



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Mini PC

Test Model: HPPMC20

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Taylor Hu
Supervised by:	Ling Zhu





B.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	BT ANT	0.679	≥ 0.5	Pass
NVNT	BLE 1M	2440	BT ANT	0.665	≥ 0.5	Pass
NVNT	BLE 1M	2480	BT ANT	0.676	≥ 0.5	Pass
NVNT	BLE 2M	2402	BT ANT	1.149	≥ 0.5	Pass
NVNT	BLE 2M	2440	BT ANT	1.142	≥ 0.5	Pass
NVNT	BLE 2M	2480	BT ANT	1.156	≥ 0.5	Pass

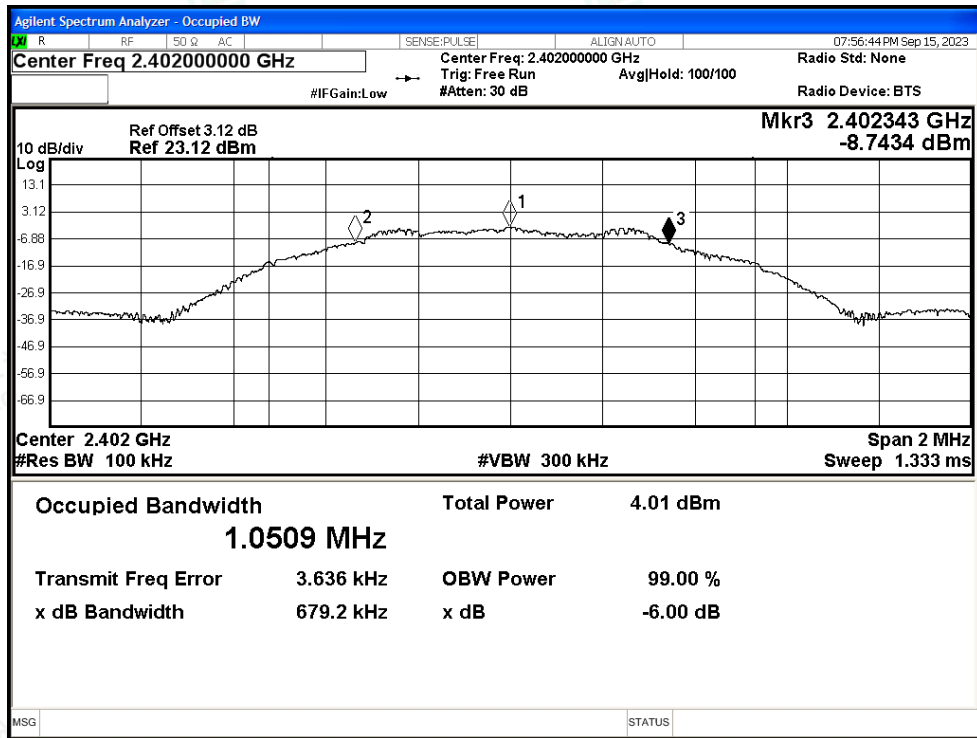


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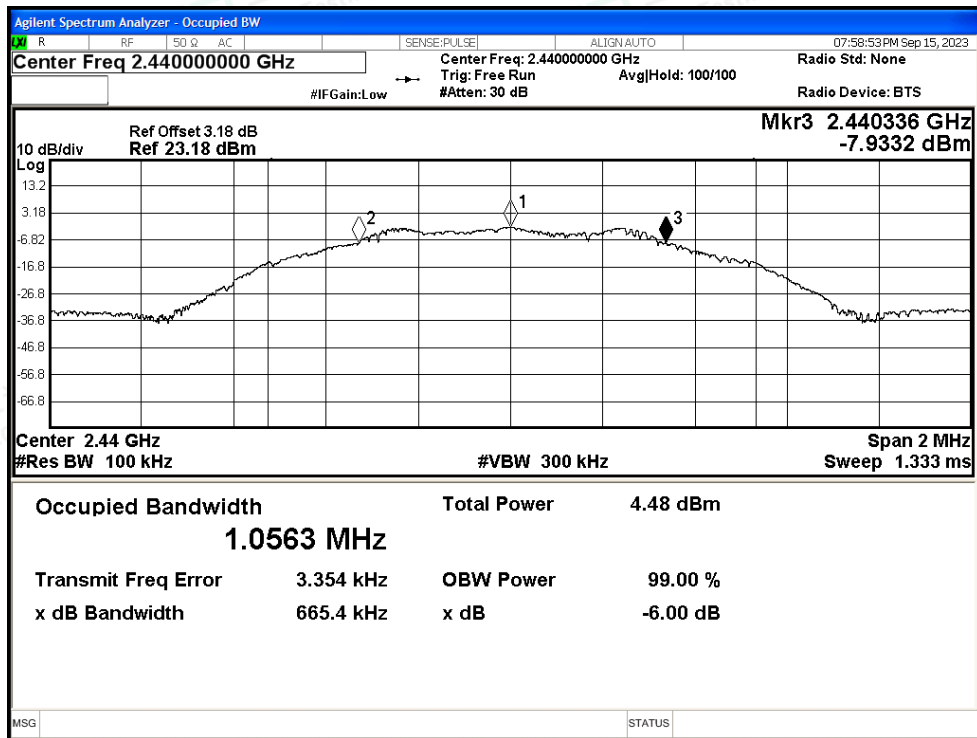


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz BT ANT

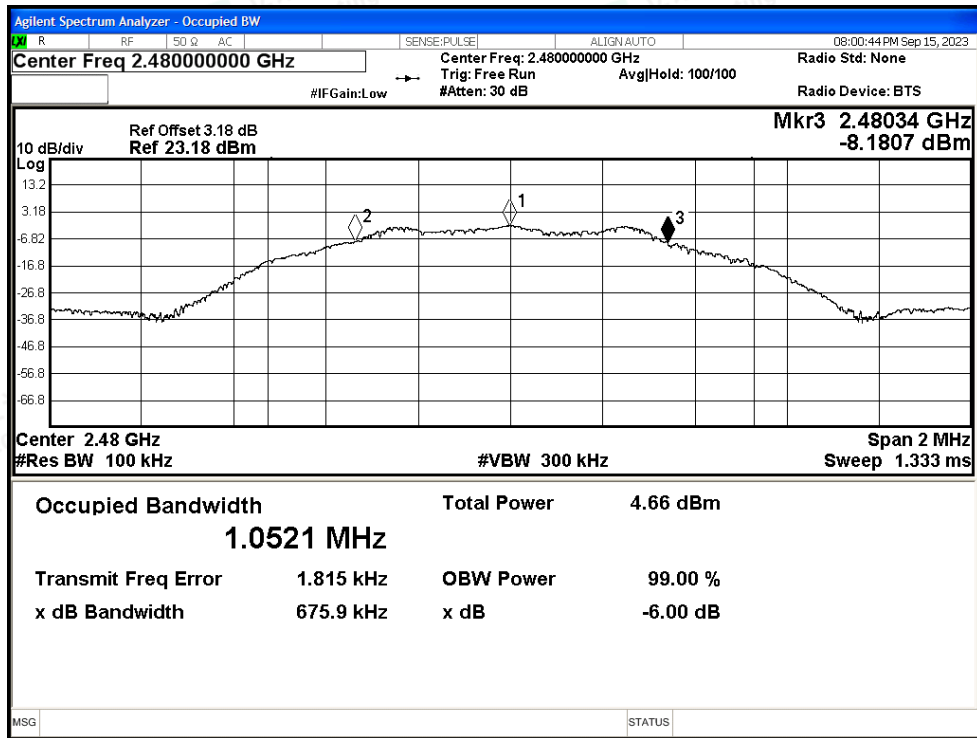


-6dB Bandwidth NVNT BLE 1M 2440MHz BT ANT

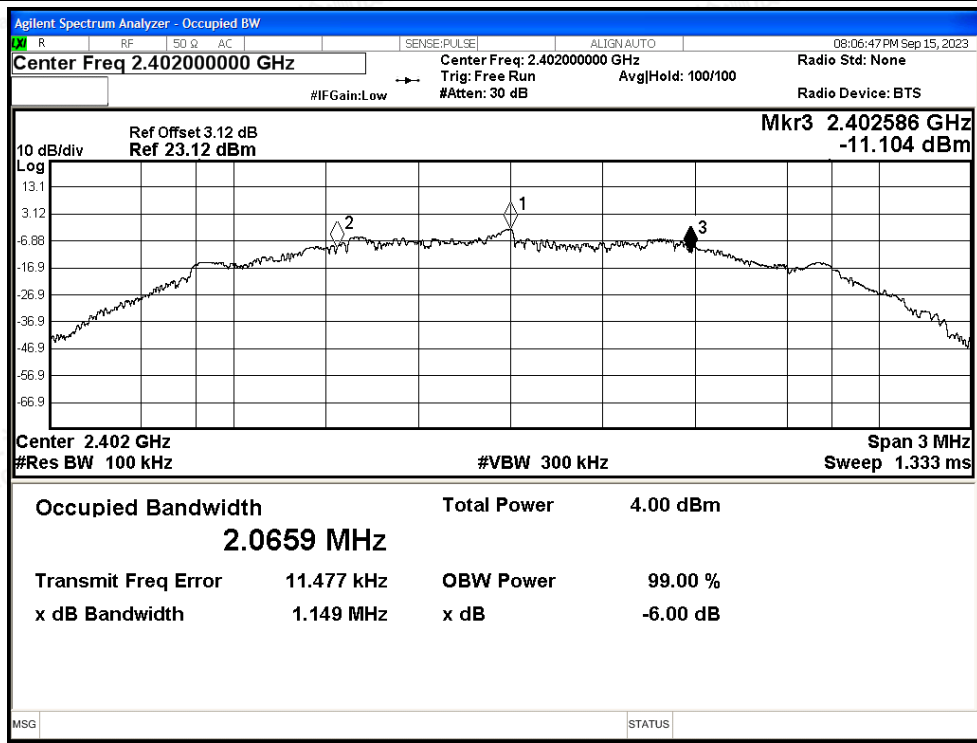




-6dB Bandwidth NVNT BLE 1M 2480MHz BT ANT

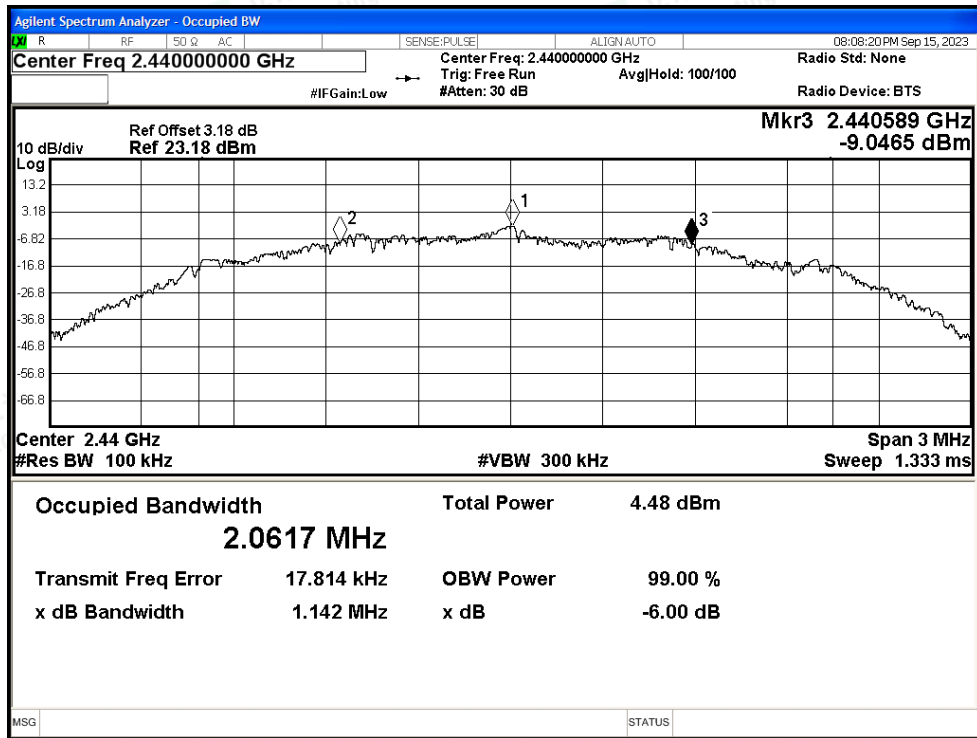


-6dB Bandwidth NVNT BLE 2M 2402MHz BT ANT

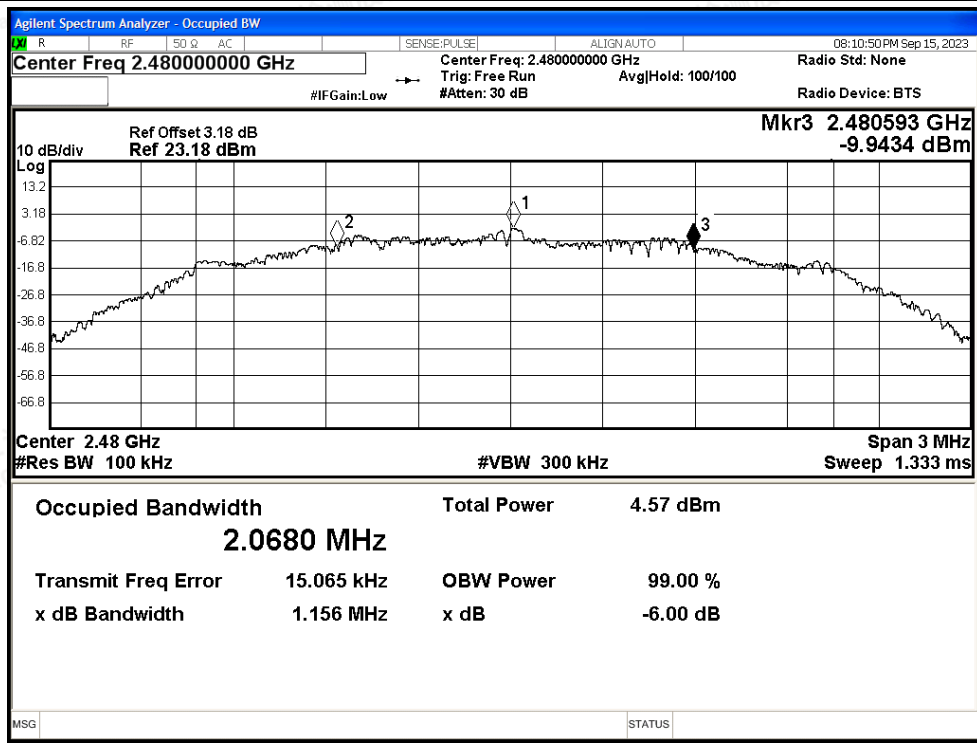




-6dB Bandwidth NVNT BLE 2M 2440MHz BT ANT



-6dB Bandwidth NVNT BLE 2M 2480MHz BT ANT





B.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	BT ANT	-1.69	30	Pass
NVNT	BLE 1M	2440	BT ANT	-1.29	30	Pass
NVNT	BLE 1M	2480	BT ANT	-1.13	30	Pass
NVNT	BLE 2M	2402	BT ANT	-1.78	30	Pass
NVNT	BLE 2M	2440	BT ANT	-1.37	30	Pass
NVNT	BLE 2M	2480	BT ANT	-1.19	30	Pass

