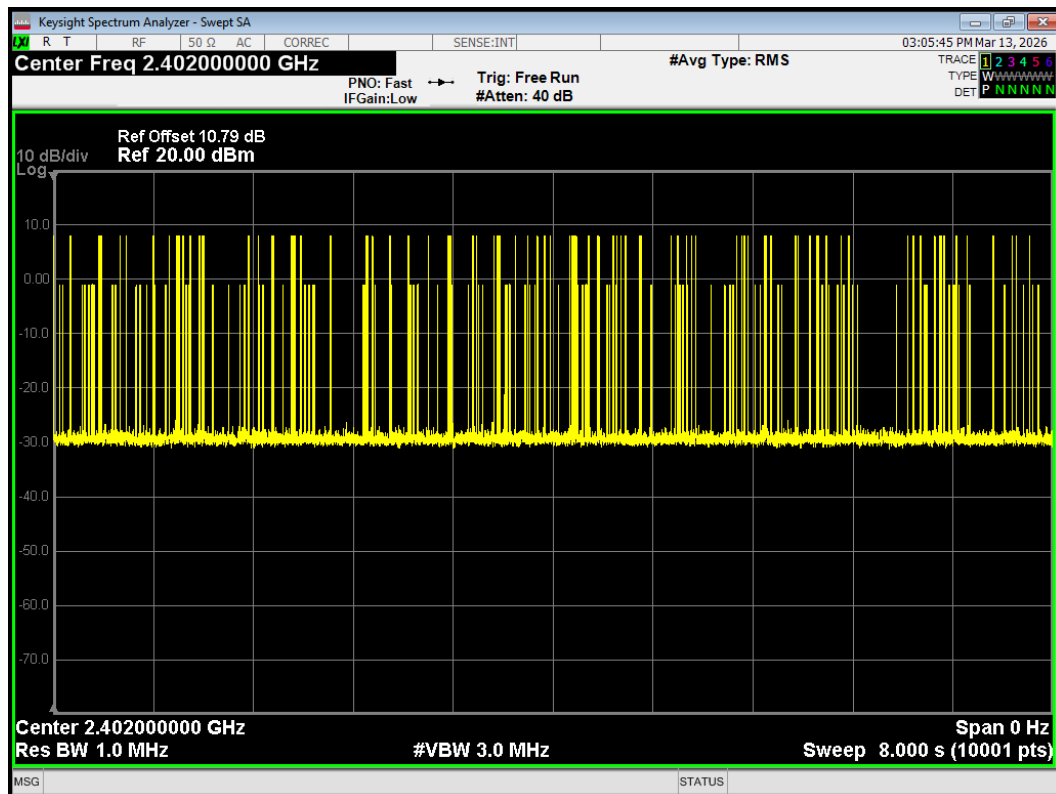


In AFH mode:

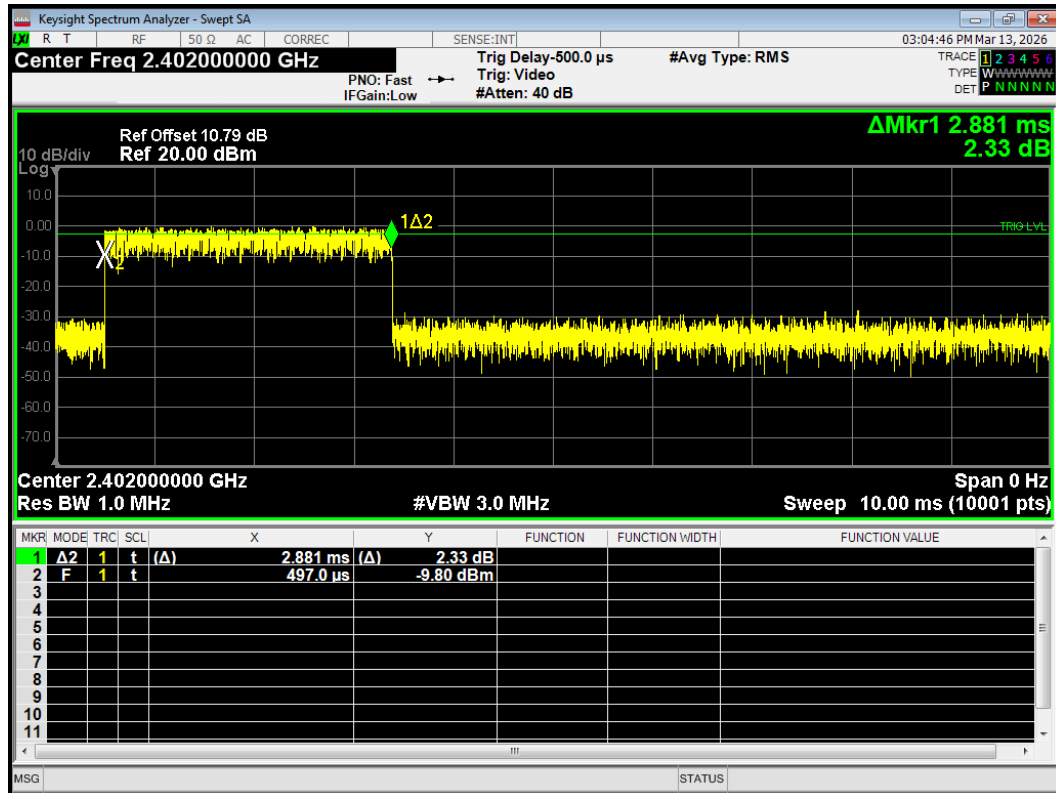
### Dwell 1-DH5 2402MHz One Burst



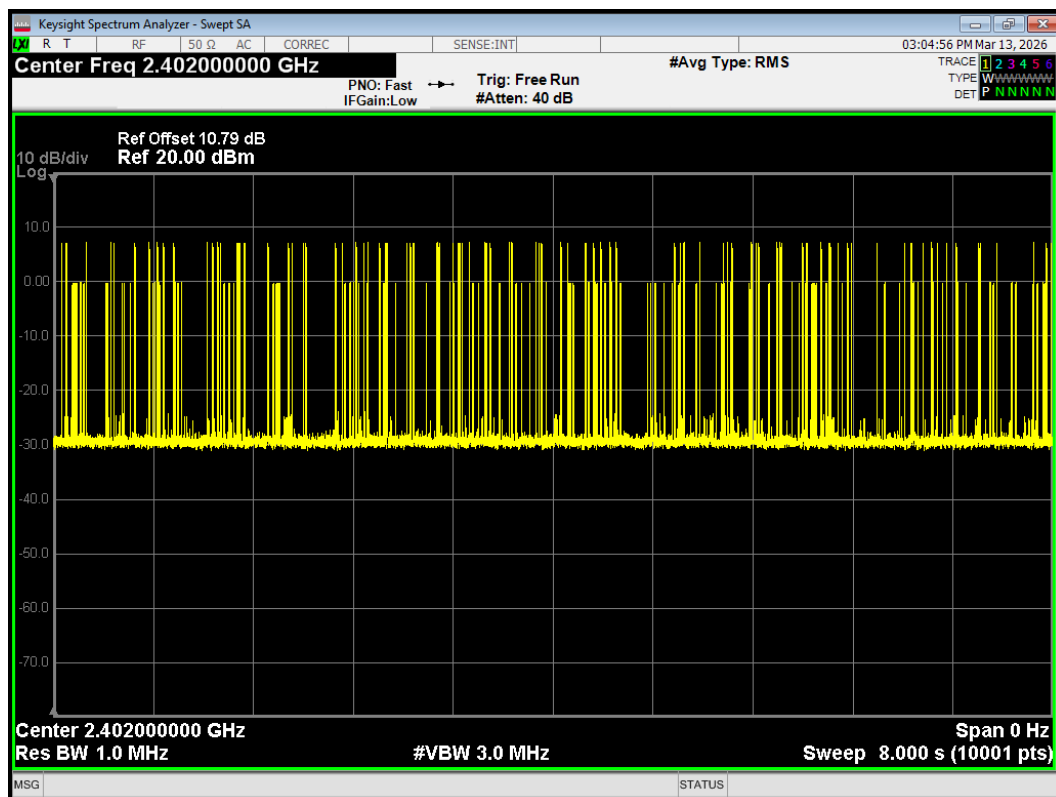
### Dwell 1-DH5 2402MHz Accumulated



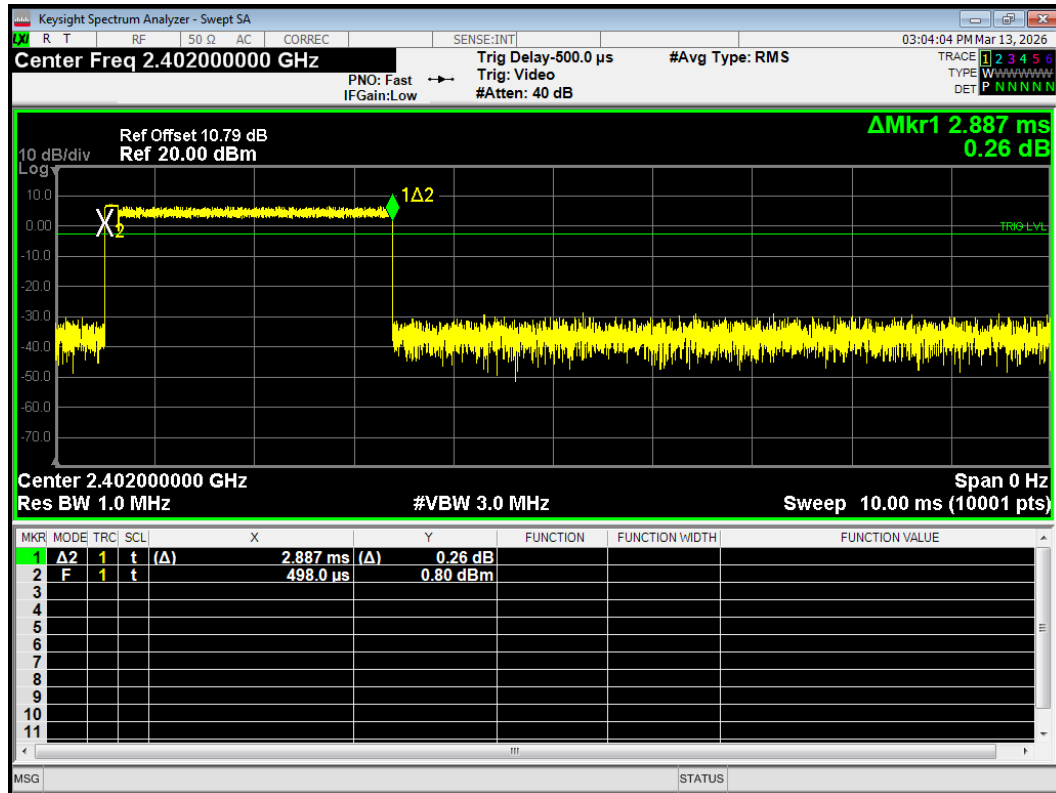
Dwell 2-DH5 2402MHz One Burst



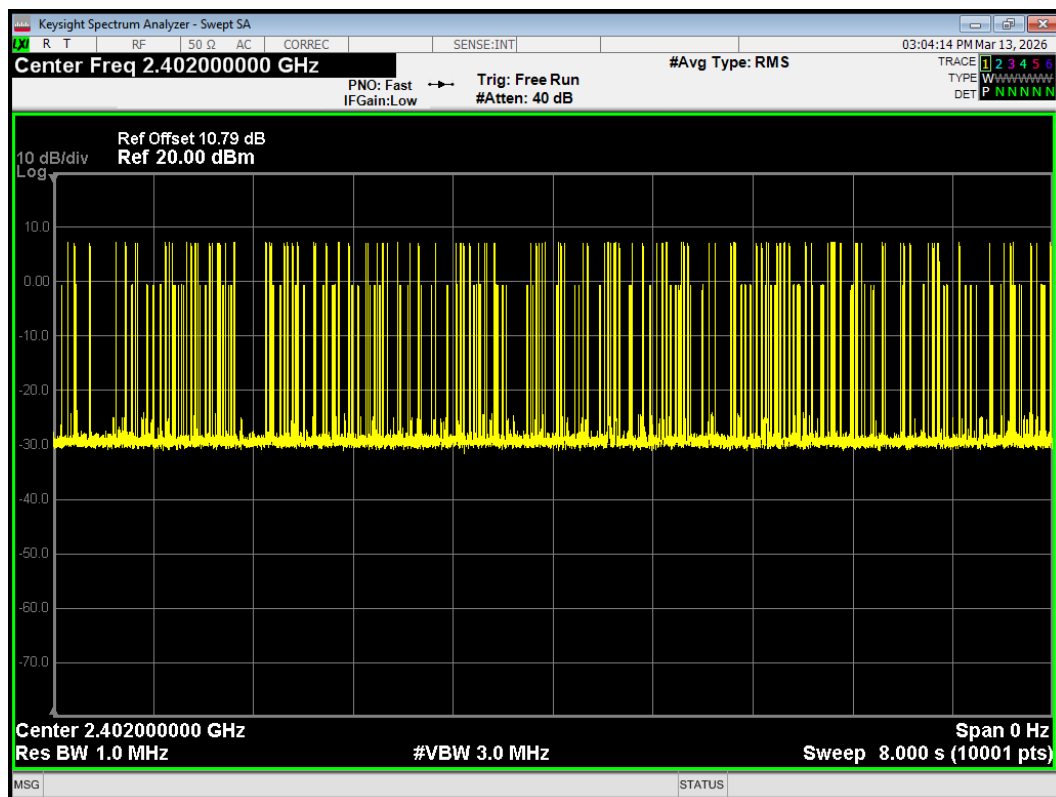
Dwell 2-DH5 2402MHz Accumulated



Dwell 3-DH5 2402MHz One Burst



Dwell 3-DH5 2402MHz Accumulated

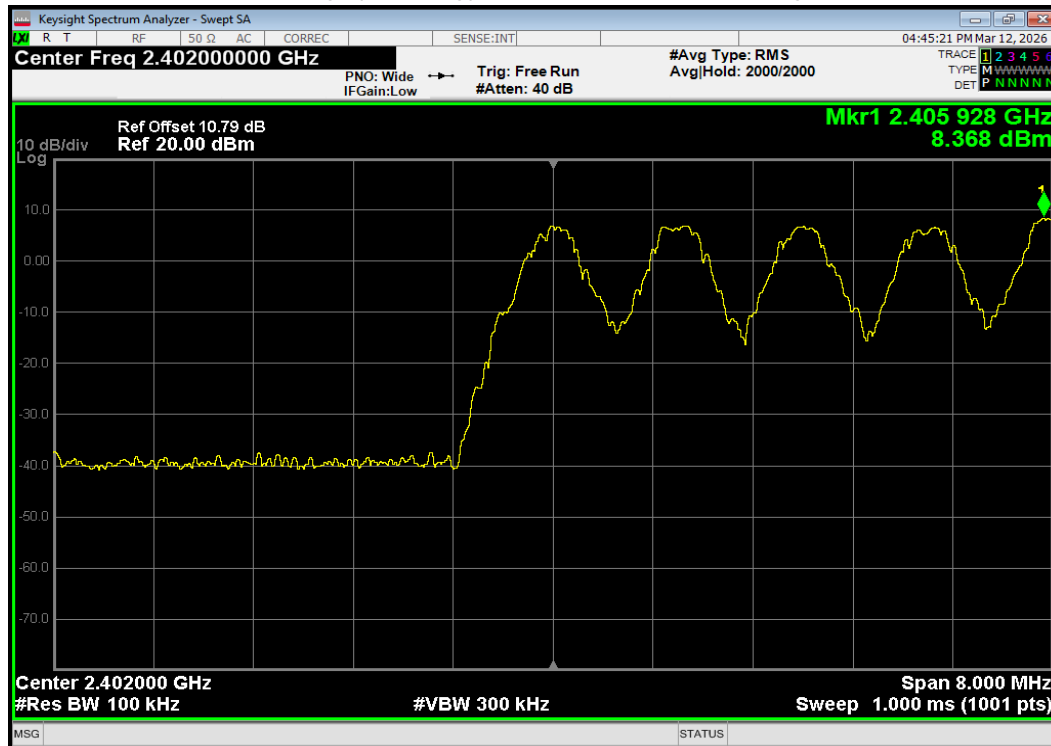


## 6.5 Band Edge Compliance

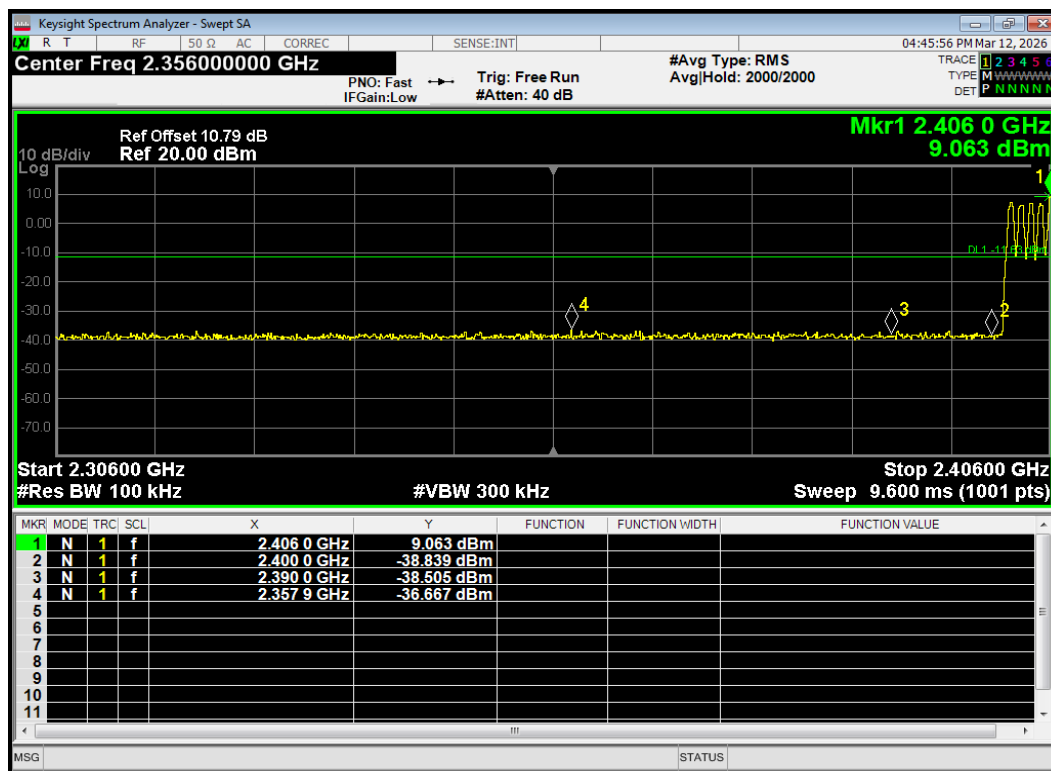
In normal mode:

Hopping On

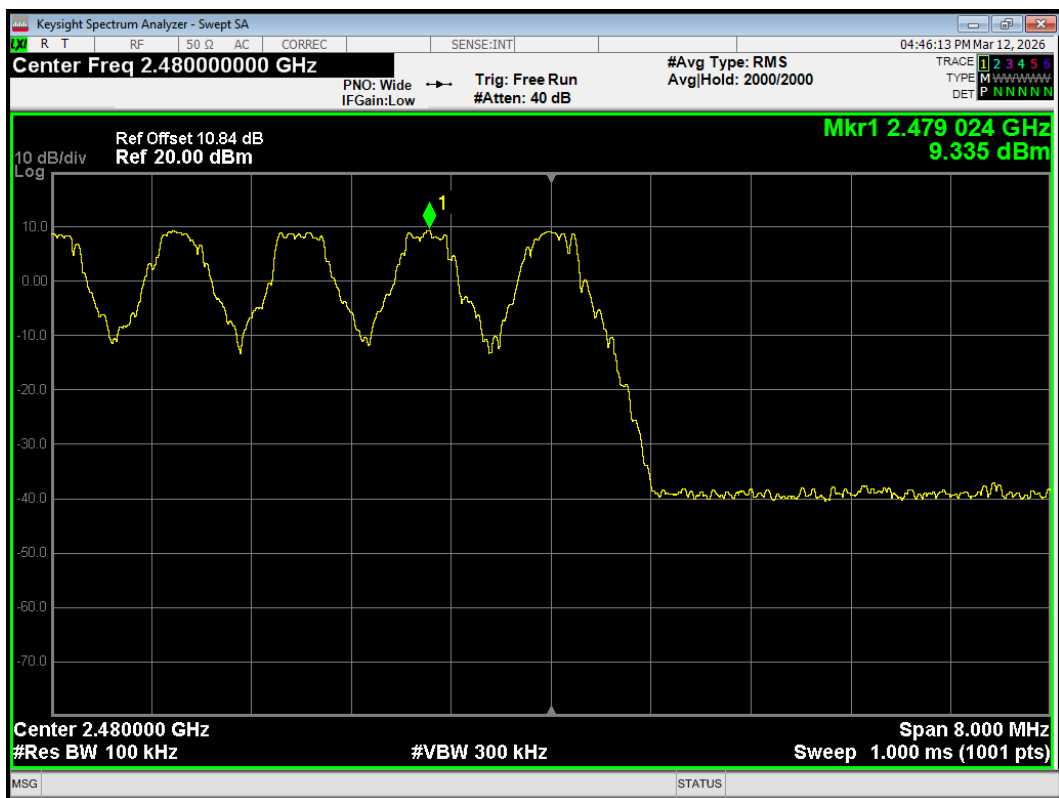
Band Edge(Hopping) 1-DH5 2402MHz Hopping Ref



