



## Appendix B

### RF Test Data for BT LE(Conducted Measurement)

Product Name: Smart Phone

Test Model: HPPL67A

#### Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Can Kun
Supervised by:	Nick Peng





### B.1 -6dB Bandwidth

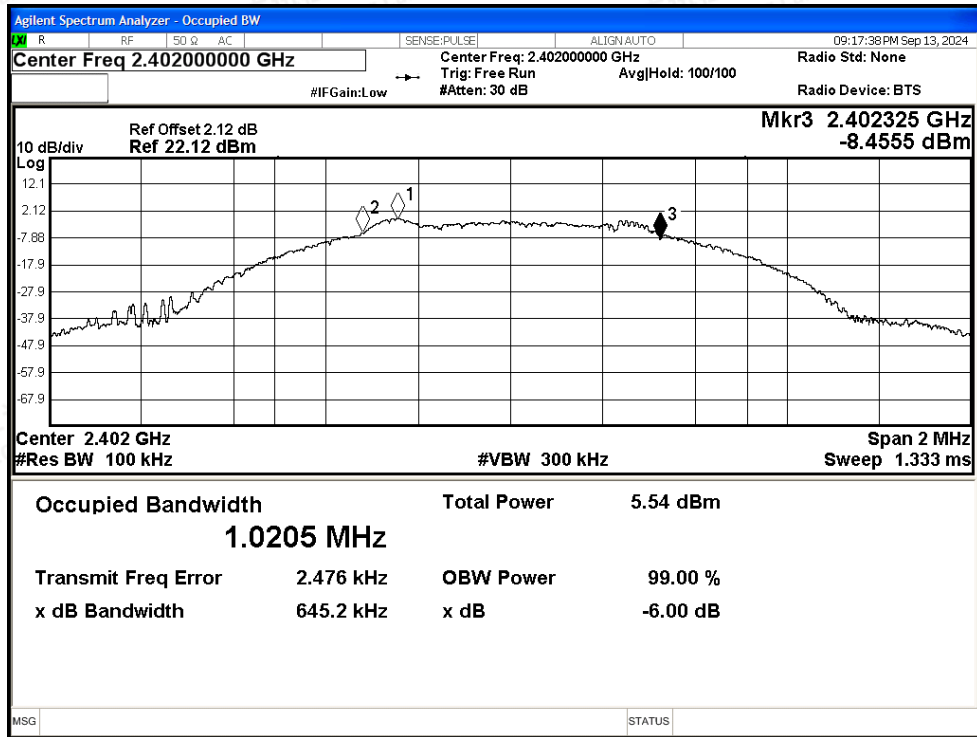
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant	0.645	$\geq 0.5$	Pass
NVNT	BLE 1M	2440	Ant	0.658	$\geq 0.5$	Pass
NVNT	BLE 1M	2480	Ant	0.655	$\geq 0.5$	Pass
NVNT	BLE 2M	2402	Ant	1.127	$\geq 0.5$	Pass
NVNT	BLE 2M	2440	Ant	1.135	$\geq 0.5$	Pass
NVNT	BLE 2M	2480	Ant	1.138	$\geq 0.5$	Pass



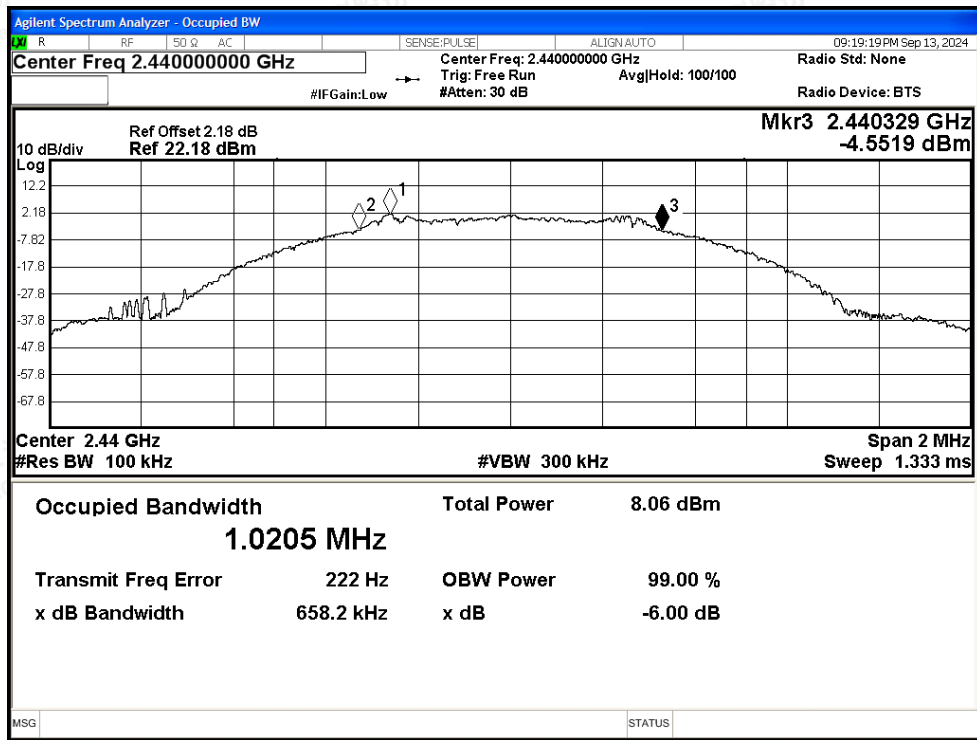


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant

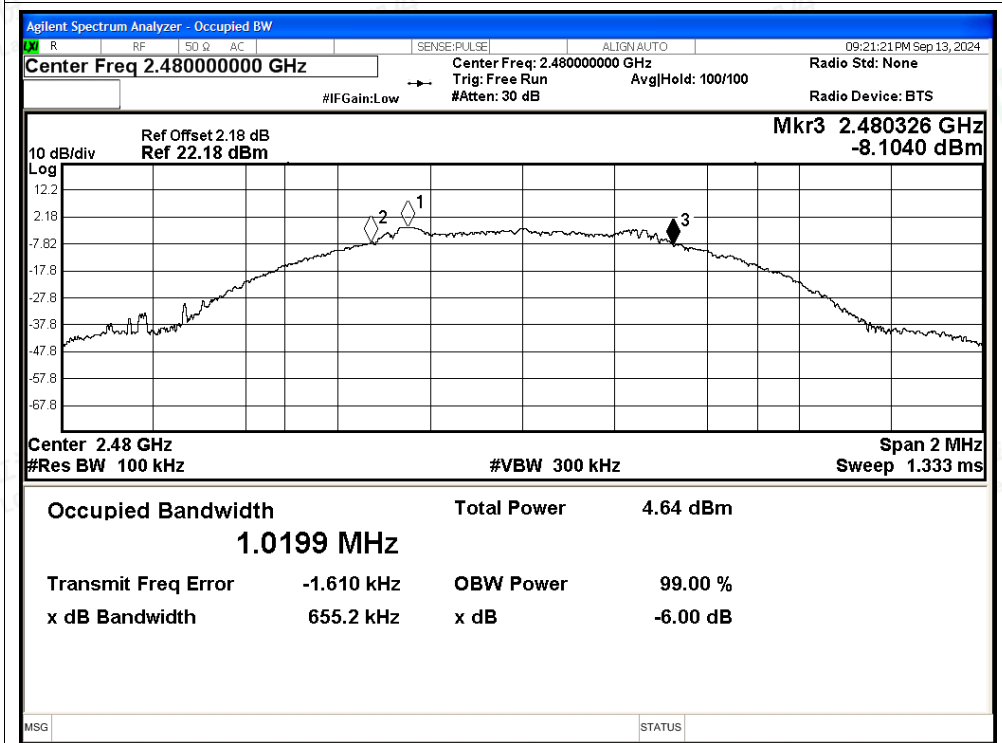


-6dB Bandwidth NVNT BLE 1M 2440MHz Ant

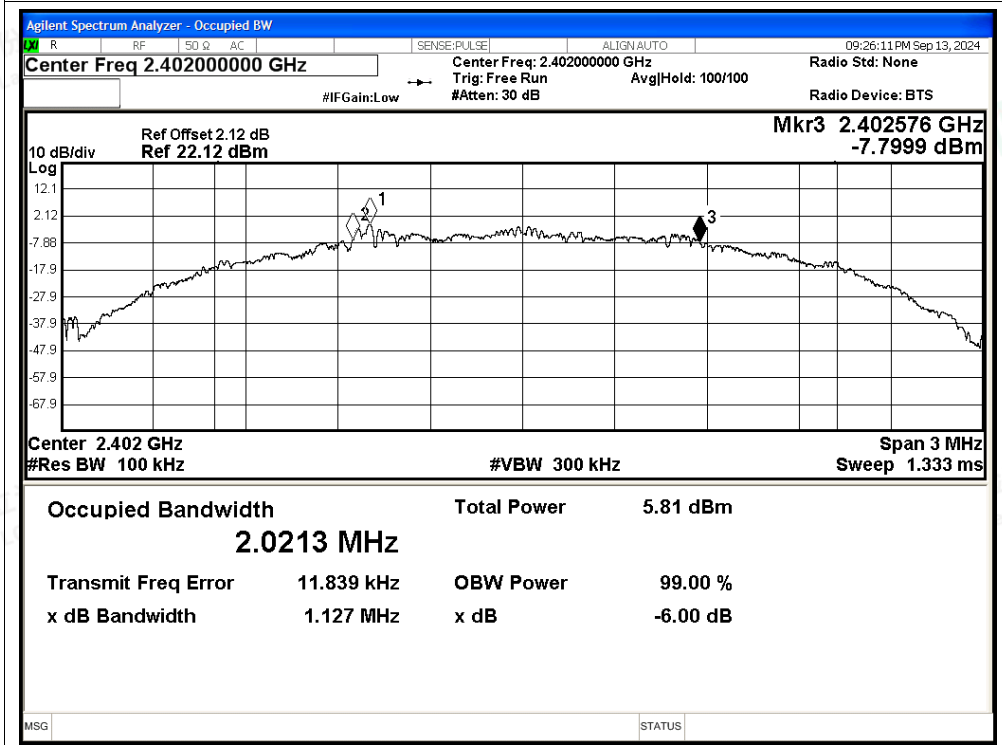




-6dB Bandwidth NVNT BLE 1M 2480MHz Ant

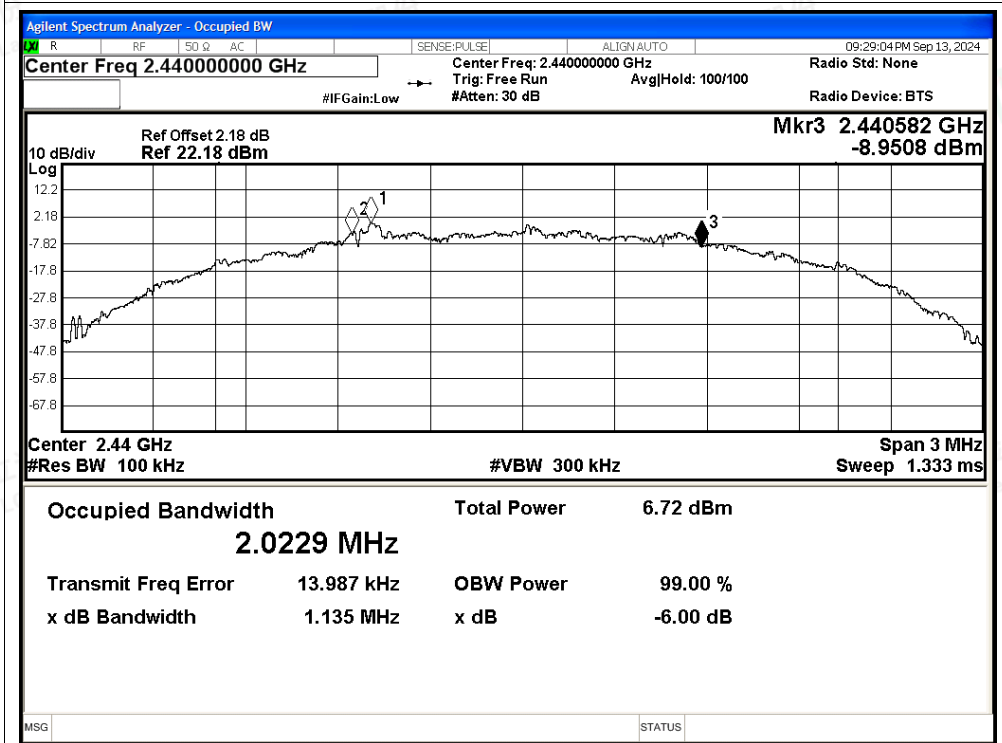


-6dB Bandwidth NVNT BLE 2M 2402MHz Ant

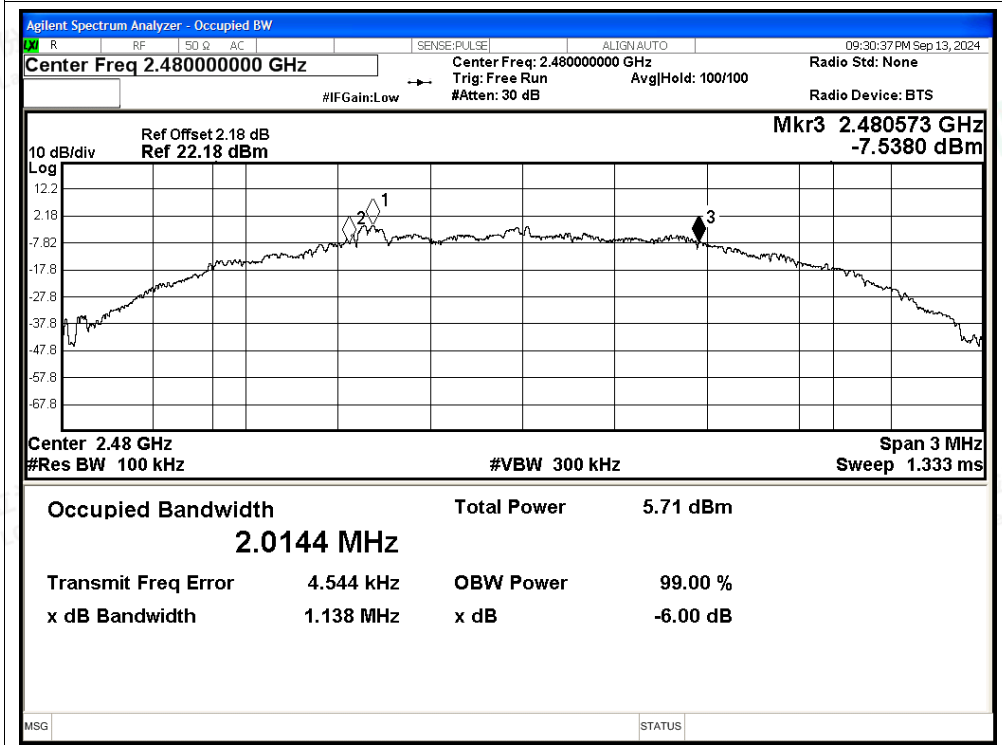




-6dB Bandwidth NVNT BLE 2M 2440MHz Ant



-6dB Bandwidth NVNT BLE 2M 2480MHz Ant





## B.2 Maximum Peak Conducted Output Power

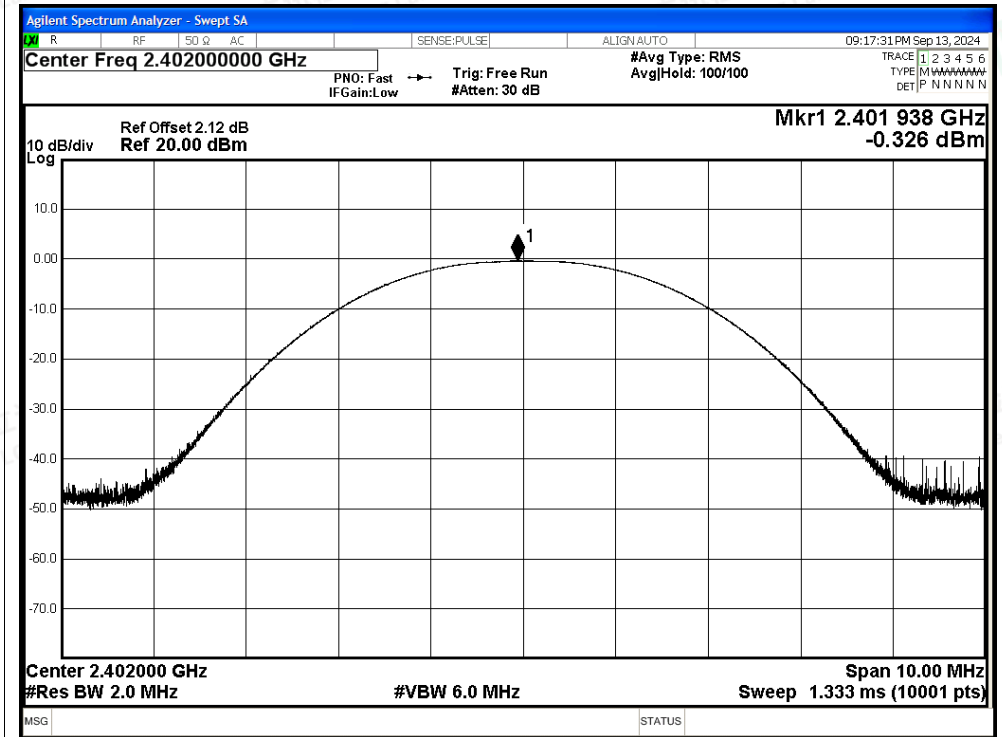
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant	-0.33	30	Pass
NVNT	BLE 1M	2440	Ant	-0.16	30	Pass
NVNT	BLE 1M	2480	Ant	-0.01	30	Pass
NVNT	BLE 2M	2402	Ant	-0.43	30	Pass
NVNT	BLE 2M	2440	Ant	0.34	30	Pass
NVNT	BLE 2M	2480	Ant	-0.71	30	Pass



