



## 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.





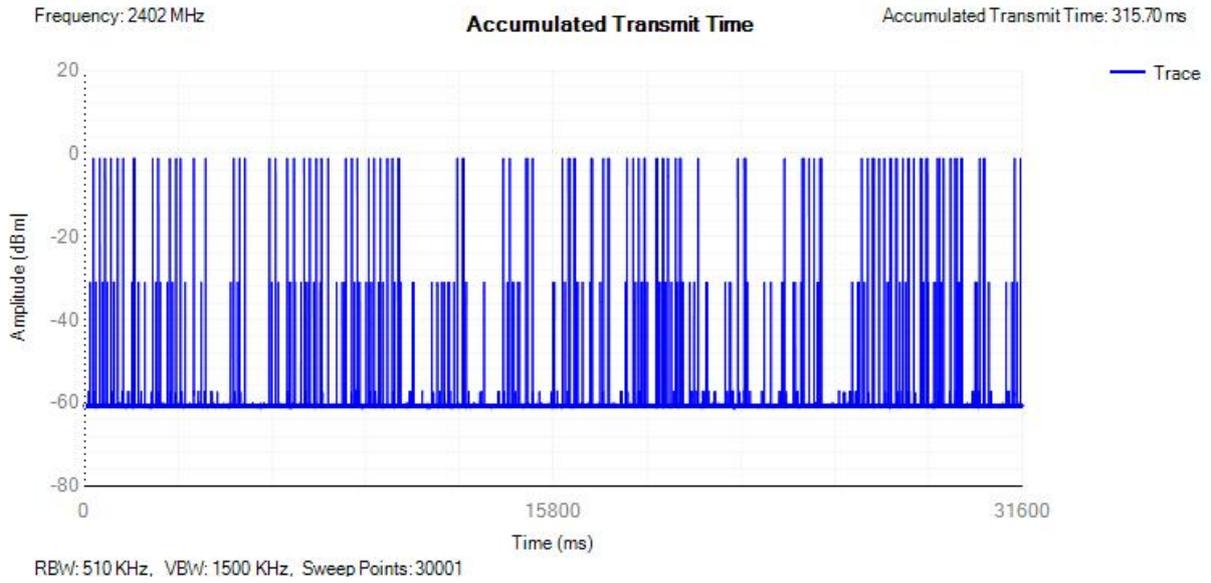
## E.2 Accumulated Transmit Time

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

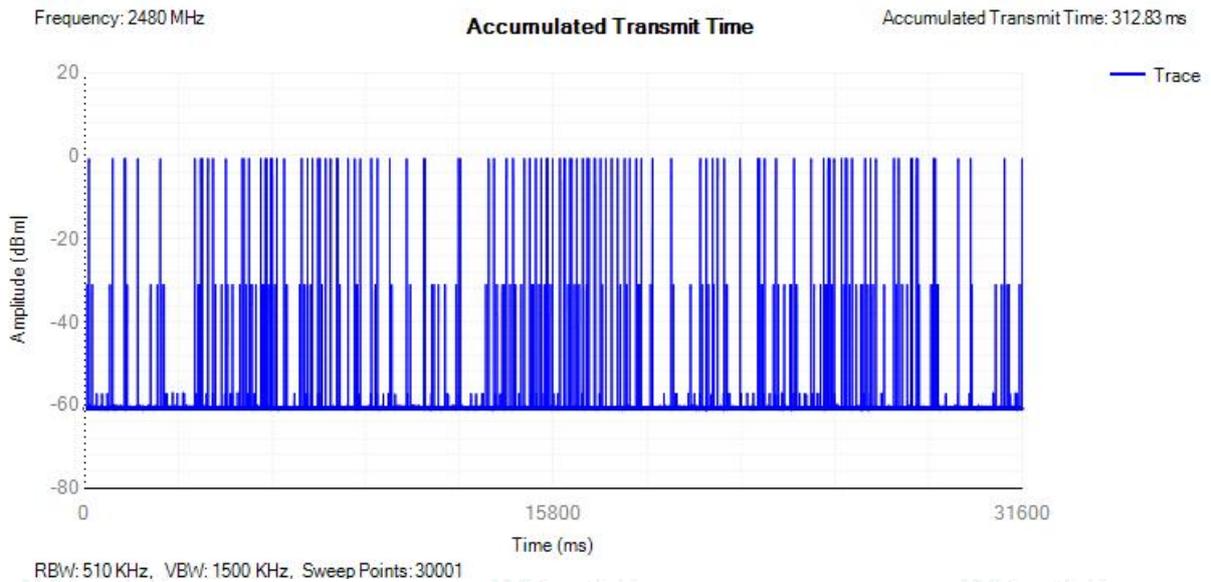




### Dwell NVNT 1-DH5 2402MHz



### Dwell NVNT 1-DH5 2480MHz



### Dwell NVNT 2-DH5 2402MHz

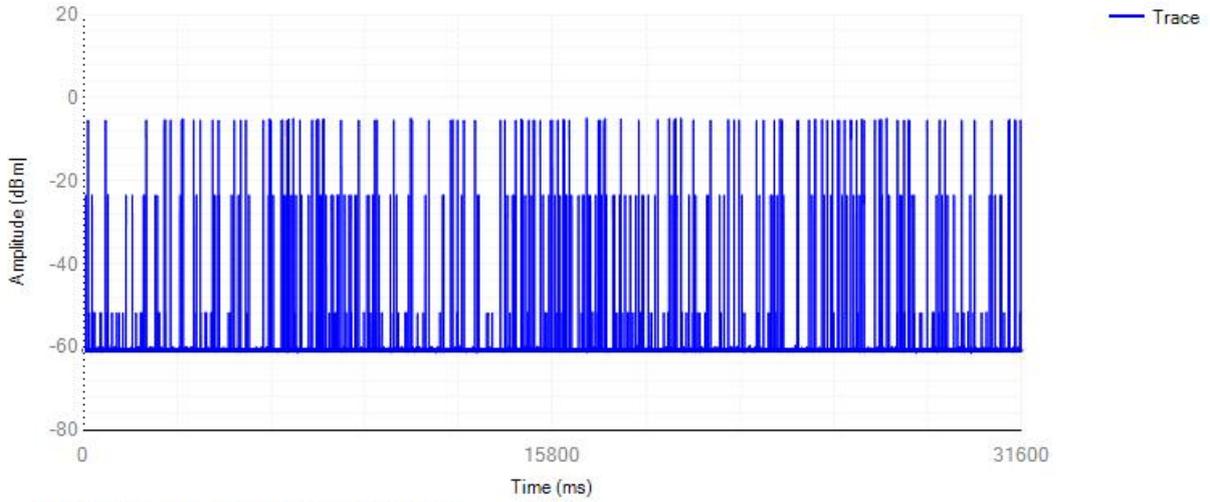




Frequency: 2402 MHz

### Accumulated Transmit Time

Accumulated Transmit Time: 309.62 ms



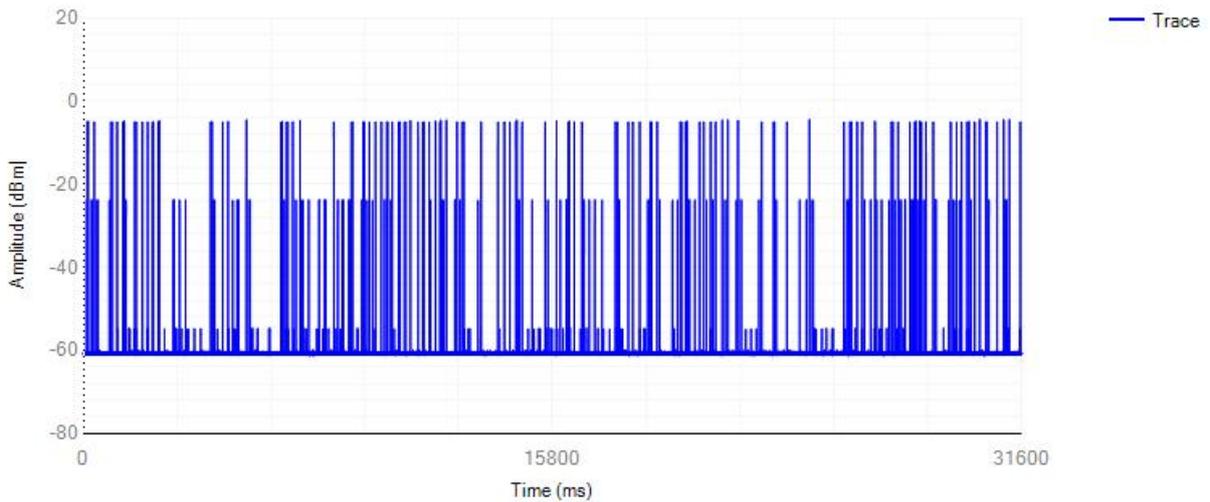
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

### 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

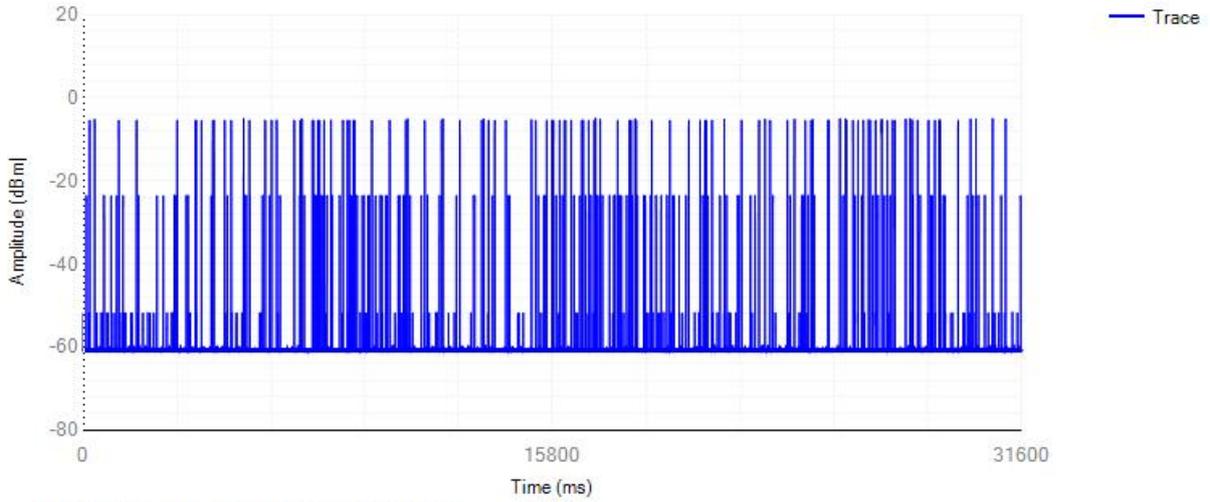




Frequency: 2402 MHz

### Accumulated Transmit Time

Accumulated Transmit Time: 298.66 ms



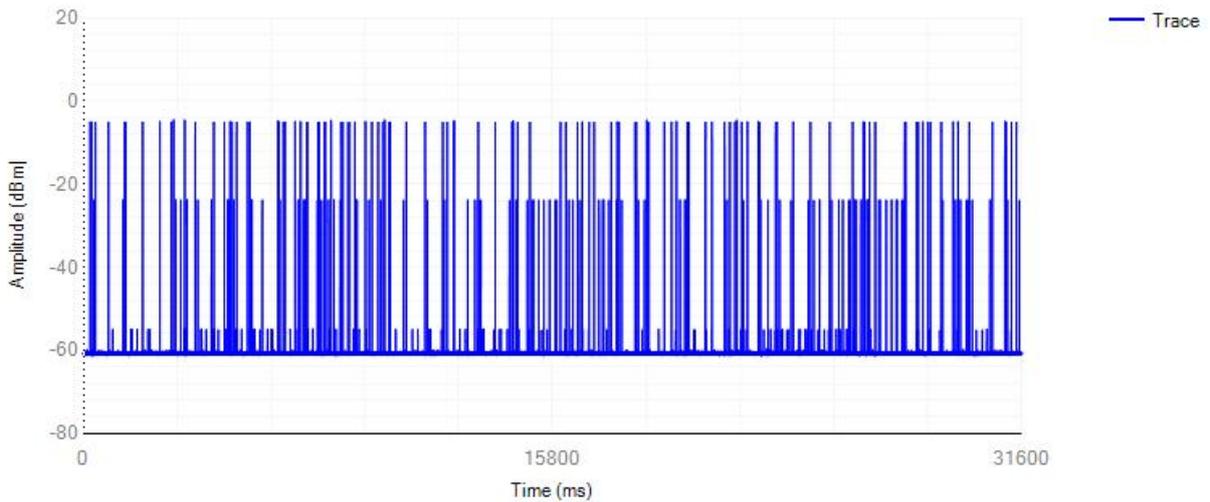
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

