

RF Test Data for 2.4G WiFi (Conducted Measurements)

General Description of EUT	
Product Name:	Sunrise Alarm Clock
Test Model:	HFD-W33APP
Sample ID:	HC-C-202606-0457-01-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	52.3%
Test Voltage:	DC 9V
Test Engineer:	Lily zhang
Note: For a more detailed features description, please refer to the report TBR-C-202606-0457-5 The report only show the worst case data.	

Contents

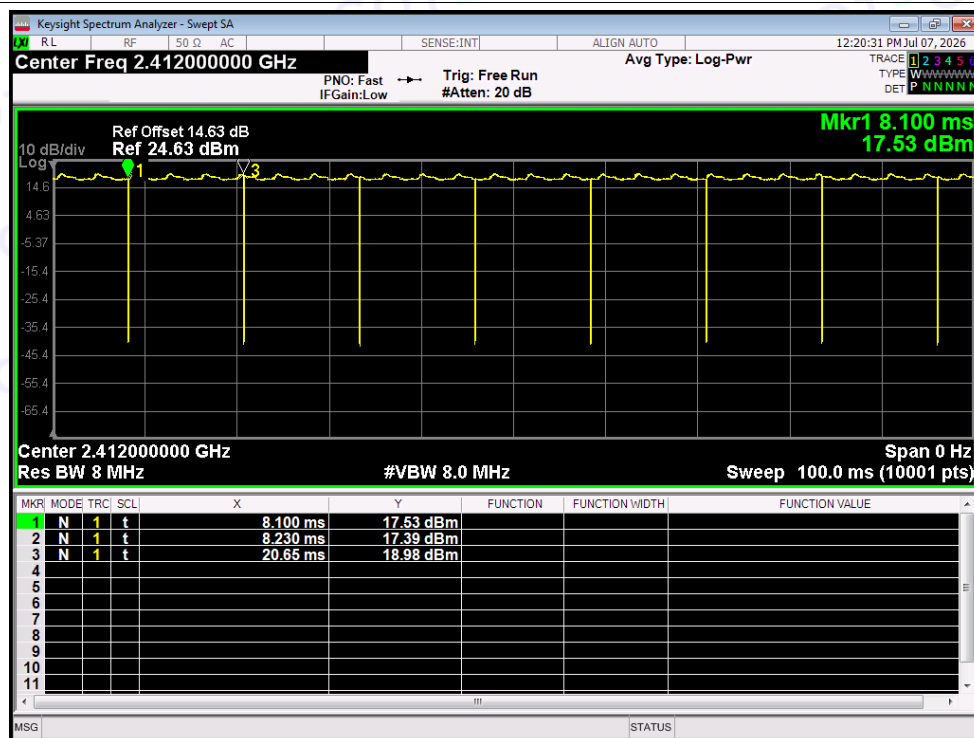
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1. Duty Cycle

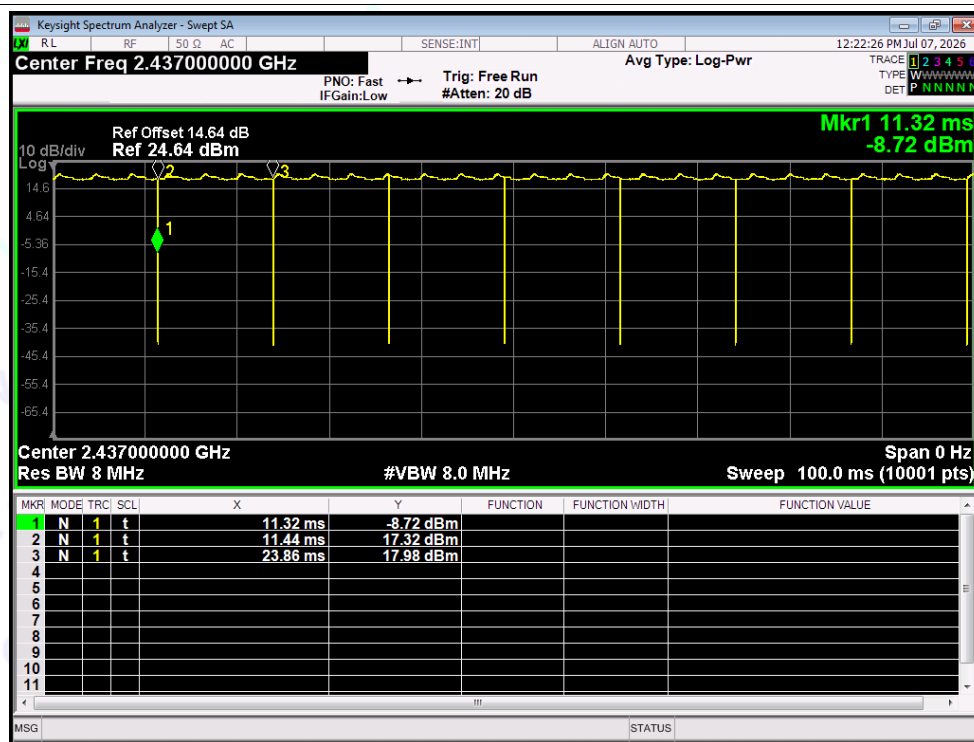
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	98.96	0.05	0.08
NVNT	b	2437	Ant1	99.04	0.04	0.08
NVNT	b	2462	Ant1	98.96	0.05	0.08
NVNT	g	2412	Ant1	94.17	0.26	0.48
NVNT	g	2437	Ant1	94.07	0.27	0.48
NVNT	g	2462	Ant1	94.17	0.26	0.48
NVNT	n(HT20)	2412	Ant1	93.66	0.28	0.52
NVNT	n(HT20)	2437	Ant1	93.66	0.28	0.52
NVNT	n(HT20)	2462	Ant1	93.66	0.28	0.52

Test Graphs

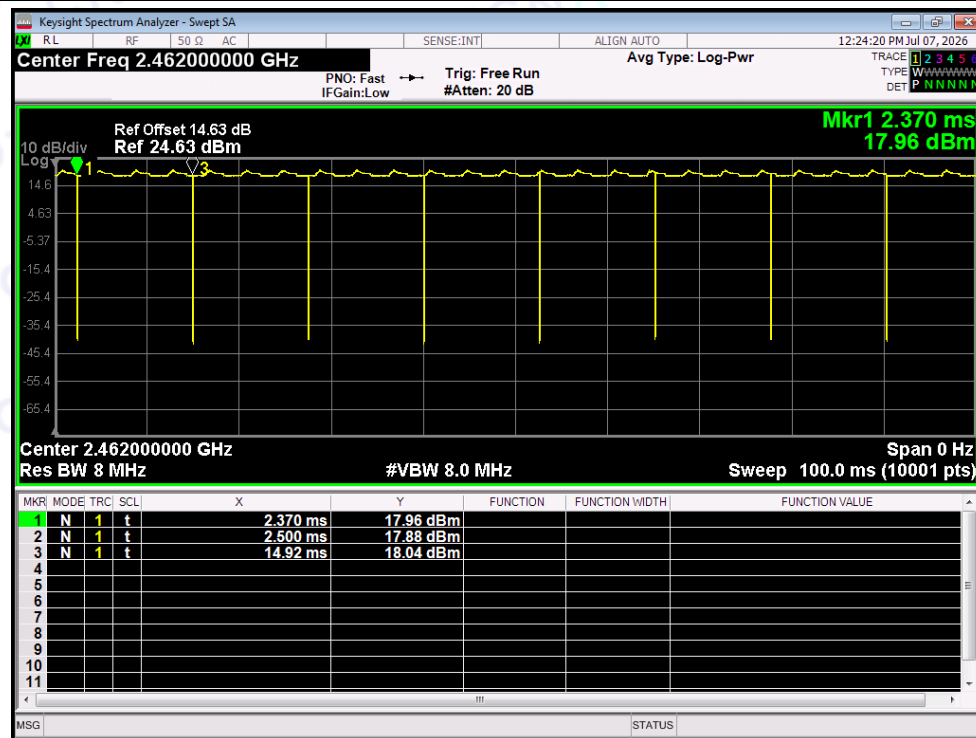
Duty Cycle NVNT b 2412MHz Ant1



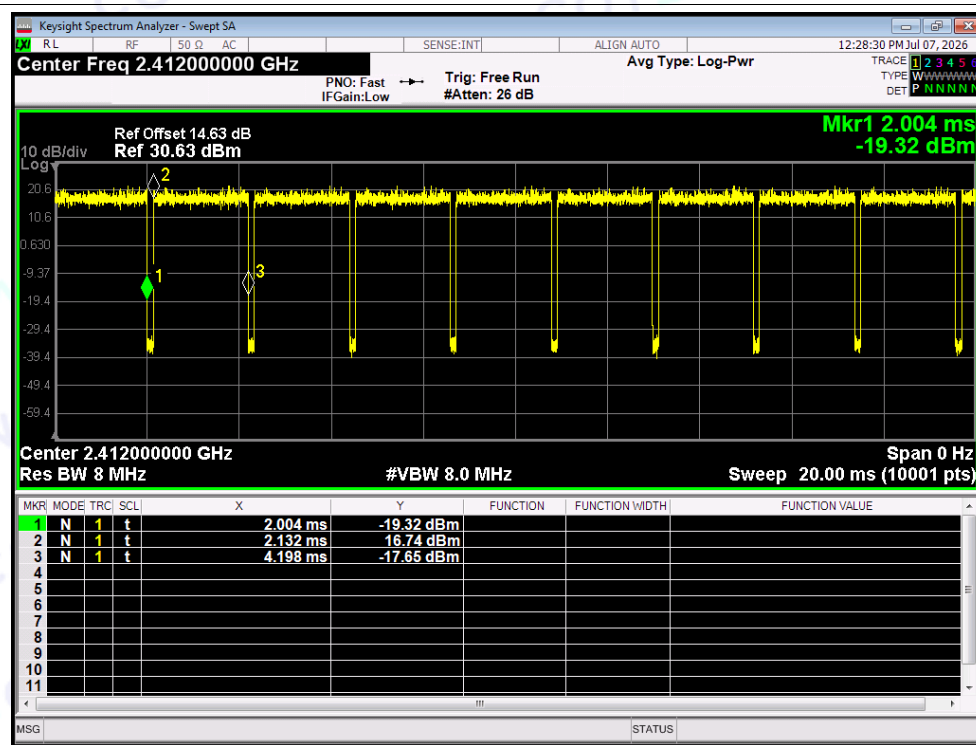
Duty Cycle NVNT b 2437MHz Ant1



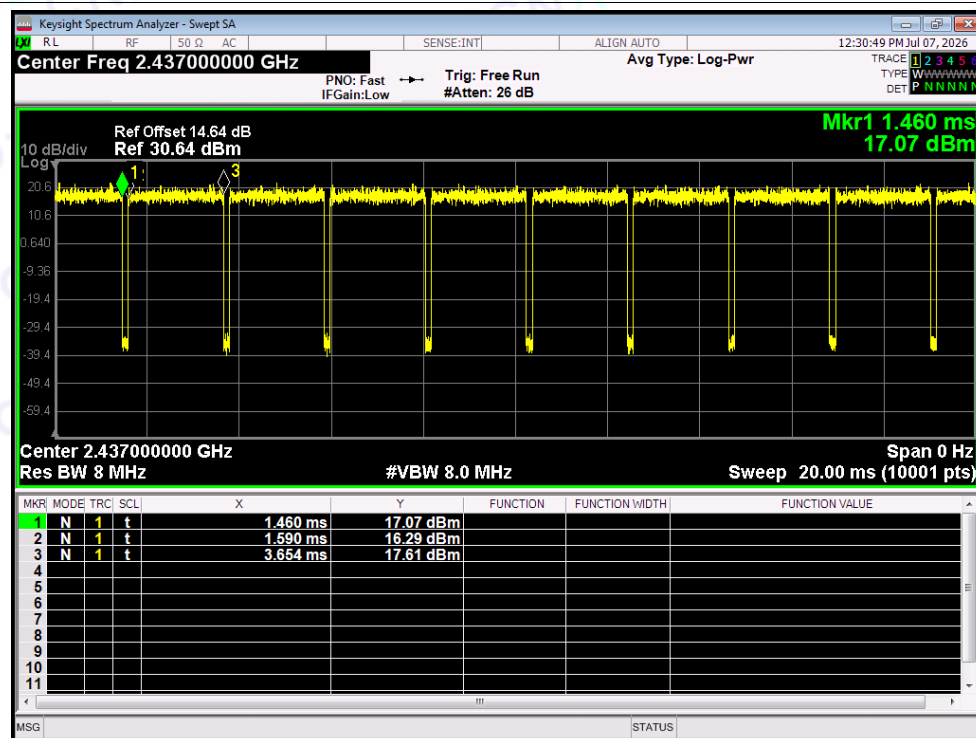
Duty Cycle NVNT b 2462MHz Ant1



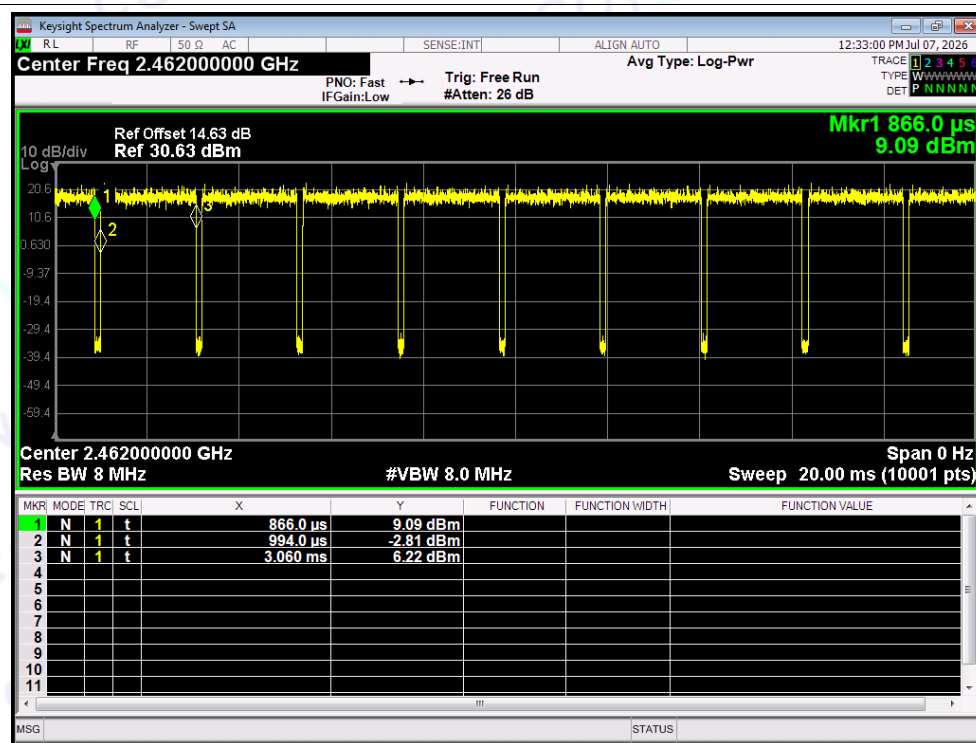
Duty Cycle NVNT g 2412MHz Ant1



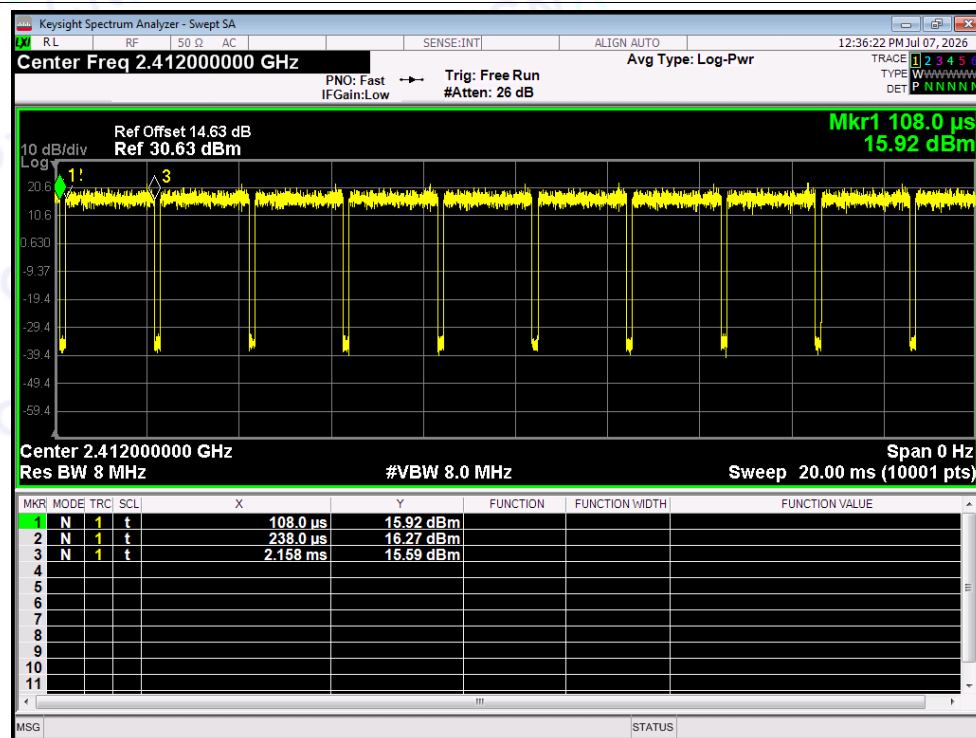
Duty Cycle NVNT g 2437MHz Ant1



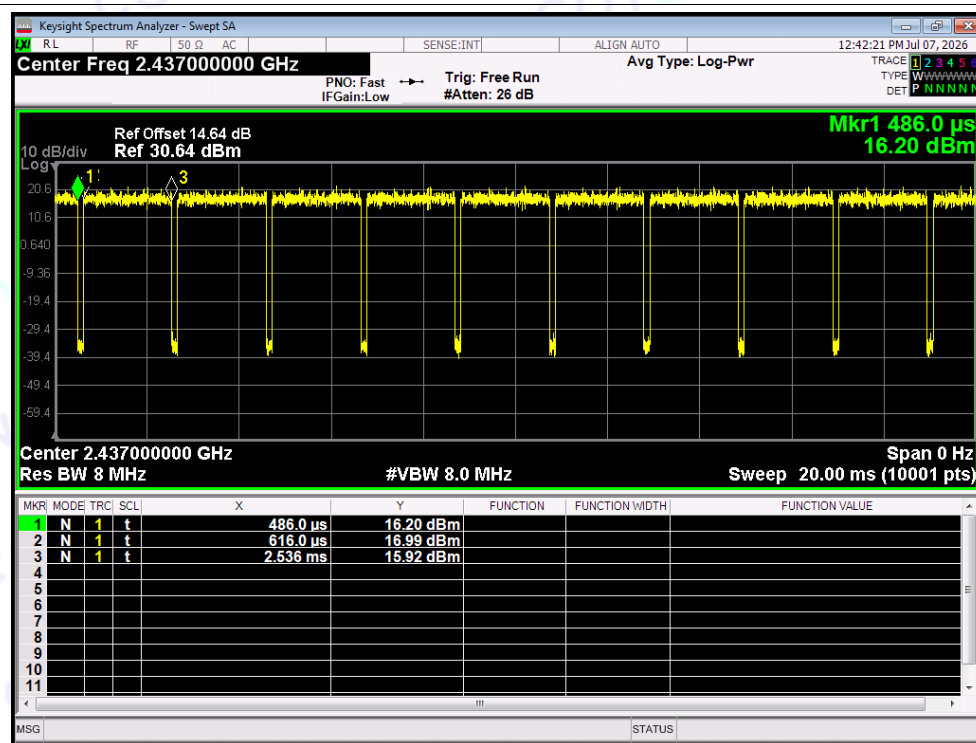
Duty Cycle NVNT g 2462MHz Ant1

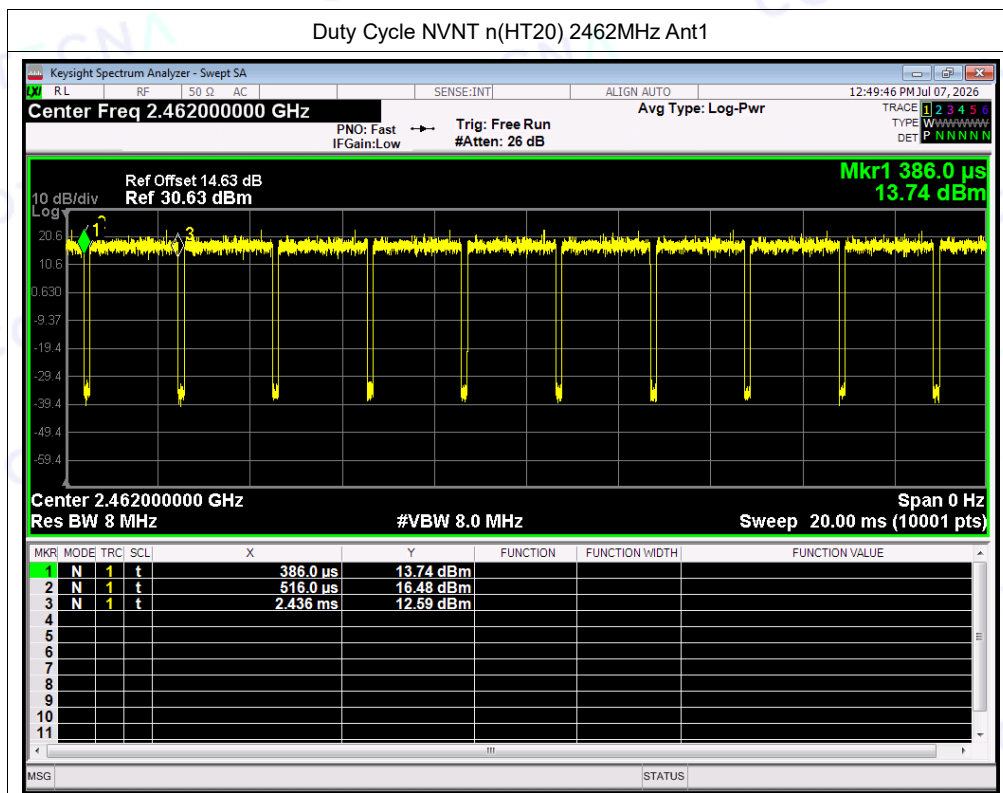


Duty Cycle NVNT n(HT20) 2412MHz Ant1



Duty Cycle NVNT n(HT20) 2437MHz Ant1





2. Maximum Conducted Output Power

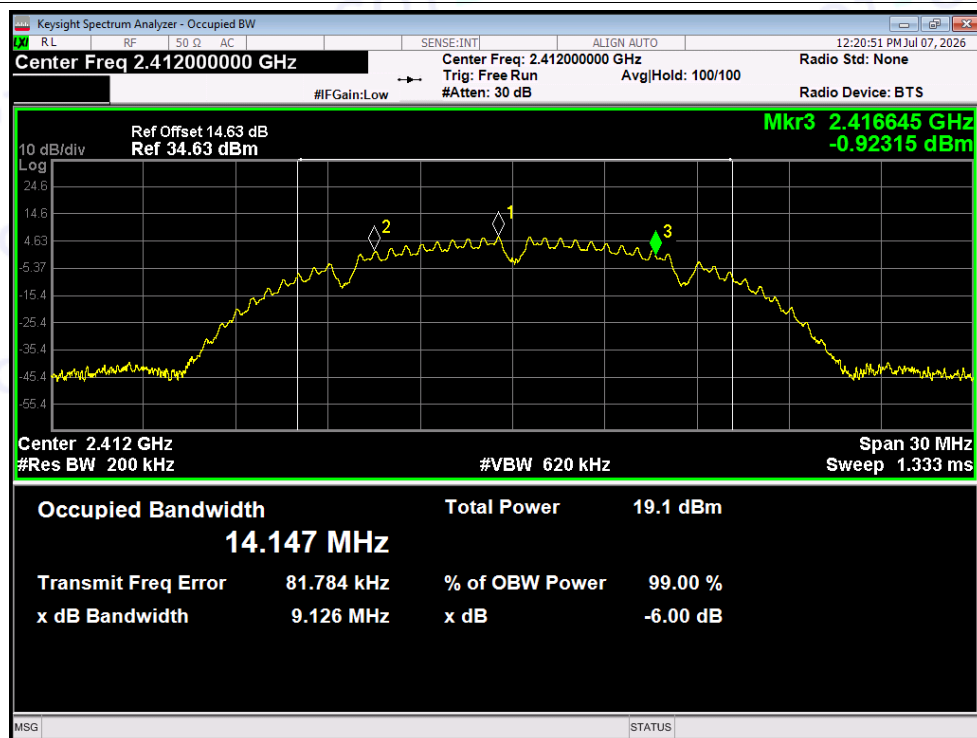
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	15.26	0.05	15.31	30	Pass
NVNT	b	2437	Ant1	15.45	0.04	15.49	30	Pass
NVNT	b	2462	Ant1	15.62	0.05	15.67	30	Pass
NVNT	g	2412	Ant1	15.16	0.26	15.42	30	Pass
NVNT	g	2437	Ant1	15.41	0.27	15.68	30	Pass
NVNT	g	2462	Ant1	15.6	0.26	15.86	30	Pass
NVNT	n(HT20)	2412	Ant1	15.17	0.28	15.45	30	Pass
NVNT	n(HT20)	2437	Ant1	15.37	0.28	15.65	30	Pass
NVNT	n(HT20)	2462	Ant1	15.57	0.31	15.88	30	Pass

