

Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: GNSS Receiver

Test Model: Horus

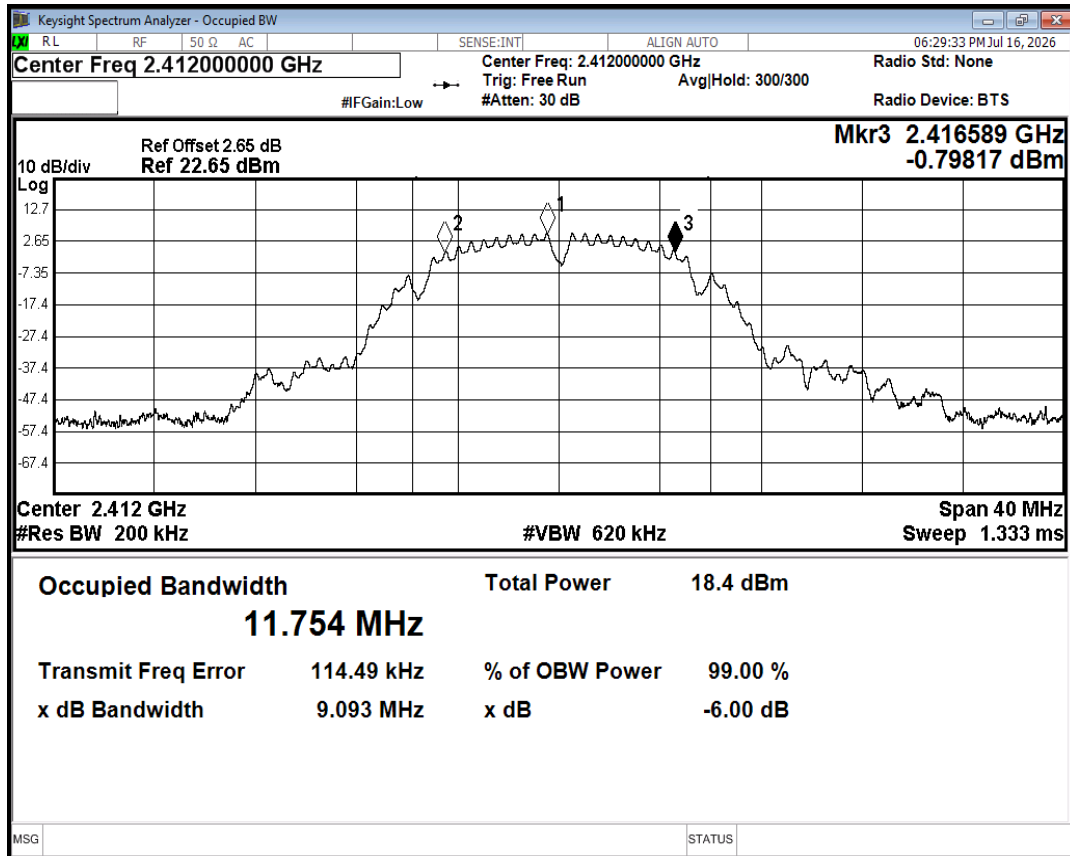
Environmental Conditions

Temperature:	24.6°C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

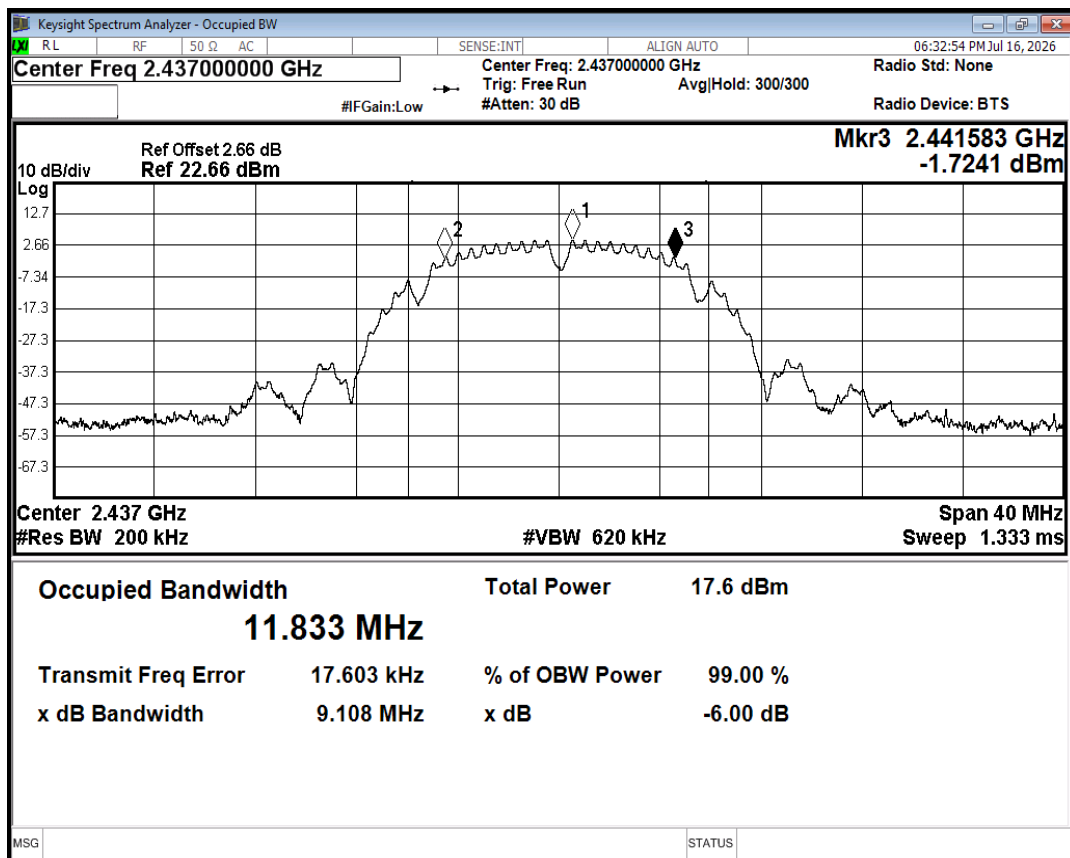
B.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.093	0.5	Pass
NVNT	b	2437	Ant1	9.108	0.5	Pass
NVNT	b	2462	Ant1	9.121	0.5	Pass
NVNT	g	2412	Ant1	16.3	0.5	Pass
NVNT	g	2437	Ant1	16.4	0.5	Pass
NVNT	g	2462	Ant1	16.37	0.5	Pass
NVNT	n20	2412	Ant1	17.37	0.5	Pass
NVNT	n20	2437	Ant1	17.35	0.5	Pass
NVNT	n20	2462	Ant1	17.52	0.5	Pass
NVNT	n40	2422	Ant1	35.78	0.5	Pass
NVNT	n40	2437	Ant1	35.76	0.5	Pass
NVNT	n40	2452	Ant1	36.16	0.5	Pass

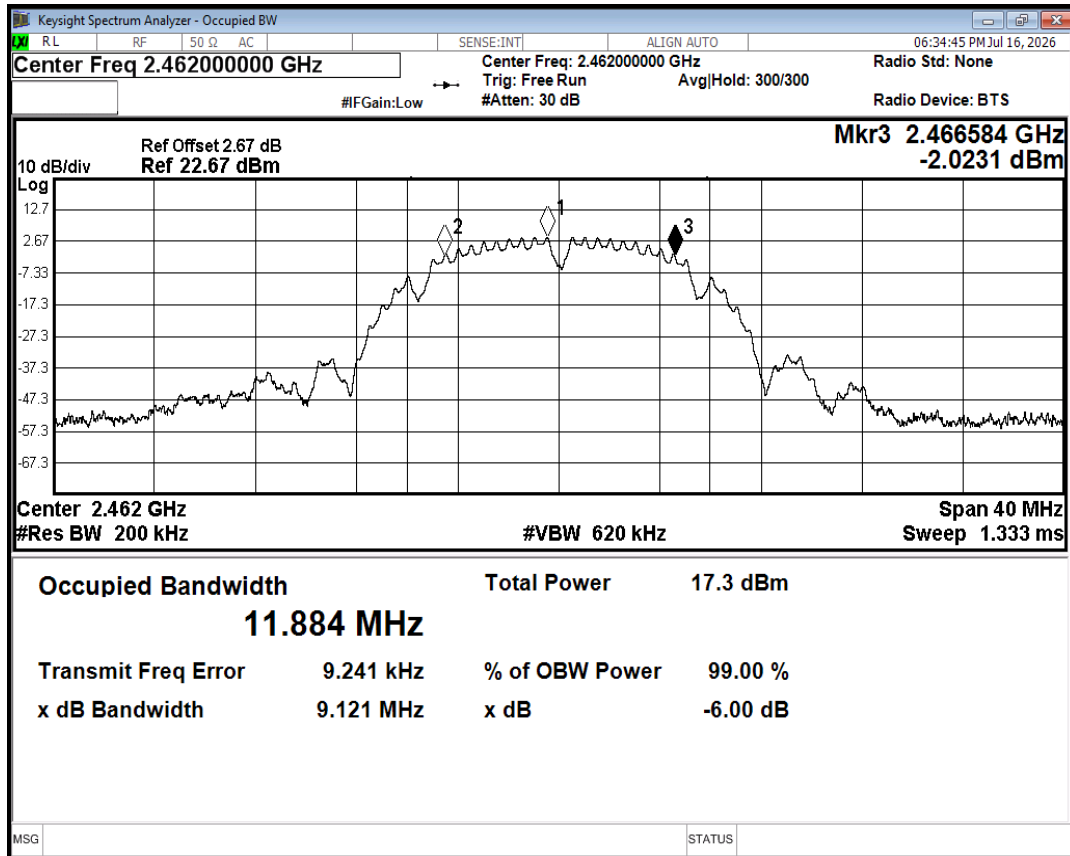
Note :offset=System attenuation +cable loss



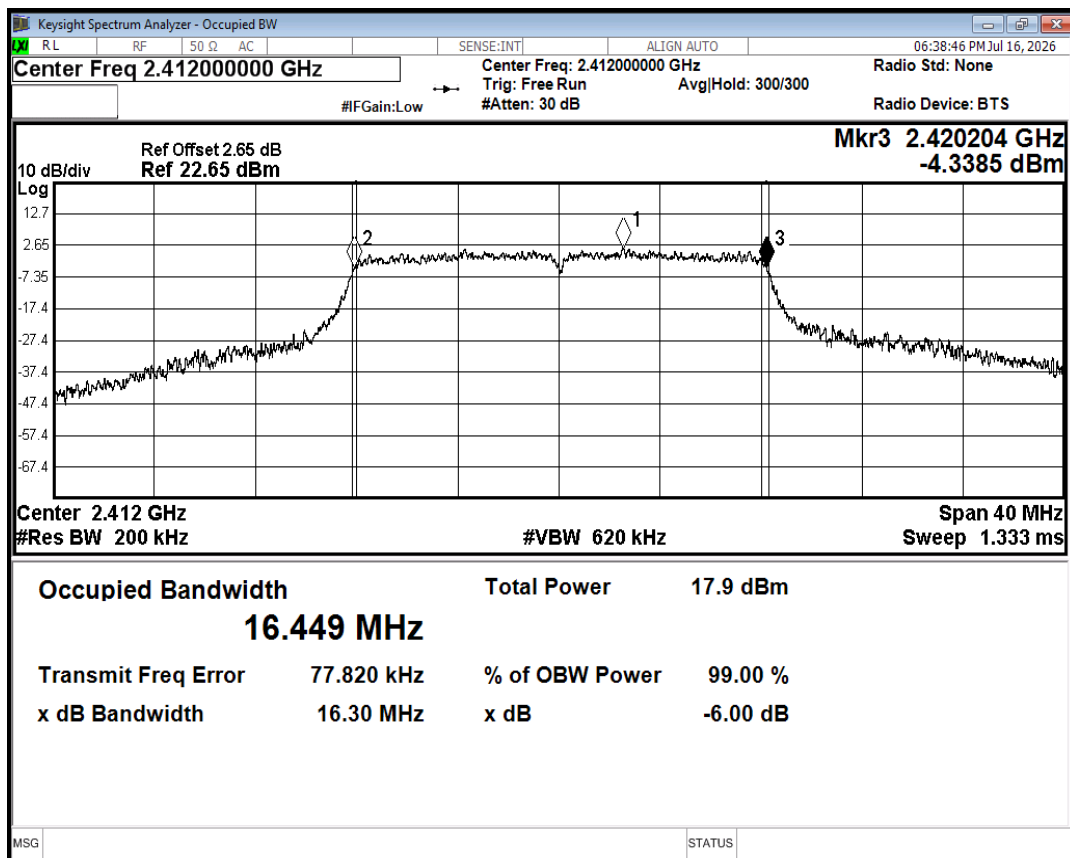
-6dB Bandwidth NVNT b 2412MHz Ant1



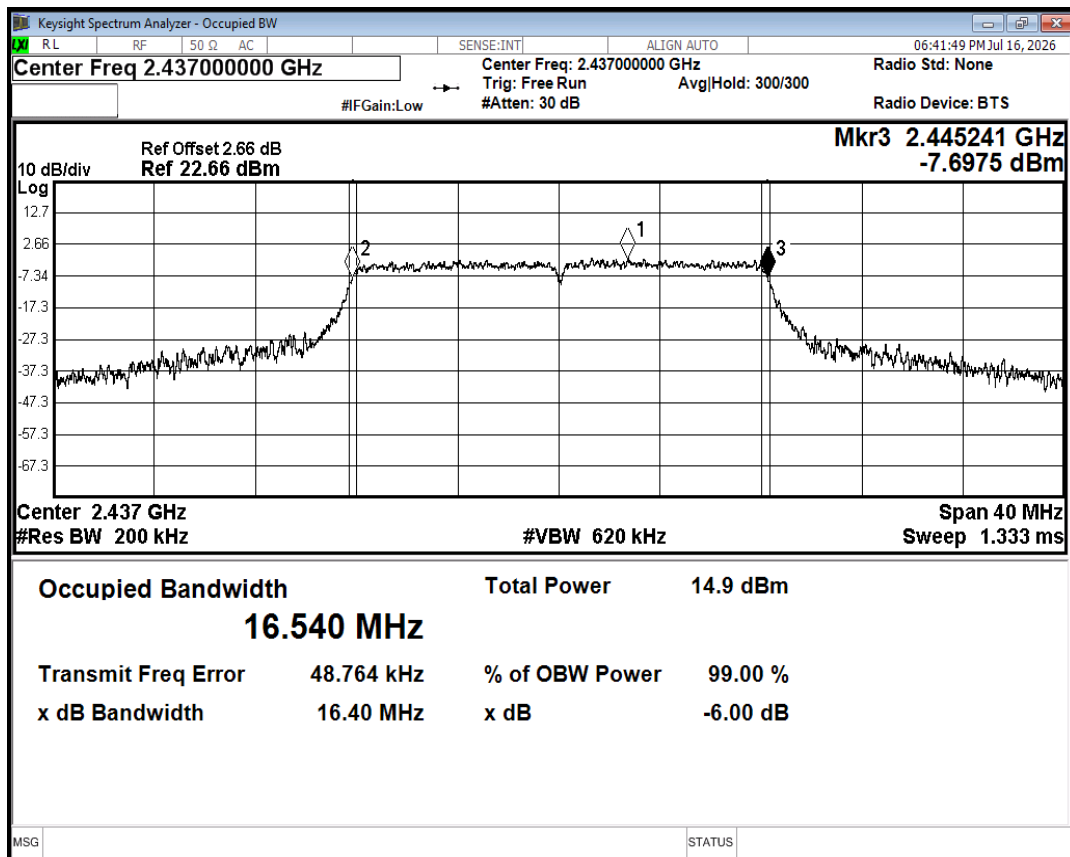
-6dB Bandwidth NVNT b 2437MHz Ant1



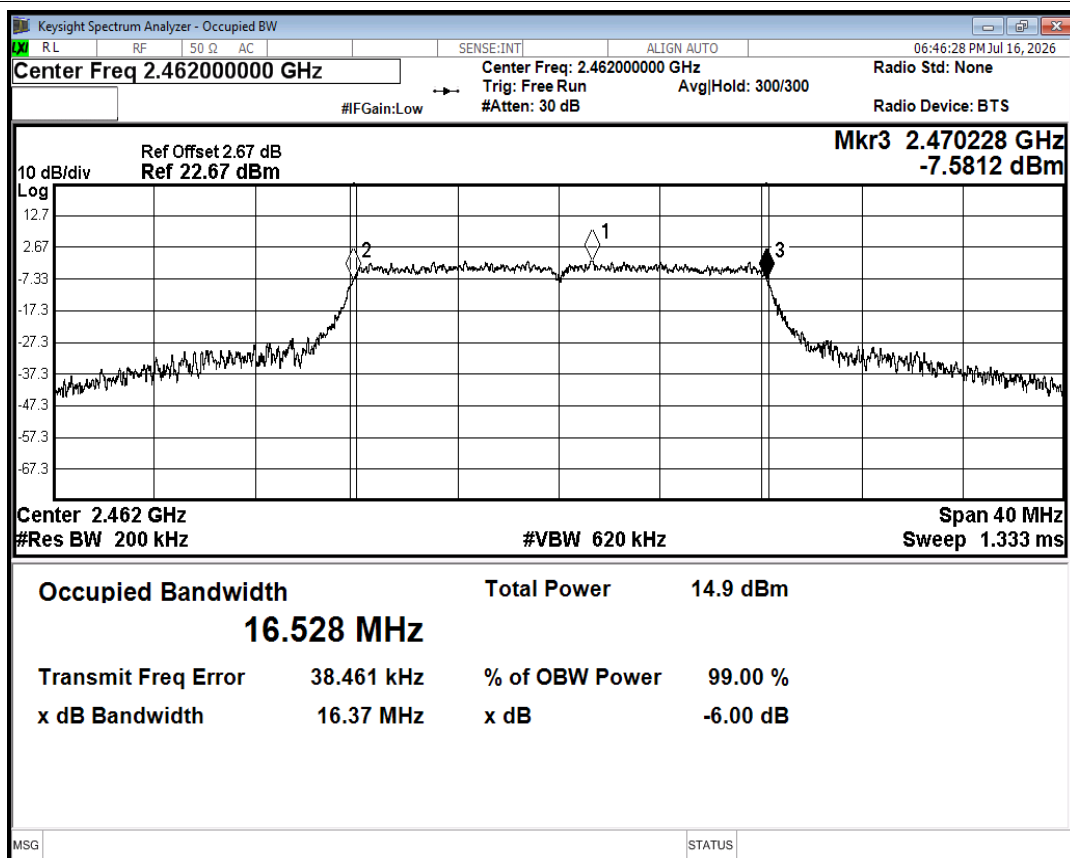
-6dB Bandwidth NVNT b 2462MHz Ant1



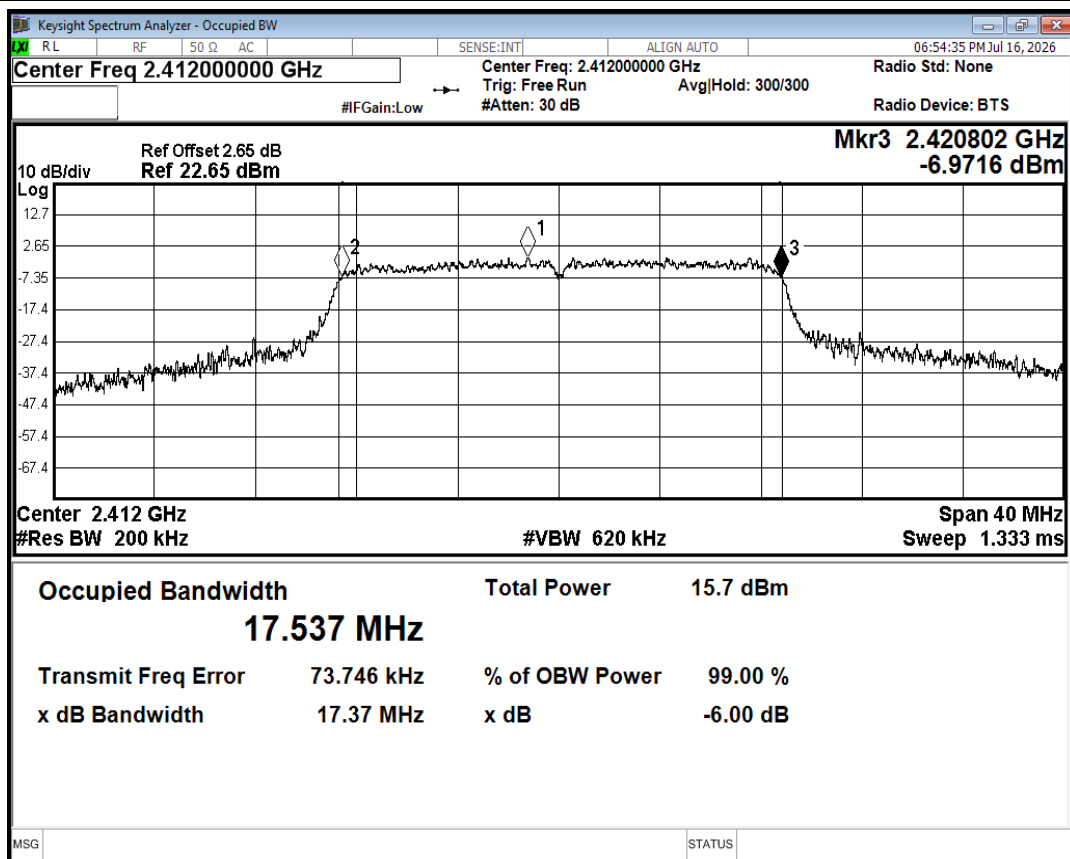
-6dB Bandwidth NVNT g 2412MHz Ant1



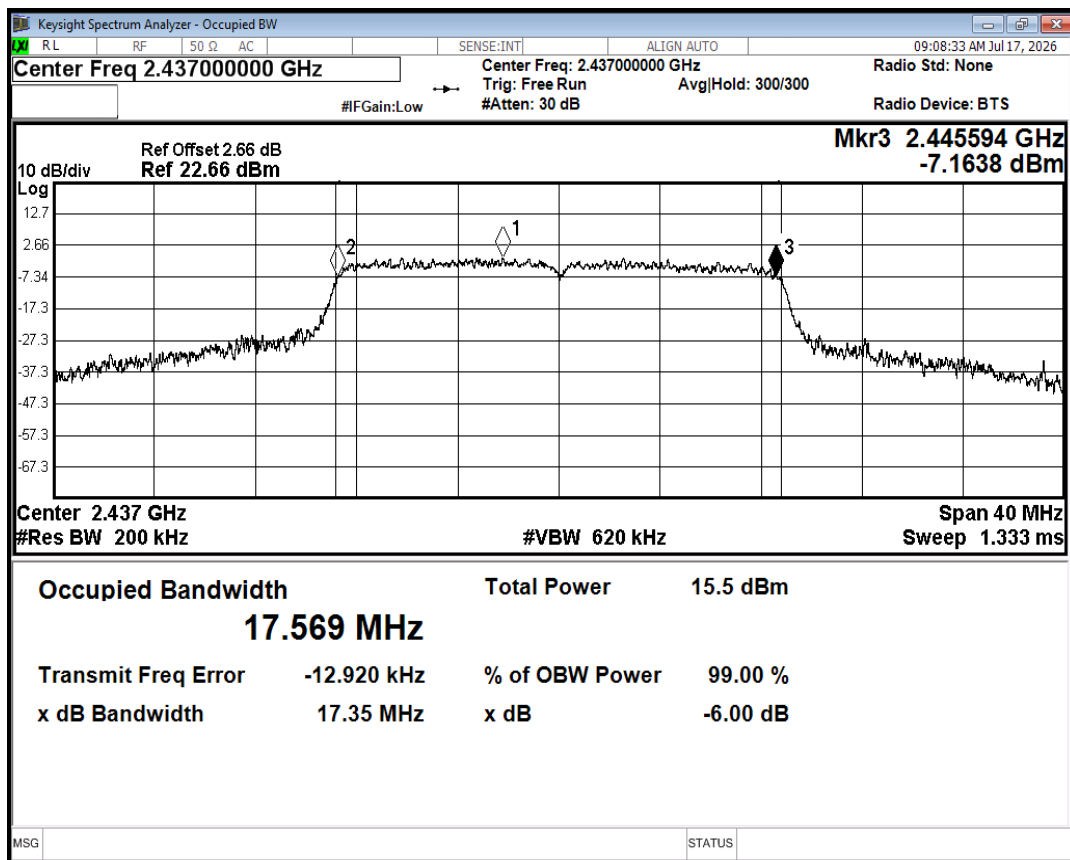
-6dB Bandwidth NVNT g 2437MHz Ant1



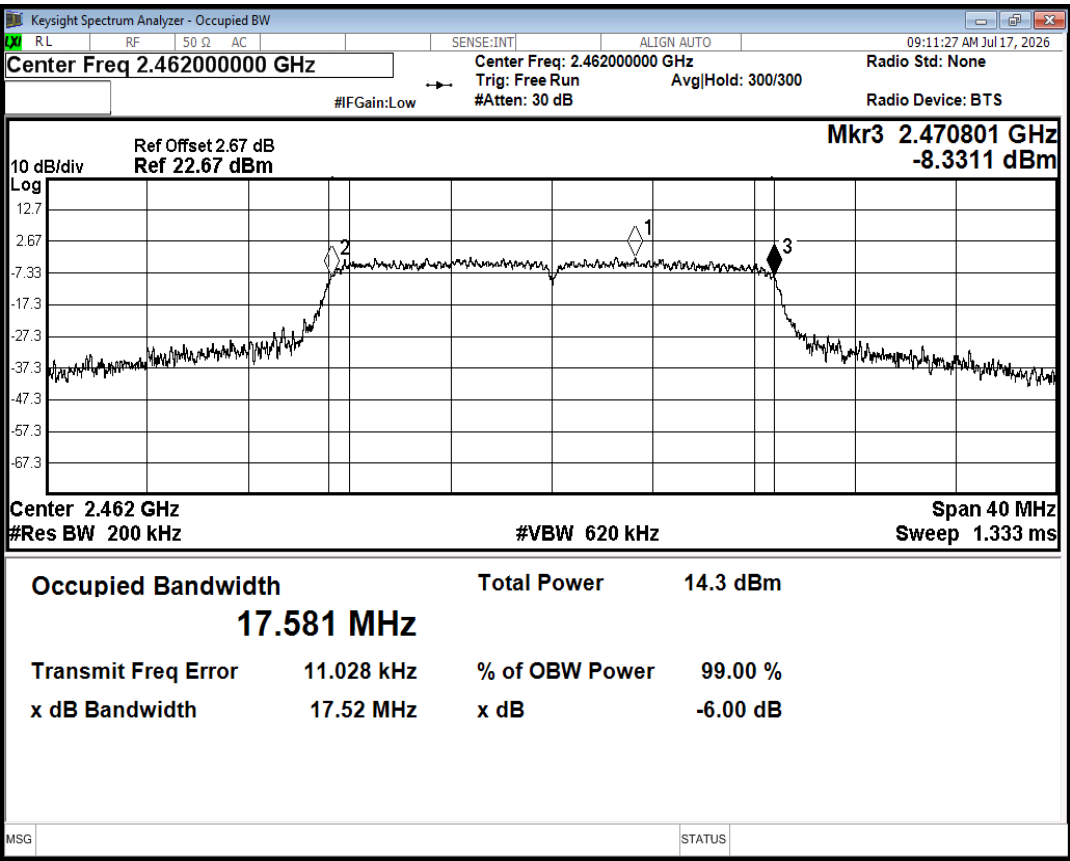
-6dB Bandwidth NVNT g 2462MHz Ant1



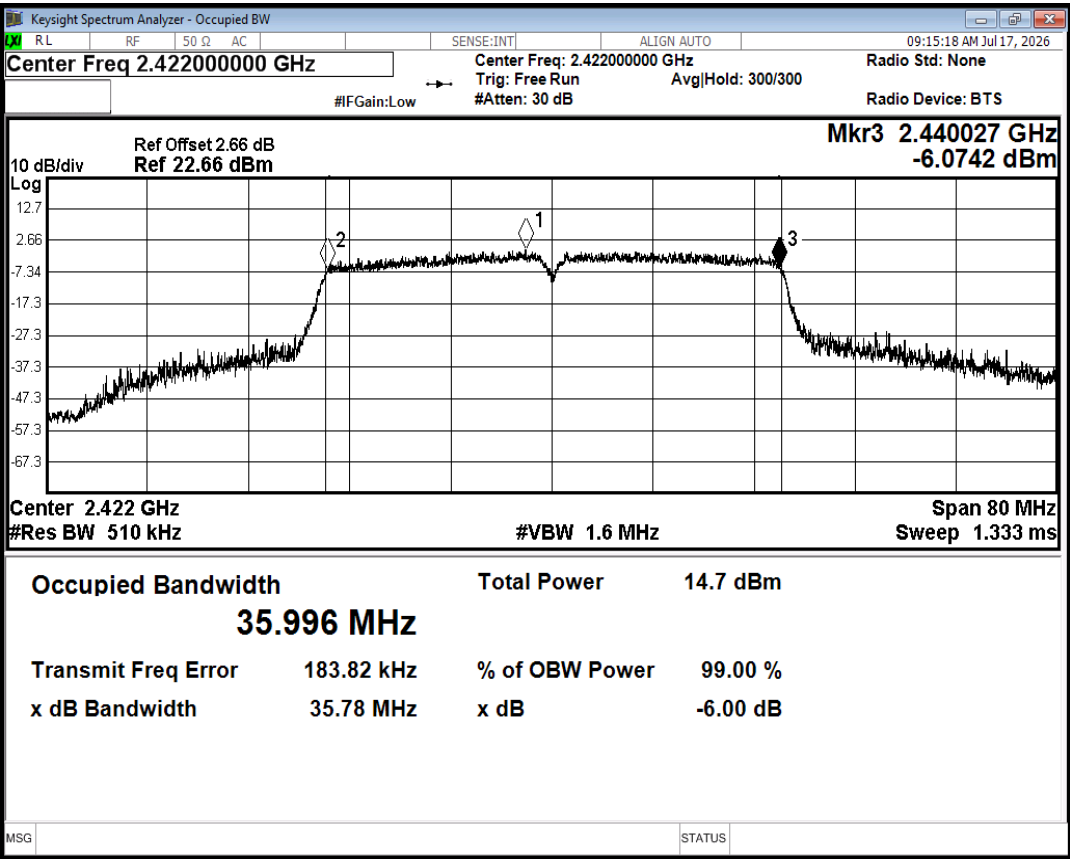
-6dB Bandwidth NVNT n20 2412MHz Ant1



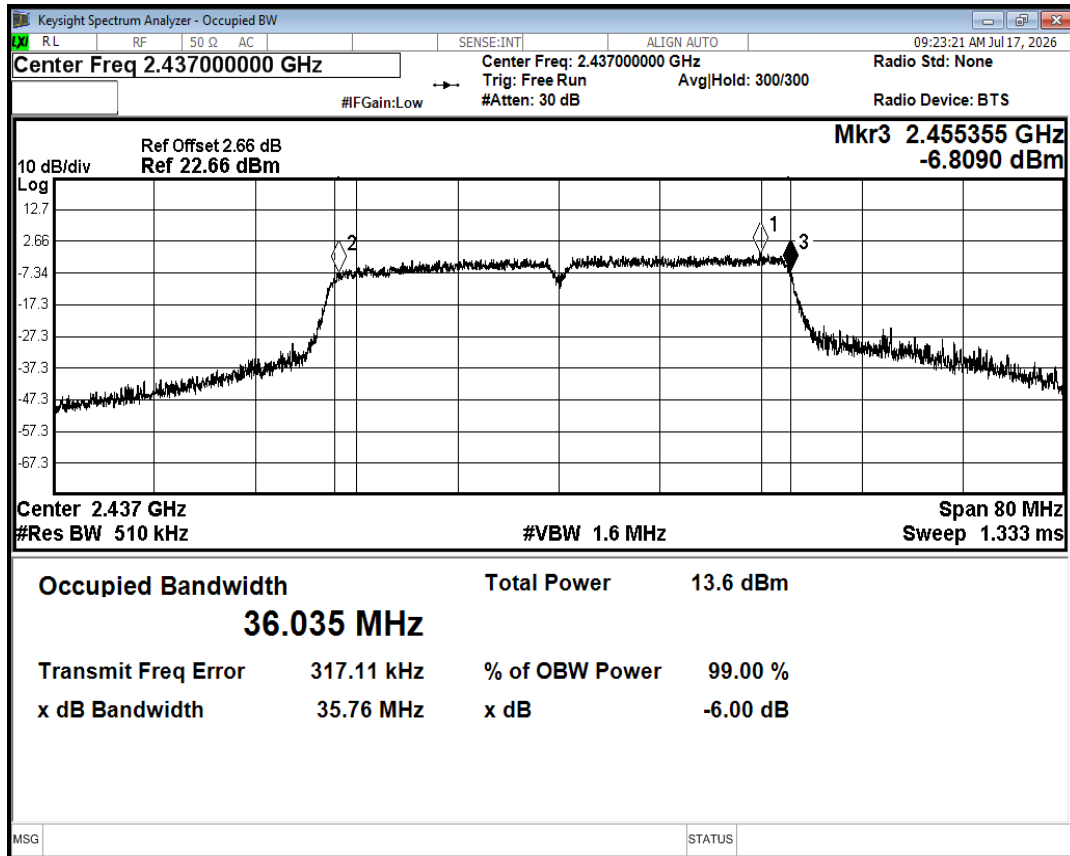
-6dB Bandwidth NVNT n20 2437MHz Ant1



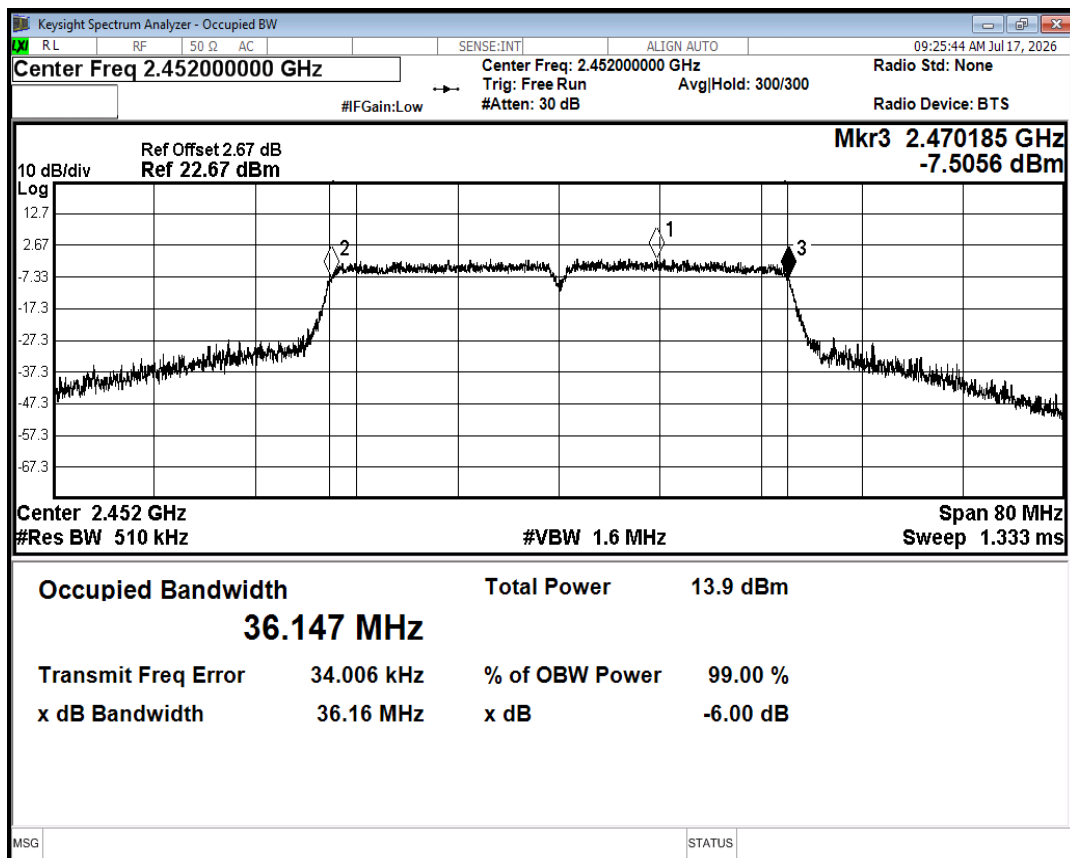
-6dB Bandwidth NVNT n20 2462MHz Ant1



-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1

B.2 Maximum Average conducted output power

Test Result Average

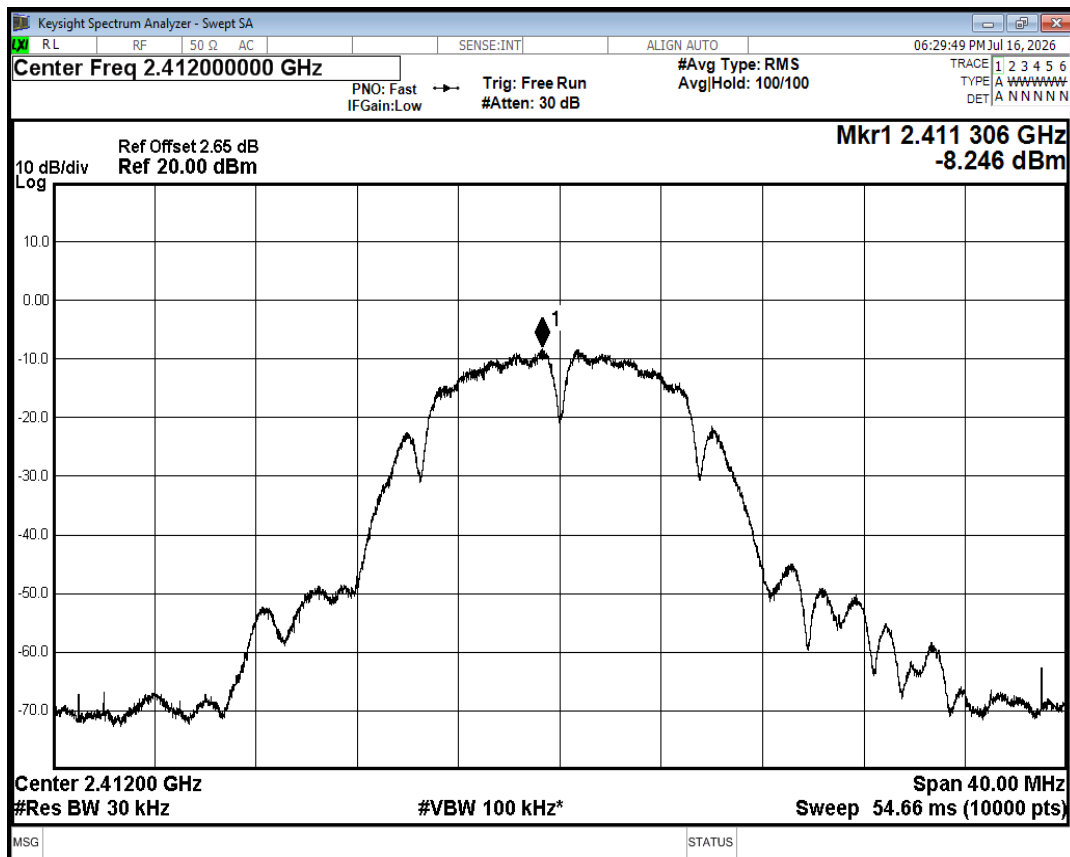
TestMode	Antenna	Frequency [MHz]	Measured Power	DC Factor [dB]	AV Power [dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	14.75	0.02	14.77	≤30.00	PASS
		2437	13.9	0.01	13.91	≤30.00	PASS
		2462	13.42	0.01	13.43	≤30.00	PASS
11G	Ant1	2412	14.29	0.1	14.39	≤30.00	PASS
		2437	13.72	0.1	13.82	≤30.00	PASS
		2462	13.6	0.1	13.7	≤30.00	PASS
11N20SISO	Ant1	2412	13.56	0.12	13.68	≤30.00	PASS
		2437	12.72	0.12	12.84	≤30.00	PASS
		2462	13.62	0.12	13.74	≤30.00	PASS
11N40SISO	Ant1	2422	12.8	0.24	13.04	≤30.00	PASS
		2437	12.66	0.24	12.9	≤30.00	PASS
		2452	13.03	0.24	13.27	≤30.00	PASS

