

Appendix: Bluetooth LE for ESP32

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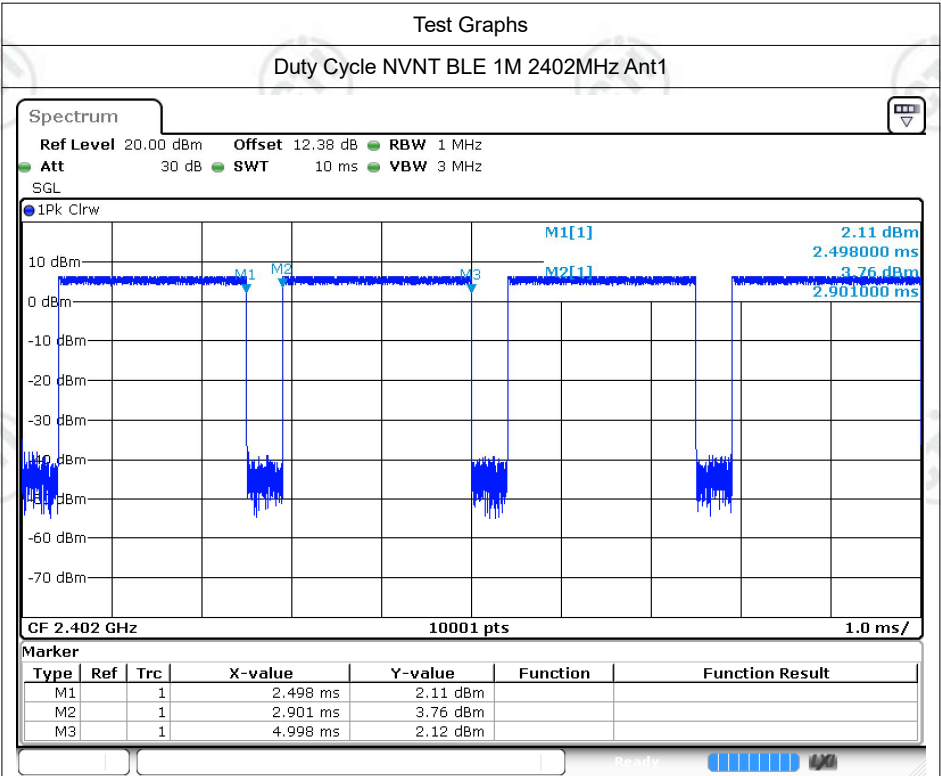
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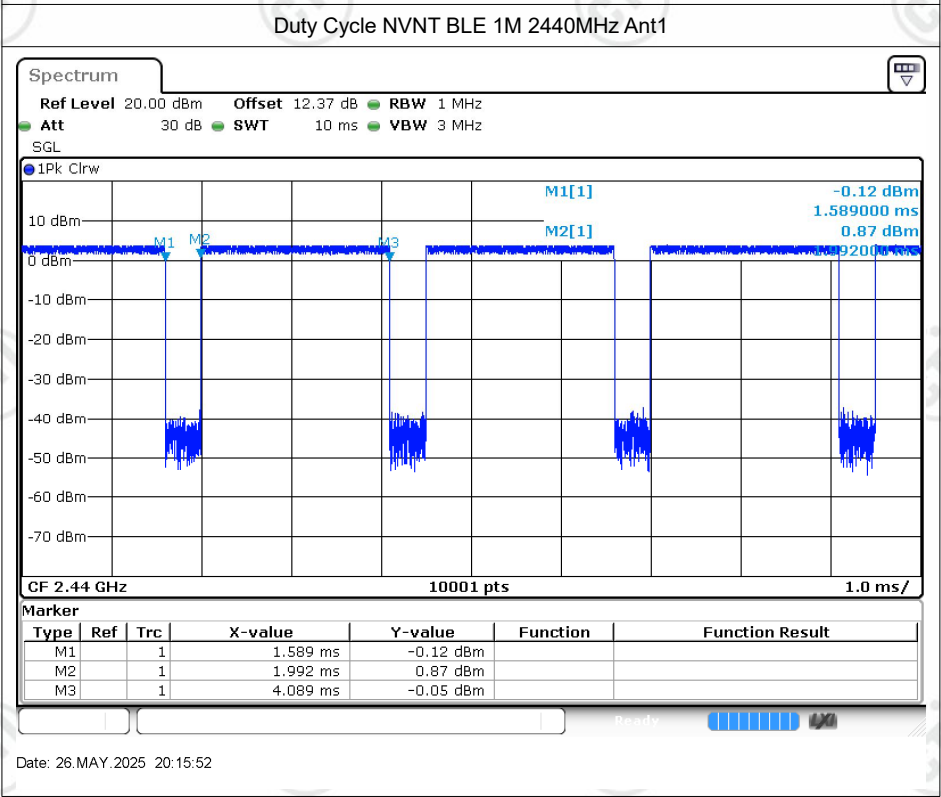
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Duty Cycle

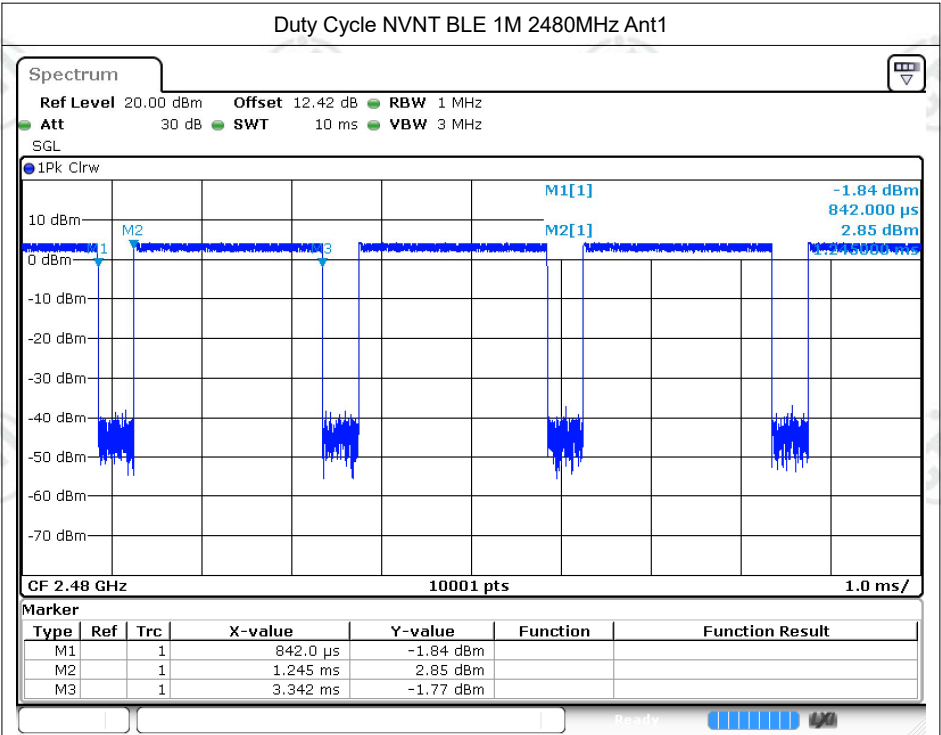
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	83.88	0.76	0.48
NVNT	BLE 1M	2440	Ant1	83.88	0.76	0.48
NVNT	BLE 1M	2480	Ant1	83.88	0.76	0.48
NVNT	BLE 2M	2402	Ant1	56.69	2.46	0.94
NVNT	BLE 2M	2440	Ant1	56.69	2.46	0.94
NVNT	BLE 2M	2480	Ant1	56.69	2.46	0.94



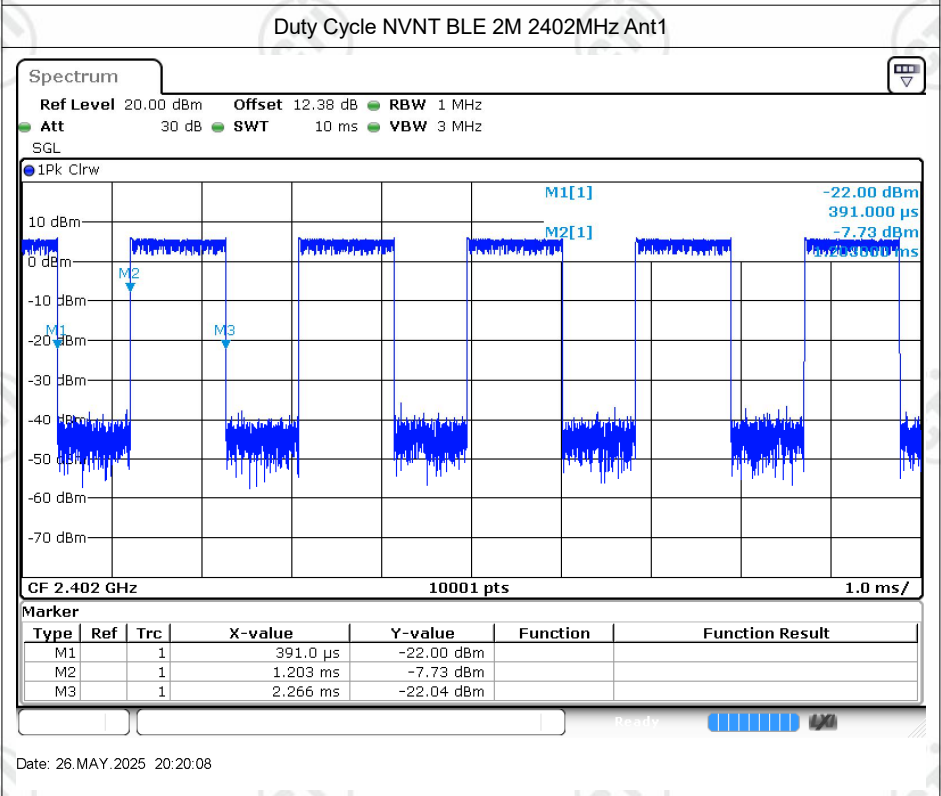
Date: 26.MAY.2025 20:13:07



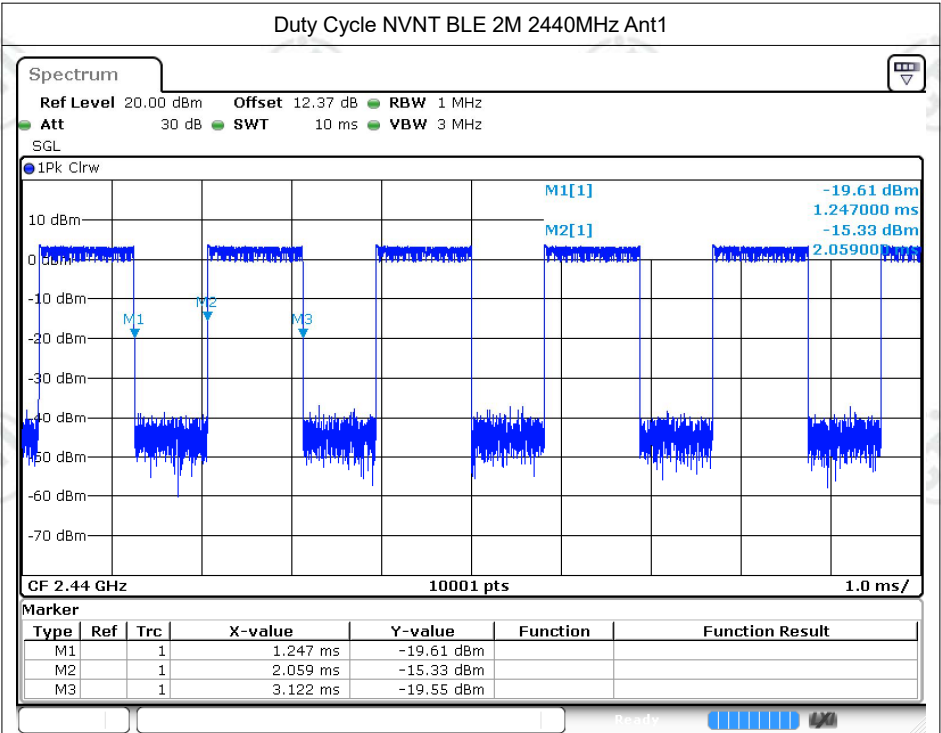
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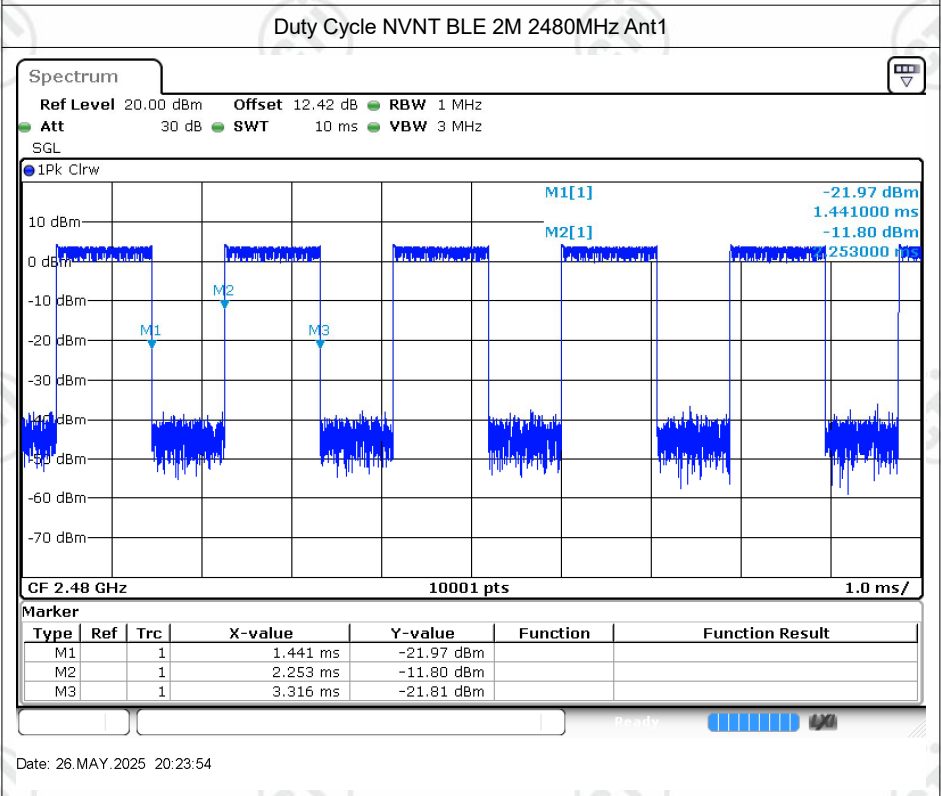
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Date: 26.MAY.2025 20:20:08



