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# FCC Test Report

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Report No.: AGC00174220805FE02

**FCC ID** : 2ABYU-RBG001

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION** : RADEBEACON GATEWAY

**BRAND NAME** : Radius Networks

**MODEL NAME** : RBG-1000C

**APPLICANT** : Radius Networks, Inc.

**DATE OF ISSUE** : Jan. 03, 2023

**STANDARD(S)** : FCC Part 15.247

**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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**REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 03, 2023	Valid	Initial Release

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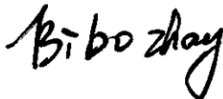
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## 1. VERIFICATION OF COMPLIANCE

<b>Applicant</b>	Radius Networks, Inc.
<b>Address</b>	3255 Grace Street NW, Washington, Dist of Columbia 20007, United States
<b>Manufacturer</b>	Rigado, Inc.
<b>Address</b>	329 NE Couch St.Suite 300 Portland, OR 97232 USA
<b>Factory</b>	DongGuan Teamwise Electronic Co., Ltd.
<b>Address</b>	No.1 Ao Bei Road, Cross Xiang Xin West Road, Yantian, Fenggang, Dongguan, Guangdong, P.R. China
<b>Product Designation</b>	RADEBEACON GATEWAY
<b>Brand Name</b>	Radius Networks
<b>Test Model</b>	RBG-1000C
<b>Date of receipt of test item</b>	Aug. 17, 2022
<b>Date of test</b>	Aug. 24, 2022 to Jan. 03, 2023
<b>Deviation</b>	No any deviation from the test method
<b>Condition of Test Sample</b>	Normal
<b>Test Result</b>	Pass
<b>Report Template</b>	AGCRT-US-BLE/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.

Prepared By		
	Bibo Zhang (Project Engineer)	Jan. 03, 2023
Reviewed By		
	Calvin Liu (Reviewer)	Jan. 03, 2023
Approved By		
	Max Zhang (Authorized Officer)	Jan. 03, 2023

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## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as a “RADEBEACON GATEWAY”. It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

<b>Operation Frequency</b>	2.402 GHz to 2.480GHz
<b>RF Output Power (SISO)</b>	BLE1M: 6.678dBm (Max) BLE2M: 6.670dBm (Max) 125K: 6.673dBm (Max) 500K: 6.672dBm (Max)
<b>RF Output Power (MIMO)</b>	BLE1M: 12.910dBm (Max) BLE2M: 12.907dBm (Max) 125K: 12.878dBm (Max) 500K: 12.875dBm (Max)
<b>Bluetooth Version</b>	V5.0
<b>Modulation</b>	BR <input type="checkbox"/> GFSK, EDR <input type="checkbox"/> $\pi$ /4-DQPSK, <input type="checkbox"/> 8DPSK BLE <input checked="" type="checkbox"/> GFSK 1Mbps <input checked="" type="checkbox"/> GFSK 2Mbps BLE <input checked="" type="checkbox"/> 125K BLE <input checked="" type="checkbox"/> 500K
<b>Number of channels</b>	40 Channels
<b>Antenna Designation</b>	Antenna1: PCB Antenna (Comply with requirements of the FCC part 15.203) Antenna2: External dipole Antenna (Comply with requirements of the FCC part 15.203) Antenna3: External dipole Antenna (Comply with requirements of the FCC part 15.203) Antenna4: External puck Antenna (Comply with requirements of the FCC part 15.203) Antenna5: External puck Antenna (Comply with requirements of the FCC part 15.203)
<b>Antenna Gain</b>	Antenna1: 3.25dBi Antenna2: 2dBi Antenna3: 2dBi Antenna4: 3.5dBi Antenna5: 3.5dBi
<b>Hardware Version</b>	vA.
<b>Software Version</b>	vA.
<b>Power Supply</b>	DC 5V by adapter or 48V from POE
<p>Note: 1, EMC has two power supply modes, both have been tested, the report only reflects the data of the worst power supply mode (DC 5V) 2, EUT has 5 antennas. Five antennas can work simultaneously 3, According to the power, only the data of the worst antenna is reported (Antenna1).</p>	

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## 2.2. TABLE OF CARRIER FREQUENCIES

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	0	2402 MHz
	1	2404 MHz
	:	:
	38	2478 MHz
	39	2480 MHz

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### **2.3. RELATED SUBMITTAL(S)/GRANT(S)**

This submittal(s) (test report) is intended for **FCC ID: 2ABYU-RBG001** filing to comply with the FCC Part 15.247 requirements.

### **2.4. TEST METHODOLOGY**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

### **2.5. SPECIAL ACCESSORIES**

Refer to section 5.2.

### **2.6. EQUIPMENT MODIFICATIONS**

Not available for this EUT intended for grant.

### **2.7. ANTENNA REQUIREMENT**

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



### 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1$ dB
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0$ dB
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8$ dB
Uncertainty of total RF power, conducted	$U_c = \pm 0.8$ dB
Uncertainty of RF power density, conducted	$U_c = \pm 2.6$ dB
Uncertainty of spurious emissions, conducted	$U_c = \pm 2$ %
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2$ %

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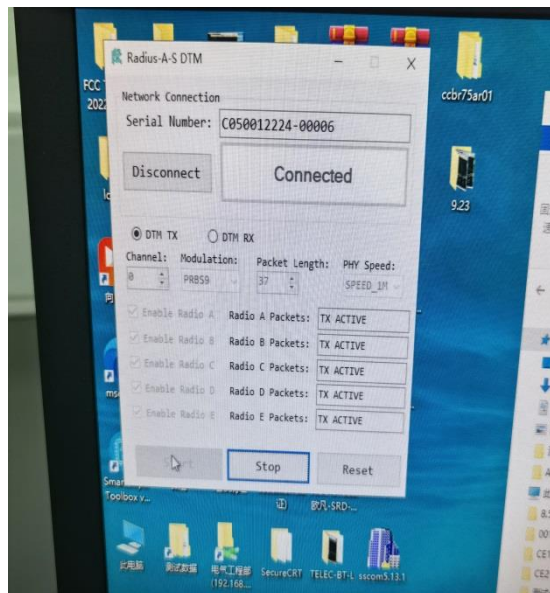
#### 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX_2402MHz_GFSK_1Mbps
2	Middle channel TX_2440MHz_GFSK_1Mbps
3	High channel TX_2480MHz_GFSK_1Mbps
4	Low channel TX_2402MHz_GFSK_2Mbps
5	Middle channel TX_2440MHz_GFSK_2Mbps
6	High channel TX_2480MHz_GFSK_2Mbps
7	Low channel TX_2402MHz_GFSK_125Kbps
8	Middle channel TX_2440MHz_GFSK_125Kbps
9	High channel TX_2480MHz_GFSK_125Kbps
10	Low channel TX_2402MHz_GFSK_500Kbps
11	Middle channel TX_2440MHz_GFSK_500Kbps
12	High channel TX_2480MHz_GFSK_500Kbps

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

#### Software Setting



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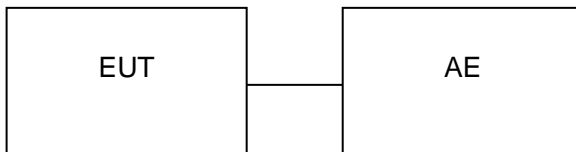
## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



### 5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	RADEBEACON GATEWAY	RBG-1000C	2ABYU-RBG001	EUT
2	Adapter	6A-121WP05	Input: 100-240V~50-60Hz, 0.6A Output: 5V, 2.0A	Accessory
3	Router	R4A	-	AE

### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Compliant

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## 6. TEST FACILITY

<b>Test Site</b>	Attestation of Global Compliance (Shenzhen) Co., Ltd
<b>Location</b>	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
<b>Designation Number</b>	CN1259
<b>FCC Test Firm Registration Number</b>	975832
<b>A2LA Cert. No.</b>	5054.02
<b>Description</b>	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA

### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Mar.28, 2022	Mar.27, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2022	Jun. 08, 2023
Test software	R&S	ES-K1	Ver.V1.71	N/A	N/A

### TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2022	Mar. 22, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 04, 2022	Aug. 03, 2024
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 01, 2022	Sep. 02, 2024
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE	Ver.2.5	N/A	N/A

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## 7. PEAK OUTPUT POWER

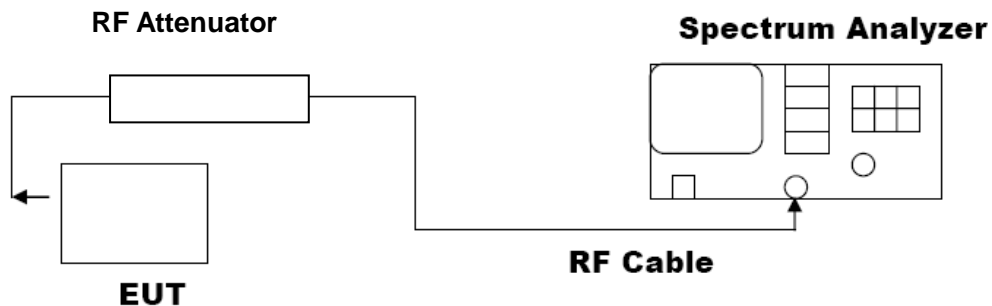
### 7.1. MEASUREMENT PROCEDURE

For peak power test:

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2.  $RBW \geq DTS$  bandwidth
3.  $VBW \geq 3 * RBW$ .
4.  $SPAN \geq VBW$ .
5. Sweep: Auto.
6. Detector function: Peak.
7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

### 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP



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### 7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power-Antenna 1				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	6.356	≤30	Pass
	2440	6.546	≤30	Pass
	2480	6.678	≤30	Pass
GFSK 2Mbps	2402	6.348	≤30	Pass
	2440	6.526	≤30	Pass
	2480	6.670	≤30	Pass
GFSK 125Kbps	2402	6.346	≤30	Pass
	2440	6.533	≤30	Pass
	2480	6.673	≤30	Pass
GFSK 500Kbps	2402	6.356	≤30	Pass
	2440	6.536	≤30	Pass
	2480	6.672	≤30	Pass

Test Data of Conducted Output Power-Antenna 2				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	5.309	≤30	Pass
	2440	5.419	≤30	Pass
	2480	5.520	≤30	Pass
GFSK 2Mbps	2402	5.330	≤30	Pass
	2440	5.438	≤30	Pass
	2480	5.516	≤30	Pass
GFSK 125Kbps	2402	5.327	≤30	Pass
	2440	5.440	≤30	Pass
	2480	5.528	≤30	Pass
GFSK 500Kbps	2402	5.254	≤30	Pass
	2440	5.325	≤30	Pass
	2480	5.485	≤30	Pass

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Test Data of Conducted Output Power-Antenna 3				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	5.668	≤30	Pass
	2440	5.813	≤30	Pass
	2480	5.964	≤30	Pass
GFSK 2Mbps	2402	5.673	≤30	Pass
	2440	5.803	≤30	Pass
	2480	5.967	≤30	Pass
GFSK 125Kbps	2402	5.667	≤30	Pass
	2440	5.808	≤30	Pass
	2480	5.959	≤30	Pass
GFSK 500Kbps	2402	5.665	≤30	Pass
	2440	5.806	≤30	Pass
	2480	5.964	≤30	Pass

Test Data of Conducted Output Power-Antenna 4				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	5.548	≤30	Pass
	2440	5.677	≤30	Pass
	2480	5.724	≤30	Pass
GFSK 2Mbps	2402	5.556	≤30	Pass
	2440	5.685	≤30	Pass
	2480	5.730	≤30	Pass
GFSK 125Kbps	2402	5.571	≤30	Pass
	2440	5.691	≤30	Pass
	2480	5.736	≤30	Pass
GFSK 500Kbps	2402	5.575	≤30	Pass
	2440	5.688	≤30	Pass
	2480	5.745	≤30	Pass

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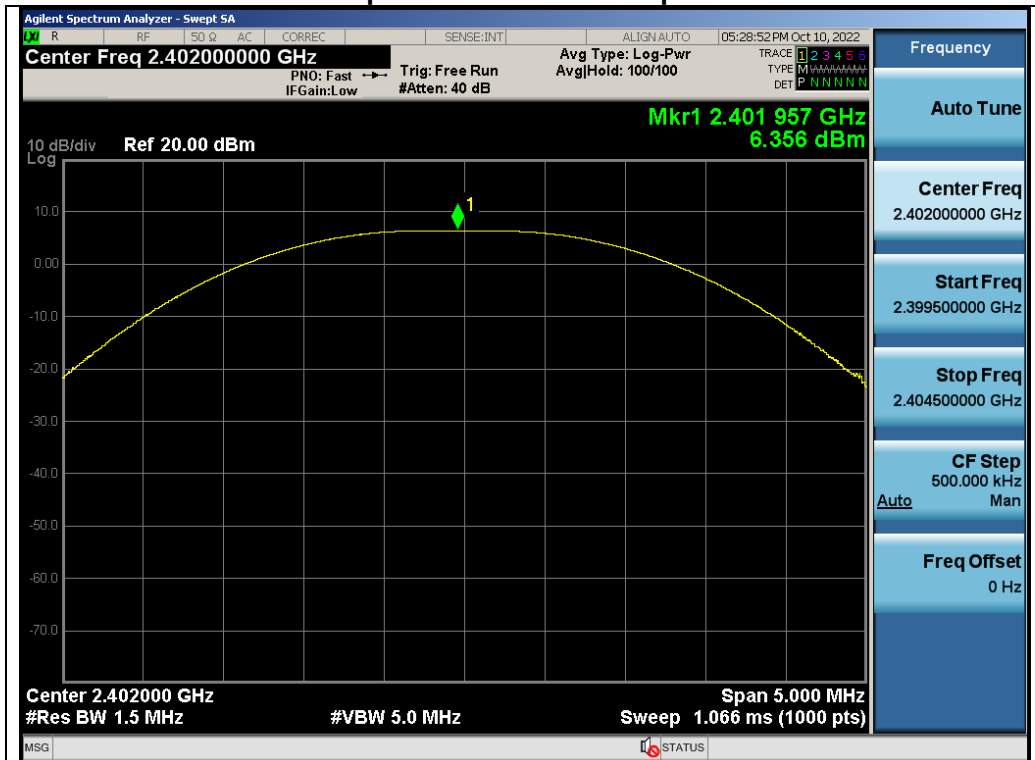
Test Data of Conducted Output Power-Antenna 5				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	5.616	≤30	Pass
	2440	5.680	≤30	Pass
	2480	5.610	≤30	Pass
GFSK 2Mbps	2402	5.621	≤30	Pass
	2440	5.679	≤30	Pass
	2480	5.601	≤30	Pass
GFSK 125Kbps	2402	5.602	≤30	Pass
	2440	5.630	≤30	Pass
	2480	5.428	≤30	Pass
GFSK 500Kbps	2402	5.599	≤30	Pass
	2440	5.554	≤30	Pass
	2480	5.443	≤30	Pass

Test Data of Conducted Output Power-MIMO				
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK 1Mbps	2402	12.704	≤30	Pass
	2440	12.834	≤30	Pass
	2480	12.910	≤30	Pass
GFSK 2Mbps	2402	12.709	≤30	Pass
	2440	12.832	≤30	Pass
	2480	12.907	≤30	Pass
GFSK 125Kbps	2402	12.706	≤30	Pass
	2440	12.827	≤30	Pass
	2480	12.878	≤30	Pass
GFSK 500Kbps	2402	12.695	≤30	Pass
	2440	12.791	≤30	Pass
	2480	12.875	≤30	Pass

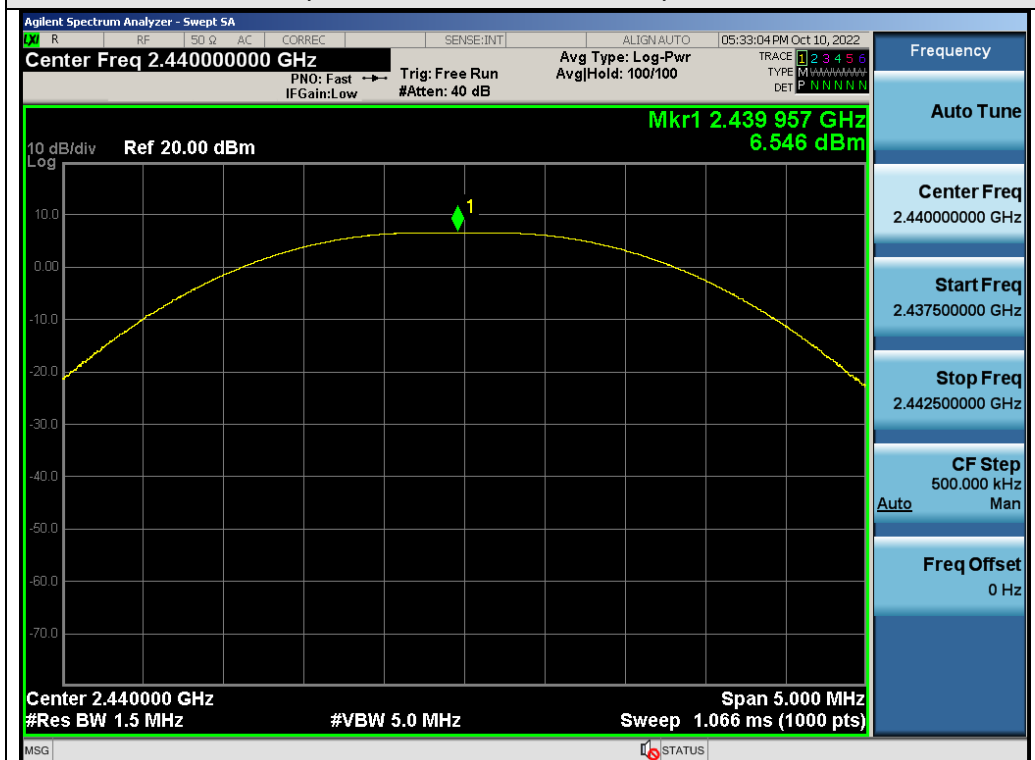
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.



### Test Graphs of Conducted Output Power

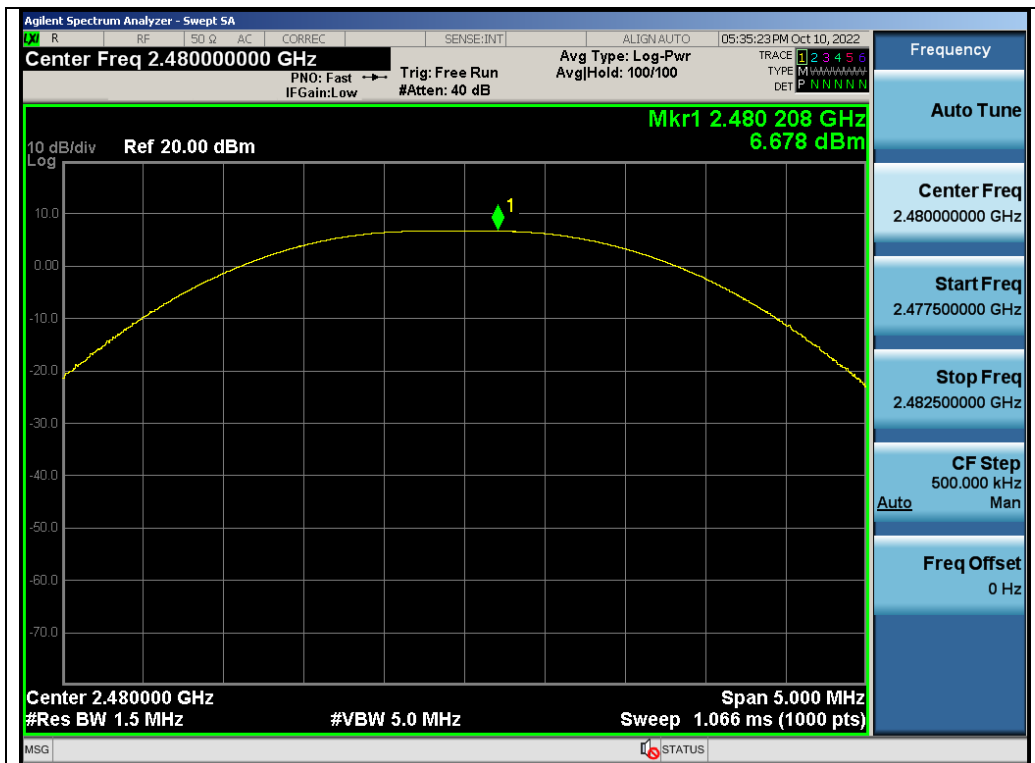


Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Peak Power

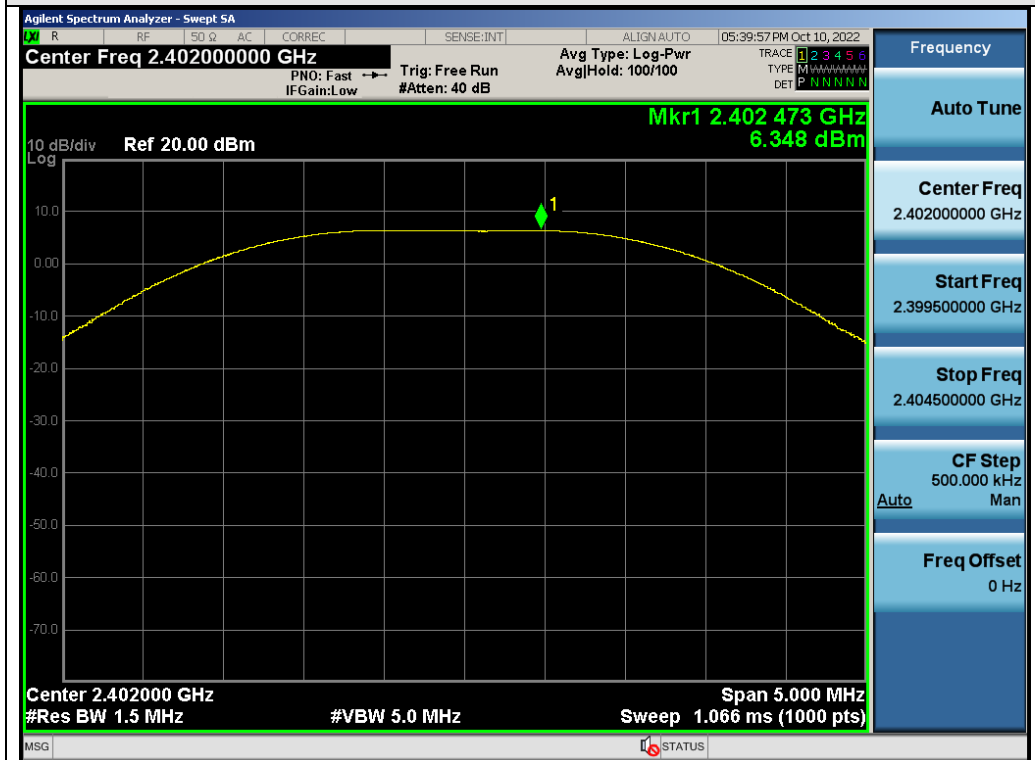


Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Peak Power

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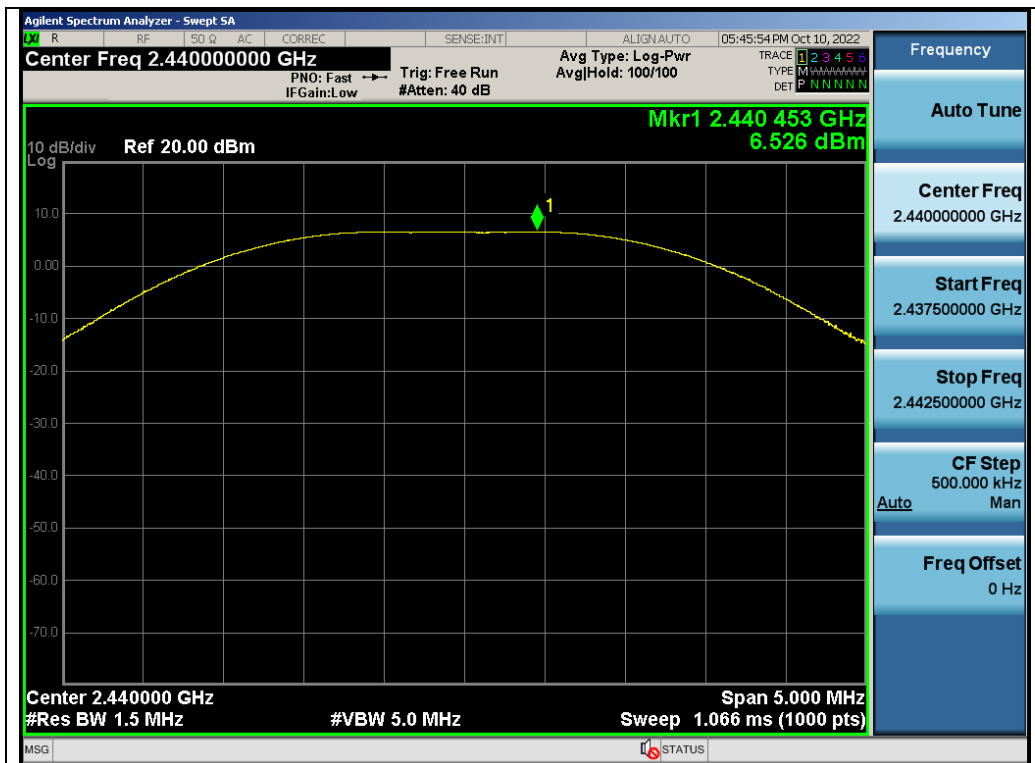


Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_Peak Power

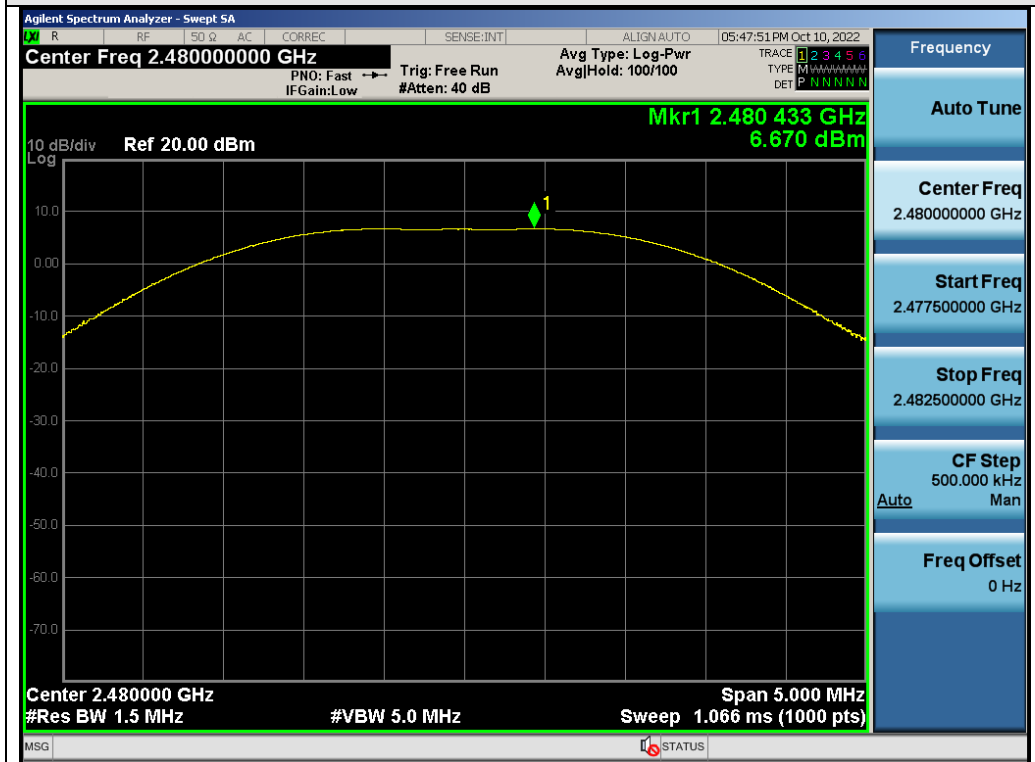


Test\_Graph\_LE2M\_ANT1\_2402\_2Mbps\_Peak Power

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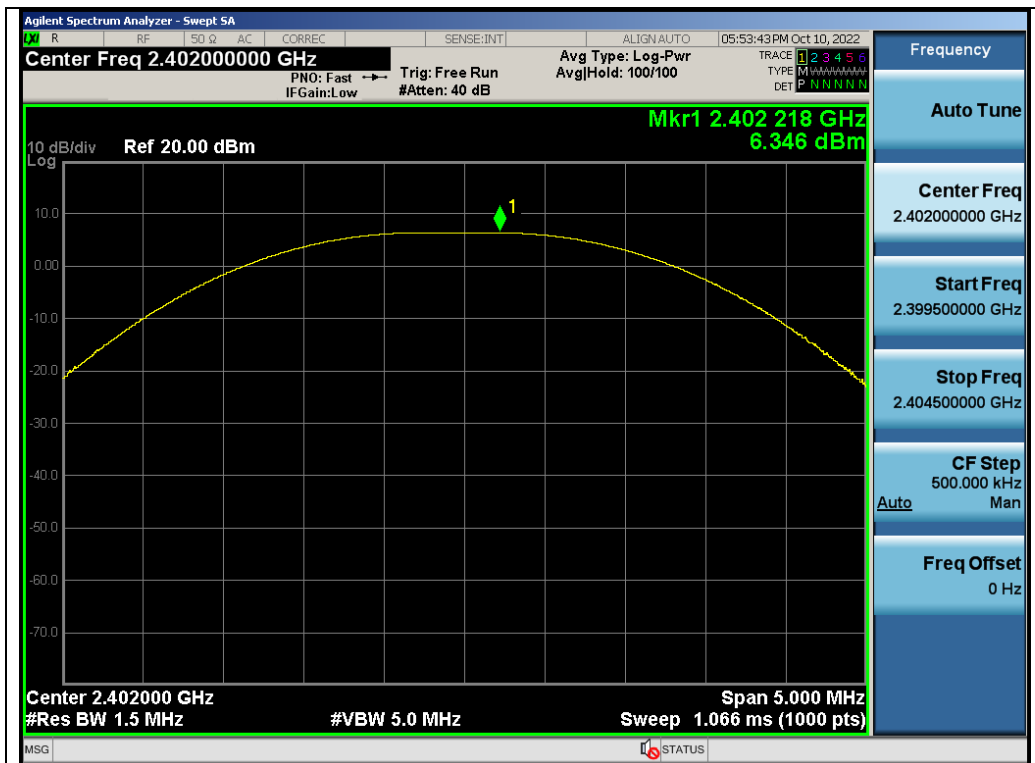


Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_Peak Power

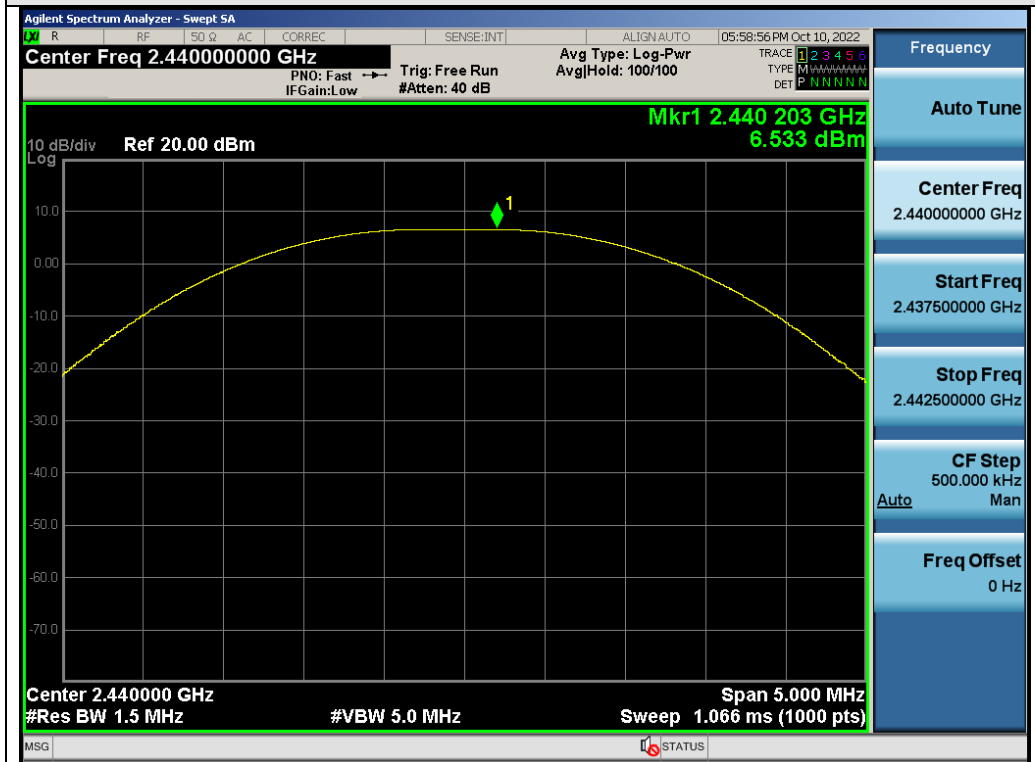


Test\_Graph\_LE2M\_ANT1\_2480\_2Mbps\_Peak Power

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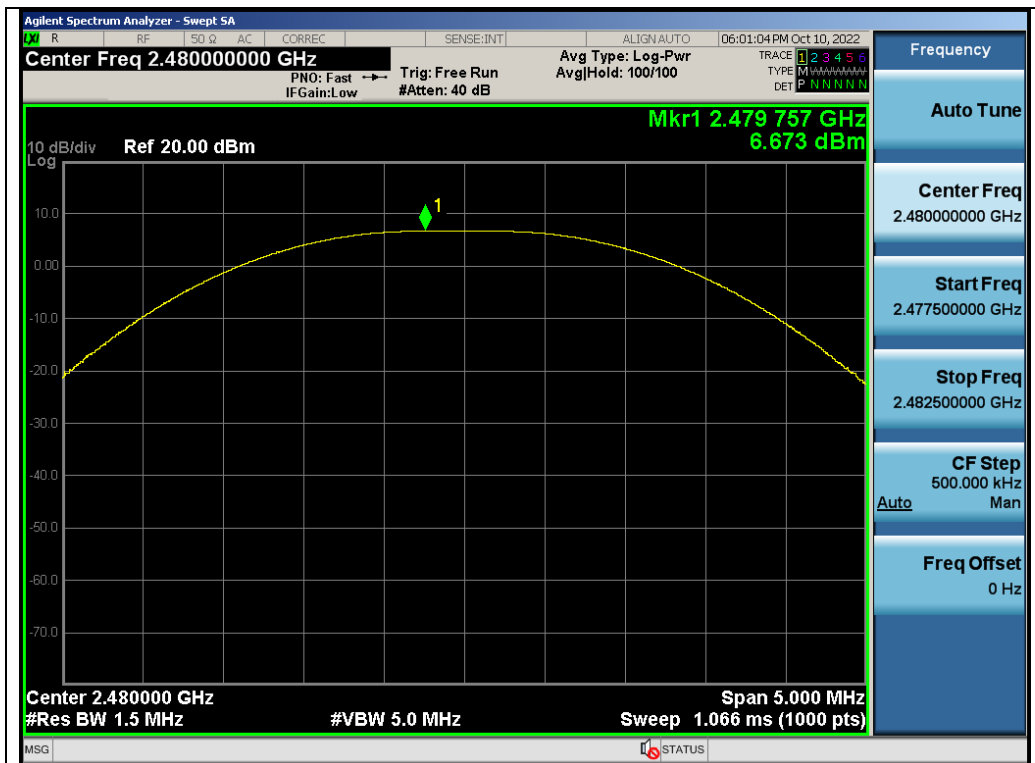


Test\_Graph\_GFSK\_ANT1\_2402\_125Kbps\_Peak Power

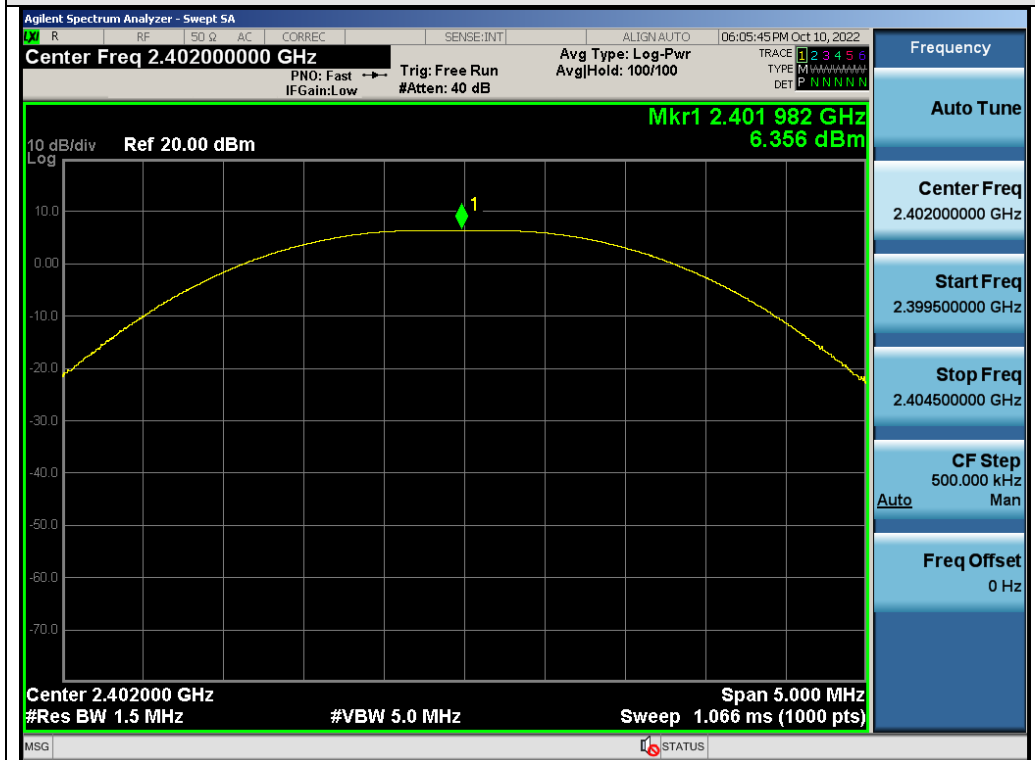


Test\_Graph\_GFSK\_ANT1\_2440\_125Kbps\_Peak Power

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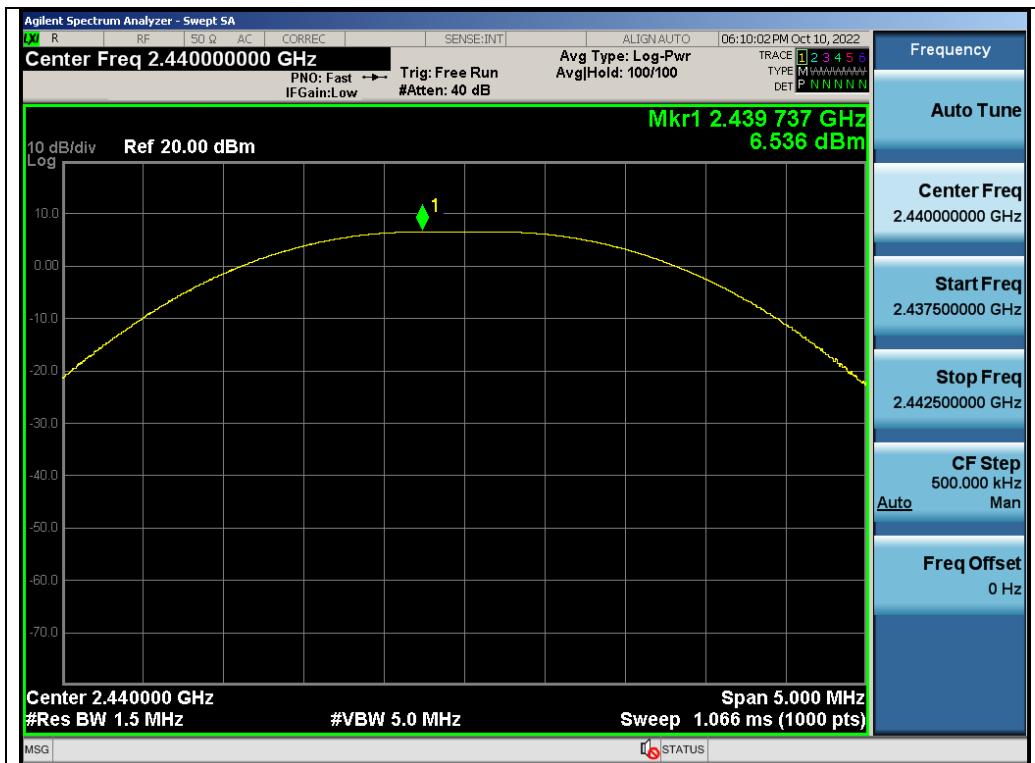


Test\_Graph\_GFSK\_ANT1\_2480\_125Kbps\_Peak Power

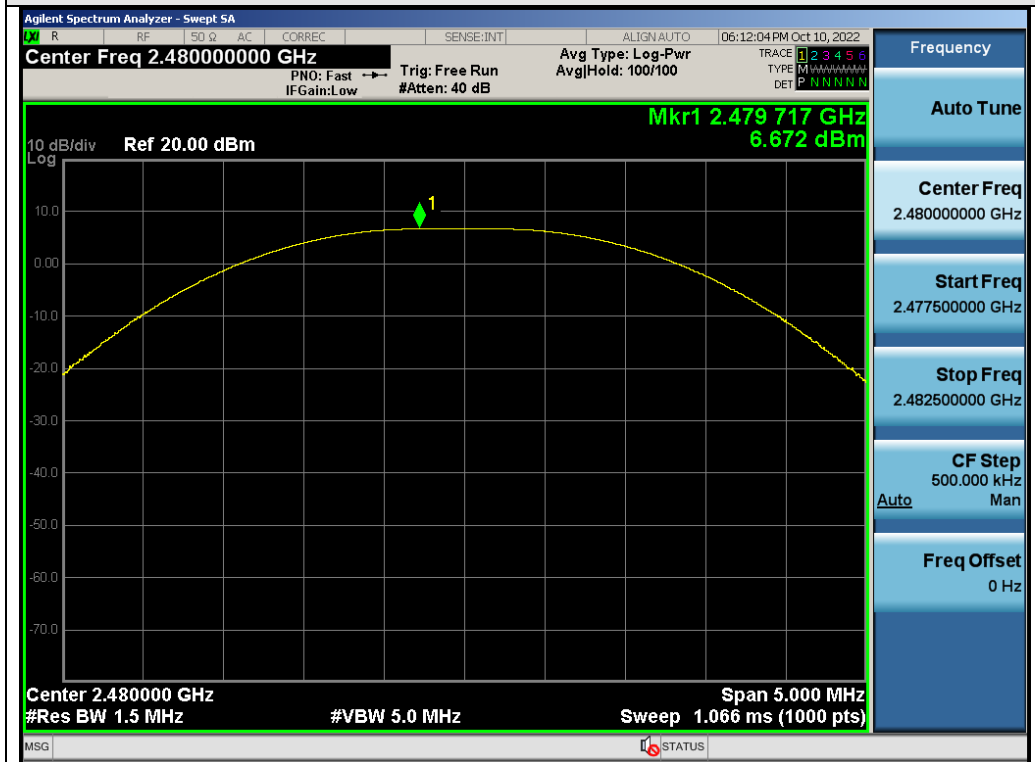


Test\_Graph\_GFSK\_ANT1\_2402\_500Kbps\_Peak Power

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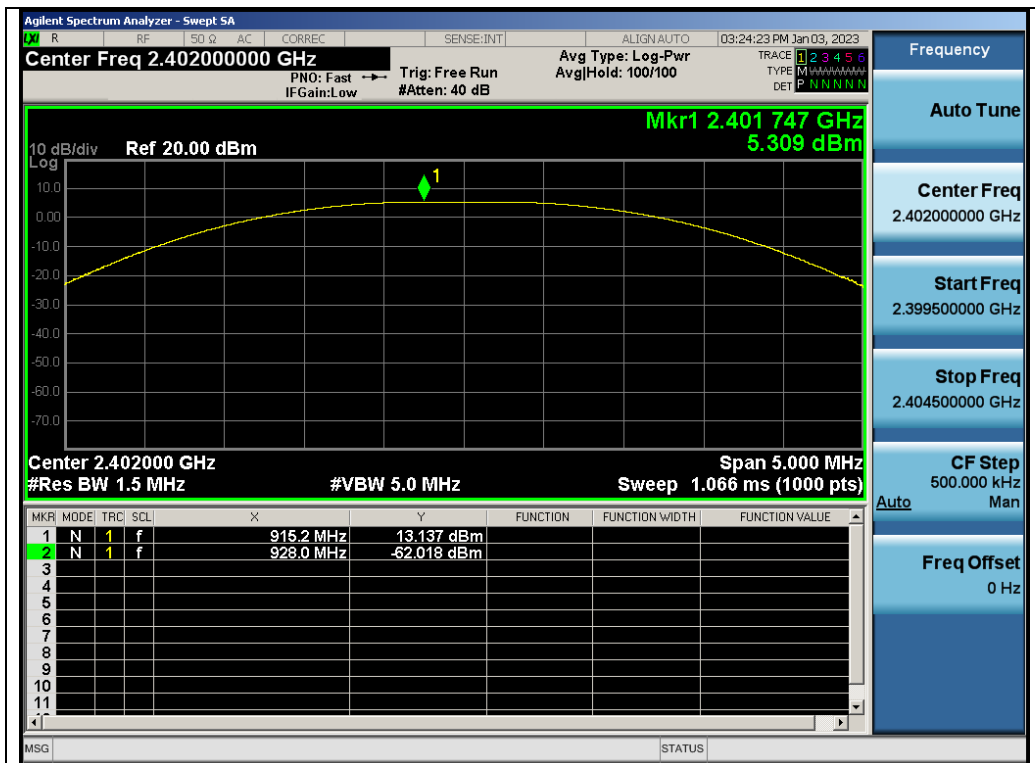


Test\_Graph\_GFSK\_ANT1\_2440\_500Kbps\_Peak Power

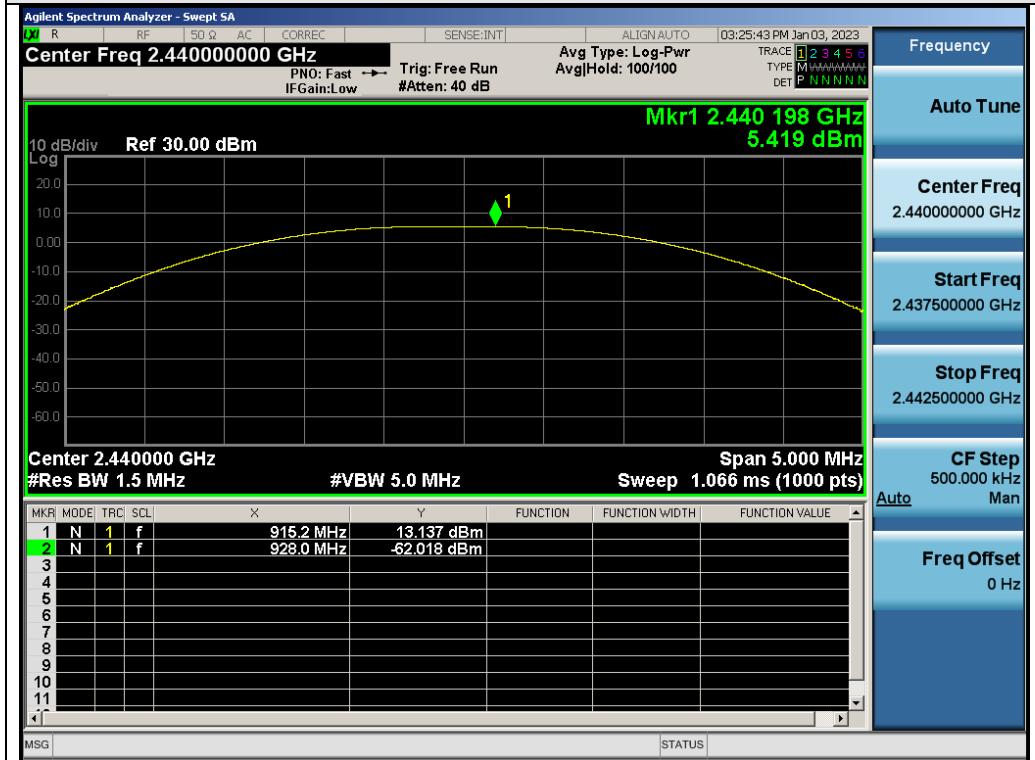


Test\_Graph\_GFSK\_ANT1\_2480\_500Kbps\_Peak Power

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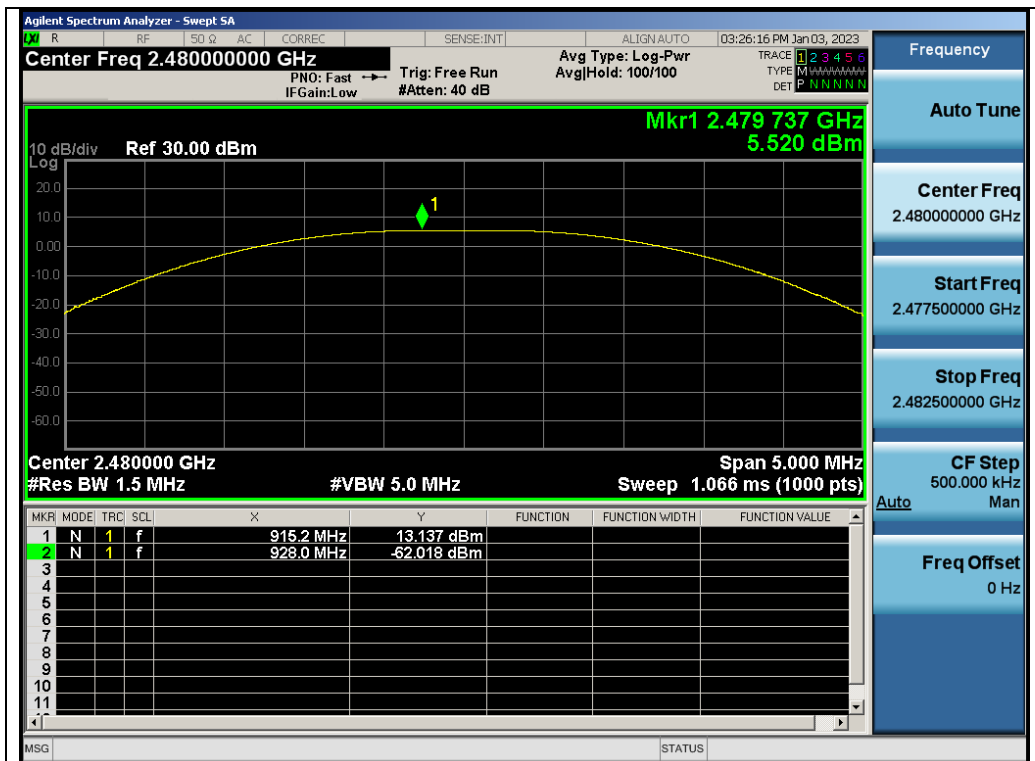


Test\_Graph\_LE1M\_ANT2\_2402\_1Mbps\_Peak Power

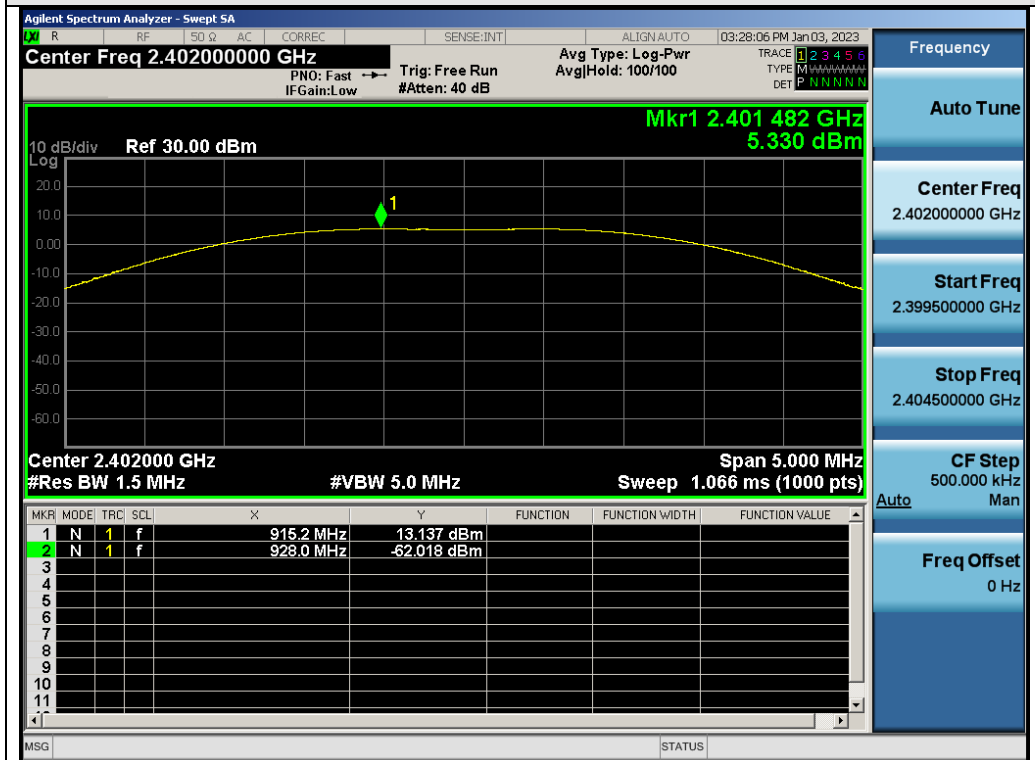


Test\_Graph\_LE1M\_ANT2\_2440\_1Mbps\_Peak Power

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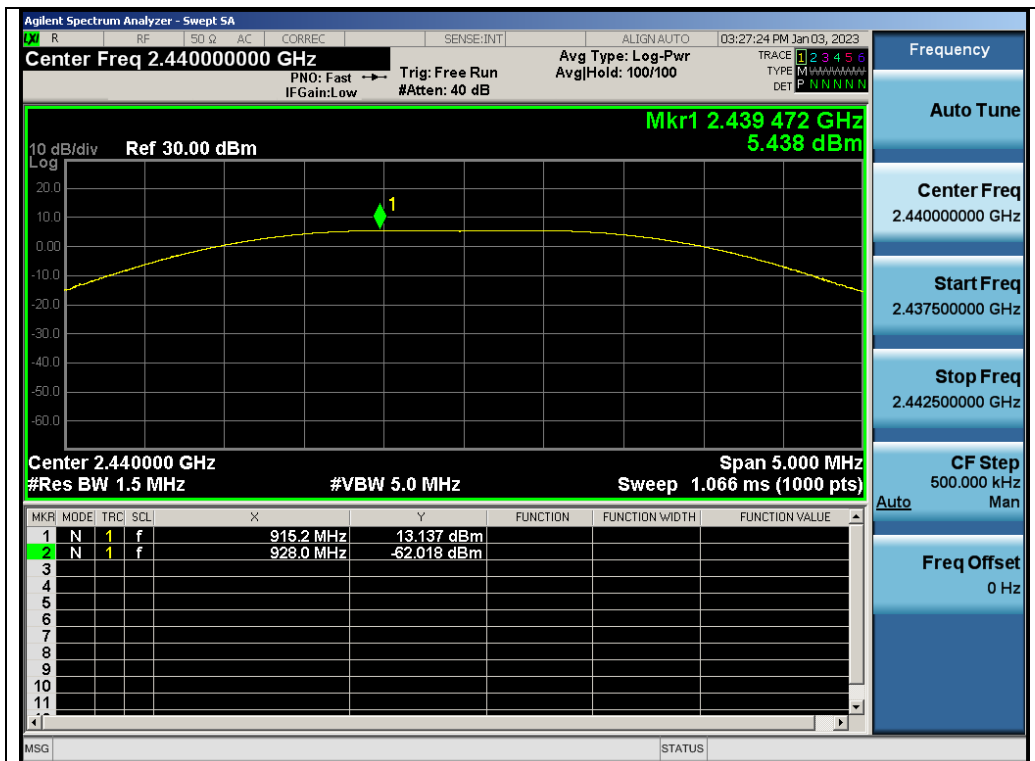
Test\_Graph\_LE1M\_ANT2\_2480\_1Mbps\_Peak Power



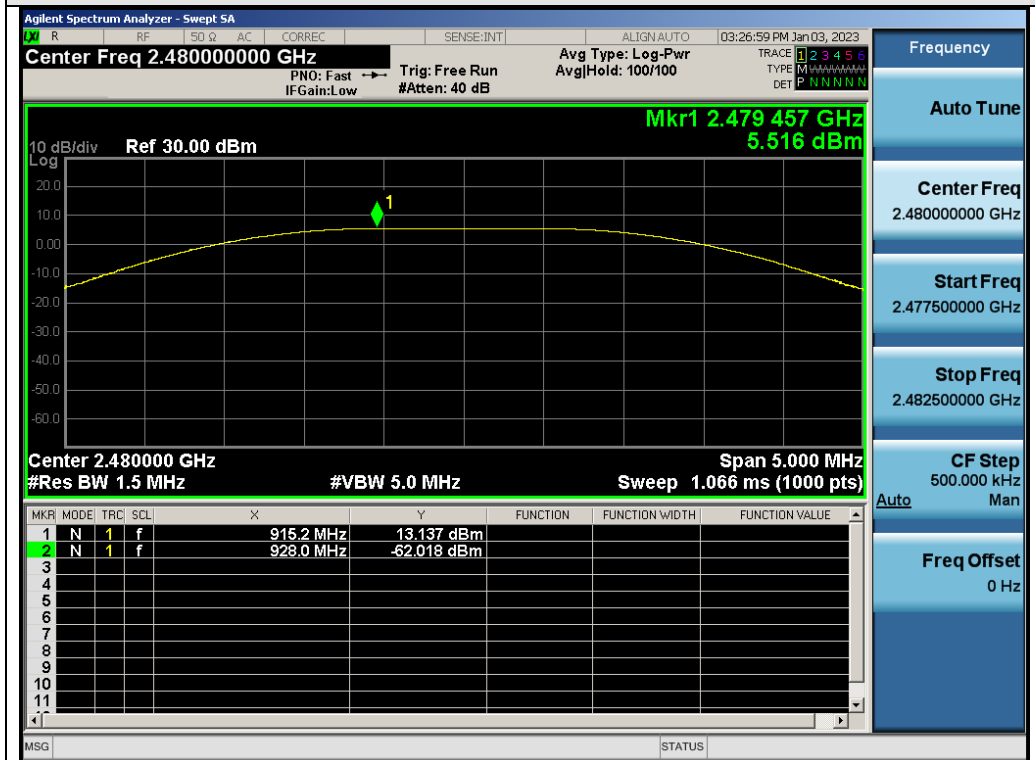
Test\_Graph\_LE2M\_ANT2\_2402\_2Mbps\_Peak Power

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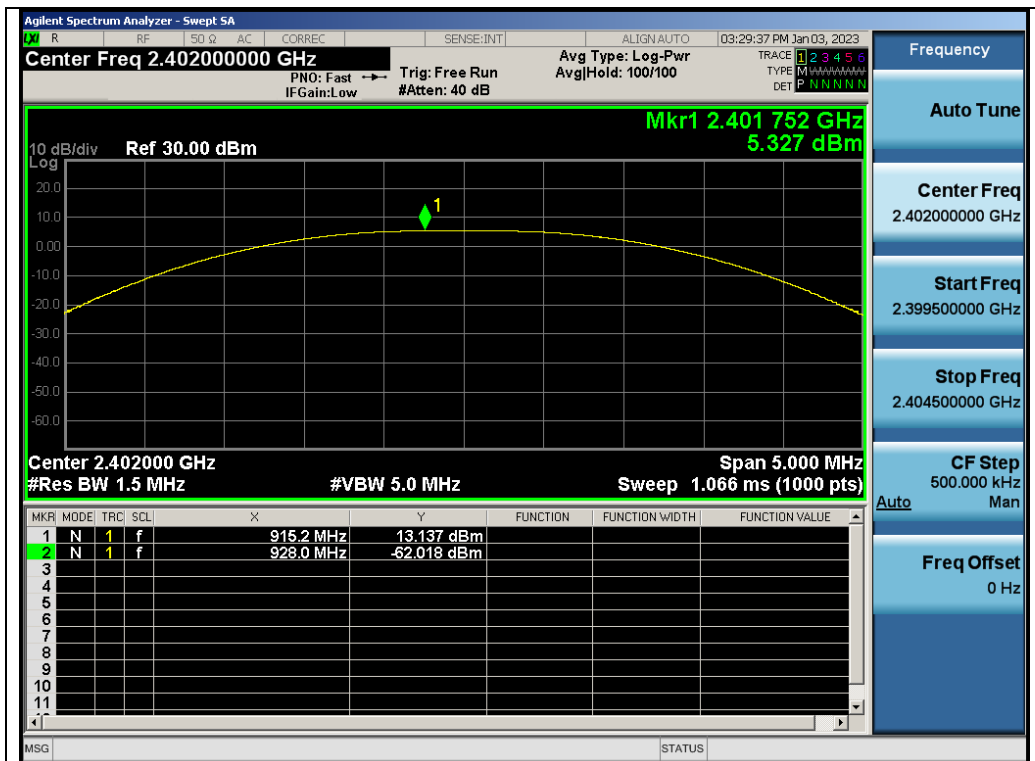


Test\_Graph\_LE2M\_ANT2\_2440\_2Mbps\_Peak Power

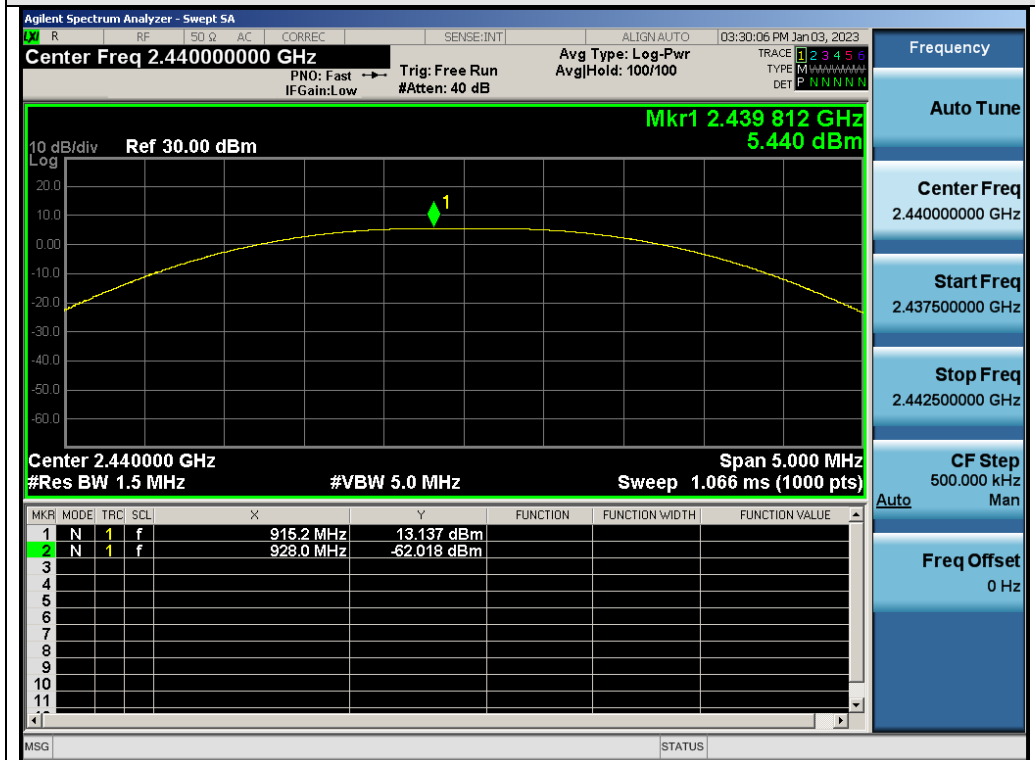


Test\_Graph\_LE2M\_ANT2\_2480\_2Mbps\_Peak Power

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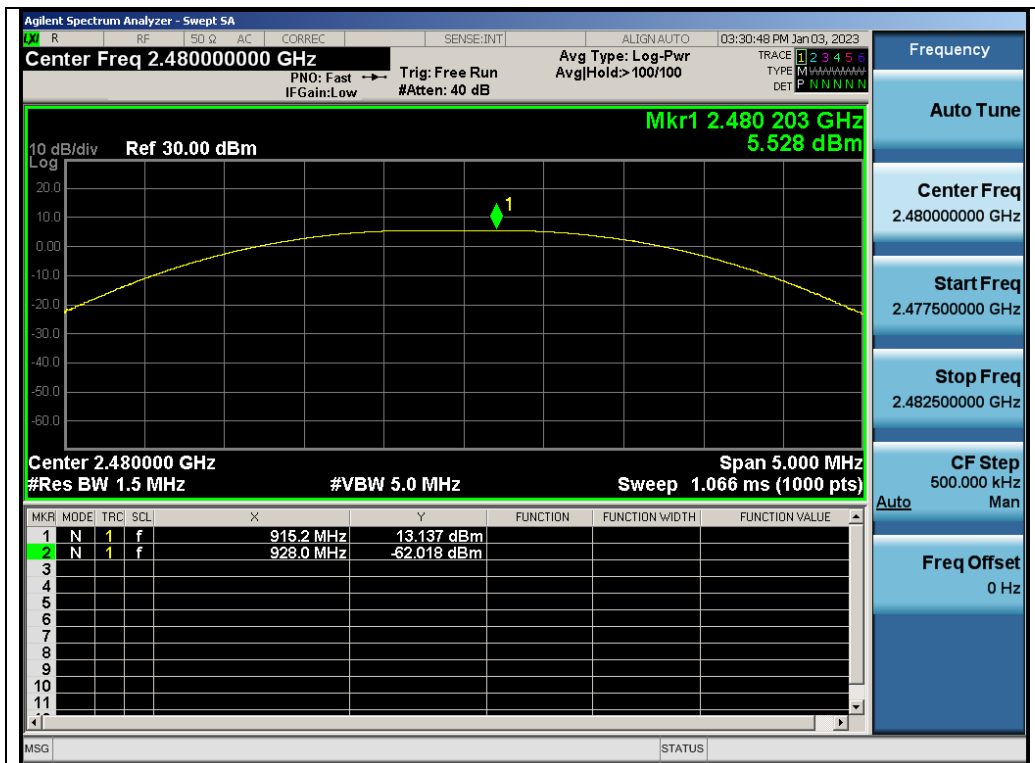


