

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:

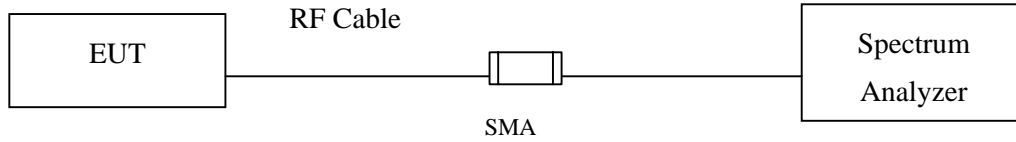
The following test equipments are used during the band edge tests:

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

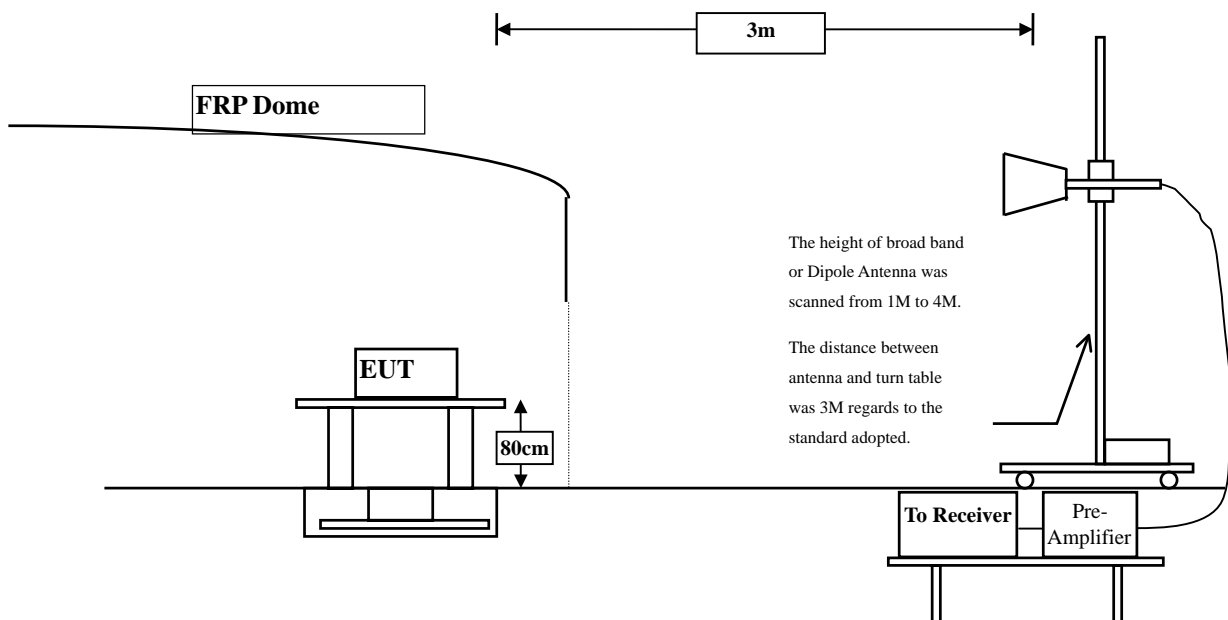
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by "X" are used to measure the final test results.

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

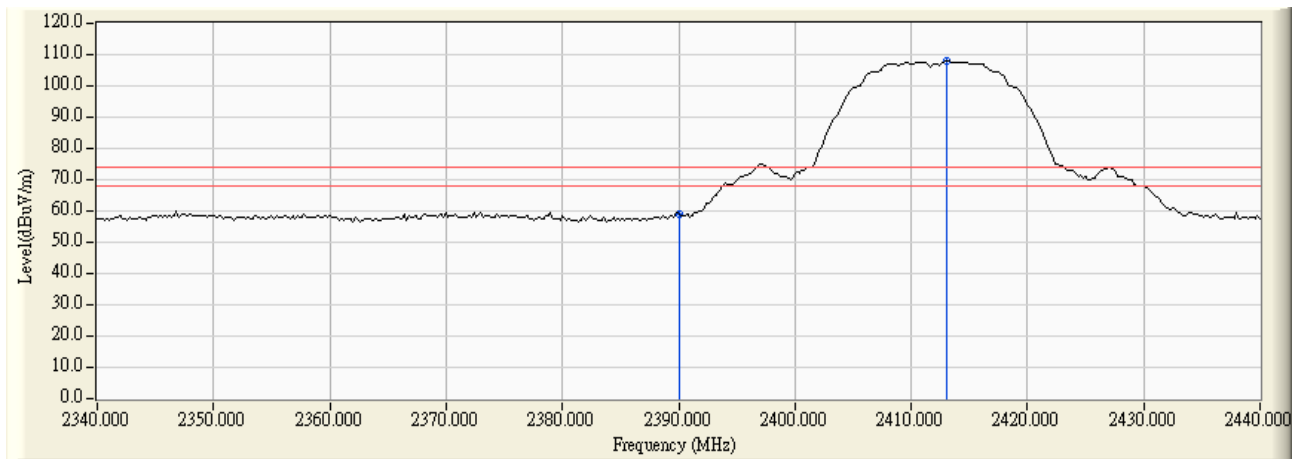
6.6. Test Result of Band Edge

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):

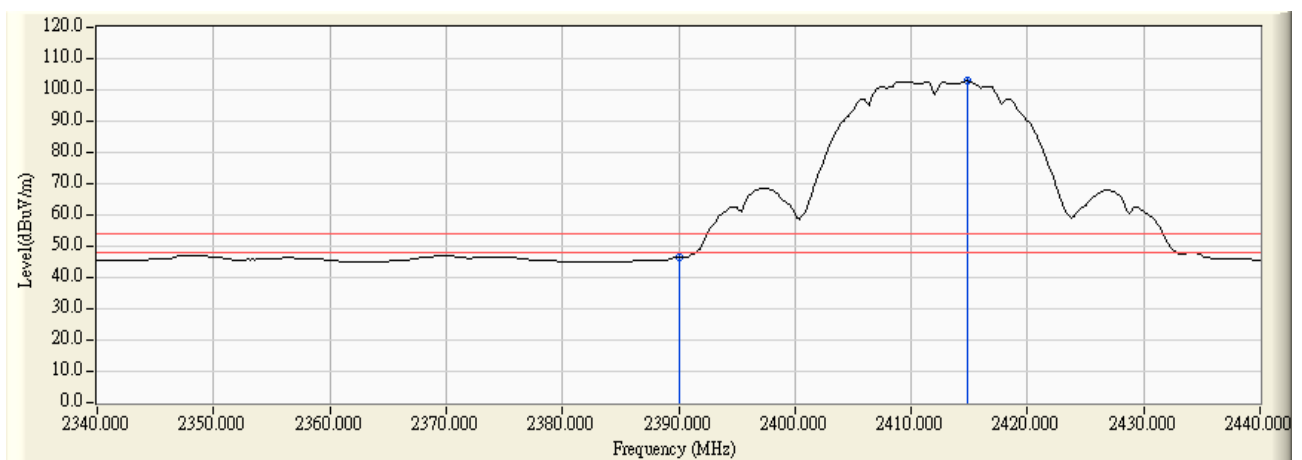
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	27.329	58.838	-15.162	74.000	Pass
01 (Peak)	2413.000	31.646	76.186	107.832	--	--	--
01 (Average)	2390.000	31.509	15.091	46.600	-7.400	54.000	Pass
01 (Average)	2414.800	31.660	71.124	102.784	--	--	--

Figure Channel 01: Horizontal (Peak)



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

Figure Channel 01: Horizontal (Average)



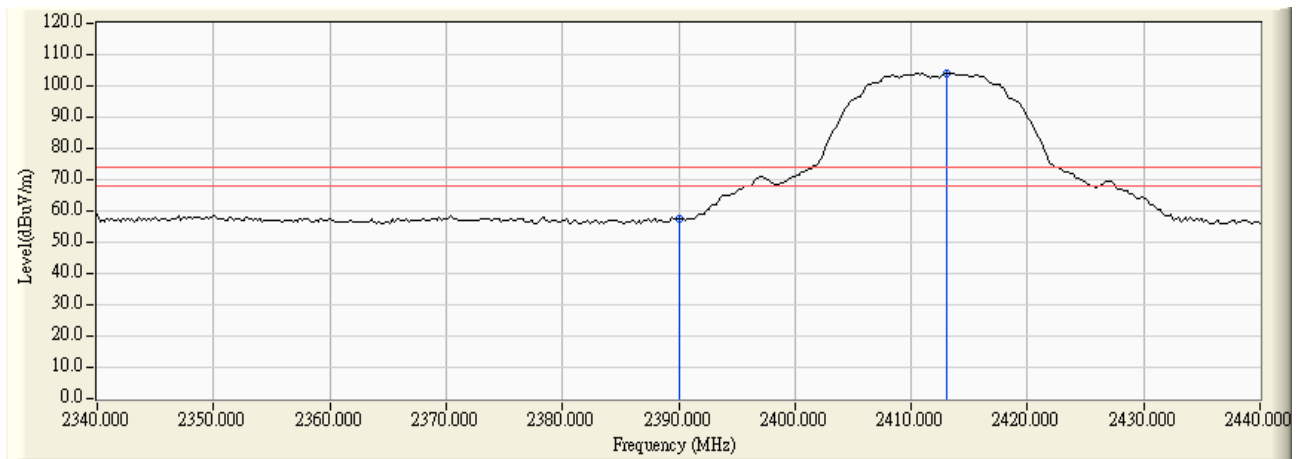
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

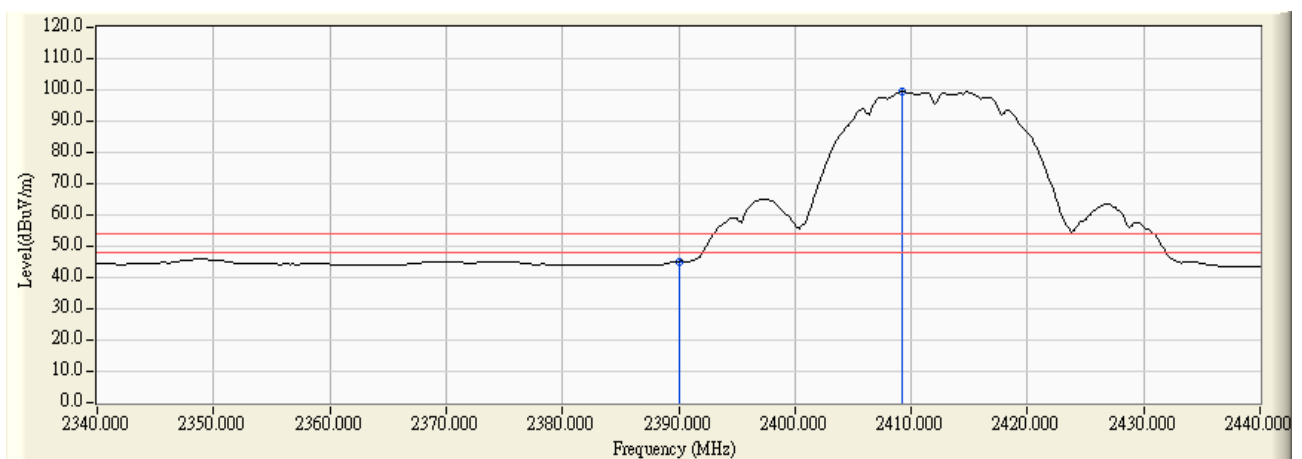
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	26.636	57.551	-16.449	74.000	Pass
01 (Peak)	2413.000	30.956	73.008	103.964	--	--	--
01 (Average)	2390.000	30.915	14.330	45.245	-8.755	54.000	Pass
01 (Average)	2409.200	30.937	68.504	99.441	--	--	--

Figure Channel 01: Vertical (Peak)



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

Figure Channel 01: Vertical (Average)



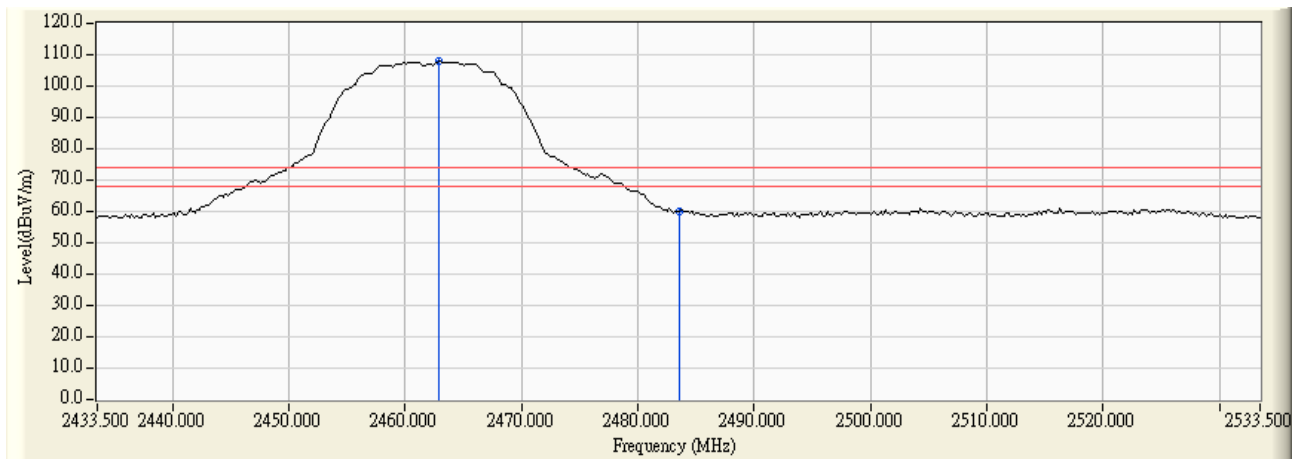
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

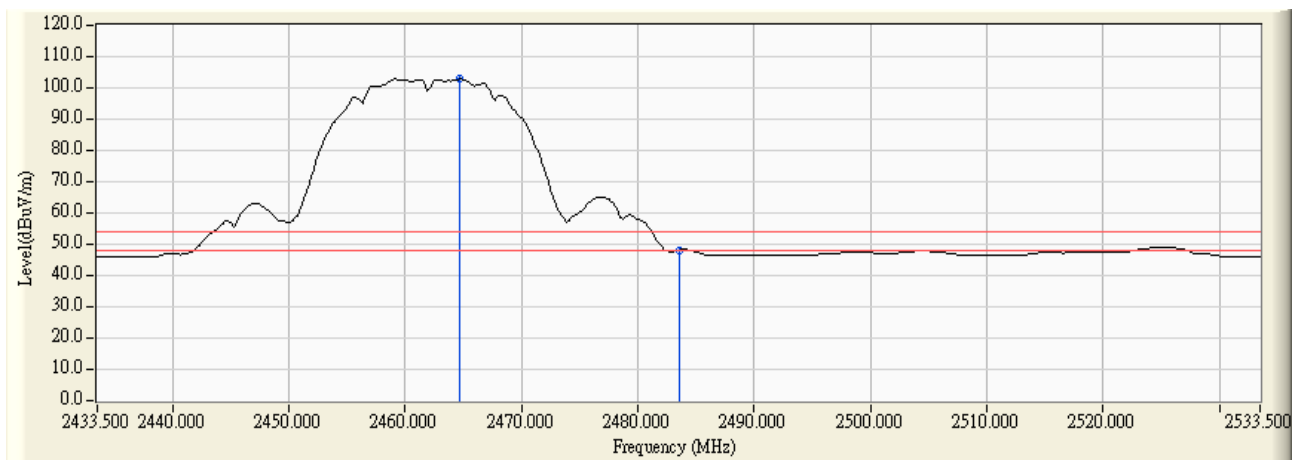
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2462.900	32.026	75.726	107.752	--	--	--
11 (Peak)	2483.500	32.182	28.028	60.210	-13.790	74.000	Pass
11 (Average)	2464.700	32.039	70.761	102.801	--	--	--
11 (Average)	2483.500	32.182	16.004	48.186	-5.814	54.000	Pass

Figure Channel 11: Horizontal (Peak)



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

Figure Channel 11: Horizontal (Average)



