

Test Report

Product Name: Bluetooth speaker

Test Model: N/A

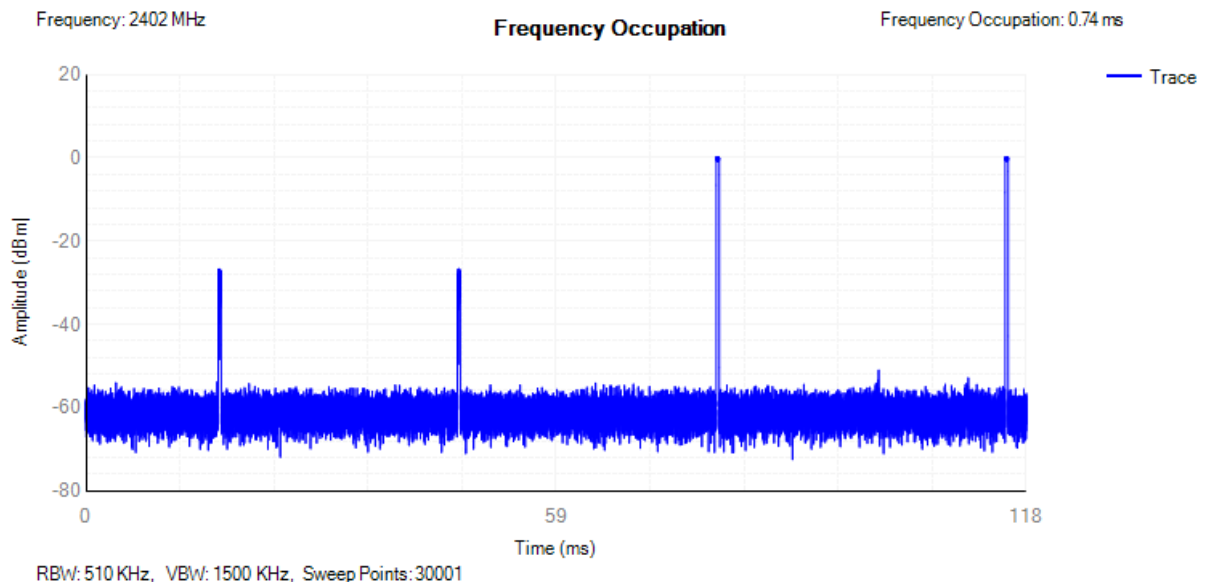
Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	53.7%
ATM Pressure:	100.0 kPa
Test Engineer:	SCENT HU
Supervised by:	Tom.Liu

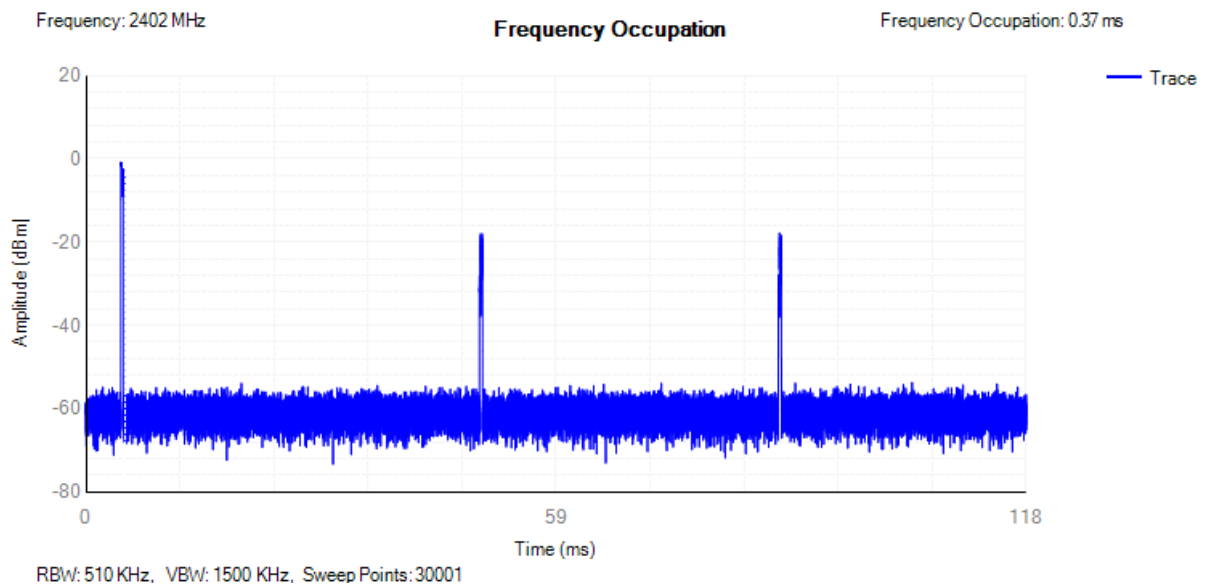
5.4.4 Frequency Occupation

Condition	Mode	Frequency (MHz)	Frequency Occupation (ms)	Limit (ms)	Sweep Time (ms)	Burst Number	Verdict
NVNT	1-DH1	2402	0.74	0	116.92	2	Pass
NVNT	2-DH1	2402	0.37	0	116.92	1	Pass
NVNT	3-DH1	2402	0.37	0	116.92	1	Pass

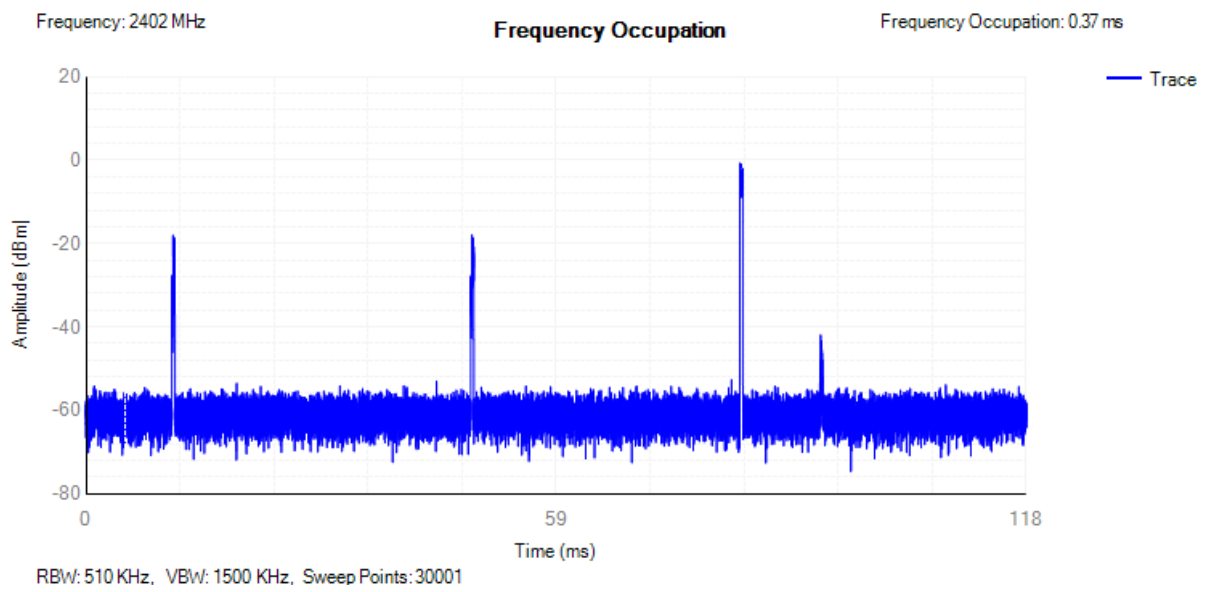
Freq. Occup. NVNT 1-DH1 2402MHz



Freq. Occup. NVNT 2-DH1 2402MHz



Freq. Occup. NVNT 3-DH1 2402MHz



2. RF Output Power

Condition	Mode	Frequency (MHz)	Max. E.I.R.P. (dBm)	Limit (dBm)	Verdict
NVNT	DH5	2402	0.43	20	Pass
		2441	0.23	20	Pass
		2480	0.39	20	Pass
NVHT	DH5	2402	0.10	20	Pass
		2441	0.26	20	Pass
		2480	0.29	20	Pass
NVLT	DH5	2402	0.21	20	Pass
		2441	0.31	20	Pass
		2480	0.15	20	Pass

Condition	Mode	Frequency (MHz)	Max. E.I.R.P. (dBm)	Limit (dBm)	Verdict
NVNT	2DH5	2402	-1.89	20	Pass
		2441	-1.62	20	Pass
		2480	-1.76	20	Pass
NVHT	2DH5	2402	-1.79	20	Pass
		2441	-1.11	20	Pass
		2480	-1.59	20	Pass
NVLT	2DH5	2402	-1.87	20	Pass
		2441	-1.21	20	Pass
		2480	-1.69	20	Pass

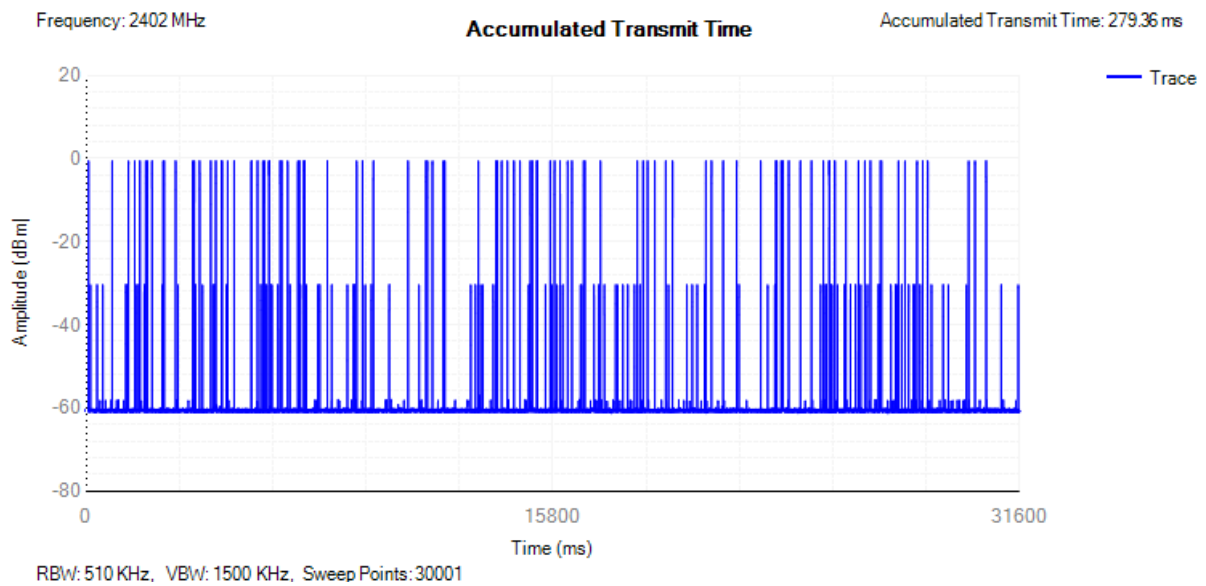
Condition	Mode	Frequency (MHz)	Max. E.I.R.P. (dBm)	Limit (dBm)	Verdict
NVNT	3DH5	2402	-1.92	20	Pass
		2441	-1.62	20	Pass
		2480	-1.64	20	Pass
NVHT	3DH5	2402	-1.81	20	Pass
		2441	-1.13	20	Pass
		2480	-1.62	20	Pass
NVLT	3DH5	2402	-1.88	20	Pass
		2441	-1.26	20	Pass
		2480	-1.69	20	Pass

