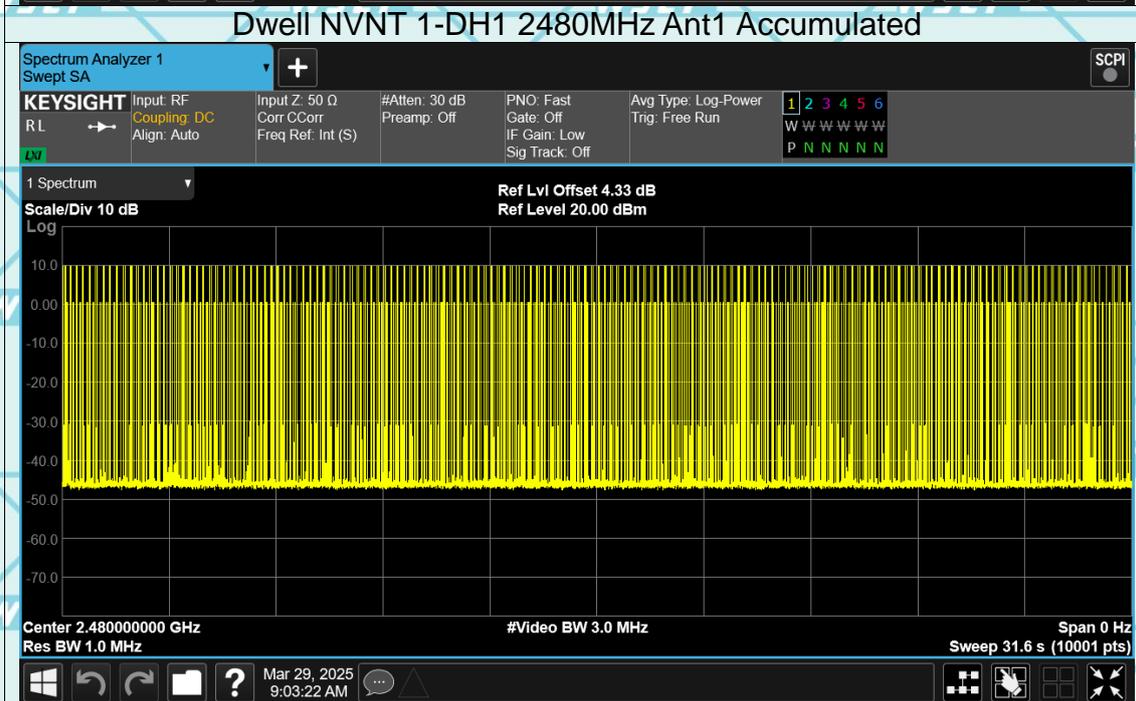
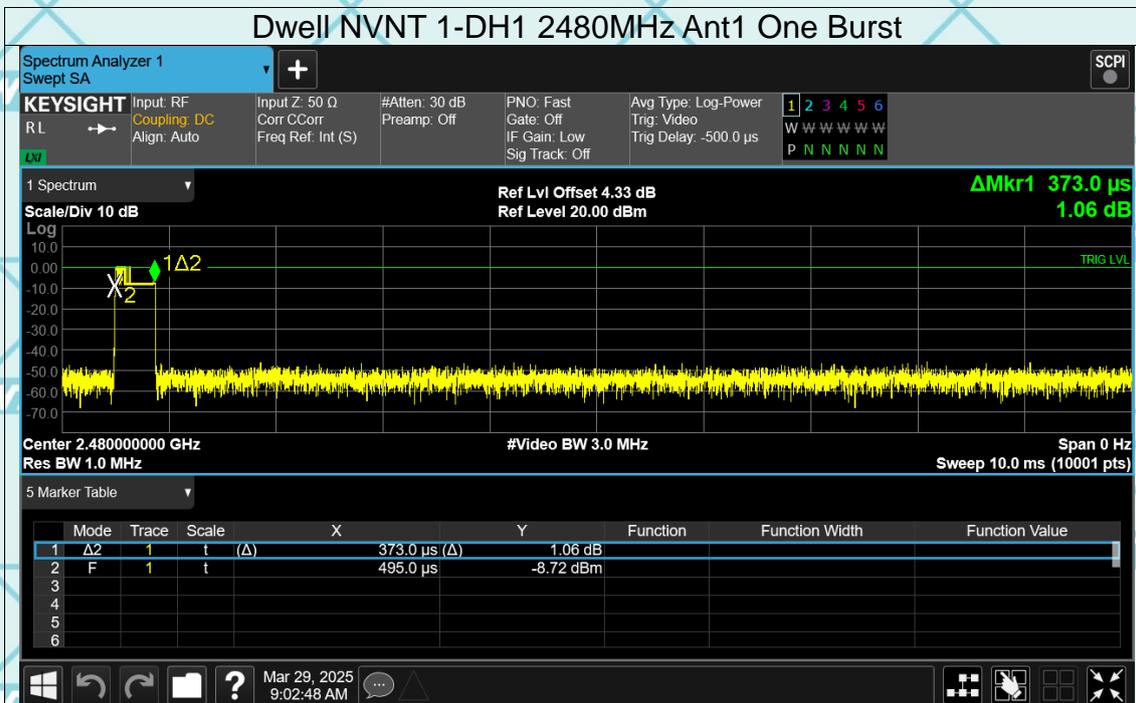
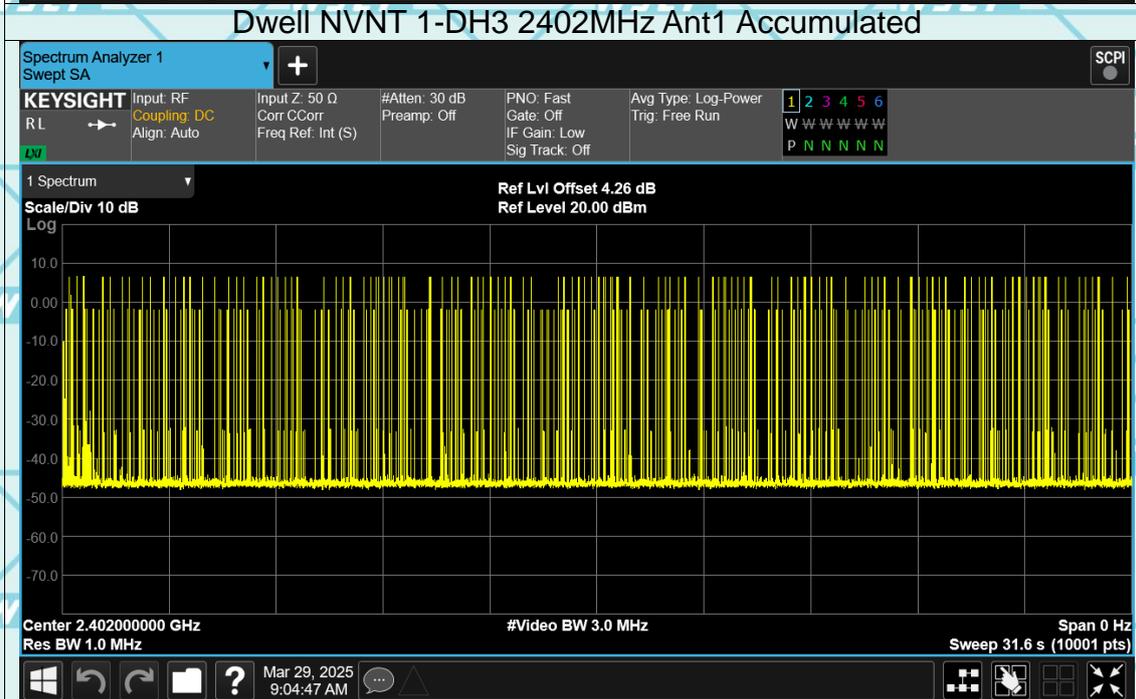
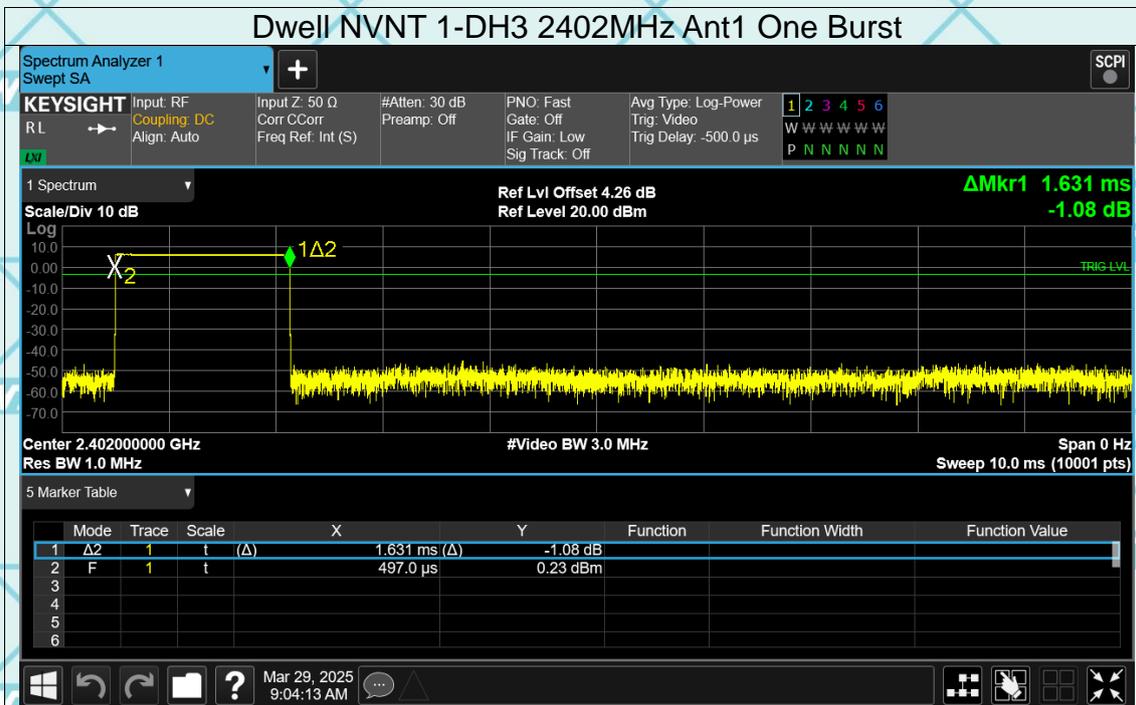