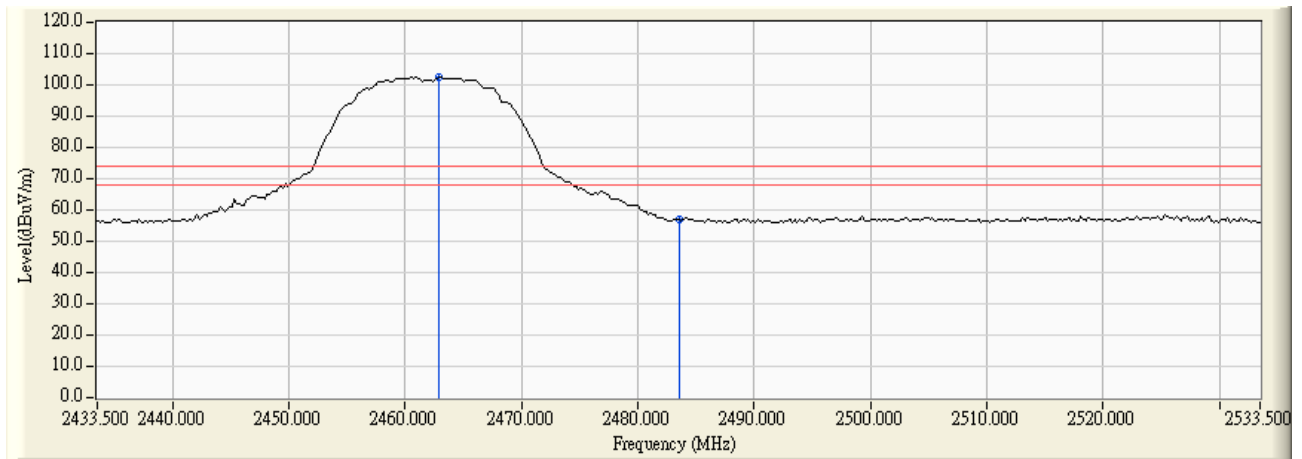
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

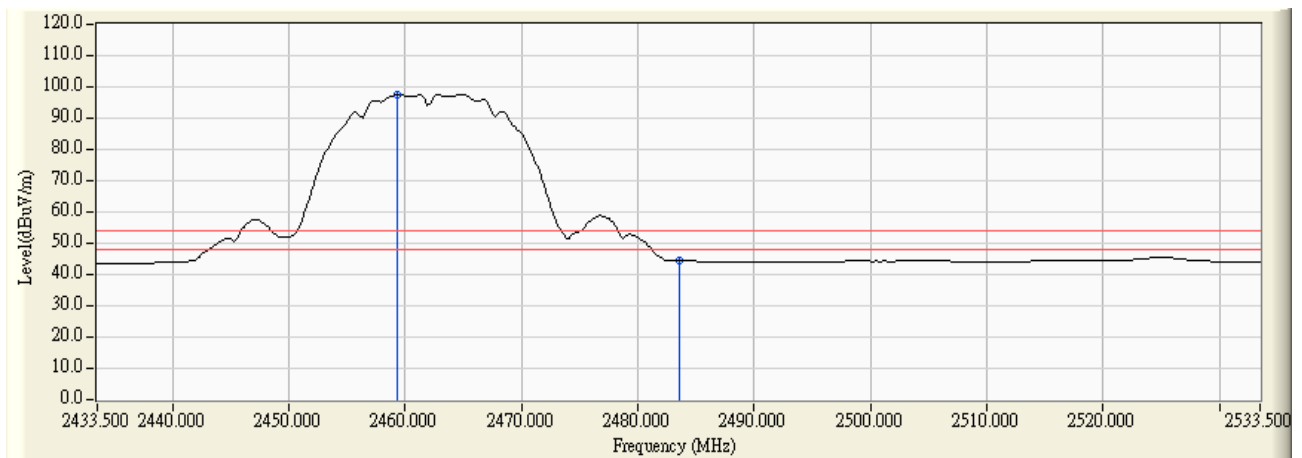
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2462.900	31.296	71.044	102.340	--	--	--
11 (Peak)	2483.500	31.435	25.687	57.122	-16.878	74.000	Pass
11 (Average)	2459.300	31.272	66.401	97.673	--	--	--
11 (Average)	2483.500	31.435	13.187	44.622	-9.378	54.000	Pass

Figure Channel 11: Vertical (Peak)



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

Figure Channel 11: Vertical (Average)



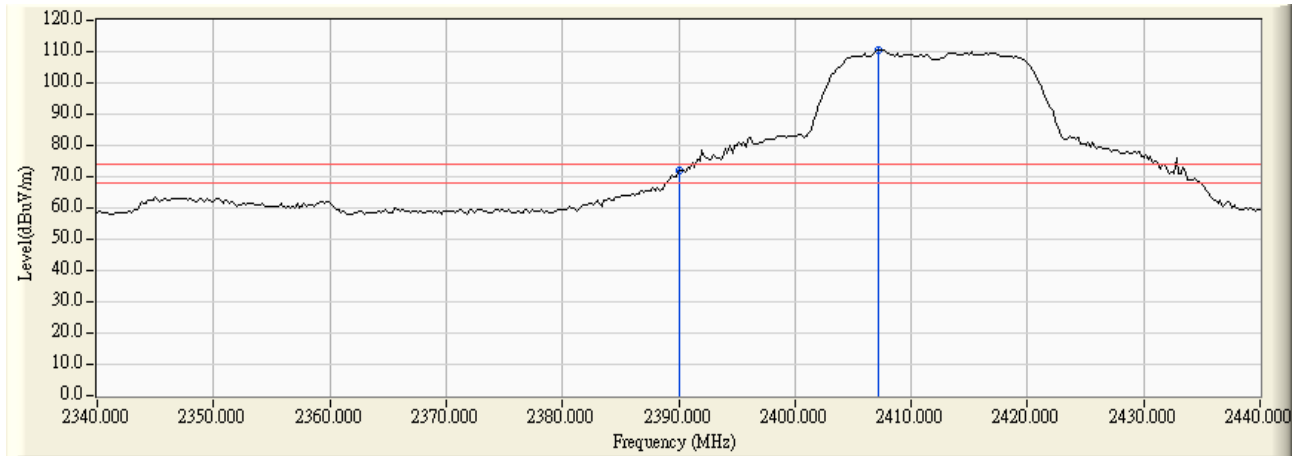
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

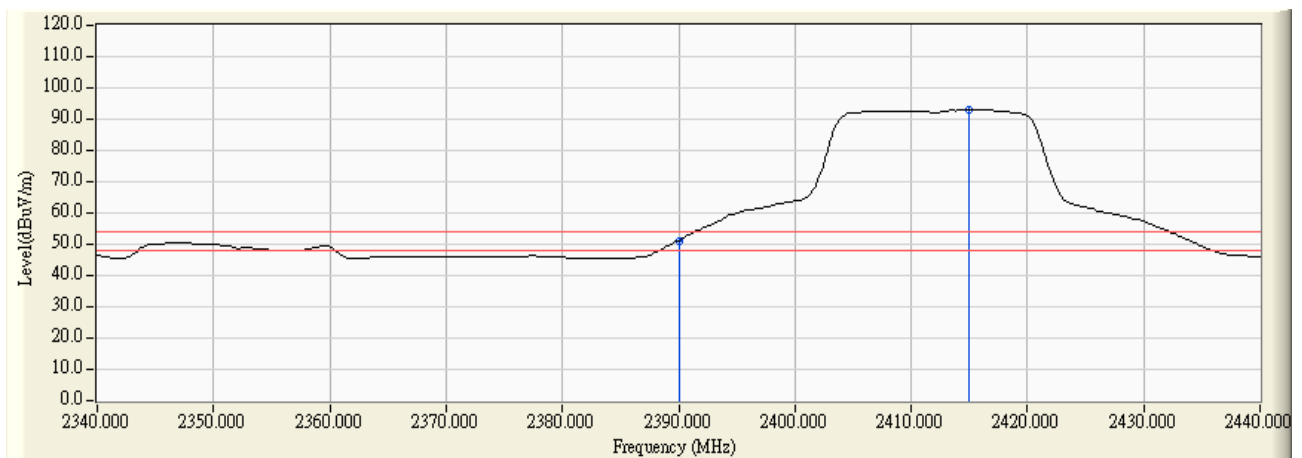
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	40.420	71.929	-2.071	74.000	Pass
01 (Peak)	2407.200	31.606	79.127	110.733	--	--	--
01 (Average)	2390.000	31.509	19.696	51.205	-2.795	54.000	Pass
01 (Average)	2415.000	31.661	61.248	92.909	--	--	--

Figure Channel 01: Horizontal (Peak)



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

Figure Channel 01: Horizontal (Average)



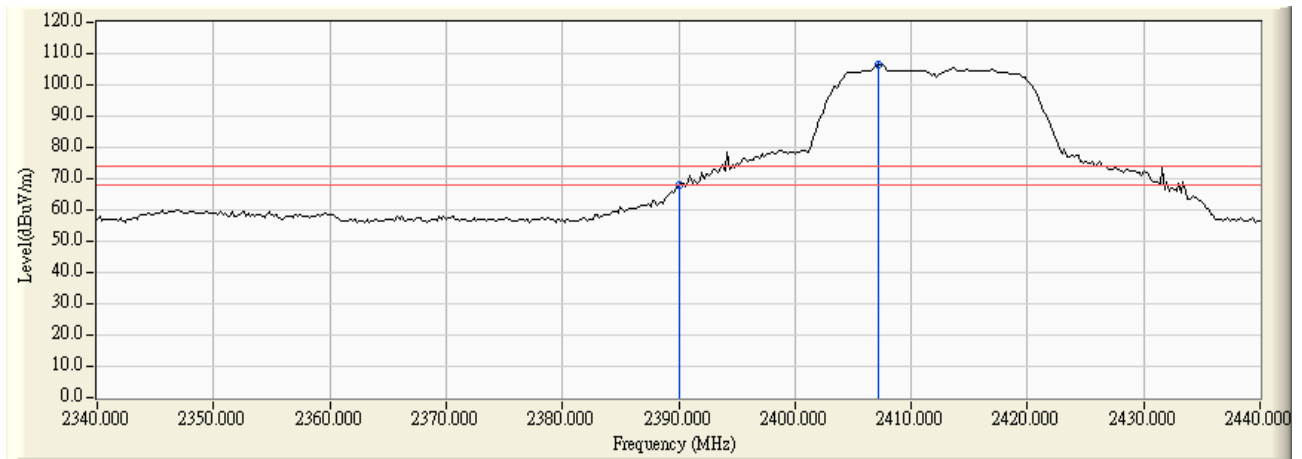
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

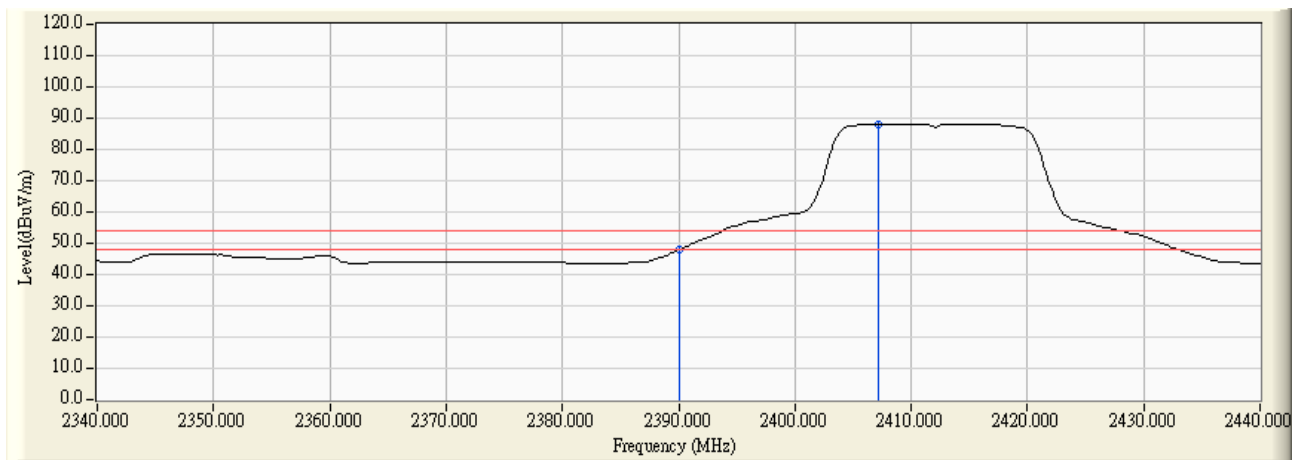
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	36.985	67.900	-6.100	74.000	Pass
01 (Peak)	2407.200	30.931	75.641	106.573	--	--	--
01 (Average)	2390.000	30.915	16.955	47.870	-6.130	54.000	Pass
01 (Average)	2407.200	30.931	57.301	88.233	--	--	--

Figure Channel 01: Vertical (Peak)



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

Figure Channel 01: Vertical (Average)



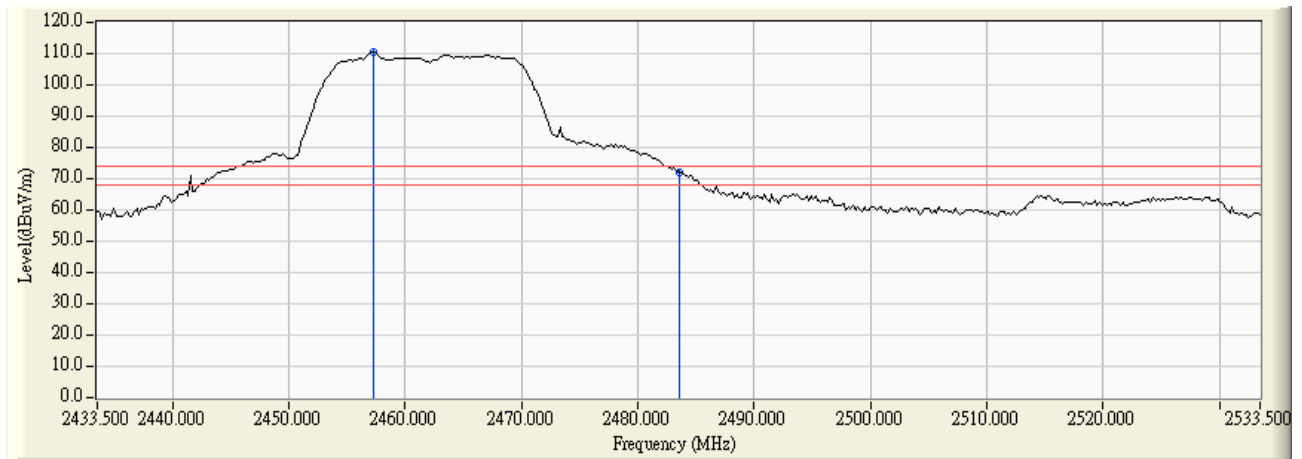
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

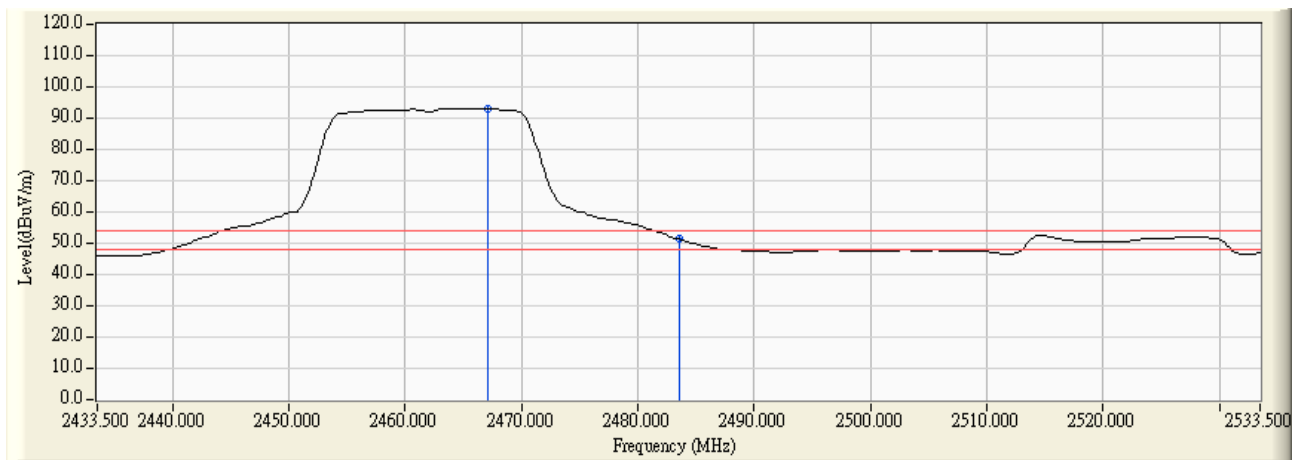
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2457.300	31.984	78.367	110.351	--	--	--
11 (Peak)	2483.500	32.182	39.857	72.039	-1.961	74.000	Pass
11 (Average)	2467.100	32.058	60.895	92.953	--	--	--
11 (Average)	2483.500	32.182	19.111	51.293	-2.707	54.000	Pass

Figure Channel 11: Horizontal (Peak)



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

Figure Channel 11: Horizontal (Average)



