

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

RF Radiated Measurement:

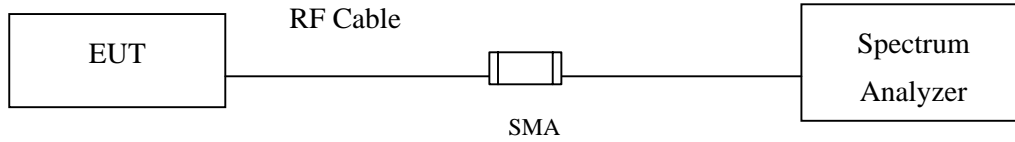
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
	X	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2011
	X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2011
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

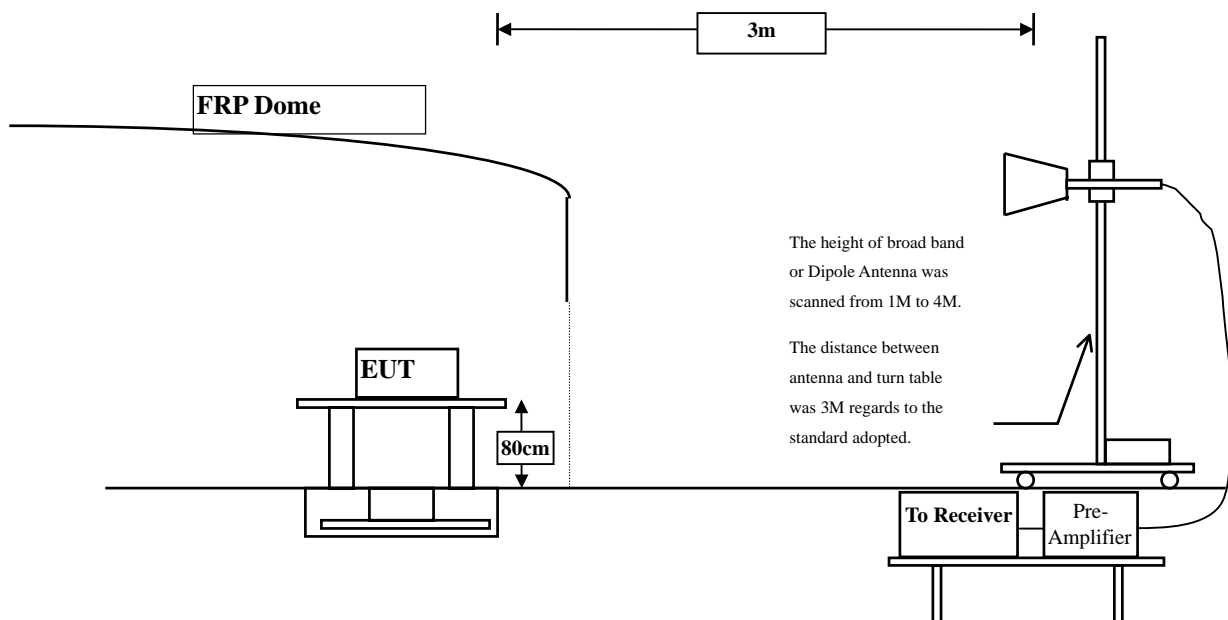
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

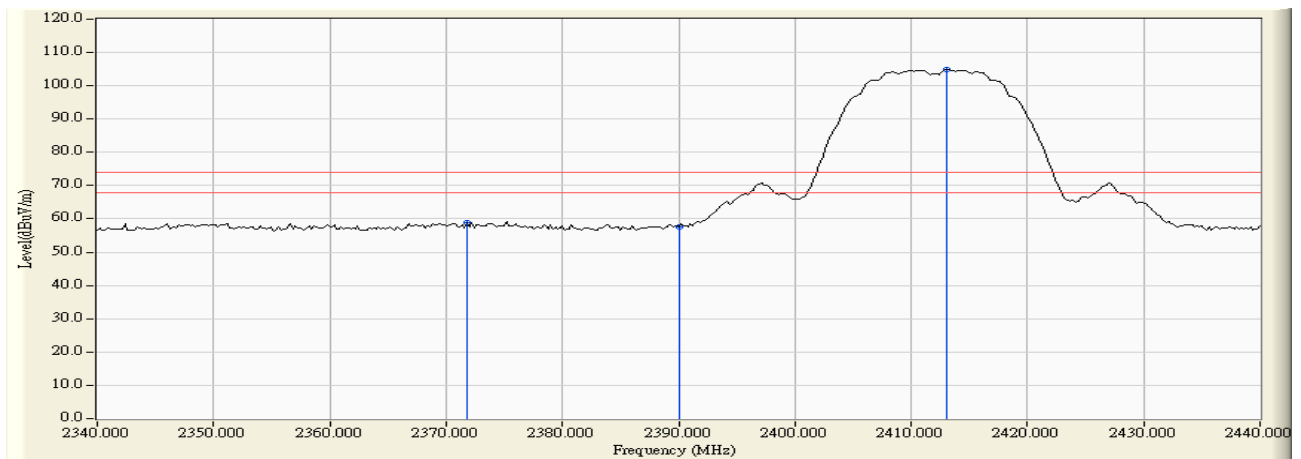
6.6. Test Result of Band Edge

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

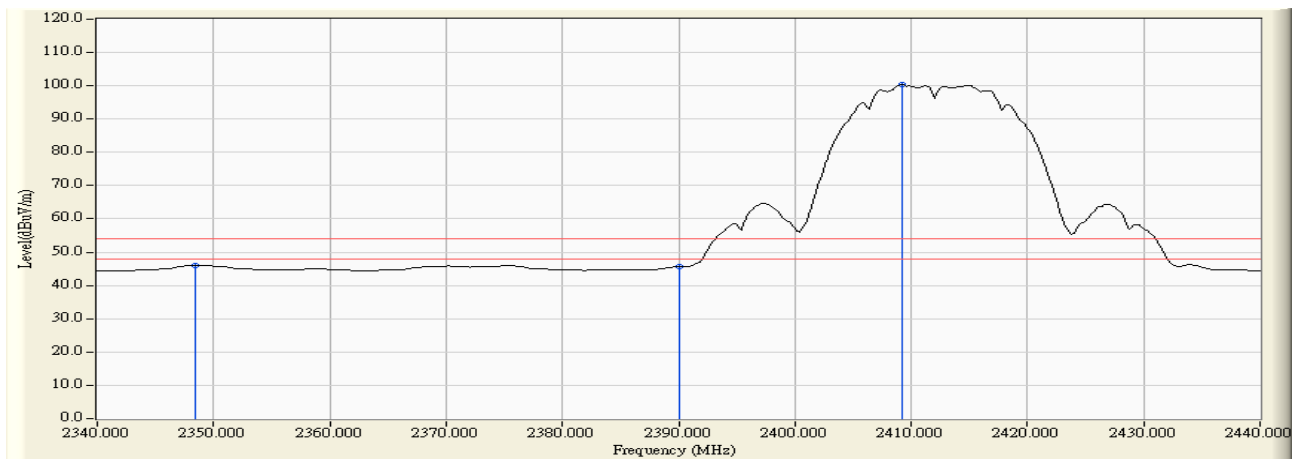
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2371.800	31.438	27.355	58.793	-15.207	74.000	Pass
01 (Peak)	2390.000	31.509	26.109	57.618	-16.382	74.000	Pass
01 (Peak)	2413.000	31.646	73.114	104.760	--	--	--
01 (Average)	2348.400	31.346	14.745	46.092	-7.908	54.000	Pass
01 (Average)	2390.000	31.509	14.203	45.712	-8.288	54.000	Pass
01 (Average)	2409.200	31.619	68.657	100.276	--	--	--

Figure Channel 01: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Horizontal (Average)



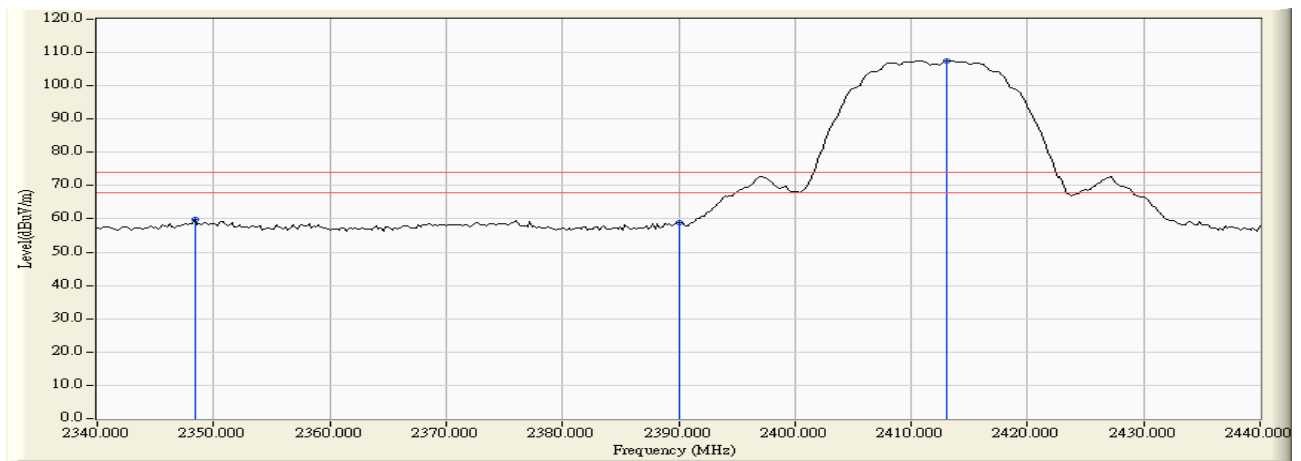
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

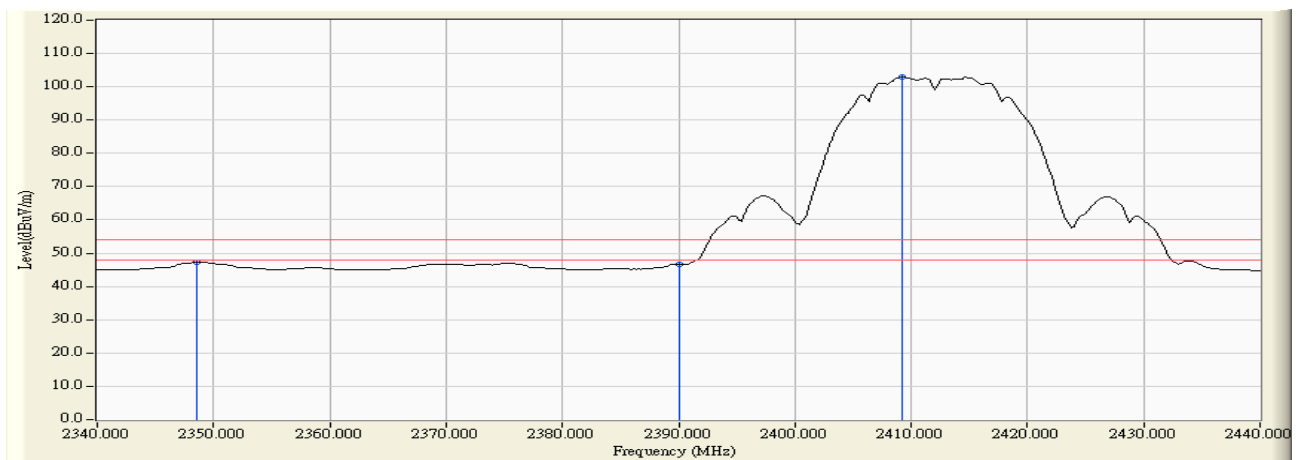
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2348.400	31.108	28.648	59.756	-14.244	74.000	Pass
01 (Peak)	2390.000	30.915	28.033	58.948	-15.052	74.000	Pass
01 (Peak)	2413.000	30.956	76.520	107.476	--	--	--
01 (Average)	2348.600	31.107	16.167	47.274	-6.726	54.000	Pass
01 (Average)	2390.000	30.915	15.879	46.794	-7.206	54.000	Pass
01 (Average)	2409.200	30.937	72.020	102.957	--	--	--

Figure Channel 01: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Vertical (Average)



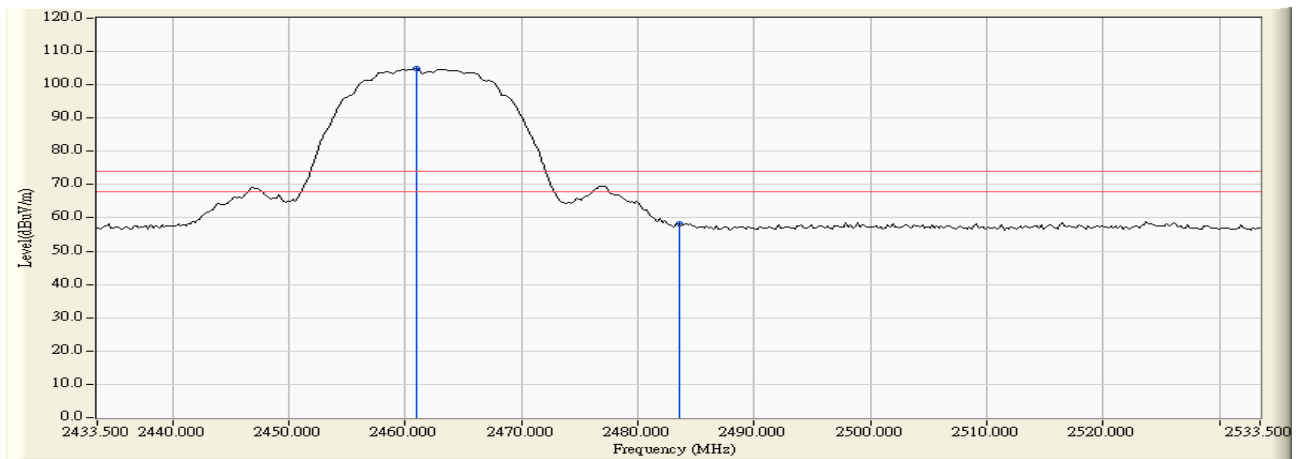
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Horizontal):

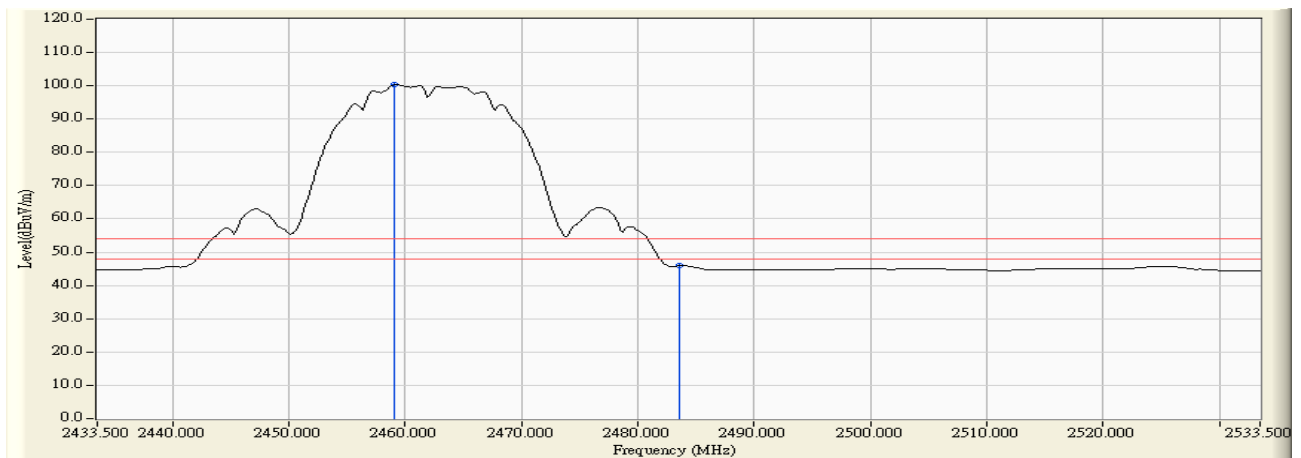
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2460.900	32.011	72.712	104.723	--	--	--
11 (Peak)	2483.500	32.182	26.035	58.217	-15.783	74.000	Pass
11 (Average)	2459.100	31.998	68.240	100.237	--	--	--
11 (Average)	2483.500	32.182	13.707	45.889	-8.111	54.000	Pass

Figure Channel 11: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Horizontal (Average)



