Appendix: Bluetooth LE

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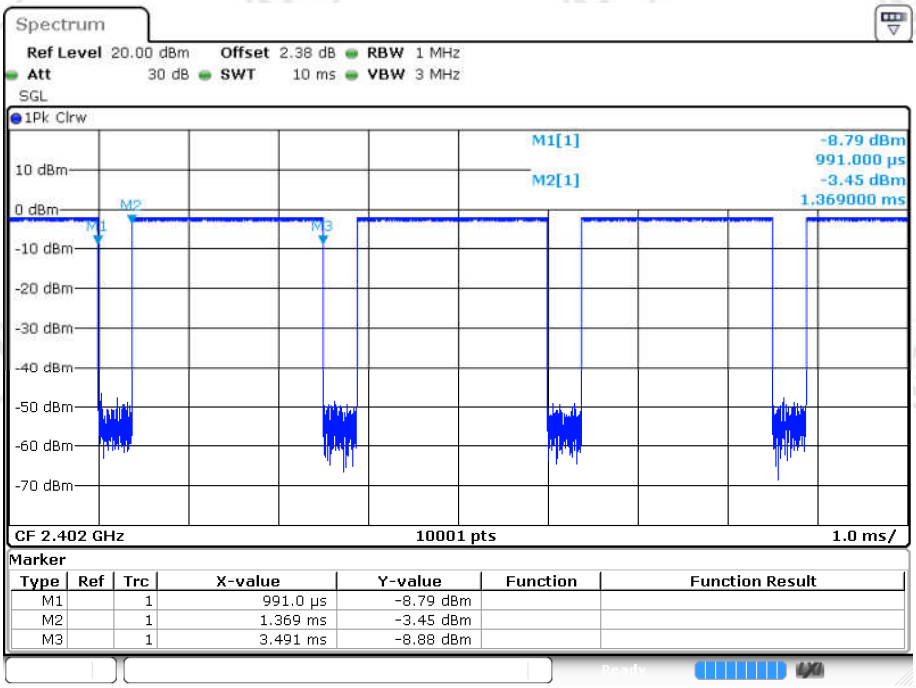
Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	84.88	0.71	0.47
NVNT	BLE 1M	2440	Ant1	84.88	0.71	0.47
NVNT	BLE 1M	2480	Ant1	84.87	0.71	0.47
NVNT	BLE 2M	2402	Ant1	56.8	2.46	0.94
NVNT	BLE 2M	2440	Ant1	56.8	2.46	0.94
NVNT	BLE 2M	2480	Ant1	56.8	2.46	0.94

Note:Duty Cycle Correction Factor (dB)=-10*lg(Duty Cycle);

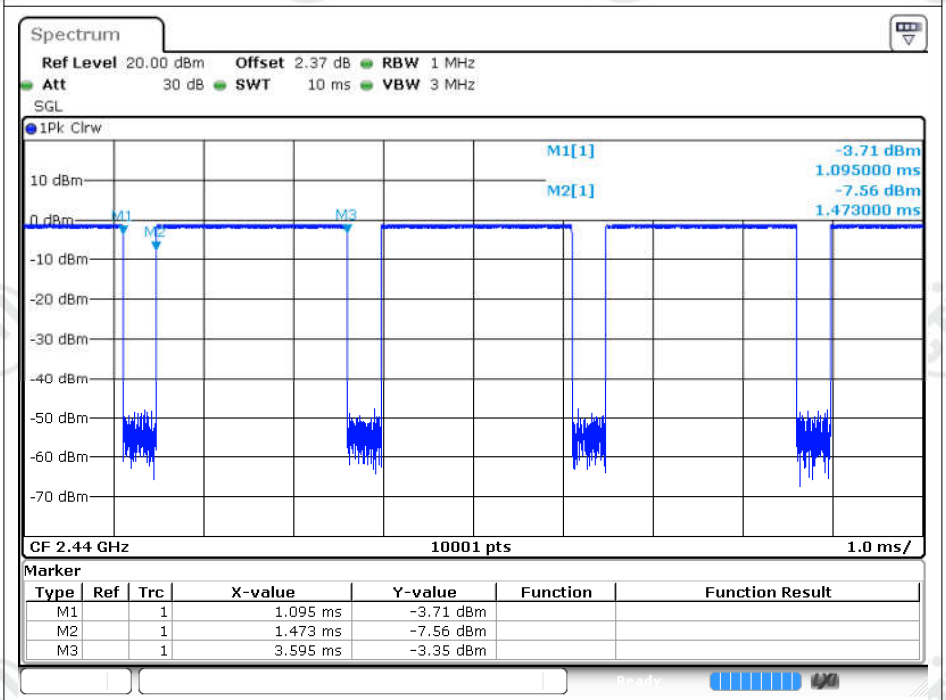
Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant1



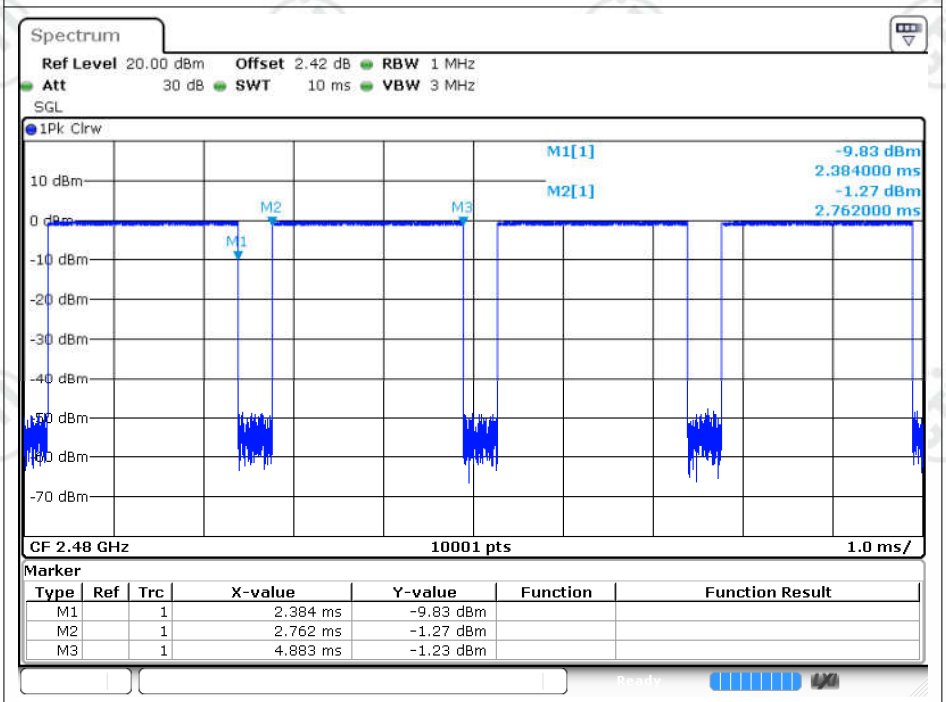
Date: 7.DEC.2024 13:31:21

Duty Cycle NVNT BLE 1M 2440MHz Ant1



Date: 7.DEC.2024 13:29:19

Duty Cycle NVNT BLE 1M 2480MHz Ant1

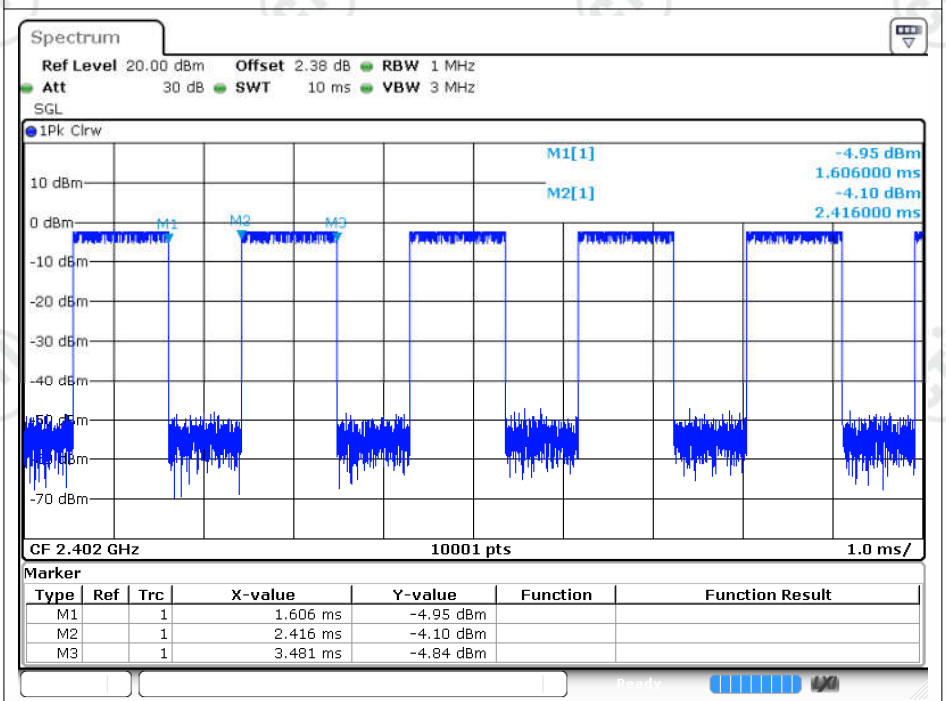


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.384 ms	-9.83 dBm		
M2		1	2.762 ms	-1.27 dBm		
M3		1	4.883 ms	-1.23 dBm		

Date: 7.DEC.2024 13:27:21

Duty Cycle NVNT BLE 2M 2402MHz Ant1

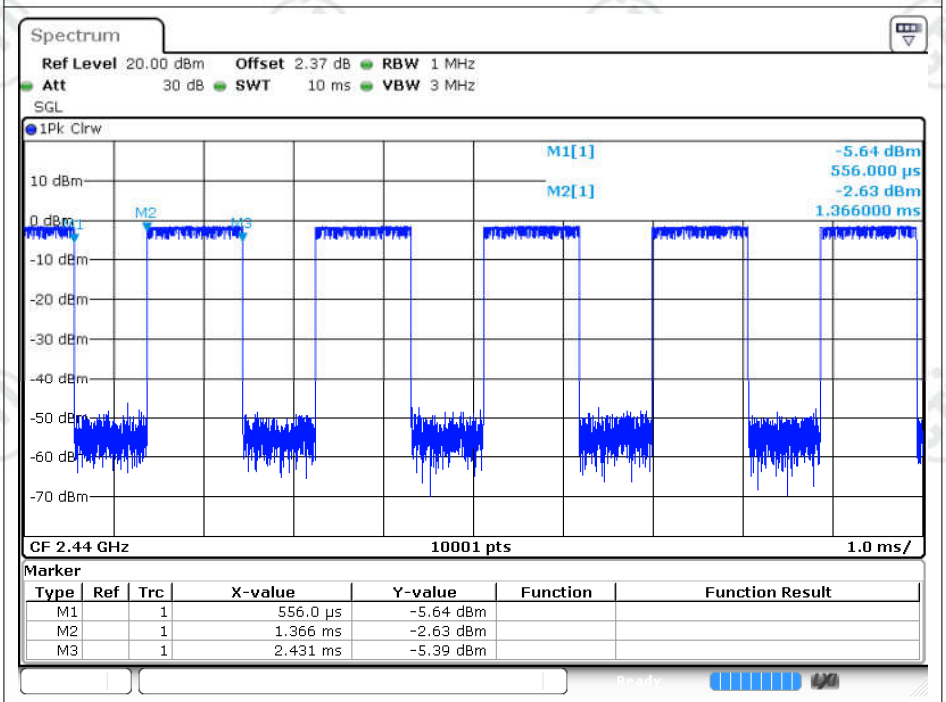


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.606 ms	-4.95 dBm		
M2		1	2.416 ms	-4.10 dBm		
M3		1	3.481 ms	-4.84 dBm		

Date: 7.DEC.2024 13:25:00

Duty Cycle NVNT BLE 2M 2440MHz Ant1

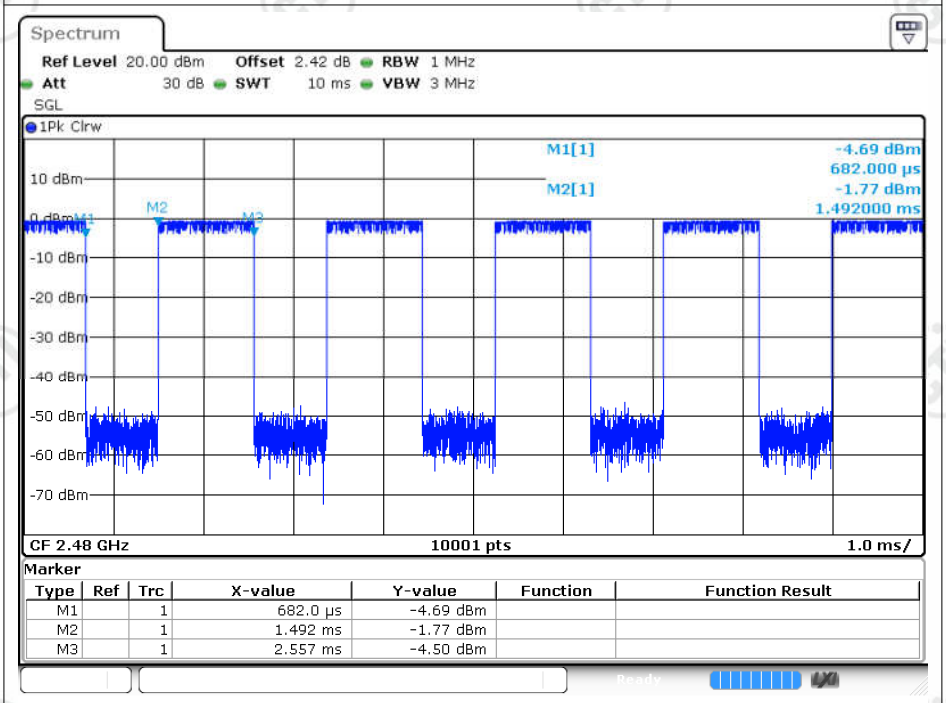


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	556.0 µs	-5.64 dBm		
M2		1	1.366 ms	-2.63 dBm		
M3		1	2.431 ms	-5.39 dBm		

Date: 7.DEC.2024 13:22:53

Duty Cycle NVNT BLE 2M 2480MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	682.0 µs	-4.69 dBm		
M2		1	1.492 ms	-1.77 dBm		
M3		1	2.557 ms	-4.50 dBm		

