

Appendix A

RF Test Data for BT LE (Conducted Measurement)

Product Name: Smart RGBCW Outdoor Wall Lights

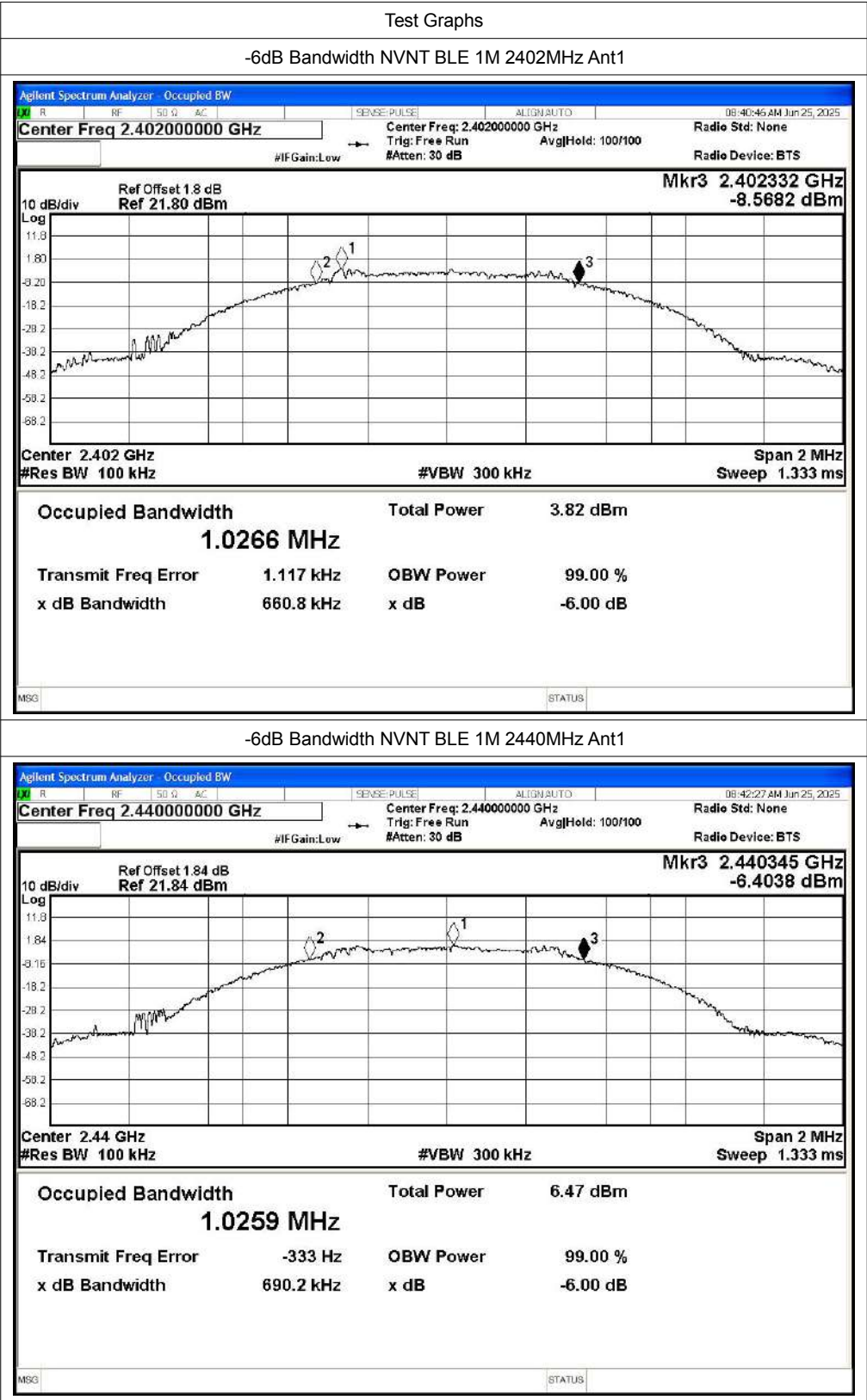
Test Model: BYR-OWP-ST02

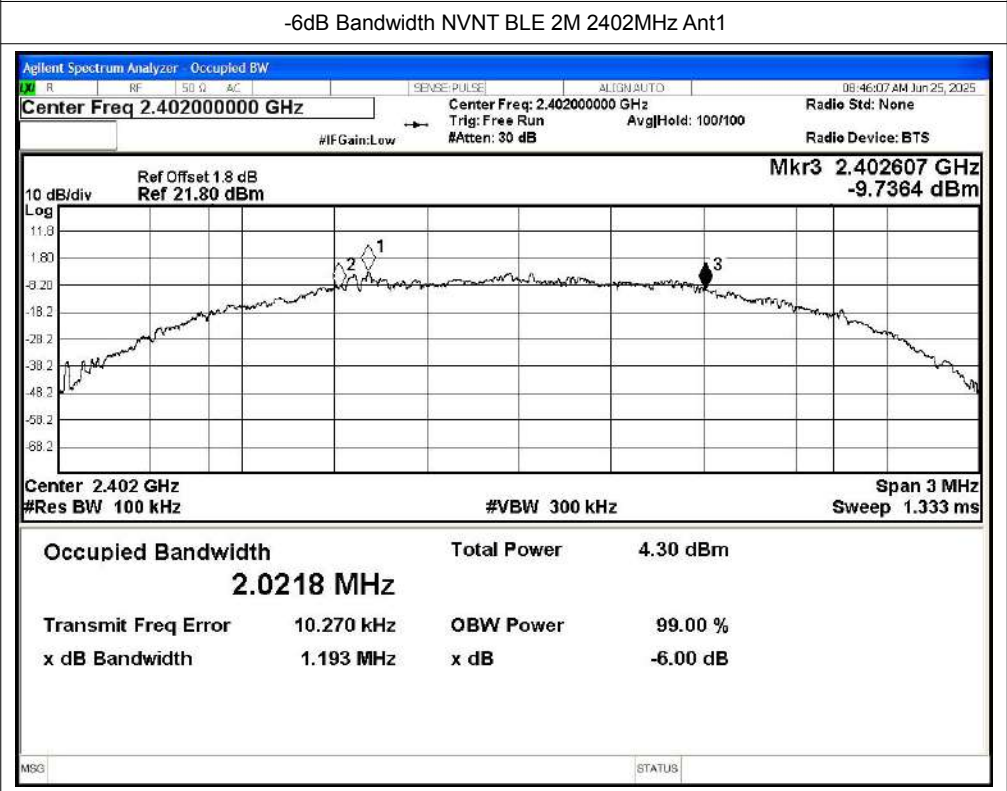
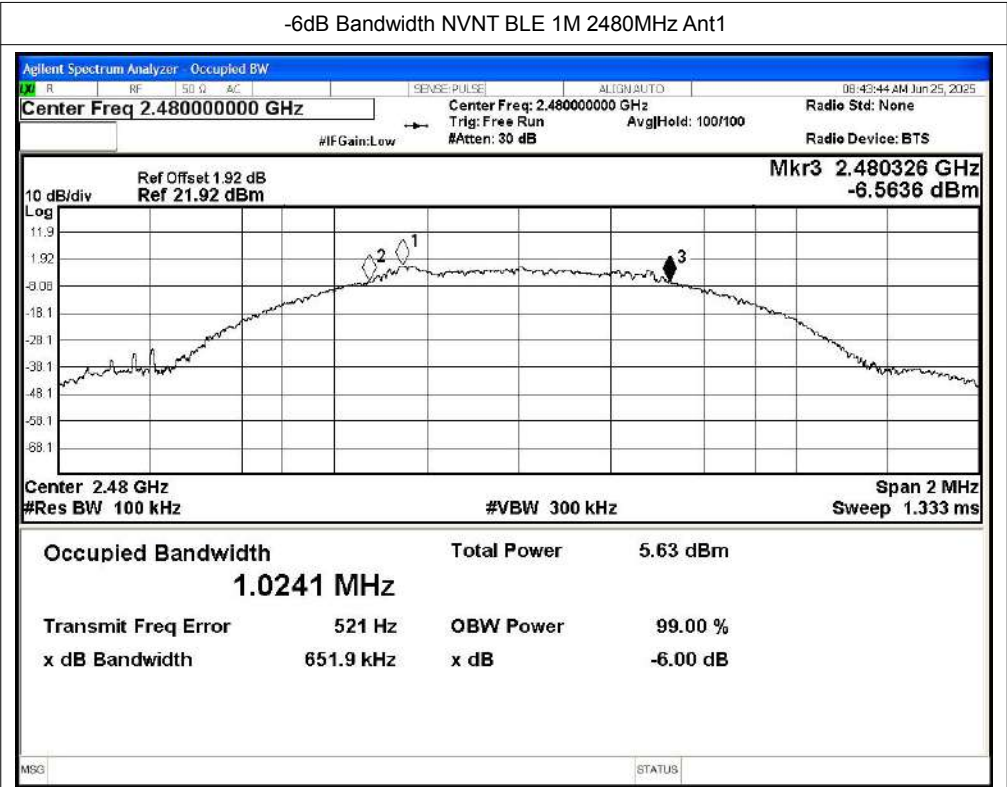
Environmental Conditions

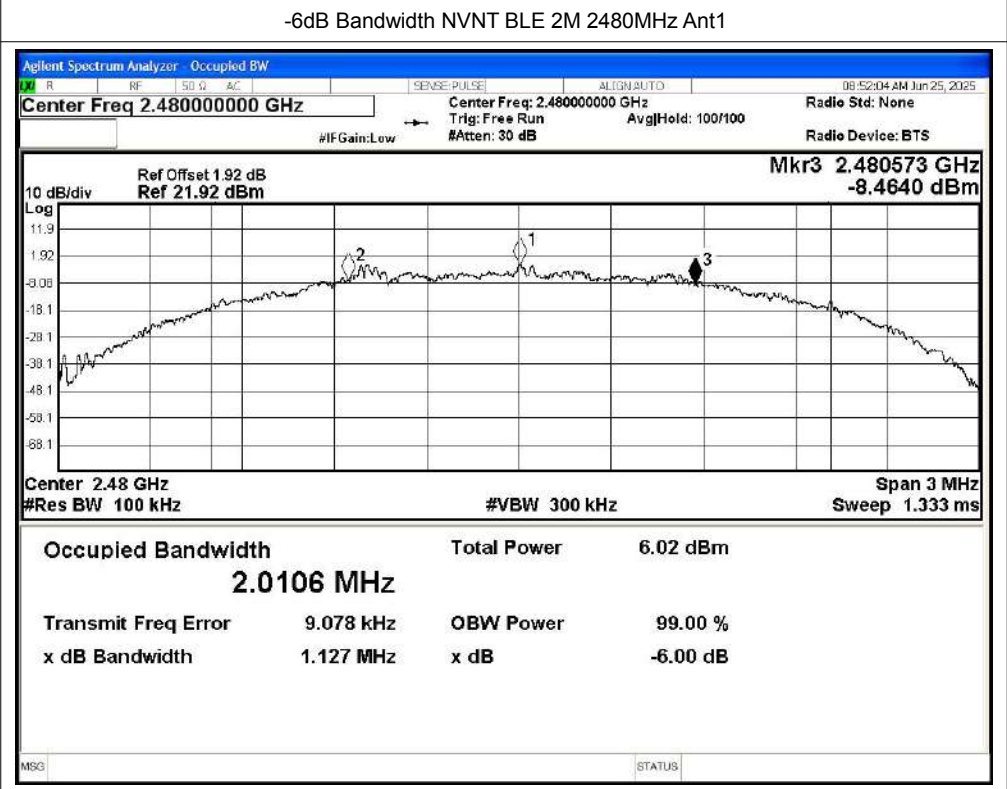
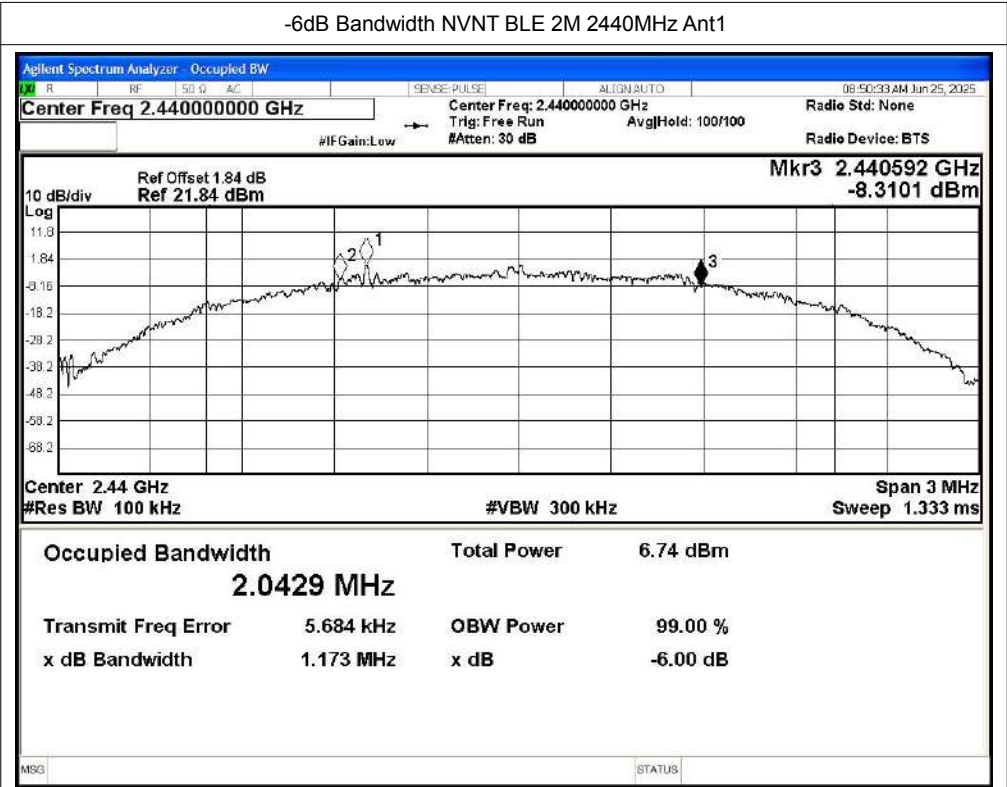
Temperature:	23.8 ° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