Report No.: WSCT-ANAB-R&E250400021A-BT

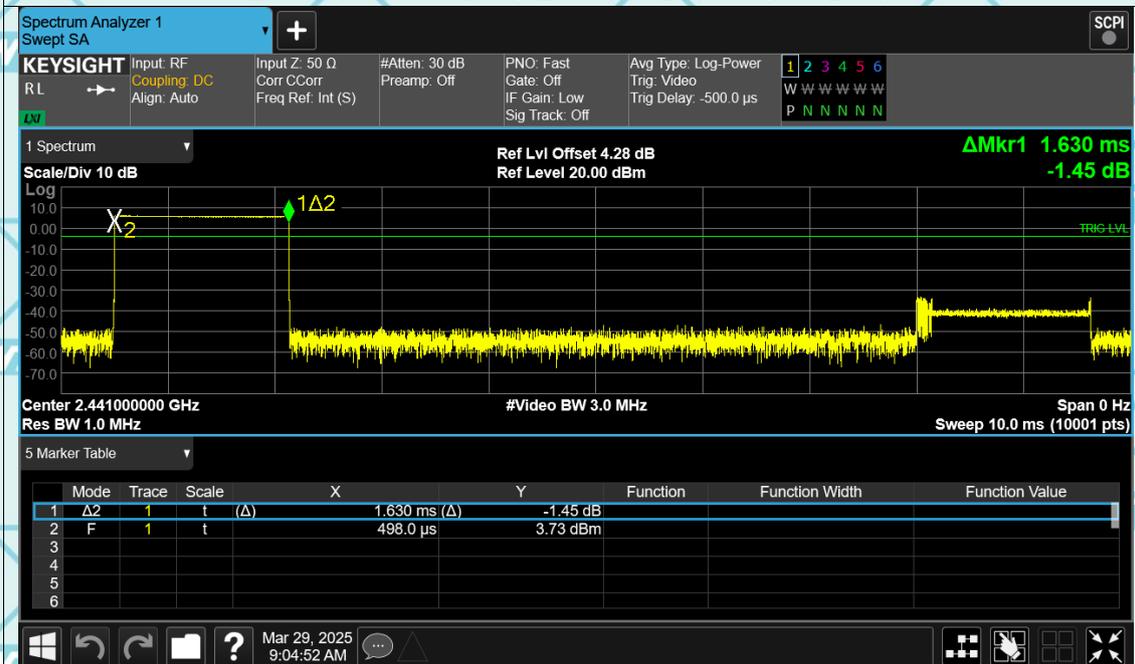


Report No.: WSCT-ANAB-R&E250400021A-BT



Report No.: WSCT-ANAB-R&E250400021A-BT

Dwell NVNT 1-DH3 2441MHz Ant1 One Burst

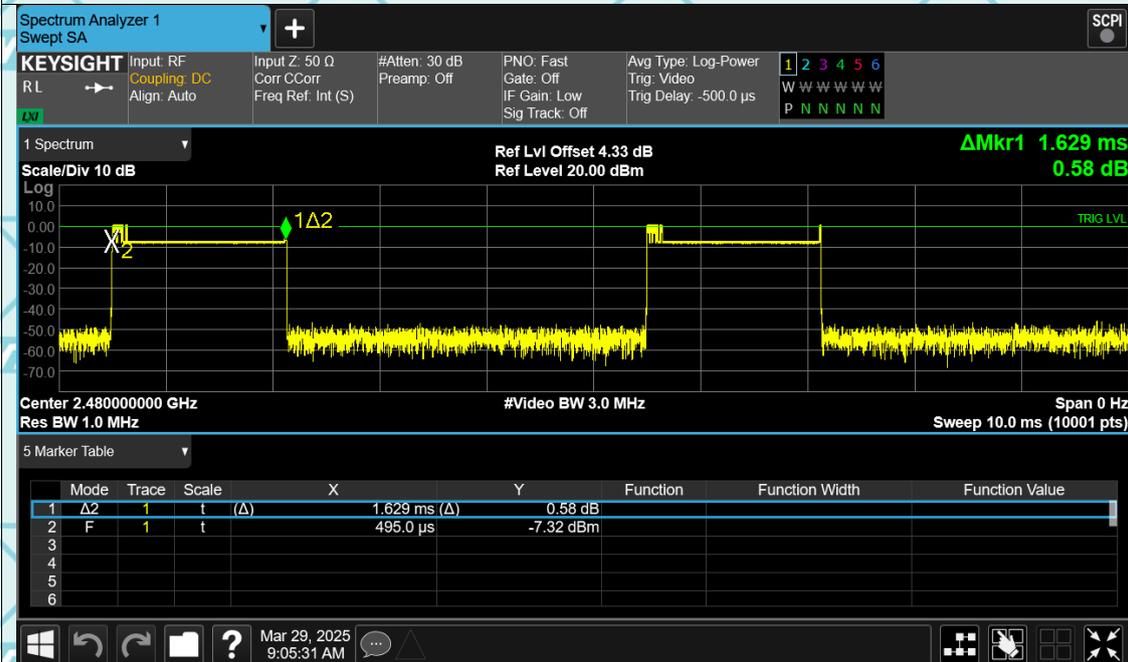


Dwell NVNT 1-DH3 2441MHz Ant1 Accumulated

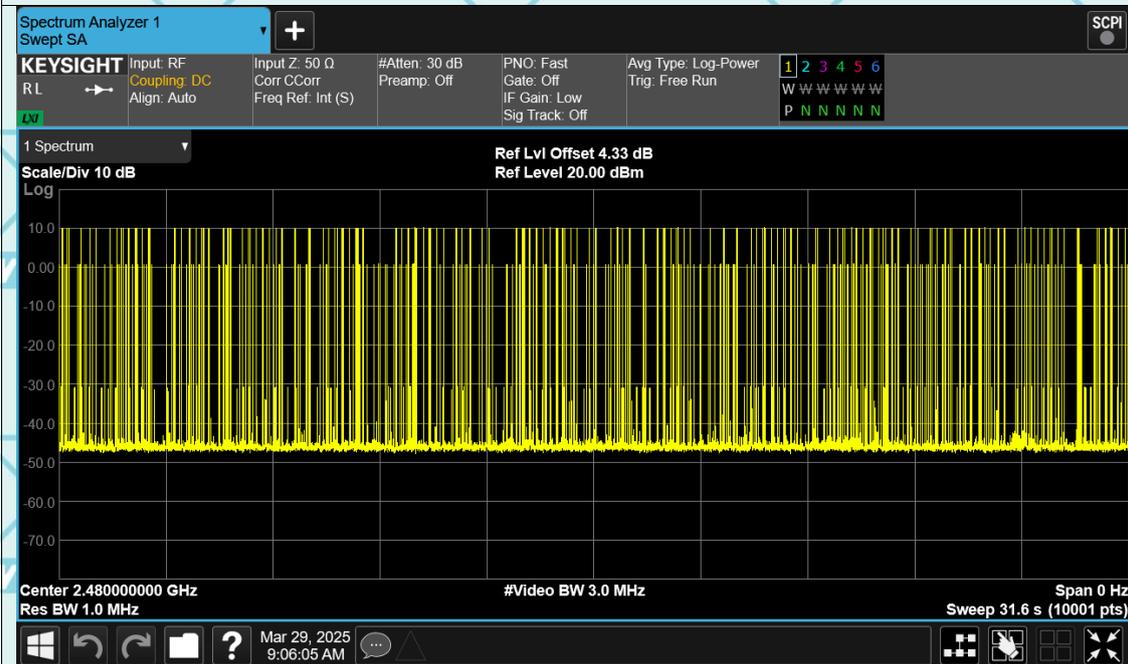


Report No.: WSCT-ANAB-R&E250400021A-BT

Dwell NVNT 1-DH3 2480MHz Ant1 One Burst

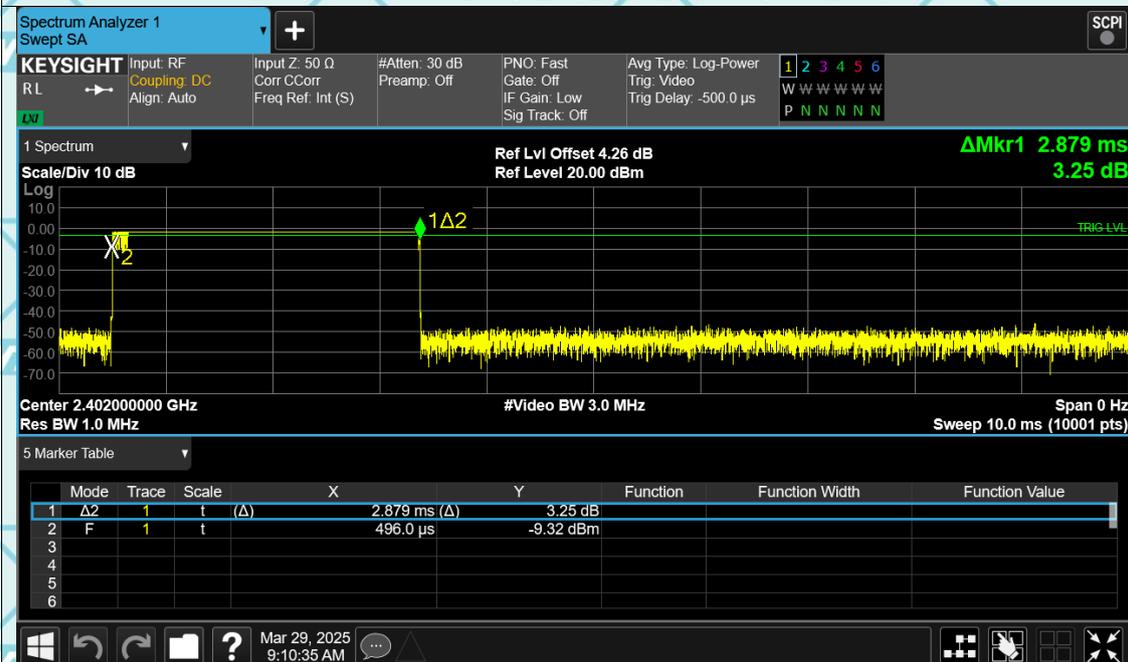


Dwell NVNT 1-DH3 2480MHz Ant1 Accumulated



Report No.: WSCT-ANAB-R&E250400021A-BT

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

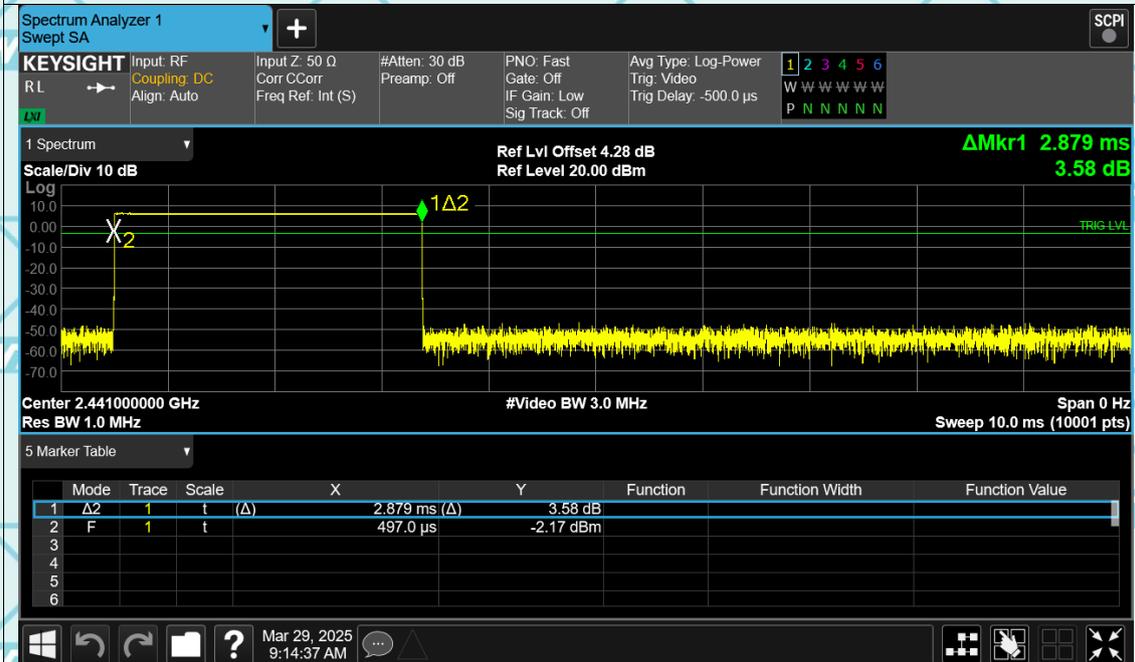


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



Report No.: WSCT-ANAB-R&E250400021A-BT

Dwell NVNT 1-DH5 2441MHz Ant1 One Burst

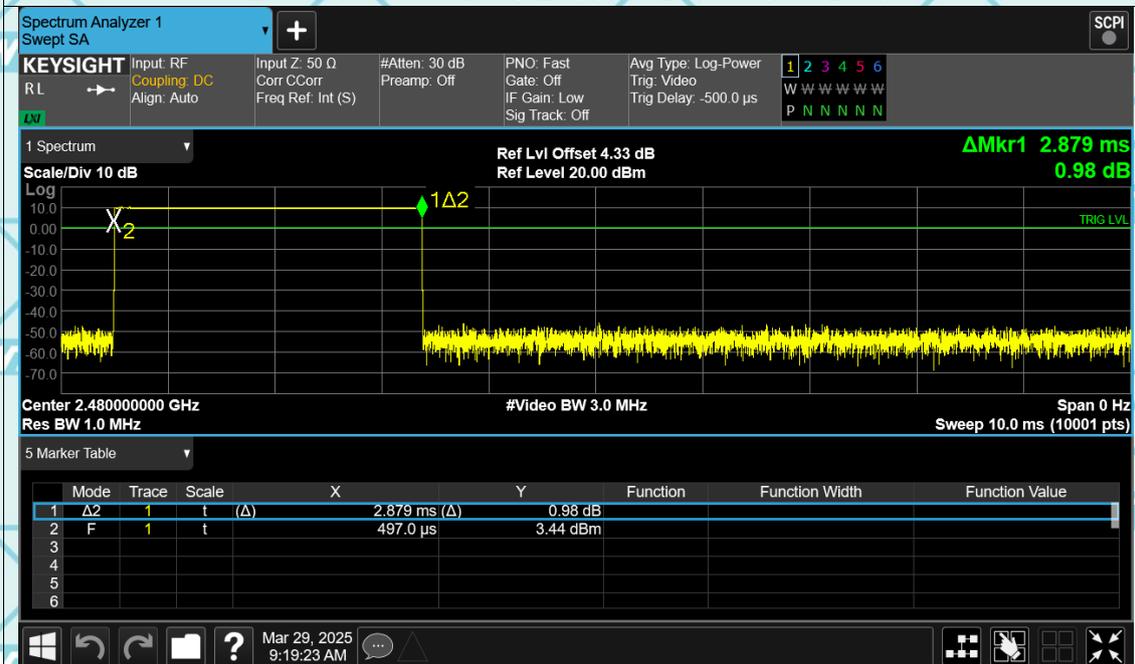


Dwell NVNT 1-DH5 2441MHz Ant1 Accumulated



Report No.: WSCT-ANAB-R&E250400021A-BT

Dwell NVNT 1-DH5 2480MHz Ant1 One Burst



Dwell NVNT 1-DH5 2480MHz Ant1 Accumulated



6.8. Pseudorandom Frequency Hopping Sequence

Test Requirement: FCC Part15 C Section 15.247 (a)(1) requirement:

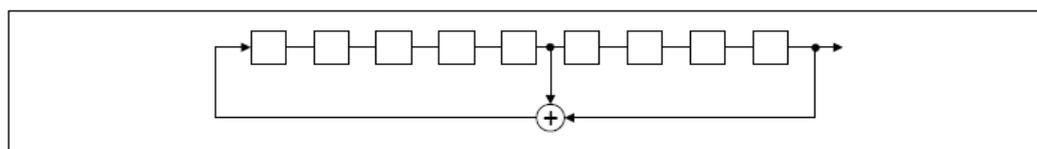
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence

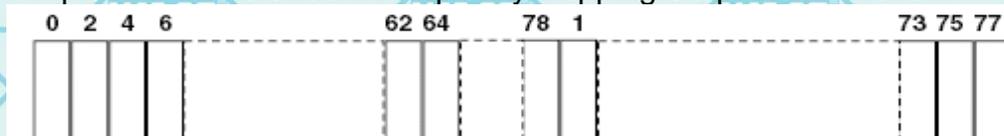
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:

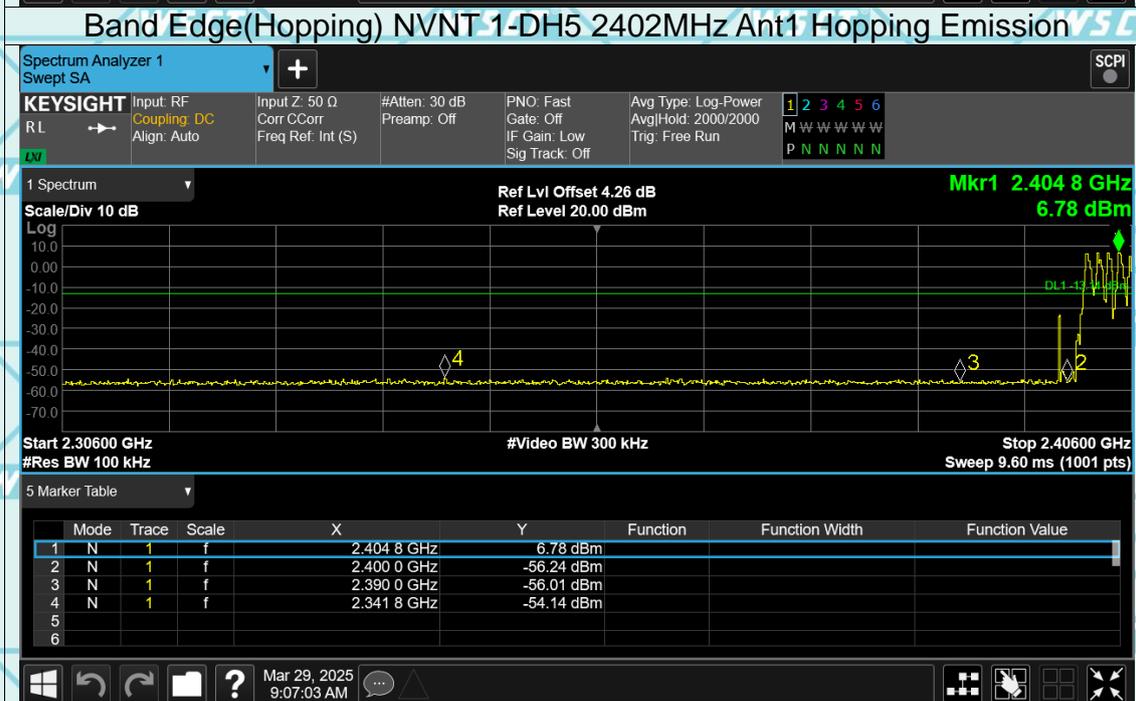
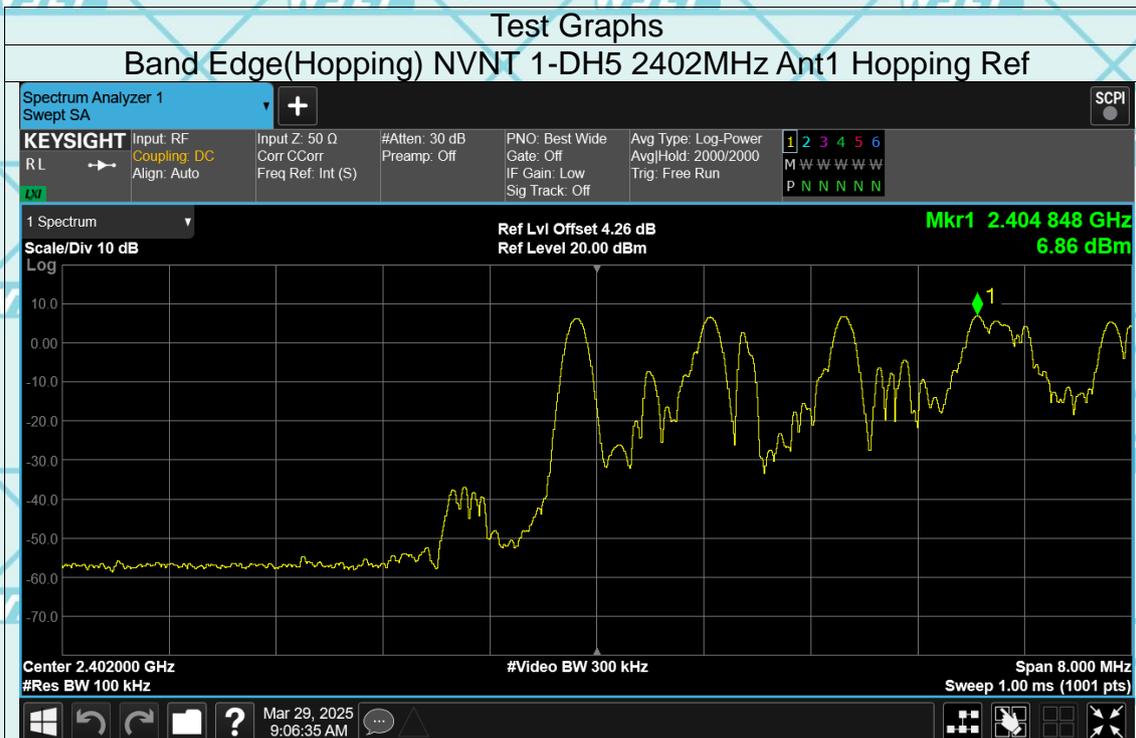


Each frequency used equally on the average by each transmitter. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

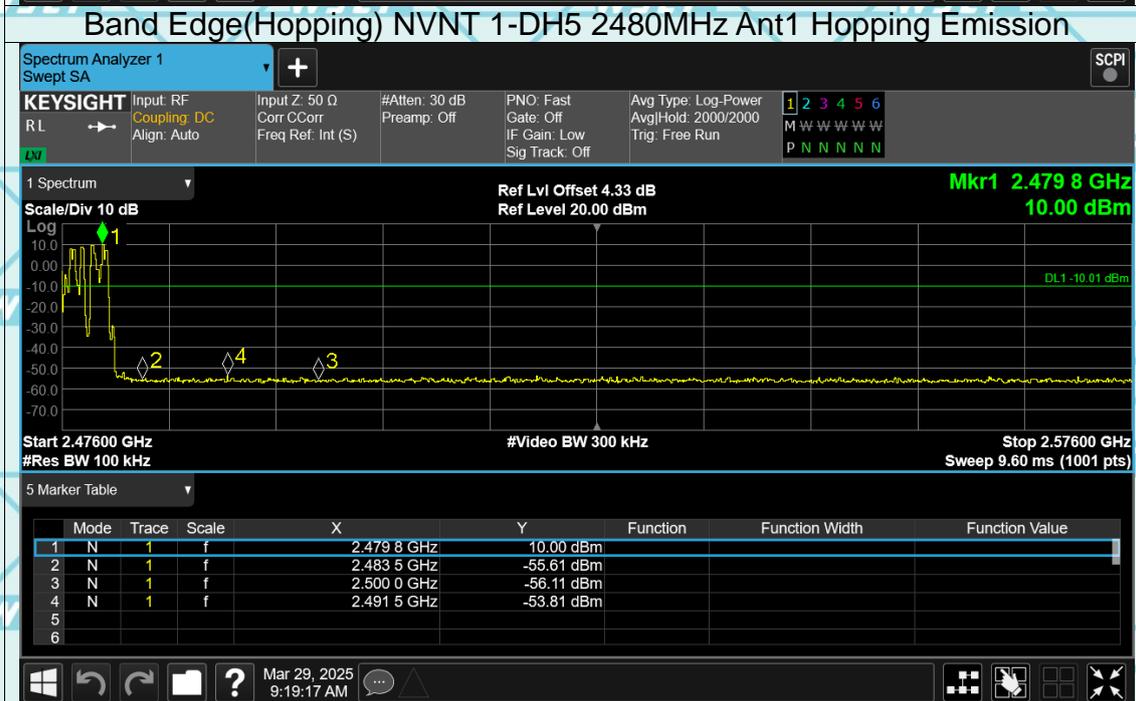
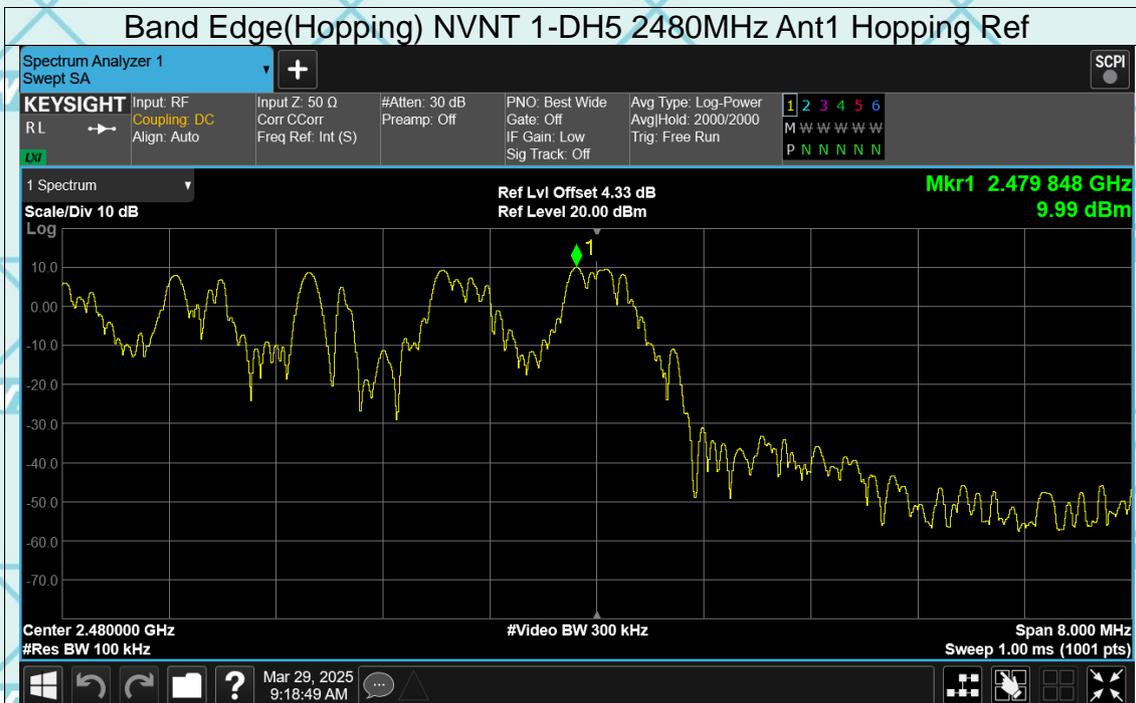
Report No.: WSCT-ANAB-R&E250400021A-BT

Test Data

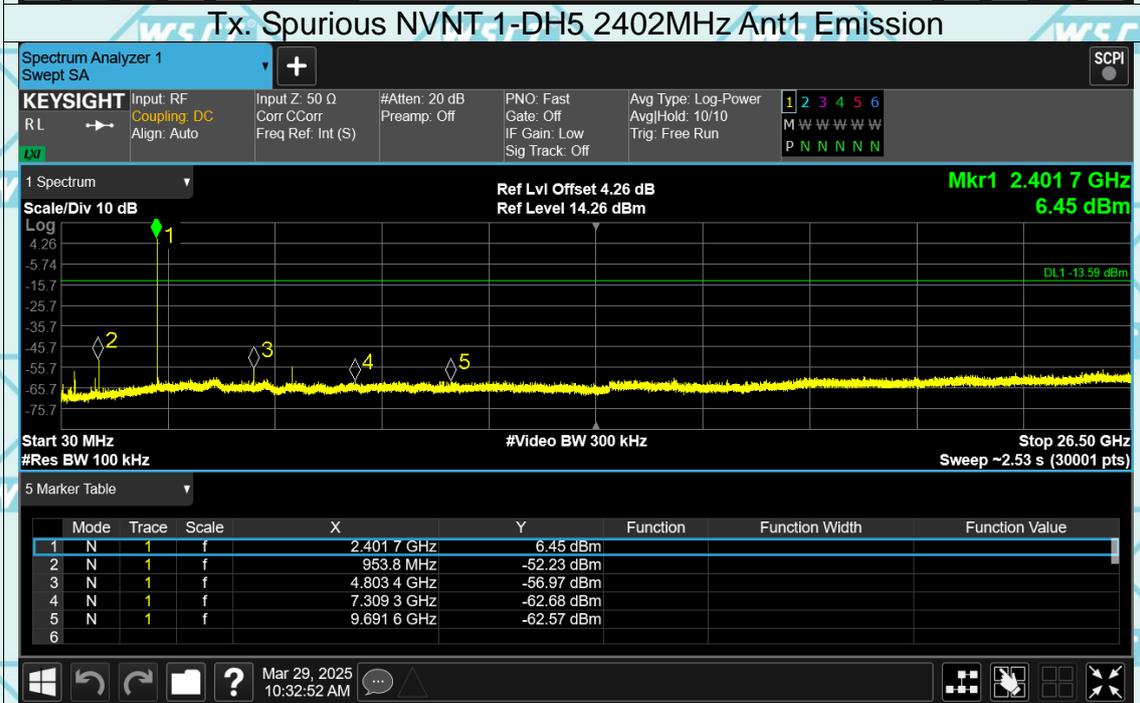
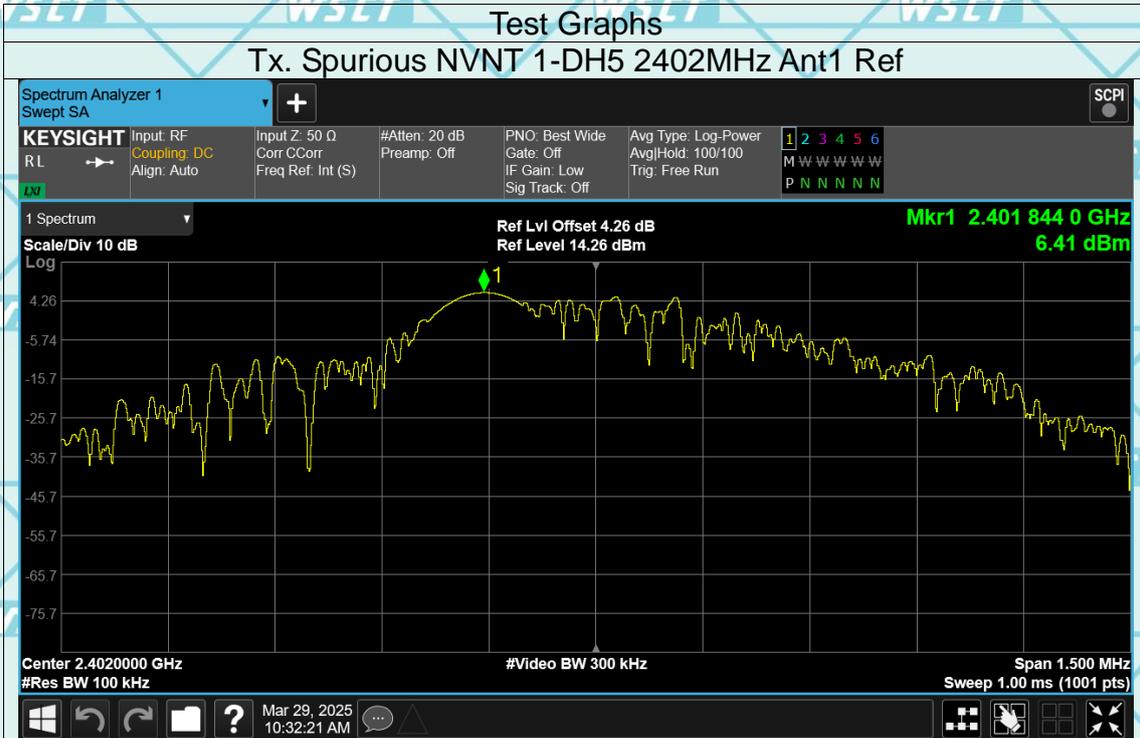
GFSK Modulation (the worst case)



