

# RF Test Data for Bluetooth LE (Conducted Measurements)

General Description of EUT	
<b>Product Name:</b>	Open Ear Desgin headphone
<b>Test Model:</b>	QH-010
<b>Sample ID:</b>	202309-0266-3-2#
Environmental Conditions	
<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	55%
<b>Test Voltage:</b>	DC 3.7V
<b>Test Engineer:</b>	Zhang Chen Xi
Note: For a more detailed features description, please refer to the report TBR-C-202309-0266-44 The report only show the worst case data.	



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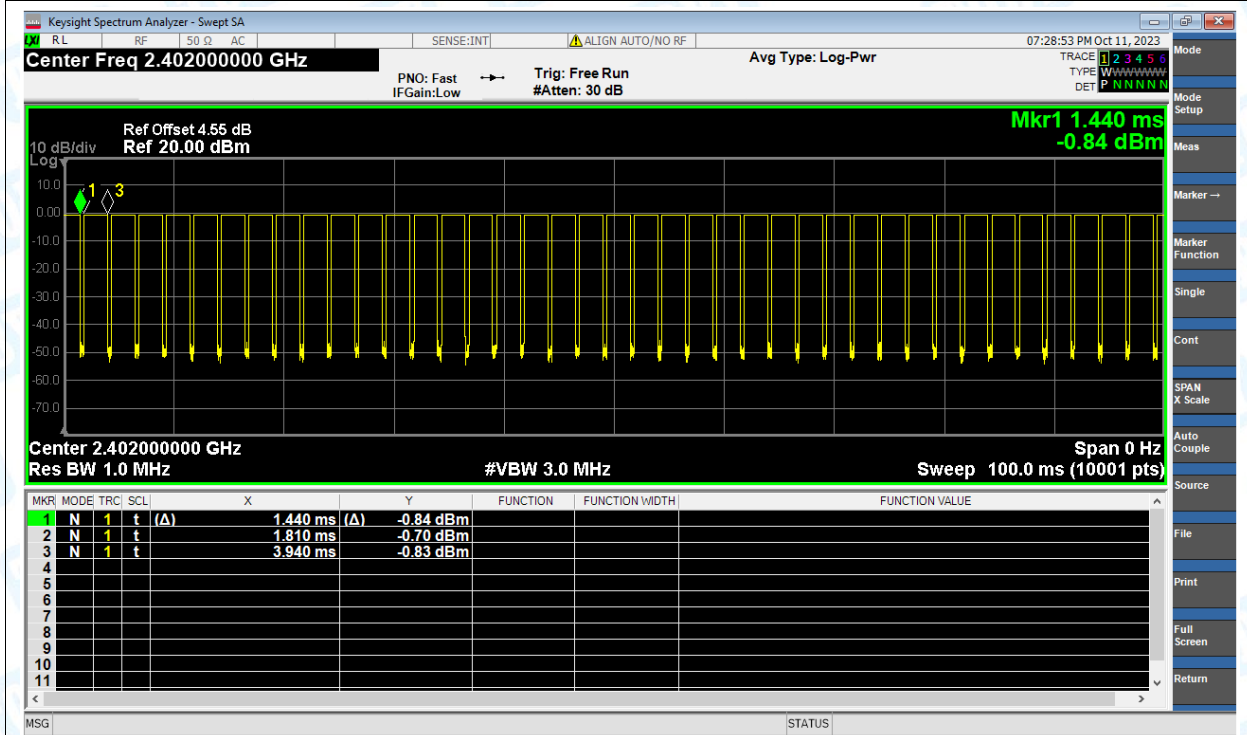


## 1. Duty Cycle

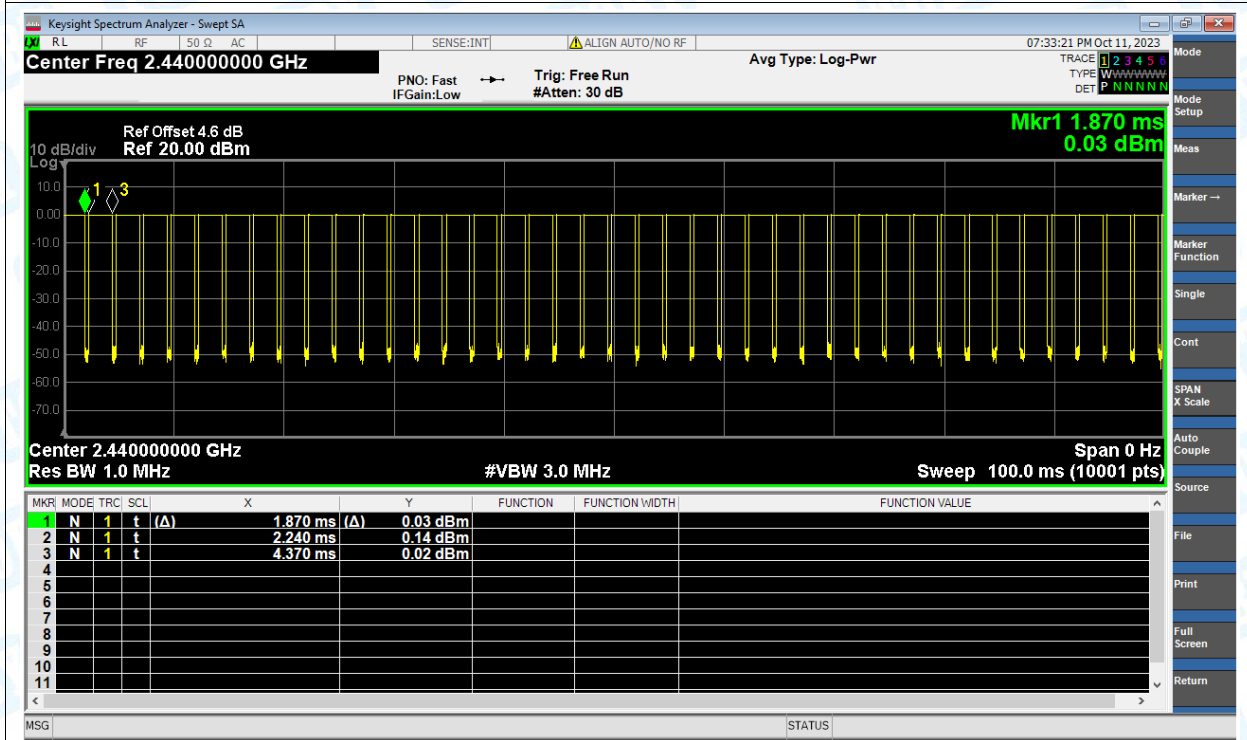
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1Mbps	2402	Ant1	85.2	0.7	0.47
NVNT	BLE 1Mbps	2440	Ant1	85.2	0.7	0.47
NVNT	BLE 1Mbps	2480	Ant1	85.6	0.68	0.47
NVNT	BLE 2Mbps	2402	Ant1	43.2	3.65	0.93
NVNT	BLE 2Mbps	2440	Ant1	43.2	3.65	0.93
NVNT	BLE 2Mbps	2480	Ant1	43.6	3.61	0.92

Test Graphs

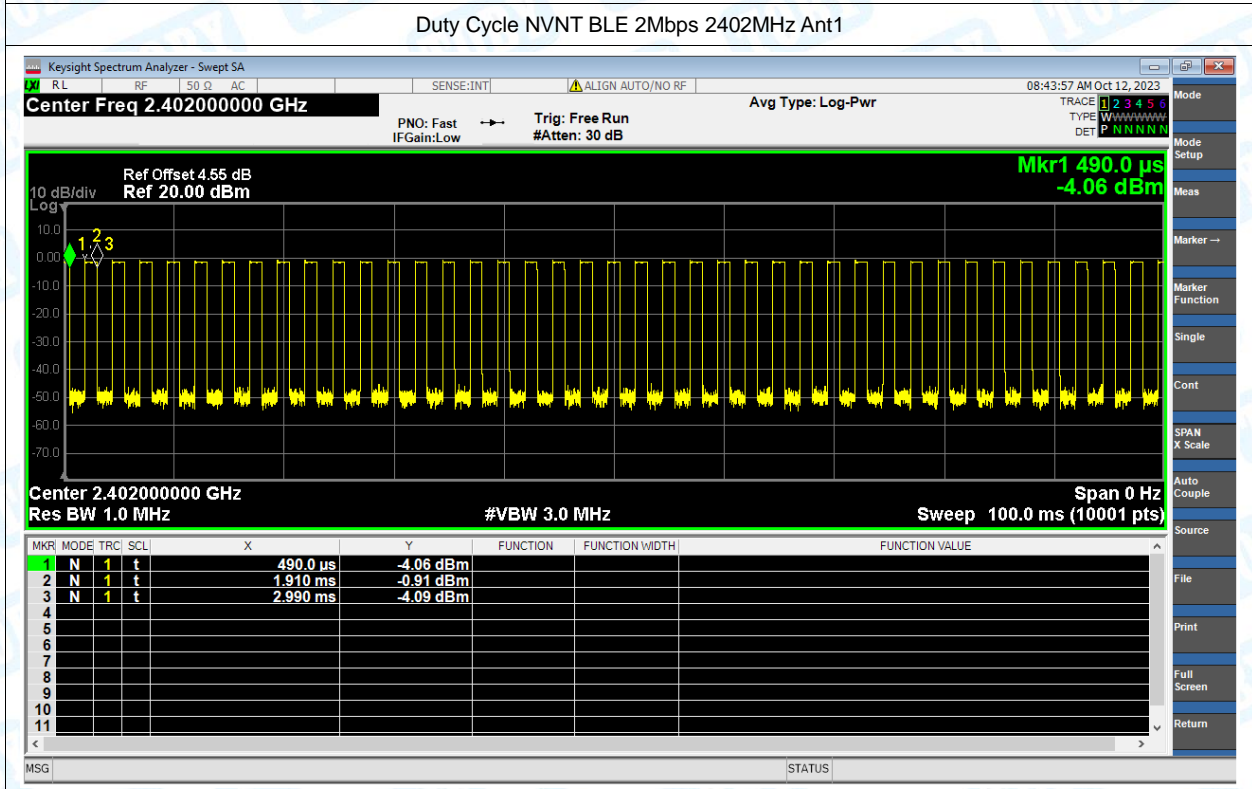
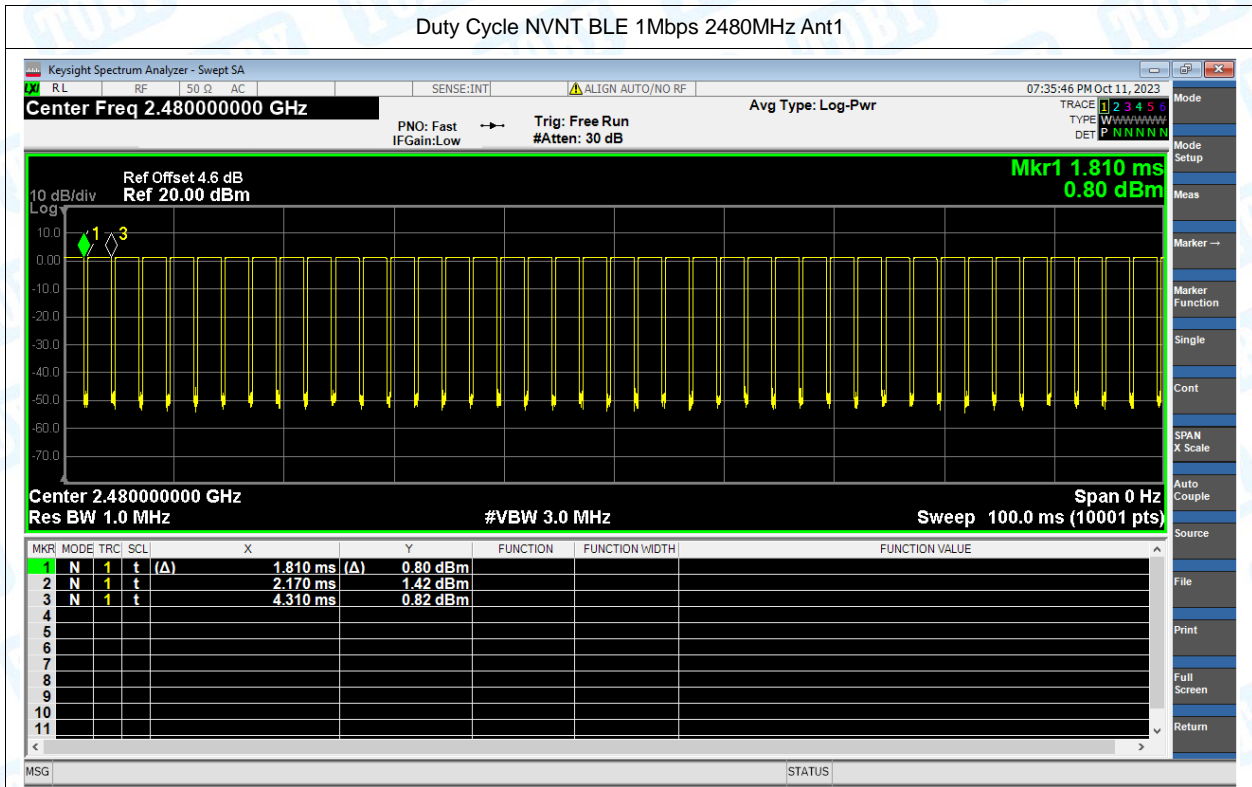
Duty Cycle NVNT BLE 1Mbps 2402MHz Ant1



