

# RF Test Data for Bluetooth LE (Conducted Measurements)

<b>General Description of EUT</b>	
<b>Product Name:</b>	RUGGEDIZED HAND-HELD DEVICE
<b>Test Model:</b>	CHAMELEON 5R V2 DUAL
<b>Sample ID:</b>	202202_0108-01-4
<b>Environmental Conditions</b>	
<b>Temperature:</b>	25°C
<b>Relative Humidity:</b>	55%
<b>Test Voltage:</b>	DC 3.85V
<b>Test Engineer:</b>	Huang jian ping
Note: For a more detailed features description, please refer to the report TBR-C-202202-0108-141	

## Contents

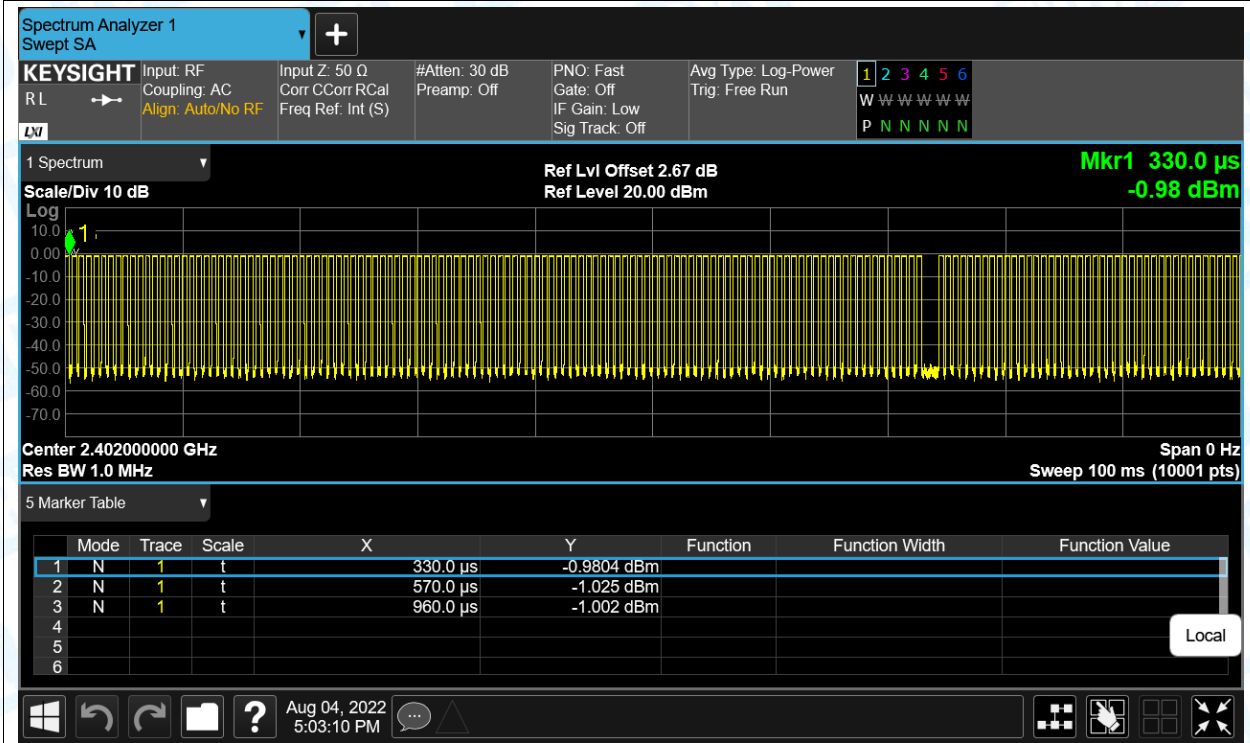
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## 1. Duty Cycle

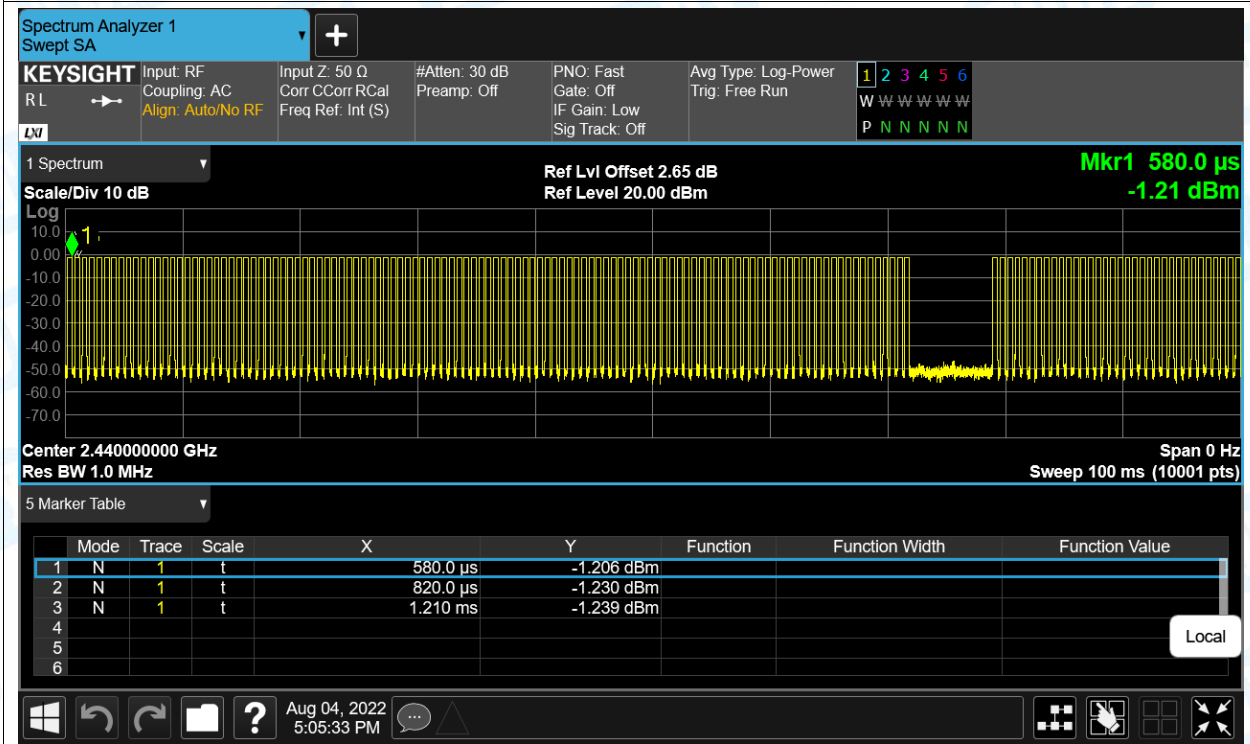
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1Mbps	2402	Ant1	63.2	1.99	2.56
NVNT	BLE 1Mbps	2440	Ant1	59.59	2.25	2.56
NVNT	BLE 1Mbps	2480	Ant1	56.33	2.49	2.56
NVNT	BLE 2Mbps	2402	Ant1	34.76	4.59	4.76
NVNT	BLE 2Mbps	2440	Ant1	30.96	5.09	4.76
NVNT	BLE 2Mbps	2480	Ant1	34.76	4.59	4.76

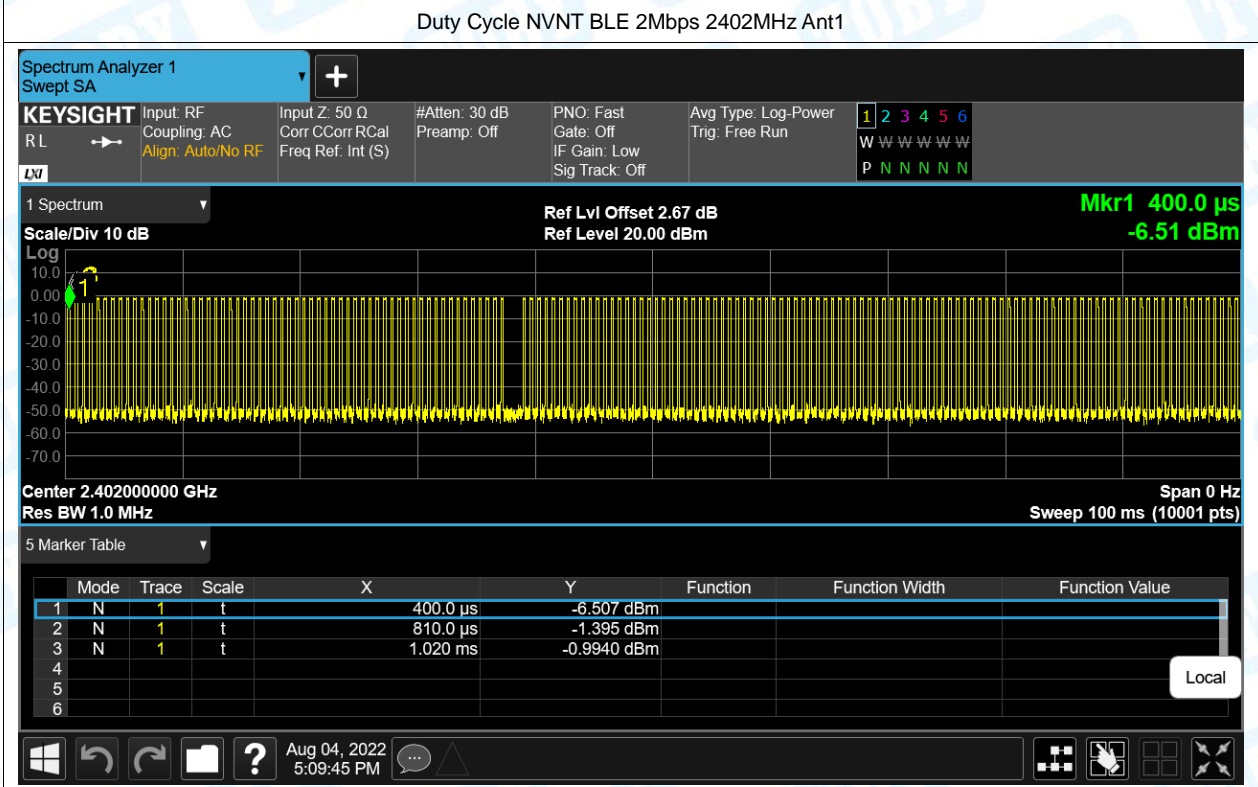
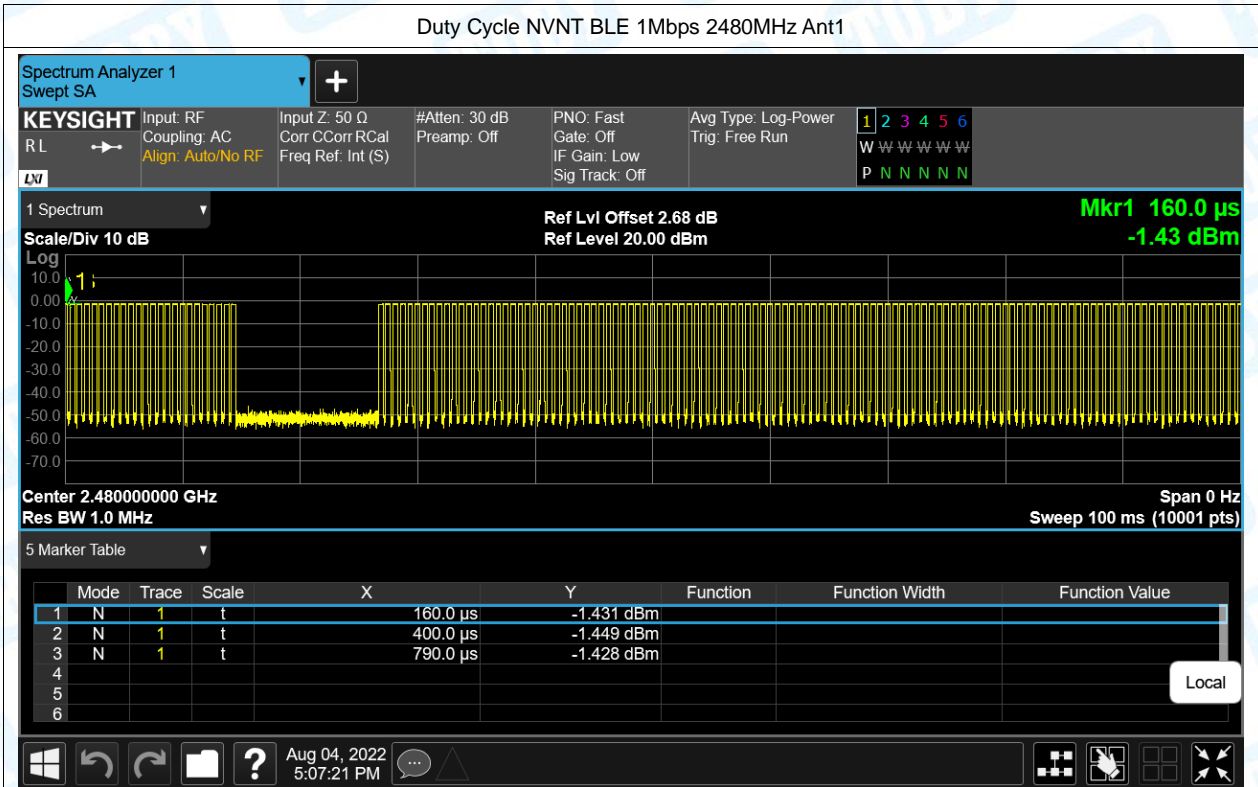
Test Graphs

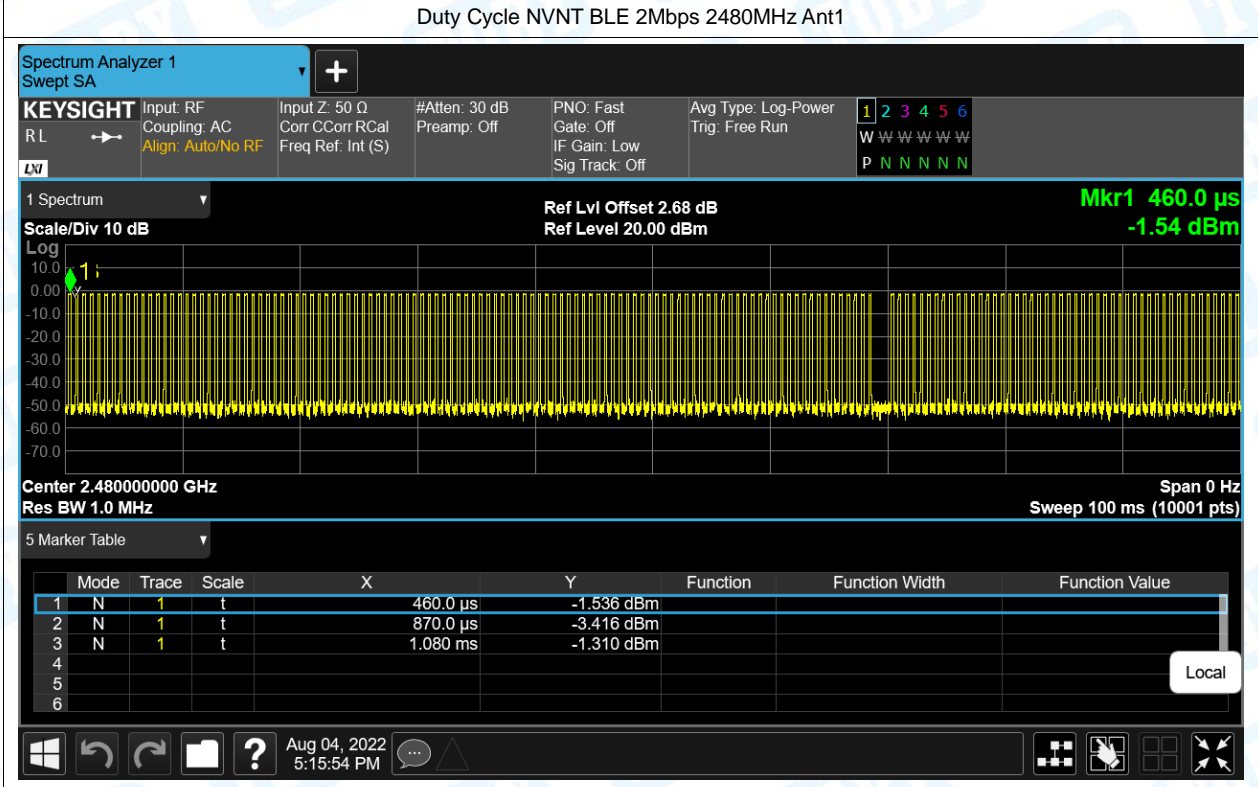
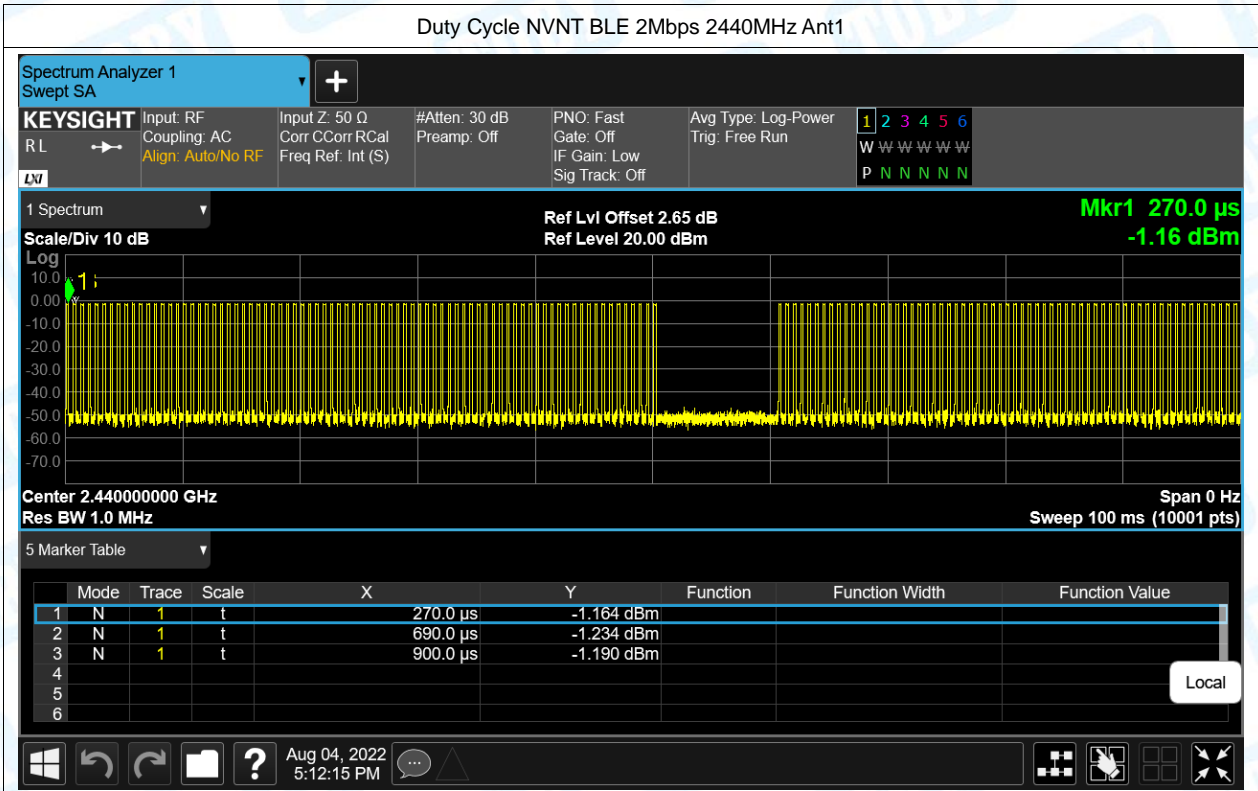
Duty Cycle NVNT BLE 1Mbps 2402MHz Ant1



