

# FCC Test Report

Product Name	Wireless Motherboard
Model No	TR10CD3
FCC ID.	WL6-TRBC41CD1

Applicant	ELITEGROUP COMPUTER SYSTEMS CO., LTD.
Address	No.239, Sec. 2, Ti Ding Blvd., Taipei, Taiwan

Date of Receipt	Mar. 07, 2014
Issue Date	Apr. 11, 2014
Report No.	1430152R-RFUSP27V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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# Test Report

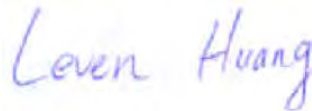
Issue Date: Apr. 11, 2014

Report No.: 1430152R-RFUSP27V00



Product Name	Wireless Motherboard
Applicant	ELITEGROUP COMPUTER SYSTEMS CO., LTD.
Address	No.239, Sec. 2, Ti Ding Blvd., Taipei, Taiwan
Manufacturer	ELITEGROUP COMPUTER SYSTEMS CO., LTD.
Model No.	TR10CD3
FCC ID.	WL6-TRBC41CD1
EUT Rated Voltage	DC 3.7V (Power by Battery)
EUT Test Voltage	AC 120V/60Hz
Trade Name	ECS ELITEGROUP , J.P. SA Couto S.A.
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2012 ANSI C63.10: 2009, KDB 558074
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Leven Huang )

Tested By :



( Engineer / Alan Chen )

Approved By :



( Director / Vincent Lin )

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Wireless Motherboard
Trade Name	ECS ELITEGROUP , J.P. SA Couto S.A.
Model No.	TR10CD3
FCC ID.	WL6-TRBC41CD1
Frequency Range	802.11b/g/n-20MHz:2412-2462MHz,802.11n-40MHz:2422-2452MHz 802.11a/n-20MHz:5745-5825MHz ,802.11n-40MHz:5755-5795MHz
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7 802.11a/n-20MHz: 5, n-40MHz: 2
Data Speed	802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 300Mbps
Channel separation	802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz 802.11n-40MHz: 40MHz
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11a/g/n: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna type	Chip / PIFA Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	WGT	13H130-JV1050	PIFA Antenna (Main)	1.65dBi in 2.4GHz 1.78dBi in 5.725~5.850GHz
	Pulse	02H475-006500	Chip Antenna (Aux)	3.2dBi for 2.4GHz 4.2dBi in 5.725~5.850GHz
2	JEM	13H130-JV1070	PIFA Antenna (Main)	1.77dBi in 2.4GHz -0.14dBi in 5.725~5.850GHz
	Pulse	02H475-006500	Chip Antenna (Aux)	3.2dBi for 2.4GHz 4.2dBi in 5.725~5.850GHz

Note: 1.The antenna of EUT is conform to FCC 15.203.

2.Only the higher gain antenna was tested and recorded in this report.

## 802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

## 802.11n-40MHz (2.4G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2422 MHz	Channel 2:	2427 MHz	Channel 3:	2432 MHz	Channel 4:	2437 MHz
Channel 5:	2442 MHz	Channel 6:	2447 MHz	Channel 7:	2452 MHz		

## 802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

## 802.11n-40MHz (5G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency
Channel 151:	5755 MHz	Channel 159:	5795 MHz

## Note:

1. This device is a Wireless Motherboard with a built-in 2.4GHz and 5GHz WLAN transceiver.
2. During this report chain A is Chip antenna(Aux), Chain B is PIFA antenna(Main)
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps、802.11n(20M-BW) is 14.4Mbps and、802.11n(40M-BW) is 30Mbps).
5. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11a/b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit - 802.11a 6Mbps
	Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band)
	Mode 5: Transmit - 802.11n-40BW_30Mbps(2.4G Band)
	Mode 6: Transmit - 802.11n-20BW_14.4Mbps(5G Band)
	Mode 7: Transmit - 802.11n-40BW_30Mbps(5G Band)

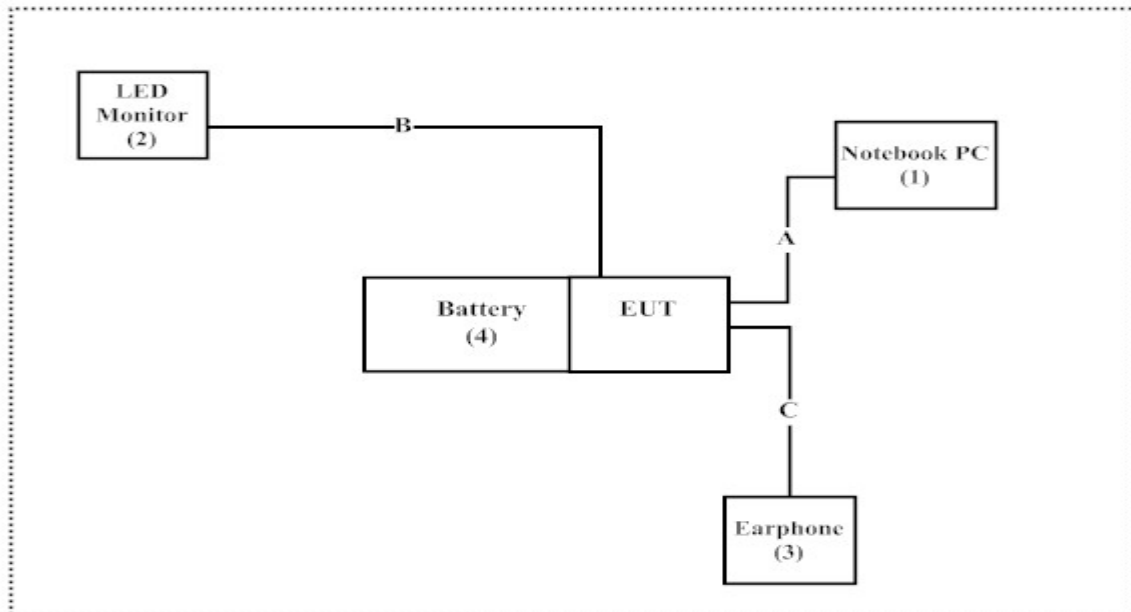
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2 LED Monitor	DELL	ST2402Lb	CN-0X0K27-74261-2 7E-0M6U T	Non-Shielded, 1.8m
3 Earphone	AIWA	N/A	N/A	N/A
4 Battery	N/A	TR10-1S8100-T1T2	N/A	N/A

Signal Cable Type	Signal cable Description
A USB Cable	Shielded, 1.2m
B HDMI Cable	Shielded, 1.6m
C Earphone Cable	Non-Shielded, 1.2m

### 1.4. Configuration of Tested System



### 1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute program “adb.exe” on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous Transmit.
- (5) Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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FCC Accreditation Number: TW1014



