

RF Test Data for Bluetooth LE (Conducted Measurements)

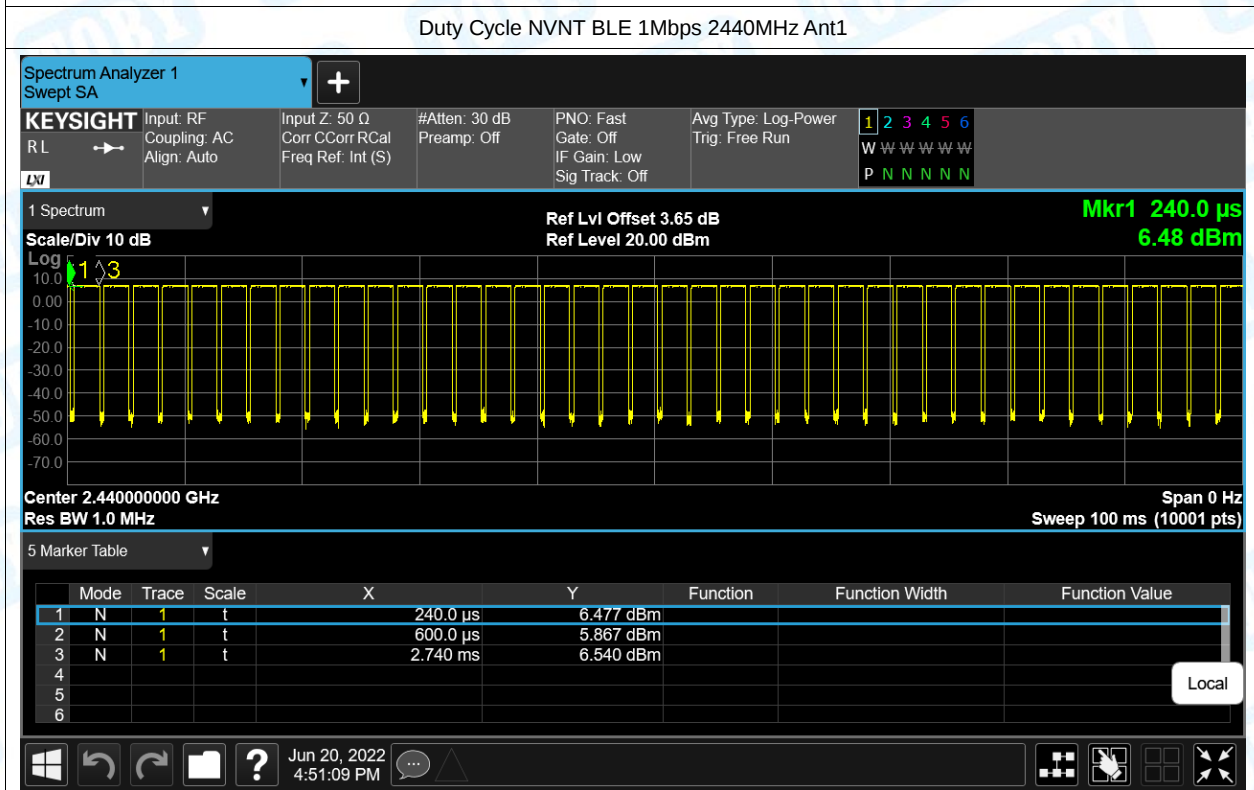
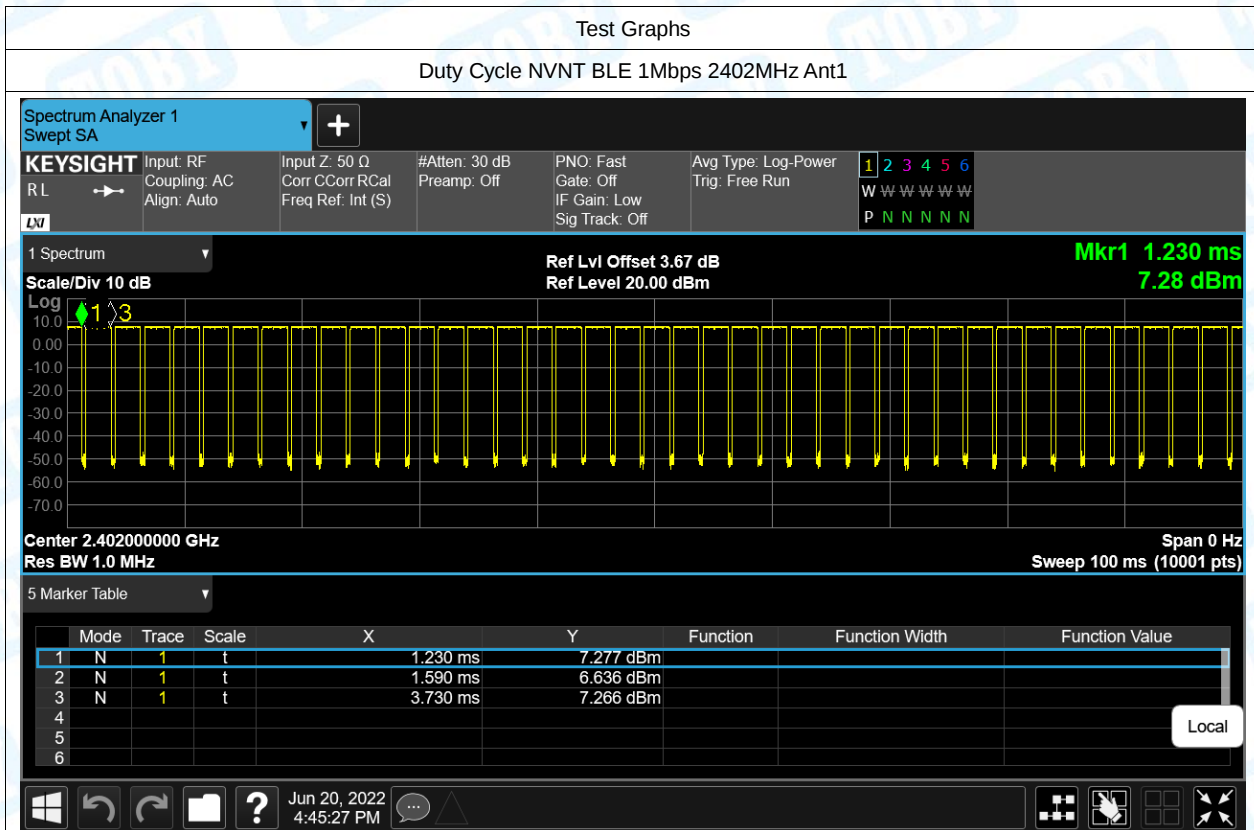
General Description of EUT	
Product Name:	WiFi & BT combo module
Test Model:	EWN-8822CSS3AH
Sample ID:	202206-0044-01-02#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	DC 3.3V
Test Engineer:	Huangjianping
Note: For a more detailed features description, please refer to the report TBR-C-202206-0044-21	

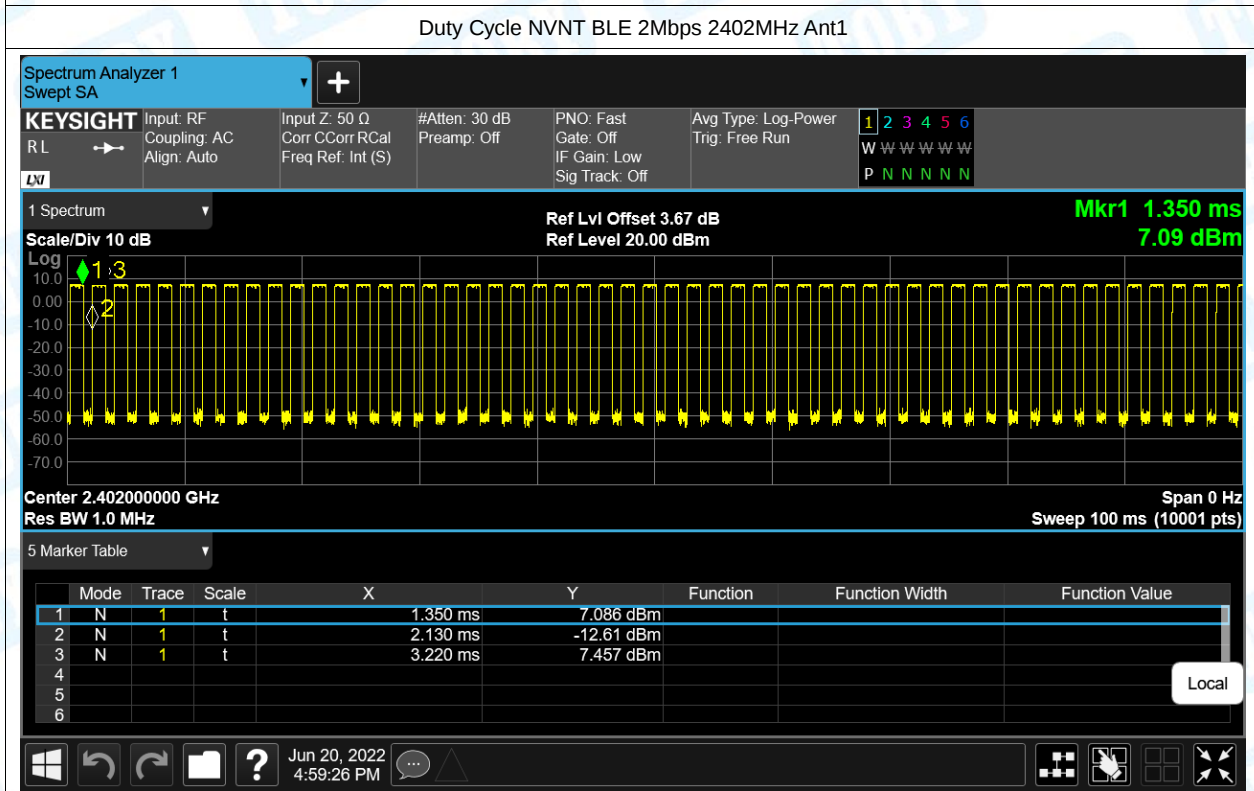
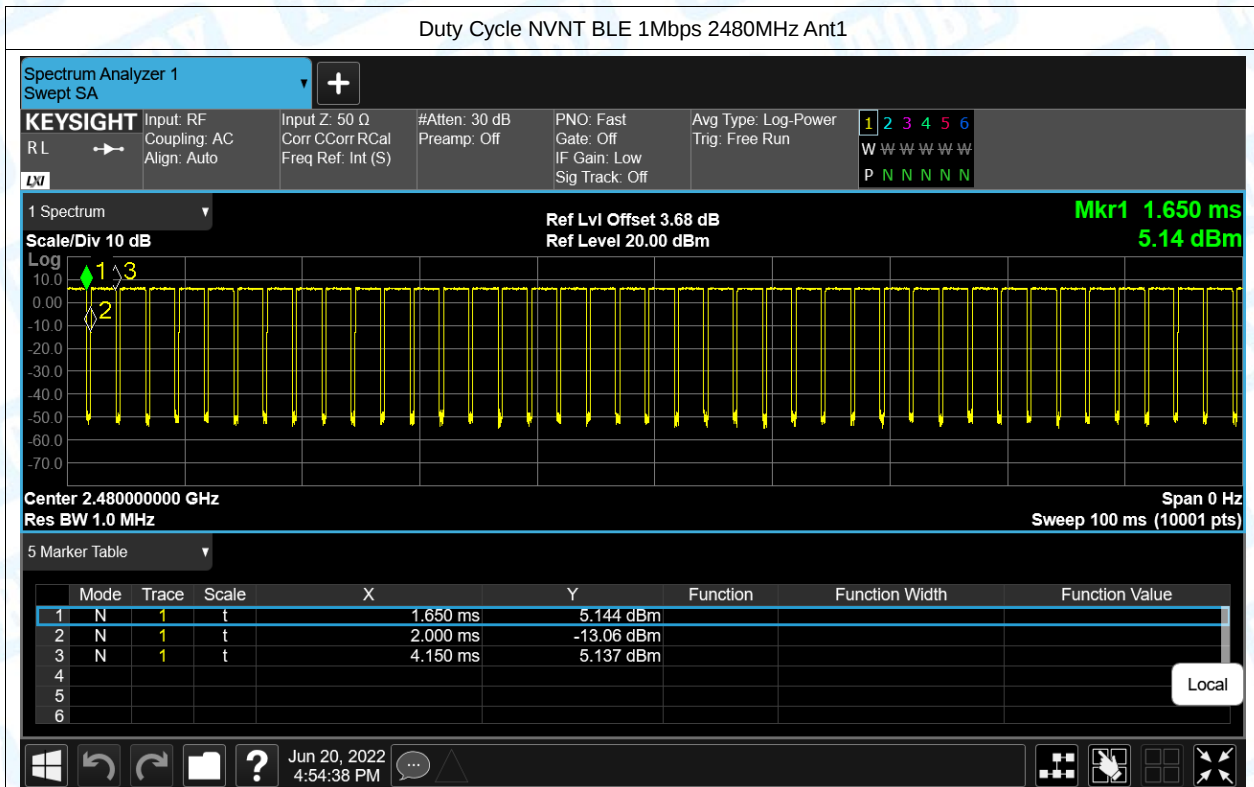
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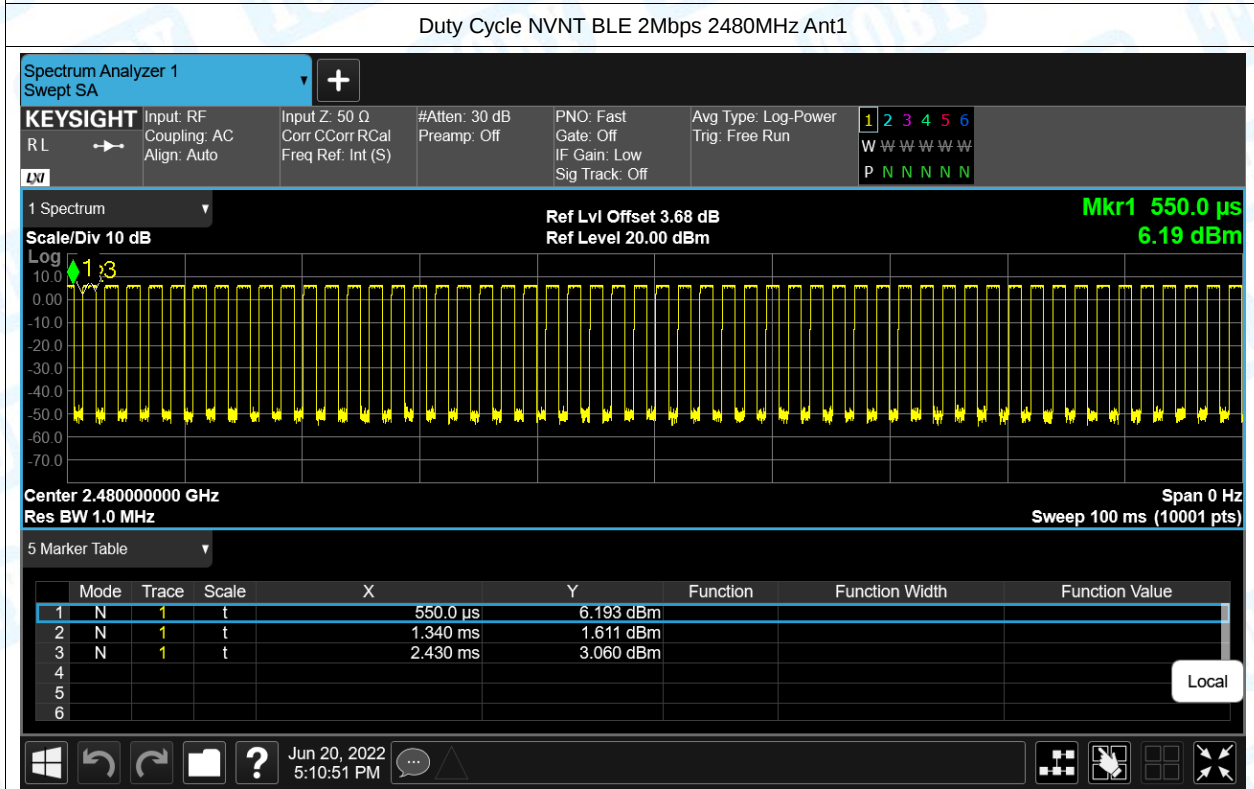
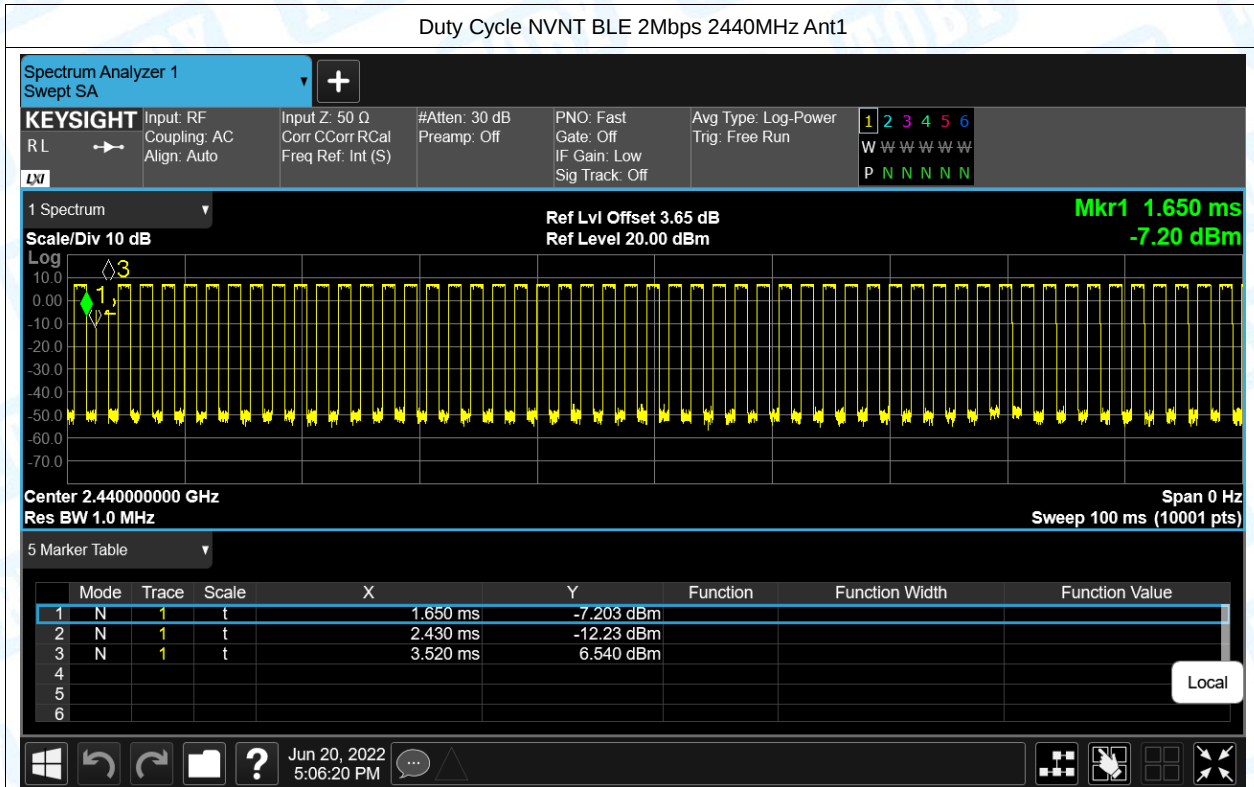
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1. Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1Mbps	2402	Ant1	86	0.65	0.47
NVNT	BLE 1Mbps	2440	Ant1	86	0.65	0.47
NVNT	BLE 1Mbps	2480	Ant1	86.4	0.63	0.47
NVNT	BLE 2Mbps	2402	Ant1	58.67	2.32	0.92
NVNT	BLE 2Mbps	2440	Ant1	58.37	2.34	0.92
NVNT	BLE 2Mbps	2480	Ant1	58.85	2.3	0.92

