Appendix A: Test Results of DTS

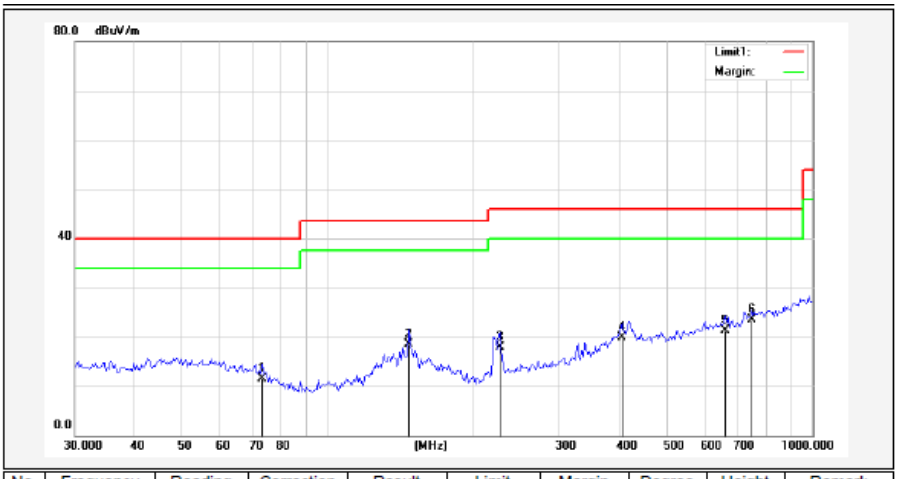
Radiated Spurious Emission

All modes have been tested, and the report only reflects the worst mode

Below 1GHz:

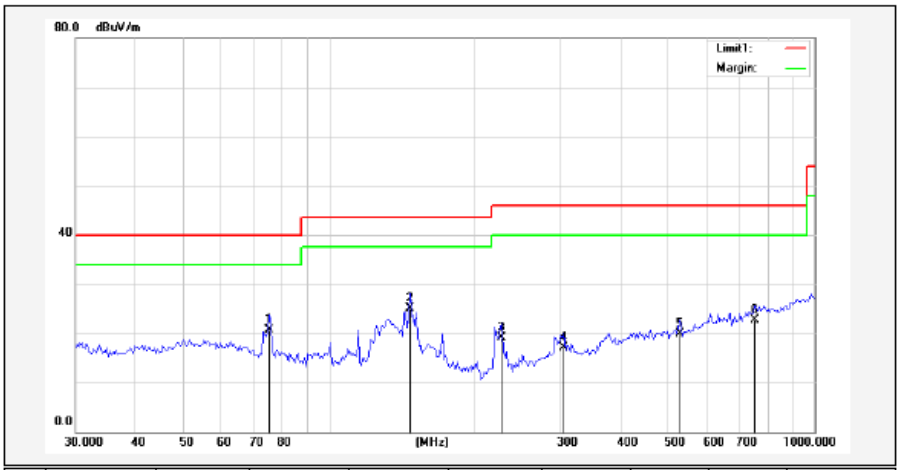
Test Mode:	Working

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	73.2330	25.91	-14.39	11.52	40.00	-28.48			QP
2	146.8392	30.07	-11.55	18.52	43.50	-24.98			QP
3	227.0164	31.17	-13.34	17.83	46.00	-28.17			QP
4	403.9334	27.80	-7.86	19.94	46.00	-26.06			QP
5	660.6024	24.44	-3.14	21.30	46.00	-24.70			QP
6*	749.6761	24.28	-0.86	23.42	46.00	-22.58			QP

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	75.3208	35.57	-14.92	20.65	40.00	-19.35			QP
2*	146.8392	36.68	-11.55	25.13	43.50	-18.37			QP
3	227.0164	32.49	-13.34	19.15	46.00	-26.85			QP
4	304.9547	28.36	-11.18	17.18	46.00	-28.82			QP
5	527.5706	25.75	-5.83	19.92	46.00	-26.08			QP
6	754.9628	23.49	-0.82	22.67	46.00	-23.33			QP

Above 1GHz：

All modes have been tested, and the report only reflects the worst mode(1Mbps)

Low Channel Horizontal							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4808	60.02	-14.84	45.18	74	-28.82	peak
2	6950	54.42	-9.82	44.6	74	-29.4	peak
3	8514	54.59	-7.81	46.78	74	-27.22	peak
4	9058	53.85	-6.45	47.4	74	-26.6	peak
5	10350	53.72	-4.13	49.59	74	-24.41	peak
6	11030	54.6	-3.27	51.33	74	-22.67	peak

Low Channel Vertical							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4808	58.39	-14.84	43.55	74	-30.45	peak
2	5998	56.78	-11.34	45.44	74	-28.56	peak
3	6780	55.49	-10.17	45.32	74	-28.68	peak
4	7834	54.48	-9.18	45.3	74	-28.7	peak
5	8820	54.7	-6.97	47.73	74	-26.27	peak
6	10078	54.21	-4.51	49.7	74	-24.3	peak

Middle Channel Horizontal							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4876	59.74	-14.14	45.6	74	-28.4	peak
2	6746	54.06	-10.2	43.86	74	-30.14	peak
3	7256	55.82	-9.09	46.73	74	-27.27	peak
4	8684	55.53	-7.34	48.19	74	-25.81	peak
5	10044	53.55	-4.58	48.97	74	-25.03	peak
6	11030	53.59	-3.27	50.32	74	-23.68	peak

Middle Channel Vertical							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4264	64.48	-15.45	49.03	74	-24.97	peak
2	4876	59.03	-14.14	44.89	74	-29.11	peak
3	5998	56.7	-11.34	45.36	74	-28.64	peak
4	7324	55.87	-8.95	46.92	74	-27.08	peak
5	8854	54.31	-6.88	47.43	74	-26.57	peak
6	11370	54.58	-3.14	51.44	74	-22.56	peak