## 2. Conducted Emission

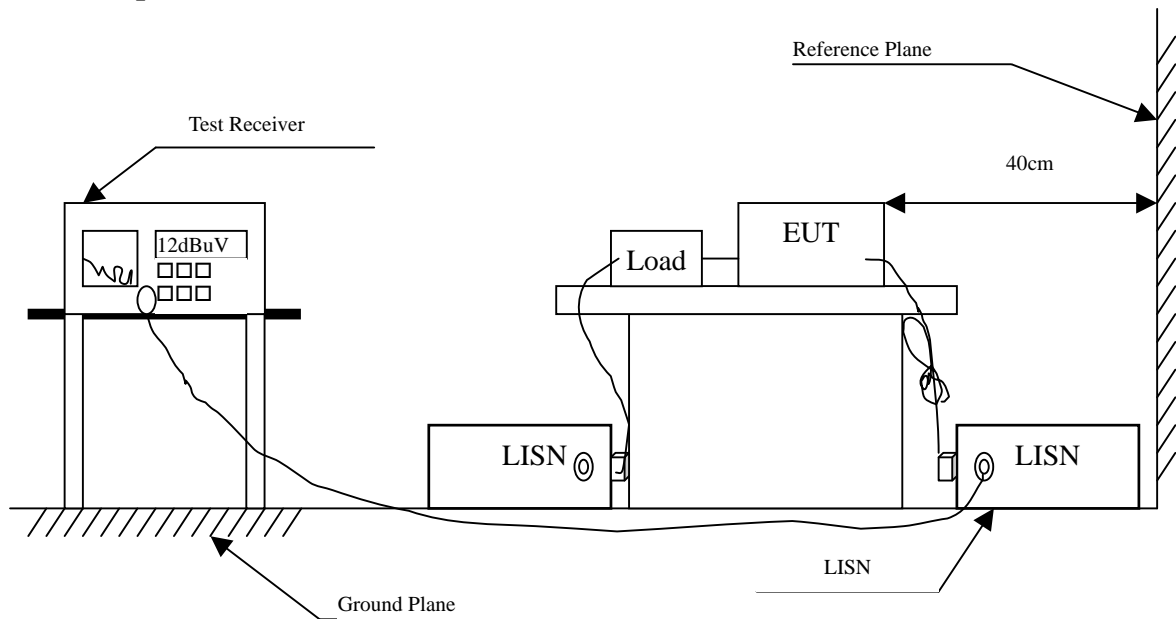
### 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2013	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

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

### 2.2. Test Setup



**2.3. Limits**

<b>FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit</b>		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

**2.4. Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

**2.5. Uncertainty**

± 2.26 dB

## 2.6. Test Result of Conducted Emission

Product : Wireless Motherboard  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.170	9.743	34.220	43.964	-21.465	65.429
0.216	9.739	30.030	39.769	-24.345	64.114
0.334	9.745	27.380	37.125	-23.618	60.743
0.490	9.752	32.180	41.932	-14.354	56.286
0.779	9.765	28.600	38.365	-17.635	56.000
7.920	9.910	27.320	37.230	-22.770	60.000
<b>Average</b>					
0.170	9.743	18.800	28.544	-26.885	55.429
0.216	9.739	22.700	32.439	-21.675	54.114
0.334	9.745	24.340	34.085	-16.658	50.743
0.490	9.752	24.580	34.332	-11.954	46.286
0.779	9.765	20.320	30.085	-15.915	46.000
7.920	9.910	21.530	31.440	-18.560	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Wireless Motherboard  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.173	9.747	31.650	41.397	-23.946	65.343
0.509	9.753	33.100	42.853	-13.147	56.000
0.771	9.775	28.660	38.435	-17.565	56.000
1.974	9.839	19.840	29.679	-26.321	56.000
6.685	9.900	23.990	33.890	-26.110	60.000
20.920	10.100	24.460	34.560	-25.440	60.000
<b>Average</b>					
0.173	9.747	12.100	21.847	-33.496	55.343
0.509	9.753	21.120	30.873	-15.127	46.000
0.771	9.775	18.660	28.435	-17.565	46.000
1.974	9.839	6.030	15.869	-30.131	46.000
6.685	9.900	16.290	26.190	-23.810	50.000
20.920	10.100	19.050	29.150	-20.850	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Wireless Motherboard  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.158	9.747	34.680	44.427	-21.344	65.771
0.170	9.743	32.900	42.644	-22.785	65.429
0.212	9.739	28.440	38.179	-26.050	64.229
0.341	9.745	26.150	35.895	-24.648	60.543
0.505	9.753	33.100	42.853	-13.147	56.000
0.654	9.759	26.900	36.659	-19.341	56.000
<b>Average</b>					
0.158	9.747	26.160	35.907	-19.864	55.771
0.170	9.743	13.810	23.554	-31.875	55.429
0.212	9.739	20.420	30.159	-24.070	54.229
0.341	9.745	10.480	20.225	-30.318	50.543
0.505	9.753	21.420	31.173	-14.827	46.000
0.654	9.759	19.760	29.519	-16.481	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Wireless Motherboard  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.166	9.747	33.830	43.577	-21.966	65.543
0.212	9.749	28.580	38.329	-25.900	64.229
0.373	9.747	28.450	38.197	-21.432	59.629
0.498	9.752	32.750	42.502	-13.555	56.057
7.912	9.920	27.580	37.500	-22.500	60.000
21.162	10.105	25.840	35.945	-24.055	60.000
<b>Average</b>					
0.166	9.747	28.500	38.247	-17.296	55.543
0.212	9.749	24.300	34.049	-20.180	54.229
0.373	9.747	15.410	25.157	-24.472	49.629
0.498	9.752	28.740	38.492	-7.565	46.057
7.912	9.920	22.630	32.550	-17.450	50.000
21.162	10.105	20.160	30.265	-19.735	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Peak Power Output

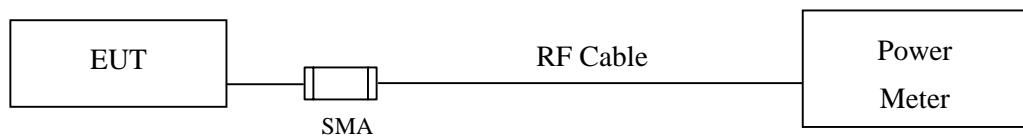
#### 3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2013

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.

#### 3.2. Test Setup



#### 3.3. Limits

The maximum peak power shall be less 1 Watt.

#### 3.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

#### 3.5. Uncertainty

± 1.27 dB

### 3.6. Test Result of Peak Power Output

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)

#### Chain A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	14.94	--	--	--	18.24	<30dBm	Pass
06	2437	15.44	15.39	15.34	15.29	18.99	<30dBm	Pass
11	2462	15.49	--	--	--	19.14	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

#### Chain B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	14.88	--	--	--	18.18	<30dBm	Pass
06	2437	14.85	14.81	14.77	14.73	18.89	<30dBm	Pass
11	2462	14.67	--	--	--	18.98	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss



Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)

**Chain A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	14.95	--	--	--	--	--	--	--	22.40	<30dBm	Pass
06	2437	14.99	14.95	14.91	14.87	14.83	14.79	14.75	14.71	22.80	<30dBm	Pass
11	2462	14.97	--	--	--	--	--	--	--	22.77	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	14.93	--	--	--	--	--	--	--	22.25	<30dBm	Pass
06	2437	14.95	14.91	14.87	14.83	14.79	14.75	14.71	14.67	22.29	<30dBm	Pass
11	2462	14.66	--	--	--	--	--	--	--	22.01	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps

**Chain A**

Channel No	Frequency (MHz)	Average Power									Peak Power	Required Limit	Result
		For different Data Rate (Mbps)											
		6	9	12	18	24	36	48	54	6			
Measurement Level (dBm)													
149	5745	13.46	--	--	--	--	--	--	--	21.73	<30dBm	Pass	
157	5785	13.45	13.39	13.33	13.27	13.21	13.15	13.09	13.03	21.71	<30dBm	Pass	
165	5825	13.37	--	--	--	--	--	--	--	21.68	<30dBm	Pass	

Note: Peak Power Output Value = Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power									Peak Power	Required Limit	Result
		For different Data Rate (Mbps)											
		6	9	12	18	24	36	48	54	6			
Measurement Level (dBm)													
149	5745	12.73	--	--	--	--	--	--	--	19.94	<30dBm	Pass	
157	5785	12.89	12.82	12.75	12.68	12.61	12.54	12.47	12.4	19.81	<30dBm	Pass	
165	5825	13.1	--	--	--	--	--	--	--	19.66	<30dBm	Pass	

