



Appendix E for BT Test Data

Product Name: BT Magic Bluetooth Module

Test Model: BT Magic

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	<i>Taylor Hu</i> Taylor Hu
Supervised by:	<i>Li Huan</i> Li Huan





E.1 RF Output Power

Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	0.47	20	Pass
NVNT	1-DH5	2480	0.58	20	Pass
NVNT	2-DH5	2402	0.19	20	Pass
NVNT	2-DH5	2480	0.07	20	Pass
NVNT	3-DH5	2402	0.68	20	Pass
NVNT	3-DH5	2480	0.76	20	Pass

Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	0.44	20	Pass
NVNT	1-DH5	2480	0.57	20	Pass
NVNT	2-DH5	2402	0.12	20	Pass
NVNT	2-DH5	2480	0.02	20	Pass
NVNT	3-DH5	2402	0.64	20	Pass
NVNT	3-DH5	2480	0.67	20	Pass

Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	0.42	20	Pass
NVNT	1-DH5	2480	0.54	20	Pass
NVNT	2-DH5	2402	0.02	20	Pass
NVNT	2-DH5	2480	-0.08	20	Pass
NVNT	3-DH5	2402	0.56	20	Pass
NVNT	3-DH5	2480	0.62	20	Pass

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





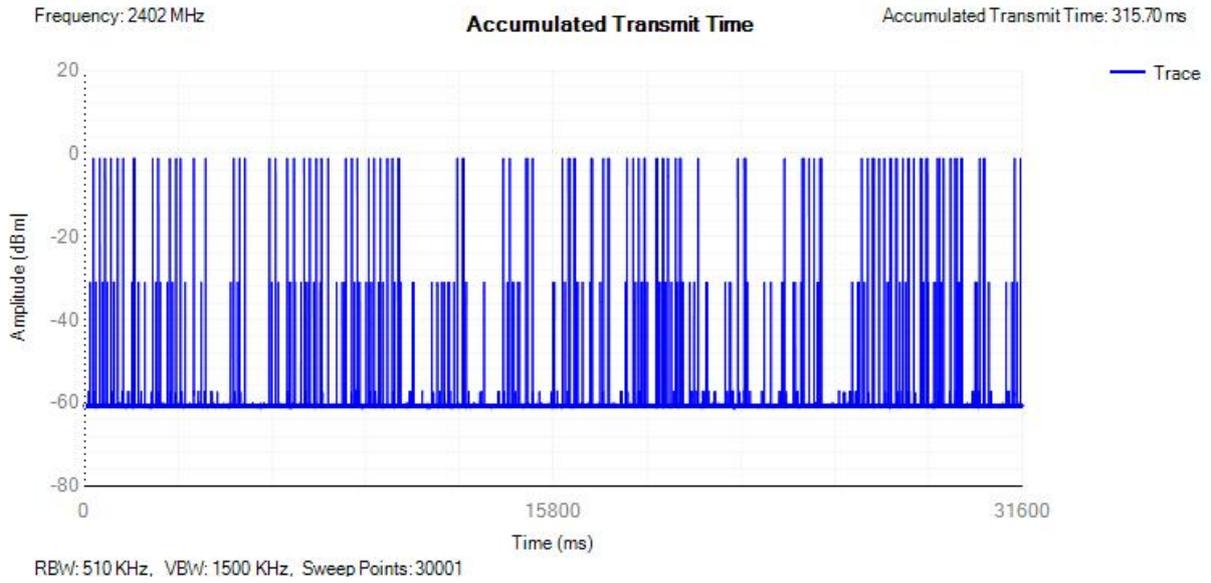
E.2 Accumulated Transmit Time

Condition	Mode	Frequency (MHz)	Accumulated Transmit Time (ms)	Limit (ms)	Sweep Time (ms)	Burst Number	Verdict
NVNT	1-DH5	2402	315.7	400	31600	110	Pass
NVNT	1-DH5	2480	312.83	400	31600	109	Pass
NVNT	2-DH5	2402	309.62	400	31600	113	Pass
NVNT	2-DH5	2480	328.8	400	31600	120	Pass
NVNT	3-DH5	2402	298.66	400	31600	109	Pass
NVNT	3-DH5	2480	301.4	400	31600	110	Pass

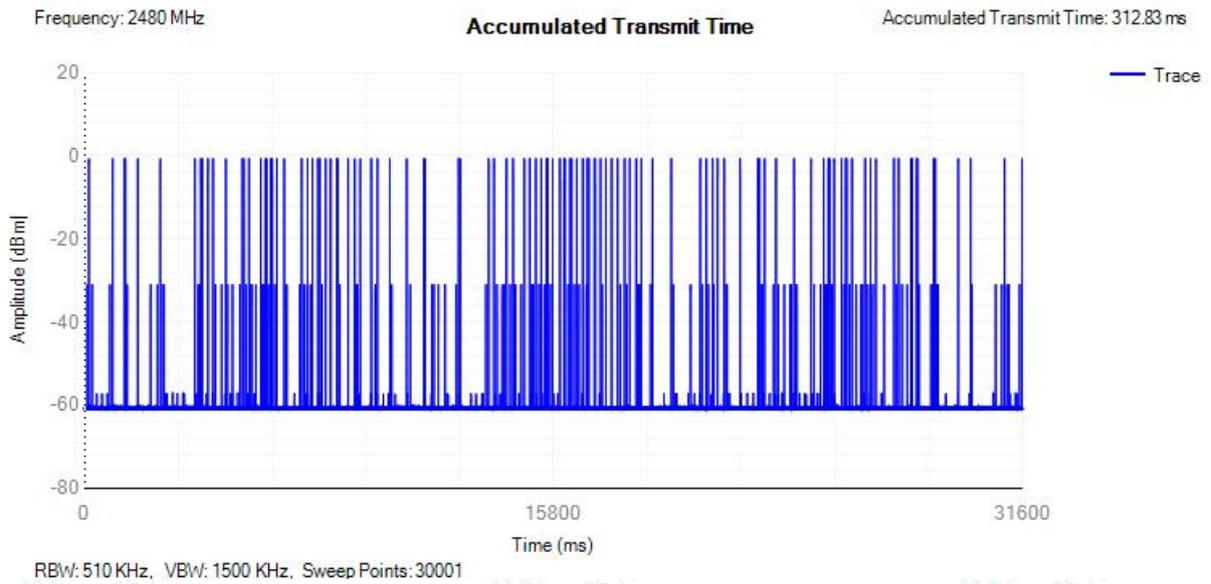




Dwell NVNT 1-DH5 2402MHz



Dwell NVNT 1-DH5 2480MHz



Dwell NVNT 2-DH5 2402MHz

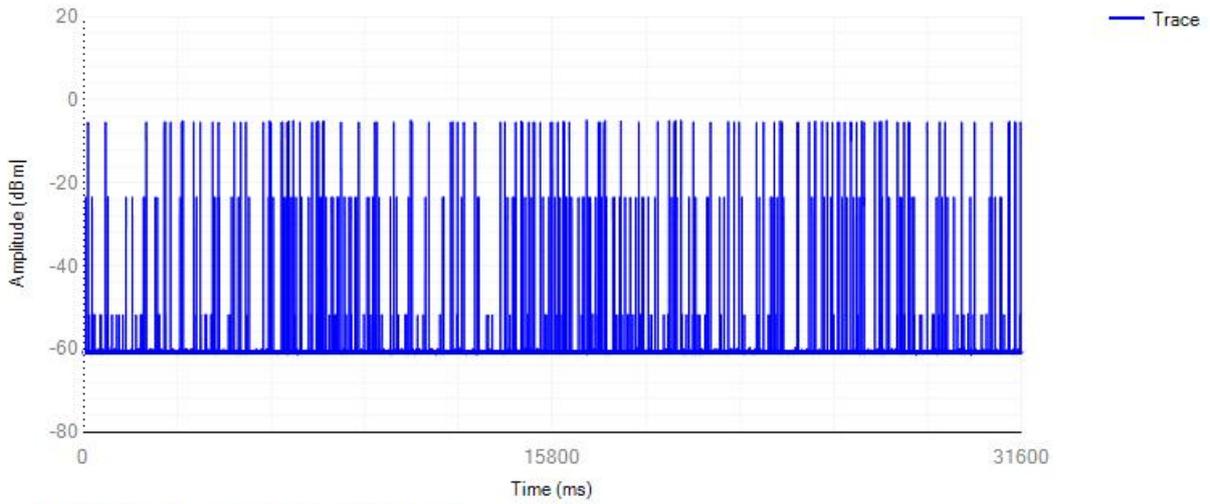




Frequency: 2402 MHz

Accumulated Transmit Time

Accumulated Transmit Time: 309.62 ms



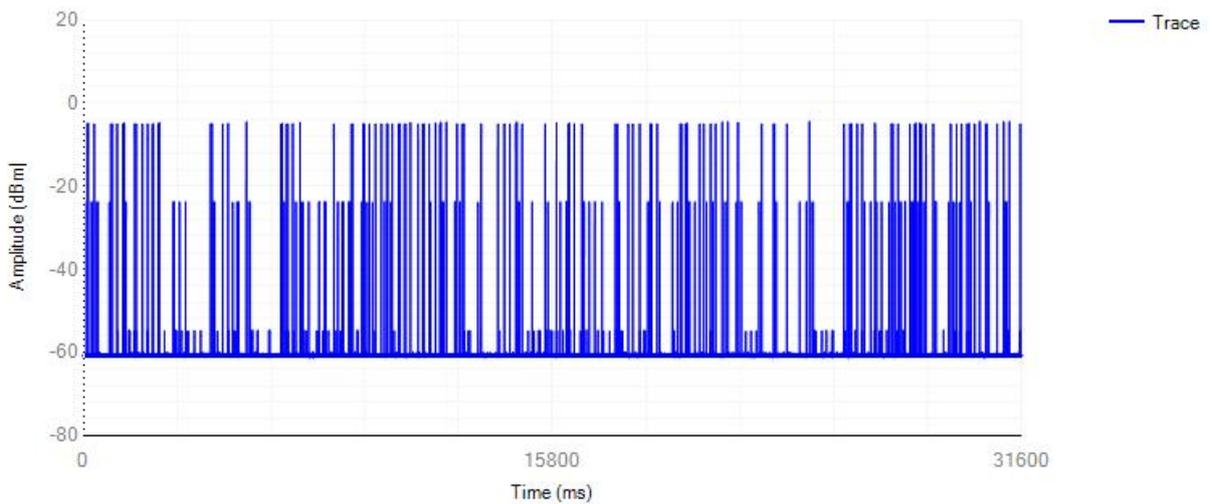
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Dwell NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

Accumulated Transmit Time

Accumulated Transmit Time: 328.80 ms



RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Dwell NVNT 3-DH5 2402MHz

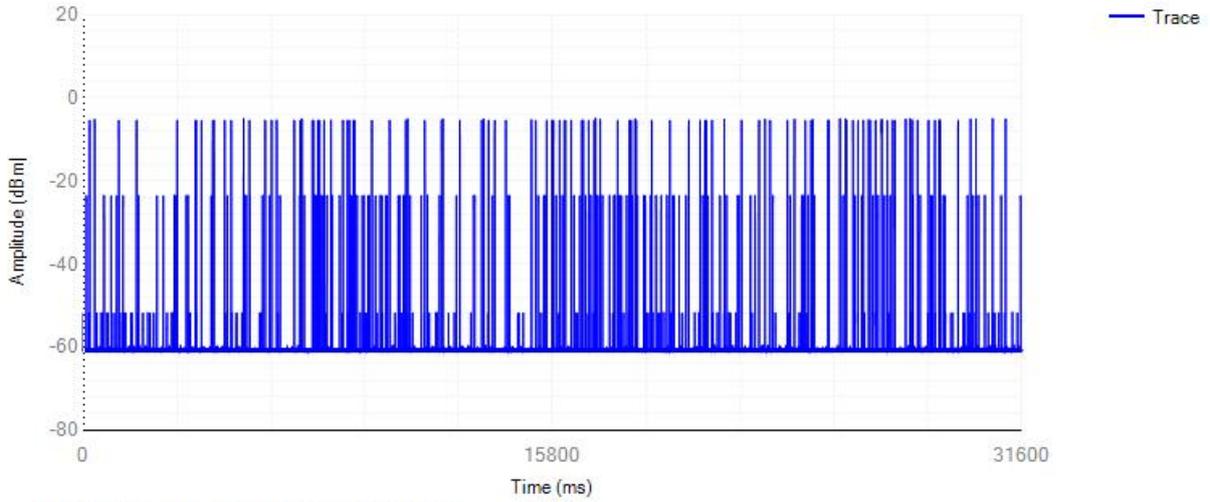




Frequency: 2402 MHz

Accumulated Transmit Time

Accumulated Transmit Time: 298.66 ms



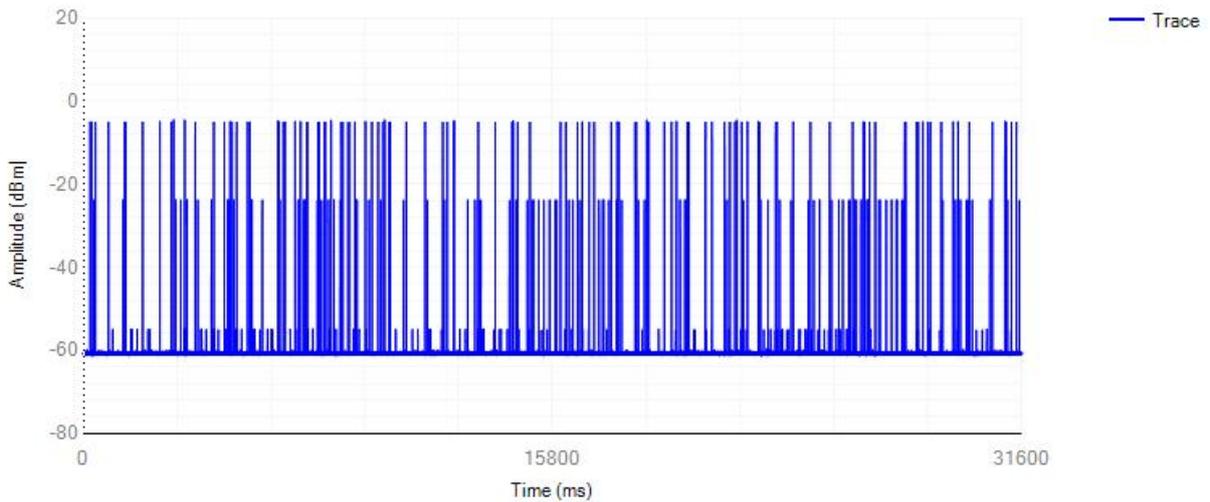
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Dwell NVNT 3-DH5 2480MHz

