

7.7 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a) & RSS-Gen §7.2.4, except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

* Decreases with the logarithm of the frequency.

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

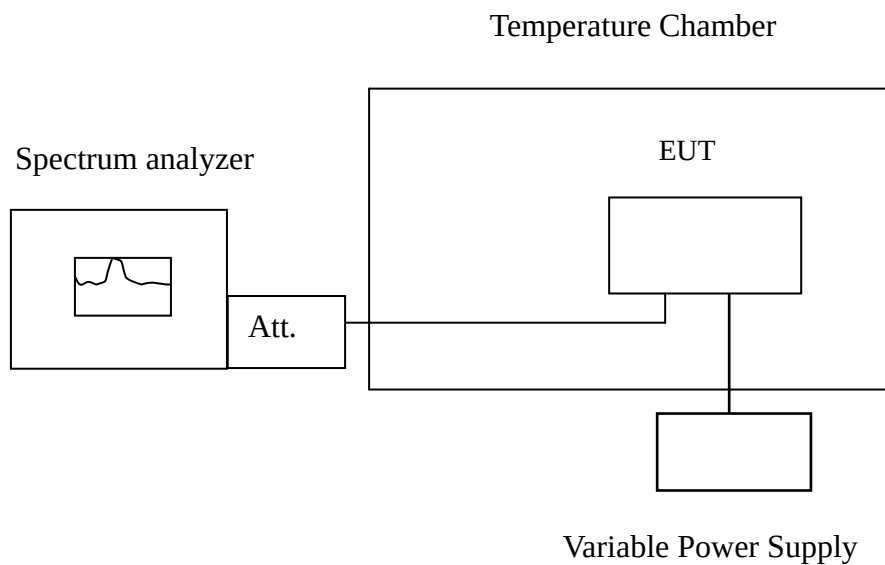
Not applicable, because EUT not connect to AC Main Source direct.

7.8 FREQUENCY STABILITY

LIMIT

According to §15.407(g) & RSS-247, manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.

IEEE 802.11a mode / 5180 ~ 5240 MHz:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5179.991144	5150~5250	Pass
40	5	5180.010383	5150~5250	Pass
30	5	5180.005927	5150~5250	Pass
20	5	5180.004991	5150~5250	Pass
10	5	5179.996327	5150~5250	Pass
0	5	5179.996771	5150~5250	Pass
-10	5	5180.008750	5150~5250	Pass
-20	5	5179.994318	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5180.004638	5150~5250	Pass
	5	5179.992297	5150~5250	Pass
	5.75	5180.003736	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5239.991350	5150~5250	Pass
40	5	5239.994215	5150~5250	Pass
30	5	5239.999533	5150~5250	Pass
20	5	5239.993063	5150~5250	Pass
10	5	5239.997580	5150~5250	Pass
0	5	5239.991716	5150~5250	Pass
-10	5	5240.001219	5150~5250	Pass
-20	5	5240.009155	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5239.998441	5150~5250	Pass
	5	5239.996229	5150~5250	Pass
	5.75	5240.008222	5150~5250	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240 MHz / Chain 0:**CH Low**

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5179.997398	5150~5250	Pass
40	5	5180.010403	5150~5250	Pass
30	5	5180.009517	5150~5250	Pass
20	5	5180.004662	5150~5250	Pass
10	5	5180.008972	5150~5250	Pass
0	5	5179.994329	5150~5250	Pass
-10	5	5179.994798	5150~5250	Pass
-20	5	5179.990793	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5180.000092	5150~5250	Pass
	5	5180.001533	5150~5250	Pass
	5.75	5180.006411	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5239.990293	5150~5250	Pass
40	5	5239.994653	5150~5250	Pass
30	5	5239.997334	5150~5250	Pass
20	5	5240.003243	5150~5250	Pass
10	5	5239.991406	5150~5250	Pass
0	5	5239.993214	5150~5250	Pass
-10	5	5239.992690	5150~5250	Pass
-20	5	5239.997668	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5239.99618	5150~5250	Pass
	5	5239.997856	5150~5250	Pass
	5.75	5239.997439	5150~5250	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240 MHz / Chain 1:**CH Low**

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5179.990739	5150~5250	Pass
40	5	5179.990654	5150~5250	Pass
30	5	5180.007144	5150~5250	Pass
20	5	5180.009696	5150~5250	Pass
10	5	5179.997924	5150~5250	Pass
0	5	5179.998986	5150~5250	Pass
-10	5	5179.990425	5150~5250	Pass
-20	5	5179.992433	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5179.992765	5150~5250	Pass
	5	5180.0029	5150~5250	Pass
	5.75	5179.992776	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5239.996207	5150~5250	Pass
40	5	5239.990981	5150~5250	Pass
30	5	5239.992510	5150~5250	Pass
20	5	5240.008709	5150~5250	Pass
10	5	5239.992321	5150~5250	Pass
0	5	5240.009462	5150~5250	Pass
-10	5	5239.995787	5150~5250	Pass
-20	5	5240.010773	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5239.997861	5150~5250	Pass
	5	5240.008152	5150~5250	Pass
	5.75	5240.000169	5150~5250	Pass

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230 MHz / Chain 0:**CH Low**

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5190.008136	5150~5250	Pass
40	5	5190.007782	5150~5250	Pass
30	5	5189.998144	5150~5250	Pass
20	5	5190.005196	5150~5250	Pass
10	5	5190.003740	5150~5250	Pass
0	5	5190.003312	5150~5250	Pass
-10	5	5190.008370	5150~5250	Pass
-20	5	5189.993199	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5190.004109	5150~5250	Pass
	5	5190.008724	5150~5250	Pass
	5.75	5190.007978	5150~5250	Pass

CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5230.003896	5150~5250	Pass
40	5	5230.000128	5150~5250	Pass
30	5	5229.994976	5150~5250	Pass
20	5	5229.994695	5150~5250	Pass
10	5	5230.008216	5150~5250	Pass
0	5	5229.995093	5150~5250	Pass
-10	5	5230.010528	5150~5250	Pass
-20	5	5229.994510	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5229.990336	5150~5250	Pass
	5	5230.001732	5150~5250	Pass
	5.75	5230.003314	5150~5250	Pass

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230 MHz / Chain 1:**CH Low**

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5189.994218	5150~5250	Pass
40	5	5190.008643	5150~5250	Pass
30	5	5189.993607	5150~5250	Pass
20	5	5189.996189	5150~5250	Pass
10	5	5190.001613	5150~5250	Pass
0	5	5190.003444	5150~5250	Pass
-10	5	5190.003857	5150~5250	Pass
-20	5	5190.002518	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5190.010379	5150~5250	Pass
	5	5189.997606	5150~5250	Pass
	5.75	5190.003136	5150~5250	Pass

CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5230.005362	5150~5250	Pass
40	5	5229.999128	5150~5250	Pass
30	5	5230.004231	5150~5250	Pass
20	5	5230.001132	5150~5250	Pass
10	5	5230.010247	5150~5250	Pass
0	5	5230.002526	5150~5250	Pass
-10	5	5229.995570	5150~5250	Pass
-20	5	5230.005137	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5230.002493	5150~5250	Pass
	5	5229.993661	5150~5250	Pass
	5.75	5229.992397	5150~5250	Pass

IEEE 802.11ac VHT 80 MHz mode / 5210 MHz / Chain 0:**CH Mid**

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5209.998325	5150~5250	Pass
40	5	5210.001314	5150~5250	Pass
30	5	5209.990918	5150~5250	Pass
20	5	5209.995609	5150~5250	Pass
10	5	5210.004564	5150~5250	Pass
0	5	5210.005879	5150~5250	Pass
-10	5	5209.990077	5150~5250	Pass
-20	5	5209.999965	5150~5250	Pass

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5210.006327	5150~5250	Pass
	5	5209.998221	5150~5250	Pass
	5.75	5209.992679	5150~5250	Pass

IEEE 802.11ac VHT 80 MHz mode / 5210 MHz / Chain 1:**CH Mid**

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5210.009327	5150~5250	Pass
40	5	5210.000229	5150~5250	Pass
30	5	5210.008760	5150~5250	Pass
20	5	5209.992707	5150~5250	Pass
10	5	5209.995019	5150~5250	Pass
0	5	5209.999927	5150~5250	Pass
-10	5	5210.001035	5150~5250	Pass
-20	5	5210.010955	5150~5250	Pass

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5209.997528	5150~5250	Pass
	5	5210.010267	5150~5250	Pass
	5.75	5210.000095	5150~5250	Pass

IEEE 802.11a mode / 5260 ~ 5320 MHz:**CH Low**

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5260.003341	5250~5350	Pass
40	5	5259.997856	5250~5350	Pass
30	5	5259.993985	5250~5350	Pass
20	5	5259.995105	5250~5350	Pass
10	5	5260.005303	5250~5350	Pass
0	5	5260.007741	5250~5350	Pass
-10	5	5260.009185	5250~5350	Pass
-20	5	5260.008962	5250~5350	Pass

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5260.004396	5250~5350	Pass
	5	5259.998962	5250~5350	Pass
	5.75	5260.005227	5250~5350	Pass

CH High

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5320.001352	5250~5350	Pass
40	5	5319.996059	5250~5350	Pass
30	5	5319.999503	5250~5350	Pass
20	5	5319.992045	5250~5350	Pass
10	5	5319.992934	5250~5350	Pass
0	5	5320.005413	5250~5350	Pass
-10	5	5319.995608	5250~5350	Pass
-20	5	5319.999390	5250~5350	Pass

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5320.010766	5250~5350	Pass
	5	5319.997253	5250~5350	Pass
	5.75	5320.010803	5250~5350	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320 MHz / Chain 0:**CH Low**

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5260.008270	5250~5350	Pass
40	5	5260.006284	5250~5350	Pass
30	5	5260.010958	5250~5350	Pass
20	5	5260.010443	5250~5350	Pass
10	5	5259.999721	5250~5350	Pass
0	5	5260.009867	5250~5350	Pass
-10	5	5260.009697	5250~5350	Pass
-20	5	5260.003819	5250~5350	Pass

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5259.999811	5250~5350	Pass
	5	5259.993414	5250~5350	Pass
	5.75	5260.007415	5250~5350	Pass

CH High

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5320.007465	5250~5350	Pass
40	5	5320.003200	5250~5350	Pass
30	5	5320.000154	5250~5350	Pass
20	5	5320.009913	5250~5350	Pass
10	5	5319.998212	5250~5350	Pass
0	5	5319.996155	5250~5350	Pass
-10	5	5319.995320	5250~5350	Pass
-20	5	5319.992781	5250~5350	Pass

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5320.008904	5250~5350	Pass
	5	5320.002039	5250~5350	Pass
	5.75	5319.994618	5250~5350	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320 MHz / Chain 1:
CH Low

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5259.994420	5250~5350	Pass
40	5	5259.996530	5250~5350	Pass
30	5	5259.995559	5250~5350	Pass
20	5	5259.994007	5250~5350	Pass
10	5	5260.000235	5250~5350	Pass
0	5	5260.007376	5250~5350	Pass
-10	5	5260.007621	5250~5350	Pass
-20	5	5260.004989	5250~5350	Pass

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5260.001966	5250~5350	Pass
	5	5260.008246	5250~5350	Pass
	5.75	5260.003071	5250~5350	Pass

CH High

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5319.998865	5250~5350	Pass
40	5	5319.994473	5250~5350	Pass
30	5	5319.997282	5250~5350	Pass
20	5	5320.005036	5250~5350	Pass
10	5	5320.002175	5250~5350	Pass
0	5	5320.000856	5250~5350	Pass
-10	5	5320.007535	5250~5350	Pass
-20	5	5320.004693	5250~5350	Pass

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5320.007193	5250~5350	Pass
	5	5320.001026	5250~5350	Pass
	5.75	5320.01049	5250~5350	Pass

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310 MHz / Chain 0:**CH Low**

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5269.999336	5250~5350	Pass
40	5	5270.006499	5250~5350	Pass
30	5	5269.995536	5250~5350	Pass
20	5	5270.007298	5250~5350	Pass
10	5	5269.994123	5250~5350	Pass
0	5	5269.991825	5250~5350	Pass
-10	5	5269.993029	5250~5350	Pass
-20	5	5269.996963	5250~5350	Pass

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5270.006291	5250~5350	Pass
	5	5270.0072	5250~5350	Pass
	5.75	5270.00974	5250~5350	Pass

CH High

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5310.009323	5250~5350	Pass
40	5	5310.003400	5250~5350	Pass
30	5	5309.993522	5250~5350	Pass
20	5	5310.003163	5250~5350	Pass
10	5	5309.997367	5250~5350	Pass
0	5	5309.991822	5250~5350	Pass
-10	5	5310.001539	5250~5350	Pass
-20	5	5310.000732	5250~5350	Pass

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5309.993722	5250~5350	Pass
	5	5310.003145	5250~5350	Pass
	5.75	5309.997133	5250~5350	Pass

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310 MHz / Chain 1:**CH Low**

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5269.990240	5250~5350	Pass
40	5	5270.006286	5250~5350	Pass
30	5	5269.998427	5250~5350	Pass
20	5	5269.990841	5250~5350	Pass
10	5	5270.001300	5250~5350	Pass
0	5	5270.006259	5250~5350	Pass
-10	5	5269.992947	5250~5350	Pass
-20	5	5269.993109	5250~5350	Pass

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5270.002297	5250~5350	Pass
	5	5270.007757	5250~5350	Pass
	5.75	5269.992557	5250~5350	Pass

CH High

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5310.003795	5250~5350	Pass
40	5	5309.998991	5250~5350	Pass
30	5	5310.005190	5250~5350	Pass
20	5	5310.004845	5250~5350	Pass
10	5	5310.003665	5250~5350	Pass
0	5	5309.998447	5250~5350	Pass
-10	5	5310.010799	5250~5350	Pass
-20	5	5310.003839	5250~5350	Pass

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5310.001146	5250~5350	Pass
	5	5309.991656	5250~5350	Pass
	5.75	5309.992422	5250~5350	Pass

IEEE 802.11ac VHT 80 MHz mode / 5290 MHz / Chain 0:**CH Mid**

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5289.995976	5150~5250	Pass
40	5	5290.006881	5150~5250	Pass
30	5	5290.010648	5150~5250	Pass
20	5	5290.006751	5150~5250	Pass
10	5	5290.004125	5150~5250	Pass
0	5	5289.993651	5150~5250	Pass
-10	5	5290.001296	5150~5250	Pass
-20	5	5290.001023	5150~5250	Pass

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5289.993586	5150~5250	Pass
	5	5290.006966	5150~5250	Pass
	5.75	5289.992248	5150~5250	Pass

IEEE 802.11ac VHT 80 MHz mode / 5290 MHz / Chain 1:**CH Mid**

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5290.005775	5150~5250	Pass
40	5	5289.995443	5150~5250	Pass
30	5	5289.997127	5150~5250	Pass
20	5	5289.999007	5150~5250	Pass
10	5	5290.007013	5150~5250	Pass
0	5	5289.992084	5150~5250	Pass
-10	5	5290.003957	5150~5250	Pass
-20	5	5289.993462	5150~5250	Pass

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5289.999502	5150~5250	Pass
	5	5289.996572	5150~5250	Pass
	5.75	5289.991958	5150~5250	Pass

IEEE 802.11a mode / 5500 ~ 5720 MHz:**CH Low**

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5499.997207	5470~5725	Pass
40	5	5500.006707	5470~5725	Pass
30	5	5500.010373	5470~5725	Pass
20	5	5500.003934	5470~5725	Pass
10	5	5500.007992	5470~5725	Pass
0	5	5500.008237	5470~5725	Pass
-10	5	5499.993650	5470~5725	Pass
-20	5	5500.010263	5470~5725	Pass

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5500.007257	5470~5725	Pass
	5	5500.000274	5470~5725	Pass
	5.75	5500.00548	5470~5725	Pass

CH High

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5700.007491	5470~5725	Pass
40	5	5699.992934	5470~5725	Pass
30	5	5699.998971	5470~5725	Pass
20	5	5700.001478	5470~5725	Pass
10	5	5700.010295	5470~5725	Pass
0	5	5700.007676	5470~5725	Pass
-10	5	5700.000271	5470~5725	Pass
-20	5	5699.997959	5470~5725	Pass

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5700.007296	5470~5725	Pass
	5	5700.010429	5470~5725	Pass
	5.75	5700.010784	5470~5725	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5720 MHz / Chain 0:**CH Low**

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5499.990782	5470~5725	Pass
40	5	5500.005704	5470~5725	Pass
30	5	5499.994456	5470~5725	Pass
20	5	5499.991912	5470~5725	Pass
10	5	5500.002495	5470~5725	Pass
0	5	5500.002962	5470~5725	Pass
-10	5	5499.993552	5470~5725	Pass
-20	5	5499.994158	5470~5725	Pass

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5499.992858	5470~5725	Pass
	5	5500.007502	5470~5725	Pass
	5.75	5499.996004	5470~5725	Pass

CH High

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5700.009822	5470~5725	Pass
40	5	5700.009847	5470~5725	Pass
30	5	5700.003074	5470~5725	Pass
20	5	5699.998557	5470~5725	Pass
10	5	5699.999752	5470~5725	Pass
0	5	5699.996984	5470~5725	Pass
-10	5	5700.010722	5470~5725	Pass
-20	5	5699.998908	5470~5725	Pass

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5700.00092	5470~5725	Pass
	5	5700.001272	5470~5725	Pass
	5.75	5700.008086	5470~5725	Pass

IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5720 MHz / Chain 1:**CH Low**

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5500.005669	5470~5725	Pass
40	5	5500.007813	5470~5725	Pass
30	5	5499.997570	5470~5725	Pass
20	5	5499.993786	5470~5725	Pass
10	5	5499.992053	5470~5725	Pass
0	5	5500.005964	5470~5725	Pass
-10	5	5499.994717	5470~5725	Pass
-20	5	5499.999206	5470~5725	Pass

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5499.99115	5470~5725	Pass
	5	5500.001503	5470~5725	Pass
	5.75	5500.002267	5470~5725	Pass

CH High

Operating Frequency: 5720 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5700.000616	5470~5725	Pass
40	5	5699.997604	5470~5725	Pass
30	5	5699.995569	5470~5725	Pass
20	5	5699.993368	5470~5725	Pass
10	5	5700.006166	5470~5725	Pass
0	5	5700.001461	5470~5725	Pass
-10	5	5700.003158	5470~5725	Pass
-20	5	5700.004372	5470~5725	Pass

Operating Frequency: 5720 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5700.004085	5470~5725	Pass
	5	5700.005602	5470~5725	Pass
	5.75	5700.001626	5470~5725	Pass

IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710 MHz / Chain 0:**CH Low**

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5510.000713	5470~5725	Pass
40	5	5509.994852	5470~5725	Pass
30	5	5510.008084	5470~5725	Pass
20	5	5510.009253	5470~5725	Pass
10	5	5509.990159	5470~5725	Pass
0	5	5509.992536	5470~5725	Pass
-10	5	5509.995752	5470~5725	Pass
-20	5	5509.997356	5470~5725	Pass

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5509.992547	5470~5725	Pass
	5	5509.993443	5470~5725	Pass
	5.75	5509.995513	5470~5725	Pass