High Channel Horizontal							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4944	59.48	-13.98	45.5	74	-28.5	peak
2	6168	54.53	-11.14	43.39	74	-30.61	peak
3	6984	54.16	-9.74	44.42	74	-29.58	peak
4	8140	55.3	-8.93	46.37	74	-27.63	peak
5	9772	54.14	-5.26	48.88	74	-25.12	peak
6	11064	53.73	-3.22	50.51	74	-23.49	peak

High Channel Vertical							
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4230	62.76	-15.95	46.81	74	-27.19	peak
2	4944	60.21	-13.98	46.23	74	-27.77	peak
3	5998	56.75	-11.34	45.41	74	-28.59	peak
4	7426	55.97	-8.85	47.12	74	-26.88	peak
5	9024	54.77	-6.46	48.31	74	-25.69	peak
6	11064	53.56	-3.22	50.34	74	-23.66	peak

Node:

1. Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported..
2. Radiated emissions measured in frequency above 1GHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Margin (dB), result in dBuV/m – limit in dBuV/m.
5. All restricted band have a frequency margin greater than 20dB (20dB = 74dBuV/m-54dBuV/m), meet the 54dBuV/m limit, and do not require AVG.

Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted(dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	4.02	0	4.02	0.00252	30	Pass
NVNT	BLE 1M	2440	Ant1	3.92	0	3.92	0.00247	30	Pass
NVNT	BLE 1M	2480	Ant1	3.75	0	3.75	0.00237	30	Pass
NVNT	BLE 2M	2402	Ant1	4.05	0	4.05	0.00254	30	Pass
NVNT	BLE 2M	2440	Ant1	3.93	0	3.93	0.00247	30	Pass
NVNT	BLE 2M	2480	Ant1	3.75	0	3.75	0.00237	30	Pass

Note:

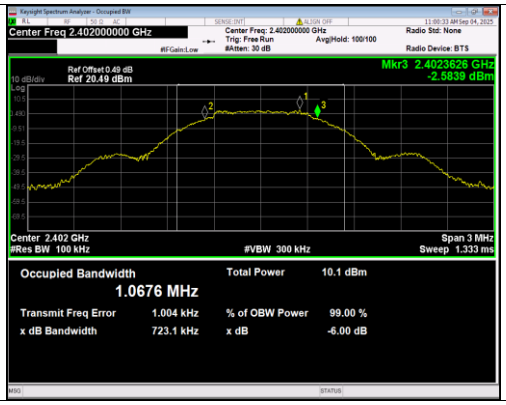
1) The cable loss is taken into account in results.

2) Antenna gain(G) BLE: -0.848 dBi

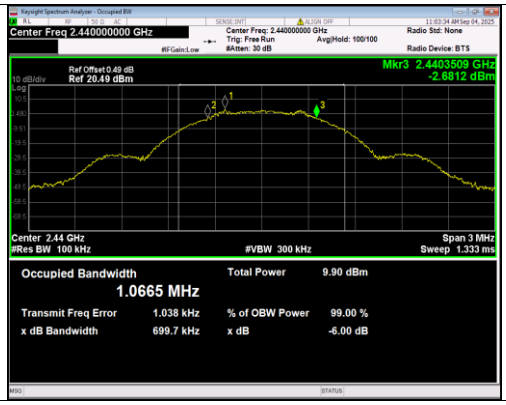
e.i.r.p.=P(PK power)+ G, which is far below the 4 W

-6dB Bandwidth

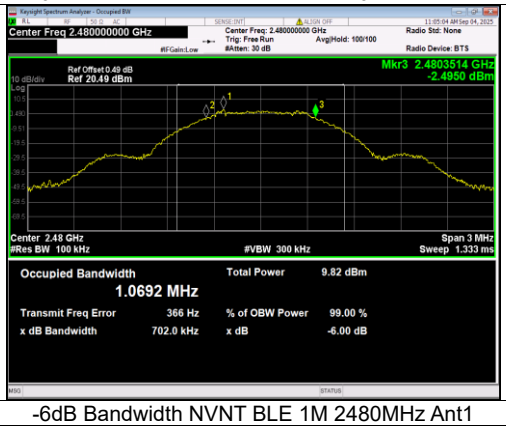
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.7231	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6997	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.702	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.352	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.338	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.302	0.5	Pass



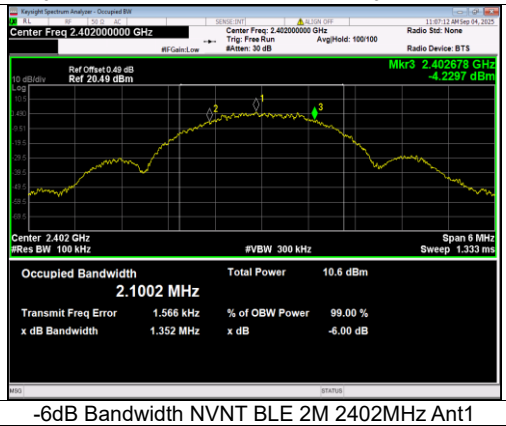
-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



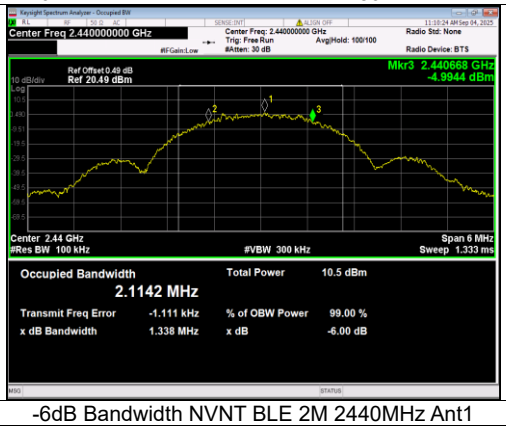
-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