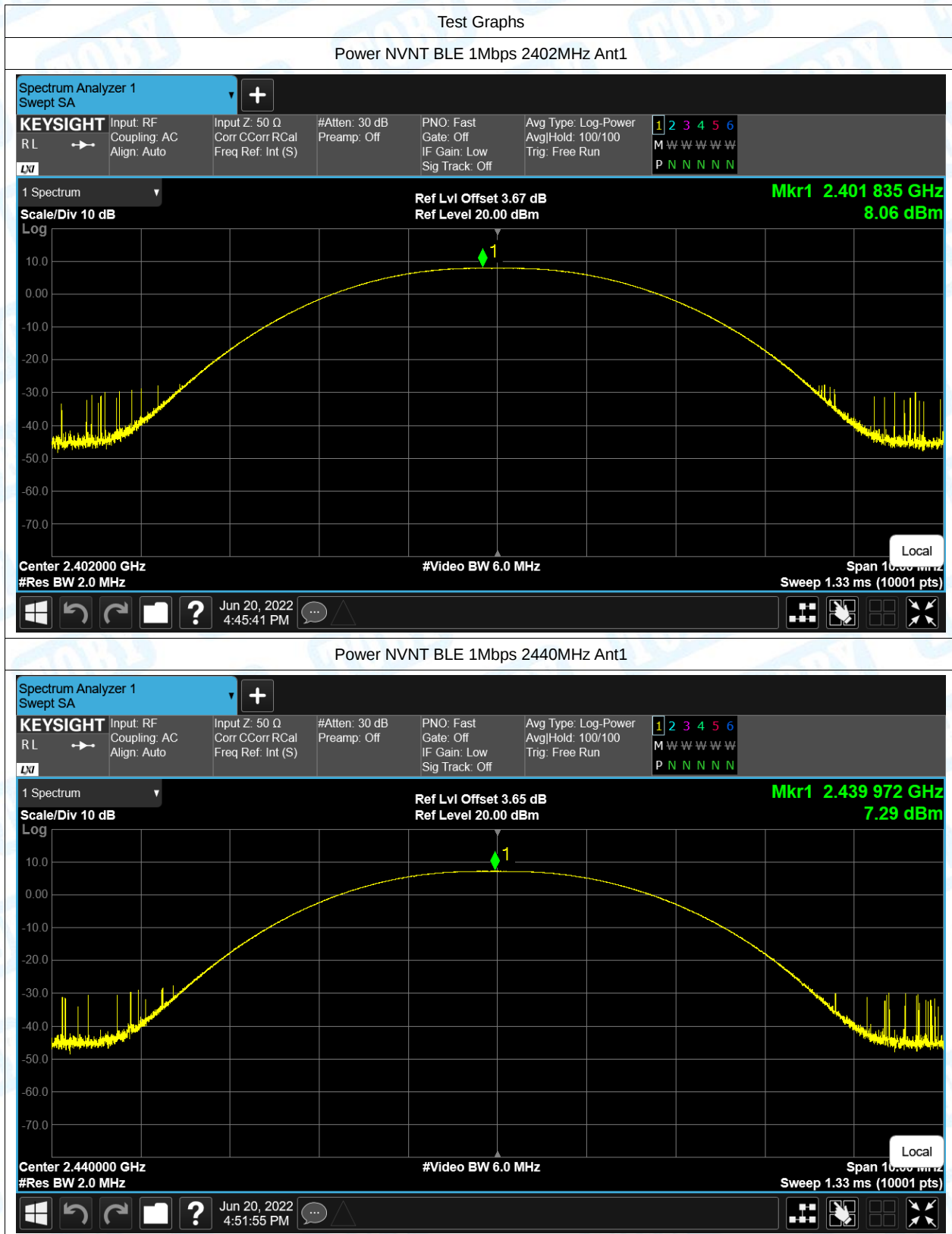


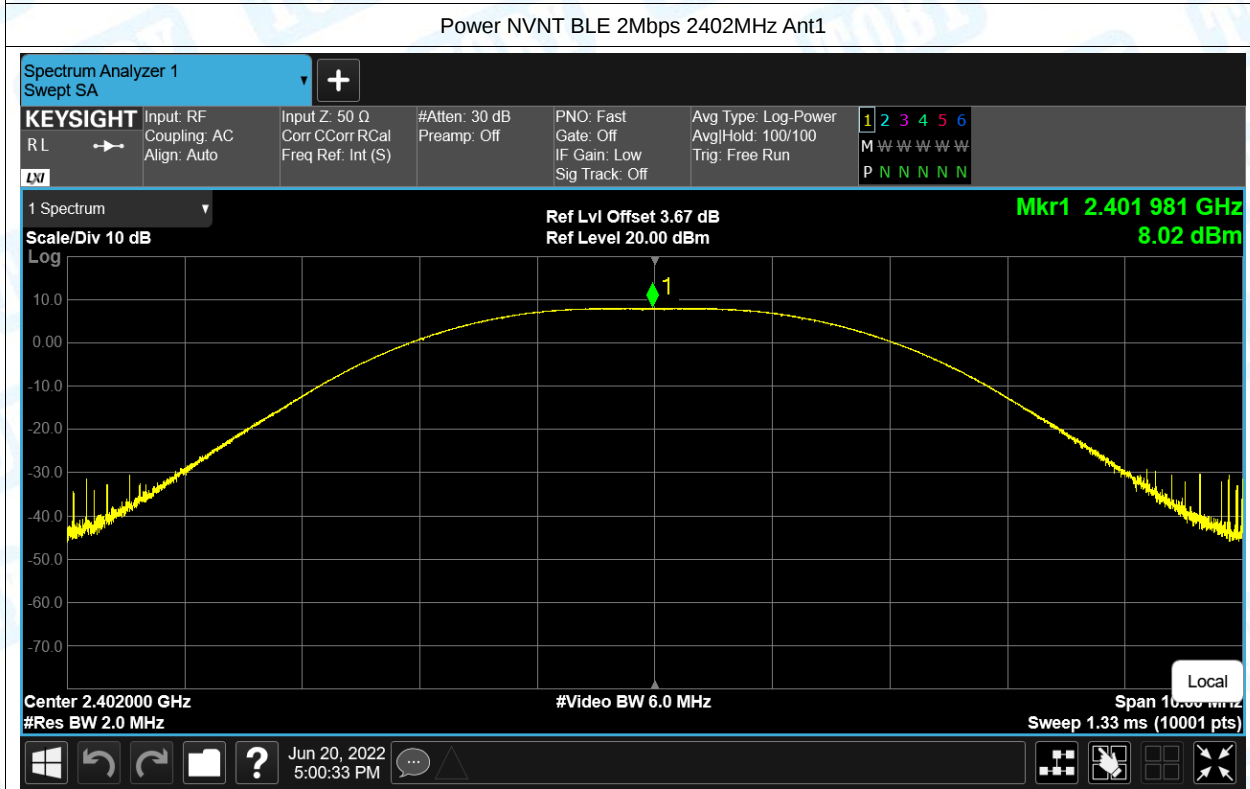
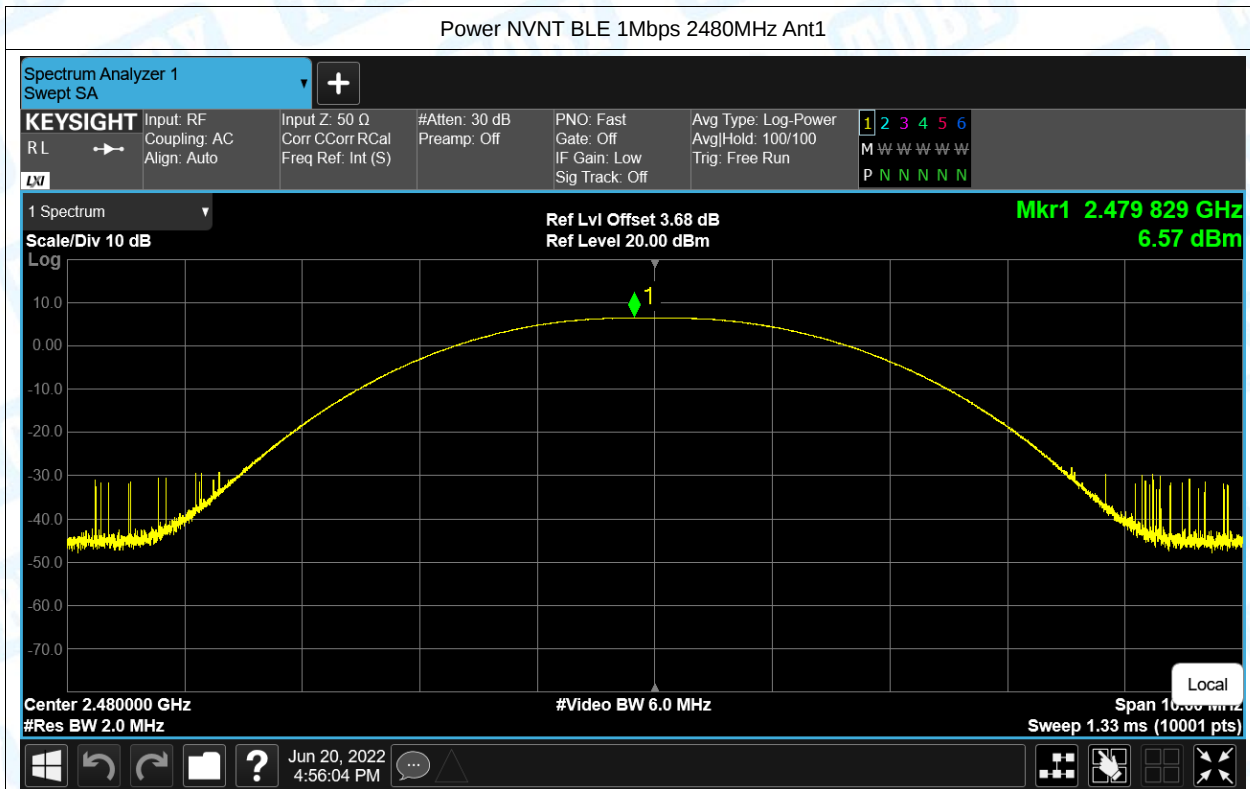




2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	8.063	30	Pass
NVNT	BLE 1Mbps	2440	Ant1	7.295	30	Pass
NVNT	BLE 1Mbps	2480	Ant1	6.568	30	Pass
NVNT	BLE 2Mbps	2402	Ant1	8.018	30	Pass
NVNT	BLE 2Mbps	2440	Ant1	7.425	30	Pass
NVNT	BLE 2Mbps	2480	Ant1	6.688	30	Pass

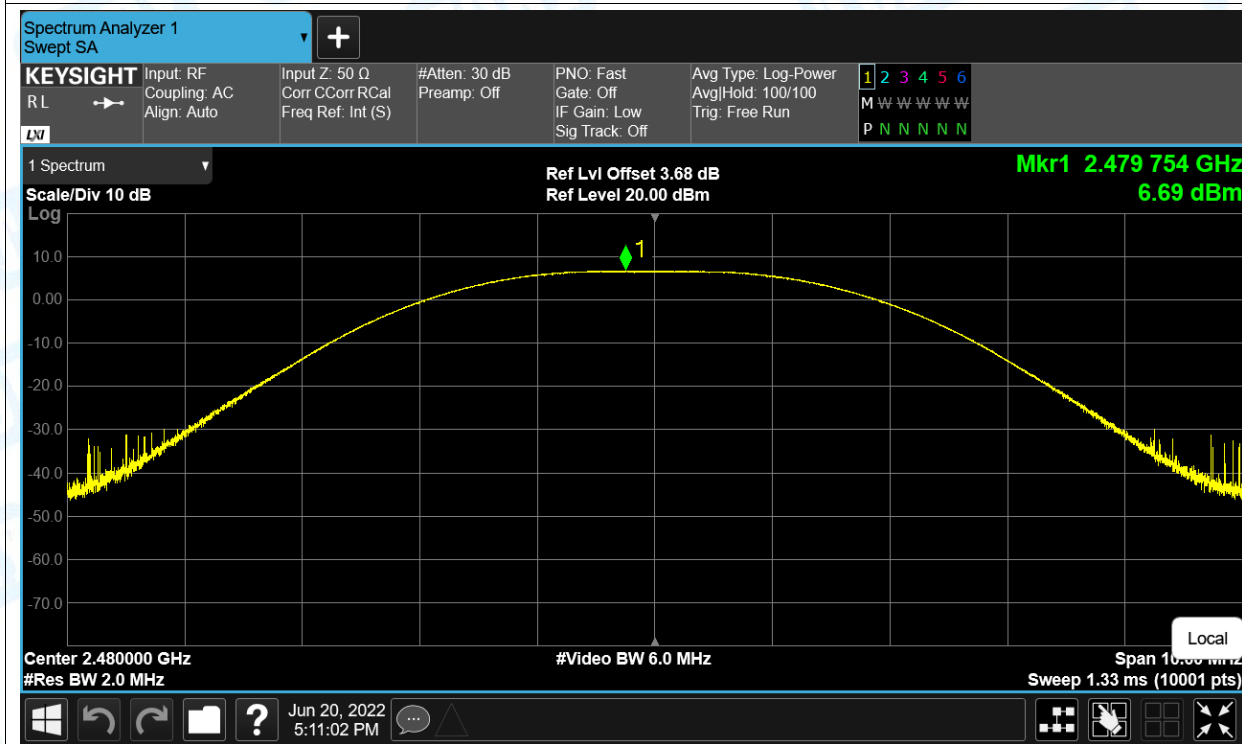




Power NVNT BLE 2Mbps 2440MHz Ant1



Power NVNT BLE 2Mbps 2480MHz Ant1

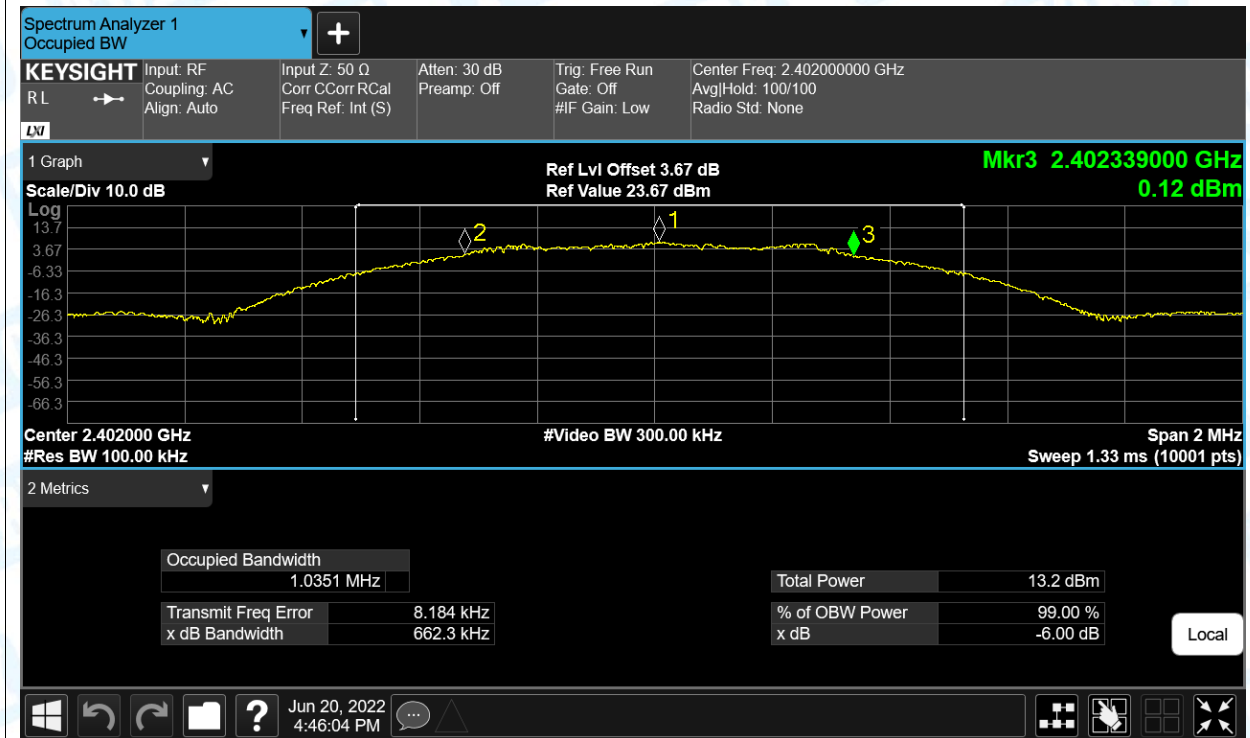


3. -6dB Bandwidth

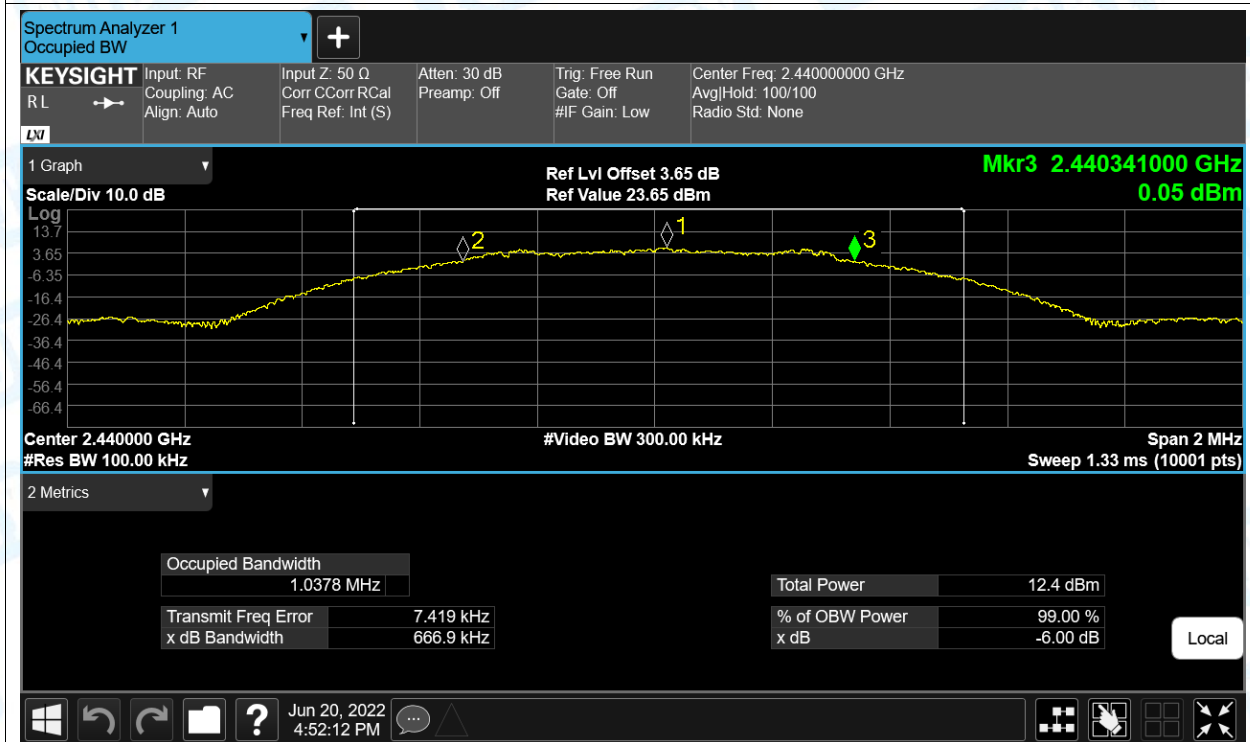
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	0.66	0.5	Pass
NVNT	BLE 1Mbps	2440	Ant1	0.67	0.5	Pass
NVNT	BLE 1Mbps	2480	Ant1	0.67	0.5	Pass
NVNT	BLE 2Mbps	2402	Ant1	1.22	0.5	Pass
NVNT	BLE 2Mbps	2440	Ant1	1.14	0.5	Pass
NVNT	BLE 2Mbps	2480	Ant1	1.14	0.5	Pass