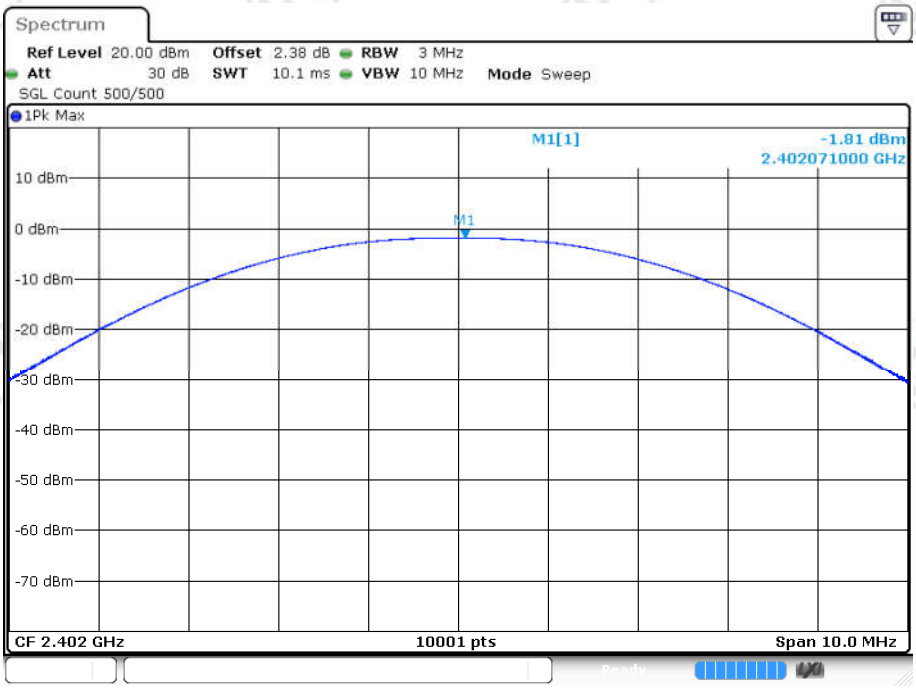
Date: 7.DEC.2024 13:20:37

Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-1.81	30	Pass
NVNT	BLE 1M	2440	Ant1	-1.08	30	Pass
NVNT	BLE 1M	2480	Ant1	**-0.25**	30	Pass
NVNT	BLE 2M	2402	Ant1	-1.93	30	Pass
NVNT	BLE 2M	2440	Ant1	-1.18	30	Pass
NVNT	BLE 2M	2480	Ant1	-0.32	30	Pass

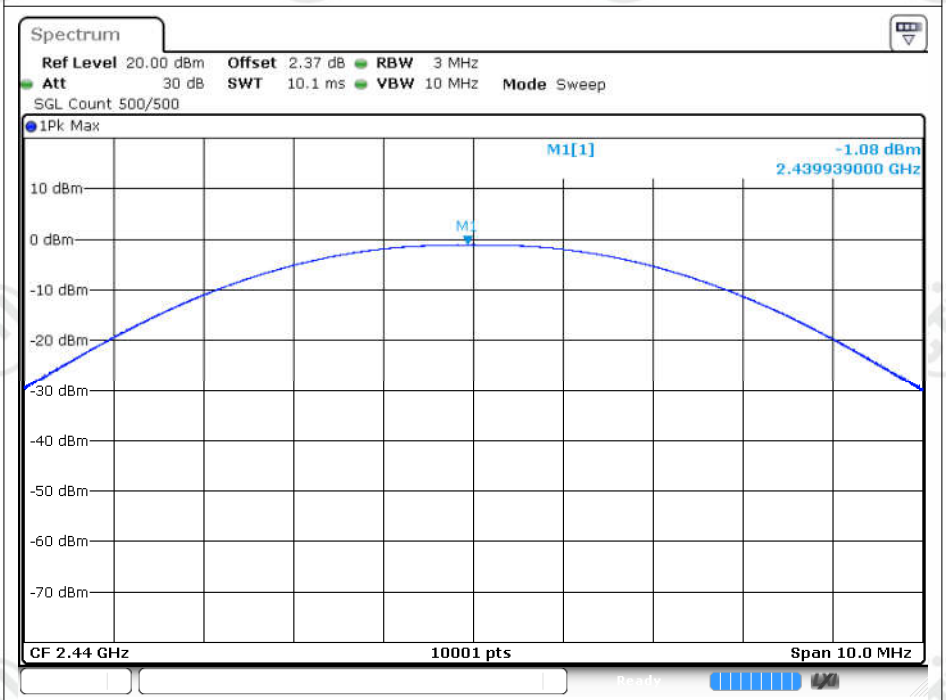
Test Graphs

Peak Power NVNT BLE 1M 2402MHz Ant1



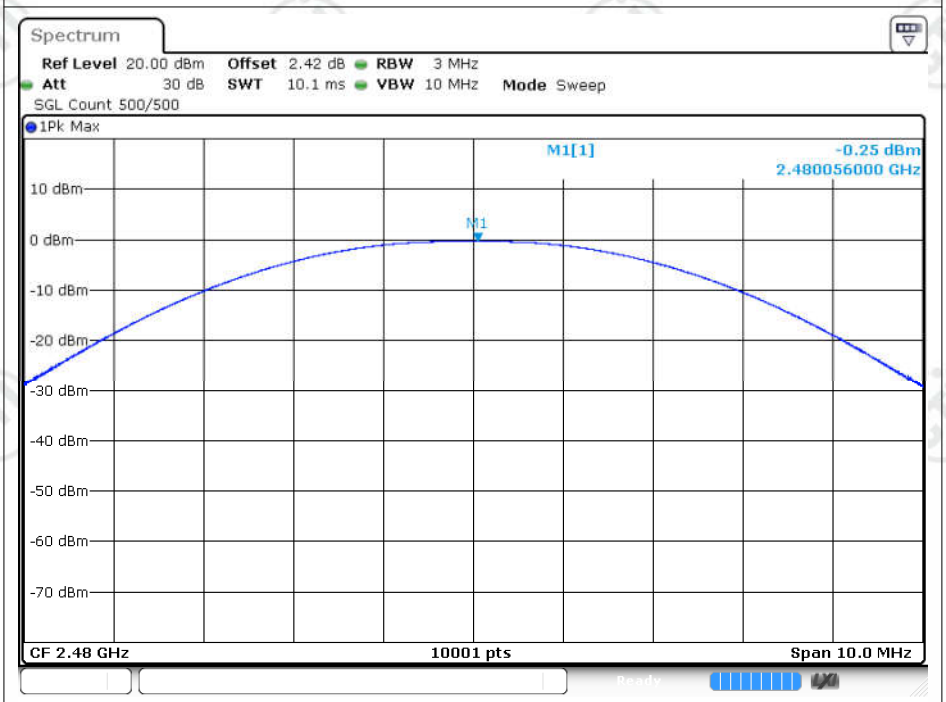
Date: 7.DEC.2024 13:31:33

Peak Power NVNT BLE 1M 2440MHz Ant1



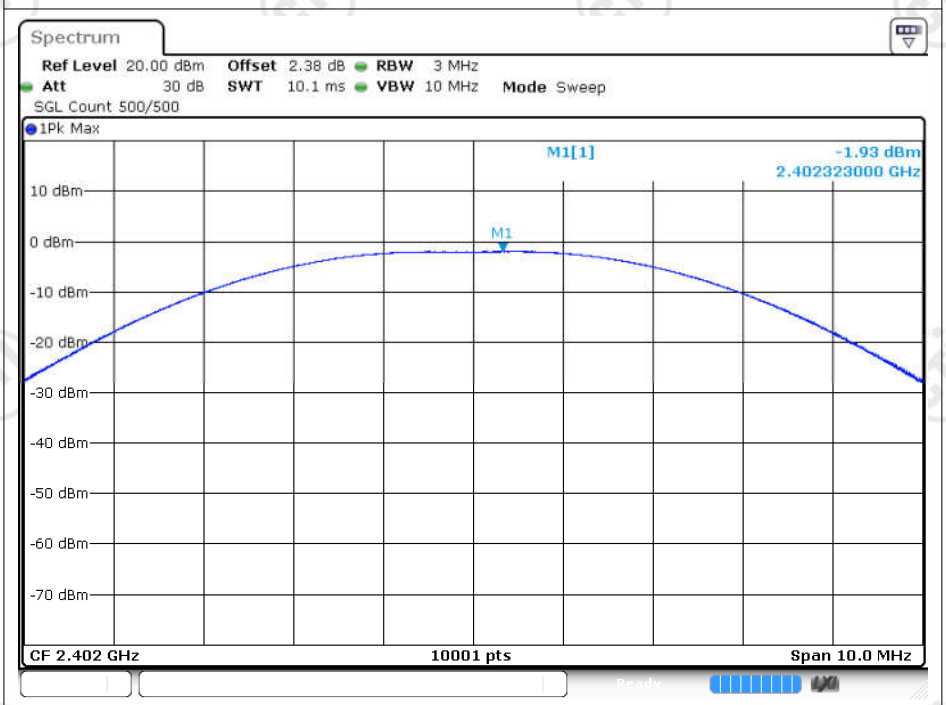
Date: 7.DEC.2024 13:29:43

Peak Power NVNT BLE 1M 2480MHz Ant1



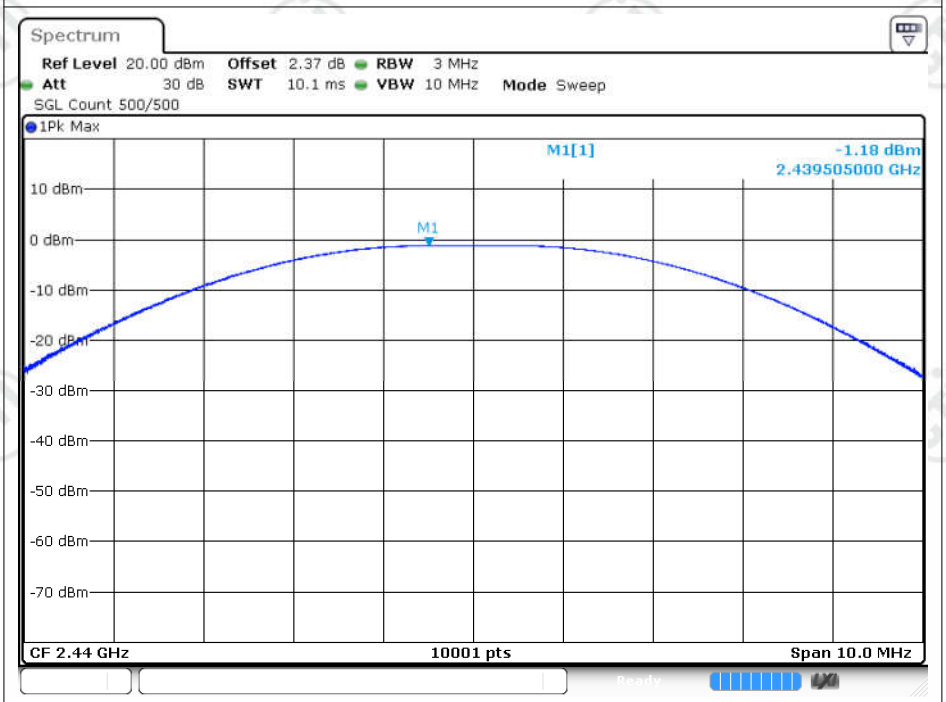
Date: 7.DEC.2024 13:27:33

Peak Power NVNT BLE 2M 2402MHz Ant1



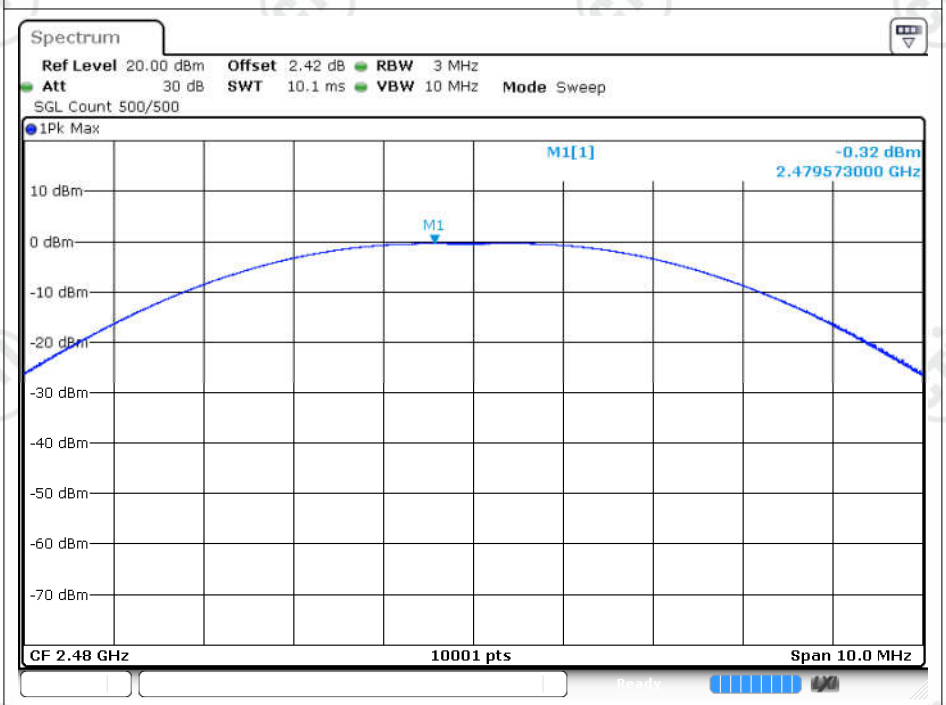
Date: 7.DEC.2024 13:25:12

Peak Power NVNT BLE 2M 2440MHz Ant1



Date: 7.DEC.2024 13:23:06

Peak Power NVNT BLE 2M 2480MHz Ant1



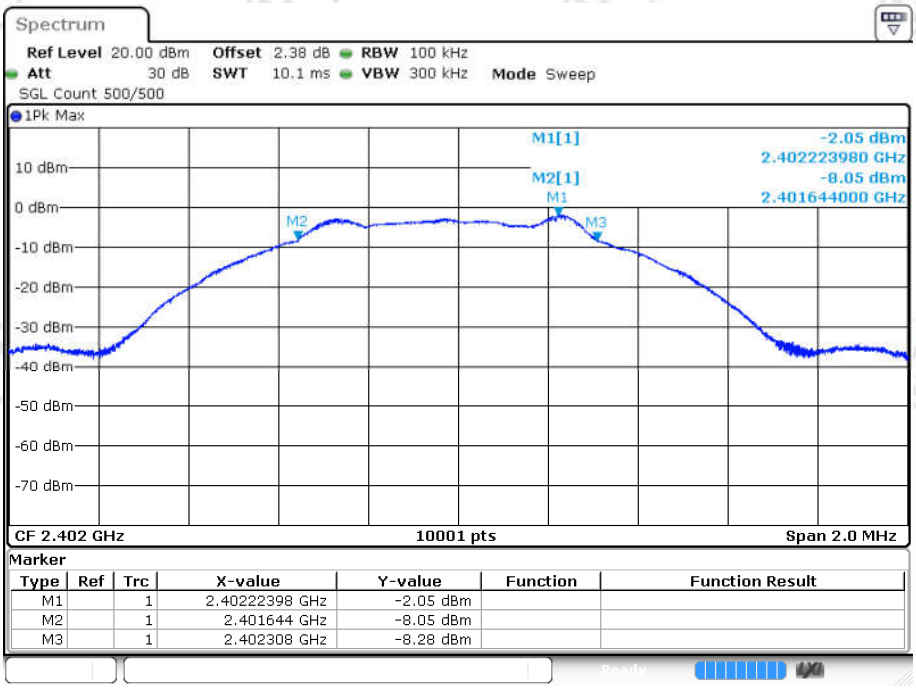
Date: 7.DEC.2024 13:20:49

-6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.665	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.664	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.664	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.234	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.237	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.238	0.5	Pass

