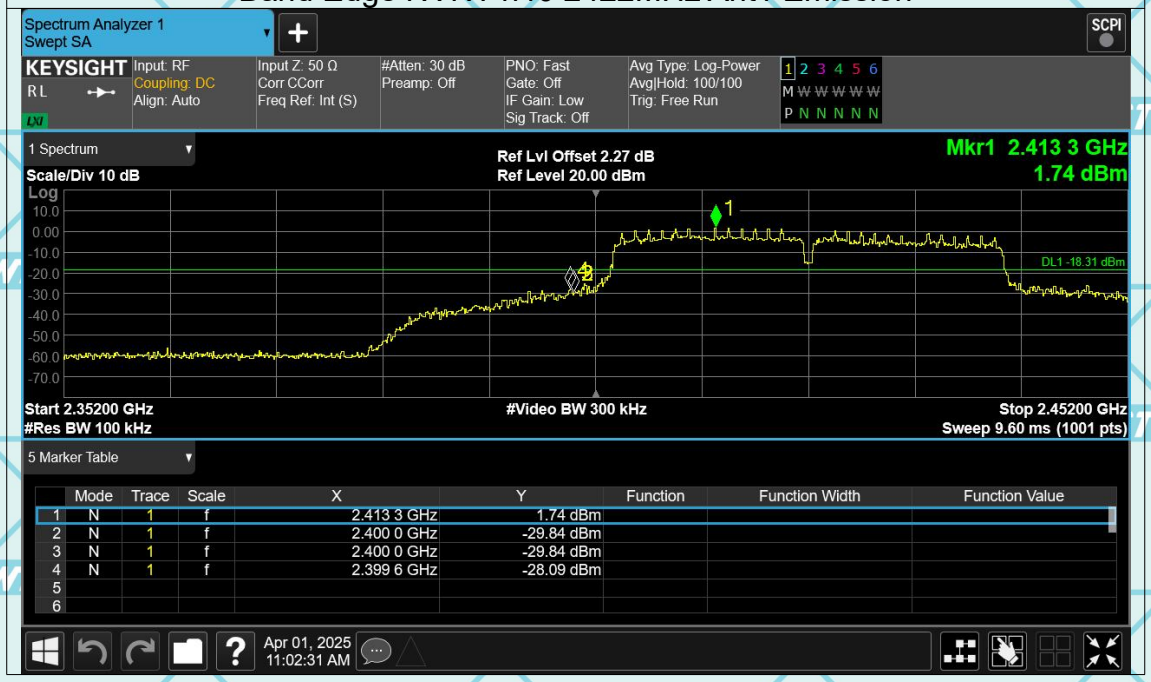
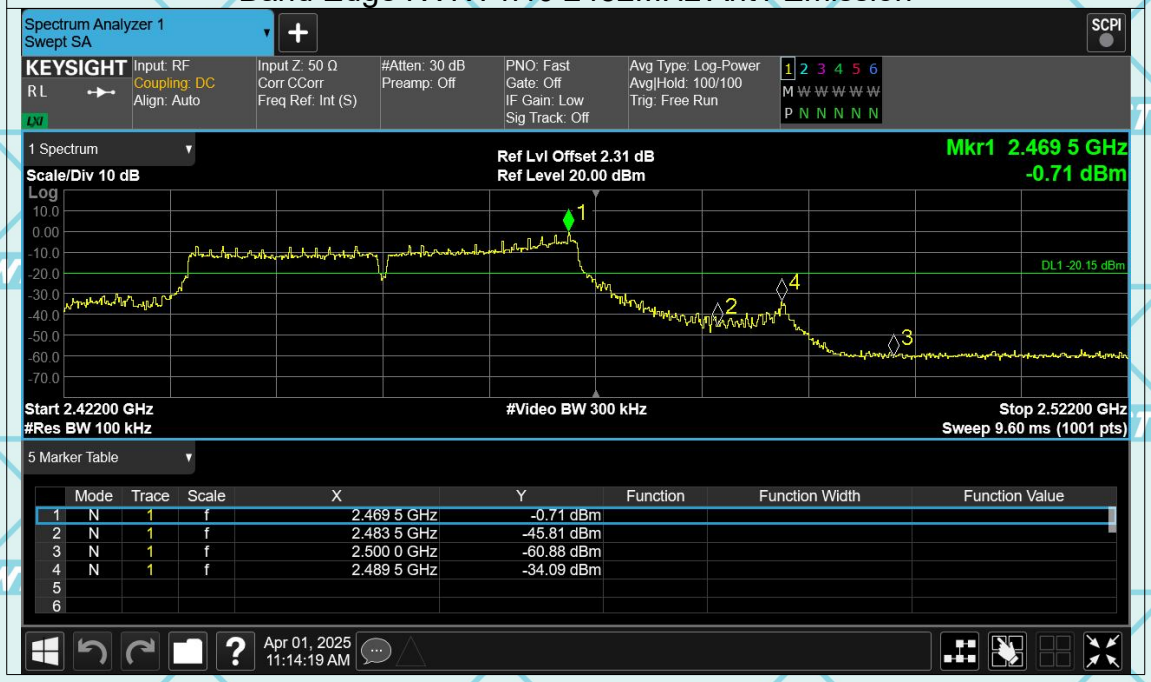
Band Edge NVNT n40 2422MHz Ant1 Ref

Band Edge NVNT n40 2422MHz Ant1 Emission



Band Edge NVNT n40 2452MHz Ant1 Ref

Band Edge NVNT n40 2452MHz Ant1 Emission

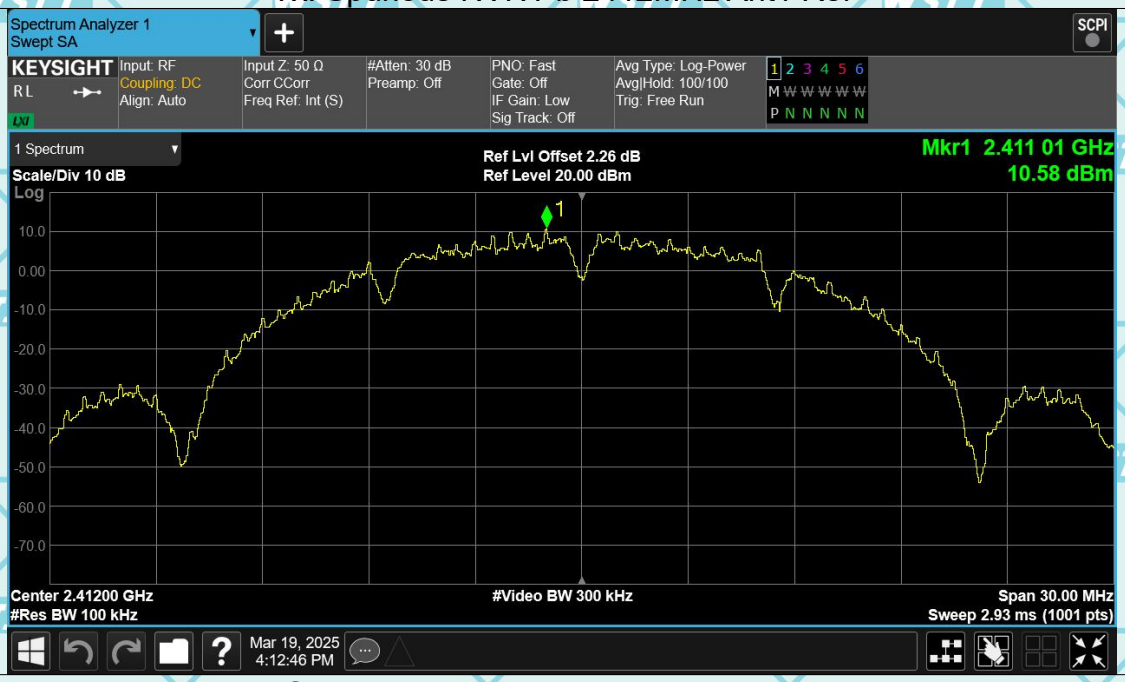


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.469 5 GHz	-0.71 dBm			
2	N	1	f	2.483 5 GHz	-45.81 dBm			
3	N	1	f	2.500 0 GHz	-60.88 dBm			
4	N	1	f	2.489 5 GHz	-34.09 dBm			
5								
6								