### 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





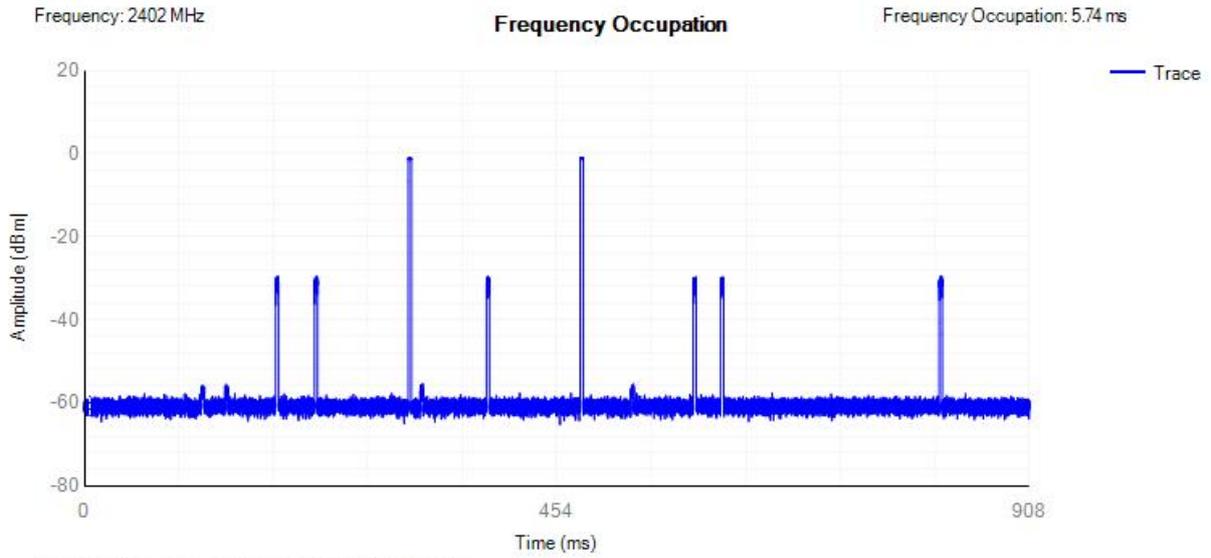
### E.3 Frequency Occupation

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

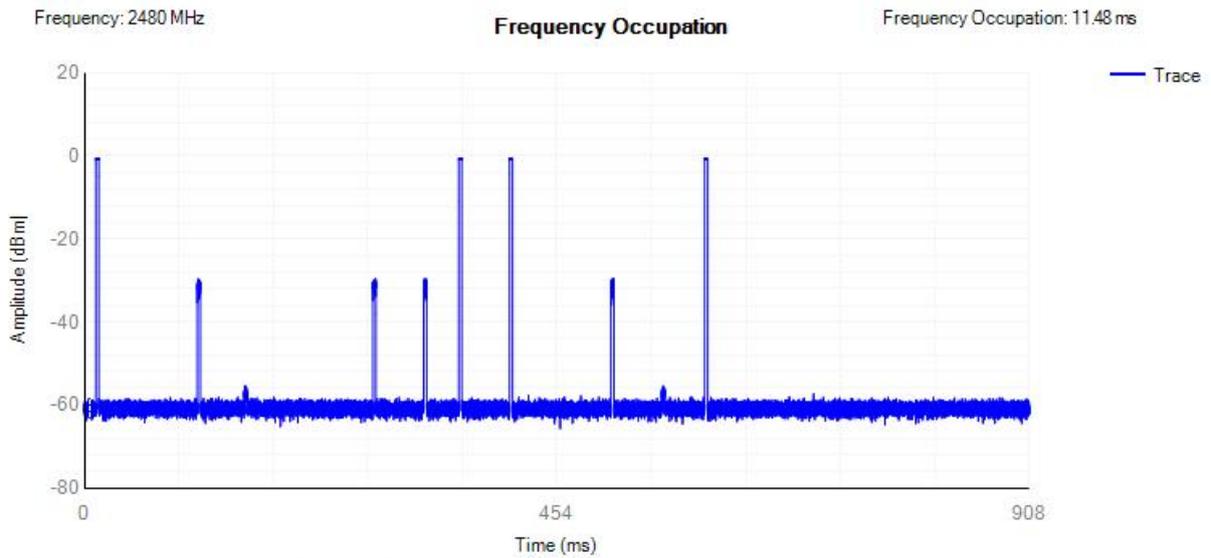




Freq. Occup. NVNT 1-DH5 2402MHz



Freq. Occup. NVNT 1-DH5 2480MHz



Freq. Occup. NVNT 2-DH5 2402MHz

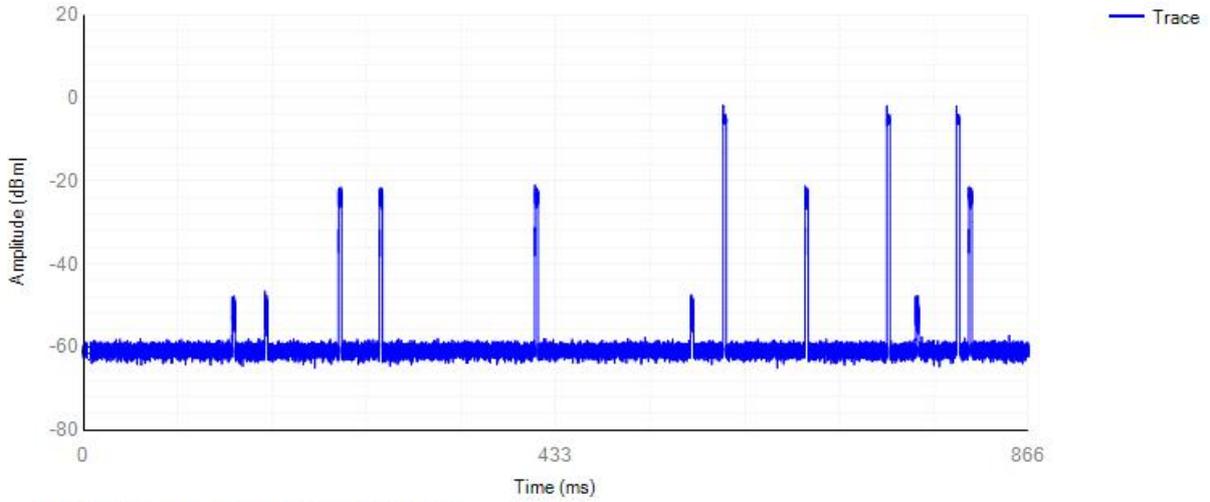




Frequency: 2402 MHz

### Frequency Occupation

Frequency Occupation: 8.22 ms



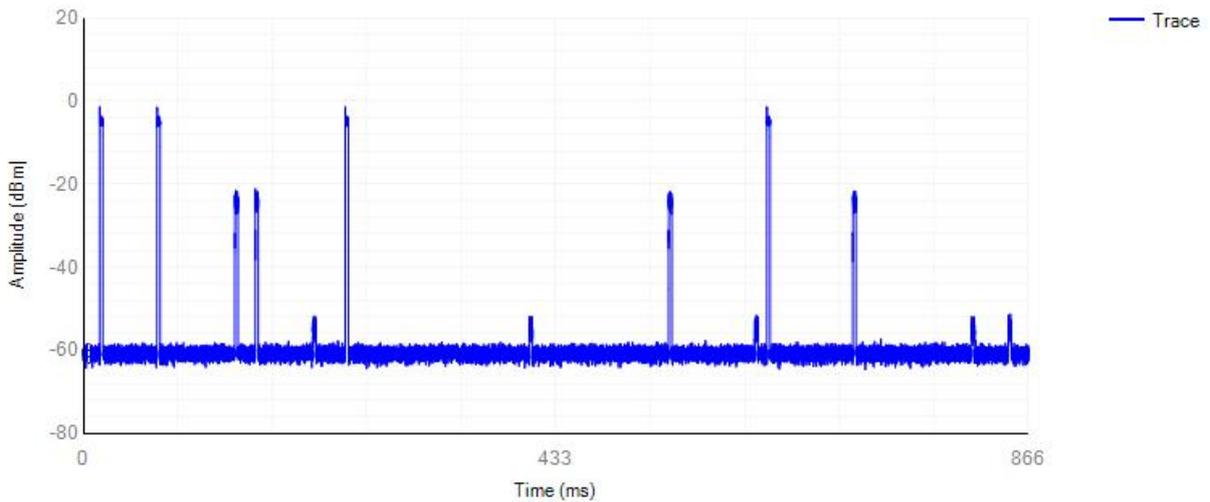
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Freq. Occup. NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

### Frequency Occupation

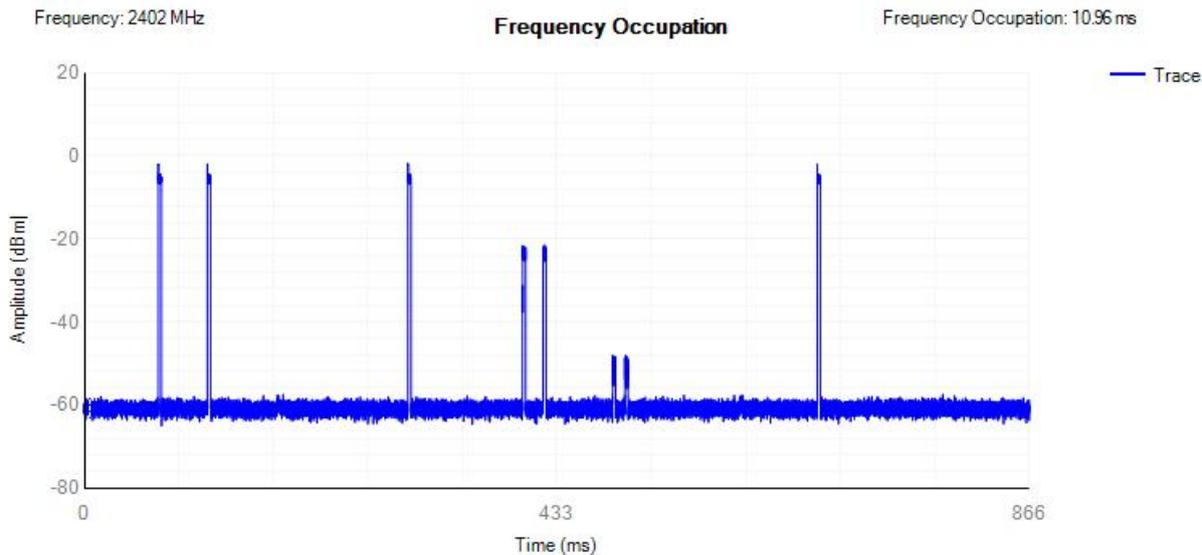
Frequency Occupation: 10.96 ms



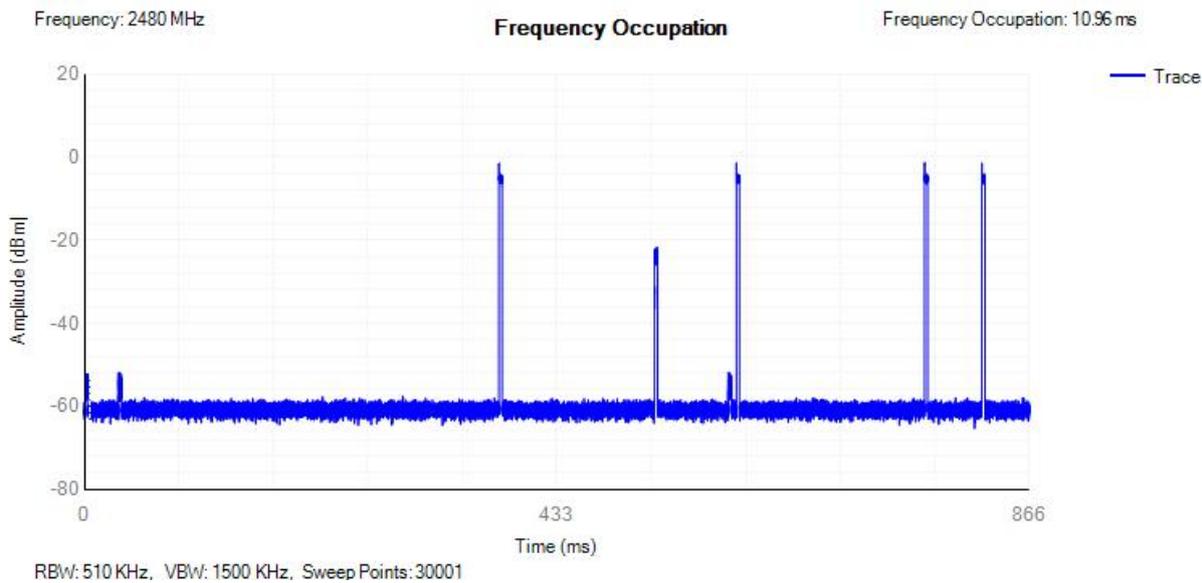
RBW: 510 KHz, VBW: 1500 KHz, Sweep Points: 30001