Note: Peak Power Output Value = Reading value on power meter + cable loss

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

**Chain A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4			
		Measurement Level (dBm)										
01	2412	14.98	--	--	--	--	--	--	--	22.52	<30dBm	Pass
06	2437	15.3	15.09	14.88	14.67	14.46	14.25	14.04	13.83	23.13	<30dBm	Pass
11	2462	14.84	--	--	--	--	--	--	--	23.87	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4			
		Measurement Level (dBm)										
01	2412	14.85	--	--	--	--	--	--	--	22.41	<30dBm	Pass
06	2437	14.64	14.59	14.54	14.49	14.44	14.39	14.34	14.29	22.28	<30dBm	Pass
11	2462	13.43	--	--	--	--	--	--	--	21.64	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	14.4	22.52	22.41	25.48	<30dBm	Pass
6	2437	14.4	23.13	22.28	25.74	<30dBm	Pass
11	2462	14.4	23.87	21.64	25.91	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

**Chain A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 30	Required Limit	Result
		30	60	90	120	180	240	270	300			
		Measurement Level (dBm)										
01	2422	10.62	--	--	--	--	--	--	--	19.78	<30dBm	Pass
04	2437	11.02	10.89	10.76	10.63	10.5	10.37	10.24	10.11	20.19	<30dBm	Pass
07	2452	11.16	--	--	--	--	--	--	--	20.62	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 30	Required Limit	Result
		30	60	90	120	180	240	270	300			
		Measurement Level (dBm)										
01	2422	9.84	--	--	--	--	--	--	--	19.71	<30dBm	Pass
04	2437	9.55	9.48	9.41	9.34	9.27	9.2	9.13	9.06	18.28	<30dBm	Pass
07	2452	9.31	--	--	--	--	--	--	--	18.78	<30dBm	Pass

Note: Peak Power Output Value =Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
01	2422	30	19.78	19.71	22.76	<30dBm	Pass
04	2437	30	20.19	18.28	22.35	<30dBm	Pass
07	2452	30	20.62	18.78	22.81	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Chain A**

Channel No	Frequency (MHz)	Average Power								Peak Power	Required Limit	Result
		For different Data Rate (Mbps)										
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4		
Measurement Level (dBm)												
149	5745	13.48	--	--	--	--	--	--	--	21.45	<30dBm	Pass
157	5785	13.56	13.51	13.46	13.41	13.36	13.31	13.26	13.21	21.39	<30dBm	Pass
165	5825	13.66	--	--	--	--	--	--	--	21.66	<30dBm	Pass

1. Note: Peak Power Output Value = Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power								Peak Power	Required Limit	Result
		For different Data Rate (Mbps)										
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	14.4		
Measurement Level (dBm)												
149	5745	11.98	--	--	--	--	--	--	--	19.34	<30dBm	Pass
157	5785	11.83	11.79	11.75	11.71	11.67	11.63	11.59	11.55	19.20	<30dBm	Pass
165	5825	11.98	--	--	--	--	--	--	--	19.00	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
149	5745	14.4	21.45	19.34	23.53	<30dBm	Pass
157	5785	14.4	21.39	19.20	23.44	<30dBm	Pass
165	5825	14.4	21.66	19.00	23.54	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : Wireless Motherboard  
 Test Item : Peak Power Output Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Chain A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		30	60	90	120	180	240	270	300			
		Measurement Level (dBm)										
151	5755	13.92	--	--	--	--	--	--	--	21.06	<30dBm	Pass
159	5795	13.67	13.61	13.55	13.49	13.43	13.37	13.31	13.25	20.95	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		30	60	90	120	180	240	270	300			
		Measurement Level (dBm)										
151	5755	11.25	--	--	--	--	--	--	--	19.01	<30dBm	Pass
159	5795	11.59	11.54	11.49	11.44	11.39	11.34	11.29	11.24	18.88	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
151	5755	30	21.06	19.01	23.17	<30dBm	Pass
159	5795	30	20.95	18.88	23.05	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

## 4. Radiated Emission

### 4.1. Test Equipment

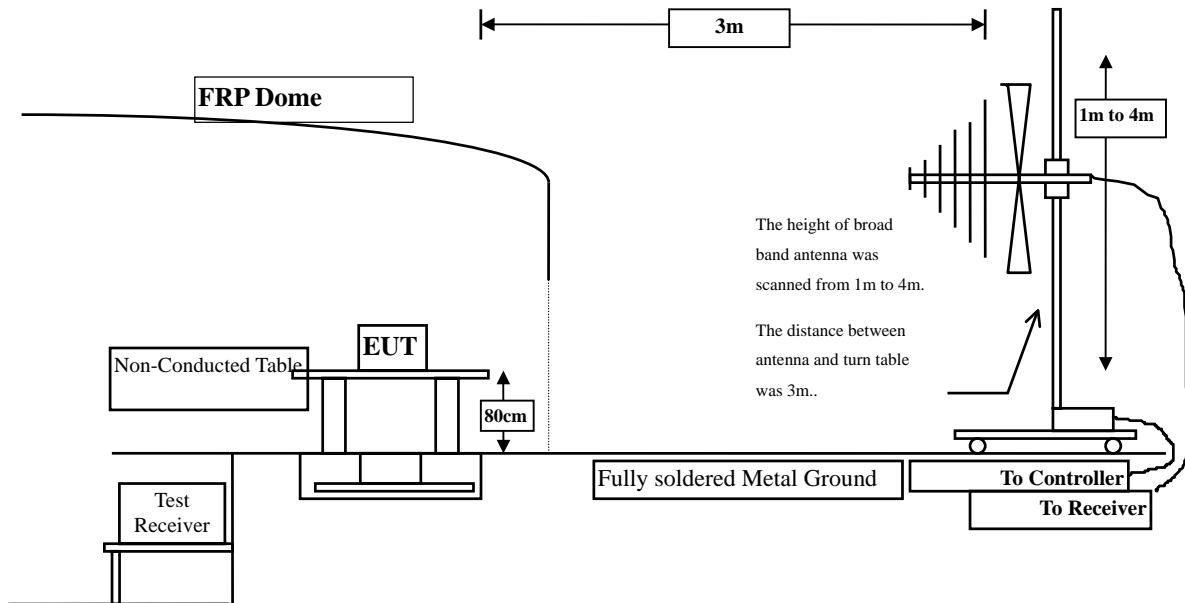
The following test equipment are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2013
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
	X	Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

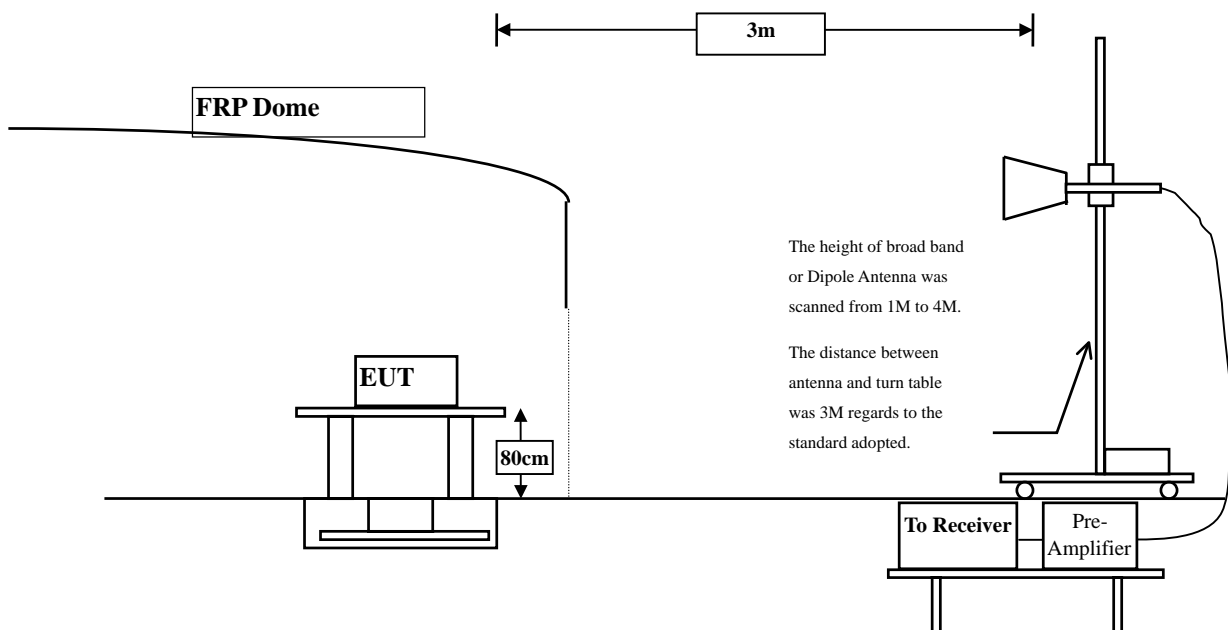
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with "X" are used to measure the final test results.