Frequency: 2480 MHz

Accumulated Transmit Time

Accumulated Transmit Time: 301.40 ms



RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001





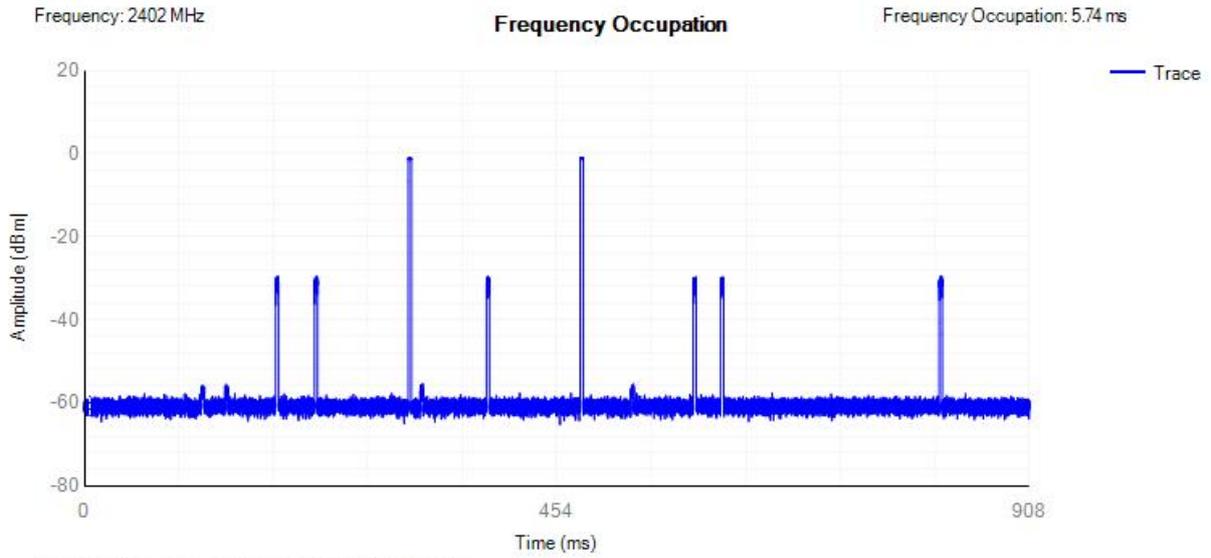
E.3 Frequency Occupation

Condition	Mode	Frequency (MHz)	Frequency Occupation (ms)	Limit (ms)	Sweep Time (ms)	Burst Number	Verdict
NVNT	1-DH5	2402	5.74	0	906.92	2	Pass
NVNT	1-DH5	2480	11.48	0	906.92	4	Pass
NVNT	2-DH5	2402	8.22	0	865.84	3	Pass
NVNT	2-DH5	2480	10.96	0	865.84	4	Pass
NVNT	3-DH5	2402	10.96	0	865.84	4	Pass
NVNT	3-DH5	2480	10.96	0	865.84	4	Pass

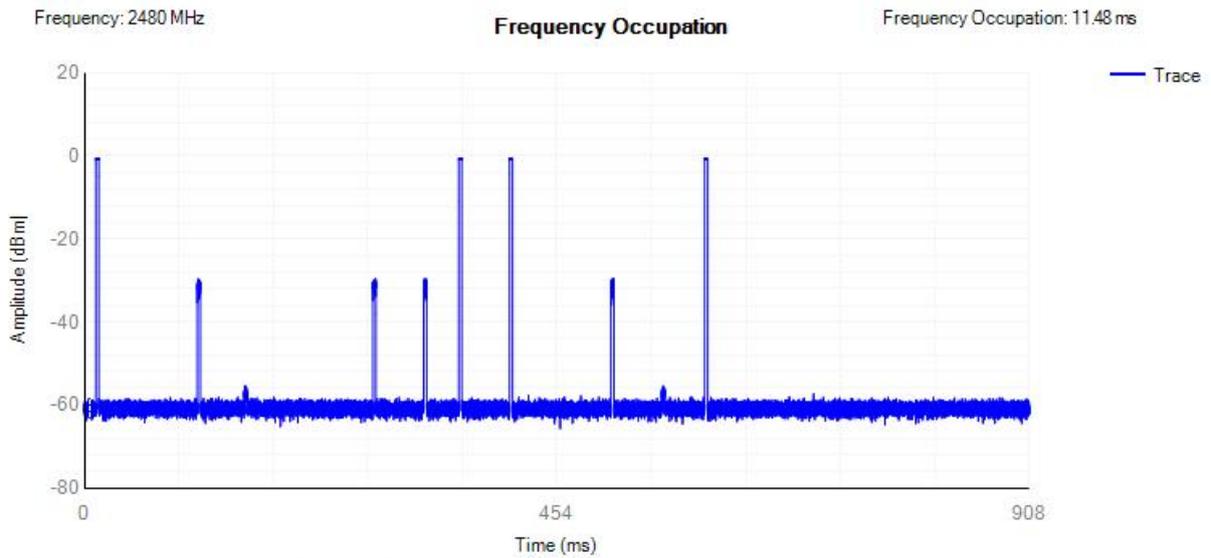




Freq. Occup. NVNT 1-DH5 2402MHz



Freq. Occup. NVNT 1-DH5 2480MHz



Freq. Occup. NVNT 2-DH5 2402MHz

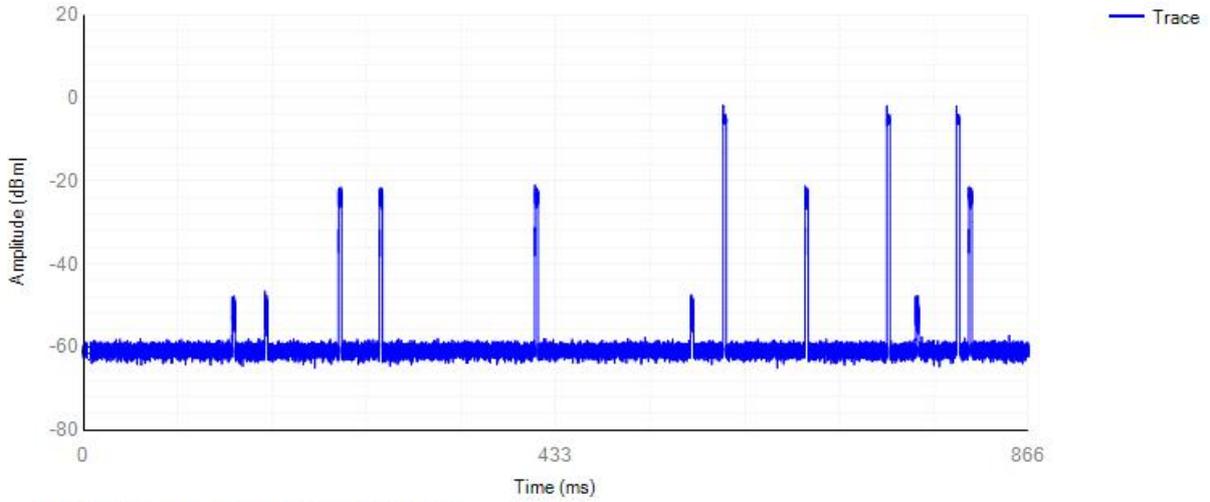




Frequency: 2402 MHz

Frequency Occupation

Frequency Occupation: 8.22 ms



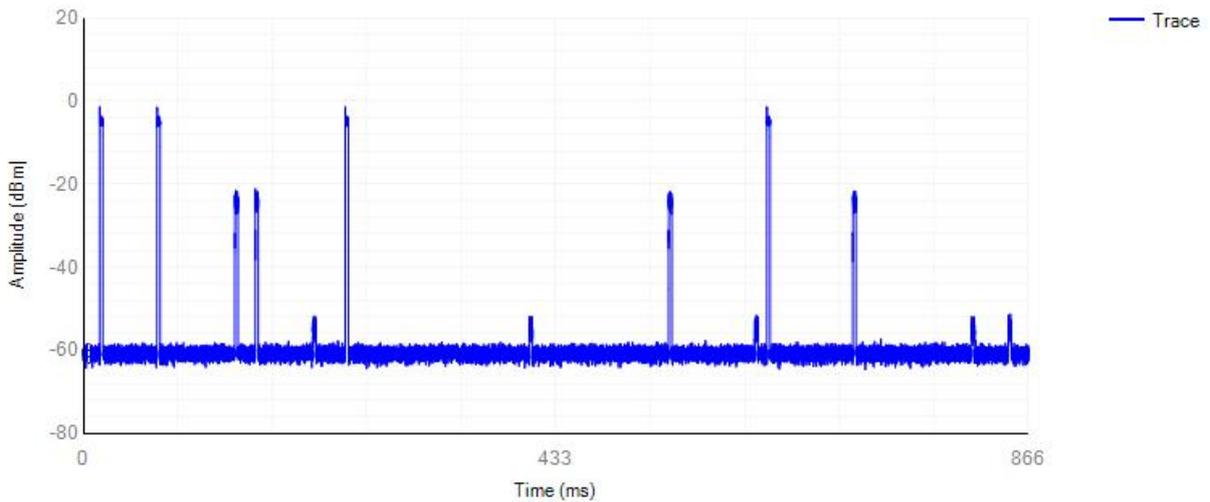
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Freq. Occup. NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