Duty Cycle NVNT BLE 1Mbps 2440MHz Ant1

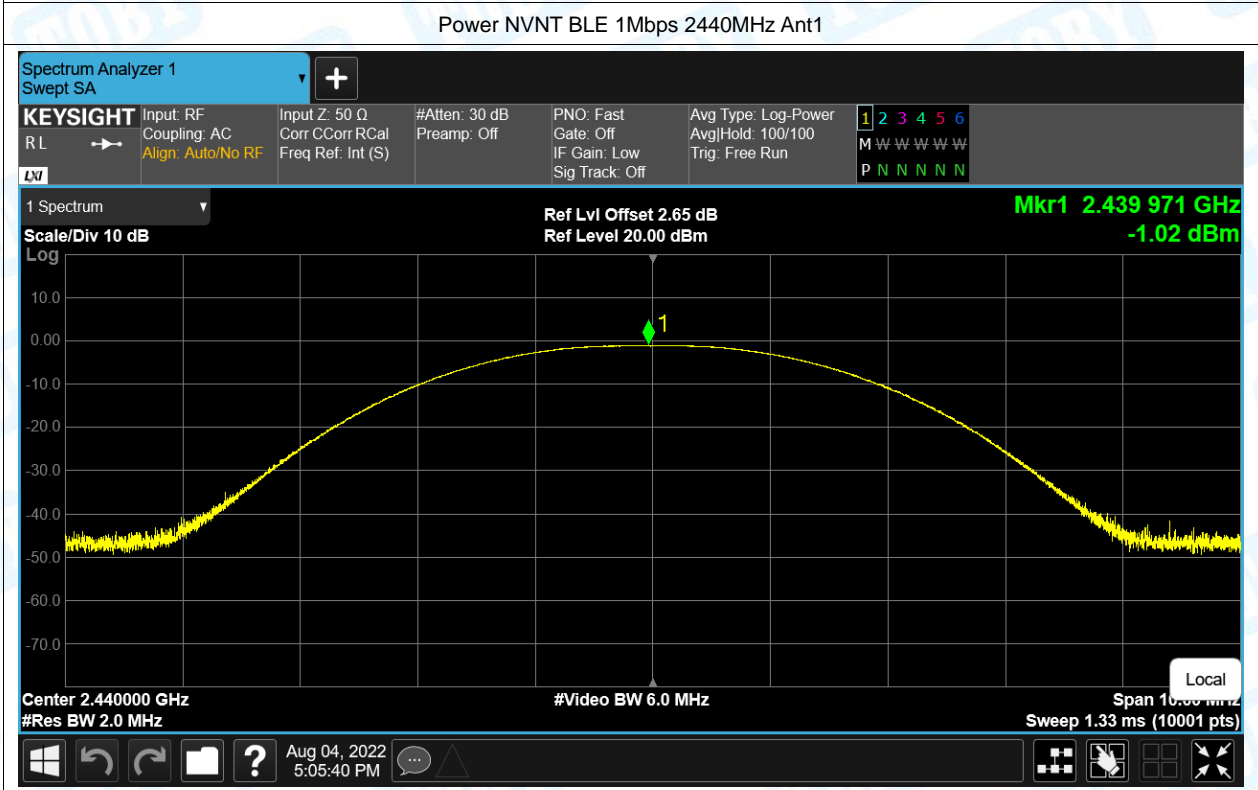
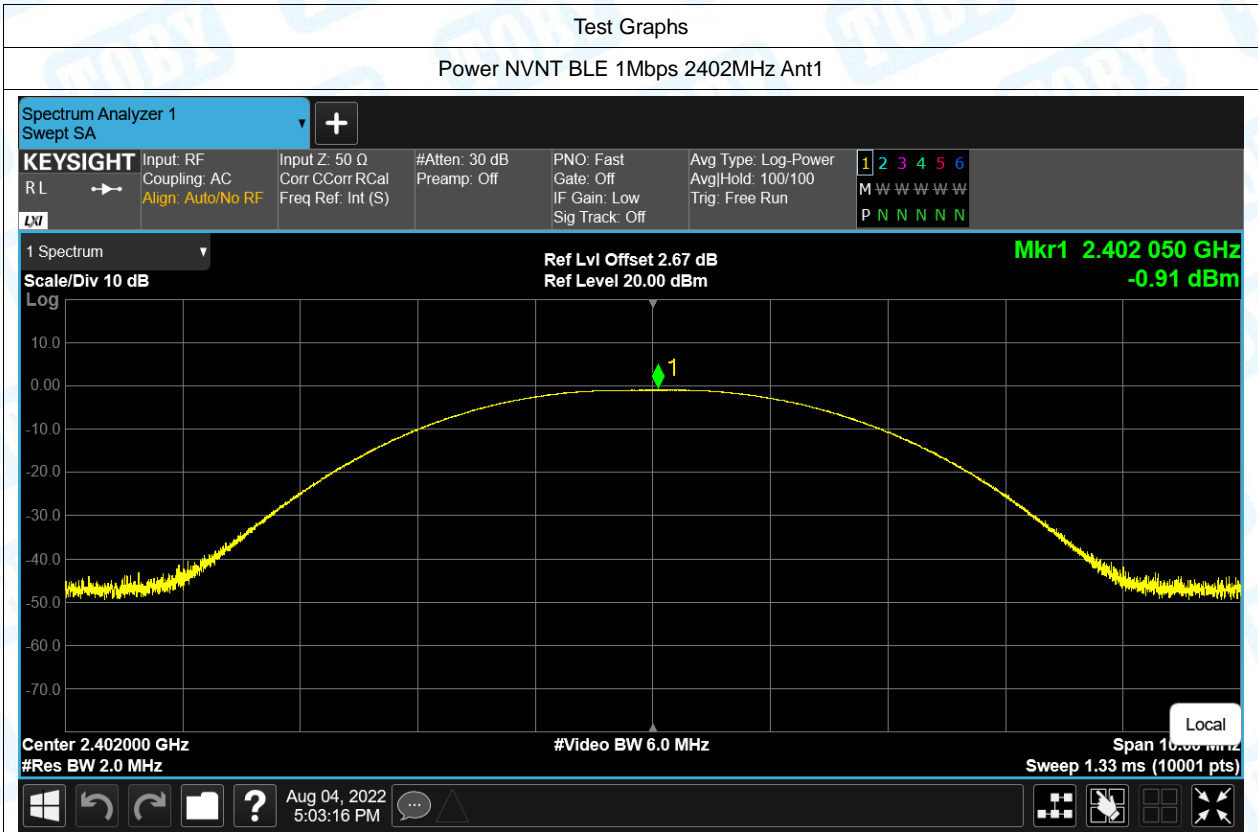






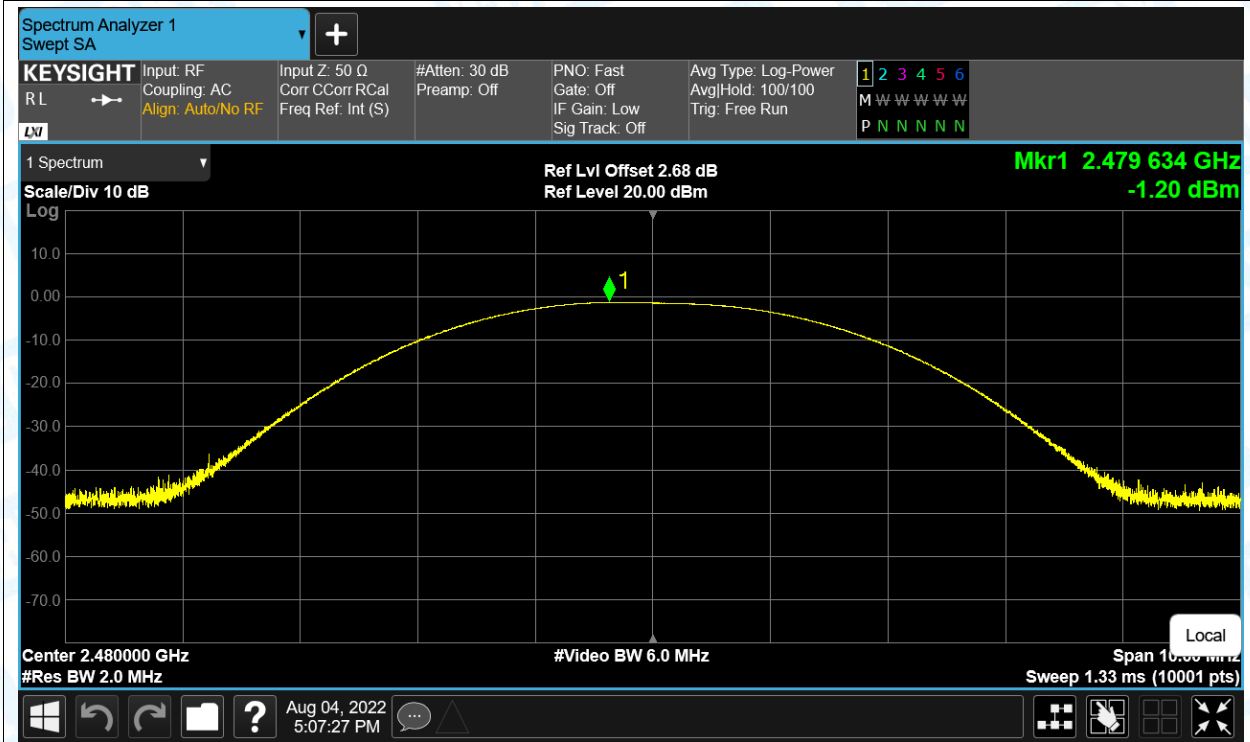
## 2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-0.909	30	Pass
NVNT	BLE 1Mbps	2440	Ant1	-1.018	30	Pass
NVNT	BLE 1Mbps	2480	Ant1	-1.2	30	Pass
NVNT	BLE 2Mbps	2402	Ant1	-0.868	30	Pass
NVNT	BLE 2Mbps	2440	Ant1	-1.056	30	Pass
NVNT	BLE 2Mbps	2480	Ant1	-0.98	30	Pass

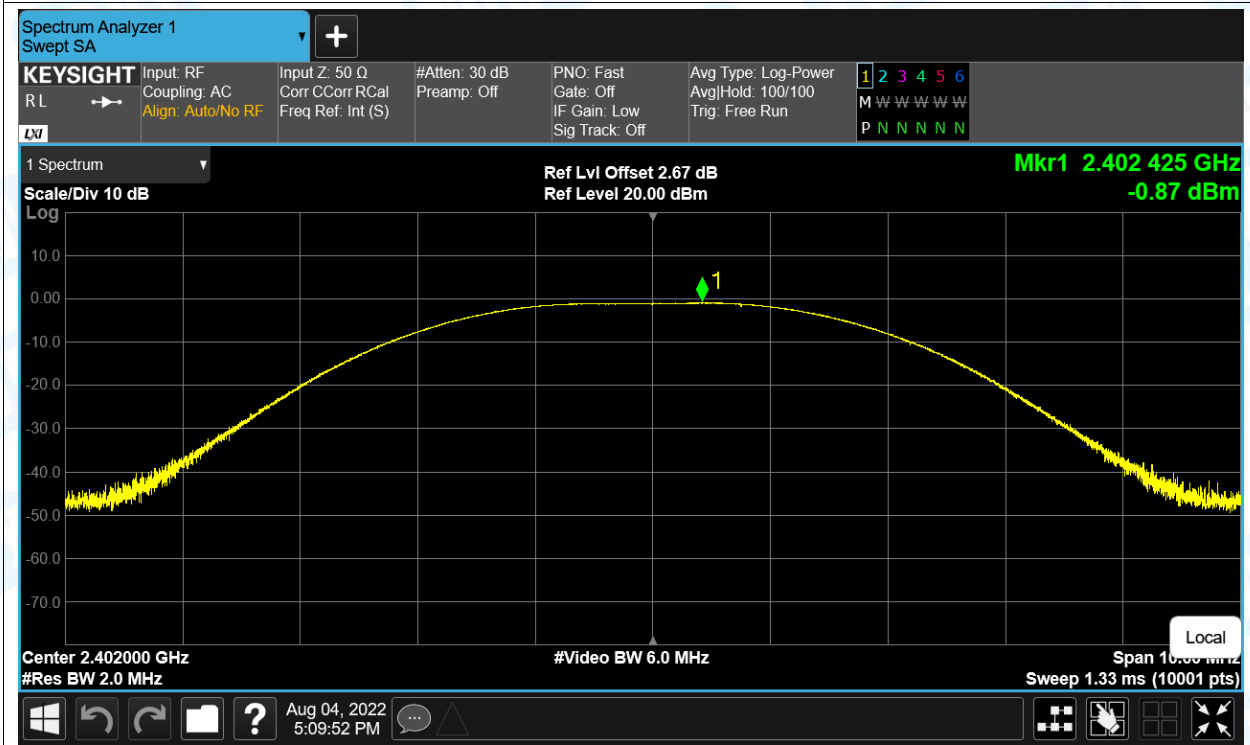




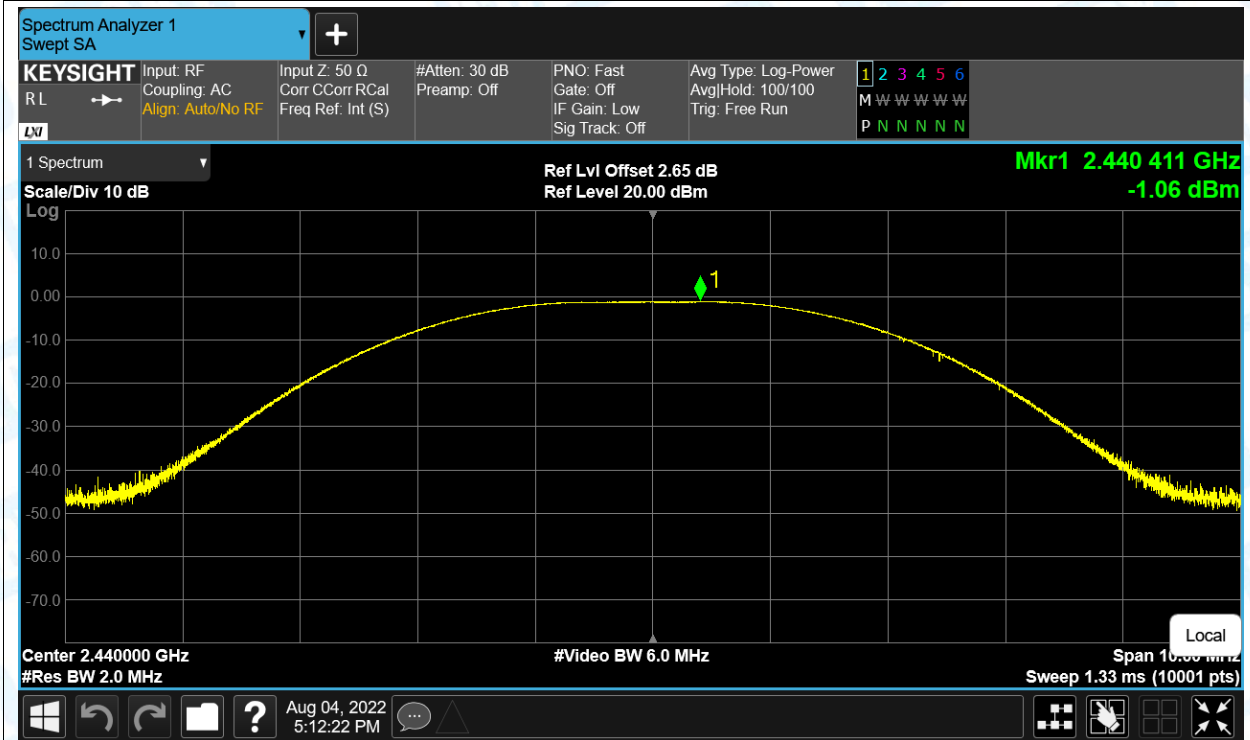
Power NVNT BLE 1Mbps 2480MHz Ant1



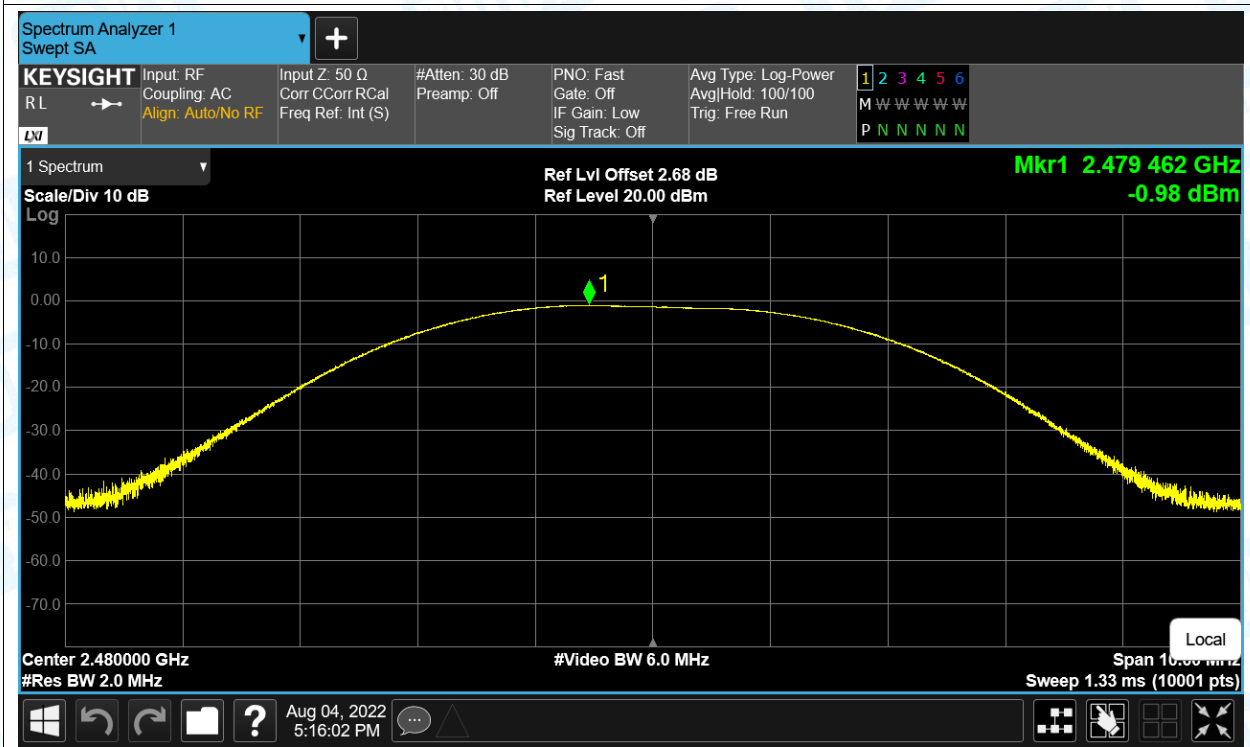
Power NVNT BLE 2Mbps 2402MHz Ant1



Power NVNT BLE 2Mbps 2440MHz Ant1



Power NVNT BLE 2Mbps 2480MHz Ant1

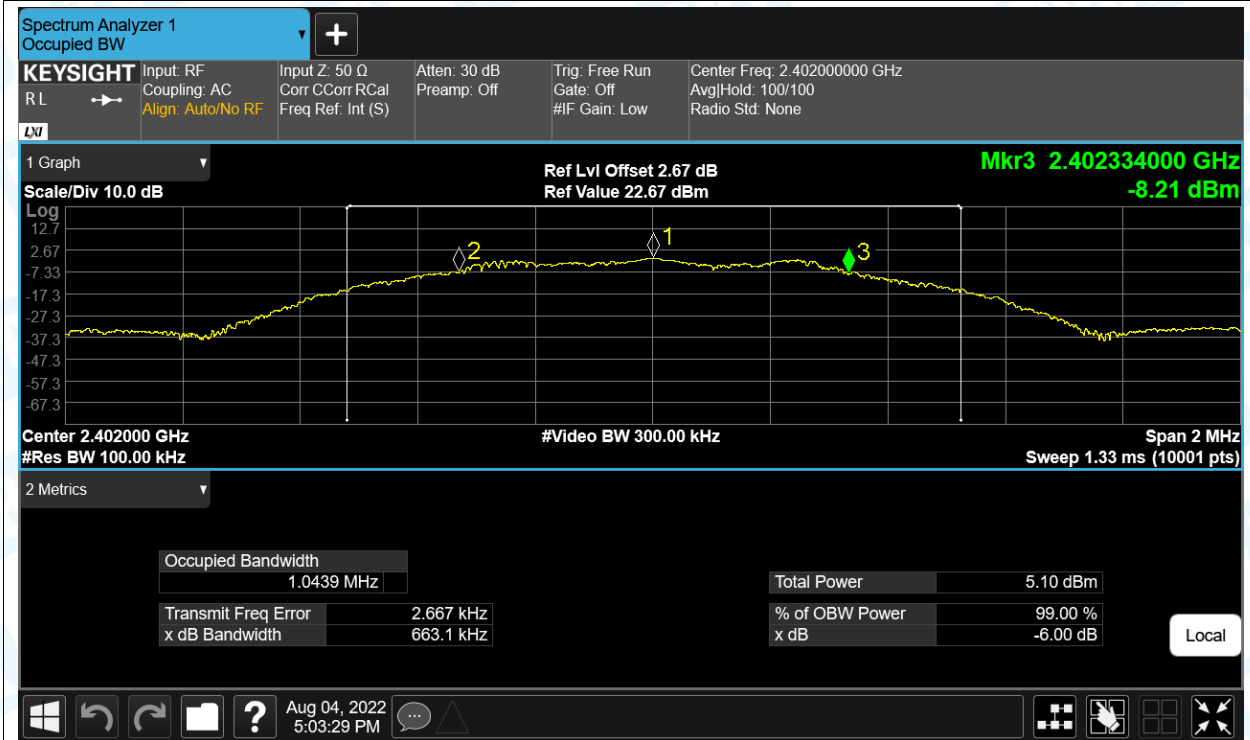


### 3. -6dB Bandwidth

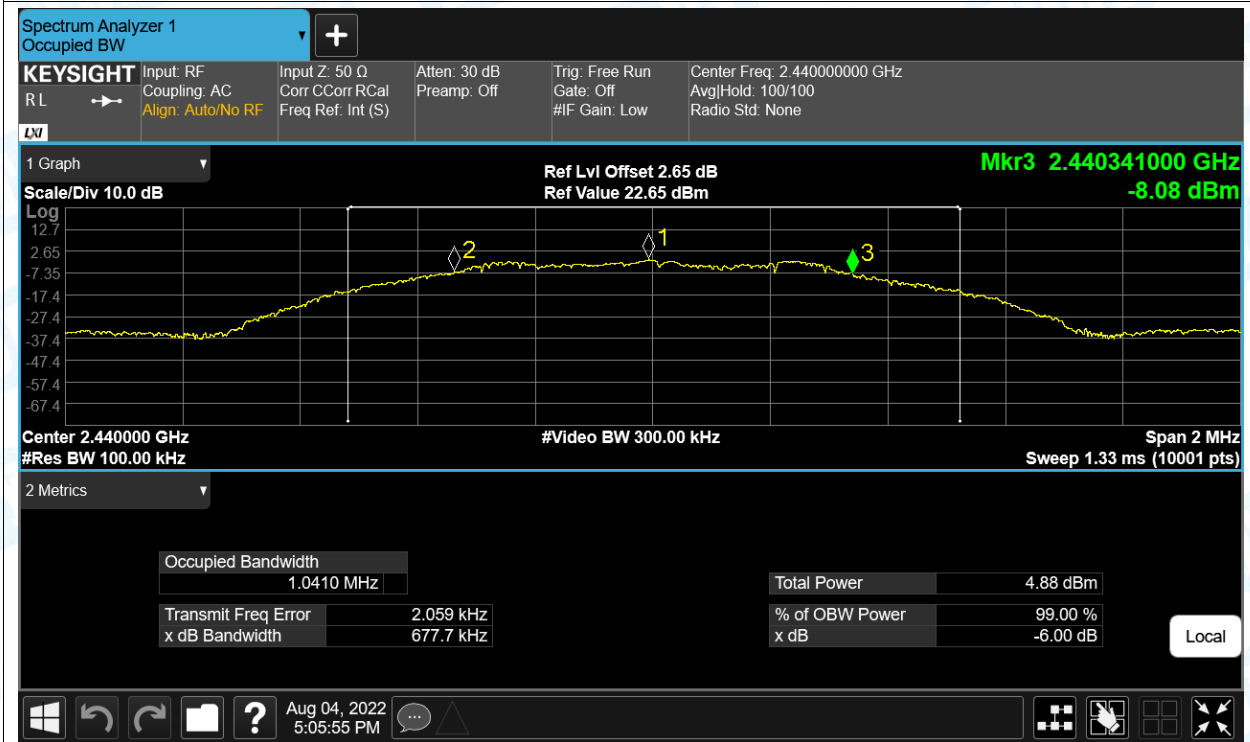
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	0.66	0.5	Pass
NVNT	BLE 1Mbps	2440	Ant1	0.68	0.5	Pass
NVNT	BLE 1Mbps	2480	Ant1	0.68	0.5	Pass
NVNT	BLE 2Mbps	2402	Ant1	1.12	0.5	Pass
NVNT	BLE 2Mbps	2440	Ant1	1.23	0.5	Pass
NVNT	BLE 2Mbps	2480	Ant1	1.24	0.5	Pass