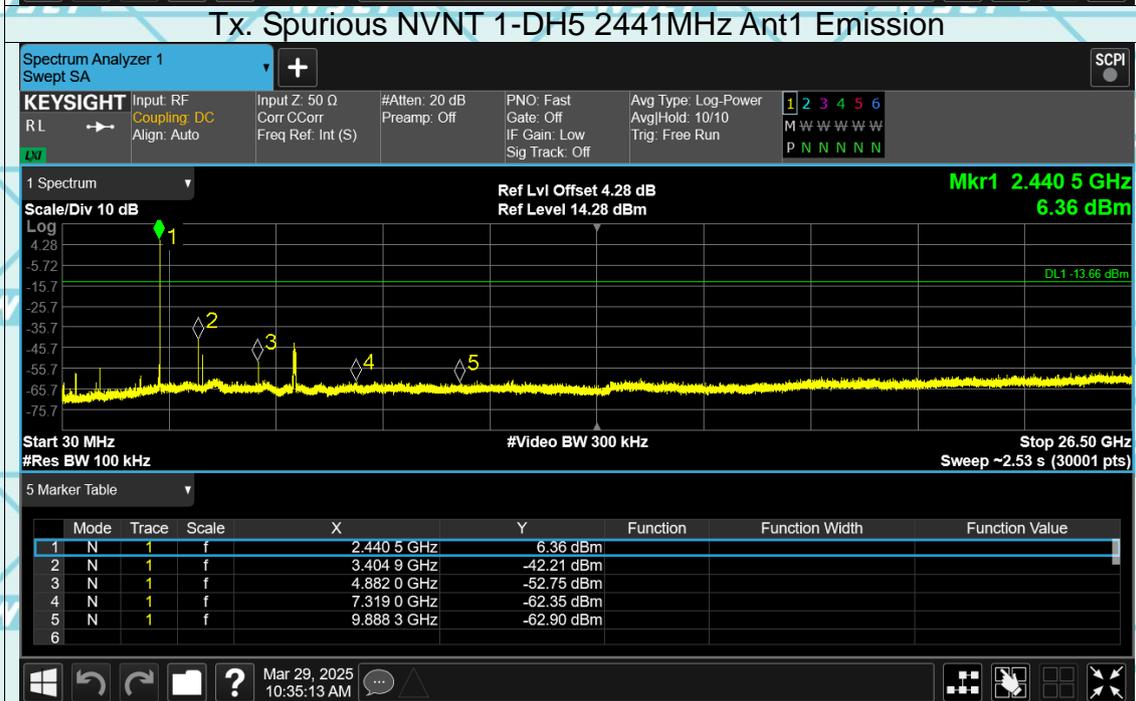
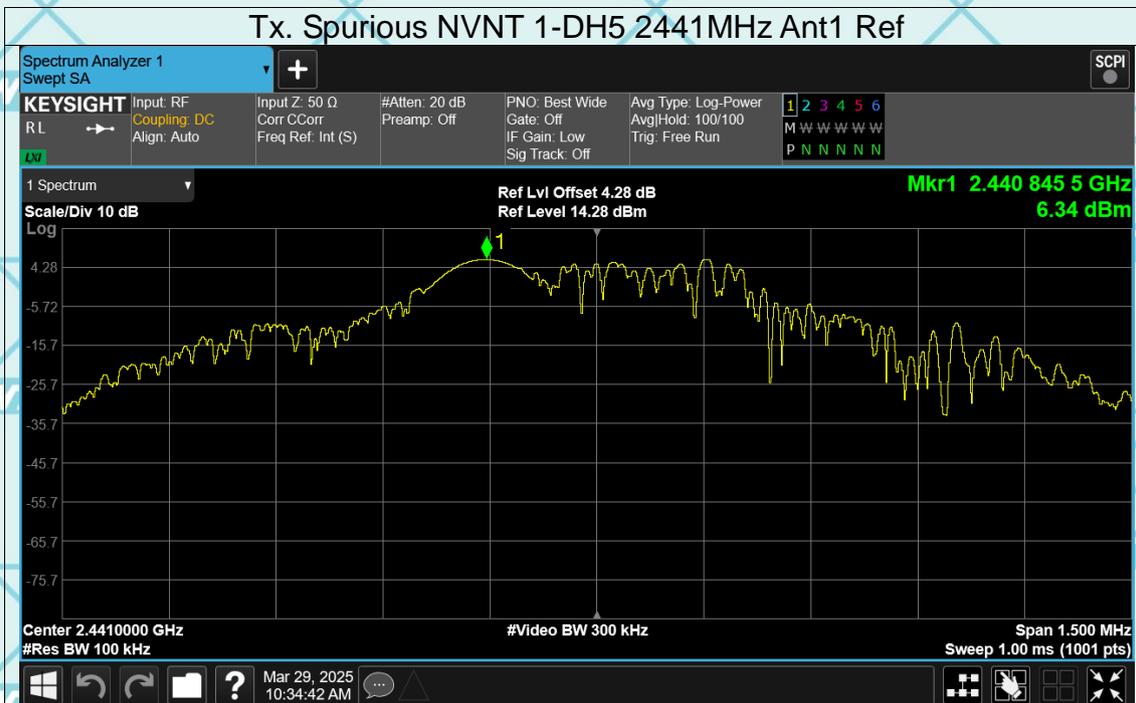
Report No.: WSCT-ANAB-R&E250400021A-BT



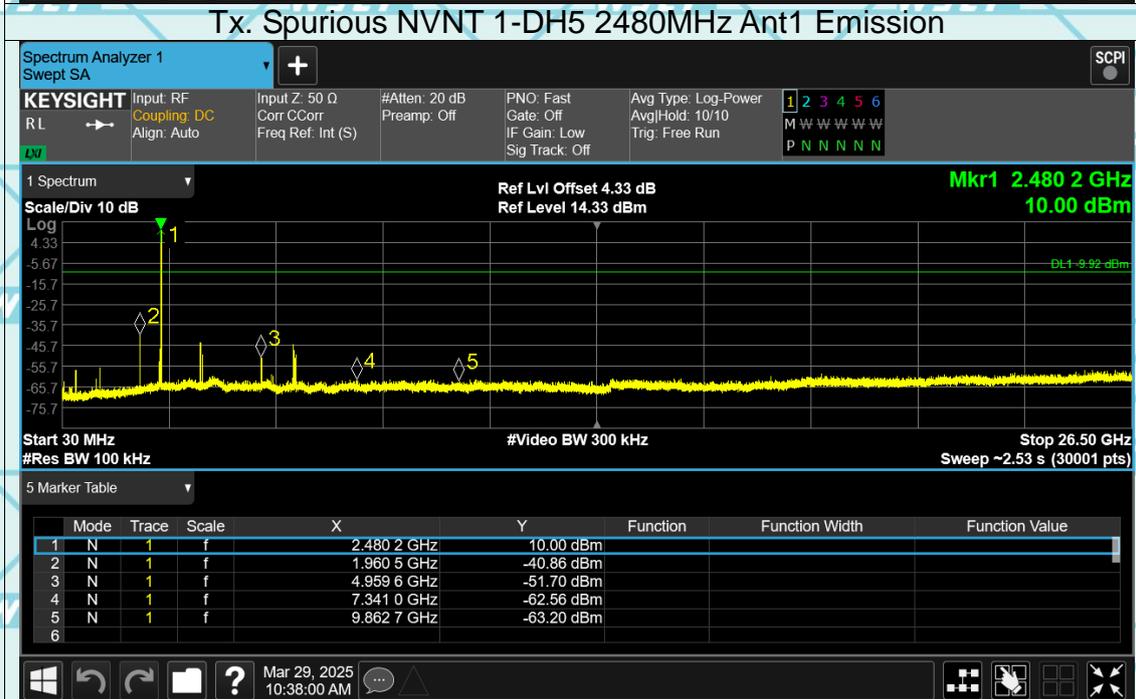
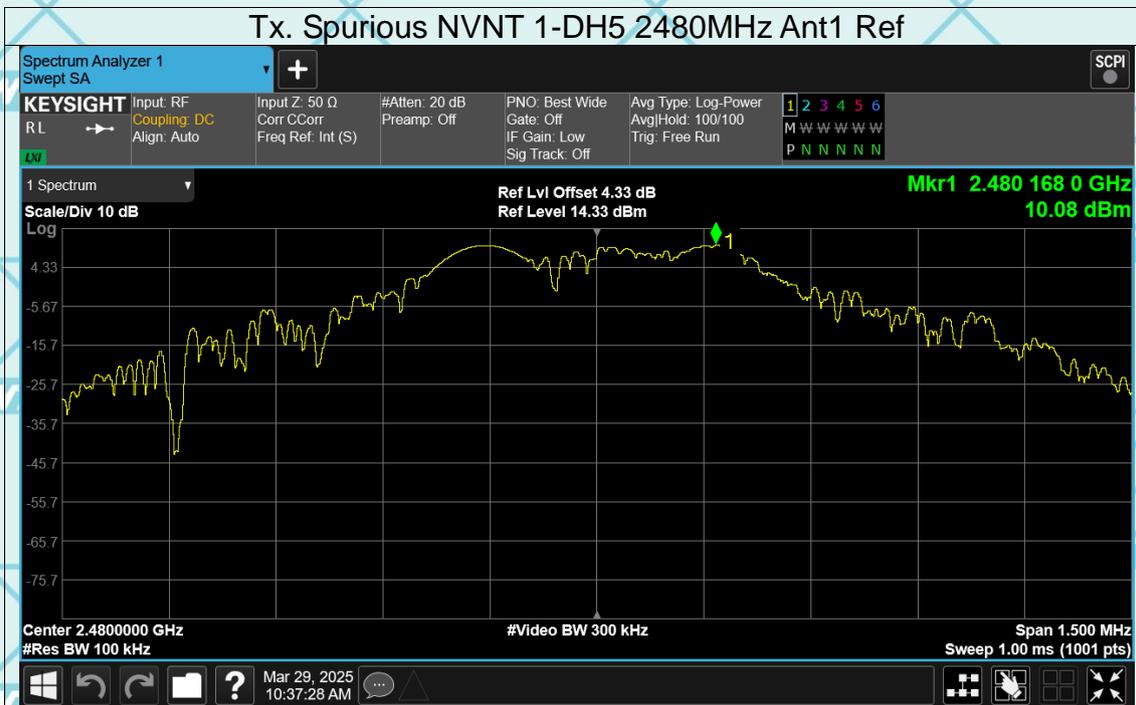
Test Data



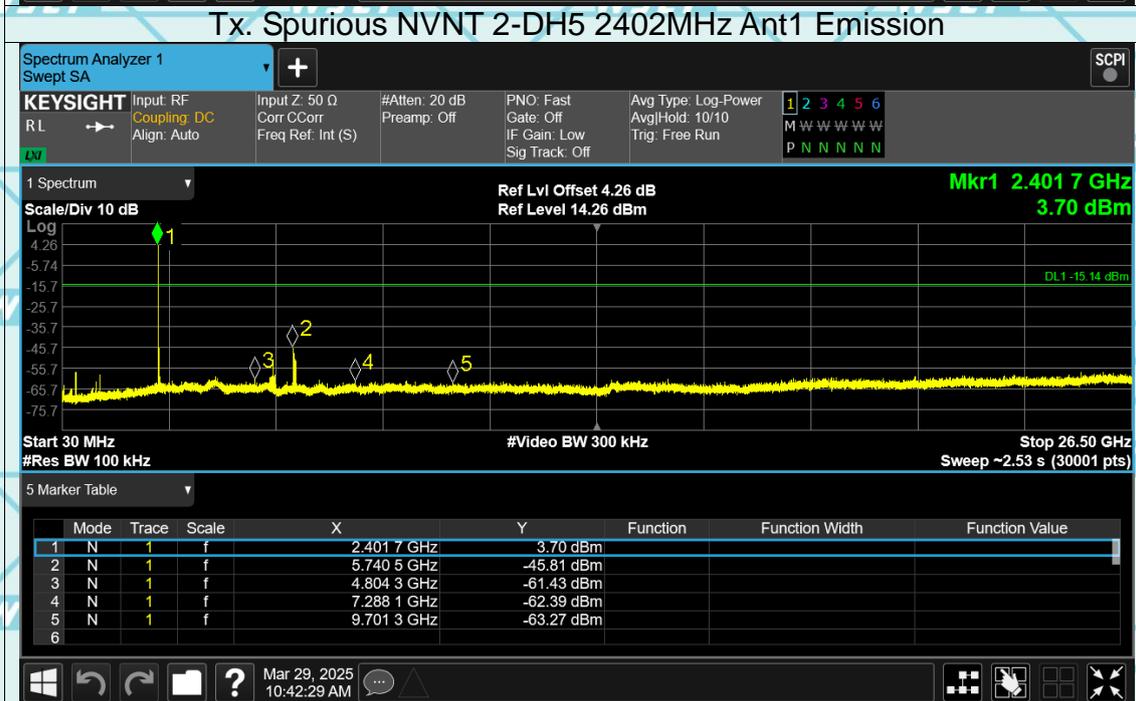
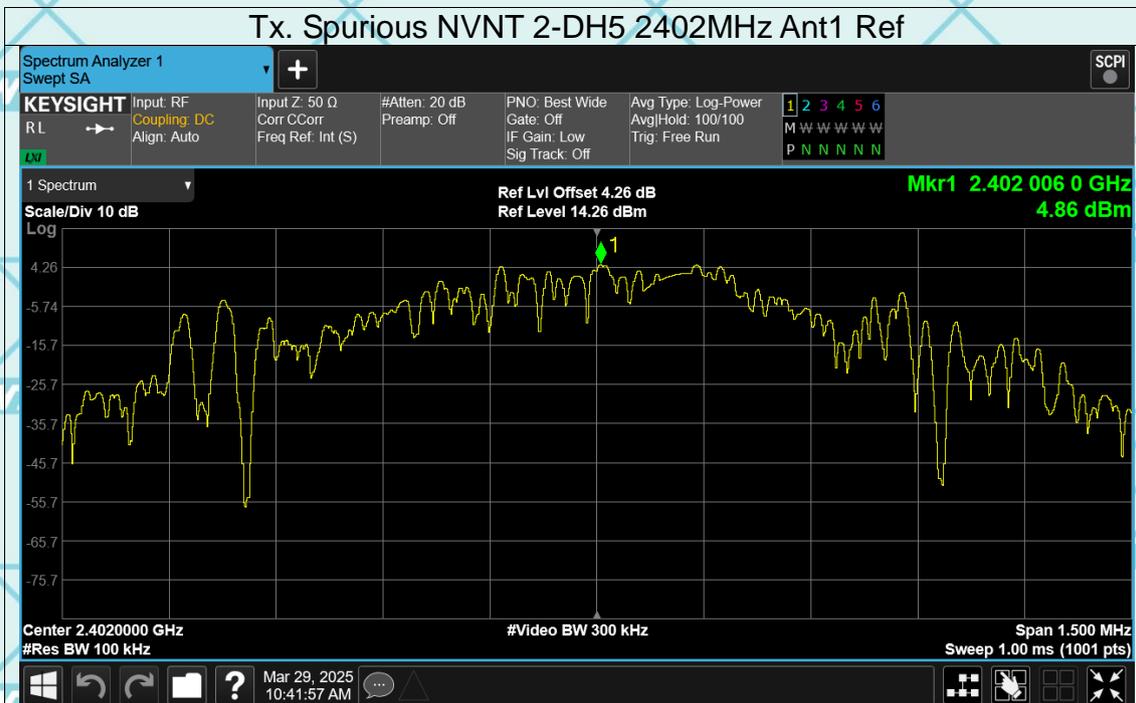
Report No.: WSCT-ANAB-R&E250400021A-BT