Freq. Occup. NVNT 3-DH5 2402MHz





Freq. Occup. NVNT 3-DH5 2480MHz

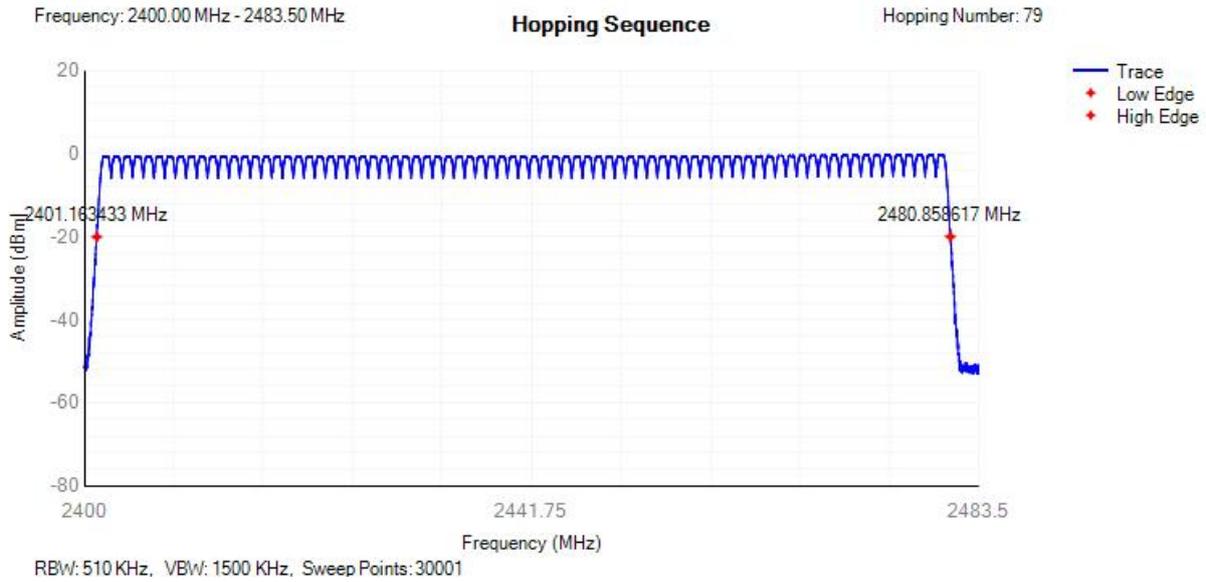




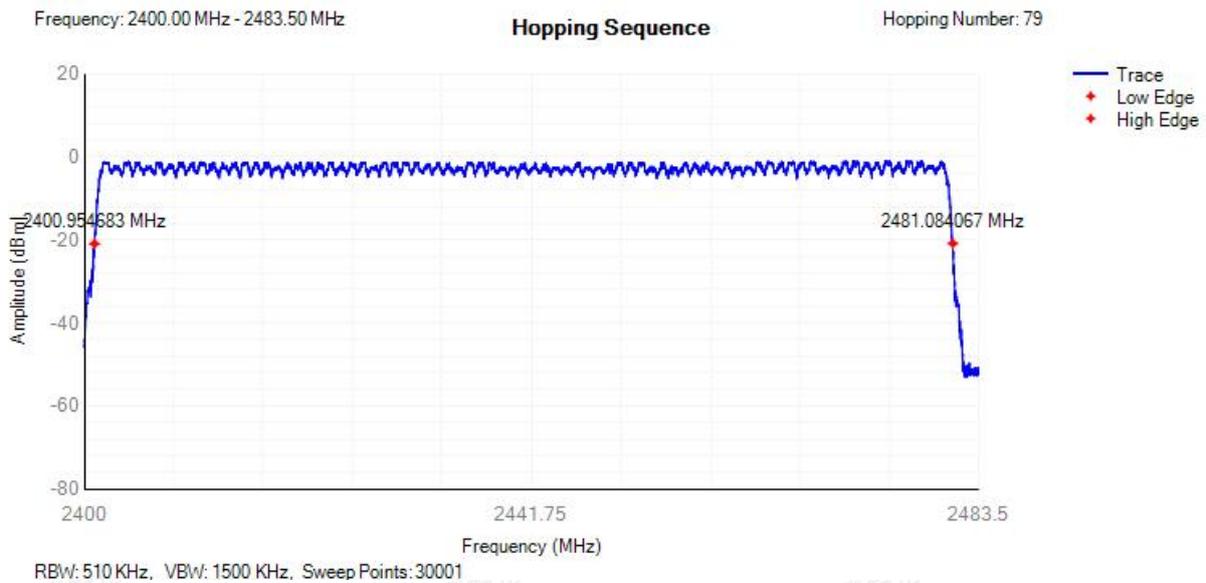
### E.4 Hopping Sequence

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

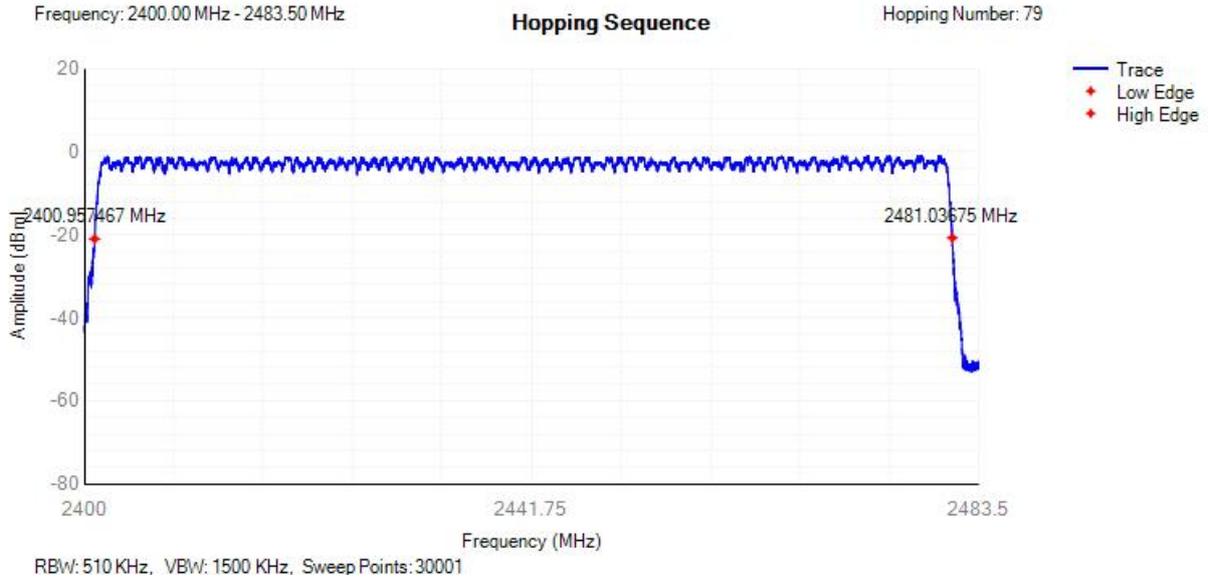


Hopping Seq. NVNT 2-DH5 2402MHz



Hopping Seq. NVNT 3-DH5 2402MHz





立讯检测股份  
LCS Testing Lab

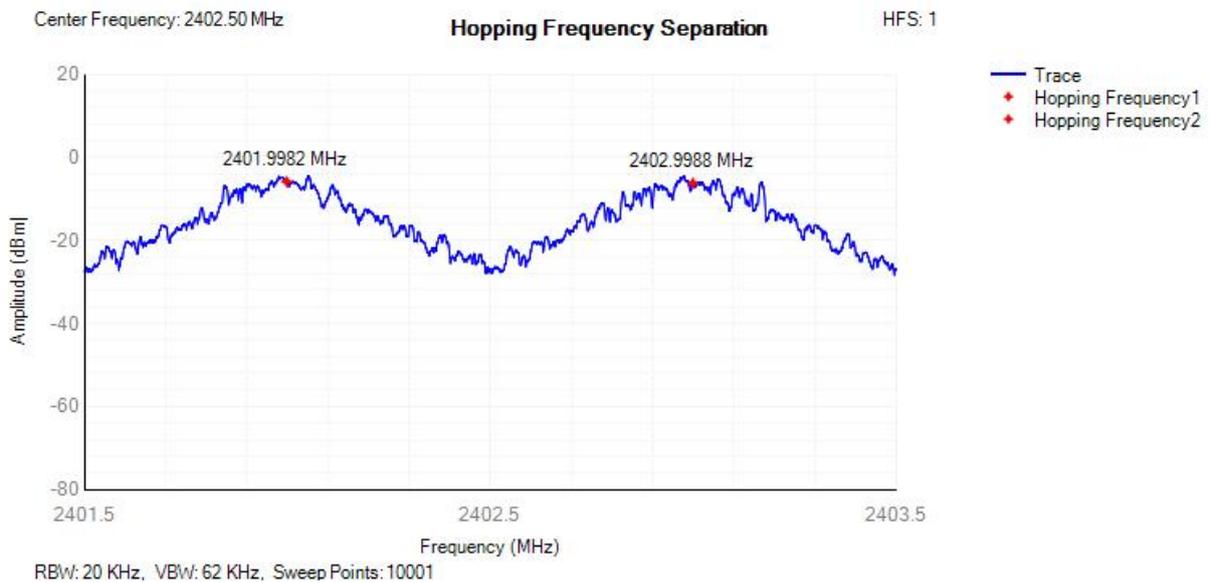




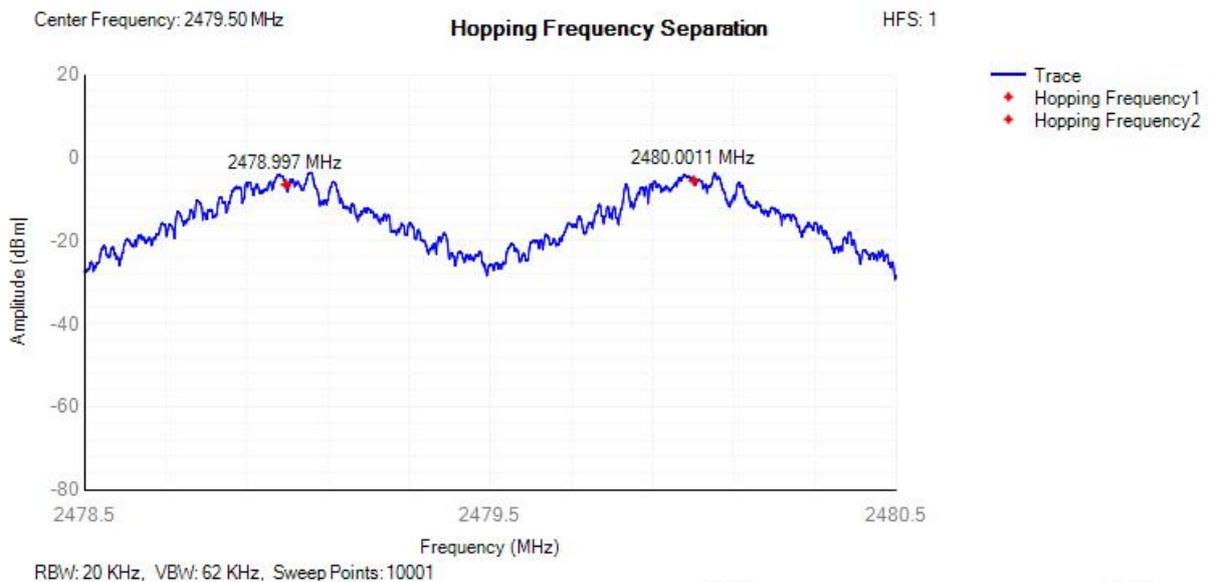
### E.5 Hopping Frequency Separation

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



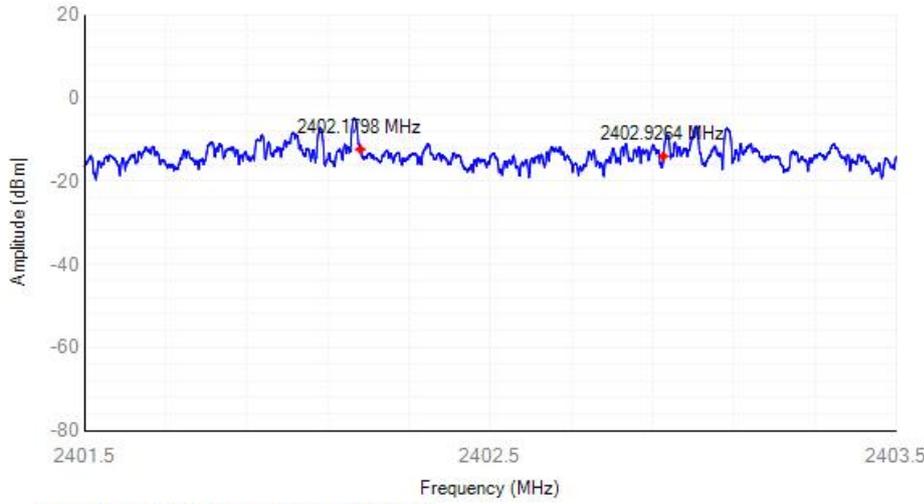


### HFS NVNT 2-DH5 2402MHz

Center Frequency: 2402.50 MHz

#### Hopping Frequency Separation

HFS: 0.74



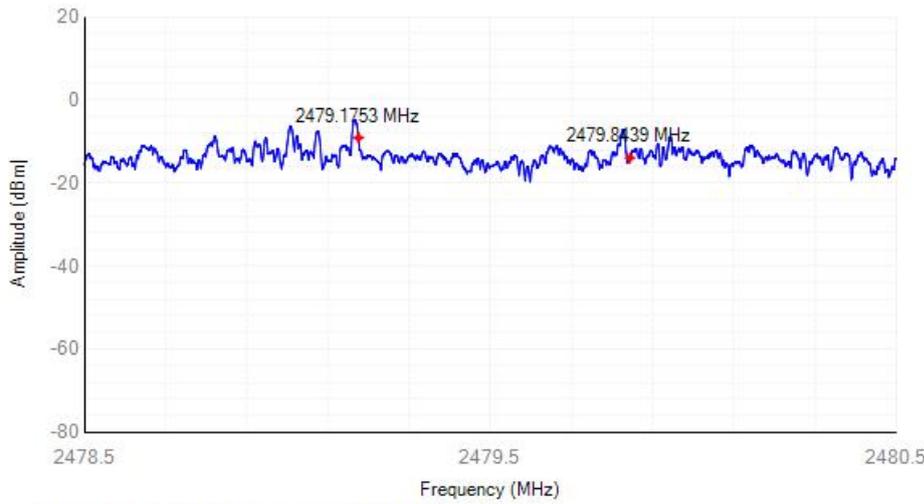
- Trace
- ♦ Hopping Frequency1
- ♦ Hopping Frequency2