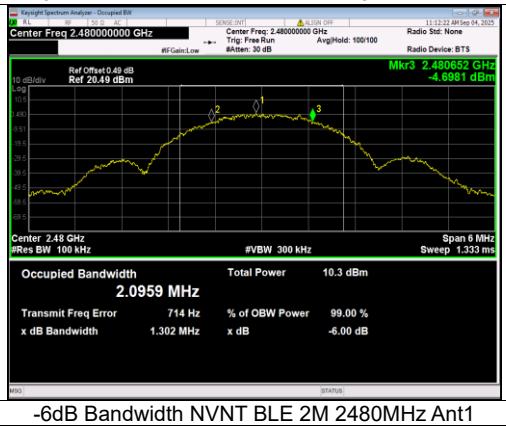
-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



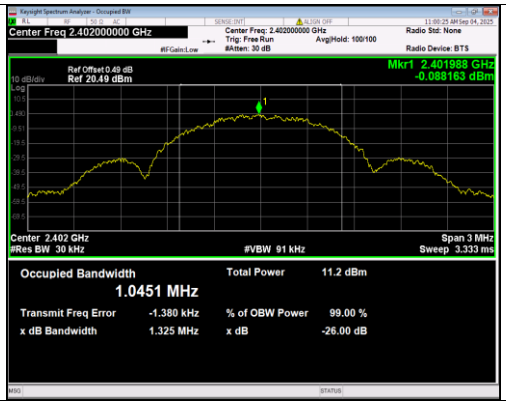
-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1



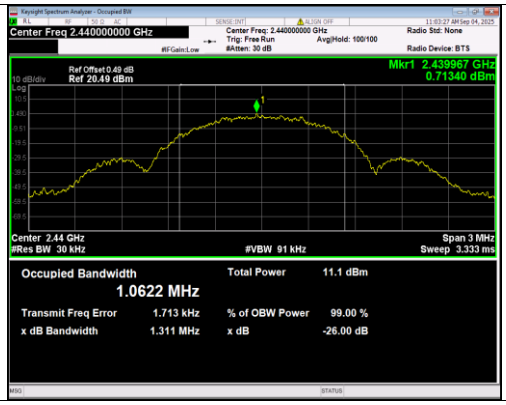
-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1

Occupied Channel Bandwidth

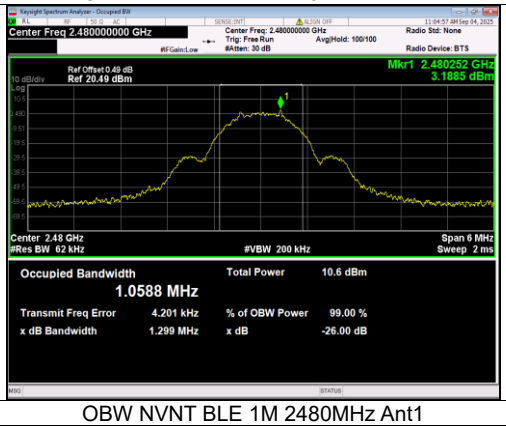
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.0451
NVNT	BLE 1M	2440	Ant1	1.0622
NVNT	BLE 1M	2480	Ant1	1.0588
NVNT	BLE 2M	2402	Ant1	2.0592
NVNT	BLE 2M	2440	Ant1	2.0804
NVNT	BLE 2M	2480	Ant1	2.0921