## 4.2. Test Setup

### Radiated Emission Below 1GHz



### Radiated Emission Above 1GHz





### 4.3. 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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

#### 4.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to DTS test procedure of 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 between 1 meter and 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 C63.10:2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

#### 4.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

#### 4.6. Test Result of Radiated Emission

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	49.490	52.751	-21.249	74.000
7236.000	10.650	35.260	45.910	-28.090	74.000
9648.000	13.337	36.590	49.926	-24.074	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	47.140	53.561	-20.439	74.000
7236.000	11.495	38.260	49.755	-24.245	74.000
9648.000	13.807	37.260	51.066	-22.934	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	49.360	52.397	-21.603	74.000
7311.000	11.795	36.160	47.954	-26.046	74.000
9748.000	12.635	36.590	49.225	-24.775	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	47.260	53.071	-20.929	74.000
7311.000	12.630	38.230	50.859	-23.141	74.000
9748.000	13.126	37.290	50.416	-23.584	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	49.560	52.417	-21.583	74.000
7386.000	12.127	36.560	48.688	-25.312	74.000
9848.000	12.852	36.290	49.143	-24.857	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	48.230	53.750	-20.250	74.000
7386.000	13.254	38.540	51.794	-22.206	74.000
9848.000	13.367	37.560	50.927	-23.073	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	46.590	49.851	-24.149	74.000
7236.000	10.650	36.590	47.240	-26.760	74.000
9648.000	13.337	36.890	50.226	-23.774	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	46.590	53.011	-20.989	74.000
7236.000	11.495	36.290	47.785	-26.215	74.000
9648.000	13.807	36.590	50.396	-23.604	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	46.590	49.627	-24.373	74.000
7311.000	11.795	36.590	48.384	-25.616	74.000
9748.000	12.635	36.590	49.225	-24.775	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	46.650	52.461	-21.539	74.000
7311.000	12.630	36.590	49.219	-24.781	74.000
9748.000	13.126	36.530	49.656	-24.344	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	46.290	49.147	-24.853	74.000
7386.000	12.127	36.150	48.278	-25.722	74.000
9848.000	12.852	36.590	49.443	-24.557	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	46.150	51.670	-22.330	74.000
7386.000	13.254	36.150	49.404	-24.596	74.000
9848.000	13.367	36.580	49.947	-24.053	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	44.290	47.551	-26.449	74.000
7236.000	10.650	36.290	46.940	-27.060	74.000
9648.000	13.337	36.060	49.396	-24.604	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	42.190	48.611	-25.389	74.000
7236.000	11.495	37.150	48.645	-25.355	74.000
9648.000	13.807	36.690	50.496	-23.504	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	44.150	47.187	-26.813	74.000
7311.000	11.795	36.590	48.384	-25.616	74.000
9748.000	12.635	36.540	49.175	-24.825	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	44.230	50.041	-23.959	74.000
7311.000	12.630	38.120	50.749	-23.251	74.000
9748.000	13.126	36.290	49.416	-24.584	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	43.550	46.407	-27.593	74.000
7386.000	12.127	36.550	48.678	-25.322	74.000
9848.000	12.852	36.230	49.083	-24.917	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	44.130	49.650	-24.350	74.000
7386.000	13.254	38.140	51.394	-22.606	74.000
9848.000	13.367	36.290	49.657	-24.343	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	3.261	40.290	43.551	-30.449	74.000
7236.000	10.650	36.190	46.840	-27.160	74.000
9648.000	13.337	36.510	49.846	-24.154	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	6.421	42.290	48.711	-25.289	74.000
7236.000	11.495	36.480	47.975	-26.025	74.000
9648.000	13.807	36.590	50.396	-23.604	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	42.650	45.687	-28.313	74.000
7311.000	11.795	36.580	48.374	-25.626	74.000
9748.000	12.635	36.280	48.915	-25.085	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	41.540	47.351	-26.649	74.000
7311.000	12.630	36.510	49.139	-24.861	74.000
9748.000	13.126	36.080	49.206	-24.794	74.000
<b>Average Detector:</b>					
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Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	41.050	43.907	-30.093	74.000
7386.000	12.127	36.190	48.318	-25.682	74.000
9848.000	12.852	36.510	49.363	-24.637	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	41.190	46.710	-27.290	74.000
7386.000	13.254	36.410	49.664	-24.336	74.000
9848.000	13.367	36.190	49.557	-24.443	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11490.000	17.106	35.190	52.297	-21.703	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11490.000	18.034	35.330	53.365	-20.635	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11570.000	16.809	36.260	53.069	-20.931	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11570.000	17.698	36.060	53.758	-20.242	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11650.000	16.158	35.260	51.418	-22.582	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11650.000	17.274	35.540	52.815	-21.185	74.000
<b>Average Detector:</b>					
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Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11490.000	17.106	35.560	52.667	-21.333	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11490.000	18.034	35.230	53.265	-20.735	74.000
<b>Average Detector:</b>					
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Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBUV	Measurement Level dBUV/m	Margin dB	Limit dBUV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11570.000	16.809	36.030	52.839	-21.161	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11570.000	17.698	36.230	53.928	-20.072	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11650.000	16.158	35.230	51.388	-22.612	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11650.000	17.274	35.450	52.725	-21.275	74.000
<b>Average Detector:</b>					
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Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2412MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
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**Horizontal**
**Peak Detector:**

4824.000	3.261	46.150	49.411	-24.589	74.000
7236.000	10.650	36.150	46.800	-27.200	74.000
9648.000	13.337	36.260	49.596	-24.404	74.000

**Average**
**Detector:**

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**Vertical**
**Peak Detector:**

4824.000	6.421	45.290	51.711	-22.289	74.000
7236.000	11.495	37.190	48.685	-25.315	74.000
9648.000	13.807	36.590	50.396	-23.604	74.000

**Average**
**Detector:**

--

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	46.590	49.627	-24.373	74.000
7311.000	11.795	36.190	47.984	-26.016	74.000
9748.000	12.635	36.510	49.145	-24.855	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	45.690	51.501	-22.499	74.000
7311.000	12.630	37.190	49.819	-24.181	74.000
9748.000	13.126	36.290	49.416	-24.584	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2462 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	2.858	45.590	48.447	-25.553	74.000
7386.000	12.127	37.150	49.278	-24.722	74.000
9848.000	12.852	36.590	49.443	-24.557	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	5.521	45.690	51.210	-22.790	74.000
7386.000	13.254	37.150	50.404	-23.596	74.000
9848.000	13.367	36.590	49.957	-24.043	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2422MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4844.000	3.171	41.290	44.461	-29.539	74.000
7266.000	11.162	36.590	47.752	-26.248	74.000
9688.000	12.964	36.590	49.555	-24.445	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4844.000	6.178	42.590	48.768	-25.232	74.000
7266.000	11.982	36.540	48.522	-25.478	74.000
9688.000	13.507	36.150	49.658	-24.342	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	3.038	41.290	44.327	-29.673	74.000
7311.000	11.795	36.560	48.354	-25.646	74.000
9748.000	12.635	36.150	48.785	-25.215	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	5.812	42.590	48.401	-25.599	74.000
7311.000	12.630	36.590	49.219	-24.781	74.000
9748.000	13.126	36.290	49.416	-24.584	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2452 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4904.000	2.914	41.590	44.505	-29.495	74.000
7356.000	11.995	36.190	48.184	-25.816	74.000
9808.000	12.475	36.590	49.065	-24.935	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
4904.000	5.530	42.690	48.221	-25.779	74.000
7356.000	13.005	36.180	49.184	-24.816	74.000
9808.000	12.901	36.590	49.491	-24.509	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5745MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11490.000	17.106	36.512	53.619	-20.381	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11490.000	18.034	35.480	53.515	-20.485	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5785 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11570.000	16.809	36.590	53.399	-20.601	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11570.000	17.698	35.590	53.288	-20.712	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5825 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11650.000	16.158	36.590	52.748	-21.252	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11650.000	17.274	36.150	53.425	-20.575	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11510.000	17.124	35.150	52.274	-21.726	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11510.000	18.081	35.590	53.671	-20.329	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5795 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11590.000	16.701	35.150	51.850	-22.150	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11590.000	17.567	36.290	53.856	-20.144	74.000
<b>Average Detector:</b>					
--					