### 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

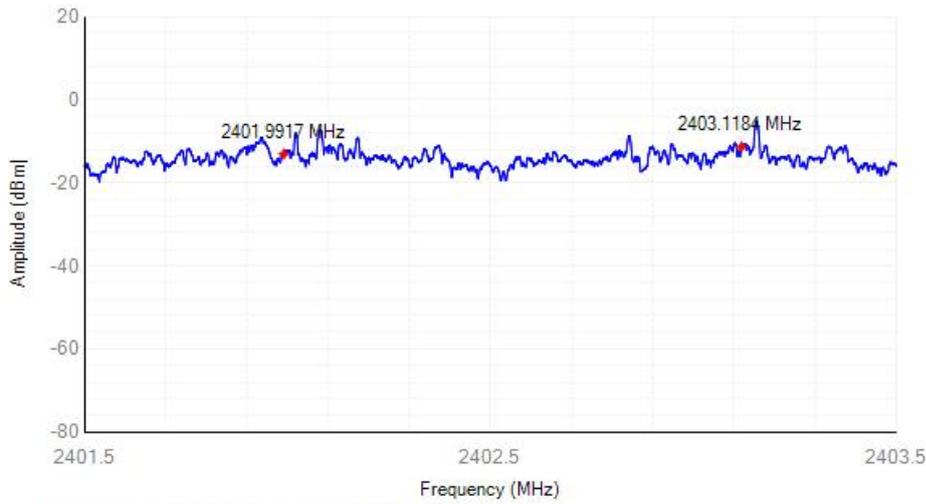




Center Frequency: 2402.50 MHz

### Hopping Frequency Separation

HFS: 1.12

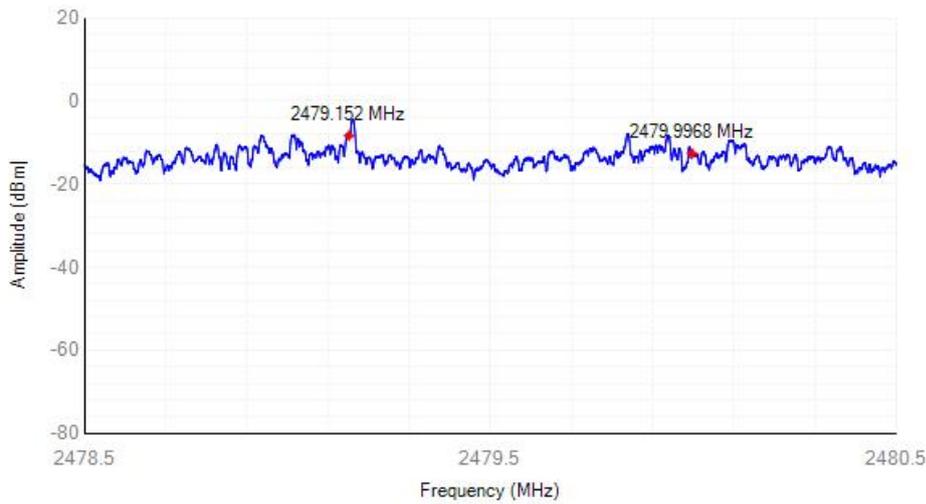


### HFS NVNT 3-DH5 2480MHz

Center Frequency: 2479.50 MHz

### Hopping Frequency Separation

HFS: 0.84





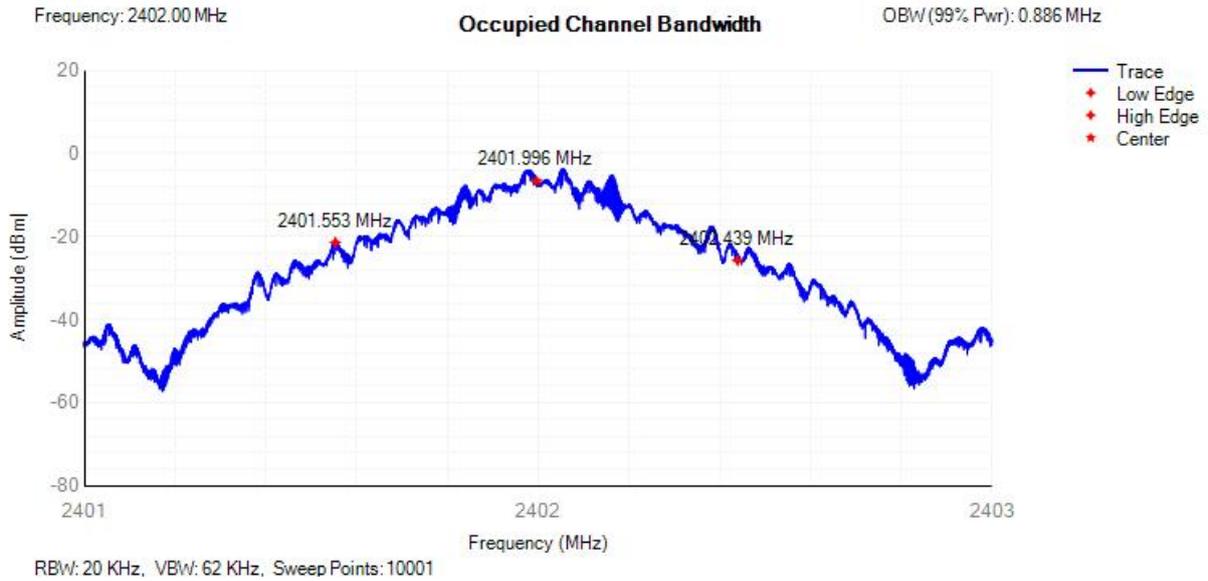
## E.6 Occupied Channel Bandwidth

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

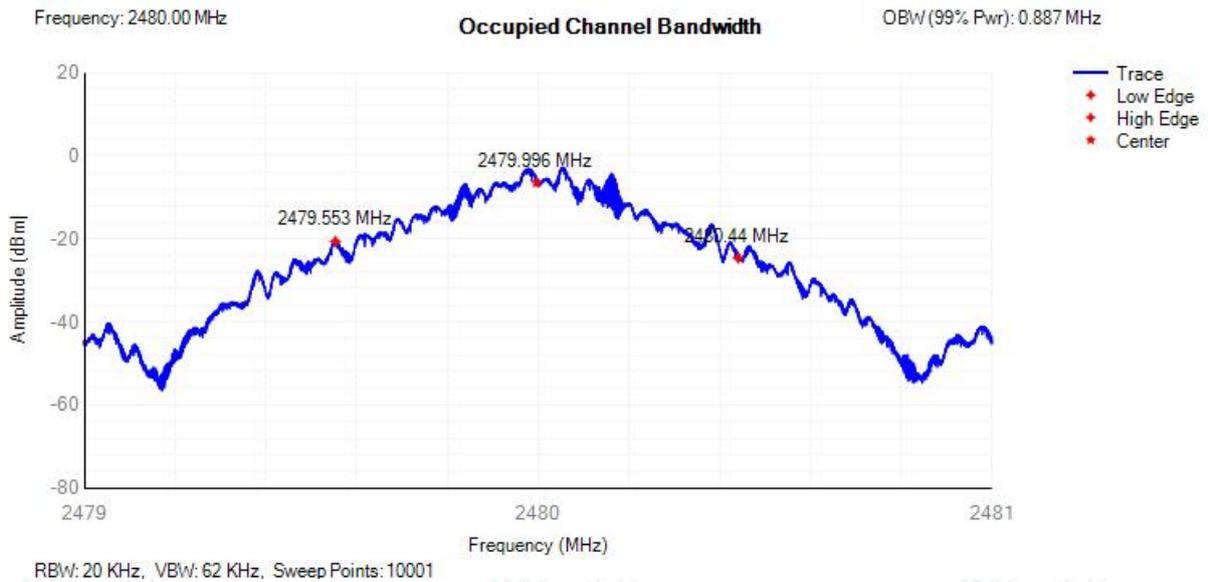




### OBW NVNT 1-DH5 2402MHz



### OBW NVNT 1-DH5 2480MHz



### OBW NVNT 2-DH5 2402MHz

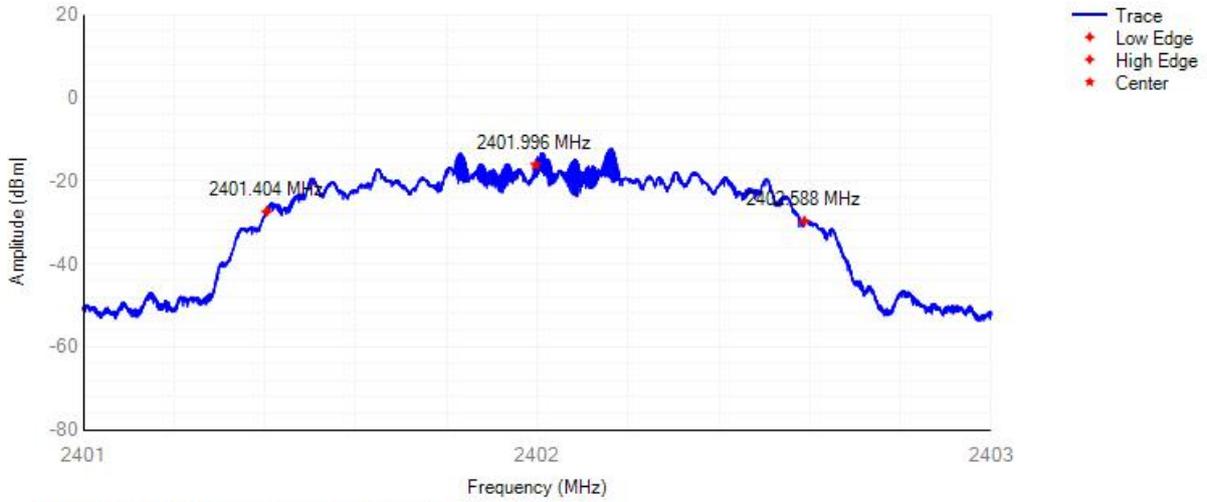




Frequency: 2402.00 MHz

### Occupied Channel Bandwidth

OBW(99% Pwr): 1.184 MHz

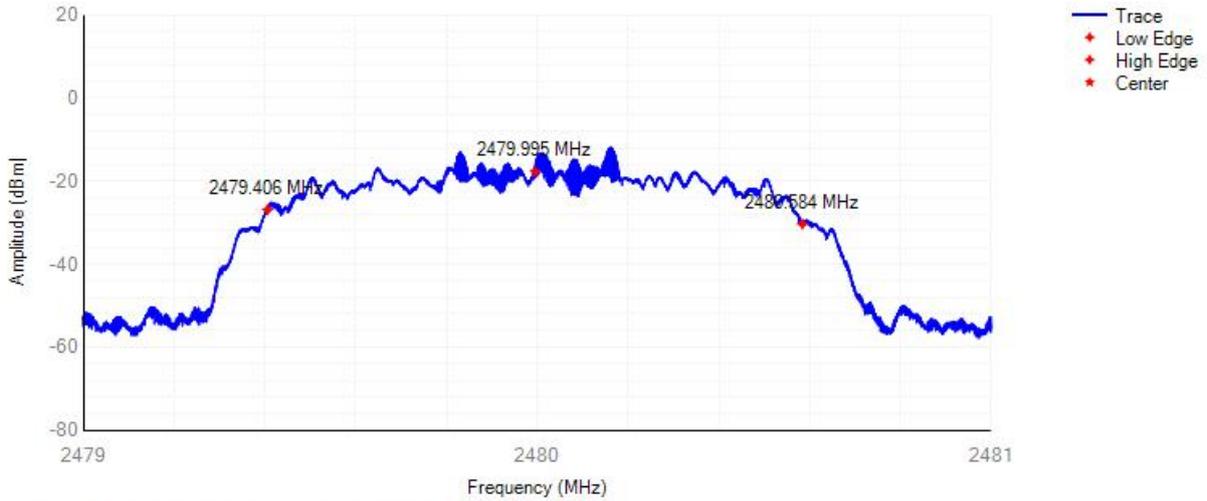


### OBW NVNT 2-DH5 2480MHz

Frequency: 2480.00 MHz