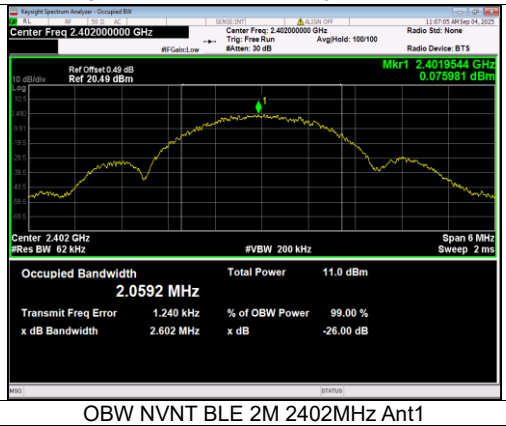
OBW NVNT BLE 1M 2402MHz Ant1



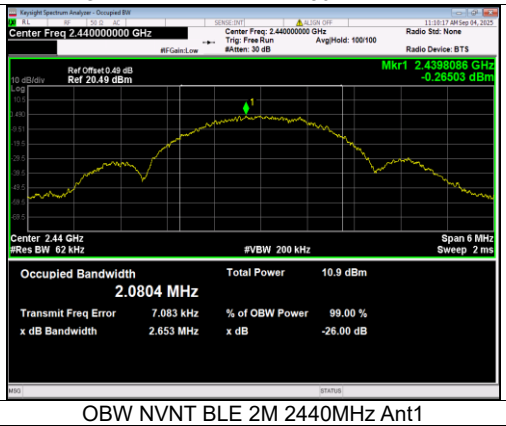
OBW NVNT BLE 1M 2440MHz Ant1



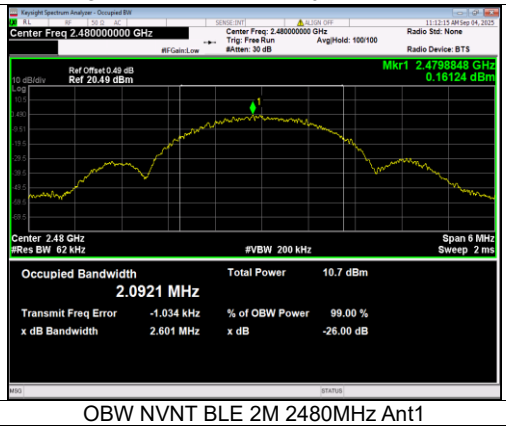
OBW NVNT BLE 1M 2480MHz Ant1



OBW NVNT BLE 2M 2402MHz Ant1



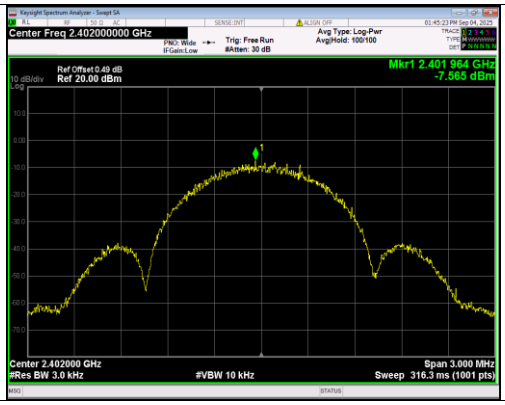
OBW NVNT BLE 2M 2440MHz Ant1



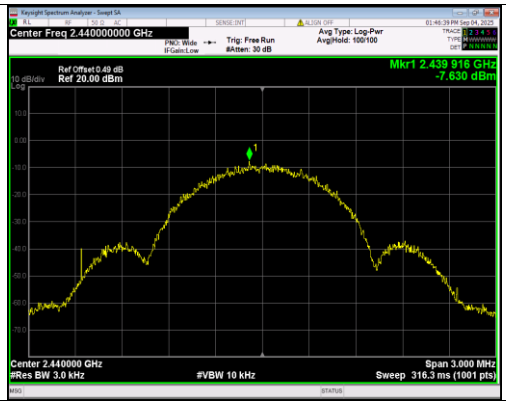
OBW NVNT BLE 2M 2480MHz Ant1

Maximum Power Spectral Density Level

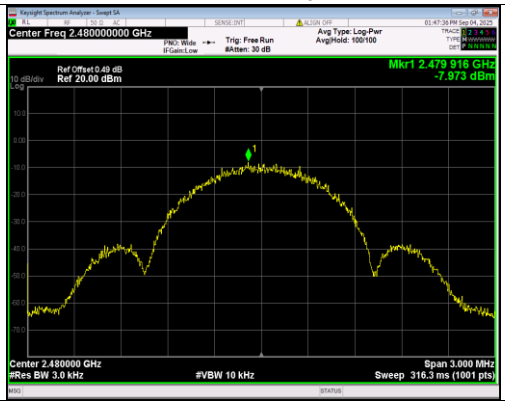
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-7.57	0	-7.57	8	Pass
NVNT	BLE 1M	2440	Ant1	-7.63	0	-7.63	8	Pass
NVNT	BLE 1M	2480	Ant1	-7.97	0	-7.97	8	Pass
NVNT	BLE 2M	2402	Ant1	-9.89	0	-9.89	8	Pass
NVNT	BLE 2M	2440	Ant1	-10.2	0	-10.2	8	Pass
NVNT	BLE 2M	2480	Ant1	-10.74	0	-10.74	8	Pass