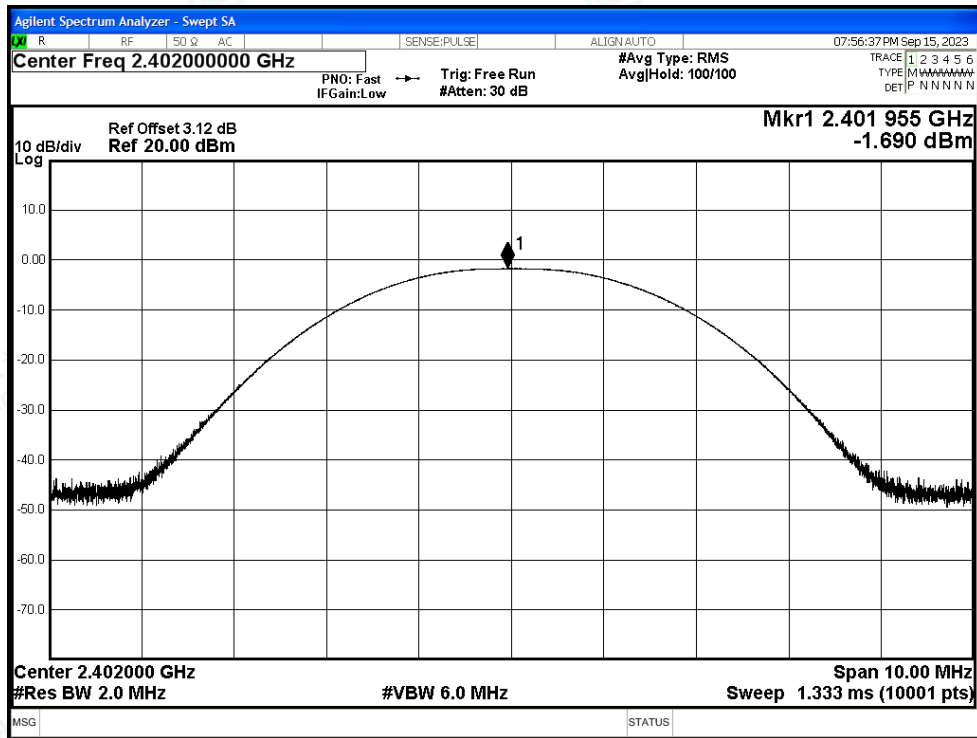


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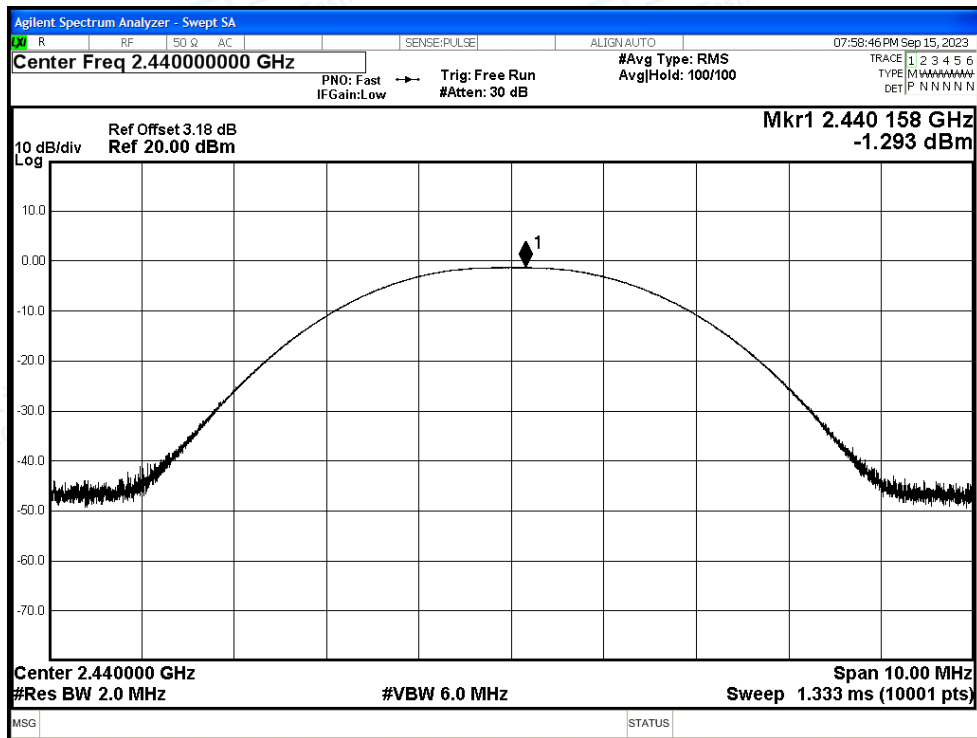


Test Graphs

Power NVNT BLE 1M 2402MHz BT ANT

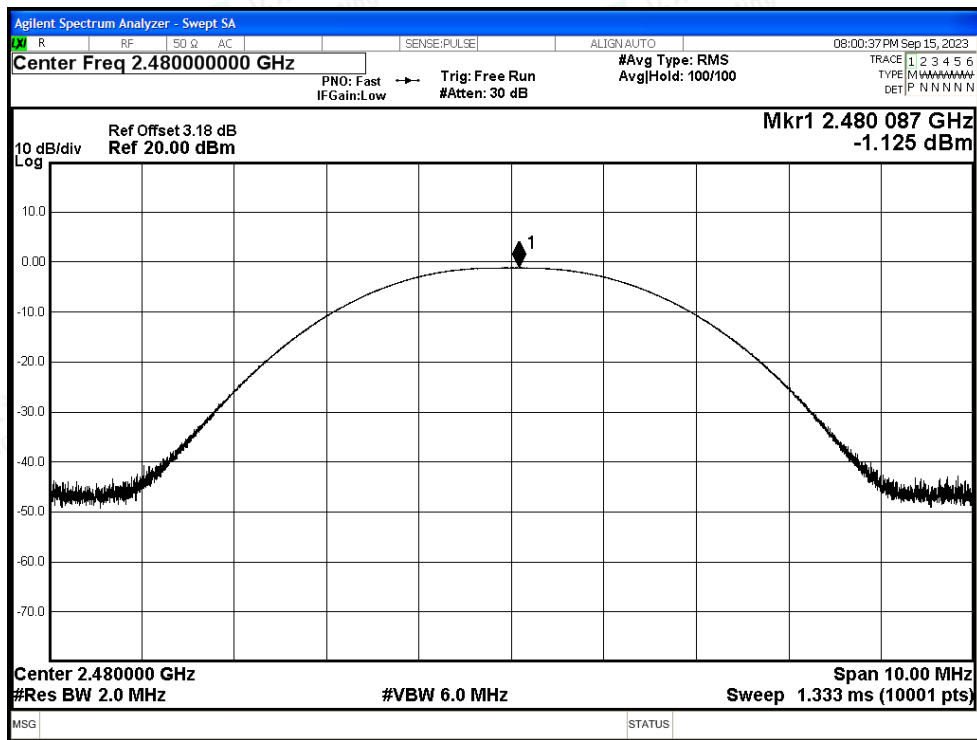


Power NVNT BLE 1M 2440MHz BT ANT

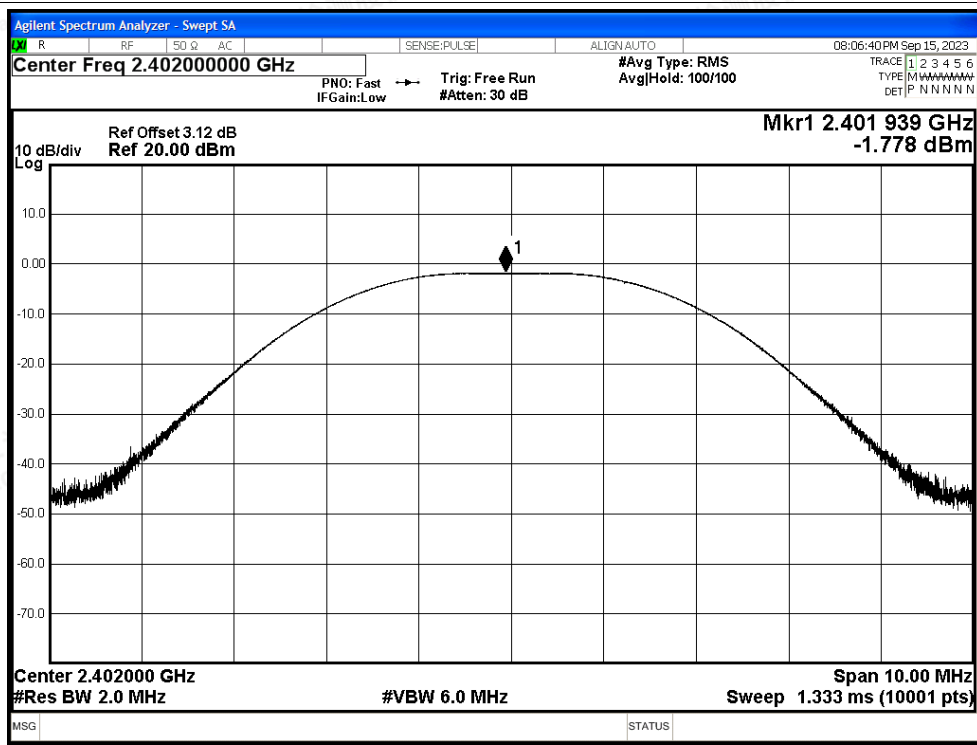




Power NVNT BLE 1M 2480MHz BT ANT

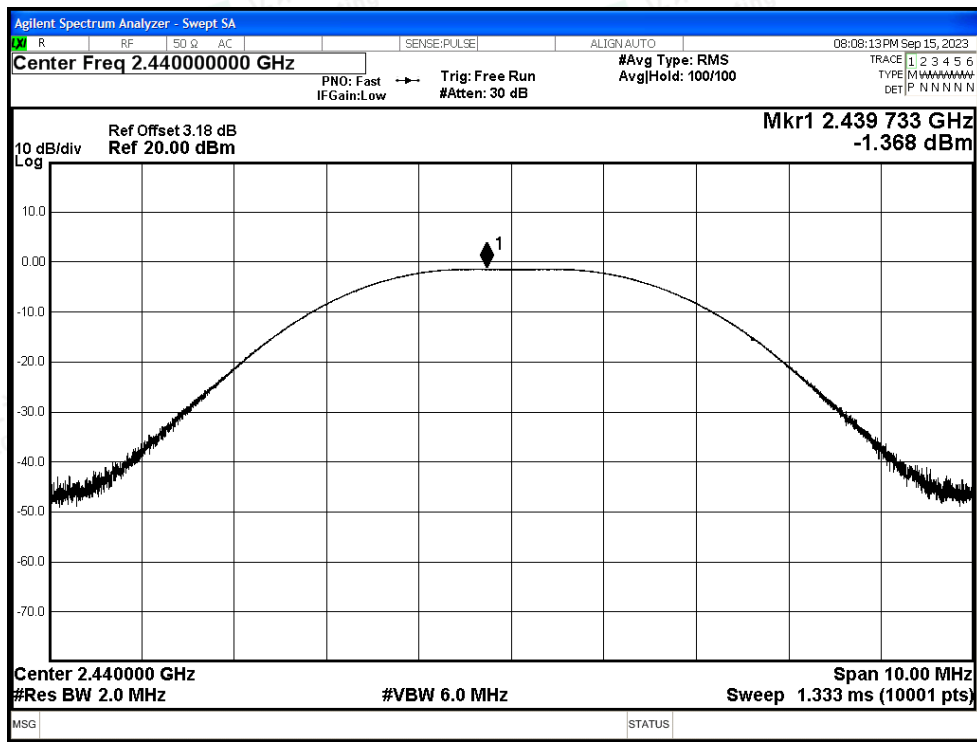


Power NVNT BLE 2M 2402MHz BT ANT

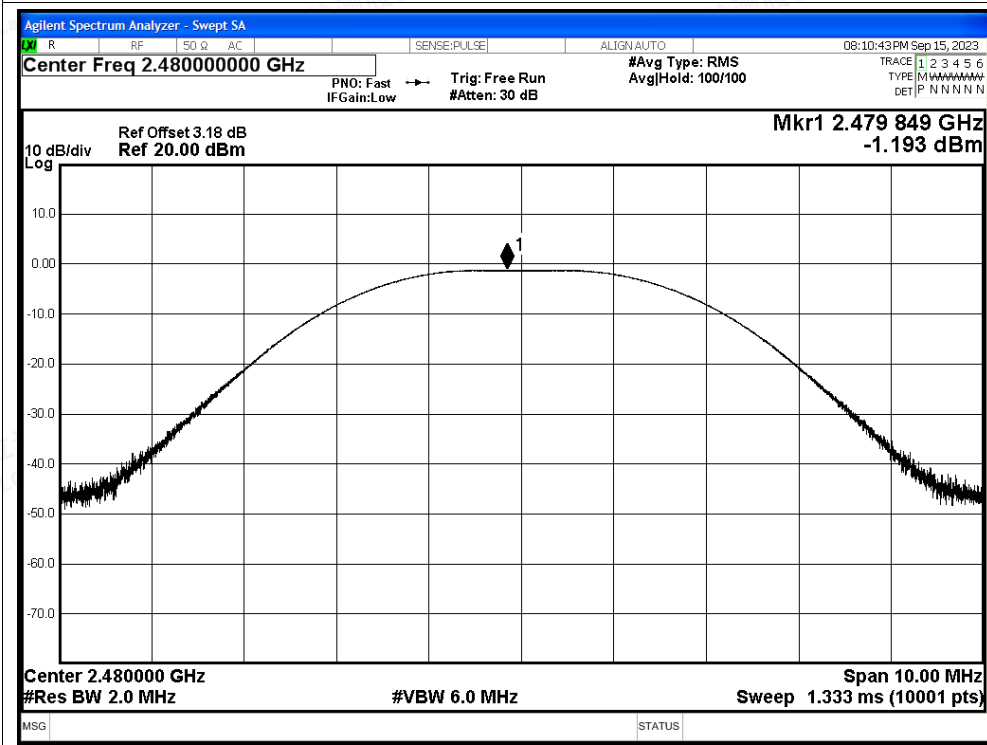




Power NVNT BLE 2M 2440MHz BT ANT



Power NVNT BLE 2M 2480MHz BT ANT





B.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	BT ANT	-16.65	8	Pass
NVNT	BLE 1M	2440	BT ANT	-16.61	8	Pass
NVNT	BLE 1M	2480	BT ANT	-16.11	8	Pass
NVNT	BLE 2M	2402	BT ANT	-19.42	8	Pass
NVNT	BLE 2M	2440	BT ANT	-18.83	8	Pass
NVNT	BLE 2M	2480	BT ANT	-18.74	8	Pass