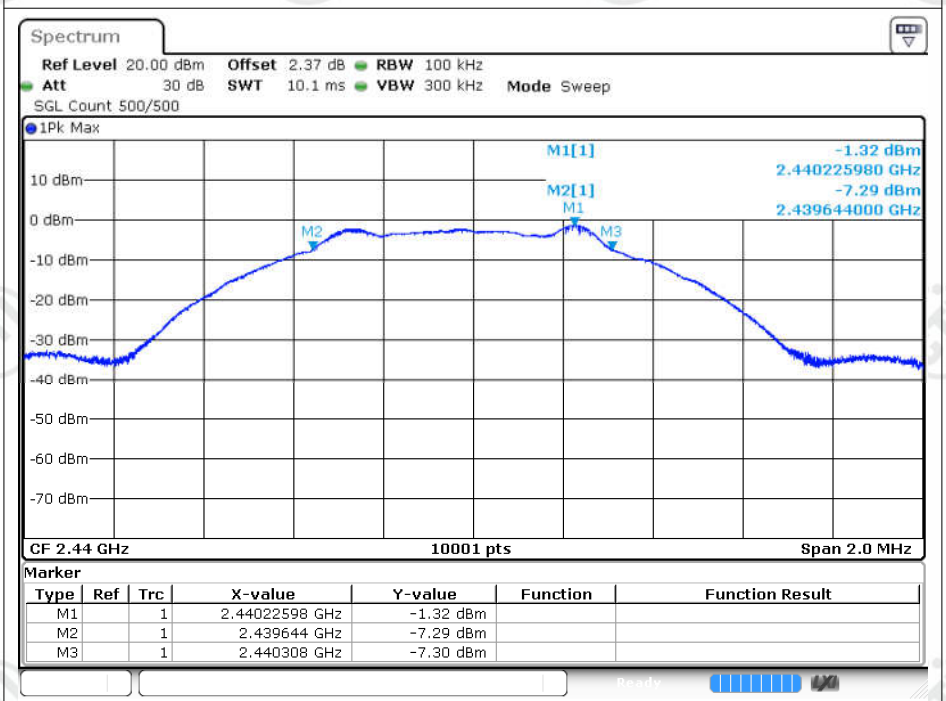
Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



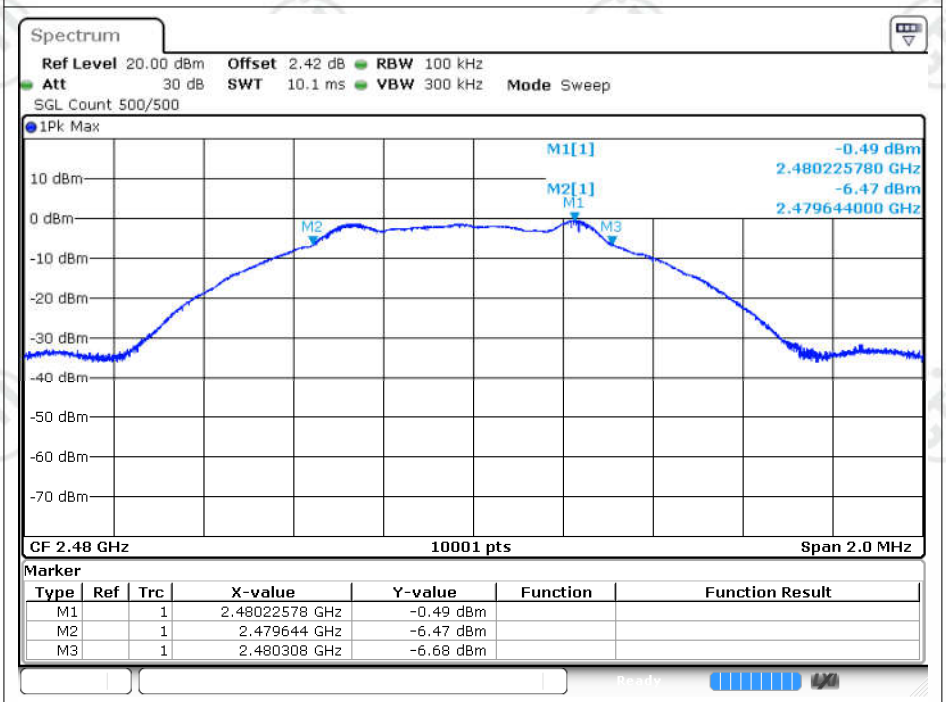
Date: 7.DEC.2024 13:32:01

-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



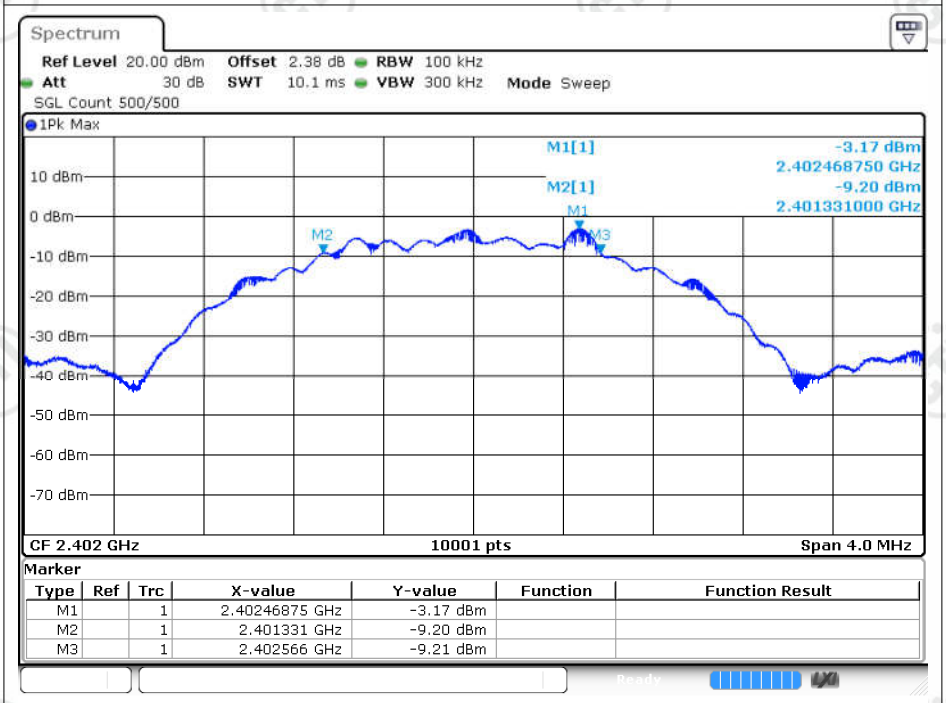
Date: 7.DEC.2024 13:30:09

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



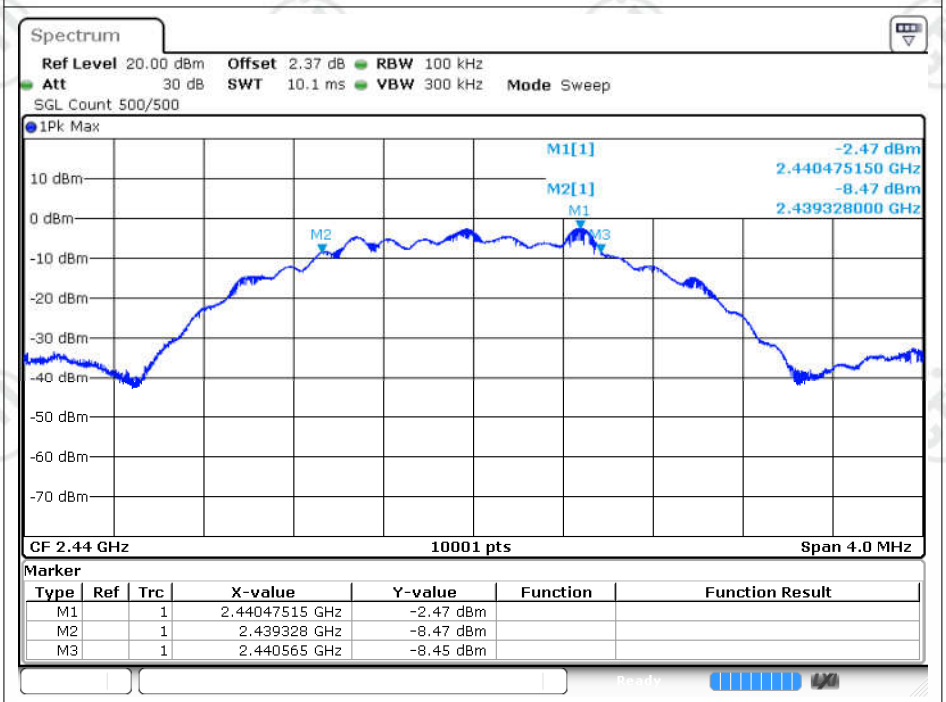
Date: 7.DEC.2024 13:27:59

-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



Date: 7.DEC.2024 13:25:37

-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

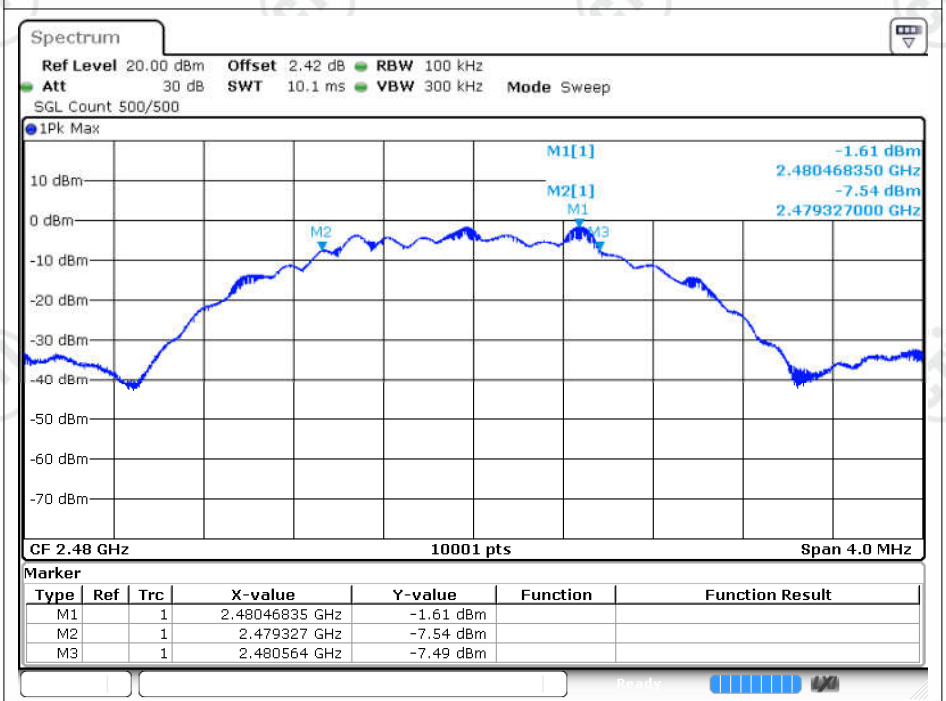


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44047515 GHz	-2.47 dBm		
M2		1	2.439328 GHz	-8.47 dBm		
M3		1	2.440565 GHz	-8.45 dBm		

Date: 7.DEC.2024 13:23:31

-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48046835 GHz	-1.61 dBm		
M2		1	2.479327 GHz	-7.54 dBm		
M3		1	2.480564 GHz	-7.49 dBm		

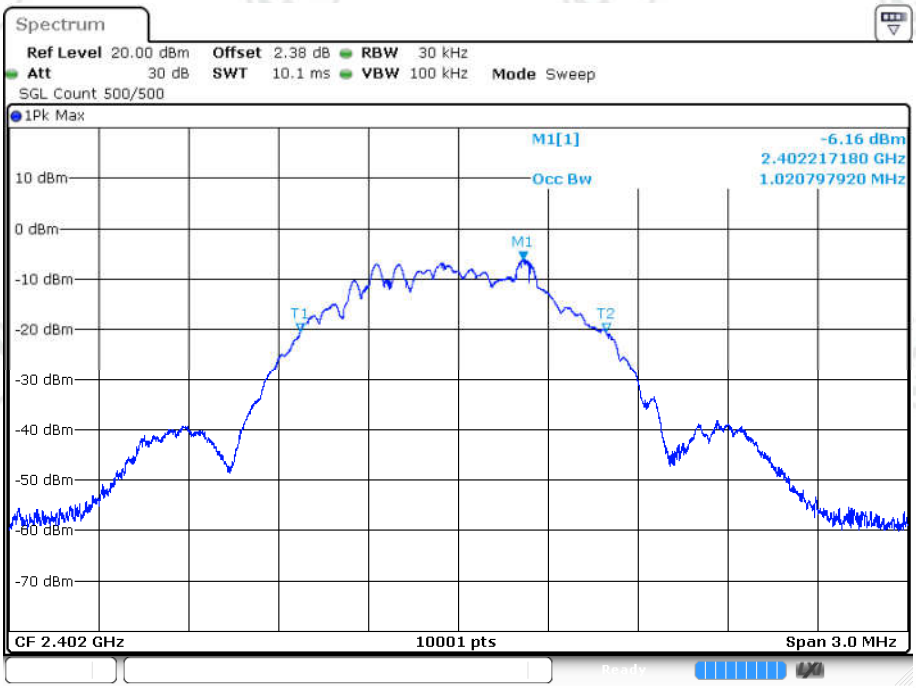
Date: 7.DEC.2024 13:21:17

Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.021
NVNT	BLE 1M	2440	Ant1	1.023
NVNT	BLE 1M	2480	Ant1	1.023
NVNT	BLE 2M	2402	Ant1	2.065
NVNT	BLE 2M	2440	Ant1	2.063
NVNT	BLE 2M	2480	Ant1	2.056