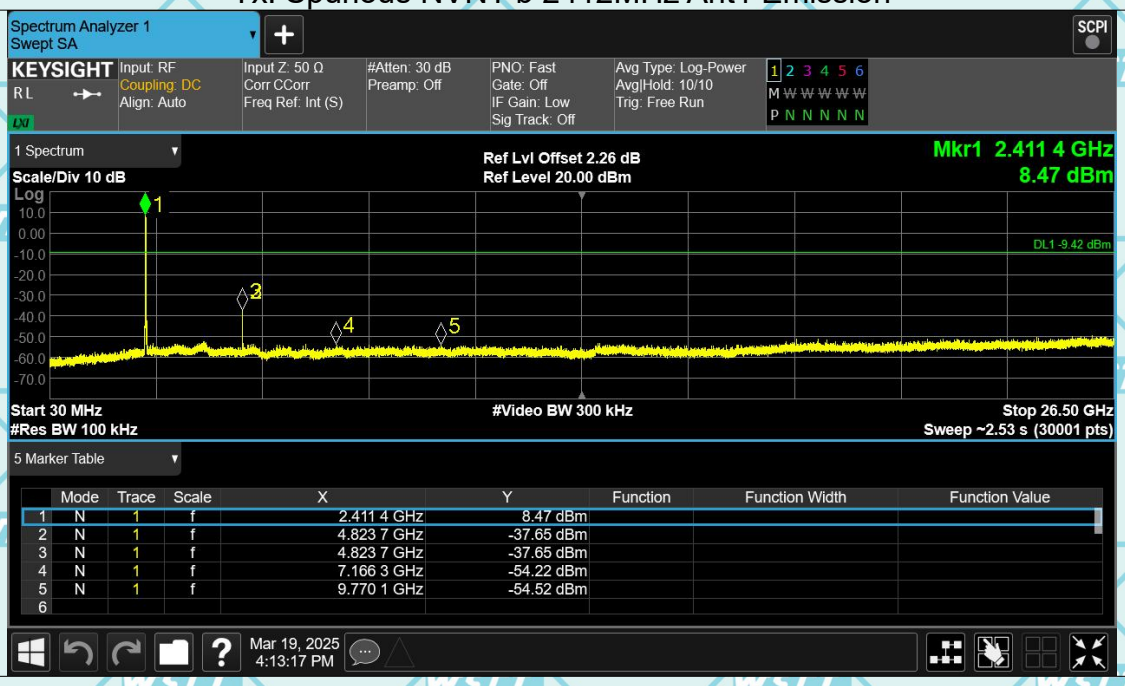
Conducted RF Spurious Emission

Test Graphs

Tx. Spurious NVNT b 2412MHz Ant1 Ref

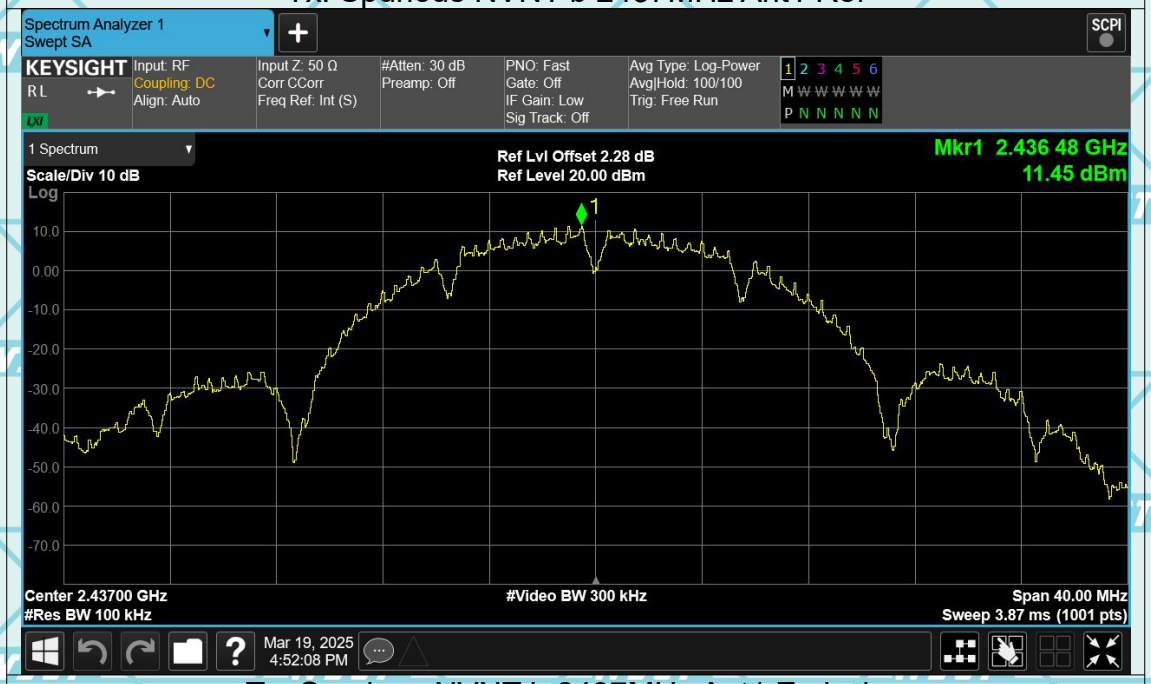


Tx. Spurious NVNT b 2412MHz Ant1 Emission



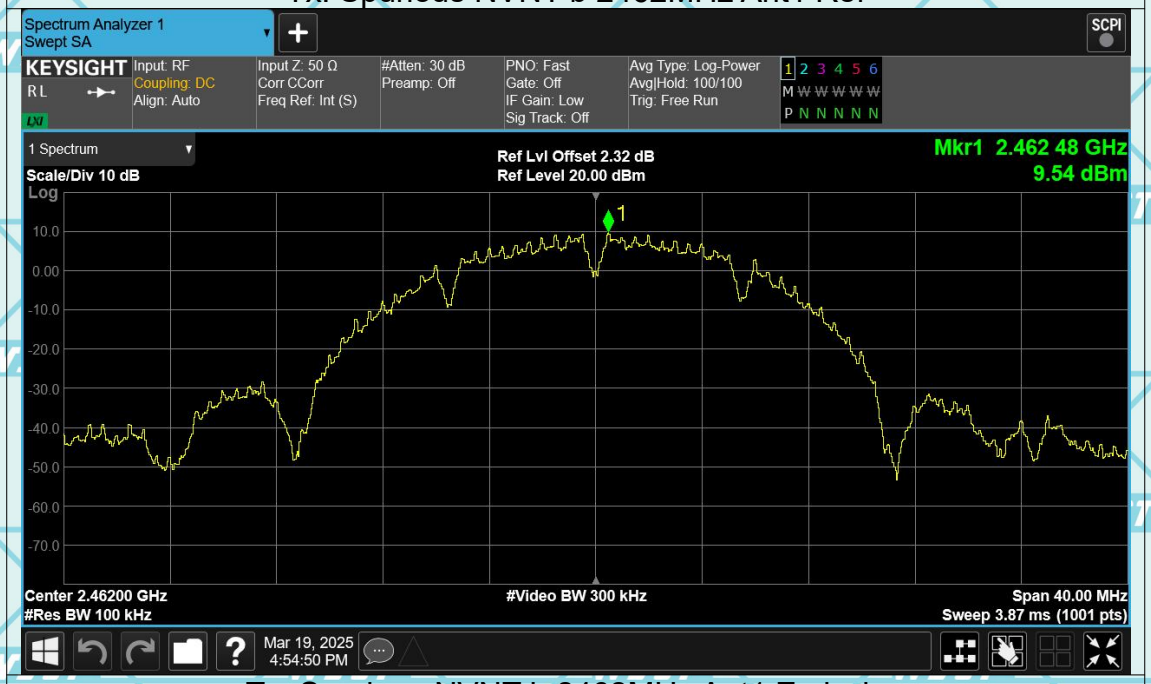
	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.411 4 GHz	8.47 dBm			
2	N	1	f	4.823 7 GHz	-37.65 dBm			
3	N	1	f	4.823 7 GHz	-37.65 dBm			
4	N	1	f	7.166 3 GHz	-54.22 dBm			
5	N	1	f	9.770 1 GHz	-54.52 dBm			
6								