Test\_Graph\_GFSK\_ANT2\_2402\_125Kbps\_Peak Power

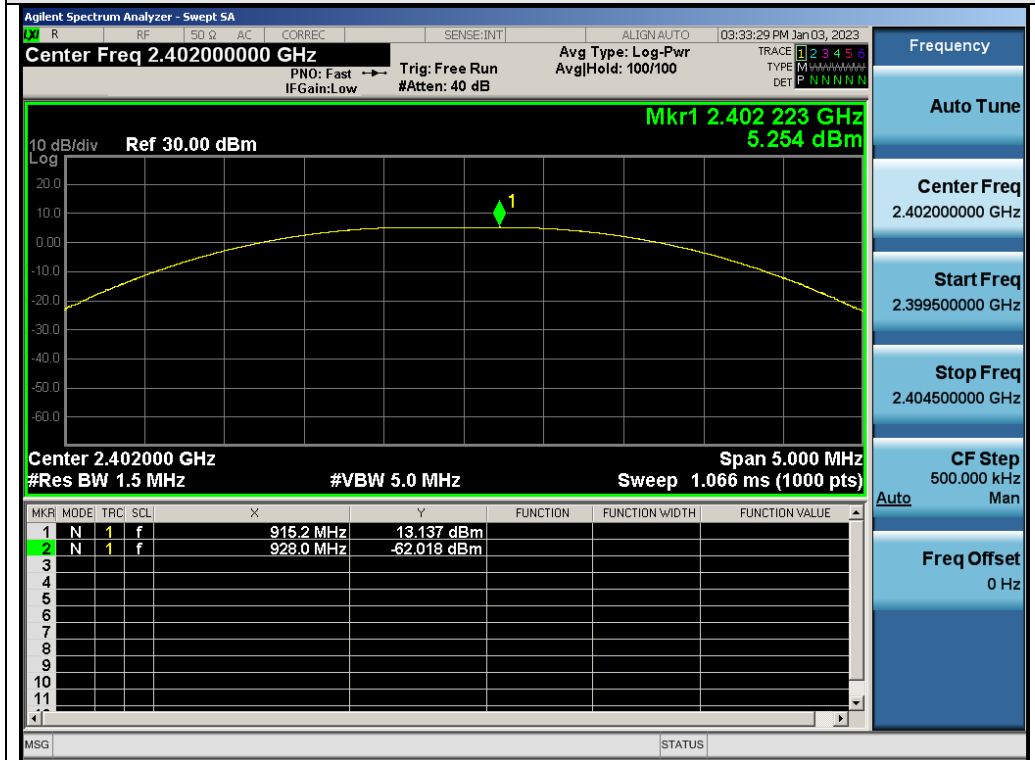


Test\_Graph\_GFSK\_ANT2\_2440\_125Kbps\_Peak Power

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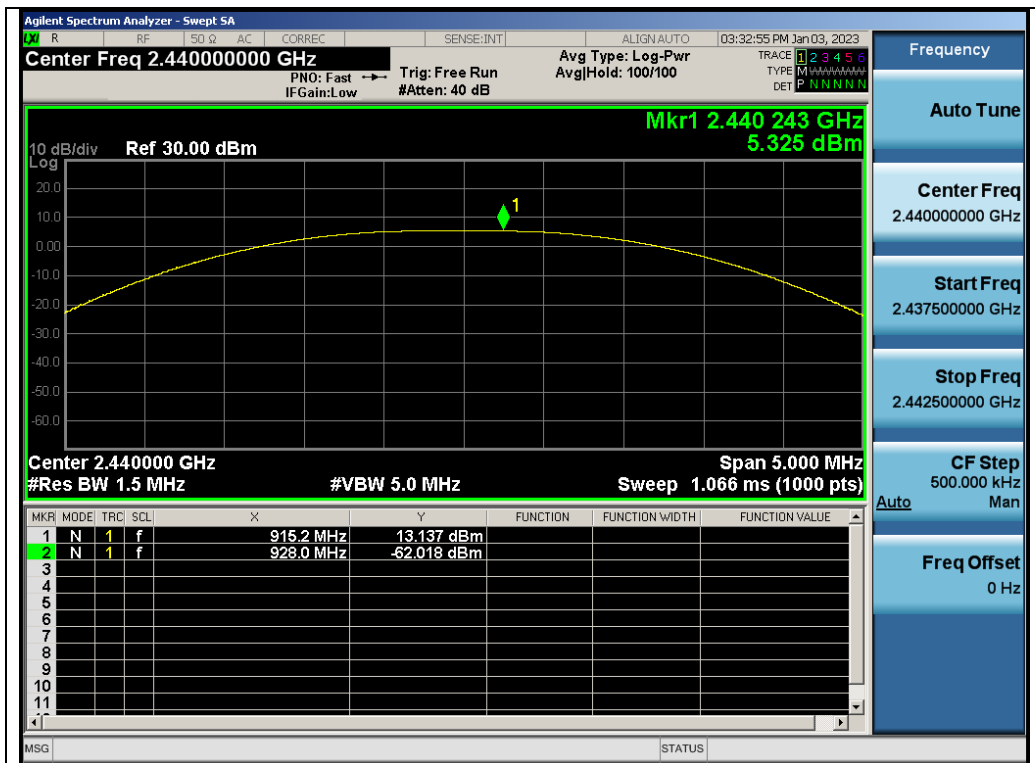


Test\_Graph\_GFSK\_ANT2\_2480\_125Kbps\_Peak Power

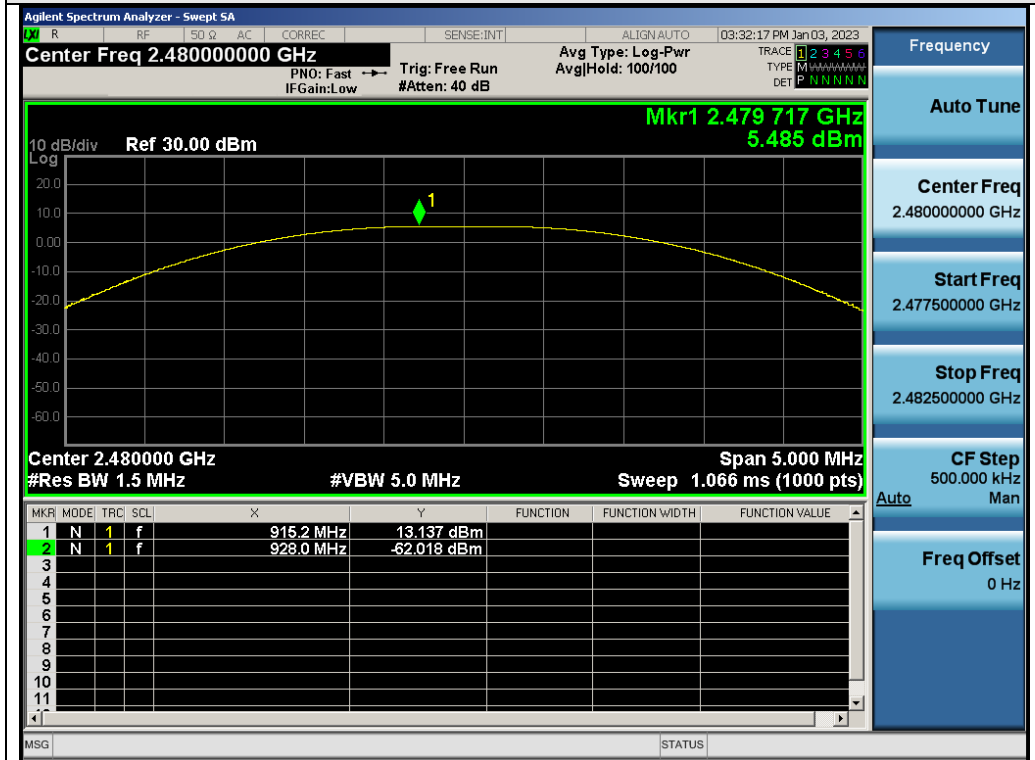


Test\_Graph\_GFSK\_ANT2\_2402\_500Kbps\_Peak Power

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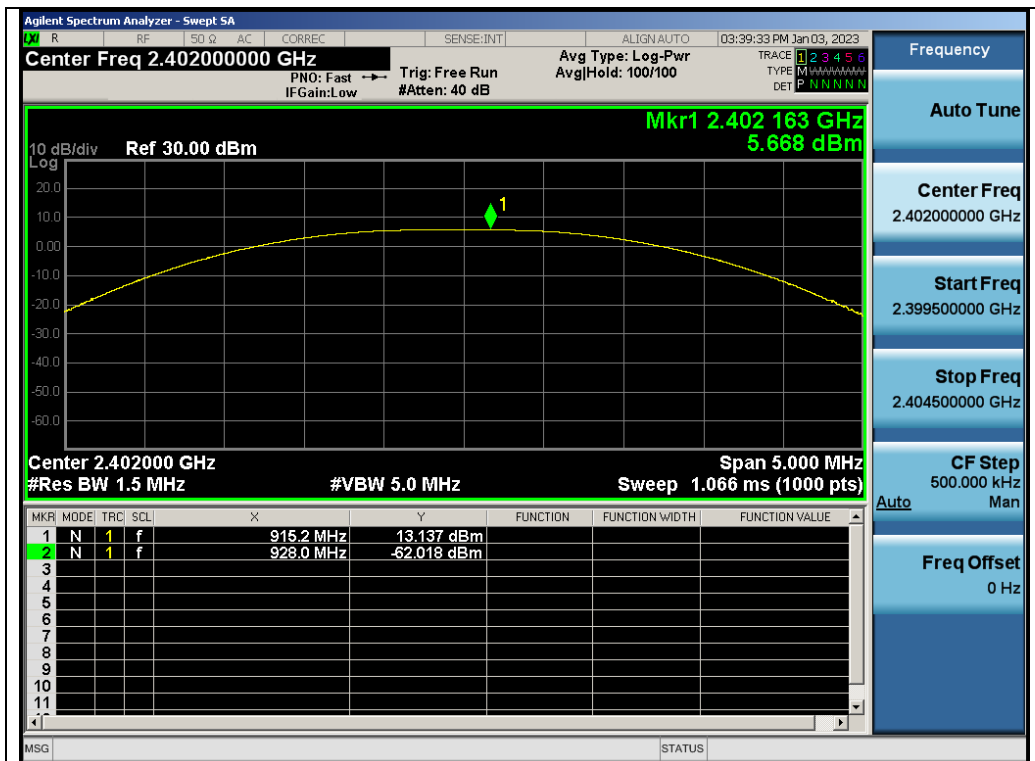


Test\_Graph\_GFSK\_ANT2\_2440\_500Kbps\_Peak Power

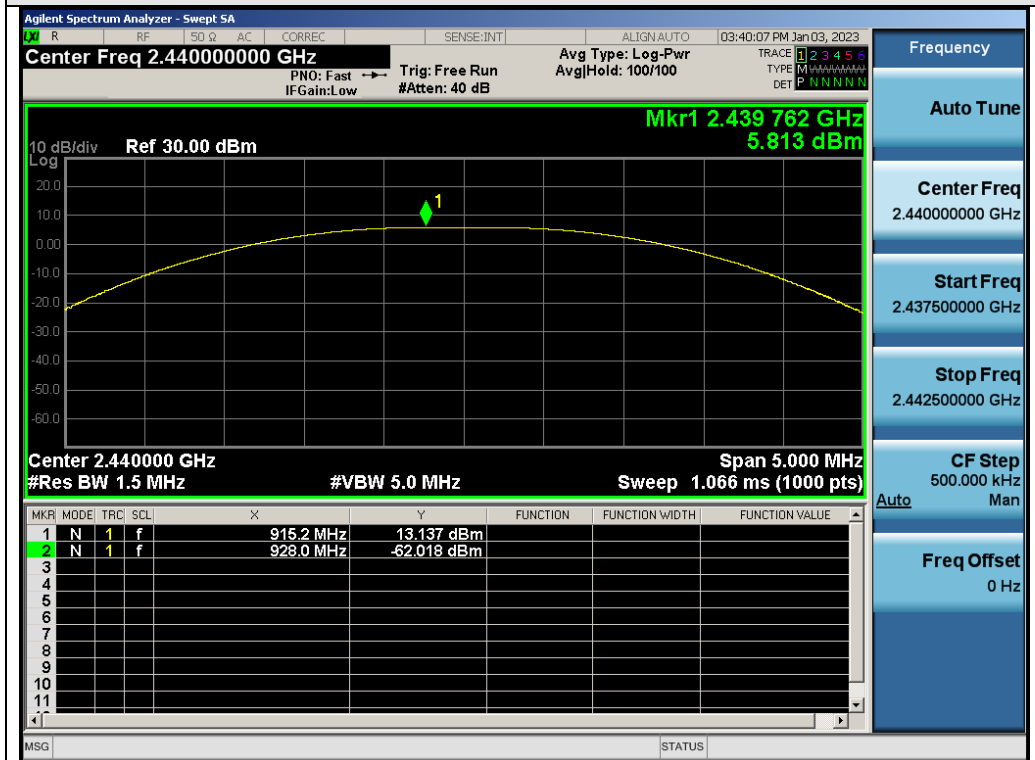


Test\_Graph\_GFSK\_ANT2\_2480\_500Kbps\_Peak Power

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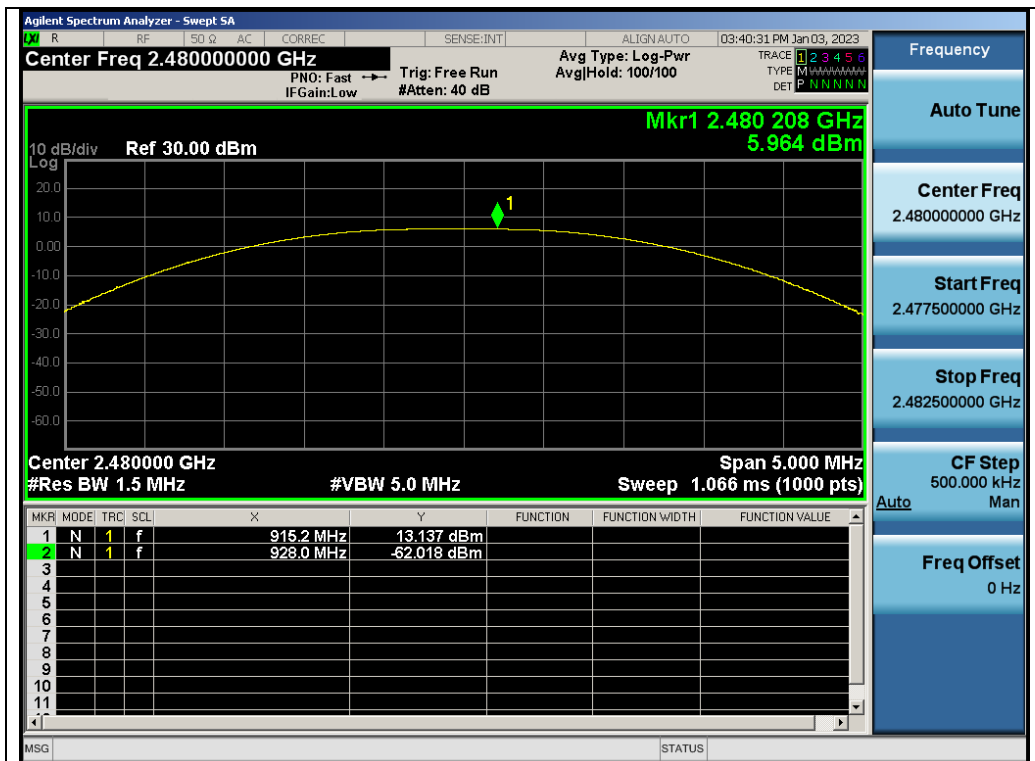


Test\_Graph\_LE1M\_ANT3\_2402\_1Mbps\_Peak Power

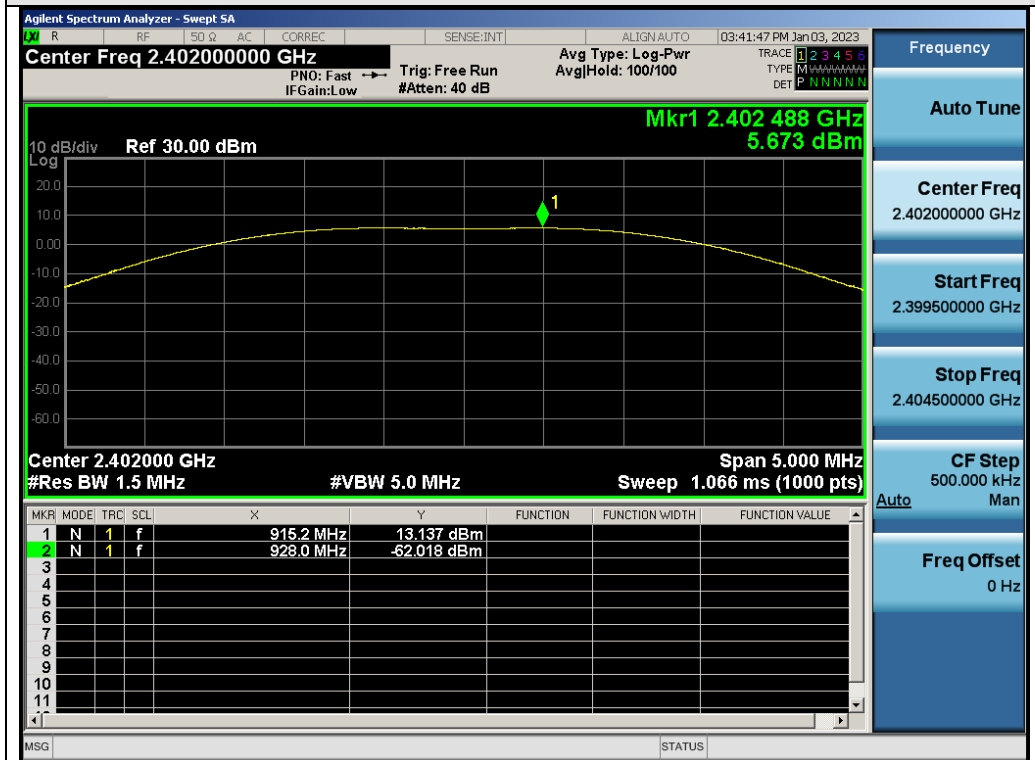


Test\_Graph\_LE1M\_ANT3\_2440\_1Mbps\_Peak Power

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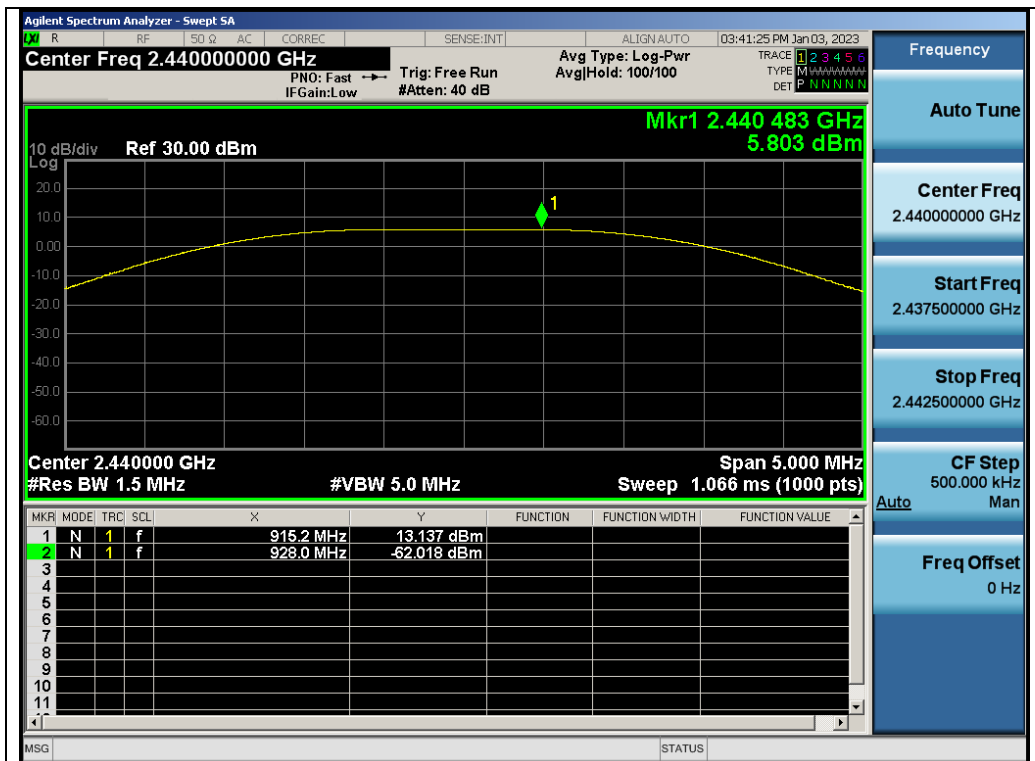


Test\_Graph\_LE1M\_ANT3\_2480\_1Mbps\_Peak Power

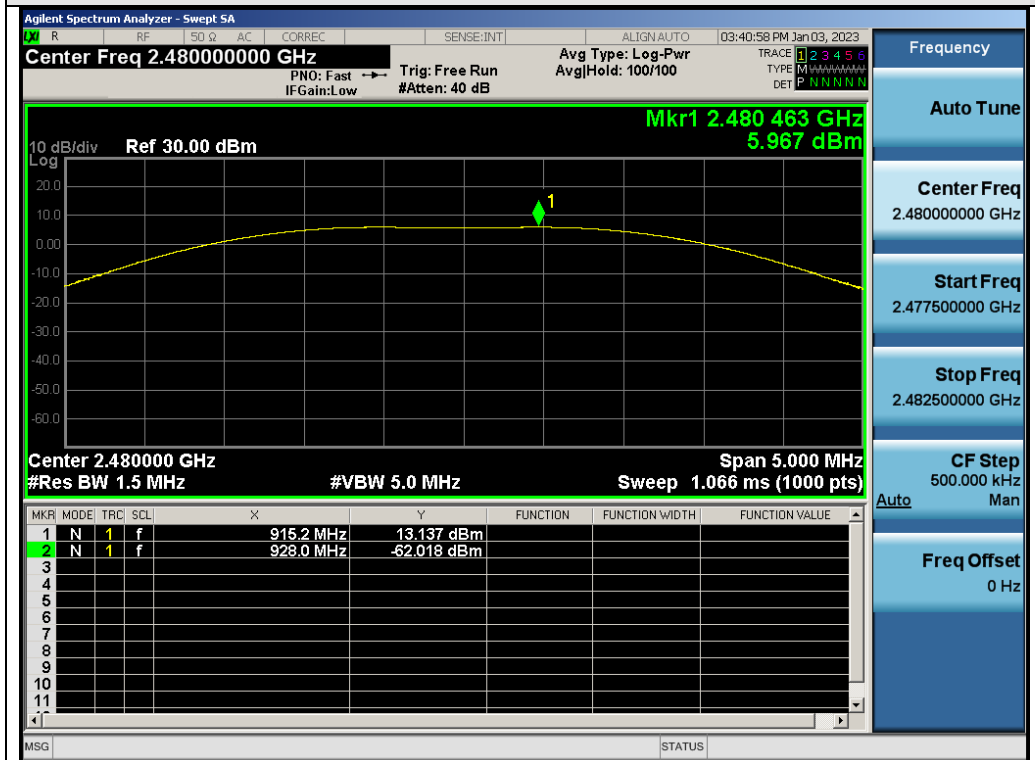


Test\_Graph\_LE2M\_ANT3\_2402\_2Mbps\_Peak Power

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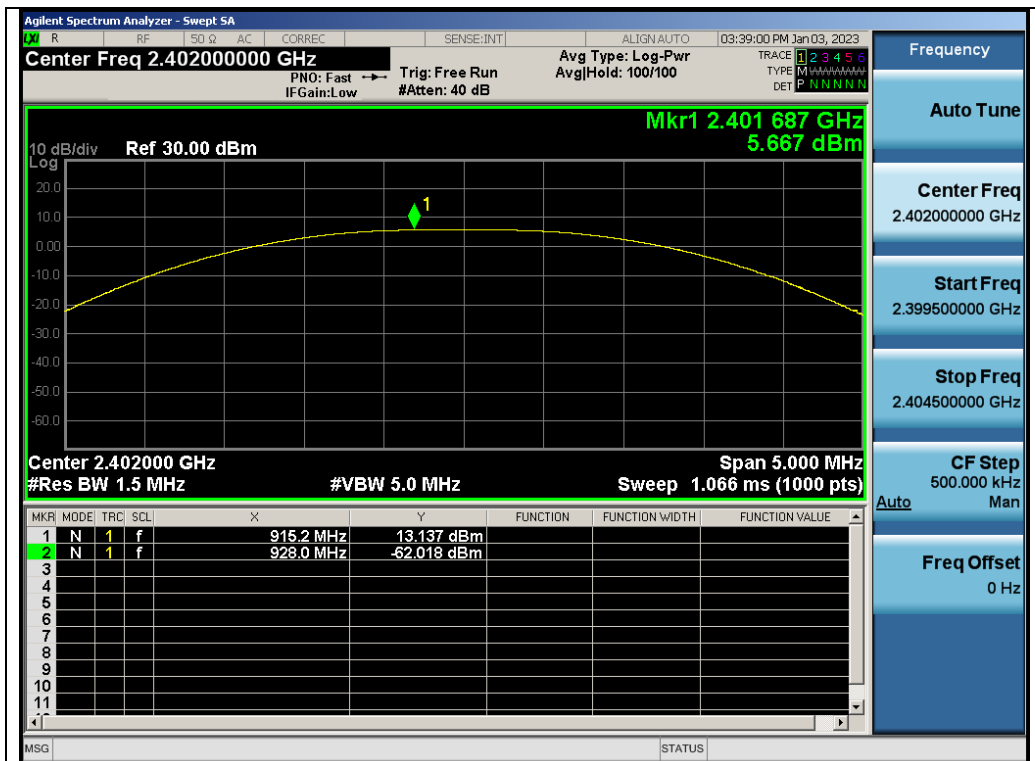


Test\_Graph\_LE2M\_ANT3\_2440\_2Mbps\_Peak Power

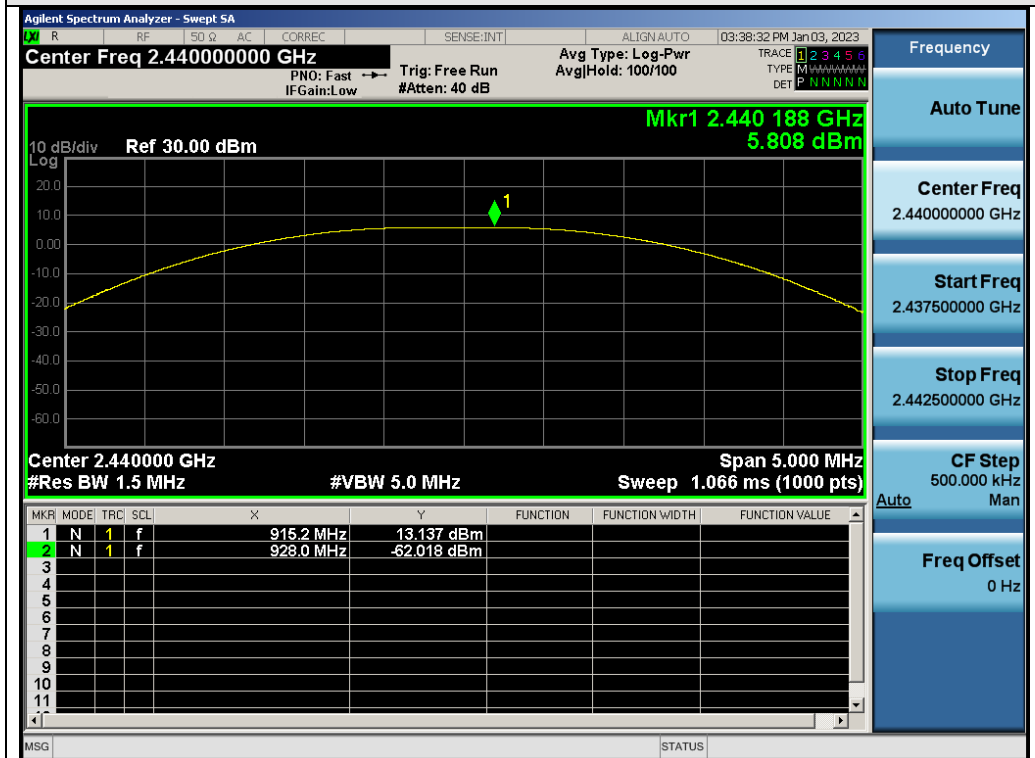


Test\_Graph\_LE2M\_ANT3\_2480\_2Mbps\_Peak Power

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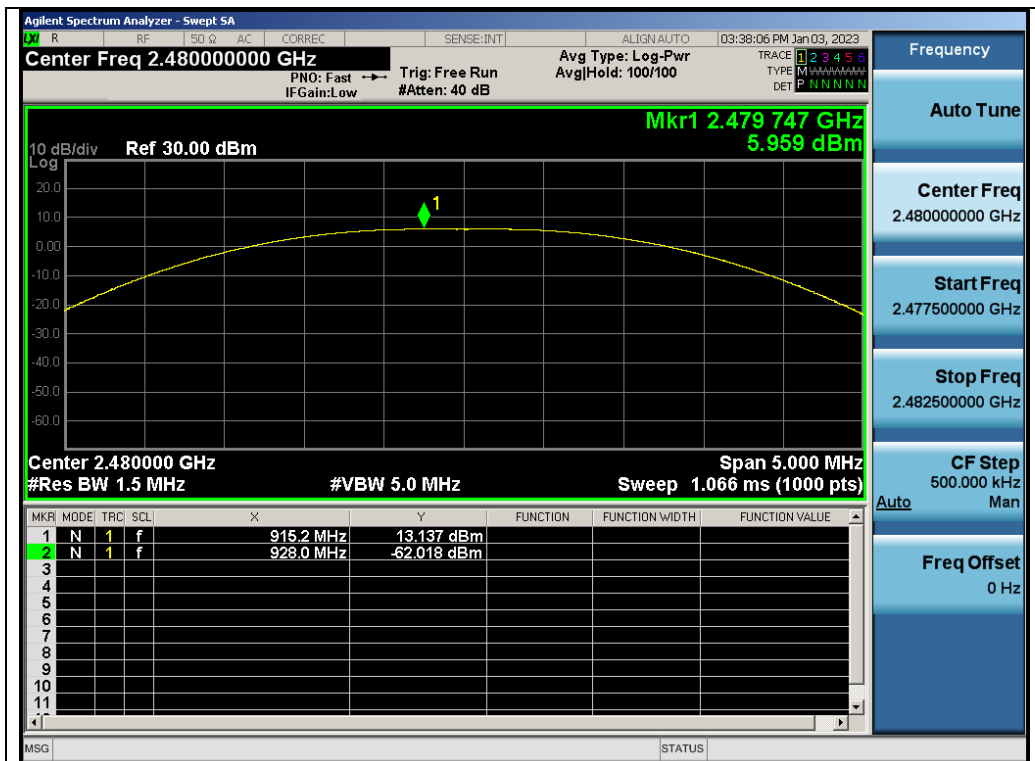
Test\_Graph\_GFSK\_ANT3\_2402\_125Kbps\_Peak Power