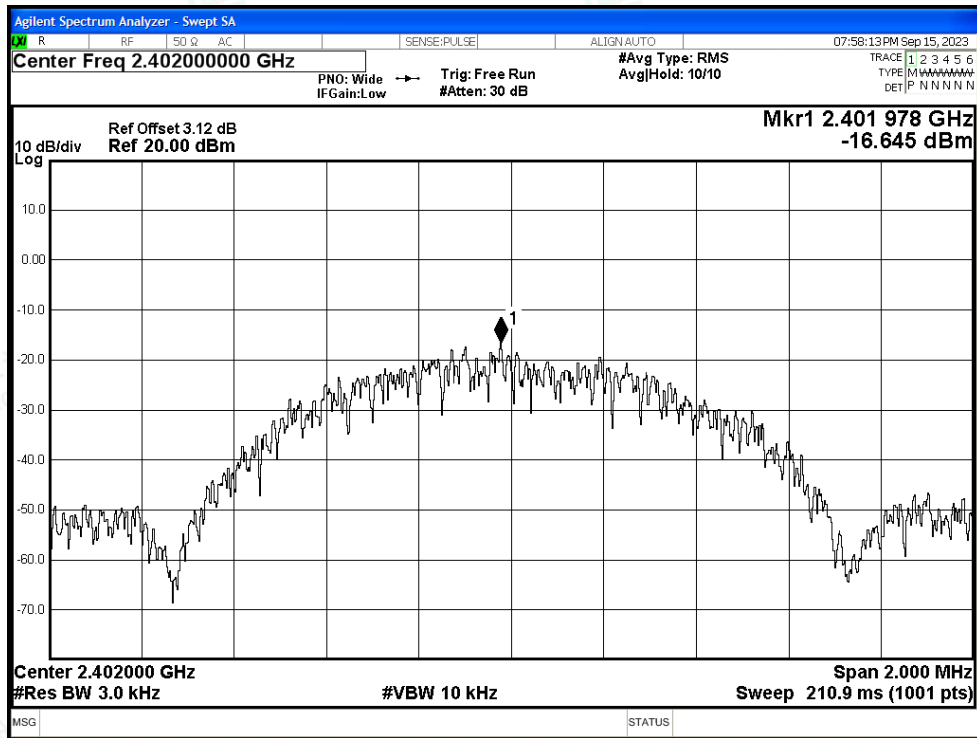


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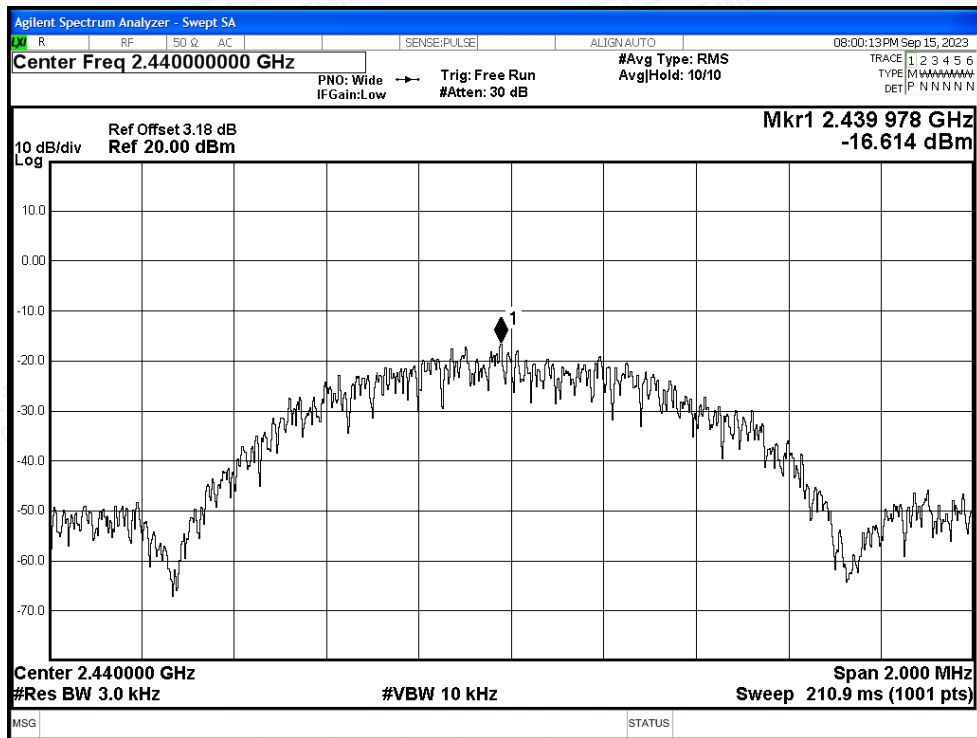


Test Graphs

PSD NVNT BLE 1M 2402MHz BT ANT

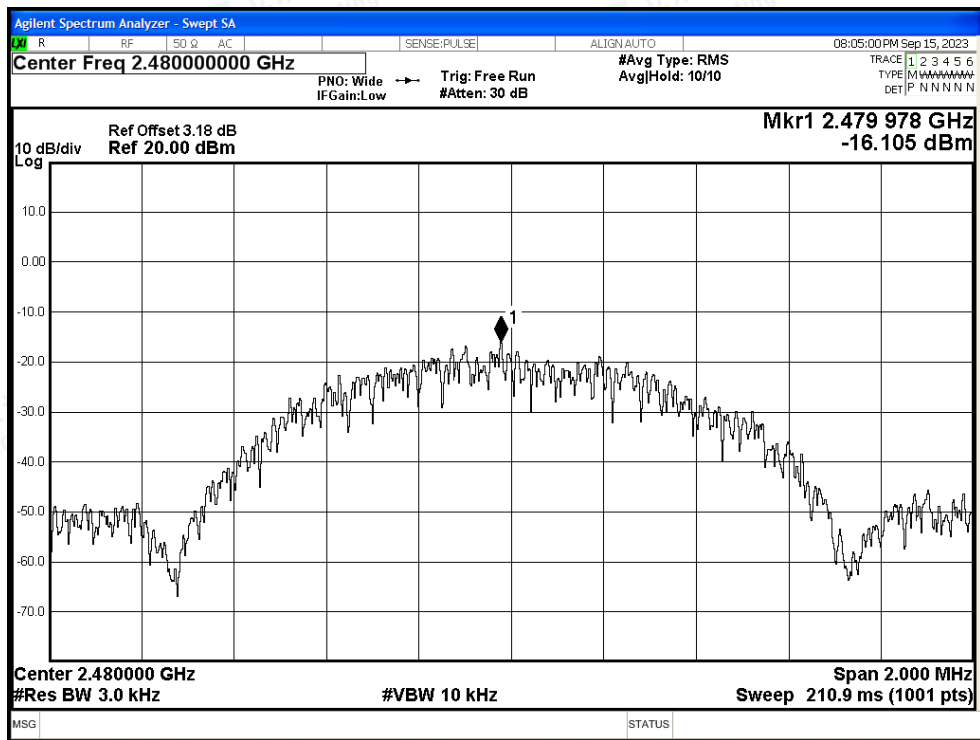


PSD NVNT BLE 1M 2440MHz BT ANT

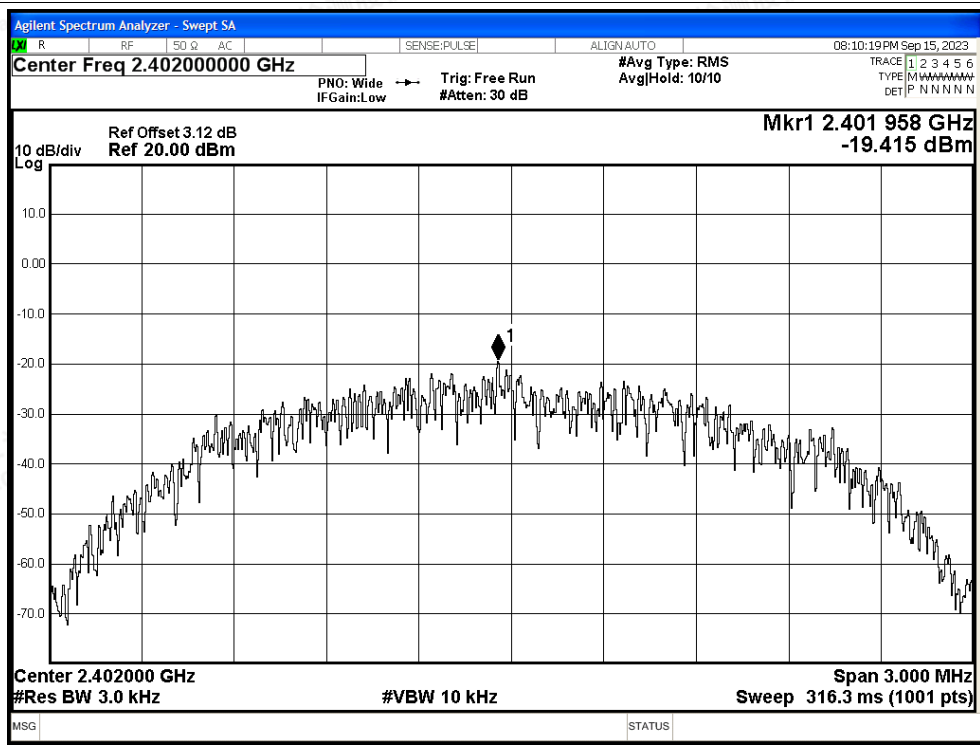




PSD NVNT BLE 1M 2480MHz BT ANT

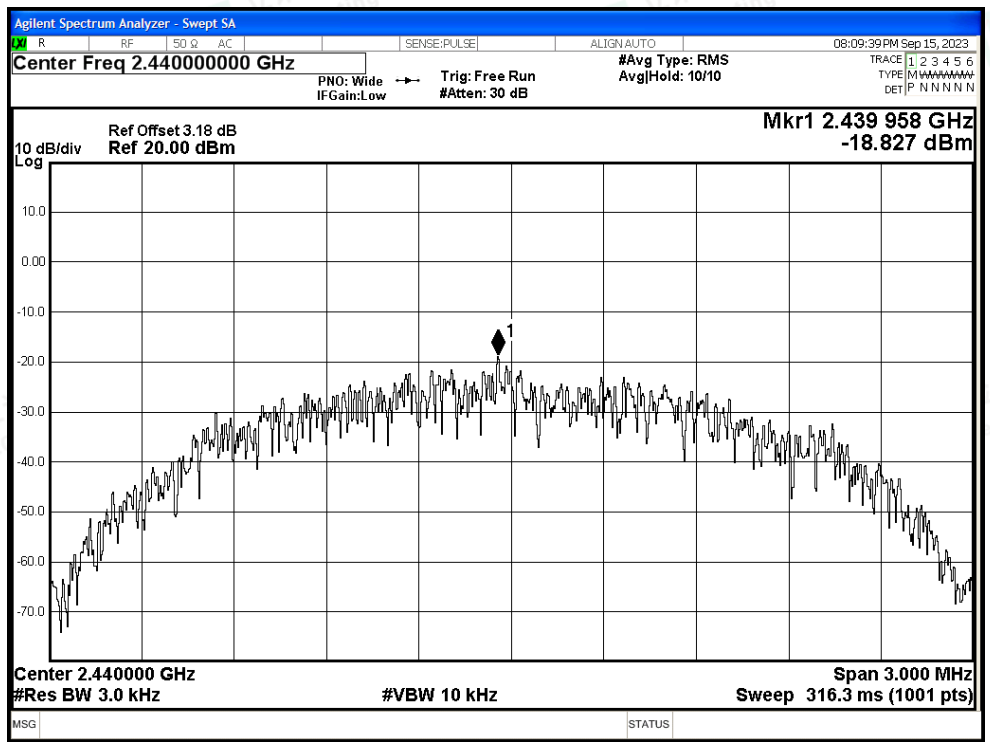


PSD NVNT BLE 2M 2402MHz BT ANT

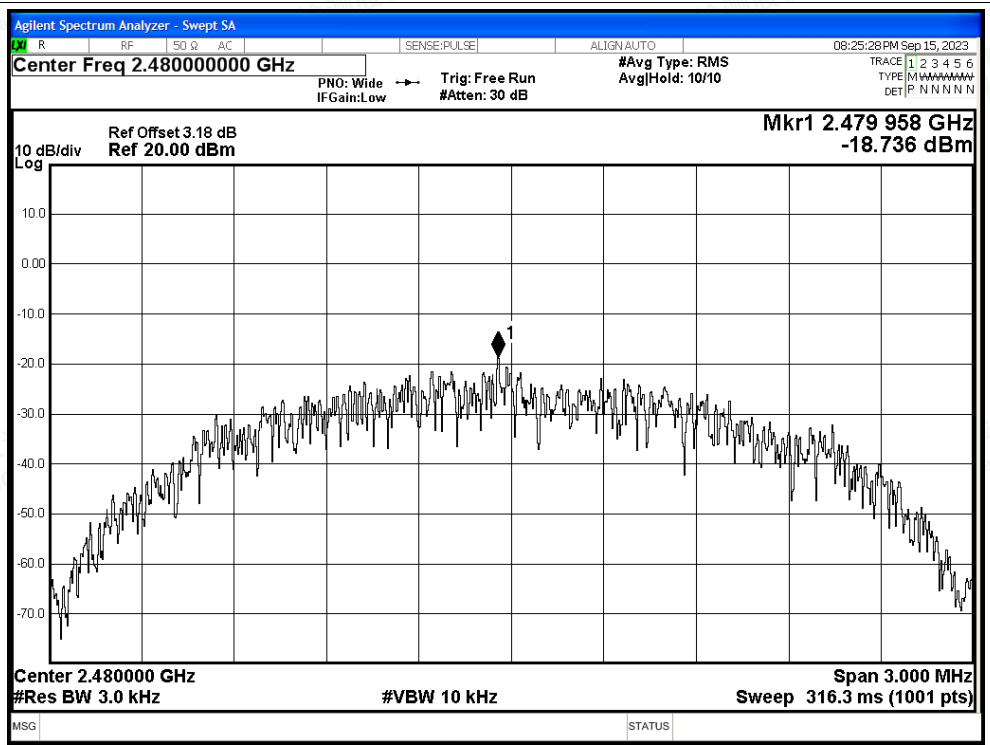




PSD NVNT BLE 2M 2440MHz BT ANT



PSD NVNT BLE 2M 2480MHz BT ANT





B.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	BT ANT	-52.79	-20	Pass
NVNT	BLE 1M	2480	BT ANT	-53.73	-20	Pass
NVNT	BLE 2M	2402	BT ANT	-36.01	-20	Pass
NVNT	BLE 2M	2480	BT ANT	-53.64	-20	Pass