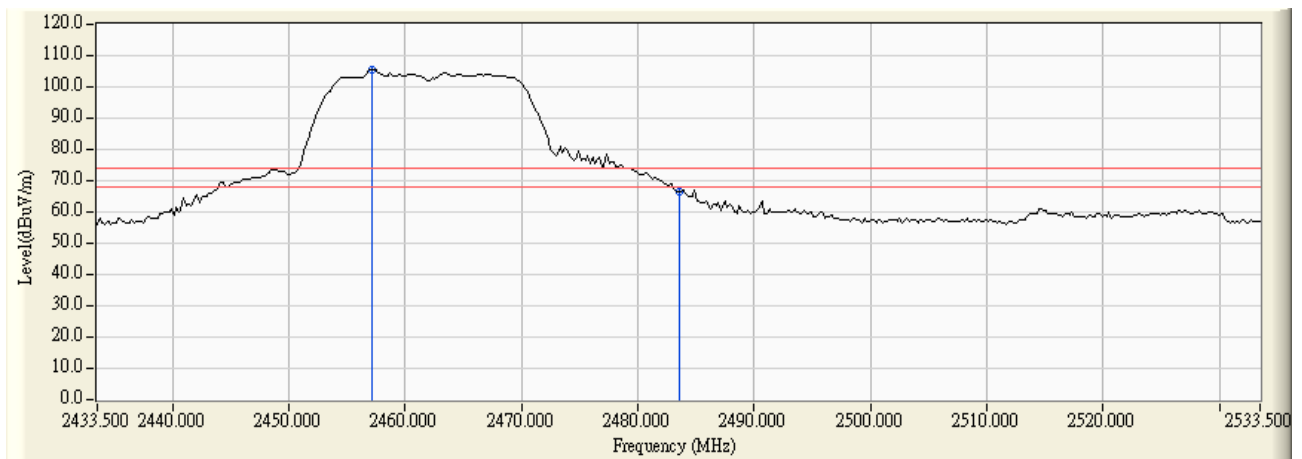
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

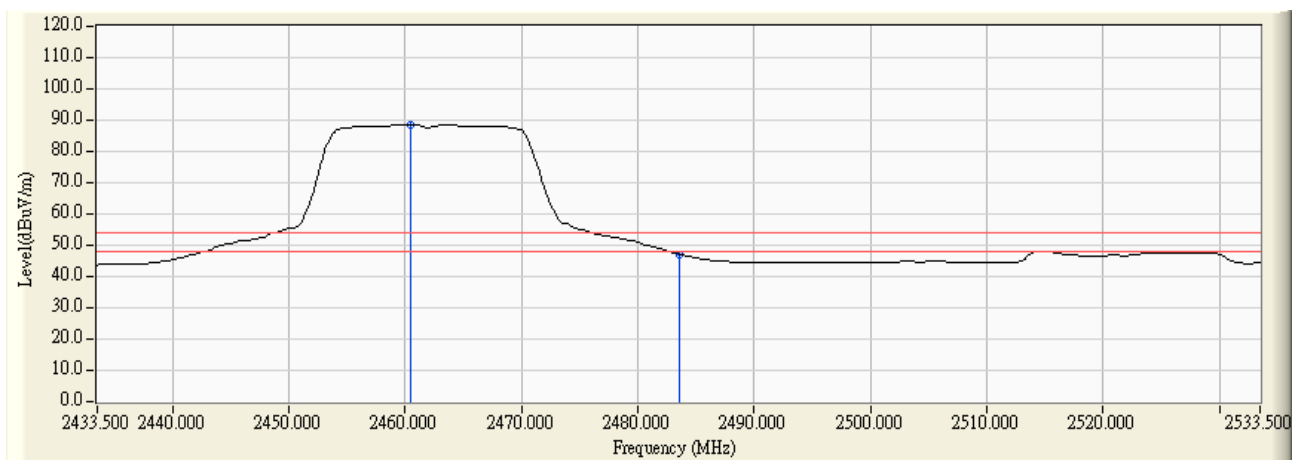
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2457.100	31.257	74.300	105.557	--	--	--
11 (Peak)	2483.500	31.435	35.214	66.649	-7.351	74.000	Pass
11 (Average)	2460.500	31.280	57.146	88.426	--	--	--
11 (Average)	2483.500	31.435	15.652	47.087	-6.913	54.000	Pass

Figure Channel 11: Vertical (Peak)



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

Figure Channel 11: Vertical (Average)



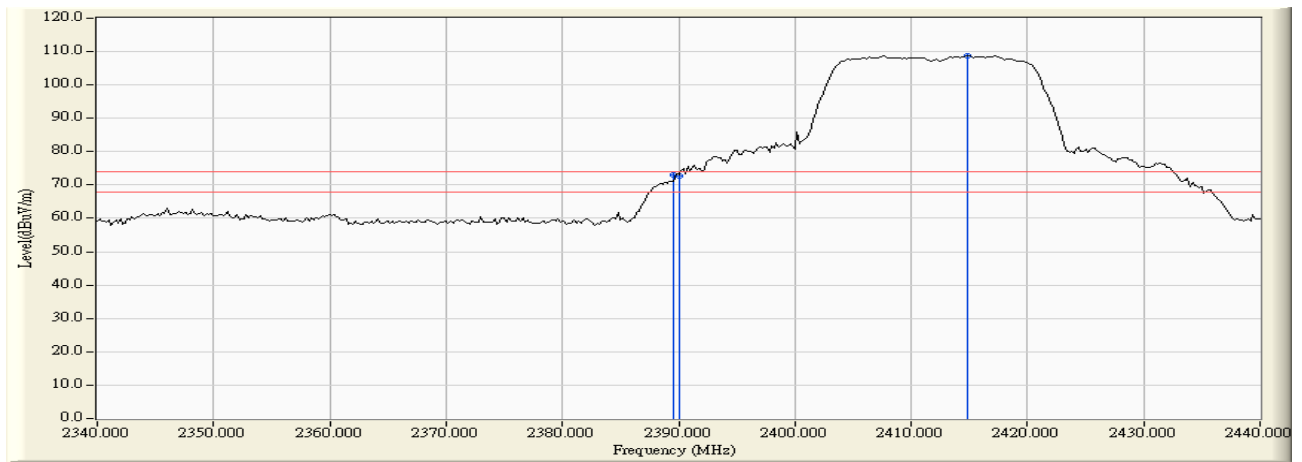
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

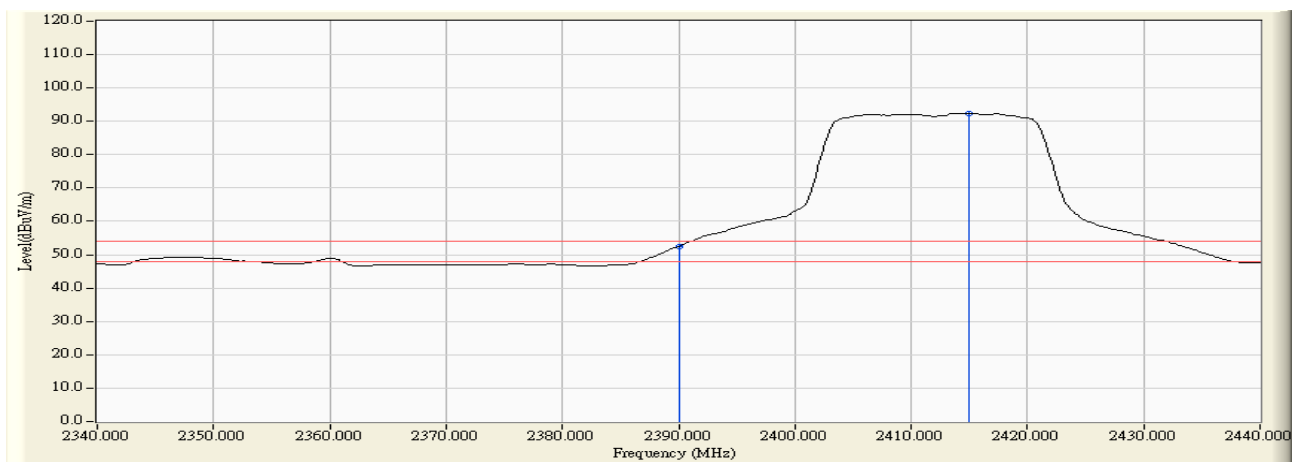
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2389.600	31.508	41.419	72.927	-1.073	74.000	Pass
01 (Peak)	2390.000	31.509	41.063	72.572	-1.428	74.000	Pass
01 (Peak)	2414.800	31.660	77.060	108.720	--	--	--
01 (Average)	2390.000	31.509	20.976	52.485	-1.515	54.000	Pass
01 (Average)	2415.000	31.661	60.782	92.443	--	--	--

Figure Channel 01: Horizontal (Peak)



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

Figure Channel 01: Horizontal (Average)



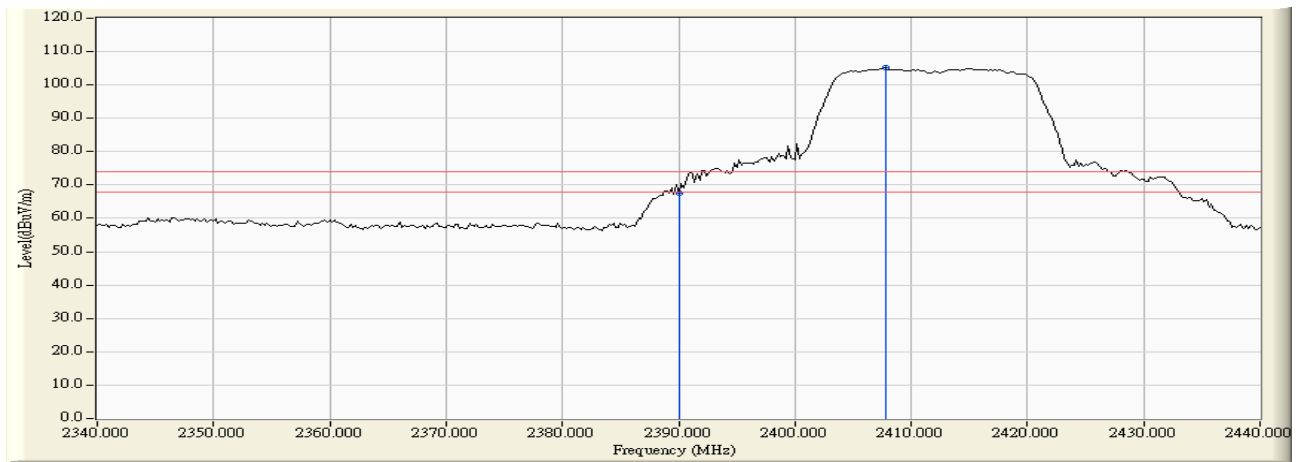
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

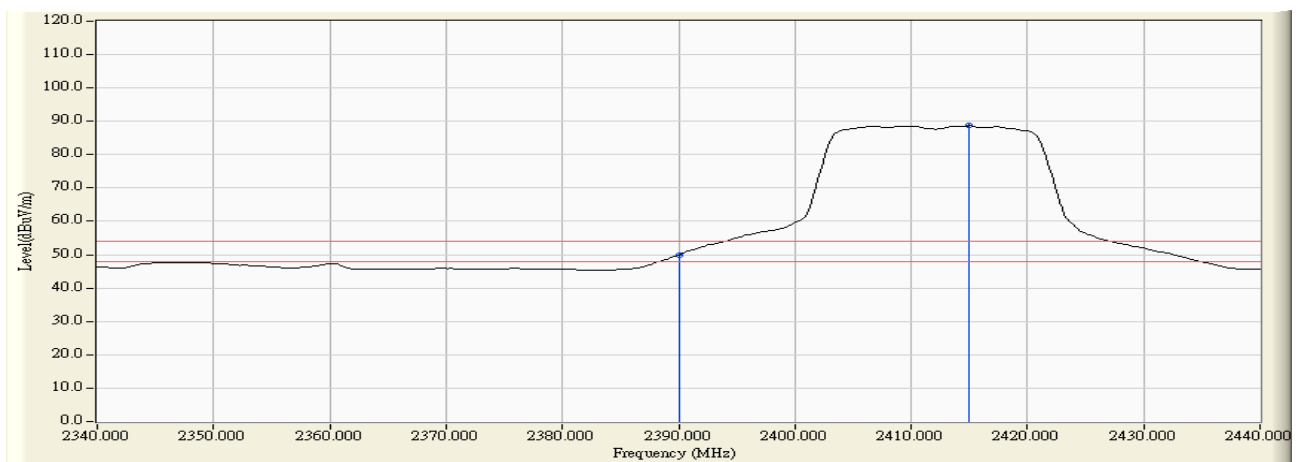
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	36.564	67.479	-6.521	74.000	Pass
01 (Peak)	2407.800	30.934	74.198	105.132	--	--	--
01 (Average)	2390.000	30.915	19.026	49.941	-4.059	54.000	Pass
01 (Average)	2415.000	30.970	57.677	88.647	--	--	--

Figure Channel 01: Vertical (Peak)



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

Figure Channel 01: Vertical (Average)



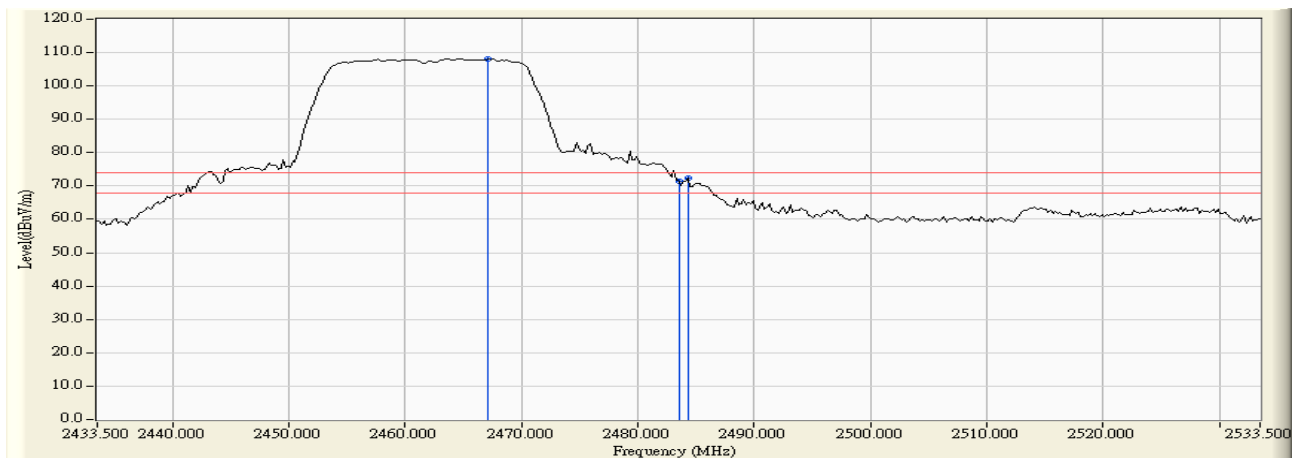
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

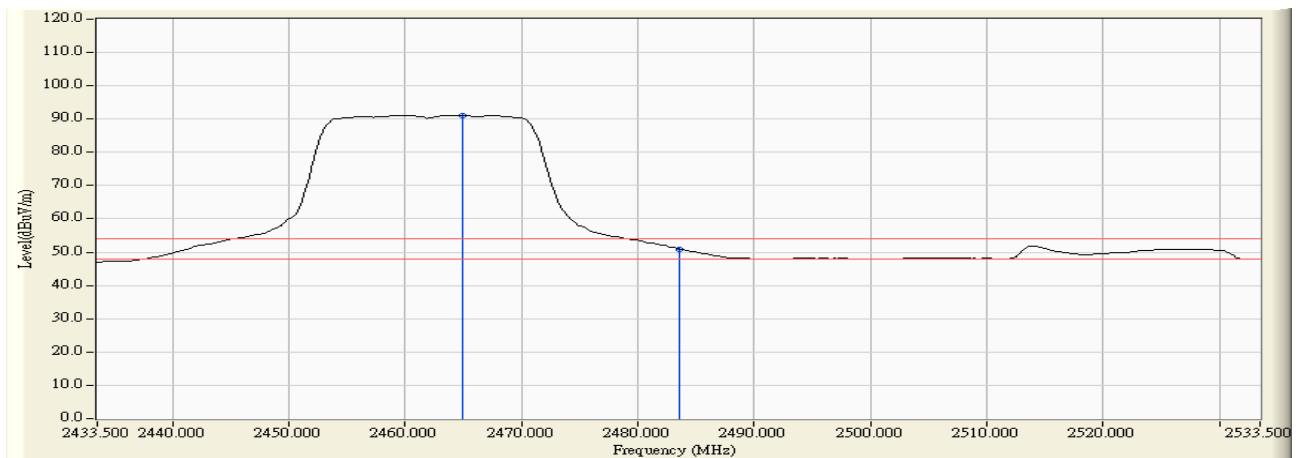
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2467.100	32.058	76.061	108.119	--	--	--
11 (Peak)	2483.500	32.182	39.290	71.472	-2.528	74.000	Pass
11 (Peak)	2484.300	32.187	40.235	72.423	-1.577	74.000	Pass
11 (Average)	2464.900	32.042	59.142	91.183	--	--	--
11 (Average)	2483.500	32.182	18.778	50.960	-3.040	54.000	Pass