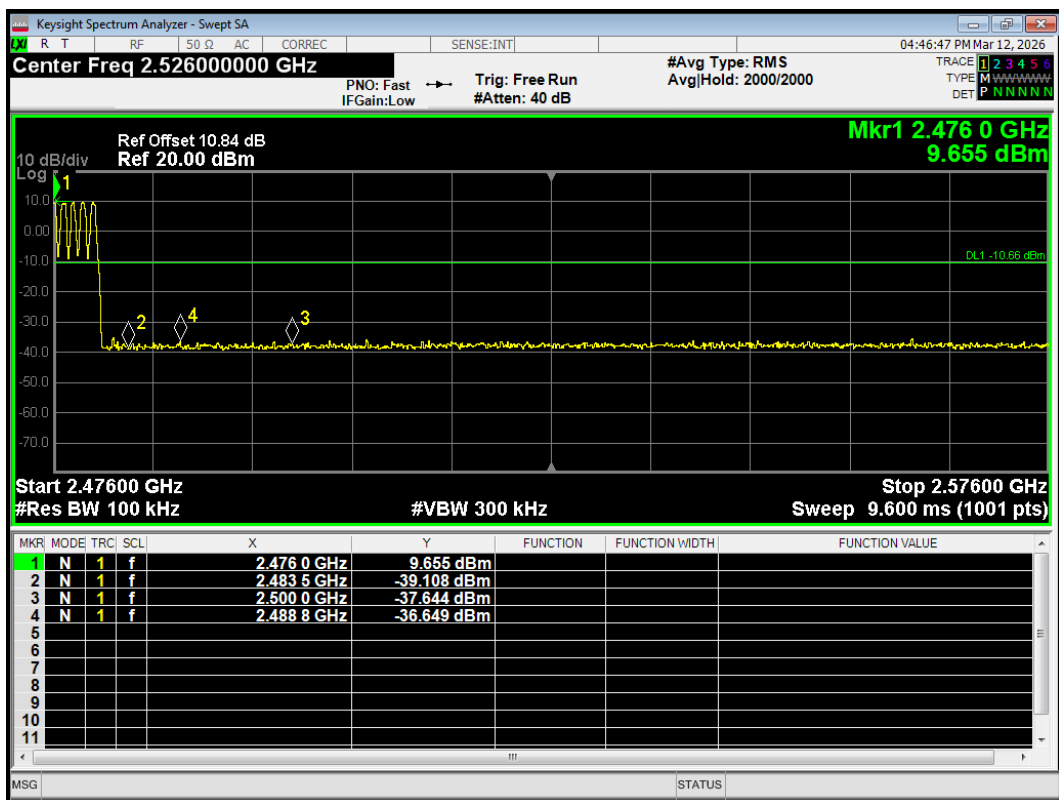
Band Edge(Hopping) 1-DH5 2402MHz Hopping Emission



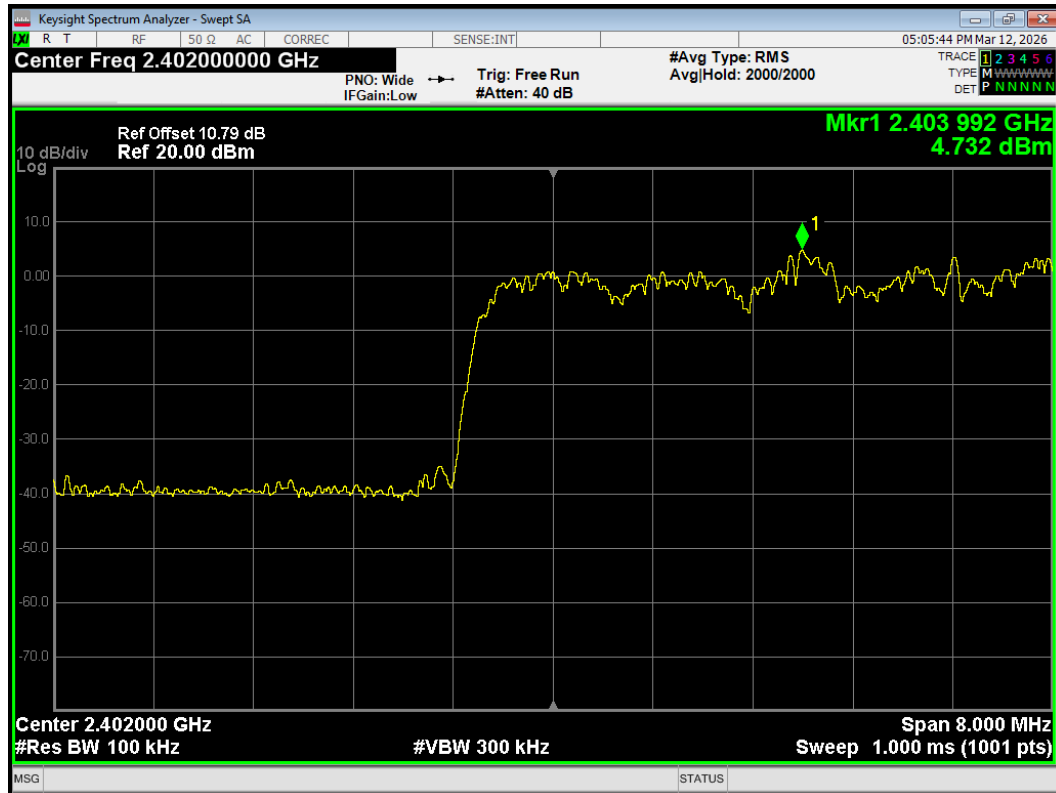
Band Edge(Hopping) 1-DH5 2480MHz Hopping Ref



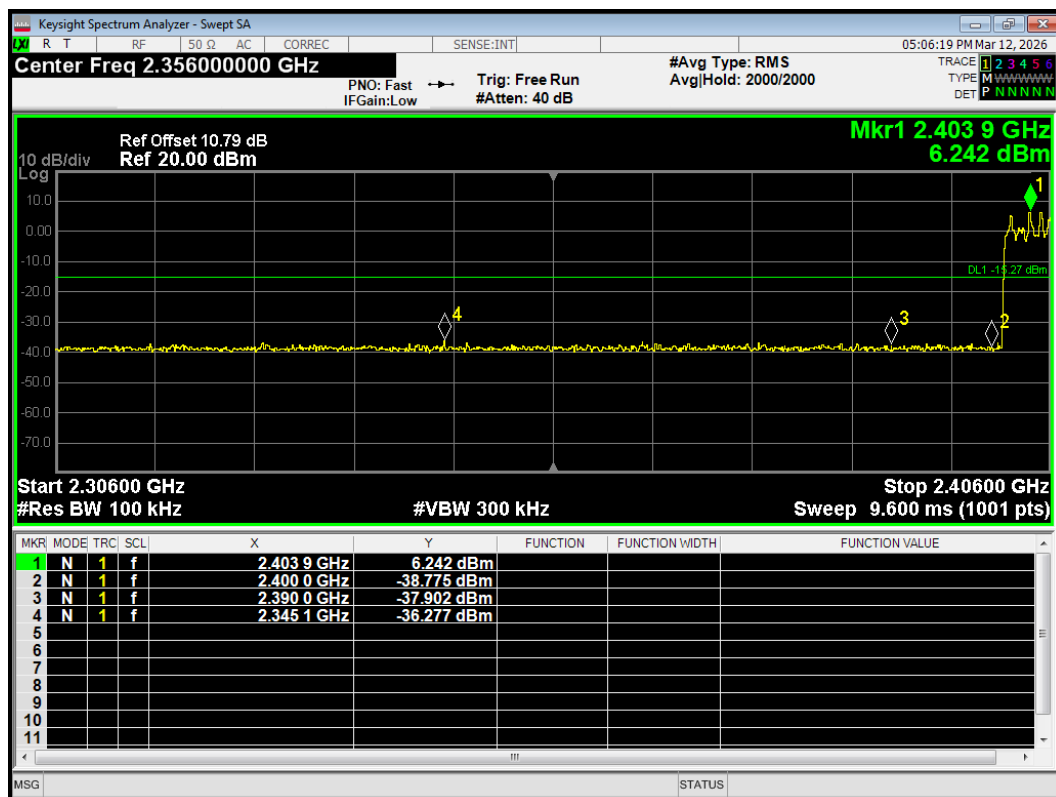
Band Edge(Hopping) 1-DH5 2480MHz Hopping Emission



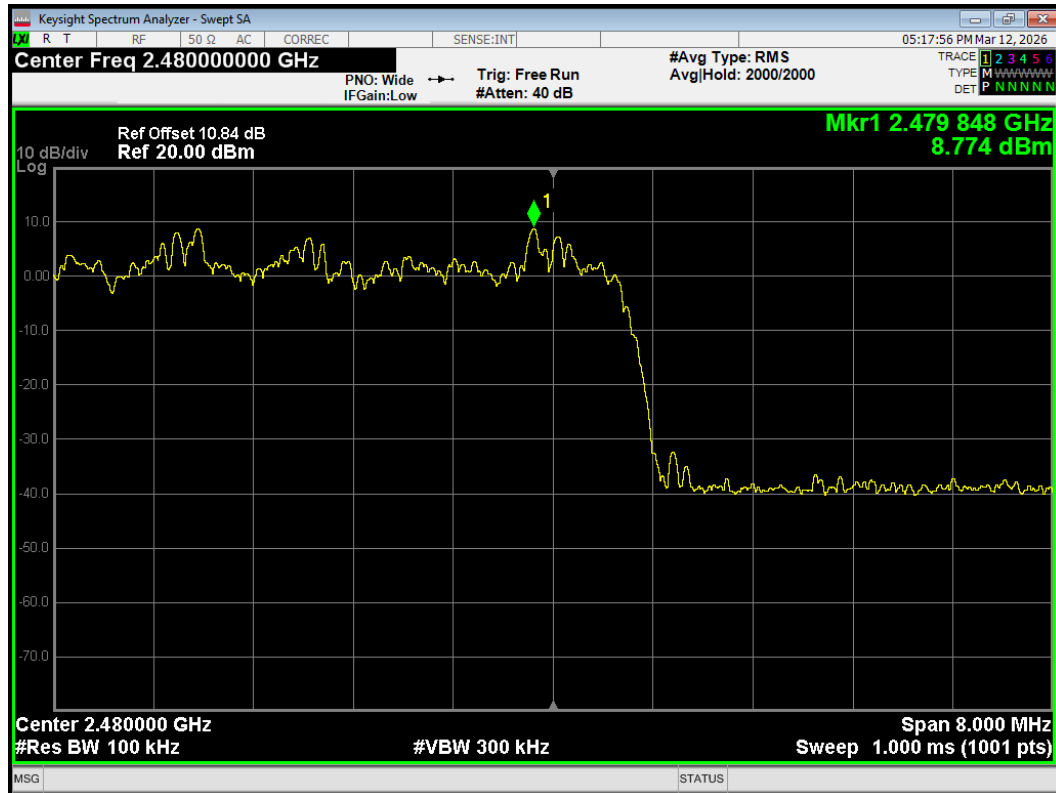
Band Edge(Hopping) 2-DH5 2402MHz Hopping Ref



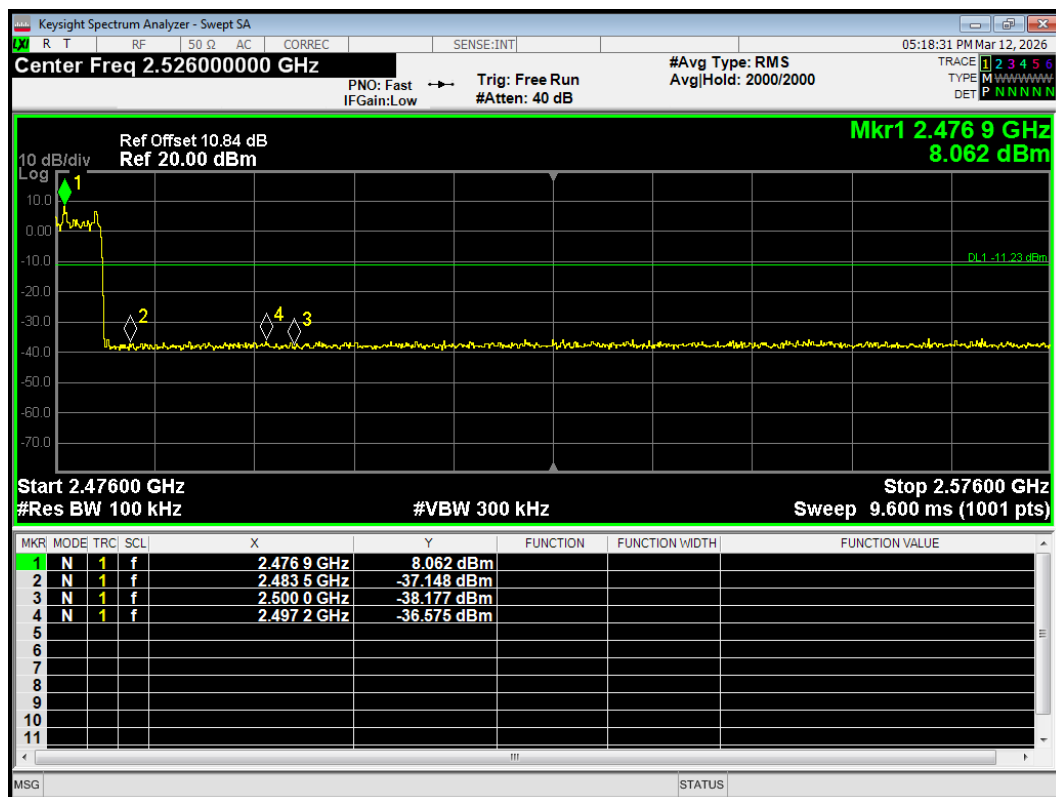
Band Edge(Hopping) 2-DH5 2402MHz Hopping Emission



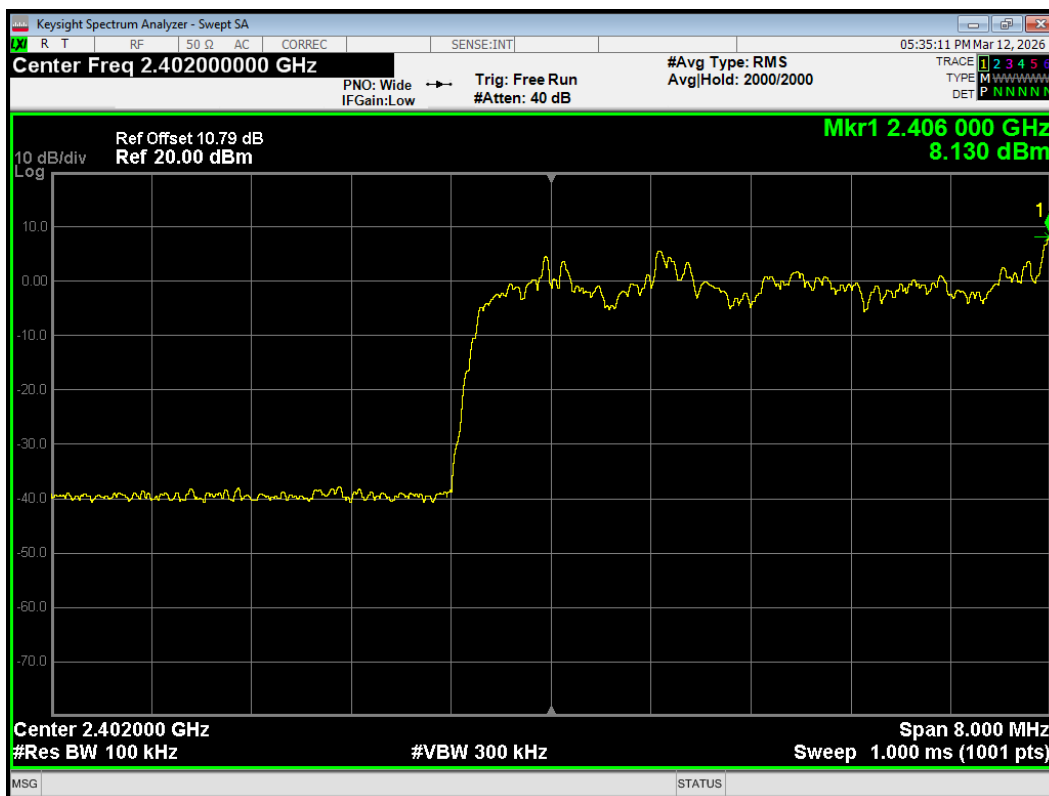
Band Edge(Hopping) 2-DH5 2480MHz Hopping Ref



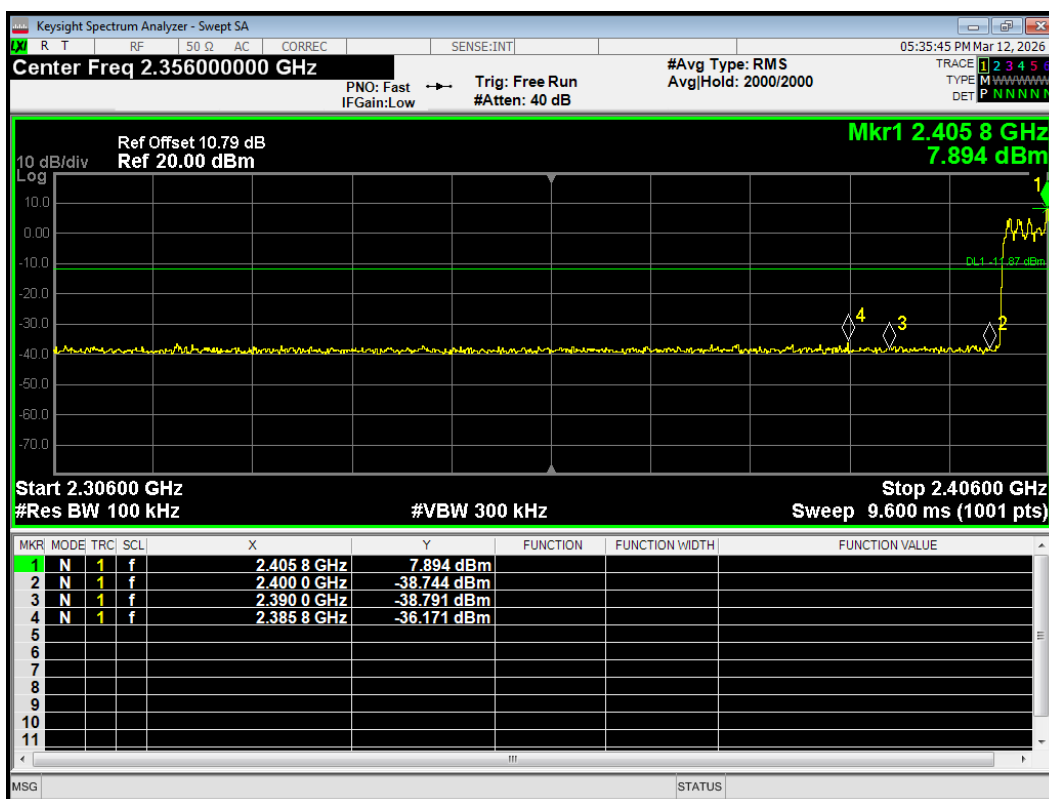
Band Edge(Hopping) 2-DH5 2480MHz Hopping Emission



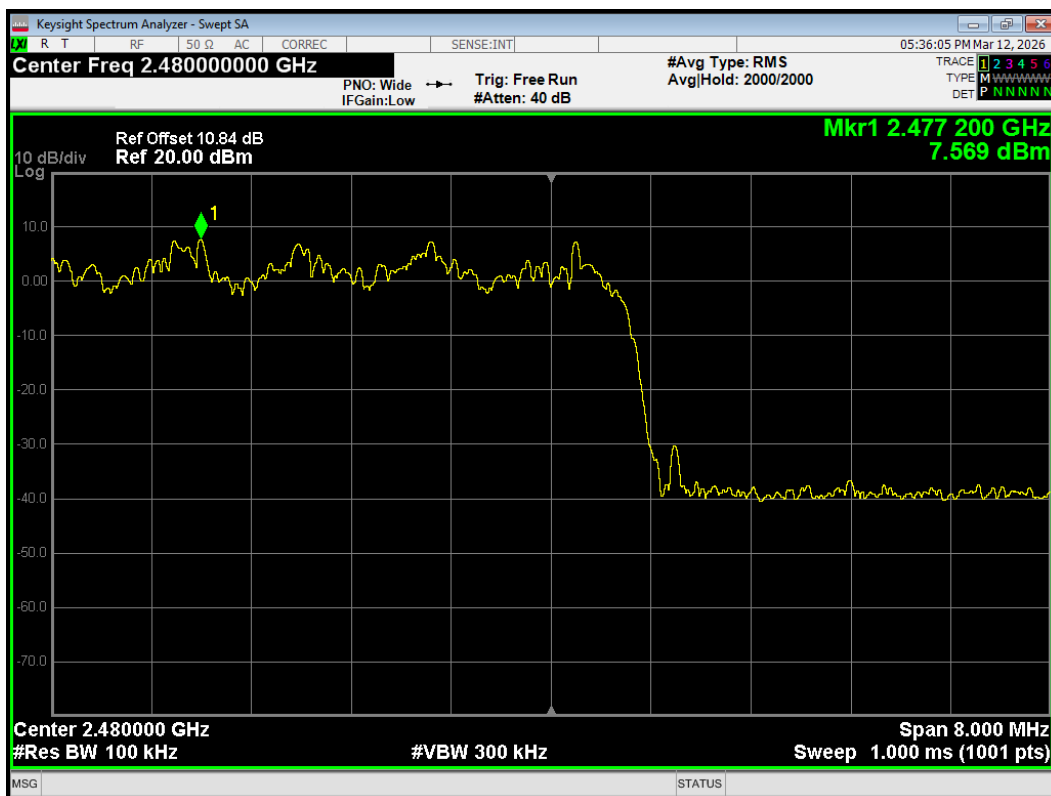
Band Edge(Hopping) 3-DH5 2402MHz Hopping Ref



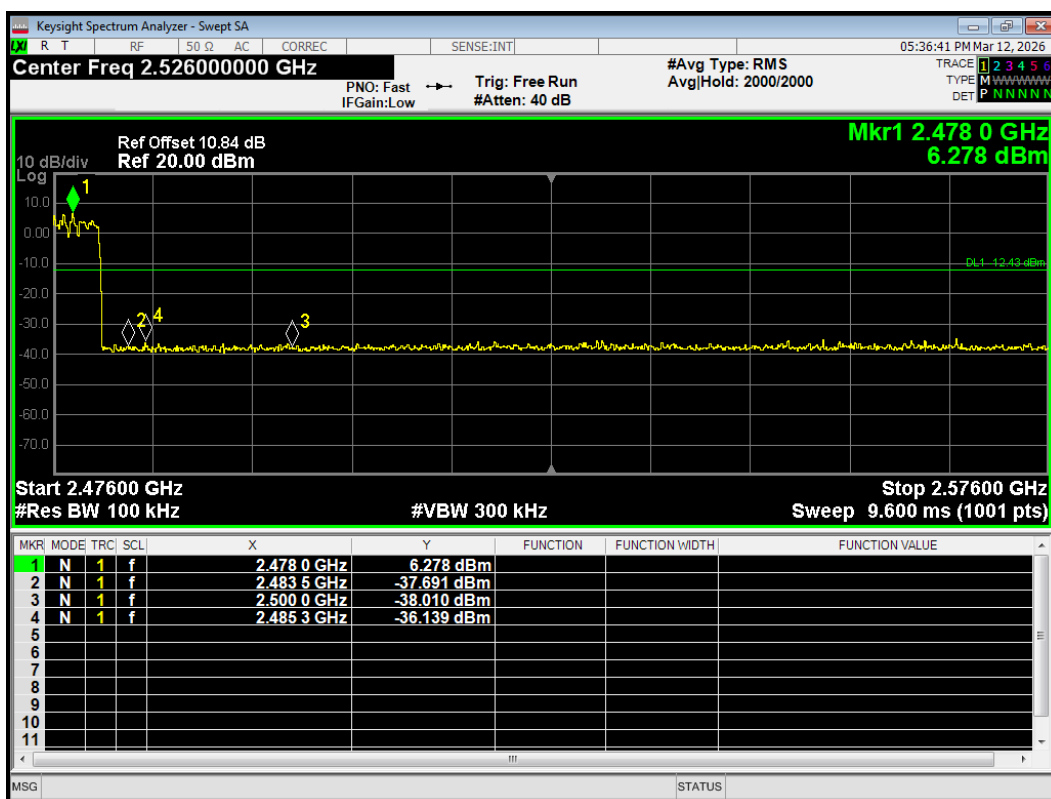
Band Edge(Hopping) 3-DH5 2402MHz Hopping Emission