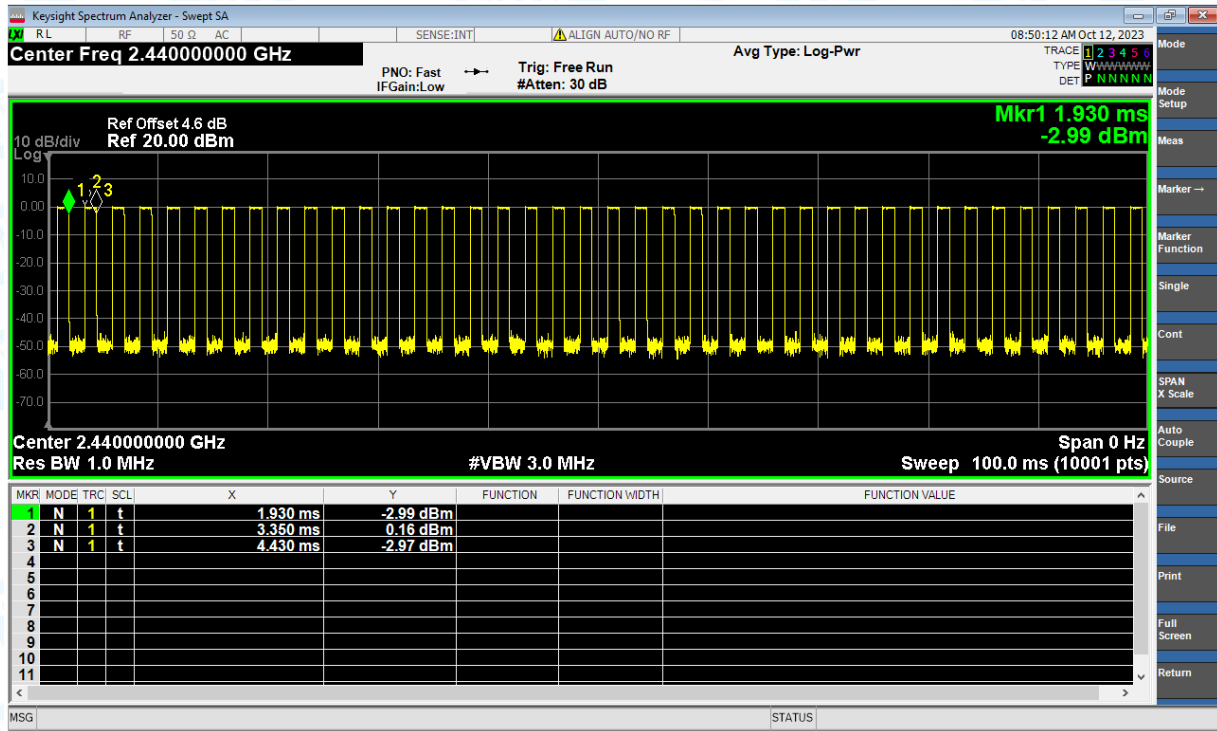
Duty Cycle NVNT BLE 1Mbps 2440MHz Ant1



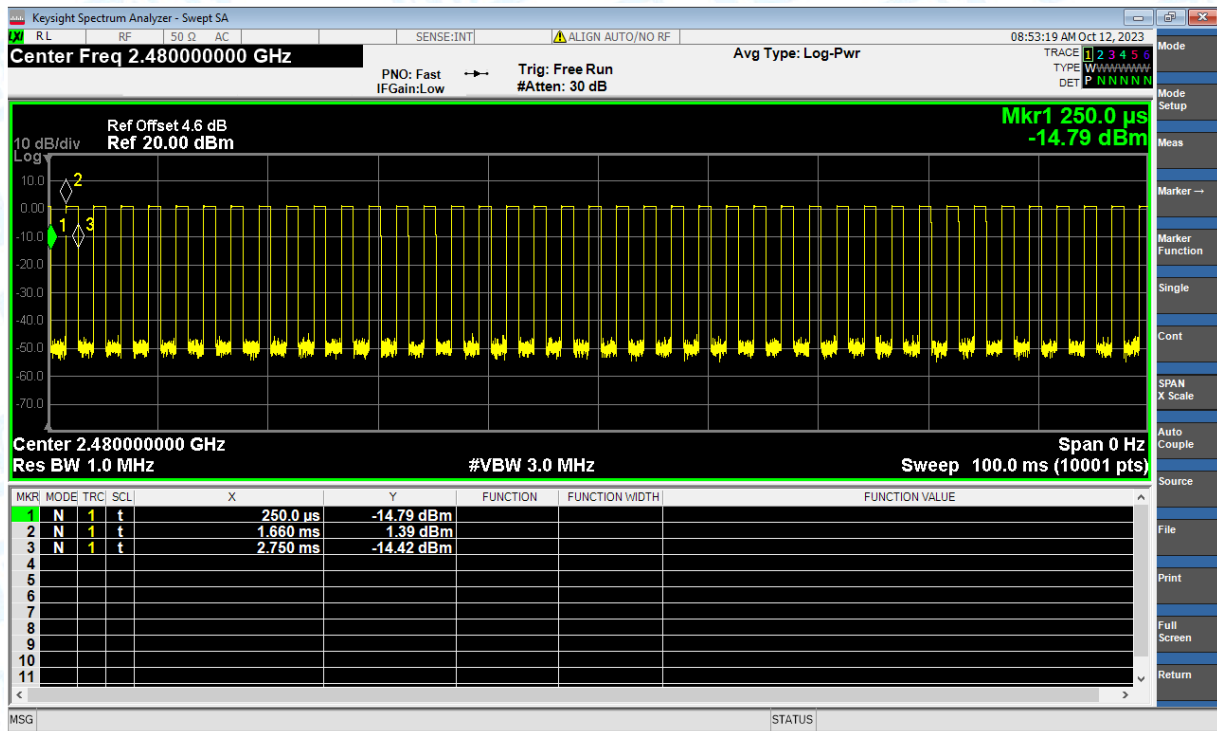




Duty Cycle NVNT BLE 2Mbps 2440MHz Ant1



Duty Cycle NVNT BLE 2Mbps 2480MHz Ant1



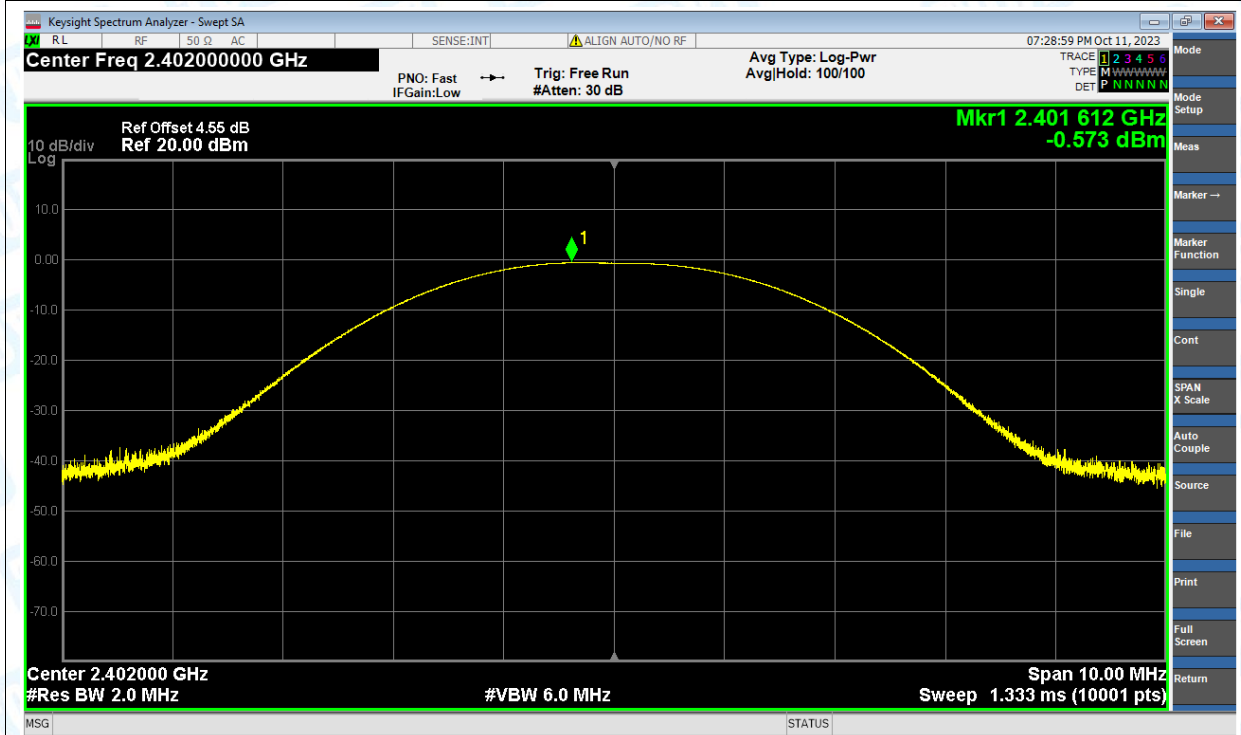


## 2. Maximum Conducted Output Power

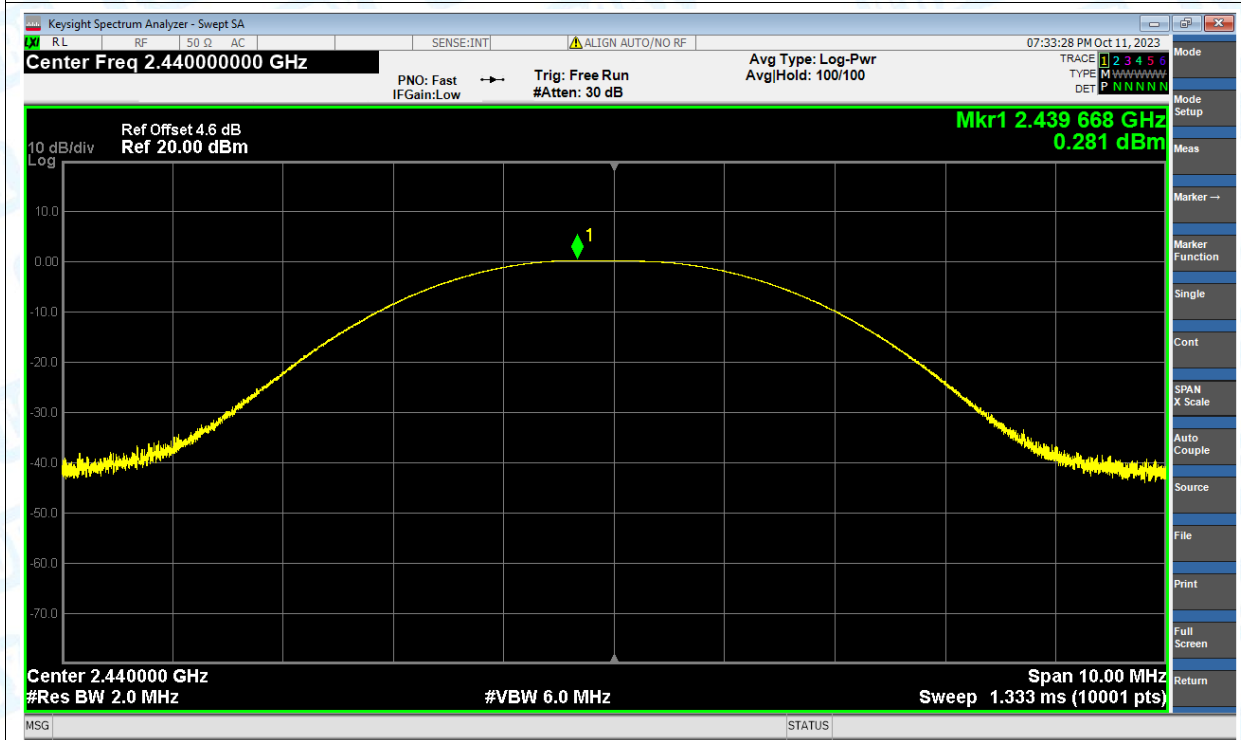
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-0.573	30	Pass
NVNT	BLE 1Mbps	2440	Ant1	0.281	30	Pass
NVNT	BLE 1Mbps	2480	Ant1	1.564	30	Pass
NVNT	BLE 2Mbps	2402	Ant1	-0.589	30	Pass
NVNT	BLE 2Mbps	2440	Ant1	0.370	30	Pass
NVNT	BLE 2Mbps	2480	Ant1	1.623	30	Pass

Test Graphs

Power NVNT BLE 1Mbps 2402MHz Ant1

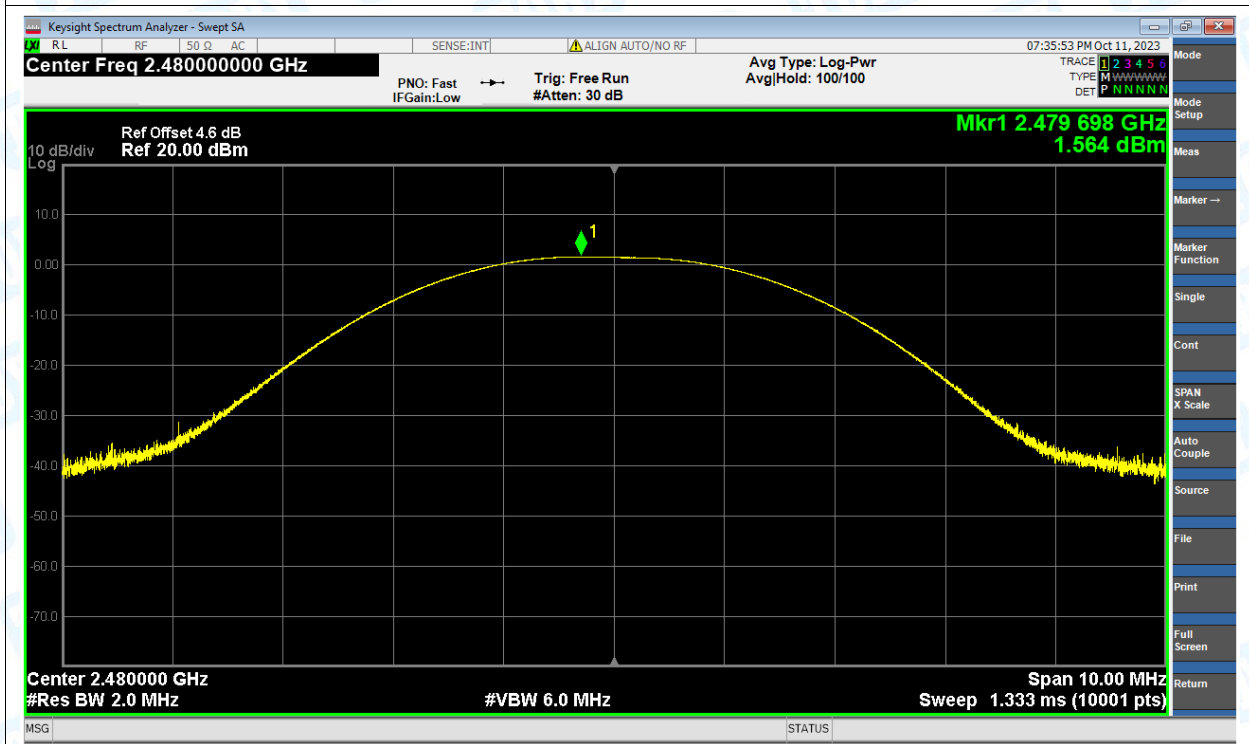


Power NVNT BLE 1Mbps 2440MHz Ant1

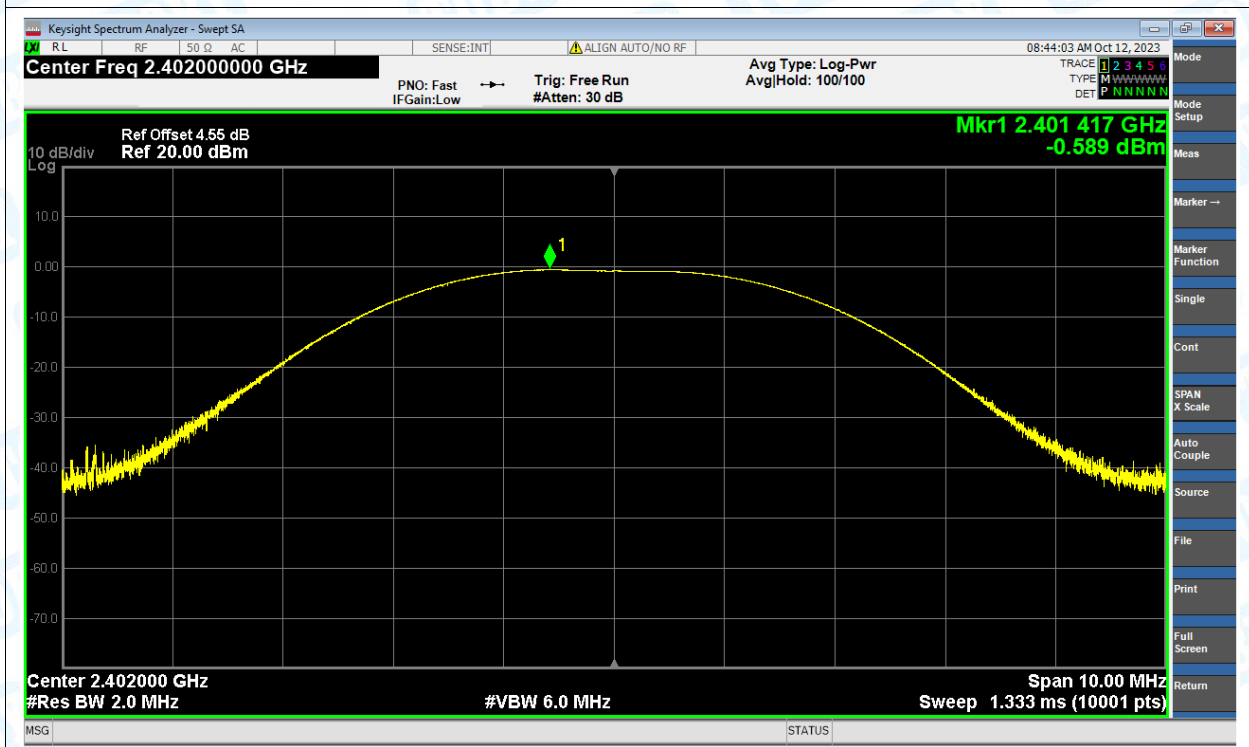




Power NVNT BLE 1Mbps 2480MHz Ant1



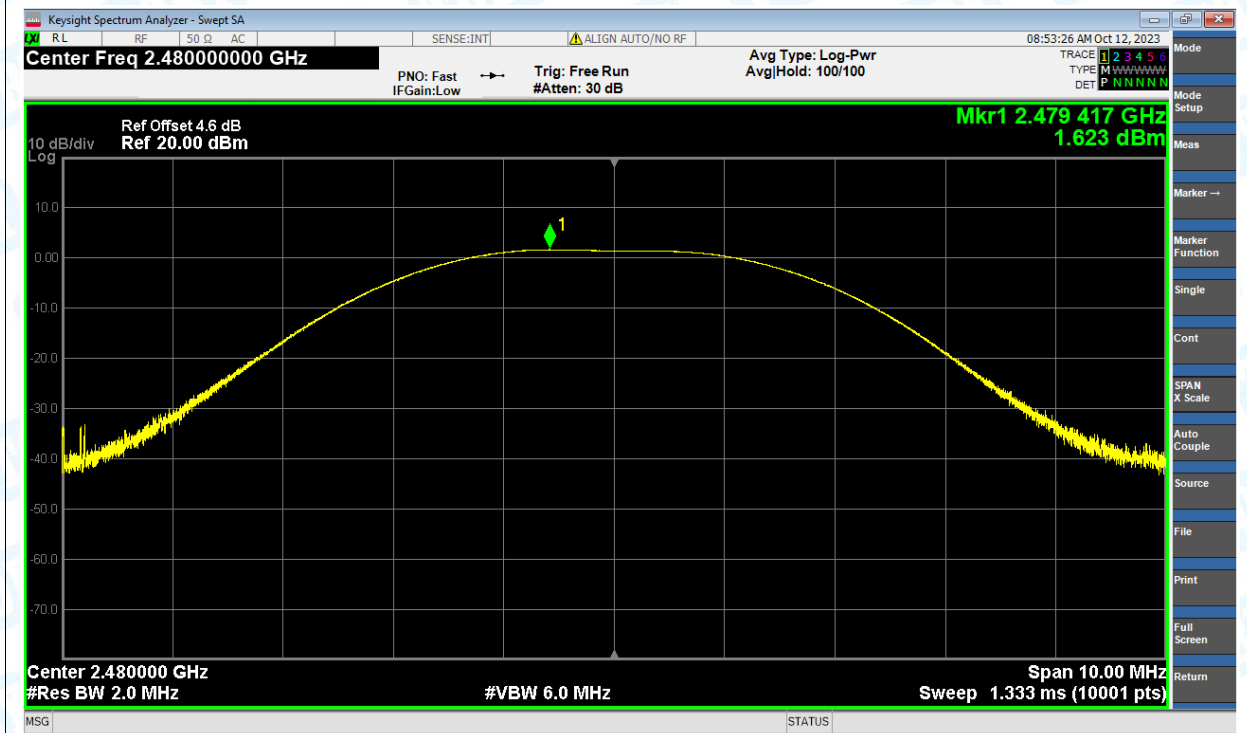
Power NVNT BLE 2Mbps 2402MHz Ant1



Power NVNT BLE 2Mbps 2440MHz Ant1



Power NVNT BLE 2Mbps 2480MHz Ant1



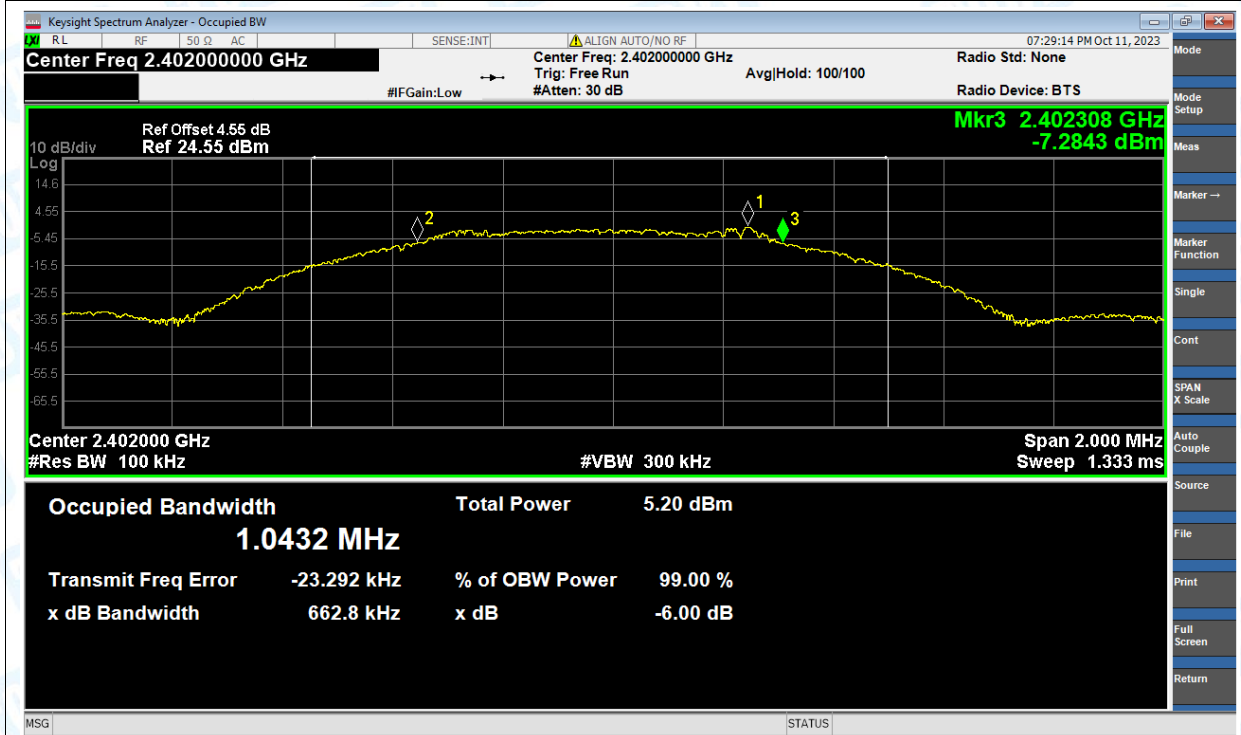


### 3. -6dB Bandwidth

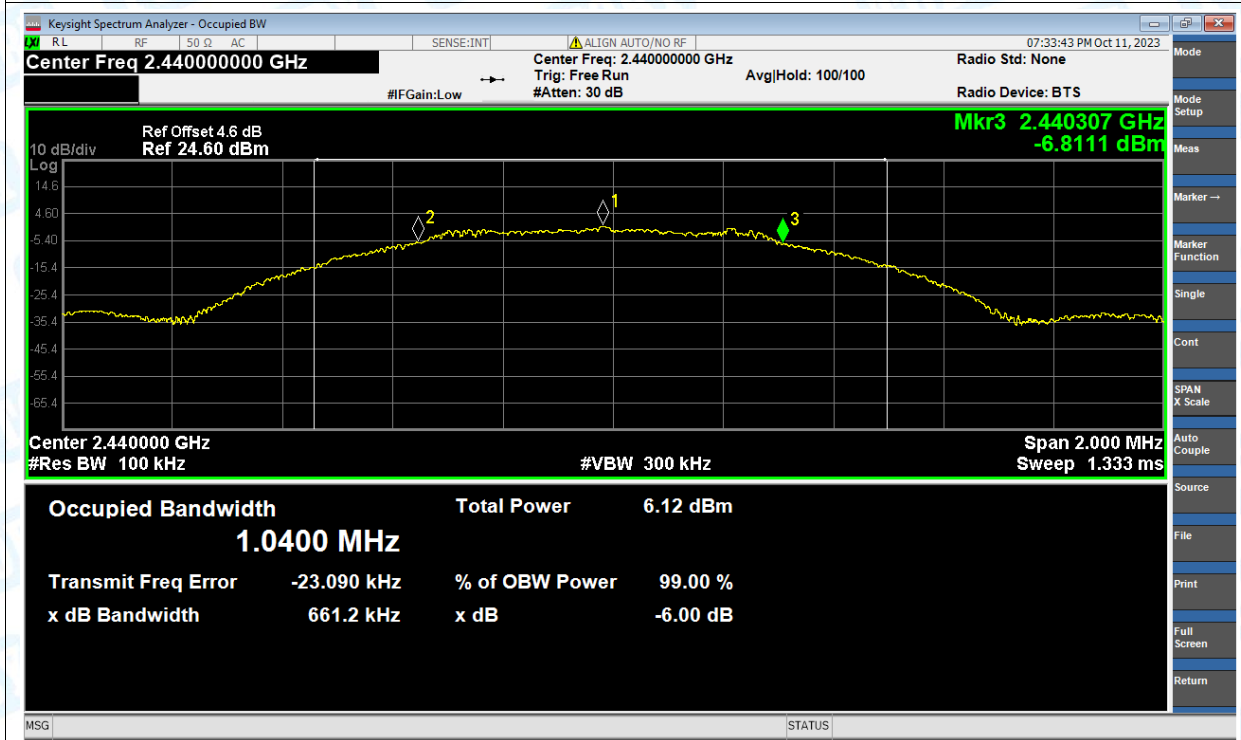
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	0.66	0.5	Pass
NVNT	BLE 1Mbps	2440	Ant1	0.66	0.5	Pass
NVNT	BLE 1Mbps	2480	Ant1	0.66	0.5	Pass
NVNT	BLE 2Mbps	2402	Ant1	1.13	0.5	Pass
NVNT	BLE 2Mbps	2440	Ant1	1.23	0.5	Pass
NVNT	BLE 2Mbps	2480	Ant1	1.16	0.5	Pass