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
158.040	-11.121	38.349	27.228	-16.272	43.500
359.800	-1.680	30.694	29.014	-16.986	46.000
462.620	1.172	26.134	27.306	-18.694	46.000
551.860	2.714	35.370	38.084	-7.916	46.000
648.860	2.038	29.688	31.726	-14.274	46.000
844.800	5.601	28.565	34.166	-11.834	46.000
<b>Vertical</b>					
251.160	-7.505	35.197	27.692	-18.308	46.000
383.080	-2.184	32.867	30.683	-15.317	46.000
476.200	-4.492	40.284	35.792	-10.208	46.000
549.920	-2.877	39.526	36.649	-9.351	46.000
776.900	2.373	31.119	33.492	-12.508	46.000
910.760	2.434	38.893	41.328	-4.672	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.



Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
255.040	-5.098	39.842	34.744	-11.256	46.000
460.680	1.589	26.914	28.503	-17.497	46.000
551.860	2.714	35.946	38.660	-7.340	46.000
600.360	3.977	34.459	38.436	-7.564	46.000
701.240	2.668	31.749	34.417	-11.583	46.000
844.800	5.601	26.977	32.578	-13.422	46.000
<b>Vertical</b>					
140.580	-6.241	41.616	35.375	-8.125	43.500
237.580	-8.970	45.623	36.653	-9.347	46.000
377.260	-1.765	37.597	35.832	-10.168	46.000
456.800	-4.697	38.138	33.441	-12.559	46.000
561.560	-5.294	41.720	36.426	-9.574	46.000
701.240	0.198	36.734	36.932	-9.068	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
175.500	-10.017	41.656	31.638	-11.862	43.500
398.600	-2.268	37.691	35.423	-10.577	46.000
540.220	2.551	30.859	33.410	-12.590	46.000
615.880	3.215	28.631	31.846	-14.154	46.000
780.780	4.230	27.206	31.436	-14.564	46.000
961.200	6.450	33.681	40.131	-13.869	54.000
<b>Vertical</b>					
239.520	-8.581	45.428	36.848	-9.152	46.000
375.320	-2.029	38.265	36.236	-9.764	46.000
499.480	-0.852	30.800	29.948	-16.052	46.000
720.640	-0.099	43.062	42.963	-3.037	46.000
798.240	2.808	28.220	31.028	-14.972	46.000
961.200	7.260	34.438	41.698	-12.302	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
154.160	-10.091	39.359	29.268	-14.232	43.500
299.660	-3.585	32.014	28.429	-17.571	46.000
375.320	-1.209	38.265	37.056	-8.944	46.000
580.960	3.505	27.016	30.521	-15.479	46.000
798.240	5.148	28.220	33.368	-12.632	46.000
961.200	6.450	34.438	40.888	-13.112	54.000
<b>Vertical</b>					
375.320	-2.029	39.984	37.955	-8.045	46.000
499.480	-0.852	30.107	29.255	-16.745	46.000
600.360	-2.833	30.014	27.181	-18.819	46.000
699.300	0.695	28.861	29.556	-16.444	46.000
796.300	2.831	28.113	30.944	-15.056	46.000
961.200	7.260	34.899	42.159	-11.841	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz) (Chip Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
249.220	-6.014	39.185	33.171	-12.829	46.000
359.800	-1.680	33.430	31.750	-14.250	46.000
505.300	0.308	37.633	37.941	-8.059	46.000
600.360	3.977	35.169	39.146	-6.854	46.000
701.240	2.668	30.617	33.285	-12.715	46.000
870.020	5.201	31.586	36.787	-9.213	46.000
<b>Vertical</b>					
159.980	-6.185	34.750	28.565	-14.935	43.500
307.420	-6.821	38.931	32.110	-13.890	46.000
476.200	-4.492	39.886	35.394	-10.606	46.000
600.360	-2.833	31.991	29.158	-16.842	46.000
674.080	-0.501	36.937	36.436	-9.564	46.000
840.920	2.961	28.602	31.563	-14.437	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz) (PIFA Antenna)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
255.040	-5.098	39.842	34.744	-11.256	46.000
460.680	1.589	26.914	28.503	-17.497	46.000
551.860	2.714	35.946	38.660	-7.340	46.000
600.360	3.977	34.459	38.436	-7.564	46.000
701.240	2.668	31.749	34.417	-11.583	46.000
844.800	5.601	26.977	32.578	-13.422	46.000
<b>Vertical</b>					
140.580	-6.241	41.616	35.375	-8.125	43.500
237.580	-8.970	45.623	36.653	-9.347	46.000
377.260	-1.765	37.597	35.832	-10.168	46.000
456.800	-4.697	38.138	33.441	-12.559	46.000
561.560	-5.294	41.720	36.426	-9.574	46.000
701.240	0.198	36.734	36.932	-9.068	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
144.460	-10.377	37.703	27.326	-16.174	43.500
231.760	-8.338	38.598	30.260	-15.740	46.000
305.480	-2.929	34.266	31.337	-14.663	46.000
359.800	-1.680	39.726	38.046	-7.954	46.000
505.300	0.308	37.078	37.386	-8.614	46.000
600.360	3.977	34.396	38.373	-7.627	46.000
<b>Vertical</b>					
159.980	-6.185	36.988	30.803	-12.697	43.500
284.140	-8.194	46.931	38.737	-7.263	46.000
375.320	-2.029	36.384	34.355	-11.645	46.000
456.800	-4.697	36.624	31.927	-14.073	46.000
551.860	-3.666	33.822	30.156	-15.844	46.000
701.240	0.198	36.672	36.870	-9.130	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
105.660	-6.673	40.214	33.541	-9.959	43.500
233.700	-8.619	40.357	31.738	-14.262	46.000
359.800	-1.680	33.812	32.132	-13.868	46.000
456.800	-0.067	37.273	37.206	-8.794	46.000
551.860	2.714	34.624	37.338	-8.662	46.000
689.600	3.628	34.686	38.314	-7.686	46.000
<b>Vertical</b>					
163.860	-7.204	40.596	33.392	-10.108	43.500
297.720	-7.143	44.428	37.286	-8.714	46.000
344.280	-3.171	37.516	34.346	-11.654	46.000
456.800	-4.697	36.826	32.129	-13.871	46.000
553.800	-4.450	42.153	37.703	-8.297	46.000
835.100	1.995	30.637	32.632	-13.368	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5785 MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
266.680	-4.963	41.240	36.277	-9.723	46.000
346.220	-2.213	42.152	39.939	-6.061	46.000
377.260	-1.115	31.960	30.845	-15.155	46.000
505.300	0.308	36.946	37.254	-8.746	46.000
604.240	4.770	35.417	40.187	-5.813	46.000
732.280	3.082	35.132	38.214	-7.786	46.000
<b>Vertical</b>					
206.540	-7.705	34.473	26.768	-16.732	43.500
377.260	-1.765	27.000	25.235	-20.765	46.000
456.800	-4.697	36.145	31.448	-14.552	46.000
505.300	-0.772	34.564	33.792	-12.208	46.000
600.360	-2.833	32.367	29.534	-16.466	46.000
840.920	2.961	29.084	32.045	-13.955	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.