Band Edge(Hopping) 3-DH5 2480MHz Hopping Ref

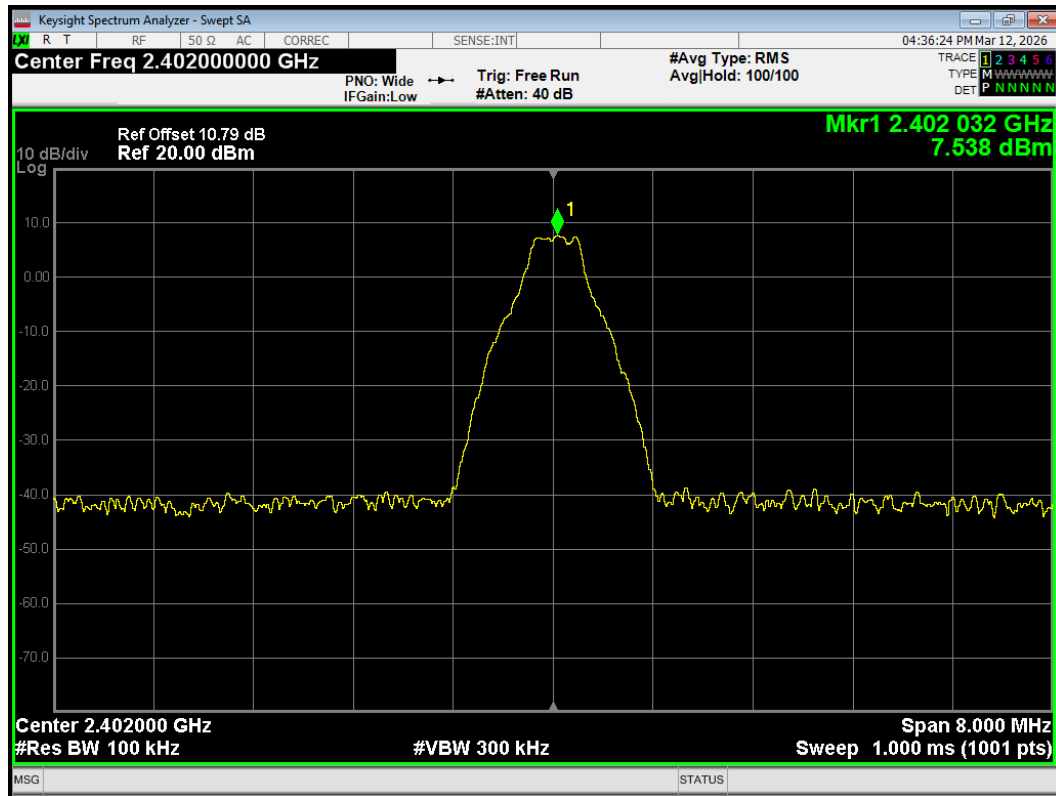


Band Edge(Hopping) 3-DH5 2480MHz Hopping Emission

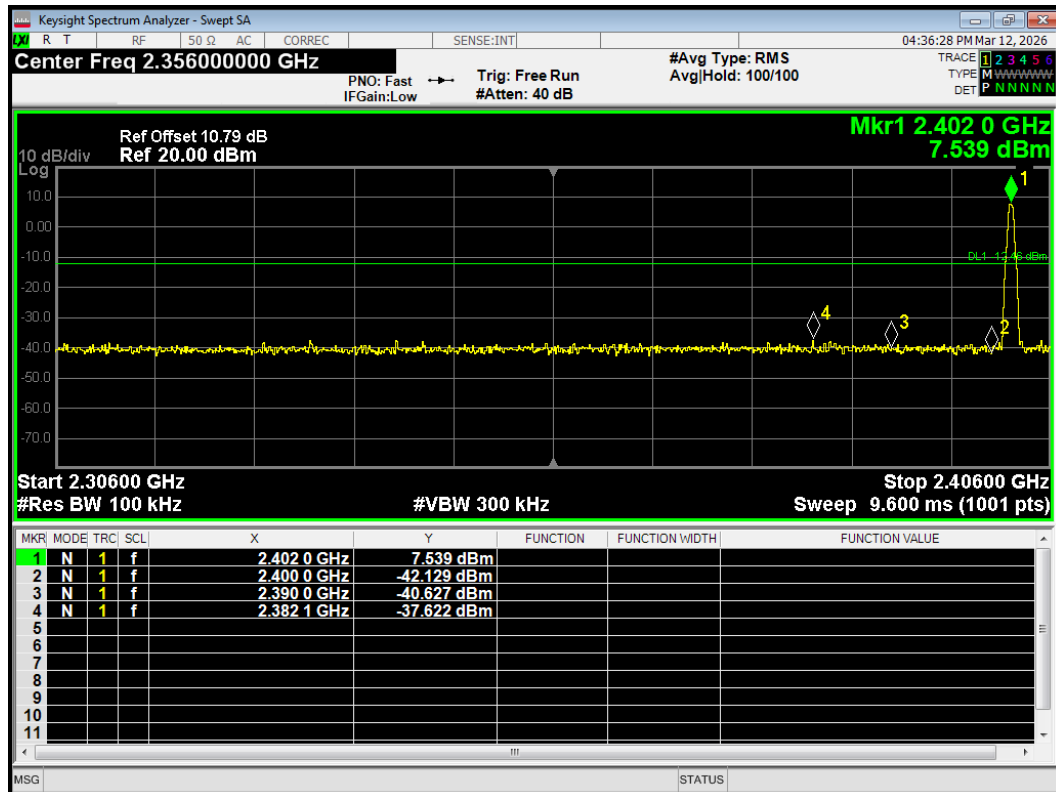


Hopping Off

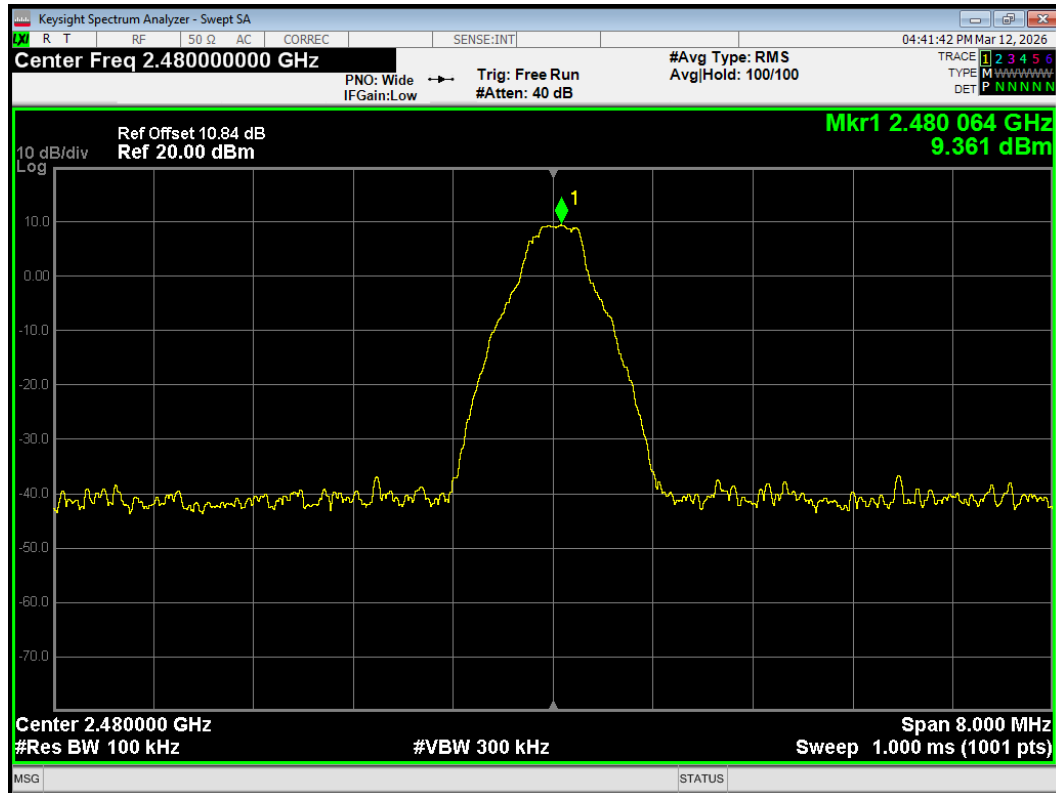
Band Edge 1-DH5 2402MHz No-Hopping Ref



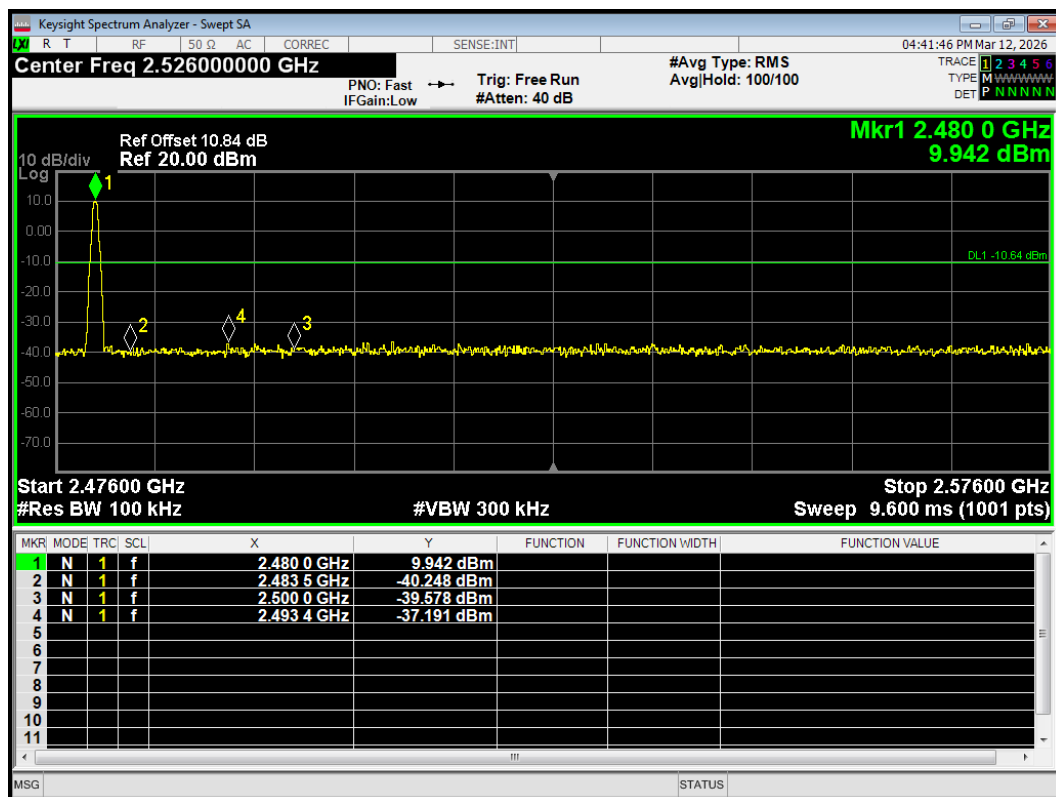
Band Edge 1-DH5 2402MHz No-Hopping Emission



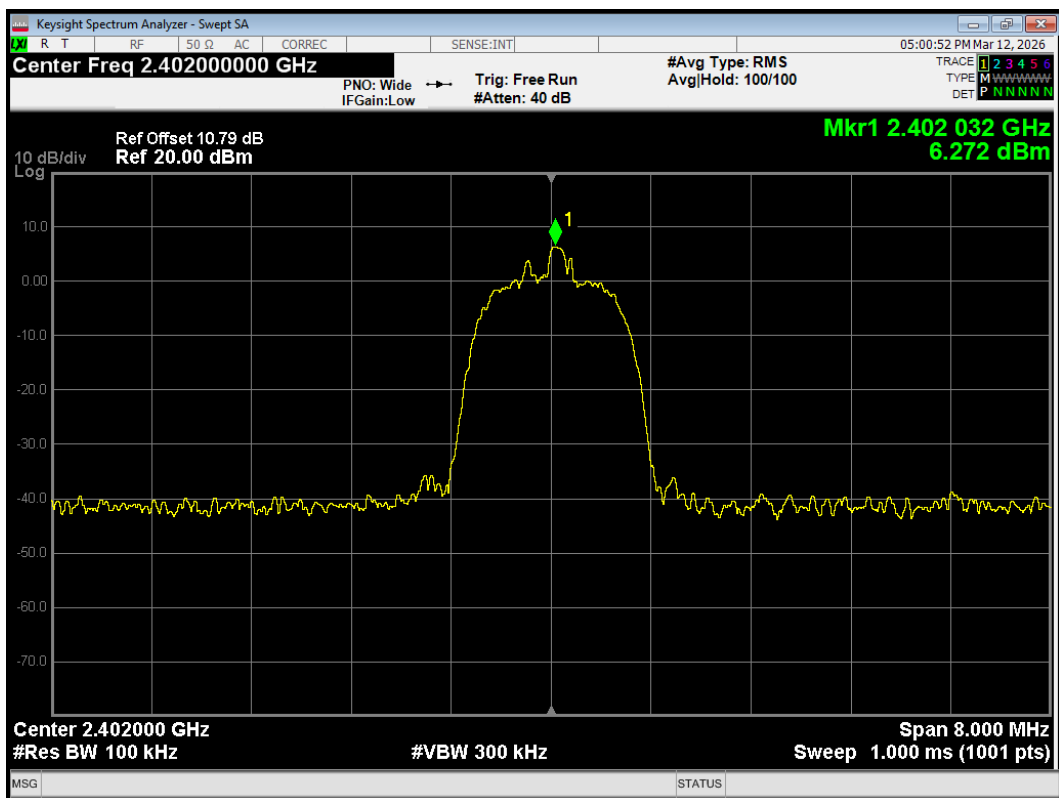
Band Edge 1-DH5 2480MHz No-Hopping Ref



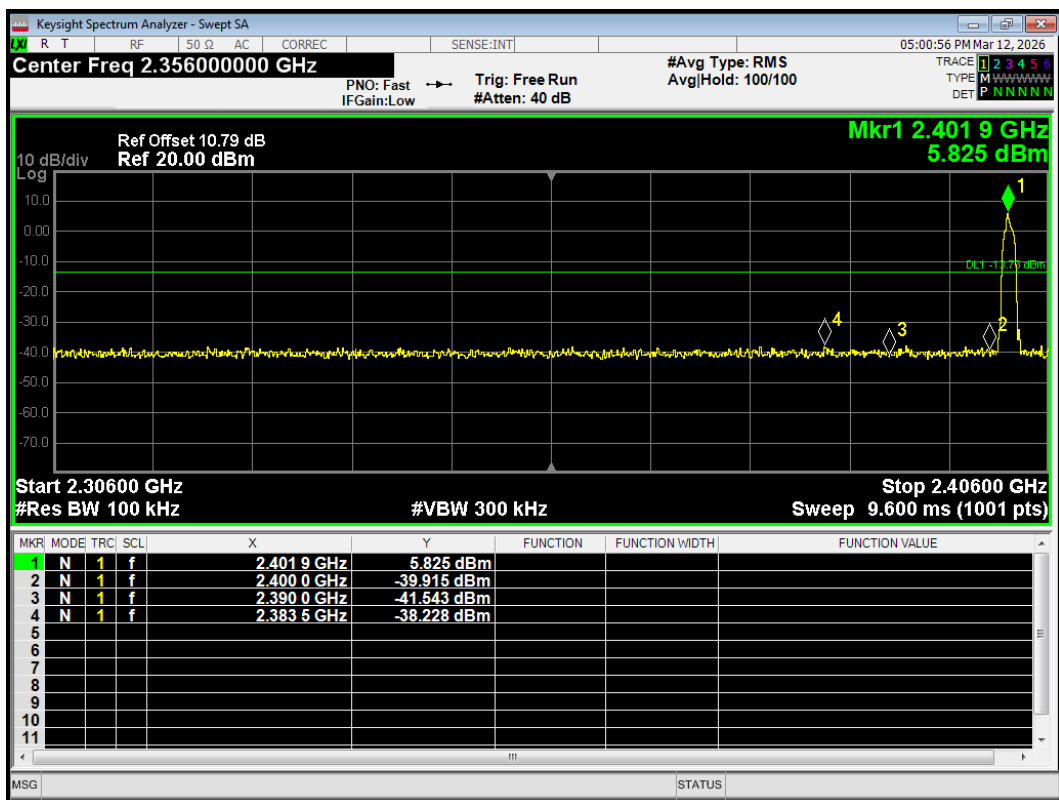
Band Edge 1-DH5 2480MHz No-Hopping Emission



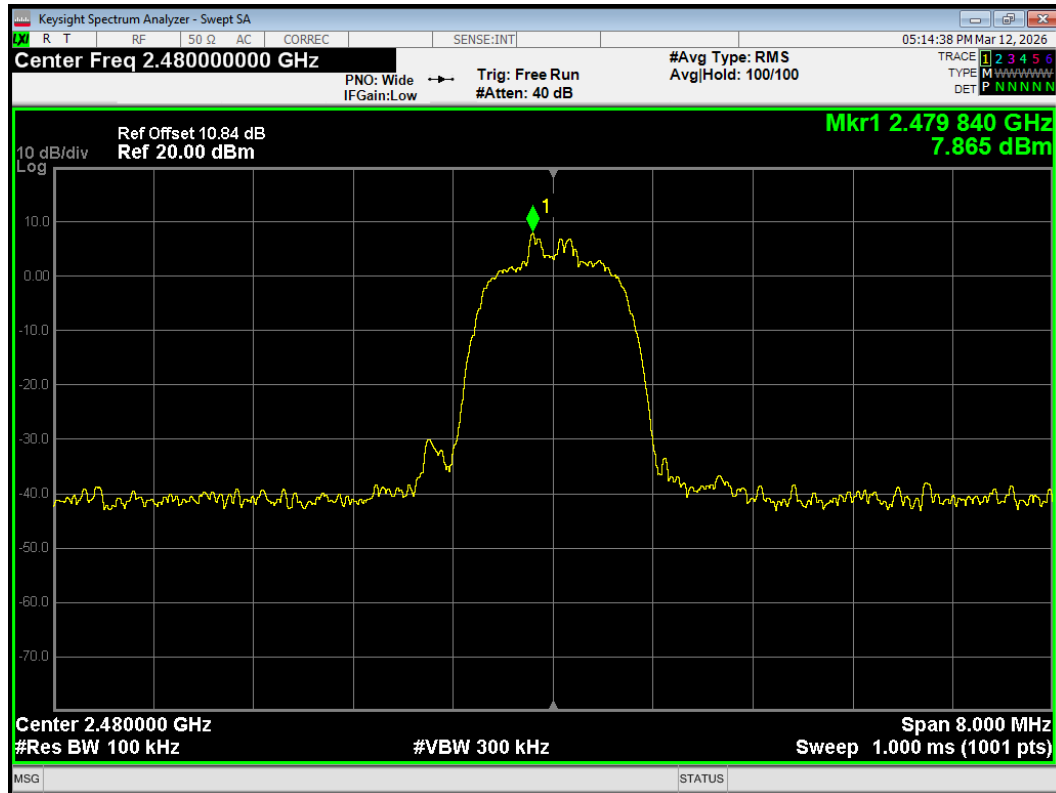
Band Edge 2-DH5 2402MHz No-Hopping Ref



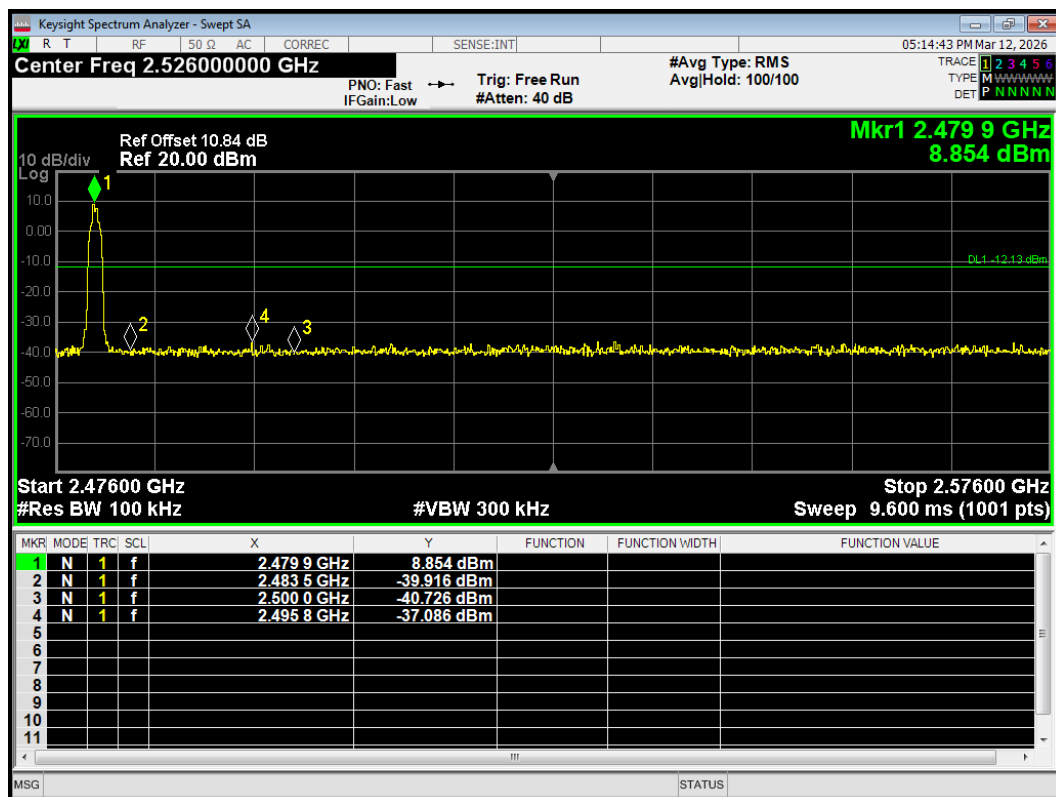
Band Edge 2-DH5 2402MHz No-Hopping Emission