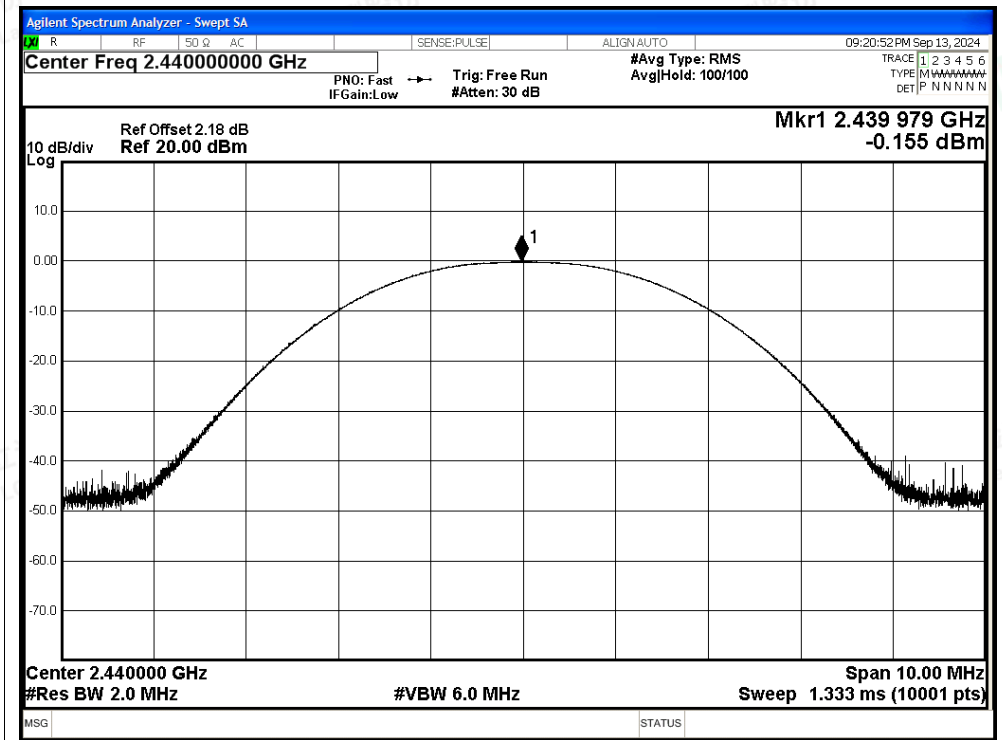


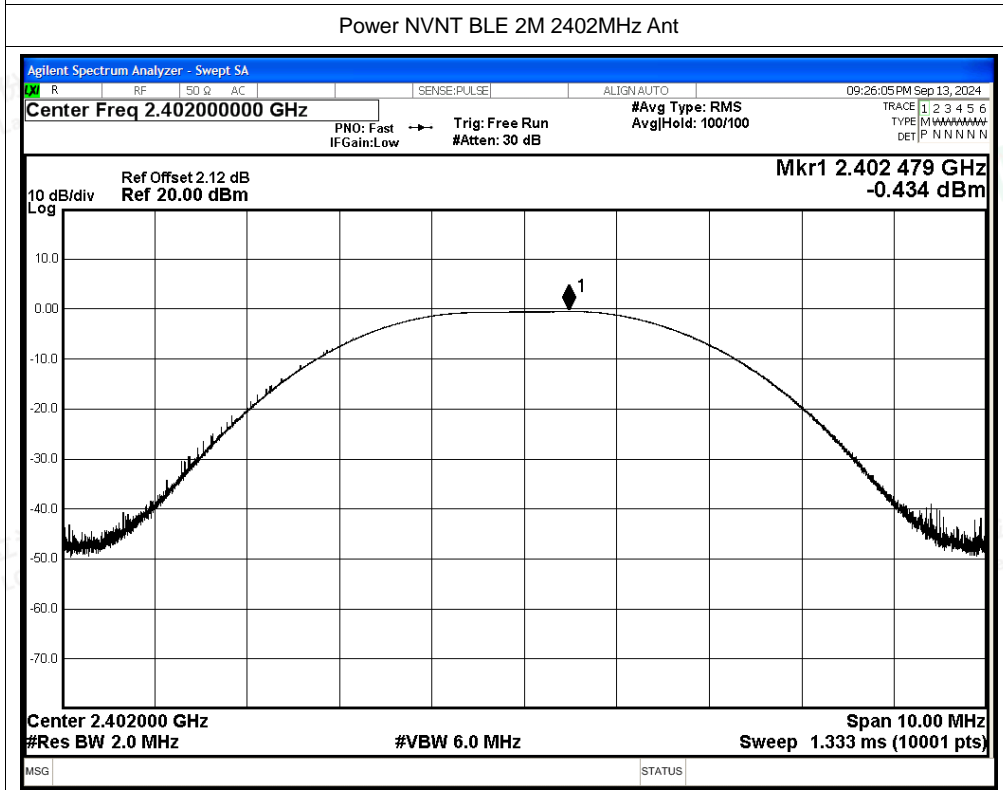
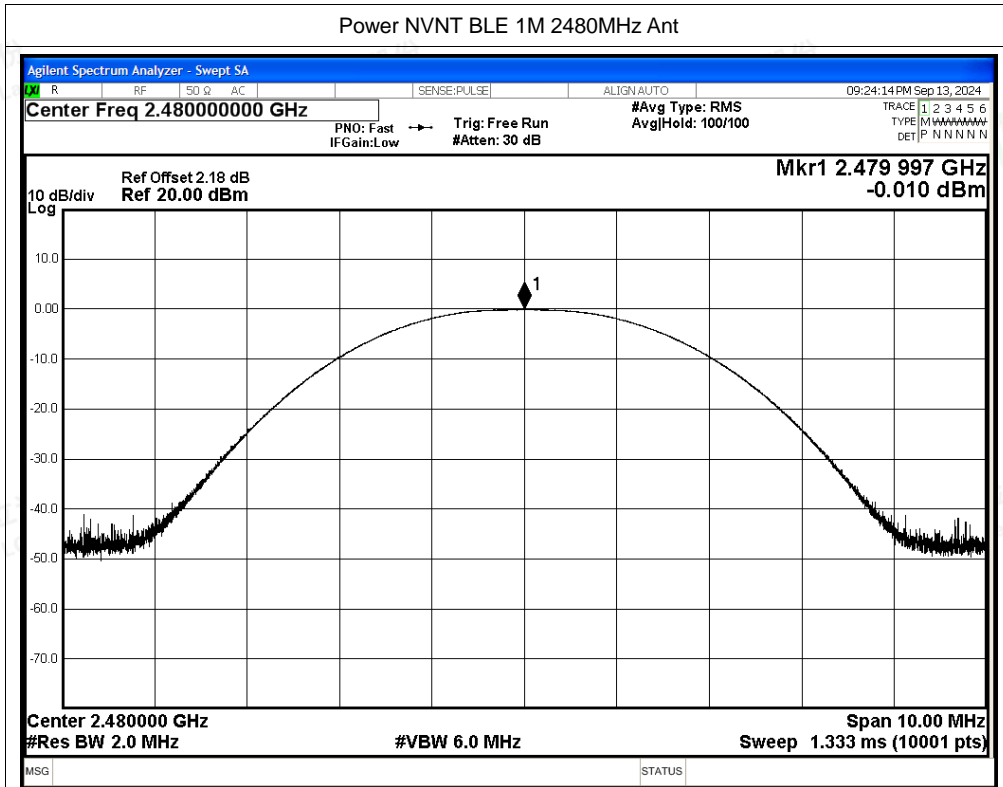
Test Graphs

Power NVNT BLE 1M 2402MHz Ant

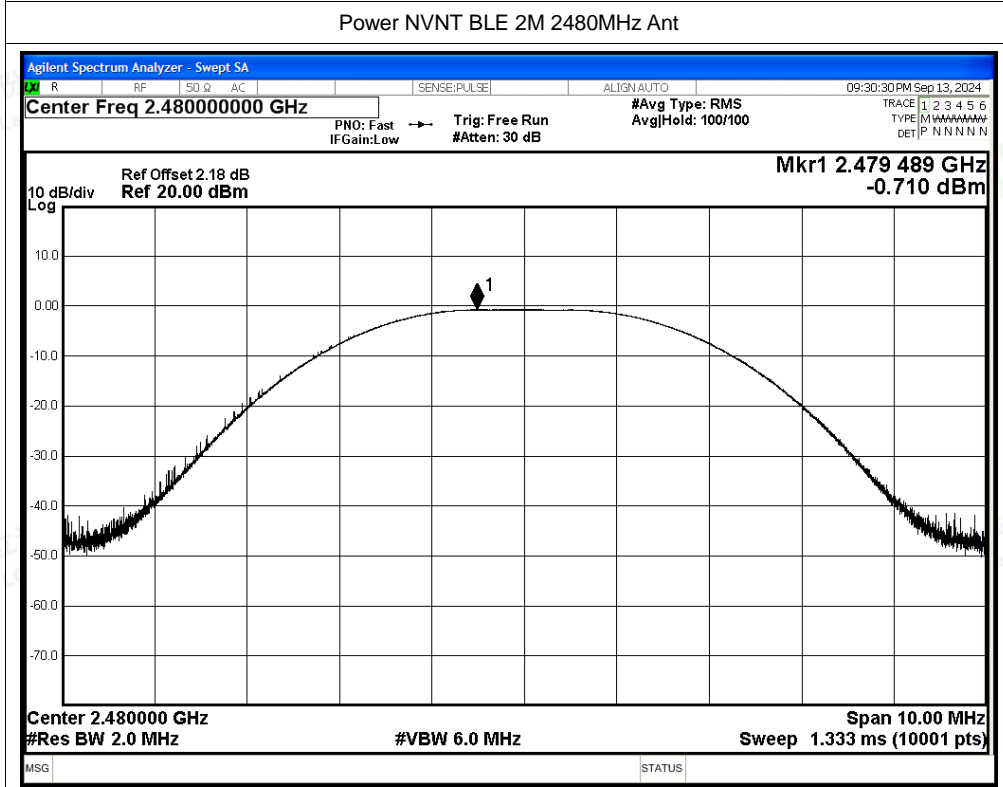
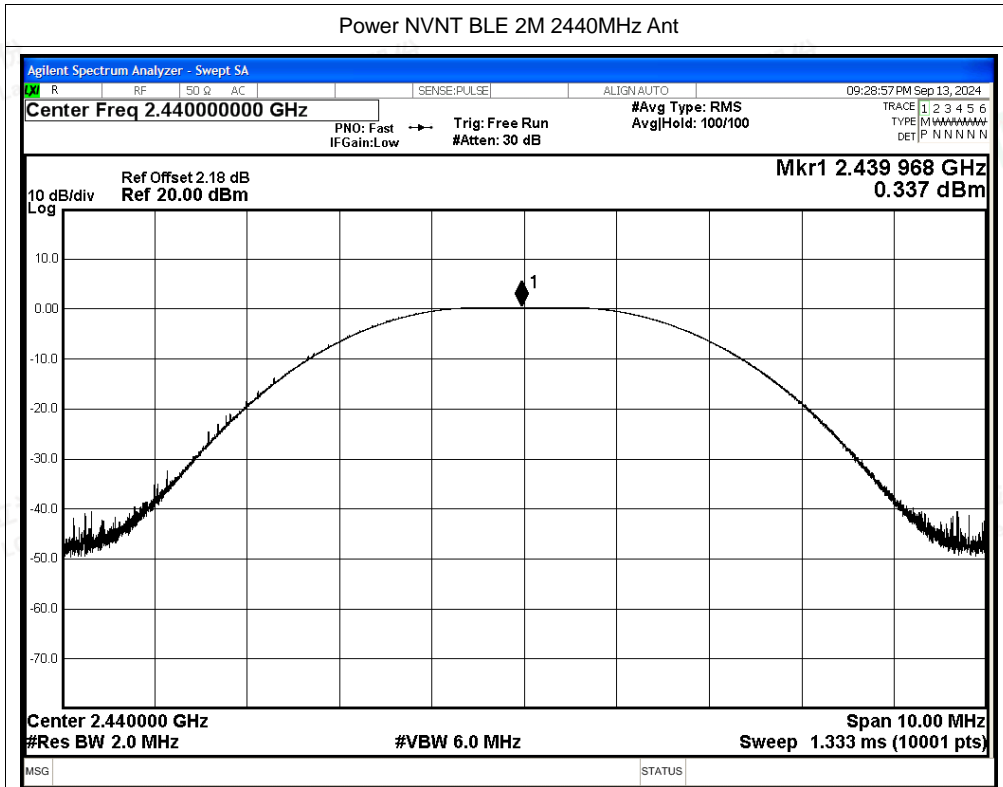