3. -6dB Bandwidth

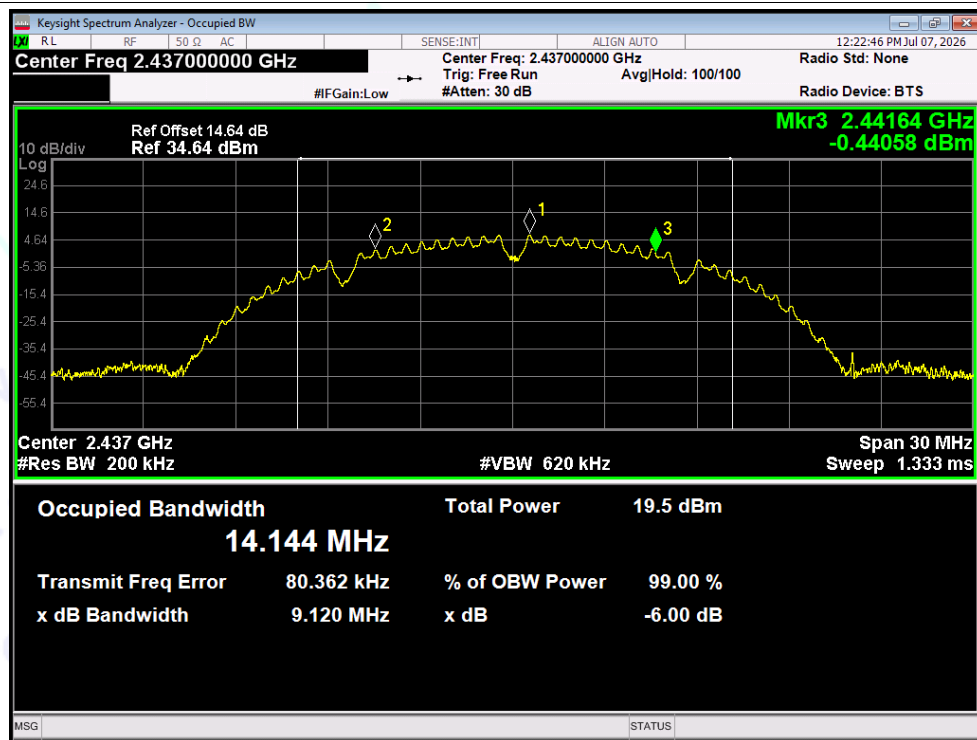
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.13	0.5	Pass
NVNT	b	2437	Ant1	9.12	0.5	Pass
NVNT	b	2462	Ant1	9.13	0.5	Pass
NVNT	g	2412	Ant1	16.37	0.5	Pass
NVNT	g	2437	Ant1	16.38	0.5	Pass
NVNT	g	2462	Ant1	16.34	0.5	Pass
NVNT	n(HT20)	2412	Ant1	17.56	0.5	Pass
NVNT	n(HT20)	2437	Ant1	17.61	0.5	Pass
NVNT	n(HT20)	2462	Ant1	17.56	0.5	Pass