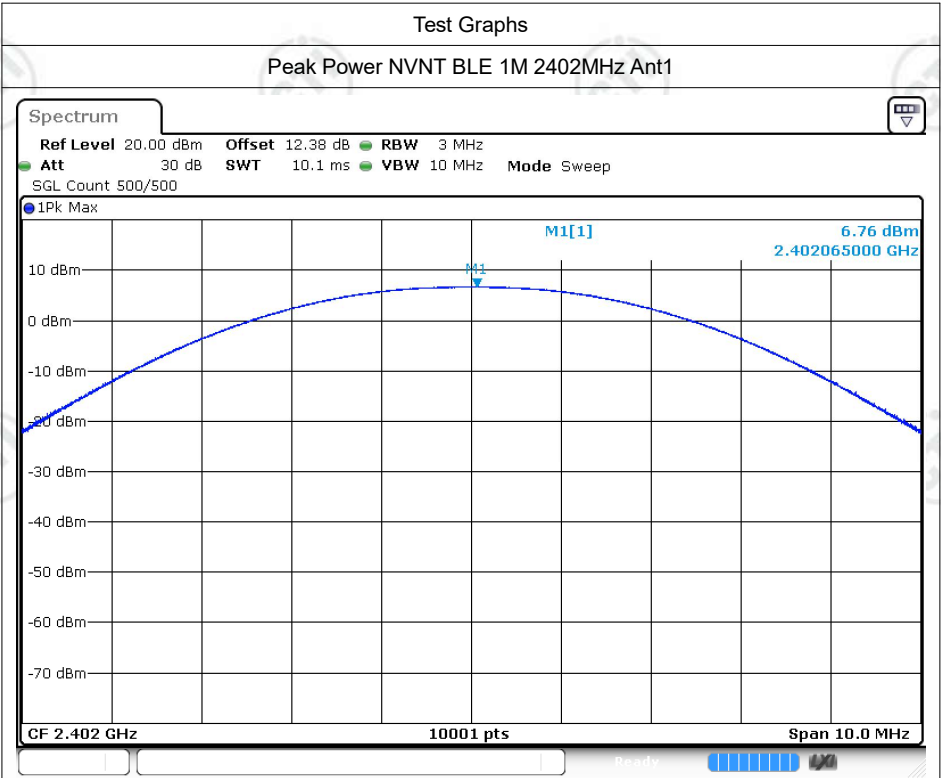
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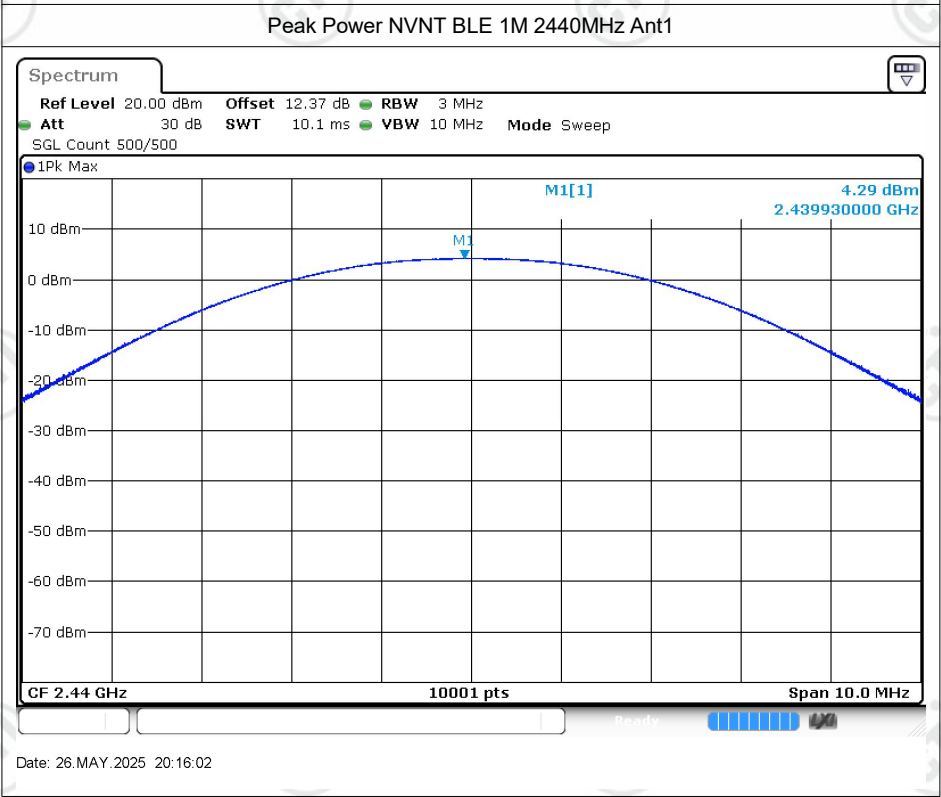
Date: 26.MAY.2025 20:23:54

Maximum Peak Conducted Output Power

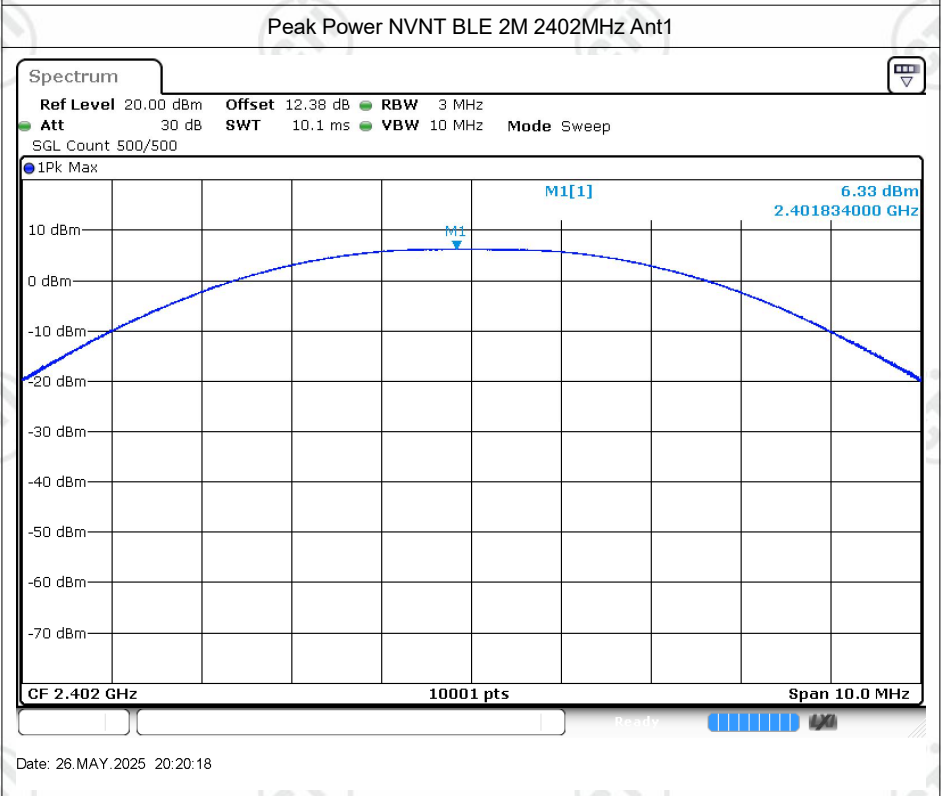
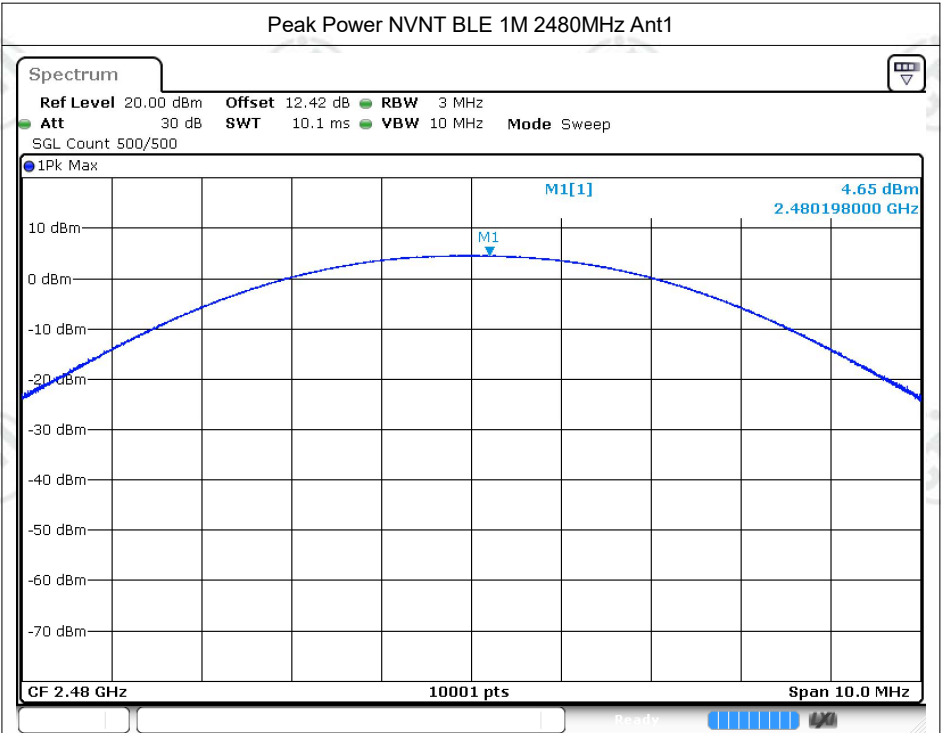
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	6.76	30	Pass
NVNT	BLE 1M	2440	Ant1	4.29	30	Pass
NVNT	BLE 1M	2480	Ant1	4.65	30	Pass
NVNT	BLE 2M	2402	Ant1	6.33	30	Pass
NVNT	BLE 2M	2440	Ant1	4	30	Pass
NVNT	BLE 2M	2480	Ant1	4.55	30	Pass

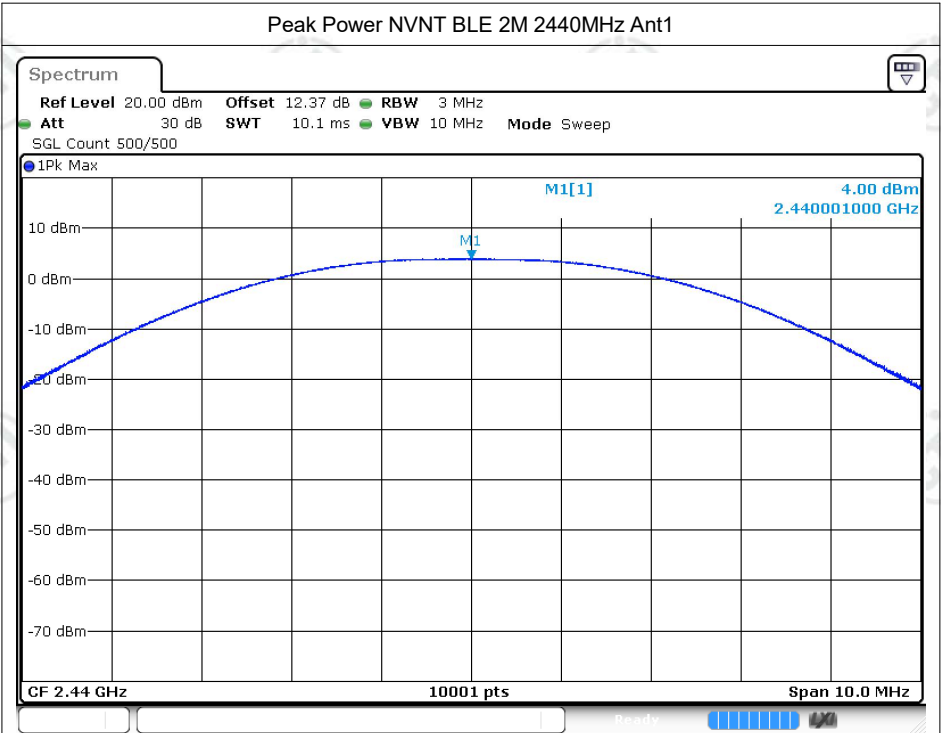


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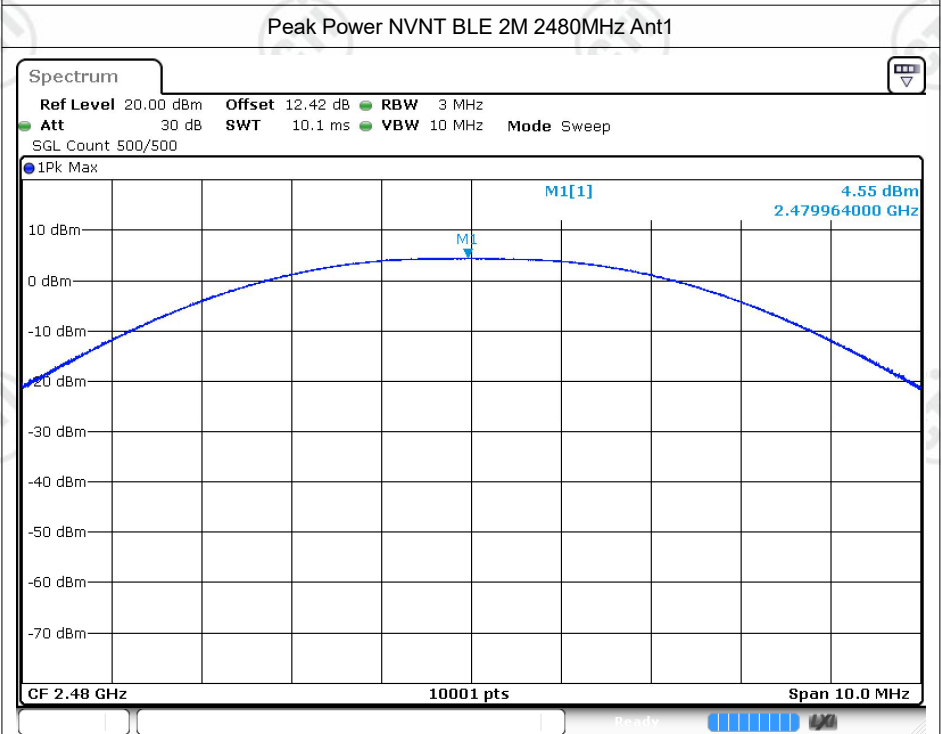