Note :offset=System attenuation +cable loss

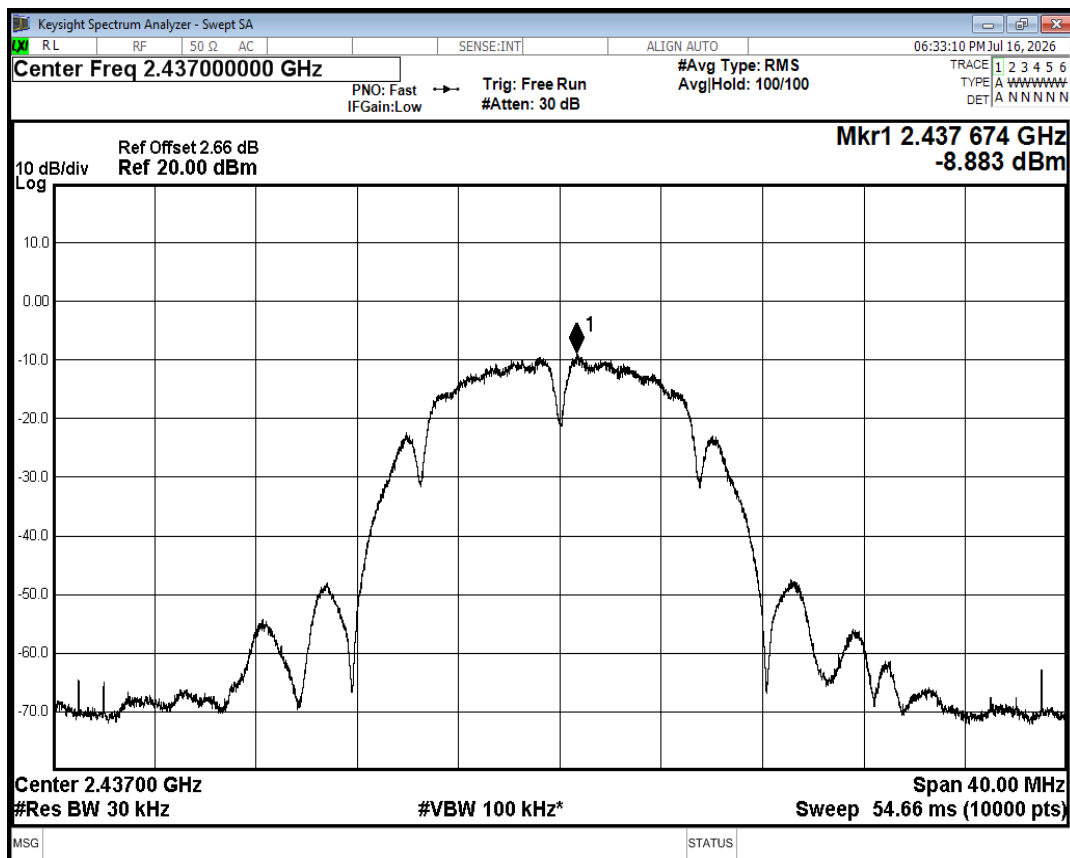
B.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/30kHz)	Duty Factor (dB)	Total PSD (dBm/30kHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
NVNT	b	2412	Ant1	-8.25	0.02	-8.23	-18.23	8	Pass
NVNT	b	2437	Ant1	-8.88	0.01	-8.87	-18.87	8	Pass
NVNT	b	2462	Ant1	-9.43	0.01	-9.42	-19.42	8	Pass
NVNT	g	2412	Ant1	-12.67	0.1	-12.57	-22.57	8	Pass
NVNT	g	2437	Ant1	-15.56	0.1	-15.46	-25.46	8	Pass
NVNT	g	2462	Ant1	-15.76	0.1	-15.66	-25.66	8	Pass
NVNT	n20	2412	Ant1	-15.25	0.12	-15.13	-25.13	8	Pass
NVNT	n20	2437	Ant1	-15.75	0.12	-15.63	-25.63	8	Pass
NVNT	n20	2462	Ant1	-16.57	0.12	-16.45	-26.45	8	Pass
NVNT	n40	2422	Ant1	-19.8	0.24	-19.56	-29.56	8	Pass
NVNT	n40	2437	Ant1	-20.68	0.24	-20.44	-30.44	8	Pass
NVNT	n40	2452	Ant1	-20.59	0.24	-20.35	-30.35	8	Pass

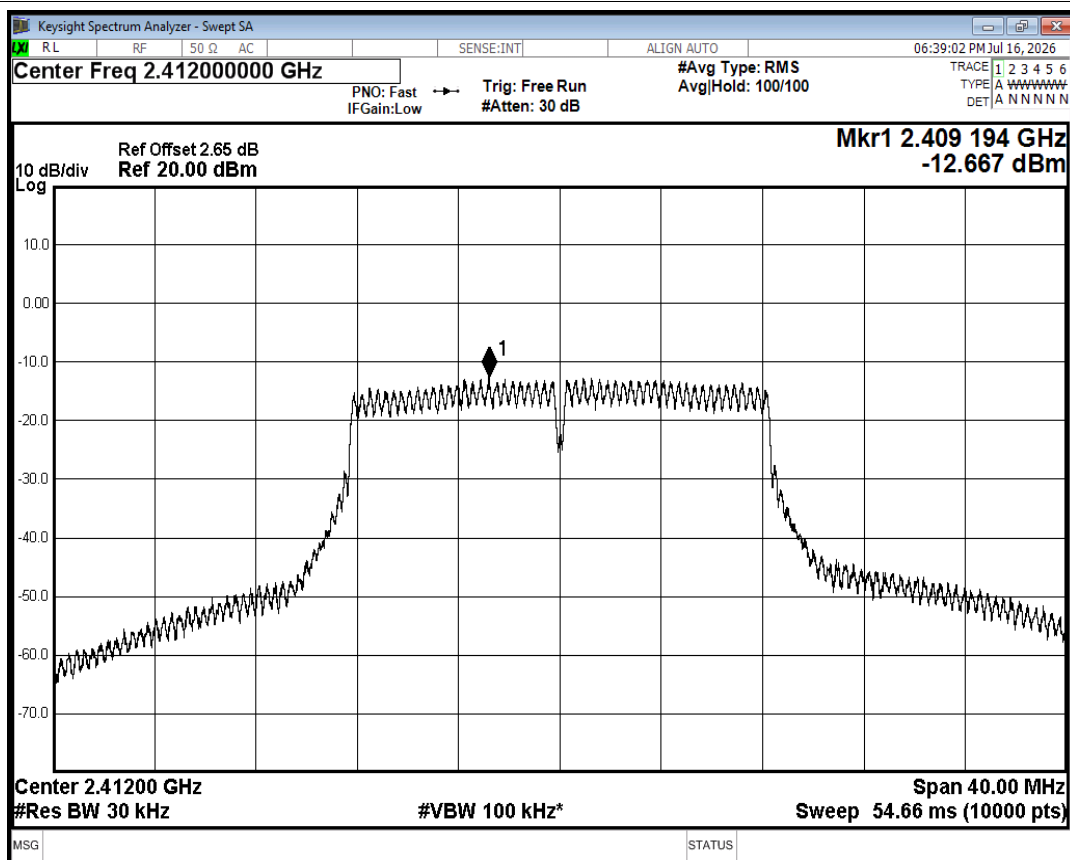
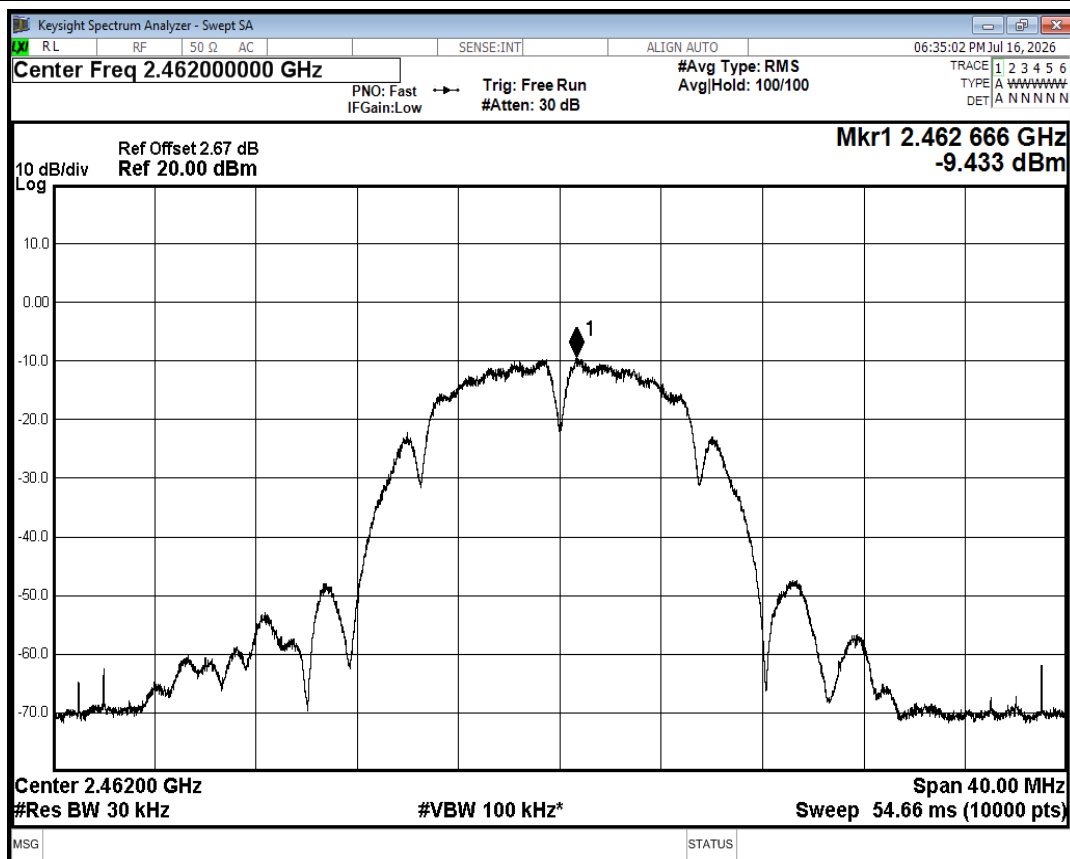
Note :offset=System attenuation +cable loss

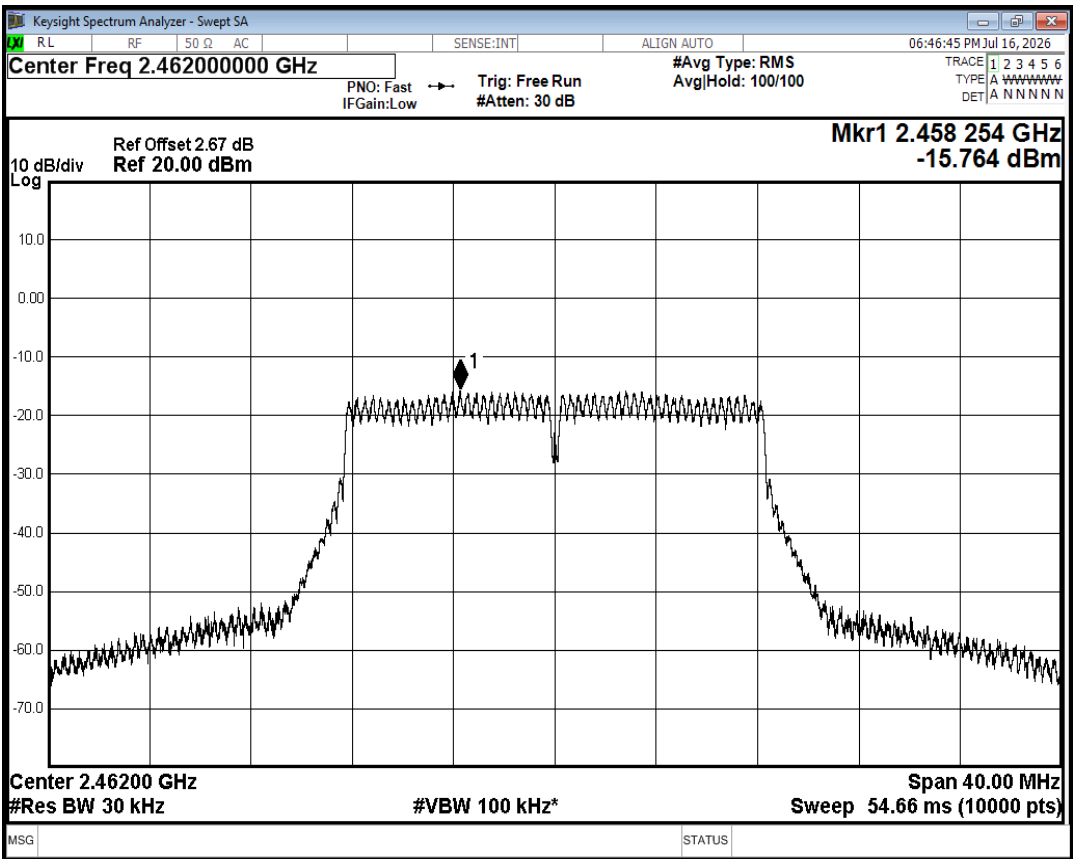
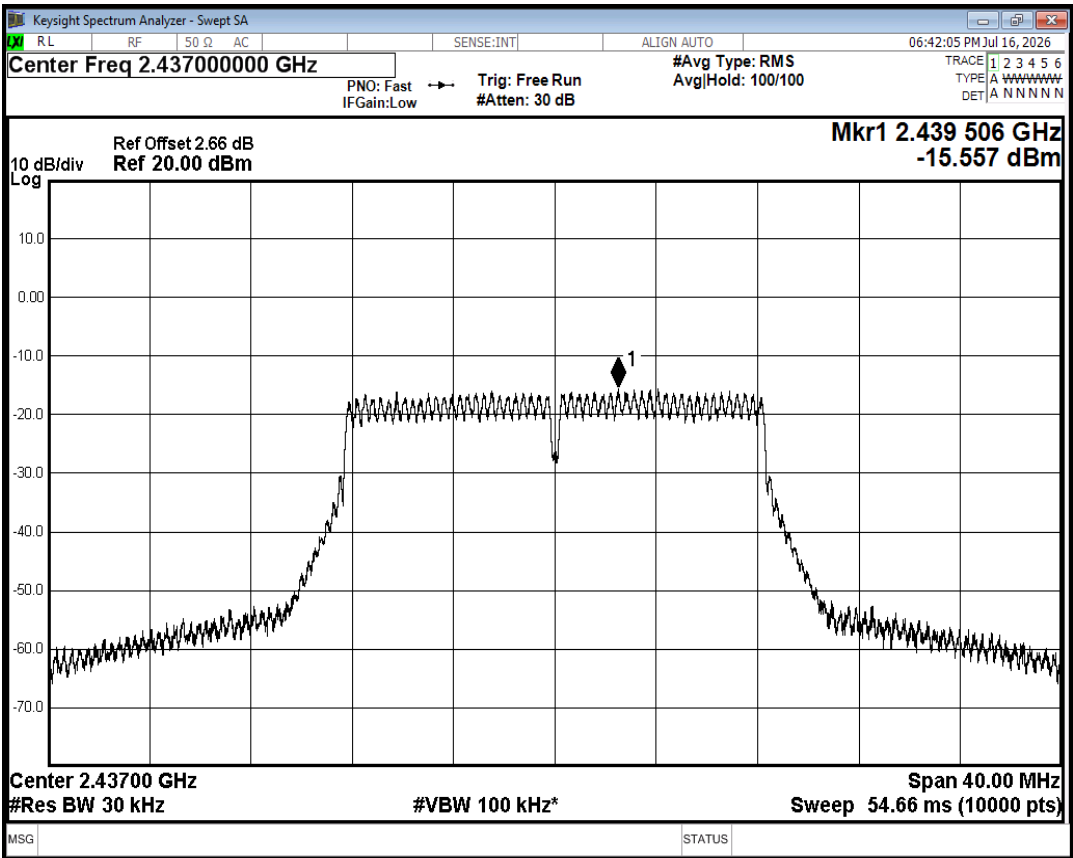