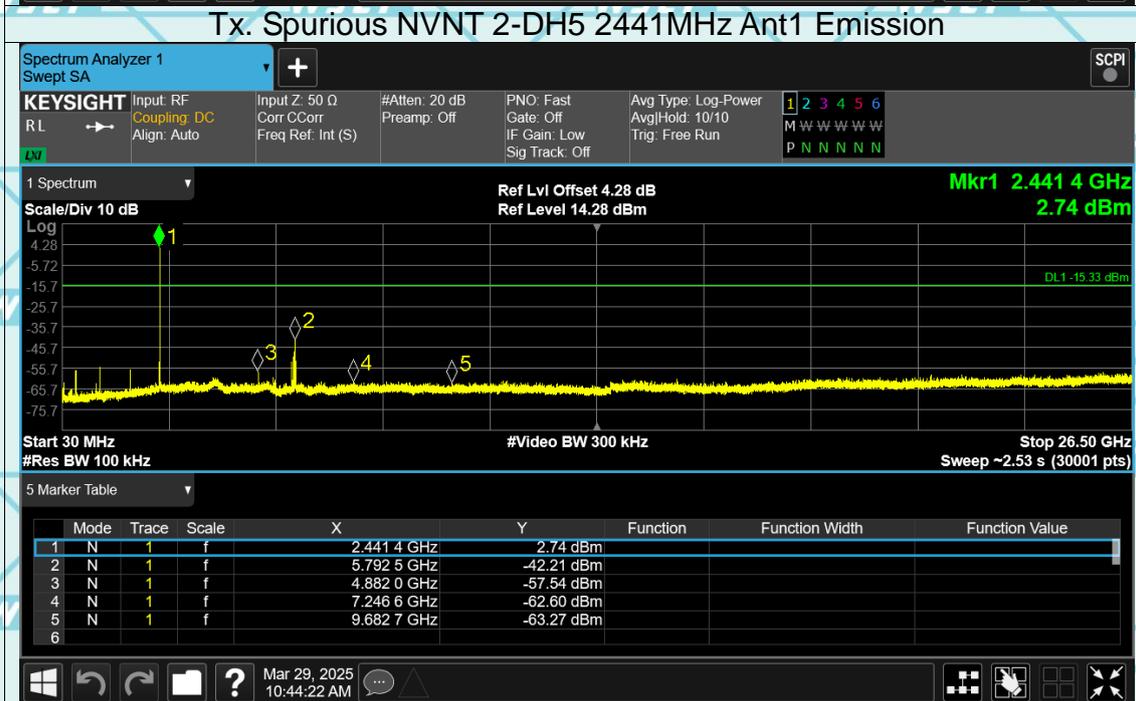
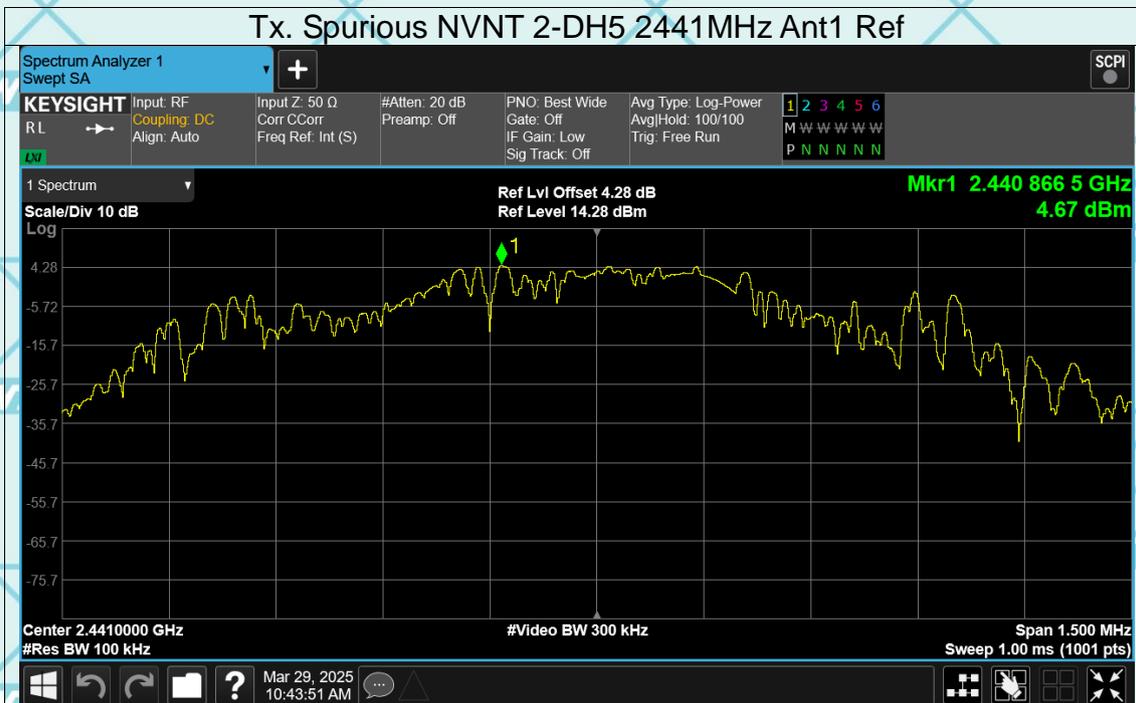
Report No.: WSCT-ANAB-R&E250400021A-BT

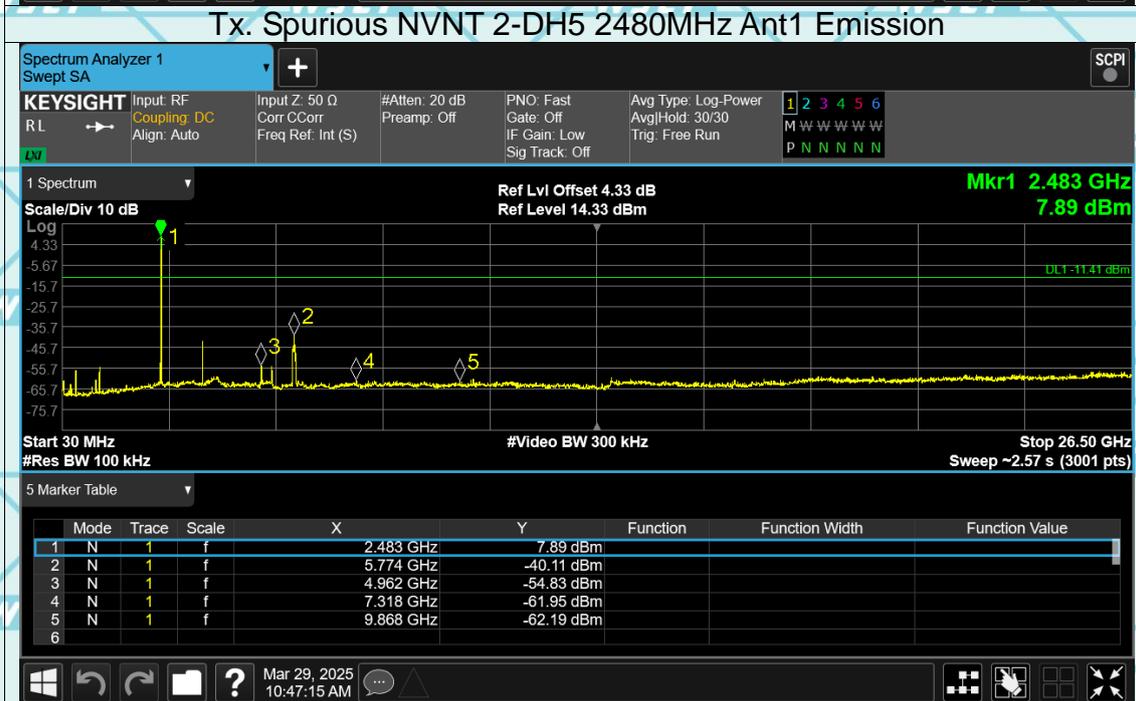
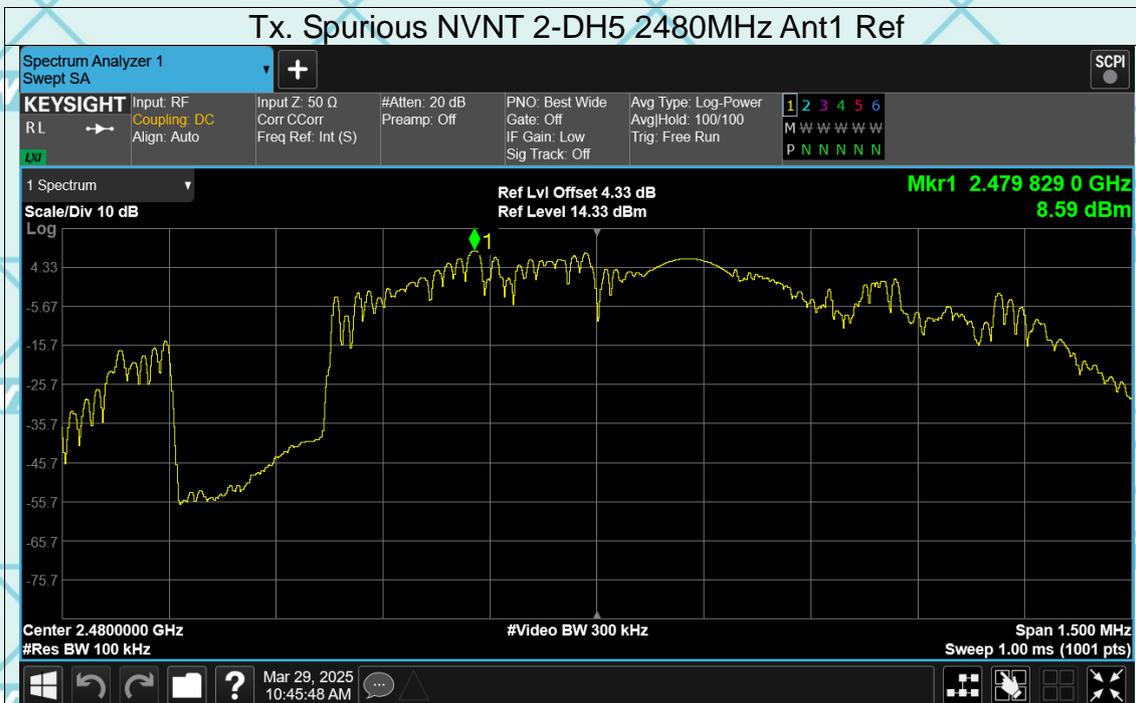