Power NVNT BLE 1M 2440MHz Ant











### B.3 Maximum Power Spectral Density Level

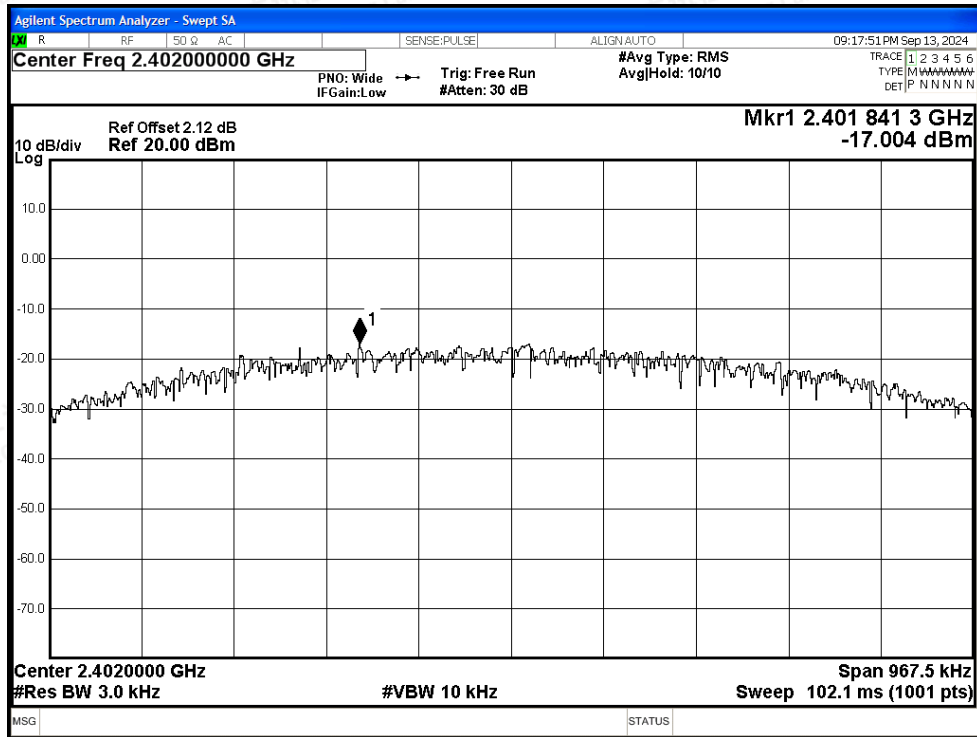
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant	-17	8	Pass
NVNT	BLE 1M	2440	Ant	-14.32	8	Pass
NVNT	BLE 1M	2480	Ant	-17.77	8	Pass
NVNT	BLE 2M	2402	Ant	-20.14	8	Pass
NVNT	BLE 2M	2440	Ant	-19.65	8	Pass
NVNT	BLE 2M	2480	Ant	-20.29	8	Pass



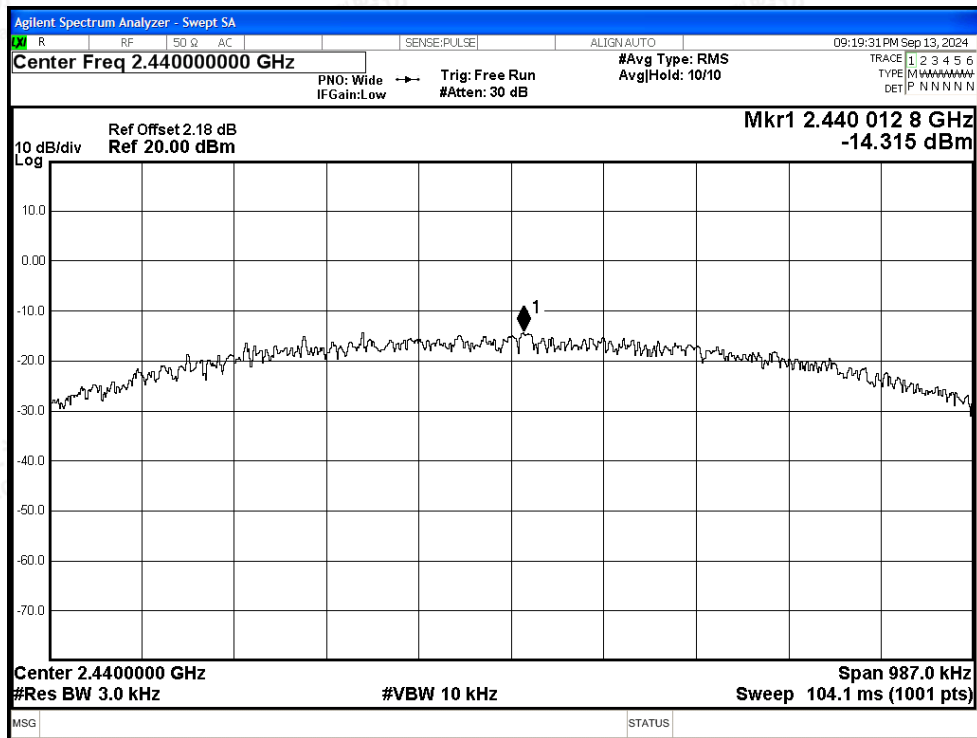


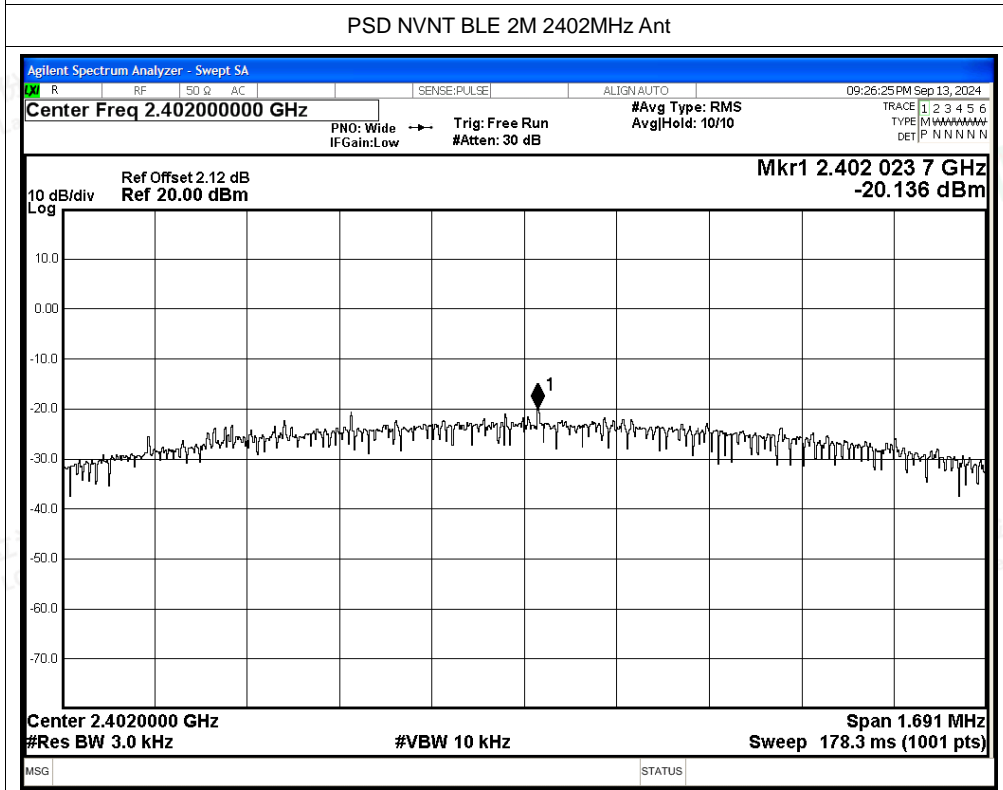
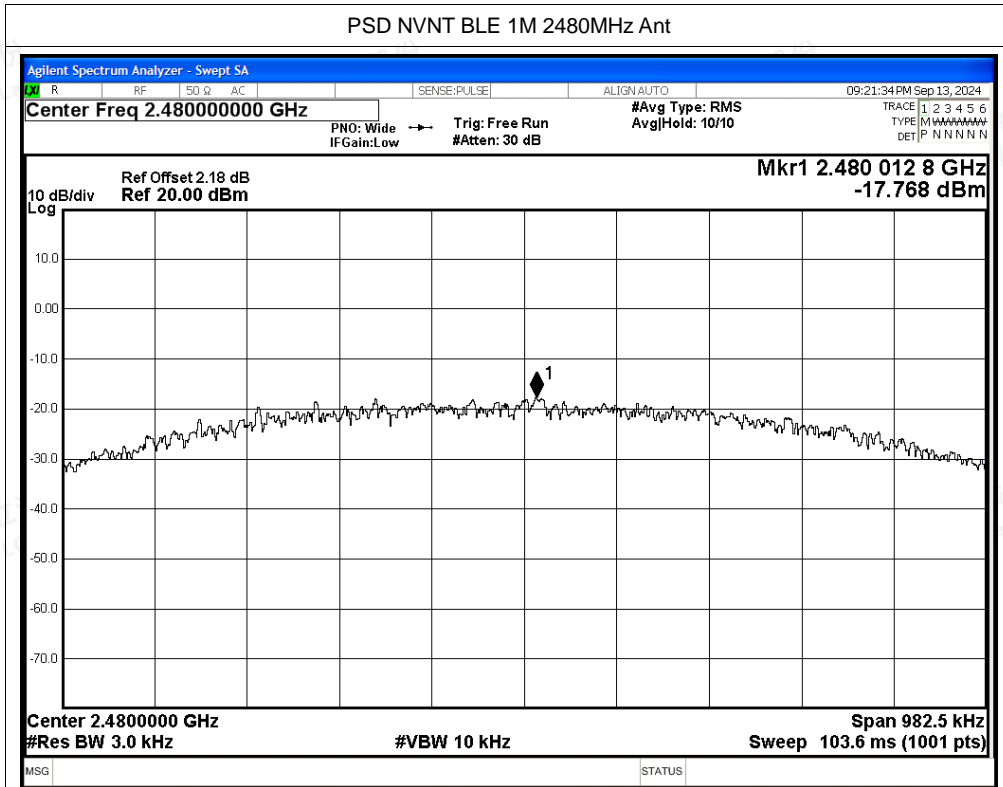
Test Graphs

PSD NVNT BLE 1M 2402MHz Ant



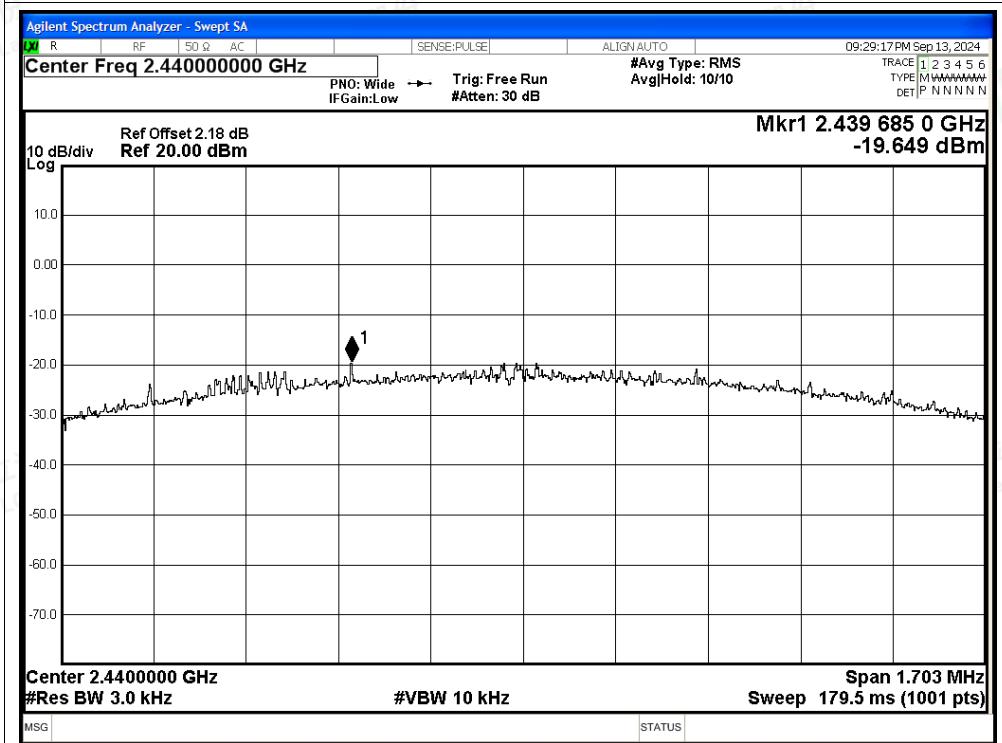
PSD NVNT BLE 1M 2440MHz Ant



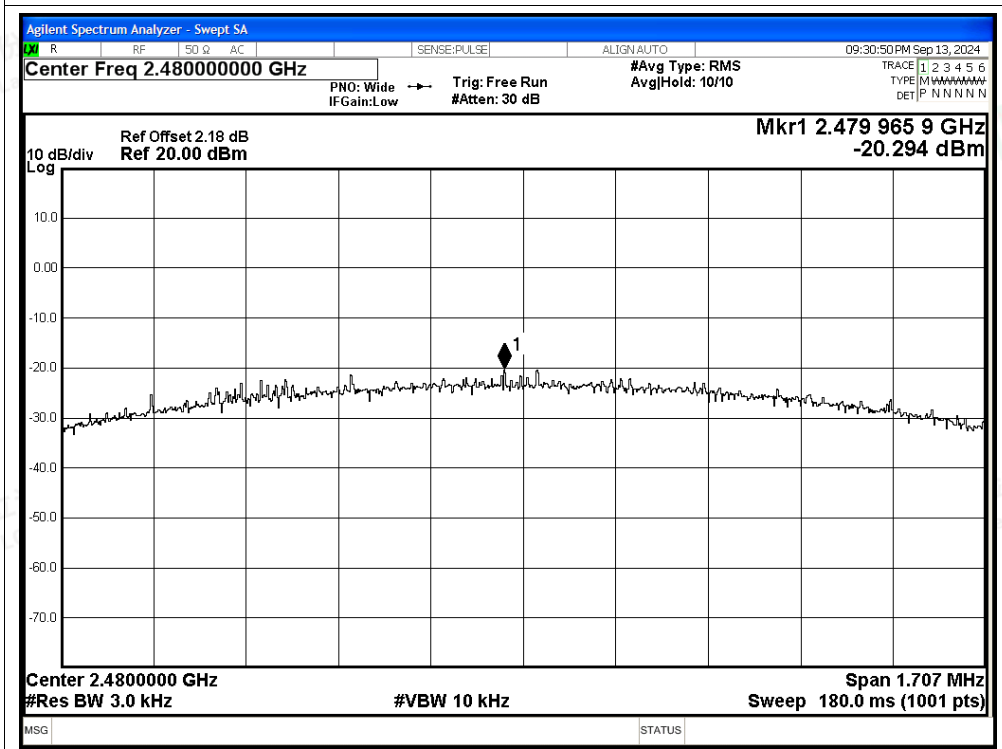




PSD NVNT BLE 2M 2440MHz Ant



PSD NVNT BLE 2M 2480MHz Ant





### B.4 Band Edge

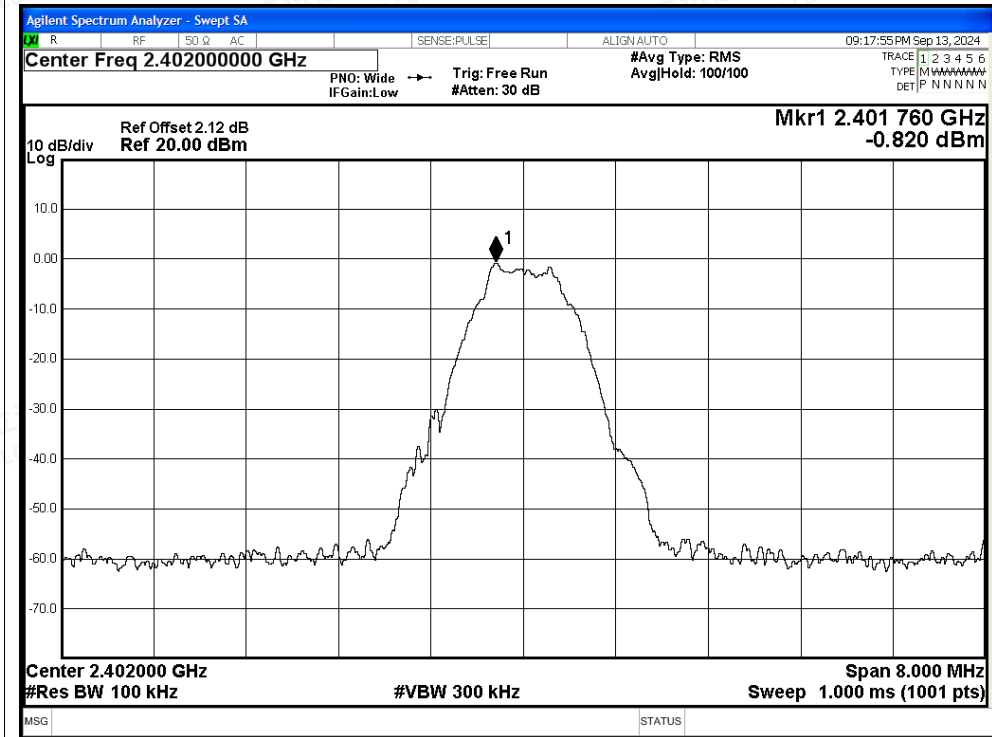
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant	-54.98	-20	Pass
NVNT	BLE 1M	2480	Ant	-55.11	-20	Pass
NVNT	BLE 2M	2402	Ant	-43.62	-20	Pass
NVNT	BLE 2M	2480	Ant	-55.76	-20	Pass