Test Graphs

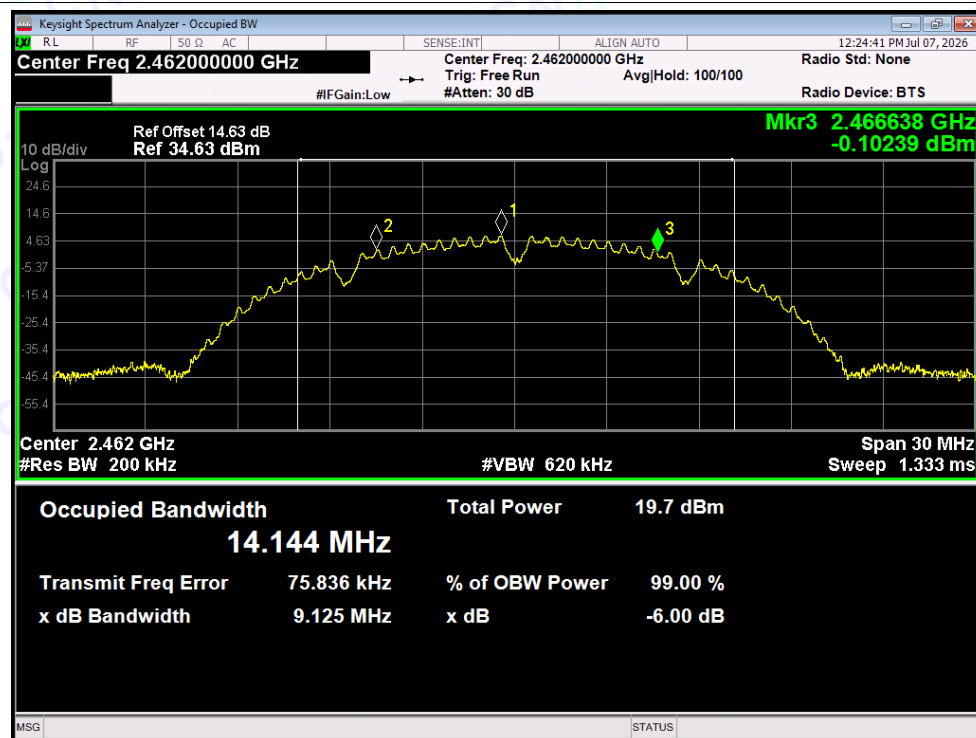
-6dB Bandwidth NVNT b 2412MHz Ant1



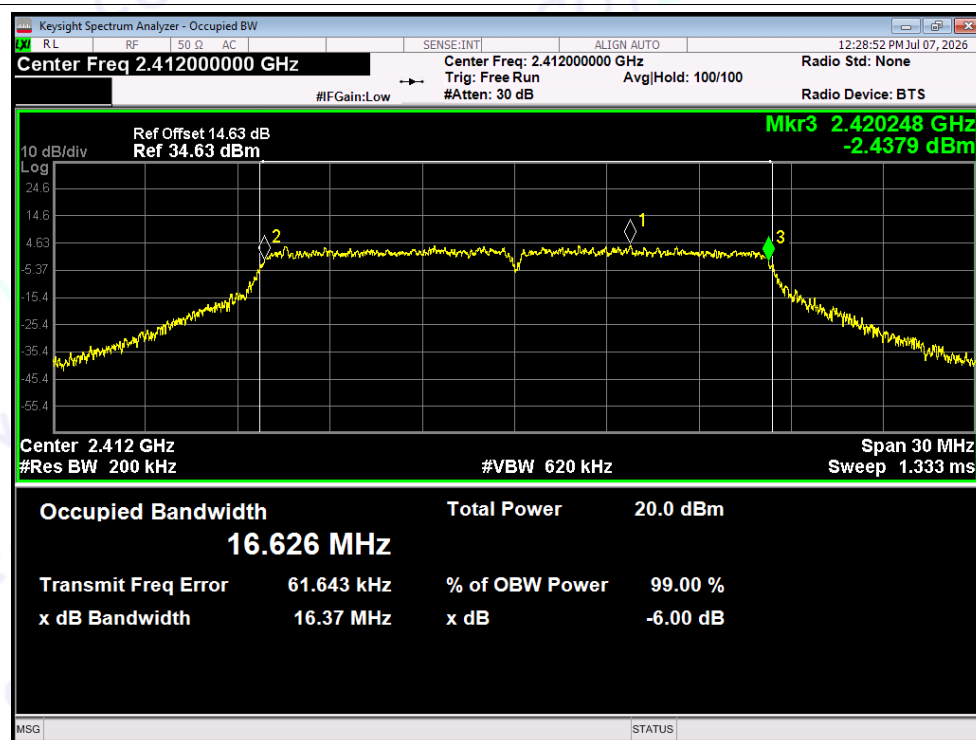
-6dB Bandwidth NVNT b 2437MHz Ant1



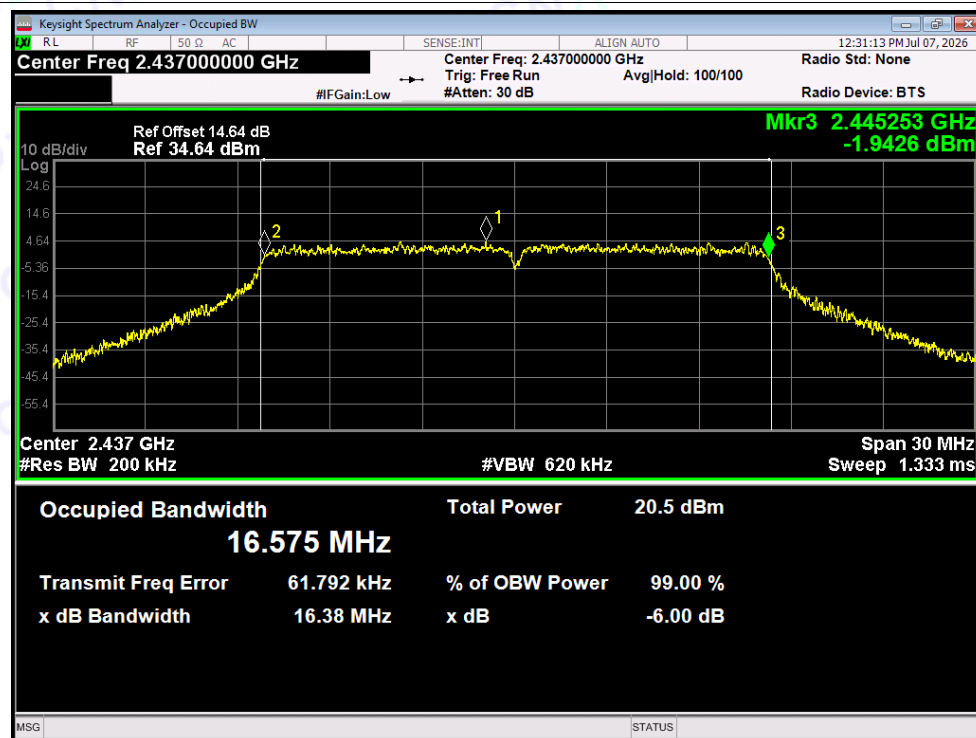
-6dB Bandwidth NVNT b 2462MHz Ant1



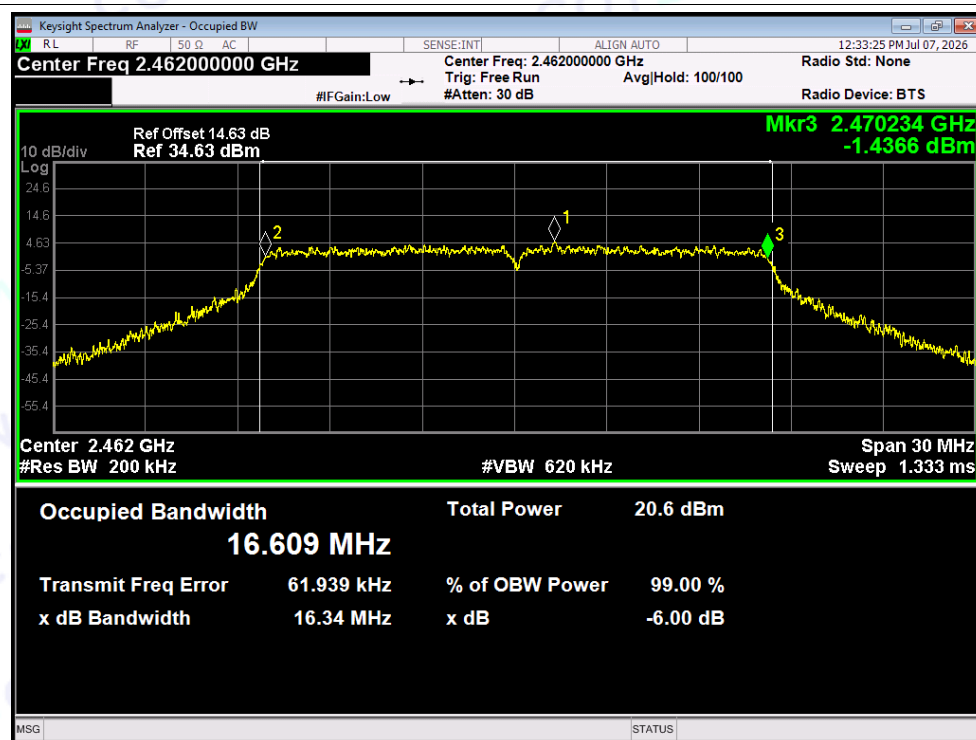
-6dB Bandwidth NVNT g 2412MHz Ant1



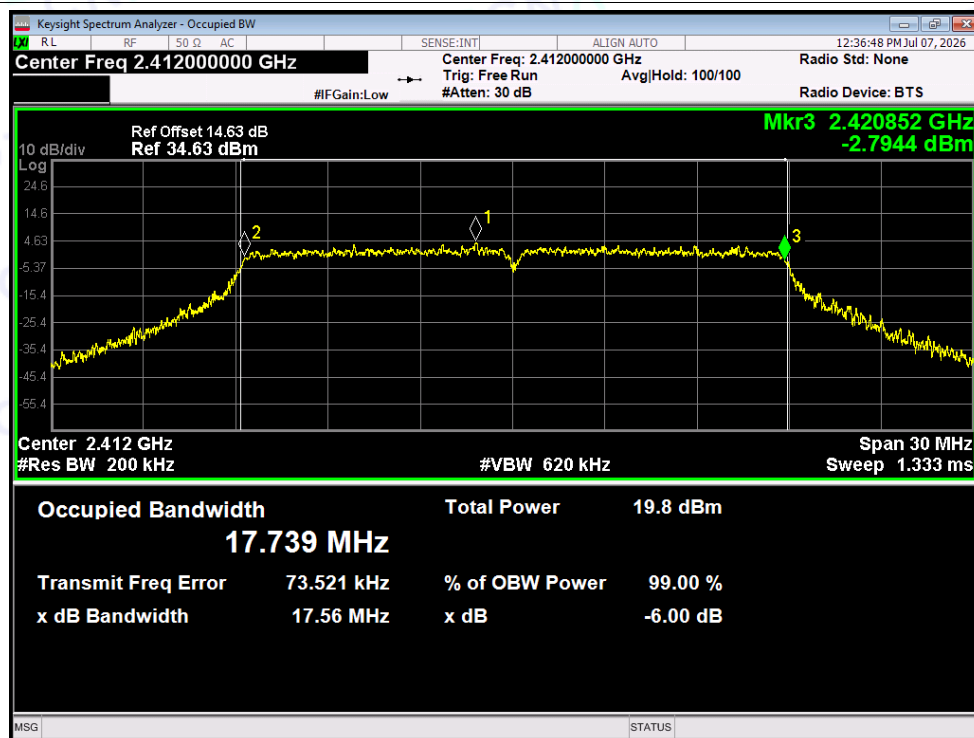
-6dB Bandwidth NVNT g 2437MHz Ant1



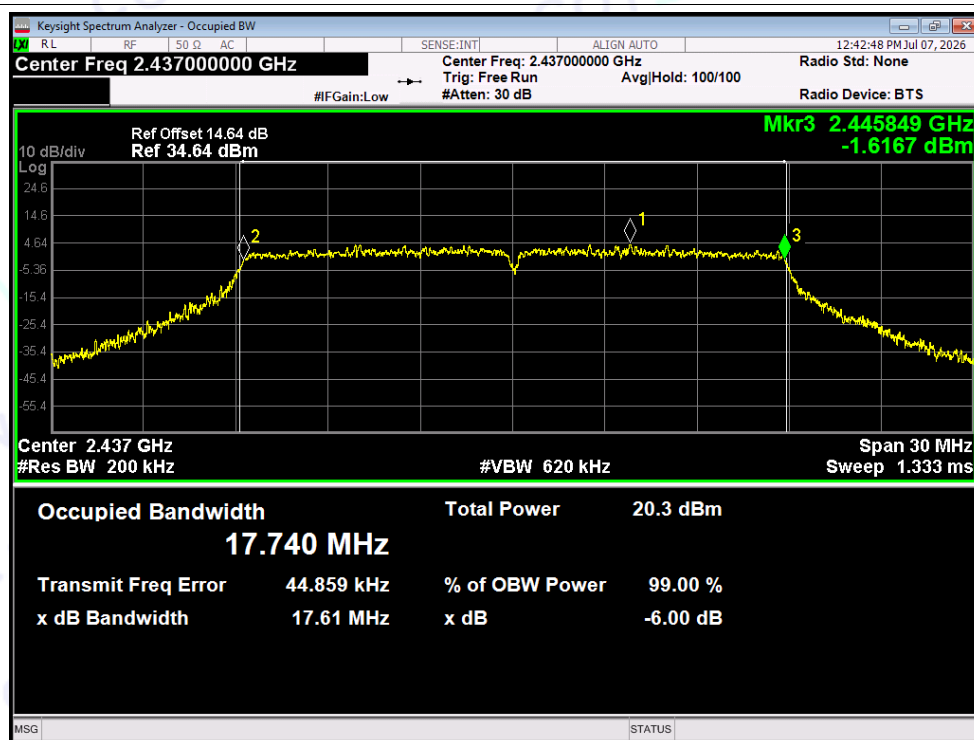
-6dB Bandwidth NVNT g 2462MHz Ant1

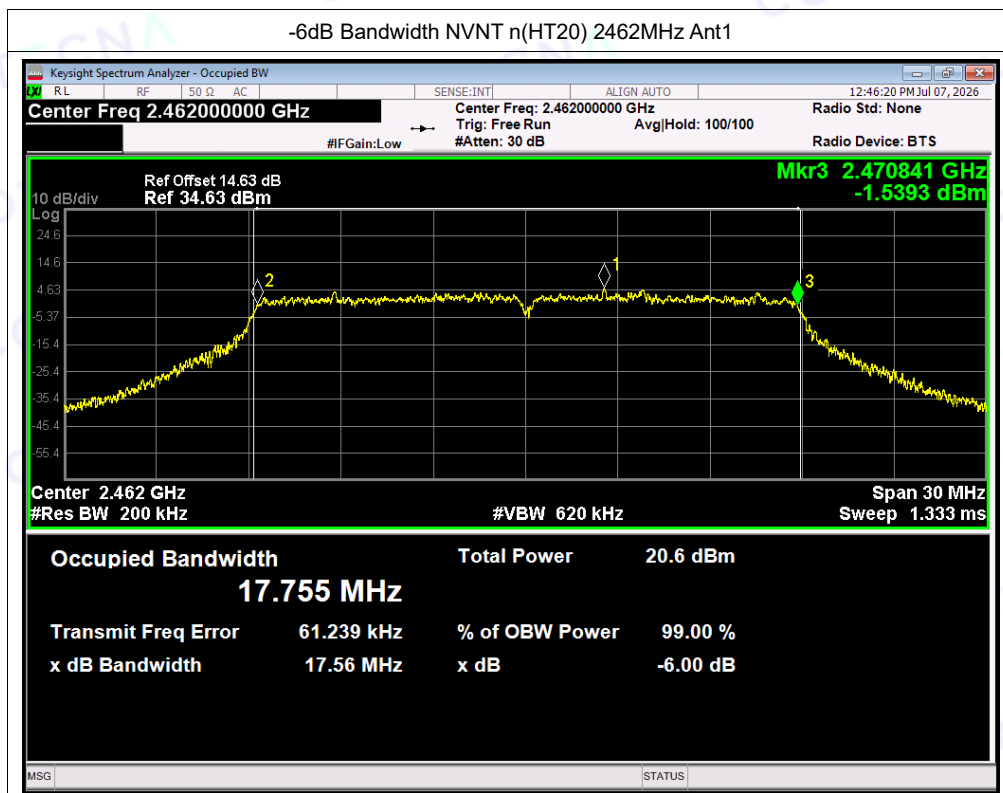


-6dB Bandwidth NVNT n(HT20) 2412MHz Ant1



-6dB Bandwidth NVNT n(HT20) 2437MHz Ant1



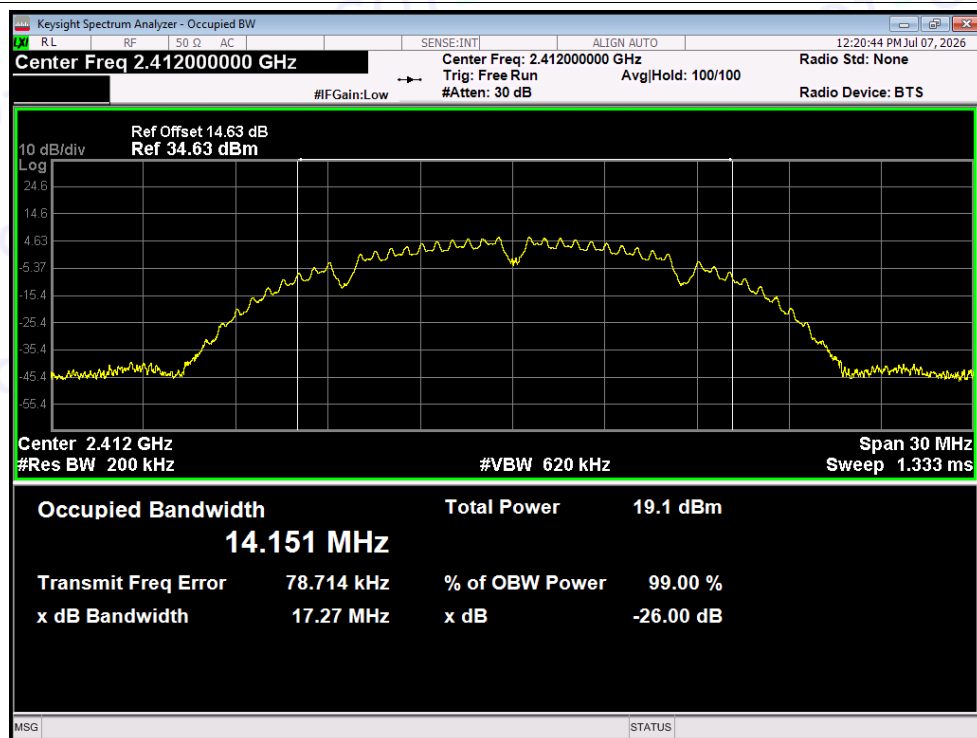


4. Occupied Channel Bandwidth

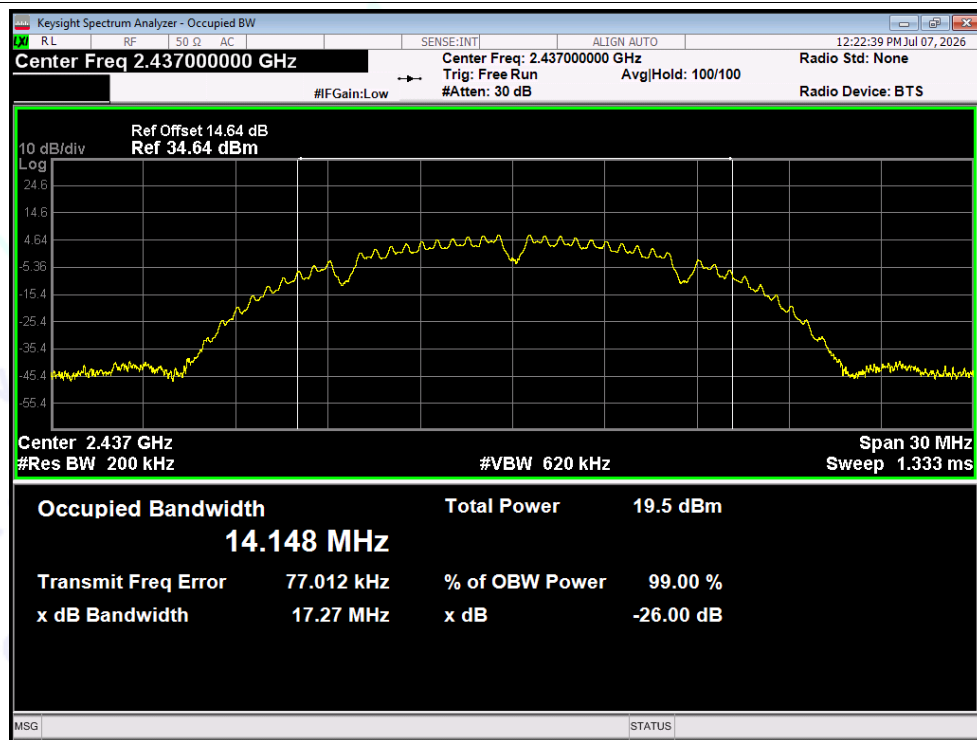
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	14.151
NVNT	b	2437	Ant1	14.148
NVNT	b	2462	Ant1	14.157
NVNT	g	2412	Ant1	16.623
NVNT	g	2437	Ant1	16.569
NVNT	g	2462	Ant1	16.594
NVNT	n(HT20)	2412	Ant1	17.773
NVNT	n(HT20)	2437	Ant1	17.774
NVNT	n(HT20)	2462	Ant1	17.758

Test Graphs

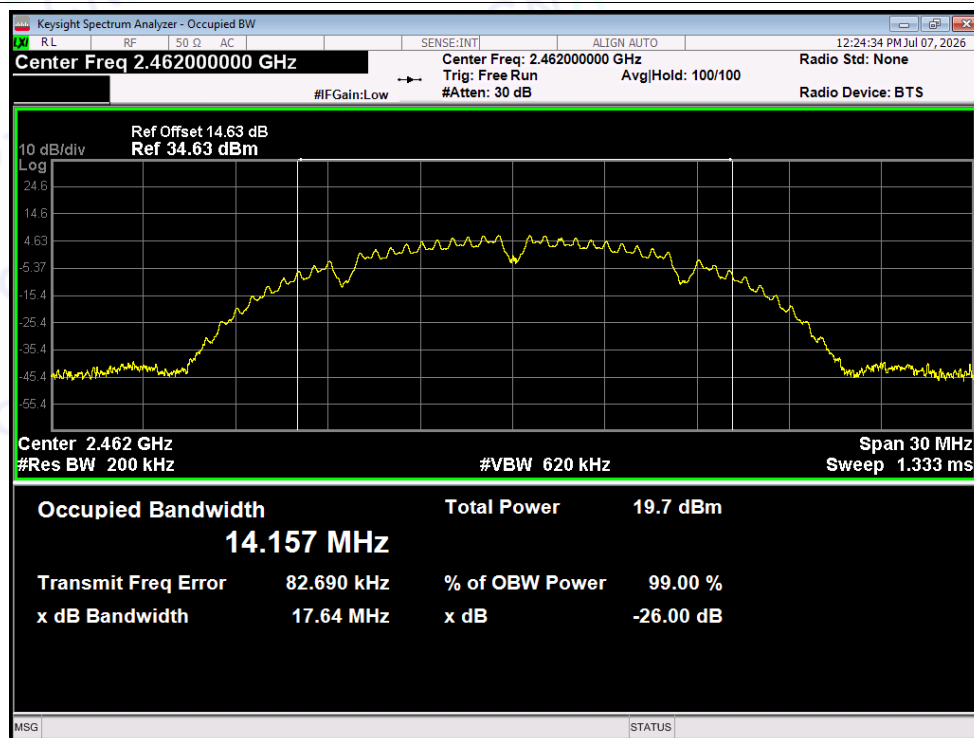
OBW NVNT b 2412MHz Ant1



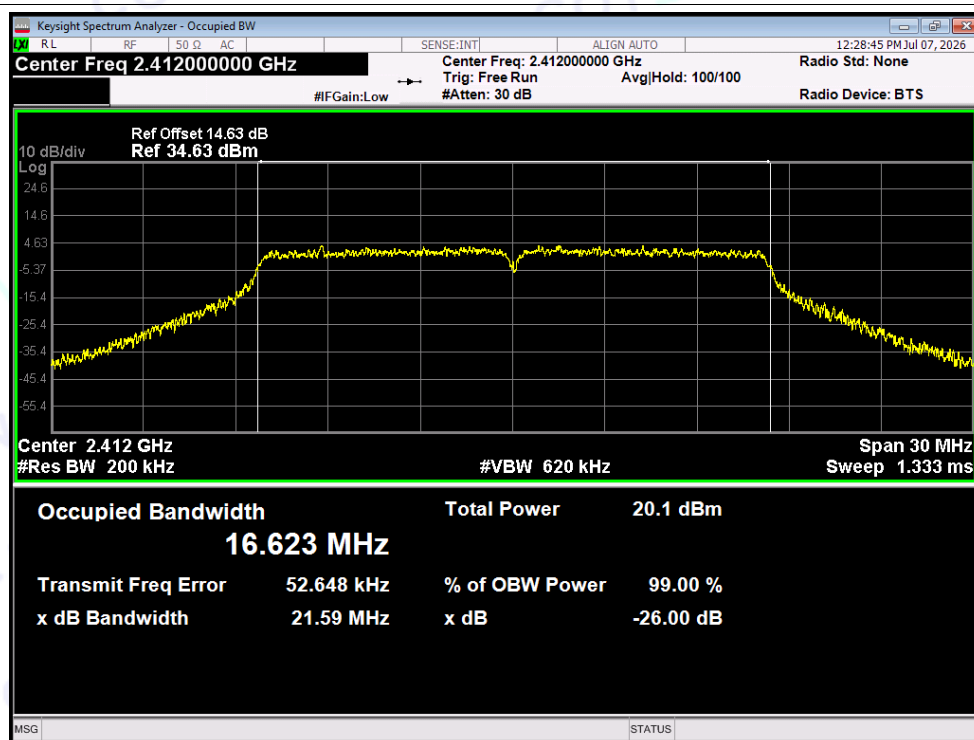
OBW NVNT b 2437MHz Ant1



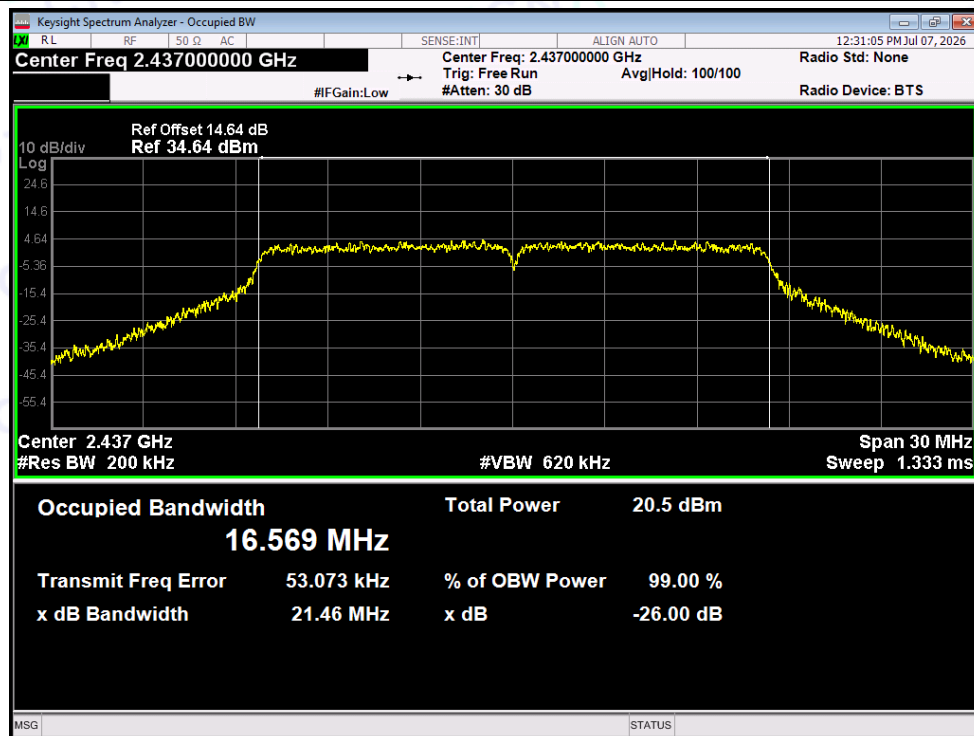
OBW NVNT b 2462MHz Ant1



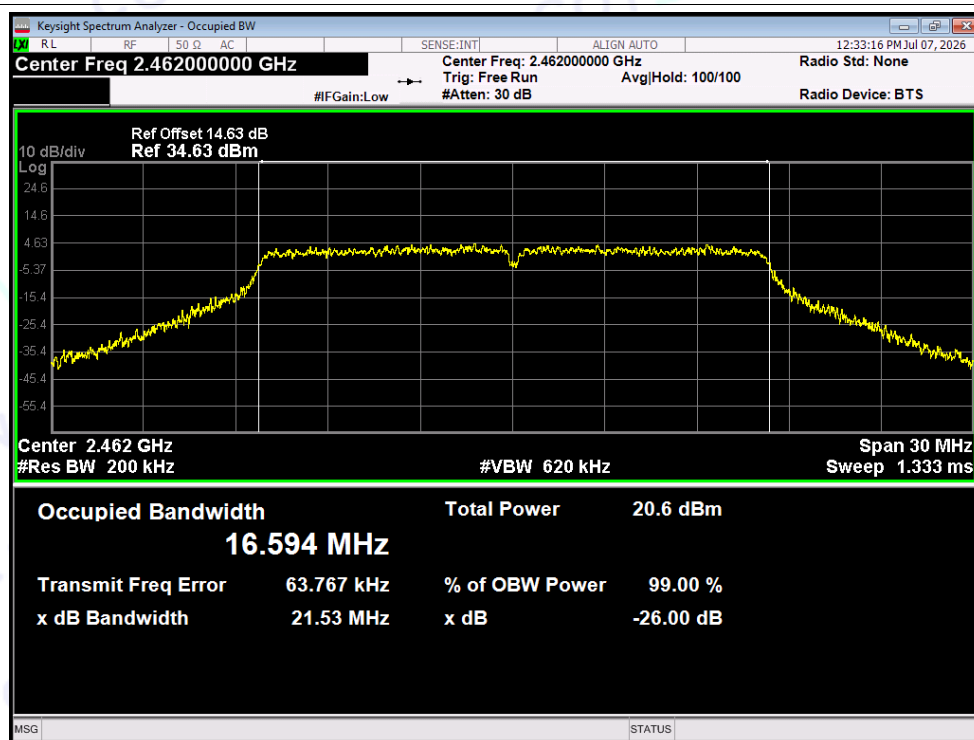
OBW NVNT g 2412MHz Ant1



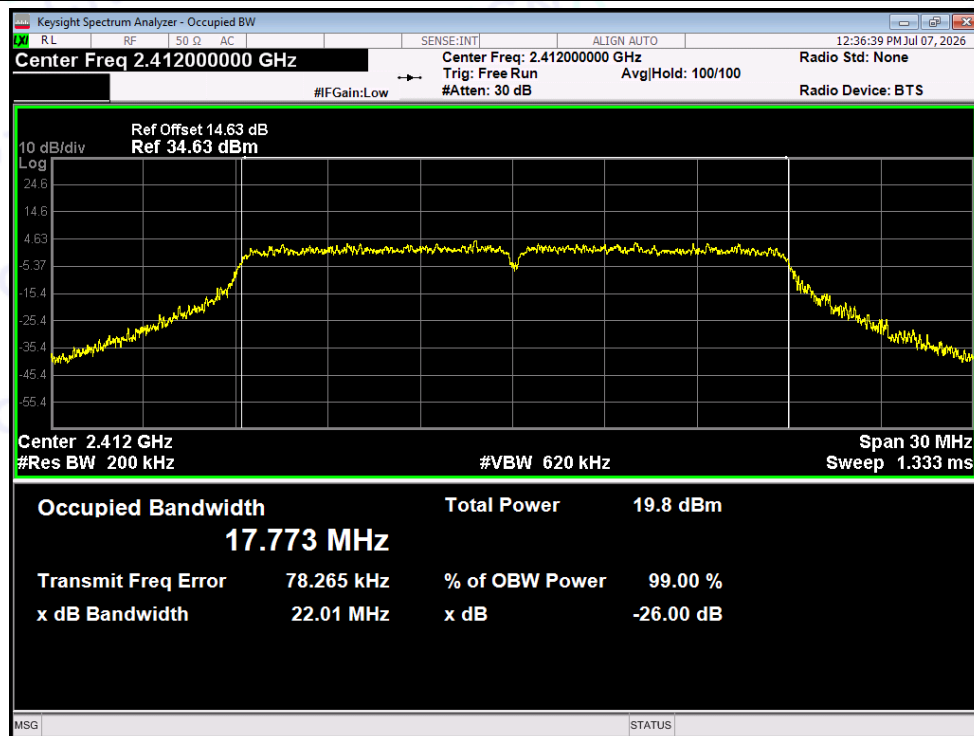
OBW NVNT g 2437MHz Ant1



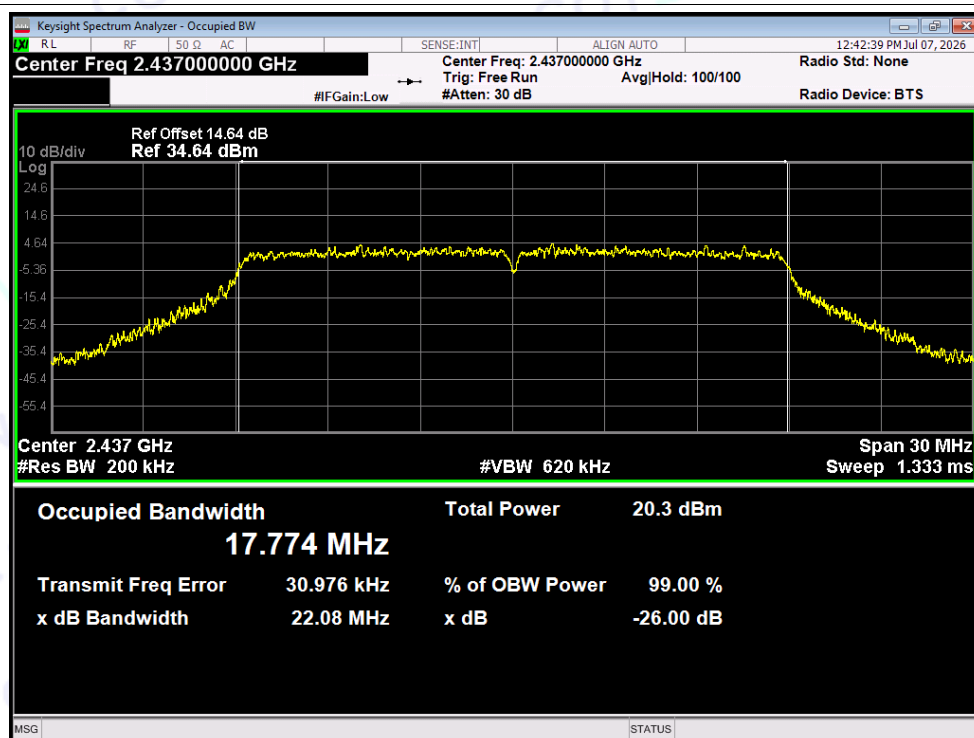
OBW NVNT g 2462MHz Ant1

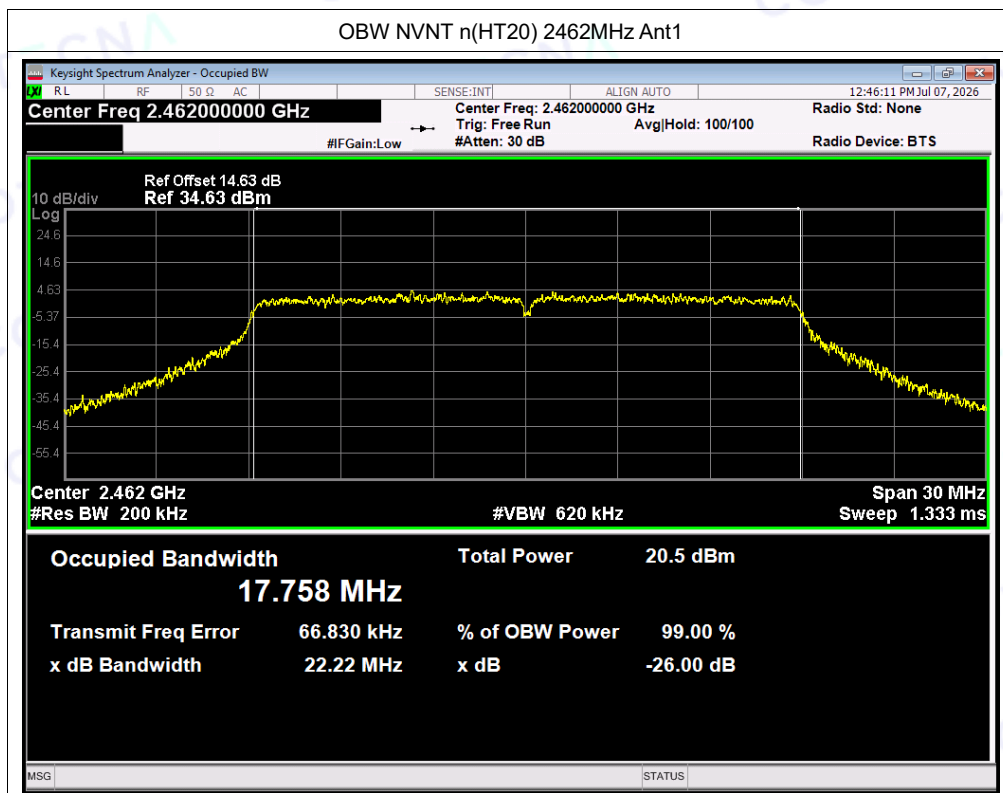


OBW NVNT n(HT20) 2412MHz Ant1



OBW NVNT n(HT20) 2437MHz Ant1



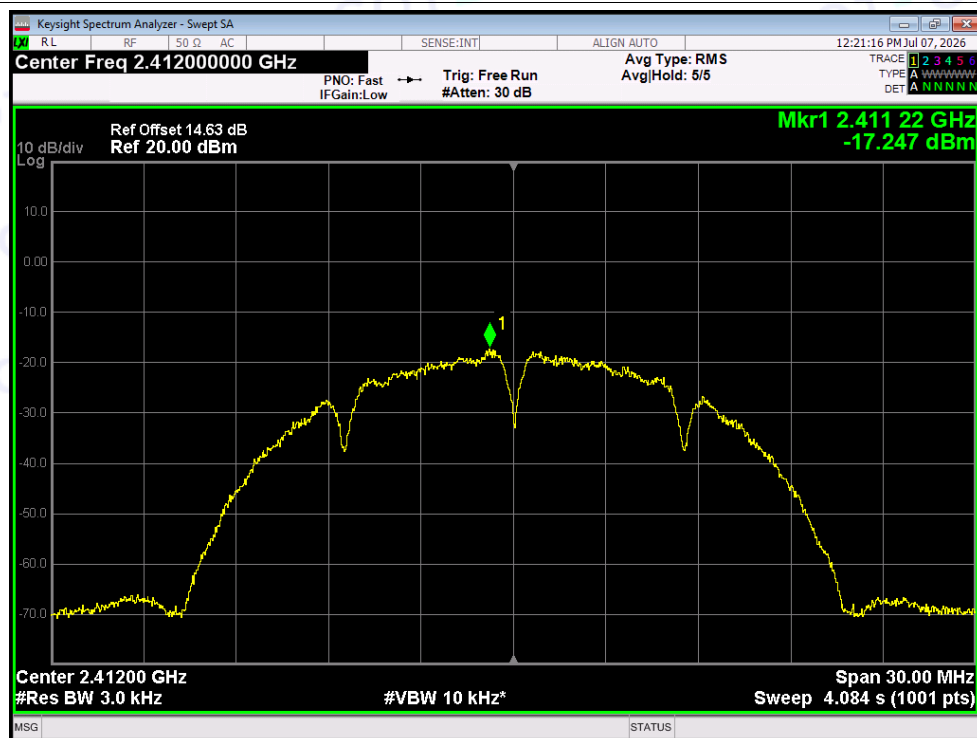


5. Maximum Power Spectral Density Level

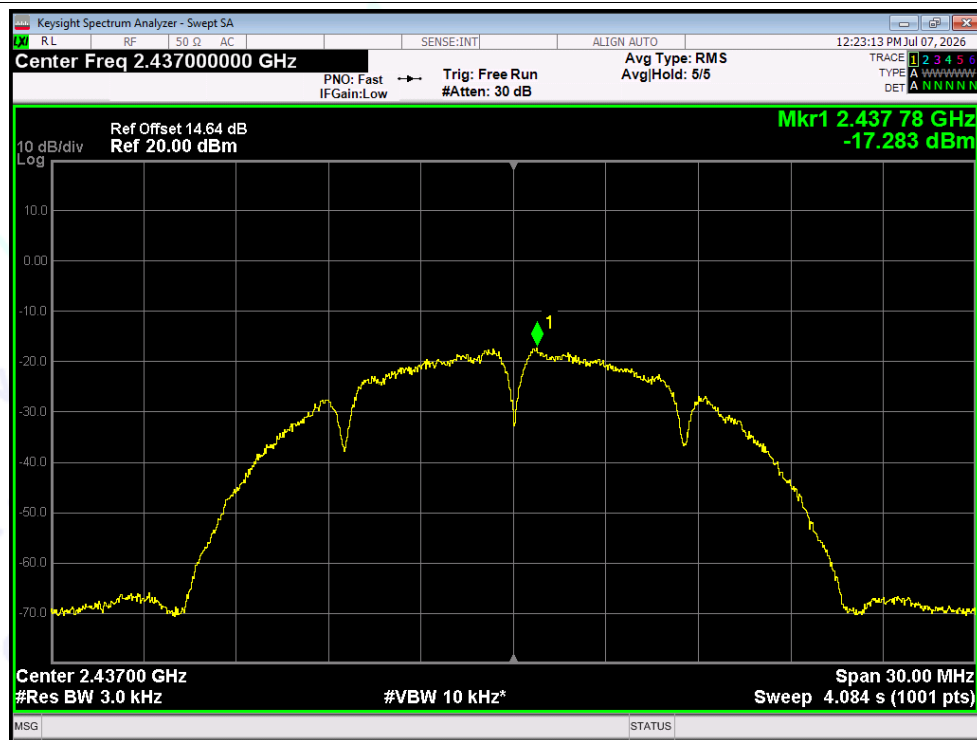
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	-17.247	8	Pass
NVNT	b	2437	Ant1	-17.283	8	Pass
NVNT	b	2462	Ant1	-17.017	8	Pass
NVNT	g	2412	Ant1	-19.303	8	Pass
NVNT	g	2437	Ant1	-19.083	8	Pass
NVNT	g	2462	Ant1	-18.897	8	Pass
NVNT	n(HT20)	2412	Ant1	-19.862	8	Pass
NVNT	n(HT20)	2437	Ant1	-19.907	8	Pass
NVNT	n(HT20)	2462	Ant1	-19.581	8	Pass