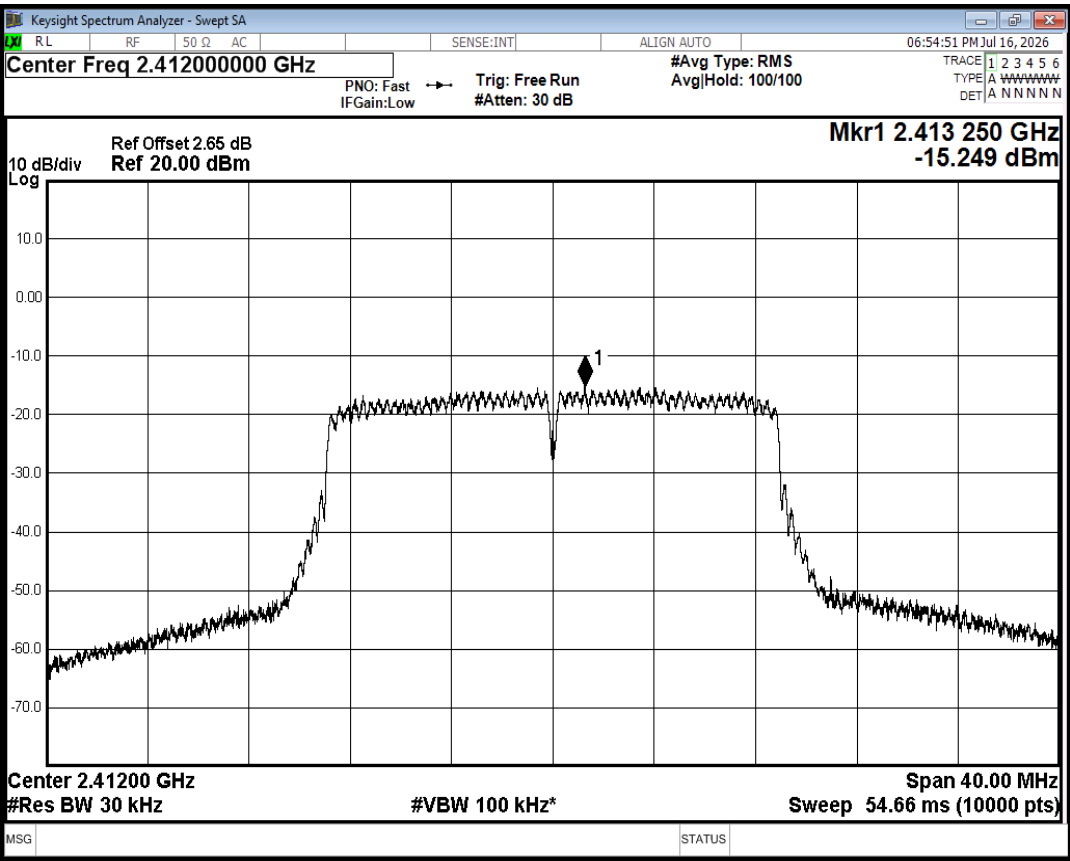
PSD NVNT b 2412MHz Ant1



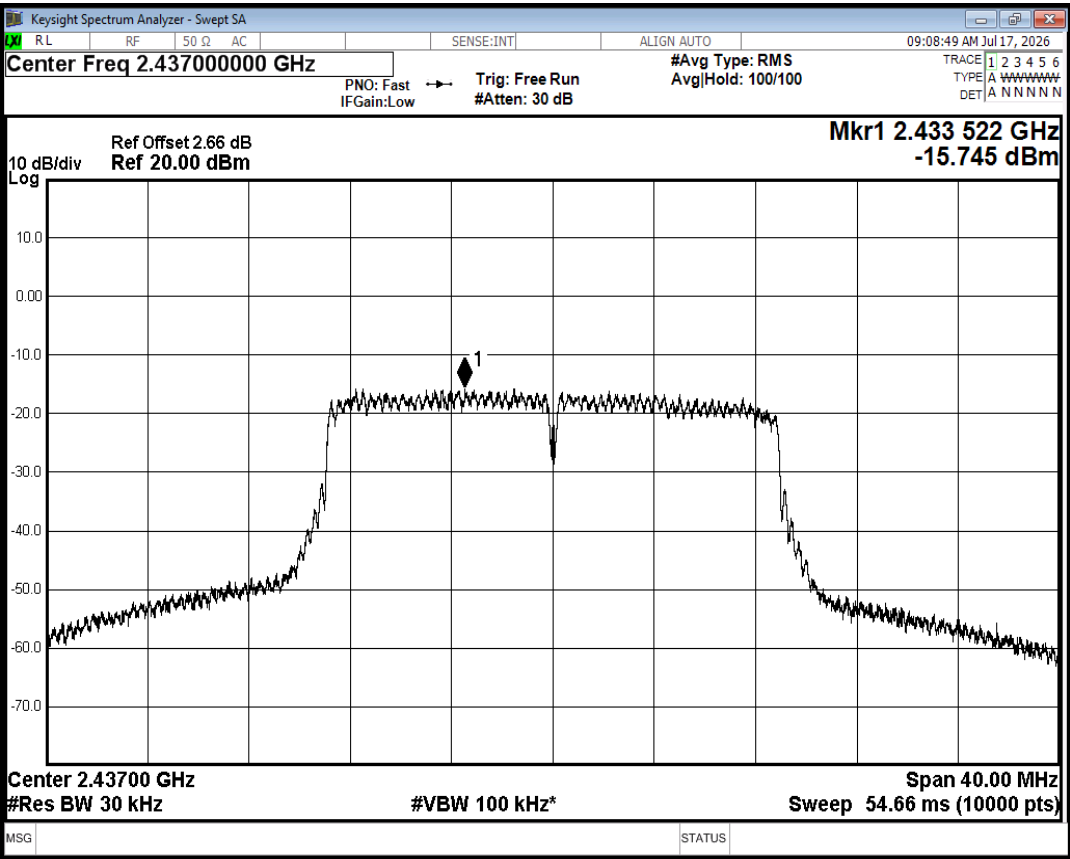
PSD NVNT b 2437MHz Ant1



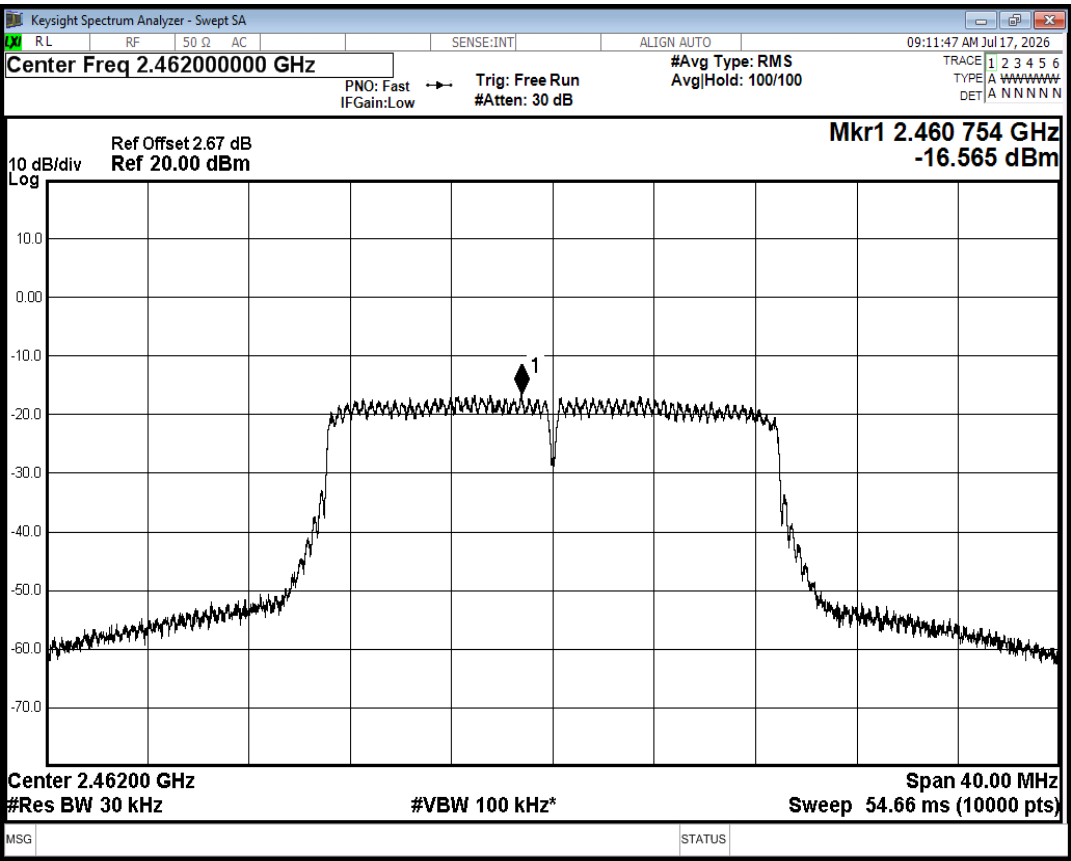




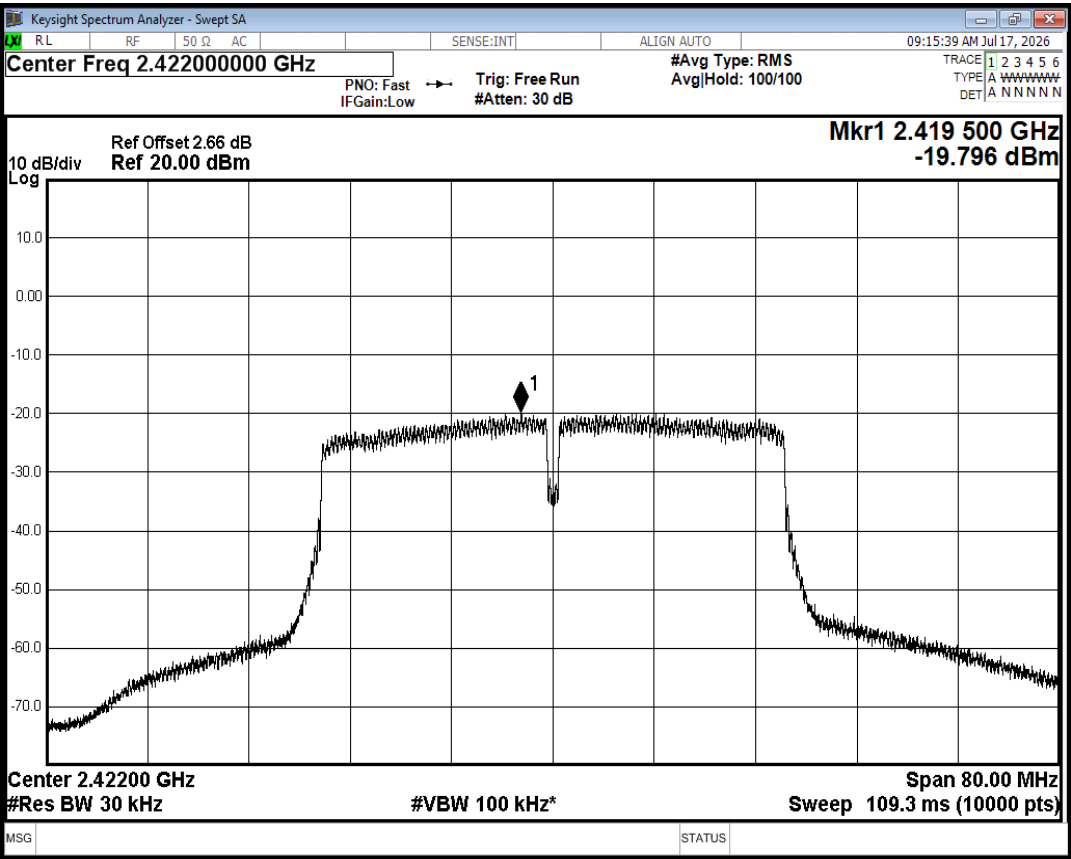
PSD NVNT n20 2412MHz Ant1



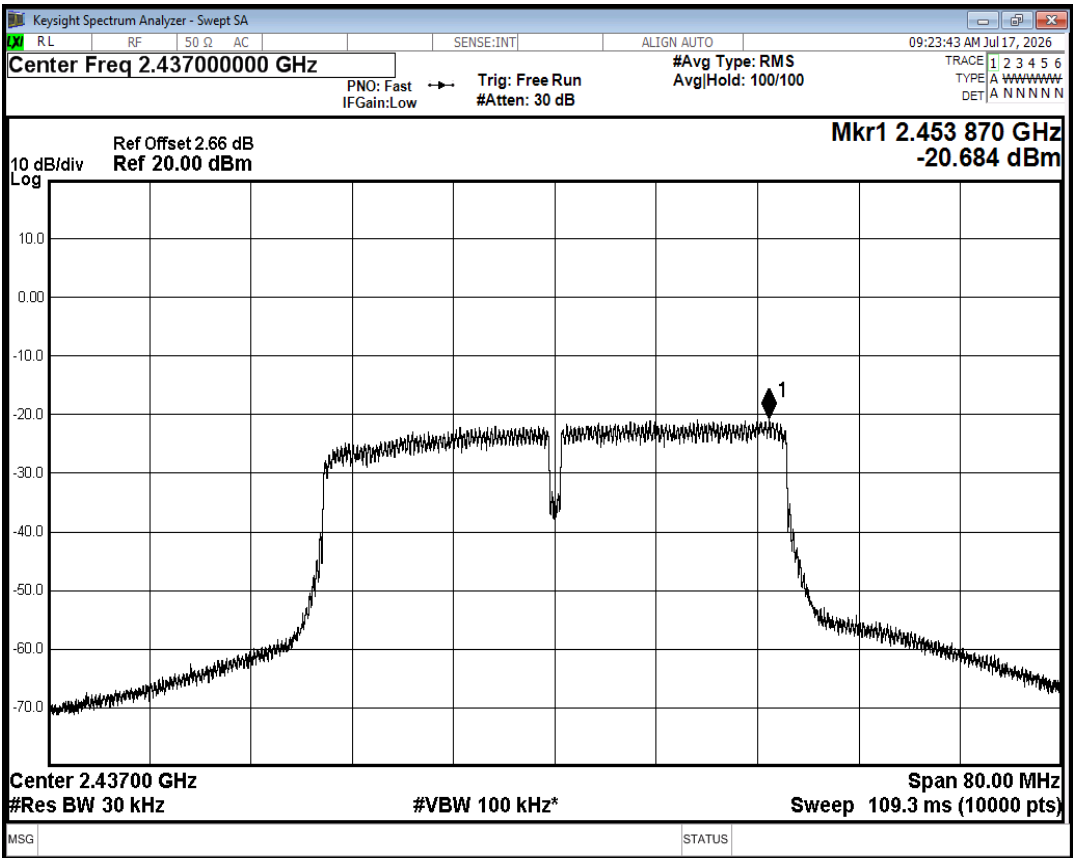
PSD NVNT n20 2437MHz Ant1



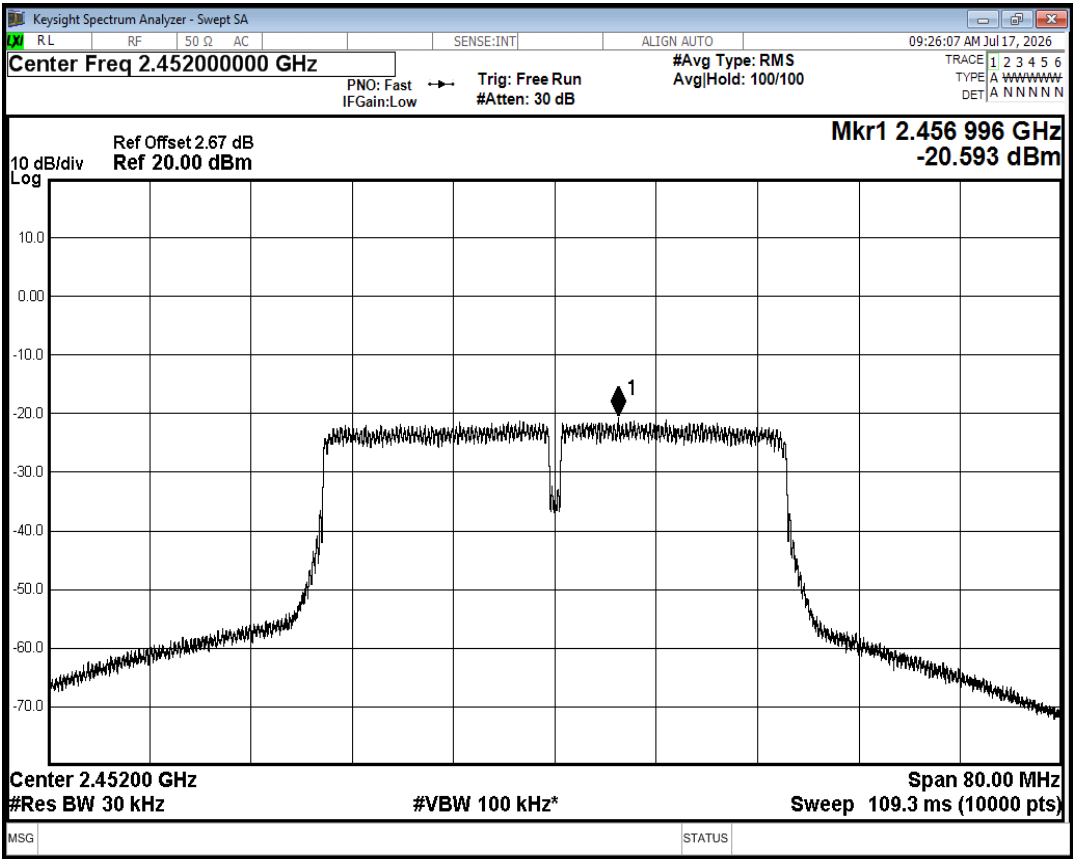
PSD NVNT n20 2462MHz Ant1



PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1

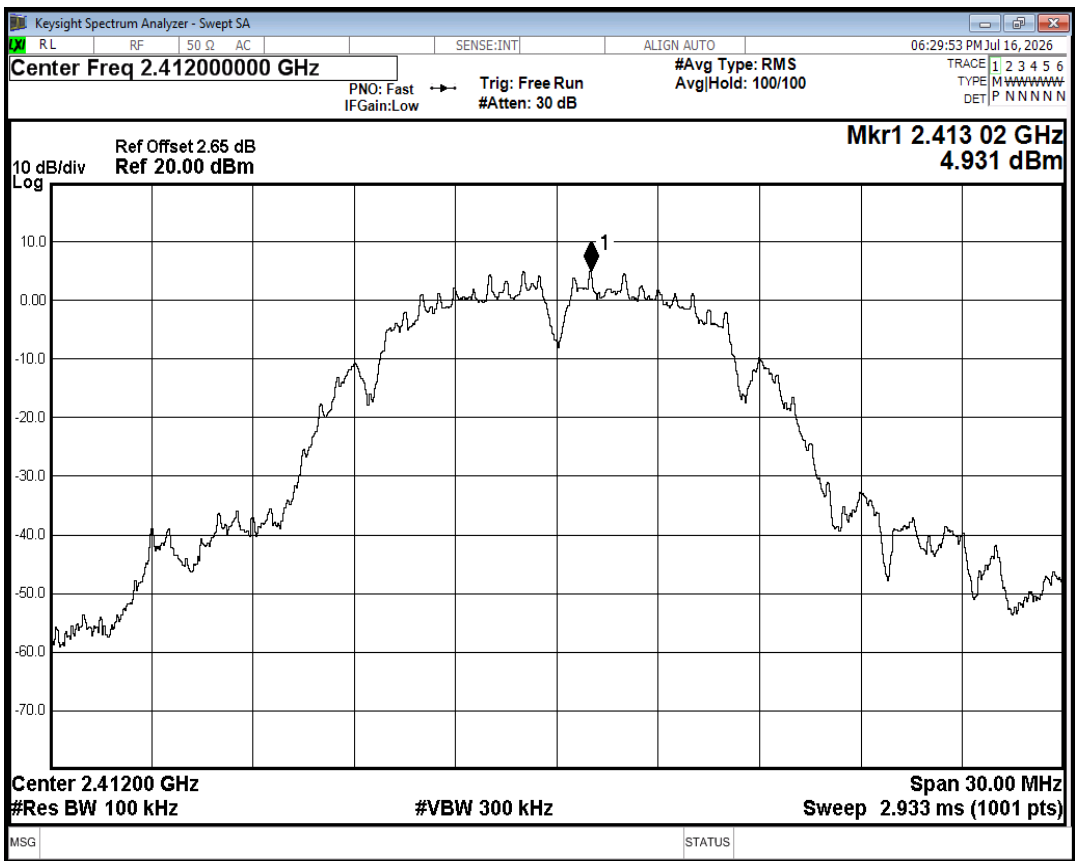


PSD NVNT n40 2452MHz Ant1

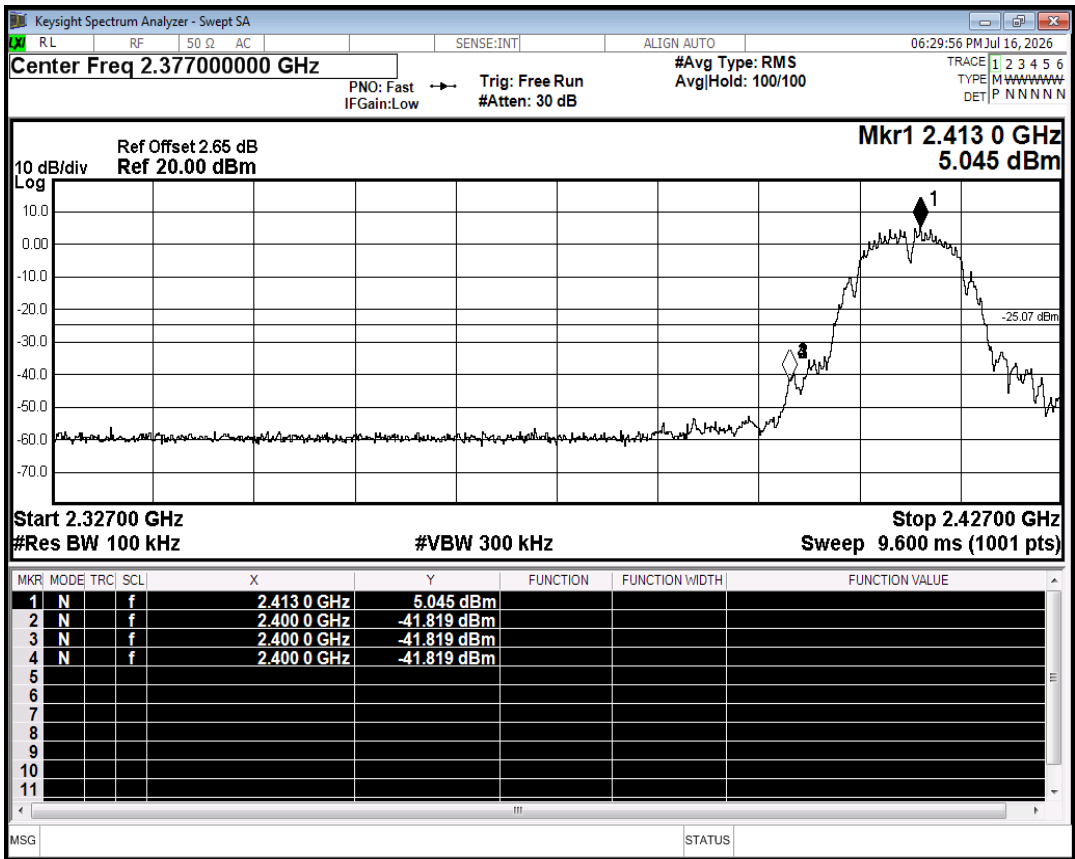
B.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-46.74	-30	Pass
NVNT	b	2462	Ant1	-58.22	-30	Pass
NVNT	g	2412	Ant1	-32.38	-30	Pass
NVNT	g	2462	Ant1	-42.95	-30	Pass
NVNT	n20	2412	Ant1	-33.87	-30	Pass
NVNT	n20	2462	Ant1	-40.37	-30	Pass
NVNT	n40	2422	Ant1	-33.68	-30	Pass
NVNT	n40	2452	Ant1	-41.25	-30	Pass

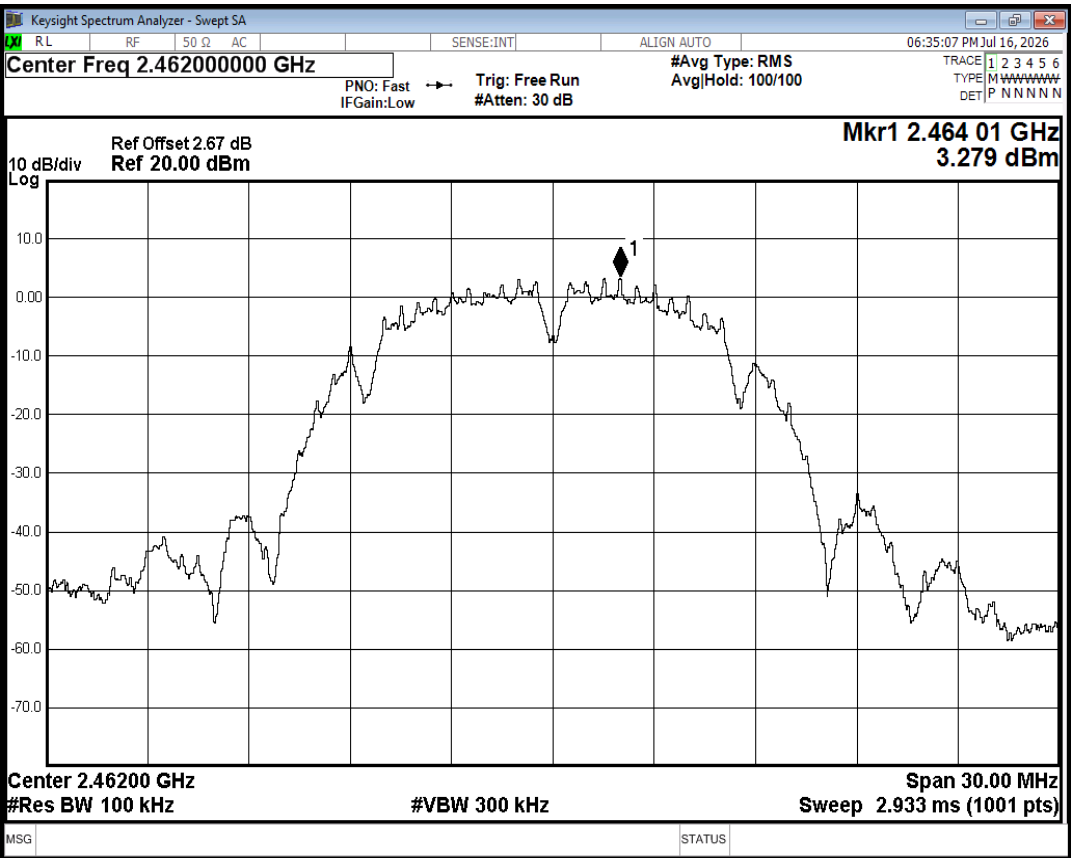
Note :offset=System attenuation +cabal loss