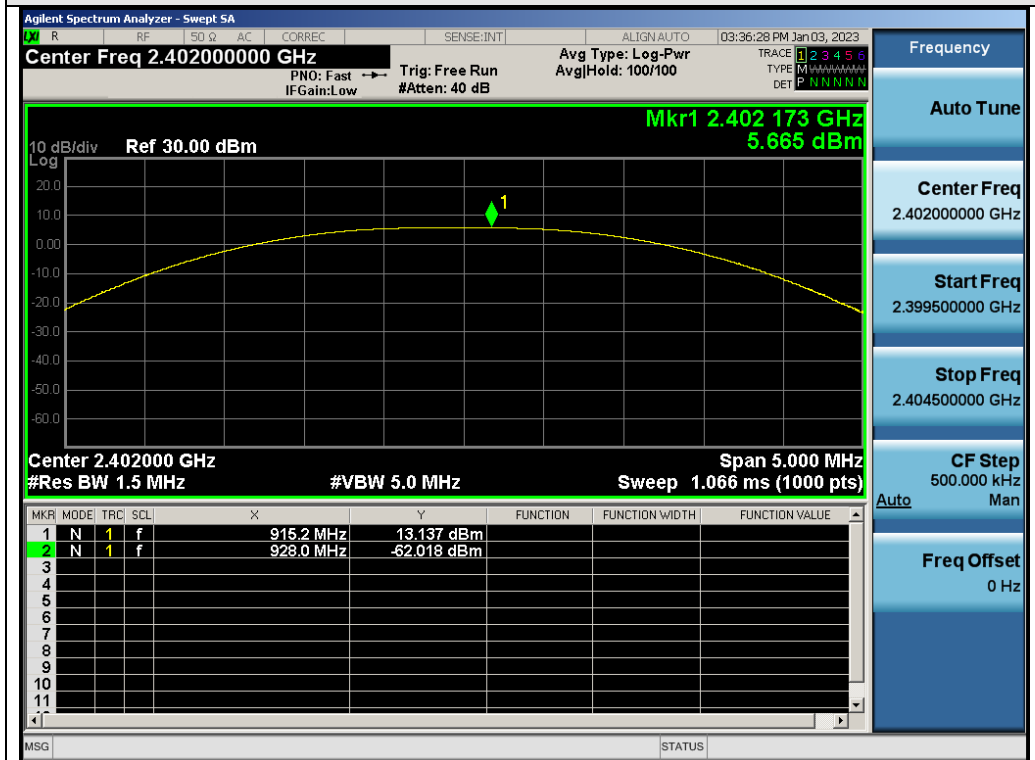
Test\_Graph\_GFSK\_ANT3\_2440\_125Kbps\_Peak Power

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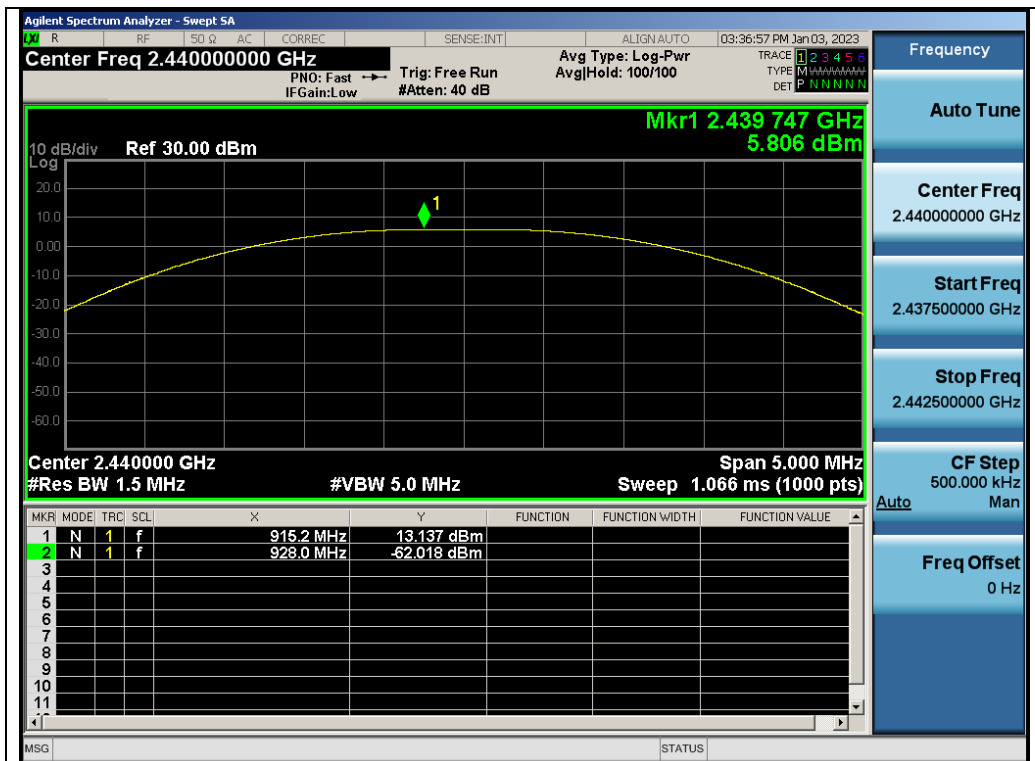


Test\_Graph\_GFSK\_ANT3\_2480\_125Kbps\_Peak Power

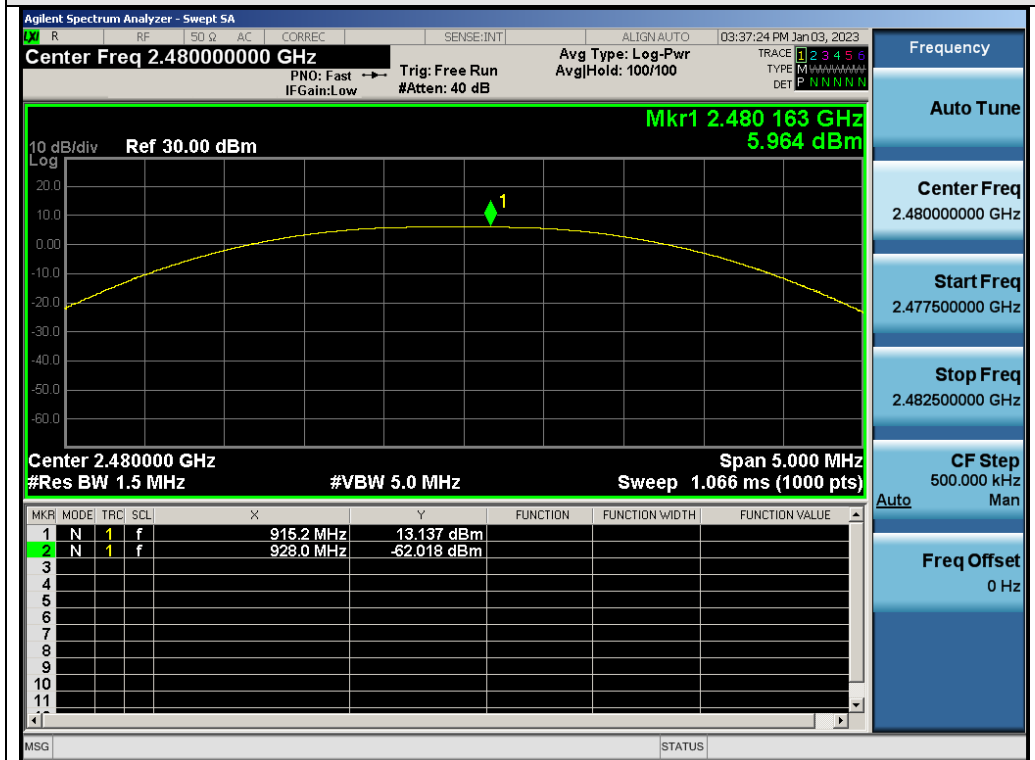


Test\_Graph\_GFSK\_ANT3\_2402\_500Kbps\_Peak Power

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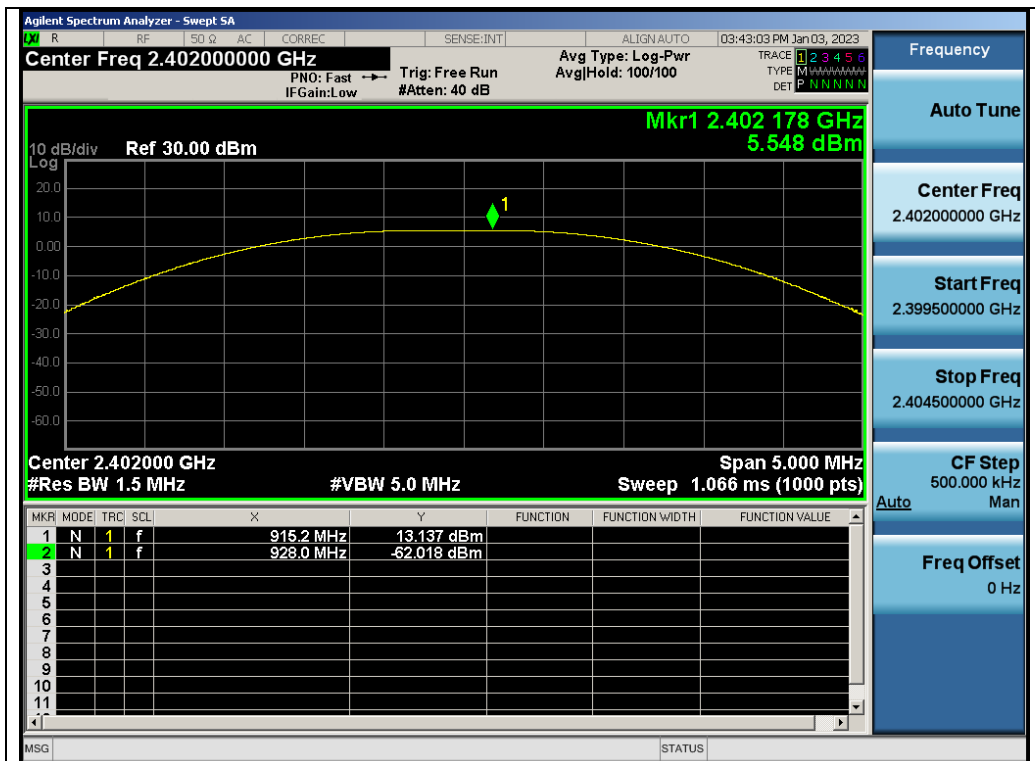


Test\_Graph\_GFSK\_ANT3\_2440\_500Kbps\_Peak Power

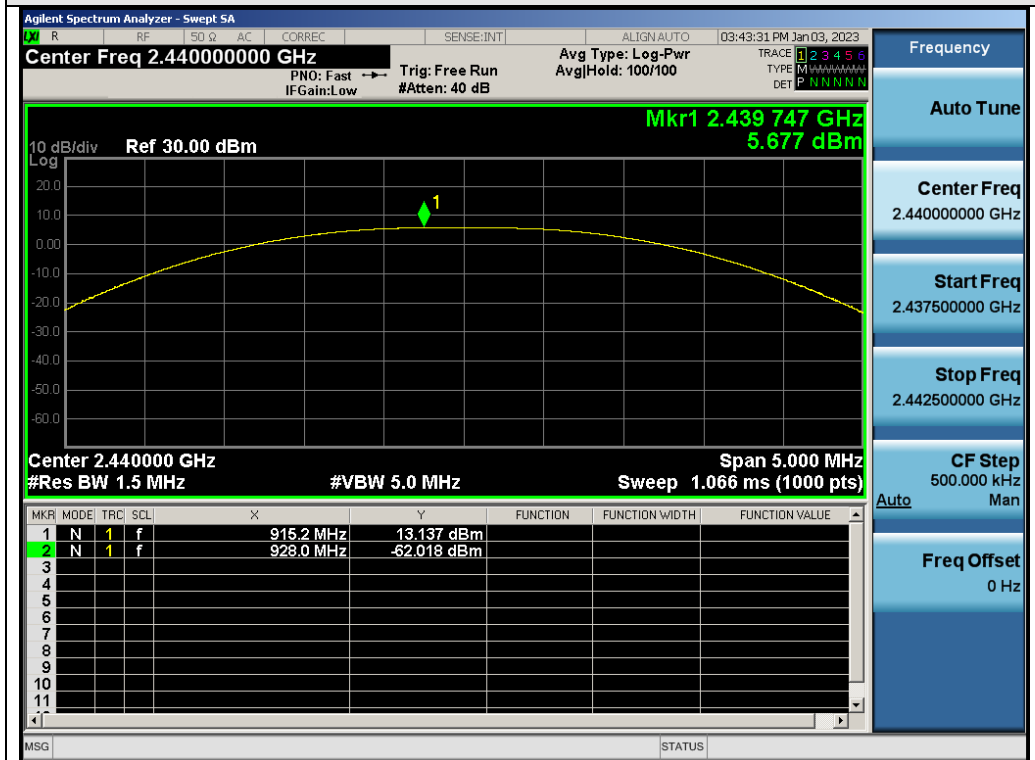


Test\_Graph\_GFSK\_ANT3\_2480\_500Kbps\_Peak Power

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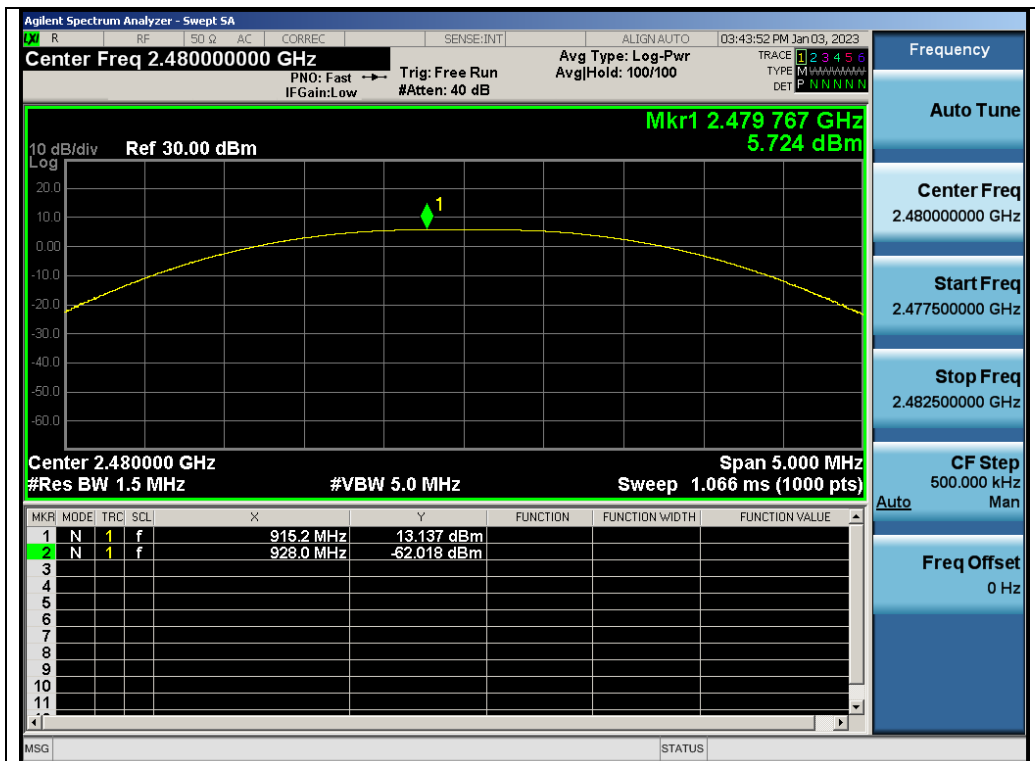


Test\_Graph\_LE1M\_ANT4\_2402\_1Mbps\_Peak Power

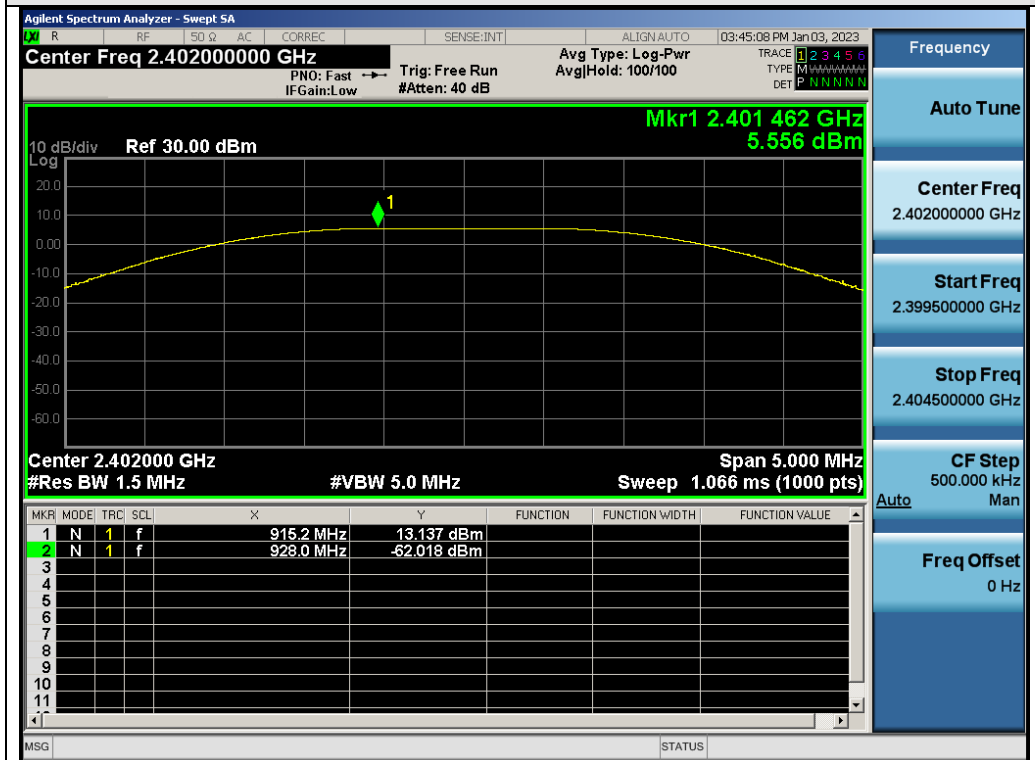


Test\_Graph\_LE1M\_ANT4\_2440\_1Mbps\_Peak Power

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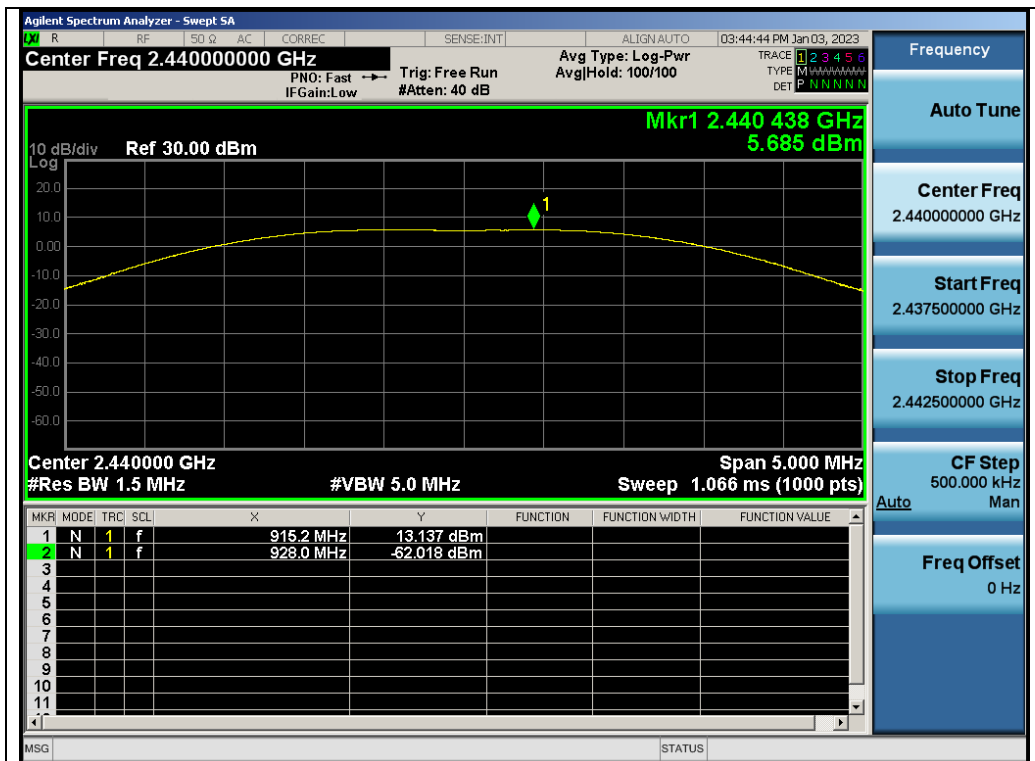


Test\_Graph\_LE1M\_ANT4\_2480\_1Mbps\_Peak Power

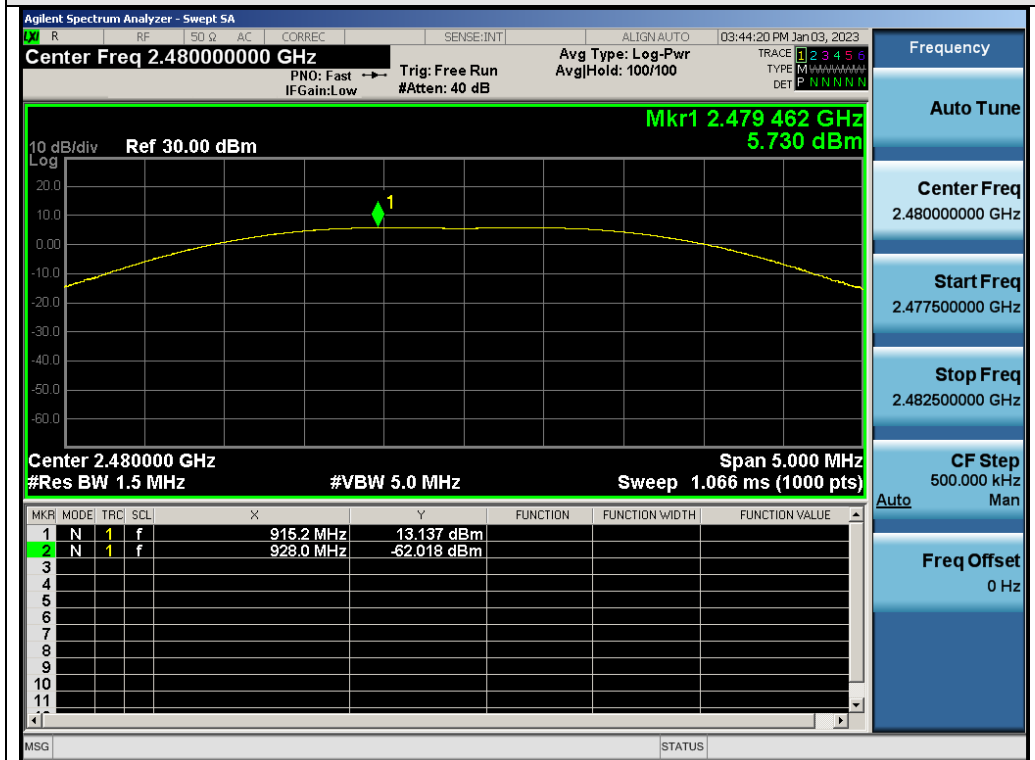


Test\_Graph\_LE2M\_ANT4\_2402\_2Mbps\_Peak Power

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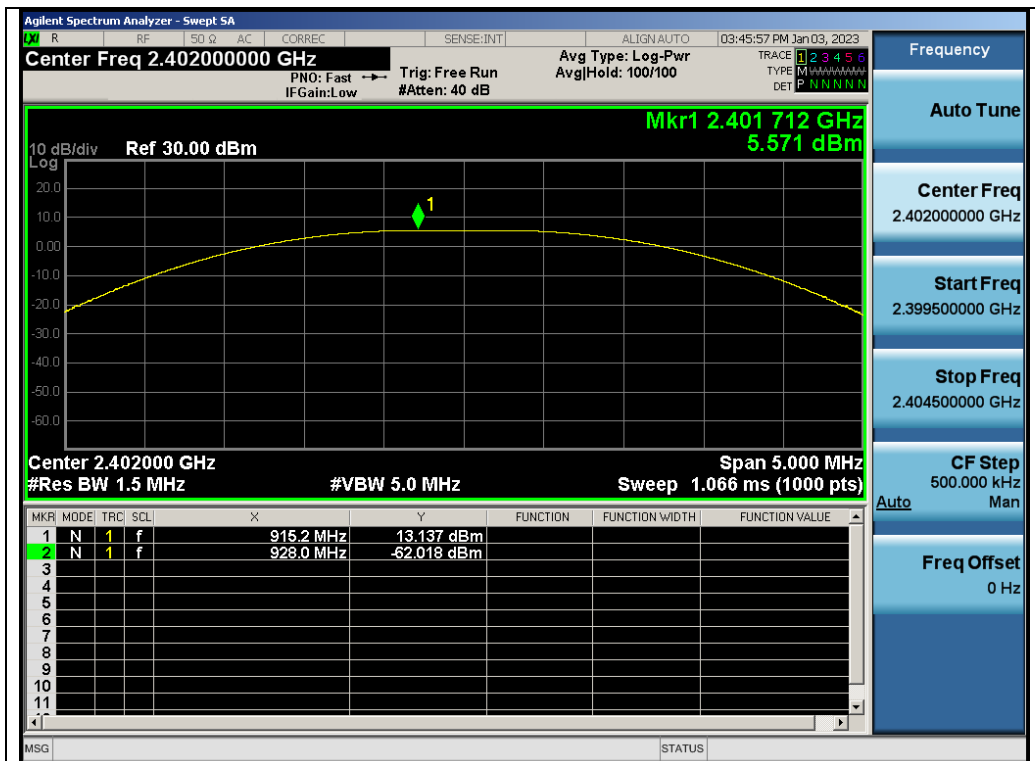


Test\_Graph\_LE2M\_ANT4\_2440\_2Mbps\_Peak Power

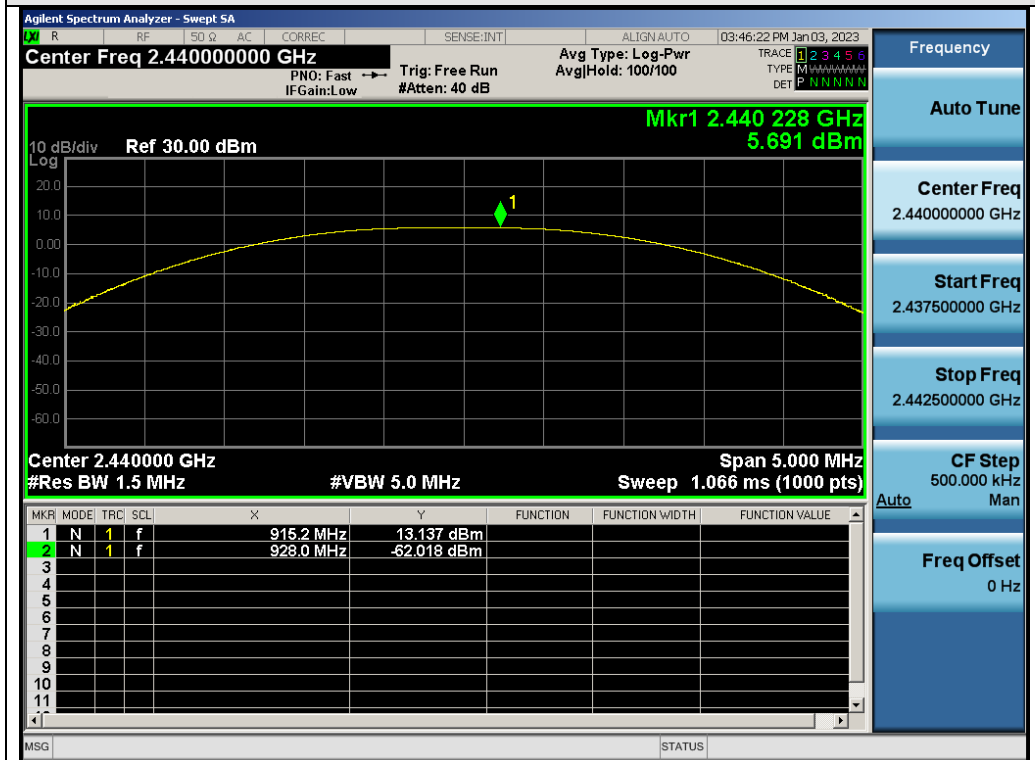


Test\_Graph\_LE2M\_ANT4\_2480\_2Mbps\_Peak Power

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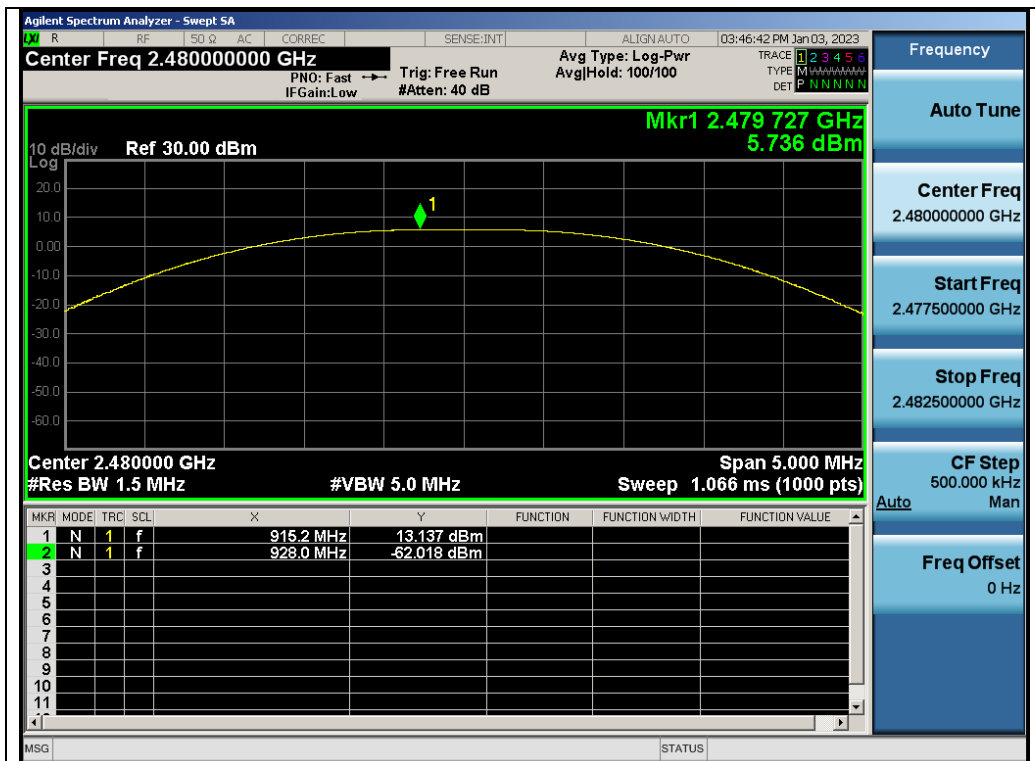


Test\_Graph\_GFSK\_ANT4\_2402\_125Kbps\_Peak Power

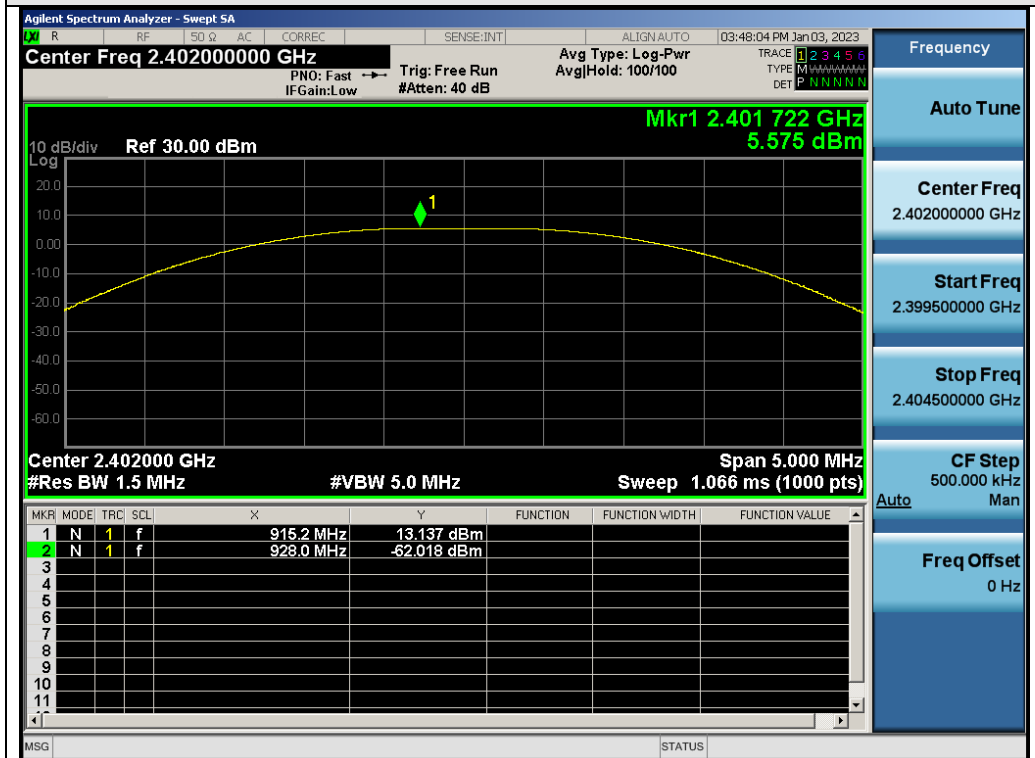


Test\_Graph\_GFSK\_ANT4\_2440\_125Kbps\_Peak Power

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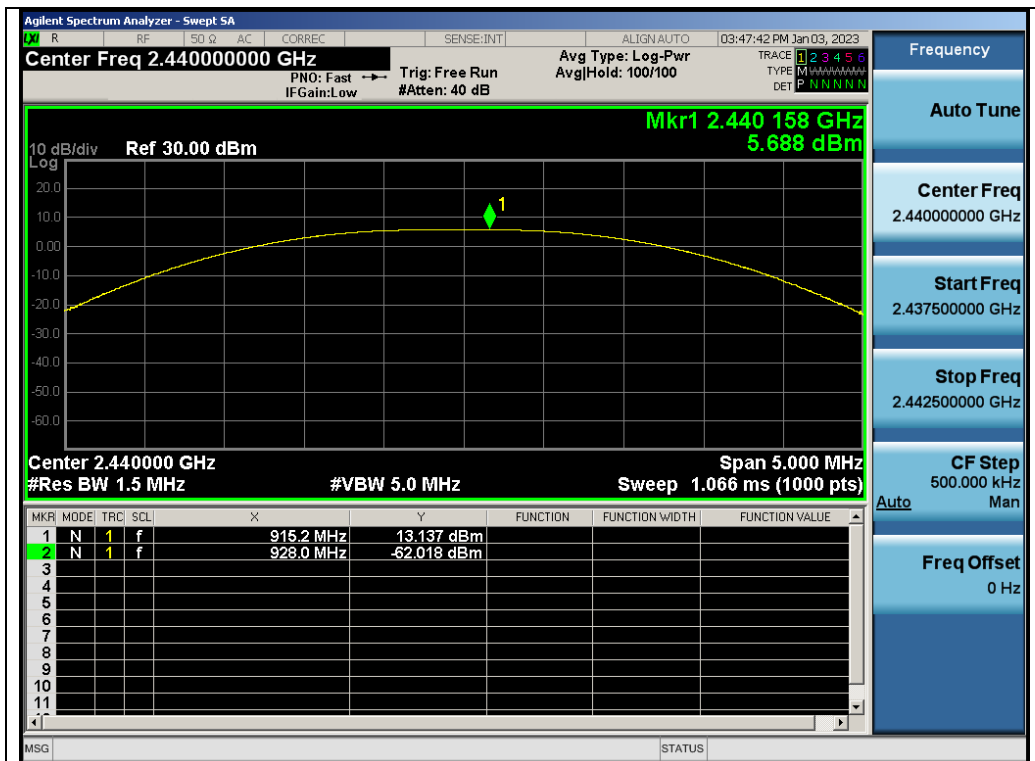