Product : Wireless Motherboard  
 Test Item : General Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
303.540	-3.074	39.083	36.009	-9.991	46.000
379.200	-1.005	36.608	35.602	-10.398	46.000
505.300	0.308	38.243	38.551	-7.449	46.000
551.860	2.714	36.267	38.981	-7.019	46.000
646.920	1.793	34.610	36.403	-9.597	46.000
757.500	4.361	30.481	34.842	-11.158	46.000
<b>Vertical</b>					
239.520	-8.581	34.180	25.600	-20.400	46.000
305.480	-6.809	33.520	26.711	-19.289	46.000
505.300	-0.772	33.748	32.976	-13.024	46.000
600.360	-2.833	31.735	28.902	-17.098	46.000
703.180	0.139	32.857	32.995	-13.005	46.000
790.480	2.913	34.279	37.191	-8.809	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

**5. RF antenna conducted test**

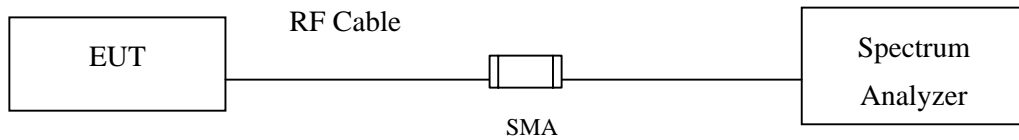
**5.1. Test Equipment**

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

- 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.

**5.2. Test Setup**

**RF antenna Conducted Measurement:**



**5.3. Limits**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### 5.4. Test Procedure

The EUT was tested according to DTS test procedure of ANSI C63.10, 2009 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

#### 5.5. Uncertainty

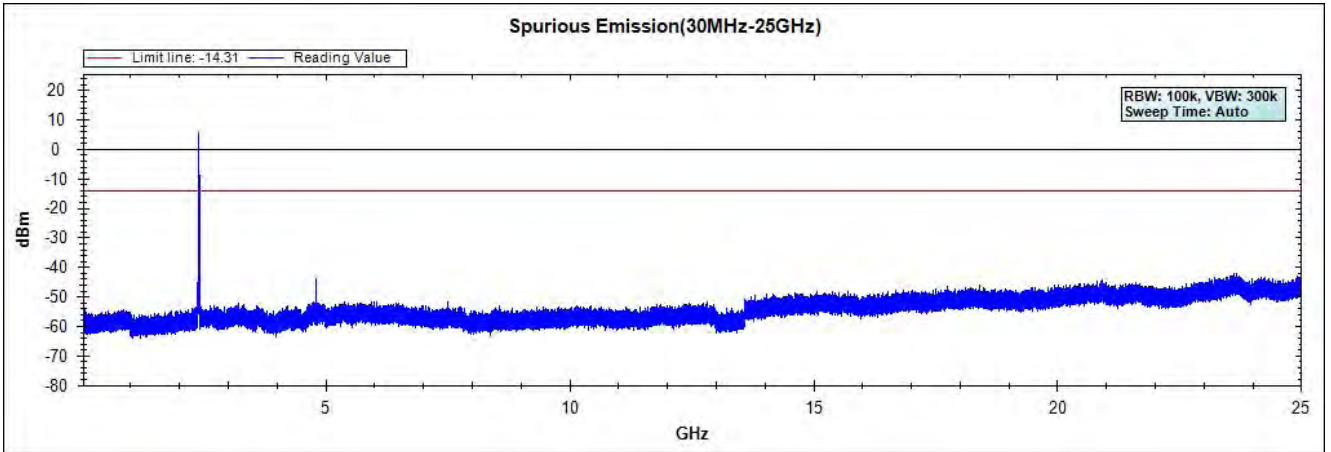
The measurement uncertainty

Conducted is defined as  $\pm 1.27\text{dB}$

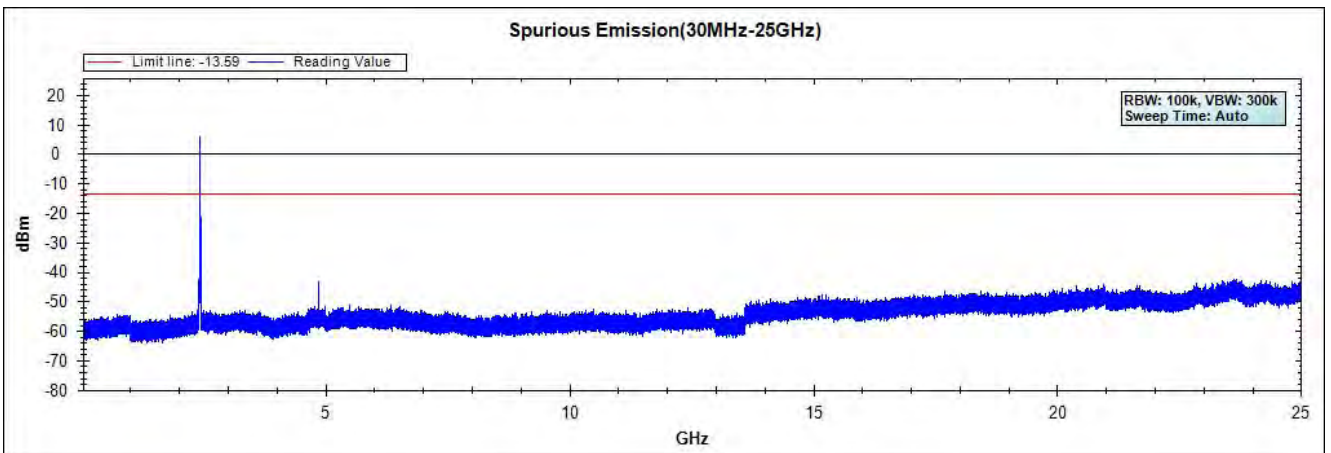
### 5.6. Test Result of RF antenna conducted test

Product : Wireless Motherboard  
Test Item : RF antenna conducted test  
Test Site : No.3 OATS  
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