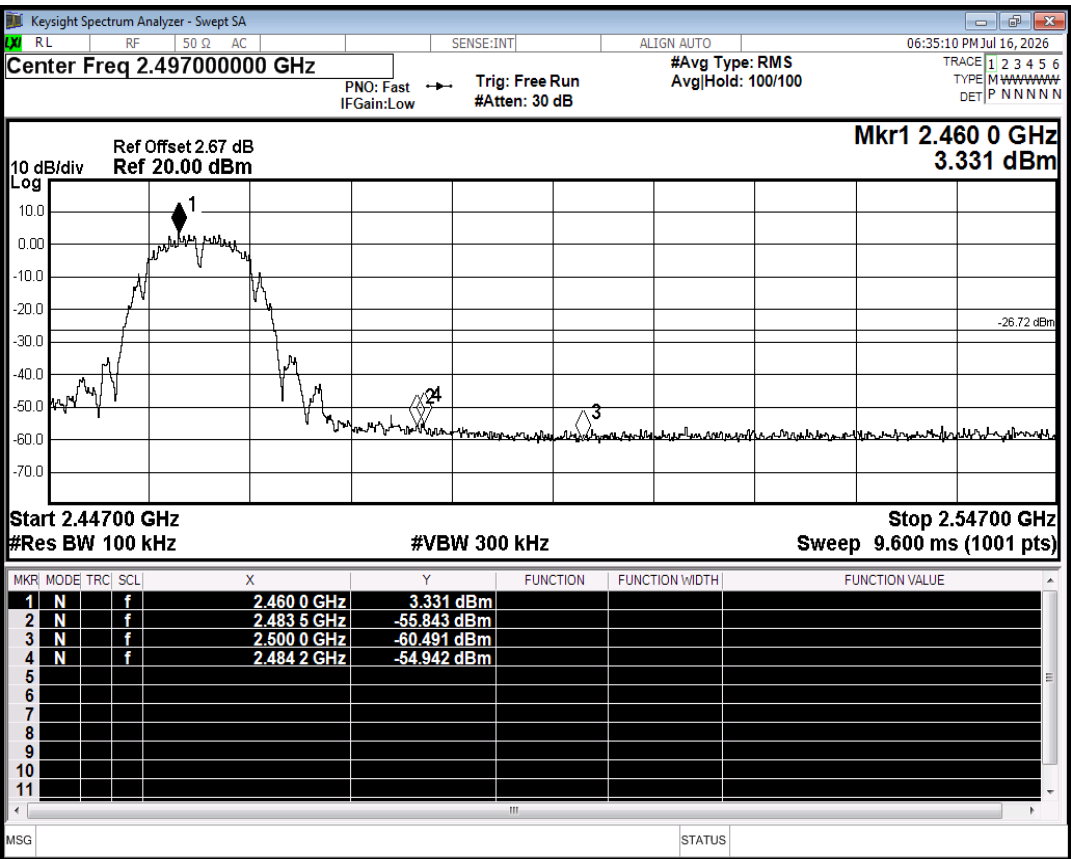
Band Edge NVNT b 2412MHz Ant1 Ref



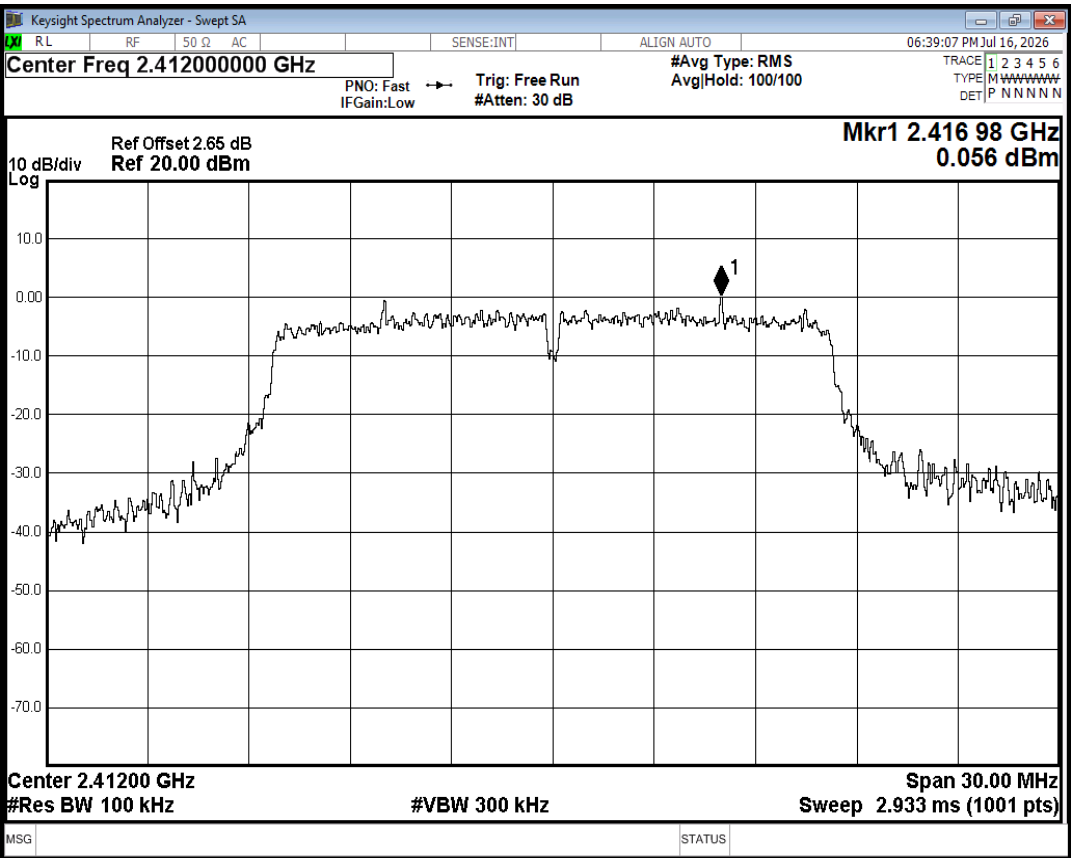
Band Edge NVNT b 2412MHz Ant1 Emission



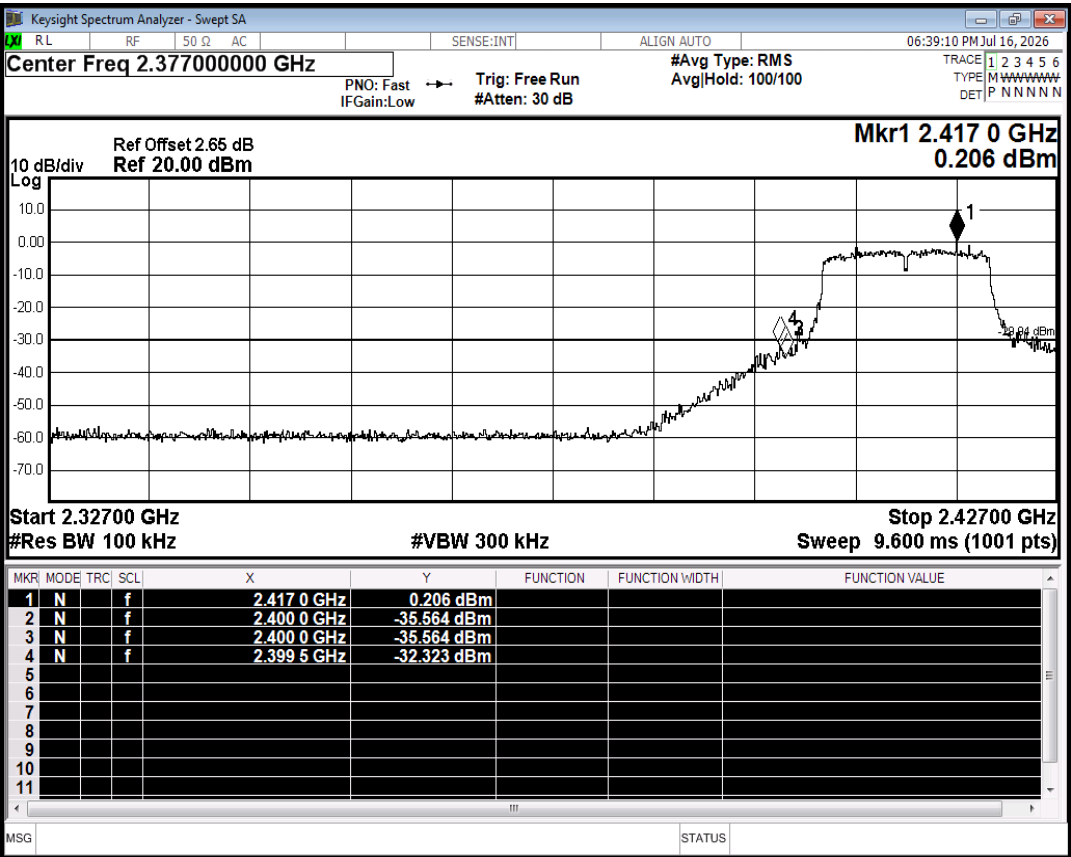
Band Edge NVNT b 2462MHz Ant1 Ref



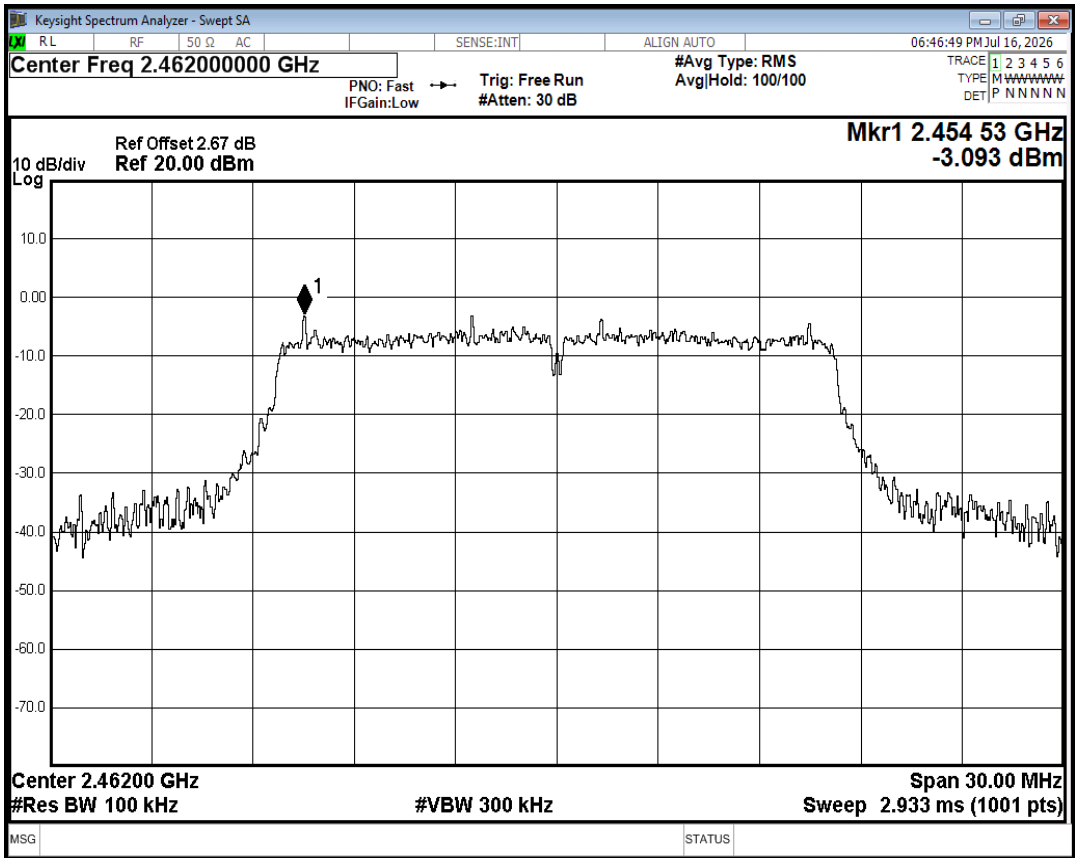
Band Edge NVNT b 2462MHz Ant1 Emission



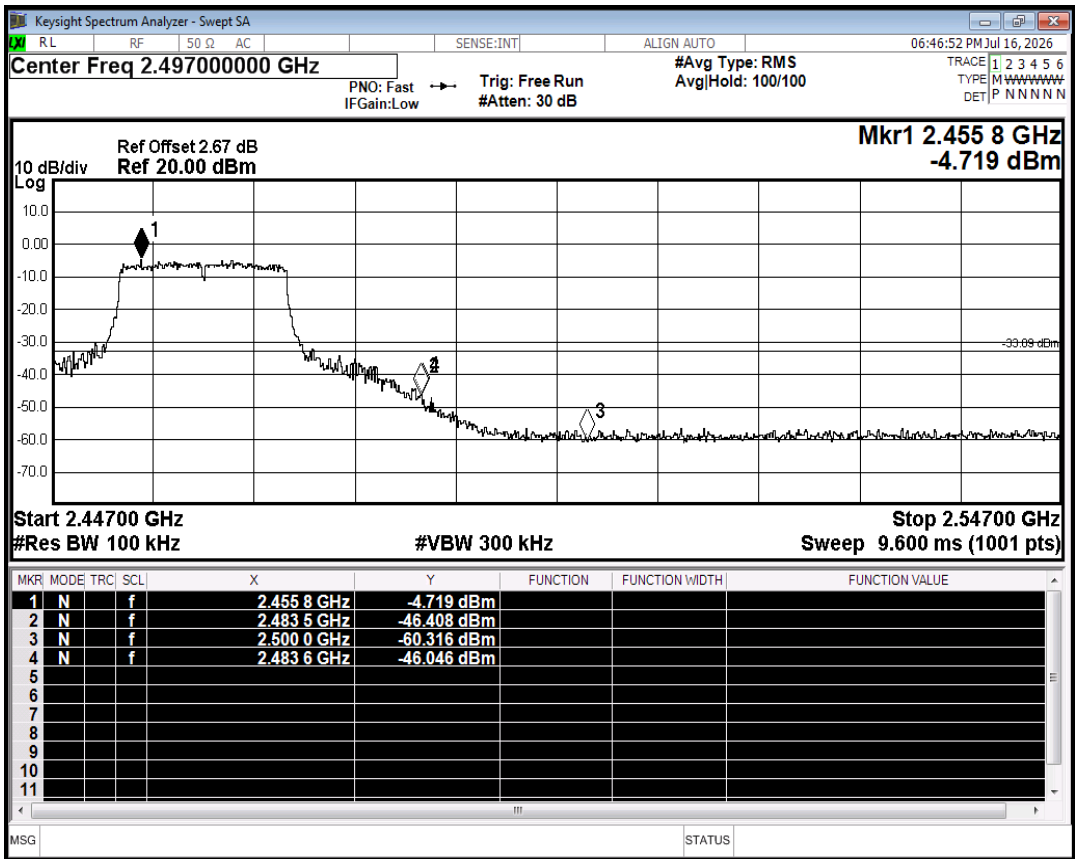
Band Edge NVNT g 2412MHz Ant1 Ref



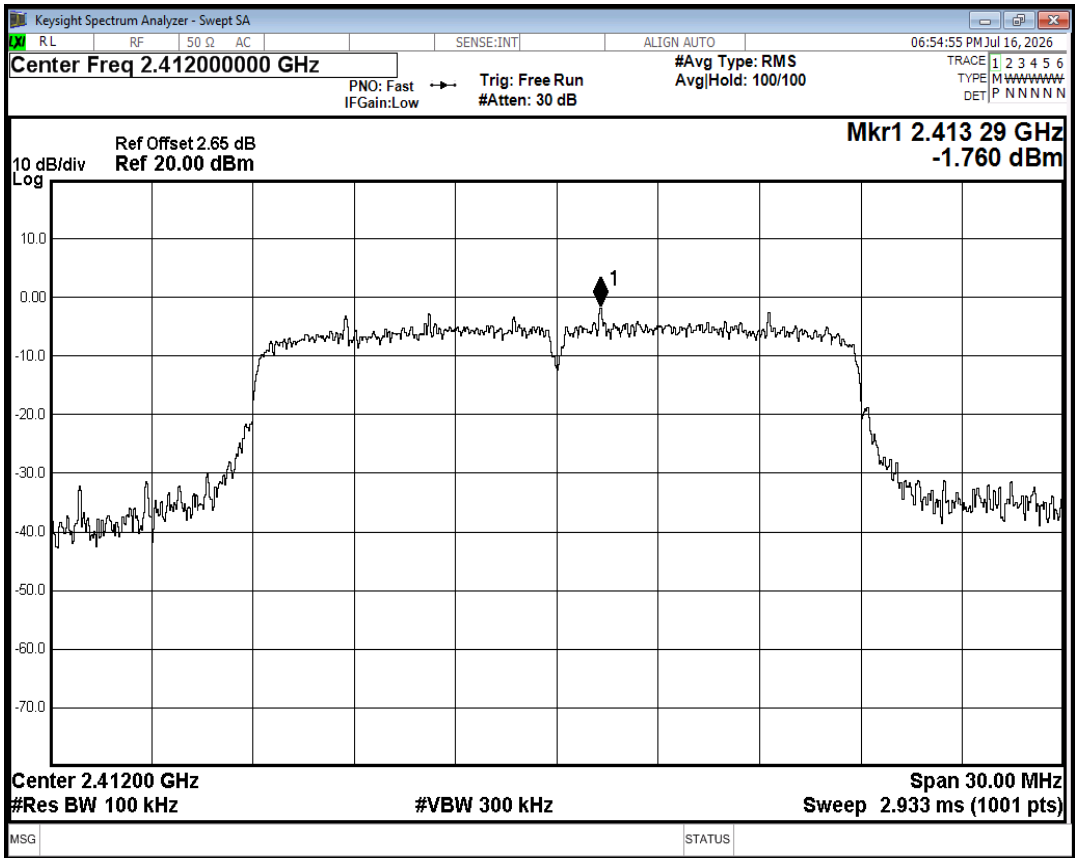
Band Edge NVNT g 2412MHz Ant1 Emission



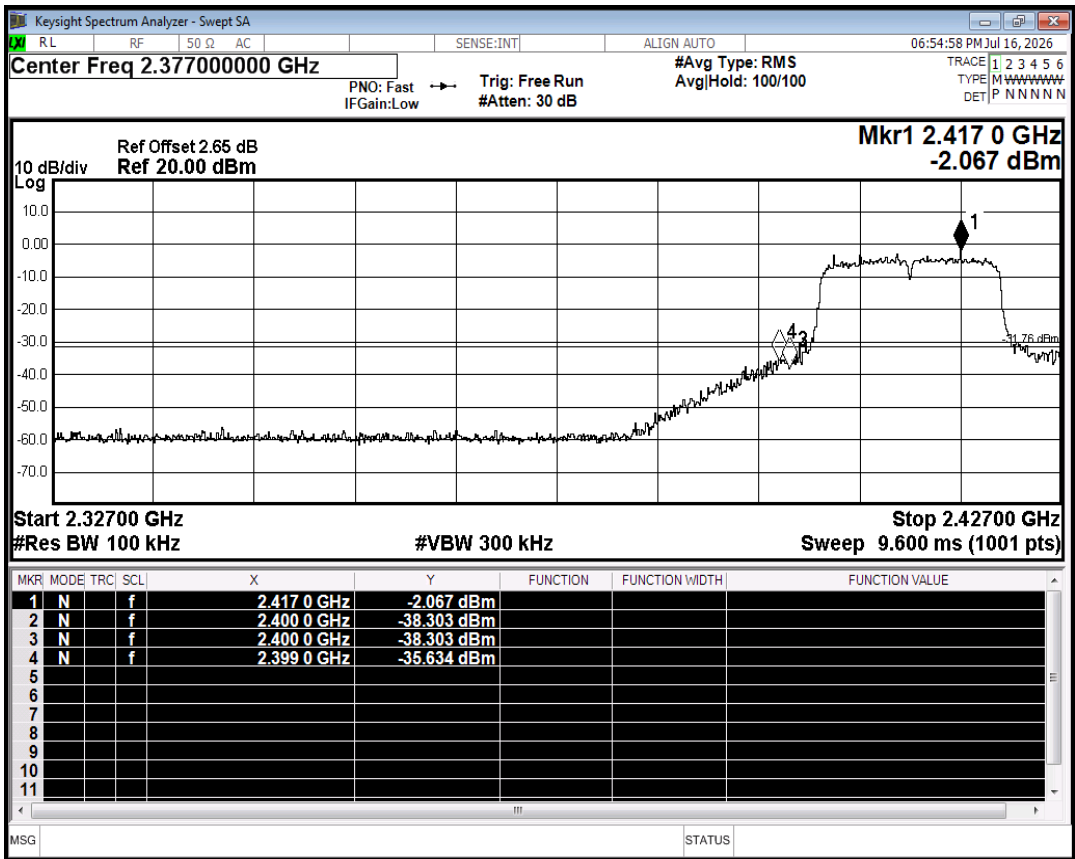
Band Edge NVNT g 2462MHz Ant1 Ref



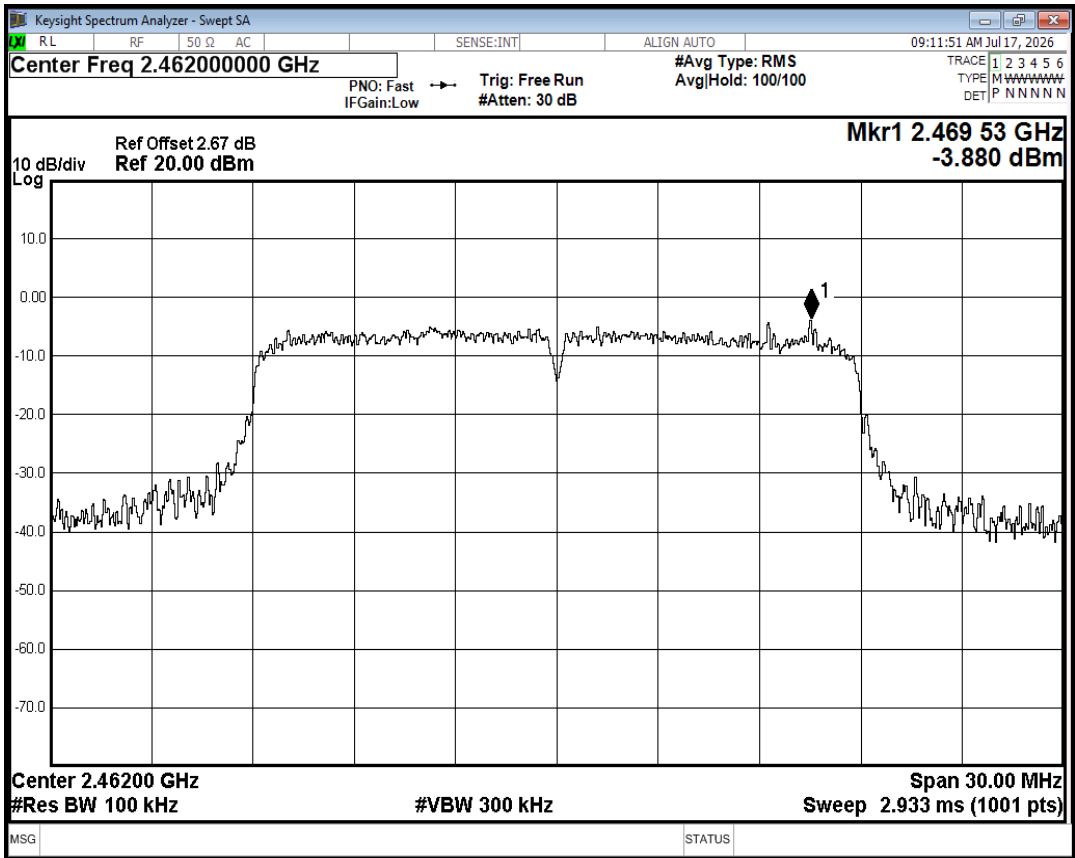
Band Edge NVNT g 2462MHz Ant1 Emission



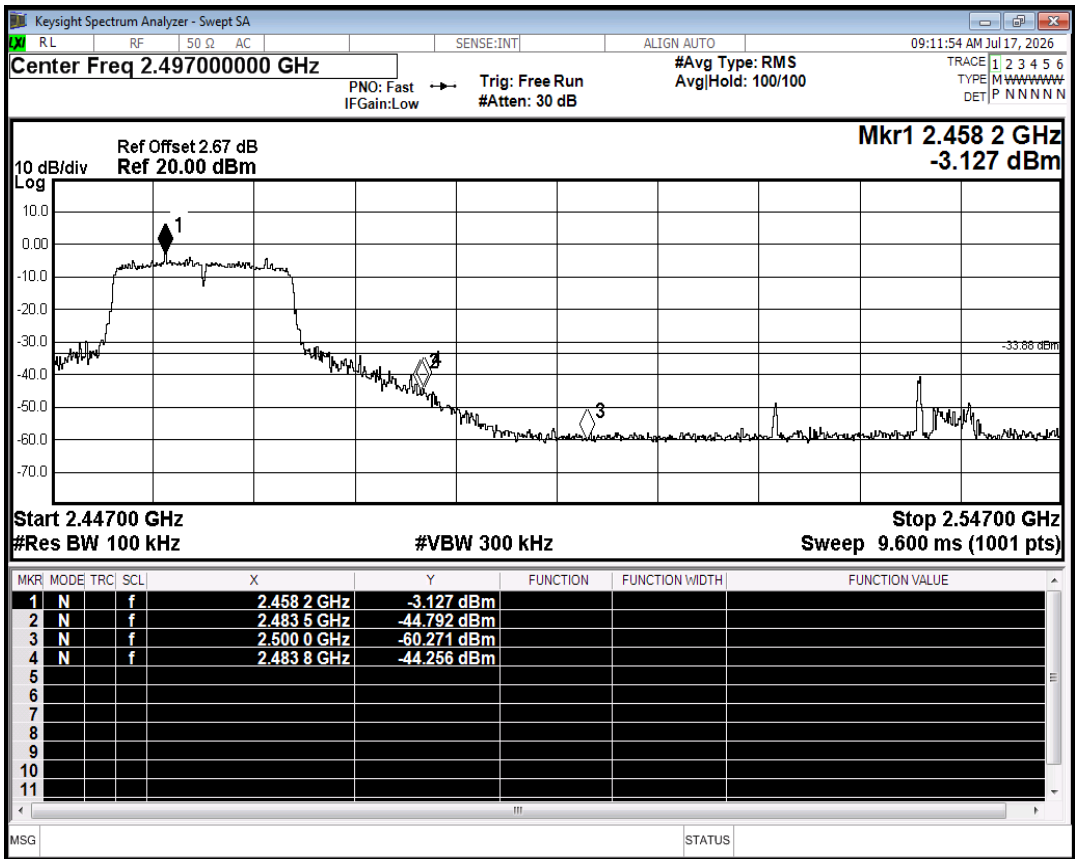
Band Edge NVNT n20 2412MHz Ant1 Ref



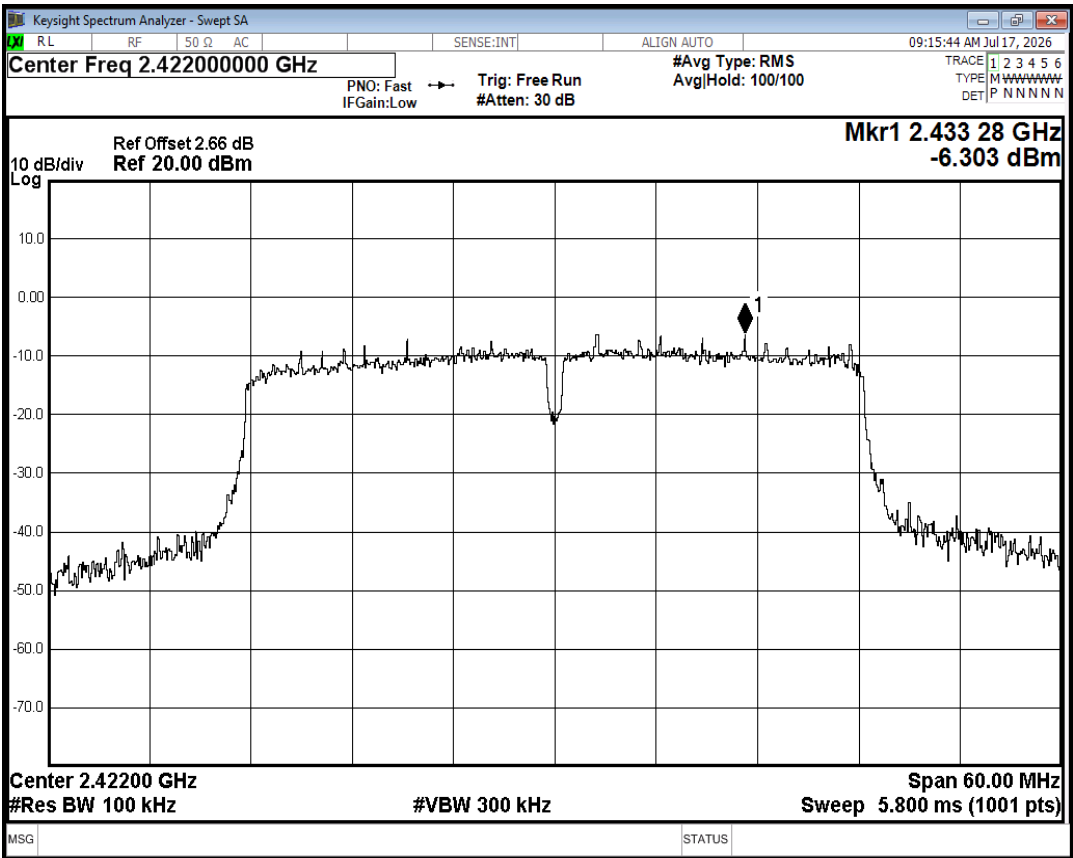
Band Edge NVNT n20 2412MHz Ant1 Emission



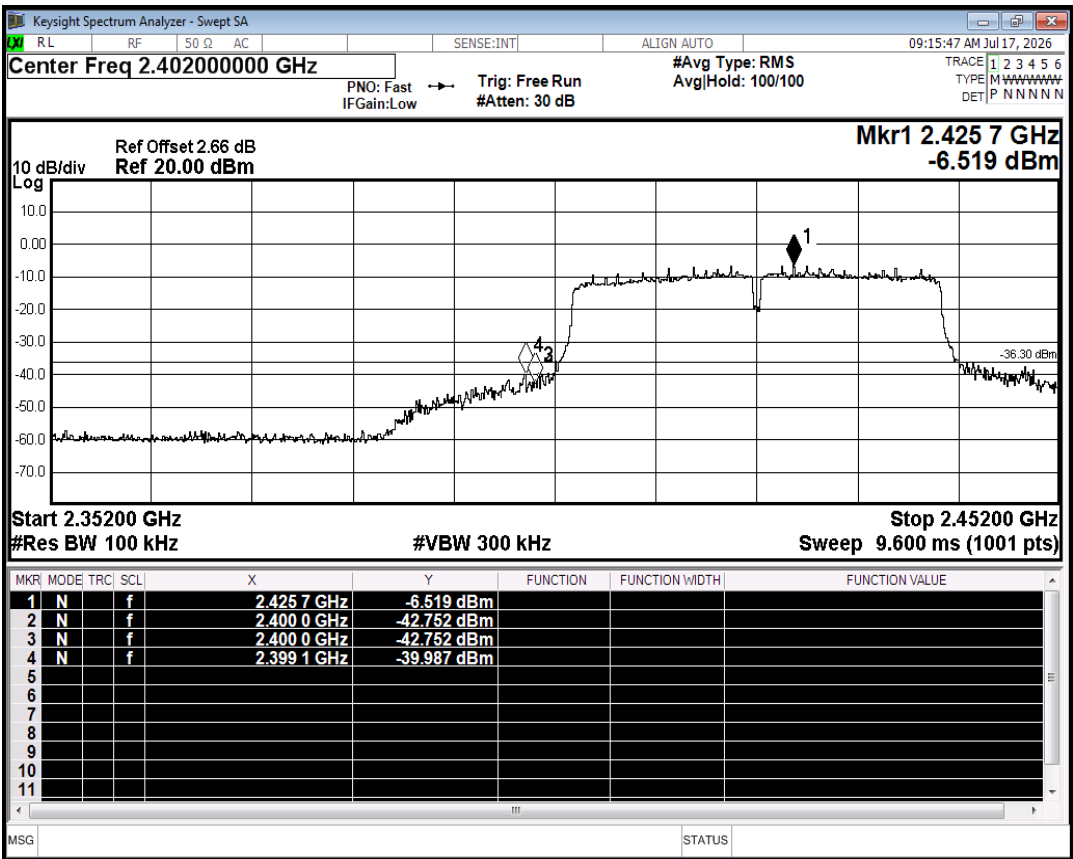
Band Edge NVNT n20 2462MHz Ant1 Ref



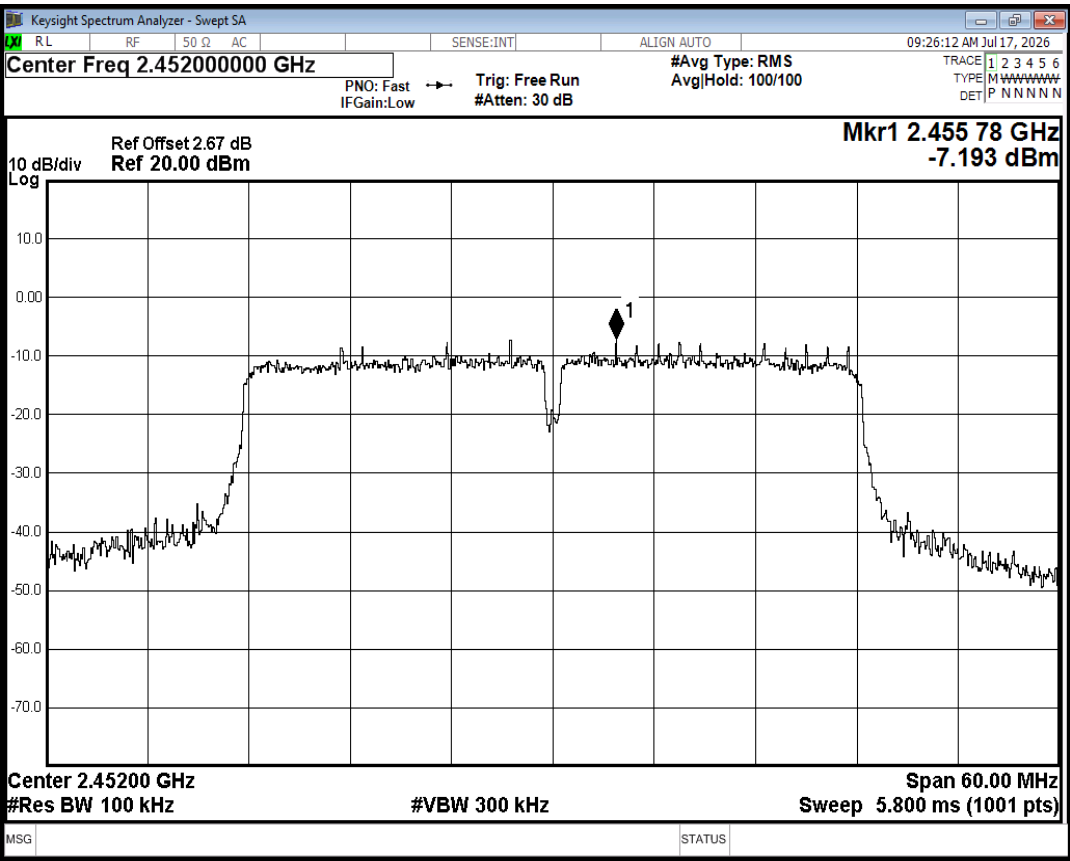
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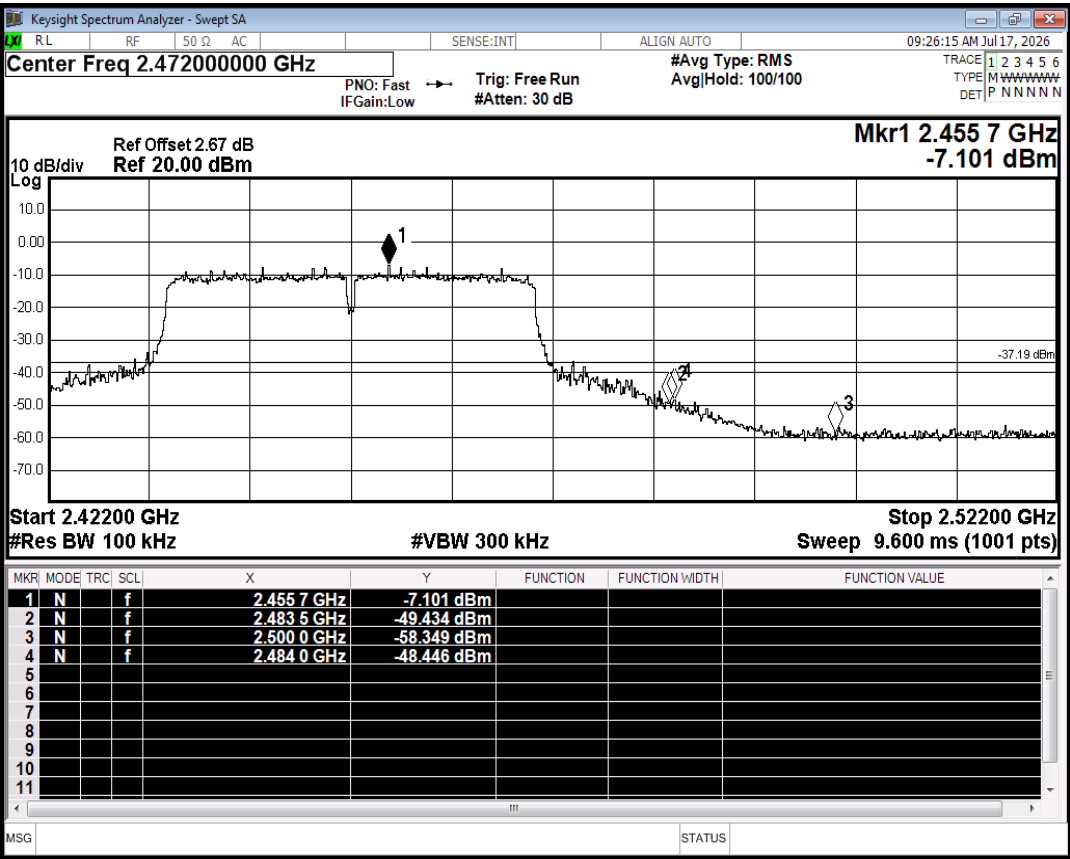
Band Edge NVNT n40 2422MHz Ant1 Ref



Band Edge NVNT n40 2422MHz Ant1 Emission



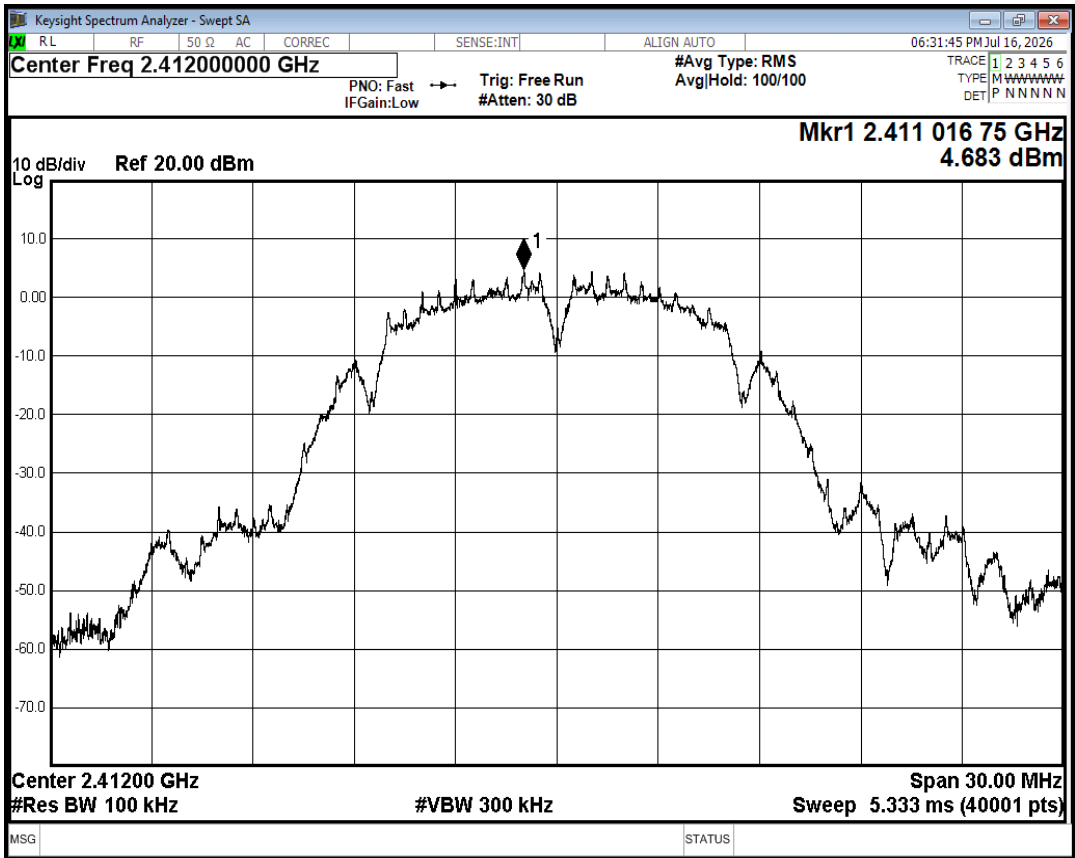
Band Edge NVNT n40 2452MHz Ant1 Ref



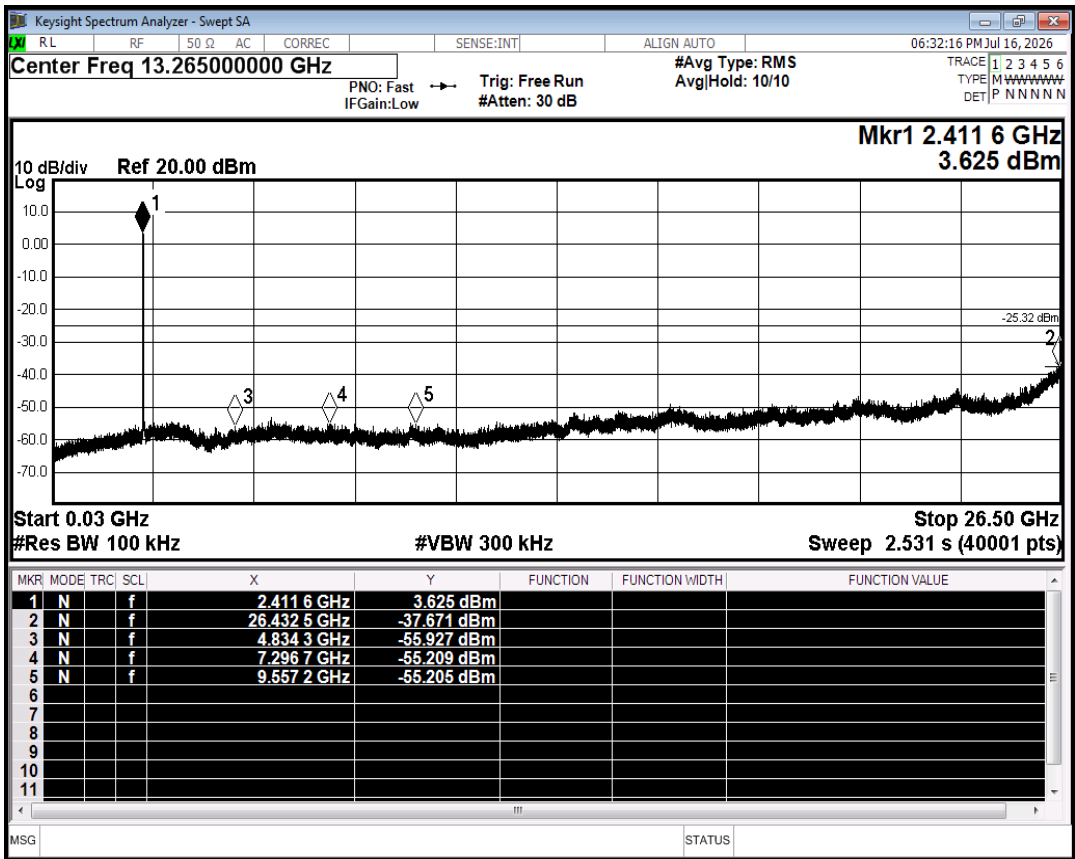
Band Edge NVNT n40 2452MHz Ant1 Emission

B.5 Conducted RF Spurious Emission

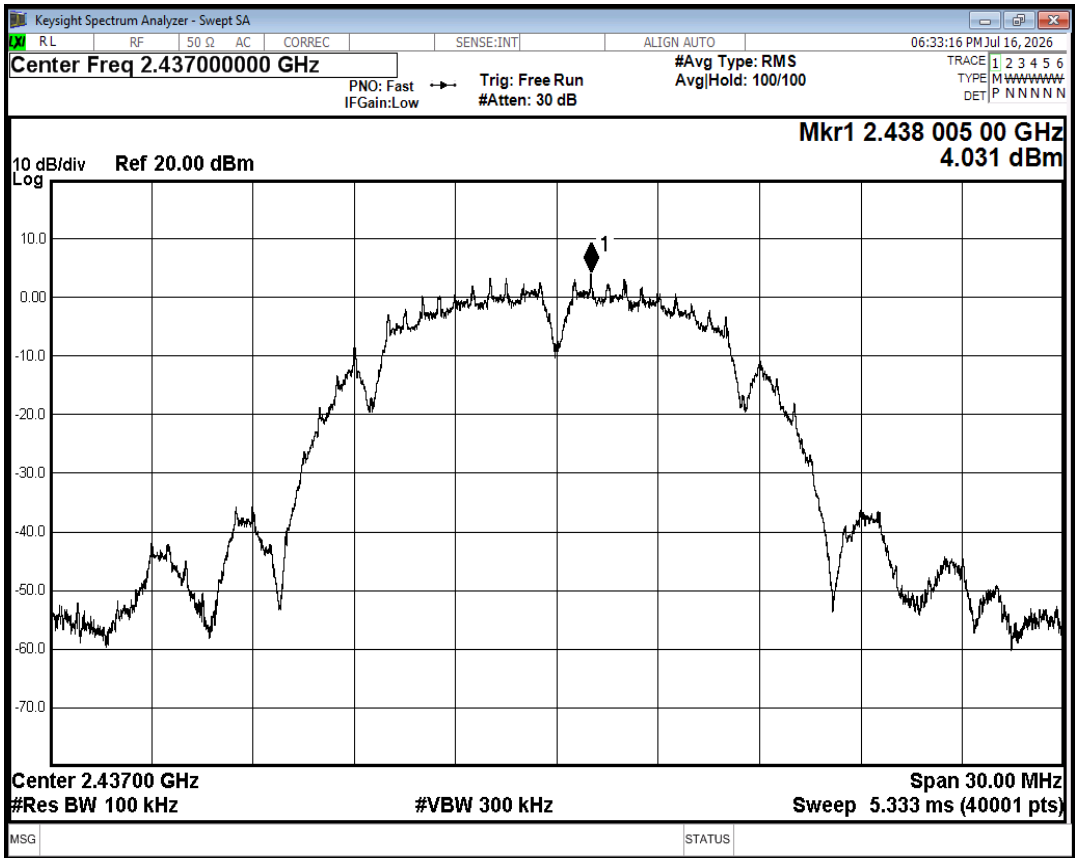
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-42.35	-30	Pass
NVNT	b	2437	Ant1	-42.16	-30	Pass
NVNT	b	2462	Ant1	-40.59	-30	Pass
NVNT	g	2412	Ant1	-37.77	-30	Pass
NVNT	g	2437	Ant1	-34.68	-30	Pass
NVNT	g	2462	Ant1	-34.77	-30	Pass
NVNT	n20	2412	Ant1	-35.6	-30	Pass
NVNT	n20	2437	Ant1	-35.47	-30	Pass
NVNT	n20	2462	Ant1	-35	-30	Pass
NVNT	n40	2422	Ant1	-31.88	-30	Pass
NVNT	n40	2437	Ant1	-30.13	-30	Pass
NVNT	n40	2452	Ant1	-30.27	-30	Pass



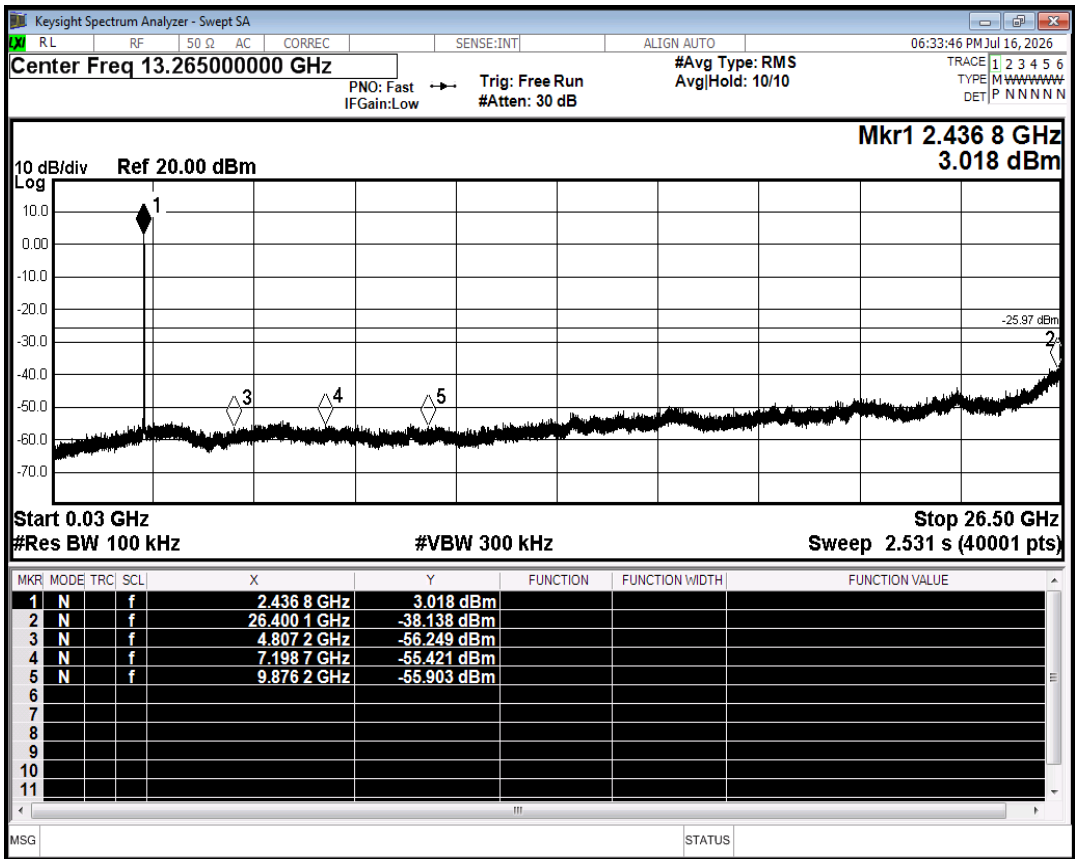
Tx. Spurious NVNT b 2412MHz Ant1 Ref



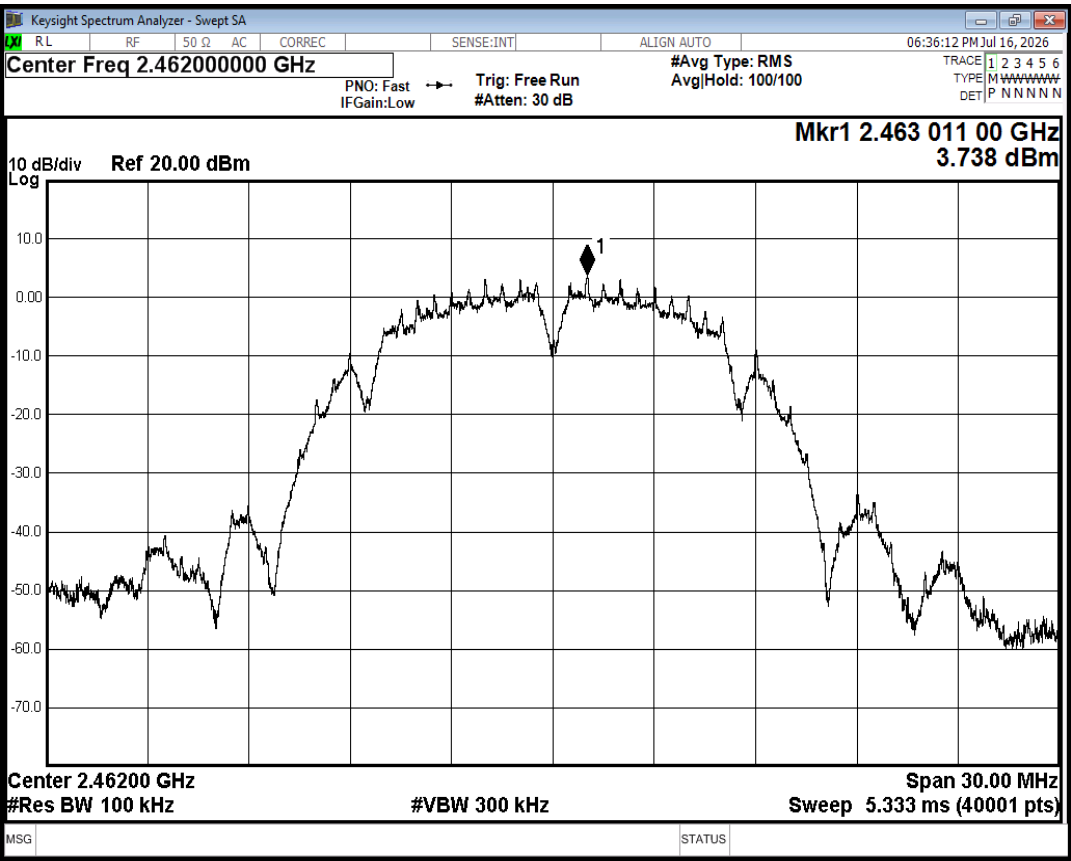
Tx. Spurious NVNT b 2412MHz Ant1 Emission



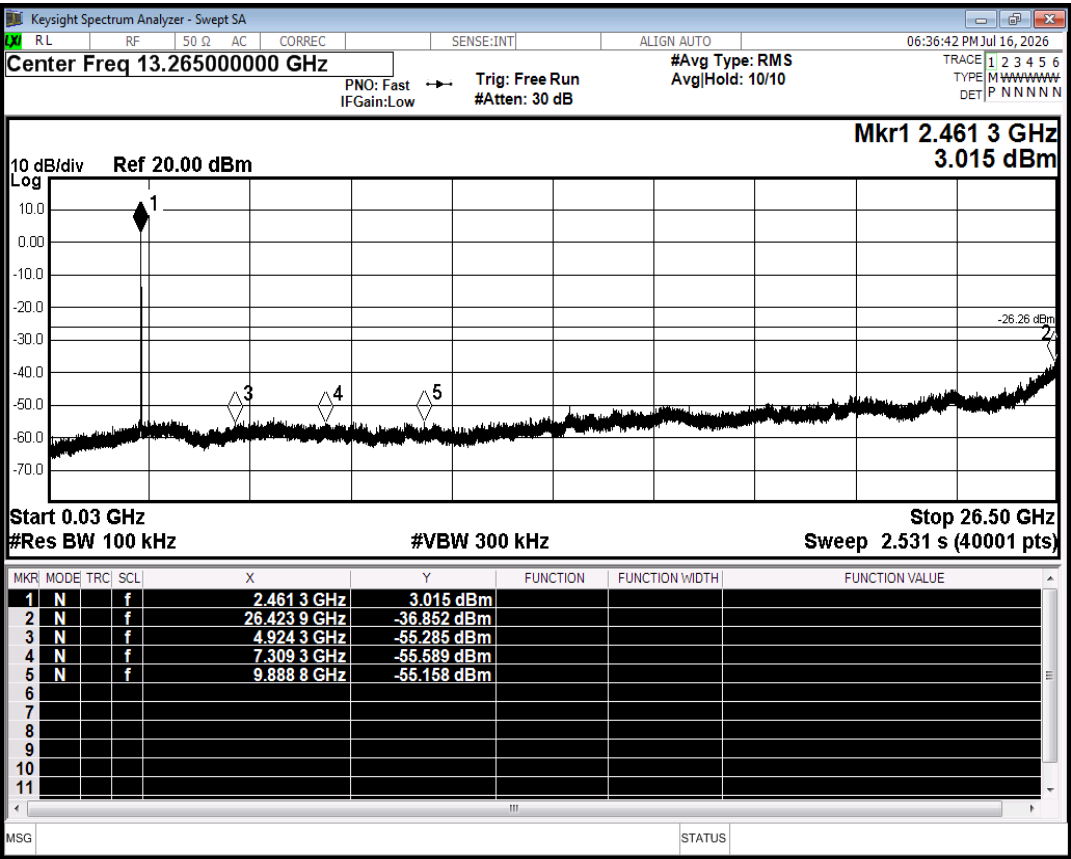
Tx. Spurious NVNT b 2437MHz Ant1 Ref



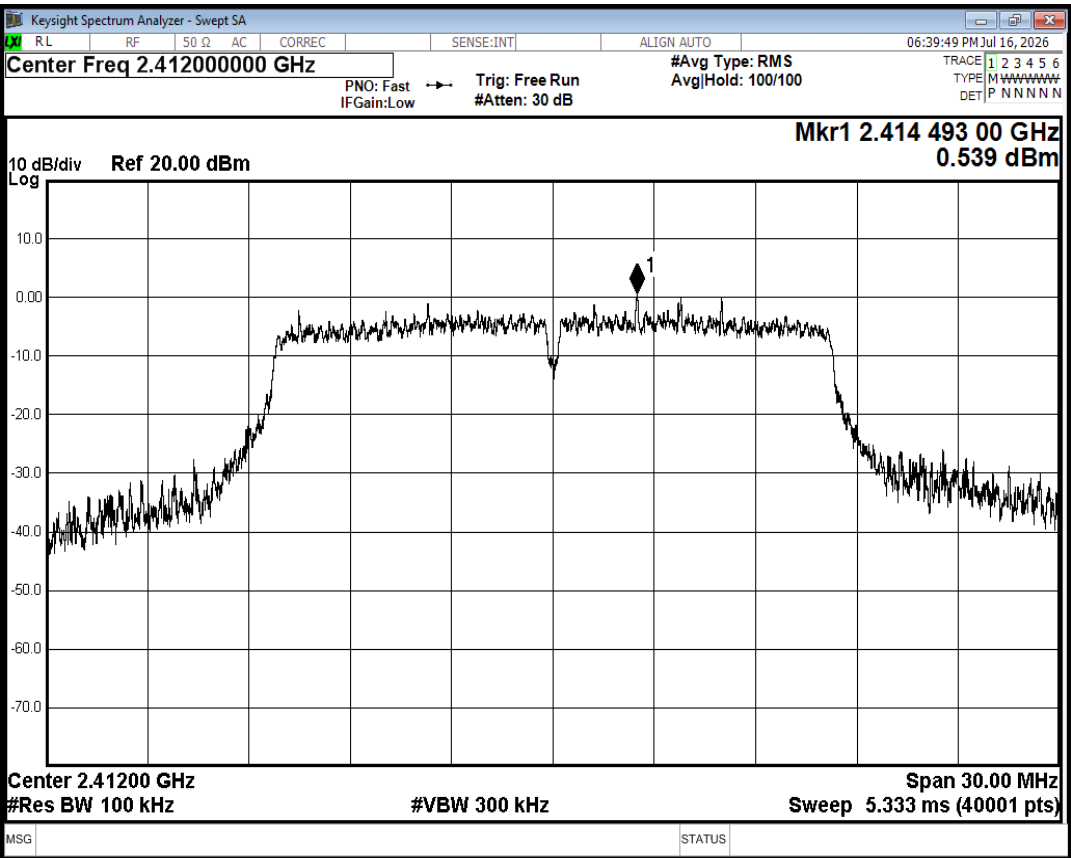
Tx. Spurious NVNT b 2437MHz Ant1 Emission