Figure Channel 11: Horizontal (Peak)



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

Figure Channel 11: Horizontal (Average)



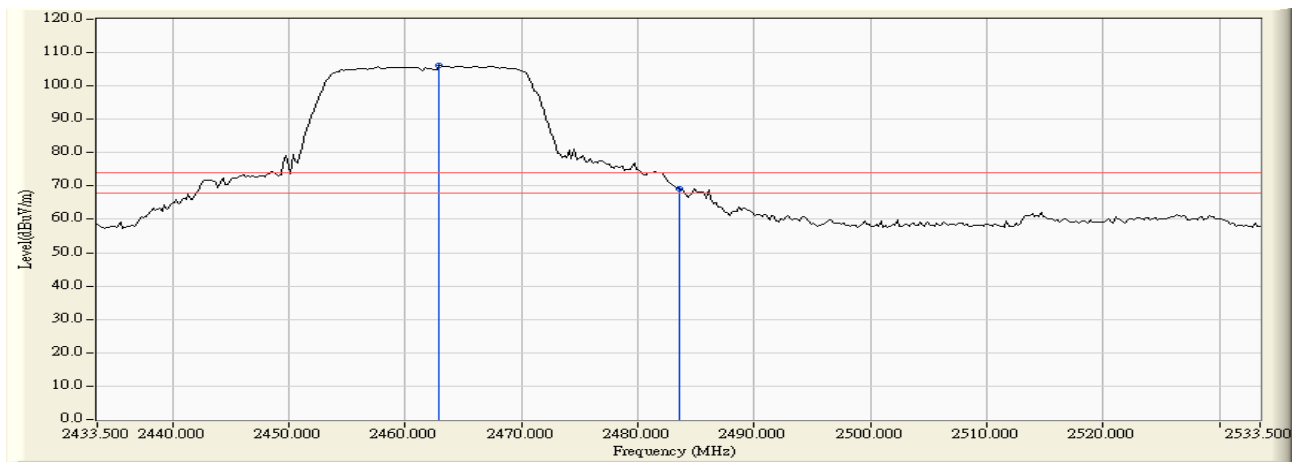
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

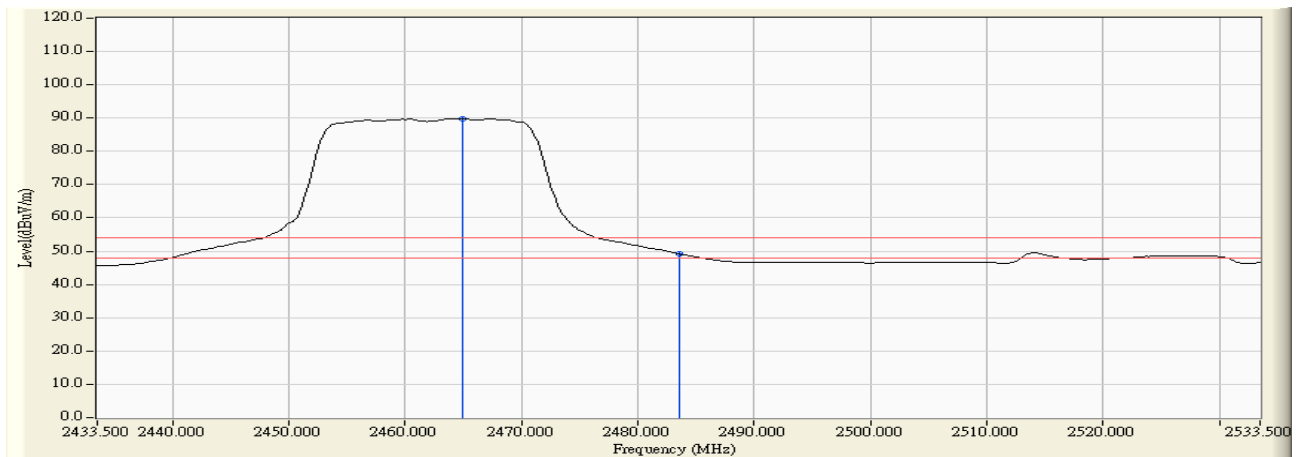
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
11 (Peak)	2462.900	31.296	74.886	106.182	--	--	--
11 (Peak)	2483.500	31.435	37.793	69.228	-4.772	74.000	Pass
11 (Average)	2464.900	31.310	58.479	89.789	--	--	--
11 (Average)	2483.500	31.435	17.758	49.193	-4.807	54.000	Pass

Figure Channel 11: Vertical (Peak)



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

Figure Channel 11: Vertical (Average)



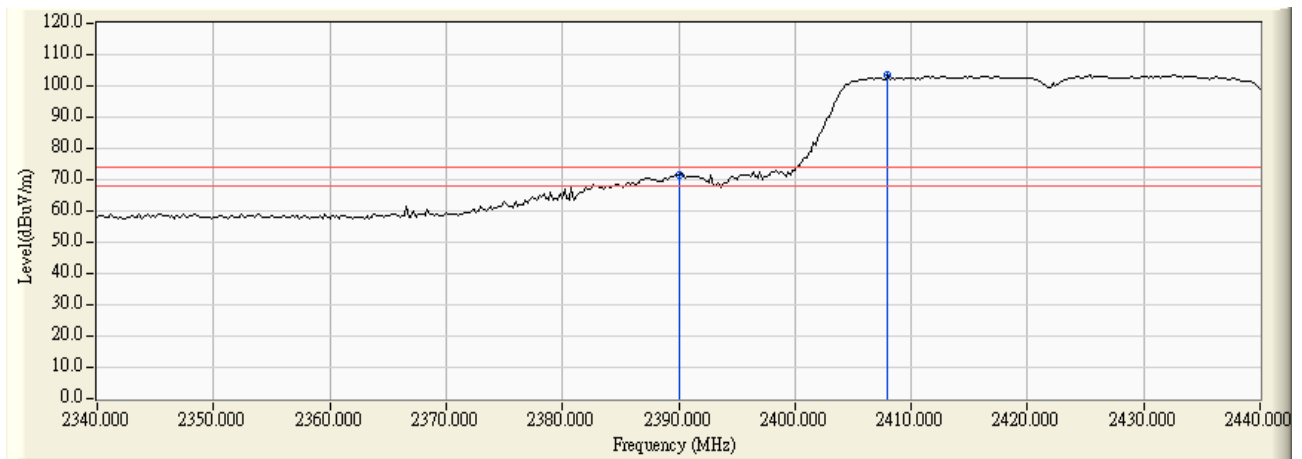
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

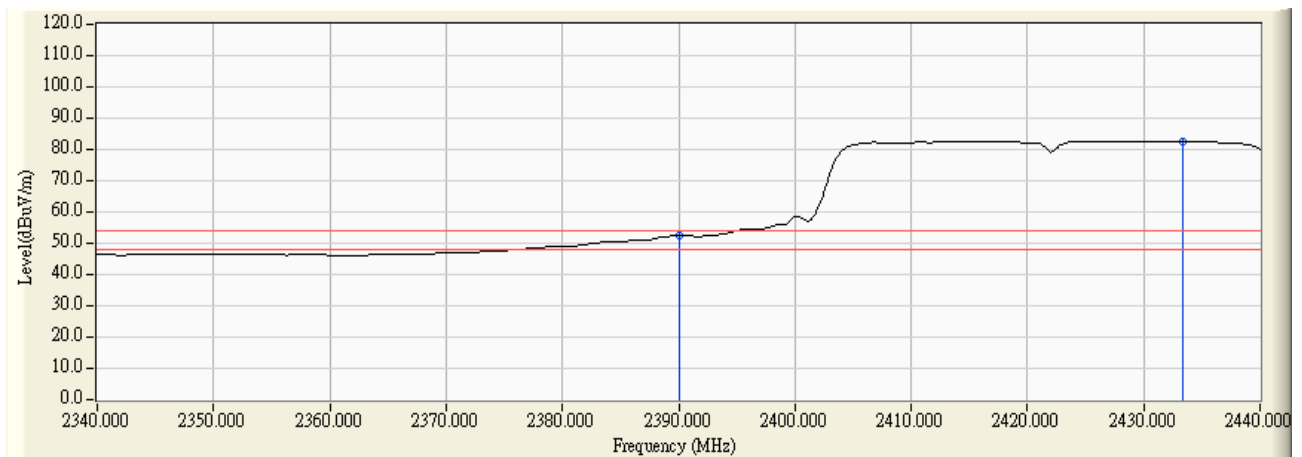
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	40.079	71.588	-2.412	74.000	Pass
01 (Peak)	2408.000	31.611	72.061	103.673	--	--	--
01 (Average)	2390.000	31.509	20.991	52.500	-1.500	54.000	Pass
01 (Average)	2433.400	31.802	50.896	82.698	--	--	--

Figure Channel 01: Horizontal (Peak)



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

Figure Channel 01: Horizontal (Average)



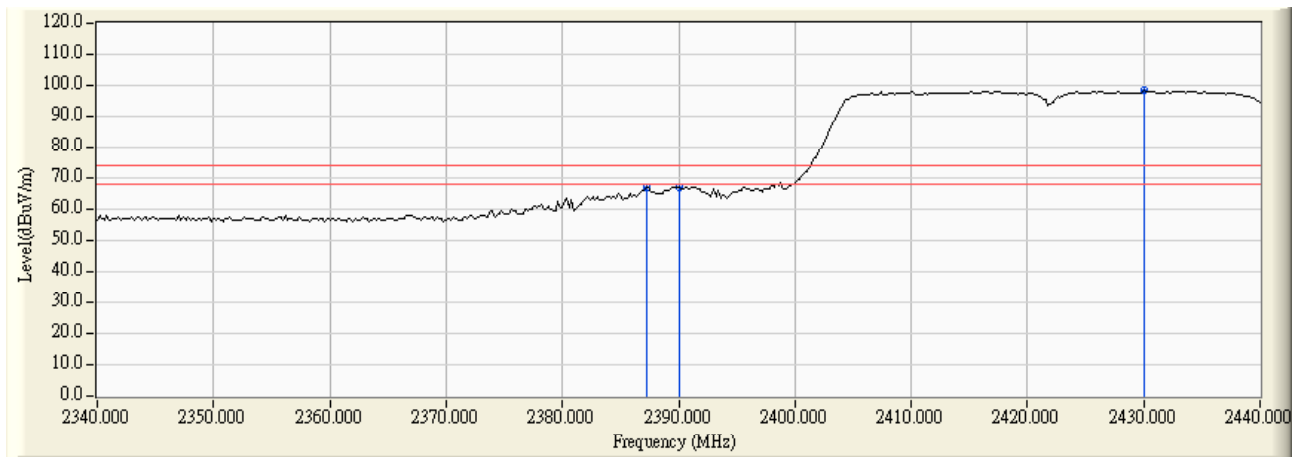
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

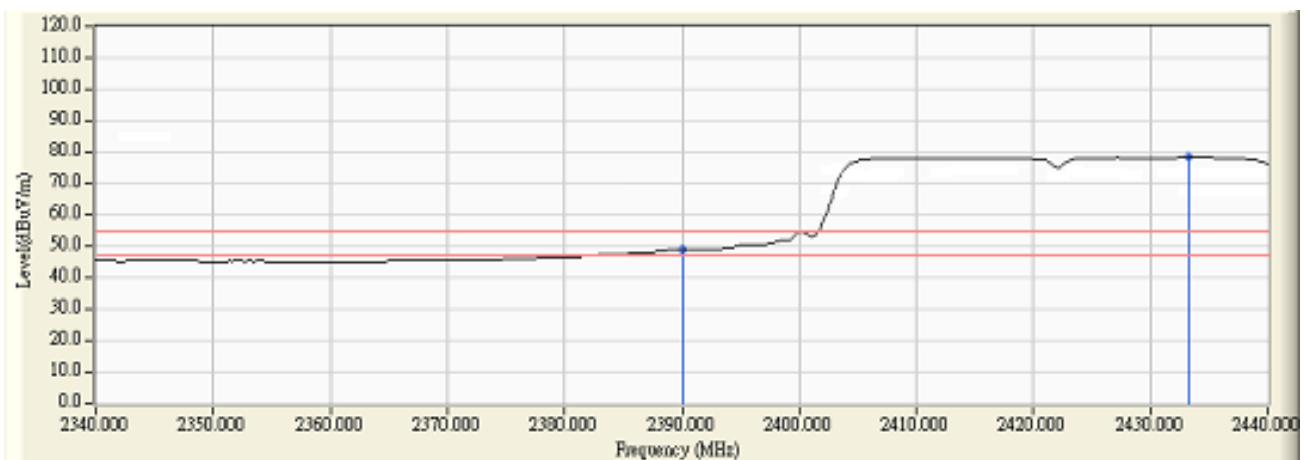
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
01 (Peak)	2387.200	30.928	36.061	66.989	-7.011	74.000	Pass
01 (Peak)	2390.000	30.915	35.910	66.825	-7.175	74.000	Pass
01 (Peak)	2430.000	31.071	67.188	98.259	--	--	--
01 (Average)	2390.000	30.915	18.191	49.106	-4.894	54.000	Pass
01 (Average)	2433.200	31.093	47.300	78.393	--	--	--

Figure Channel 01: Vertical (Peak)



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

Figure Channel 01: Vertical (Average)



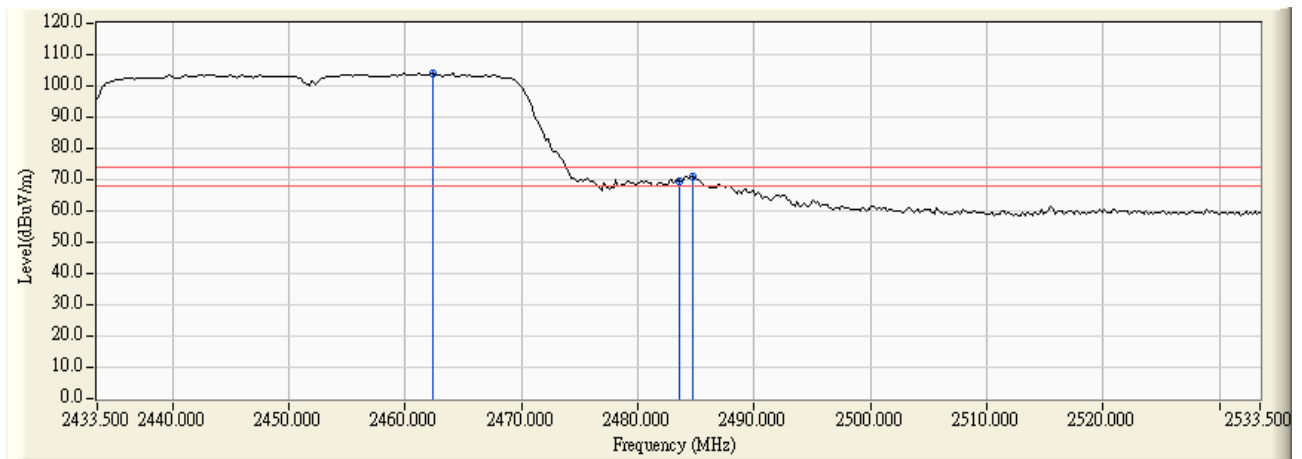
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