### Occupied Channel Bandwidth

OBW(99% Pwr): 1.178 MHz



### OBW NVNT 3-DH5 2402MHz

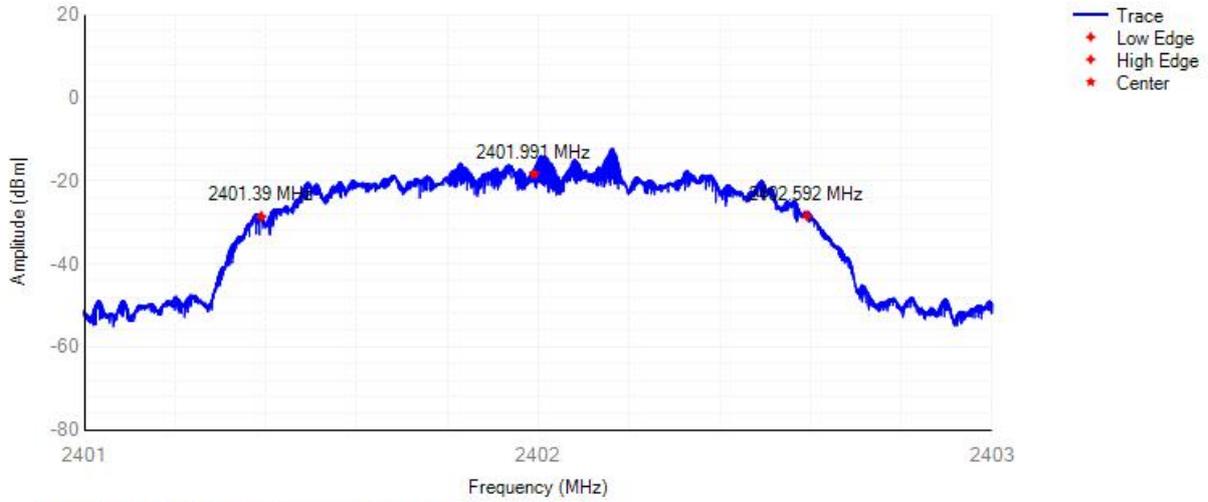




Frequency: 2402.00 MHz

### Occupied Channel Bandwidth

OBW(99% Pwr): 1.201 MHz

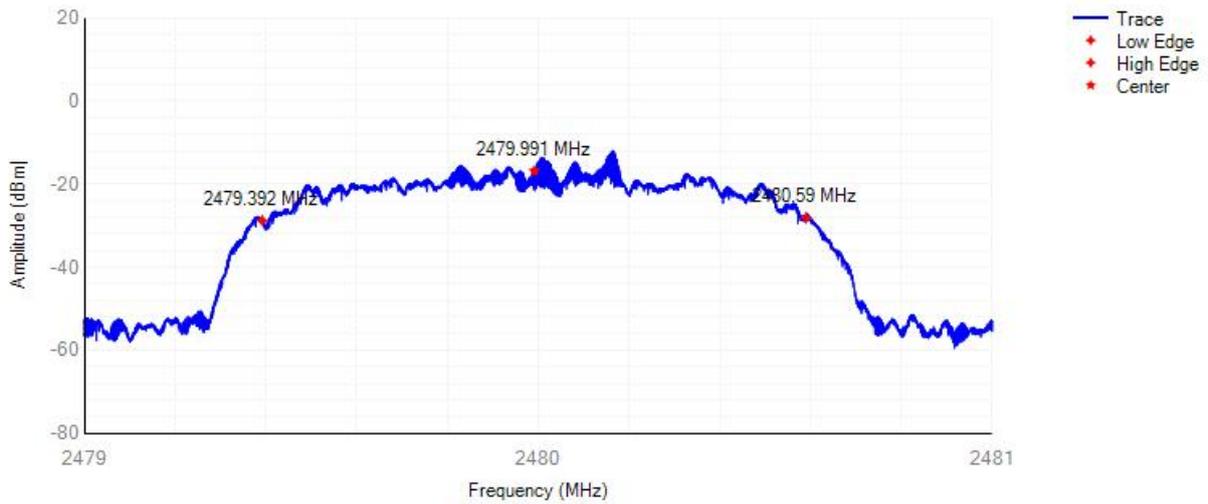


### OBW NVNT 3-DH5 2480MHz

Frequency: 2480.00 MHz

### Occupied Channel Bandwidth

OBW(99% Pwr): 1.197 MHz





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

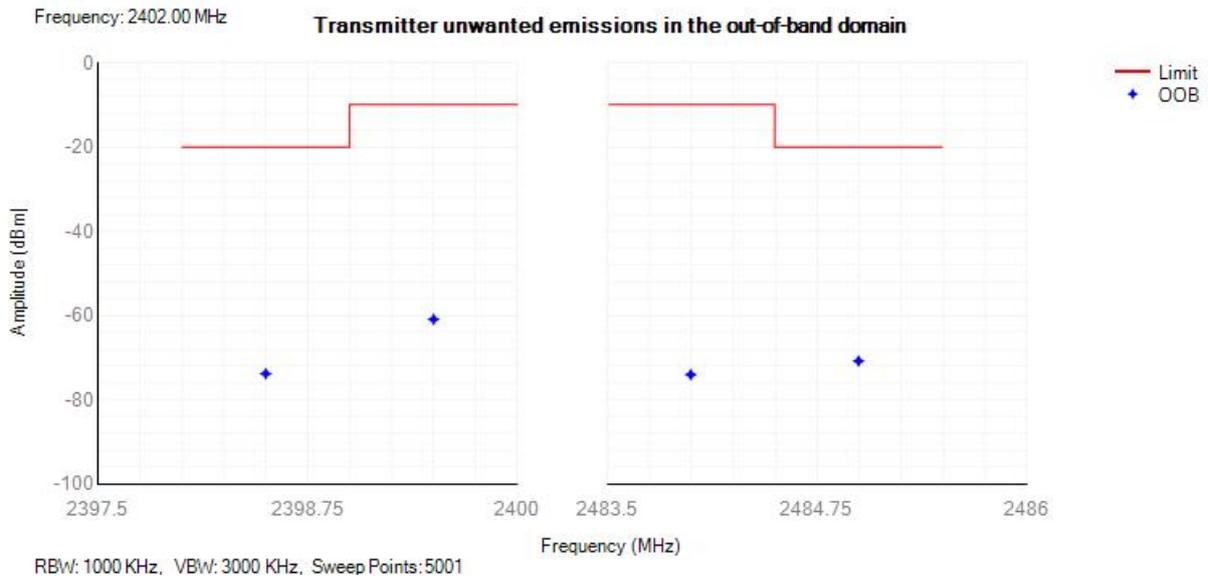
Condition	Mode	Frequency (MHz)	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	1-DH5	2402	2399.5	-60.89	-10	Pass
NVNT	1-DH5	2402	2398.5	-73.8	-20	Pass
NVNT	1-DH5	2402	2484	-74.02	-10	Pass
NVNT	1-DH5	2402	2485	-70.78	-20	Pass
NVNT	1-DH5	2480	2399.5	-60.62	-10	Pass
NVNT	1-DH5	2480	2398.5	-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