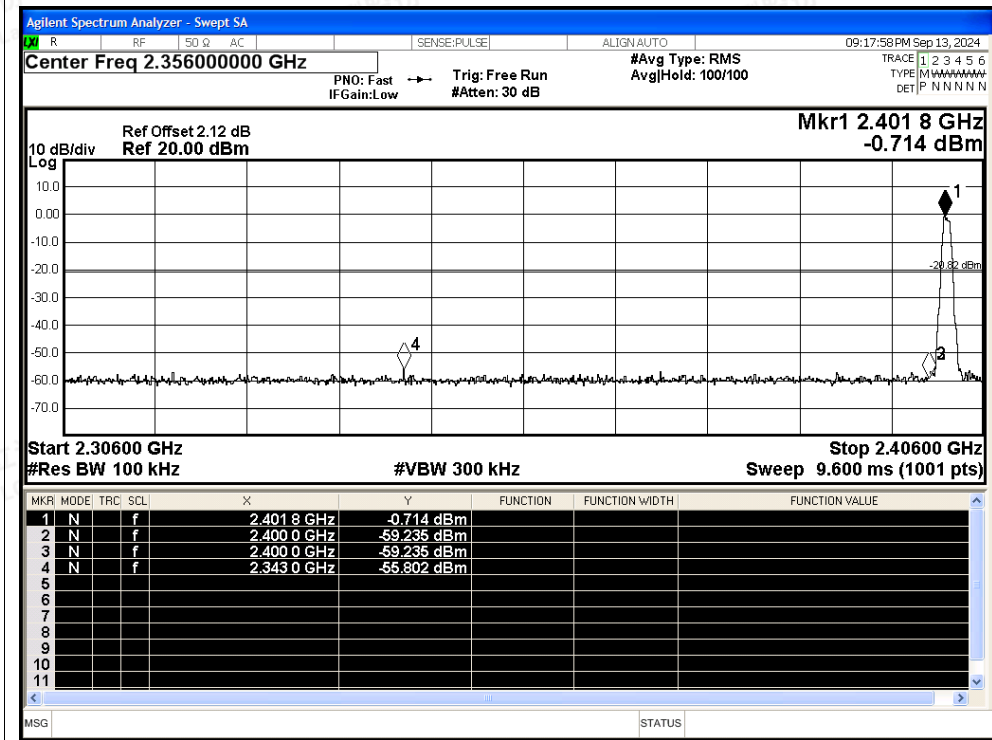


Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant Ref

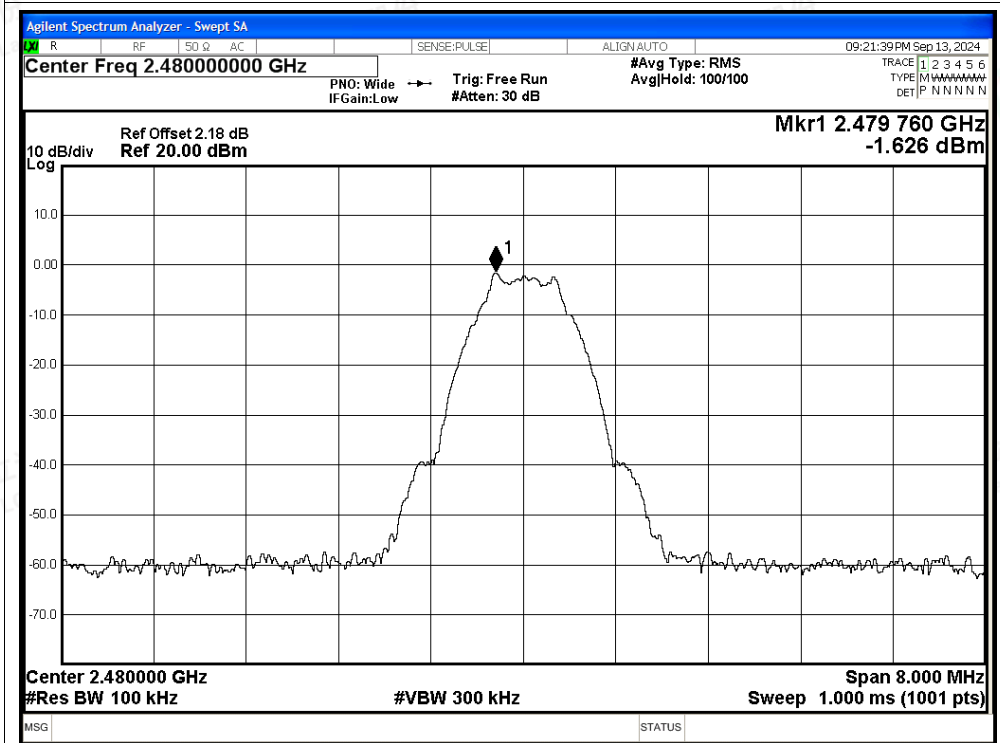


Band Edge NVNT BLE 1M 2402MHz Ant Emission

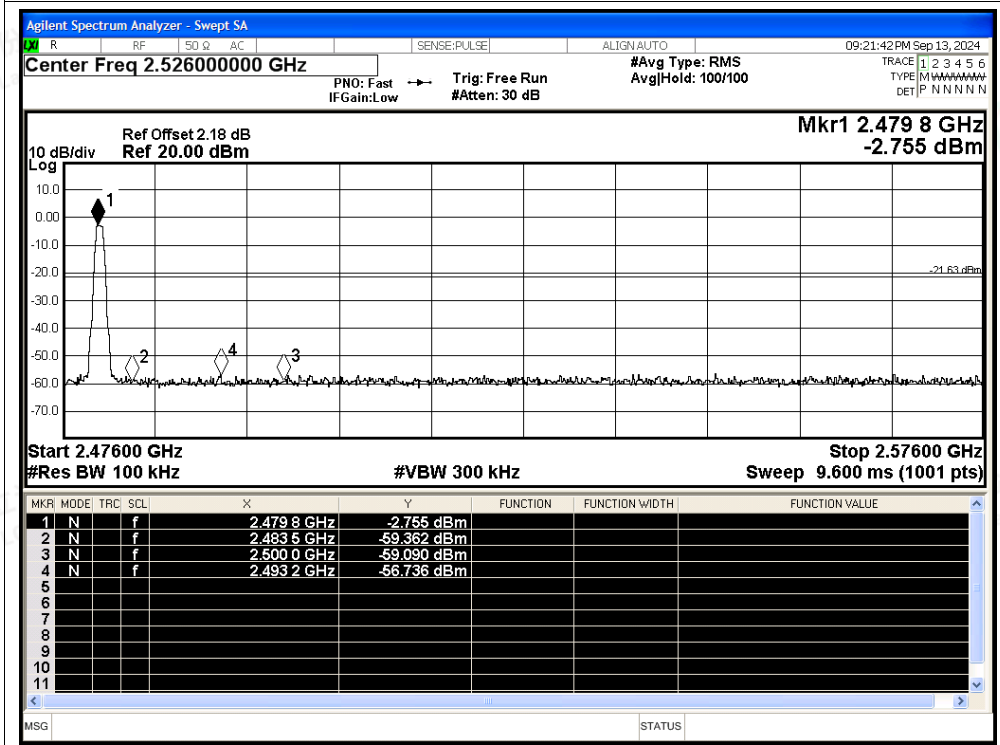




Band Edge NVNT BLE 1M 2480MHz Ant Ref



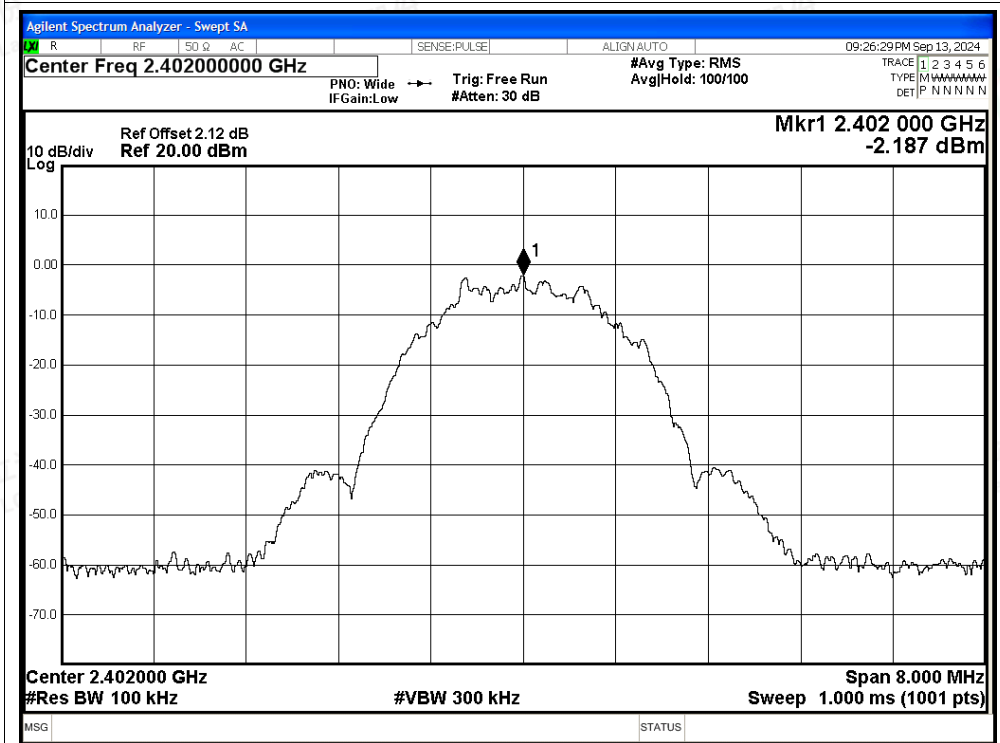
Band Edge NVNT BLE 1M 2480MHz Ant Emission