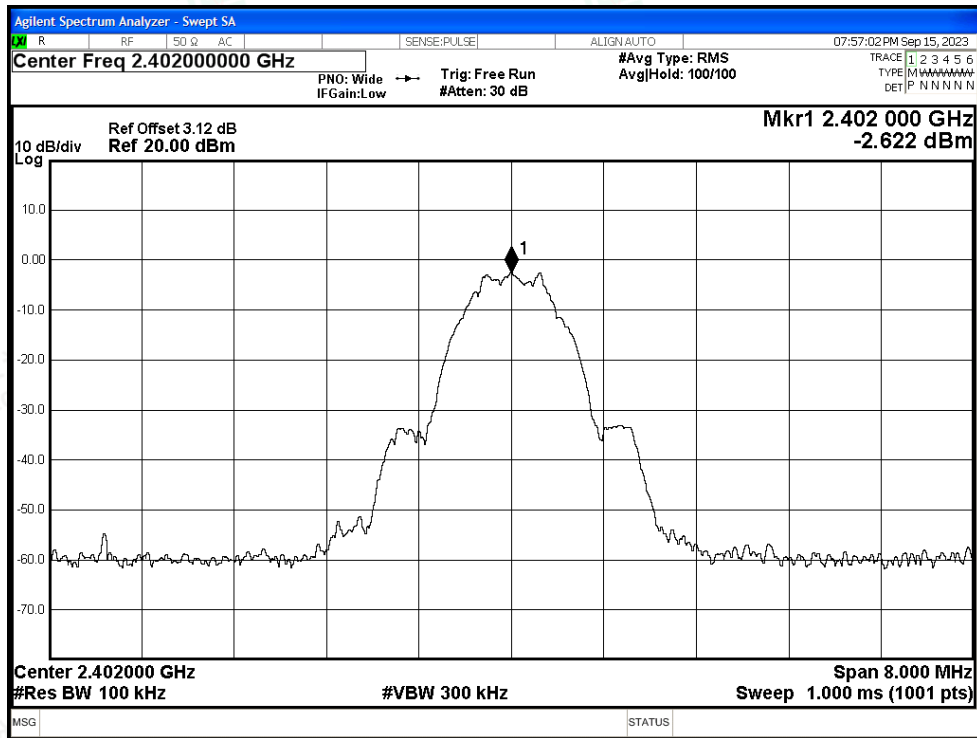


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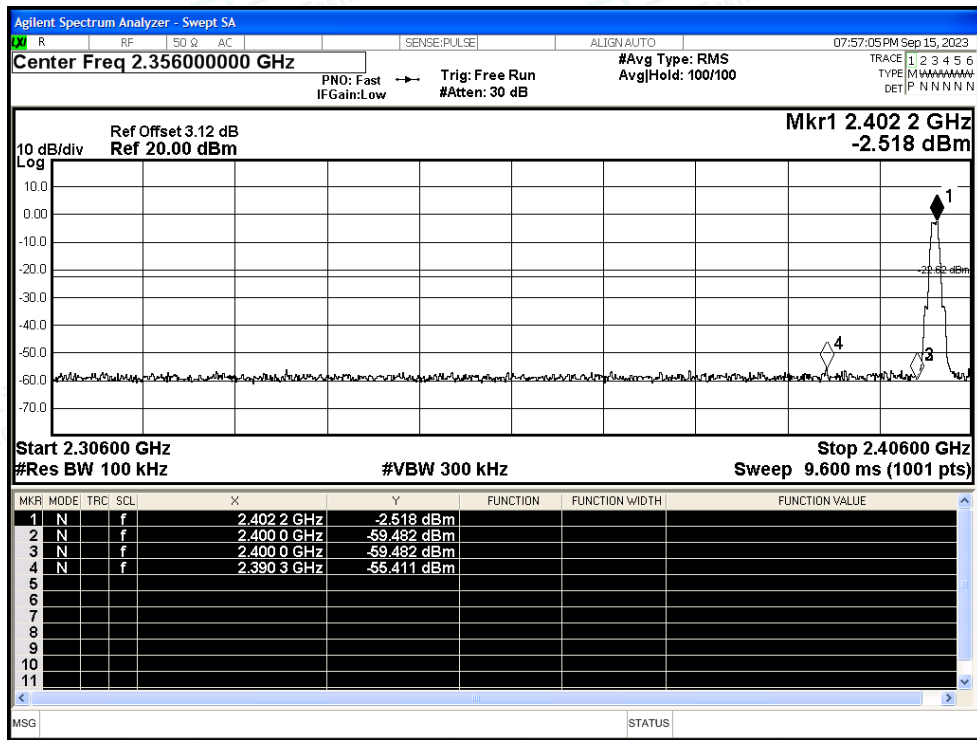