Date: 26.MAY.2025 20:16:02





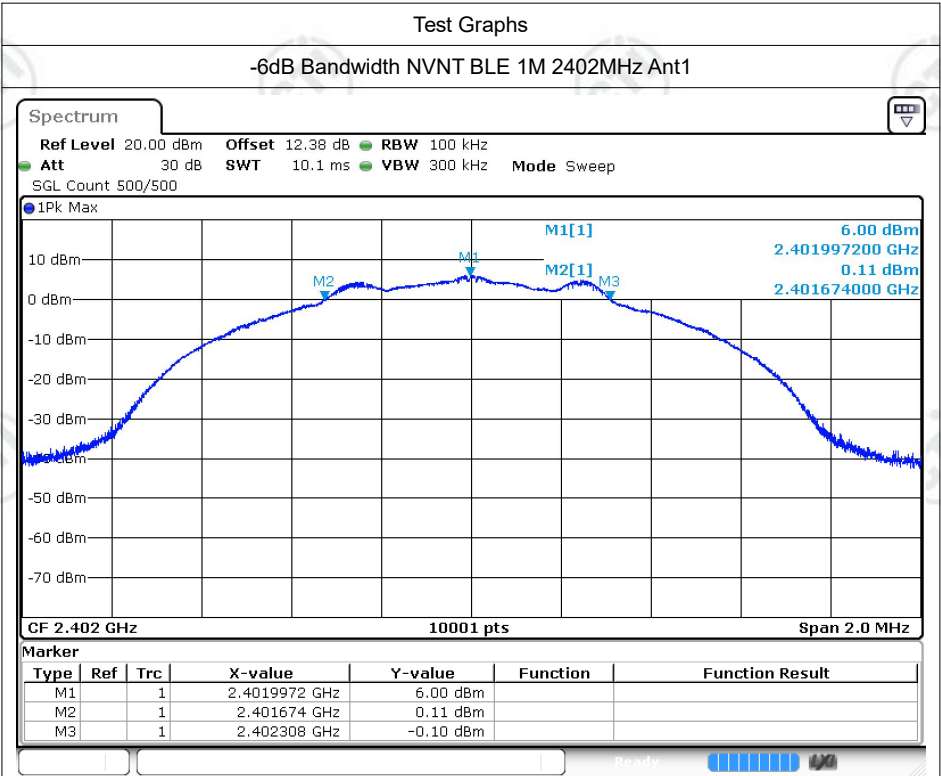
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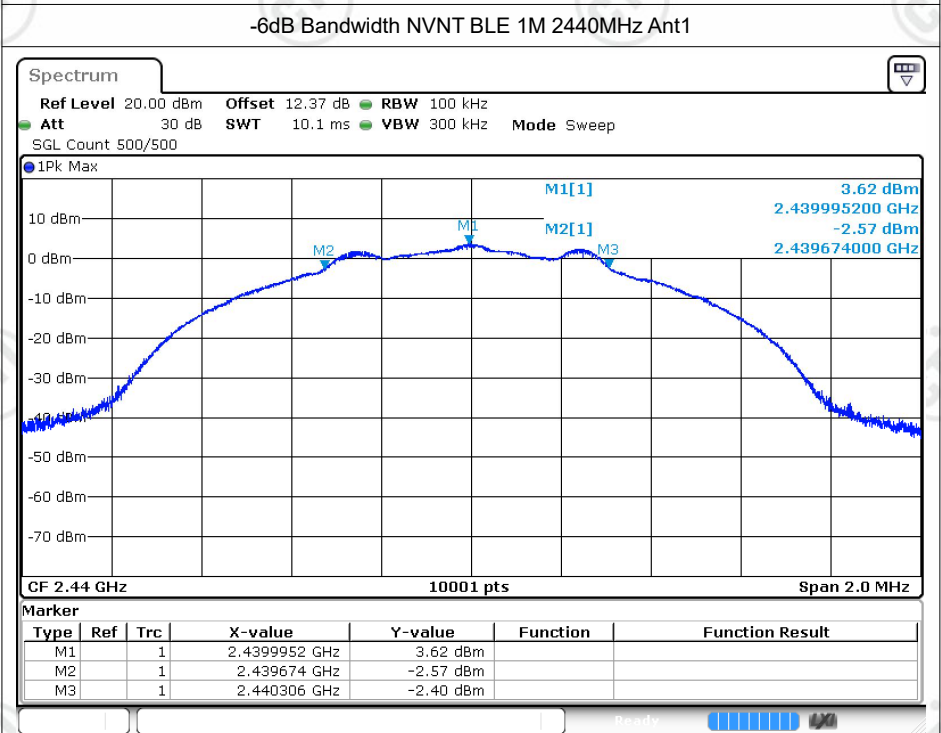
Date: 26 MAY 2025 20:24:04

-6dB Bandwidth

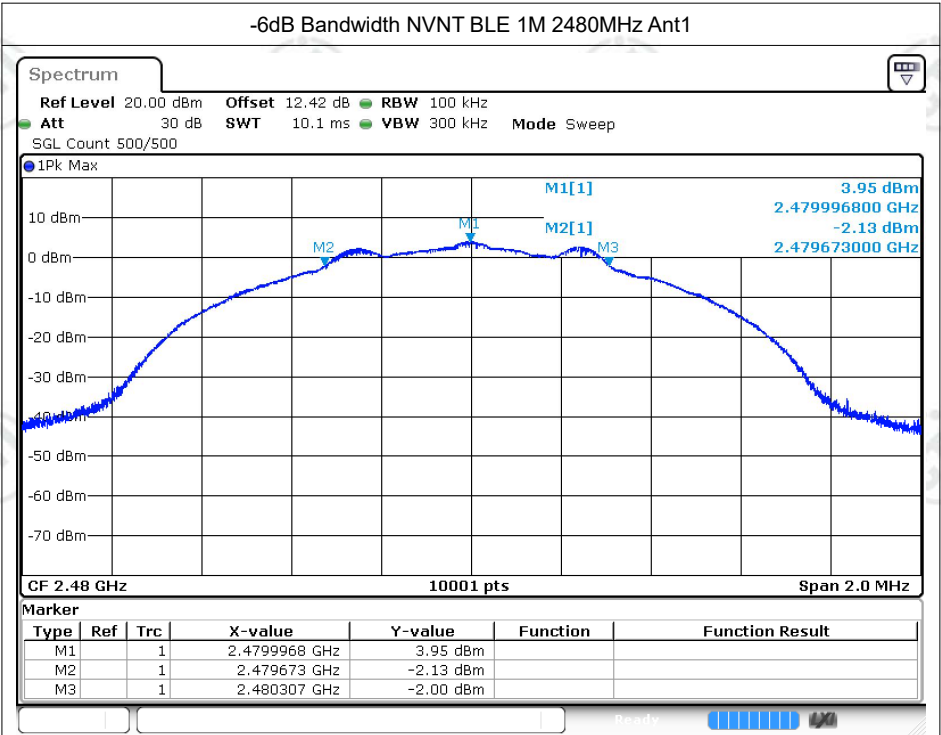
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.634	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.632	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.634	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.105	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.106	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.109	0.5	Pass



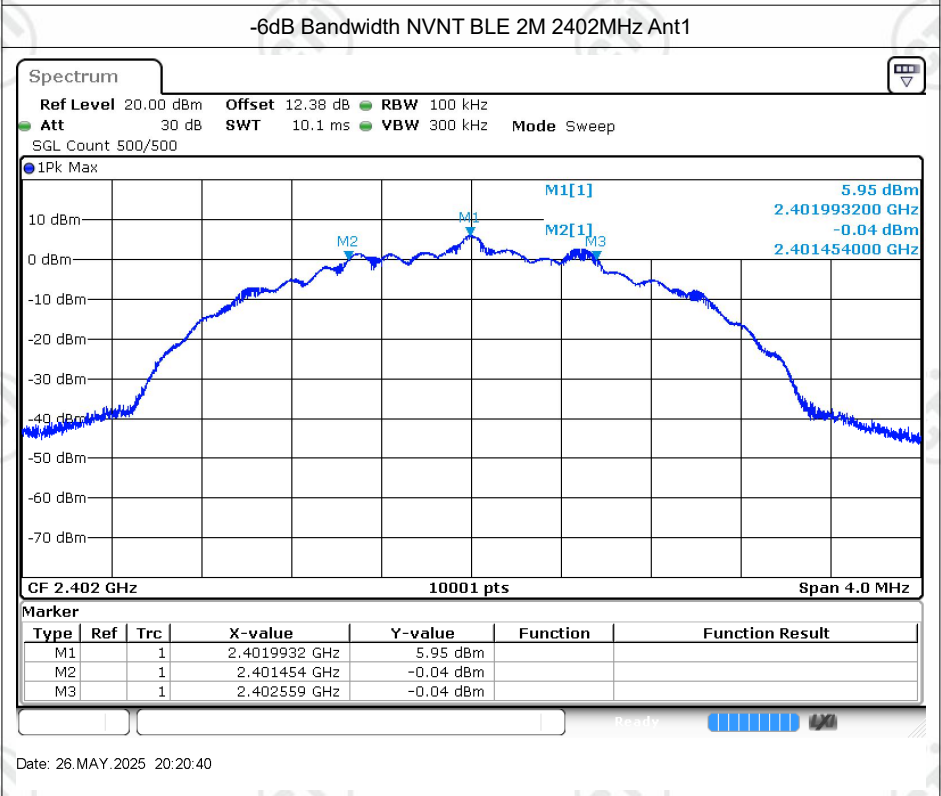
Date: 26.MAY.2025 20:14:31



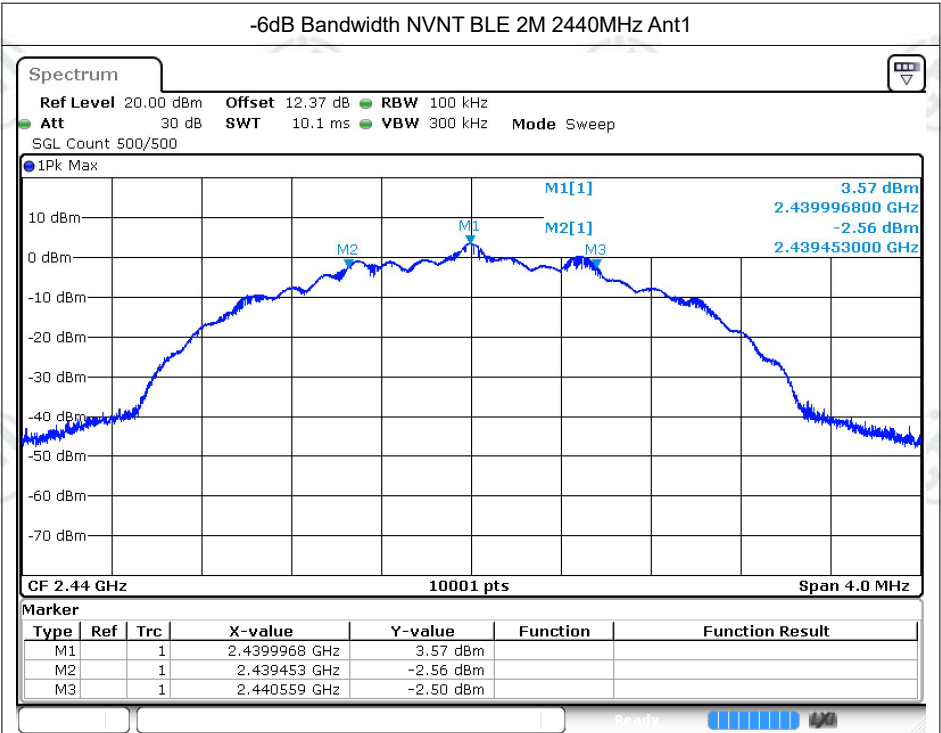
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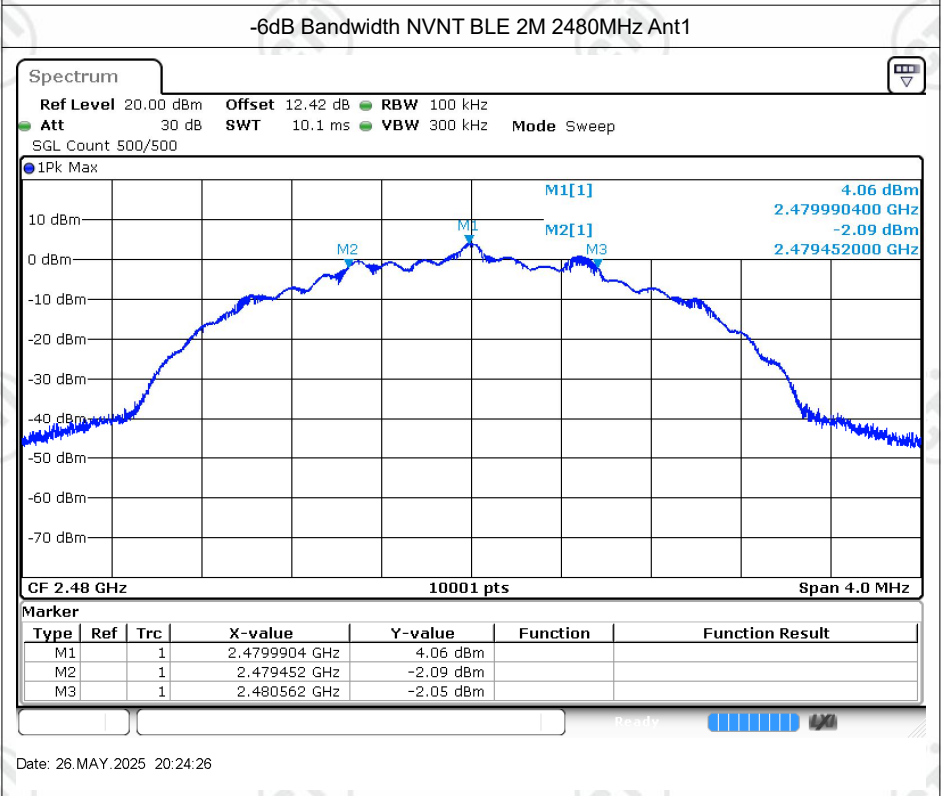
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Date: 26.MAY.2025 20:20:40