CH High

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5669.996072	5470~5725	Pass
40	5	5670.000422	5470~5725	Pass
30	5	5669.994008	5470~5725	Pass
20	5	5670.008071	5470~5725	Pass
10	5	5670.001024	5470~5725	Pass
0	5	5670.002337	5470~5725	Pass
-10	5	5670.000355	5470~5725	Pass
-20	5	5670.009196	5470~5725	Pass

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5670.001788	5470~5725	Pass
	5	5669.99808	5470~5725	Pass
	5.75	5669.996054	5470~5725	Pass

IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710 MHz / Chain 1:**CH Low**

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5509.997137	5470~5725	Pass
40	5	5510.006844	5470~5725	Pass
30	5	5510.004462	5470~5725	Pass
20	5	5510.008377	5470~5725	Pass
10	5	5510.004416	5470~5725	Pass
0	5	5510.002526	5470~5725	Pass
-10	5	5509.996892	5470~5725	Pass
-20	5	5509.994337	5470~5725	Pass

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5510.004311	5470~5725	Pass
	5	5509.996919	5470~5725	Pass
	5.75	5509.994813	5470~5725	Pass

CH High

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5669.992567	5470~5725	Pass
40	5	5670.002675	5470~5725	Pass
30	5	5670.005112	5470~5725	Pass
20	5	5670.004405	5470~5725	Pass
10	5	5669.996042	5470~5725	Pass
0	5	5670.004152	5470~5725	Pass
-10	5	5669.995482	5470~5725	Pass
-20	5	5670.010739	5470~5725	Pass

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5669.994033	5470~5725	Pass
	5	5670.008933	5470~5725	Pass
	5.75	5669.991788	5470~5725	Pass

IEEE 802.11ac VHT 80 MHz mode / 5530 ~ 5690 MHz / Chain 0:**CH Low**

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5530.006191	5470~5725	Pass
40	5	5529.999546	5470~5725	Pass
30	5	5529.994472	5470~5725	Pass
20	5	5530.005888	5470~5725	Pass
10	5	5529.992932	5470~5725	Pass
0	5	5529.994791	5470~5725	Pass
-10	5	5529.994283	5470~5725	Pass
-20	5	5529.990111	5470~5725	Pass

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5530.010325	5470~5725	Pass
	5	5529.997218	5470~5725	Pass
	5.75	5529.990482	5470~5725	Pass

CH High

Operating Frequency: 5690 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5689.998767	5470~5725	Pass
40	5	5690.006238	5470~5725	Pass
30	5	5689.998162	5470~5725	Pass
20	5	5690.003861	5470~5725	Pass
10	5	5689.990336	5470~5725	Pass
0	5	5689.990662	5470~5725	Pass
-10	5	5689.996111	5470~5725	Pass
-20	5	5689.998722	5470~5725	Pass

Operating Frequency: 5690 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5690.001854	5470~5725	Pass
	5	5689.999332	5470~5725	Pass
	5.75	5690.006278	5470~5725	Pass

IEEE 802.11ac VHT 80 MHz mode / 5530 ~ 5690 MHz / Chain 1:**CH Low**

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5530.008020	5470~5725	Pass
40	5	5530.005977	5470~5725	Pass
30	5	5530.006726	5470~5725	Pass
20	5	5530.003035	5470~5725	Pass
10	5	5529.996834	5470~5725	Pass
0	5	5530.008261	5470~5725	Pass
-10	5	5530.009546	5470~5725	Pass
-20	5	5529.991584	5470~5725	Pass

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5530.000112	5470~5725	Pass
	5	5529.997009	5470~5725	Pass
	5.75	5529.999489	5470~5725	Pass

CH High

Operating Frequency: 5690 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
50	5	5690.007005	5470~5725	Pass
40	5	5689.990780	5470~5725	Pass
30	5	5690.009777	5470~5725	Pass
20	5	5690.007502	5470~5725	Pass
10	5	5689.996070	5470~5725	Pass
0	5	5690.004119	5470~5725	Pass
-10	5	5689.995301	5470~5725	Pass
-20	5	5689.996686	5470~5725	Pass

Operating Frequency: 5690 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	4.25	5690.006935	5470~5725	Pass
	5	5690.000442	5470~5725	Pass
	5.75	5689.991509	5470~5725	Pass

7.9 DYNAMIC FREQUENCY SELECTION

LIMIT

According to §15.407 (h) and FCC 06-96 appendix “compliance measurement procedures for unlicensed-national information infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection”.

Remark: IC RSS-247 is closely harmonized with FCC Part 15 DFS rules.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client(with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client(with radar detection)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service

Maximum Transmit Power	Value (see note)
≥200 Milliwatt	-64 dBm
< 200 Milliwatt	-62 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period

The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the Burst.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (µsec)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (µsec)	PRI (µsec)	Burst Length (ms)	Pulses Per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	0.33	70%	30

DESCRIPTION OF EUT

Overview Of EUT With Respect To §15.407 (H) Requirements

The firmware installed in the EUT during testing was:

Firmware Rev: 5.1.19.0

The EUT operates over the 5250-5350 MHz range as a Client Device that does not have radar detection capability.

The antenna assembly utilized with the EUT has a gain of 5.54dBi.

The EUT uses one transmitter connected to two 50-ohm coaxial antenna ports via a diversity switch. Only one antenna port is connected to the test system since the EUT has one antenna only.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 20 MHz.

The Master Device is a Wi-Fi (11a/b/g/n/ac 2Tx2R)+BT (V4.1LE) USB Combo Module, FCC ID: PPQ-WCBN4507R.

The rated output power of the Master unit is < 23dBm (EIRP). Therefore the required interference threshold level is -62 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is $-62 + 5 = -57$ dBm.

The calibrated conducted DFS Detection Threshold level is set to -57 dBm. The tested level is lower than the required level hence it provides margin to the limit.

Manufacturer’s Statement Regarding Uniform Channel Spreading

The end product implements an automatic channel selection feature at startup such that operation commences on channels distributed across the entire set of allowed 5GHz channels. This feature will ensure uniform spreading is achieved while avoiding non-allowed channels due to prior radar events.

TEST AND MEASUREMENT SYSTEM

System Overview

The measurement system is based on a conducted test method.

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

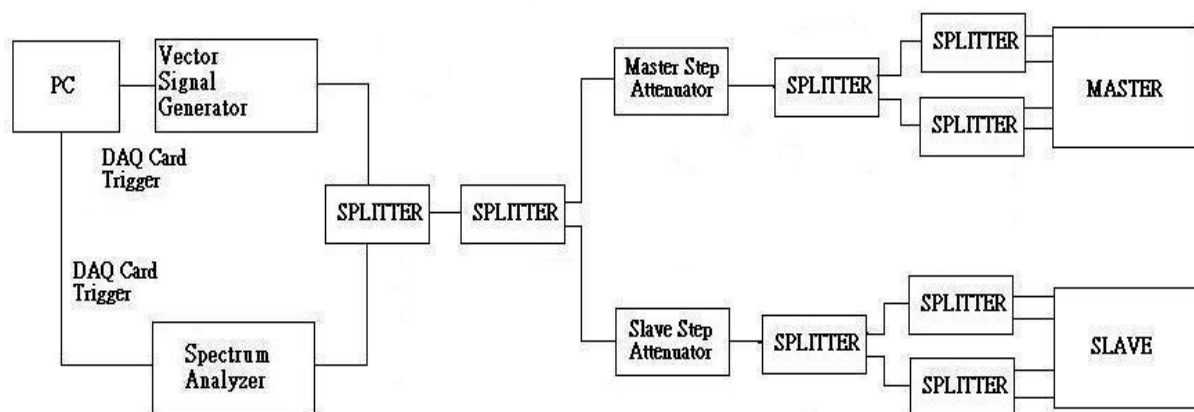
The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from FL to FH for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer set to display 8001 bins on the horizontal axis. The time-domain resolution is 2 msec / bin with a 16 second sweep time, meeting the 10 second short pulse reporting criteria. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold. The time-domain resolution is 3 msec / bin with a 24 second sweep time, meeting the 22 second long pulse reporting criteria and allowing a minimum of 10 seconds after the end of the long pulse waveform.

Should multiple RF ports be utilized for the Master and/or Slave devices (for example, for diversity or MIMO implementations), 50 ohm termination would be removed from the splitter so that connection can be established between splitter and the Master and/or Slave devices.

Conducted Method System Block Diagram



System Calibration

Connect the spectrum analyzer to the test system in place of the master device. Set the signal generator to CW mode. Adjust the amplitude of the signal generator to yield a measured level of –62 dBm on the spectrum analyzer.

Without changing any of the instrument settings, reconnect the spectrum analyzer to the Common port of the Spectrum Analyzer Combiner/Divider and connect a 50 ohm load to the Master Device port of the test system.

Measure the amplitude and calculate the difference from –62 dBm. Adjust the Reference Level Offset of the spectrum analyzer to this difference. Confirm that the signal is displayed at –62 dBm. Readjust the RBW and VBW to 3 MHz, set the span to 10 MHz, and confirm that the signal is still displayed at –62 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –62 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

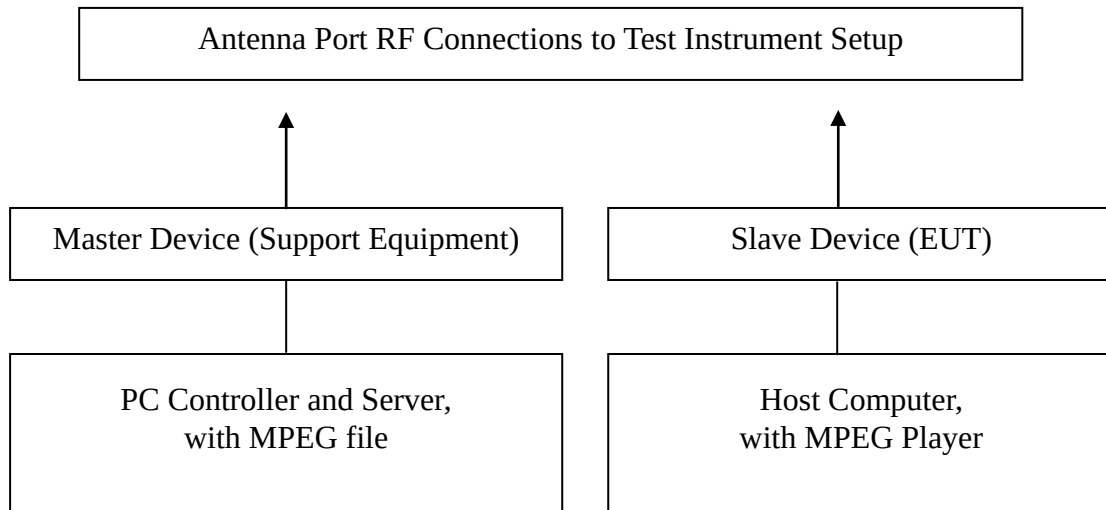
Set the signal generator to produce a radar waveform, trigger a burst manually and measure the level on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.

Adjustment Of Displayed Traffic Level

Establish a link between the Master and Slave, adjusting the Link Step Attenuator as needed to provide a suitable received level at the Master and Slave devices. Stream the video test file to generate WLAN traffic. Confirm that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

Confirm that the displayed traffic is from the Master Device. For Master Device testing confirm that the displayed traffic does not include Slave Device traffic. For Slave Device testing confirm that the displayed traffic does not include Master Device traffic.

If a different setting of the Master Step Attenuator is required to meet the above conditions, perform a new System Calibration for the new Master Step Attenuator setting.

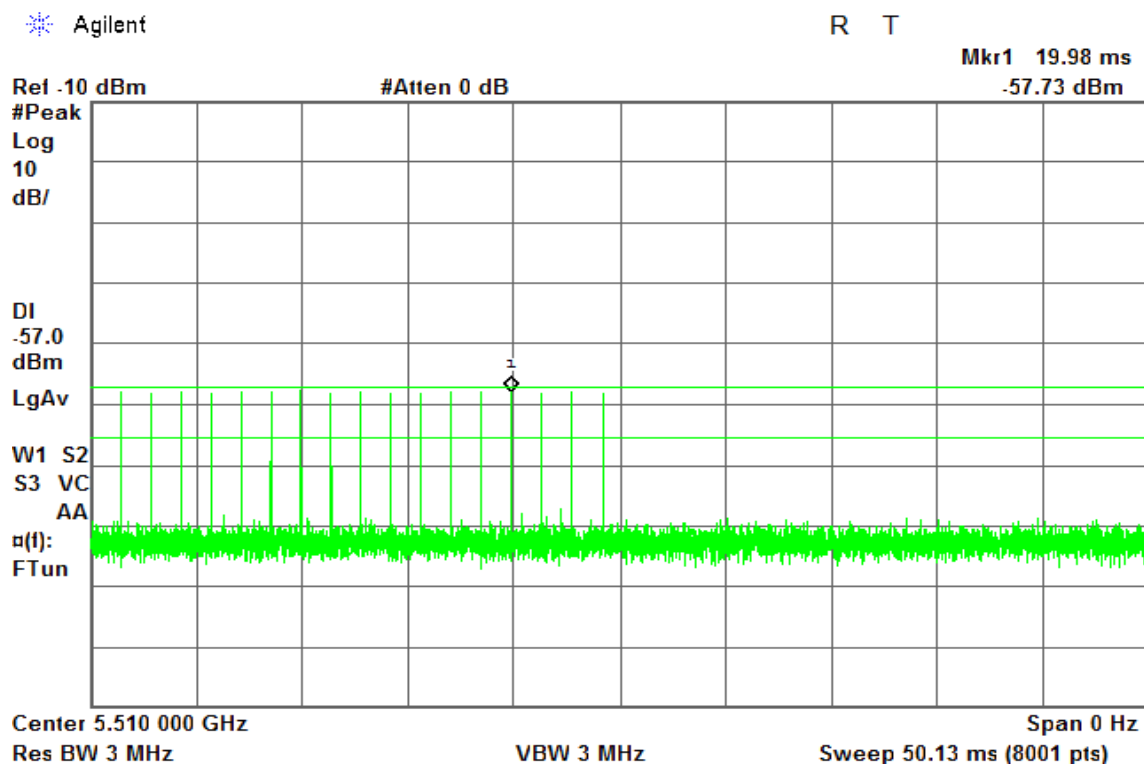
Test Setup**TEST RESULTS**

No non-compliance noted

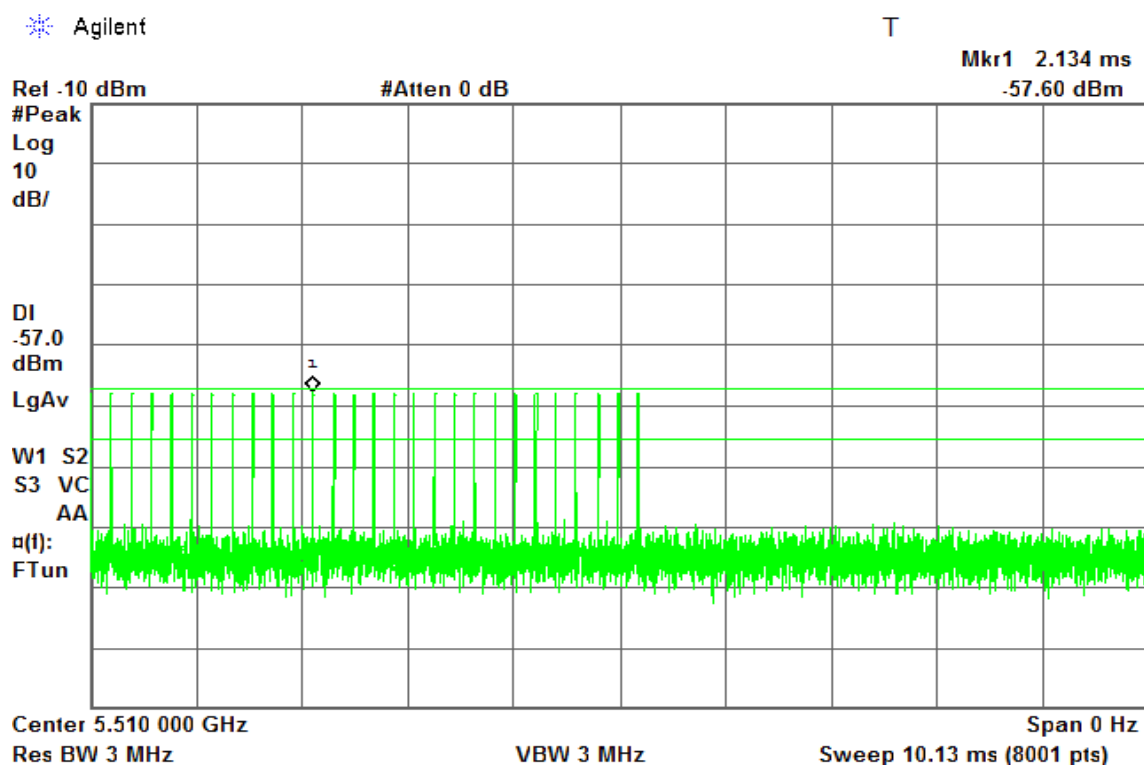
Test Plot

PLOTS OF RADAR WAVEFORMS

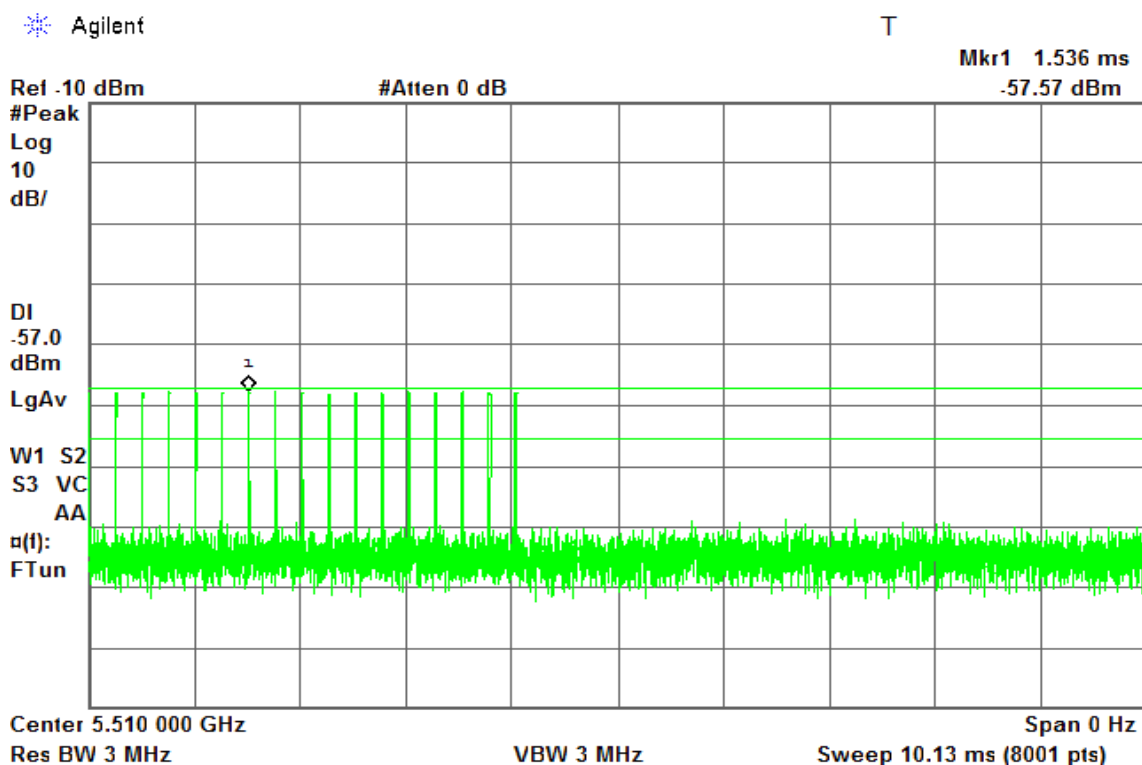
Sample of Short Pulse Radar Type 1



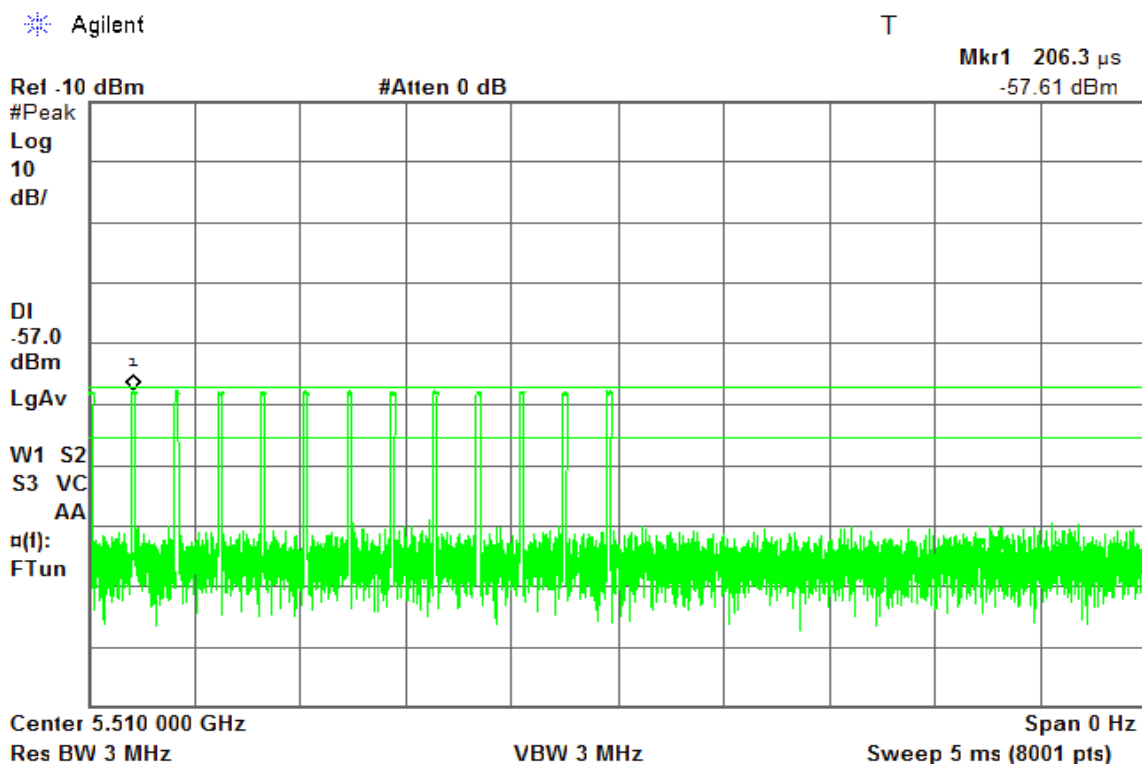
Sample of Short Pulse Radar Type 2



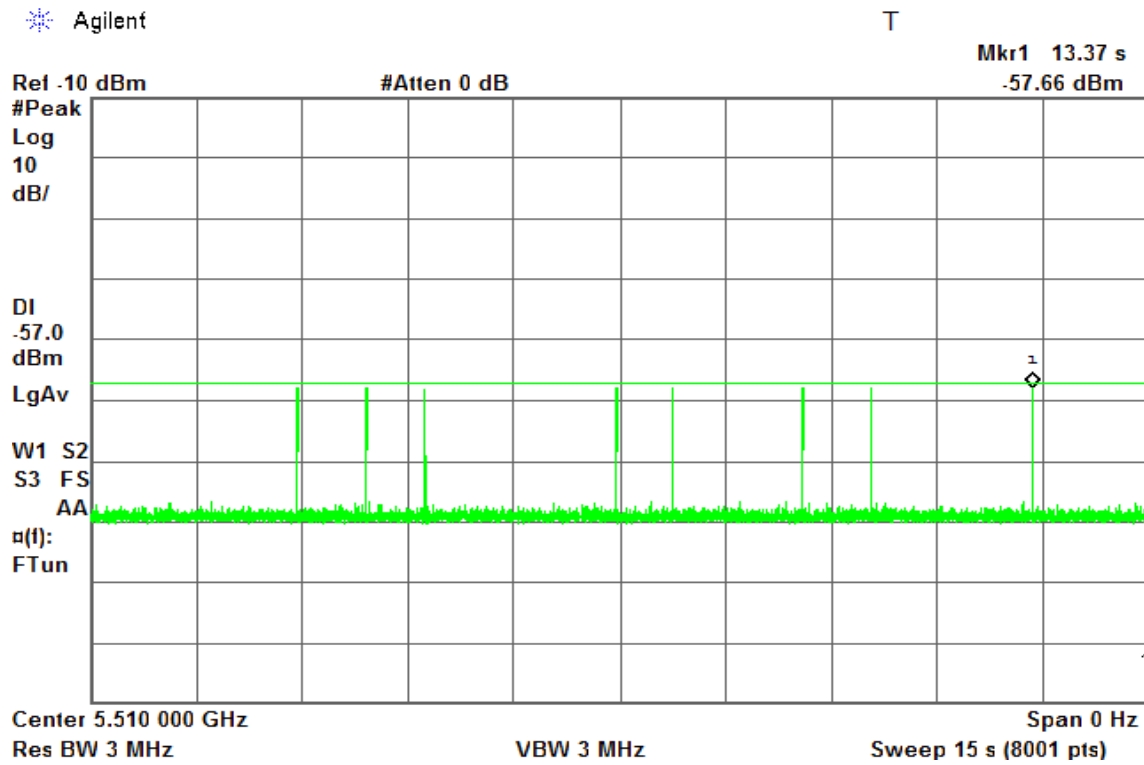
Sample of Short Pulse Radar Type 3



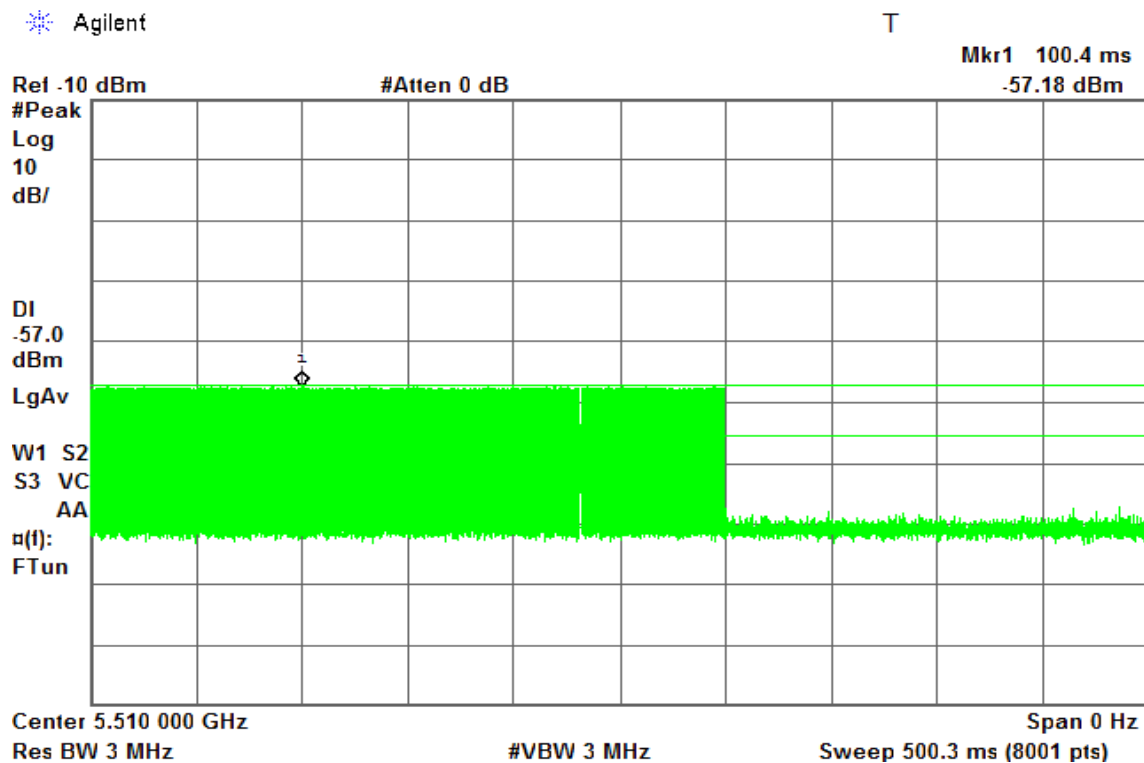
Sample of Short Pulse Radar Type 4



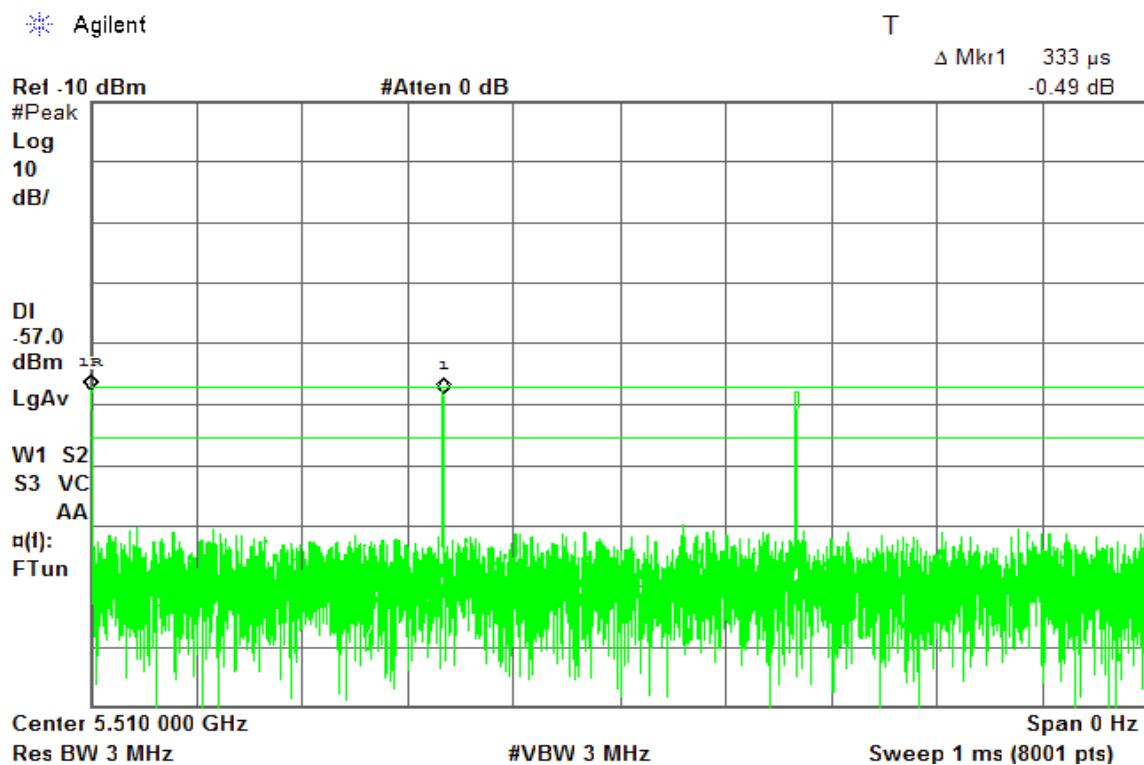
Sample of Long Pulse Radar Type 5



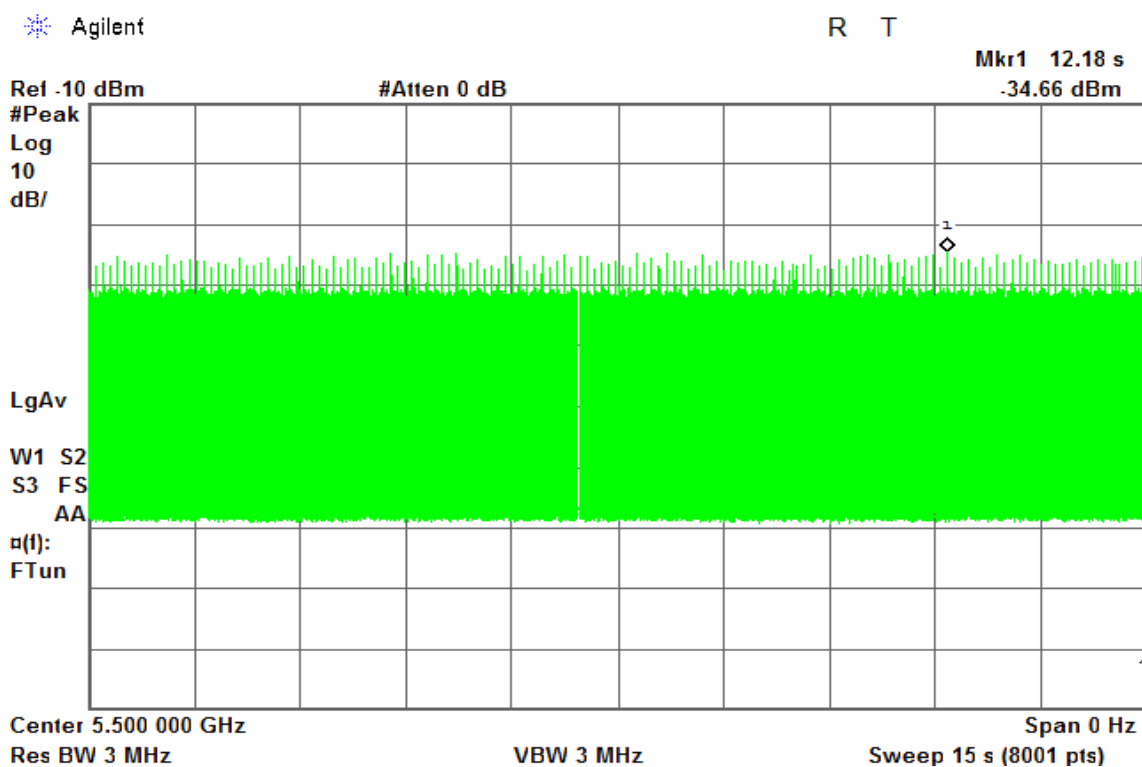
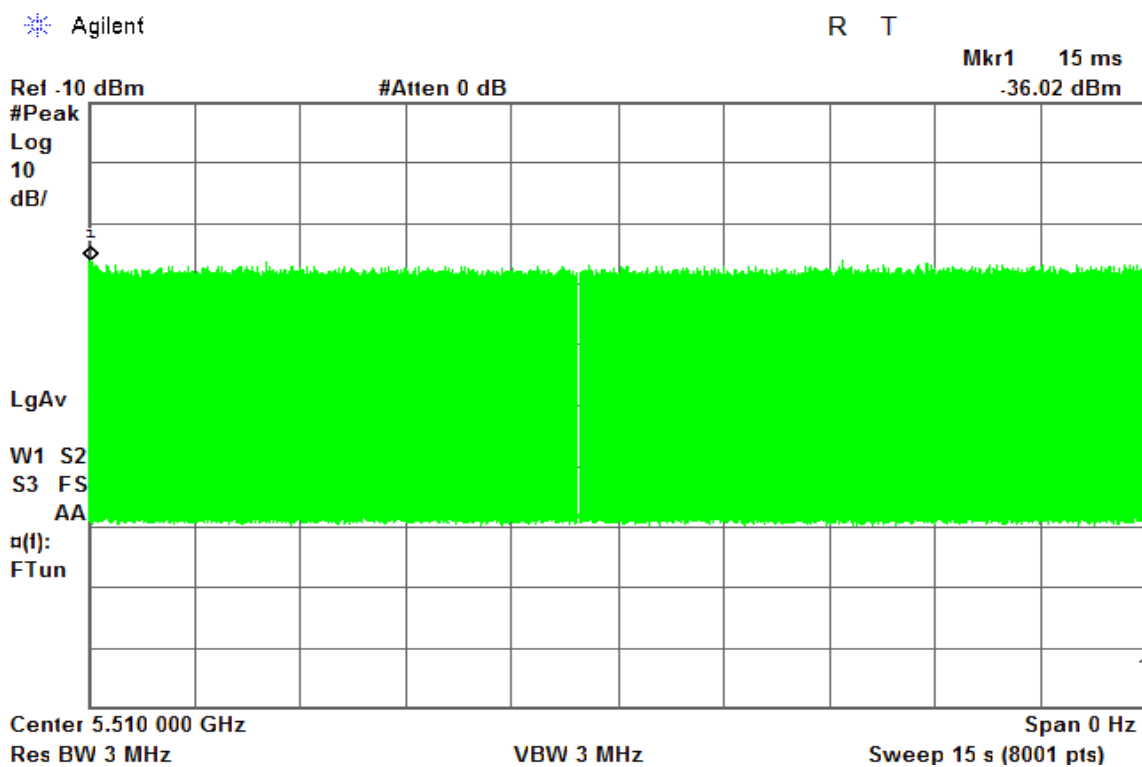
Sample of Frequency Hopping Radar Type 6-1

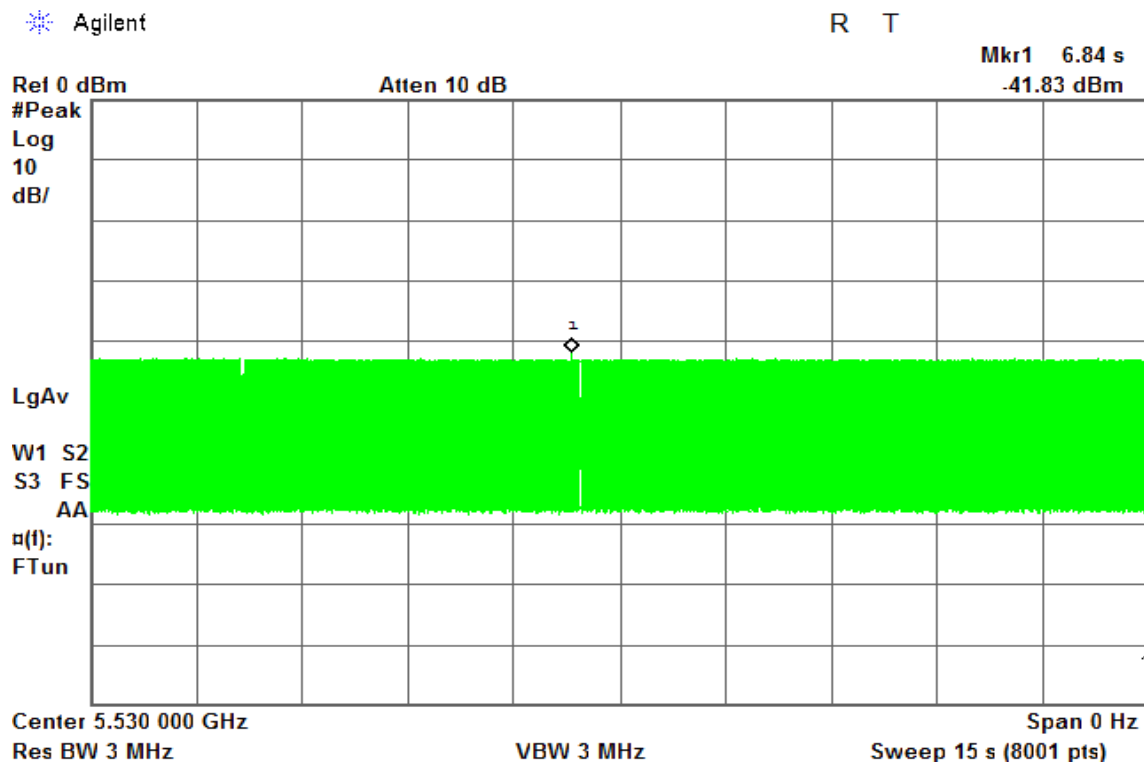


Sample of Frequency Hopping Radar Type 6-2



Plot of WLAN Traffic from Slave

IEEE 802.11n HT 20 MHz modeIEEE 802.11n HT 40 MHz mode

IEEE 802.11ac VHT 80 MHz mode

TEST CHANNEL AND METHOD

All tests were performed at a channel center frequency of 5300 MHz utilizing a conducted test method.

CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME**GENERAL REPORTING NOTES**

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

(Number of analyzer bins showing transmission) * (dwell time per bin)

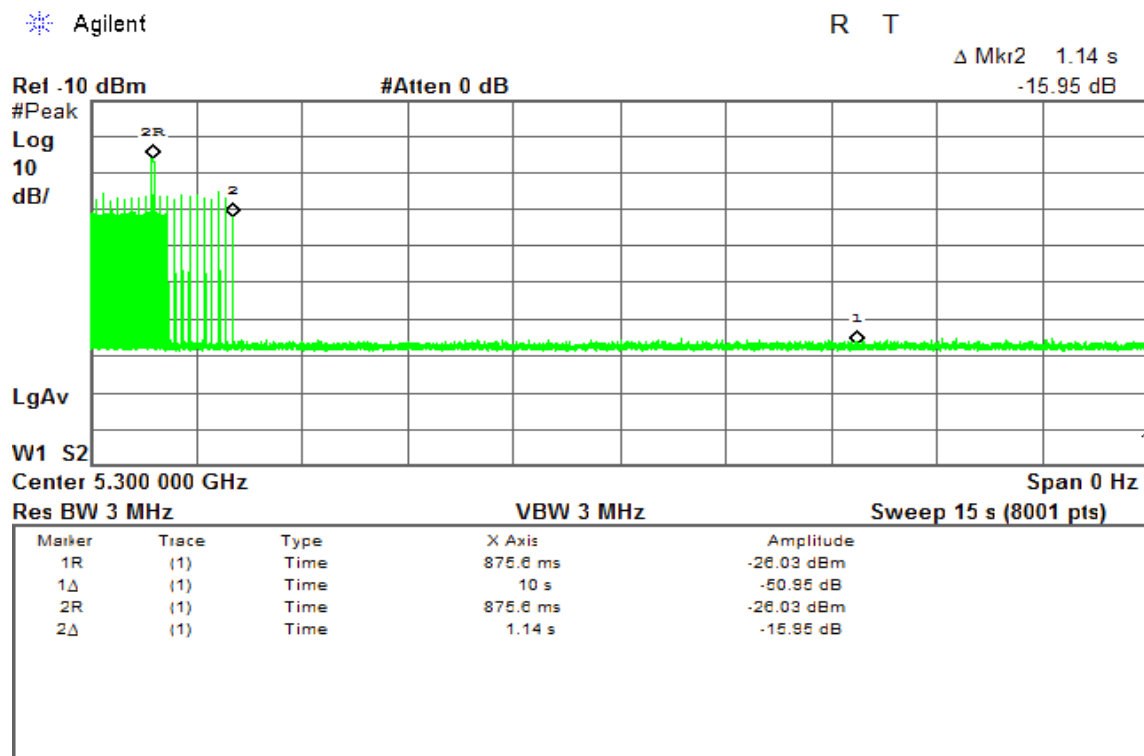
The observation period over which the aggregate time is calculated

Begins at (Reference Marker + 200 msec) and

Ends no earlier than (Reference Marker + 10 sec).

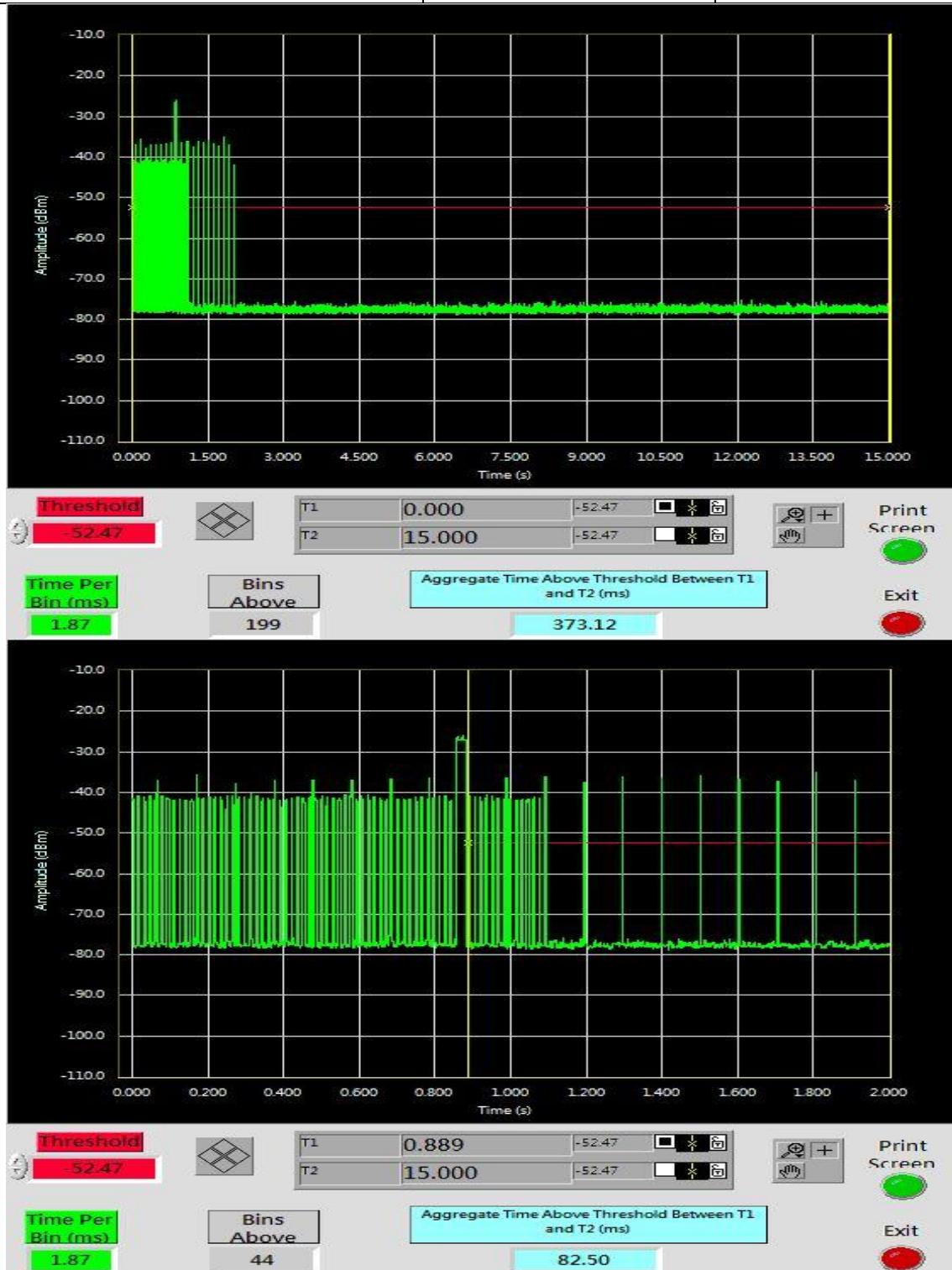
UNII Band II**IEEE 802.11n HT 20 MHz Channel mode****Type 1 Channel Move Time Results***No non-compliance noted.*

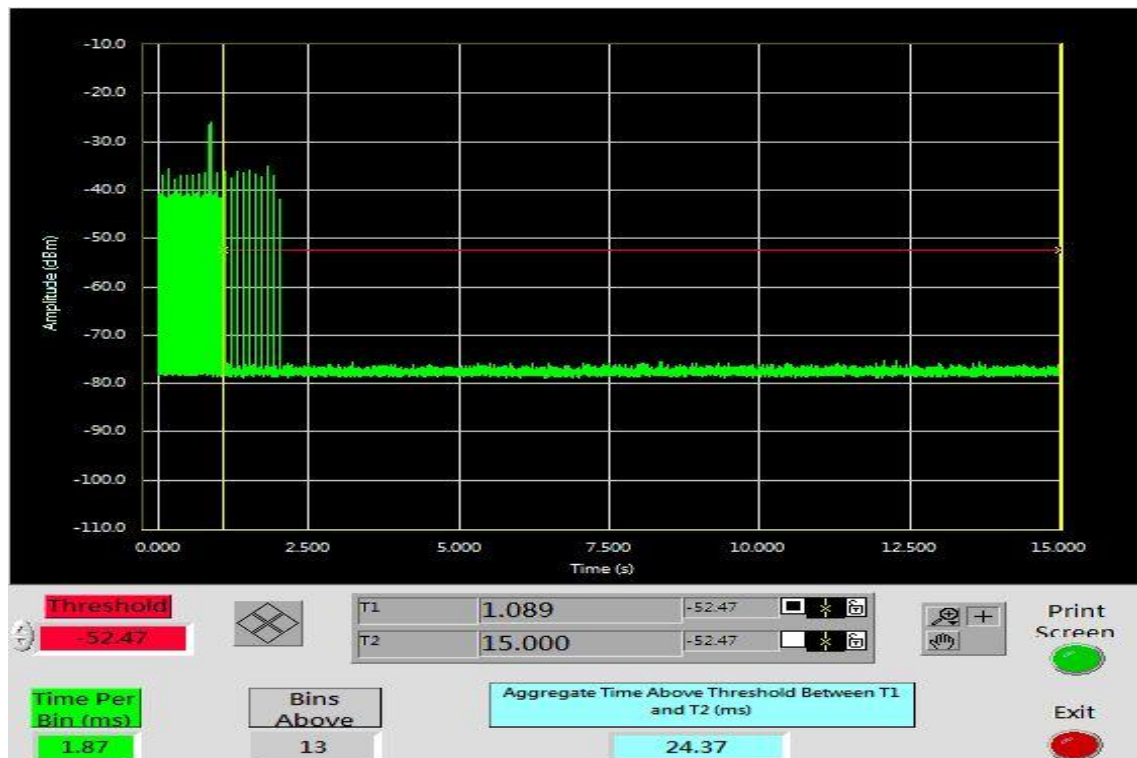
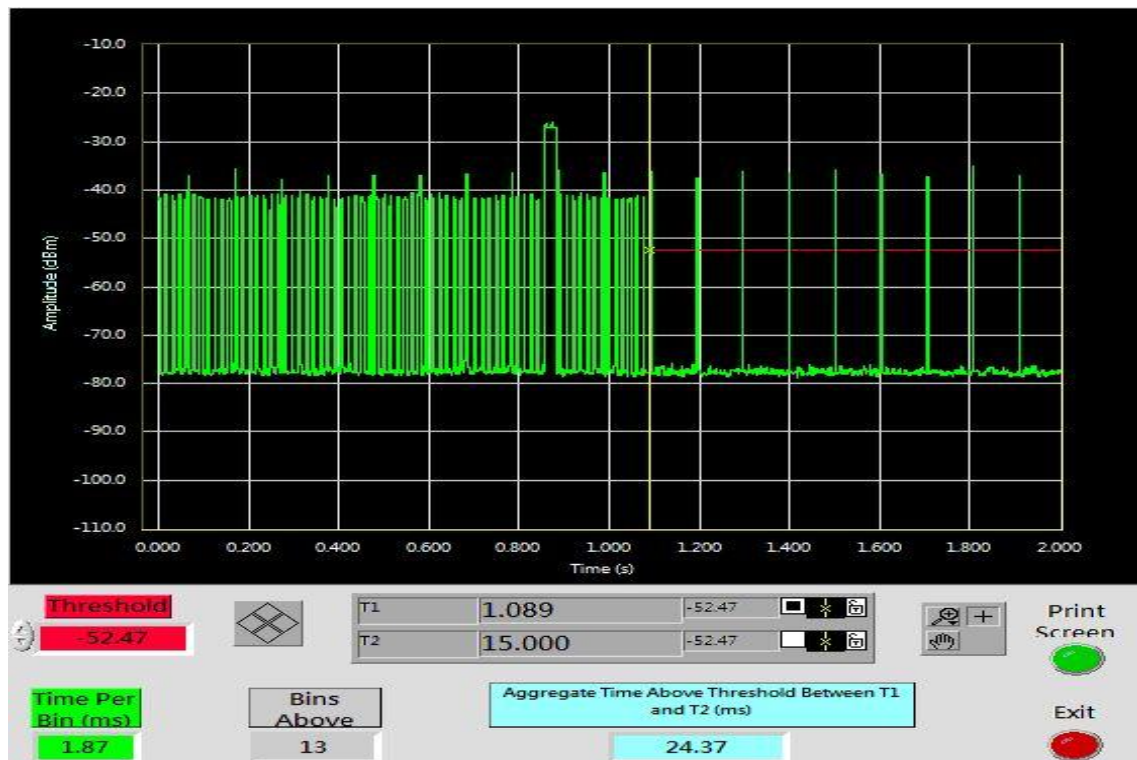
Channel Move Time (s)	Limit (s)
1.14	10



IEEE 802.11n HT 20 MHz Channel mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

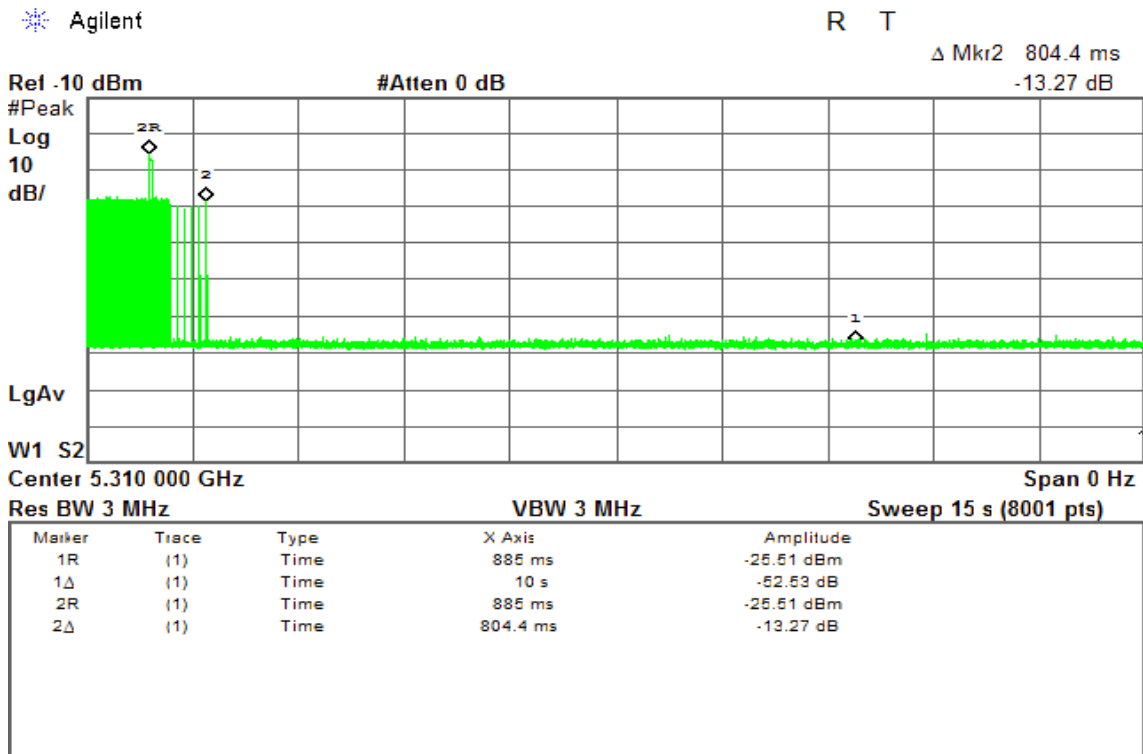
Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
24.37	60	-35.63





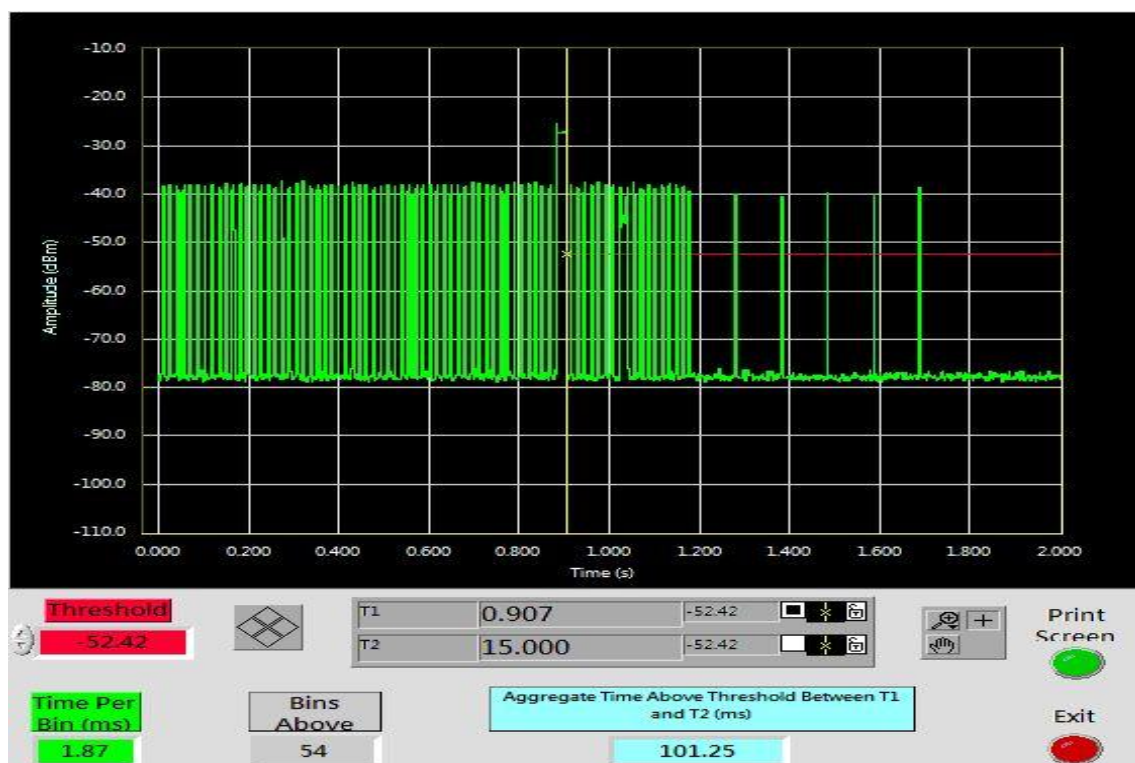
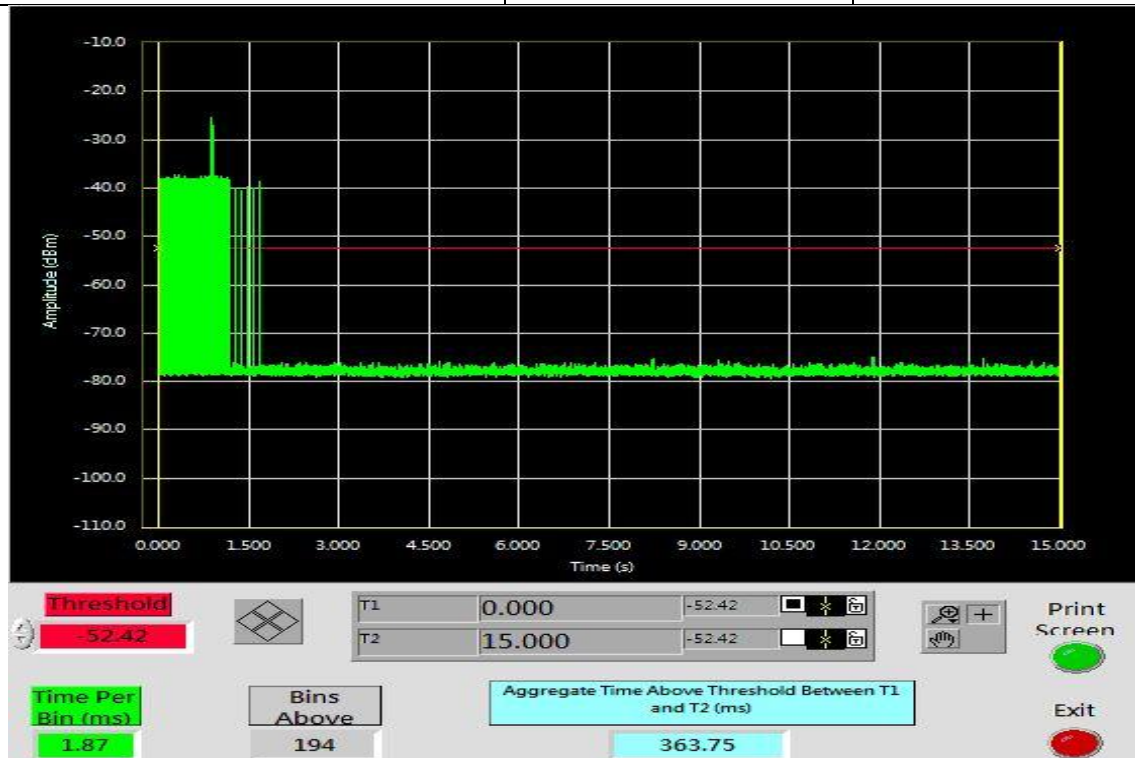
IEEE 802.11n HT 40 MHz mode**Type 1 Channel Move Time Results***No non-compliance noted.*

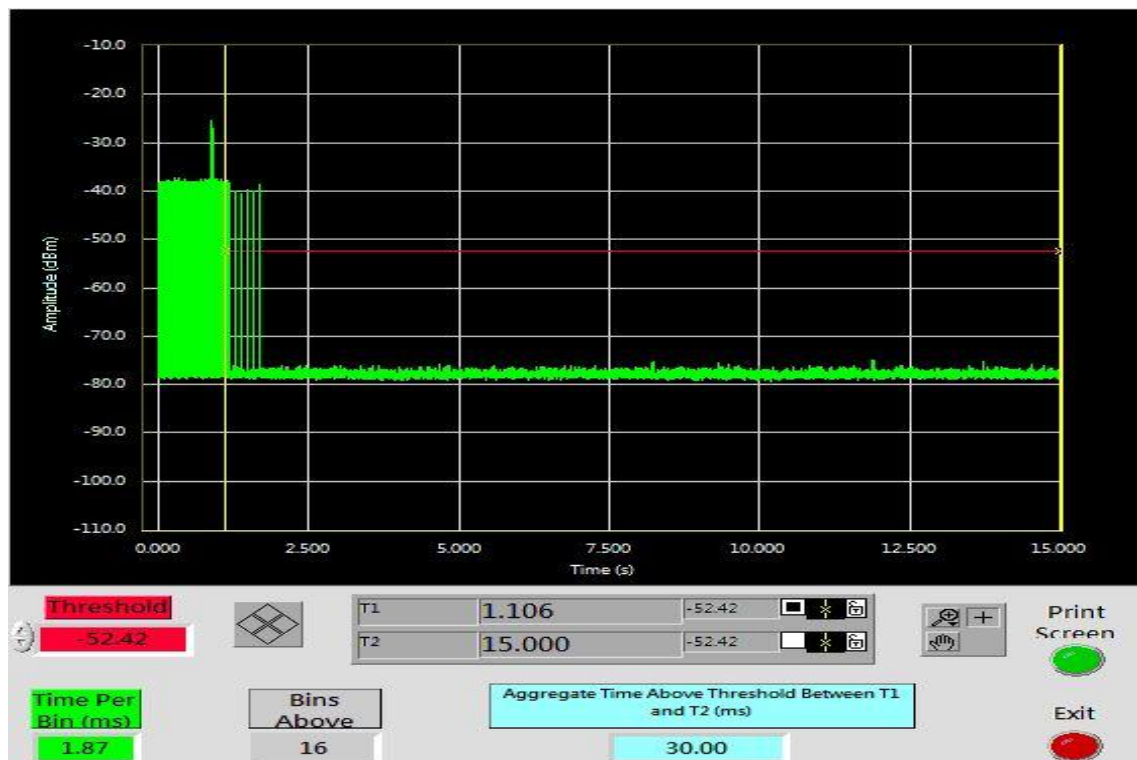
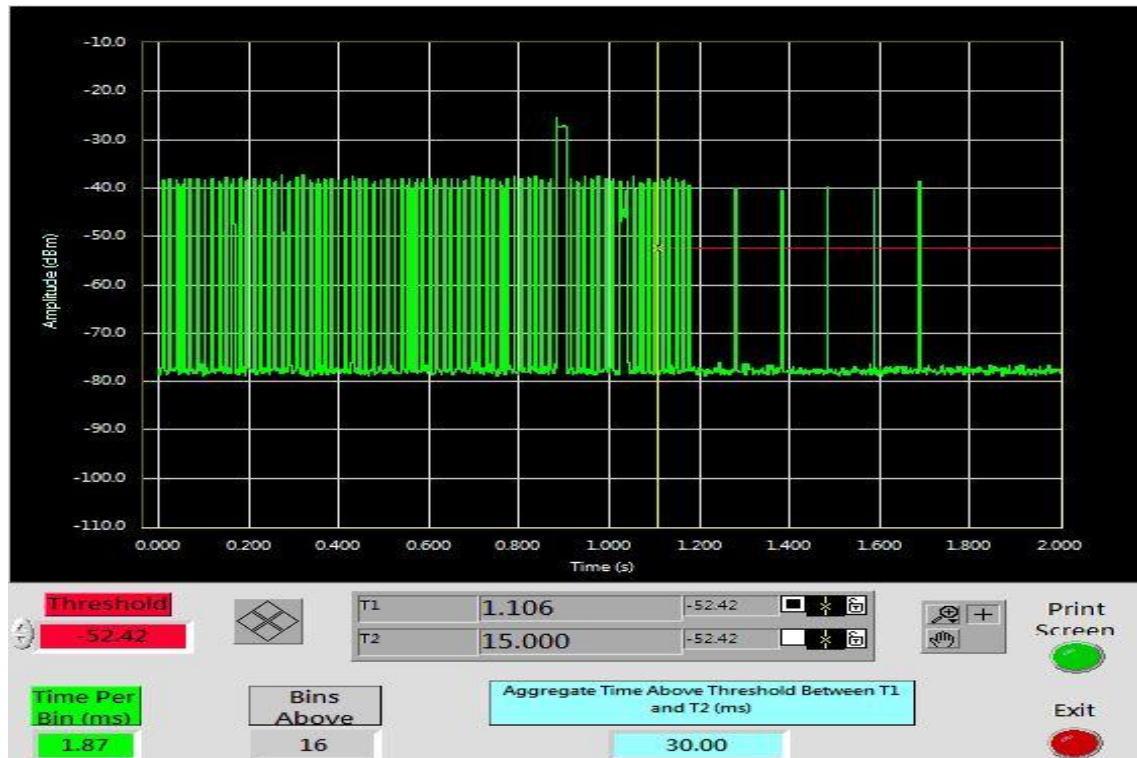
Channel Move Time (ms)	Limit (s)
804.4	10



IEEE 802.11n HT 40 MHz mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

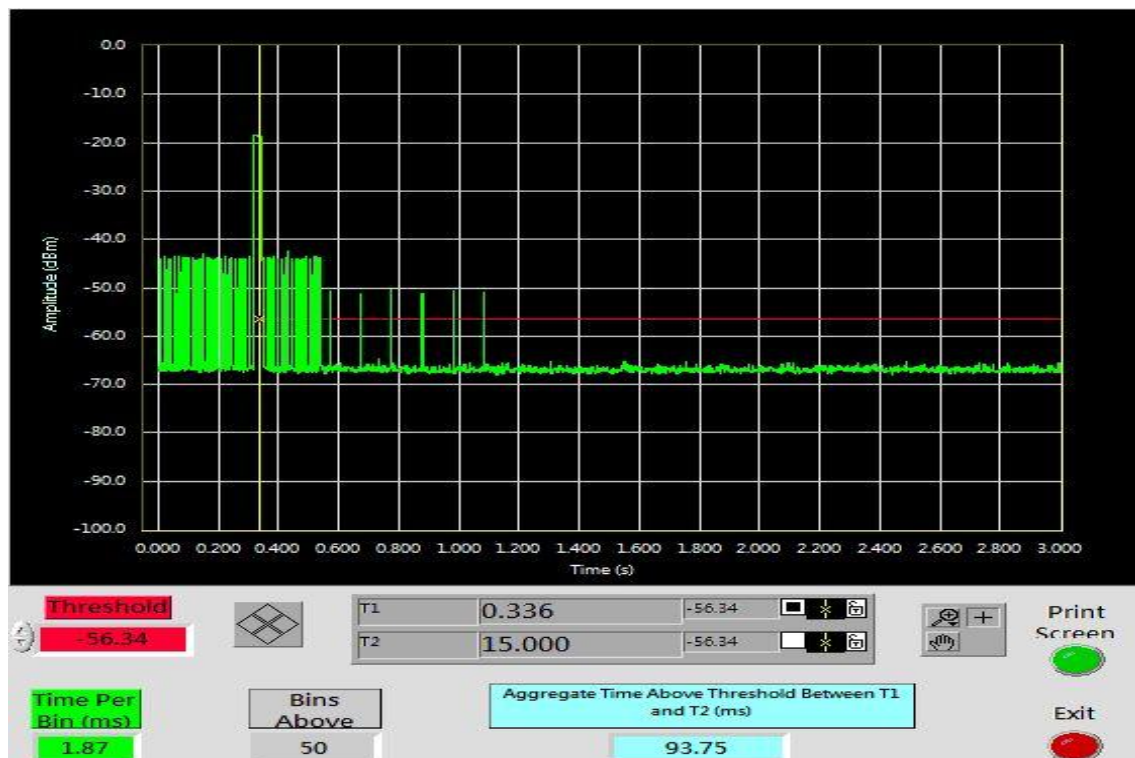
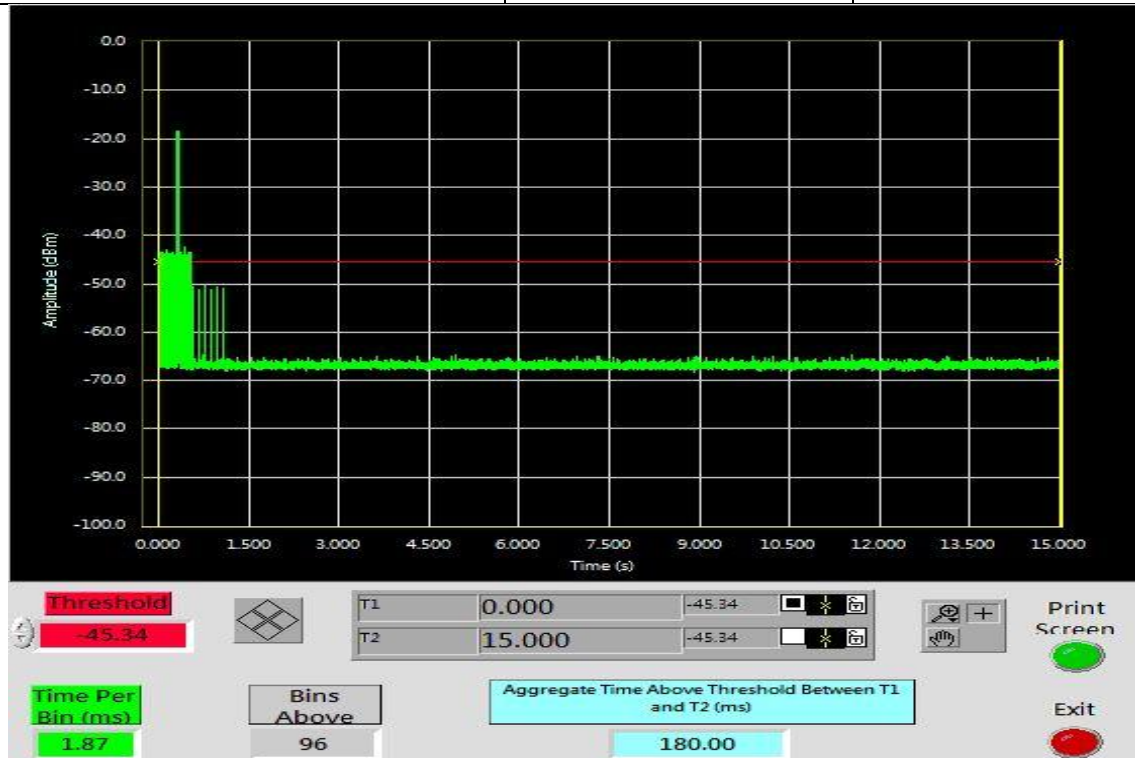
Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
30	60	-30

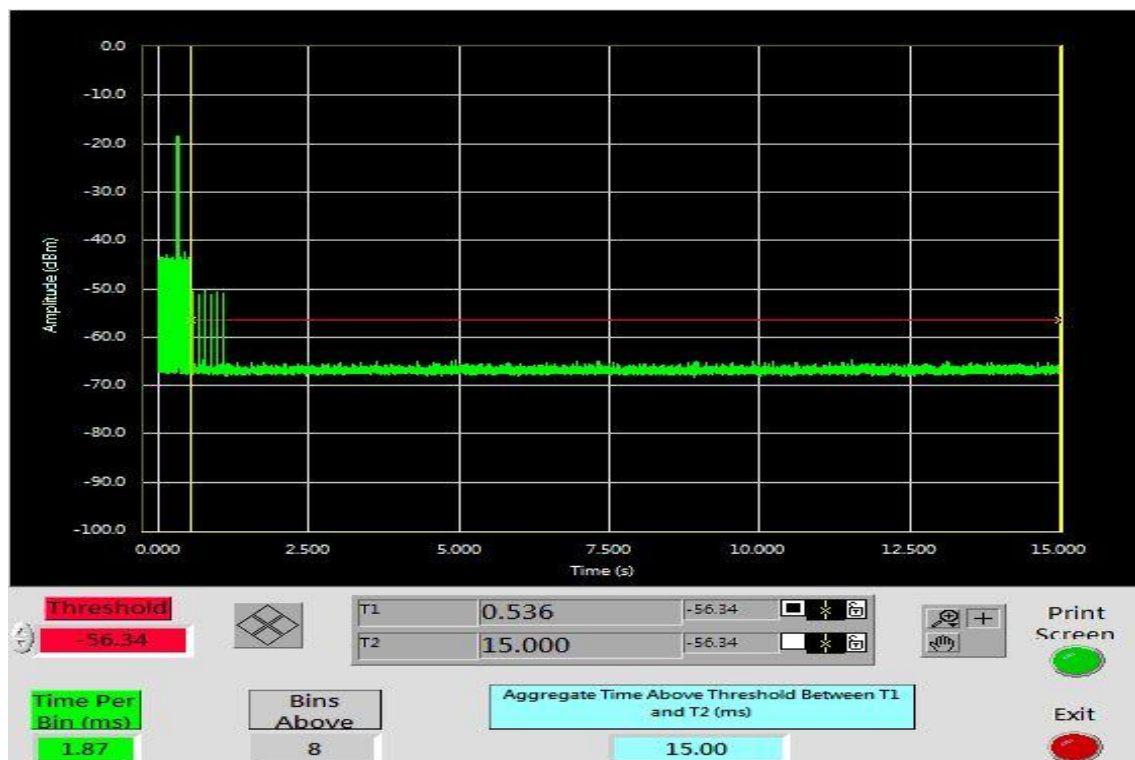
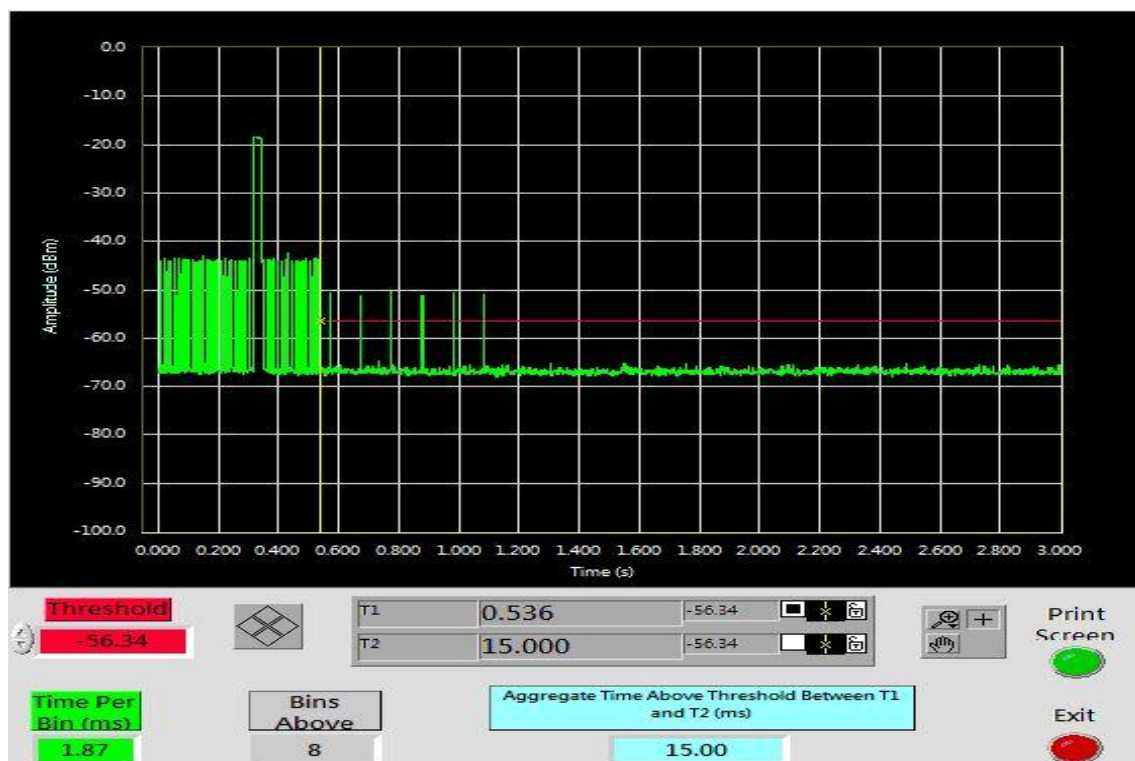




IEEE 802.11 ac VHT 80 MHz Channel mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

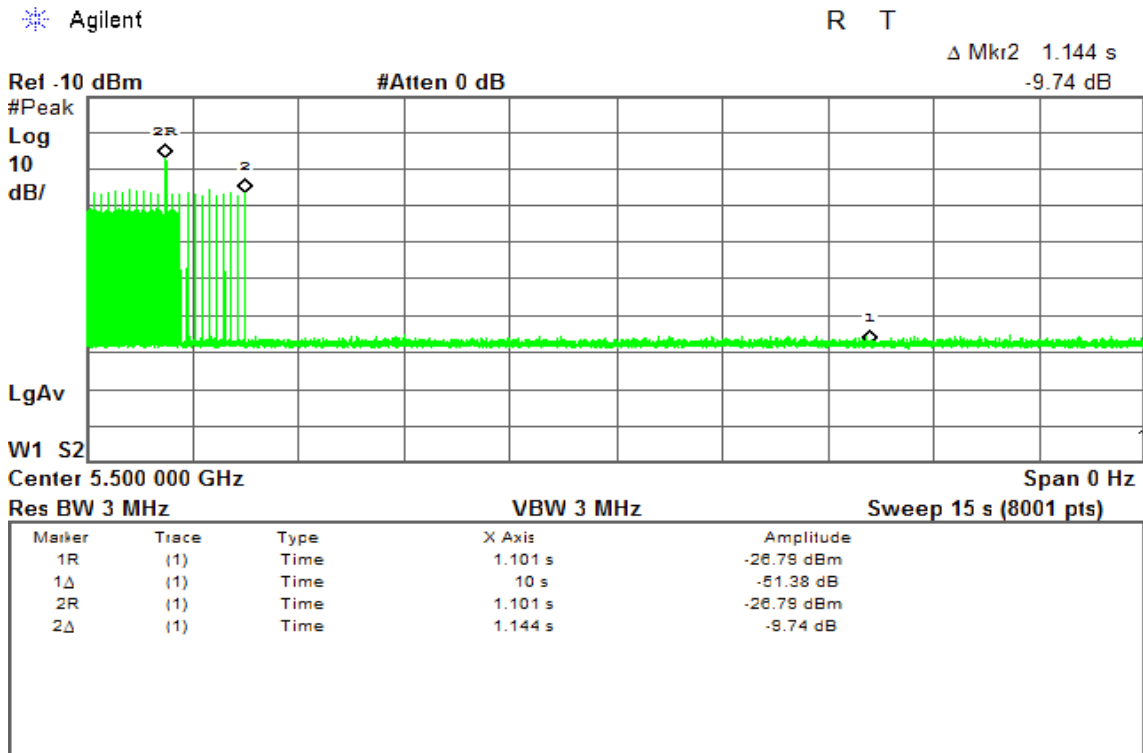
Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
15	60	-45





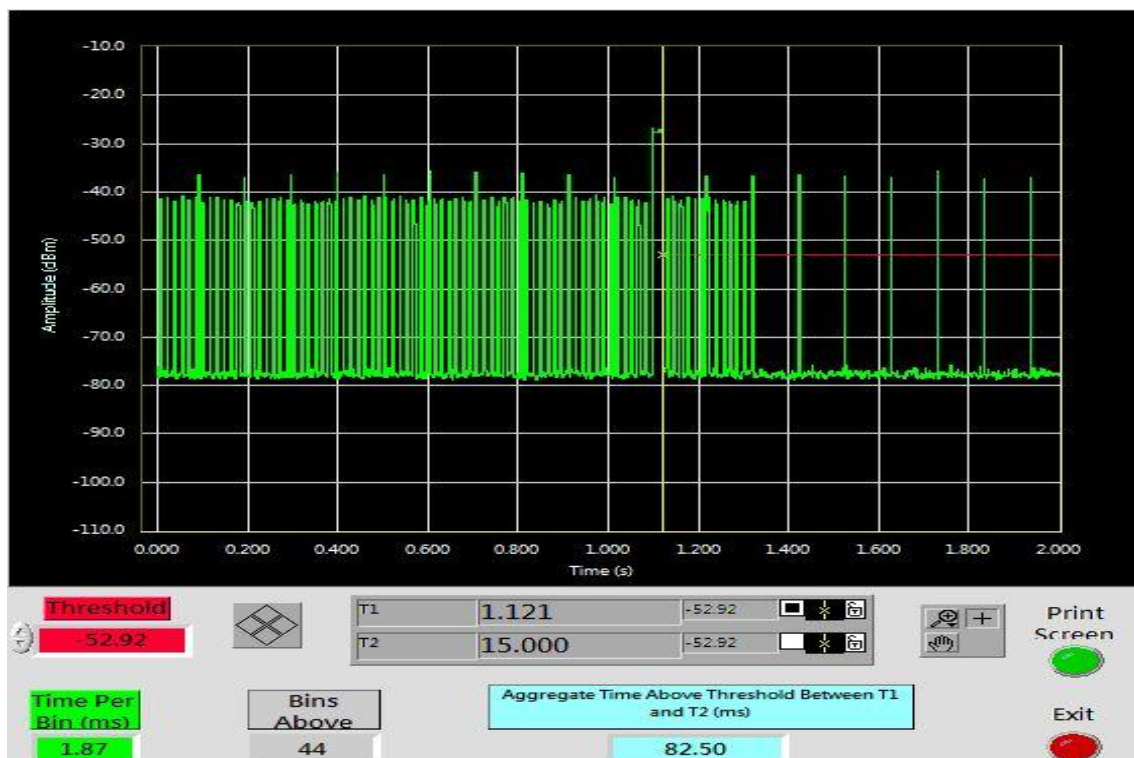
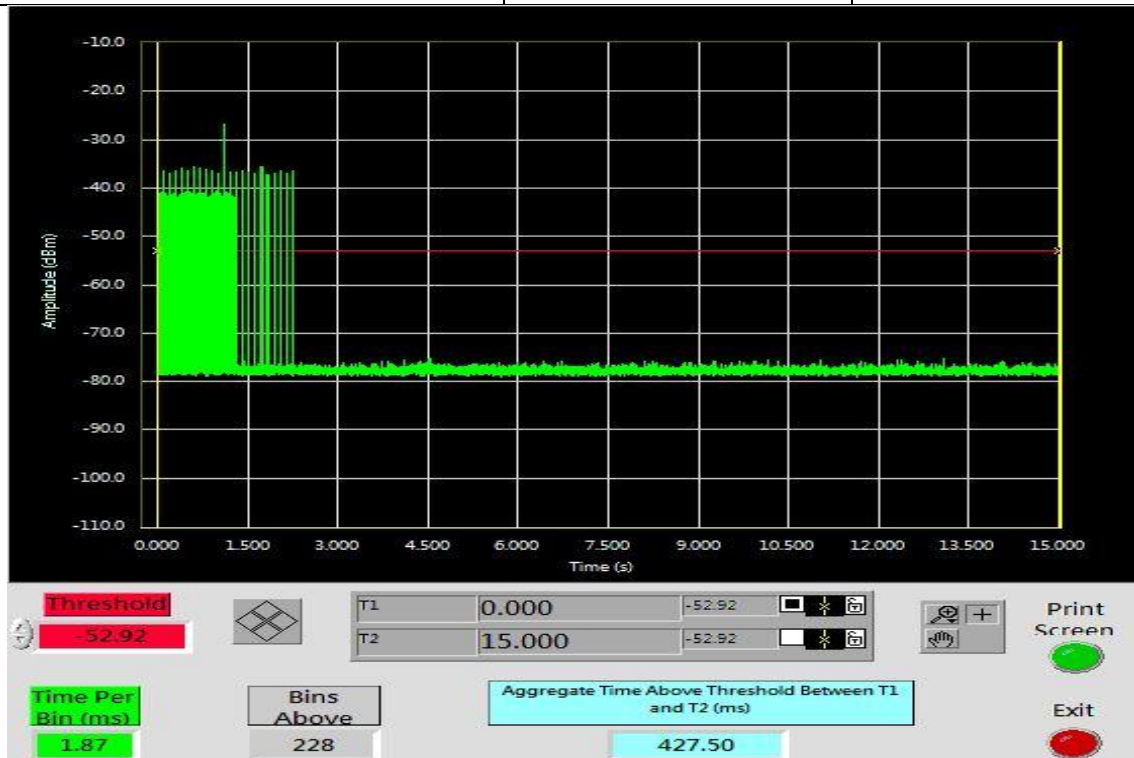
UNII Band III**IEEE 802.11n HT 20 MHz Channel mode****Type 1 Channel Move Time Results***No non-compliance noted.*

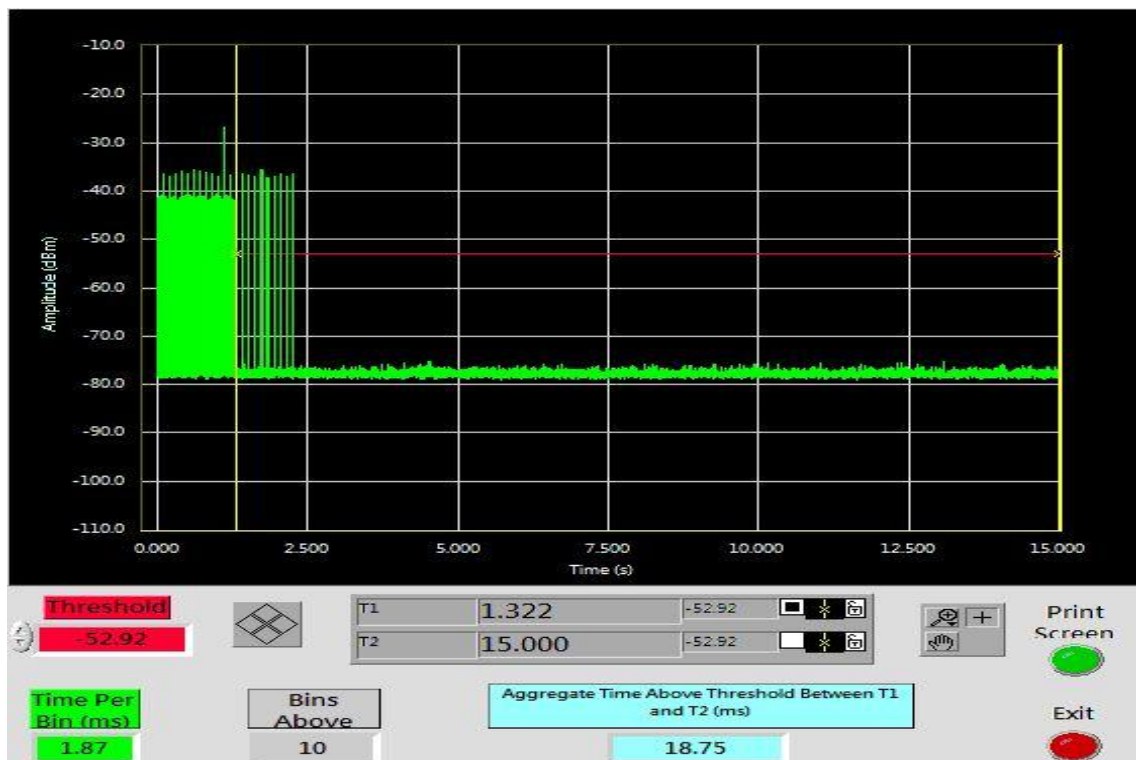
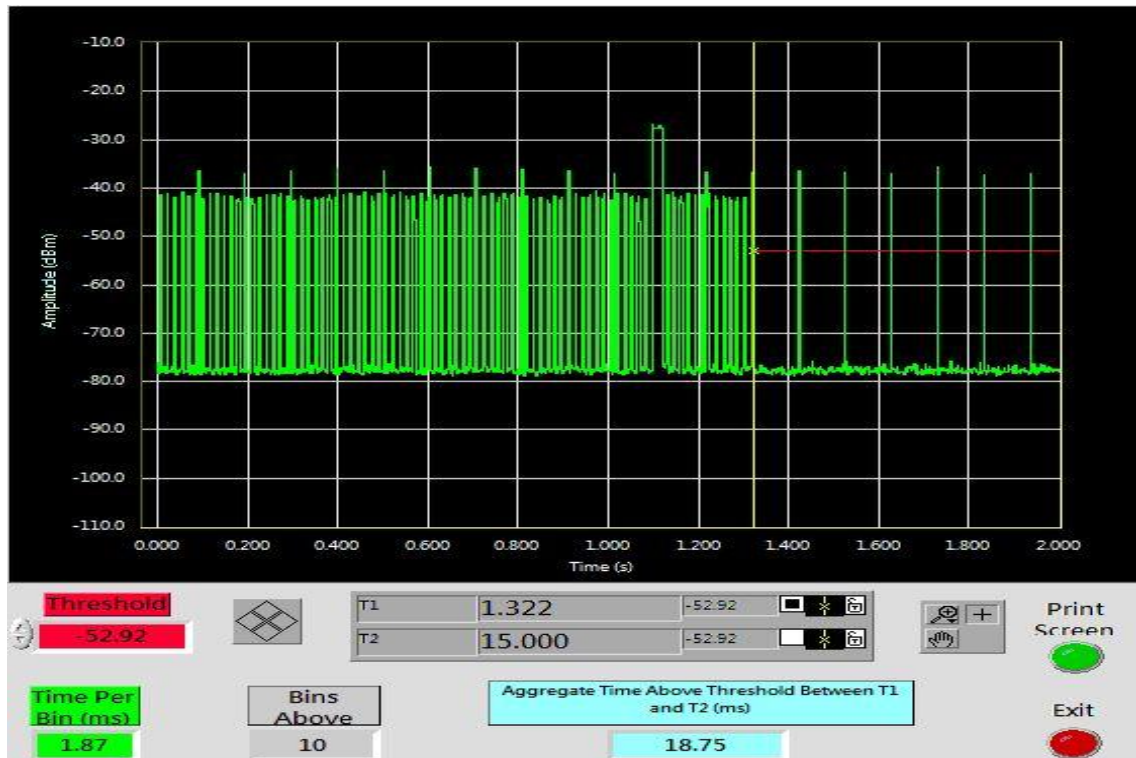
Channel Move Time (s)	Limit (s)
1.144	10



IEEE 802.11n HT 20 MHz Channel mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

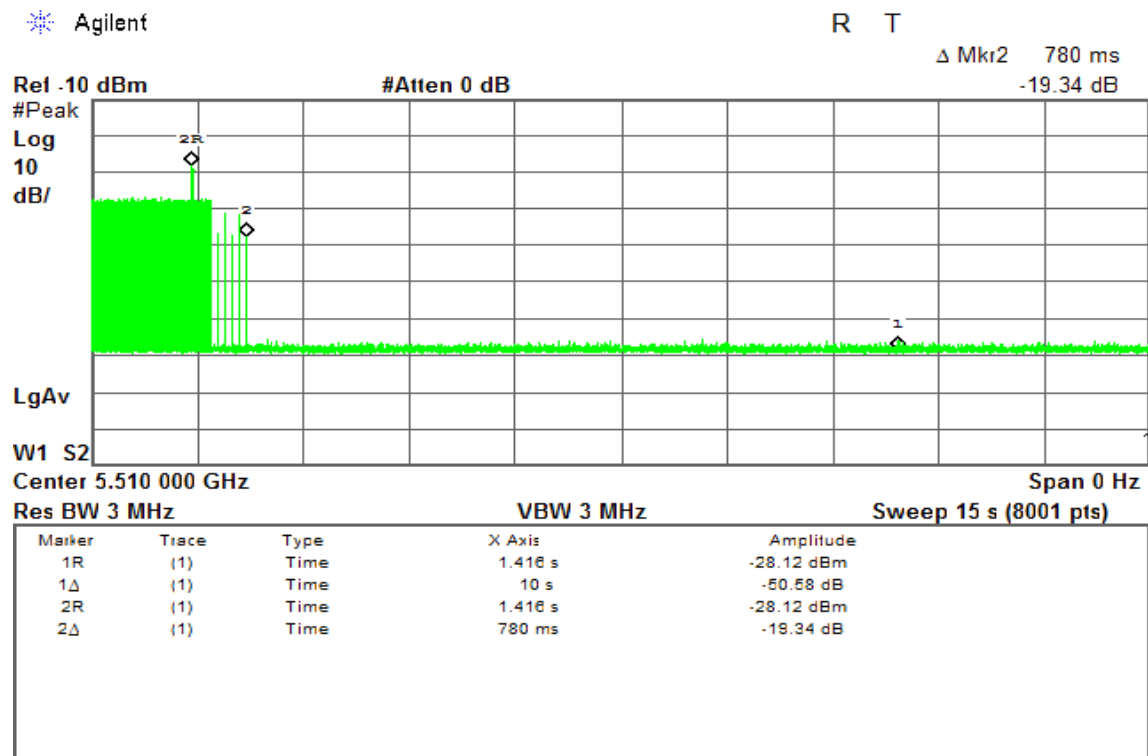
Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
18.75	60	-41.25





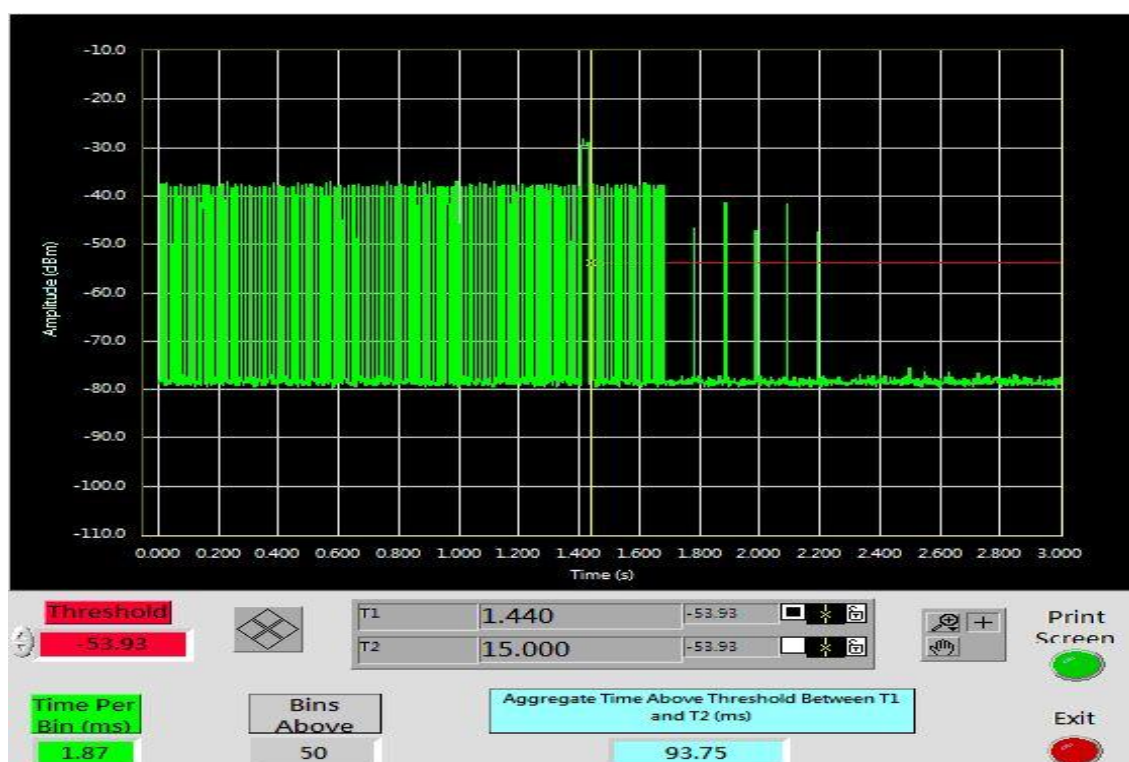
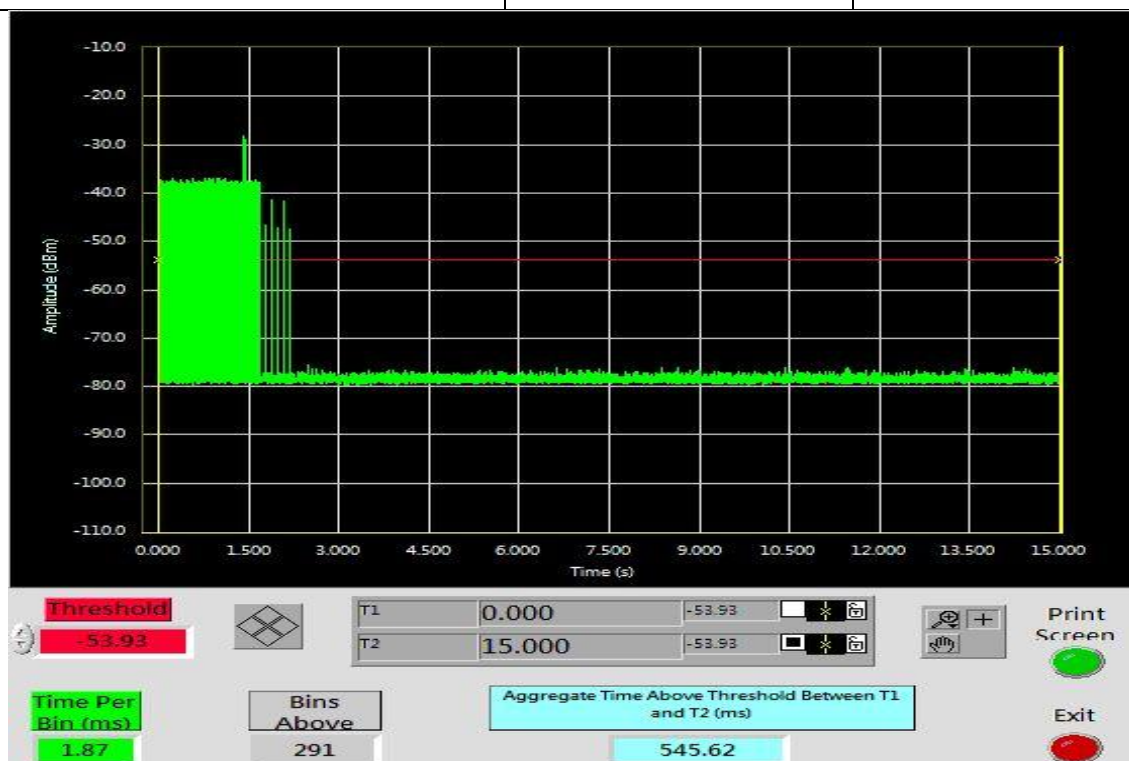
IEEE 802.11n HT 40 MHz mode**Type 1 Channel Move Time Results***No non-compliance noted.*

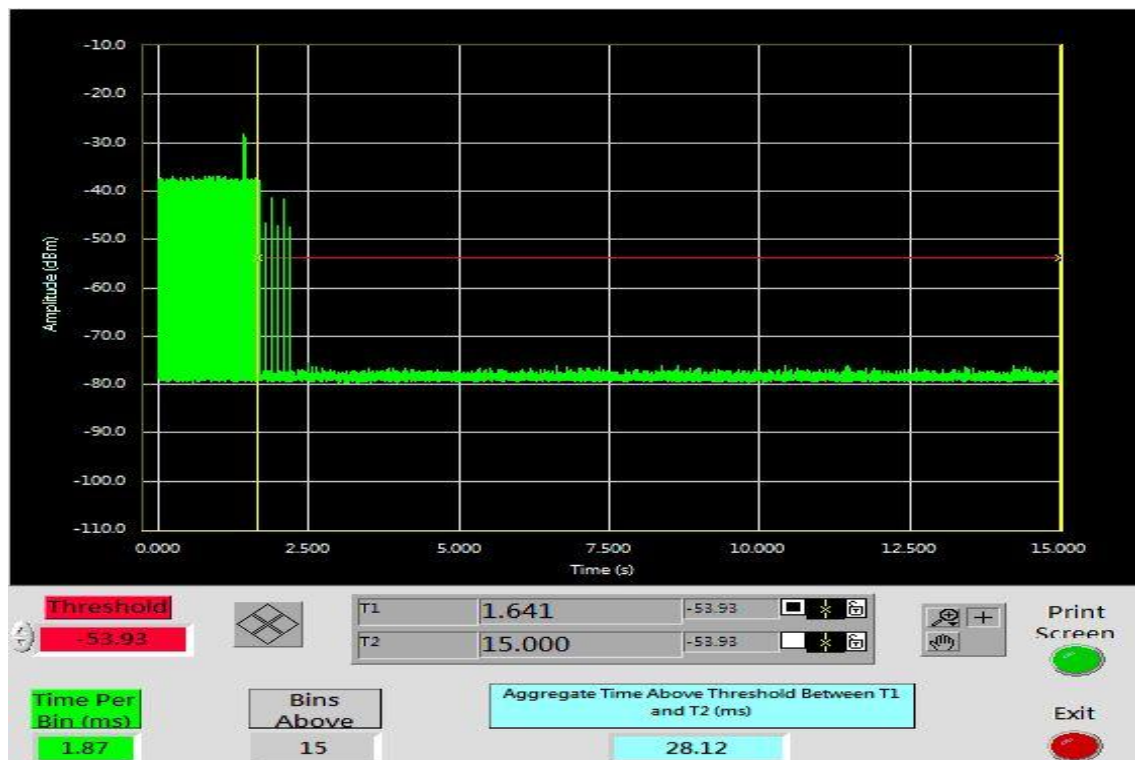
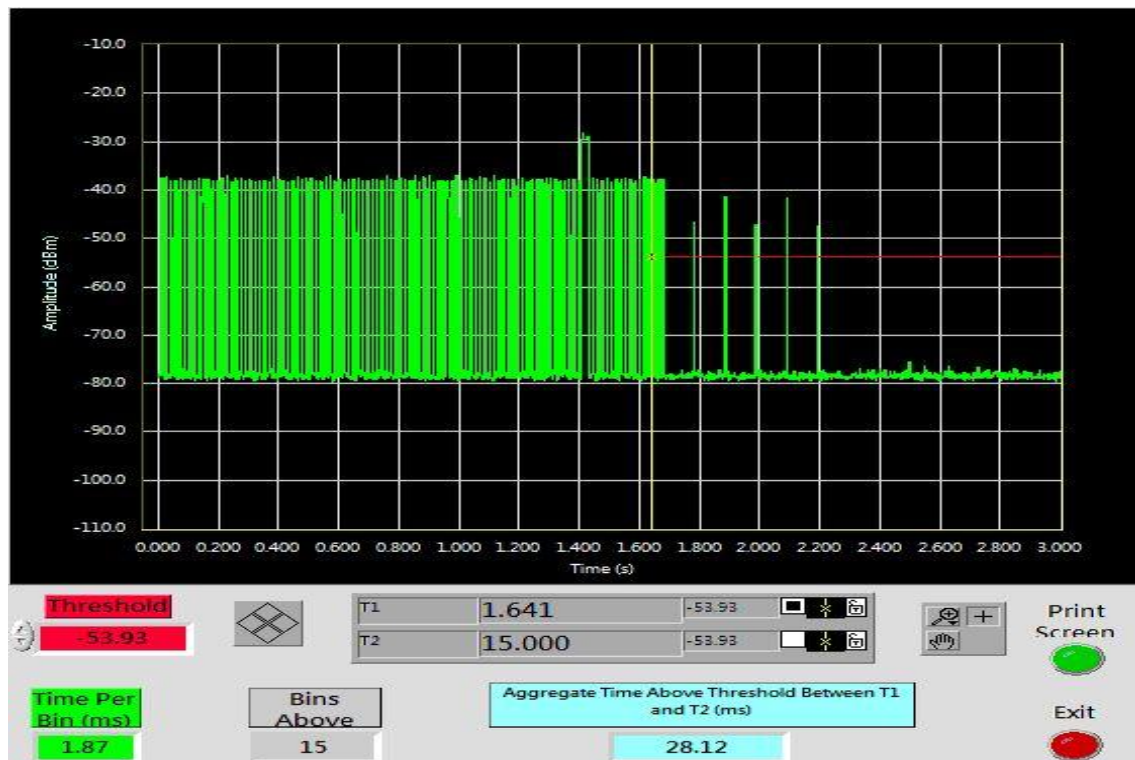
Channel Move Time (ms)	Limit (s)
780	10



IEEE 802.11n HT 40 MHz mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
28.12	60	-31.88





IEEE 802.11 ac VHT 80 MHz Channel mode**Type 1 Channel Move Time Results***No non-compliance noted.*

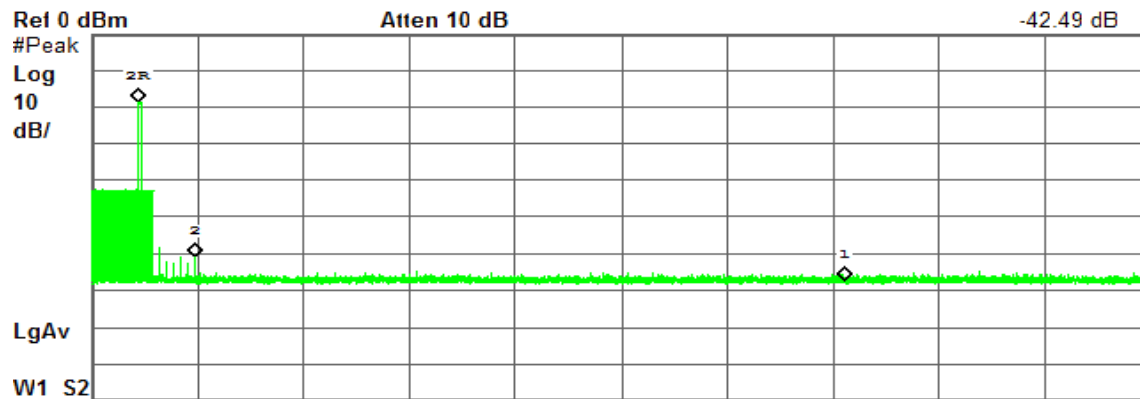
Channel Move Time (ms)	Limit (s)
808.7	10

* Agilent

R T

 Δ Mkr2 808.7 ms

-42.49 dB



Center 5.530 000 GHz

Span 0 Hz

Res BW 3 MHz

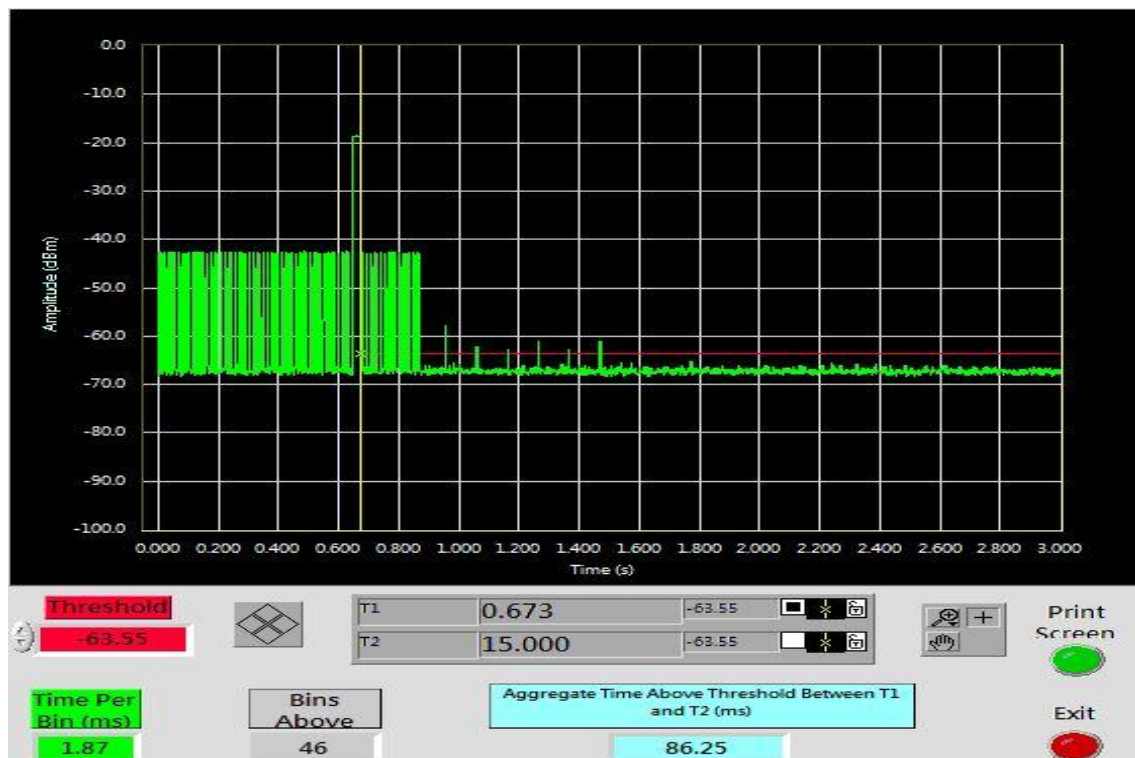
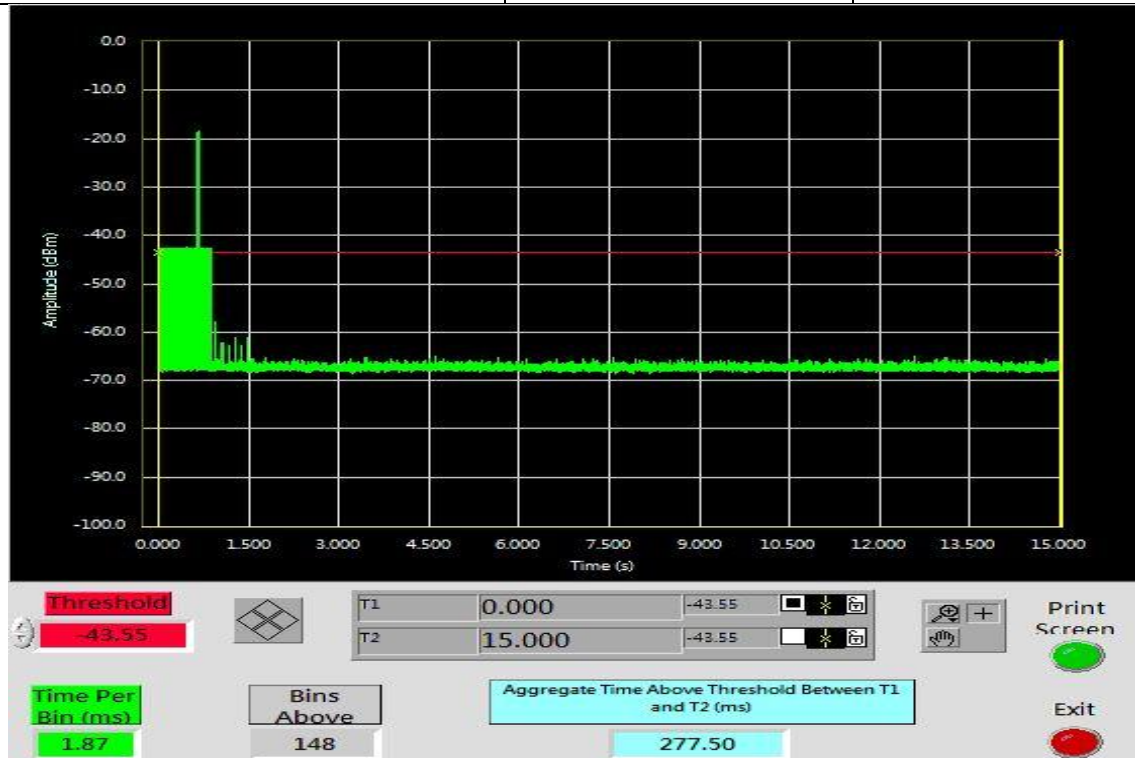
VBW 3 MHz

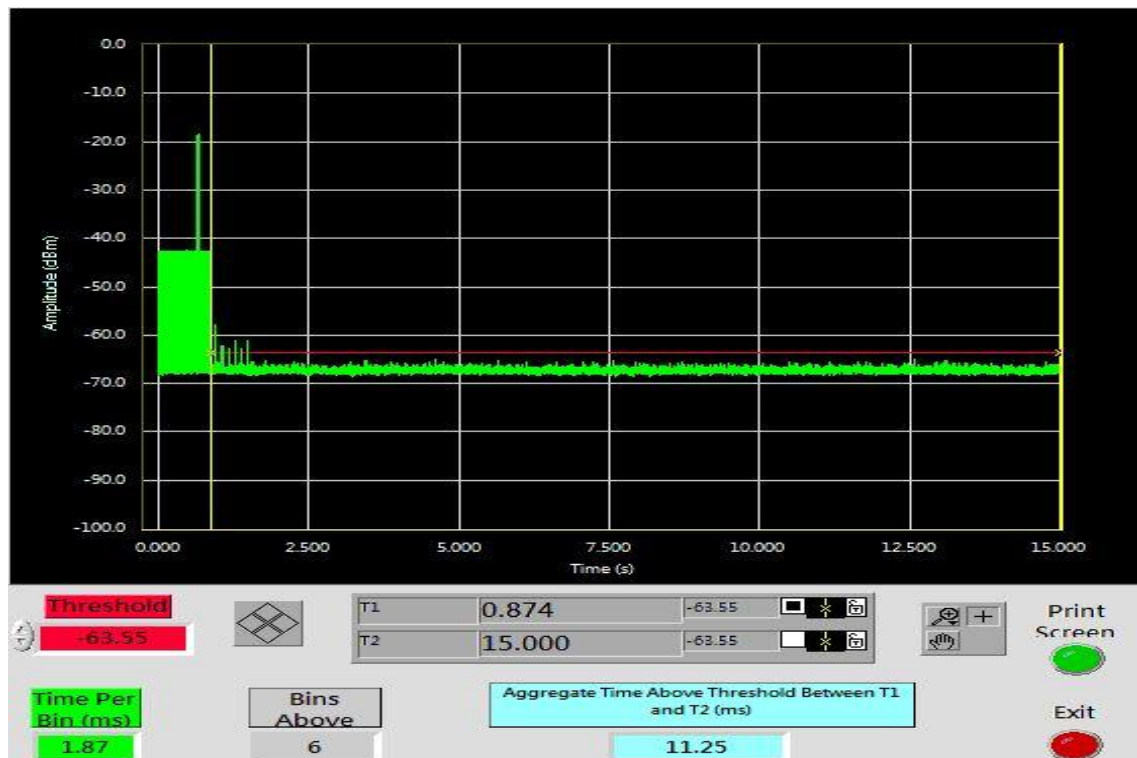
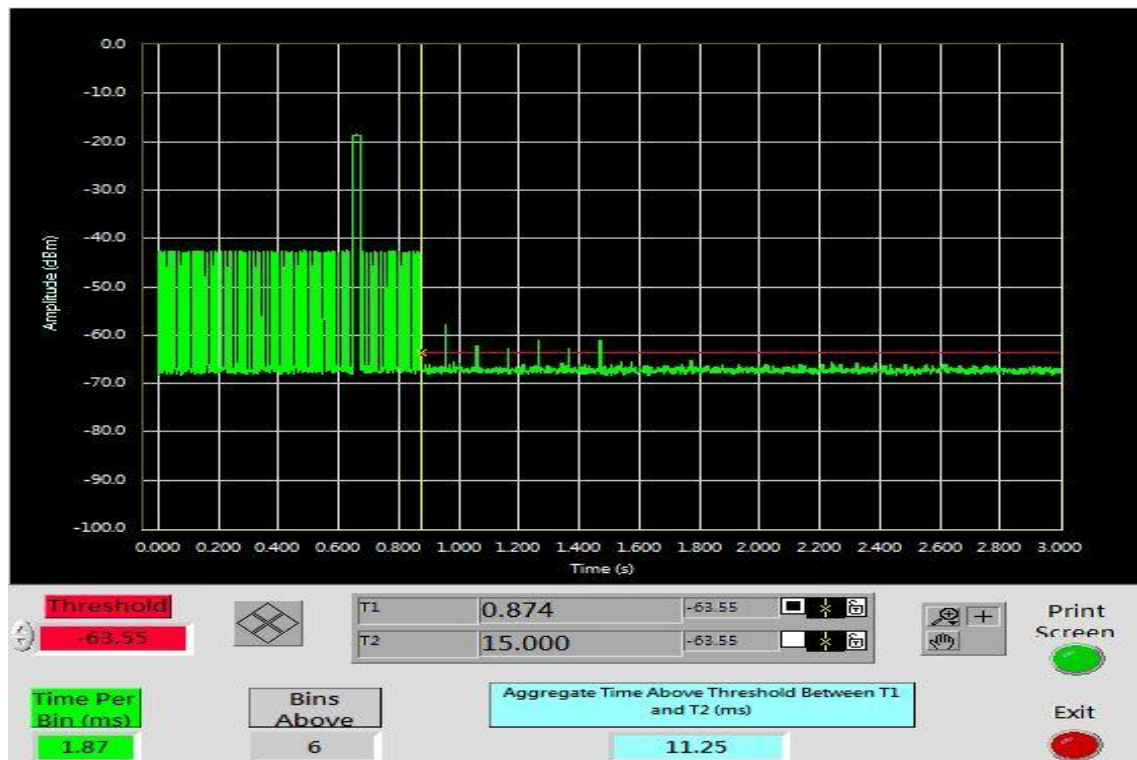
Sweep 15 s (8001 pts)

Marker	Trace	Type	X Axis	Amplitude
1R	(1)	Time	661.9 ms	-18.59 dBm
1Δ	(1)	Time	10 s	-48.98 dB
2R	(1)	Time	661.9 ms	-18.59 dBm
2Δ	(1)	Time	808.7 ms	-42.49 dB

IEEE 802.11 ac VHT 80 MHz Channel mode**Type 1 Channel Closing Transmission Time Results***No non-compliance noted.*

Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
11.25	60	-48.75

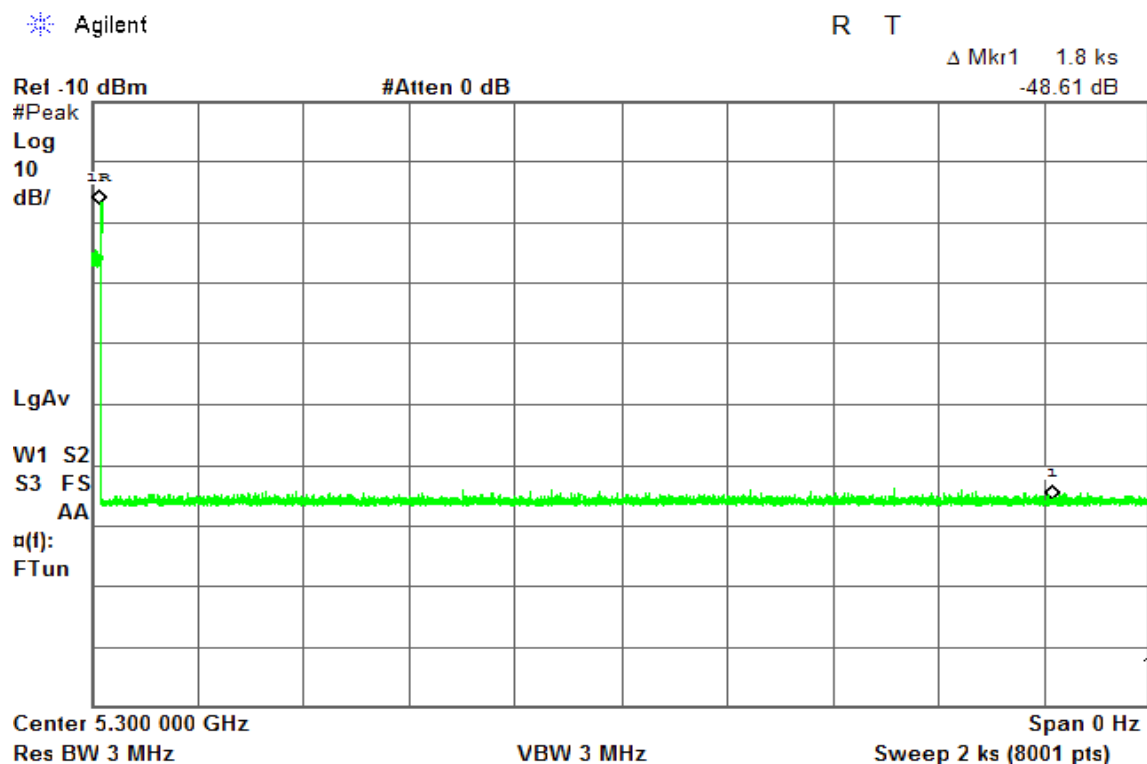




NON-OCCUPANCY PERIOD**UNII Band II / IEEE 802.11n HT 20 MHz Channel mode****Type 1 Non-Occupancy Period Test Results**

No non-compliance noted.

No EUT transmissions were observed on the test channel during the 30 minute observation time.



UNII Band II / IEEE 802.11n HT 40 MHz mode**Type 1 Non-Occupancy Period Test Results**

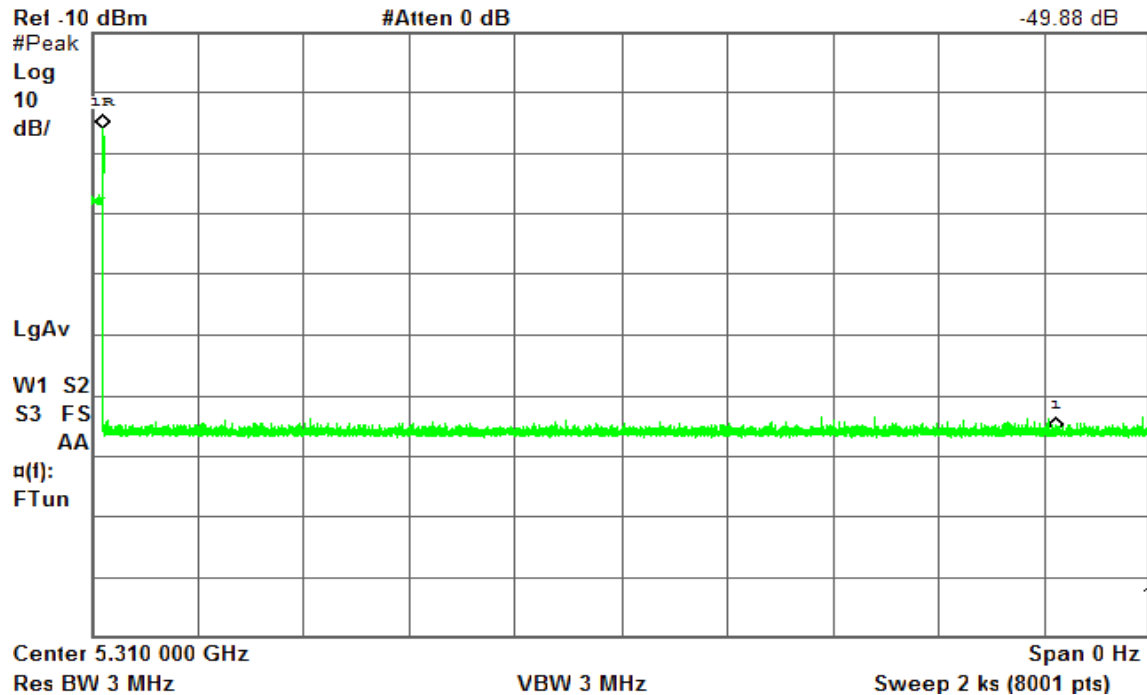
No non-compliance noted.

No EUT transmissions were observed on the test channel during the 30 minute observation time.

✱ Agilent

R T

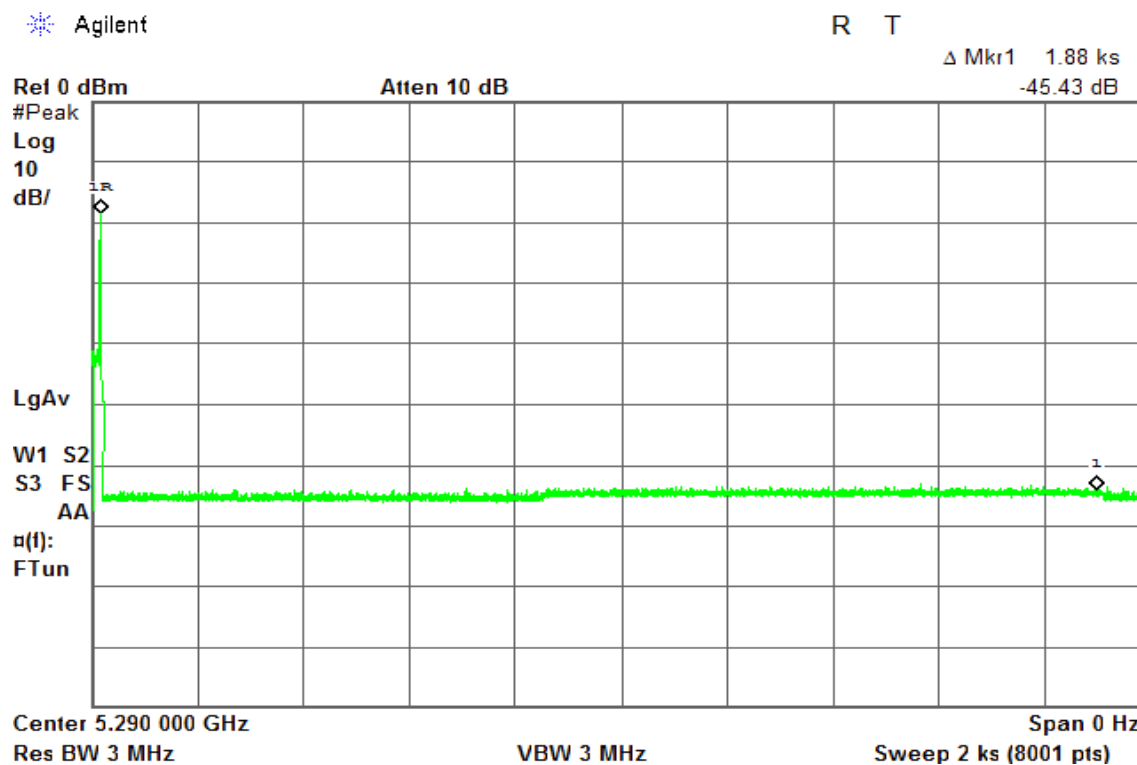
Δ Mkr1 1.8 ks



UNII Band II / IEEE 802.11n VHT 80 MHz mode**Type 1 Non-Occupancy Period Test Results**

No non-compliance noted.

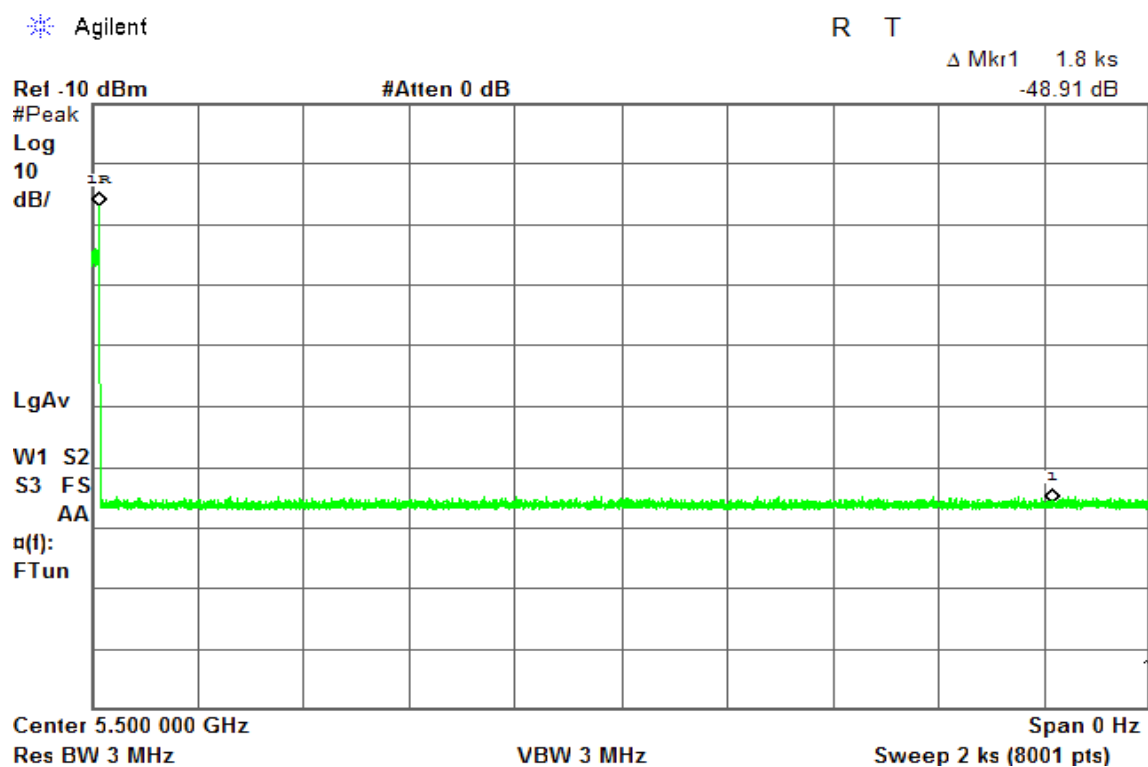
No EUT transmissions were observed on the test channel during the 30 minute observation time.



UNII Band III / IEEE 802.11n HT 20 MHz Channel mode**Type 1 Non-Occupancy Period Test Results**

No non-compliance noted.

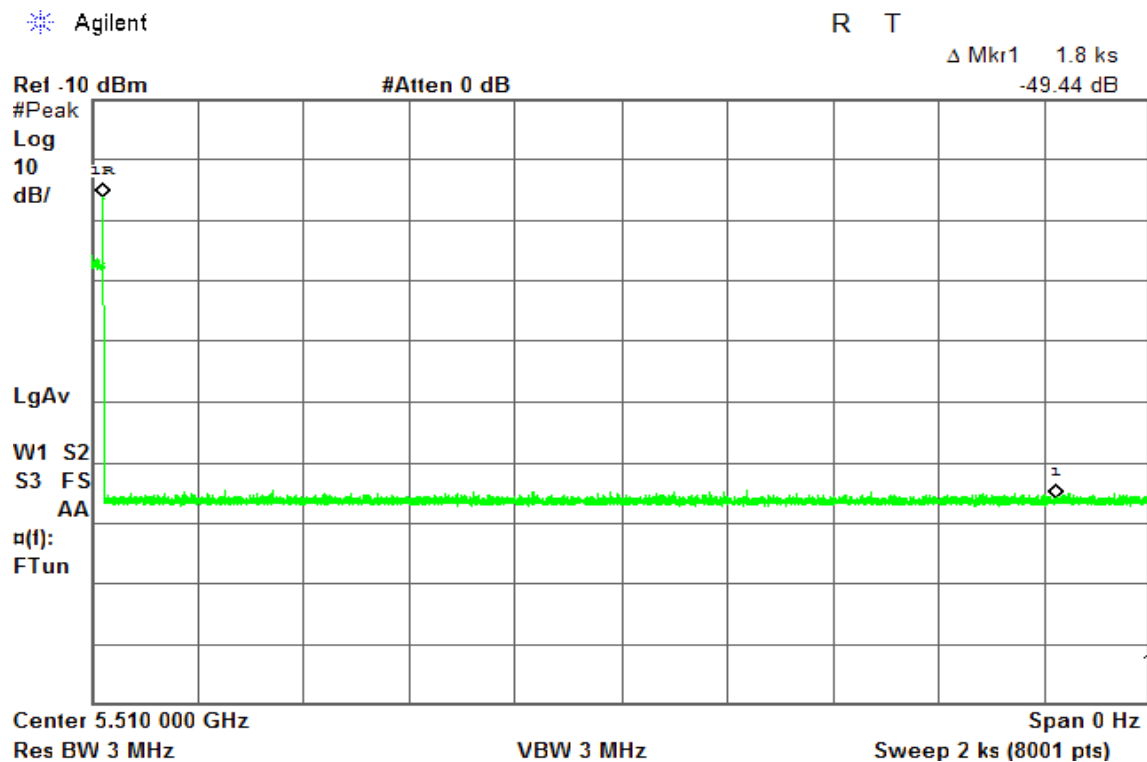
No EUT transmissions were observed on the test channel during the 30 minute observation time.



UNII Band III / IEEE 802.11n HT 40 MHz mode**Type 1 Non-Occupancy Period Test Results**

No non-compliance noted.

No EUT transmissions were observed on the test channel during the 30 minute observation time.



UNII Band III / IEEE 802.11n VHT 80 MHz mode**Type 1 Non-Occupancy Period Test Results**

No non-compliance noted.

No EUT transmissions were observed on the test channel during the 30 minute observation time.