Test Graphs

Band Edge NVNT BLE 1M 2402MHz BT ANT Ref

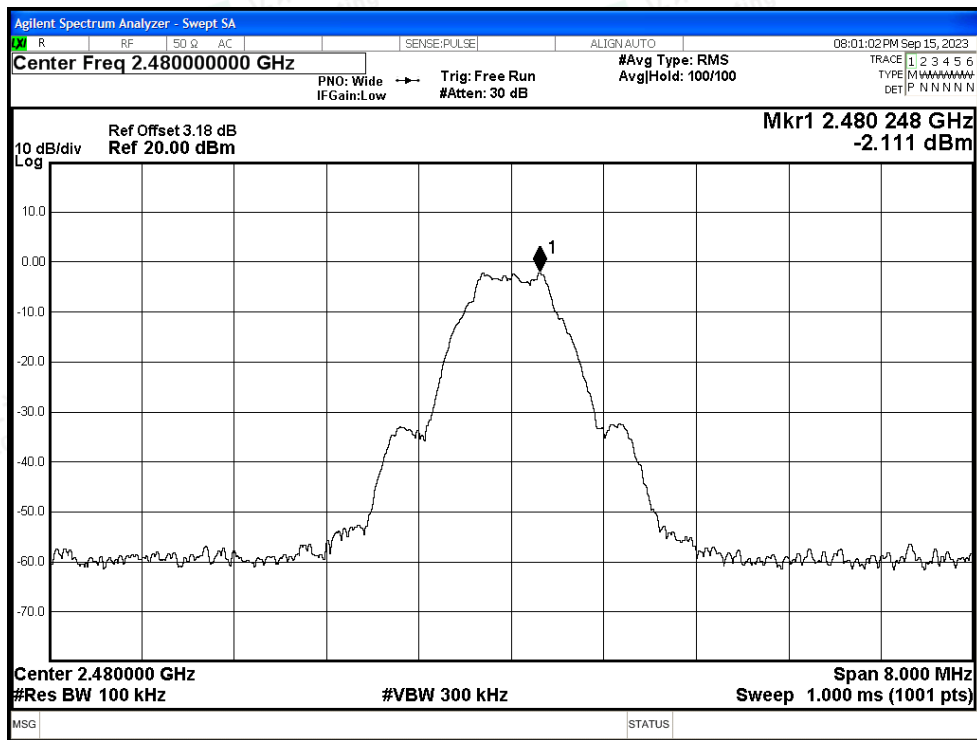


Band Edge NVNT BLE 1M 2402MHz BT ANT Emission

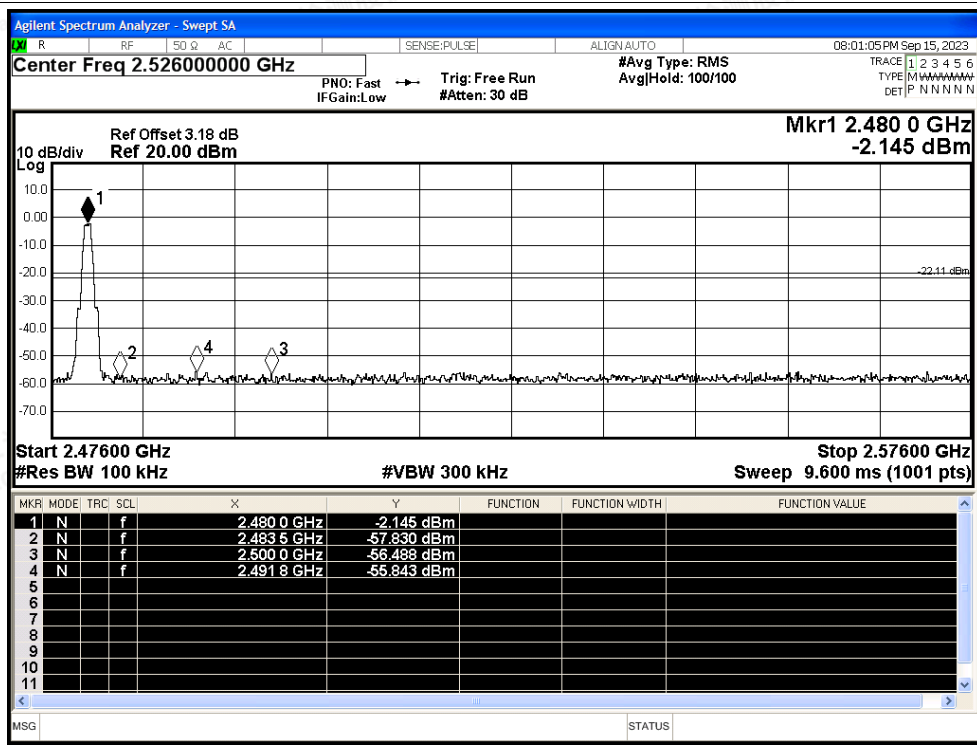




Band Edge NVNT BLE 1M 2480MHz BT ANT Ref



Band Edge NVNT BLE 1M 2480MHz BT ANT Emission

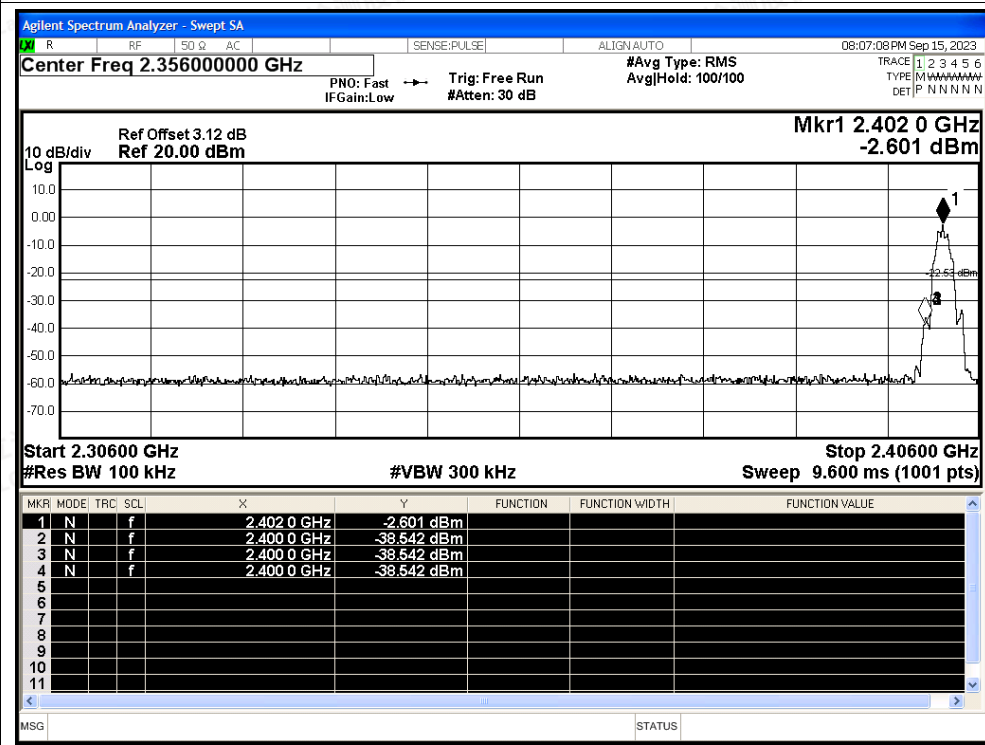




Band Edge NVNT BLE 2M 2402MHz BT ANT Ref

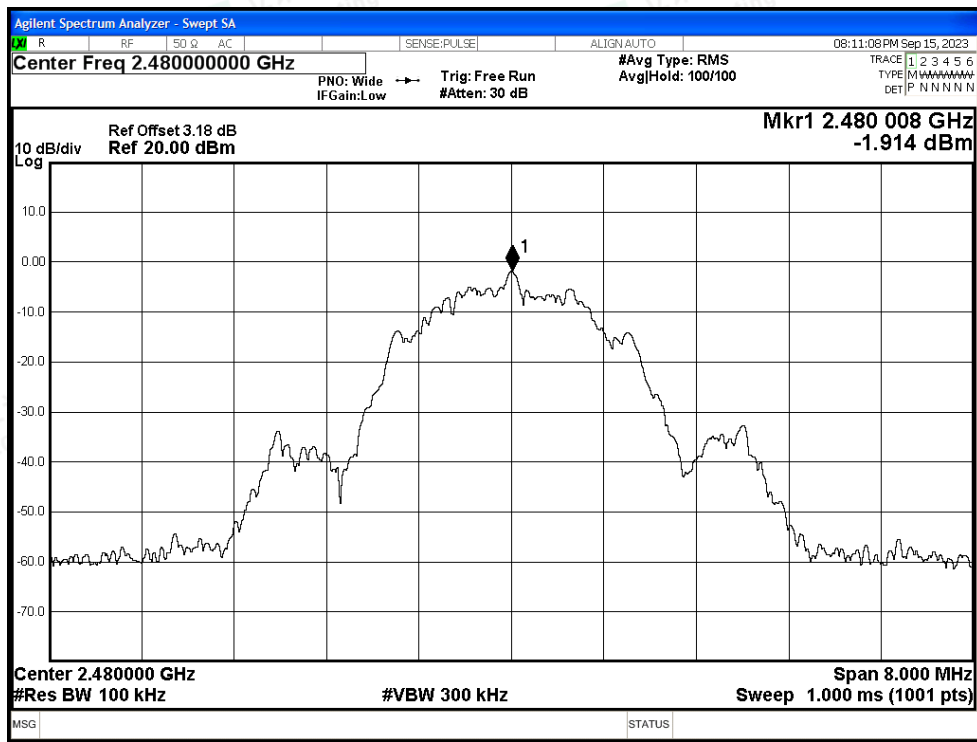


Band Edge NVNT BLE 2M 2402MHz BT ANT Emission

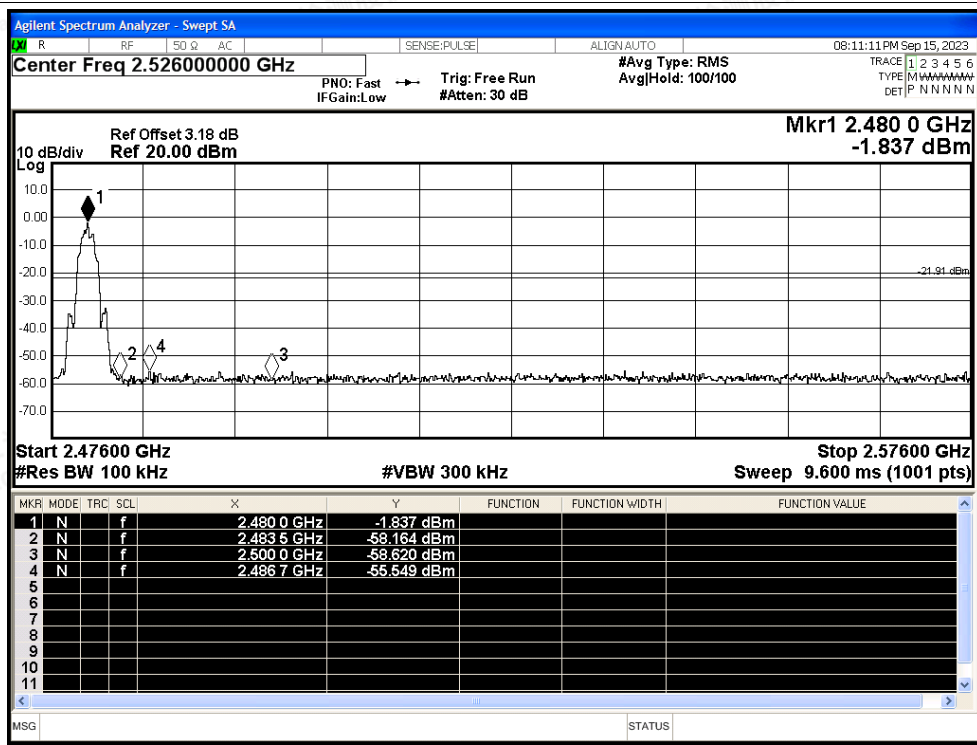




Band Edge NVNT BLE 2M 2480MHz BT ANT Ref



Band Edge NVNT BLE 2M 2480MHz BT ANT Emission





B.5 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	BT ANT	-50.83	-20	Pass
NVNT	BLE 1M	2440	BT ANT	-52.58	-20	Pass
NVNT	BLE 1M	2480	BT ANT	-52.33	-20	Pass
NVNT	BLE 2M	2402	BT ANT	-51.09	-20	Pass
NVNT	BLE 2M	2440	BT ANT	-51.38	-20	Pass
NVNT	BLE 2M	2480	BT ANT	-52.04	-20	Pass

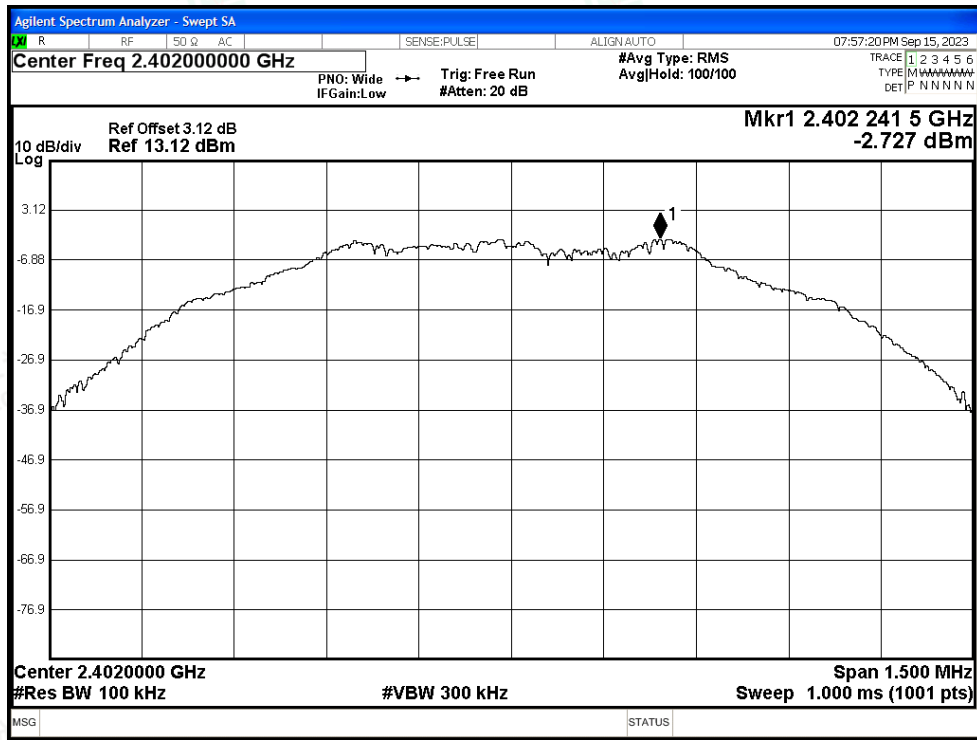


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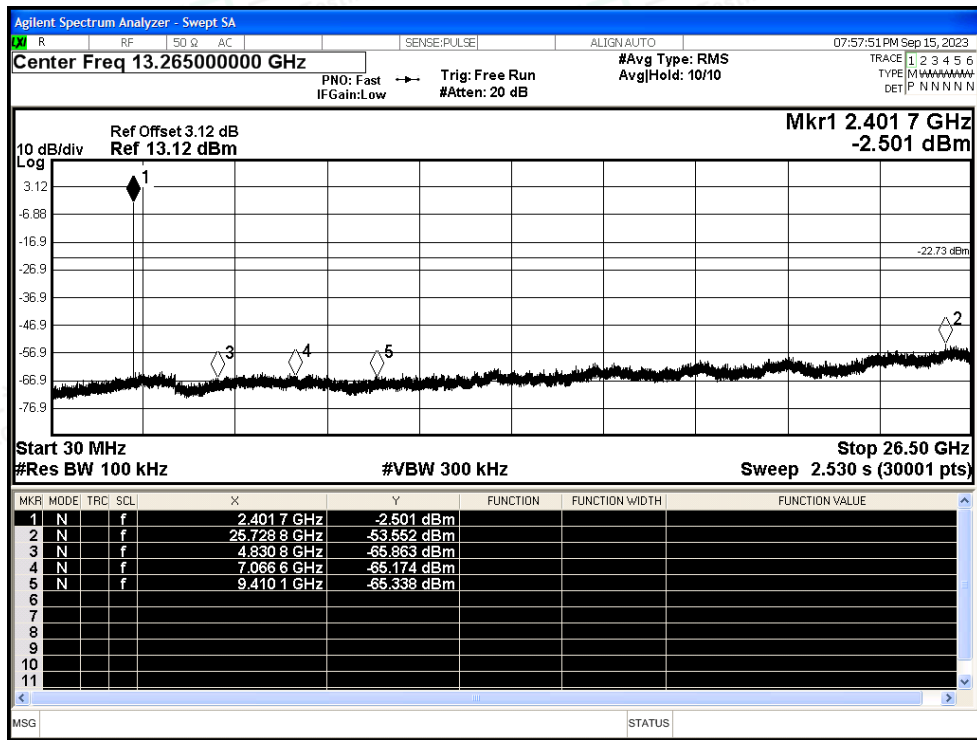