Test Graphs

-6dB Bandwidth NVNT BLE 1Mbps 2402MHz Ant1

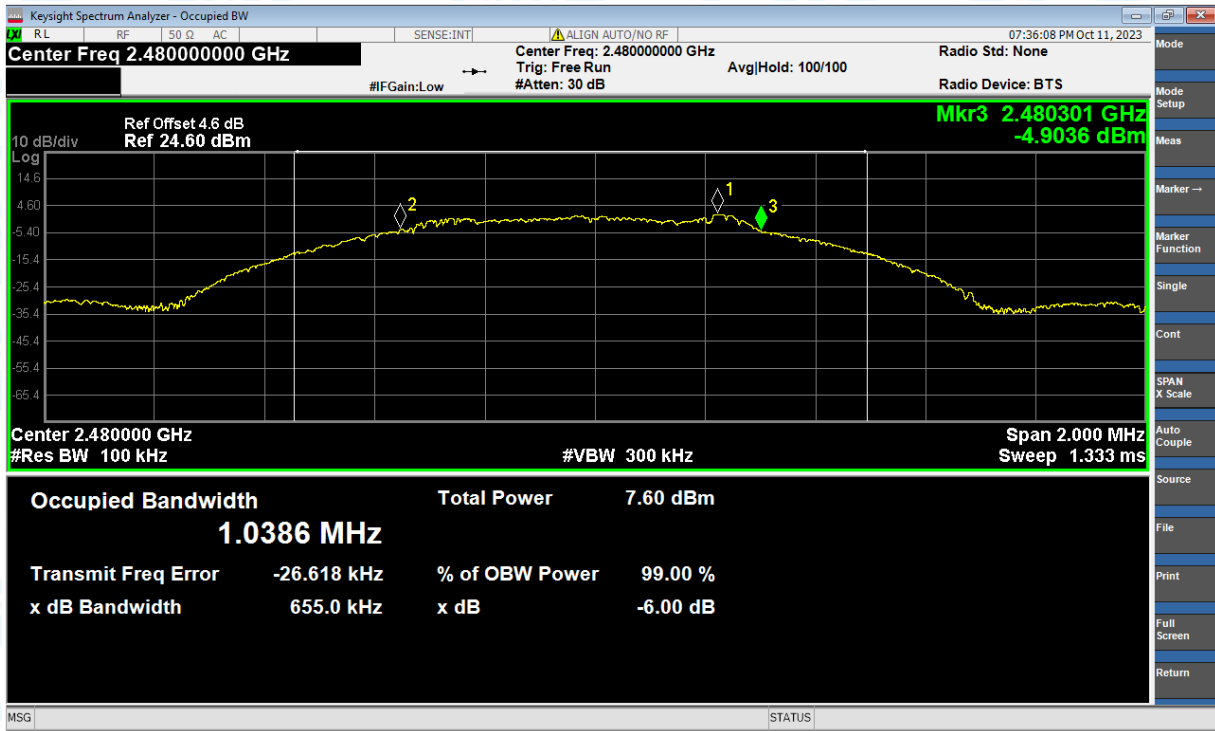


-6dB Bandwidth NVNT BLE 1Mbps 2440MHz Ant1

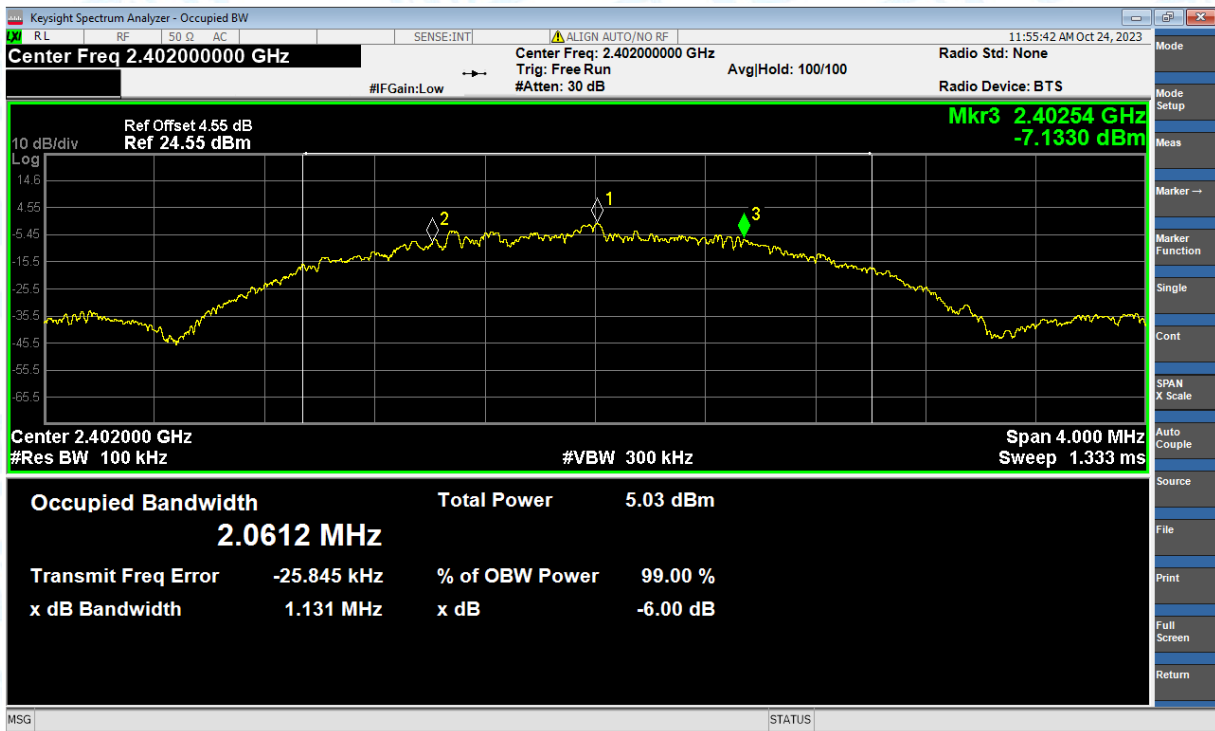




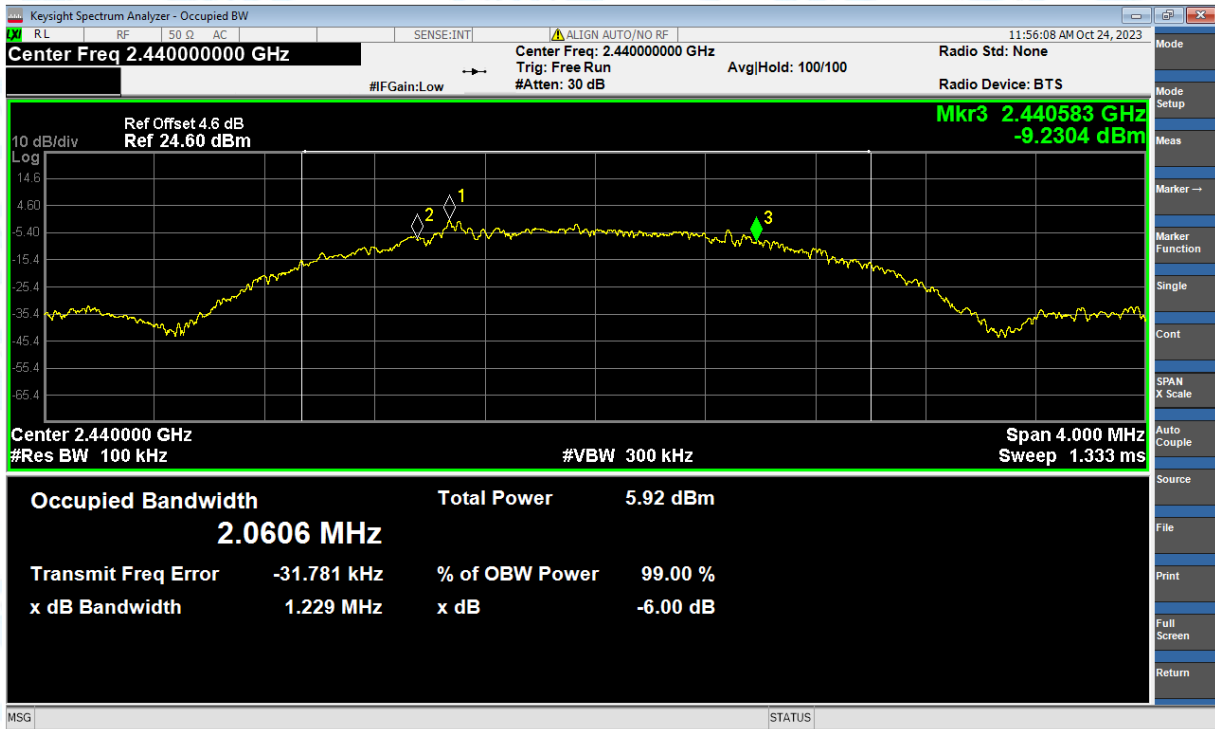
-6dB Bandwidth NVNT BLE 1Mbps 2480MHz Ant1



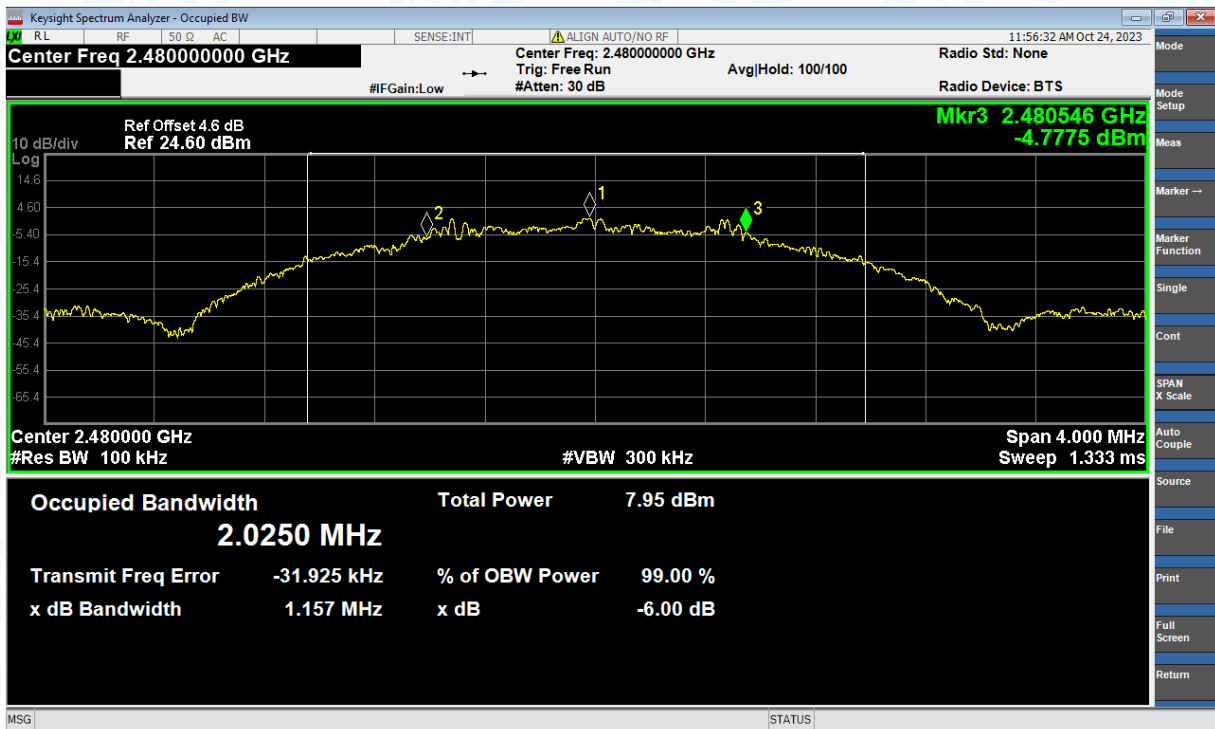
-6dB Bandwidth NVNT BLE 2Mbps 2402MHz Ant1



-6dB Bandwidth NVNT BLE 2Mbps 2440MHz Ant1



-6dB Bandwidth NVNT BLE 2Mbps 2480MHz Ant1



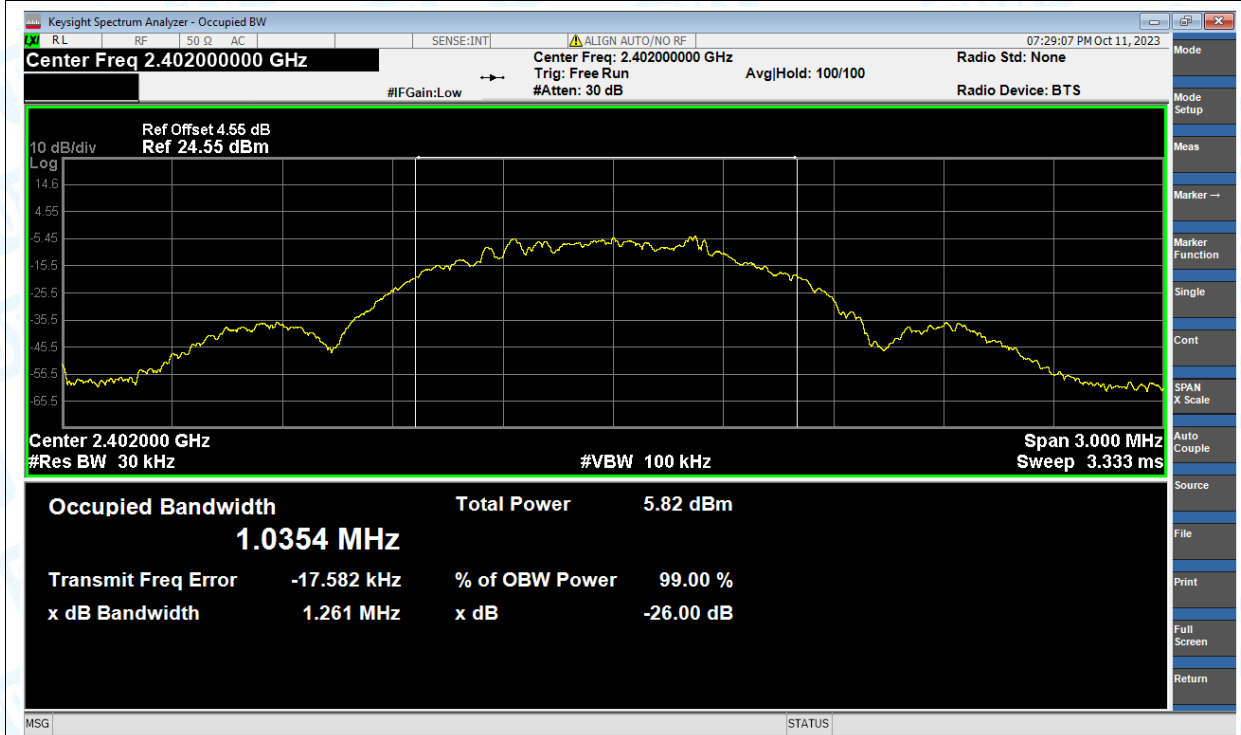


## 4. Occupied Channel Bandwidth

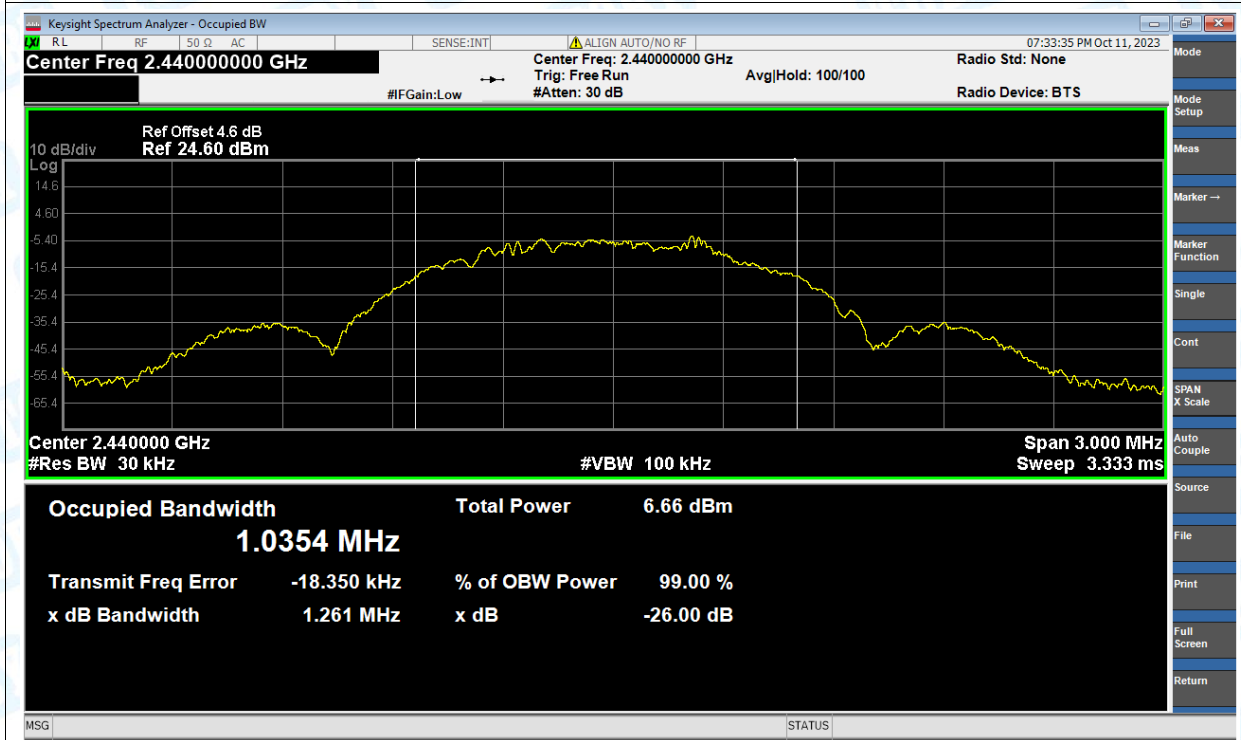
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1Mbps	2402	Ant1	1.035
NVNT	BLE 1Mbps	2440	Ant1	1.035
NVNT	BLE 1Mbps	2480	Ant1	1.037
NVNT	BLE 2Mbps	2402	Ant1	2.056
NVNT	BLE 2Mbps	2440	Ant1	2.061
NVNT	BLE 2Mbps	2480	Ant1	2.067