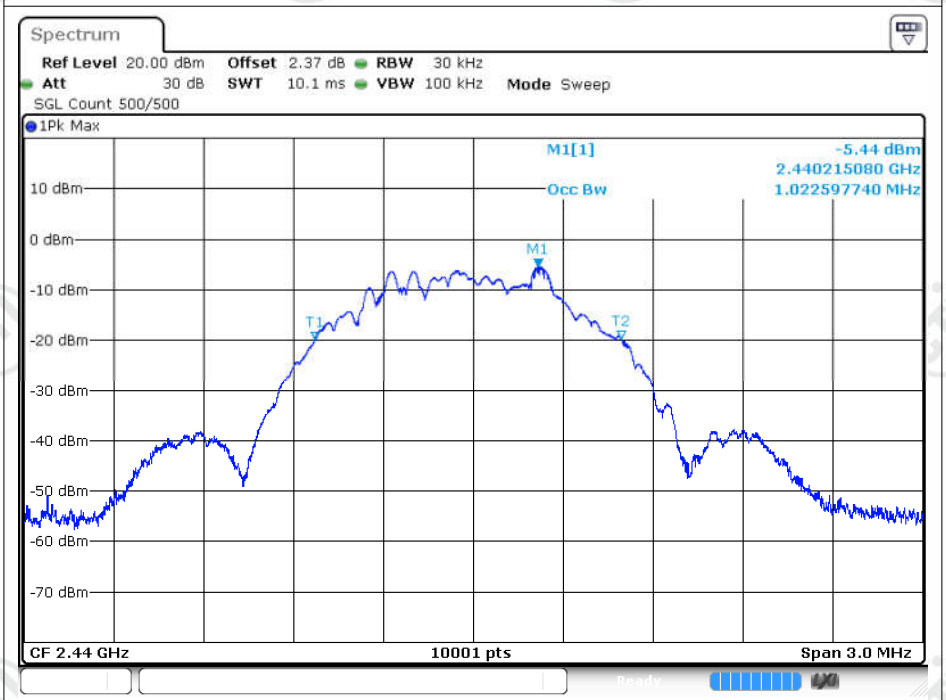
Test Graphs

OBW NVNT BLE 1M 2402MHz Ant1



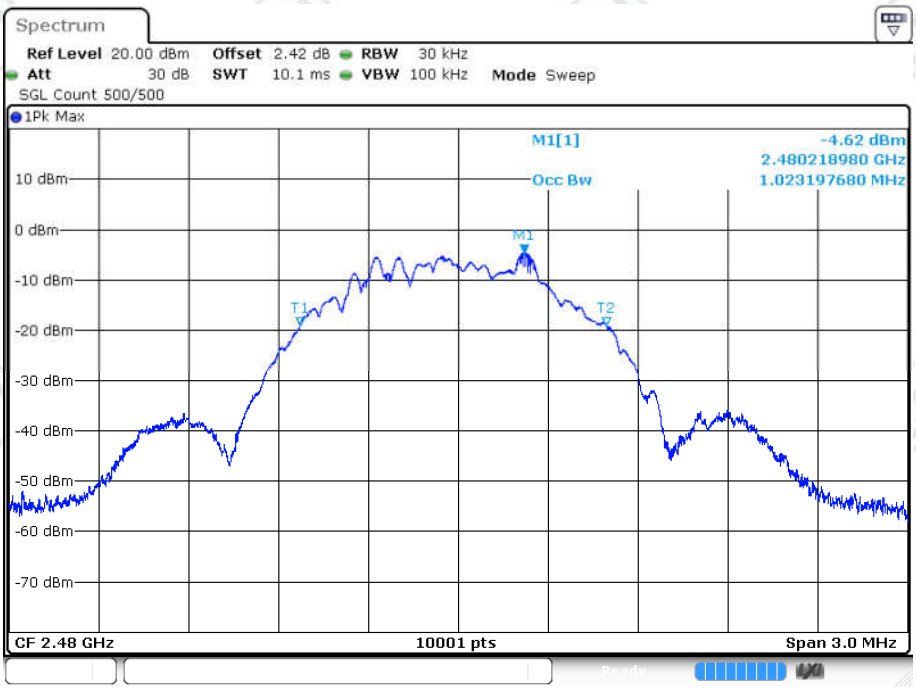
Date: 7.DEC.2024 13:31:46

OBW NVNT BLE 1M 2440MHz Ant1



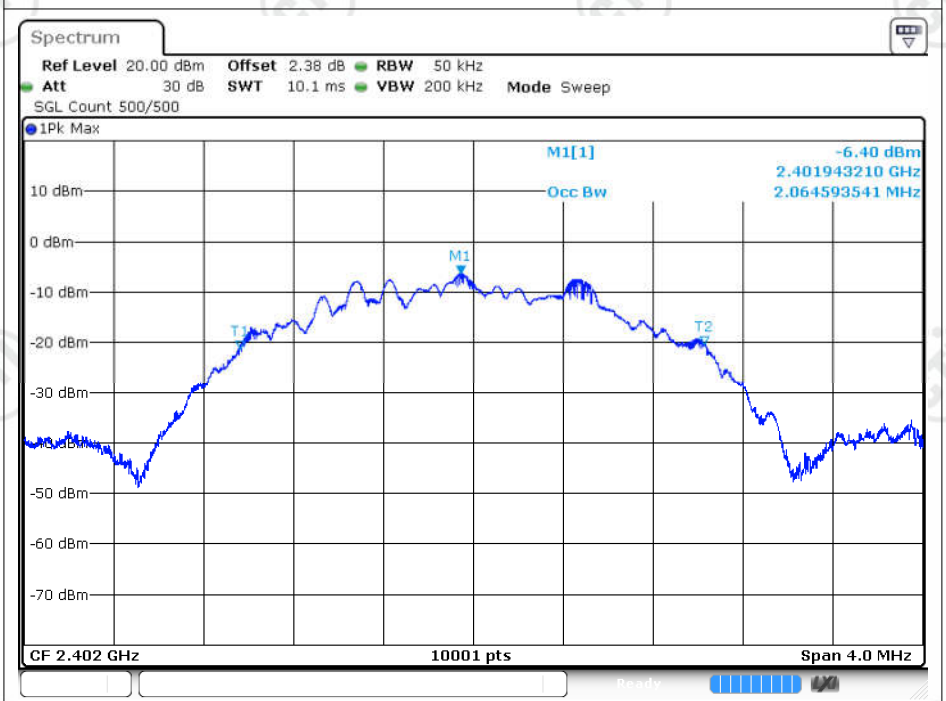
Date: 7.DEC.2024 13:29:56

OBW NVNT BLE 1M 2480MHz Ant1



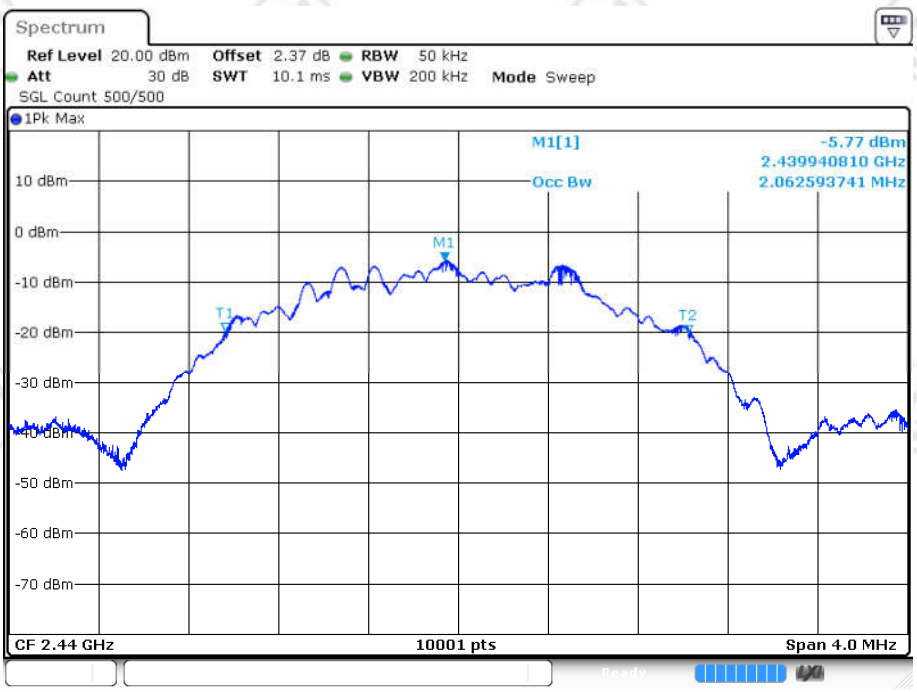
Date: 7.DEC.2024 13:27:45

OBW NVNT BLE 2M 2402MHz Ant1



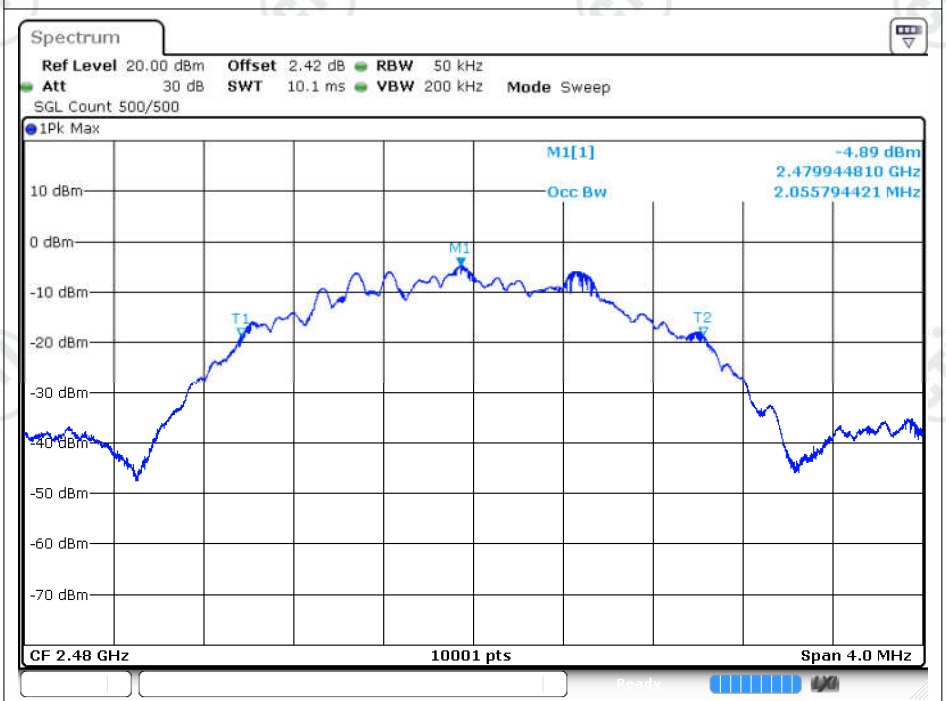
Date: 7.DEC.2024 13:25:24

OBW NVNT BLE 2M 2440MHz Ant1



Date: 7.DEC.2024 13:23:19

OBW NVNT BLE 2M 2480MHz Ant1



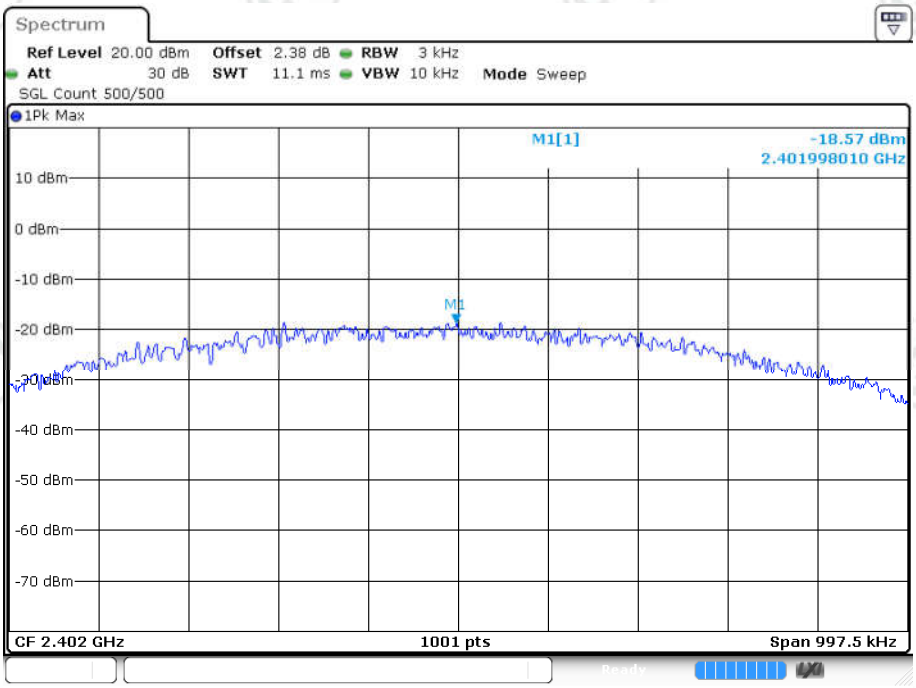
Date: 7.DEC.2024 13:21:01

Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-18.57	8	Pass
NVNT	BLE 1M	2440	Ant1	-17.82	8	Pass
NVNT	BLE 1M	2480	Ant1	-17	8	Pass
NVNT	BLE 2M	2402	Ant1	-21.49	8	Pass
NVNT	BLE 2M	2440	Ant1	-20.76	8	Pass
NVNT	BLE 2M	2480	Ant1	-19.88	8	Pass