Test Graphs

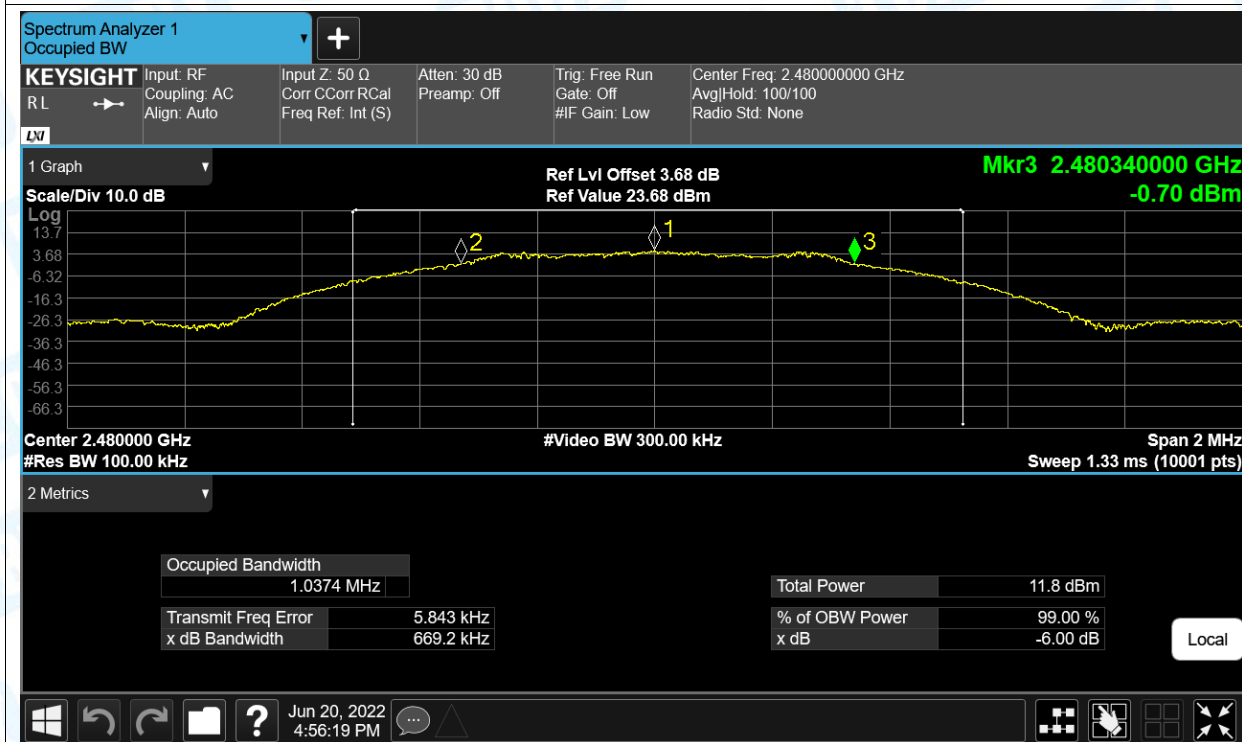
-6dB Bandwidth NVNT BLE 1Mbps 2402MHz Ant1



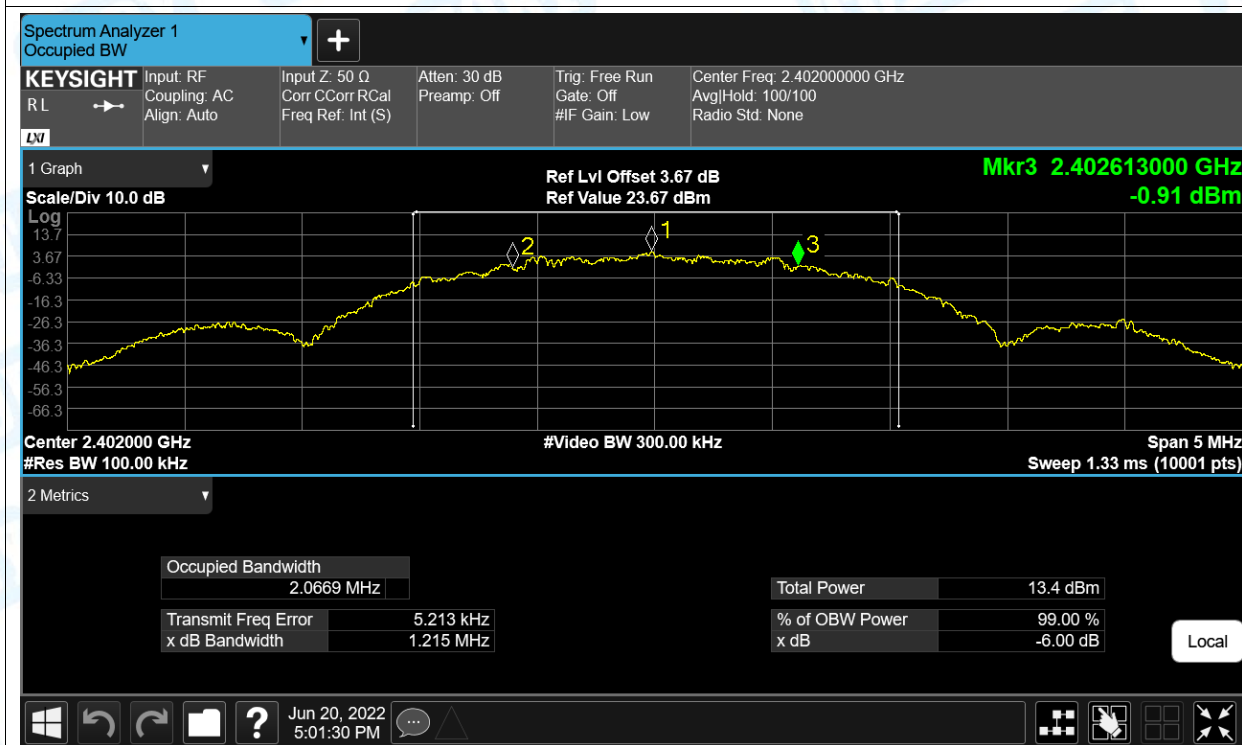
-6dB Bandwidth NVNT BLE 1Mbps 2440MHz Ant1



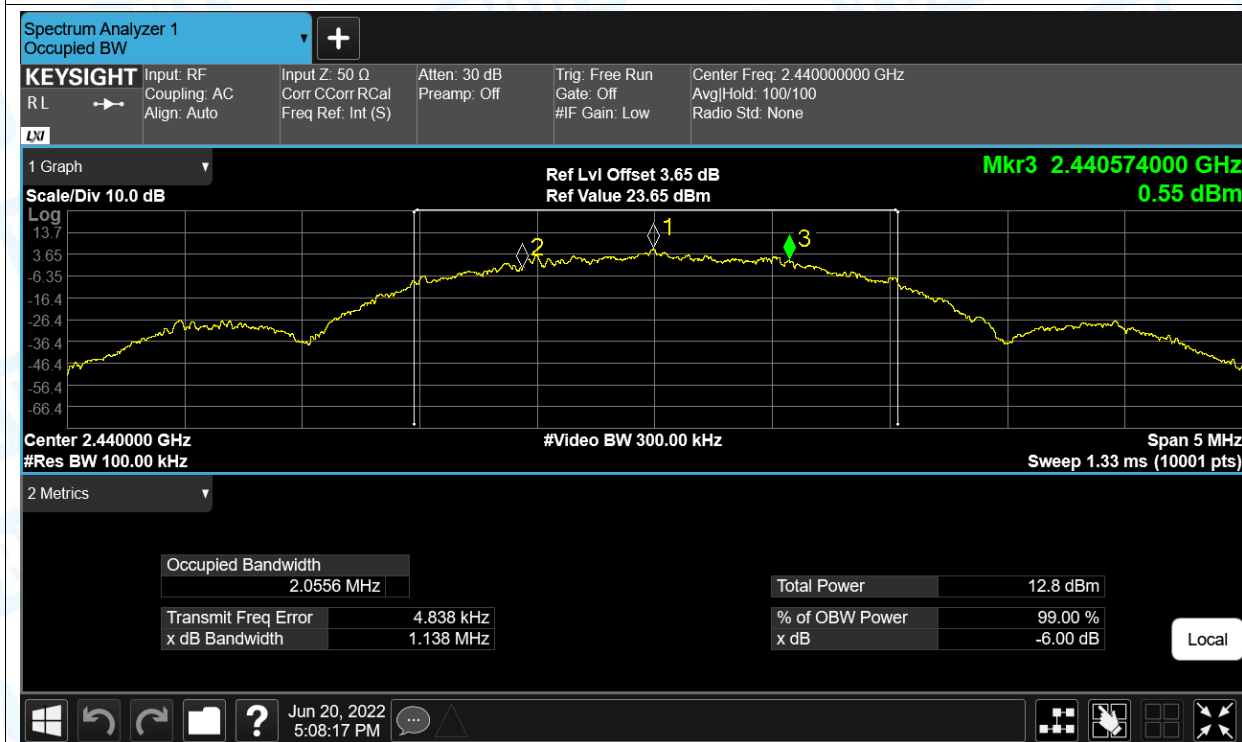
-6dB Bandwidth NVNT BLE 1Mbps 2480MHz Ant1



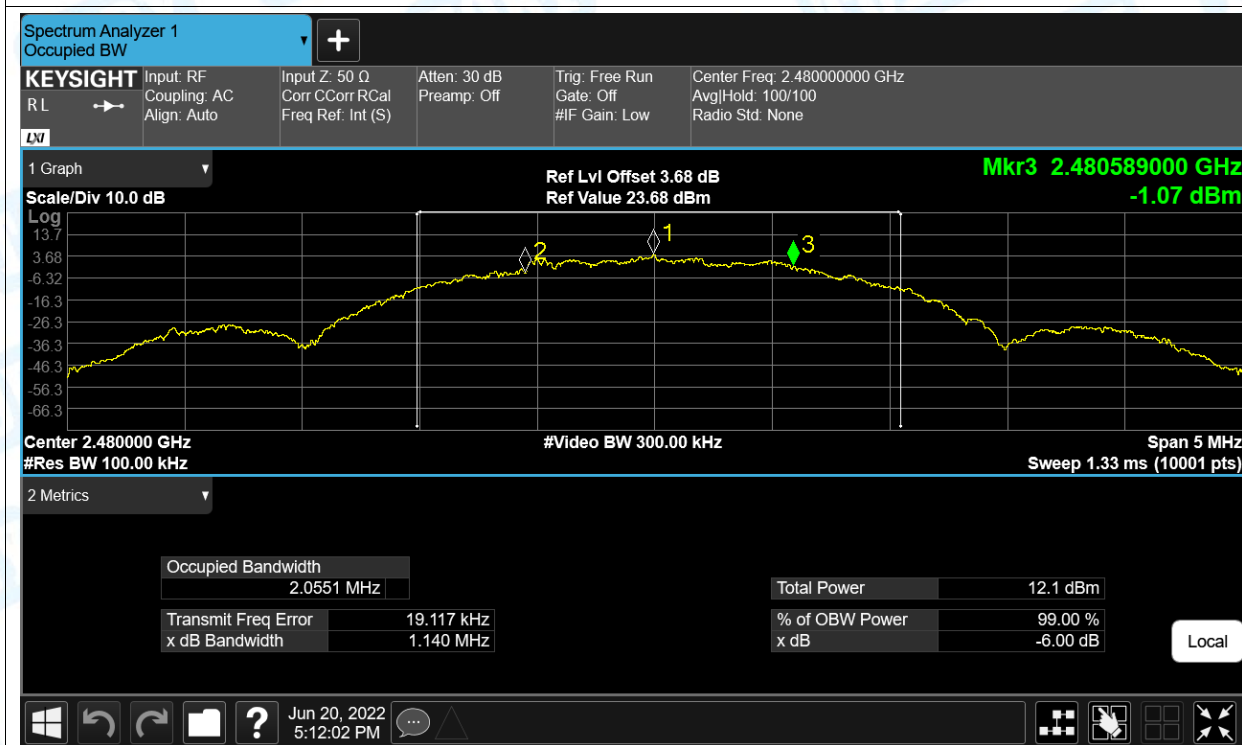
-6dB Bandwidth NVNT BLE 2Mbps 2402MHz Ant1



-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	1.034
NVNT	BLE 1Mbps	2440	Ant1	1.031
NVNT	BLE 1Mbps	2480	Ant1	1.032
NVNT	BLE 2Mbps	2402	Ant1	2.083
NVNT	BLE 2Mbps	2440	Ant1	2.077
NVNT	BLE 2Mbps	2480	Ant1	2.062

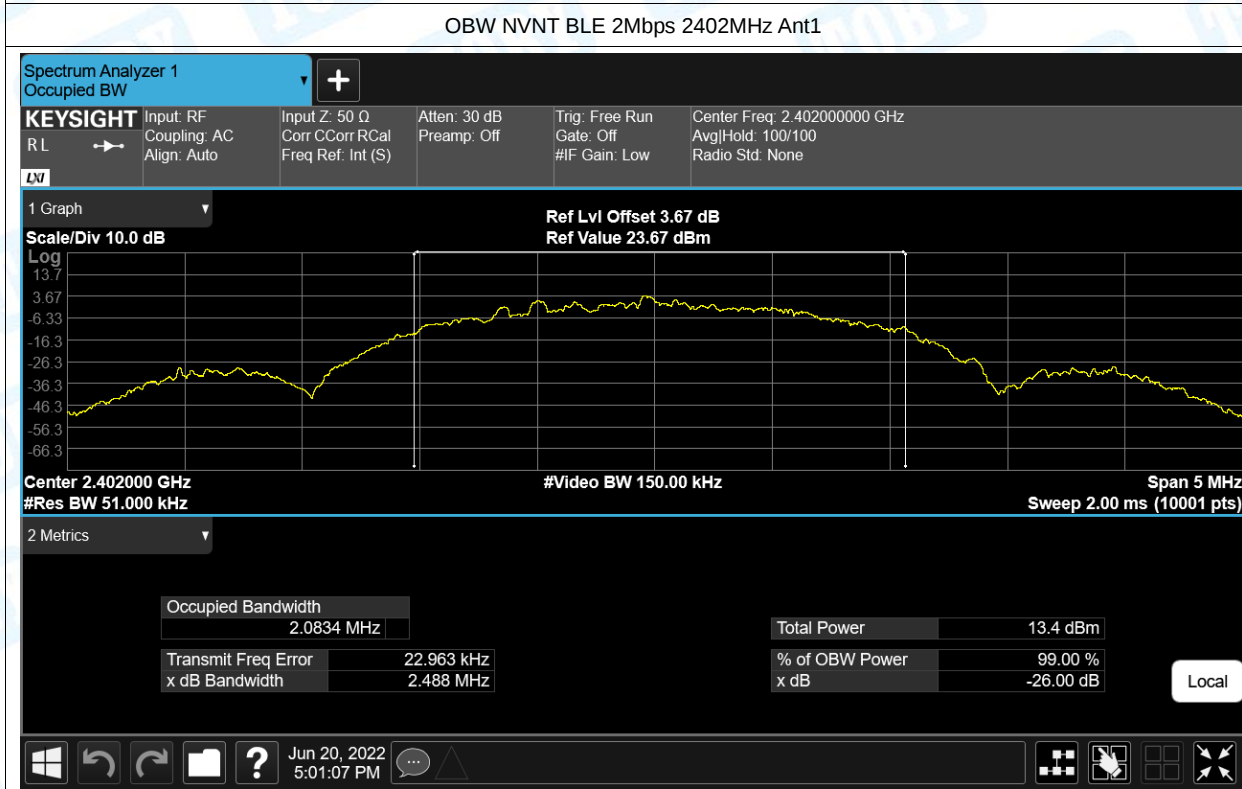
Test Graphs

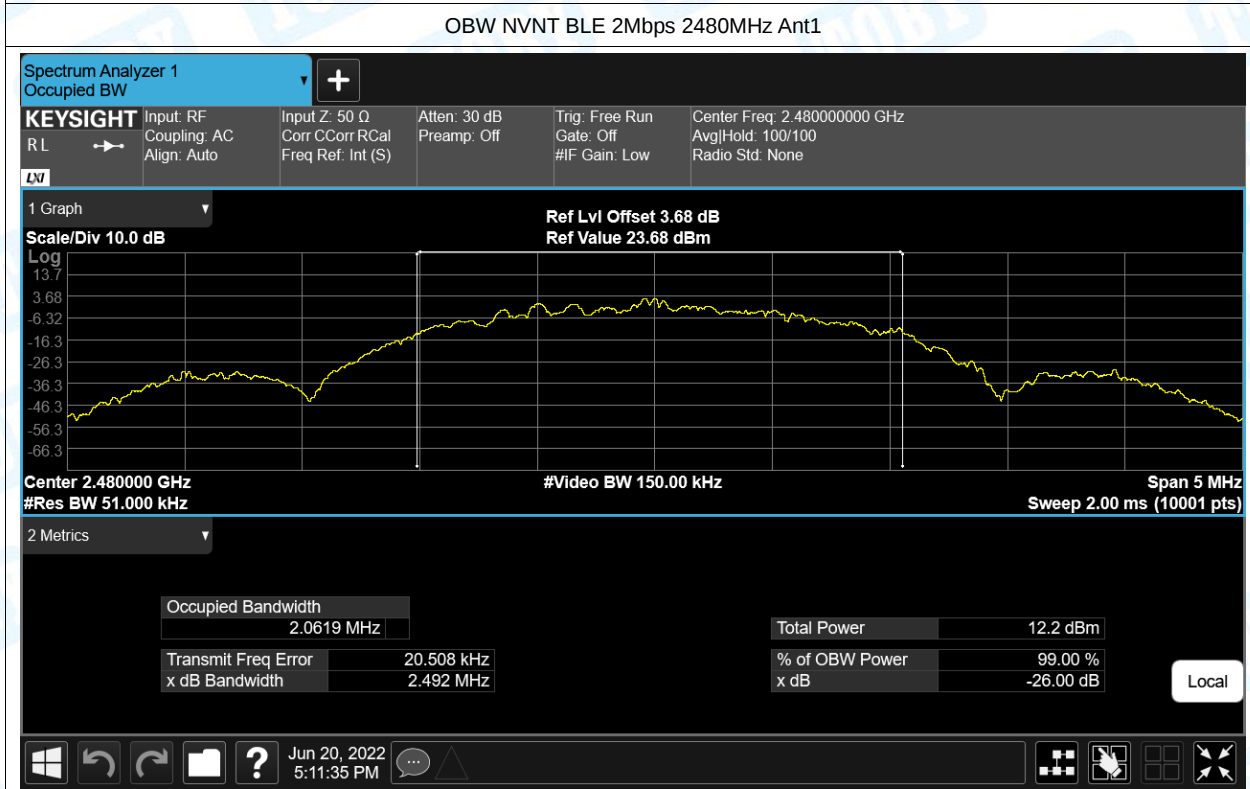
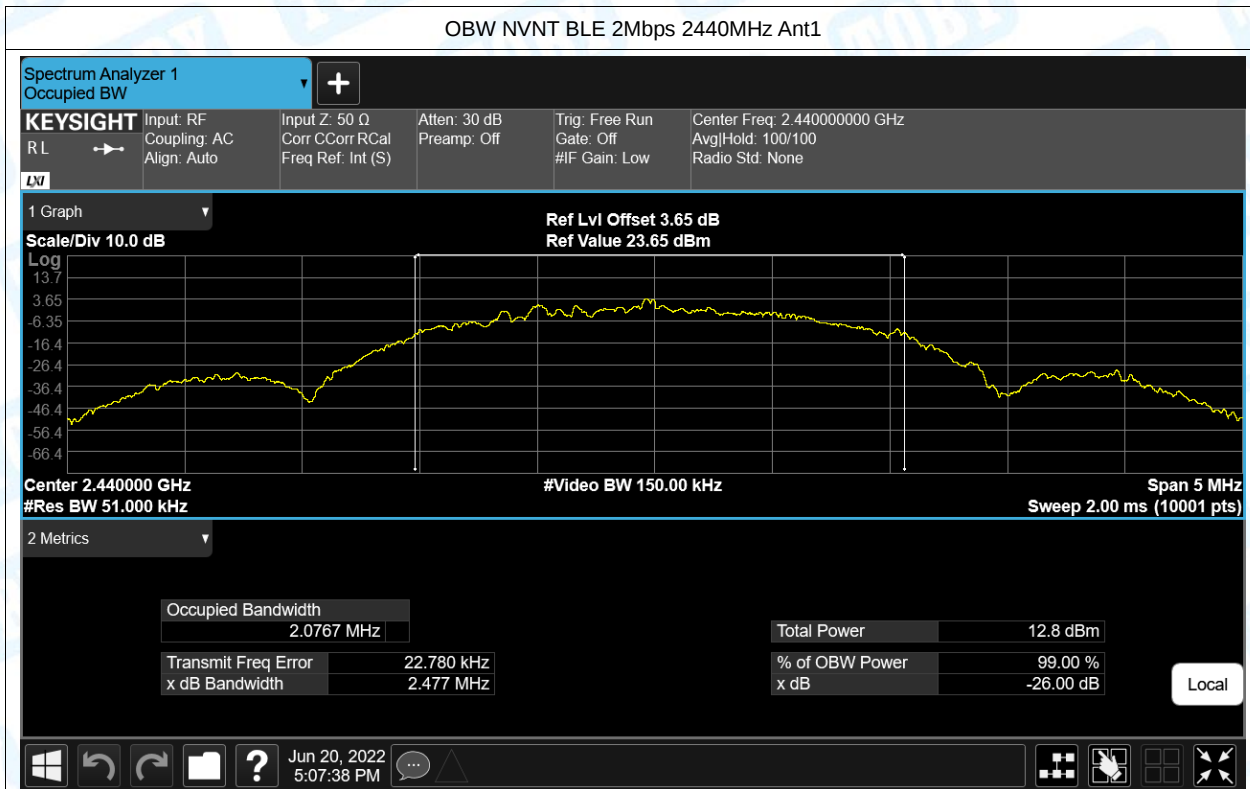
OBW NVNT BLE 1Mbps 2402MHz Ant1