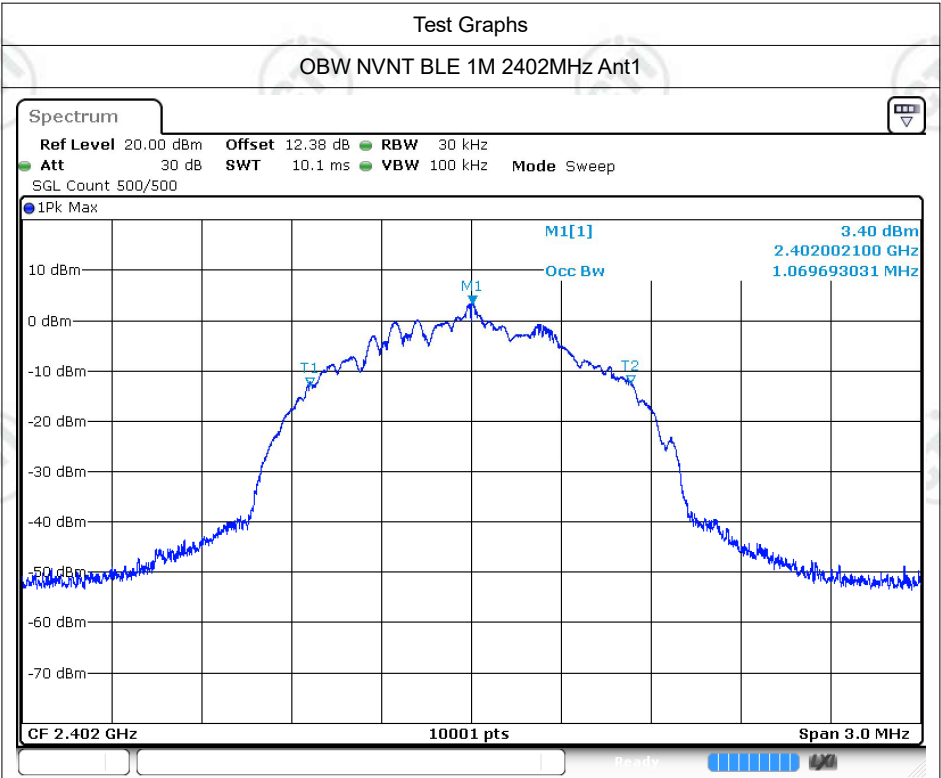
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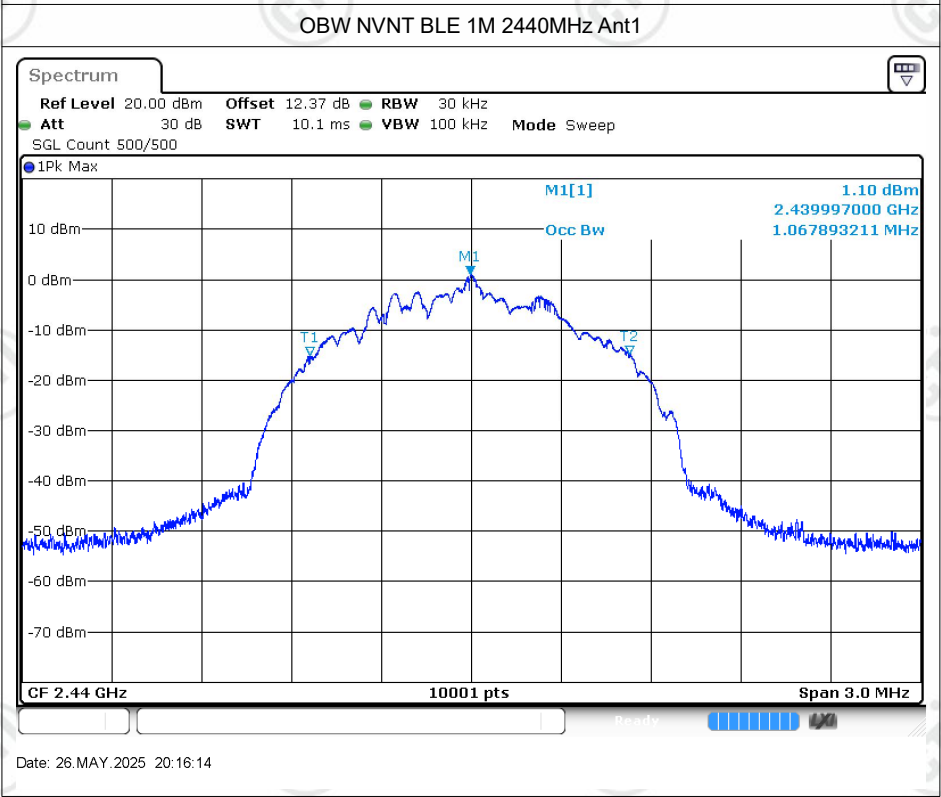
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Occupied Channel Bandwidth

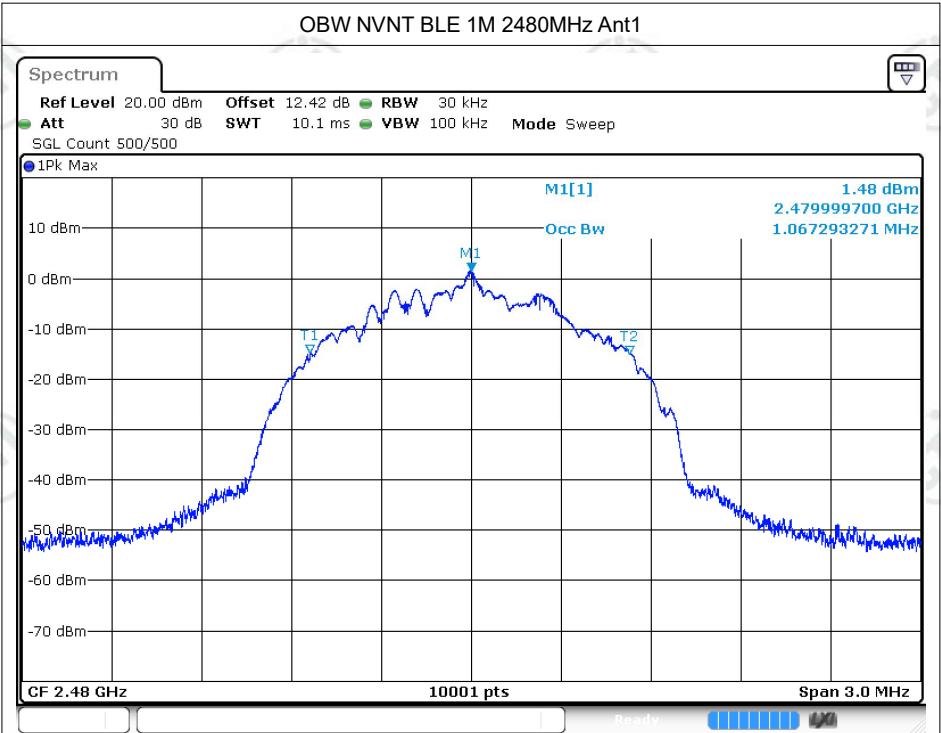
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.07
NVNT	BLE 1M	2440	Ant1	1.068
NVNT	BLE 1M	2480	Ant1	1.067
NVNT	BLE 2M	2402	Ant1	2.084
NVNT	BLE 2M	2440	Ant1	2.085
NVNT	BLE 2M	2480	Ant1	2.086



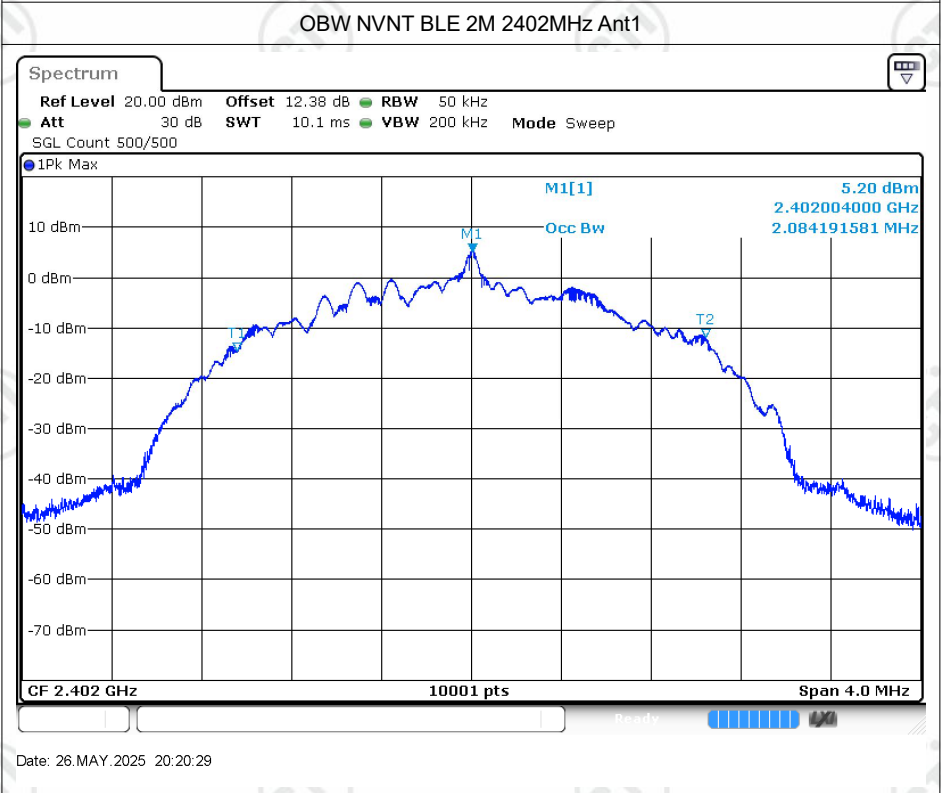
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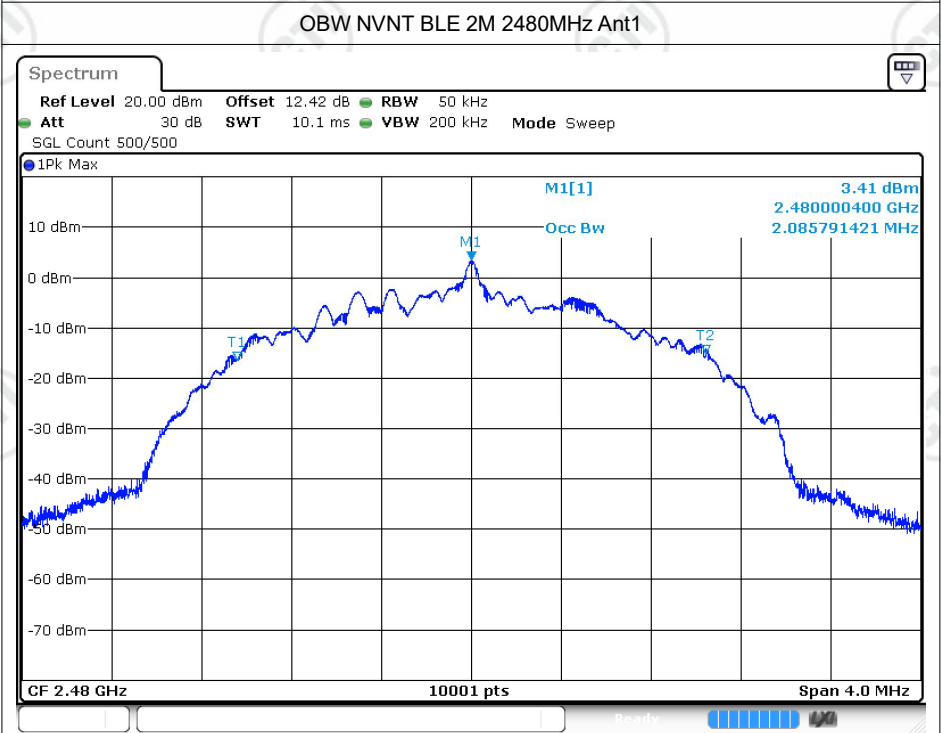
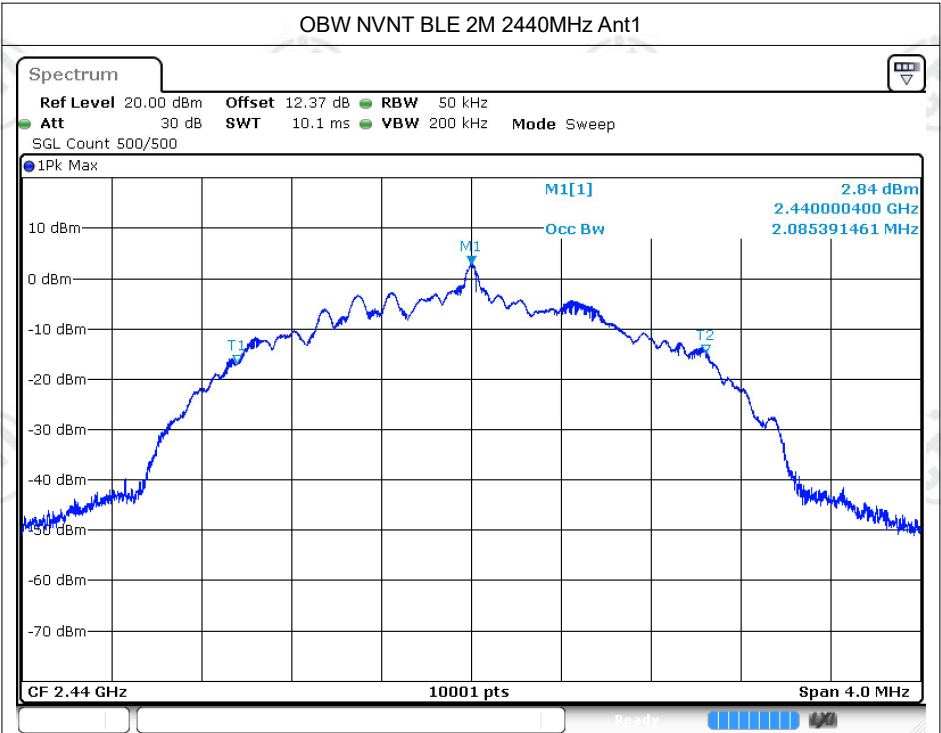
Date: 26.MAY.2025 20:16:14