A.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.661	>=0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.69	>=0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.652	>=0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.193	>=0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.173	>=0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.127	>=0.5	Pass





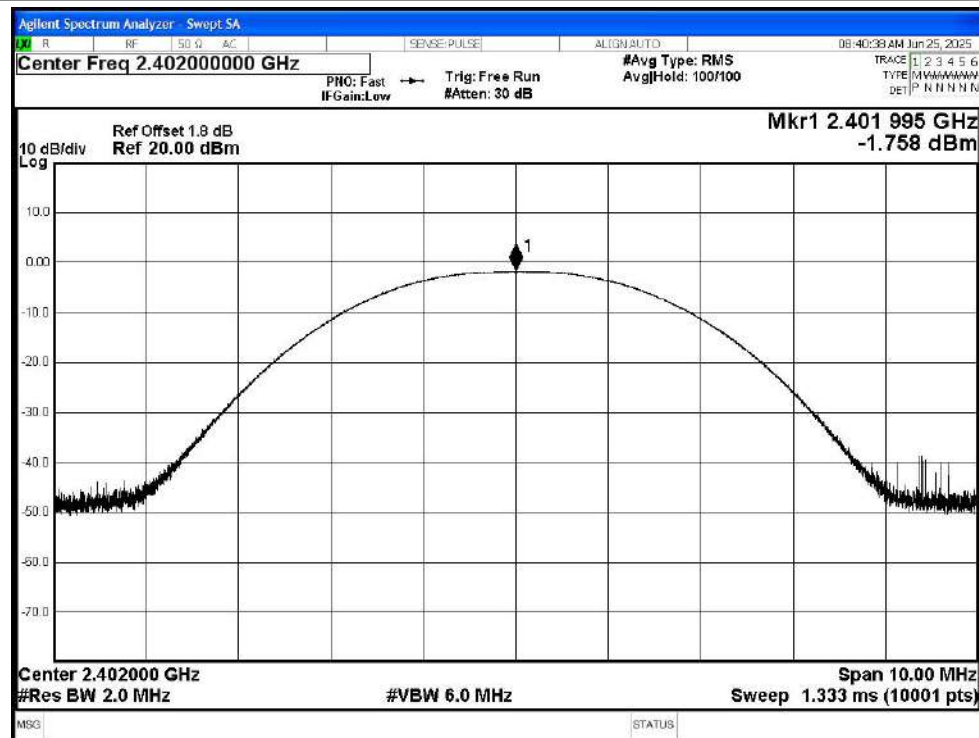


A.2 Maximum Peak Conducted Output Power

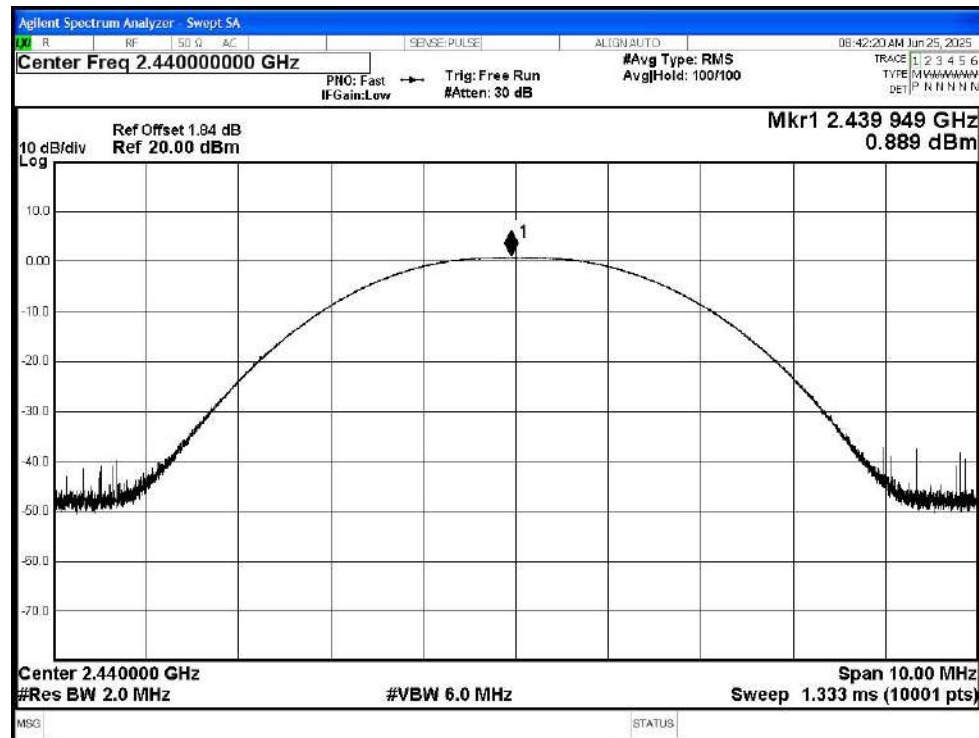
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-1.76	30	Pass
NVNT	BLE 1M	2440	Ant1	0.89	30	Pass
NVNT	BLE 1M	2480	Ant1	0.01	30	Pass
NVNT	BLE 2M	2402	Ant1	-1.82	30	Pass
NVNT	BLE 2M	2440	Ant1	0.79	30	Pass
NVNT	BLE 2M	2480	Ant1	-0.16	30	Pass

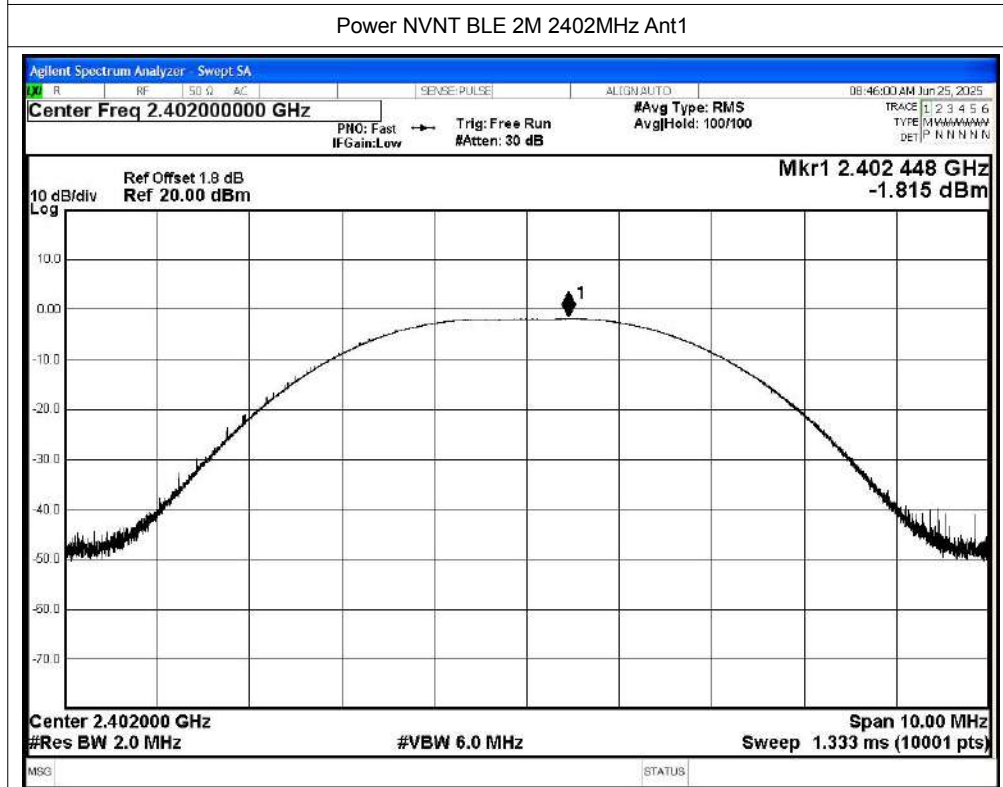
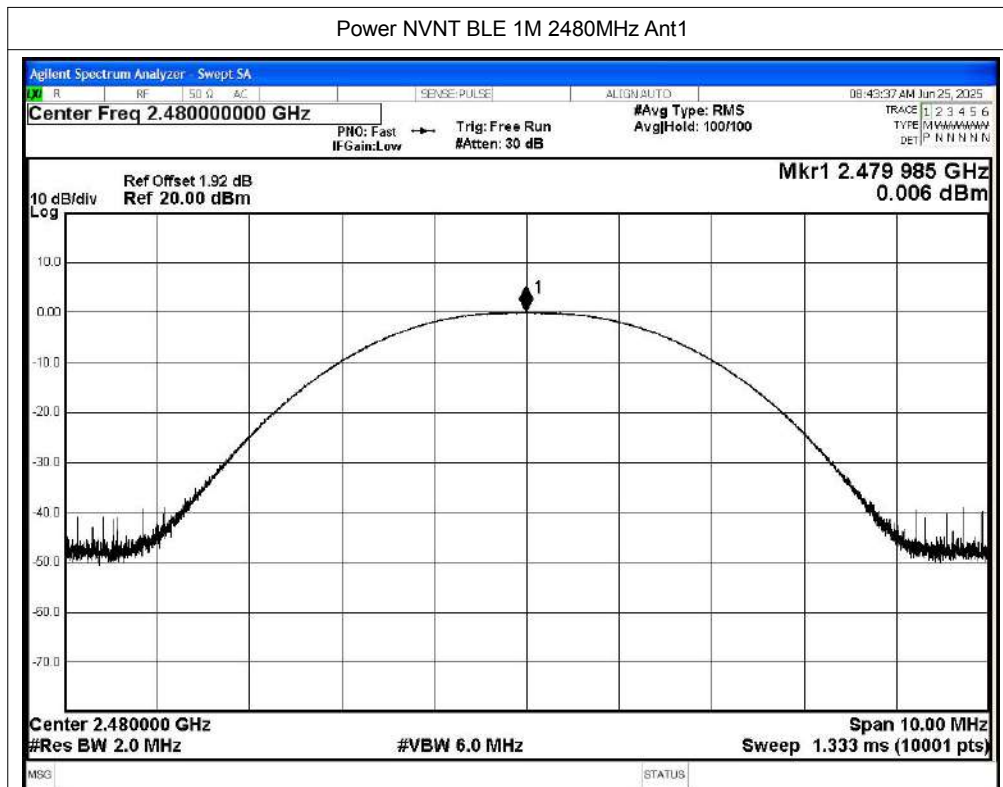
Test Graphs