OBW NVNT BLE 1Mbps 2440MHz Ant1

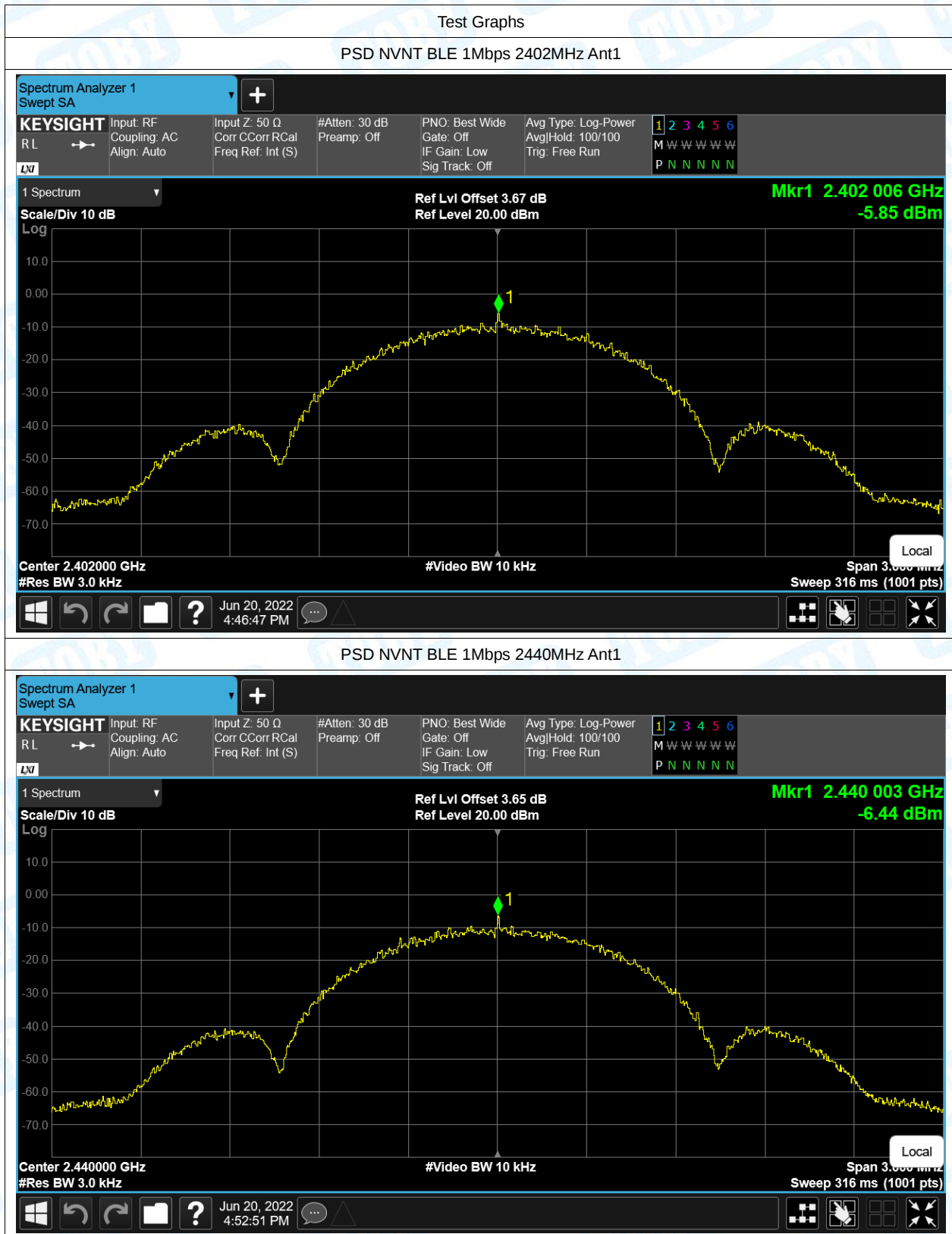


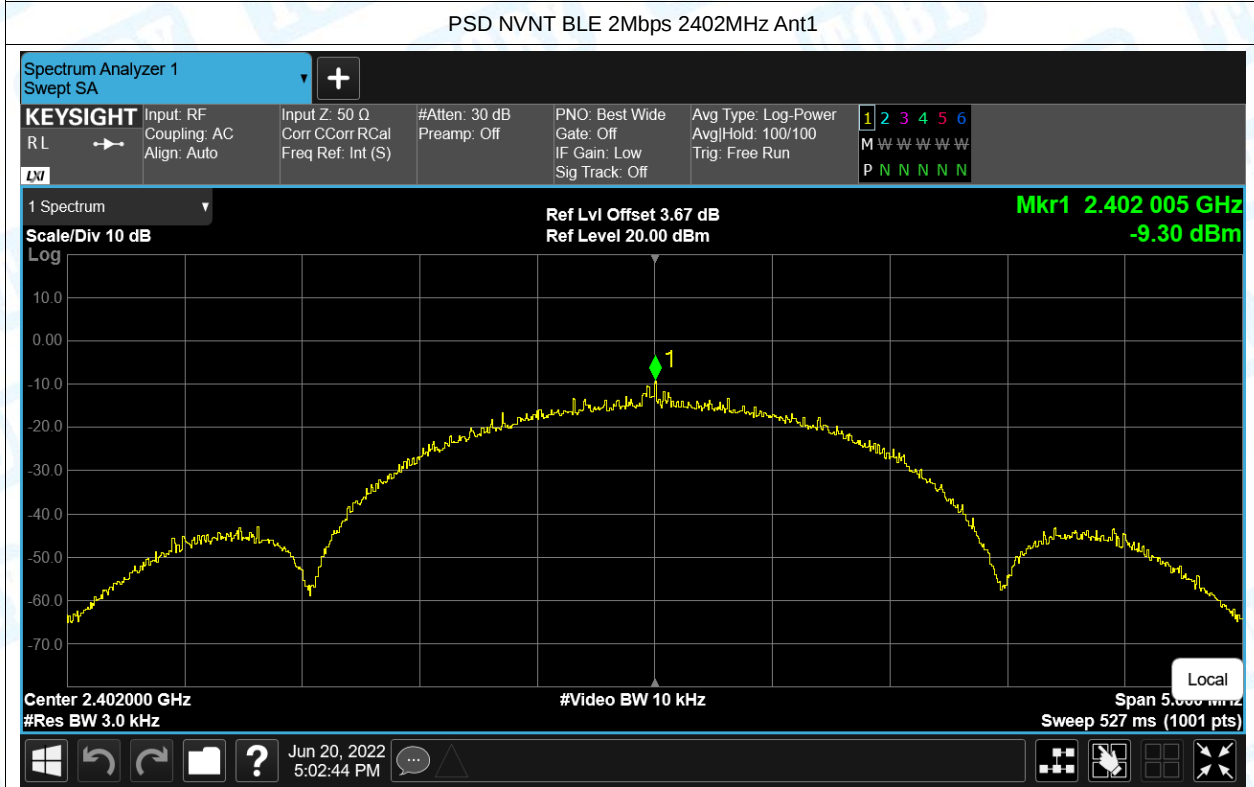
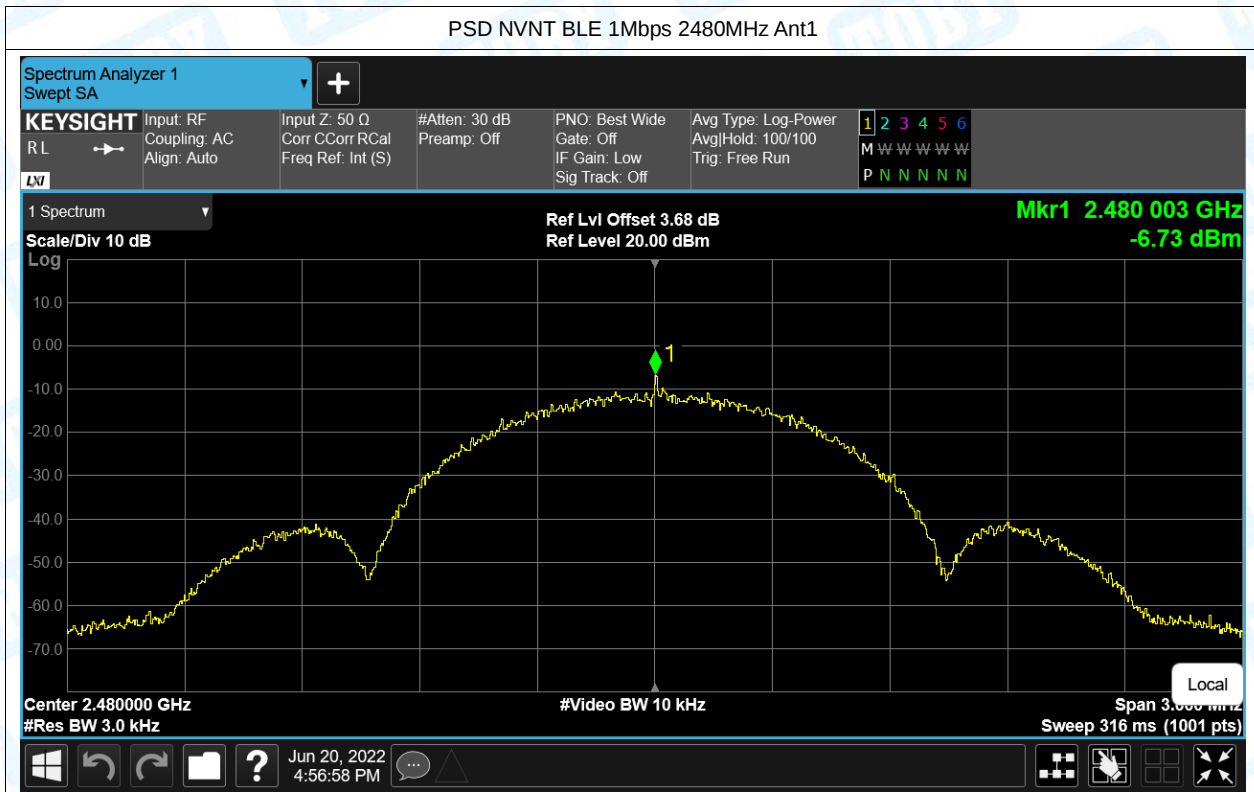


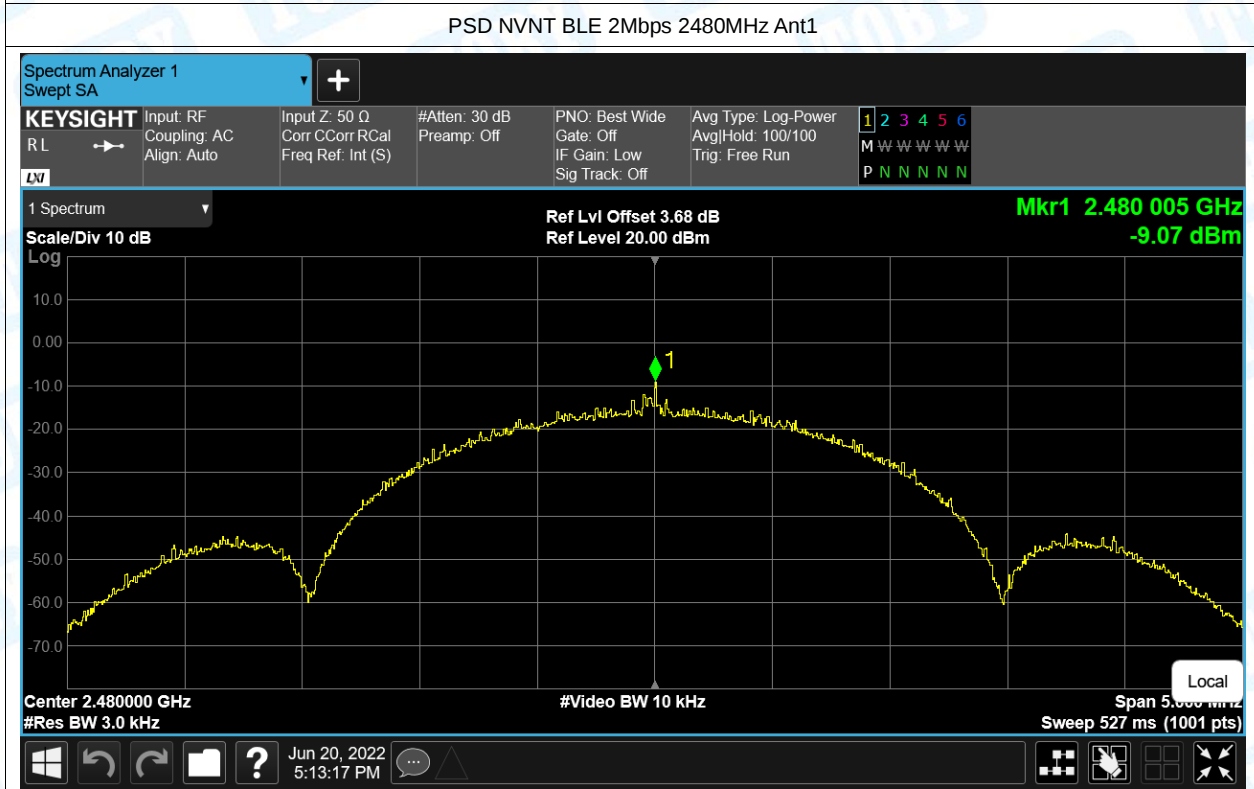
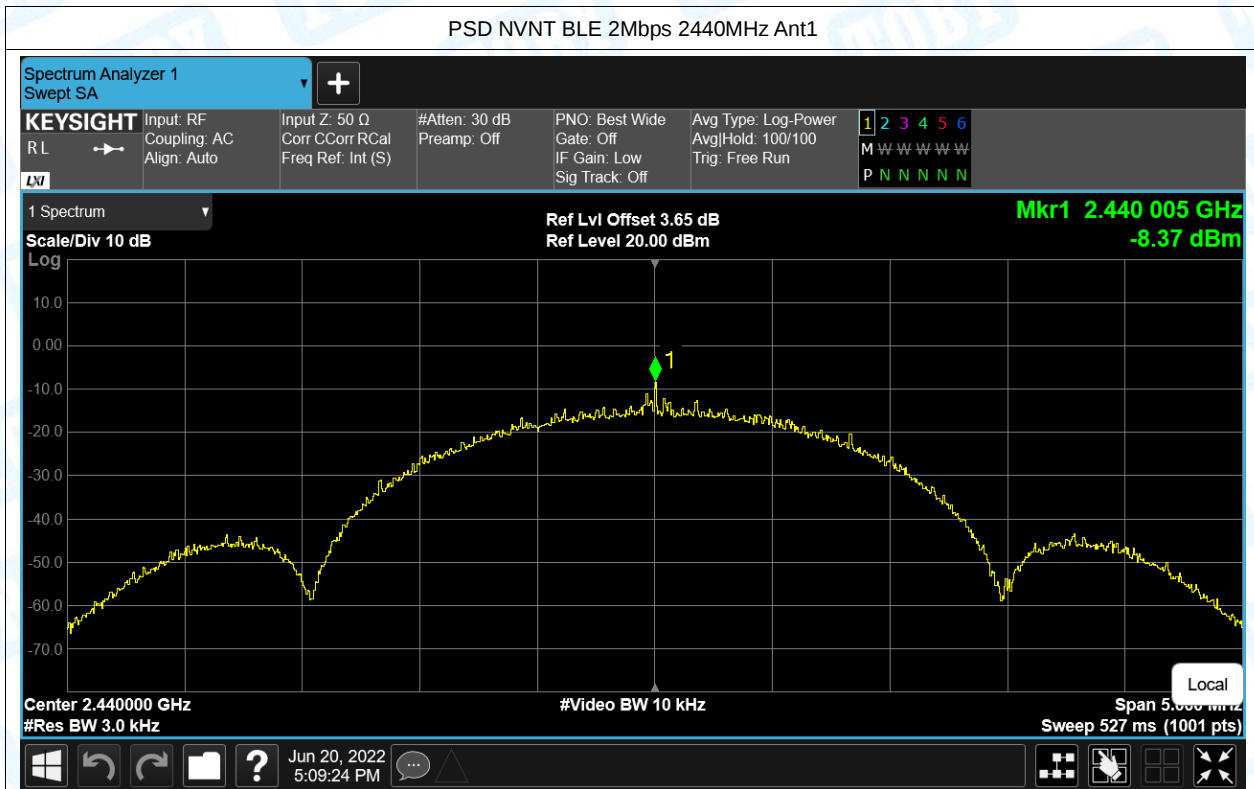


5. Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-5.853	8	Pass
NVNT	BLE 1Mbps	2440	Ant1	-6.442	8	Pass
NVNT	BLE 1Mbps	2480	Ant1	-6.735	8	Pass
NVNT	BLE 2Mbps	2402	Ant1	-9.297	8	Pass
NVNT	BLE 2Mbps	2440	Ant1	-8.369	8	Pass
NVNT	BLE 2Mbps	2480	Ant1	-9.071	8	Pass