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz BT ANT Ref

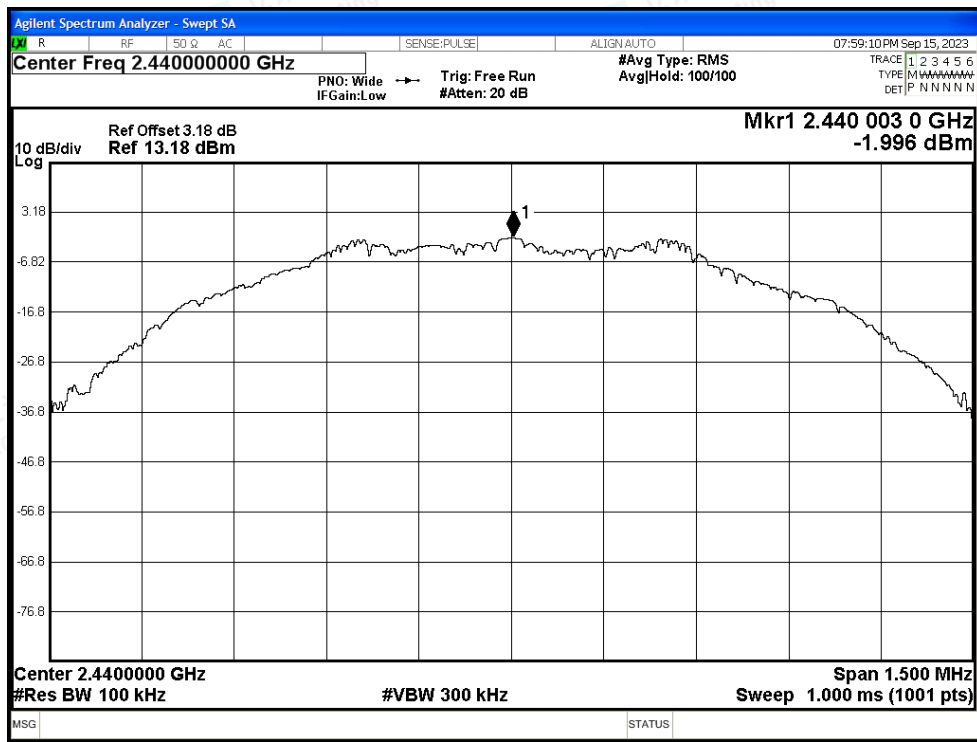


Tx. Spurious NVNT BLE 1M 2402MHz BT ANT Emission

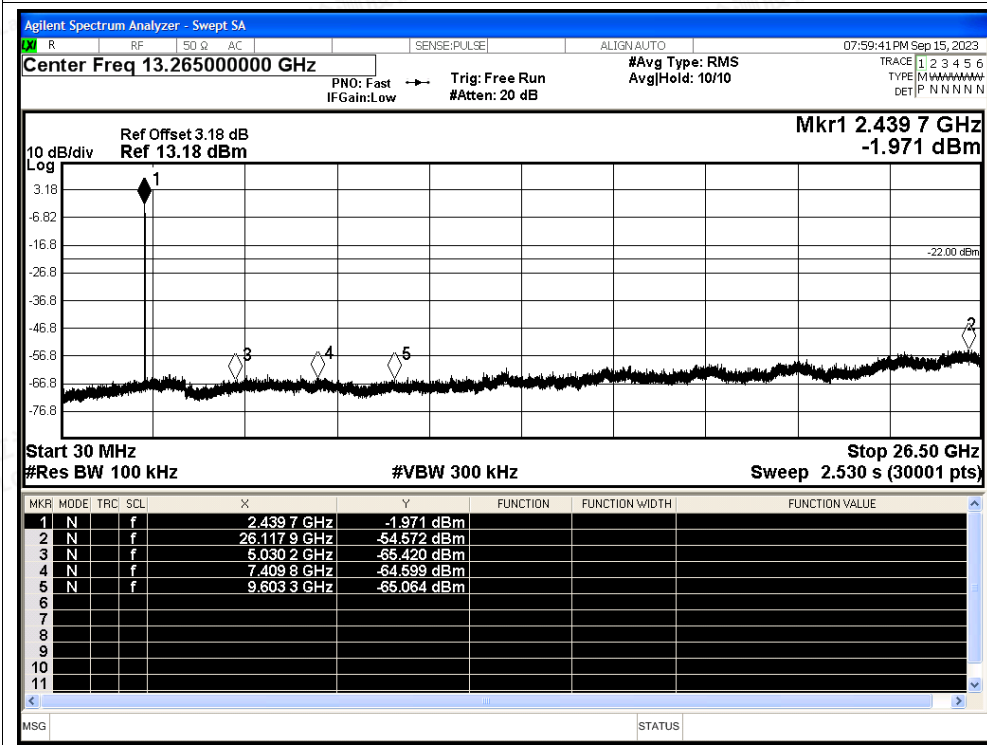




Tx. Spurious NVNT BLE 1M 2440MHz BT ANT Ref

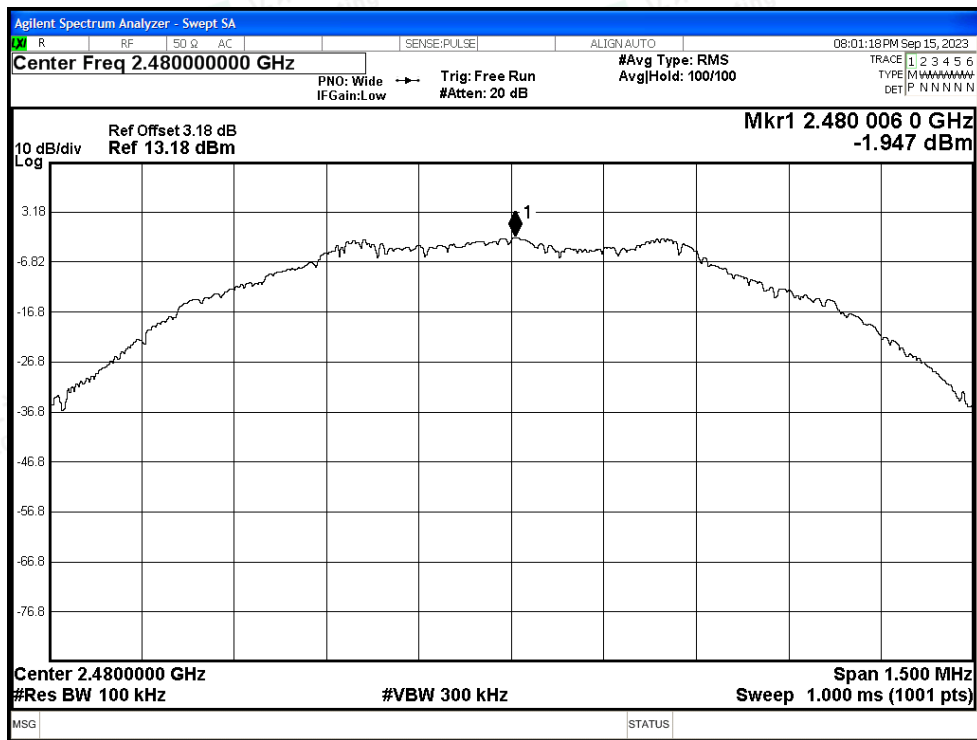


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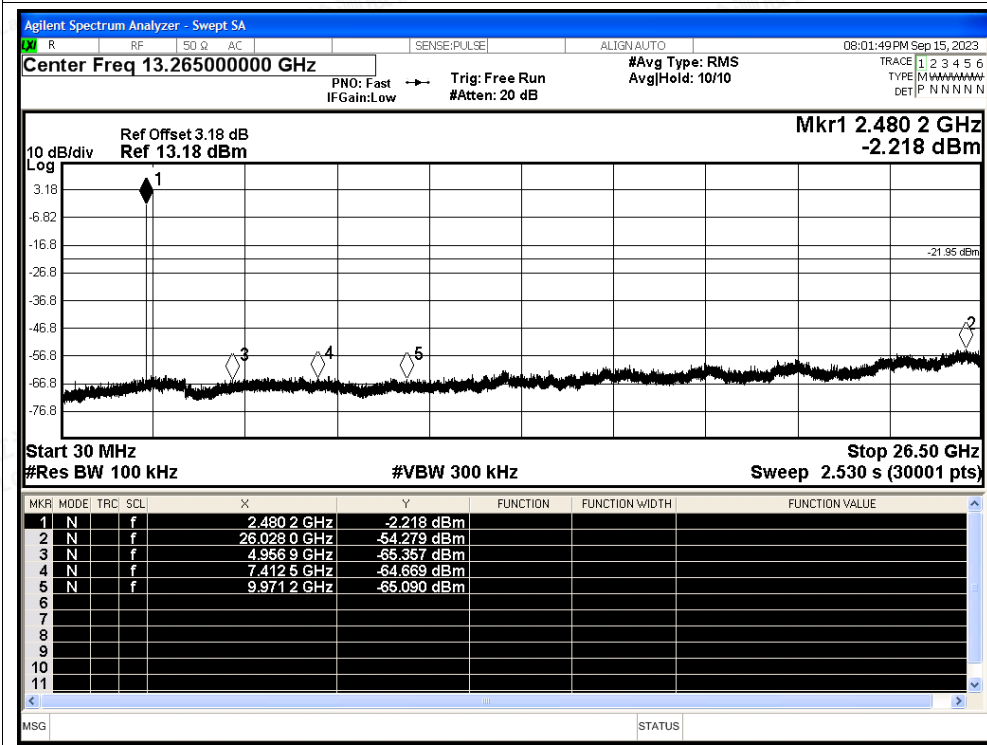




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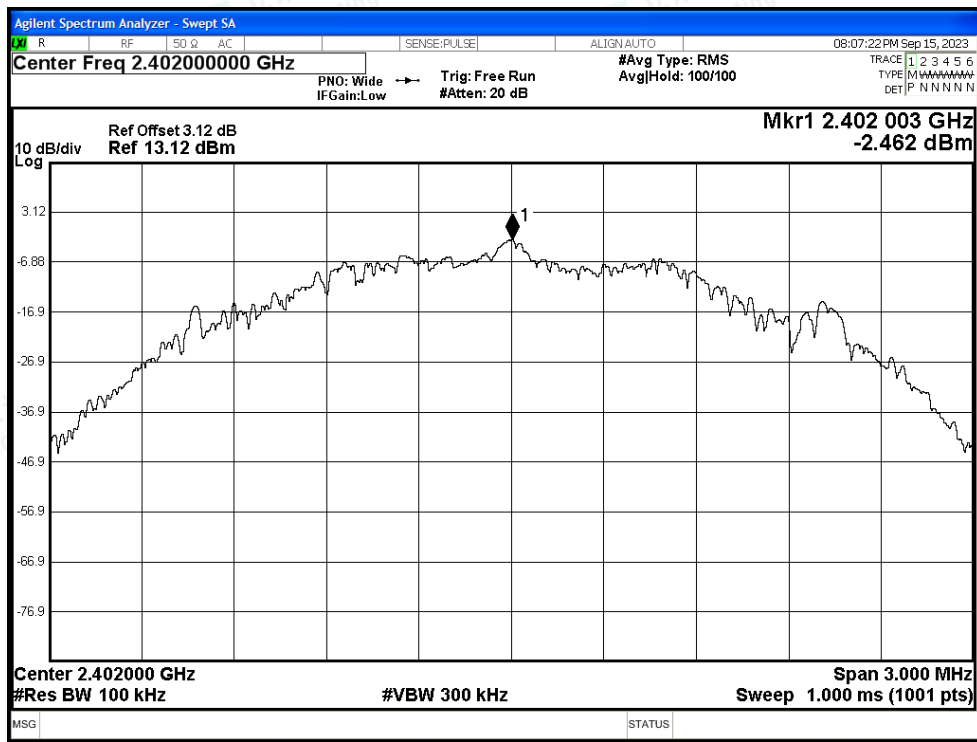


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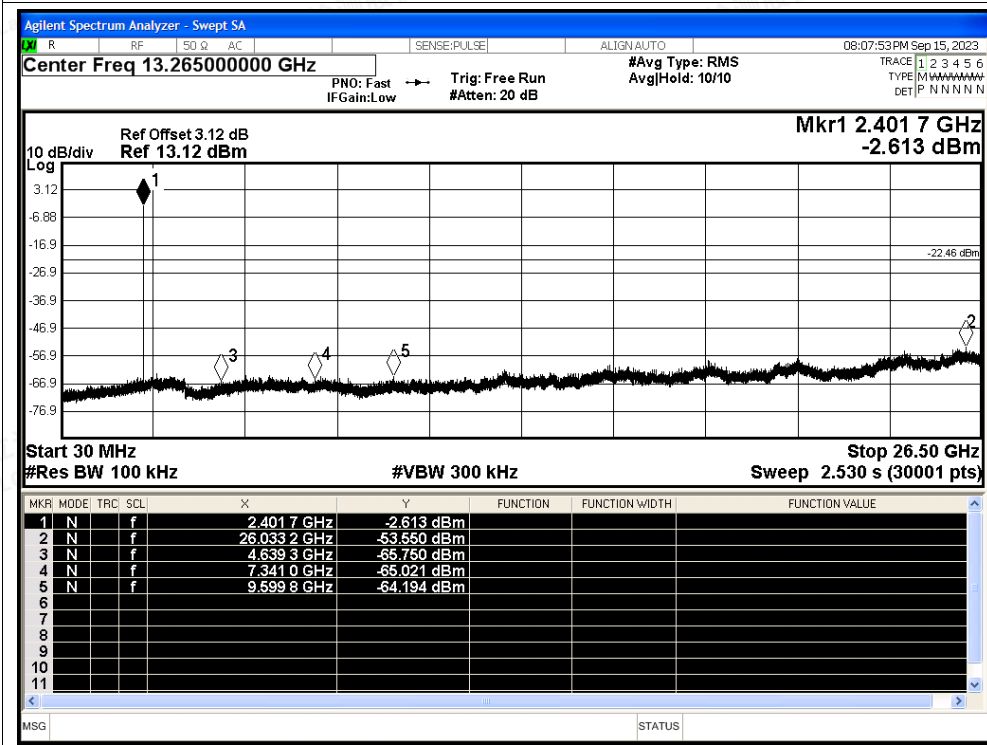




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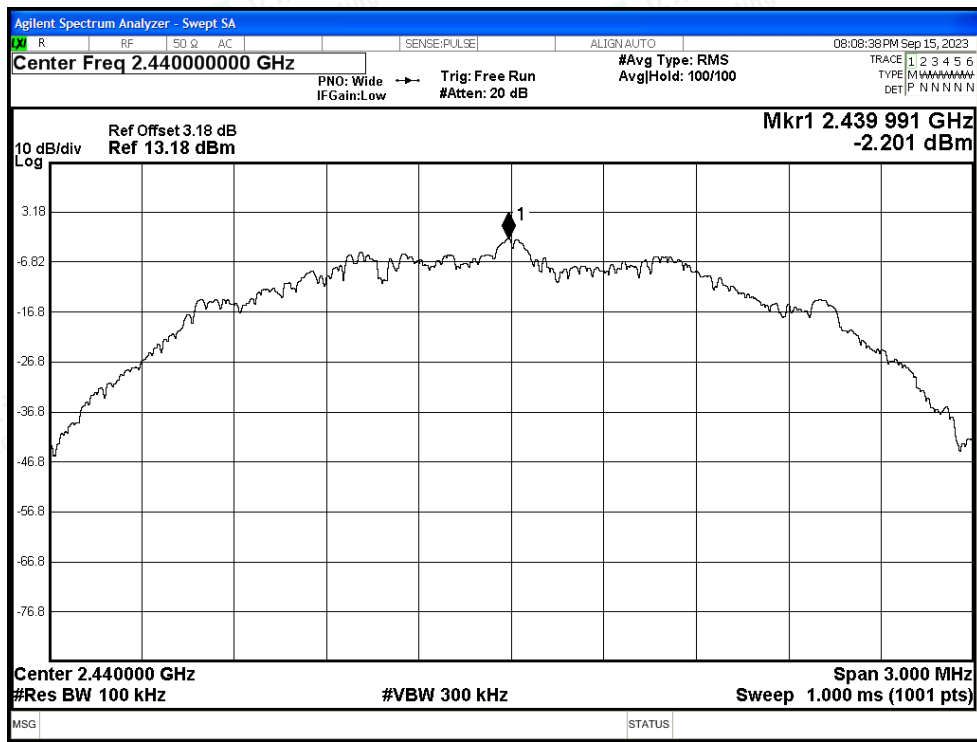


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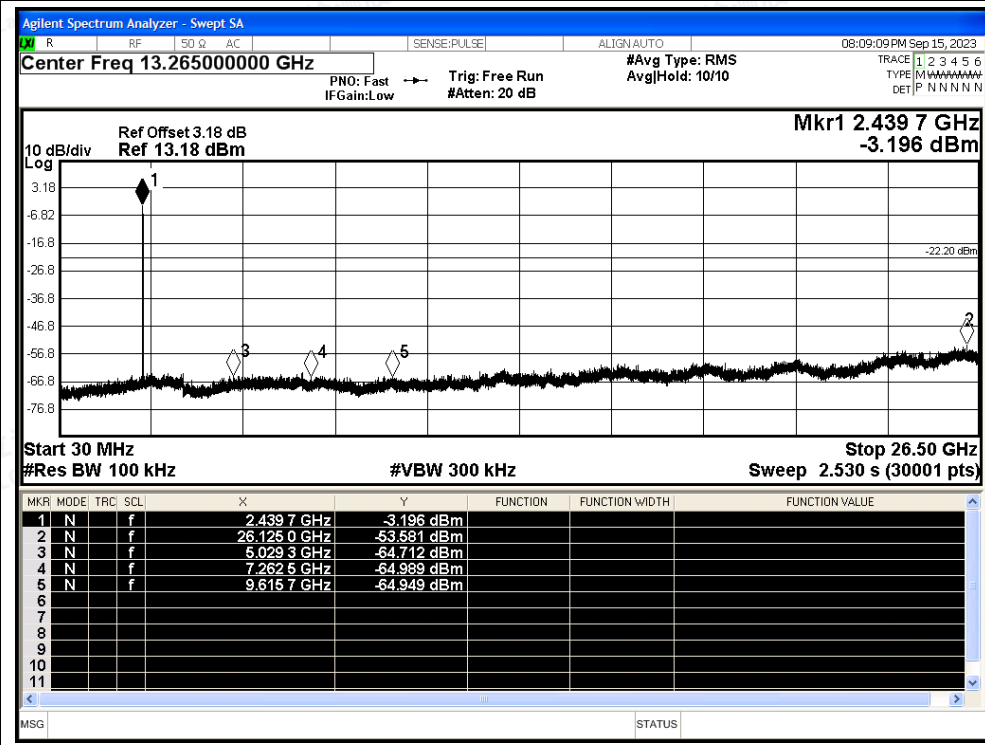