Test Graphs

OBW NVNT BLE 1Mbps 2402MHz Ant1

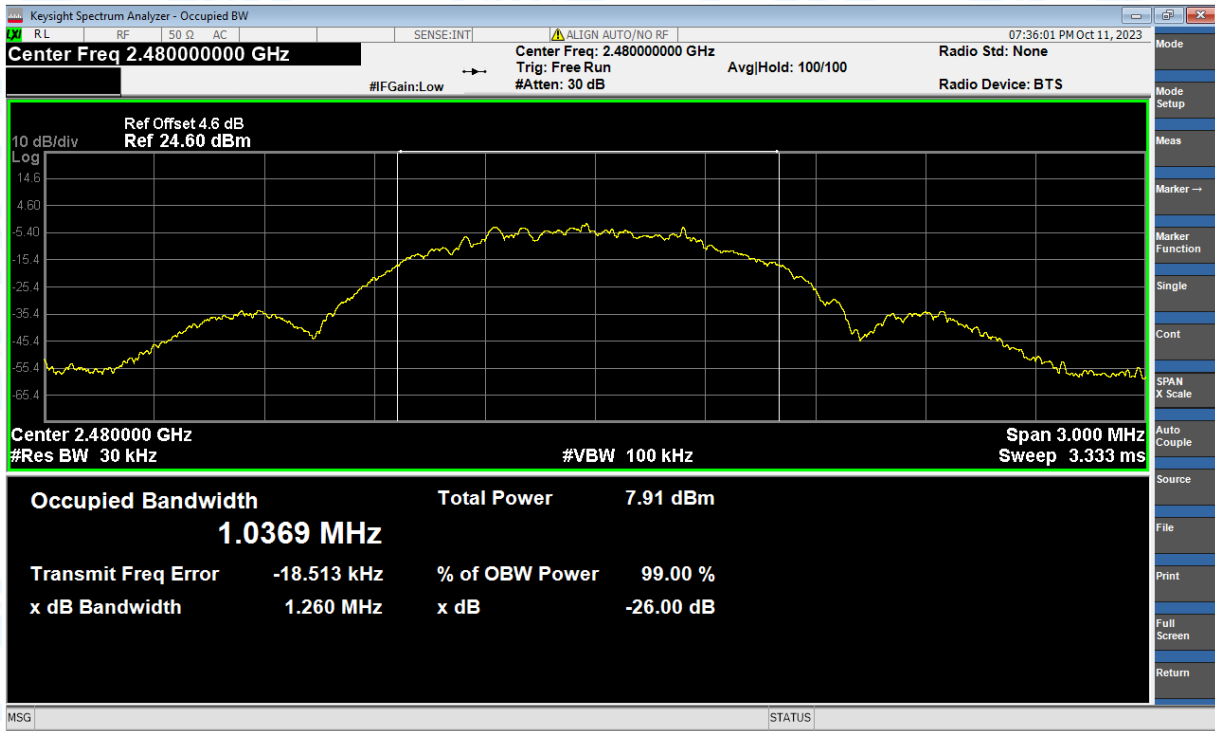


OBW NVNT BLE 1Mbps 2440MHz Ant1

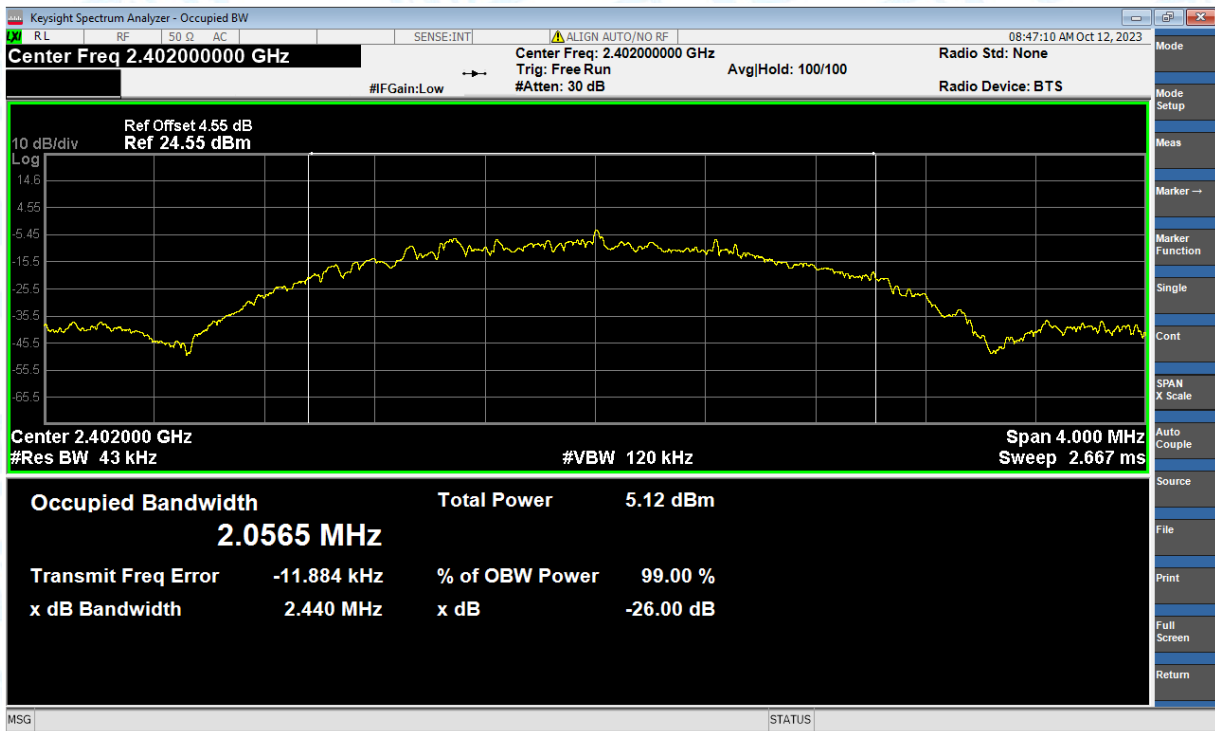




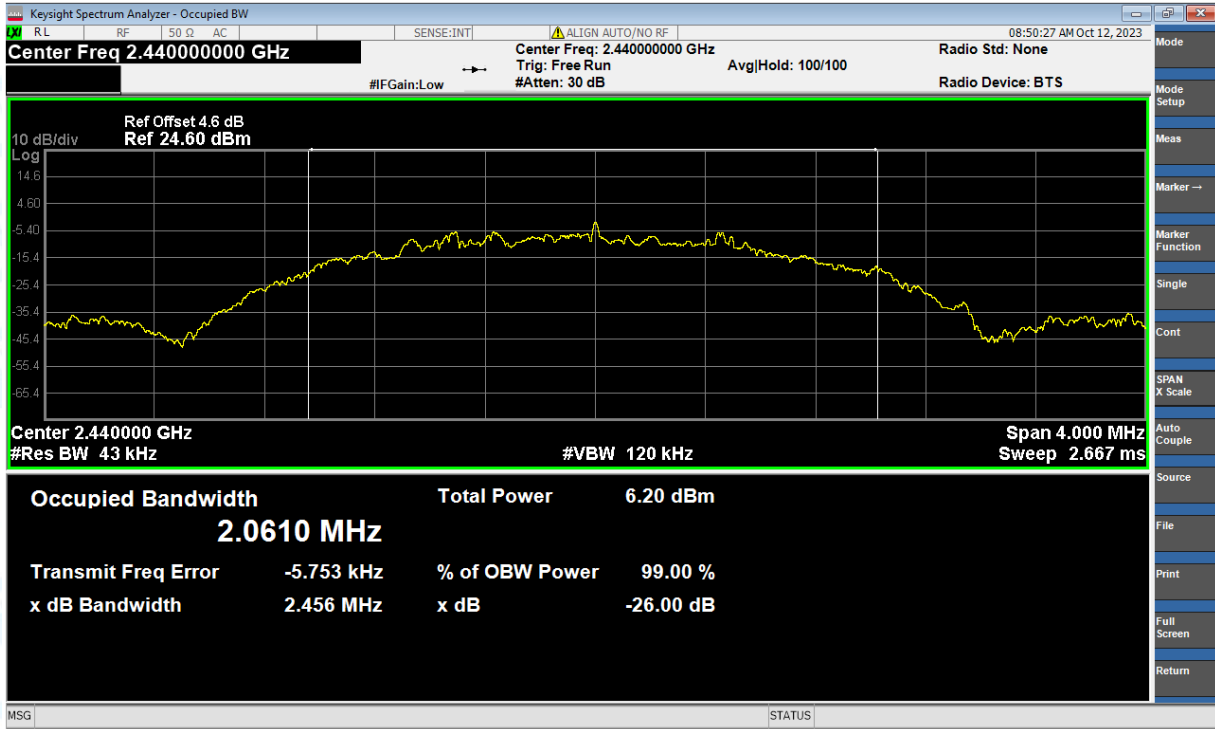
OBW NVNT BLE 1Mbps 2480MHz Ant1



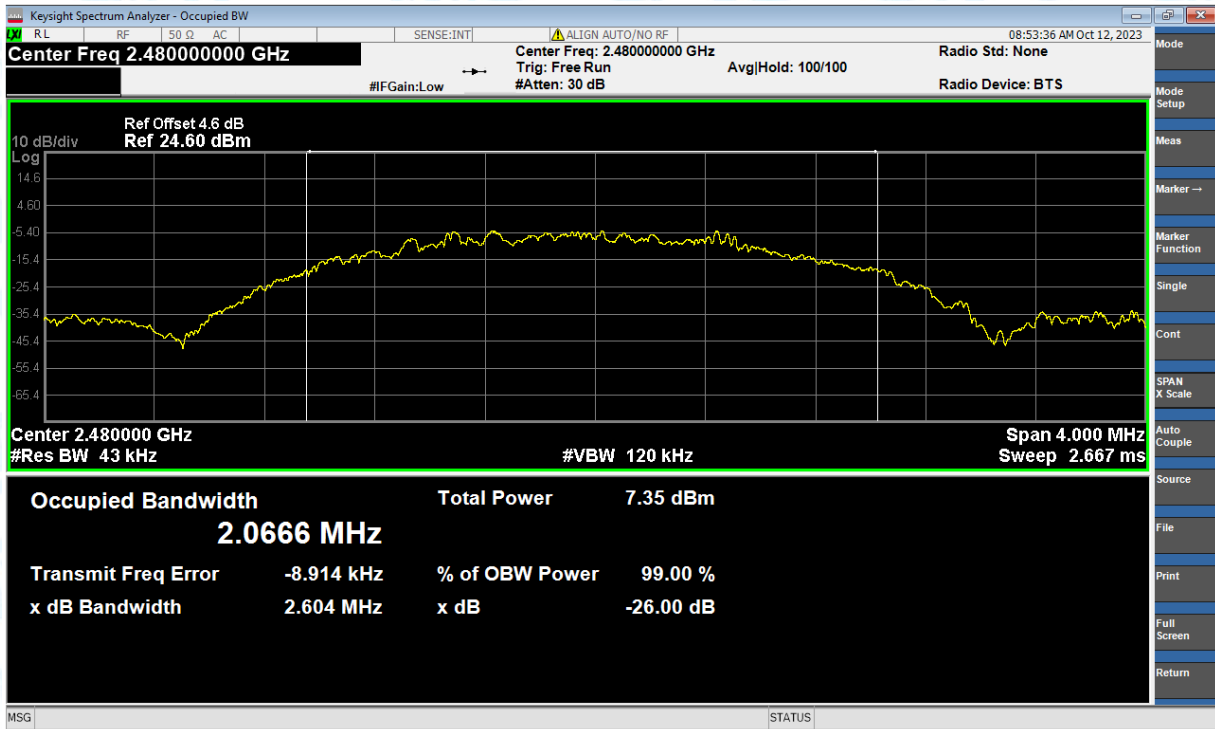
OBW NVNT BLE 2Mbps 2402MHz Ant1



OBW NVNT BLE 2Mbps 2440MHz Ant1



OBW NVNT BLE 2Mbps 2480MHz Ant1



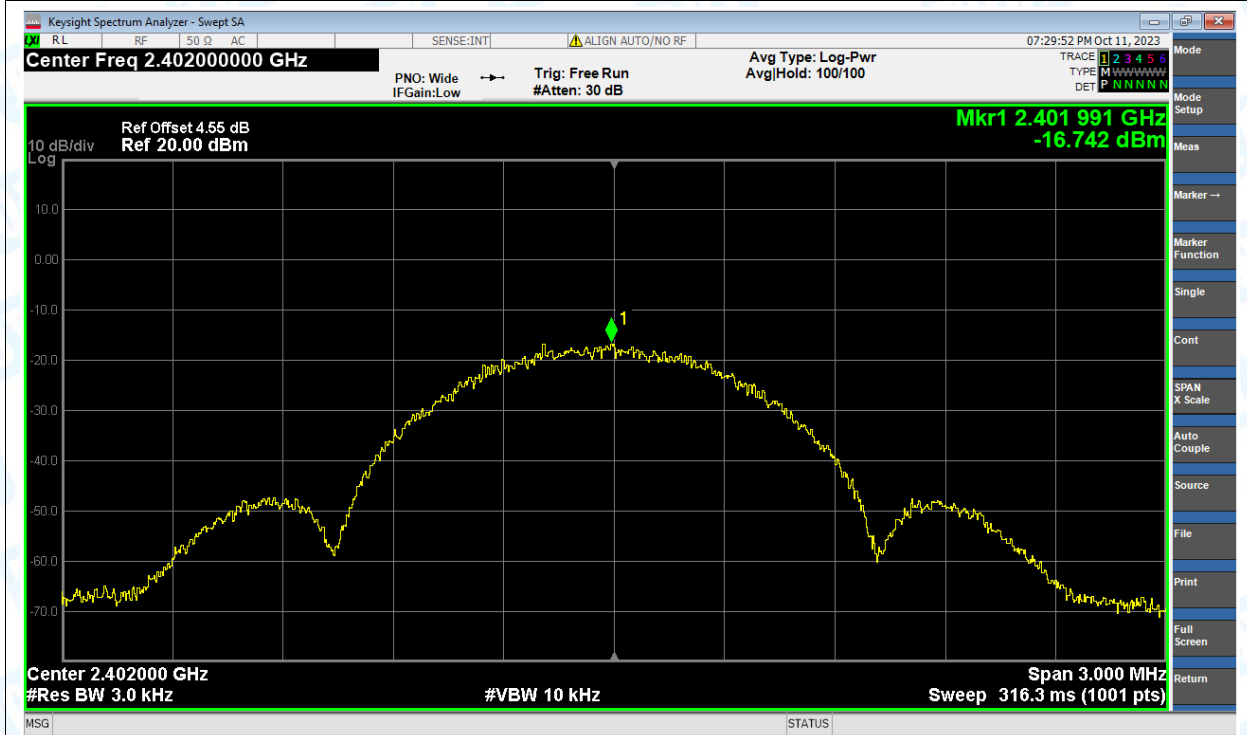


## 5. Maximum Power Spectral Density Level

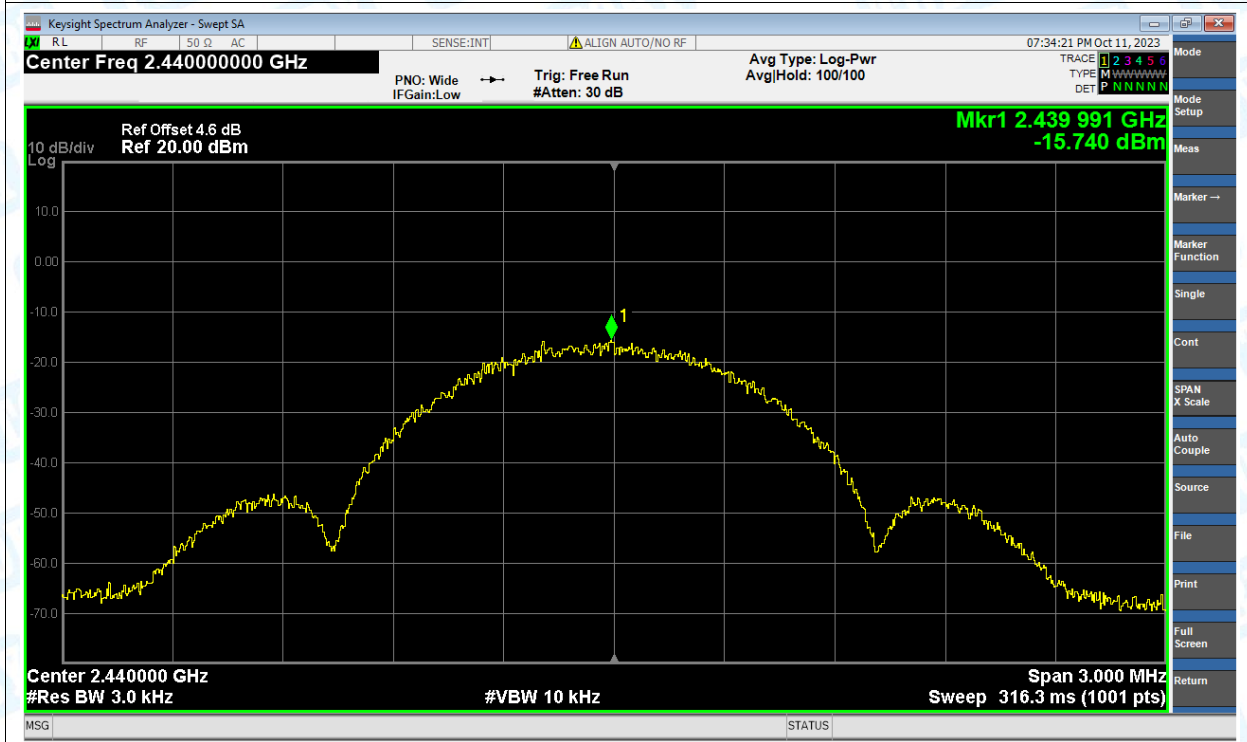
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-16.742	8	Pass
NVNT	BLE 1Mbps	2440	Ant1	-15.74	8	Pass
NVNT	BLE 1Mbps	2480	Ant1	-14.549	8	Pass
NVNT	BLE 2Mbps	2402	Ant1	-19.047	8	Pass
NVNT	BLE 2Mbps	2440	Ant1	-18.133	8	Pass
NVNT	BLE 2Mbps	2480	Ant1	-16.894	8	Pass

Test Graphs

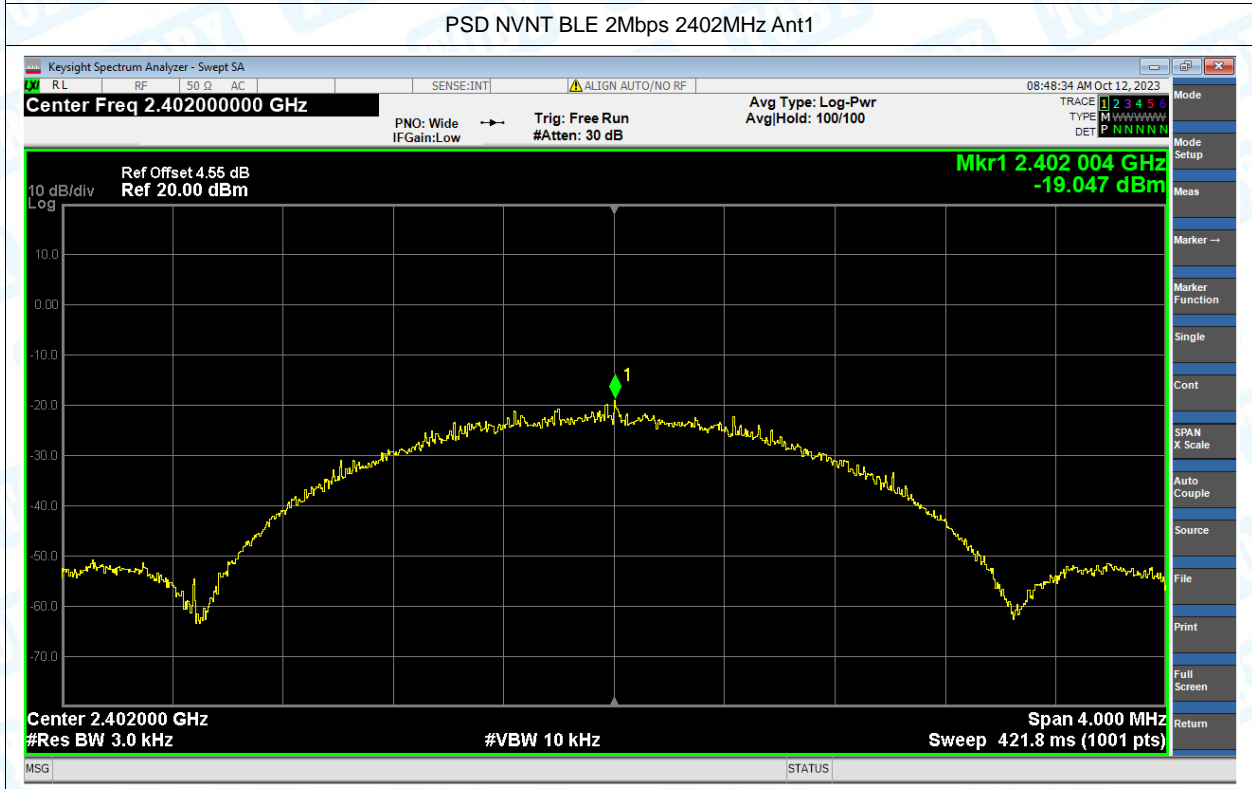
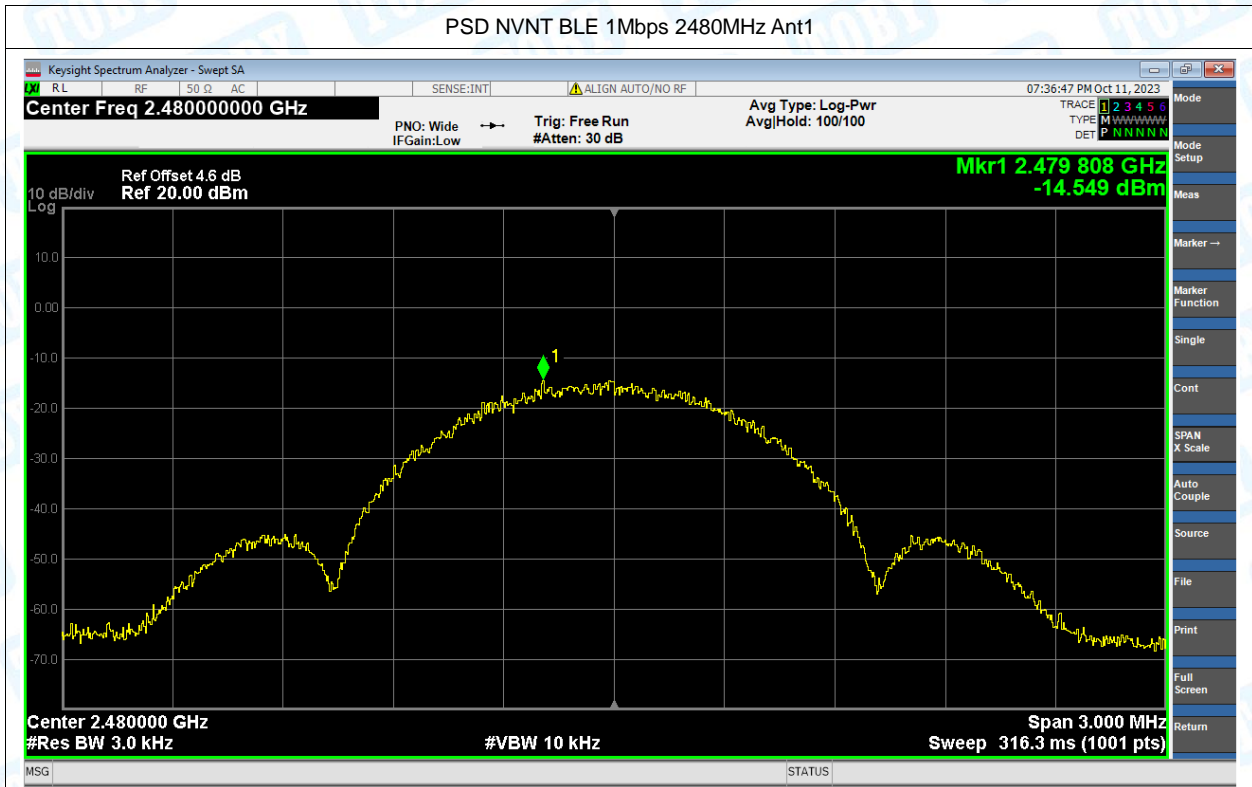
PSD NVNT BLE 1Mbps 2402MHz Ant1