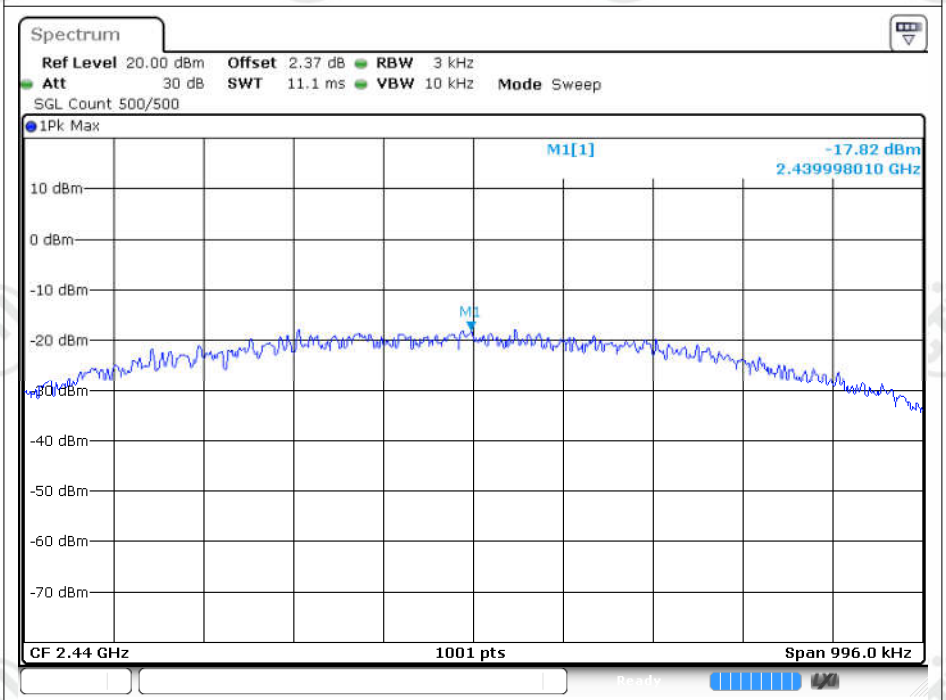
Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



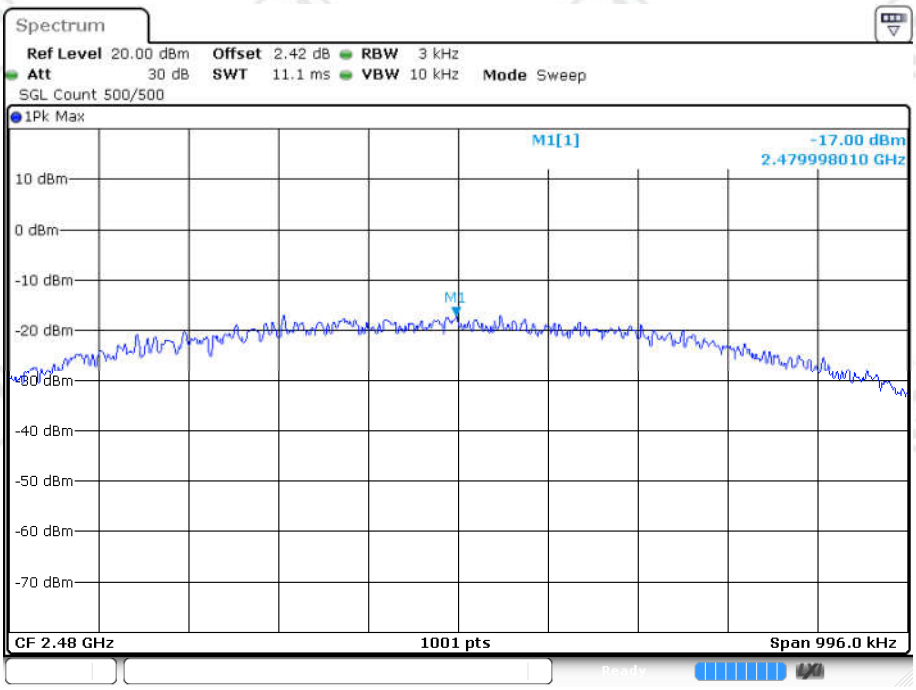
Date: 7.DEC.2024 13:32:15

PSD NVNT BLE 1M 2440MHz Ant1



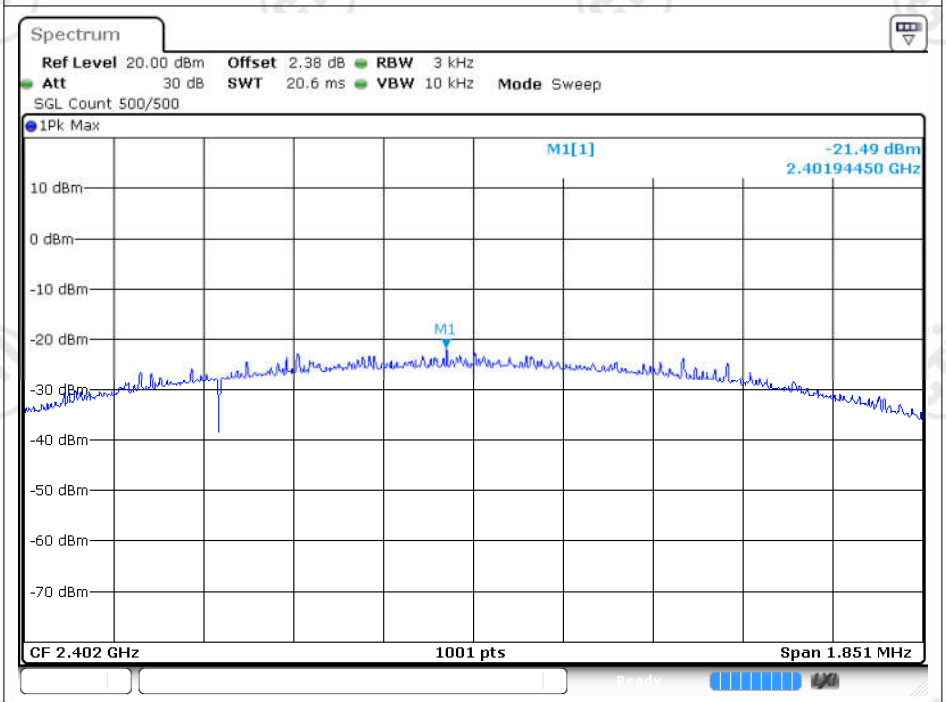
Date: 7.DEC.2024 13:30:25

PSD NVNT BLE 1M 2480MHz Ant1



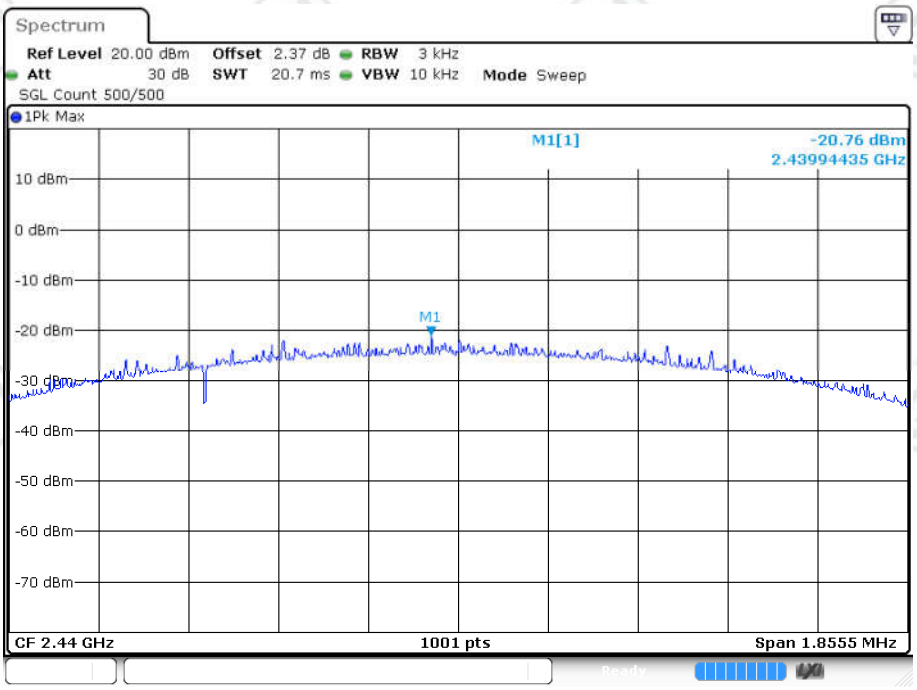
Date: 7.DEC.2024 13:28:13

PSD NVNT BLE 2M 2402MHz Ant1



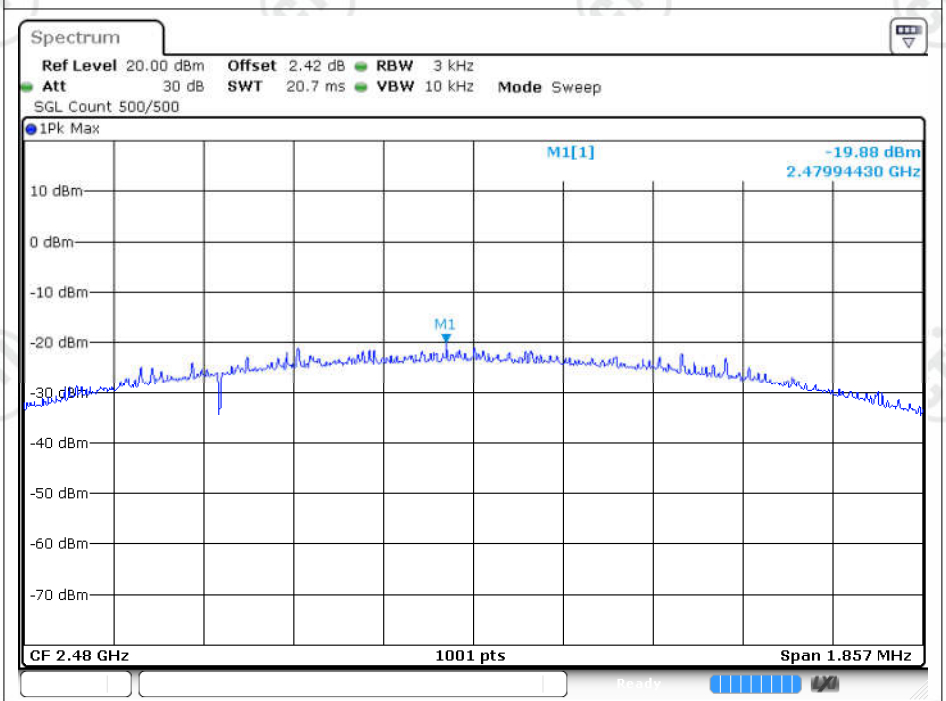
Date: 7.DEC.2024 13:26:01

PSD NVNT BLE 2M 2440MHz Ant1



Date: 7.DEC.2024 13:24:00

PSD NVNT BLE 2M 2480MHz Ant1



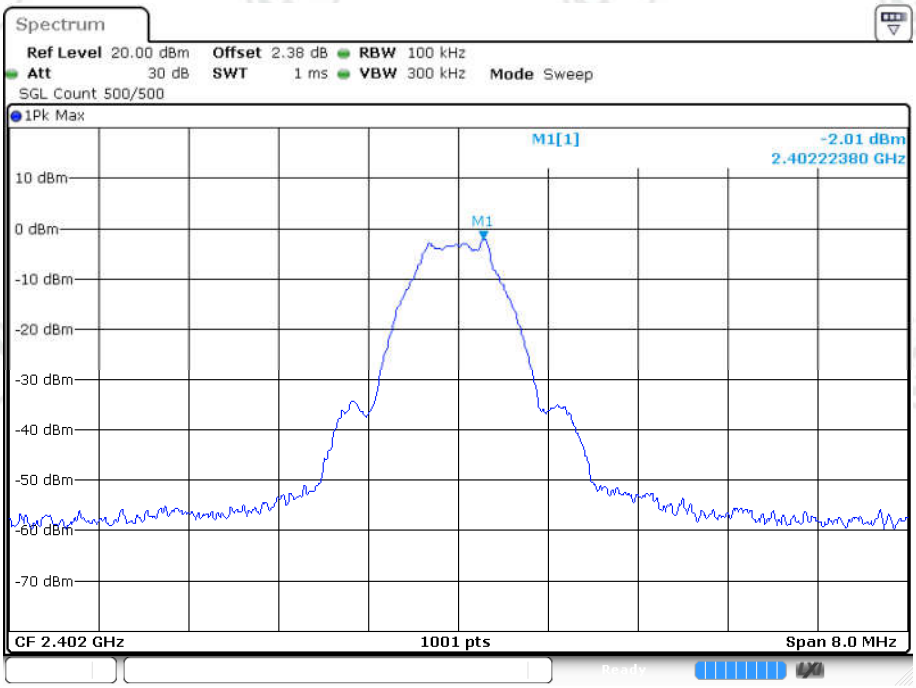
Date: 7.DEC.2024 13:21:43

Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-53.16	-20	Pass
NVNT	BLE 1M	2480	Ant1	-54.26	-20	Pass
NVNT	BLE 2M	2402	Ant1	-34.39	-20	Pass
NVNT	BLE 2M	2480	Ant1	-52.65	-20	Pass

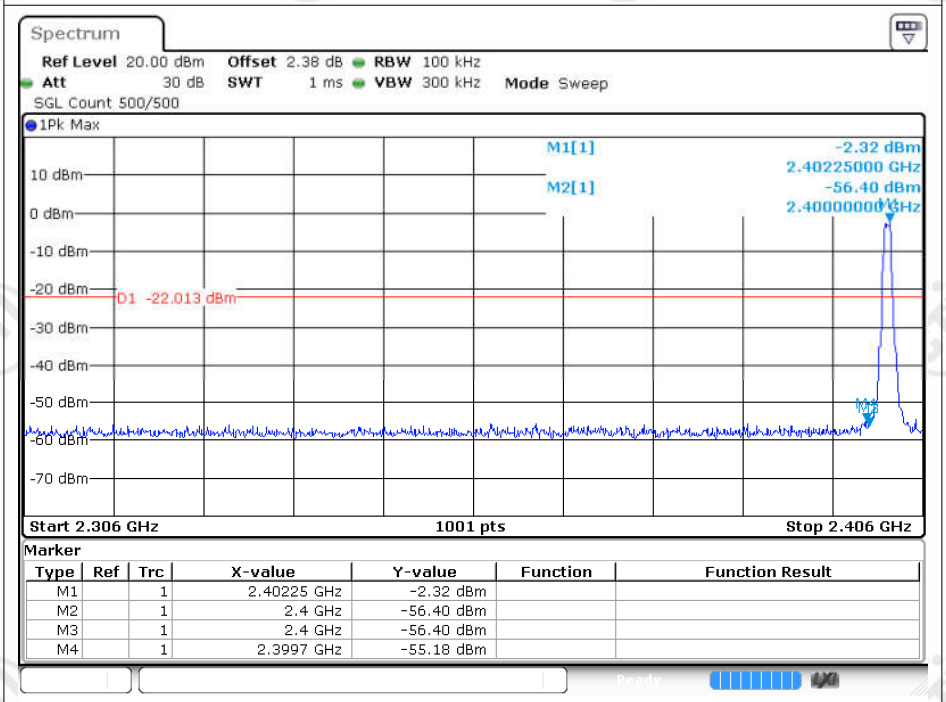
Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