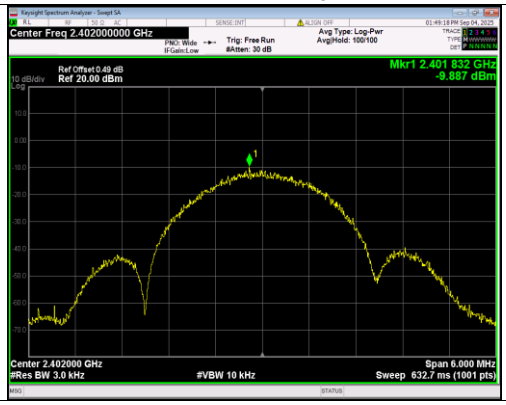
PSD NVNT BLE 1M 2402MHz Ant1



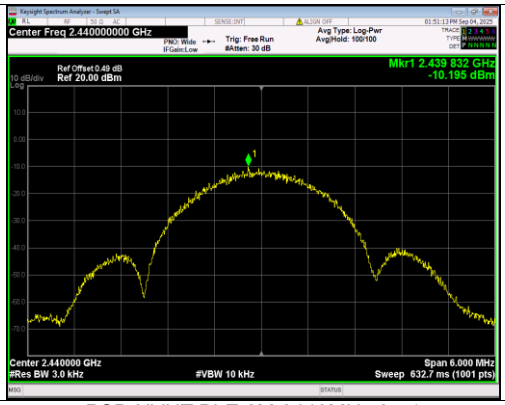
PSD NVNT BLE 1M 2440MHz Ant1



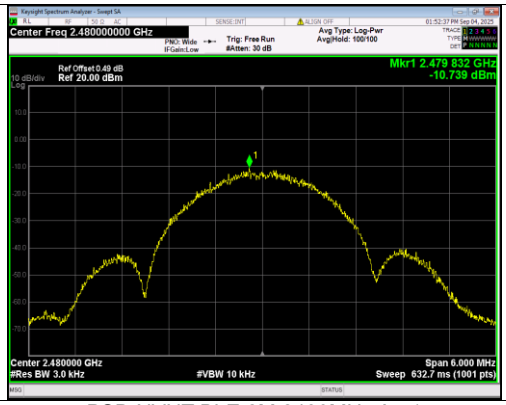
PSD NVNT BLE 1M 2480MHz Ant1



PSD NVNT BLE 2M 2402MHz Ant1



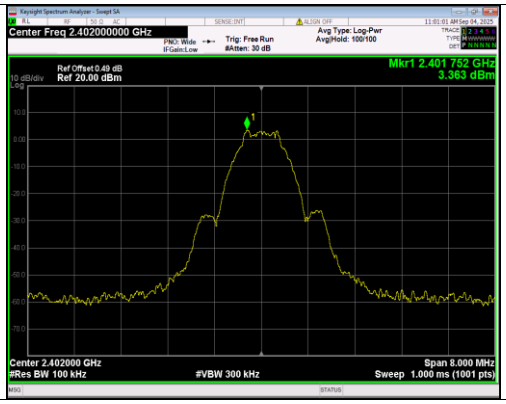
PSD NVNT BLE 2M 2440MHz Ant1



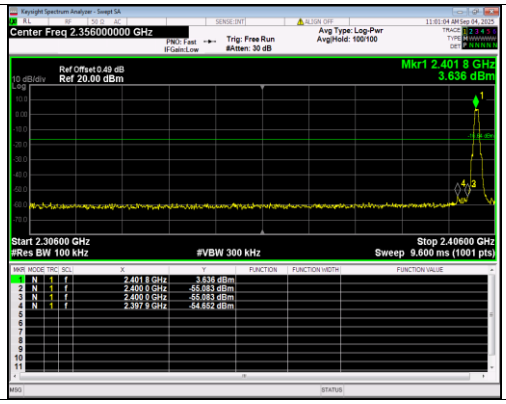
PSD NVNT BLE 2M 2480MHz Ant1

Band Edge

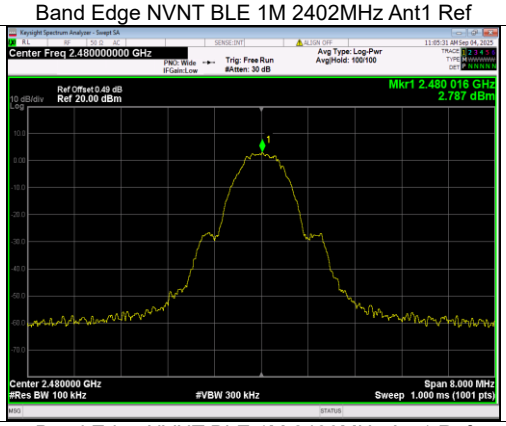
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-58.01	-20	Pass
NVNT	BLE 1M	2480	Ant1	-59.69	-20	Pass
NVNT	BLE 2M	2402	Ant1	-32.91	-20	Pass
NVNT	BLE 2M	2480	Ant1	-56.39	-20	Pass



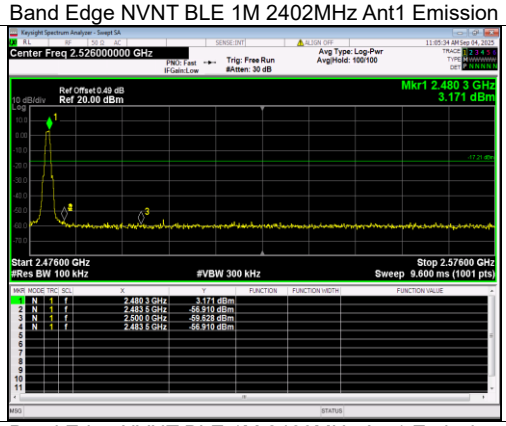
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



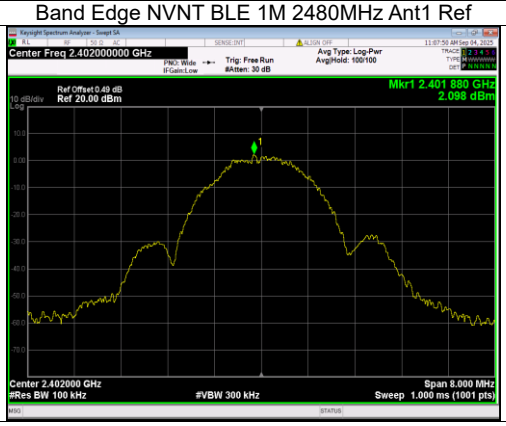
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



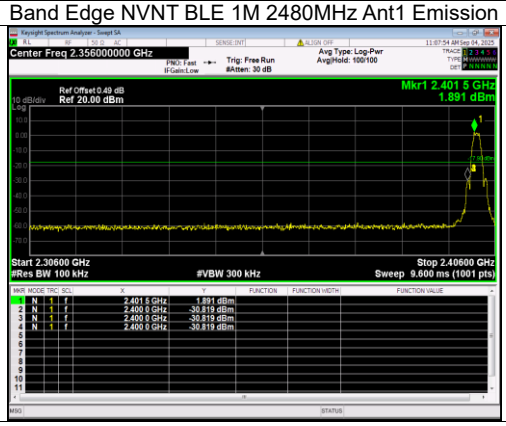
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



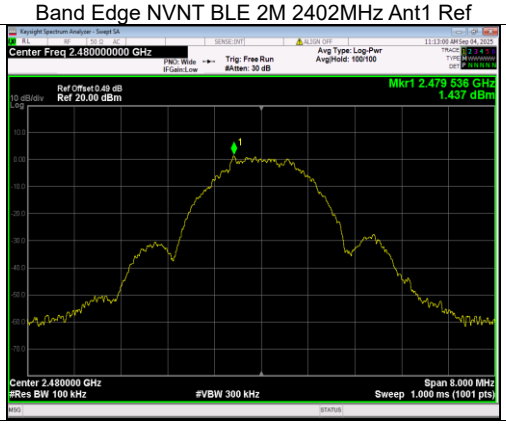
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



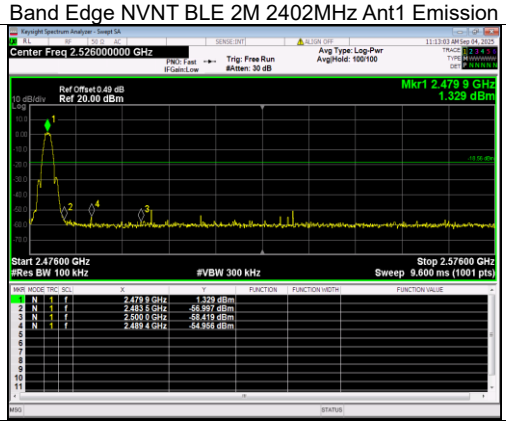
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



