



# Appendix B

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

Product Name: Hyundai Mini PC

Test Model: HMB10P01

### Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Taylor Hu
Supervised by:	Li Huan





### B.1 -6dB Bandwidth

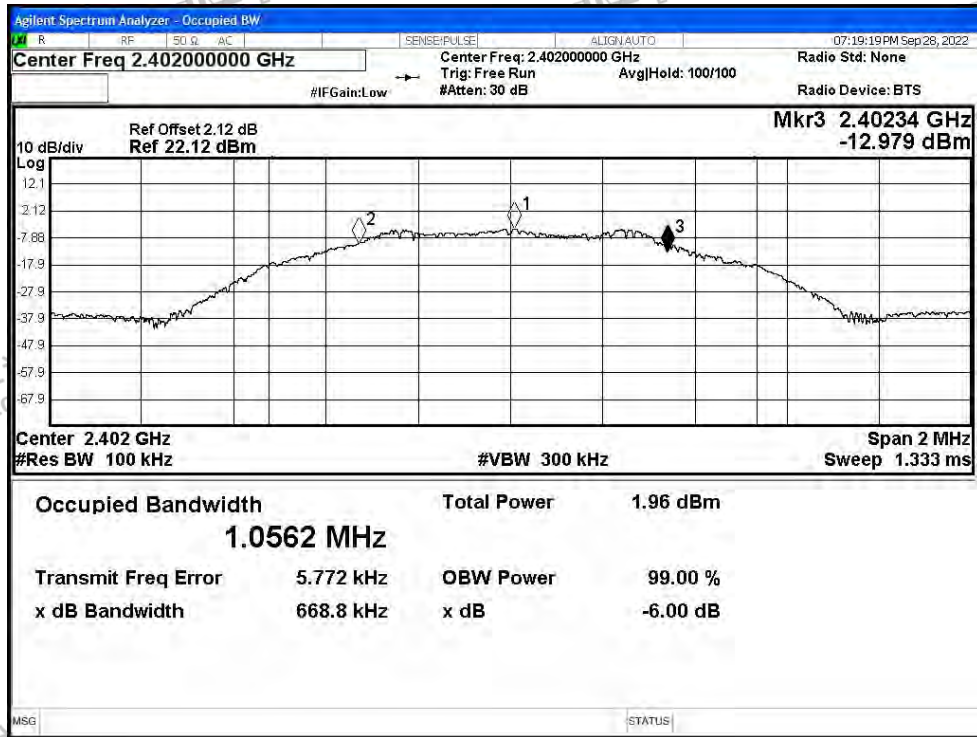
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.669	>=0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.687	>=0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.664	>=0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.15	>=0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.148	>=0.5	Pass
NVNT	BLE 2M	2480	Ant1	0.698	>=0.5	Pass



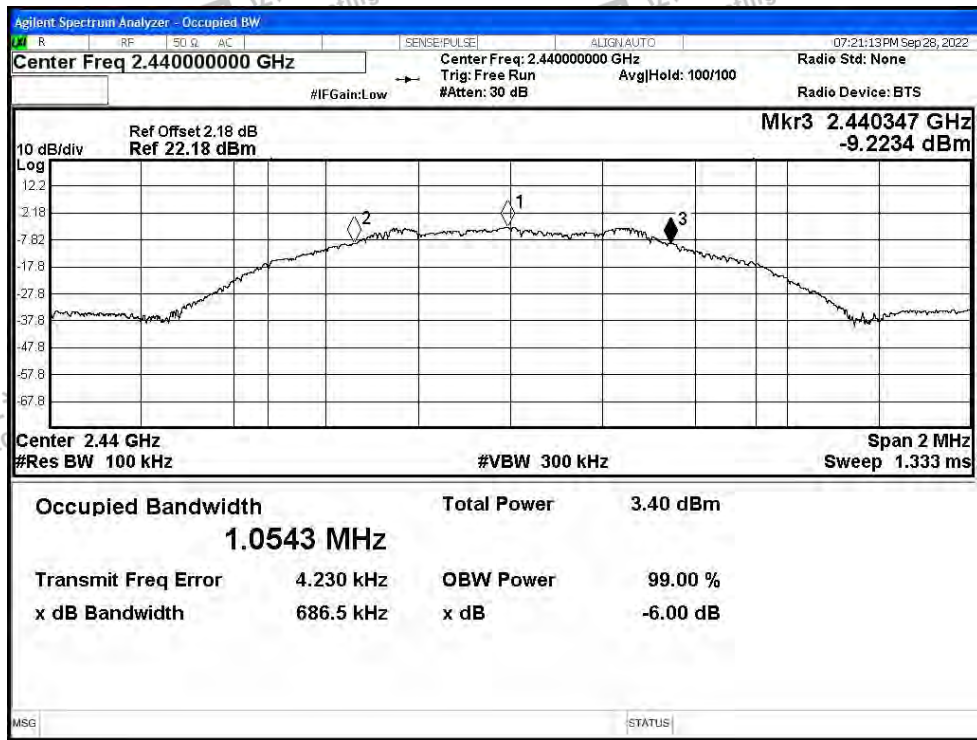


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

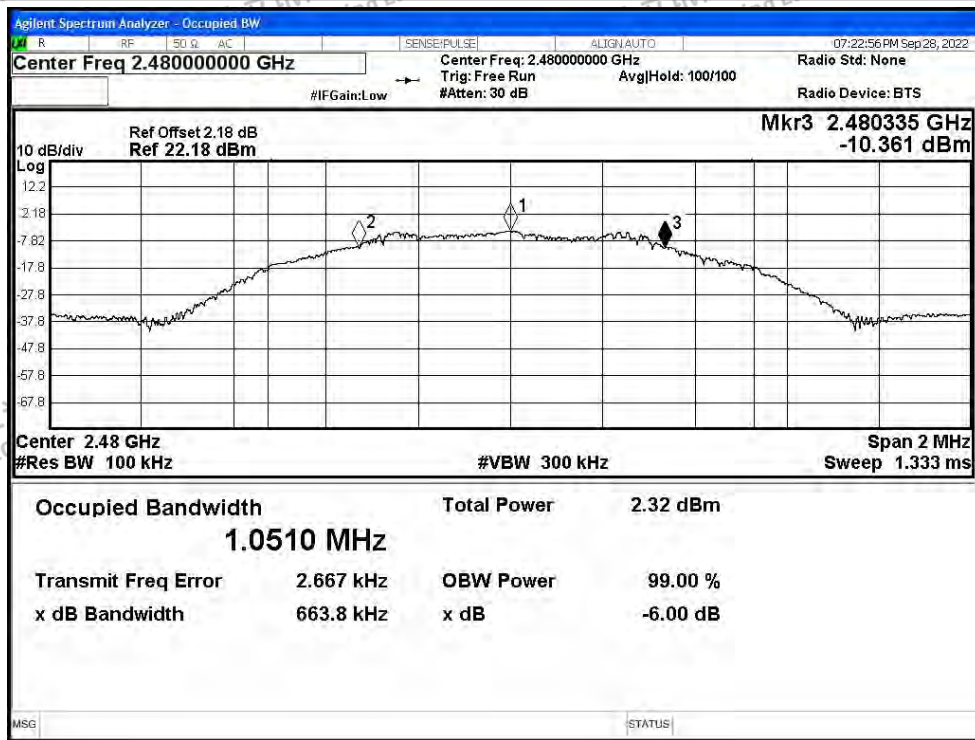


-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



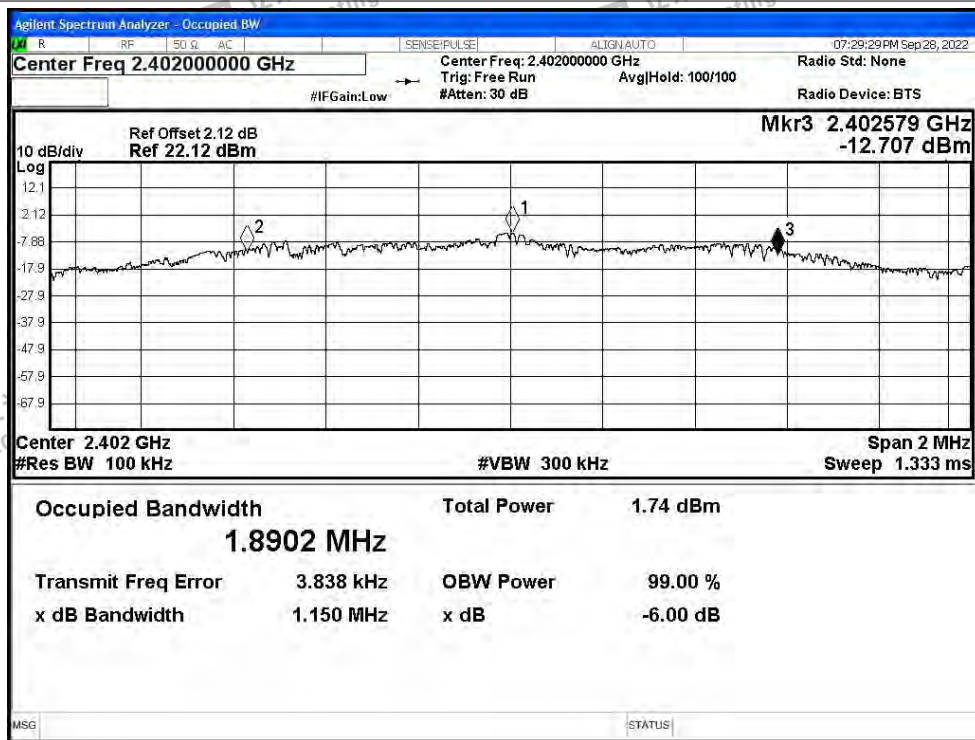


-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



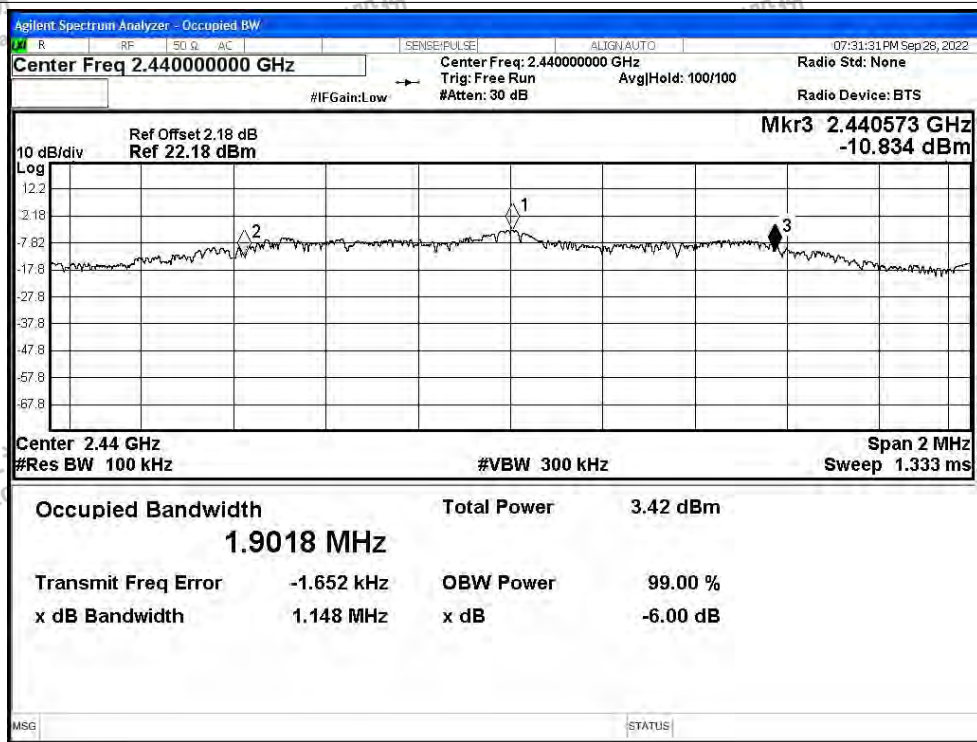
Test Graphs

-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1

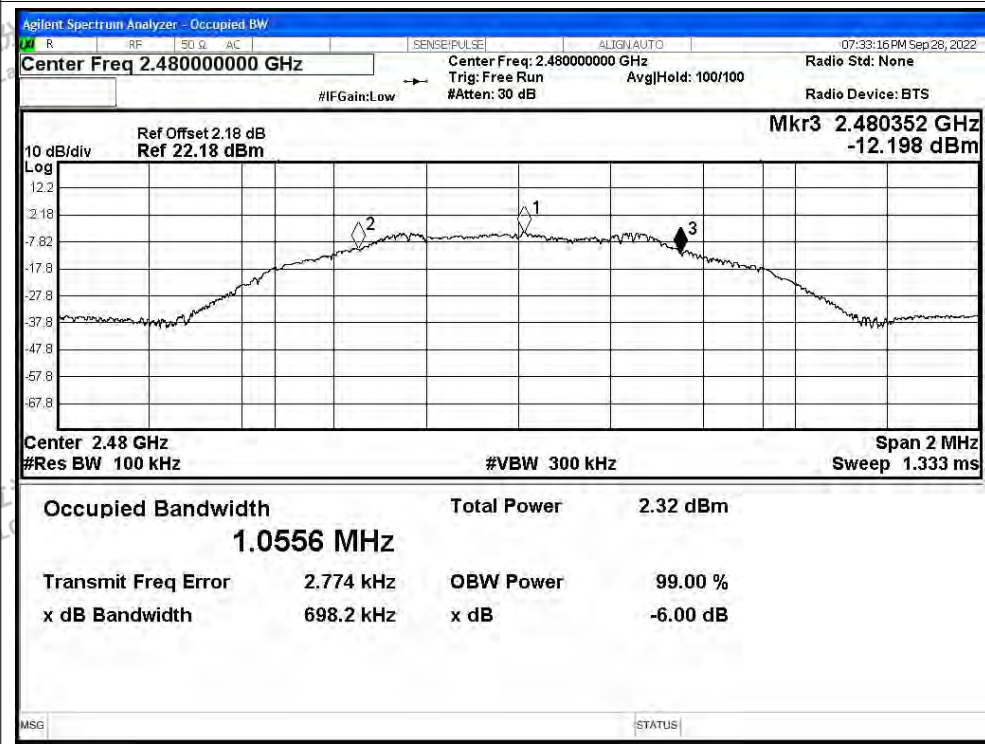


-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1





-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1





## B.2 Occupied Channel Bandwidth

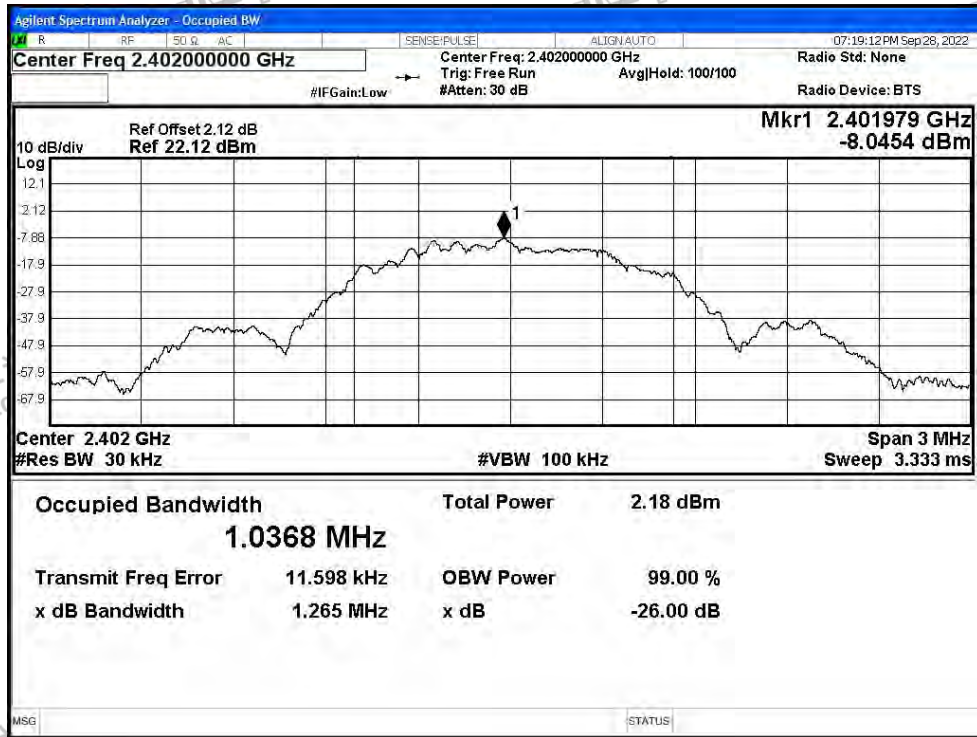
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.037
NVNT	BLE 1M	2440	Ant1	1.044
NVNT	BLE 1M	2480	Ant1	1.042
NVNT	BLE 2M	2402	Ant1	2.077
NVNT	BLE 2M	2440	Ant1	2.076
NVNT	BLE 2M	2480	Ant1	1.046