Power NVNT BLE 1M 2402MHz Ant1

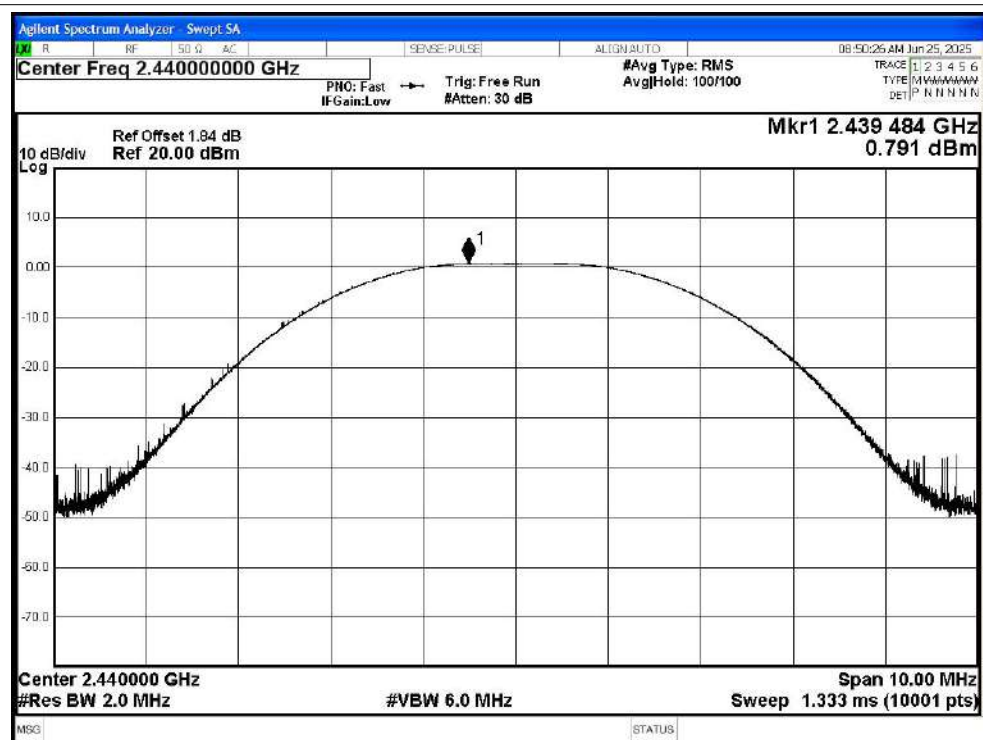


Power NVNT BLE 1M 2440MHz Ant1

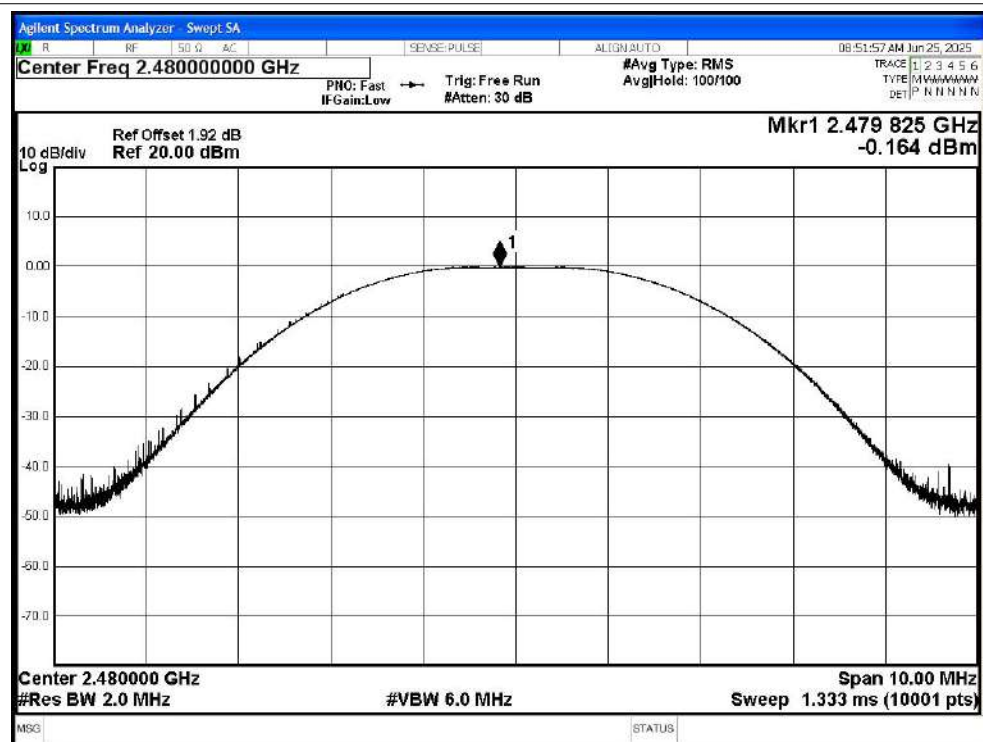




Power NVNT BLE 2M 2440MHz Ant1



Power NVNT BLE 2M 2480MHz Ant1

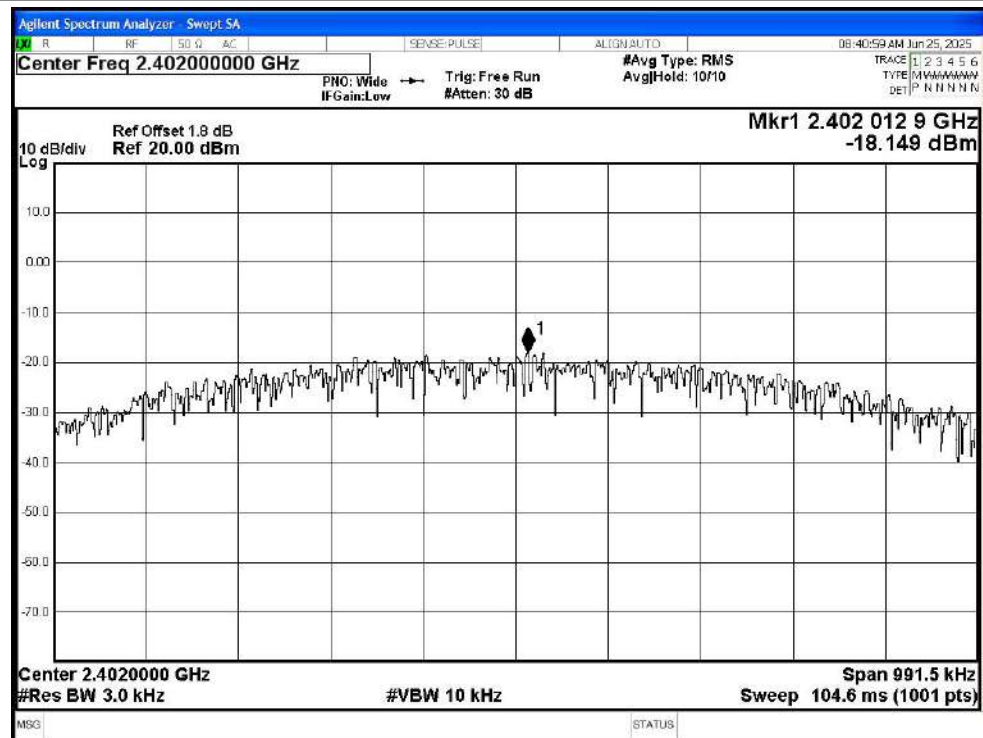


A.3 Maximum Power Spectral Density Level

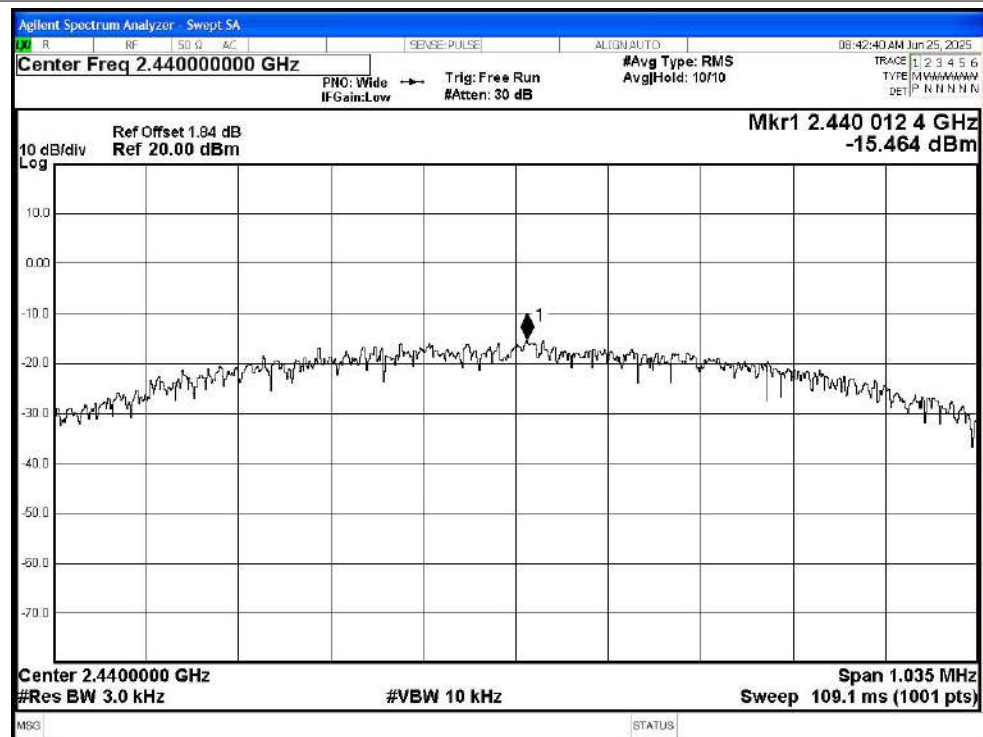
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-18.15	8	Pass
NVNT	BLE 1M	2440	Ant1	-15.46	8	Pass
NVNT	BLE 1M	2480	Ant1	-16.2	8	Pass
NVNT	BLE 2M	2402	Ant1	-21.78	8	Pass
NVNT	BLE 2M	2440	Ant1	-18.34	8	Pass
NVNT	BLE 2M	2480	Ant1	-19.34	8	Pass