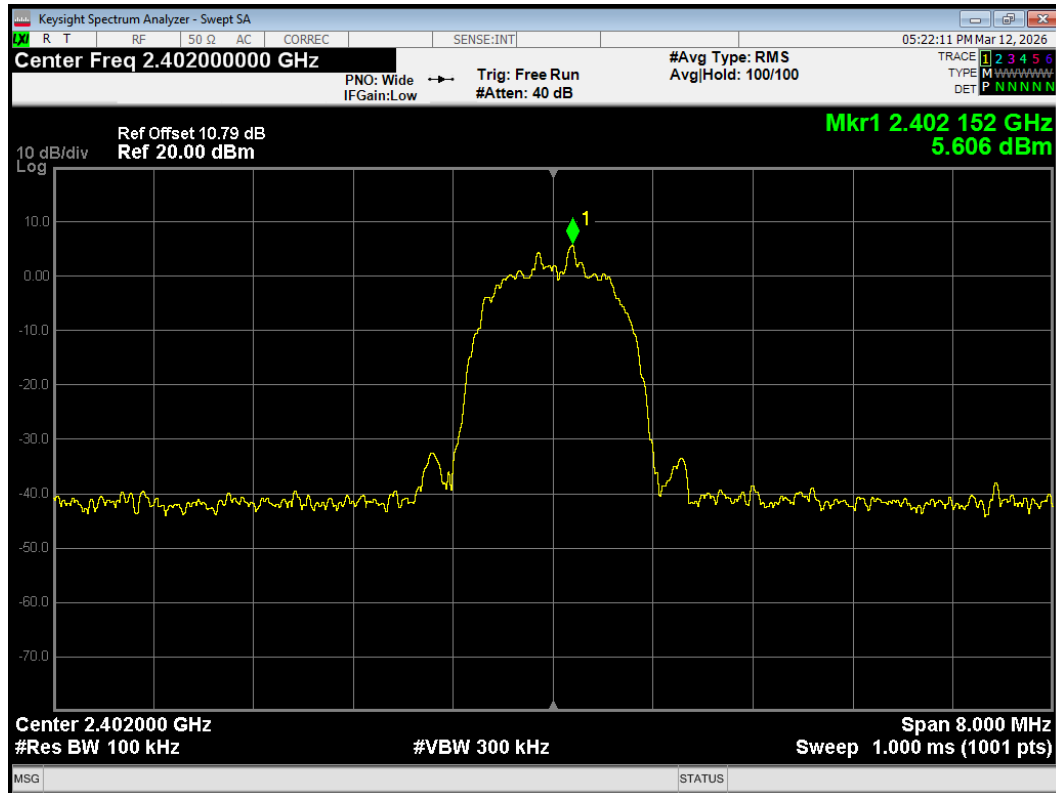
Band Edge 2-DH5 2480MHz No-Hopping Ref



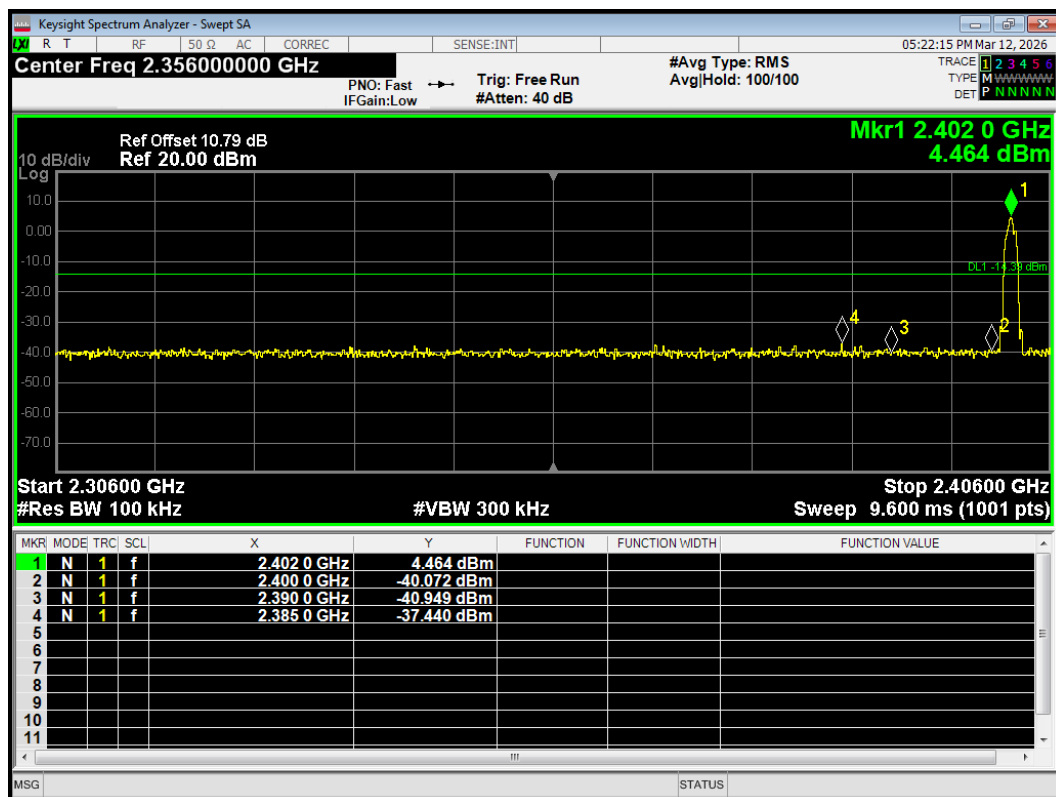
Band Edge 2-DH5 2480MHz No-Hopping Emission



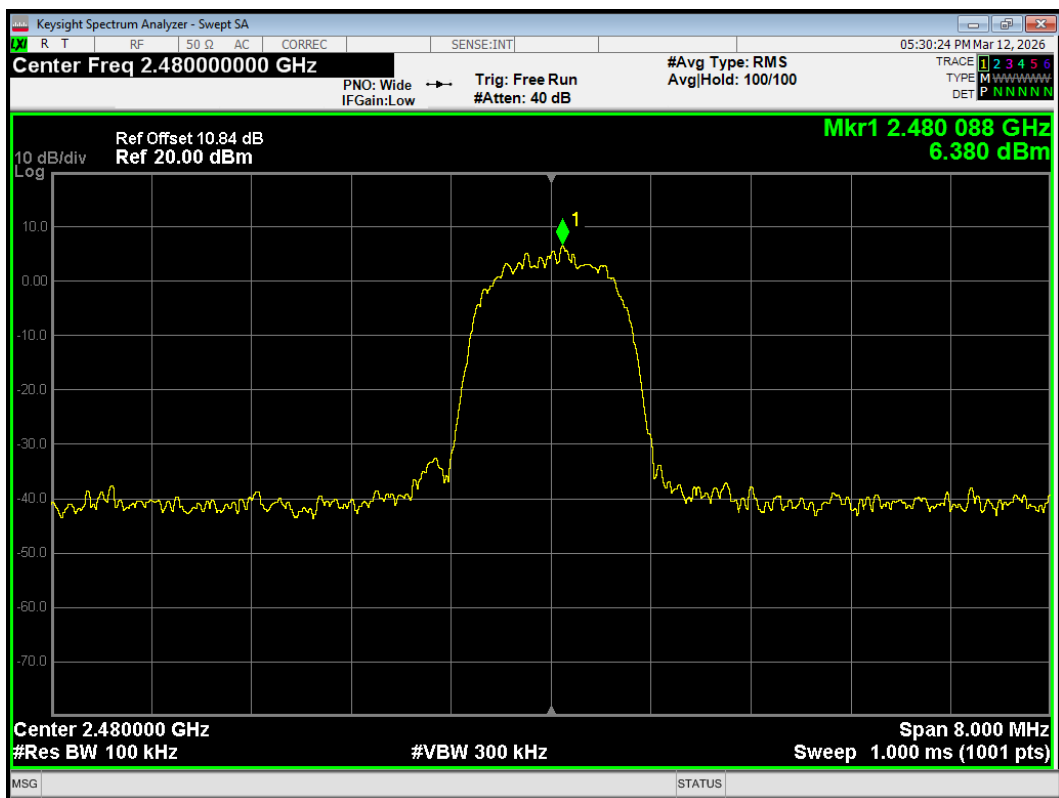
Band Edge 3-DH5 2402MHz No-Hopping Ref



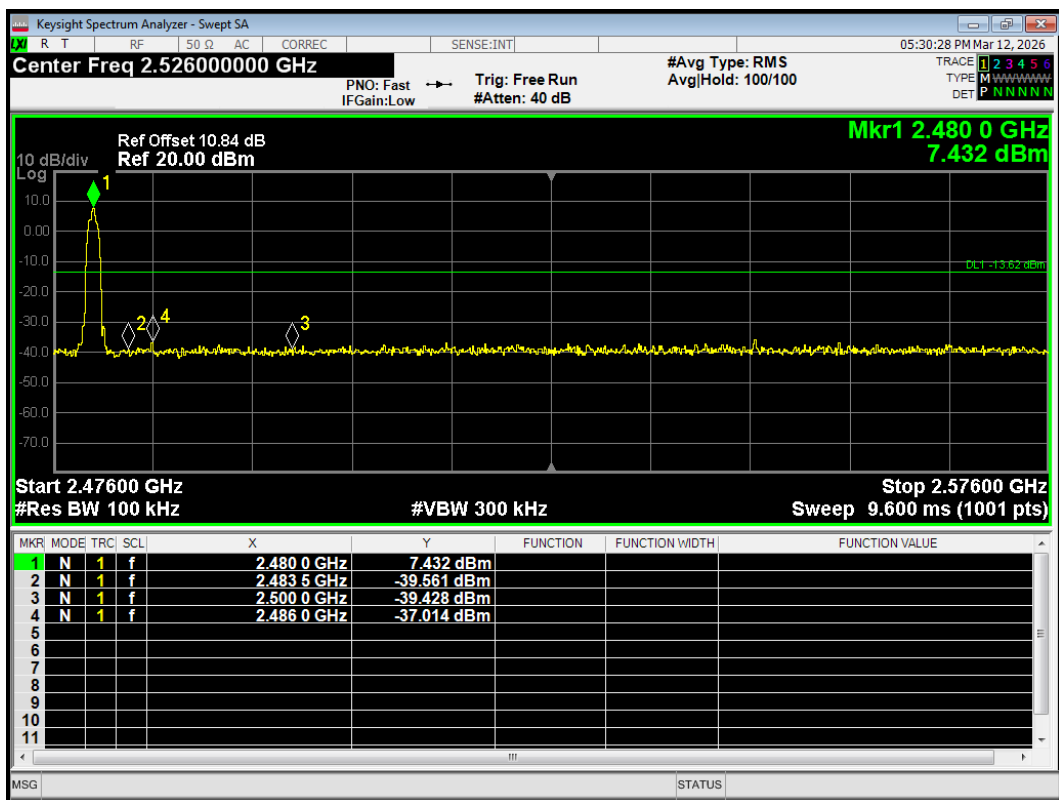
Band Edge 3-DH5 2402MHz No-Hopping Emission



Band Edge 3-DH5 2480MHz No-Hopping Ref



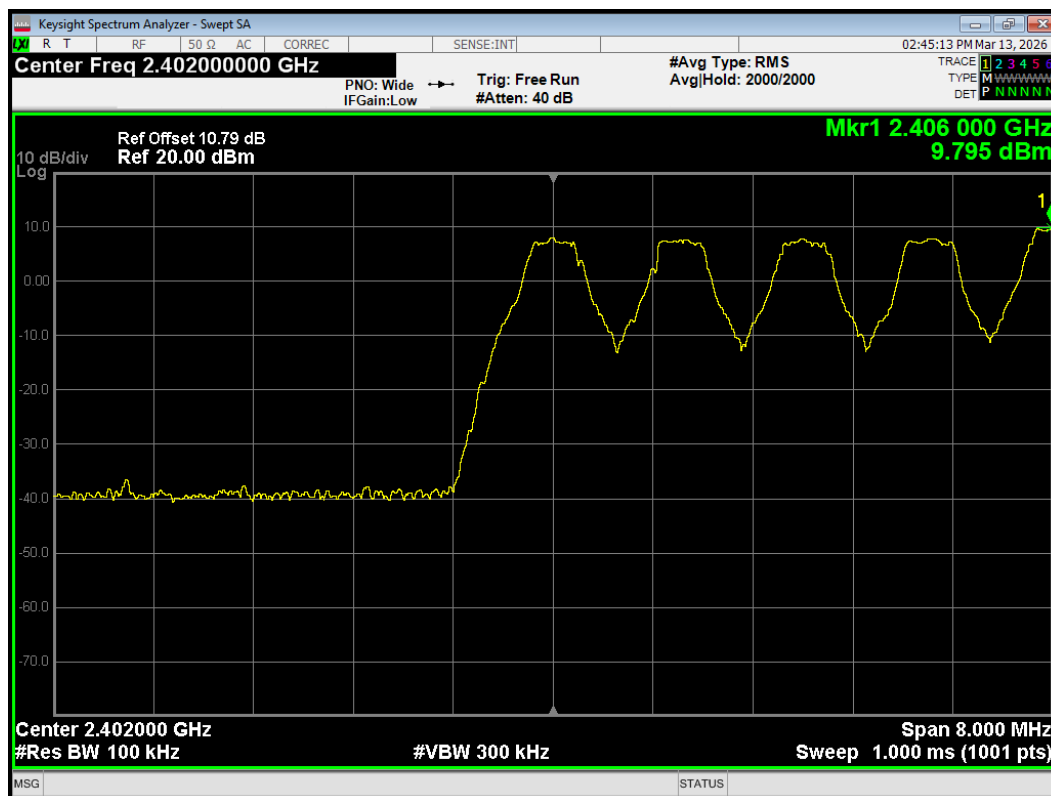
Band Edge 3-DH5 2480MHz No-Hopping Emission



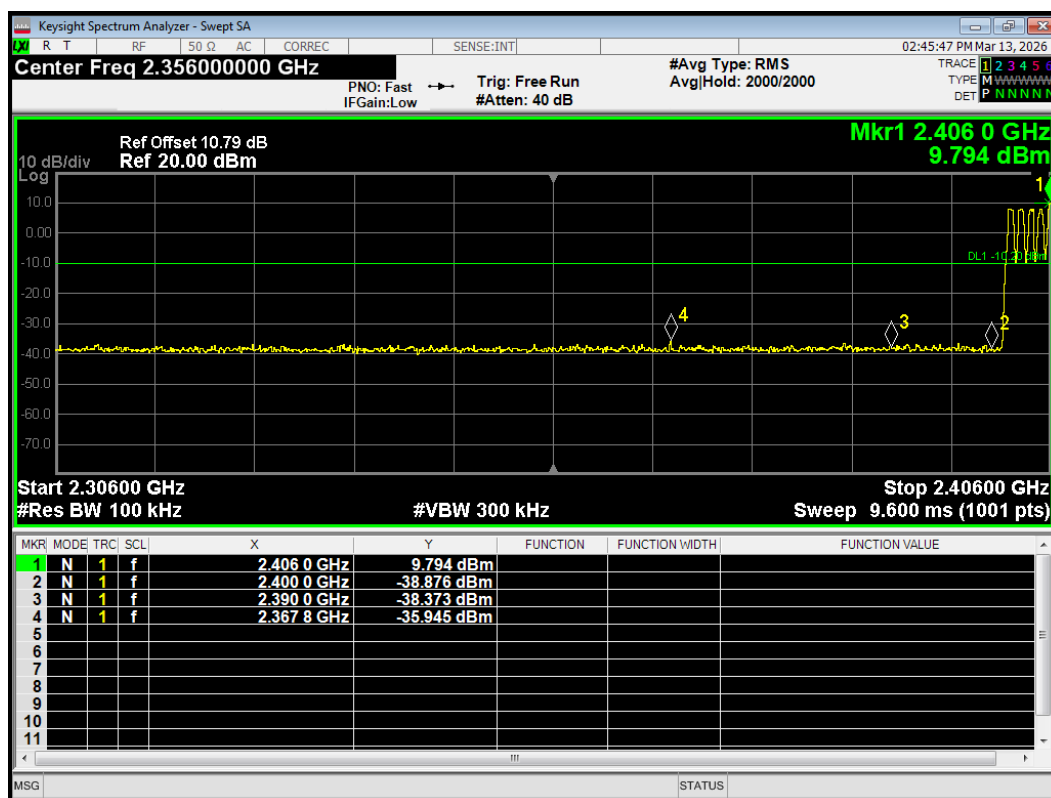
In AFH mode:

Hopping On

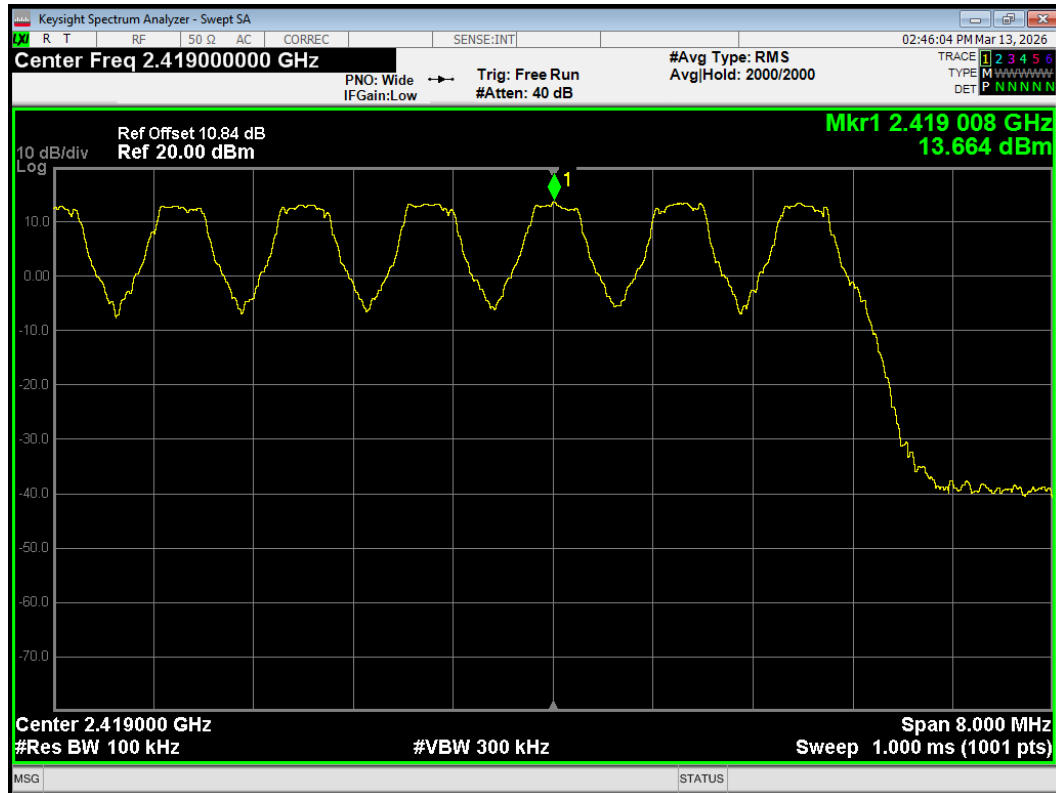
### Band Edge(Hopping) 1-DH5 2402MHz Hopping Ref



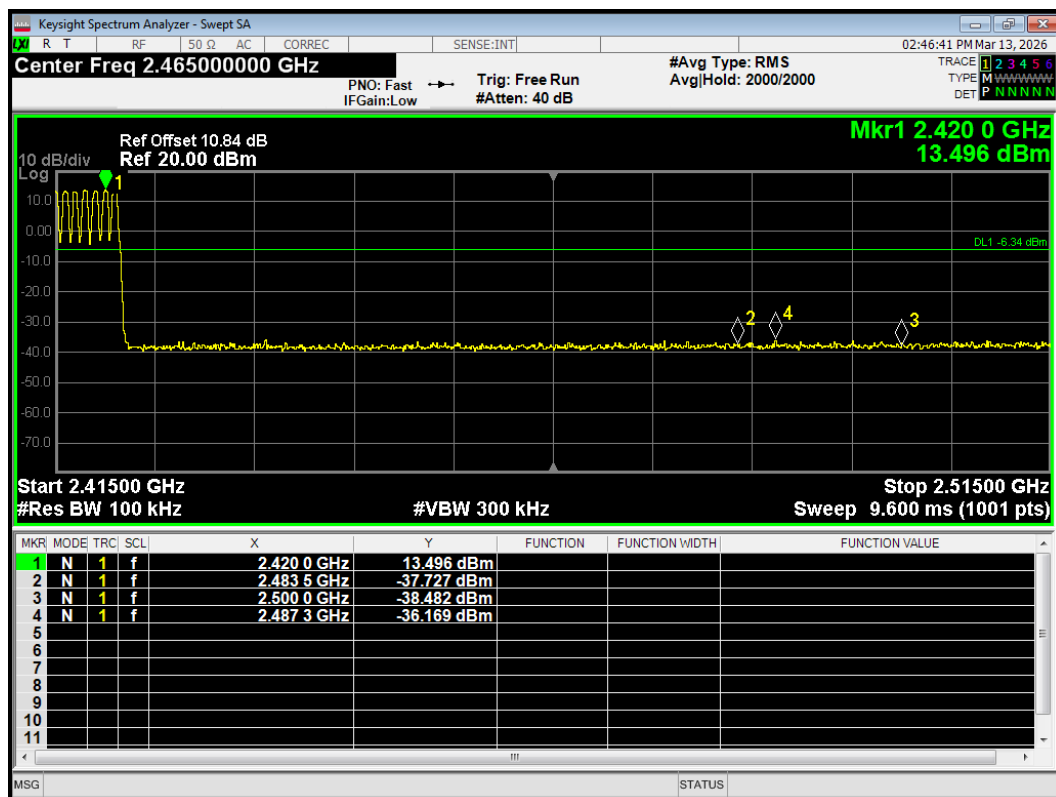
### Band Edge(Hopping) 1-DH5 2402MHz Hopping Emission