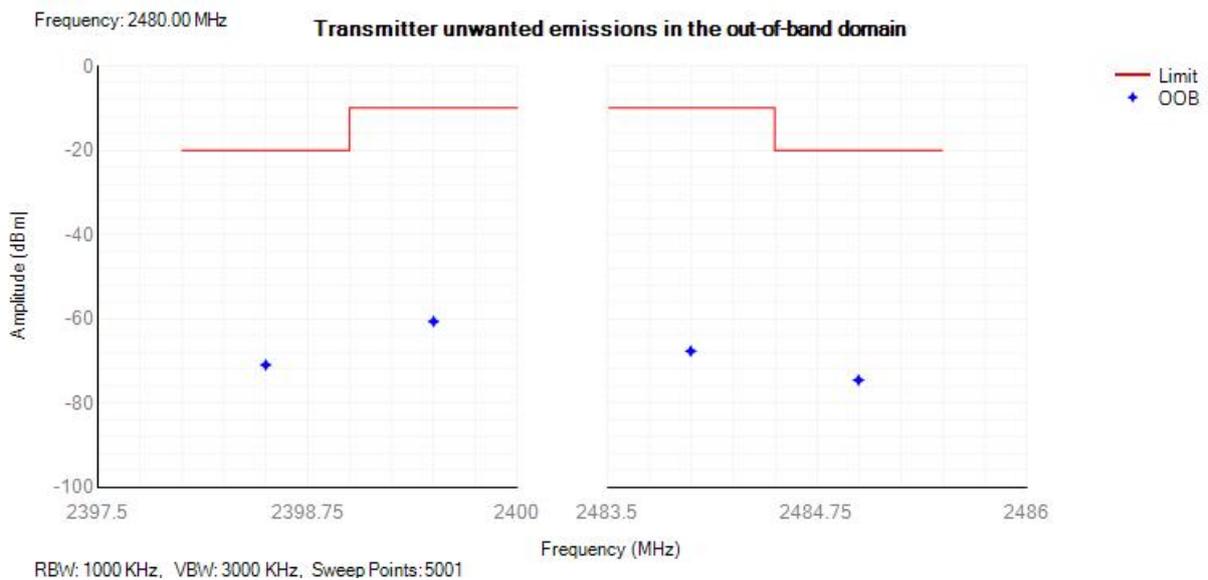


NVNT	3-DH5	2480	2398.098	-68.21	-20	Pass
NVNT	3-DH5	2480	2484	-73.7	-10	Pass
NVNT	3-DH5	2480	2484.197	-69.85	-10	Pass
NVNT	3-DH5	2480	2485.197	-73.65	-20	Pass
NVNT	3-DH5	2480	2485.394	-76.68	-20	Pass

Tx. Emissions OOB NVNT 1-DH5 2402MHz



Tx. Emissions OOB NVNT 1-DH5 2480MHz



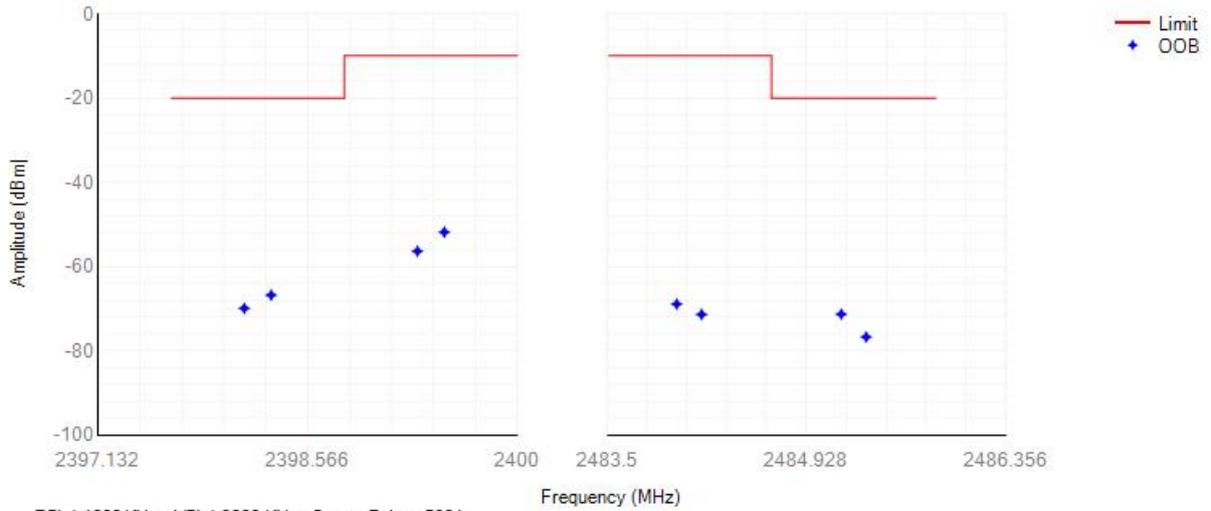
Tx. Emissions OOB NVNT 2-DH5 2402MHz





Frequency: 2402.00 MHz

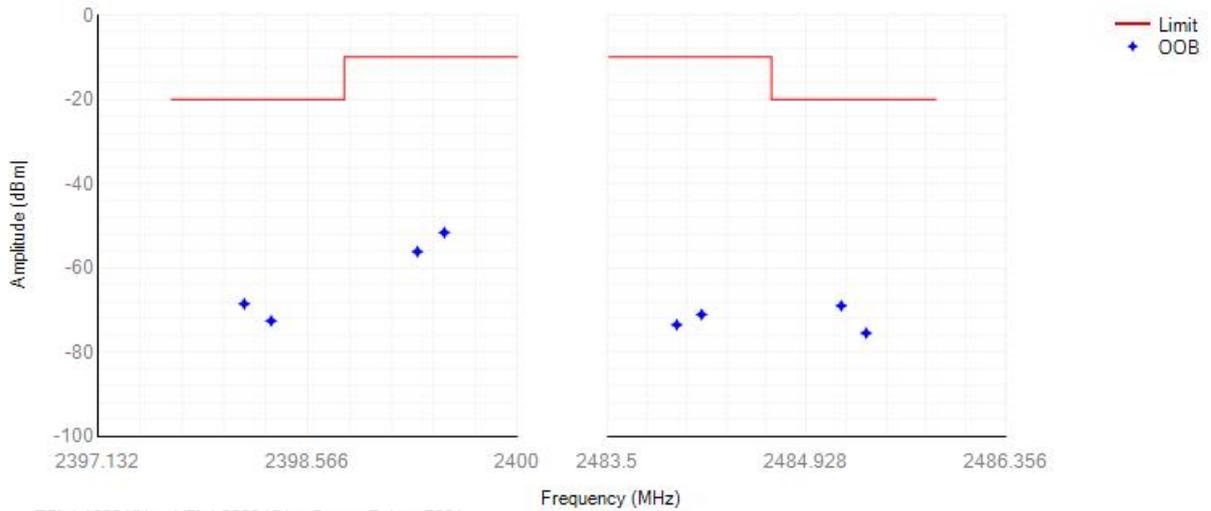
Transmitter unwanted emissions in the out-of-band domain