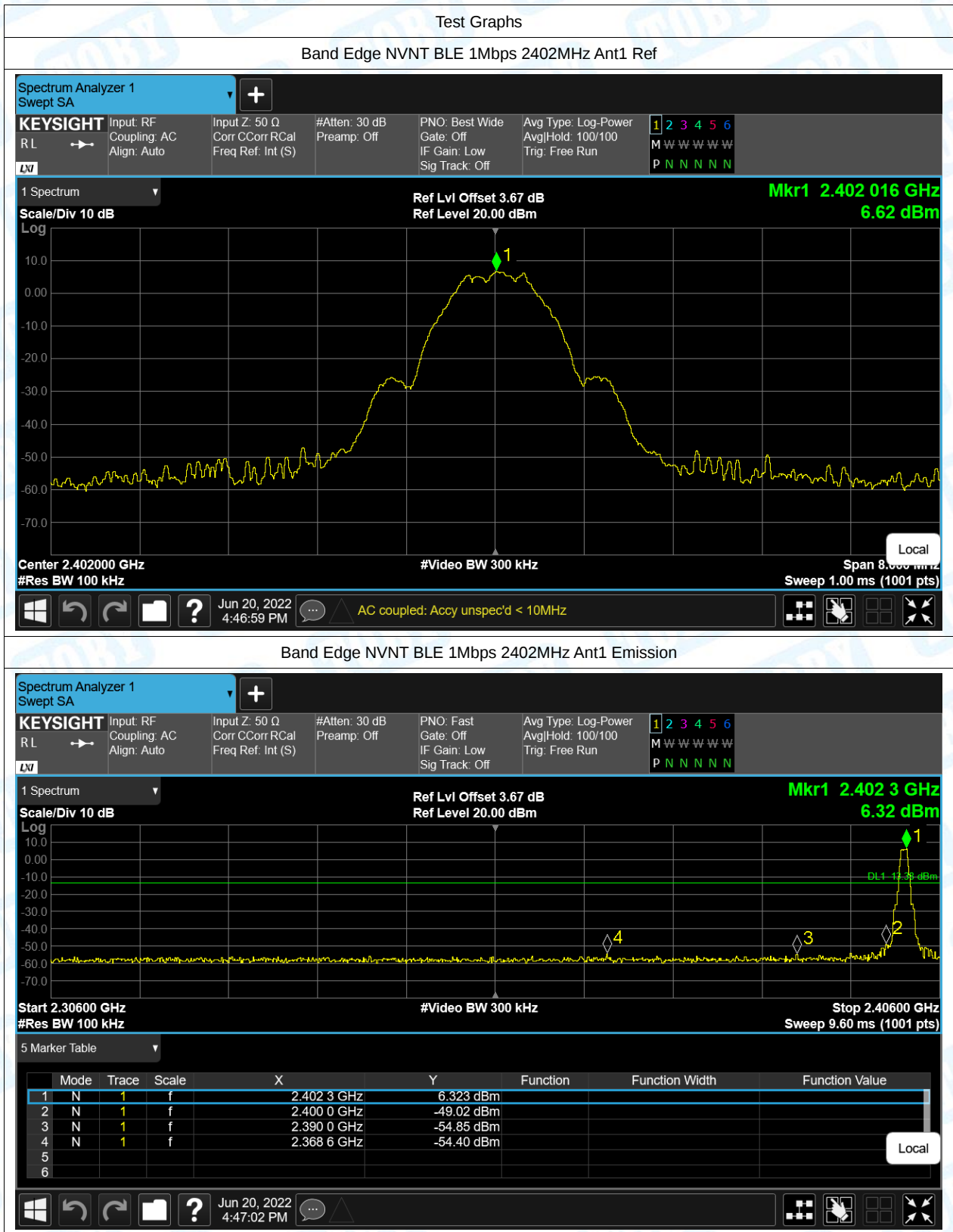


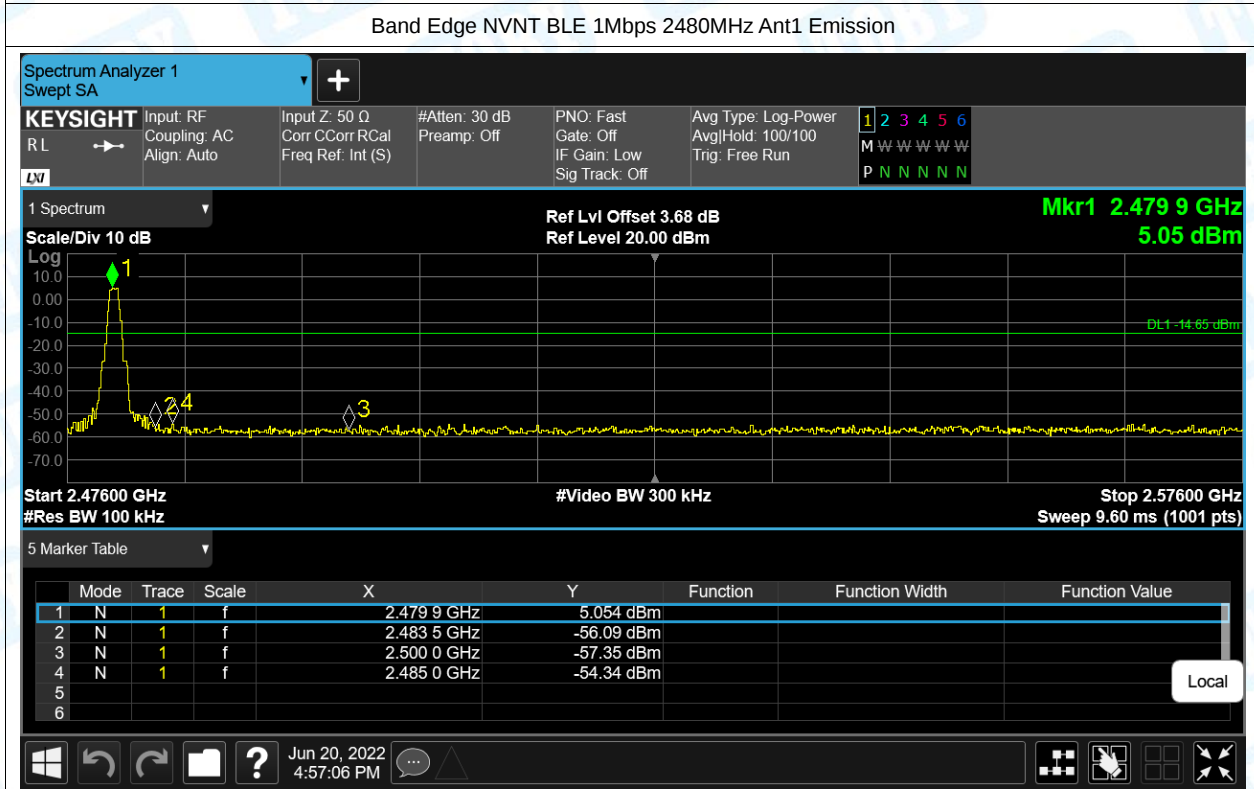
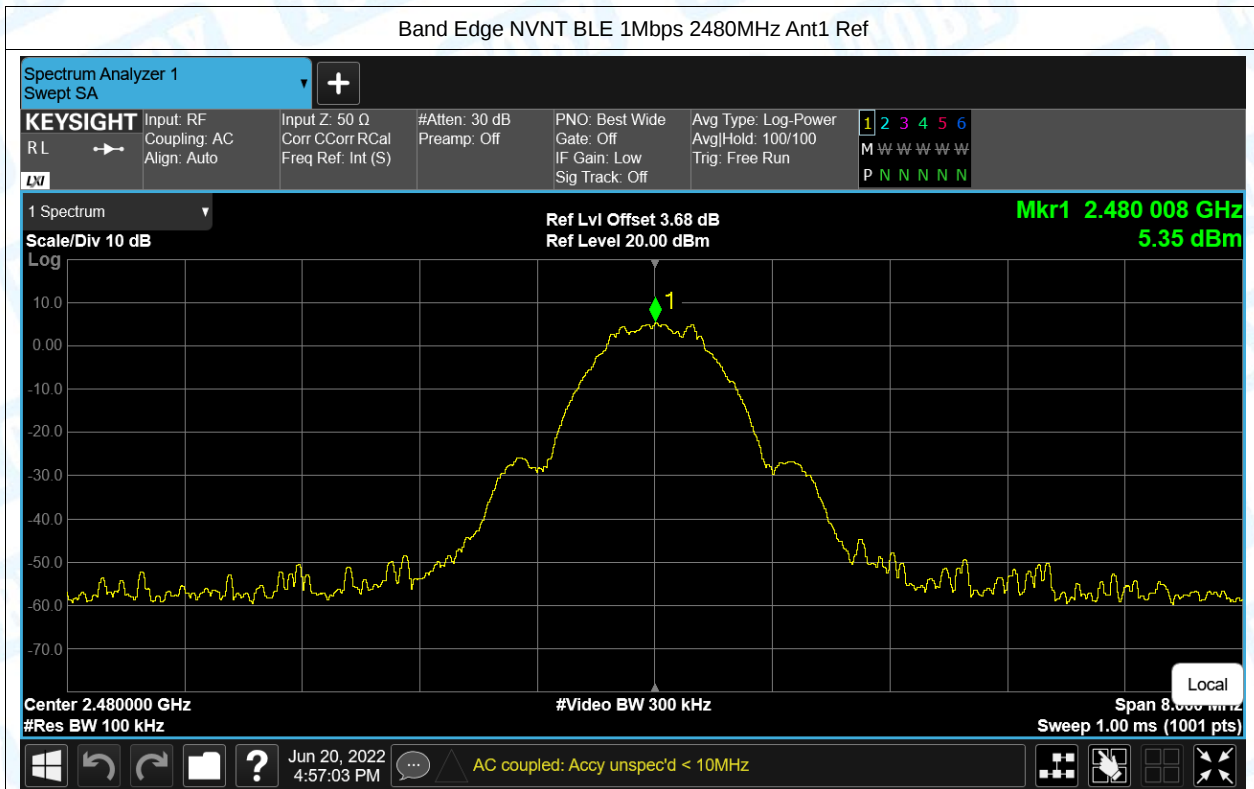


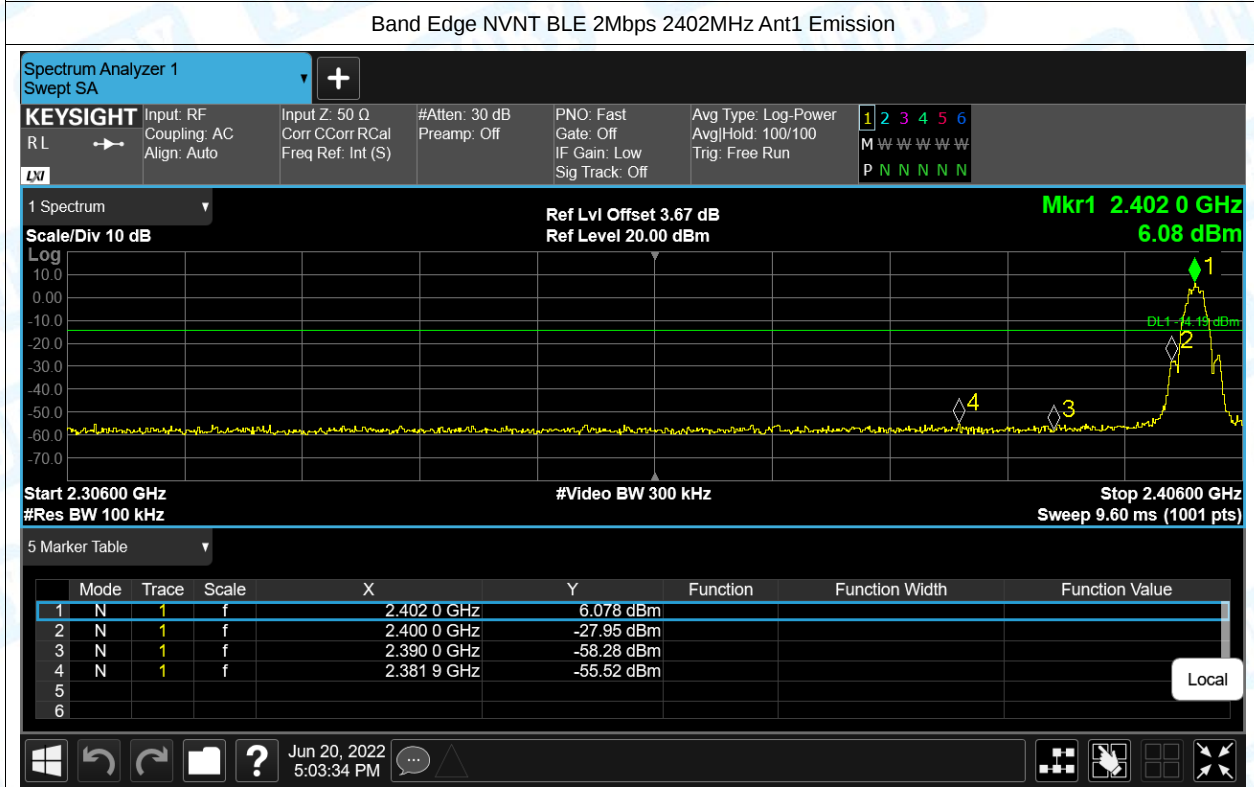
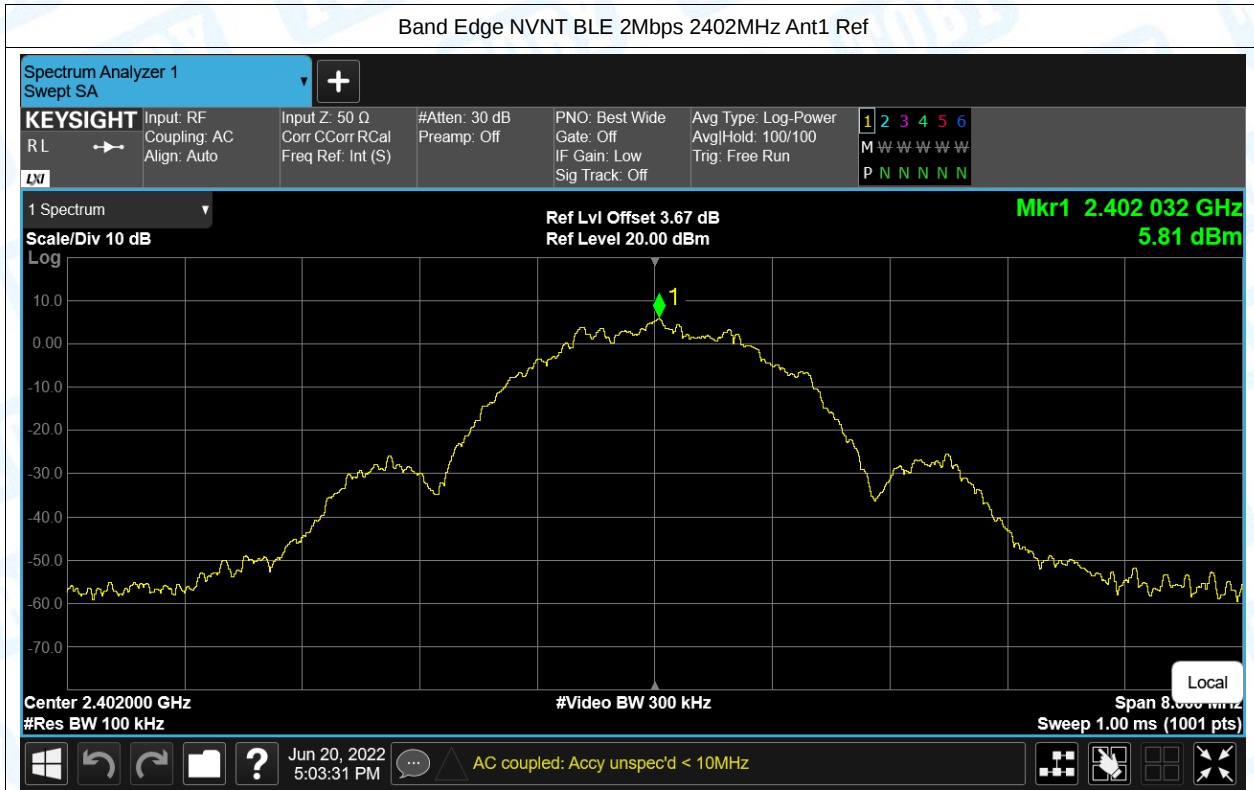


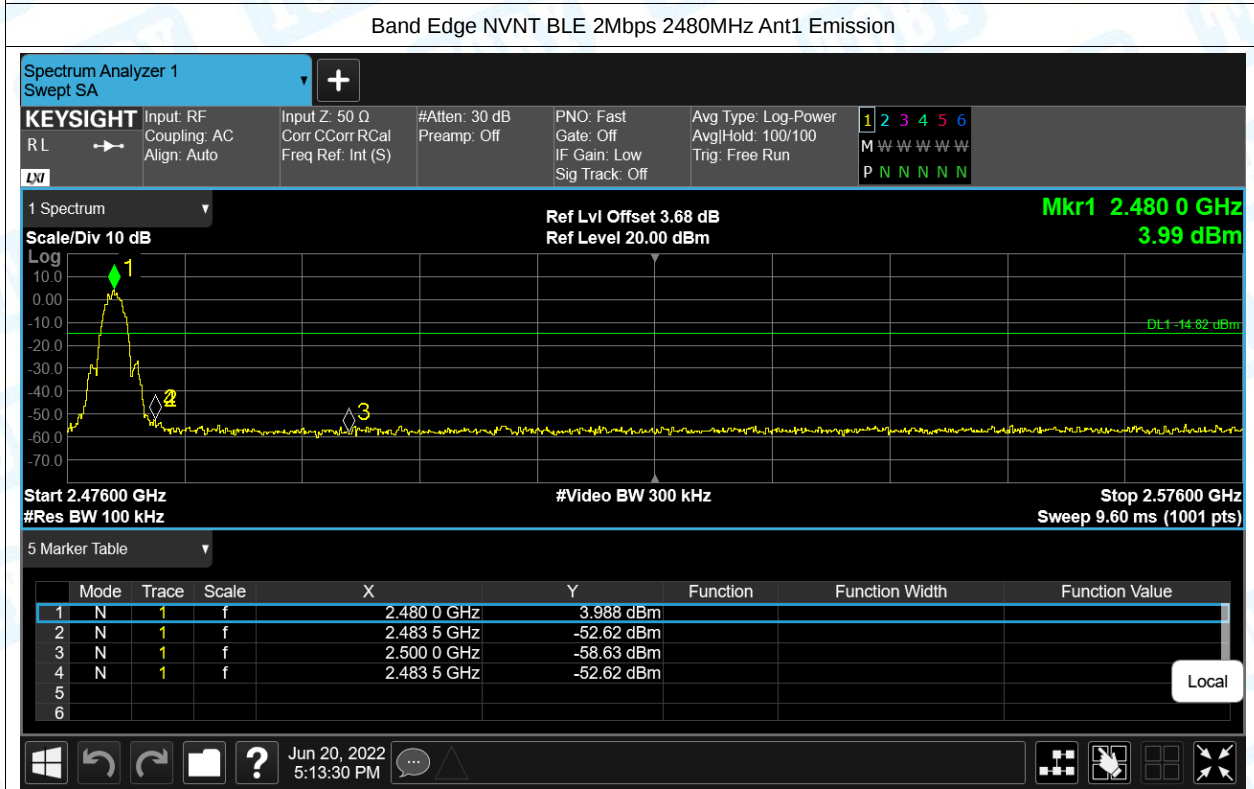
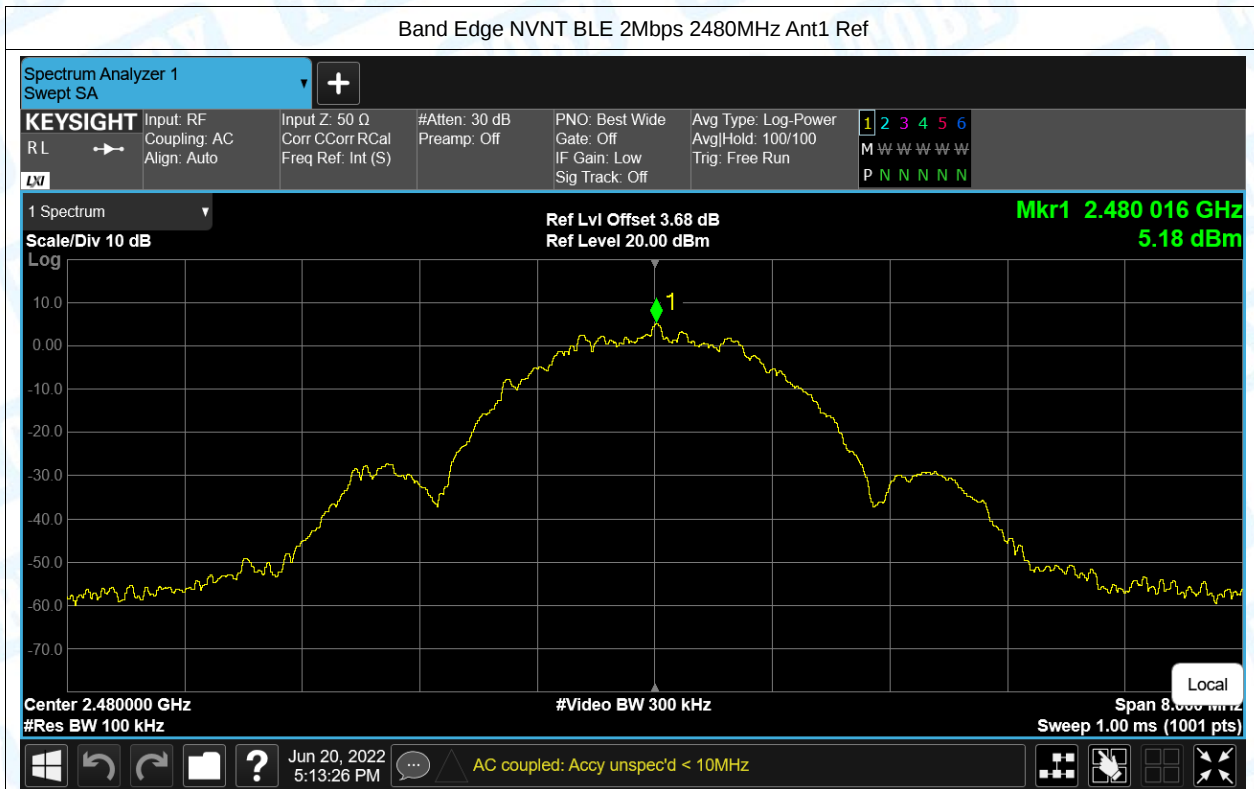
6. Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-61.02	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-59.69	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-61.33	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-57.8	-20	Pass