Test\_Graph\_GFSK\_ANT4\_2480\_125Kbps\_Peak Power

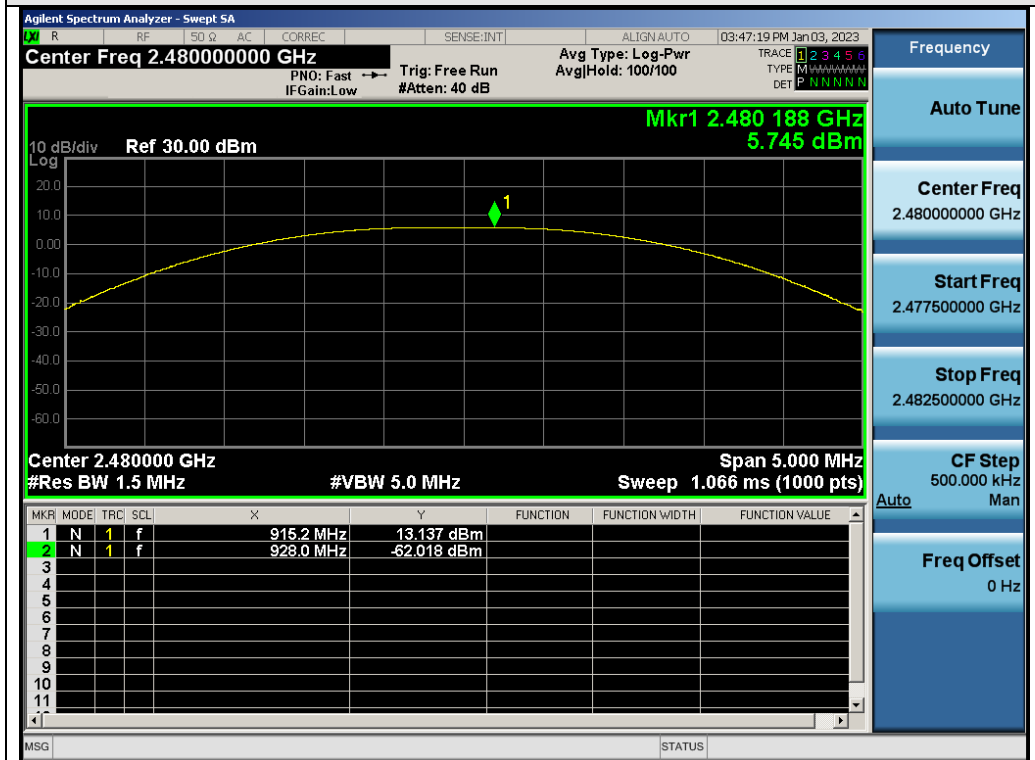


Test\_Graph\_GFSK\_ANT4\_2402\_500Kbps\_Peak Power

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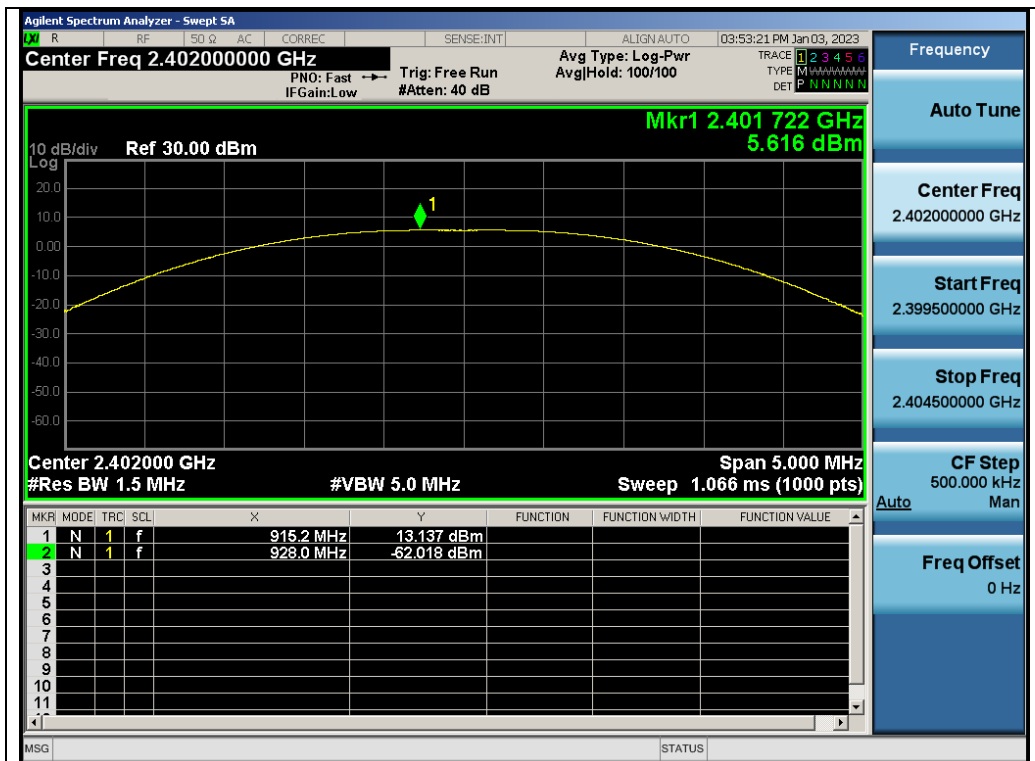
Test\_Graph\_GFSK\_ANT4\_2440\_500Kbps\_Peak Power



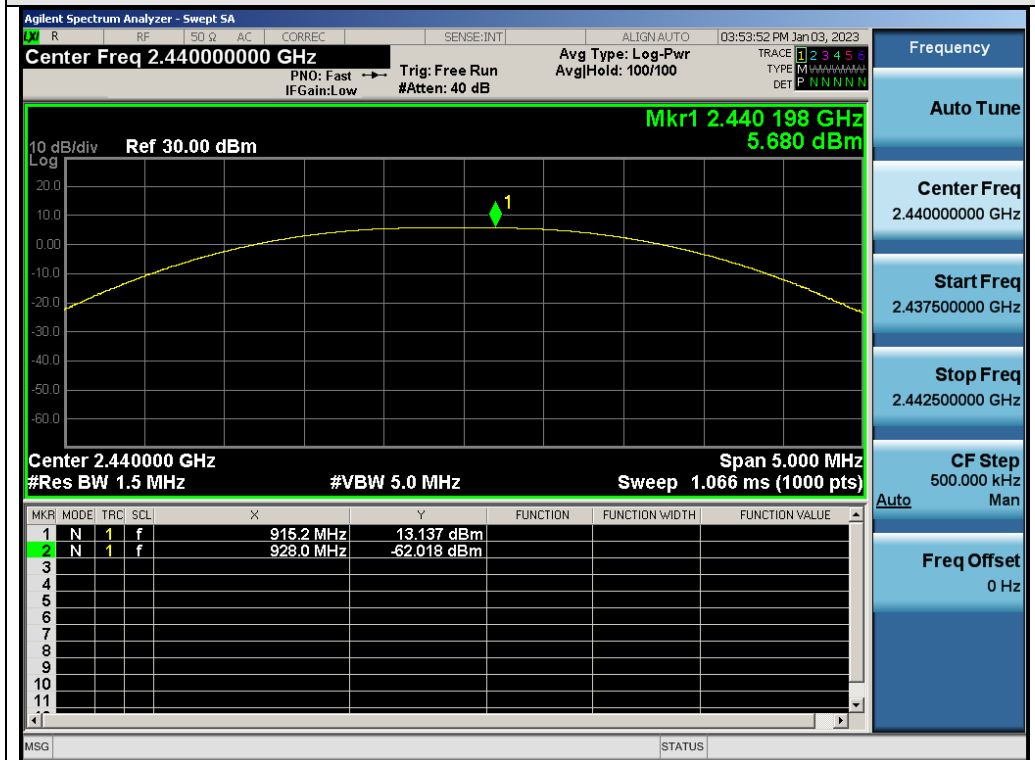
Test\_Graph\_GFSK\_ANT4\_2480\_500Kbps\_Peak Power

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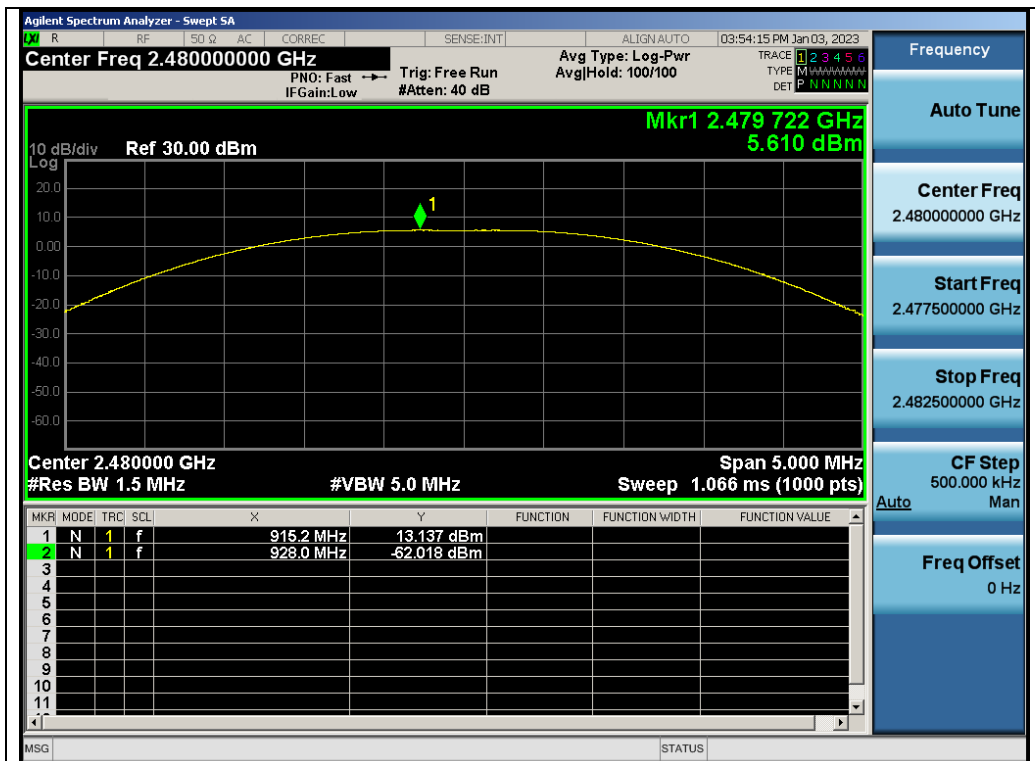


Test\_Graph\_LE1M\_ANT5\_2402\_1Mbps\_Peak Power

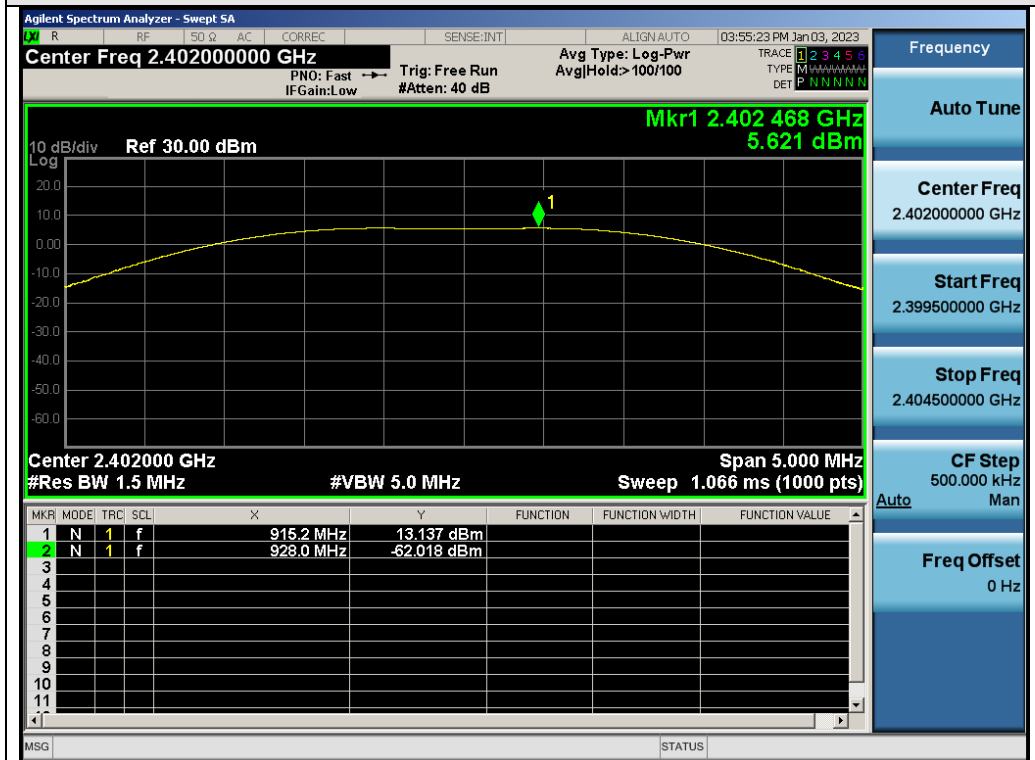


Test\_Graph\_LE1M\_ANT5\_2440\_1Mbps\_Peak Power

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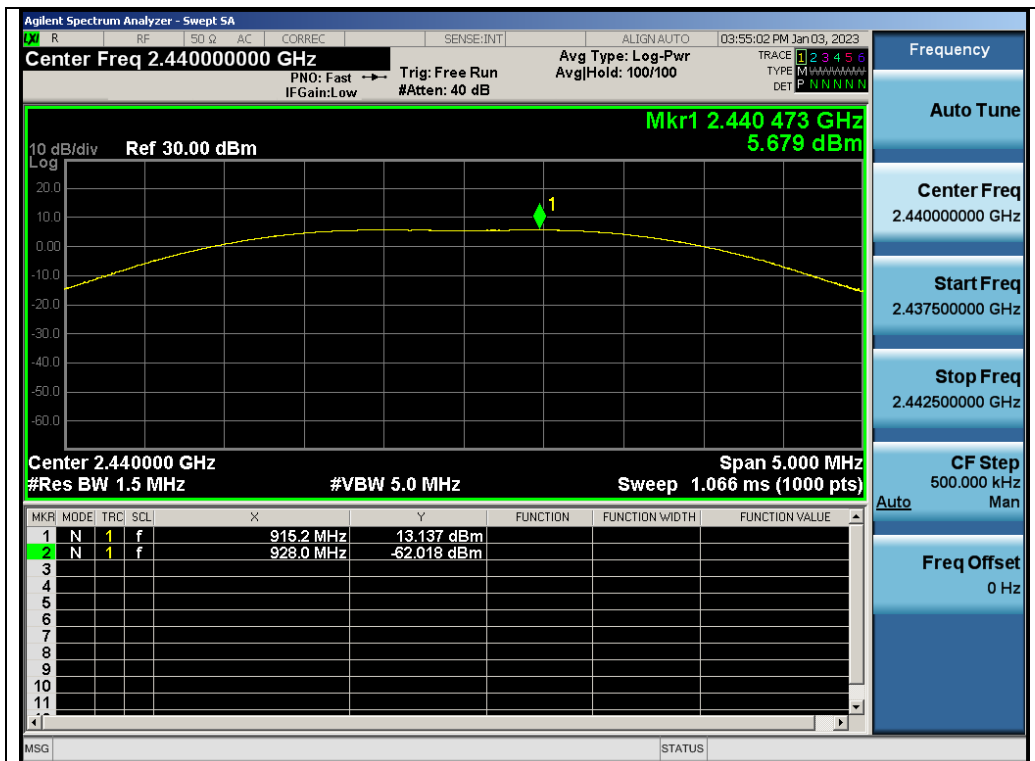


Test\_Graph\_LE1M\_ANT5\_2480\_1Mbps\_Peak Power

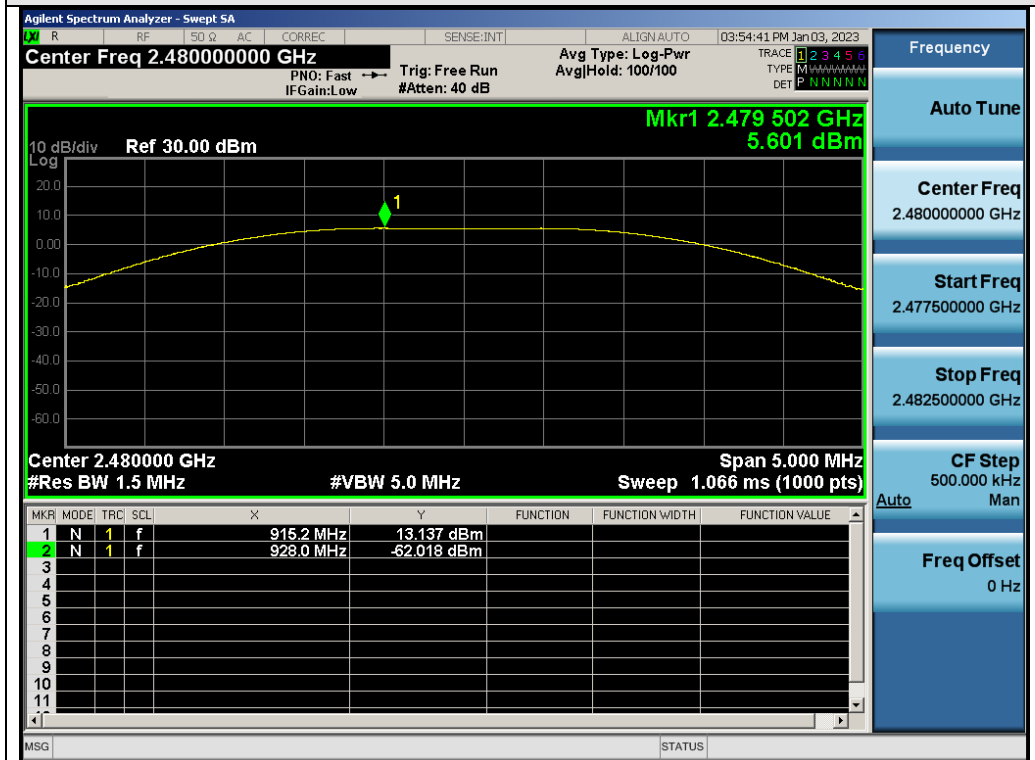


Test\_Graph\_LE2M\_ANT5\_2402\_2Mbps\_Peak Power

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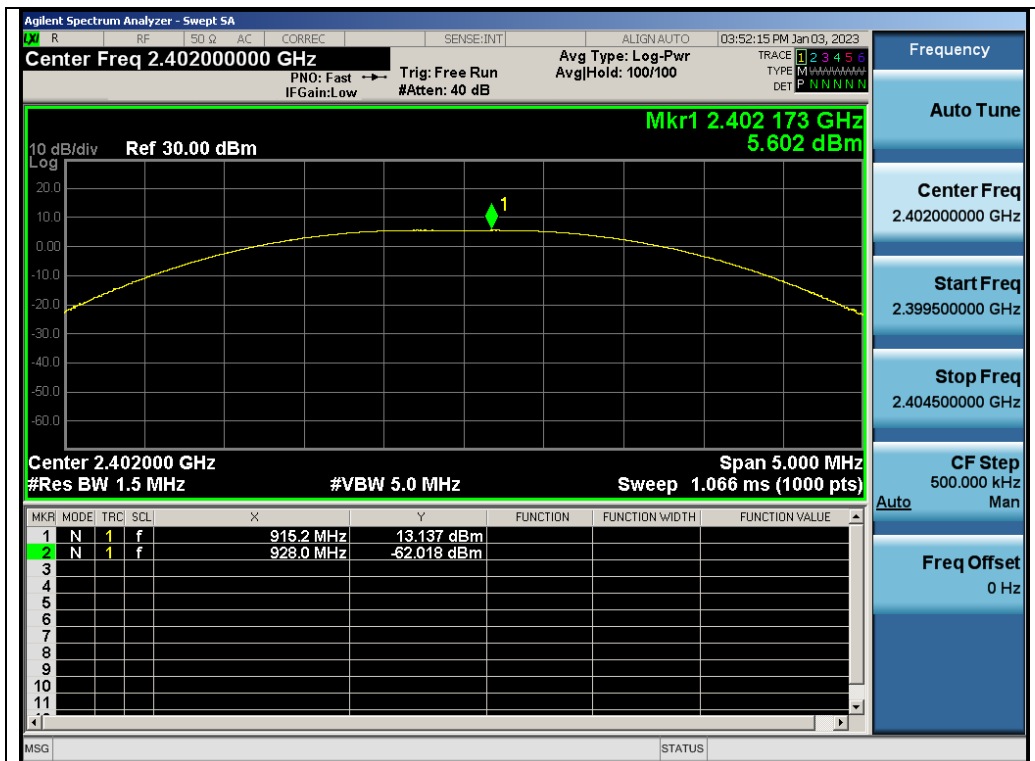


Test\_Graph\_LE2M\_ANT5\_2440\_2Mbps\_Peak Power

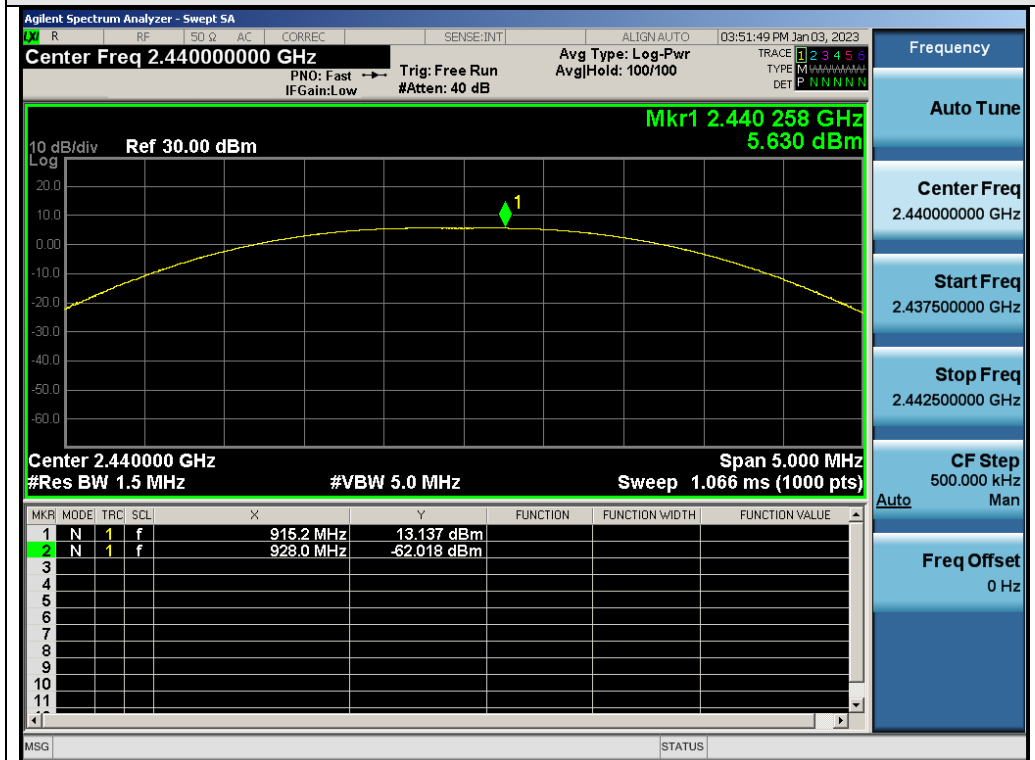


Test\_Graph\_LE2M\_ANT5\_2480\_2Mbps\_Peak Power

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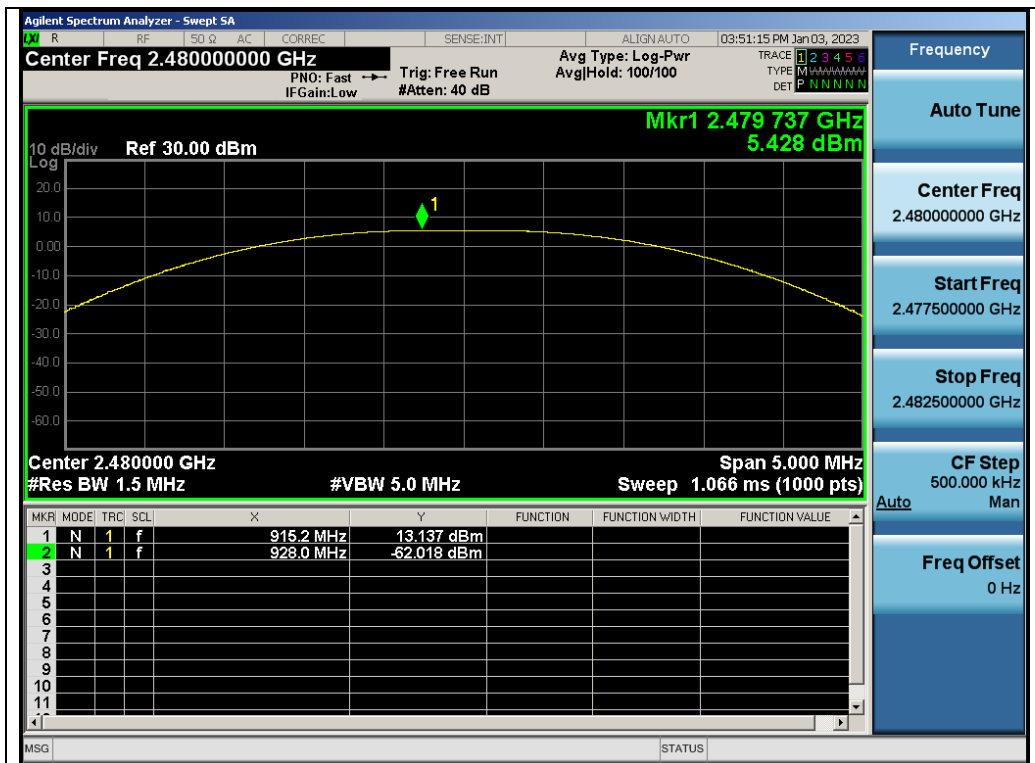


Test\_Graph\_GFSK\_ANT5\_2402\_125Kbps\_Peak Power

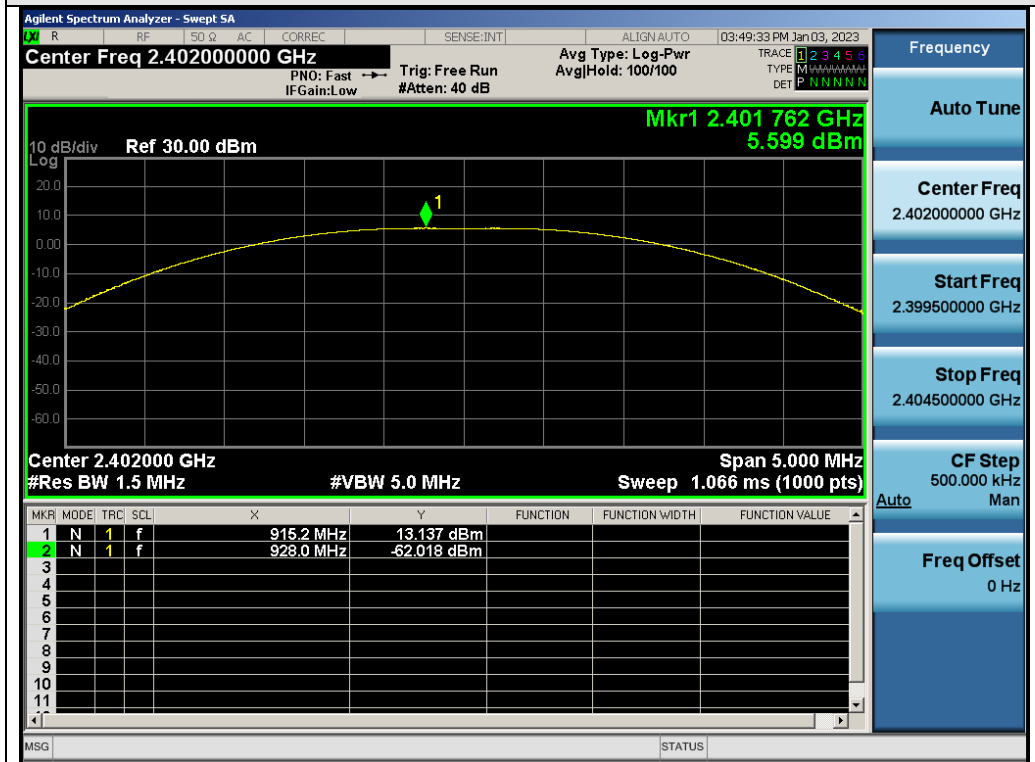


Test\_Graph\_GFSK\_ANT5\_2440\_125Kbps\_Peak Power

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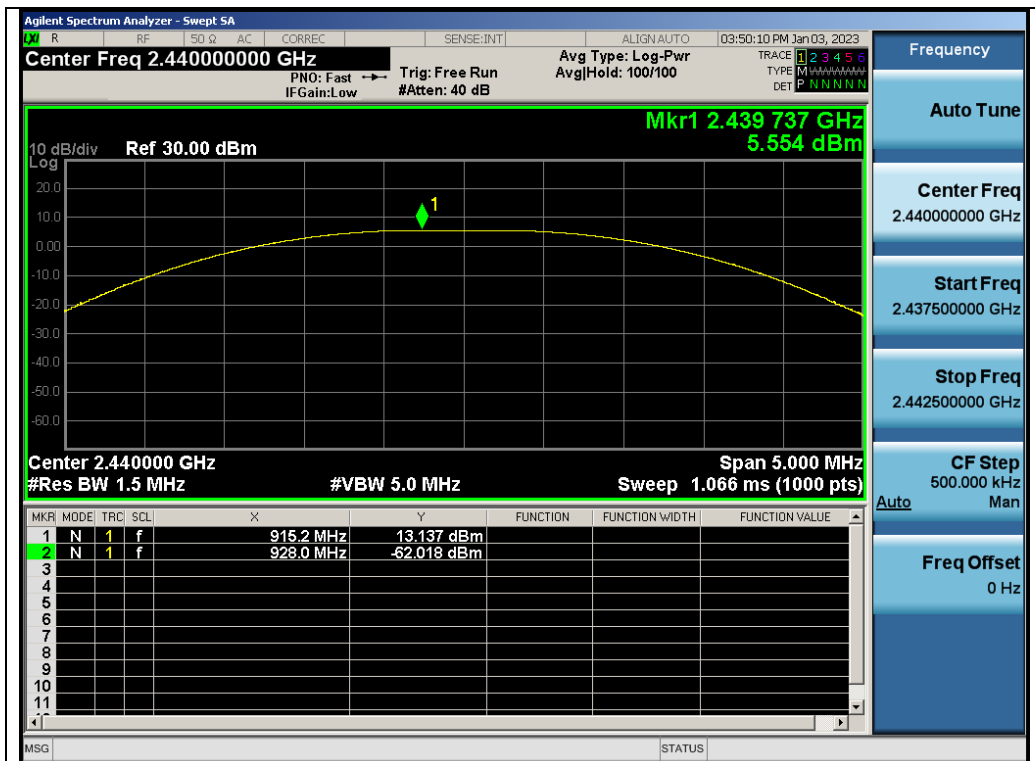


Test\_Graph\_GFSK\_ANT5\_2480\_125Kbps\_Peak Power

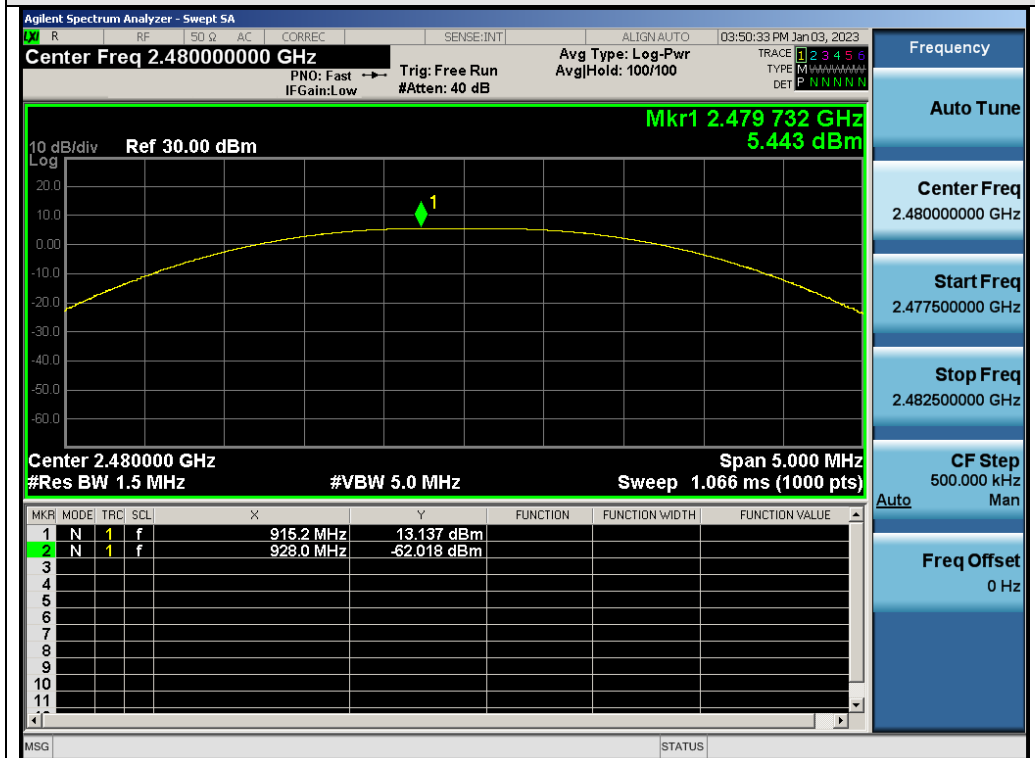


Test\_Graph\_GFSK\_ANT5\_2402\_500Kbps\_Peak Power

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Test\_Graph\_GFSK\_ANT5\_2440\_500Kbps\_Peak Power



Test\_Graph\_GFSK\_ANT5\_2480\_500Kbps\_Peak Power

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## 8. BANDWIDTH

### 8.1. MEASUREMENT PROCEDURE

6dB bandwidth:

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW  $\geq 3 \times$  RBW.
4. Set SPA Trace 1 Max hold, then View.