Tx. Emissions OOB NVNT 2-DH5 2480MHz

Frequency: 2480.00 MHz

Transmitter unwanted emissions in the out-of-band domain



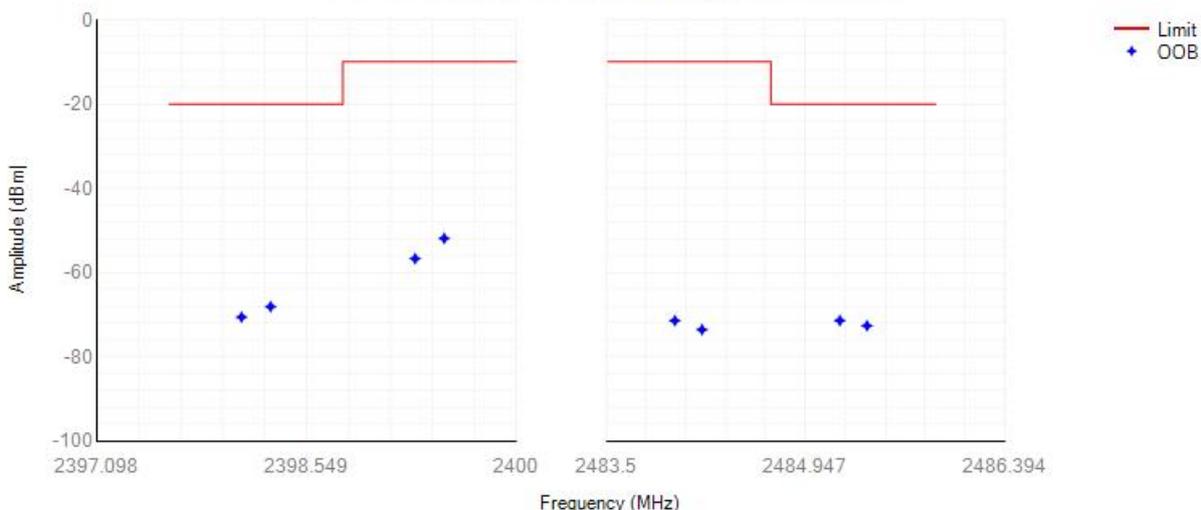
Tx. Emissions OOB NVNT 3-DH5 2402MHz





Frequency: 2402.00 MHz

### Transmitter unwanted emissions in the out-of-band domain

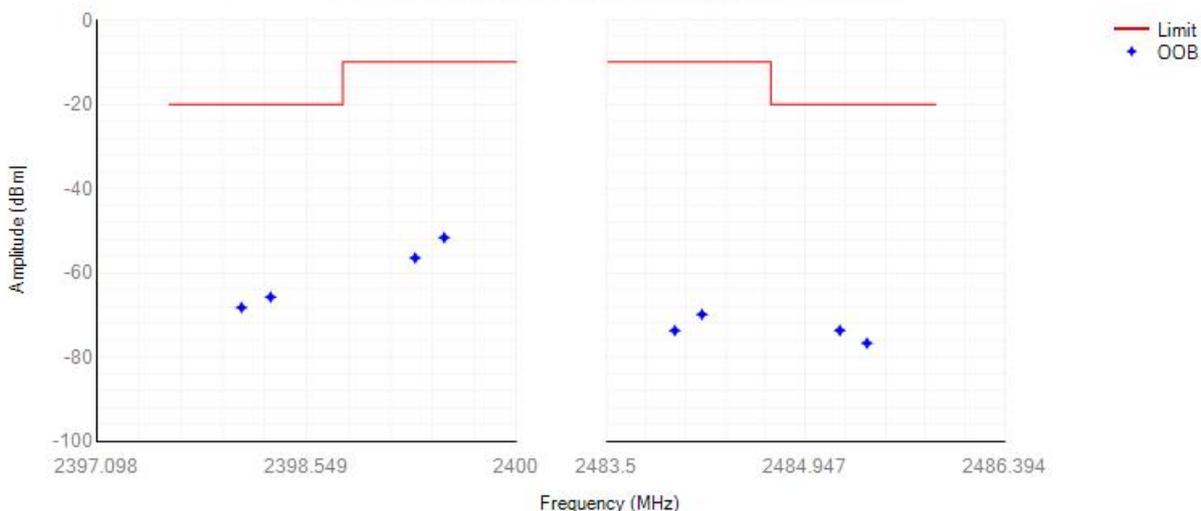


RBW: 1000 KHz, VBW: 3000 KHz, Sweep Points: 5001

### 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

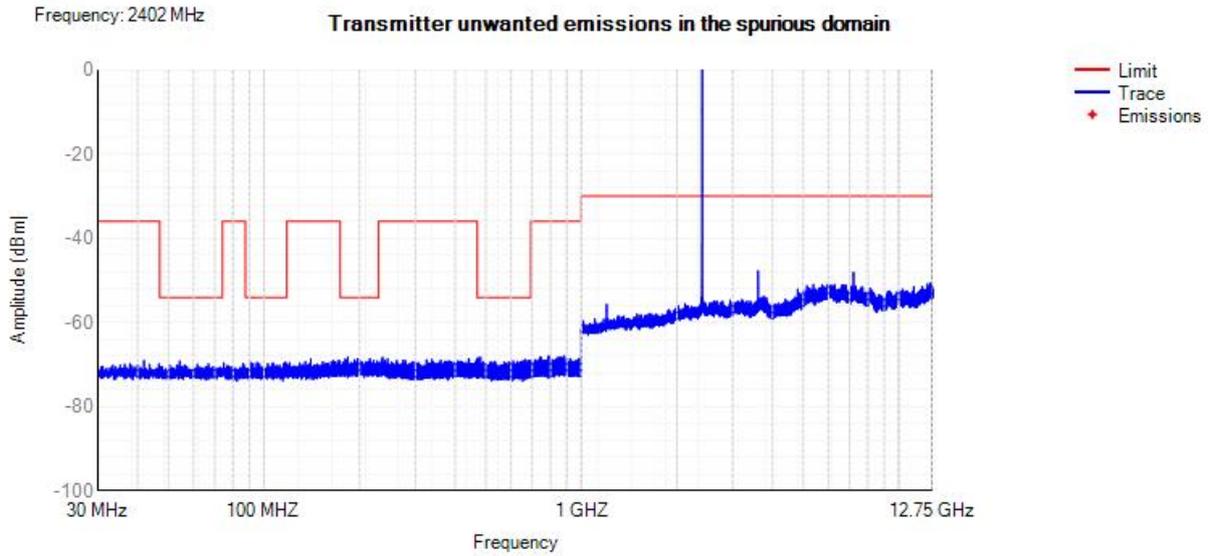




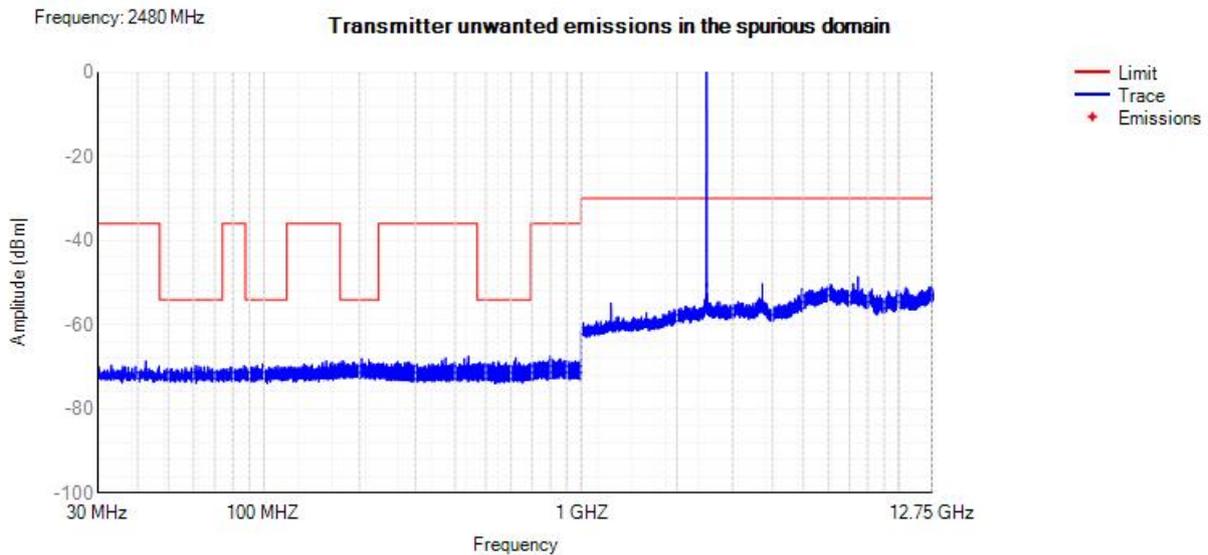
### E.8 Transmitter unwanted emissions in the spurious domain

Condition	Mode	Frequency (MHz)	Range	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
-----------	------	-----------------	-------	-----------------	------------------	-------------	---------

Tx. Spurious NVNT 1-DH5 2402MHz



Tx. Spurious NVNT 1-DH5 2480MHz



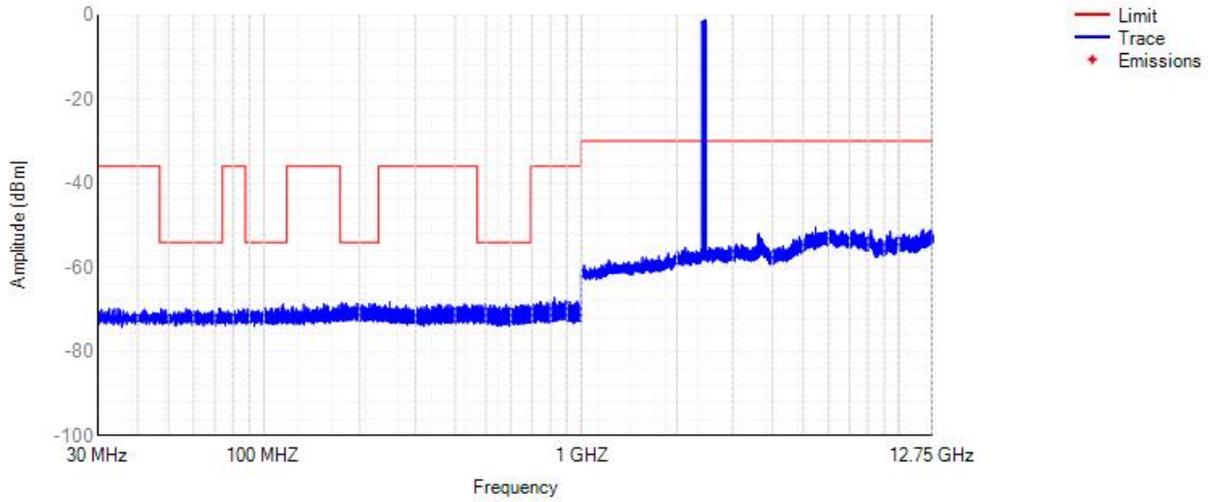
Tx. Spurious NVNT 2-DH5 2402MHz





Frequency: 2402 MHz

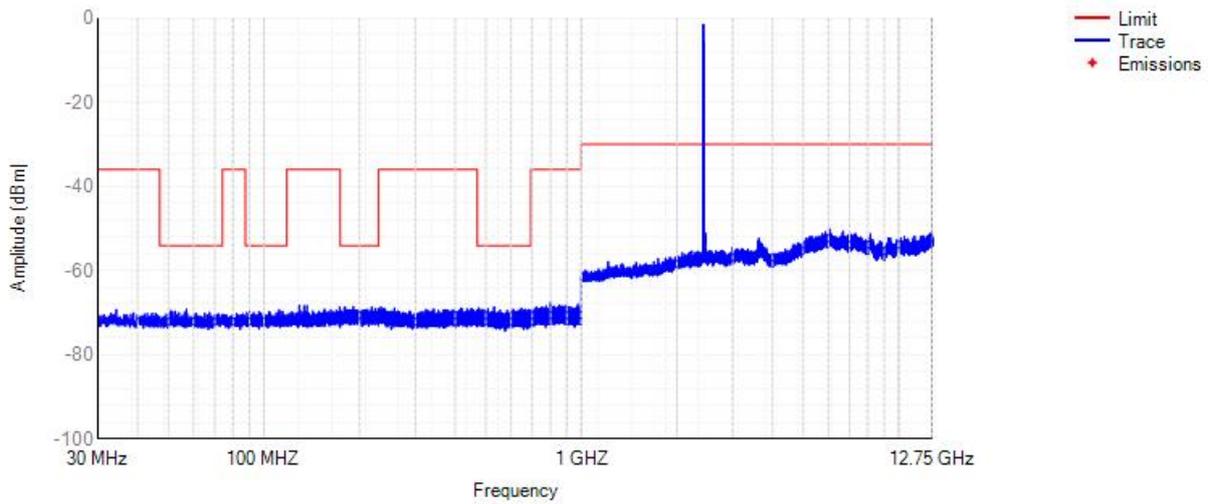
### Transmitter unwanted emissions in the spurious domain



Tx. Spurious NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

### Transmitter unwanted emissions in the spurious domain



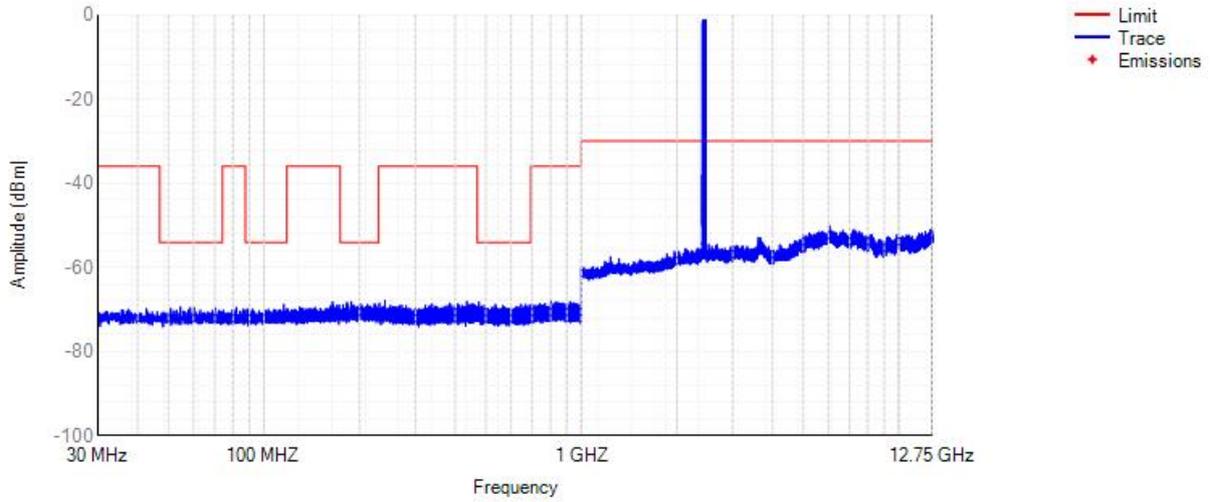
Tx. Spurious NVNT 3-DH5 2402MHz





Frequency: 2402 MHz

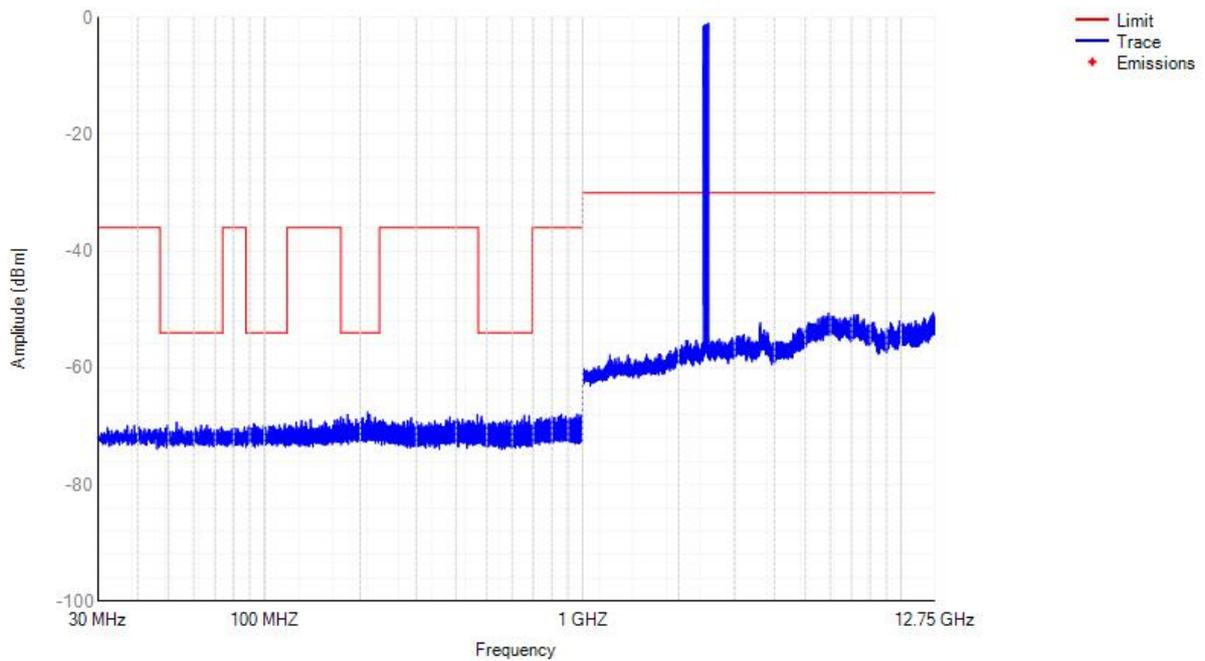
### Transmitter unwanted emissions in the spurious domain