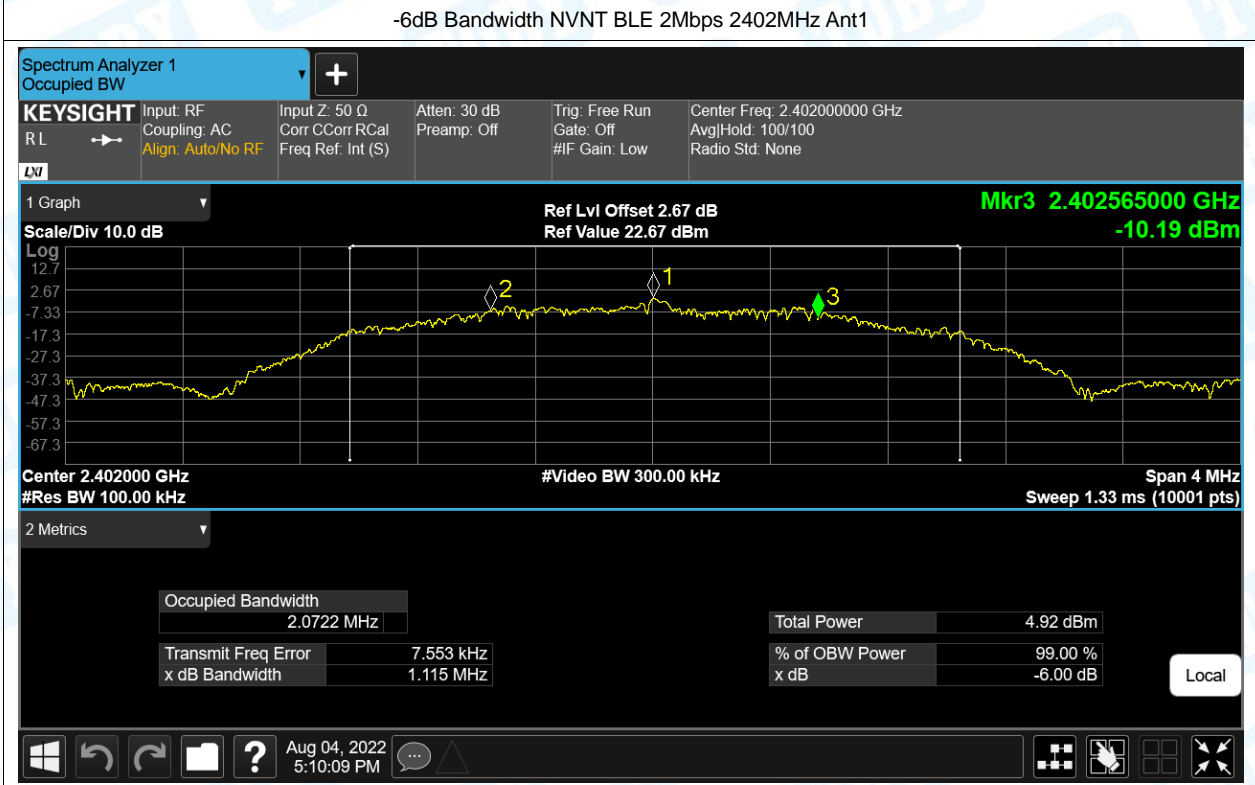
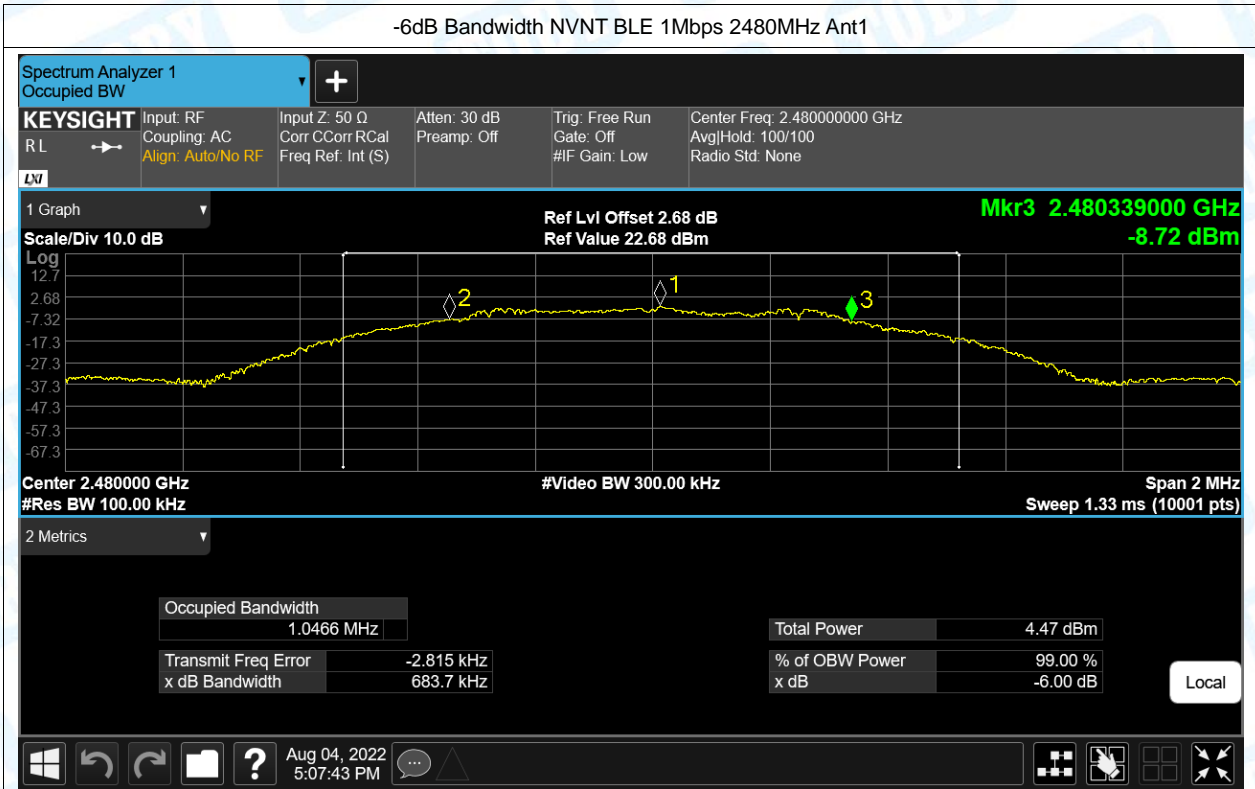
Test Graphs

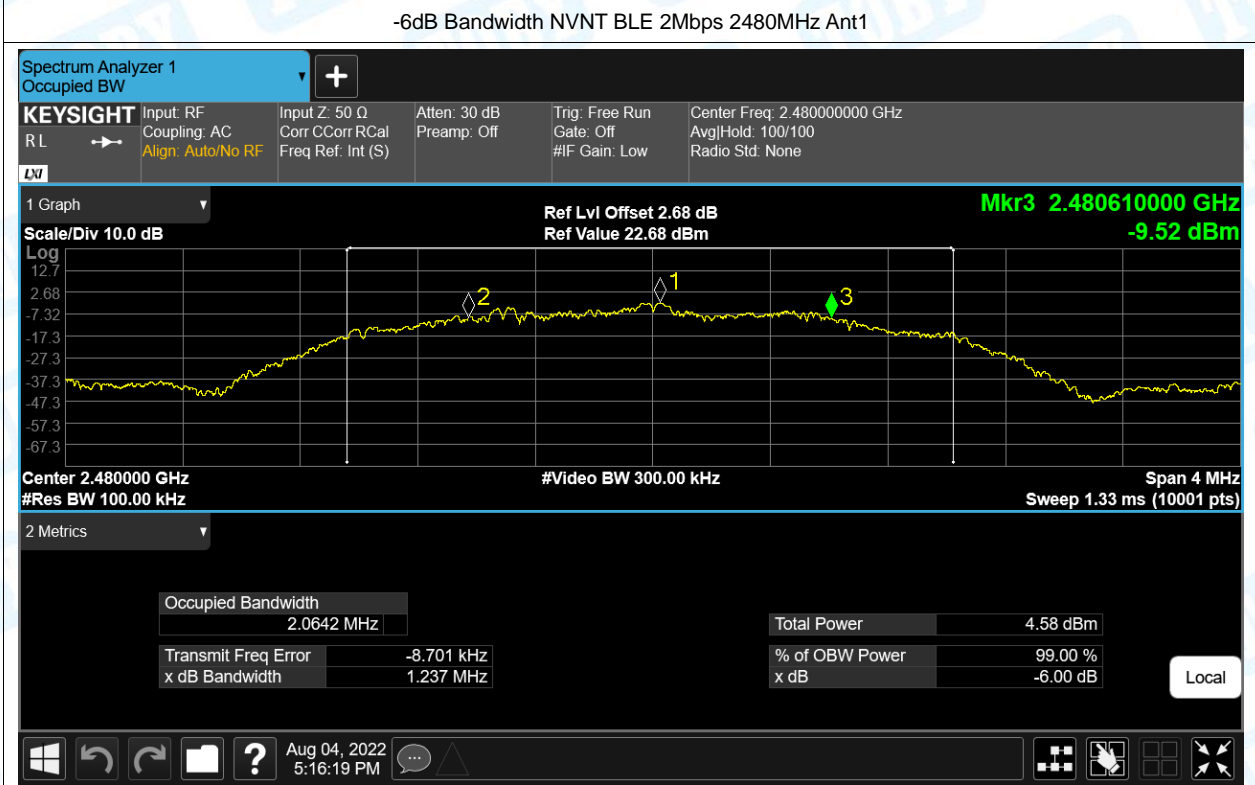
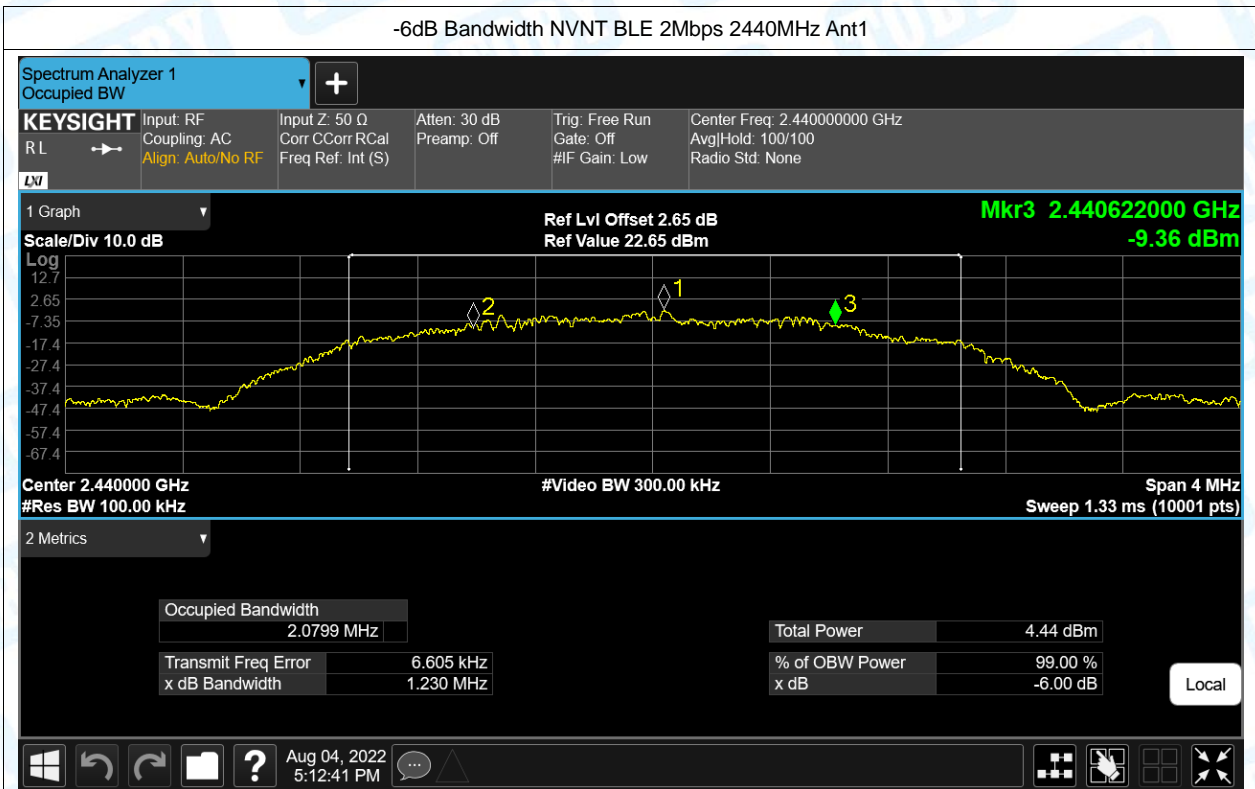
-6dB Bandwidth NVNT BLE 1Mbps 2402MHz Ant1



-6dB Bandwidth NVNT BLE 1Mbps 2440MHz Ant1

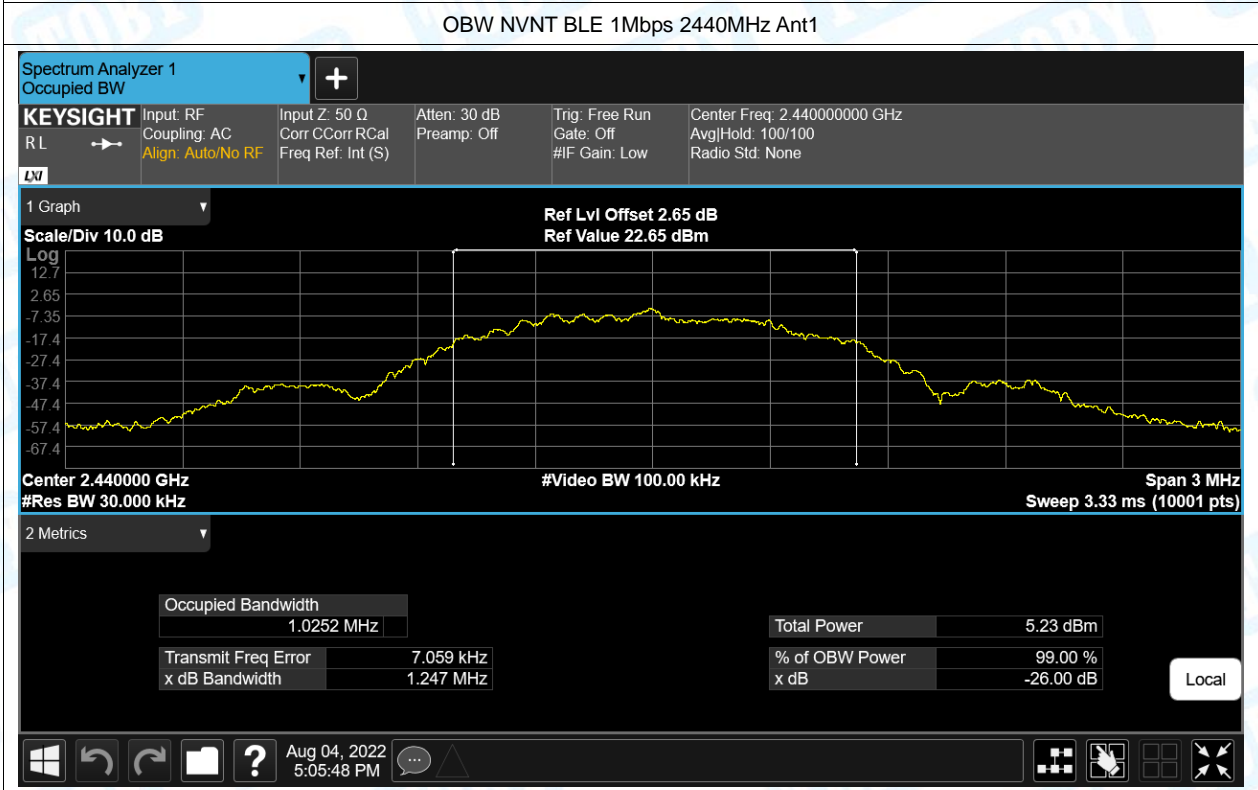
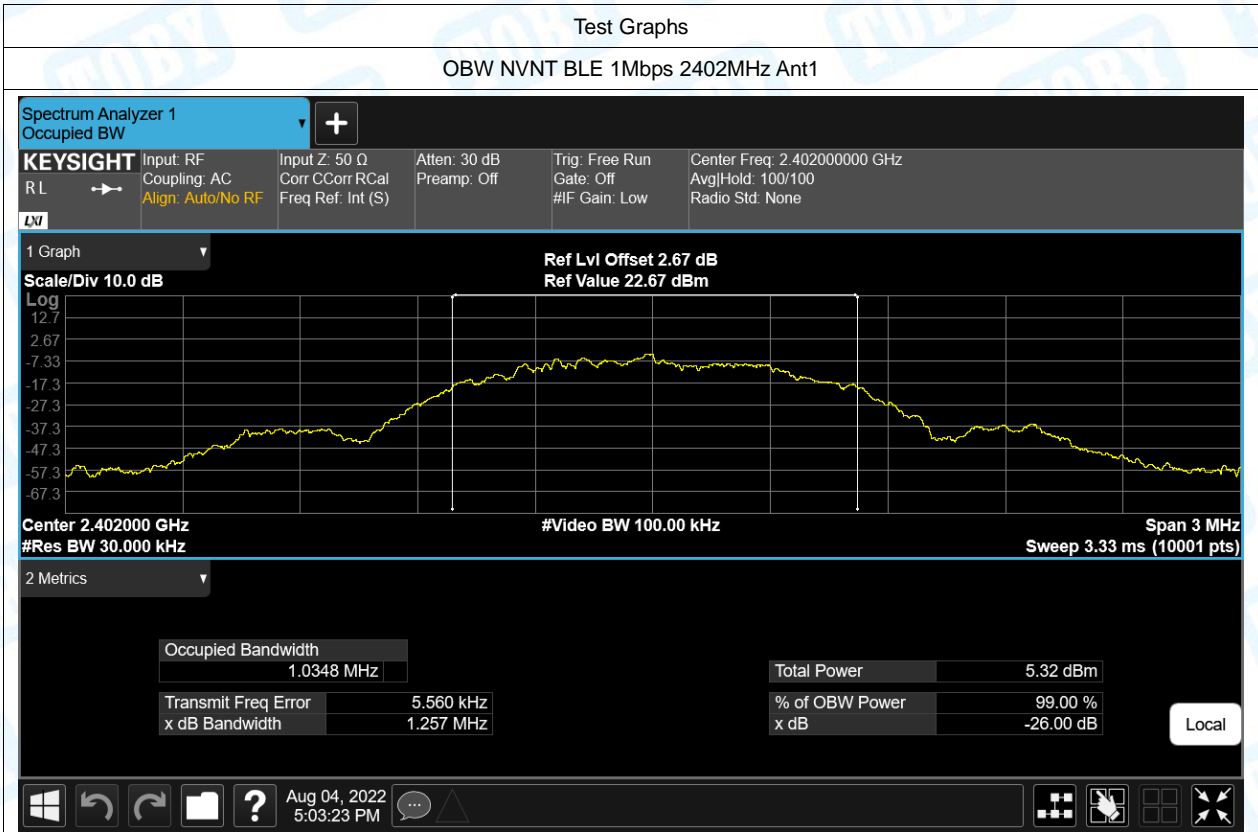






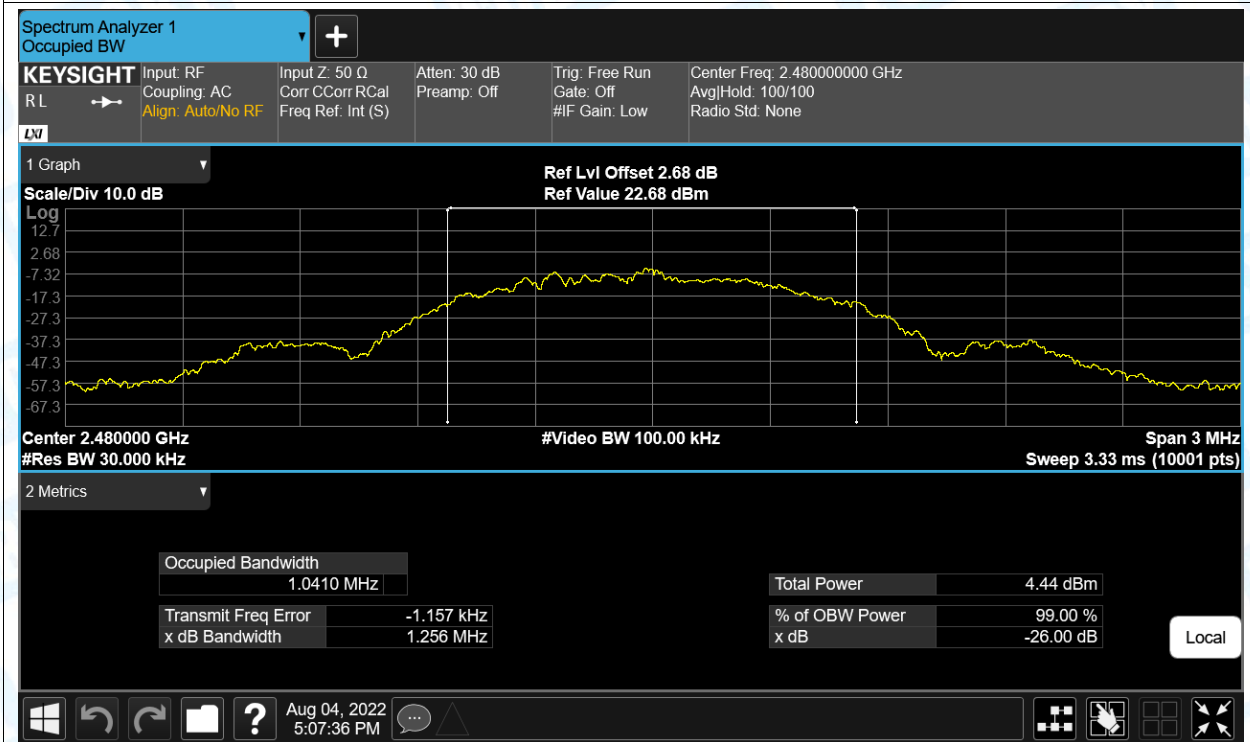
## 4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1Mbps	2402	Ant1	1.035
NVNT	BLE 1Mbps	2440	Ant1	1.025
NVNT	BLE 1Mbps	2480	Ant1	1.041
NVNT	BLE 2Mbps	2402	Ant1	2.042
NVNT	BLE 2Mbps	2440	Ant1	2.041
NVNT	BLE 2Mbps	2480	Ant1	2.055