Date: 26.MAY.2025 20:17:53

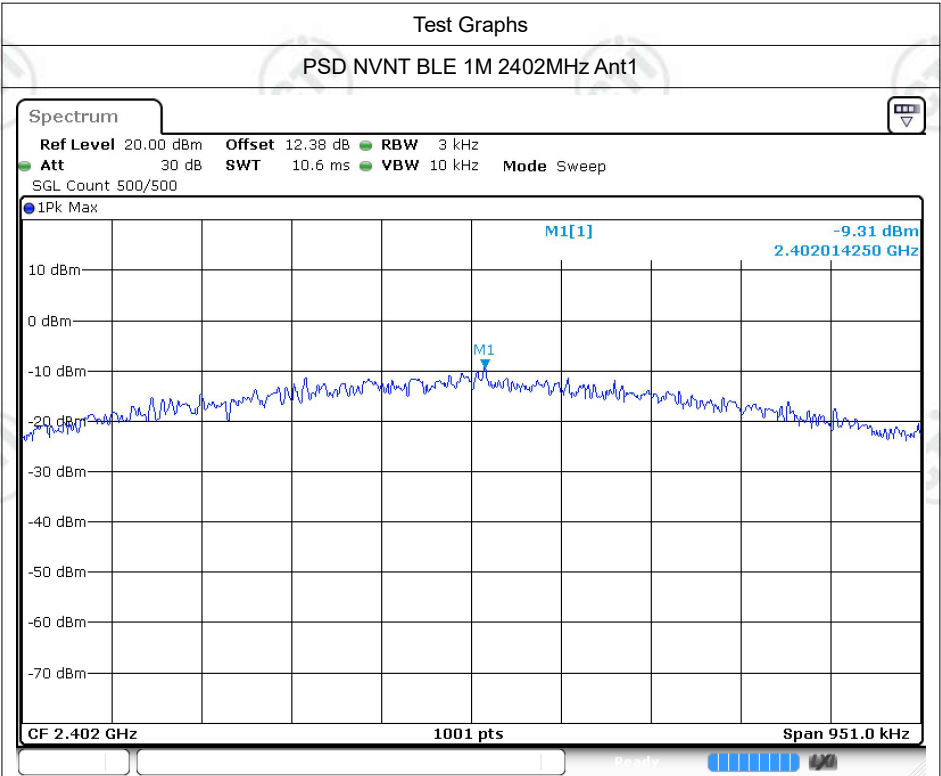


Date: 26.MAY.2025 20:20:29

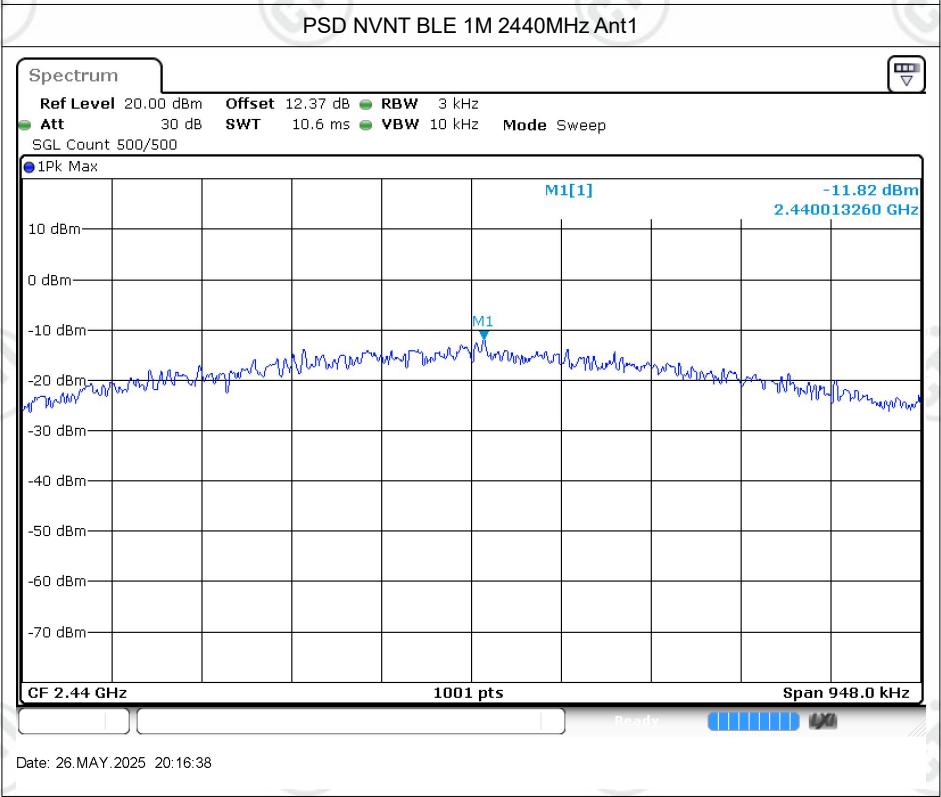


Maximum Power Spectral Density Level

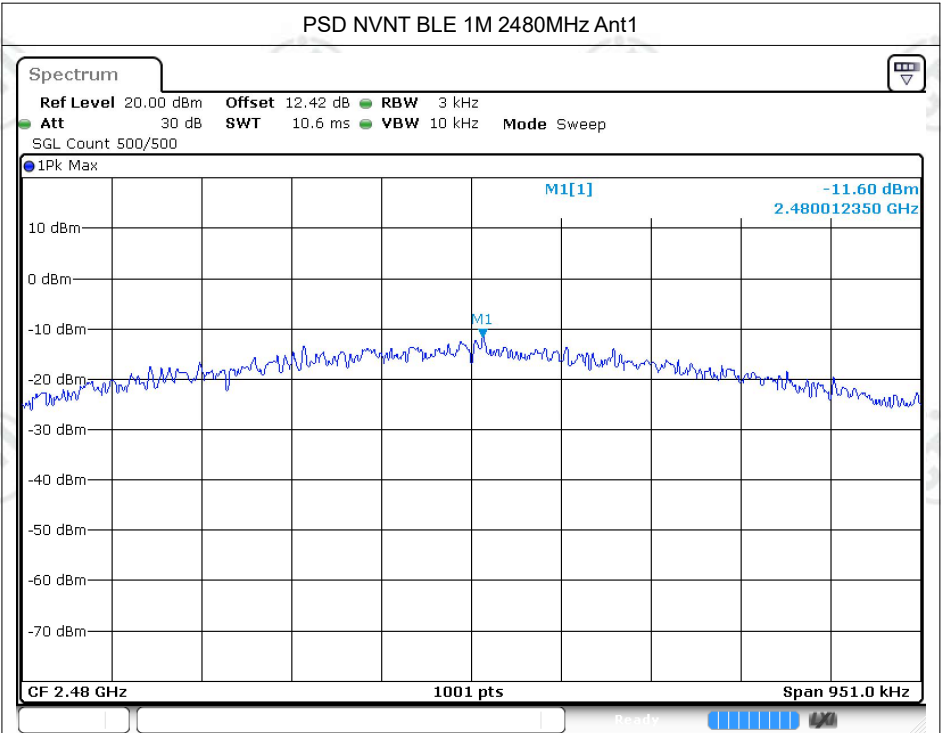
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-9.31	0	-9.31	8	Pass
NVNT	BLE 1M	2440	Ant1	-11.82	0	-11.82	8	Pass
NVNT	BLE 1M	2480	Ant1	-11.6	0	-11.6	8	Pass
NVNT	BLE 2M	2402	Ant1	-11.29	0	-11.29	8	Pass
NVNT	BLE 2M	2440	Ant1	-13.67	0	-13.67	8	Pass
NVNT	BLE 2M	2480	Ant1	-13.15	0	-13.15	8	Pass



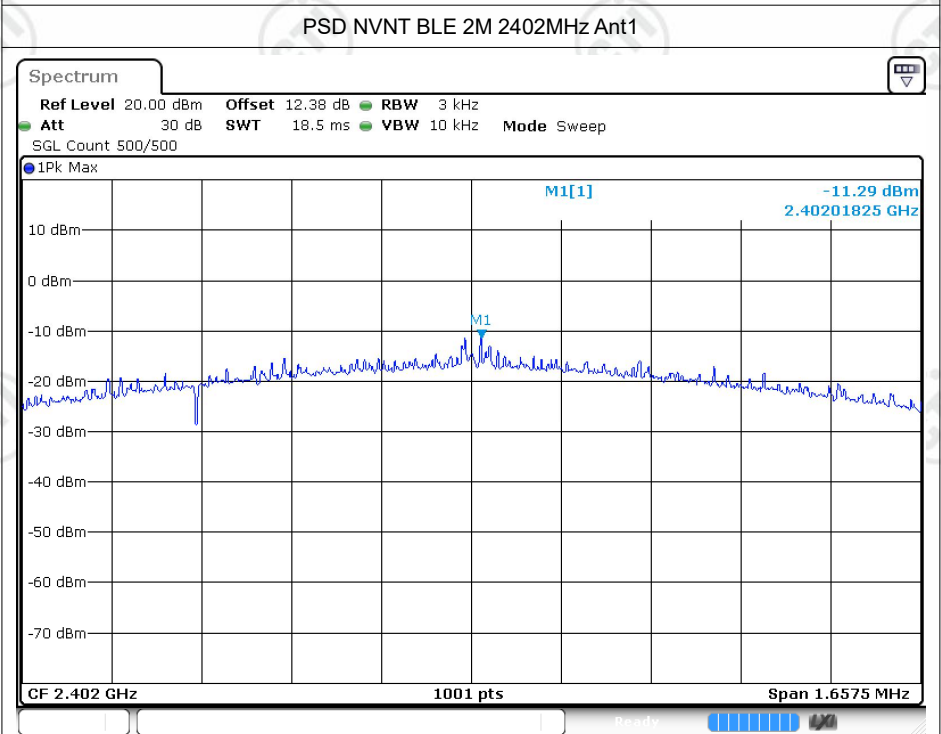
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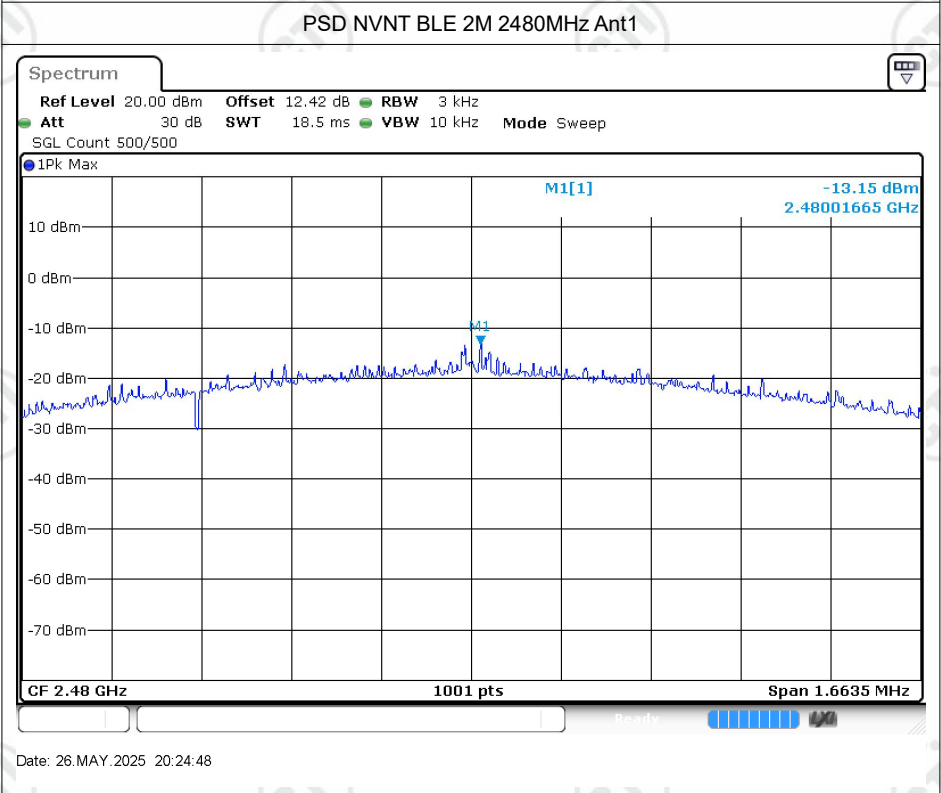
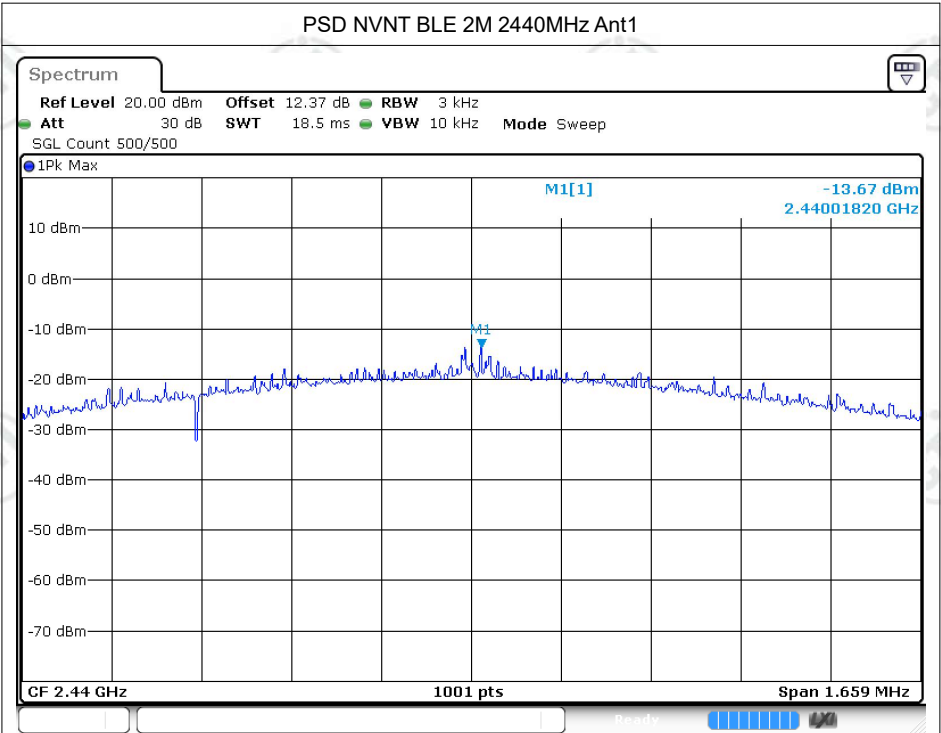
Date: 26.MAY.2025 20:16:38