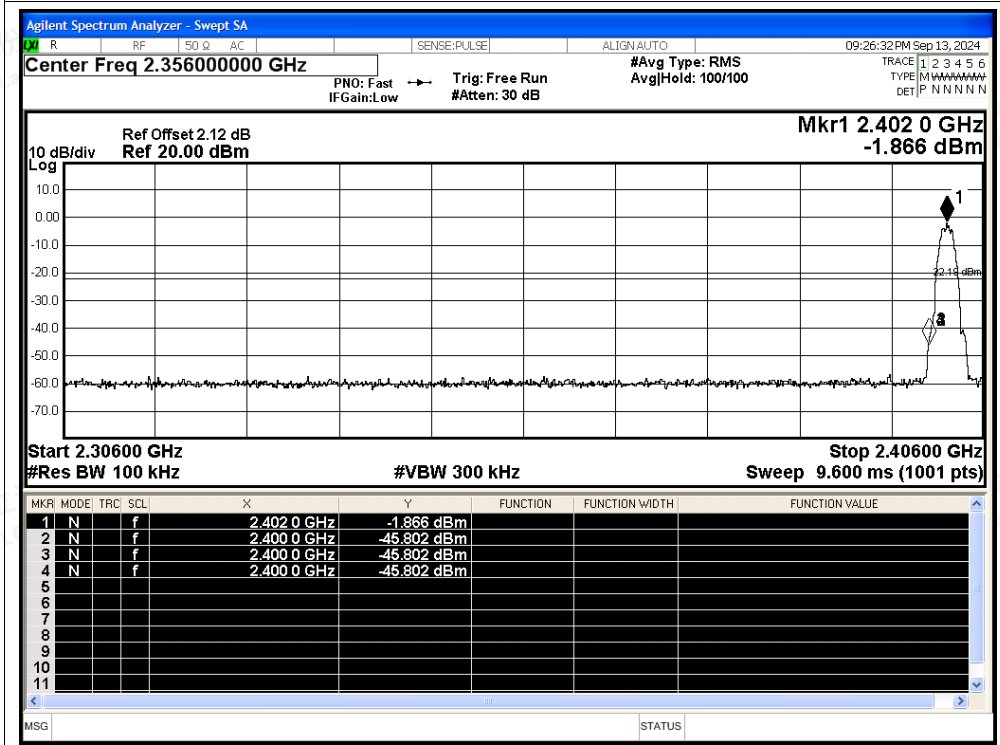




Band Edge NVNT BLE 2M 2402MHz Ant Ref

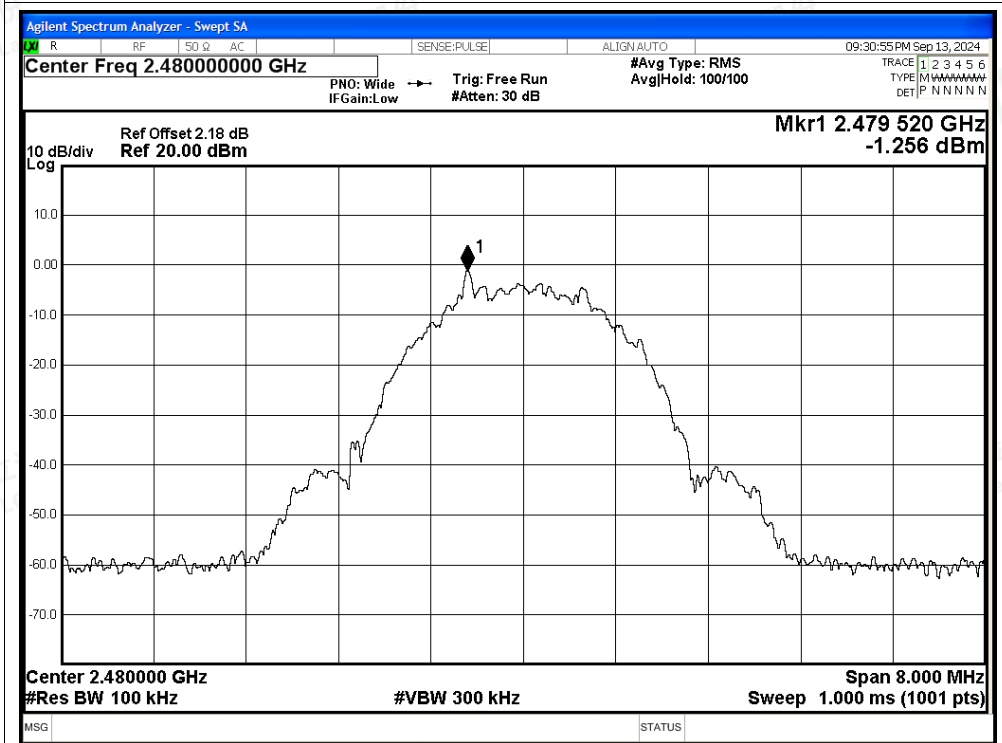


Band Edge NVNT BLE 2M 2402MHz Ant Emission

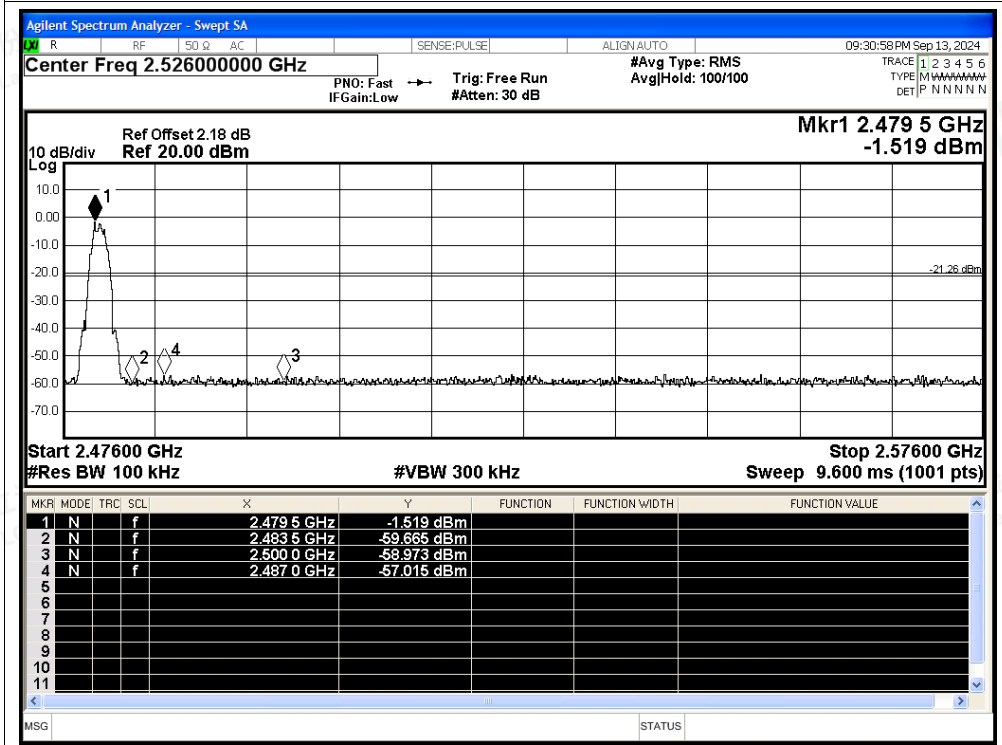




Band Edge NVNT BLE 2M 2480MHz Ant Ref



Band Edge NVNT BLE 2M 2480MHz Ant Emission





## B.5 Conducted RF Spurious Emission

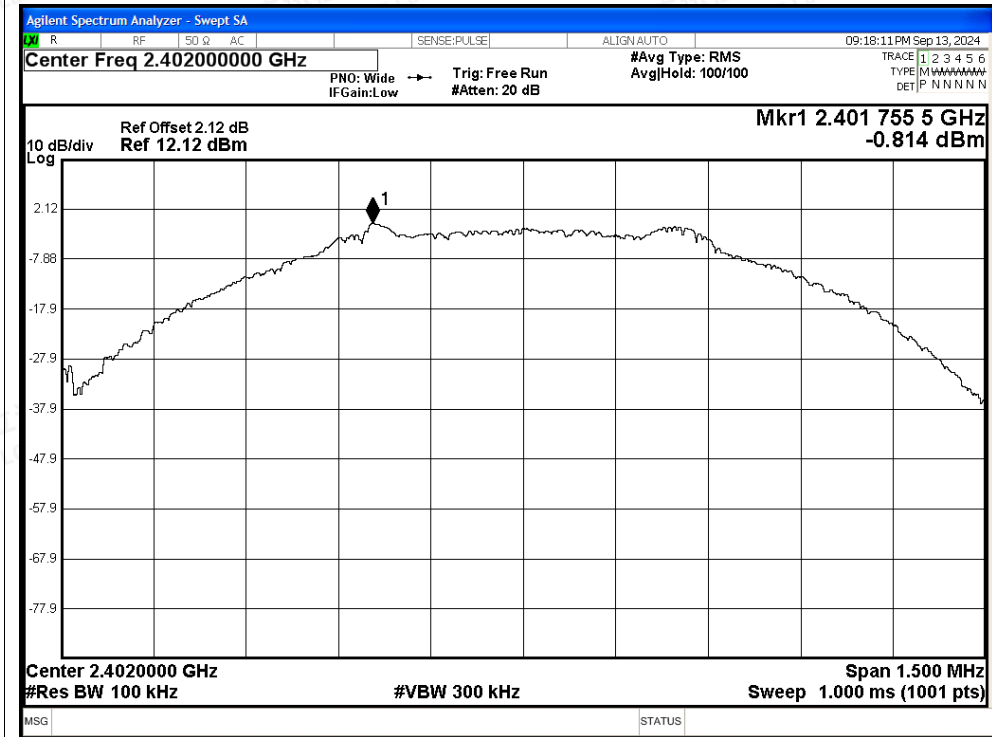
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant	-54.43	-20	Pass
NVNT	BLE 1M	2440	Ant	-57.53	-20	Pass
NVNT	BLE 1M	2480	Ant	-53.7	-20	Pass
NVNT	BLE 2M	2402	Ant	-53.95	-20	Pass
NVNT	BLE 2M	2440	Ant	-55.29	-20	Pass
NVNT	BLE 2M	2480	Ant	-52.34	-20	Pass