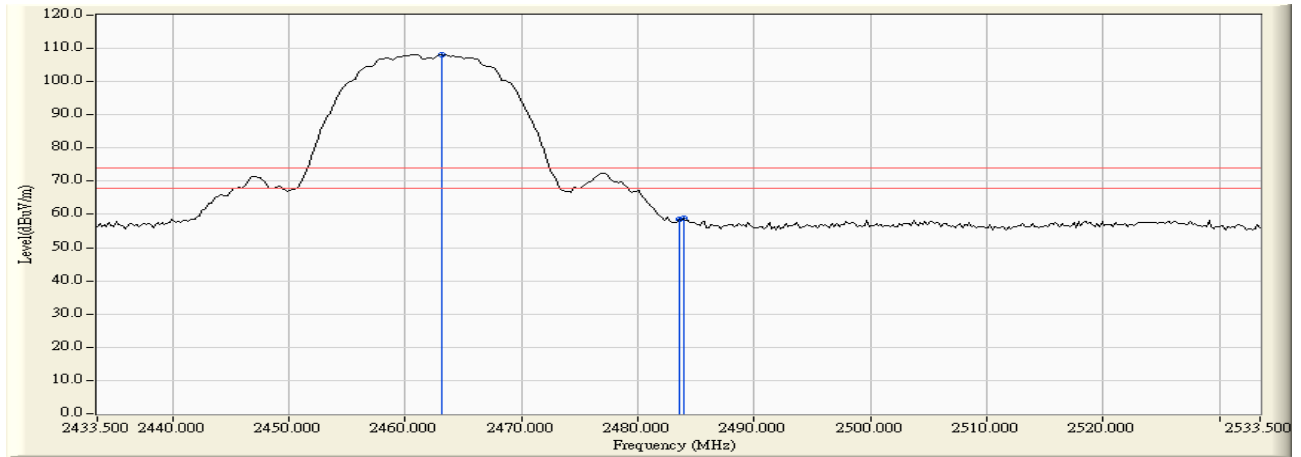
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

RF Radiated Measurement (Vertical):

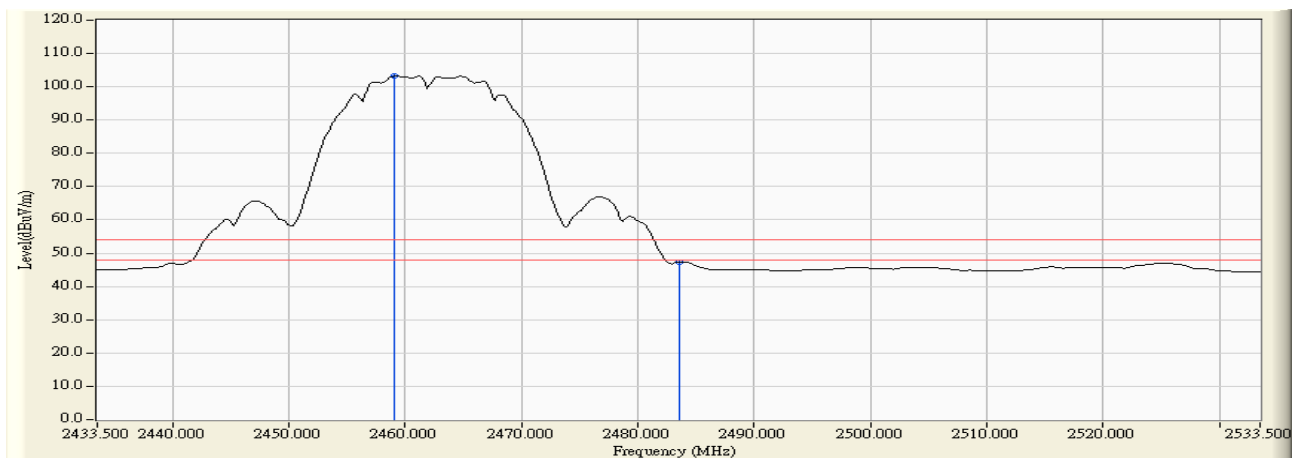
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2463.100	31.298	76.782	108.080	--	--	--
11 (Peak)	2483.500	31.435	27.003	58.438	-15.562	74.000	Pass
11 (Peak)	2483.900	31.438	27.453	58.891	-15.109	74.000	Pass
11 (Average)	2459.100	31.271	72.116	103.387	--	--	--
11 (Average)	2483.500	31.435	15.938	47.373	-6.627	54.000	Pass

Figure Channel 11: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Vertical (Average)



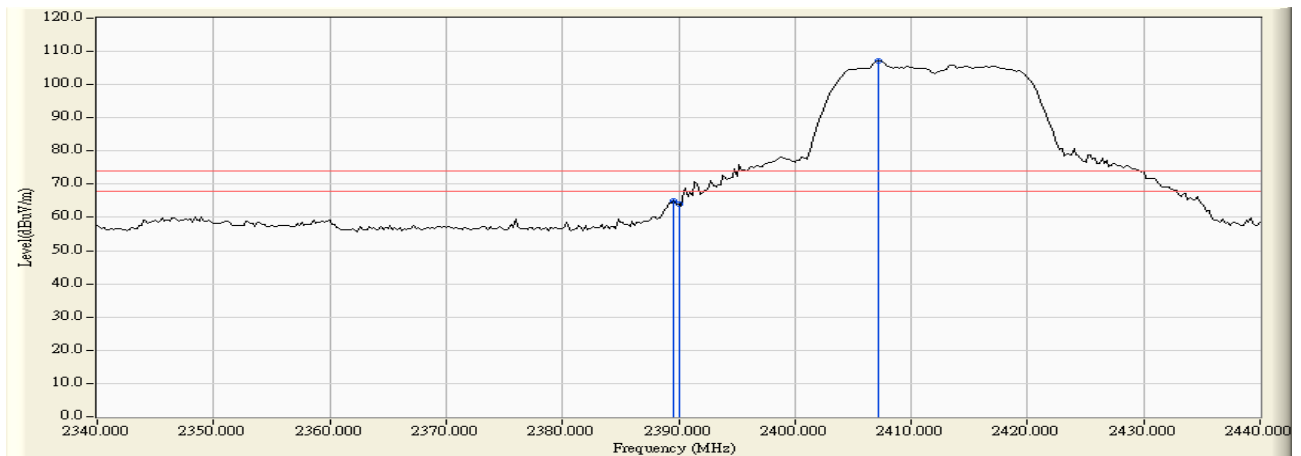
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

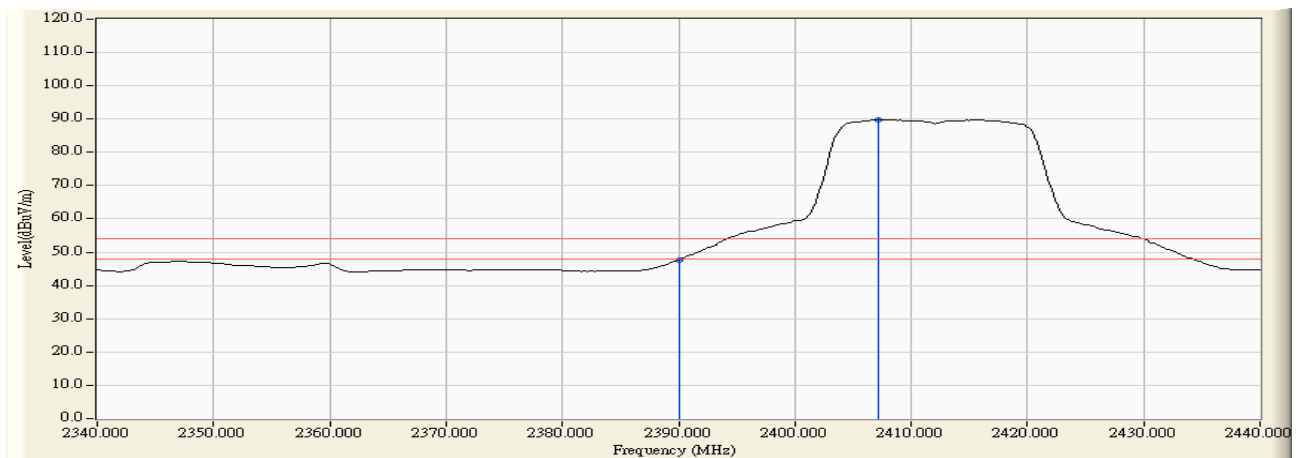
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2389.600	31.508	33.362	64.870	-9.130	74.000	Pass
01 (Peak)	2390.000	31.509	32.590	64.099	-9.901	74.000	Pass
01 (Peak)	2407.200	31.606	75.589	107.195	--	--	--
01 (Average)	2390.000	31.509	16.204	47.713	-6.287	54.000	Pass
01 (Average)	2407.200	31.606	58.062	89.668	--	--	--

Figure Channel 01: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Horizontal (Average)



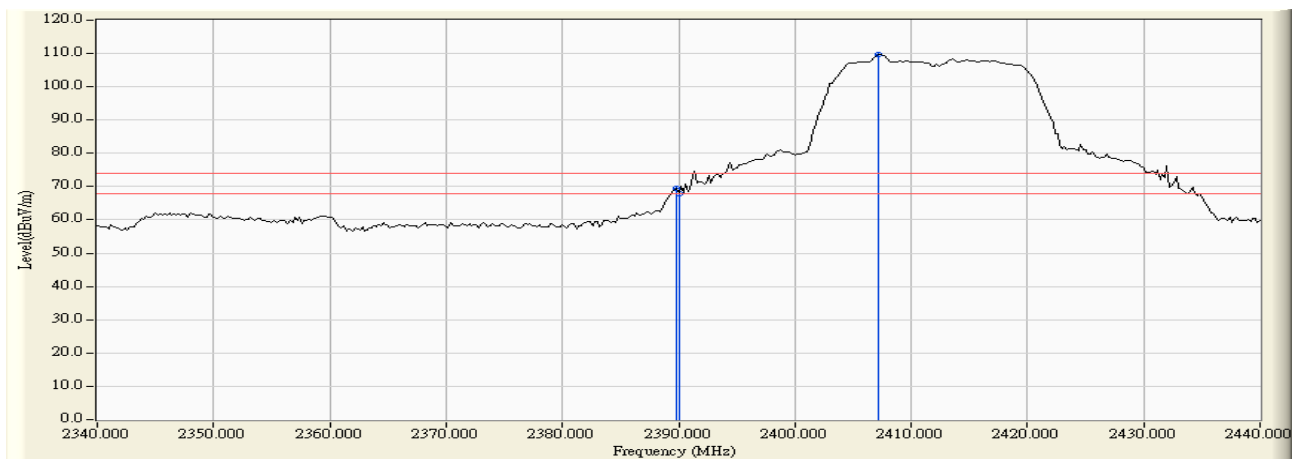
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

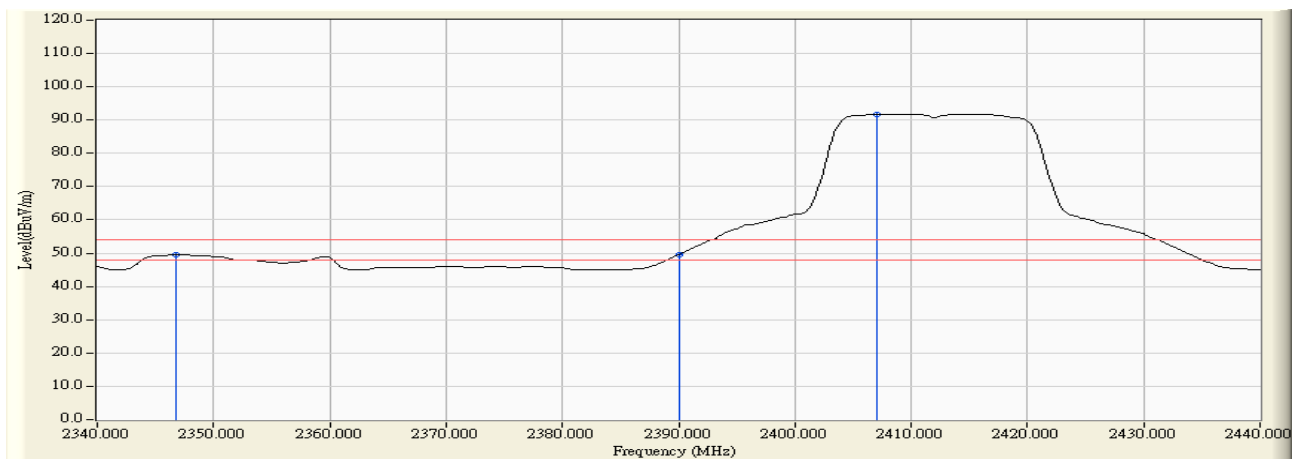
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2389.800	30.916	38.722	69.638	-4.362	74.000	Pass
01 (Peak)	2390.000	30.915	36.994	67.909	-6.091	74.000	Pass
01 (Peak)	2407.200	30.931	78.811	109.743	--	--	--
01 (Average)	2346.800	31.116	18.419	49.535	-4.465	54.000	Pass
01 (Average)	2390.000	30.915	18.616	49.531	-4.469	54.000	Pass
01 (Average)	2407.000	30.931	60.849	91.780	--	--	--

Figure Channel 01: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Vertical (Average)



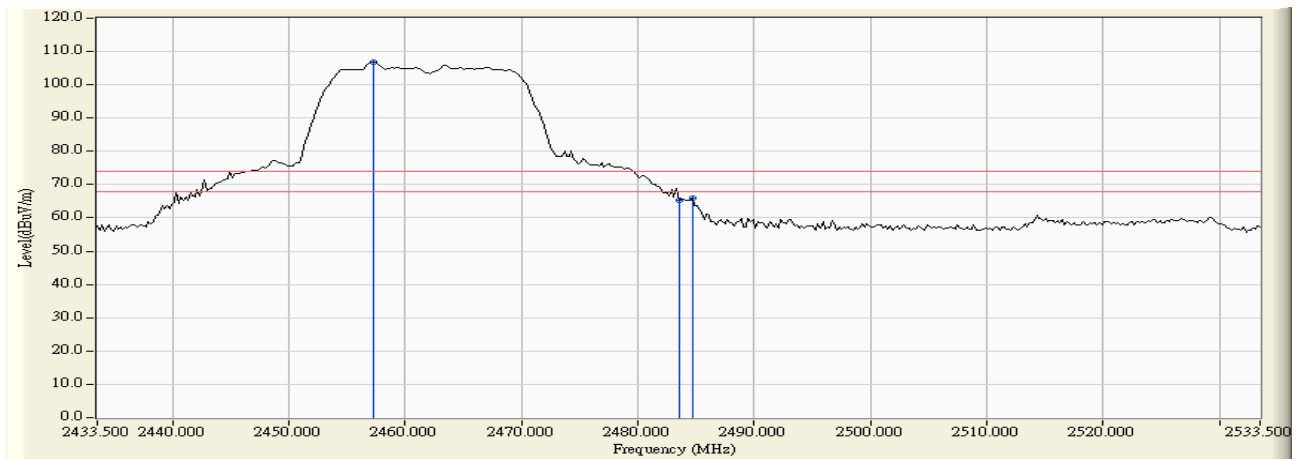
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Horizontal):

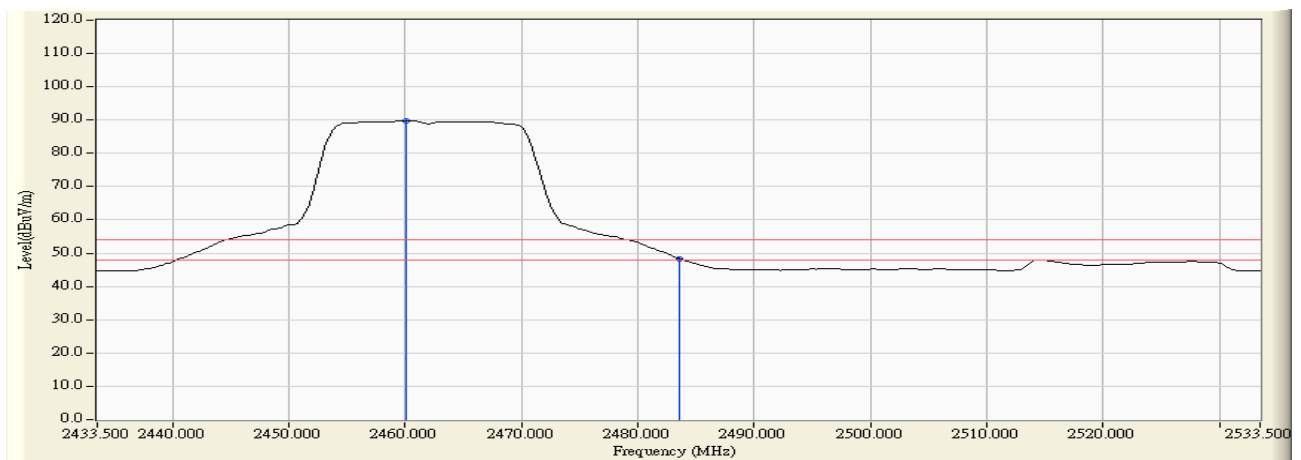
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2457.300	31.984	74.922	106.906	--	--	--
11 (Peak)	2483.500	32.182	33.153	65.335	-8.665	74.000	Pass
11 (Peak)	2484.700	32.192	33.680	65.871	-8.129	74.000	Pass
11 (Average)	2460.100	32.005	57.648	89.653	--	--	--
11 (Average)	2483.500	32.182	16.225	48.407	-5.593	54.000	Pass