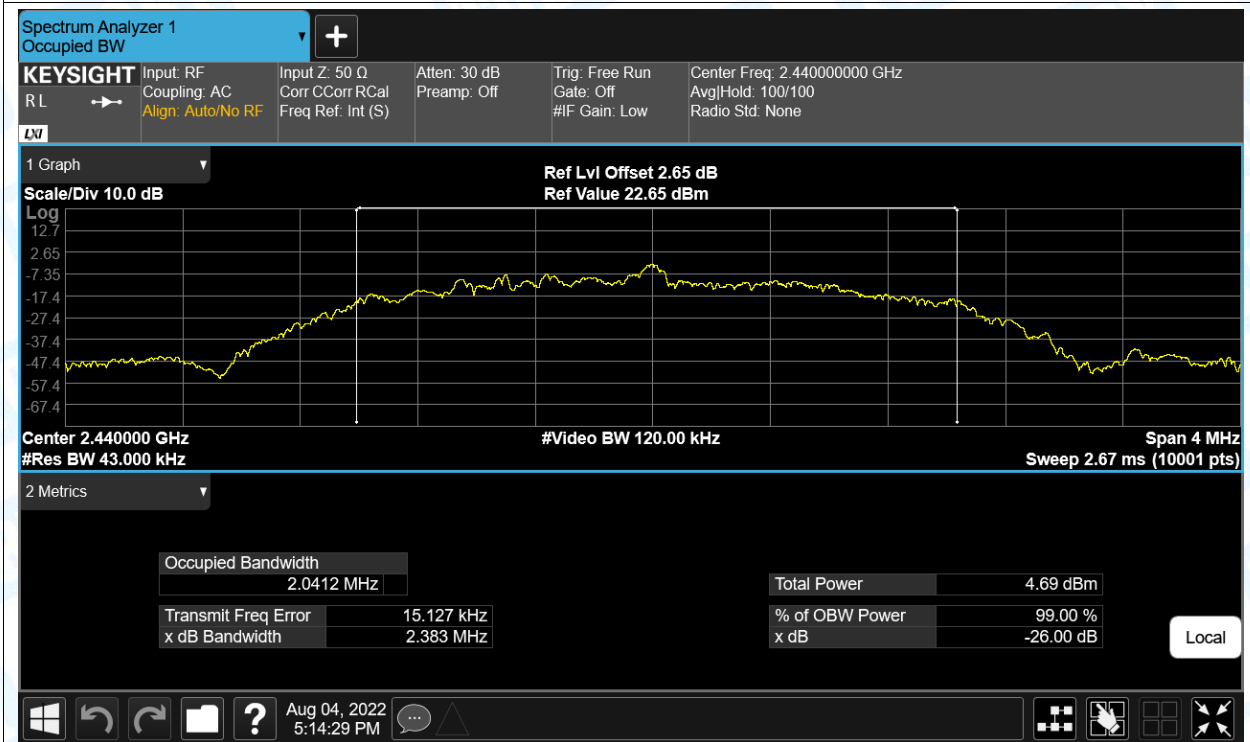
OBW NVNT BLE 1Mbps 2480MHz Ant1



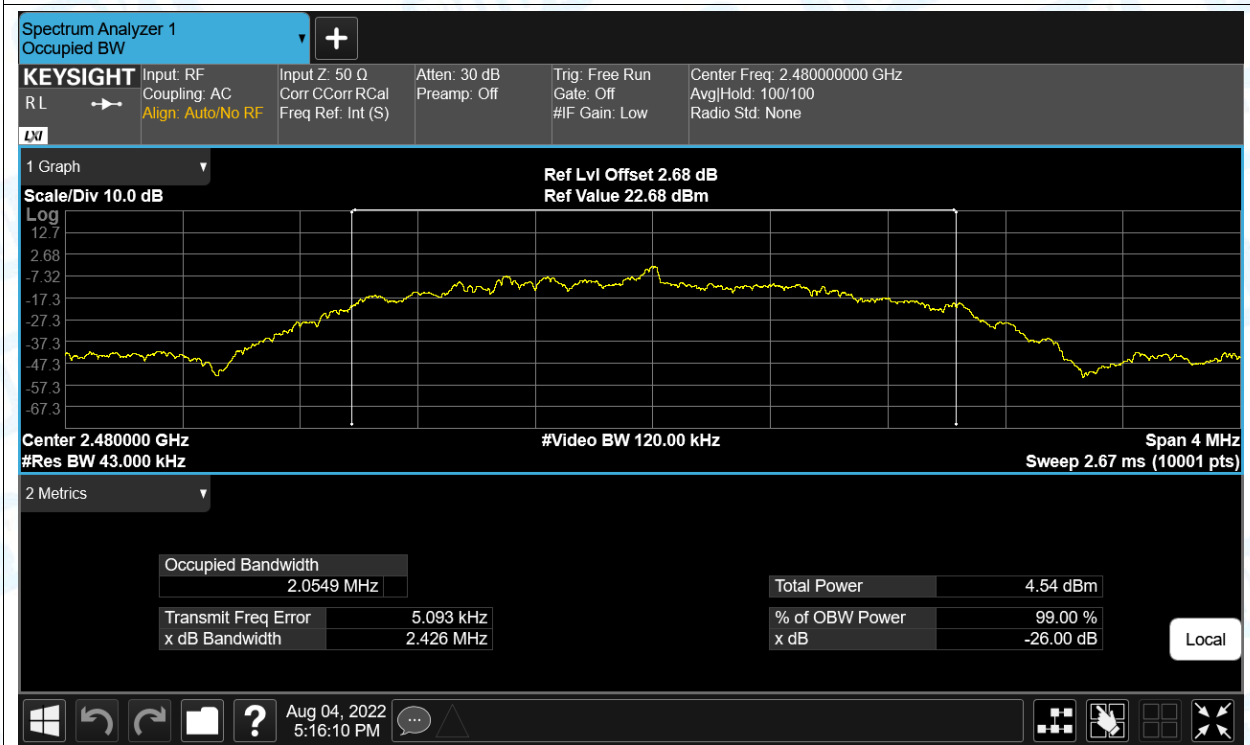
OBW NVNT BLE 2Mbps 2402MHz Ant1



OBW NVNT BLE 2Mbps 2440MHz Ant1



OBW NVNT BLE 2Mbps 2480MHz Ant1

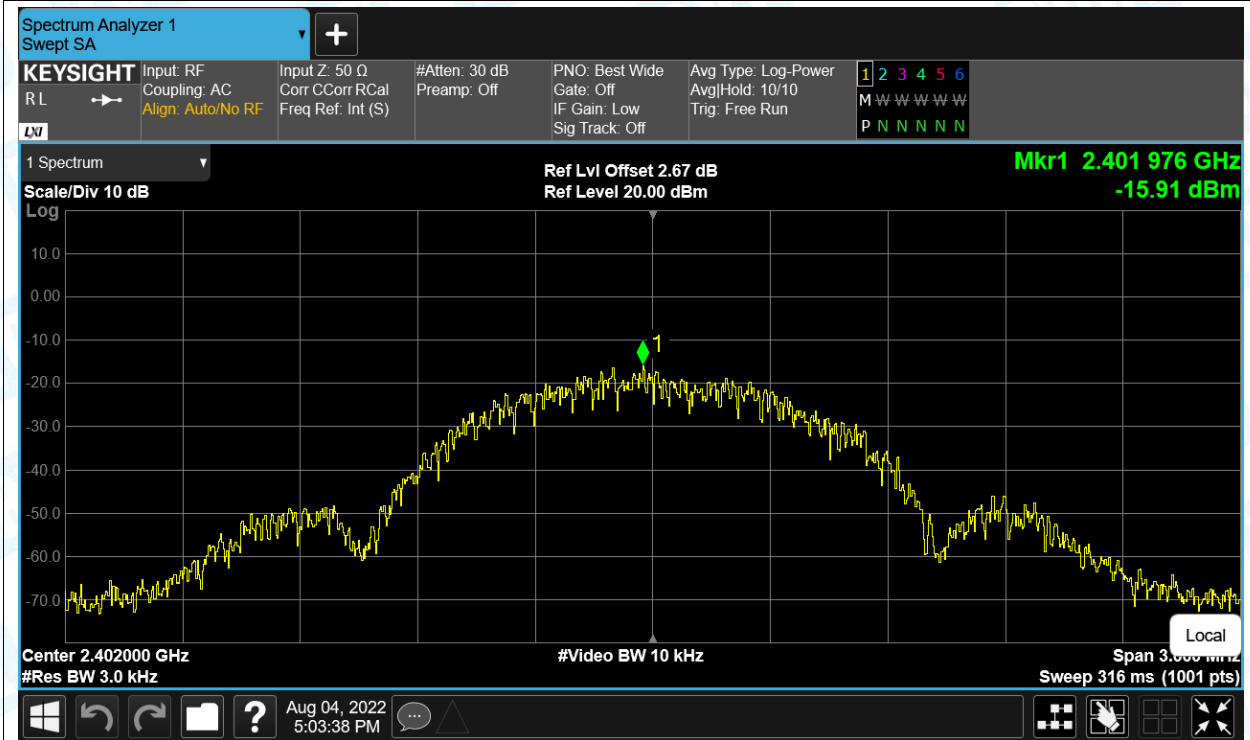


## 5. Maximum Power Spectral Density Level

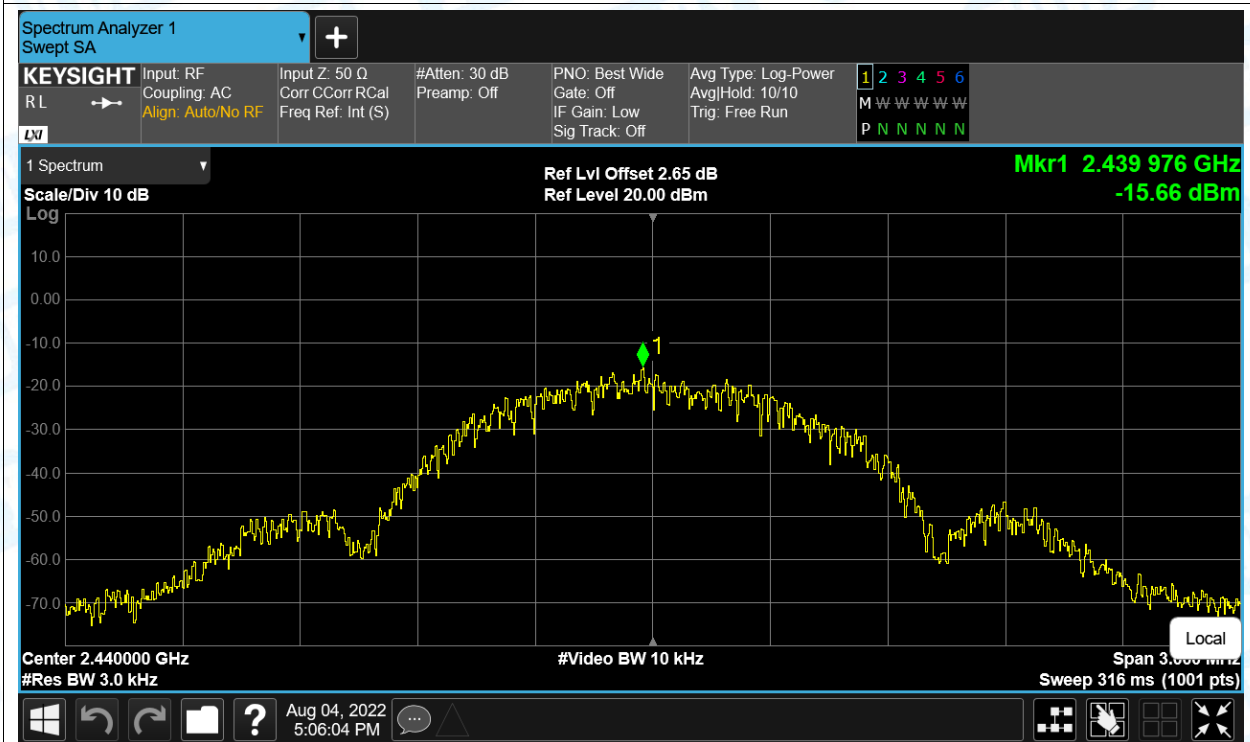
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-15.91	8	Pass
NVNT	BLE 1Mbps	2440	Ant1	-15.661	8	Pass
NVNT	BLE 1Mbps	2480	Ant1	-16.269	8	Pass
NVNT	BLE 2Mbps	2402	Ant1	-18.754	8	Pass
NVNT	BLE 2Mbps	2440	Ant1	-18.868	8	Pass
NVNT	BLE 2Mbps	2480	Ant1	-19.186	8	Pass

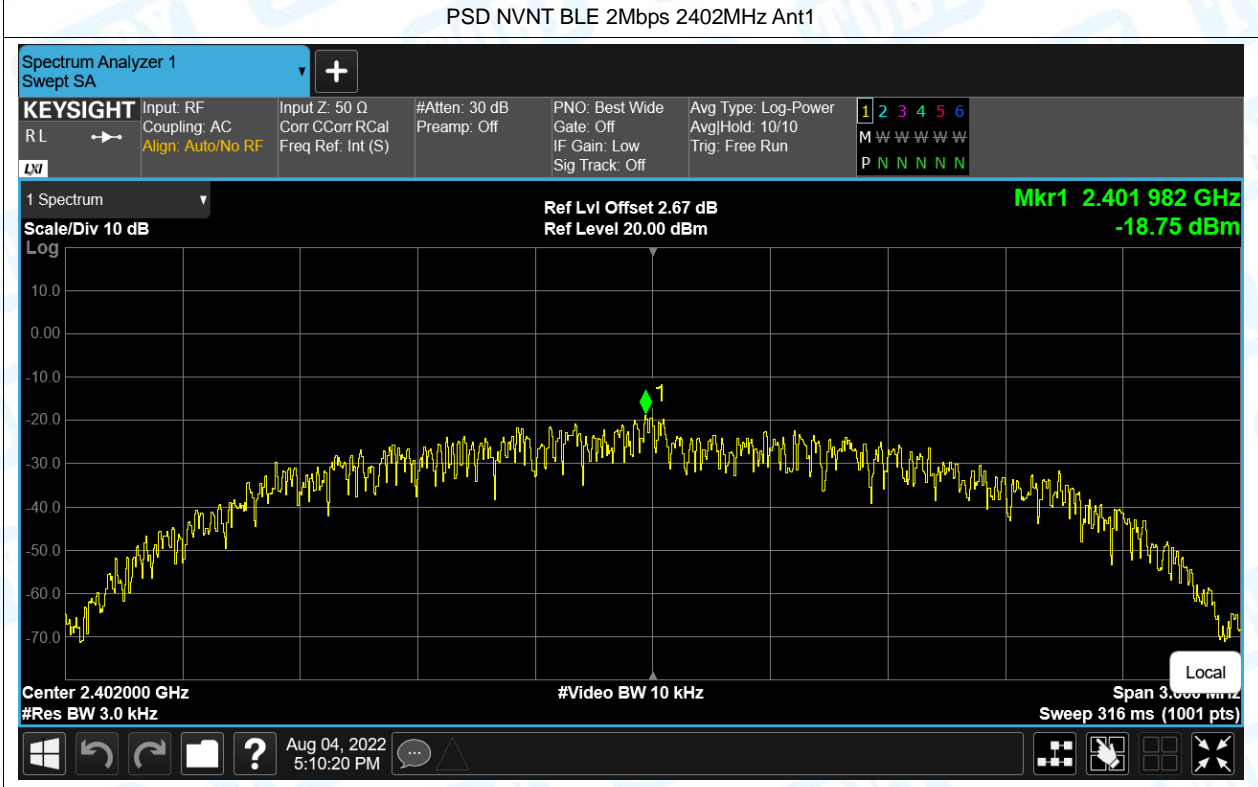
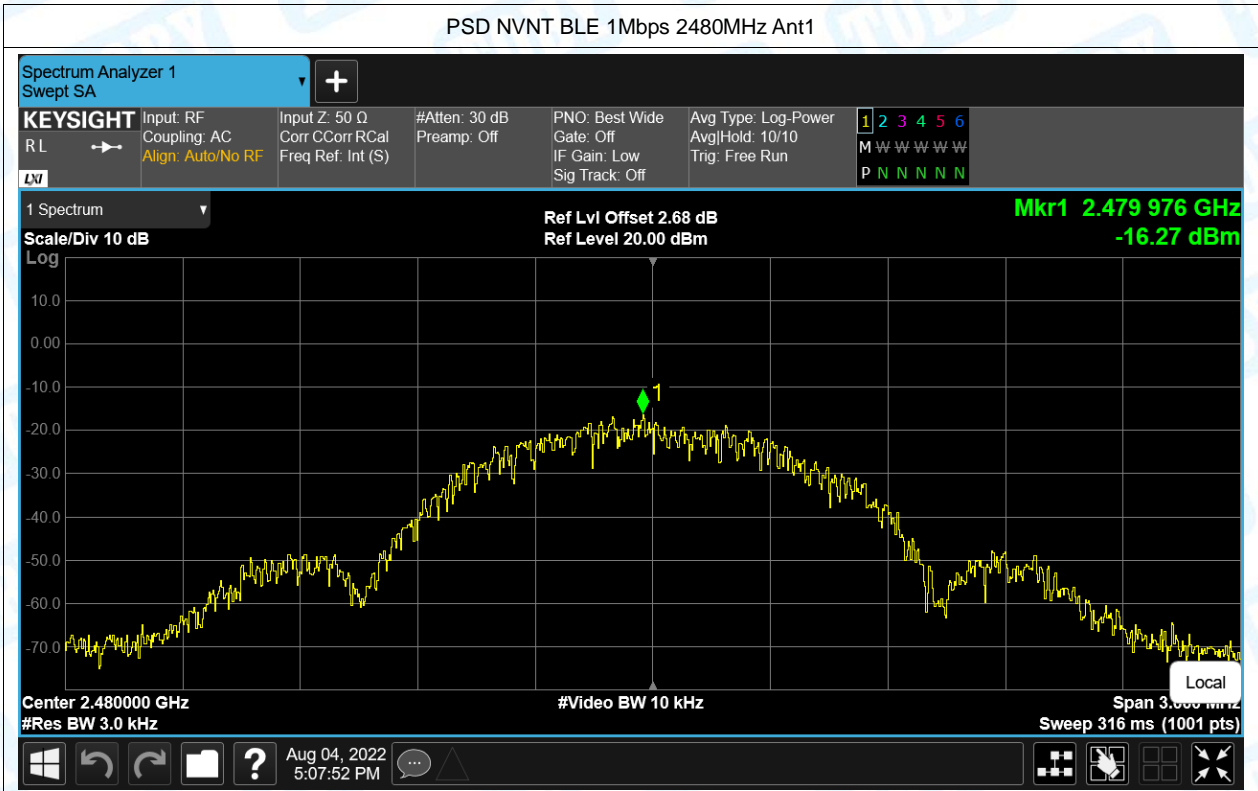
Test Graphs

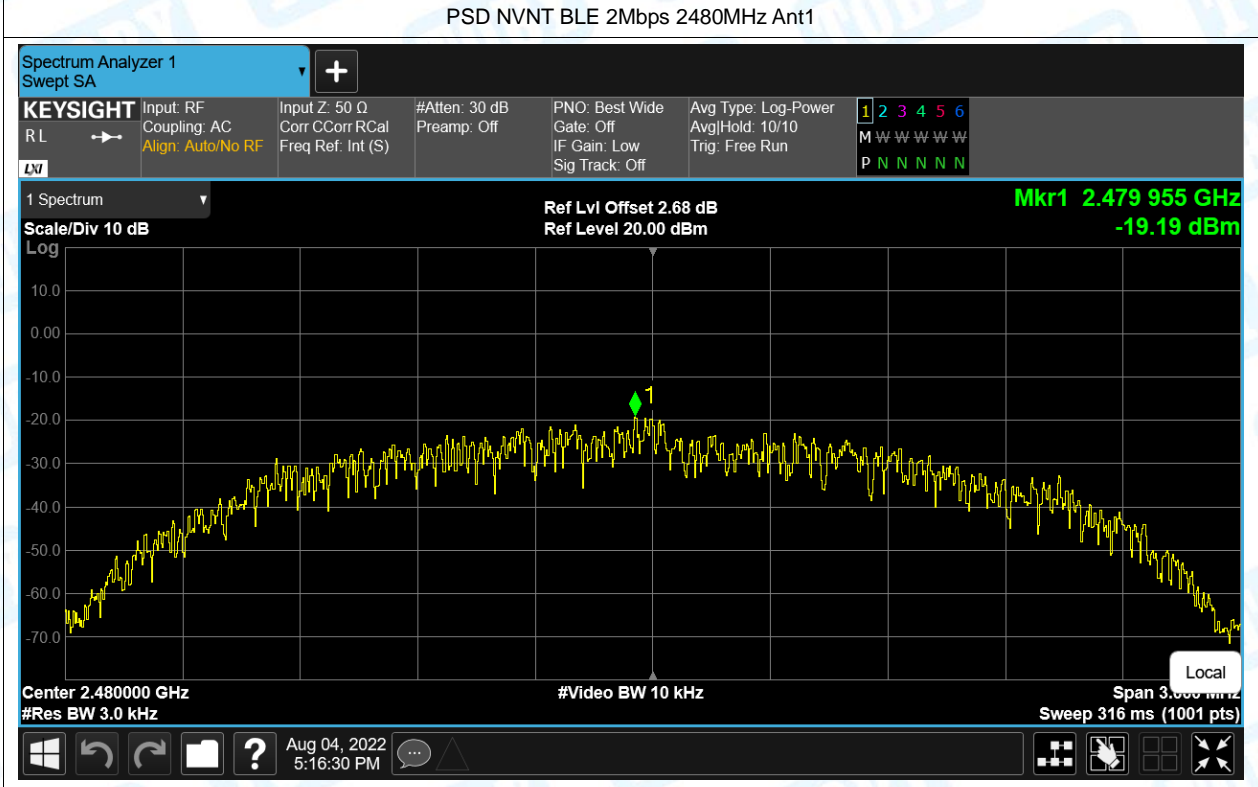
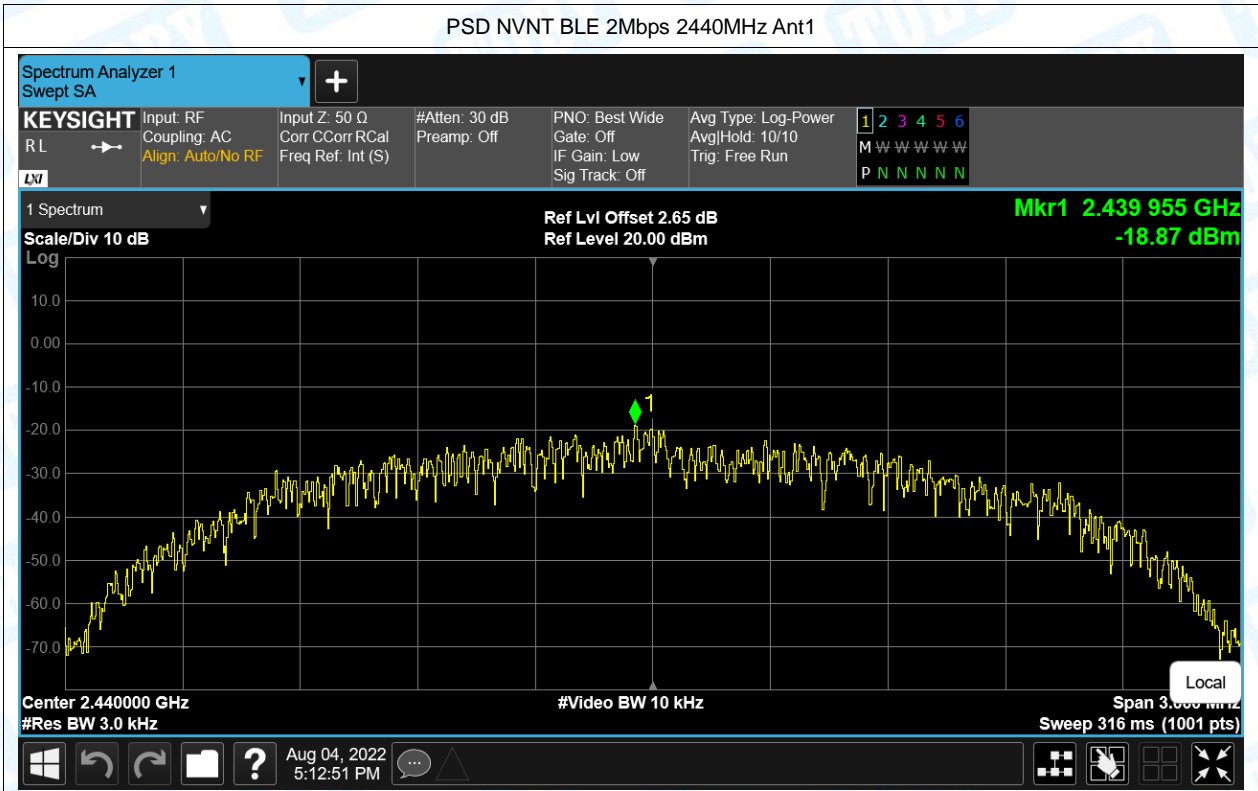
PSD NVNT BLE 1Mbps 2402MHz Ant1



PSD NVNT BLE 1Mbps 2440MHz Ant1





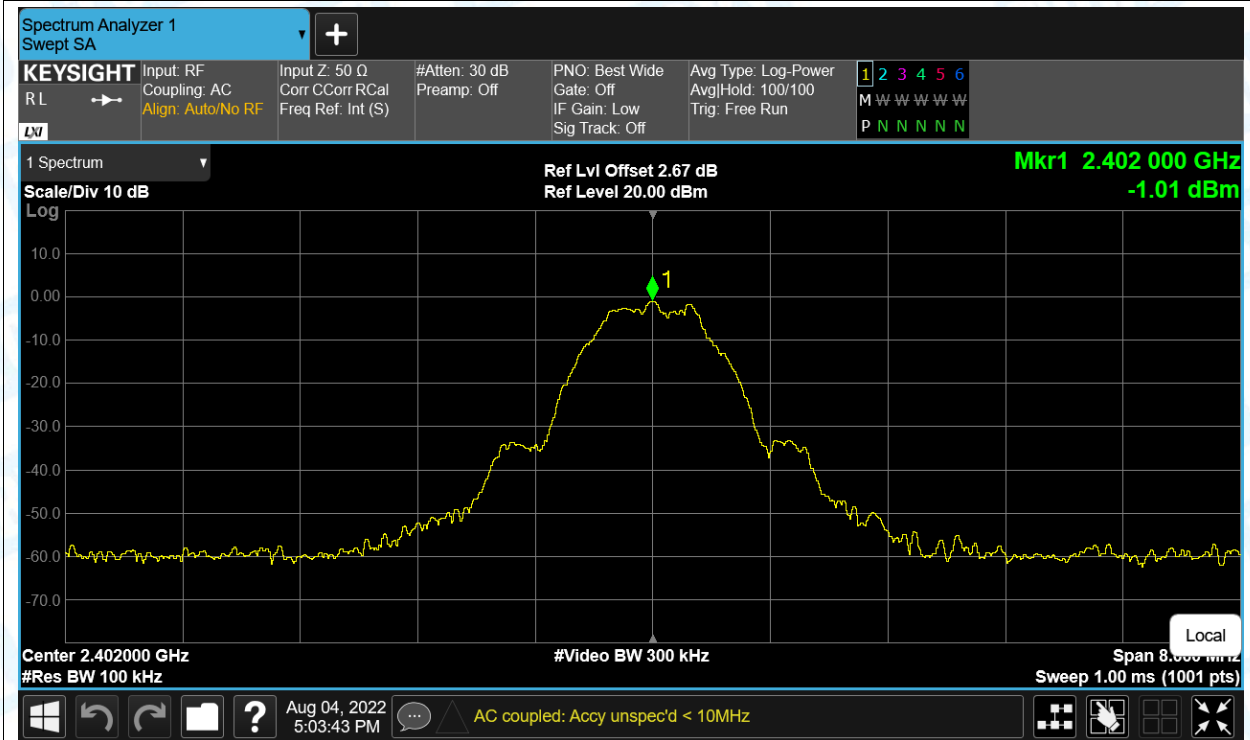


## 6. Band Edge

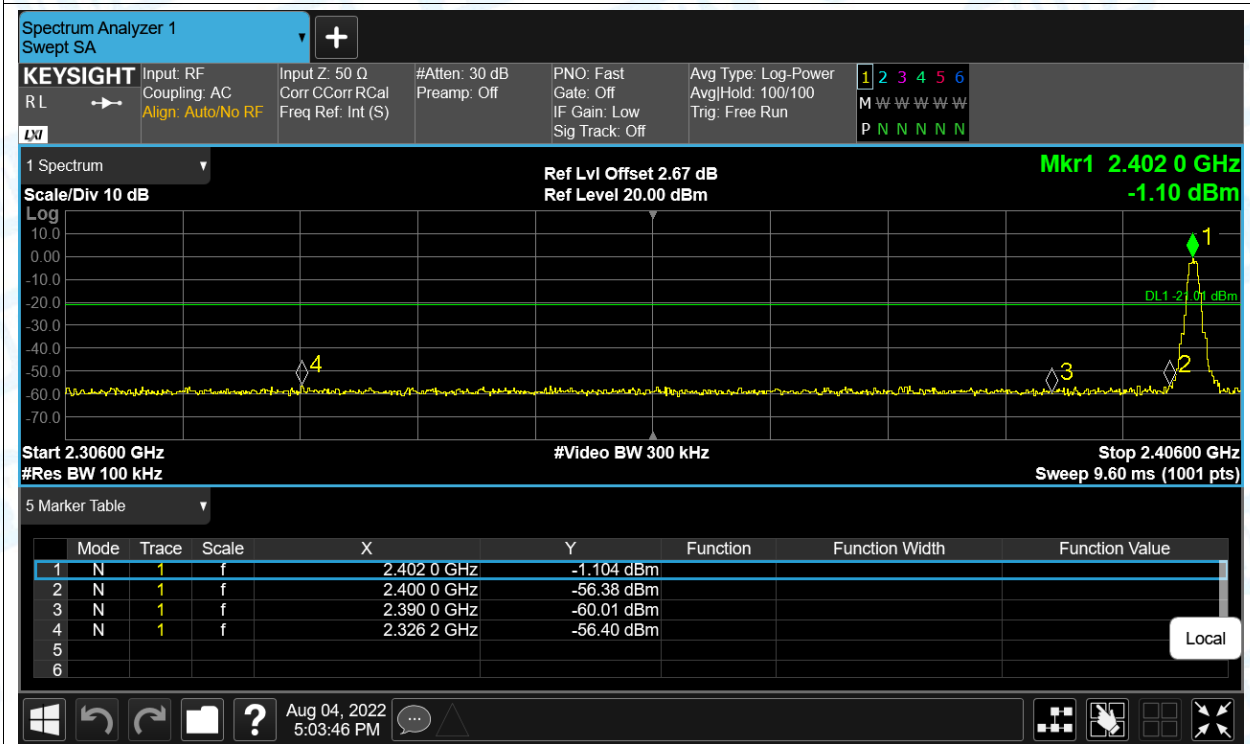
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-55.4	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-55.24	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-54.79	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-55.35	-20	Pass

Test Graphs

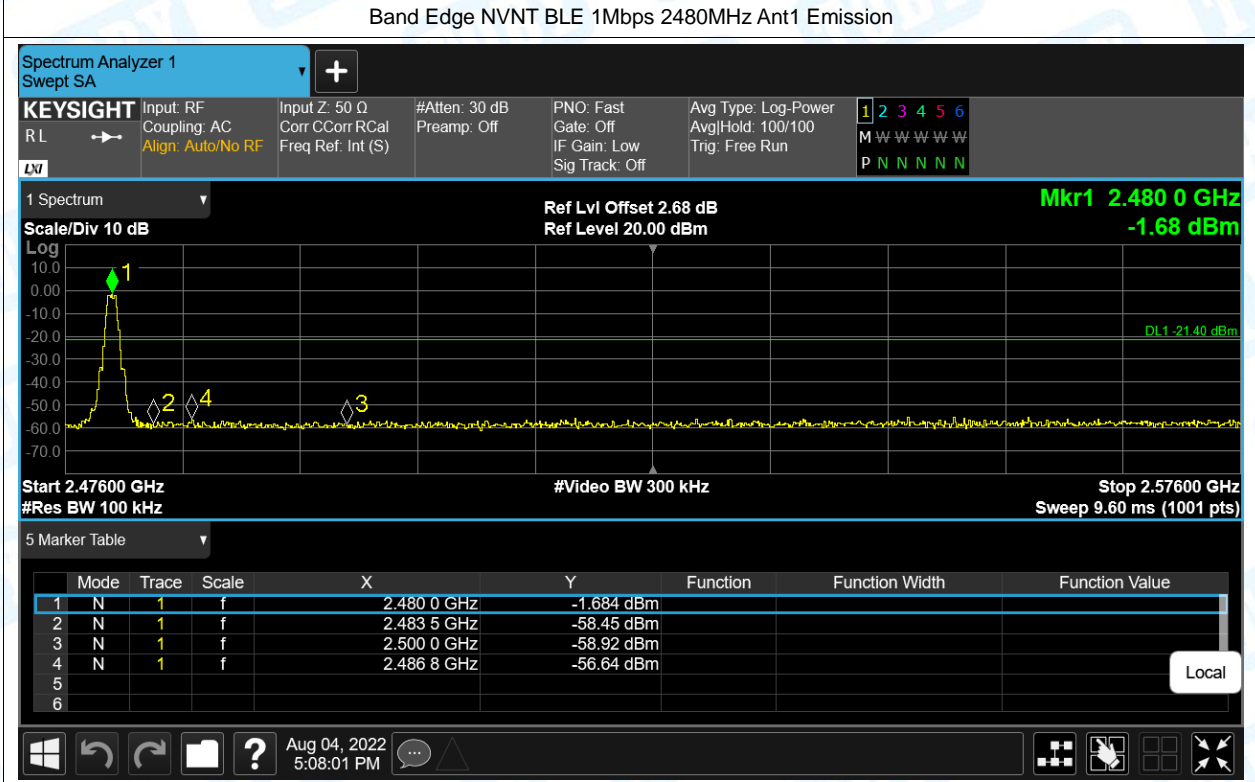
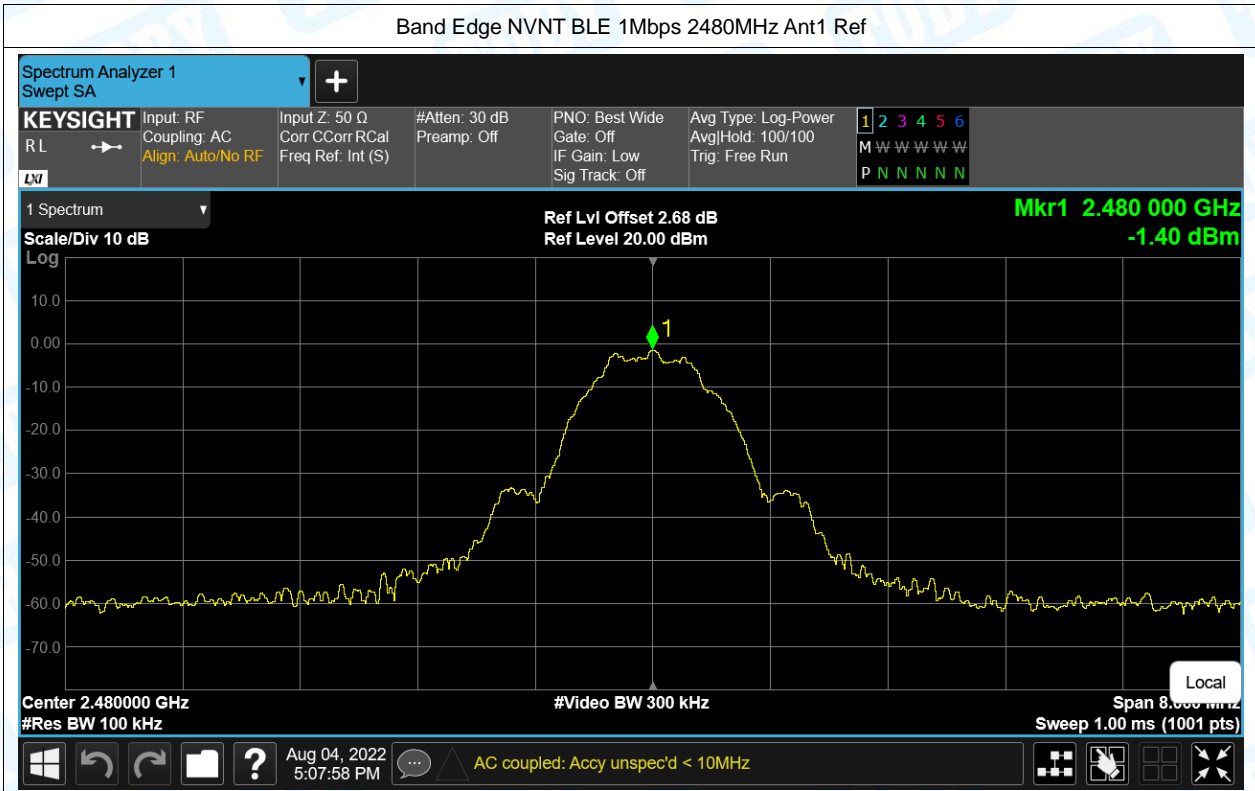
Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Ref

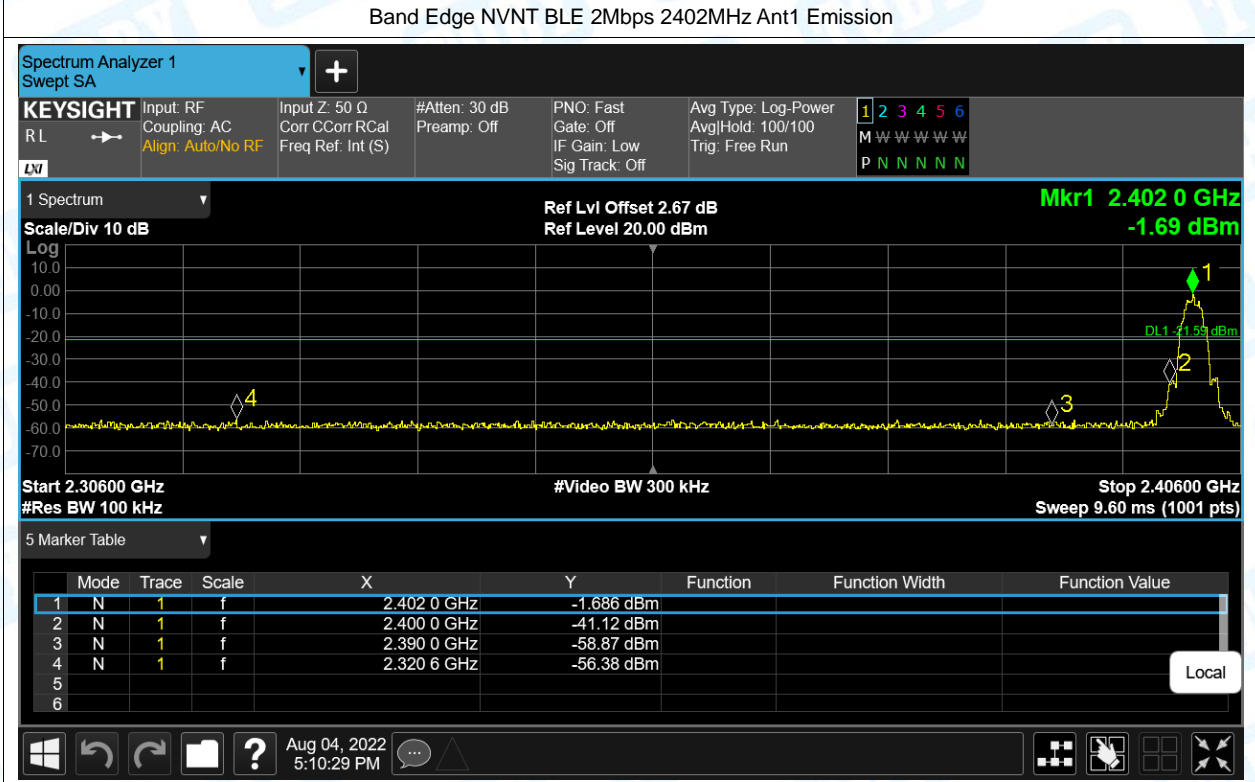
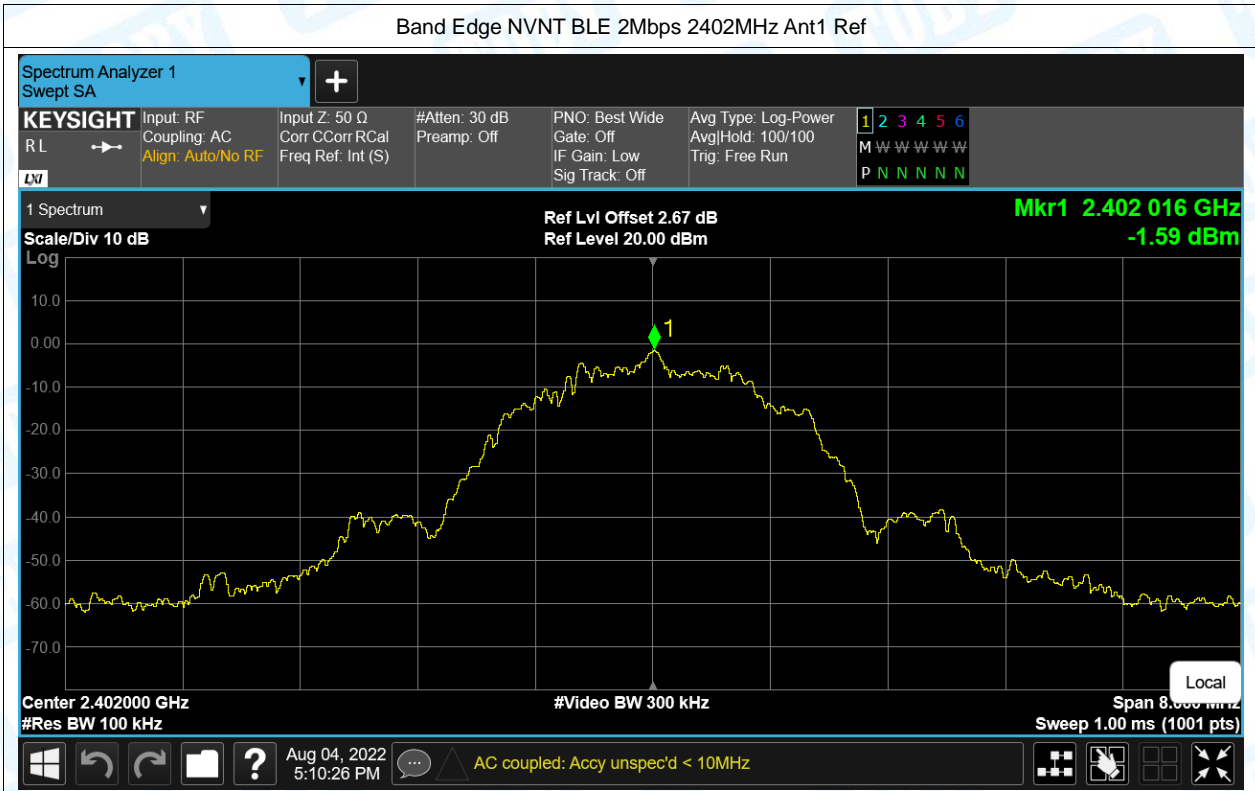


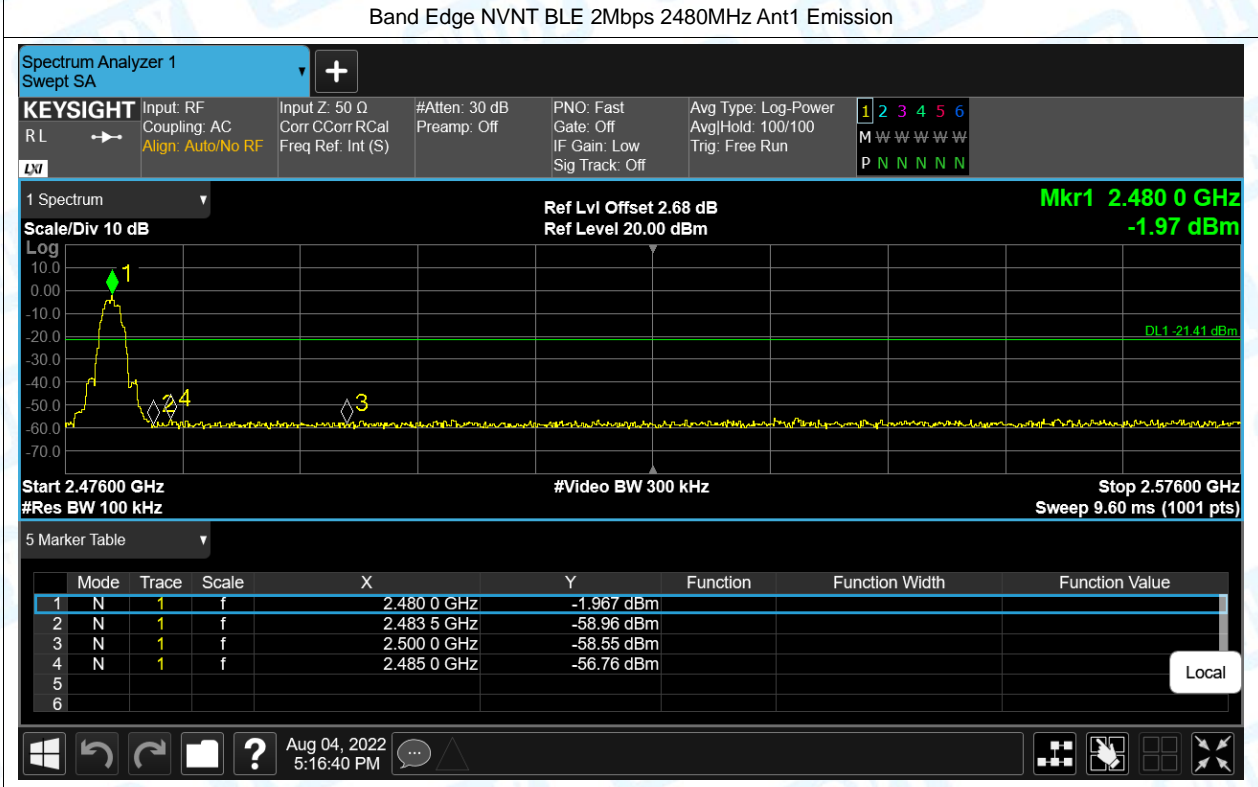
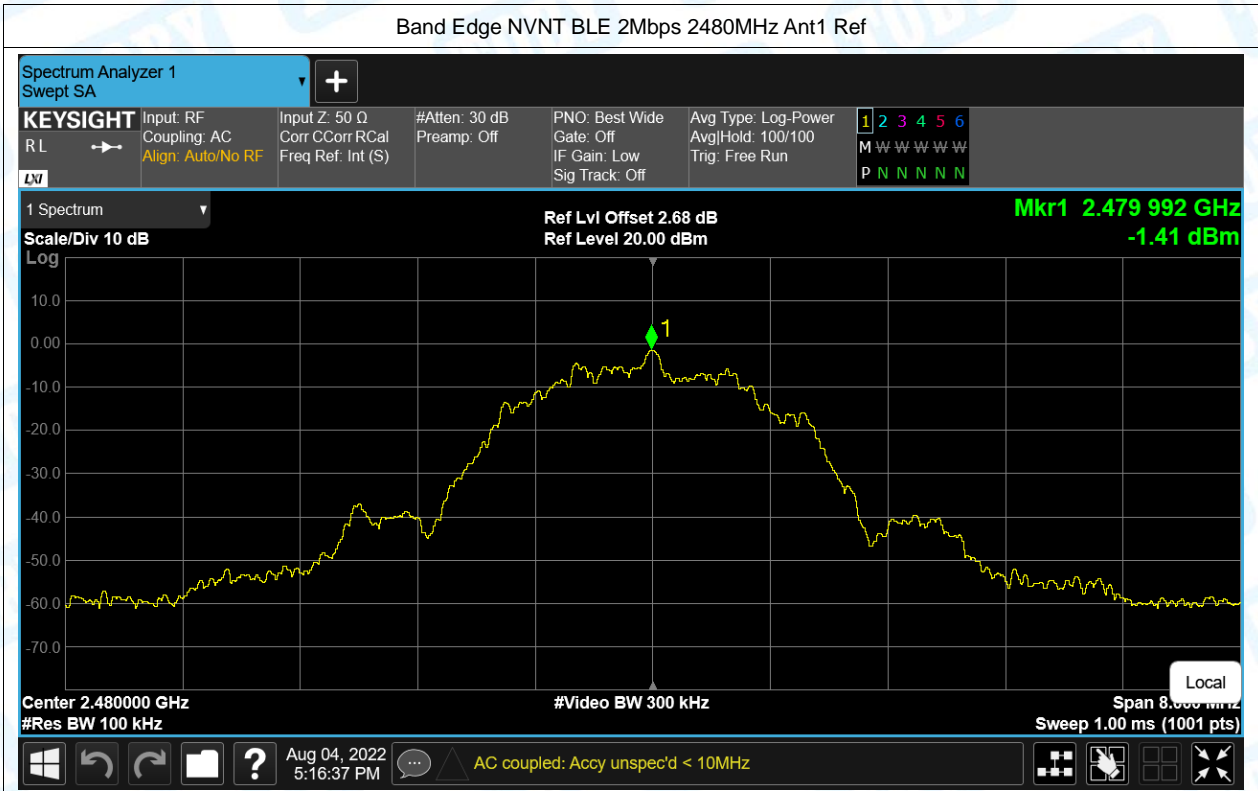
Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Emission









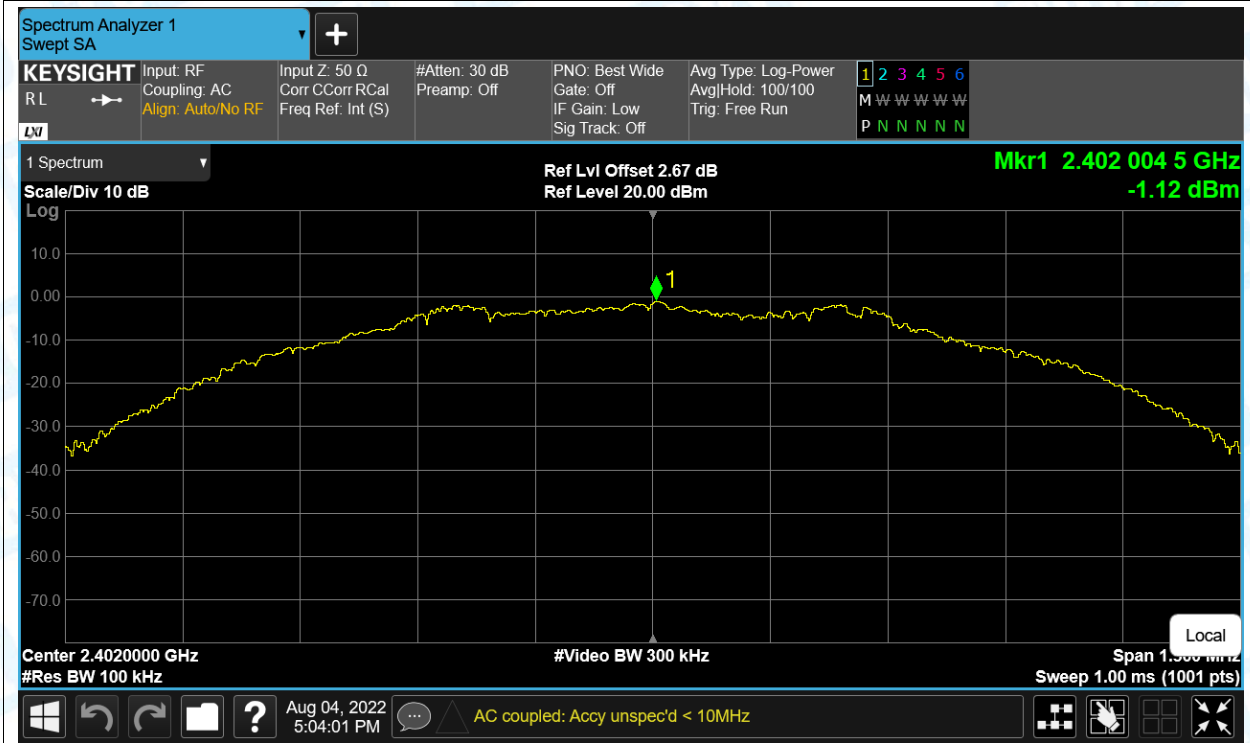


## 7. Conducted RF Spurious Emission

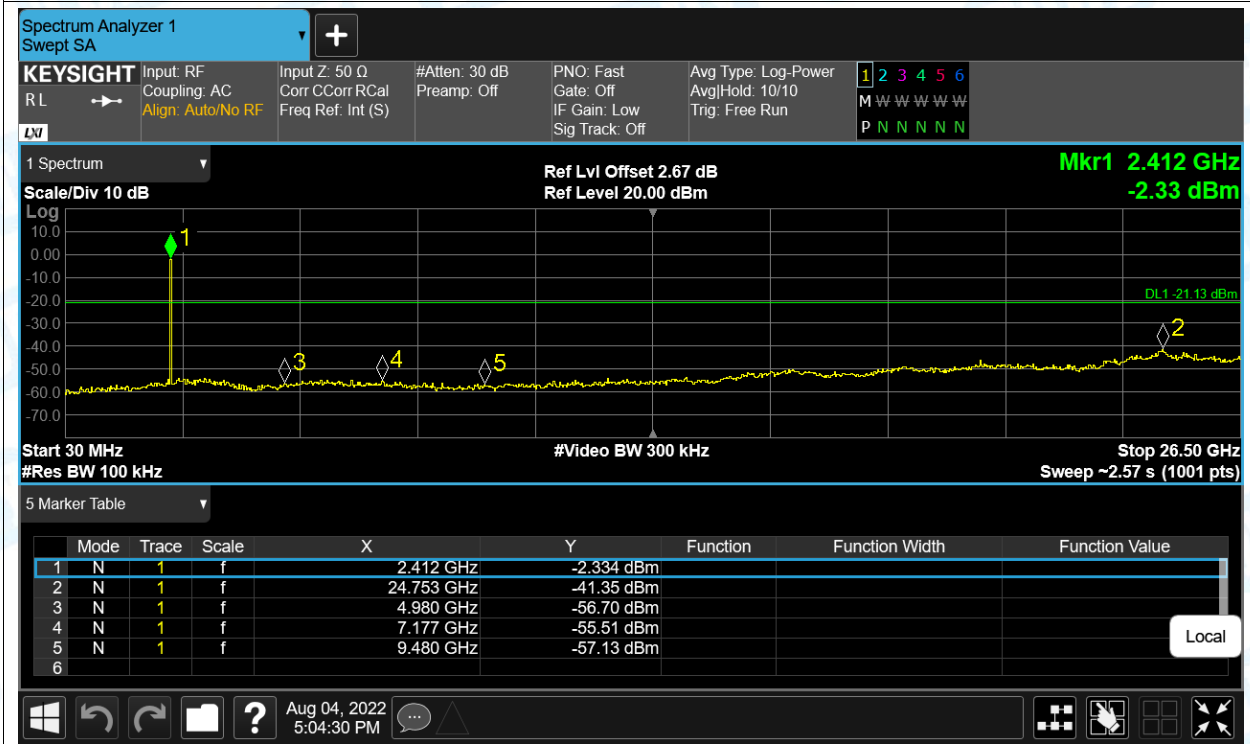
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-40.23	-20	Pass
NVNT	BLE 1Mbps	2440	Ant1	-40.5	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-40.28	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-40.35	-20	Pass
NVNT	BLE 2Mbps	2440	Ant1	-40.41	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-40.71	-20	Pass

Test Graphs

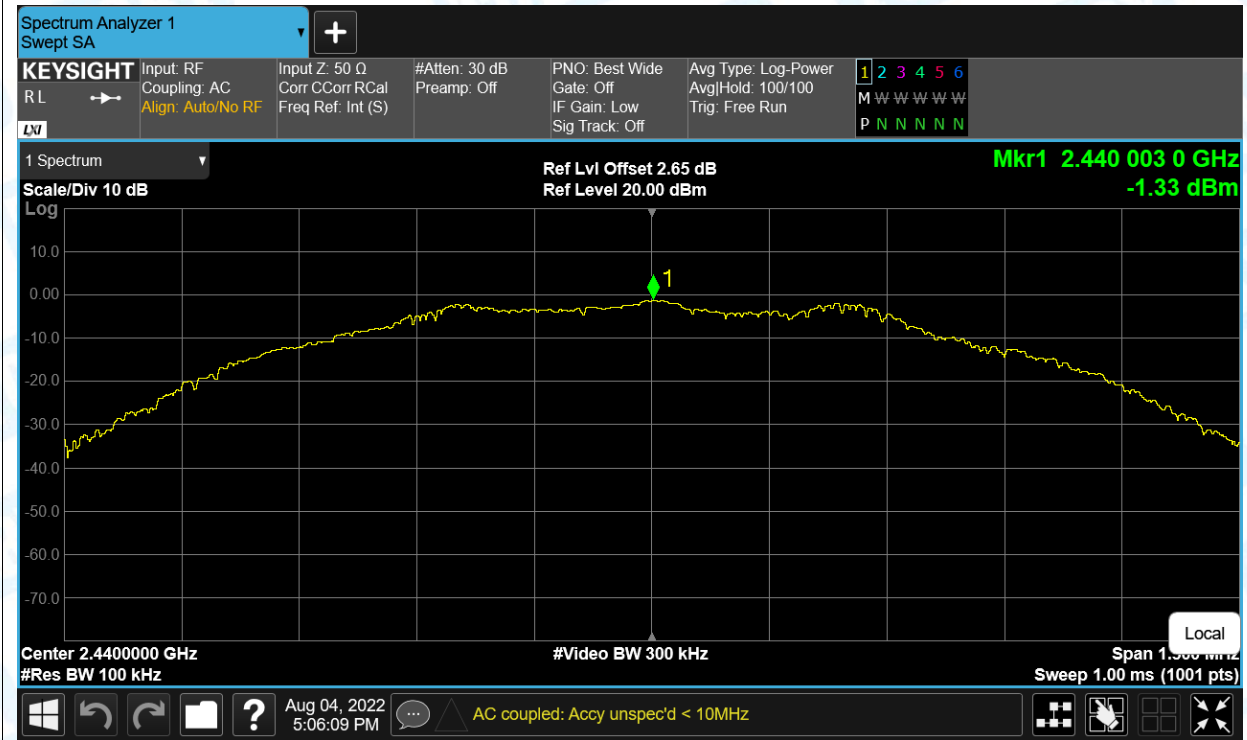
Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Ref



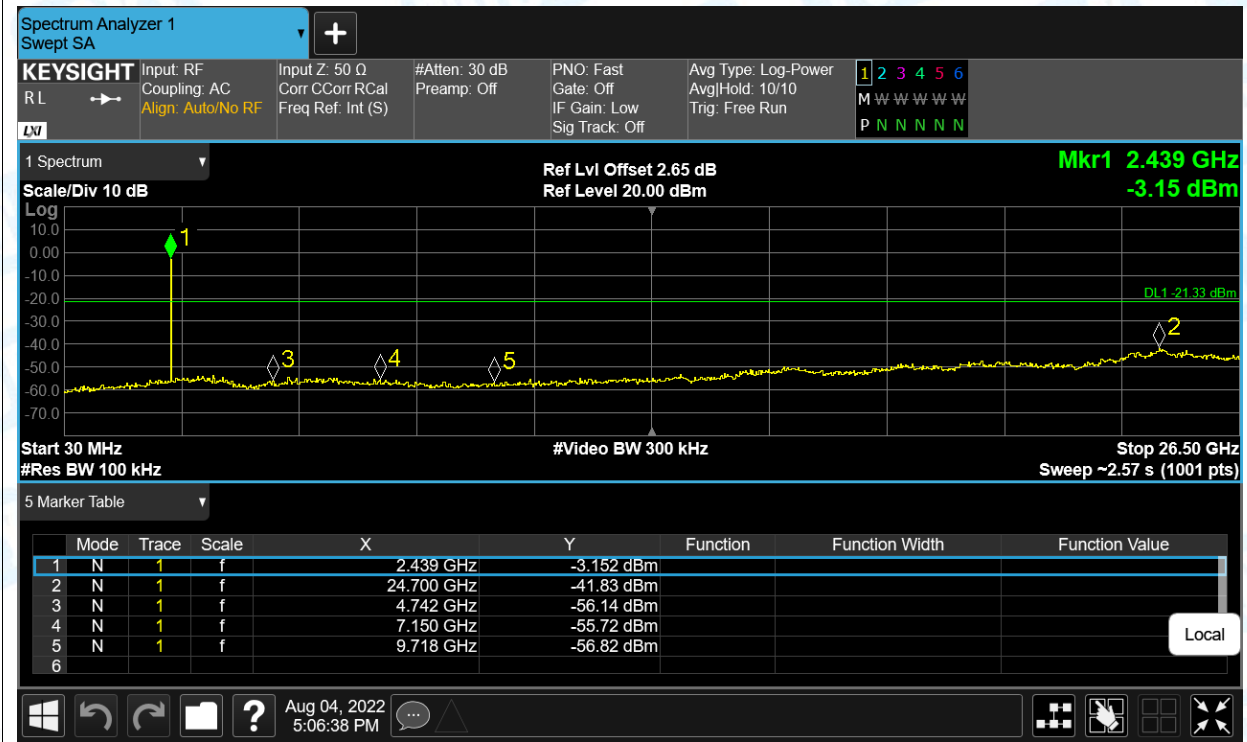
Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Emission



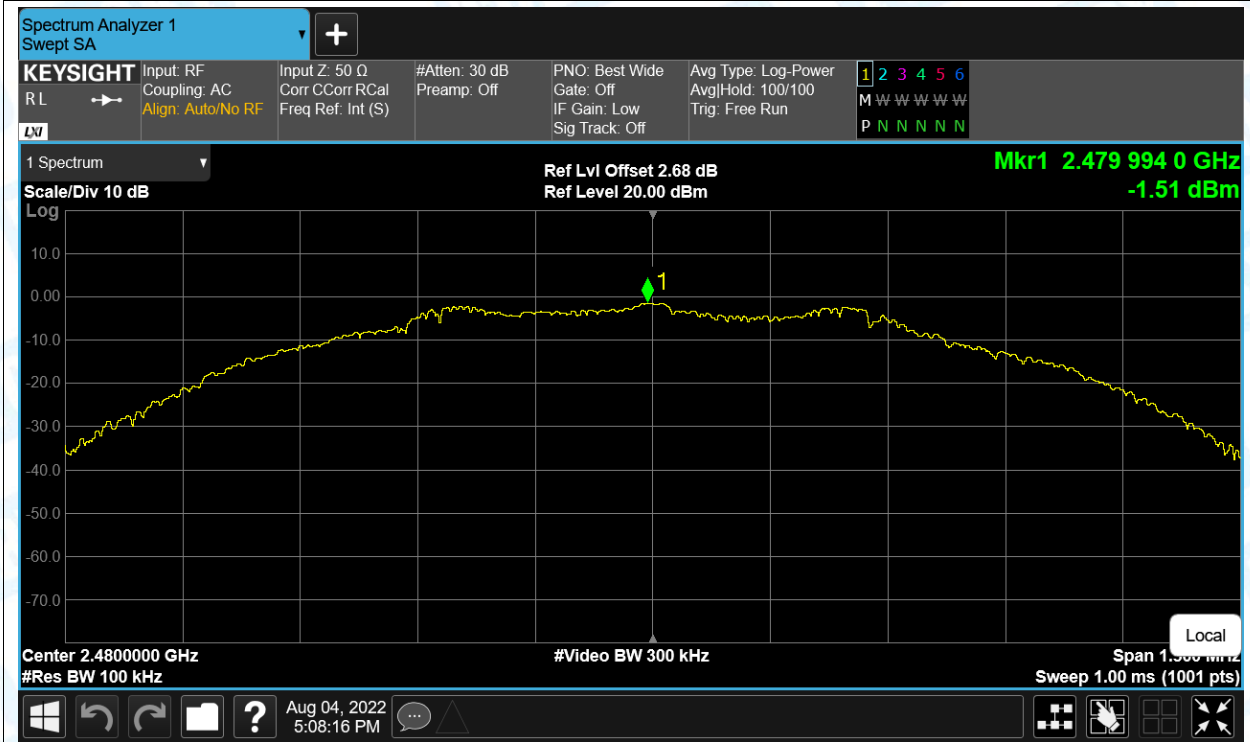
Tx. Spurious NVNT BLE 1Mbps 2440MHz Ant1 Ref



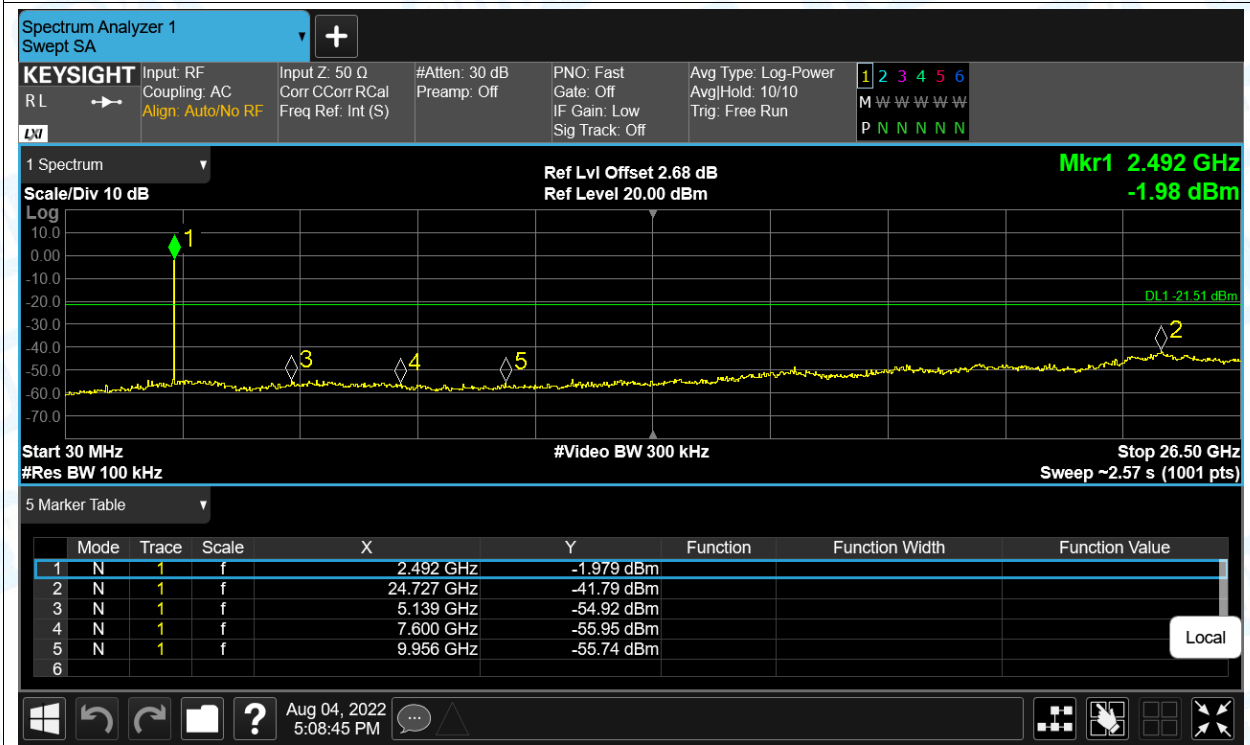
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Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Ref



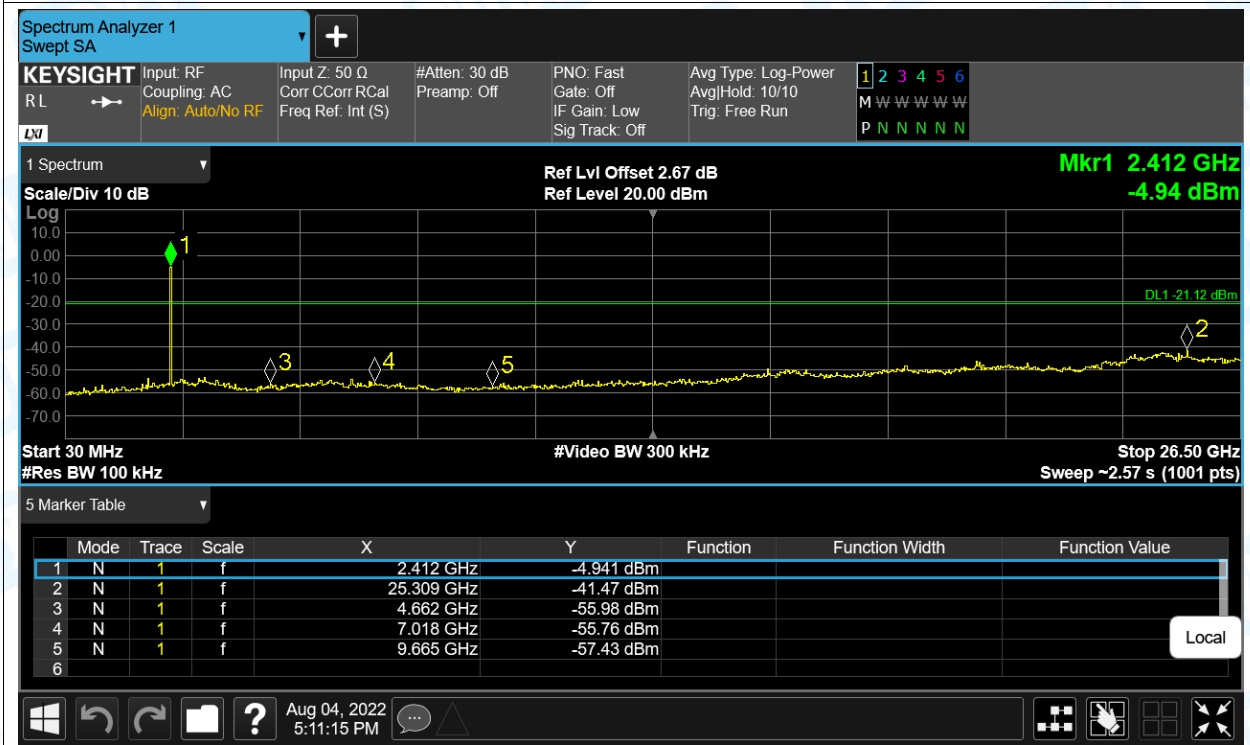
Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Emission



Tx. Spurious NVNT BLE 2Mbps 2402MHz Ant1 Ref

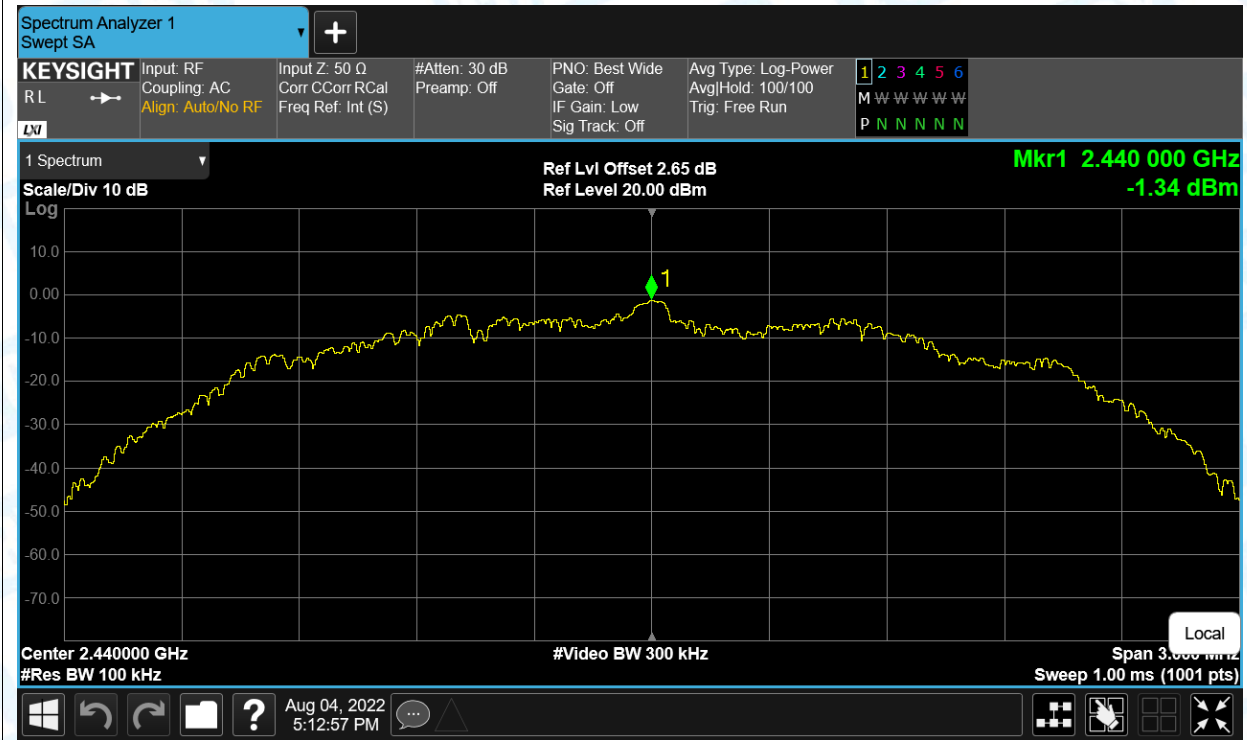


Tx. Spurious NVNT BLE 2Mbps 2402MHz Ant1 Emission

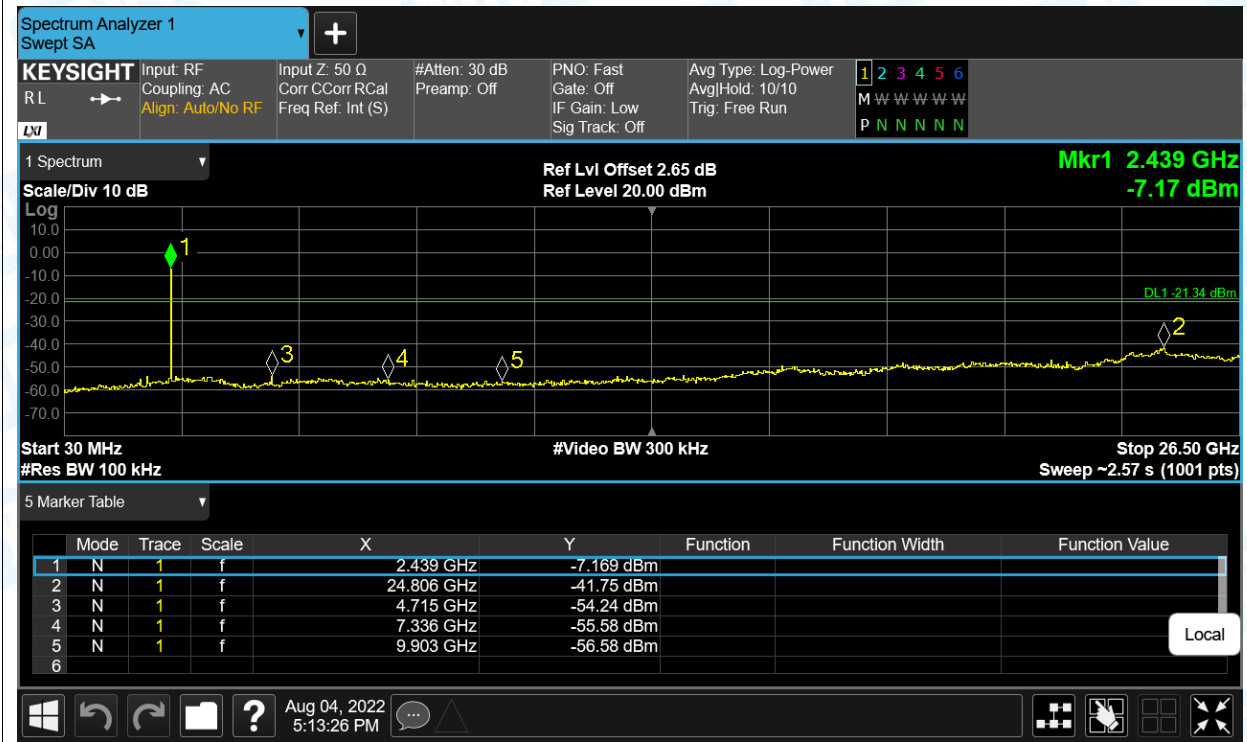




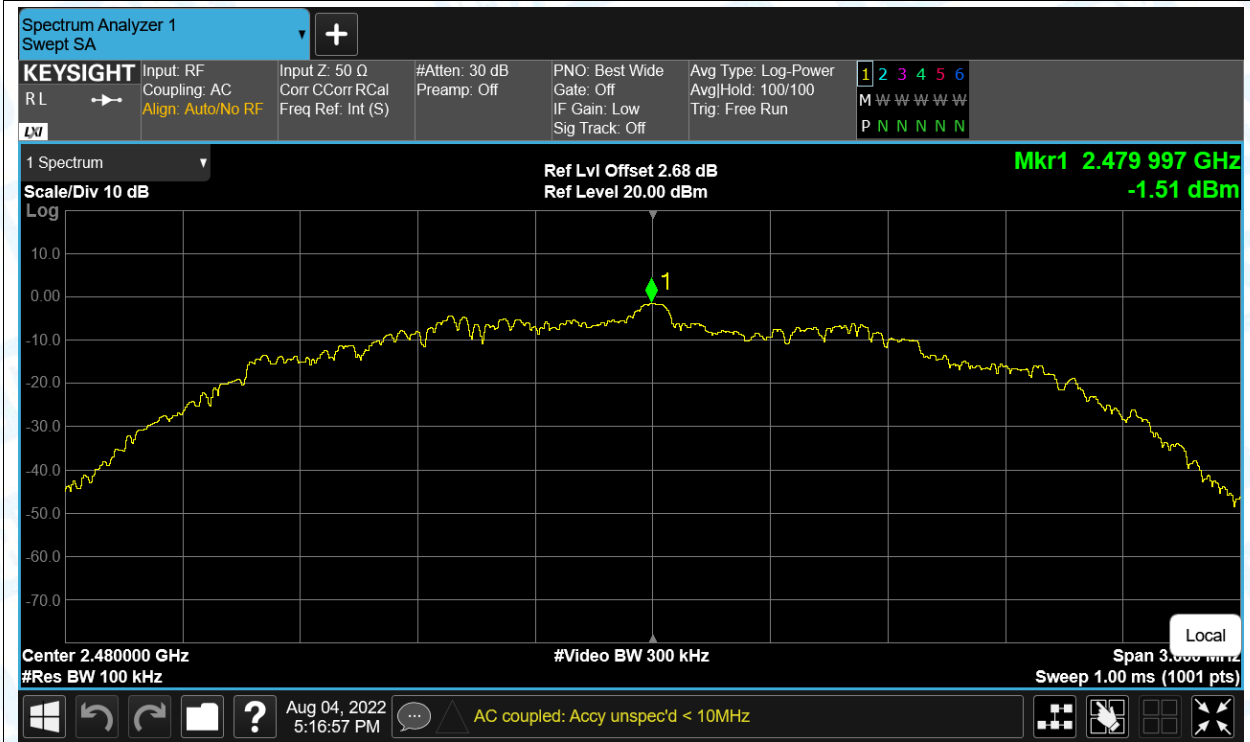
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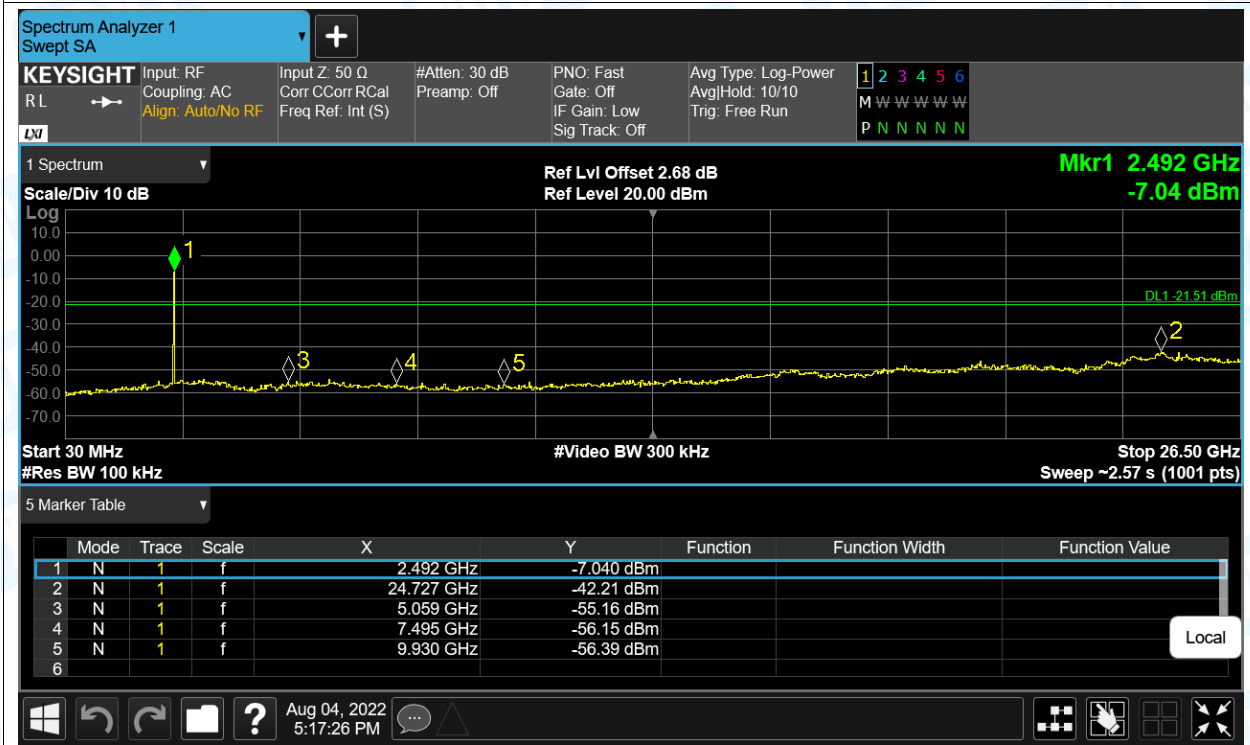
Tx. Spurious NVNT BLE 2Mbps 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Emission

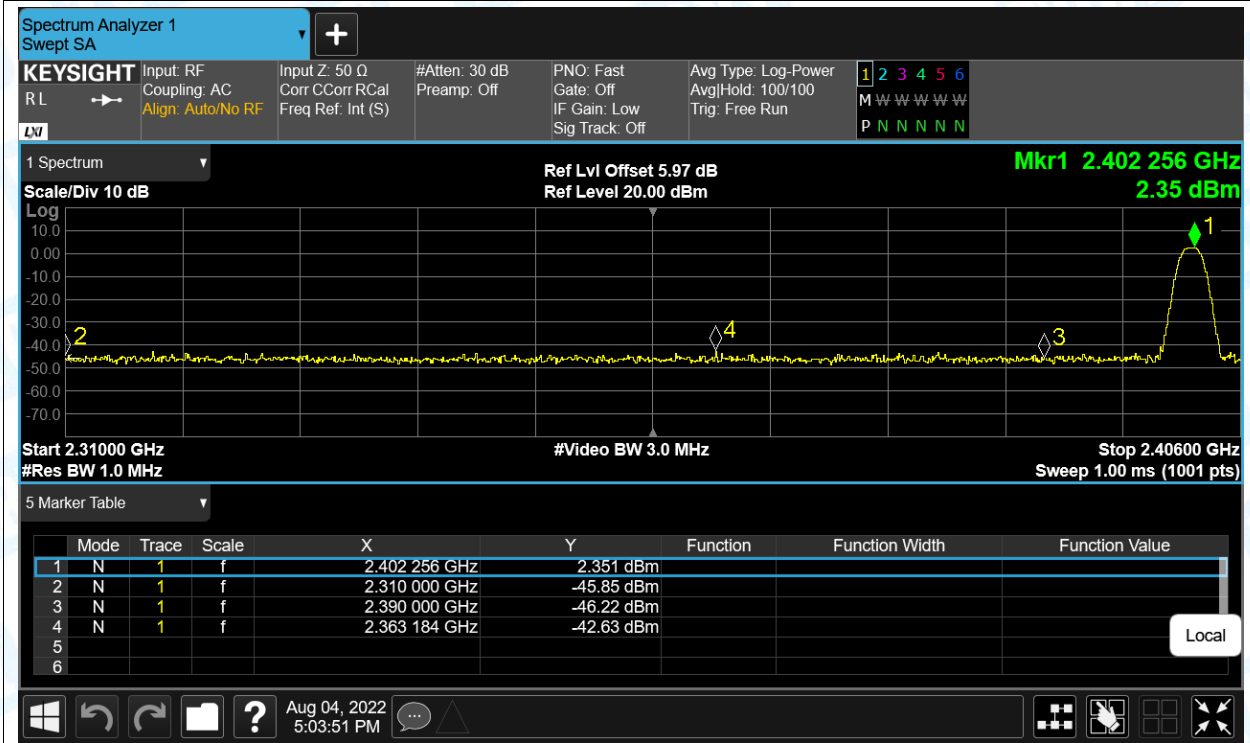


## 8. Restrict Band

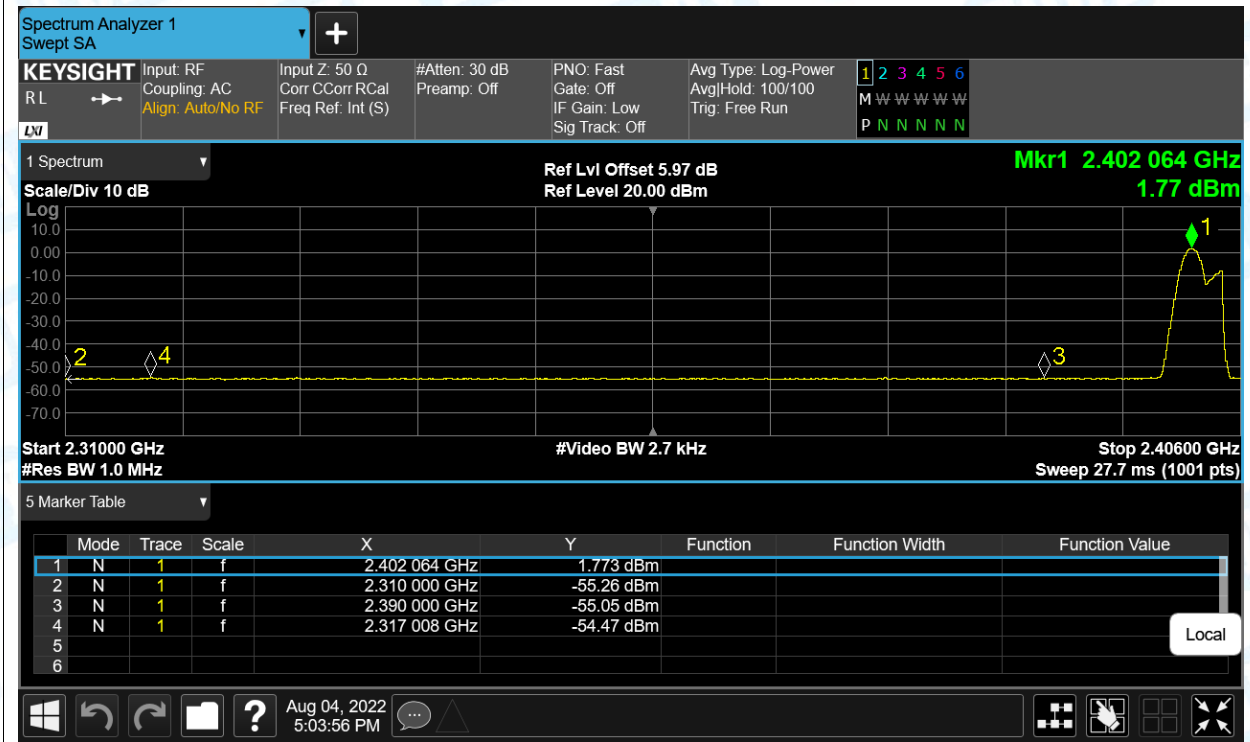
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	2310	-45.85	3.3	52.71	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2310	-55.26	3.3	43.3	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2363.184	-42.63	3.3	55.93	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2317.008	-54.47	3.3	44.09	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-45.59	3.3	52.97	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-55.14	3.3	43.42	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-45.32	3.3	53.24	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-54.88	3.3	43.68	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2489.008	-42.8	3.3	55.76	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2491.696	-54.41	3.3	44.15	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-46.01	3.3	52.55	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-55.16	3.3	43.4	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-45.54	3.3	53.02	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-54.87	3.3	43.69	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2384.016	-43.81	3.3	54.75	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2356.848	-53.71	3.3	44.85	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-45.68	3.3	52.88	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-54.44	3.3	44.12	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-44.61	3.3	53.95	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-53.58	3.3	44.98	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2485.672	-43.28	3.3	55.28	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.536	-53.55	3.3	45.01	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2500	-45.75	3.3	52.81	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2500	-54.55	3.3	44.01	Average	54	Pass

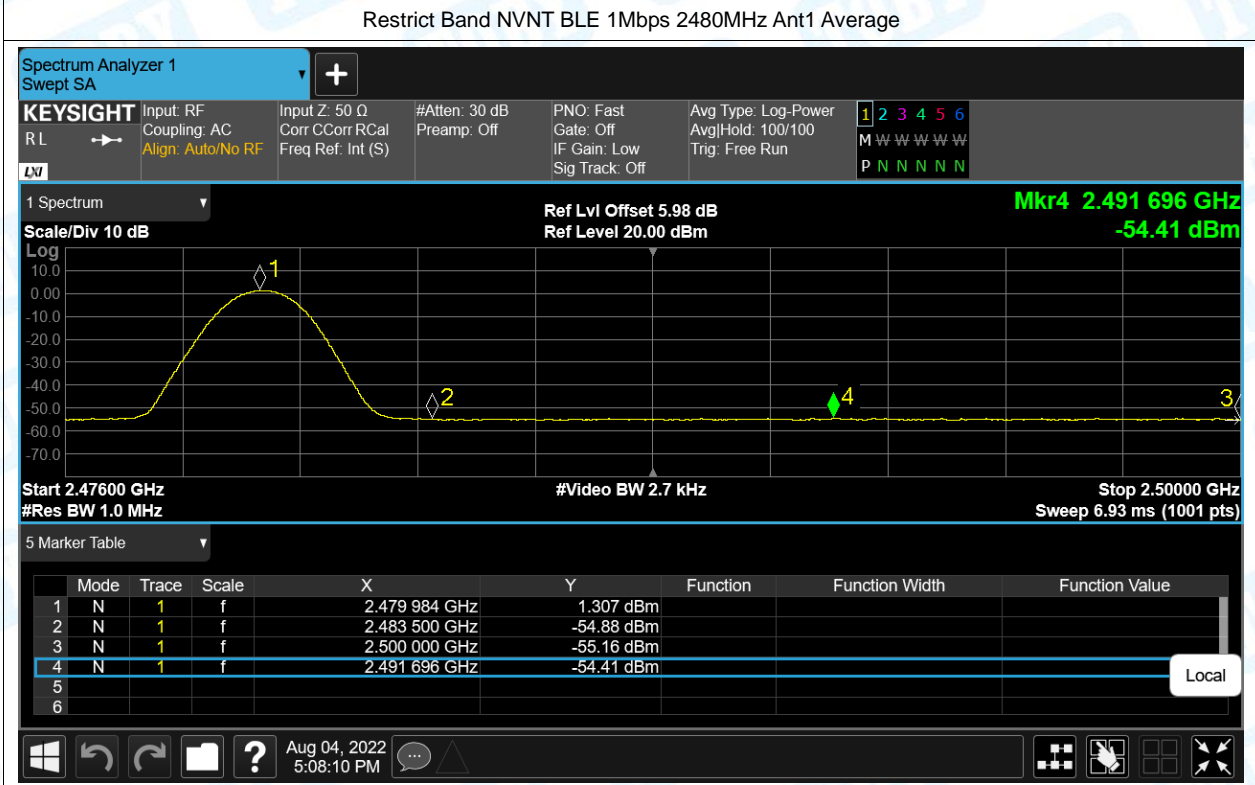
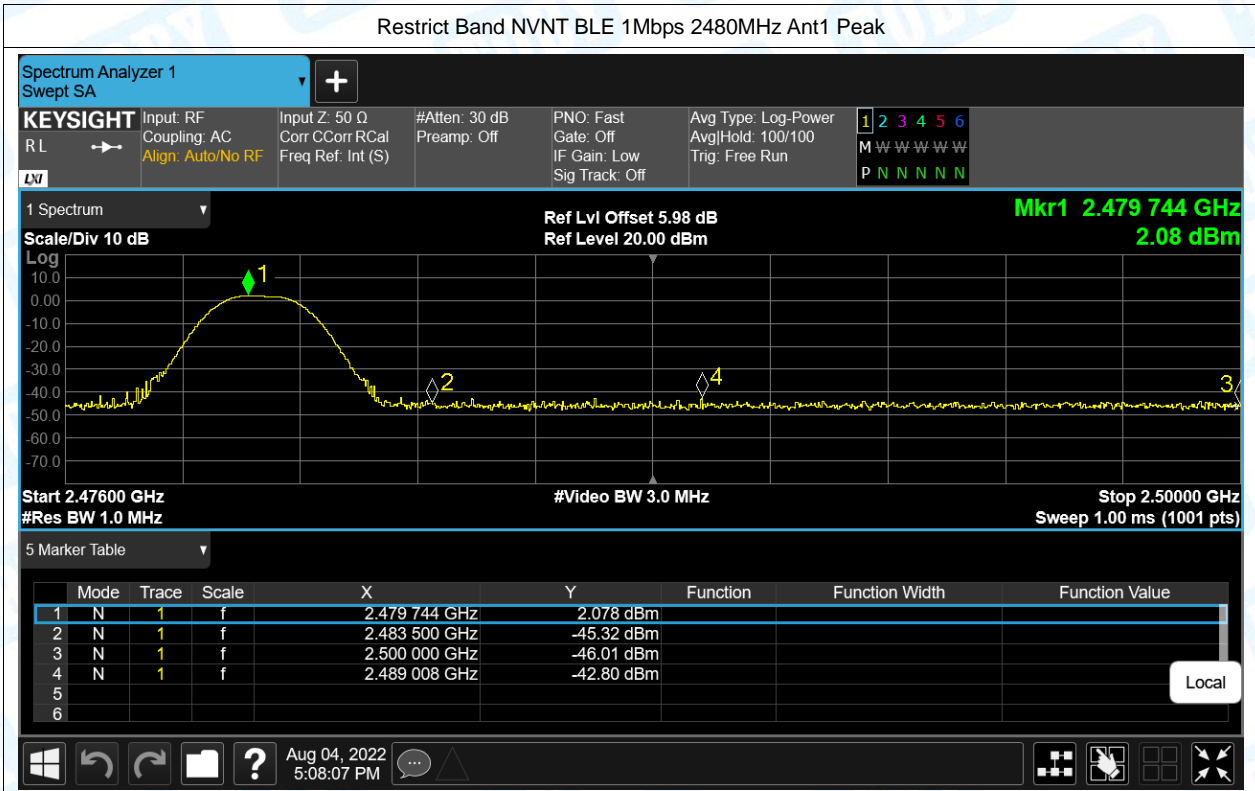
Test Graphs

Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Peak

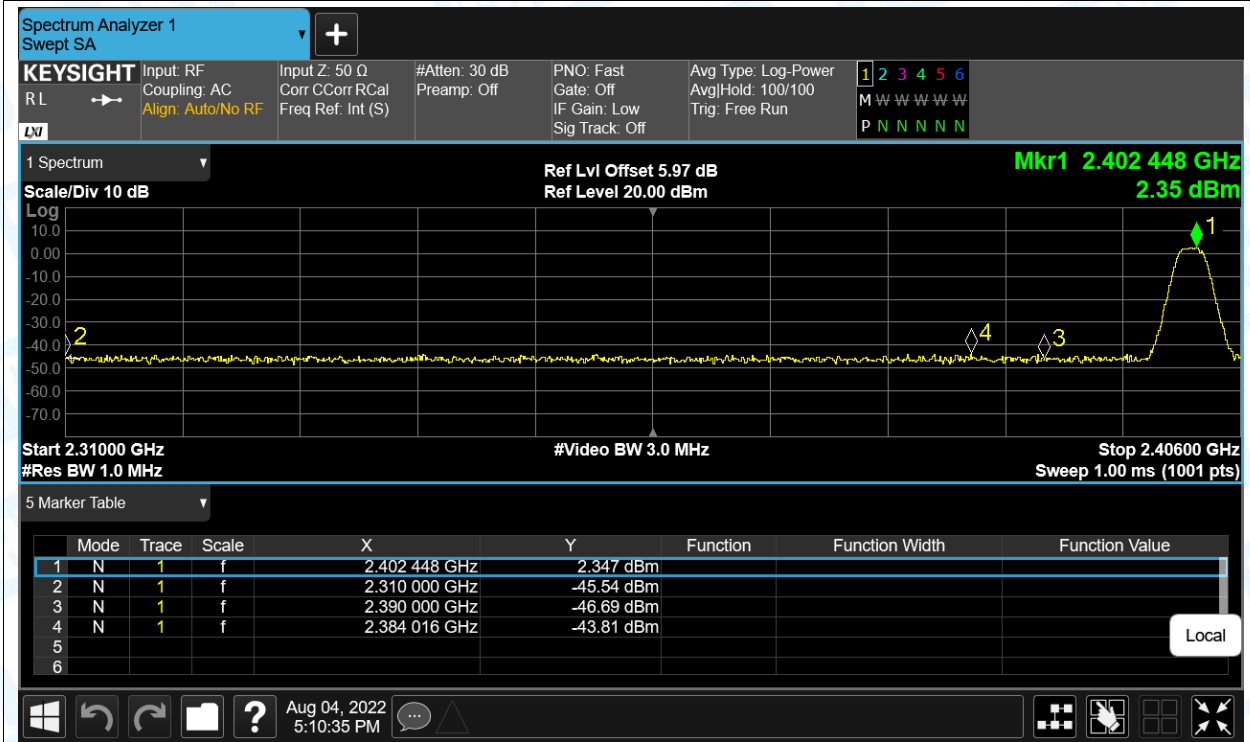


Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Average

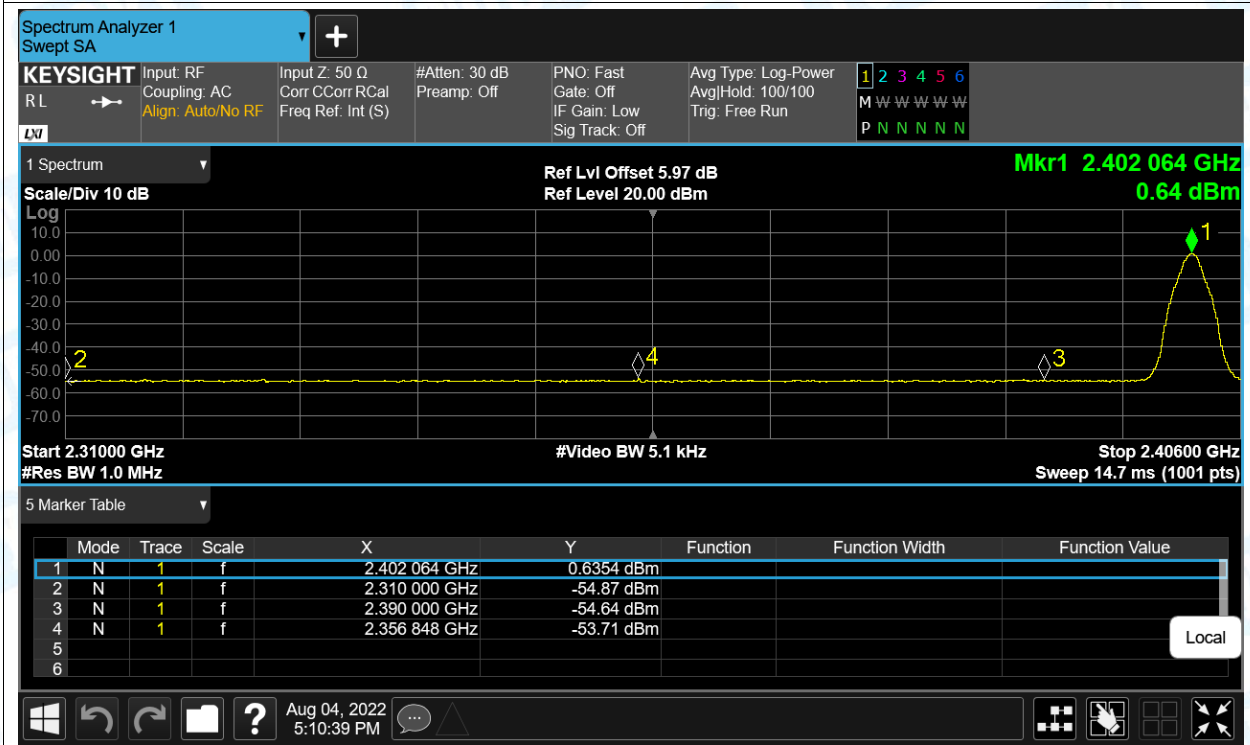


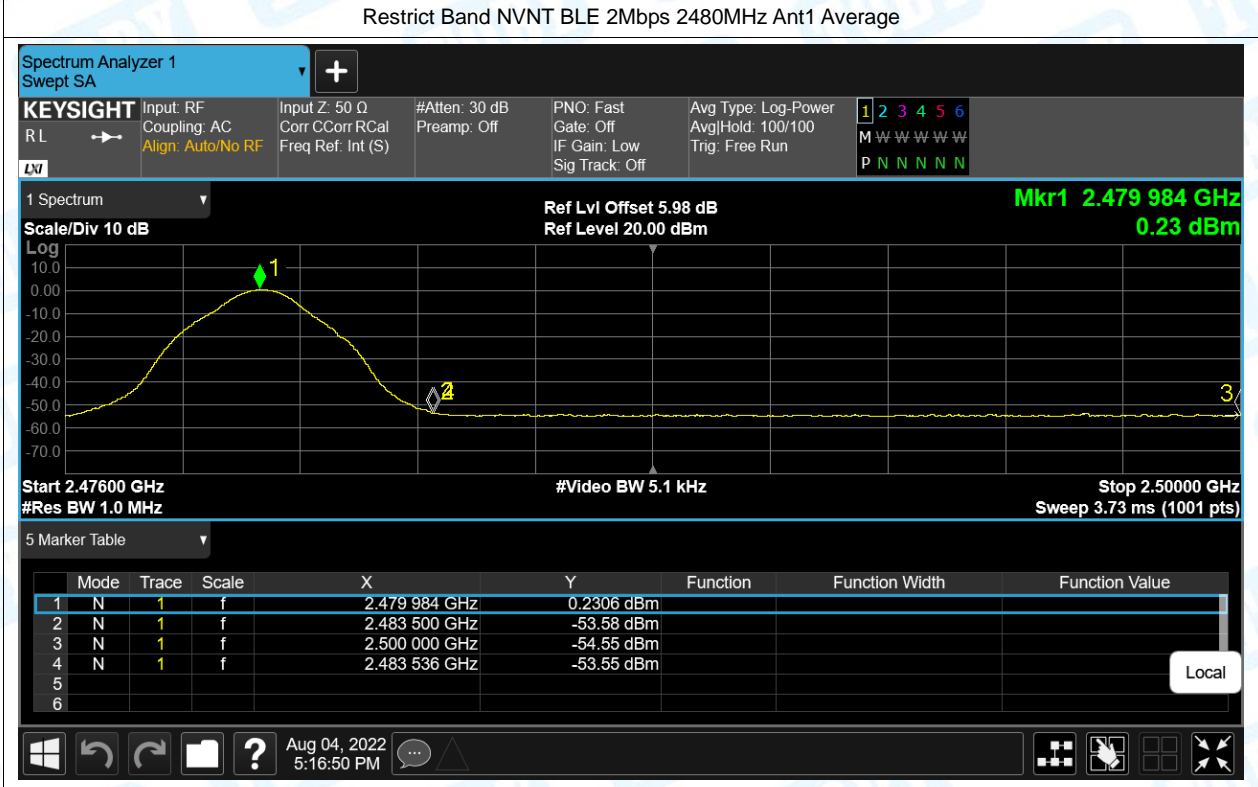
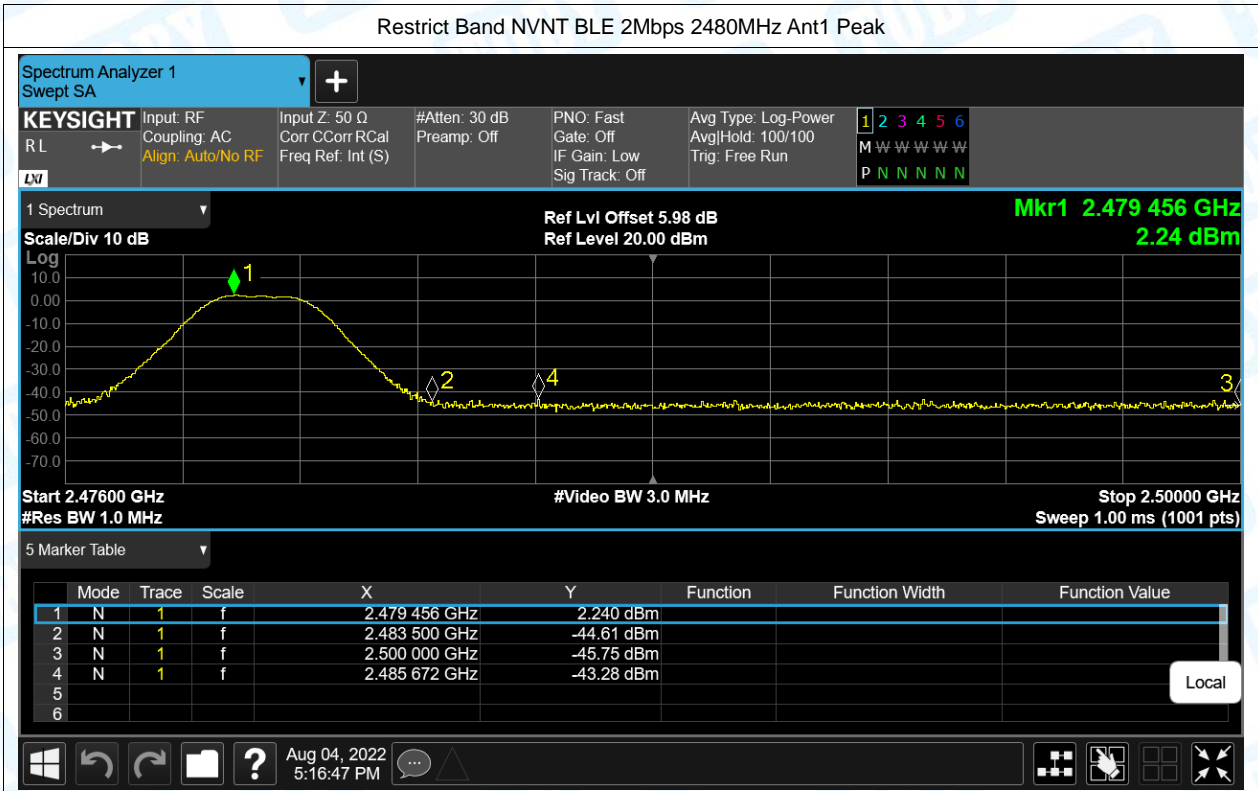


Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Average





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