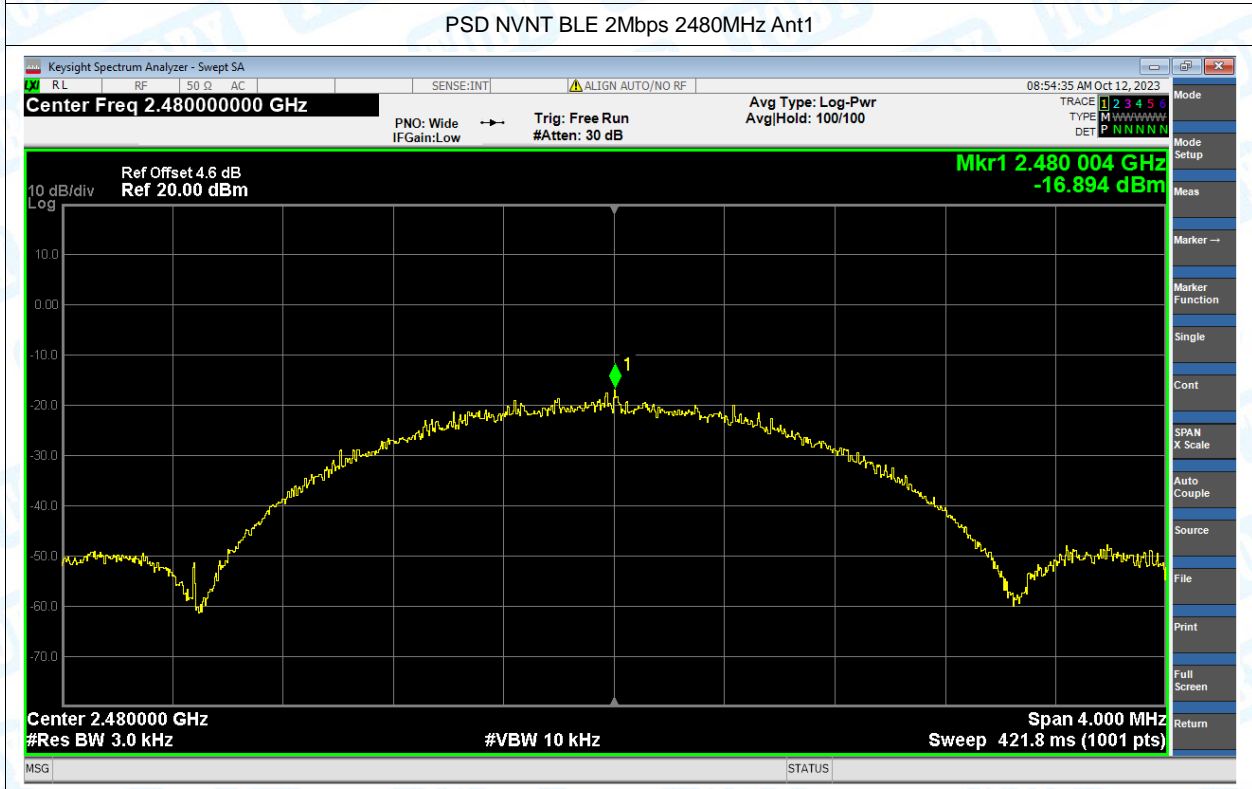
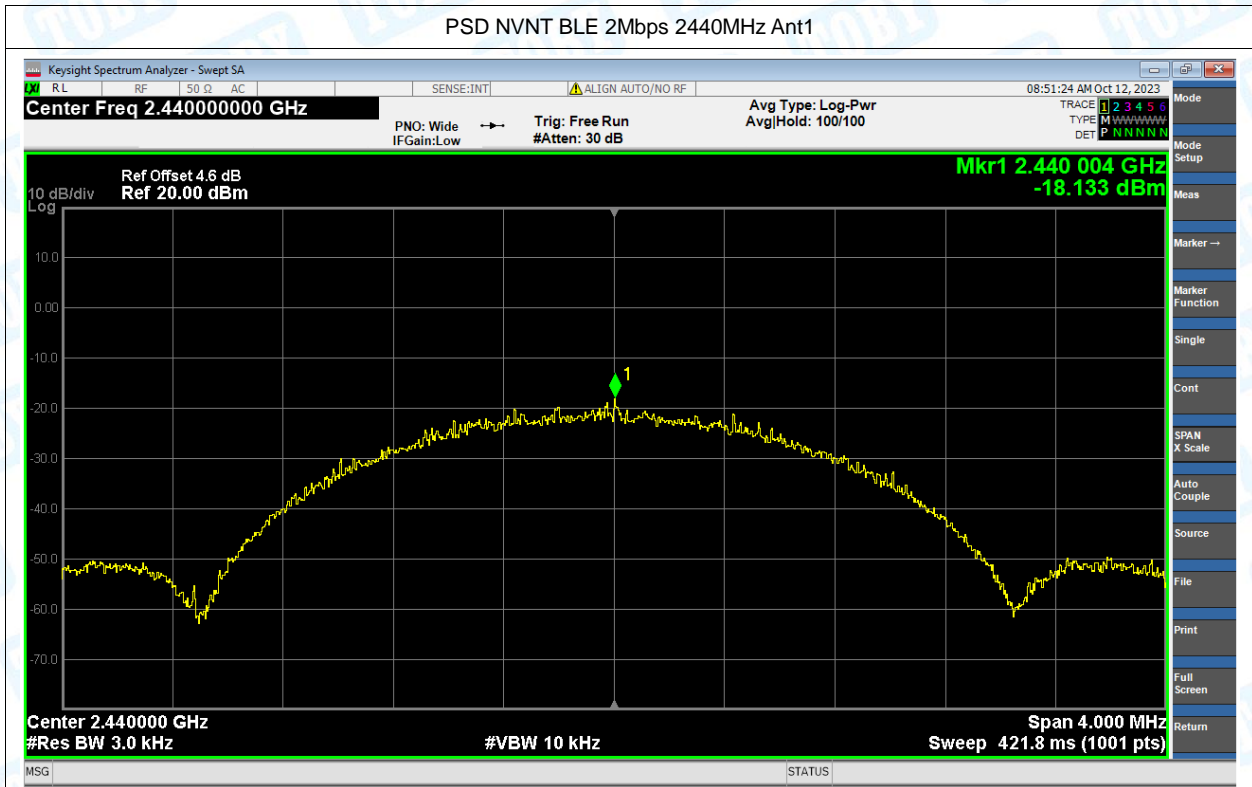


PSD NVNT BLE 1Mbps 2440MHz Ant1









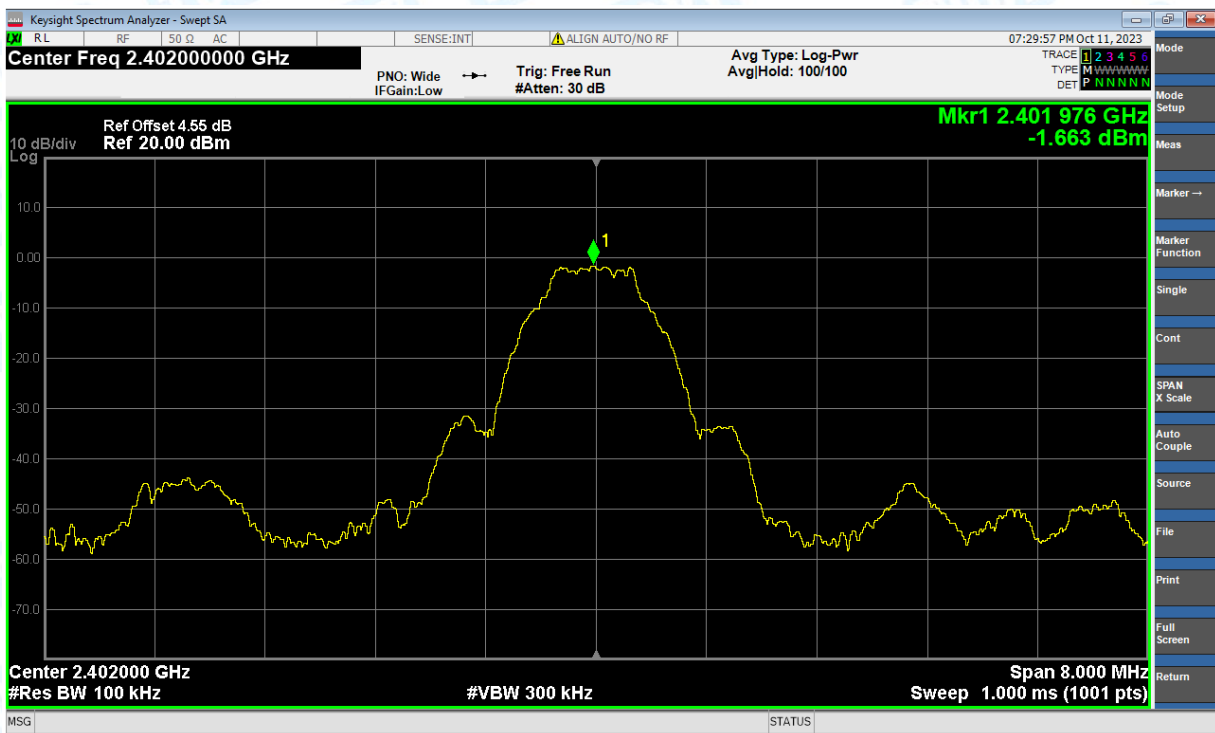


## 6. Band Edge

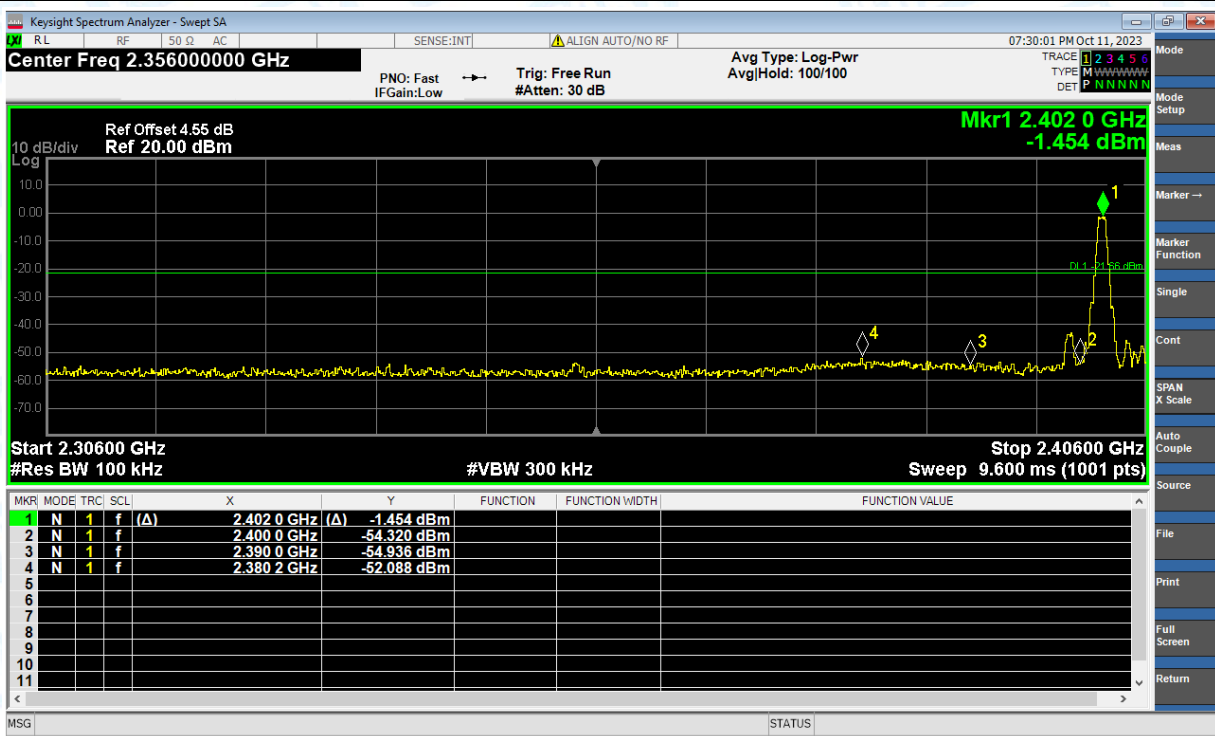
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-50.43	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-45.36	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-50.38	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-48.25	-20	Pass

Test Graphs

Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Ref

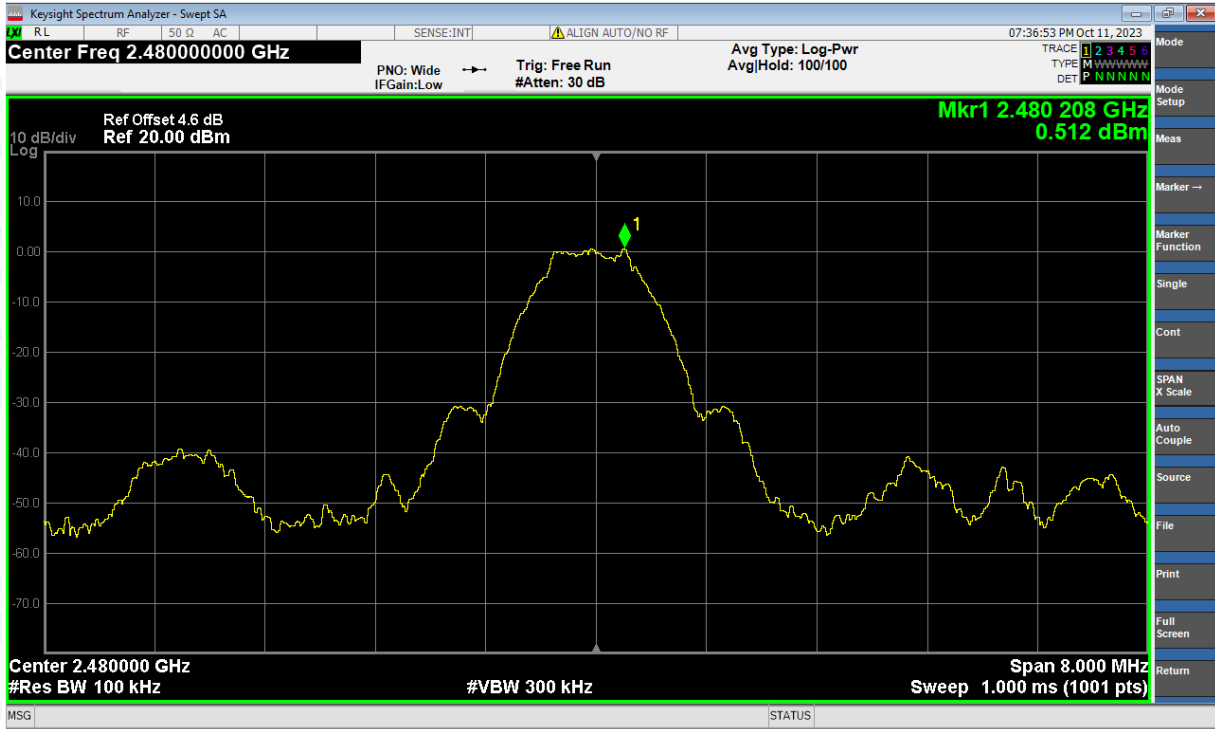


Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Emission

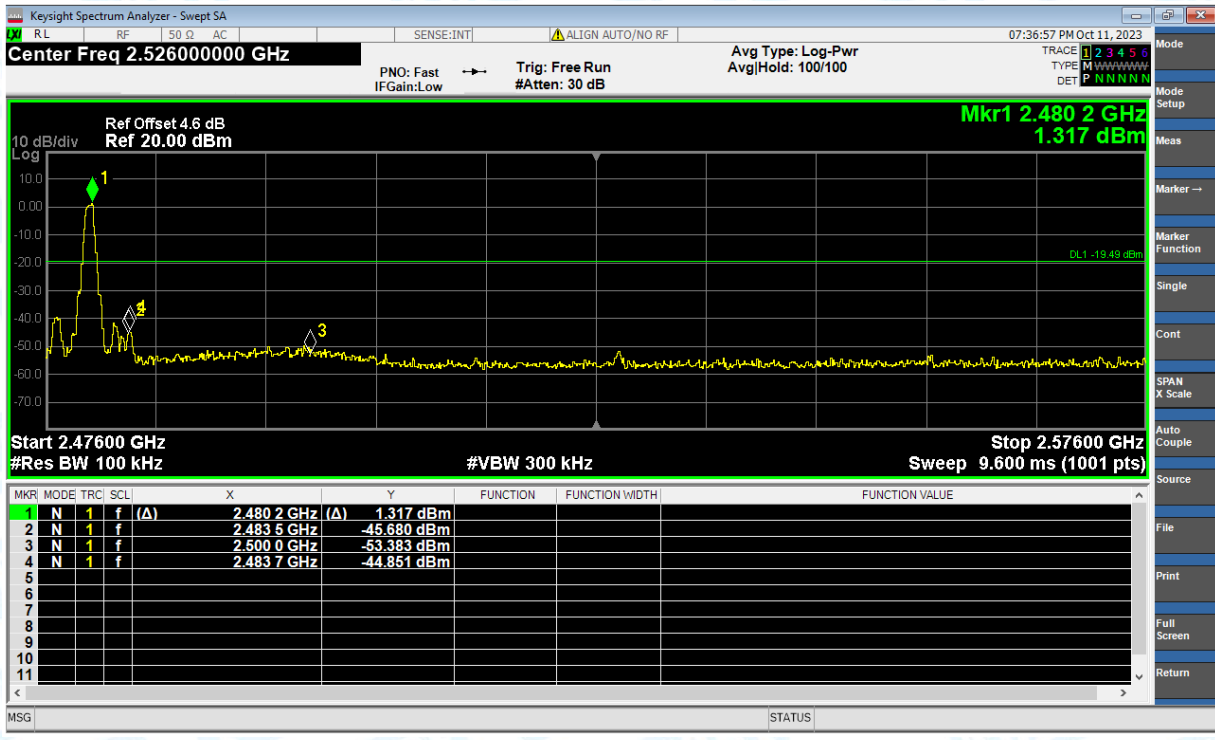




Band Edge NVNT BLE 1Mbps 2480MHz Ant1 Ref



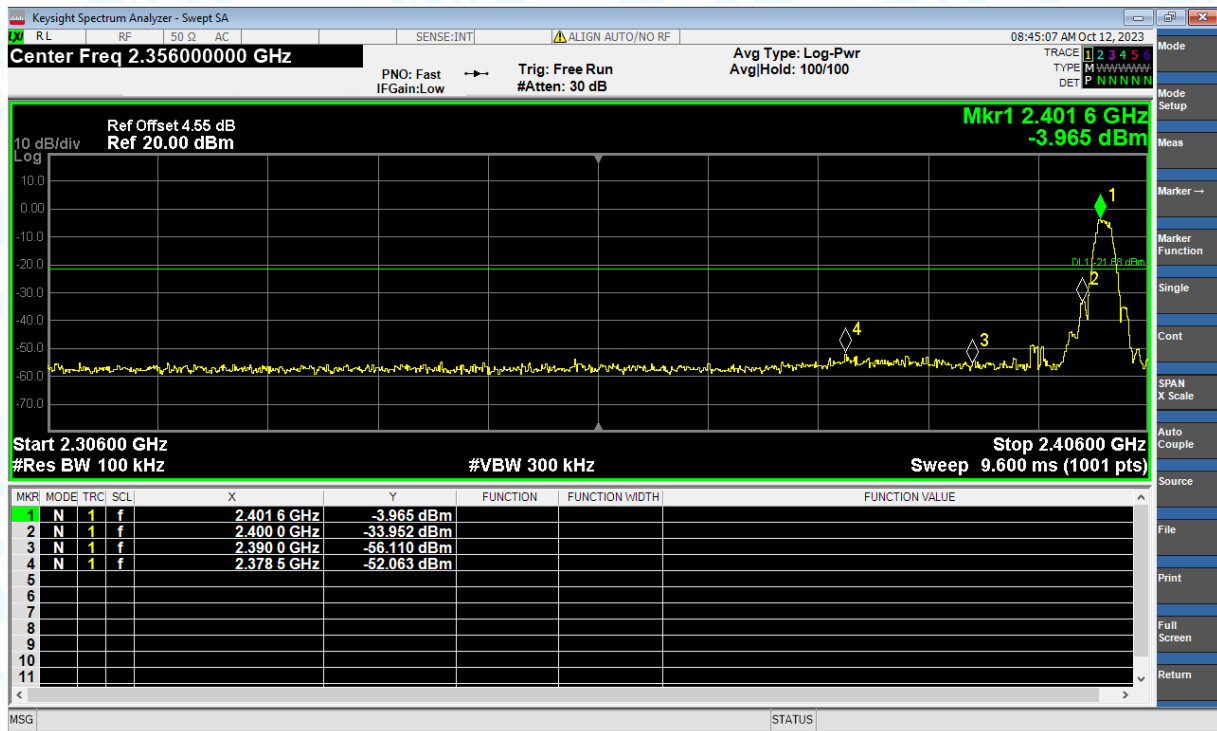
Band Edge NVNT BLE 1Mbps 2480MHz Ant1 Emission