Tx. Spurious NVNT b 2437MHz Ant1 Ref



Tx. Spurious NVNT b 2437MHz Ant1 Emission

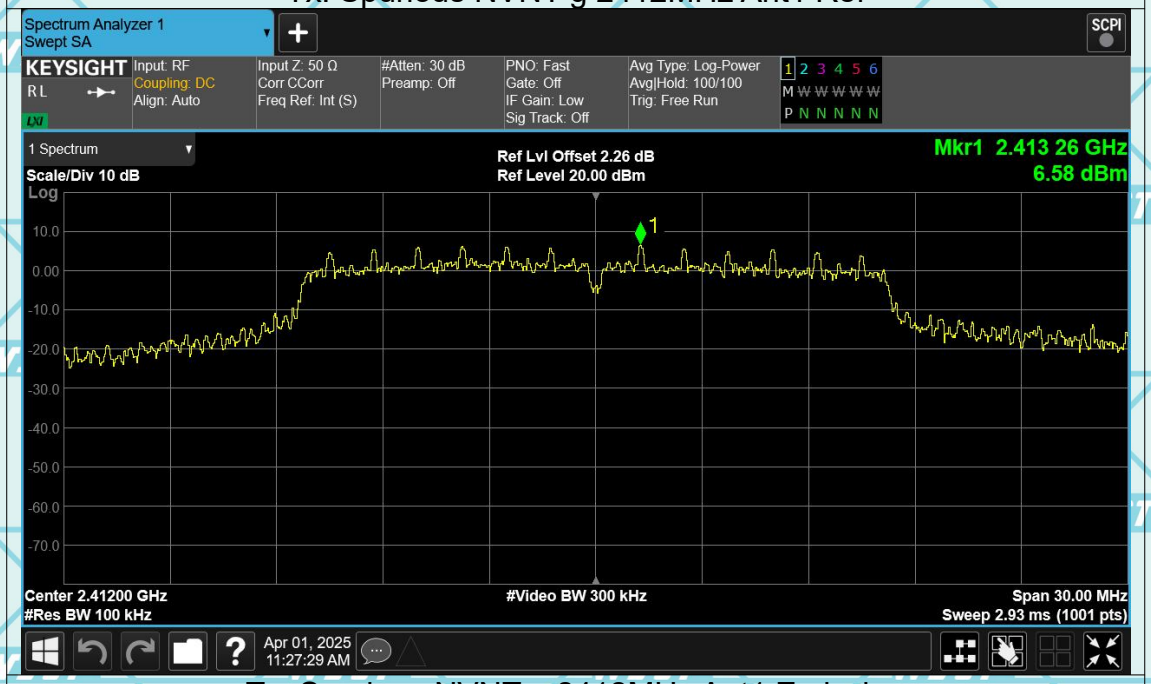
Tx. Spurious NVNT b 2462MHz Ant1 Ref



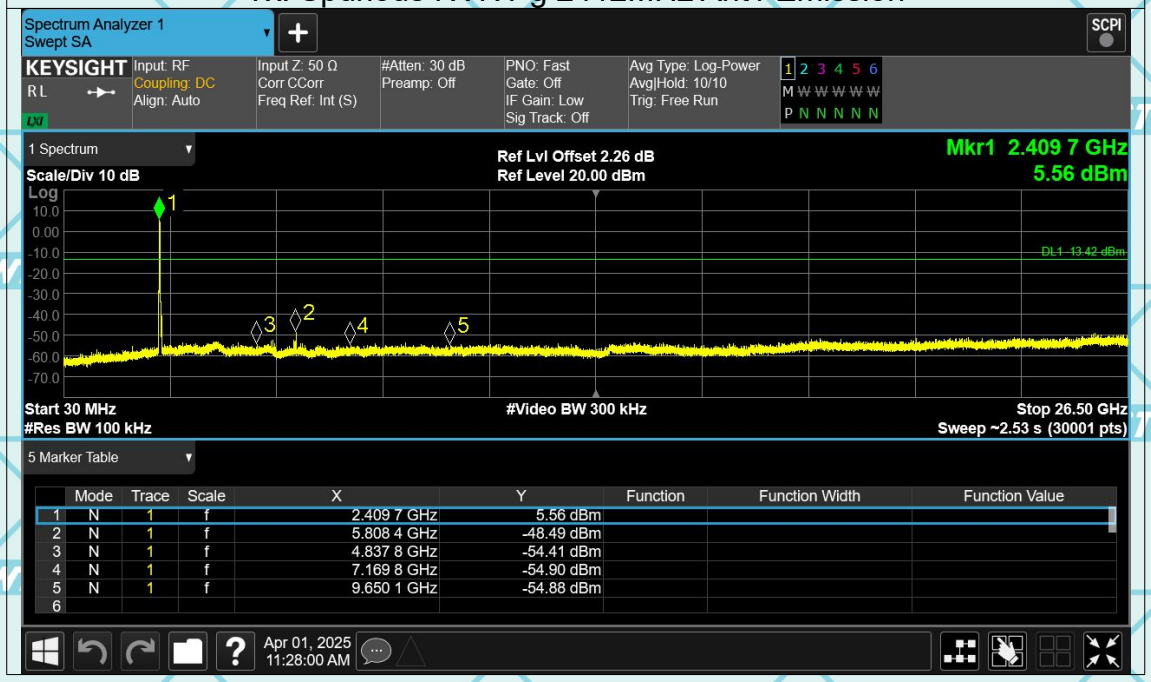
Tx. Spurious NVNT b 2462MHz Ant1 Emission

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.462 6 GHz	9.51 dBm			
2	N	1	f	4.924 3 GHz	-46.48 dBm			
3	N	1	f	4.924 3 GHz	-46.48 dBm			
4	N	1	f	7.192 8 GHz	-53.75 dBm			
5	N	1	f	9.756 8 GHz	-53.93 dBm			
6								

Tx. Spurious NVNT g 2412MHz Ant1 Ref

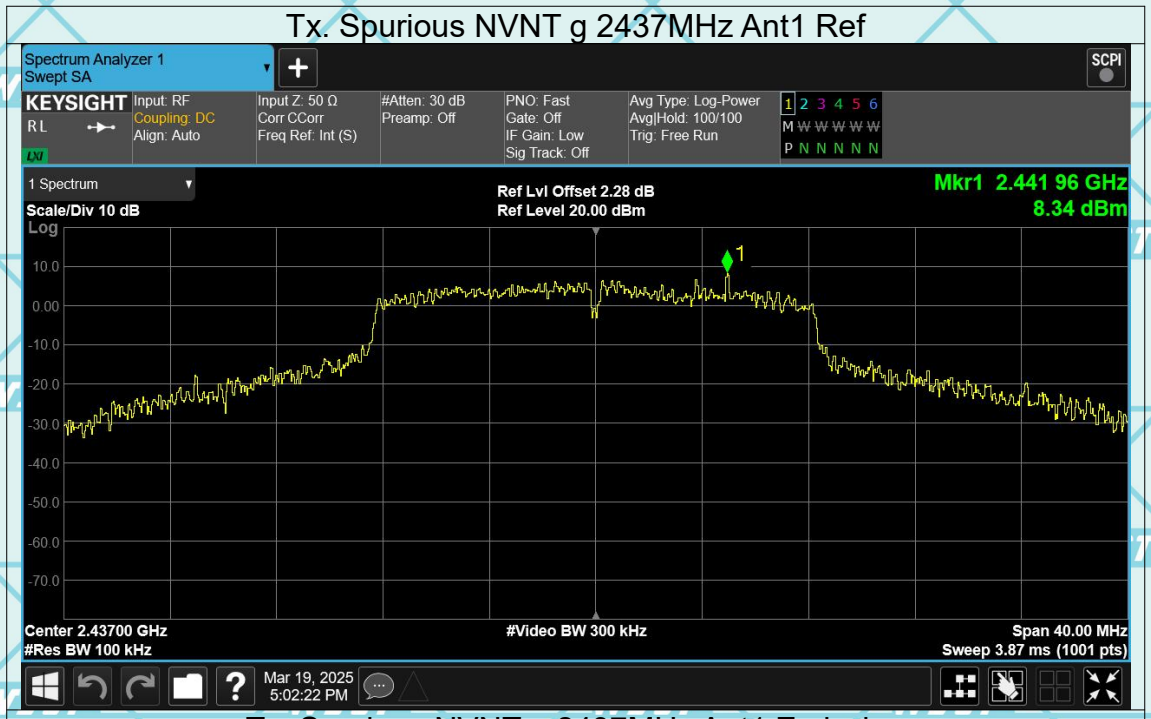


Tx. Spurious NVNT g 2412MHz Ant1 Emission



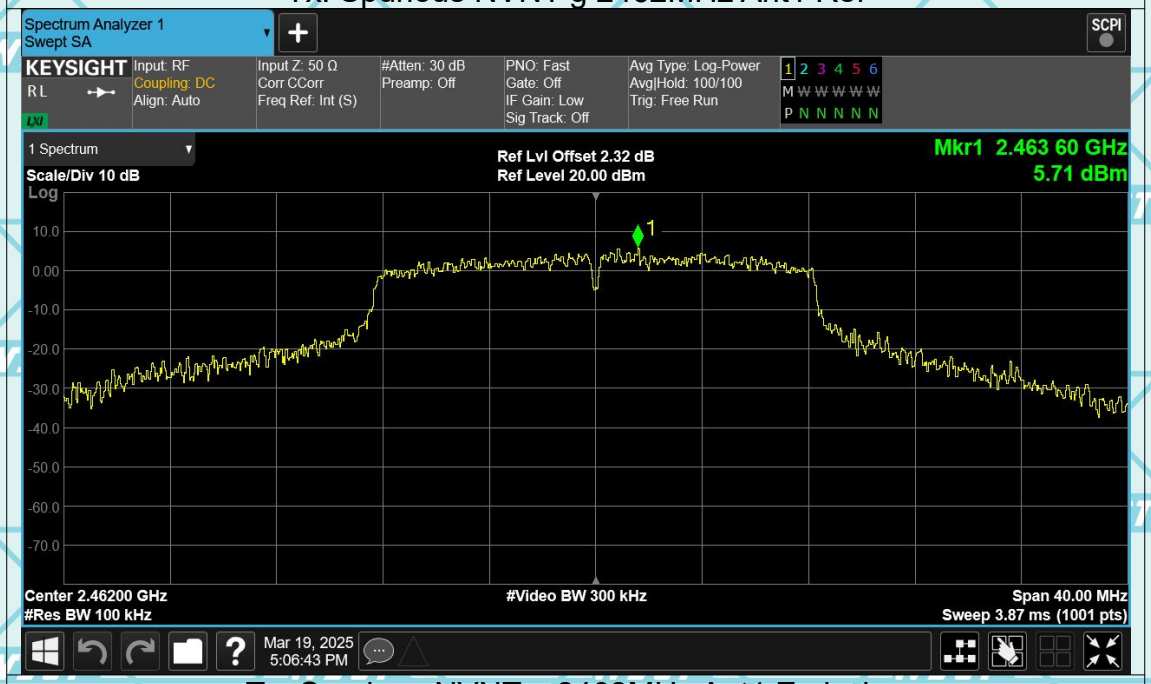
	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.409 7 GHz	5.56 dBm			
2	N	1	f	5.808 4 GHz	-48.49 dBm			
3	N	1	f	4.837 8 GHz	-54.41 dBm			
4	N	1	f	7.169 8 GHz	-54.90 dBm			
5	N	1	f	9.650 1 GHz	-54.88 dBm			
6								