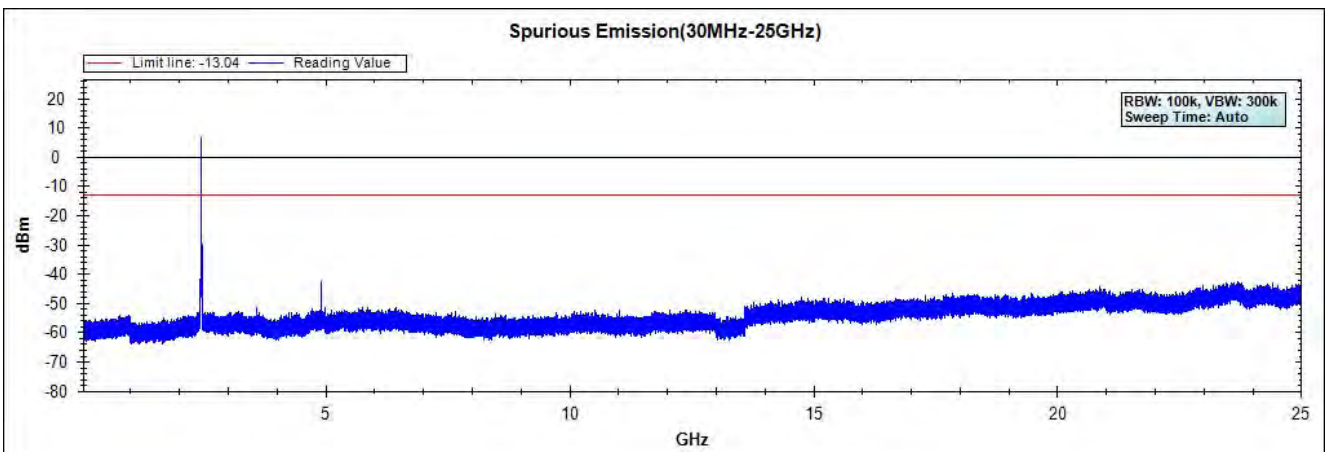
#### Channel 01 (2412MHz) 30MHz -25GHz



#### Channel 06 (2437MHz) 30MHz -25GHz



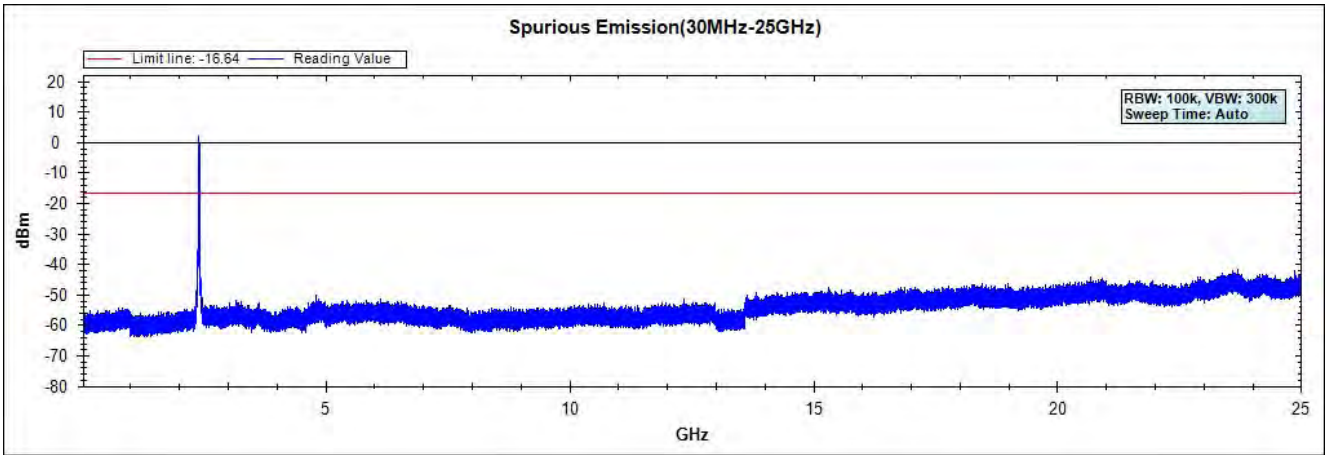
#### Channel 11 (2462MHz) 30MHz -25GHz



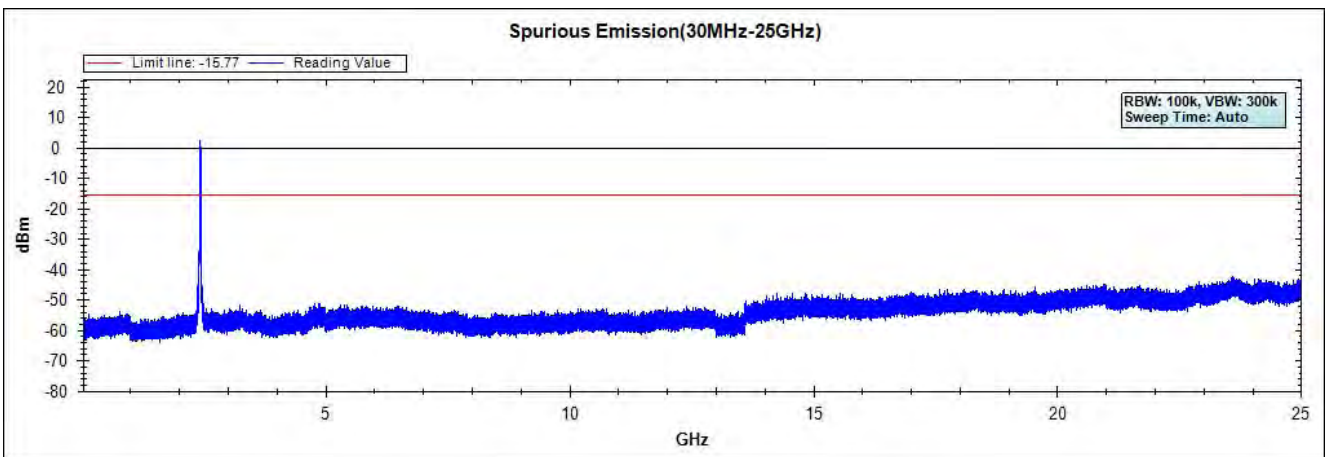
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