Occupied bandwidth:

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel  
The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

### 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

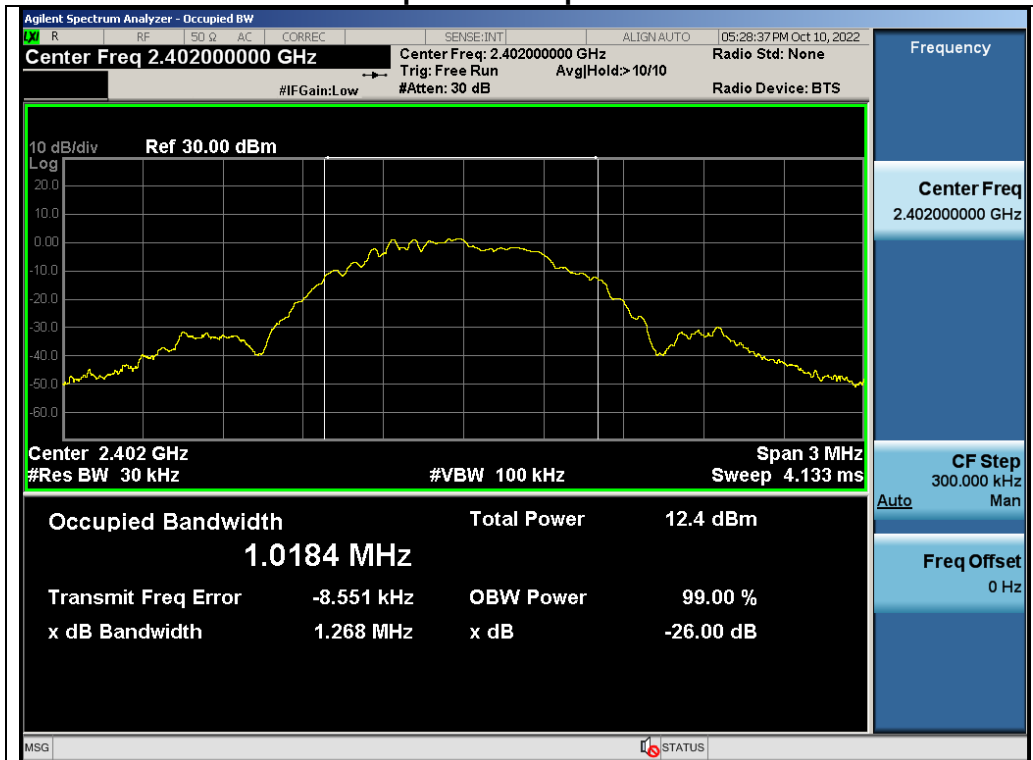
The same as described in section 7.2.

### 8.3. LIMITS AND MEASUREMENT RESULTS

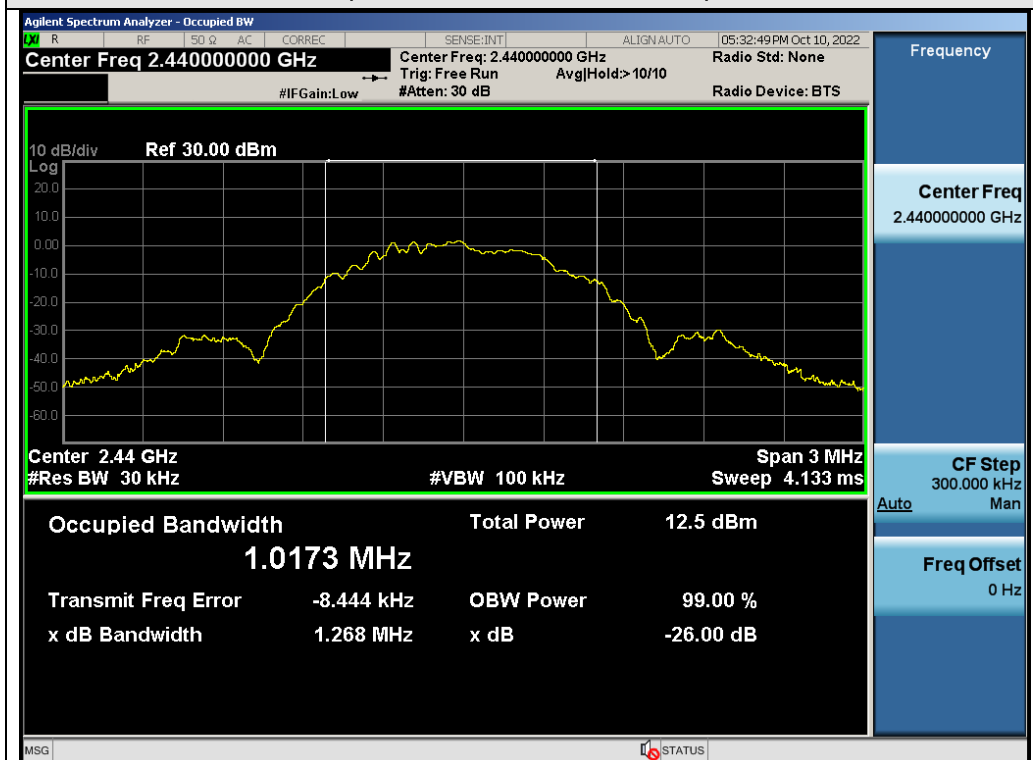
Test Data of Occupied Bandwidth and DTS Bandwidth					
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
GFSK 1Mbps	2402	1.018	0.653	$\geq 0.5$	Pass
	2440	1.017	0.651	$\geq 0.5$	Pass
	2480	1.019	0.650	$\geq 0.5$	Pass
GFSK 2Mbps	2402	2.026	1.163	$\geq 0.5$	Pass
	2440	2.027	1.163	$\geq 0.5$	Pass
	2480	2.027	1.155	$\geq 0.5$	Pass
GFSK 125Kbps	2402	1.037	0.600	$\geq 0.5$	Pass
	2440	1.038	0.599	$\geq 0.5$	Pass
	2480	1.039	0.599	$\geq 0.5$	Pass
GFSK 500Kbps	2402	1.012	0.662	$\geq 0.5$	Pass
	2440	1.009	0.663	$\geq 0.5$	Pass
	2480	1.015	0.662	$\geq 0.5$	Pass

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### Test Graphs of Occupied Bandwidth



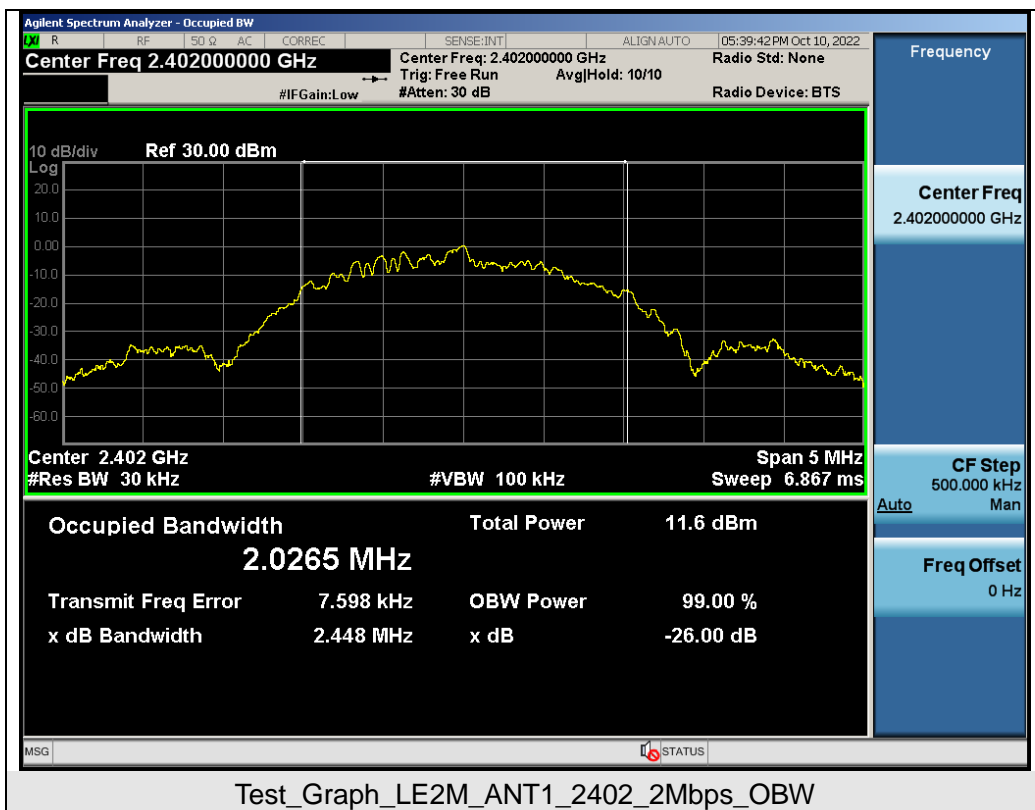
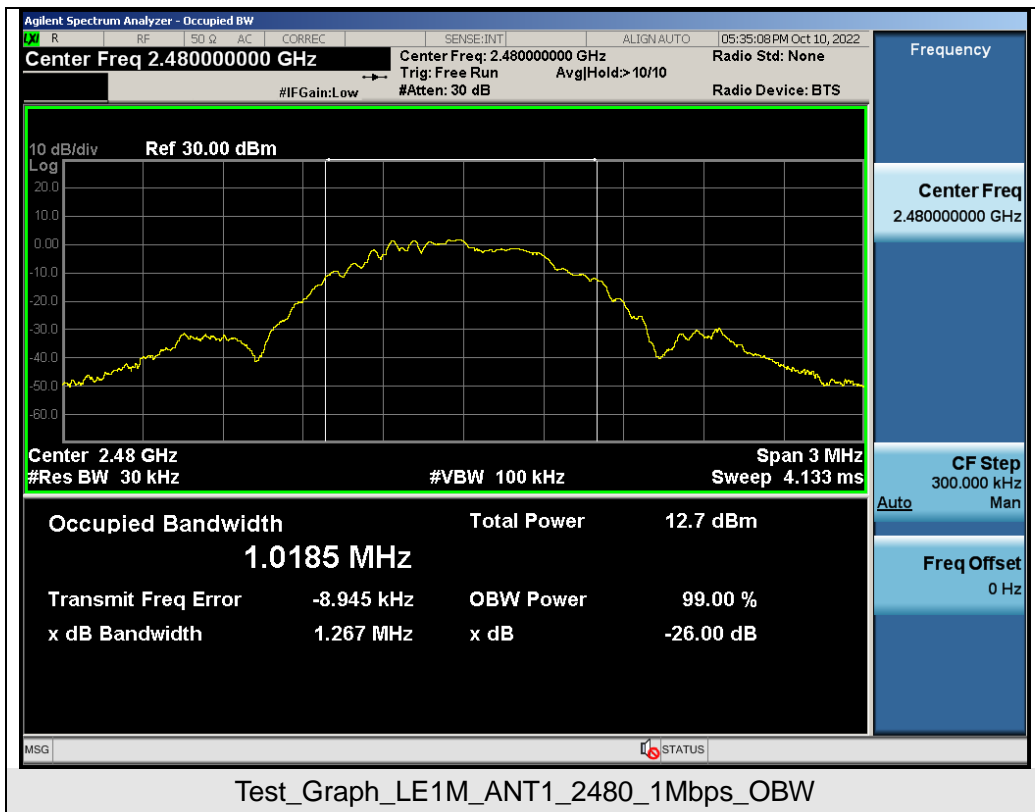
Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_OBW



Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_OBW

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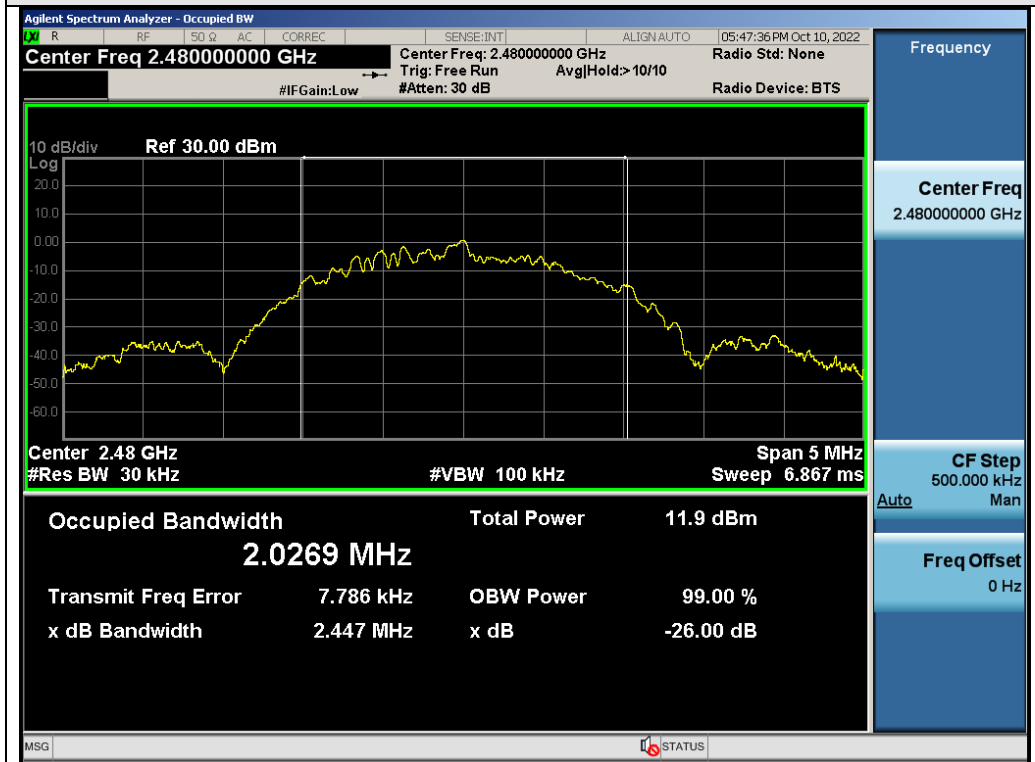




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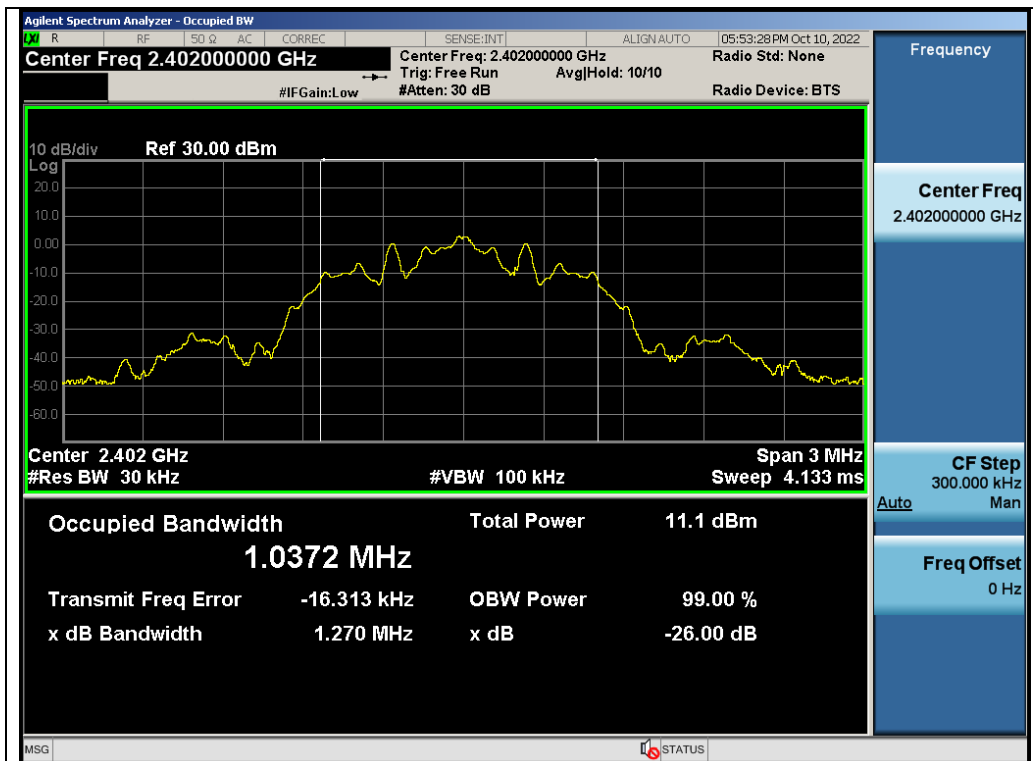


Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_OBW

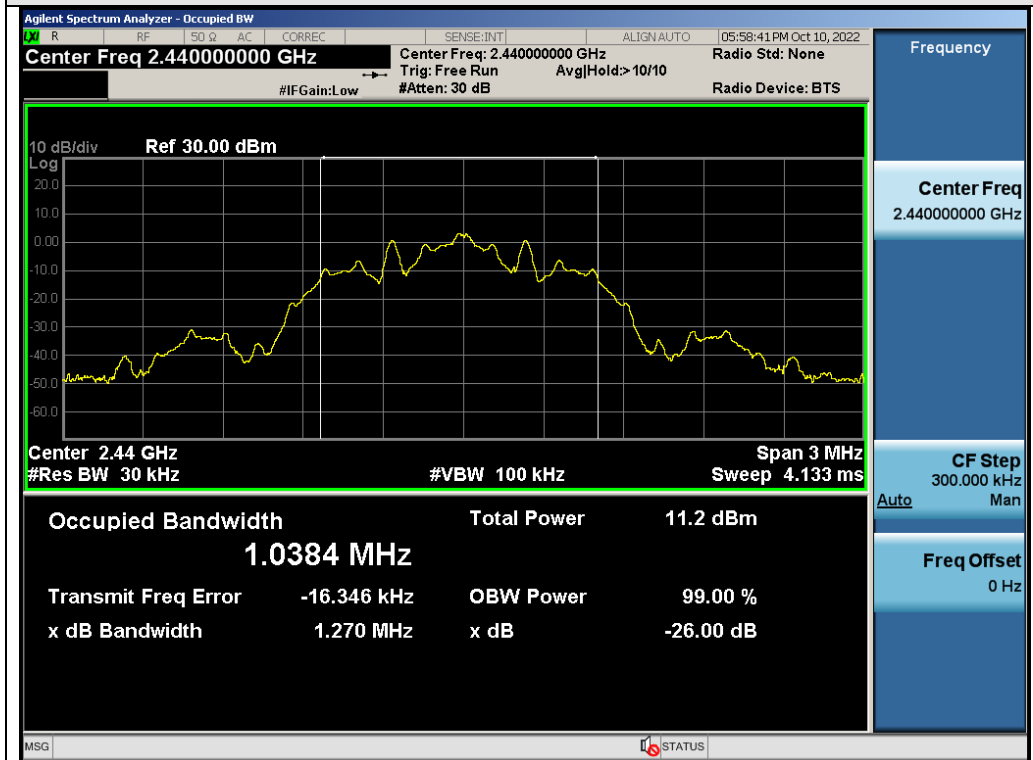


Test\_Graph\_LE2M\_ANT1\_2480\_2Mbps\_OBW

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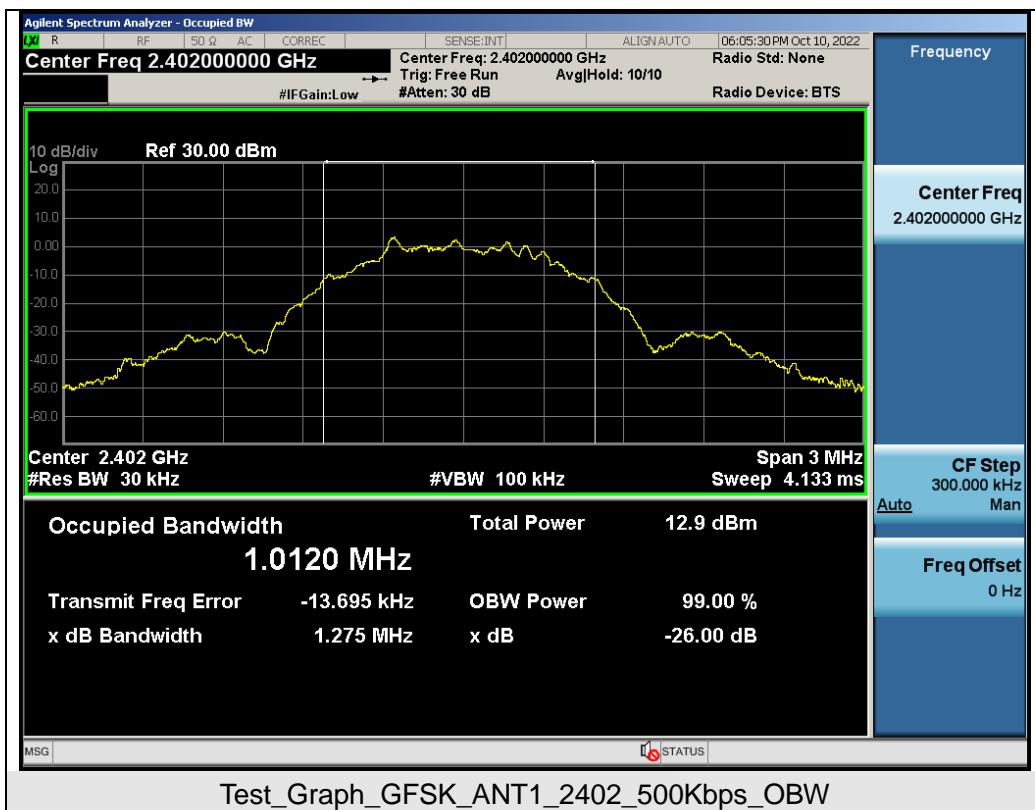
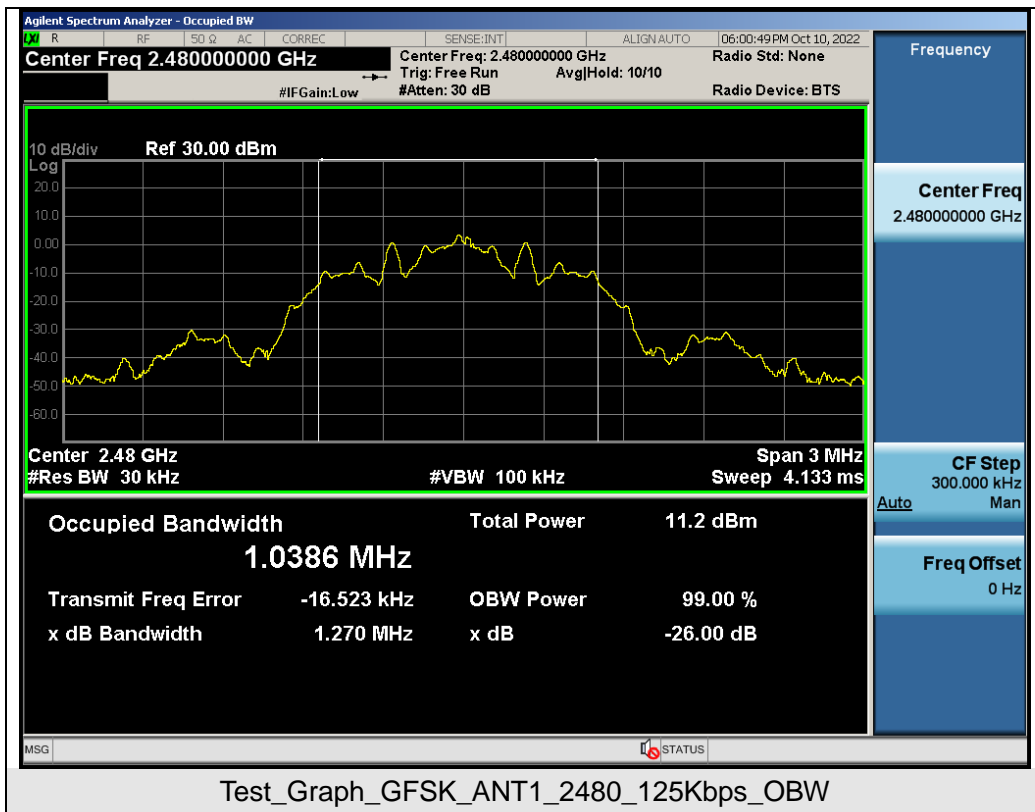


Test\_Graph\_GFSK\_ANT1\_2402\_125Kbps\_OBW

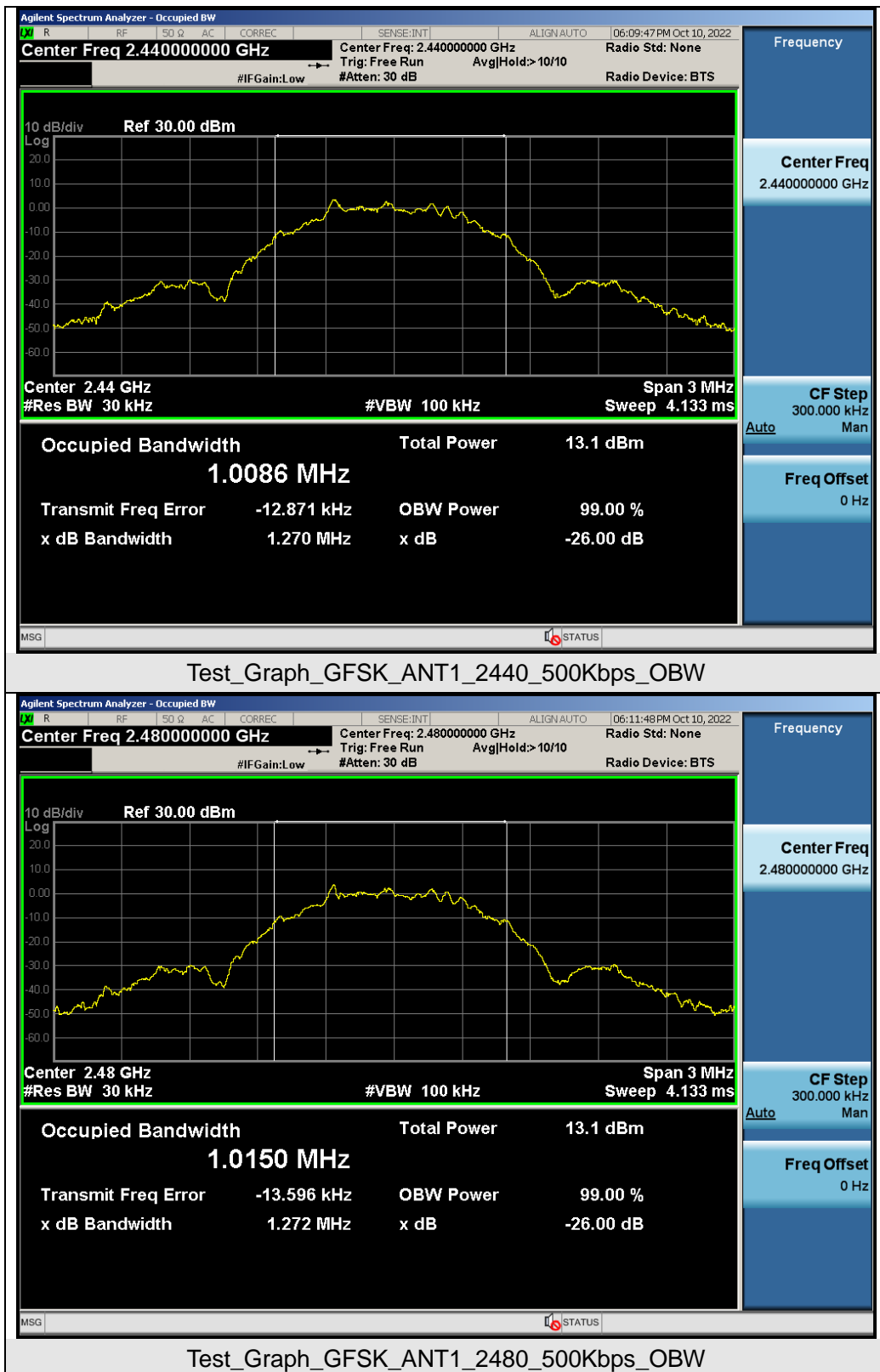


Test\_Graph\_GFSK\_ANT1\_2440\_125Kbps\_OBW

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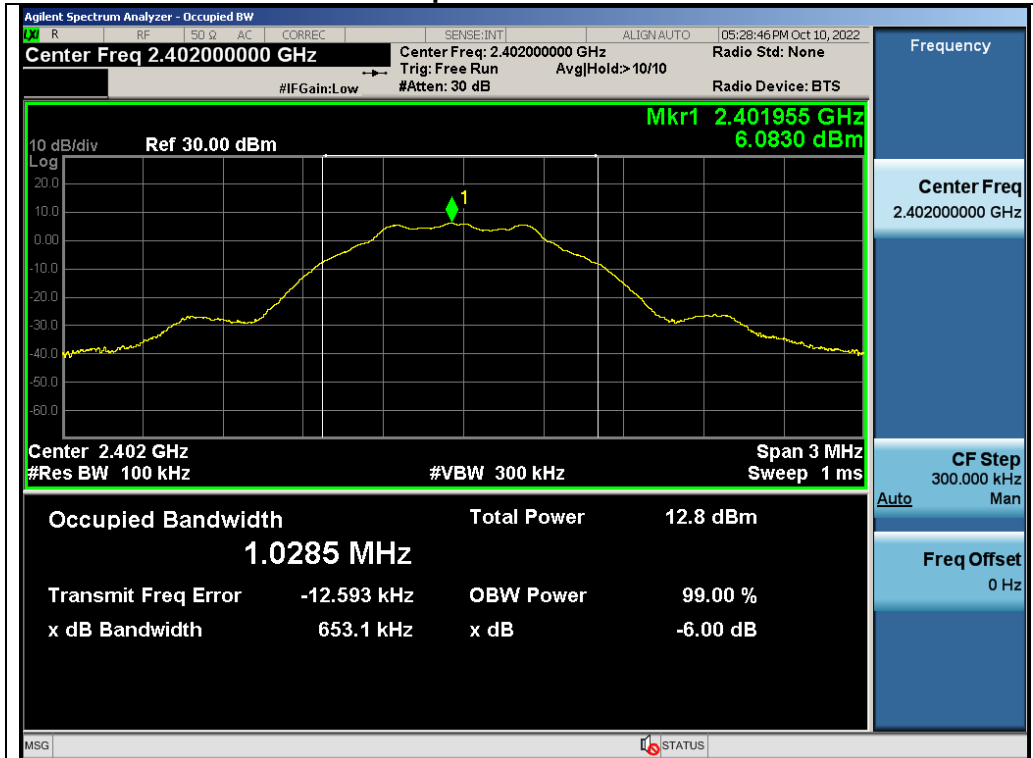