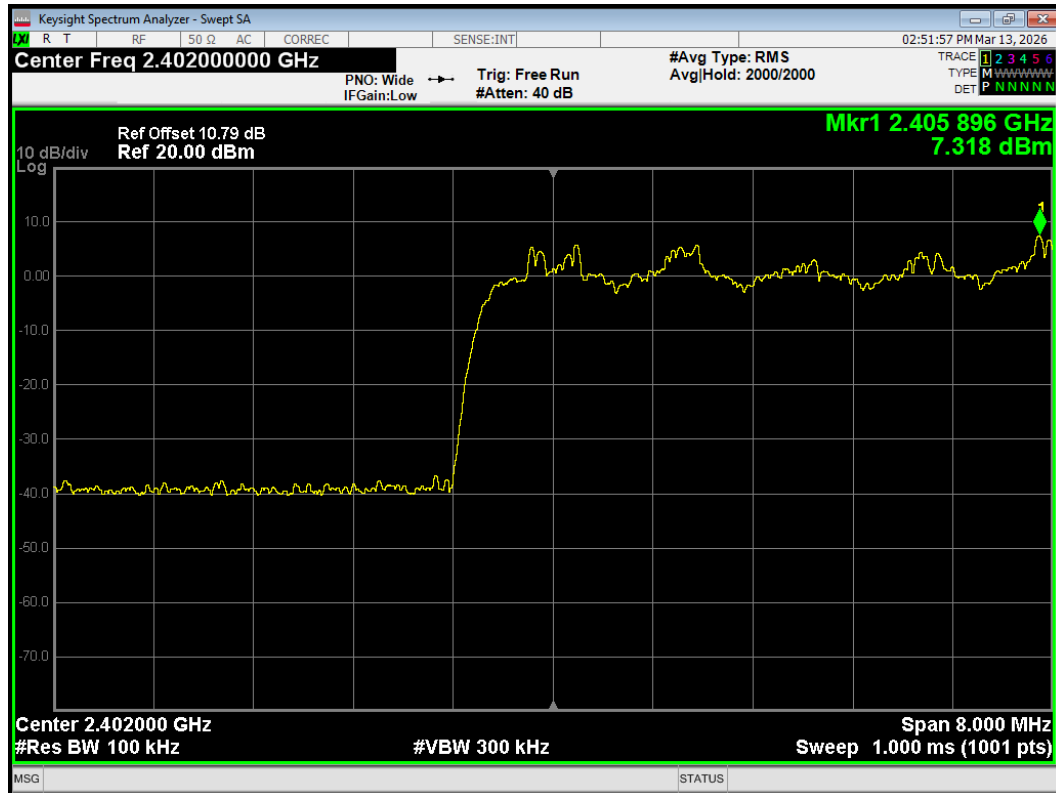
Band Edge(Hopping) 1-DH5 2419MHz Hopping Ref



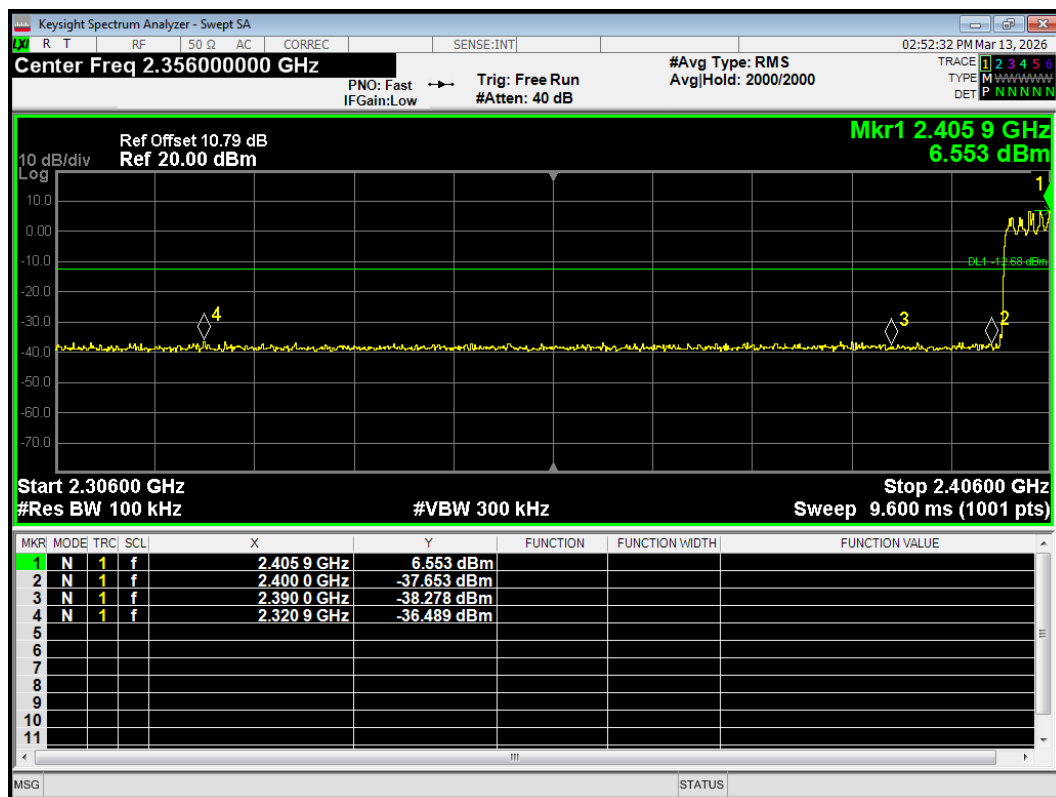
Band Edge(Hopping) 1-DH5 2419MHz Hopping Emission



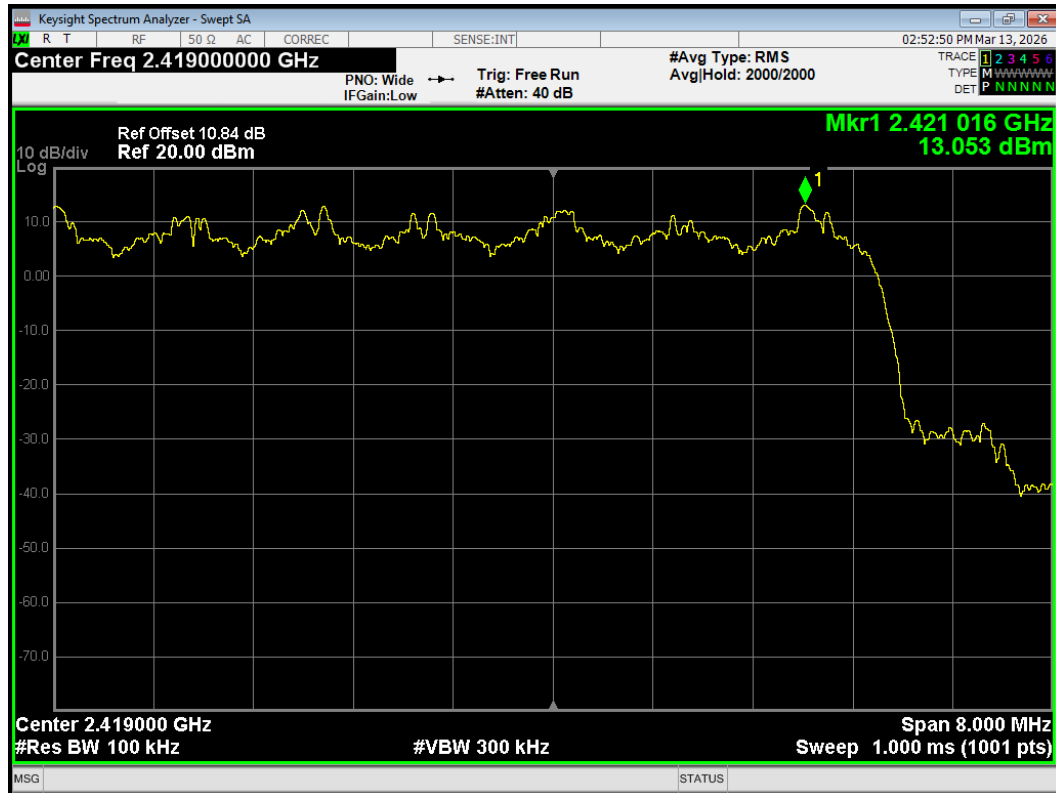
Band Edge(Hopping) 2-DH5 2402MHz Hopping Ref



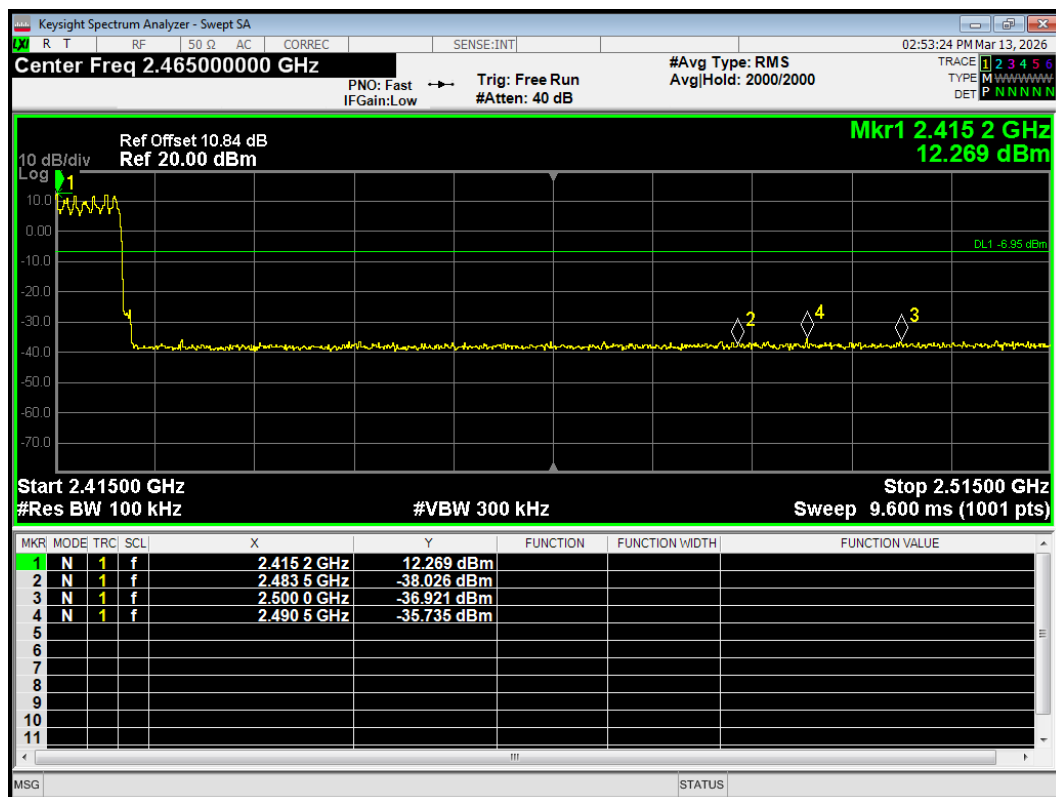
Band Edge(Hopping) 2-DH5 2402MHz Hopping Emission



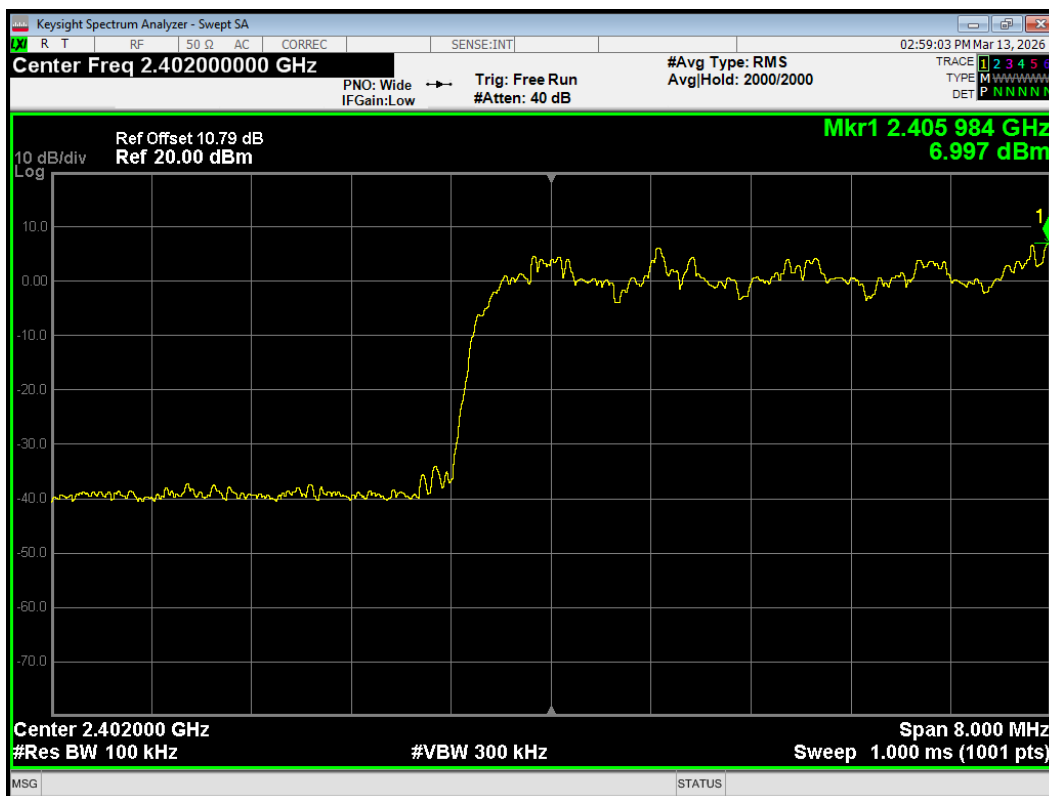
Band Edge(Hopping) 2-DH5 2419MHz Hopping Ref



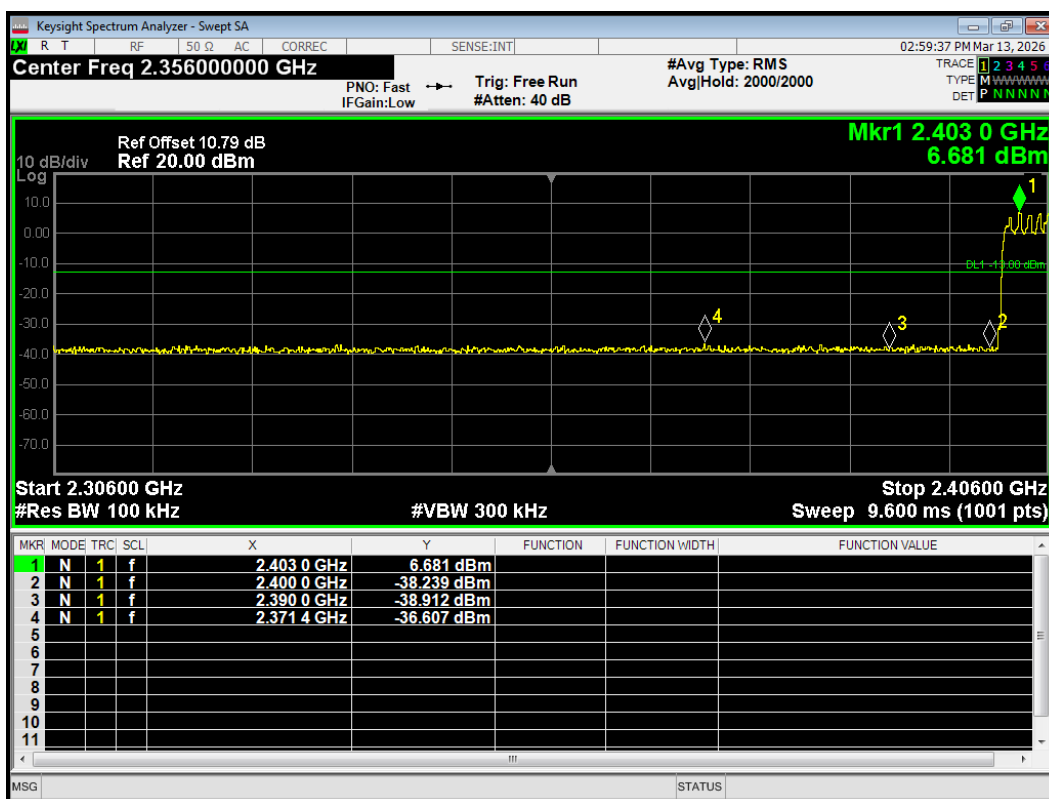
Band Edge(Hopping) 2-DH5 2419MHz Hopping Emission



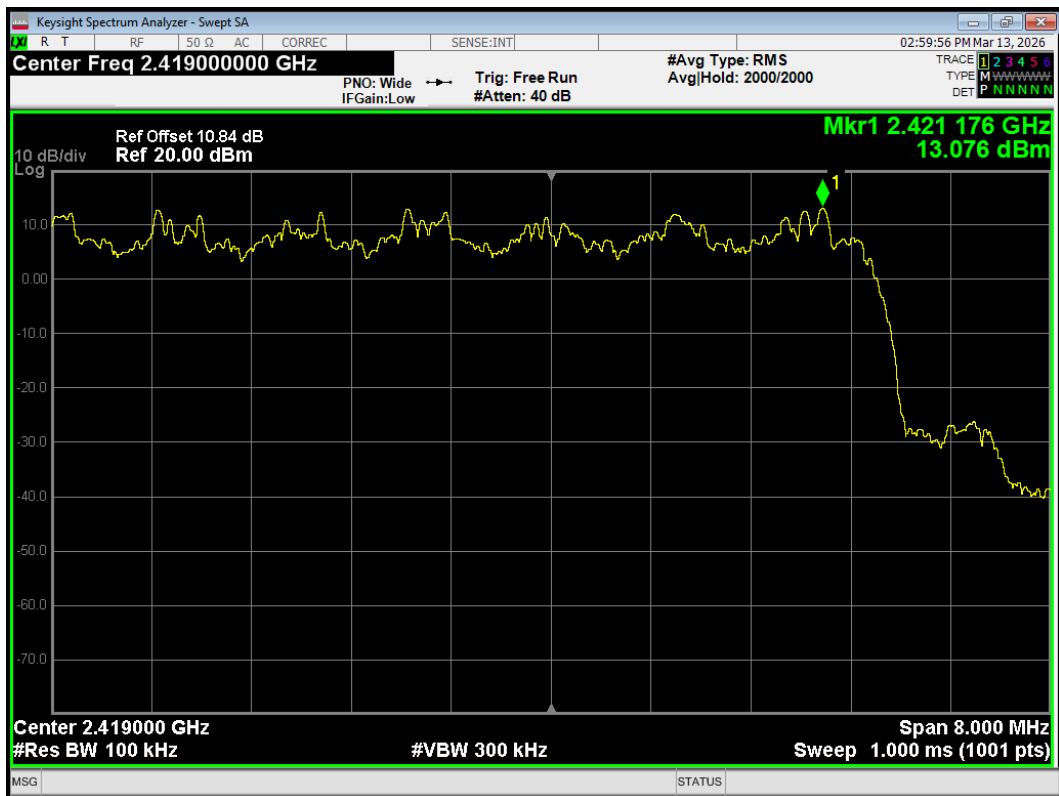
Band Edge(Hopping) 3-DH5 2402MHz Hopping Ref



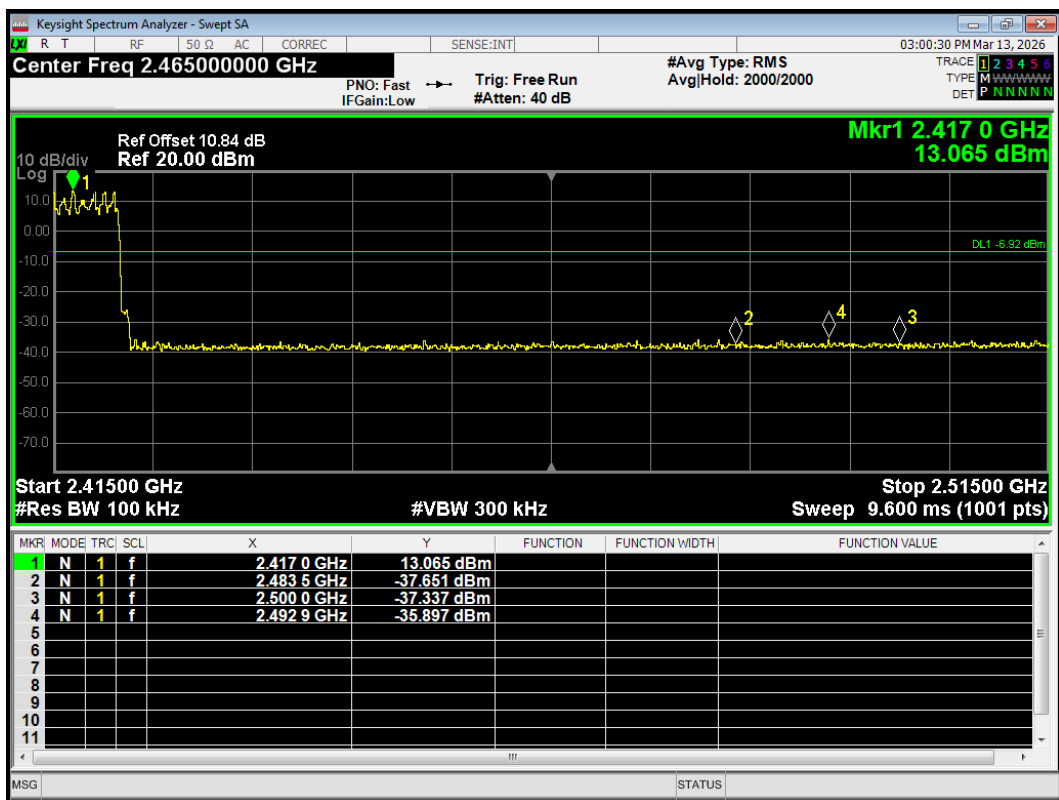
Band Edge(Hopping) 3-DH5 2402MHz Hopping Emission



Band Edge(Hopping) 3-DH5 2419MHz Hopping Ref



Band Edge(Hopping) 3-DH5 2419MHz Hopping Emission



## 6.6 Number of hopping Frequency

In normal mode:

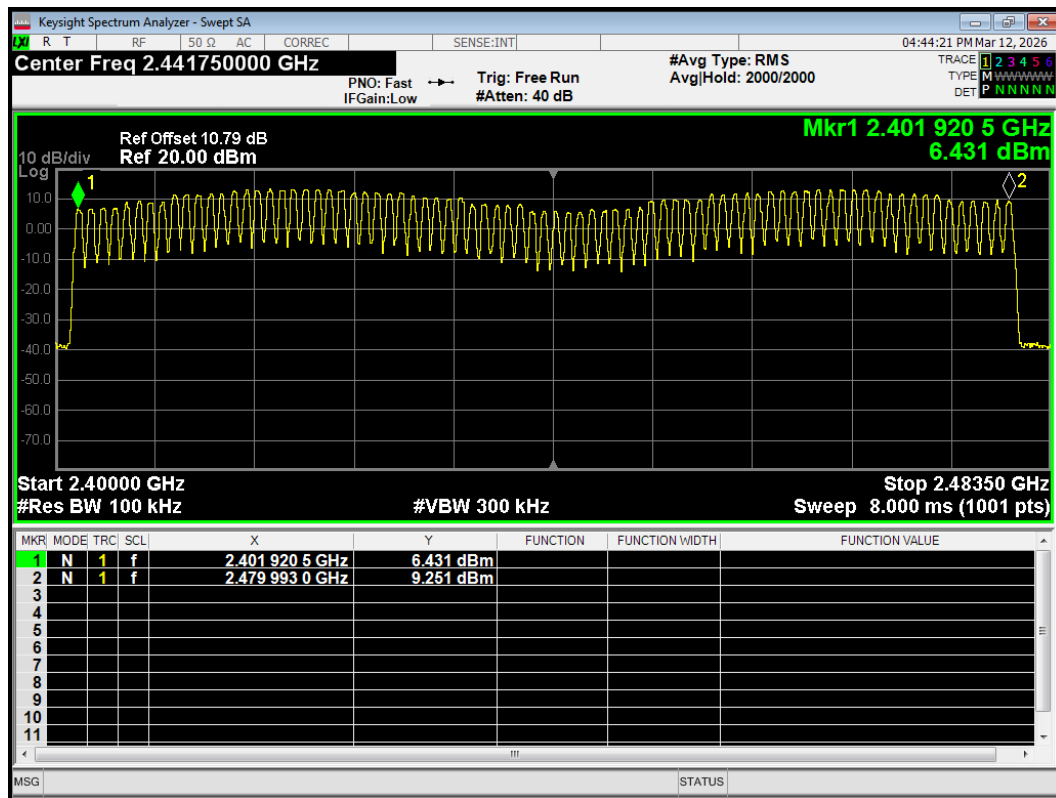
| Test Mode |      | Number of hopping channels | conclusion |
|-----------|------|----------------------------|------------|
| Bluetooth | DH5  | 79                         | PASS       |
|           | 2DH5 | 79                         | PASS       |
|           | 3DH5 | 79                         | PASS       |

In AFH mode:

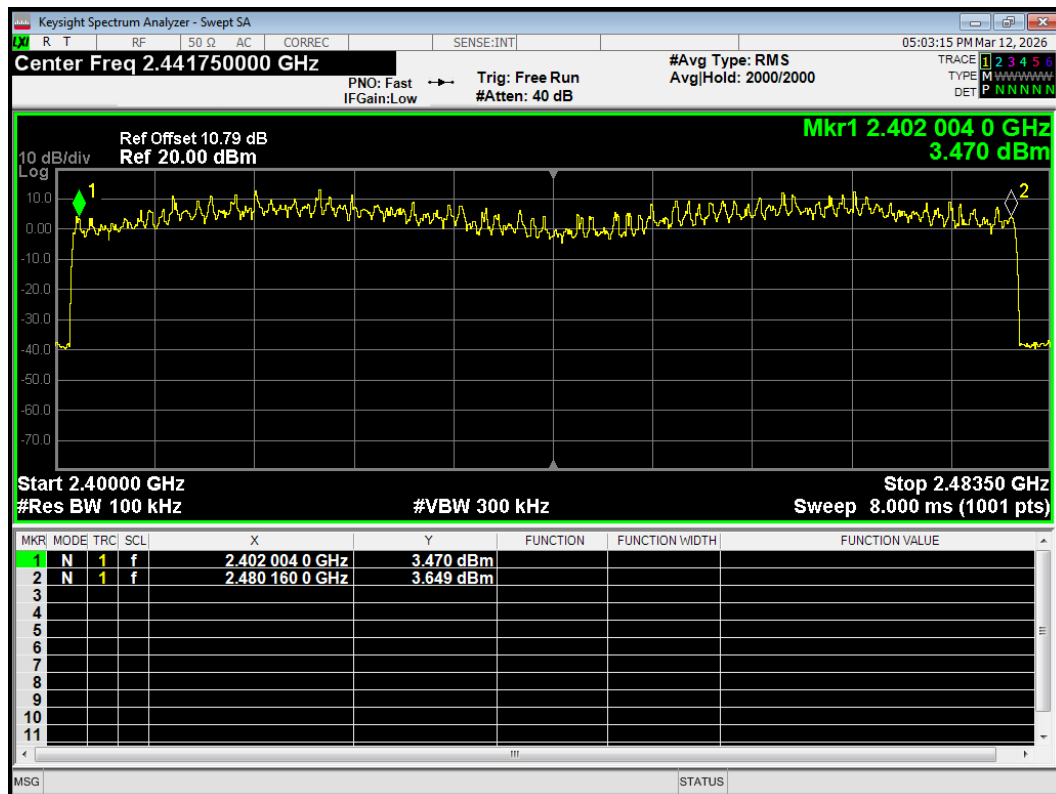
| Test Mode |      | Number of hopping channels | conclusion |
|-----------|------|----------------------------|------------|
| Bluetooth | DH5  | 20                         | PASS       |
|           | 2DH5 | 20                         | PASS       |
|           | 3DH5 | 20                         | PASS       |

In normal mode:

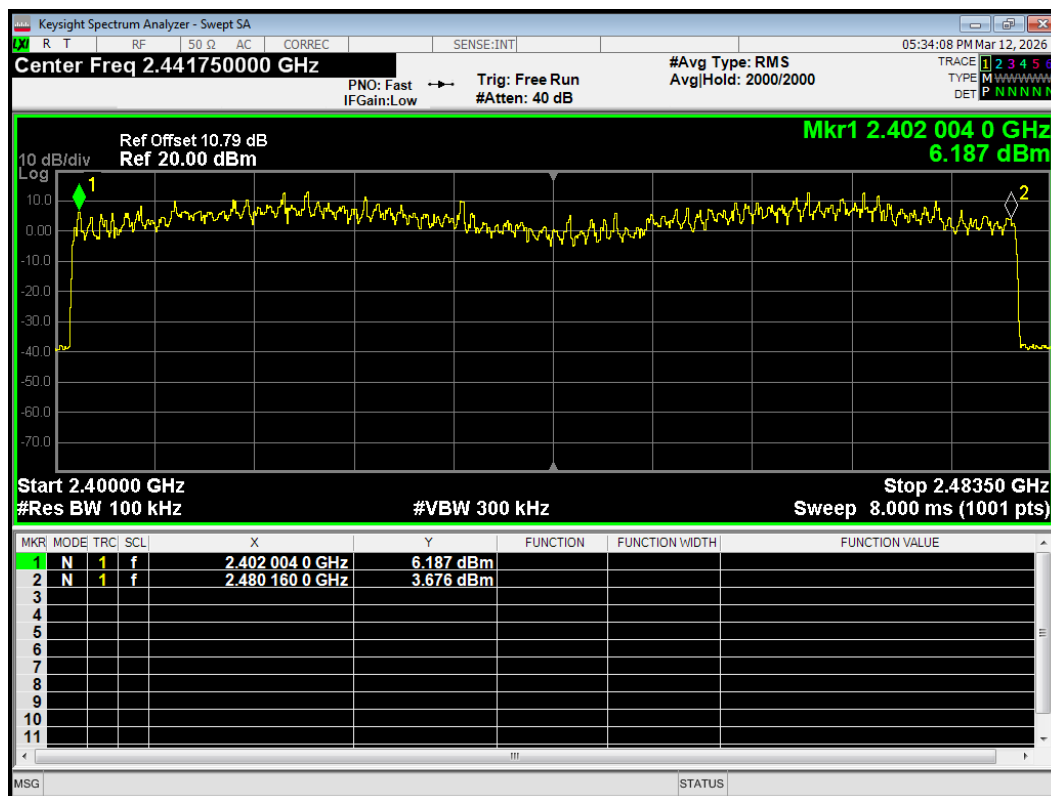
Hopping No. 1-DH5 2402MHz



Hopping No. 2-DH5 2402MHz

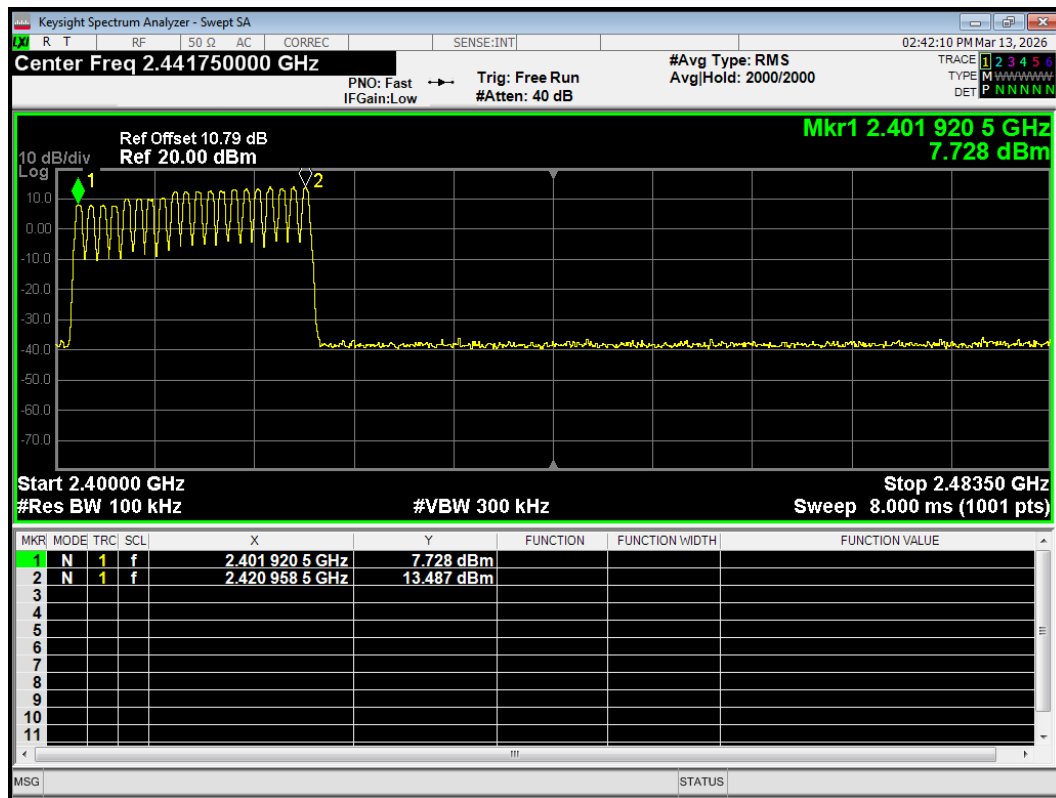


Hopping No. 3-DH5 2402MHz

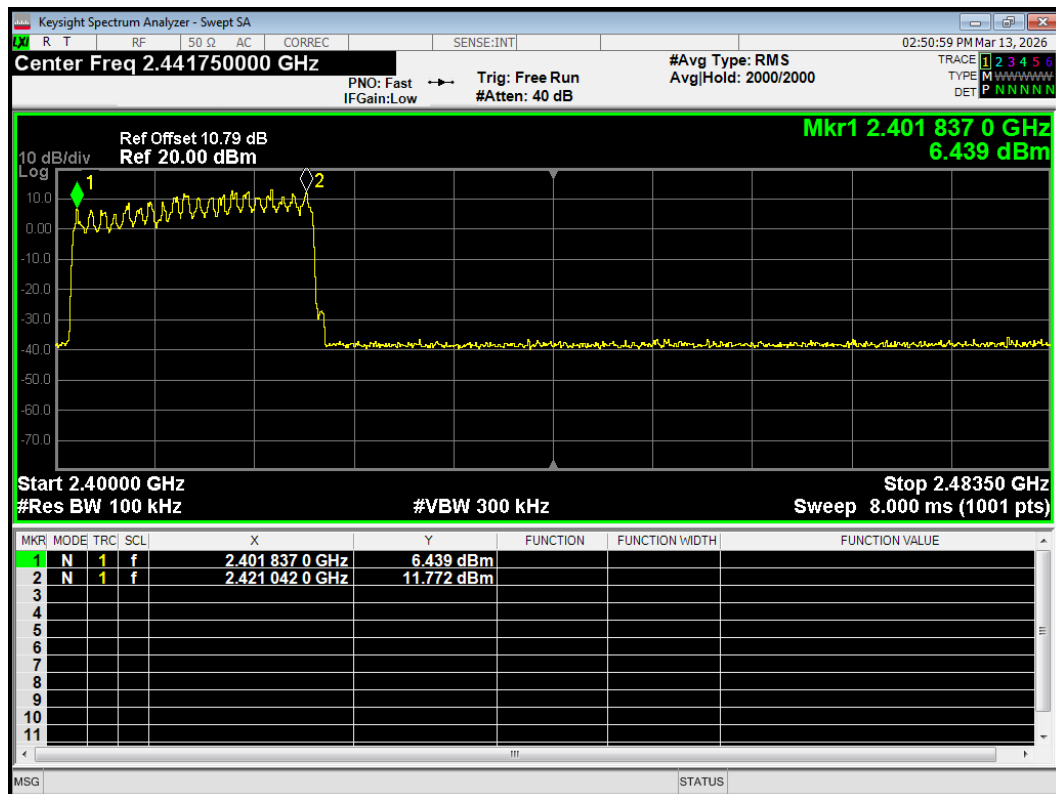


In AFH mode:

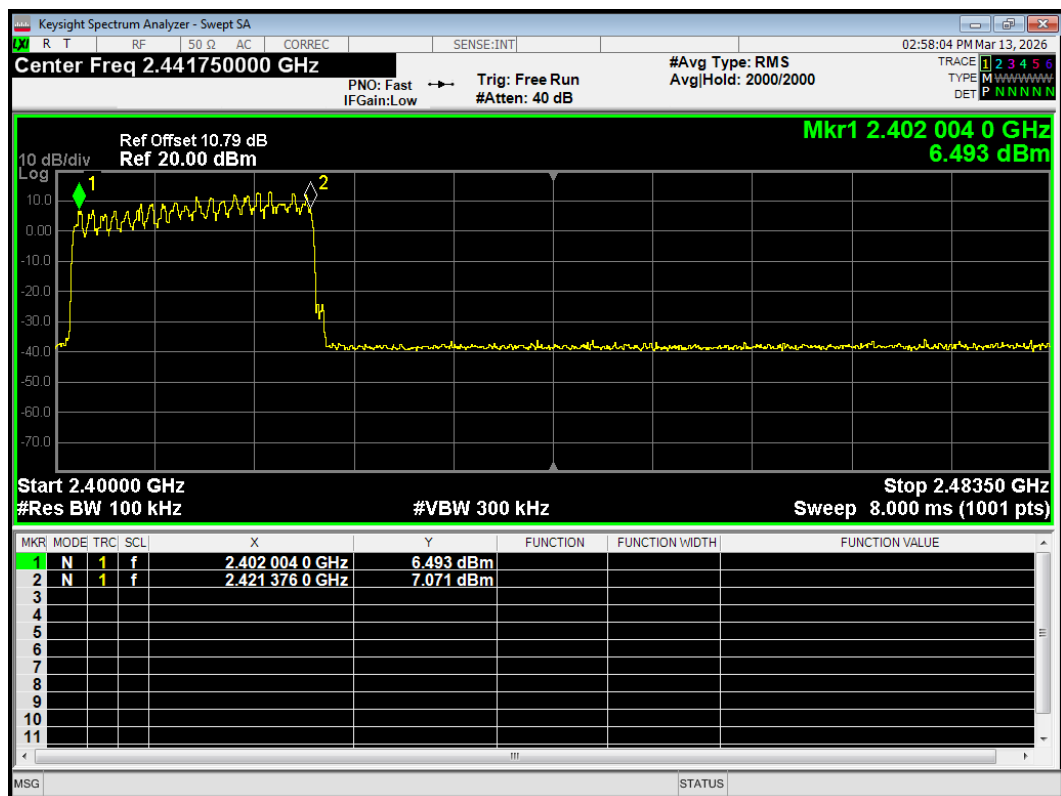
Hopping No. 1-DH5 2402MHz



Hopping No. 2-DH5 2402MHz



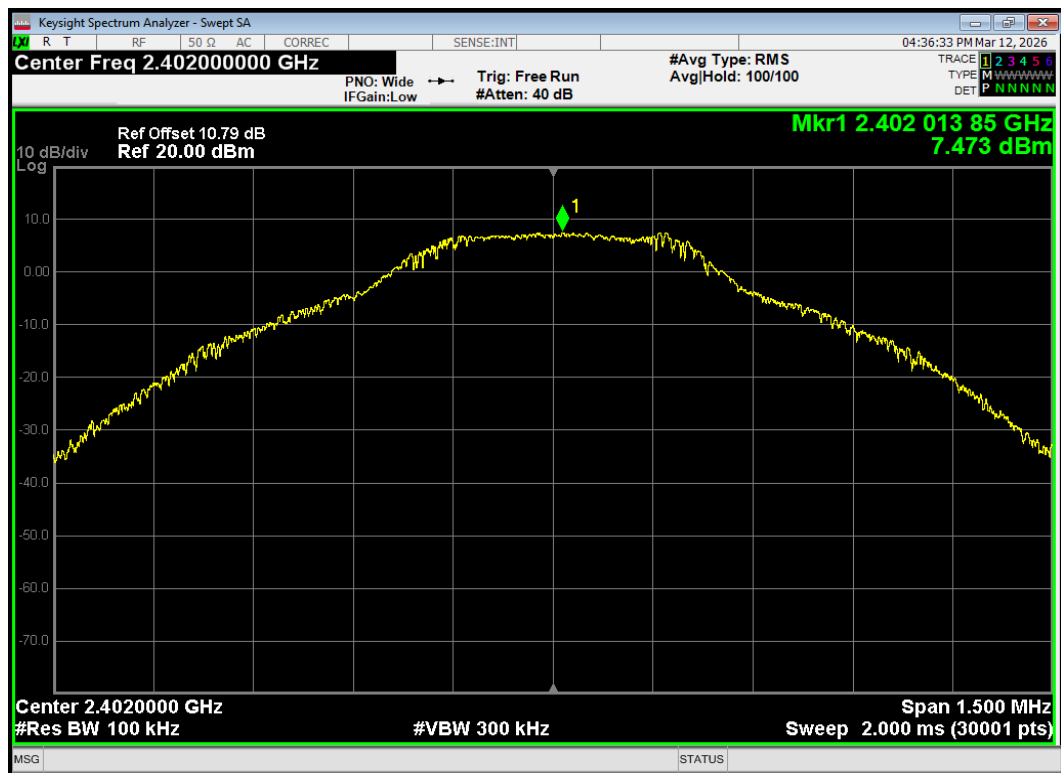
Hopping No. 3-DH5 2402MHz



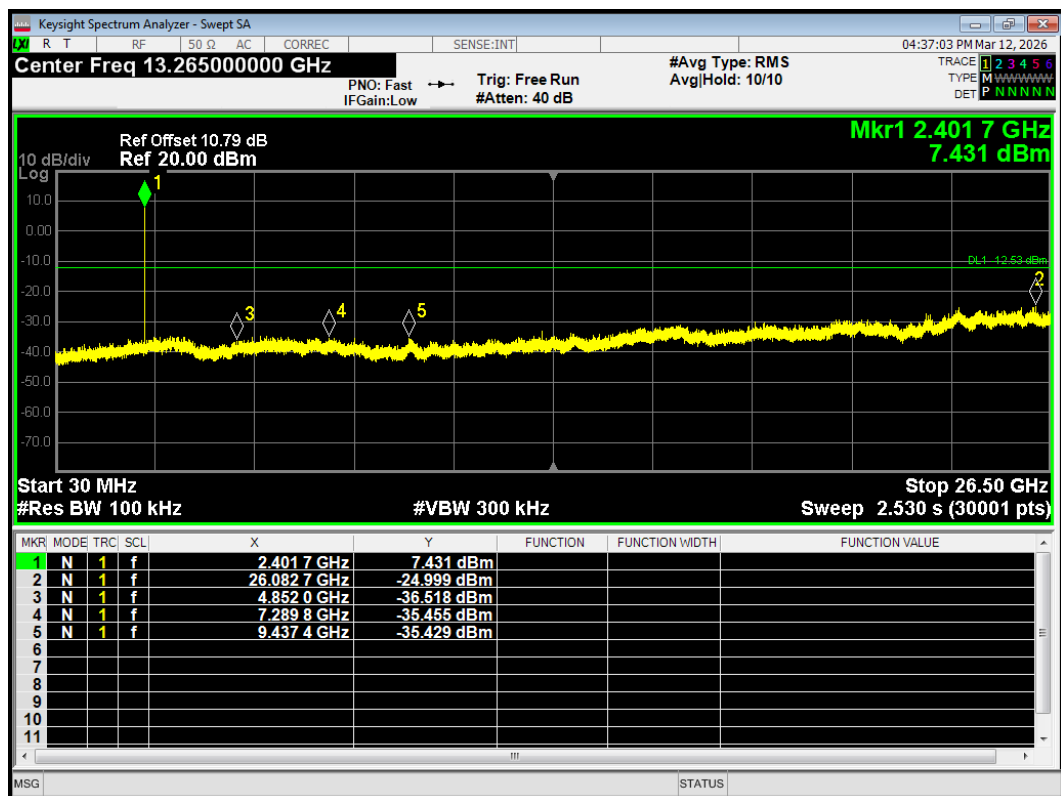
## 6.7 Spurious RF Conducted Emissions

The signal beyond the limit is carrier.