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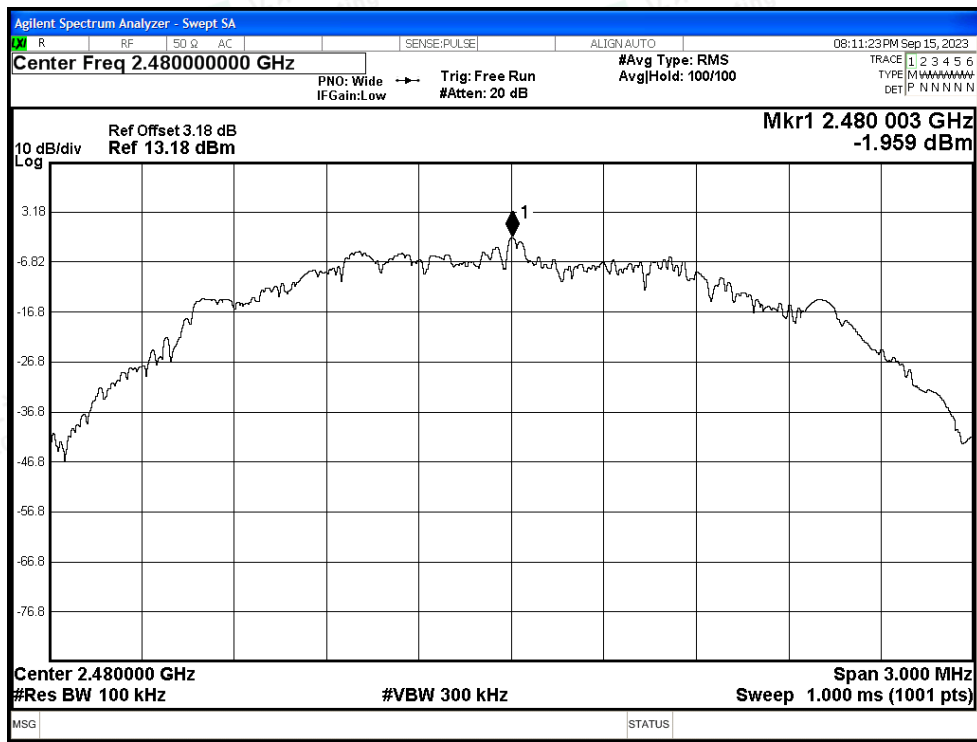


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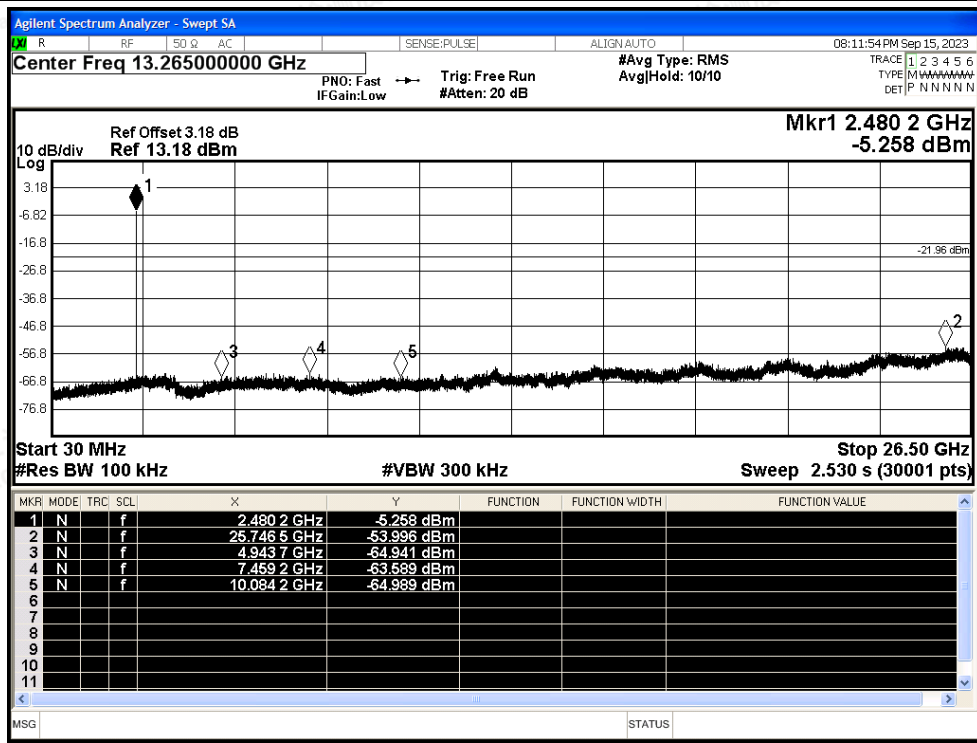




Tx. Spurious NVNT BLE 2M 2480MHz BT ANT Ref



Tx. Spurious NVNT BLE 2M 2480MHz BT ANT Emission





B.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	BT ANT	61.39	2.12	2.6
NVNT	BLE 1M	2440	BT ANT	61.36	2.12	2.61
NVNT	BLE 1M	2480	BT ANT	61.36	2.12	2.61
NVNT	BLE 2M	2402	BT ANT	31.92	4.96	5.01
NVNT	BLE 2M	2440	BT ANT	31.92	4.96	5.01
NVNT	BLE 2M	2480	BT ANT	31.92	4.96	5.01

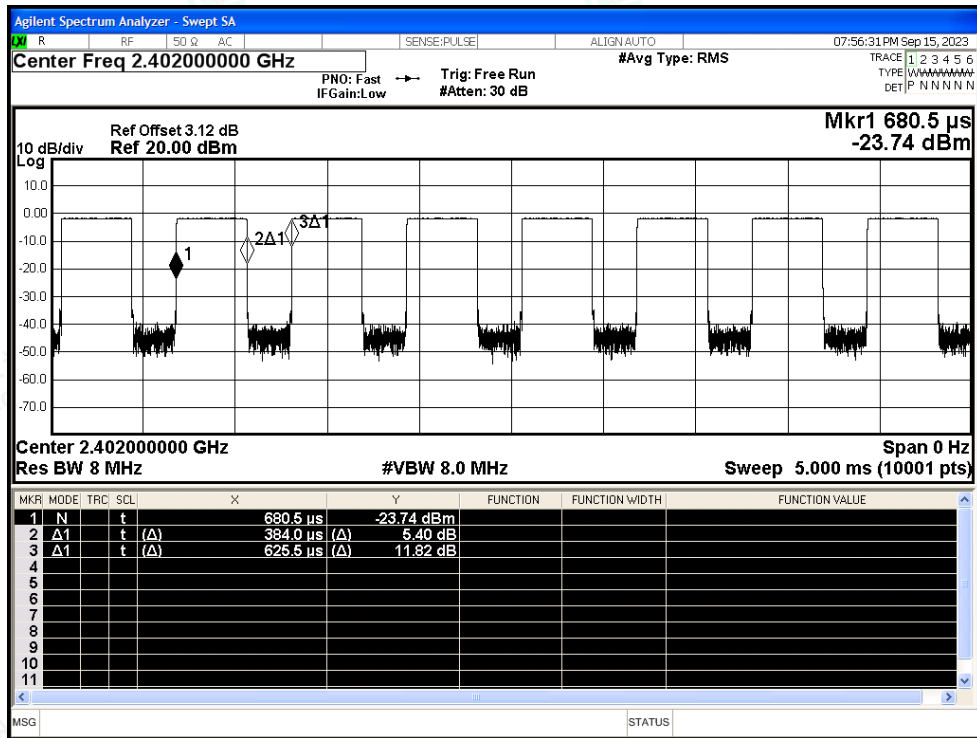


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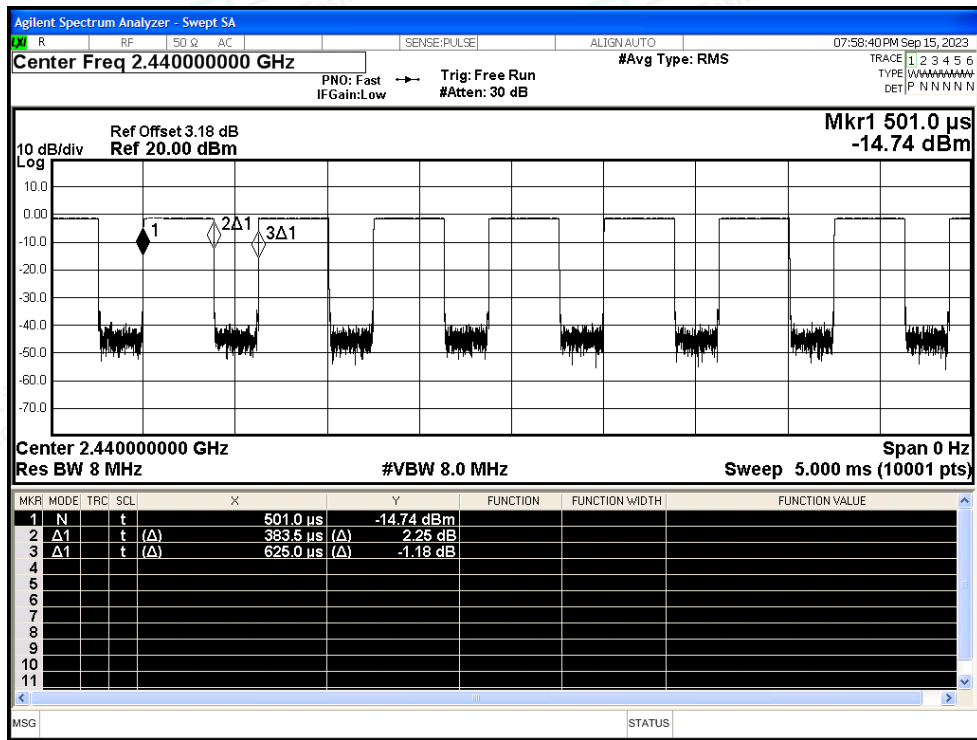