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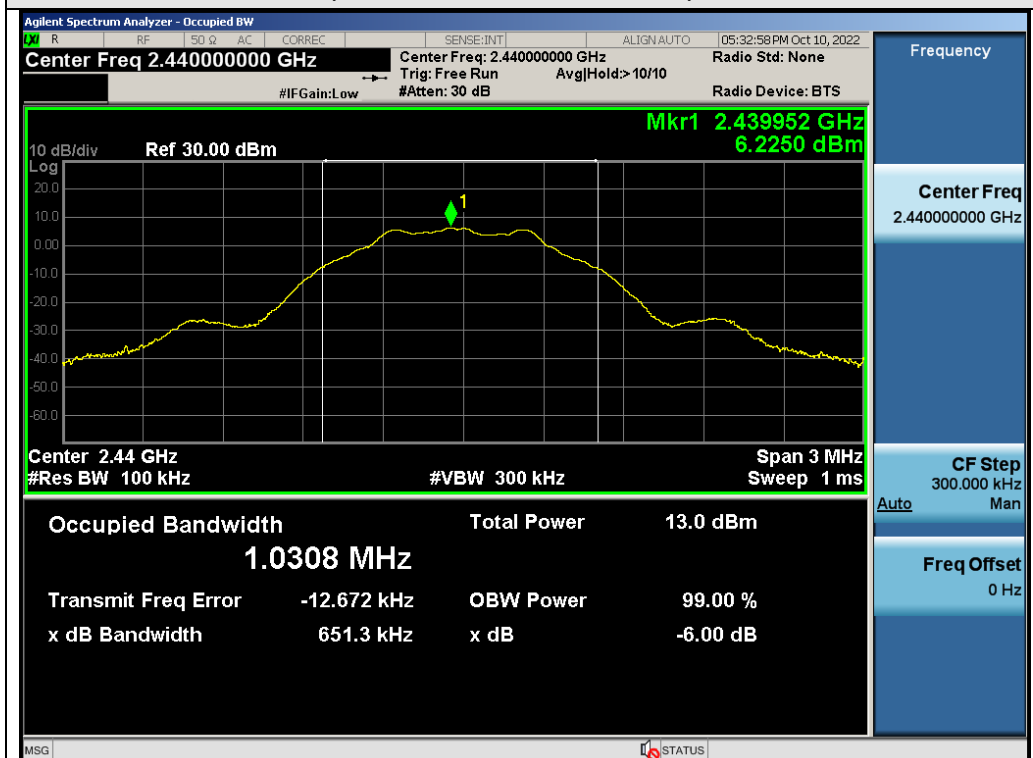


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### Test Graphs of DTS Bandwidth

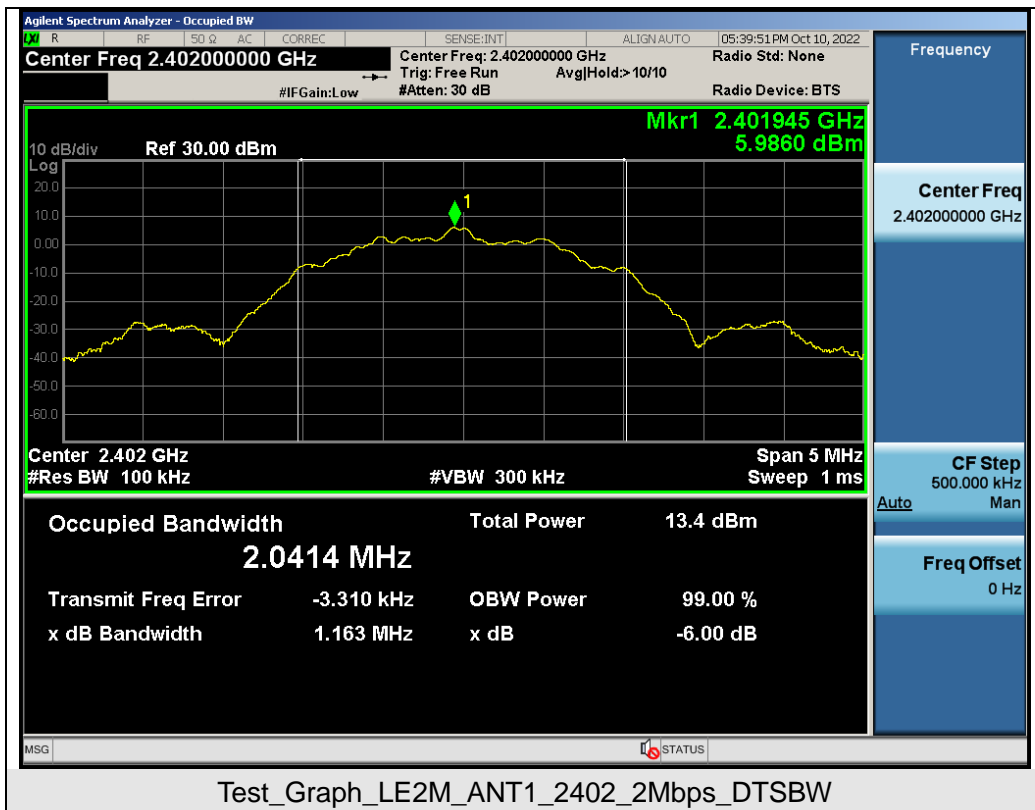
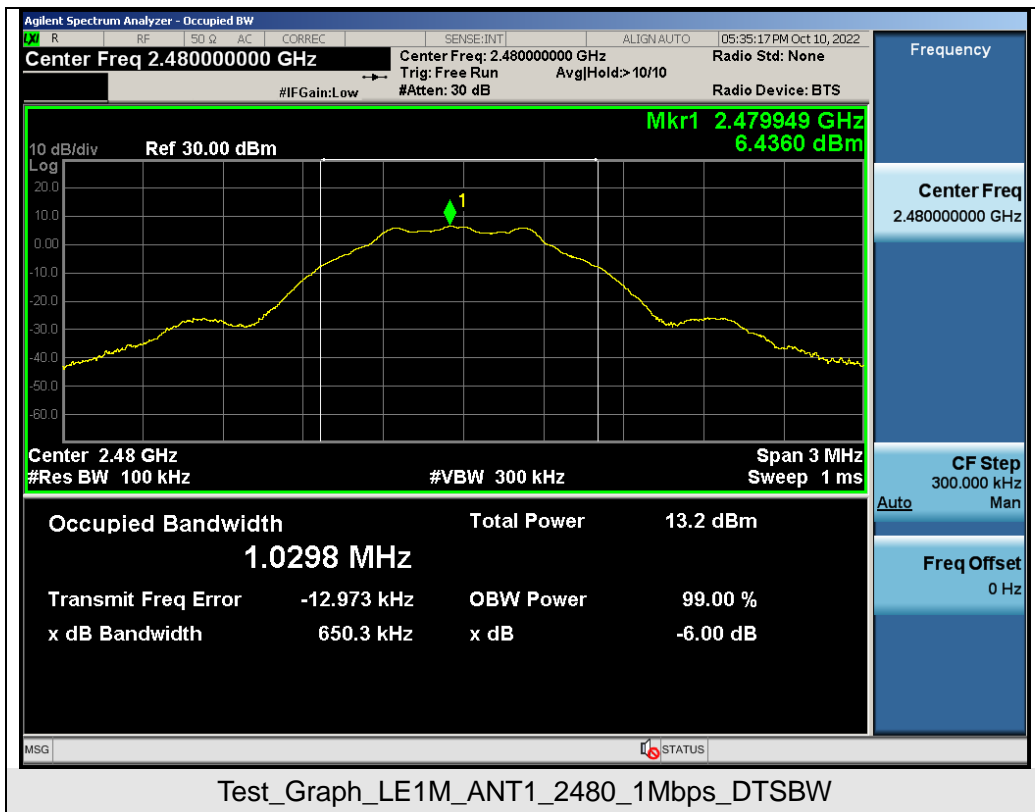


Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_DTSBW

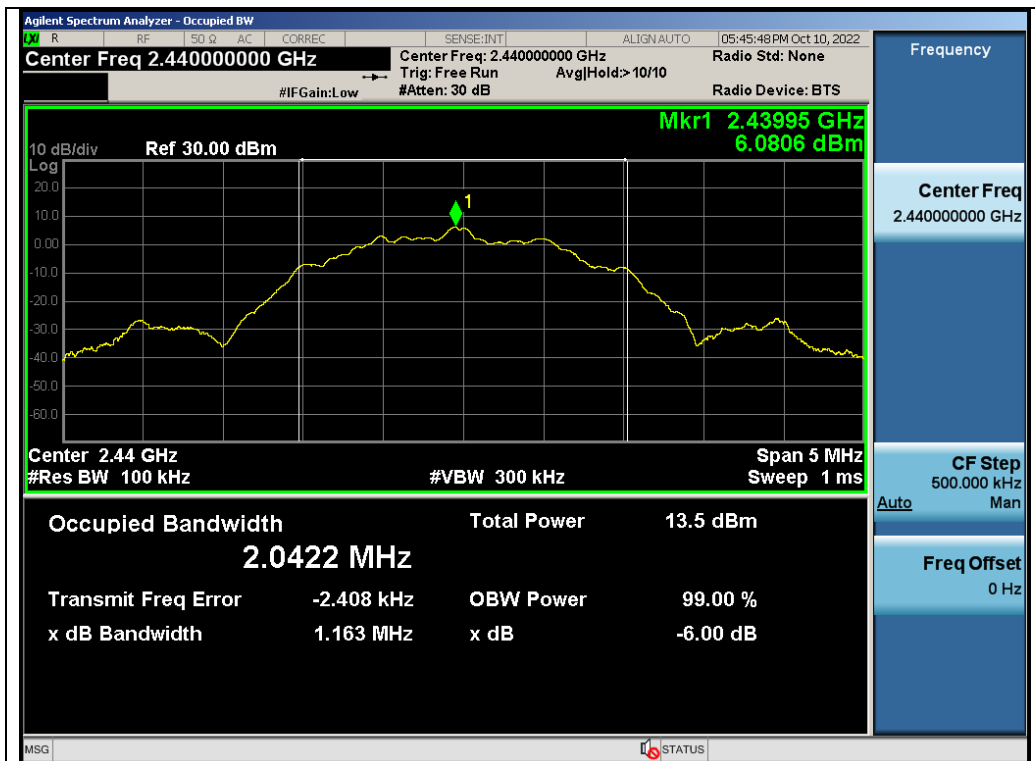


Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_DTSBW

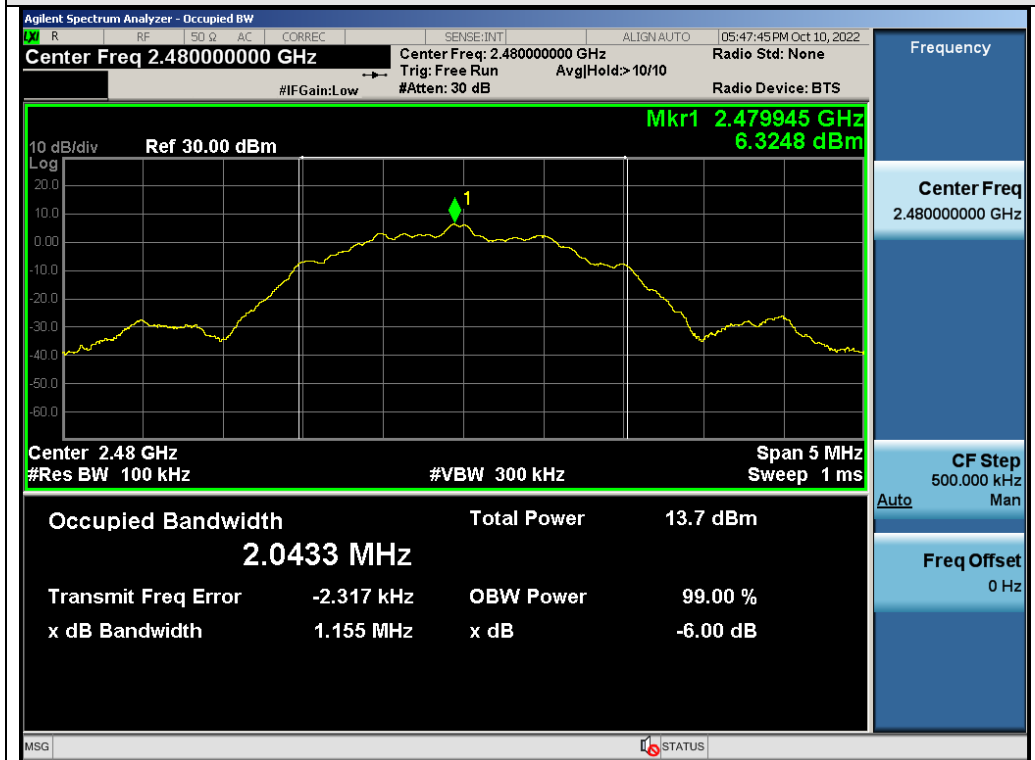
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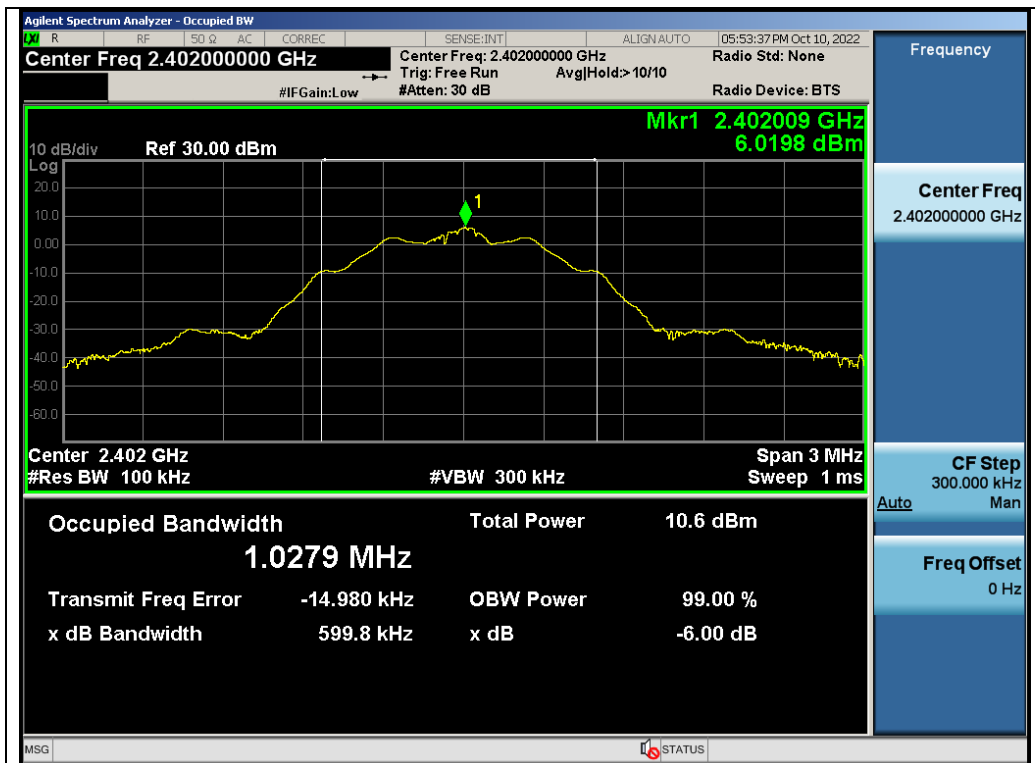
Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_DTSBW



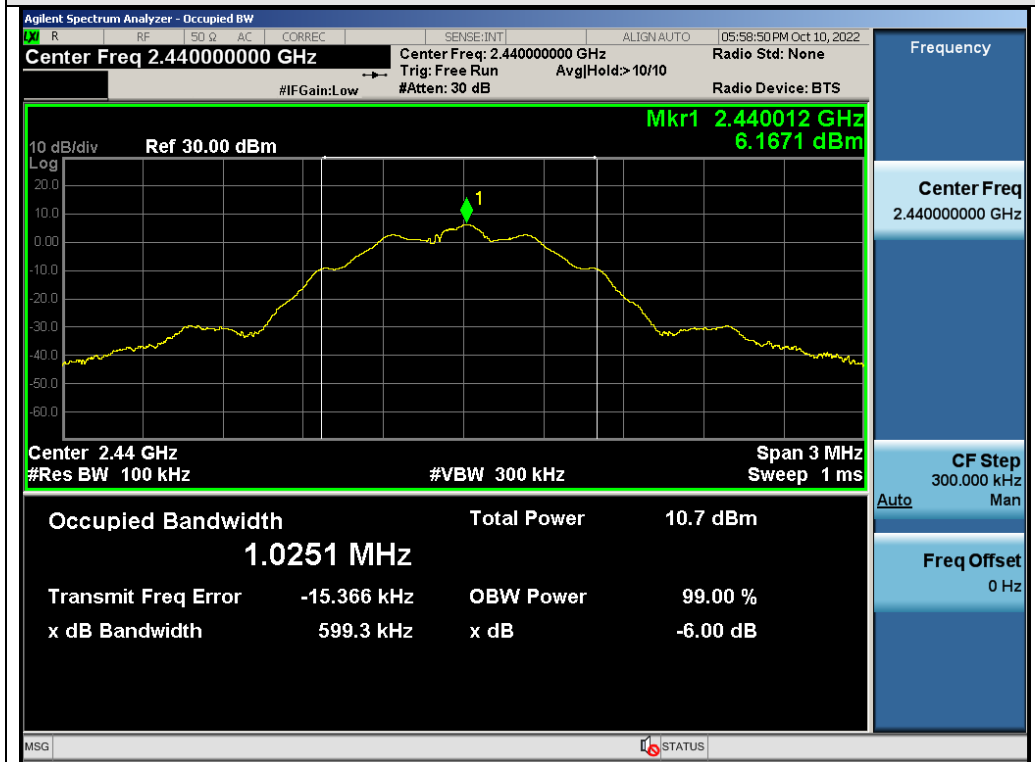
Test\_Graph\_LE2M\_ANT1\_2480\_2Mbps\_DTSBW

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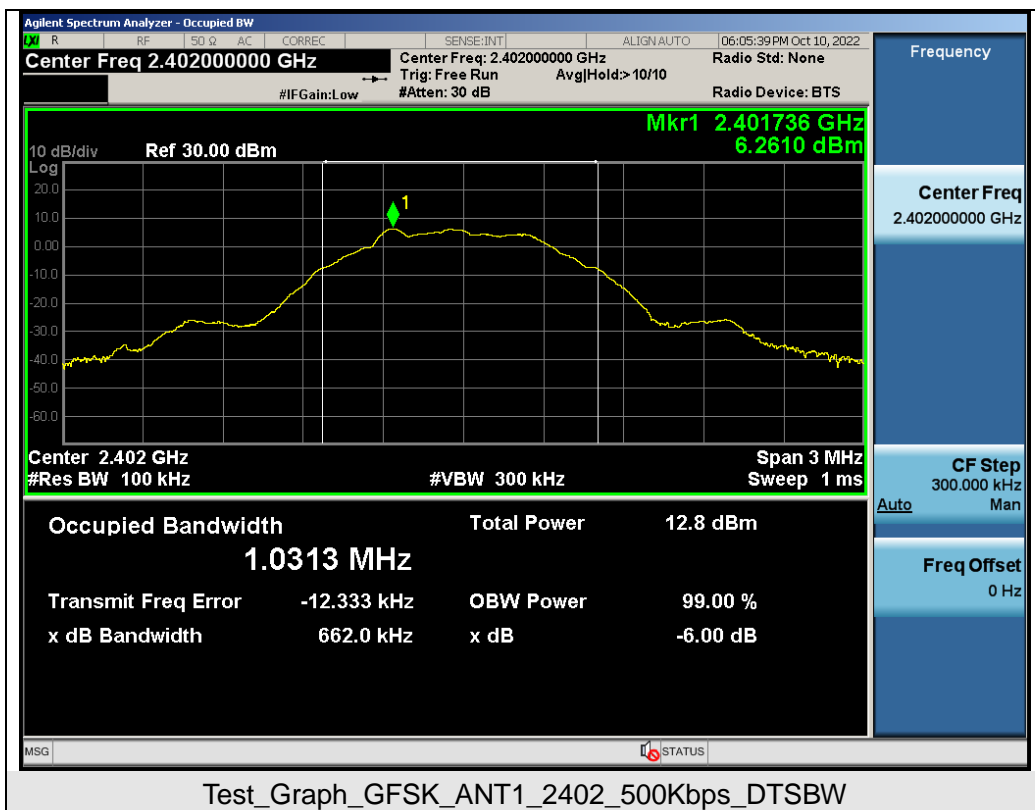
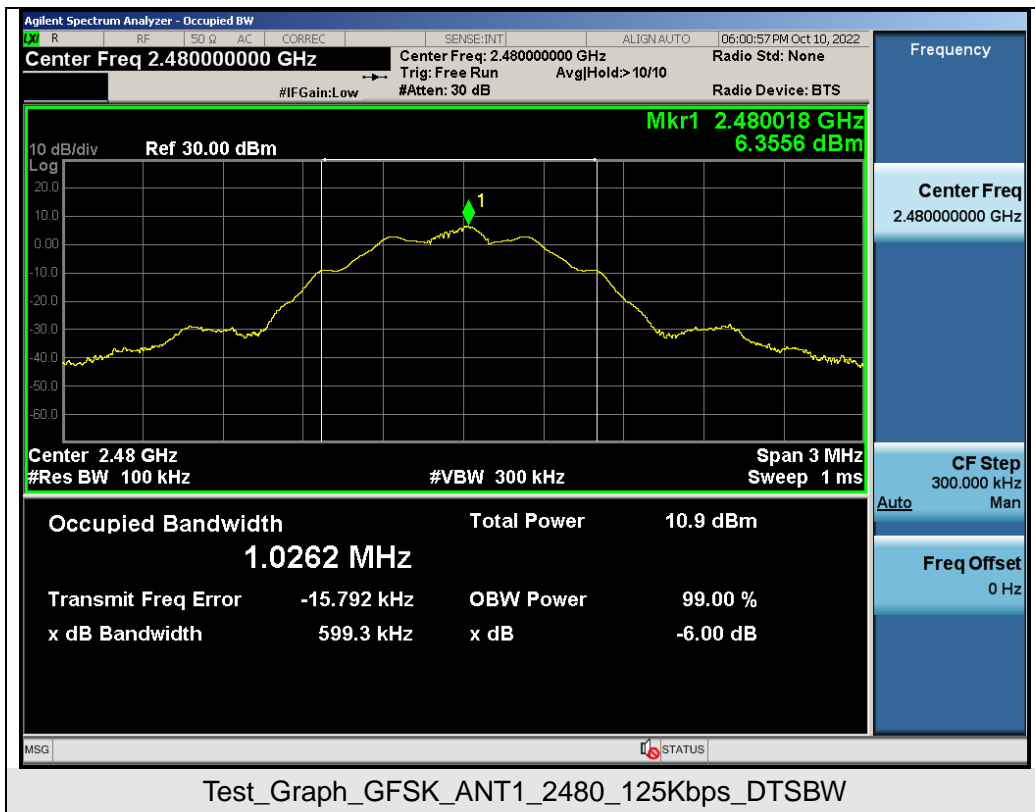


Test\_Graph\_GFSK\_ANT1\_2402\_125Kbps\_DTSSBW

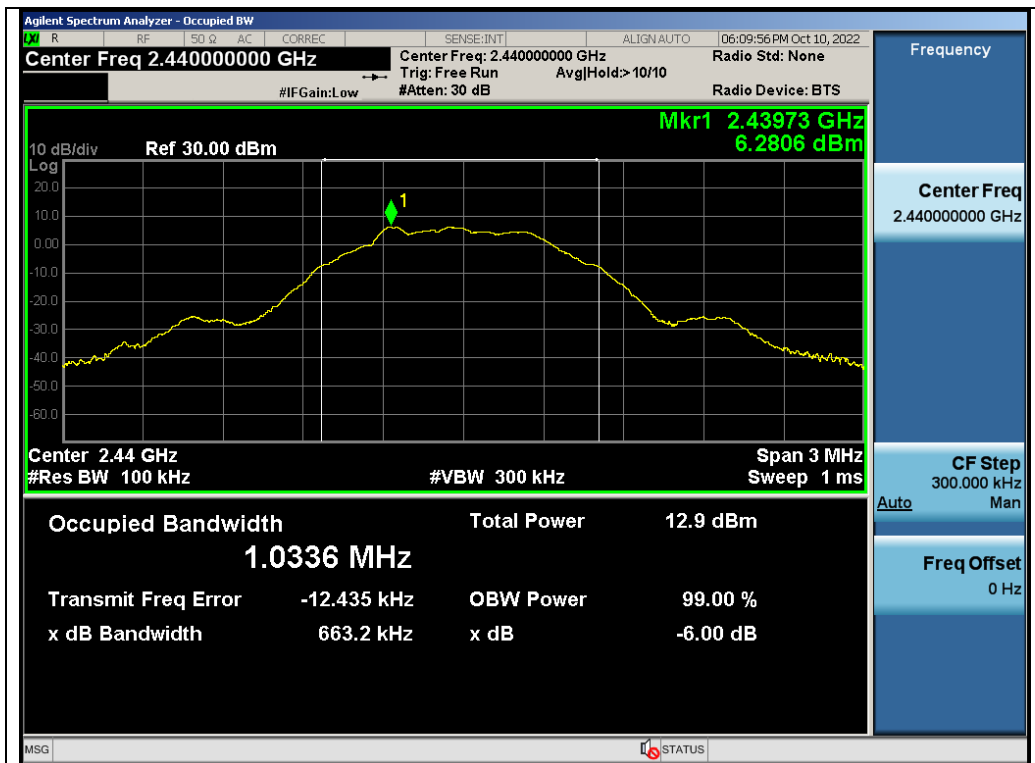


Test\_Graph\_GFSK\_ANT1\_2440\_125Kbps\_DTSSBW

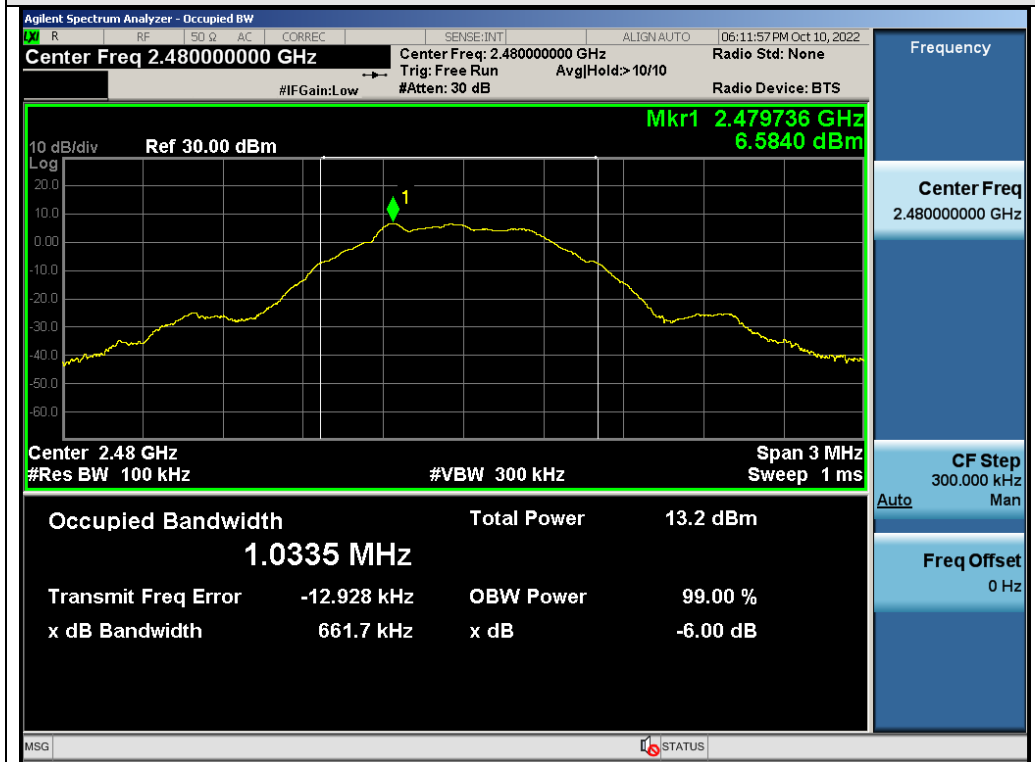
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Test\_Graph\_GFSK\_ANT1\_2440\_500Kbps\_DTSSBW



Test\_Graph\_GFSK\_ANT1\_2480\_500Kbps\_DTSSBW

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## 9. CONDUCTED SPURIOUS EMISSION

### 9.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

### 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

### 9.3. MEASUREMENT EQUIPMENT USED

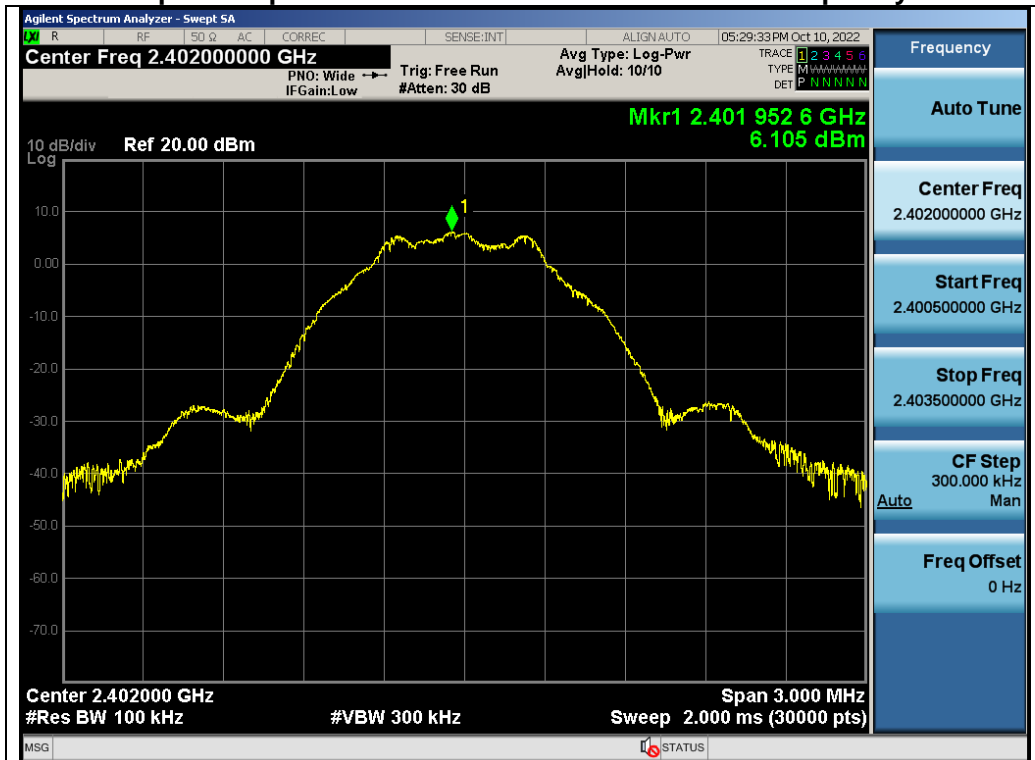
The same as described in section 6.