Date: 7.DEC.2024 13:32:20

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

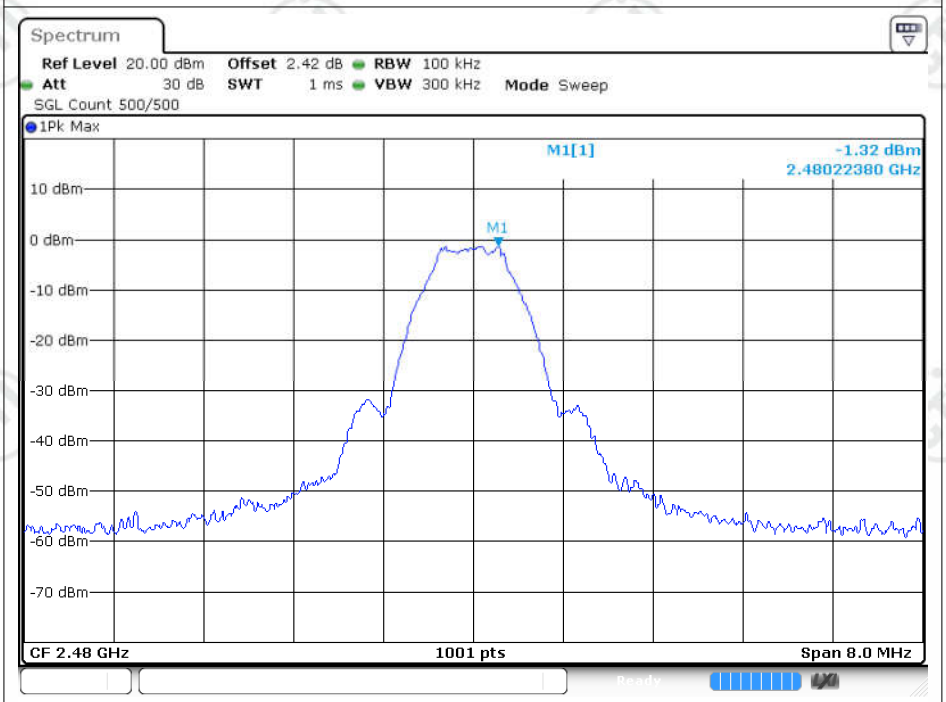


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40225 GHz	-2.32 dBm		
M2		1	2.4 GHz	-56.40 dBm		
M3		1	2.4 GHz	-56.40 dBm		
M4		1	2.3997 GHz	-55.18 dBm		

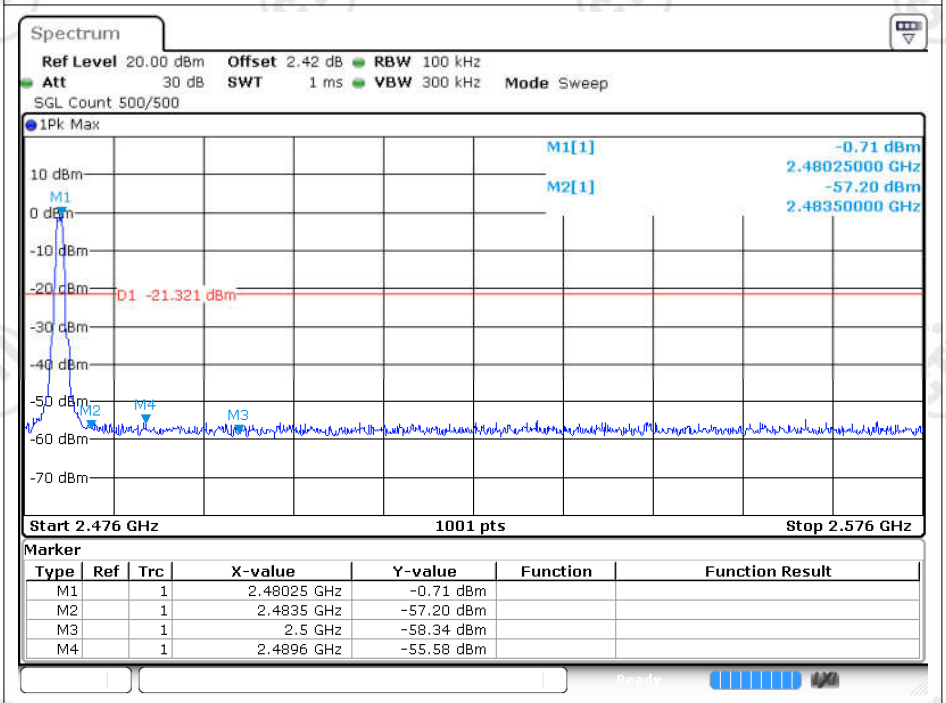
Date: 7.DEC.2024 13:32:24

Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



Date: 7.DEC.2024 13:28:18

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission

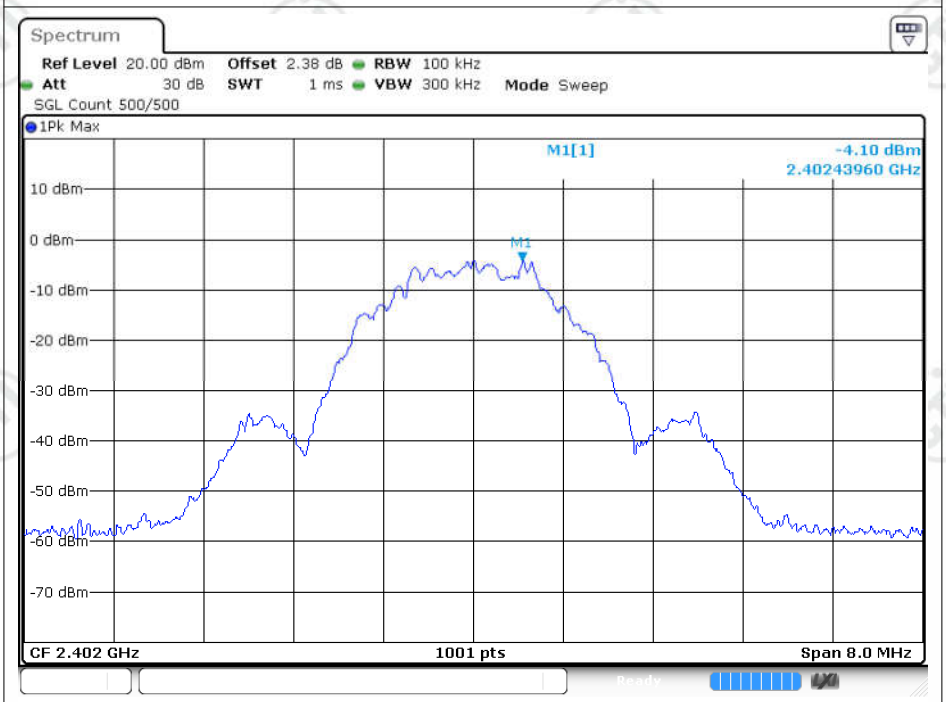


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48025 GHz	-0.71 dBm		
M2		1	2.4835 GHz	-57.20 dBm		
M3		1	2.5 GHz	-58.34 dBm		
M4		1	2.4896 GHz	-55.58 dBm		

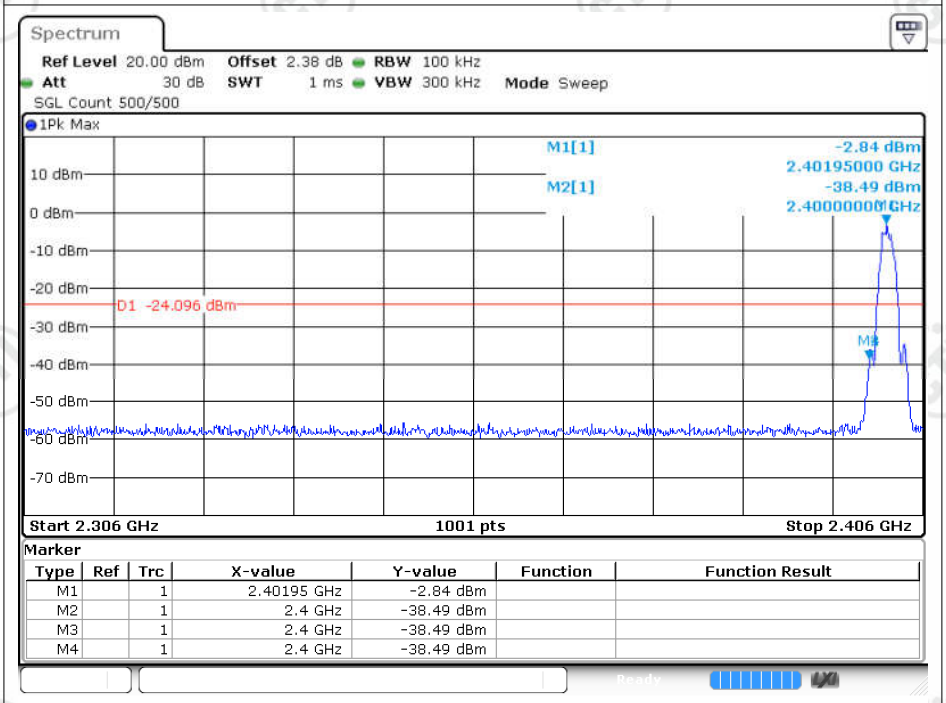
Date: 7.DEC.2024 13:28:21

Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Date: 7.DEC.2024 13:26:06

Band Edge NVNT BLE 2M 2402MHz Ant1 Emission

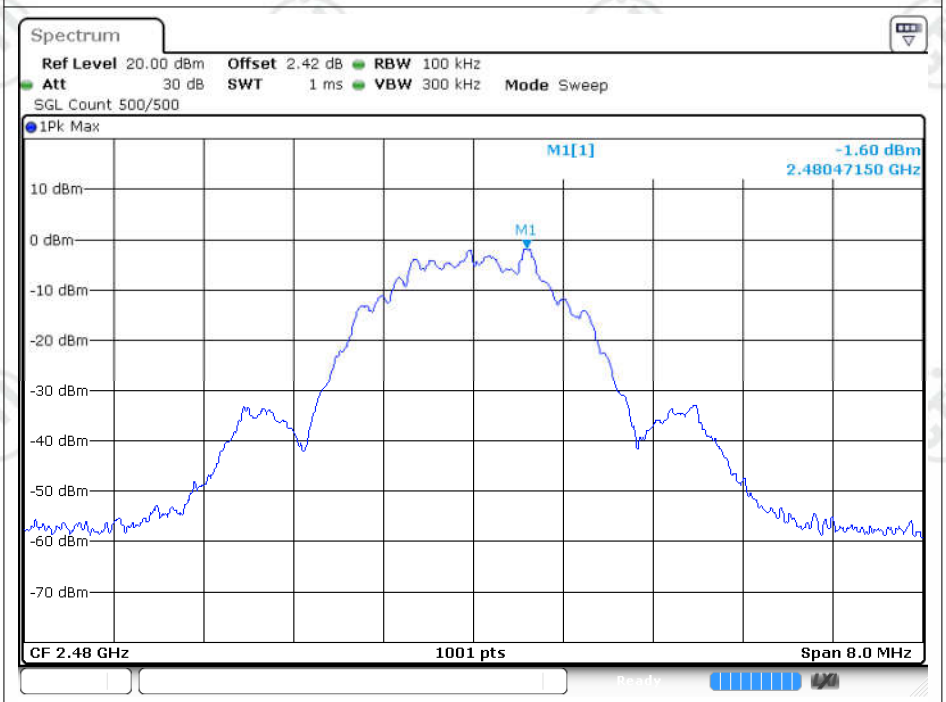


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40195 GHz	-2.84 dBm		
M2		1	2.4 GHz	-38.49 dBm		
M3		1	2.4 GHz	-38.49 dBm		
M4		1	2.4 GHz	-38.49 dBm		

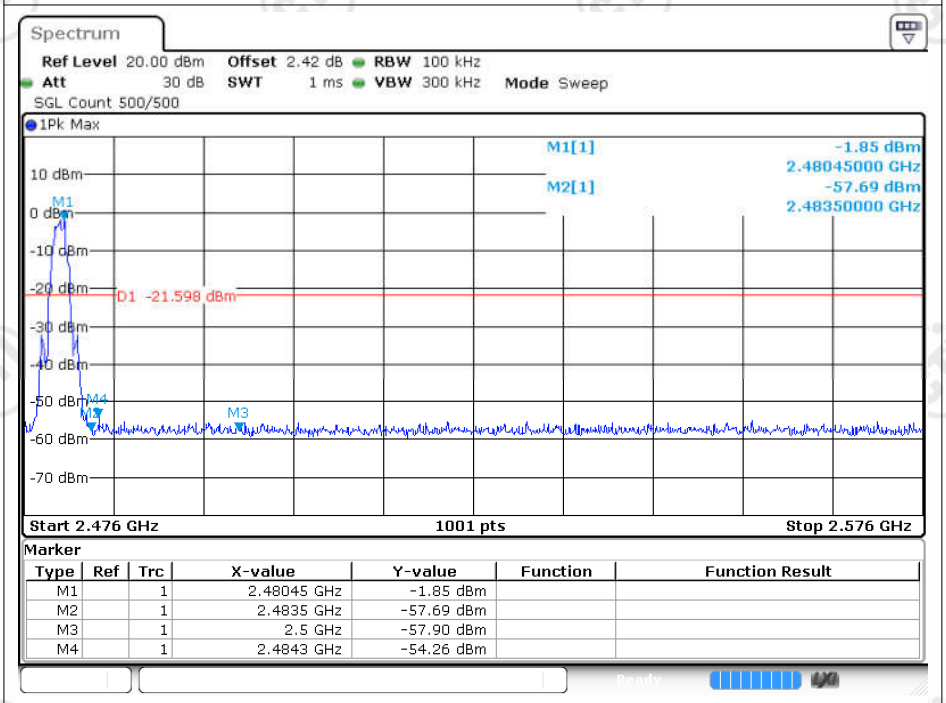
Date: 7.DEC.2024 13:26:10

Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



Date: 7.DEC.2024 13:21:51

Band Edge NVNT BLE 2M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48045 GHz	-1.85 dBm		
M2		1	2.4835 GHz	-57.69 dBm		
M3		1	2.5 GHz	-57.90 dBm		
M4		1	2.4843 GHz	-54.26 dBm		