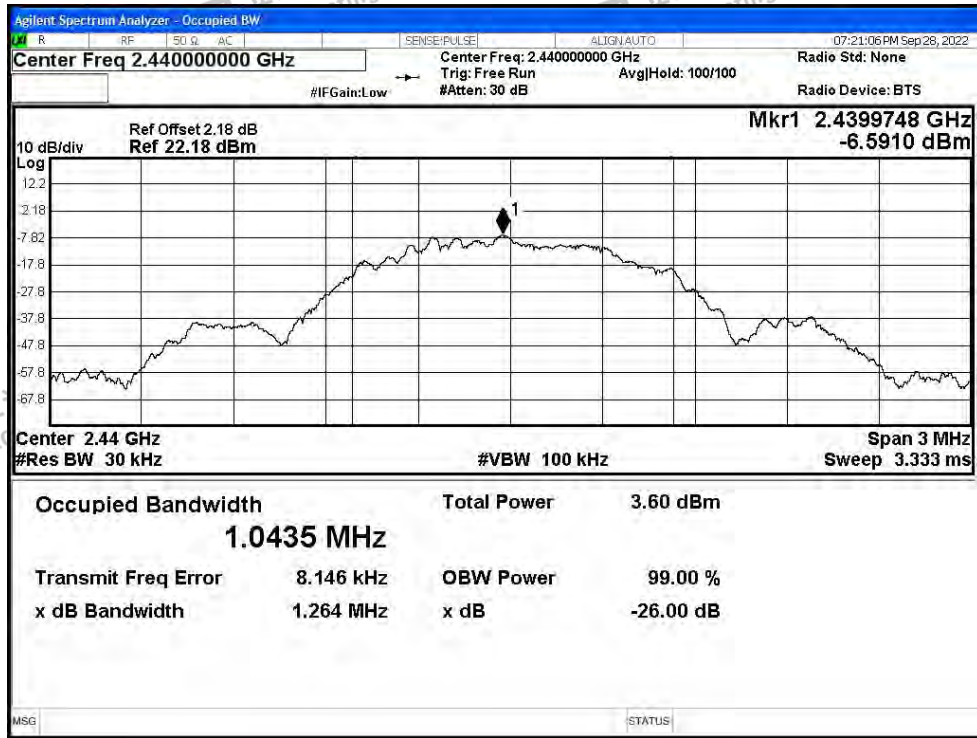


Test Graphs

OBW NVNT BLE 1M 2402MHz Ant1

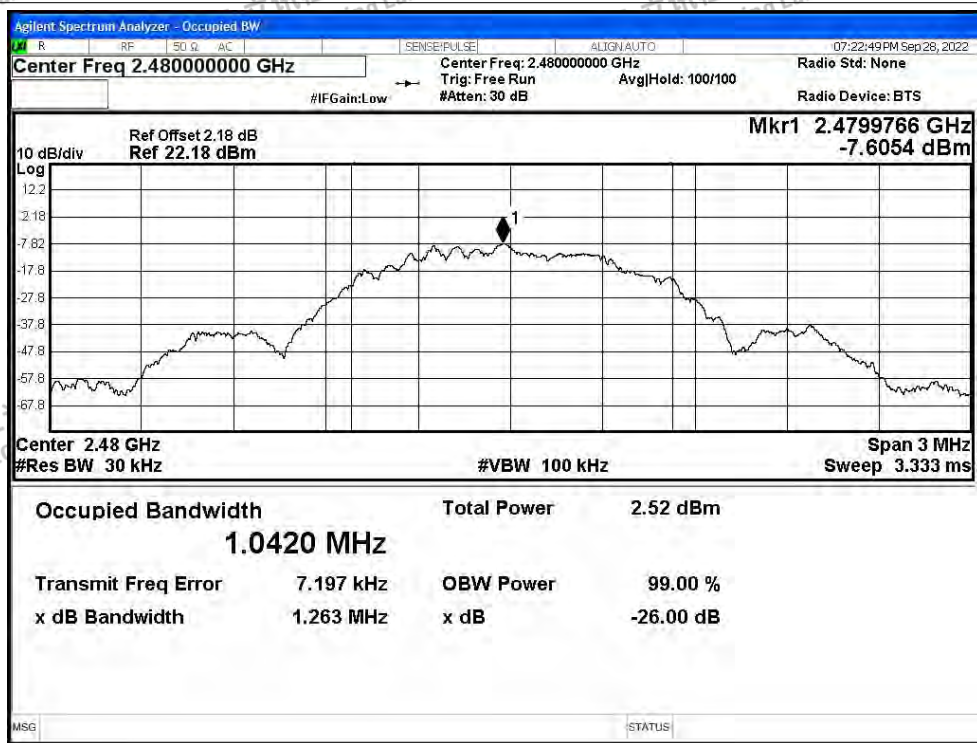


OBW NVNT BLE 1M 2440MHz Ant1



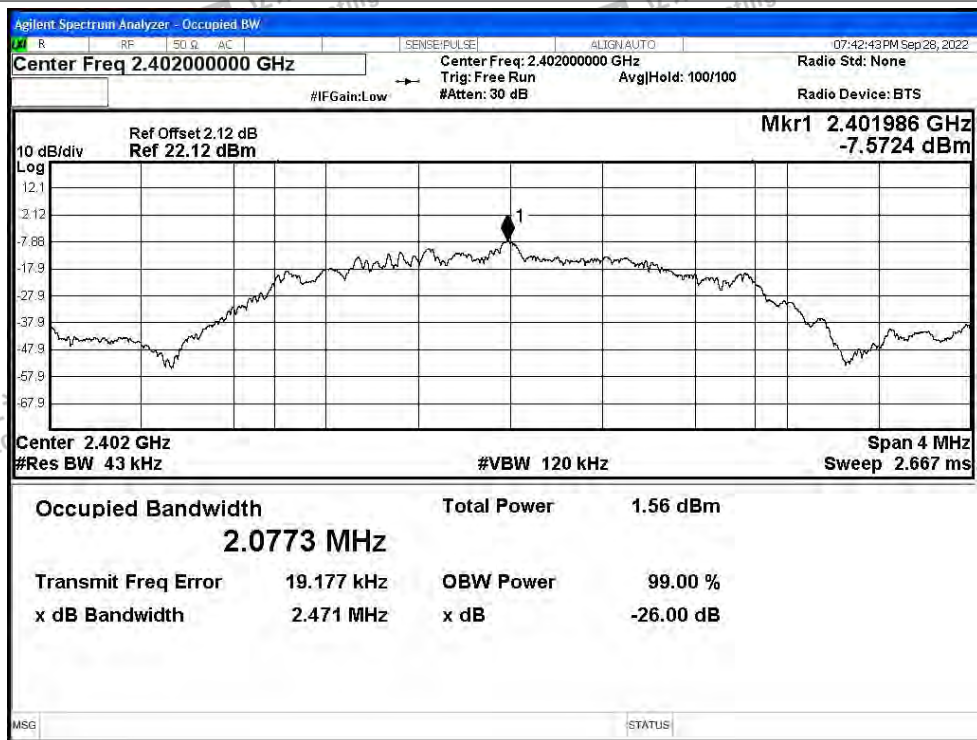


OBW NVNT BLE 1M 2480MHz Ant1



Test Graphs

OBW NVNT BLE 2M 2402MHz Ant1



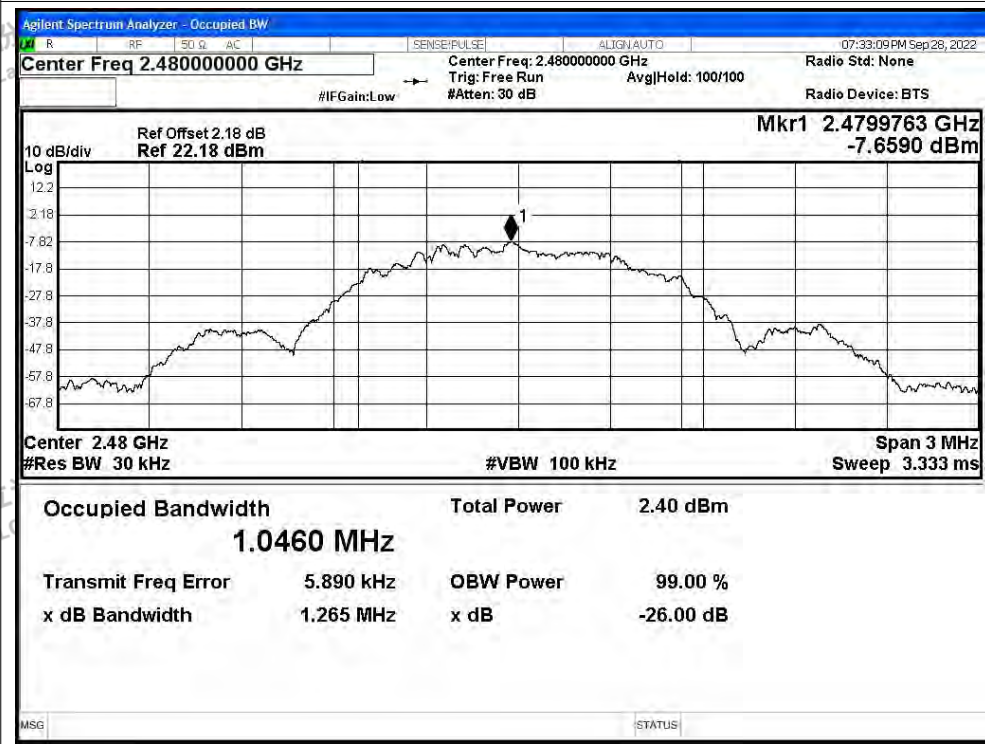
OBW NVNT BLE 2M 2440MHz Ant1







OBW NVNT BLE 2M 2480MHz Ant1





### B.3 Maximum Conducted Output Power

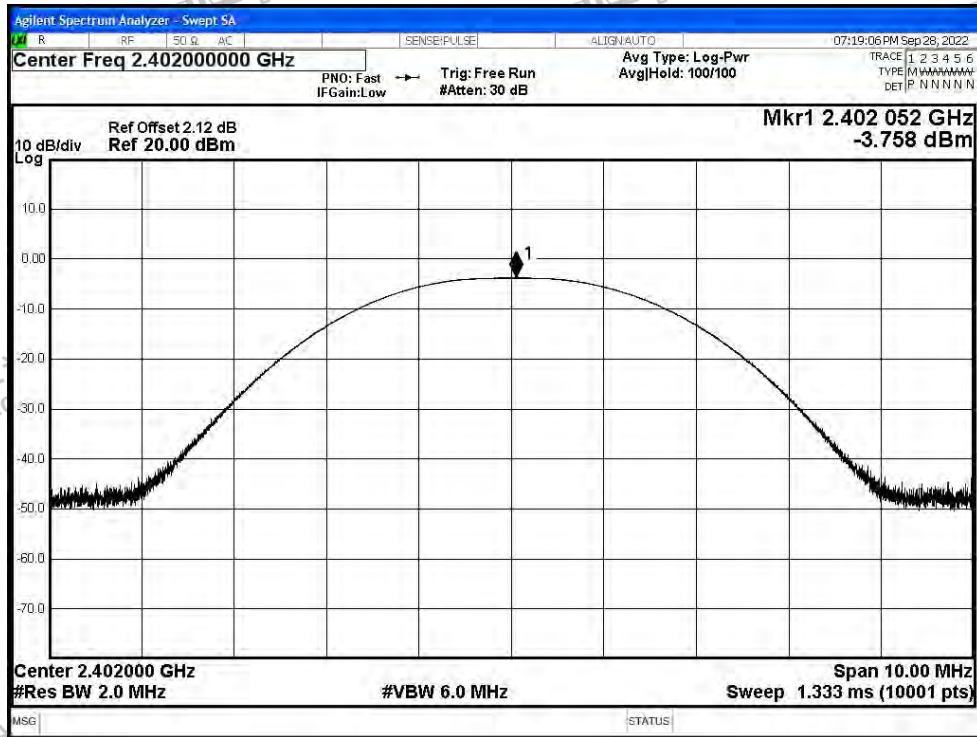
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-3.76	0	-3.76	30	Pass
NVNT	BLE 1M	2440	Ant1	-2.32	0	-2.32	30	Pass
NVNT	BLE 1M	2480	Ant1	-3.37	0	-3.37	30	Pass
NVNT	BLE 2M	2402	Ant1	-3.83	0	-3.83	30	Pass
NVNT	BLE 2M	2440	Ant1	-2.4	0	-2.4	30	Pass
NVNT	BLE 2M	2480	Ant1	-3.39	0	-3.39	30	Pass