Frequency Occupation

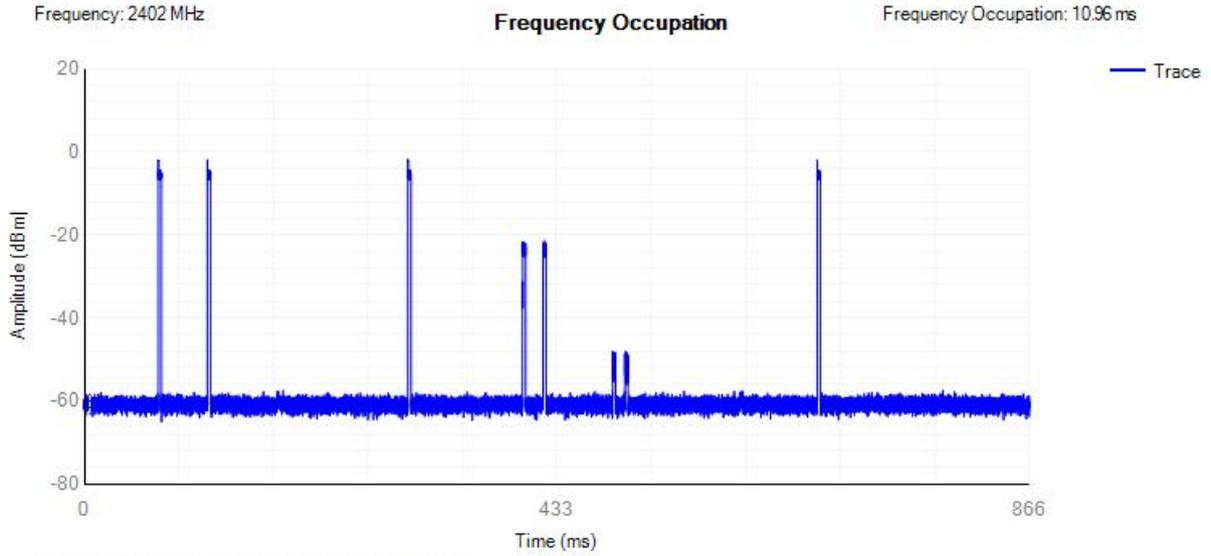
Frequency Occupation: 10.96 ms



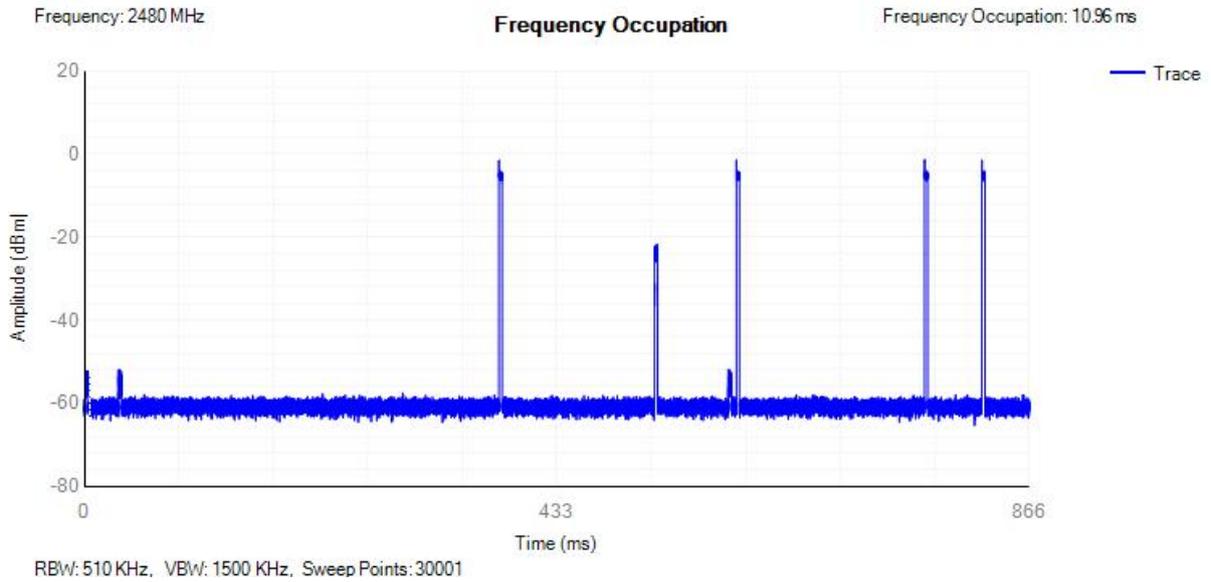
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Freq. Occup. NVNT 3-DH5 2402MHz





Freq. Occup. NVNT 3-DH5 2480MHz

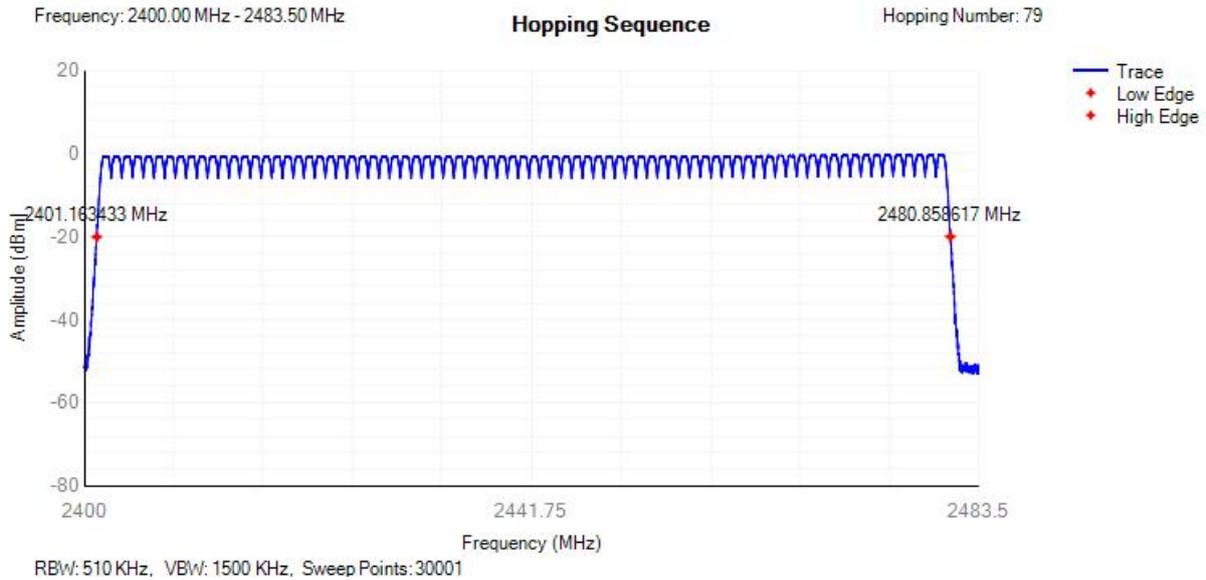




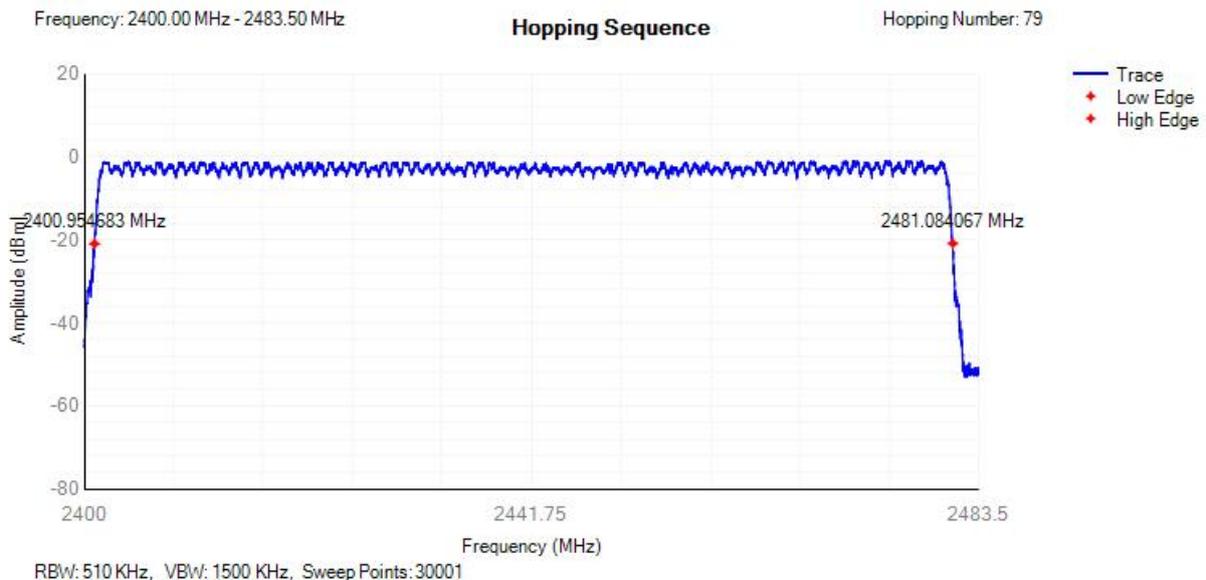
E.4 Hopping Sequence

Condition	Mode	Hopping Number	Limit	Band Allocation (%)	Limit Band Allocation (%)	Verdict
NVNT	1-DH5	79	15	95.44	70	Pass
NVNT	2-DH5	79	15	95.96	70	Pass
NVNT	3-DH5	79	15	95.9	70	Pass

Hopping Seq. NVNT 1-DH5 2402MHz

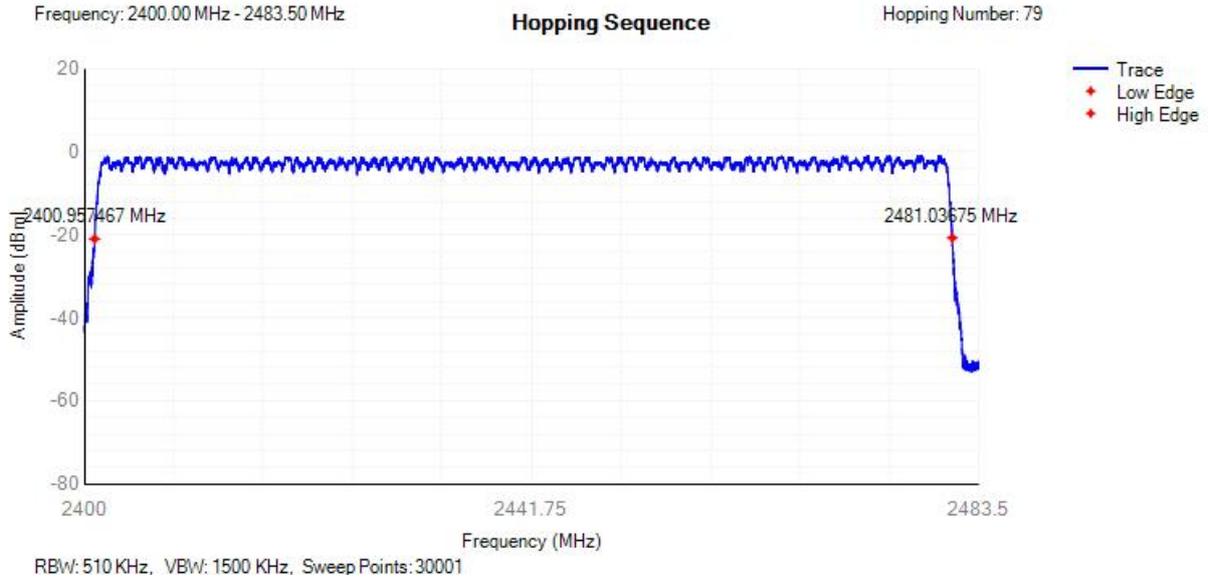


Hopping Seq. NVNT 2-DH5 2402MHz



Hopping Seq. NVNT 3-DH5 2402MHz





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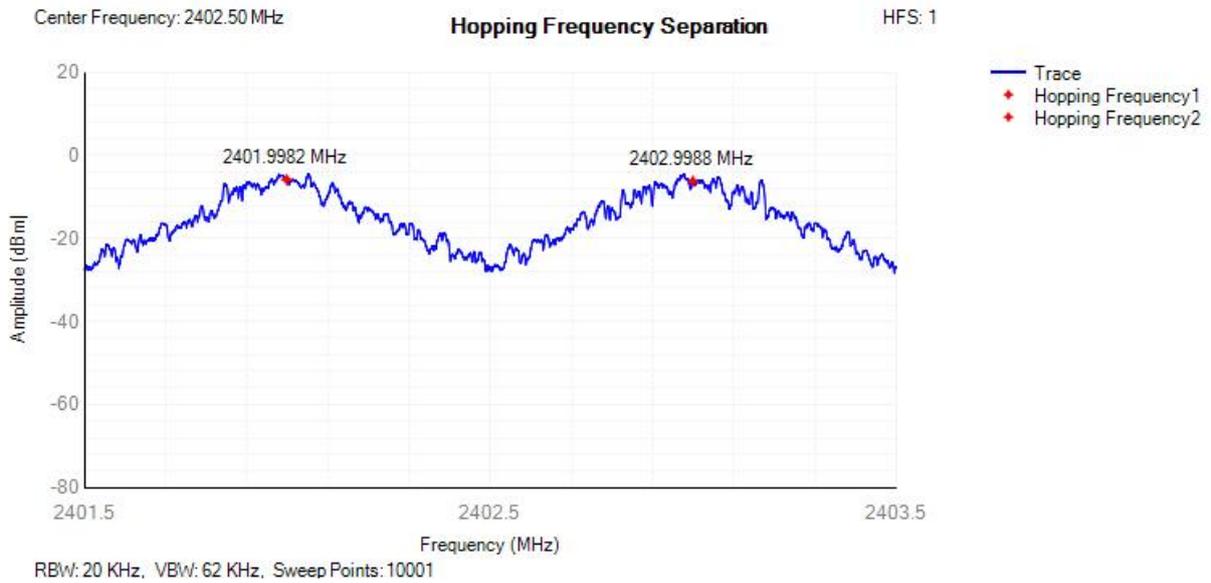