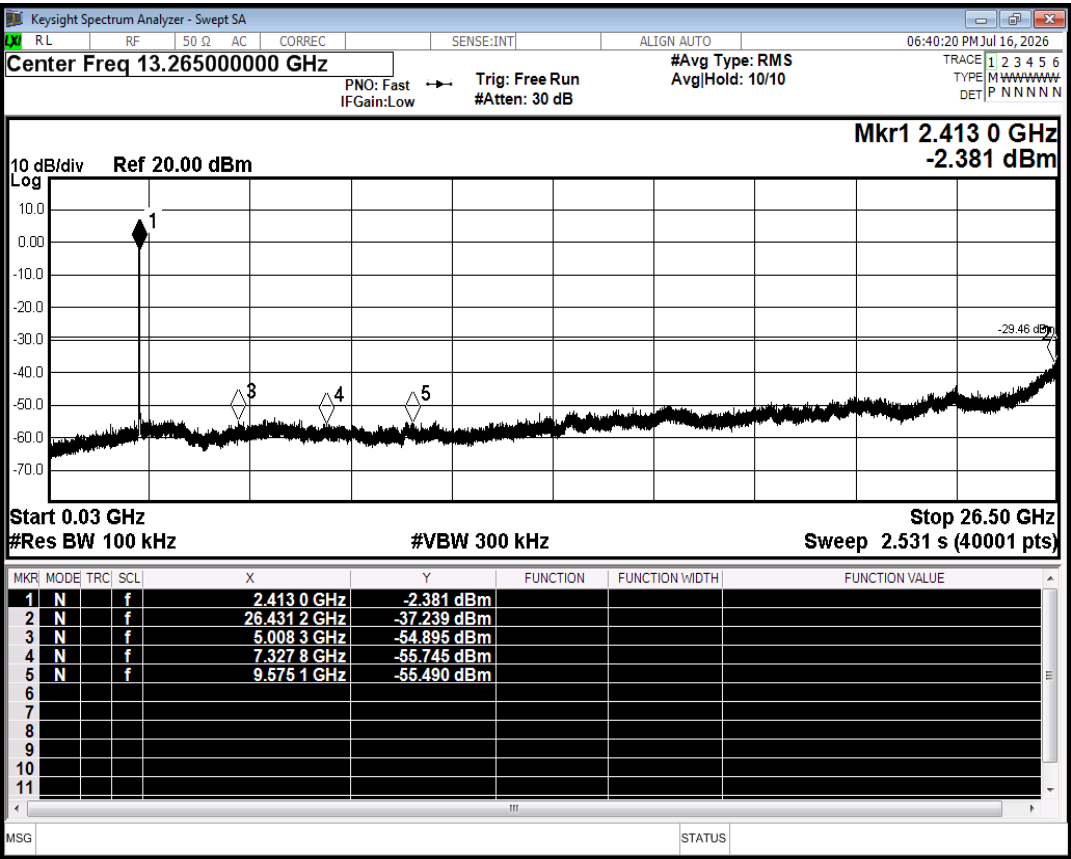
Tx. Spurious NVNT b 2462MHz Ant1 Ref



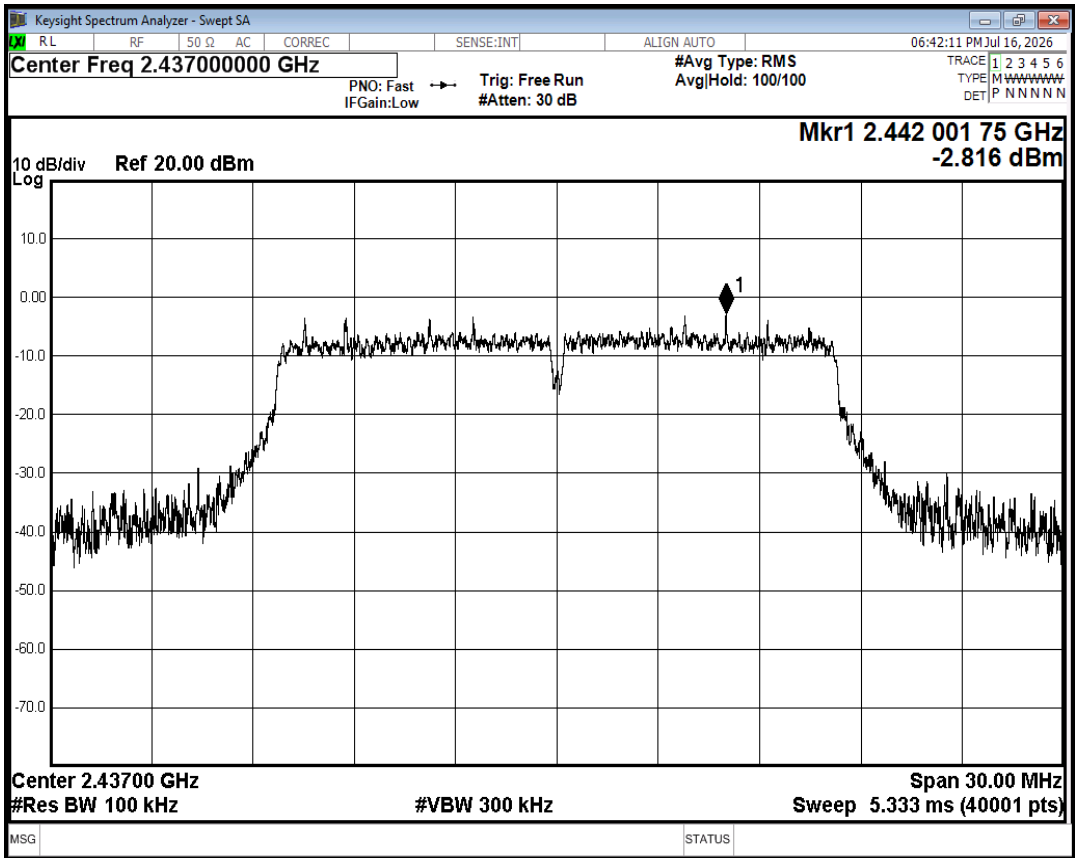
Tx. Spurious NVNT b 2462MHz Ant1 Emission



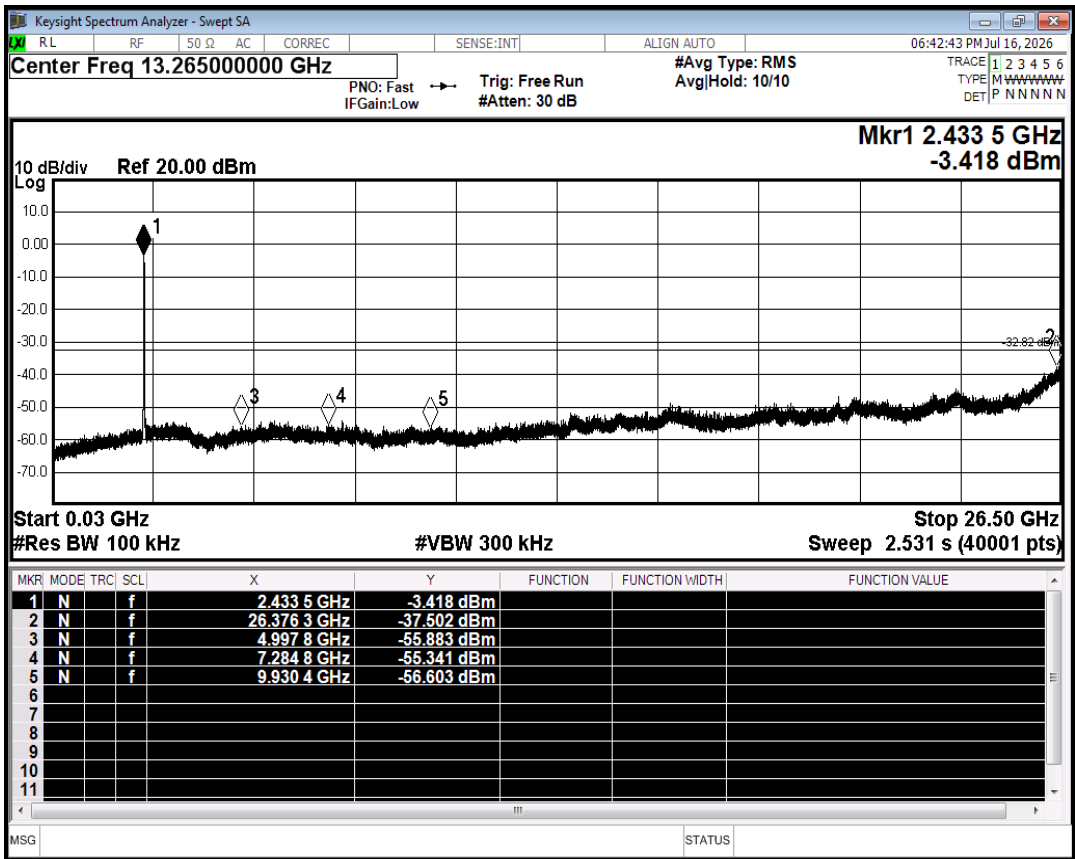
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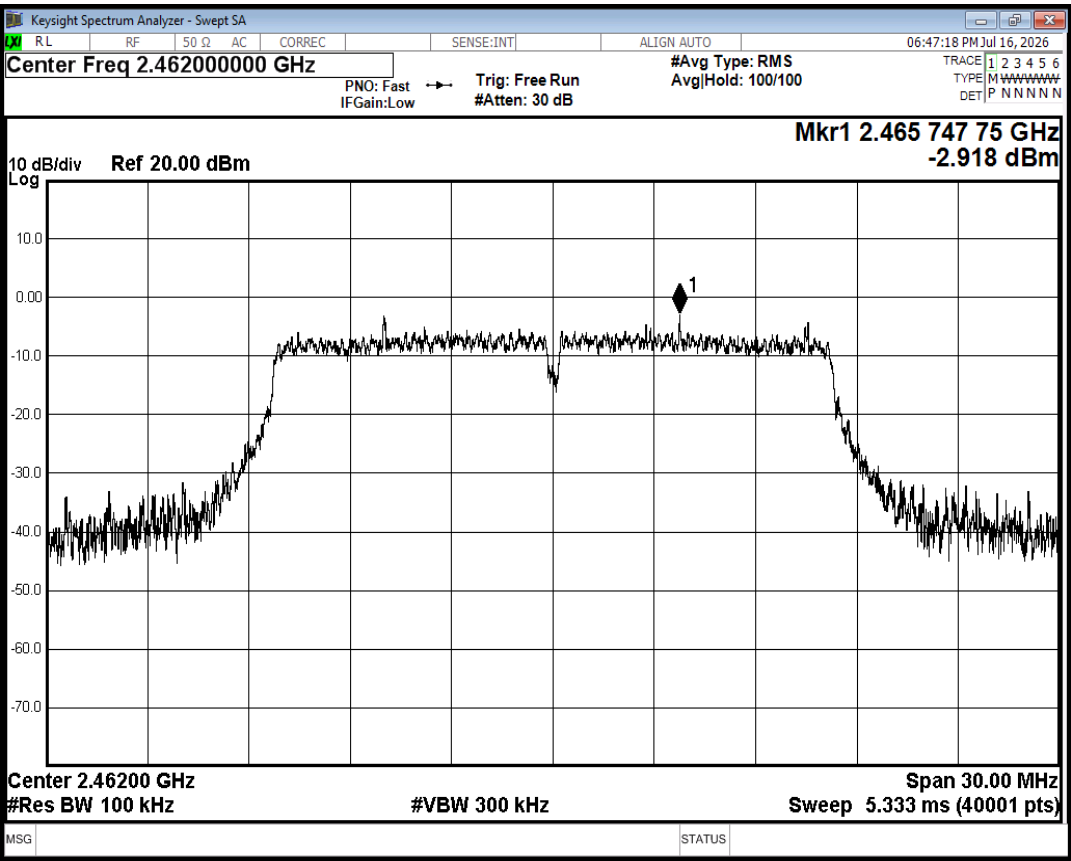
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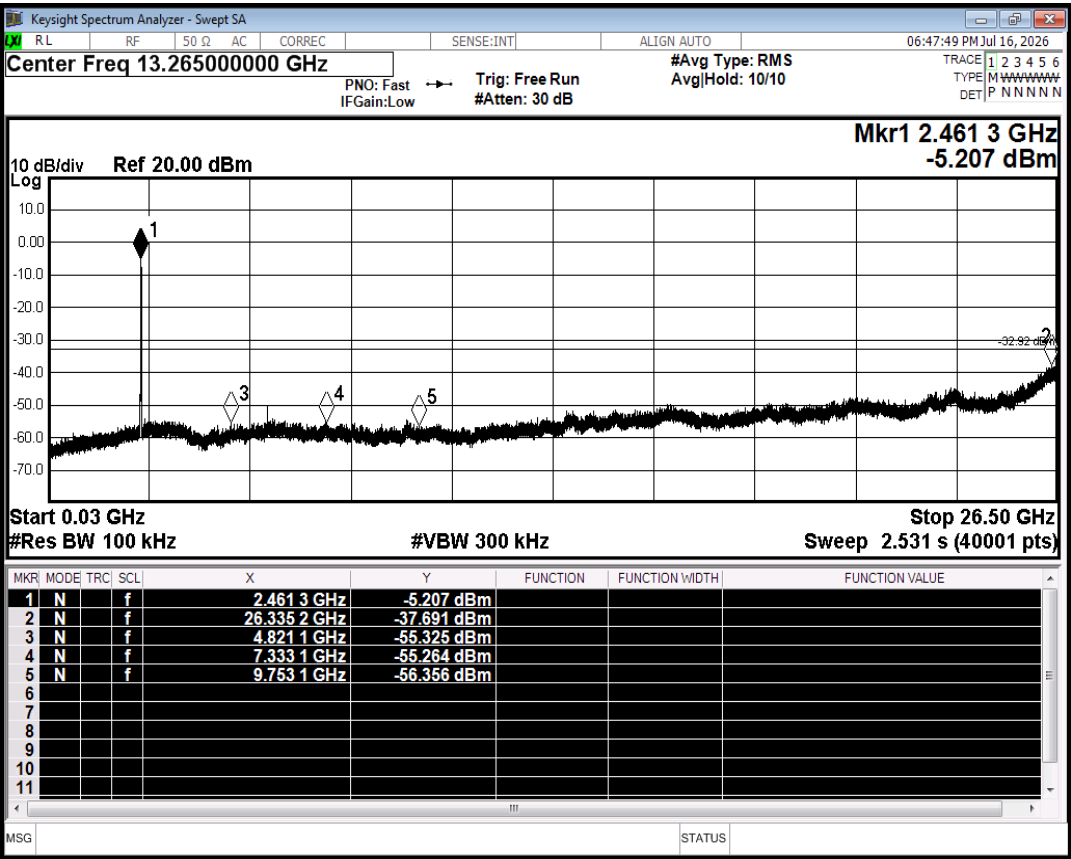
Tx. Spurious NVNT g 2437MHz Ant1 Ref



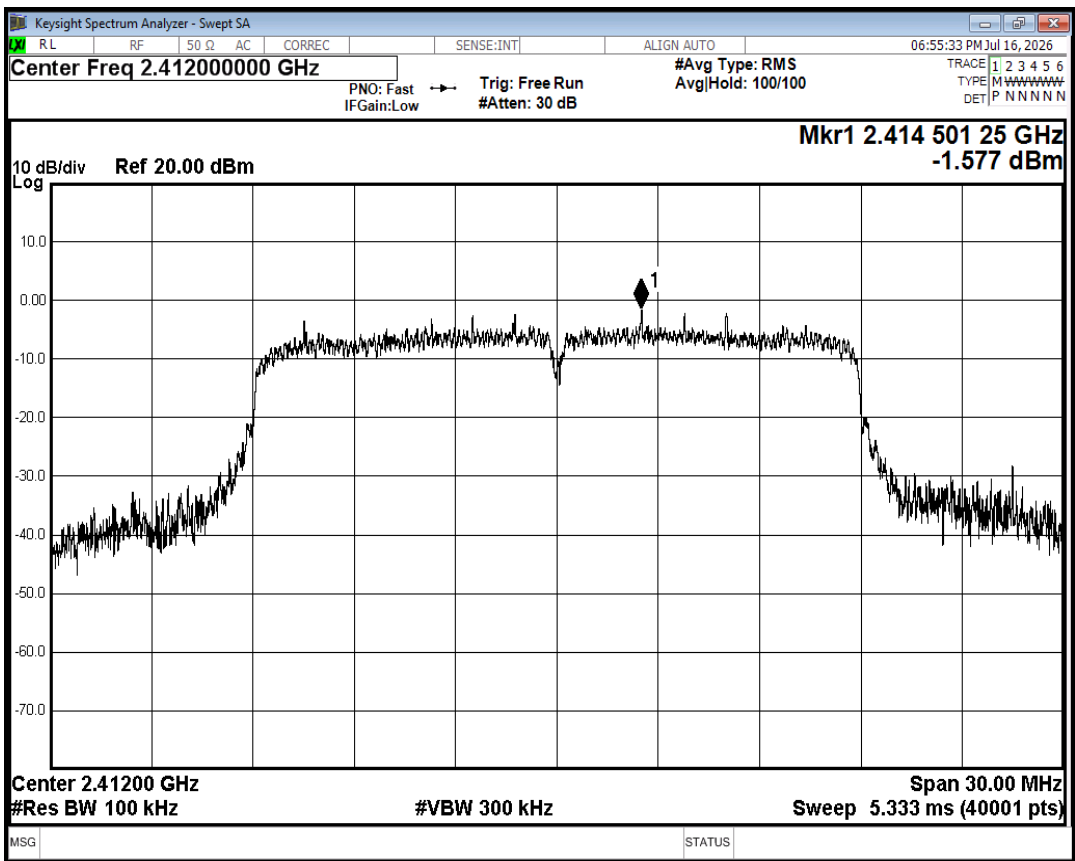
Tx. Spurious NVNT g 2437MHz Ant1 Emission



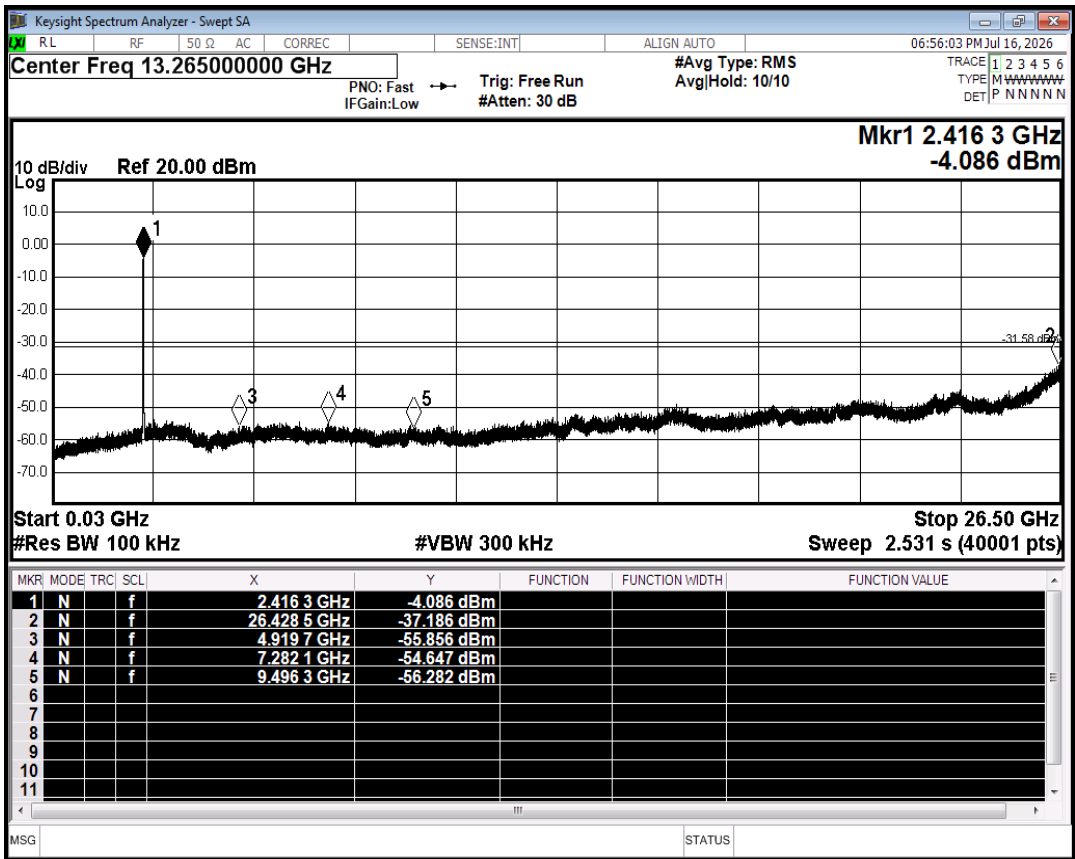
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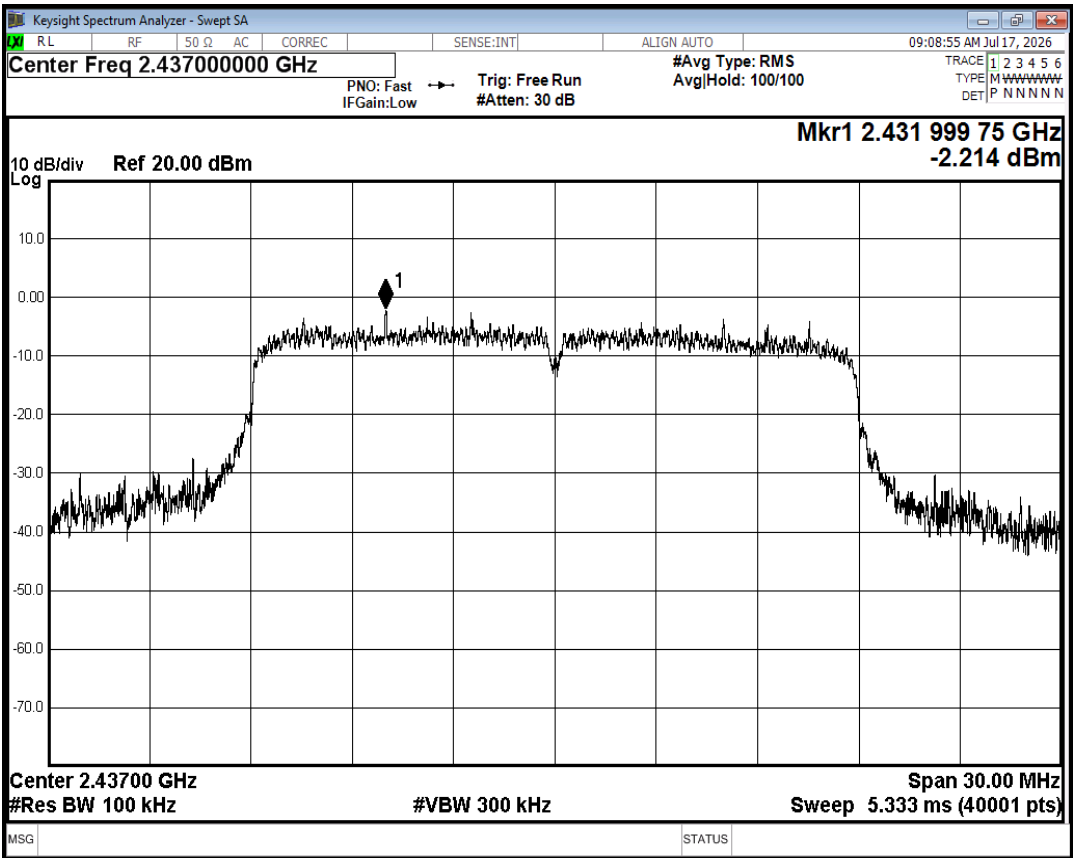
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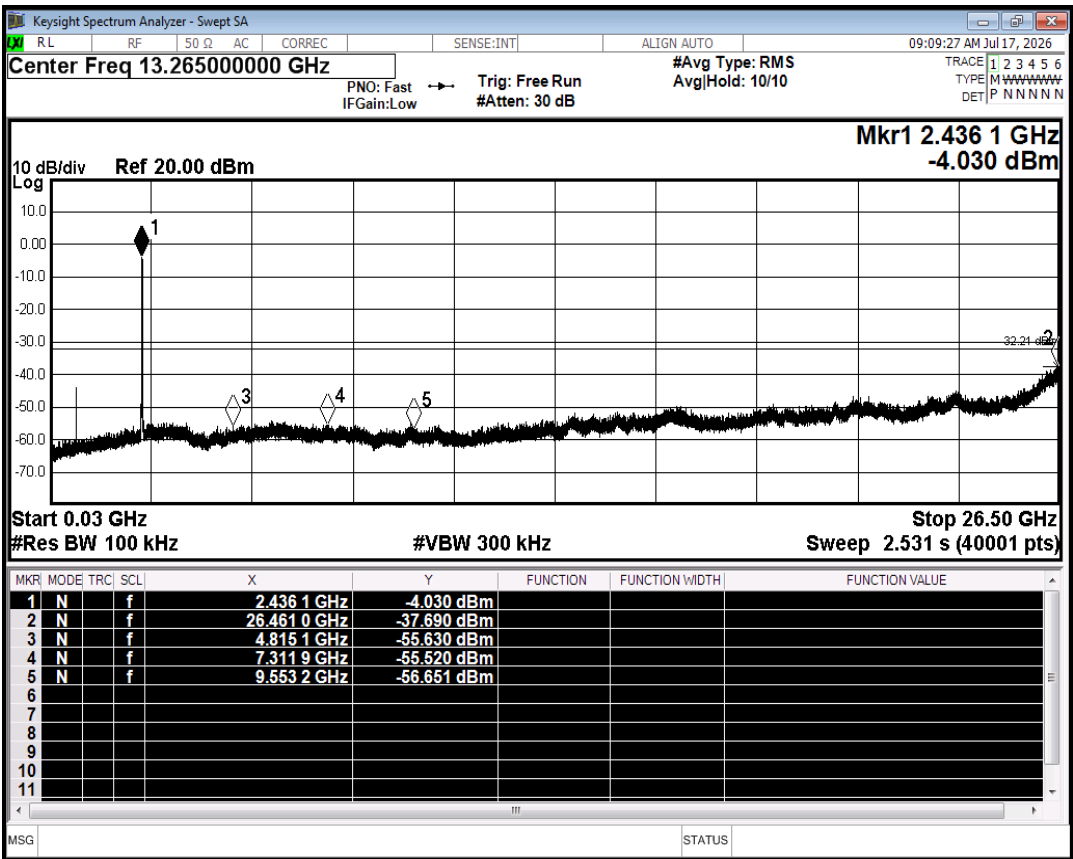
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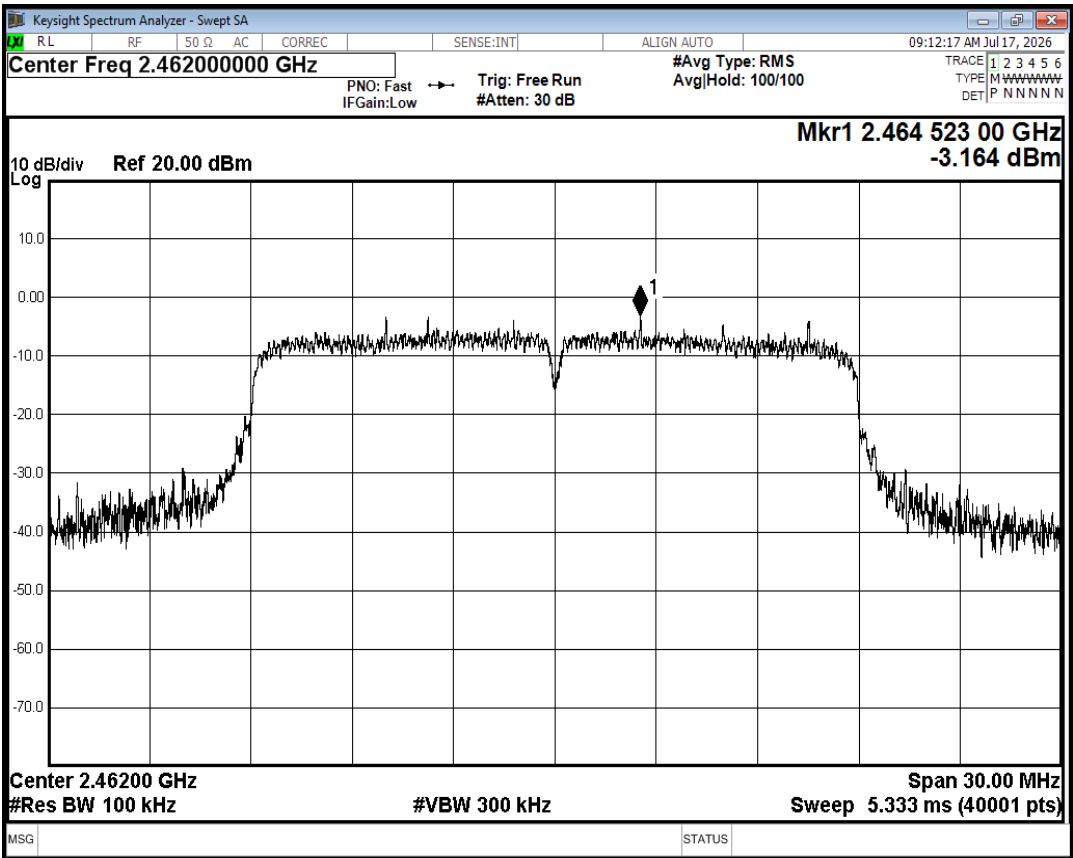
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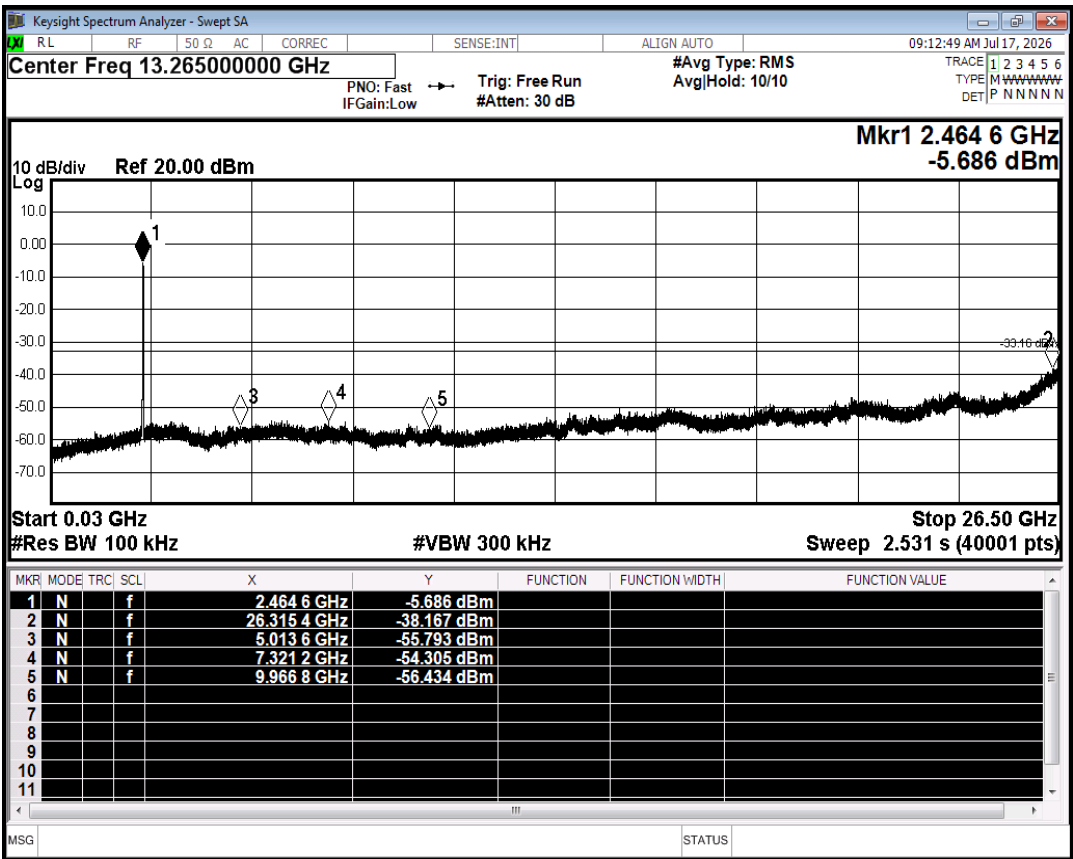
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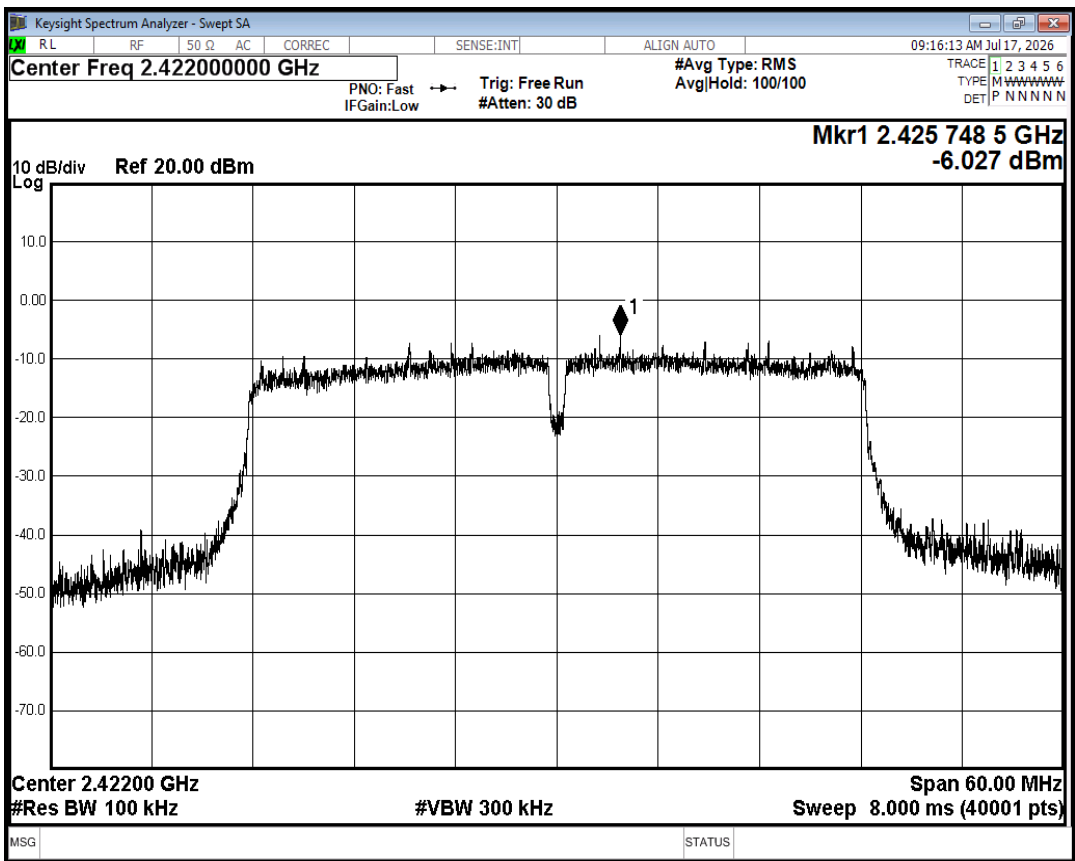
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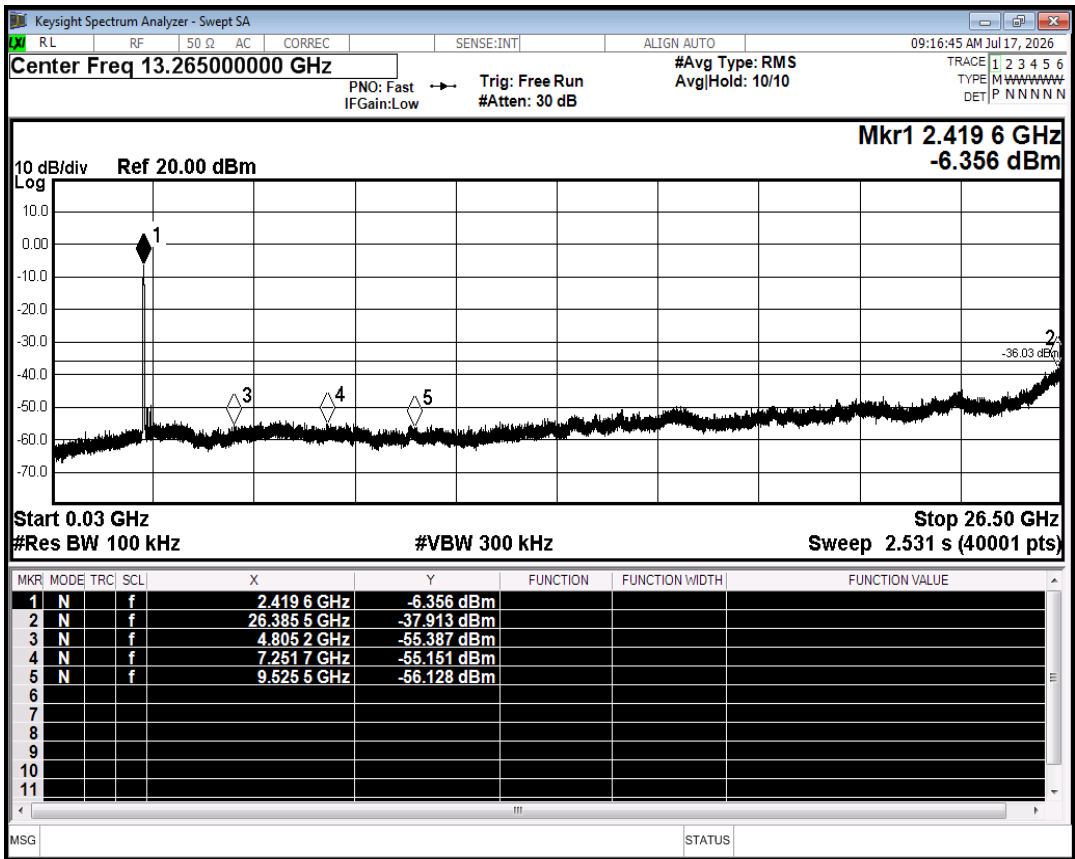
Tx. Spurious NVNT n20 2462MHz Ant1 Ref