Figure Channel 11: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Horizontal (Average)



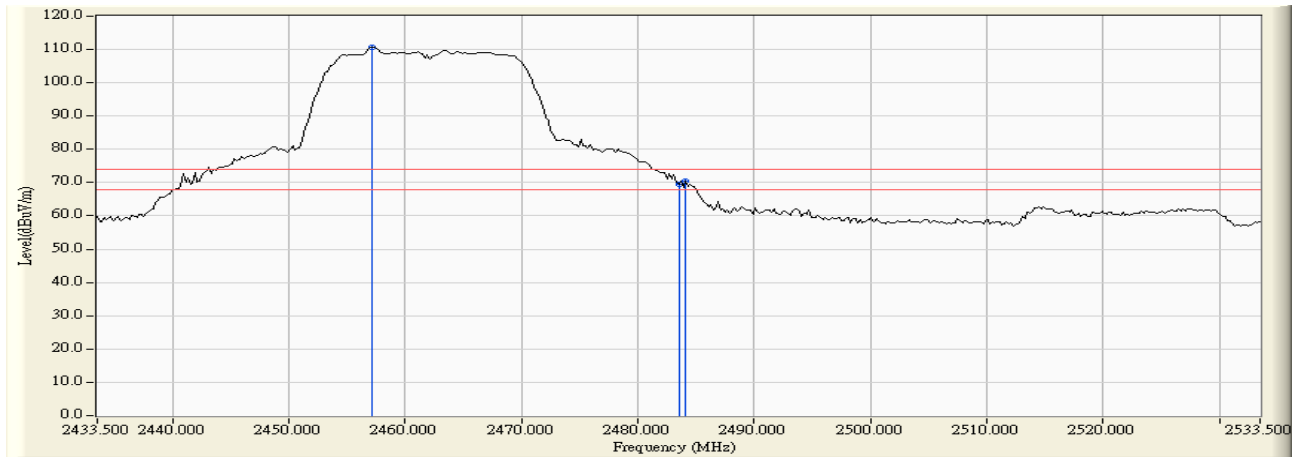
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

RF Radiated Measurement (Vertical):

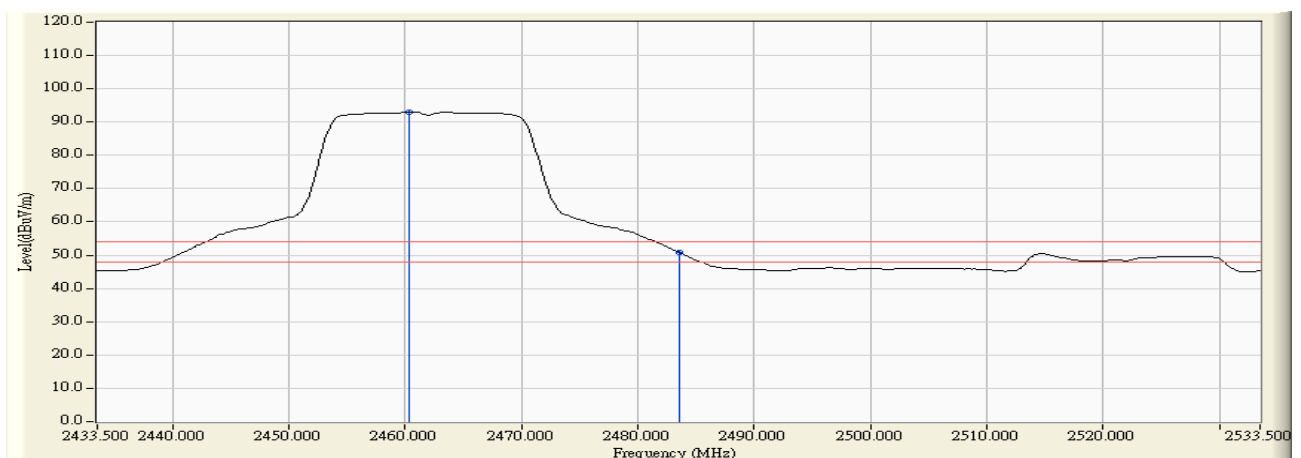
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2457.100	31.257	79.430	110.687	--	--	--
11 (Peak)	2483.500	31.435	38.002	69.437	-4.563	74.000	Pass
11 (Peak)	2484.100	31.439	39.019	70.458	-3.542	74.000	Pass
11 (Average)	2460.300	31.278	61.618	92.897	--	--	--
11 (Average)	2483.500	31.435	19.268	50.703	-3.297	54.000	Pass

Figure Channel 11: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Vertical (Average)



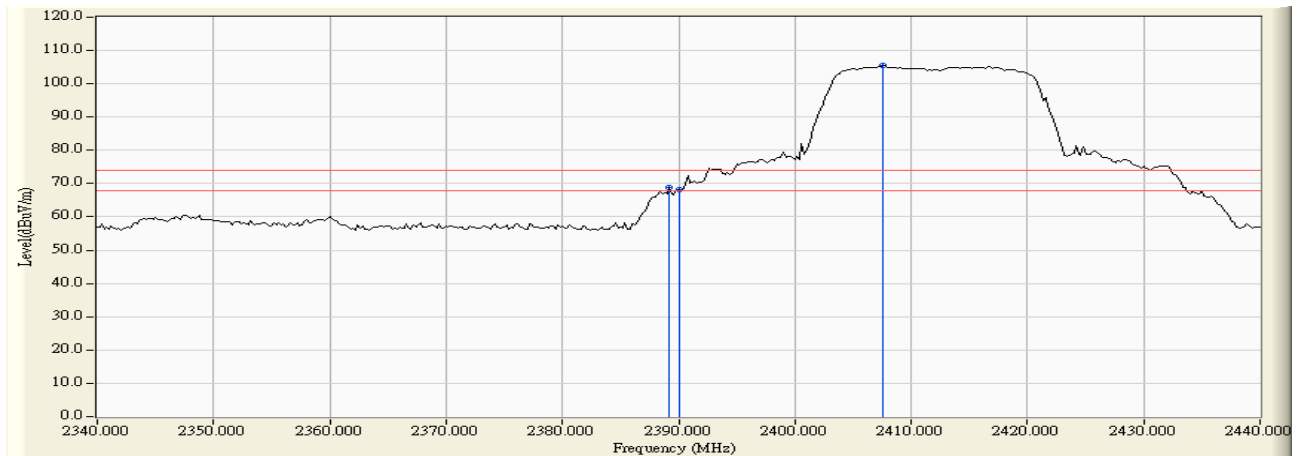
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

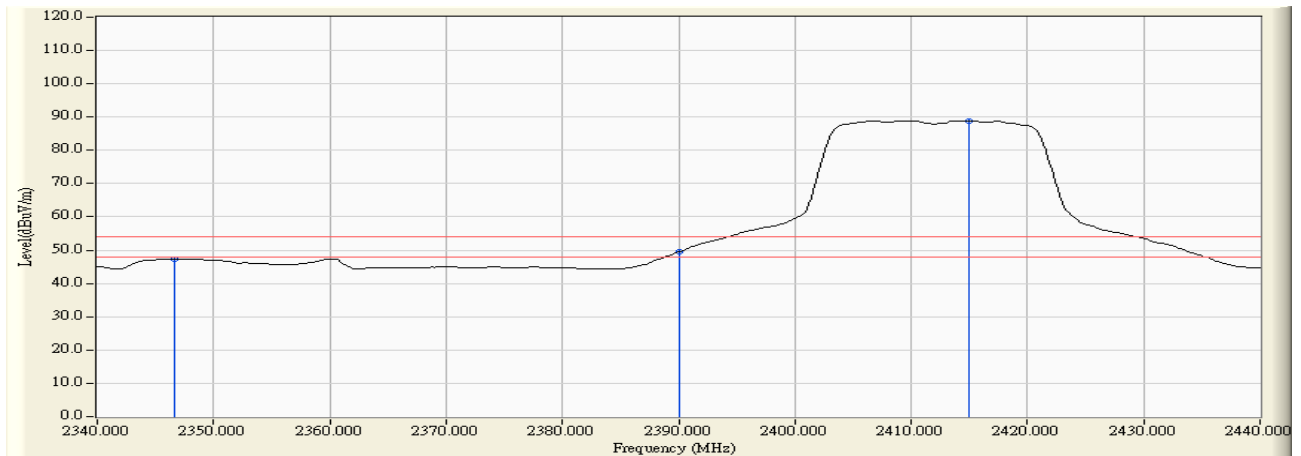
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2389.200	31.506	37.475	68.981	-5.019	74.000	Pass
01 (Peak)	2390.000	31.509	36.601	68.110	-5.890	74.000	Pass
01 (Peak)	2407.600	31.608	73.834	105.443	--	--	--
01 (Average)	2346.600	31.339	16.052	47.391	-6.609	54.000	Pass
01 (Average)	2390.000	31.509	17.887	49.396	-4.604	54.000	Pass
01 (Average)	2415.000	31.661	57.280	88.941	--	--	--

Figure Channel 01: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Horizontal (Average)



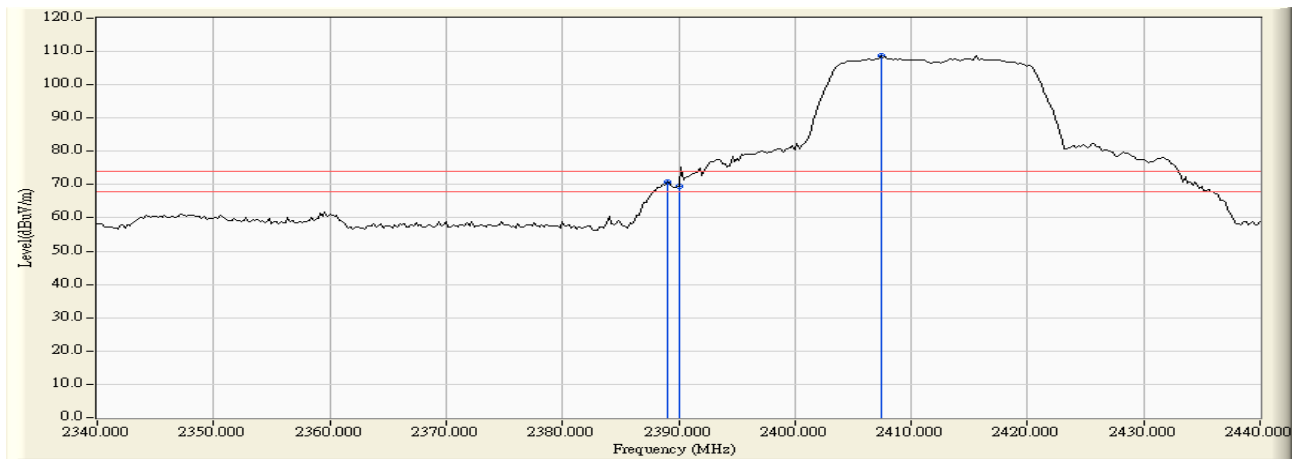
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

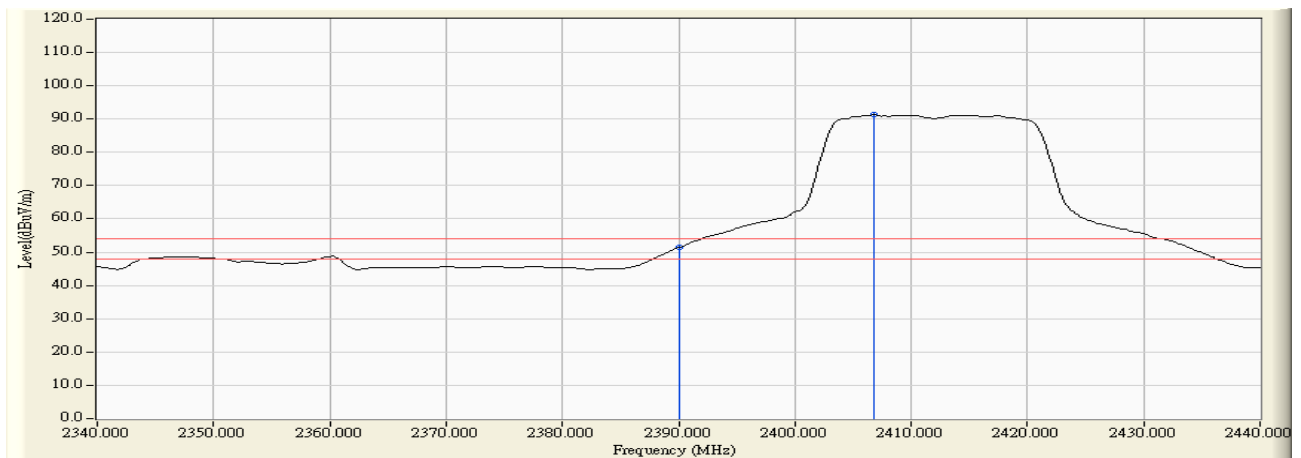
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2389.000	30.920	39.752	70.672	-3.328	74.000	Pass
01 (Peak)	2390.000	30.915	38.614	69.529	-4.471	74.000	Pass
01 (Peak)	2407.400	30.932	77.862	108.794	--	--	--
01 (Average)	2390.000	30.915	20.401	51.316	-2.684	54.000	Pass
01 (Average)	2406.800	30.931	60.305	91.236	--	--	--

Figure Channel 01: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Vertical (Average)



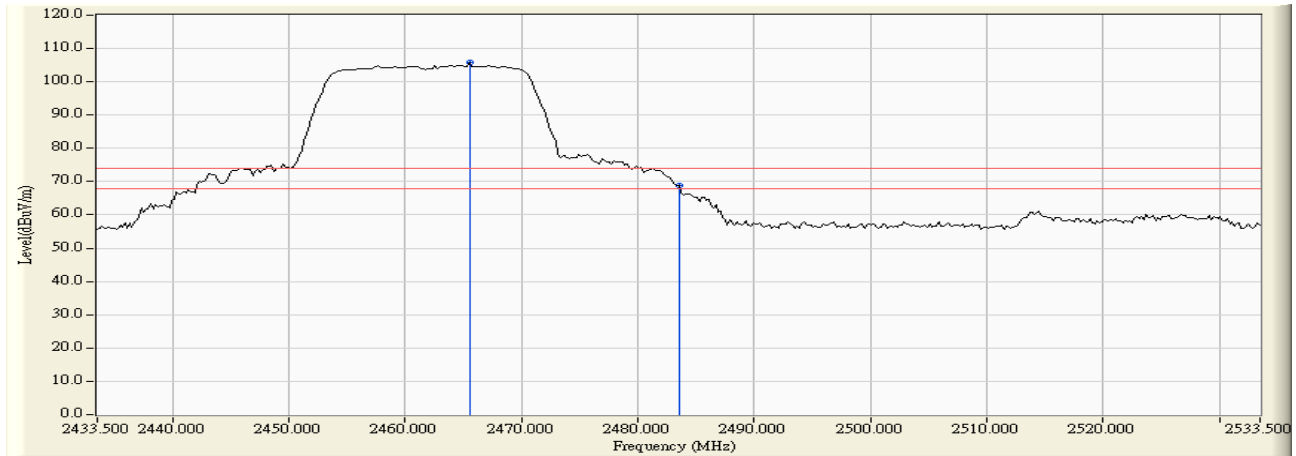
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

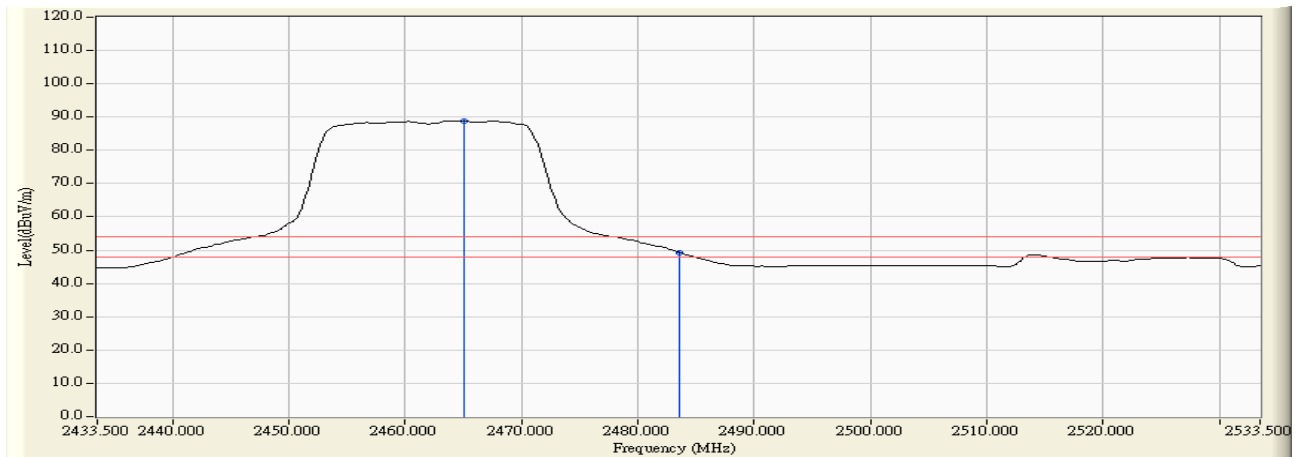
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2465.500	32.046	73.867	105.913	--	--	--
11 (Peak)	2483.500	32.182	36.658	68.840	-5.160	74.000	Pass
11 (Average)	2465.100	32.043	56.795	88.838	--	--	--
11 (Average)	2483.500	32.182	17.173	49.355	-4.645	54.000	Pass