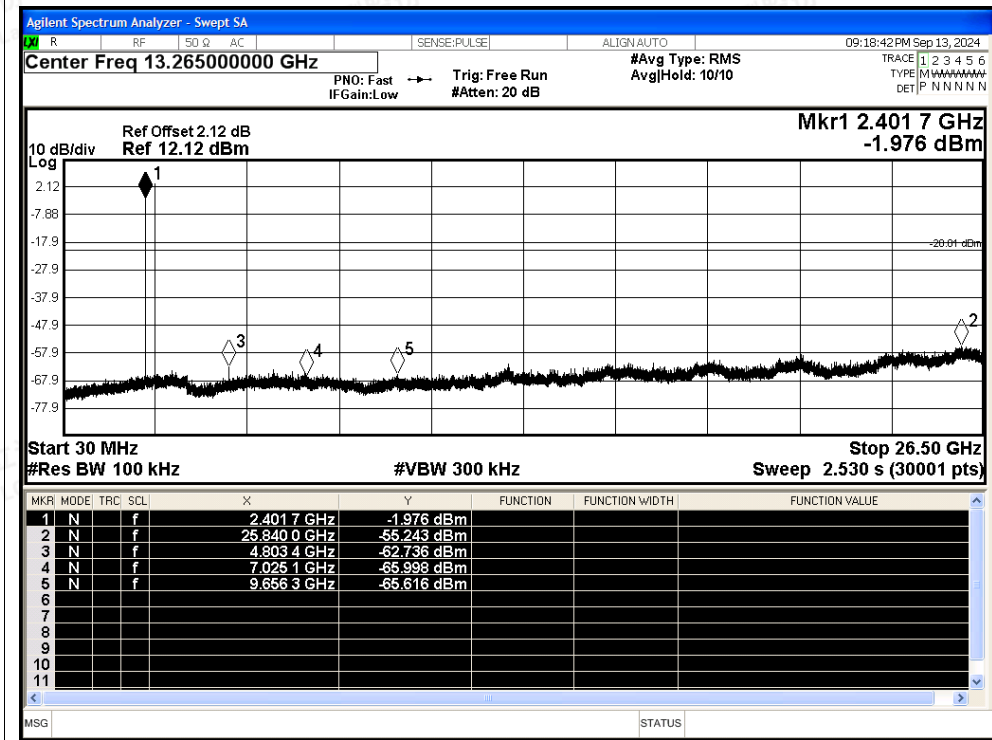


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant Ref

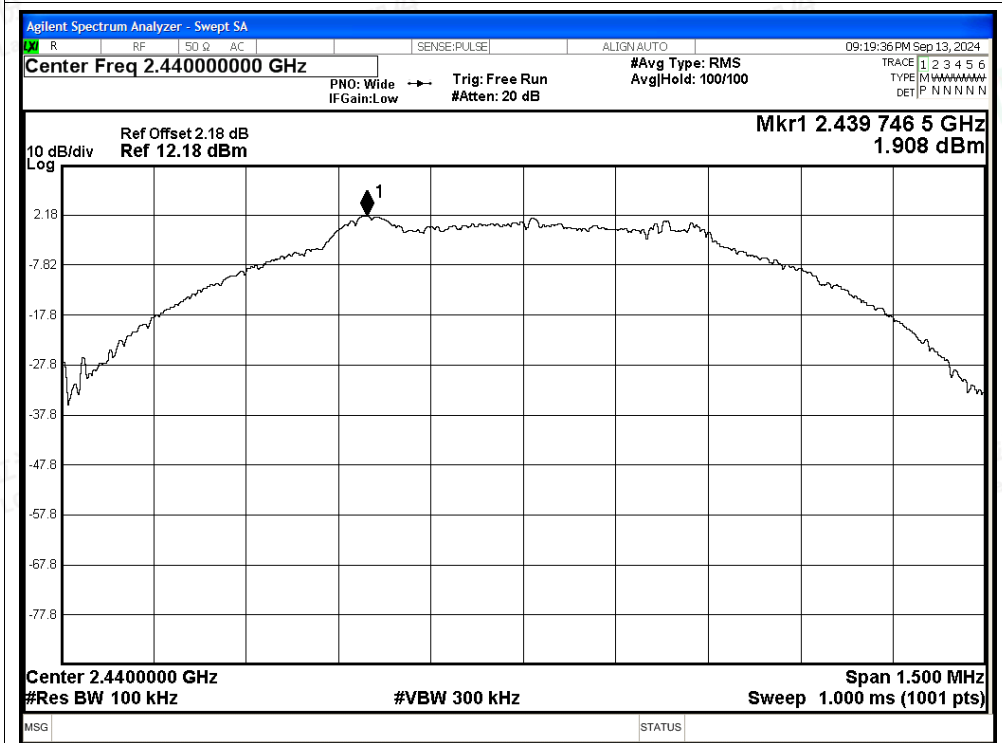


Tx. Spurious NVNT BLE 1M 2402MHz Ant Emission

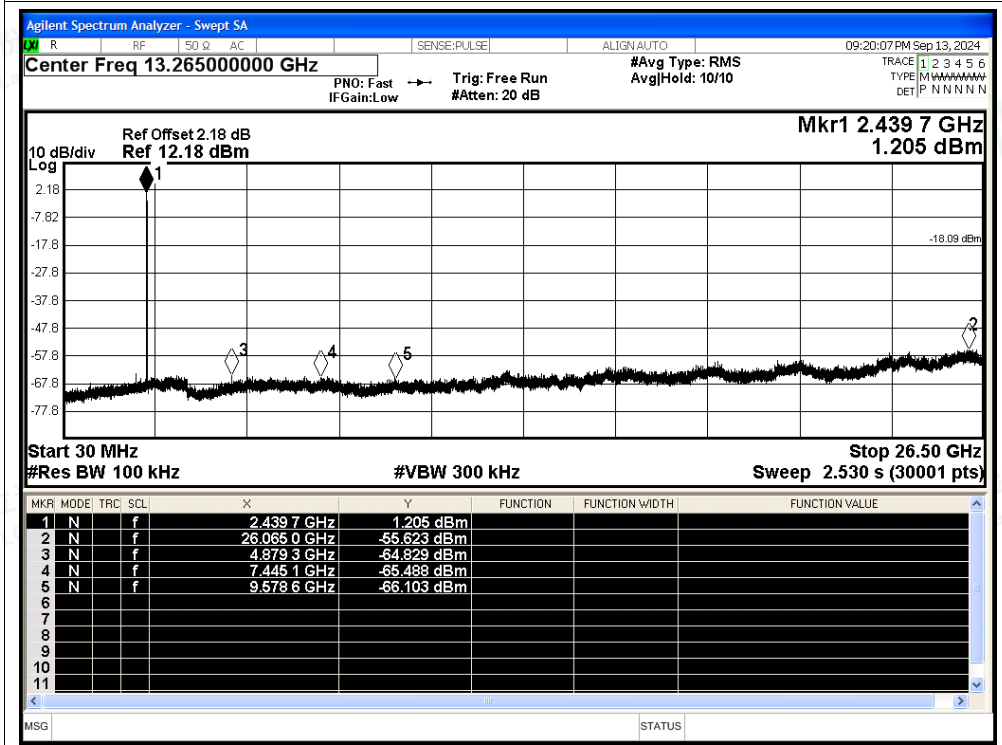




Tx. Spurious NVNT BLE 1M 2440MHz Ant Ref

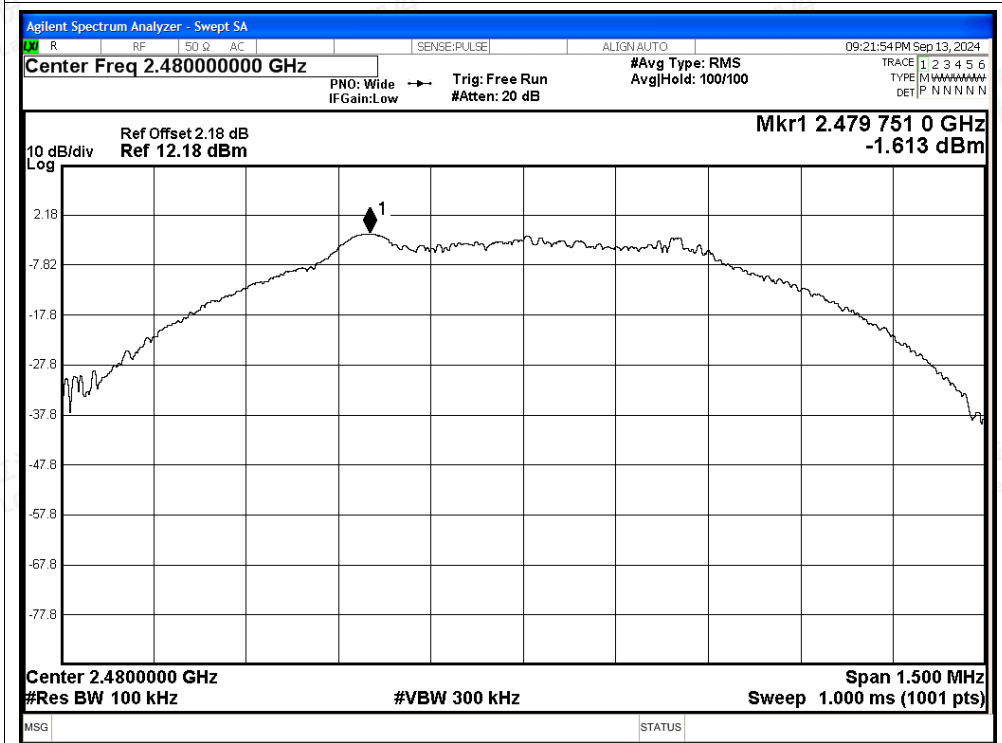


Tx. Spurious NVNT BLE 1M 2440MHz Ant Emission

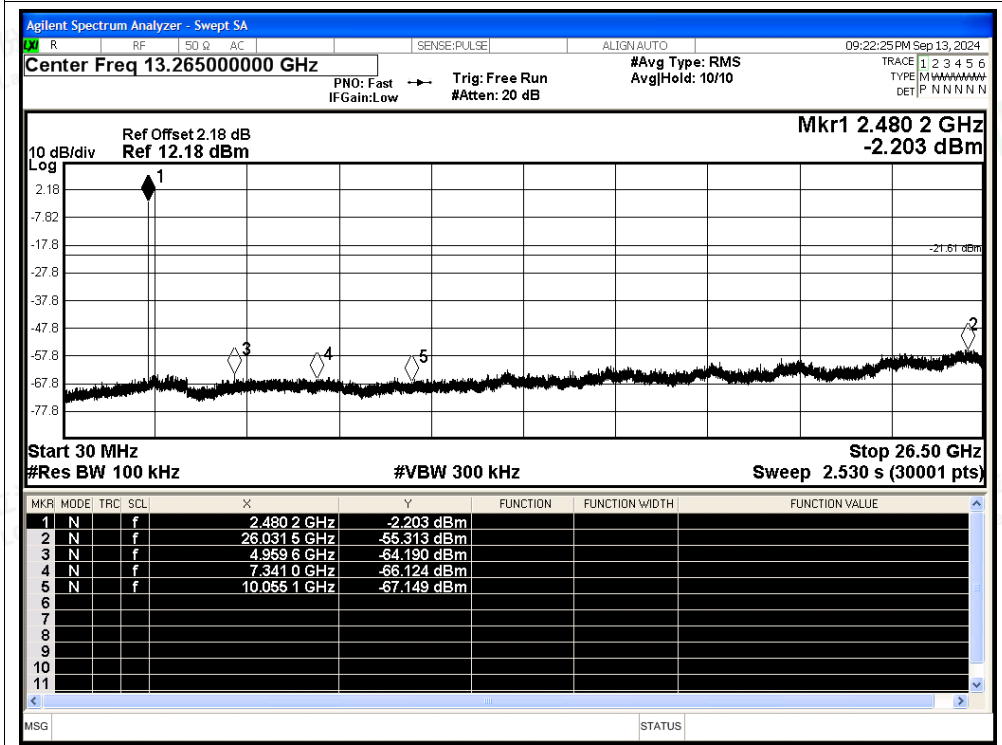




Tx. Spurious NVNT BLE 1M 2480MHz Ant Ref

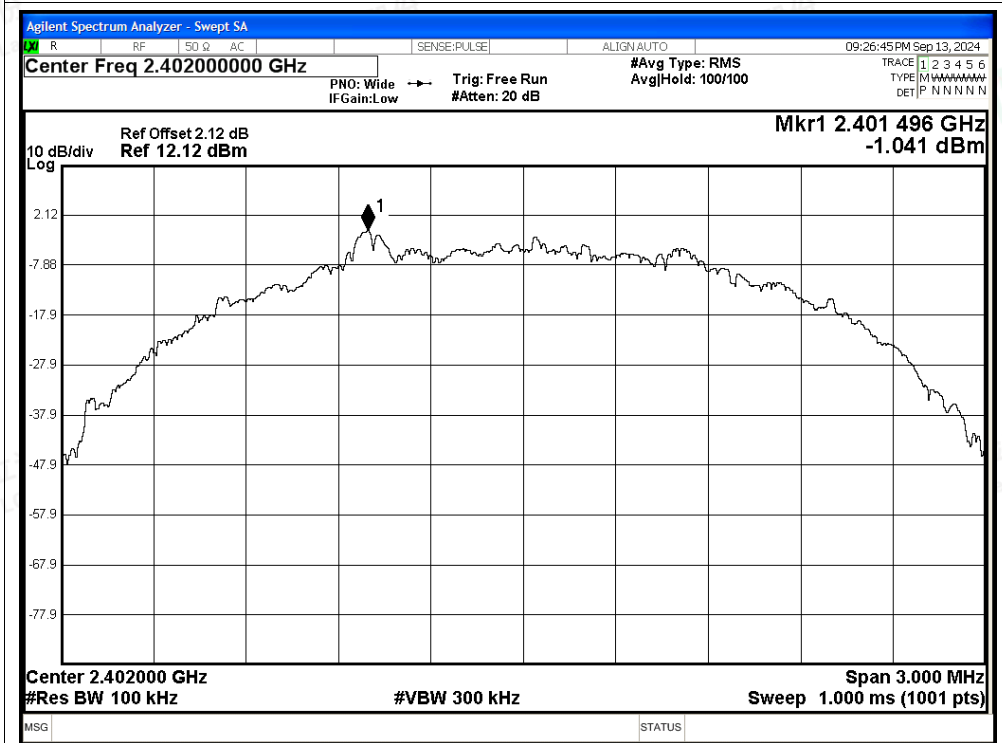


Tx. Spurious NVNT BLE 1M 2480MHz Ant Emission

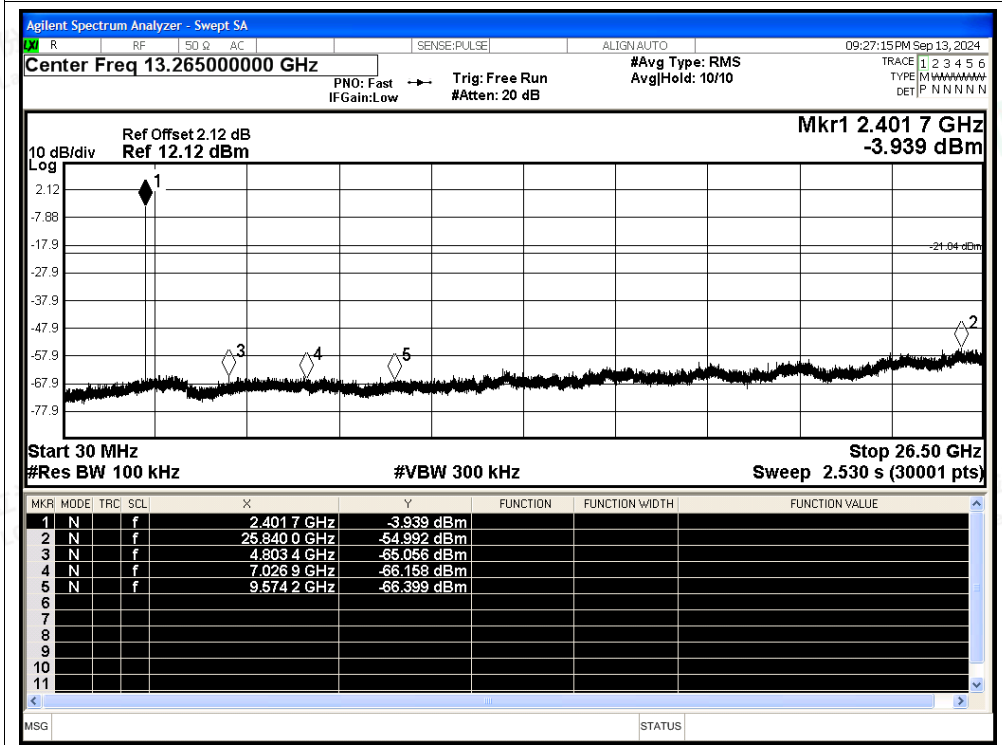




Tx. Spurious NVNT BLE 2M 2402MHz Ant Ref



Tx. Spurious NVNT BLE 2M 2402MHz Ant Emission

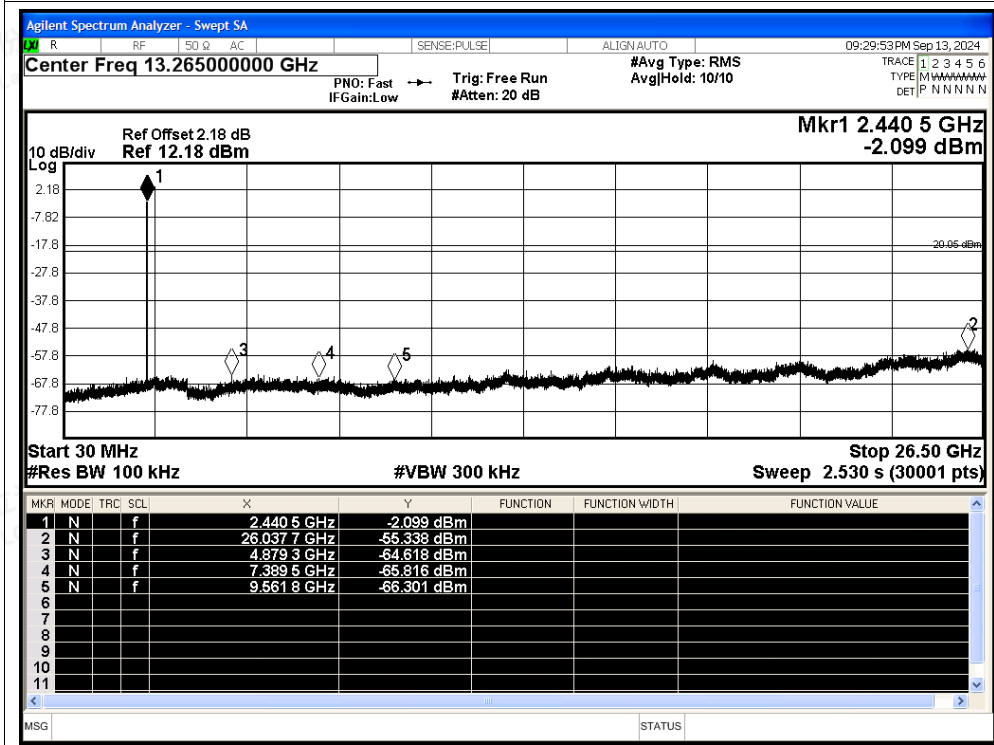




Tx. Spurious NVNT BLE 2M 2440MHz Ant Ref



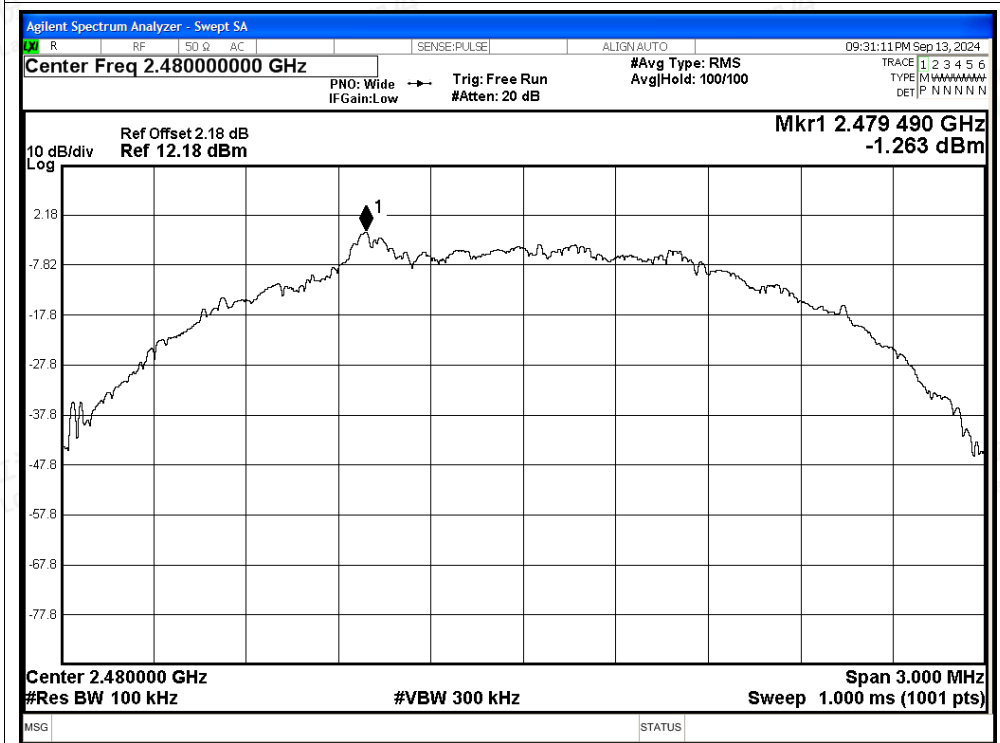
Tx. Spurious NVNT BLE 2M 2440MHz Ant Emission



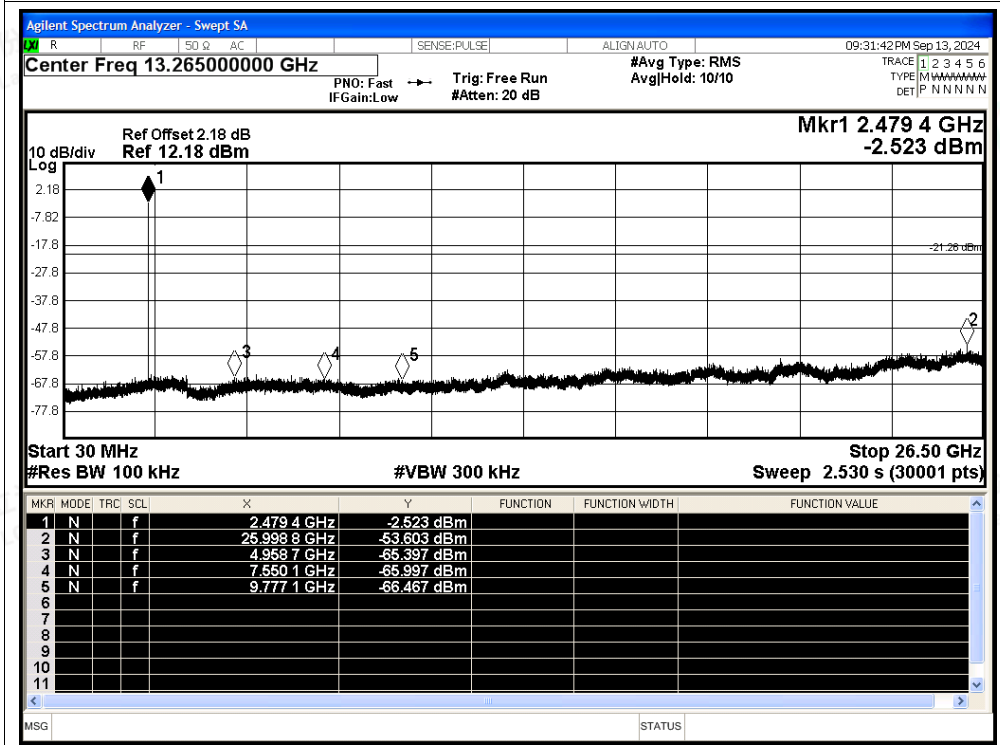




Tx. Spurious NVNT BLE 2M 2480MHz Ant Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant Emission





### B.6 Duty Cycle

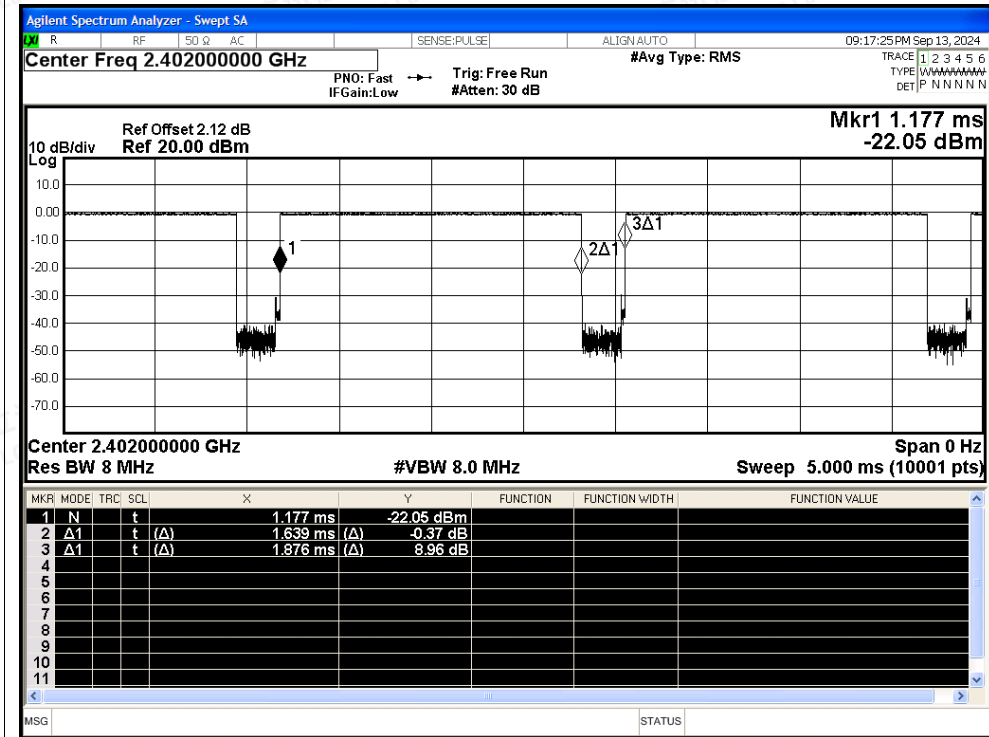
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant	87.39	0.59	0.61
NVNT	BLE 1M	2440	Ant	87.41	0.58	0.61
NVNT	BLE 1M	2480	Ant	87.39	0.59	0.61
NVNT	BLE 2M	2402	Ant	65.93	1.81	1.21
NVNT	BLE 2M	2440	Ant	65.96	1.81	1.21
NVNT	BLE 2M	2480	Ant	65.92	1.81	1.21