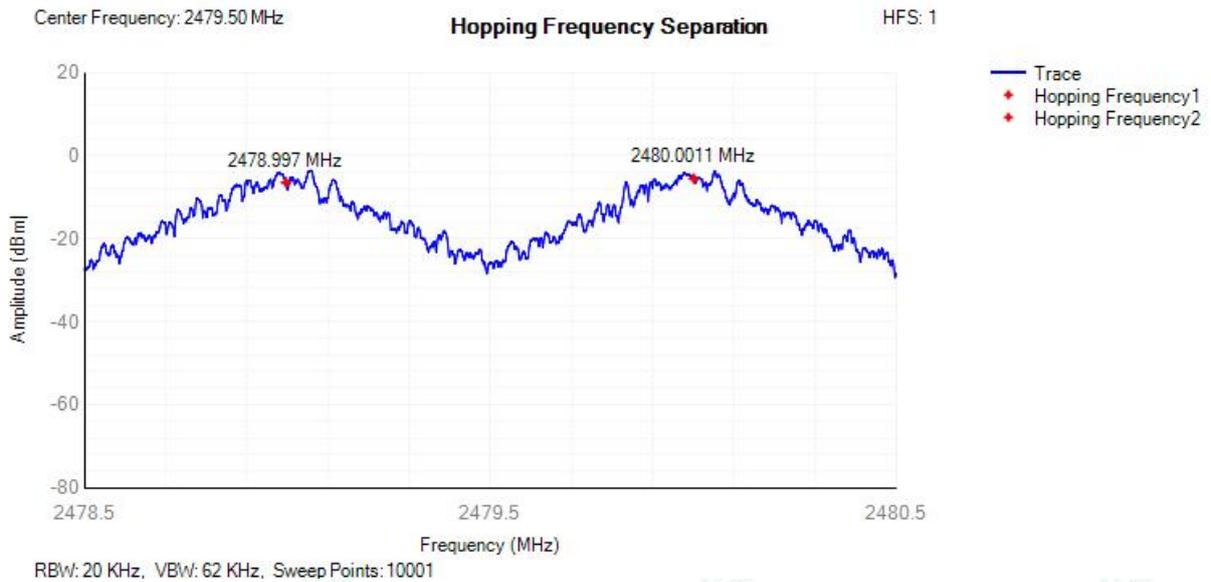
E.5 Hopping Frequency Separation

Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2401.9982	2402.9988	1	0.1	Pass
NVNT	1-DH5	2478.997	2480.0011	1	0.1	Pass
NVNT	2-DH5	2402.1798	2402.9264	0.74	0.1	Pass
NVNT	2-DH5	2479.1753	2479.8439	0.66	0.1	Pass
NVNT	3-DH5	2401.9917	2403.1184	1.12	0.1	Pass
NVNT	3-DH5	2479.152	2479.9968	0.84	0.1	Pass

HFS NVNT 1-DH5 2402MHz



HFS NVNT 1-DH5 2480MHz



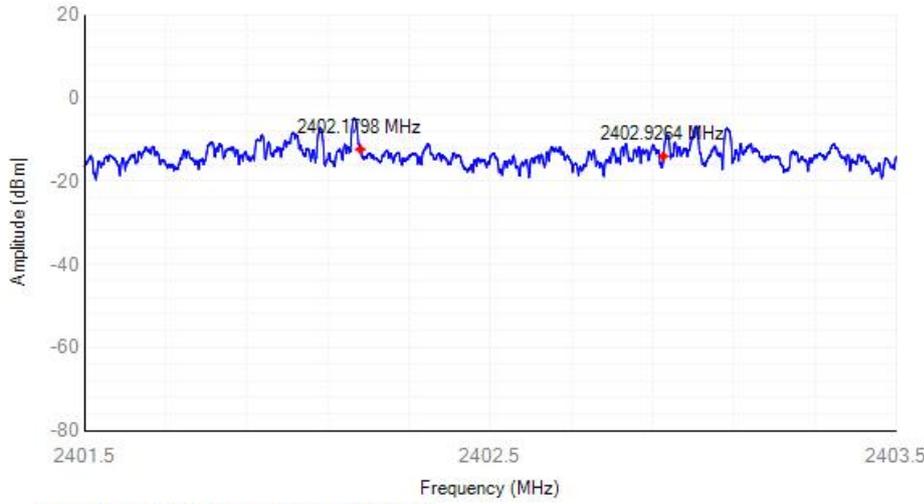


HFS NVNT 2-DH5 2402MHz

Center Frequency: 2402.50 MHz

Hopping Frequency Separation

HFS: 0.74



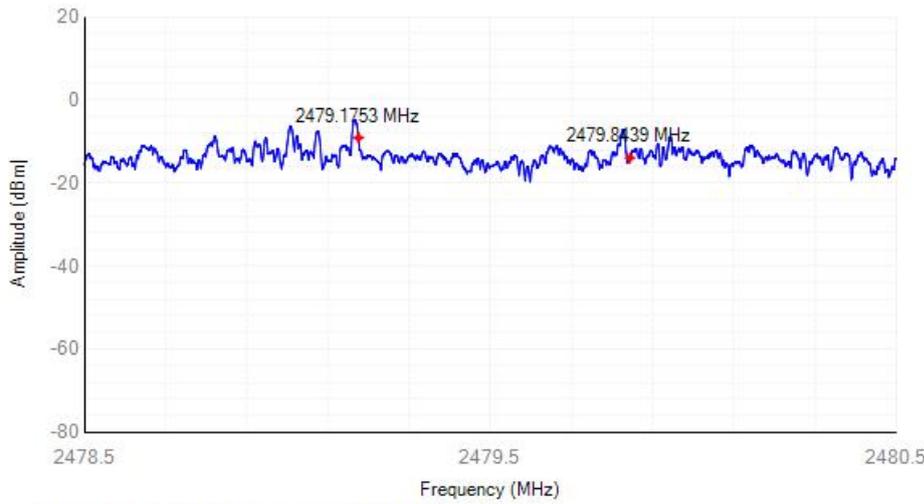
- Trace
- ♦ Hopping Frequency1
- ♦ Hopping Frequency2

HFS NVNT 2-DH5 2480MHz

Center Frequency: 2479.50 MHz

Hopping Frequency Separation

HFS: 0.66



- Trace
- ♦ Hopping Frequency1
- ♦ Hopping Frequency2

HFS NVNT 3-DH5 2402MHz

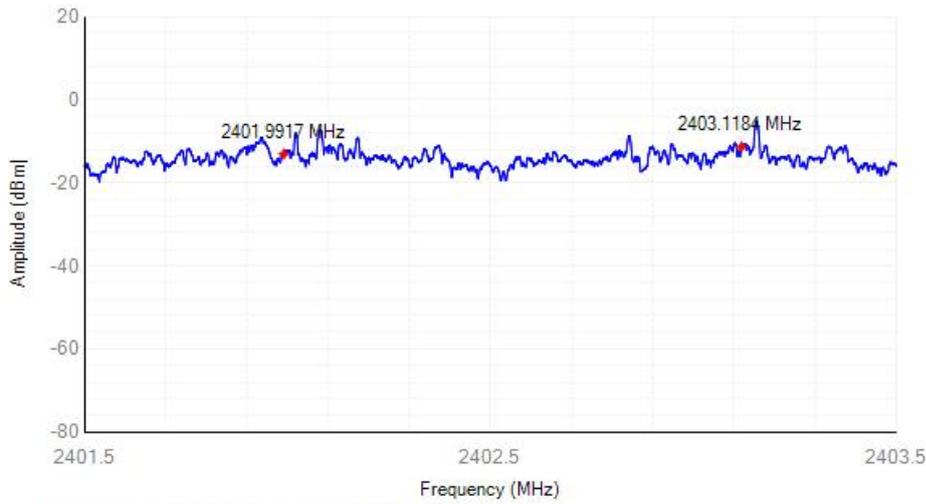




Center Frequency: 2402.50 MHz

Hopping Frequency Separation

HFS: 1.12

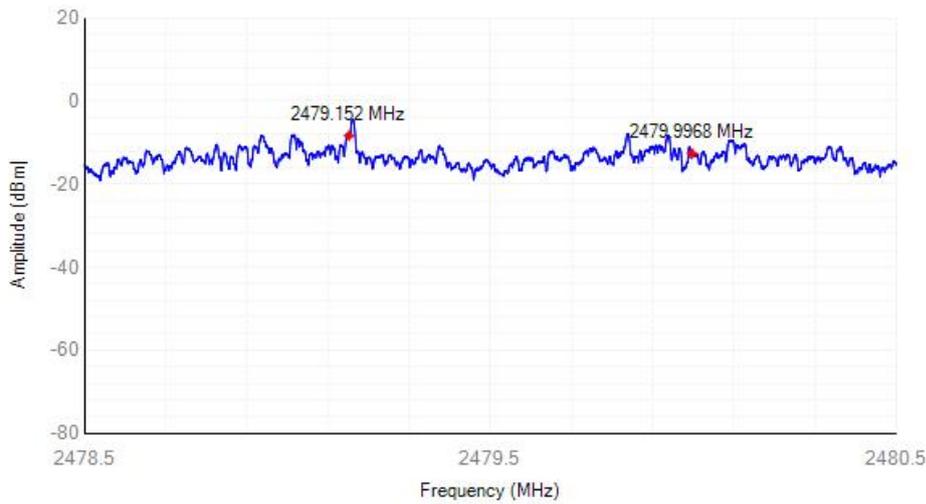


HFS NVNT 3-DH5 2480MHz

Center Frequency: 2479.50 MHz

Hopping Frequency Separation

HFS: 0.84



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E.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	2401.996	0.886	2401.553	2402.439	2400 - 2483.5MHz	Pass
NVNT	1-DH5	2480	2479.996	0.887	2479.553	2480.44	2400 - 2483.5MHz	Pass
NVNT	2-DH5	2402	2401.996	1.184	2401.404	2402.588	2400 - 2483.5MHz	Pass
NVNT	2-DH5	2480	2479.995	1.178	2479.406	2480.584	2400 - 2483.5MHz	Pass
NVNT	3-DH5	2402	2401.991	1.201	2401.39	2402.592	2400 - 2483.5MHz	Pass
NVNT	3-DH5	2480	2479.991	1.197	2479.392	2480.59	2400 - 2483.5MHz	Pass



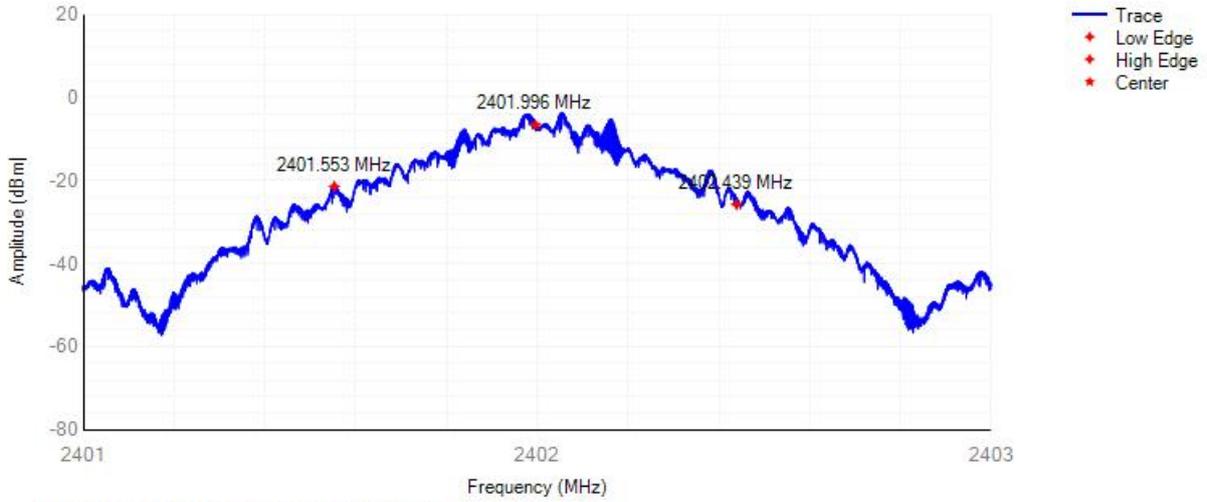


OBW NVNT 1-DH5 2402MHz

Frequency: 2402.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 0.886 MHz

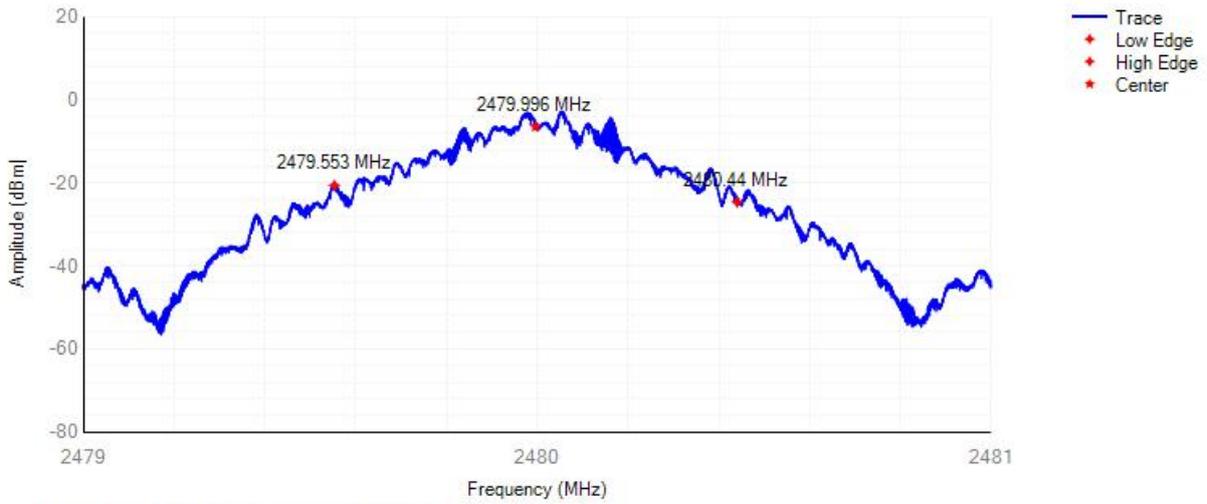


OBW NVNT 1-DH5 2480MHz

Frequency: 2480.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 0.887 MHz



OBW NVNT 2-DH5 2402MHz

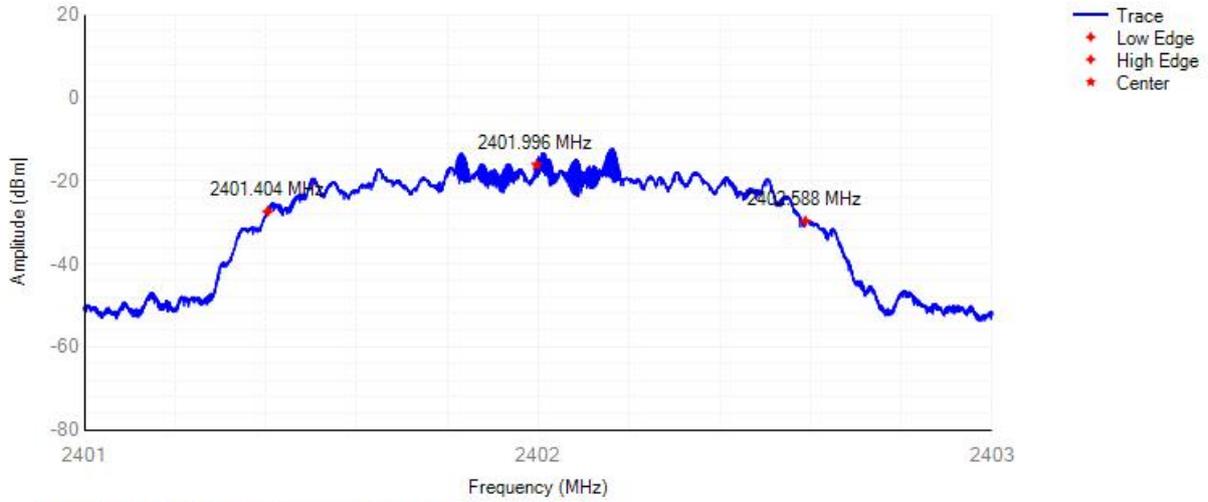




Frequency: 2402.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 1.184 MHz

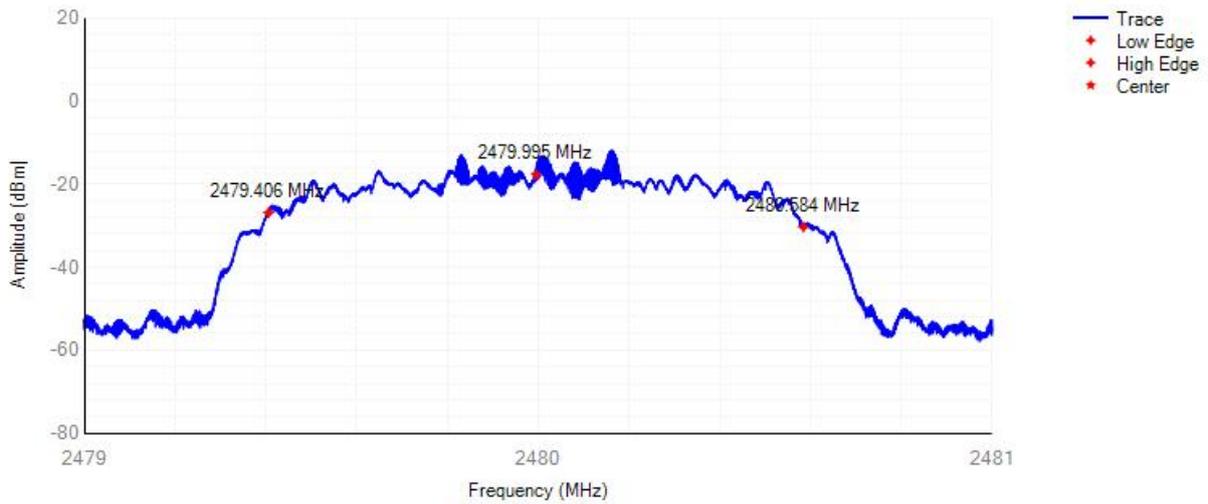


OBW NVNT 2-DH5 2480MHz

Frequency: 2480.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 1.178 MHz



OBW NVNT 3-DH5 2402MHz

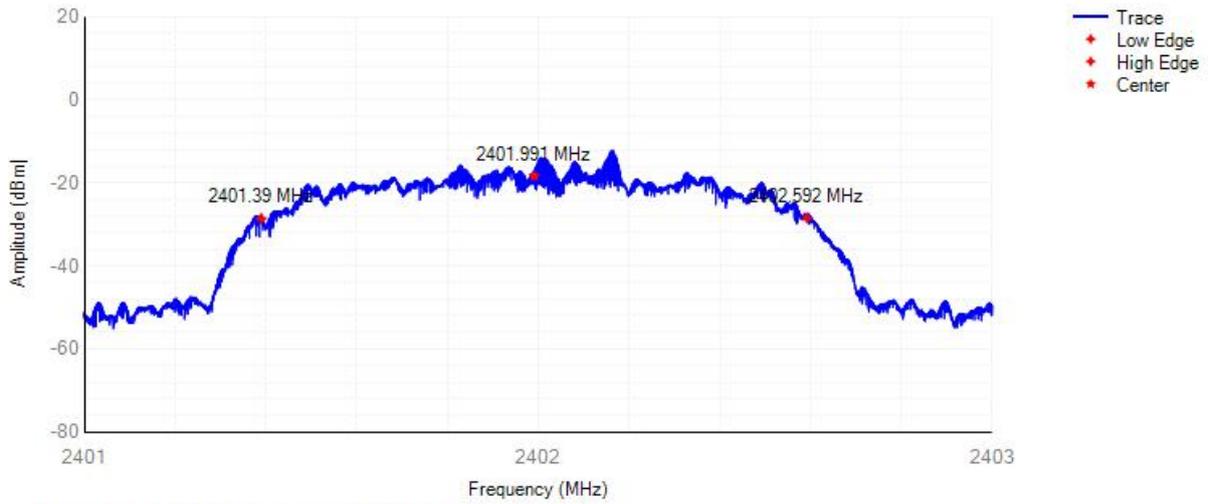




Frequency: 2402.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 1.201 MHz

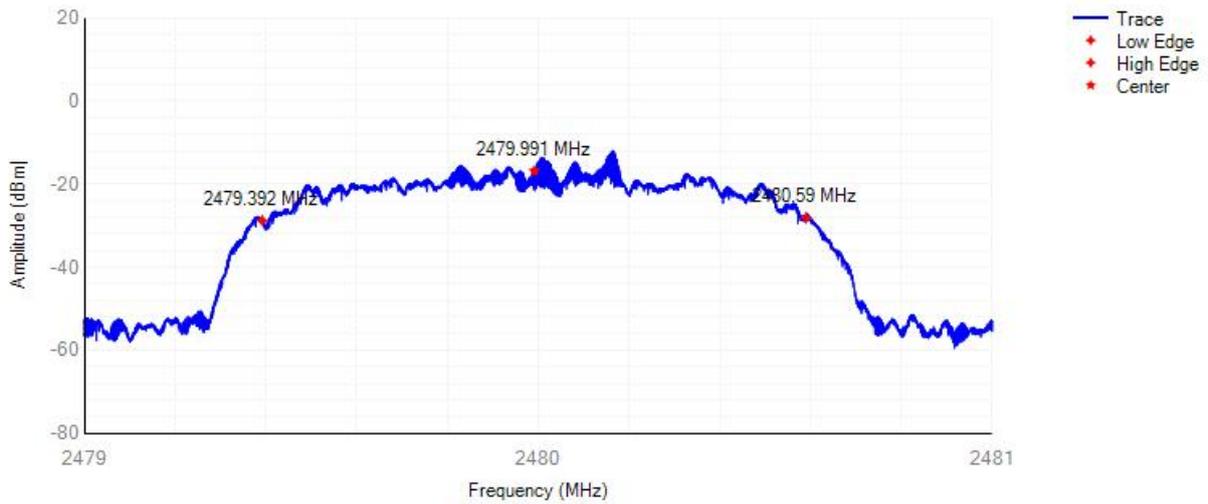


OBW NVNT 3-DH5 2480MHz

Frequency: 2480.00 MHz

Occupied Channel Bandwidth

OBW(99% Pwr): 1.197 MHz





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

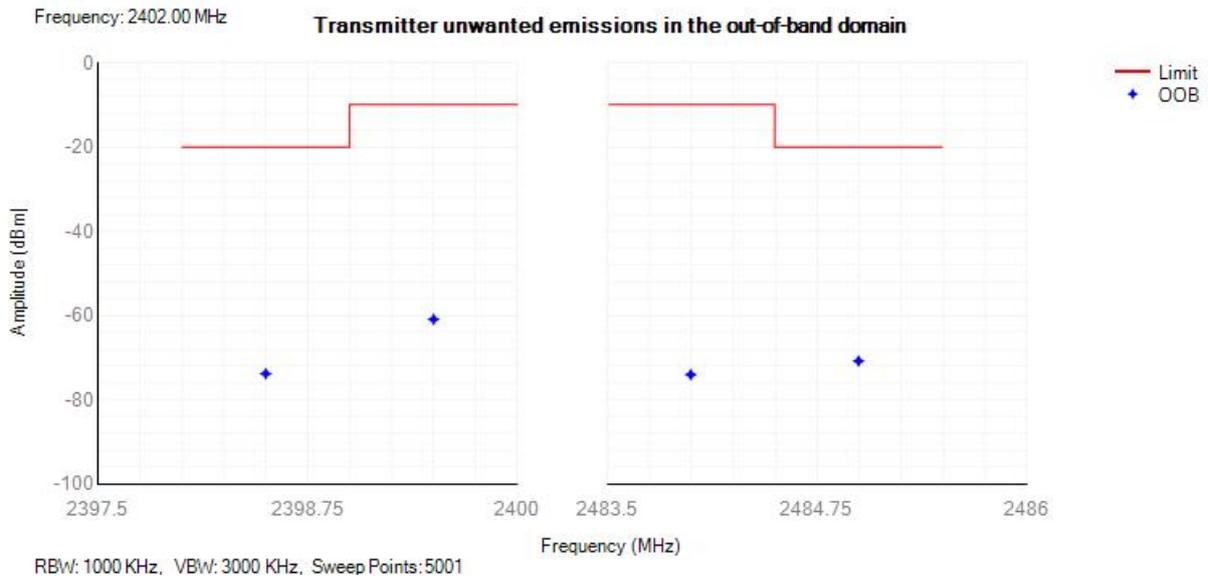
Condition	Mode	Frequency (MHz)	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	1-DH5	2402	2399.5	-60.89	-10	Pass
NVNT	1-DH5	2402	2398.5	-73.8	-20	Pass
NVNT	1-DH5	2402	2484	-74.02	-10	Pass
NVNT	1-DH5	2402	2485	-70.78	-20	Pass
NVNT	1-DH5	2480	2399.5	-60.62	-10	Pass
NVNT	1-DH5	2480	2398.5	-70.94	-20	Pass
NVNT	1-DH5	2480	2484	-67.66	-10	Pass
NVNT	1-DH5	2480	2485	-74.54	-20	Pass
NVNT	2-DH5	2402	2399.5	-51.81	-10	Pass
NVNT	2-DH5	2402	2399.316	-56.34	-10	Pass
NVNT	2-DH5	2402	2398.316	-66.75	-20	Pass
NVNT	2-DH5	2402	2398.132	-69.9	-20	Pass
NVNT	2-DH5	2402	2484	-68.88	-10	Pass
NVNT	2-DH5	2402	2484.178	-71.34	-10	Pass
NVNT	2-DH5	2402	2485.178	-71.27	-20	Pass
NVNT	2-DH5	2402	2485.356	-76.69	-20	Pass
NVNT	2-DH5	2480	2399.5	-51.62	-10	Pass
NVNT	2-DH5	2480	2399.316	-56.15	-10	Pass
NVNT	2-DH5	2480	2398.316	-72.57	-20	Pass
NVNT	2-DH5	2480	2398.132	-68.53	-20	Pass
NVNT	2-DH5	2480	2484	-73.5	-10	Pass
NVNT	2-DH5	2480	2484.178	-71.07	-10	Pass
NVNT	2-DH5	2480	2485.178	-68.98	-20	Pass
NVNT	2-DH5	2480	2485.356	-75.47	-20	Pass
NVNT	3-DH5	2402	2399.5	-51.87	-10	Pass
NVNT	3-DH5	2402	2399.299	-56.67	-10	Pass
NVNT	3-DH5	2402	2398.299	-68.08	-20	Pass
NVNT	3-DH5	2402	2398.098	-70.56	-20	Pass
NVNT	3-DH5	2402	2484	-71.39	-10	Pass
NVNT	3-DH5	2402	2484.197	-73.53	-10	Pass
NVNT	3-DH5	2402	2485.197	-71.37	-20	Pass
NVNT	3-DH5	2402	2485.394	-72.6	-20	Pass
NVNT	3-DH5	2480	2399.5	-51.64	-10	Pass
NVNT	3-DH5	2480	2399.299	-56.45	-10	Pass
NVNT	3-DH5	2480	2398.299	-65.74	-20	Pass



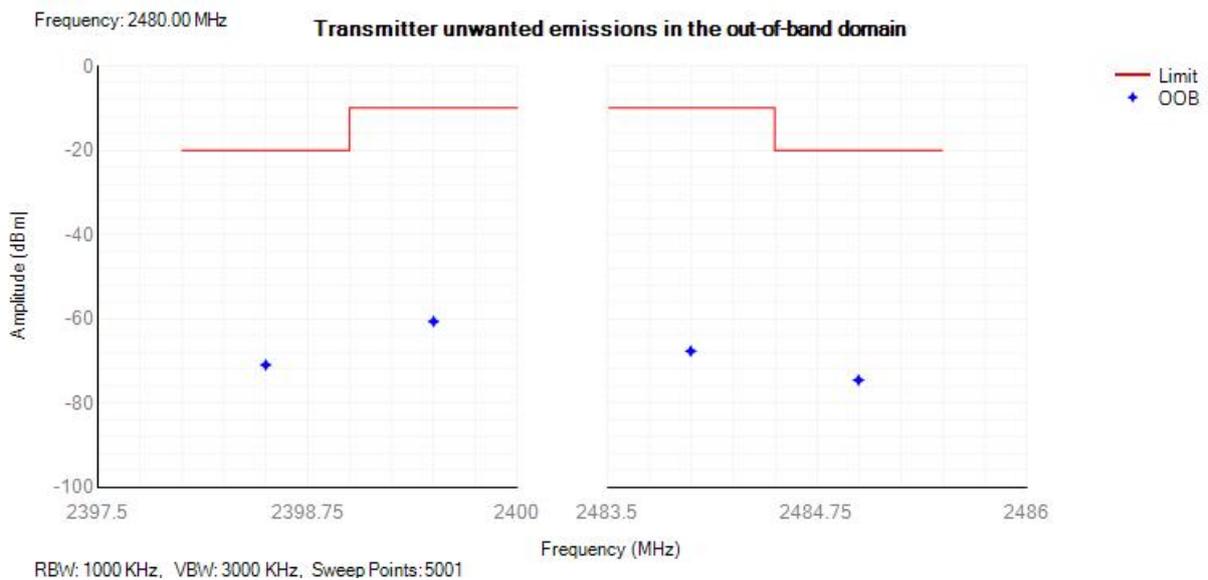


NVNT	3-DH5	2480	2398.098	-68.21	-20	Pass
NVNT	3-DH5	2480	2484	-73.7	-10	Pass
NVNT	3-DH5	2480	2484.197	-69.85	-10	Pass
NVNT	3-DH5	2480	2485.197	-73.65	-20	Pass
NVNT	3-DH5	2480	2485.394	-76.68	-20	Pass

Tx. Emissions OOB NVNT 1-DH5 2402MHz



Tx. Emissions OOB NVNT 1-DH5 2480MHz



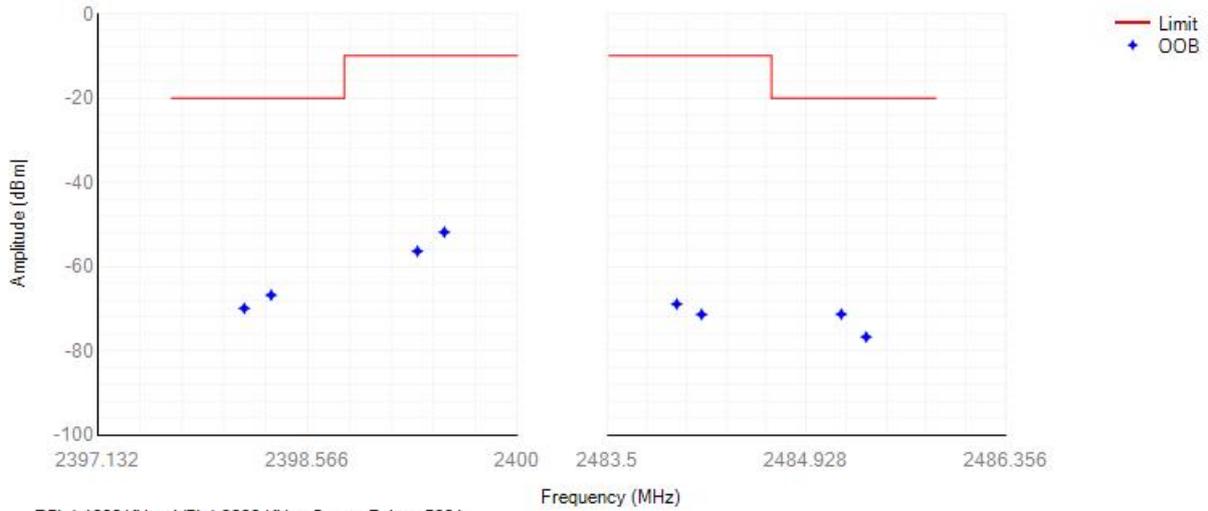
Tx. Emissions OOB NVNT 2-DH5 2402MHz





Frequency: 2402.00 MHz

Transmitter unwanted emissions in the out-of-band domain

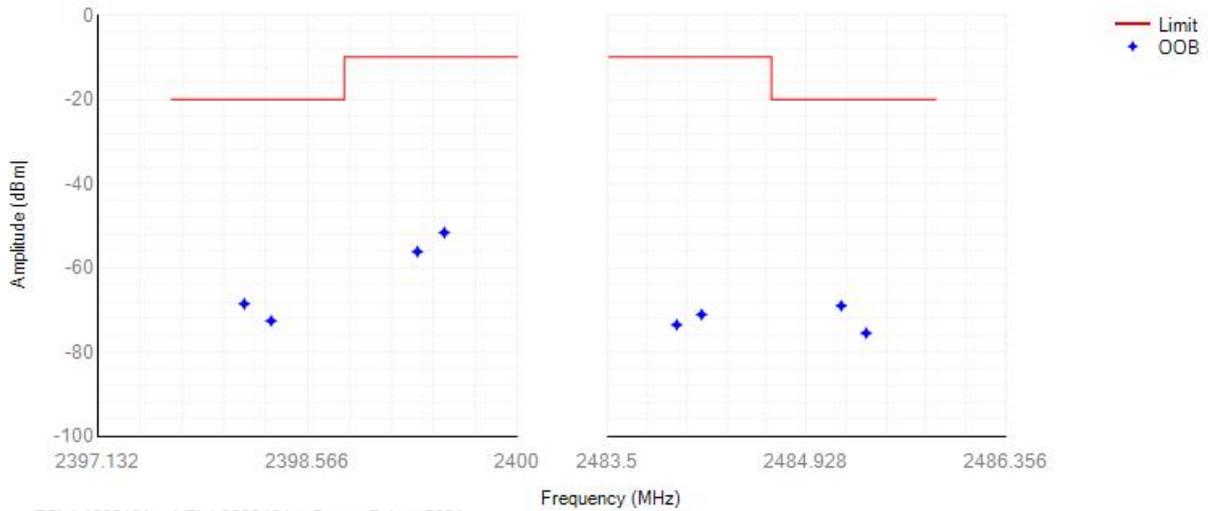


RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001

Tx. Emissions OOB NVNT 2-DH5 2480MHz

Frequency: 2480.00 MHz

Transmitter unwanted emissions in the out-of-band domain



RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001

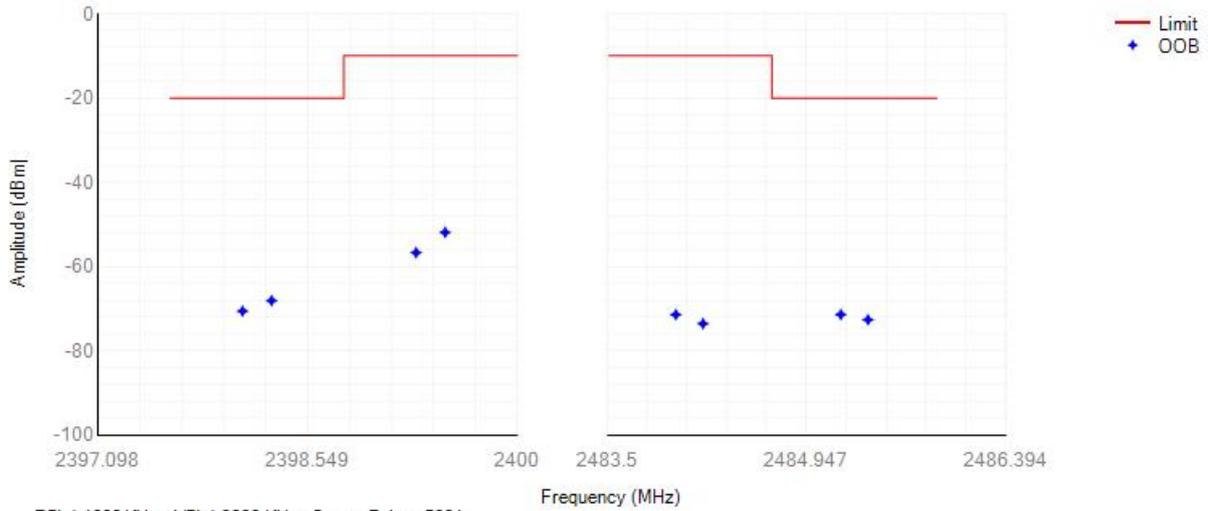
Tx. Emissions OOB NVNT 3-DH5 2402MHz





Frequency: 2402.00 MHz

Transmitter unwanted emissions in the out-of-band domain

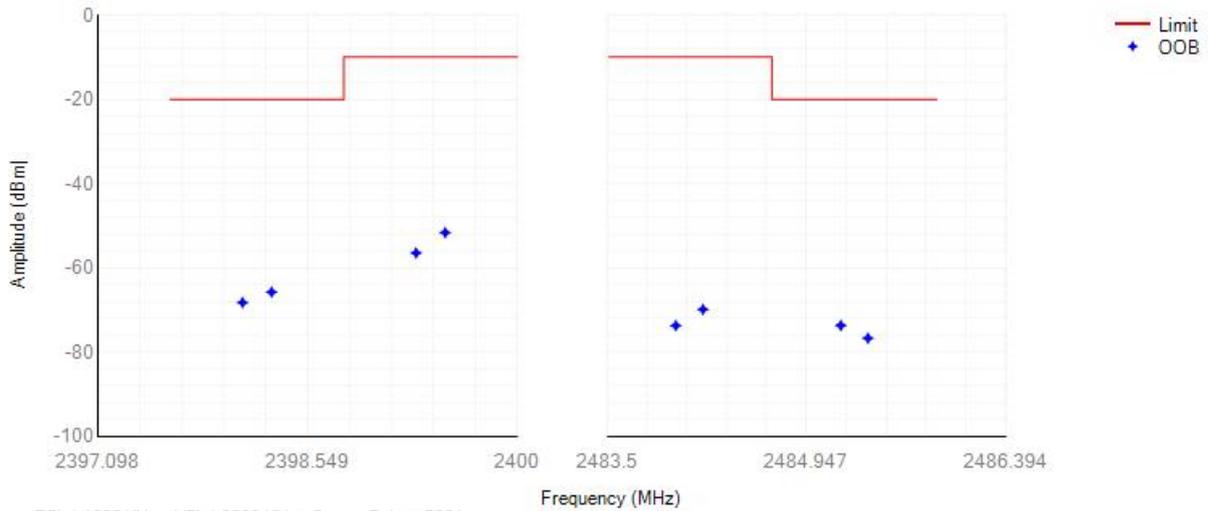


RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001

Tx. Emissions OOB NVNT 3-DH5 2480MHz

Frequency: 2480.00 MHz

Transmitter unwanted emissions in the out-of-band domain



RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001

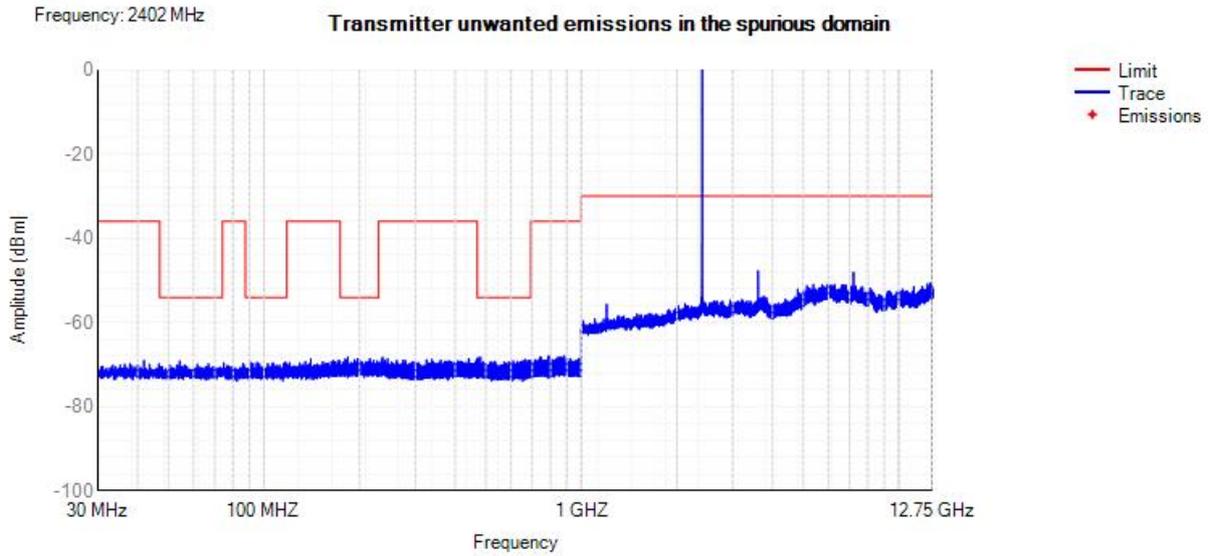




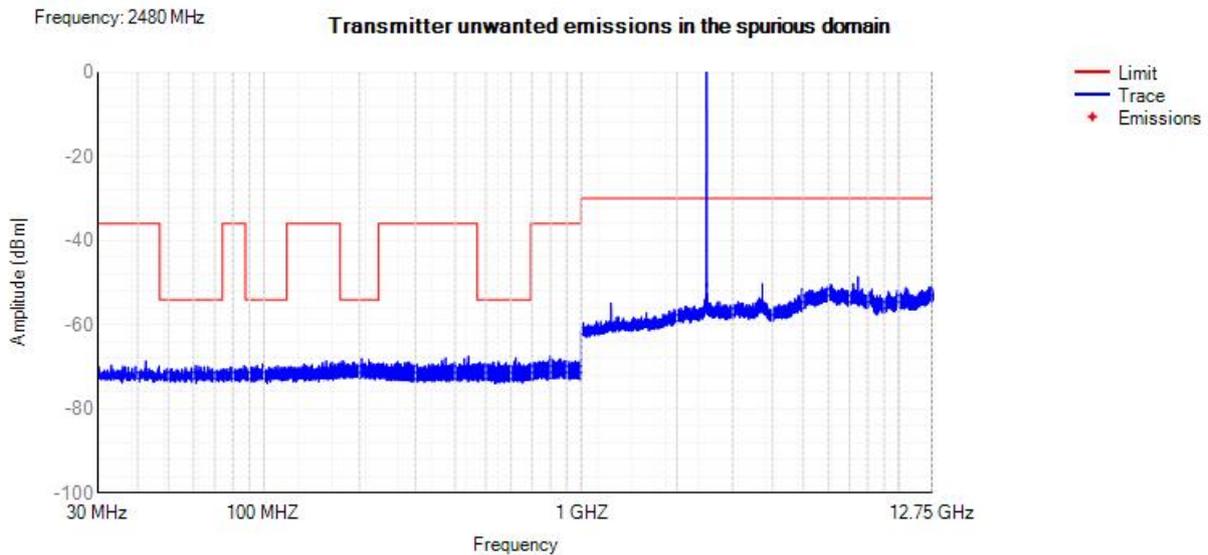
E.8 Transmitter unwanted emissions in the spurious domain

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 1-DH5 2480MHz



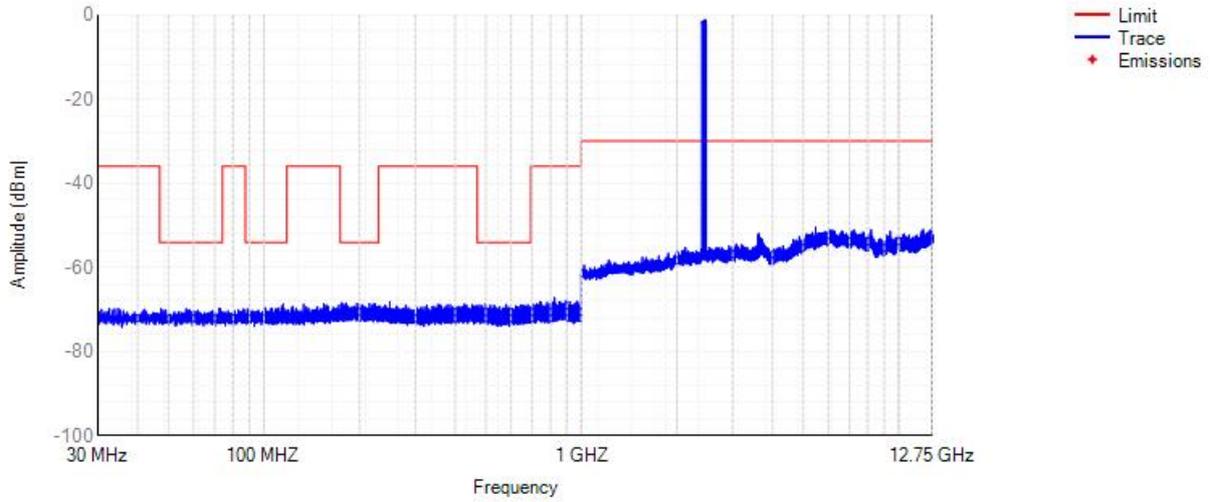
Tx. Spurious NVNT 2-DH5 2402MHz





Frequency: 2402 MHz

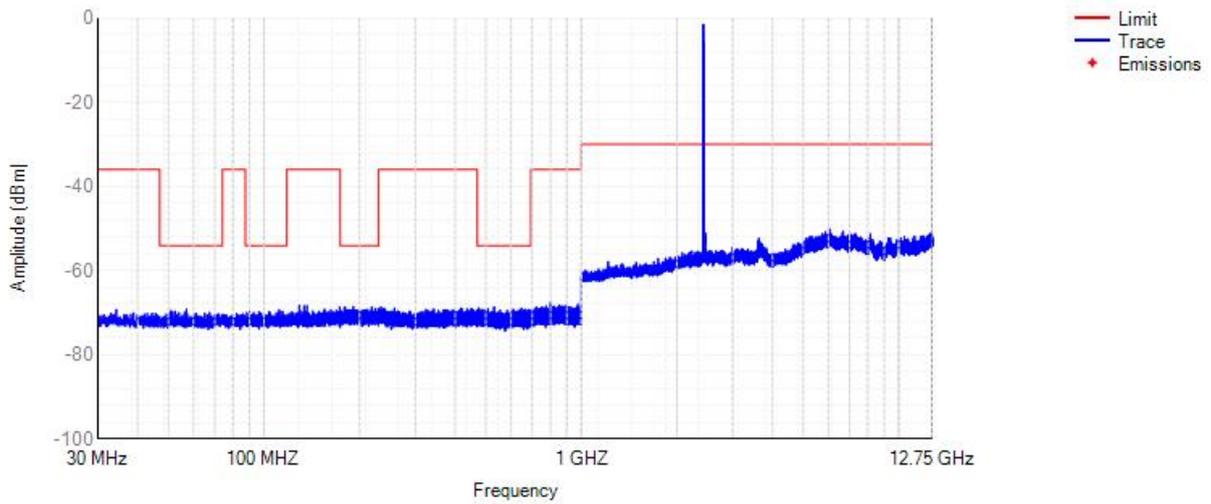
Transmitter unwanted emissions in the spurious domain



Tx. Spurious NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

Transmitter unwanted emissions in the spurious domain



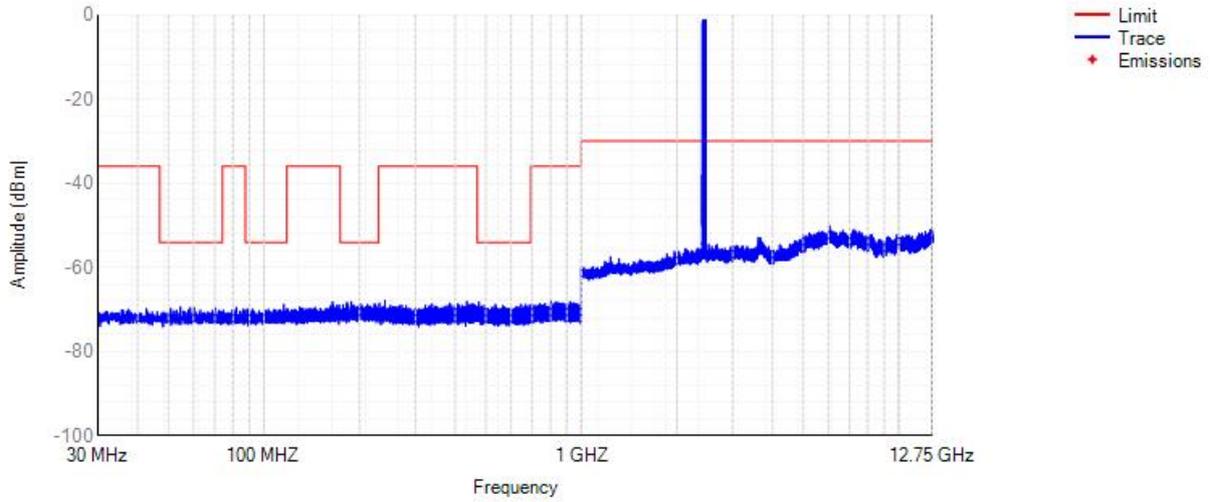
Tx. Spurious NVNT 3-DH5 2402MHz





Frequency: 2402 MHz

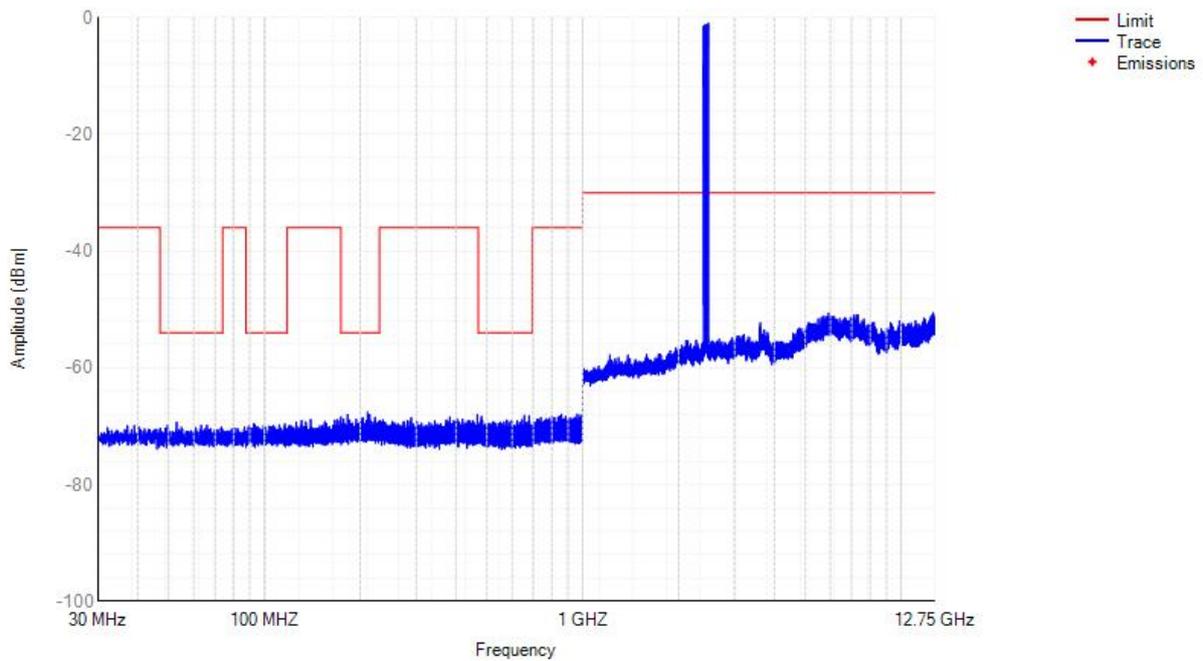
Transmitter unwanted emissions in the spurious domain



Tx. Spurious NVNT 3-DH5 2480MHz

Frequency: 2480 MHz

Transmitter unwanted emissions in the spurious domain

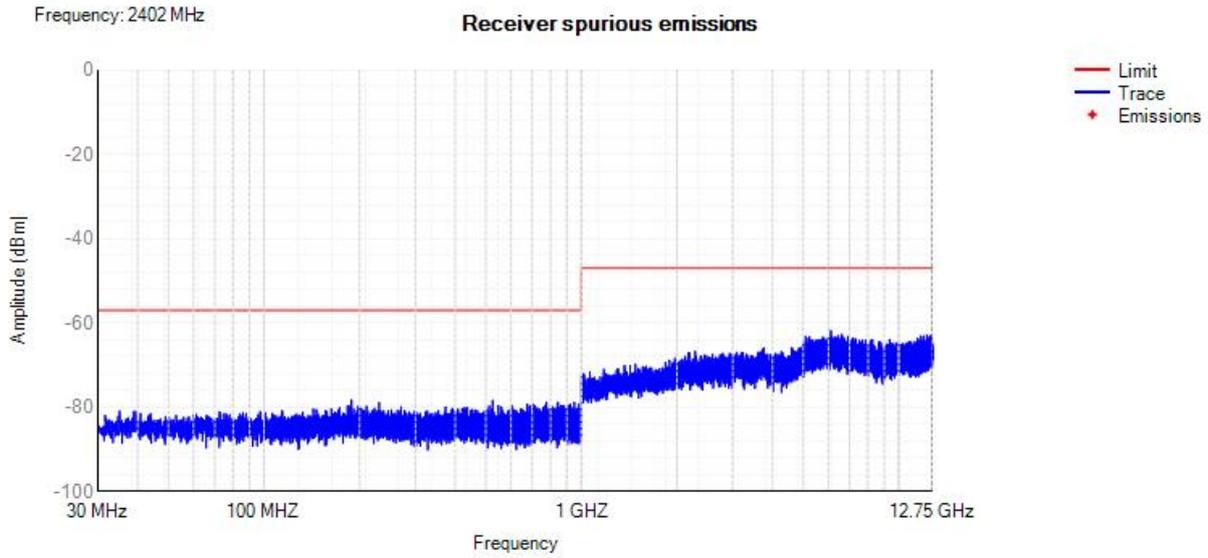




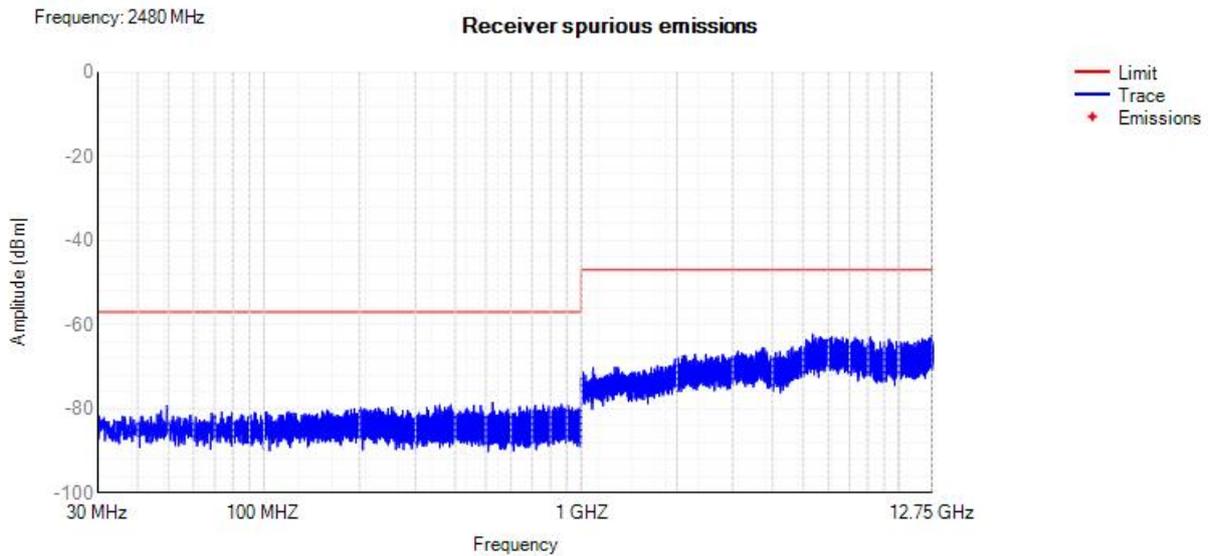
E.9 Receiver spurious emissions

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 2480MHz



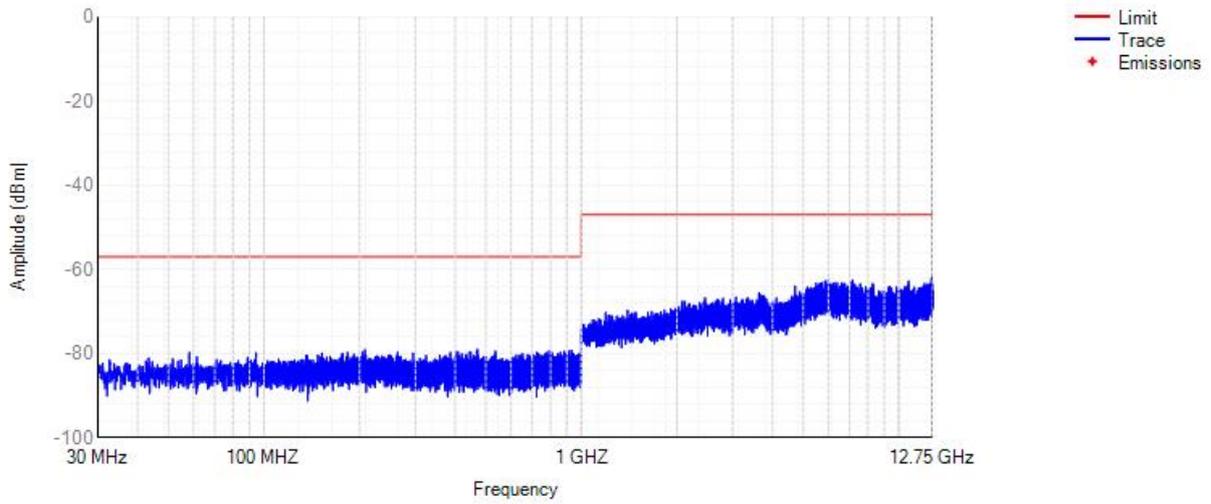
Rx. Spurious NVNT 2-DH5 2402MHz





Frequency: 2402 MHz

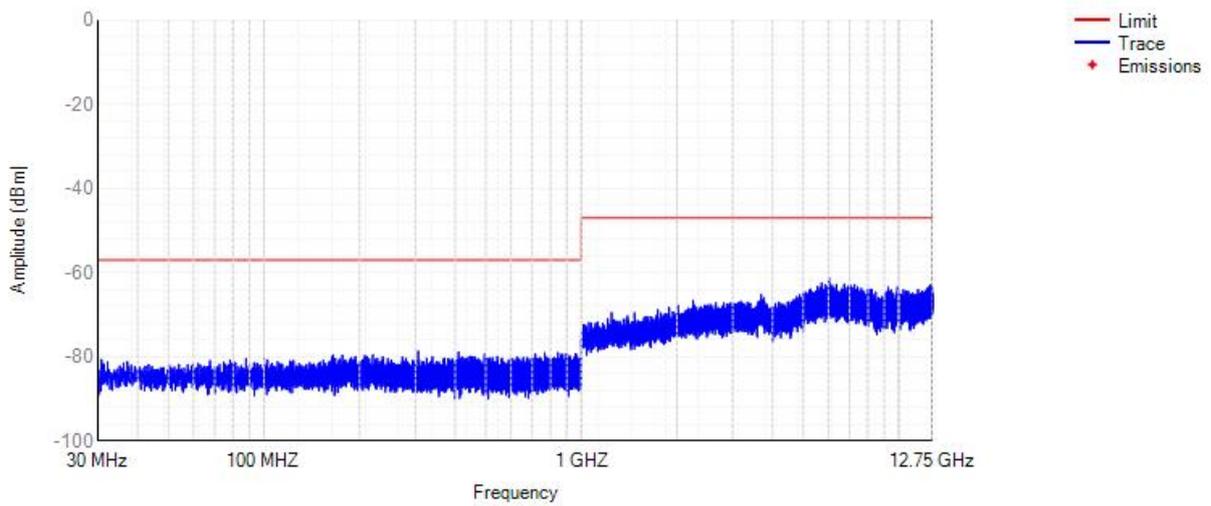
Receiver spurious emissions



Rx. Spurious NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

Receiver spurious emissions



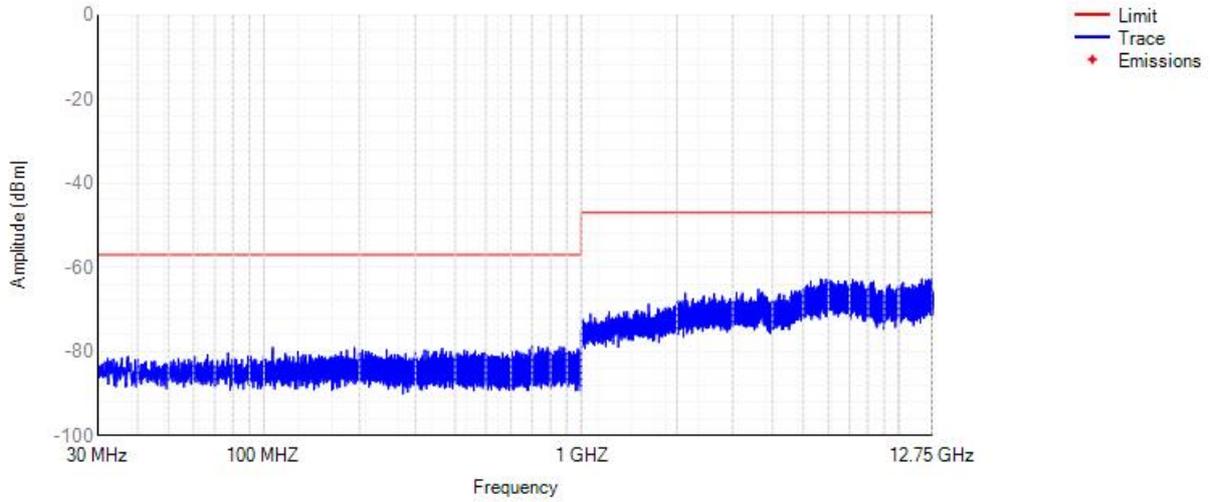
Rx. Spurious NVNT 3-DH5 2402MHz





Frequency: 2402 MHz

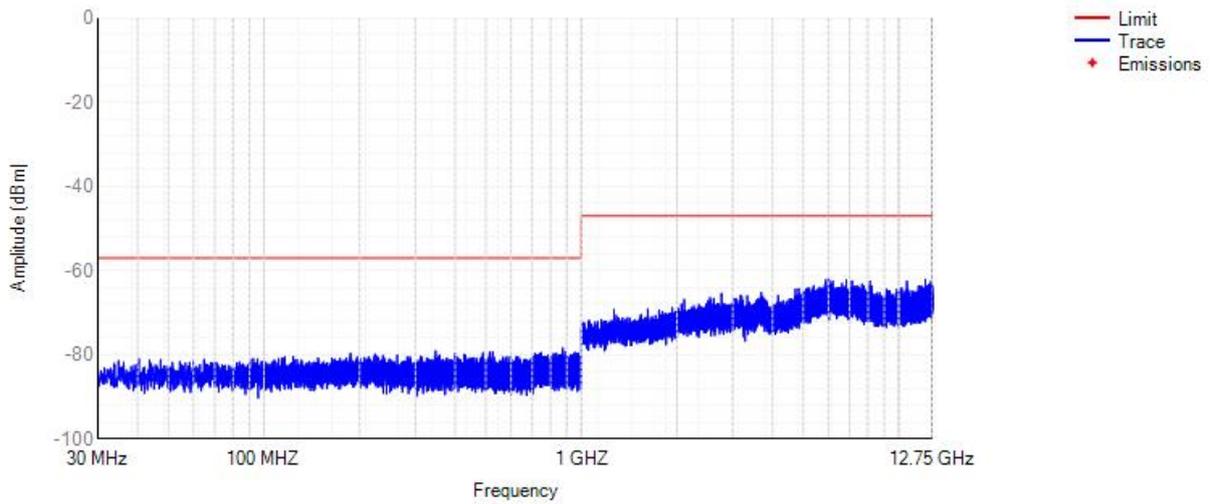
Receiver spurious emissions



Rx. Spurious NVNT 3-DH5 2480MHz

Frequency: 2480 MHz

Receiver spurious emissions





E.10 Receiver Blocking

Test Mode	Test Channel (MHz)	Wanted Signal Mean Power from Companion Device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)		Type of Blocking Signal	PER(%)		Test Result
				Test Value	Limit		Test Value	Limit	
DH5	2402	-70	2380	-28	≥-34	CW	3.48	10	Pass
			2504	-30	≥-34	CW	4.14	10	Pass
			2300	-24	≥-34	CW	4.47	10	Pass
			2584	-26	≥-34	CW	5.75	10	Pass
	2480	-70	2380	-27	≥-34	CW	3.68	10	Pass
			2504	-24	≥-34	CW	2.90	10	Pass
			2300	-30	≥-34	CW	5.53	10	Pass
			2584	-22	≥-34	CW	4.62	10	Pass
2DH5	2402	-68	2380	-24	≥-34	CW	6.47	10	Pass
			2504	-27	≥-34	CW	5.12	10	Pass
			2300	-18	≥-34	CW	5.22	10	Pass
			2584	-25	≥-34	CW	3.38	10	Pass
	2480	-68	2380	-29	≥-34	CW	5.84	10	Pass
			2504	-26	≥-34	CW	5.51	10	Pass
			2300	-30	≥-34	CW	2.55	10	Pass
			2584	-23	≥-34	CW	4.48	10	Pass
3DH5	2402	-68	2380	-27	≥-34	CW	2.18	10	Pass
			2504	-29	≥-34	CW	5.29	10	Pass
			2300	-25	≥-34	CW	2.18	10	Pass
			2584	-26	≥-34	CW	4.17	10	Pass
	2480	-68	2380	-25	≥-34	CW	3.87	10	Pass
			2504	-25	≥-34	CW	5.93	10	Pass
			2300	-30	≥-34	CW	2.67	10	Pass
			2584	-25	≥-34	CW	4.39	10	Pass