Figure Channel 11: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Horizontal (Average)



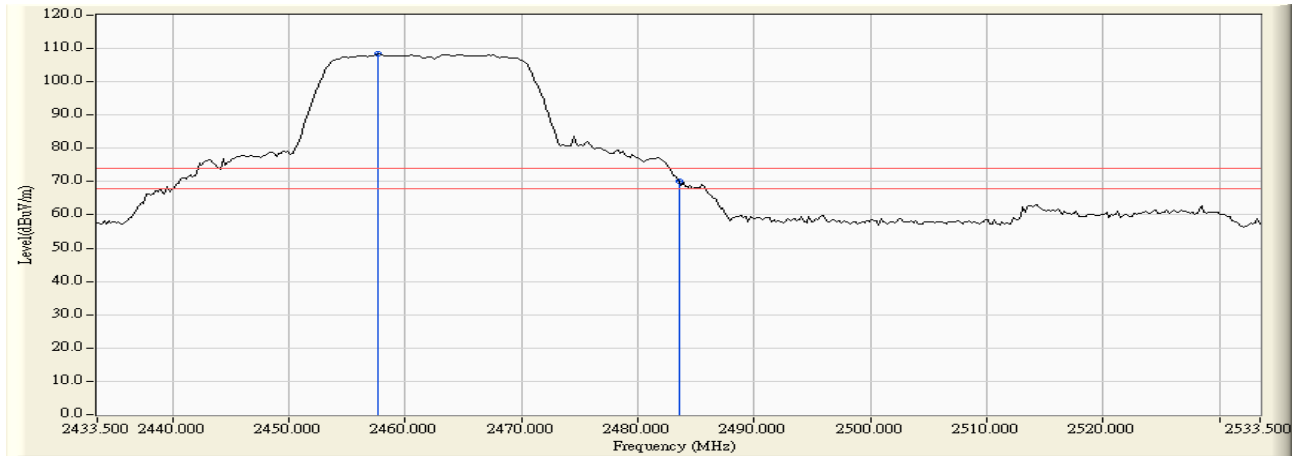
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

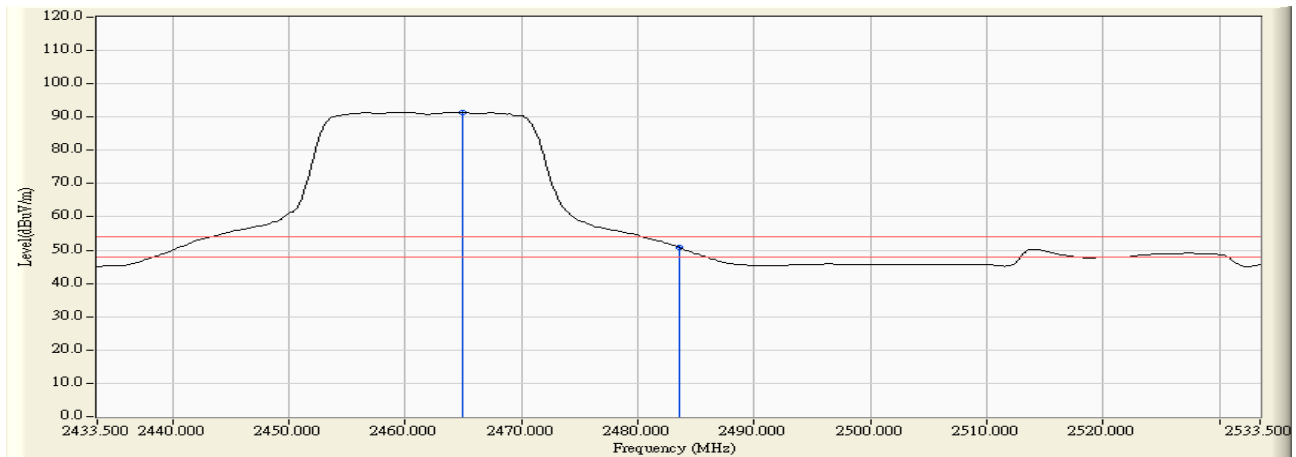
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2457.700	31.261	77.051	108.312	--	--	--
11 (Peak)	2483.500	31.435	38.791	70.226	-3.774	74.000	Pass
11 (Average)	2464.900	31.310	60.159	91.469	--	--	--
11 (Average)	2483.500	31.435	19.370	50.805	-3.195	54.000	Pass

Figure Channel 11: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 11: Vertical (Average)



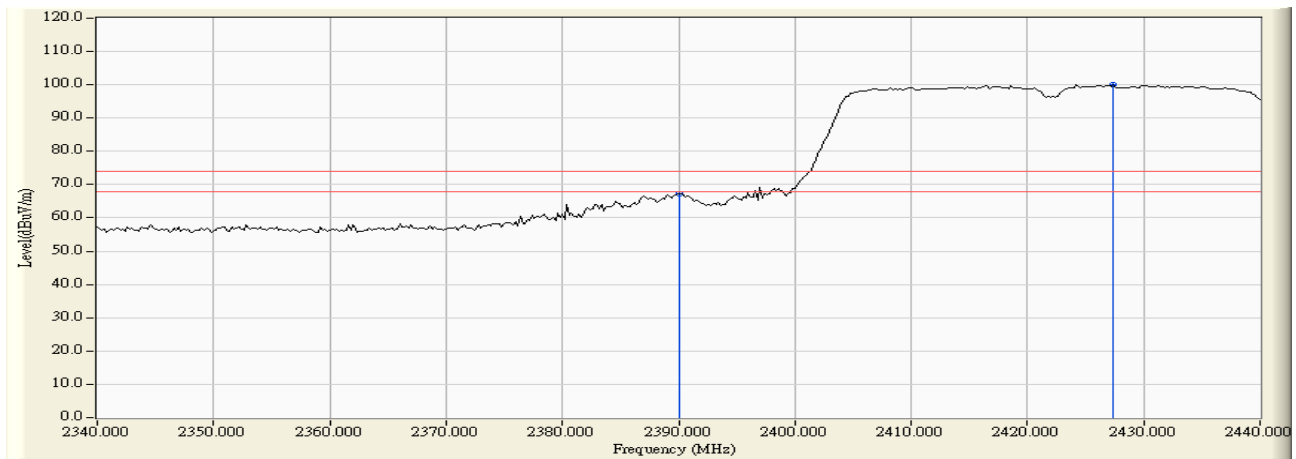
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

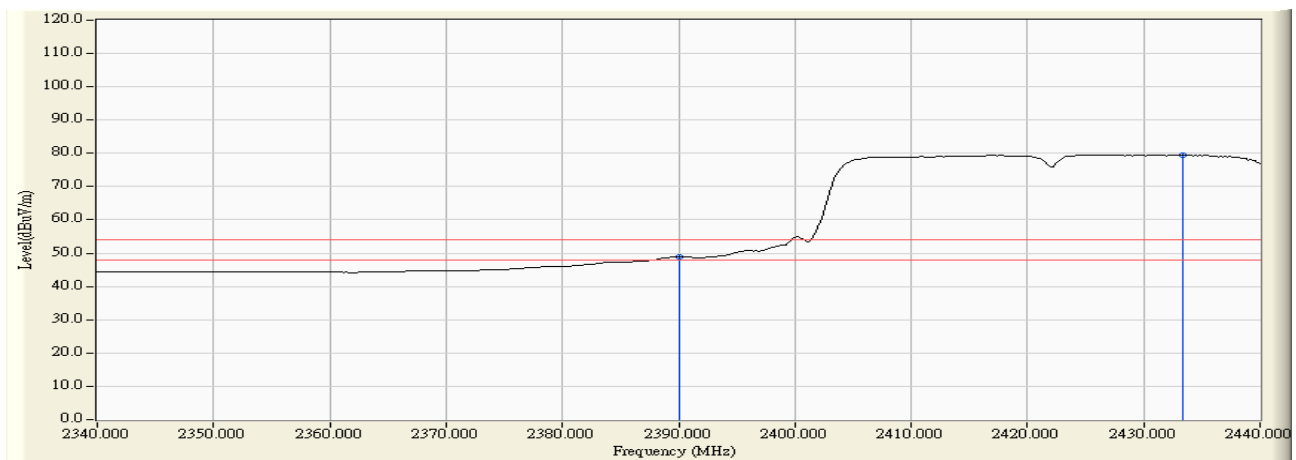
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBUV)	Measure Level (dBUV/m)	Margin (dB)	Limit (dBUV/m)	Result
01 (Peak)	2390.000	31.509	35.871	67.380	-6.620	74.000	Pass
01 (Peak)	2427.400	31.757	68.308	100.064	--	--	--
01 (Average)	2390.000	31.509	17.410	48.919	-5.081	54.000	Pass
01 (Average)	2433.400	31.802	47.738	79.540	--	--	--

Figure Channel 01: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Horizontal (Average)



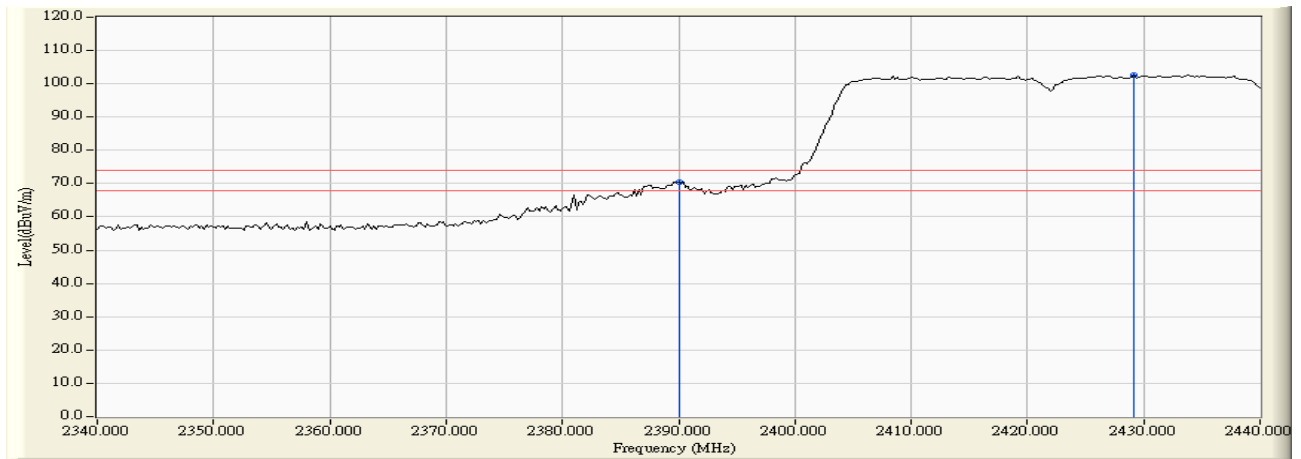
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

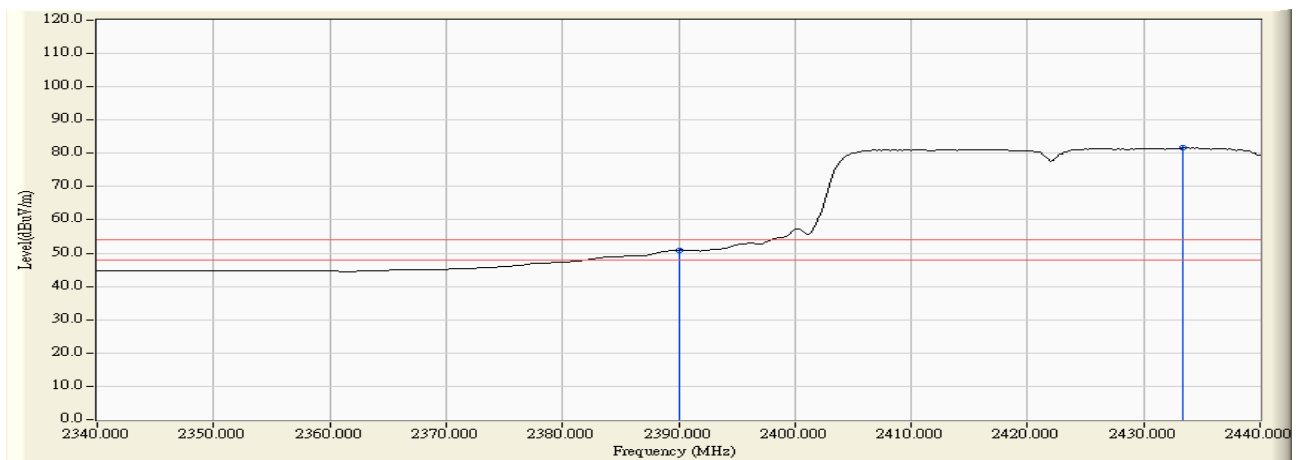
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	39.580	70.495	-3.505	74.000	Pass
01 (Peak)	2429.200	31.067	71.536	102.602	--	--	--
01 (Average)	2390.000	30.915	20.035	50.950	-3.050	54.000	Pass
01 (Average)	2433.400	31.094	50.548	81.643	--	--	--

Figure Channel 01: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 01: Vertical (Average)



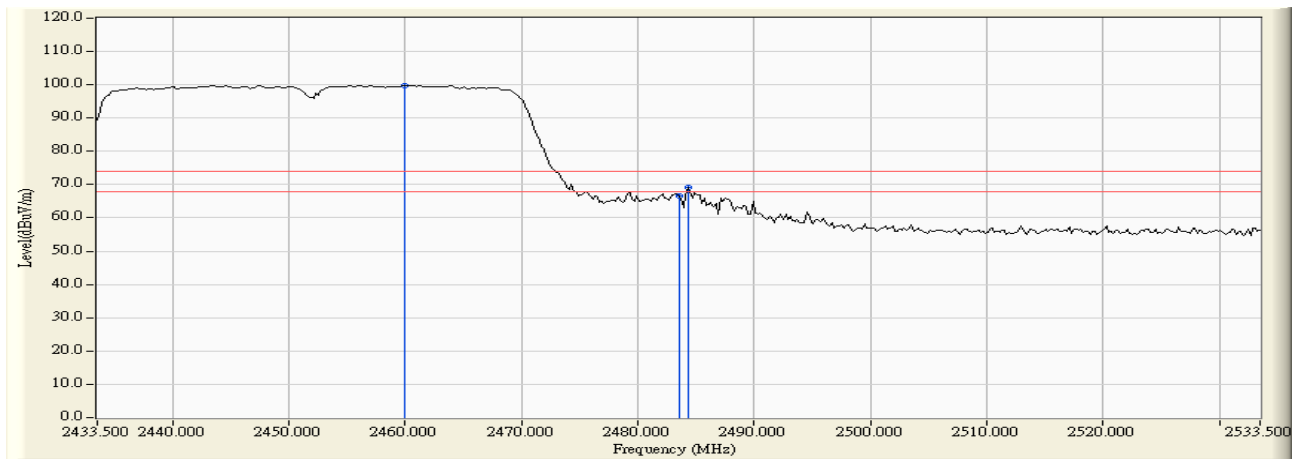
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band)

RF Radiated Measurement (Horizontal):