Tx. Spurious NVNT g 2437MHz Ant1 Ref

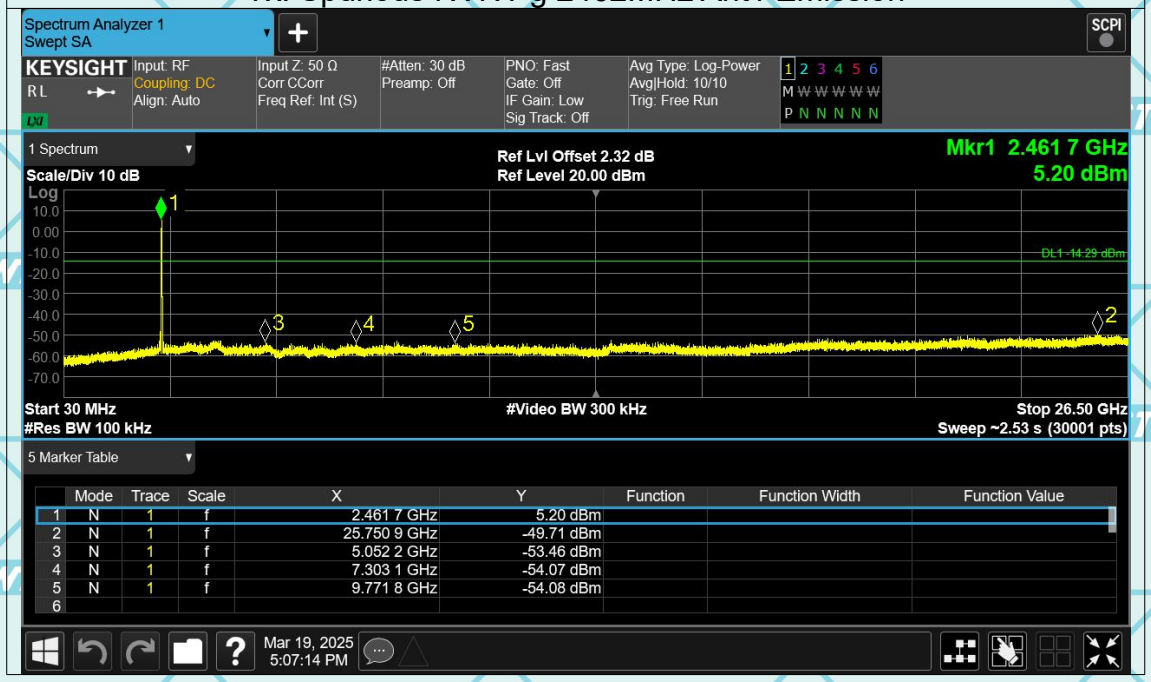


Tx. Spurious NVNT g 2437MHz Ant1 Emission

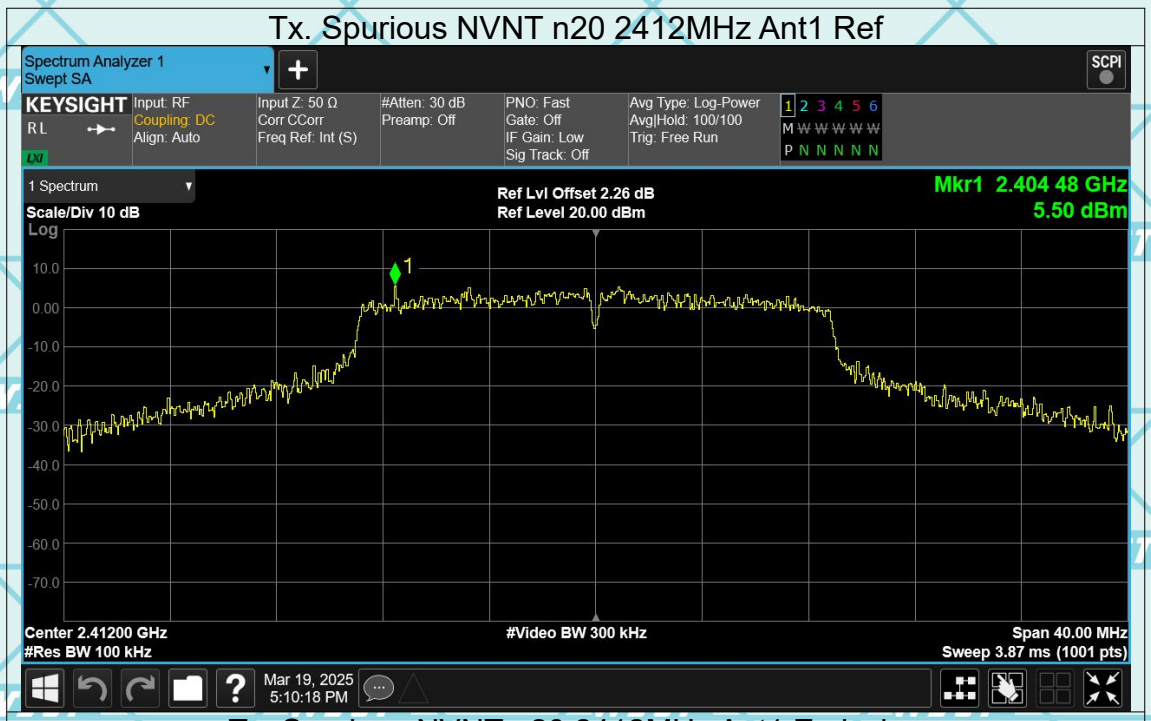
Tx. Spurious NVNT g 2462MHz Ant1 Ref



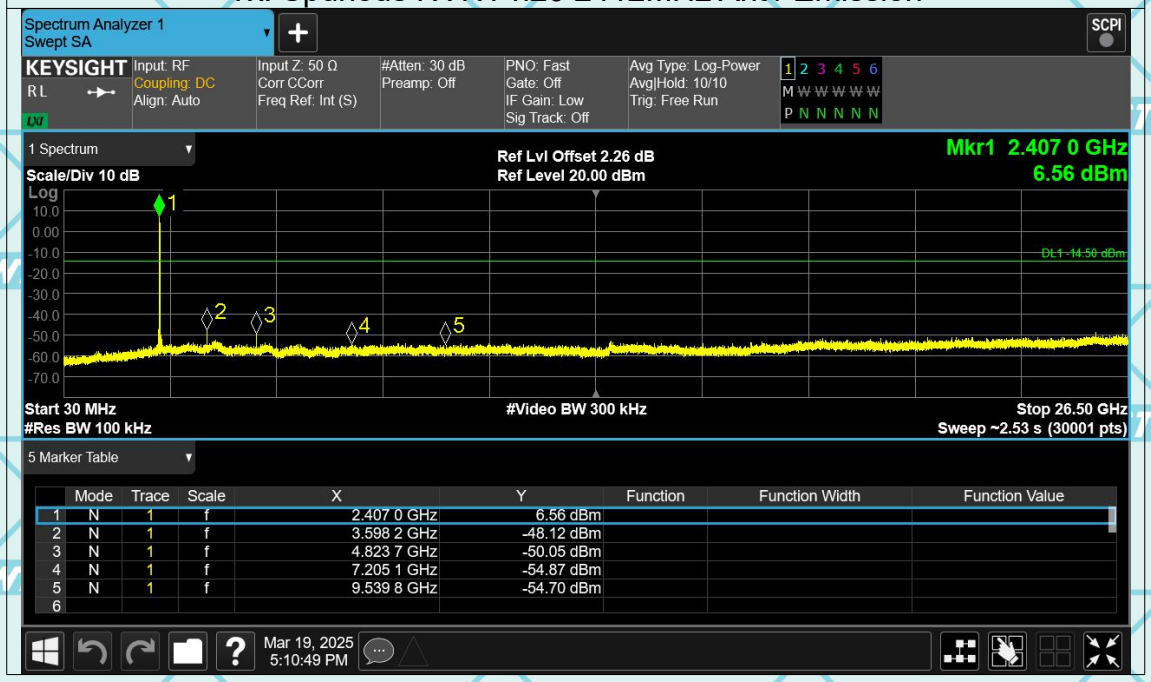
Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2412MHz Ant1 Ref