Band Edge NVNT BLE 2Mbps 2402MHz Ant1 Ref

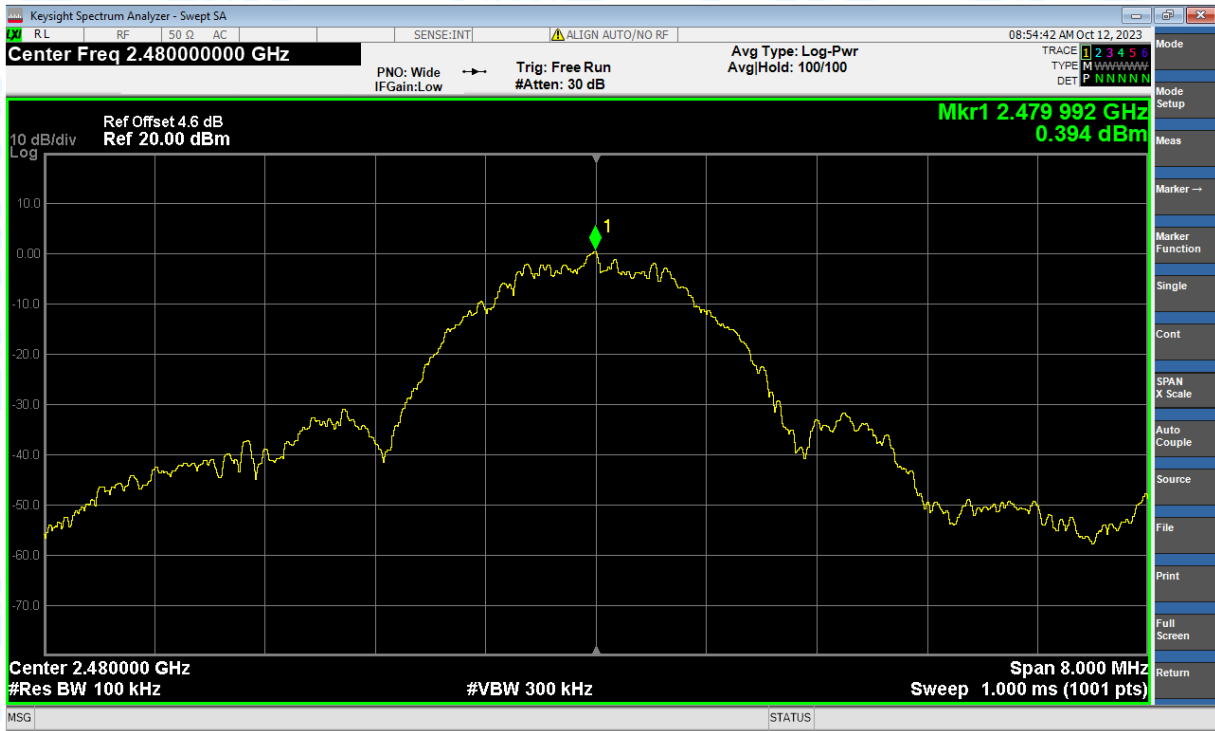


Band Edge NVNT BLE 2Mbps 2402MHz Ant1 Emission

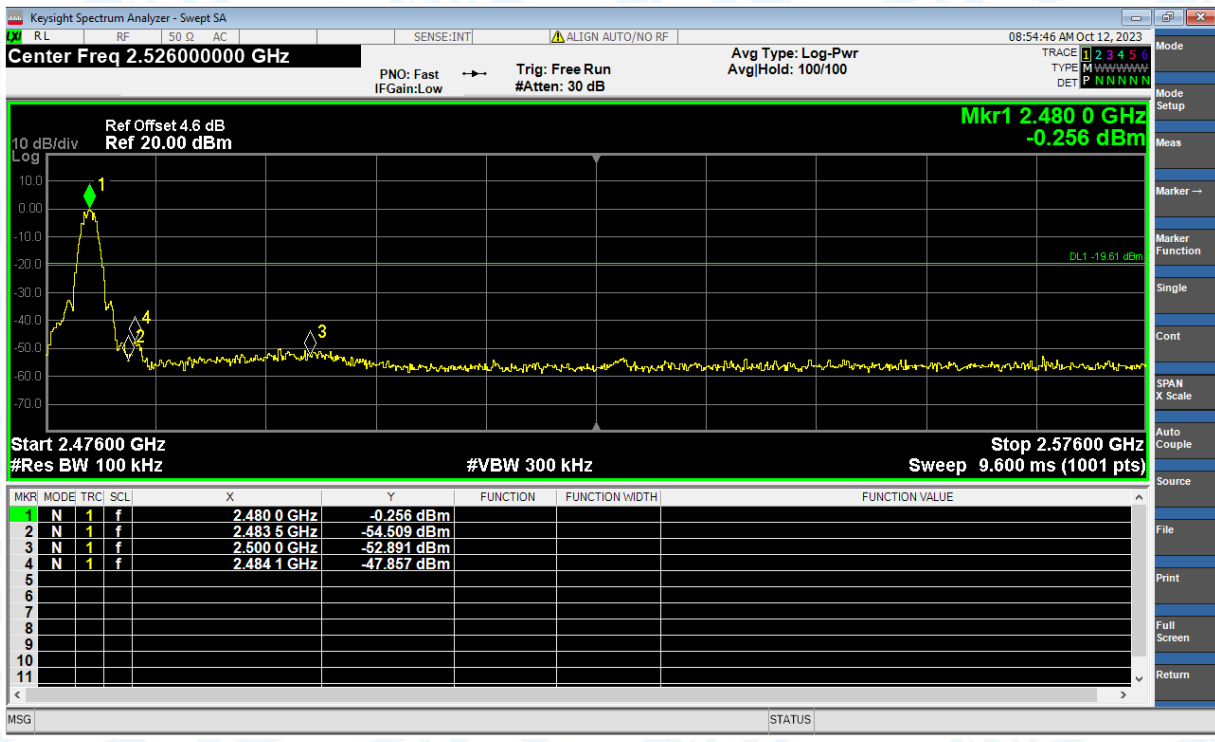




Band Edge NVNT BLE 2Mbps 2480MHz Ant1 Ref



Band Edge NVNT BLE 2Mbps 2480MHz Ant1 Emission



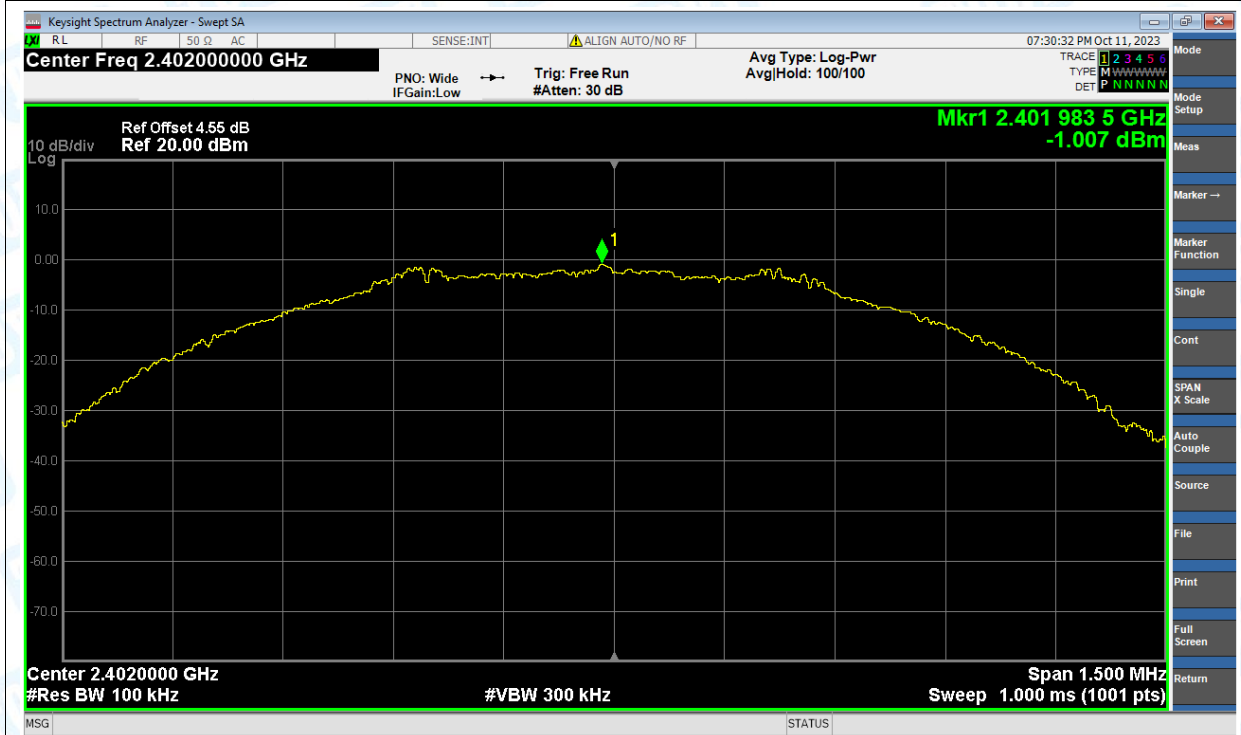
## 7. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-39.75	-20	Pass
NVNT	BLE 1Mbps	2440	Ant1	-38.85	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-41.02	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-37.98	-20	Pass
NVNT	BLE 2Mbps	2440	Ant1	-39.03	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-41.03	-20	Pass

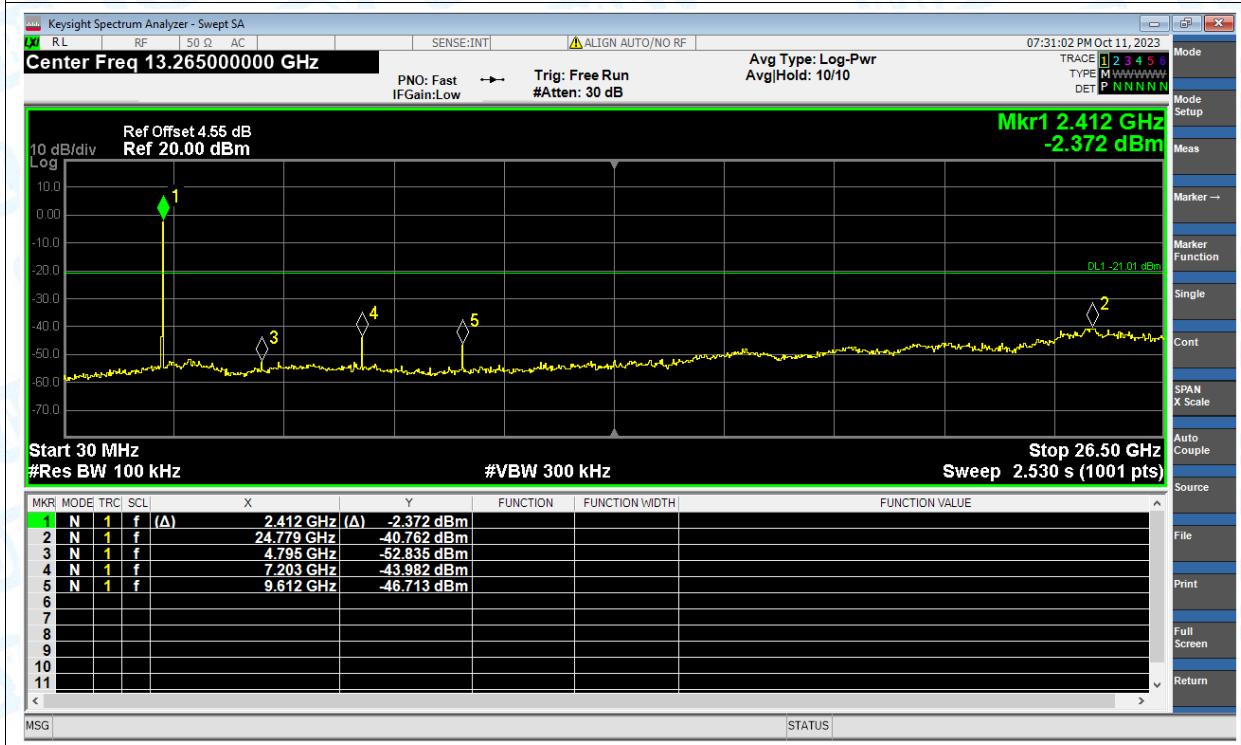


Test Graphs

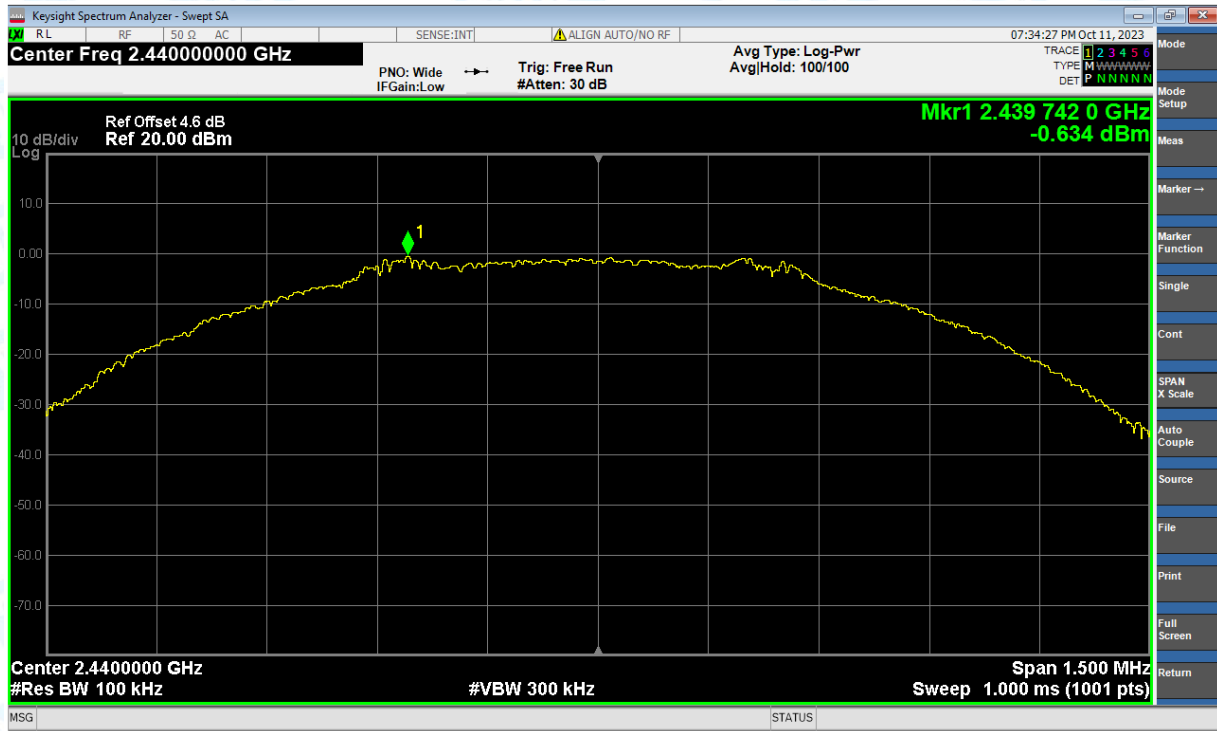
Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Ref



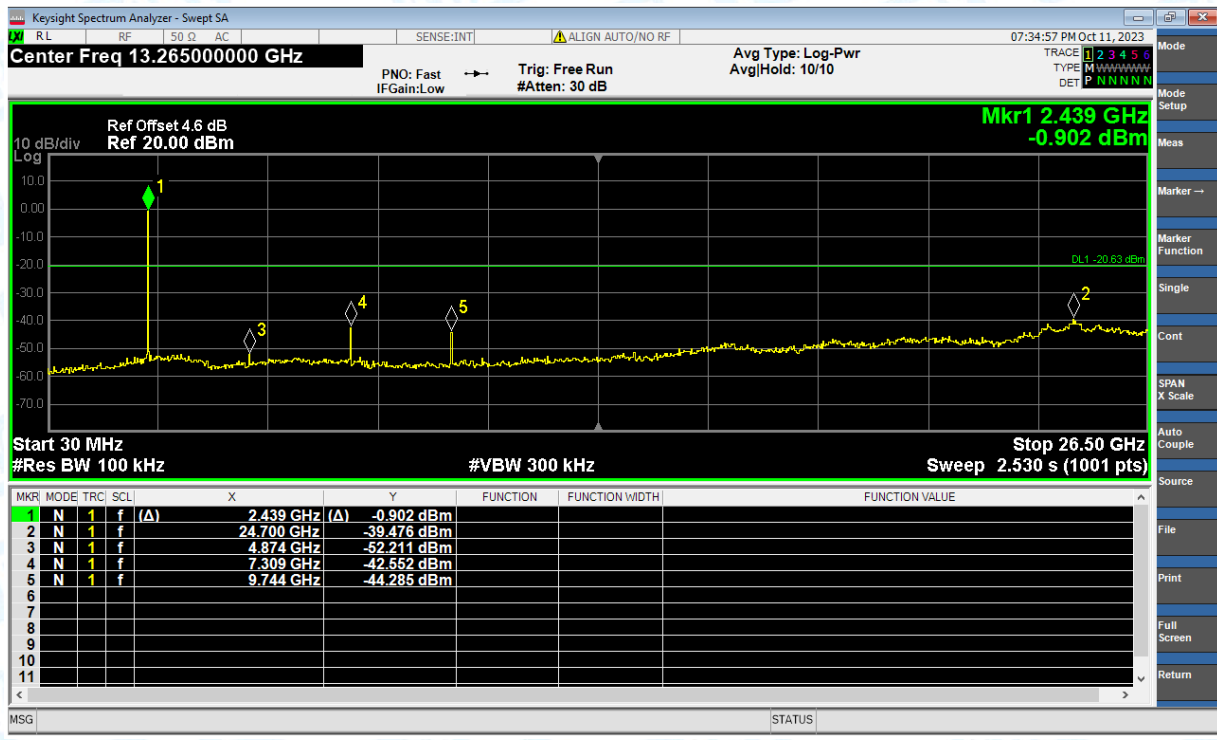
Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Emission



Tx. Spurious NVNT BLE 1Mbps 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 1Mbps 2440MHz Ant1 Emission