***Note: 20 bursts had been captured for power measurement.

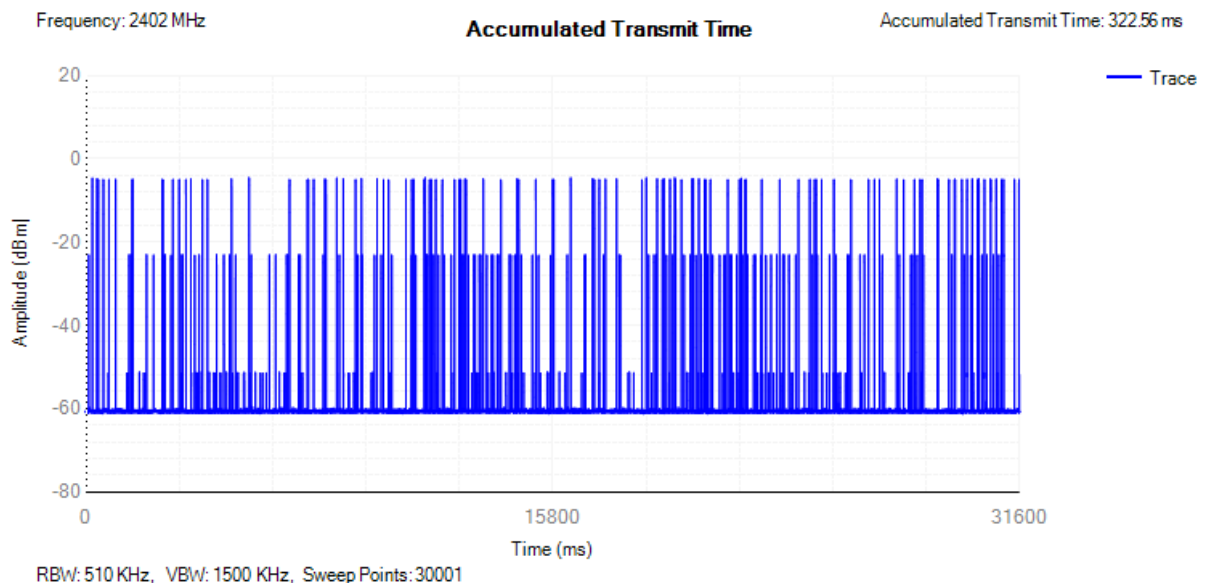
3. Accumulated Transmit Time

Condition	Mode	Frequency (MHz)	Accumulated Transmit Time (ms)	Limit (ms)	Sweep Time (ms)	Burst Number	Verdict
NVNT	1-DH5	2402	279.36	400	31600	97	Pass
NVNT	2-DH5	2402	322.56	400	31600	112	Pass
NVNT	3-DH5	2402	285.12	400	31600	99	Pass

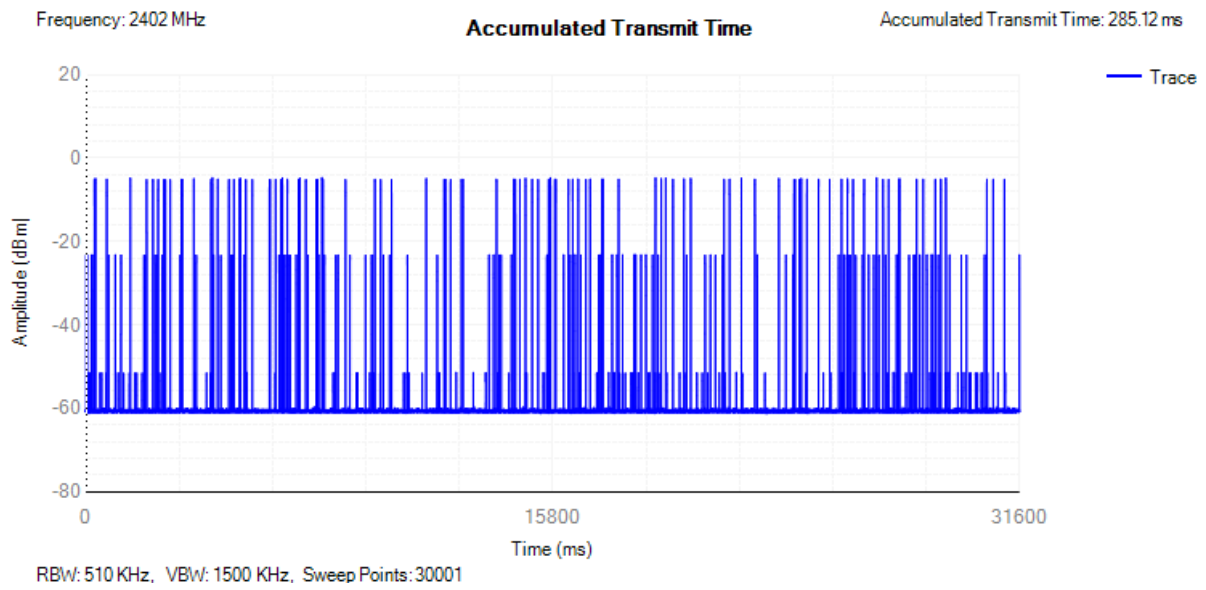
Dwell NVNT 1-DH5 2402MHz



Dwell NVNT 2-DH5 2402MHz



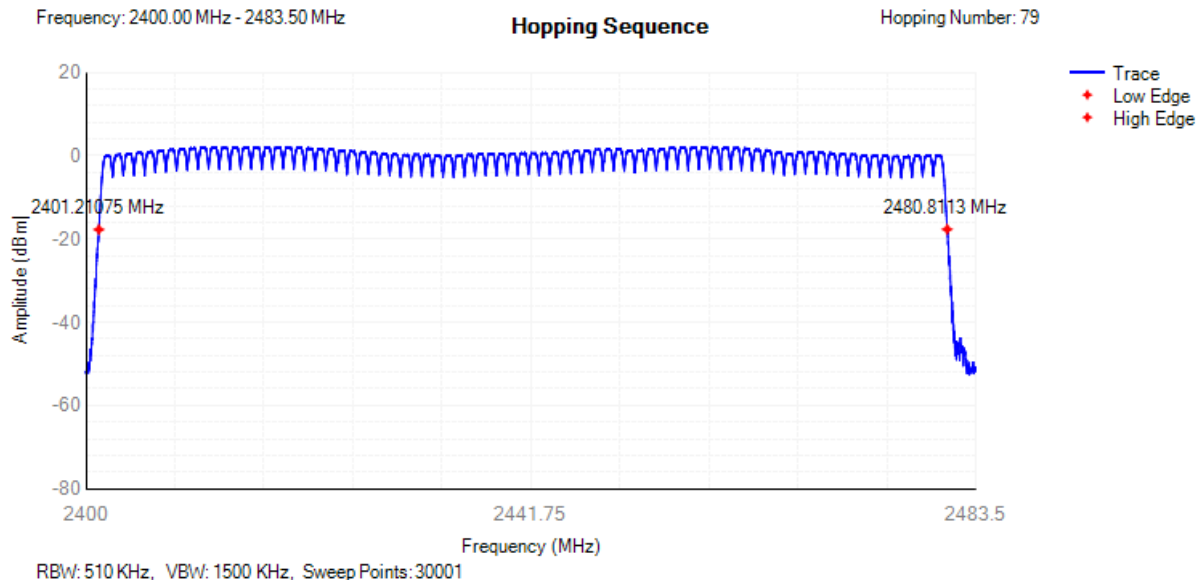
Dwell NVNT 3-DH5 2402MHz



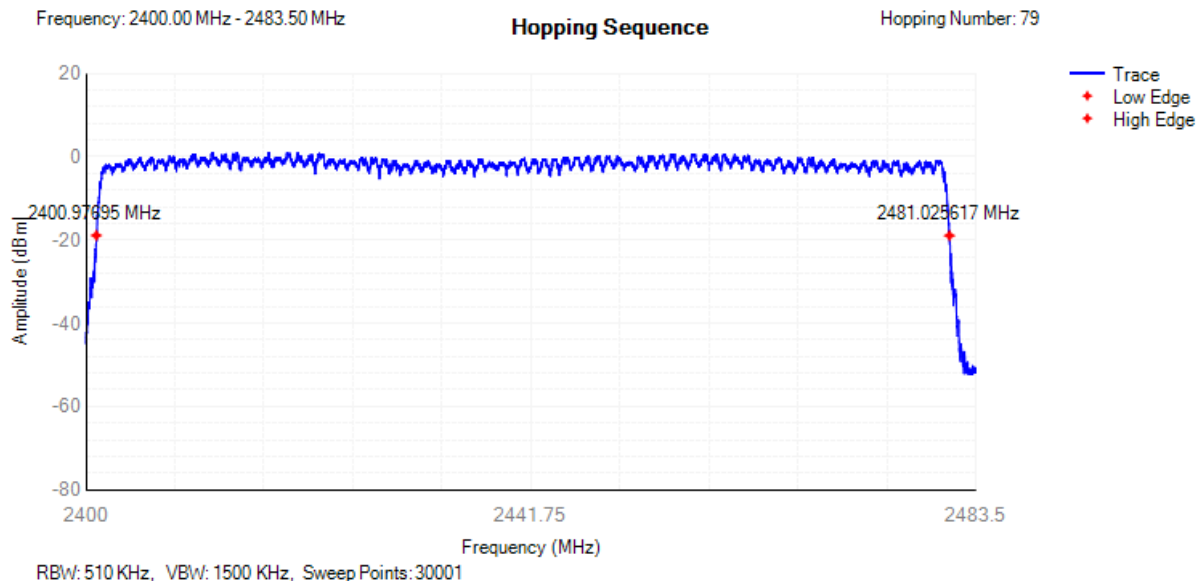
4. Hopping Sequence

Condition	Mode	Hopping Number	Limit	Band Allocation (%)	Limit Band Allocation (%)	Verdict
NVNT	1-DH5	79	15	95.33	70	Pass
NVNT	2-DH5	79	15	95.86	70	Pass
NVNT	3-DH5	79	15	95.84	70	Pass