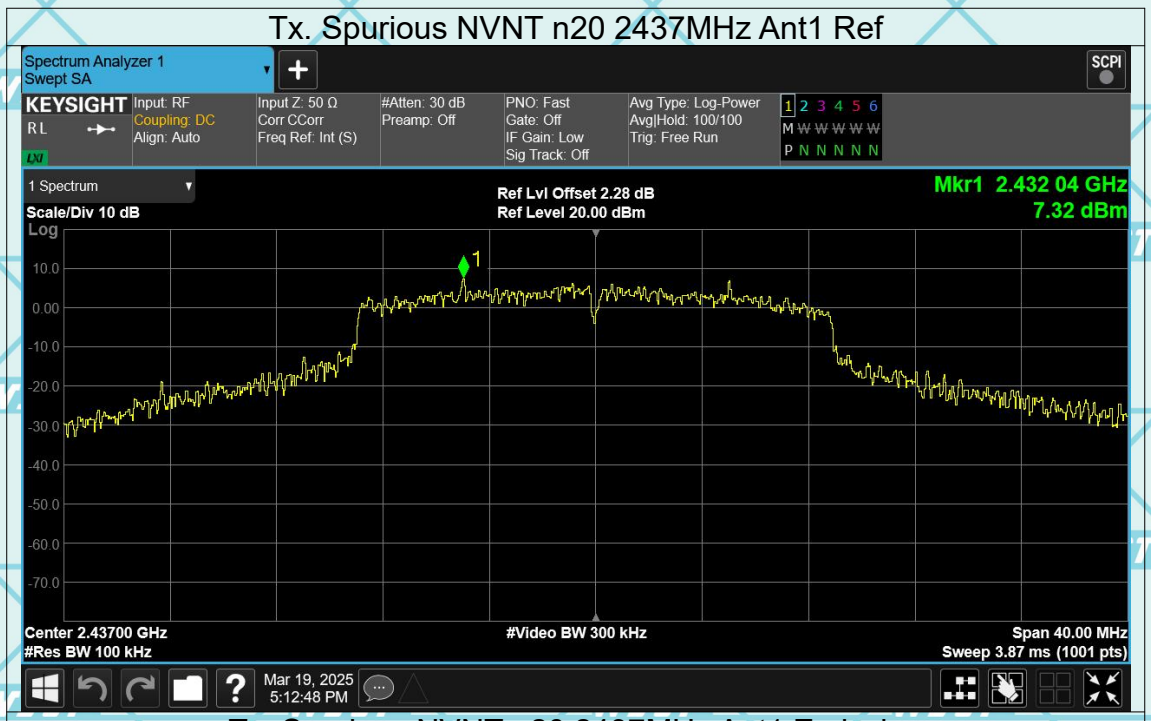


Tx. Spurious NVNT n20 2412MHz Ant1 Emission

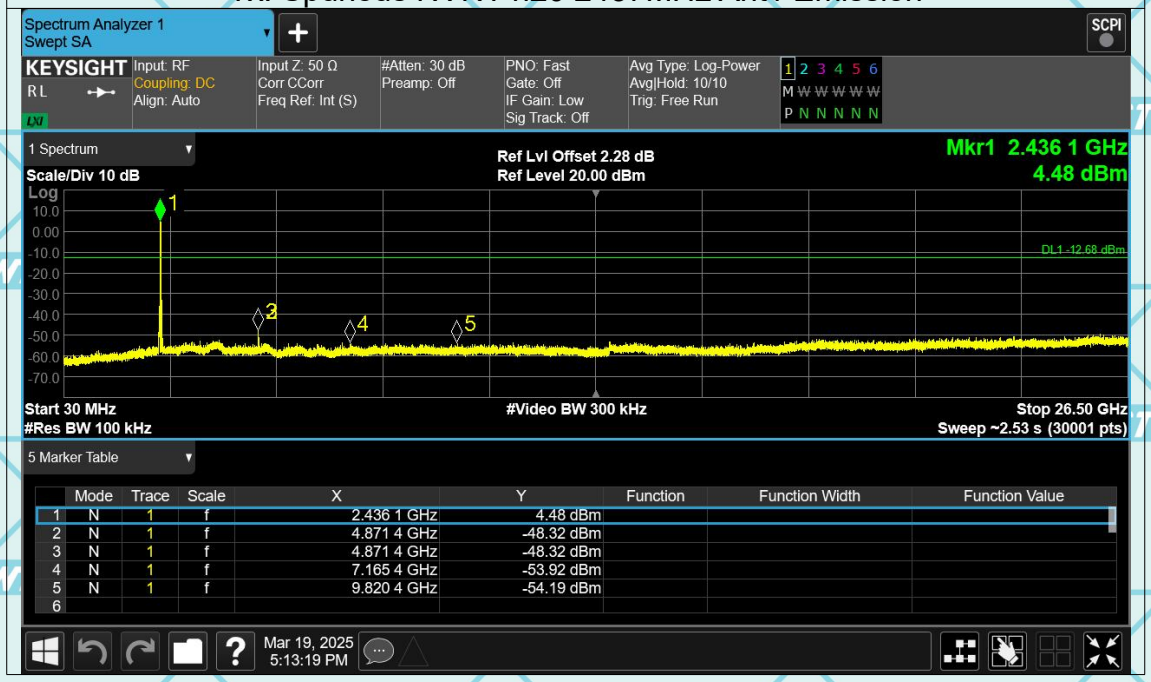


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.407 0 GHz	6.56 dBm			
2	N	1	f	3.598 2 GHz	-48.12 dBm			
3	N	1	f	4.823 7 GHz	-50.05 dBm			
4	N	1	f	7.205 1 GHz	-54.87 dBm			
5	N	1	f	9.539 8 GHz	-54.70 dBm			
6								