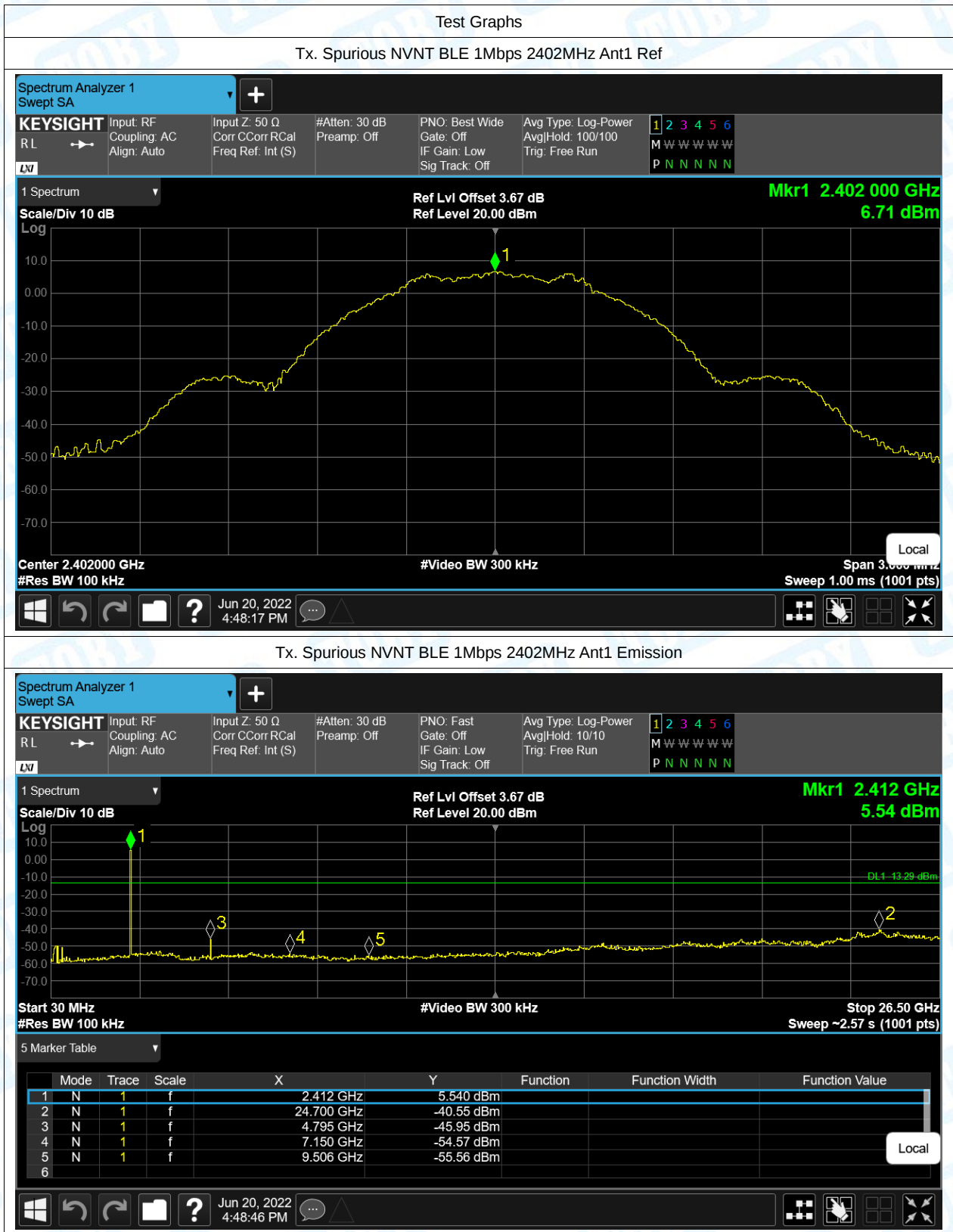


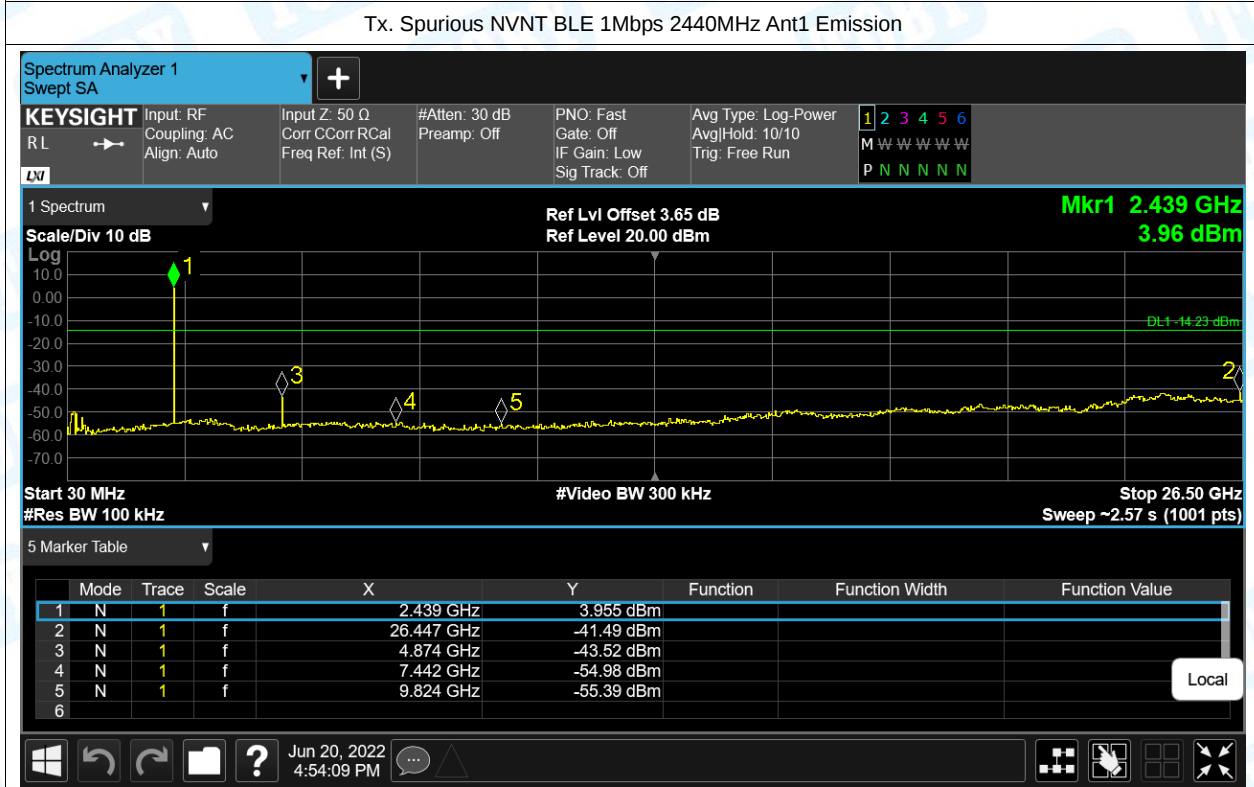
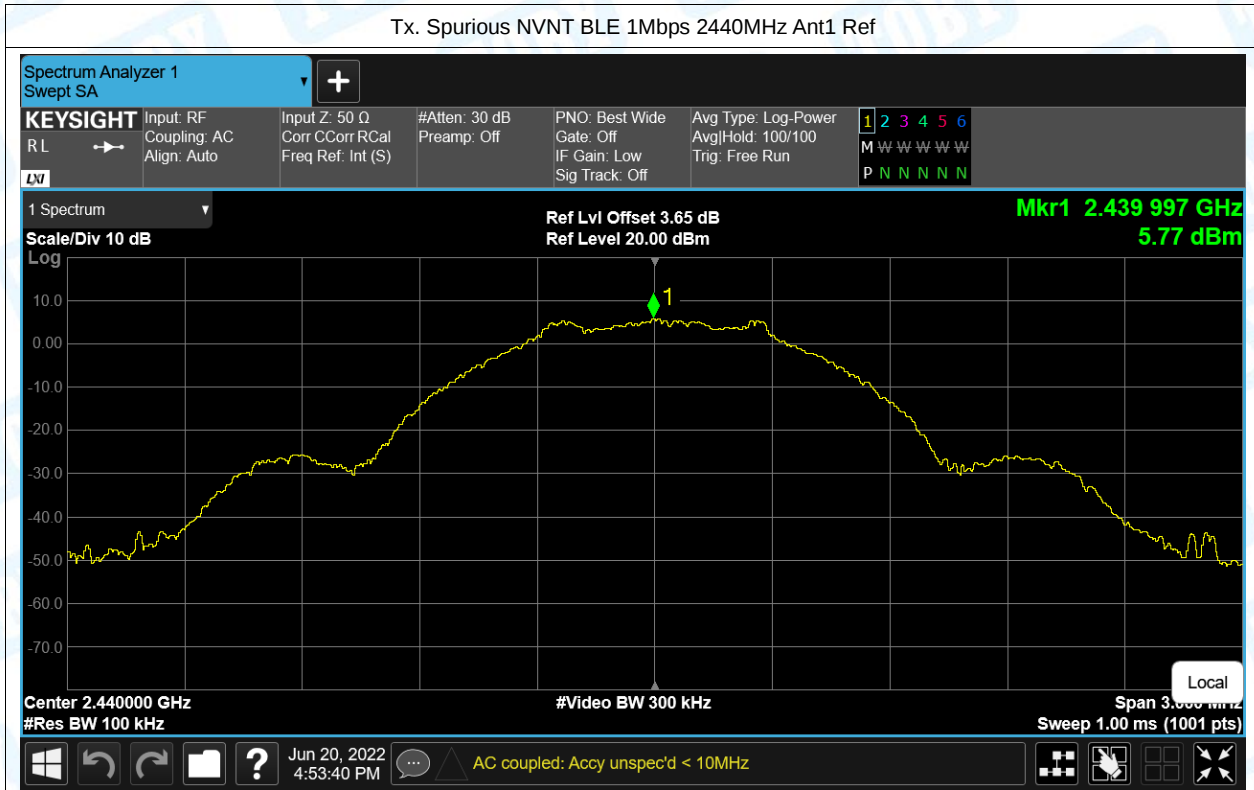




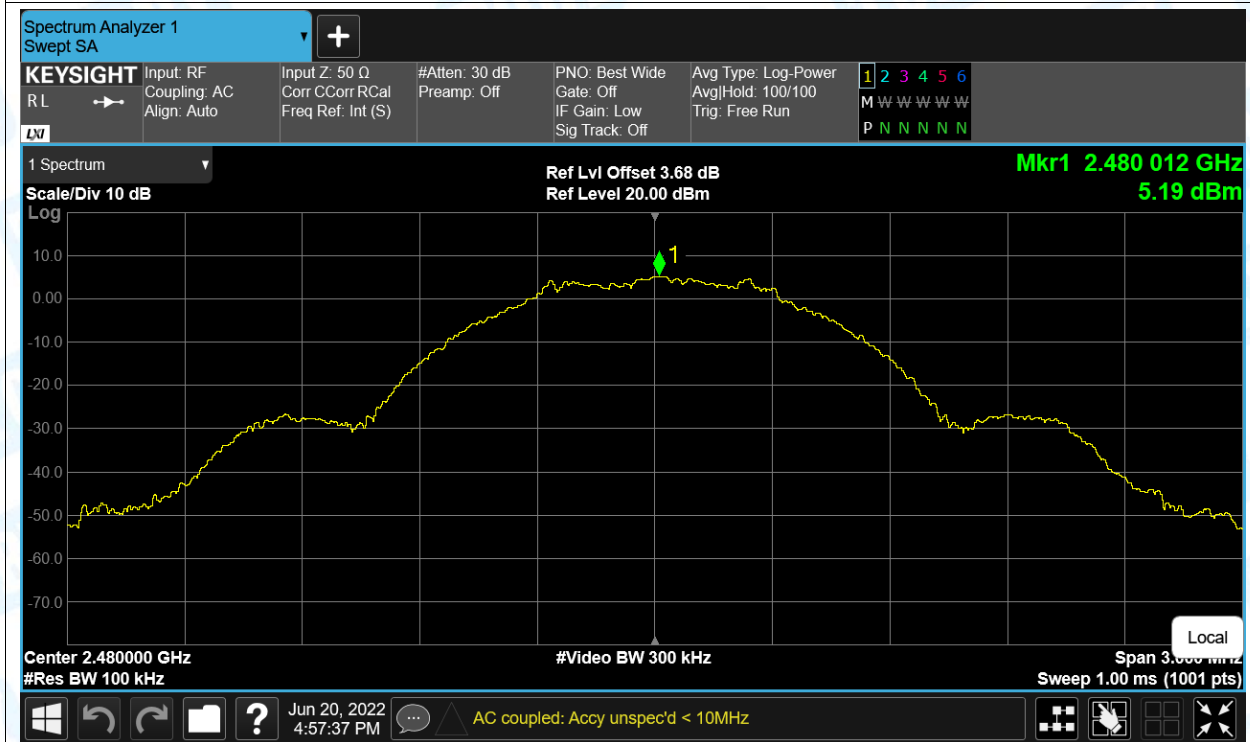
7. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1Mbps	2402	Ant1	-47.26	-20	Pass
NVNT	BLE 1Mbps	2440	Ant1	-47.26	-20	Pass
NVNT	BLE 1Mbps	2480	Ant1	-45.43	-20	Pass
NVNT	BLE 2Mbps	2402	Ant1	-46.65	-20	Pass
NVNT	BLE 2Mbps	2440	Ant1	-44.64	-20	Pass
NVNT	BLE 2Mbps	2480	Ant1	-46.29	-20	Pass