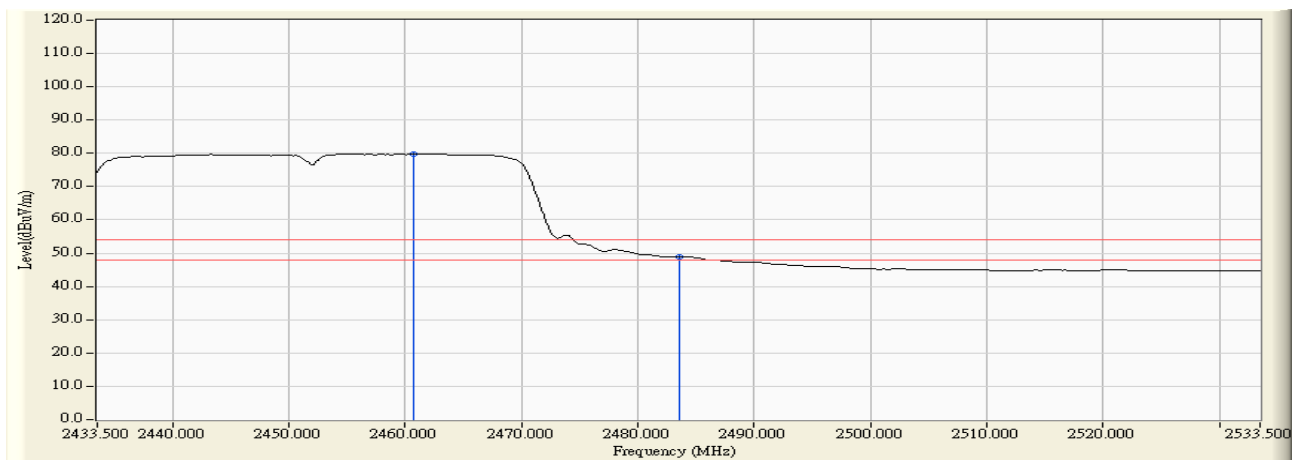
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
07 (Peak)	2459.900	32.003	67.888	99.891	--	--	--
07 (Peak)	2483.500	32.182	34.447	66.629	-7.371	74.000	Pass
07 (Peak)	2484.300	32.187	37.123	69.311	-4.689	74.000	Pass
07 (Average)	2460.700	32.010	47.797	79.807	--	--	--
07 (Average)	2483.500	32.182	16.780	48.962	-5.038	54.000	Pass

Figure Channel 07: Horizontal (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 07: Horizontal (Average)



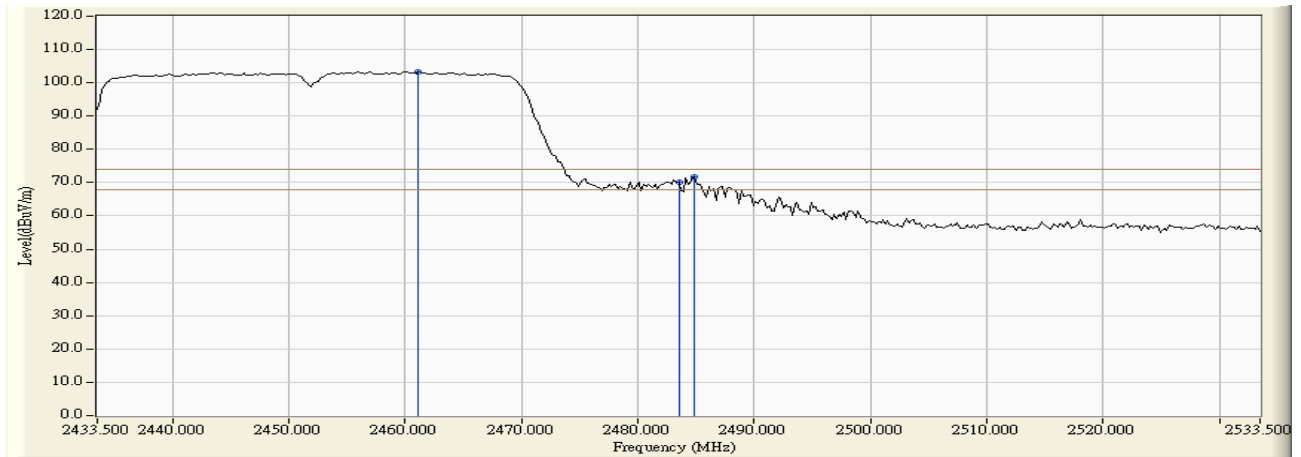
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band)

RF Radiated Measurement (Vertical):

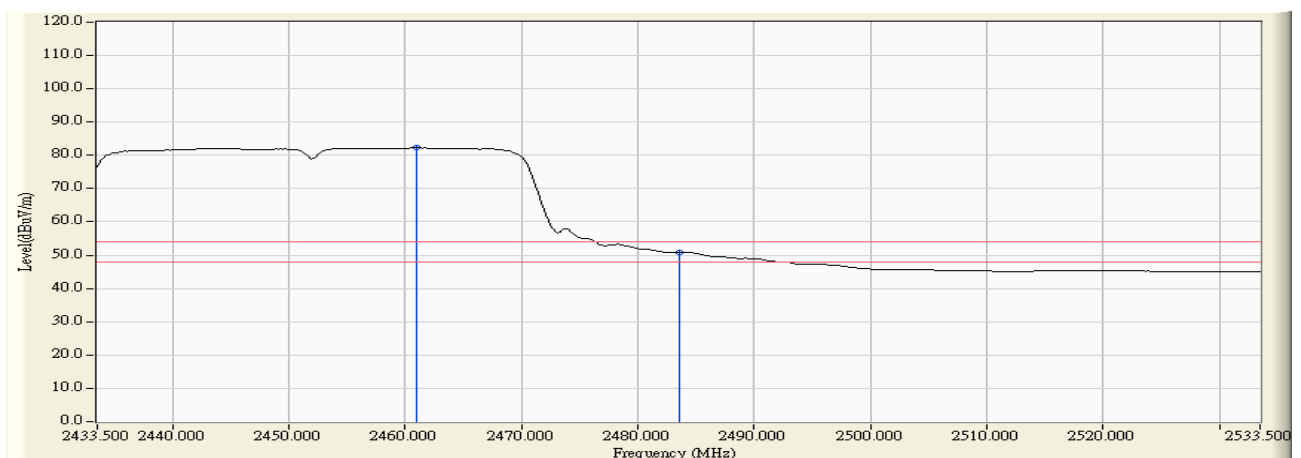
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
07 (Peak)	2461.100	31.285	71.934	103.218	--	--	--
07 (Peak)	2483.500	31.435	38.552	69.987	-4.013	74.000	Pass
07 (Peak)	2484.900	31.445	40.425	71.870	-2.130	74.000	Pass
07 (Average)	2460.900	31.283	51.013	82.296	--	--	--
07 (Average)	2483.500	31.435	19.538	50.973	-3.027	54.000	Pass

Figure Channel 07: Vertical (Peak)



Note: RBW=1MHz, VBW=1MHz, Sweep=500ms

Figure Channel 07: Vertical (Average)



Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

7. Occupied Bandwidth

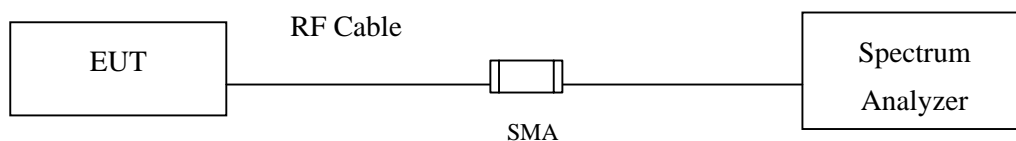
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Span greater than RBW.

7.5. Uncertainty

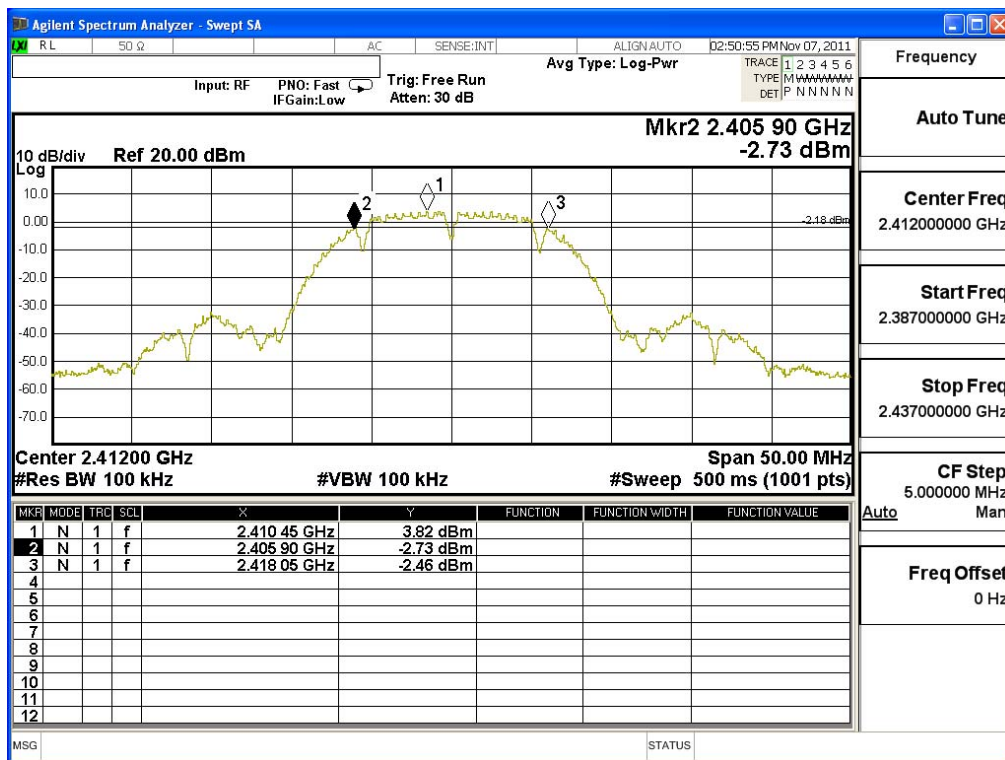
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	12150	>500	Pass

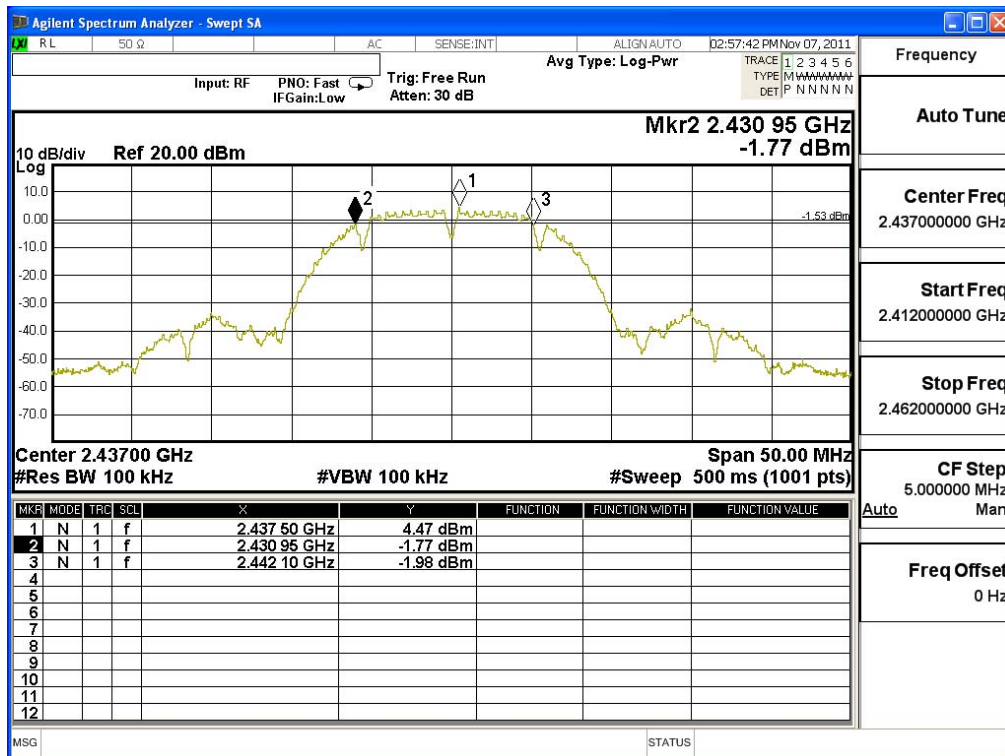
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	11150	>500	Pass

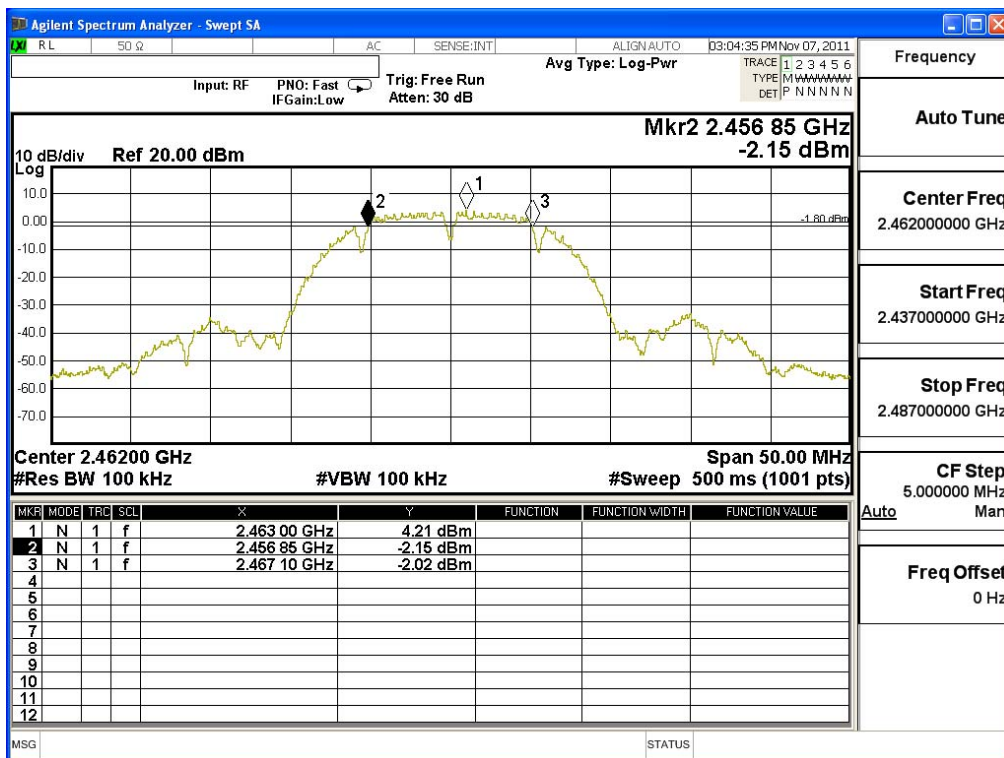
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	10250	>500	Pass

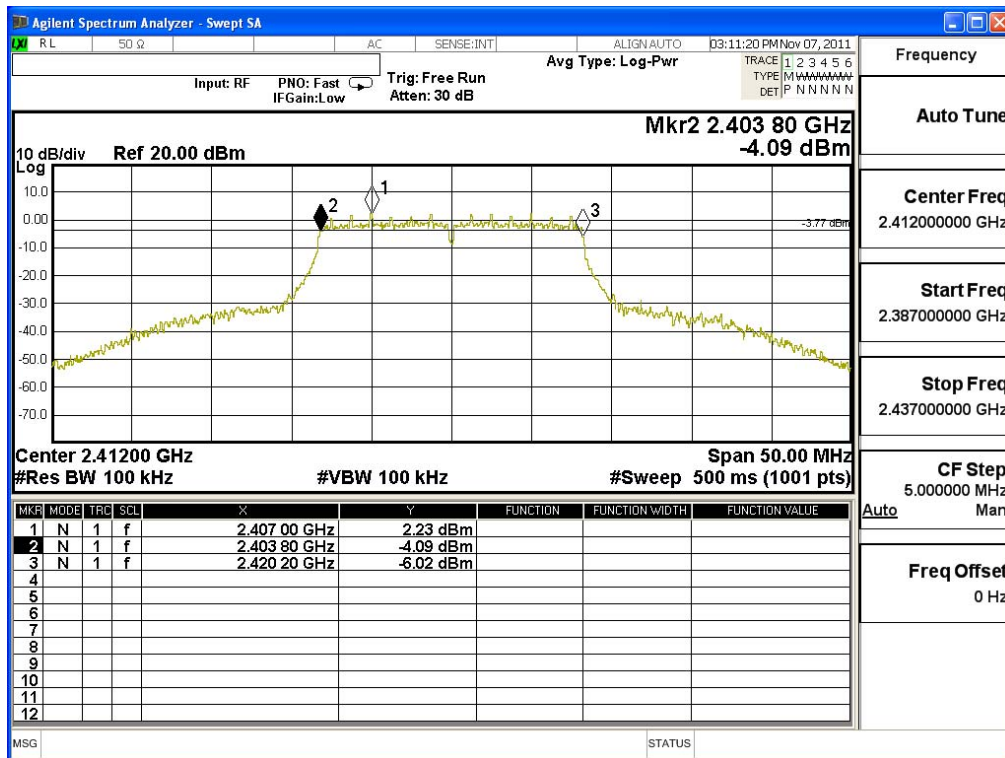
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16400	>500	Pass