Test Graphs

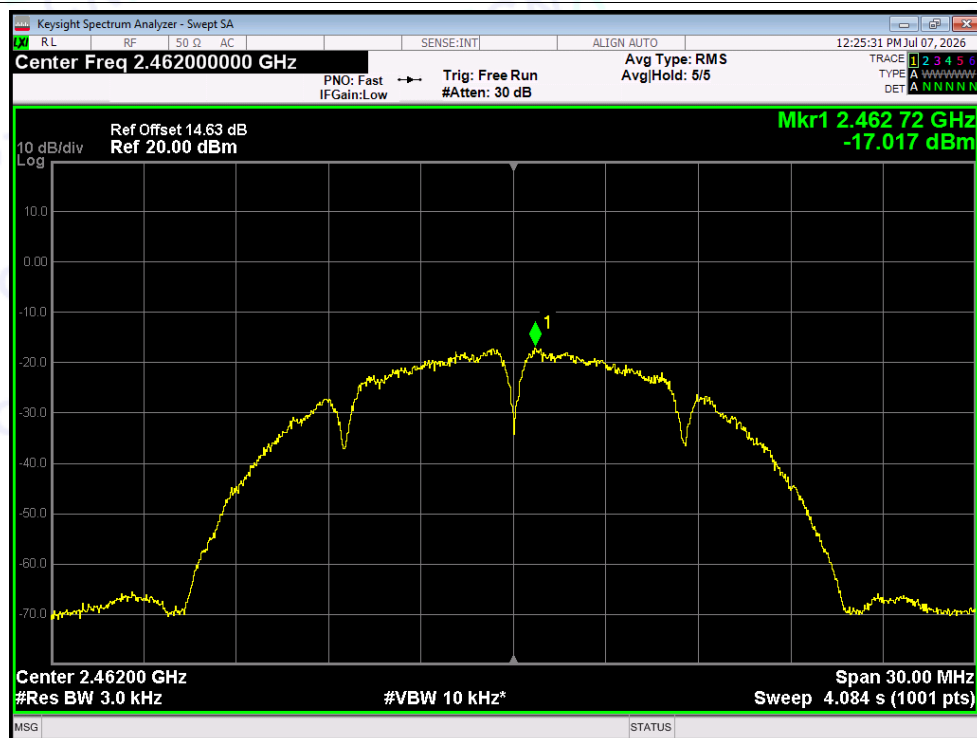
PSD NVNT b 2412MHz Ant1



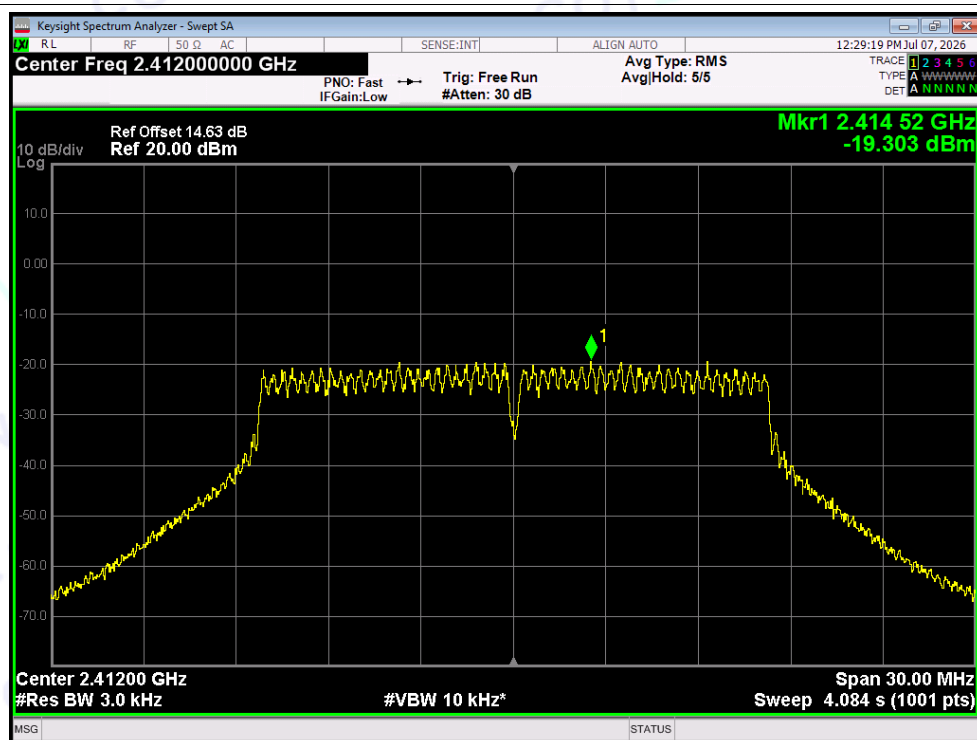
PSD NVNT b 2437MHz Ant1



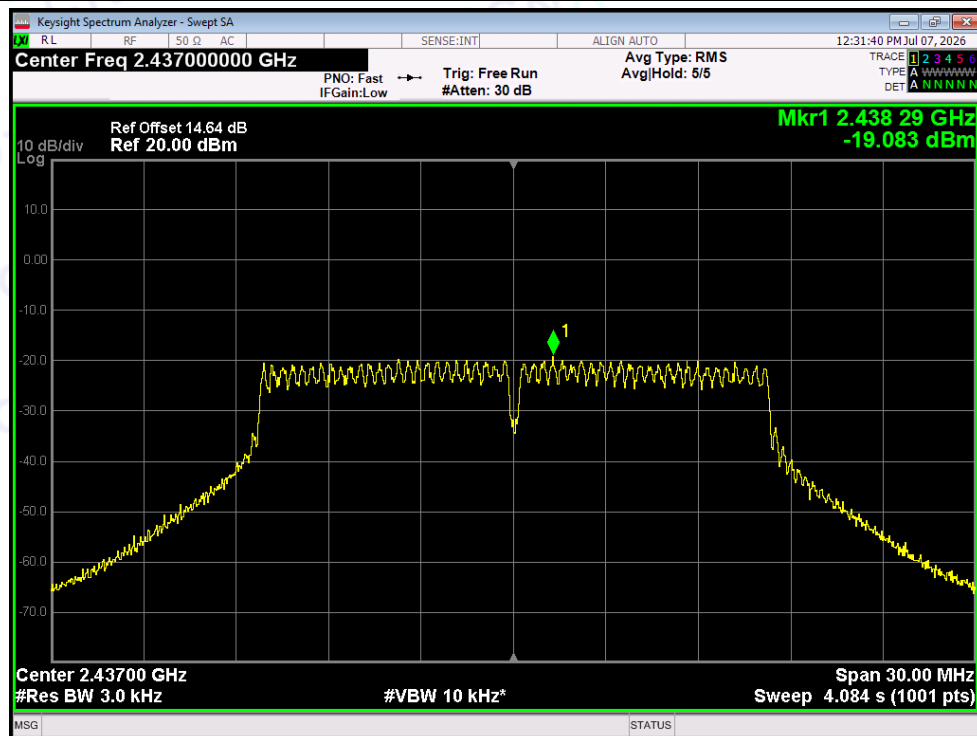
PSD NVNT b 2462MHz Ant1



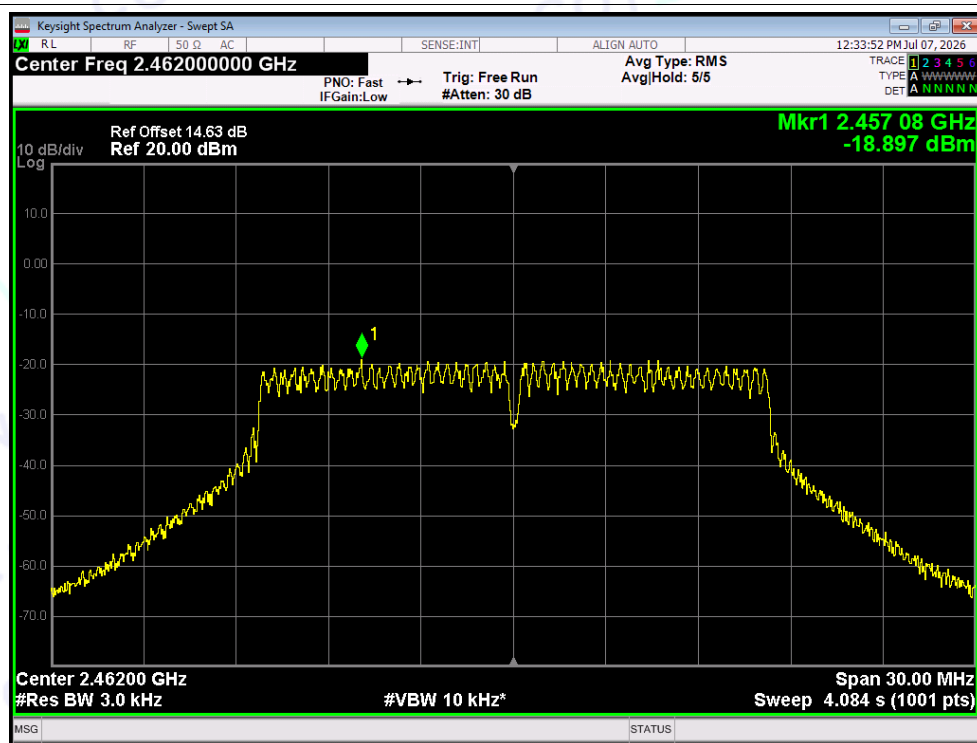
PSD NVNT g 2412MHz Ant1



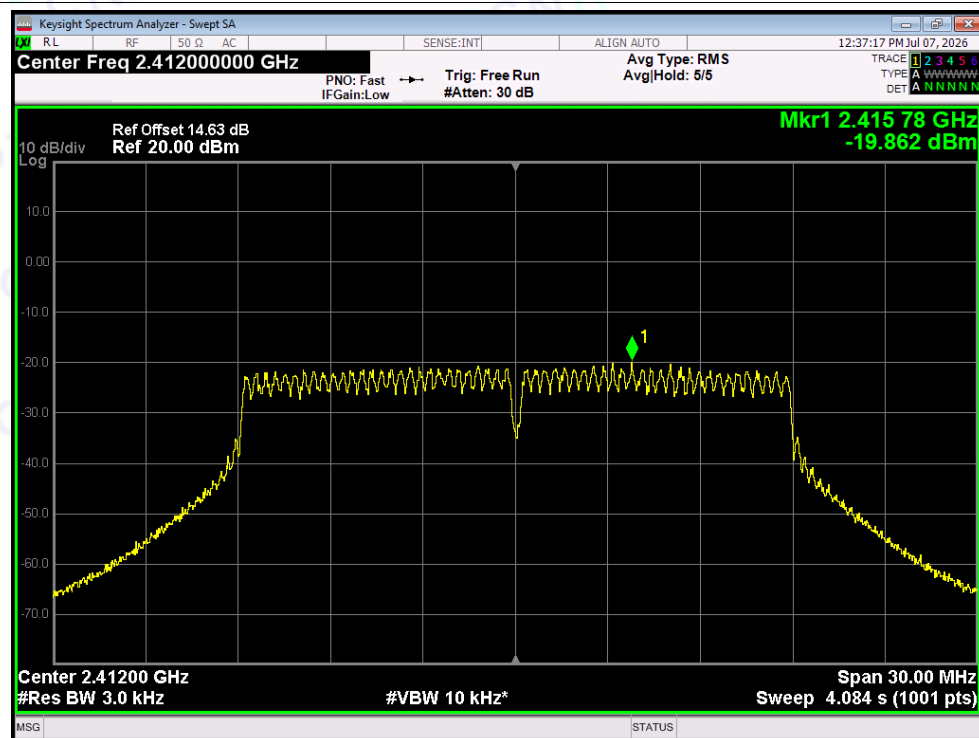
PSD NVNT g 2437MHz Ant1



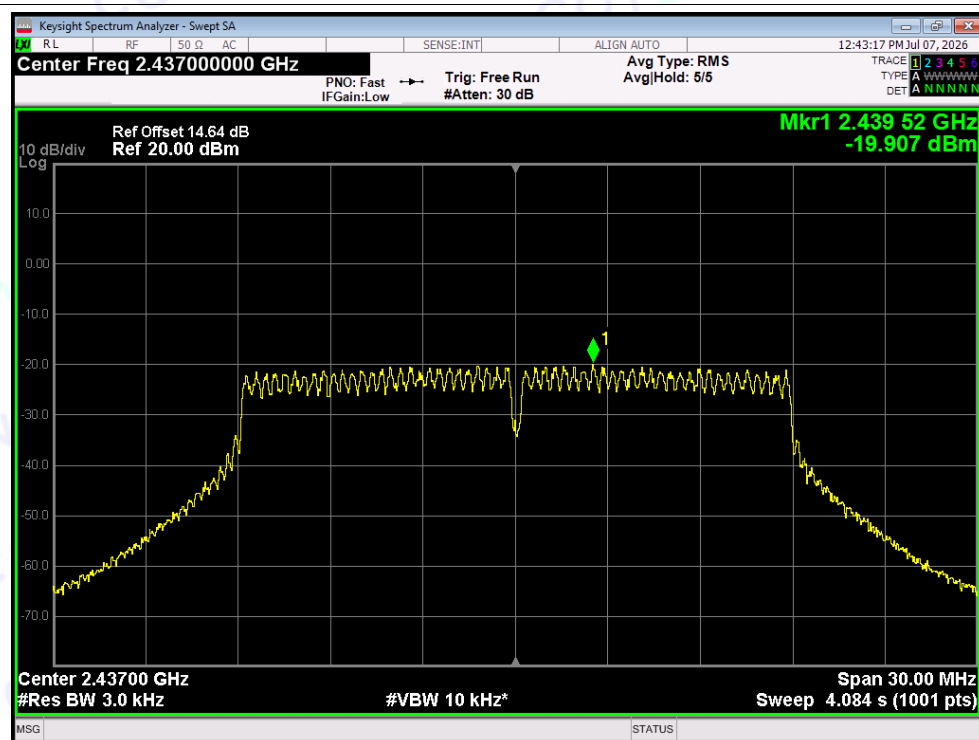
PSD NVNT g 2462MHz Ant1

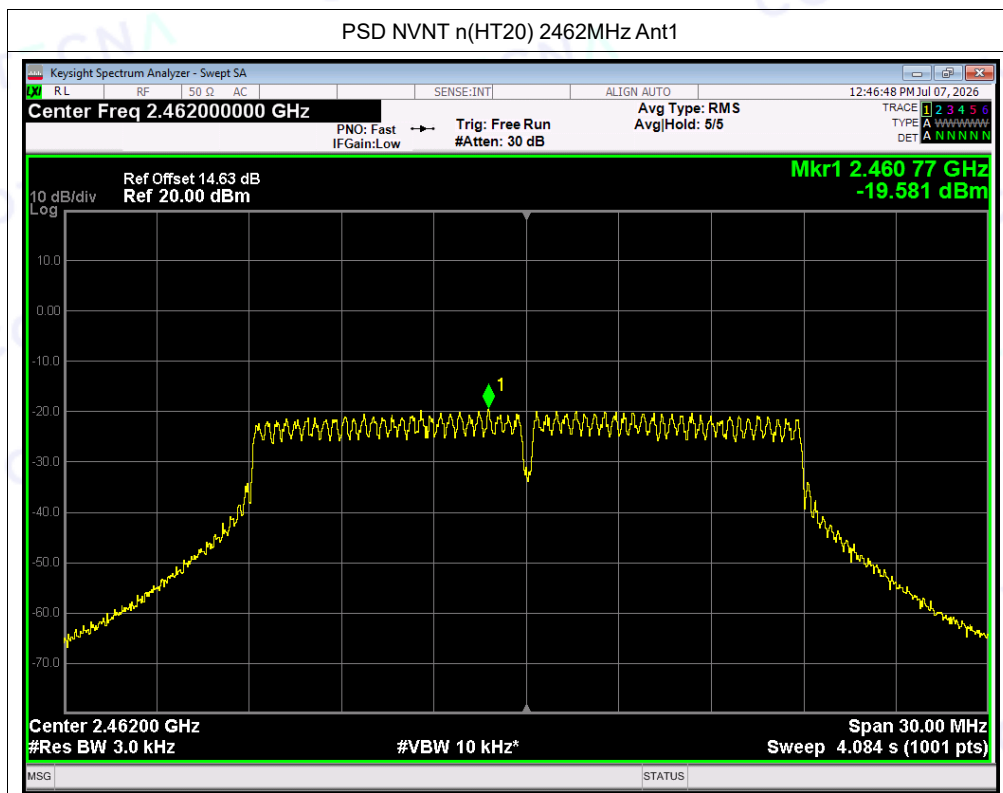


PSD NVNT n(HT20) 2412MHz Ant1



PSD NVNT n(HT20) 2437MHz Ant1



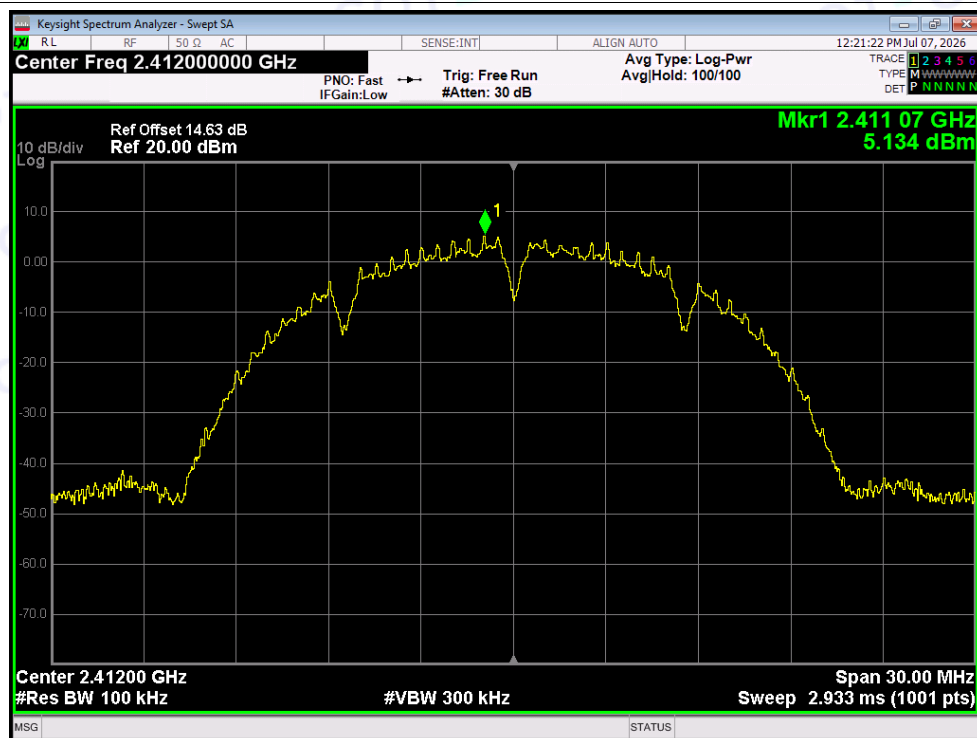


6. Band Edge

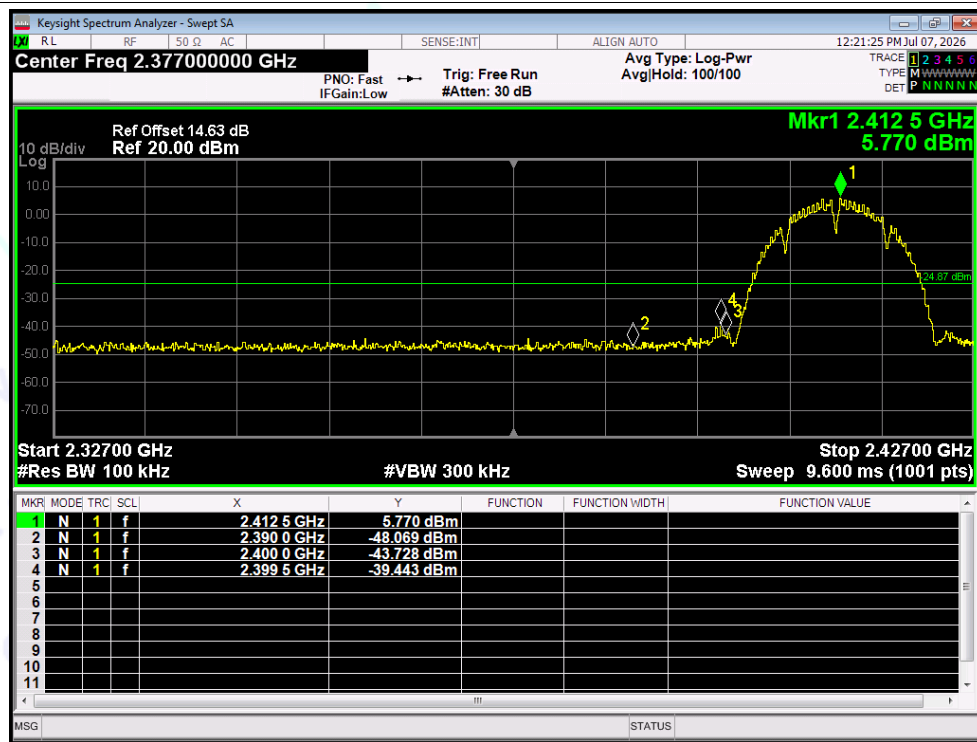
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-44.57	-30	Pass
NVNT	b	2462	Ant1	-50.15	-30	Pass
NVNT	g	2412	Ant1	-34.77	-30	Pass
NVNT	g	2462	Ant1	-46.99	-30	Pass
NVNT	n(HT20)	2412	Ant1	-34.16	-30	Pass
NVNT	n(HT20)	2462	Ant1	-47.64	-30	Pass