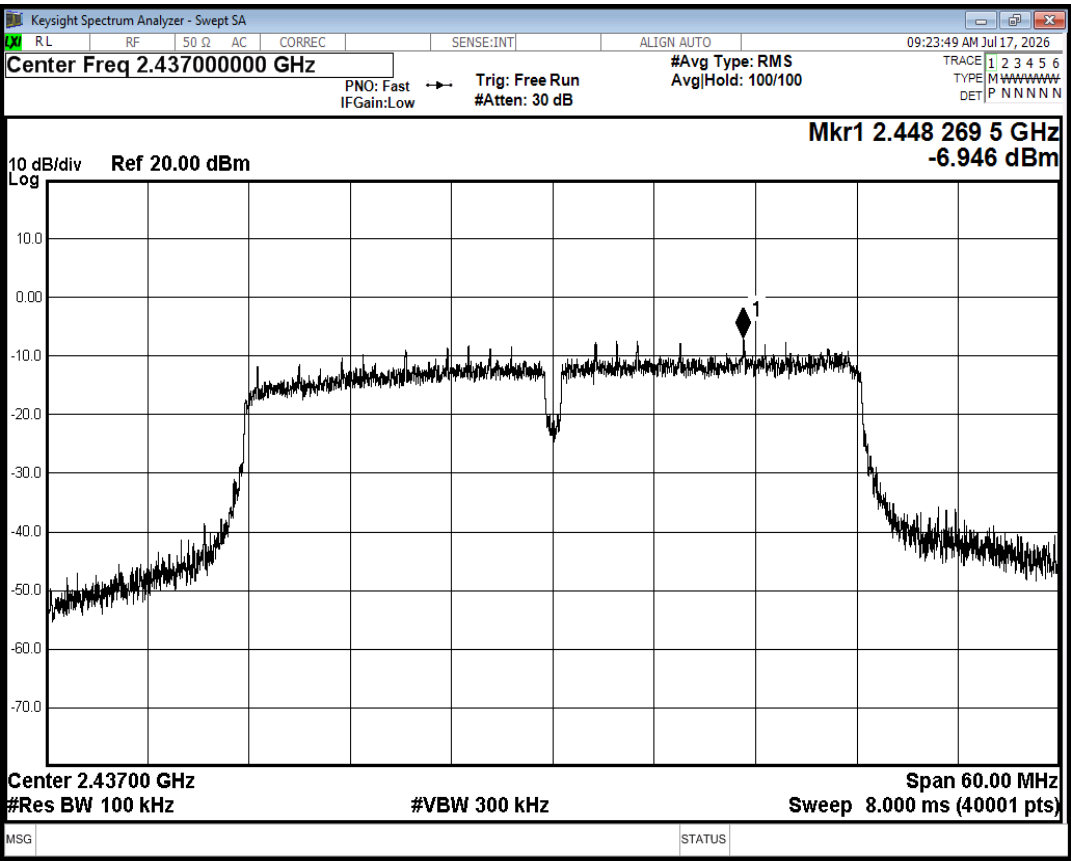
Tx. Spurious NVNT n20 2462MHz Ant1 Emission



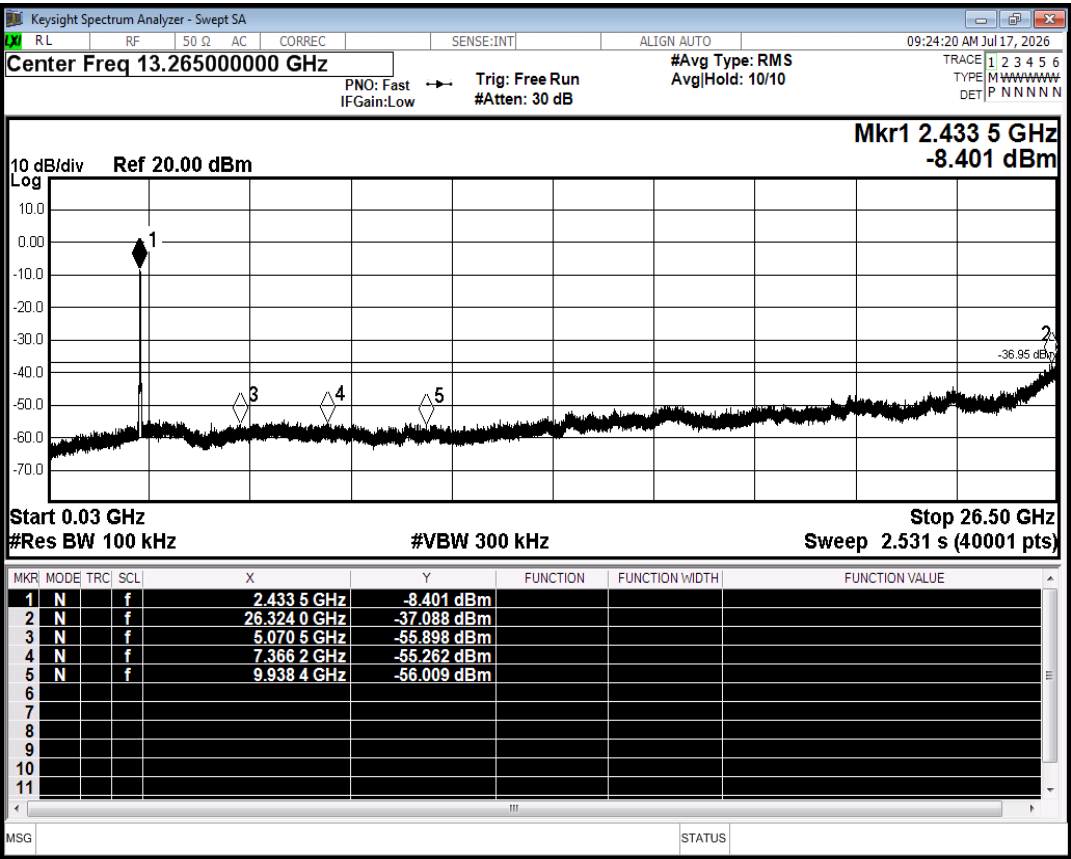
Tx. Spurious NVNT n40 2422MHz Ant1 Ref



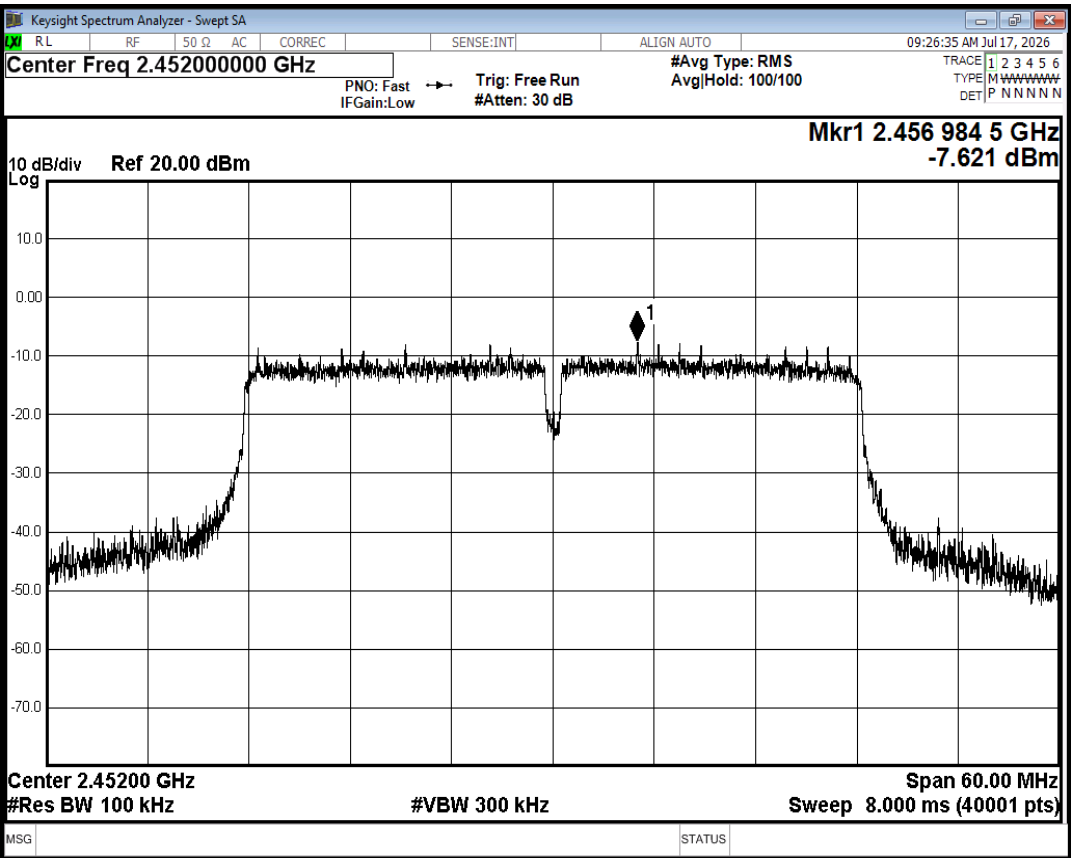
Tx. Spurious NVNT n40 2422MHz Ant1 Emission



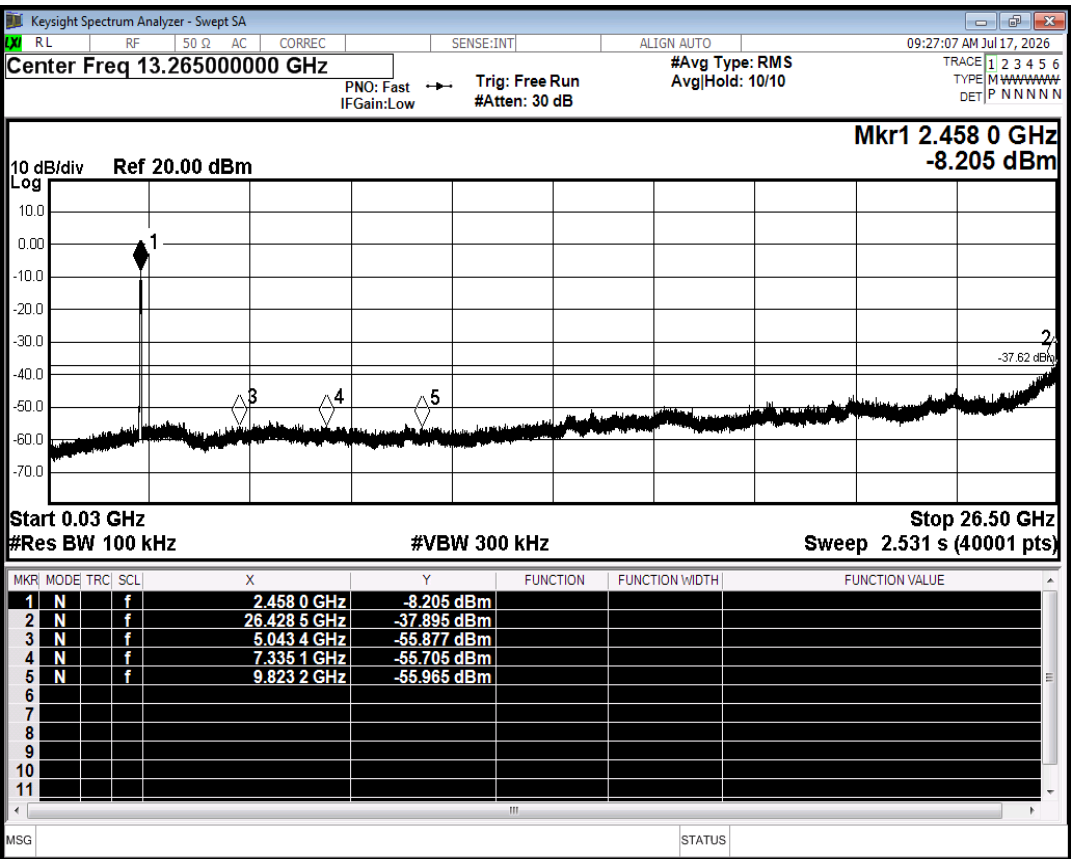
Tx. Spurious NVNT n40 2437MHz Ant1 Ref



Tx. Spurious NVNT n40 2437MHz Ant1 Emission



Tx. Spurious NVNT n40 2452MHz Ant1 Ref

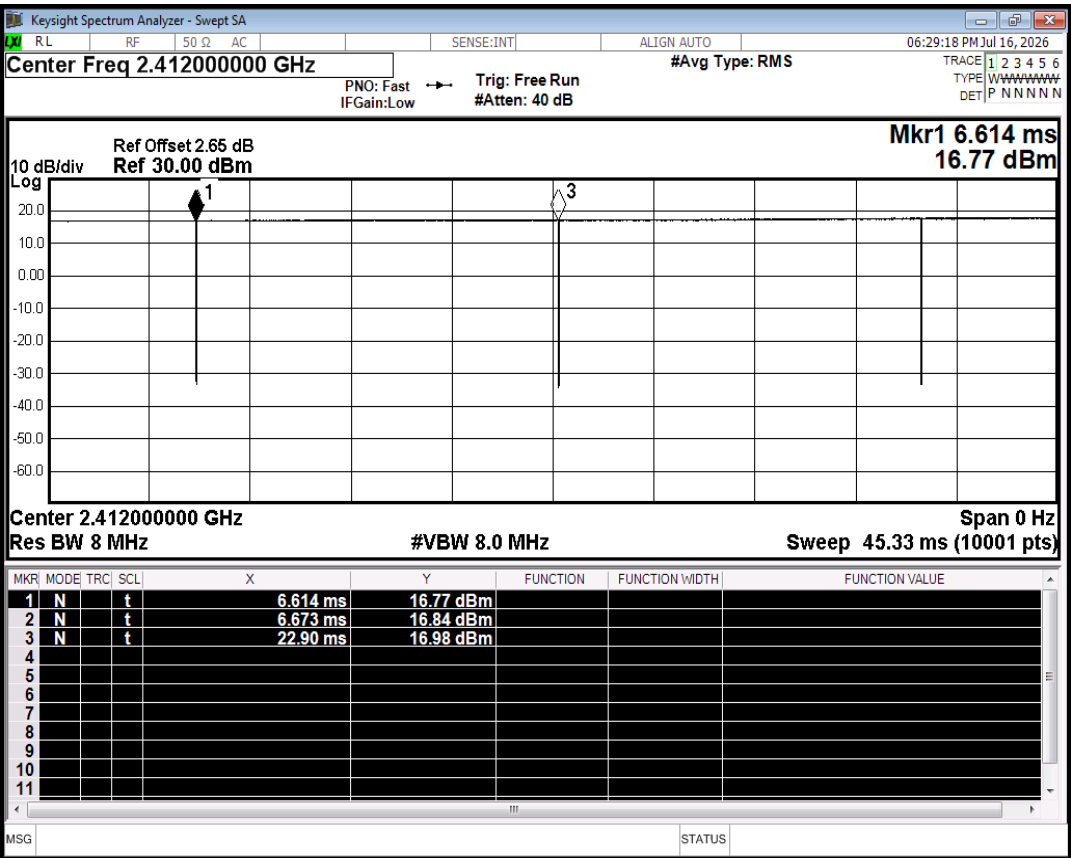


Tx. Spurious NVNT n40 2452MHz Ant1 Emission

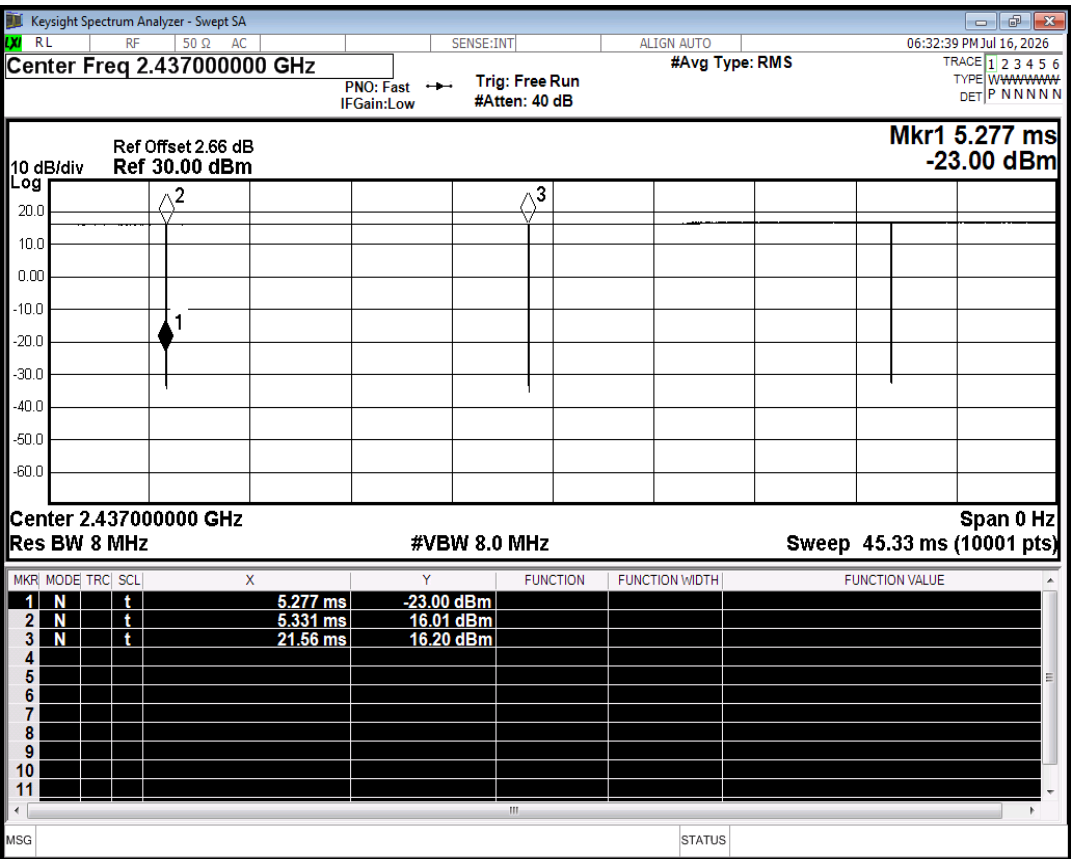
B.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	99.64	0.02	0.06
NVNT	b	2437	Ant1	99.67	0.01	0.06
NVNT	b	2462	Ant1	99.67	0.01	0.06
NVNT	g	2412	Ant1	97.75	0.1	0.37
NVNT	g	2437	Ant1	97.68	0.1	0.37
NVNT	g	2462	Ant1	97.75	0.1	0.37
NVNT	n20	2412	Ant1	97.33	0.12	0.44
NVNT	n20	2437	Ant1	97.25	0.12	0.44
NVNT	n20	2462	Ant1	97.33	0.12	0.44
NVNT	n40	2422	Ant1	94.7	0.24	0.9
NVNT	n40	2437	Ant1	94.7	0.24	0.9
NVNT	n40	2452	Ant1	94.7	0.24	0.9

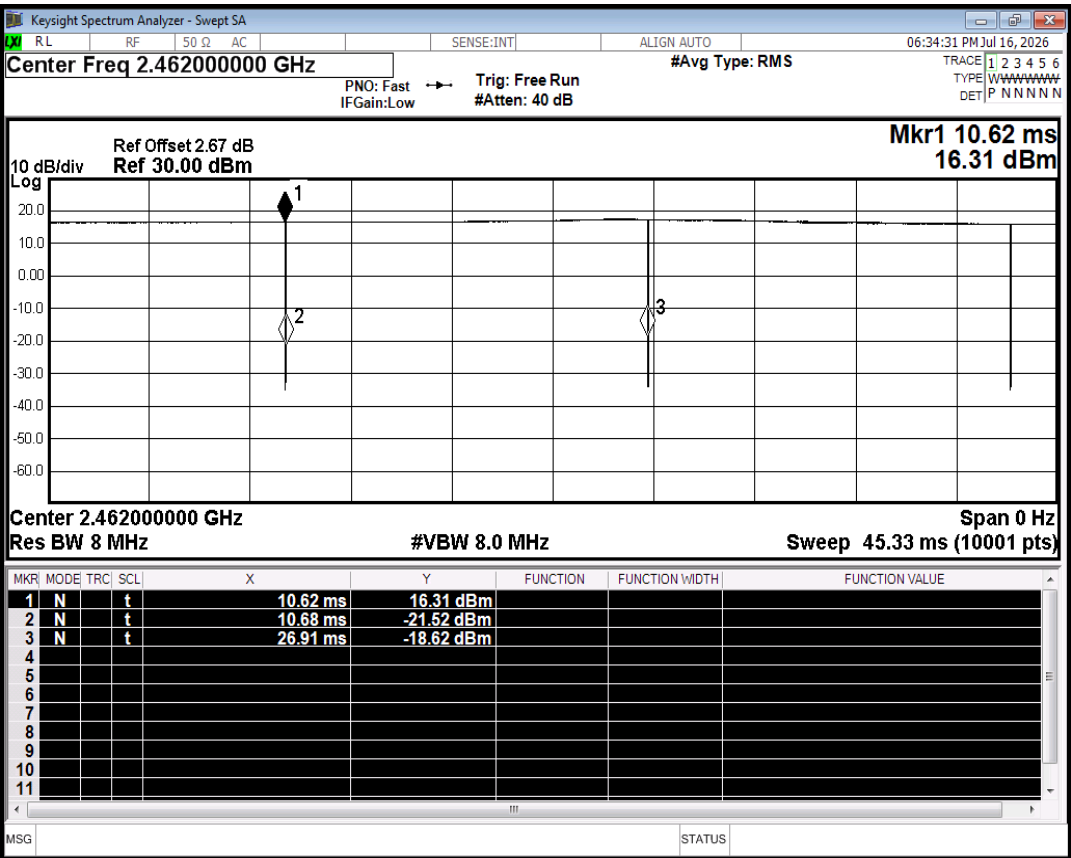
Note :offset=System attenuation +cable loss



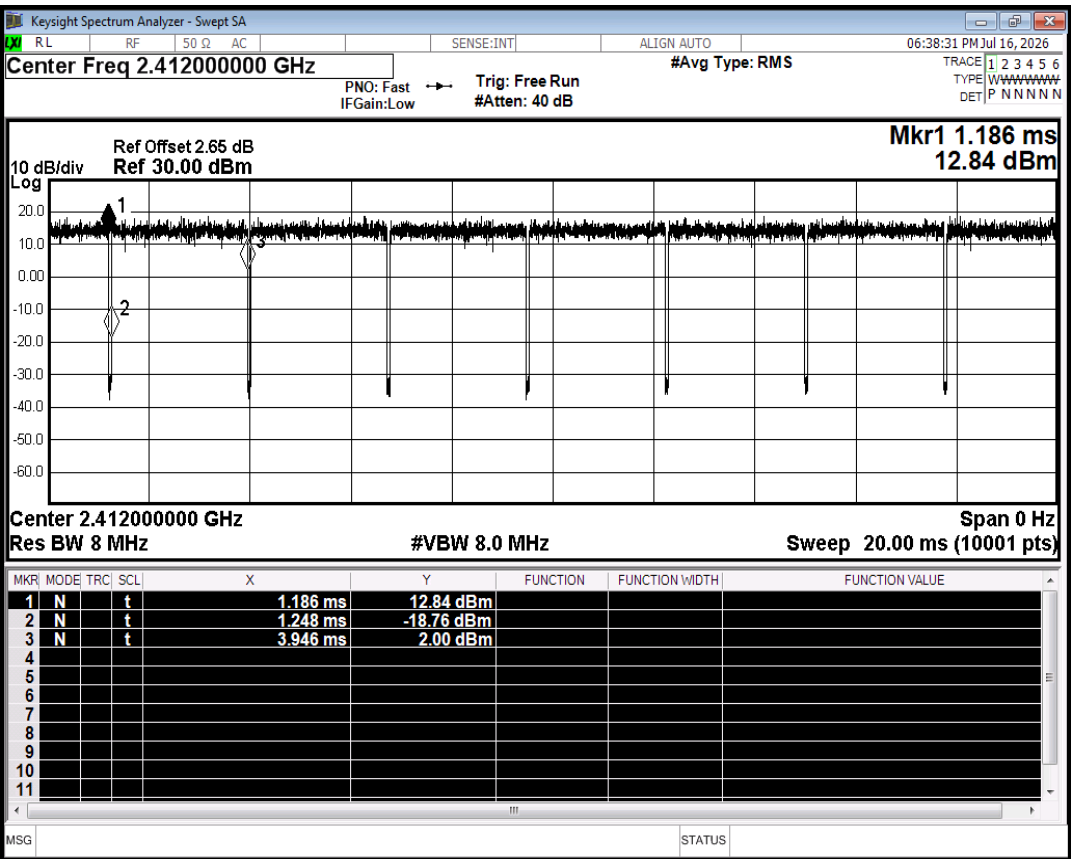
Duty Cycle NVNT b 2412MHz Ant1



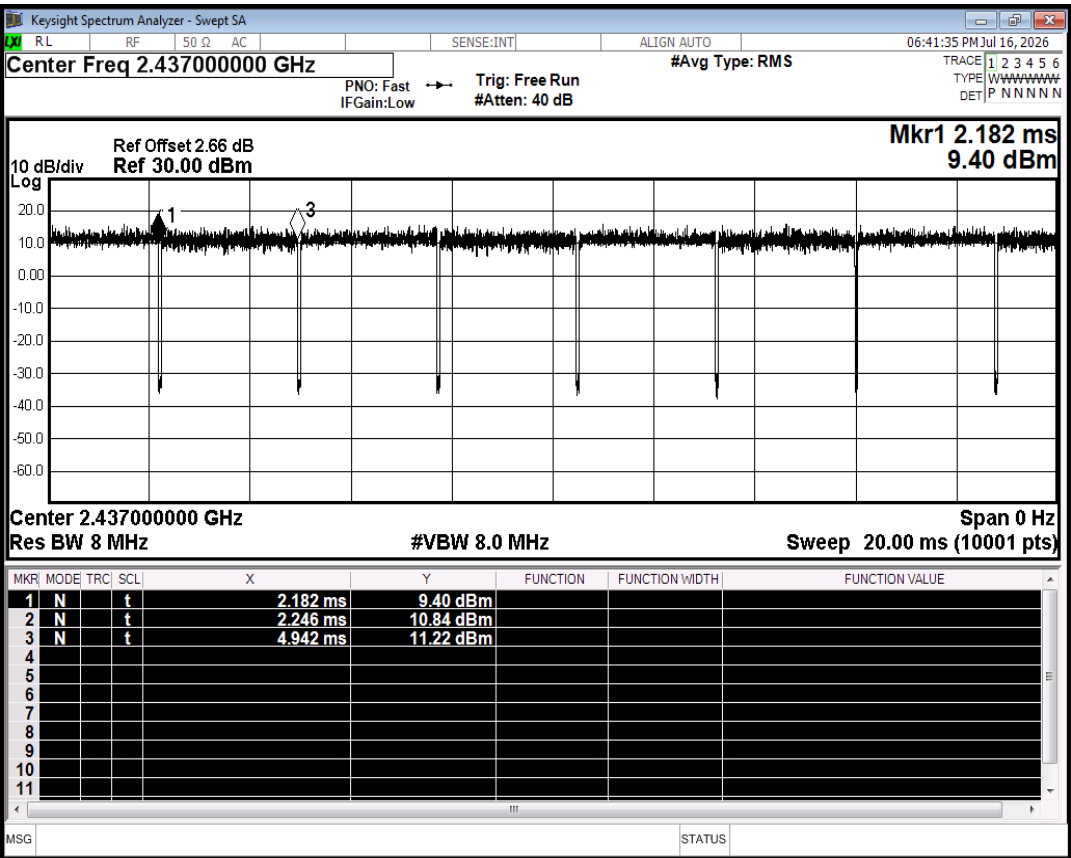
Duty Cycle NVNT b 2437MHz Ant1



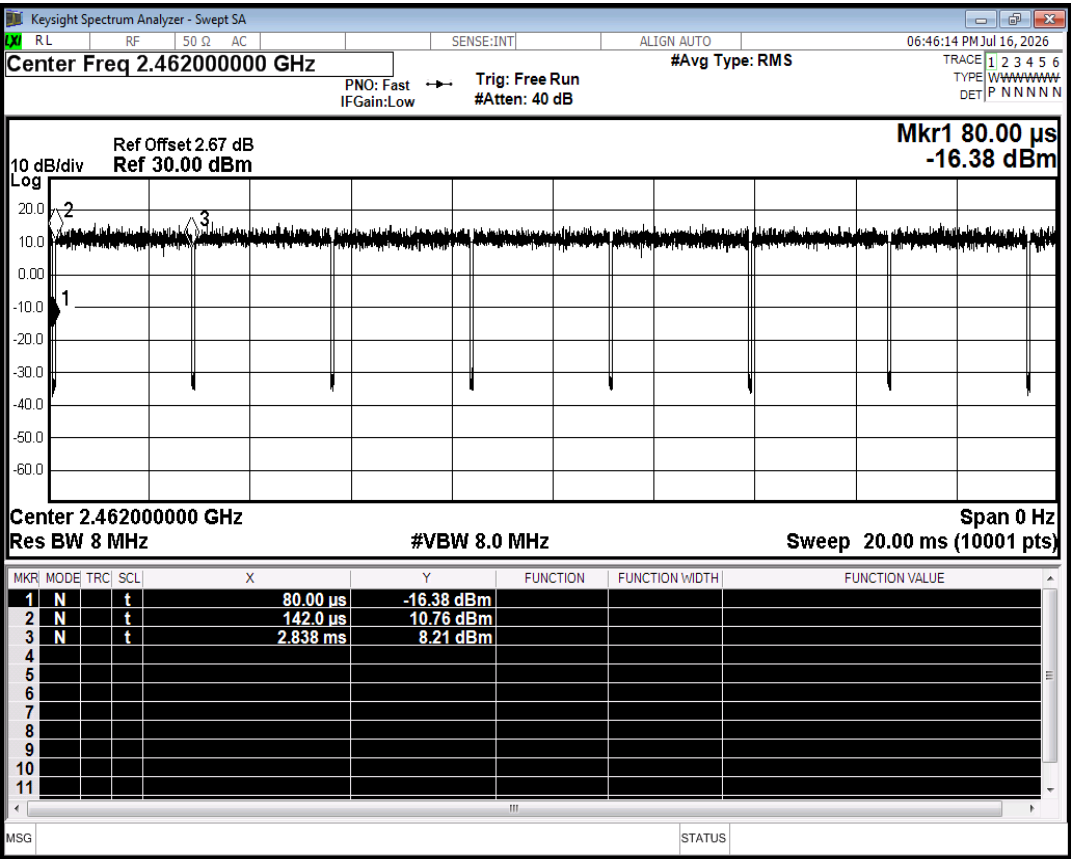
Duty Cycle NVNT b 2462MHz Ant1



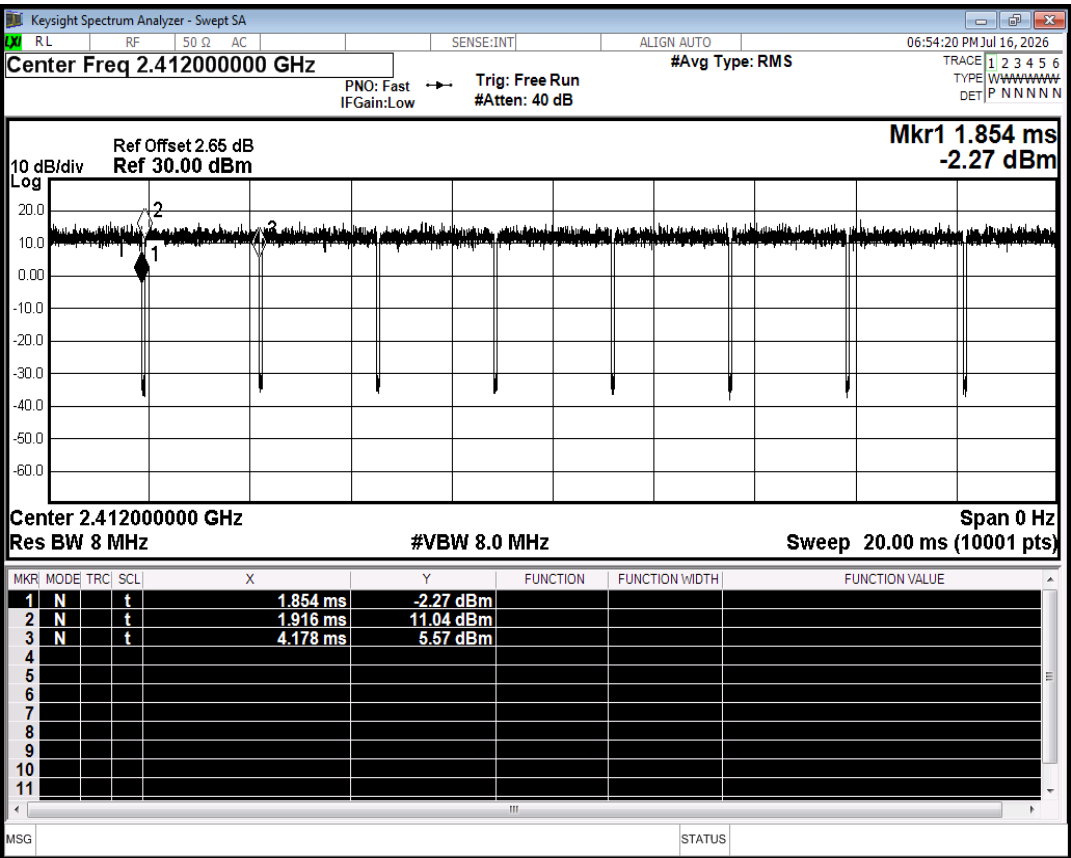
Duty Cycle NVNT g 2412MHz Ant1



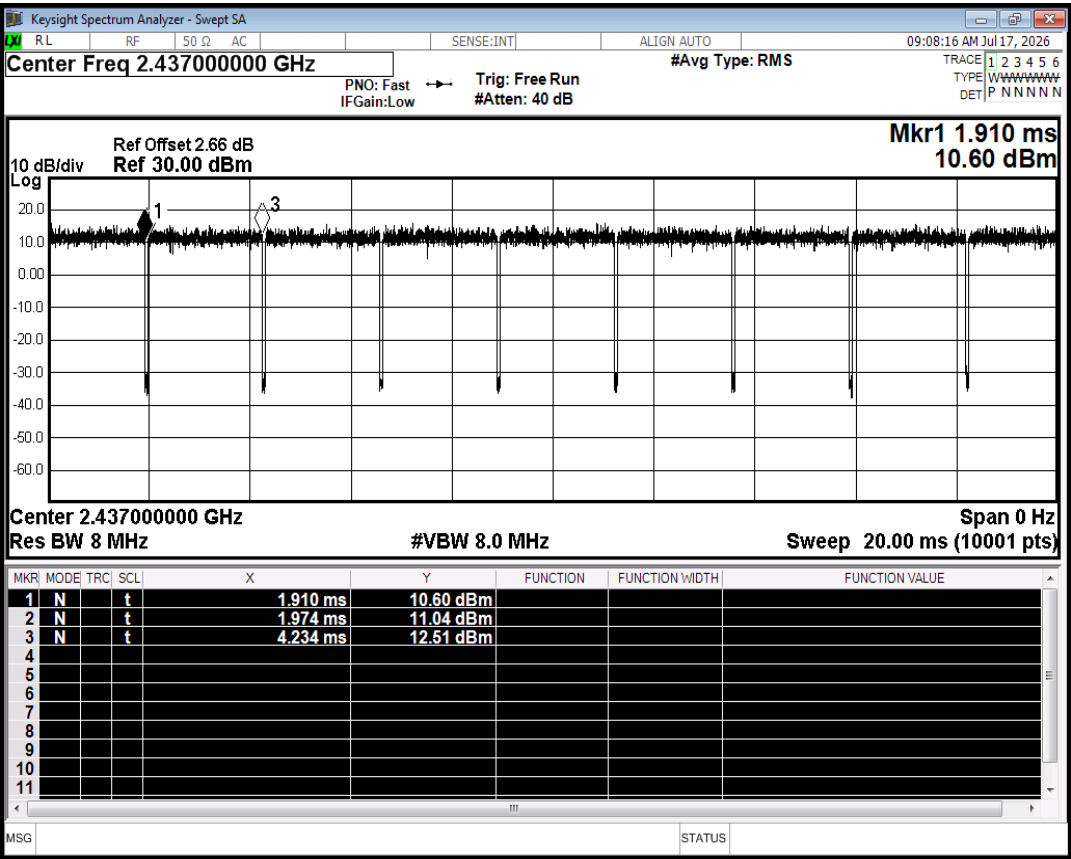
Duty Cycle NVNT g 2437MHz Ant1



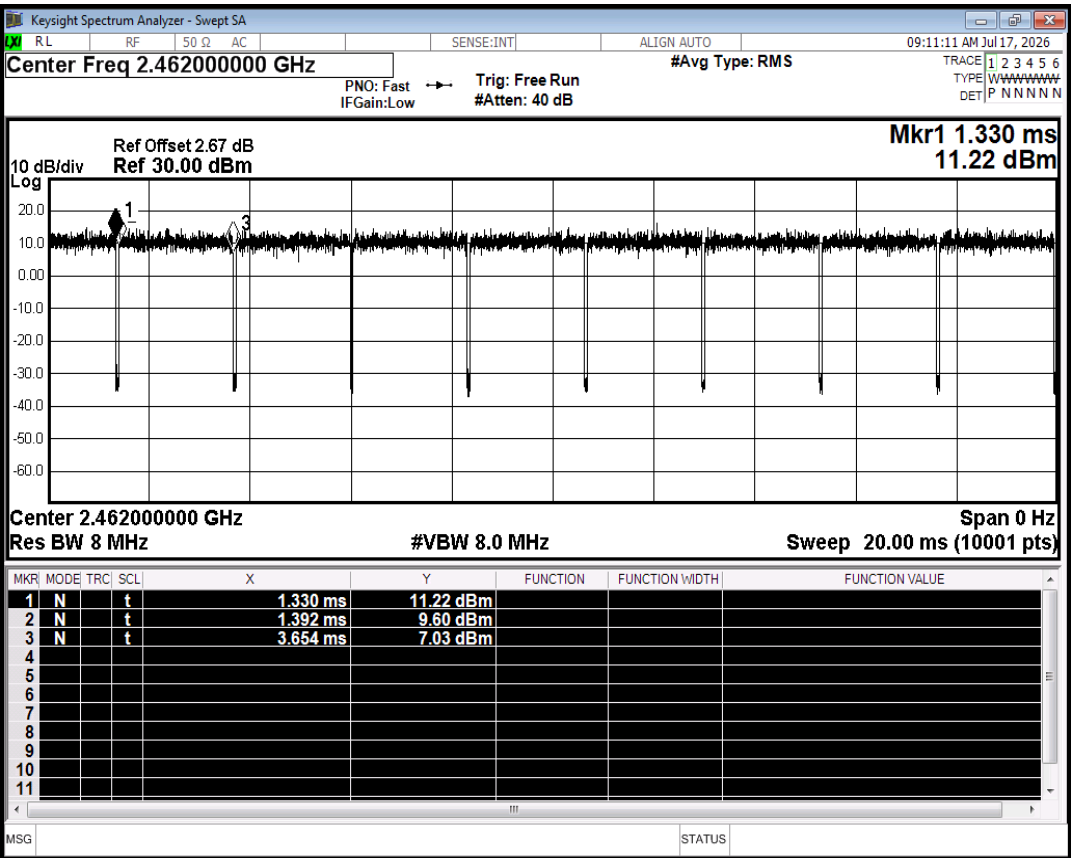
Duty Cycle NVNT g 2462MHz Ant1



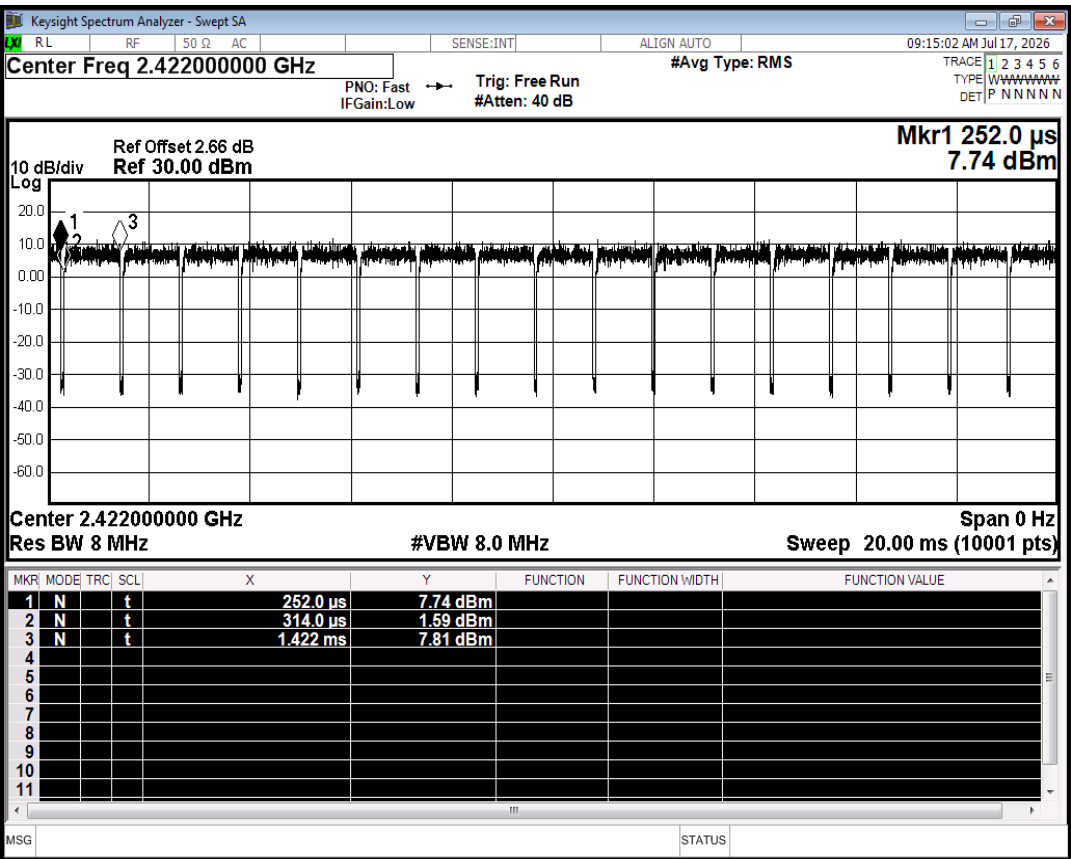
Duty Cycle NVNT n20 2412MHz Ant1



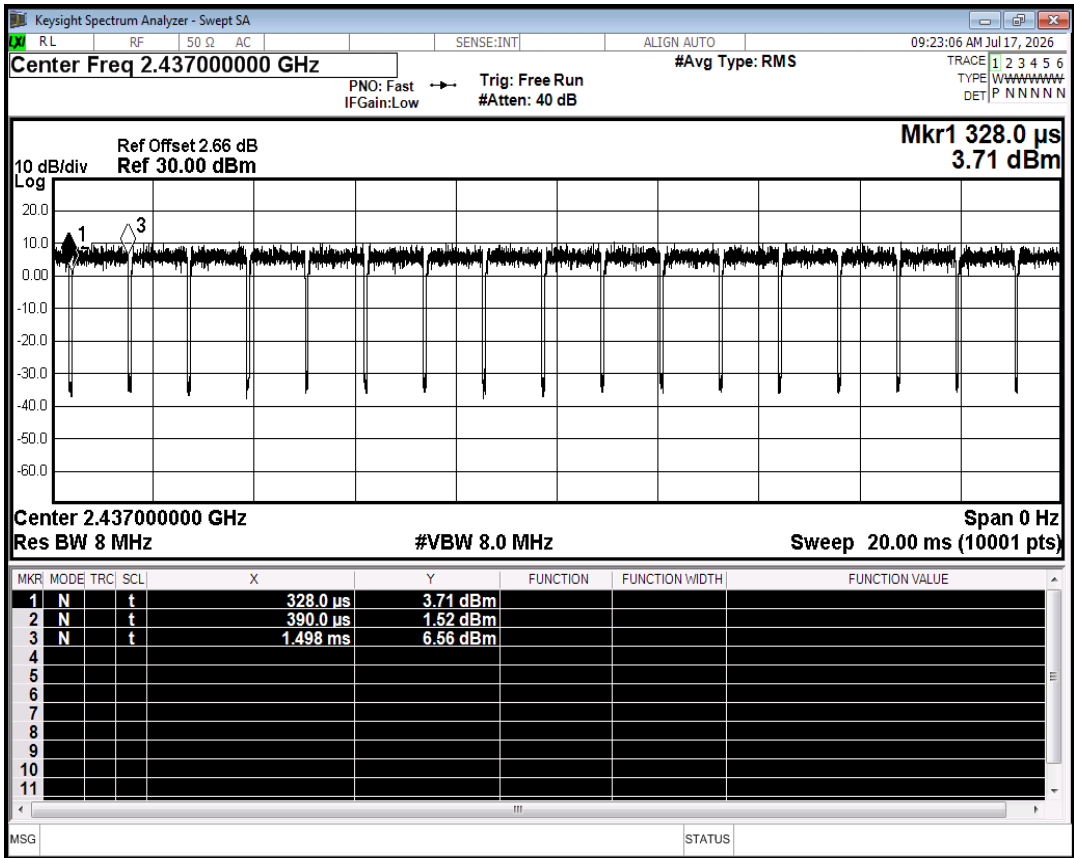
Duty Cycle NVNT n20 2437MHz Ant1



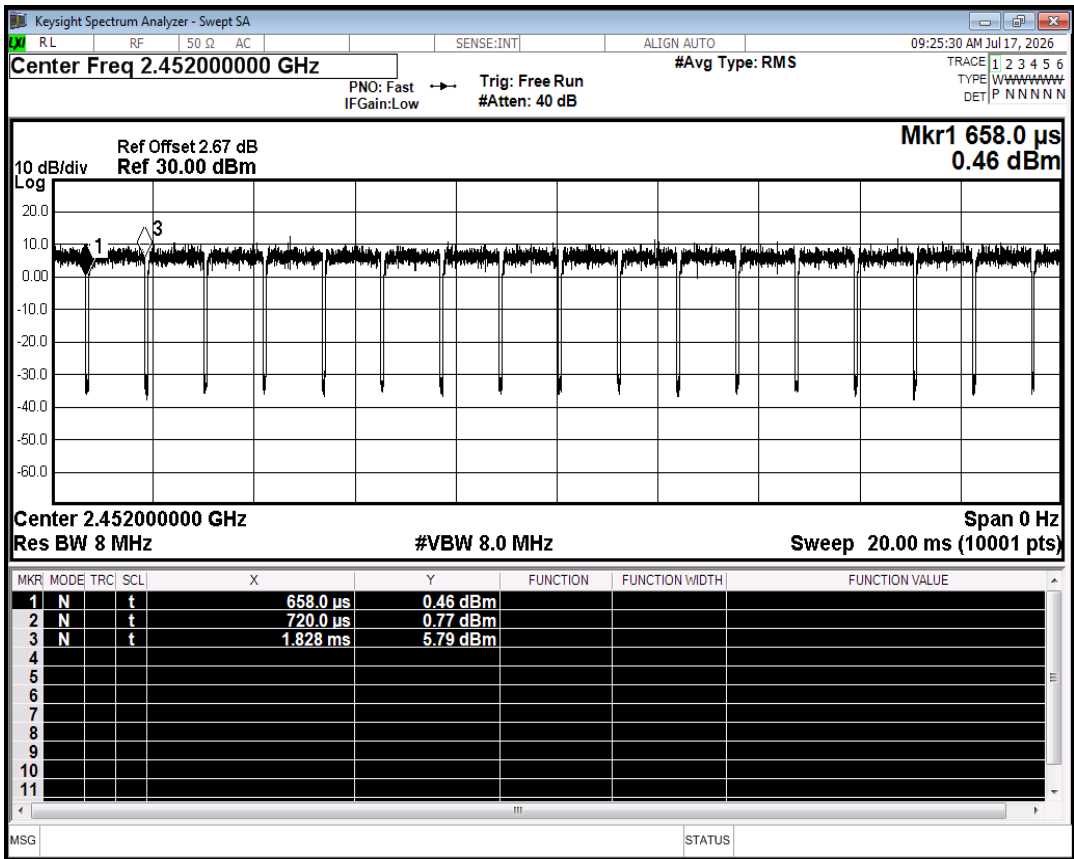
Duty Cycle NVNT n20 2462MHz Ant1



Duty Cycle NVNT n40 2422MHz Ant1



Duty Cycle NVNT n40 2437MHz Ant1



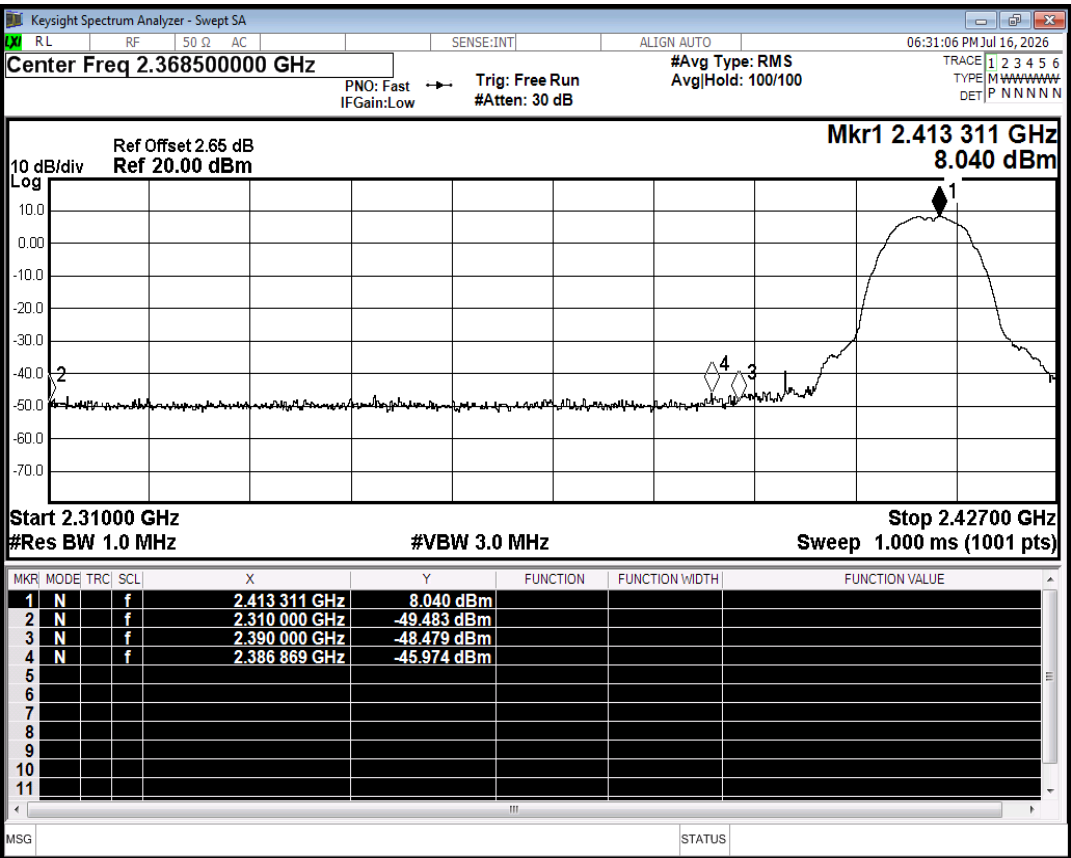
Duty Cycle NVNT n40 2452MHz Ant1

B.7 Restrict Band

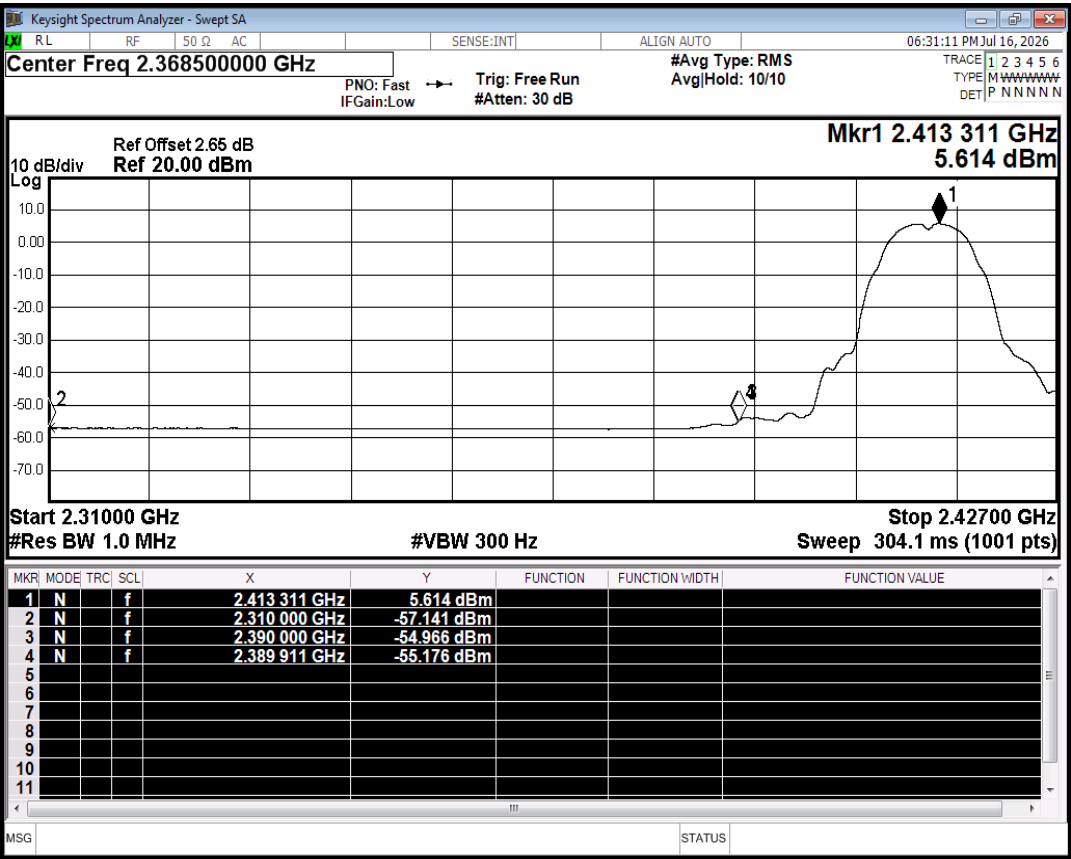
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-49.48	2.24	48.02	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-57.14	2.24	40.36	Average	54	Pass
NVNT	b	2412	Ant1	2386.869	-45.97	2.24	51.53	Peak	74	Pass
NVNT	b	2412	Ant1	2389.911	-55.17	2.24	42.33	Average	54	Pass
NVNT	b	2412	Ant1	2390	-48.47	2.24	49.03	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-54.96	2.24	42.54	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-48.16	2.24	49.34	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-54.95	2.24	42.55	Average	54	Pass
NVNT	b	2462	Ant1	2485.319	-44.04	2.24	53.46	Peak	74	Pass
NVNT	b	2462	Ant1	2483.888	-54.91	2.24	42.59	Average	54	Pass
NVNT	b	2462	Ant1	2500	-48.82	2.24	48.68	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-57.16	2.24	40.34	Average	54	Pass
NVNT	g	2412	Ant1	2310	-50.71	2.24	46.79	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-56.99	2.24	40.51	Average	54	Pass
NVNT	g	2412	Ant1	2387.337	-39.02	2.24	58.48	Peak	74	Pass
NVNT	g	2412	Ant1	2389.911	-50.36	2.24	47.14	Average	54	Pass
NVNT	g	2412	Ant1	2390	-41.2	2.24	56.30	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-50.1	2.24	47.40	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-35.19	2.24	62.31	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-48.73	2.24	48.77	Average	54	Pass
NVNT	g	2462	Ant1	2483.729	-30.77	2.24	66.73	Peak	74	Pass
NVNT	g	2462	Ant1	2483.623	-48.33	2.24	49.17	Average	54	Pass
NVNT	g	2462	Ant1	2500	-49.73	2.24	47.77	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-56.9	2.24	40.60	Average	54	Pass
NVNT	n20	2412	Ant1	2310	-49.8	2.24	47.70	Peak	74	Pass
NVNT	n20	2412	Ant1	2310	-57.01	2.24	40.49	Average	54	Pass
NVNT	n20	2412	Ant1	2388.39	-33.51	2.24	63.99	Peak	74	Pass
NVNT	n20	2412	Ant1	2389.911	-48.3	2.24	49.20	Average	54	Pass
NVNT	n20	2412	Ant1	2390	-36.82	2.24	60.68	Peak	74	Pass
NVNT	n20	2412	Ant1	2390	-48.24	2.24	49.26	Average	54	Pass
NVNT	n20	2462	Ant1	2483.5	-31.65	2.24	65.85	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.5	-45.87	2.24	51.63	Average	54	Pass
NVNT	n20	2462	Ant1	2484.577	-30.2	2.24	67.30	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.782	-45.5	2.24	52.00	Average	54	Pass
NVNT	n20	2462	Ant1	2500	-49.79	2.24	47.71	Peak	74	Pass
NVNT	n20	2462	Ant1	2500	-56.97	2.24	40.53	Average	54	Pass
NVNT	n40	2422	Ant1	2310	-50.6	2.24	46.90	Peak	74	Pass
NVNT	n40	2422	Ant1	2310	-56.91	2.24	40.59	Average	54	Pass
NVNT	n40	2422	Ant1	2389.946	-35.07	2.24	62.43	Peak	74	Pass
NVNT	n40	2422	Ant1	2389.946	-47.73	2.24	49.77	Average	54	Pass

NVNT	n40	2422	Ant1	2390	-33.76	2.24	63.74	Peak	74	Pass
NVNT	n40	2422	Ant1	2390	-47.79	2.24	49.71	Average	54	Pass
NVNT	n40	2452	Ant1	2483.5	-34.5	2.24	63.00	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.5	-47.44	2.24	50.06	Average	54	Pass
NVNT	n40	2452	Ant1	2483.542	-34.5	2.24	63.00	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.542	-47.44	2.24	50.06	Average	54	Pass
NVNT	n40	2452	Ant1	2500	-51.92	2.24	45.58	Peak	74	Pass
NVNT	n40	2452	Ant1	2500	-56.78	2.24	40.72	Average	54	Pass

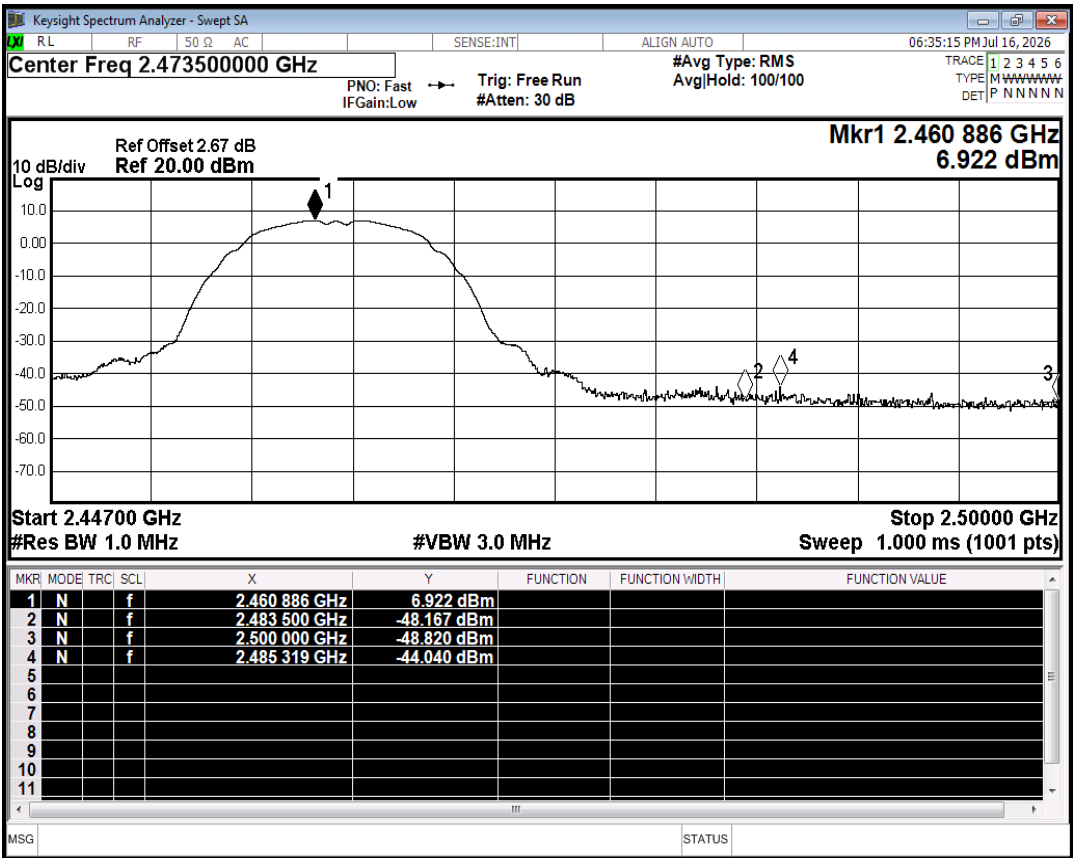
Note :offset=System attenuation +cable loss



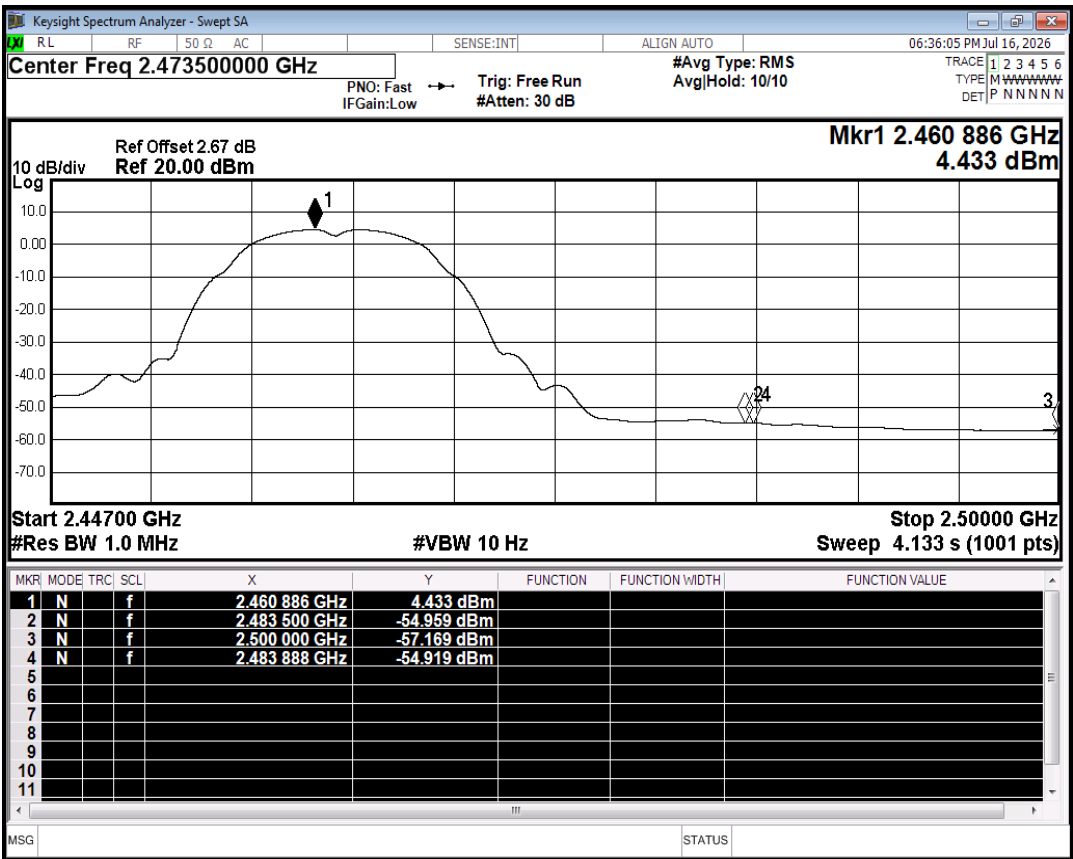
Restrict Band NVNT b 2412MHz Ant1 Peak



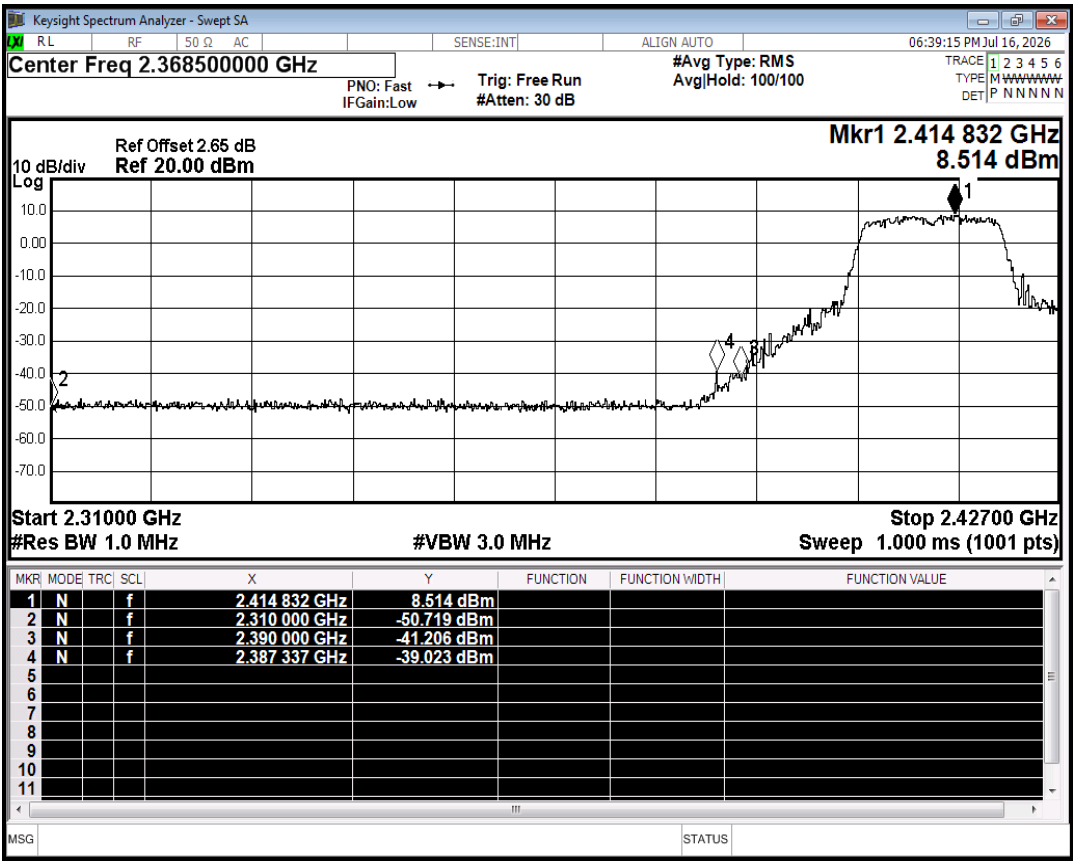
Restrict Band NVNT b 2412MHz Ant1 Average



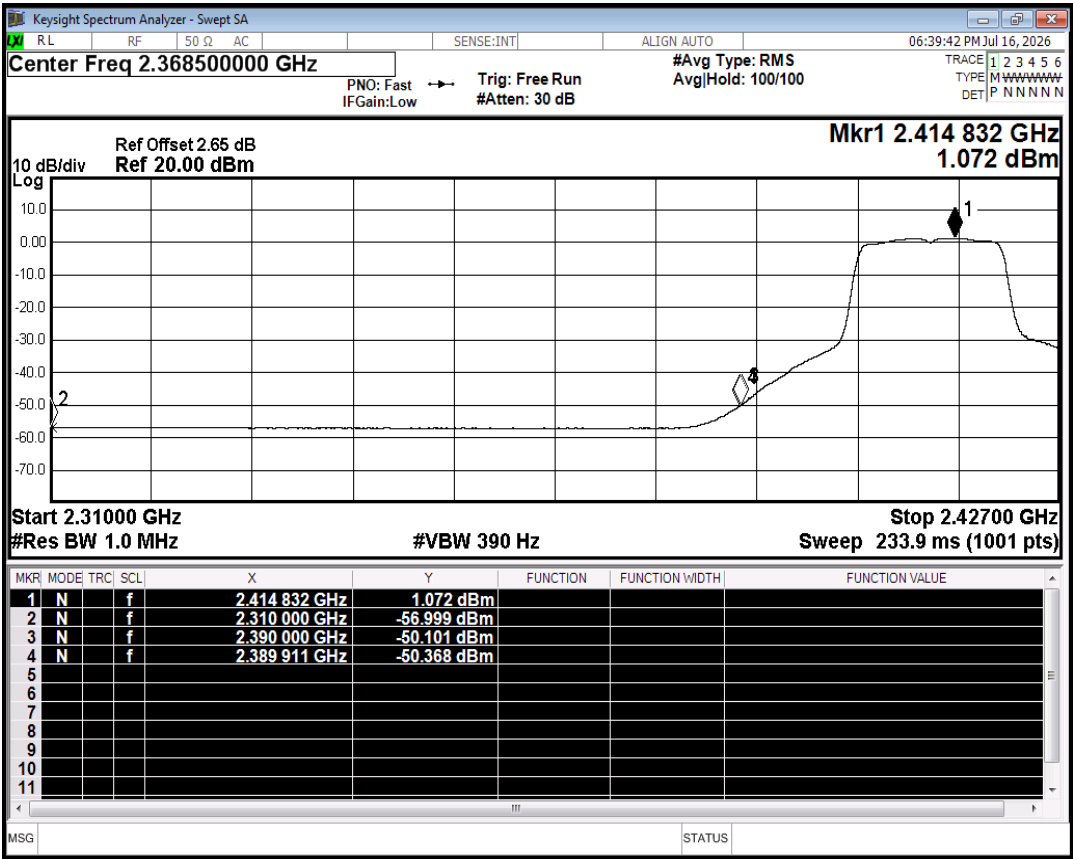
Restrict Band NVNT b 2462MHz Ant1 Peak



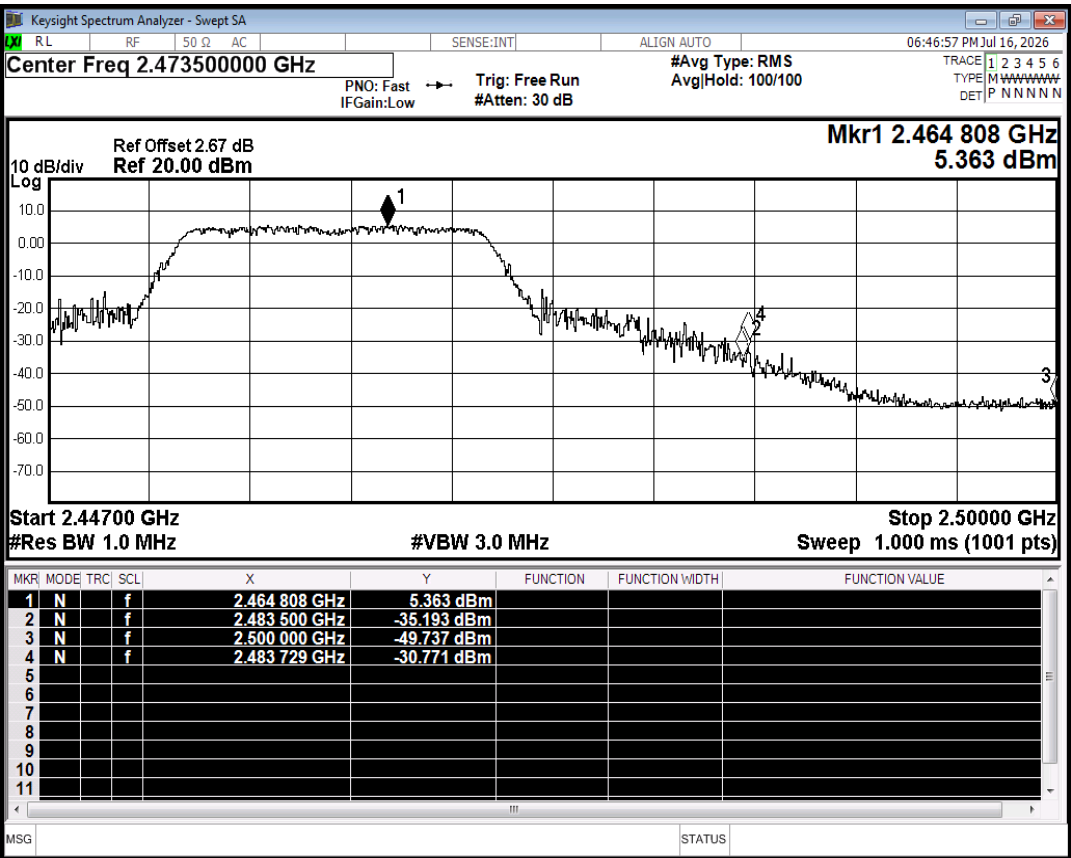
Restrict Band NVNT b 2462MHz Ant1 Average



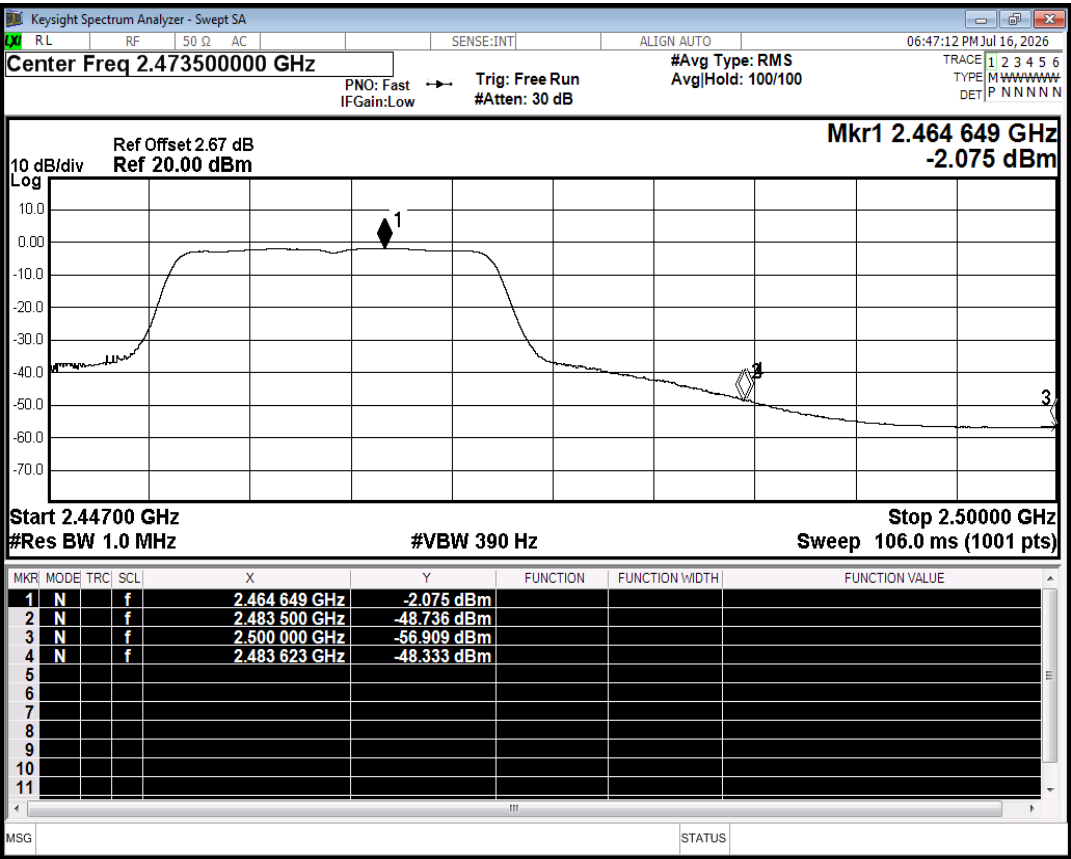
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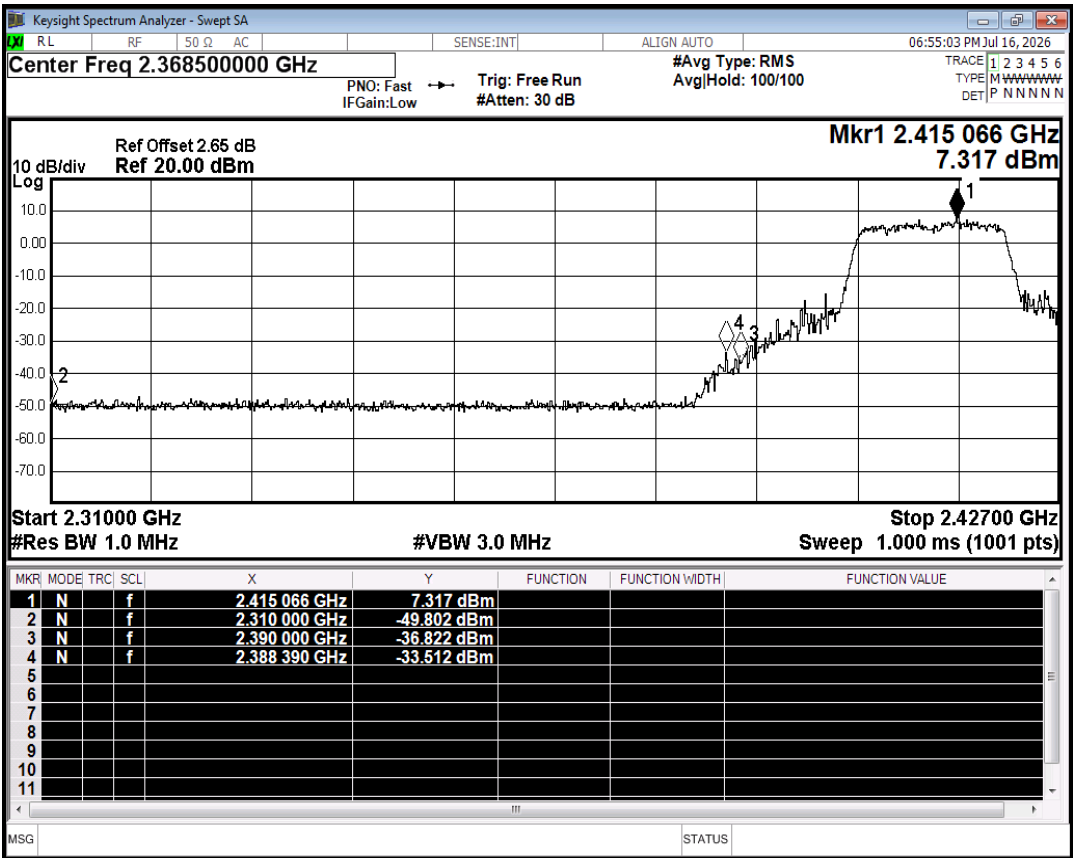
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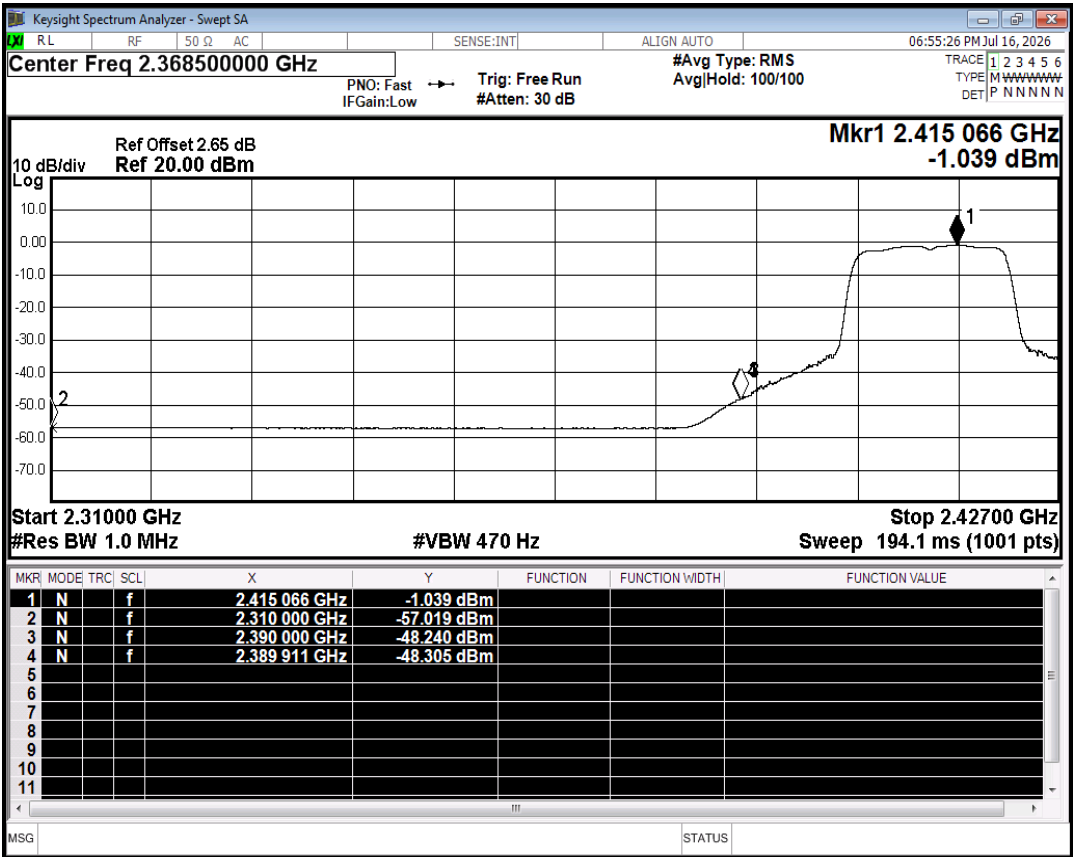
Restrict Band NVNT g 2462MHz Ant1 Peak



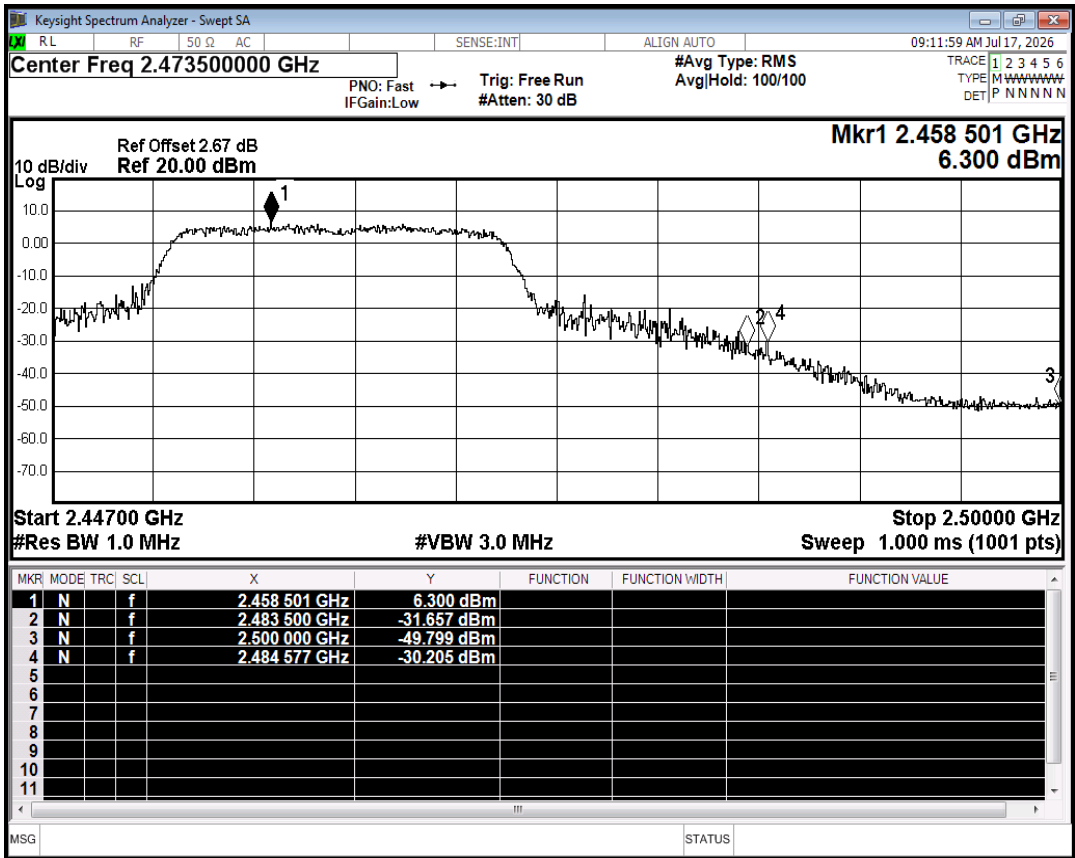
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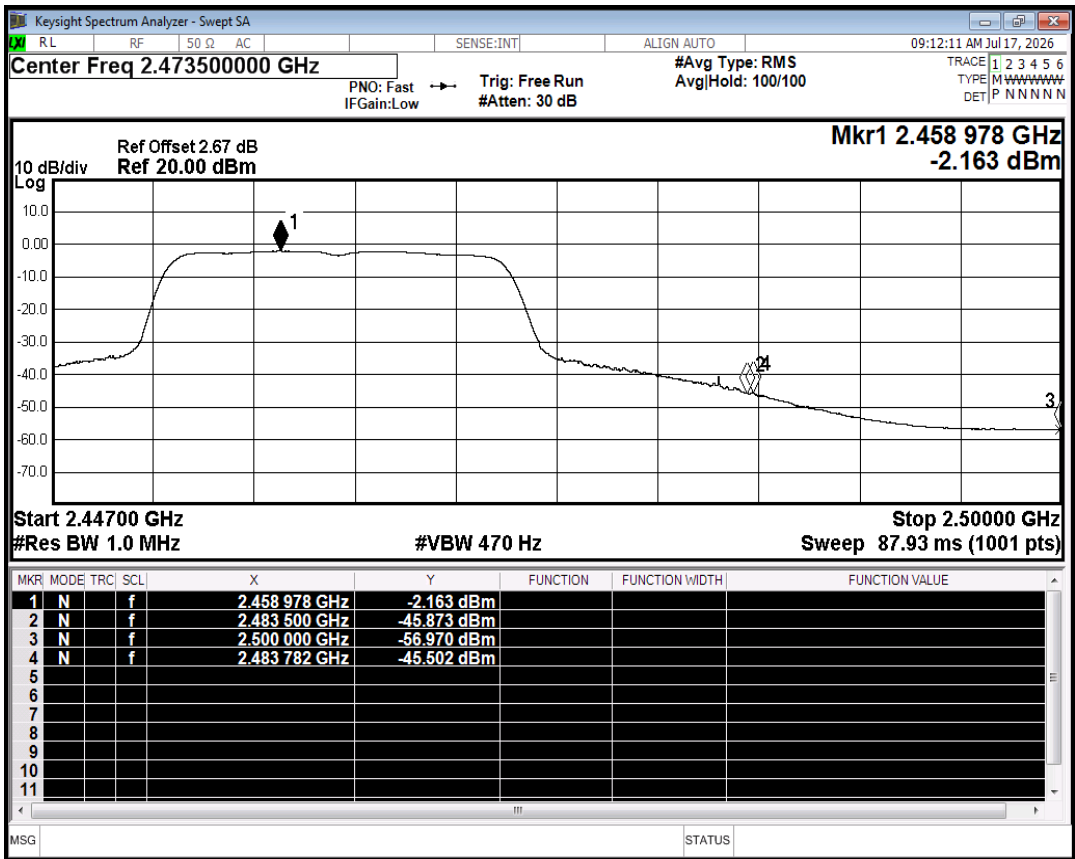
Restrict Band NVNT n20 2412MHz Ant1 Peak



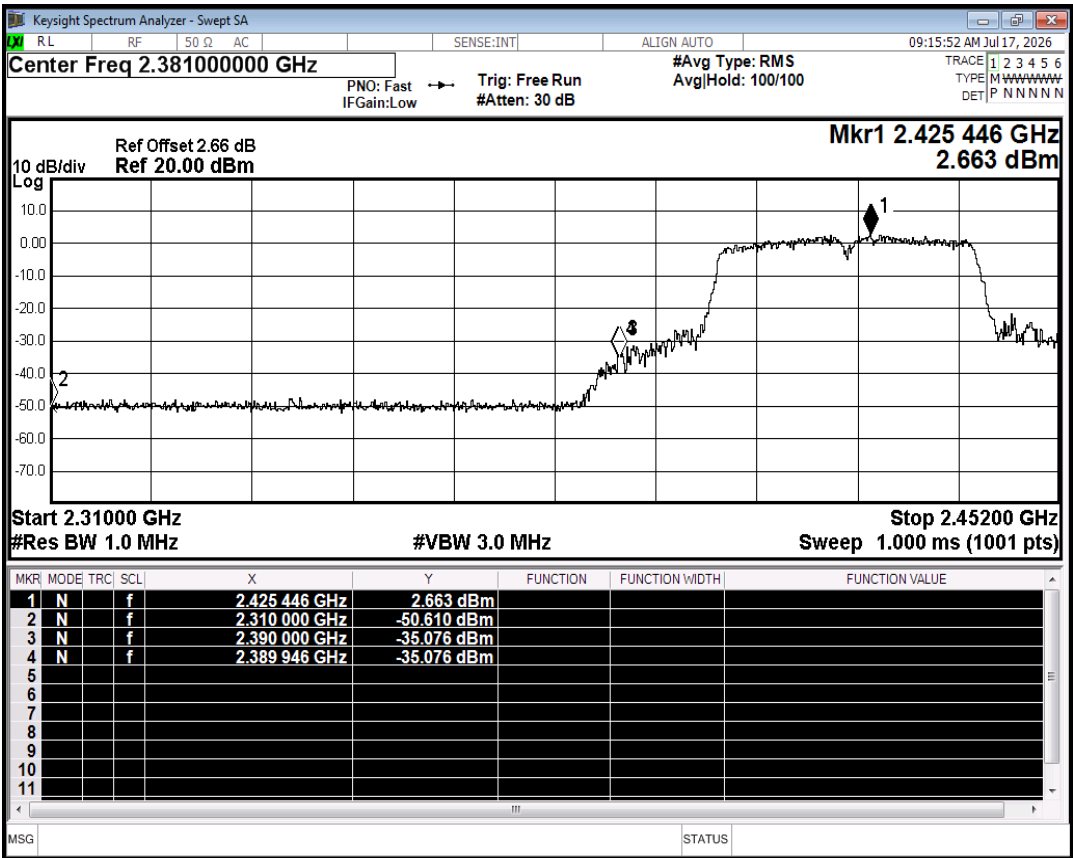
Restrict Band NVNT n20 2412MHz Ant1 Average



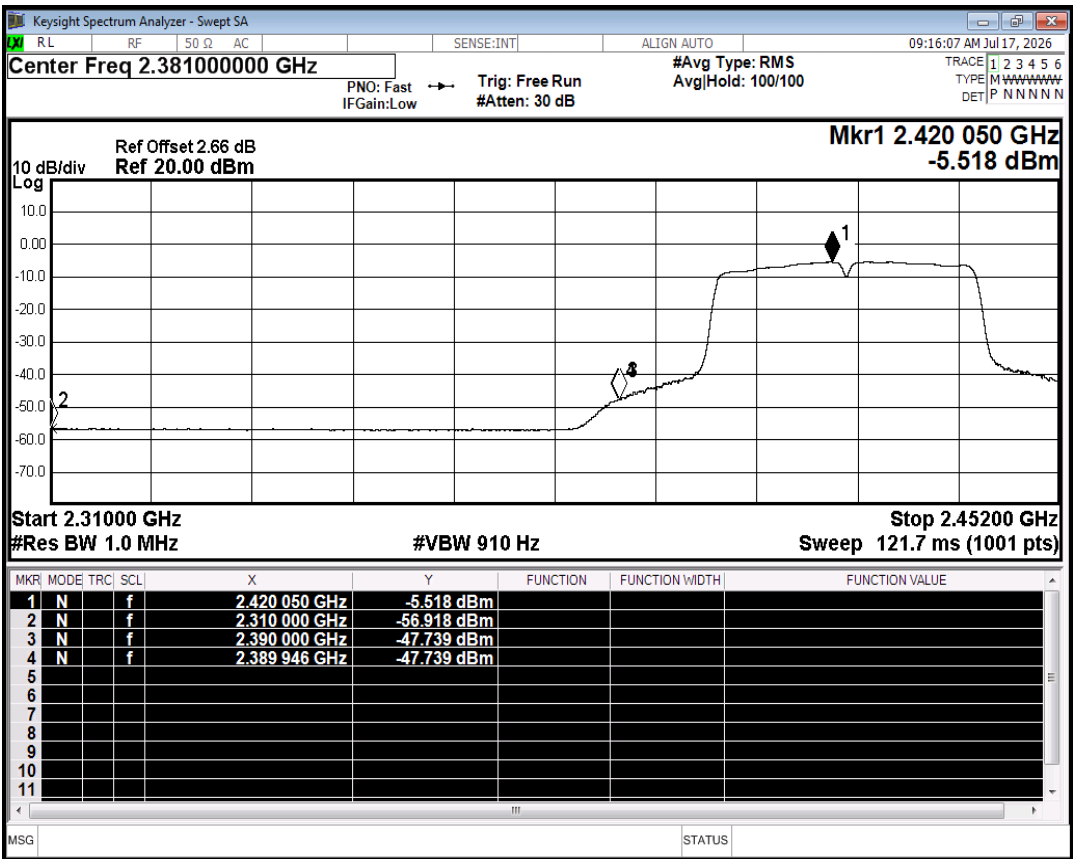
Restrict Band NVNT n20 2462MHz Ant1 Peak



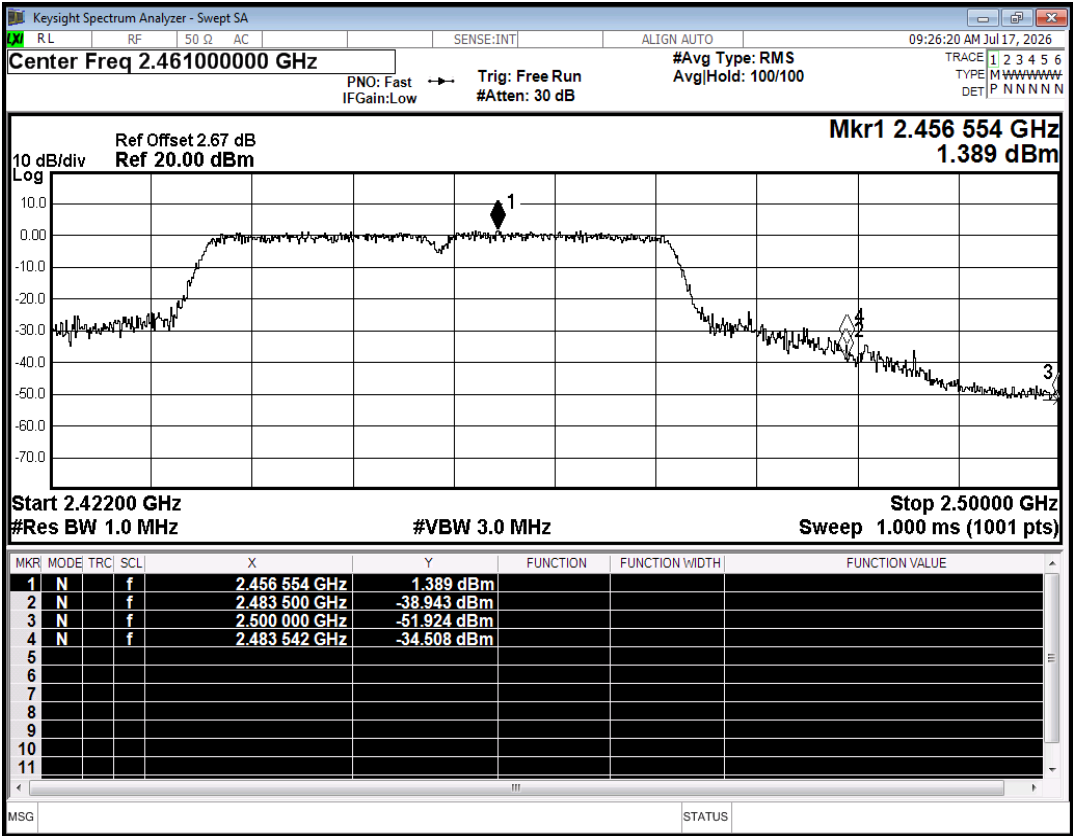
Restrict Band NVNT n20 2462MHz Ant1 Average



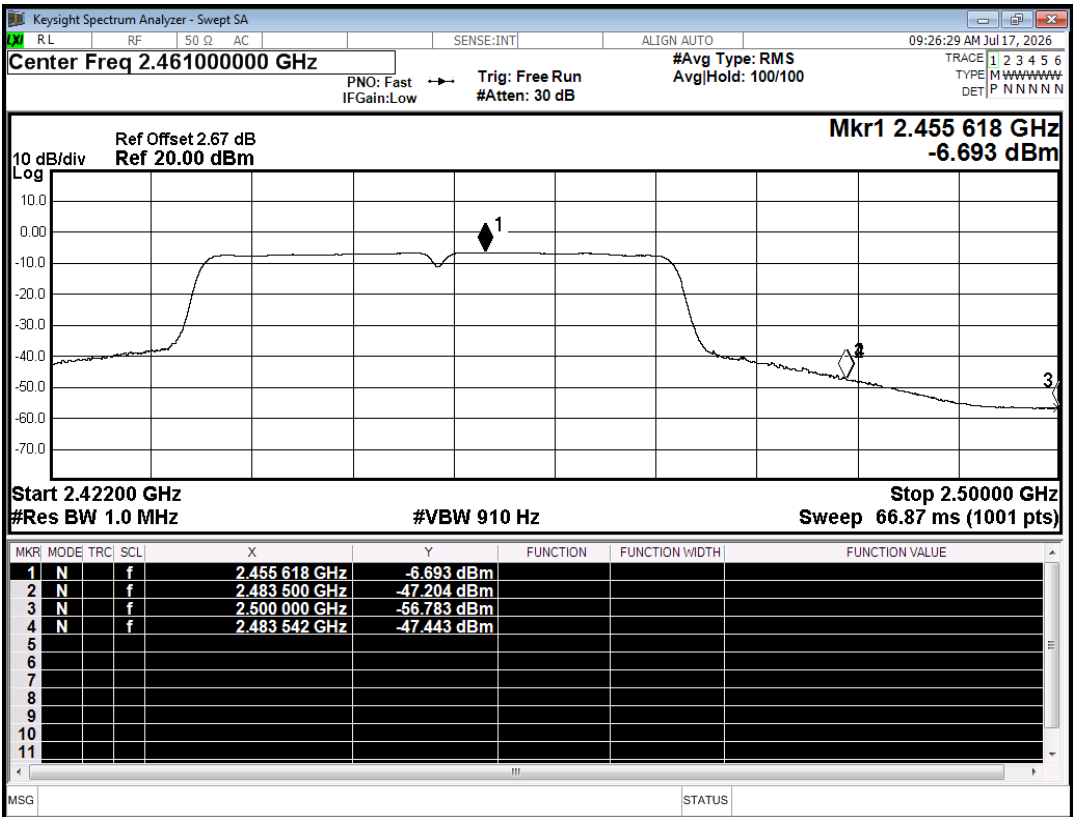
Restrict Band NVNT n40 2422MHz Ant1 Peak



Restrict Band NVNT n40 2422MHz Ant1 Average



Restrict Band NVNT n40 2452MHz Ant1 Peak



Restrict Band NVNT n40 2452MHz Ant1 Average