Report No.: WSCT-ANAB-R&E250400021A-BT

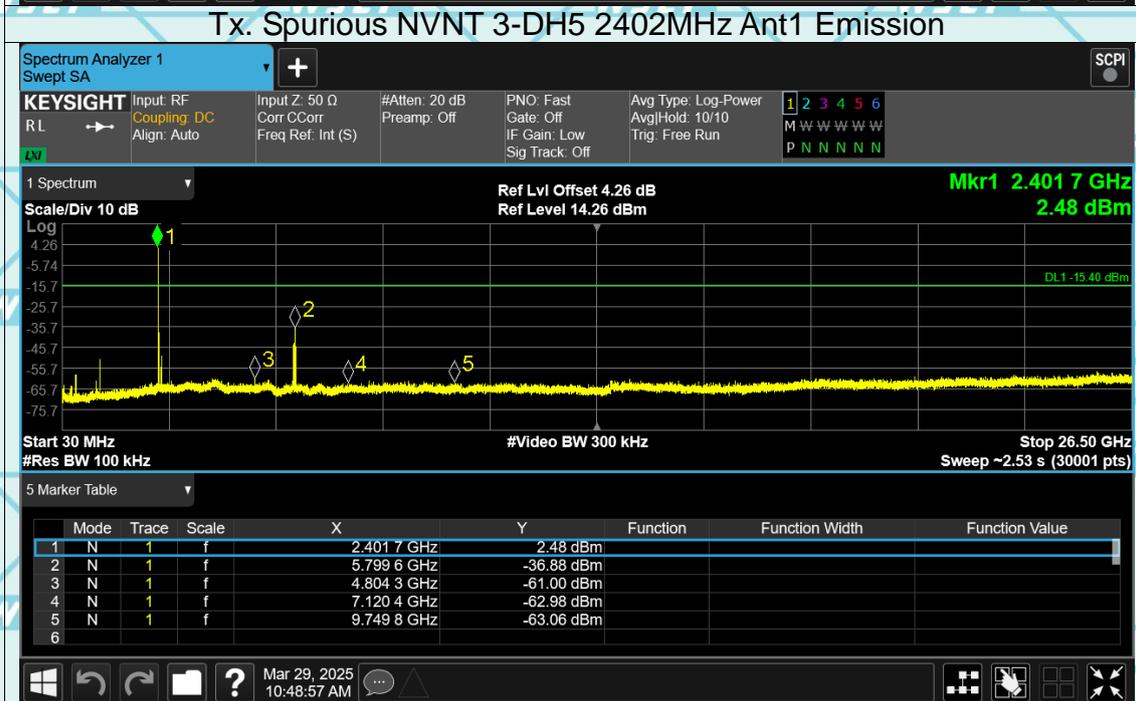
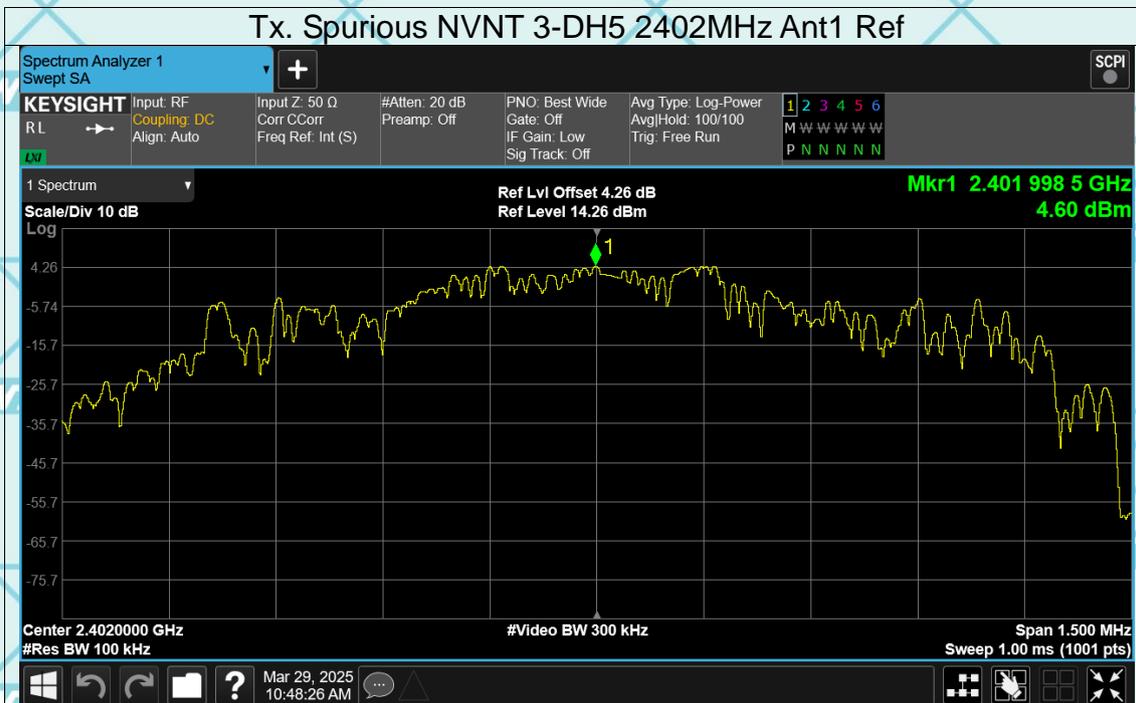


Report No.: WSCT-ANAB-R&E250400021A-BT

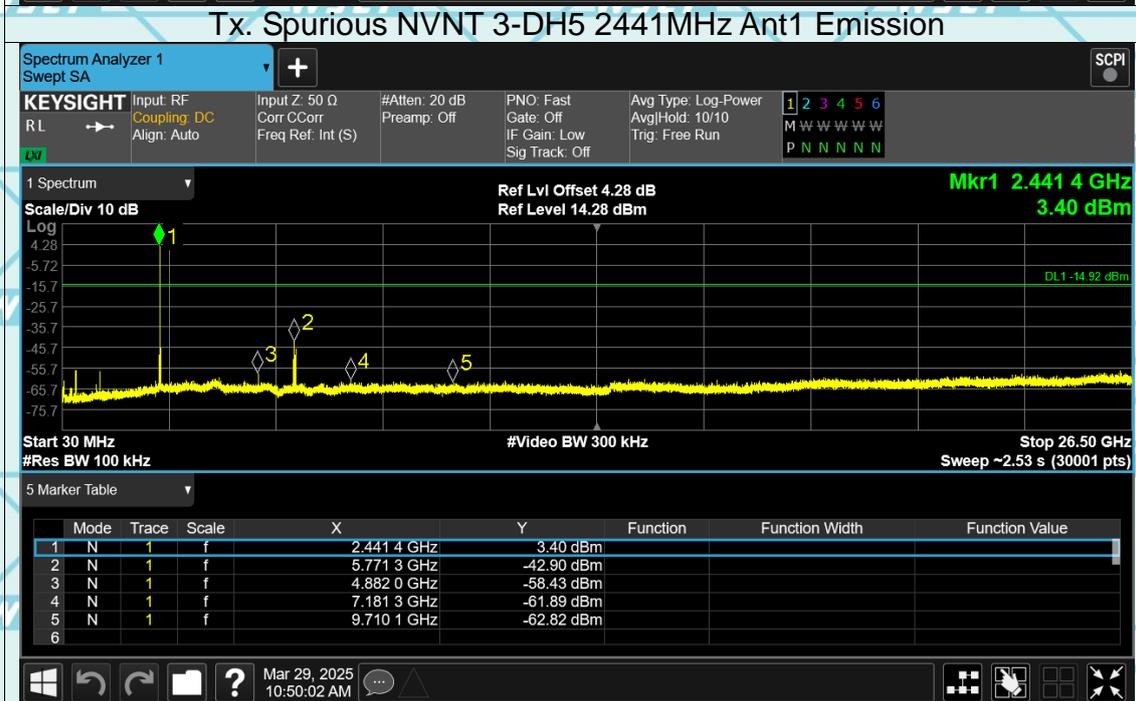
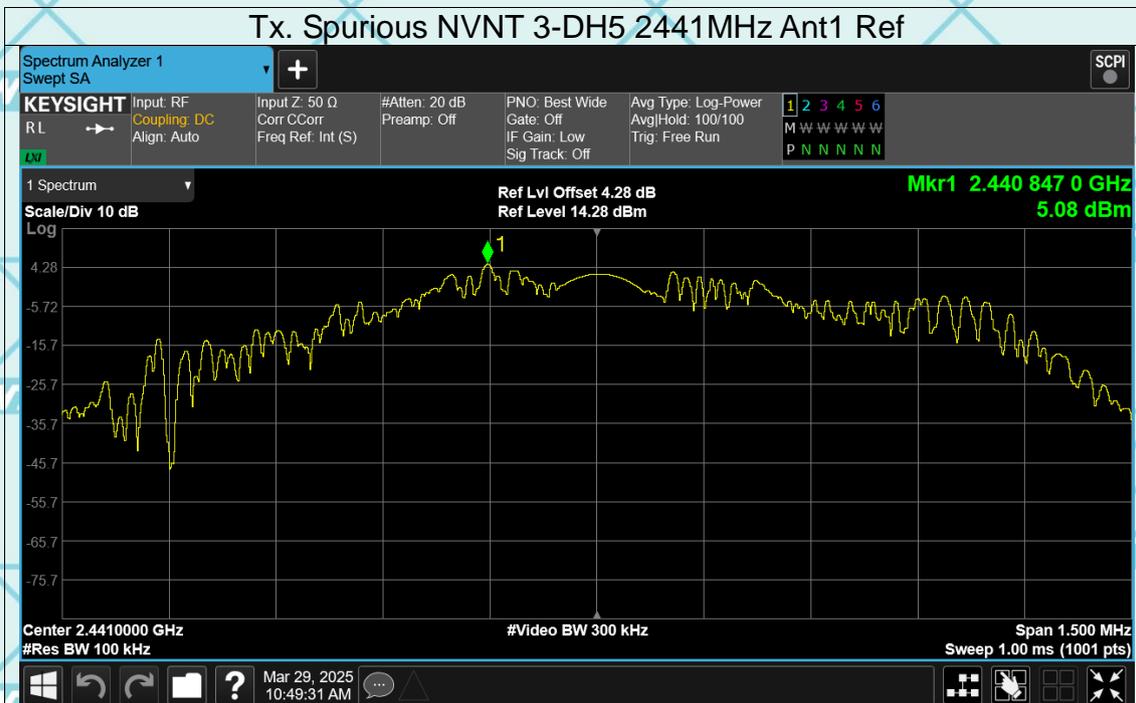




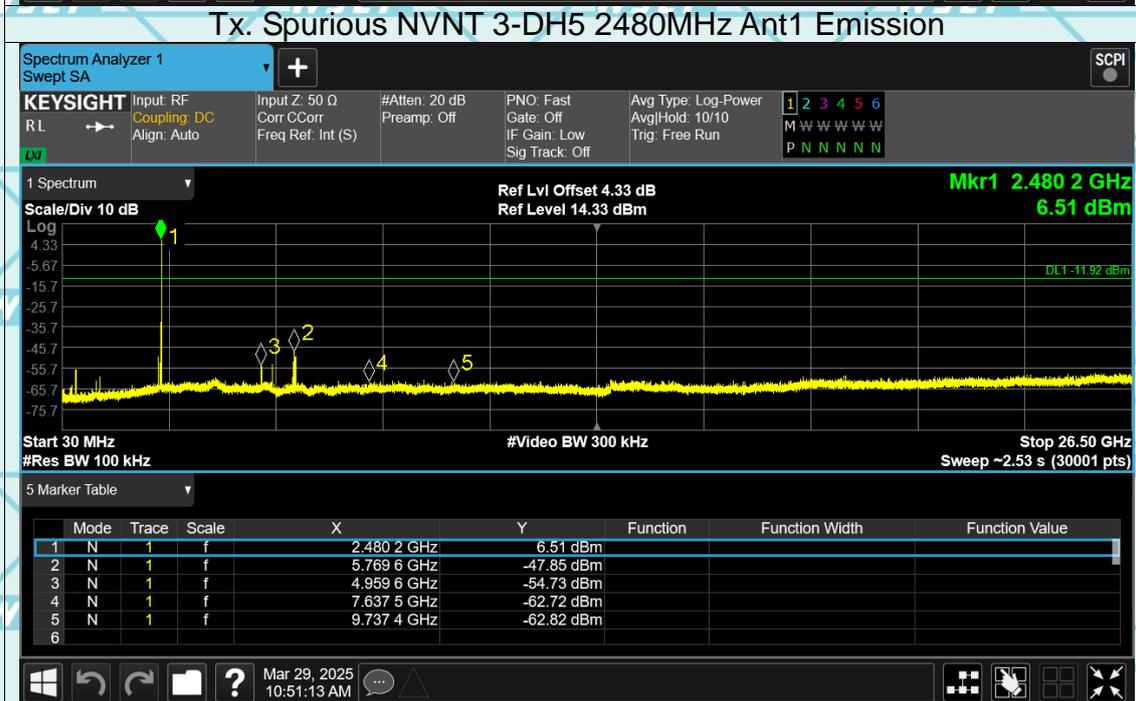
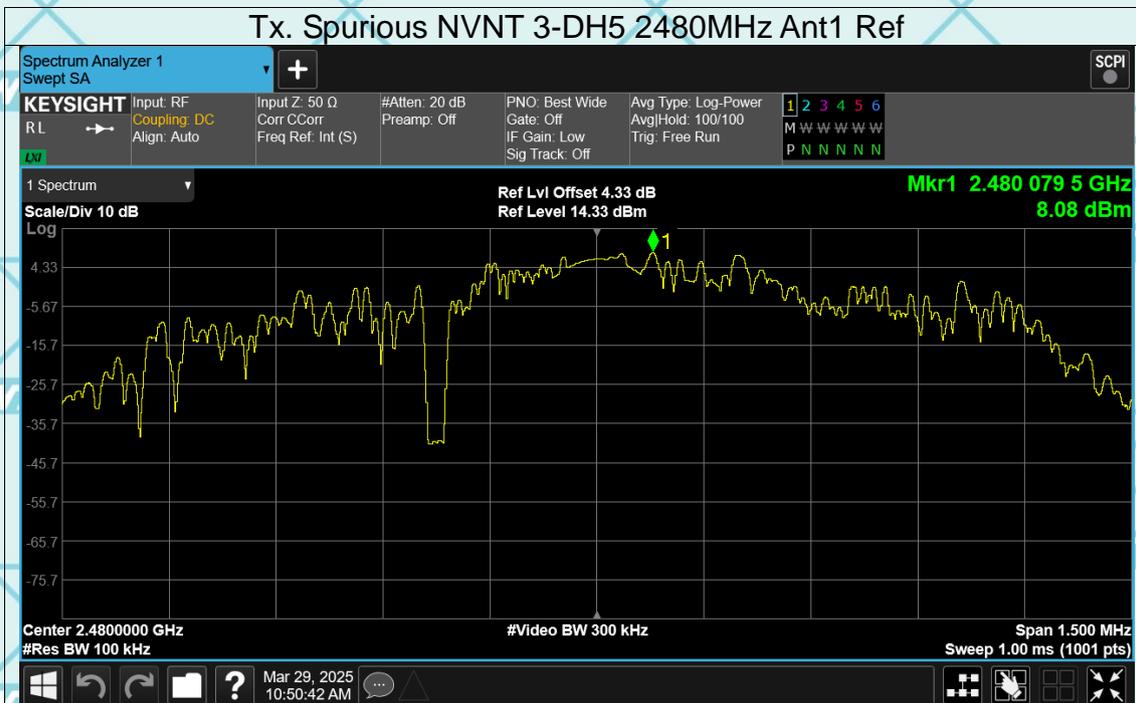
Report No.: WSCT-ANAB-R&E250400021A-BT