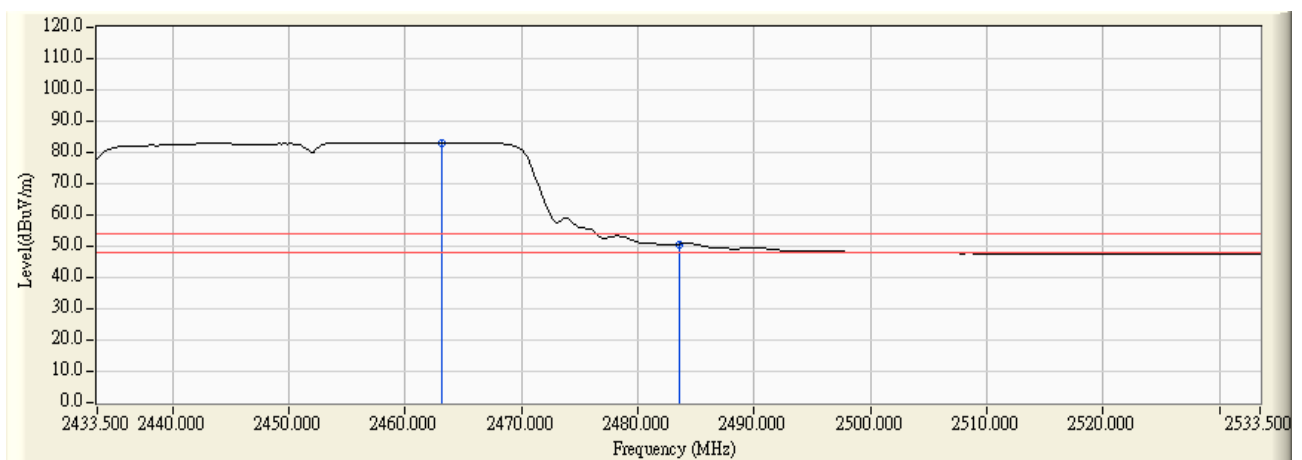
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBUV)	Measure Level (dBUV/m)	Margin (dB)	Limit (dBUV/m)	Result
07 (Peak)	2462.300	32.022	71.981	104.003	--	--	--
07 (Peak)	2483.500	32.182	37.301	69.483	-4.517	74.000	Pass
07 (Peak)	2484.700	32.192	38.647	70.838	-3.162	74.000	Pass
07 (Average)	2463.100	32.028	51.189	83.217	--	--	--
07 (Average)	2483.500	32.182	18.530	50.712	-3.288	54.000	Pass

Figure Channel 07: Horizontal (Peak)



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

Figure Channel 07: Horizontal (Average)



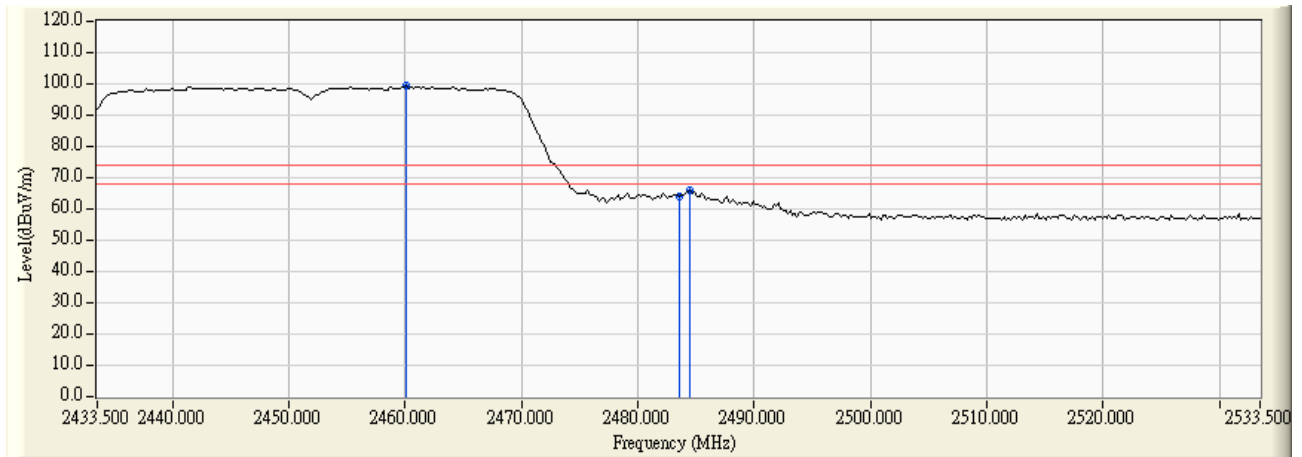
Note: RBW=1MHz, VBW=10Hz, Sweep=Auto

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):

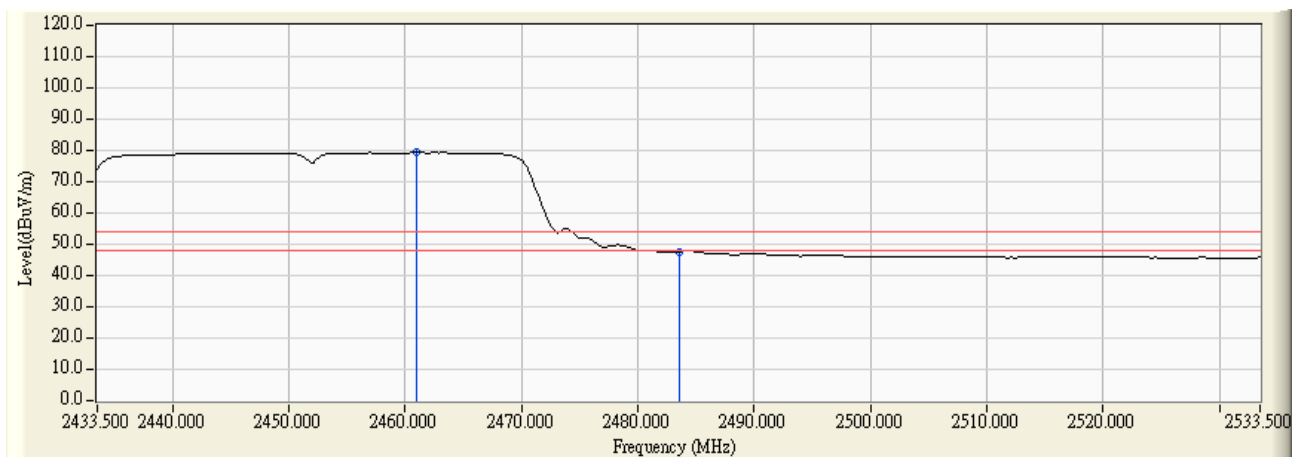
Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Result
07 (Peak)	2460.100	31.277	68.212	99.489	--	--	--
07 (Peak)	2483.500	31.435	32.725	64.160	-9.840	74.000	Pass
07 (Peak)	2484.500	31.442	34.674	66.116	-7.884	74.000	Pass
07 (Average)	2460.900	31.283	48.013	79.296	--	--	--
07 (Average)	2483.500	31.435	16.279	47.714	-6.286	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

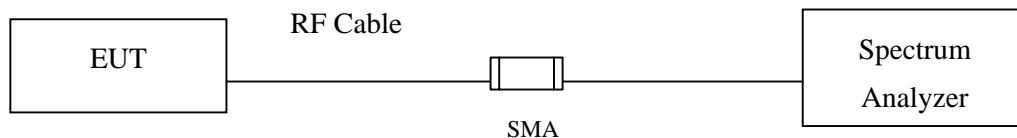
7.1. Test Equipment

	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

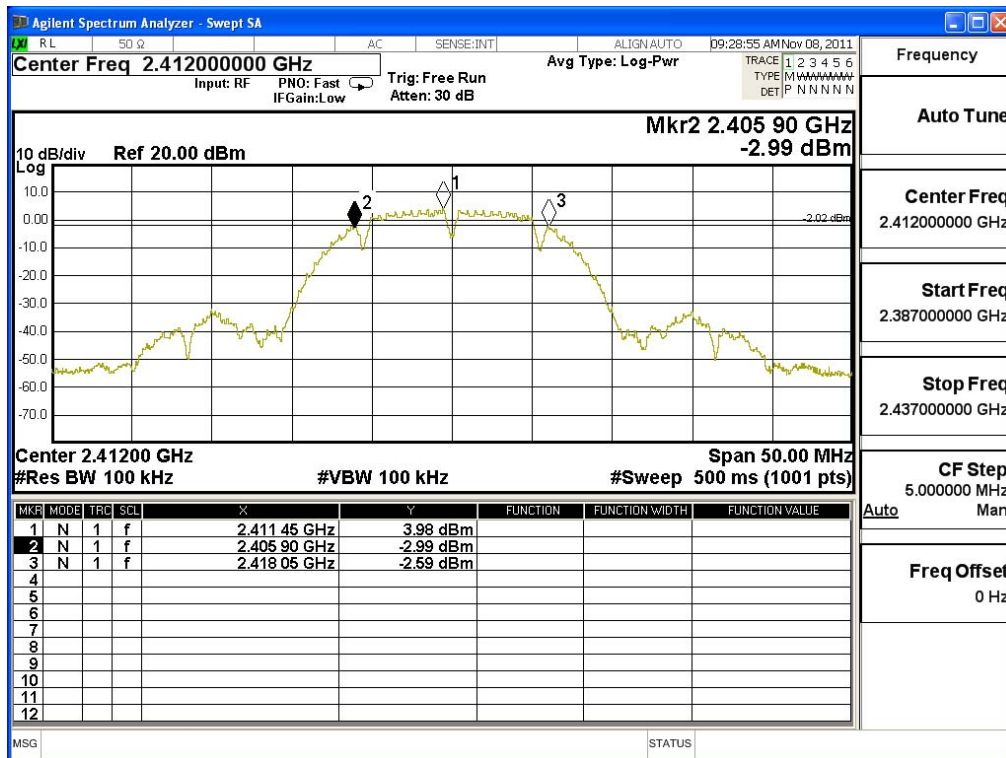
± 150Hz

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

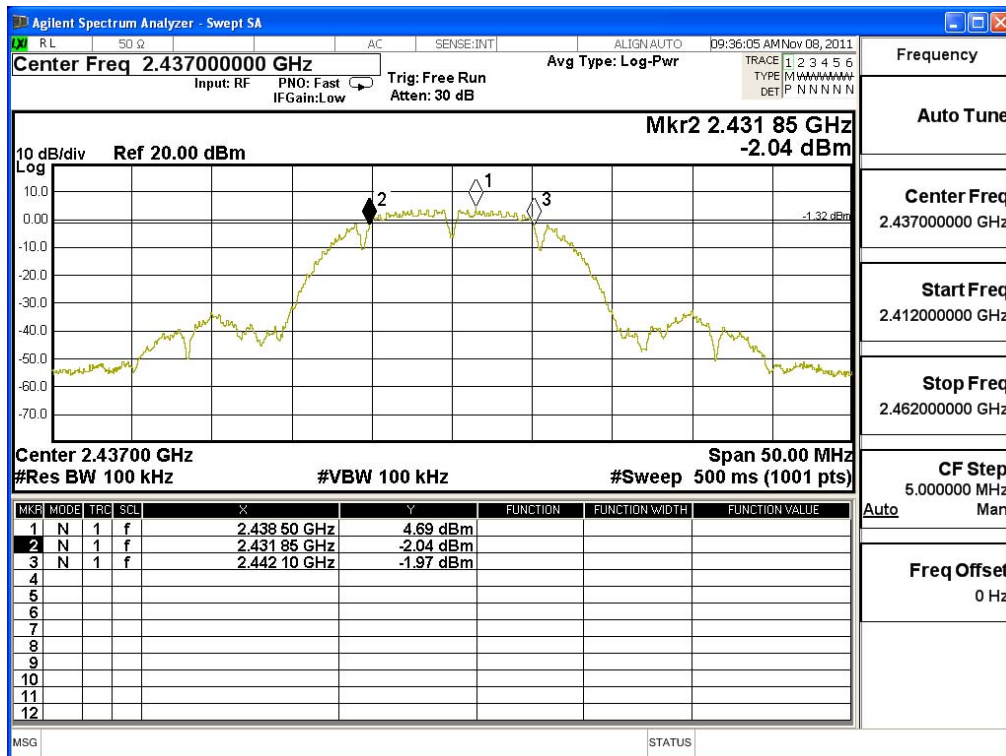
Figure Channel 1:



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	10250	>500	Pass

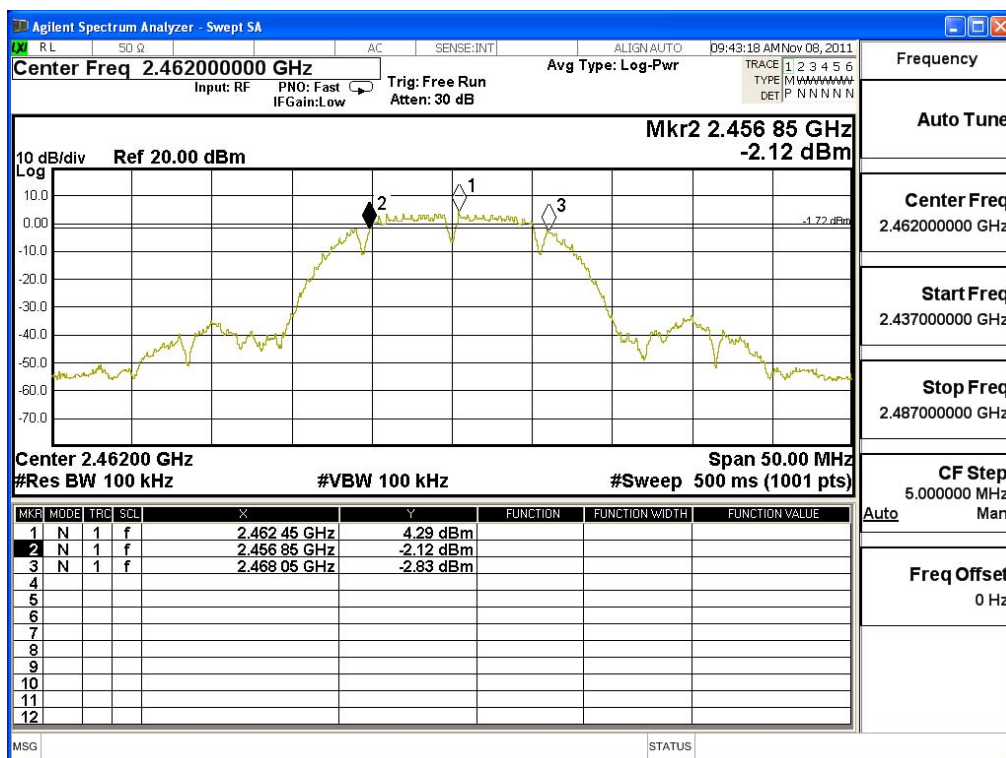
Figure Channel 6:



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	11200	>500	Pass

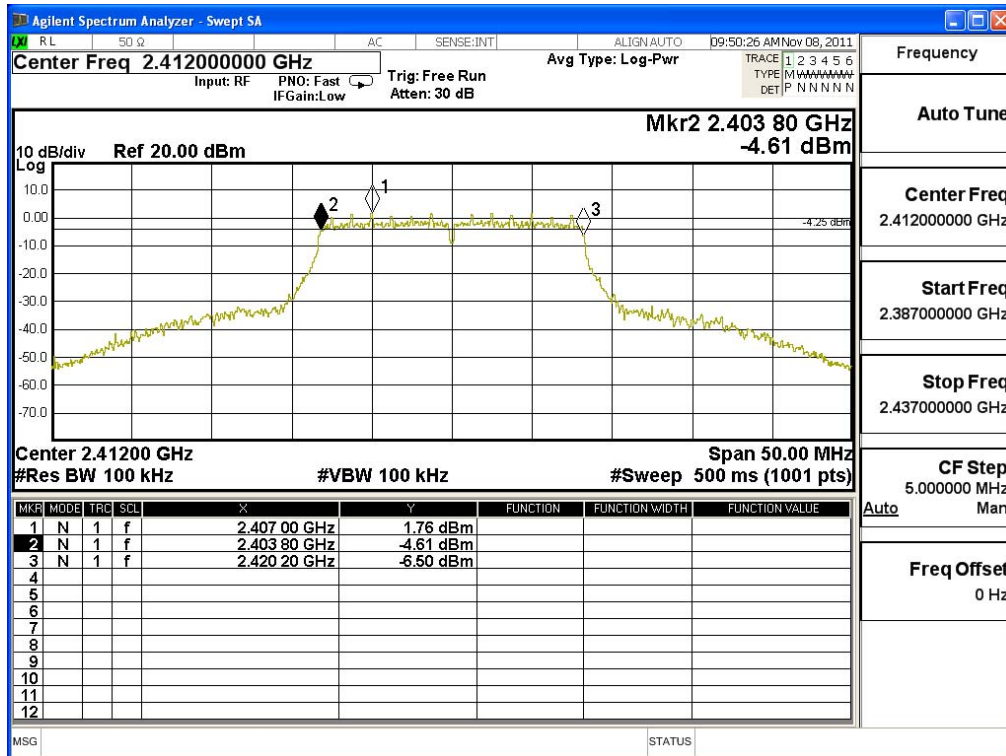
Figure Channel 11:



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

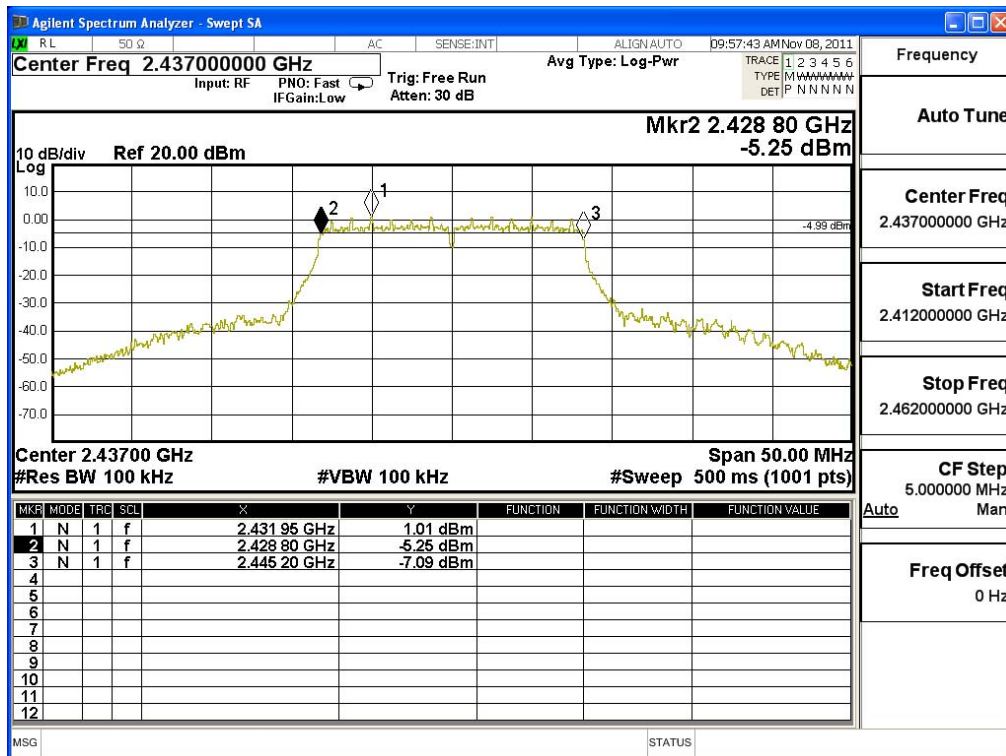
Figure Channel 1:



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	16400	>500	Pass

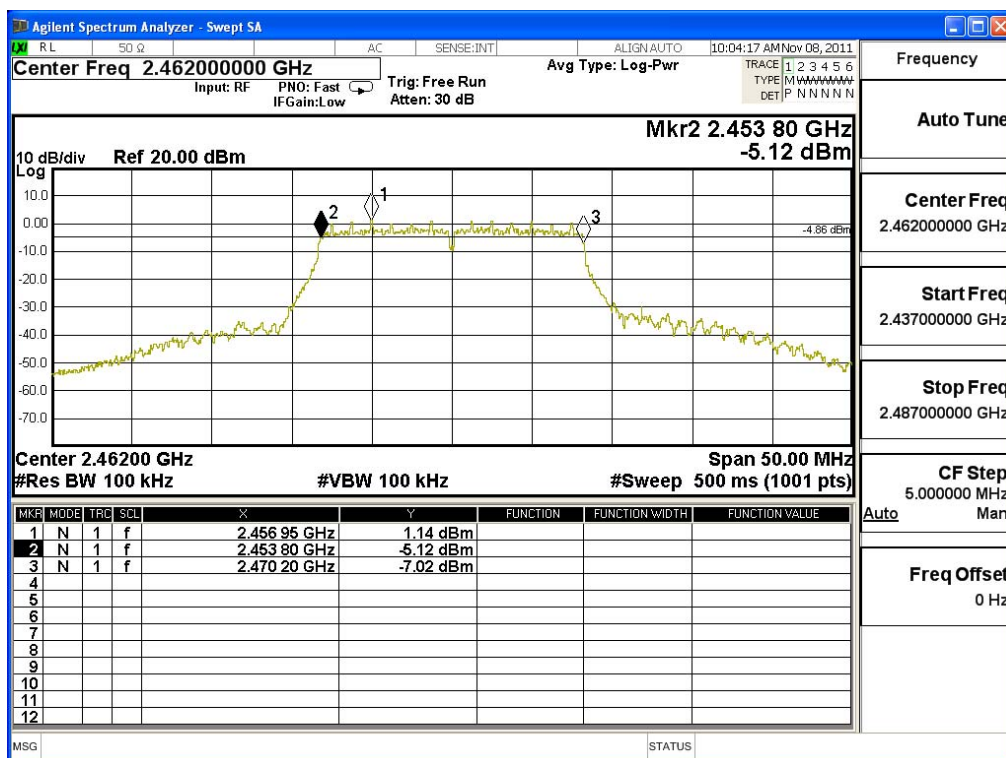
Figure Channel 6:



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

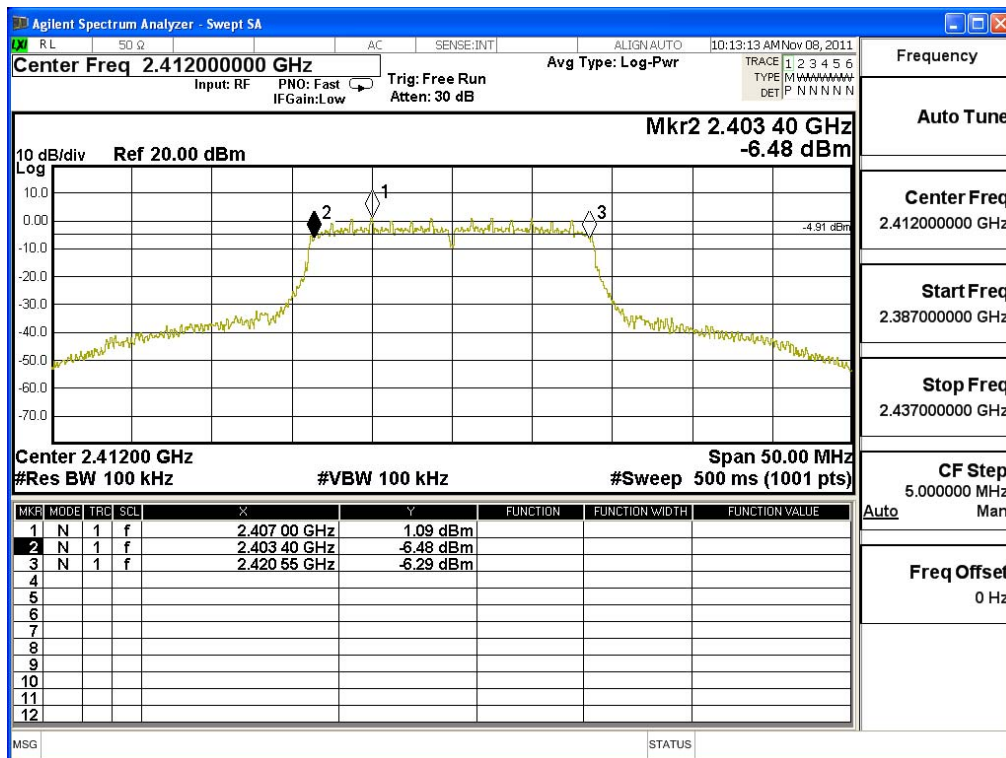
Figure Channel 11:



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	17150	>500	Pass

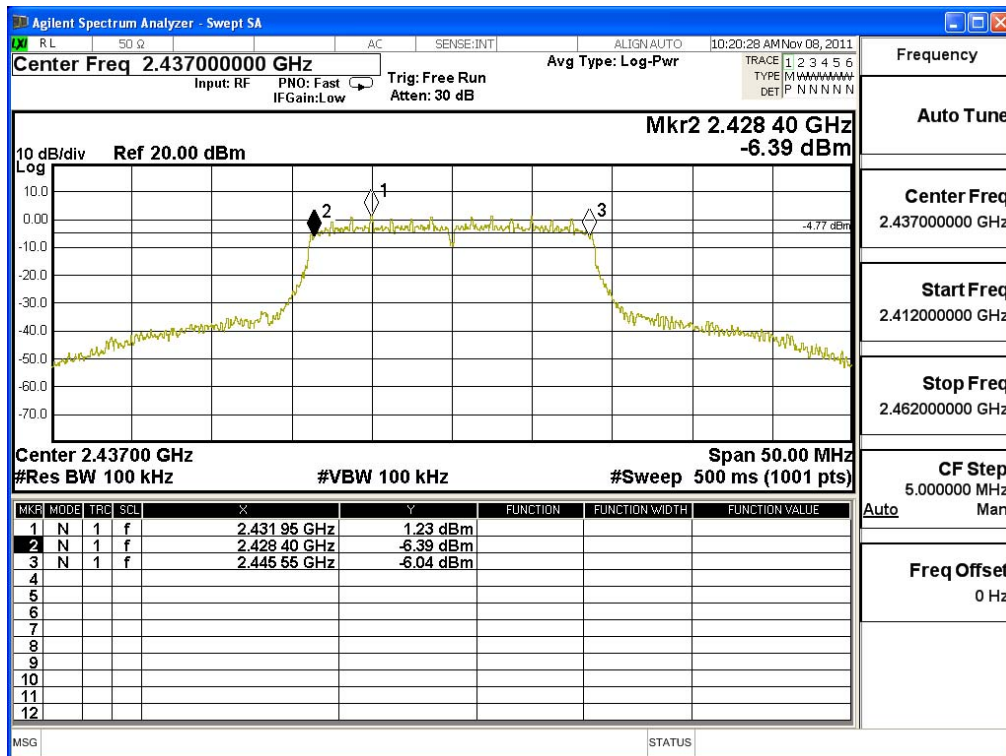
Figure Channel 1:



Product : 802.11n, 2.4G IT1R 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	17150	>500	Pass

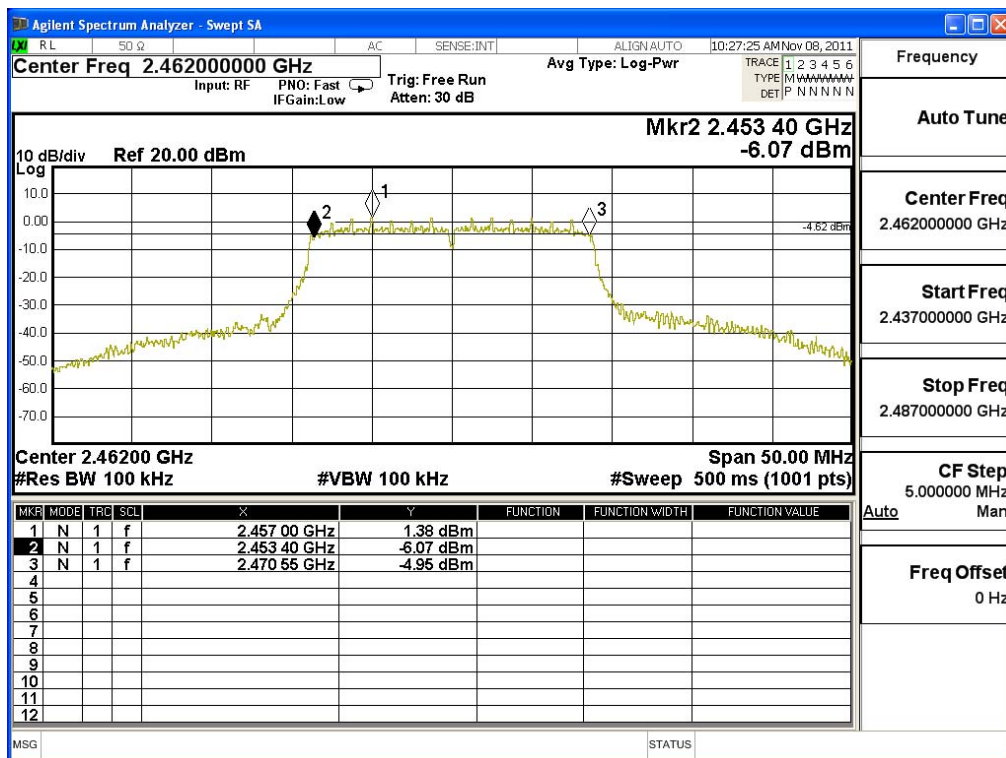
Figure Channel 6:



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	17150	>500	Pass

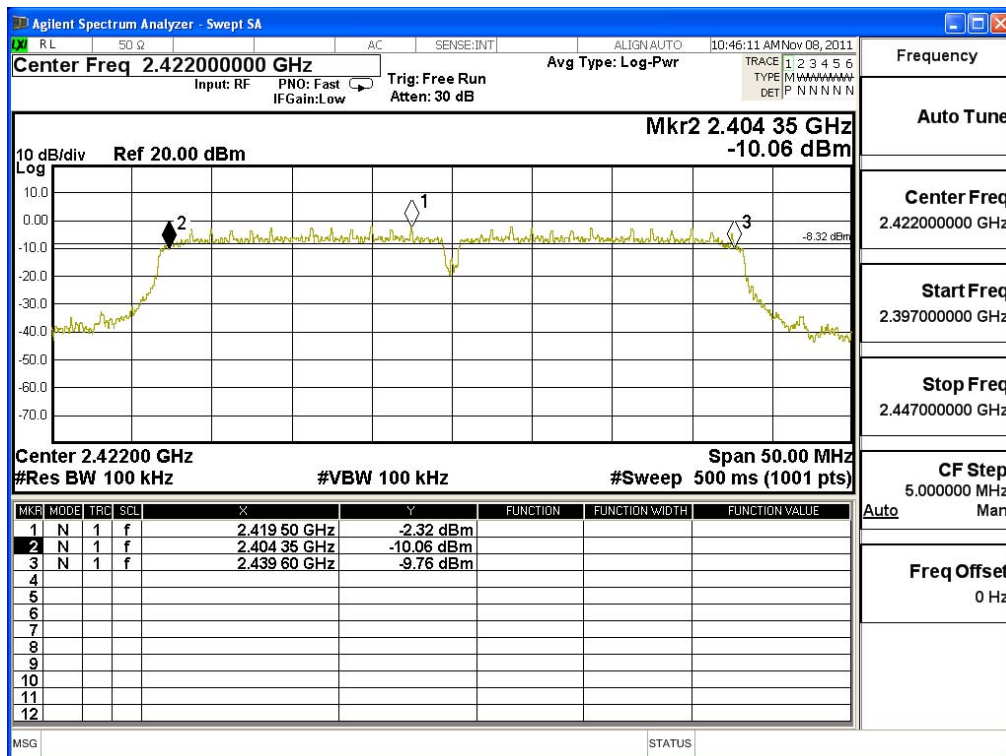
Figure Channel 11:



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

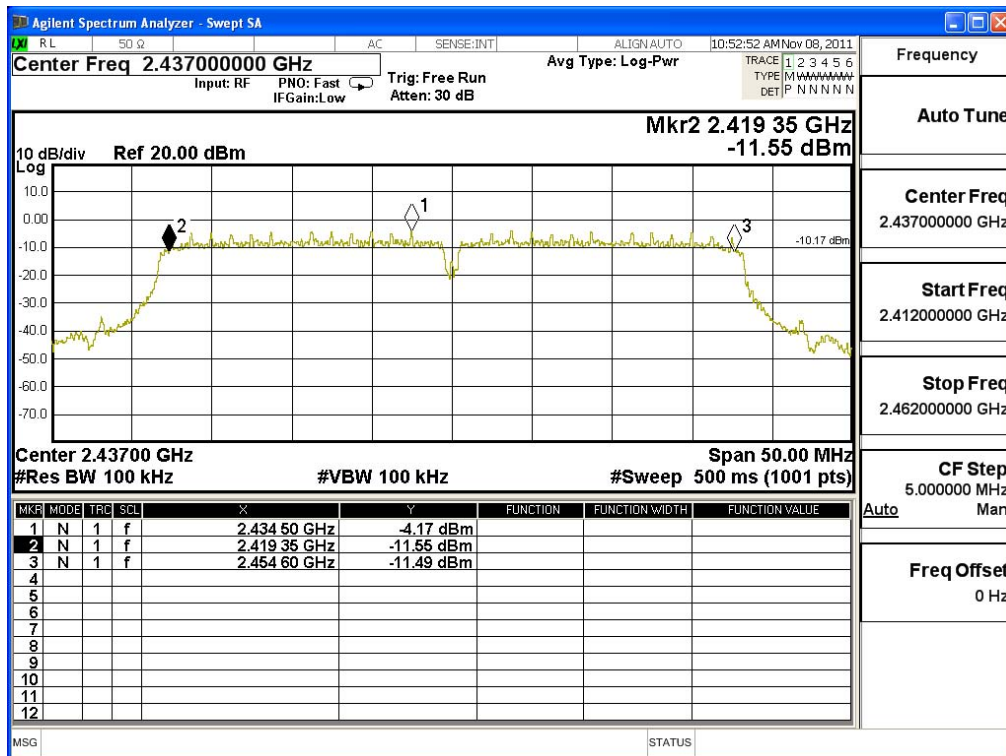
Figure Channel 1:



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

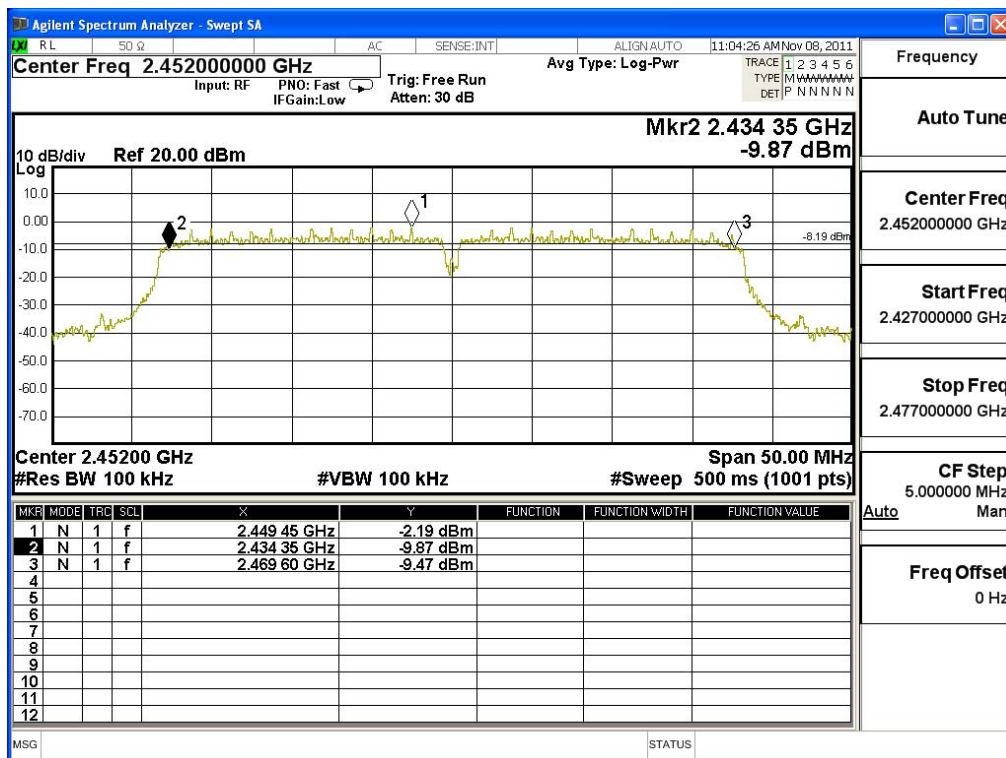
Figure Channel 4:



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

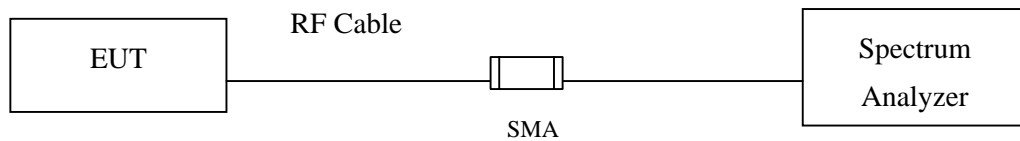
8.1. Test Equipment

	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

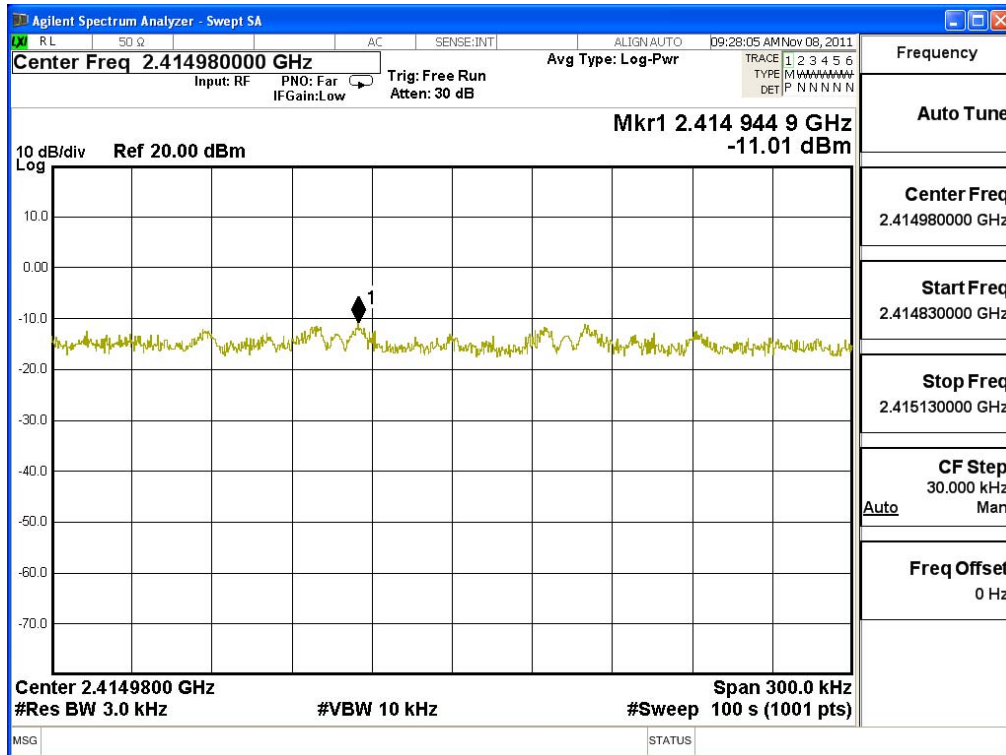
± 1.27 dB

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	-11.01	< 8dBm	Pass

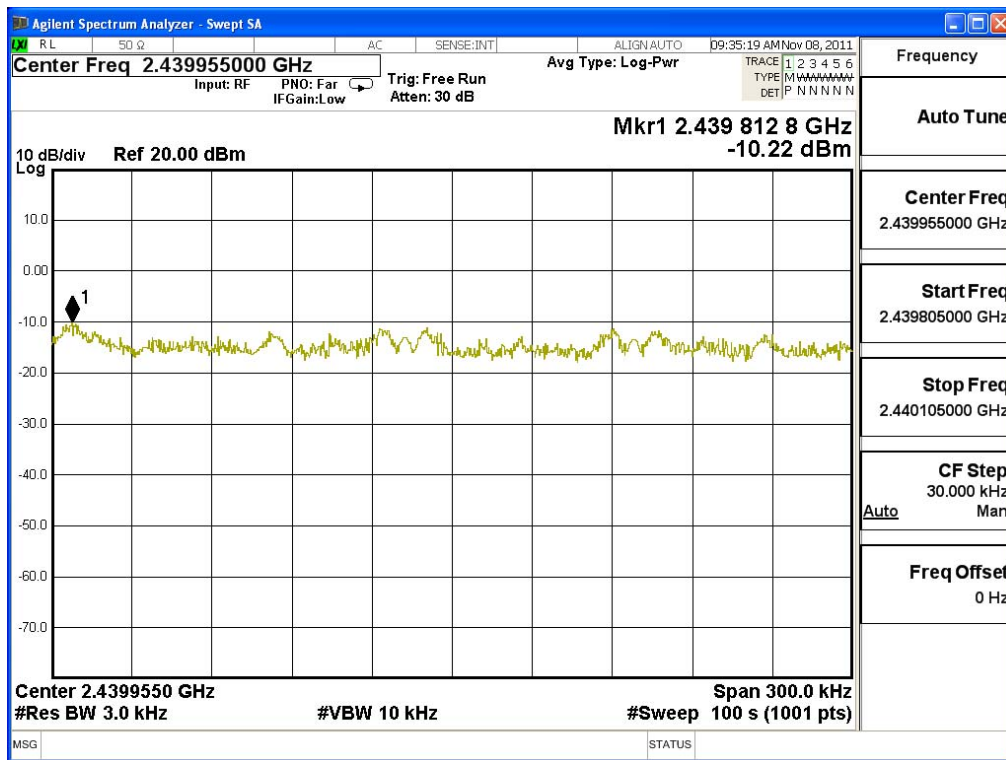
Figure Channel 1:



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	-10.22	< 8dBm	Pass

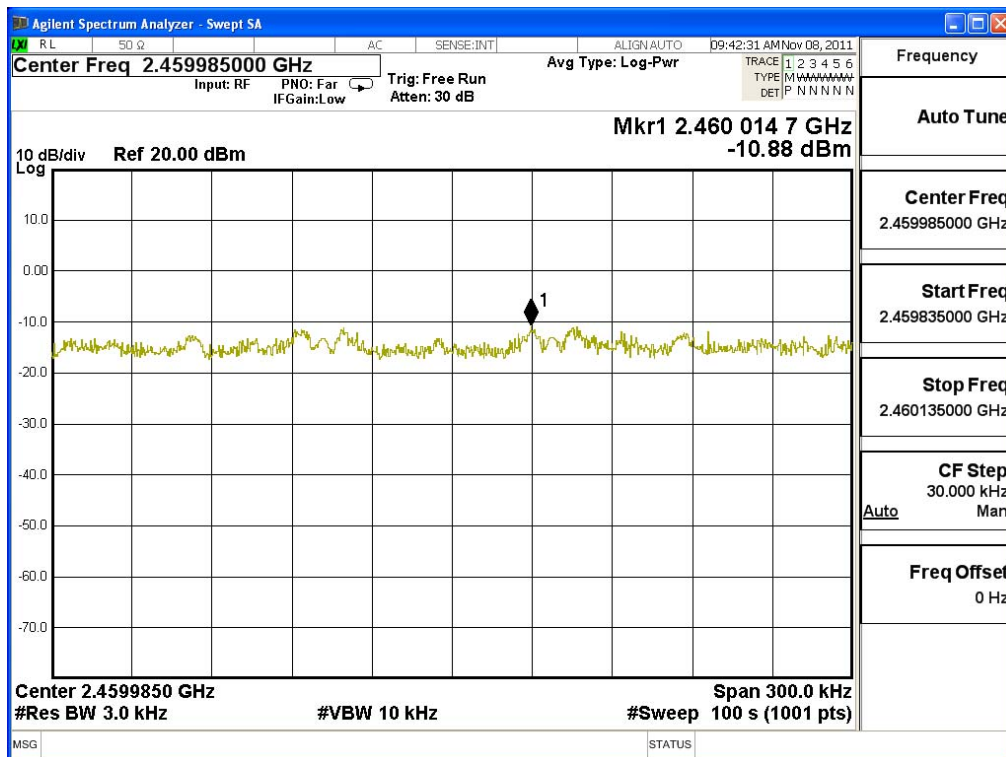
Figure Channel 6:



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	-10.88	< 8dBm	Pass

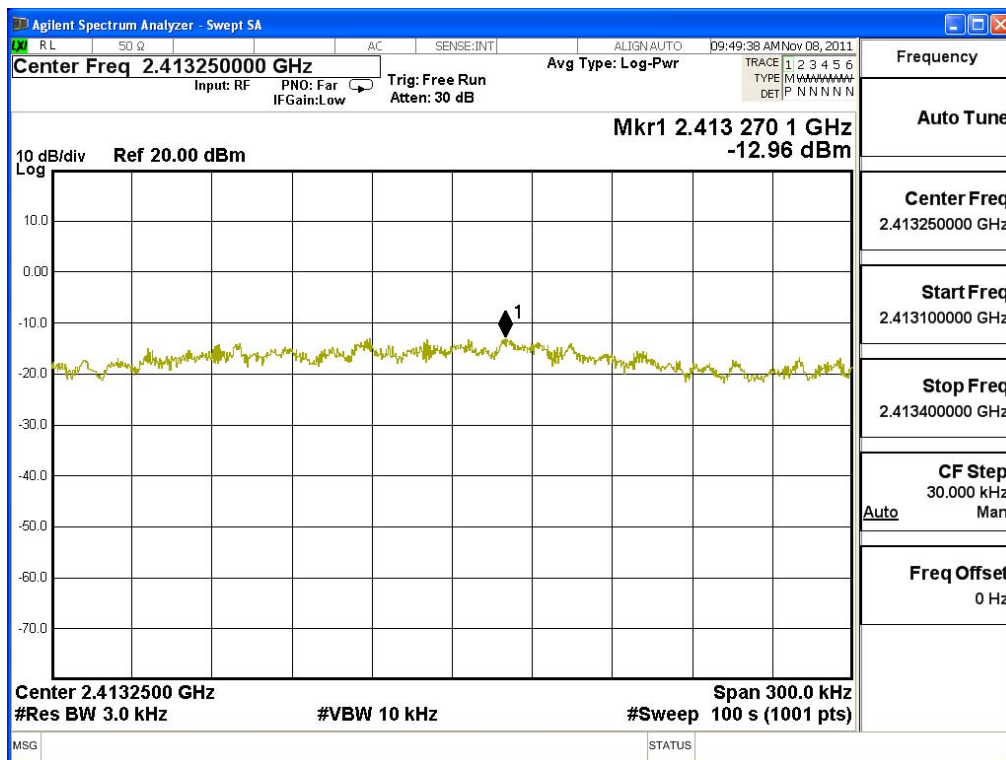
Figure Channel 11:



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	-12.96	< 8dBm	Pass

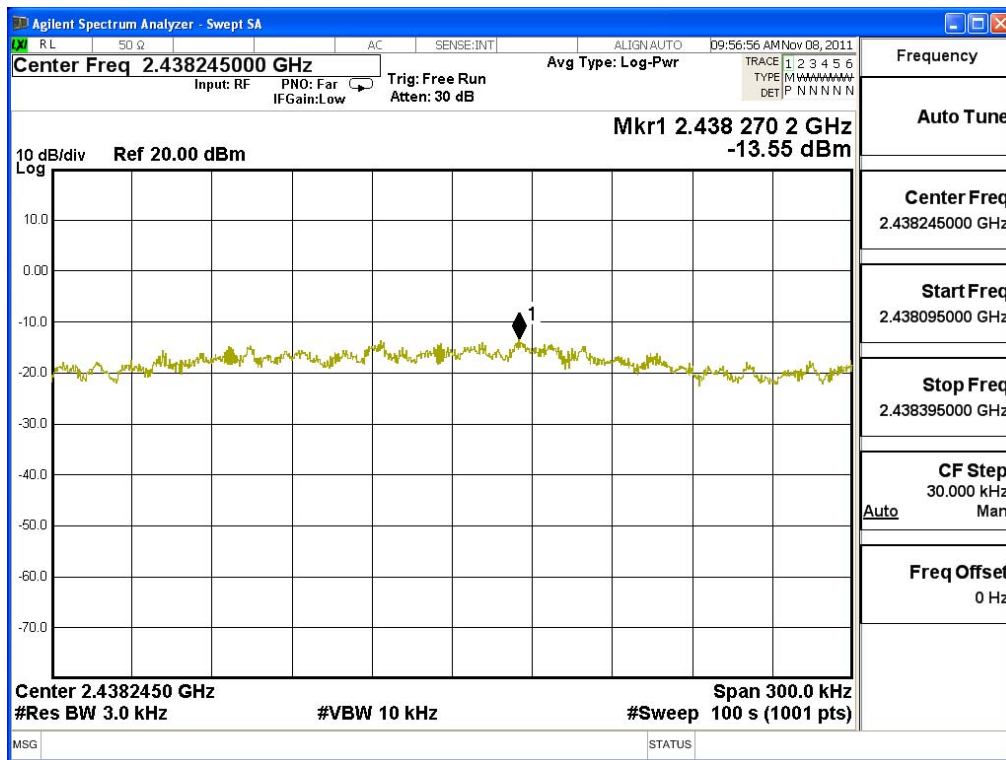
Figure Channel 1:



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

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
6	2437.000	-13.55	< 8dBm	Pass