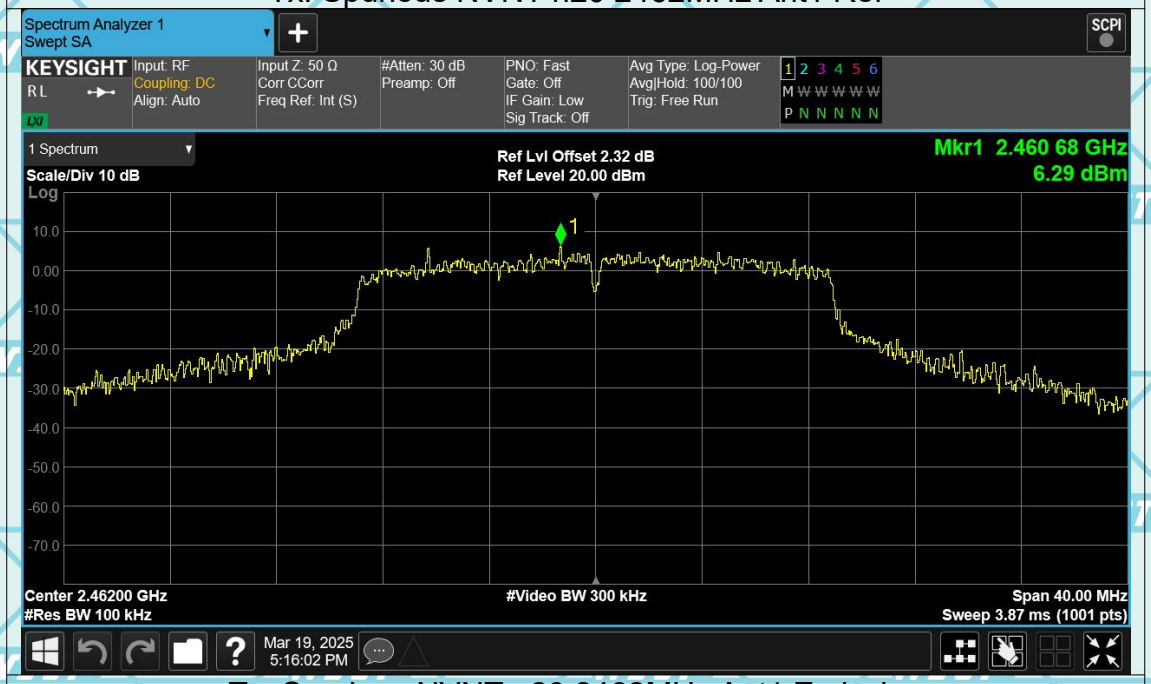
Tx. Spurious NVNT n20 2437MHz Ant1 Ref



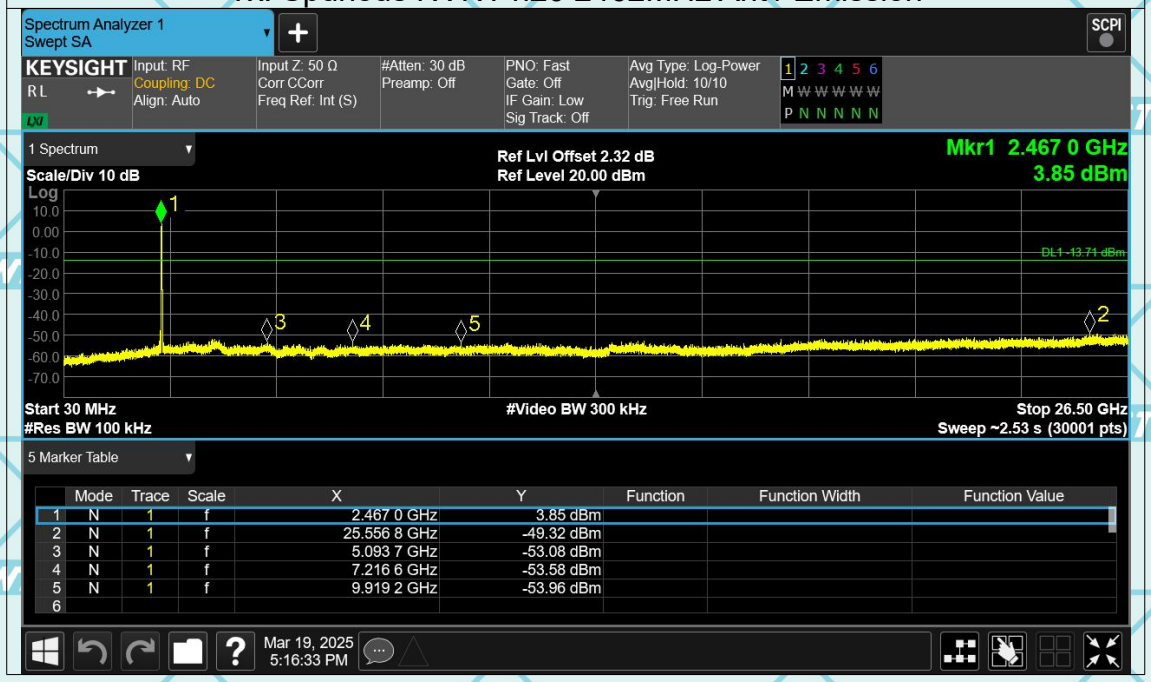
Tx. Spurious NVNT n20 2437MHz Ant1 Emission



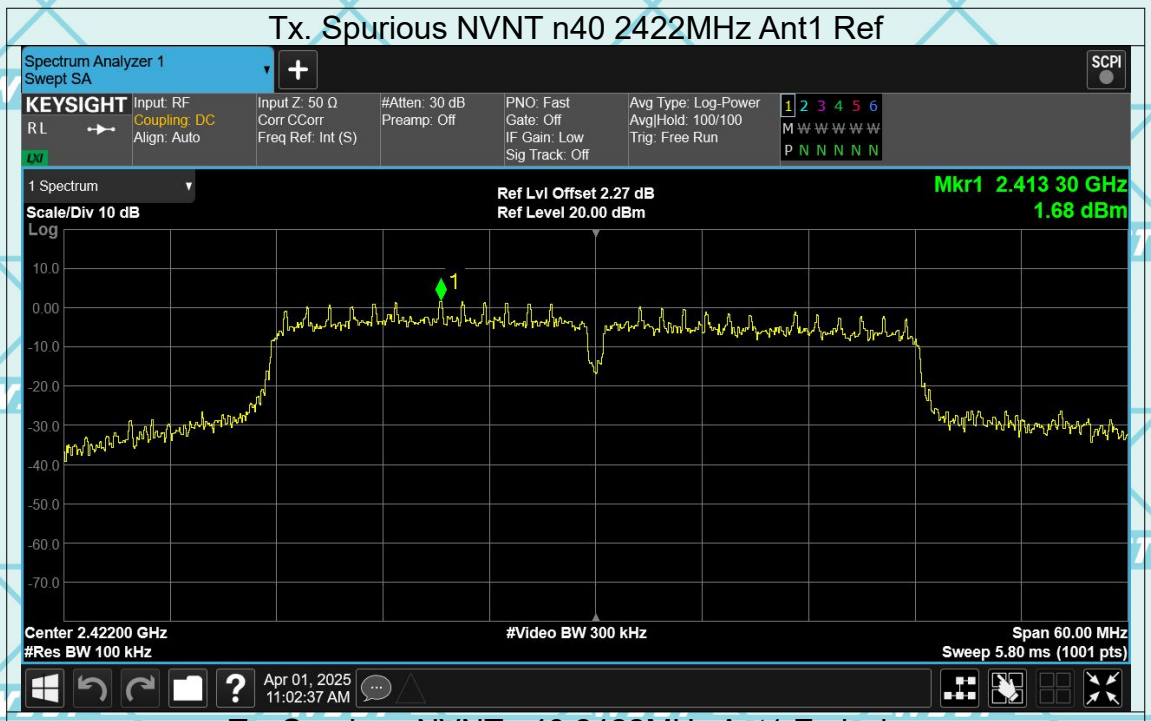
Tx. Spurious NVNT n20 2462MHz Ant1 Ref



Tx. Spurious NVNT n20 2462MHz Ant1 Emission



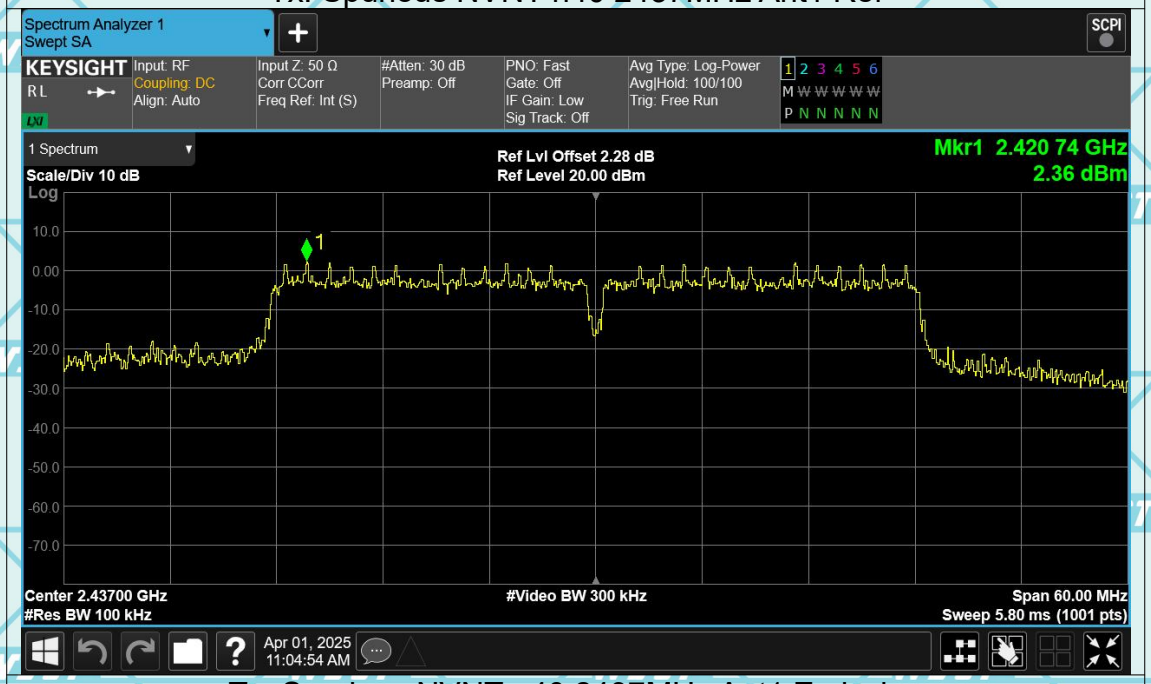
Tx. Spurious NVNT n40 2422MHz Ant1 Ref



Tx. Spurious NVNT n40 2422MHz Ant1 Emission

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.414 1 GHz	1.55 dBm			
2	N	1	f	1.766 4 GHz	-36.33 dBm			
3	N	1	f	4.992 2 GHz	-54.19 dBm			
4	N	1	f	7.212 2 GHz	-53.73 dBm			
5	N	1	f	9.876 8 GHz	-53.23 dBm			
6								