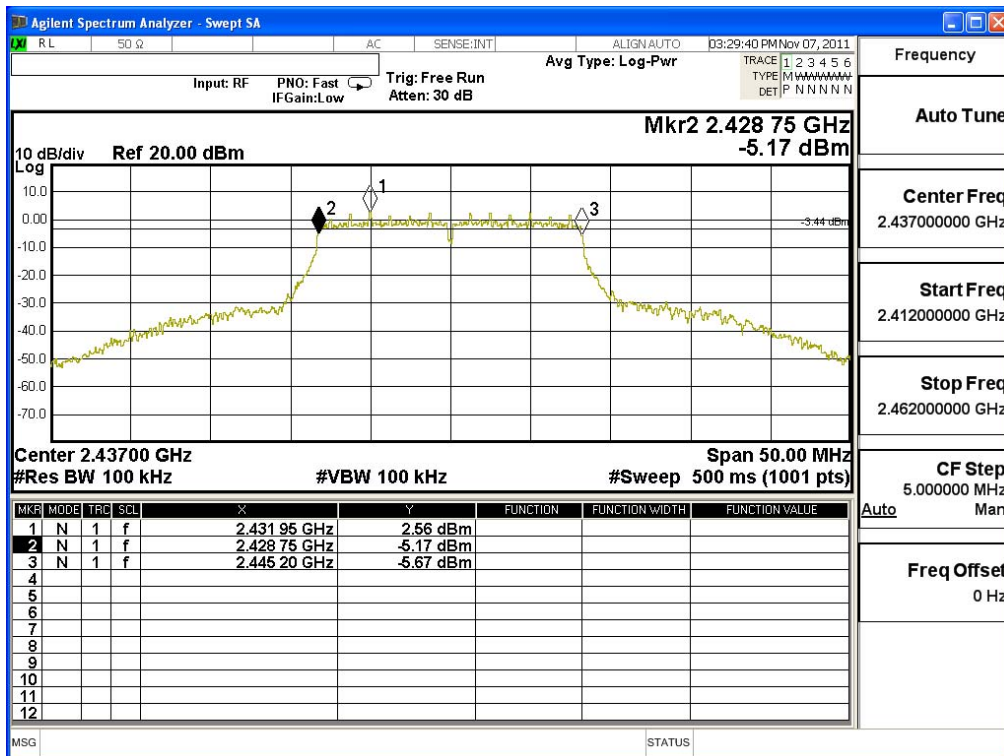
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16450	>500	Pass

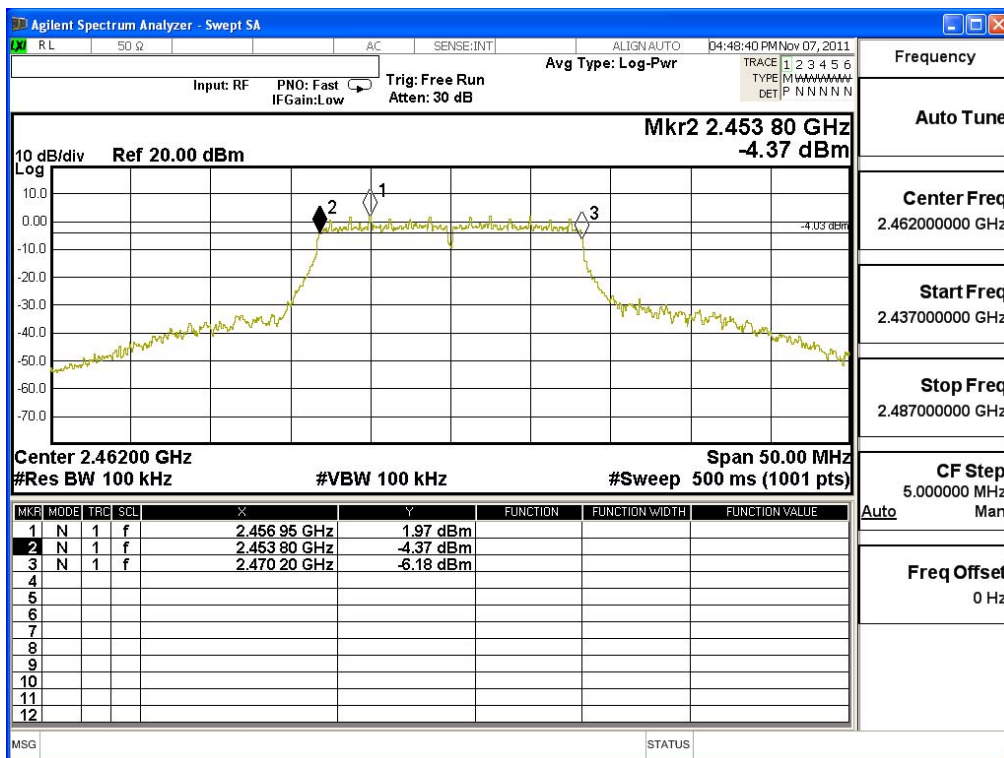
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	16400	>500	Pass

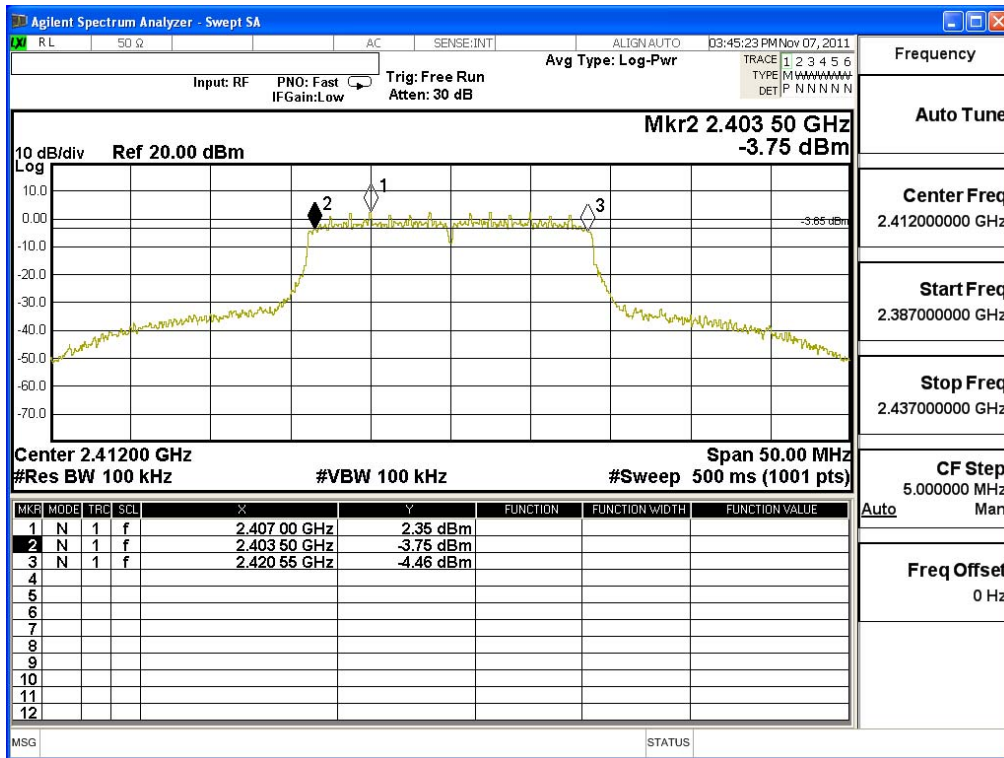
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17050	>500	Pass

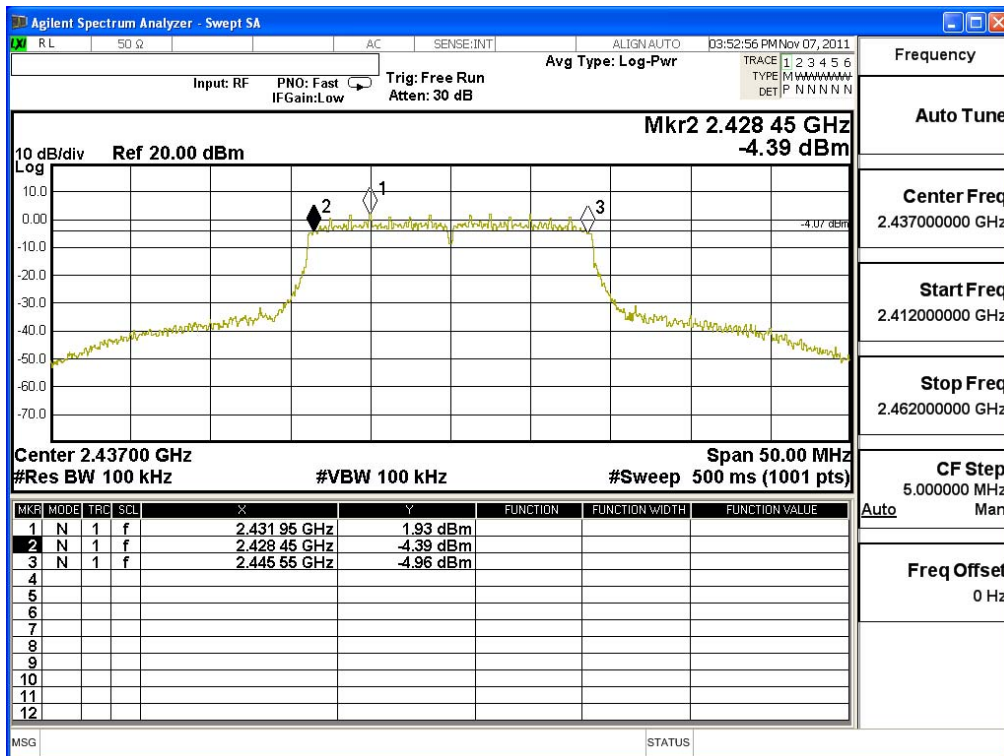
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17100	>500	Pass

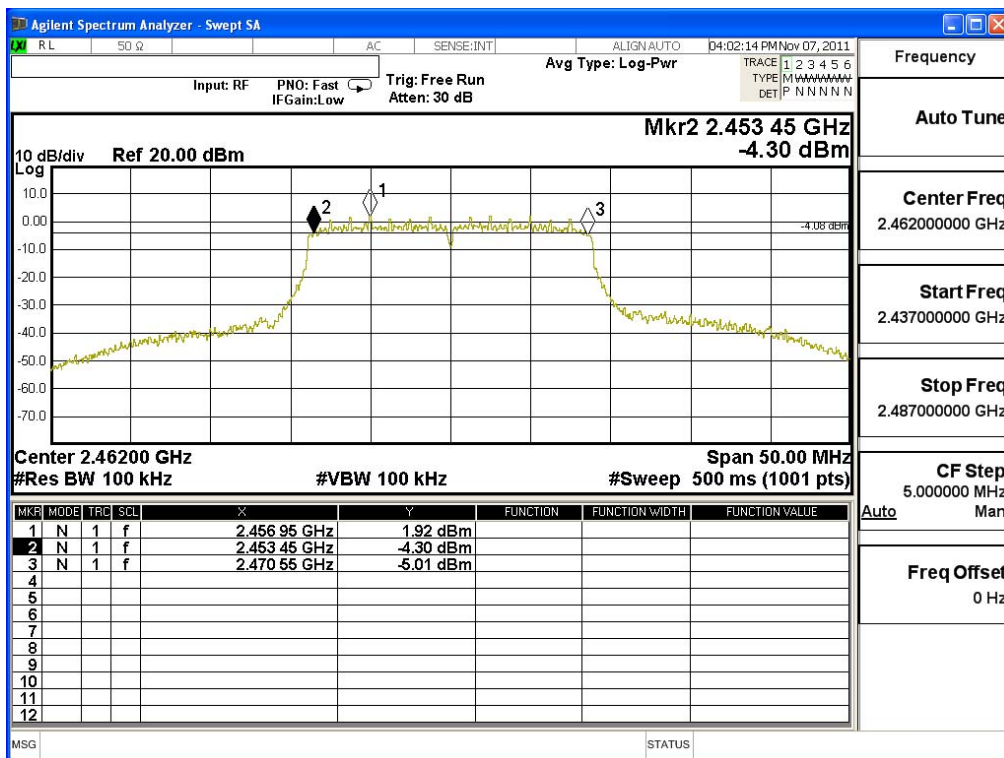
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17100	>500	Pass

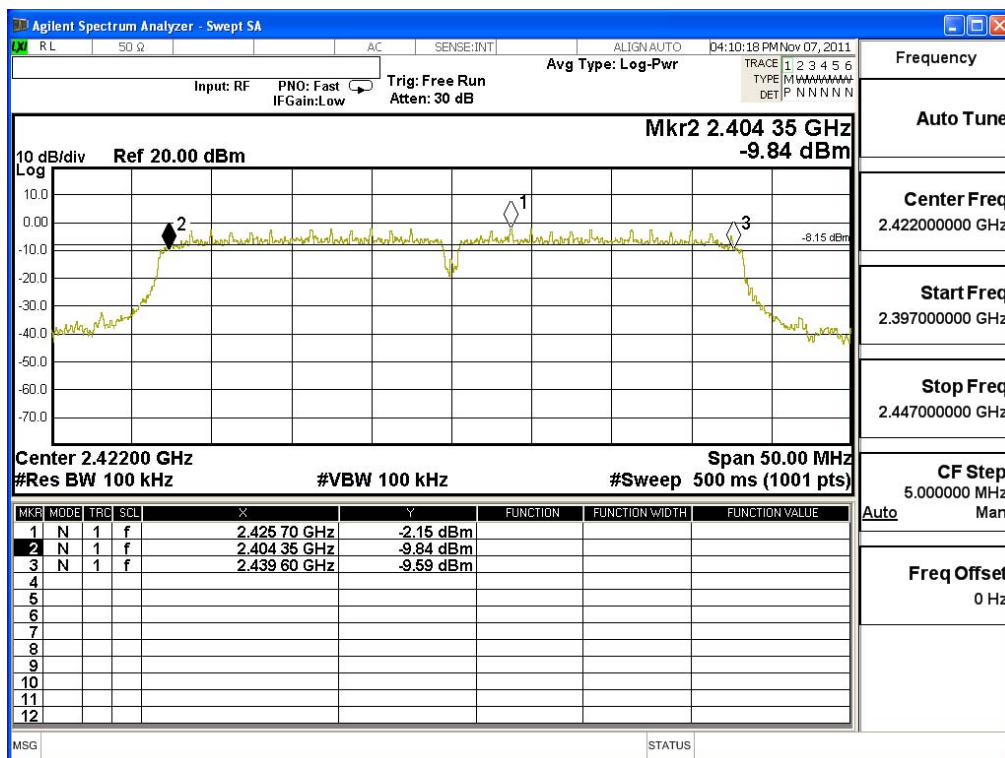
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2422MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2422.00	35250	>500	Pass

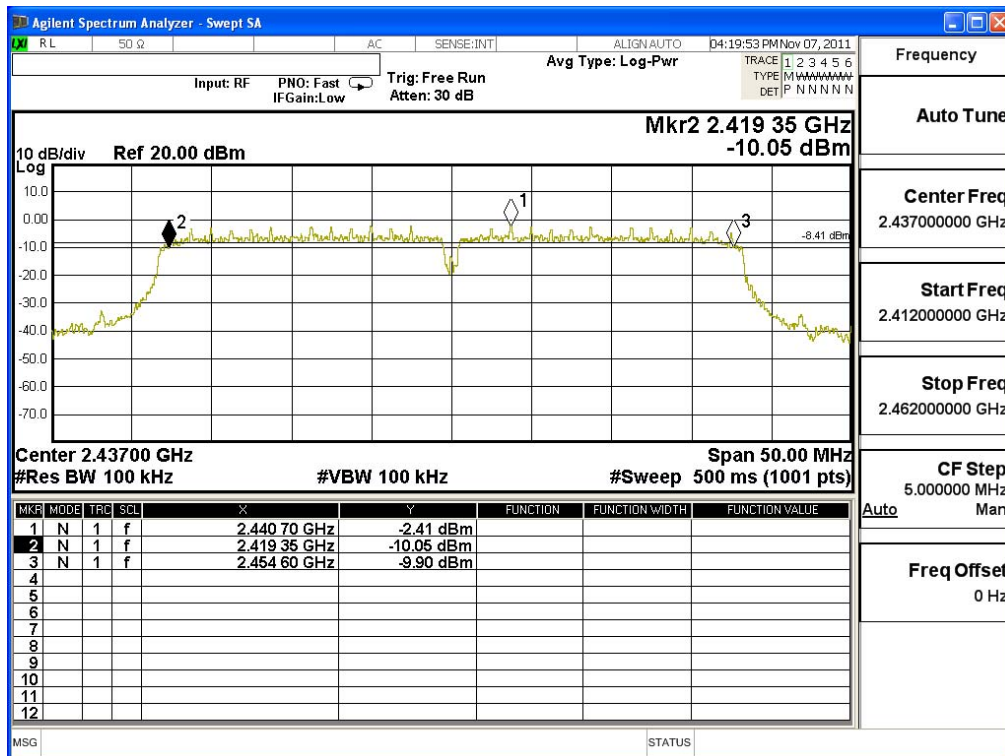
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
4	2437.00	35250	>500	Pass