Report No.: WSCT-ANAB-R&E250400021A-BT



Report No.: WSCT-ANAB-R&E250400021A-BT



6.11. Radiated Spurious Emission Measurement

6.11.1. 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				
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			
Test setup:	Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector	
	Above 1GHz	500 5000	3 3	Average Peak	
Test setup:	For radiated emissions below 30MHz				
	<p>Distance = 3m</p> <p>EUT</p> <p>Turn table</p> <p>Ground Plane</p> <p>Computer</p> <p>Pre -Amplifier</p> <p>Receiver</p>				
	30MHz to 1GHz				

	<p style="text-align: center;">Semi Anechoic Chamber</p> <p style="text-align: center;">Above 1GHz</p> <p style="text-align: center;">Full Anechoic Chamber</p>
<p>Test Mode:</p>	<p>Transmitting mode with modulation</p>
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10:2014 Measurement Guidelines. 2. 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. <p>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</p>

	<p>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.</p> <ol style="list-style-type: none"> 3. Set to the maximum power setting and enable the EUT transmit continuously. 4. Use the following spectrum analyzer settings: <ol style="list-style-type: none"> (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$GHz ; VBW\geqRBW; Sweep = auto; Detector function = peak; Trace = max hold for peak (3) For average measurement: use duty cycle correction factor method per 15.35(c). Duty cycle = On time/100 milliseconds On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$ Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc. Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$ Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
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.



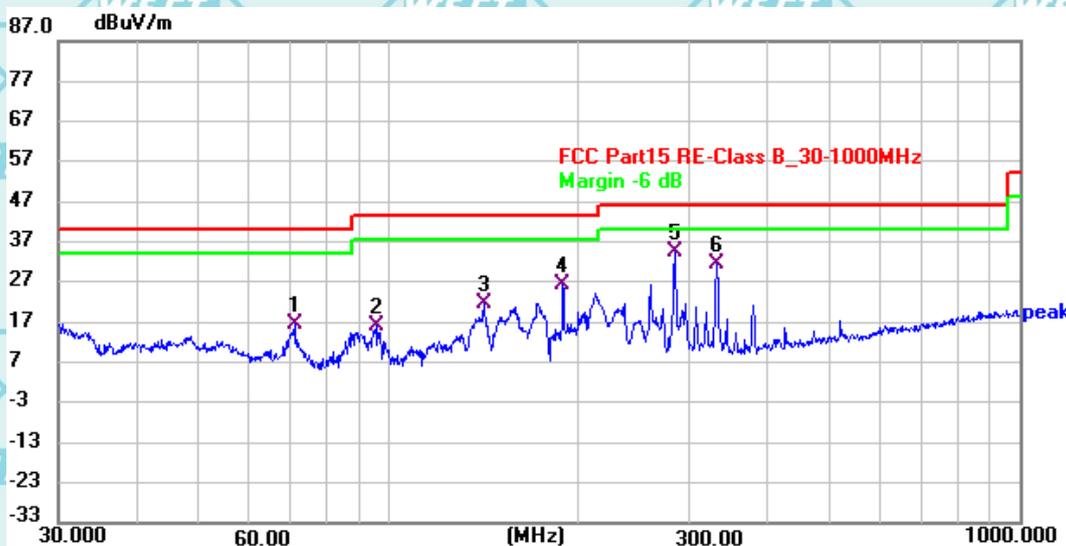
Report No.: WSCT-ANAB-R&E250400021A-BT

6.11.2. Test Data

Please refer to following diagram for individual

Below 1GHz

Horizontal:



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB/m)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	71.1115	38.74	-22.39	16.35	40.00	-23.65	QP
2	95.9302	40.04	-24.03	16.01	43.50	-27.49	QP
3	142.1374	41.51	-19.79	21.72	43.50	-21.78	QP
4	189.5722	49.38	-22.90	26.48	43.50	-17.02	QP
5 *	284.3529	55.24	-20.81	34.43	46.00	-11.57	QP
6	331.7908	50.89	-19.21	31.68	46.00	-14.32	QP

Report No.: WSCT-ANAB-R&E250400021A-BT

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	48.2683	49.15	-19.00	30.15	40.00	-9.85	QP
2	87.7248	53.01	-23.98	29.03	40.00	-10.97	QP
3	189.5722	47.80	-22.90	24.90	43.50	-18.60	QP
4	284.4775	45.44	-20.80	24.64	46.00	-21.36	QP
5	335.2994	46.25	-19.14	27.11	46.00	-18.89	QP
6	521.5736	36.05	-15.09	20.96	46.00	-25.04	QP

Note1:

Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss - Amplifier factor.

Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)

Limit (dBuV) = Limit stated in standard

Margin (dB) = Measurement (dBuV) – Limits (dBuV)



Above 1GHz

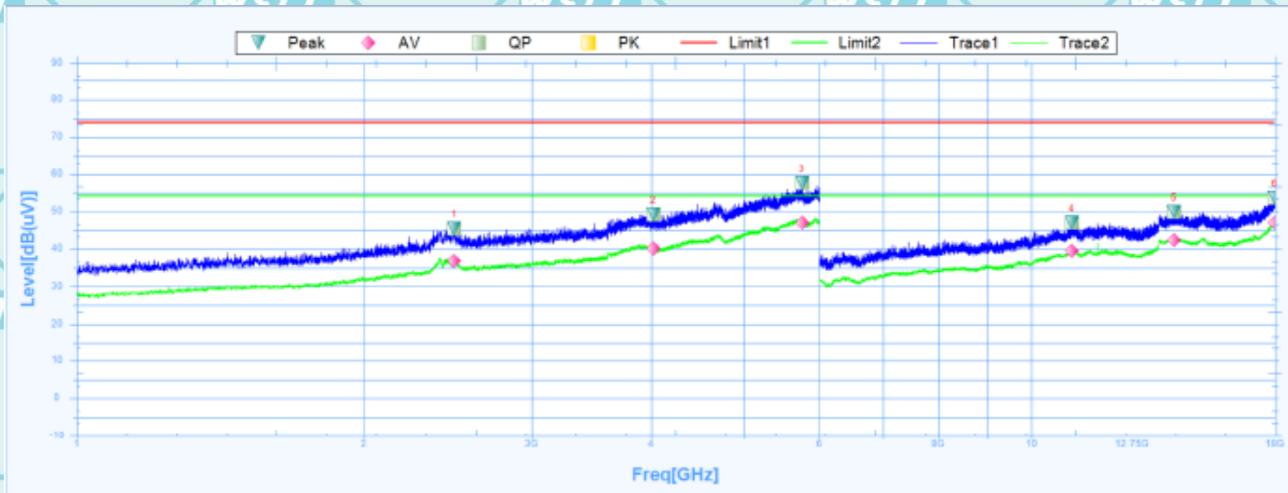
Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

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

GFSK

Low channel: 2402MHz

Horizontal:



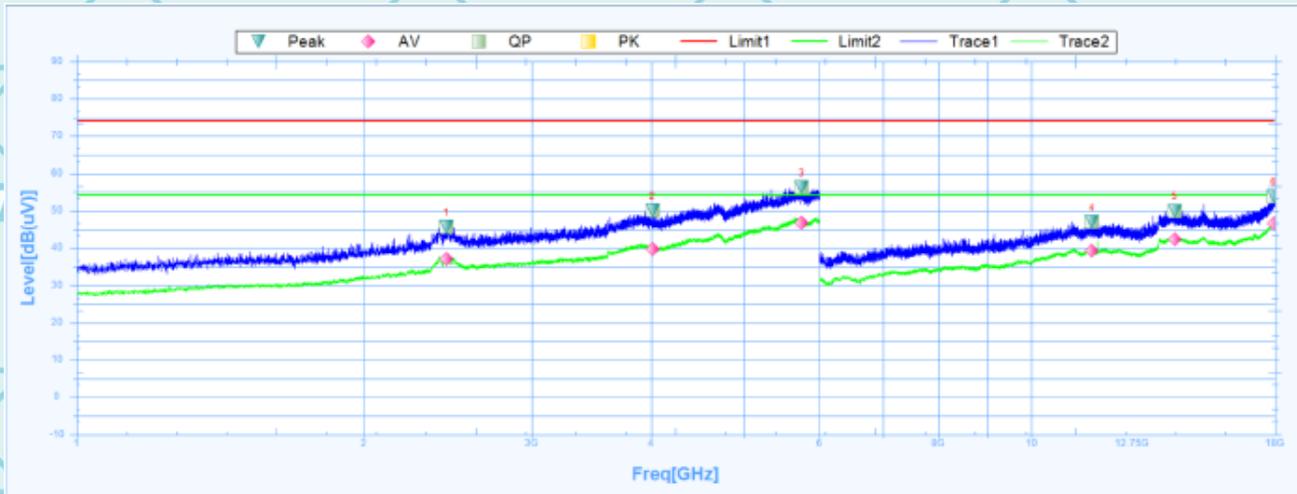
Suspected Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2486.2500	45.5	7.86	37.64	74	-28.5	129	Horizontal	PK	Pass
1	2486.2500	36.85	7.86	28.99	54	-17.15	129	Horizontal	AV	Pass
2	4019.3750	49.18	11.99	37.19	74	-24.82	56	Horizontal	PK	Pass
2	4019.3750	40.06	11.99	28.07	54	-13.94	56	Horizontal	AV	Pass
3	5752.5000	57.68	21.1	36.58	74	-16.32	0.6	Horizontal	PK	Pass
3	5752.5000	46.98	21.1	25.88	54	-7.02	0.6	Horizontal	AV	Pass
4	11026.5000	47.04	39.48	7.56	74	-26.96	120.1	Horizontal	PK	Pass
4	11026.5000	39.47	39.48	-0.01	54	-14.53	120.1	Horizontal	AV	Pass
5	14109.0000	49.89	41.36	8.53	74	-24.11	360.1	Horizontal	PK	Pass
5	14109.0000	42.33	41.36	0.97	54	-11.67	360.1	Horizontal	AV	Pass
6	17983.5000	53.69	46.39	7.3	74	-20.31	1.4	Horizontal	PK	Pass
6	17983.5000	46.93	46.39	0.54	54	-7.07	1.4	Horizontal	AV	Pass



Report No.: WSCT-ANAB-R&E250400021A-BT

Vertical:



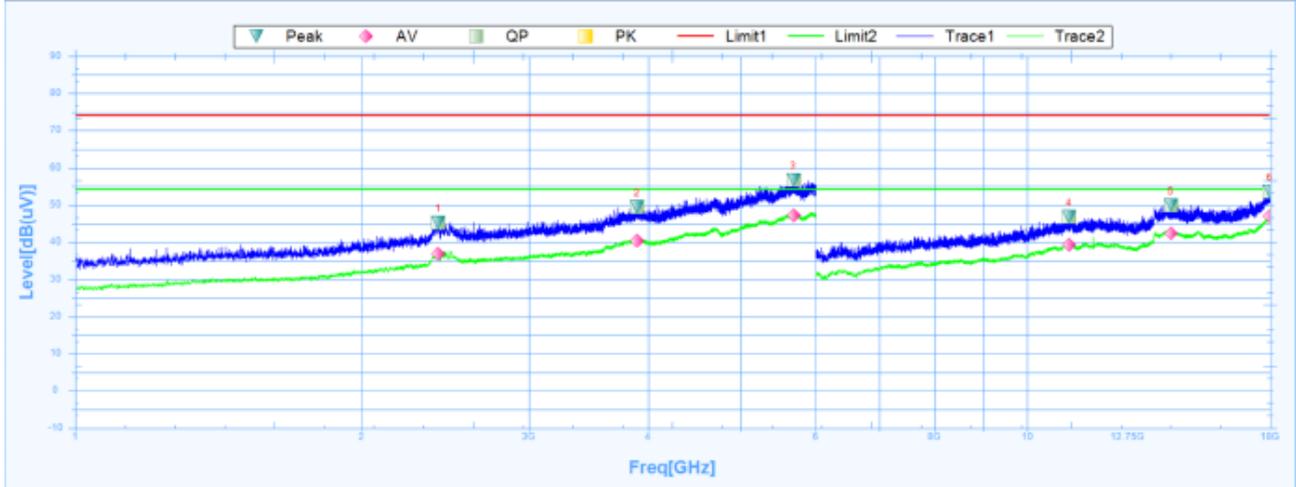
Suspected Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2439.3750	45.75	7.7	38.05	74	-28.25	0	Vertical	PK	Pass
1	2439.3750	37.03	7.7	29.33	54	-16.97	0	Vertical	AV	Pass
2	4011.2500	50.1	11.97	38.13	74	-23.9	238.8	Vertical	PK	Pass
2	4011.2500	39.74	11.97	27.77	54	-14.26	238.8	Vertical	AV	Pass
3	5751.8750	56.25	21.11	35.14	74	-17.75	0	Vertical	PK	Pass
3	5751.8750	46.87	21.11	25.76	54	-7.13	0	Vertical	AV	Pass
4	11578.5000	46.99	38.98	8.01	74	-27.01	11.4	Vertical	PK	Pass
4	11578.5000	39.36	38.98	0.38	54	-14.64	11.4	Vertical	AV	Pass
5	14133.0000	49.97	41.33	8.64	74	-24.03	241.8	Vertical	PK	Pass
5	14133.0000	42.28	41.33	0.95	54	-11.72	241.8	Vertical	AV	Pass
6	17941.5000	53.83	46.11	7.72	74	-20.17	239.5	Vertical	PK	Pass
6	17941.5000	46.67	46.11	0.56	54	-7.33	239.5	Vertical	AV	Pass