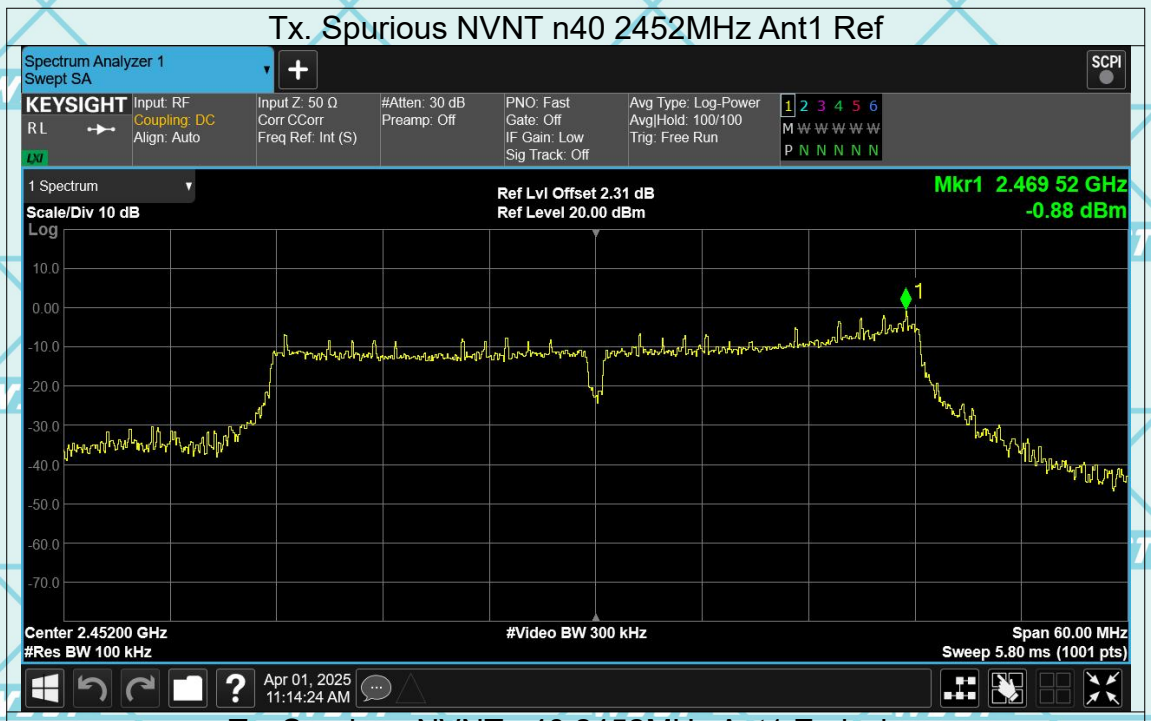
Tx. Spurious NVNT n40 2437MHz Ant1 Ref



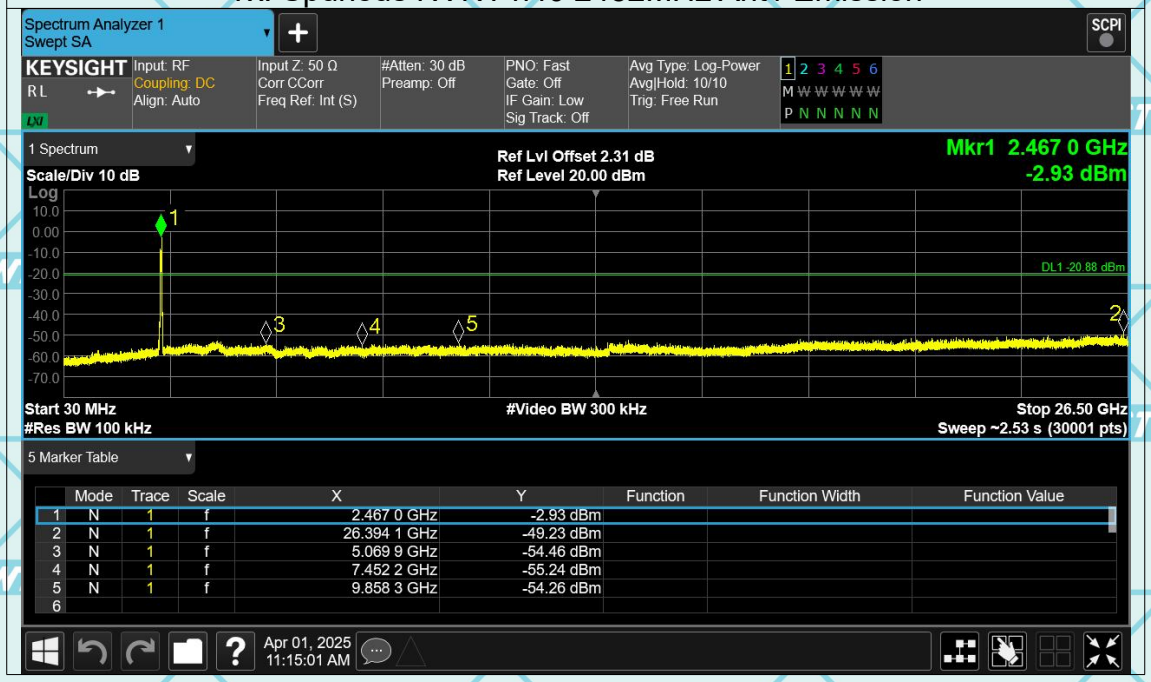
Tx. Spurious NVNT n40 2437MHz Ant1 Emission

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.422 0 GHz	1.91 dBm			
2	N	1	f	3.435 8 GHz	-42.12 dBm			
3	N	1	f	5.052 2 GHz	-54.36 dBm			
4	N	1	f	7.349 0 GHz	-54.67 dBm			
5	N	1	f	9.576 8 GHz	-54.95 dBm			
6								

Tx. Spurious NVNT n40 2452MHz Ant1 Ref



Tx. Spurious NVNT n40 2452MHz Ant1 Emission



	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.467 0 GHz	-2.93 dBm			
2	N	1	f	26.394 1 GHz	-49.23 dBm			
3	N	1	f	5.069 9 GHz	-54.46 dBm			
4	N	1	f	7.452 2 GHz	-55.24 dBm			
5	N	1	f	9.858 3 GHz	-54.26 dBm			
6								

6.6. Radiated Spurious Emission Measurement

6.6.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10: 2014
Frequency Range:	9 kHz to 25 GHz
Measurement Distance:	3 m
Antenna Polarization:	Horizontal & Vertical
Operation mode:	Transmitting mode with modulation

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

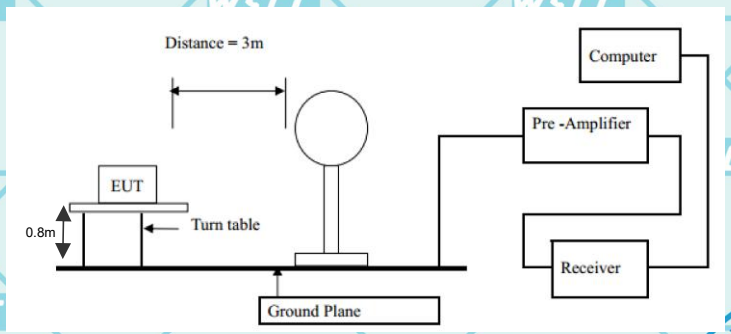
Limit:

Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

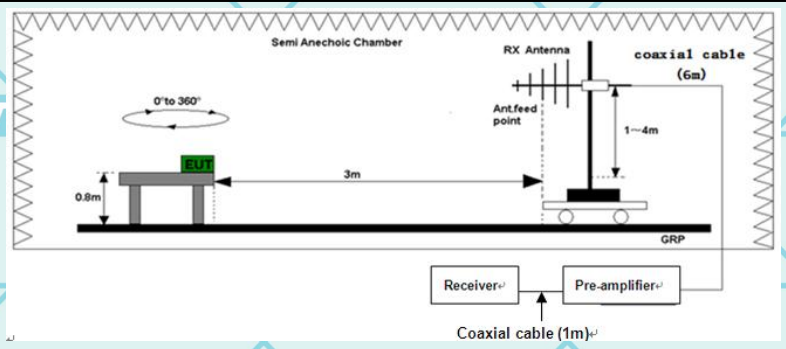
Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector
Above 1GHz	500	3	Average
	5000	3	Peak

Test setup:

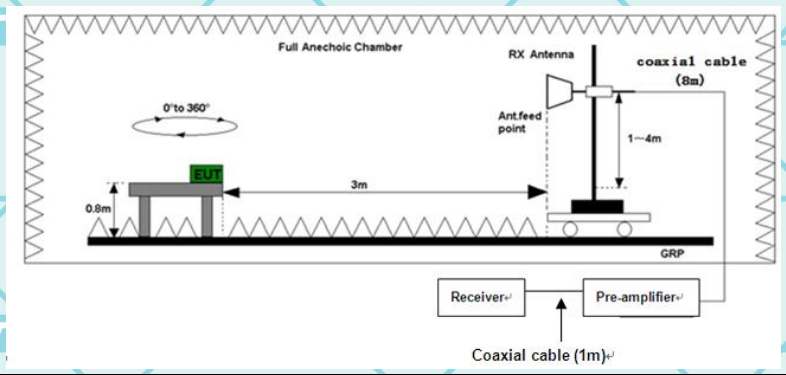
For radiated emissions below 30MHz



30MHz to 1GHz



Above 1GHz



Test Procedure:

1. For the radiated emission test below 1GHz:
The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.
For the radiated emission test above 1GHz:
Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

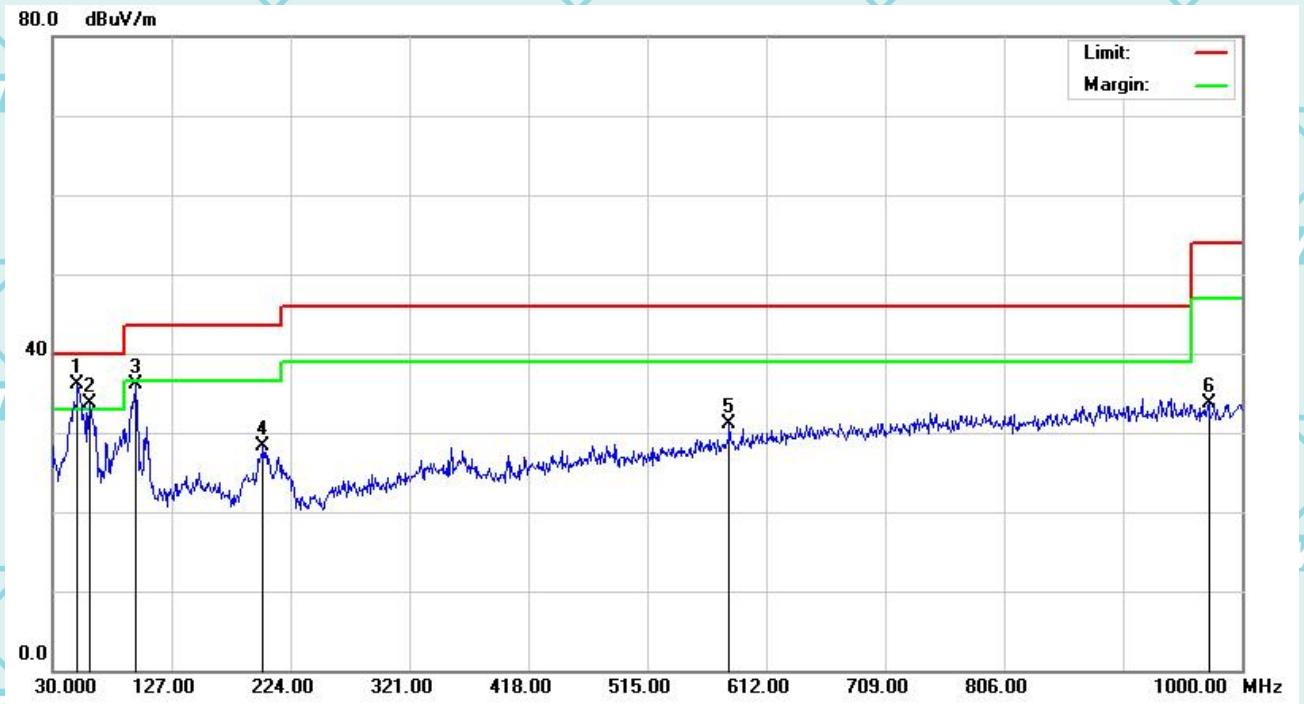
	3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 5. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test results:	PASS

Note 1: The symbol of "--" in the table which means not application.
Note 2: For the test data above 1 GHz, According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.
Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.
Note 4: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

6.6.2. Test Data(worst)

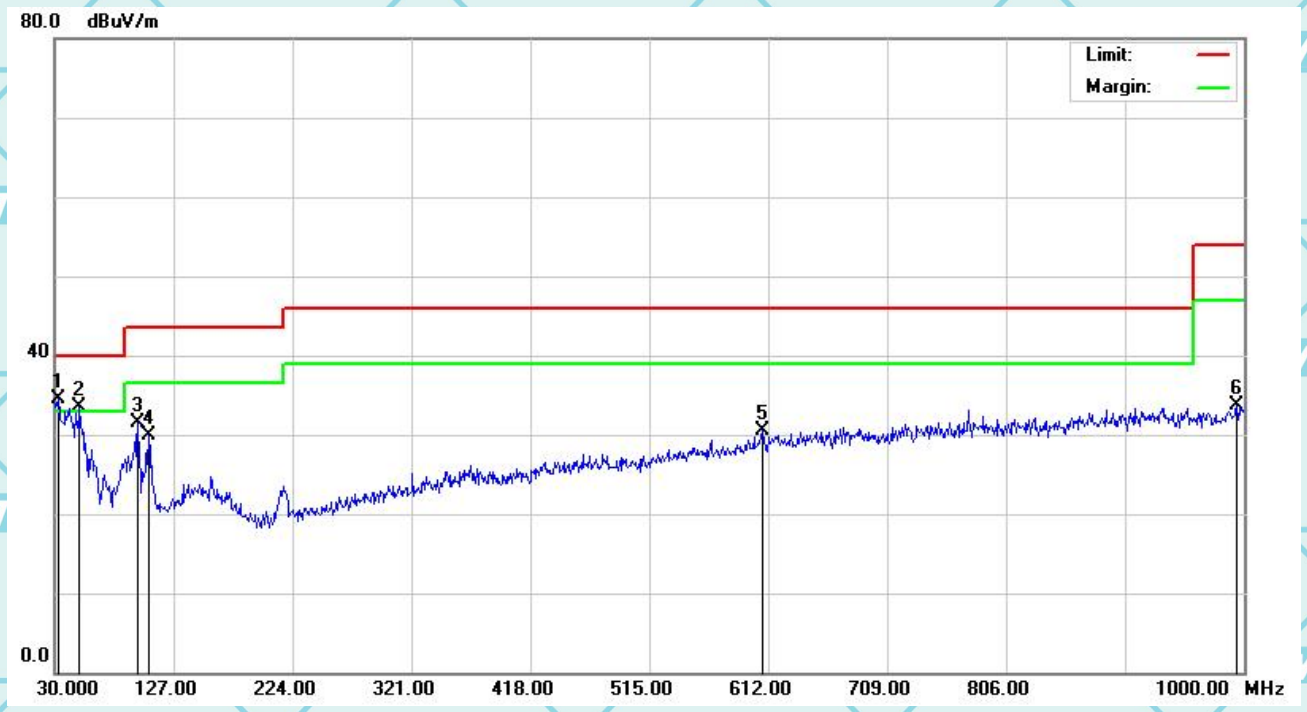
Please refer to following diagram for individual
Below 1GHz

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	50.3700	38.21	-2.14	36.07	40.00	-3.93	QP
2	!	60.0700	36.50	-2.82	33.68	40.00	-6.32	QP
3		97.9000	41.74	-5.68	36.06	43.50	-7.44	QP
4		201.6900	34.21	-5.92	28.29	43.50	-15.21	QP
5		581.9300	27.70	3.37	31.07	46.00	-14.93	QP
6		972.8400	25.46	8.31	33.77	54.00	-20.23	QP

Vertical:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	32.9100	36.93	-2.51	34.42	40.00	-5.58	QP
2	!	50.3700	35.70	-2.14	33.56	40.00	-6.44	QP
3		97.9000	37.13	-5.68	31.45	43.50	-12.05	QP
4		106.6300	34.80	-4.90	29.90	43.50	-13.60	QP
5		607.1500	26.54	3.88	30.42	46.00	-15.58	QP
6		994.1800	25.12	8.57	33.69	54.00	-20.31	QP

Note1:
Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading
Corr. Factor (dB) = Antenna factor + Cable loss - Amplifier factor.
Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)
Limit (dBμV) = Limit stated in standard
Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Above 1GHz

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious above 18G is noise only, do not show on the report.

Note 3: Report and only recorded the worst-case scenario 802.11b.

1 GHz to 18 GHz, ANT H 802.11b Low Channel

Horizontal:

Susputed Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	1545.0000	39.87	24.96	14.91	74	-34.13	321.5	Horizontal	PK	Pass
1	1545.0000	31.36	24.96	6.4	54	-22.64	321.5	Horizontal	AV	Pass
2	2405.6250	47.47	27.28	20.19	74	-26.53	182.9	Horizontal	PK	Pass
2	2405.6250	38.19	27.28	10.91	54	-15.81	182.9	Horizontal	AV	Pass
3	5798.1250	61.67	32.48	29.19	74	-12.33	129	Horizontal	PK	Pass
3	5798.1250	48.15	32.48	15.67	54	-5.85	129	Horizontal	AV	Pass
4	7197.0000	41.35	7.01	34.34	74	-32.65	1.1	Horizontal	PK	Pass
4	7197.0000	33.51	7.01	26.5	54	-20.49	1.1	Horizontal	AV	Pass
5	10647.0000	46.07	14.5	31.57	74	-27.93	50.6	Horizontal	PK	Pass
5	10647.0000	38.25	14.5	23.75	54	-15.75	50.6	Horizontal	AV	Pass
6	17937.0000	53.56	23.5	30.06	74	-20.44	10.1	Horizontal	PK	Pass
6	17937.0000	46.61	23.5	23.11	54	-7.39	10.1	Horizontal	AV	Pass