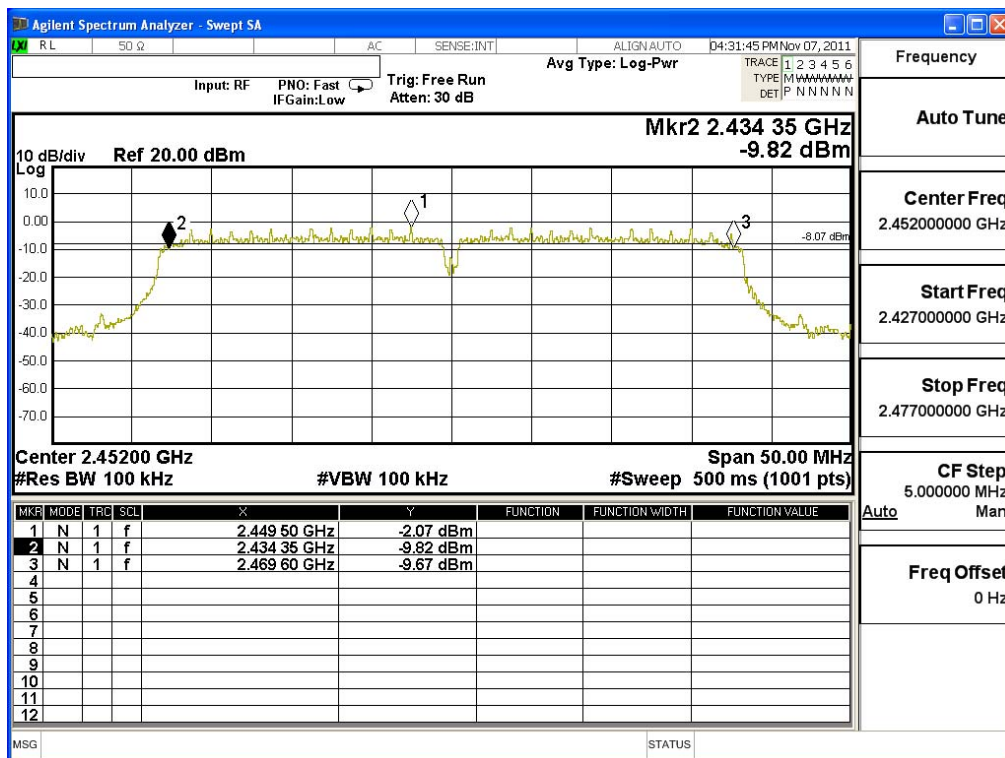
Figure Channel 4:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
7	2452.00	35250	>500	Pass

Figure Channel 7:



8. Power Density

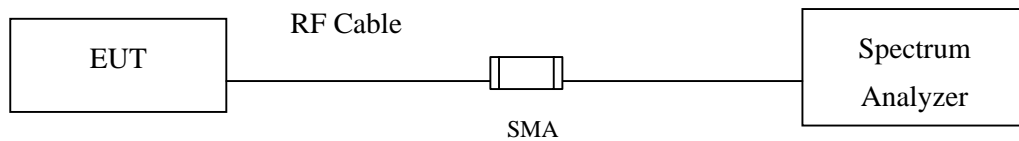
8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2011

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

8.2. Test Setup



8.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

8.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009; tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW=10KHz, Sweep time=(SPAN/3KHz), detector=Peak detector

8.5. Uncertainty

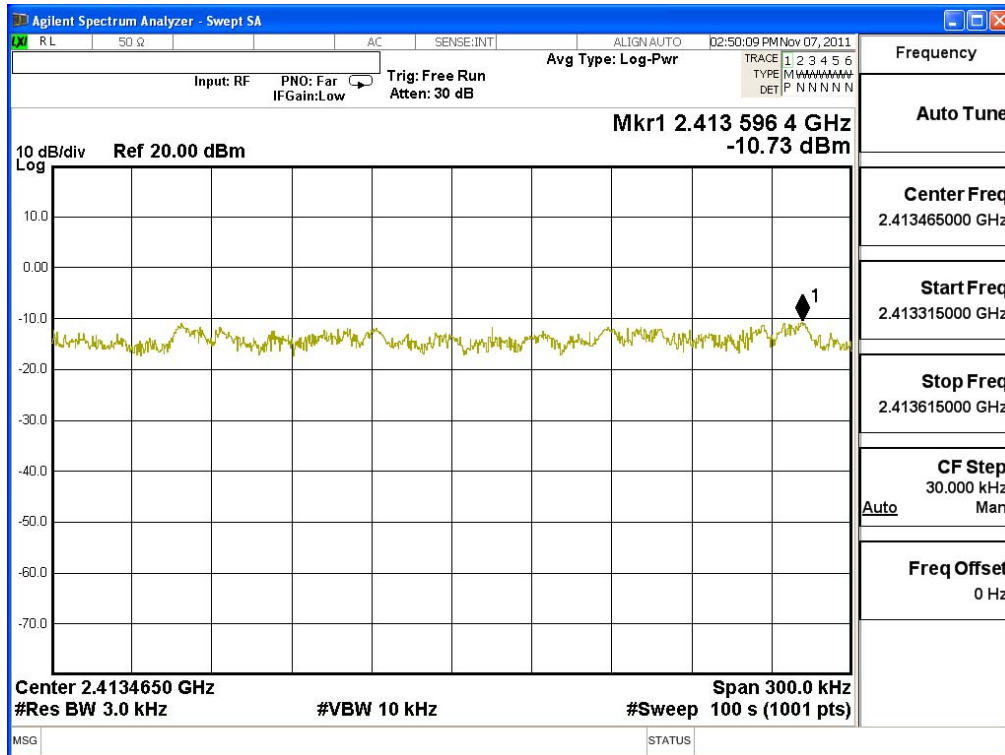
± 1.27 dB

8.6. Test Result of Power Density

Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-10.73	< 8dBm	Pass

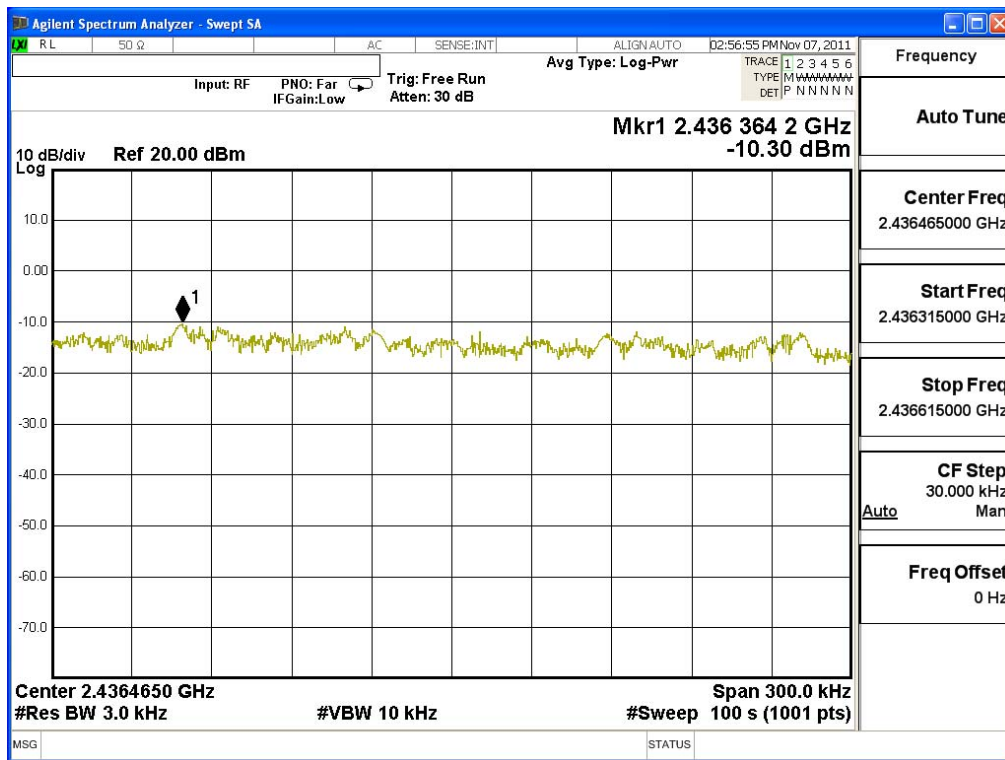
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-10.30	< 8dBm	Pass

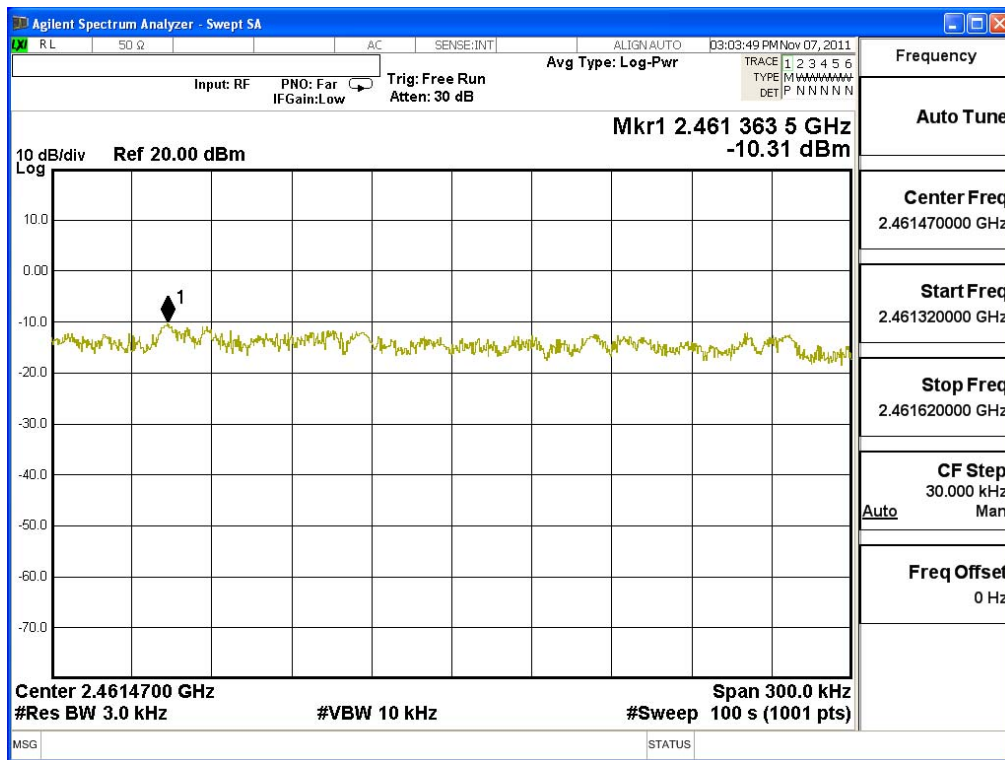
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-10.31	< 8dBm	Pass

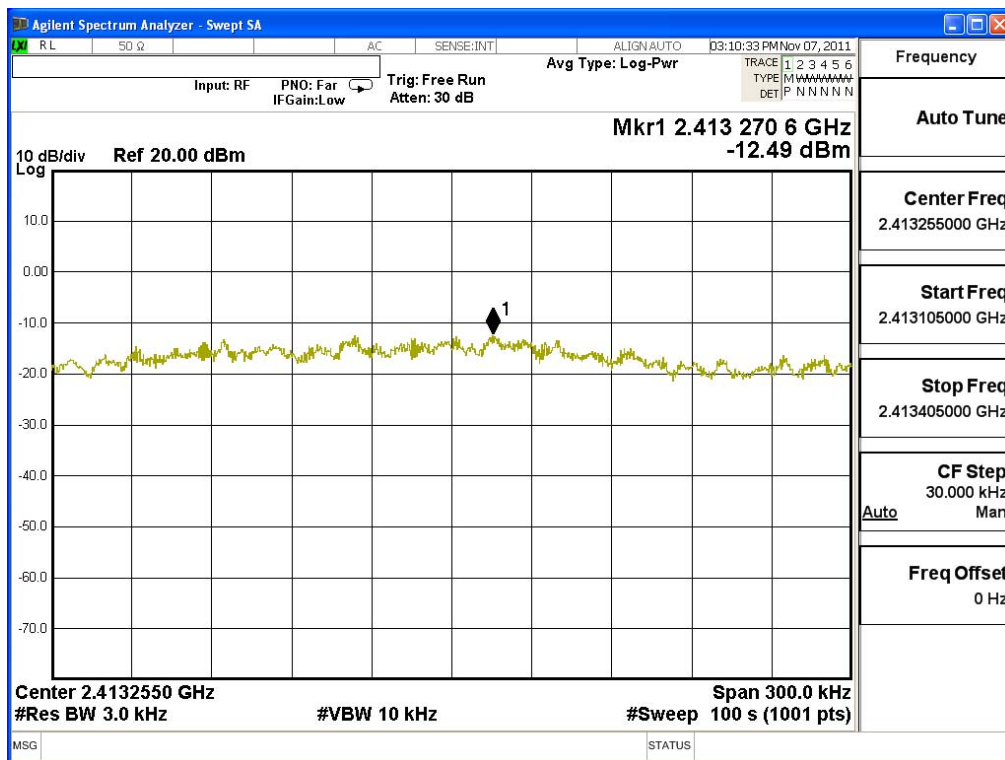
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-12.49	< 8dBm	Pass

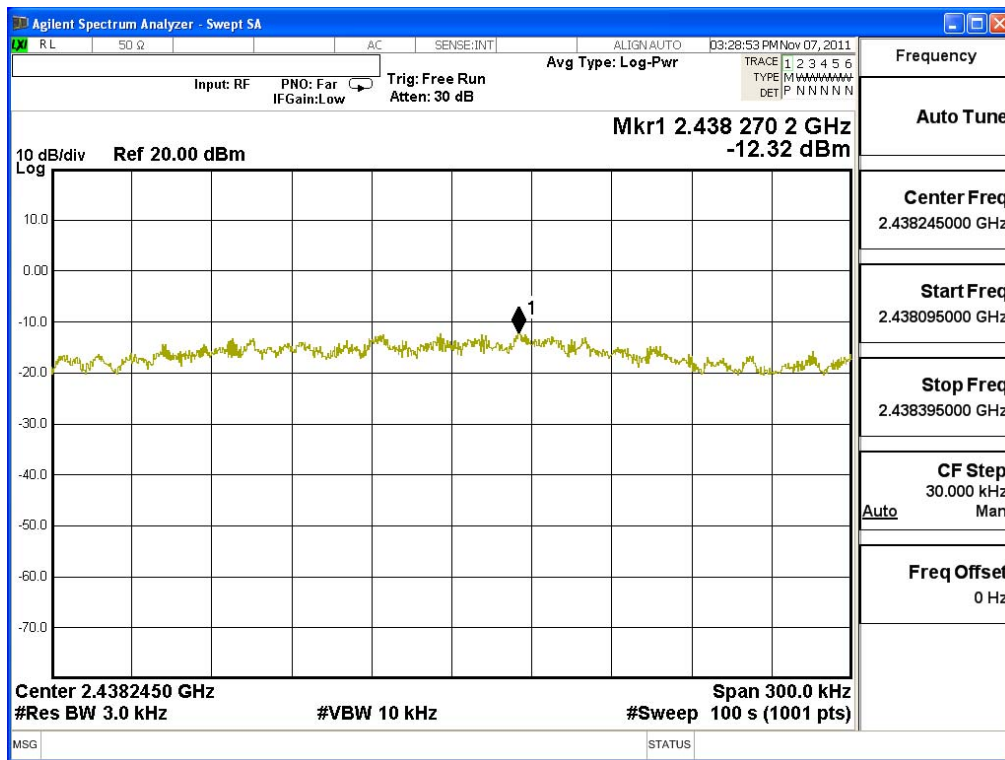
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-12.32	< 8dBm	Pass