### 9.4. LIMITS AND MEASUREMENT RESULT

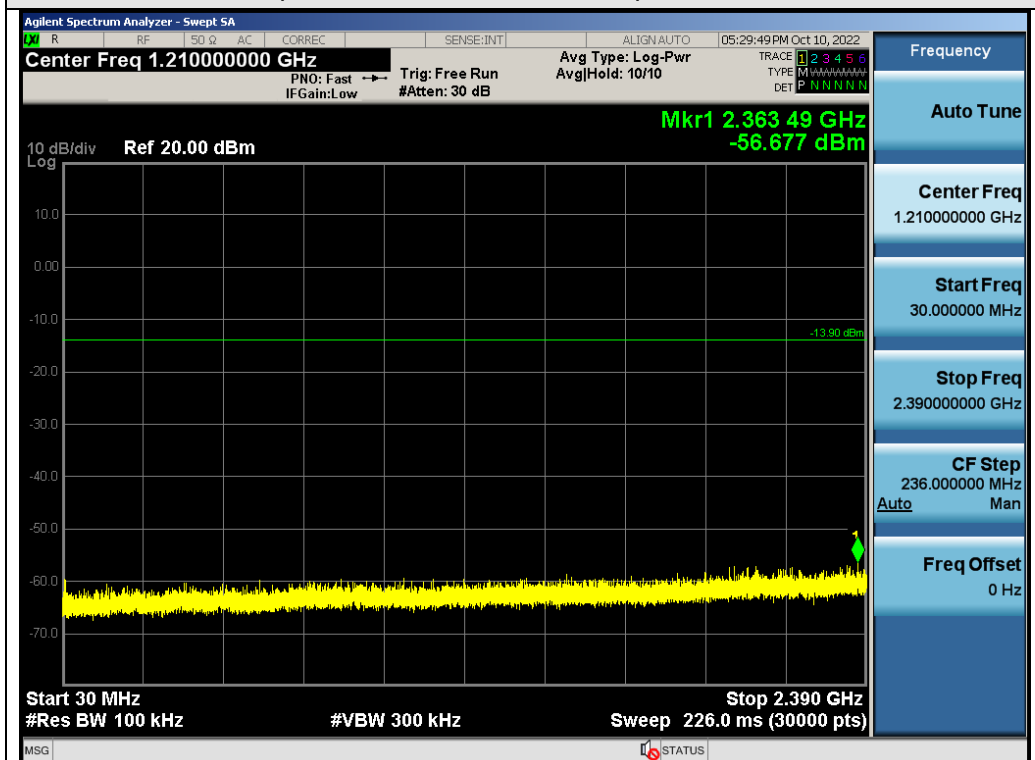
LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test Data	Criteria
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS

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### Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

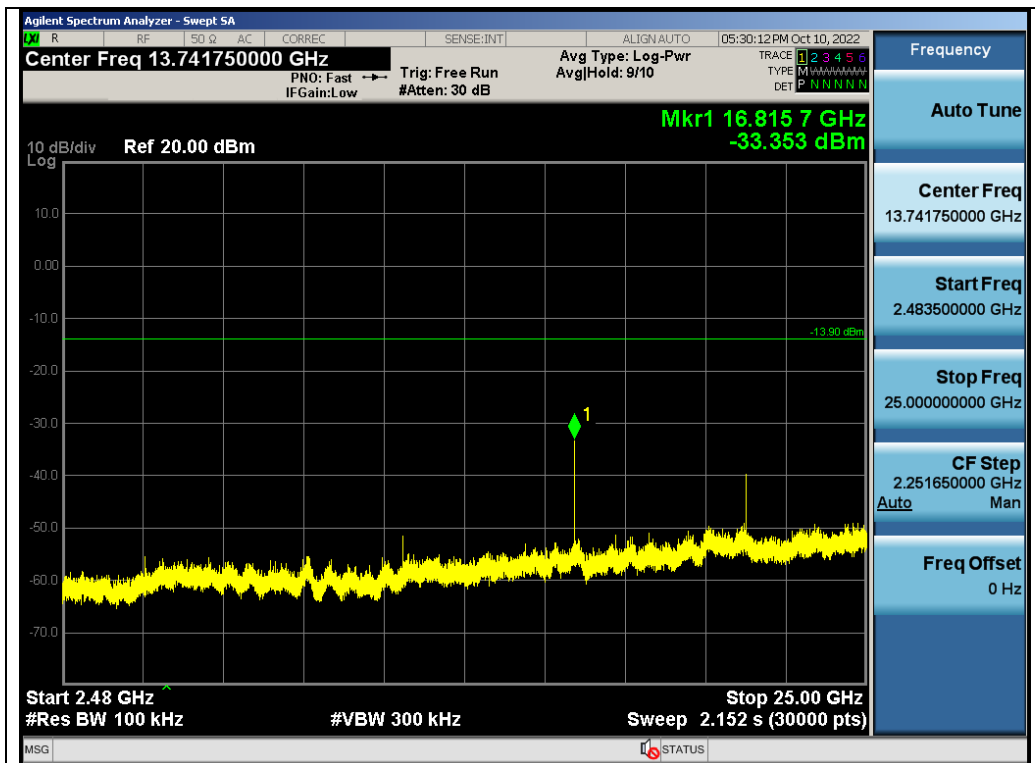


Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Reference Level

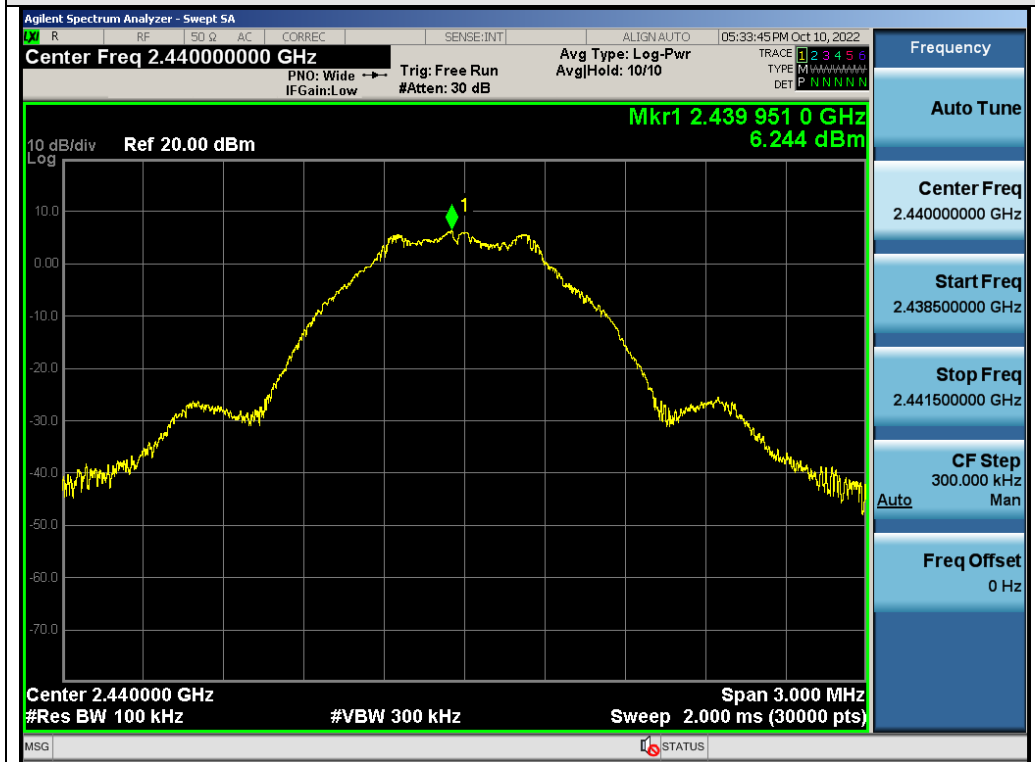


Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Lower Band Emissions

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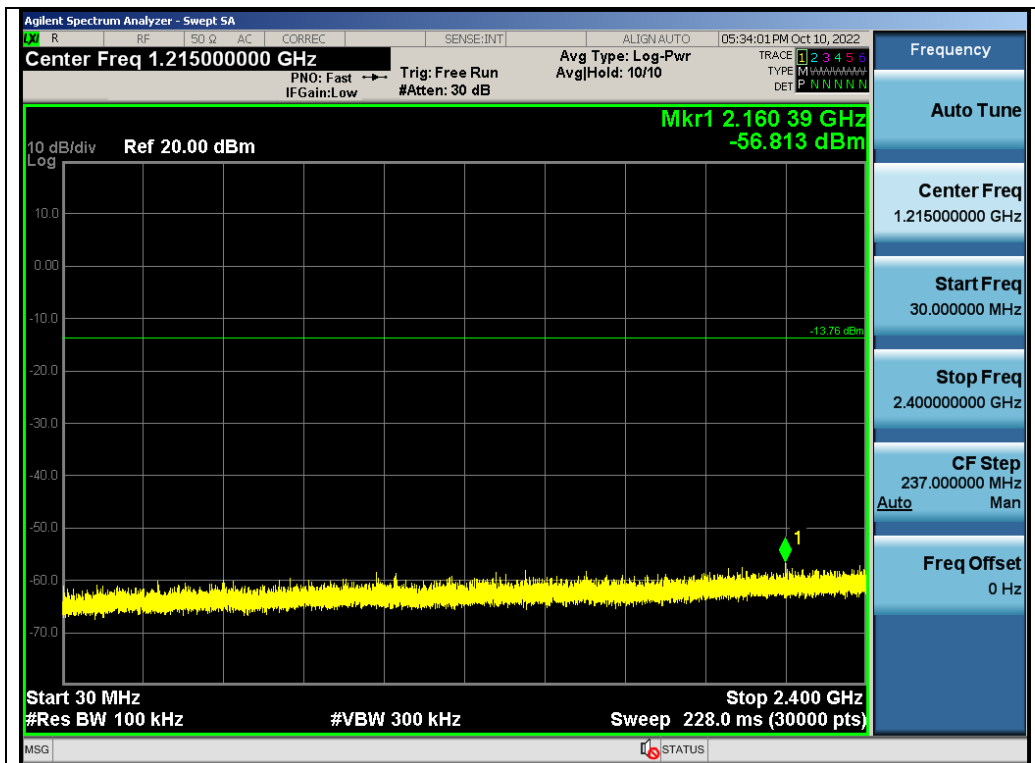


Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Higher Band Emissions

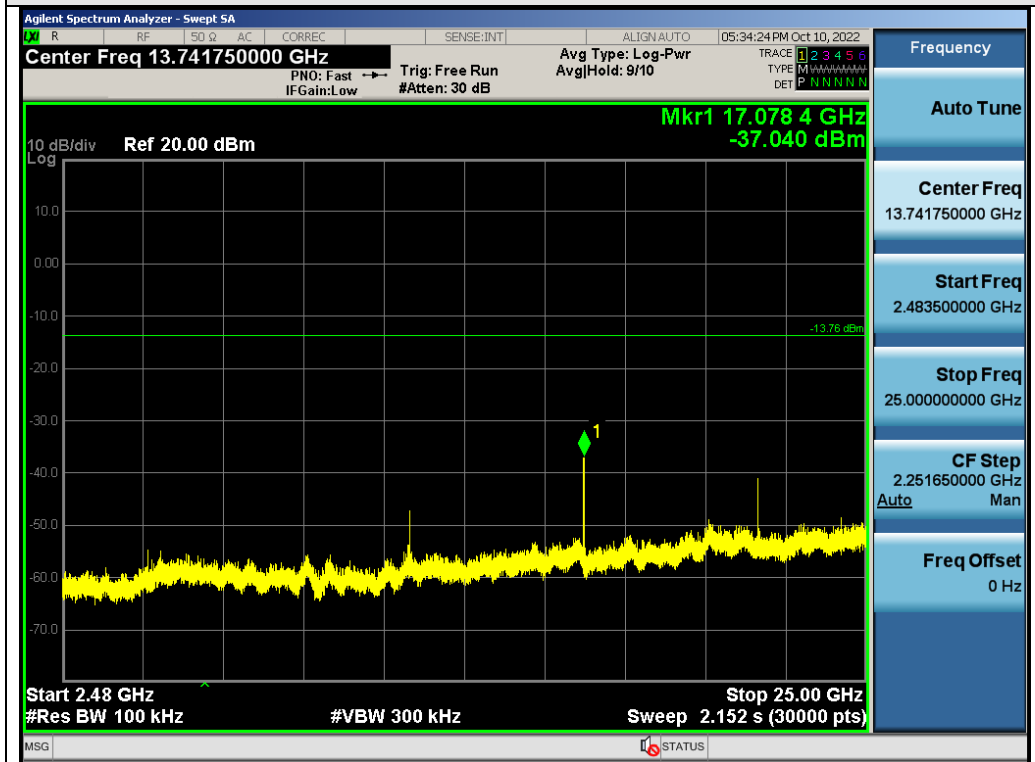


Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Reference Level

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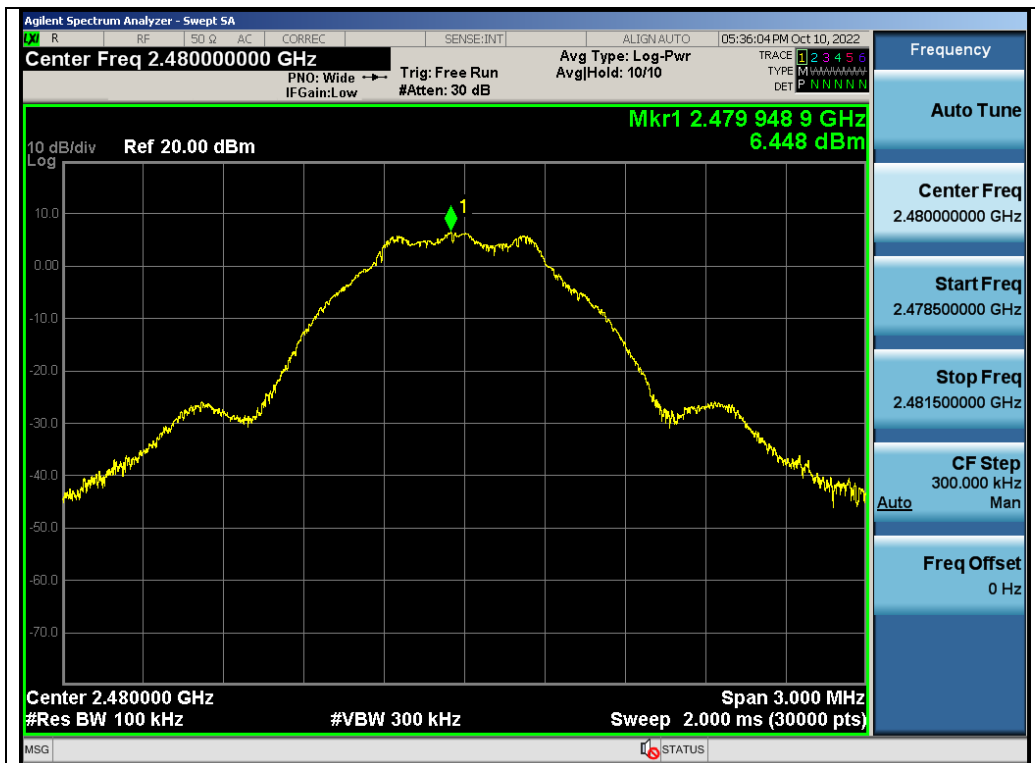


Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Lower Band Emissions

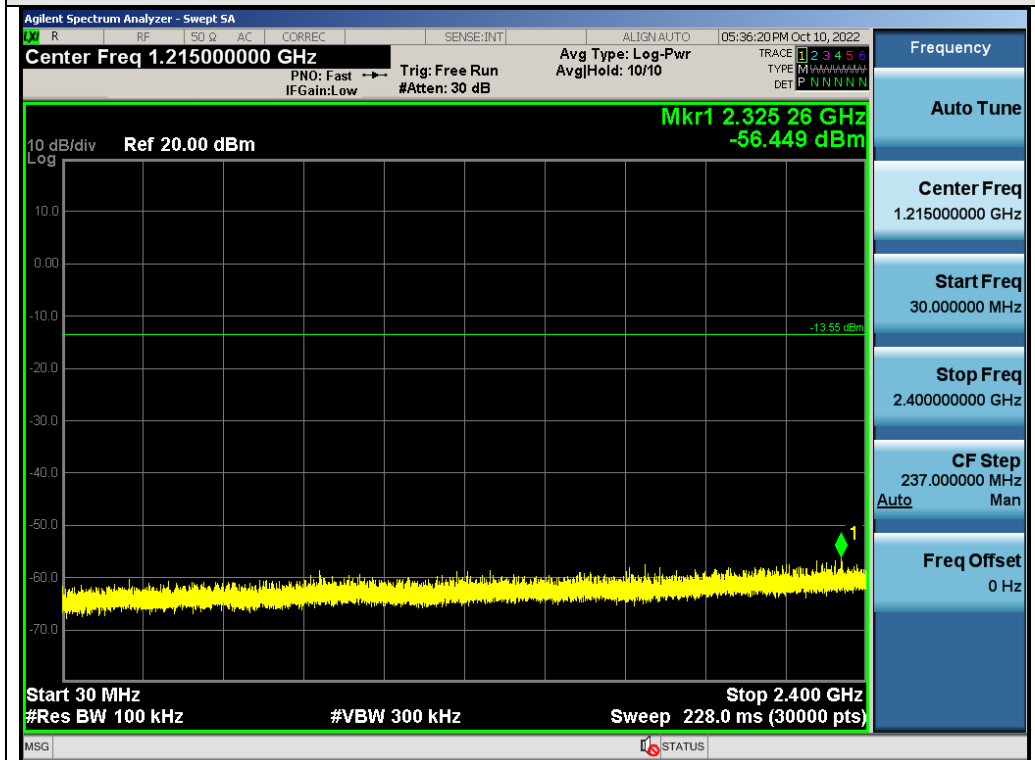


Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Higher Band Emissions

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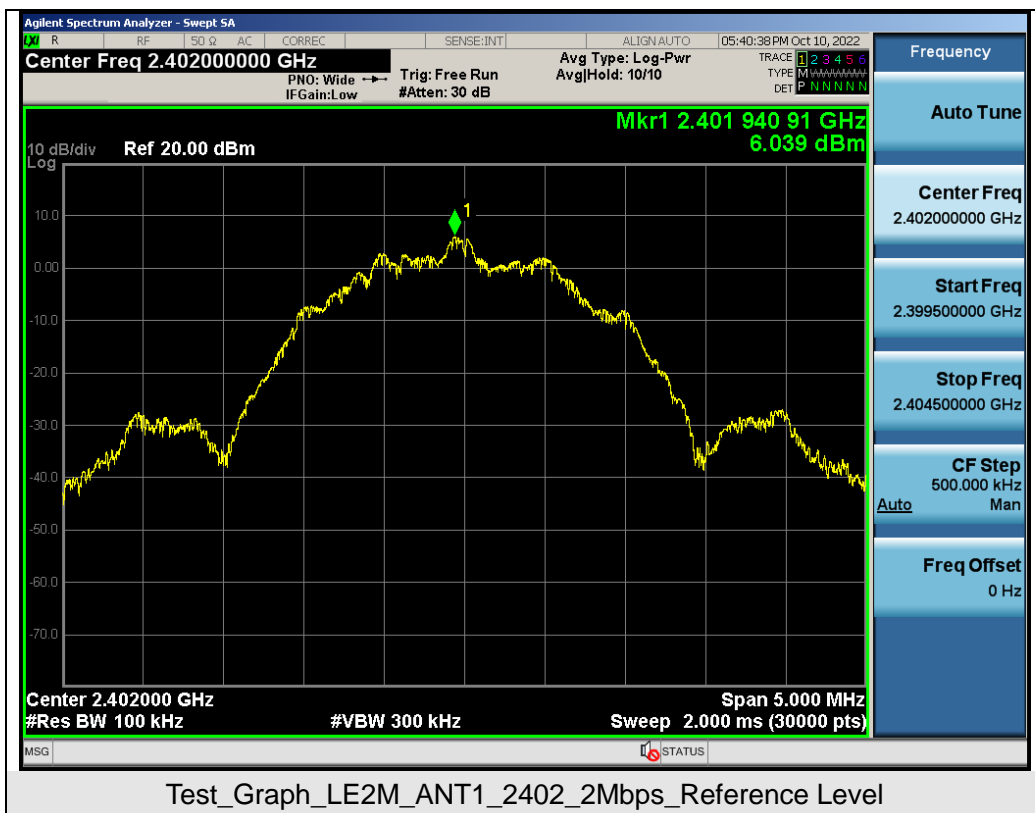
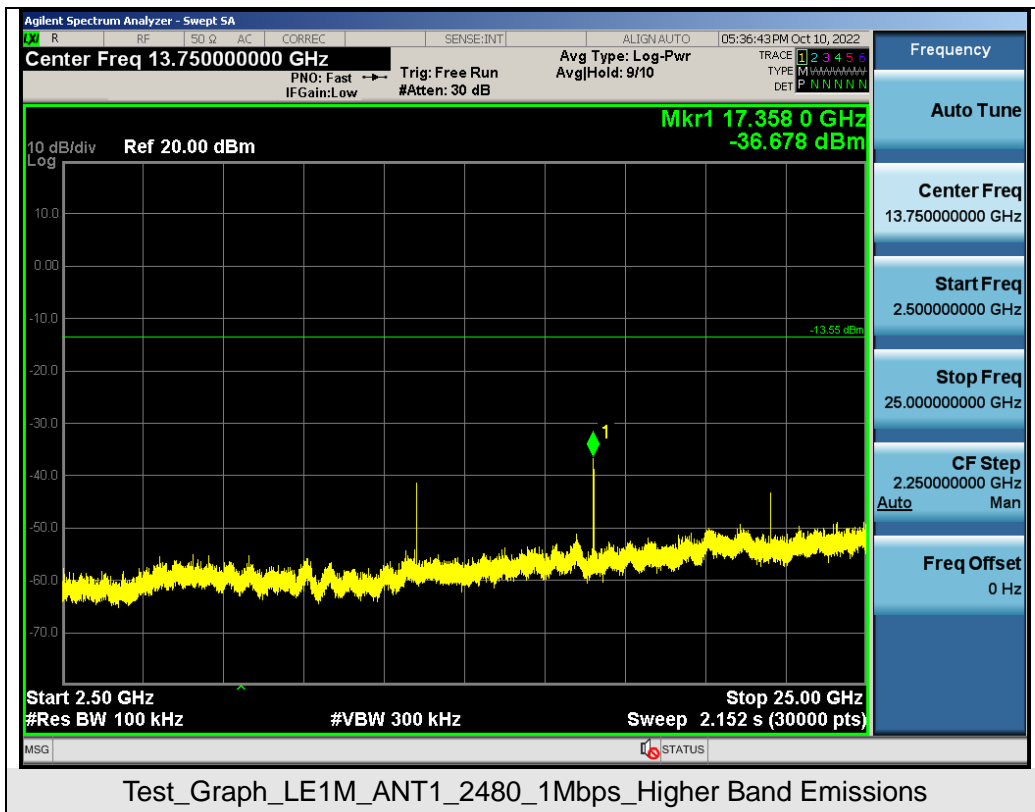
Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_Reference Level



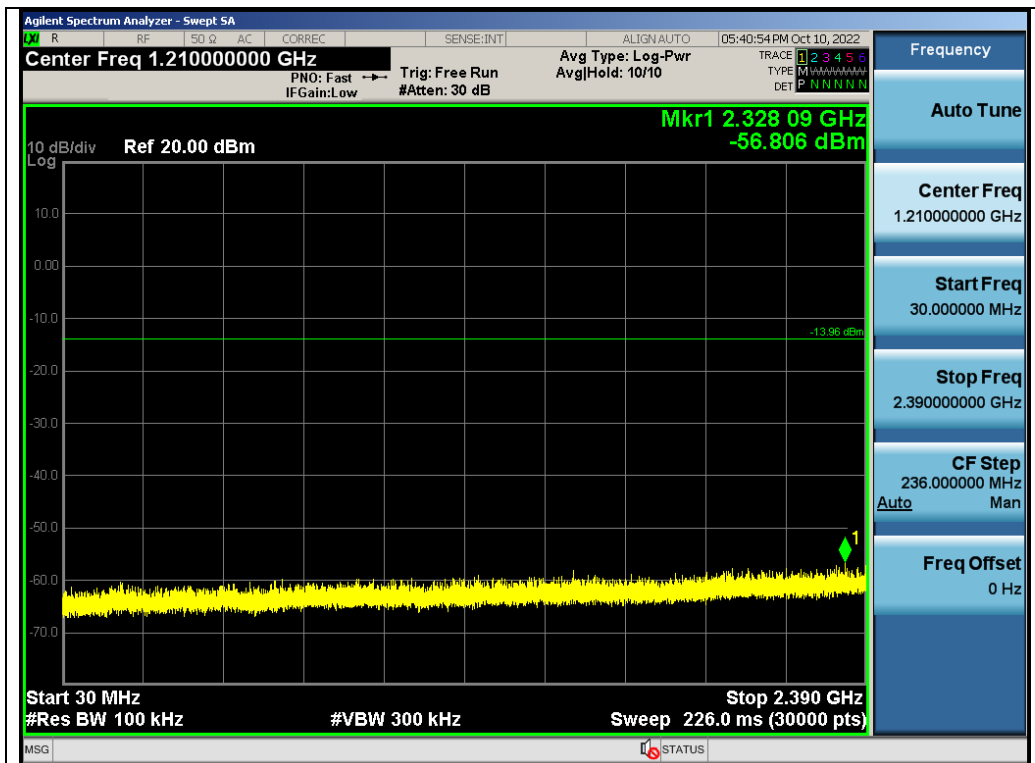
Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_Lower Band Emissions

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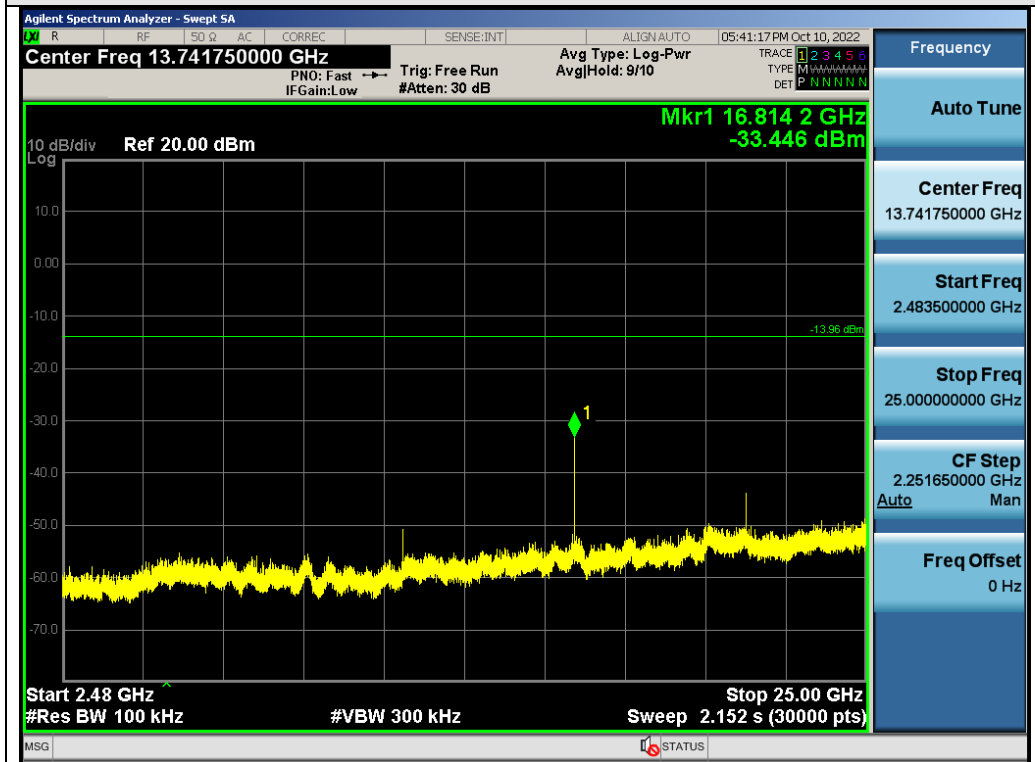




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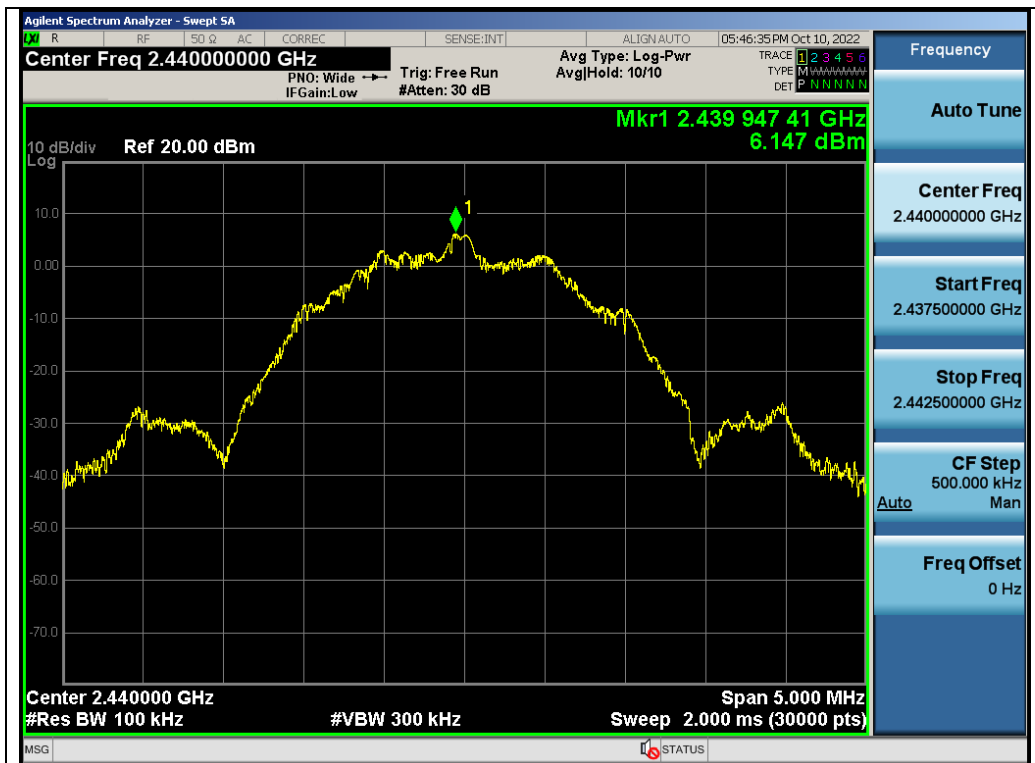


Test\_Graph\_LE2M\_ANT1\_2402\_2Mbps\_Lower Band Emissions

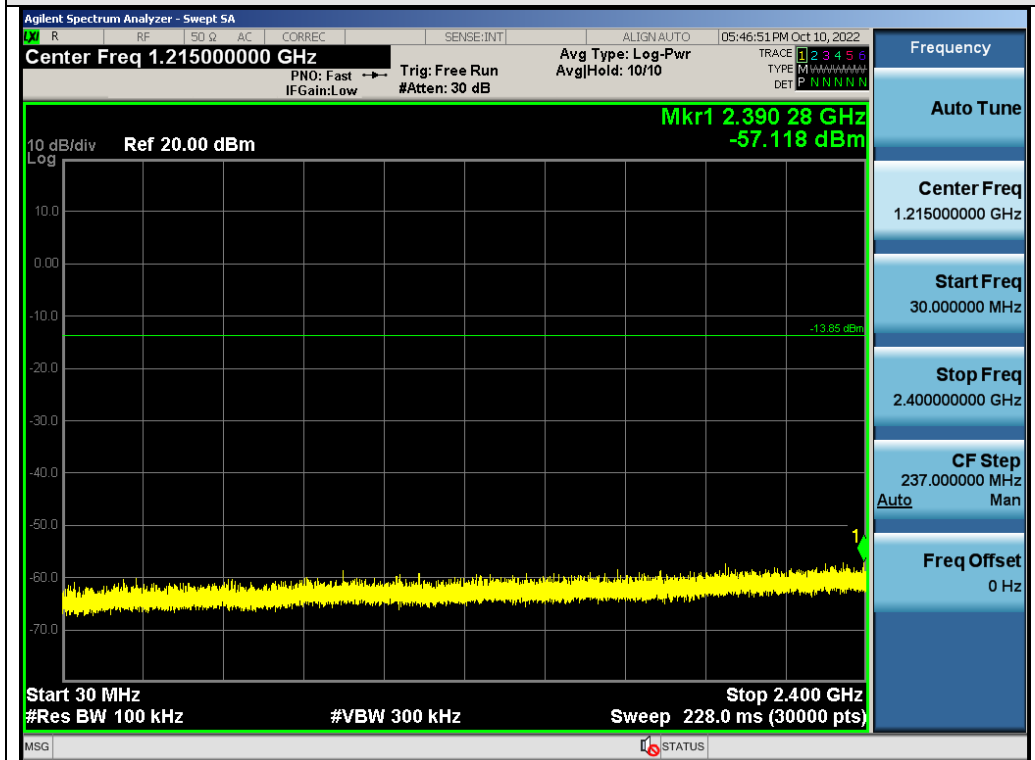


Test\_Graph\_LE2M\_ANT1\_2402\_2Mbps\_Higher Band Emissions

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Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_Reference Level



Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_Lower Band Emissions

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