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz BT ANT

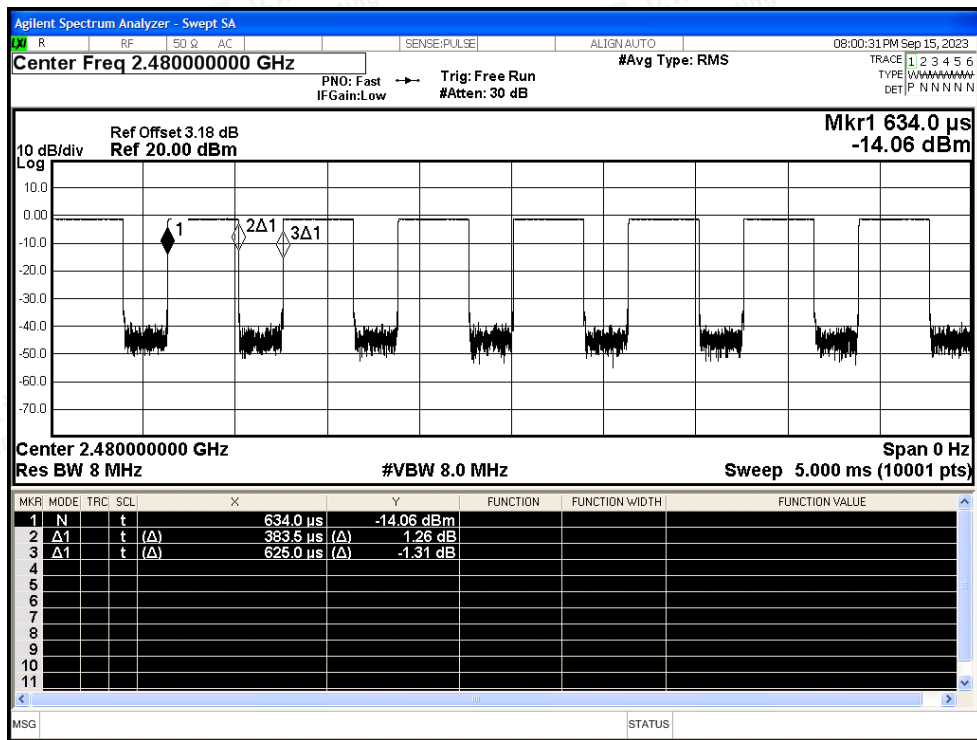


Duty Cycle NVNT BLE 1M 2440MHz BT ANT

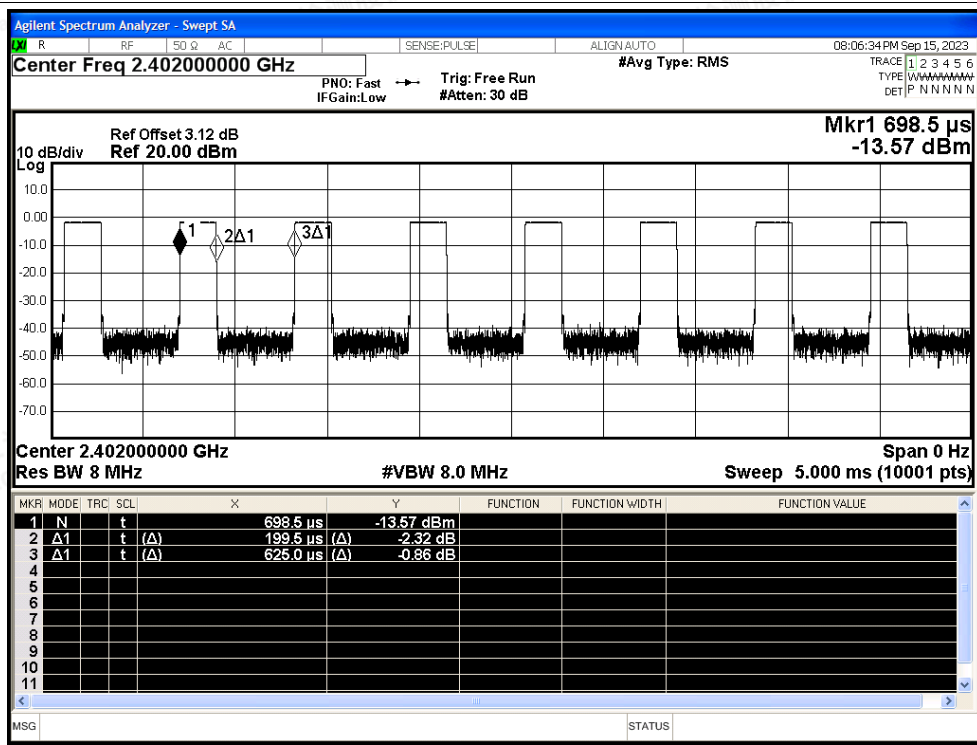




Duty Cycle NVNT BLE 1M 2480MHz BT ANT

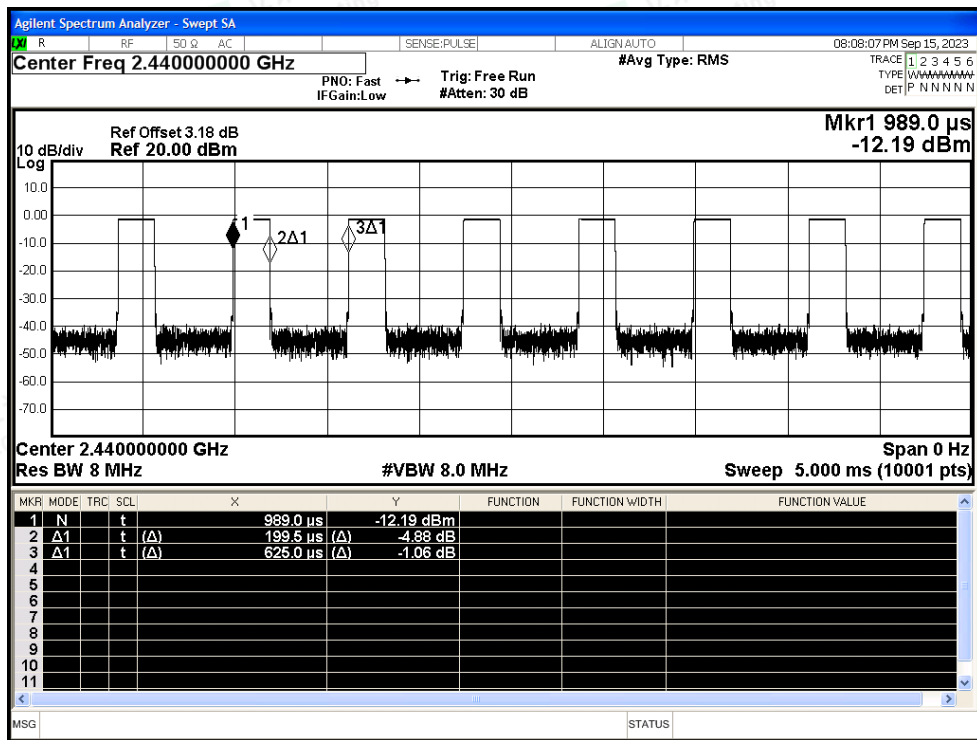


Duty Cycle NVNT BLE 2M 2402MHz BT ANT

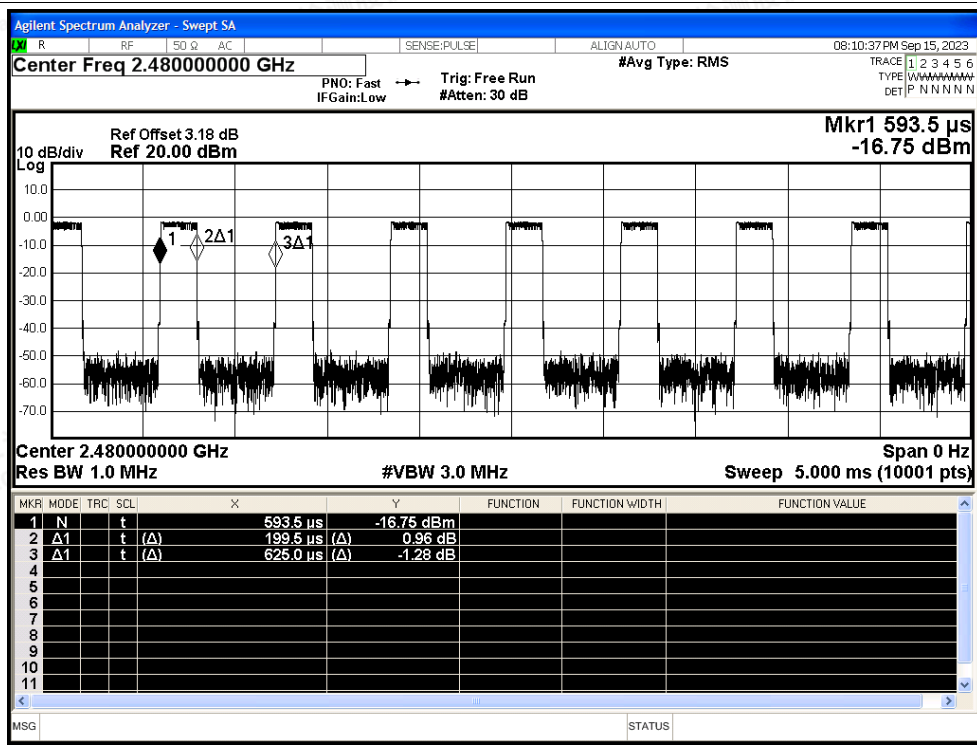




Duty Cycle NVNT BLE 2M 2440MHz BT ANT



Duty Cycle NVNT BLE 2M 2480MHz BT ANT





B.7 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	BT ANT	2310	-49.93	2	47.33	Peak	74	Pass
NVNT	BLE 1M	2402	BT ANT	2310	-56.03	2	41.23	Average	54	Pass
NVNT	BLE 1M	2402	BT ANT	2327.28	-45.81	2	51.45	Peak	74	Pass
NVNT	BLE 1M	2402	BT ANT	2359.248	-55.07	2	42.19	Average	54	Pass
NVNT	BLE 1M	2402	BT ANT	2390	-49.32	2	47.94	Peak	74	Pass
NVNT	BLE 1M	2402	BT ANT	2390	-55.9	2	41.36	Average	54	Pass
NVNT	BLE 1M	2480	BT ANT	2483.5	-49.08	2	48.18	Peak	74	Pass
NVNT	BLE 1M	2480	BT ANT	2483.5	-54.26	2	43	Average	54	Pass
NVNT	BLE 1M	2480	BT ANT	2489.56	-45.35	2	51.91	Peak	74	Pass
NVNT	BLE 1M	2480	BT ANT	2483.512	-54.26	2	43	Average	54	Pass
NVNT	BLE 1M	2480	BT ANT	2500	-48.58	2	48.68	Peak	74	Pass
NVNT	BLE 1M	2480	BT ANT	2500	-55.53	2	41.73	Average	54	Pass
NVNT	BLE 2M	2402	BT ANT	2310	-50.14	2	47.12	Peak	74	Pass
NVNT	BLE 2M	2402	BT ANT	2310	-55.86	2	41.4	Average	54	Pass
NVNT	BLE 2M	2402	BT ANT	2385.456	-46.69	2	50.57	Peak	74	Pass
NVNT	BLE 2M	2402	BT ANT	2384.208	-54.95	2	42.31	Average	54	Pass
NVNT	BLE 2M	2402	BT ANT	2390	-49.94	2	47.32	Peak	74	Pass
NVNT	BLE 2M	2402	BT ANT	2390	-55.66	2	41.6	Average	54	Pass
NVNT	BLE 2M	2480	BT ANT	2483.5	-48.42	2	48.84	Peak	74	Pass
NVNT	BLE 2M	2480	BT ANT	2483.5	-51.91	2	45.35	Average	54	Pass
NVNT	BLE 2M	2480	BT ANT	2484.208	-46.09	2	51.17	Peak	74	Pass
NVNT	BLE 2M	2480	BT ANT	2483.512	-51.91	2	45.35	Average	54	Pass
NVNT	BLE 2M	2480	BT ANT	2500	-49.37	2	47.89	Peak	74	Pass
NVNT	BLE 2M	2480	BT ANT	2500	-55.33	2	41.93	Average	54	Pass

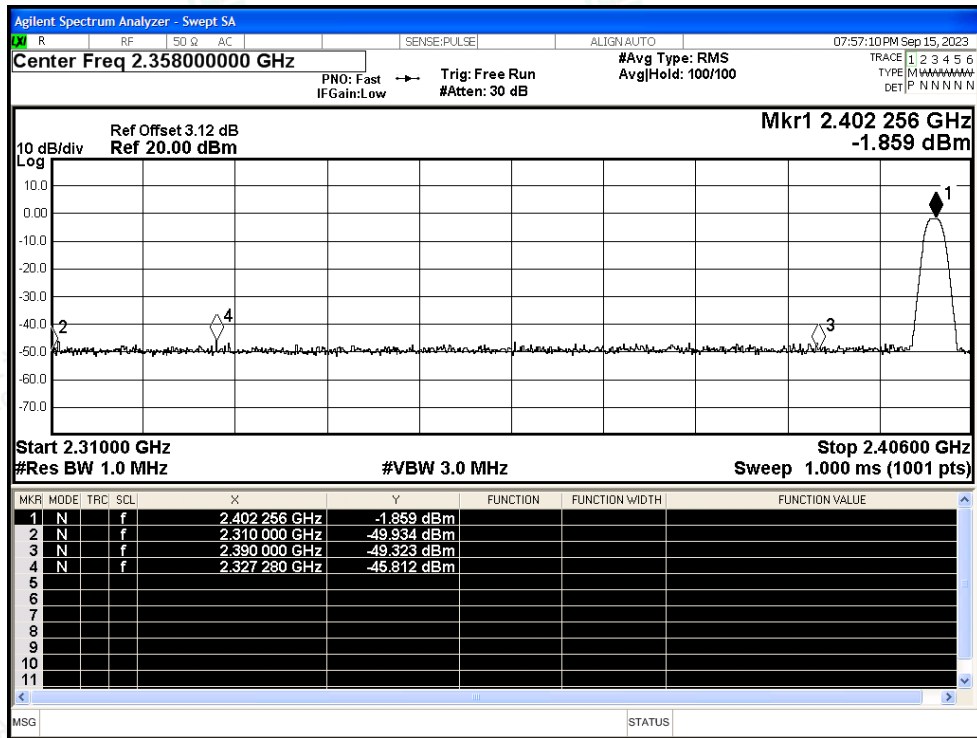


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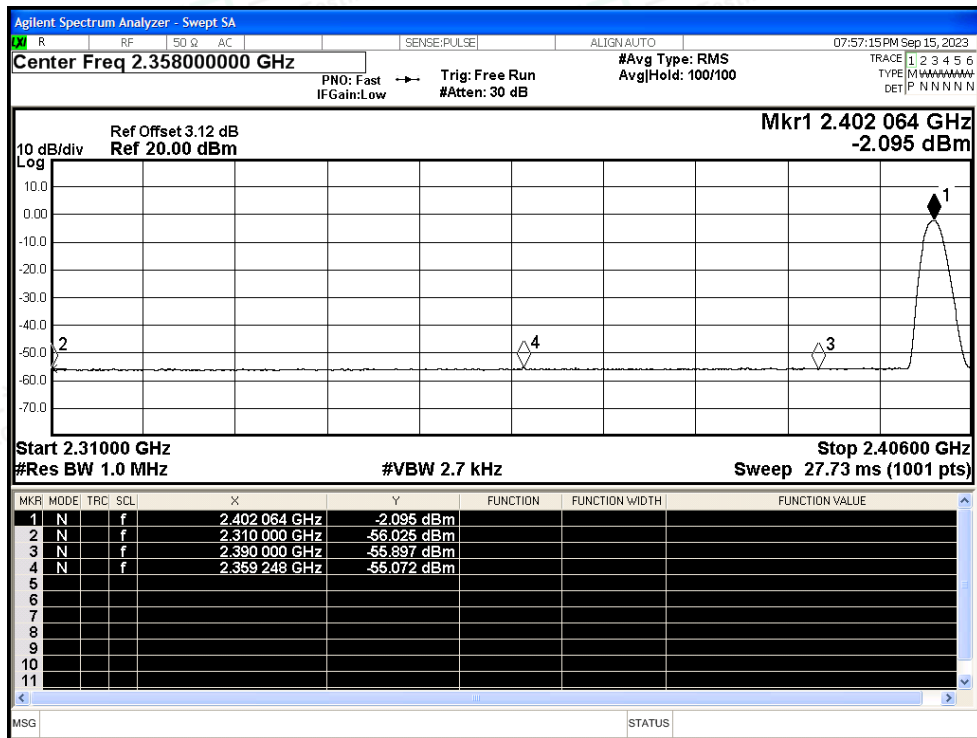


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz BT ANT Peak

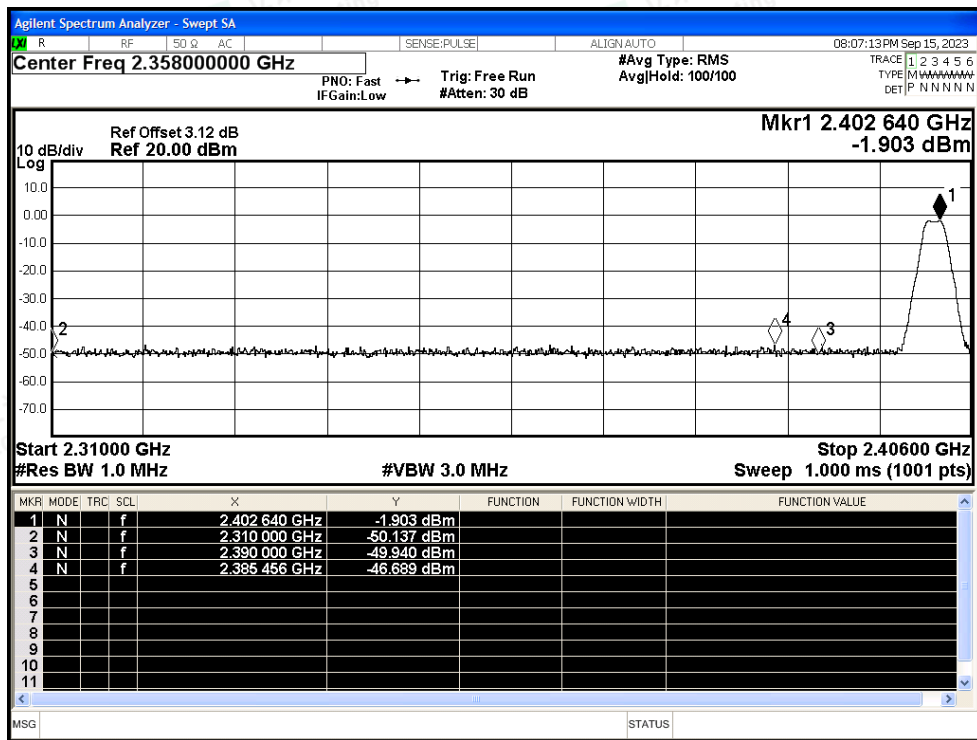


Restrict Band NVNT BLE 1M 2402MHz BT ANT Average





Restrict Band NVNT BLE 2M 2402MHz BT ANT Peak



Restrict Band NVNT BLE 2M 2402MHz BT ANT Average