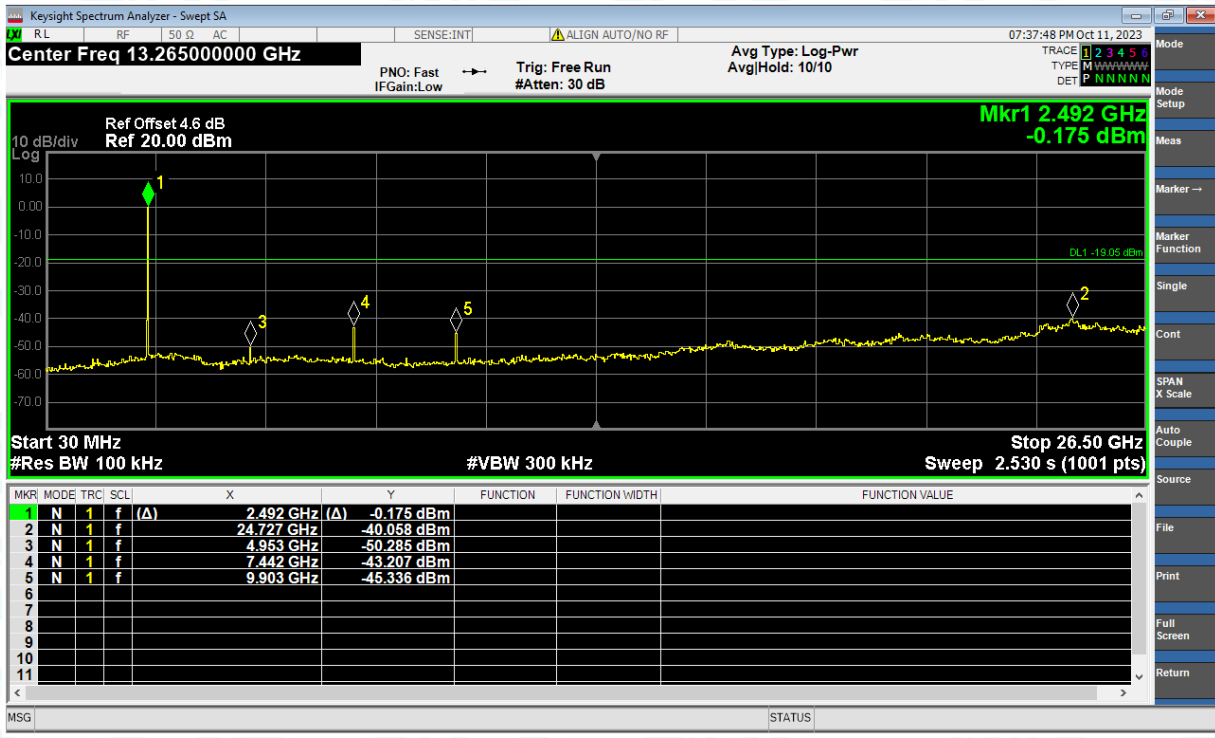


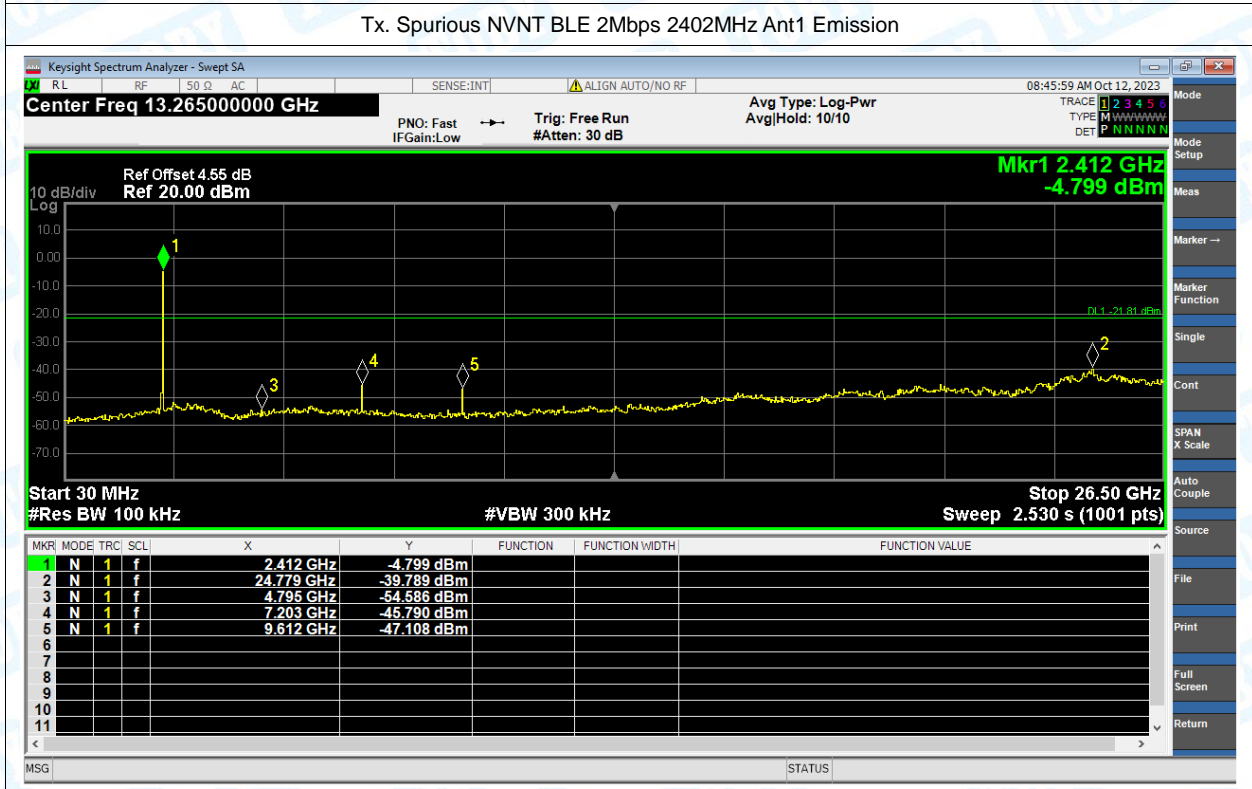
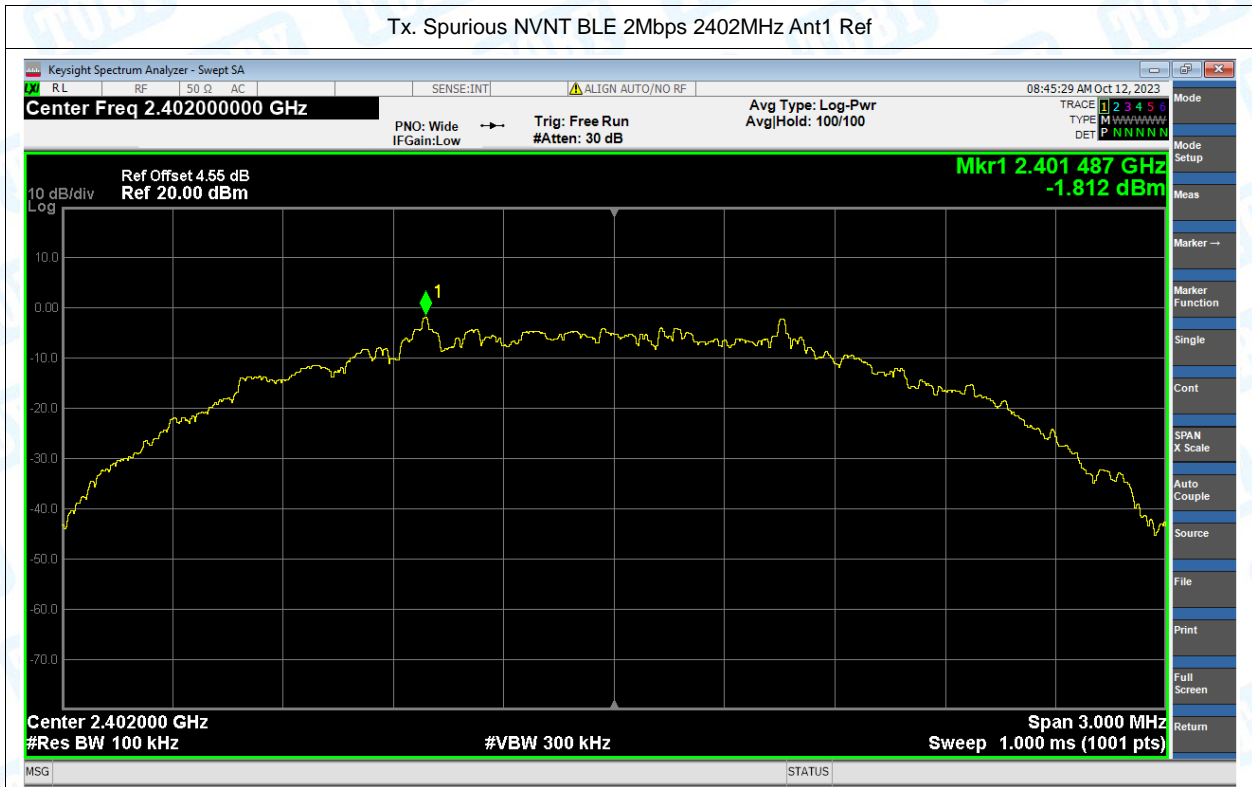


Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Ref



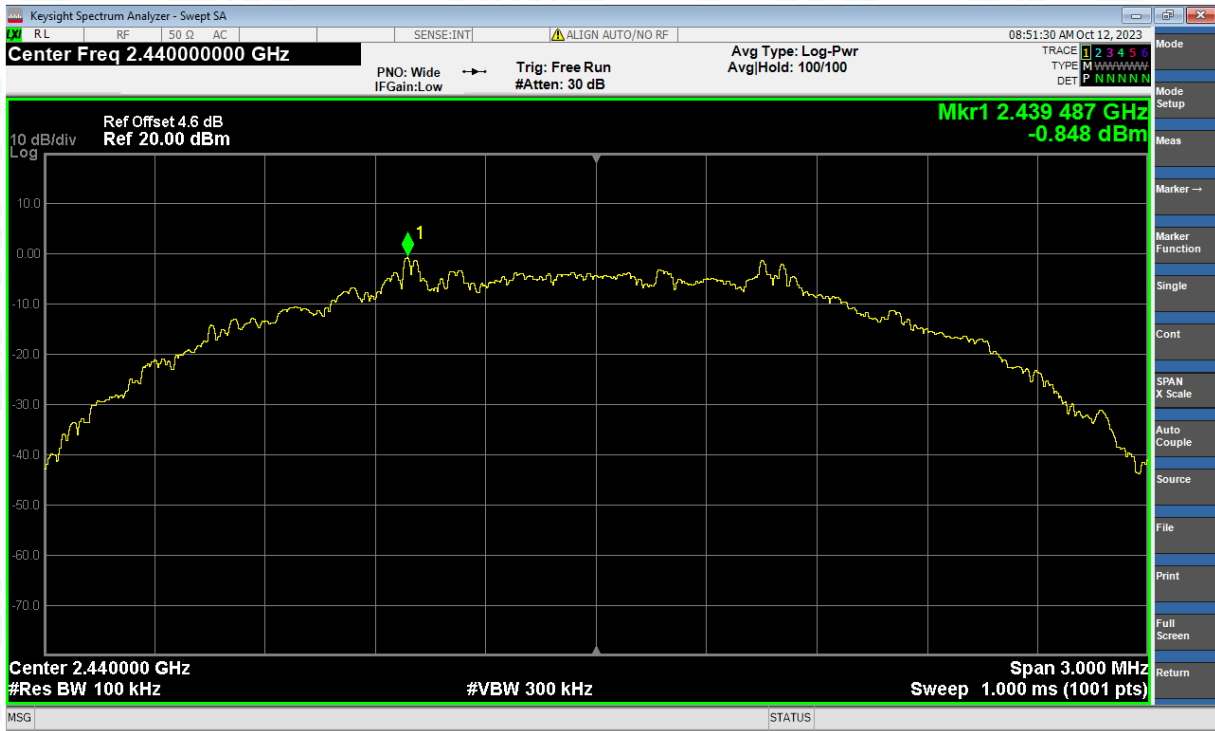
Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Emission



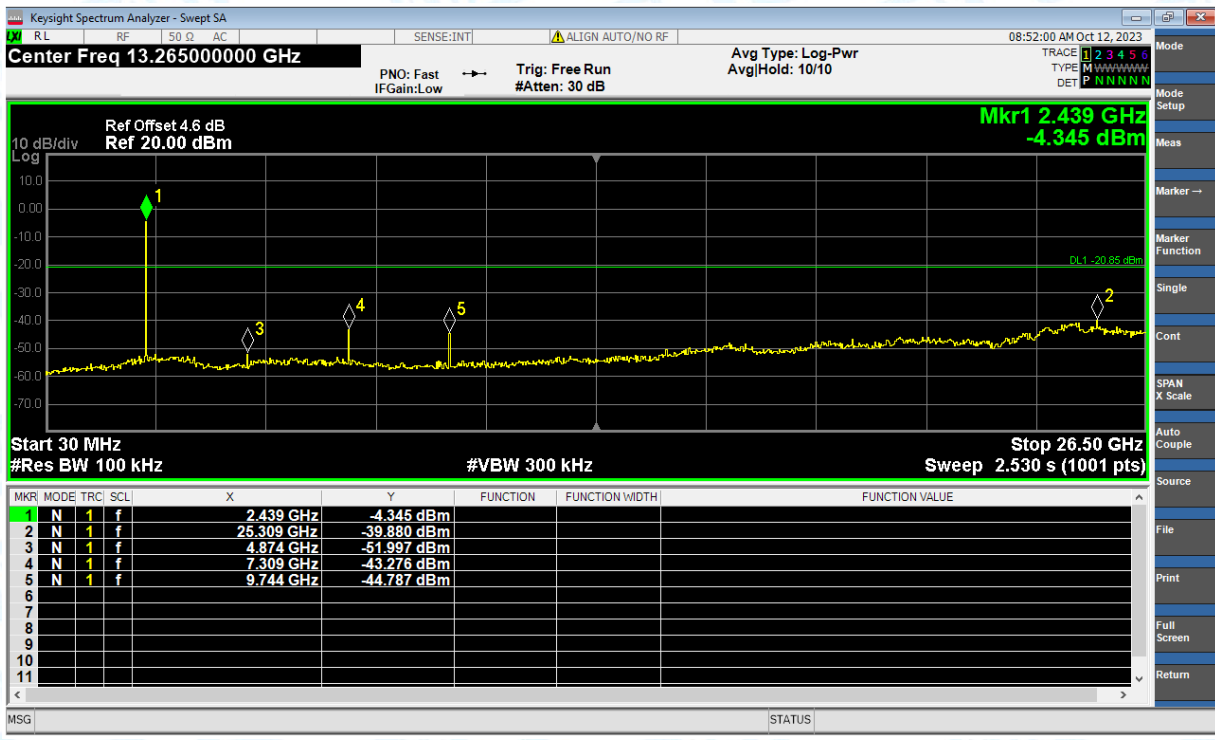




Tx. Spurious NVNT BLE 2Mbps 2440MHz Ant1 Ref



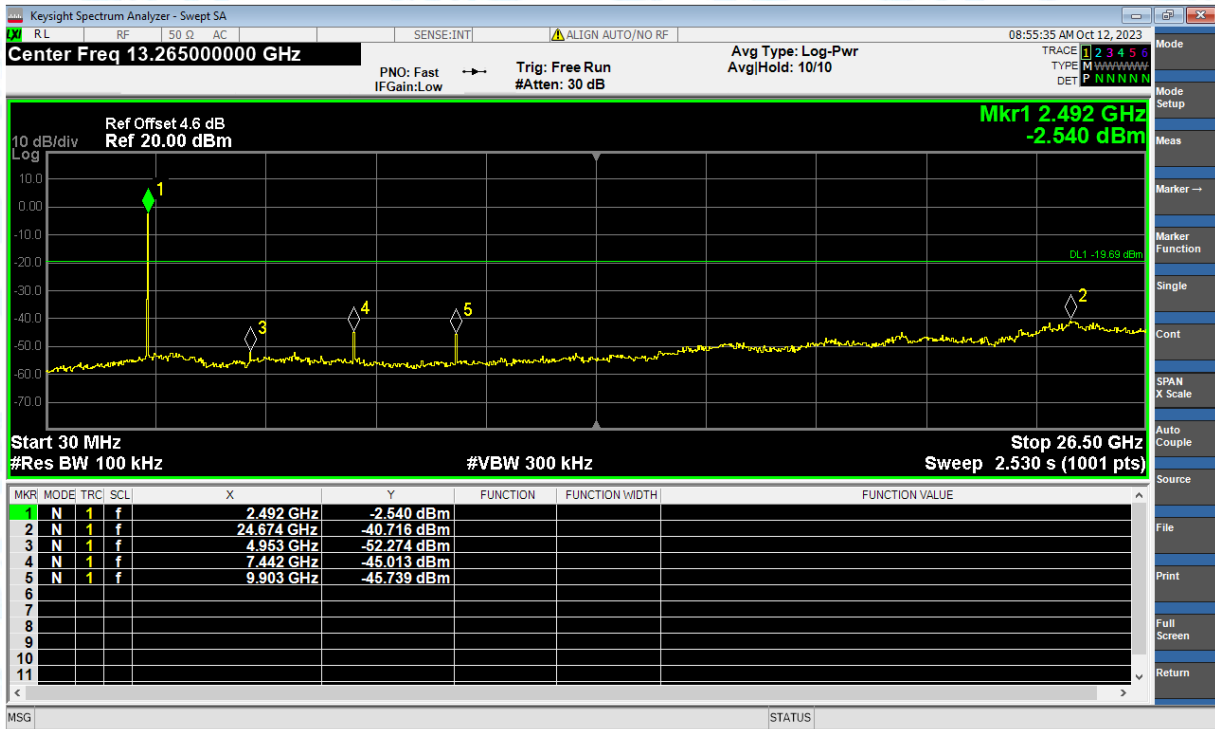
Tx. Spurious NVNT BLE 2Mbps 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Emission