Date: 26.MAY.2025 20:18:17

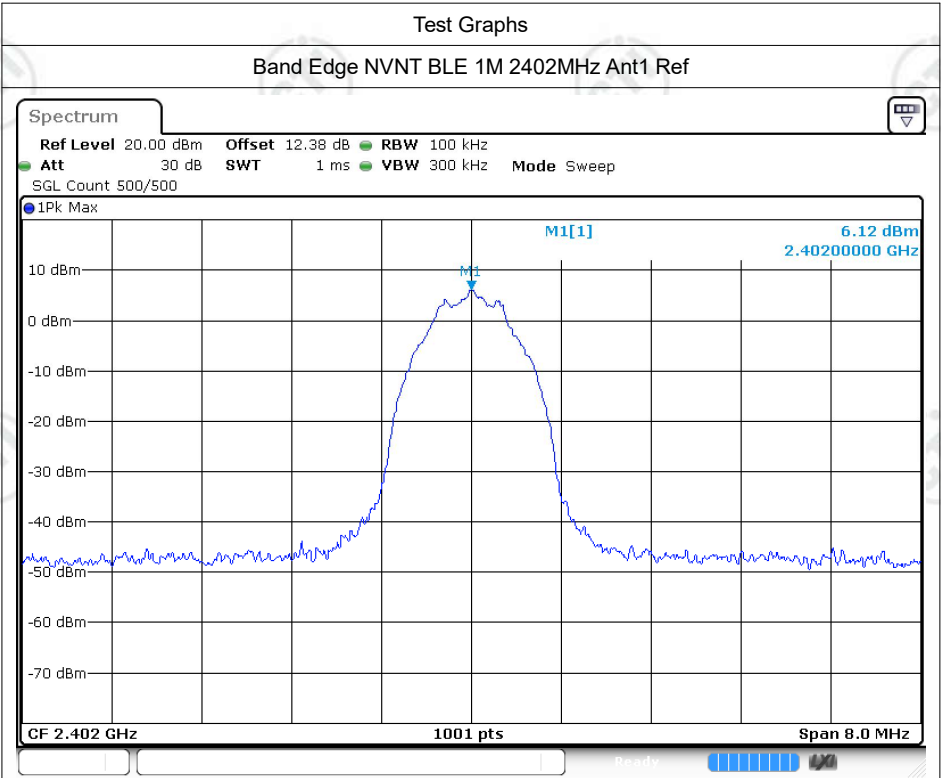


Date: 26.MAY.2025 20:21:01

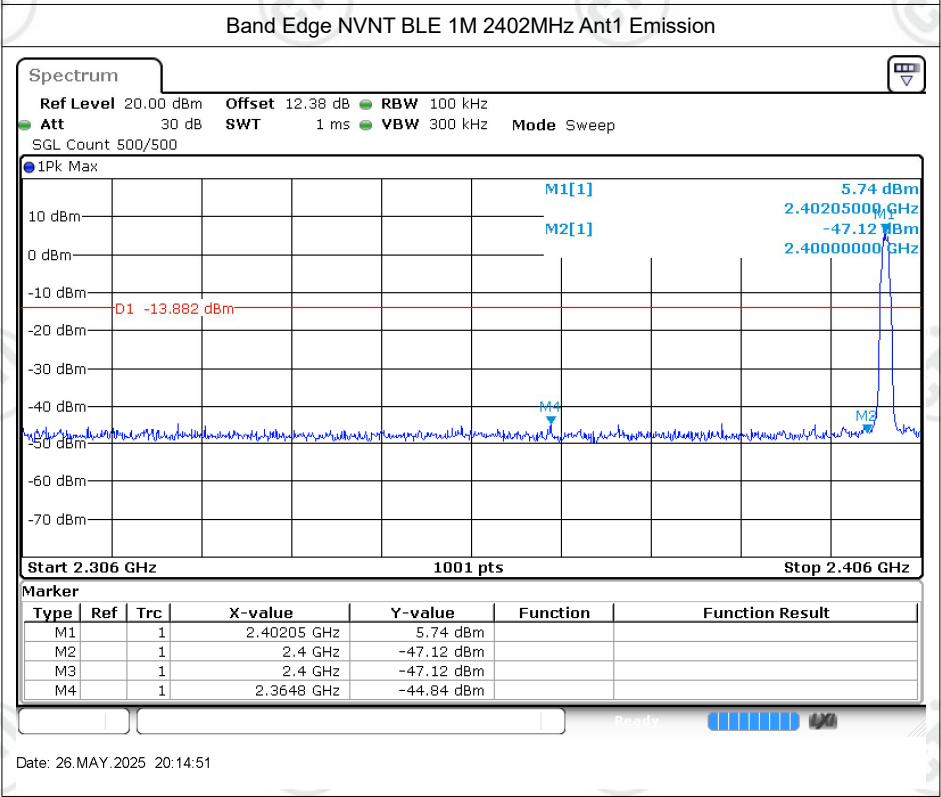


Band Edge

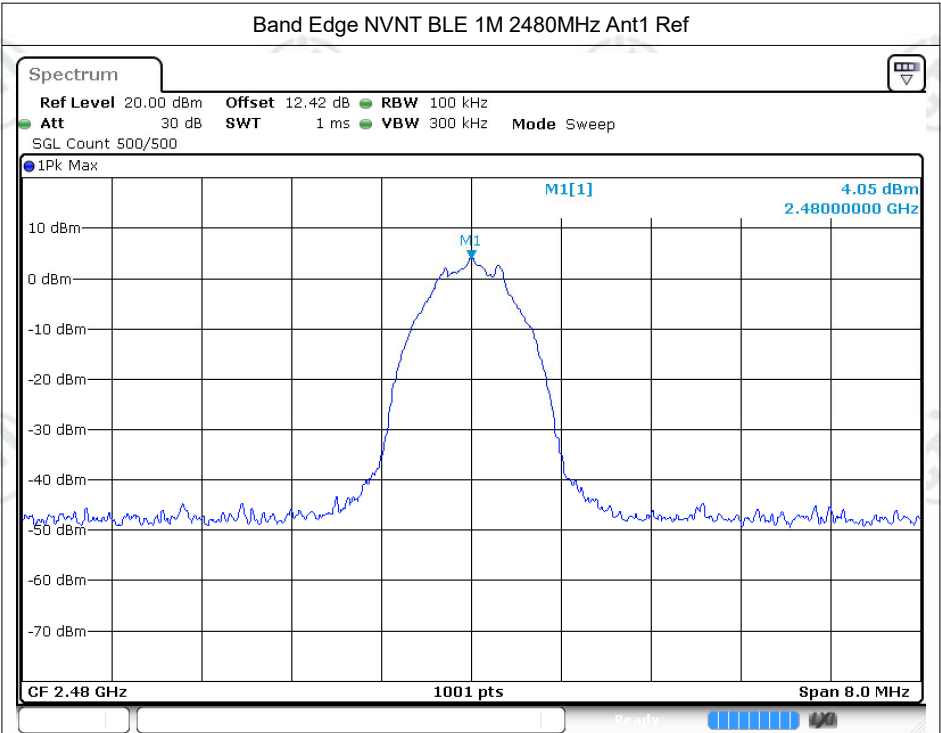
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-50.95	-20	Pass
NVNT	BLE 1M	2480	Ant1	-49.66	-20	Pass
NVNT	BLE 2M	2402	Ant1	-50.46	-20	Pass
NVNT	BLE 2M	2480	Ant1	-49.83	-20	Pass



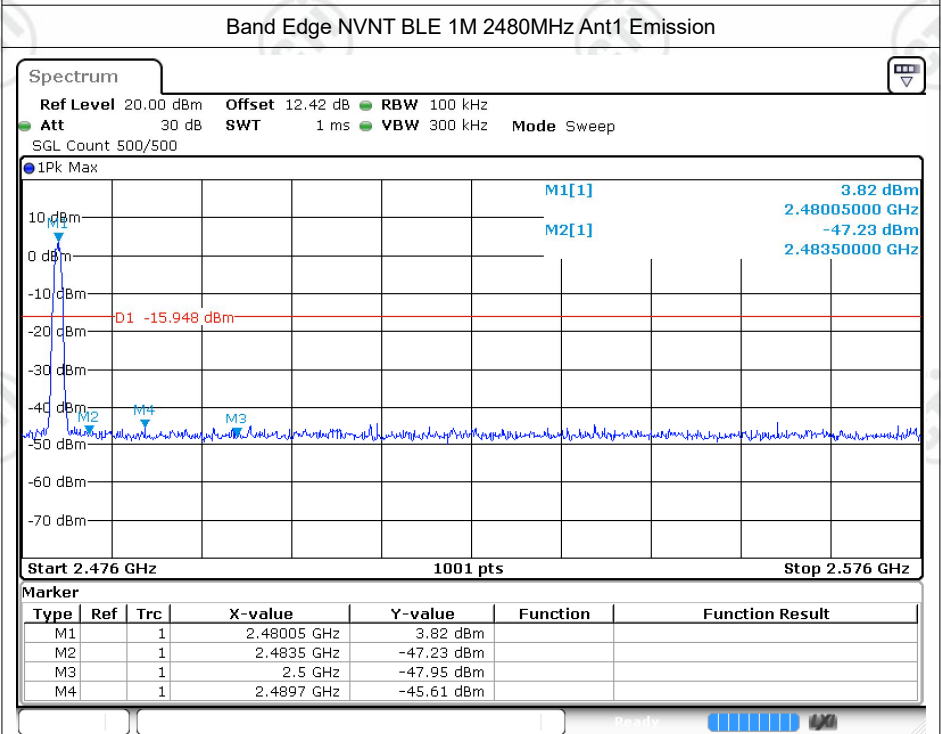
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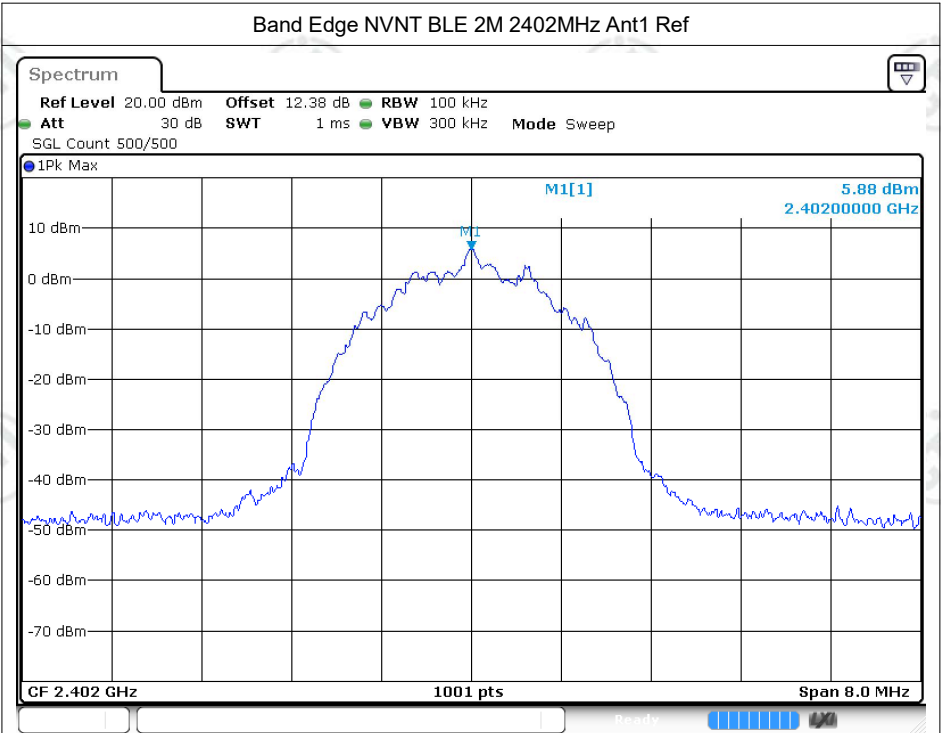
Date: 26.MAY.2025 20:14:51