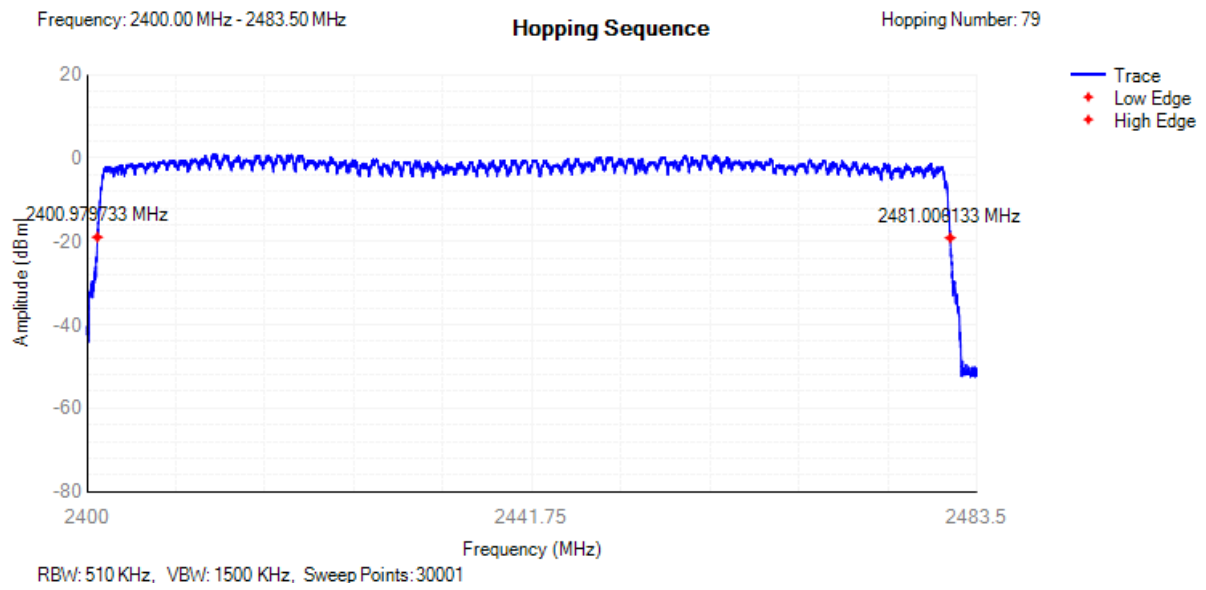
Hopping Seq. NVNT 1-DH5 2402MHz



Hopping Seq. NVNT 2-DH5 2402MHz



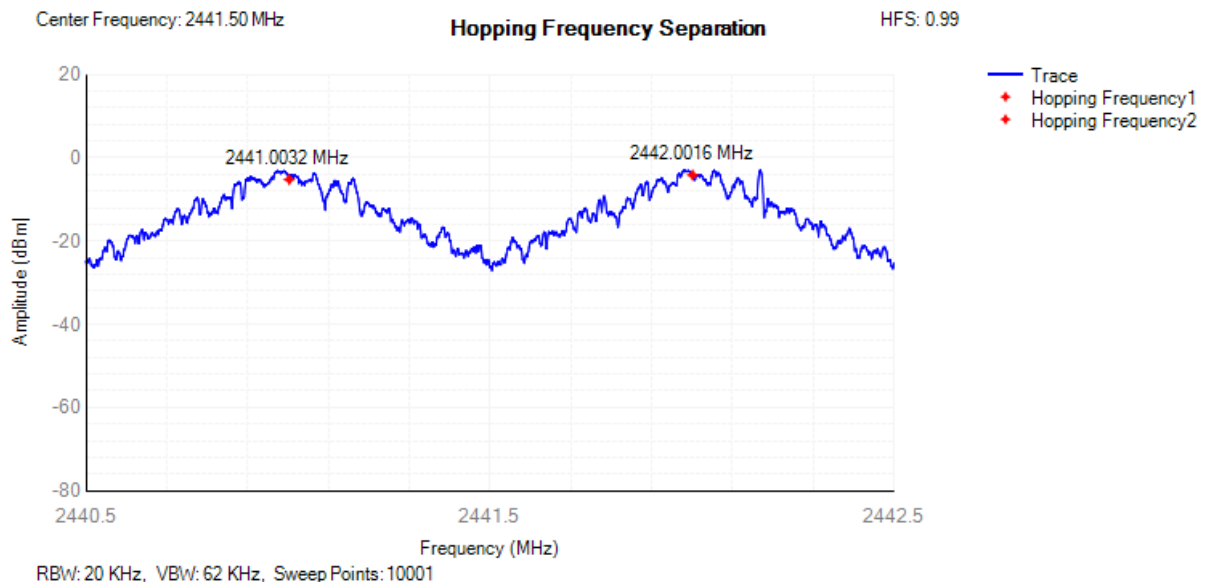
Hopping Seq. NVNT 3-DH5 2402MHz



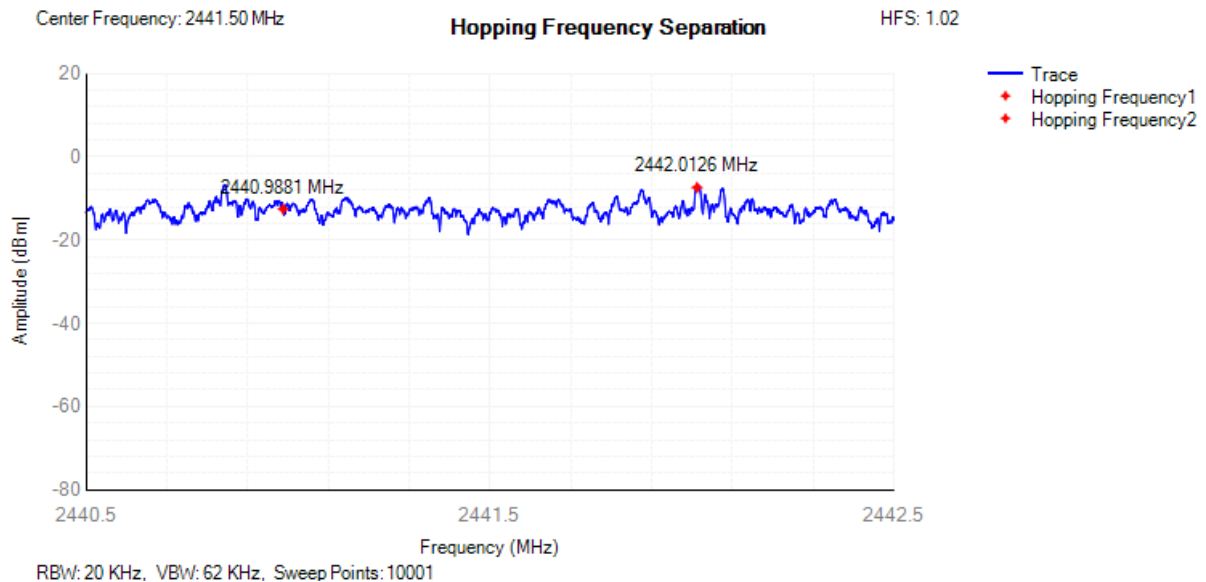
5. Hopping Frequency Separation

Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2441.0032	2442.0016	0.99	0.1	Pass
NVNT	2-DH5	2440.9881	2442.0126	1.02	0.1	Pass
NVNT	3-DH5	2441.123	2442.0029	0.87	0.1	Pass

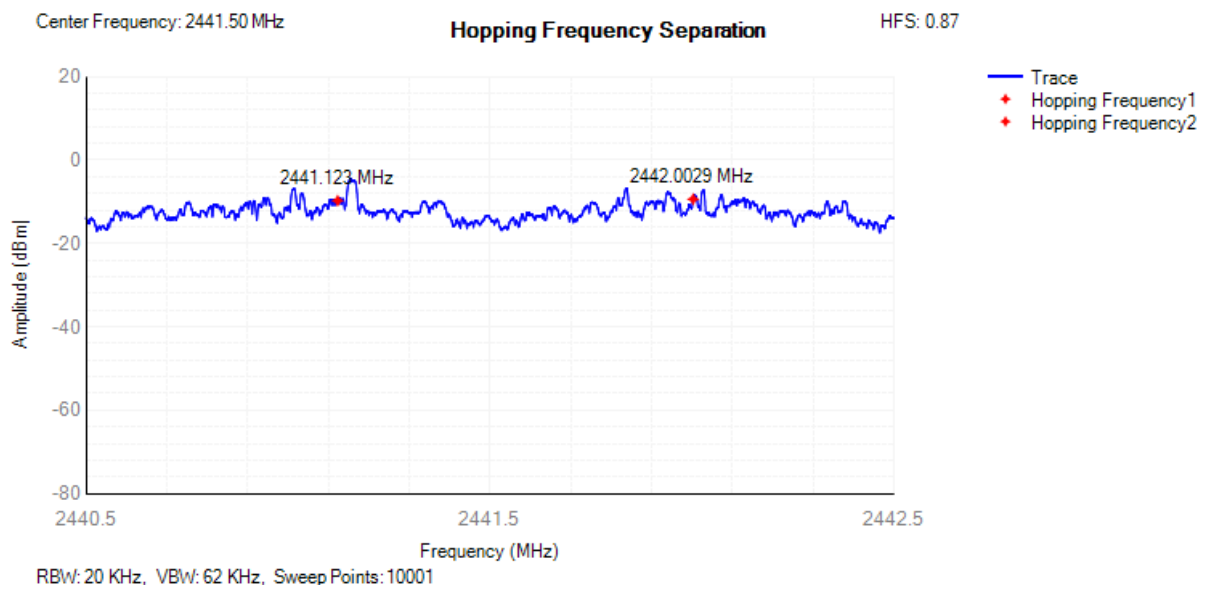
HFS NVNT 1-DH5 2441MHz



HFS NVNT 2-DH5 2441MHz



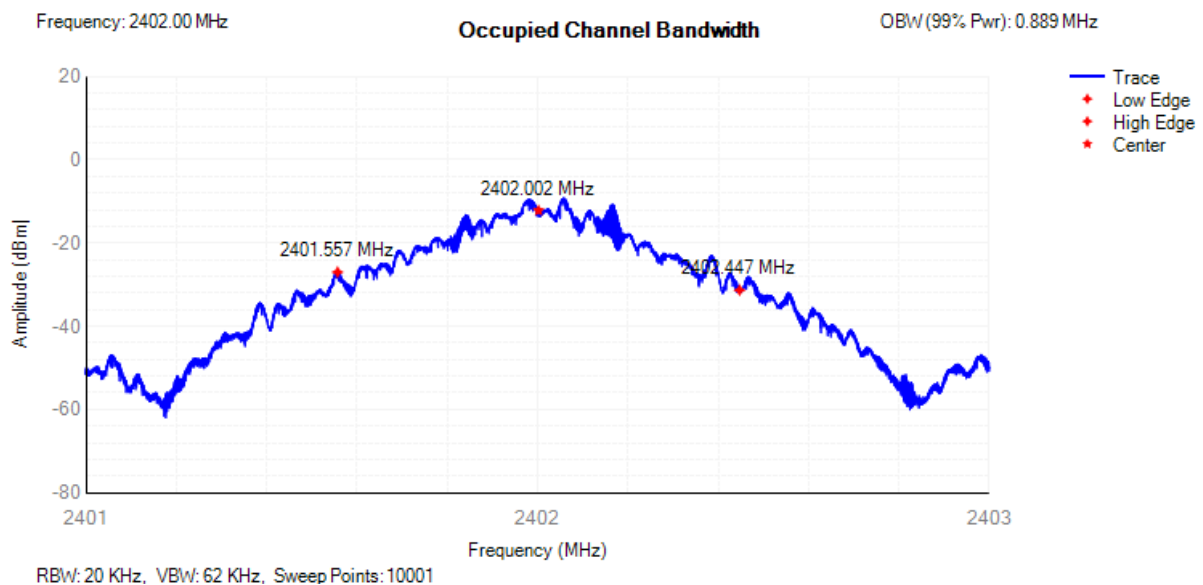
HFS NVNT 3-DH5 2441MHz



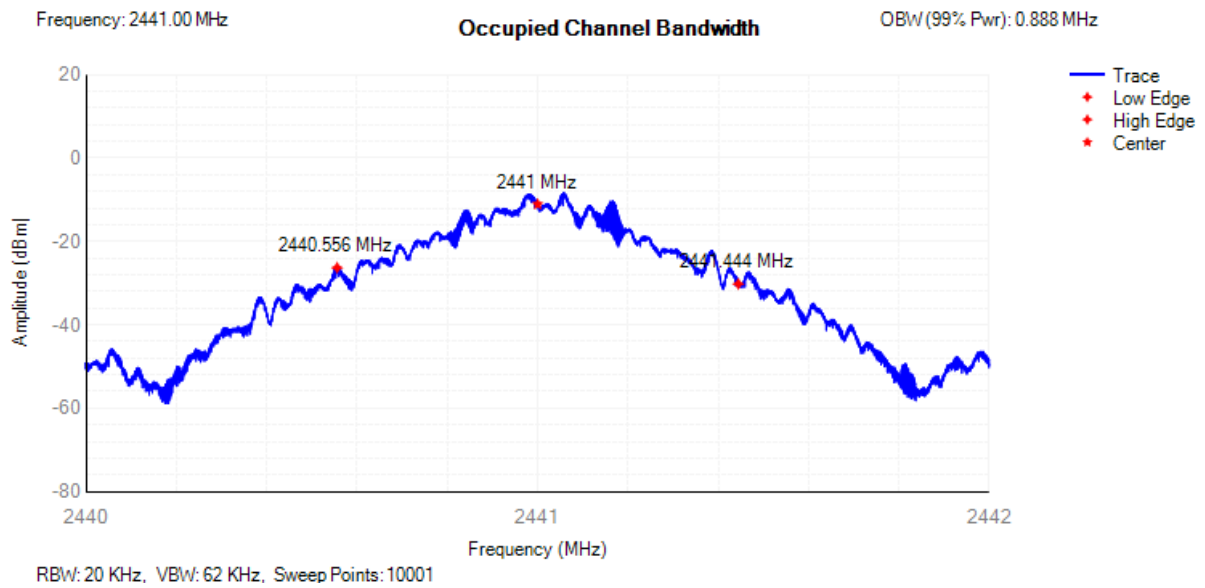
6. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Center Frequency (MHz)	OBW (MHz)	Lower Edge (MHz)	Upper Edge (MHz)	Limit OBW (MHz)	Verdict
NVNT	1-DH5	2402	2402.002	0.889	2401.557	2402.447	2400 - 2483.5MHz	Pass
NVNT	1-DH5	2441	2441	0.888	2440.556	2441.444	2400 - 2483.5MHz	Pass
NVNT	1-DH5	2480	2480.001	0.89	2479.555	2480.446	2400 - 2483.5MHz	Pass
NVNT	2-DH5	2402	2402.001	1.189	2401.407	2402.596	2400 - 2483.5MHz	Pass
NVNT	2-DH5	2441	2440.999	1.187	2440.405	2441.593	2400 - 2483.5MHz	Pass
NVNT	2-DH5	2480	2479.999	1.185	2479.406	2480.592	2400 - 2483.5MHz	Pass
NVNT	3-DH5	2402	2401.995	1.203	2401.393	2402.597	2400 - 2483.5MHz	Pass
NVNT	3-DH5	2441	2440.994	1.201	2440.393	2441.595	2400 - 2483.5MHz	Pass
NVNT	3-DH5	2480	2479.994	1.201	2479.394	2480.595	2400 - 2483.5MHz	Pass

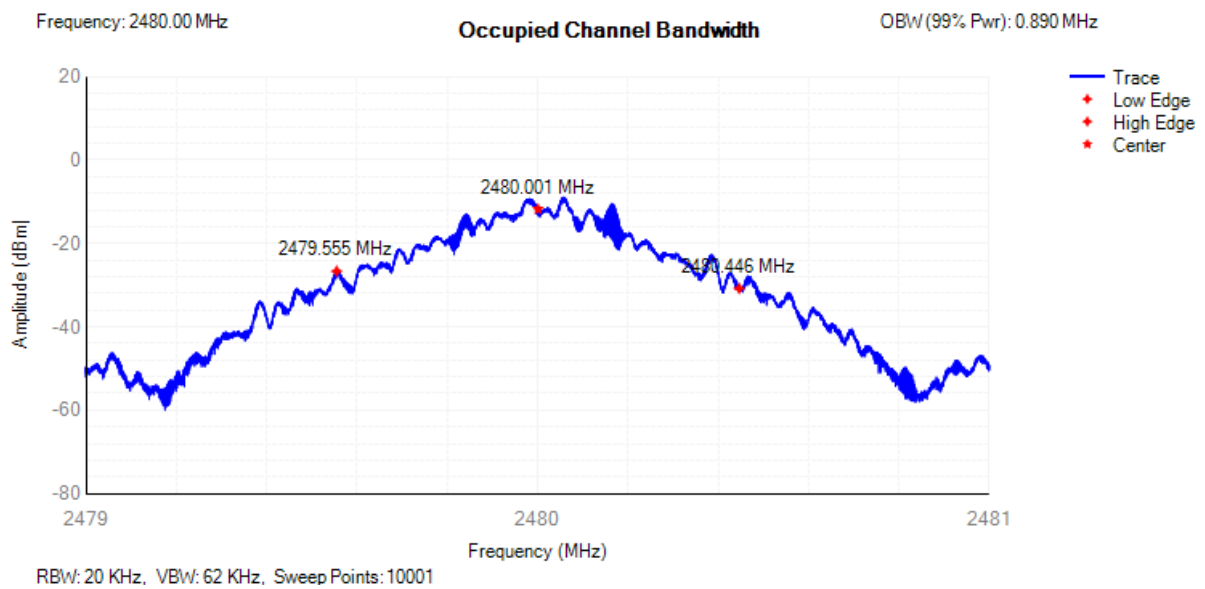
OBW NVNT 1-DH5 2402MHz



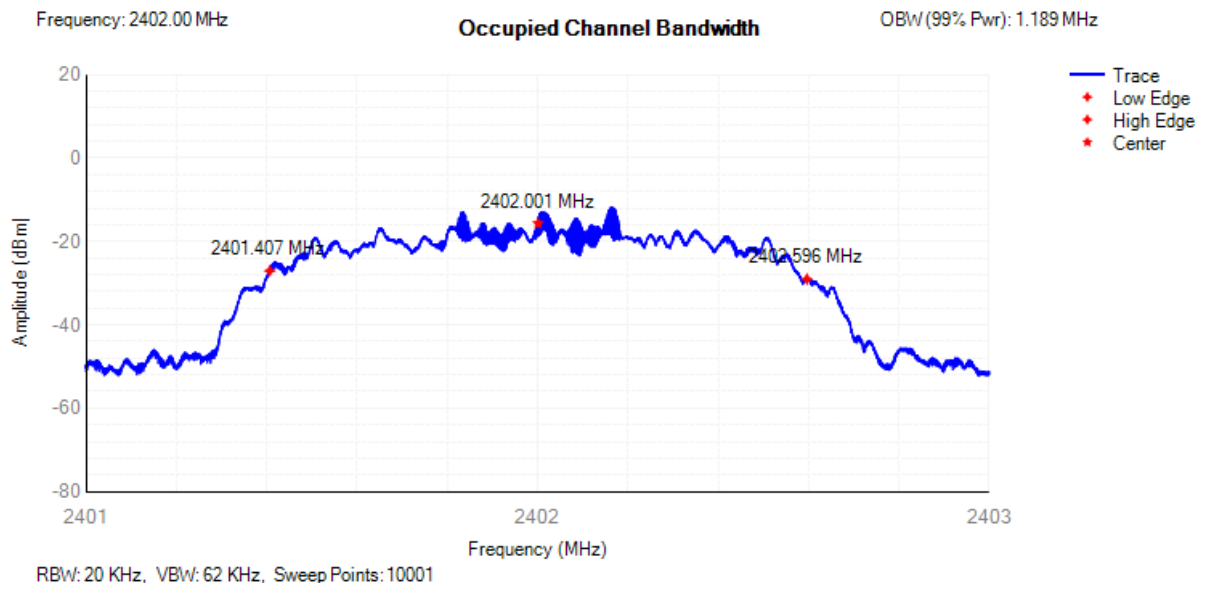
OBW NVNT 1-DH5 2441MHz



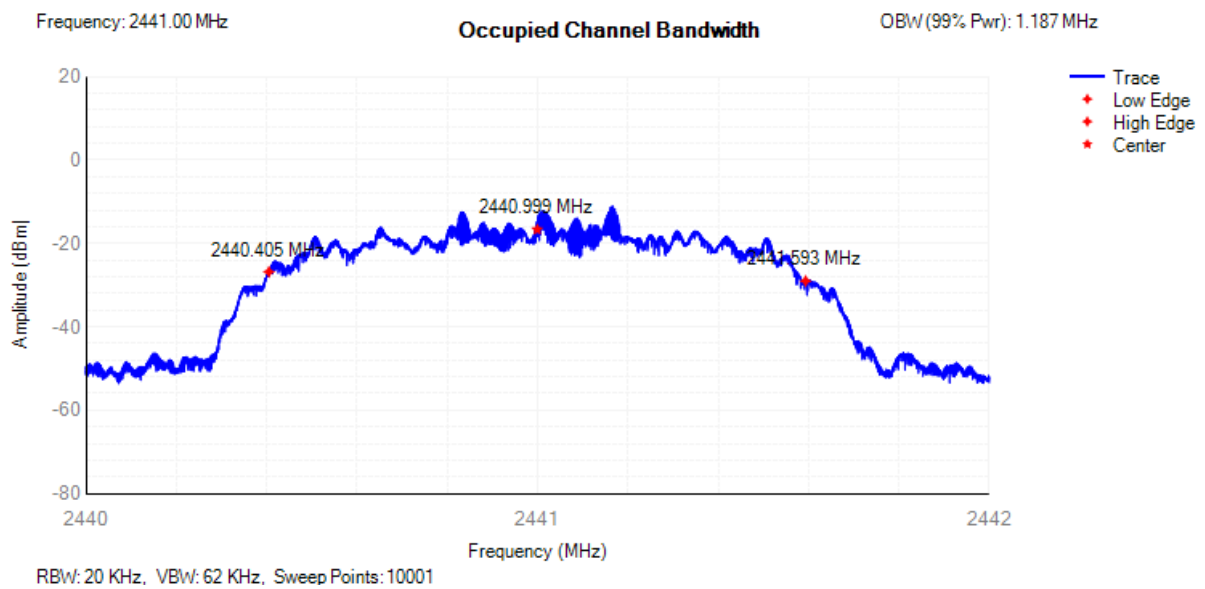
OBW NVNT 1-DH5 2480MHz



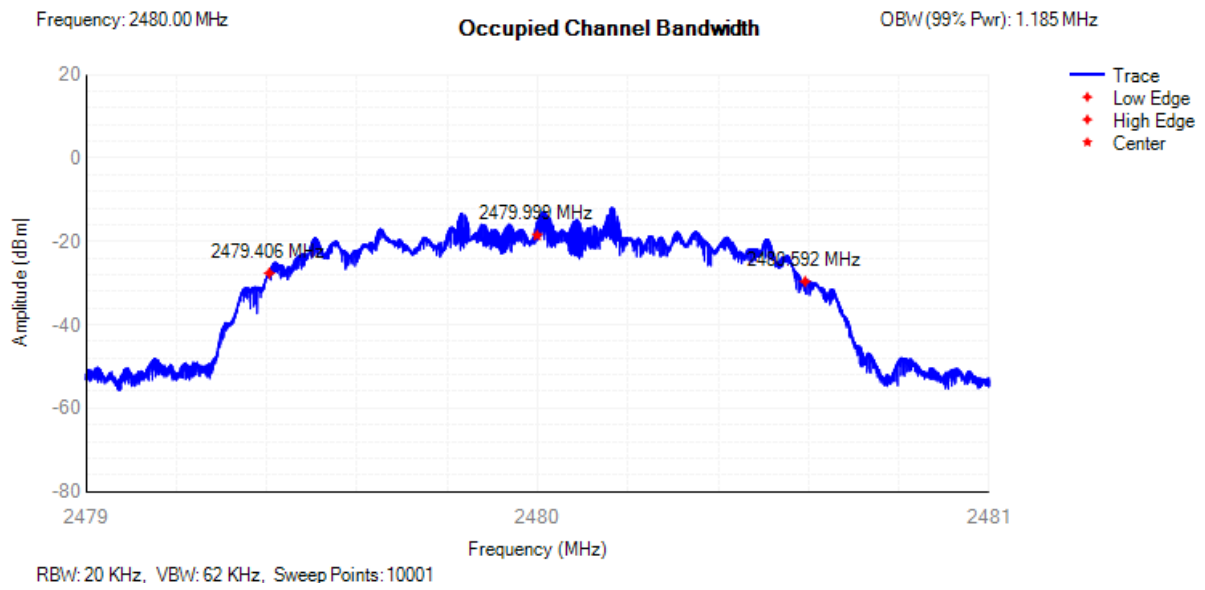
OBW NVNT 2-DH5 2402MHz



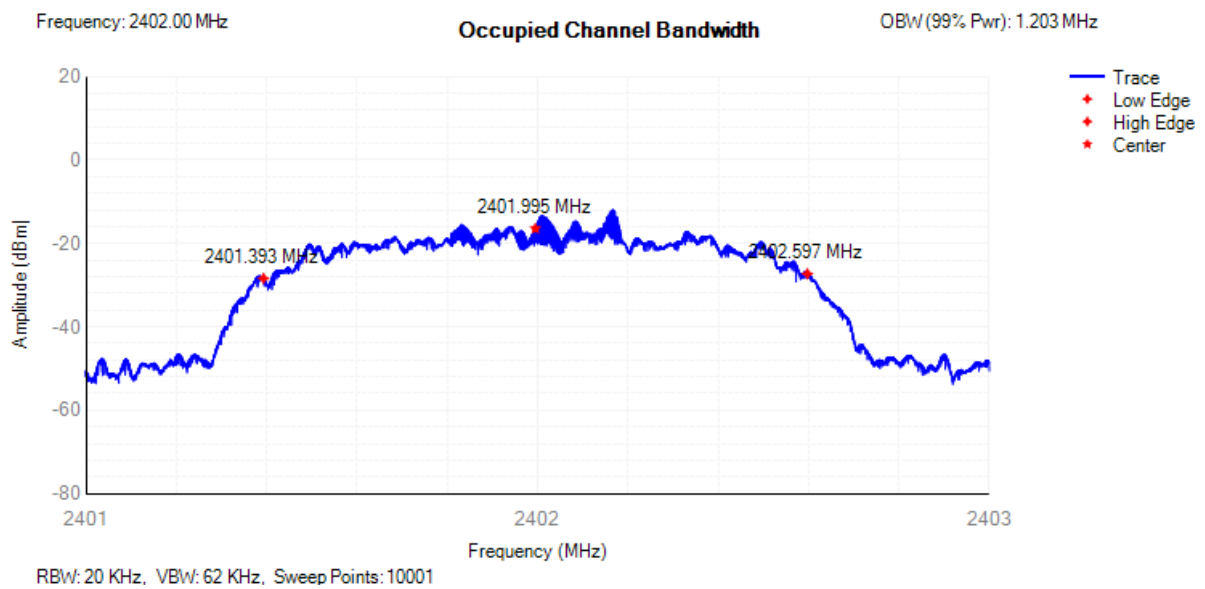
OBW NVNT 2-DH5 2441MHz



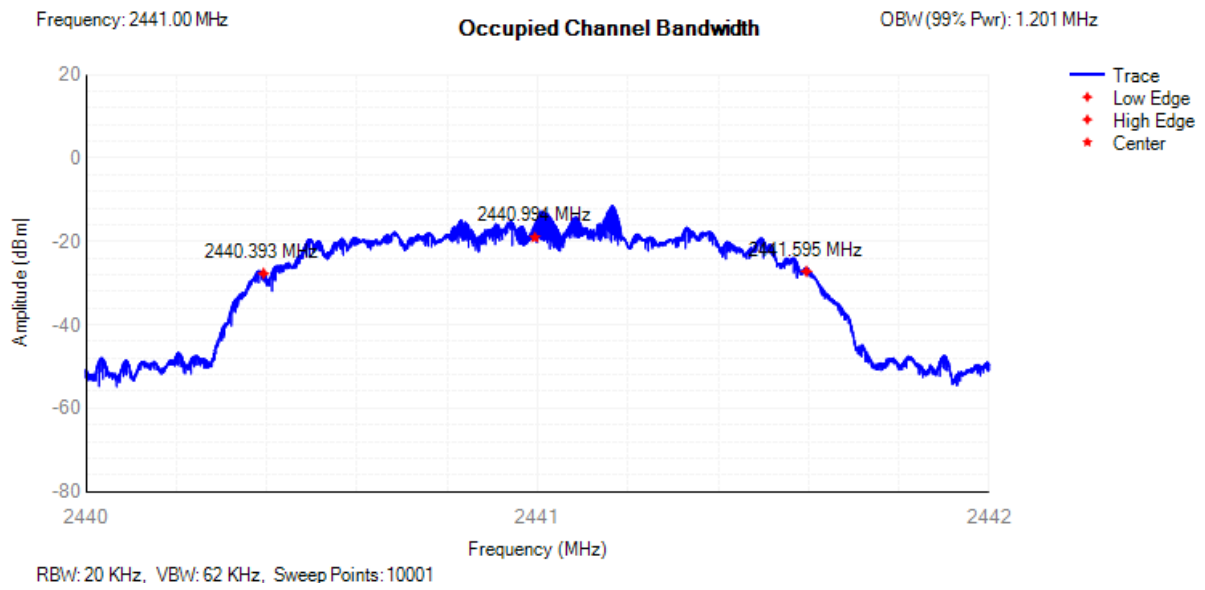
OBW NVNT 2-DH5 2480MHz



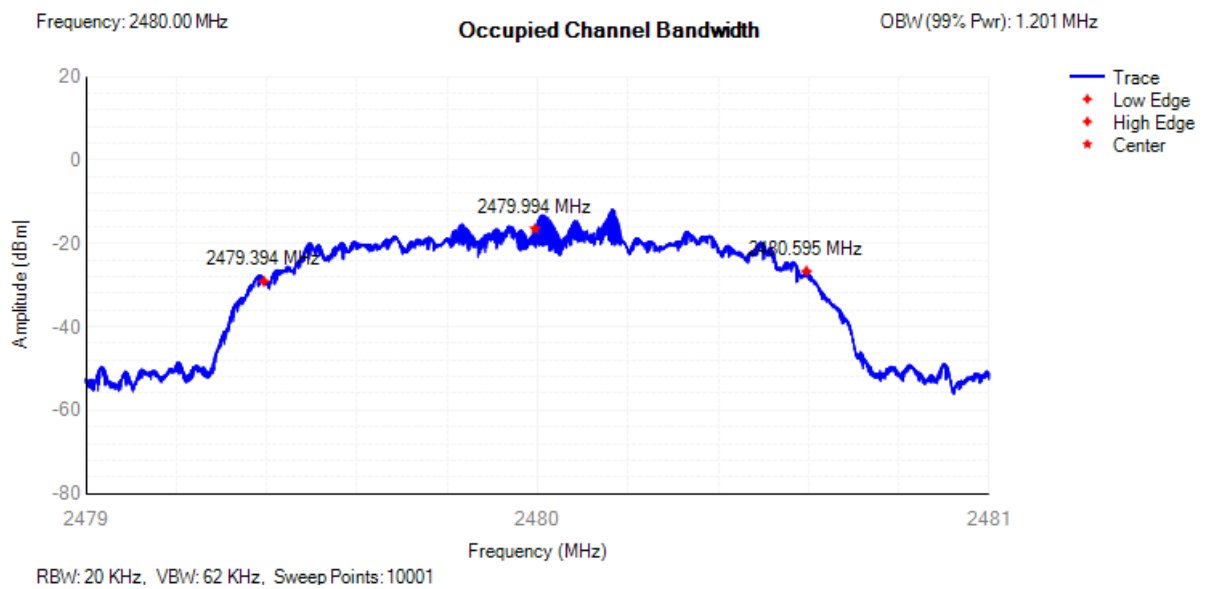
OBW NVNT 3-DH5 2402MHz



OBW NVNT 3-DH5 2441MHz



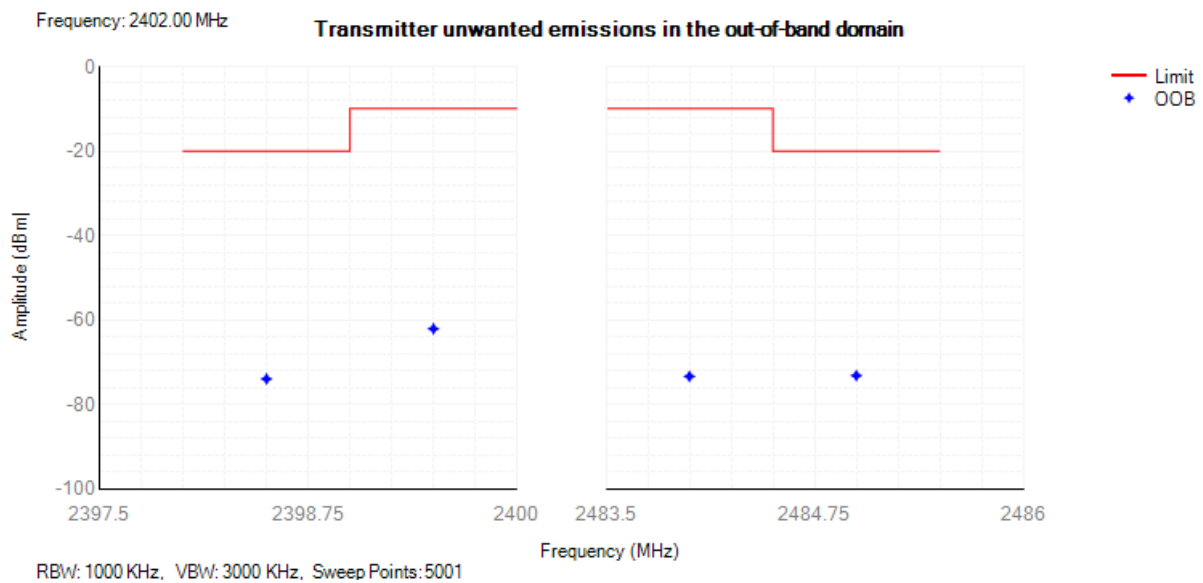
OBW NVNT 3-DH5 2480MHz



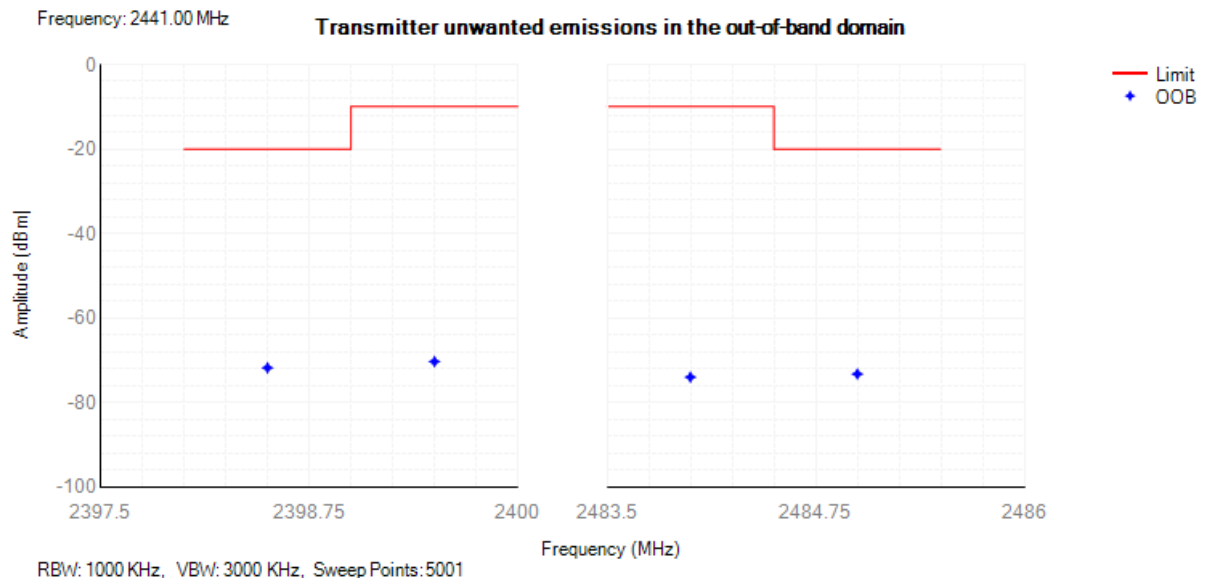
7. Transmitter unwanted emissions in the out-of-band domain

Condition	Mode	Frequency (MHz)	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	1-DH5	2402	2399.5	-62.07	-10	Pass
NVNT	1-DH5	2402	2398.5	-73.93	-20	Pass
NVNT	1-DH5	2402	2484	-73.33	-10	Pass
NVNT	1-DH5	2402	2485	-73.14	-20	Pass
NVNT	1-DH5	2441	2399.5	-70.3	-10	Pass
NVNT	1-DH5	2441	2398.5	-71.78	-20	Pass
NVNT	1-DH5	2441	2484	-73.98	-10	Pass
NVNT	1-DH5	2441	2485	-73.24	-20	Pass
NVNT	1-DH5	2480	2399.5	-74.15	-10	Pass
NVNT	1-DH5	2480	2398.5	-70.22	-20	Pass
NVNT	1-DH5	2480	2484	-67.4	-10	Pass
NVNT	1-DH5	2480	2485	-72.1	-20	Pass

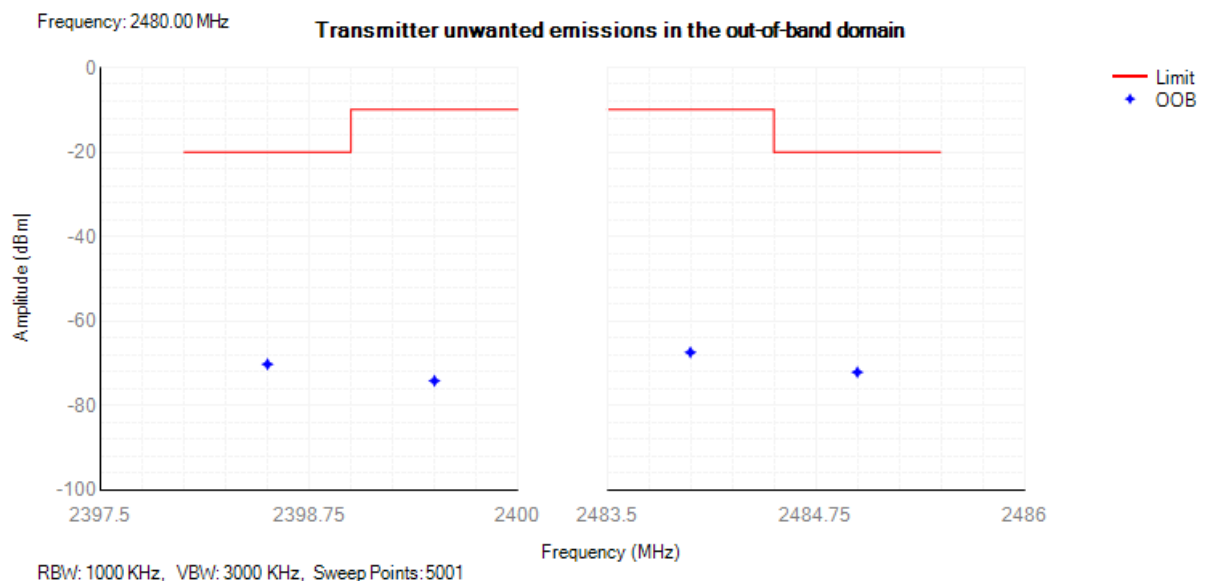
Tx. Emissions OOB NVNT 1-DH5 2402MHz



Tx. Emissions OOB NVNT 1-DH5 2441MHz



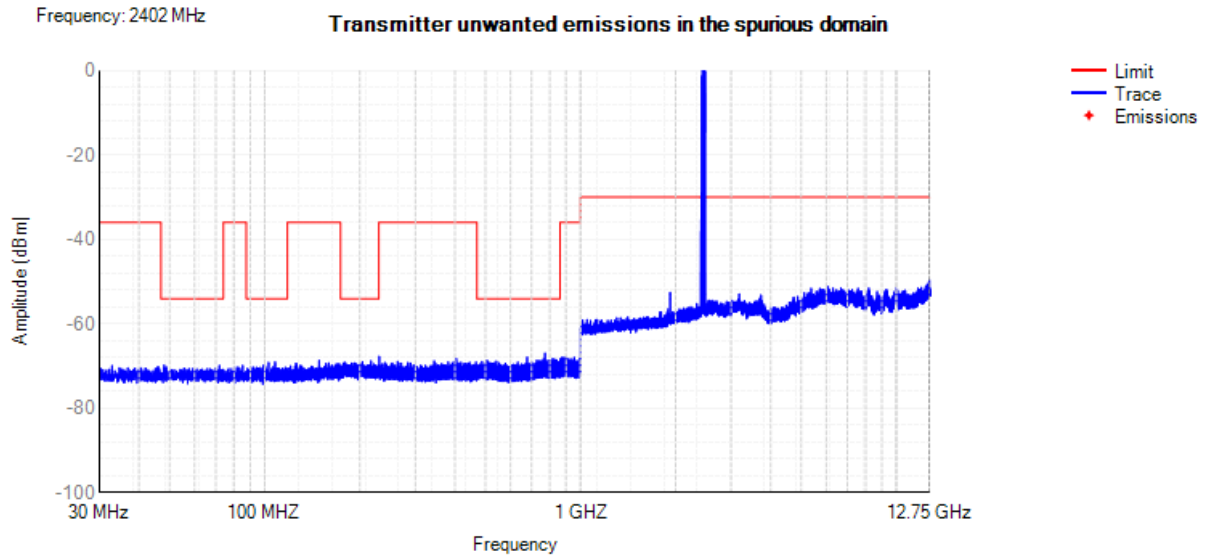
Tx. Emissions OOB NVNT 1-DH5 2480MHz



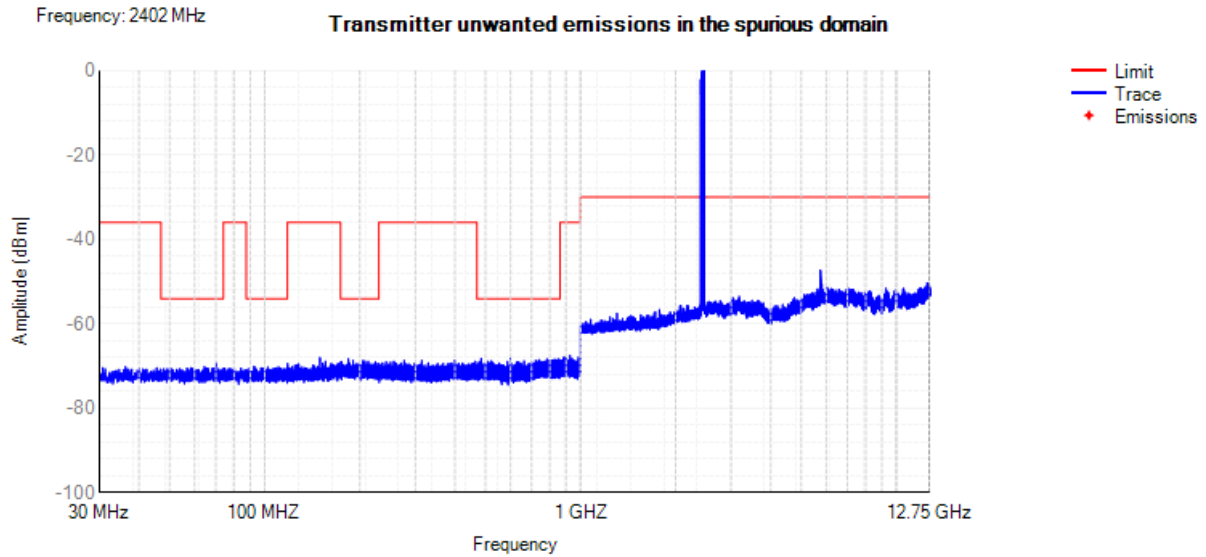
8. Transmitter unwanted emissions in the spurious domain

Condition	Mode	Frequency (MHz)	Range	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
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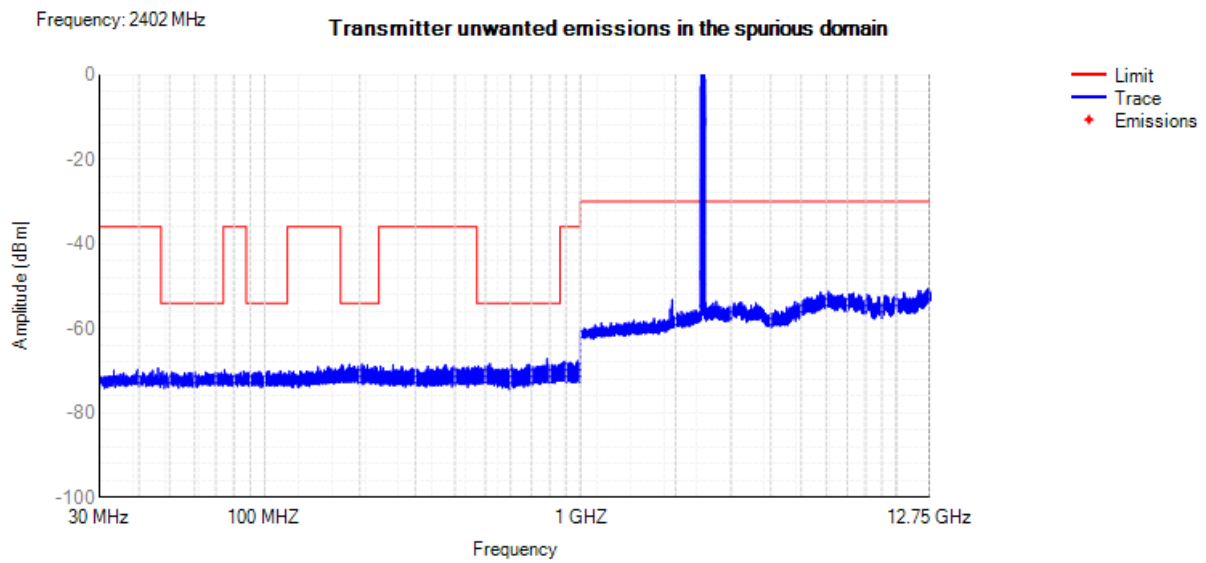
Tx. Spurious NVNT 1-DH5 2402MHz



Tx. Spurious NVNT 2-DH5 2402MHz



Tx. Spurious NVNT 3-DH5 2402MHz



Tx. Spurious NVNT 1-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
214.55	H	-64.39	-54.00	-10.39	PK
491.94	V	-64.09	-54.00	-10.09	PK
875.51	H	-46.53	-36.00	-10.53	PK
834.88	V	-67.54	-54.00	-13.54	PK
4803.99	H	-43.29	-30.00	-13.29	PK
4804.03	V	-41.58	-30.00	-11.58	PK
7206.04	H	-43.52	-30.00	-13.52	PK
7205.98	V	-44.82	-30.00	-14.82	PK
Channel 78 (2480MHz)					
448.29	H	-49.82	-36.00	-13.82	PK
440.10	V	-47.56	-36.00	-11.56	PK
731.61	H	-68.44	-54.00	-14.44	PK
640.16	V	-69.00	-54.00	-15.00	PK
4960.00	H	-43.07	-30.00	-13.07	PK
4959.99	V	-43.76	-30.00	-13.76	PK
7440.01	H	-43.14	-30.00	-13.14	PK
7440.03	V	-44.16	-30.00	-14.16	PK

Tx. Spurious NVNT 2-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
370.75	H	-48.69	-36.00	-12.69	PK
226.59	V	-67.93	-54.00	-13.93	PK
521.29	H	-67.02	-54.00	-13.02	PK
763.97	V	-64.08	-54.00	-10.08	PK
4803.98	H	-40.61	-30.00	-10.61	PK
4804.03	V	-44.37	-30.00	-14.37	PK
7206.00	H	-40.43	-30.00	-10.43	PK
7206.01	V	-42.39	-30.00	-12.39	PK
Channel 78 (2480MHz)					
430.13	H	-46.36	-36.00	-10.36	PK
563.63	V	-64.99	-54.00	-10.99	PK
782.21	H	-66.97	-54.00	-12.97	PK
892.21	V	-48.86	-36.00	-12.86	PK
4960.01	H	-41.04	-30.00	-11.04	PK
4960.01	V	-44.45	-30.00	-14.45	PK
7440.01	H	-40.56	-30.00	-10.56	PK
7439.98	V	-43.82	-30.00	-13.82	PK

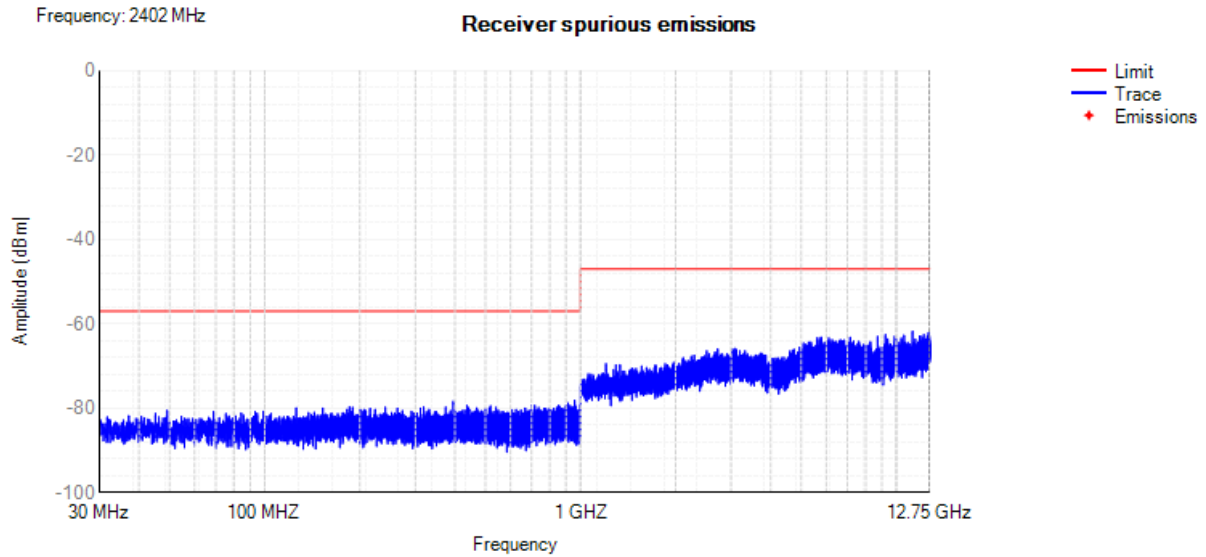
Tx. Spurious NVNT 3-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
440.29	H	-48.08	-36.00	-12.08	PK
448.68	V	-47.37	-36.00	-11.37	PK
604.58	H	-65.49	-54.00	-11.49	PK
672.46	V	-66.68	-54.00	-12.68	PK
4804.03	H	-40.66	-30.00	-10.66	PK
4803.97	V	-41.17	-30.00	-11.17	PK
7205.96	H	-42.87	-30.00	-12.87	PK
7206.00	V	-40.64	-30.00	-10.64	PK
Channel 78 (2480MHz)					
489.92	H	-65.66	-54.00	-11.66	PK
239.49	V	-46.78	-36.00	-10.78	PK
825.51	H	-66.37	-54.00	-12.37	PK
658.46	V	-64.71	-54.00	-10.71	PK
4804.02	H	-43.39	-30.00	-13.39	PK
4804.01	V	-42.73	-30.00	-12.73	PK
7205.97	H	-43.53	-30.00	-13.53	PK
7205.99	V	-41.80	-30.00	-11.80	PK