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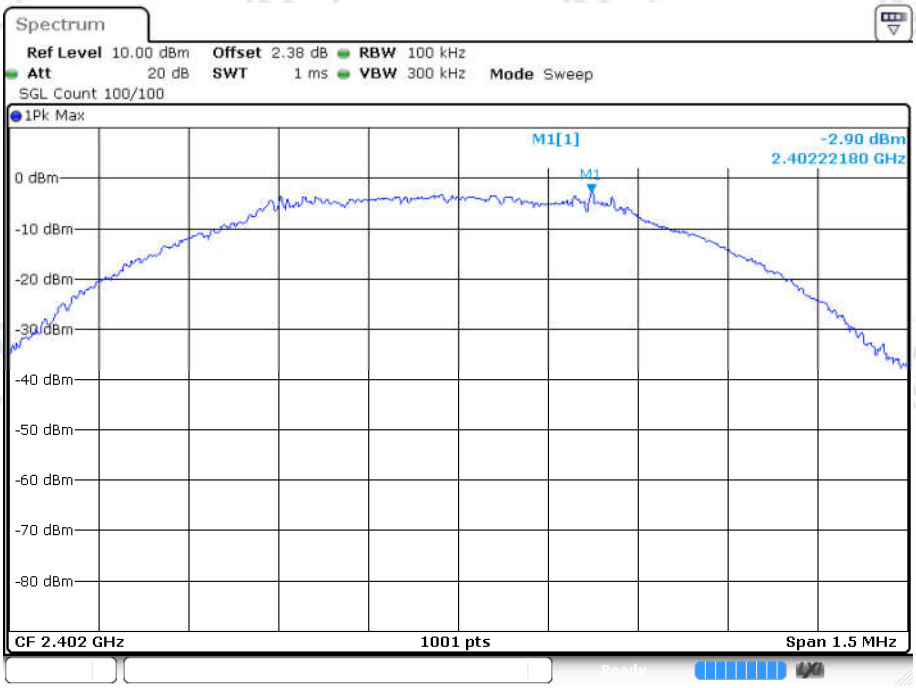
Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-40.53	-20	Pass
NVNT	BLE 1M	2440	Ant1	-56.93	-20	Pass
NVNT	BLE 1M	2480	Ant1	-57.19	-20	Pass
NVNT	BLE 2M	2402	Ant1	-48.66	-20	Pass
NVNT	BLE 2M	2440	Ant1	-39.31	-20	Pass
NVNT	BLE 2M	2480	Ant1	-53.77	-20	Pass

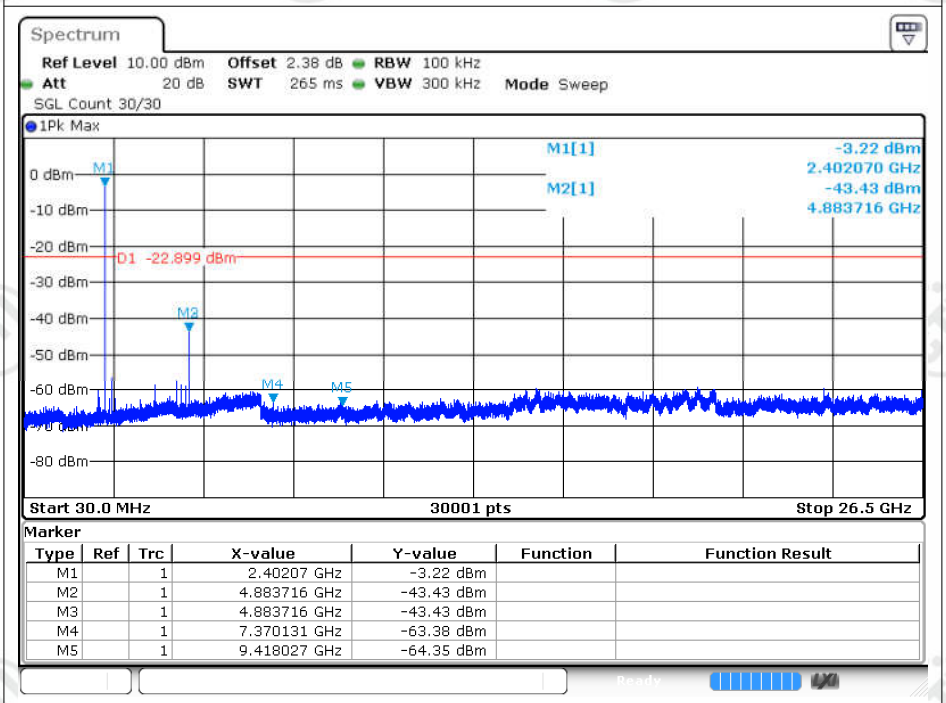
Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Date: 7.DEC.2024 13:32:28

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission

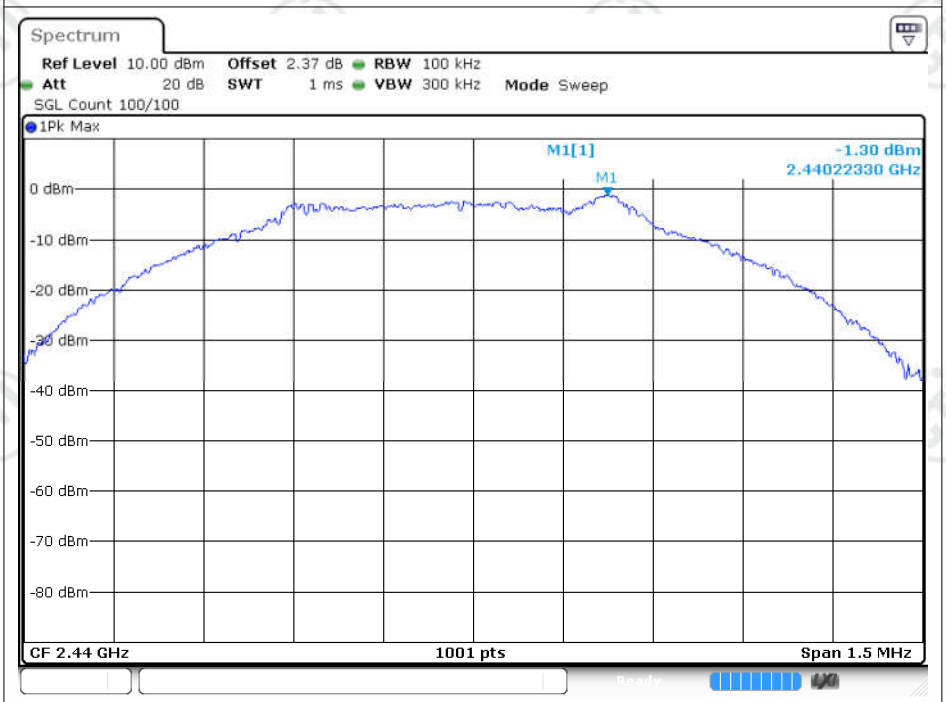


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	-3.22 dBm		
M2		1	4.883716 GHz	-43.43 dBm		
M3		1	4.883716 GHz	-43.43 dBm		
M4		1	7.370131 GHz	-63.38 dBm		
M5		1	9.418027 GHz	-64.35 dBm		

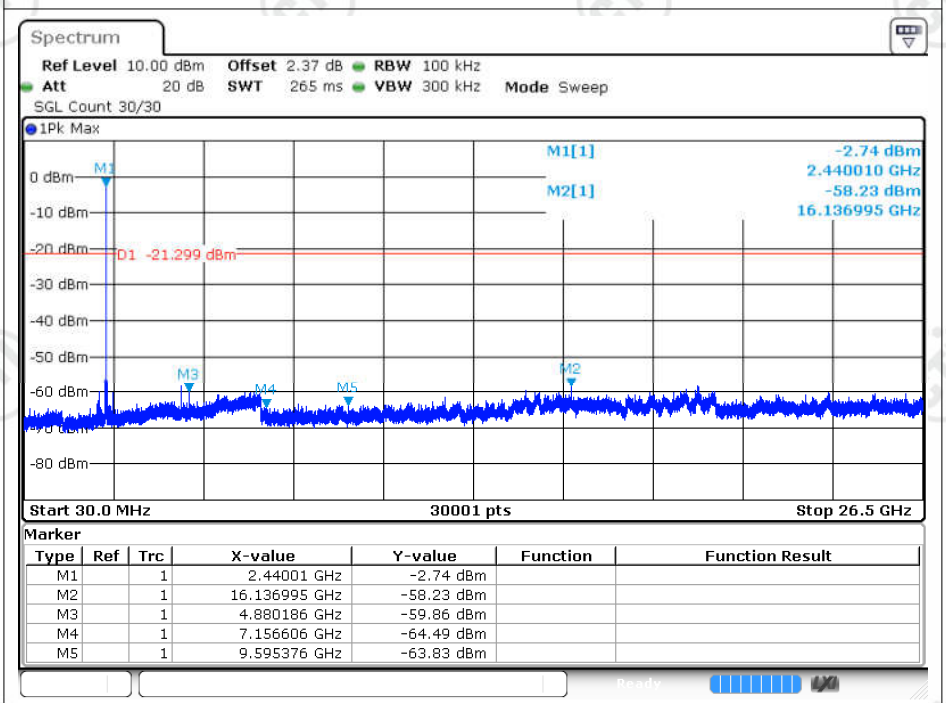
Date: 7.DEC.2024 13:32:57

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



Date: 7.DEC.2024 13:30:32

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44001 GHz	-2.74 dBm		
M2		1	16.136995 GHz	-58.23 dBm		
M3		1	4.880186 GHz	-59.86 dBm		
M4		1	7.156606 GHz	-64.49 dBm		
M5		1	9.595376 GHz	-63.83 dBm		

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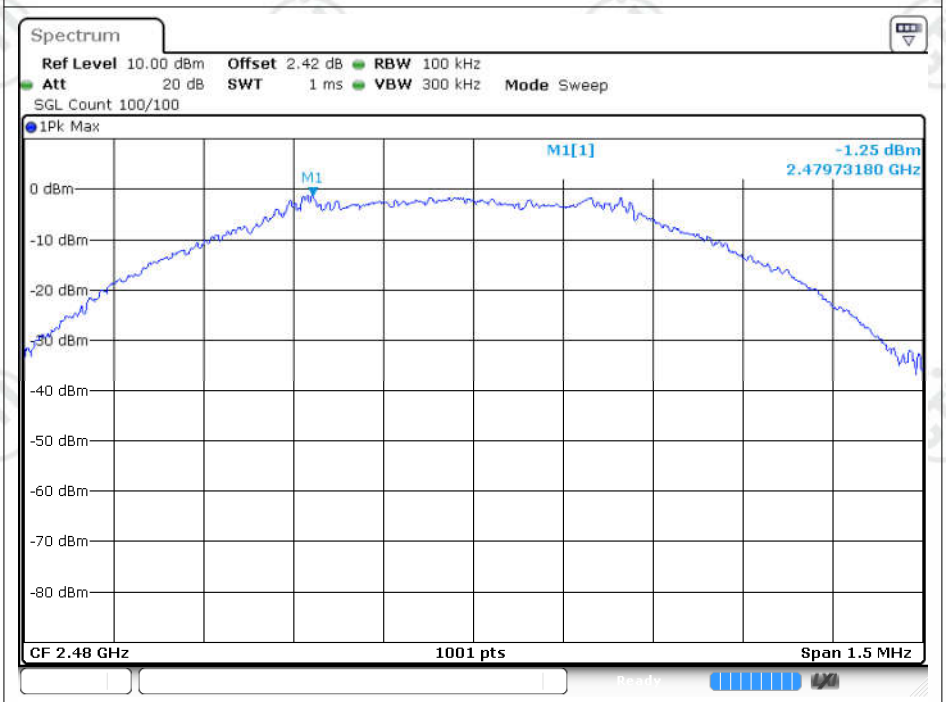
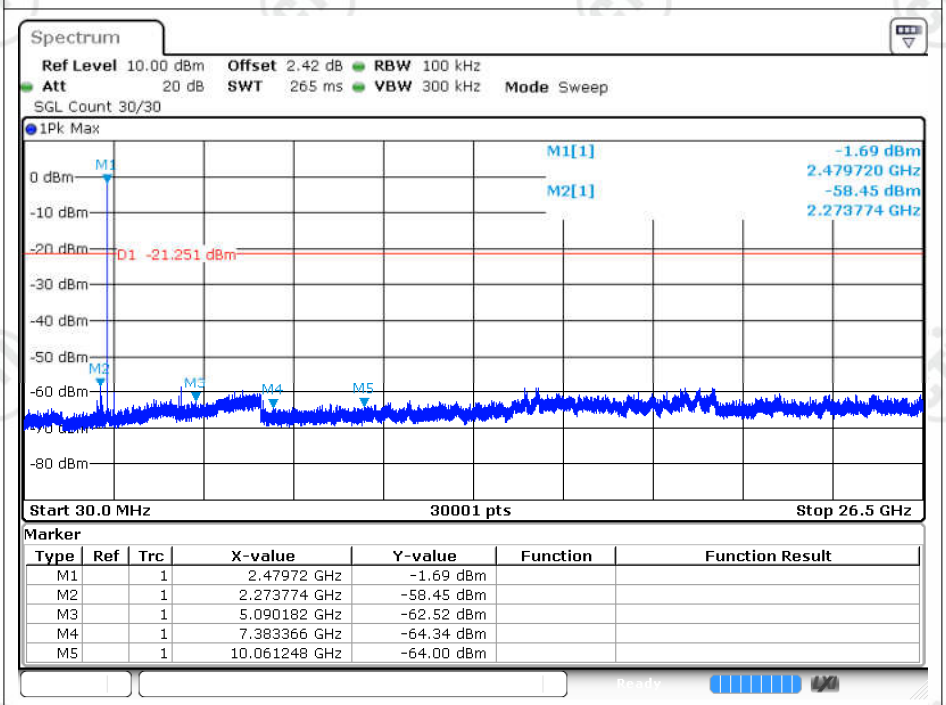
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Date: 7.DEC.2024 13:28:25