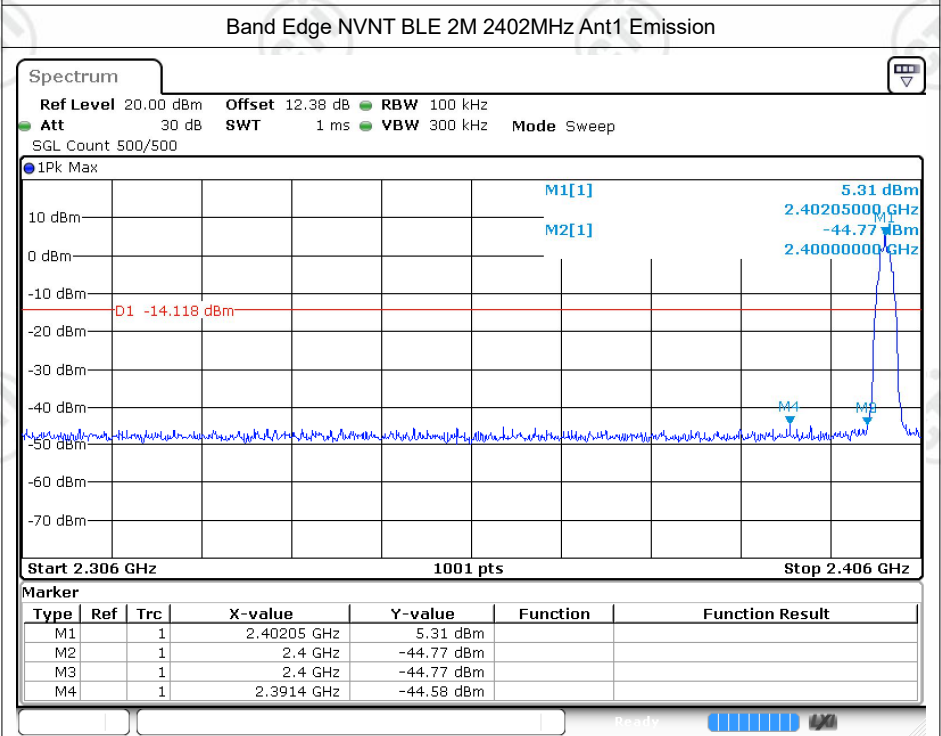
Date: 26.MAY.2025 20:18:21



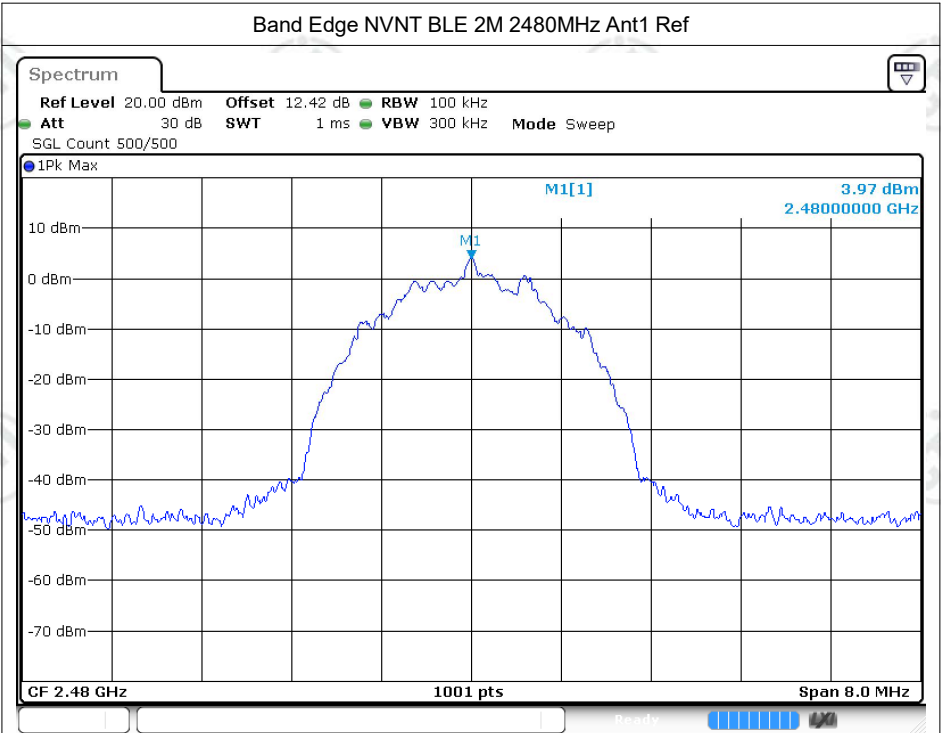
Date: 26.MAY.2025 20:18:23



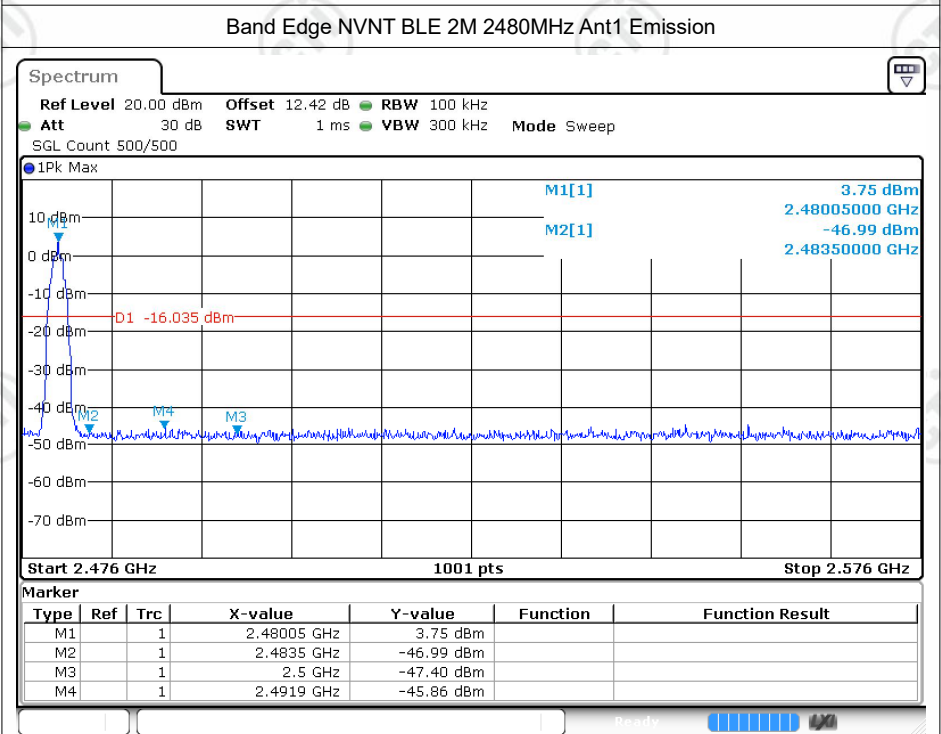
Date: 26.MAY.2025 20:21:05



Date: 26.MAY.2025 20:21:08



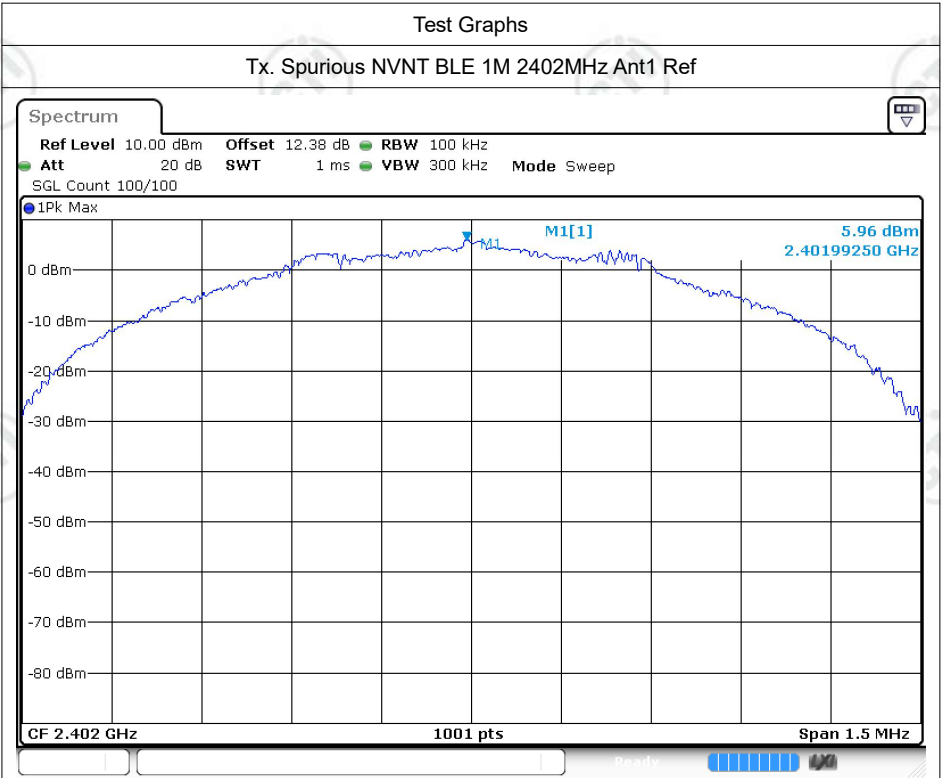
Date: 26.MAY.2025 20:24:51



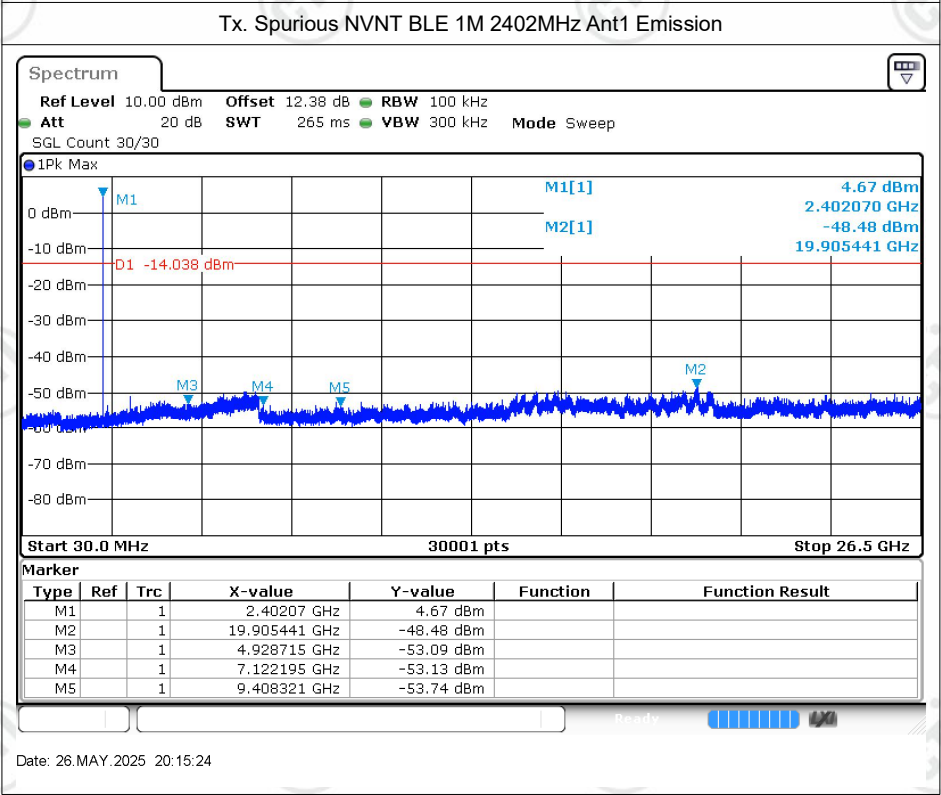
Date: 26.MAY.2025 20:24:54

Conducted RF Spurious Emission

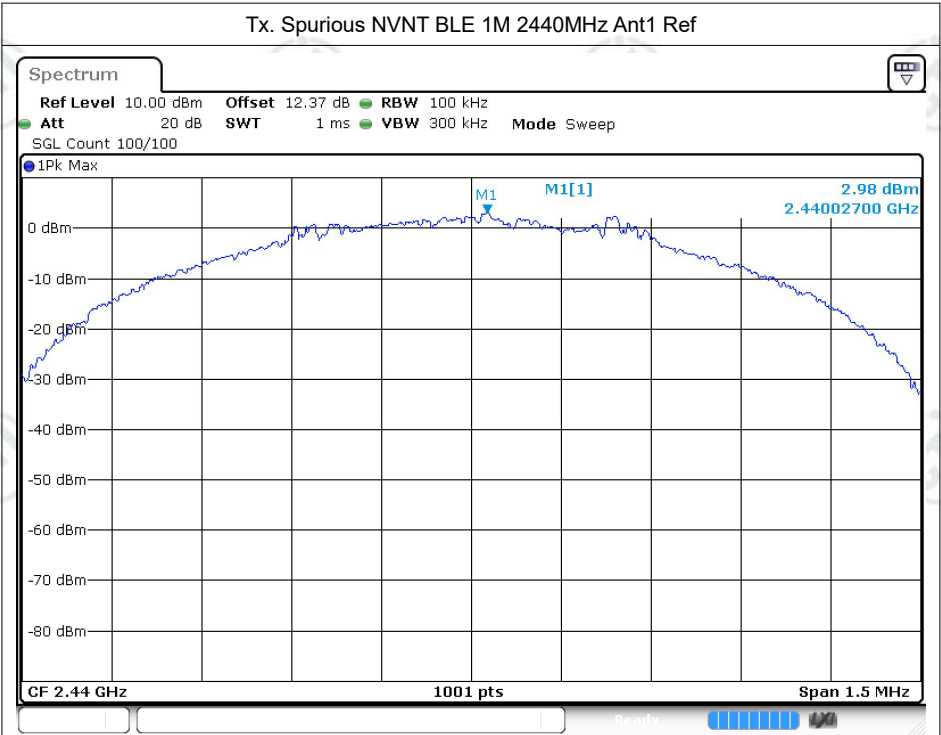
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-54.44	-20	Pass
NVNT	BLE 1M	2440	Ant1	-51.47	-20	Pass
NVNT	BLE 1M	2480	Ant1	-52.7	-20	Pass
NVNT	BLE 2M	2402	Ant1	-52.92	-20	Pass
NVNT	BLE 2M	2440	Ant1	-52.21	-20	Pass
NVNT	BLE 2M	2480	Ant1	-51.76	-20	Pass



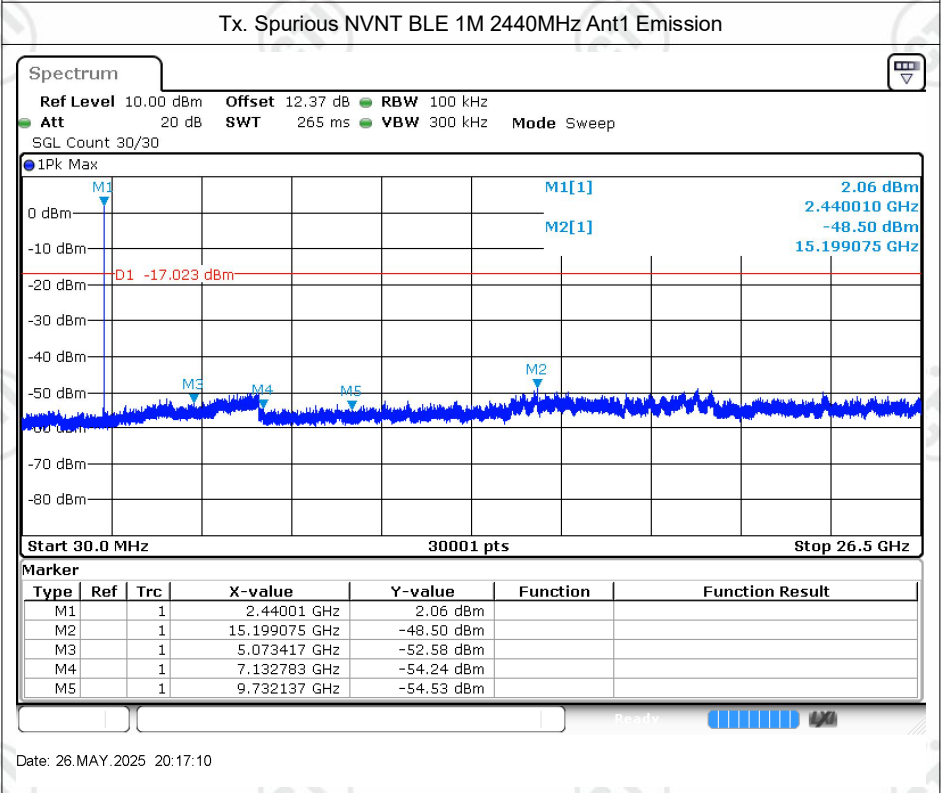
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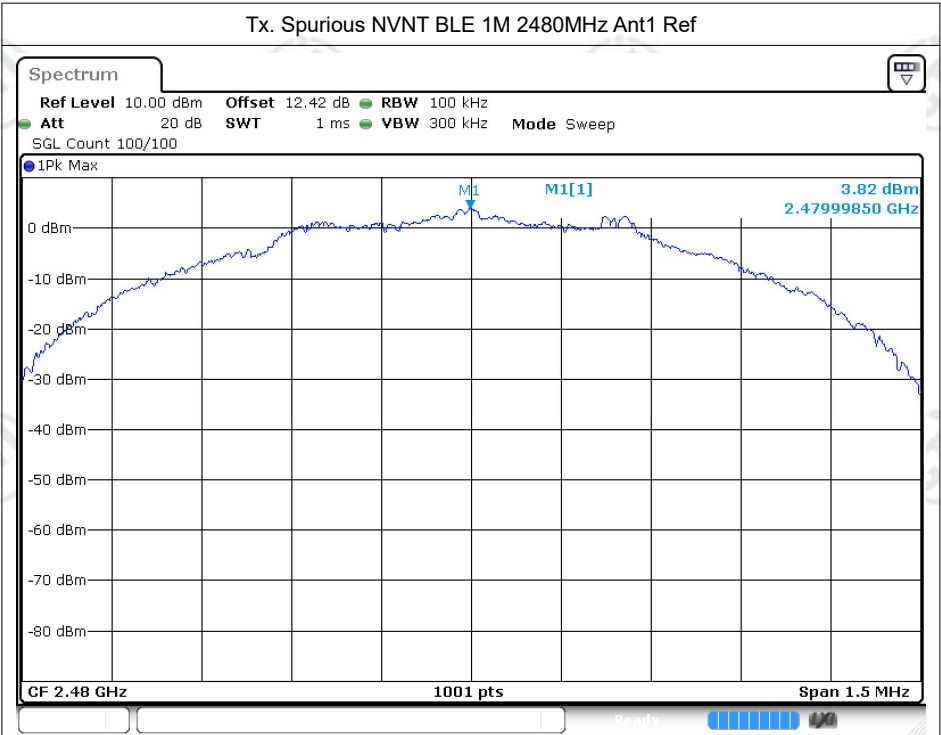
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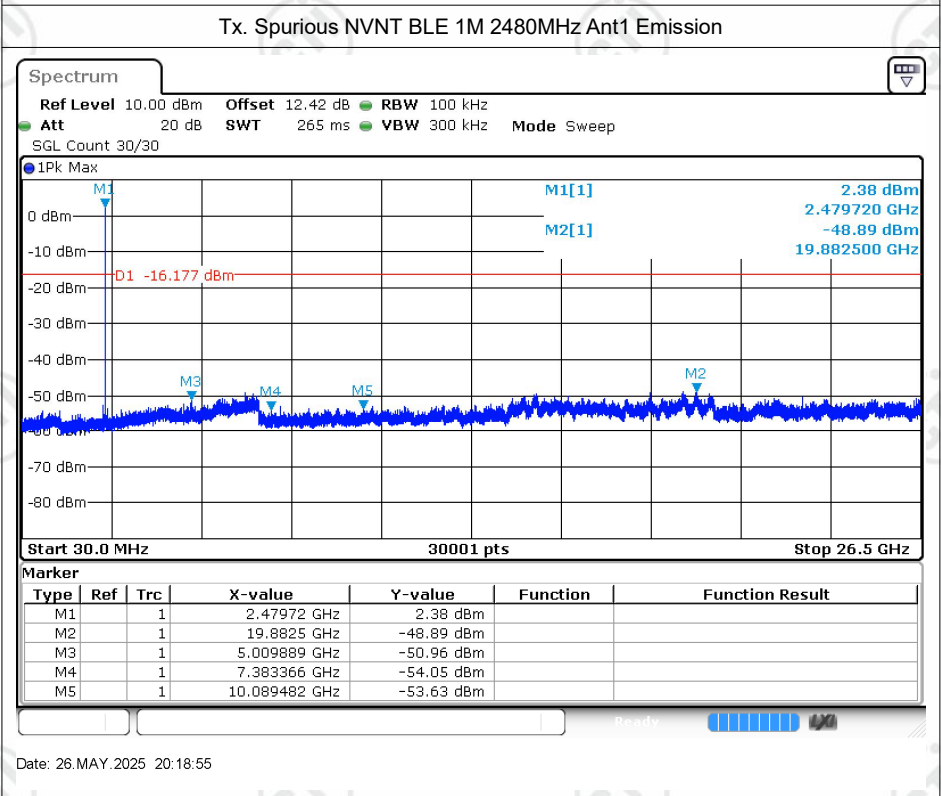
Date: 26.MAY.2025 20:16:41