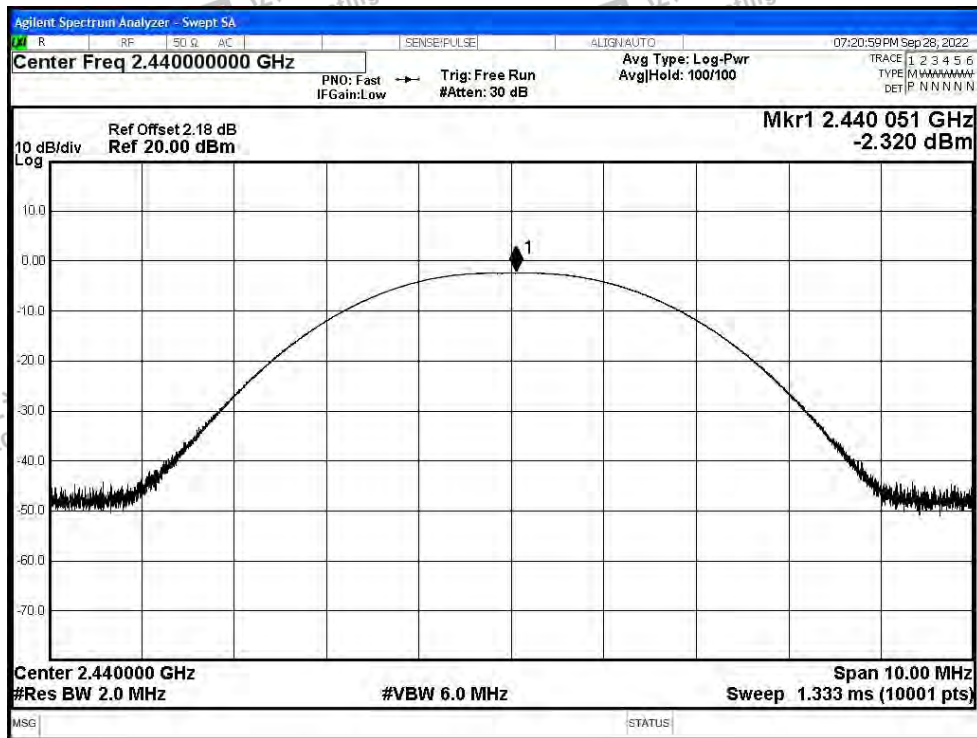


Test Graphs

Power NVNT BLE 1M 2402MHz Ant1

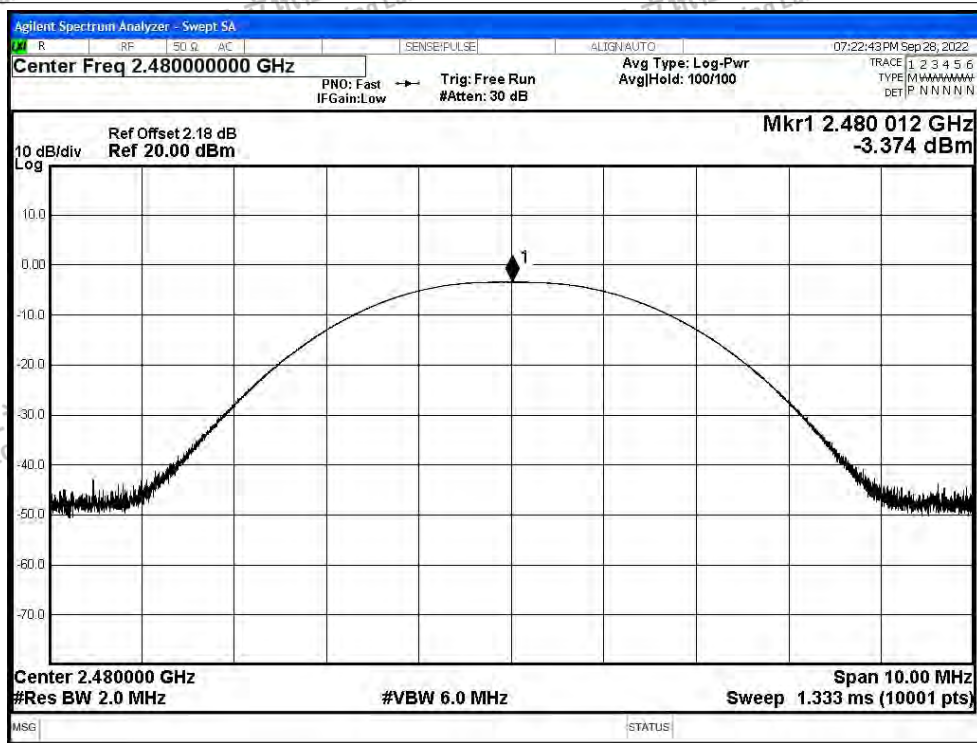


Power NVNT BLE 1M 2440MHz Ant1



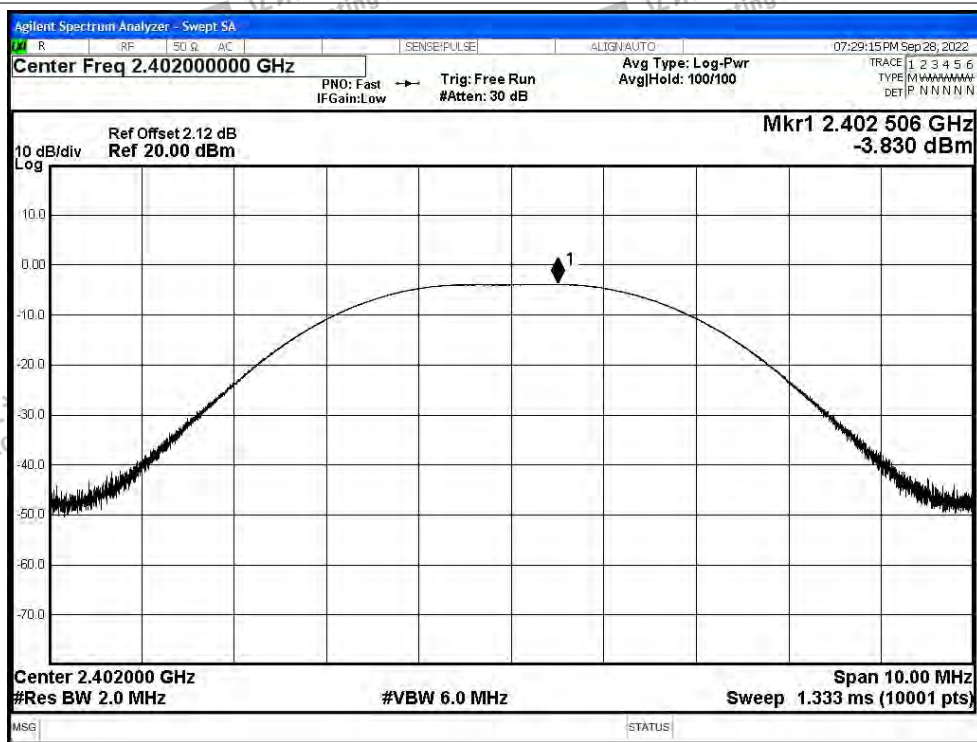


Power NVNT BLE 1M 2480MHz Ant1



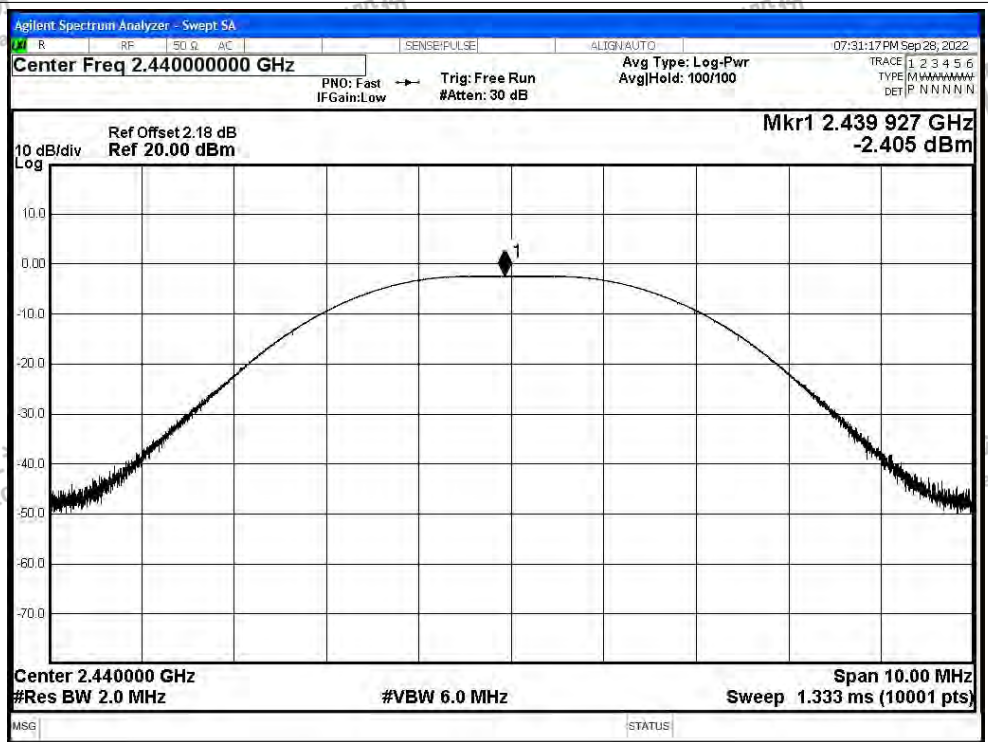
Test Graphs

Power NVNT BLE 2M 2402MHz Ant1

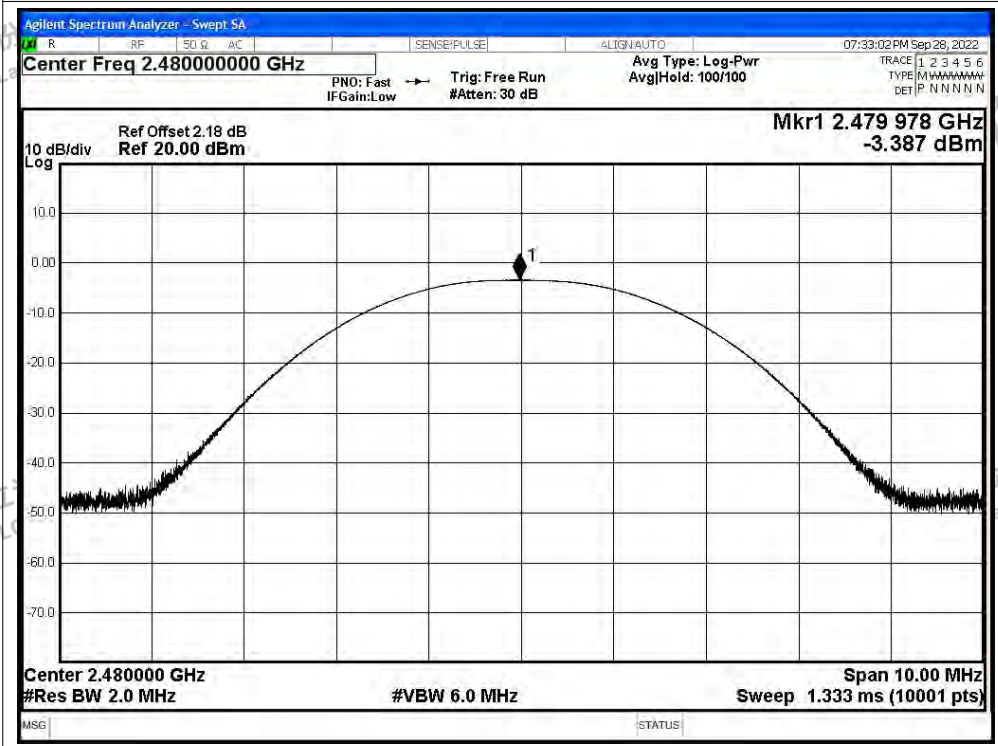


Power NVNT BLE 2M 2440MHz Ant1





Power NVNT BLE 2M 2480MHz Ant1





### B.4 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-18.68	0	-18.68	8	Pass
NVNT	BLE 1M	2440	Ant1	-17.23	0	-17.23	8	Pass
NVNT	BLE 1M	2480	Ant1	-18.3	0	-18.3	8	Pass
NVNT	BLE 2M	2402	Ant1	-21.31	0	-21.31	8	Pass
NVNT	BLE 2M	2440	Ant1	-19.83	0	-19.83	8	Pass
NVNT	BLE 2M	2480	Ant1	-18.33	0	-18.33	8	Pass

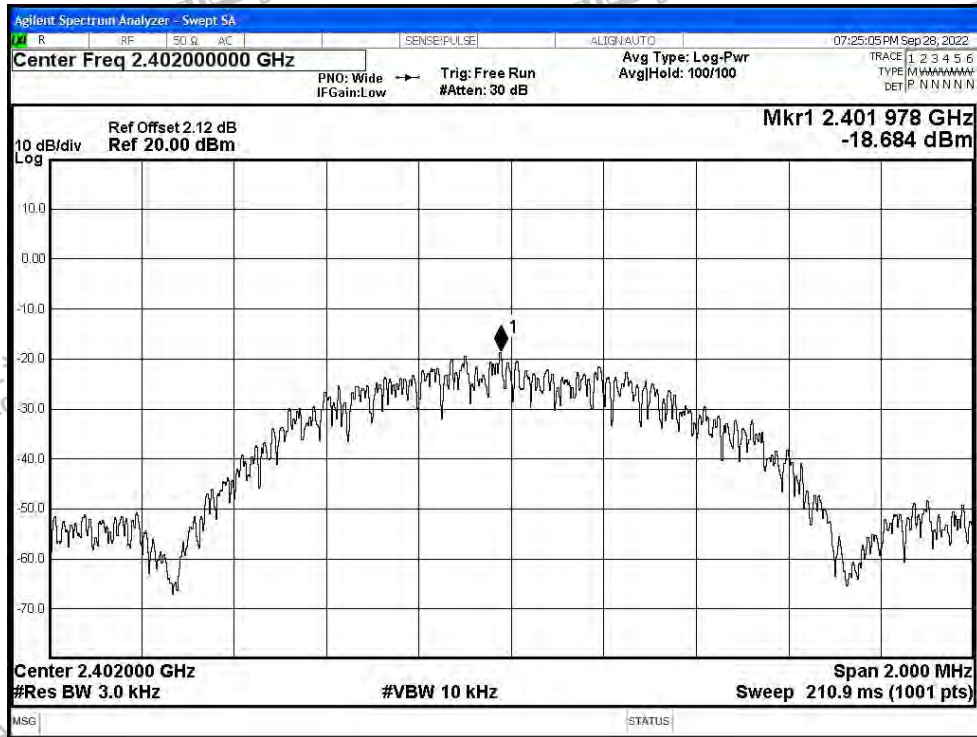


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 Scan code to check authenticity