### Tx. Spurious NVNT 3-DH5 2480MHz

Frequency: 2480 MHz

### Transmitter unwanted emissions in the spurious domain

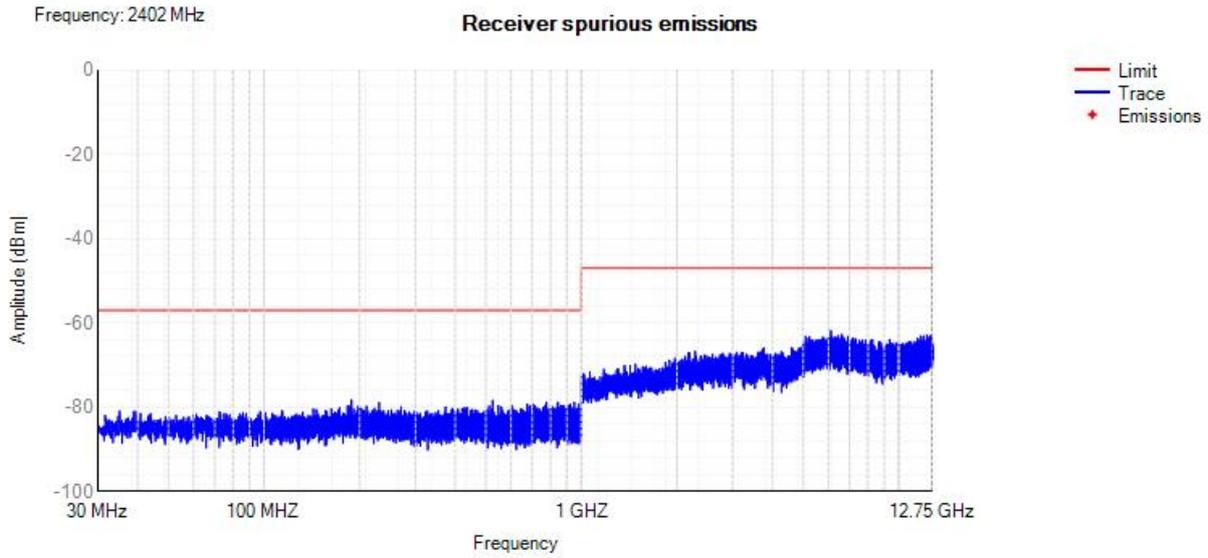




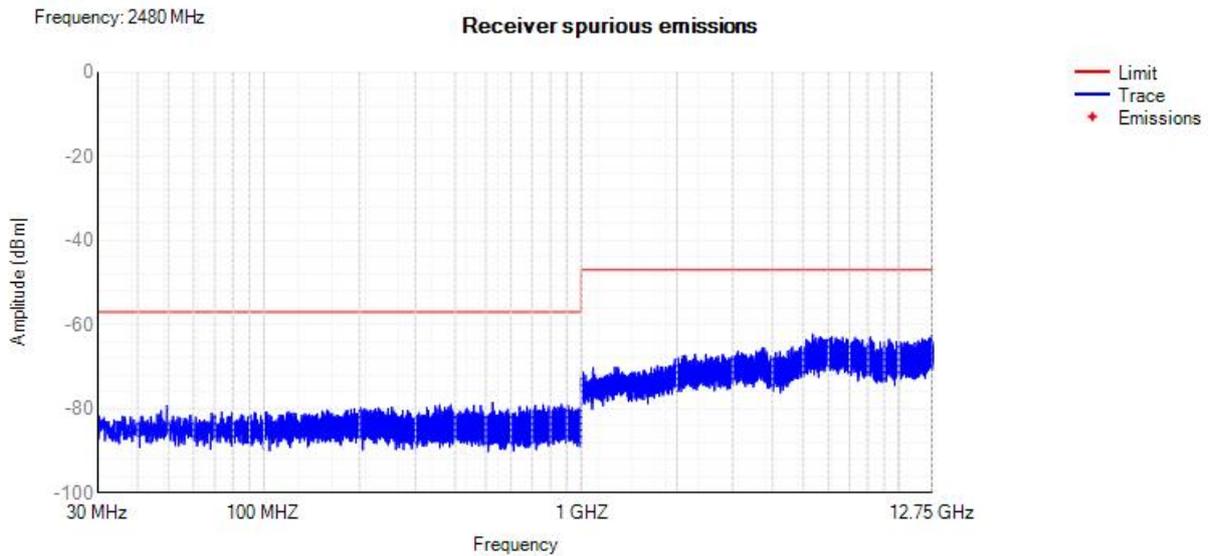
### E.9 Receiver spurious emissions

Condition	Mode	Frequency (MHz)	Range	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
-----------	------	-----------------	-------	-----------------	------------------	-------------	---------

Rx. Spurious NVNT 1-DH5 2402MHz



Rx. Spurious NVNT 1-DH5 2480MHz



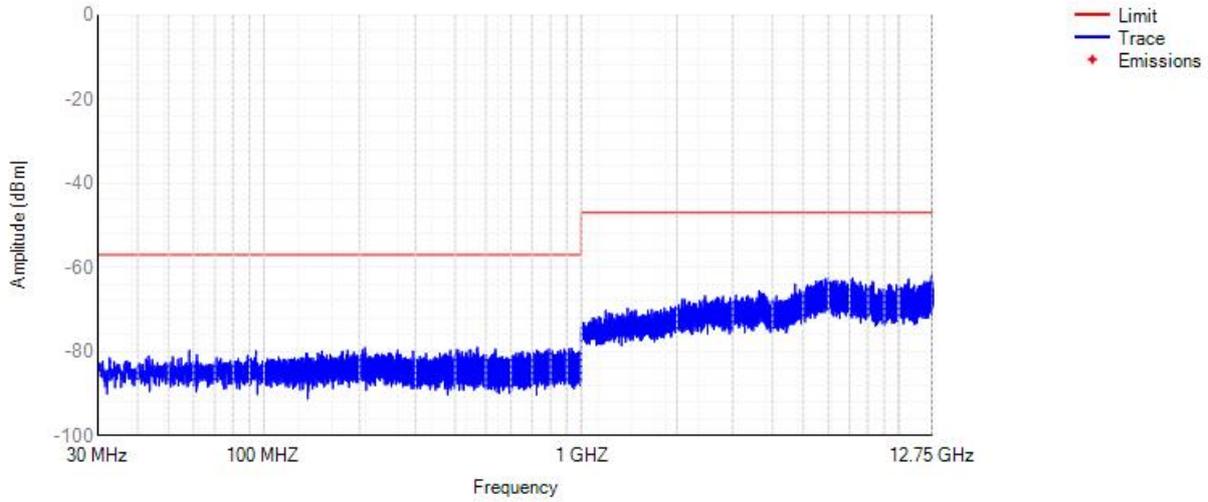
Rx. Spurious NVNT 2-DH5 2402MHz





Frequency: 2402 MHz

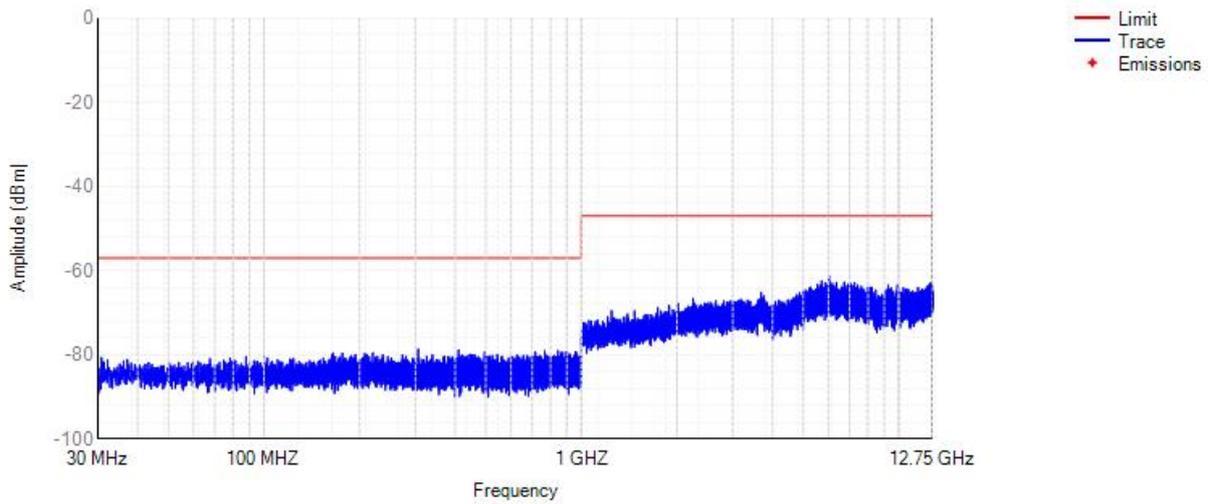
### Receiver spurious emissions



### Rx. Spurious NVNT 2-DH5 2480MHz

Frequency: 2480 MHz

### Receiver spurious emissions



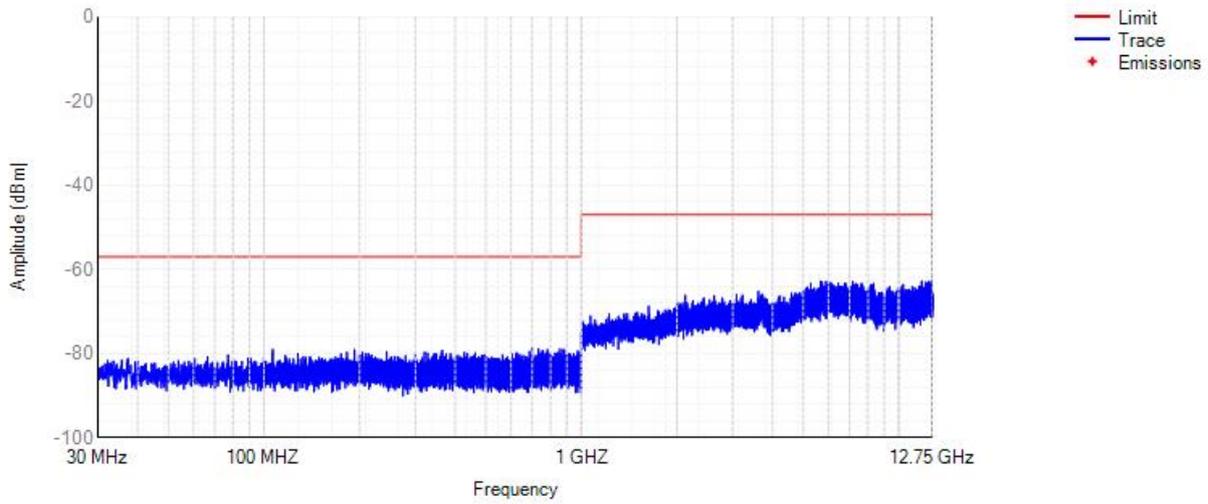
### Rx. Spurious NVNT 3-DH5 2402MHz





Frequency: 2402 MHz

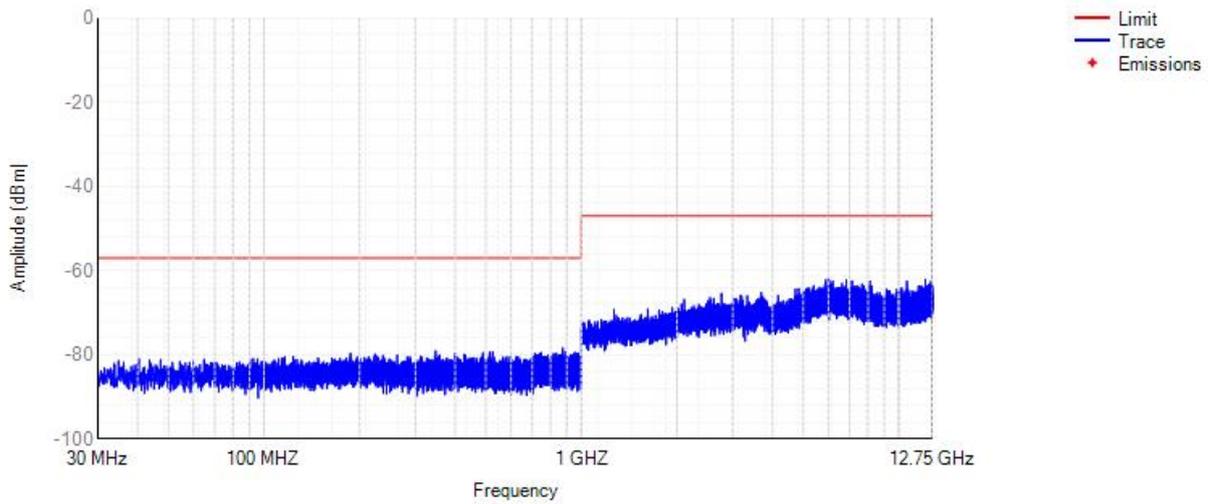
### Receiver spurious emissions



### 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