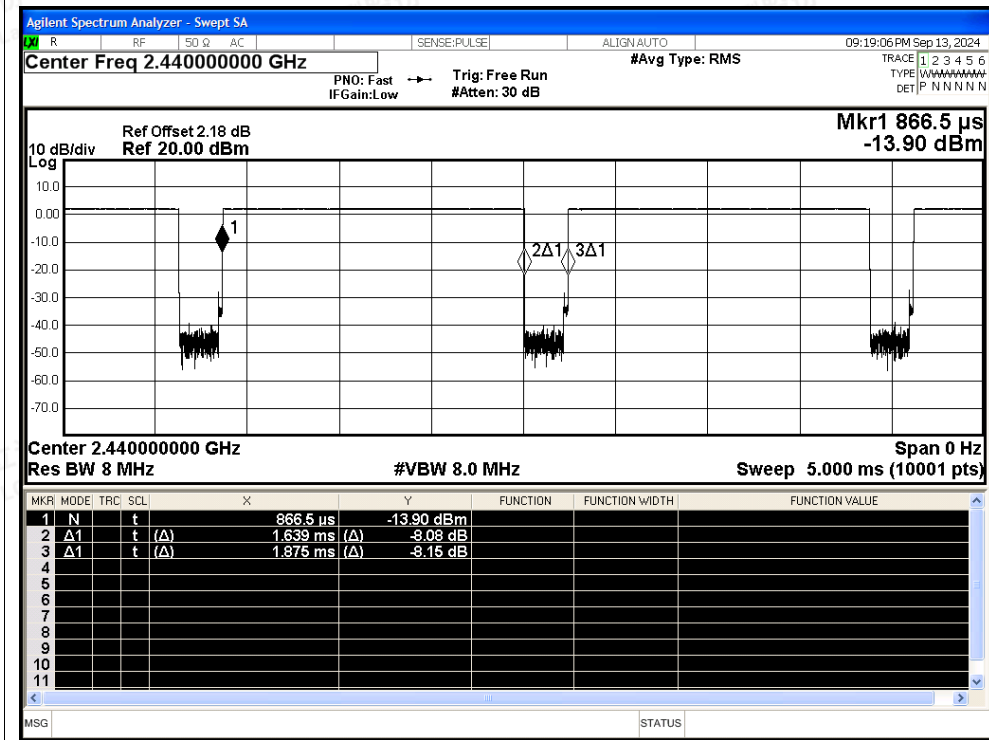


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant

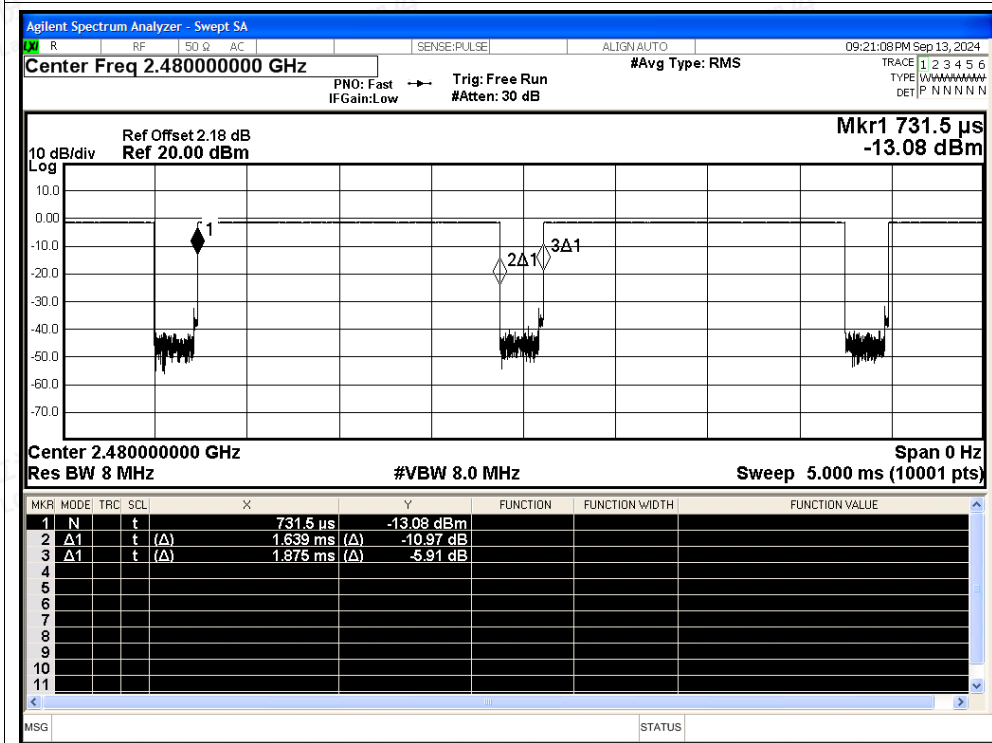


Duty Cycle NVNT BLE 1M 2440MHz Ant

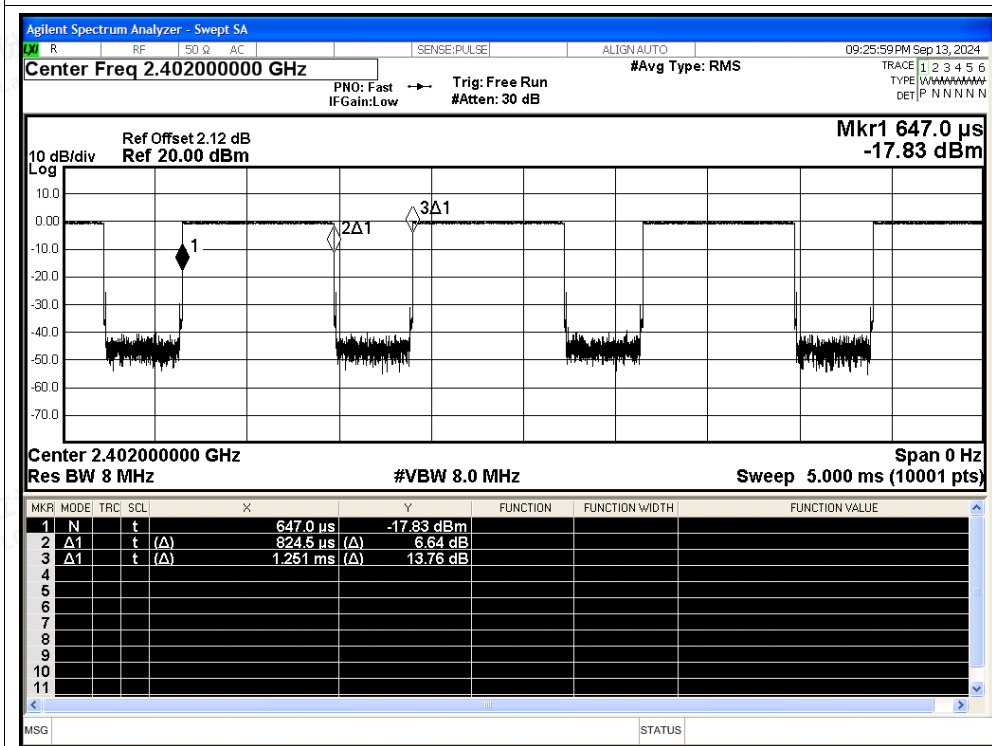




Duty Cycle NVNT BLE 1M 2480MHz Ant

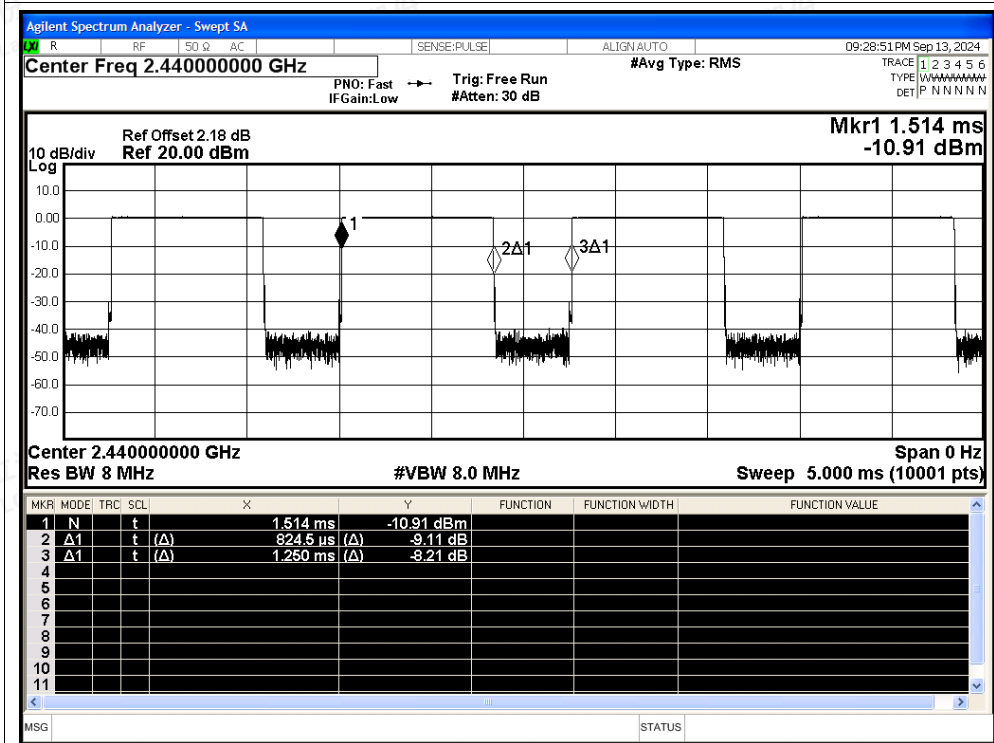


Duty Cycle NVNT BLE 2M 2402MHz Ant

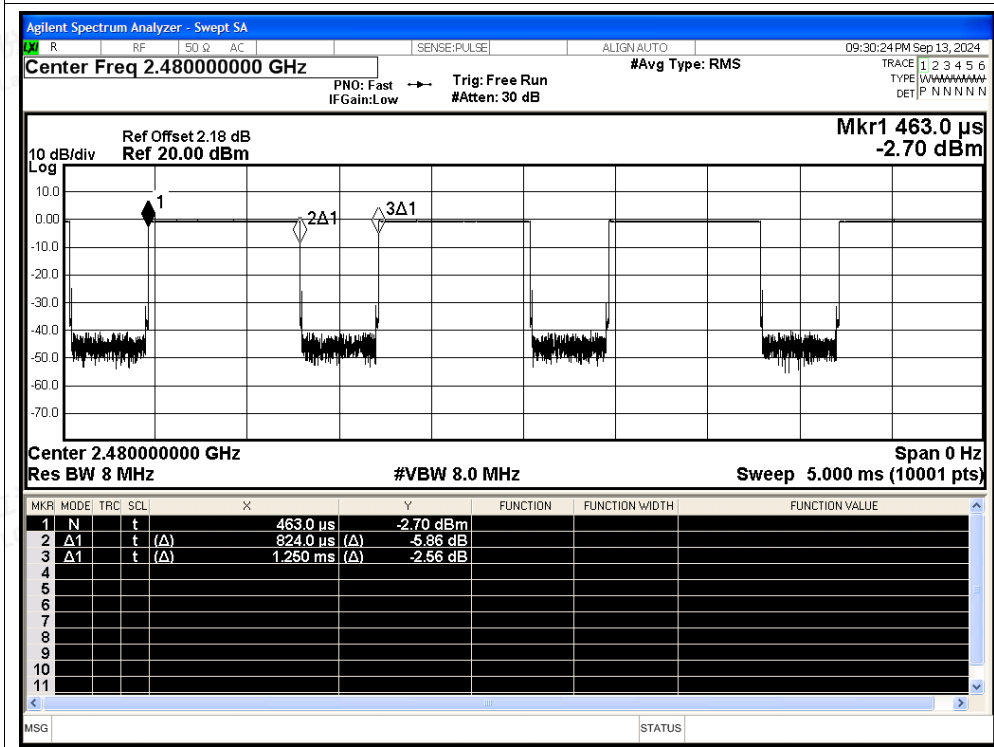




Duty Cycle NVNT BLE 2M 2440MHz Ant



Duty Cycle NVNT BLE 2M 2480MHz Ant





### B.7 Restrict Band

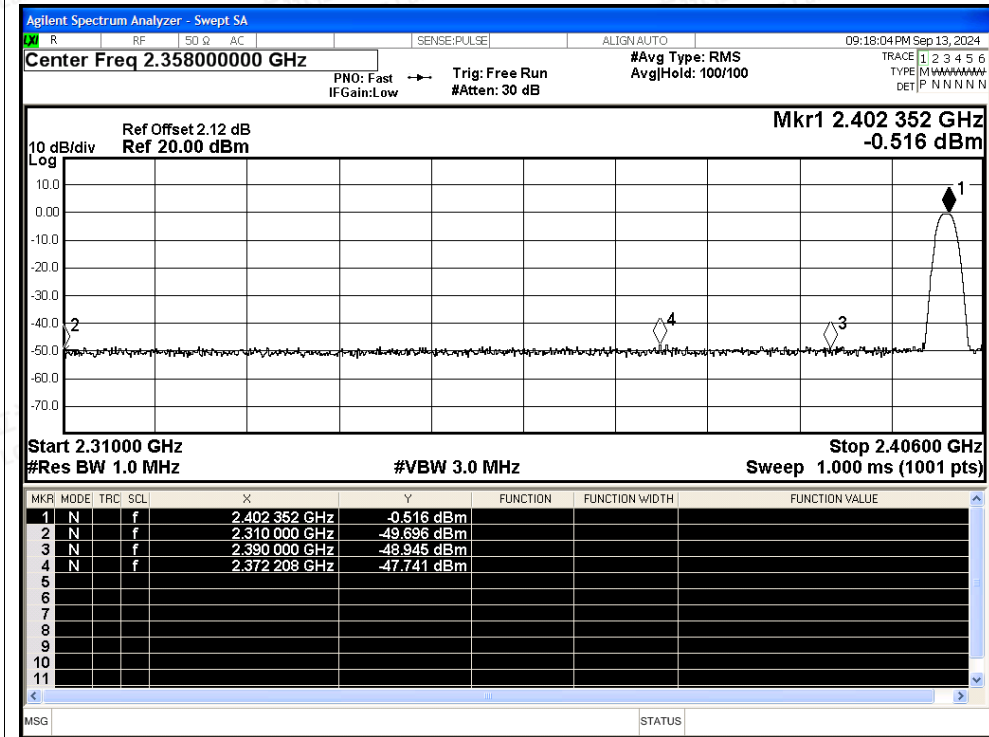
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	Ant	2310	-49.7	2	-	47.56	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2310	-58.78	2	0.59	39.07	Average	54	Pass
NVNT	BLE 1M	2402	Ant	2372.208	-47.74	2	-	49.52	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2373.264	-57.62	2	0.59	40.23	Average	54	Pass
NVNT	BLE 1M	2402	Ant	2390	-48.95	2	-	48.31	Peak	74	Pass
NVNT	BLE 1M	2402	Ant	2390	-57.95	2	0.59	39.9	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2483.5	-49.17	2	-	48.09	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2483.5	-57.73	2	0.59	40.12	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2487.52	-47.19	2	-	50.07	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2489.992	-56.9	2	0.59	40.95	Average	54	Pass
NVNT	BLE 1M	2480	Ant	2500	-49.82	2	-	47.44	Peak	74	Pass
NVNT	BLE 1M	2480	Ant	2500	-57.64	2	0.59	40.21	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2310	-50.18	2	-	47.08	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2310	-58.65	2	1.81	40.42	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2369.52	-46.15	2	-	51.11	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2362.512	-57.65	2	1.81	41.42	Average	54	Pass
NVNT	BLE 2M	2402	Ant	2390	-50.96	2	-	46.3	Peak	74	Pass
NVNT	BLE 2M	2402	Ant	2390	-58.65	2	1.81	40.42	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2483.5	-50.11	2	-	47.15	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2483.5	-57.98	2	1.81	41.09	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2484.064	-46.44	2	-	50.82	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2498.32	-56.97	2	1.81	42.1	Average	54	Pass
NVNT	BLE 2M	2480	Ant	2500	-49.07	2	-	48.19	Peak	74	Pass
NVNT	BLE 2M	2480	Ant	2500	-57.78	2	1.81	41.29	Average	54	Pass