Report No.: WSCT-ANAB-R&E250400021A-BT

Middle channel: 2441MHz
Horizontal:



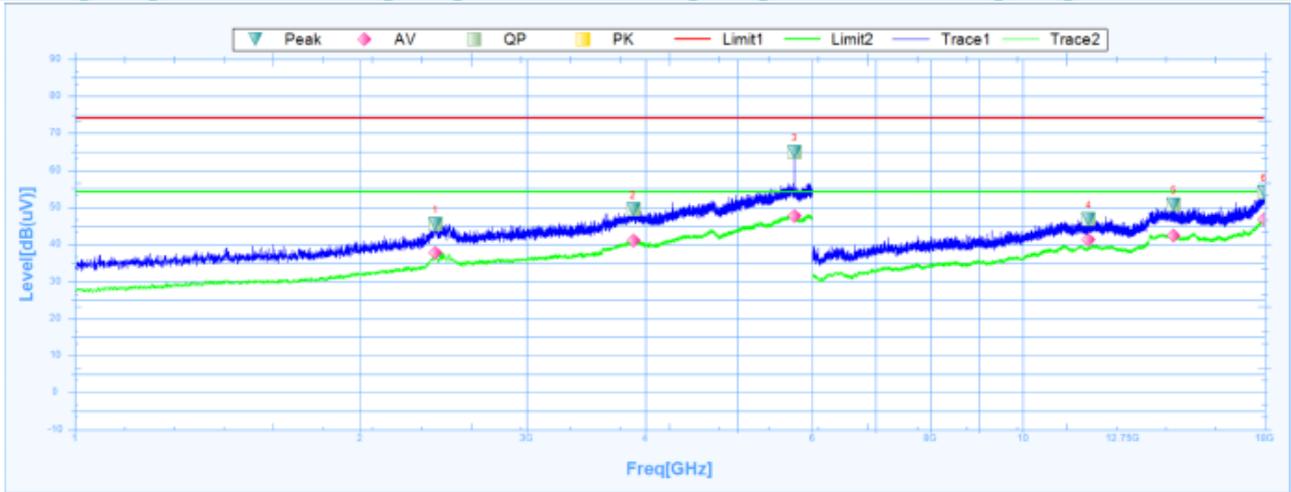
Susputed Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2408.7500	45.33	7.6	37.73	74	-28.67	113.5	Horizontal	PK	Pass
1	2408.7500	36.75	7.6	29.15	54	-17.25	113.5	Horizontal	AV	Pass
2	3895.0000	49.5	11.69	37.81	74	-24.5	6.6	Horizontal	PK	Pass
2	3895.0000	40.37	11.69	28.68	54	-13.63	6.6	Horizontal	AV	Pass
3	5683.7500	56.8	21.2	35.6	74	-17.2	144.6	Horizontal	PK	Pass
3	5683.7500	47.18	21.2	25.98	54	-6.82	144.6	Horizontal	AV	Pass
4	11071.5000	46.74	39.44	7.3	74	-27.26	352.1	Horizontal	PK	Pass
4	11071.5000	39.18	39.44	-0.26	54	-14.82	352.1	Horizontal	AV	Pass
5	14161.5000	49.82	41.29	8.53	74	-24.18	166.7	Horizontal	PK	Pass
5	14161.5000	42.31	41.29	1.02	54	-11.69	166.7	Horizontal	AV	Pass
6	17985.0000	53.7	46.4	7.3	74	-20.3	4.5	Horizontal	PK	Pass
6	17985.0000	47.01	46.4	0.61	54	-6.99	4.5	Horizontal	AV	Pass



Report No.: WSCT-ANAB-R&E250400021A-BT

Vertical:



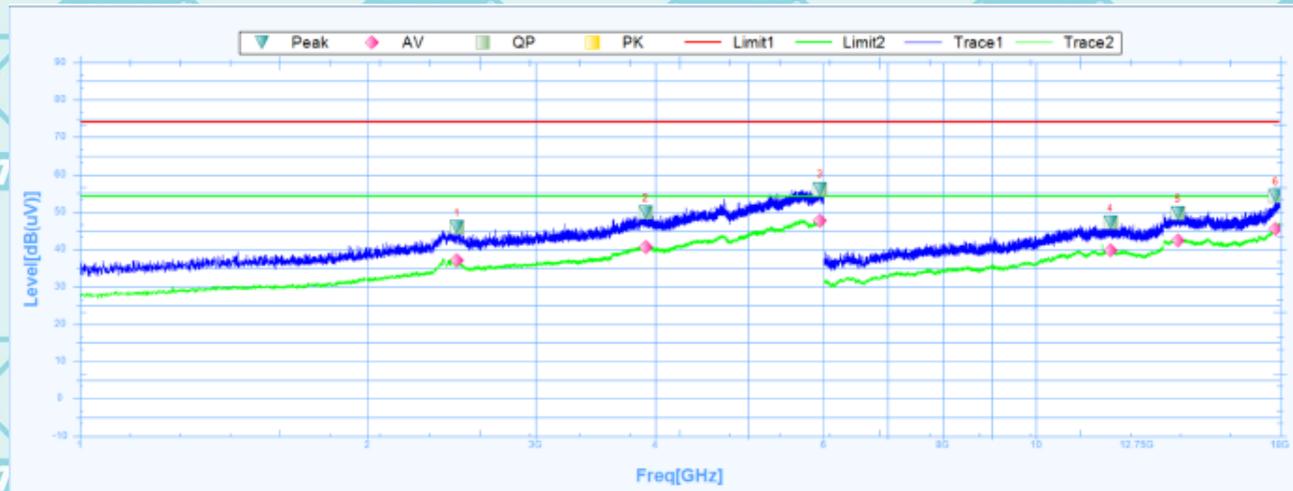
Susputed Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2401.8750	45.51	7.58	37.93	74	-28.49	0	Vertical	PK	Pass
1	2401.8750	37.62	7.58	30.04	54	-16.38	0	Vertical	AV	Pass
2	3884.3750	49.35	11.6	37.75	74	-24.65	4.2	Vertical	PK	Pass
2	3884.3750	41.11	11.6	29.51	54	-12.89	4.2	Vertical	AV	Pass
3	5750.0000	64.96	21.12	43.84	74	-9.04	53.5	Vertical	PK	Pass
3	5750.0000	47.64	21.12	26.52	54	-6.36	53.5	Vertical	AV	Pass
4	11745.0000	46.8	38.83	7.97	74	-27.2	3.4	Vertical	PK	Pass
4	11745.0000	41.25	38.83	2.42	54	-12.75	3.4	Vertical	AV	Pass
5	14436.0000	50.72	40.93	9.79	74	-23.28	360	Vertical	PK	Pass
5	14436.0000	42.42	40.93	1.49	54	-11.58	360	Vertical	AV	Pass
6	17974.5000	53.98	46.33	7.65	74	-20.02	310.1	Vertical	PK	Pass
6	17974.5000	46.76	46.33	0.43	54	-7.24	310.1	Vertical	AV	Pass



Report No.: WSCT-ANAB-R&E250400021A-BT

High channel: 2480MHz
Horizontal:



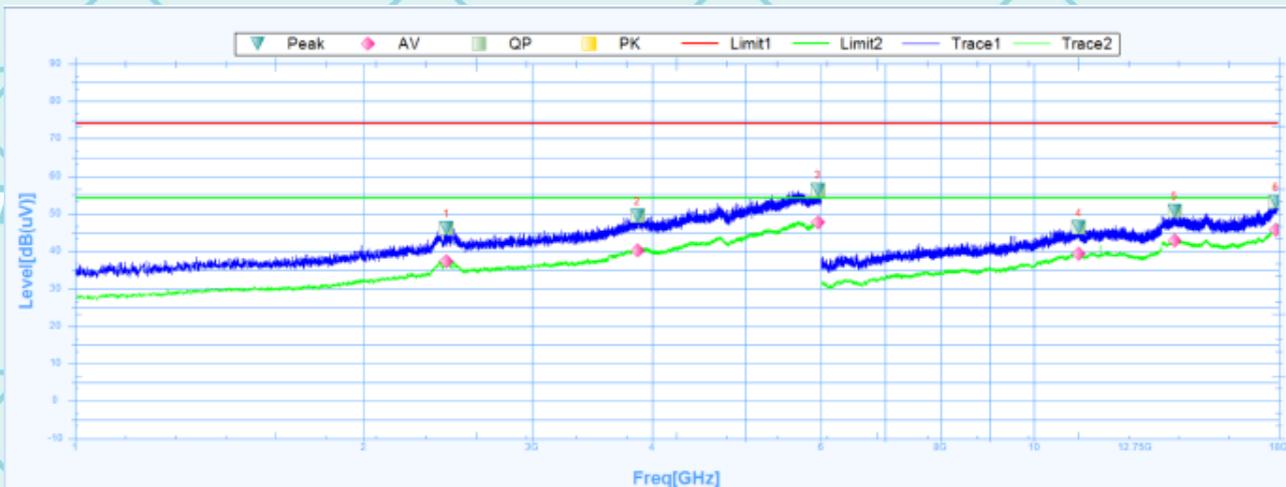
Suspected Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2481.2500	45.81	7.85	37.96	74	-28.19	280.6	Horizontal	PK	Pass
1	2481.2500	36.99	7.85	29.14	54	-17.01	280.6	Horizontal	AV	Pass
2	3907.5000	49.88	11.8	38.08	74	-24.12	14	Horizontal	PK	Pass
2	3907.5000	40.62	11.8	28.82	54	-13.38	14	Horizontal	AV	Pass
3	5950.6250	56.17	22.03	34.14	74	-17.83	29.5	Horizontal	PK	Pass
3	5950.6250	47.64	22.03	25.61	54	-6.36	29.5	Horizontal	AV	Pass
4	11962.5000	47.14	38.63	8.51	74	-26.86	360.1	Horizontal	PK	Pass
4	11962.5000	39.64	38.63	1.01	54	-14.36	360.1	Horizontal	AV	Pass
5	14074.5000	49.57	41.4	8.17	74	-24.43	357	Horizontal	PK	Pass
5	14074.5000	42.38	41.4	0.98	54	-11.62	357	Horizontal	AV	Pass
6	17814.0000	54.3	45.25	9.05	74	-19.7	360.1	Horizontal	PK	Pass
6	17814.0000	45.56	45.25	0.31	54	-8.44	360.1	Horizontal	AV	Pass



Report No.: WSCT-ANAB-R&E250400021A-BT

Vertical:



Suspected Data List

NO.	Freq. [MHz]	Reading [dB(uV)]	Factor [dB]	Level [dB(uV)]	Limit [dB]	Margin [dB]	Deg [°]	Polarity	Trace	Verdict
1	2439.3750	46.11	7.7	38.41	74	-27.89	139.5	Vertical	PK	Pass
1	2439.3750	37.28	7.7	29.58	54	-16.72	139.5	Vertical	AV	Pass
2	3860.0000	49.51	11.39	38.12	74	-24.49	359.6	Vertical	PK	Pass
2	3860.0000	40.26	11.39	28.87	54	-13.74	359.6	Vertical	AV	Pass
3	5953.7500	56.38	22	34.38	74	-17.62	-0.1	Vertical	PK	Pass
3	5953.7500	47.74	22	25.74	54	-6.26	-0.1	Vertical	AV	Pass
4	11140.5000	46.41	39.37	7.04	74	-27.59	16.5	Vertical	PK	Pass
4	11140.5000	39.18	39.37	-0.19	54	-14.82	16.5	Vertical	AV	Pass
5	14016.0000	50.76	41.48	9.28	74	-23.24	245.6	Vertical	PK	Pass
5	14016.0000	42.78	41.48	1.3	54	-11.22	245.6	Vertical	AV	Pass
6	17880.0000	53.25	45.7	7.55	74	-20.75	0.5	Vertical	PK	Pass
6	17880.0000	45.75	45.7	0.05	54	-8.25	0.5	Vertical	AV	Pass

Note:

1. The emission levels of other frequencies are very lower than the limit and not show in test report.
2. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
3. Data of measurement shown "----" in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
4. Measurements were conducted in all three modulation (GFSK, Pi/4 DQPSK, 8DPSK), and the worst case Mode (GFSK) was submitted only.
5. EUT has been tested in unfolded states, and the report only reflects data in the unfolded state (worst-case scenario)



6.11.3. Restricted Bands Requirements

Bluetooth (GFSK, Pi/4-DQPSK, 8DPSK) mode have been tested, and the worst result GFSK model was report as below

Frequency	Reading	Correct Factor	Emission Level	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel							
2387	63.21	-8.76	54.45	74	19.55	H	PK
2387	56.94	-8.76	48.18	54	5.82	H	AV
2387	60.34	-8.73	51.61	74	22.39	V	PK
2387	54.62	-8.73	45.89	54	8.11	V	AV
2390	63.35	-8.76	54.59	74	19.41	H	PK
2390	53.12	-8.76	44.36	54	9.64	H	AV
2390	62.23	-8.73	53.50	74	20.50	V	PK
2390	54.84	-8.73	46.11	54	7.89	V	AV
High Channel							
2483.5	60.31	-8.76	51.55	74	22.45	H	PK
2483.5	54.10	-8.76	45.34	54	8.66	H	AV
2483.5	63.96	-8.73	55.23	74	18.77	V	PK
2483.5	56.22	-8.73	47.49	54	6.51	V	AV

Note: Freq. = Emission frequency in MHz
 Reading level (dBuV) = Receiver reading
 Corr. Factor (dB) = Attenuation factor + Cable loss
 Level (dBuV) = Reading level (dBuV) + Corr. Factor (dB)
 Limit (dBuV) = Limit stated in standard
 Margin (dB) = Level (dBuV) – Limits (dBuV)



Report No.: WSCT-ANAB-R&E250400021A-BT

7. Test Setup Photographs

Please refer to Annex "Set Up Photos-15C" for test setup photos

*******END OF REPORT*******