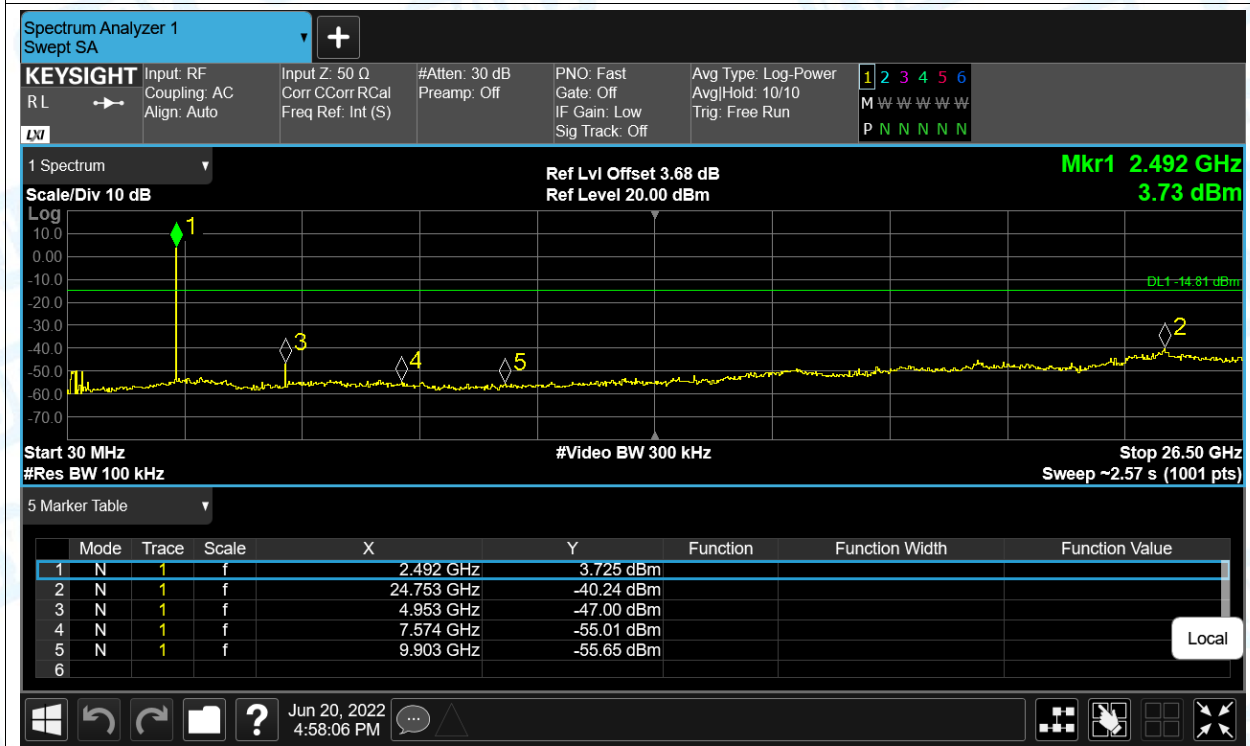


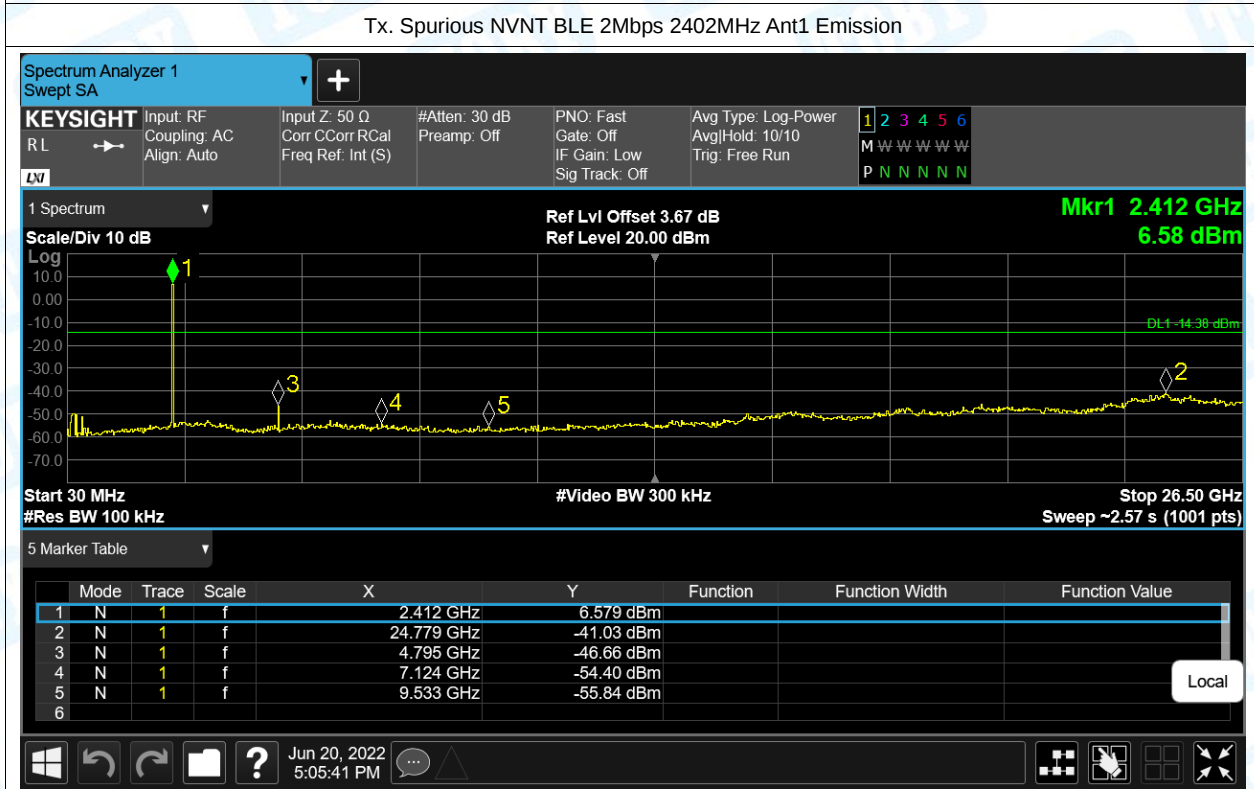
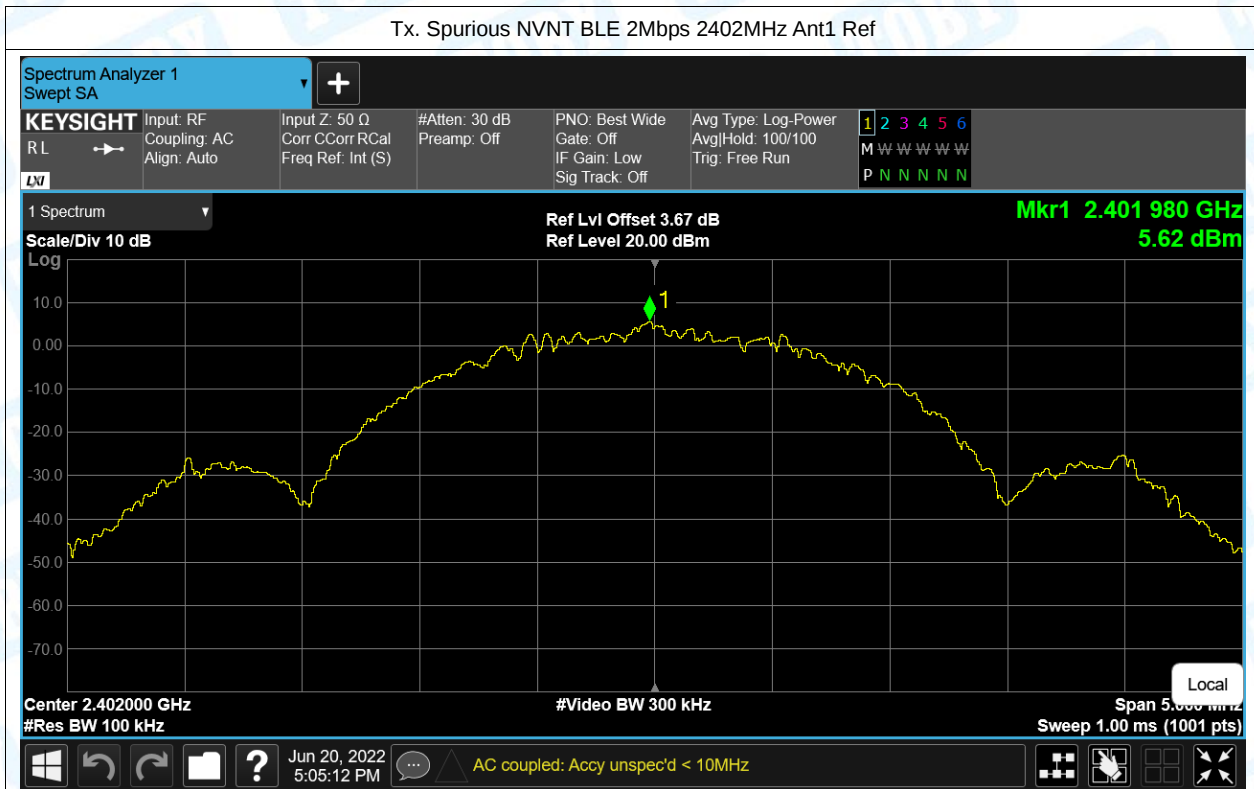


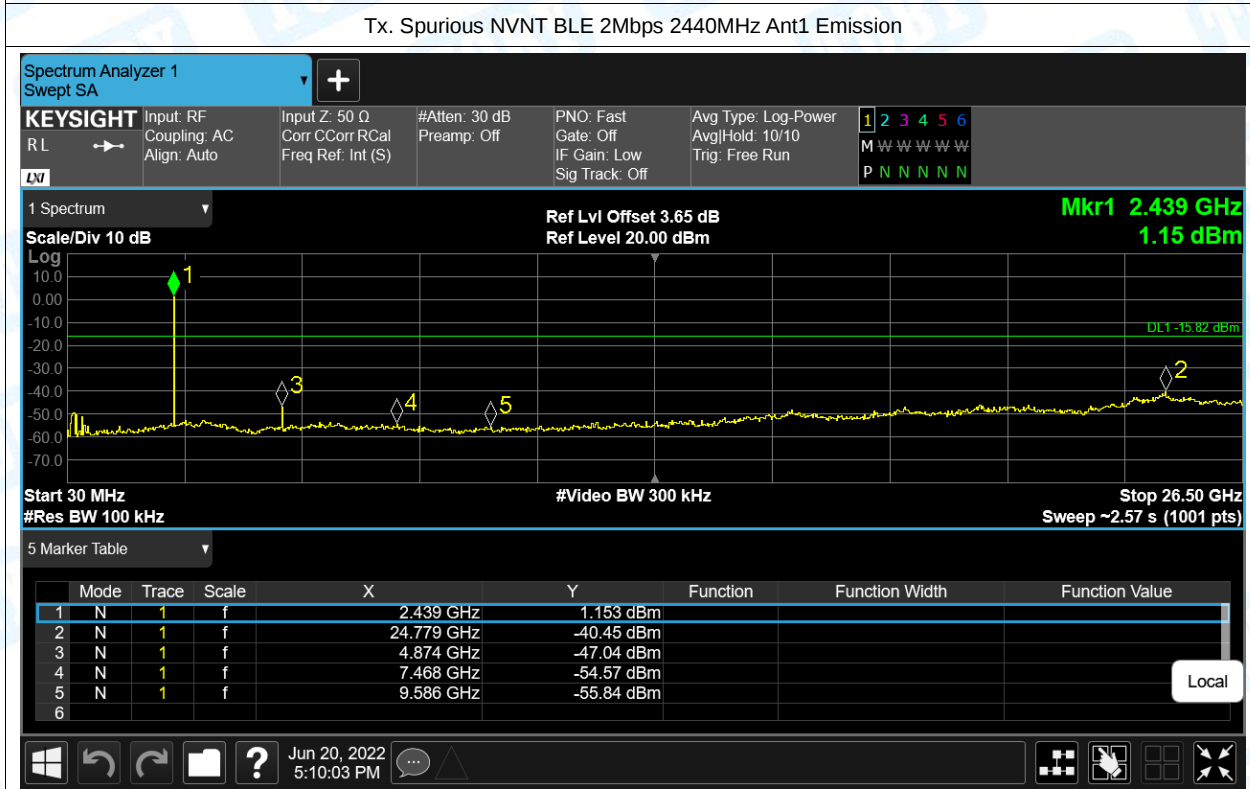
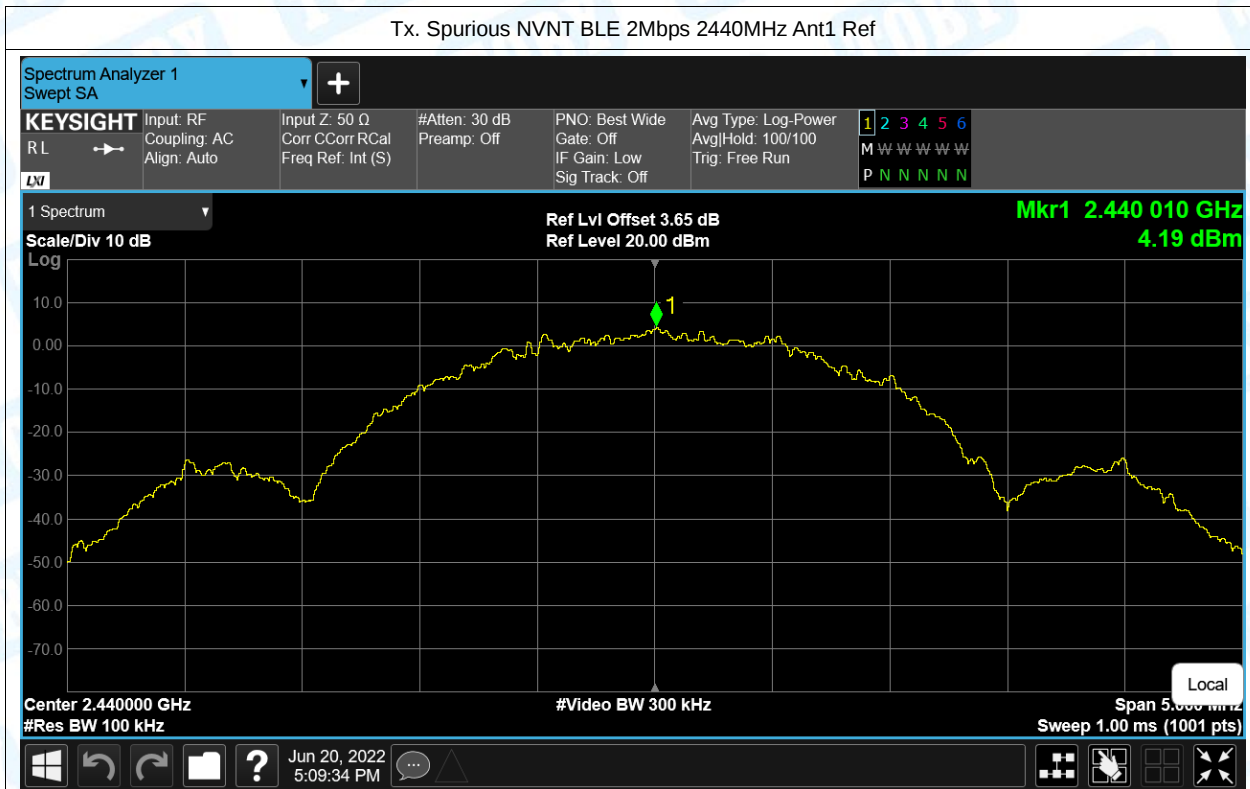
Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Ref

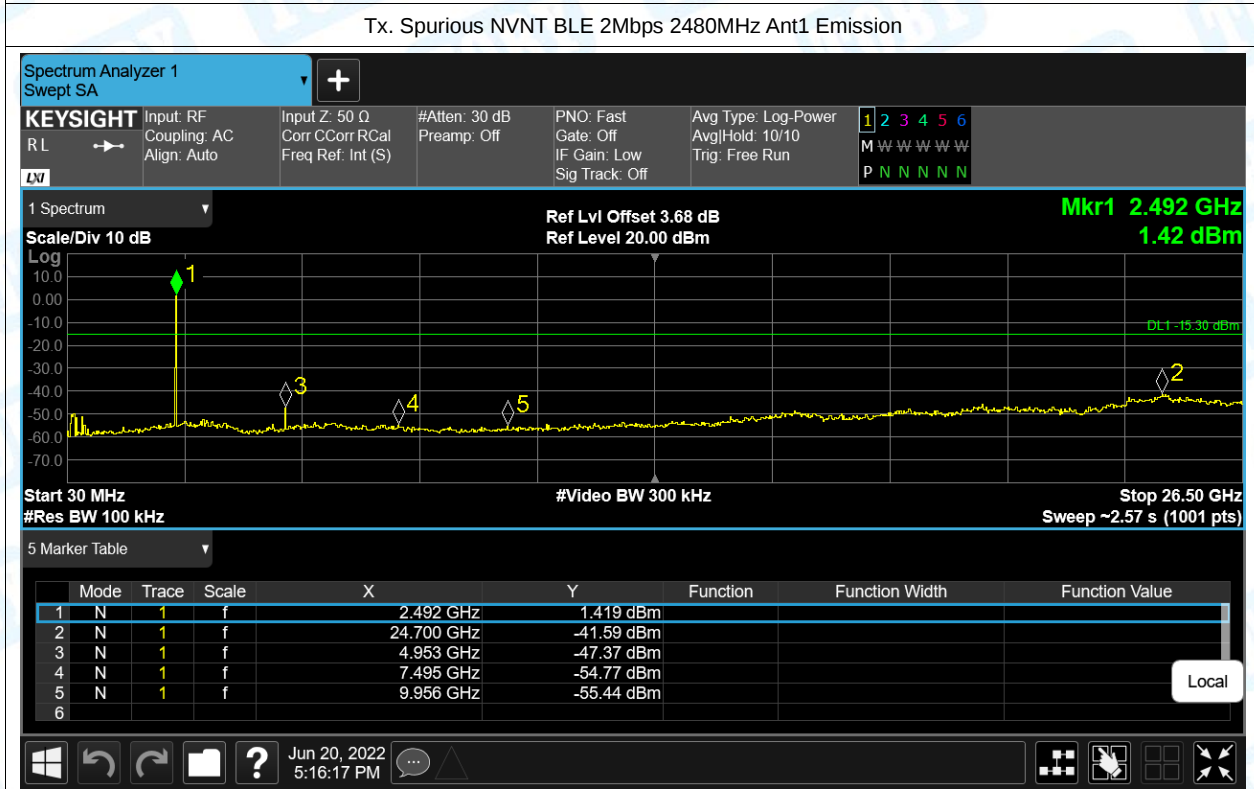
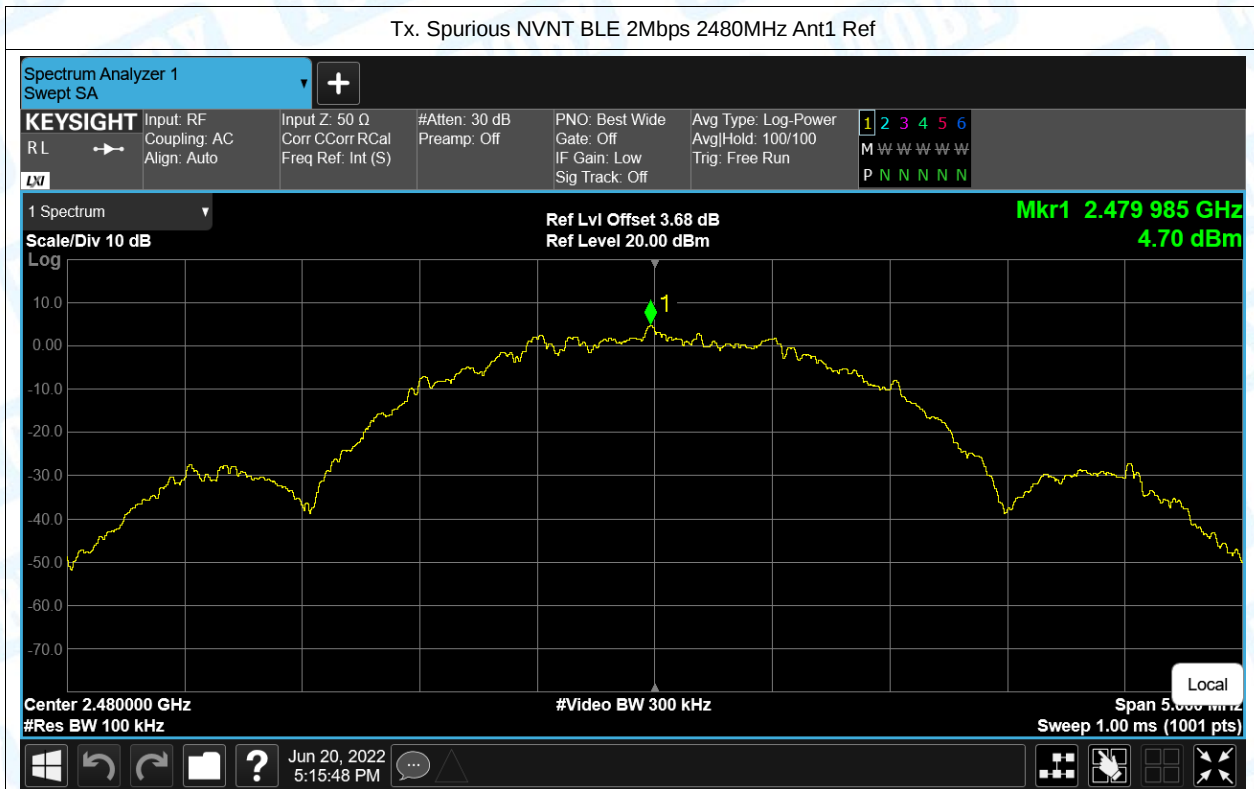


Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Emission





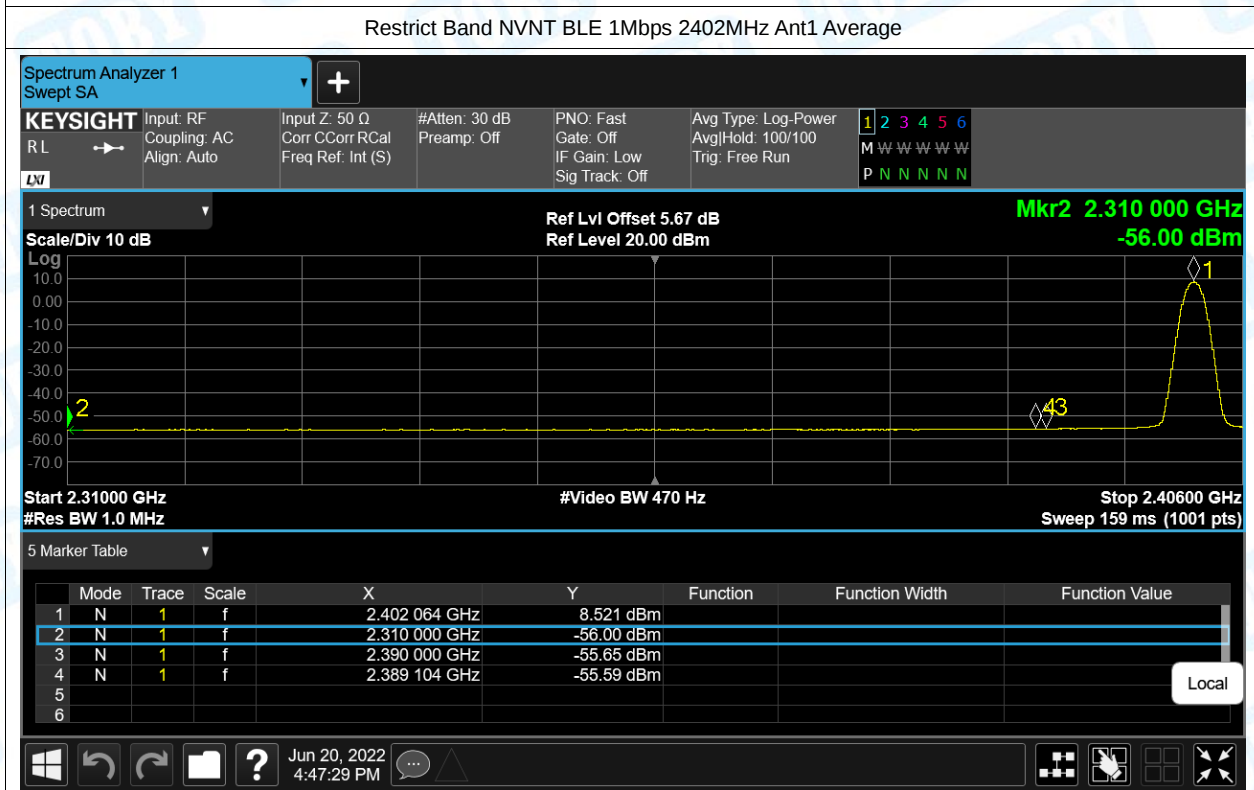
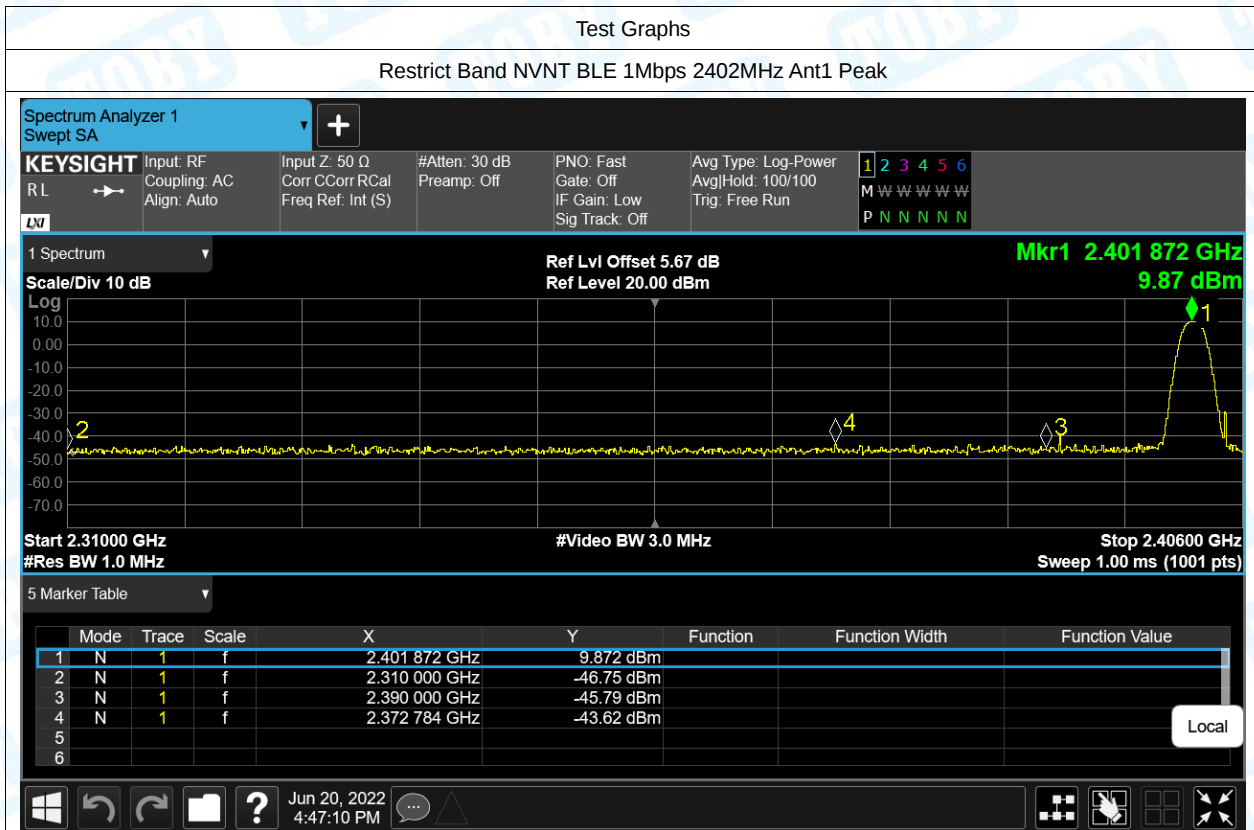




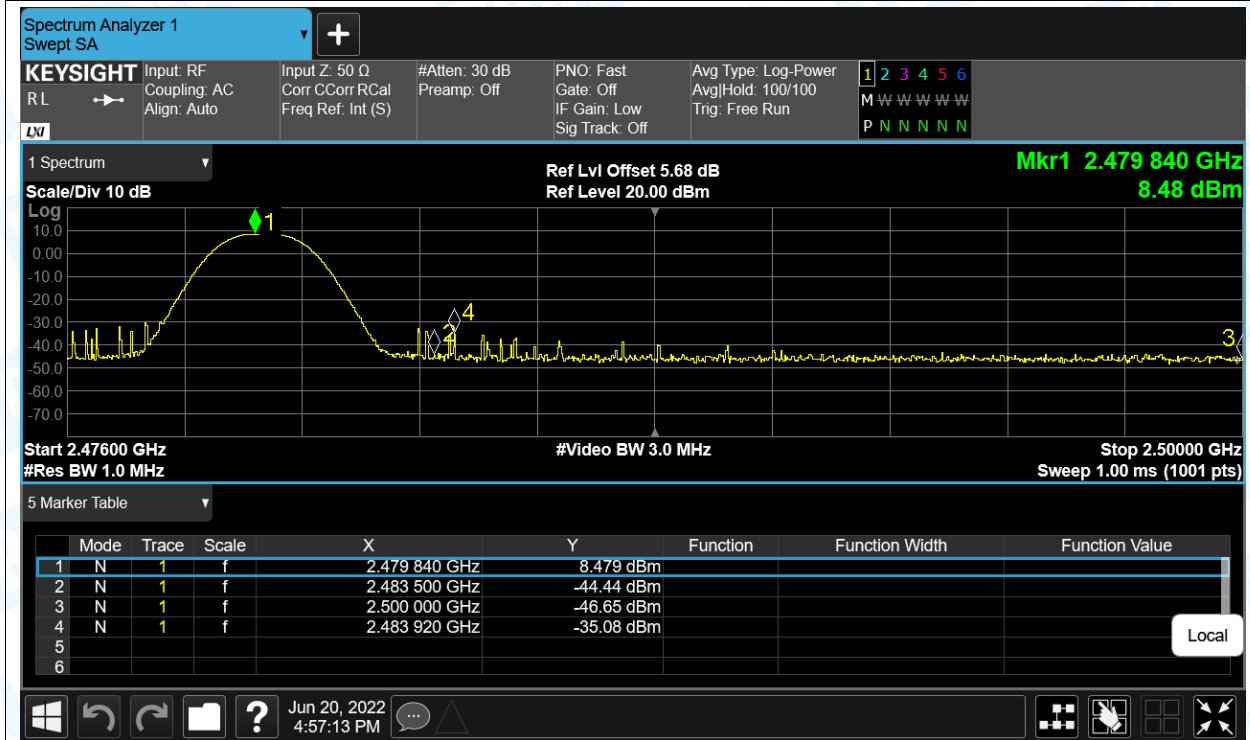
8. Restrict Band

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	-46.75	2	50.51	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2310	-56	2	41.26	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2372.784	-43.62	2	53.64	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2389.104	-55.59	2	41.67	Average	54	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-46.28	2	50.98	Peak	74	Pass
NVNT	BLE 1Mbps	2402	Ant1	2390	-55.52	2	41.74	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-44.44	2	52.82	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.5	-54.94	2	42.32	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.92	-35.08	2	62.18	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2483.584	-54.86	2	42.4	Average	54	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-46.65	2	50.61	Peak	74	Pass
NVNT	BLE 1Mbps	2480	Ant1	2500	-55.61	2	41.65	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-46.45	2	50.81	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2310	-55.85	2	41.41	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2316.432	-43	2	54.26	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2383.44	-55.29	2	41.97	Average	54	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-45.23	2	52.03	Peak	74	Pass
NVNT	BLE 2Mbps	2402	Ant1	2390	-55.31	2	41.95	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-42.54	2	54.72	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.5	-50.89	2	46.37	Average	54	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.872	-33.95	2	63.31	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2483.512	-50.89	2	46.37	Average	54	Pass

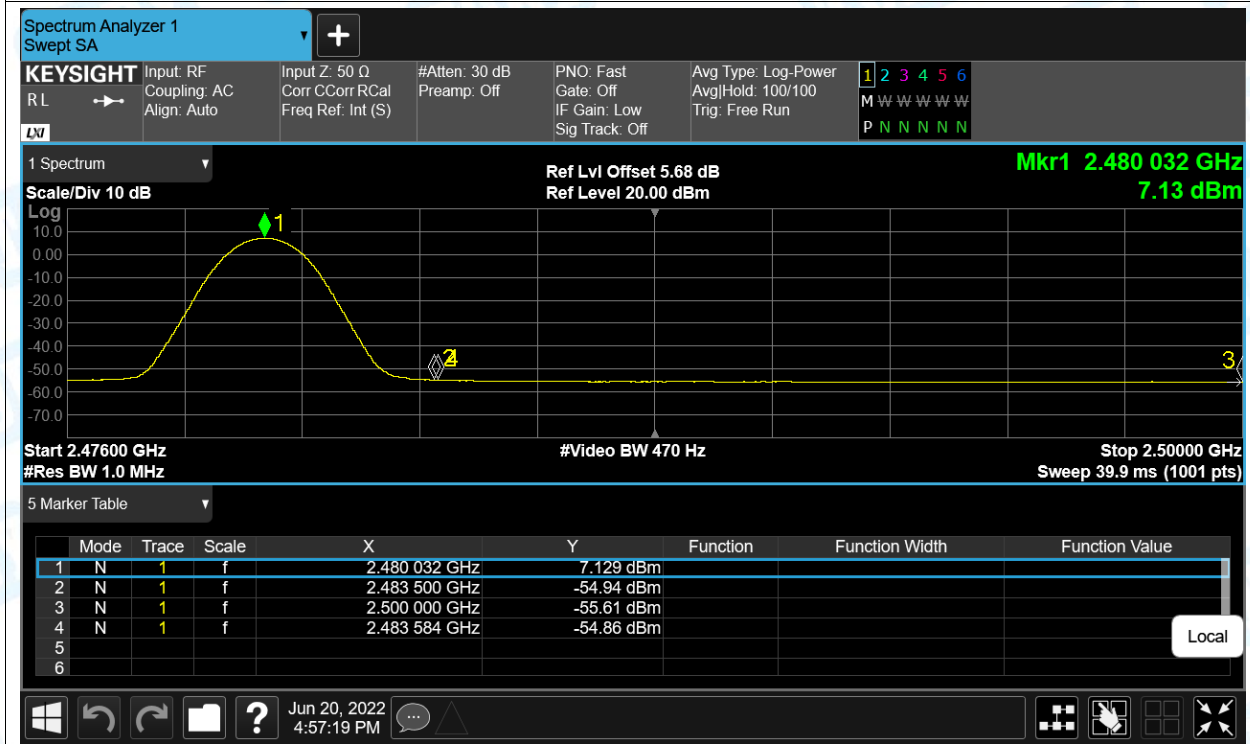
NVNT	BLE 2Mbps	2480	Ant1	2500	-45.85	2	51.41	Peak	74	Pass
NVNT	BLE 2Mbps	2480	Ant1	2500	-55.52	2	41.74	Average	54	Pass



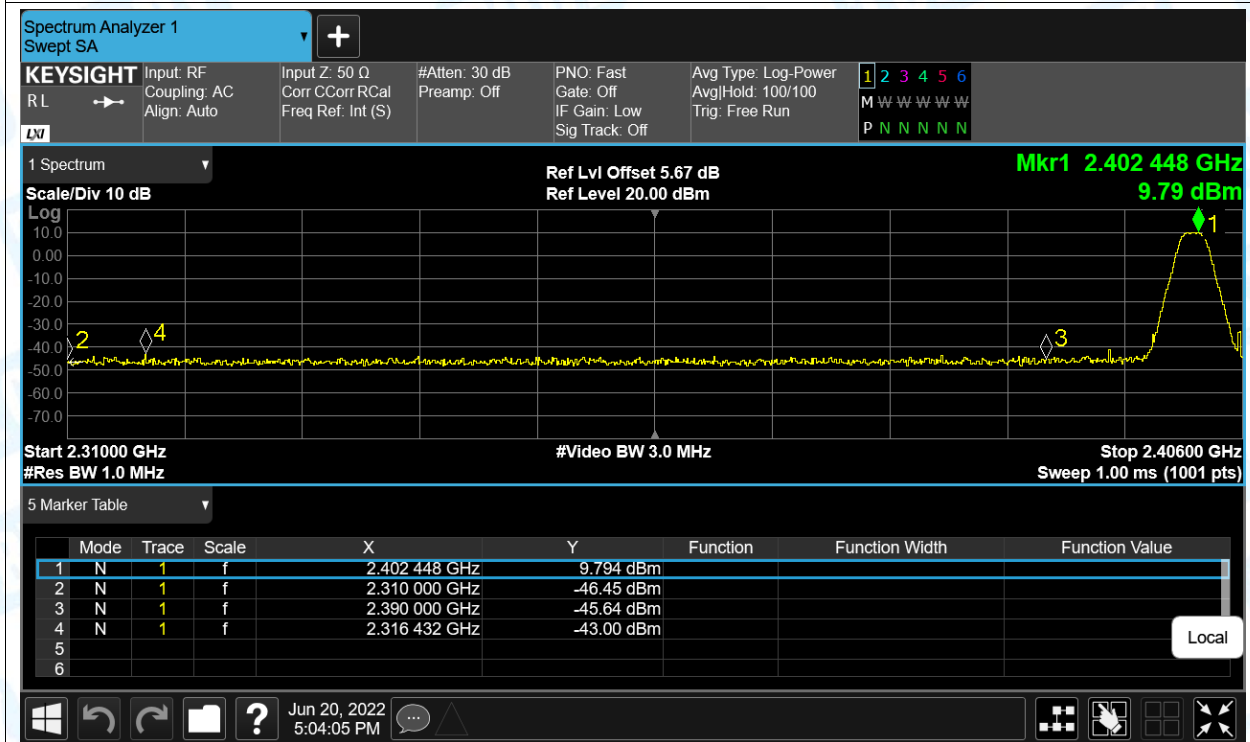
Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Peak



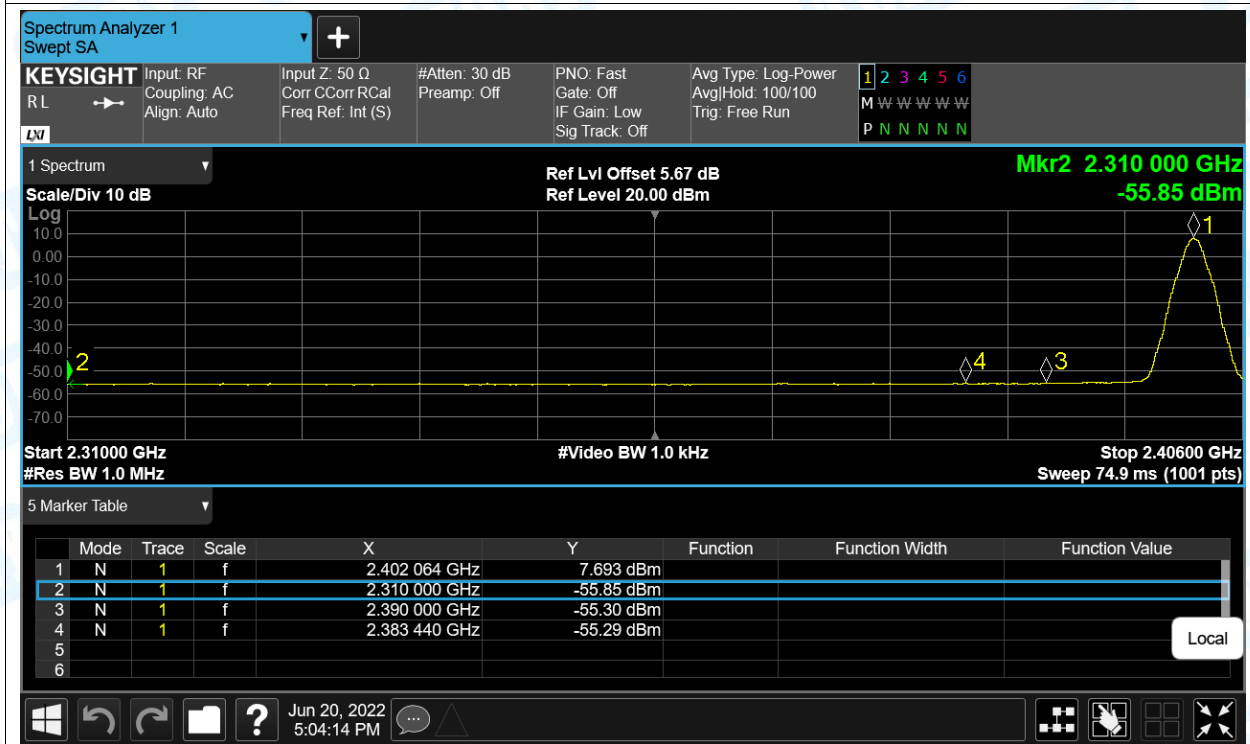
Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Average



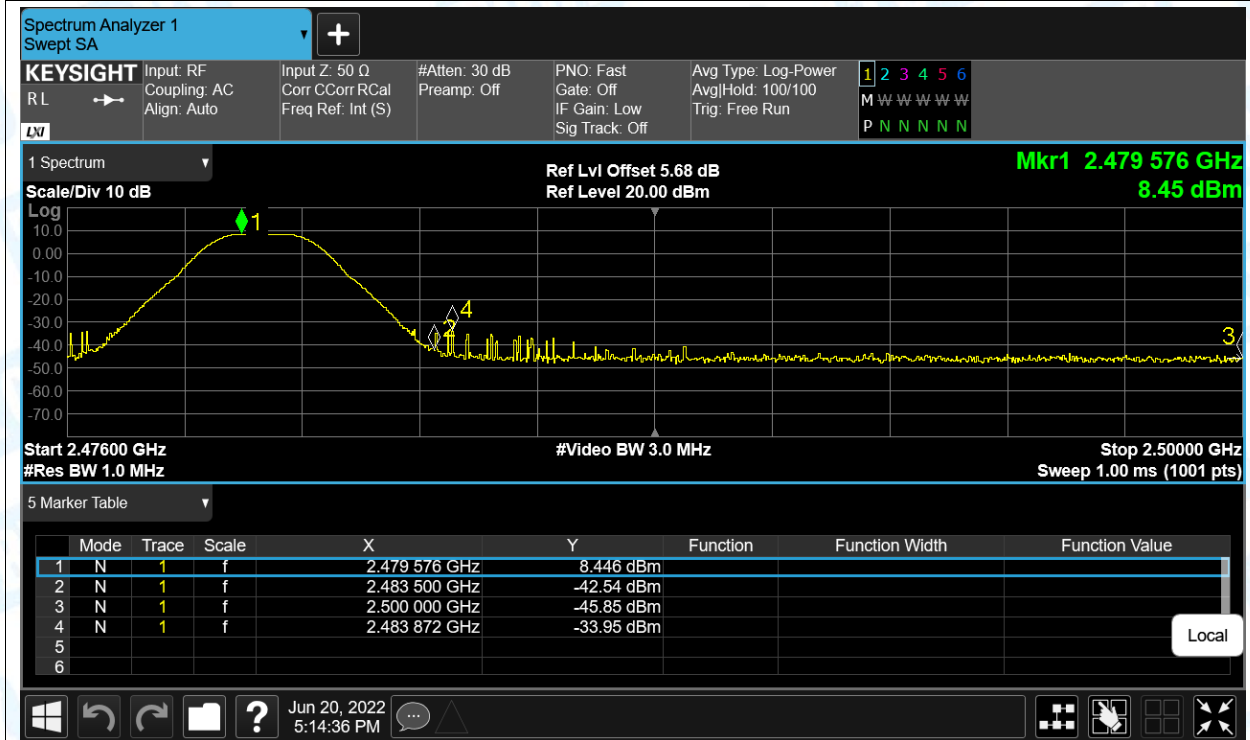
Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Average



Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Average