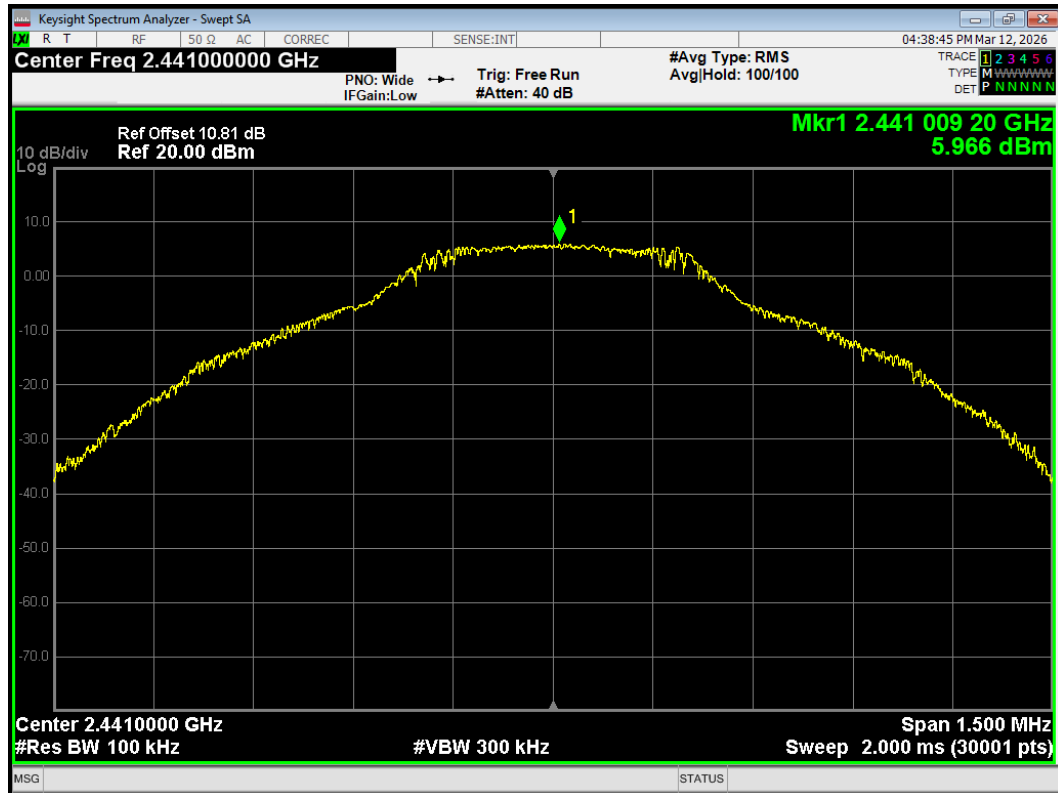
Tx. Spurious 1-DH5 2402MHz Ref



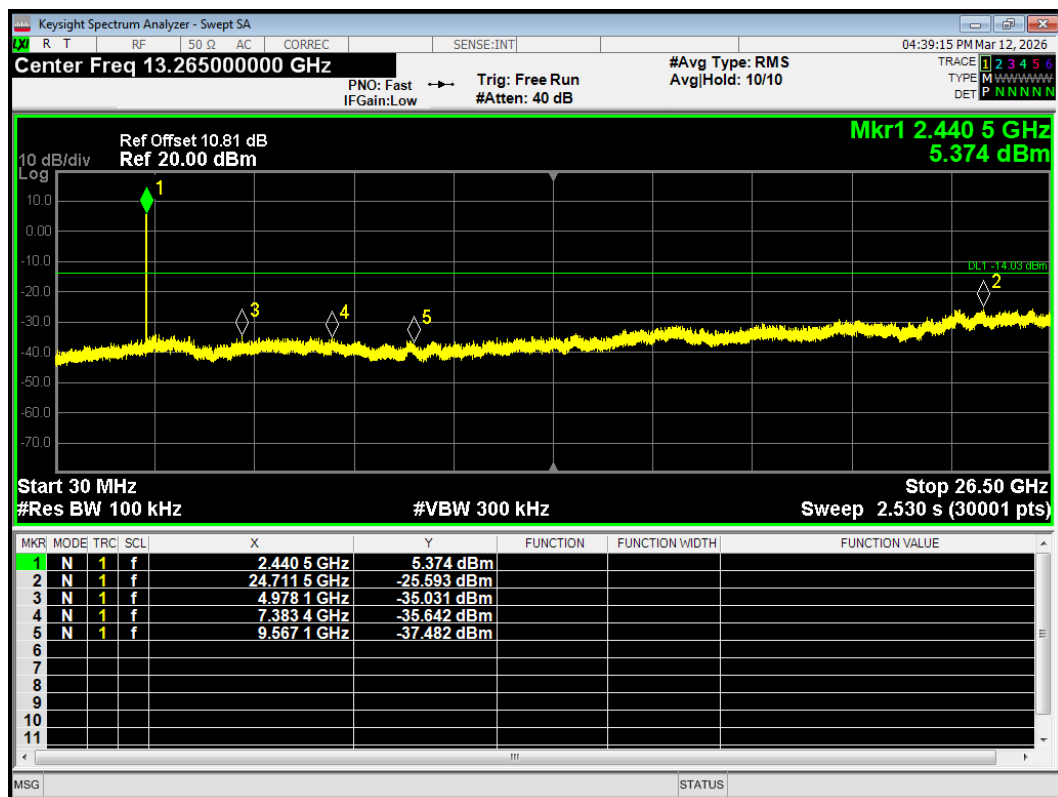
Tx. Spurious 1-DH5 2402MHz Emission



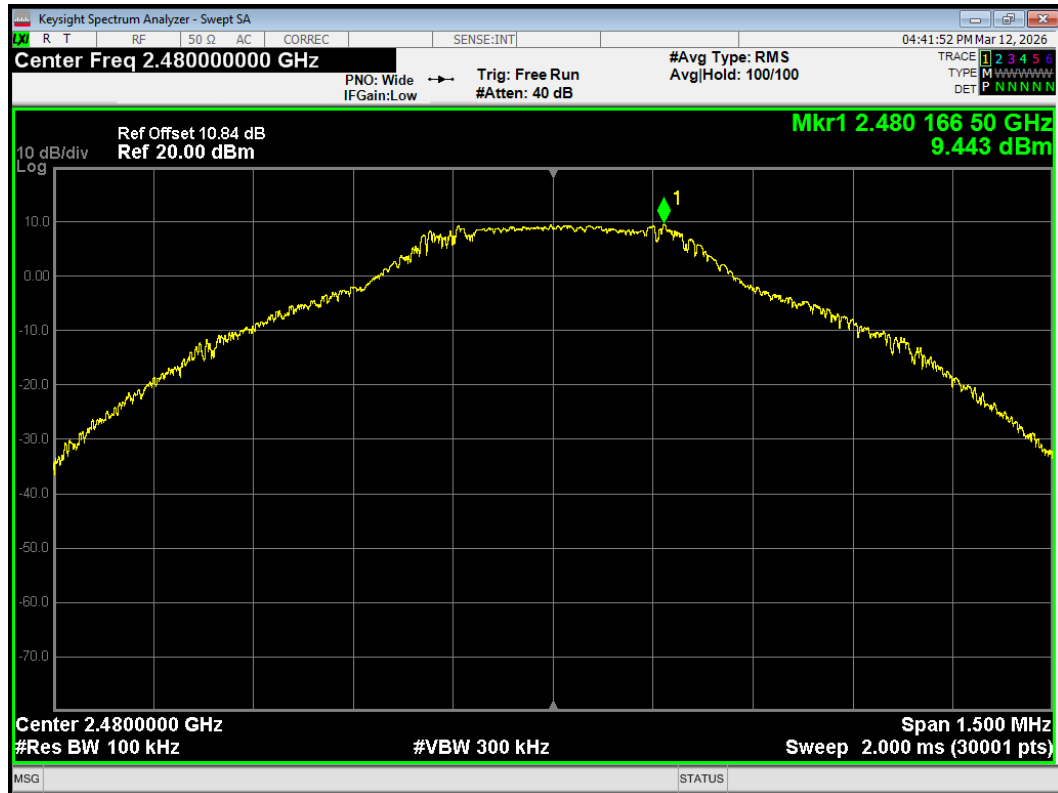
Tx. Spurious 1-DH5 2441MHz Ref



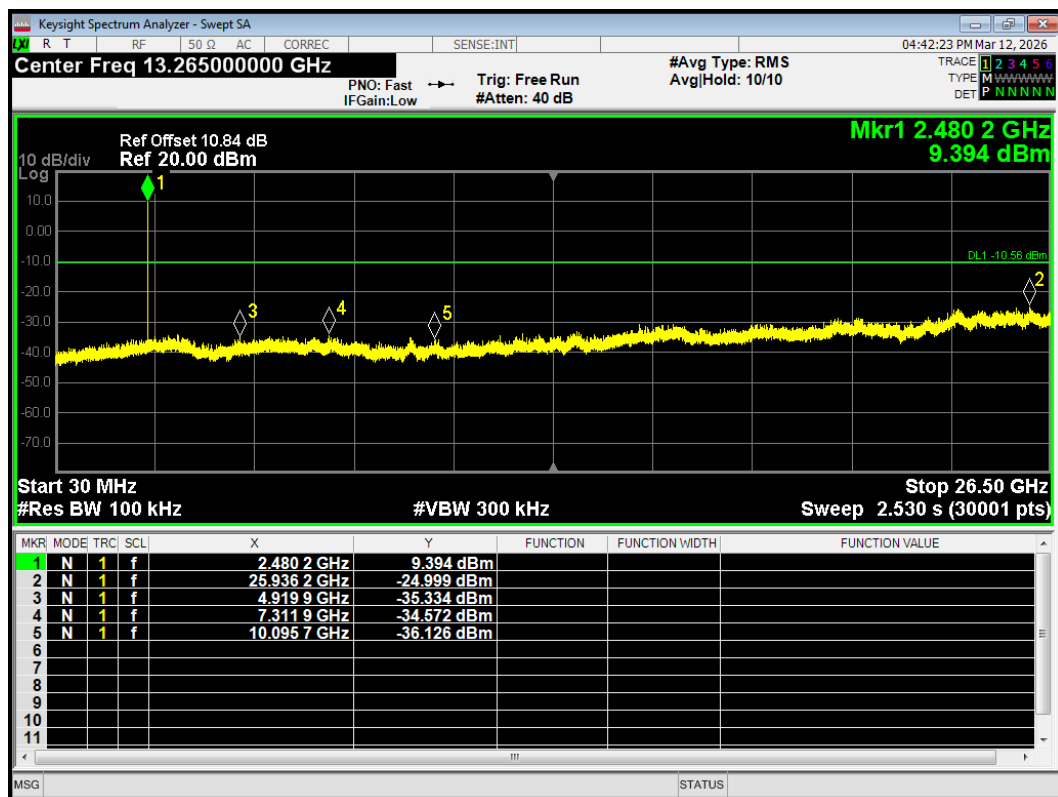
Tx. Spurious 1-DH5 2441MHz Emission



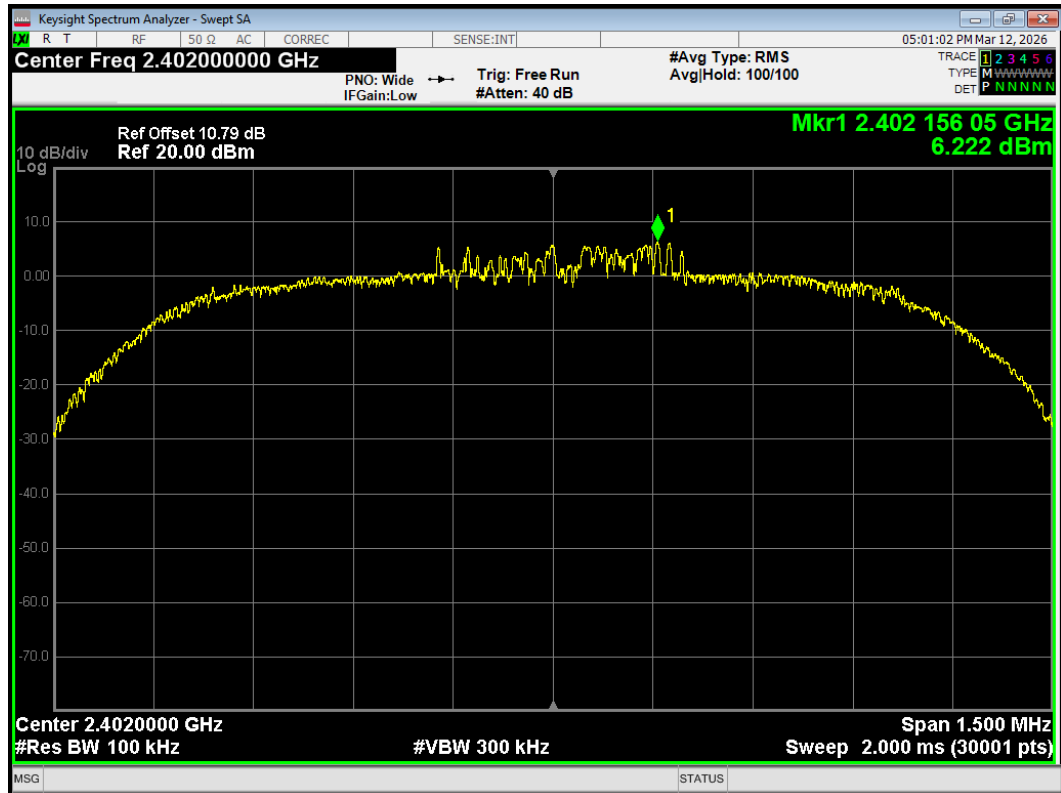
Tx. Spurious 1-DH5 2480MHz Ref



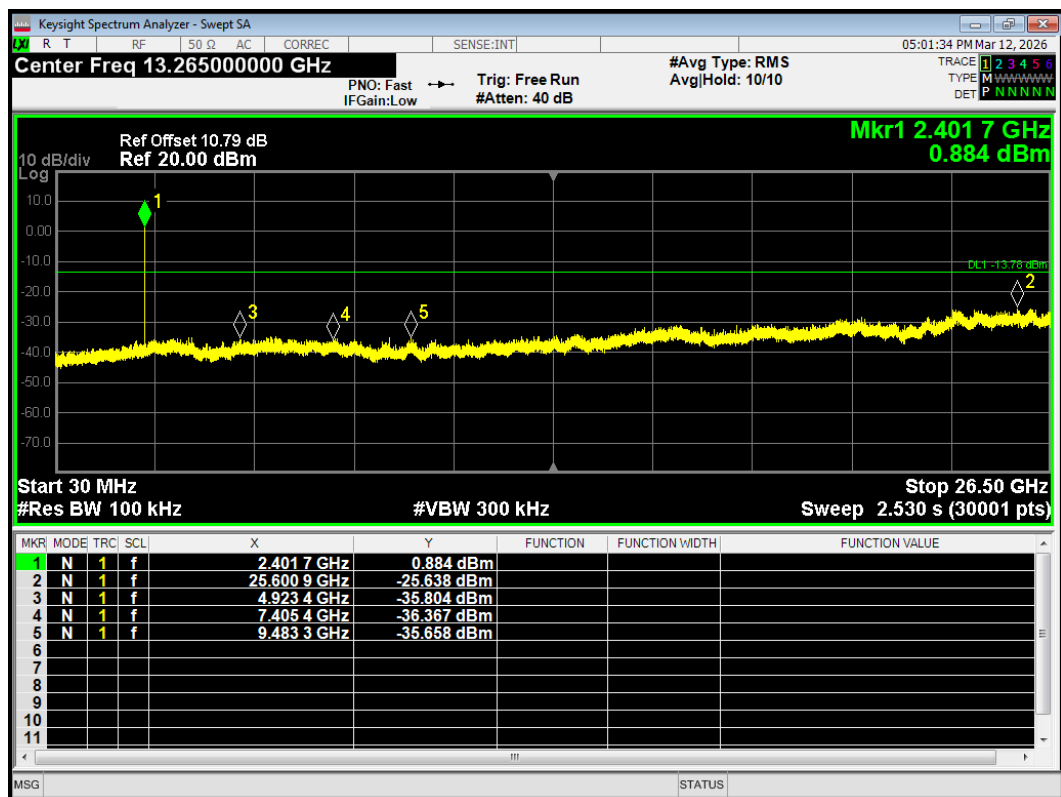
Tx. Spurious 1-DH5 2480MHz Emission



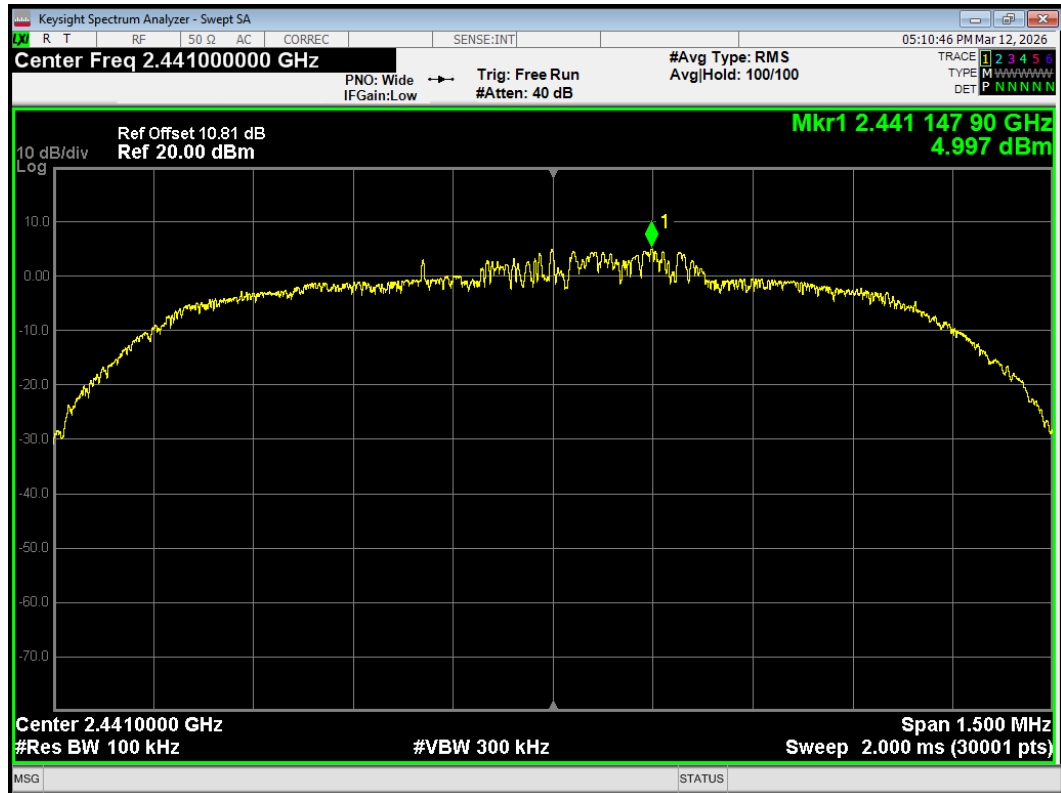
Tx. Spurious 2-DH5 2402MHz Ref



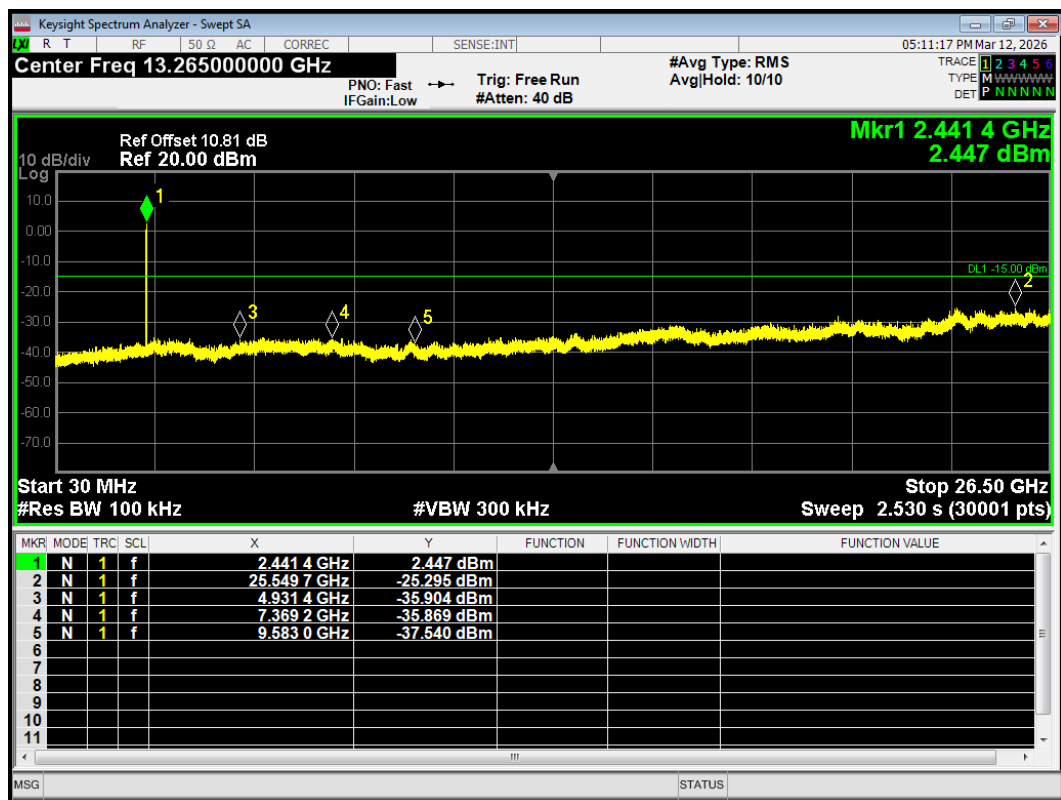
Tx. Spurious 2-DH5 2402MHz Emission



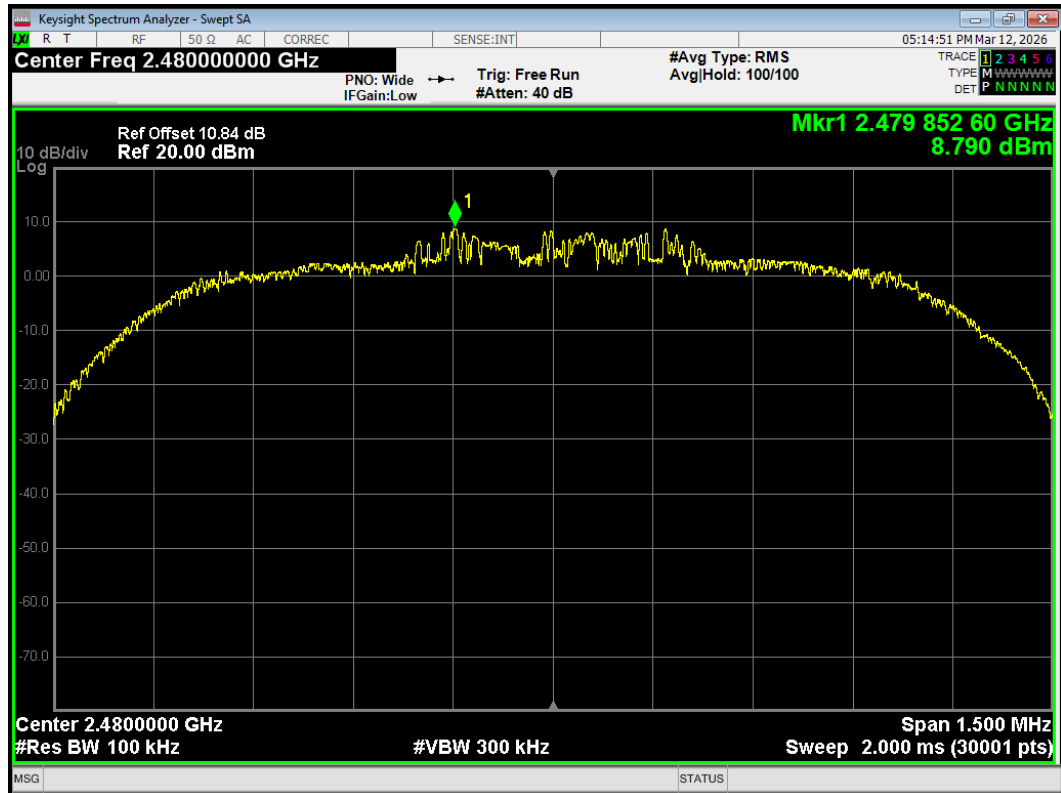
Tx. Spurious 2-DH5 2441MHz Ref



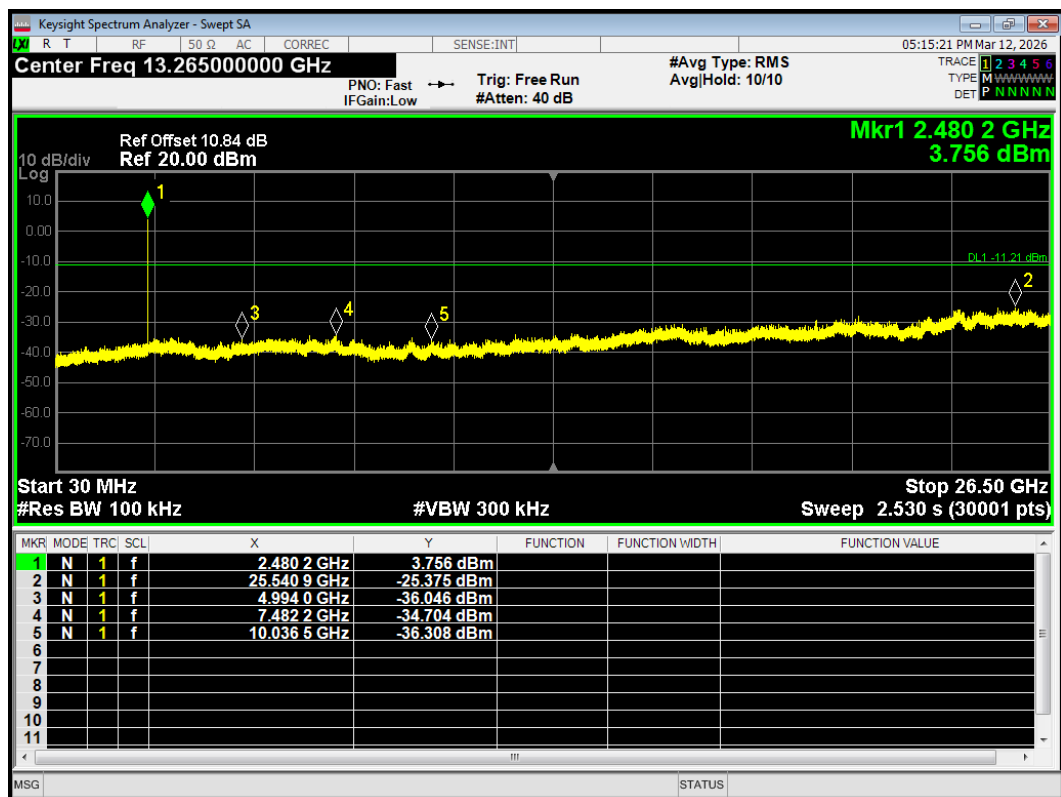
Tx. Spurious 2-DH5 2441MHz Emission



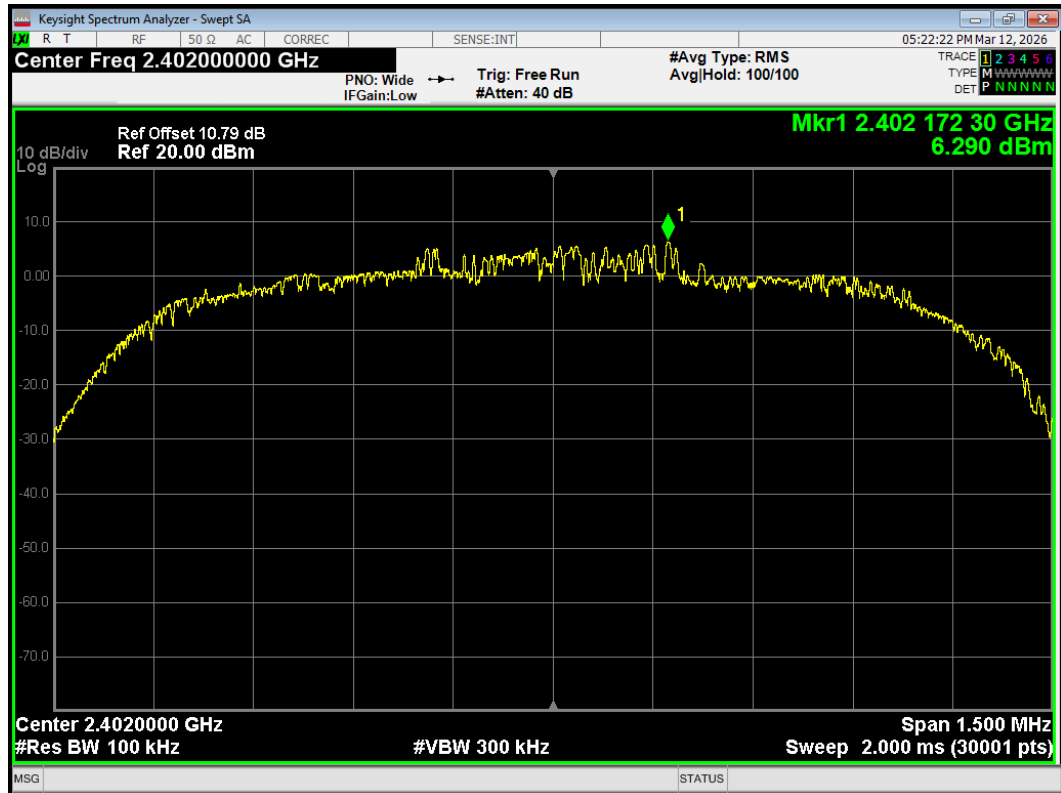
Tx. Spurious 2-DH5 2480MHz Ref



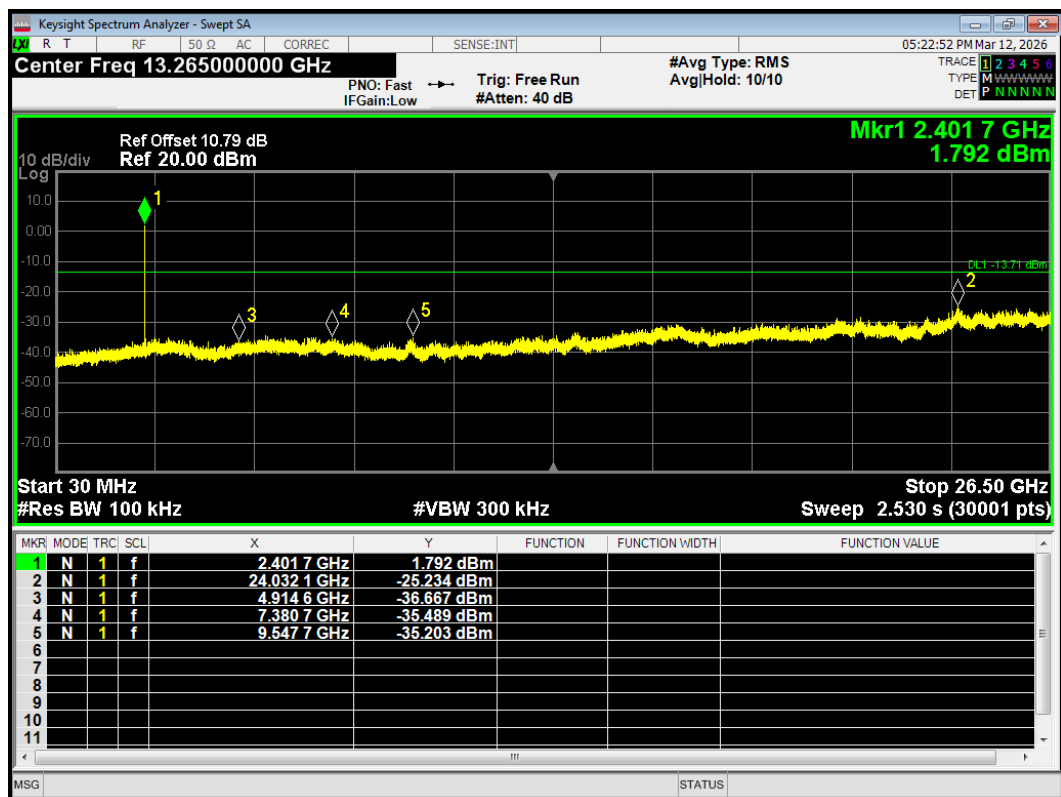
Tx. Spurious 2-DH5 2480MHz Emission



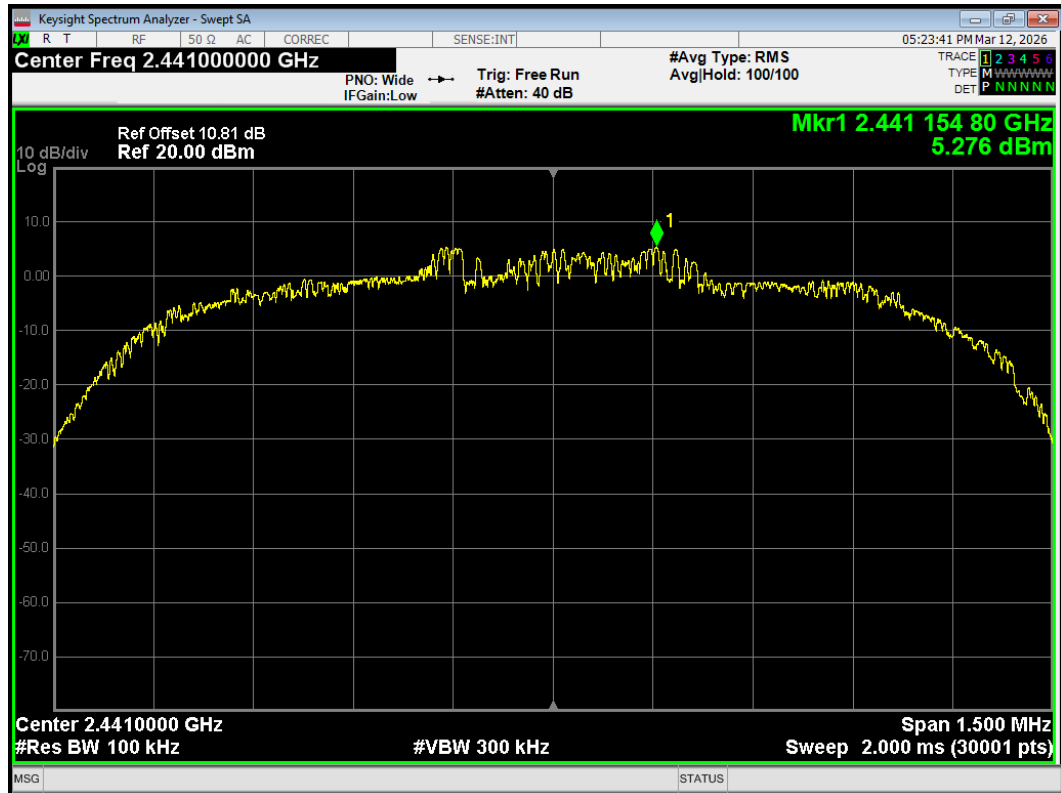
Tx. Spurious 3-DH5 2402MHz Ref



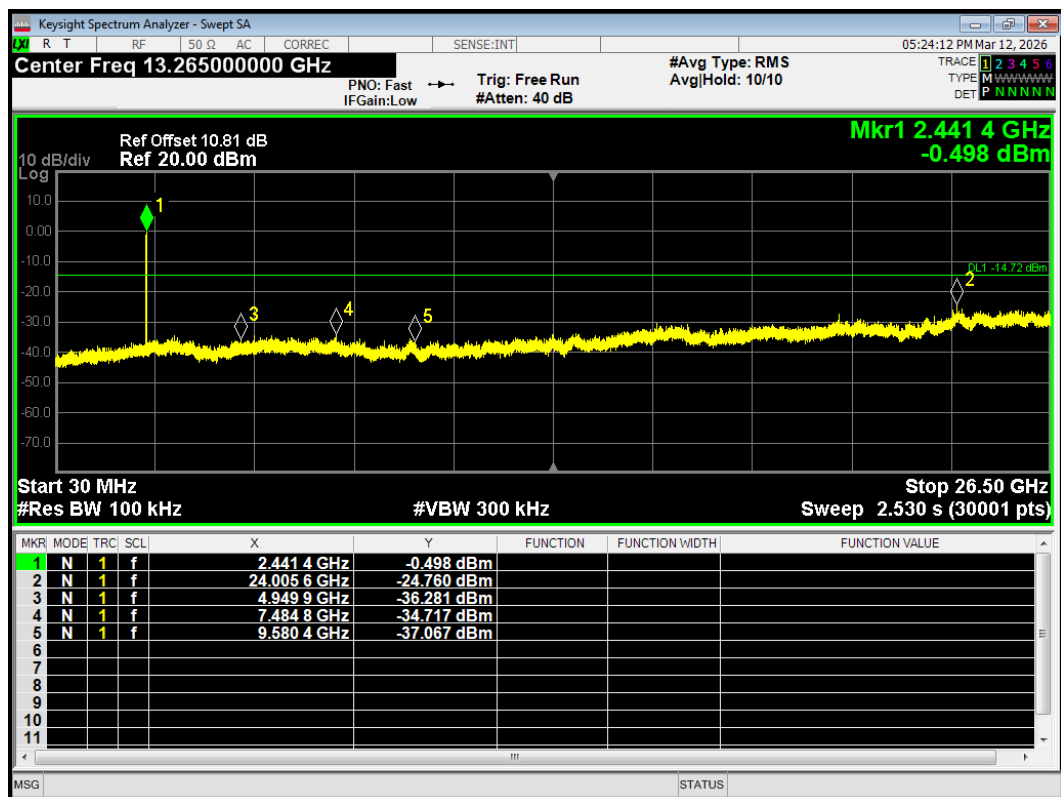
Tx. Spurious 3-DH5 2402MHz Emission



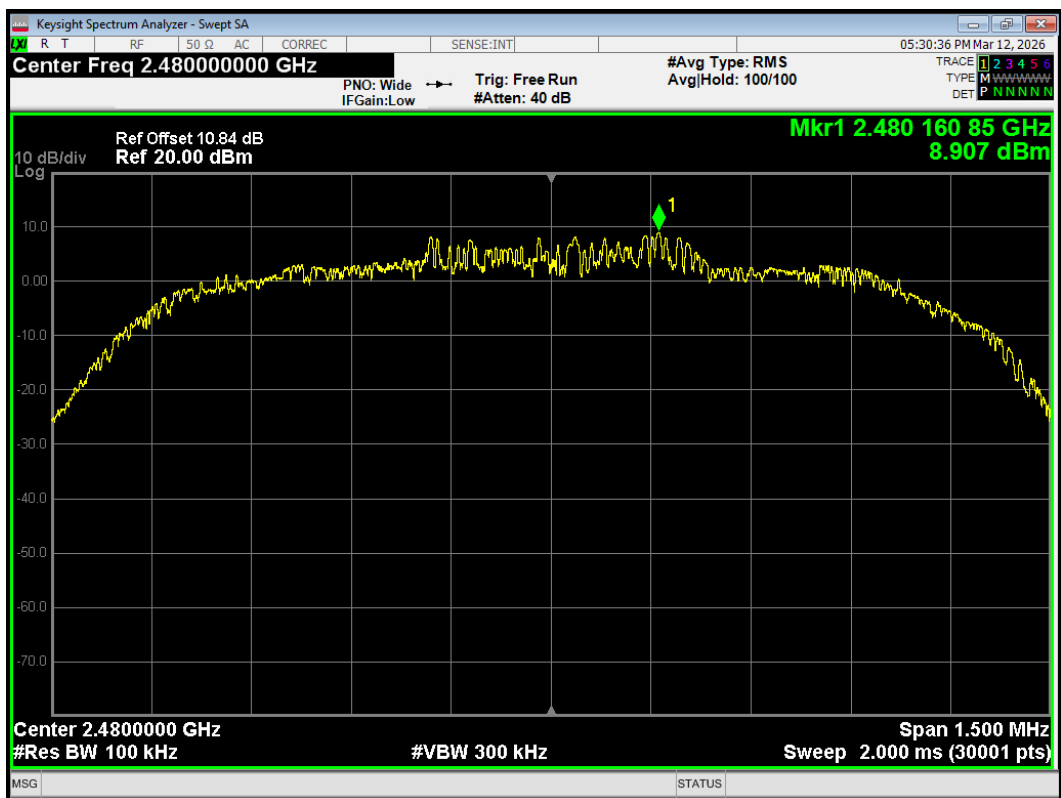
Tx. Spurious 3-DH5 2441MHz Ref



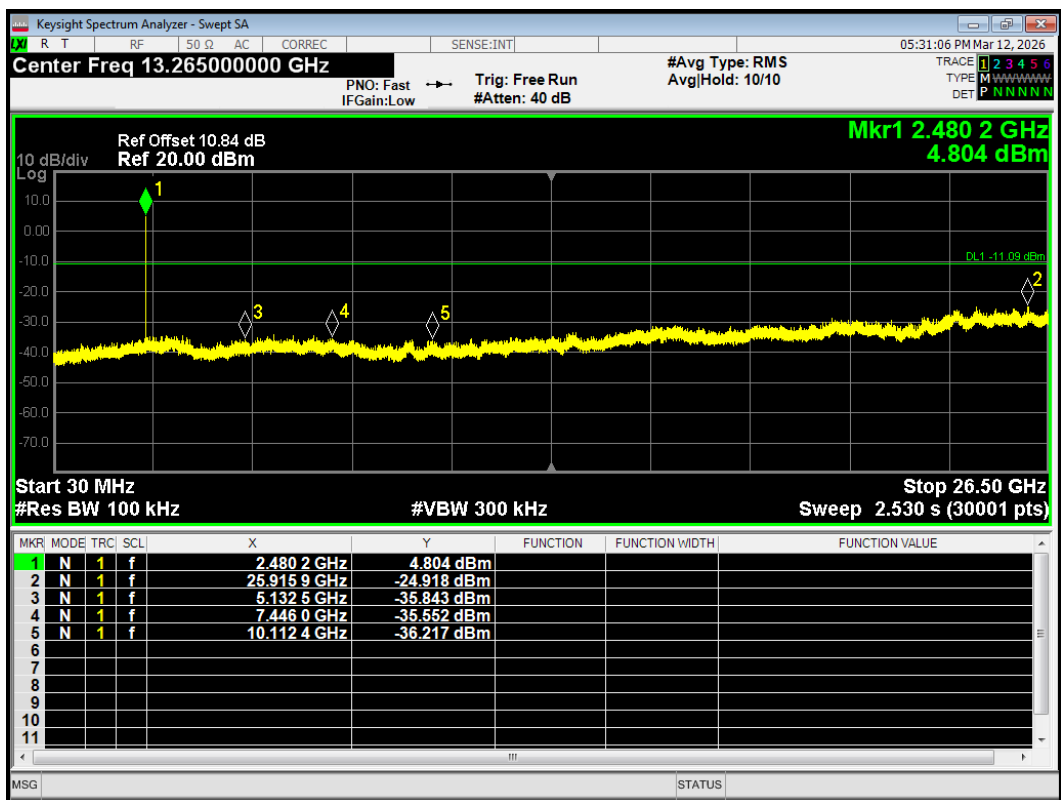
Tx. Spurious 3-DH5 2441MHz Emission



Tx. Spurious 3-DH5 2480MHz Ref



Tx. Spurious 3-DH5 2480MHz Emission



## 6.8 Unwanted Emission

The detailed test data see *EFTA26030124-IE-02-R3-ANNEX A Test Result*.

## 6.9 Conducted Emission

The detailed test data see *EFTA26030124-IE-02-R3-ANNEX A Test Result*.

## 7 Main Test Instruments

| Name                     | Manufacturer    | Type       | Serial Number | Calibration Date | Expiration Date |
|--------------------------|-----------------|------------|---------------|------------------|-----------------|