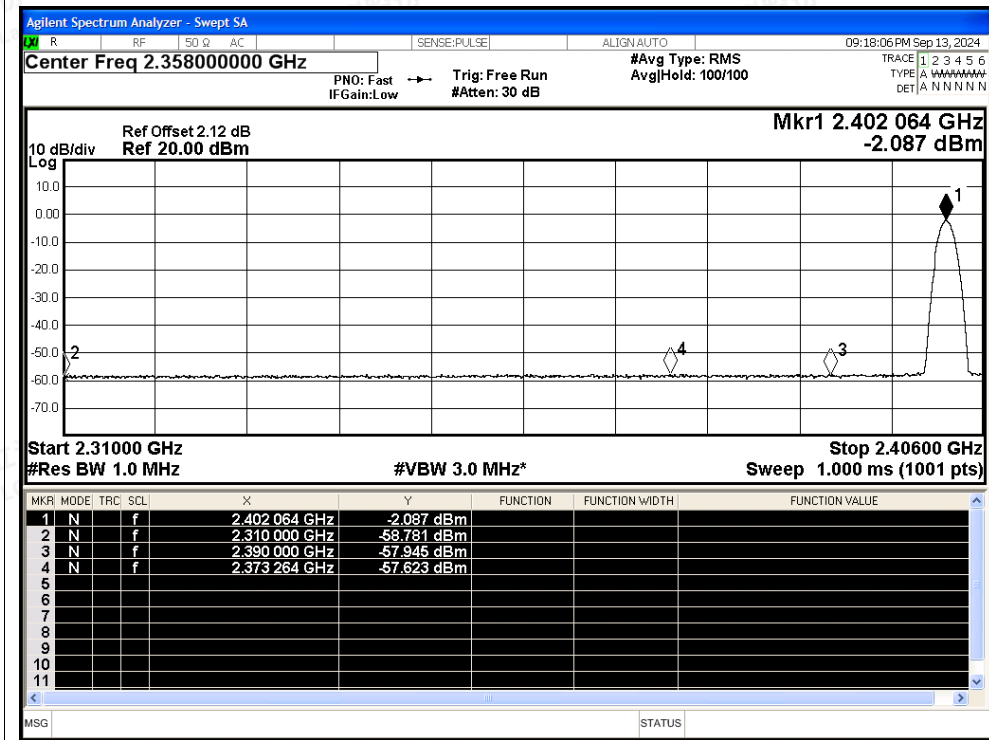


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant Peak



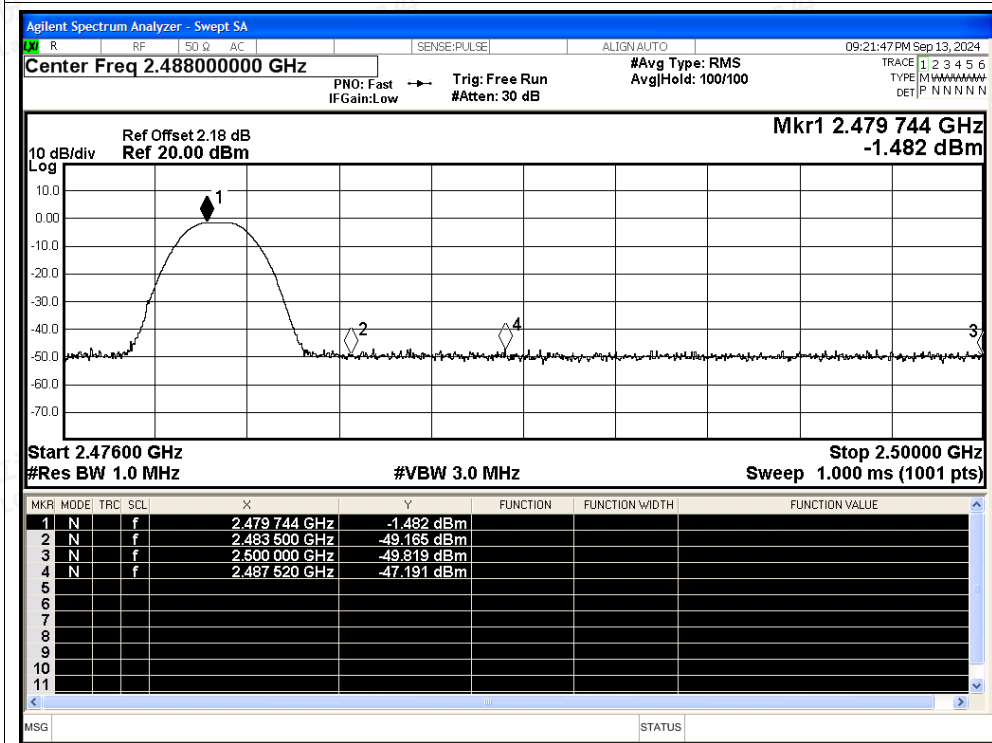
Restrict Band NVNT BLE 1M 2402MHz Ant Average



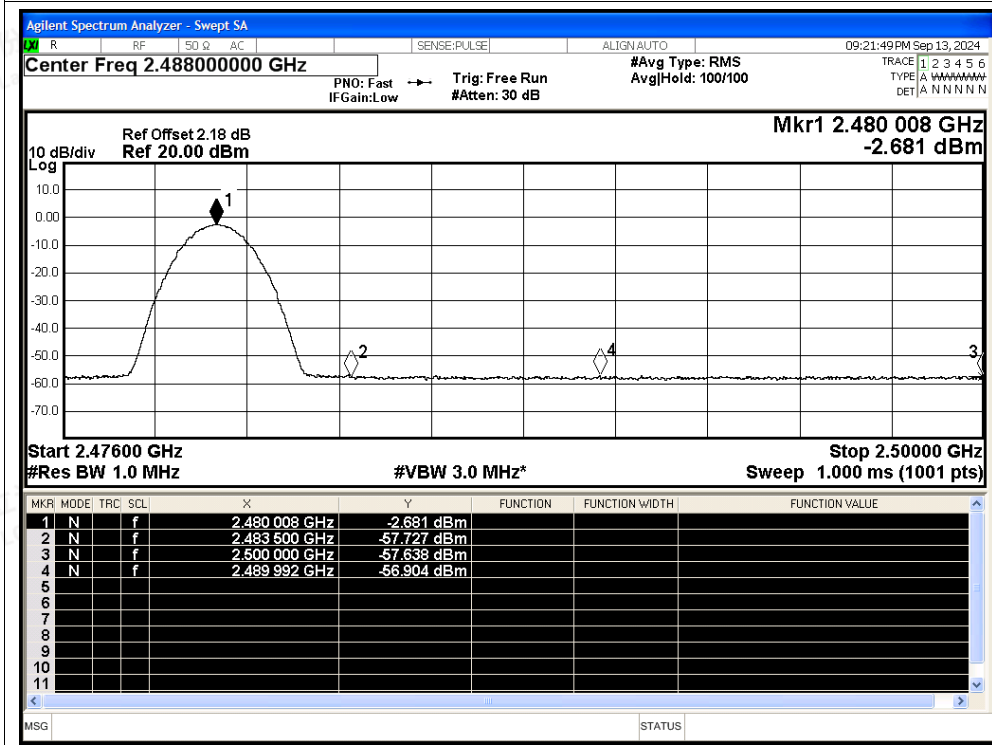




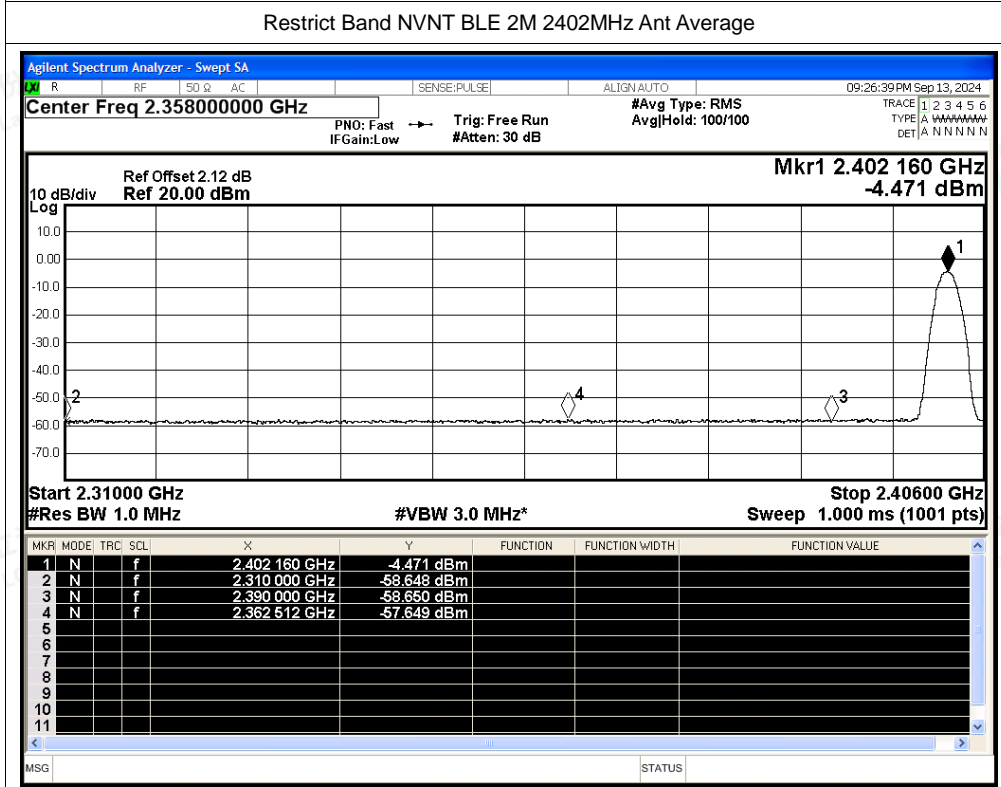
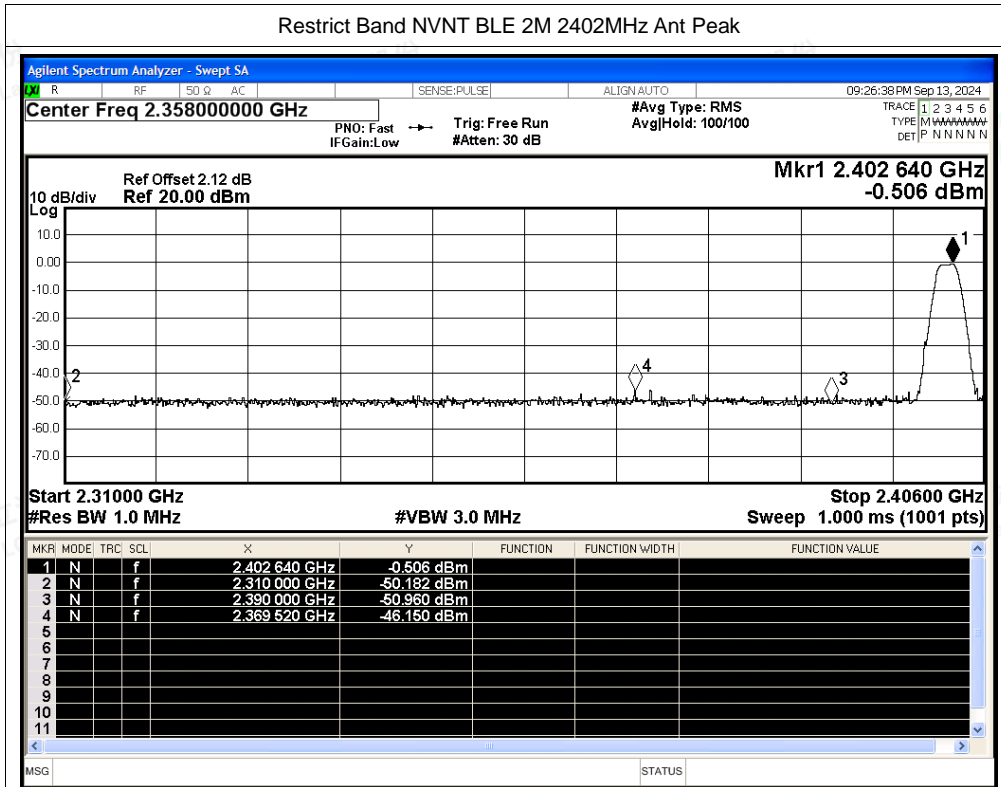
Restrict Band NVNT BLE 1M 2480MHz Ant Peak



Restrict Band NVNT BLE 1M 2480MHz Ant Average

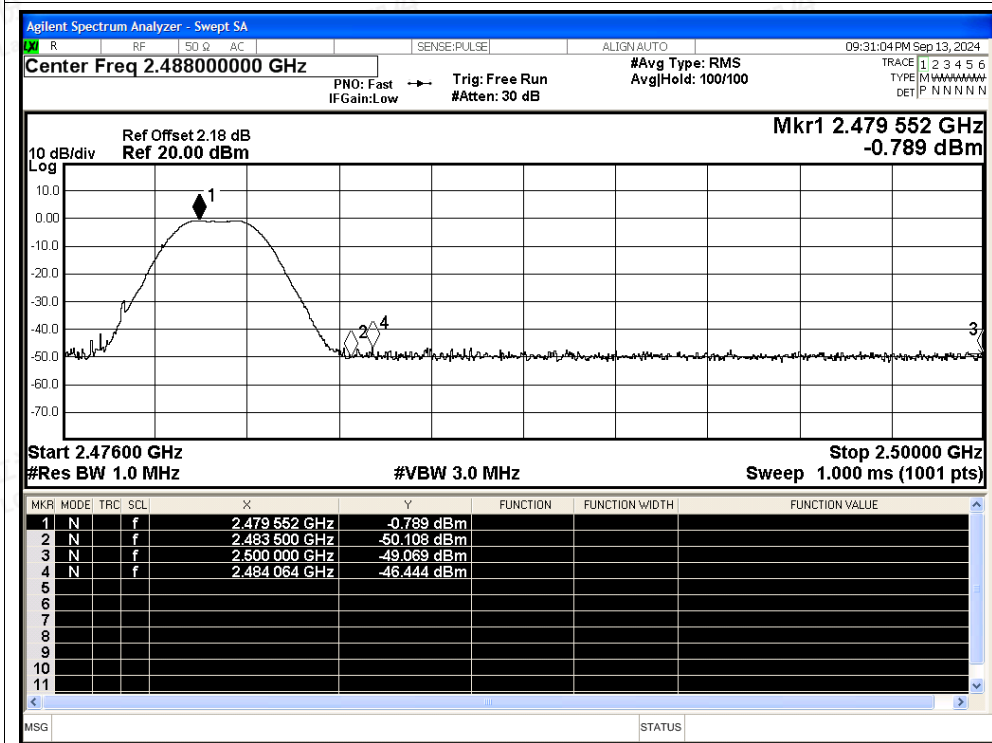








Restrict Band NVNT BLE 2M 2480MHz Ant Peak



Restrict Band NVNT BLE 2M 2480MHz Ant Average