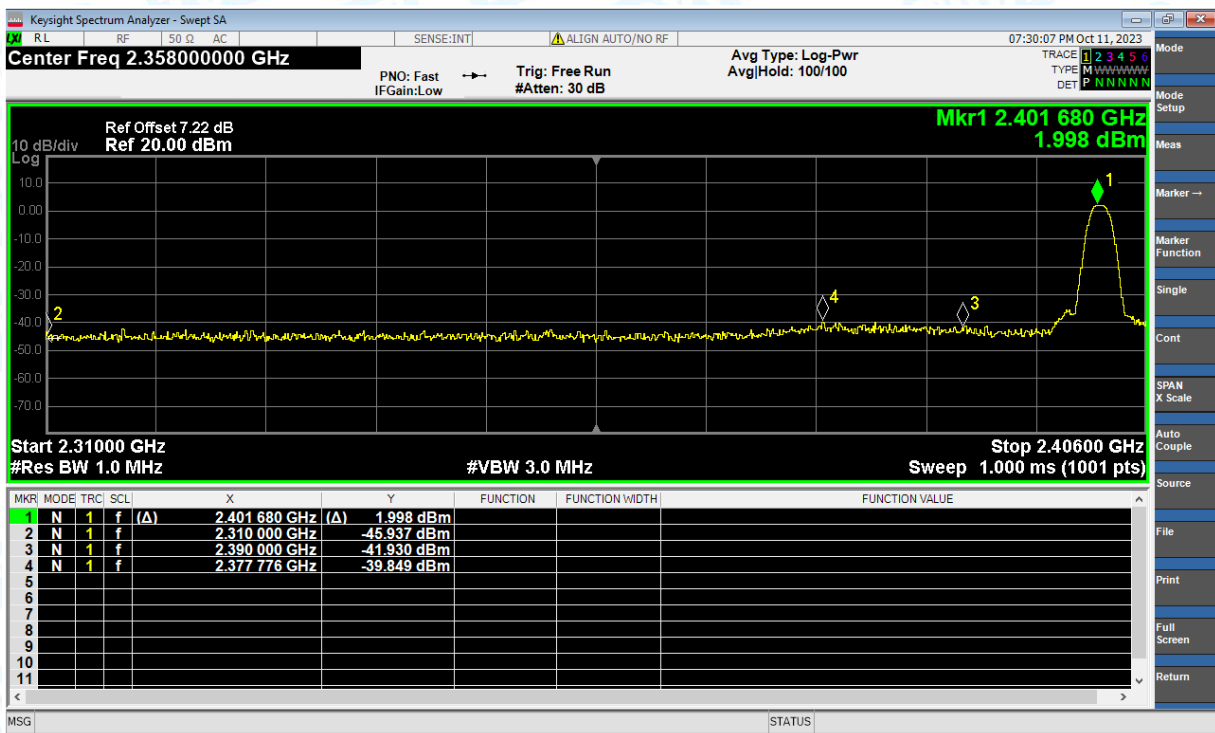


## 8. Restrict Band

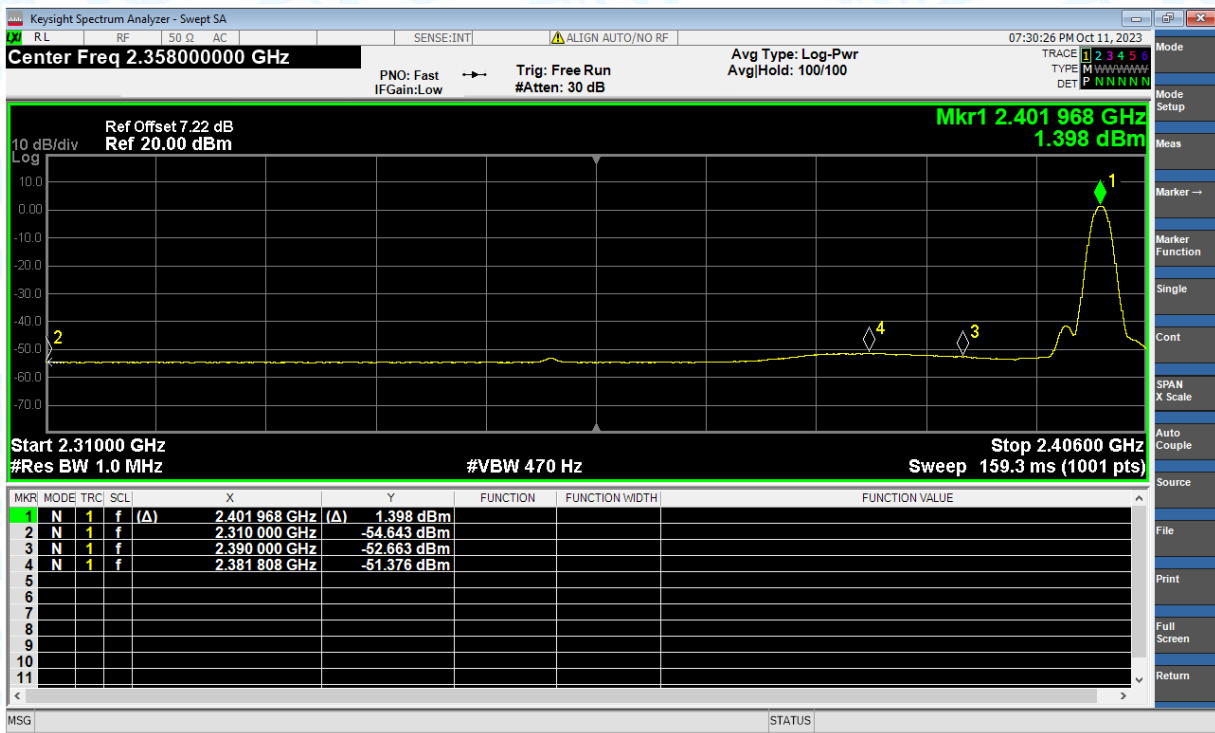
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	2310	-45.94	2.41	51.73	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2310	-54.64	2.41	43.03	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2377.776	-39.85	2.41	57.82	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2381.808	-51.38	2.41	46.29	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-42.94	2.41	54.73	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-52.62	2.41	45.05	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-37.12	2.41	60.55	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-44.58	2.41	53.09	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.536	-35.89	2.41	61.78	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.512	-44.58	2.41	53.09	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-38.99	2.41	58.68	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-49.52	2.41	48.15	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-45.71	2.41	51.96	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-54.74	2.41	42.93	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2380.08	-40.6	2.41	57.07	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2379.6	-51.25	2.41	46.42	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-43.95	2.41	53.72	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-52.68	2.41	44.99	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-36.56	2.41	61.11	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-47.67	2.41	50	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.512	-36.56	2.41	61.11	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.944	-46.58	2.41	51.09	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2500	-39.29	2.41	58.38	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2500	-49.54	2.41	48.13	Average	54	Pass

Test Graphs

Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Peak

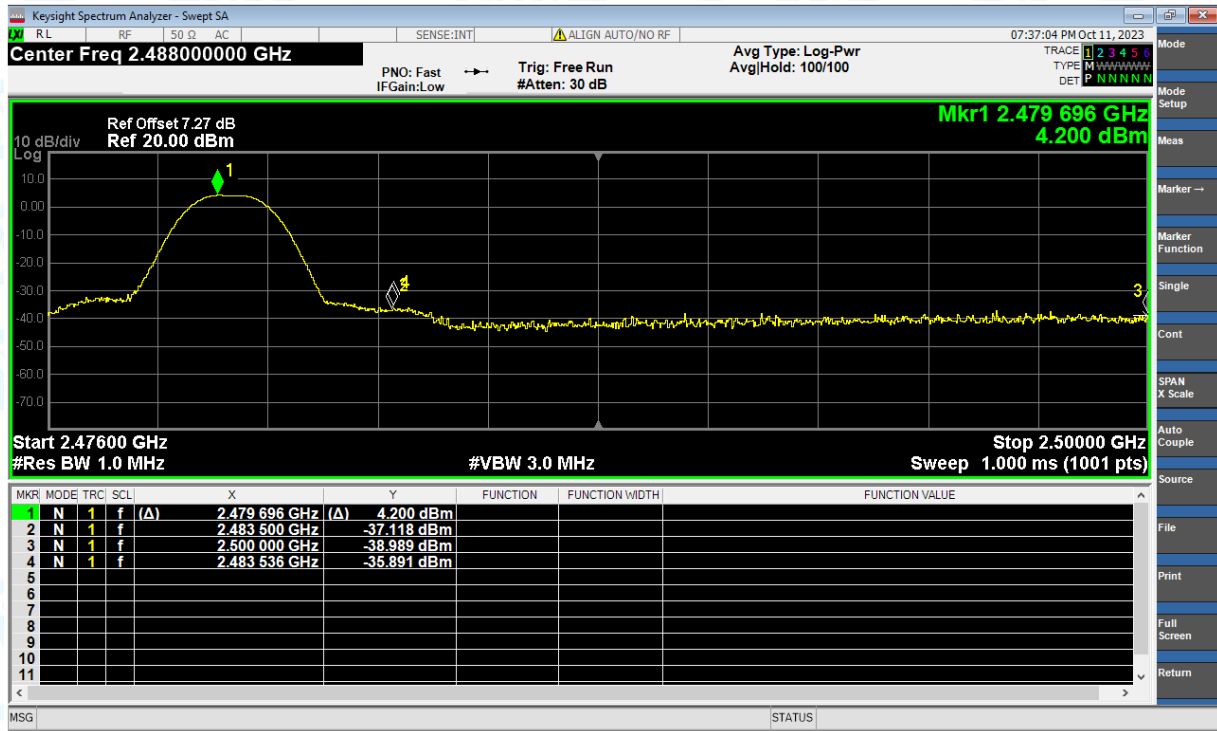


Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Average

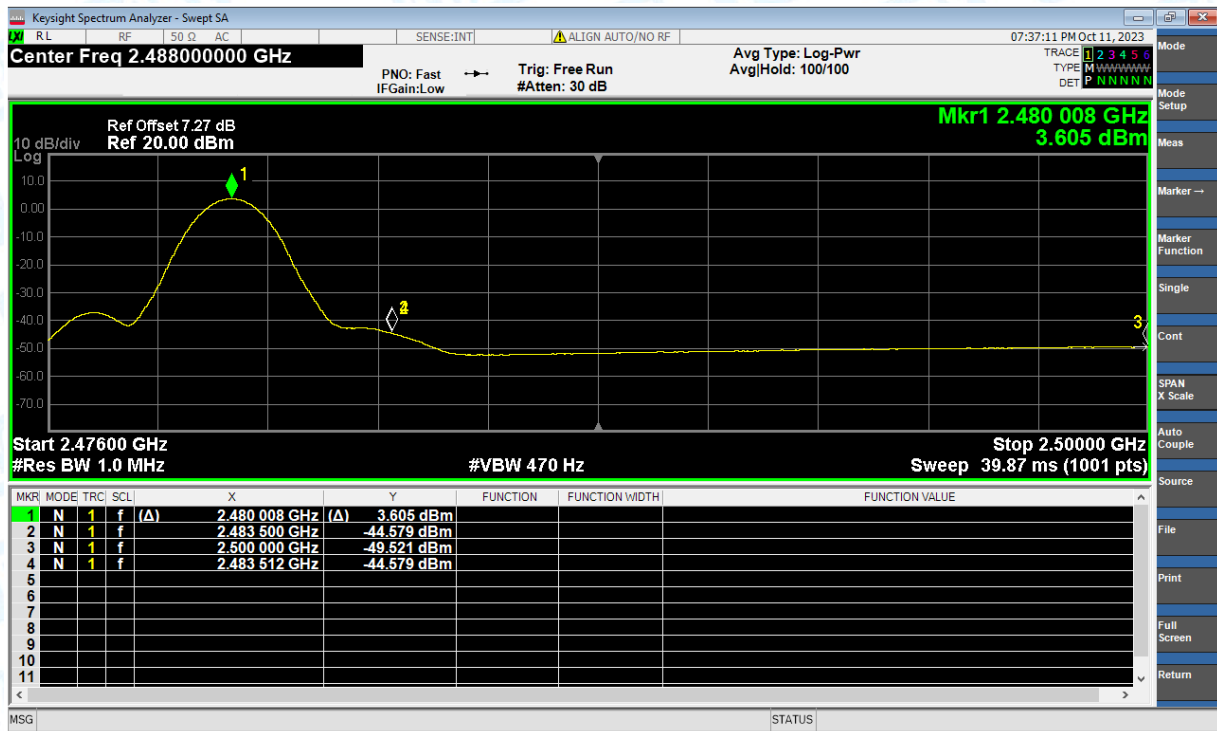




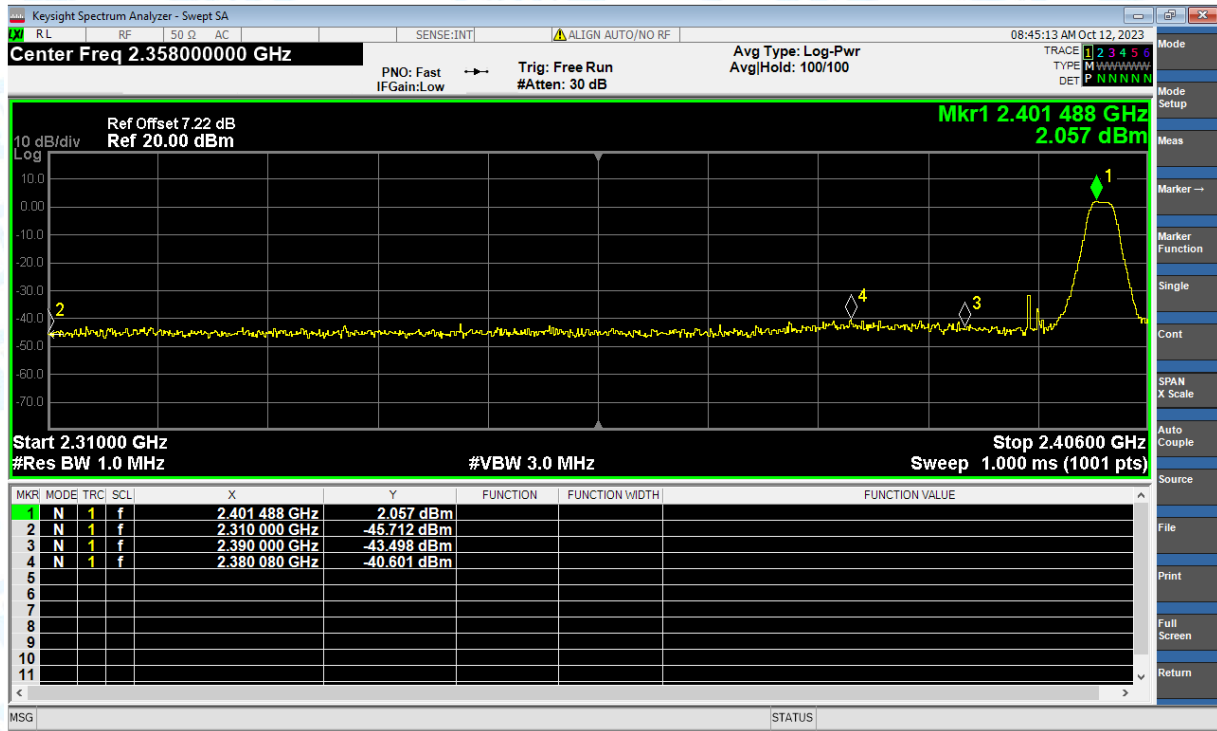
Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Peak



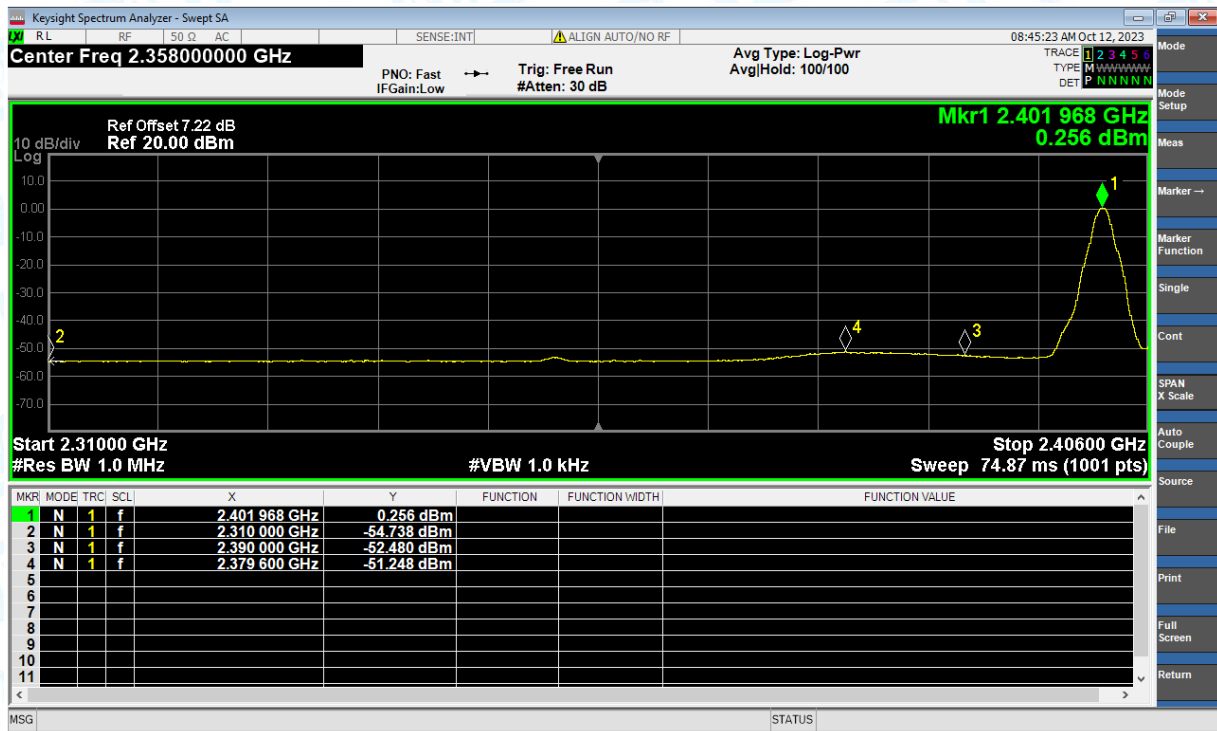
Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Average



Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Peak

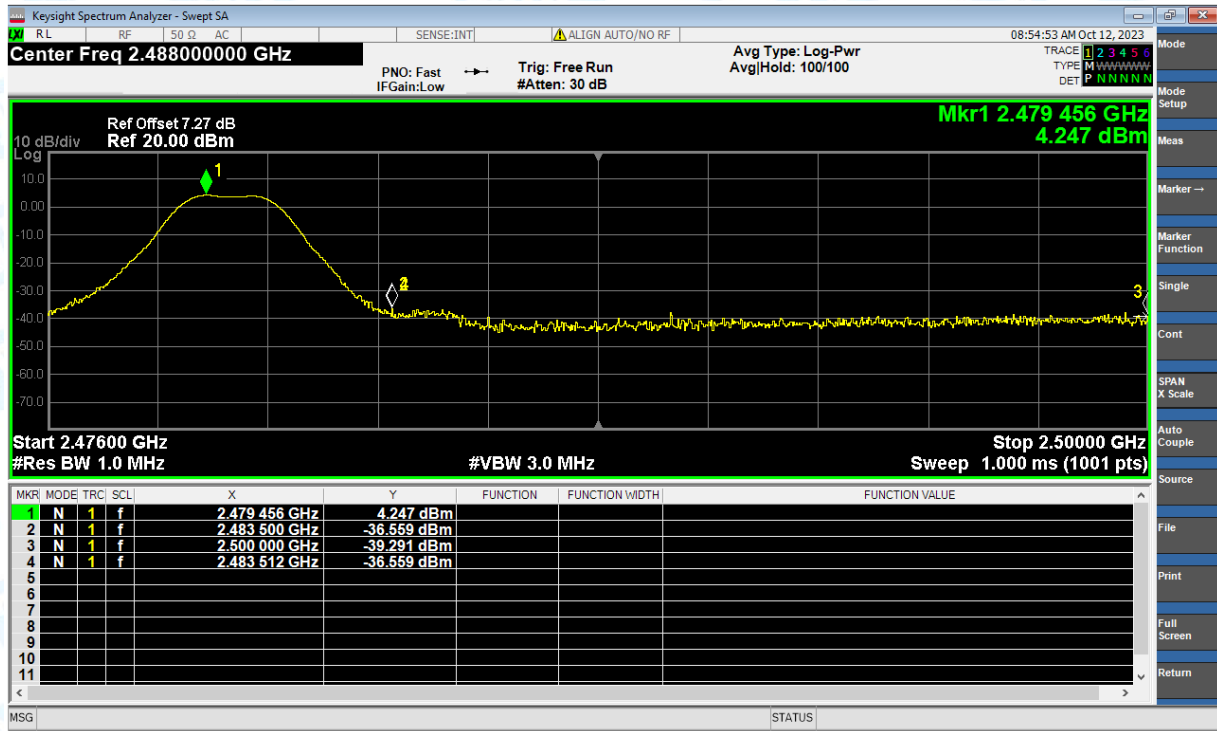


Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Average

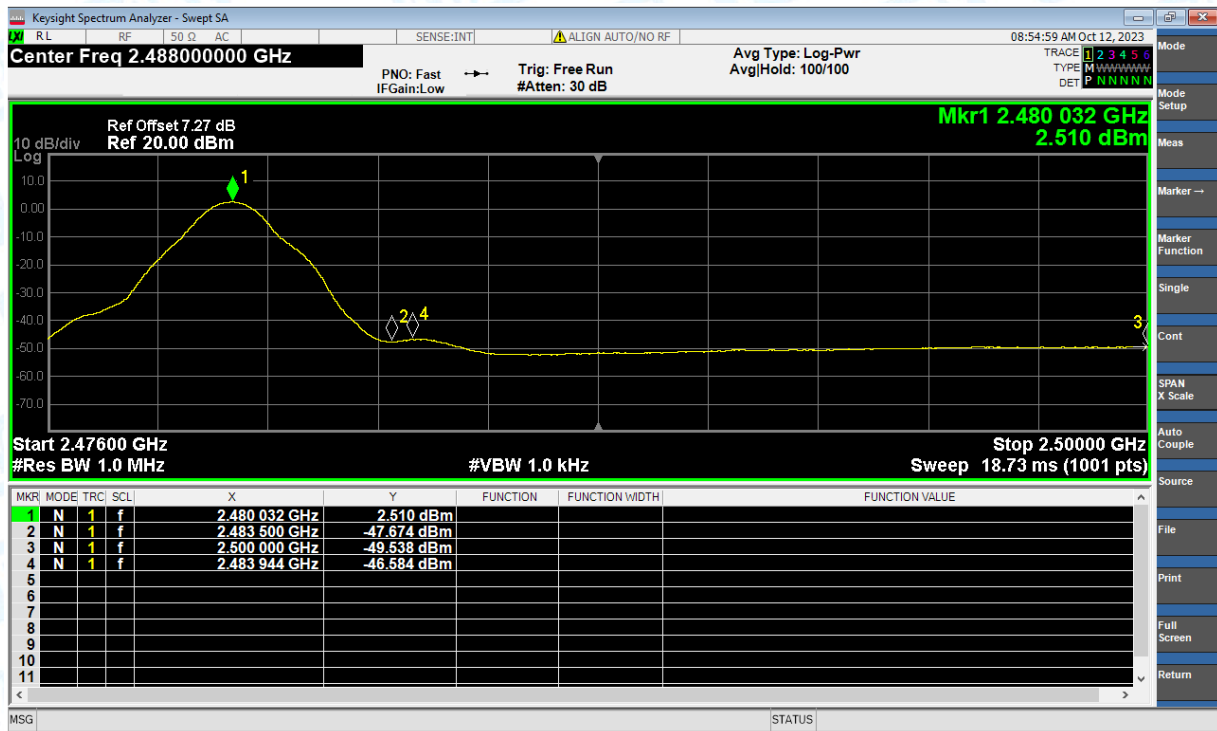




Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Average



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