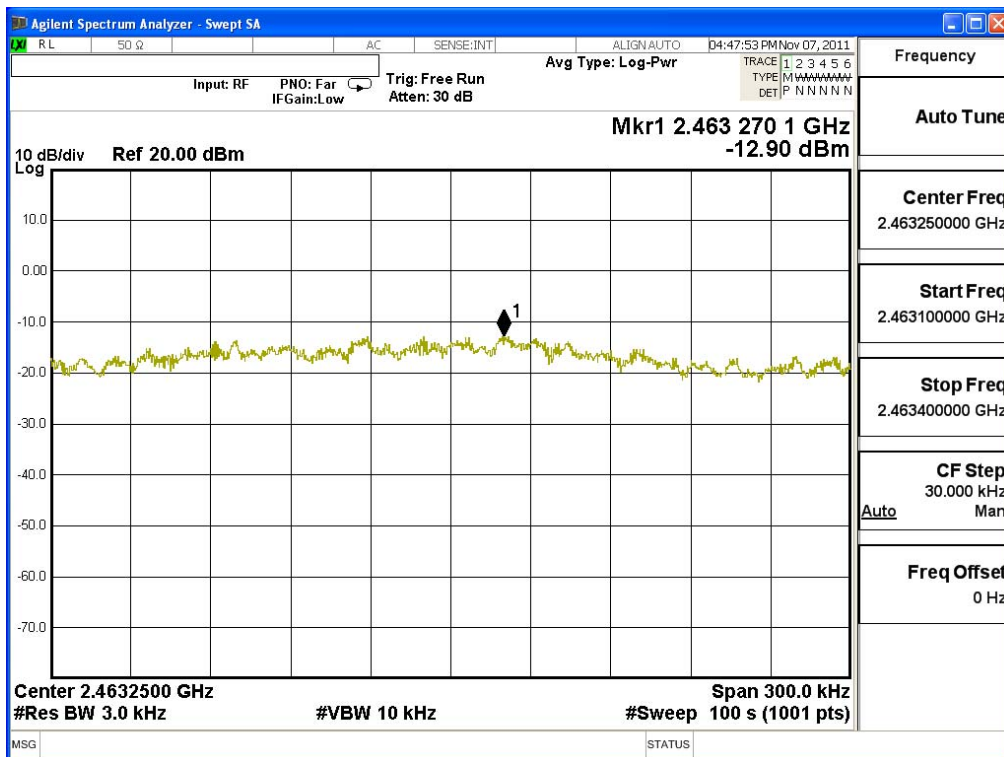
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-12.90	< 8dBm	Pass

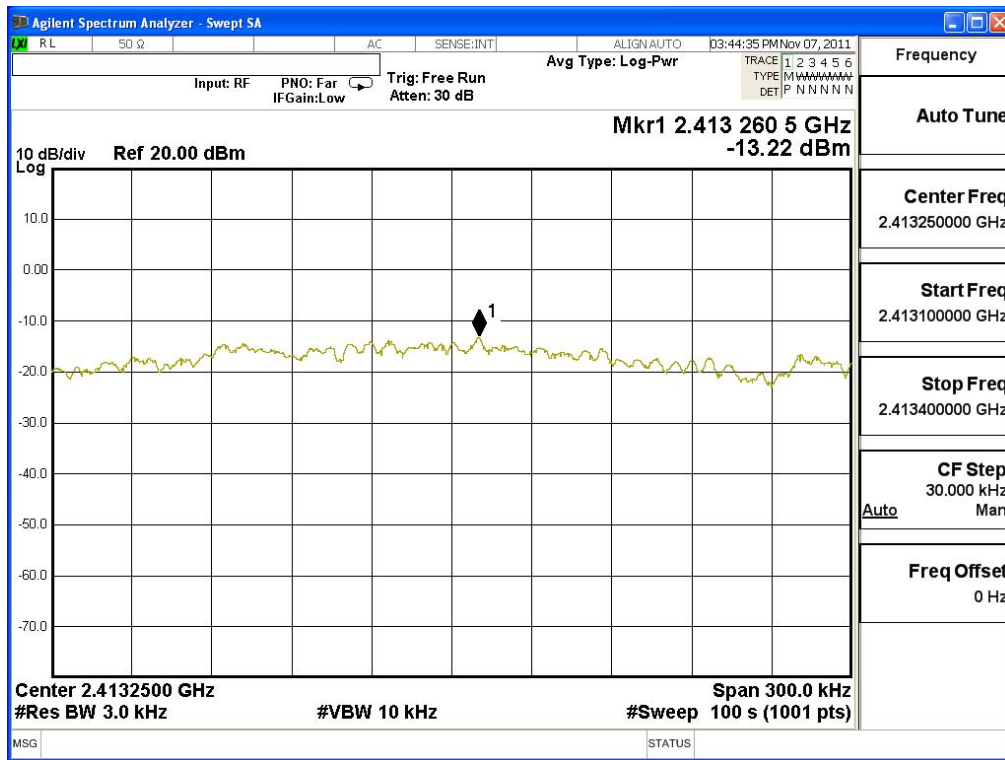
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412.00	-13.22	< 8dBm	Pass

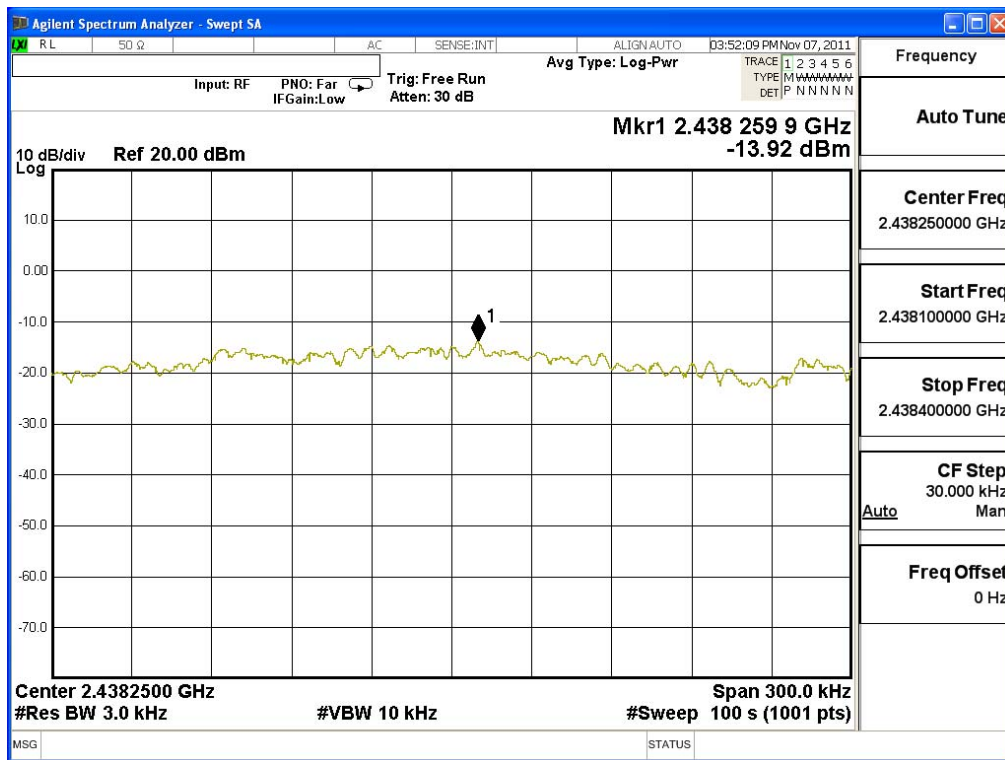
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-13.92	< 8dBm	Pass

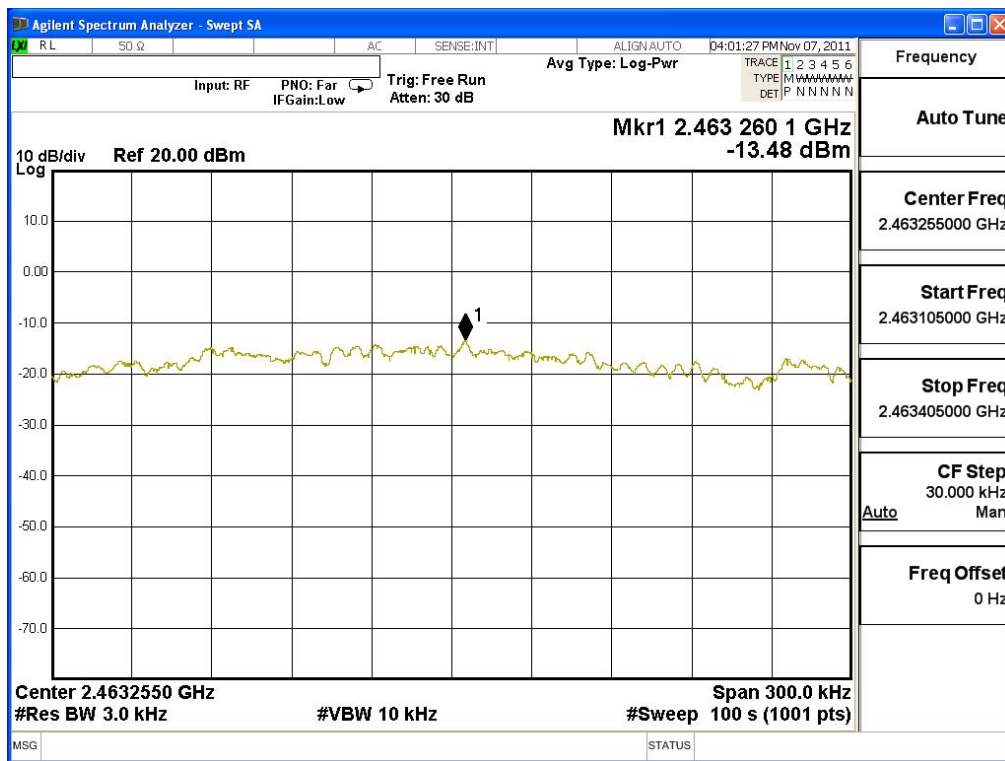
Figure Channel 6:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11	2462.00	-13.48	< 8dBm	Pass

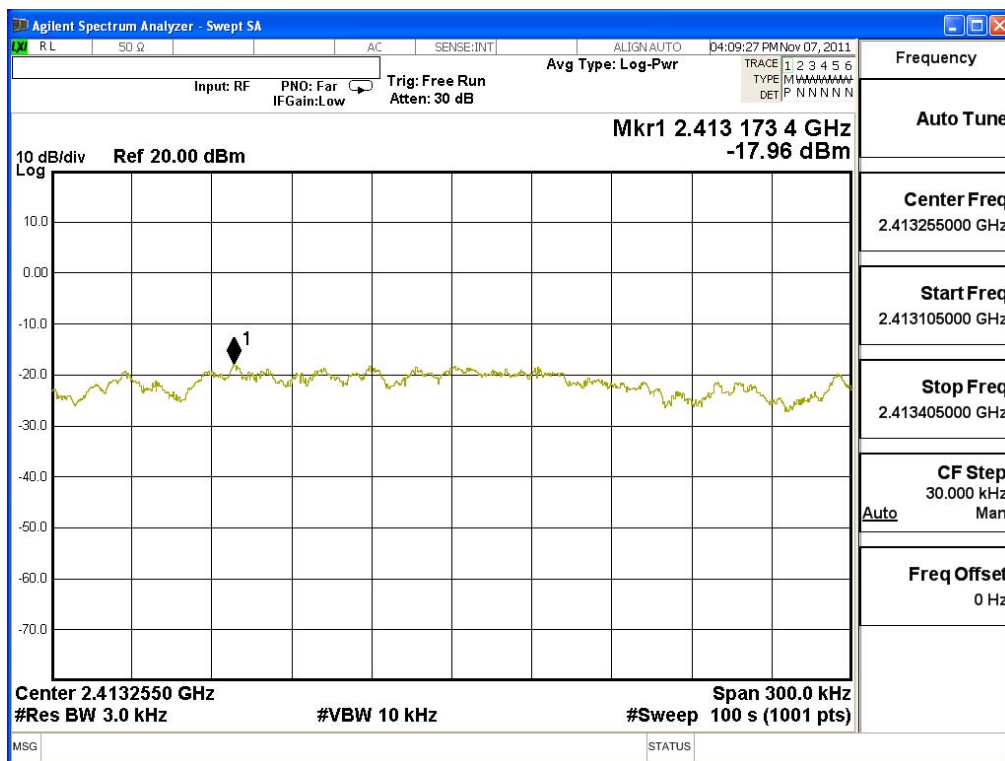
Figure Channel 11:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2422MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2422.00	-17.96	< 8dBm	Pass

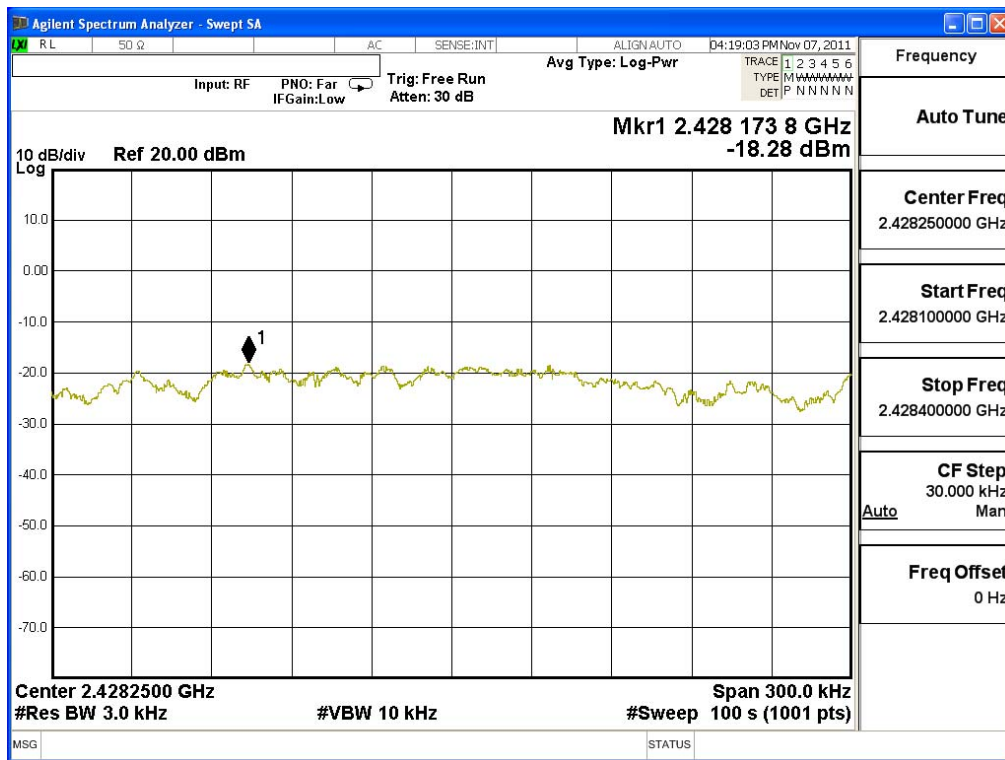
Figure Channel 1:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
4	2437.000	-18.28	< 8dBm	Pass

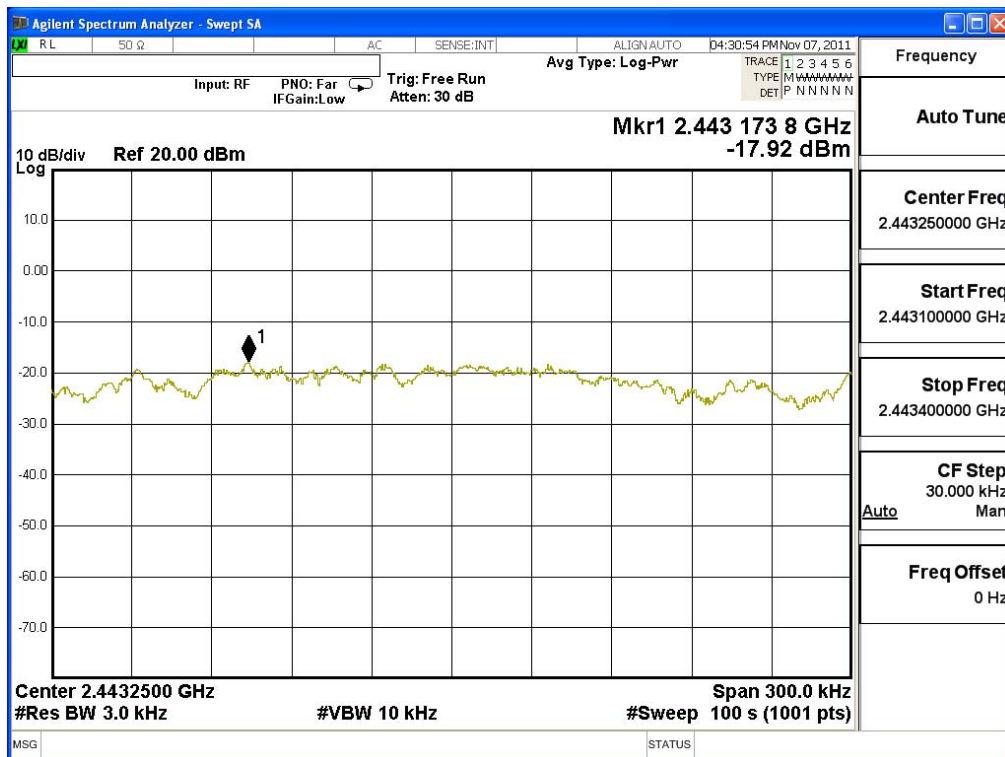
Figure Channel 4:



Product : 802.11n, 2.4G 1T1R Wireless LAN USB Module
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-40BW_15Mbps(2.4G Band) (2452MHz)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
07	2452.00	-17.92	< 8dBm	Pass

Figure Channel 7:



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs