

Appendix

1. Duty Cycle, Tx Sequence, Tx Gap, Medium Utilisation	2
1.1 RF Output Power	3
1.2 Power Spectral Density	7
1.3 Occupied Channel Bandwidth	11
1.4 Transmitter unwanted emissions in the out-of-band domain	15
1.5 Transmitter unwanted emissions in the spurious domain	22
1.6 Receiver spurious emissions	27
1.7 Receiver Blocking	31
1.8 Adaptivity	35
1.9 Adaptivity COT	40

1. Duty Cycle, Tx Sequence, Tx Gap, Medium Utilisation

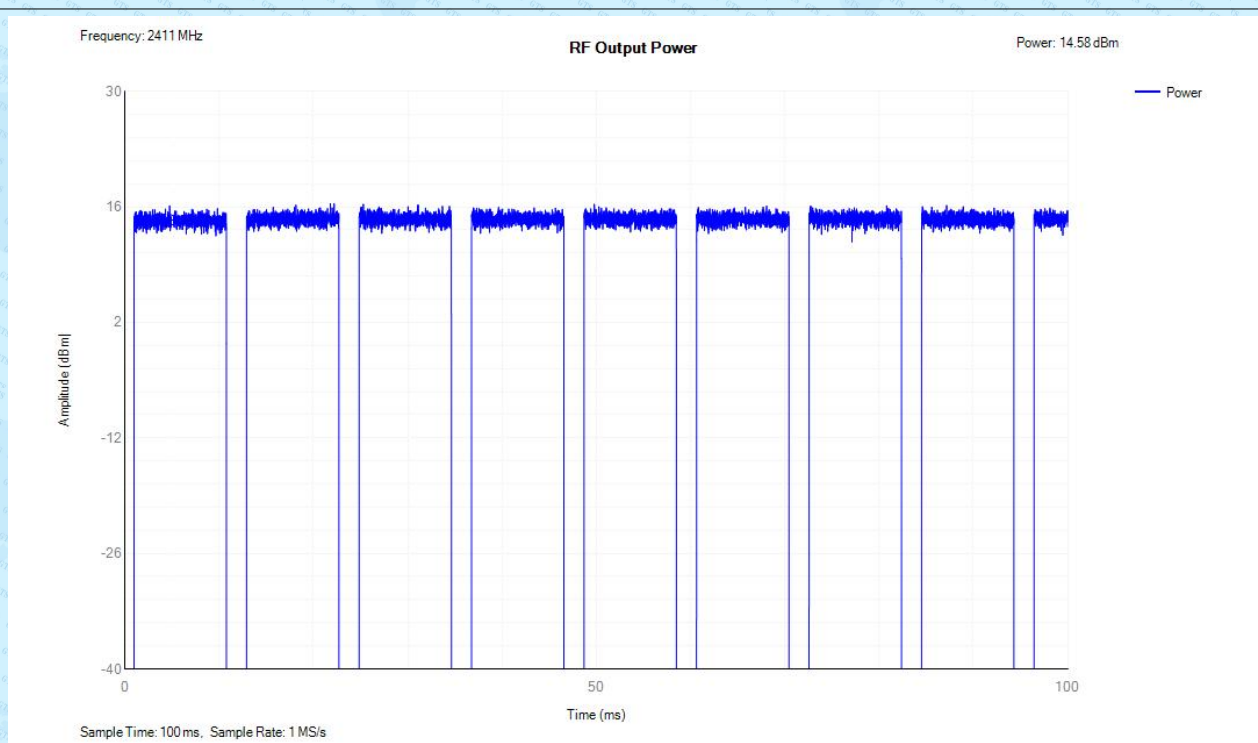
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Tx-sequence (ms)	Tx Gap (ms)	MU (%)
NVNT	TX	2411	Ant1	81.96	9.8	2.14	23.53
		2433		82.92	9.8	2.14	23.32
		2466		80.79	9.8	2.14	32.54
		2411	Ant2	82.51	9.8	2.14	33.38
		2433		80.78	9.8	2.14	21.99
		2466		82.92	9.8	2.14	27.9

1.1 RF Output Power

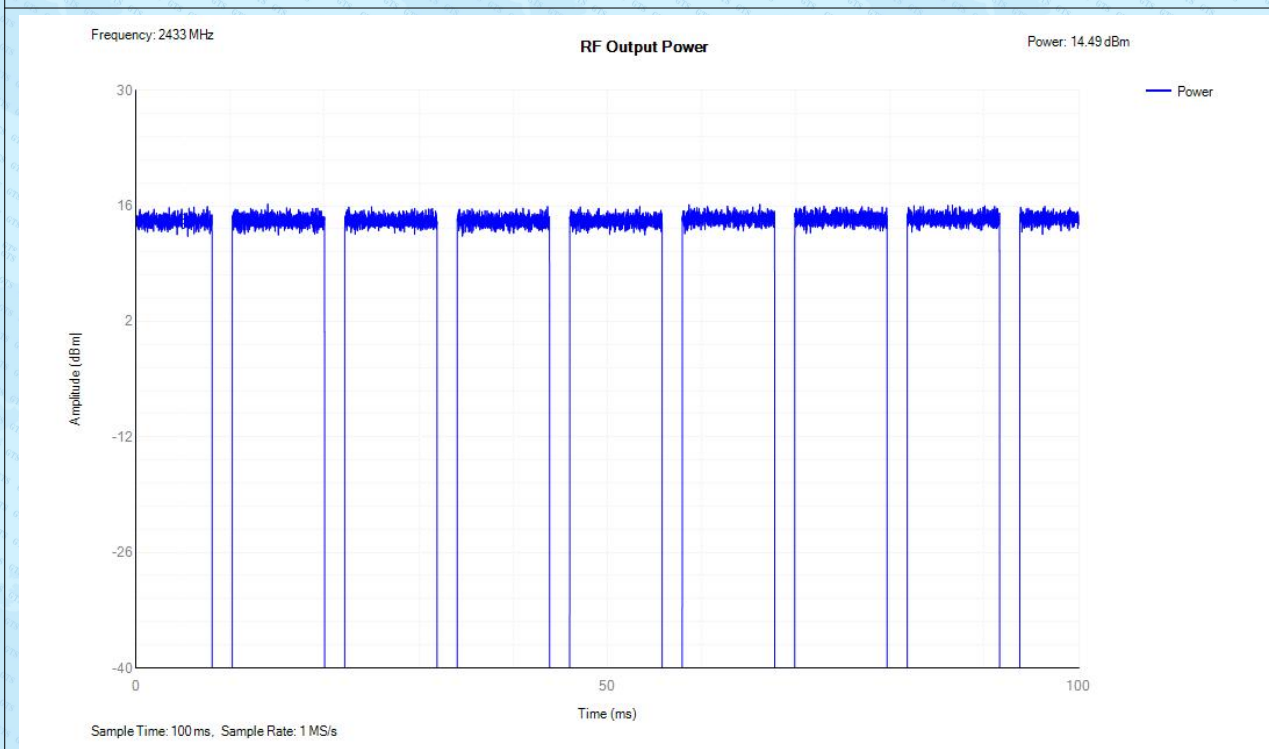
Condition	Mode	Frequency (MHz)	Antenna	Max Burst RMS Power (dBm)	Burst Number	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	TX	2411	Ant1	14.58	9	14.58	20	Pass
		2433		14.49	9	14.49	20	Pass
		2466		16.05	10	16.05	20	Pass
		2411	Ant2	16.07	9	16.07	20	Pass
		2433		14.35	10	14.35	20	Pass
		2466		15.27	9	15.27	20	Pass

Test Graphs

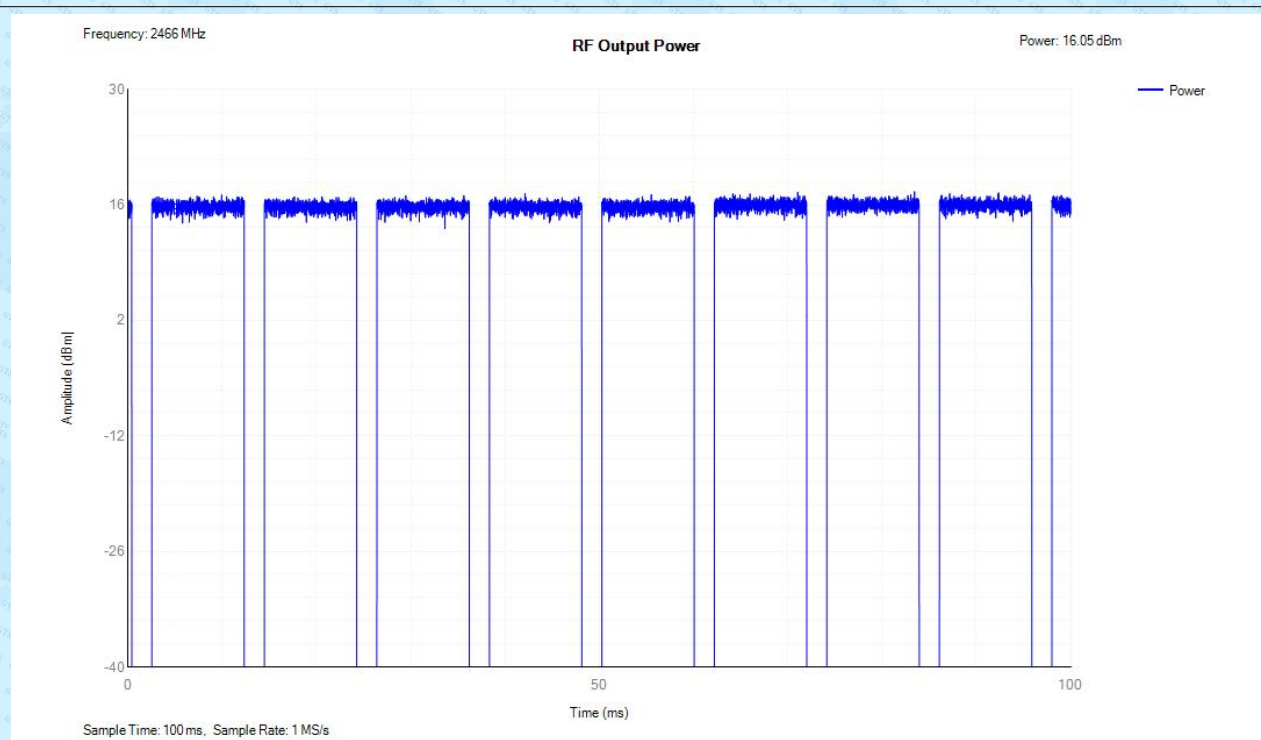
Power NVNT TX 2411MHz Ant1



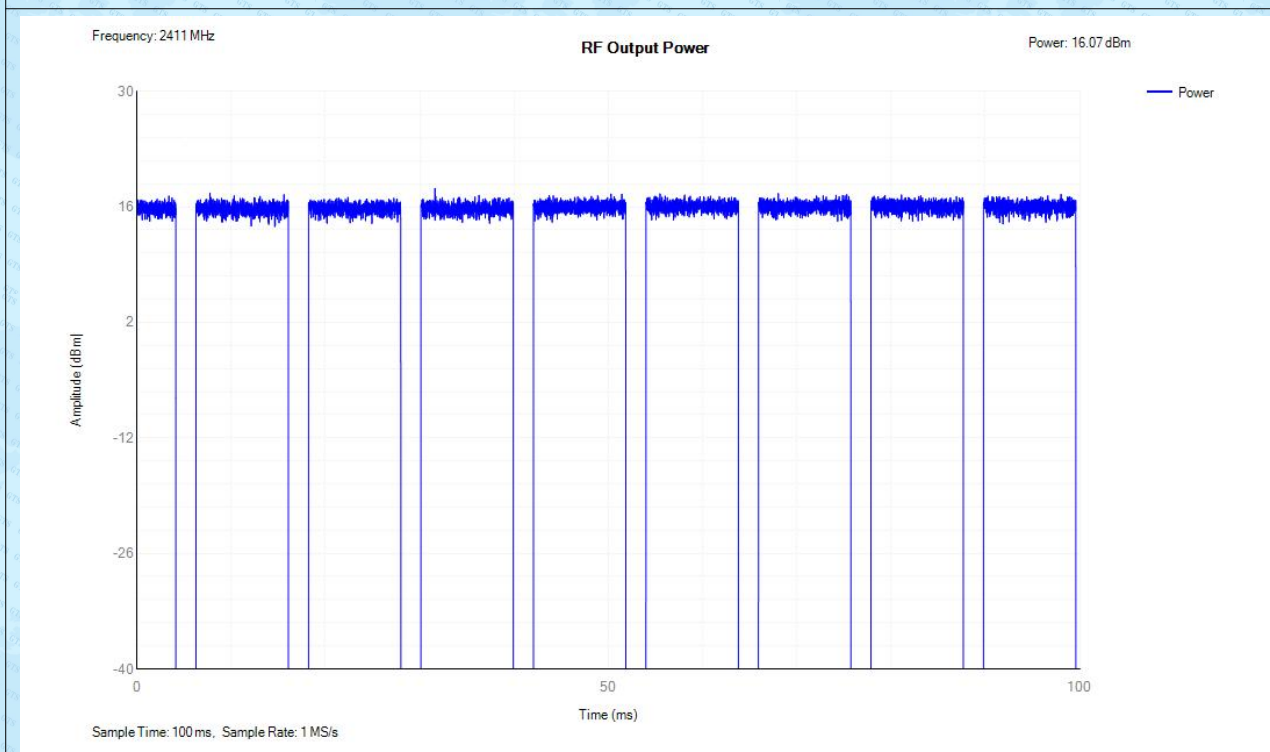
Power NVNT TX 2433MHz Ant1



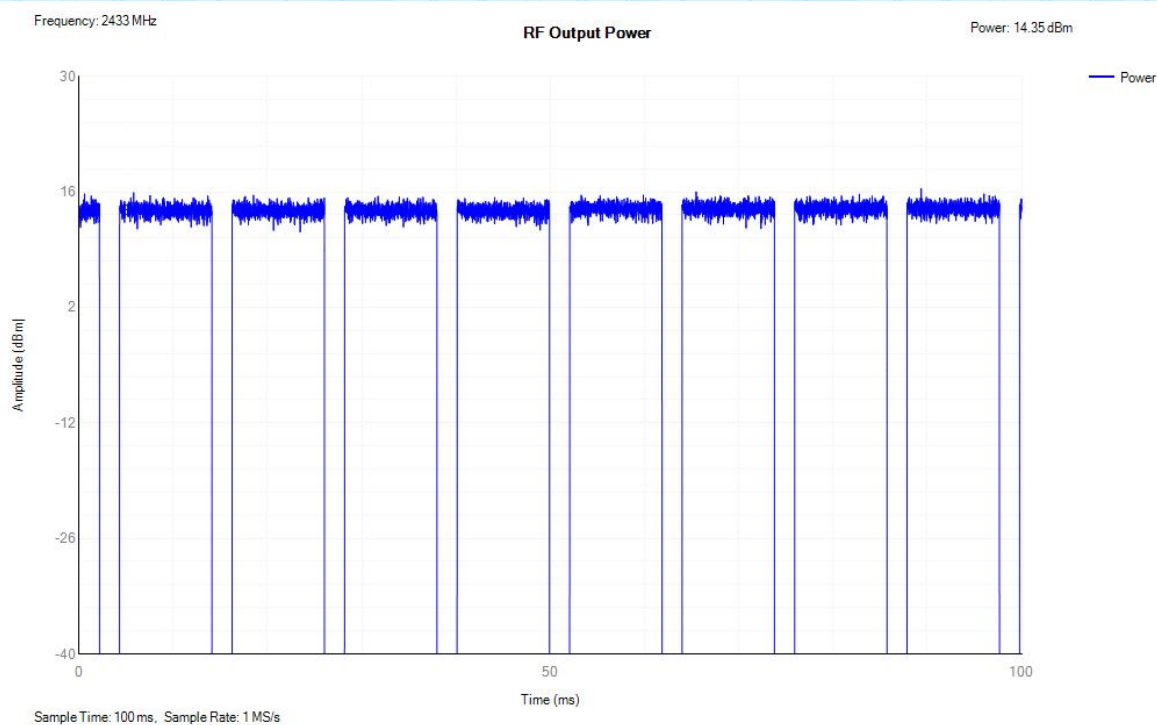
Power NVNT TX 2466MHz Ant1



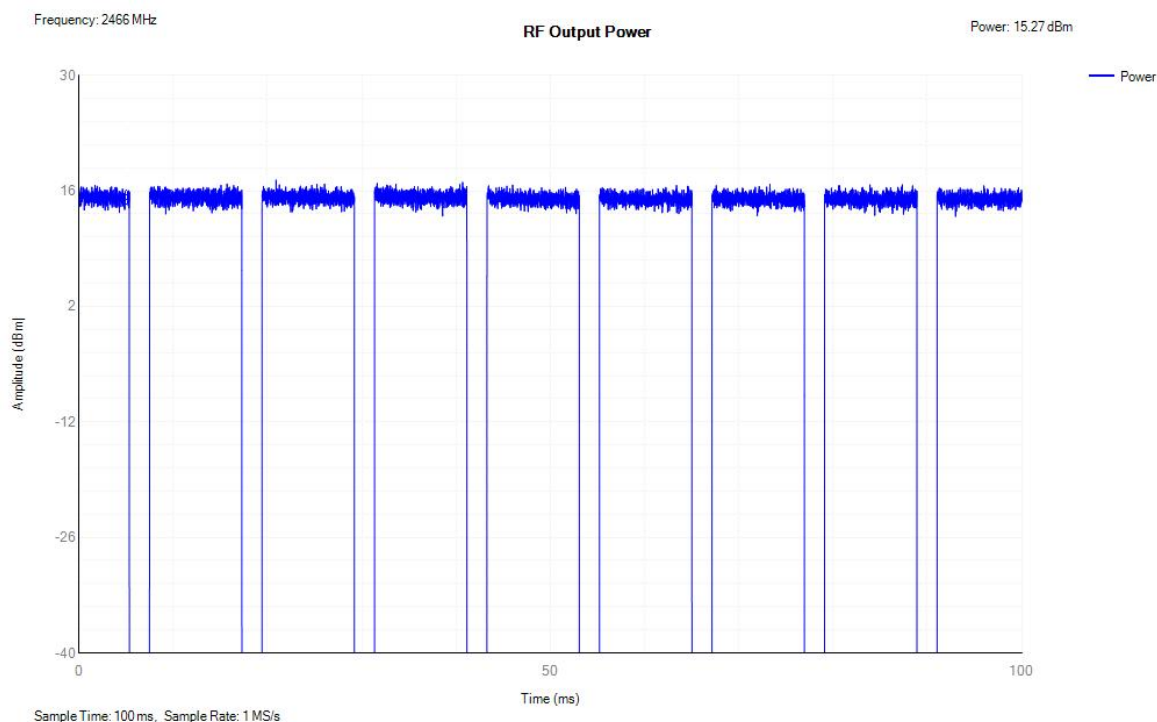
Power NVNT TX 2411MHz Ant2



Power NVNT TX 2433MHz Ant2



Power NVNT TX 2466MHz Ant2

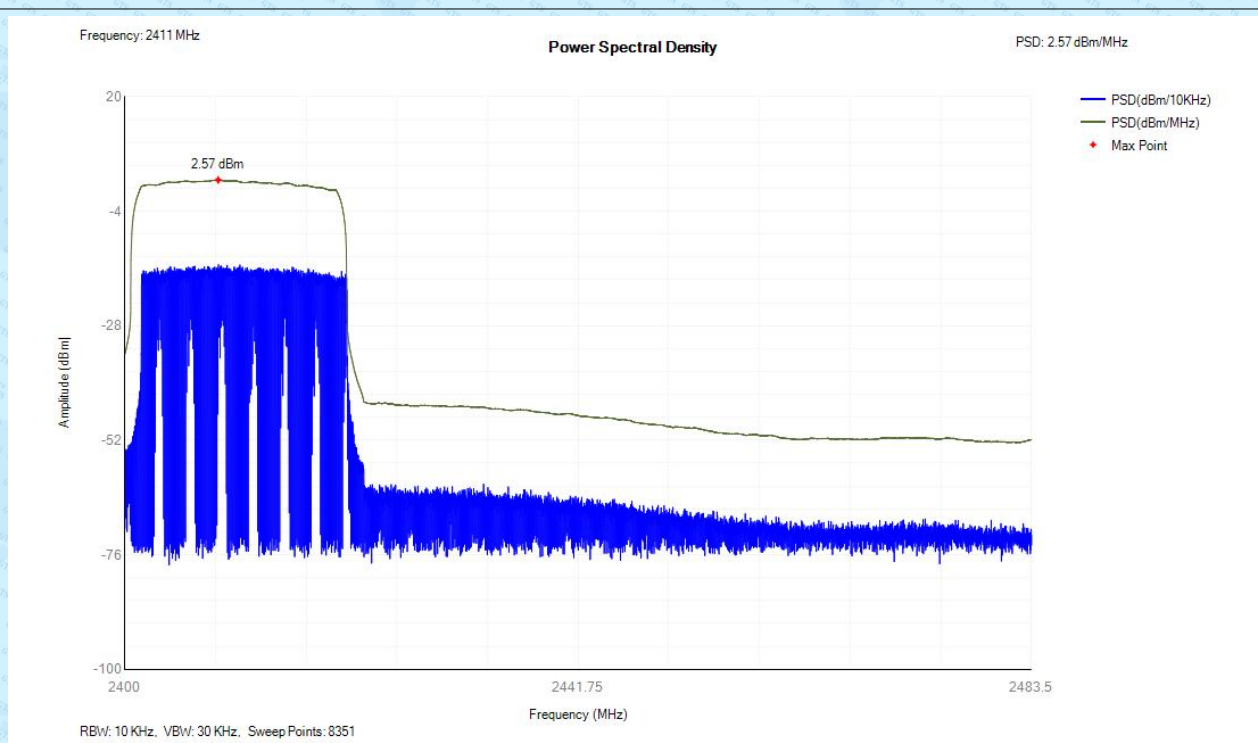


1.2 Power Spectral Density

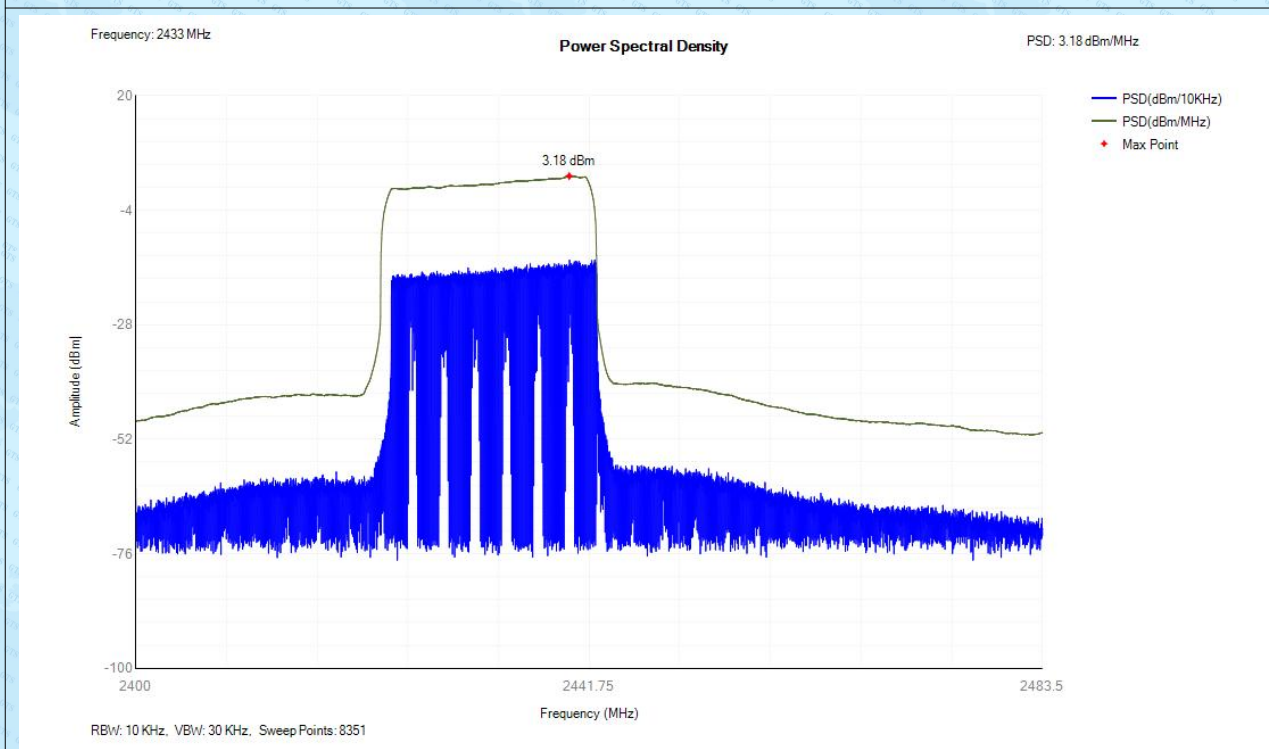
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	TX	2411	Ant1	2.57	10	Pass
		2433		3.18	10	Pass
		2466		4.17	10	Pass
		2411	Ant2	4.19	10	Pass
		2433		2.35	10	Pass
		2466		3.28	10	Pass

Test Graphs

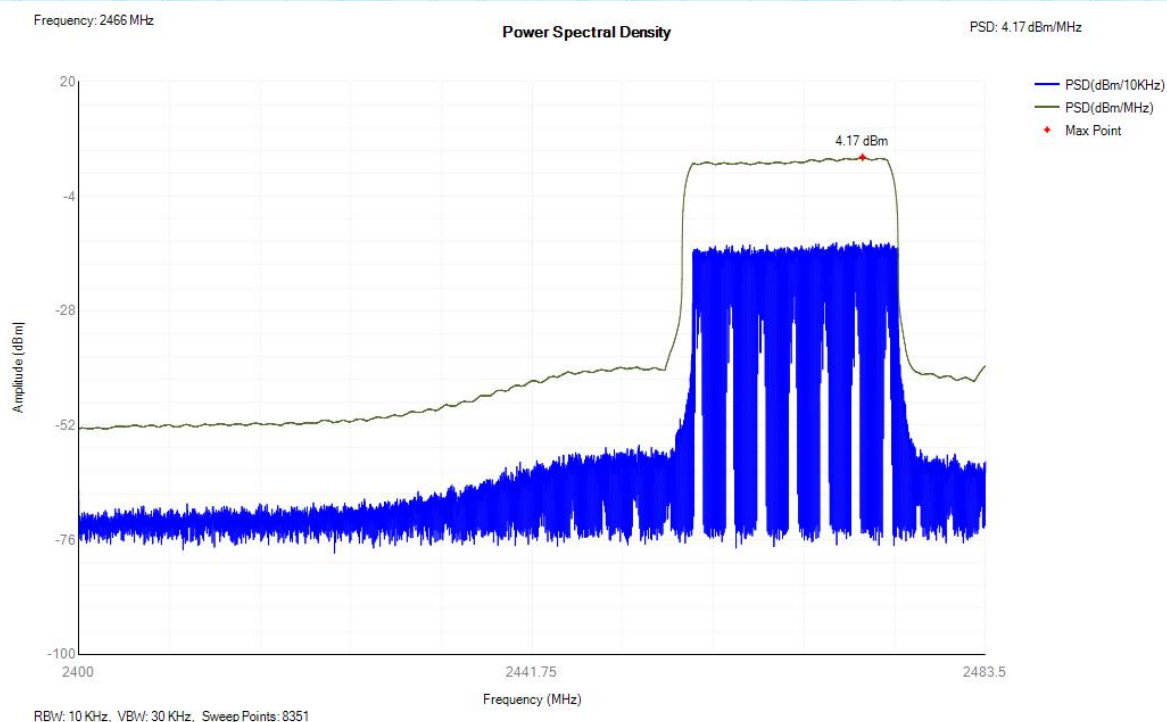
PSD NVNT TX 2411MHz Ant1



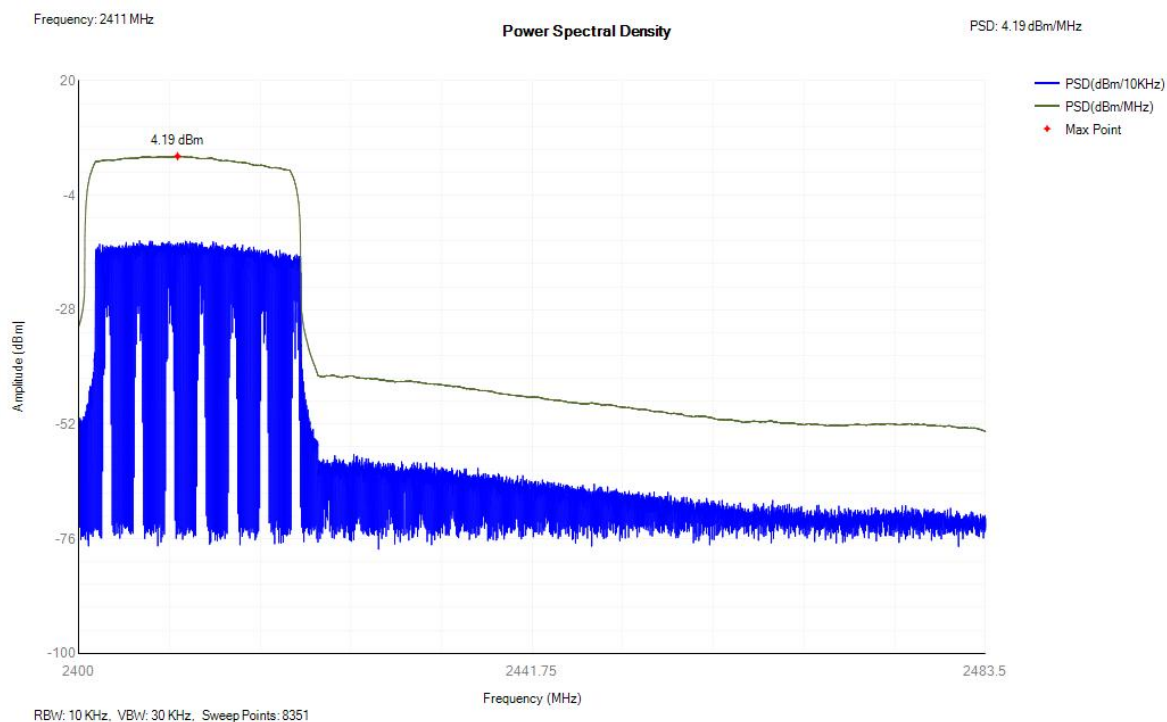
PSD NVNT TX 2433MHz Ant1



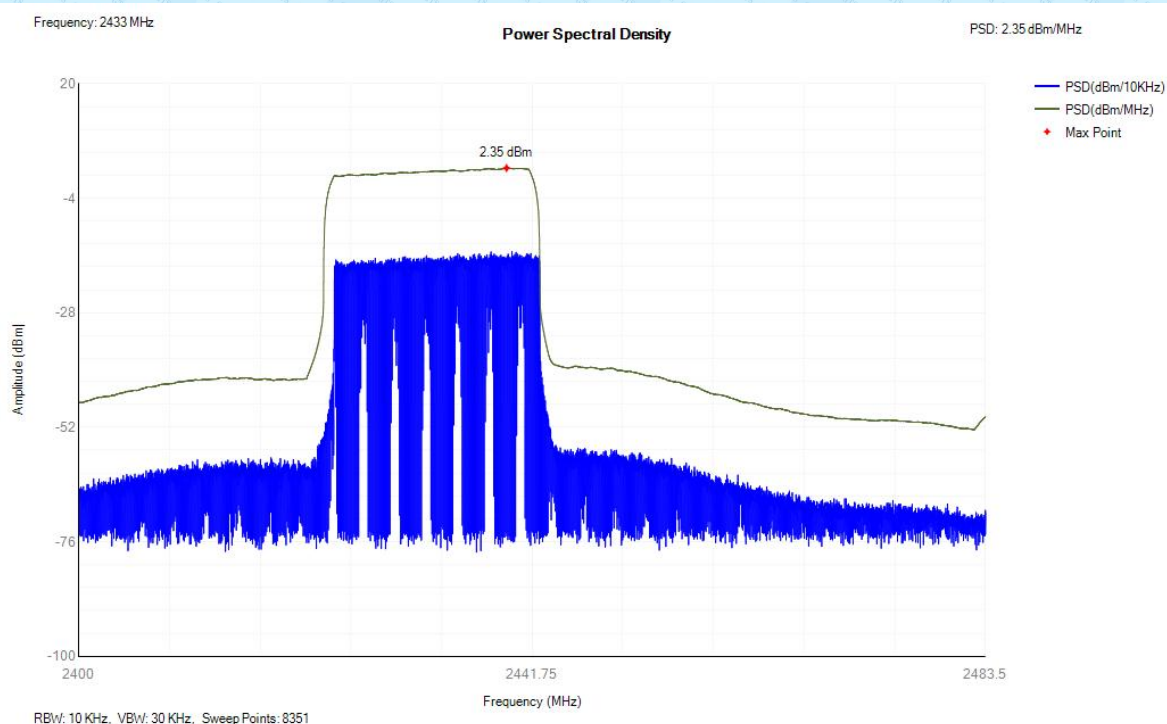
PSD NVNT TX 2466MHz Ant1



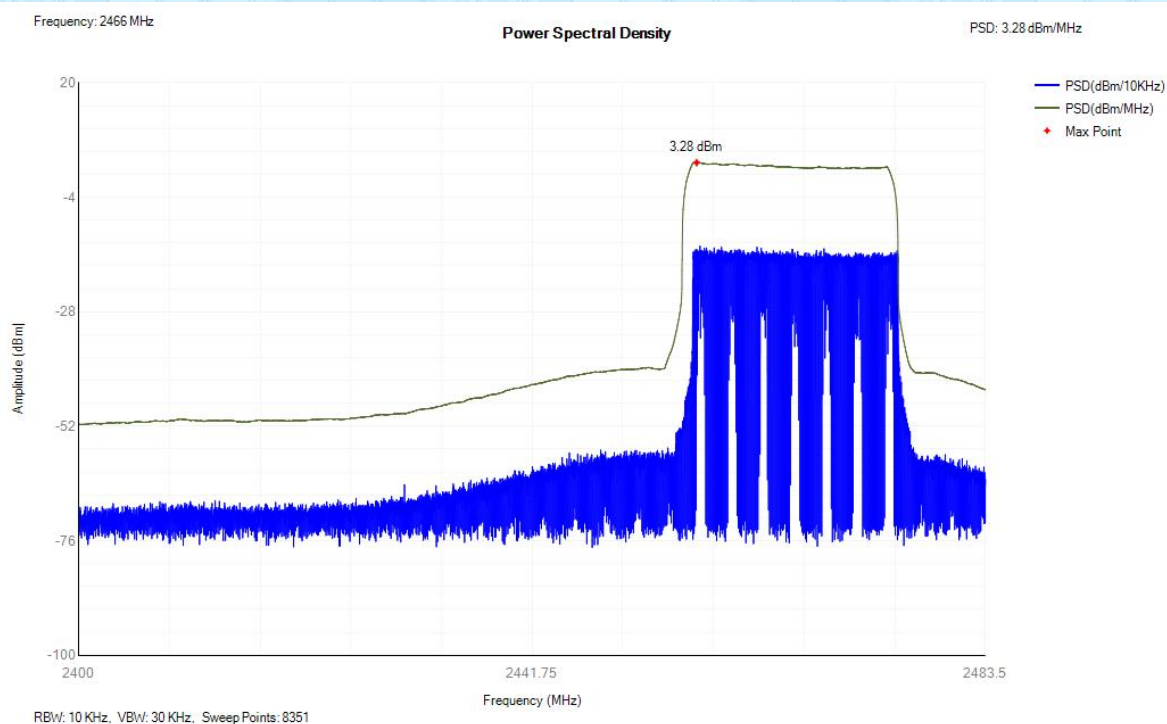
PSD NVNT TX 2411MHz Ant2



PSD NVNT TX 2433MHz Ant2



PSD NVNT TX 2466MHz Ant2

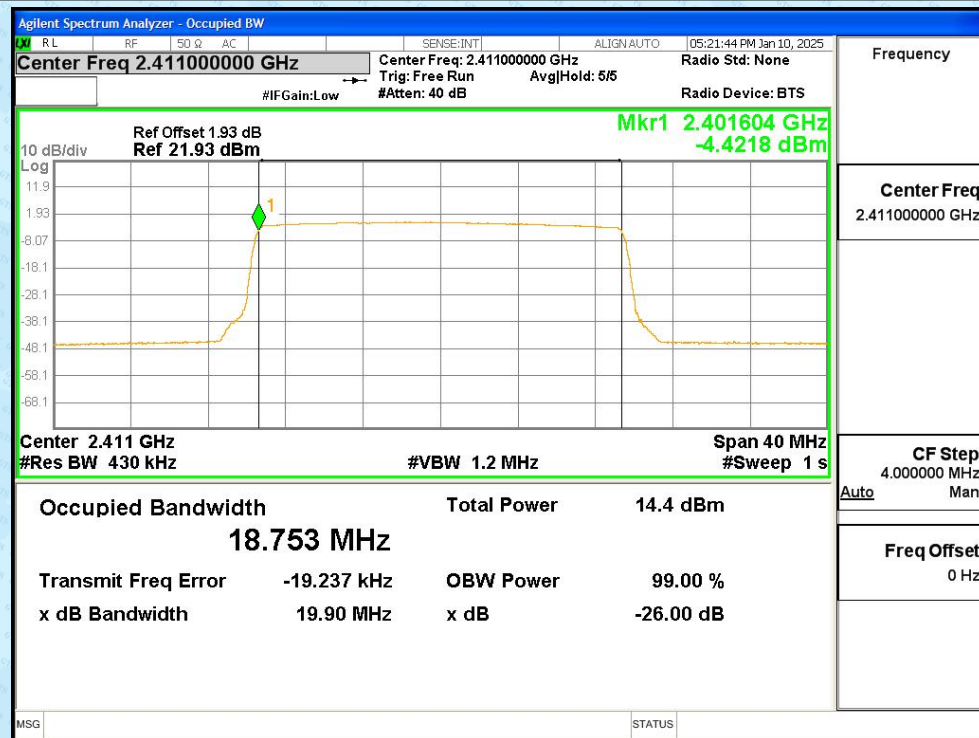


1.3 Occupied Channel Bandwidth

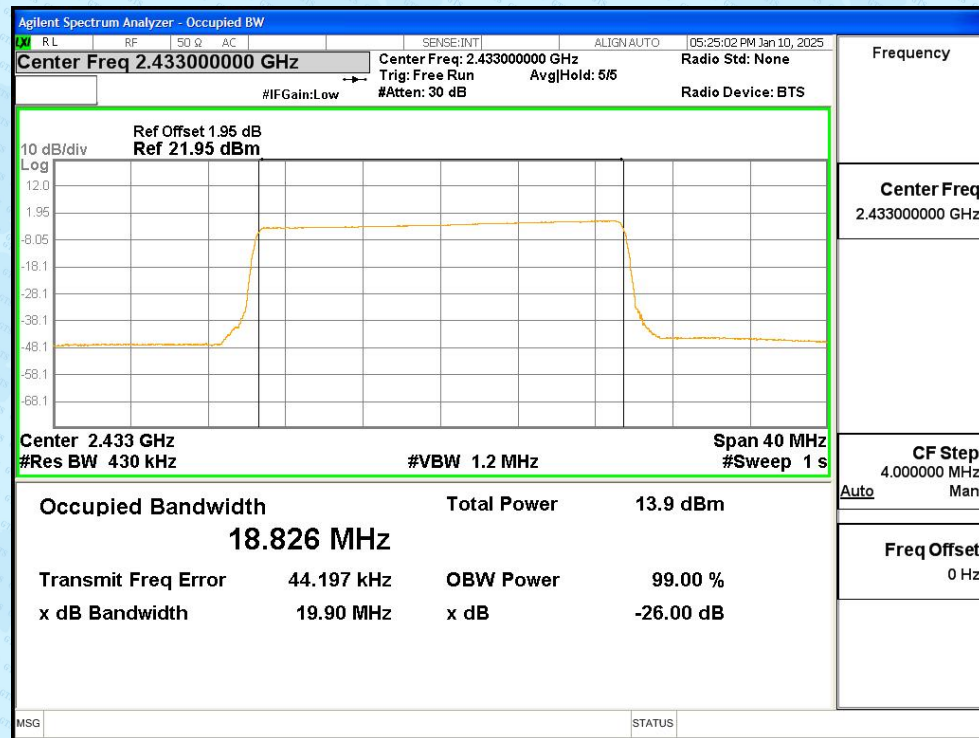
Condition	Mode	Frequency (MHz)	Antenna	Center Frequency (MHz)	OBW (MHz)	Lower Edge (MHz)	Upper Edge (MHz)	Limit OBW (MHz)	Verdict
NVNT	TX	2411	Ant1	2410.981	18.753	2401.604	2420.357	2400 - 2483.5MHz	Pass
		2433		2433.044	18.826	2423.631	2442.457	2400 - 2483.5MHz	Pass
		2466		2466.012	18.819	2456.603	2475.422	2400 - 2483.5MHz	Pass
		2411	Ant2	2410.96	18.735	2401.593	2420.328	2400 - 2483.5MHz	Pass
		2433		2433.025	18.818	2423.616	2442.435	2400 - 2483.5MHz	Pass
		2466		2465.98	18.841	2456.559	2475.4	2400 - 2483.5MHz	Pass

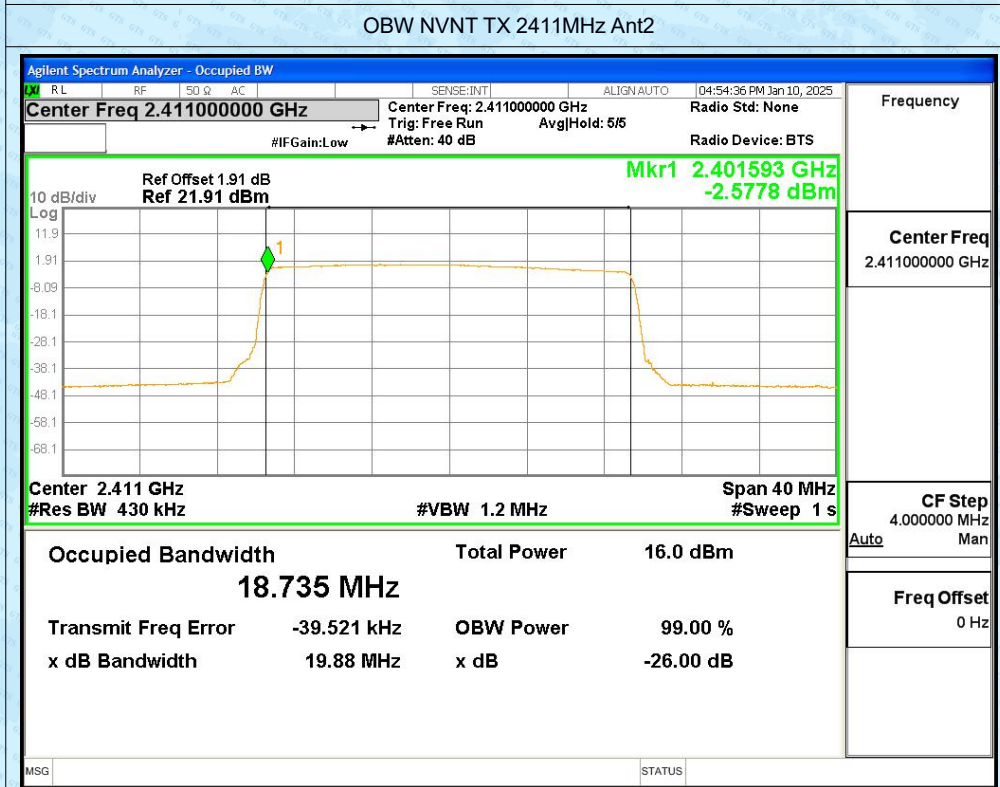
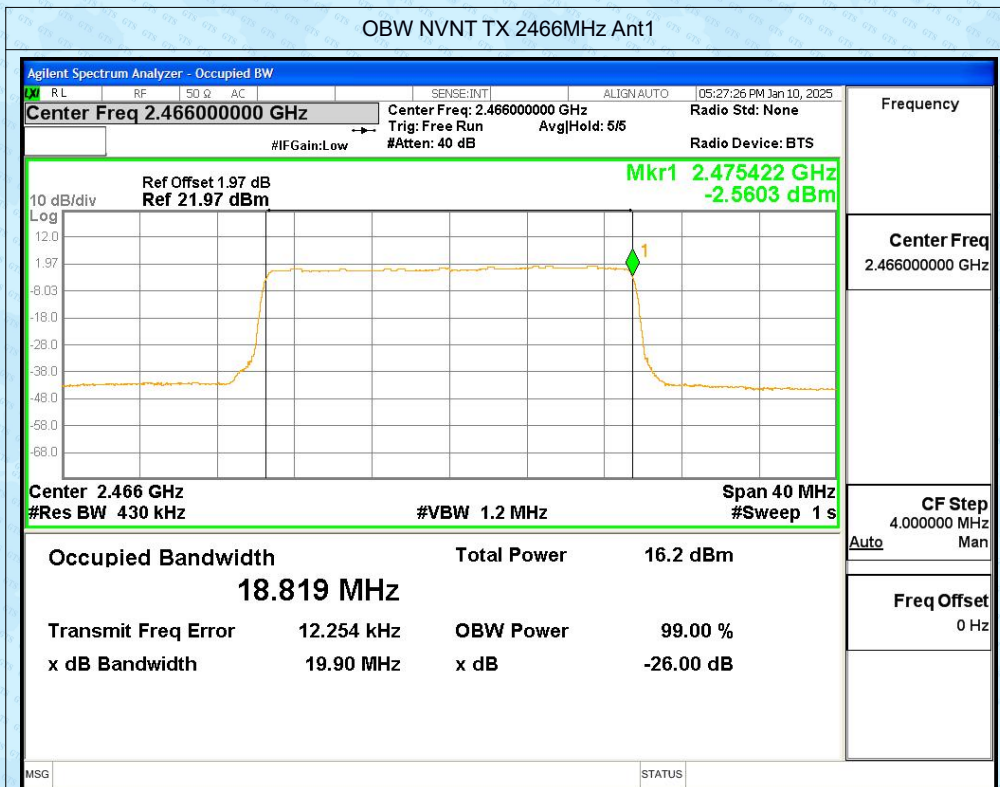
Test Graphs

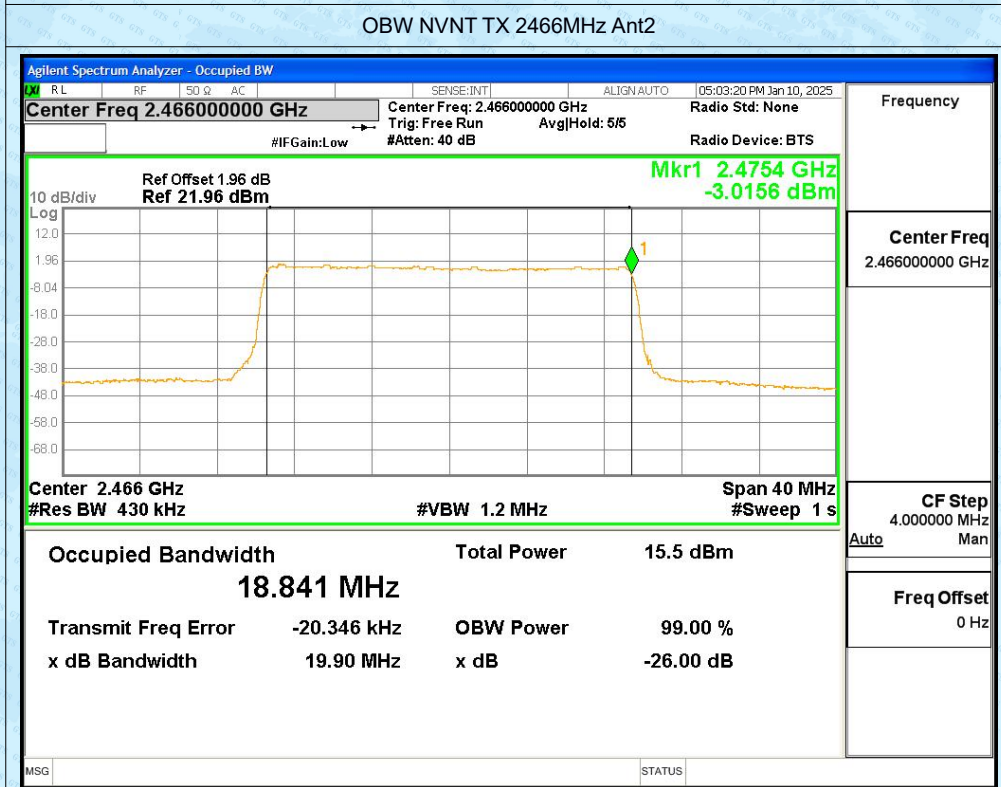
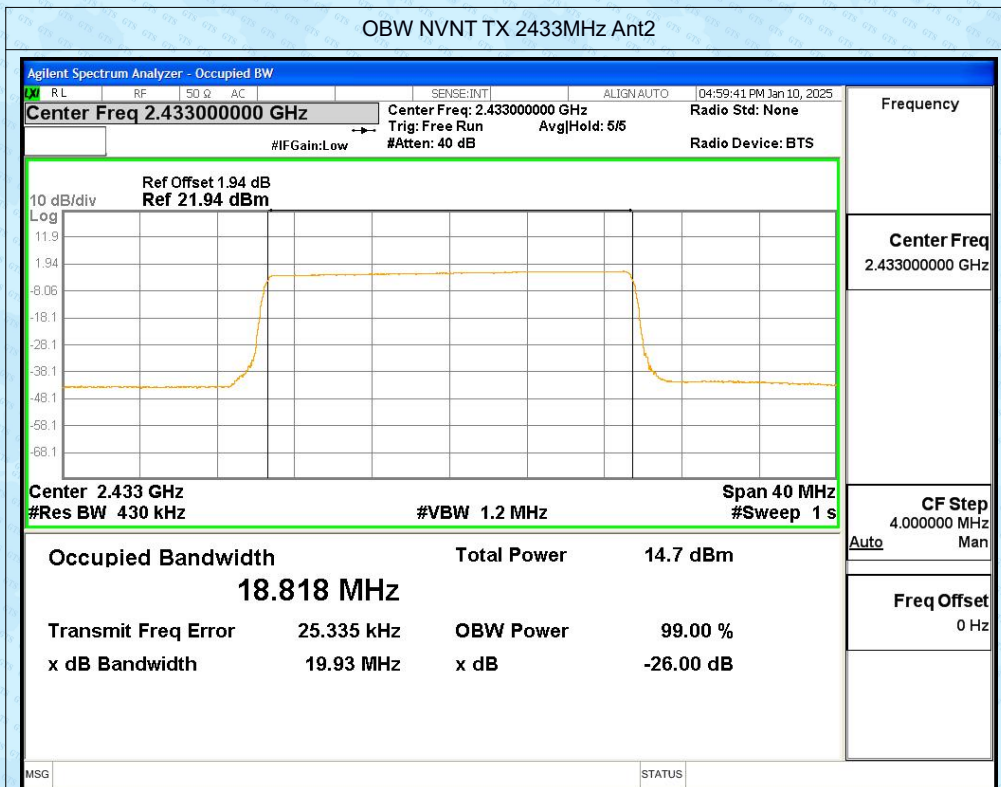
OBW NVNT TX 2411MHz Ant1



OBW NVNT TX 2433MHz Ant1







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

Condition	Mode	Frequency (MHz)	Antenna	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	TX	2411	Ant1	2399.5	-39.99	-10	Pass
				2398.5	-44	-10	Pass
				2397.5	-44.76	-10	Pass
				2396.5	-44.77	-10	Pass
				2395.5	-44.93	-10	Pass
				2394.5	-45.28	-10	Pass
				2393.5	-45.54	-10	Pass
				2392.5	-45.86	-10	Pass
				2391.5	-46.15	-10	Pass
				2390.5	-46.31	-10	Pass
				2389.5	-46.41	-10	Pass
				2388.5	-47.01	-10	Pass
				2387.5	-47.68	-10	Pass
				2386.5	-48.42	-10	Pass
				2385.5	-49.61	-10	Pass
				2384.5	-50.72	-10	Pass
				2383.5	-52.24	-10	Pass
				2382.5	-53.61	-10	Pass
				2381.747	-54.6	-10	Pass
				2380.747	-56.03	-20	Pass
				2379.747	-57.97	-20	Pass
				2378.747	-60.79	-20	Pass
				2377.747	-63.47	-20	Pass
				2376.747	-65.01	-20	Pass
				2375.747	-65.41	-20	Pass
				2374.747	-65.54	-20	Pass
				2373.747	-65.59	-20	Pass
				2372.747	-65.56	-20	Pass
				2371.747	-65.47	-20	Pass
				2370.747	-65.61	-20	Pass
				2369.747	-65.53	-20	Pass
				2368.747	-65.5	-20	Pass
				2367.747	-65.56	-20	Pass
				2366.747	-65.6	-20	Pass
				2365.747	-65.5	-20	Pass
				2364.747	-65.51	-20	Pass
				2363.747	-65.51	-20	Pass
				2362.994	-65.49	-20	Pass
		2466	Ant1	2484	-43.48	-10	Pass
				2485	-42.53	-10	Pass
				2486	-43.91	-10	Pass

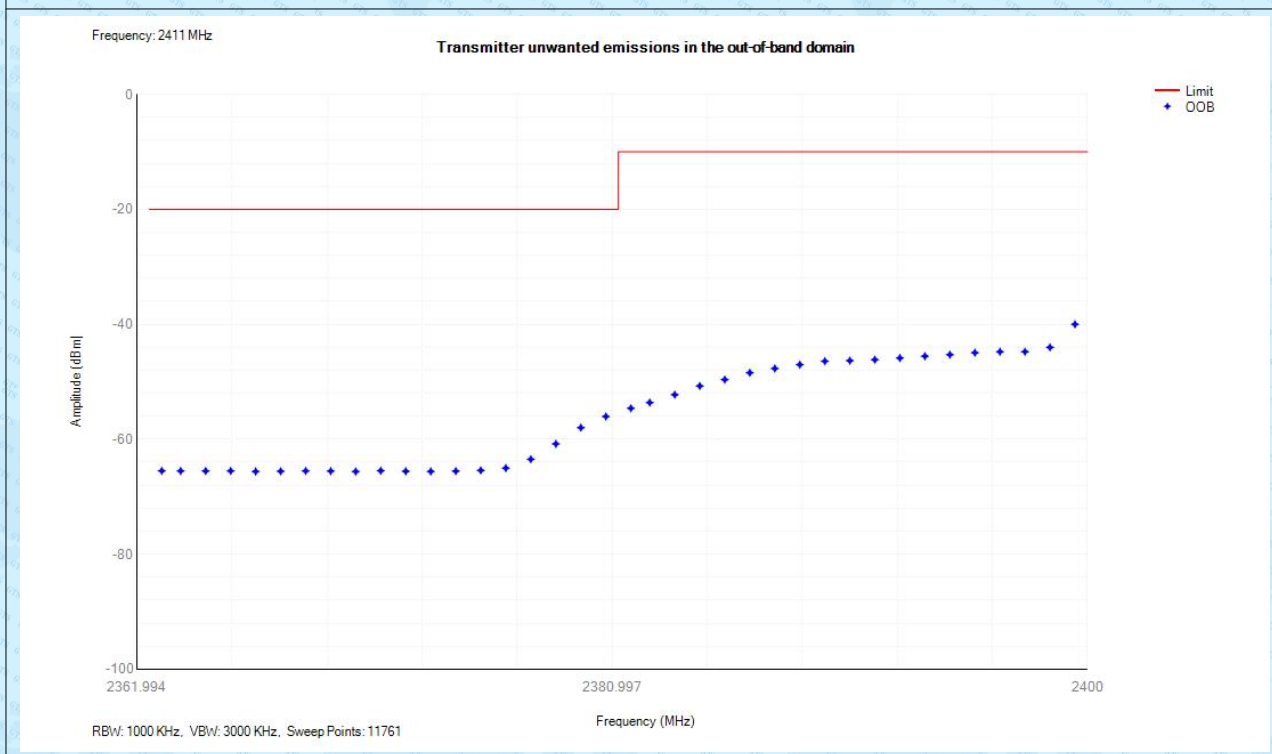
				2487	-44.44	-10	Pass
				2488	-43.94	-10	Pass
				2489	-44.99	-10	Pass
				2490	-46.55	-10	Pass
				2491	-49.59	-10	Pass
				2492	-52.95	-10	Pass
				2493	-57.52	-10	Pass
				2494	-62.85	-10	Pass
				2495	-65.04	-10	Pass
				2496	-65.34	-10	Pass
				2497	-65.3	-10	Pass
				2498	-65.36	-10	Pass
				2499	-65.38	-10	Pass
				2500	-65.44	-10	Pass
				2501	-65.31	-10	Pass
				2501.819	-65.38	-10	Pass
				2502.819	-65.35	-20	Pass
				2503.819	-65.37	-20	Pass
				2504.819	-65.44	-20	Pass
				2505.819	-65.35	-20	Pass
				2506.819	-65.36	-20	Pass
				2507.819	-65.37	-20	Pass
				2508.819	-65.38	-20	Pass
				2509.819	-65.31	-20	Pass
				2510.819	-65.39	-20	Pass
				2511.819	-65.34	-20	Pass
				2512.819	-65.37	-20	Pass
				2513.819	-65.35	-20	Pass
				2514.819	-65.34	-20	Pass
				2515.819	-65.27	-20	Pass
				2516.819	-65.33	-20	Pass
				2517.819	-65.33	-20	Pass
				2518.819	-65.32	-20	Pass
				2519.819	-65.31	-20	Pass
				2520.638	-65.31	-20	Pass
		2411	Ant2	2399.5	-33.22	-10	Pass
				2398.5	-39.65	-10	Pass
				2397.5	-41.26	-10	Pass
				2396.5	-41.68	-10	Pass
				2395.5	-41.71	-10	Pass
				2394.5	-42.08	-10	Pass
				2393.5	-42.41	-10	Pass
				2392.5	-42.61	-10	Pass
				2391.5	-42.89	-10	Pass

			2390.5	-43.1	-10	Pass
			2389.5	-43.38	-10	Pass
			2388.5	-43.75	-10	Pass
			2387.5	-44.45	-10	Pass
			2386.5	-45.27	-10	Pass
			2385.5	-46.21	-10	Pass
			2384.5	-47.48	-10	Pass
			2383.5	-48.87	-10	Pass
			2382.5	-50.55	-10	Pass
			2381.765	-51.64	-10	Pass
			2380.765	-53.11	-20	Pass
			2379.765	-54.9	-20	Pass
			2378.765	-57.73	-20	Pass
			2377.765	-61.2	-20	Pass
			2376.765	-63.96	-20	Pass
			2375.765	-65.05	-20	Pass
			2374.765	-65.3	-20	Pass
			2373.765	-65.44	-20	Pass
			2372.765	-65.38	-20	Pass
			2371.765	-65.32	-20	Pass
			2370.765	-65.38	-20	Pass
			2369.765	-65.31	-20	Pass
			2368.765	-65.44	-20	Pass
			2367.765	-65.58	-20	Pass
			2366.765	-65.6	-20	Pass
			2365.765	-65.48	-20	Pass
			2364.765	-65.56	-20	Pass
			2363.765	-65.63	-20	Pass
			2363.03	-65.52	-20	Pass
		2466	2484	-44.77	-10	Pass
			2485	-45.15	-10	Pass
			2486	-45.58	-10	Pass
			2487	-44.63	-10	Pass
			2488	-45.05	-10	Pass
			2489	-46.83	-10	Pass
			2490	-47.87	-10	Pass
			2491	-48.51	-10	Pass
			2492	-50.8	-10	Pass
			2493	-55.61	-10	Pass
			2494	-61.09	-10	Pass
			2495	-64.33	-10	Pass
			2496	-65.08	-10	Pass
			2497	-65.31	-10	Pass
			2498	-65.32	-10	Pass

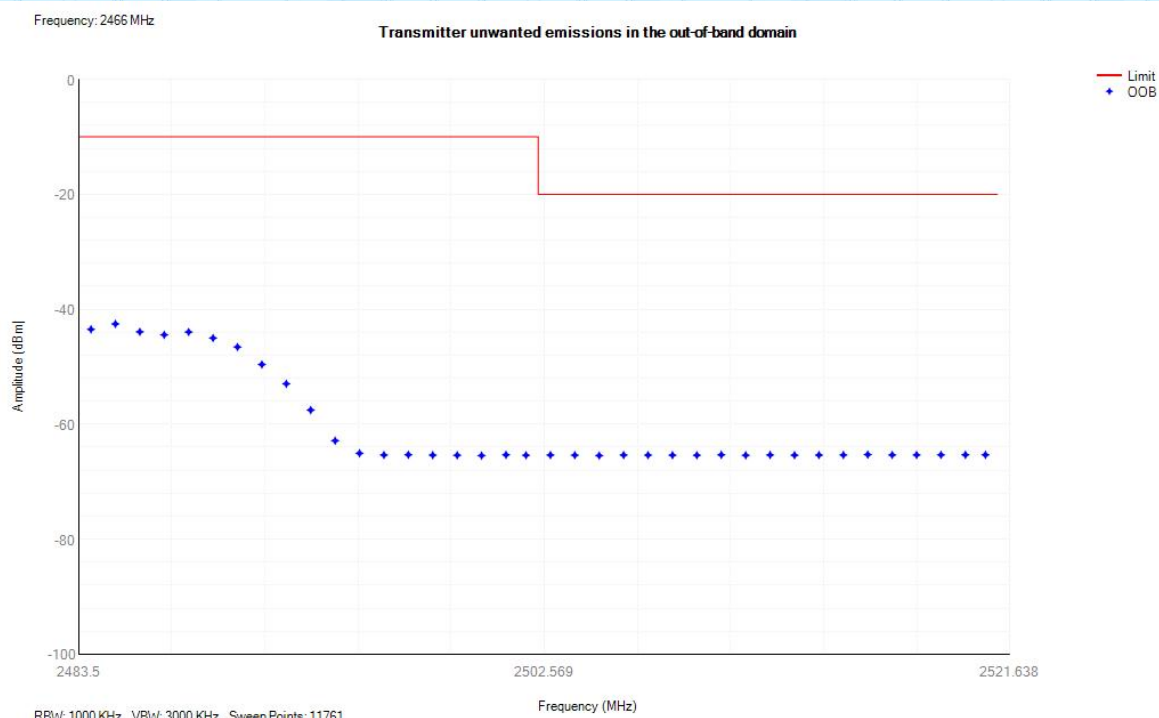
				2499	-65.36	-10	Pass
				2500	-65.33	-10	Pass
				2501	-65.31	-10	Pass
				2501.841	-65.37	-10	Pass
				2502.841	-65.37	-20	Pass
				2503.841	-65.34	-20	Pass
				2504.841	-65.29	-20	Pass
				2505.841	-65.38	-20	Pass
				2506.841	-65.41	-20	Pass
				2507.841	-65.38	-20	Pass
				2508.841	-65.35	-20	Pass
				2509.841	-65.33	-20	Pass
				2510.841	-65.38	-20	Pass
				2511.841	-65.29	-20	Pass
				2512.841	-65.33	-20	Pass
				2513.841	-65.29	-20	Pass
				2514.841	-65.38	-20	Pass
				2515.841	-65.32	-20	Pass
				2516.841	-65.3	-20	Pass
				2517.841	-65.28	-20	Pass
				2518.841	-65.31	-20	Pass
				2519.841	-65.35	-20	Pass
				2520.682	-65.28	-20	Pass

Test Graphs

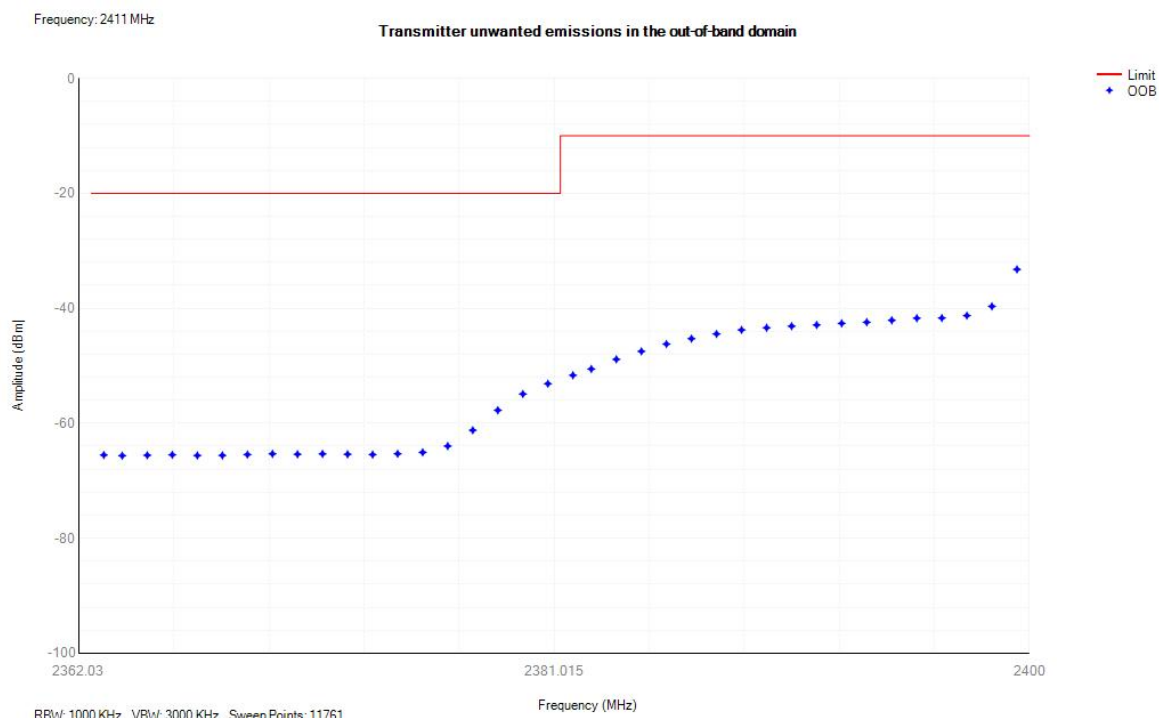
Tx. Emissions OOB NVNT TX 2411MHz Ant1

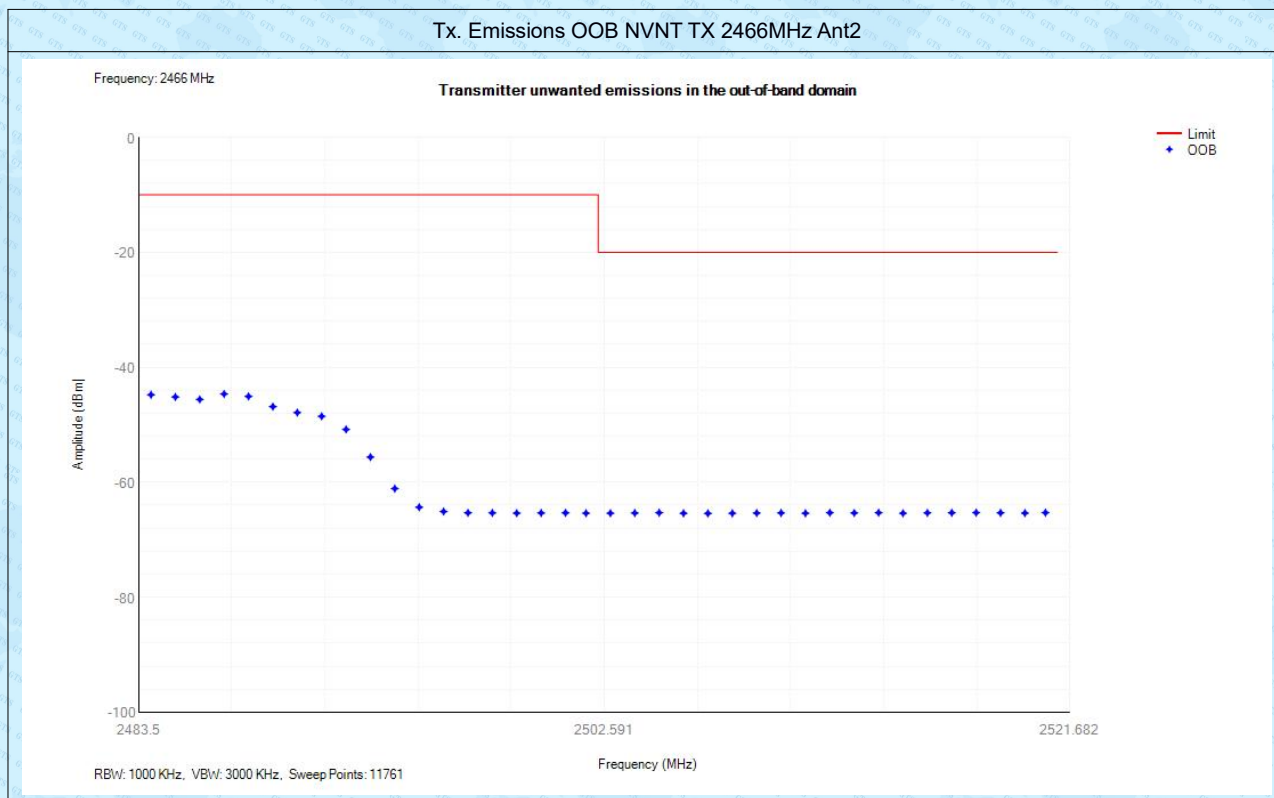


Tx. Emissions OOB NVNT TX 2466MHz Ant1



Tx. Emissions OOB NVNT TX 2411MHz Ant2





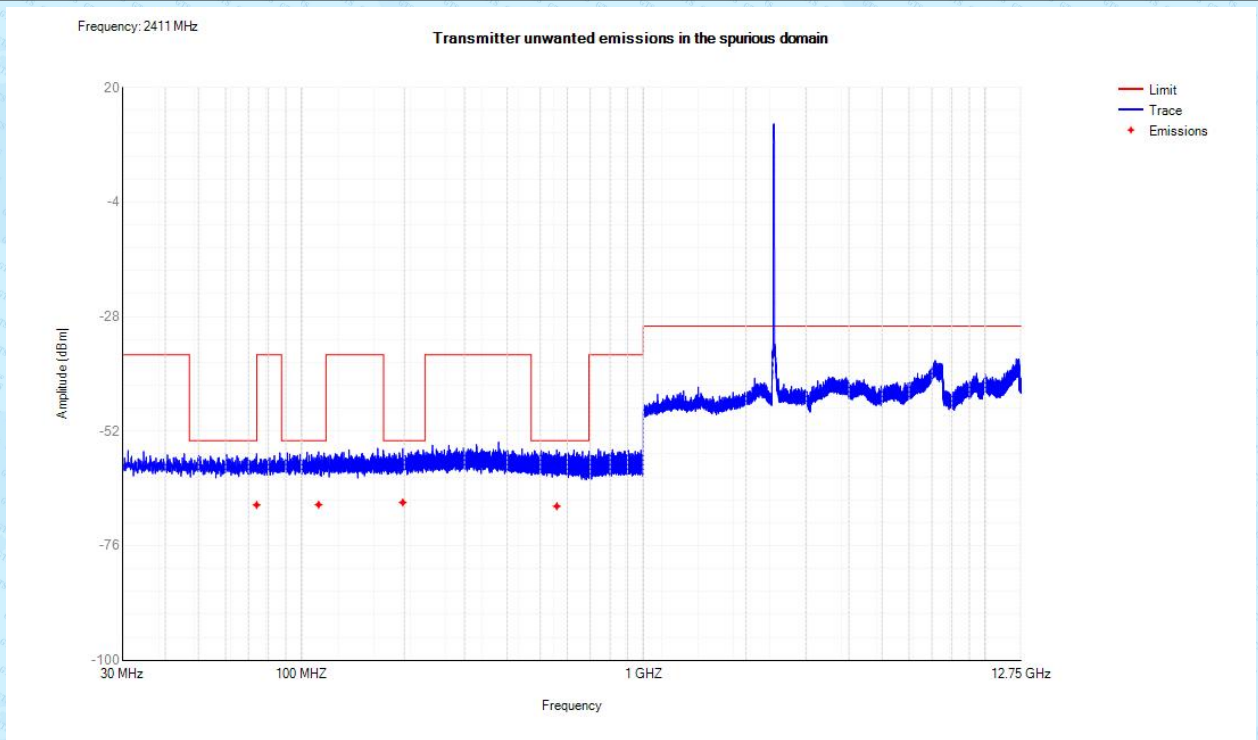
1.5 Transmitter unwanted emissions in the spurious domain

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	TX	2411	Ant1	30 -47	31.10	-56.07	NA	-36	Pass
				47 -74	73.95	-56.72	-67.46	-54	Pass
				74 -87.5	86.50	-56.54	NA	-36	Pass
				87.5 -118	112.25	-56.33	-67.41	-54	Pass
				118 -174	167.25	-55.60	NA	-36	Pass
				174 -230	197.95	-55.67	-66.94	-54	Pass
				230 -470	377.70	-54.29	NA	-36	Pass
				470 -694	558.85	-55.90	-67.73	-54	Pass
				694 -1000	739.65	-55.79	NA	-36	Pass
				1000 -2360	2119.50	-40.90	NA	-30	Pass
				2523.5 -12750	12347.00	-36.86	NA	-30	Pass
		30 -47		43.30	-66.21	NA	-36	Pass	
		47 -74		65.60	-67.38	NA	-54	Pass	
		74 -87.5		78.40	-66.34	NA	-36	Pass	
		87.5 -118		96.00	-66.88	NA	-54	Pass	
		118 -174		171.95	-66.53	NA	-36	Pass	
		174 -230		187.60	-65.86	NA	-54	Pass	
		230 -470		269.95	-64.96	NA	-36	Pass	
		470 -694		622.80	-66.28	NA	-54	Pass	
		694 -1000		853.65	-65.89	NA	-36	Pass	
		1000 -2360		2163.50	-51.35	NA	-30	Pass	
		2523.5 -12750		4869.00	-41.85	NA	-30	Pass	
		30 -47		31.00	-66.93	NA	-36	Pass	
		47 -74		56.70	-65.38	NA	-54	Pass	
		74 -87.5		77.65	-67.42	NA	-36	Pass	
		87.5 -118		111.25	-66.71	NA	-54	Pass	
		118 -174		140.90	-66.68	NA	-36	Pass	
		174 -230		200.00	-66.10	NA	-54	Pass	
		230 -470		270.00	-65.10	NA	-36	Pass	
		470 -694		496.10	-65.63	NA	-54	Pass	
		694 -1000		809.25	-65.01	NA	-36	Pass	
		1000 -2360		2159.00	-51.82	NA	-30	Pass	
		2523.5 -12750		4933.00	-37.44	NA	-30	Pass	
		30 -47		46.90	-52.81	NA	-36	Pass	
		47 -74		70.05	-52.03	-63.74	-54	Pass	
		74 -87.5		84.80	-52.26	NA	-36	Pass	
		87.5 -118		88.05	-51.26	-63.64	-54	Pass	

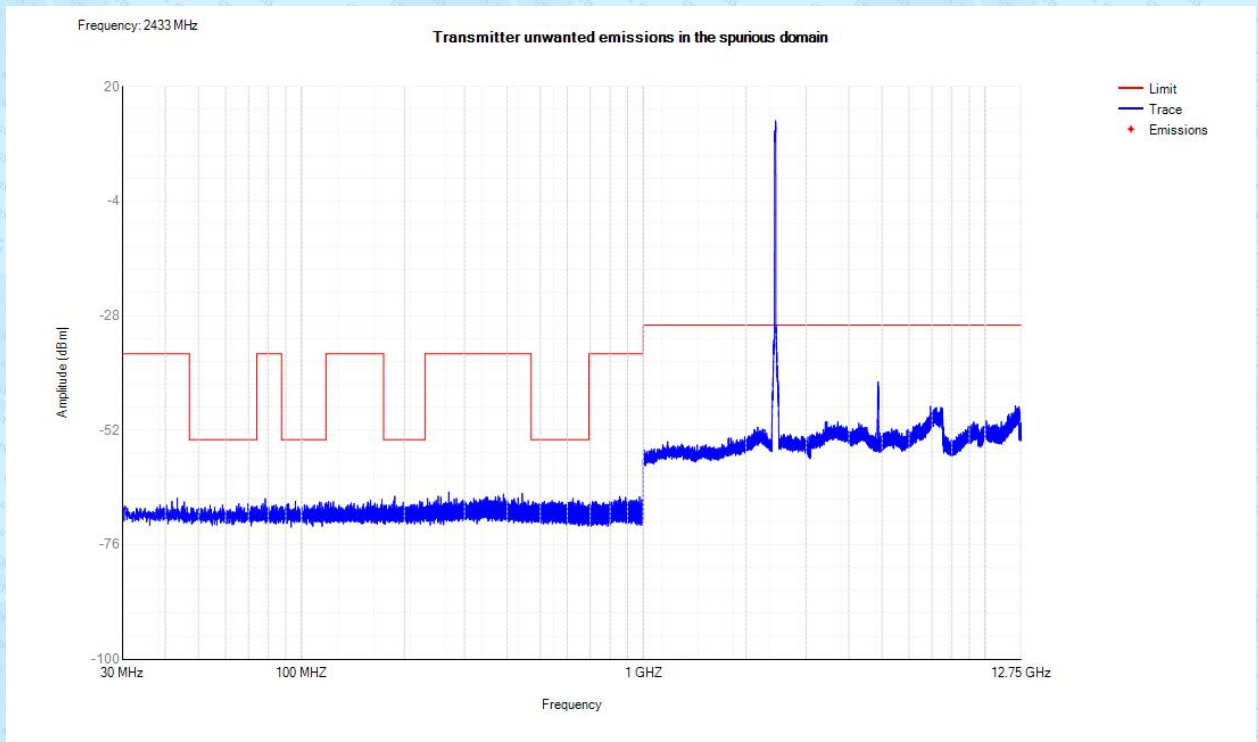
		2433	118 -174	168.65	-49.82	NA	-36	Pass
			174 -230	225.10	-49.13	-60.87	-54	Pass
			230 -470	236.95	-47.85	NA	-36	Pass
			470 -694	617.15	-50.55	-62.75	-54	Pass
			694 -1000	768.45	-50.92	NA	-36	Pass
			1000 -2360	1446.50	-36.05	NA	-30	Pass
			2523.5	4828.00	-41.57	NA	-30	Pass
			-12750					
			30 -47	37.30	-66.70	NA	-36	Pass
			47 -74	73.95	-67.05	NA	-54	Pass
			74 -87.5	80.05	-66.91	NA	-36	Pass
			87.5 -118	104.70	-66.52	NA	-54	Pass
		2466	118 -174	169.50	-66.64	NA	-36	Pass
			174 -230	175.95	-65.87	NA	-54	Pass
			230 -470	269.95	-64.49	NA	-36	Pass
			470 -694	498.05	-66.02	NA	-54	Pass
			694 -1000	914.55	-66.09	NA	-36	Pass
			1000 -2360	1864.00	-51.91	NA	-30	Pass
			2523.5	4871.50	-41.49	NA	-30	Pass
			-12750					
			30 -47	35.35	-66.05	NA	-36	Pass
			47 -74	56.75	-66.23	NA	-54	Pass
			74 -87.5	77.50	-67.17	NA	-36	Pass
			87.5 -118	117.05	-66.53	NA	-54	Pass
			118 -174	168.20	-66.51	NA	-36	Pass
			174 -230	220.00	-66.47	NA	-54	Pass
			230 -470	321.75	-64.62	NA	-36	Pass
			470 -694	486.30	-65.85	NA	-54	Pass
			694 -1000	881.10	-66.10	NA	-36	Pass
			1000 -2360	2195.00	-51.44	NA	-30	Pass
			2523.5	4932.50	-37.73	NA	-30	Pass
			-12750					

Test Graphs

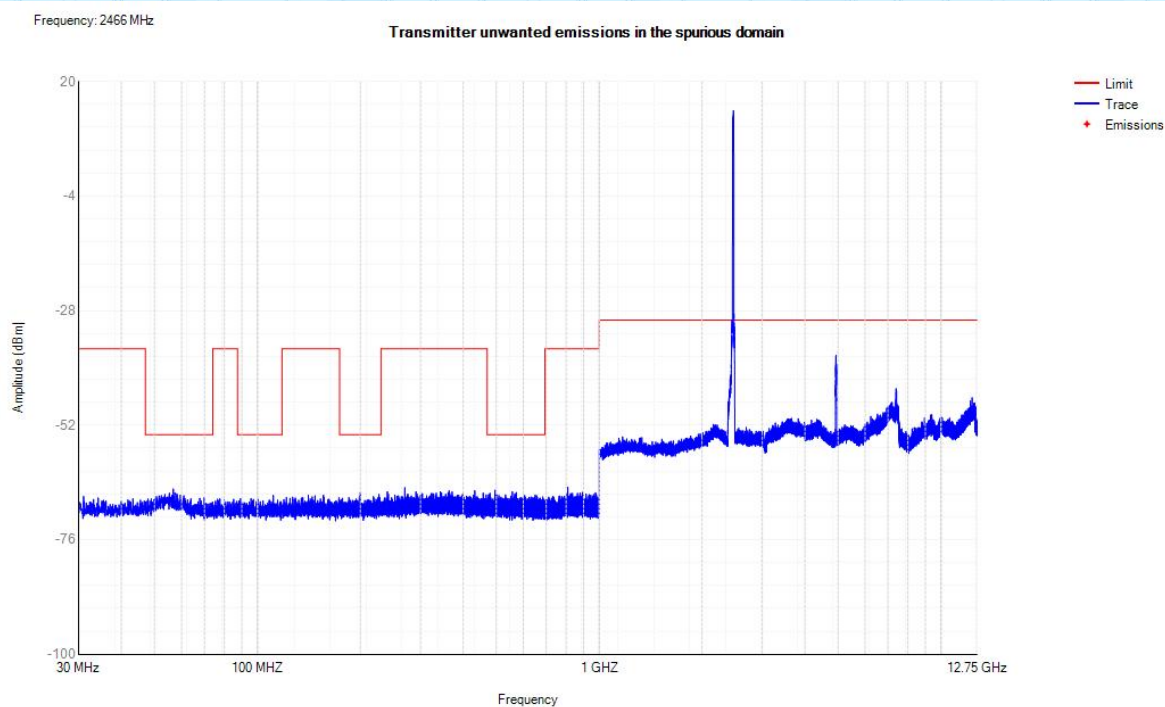
Tx. Spurious NVNT TX 2411MHz Ant1



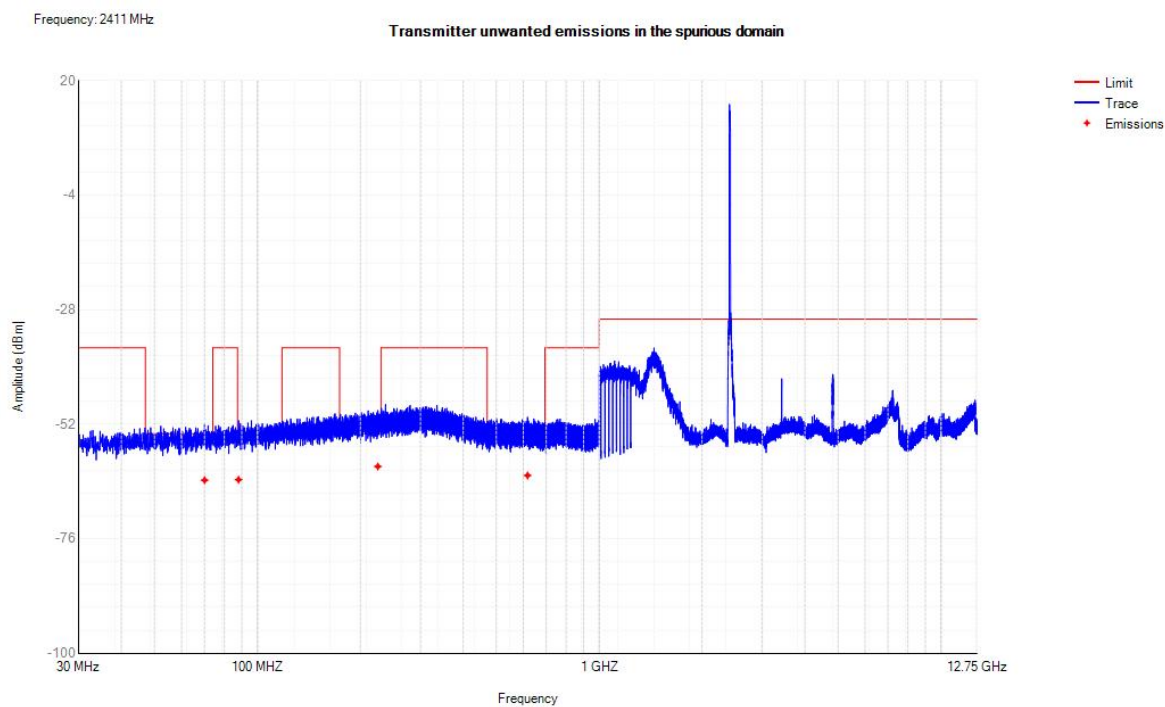
Tx. Spurious NVNT TX 2433MHz Ant1



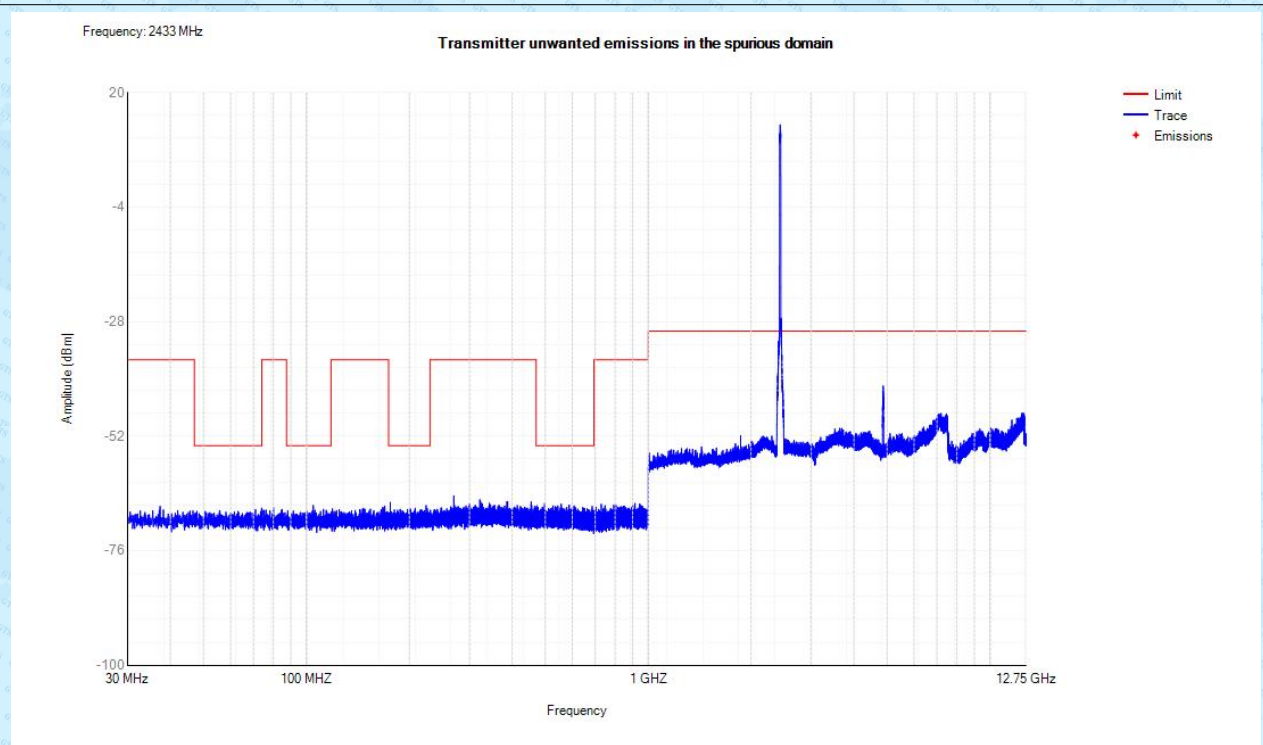
Tx. Spurious NVNT TX 2466MHz Ant1



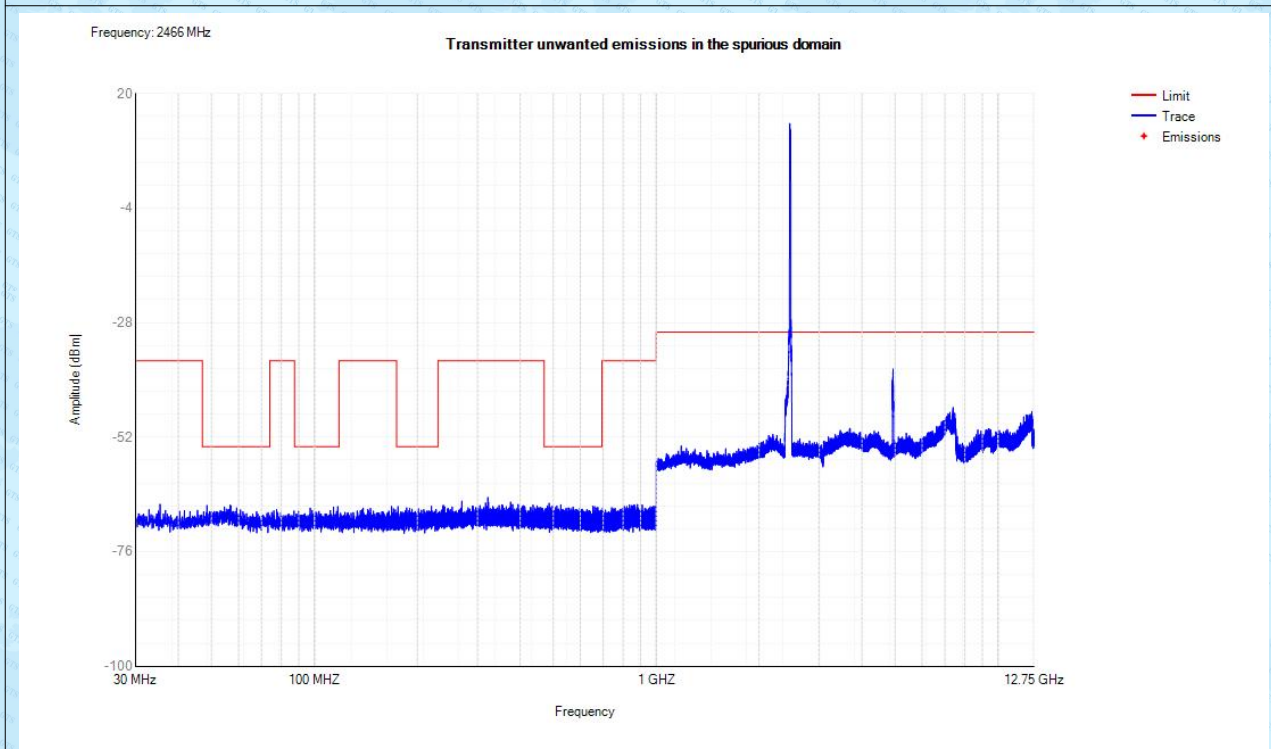
Tx. Spurious NVNT TX 2411MHz Ant2



Tx. Spurious NVNT TX 2433MHz Ant2



Tx. Spurious NVNT TX 2466MHz Ant2

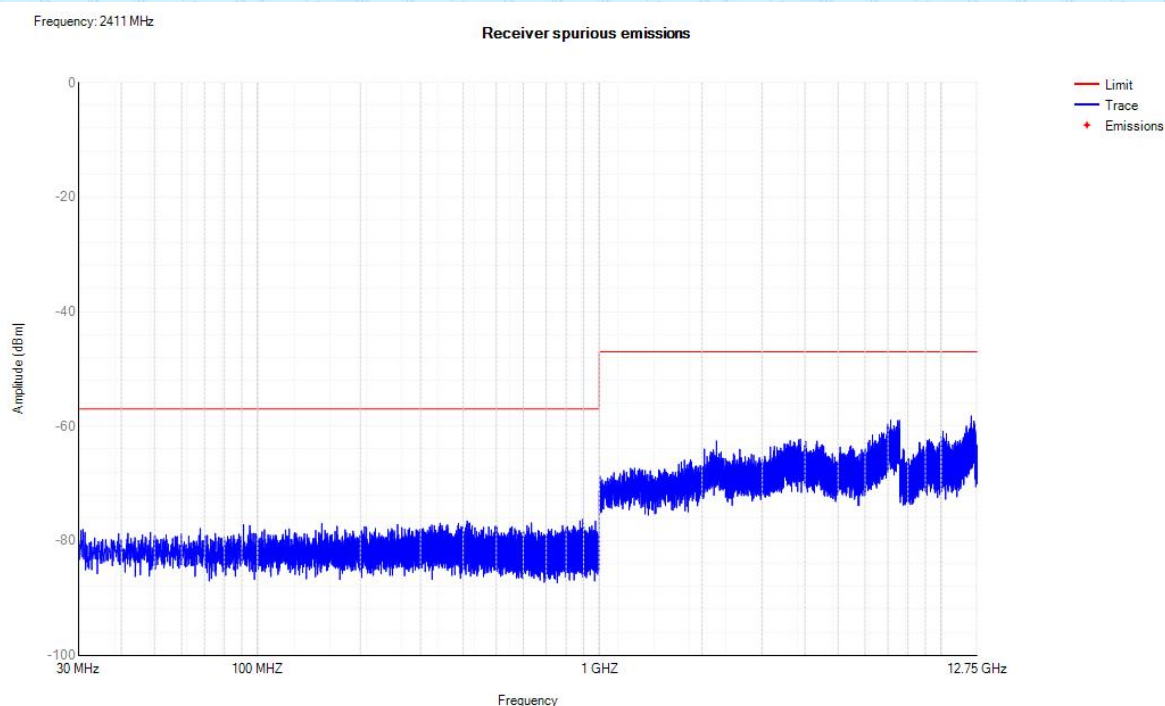


1.6 Receiver spurious emissions

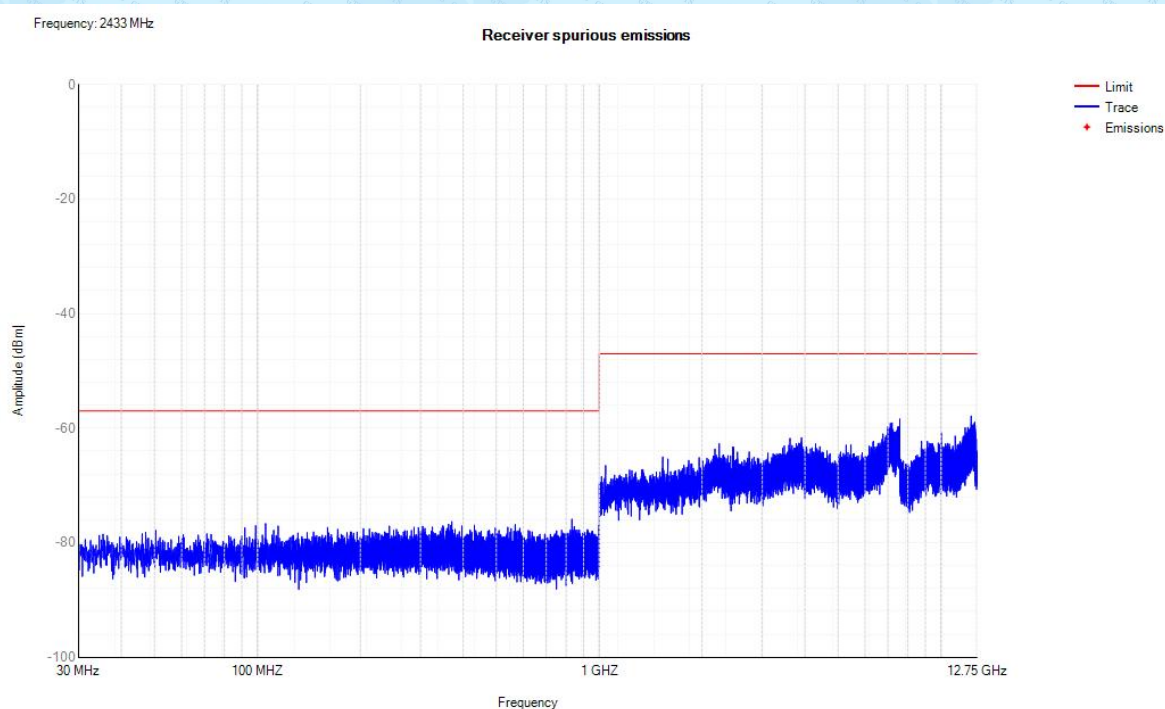
Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	RX	2411	Ant1	30 -1000	896.3	-76.26	NA	-57	Pass
				1000 -12750	12268	-58.23	NA	-47	Pass
		2433		30 -1000	832.5	-75.89	NA	-57	Pass
				1000 -12750	12258	-57.88	NA	-47	Pass
		2466		30 -1000	109.4	-76.46	NA	-57	Pass
				1000 -12750	7192.5	-57.05	NA	-47	Pass
		2411	Ant2	30 -1000	315.6	-75.54	NA	-57	Pass
				1000 -12750	7504	-57.87	NA	-47	Pass
		2433		30 -1000	264.65	-75.76	NA	-57	Pass
				1000 -12750	7145	-58.32	NA	-47	Pass
		2466		30 -1000	302.65	-75.90	NA	-57	Pass
				1000 -12750	12372.5	-58.63	NA	-47	Pass

Test Graphs

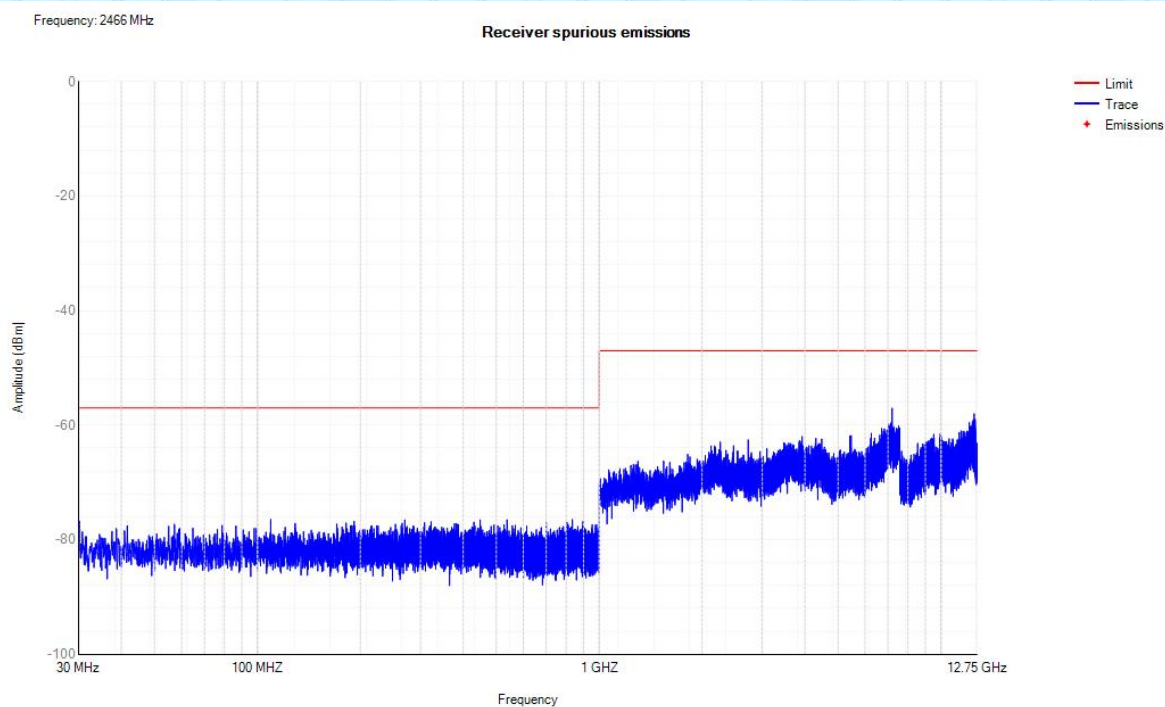
Rx. Spurious NVNT RX 2411MHz Ant1



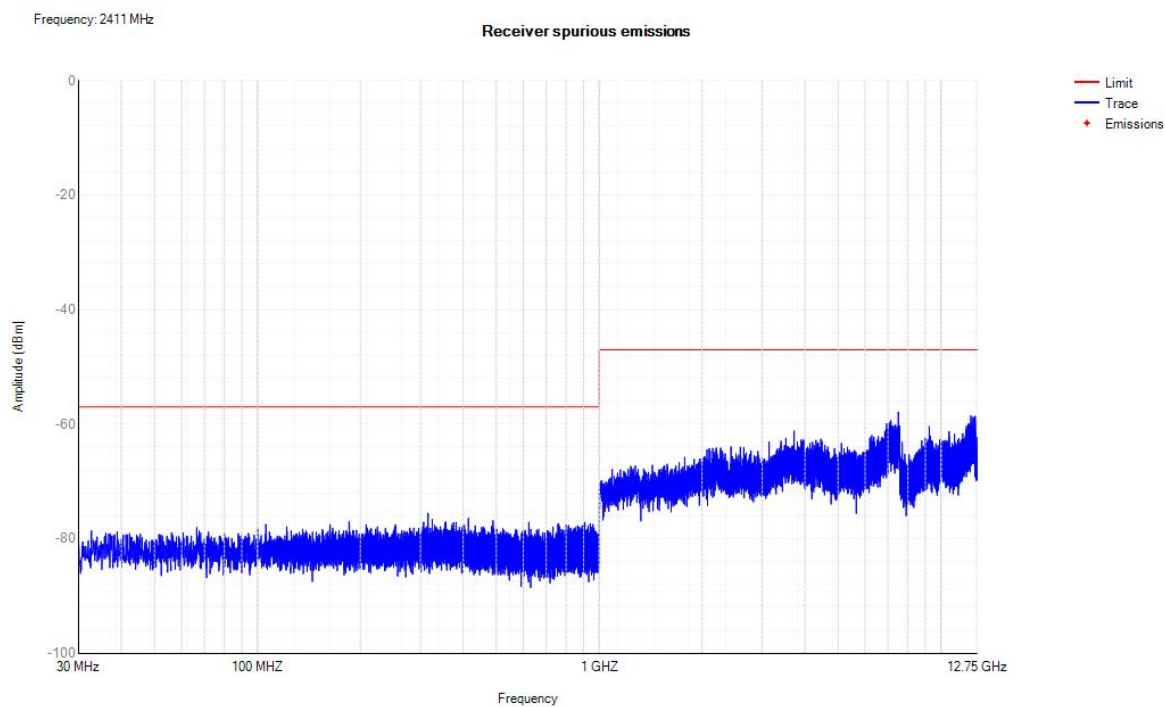
Rx. Spurious NVNT RX 2433MHz Ant1



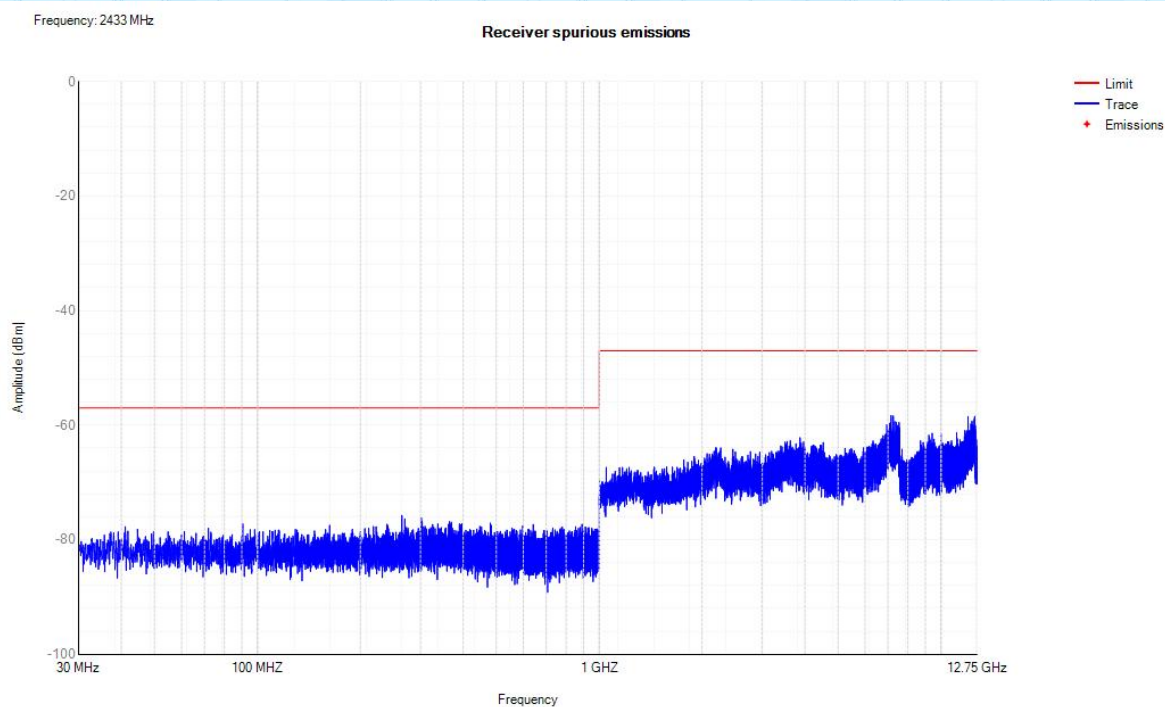
Rx. Spurious NVNT RX 2466MHz Ant1



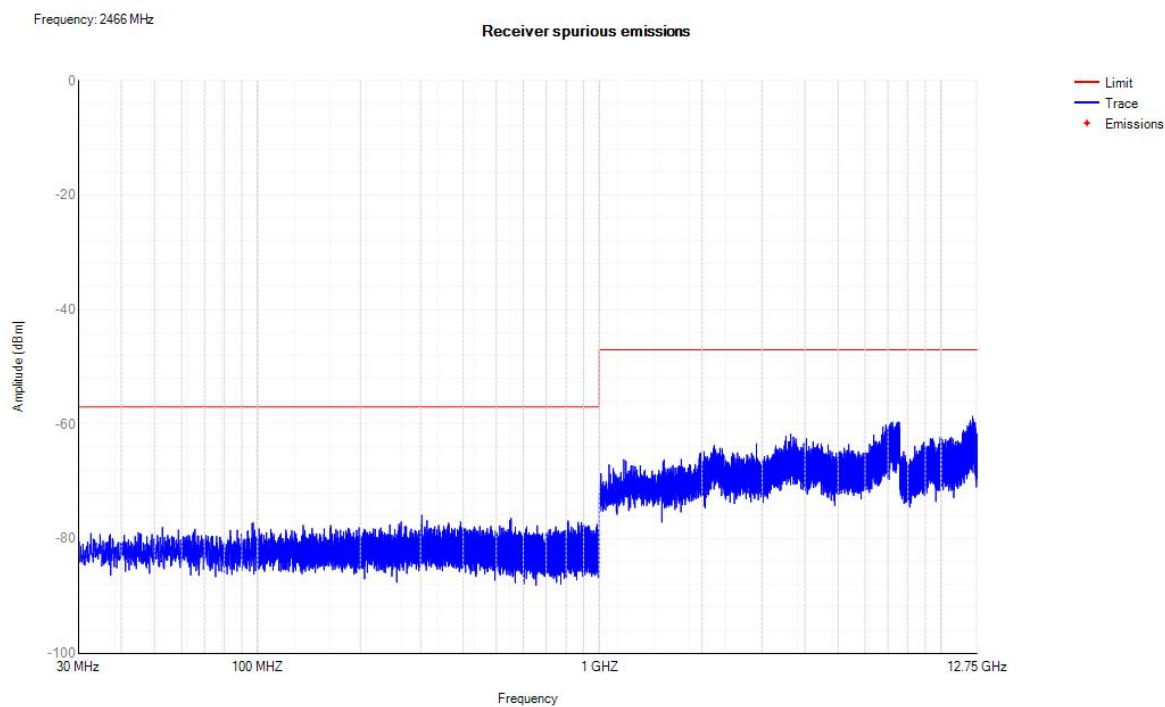
Rx. Spurious NVNT RX 2411MHz Ant2



Rx. Spurious NVNT RX 2433MHz Ant2



Rx. Spurious NVNT RX 2466MHz Ant2

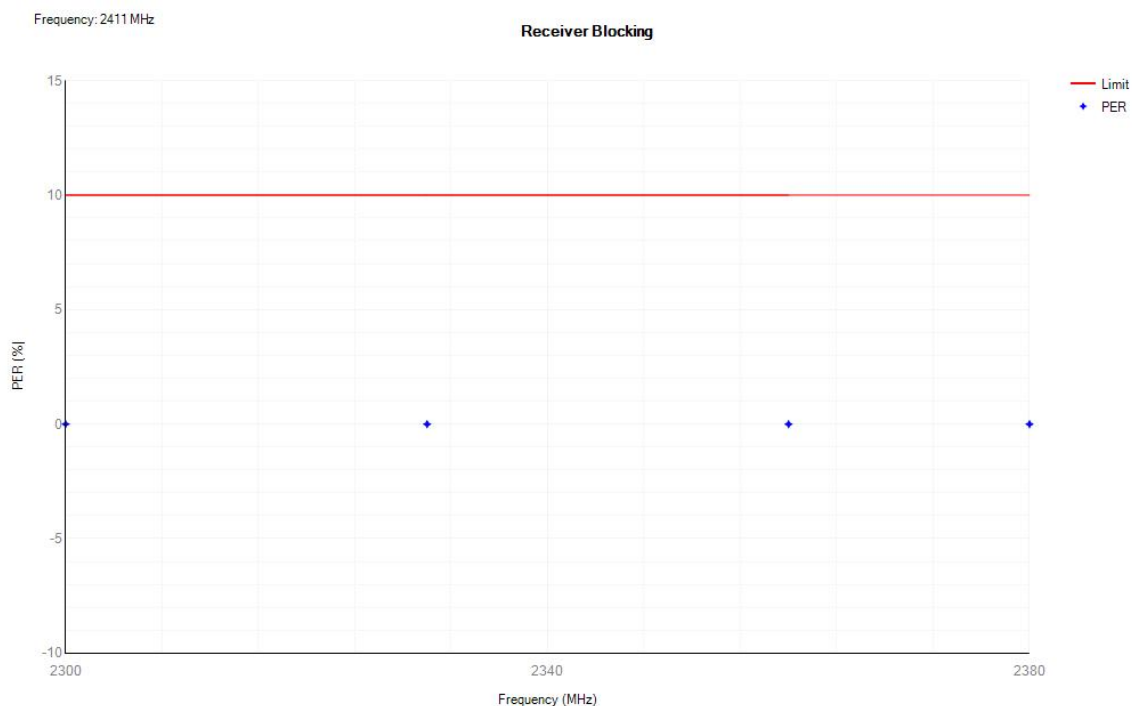


1.7 Receiver Blocking

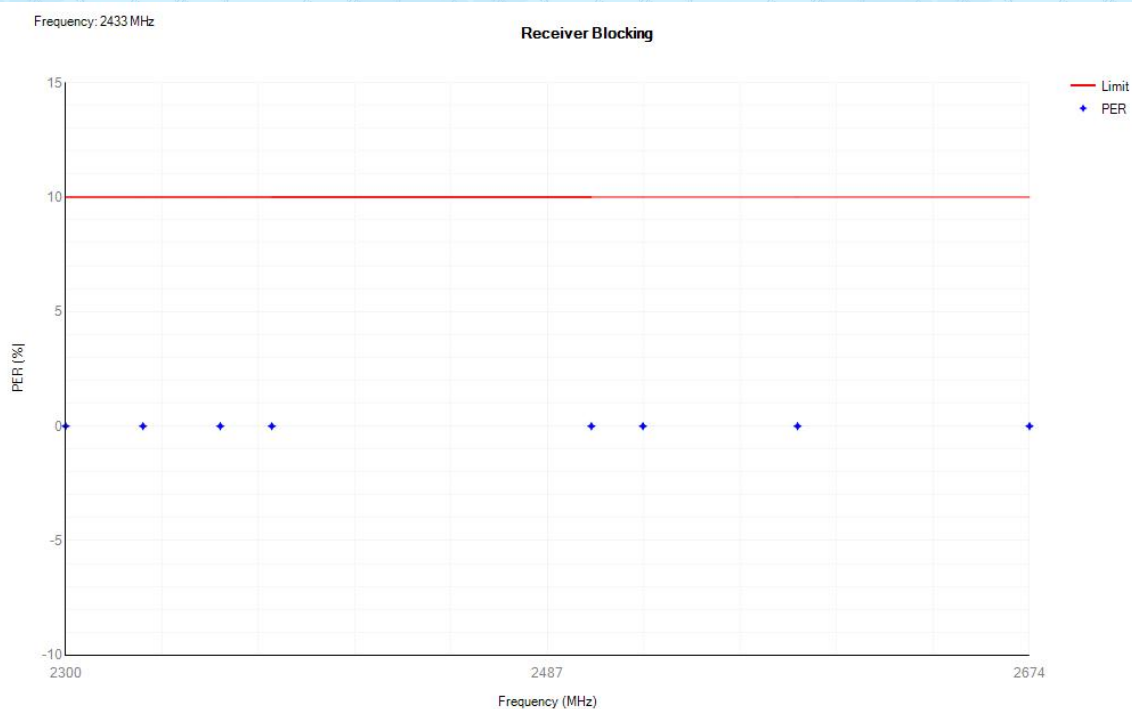
Condition	Mode	Frequency (MHz)	Antenna	Wanted Power (dBm)	Blocking Frequency (MHz)	Blocking Power (dBm)	PER (%)	Limit (%)	Verdict
NVNT	RX	2411	Ant1	-68	2380	-34	0	10	Pass
				-74	2300	-34	0	10	Pass
				-74	2330	-34	0	10	Pass
				-74	2360	-34	0	10	Pass
		-68		2380	-34	0	10	Pass	
		-68		2504	-34	0	10	Pass	
		-74		2300	-34	0	10	Pass	
		-74		2330	-34	0	10	Pass	
		-74		2360	-34	0	10	Pass	
		-74		2524	-34	0	10	Pass	
		-74		2584	-34	0	10	Pass	
		-74		2674	-34	0	10	Pass	
		-68		2504	-34	0	10	Pass	
		-74		2524	-34	0	10	Pass	
		-74		2584	-34	0	10	Pass	
		-74		2674	-34	0	10	Pass	
		2433	Ant2	-68	2380	-34	0	10	Pass
				-74	2300	-34	0	10	Pass
				-74	2330	-34	0	10	Pass
				-74	2360	-34	0	10	Pass
				-68	2380	-34	0	10	Pass
				-68	2504	-34	0	10	Pass
				-74	2300	-34	0	10	Pass
				-74	2330	-34	0	10	Pass
				-74	2360	-34	0	10	Pass
				-74	2524	-34	0	10	Pass
				-74	2584	-34	0	10	Pass
				-74	2674	-34	0	10	Pass
2466		-68	2504	-34	0	10	Pass		
		-74	2524	-34	0	10	Pass		
		-74	2584	-34	0	10	Pass		
		-74	2674	-34	0	10	Pass		

Test Graphs

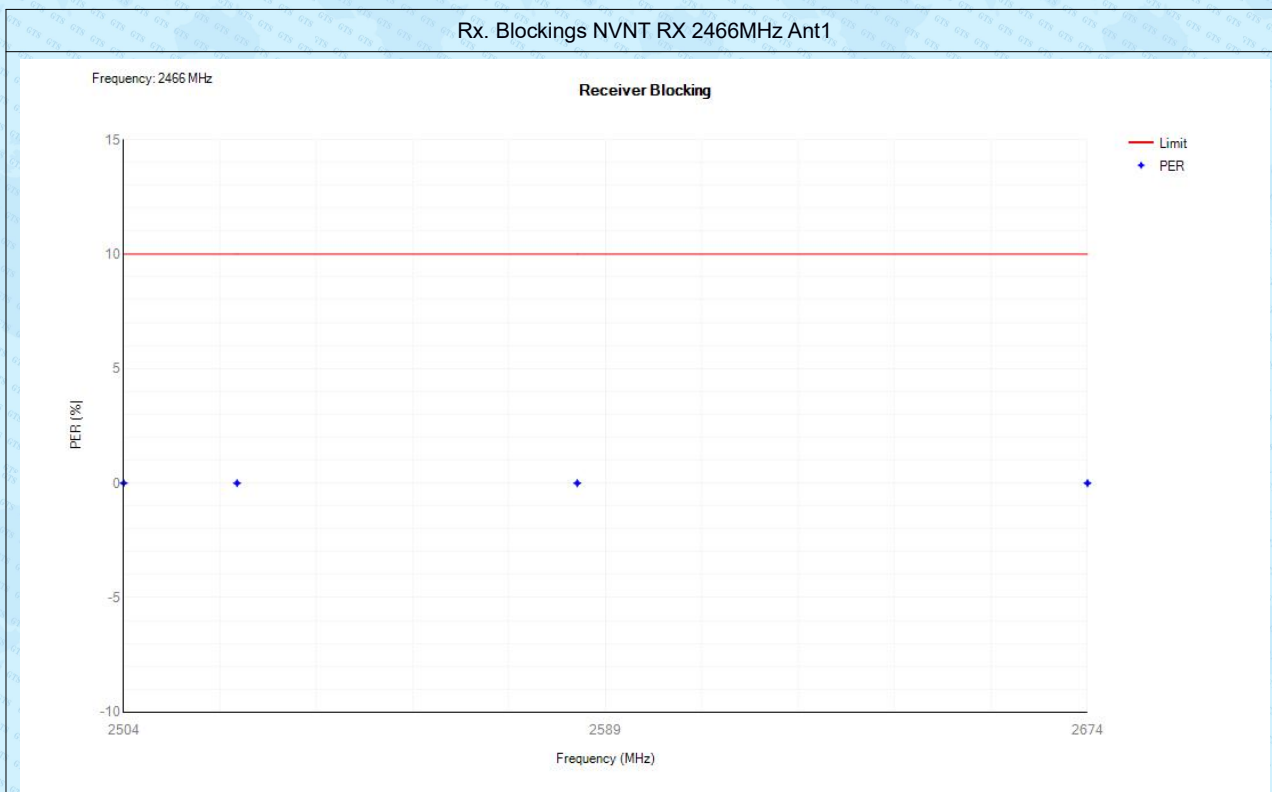
Rx. Blockings NVNT RX 2411MHz Ant1



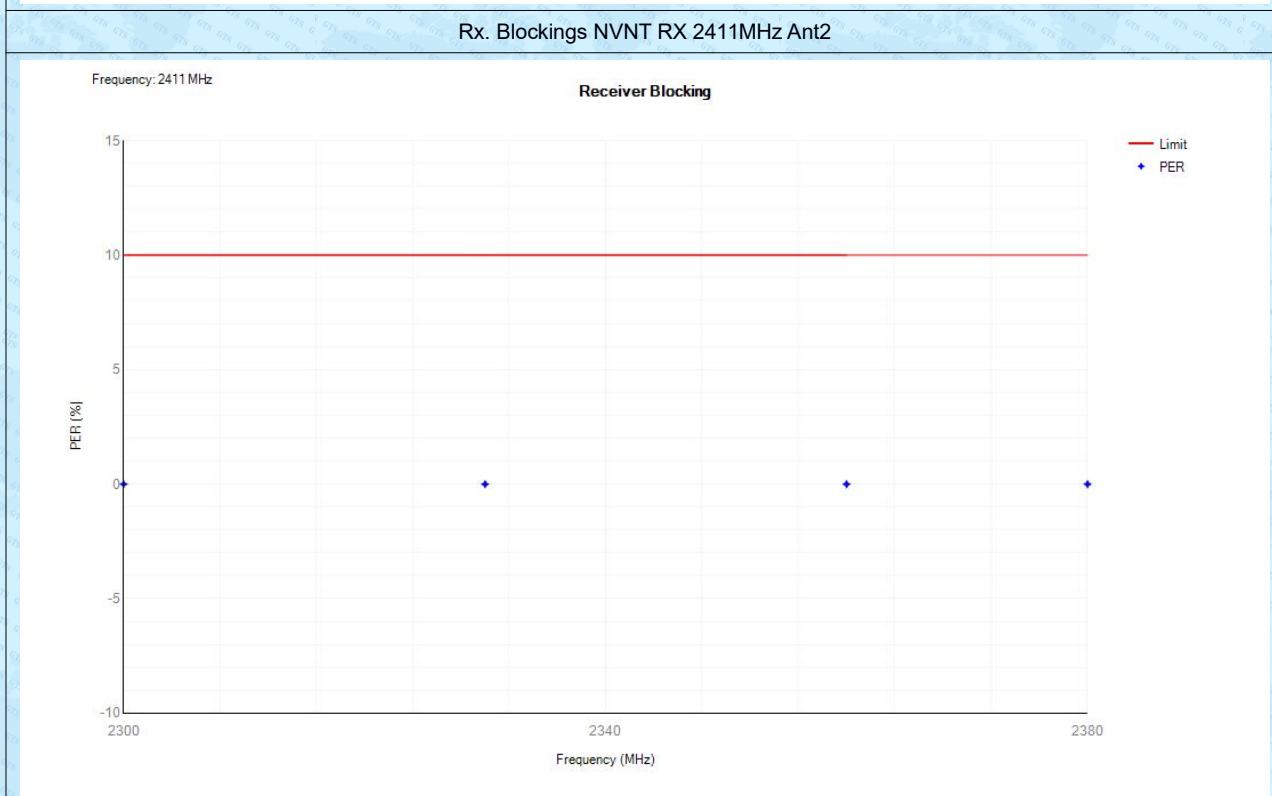
Rx. Blockings NVNT RX 2433MHz Ant1



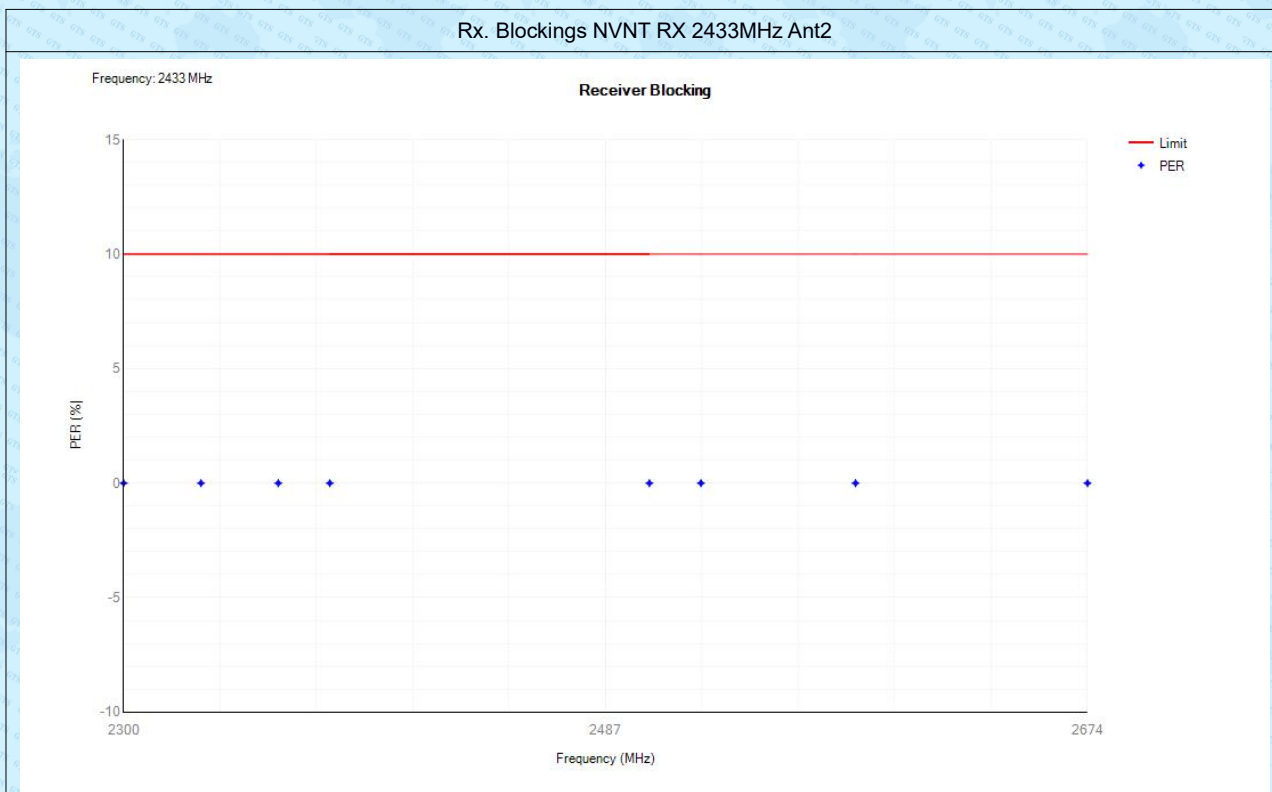
Rx. Blockings NVNT RX 2466MHz Ant1



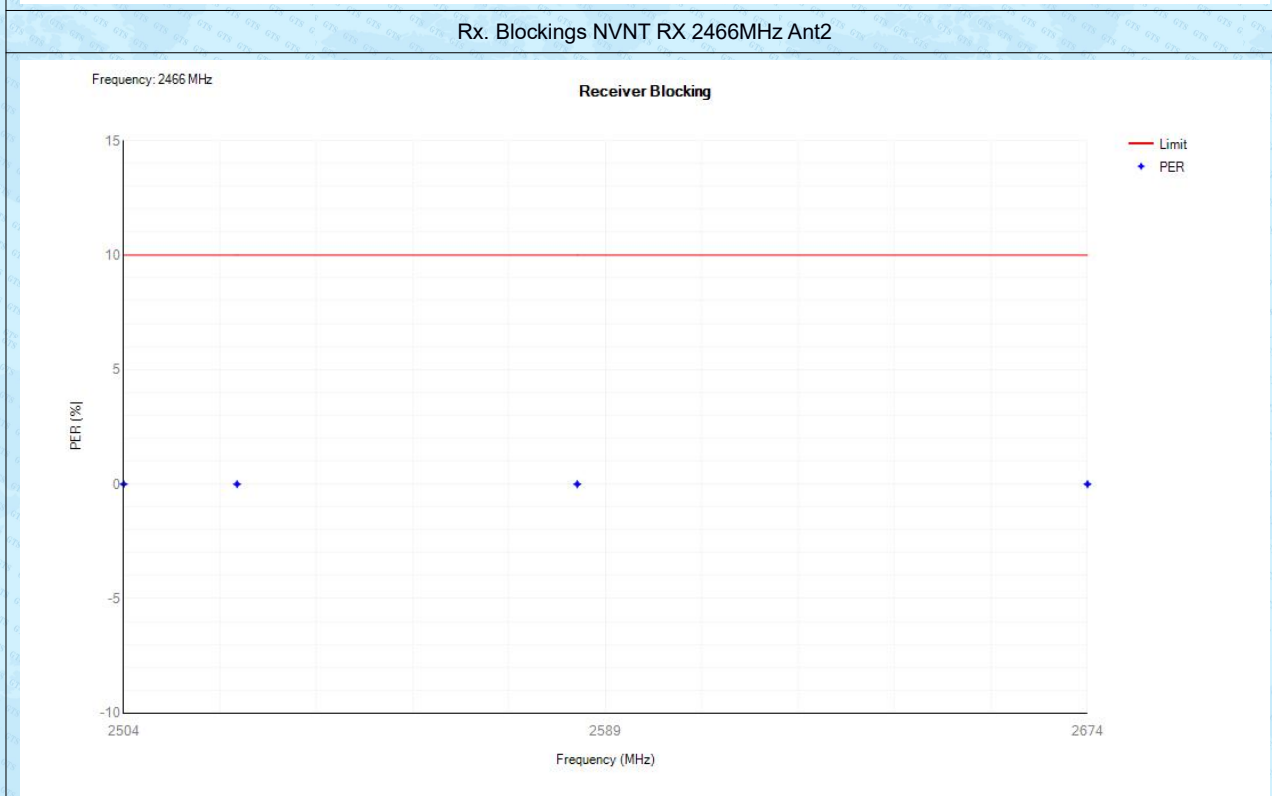
Rx. Blockings NVNT RX 2411MHz Ant2



Rx. Blockings NVNT RX 2433MHz Ant2



Rx. Blockings NVNT RX 2466MHz Ant2

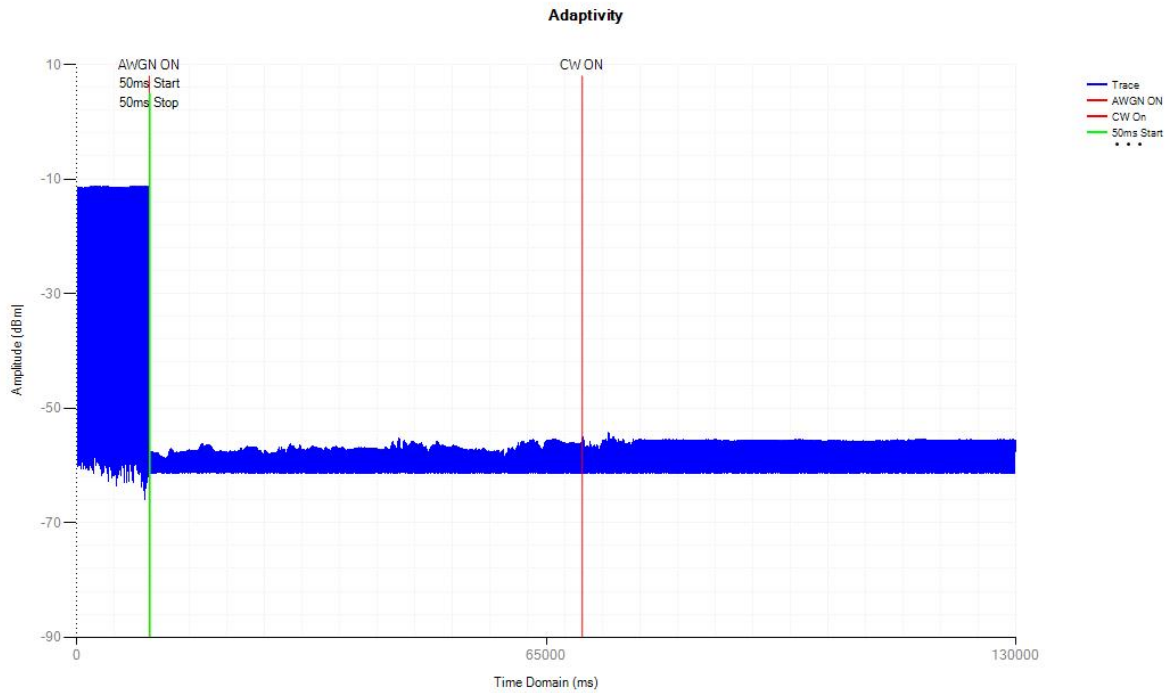


1.8 Adaptivity

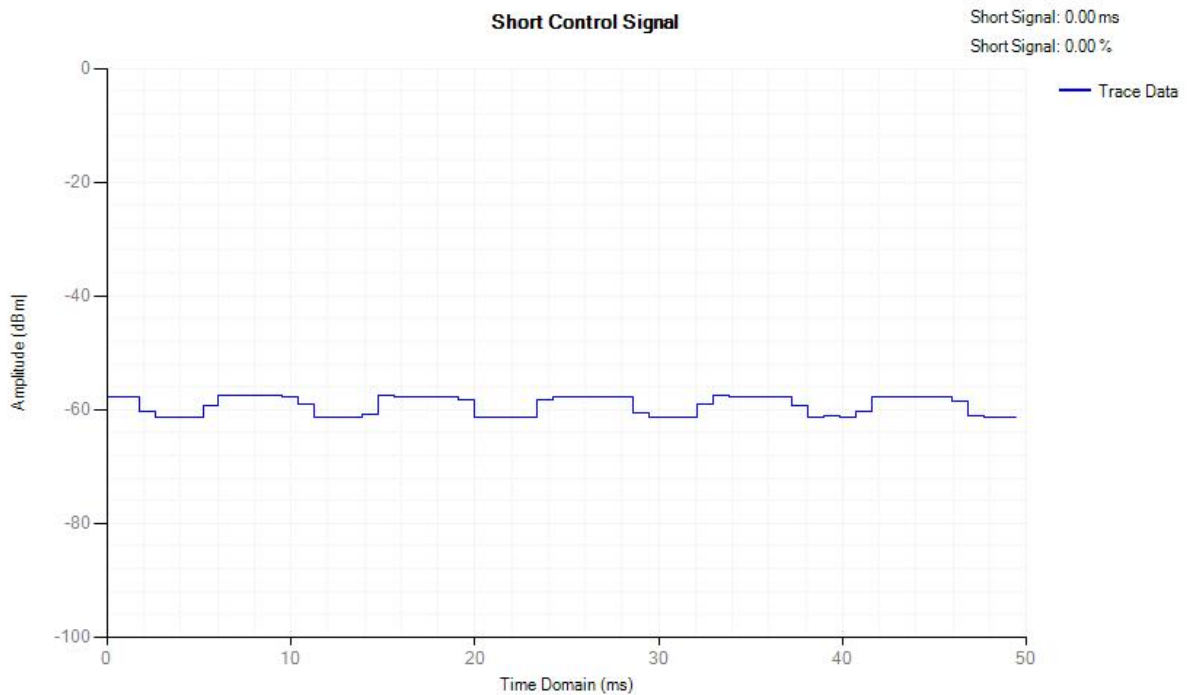
Condition	Mode	Frequency (MHz)	Antenna	AWGN Level (dBm)	CW Level (dBm)	Short Control Width (ms)	Short Control Ratio(%)	Limit (%)	Verdict
NVNT	TX	2411	Ant1	-70	-35	0	0	<=10	Pass
		2466		-70	-35	0	0	<=10	Pass
		2411	Ant2	-70	-35	0	0	<=10	Pass
		2466		-70	-35	0	0	<=10	Pass

Test Graphs

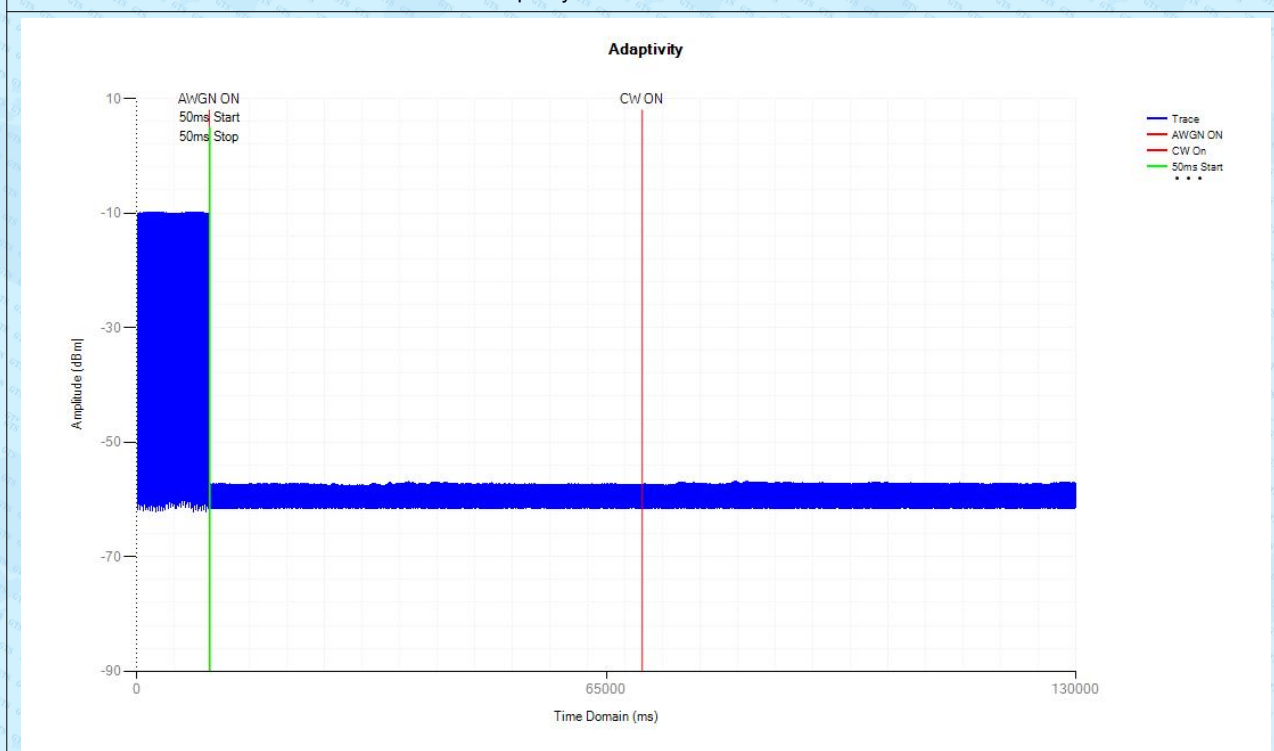
Adaptivity NVNT TX 2411MHz Ant1



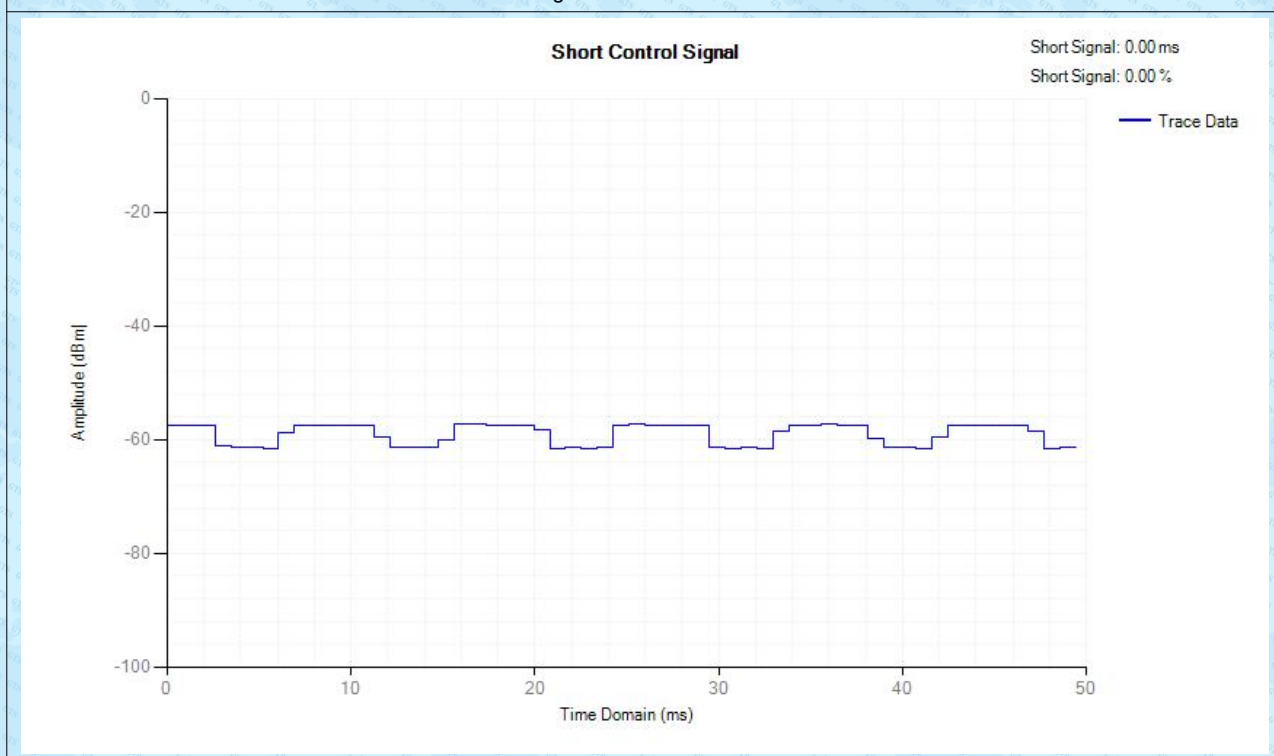
Control Signal NVNT TX 2411MHz Ant1



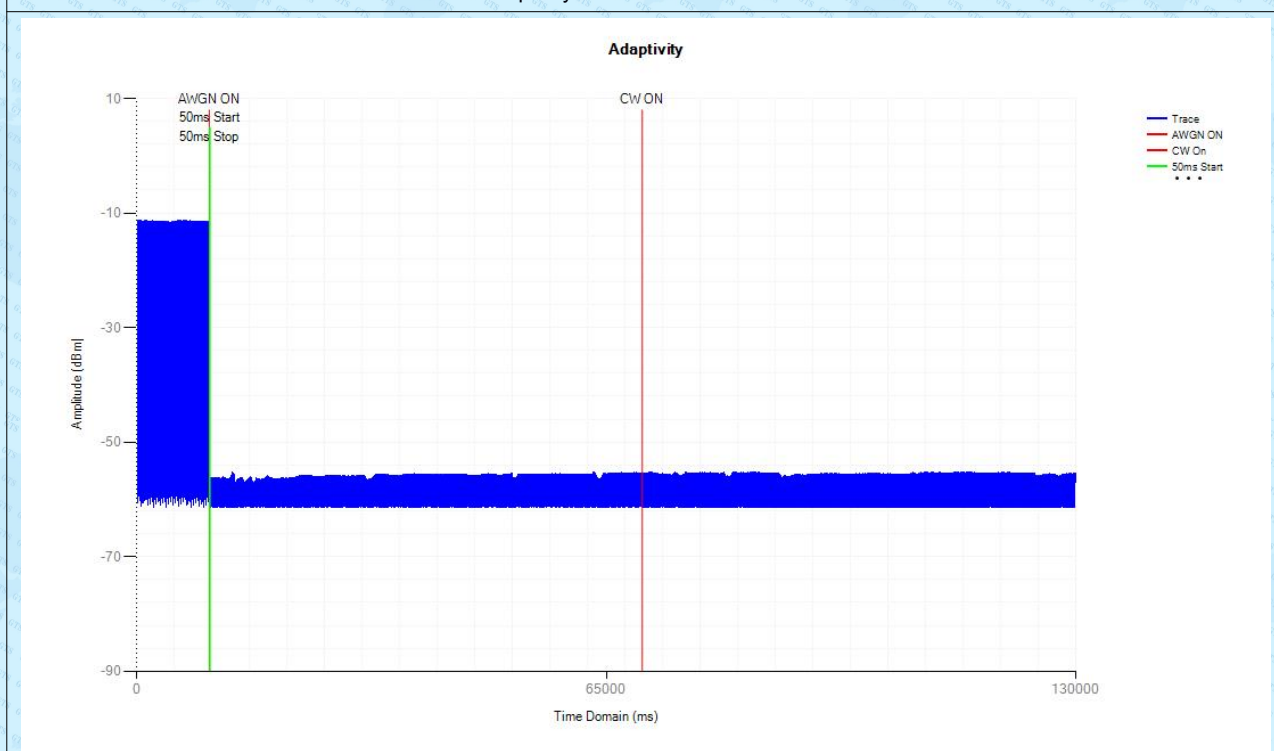
Adaptivity NVNT TX 2466MHz Ant1



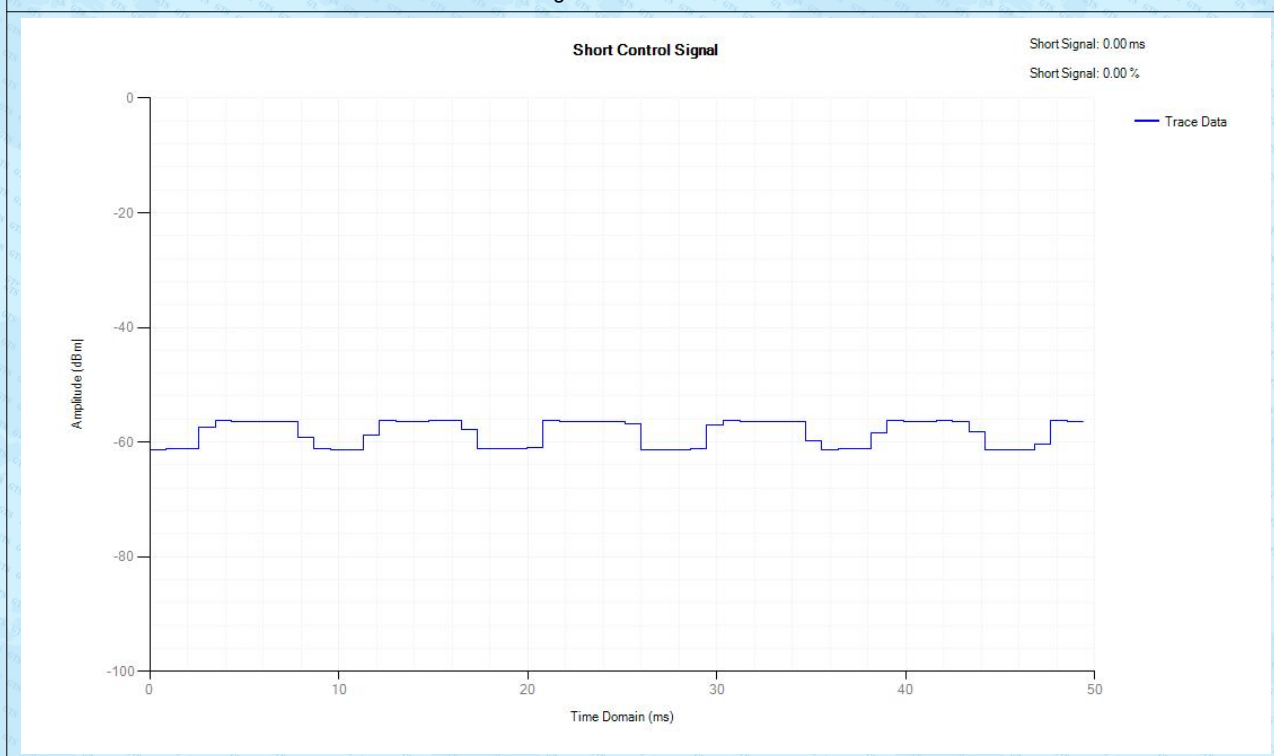
Control Signal NVNT TX 2466MHz Ant1



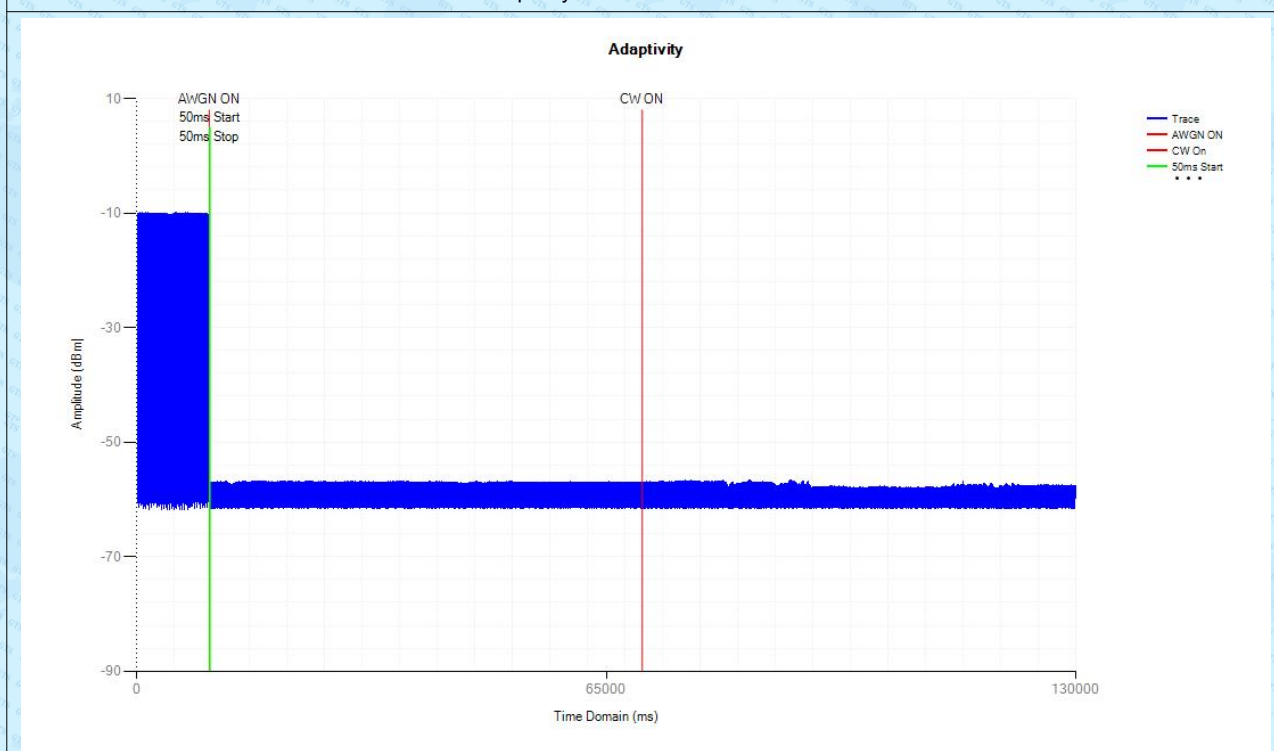
Adaptivity NVNT TX 2411MHz Ant2



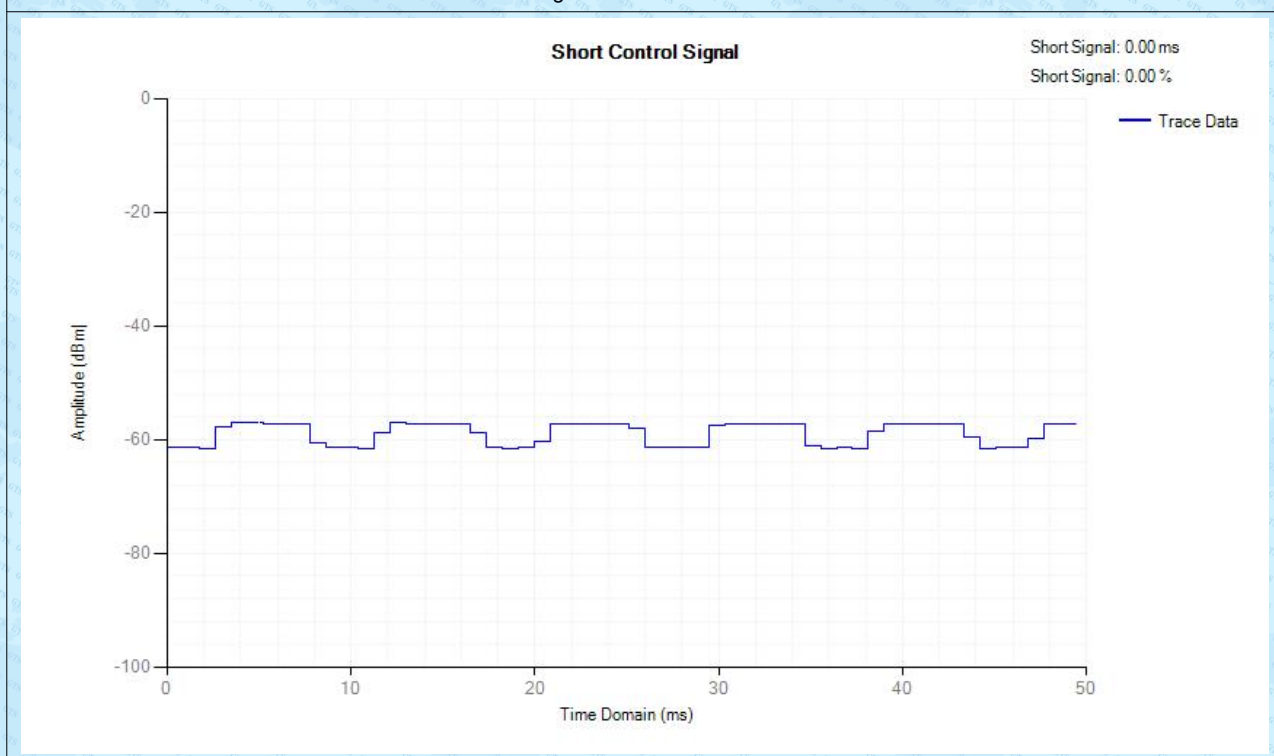
Control Signal NVNT TX 2411MHz Ant2



Adaptivity NVNT TX 2466MHz Ant2



Control Signal NVNT TX 2466MHz Ant2

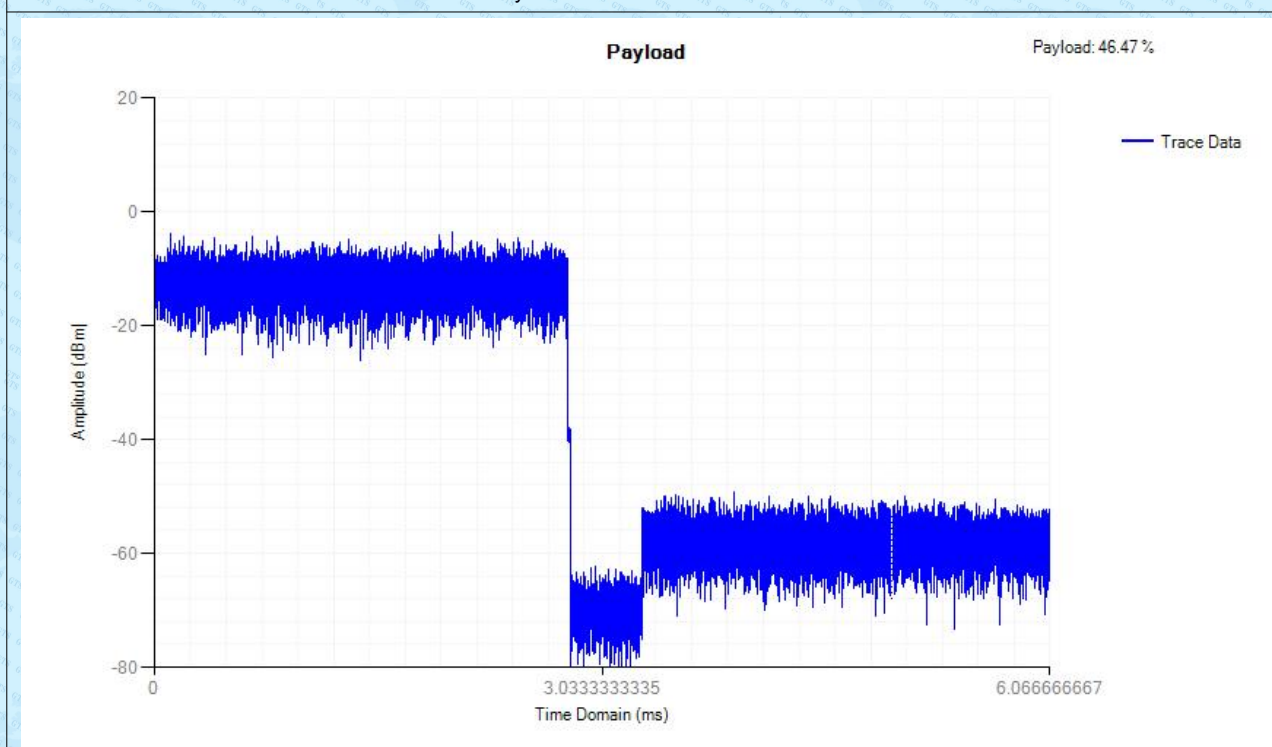


1.9 Adaptivity COT

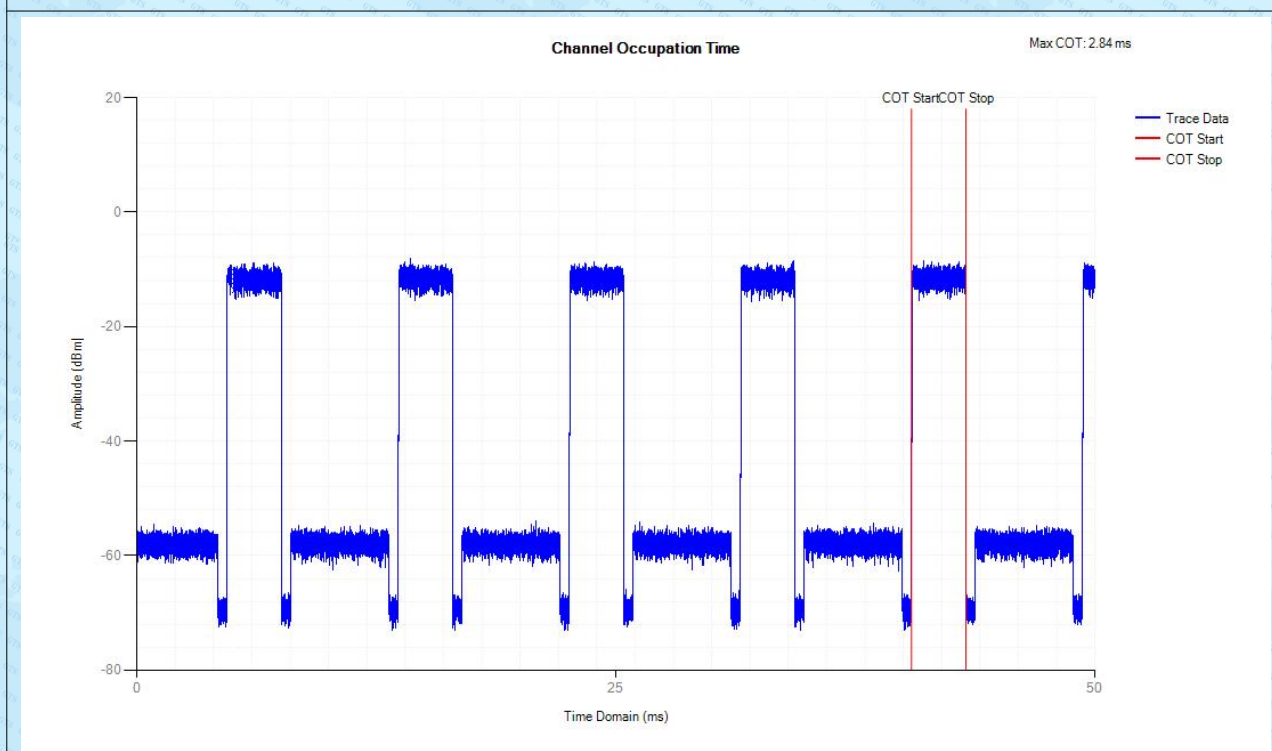
Condition	Mode	Frequency (MHz)	Antenna	Payload	Max COT (ms)	Limit COT (ms)	Min Idle Time (ms)	Limit Idle Time (ms)	Verdict
NVNT	TX	2411	Ant1	46.47	2.842	<=13	6.088	>0.018	Pass
		2466		42.06	2.842	<=13	6.088	>0.018	Pass
		2411	Ant2	28.18	2.842	<=13	6.09	>0.018	Pass
		2466		44.8	2.842	<=13	6.088	>0.018	Pass

Test Graphs

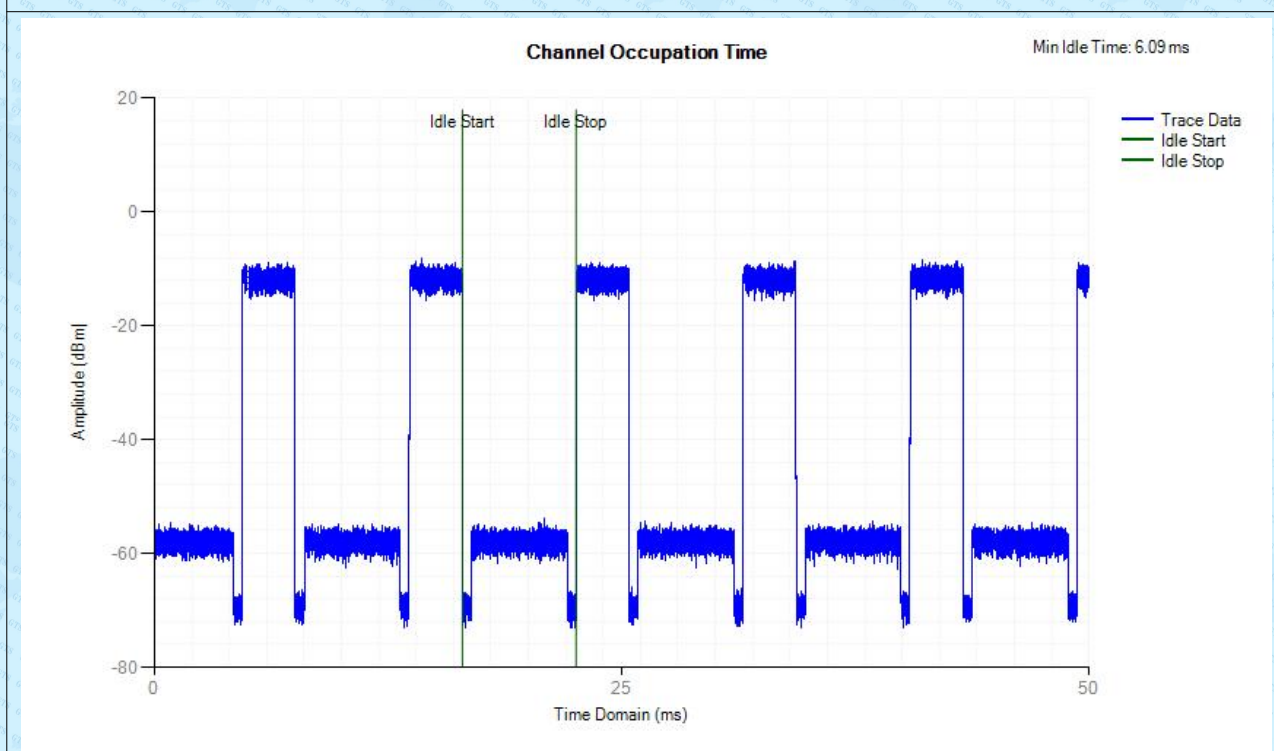
Payload NVNT TX 2411MHz Ant1



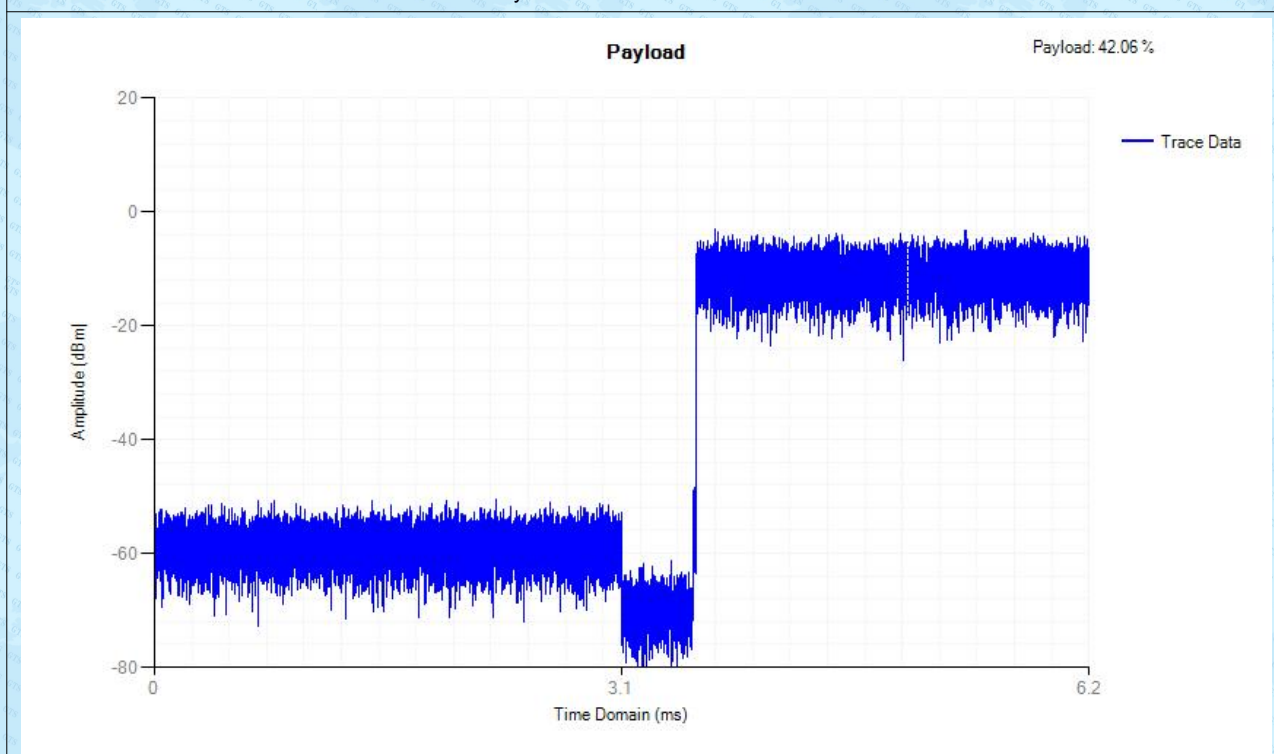
COT NVNT TX 2411MHz Ant1



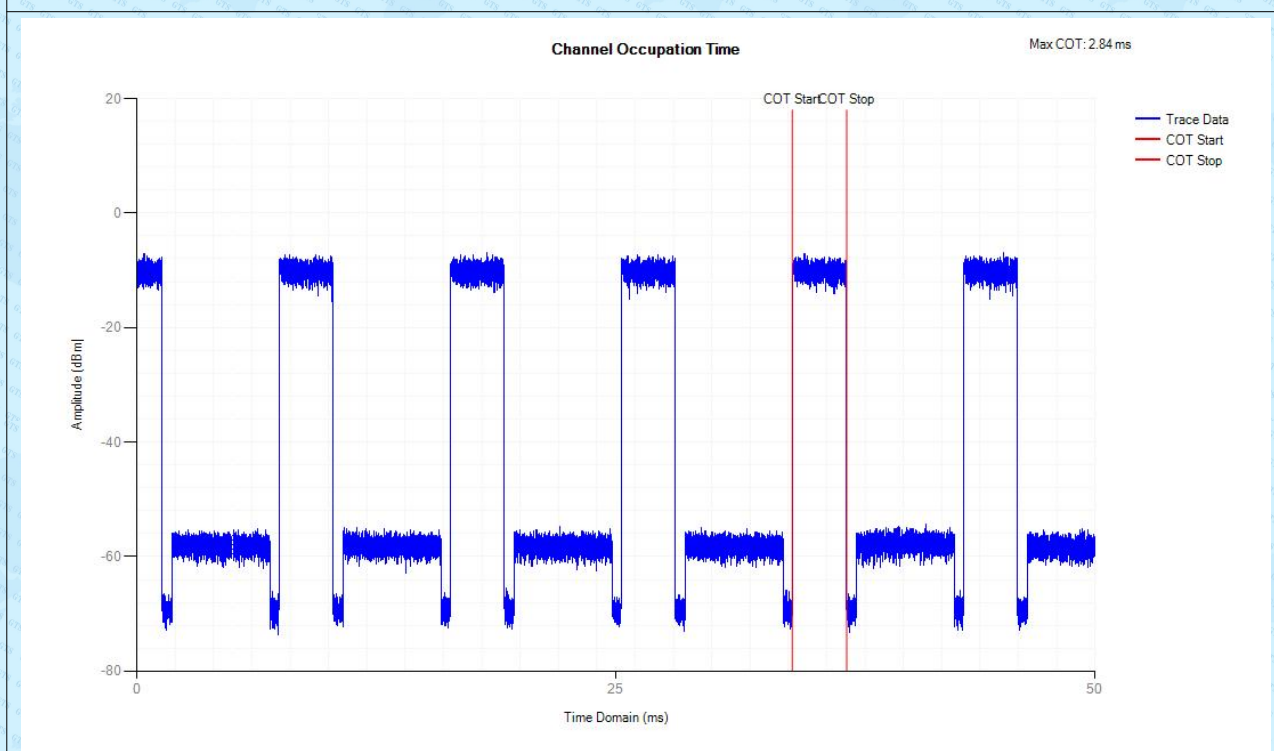
Idle NVNT TX 2411MHz Ant1



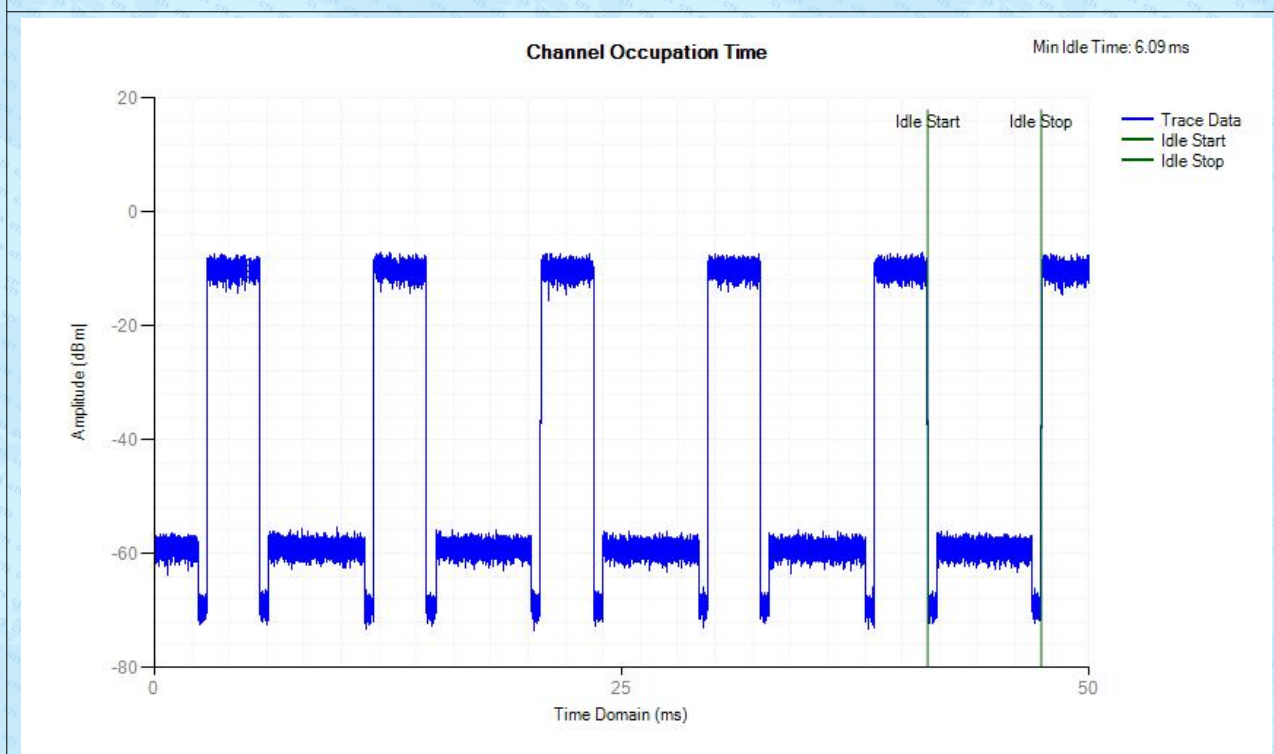
Payload NVNT TX 2466MHz Ant1



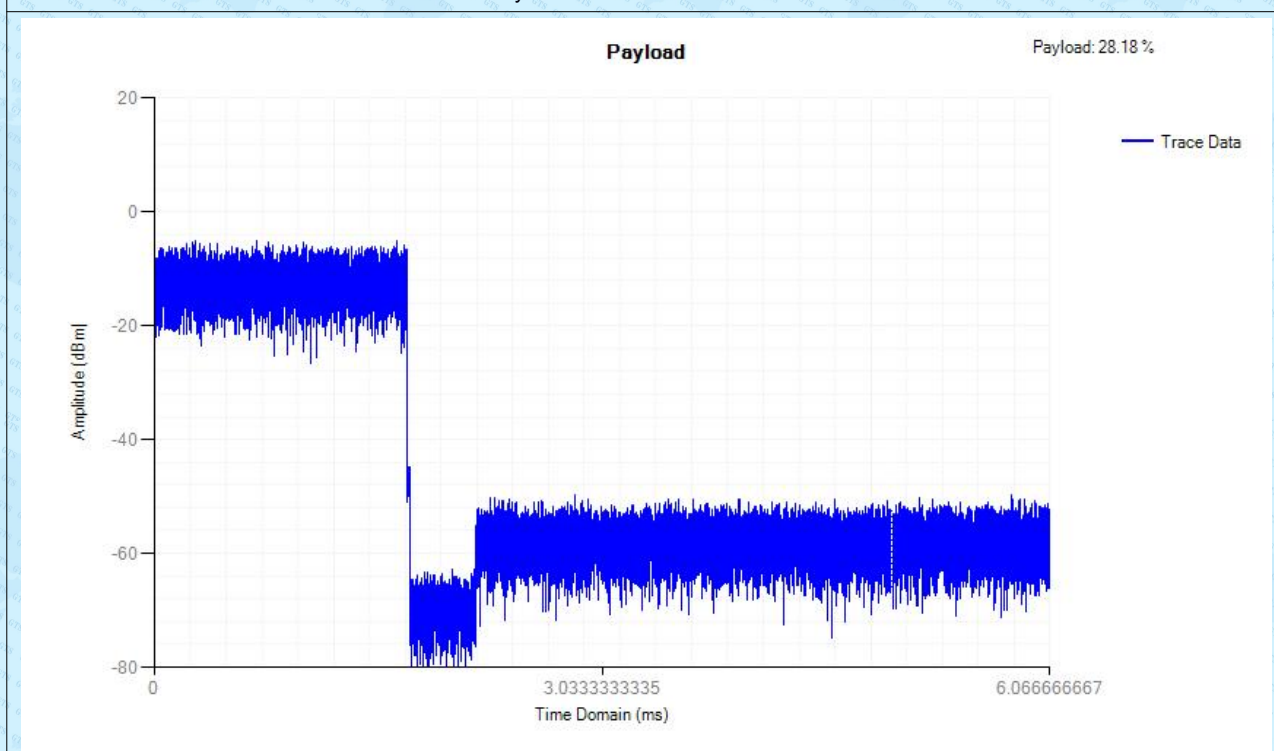
COT NVNT TX 2466MHz Ant1



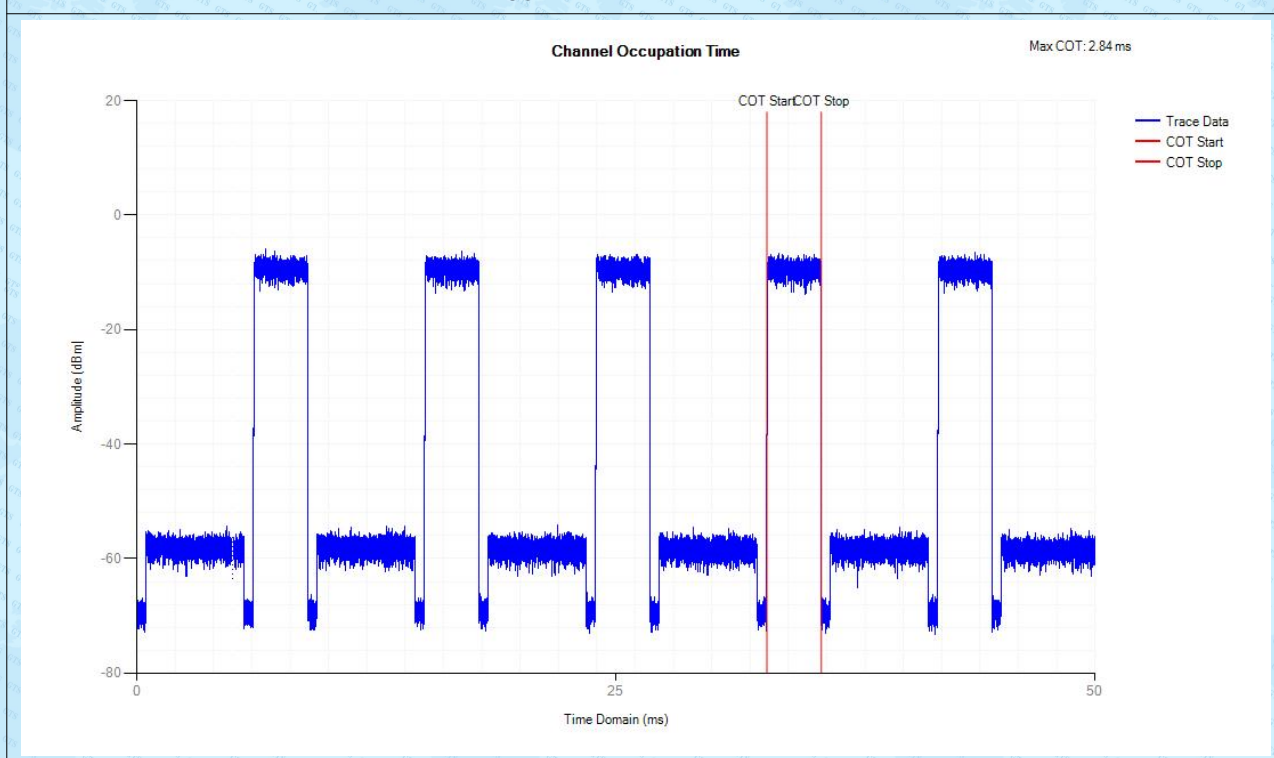
Idle NVNT TX 2466MHz Ant1



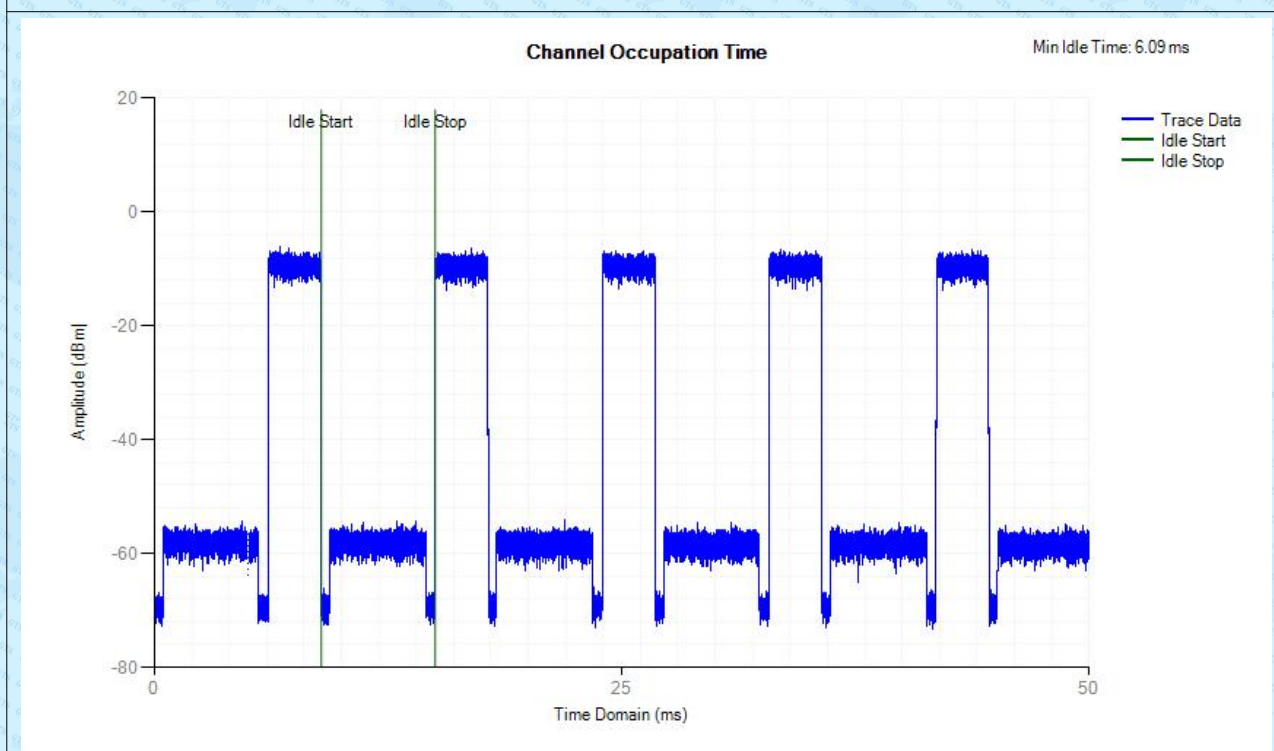
Payload NVNT TX 2411MHz Ant2



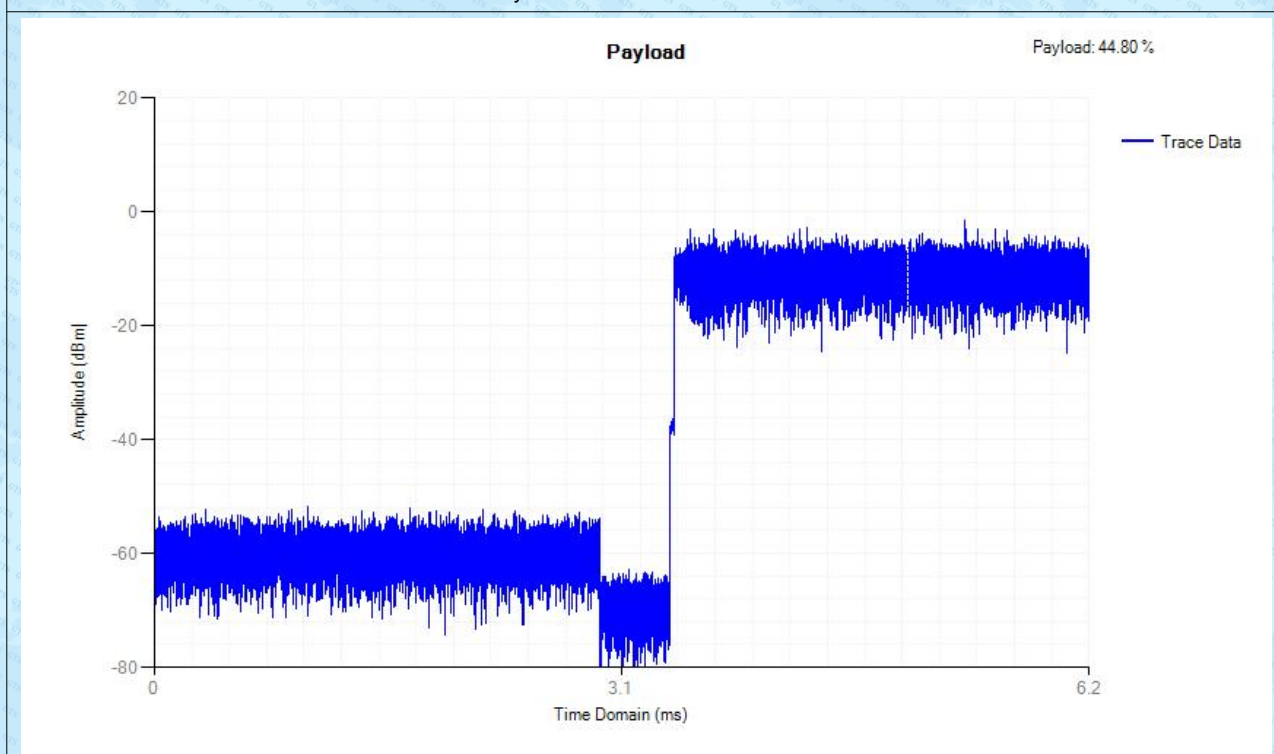
COT NVNT TX 2411MHz Ant2



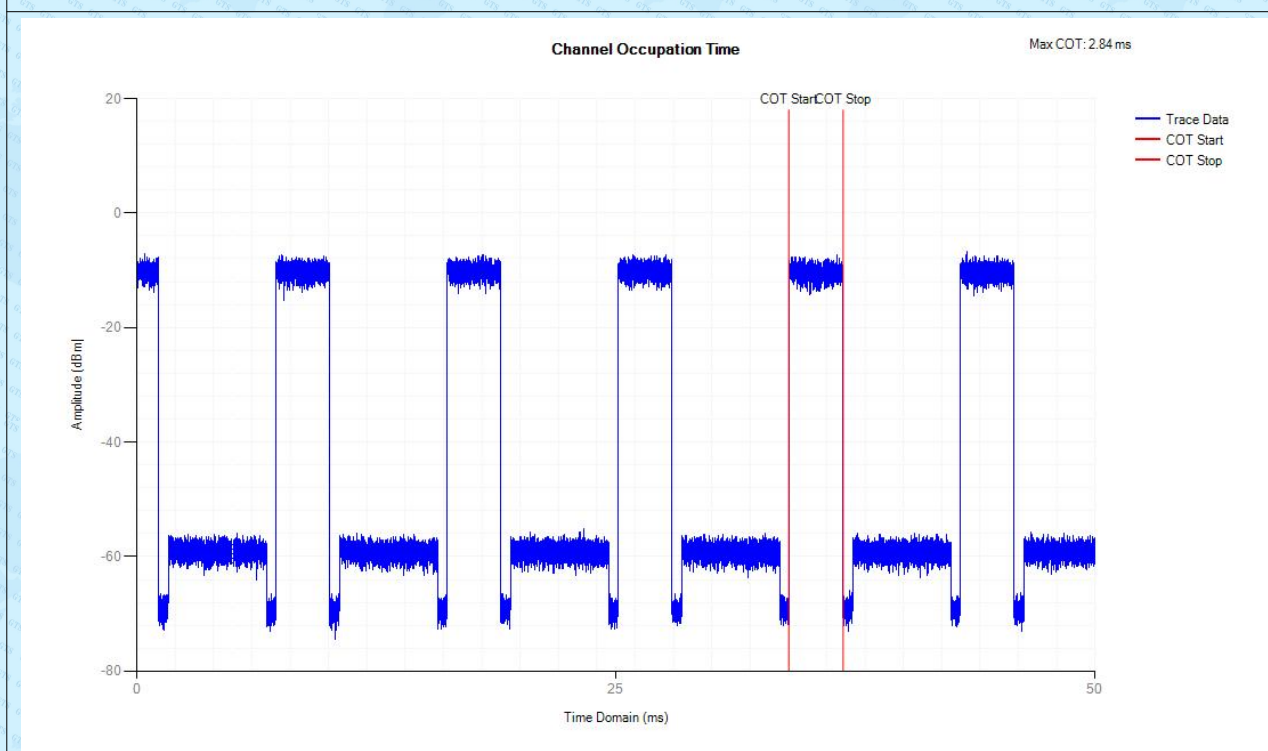
Idle NVNT TX 2411MHz Ant2



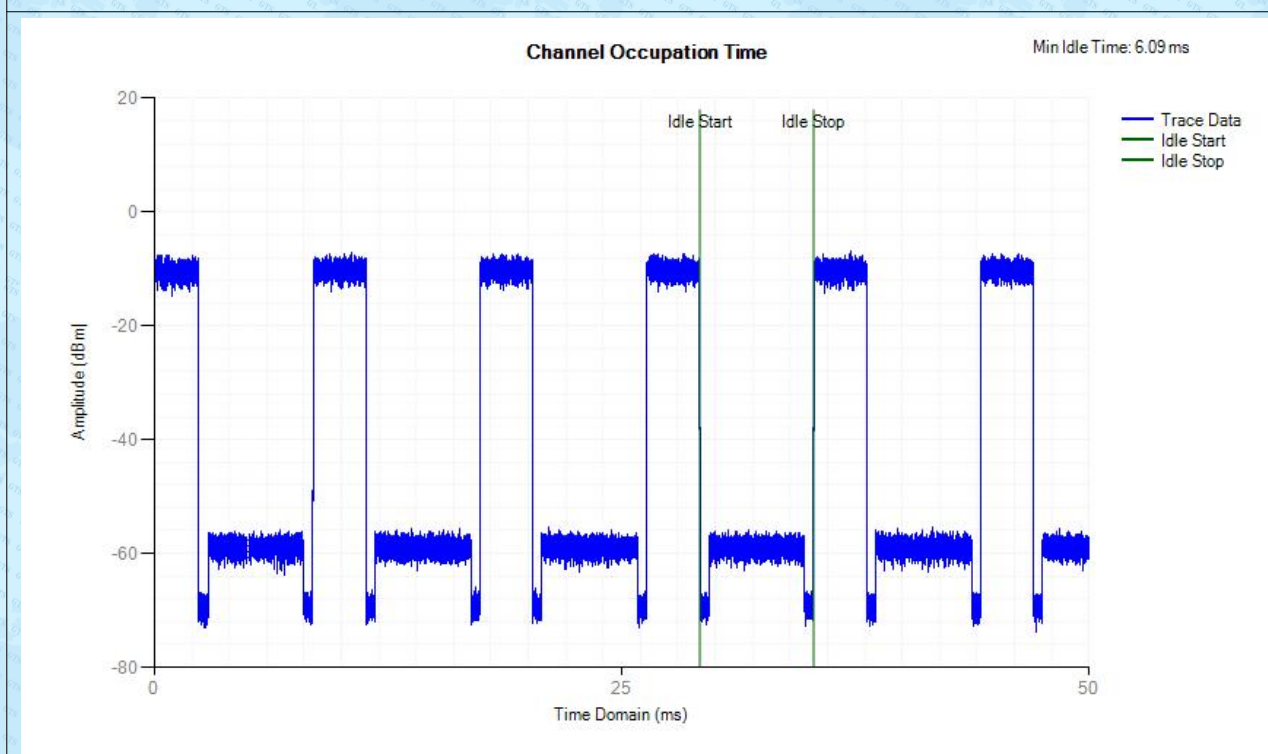
Payload NVNT TX 2466MHz Ant2



COT NVNT TX 2466MHz Ant2



Idle NVNT TX 2466MHz Ant2



-----End-----