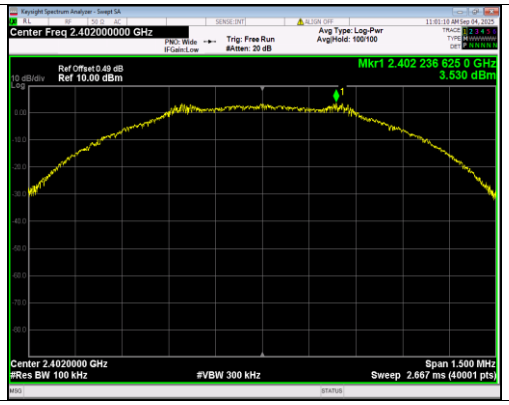
Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



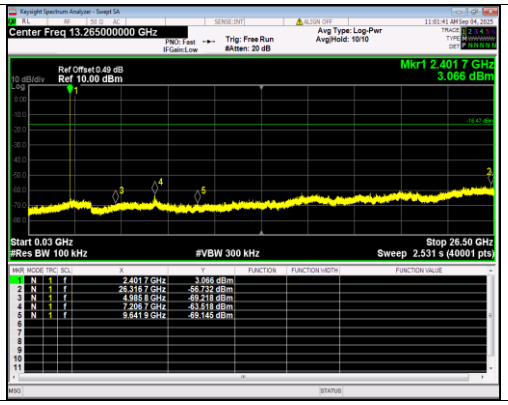
Band Edge NVNT BLE 2M 2480MHz Ant1 Emission

Conducted RF Spurious Emission

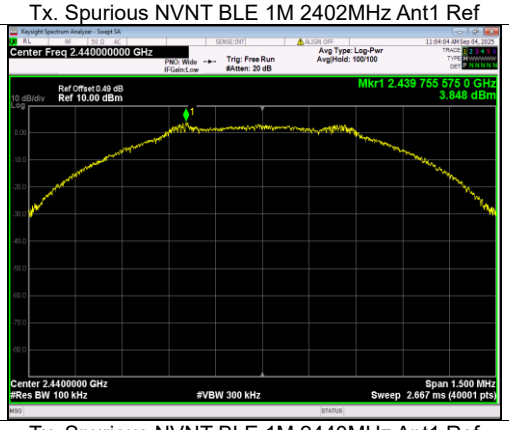
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-60.26	-20	Pass
NVNT	BLE 1M	2440	Ant1	-59.87	-20	Pass
NVNT	BLE 1M	2480	Ant1	-60.59	-20	Pass
NVNT	BLE 2M	2402	Ant1	-58.83	-20	Pass
NVNT	BLE 2M	2440	Ant1	-59.07	-20	Pass
NVNT	BLE 2M	2480	Ant1	-58.8	-20	Pass



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



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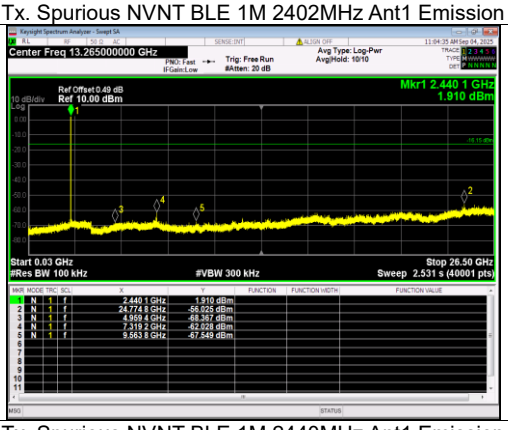

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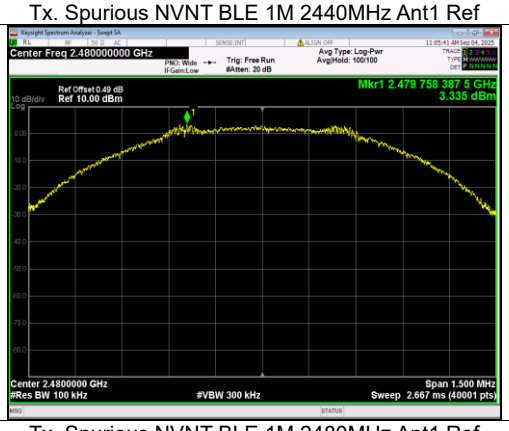
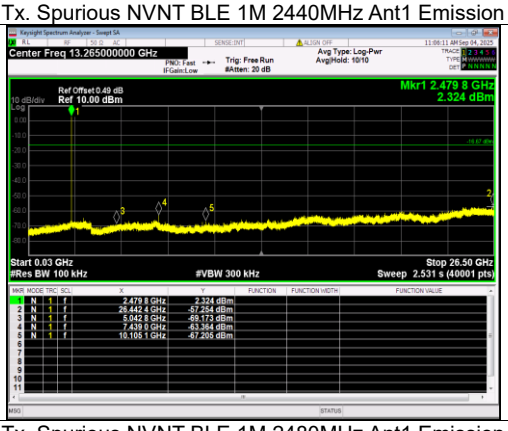
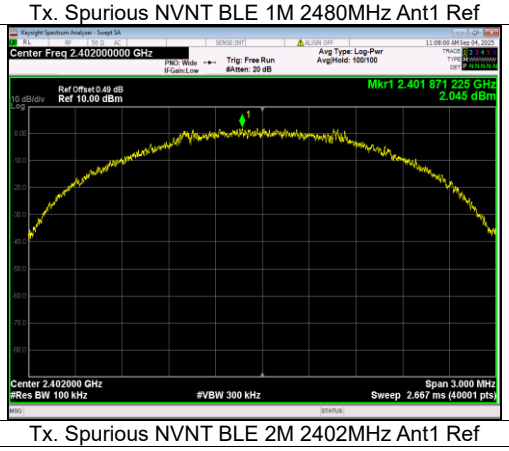


Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



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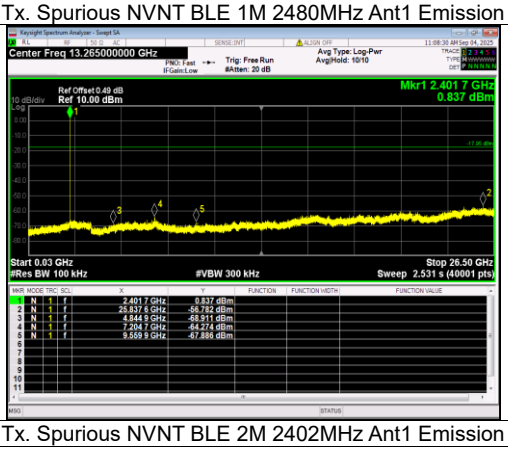

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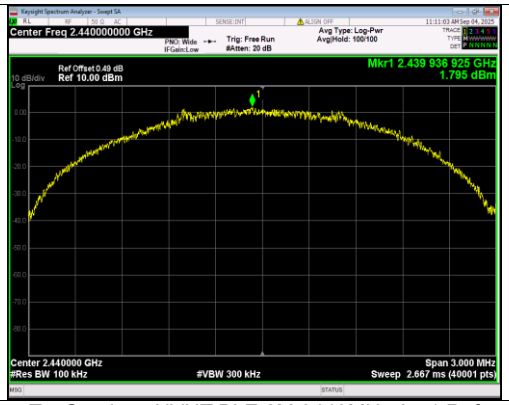

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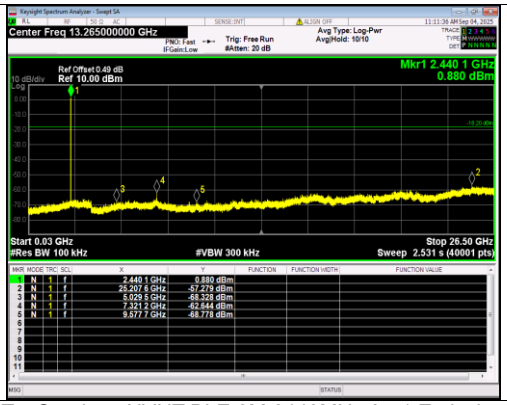

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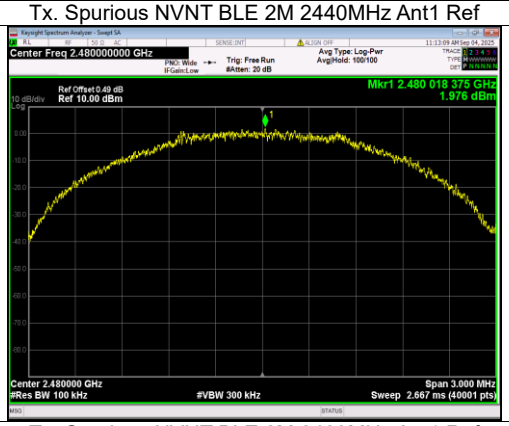
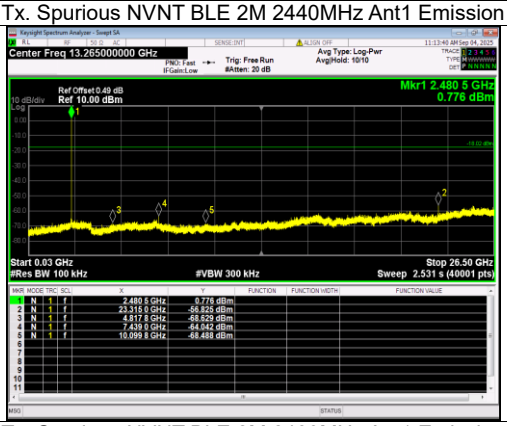


Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission

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	-51.47	2	45.79	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2310	-61.83	2	35.43	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2385.648	-48.71	2	48.55	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2389.584	-61.19	2	36.07	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2390	-51.17	2	46.09	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2390	-61.2	2	36.06	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-48.23	2	49.03	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-58.99	2	38.27	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.584	-47.61	2	49.65	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.512	-58.99	2	38.27	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2500	-51.32	2	45.94	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2500	-60.97	2	36.29	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2310	-52.63	2	44.63	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2310	-61.79	2	35.47	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2366.544	-48.55	2	48.71	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2389.584	-61.16	2	36.1	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2390	-50.66	2	46.6	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2390	-61.18	2	36.08	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-45.17	2	52.09	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-53.94	2	43.32	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.56	-44.41	2	52.85	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.512	-53.94	2	43.32	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2500	-51.99	2	45.27	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2500	-61.07	2	36.19	Average	54	Pass

Note:

1. Convert the resultant EIRP to an equivalent electric field strength using the following relationship

E = EIRP-20 log d +104.8

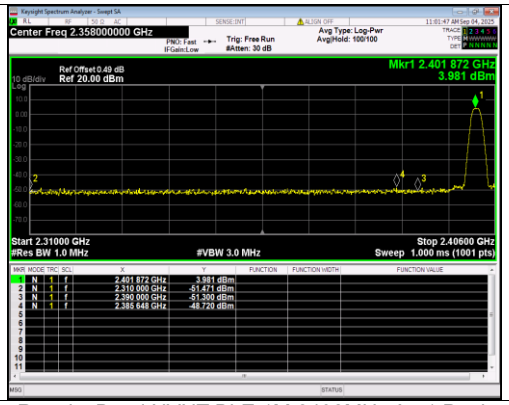
Where,

E is the electric field strength in dBuV/m

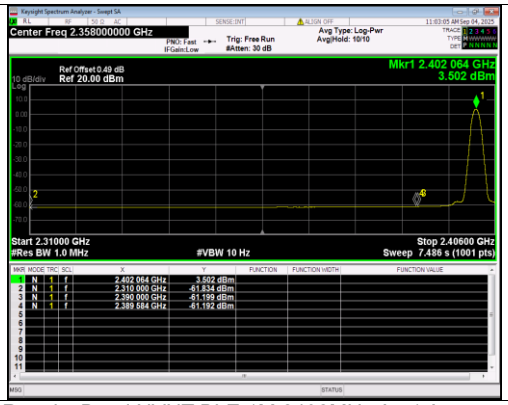
EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

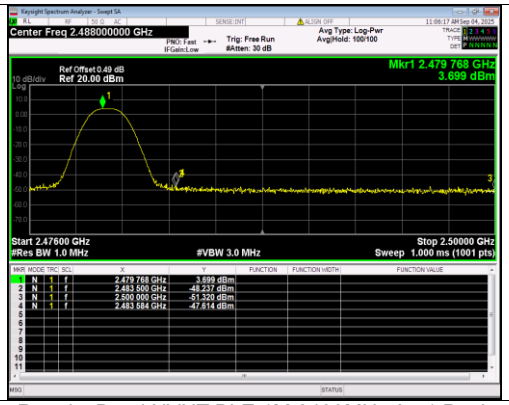
2. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see C63.10 11.12.2.6 for guidance on determining the applicable antenna gain), the EUT antenna gain(-0.848dBi) less than 2dBi, therefore, a minimum gain of 2 dBi is used.



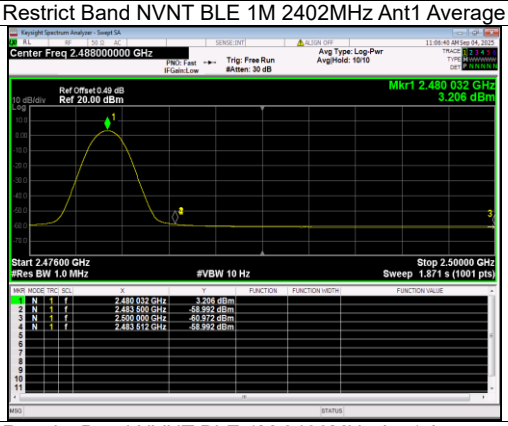
Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak



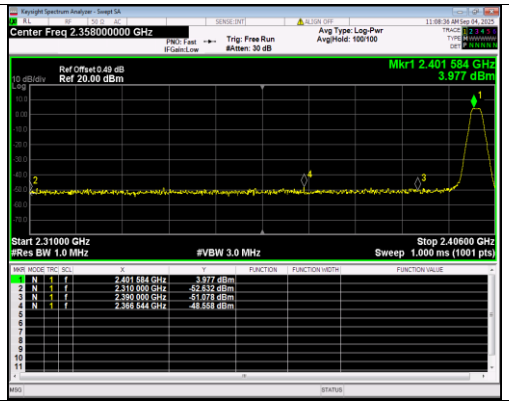
Restrict Band NVNT BLE 1M 2402MHz Ant1 Average



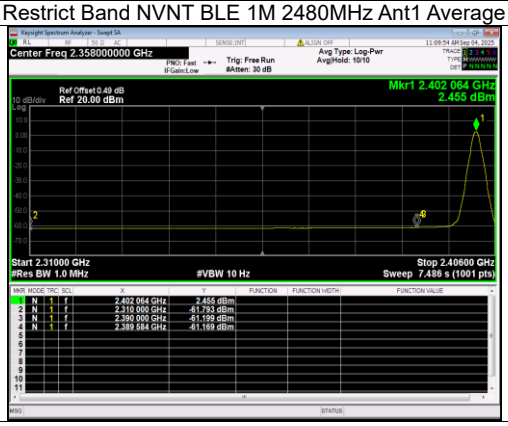
Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



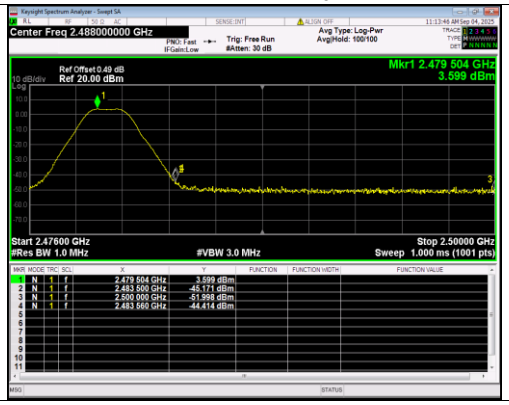
Restrict Band NVNT BLE 1M 2480MHz Ant1 Average



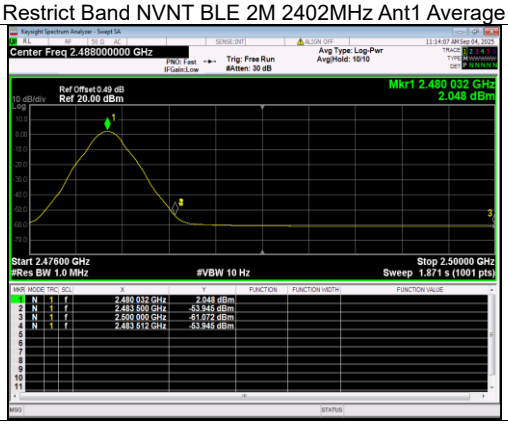
Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2402MHz Ant1 Average



Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2480MHz Ant1 Average