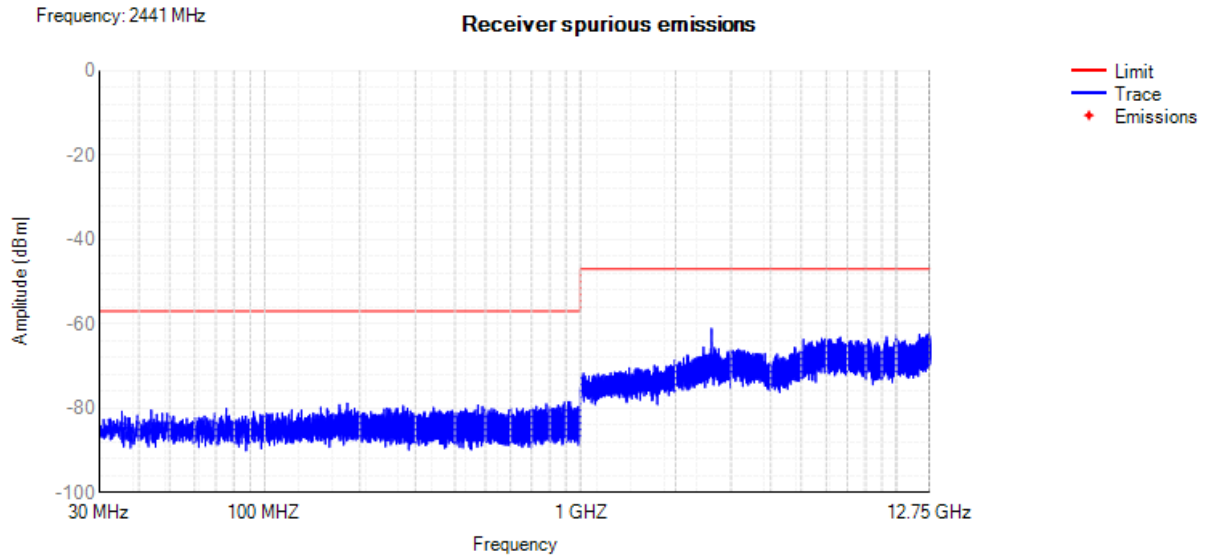
9. Receiver spurious emissions

Condition	Mode	Frequency (MHz)	Range	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
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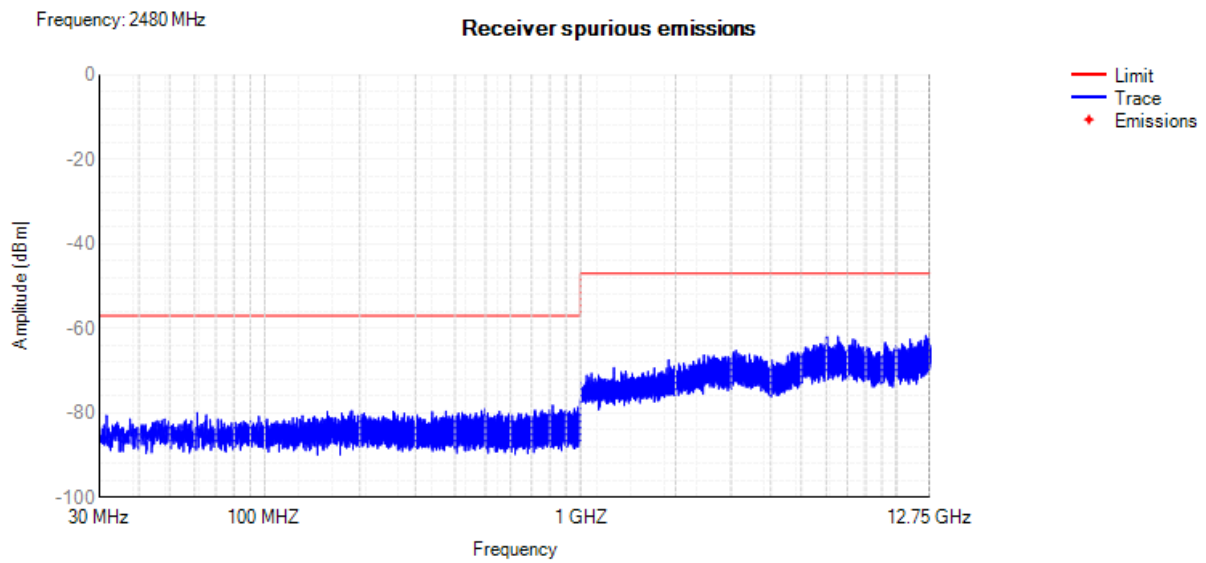
Rx. Spurious NVNT 1-DH5 2402MHz



Rx. Spurious NVNT 1-DH5 2441MHz



Rx. Spurious NVNT 1-DH5 2480MHz



Rx. Spurious NVNT 1-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
573.45	H	-67.96	-57.00	-10.96	PK
474.43	V	-70.20	-57.00	-13.20	PK
653.06	H	-67.41	-57.00	-10.41	PK
729.77	V	-70.55	-57.00	-13.55	PK
2602.48	H	-60.41	-47.00	-13.41	PK
2378.69	V	-57.31	-47.00	-10.31	PK
3611.23	H	-58.80	-47.00	-11.80	PK
4690.96	V	-59.12	-47.00	-12.12	PK
Channel 78 (2480MHz)					
453.37	H	-67.52	-57.00	-10.52	PK
422.77	V	-67.35	-57.00	-10.35	PK
703.23	H	-67.22	-57.00	-10.22	PK
784.10	V	-67.55	-57.00	-10.55	PK
3221.25	H	-61.73	-47.00	-14.73	PK
2888.70	V	-58.84	-47.00	-11.84	PK
3987.77	H	-58.54	-47.00	-11.54	PK
4603.75	V	-61.01	-47.00	-14.01	PK

Rx. Spurious NVNT 2-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
330.11	H	-70.74	-57.00	-13.74	PK
450.83	V	-69.60	-57.00	-12.60	PK
514.03	H	-70.64	-57.00	-13.64	PK
675.38	V	-71.34	-57.00	-14.34	PK
2421.25	H	-59.85	-47.00	-12.85	PK
2850.77	V	-59.55	-47.00	-12.55	PK
3834.68	H	-59.70	-47.00	-12.70	PK
4494.40	V	-61.48	-47.00	-14.48	PK
Channel 78 (2480MHz)					
255.35	H	-71.40	-57.00	-14.40	PK
514.31	V	-71.91	-57.00	-14.91	PK
678.15	H	-68.47	-57.00	-11.47	PK
742.41	V	-70.41	-57.00	-13.41	PK
2668.42	H	-58.23	-47.00	-11.23	PK
2191.96	V	-59.70	-47.00	-12.70	PK
4711.88	H	-58.29	-47.00	-11.29	PK
4703.04	V	-57.01	-47.00	-10.01	PK

Rx. Spurious NVNT 3-DH5

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
597.92	H	-69.61	-57.00	-12.61	PK
405.78	V	-70.80	-57.00	-13.80	PK
790.12	H	-69.19	-57.00	-12.19	PK
699.77	V	-69.92	-57.00	-12.92	PK
2052.75	H	-60.69	-47.00	-13.69	PK
2444.13	V	-59.61	-47.00	-12.61	PK
4206.04	H	-61.19	-47.00	-14.19	PK
3865.46	V	-59.34	-47.00	-12.34	PK
Channel 78 (2480MHz)					
539.64	H	-70.63	-57.00	-13.63	PK
427.66	V	-70.17	-57.00	-13.17	PK
842.07	H	-70.35	-57.00	-13.35	PK
776.93	V	-68.54	-57.00	-11.54	PK
1790.45	H	-59.25	-47.00	-12.25	PK
2342.53	V	-59.46	-47.00	-12.46	PK
3831.60	H	-58.65	-47.00	-11.65	PK
4289.37	V	-58.27	-47.00	-11.27	PK

10. Receiver blocking

Wanted signal mean power from companion device (dBm)	Test mode	Test channel (MHz)	Blocking signal frequency (MHz)	Pmin	Blocking signal power (dBm)		Type of blocking signal	PER(%)		Test Result
					Test Value	Limit		Test Value	Limit	
Pmin + 6 dB	DH1	2402	2380	-88	-34	≥ -57	CW	3.69	10	Pass
			2503.5	-88	-28	≥ -57	CW	5.96	10	Pass
			2300	-88	-20	≥ -47	CW	6.59	10	Pass
			2583.5	-88	-22	≥ -47	CW	3.82	10	Pass
		2480	2380	-89	-17	≥ -57	CW	6.36	10	Pass
			2503.5	-89	-22	≥ -57	CW	3.98	10	Pass
			2300	-89	-24	≥ -47	CW	4.35	10	Pass
			2583.5	-89	-20	≥ -47	CW	6.85	10	Pass
	2DH1	2402	2380	-87	-16	≥ -57	CW	4.59	10	Pass
			2503.5	-87	-14	≥ -57	CW	3.75	10	Pass
			2300	-87	-16	≥ -47	CW	5.69	10	Pass
			2583.5	-87	-33	≥ -47	CW	4.56	10	Pass
		2480	2380	-88	-29	≥ -57	CW	3.05	10	Pass
			2503.5	-88	-25	≥ -57	CW	6.17	10	Pass
			2300	-88	-24	≥ -47	CW	3.89	10	Pass
			2583.5	-88	-27	≥ -47	CW	5.77	10	Pass
	3DH1	2402	2380	-88	-30	≥ -57	CW	3.43	10	Pass
			2503.5	-88	-23	≥ -57	CW	5.68	10	Pass
			2300	-88	-24	≥ -47	CW	6.46	10	Pass
			2583.5	-88	-21	≥ -47	CW	6.05	10	Pass
		2480	2380	-87	-25	≥ -57	CW	6.89	10	Pass
			2503.5	-87	-28	≥ -57	CW	3.75	10	Pass
			2300	-87	-17	≥ -47	CW	5.02	10	Pass
			2583.5	-87	-22	≥ -47	CW	6.14	10	Pass