Test Graphs

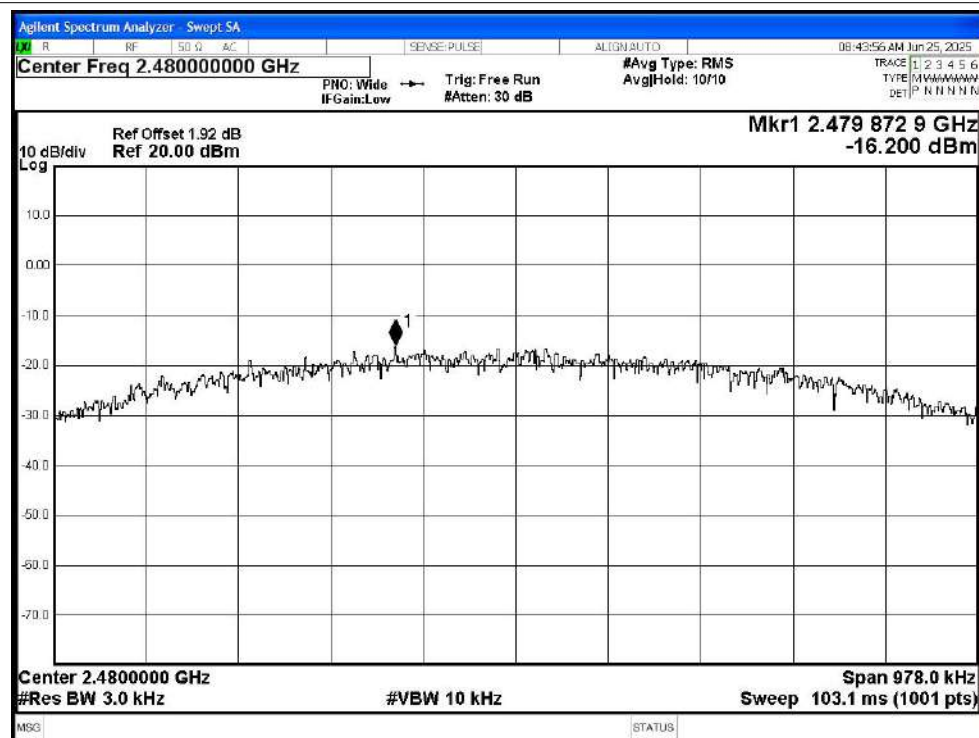
PSD NVNT BLE 1M 2402MHz Ant1



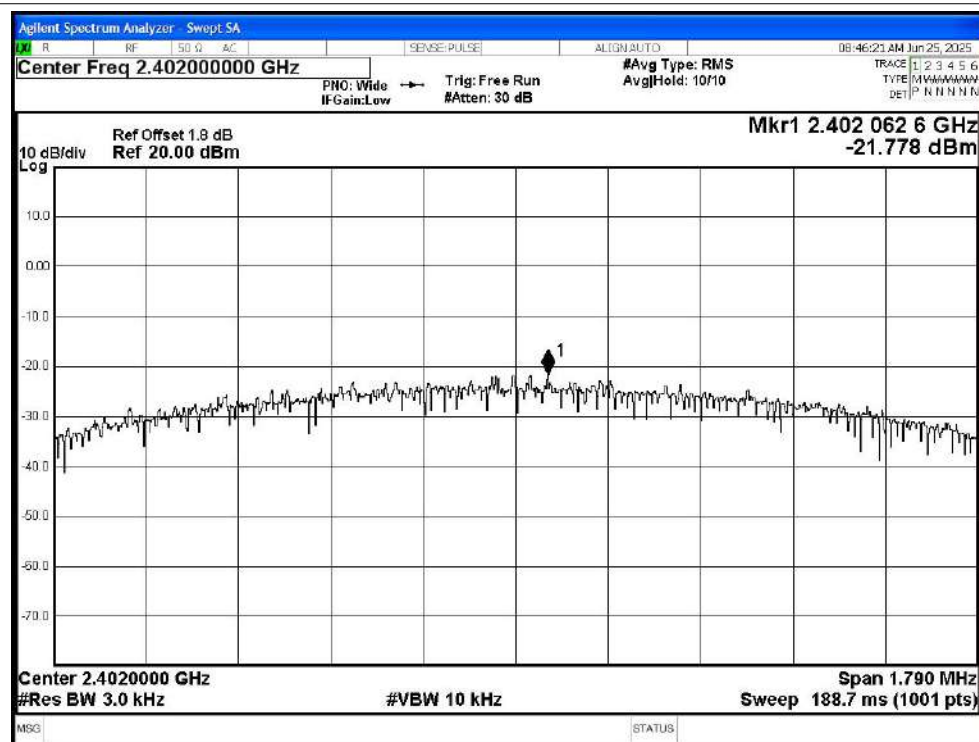
PSD NVNT BLE 1M 2440MHz Ant1



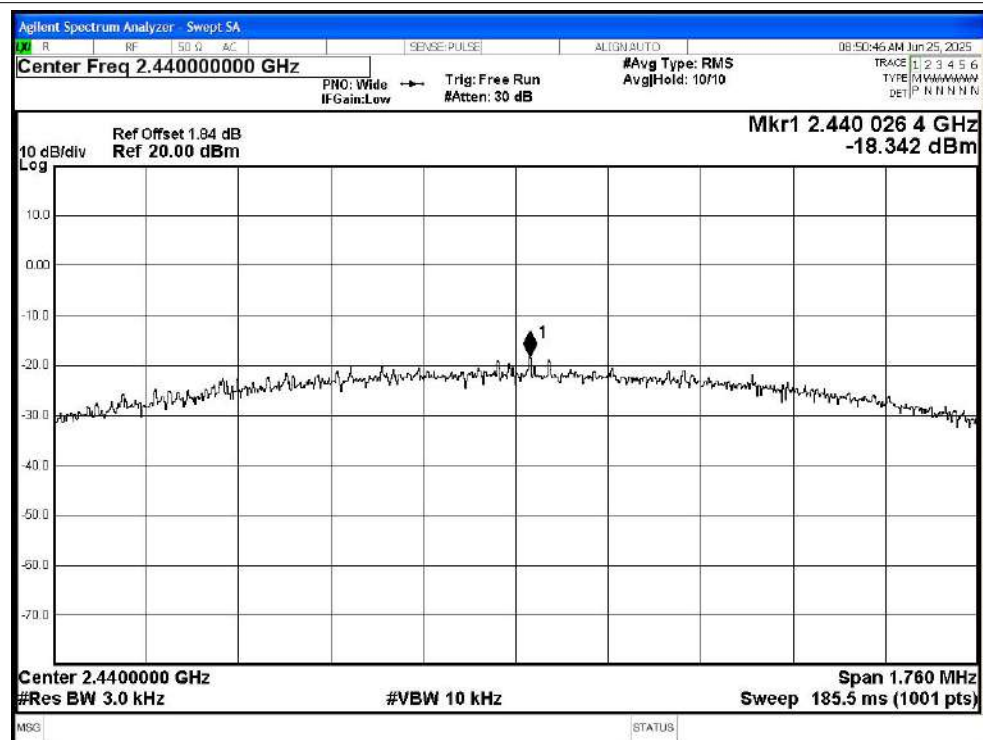
PSD NVNT BLE 1M 2480MHz Ant1



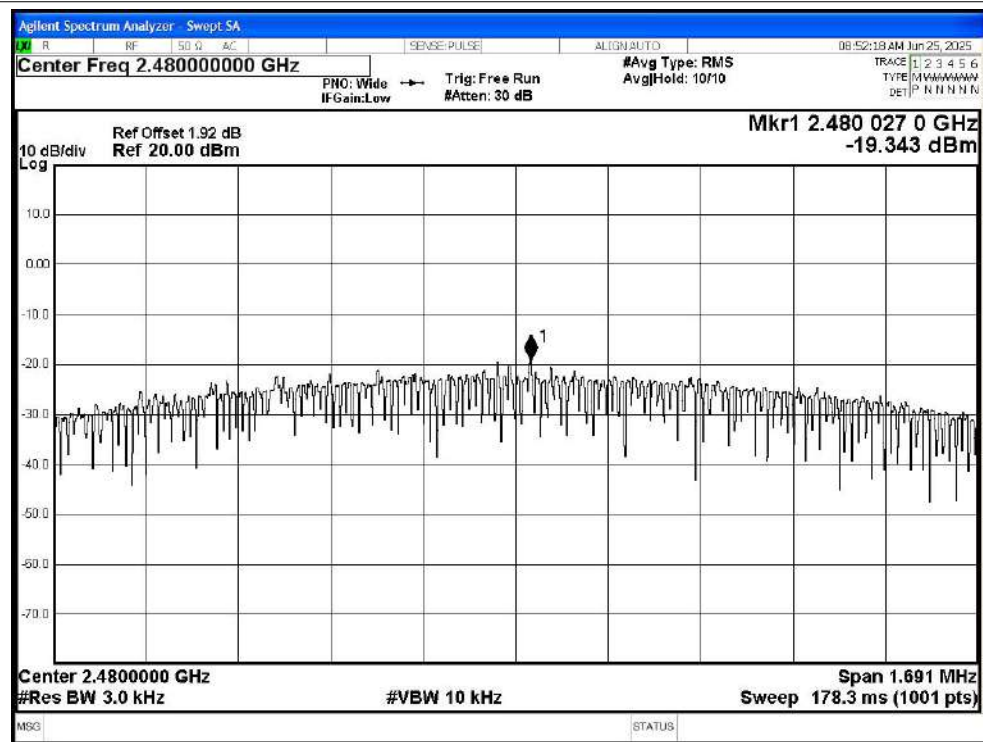
PSD NVNT BLE 2M 2402MHz Ant1



PSD NVNT BLE 2M 2440MHz Ant1



PSD NVNT BLE 2M 2480MHz Ant1

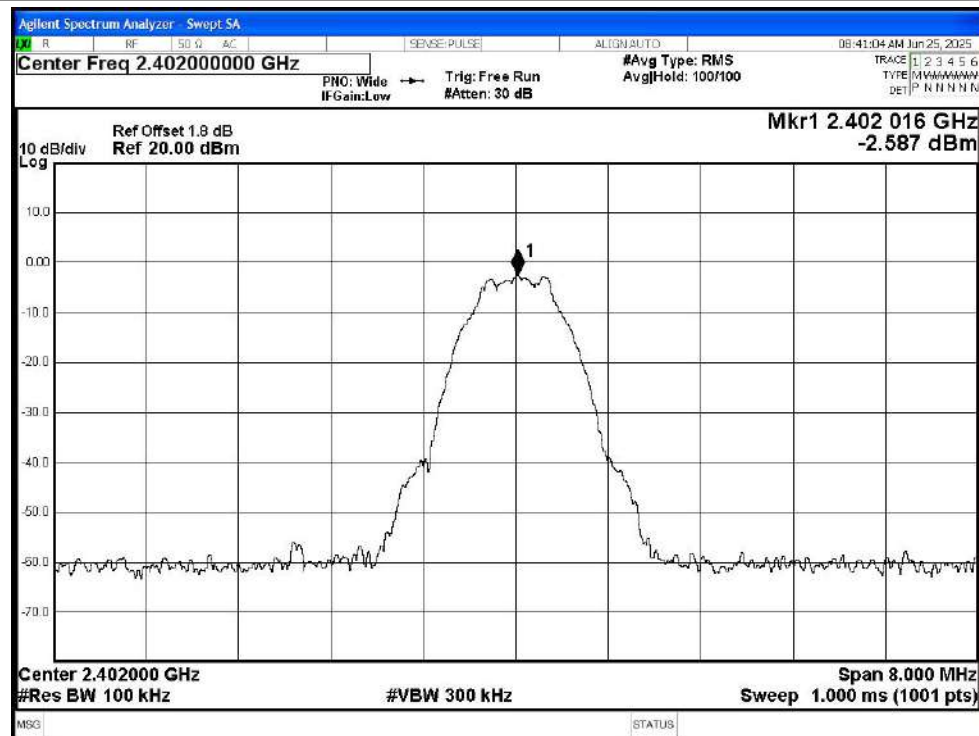


A.4 Band Edge

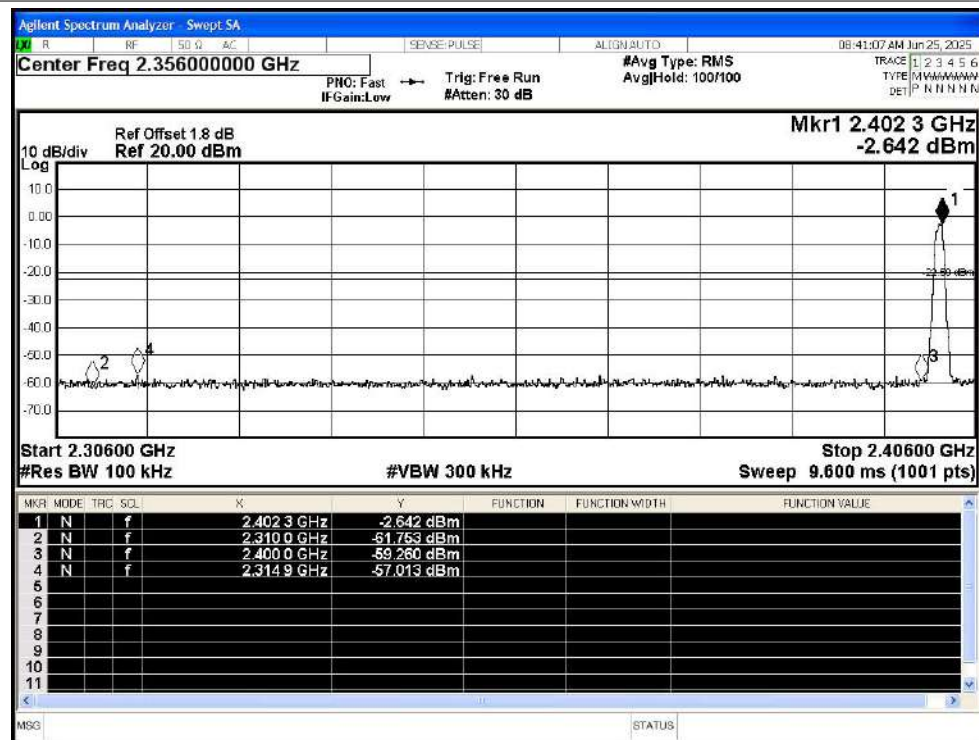
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-54.43	-20	Pass
NVNT	BLE 1M	2480	Ant1	-56.22	-20	Pass
NVNT	BLE 2M	2402	Ant1	-44.81	-20	Pass
NVNT	BLE 2M	2480	Ant1	-55.38	-20	Pass

Test Graphs

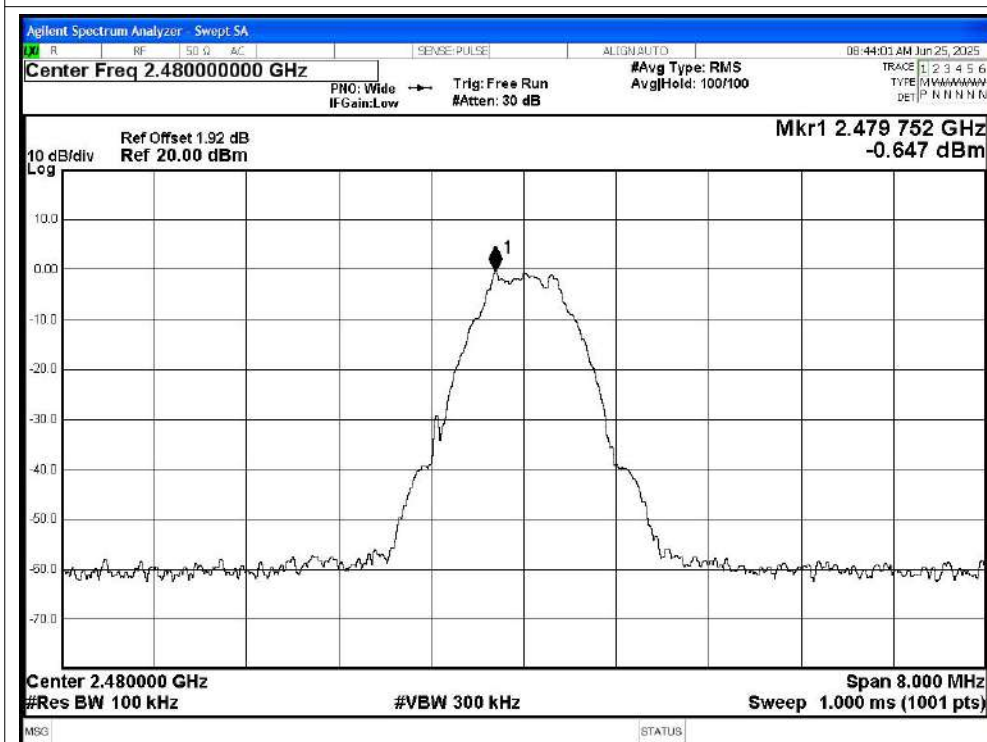
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



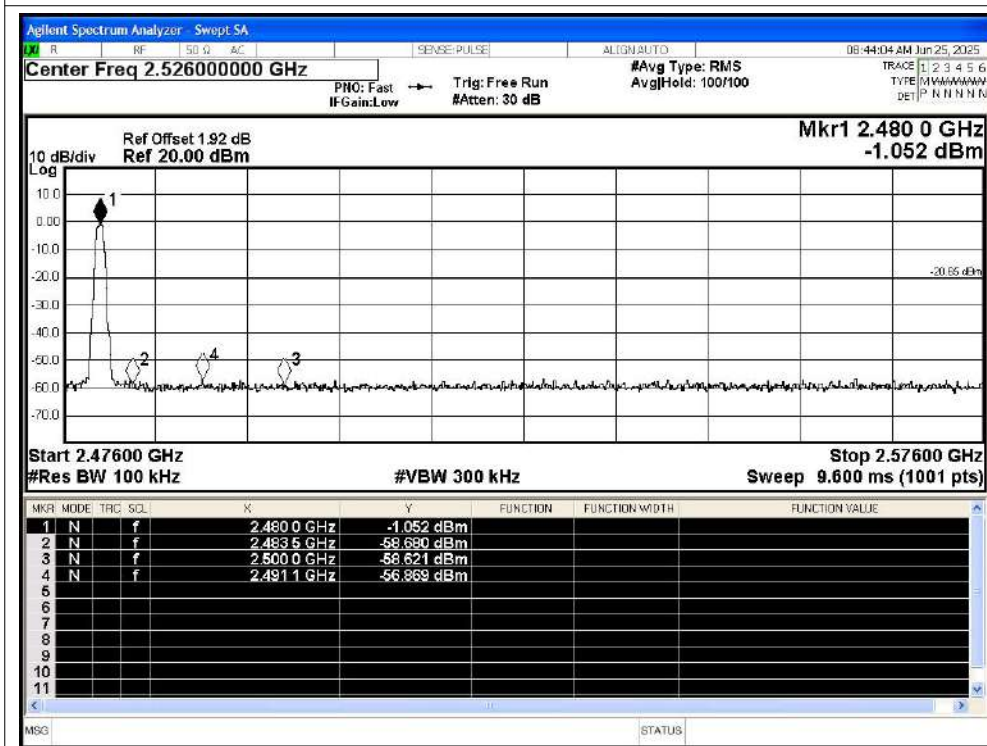
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

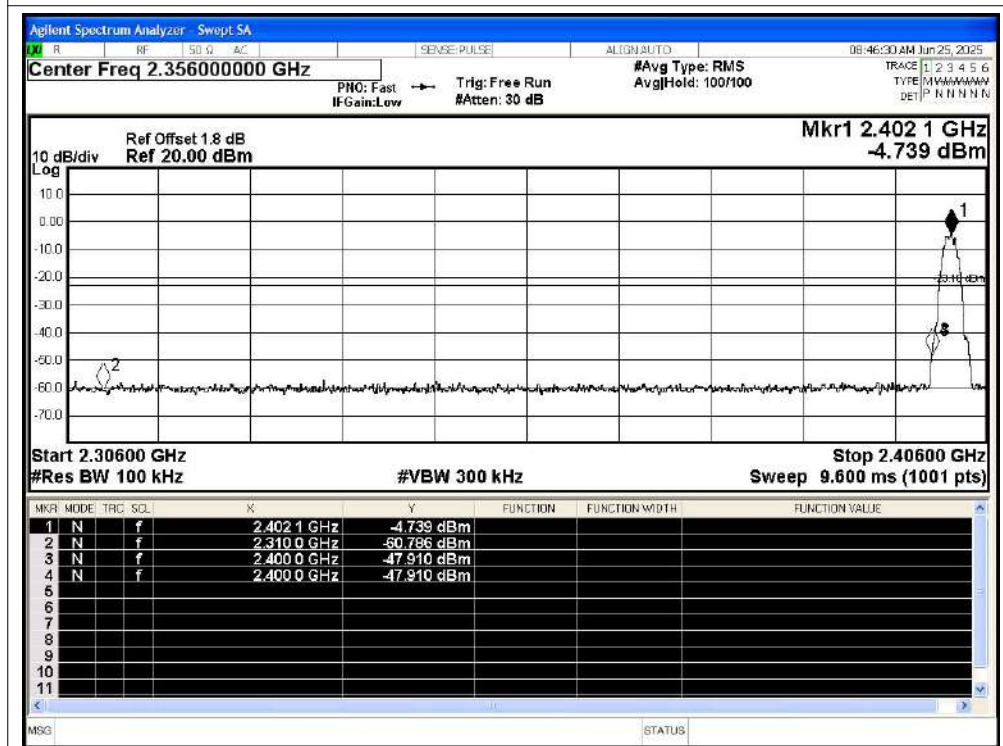


Band Edge NVNT BLE 1M 2480MHz Ant1 Ref

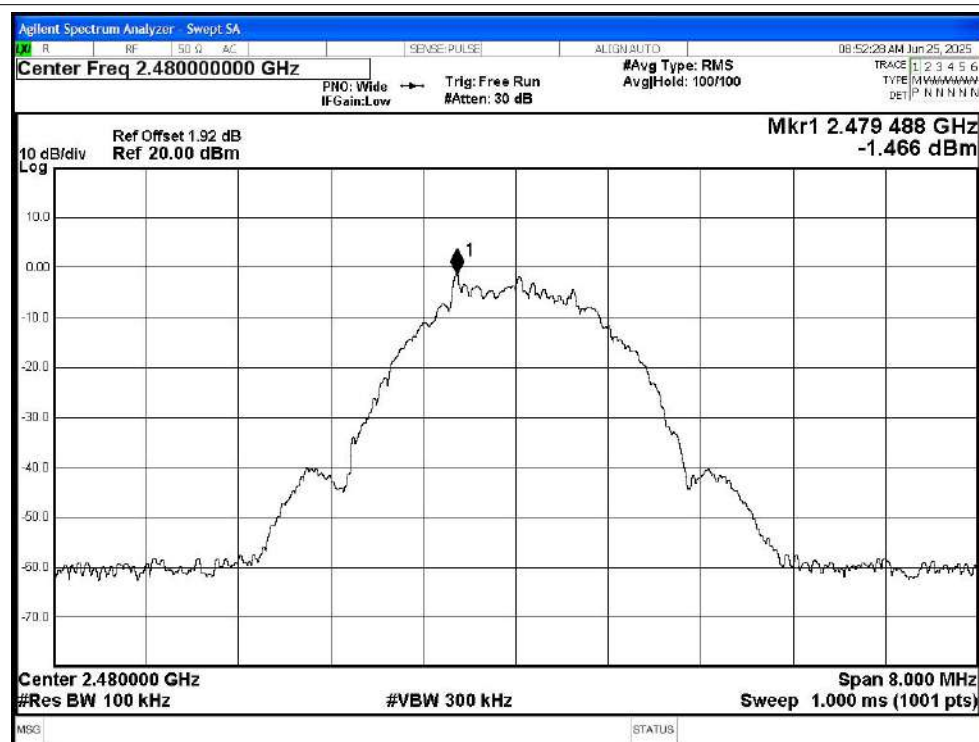


Band Edge NVNT BLE 1M 2480MHz Ant1 Emission

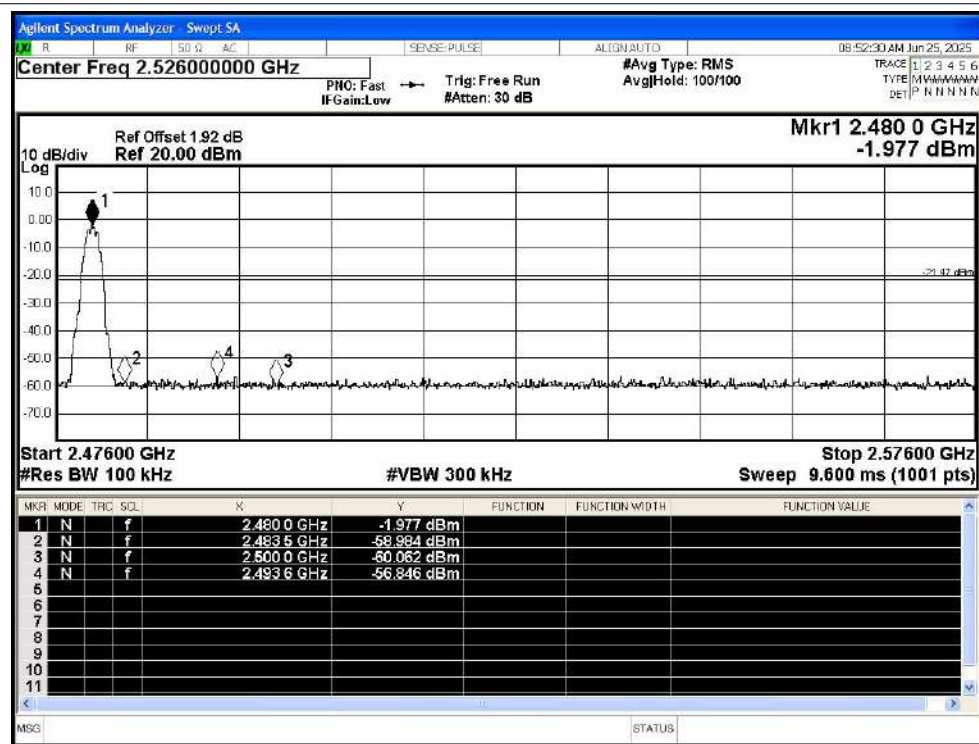




Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



Band Edge NVNT BLE 2M 2480MHz Ant1 Emission

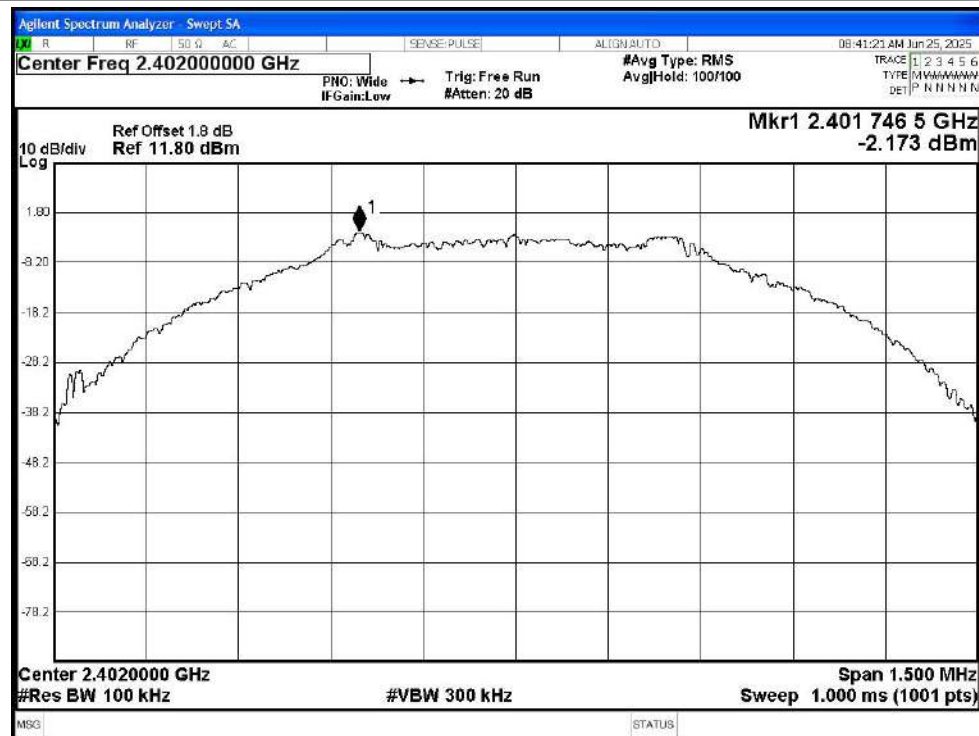


A.5 Conducted RF Spurious Emission

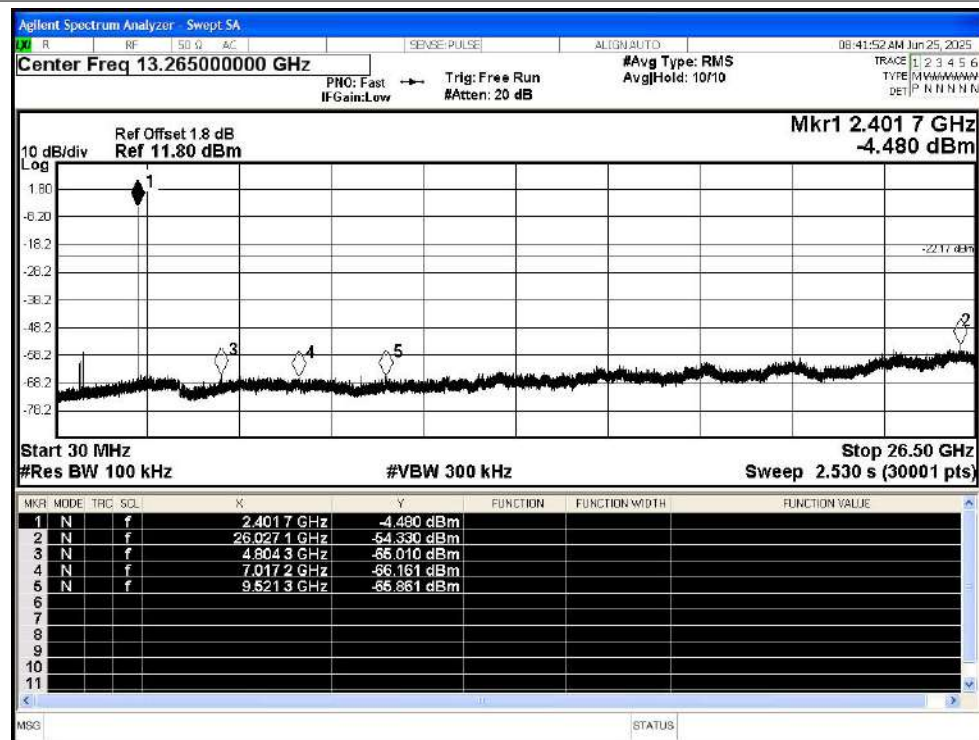
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-52.16	-20	Pass
NVNT	BLE 1M	2440	Ant1	-56.27	-20	Pass
NVNT	BLE 1M	2480	Ant1	-55.43	-20	Pass
NVNT	BLE 2M	2402	Ant1	-49.22	-20	Pass
NVNT	BLE 2M	2440	Ant1	-54.92	-20	Pass
NVNT	BLE 2M	2480	Ant1	-53.96	-20	Pass

Test Graphs

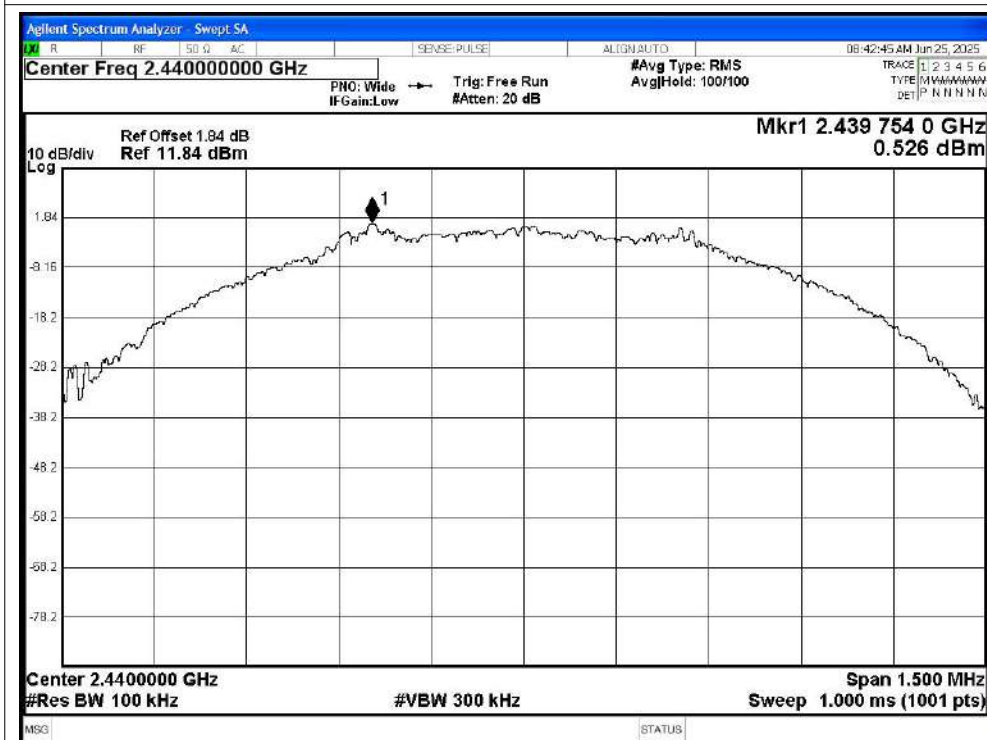
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



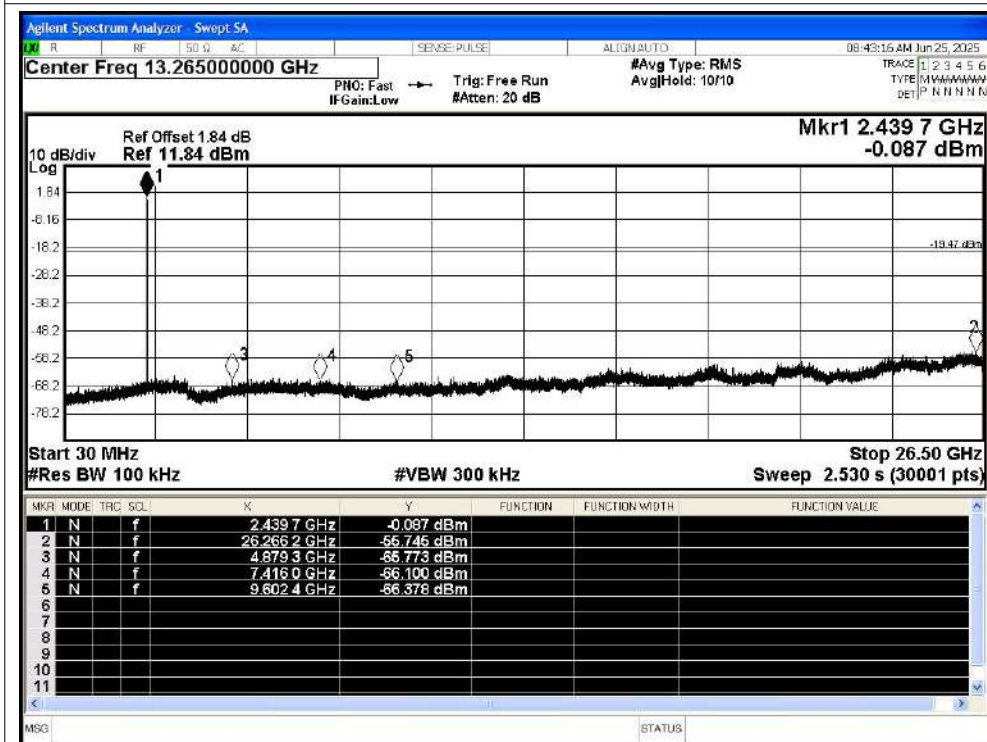
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



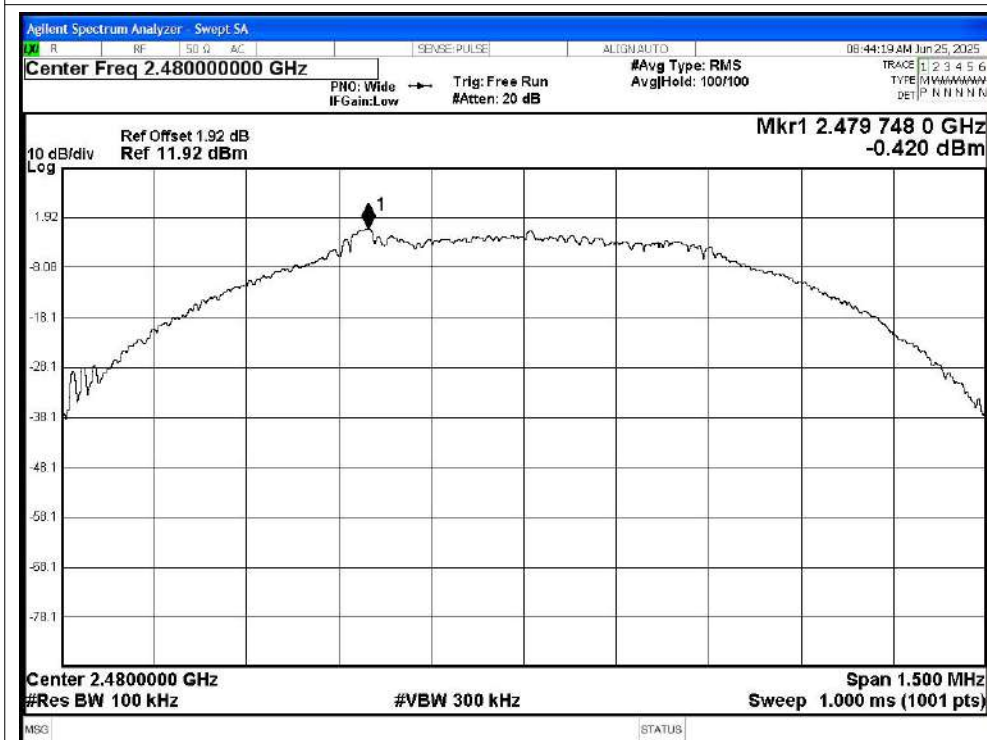
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



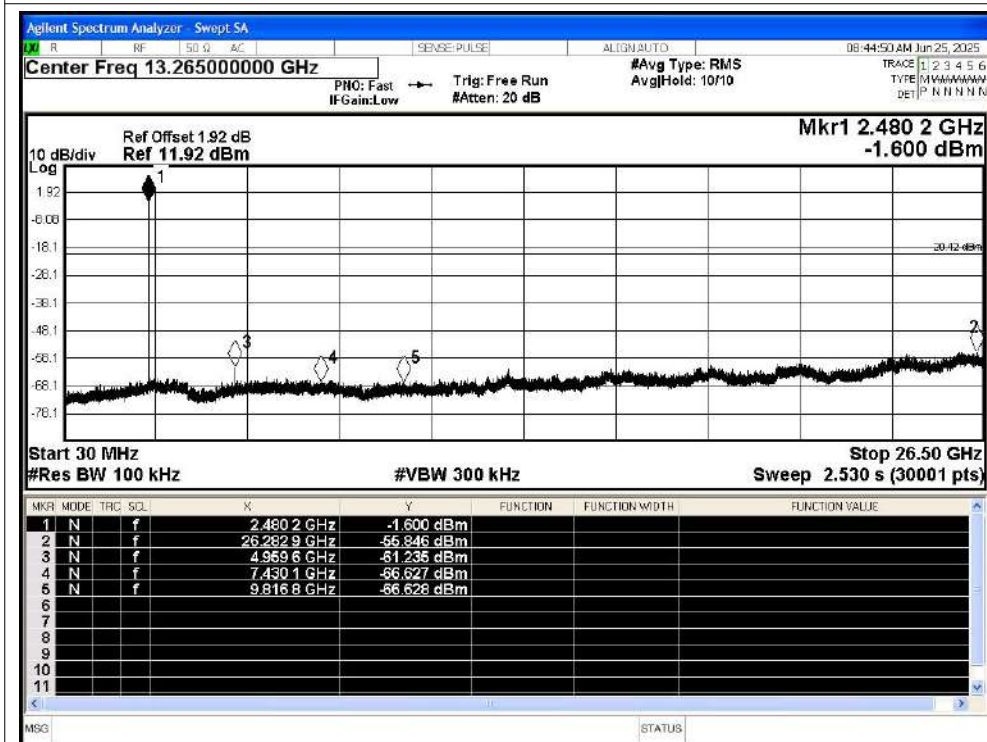
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



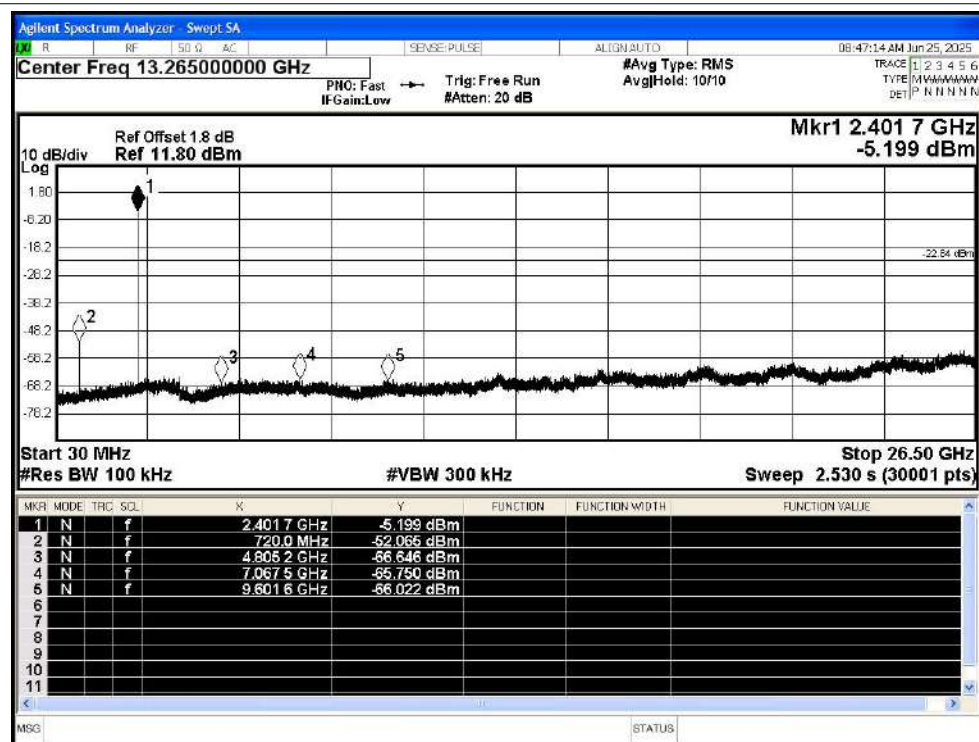
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



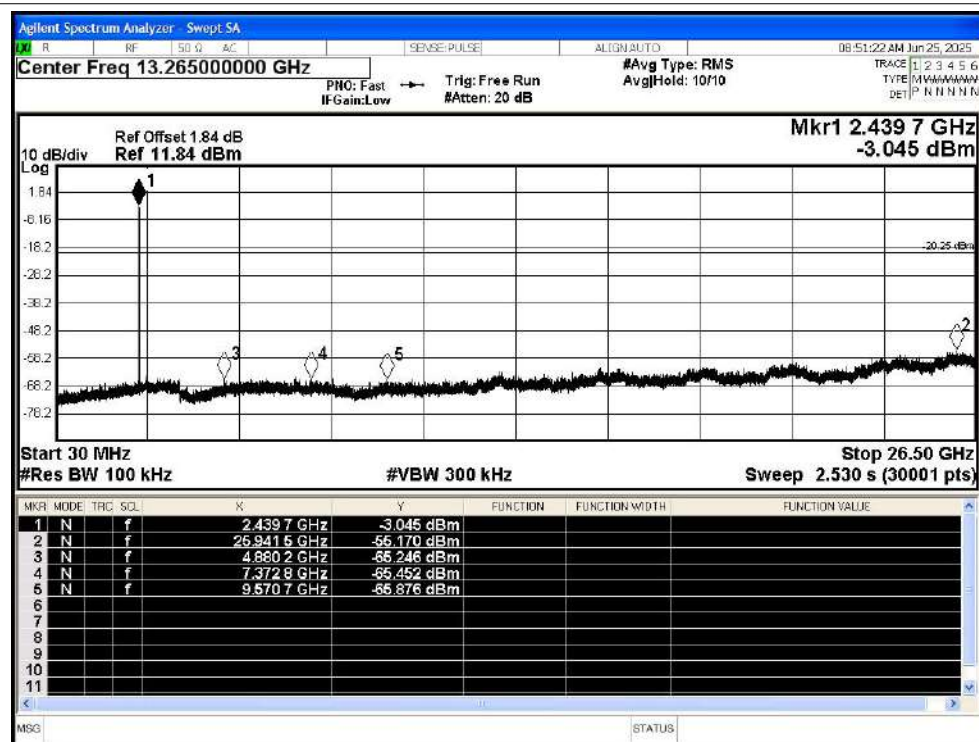
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



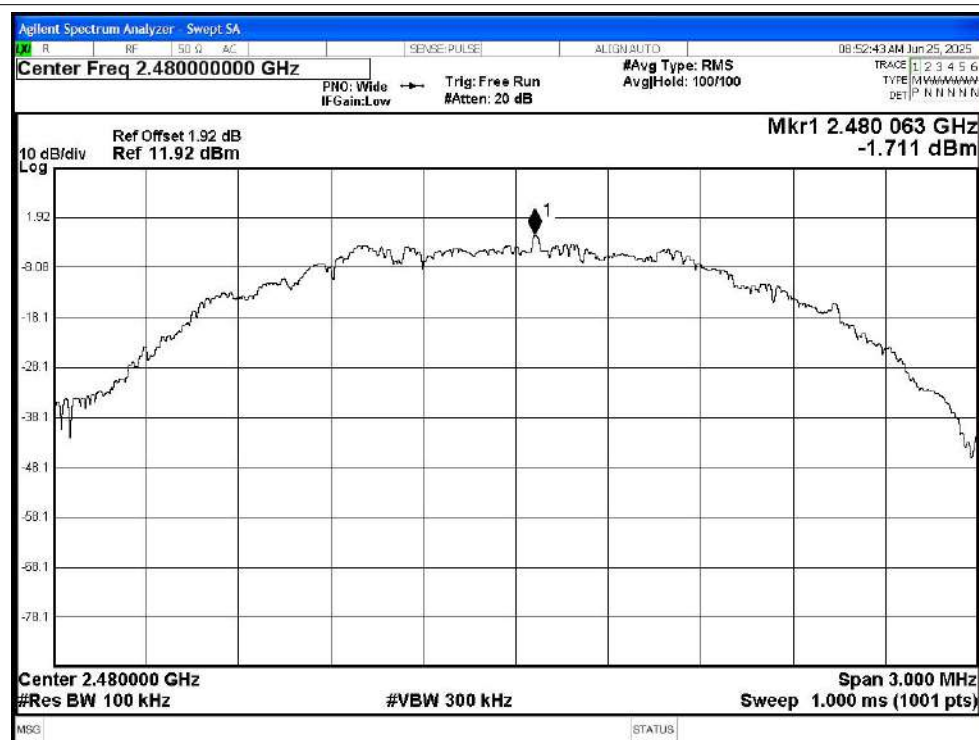
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



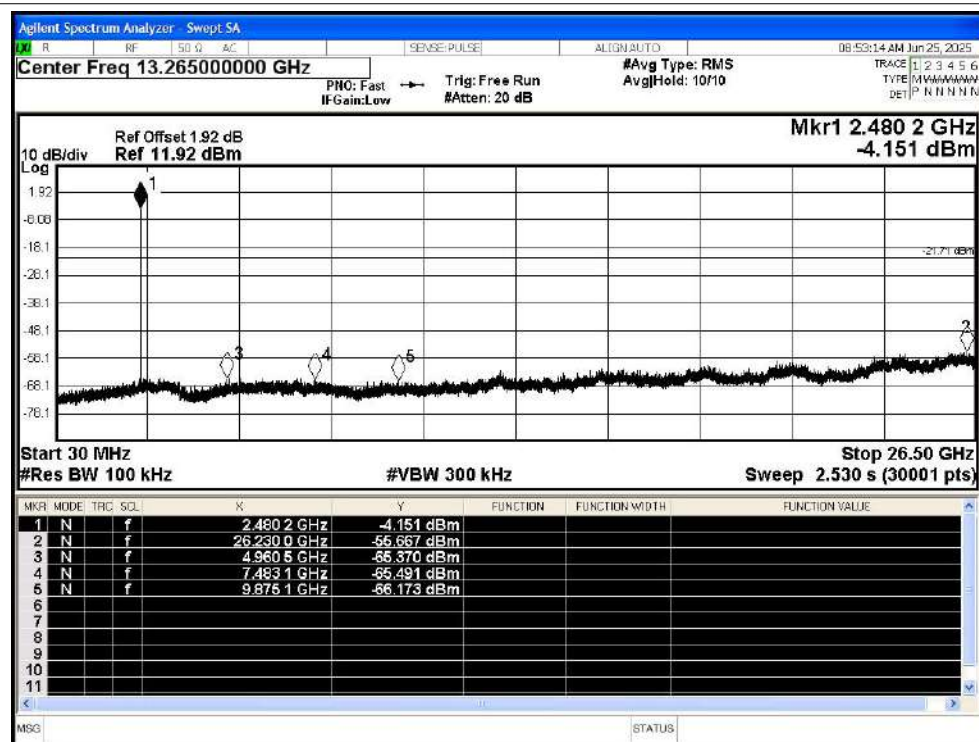
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission

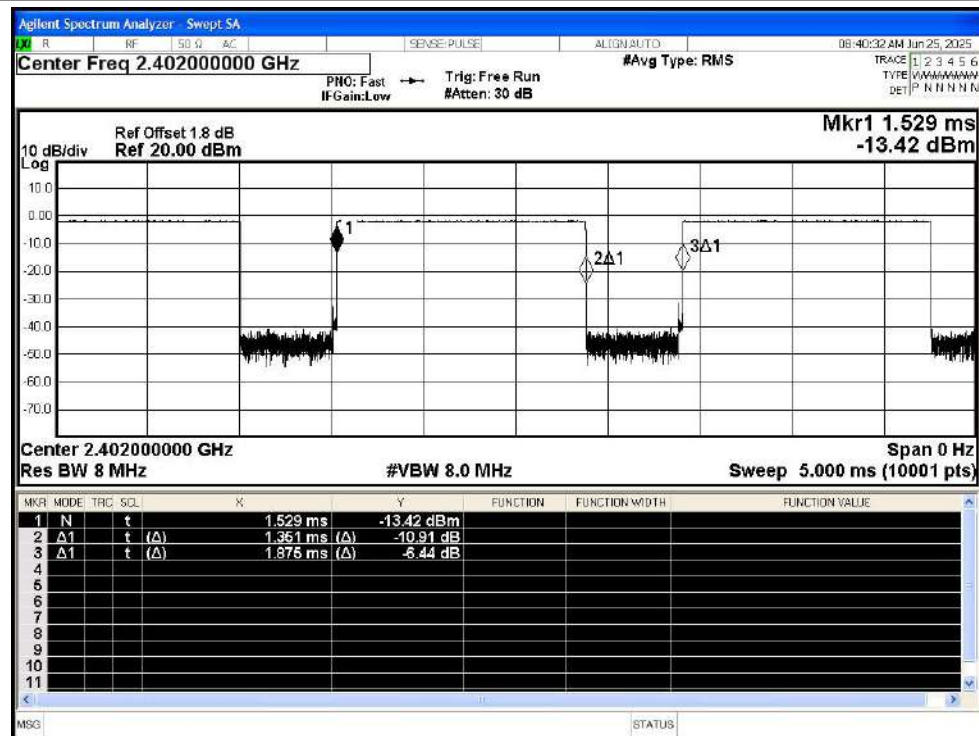


A.6 Duty Cycle

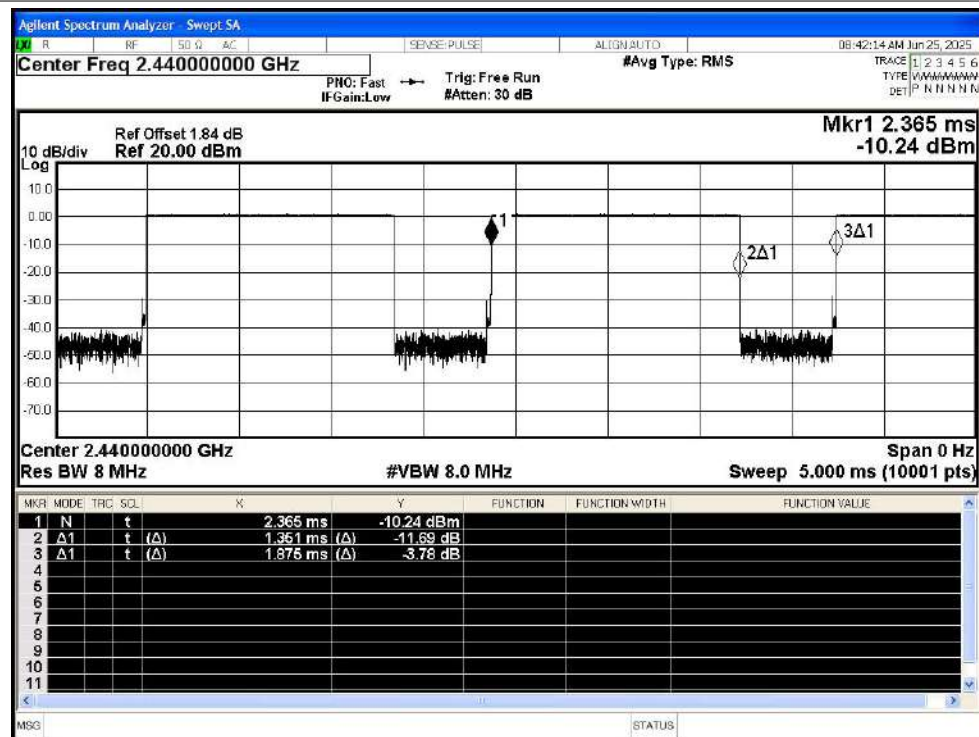
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	72.03	1.42	0.74
NVNT	BLE 1M	2440	Ant1	72.03	1.42	0.74
NVNT	BLE 1M	2480	Ant1	72.03	1.42	0.74
NVNT	BLE 2M	2402	Ant1	54.38	2.65	1.47
NVNT	BLE 2M	2440	Ant1	54.4	2.64	1.47
NVNT	BLE 2M	2480	Ant1	54.44	2.64	1.47

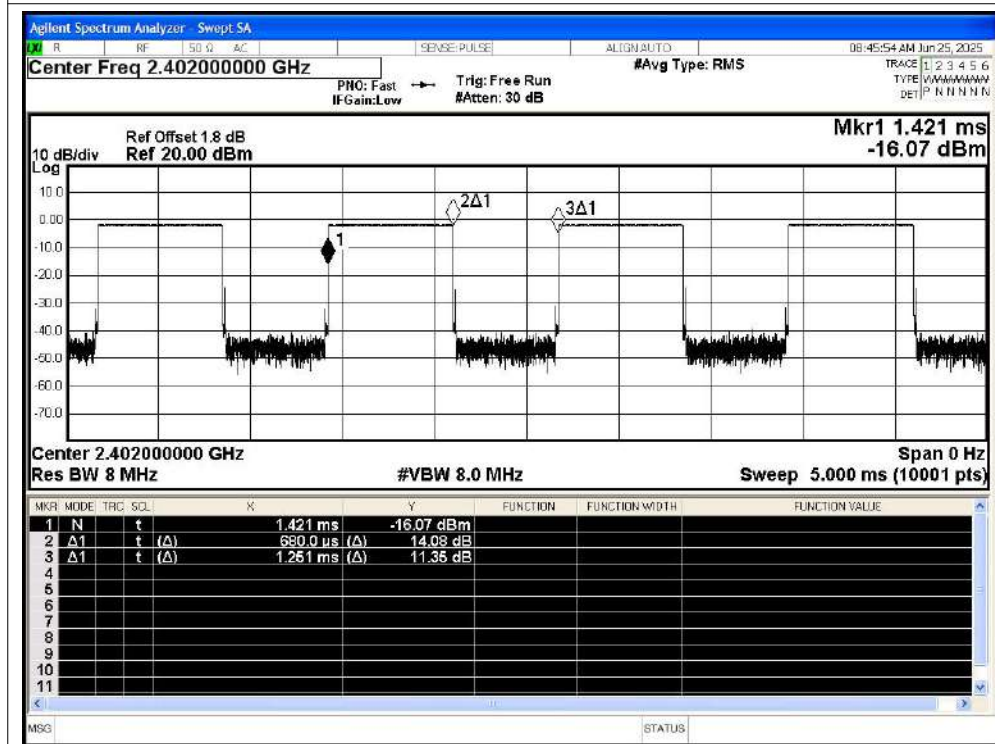
Test Graphs

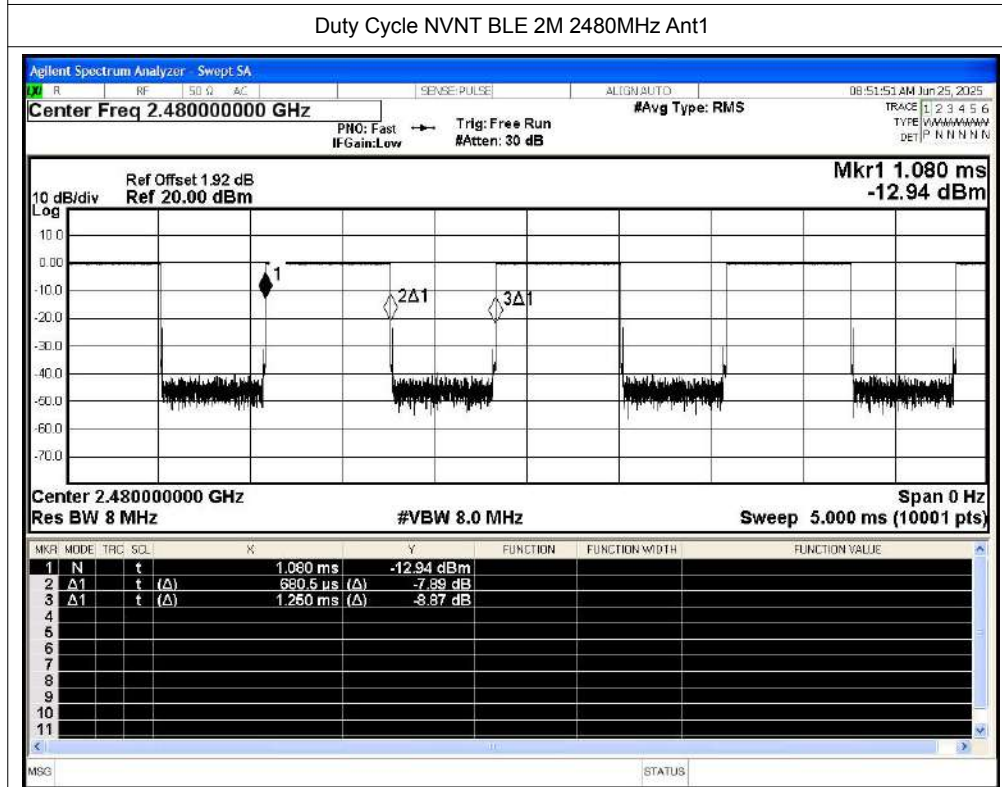
Duty Cycle NVNT BLE 1M 2402MHz Ant1



Duty Cycle NVNT BLE 1M 2440MHz Ant1





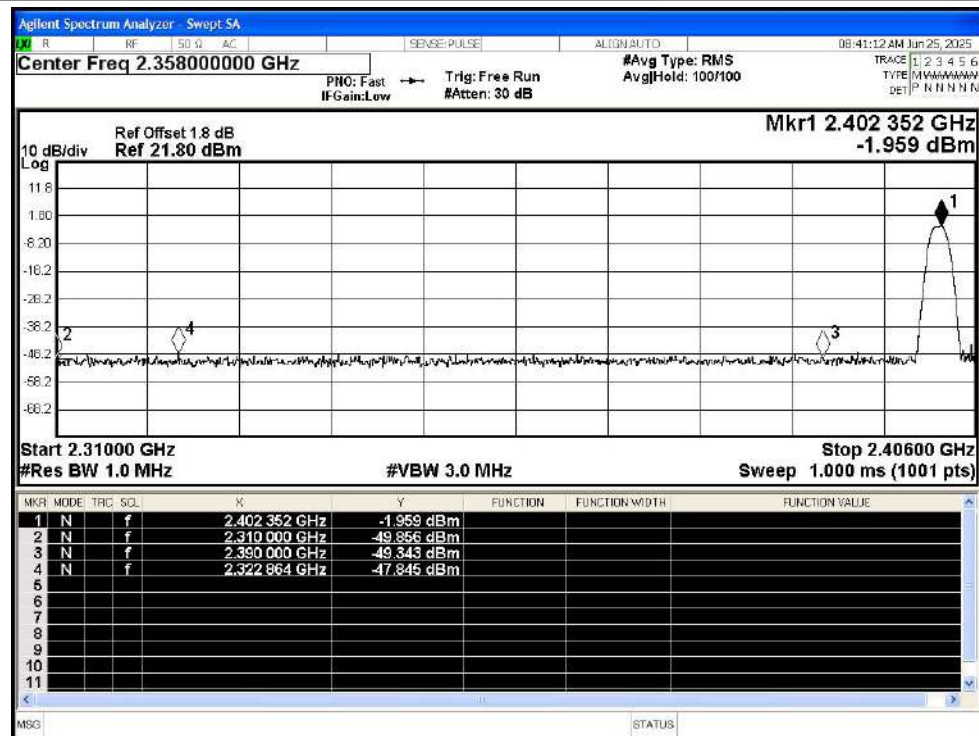


A.7 Restrict Band

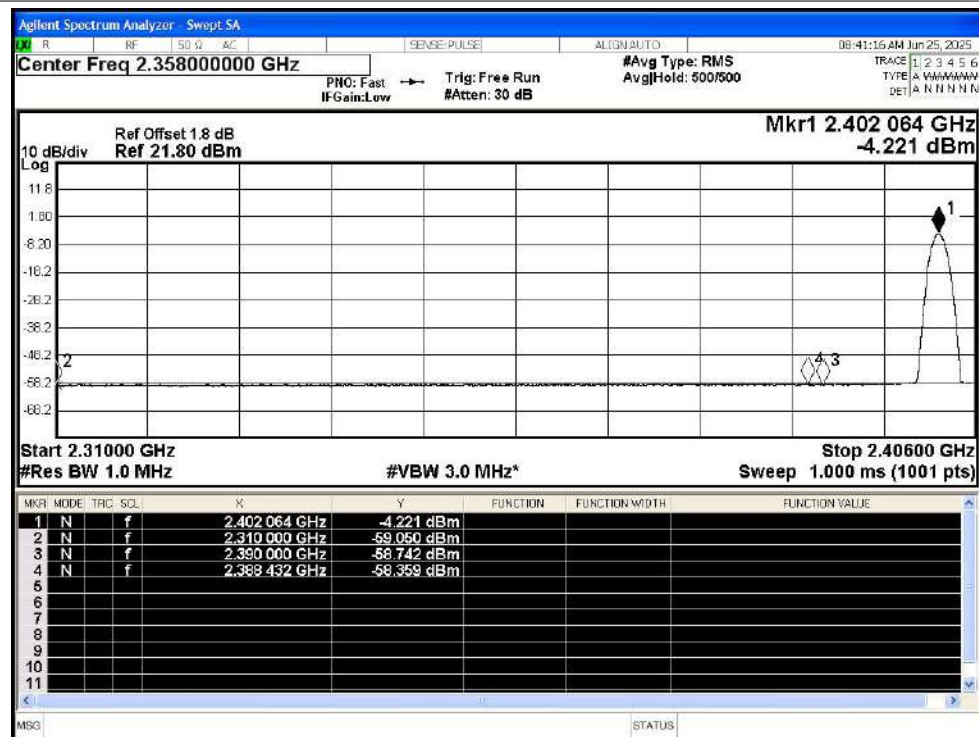
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	Ant1	2310	-49.86	2	-	47.4	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2310	-59.05	2	1.42	39.63	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2322.864	-47.85	2	-	49.41	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2388.432	-58.36	2	1.42	40.32	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2390	-49.34	2	-	47.92	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2390	-58.74	2	1.42	39.94	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-49.54	2	-	47.72	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-57.96	2	1.42	40.72	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2484.904	-45.4	2	-	51.86	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.584	-57.82	2	1.42	40.86	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2500	-49.48	2	-	47.78	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2500	-58.18	2	1.42	40.5	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2310	-51.1	2	-	46.16	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2310	-58.9	2	2.65	41.01	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2324.496	-47.9	2	-	49.36	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2378.736	-57.53	2	2.65	42.38	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2390	-50.28	2	-	46.98	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2390	-59.11	2	2.65	40.8	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-49.03	2	-	48.23	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-57.39	2	2.64	42.51	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.8	-43.82	2	-	53.44	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2484.352	-57.21	2	2.64	42.69	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2500	-48.84	2	-	48.42	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2500	-58.52	2	2.64	41.38	Average	54	Pass

Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 1M 2402MHz Ant1 Average

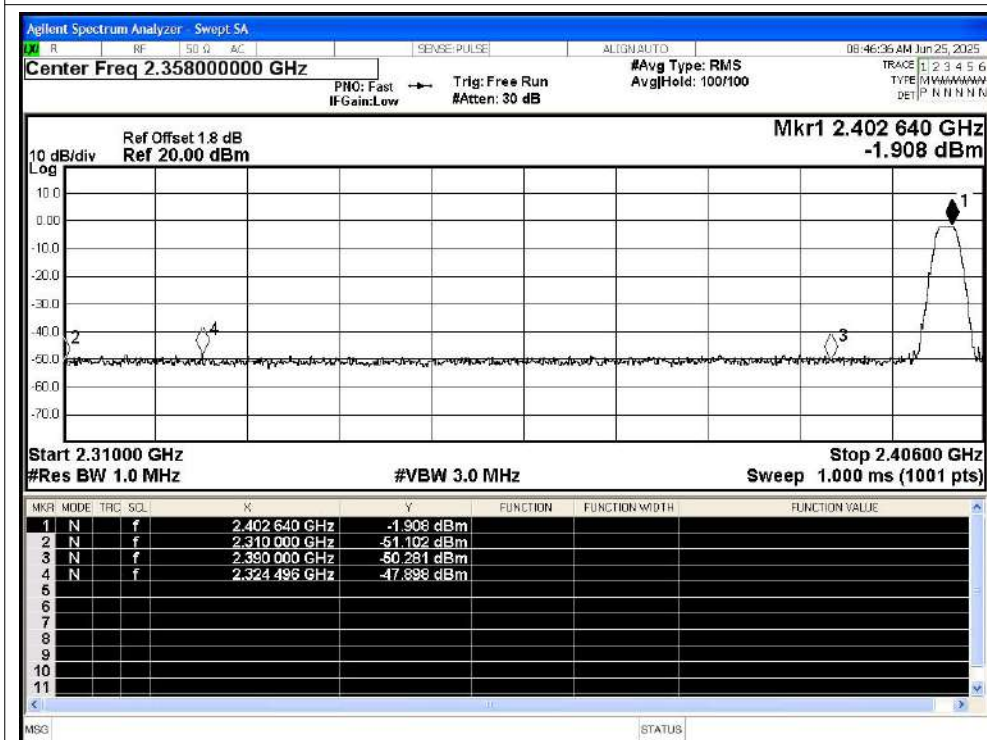


[illegible]

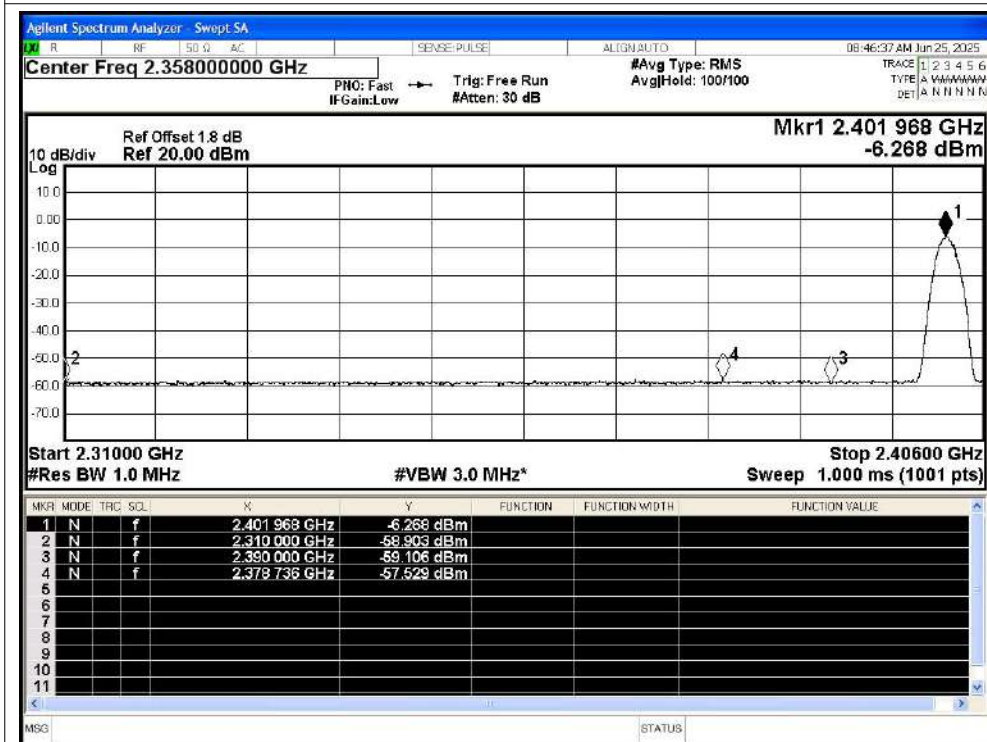
The screenshot shows the Agilent Spectrum Analyzer interface. The main display area shows a spectrum plot with a peak labeled 'Mkr1' at 2.479 984 GHz and -2.174 dBm. The plot has a logarithmic scale from -70.0 to 10 dB/div. The frequency range is from 2.47600 GHz to 2.50000 GHz with a resolution bandwidth (VBW) of 3.0 MHz. The center frequency is set to 2.488000000 GHz. The reference level is 20.00 dBm. The trace type is RMS, and the average hold time is 500/500.

MKR	FREQ	PWR
1	2.479 984 GHz	-2.174 dBm
2	2.483 500 GHz	-57.956 dBm
3	2.500 000 GHz	-58.175 dBm
4	2.483 584 GHz	-57.823 dBm

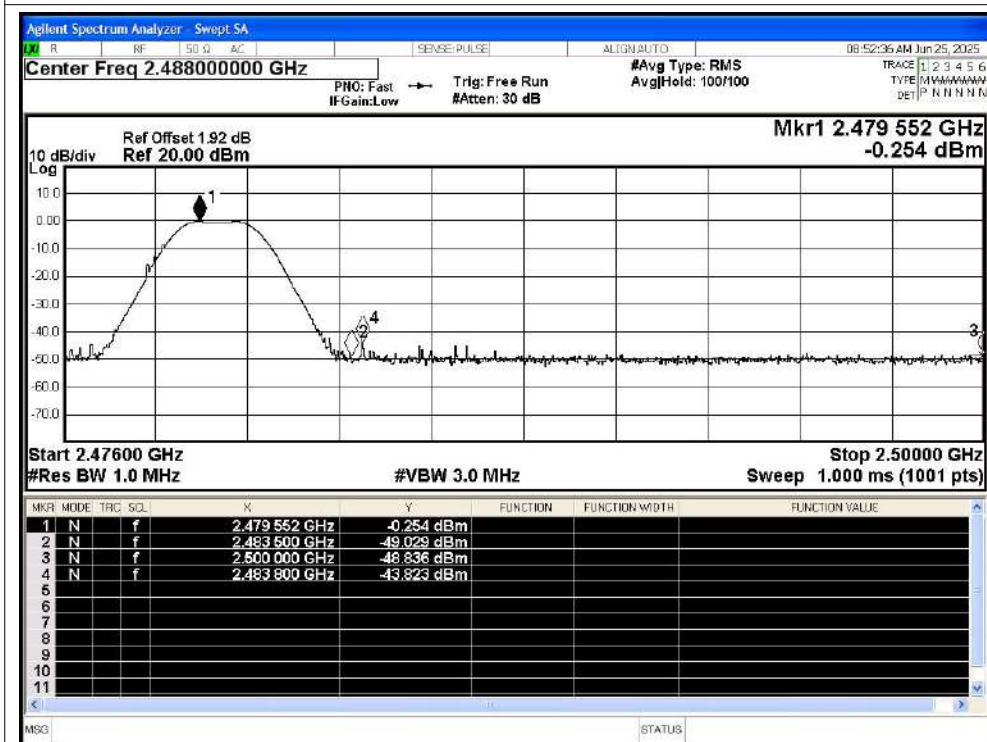
Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2402MHz Ant1 Average



Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2480MHz Ant1 Average

