Appendix: Bluetooth LE

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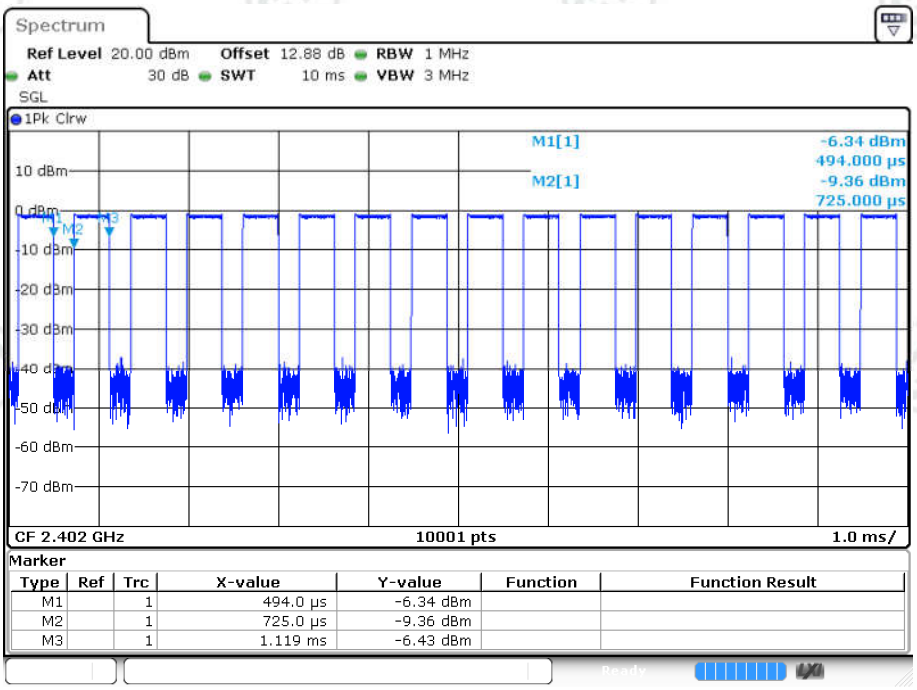
Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	63.04	2	2.54
NVNT	BLE 1M	2440	Ant1	62.88	2.01	2.54
NVNT	BLE 1M	2480	Ant1	62.88	2.01	2.54
NVNT	BLE 2M	2402	Ant1	33.44	4.76	4.78
NVNT	BLE 2M	2440	Ant1	33.6	4.74	4.76
NVNT	BLE 2M	2480	Ant1	33.44	4.76	4.78

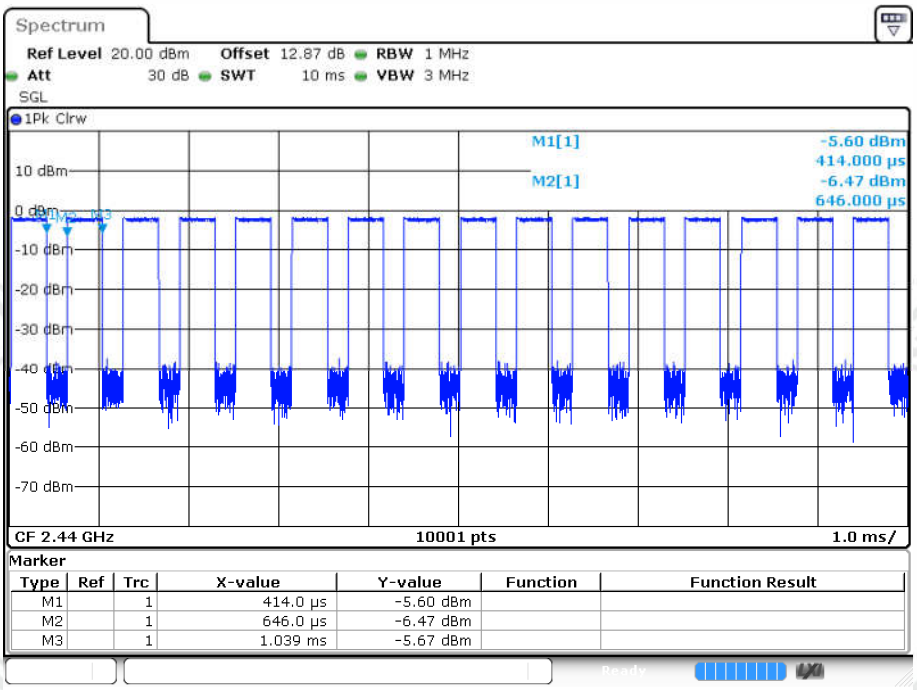
Test Graphs

Duty Cycle NVNT BLE 1M 2402MHz Ant1



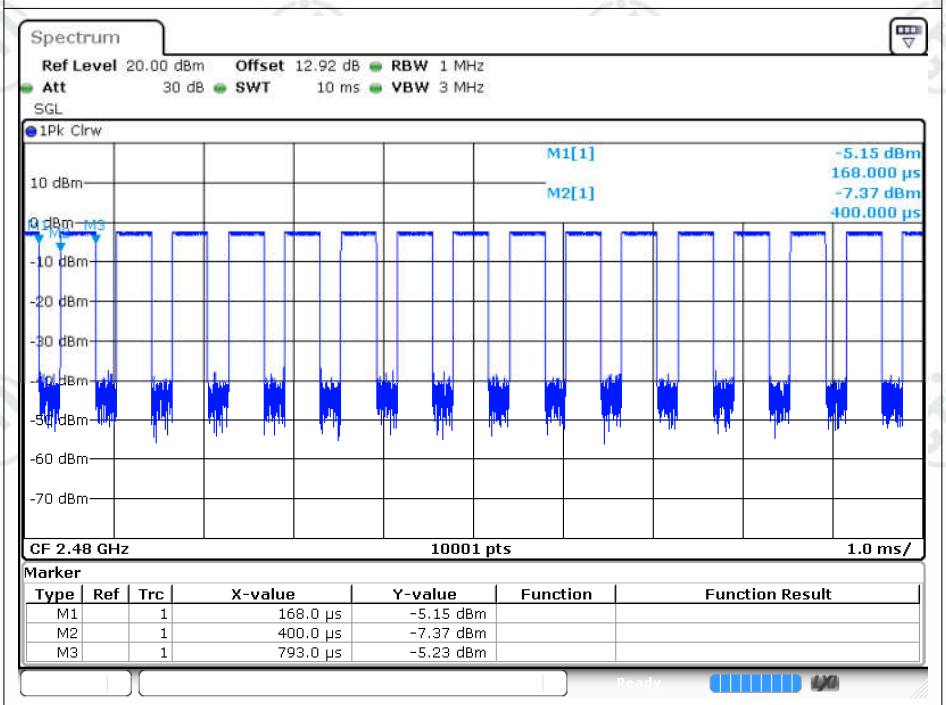
Date: 16.NOV.2023 09:23:33

Duty Cycle NVNT BLE 1M 2440MHz Ant1



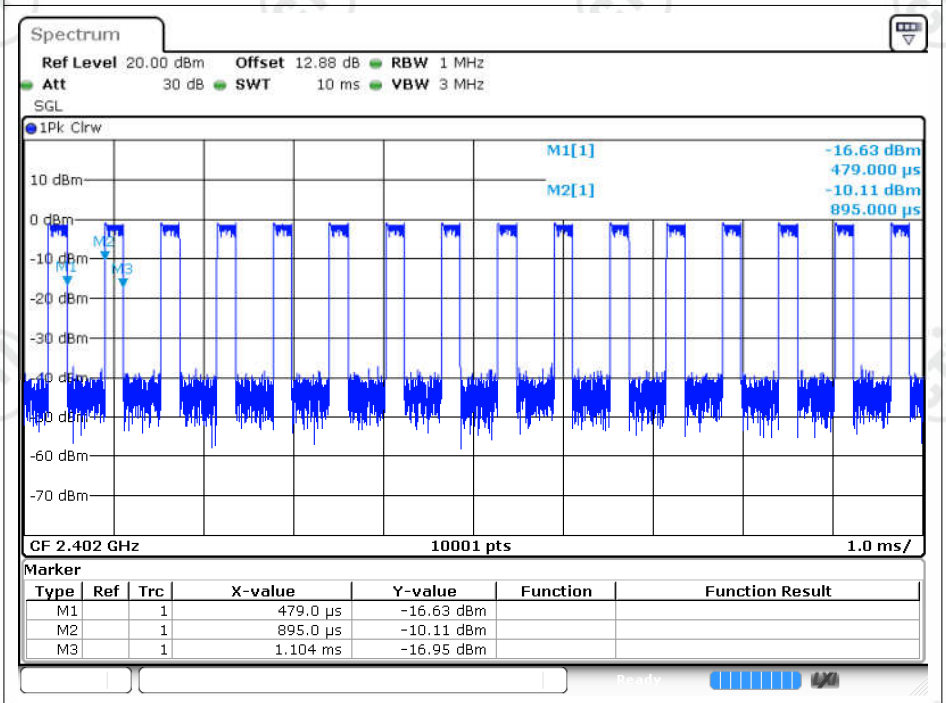
Date: 16.NOV.2023 09:25:29

Duty Cycle NVNT BLE 1M 2480MHz Ant1



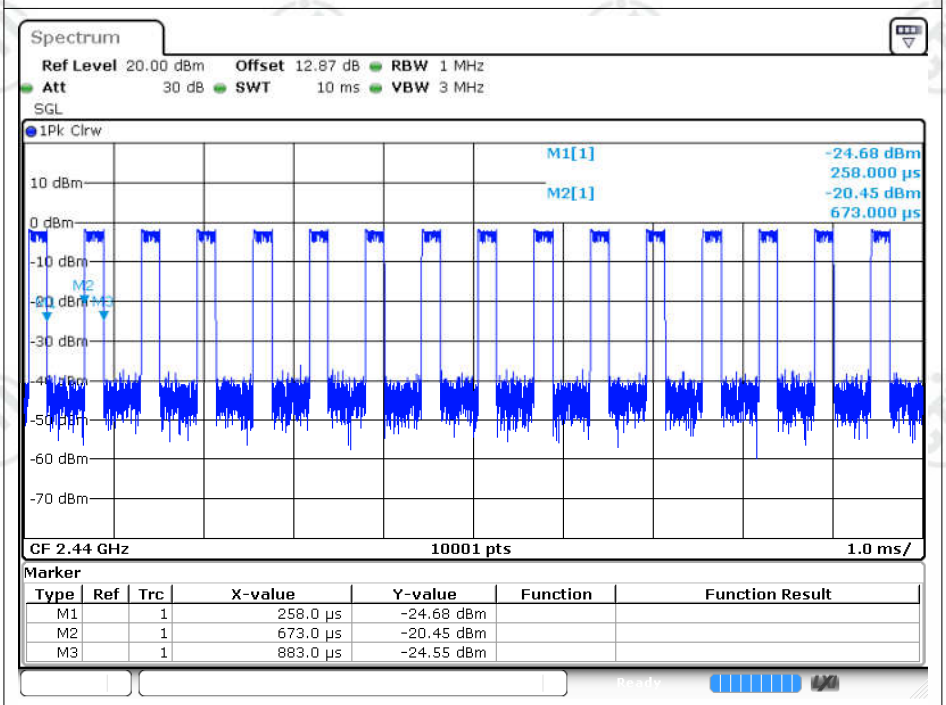
Date: 16.NOV.2023 09:27:02

Duty Cycle NVNT BLE 2M 2402MHz Ant1



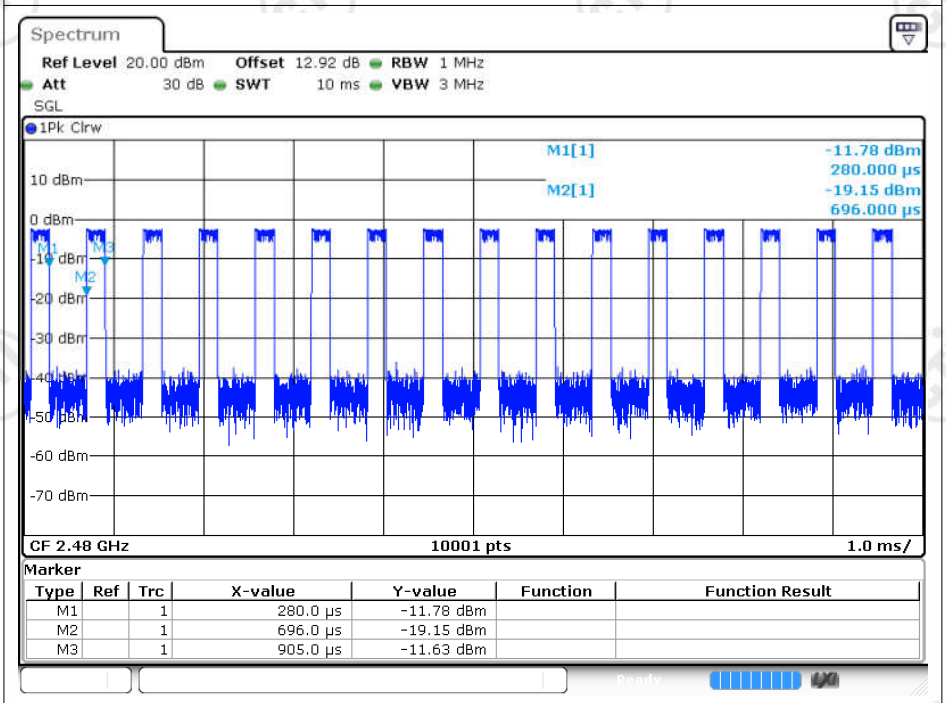
Date: 16.NOV.2023 09:29:39

Duty Cycle NVNT BLE 2M 2440MHz Ant1



Date: 16.NOV.2023 09:31:48

Duty Cycle NVNT BLE 2M 2480MHz Ant1



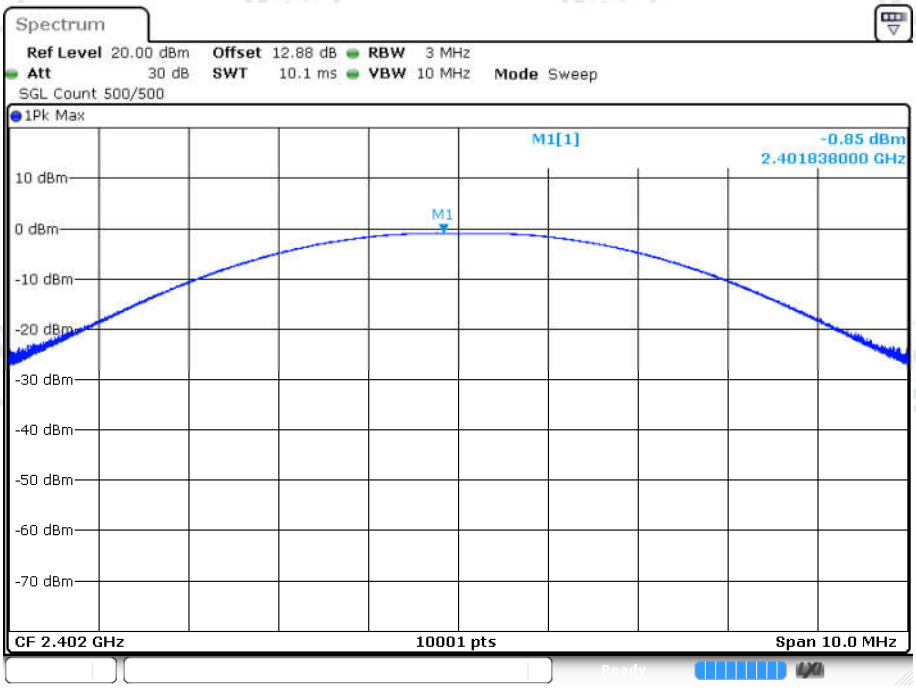
Date: 16.NOV.2023 09:33:53

Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-0.85	30	Pass
NVNT	BLE 1M	2440	Ant1	-1.64	30	Pass
NVNT	BLE 1M	2480	Ant1	-2.15	30	Pass
NVNT	BLE 2M	2402	Ant1	-0.85	30	Pass
NVNT	BLE 2M	2440	Ant1	-1.67	30	Pass
NVNT	BLE 2M	2480	Ant1	-2.17	30	Pass

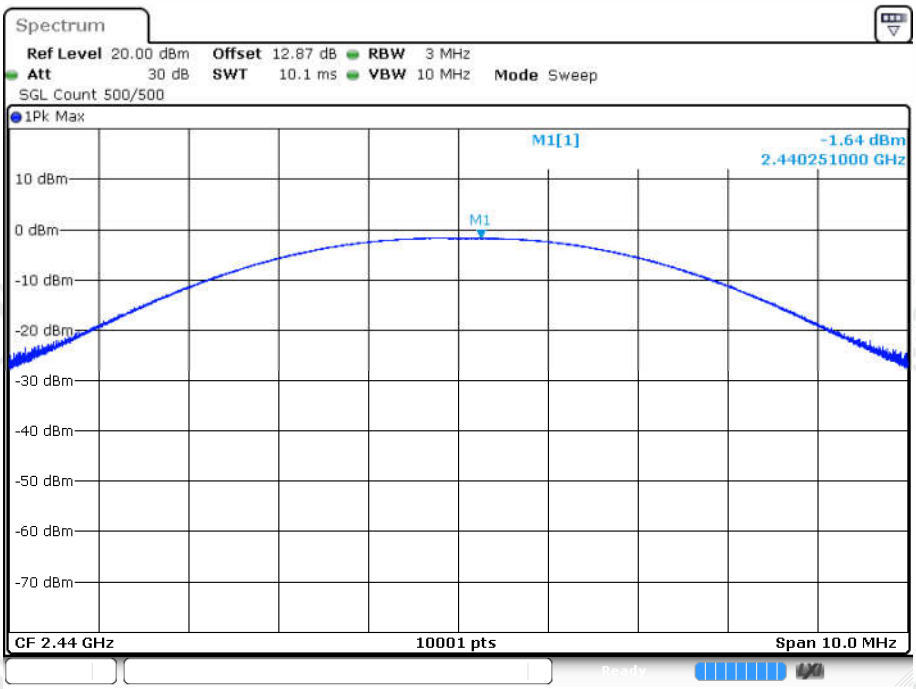
Test Graphs

Peak Power NVNT BLE 1M 2402MHz Ant1



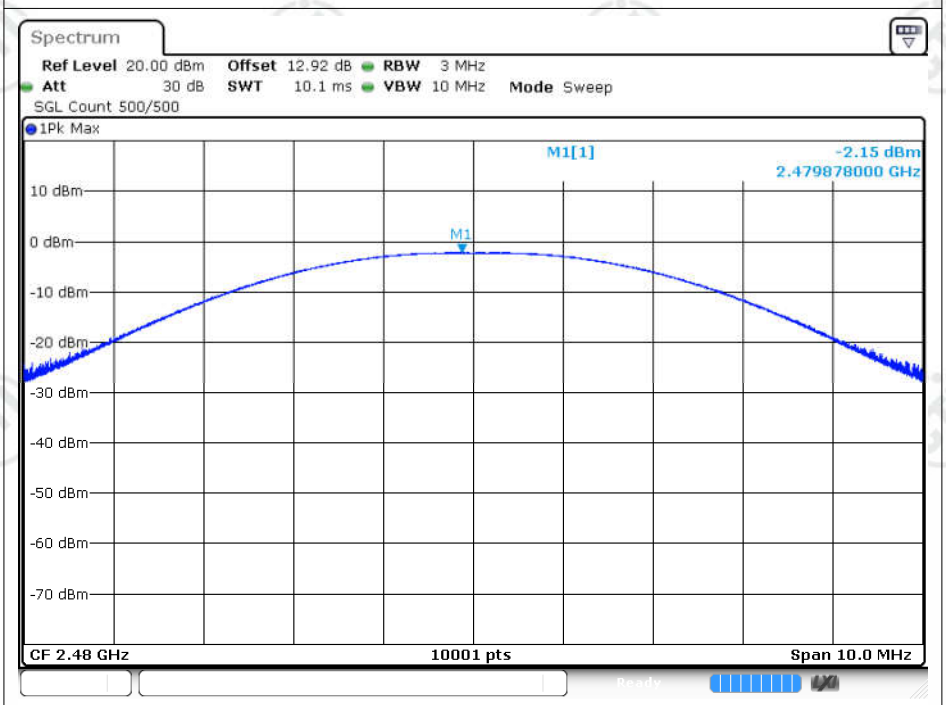
Date: 16.NOV.2023 09:23:43

Peak Power NVNT BLE 1M 2440MHz Ant1



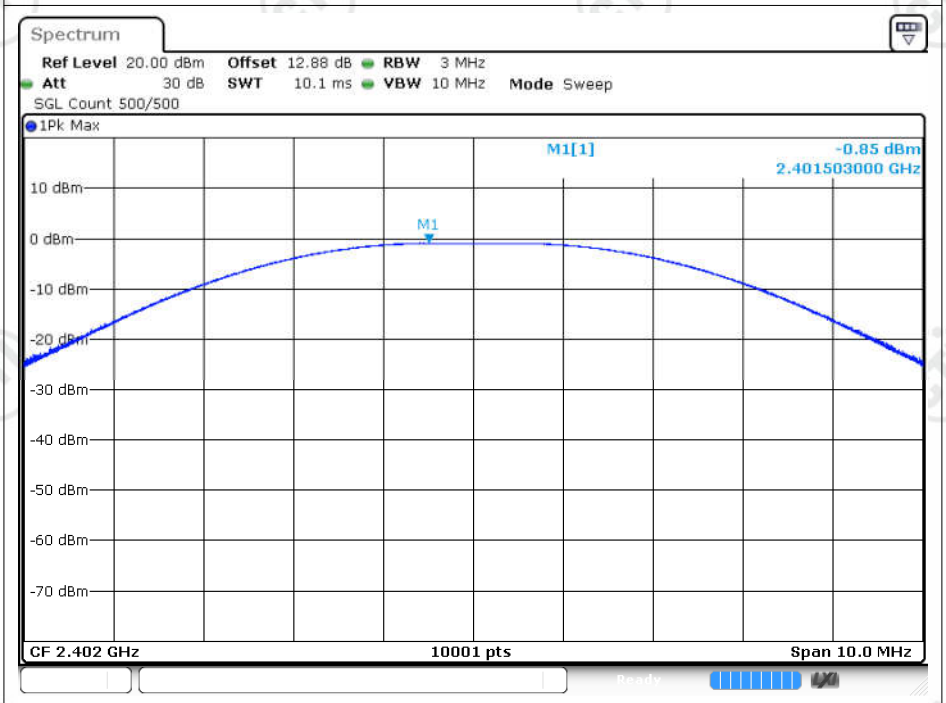
Date: 16.NOV.2023 09:25:39

Peak Power NVNT BLE 1M 2480MHz Ant1



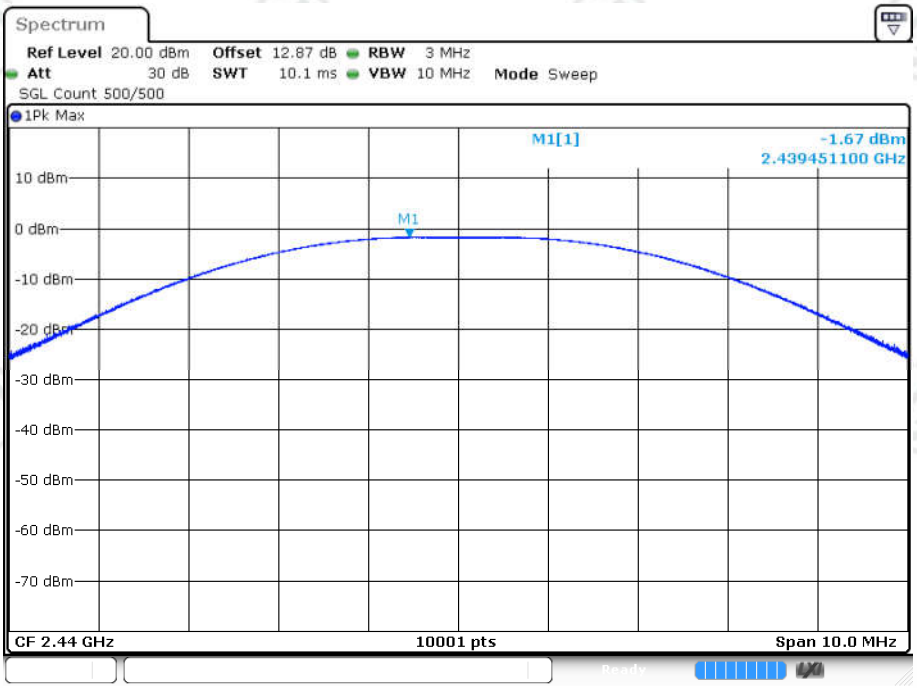
Date: 16.NOV.2023 09:27:12

Peak Power NVNT BLE 2M 2402MHz Ant1



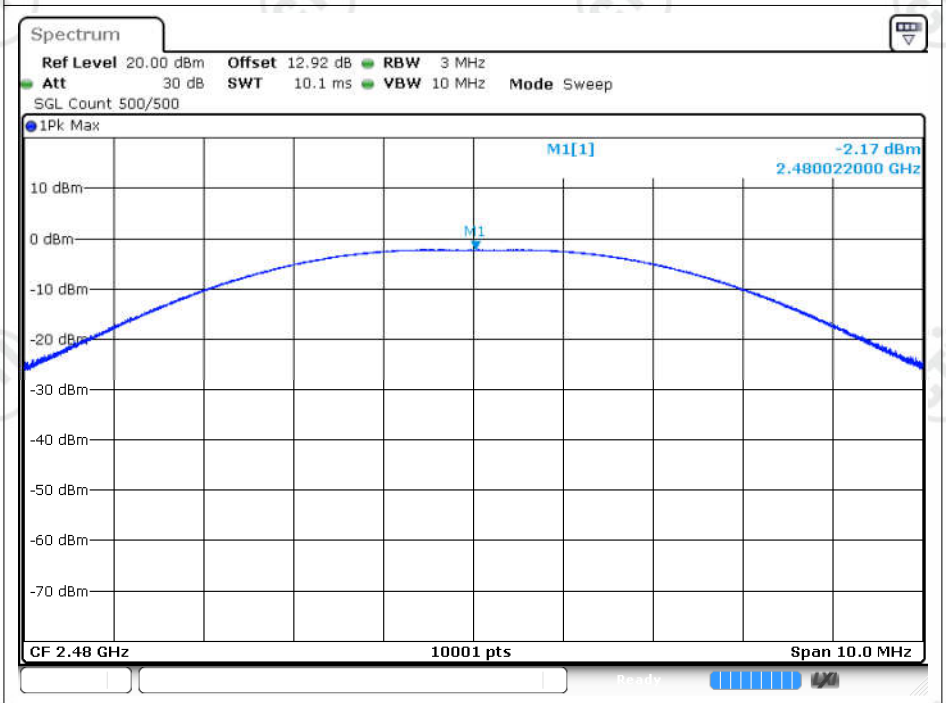
Date: 16.NOV.2023 09:29:49

Peak Power NVNT BLE 2M 2440MHz Ant1



Date: 16.NOV.2023 09:31:58

Peak Power NVNT BLE 2M 2480MHz Ant1



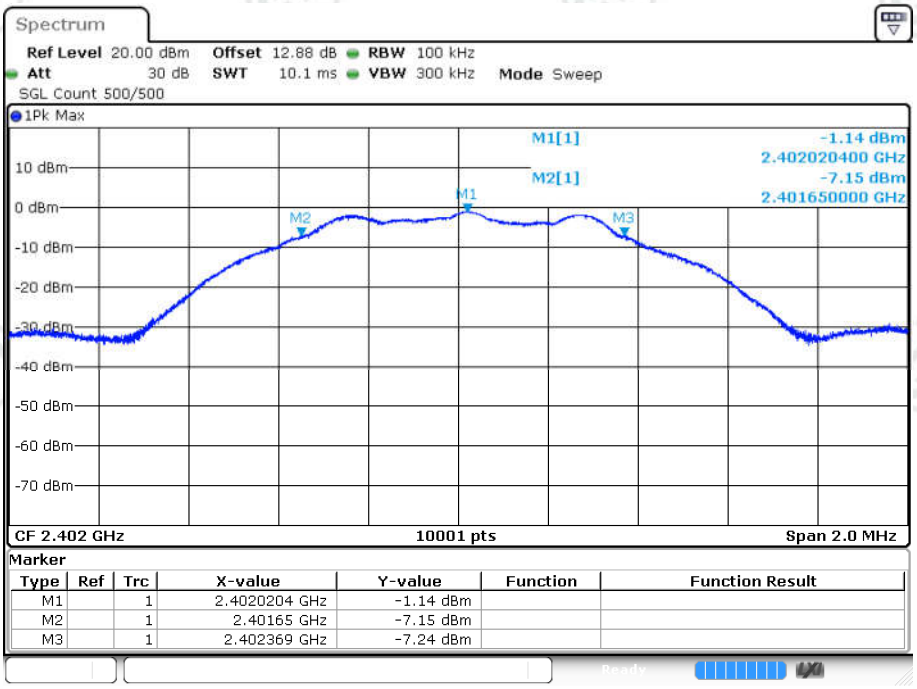
Date: 16.NOV.2023 09:34:03

-6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.719	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.719	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.723	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.145	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.146	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.149	0.5	Pass

Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



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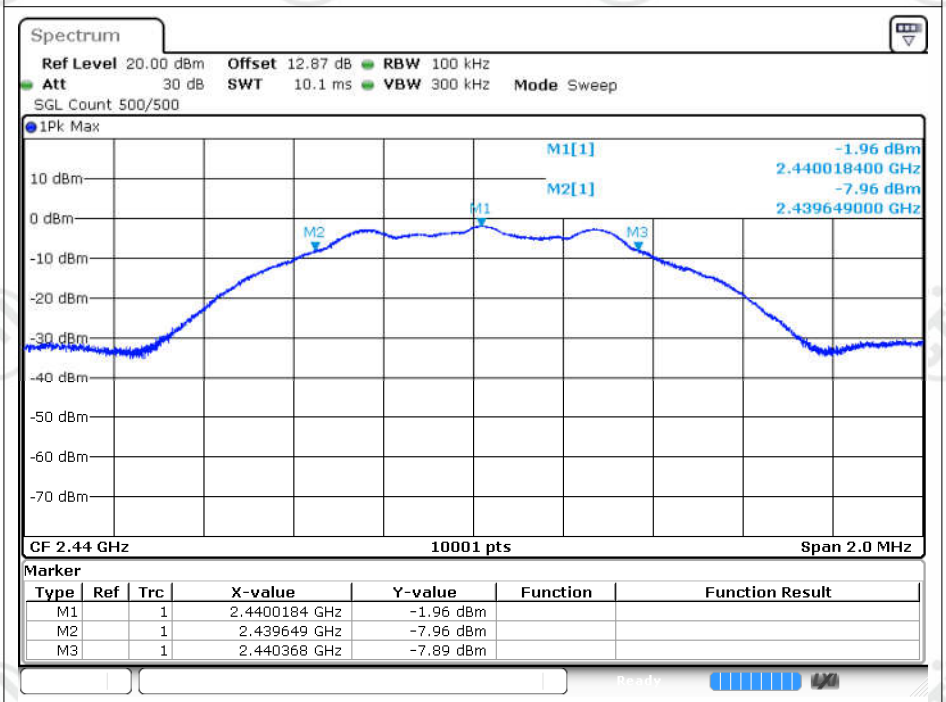
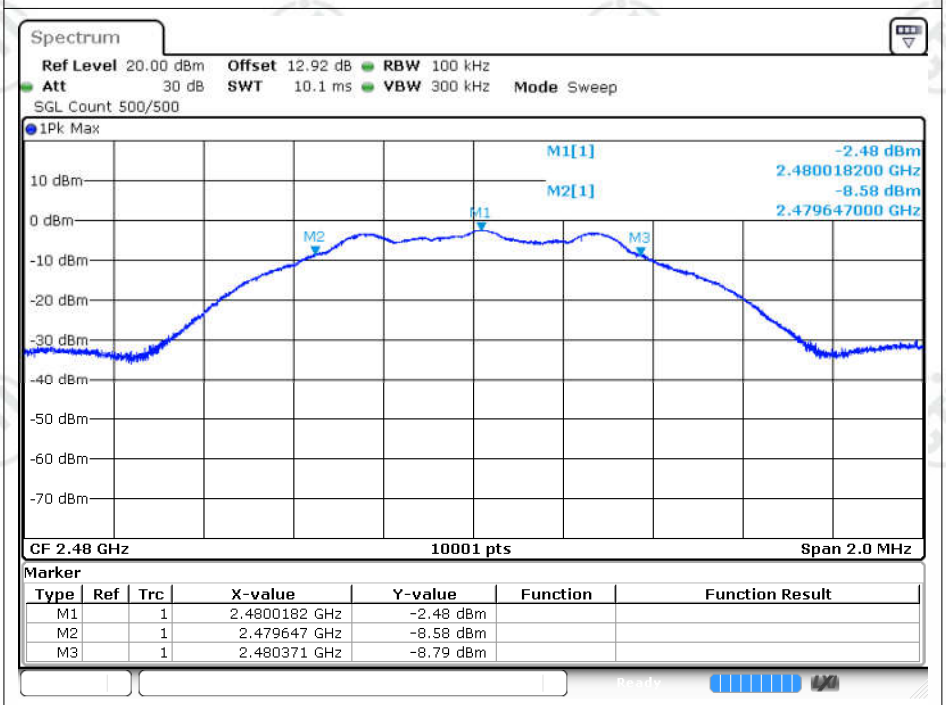
-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



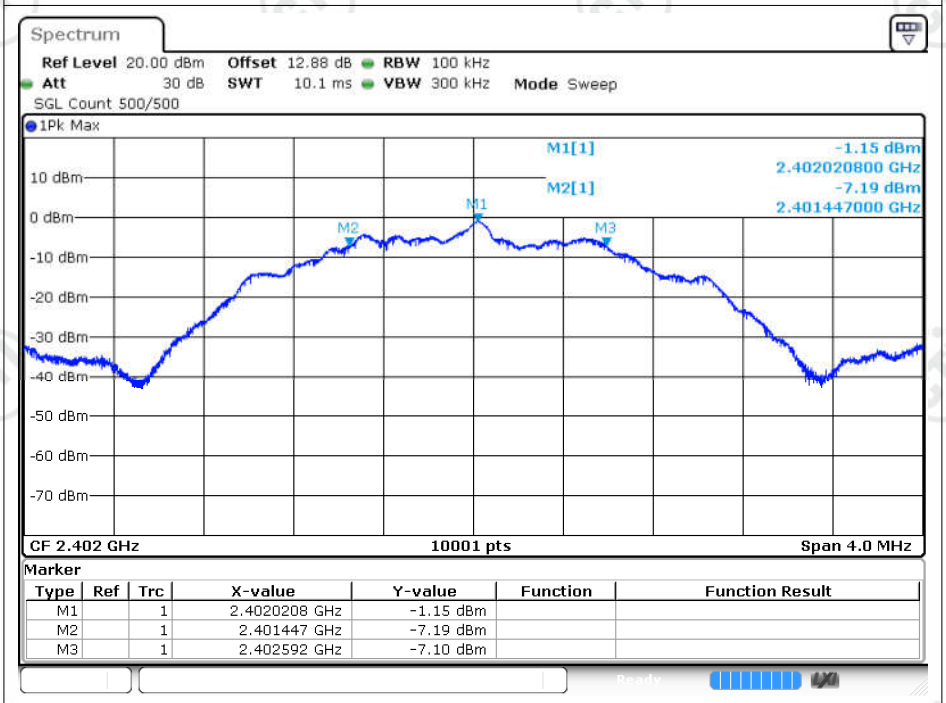
Date: 16.NOV.2023 09:26:02

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



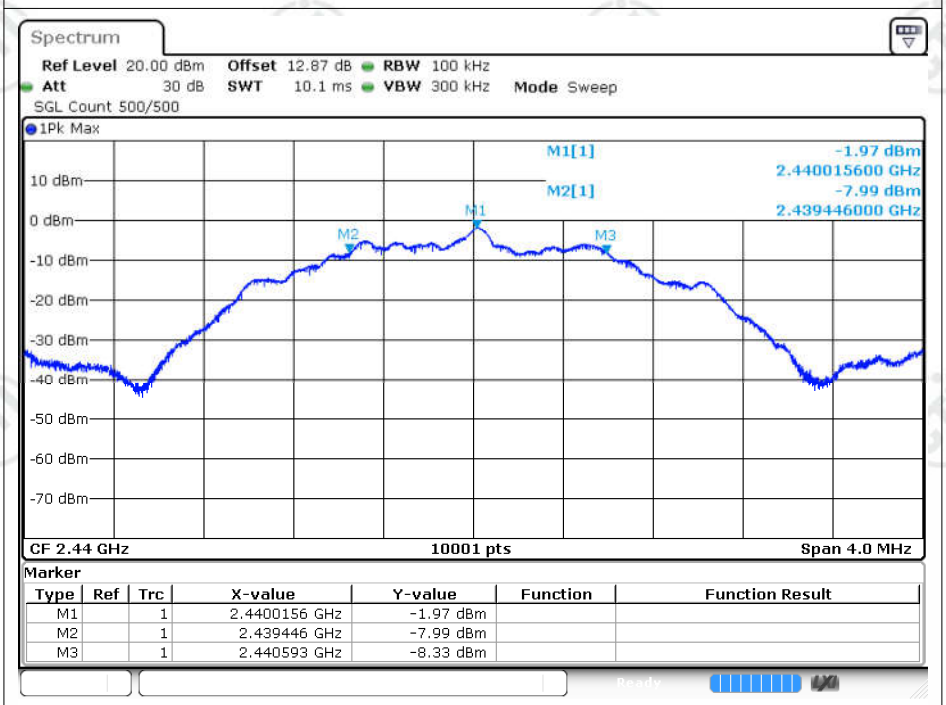
Date: 16.NOV.2023 09:27:34

-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



Date: 16.NOV.2023 09:30:11

-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

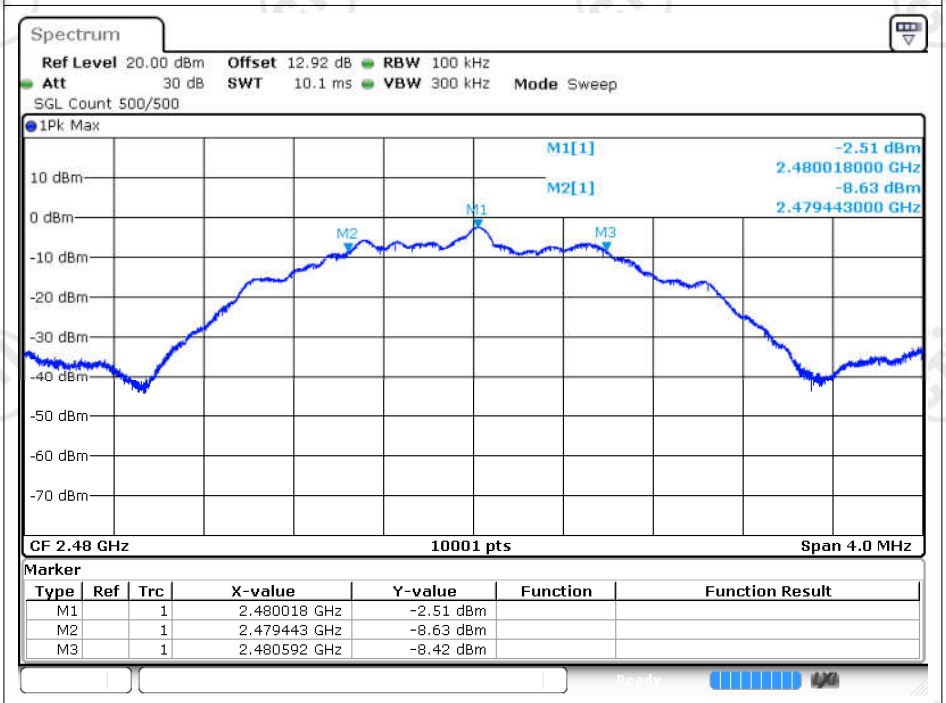


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4400156 GHz	-1.97 dBm		
M2		1	2.439446 GHz	-7.99 dBm		
M3		1	2.440593 GHz	-8.33 dBm		

Date: 16.NOV.2023 09:32:21

-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.480018 GHz	-2.51 dBm		
M2		1	2.479443 GHz	-8.63 dBm		
M3		1	2.480592 GHz	-8.42 dBm		

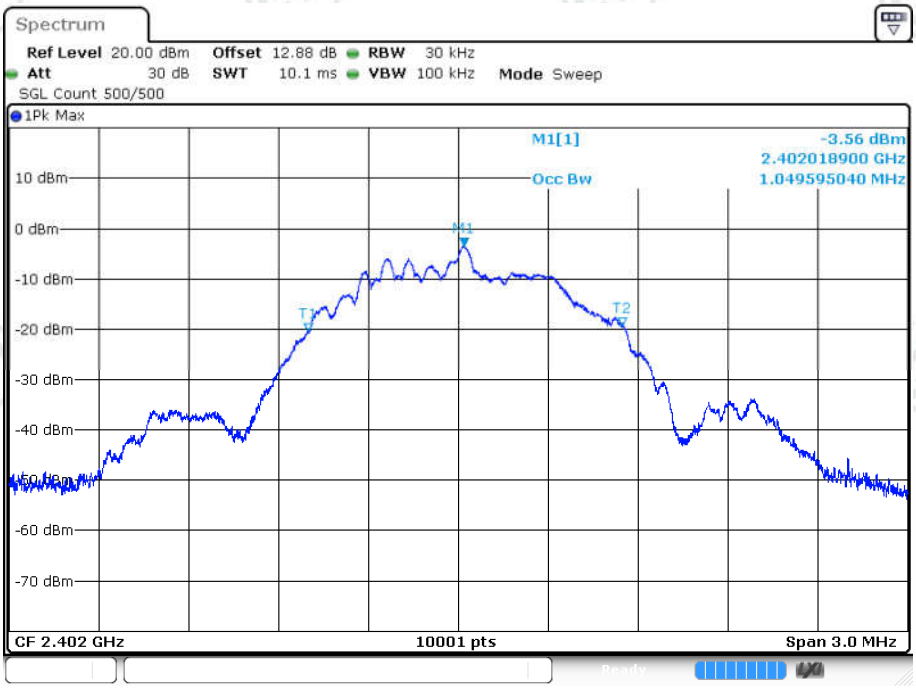
Date: 16.NOV.2023 09:34:25

Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.05
NVNT	BLE 1M	2440	Ant1	1.051
NVNT	BLE 1M	2480	Ant1	1.055
NVNT	BLE 2M	2402	Ant1	2.06
NVNT	BLE 2M	2440	Ant1	2.062
NVNT	BLE 2M	2480	Ant1	2.064

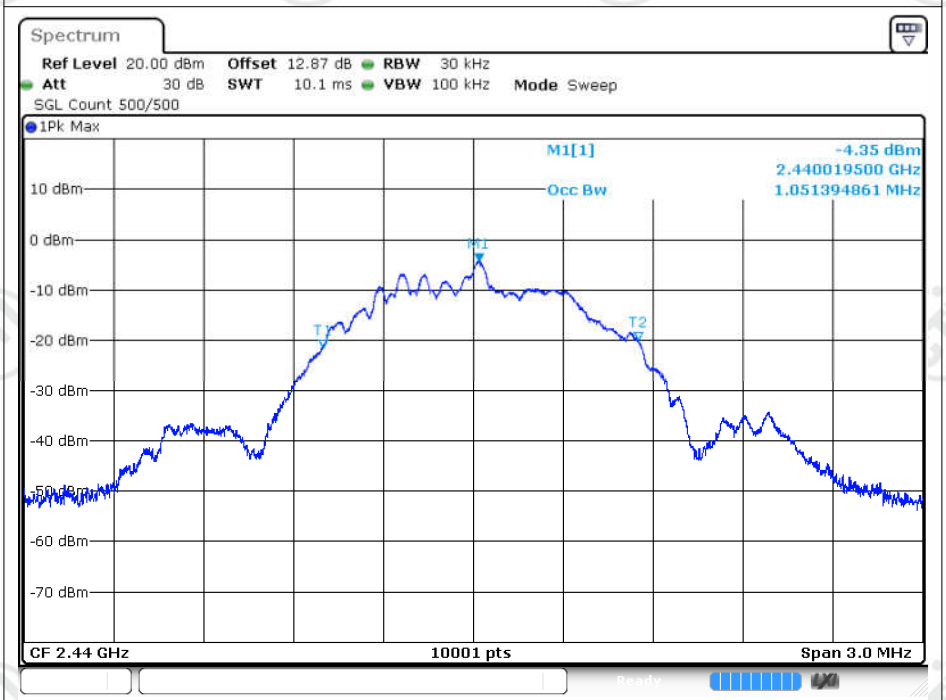
Test Graphs

OBW NVNT BLE 1M 2402MHz Ant1



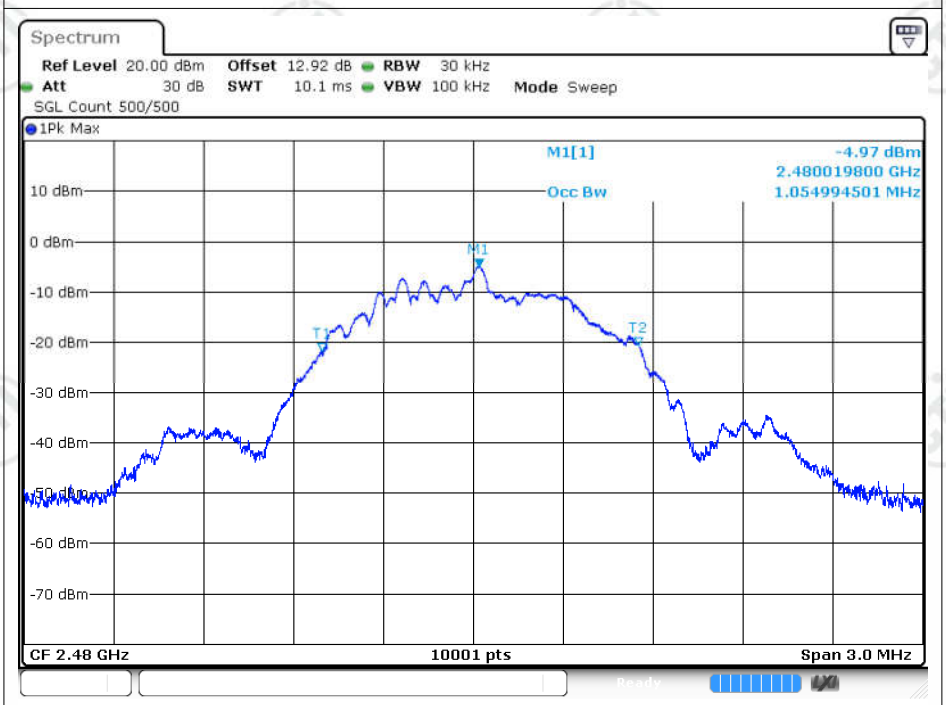
Date: 16.NOV.2023 09:23:55

OBW NVNT BLE 1M 2440MHz Ant1



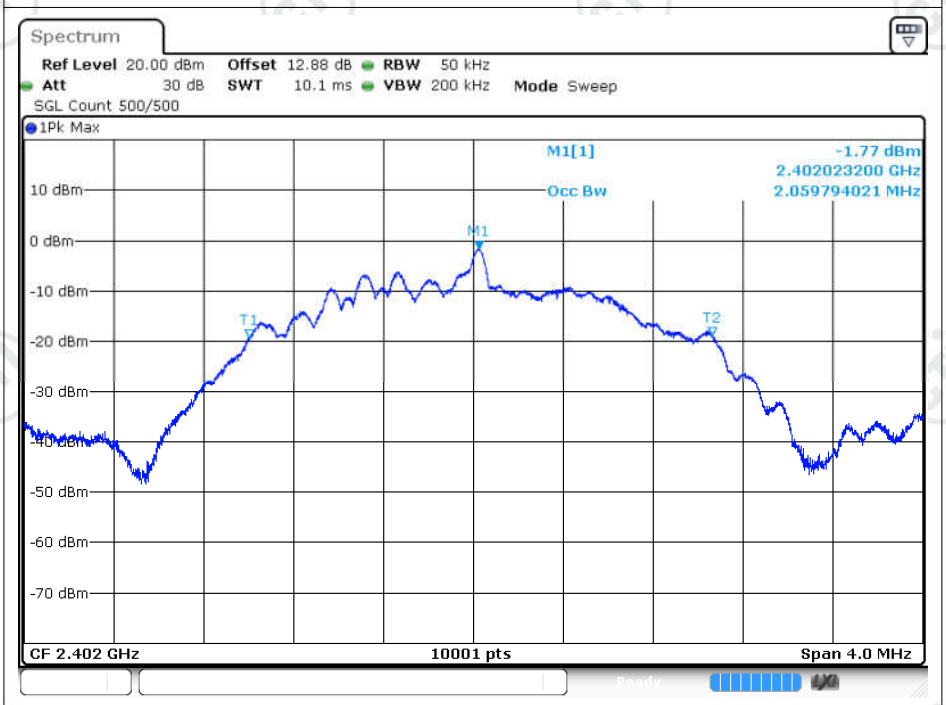
Date: 16.NOV.2023 09:25:51

OBW NVNT BLE 1M 2480MHz Ant1



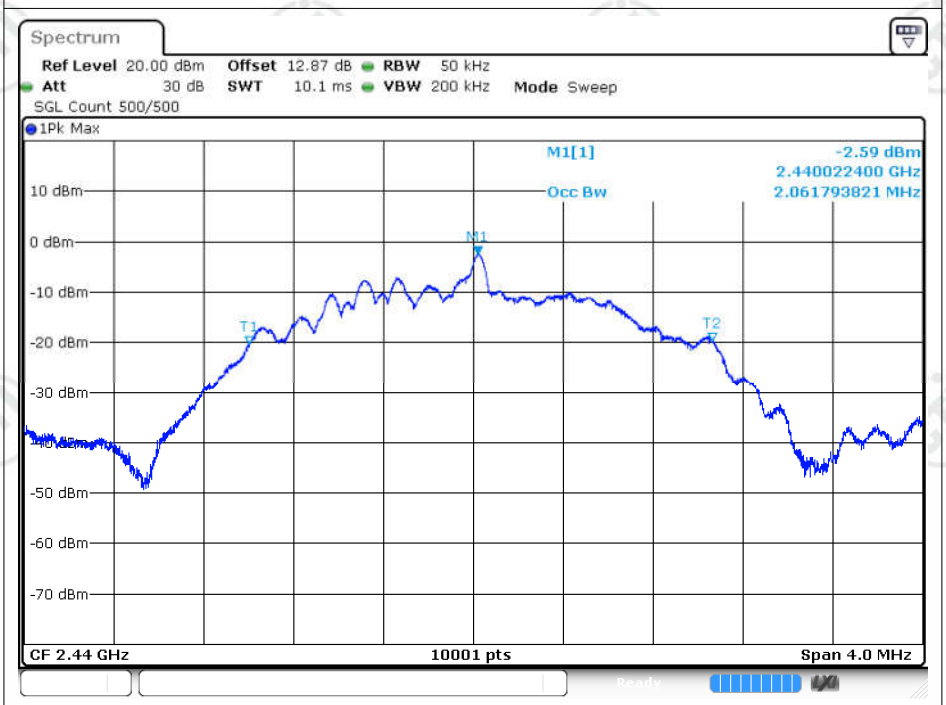
Date: 16.NOV.2023 09:27:23

OBW NVNT BLE 2M 2402MHz Ant1



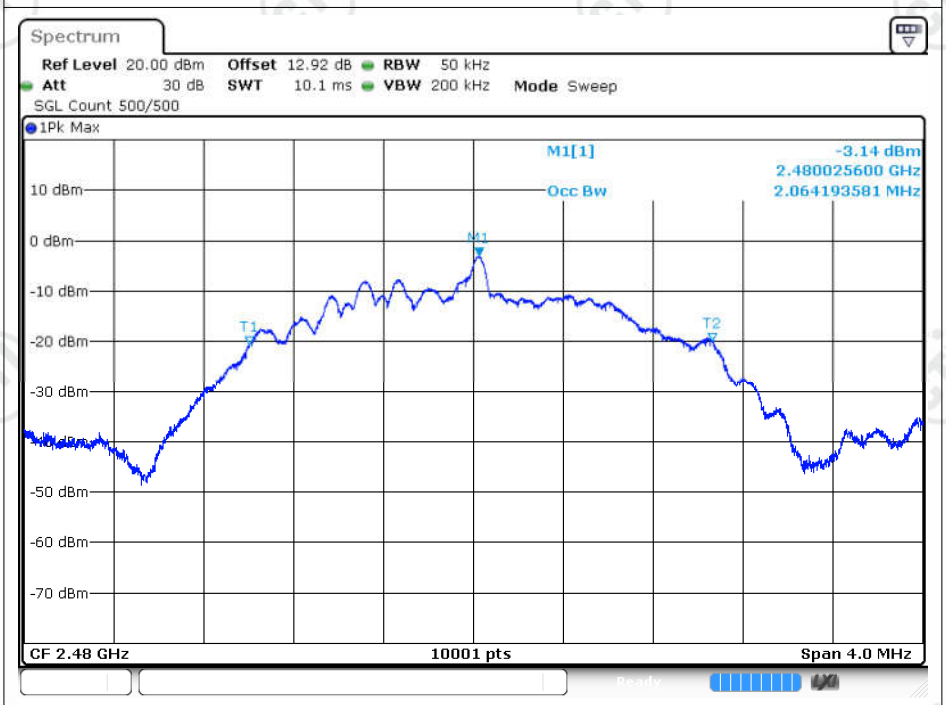
Date: 16.NOV.2023 09:30:00

OBW NVNT BLE 2M 2440MHz Ant1



Date: 16.NOV.2023 09:32:09

OBW NVNT BLE 2M 2480MHz Ant1



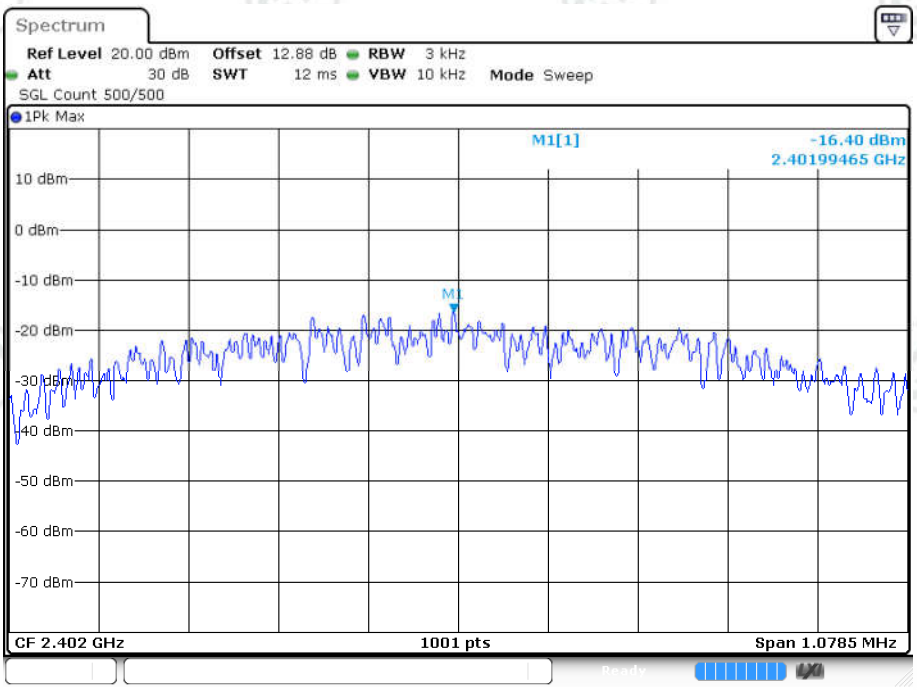
Date: 16.NOV.2023 09:34:14

Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-16.4	8	Pass
NVNT	BLE 1M	2440	Ant1	-17.16	8	Pass
NVNT	BLE 1M	2480	Ant1	-17.67	8	Pass
NVNT	BLE 2M	2402	Ant1	-18.84	8	Pass
NVNT	BLE 2M	2440	Ant1	-19.69	8	Pass
NVNT	BLE 2M	2480	Ant1	-20.22	8	Pass

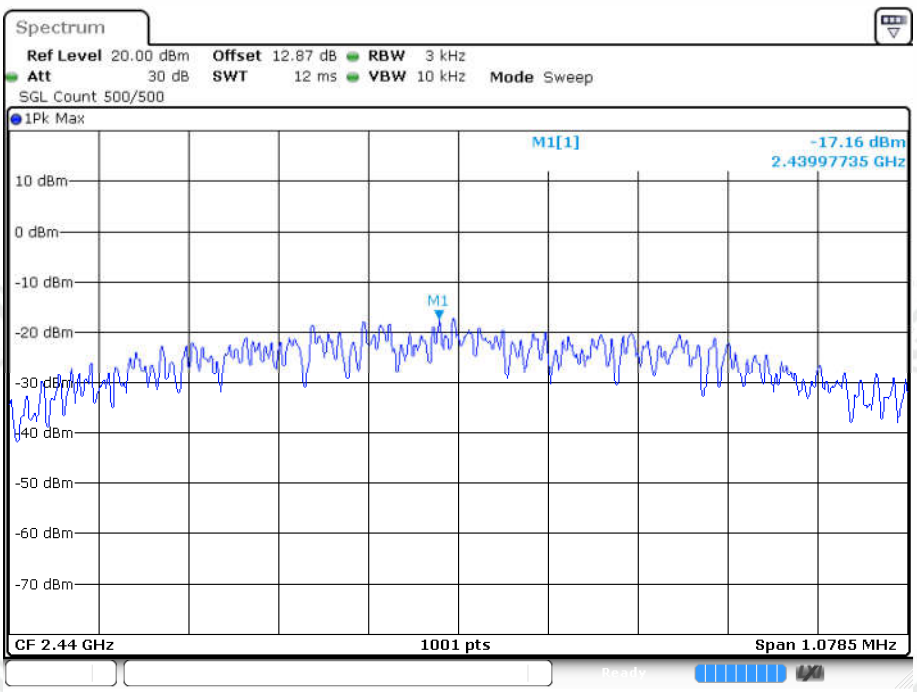
Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1



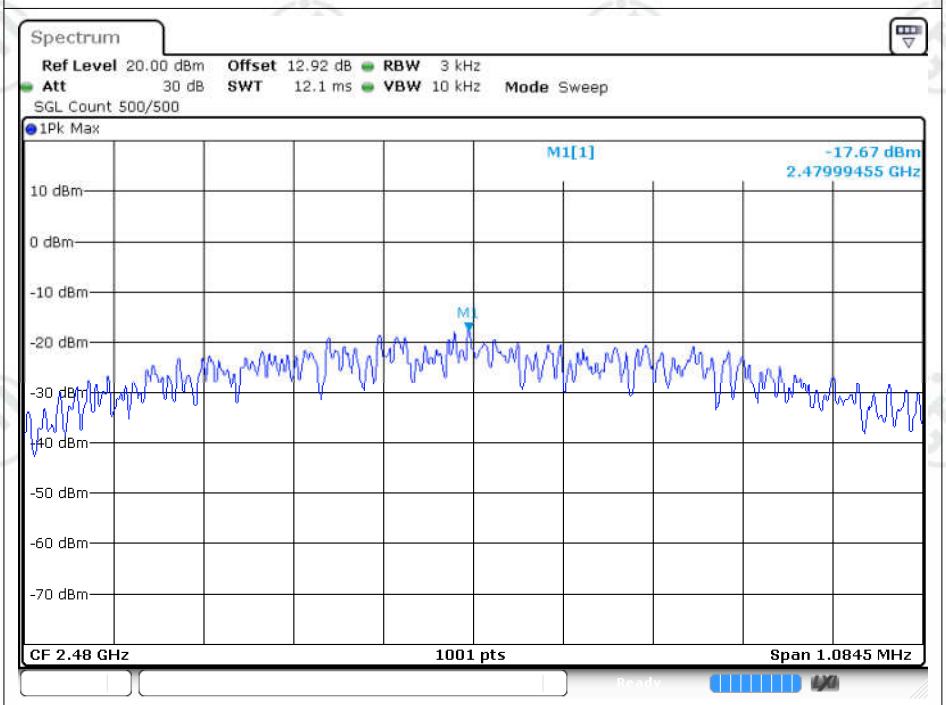
Date: 16.NOV.2023 09:24:24

PSD NVNT BLE 1M 2440MHz Ant1



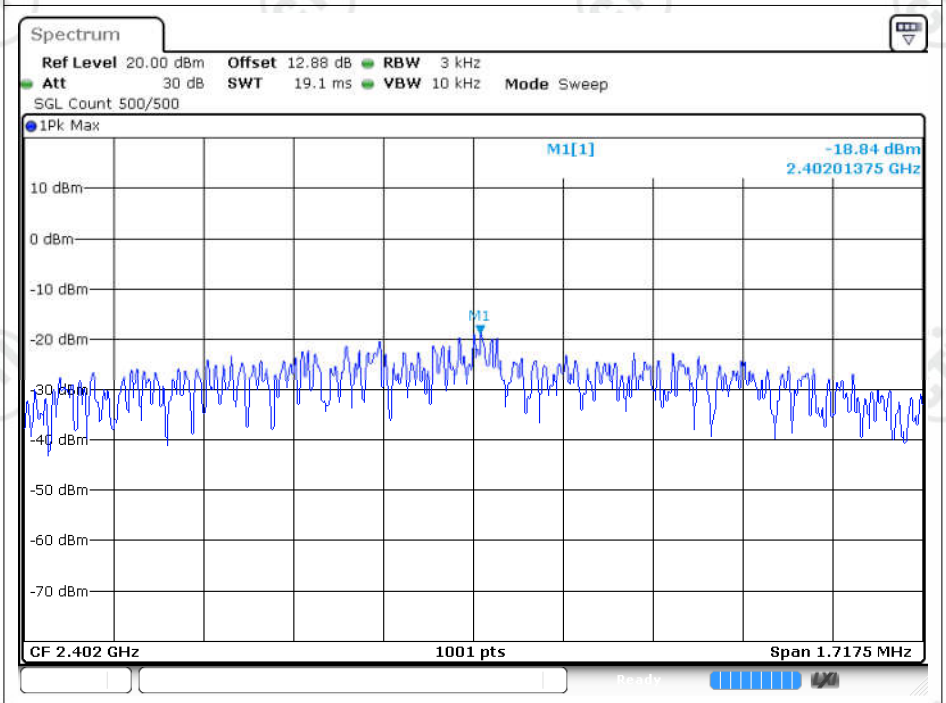
Date: 16.NOV.2023 09:26:20

PSD NVNT BLE 1M 2480MHz Ant1



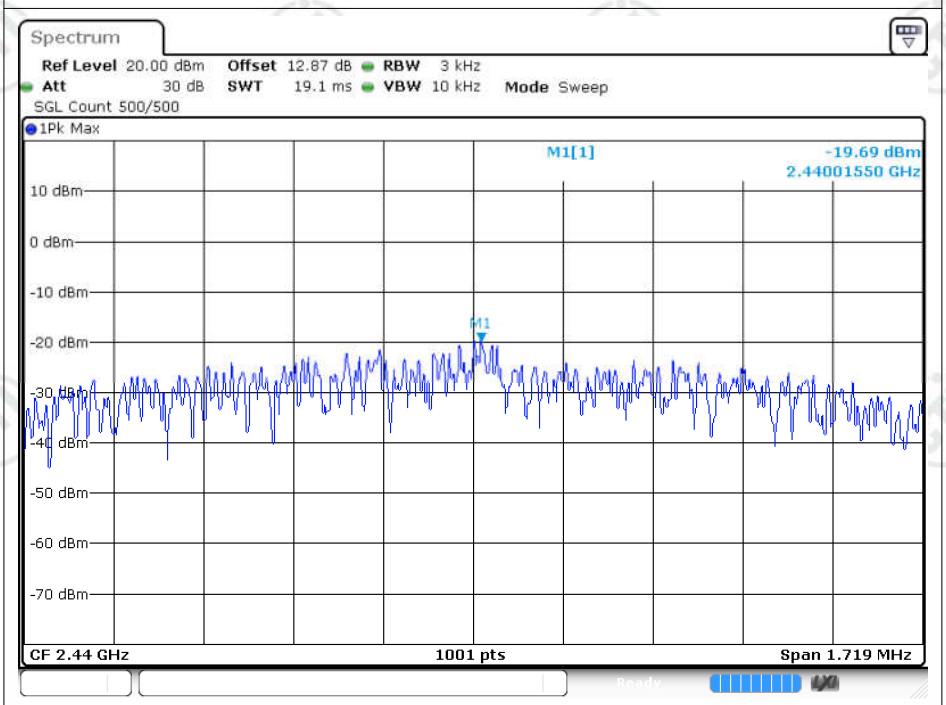
Date: 16.NOV.2023 09:27:53

PSD NVNT BLE 2M 2402MHz Ant1



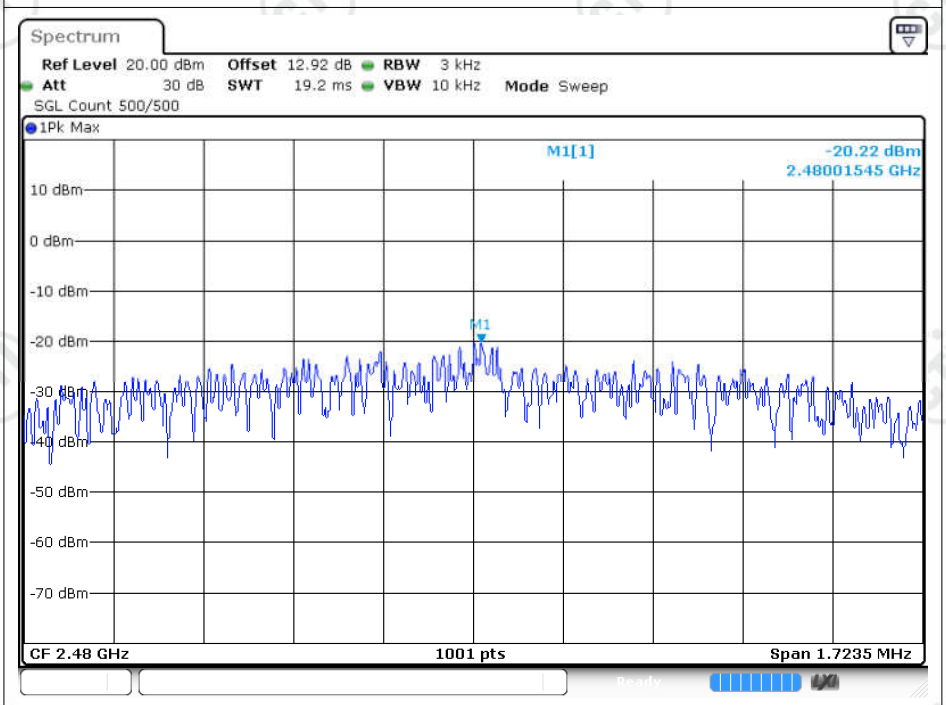
Date: 16.NOV.2023 09:30:33

PSD NVNT BLE 2M 2440MHz Ant1



Date: 16.NOV.2023 09:32:42

PSD NVNT BLE 2M 2480MHz Ant1



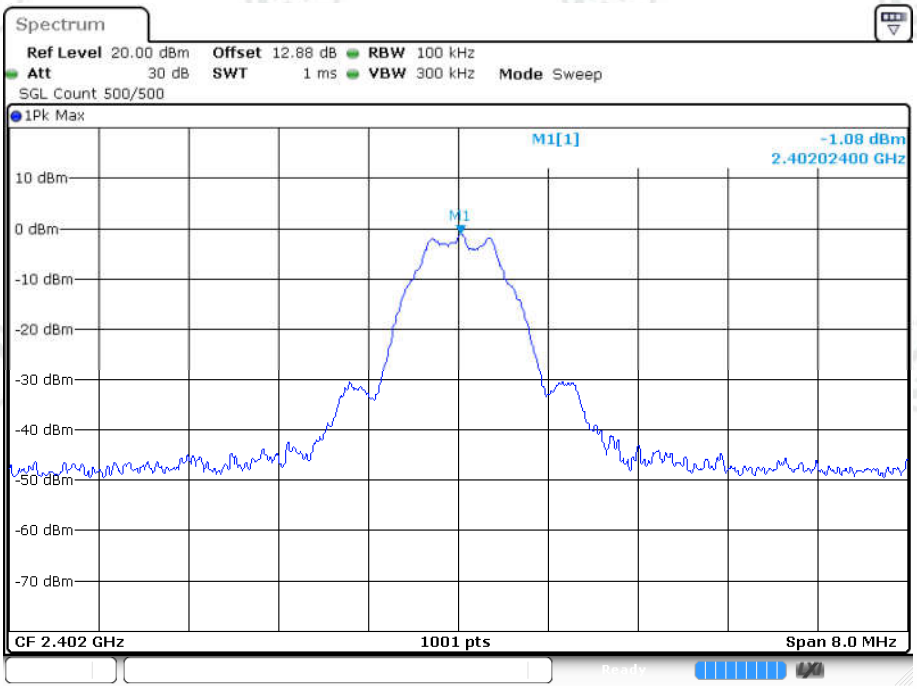
Date: 16.NOV.2023 09:34:47

Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-43.22	-20	Pass
NVNT	BLE 1M	2480	Ant1	-42.57	-20	Pass
NVNT	BLE 2M	2402	Ant1	-34.04	-20	Pass
NVNT	BLE 2M	2480	Ant1	-42.2	-20	Pass

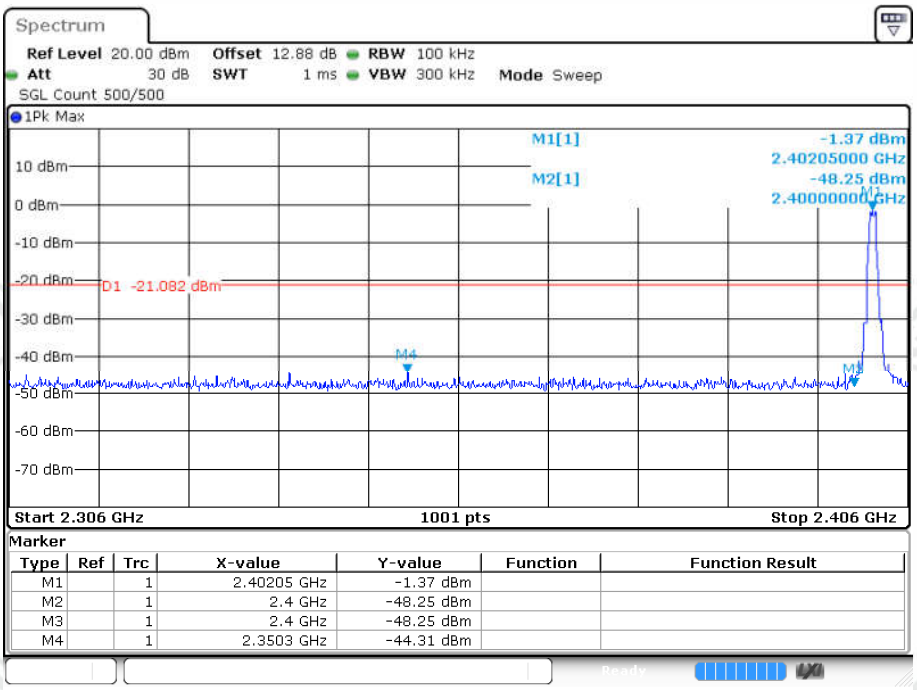
Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



Date: 16.NOV.2023 09:24:28

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission

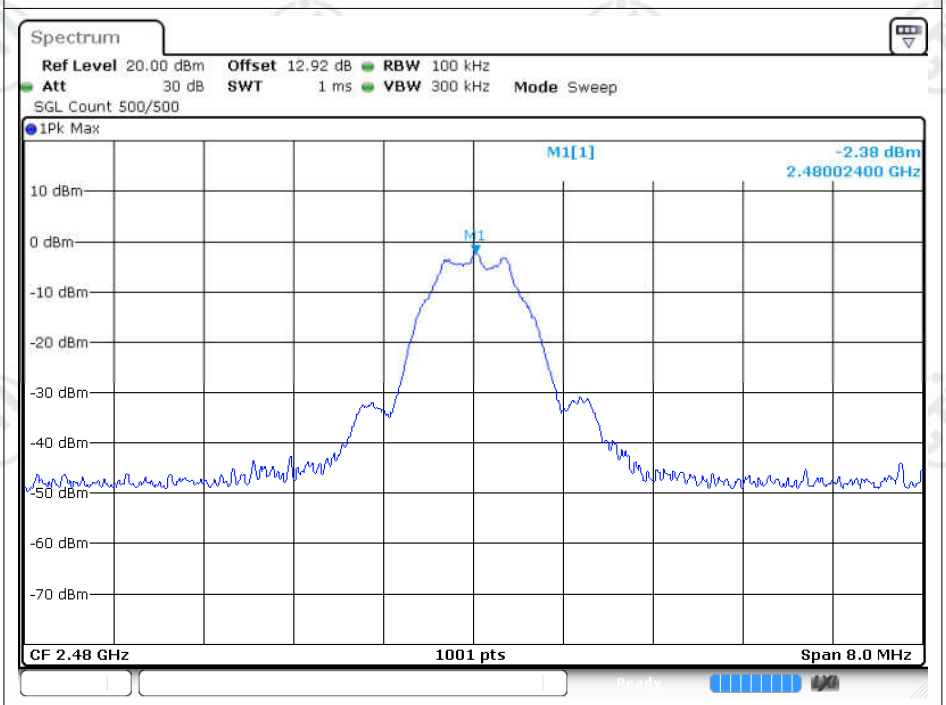


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40205 GHz	-1.37 dBm		
M2		1	2.4 GHz	-48.25 dBm		
M3		1	2.4 GHz	-48.25 dBm		
M4		1	2.3503 GHz	-44.31 dBm		

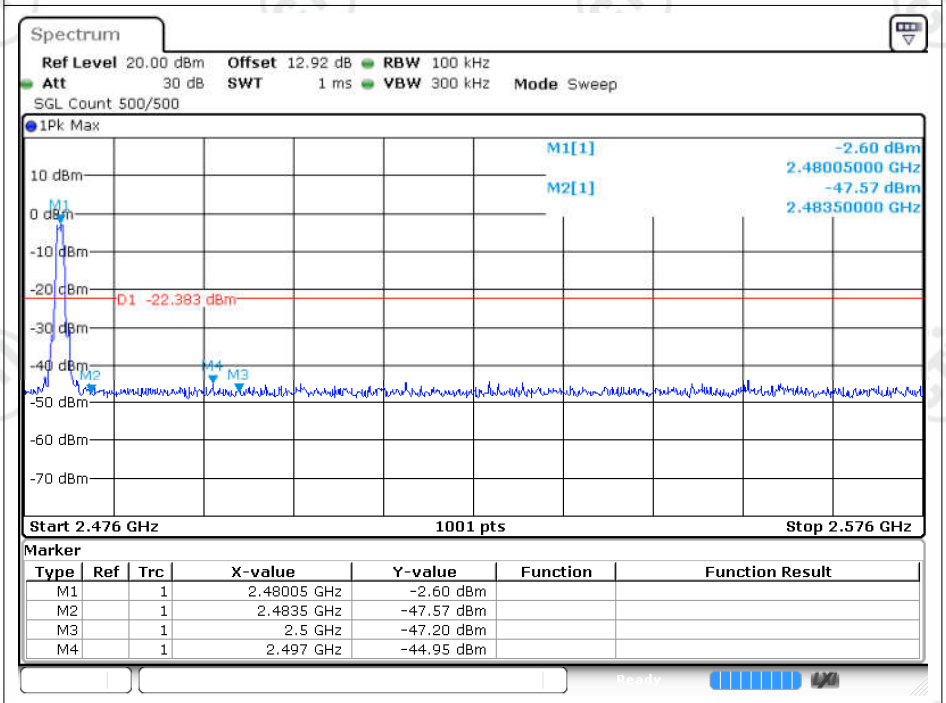
Date: 16.NOV.2023 09:24:31

Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



Date: 16.NOV.2023 09:27:56

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48005 GHz	-2.60 dBm		
M2		1	2.4835 GHz	-47.57 dBm		
M3		1	2.5 GHz	-47.20 dBm		
M4		1	2.497 GHz	-44.95 dBm		

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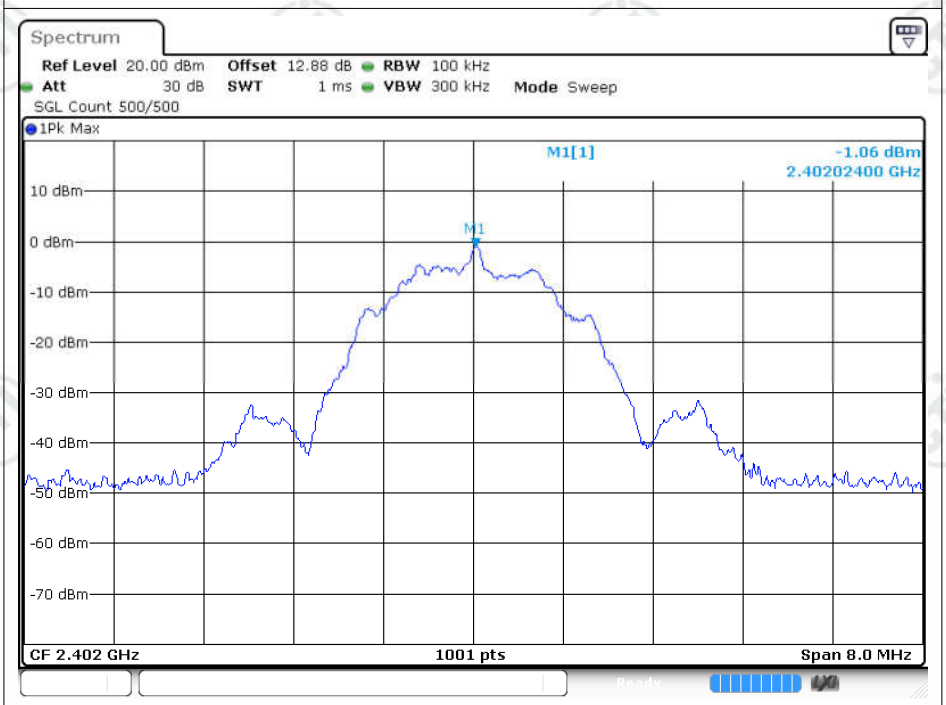
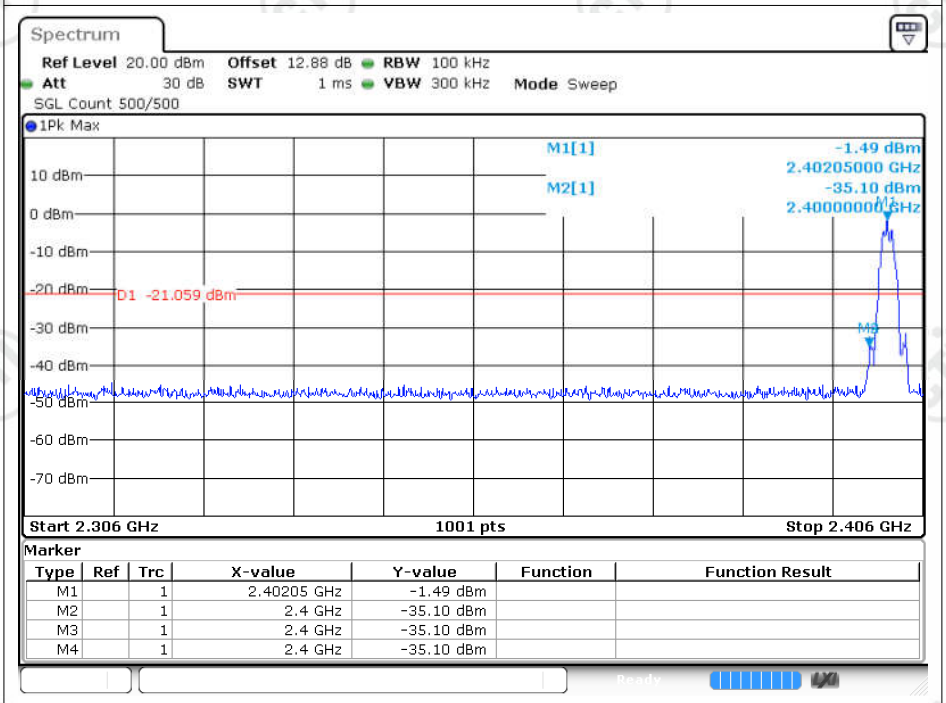
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Date: 16.NOV.2023 09:30:36

Band Edge NVNT BLE 2M 2402MHz Ant1 Emission

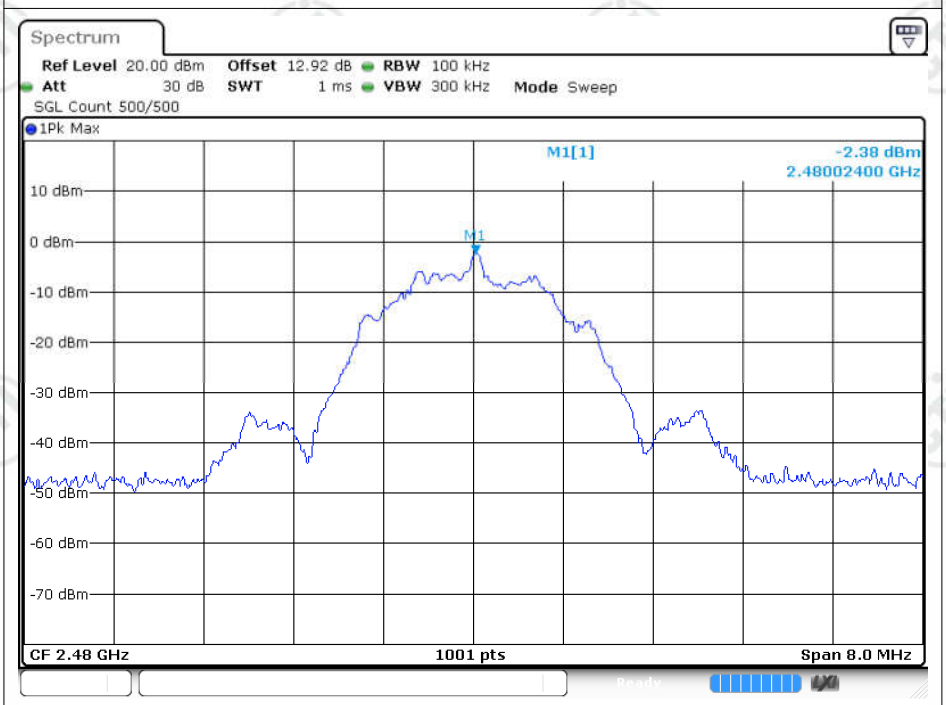


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40205 GHz	-1.49 dBm		
M2		1	2.4 GHz	-35.10 dBm		
M3		1	2.4 GHz	-35.10 dBm		
M4		1	2.4 GHz	-35.10 dBm		

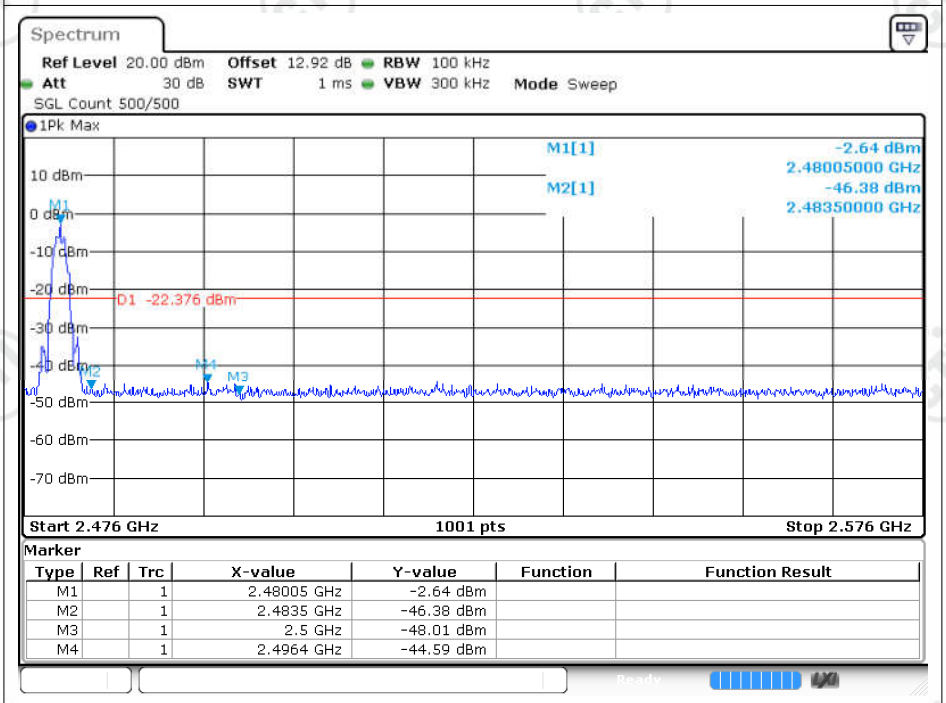
Date: 16.NOV.2023 09:30:39

Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



Date: 16.NOV.2023 09:34:50

Band Edge NVNT BLE 2M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48005 GHz	-2.64 dBm		
M2		1	2.4835 GHz	-46.38 dBm		
M3		1	2.5 GHz	-48.01 dBm		
M4		1	2.4964 GHz	-44.59 dBm		

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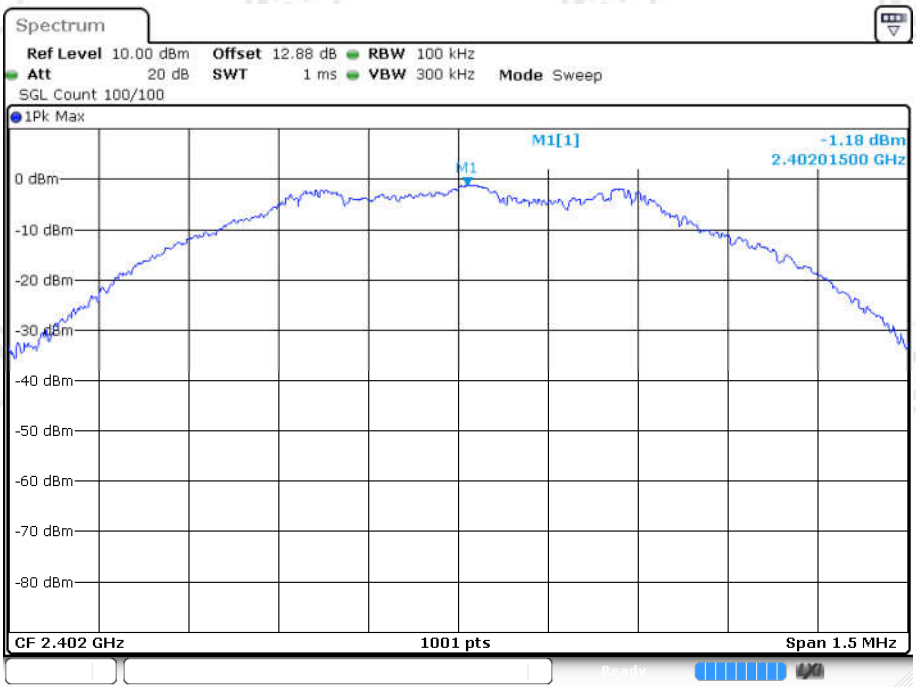
Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-45.56	-20	Pass
NVNT	BLE 1M	2440	Ant1	-42.15	-20	Pass
NVNT	BLE 1M	2480	Ant1	-40.36	-20	Pass
NVNT	BLE 2M	2402	Ant1	-47.12	-20	Pass
NVNT	BLE 2M	2440	Ant1	-41.94	-20	Pass
NVNT	BLE 2M	2480	Ant1	-41.47	-20	Pass

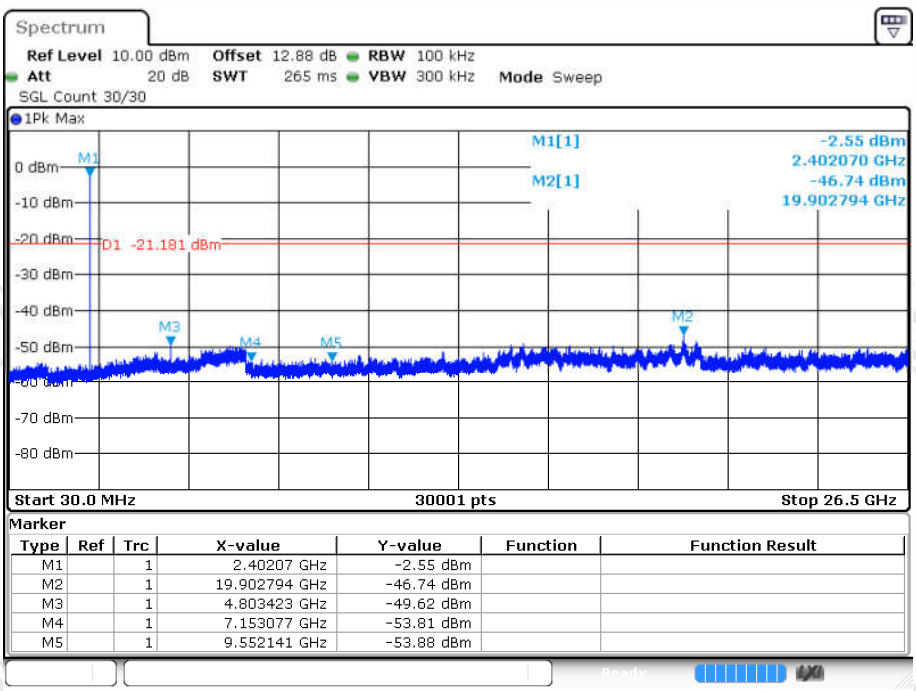
Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Date: 16.NOV.2023 09:24:34

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	-2.55 dBm		
M2		1	19.902794 GHz	-46.74 dBm		
M3		1	4.803423 GHz	-49.62 dBm		
M4		1	7.153077 GHz	-53.81 dBm		
M5		1	9.552141 GHz	-53.88 dBm		

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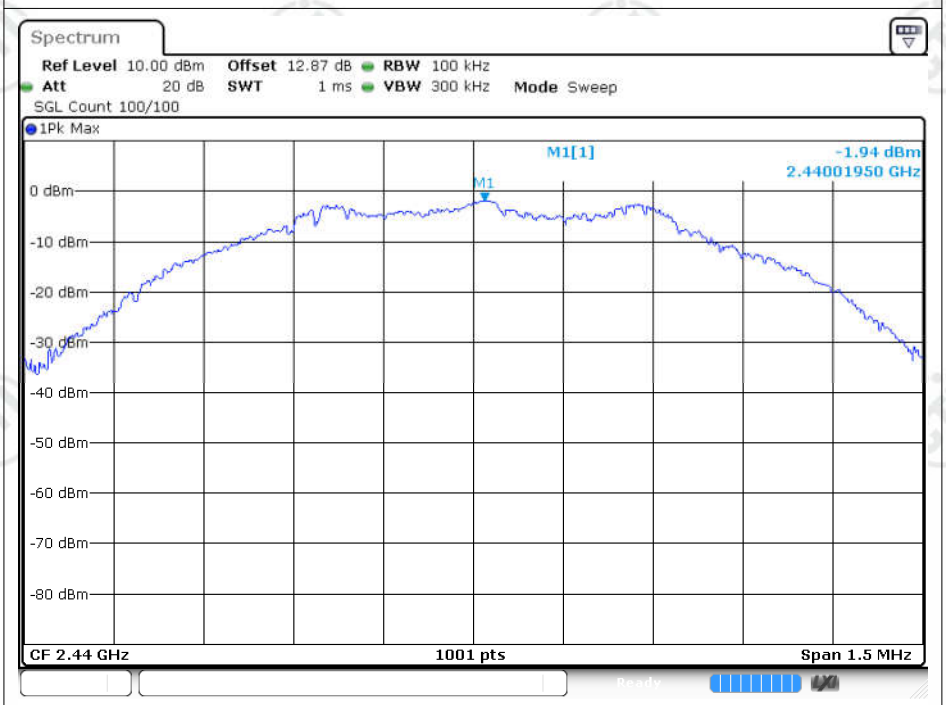
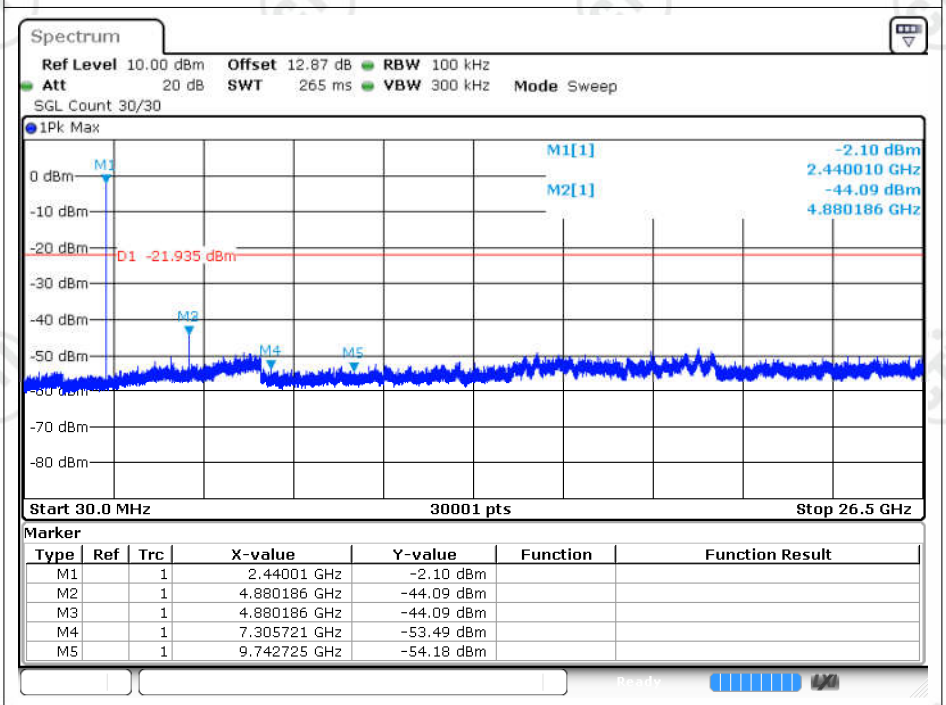
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



Date: 16.NOV.2023 09:26:23

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission

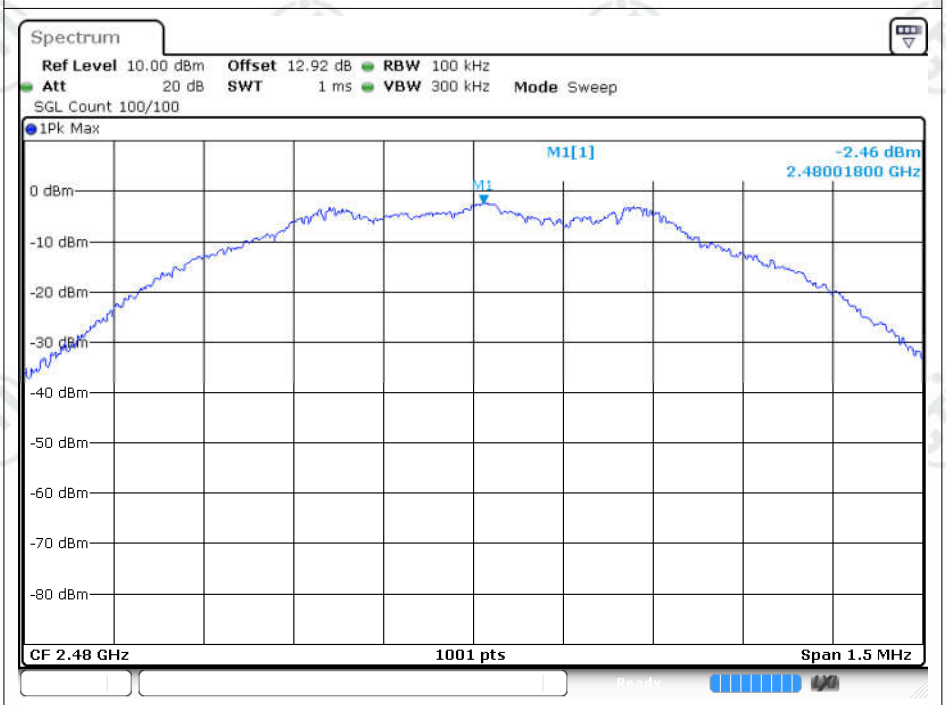


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44001 GHz	-2.10 dBm		
M2		1	4.880186 GHz	-44.09 dBm		
M3		1	4.880186 GHz	-44.09 dBm		
M4		1	7.305721 GHz	-53.49 dBm		
M5		1	9.742725 GHz	-54.18 dBm		

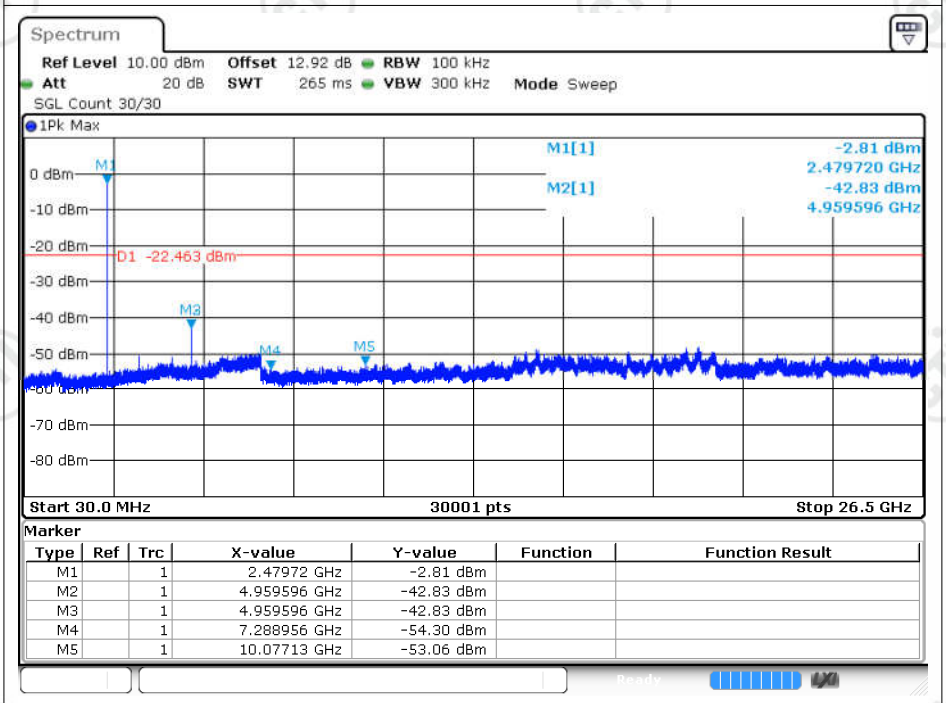
Date: 16.NOV.2023 09:26:52

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Date: 16.NOV.2023 09:28:01

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission

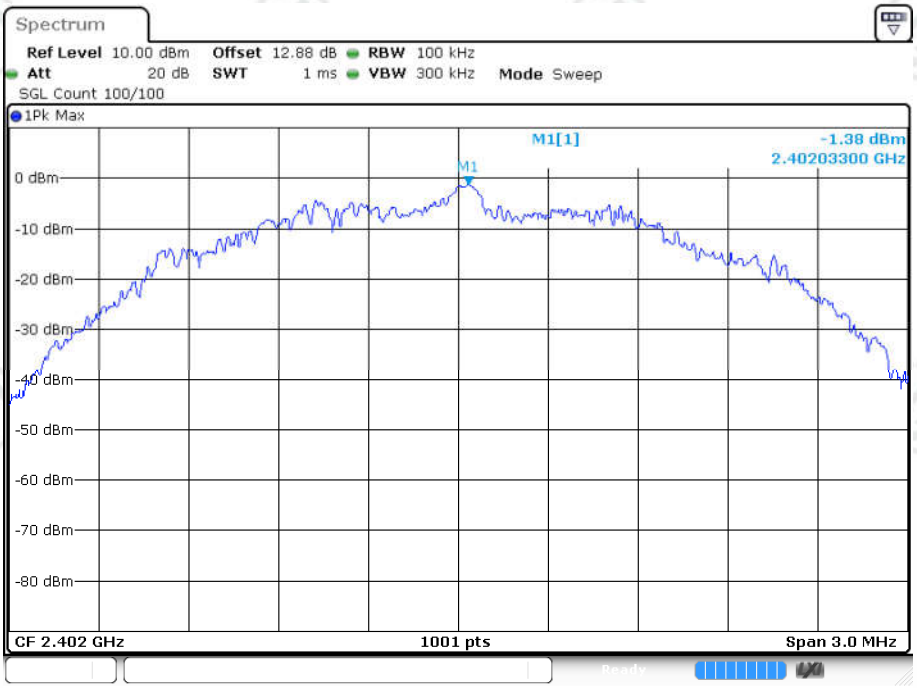


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-2.81 dBm		
M2		1	4.959596 GHz	-42.83 dBm		
M3		1	4.959596 GHz	-42.83 dBm		
M4		1	7.288956 GHz	-54.30 dBm		
M5		1	10.07713 GHz	-53.06 dBm		

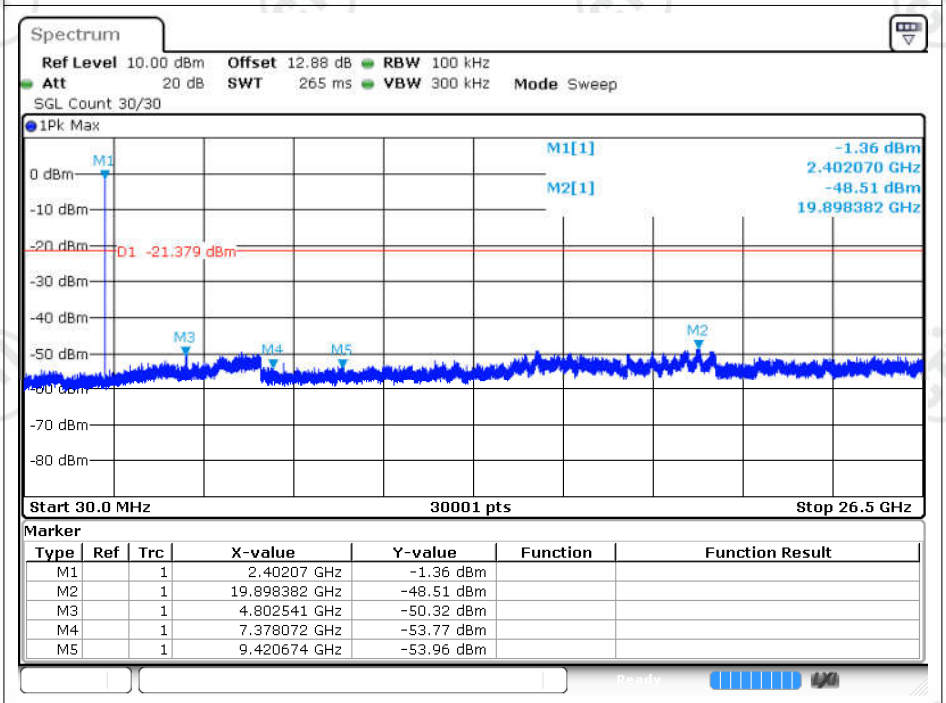
Date: 16.NOV.2023 09:28:31

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



Date: 16.NOV.2023 09:30:43

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	-1.36 dBm		
M2		1	19.898382 GHz	-48.51 dBm		
M3		1	4.802541 GHz	-50.32 dBm		
M4		1	7.378072 GHz	-53.77 dBm		
M5		1	9.420674 GHz	-53.96 dBm		

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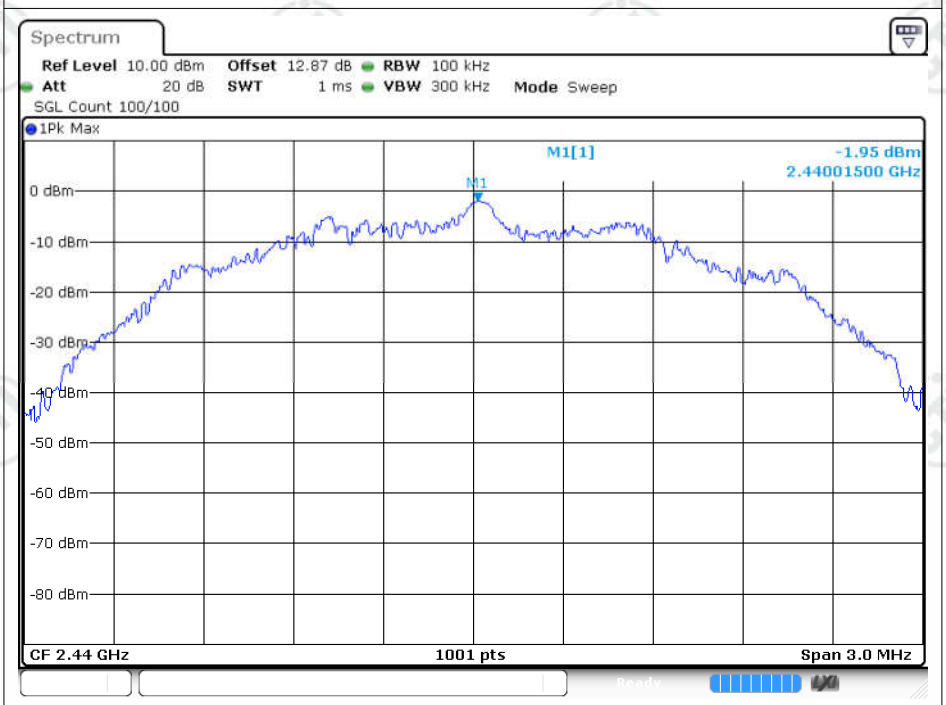
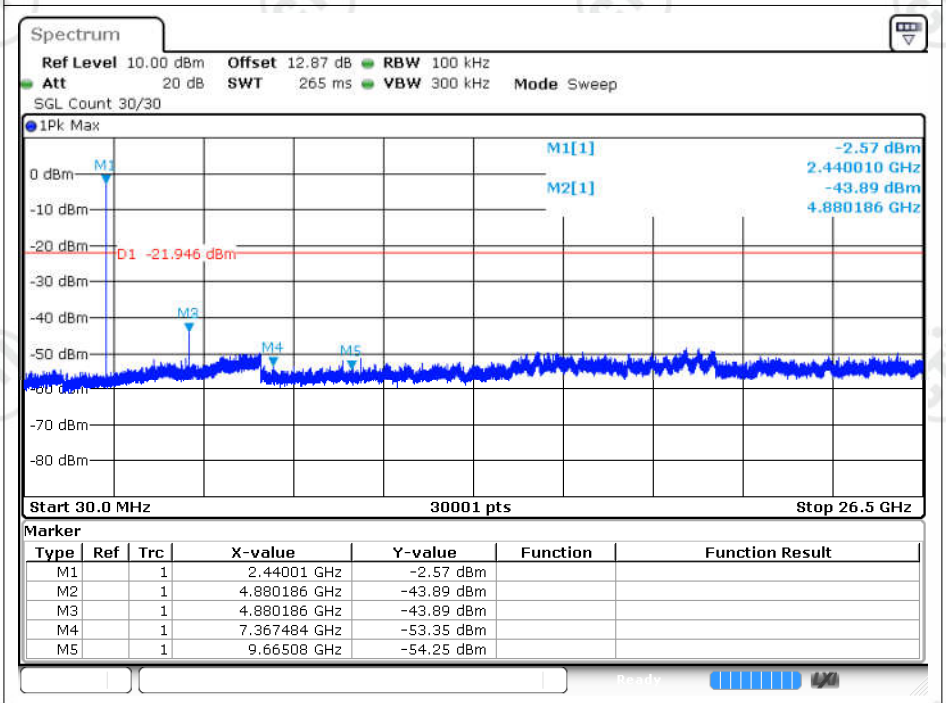
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



Date: 16.NOV.2023 09:32:45

Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.44001 GHz	-2.57 dBm		
M2		1	4.880186 GHz	-43.89 dBm		
M3		1	4.880186 GHz	-43.89 dBm		
M4		1	7.367484 GHz	-53.35 dBm		
M5		1	9.66508 GHz	-54.25 dBm		

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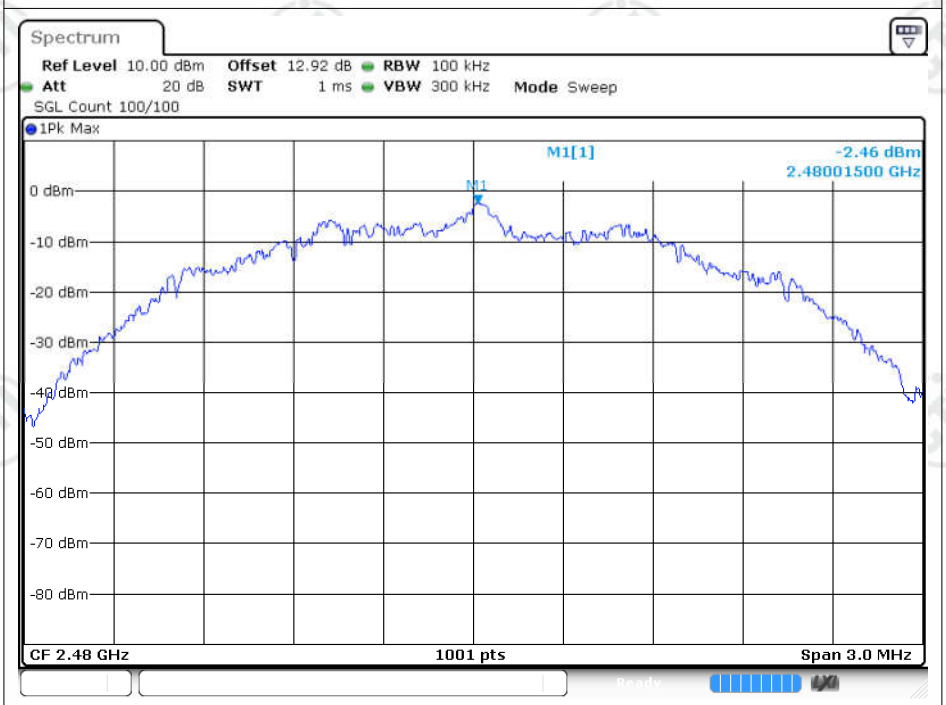
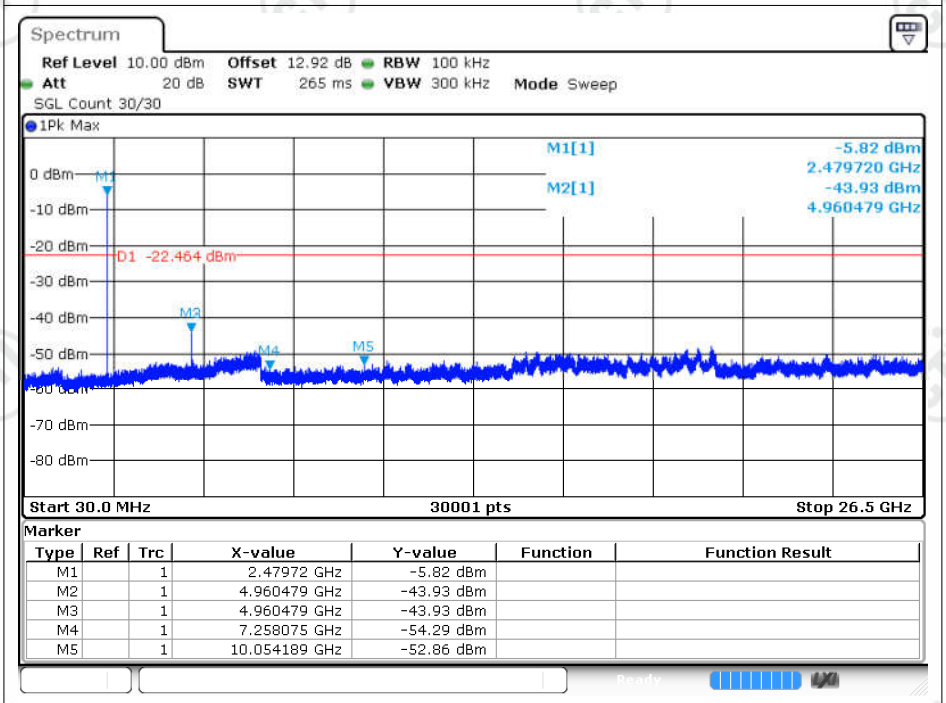
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Date: 16.NOV.2023 09:34:56

Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47972 GHz	-5.82 dBm		
M2		1	4.960479 GHz	-43.93 dBm		
M3		1	4.960479 GHz	-43.93 dBm		
M4		1	7.258075 GHz	-54.29 dBm		
M5		1	10.054189 GHz	-52.86 dBm		

Date: 16.NOV.2023 09:35:25

*** End of Report ***