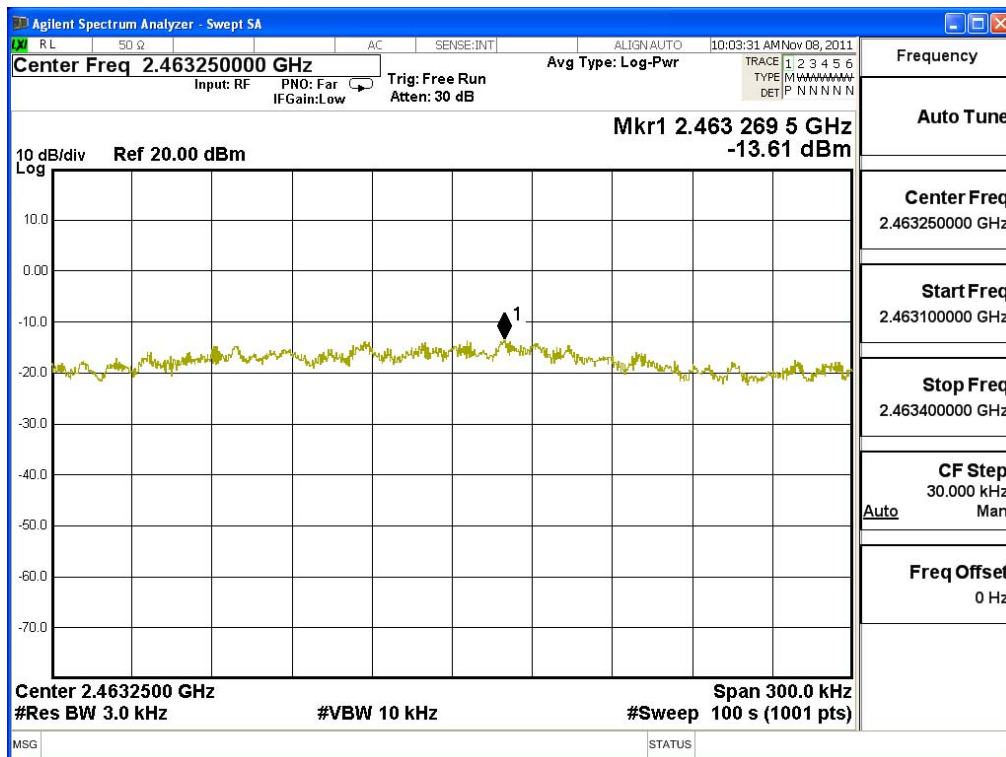
Figure Channel 6:



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	-13.61	< 8dBm	Pass

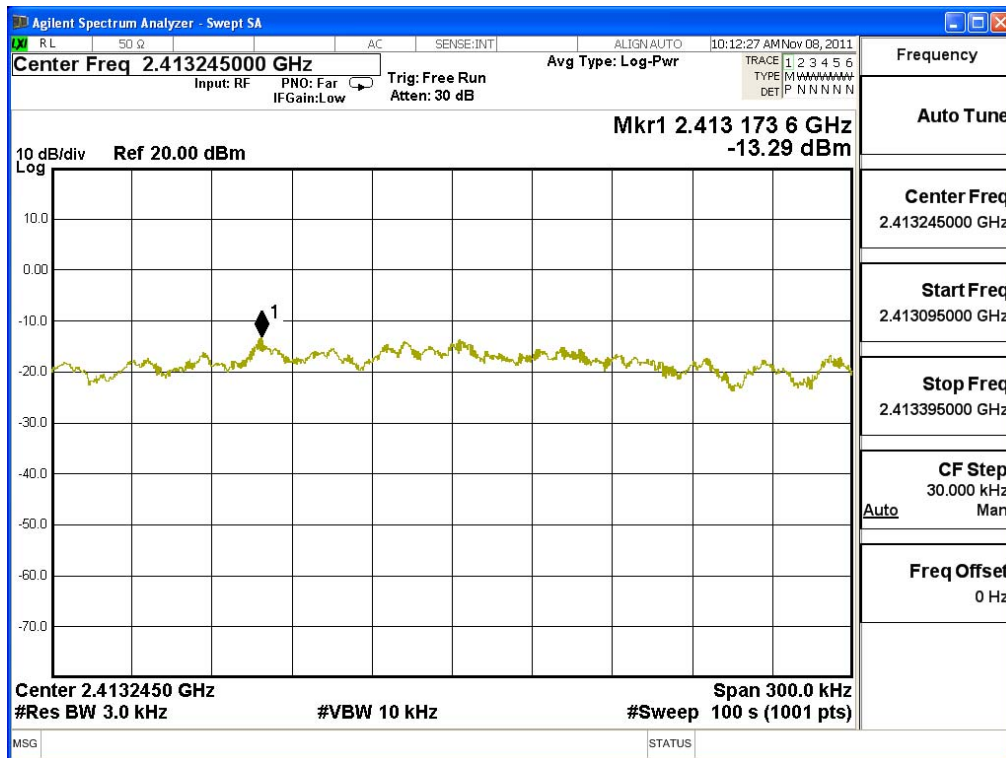
Figure Channel 11:



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	-13.29	< 8dBm	Pass

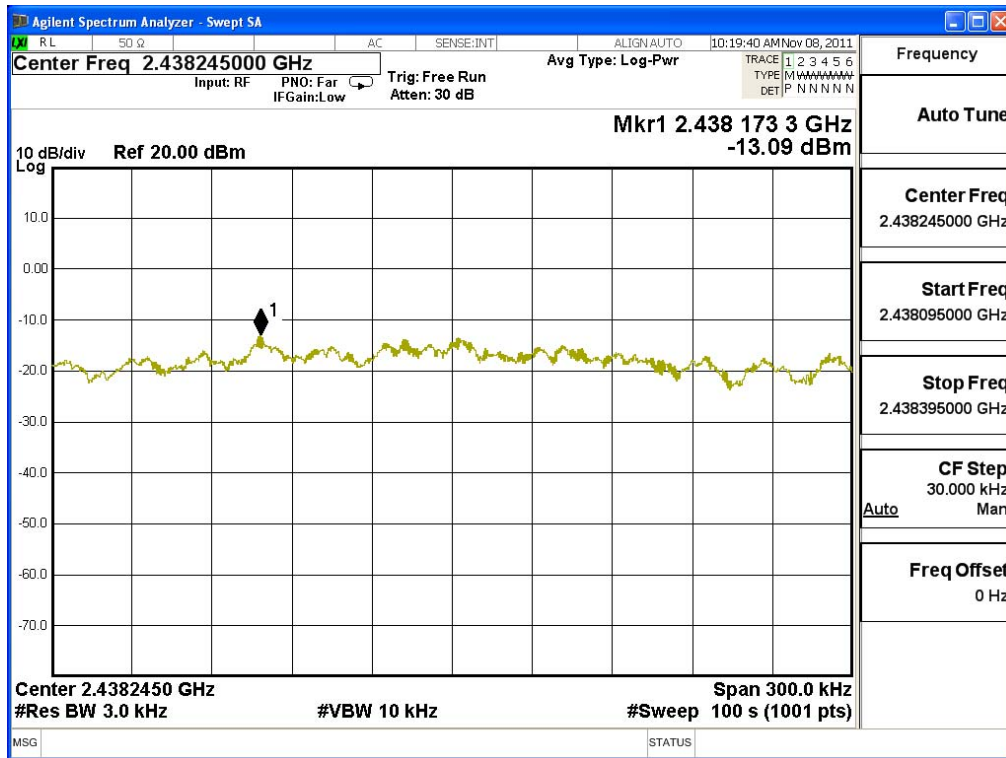
Figure Channel 1:



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	-13.09	< 8dBm	Pass

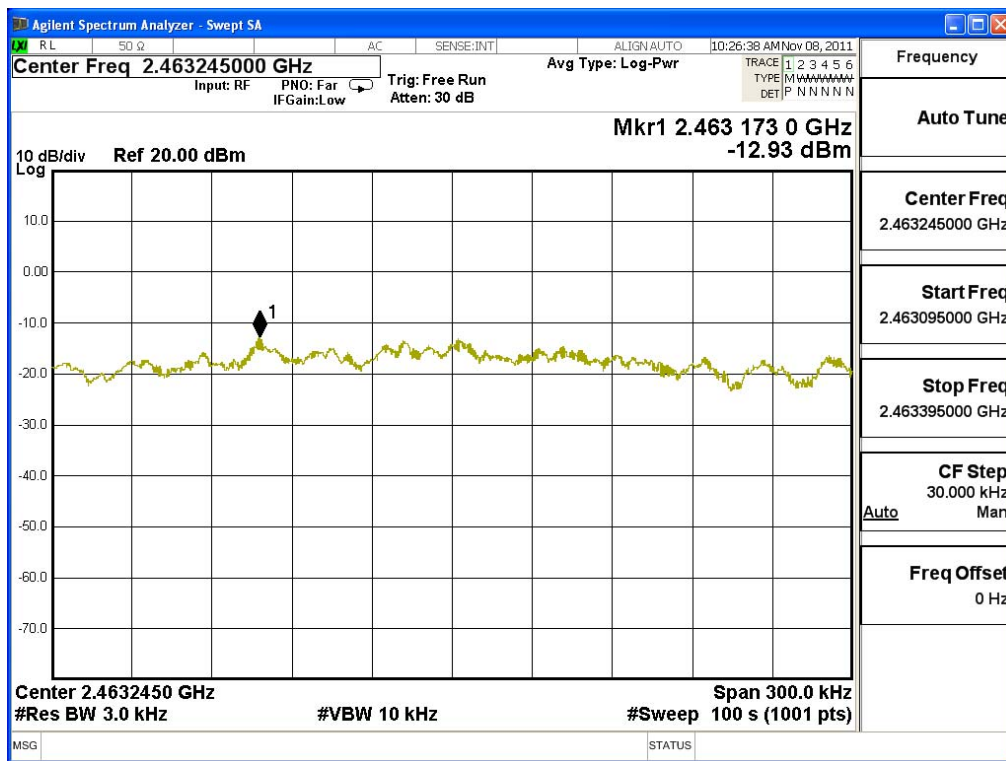
Figure Channel 6:



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	-12.93	< 8dBm	Pass

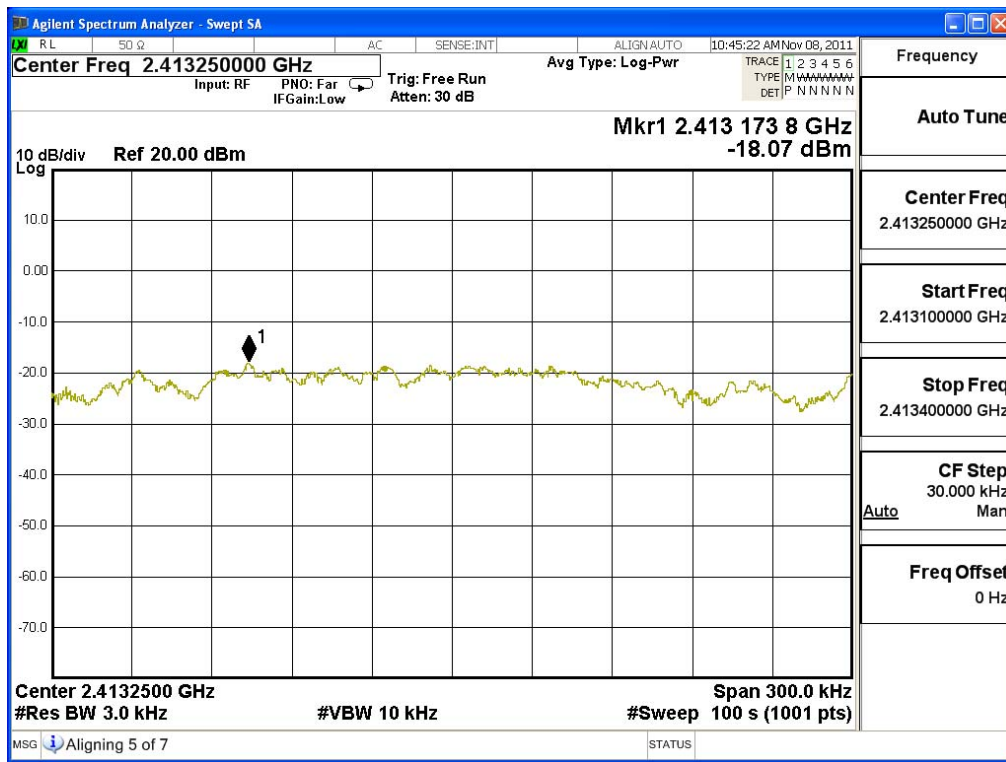
Figure Channel 11:



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	-18.07	< 8dBm	Pass

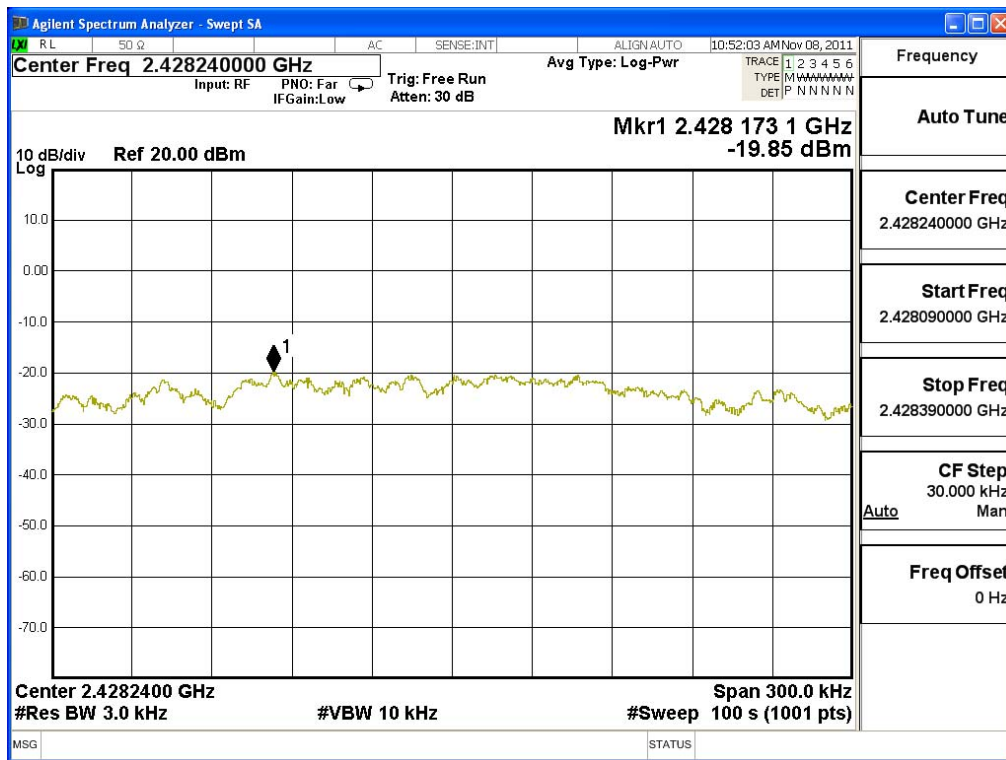
Figure Channel 1:



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	-19.85	< 8dBm	Pass

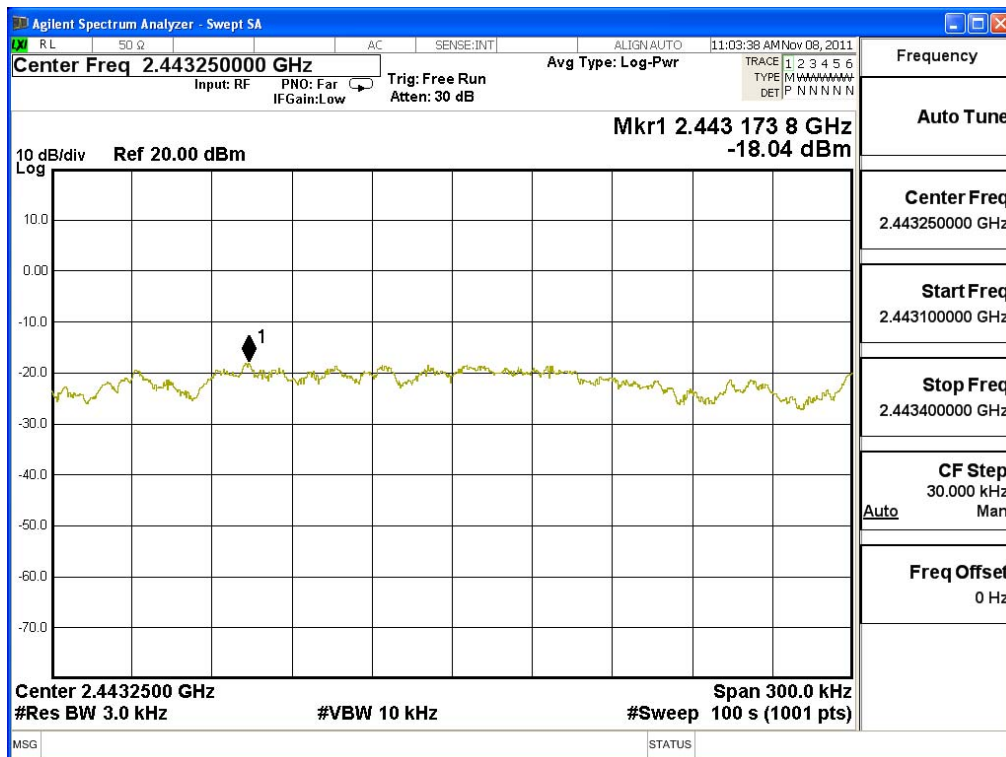
Figure Channel 4:



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	-18.04	< 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