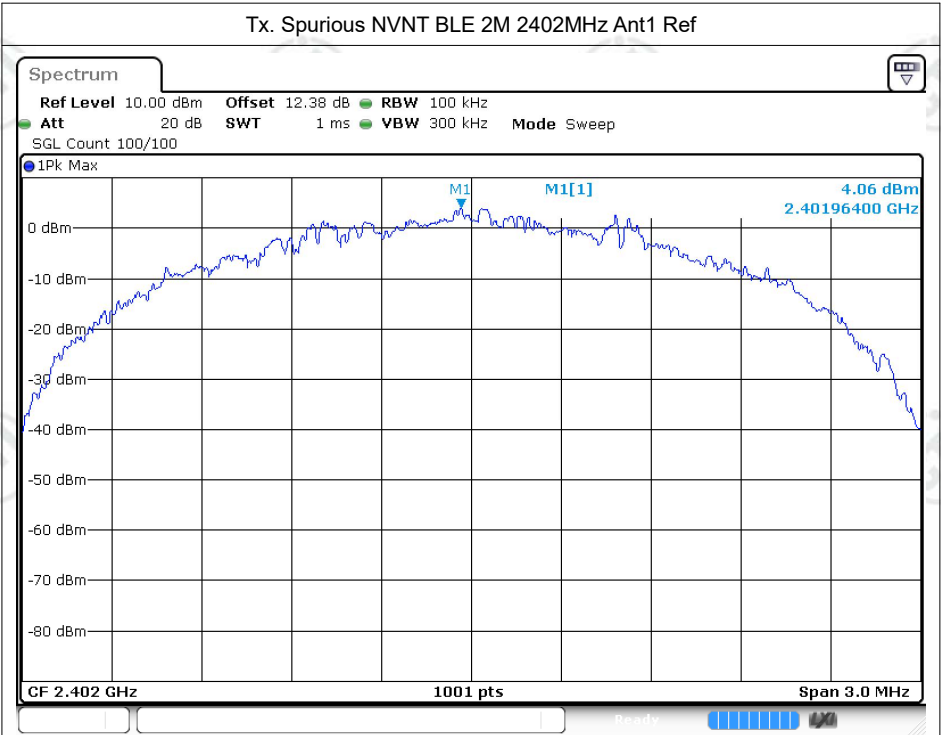
Date: 26.MAY.2025 20:17:10



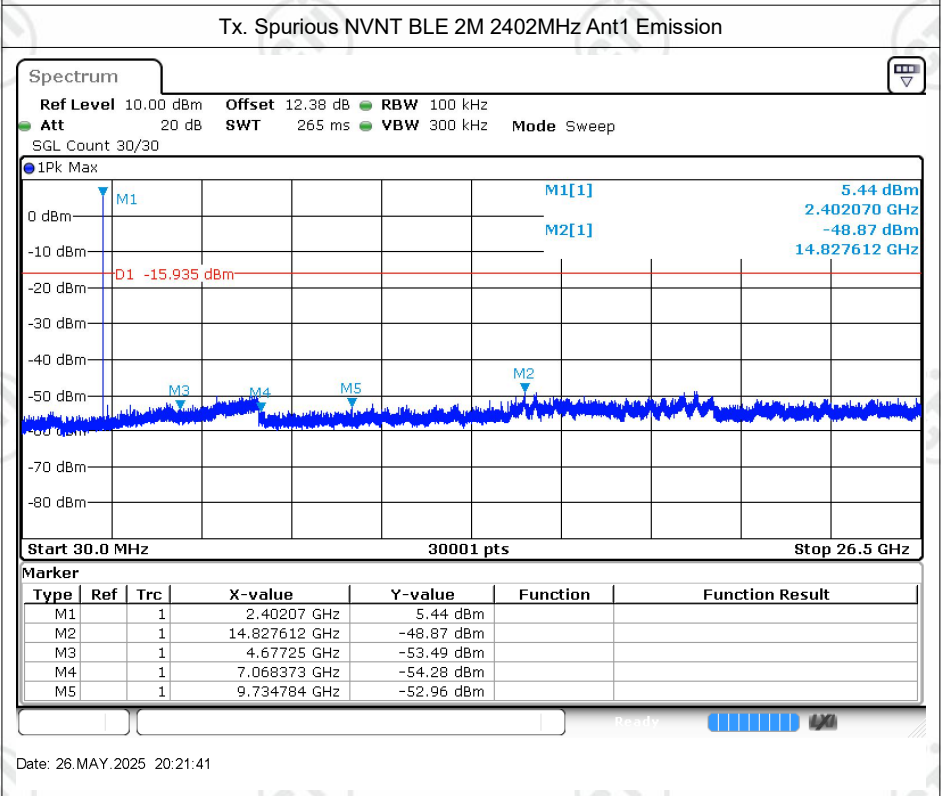
Date: 26.MAY.2025 20:18:26



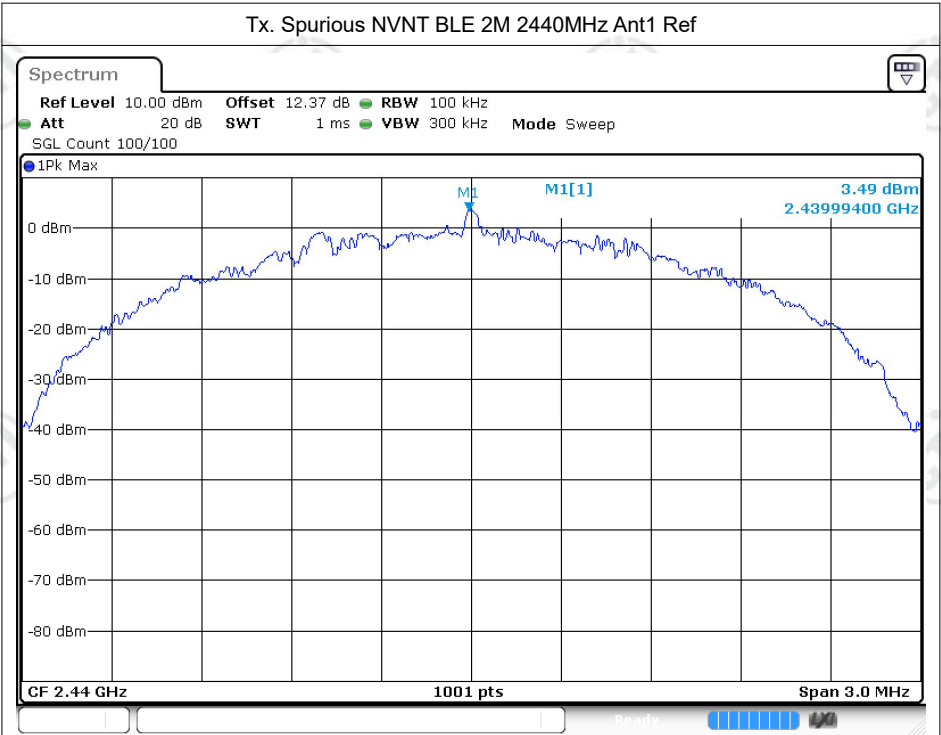
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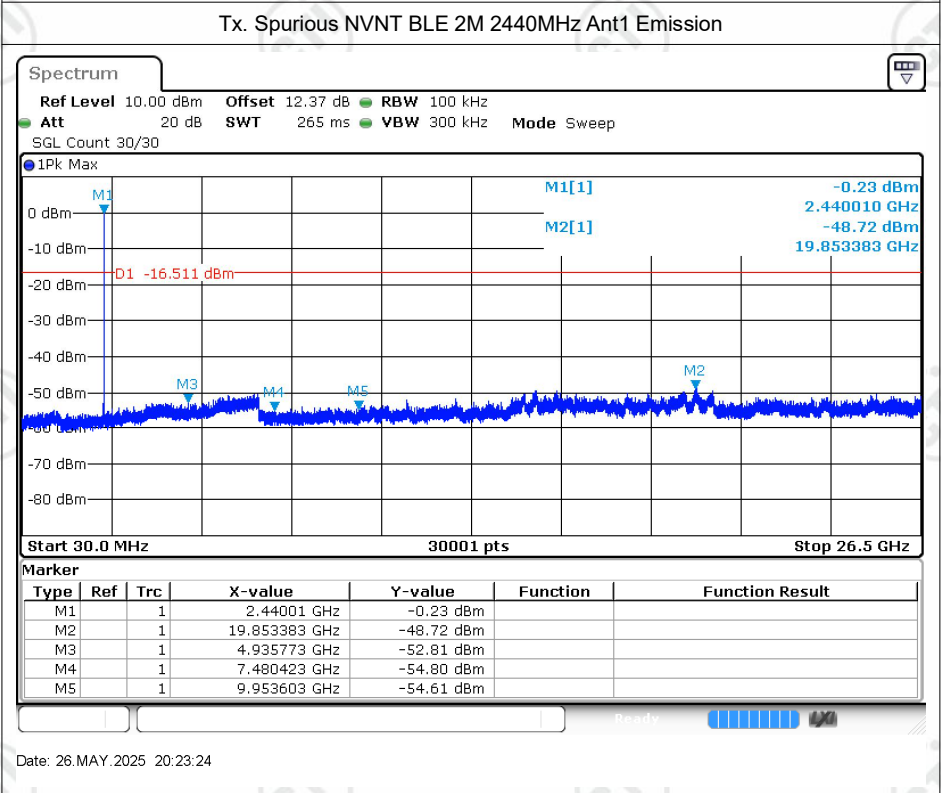
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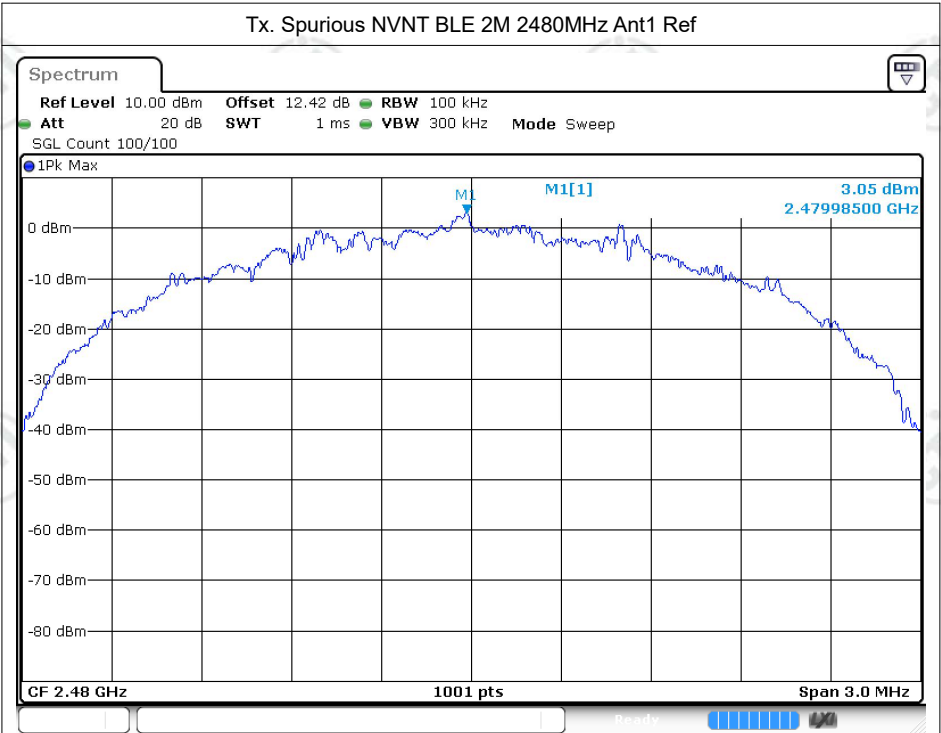
Date: 26.MAY.2025 20:21:41



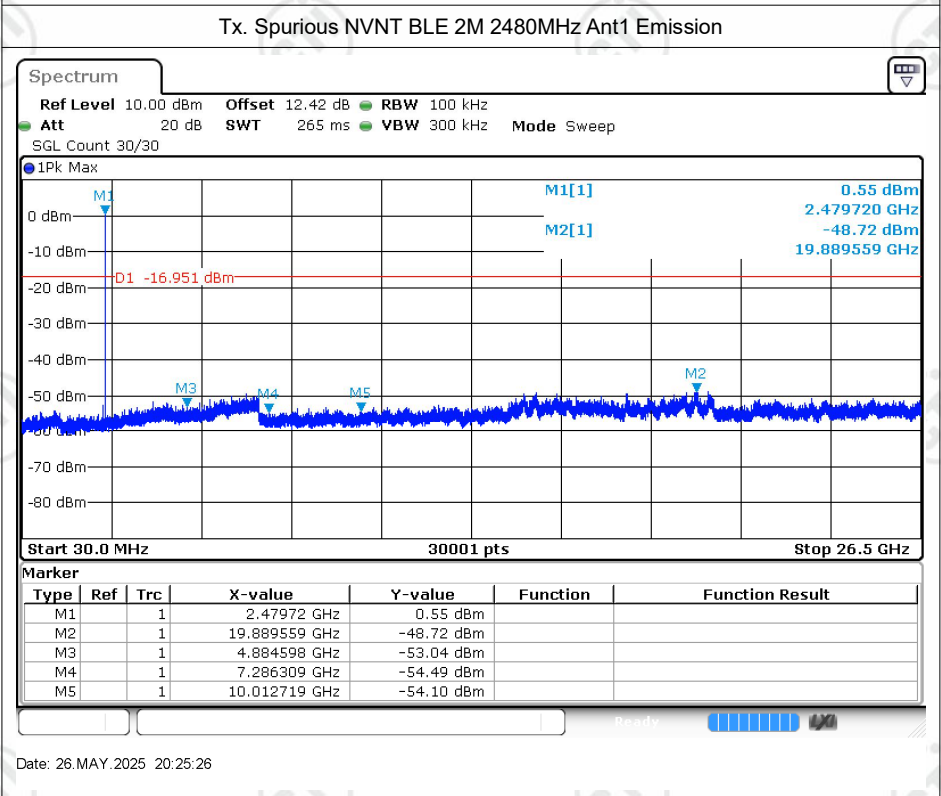
Date: 26.MAY.2025 20:22:55



Date: 26.MAY.2025 20:23:24



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Date: 26.MAY.2025 20:25:26