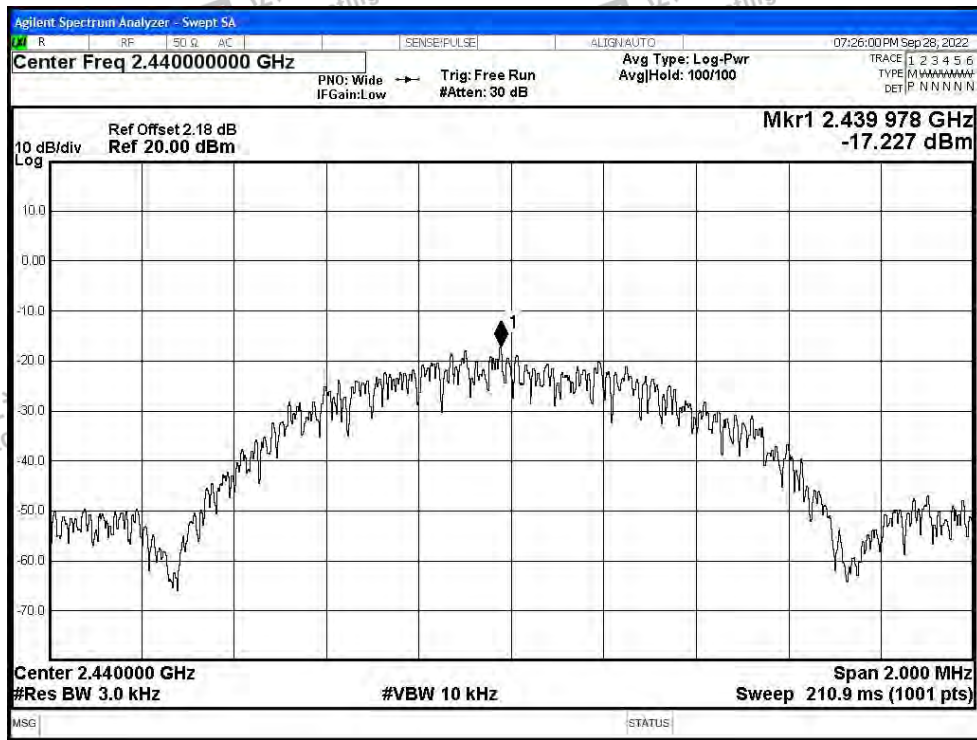


Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1

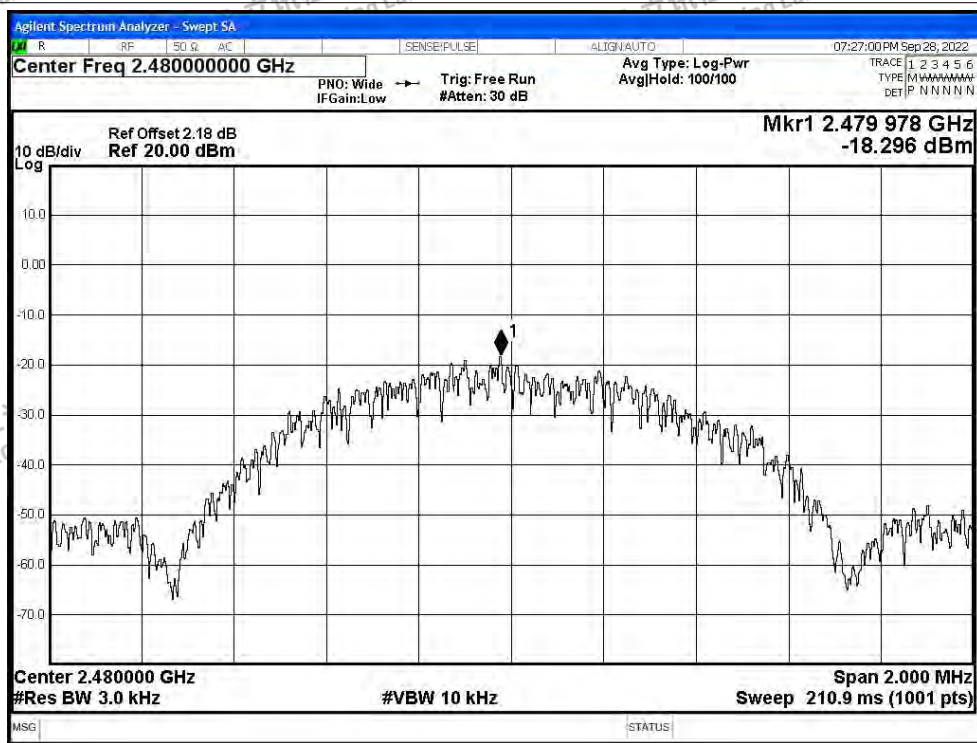


PSD NVNT BLE 1M 2440MHz Ant1



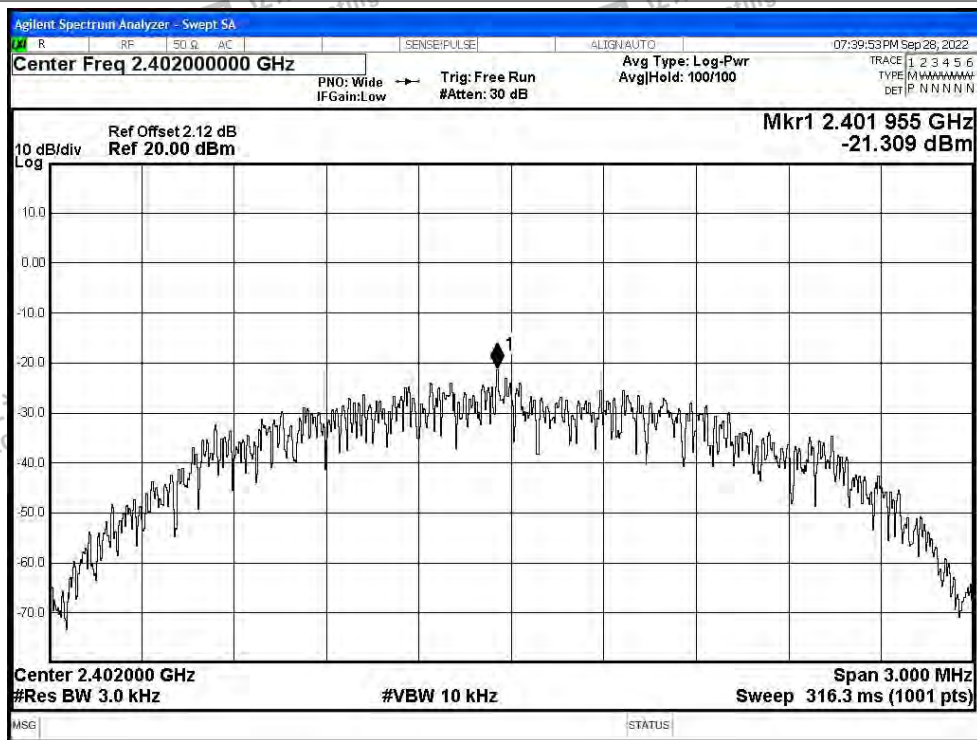


PSD NVNT BLE 1M 2480MHz Ant1



Test Graphs

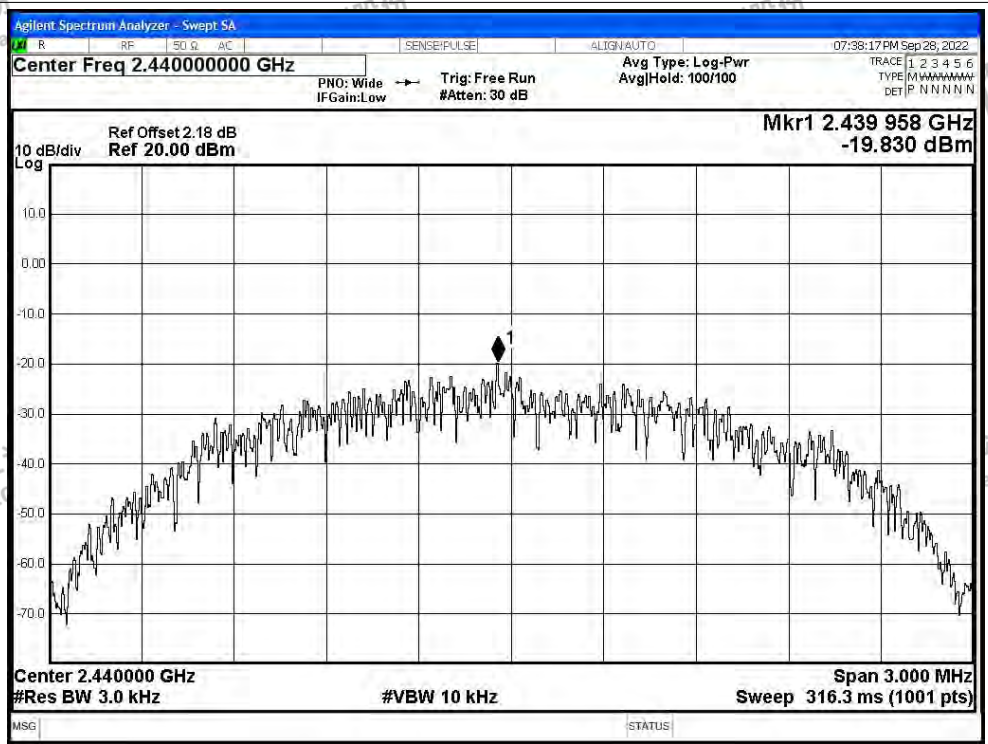
PSD NVNT BLE 2M 2402MHz Ant1



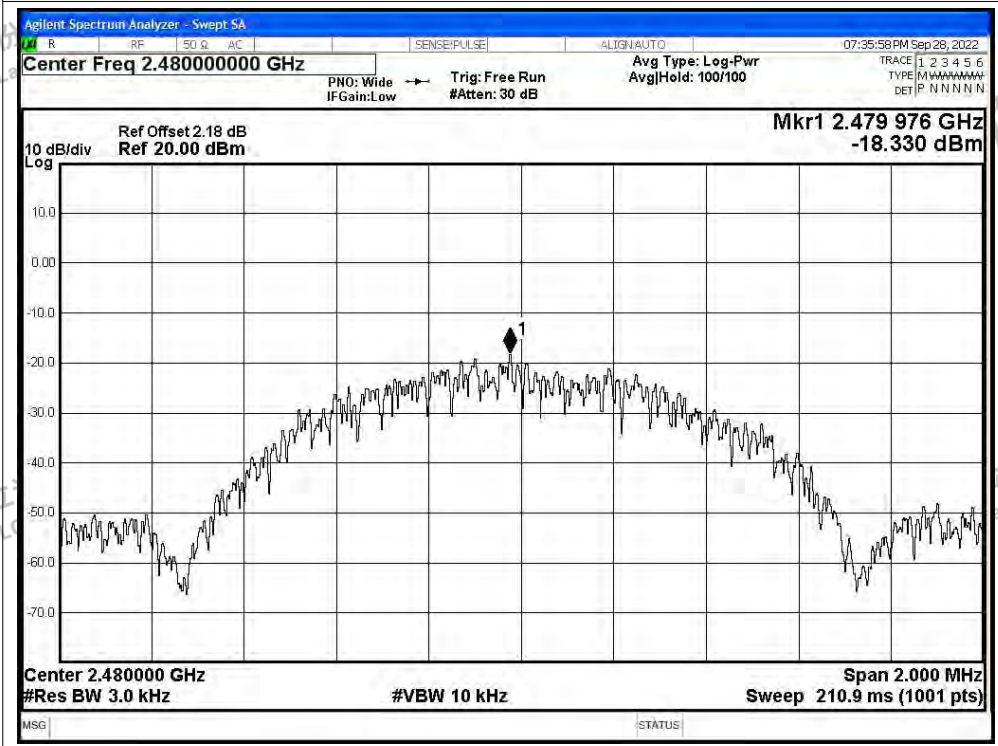
PSD NVNT BLE 2M 2440MHz Ant1







PSD NVNT BLE 2M 2480MHz Ant1





### B.5 Band Edge

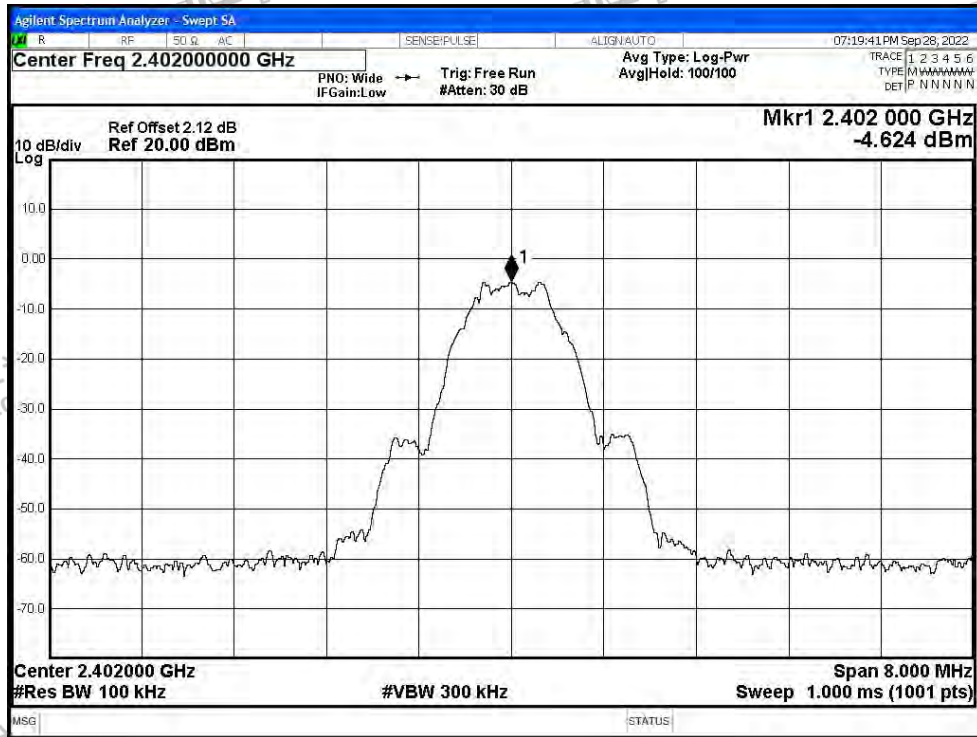
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-52.8	-20	Pass
NVNT	BLE 1M	2480	Ant1	-52.75	-20	Pass
NVNT	BLE 2M	2402	Ant1	-32.31	-20	Pass
NVNT	BLE 2M	2480	Ant1	-52.99	-20	Pass



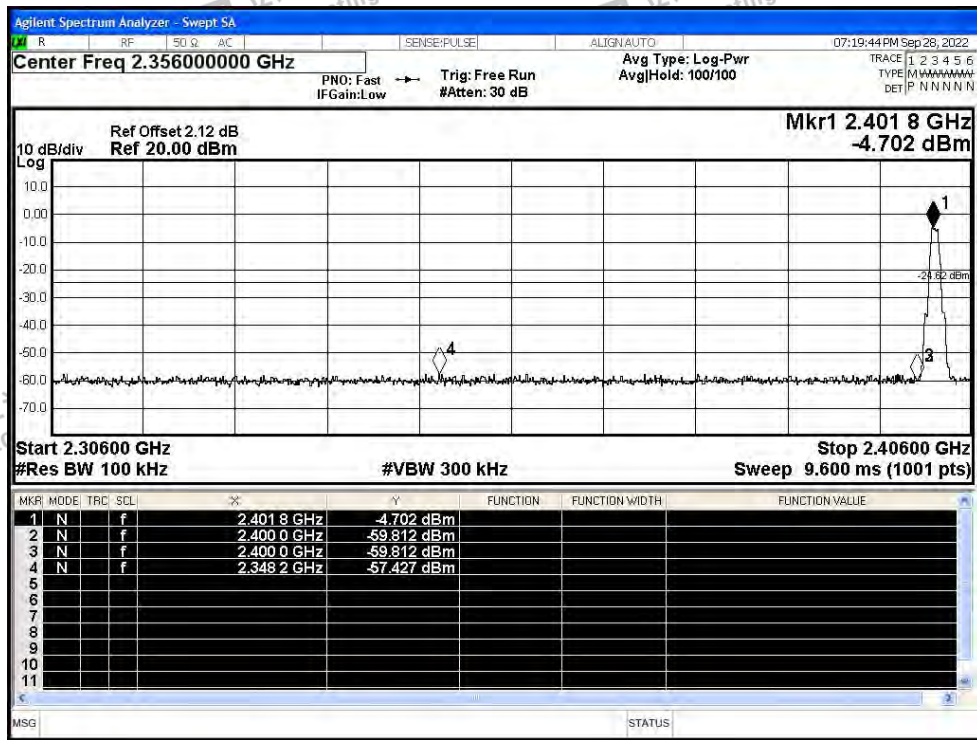


Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref

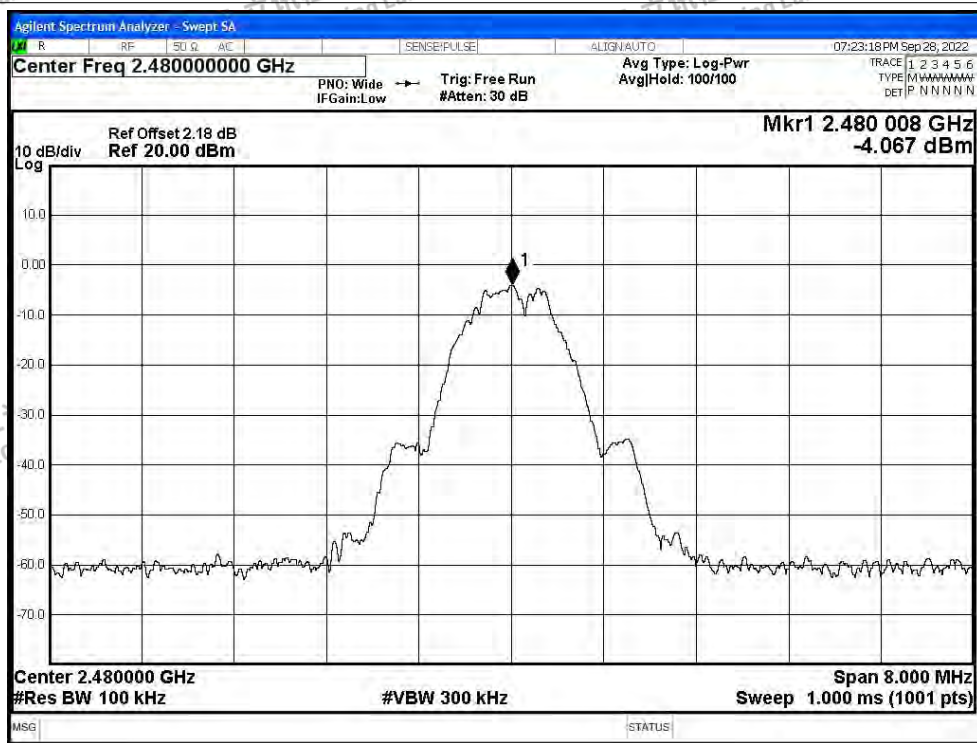


Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

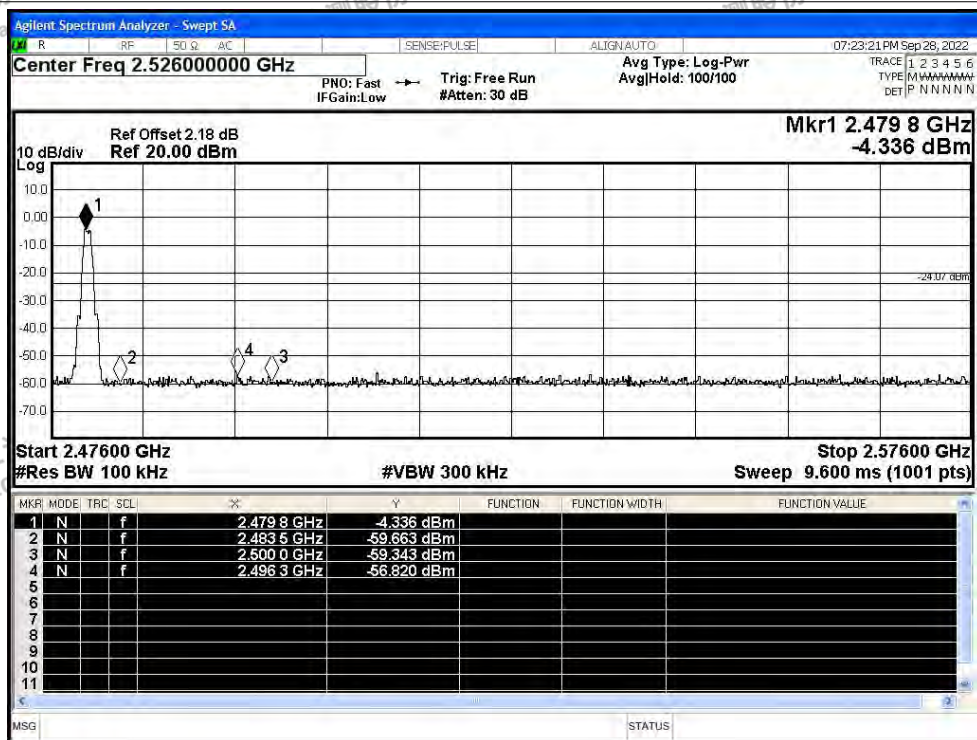




Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



Test Graphs

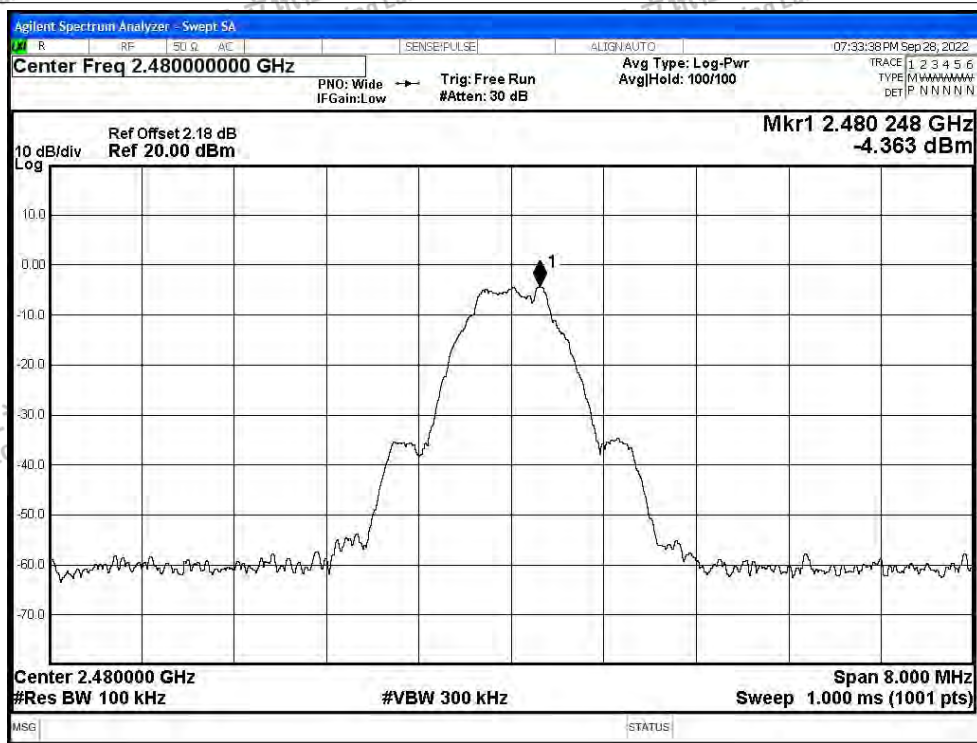
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



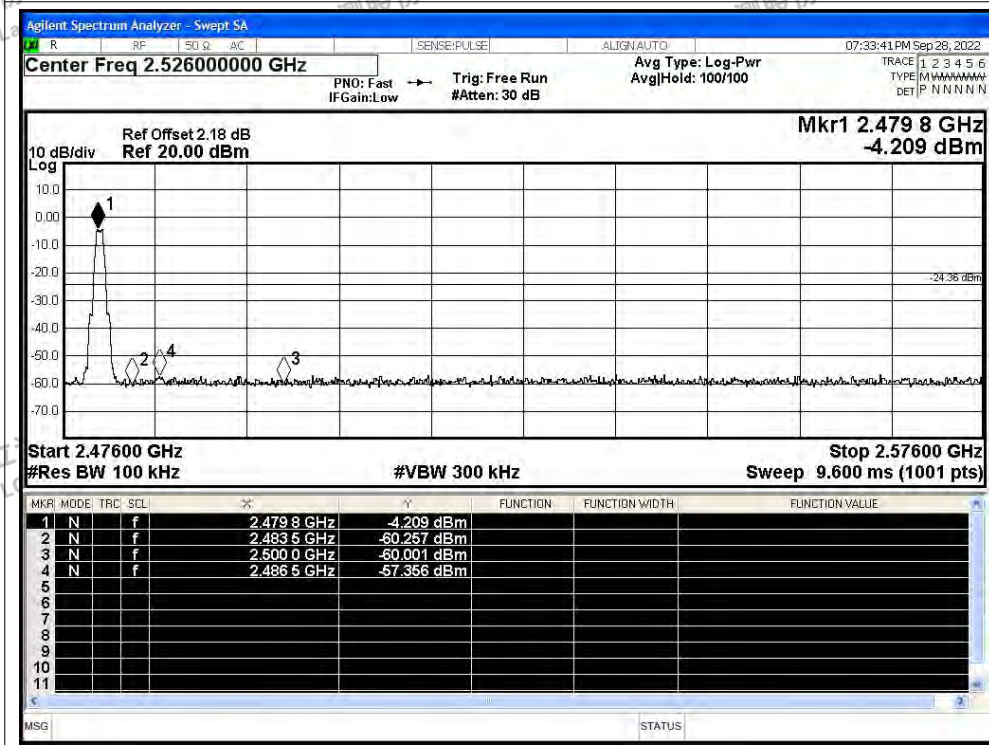




Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



Band Edge NVNT BLE 2M 2480MHz Ant1 Emission





### B.6 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-51.09	-20	Pass
NVNT	BLE 1M	2440	Ant1	-51.91	-20	Pass
NVNT	BLE 1M	2480	Ant1	-51.28	-20	Pass
NVNT	BLE 2M	2402	Ant1	-51.35	-20	Pass
NVNT	BLE 2M	2440	Ant1	-52.21	-20	Pass
NVNT	BLE 2M	2480	Ant1	-51.21	-20	Pass



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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity

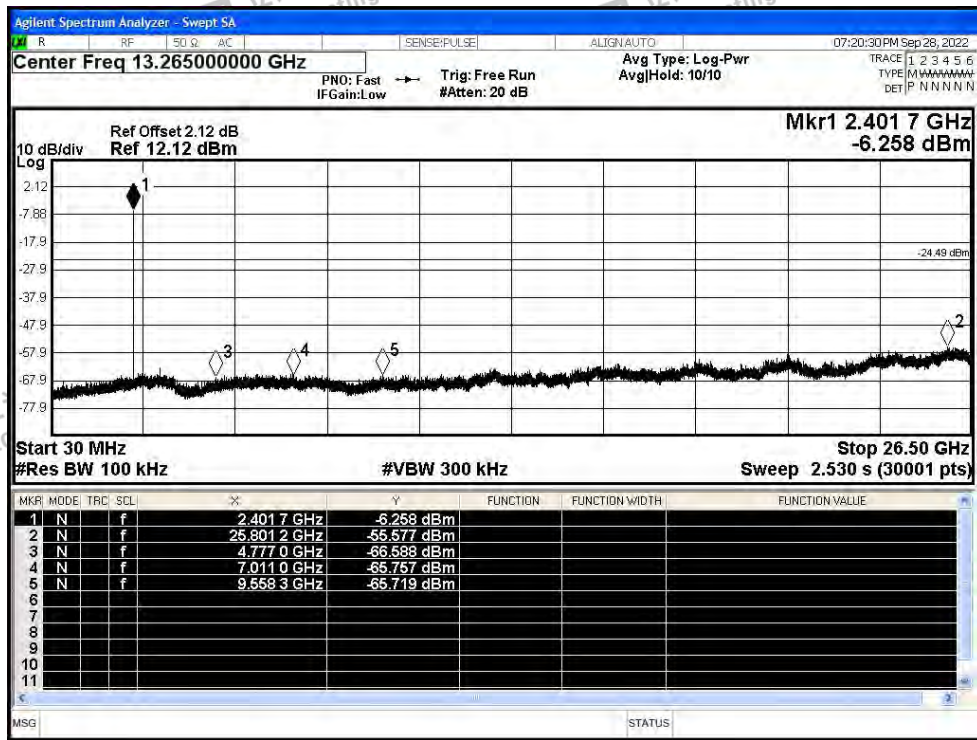


Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



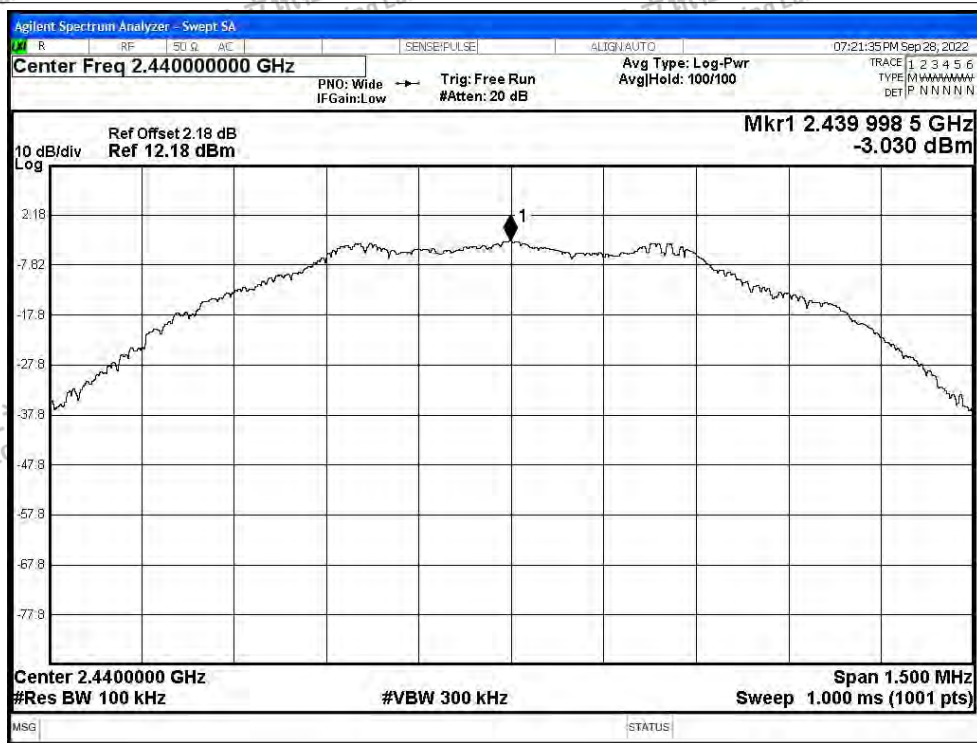
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



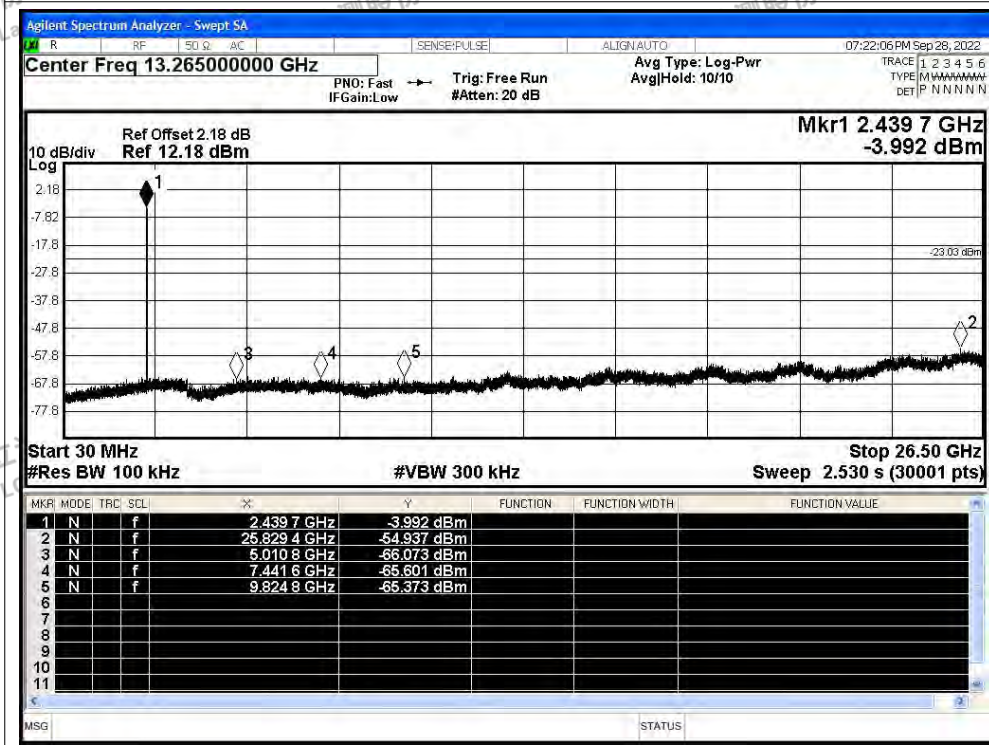




Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

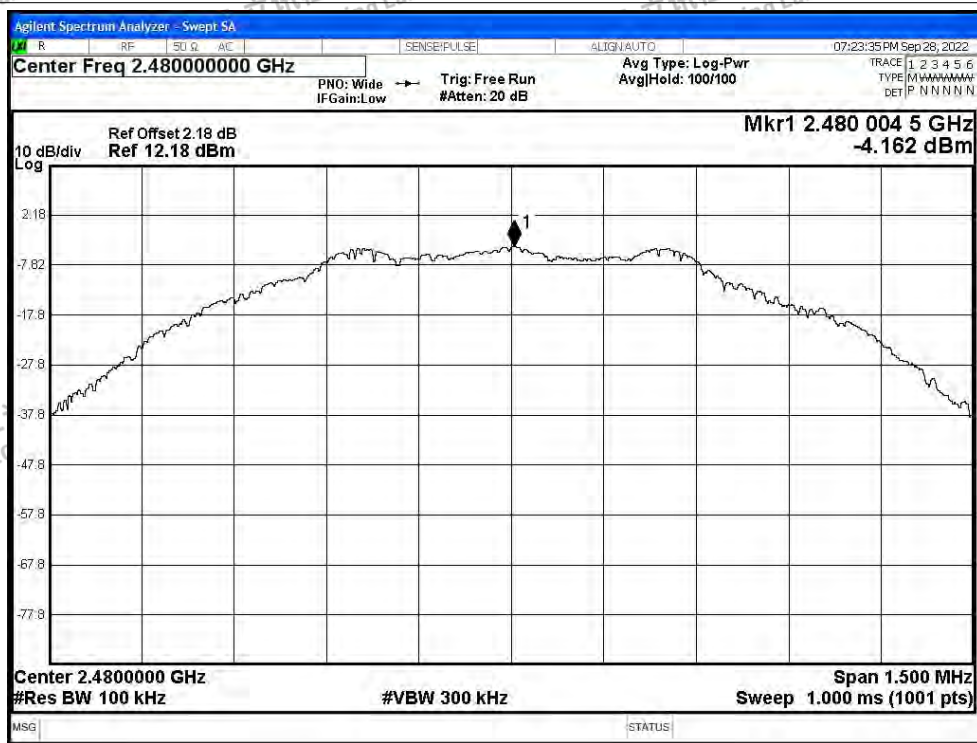


Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission

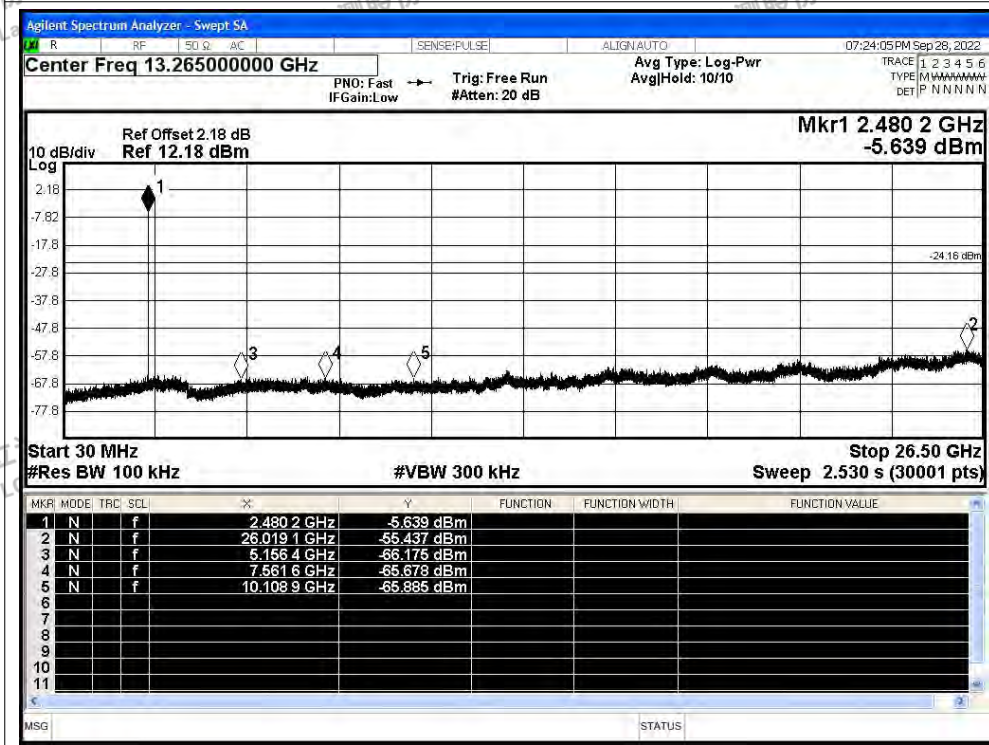




Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



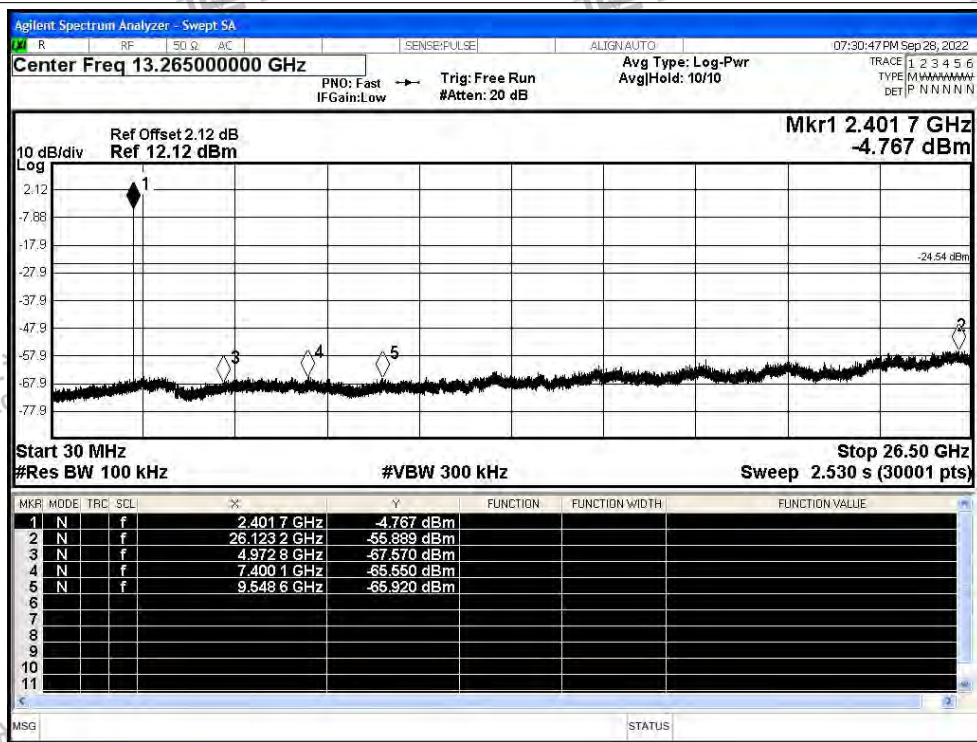


Test Graphs

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission

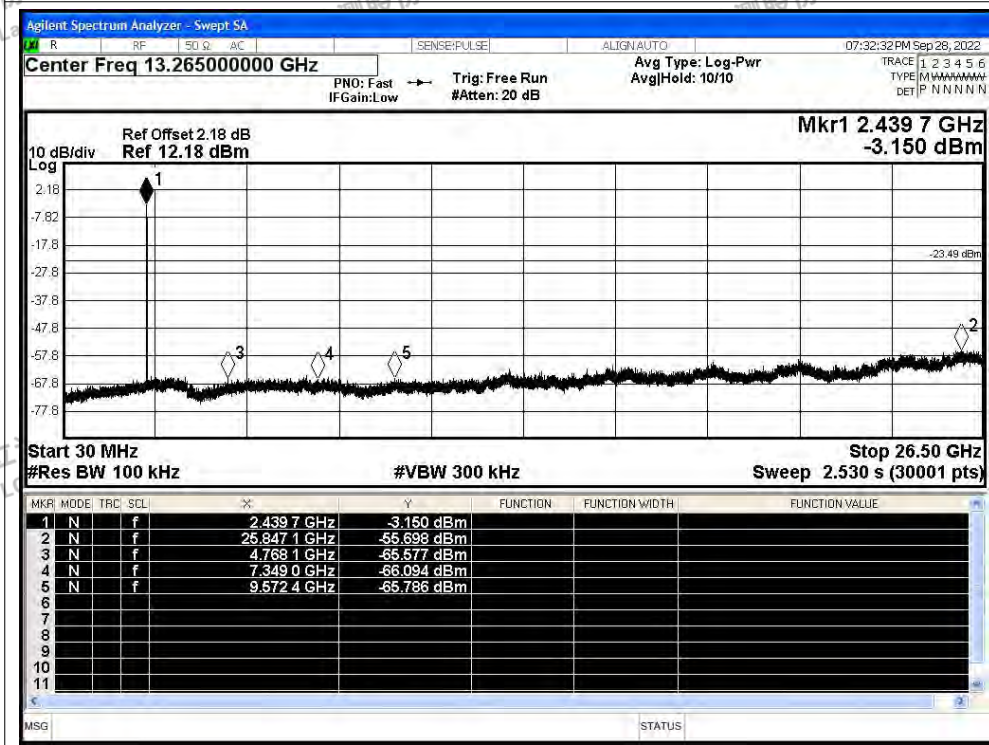




Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref

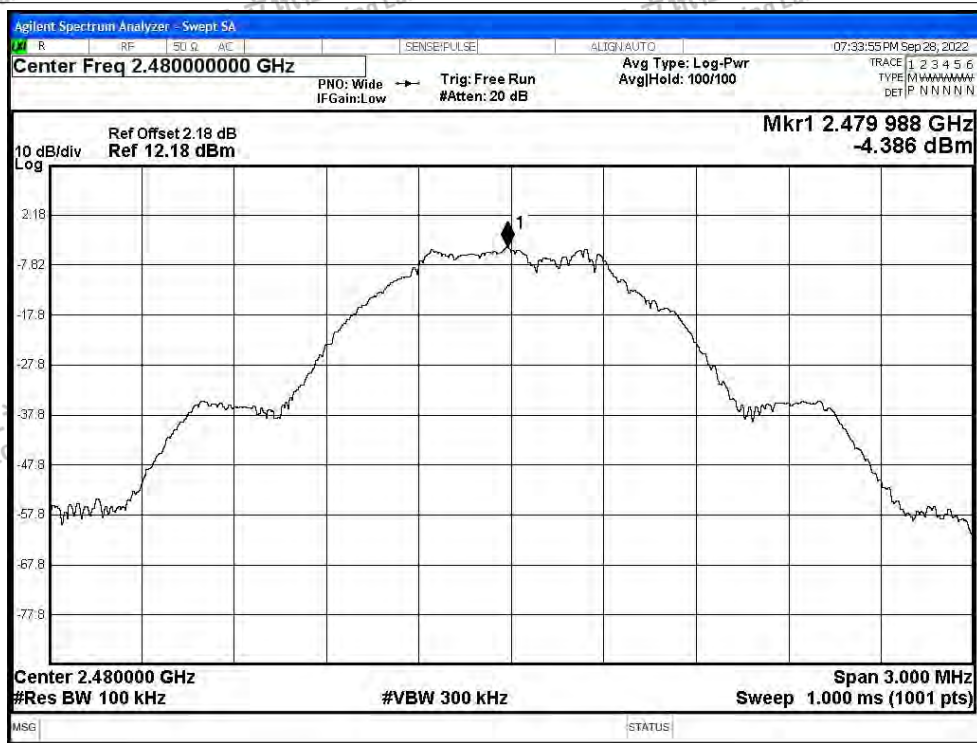


Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission

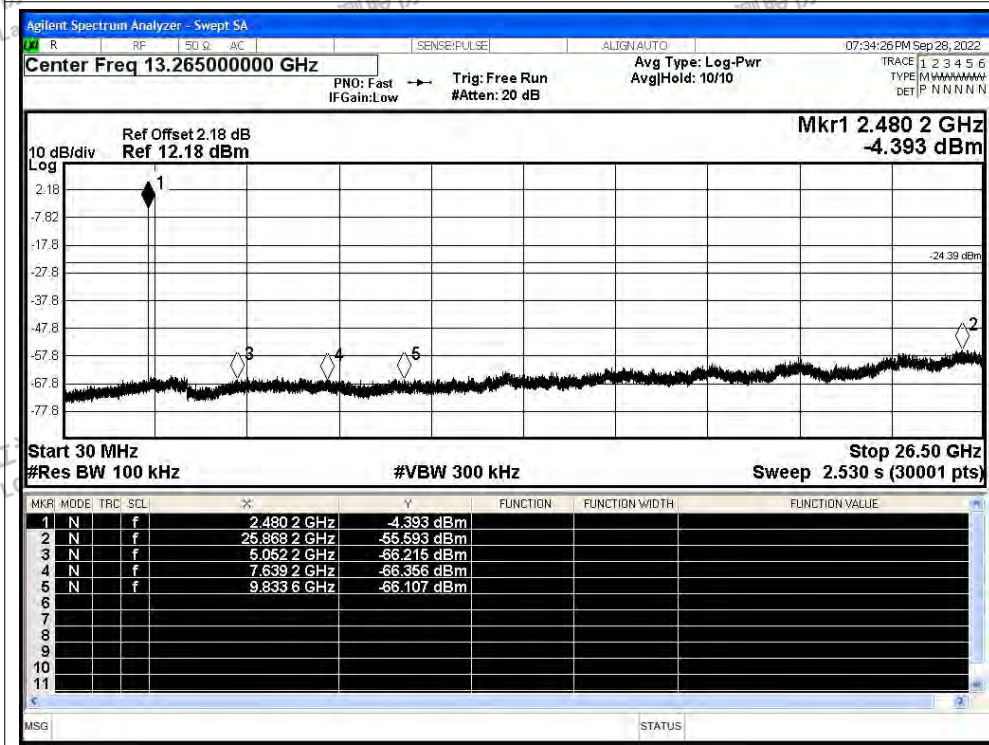




Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission





### B.7 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	61.36	2.12	2.61
NVNT	BLE 1M	2440	Ant1	61.36	2.12	2.61
NVNT	BLE 1M	2480	Ant1	61.36	2.12	2.61
NVNT	BLE 2M	2402	Ant1	31.92	4.96	5.01
NVNT	BLE 2M	2440	Ant1	31.92	4.96	5.01
NVNT	BLE 2M	2480	Ant1	61.36	2.12	2.61

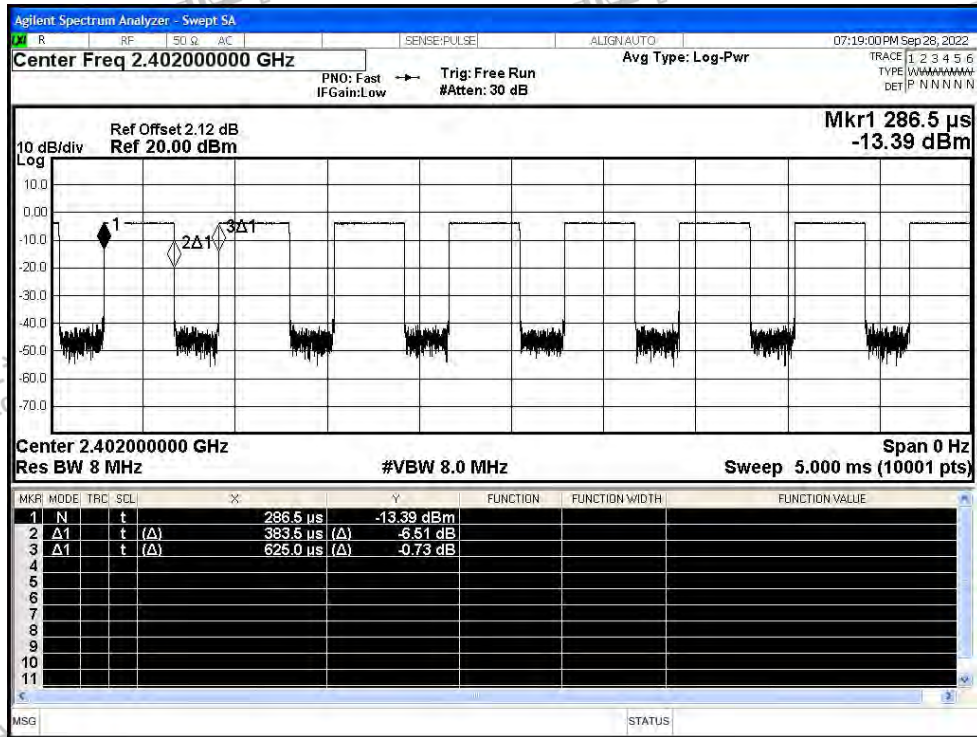


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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity

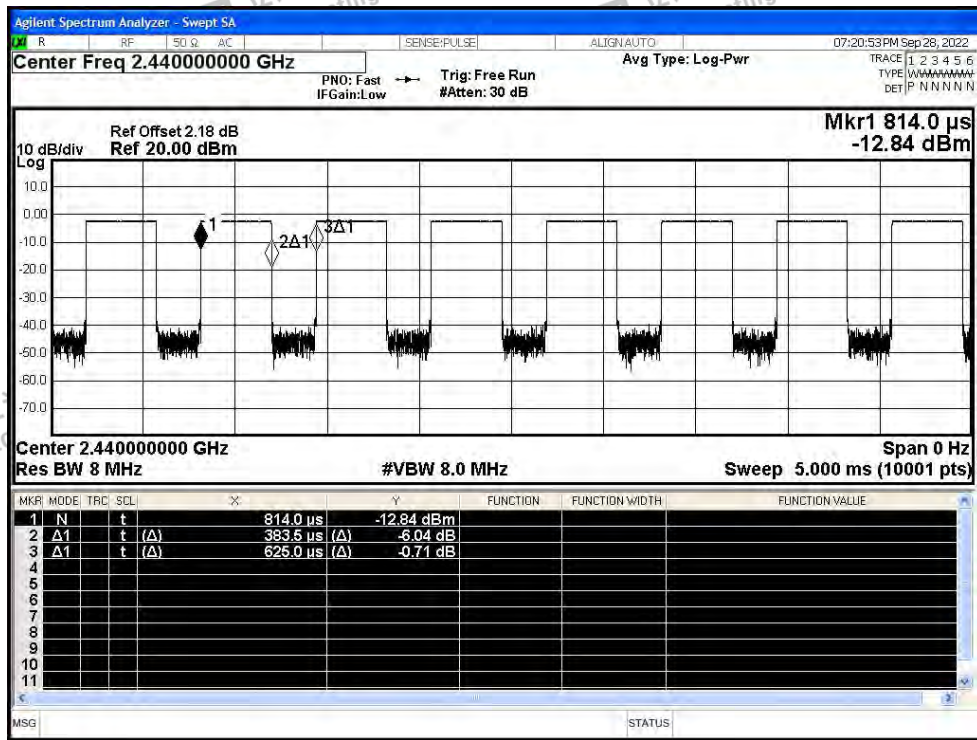


Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant1

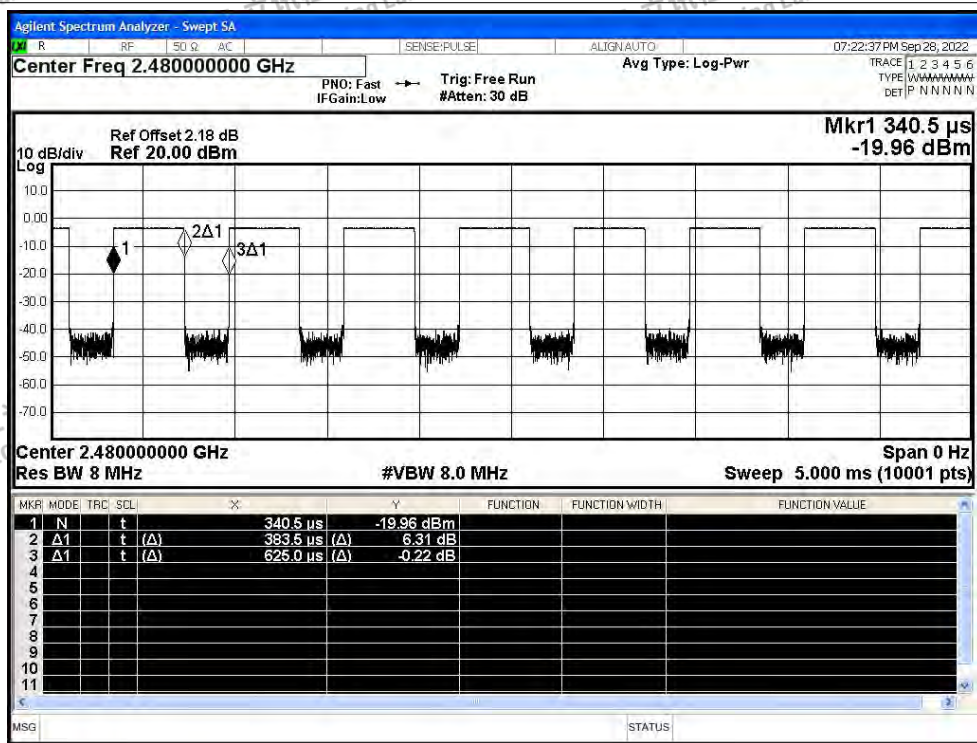


Duty Cycle NVNT BLE 1M 2440MHz Ant1



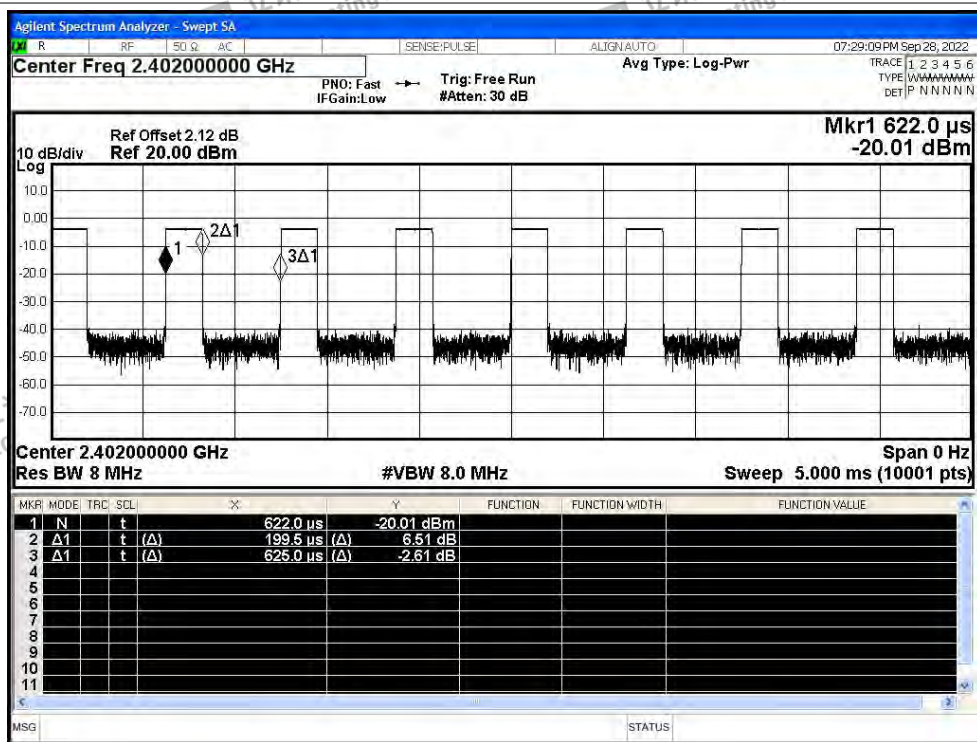


Duty Cycle NVNT BLE 1M 2480MHz Ant1



Test Graphs

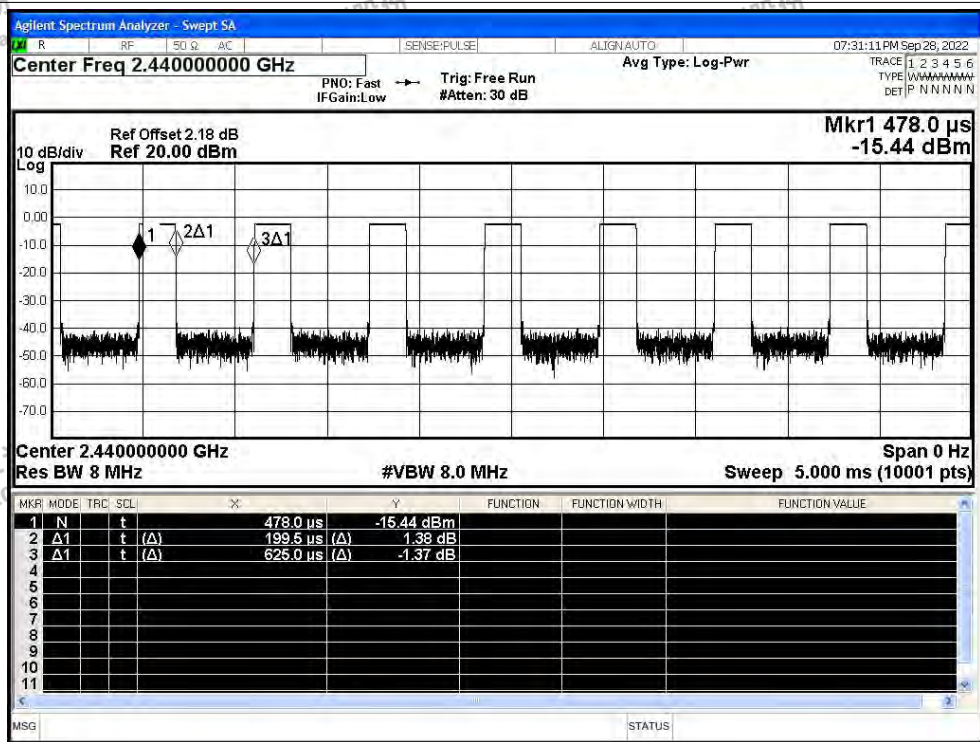
Duty Cycle NVNT BLE 2M 2402MHz Ant1



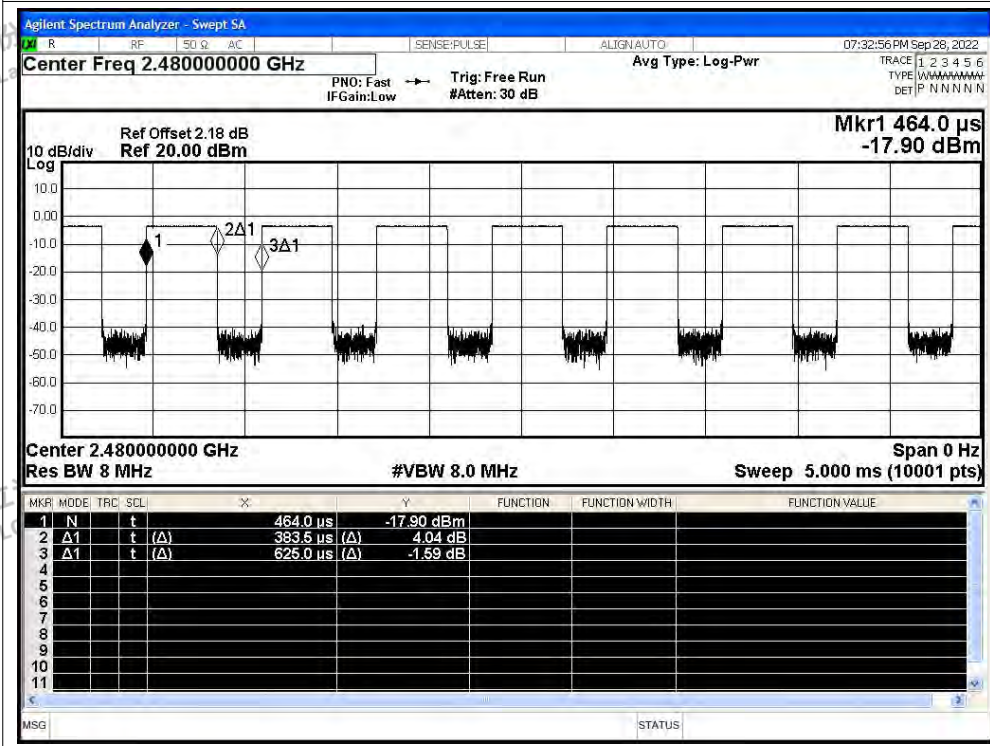
Duty Cycle NVNT BLE 2M 2440MHz Ant1







Duty Cycle NVNT BLE 2M 2480MHz Ant1





### B.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 1M	2402	Ant1	2310	-49.8	2.65	48.08	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2310	-59.64	2.65	38.24	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2343.984	-47.76	2.65	50.12	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2389.584	-58.63	2.65	39.25	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2390	-50.21	2.65	47.67	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2390	-59.38	2.65	38.50	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-51.19	2.65	46.69	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-58.99	2.65	38.89	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2488.456	-46.16	2.65	51.72	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2492.368	-58.31	2.65	39.57	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2500	-50.43	2.65	47.45	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2500	-58.88	2.65	39.00	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2310	-50.29	2.65	47.59	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2310	-59.55	2.65	38.33	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2375.472	-47.39	2.65	50.49	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2389.872	-58.27	2.65	39.61	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2390	-49.87	2.65	48.01	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2390	-58.28	2.65	39.60	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-51.08	2.65	46.80	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-59.22	2.65	38.66	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2492.008	-47.33	2.65	50.55	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2499.184	-58.6	2.65	39.28	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2500	-51.73	2.65	46.15	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2500	-59.11	2.65	38.77	Average	54	Pass

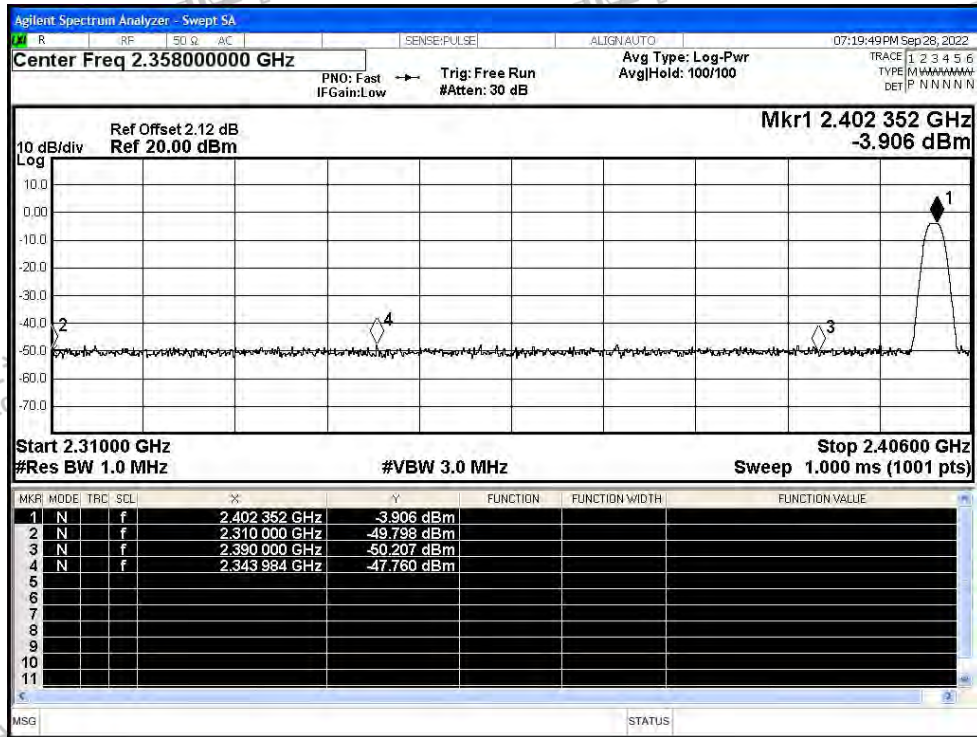


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 Scan code to check authenticity

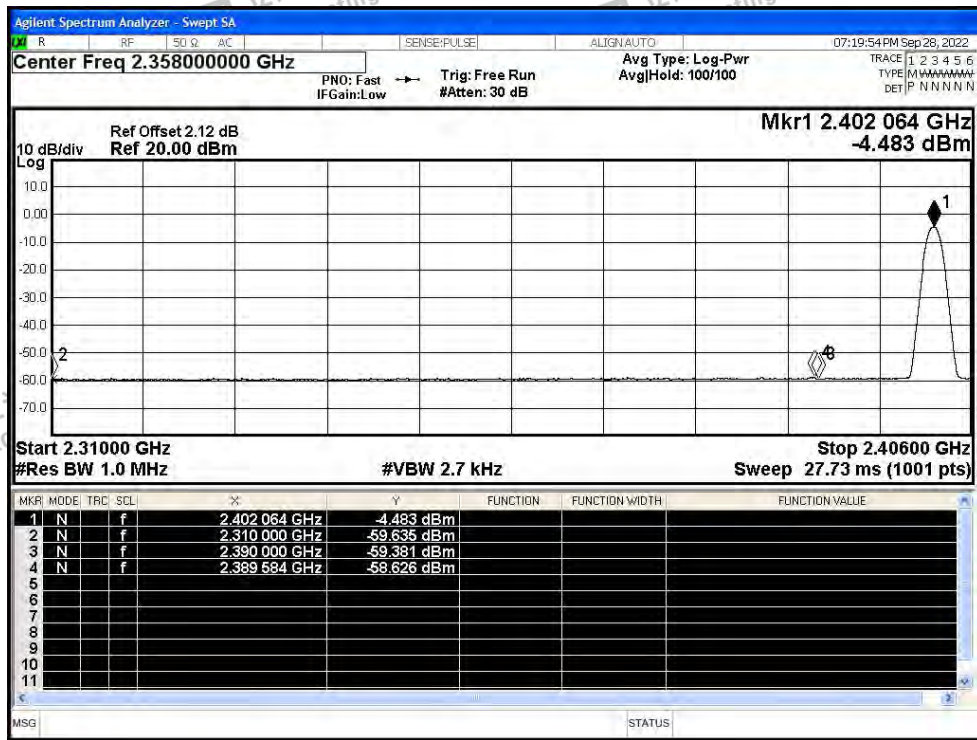


Test Graphs

Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak

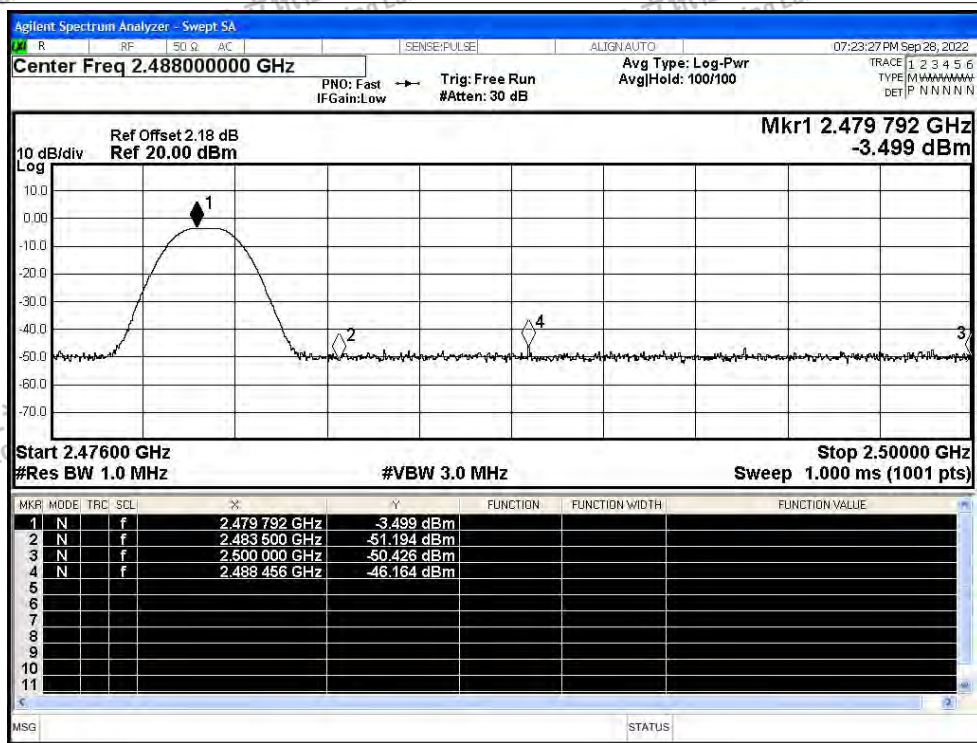


Restrict Band NVNT BLE 1M 2402MHz Ant1 Average

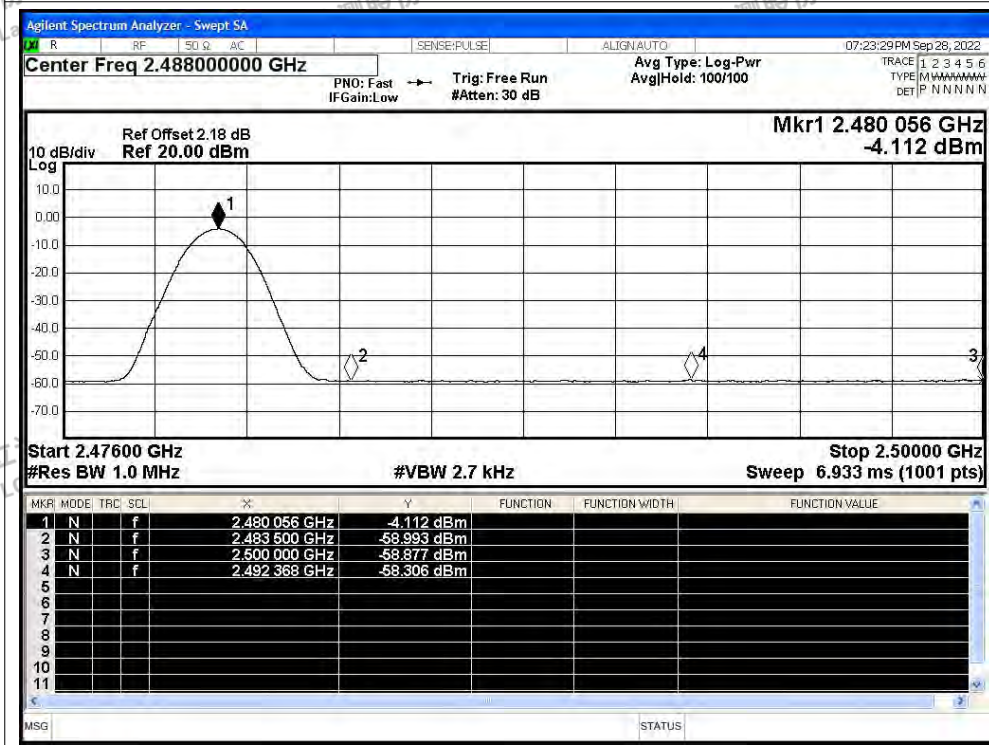




Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



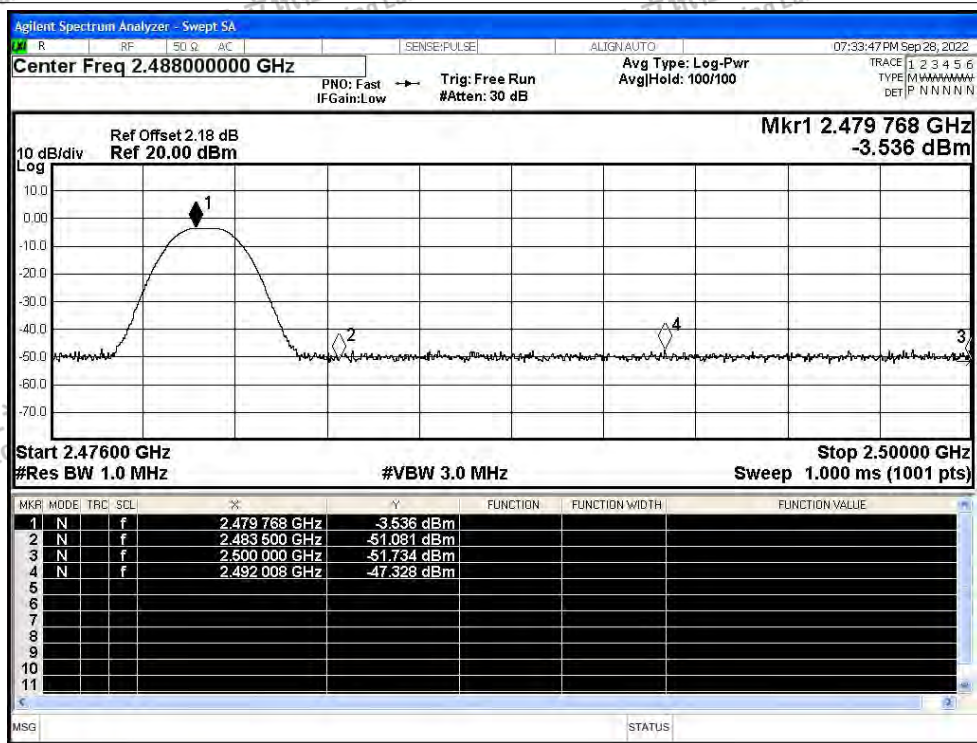
Restrict Band NVNT BLE 1M 2480MHz Ant1 Average







Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2480MHz Ant1 Average