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-1.69 dBm		
M2		1	2.273774 GHz	-58.45 dBm		
M3		1	5.090182 GHz	-62.52 dBm		
M4		1	7.383366 GHz	-64.34 dBm		
M5		1	10.061248 GHz	-64.00 dBm		

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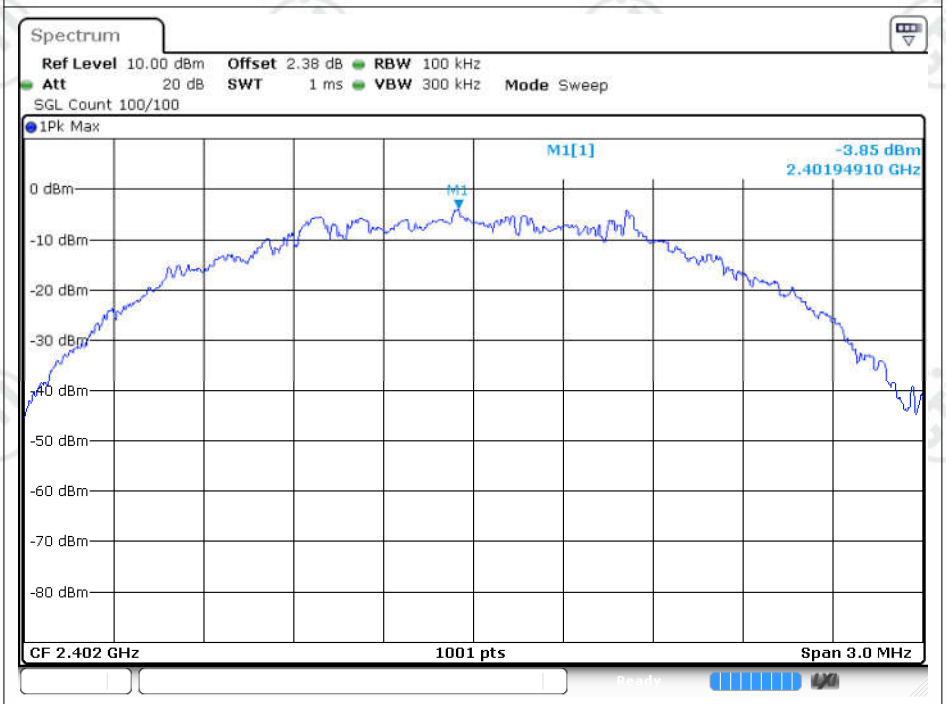
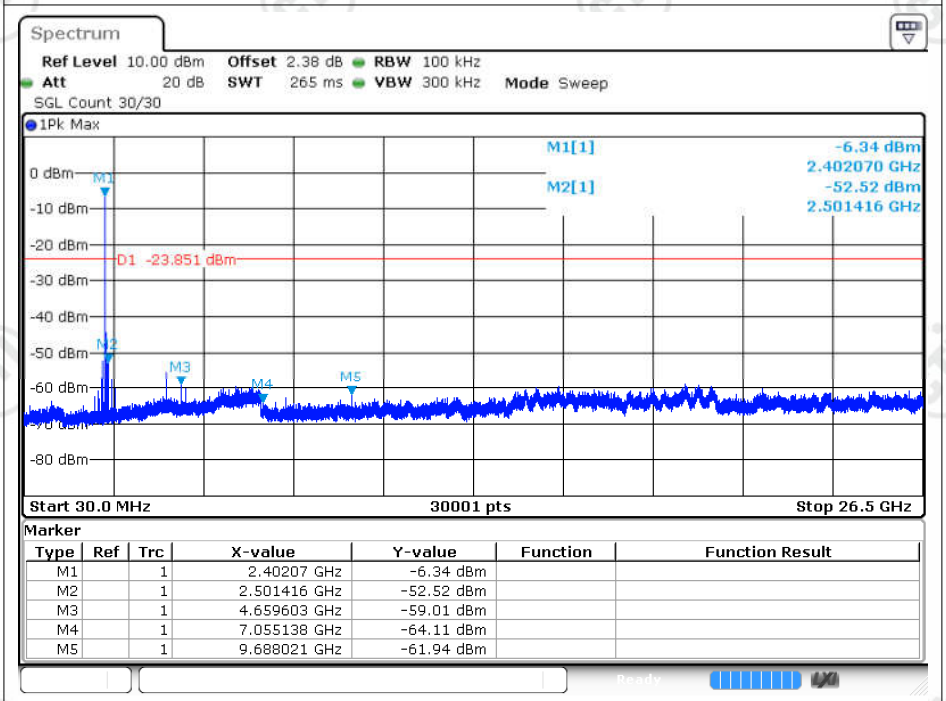
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



Date: 7.DEC.2024 13:26:14

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	-6.34 dBm		
M2		1	2.501416 GHz	-52.52 dBm		
M3		1	4.659603 GHz	-59.01 dBm		
M4		1	7.055138 GHz	-64.11 dBm		
M5		1	9.688021 GHz	-61.94 dBm		

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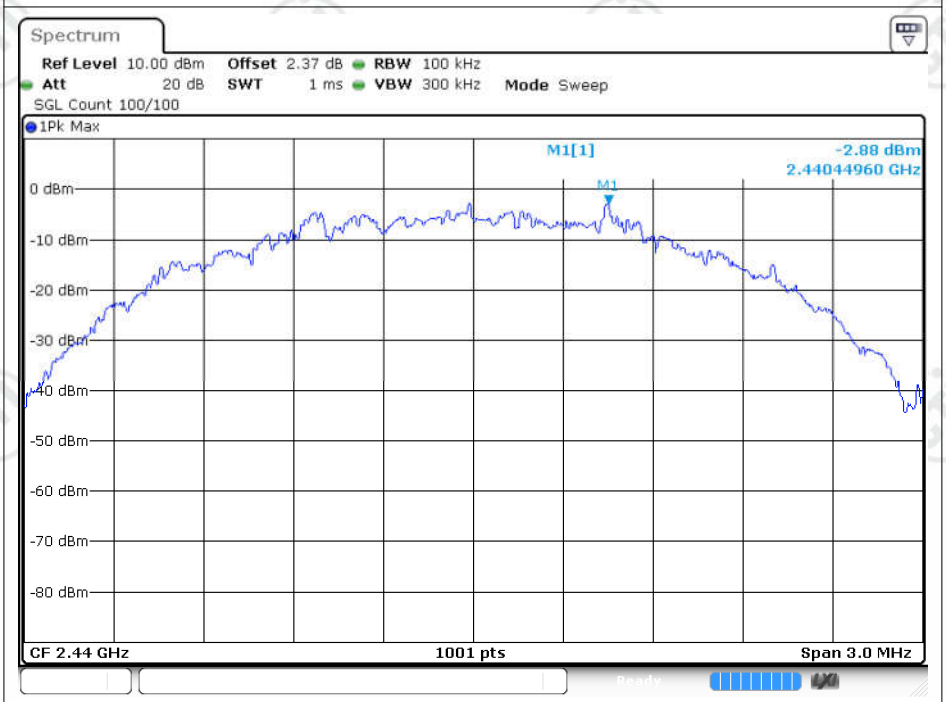
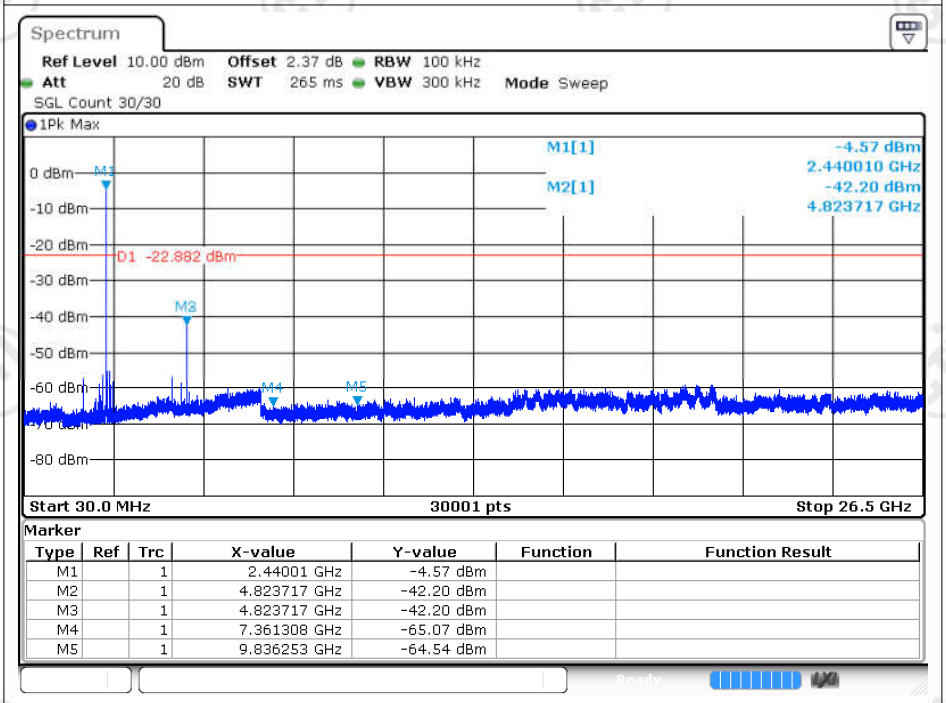
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



Date: 7.DEC.2024 13:24:04

Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission

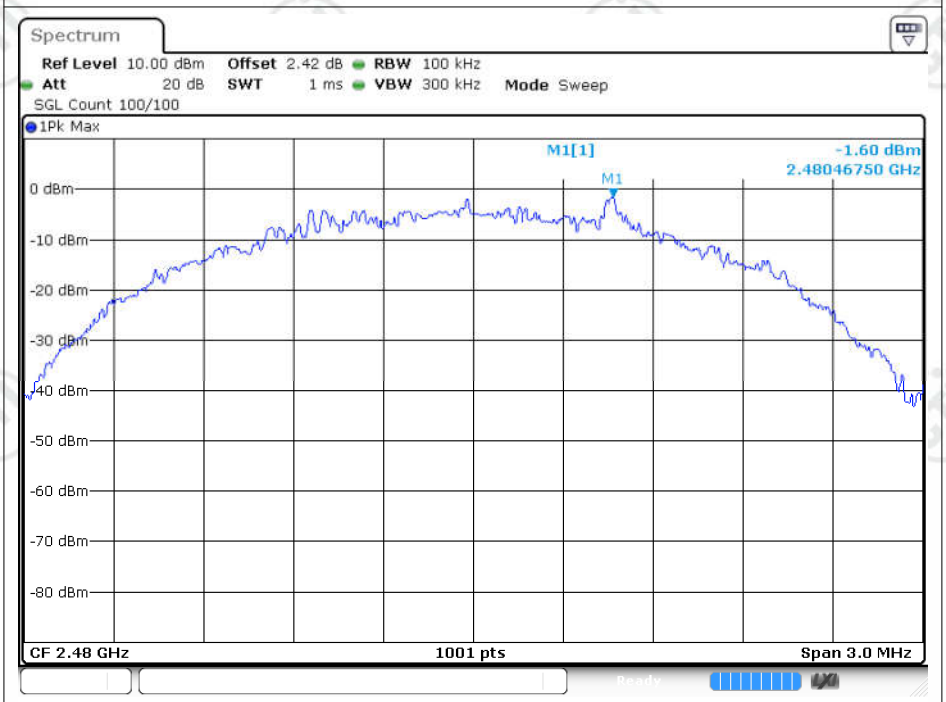


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44001 GHz	-4.57 dBm		
M2		1	4.823717 GHz	-42.20 dBm		
M3		1	4.823717 GHz	-42.20 dBm		
M4		1	7.361308 GHz	-65.07 dBm		
M5		1	9.836253 GHz	-64.54 dBm		

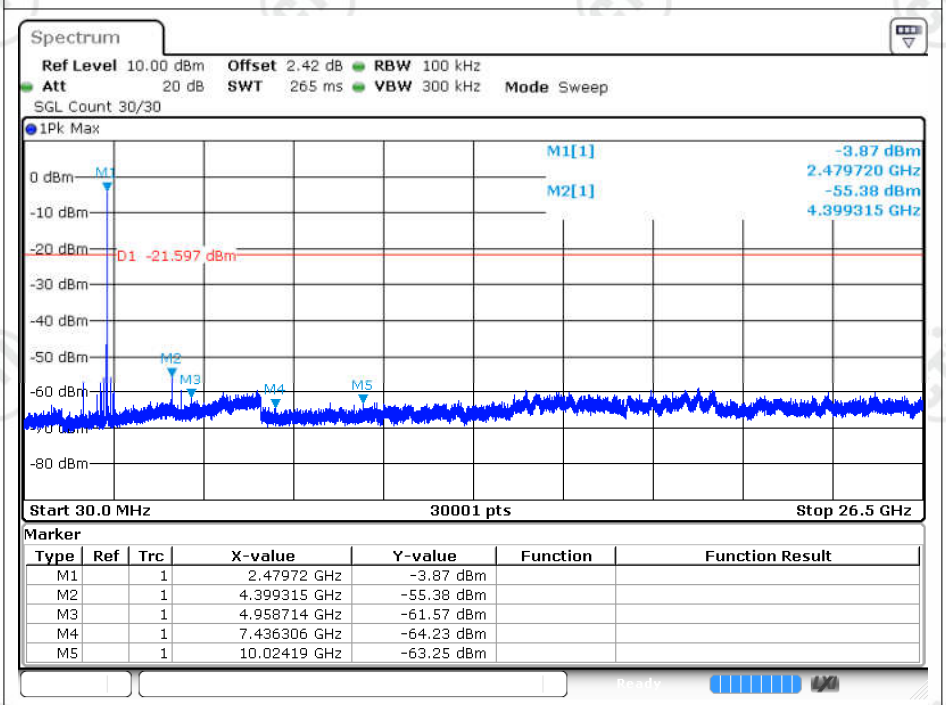
Date: 7.DEC.2024 13:24:33

Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Date: 7.DEC.2024 13:21:59

Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-3.87 dBm		
M2		1	4.399315 GHz	-55.38 dBm		
M3		1	4.958714 GHz	-61.57 dBm		
M4		1	7.436306 GHz	-64.23 dBm		
M5		1	10.02419 GHz	-63.25 dBm		

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END OF REPORT