| Spectrum Analyzer        | KEYSIGHT        | N9020A     | MY51330870    | 2025-05-06       | 2026-05-05      |
| Test software            | MW              | MTS8310    | 2.0.0.0       | /                | /               |
| Attenuator               | HASCO           | HA18A-10   | 0003          | /                | /               |
| EMI Test Receiver        | R&S             | ESCI3      | 100948        | 2025-05-07       | 2026-05-06      |
| Signal Analyzer          | R&S             | FSV40      | 101186        | 2025-05-06       | 2026-05-05      |
| Loop Antenna             | SCHWARZBEC<br>K | FMZB1519   | 1519-047      | 2023-04-16       | 2026-04-15      |
| TRILOG Broadband Antenna | SCHWARZBEC<br>K | VULB 9163  | 1023          | 2023-07-14       | 2026-07-13      |
| Horn Antenna             | SCHWARZBEC<br>K | BBHA 9120D | 430           | 2024-07-18       | 2027-07-17      |
| Amplifier                | R&S             | SCU18F     | 101022        | 2025-05-06       | 2026-05-05      |
| Horn Antenna             | R&S             | BBHA 9170  | 101301        | 2023-09-16       | 2026-09-15      |
| Software                 | R&S             | EMC32      | 9.26.01       | /                | /               |
| Artificial main network  | R&S             | ENV216     | 102191        | 2025-11-24       | 2026-11-23      |
| EMI Test Receiver        | R&S             | ESR        | 101667        | 2025-05-06       | 2026-05-05      |
| Software                 | R&S             | ELEKTRA    | 5.02.1        | /                | /               |

## 8 The EUT Appearance

Refer to *EUT Appearance*.

## 9 Test Setup Photos

Refer to *Part15C Test Setup*.

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