Test Graphs

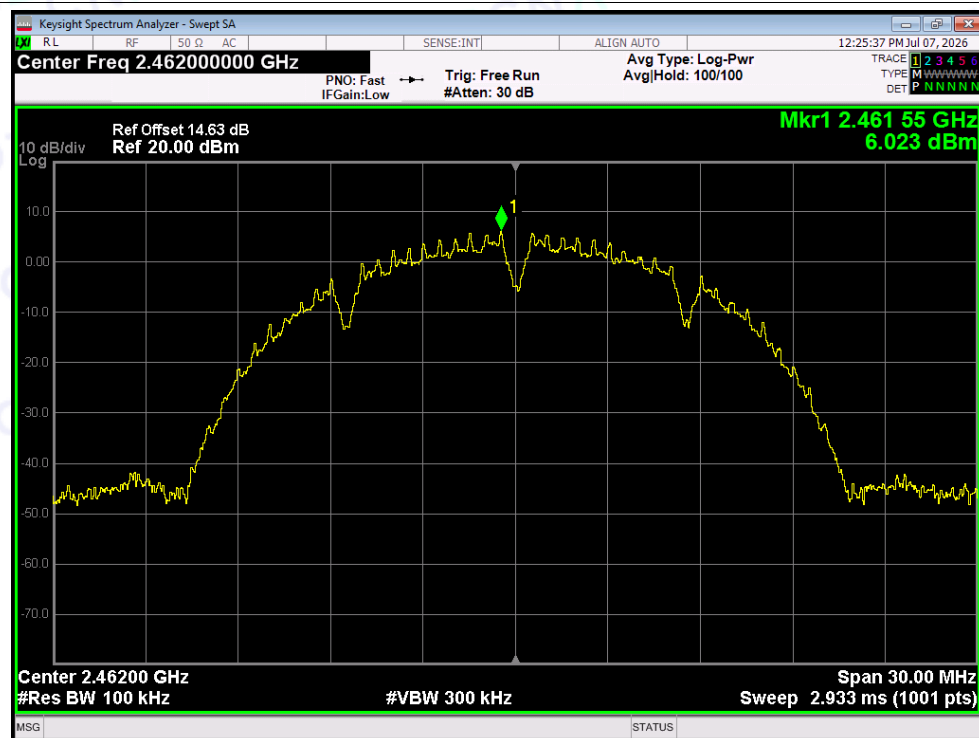
Band Edge NVNT b 2412MHz Ant1 Ref



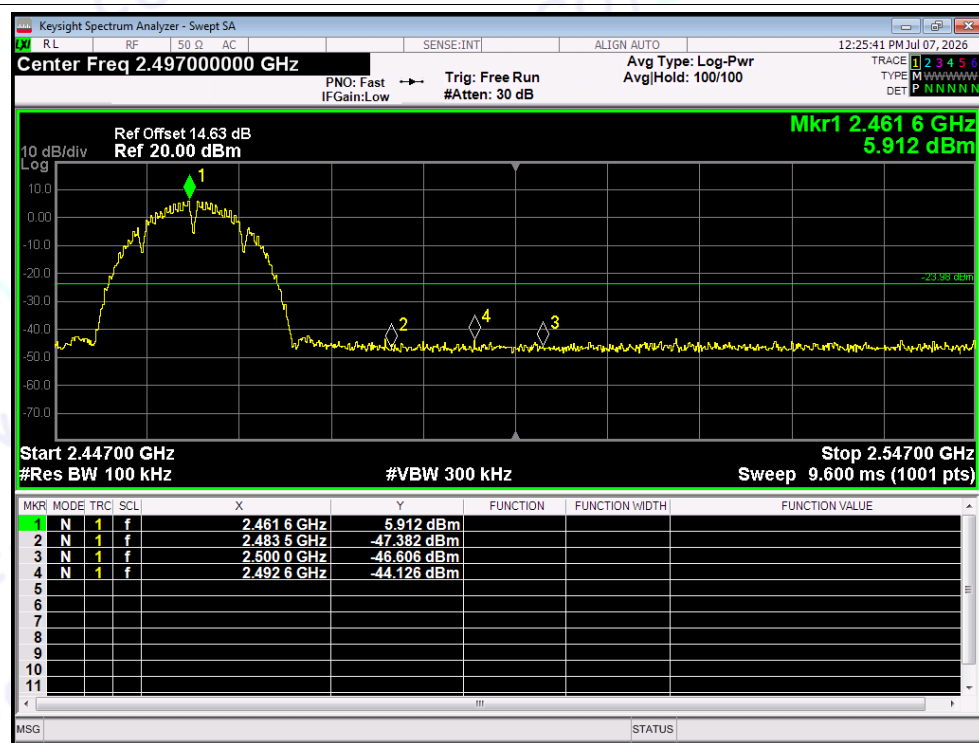
Band Edge NVNT b 2412MHz Ant1 Emission



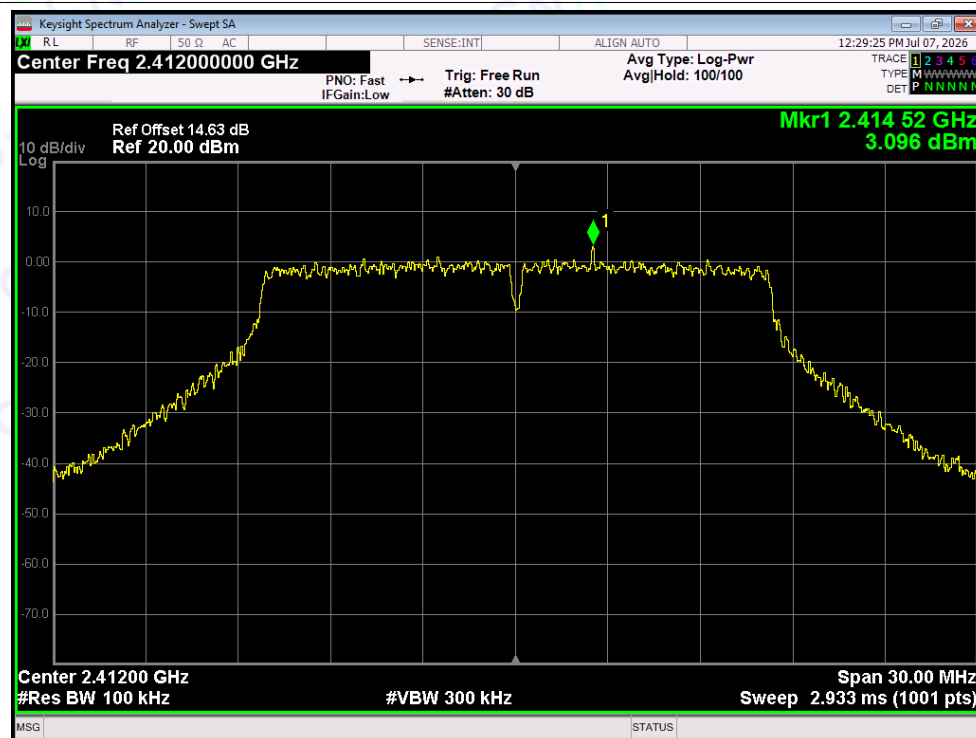
Band Edge NVNT b 2462MHz Ant1 Ref



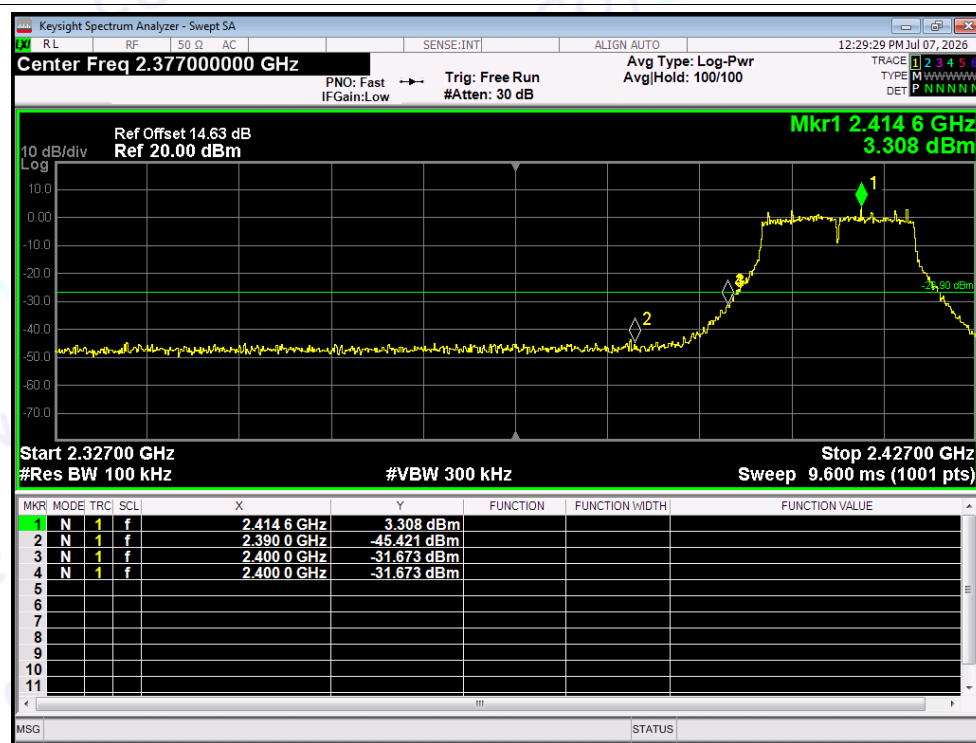
Band Edge NVNT b 2462MHz Ant1 Emission



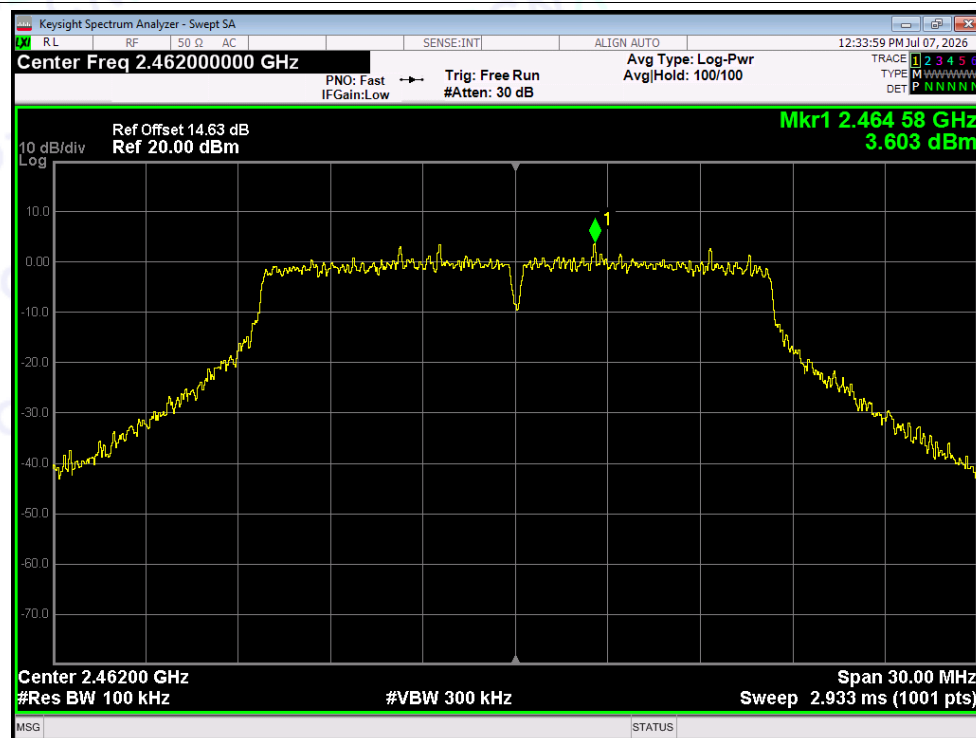
Band Edge NVNT g 2412MHz Ant1 Ref



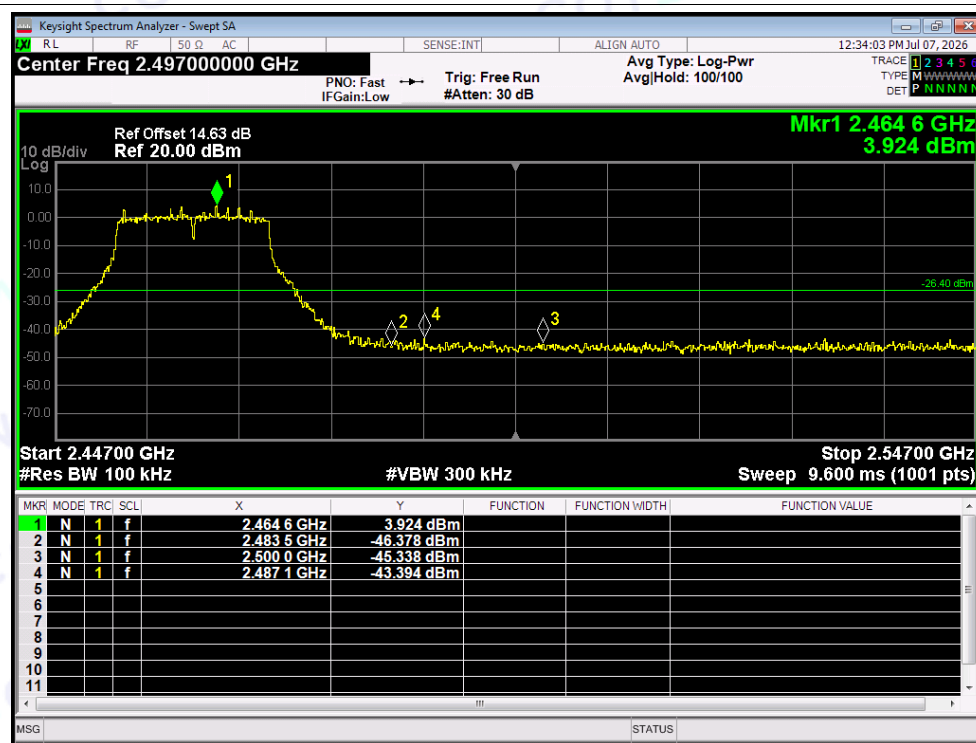
Band Edge NVNT g 2412MHz Ant1 Emission



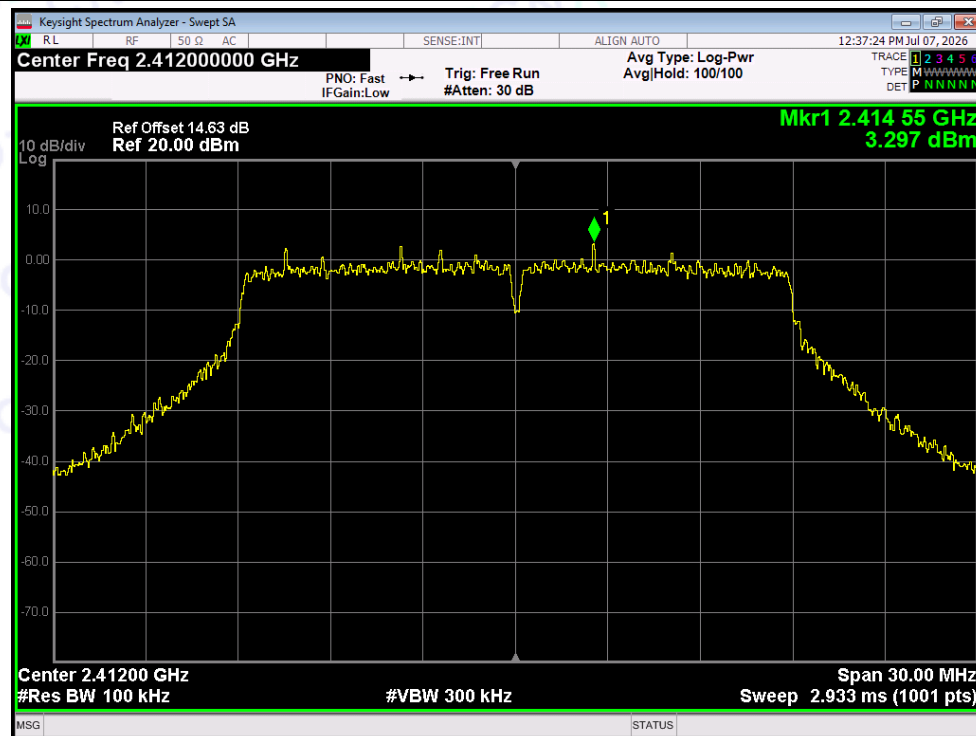
Band Edge NVNT g 2462MHz Ant1 Ref



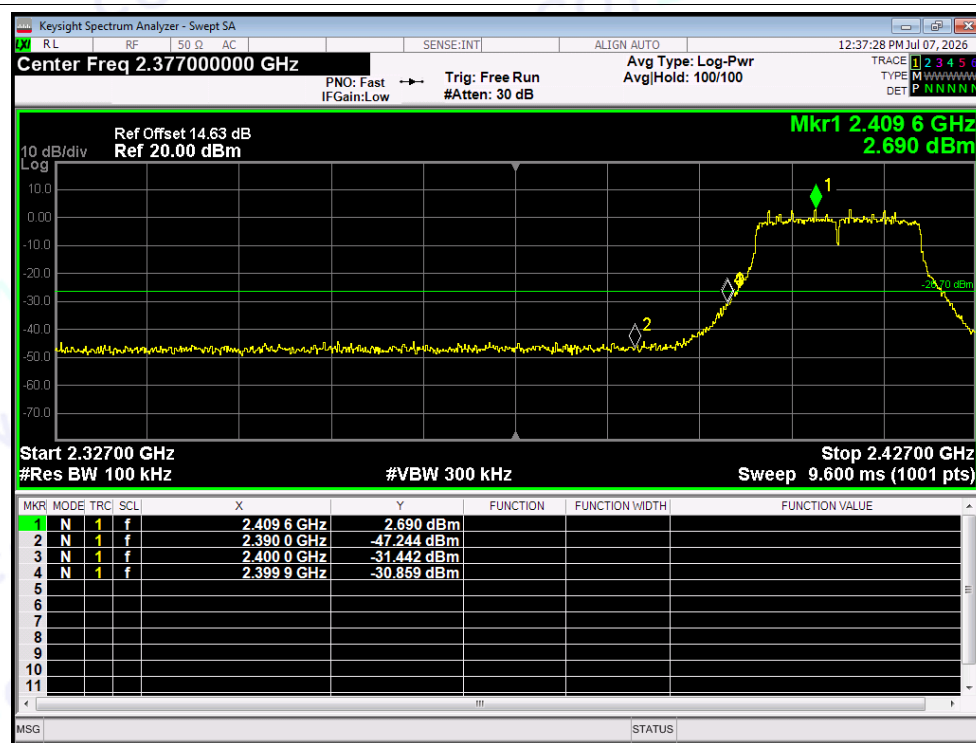
Band Edge NVNT g 2462MHz Ant1 Emission



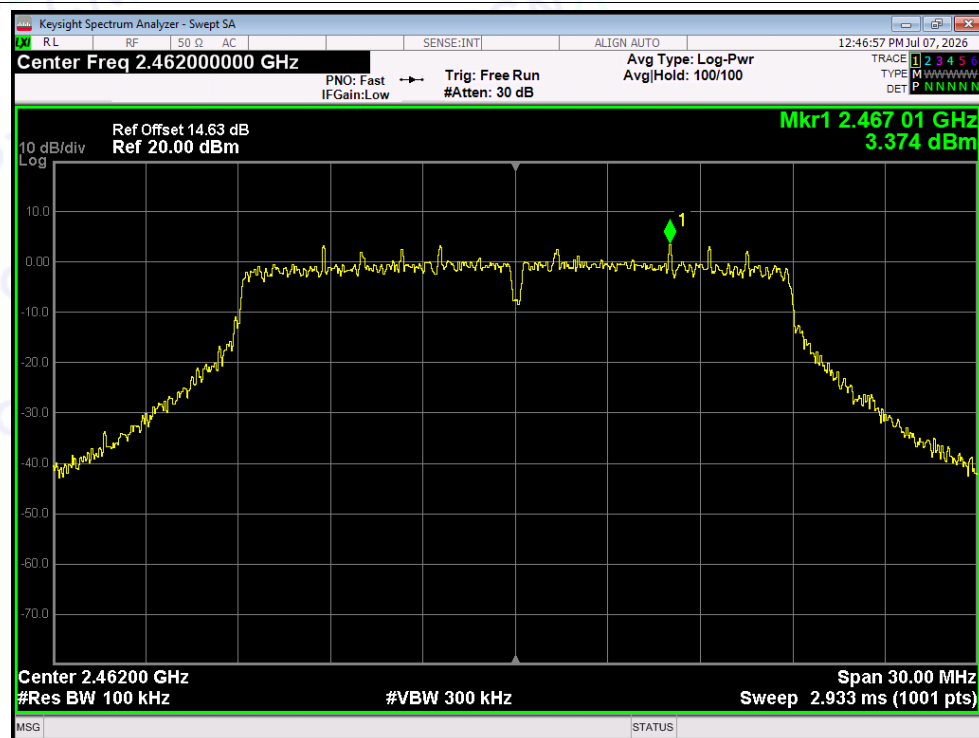
Band Edge NVNT n(HT20) 2412MHz Ant1 Ref



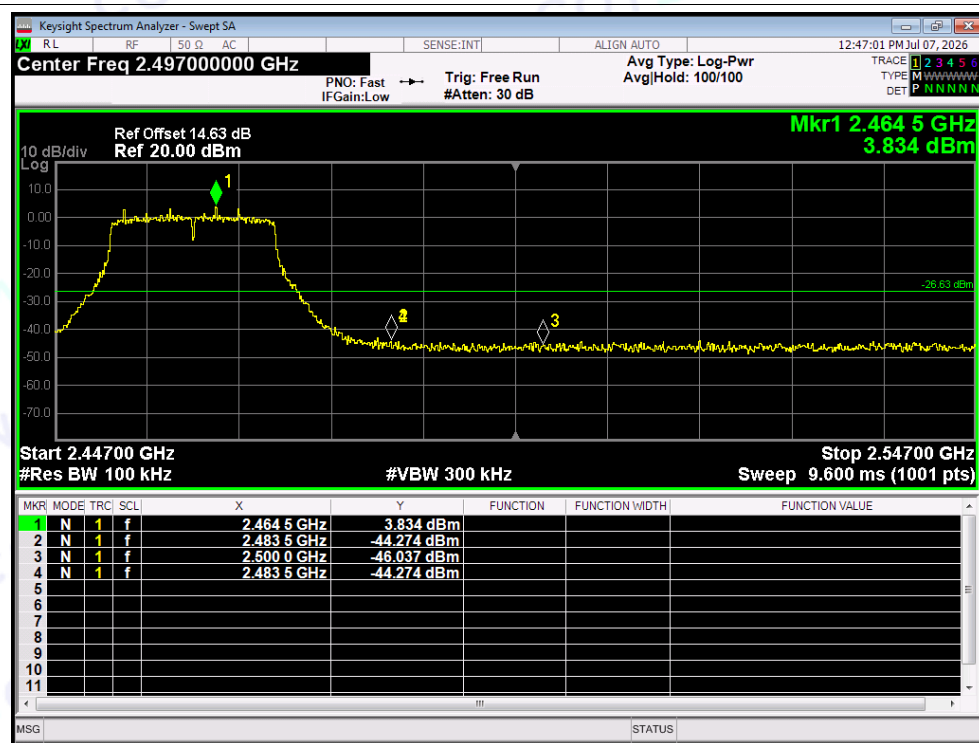
Band Edge NVNT n(HT20) 2412MHz Ant1 Emission



Band Edge NVNT n(HT20) 2462MHz Ant1 Ref



Band Edge NVNT n(HT20) 2462MHz Ant1 Emission

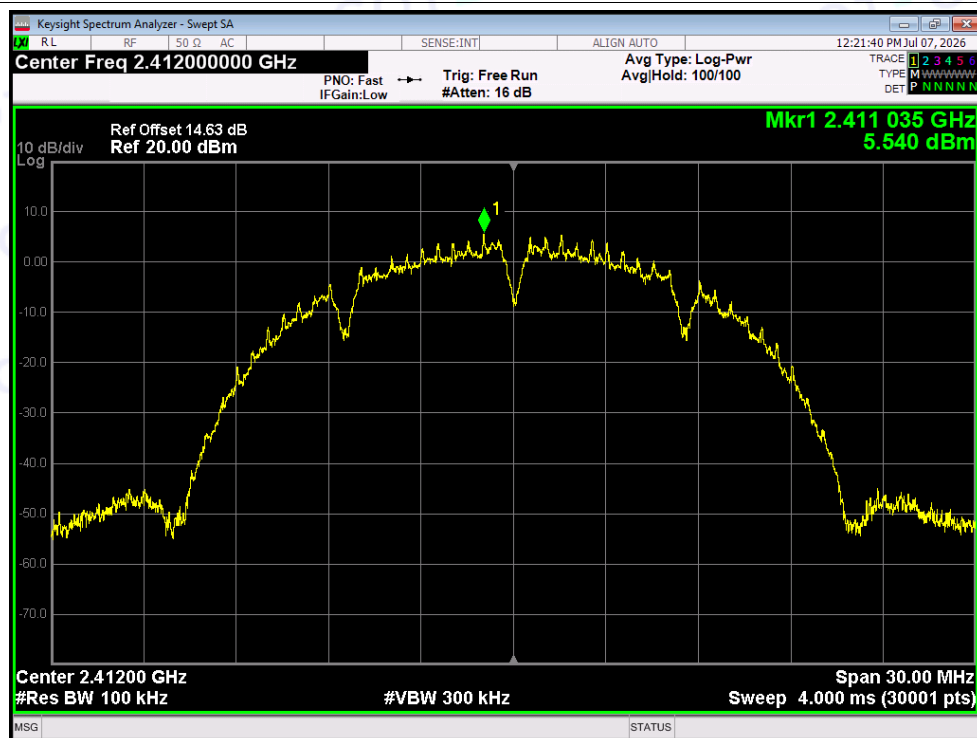


7. Conducted RF Spurious Emission

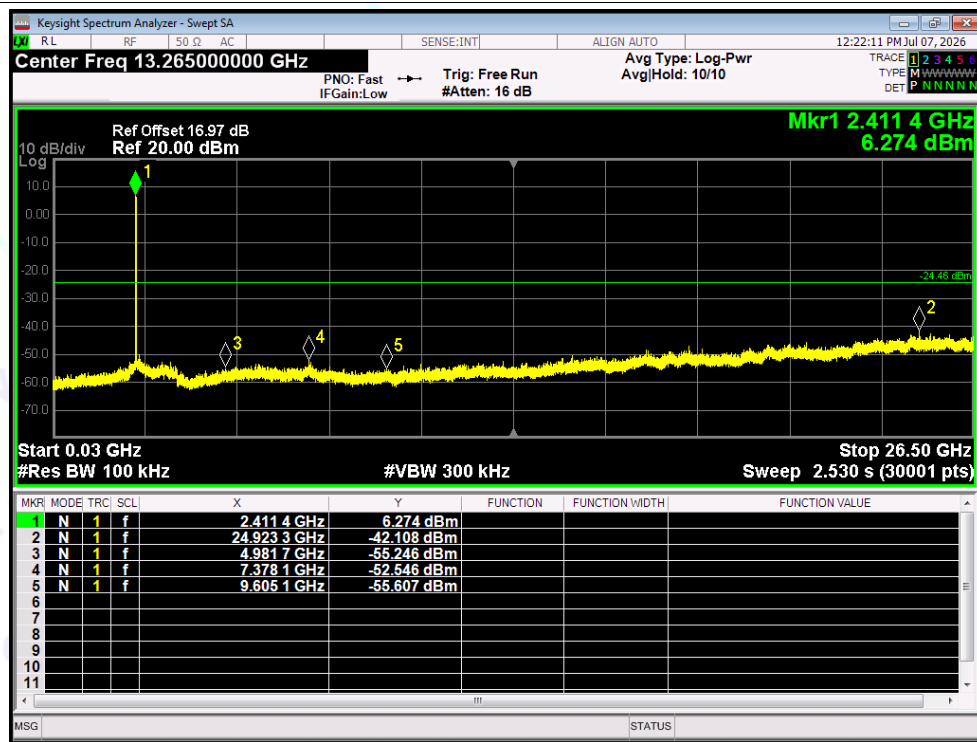
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-47.65	-30	Pass
NVNT	b	2437	Ant1	-48.83	-30	Pass
NVNT	b	2462	Ant1	-48.9	-30	Pass
NVNT	g	2412	Ant1	-46	-30	Pass
NVNT	g	2437	Ant1	-45.49	-30	Pass
NVNT	g	2462	Ant1	-46.29	-30	Pass
NVNT	n(HT20)	2412	Ant1	-46.61	-30	Pass
NVNT	n(HT20)	2437	Ant1	-47.02	-30	Pass
NVNT	n(HT20)	2462	Ant1	-47.17	-30	Pass

Test Graphs

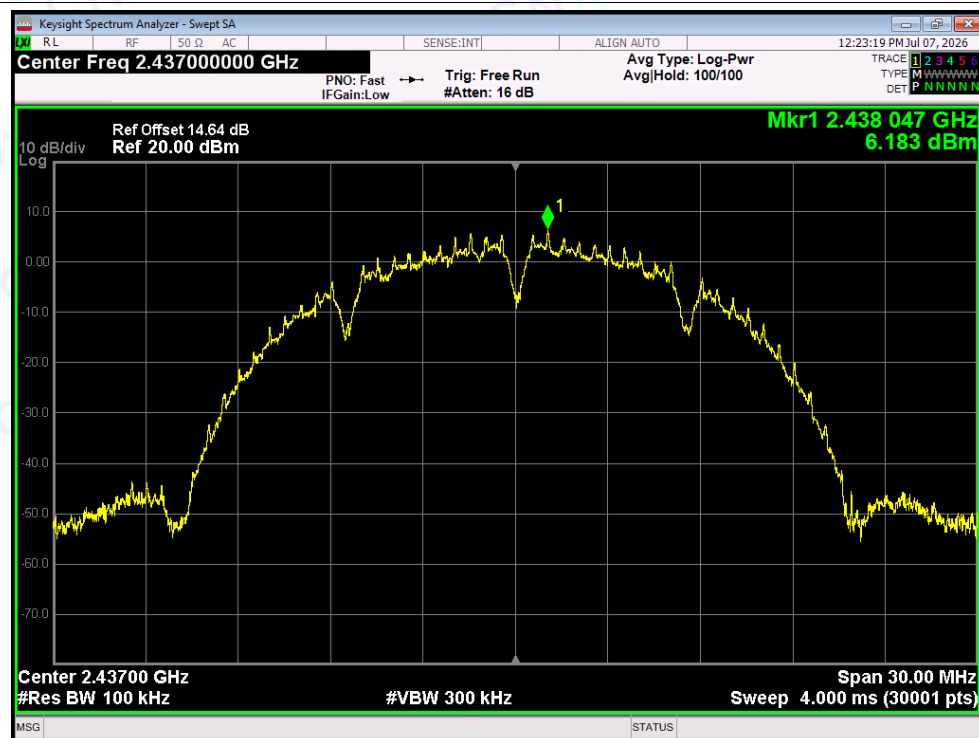
Tx. Spurious NVNT b 2412MHz Ant1 Ref



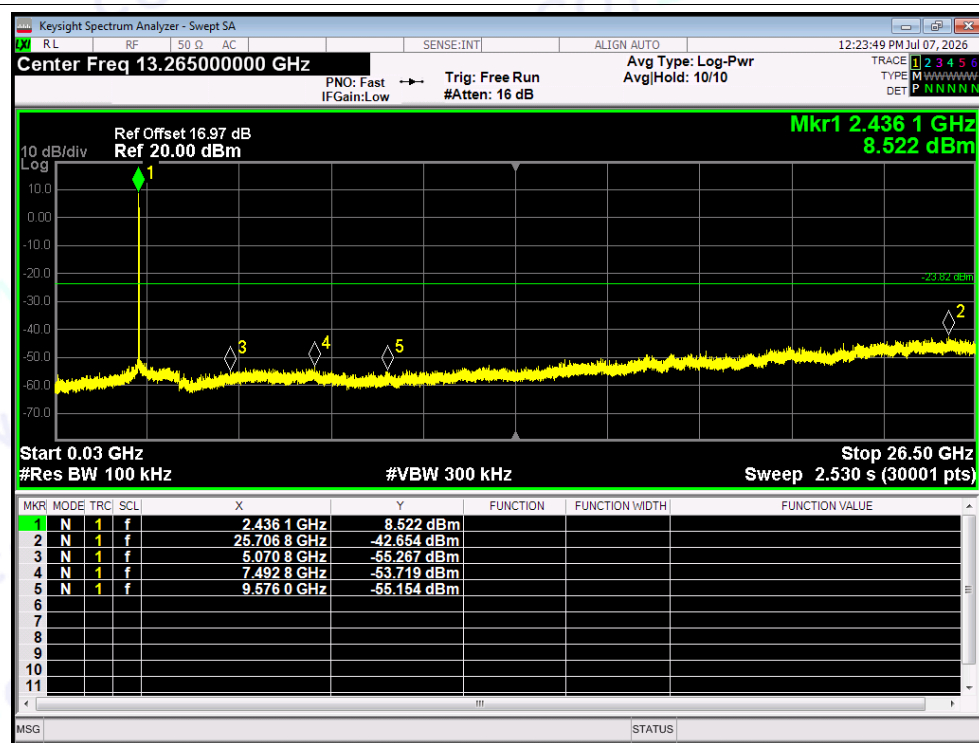
Tx. Spurious NVNT b 2412MHz Ant1 Emission



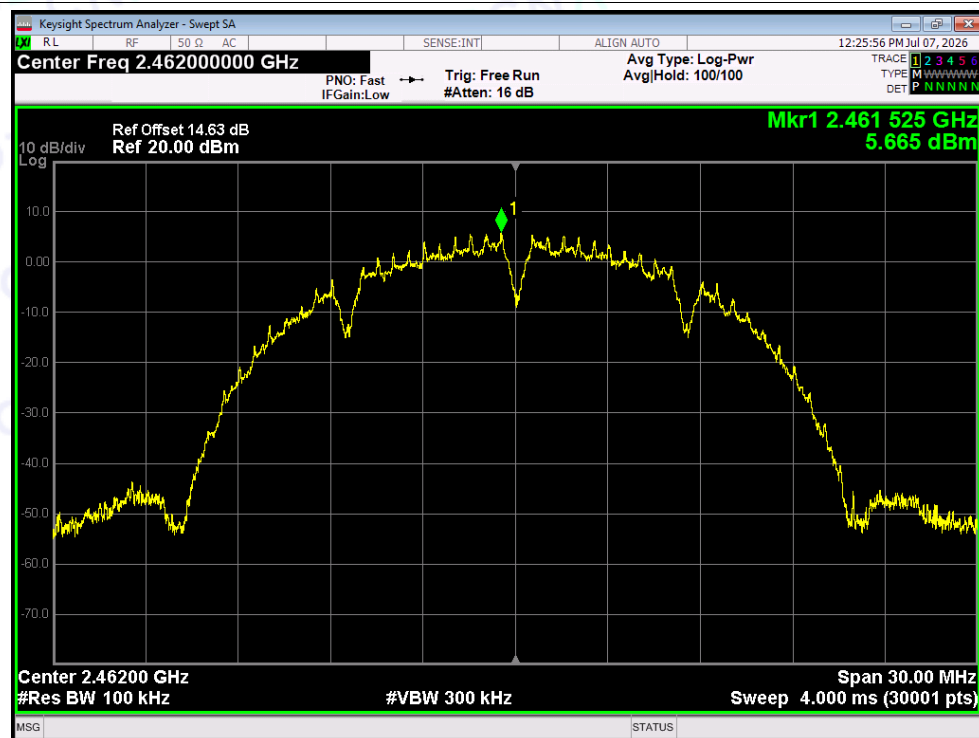
Tx. Spurious NVNT b 2437MHz Ant1 Ref



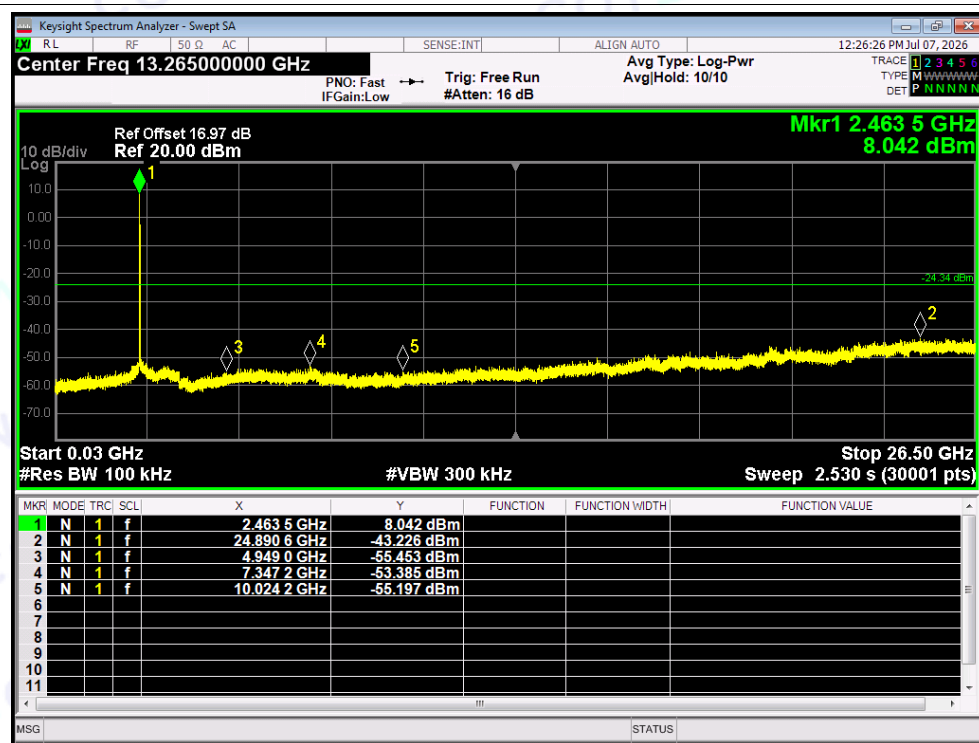
Tx. Spurious NVNT b 2437MHz Ant1 Emission



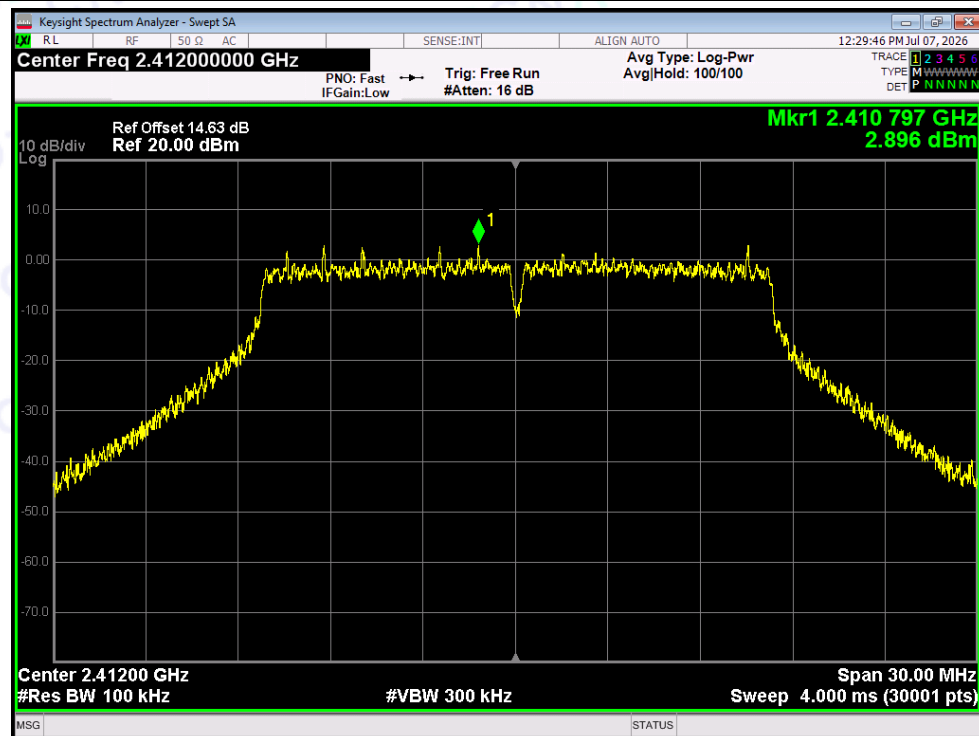
Tx. Spurious NVNT b 2462MHz Ant1 Ref



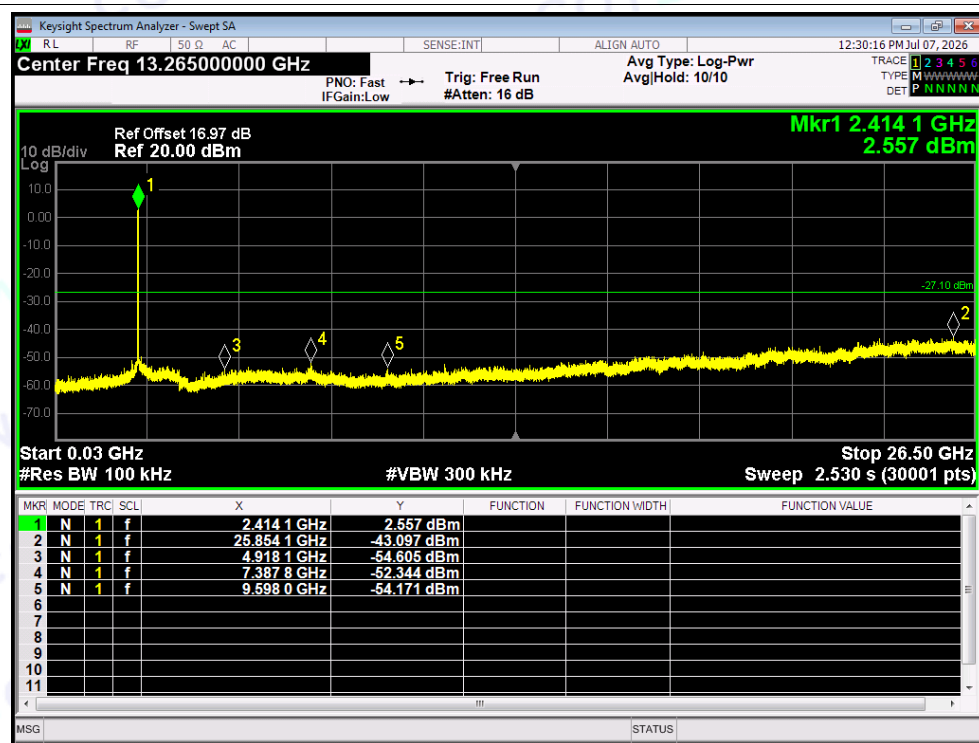
Tx. Spurious NVNT b 2462MHz Ant1 Emission



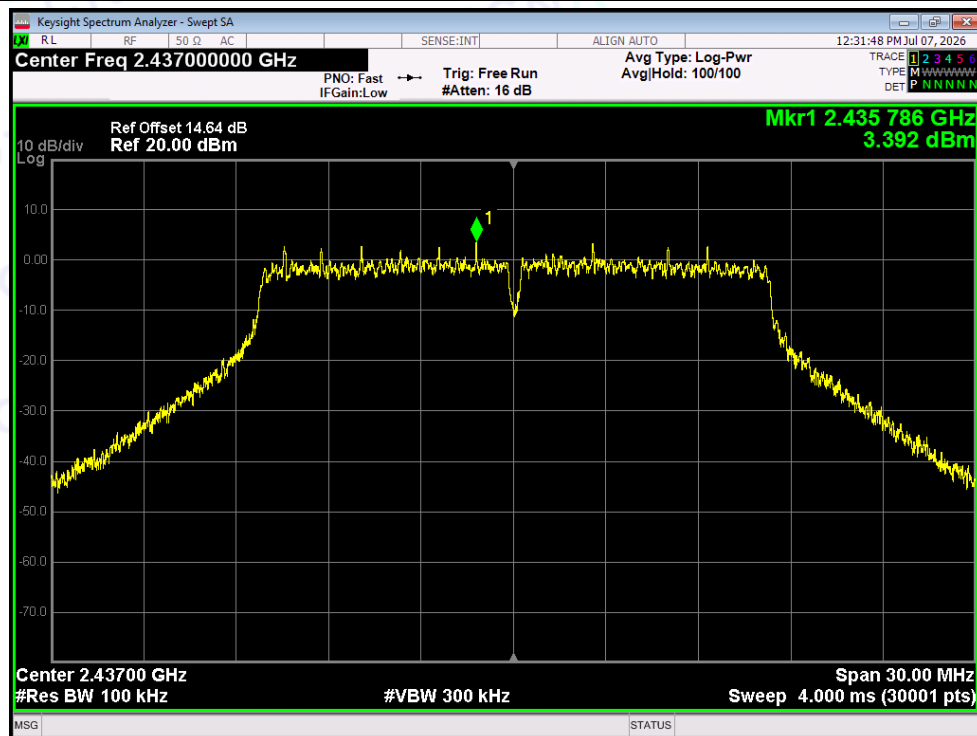
Tx. Spurious NVNT g 2412MHz Ant1 Ref



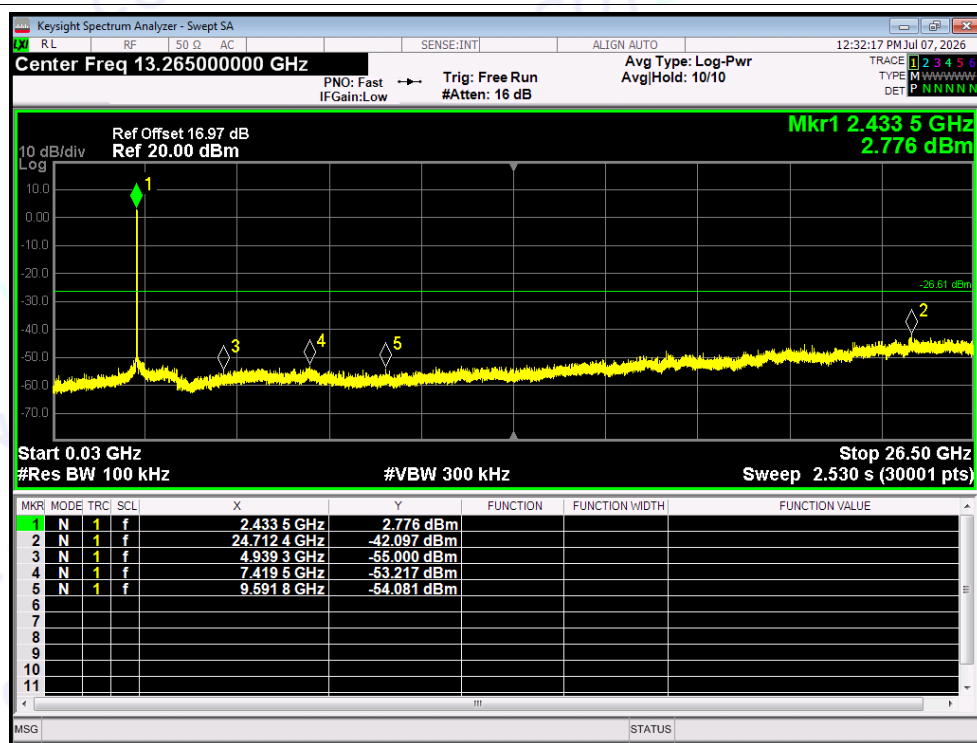
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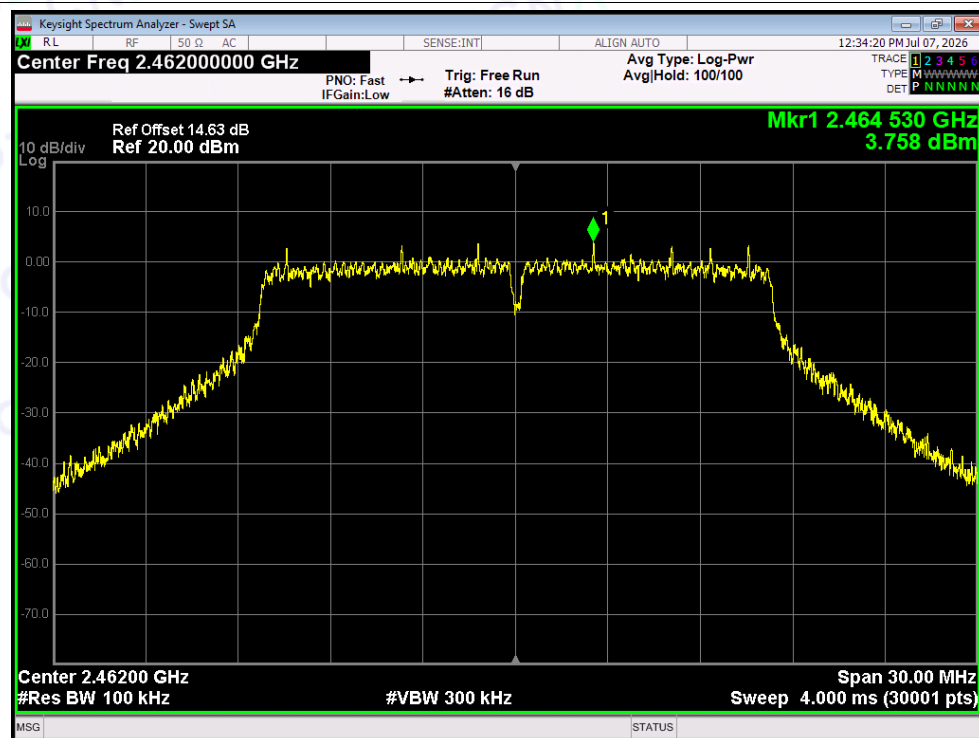
Tx. Spurious NVNT g 2437MHz Ant1 Ref



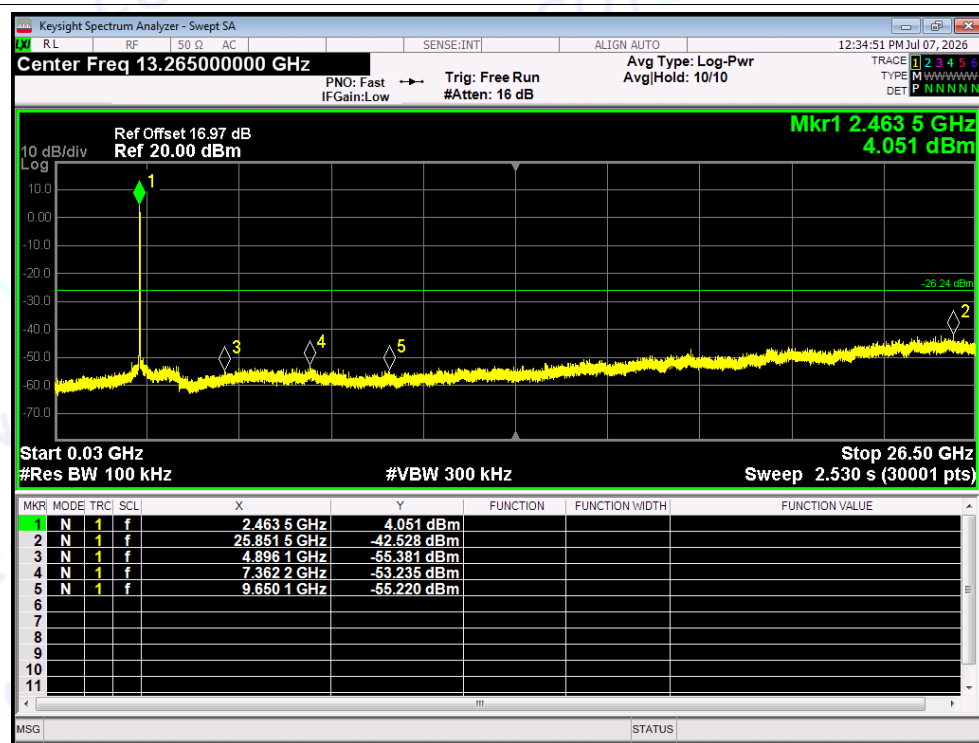
Tx. Spurious NVNT g 2437MHz Ant1 Emission



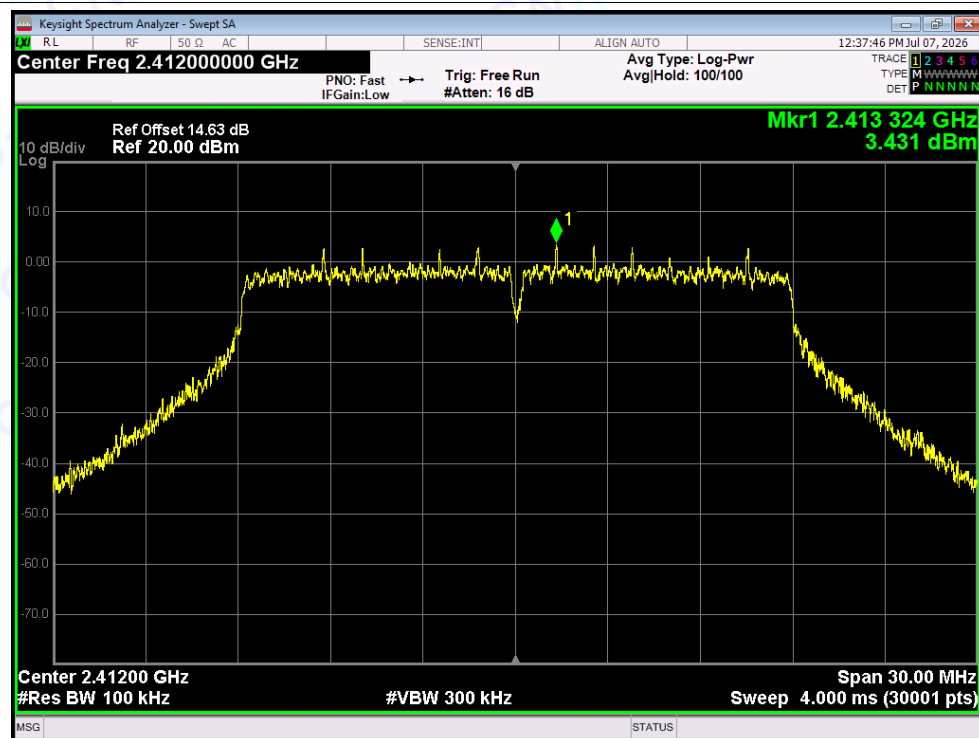
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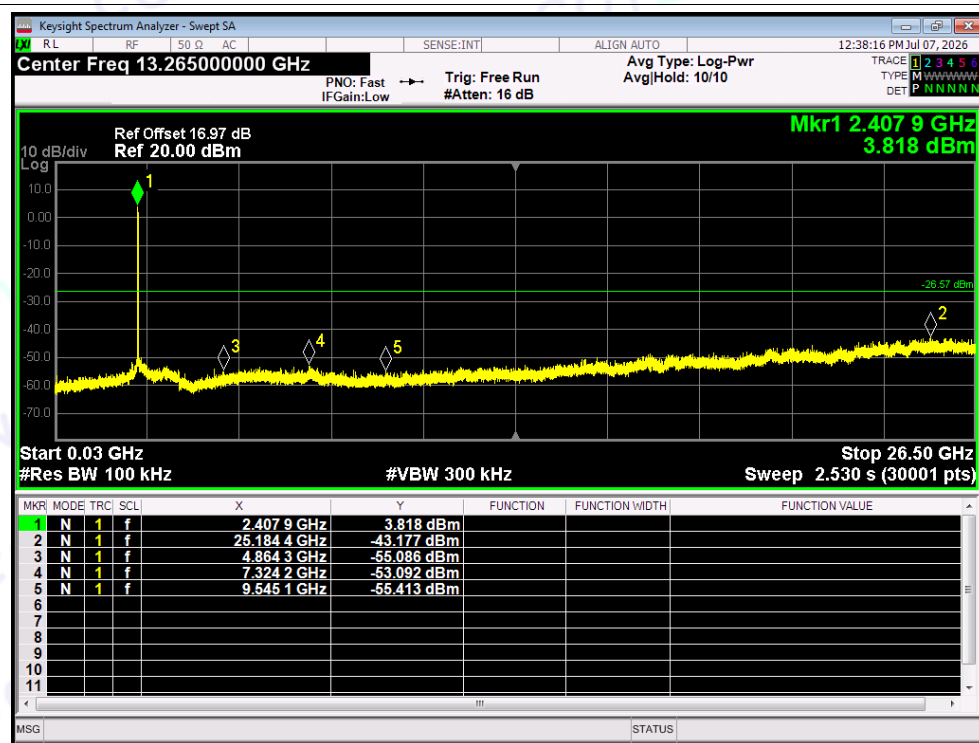
Tx. Spurious NVNT g 2462MHz Ant1 Emission



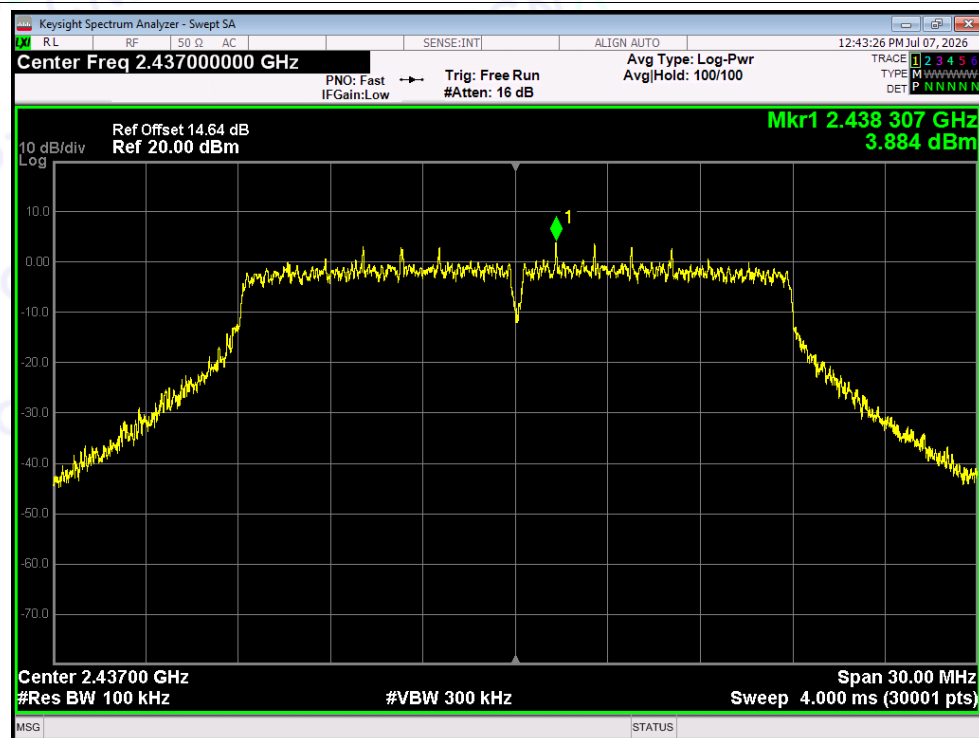
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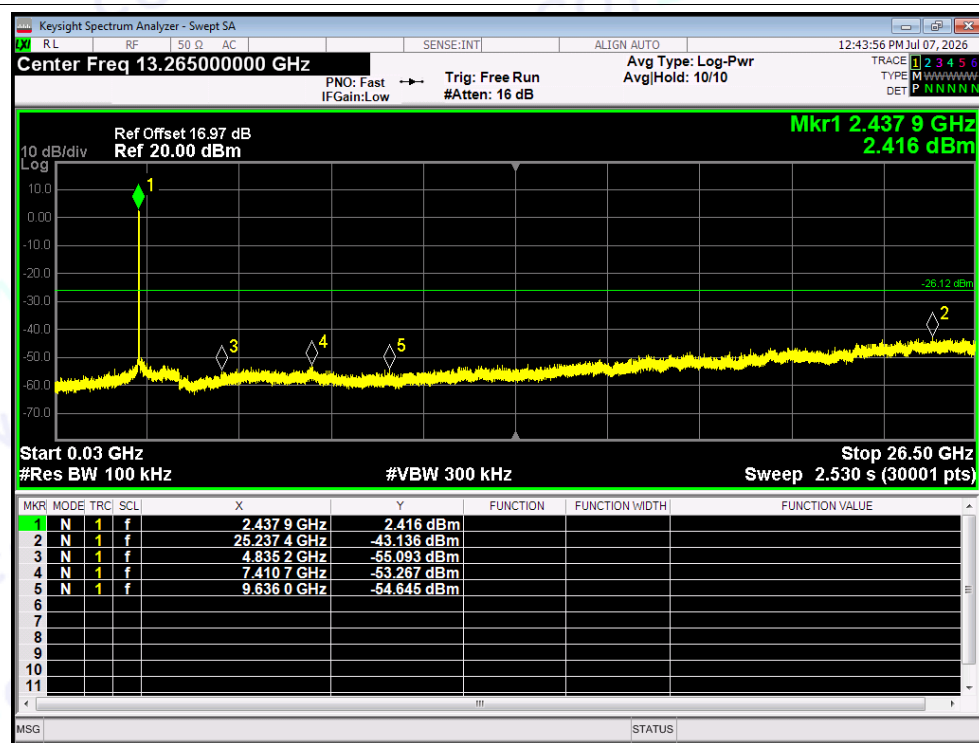
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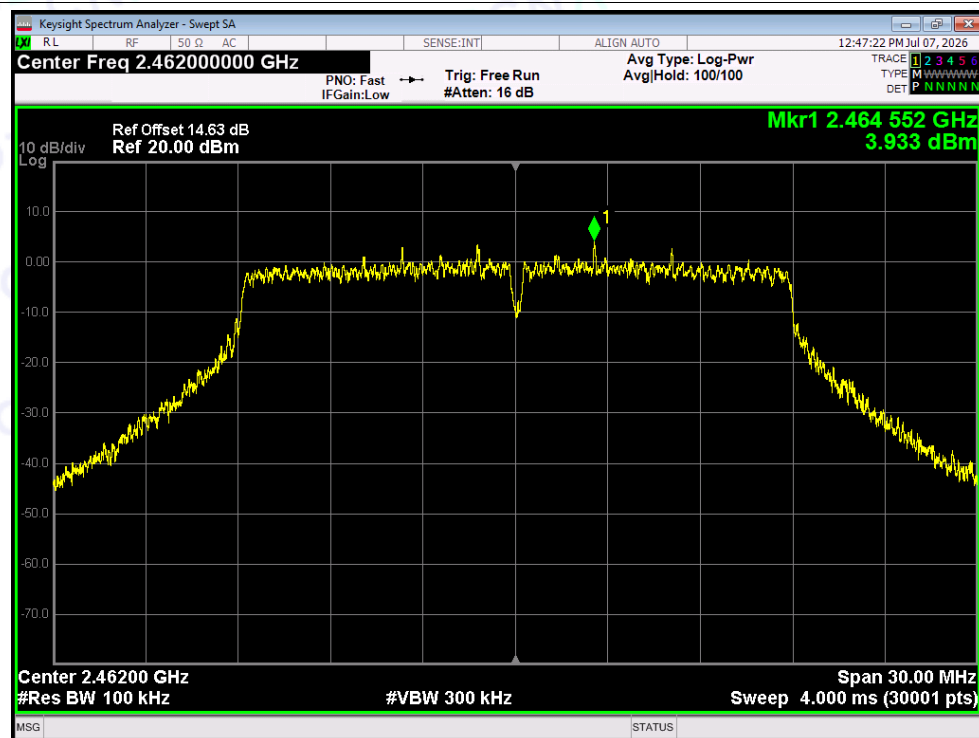
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Ref



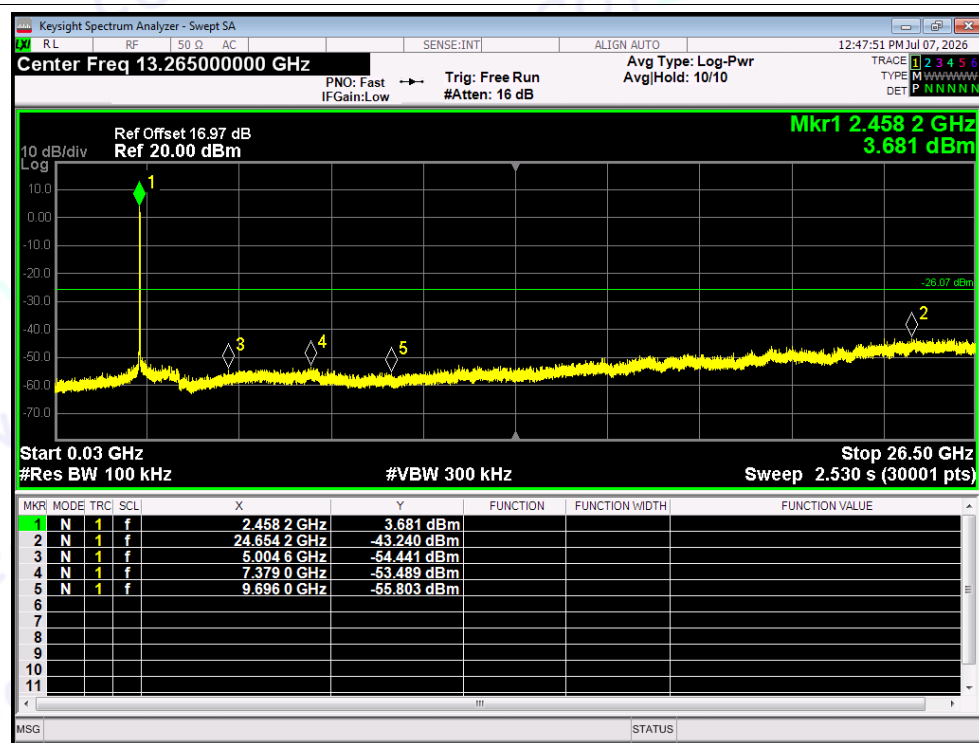
Tx. Spurious NVNT n(HT20) 2437MHz Ant1 Emission



Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Ref



Tx. Spurious NVNT n(HT20) 2462MHz Ant1 Emission

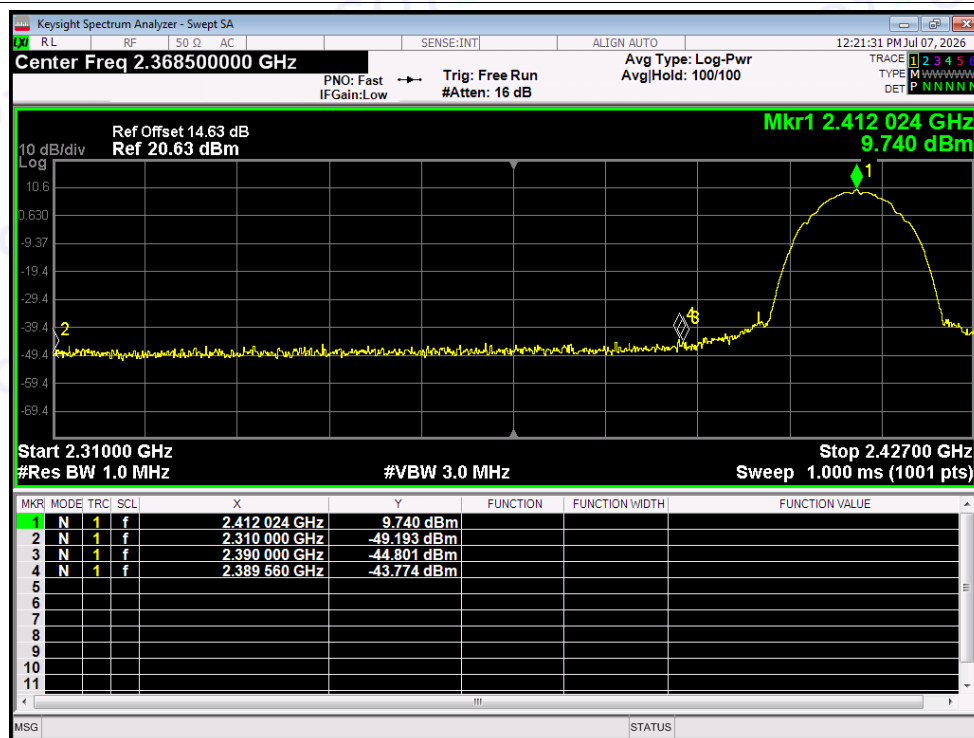


8. Restrict Band

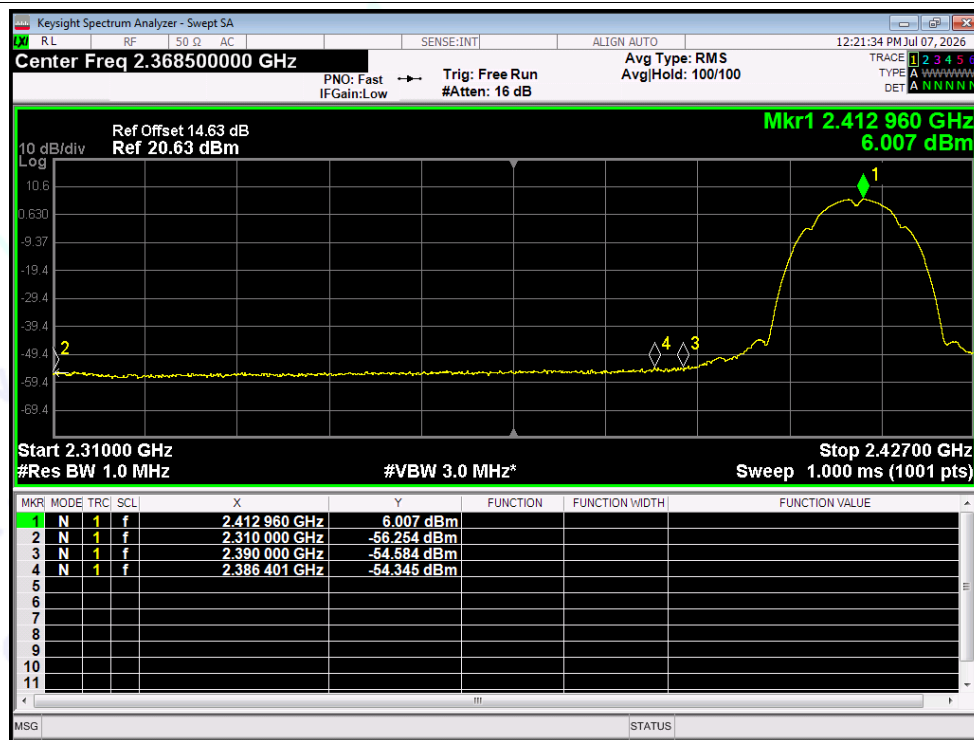
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-49.19	2.54	-	48.61	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-56.25	2.54	0.05	41.6	Average	54	Pass
NVNT	b	2412	Ant1	2389.56	-43.77	2.54	-	54.03	Peak	74	Pass
NVNT	b	2412	Ant1	2386.401	-54.34	2.54	0.05	43.51	Average	54	Pass
NVNT	b	2412	Ant1	2390	-44.8	2.54	-	53	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-54.58	2.54	0.05	43.27	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-45.39	2.54	-	52.41	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-53.94	2.54	0.05	43.91	Average	54	Pass
NVNT	b	2462	Ant1	2487.227	-43.38	2.54	-	54.42	Peak	74	Pass
NVNT	b	2462	Ant1	2483.835	-53.41	2.54	0.05	44.44	Average	54	Pass
NVNT	b	2462	Ant1	2500	-46.35	2.54	-	51.45	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-54.7	2.54	0.05	43.15	Average	54	Pass
NVNT	g	2412	Ant1	2310	-47.7	2.54	-	50.1	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-57.03	2.54	0.26	41.03	Average	54	Pass
NVNT	g	2412	Ant1	2389.56	-41.67	2.54	-	56.13	Peak	74	Pass
NVNT	g	2412	Ant1	2389.443	-52.04	2.54	0.26	46.02	Average	54	Pass
NVNT	g	2412	Ant1	2390	-44.23	2.54	-	53.57	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-52.03	2.54	0.26	46.03	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-36.9	2.54	-	60.9	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-50.65	2.54	0.26	47.41	Average	54	Pass
NVNT	g	2462	Ant1	2483.623	-31.95	2.54	-	65.85	Peak	74	Pass
NVNT	g	2462	Ant1	2484.259	-50.24	2.54	0.26	47.82	Average	54	Pass
NVNT	g	2462	Ant1	2500	-47.89	2.54	-	49.91	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-54.69	2.54	0.26	43.37	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2310	-48.18	2.54	-	49.62	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2310	-56.56	2.54	0.28	41.52	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2388.273	-42.05	2.54	-	55.75	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2389.794	-52.15	2.54	0.28	45.93	Average	54	Pass
NVNT	n(HT20)	2412	Ant1	2390	-43.37	2.54	-	54.43	Peak	74	Pass
NVNT	n(HT20)	2412	Ant1	2390	-52.96	2.54	0.28	45.12	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-36.7	2.54	-	61.1	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2483.5	-50.78	2.54	0.31	47.33	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2483.517	-36.7	2.54	-	61.1	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2483.888	-50.12	2.54	0.31	47.99	Average	54	Pass
NVNT	n(HT20)	2462	Ant1	2500	-46.28	2.54	-	51.52	Peak	74	Pass
NVNT	n(HT20)	2462	Ant1	2500	-55.18	2.54	0.31	42.93	Average	54	Pass

Test Graphs

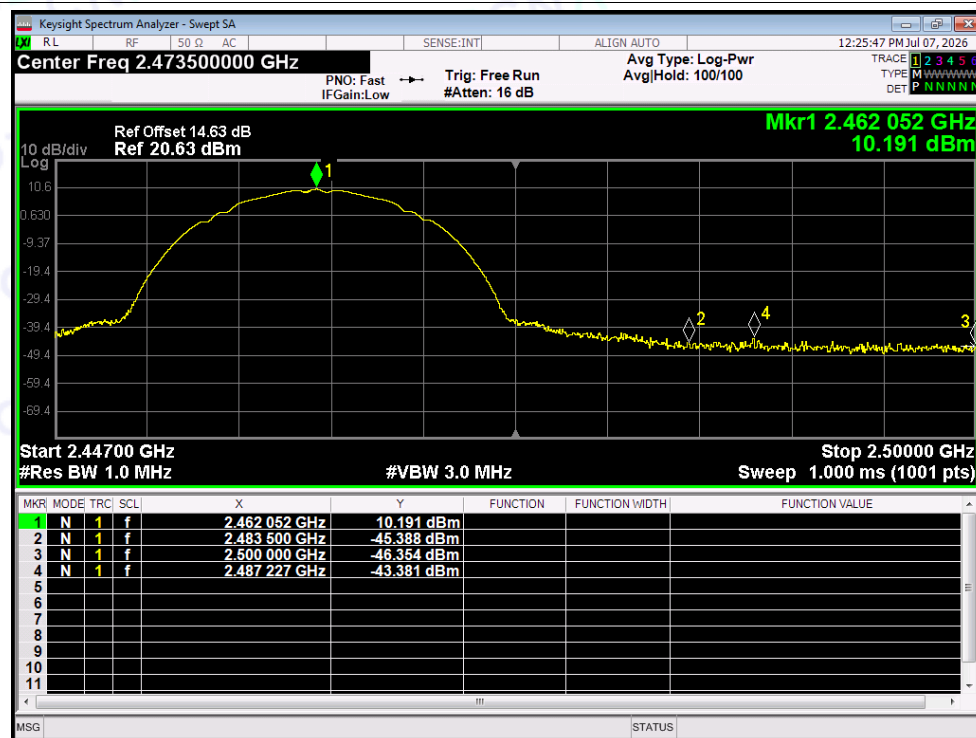
Restrict Band NVNT b 2412MHz Ant1 Peak



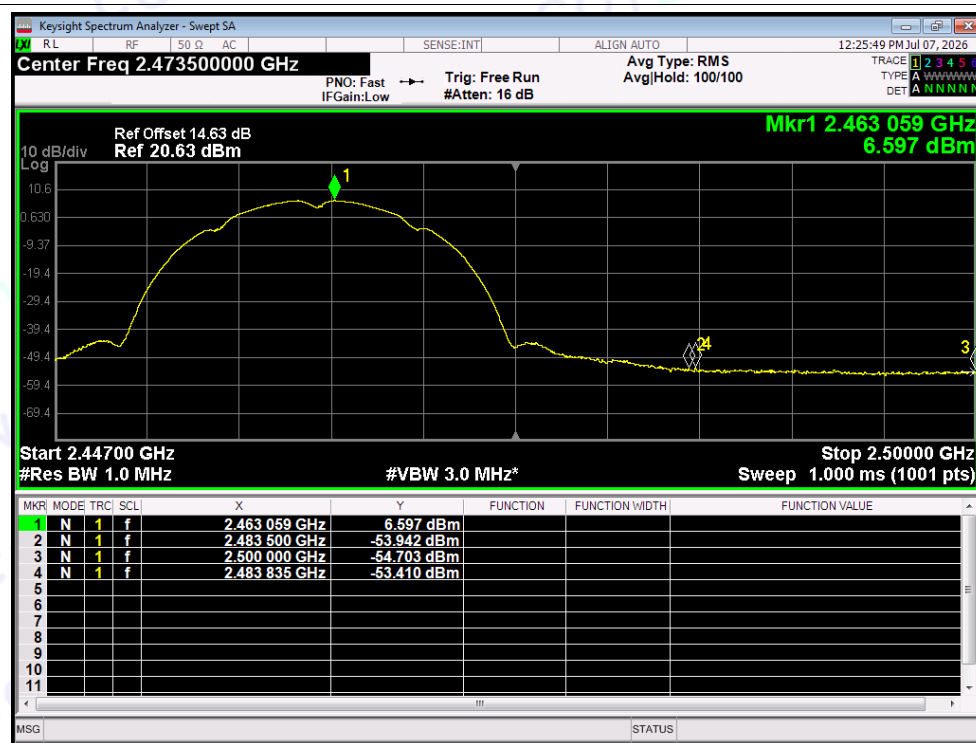
Restrict Band NVNT b 2412MHz Ant1 Average



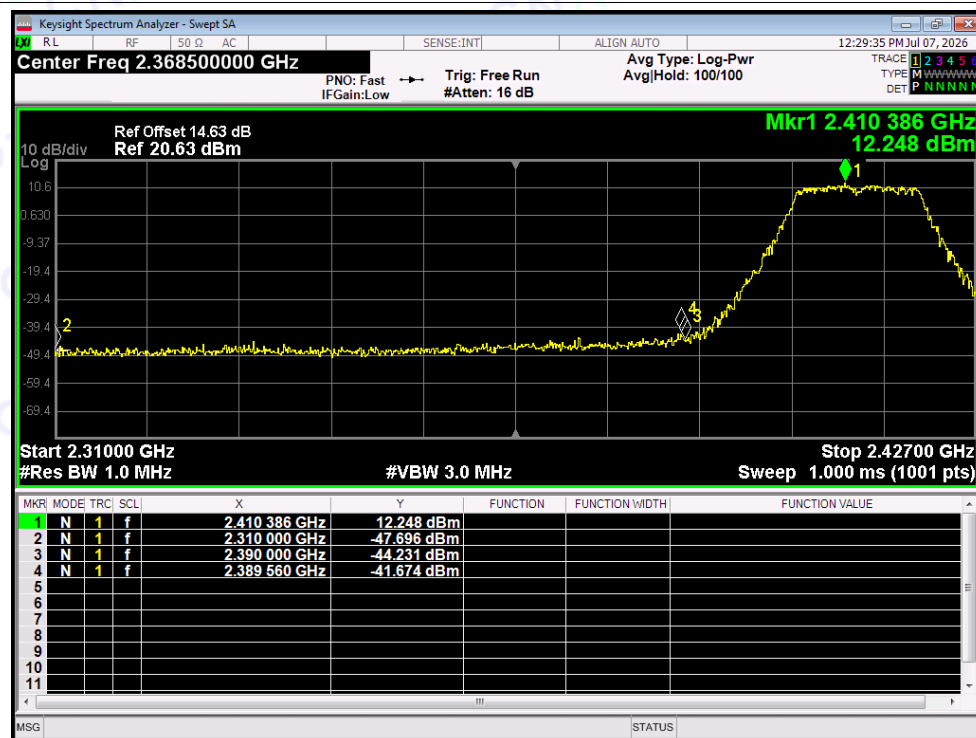
Restrict Band NVNT b 2462MHz Ant1 Peak



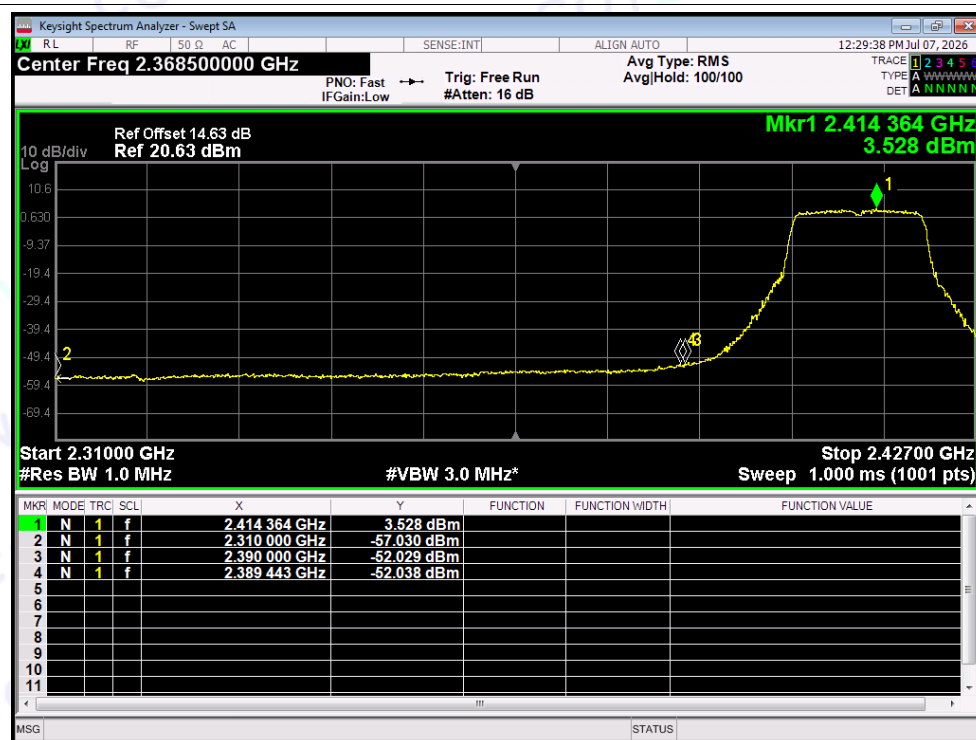
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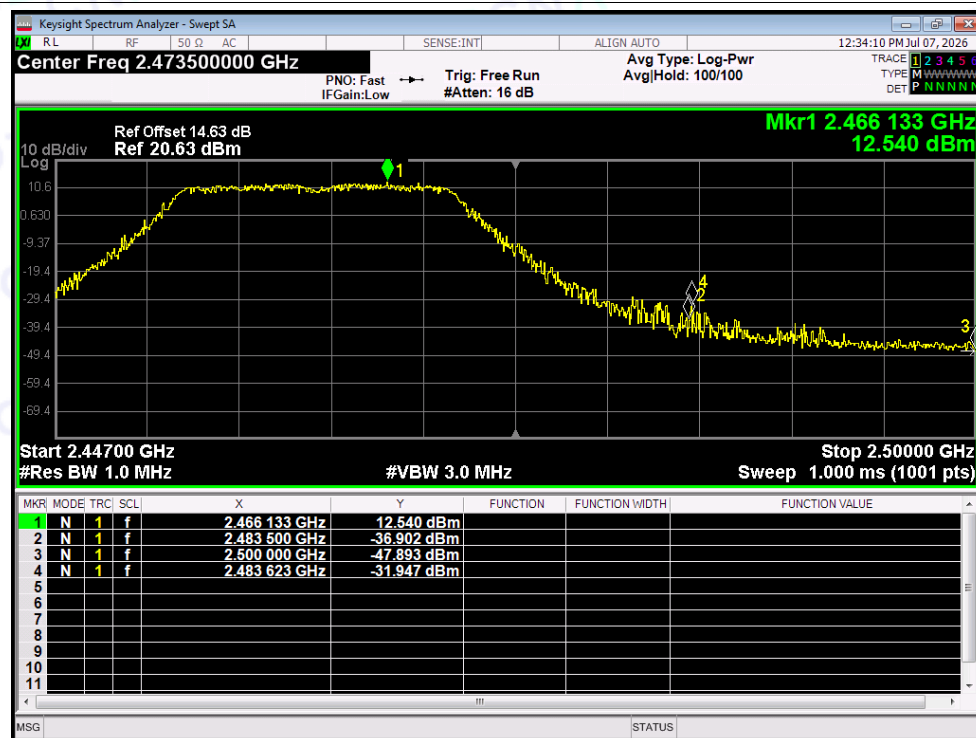
Restrict Band NVNT g 2412MHz Ant1 Peak



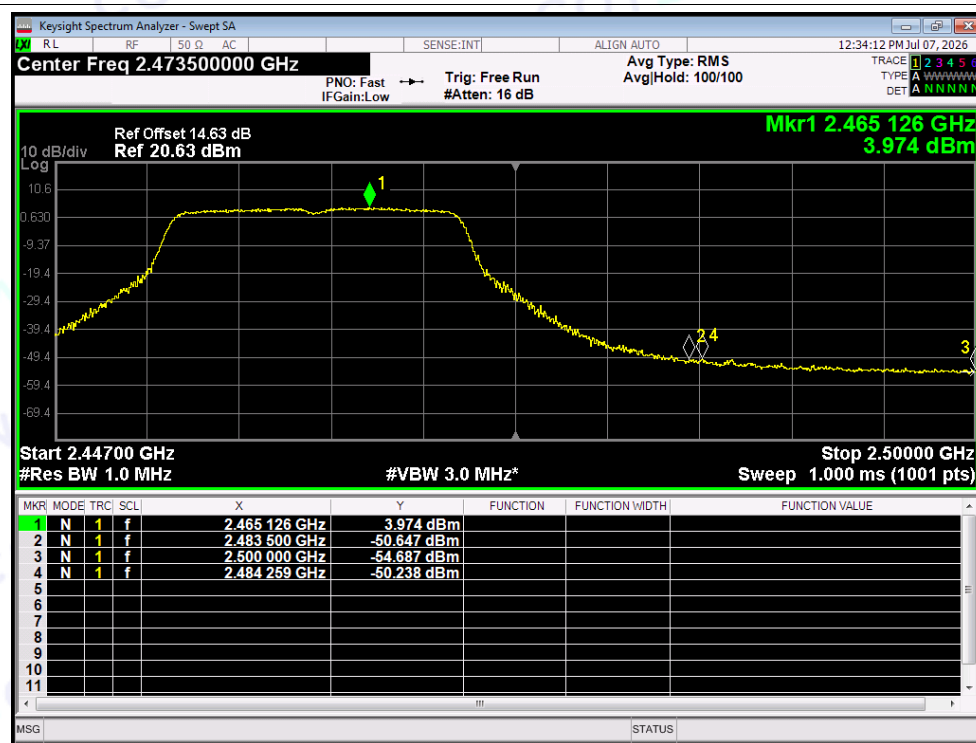
Restrict Band NVNT g 2412MHz Ant1 Average



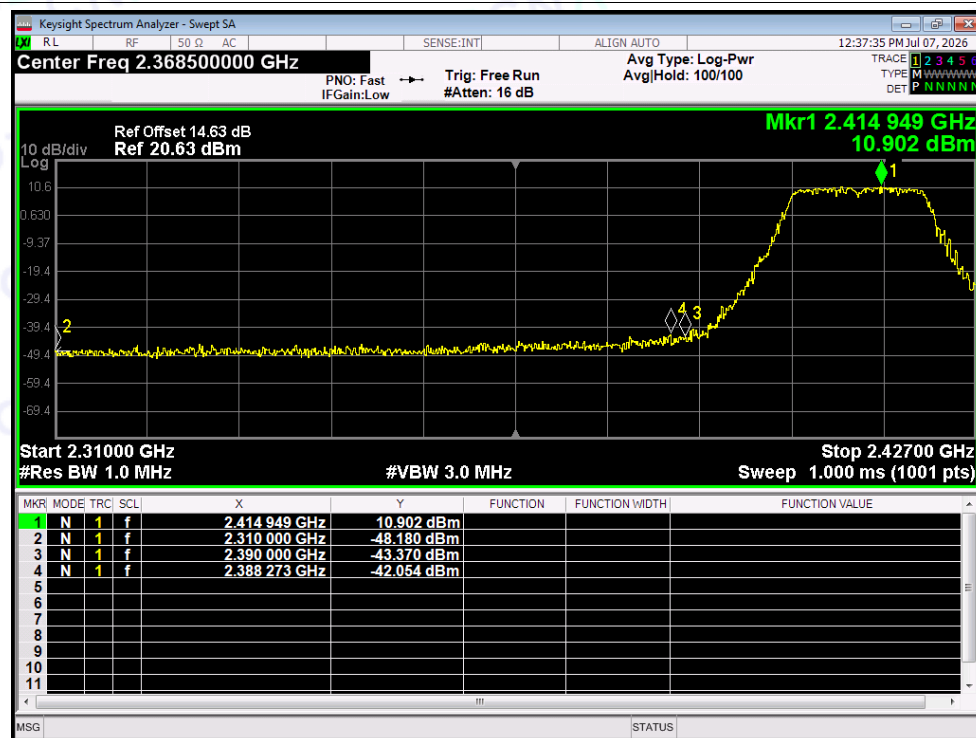
Restrict Band NVNT g 2462MHz Ant1 Peak



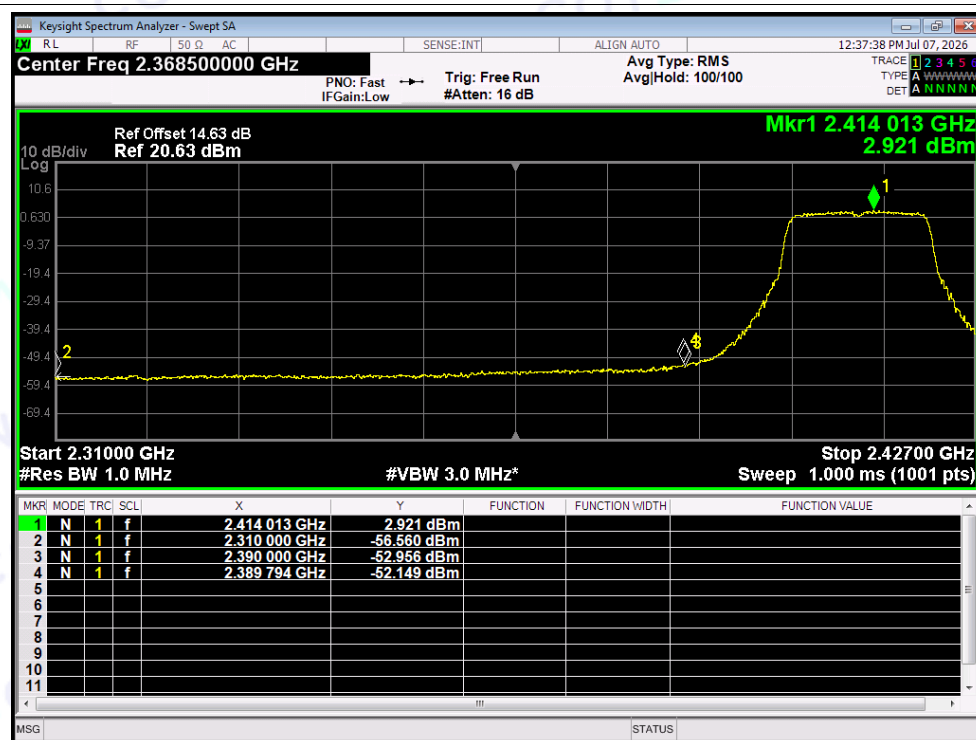
Restrict Band NVNT g 2462MHz Ant1 Average



Restrict Band NVNT n(HT20) 2412MHz Ant1 Peak



Restrict Band NVNT n(HT20) 2412MHz Ant1 Average



Restrict Band NVNT n(HT20) 2462MHz Ant1 Peak



Restrict Band NVNT n(HT20) 2462MHz Ant1 Average