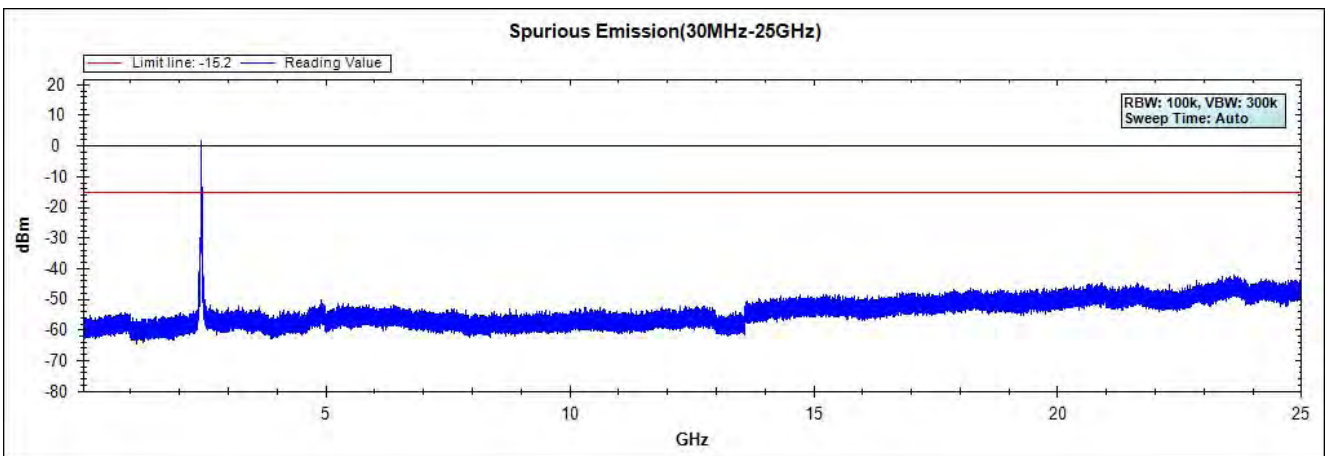
**Channel 01 (2412MHz) 30MHz -25GHz**



**Channel 06 (2437MHz) 30MHz -25GHz**



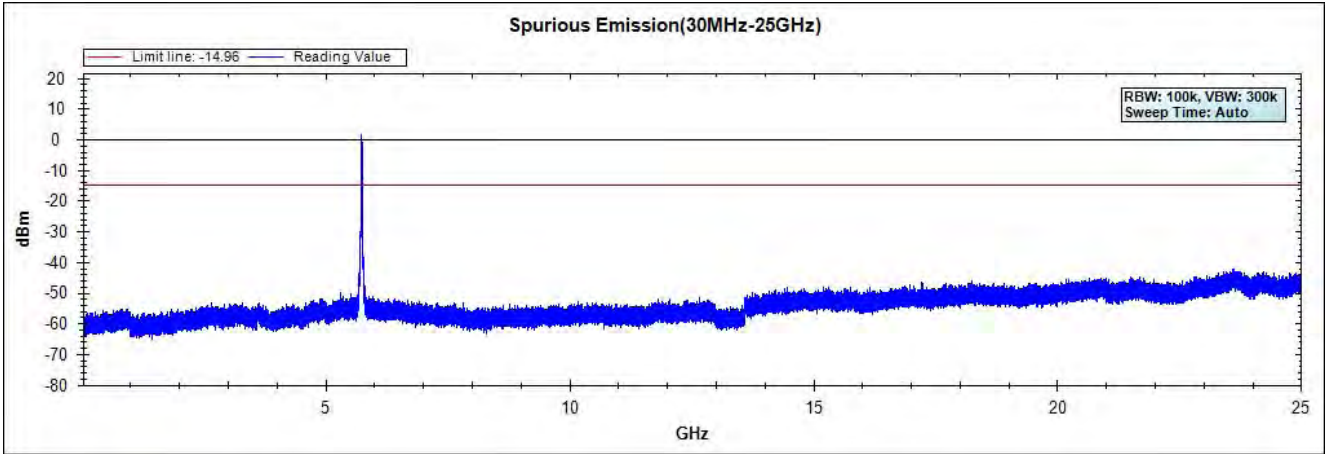
**Channel 11 (2462MHz) 30MHz -25GHz**



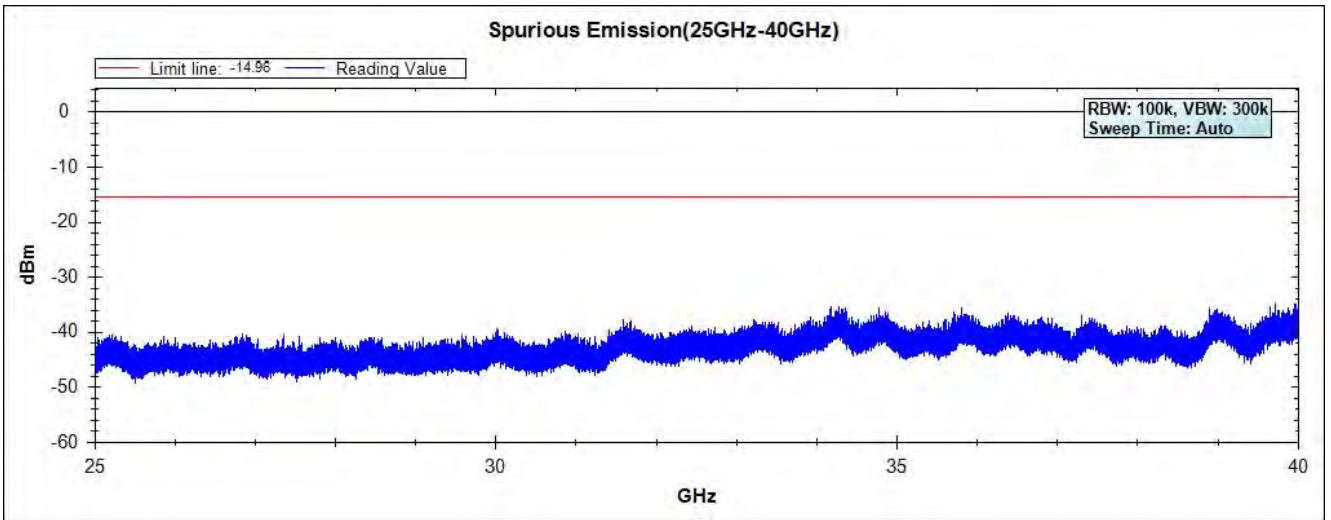
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 3: Transmit - 802.11a 6Mbps

**Channel 149 (5745MHz) 30MHz -25GHz**

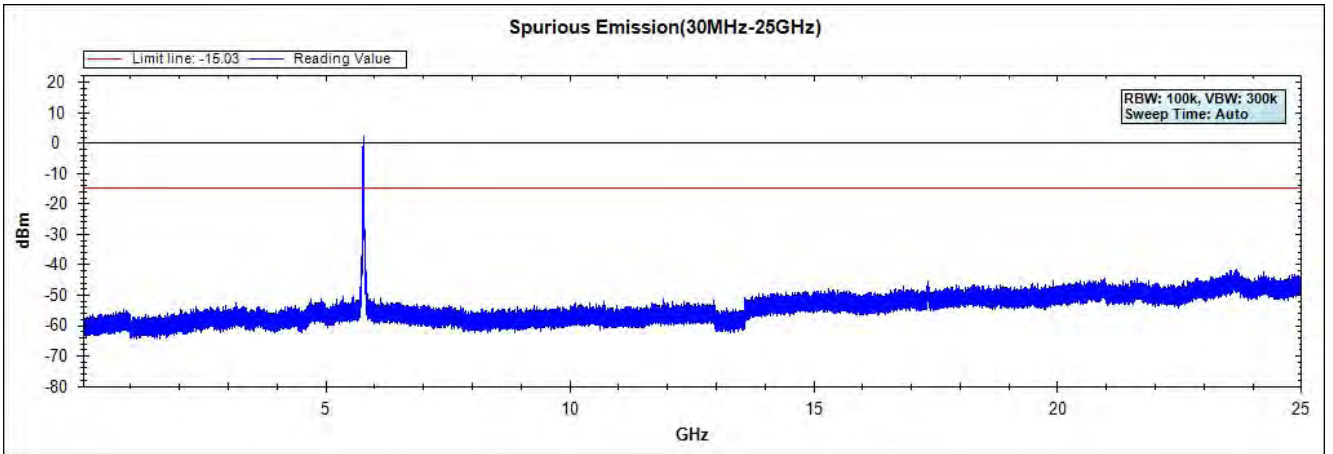


**Channel 149 (5745MHz) 25GHz - 40GHz**

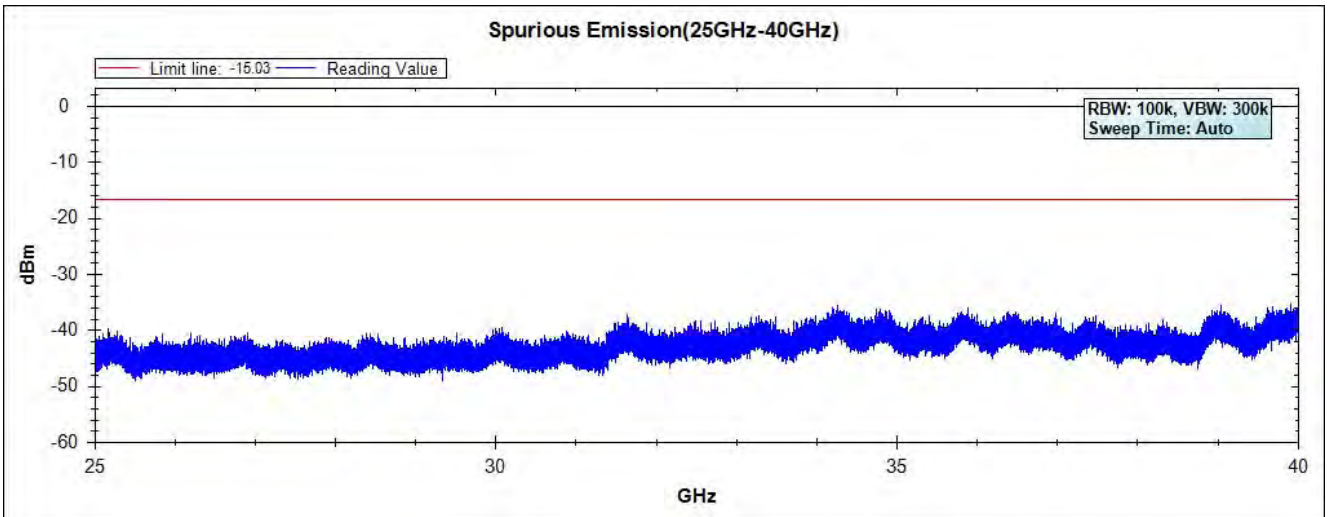


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 157 (5785MHz) 30MHz -25GHz**

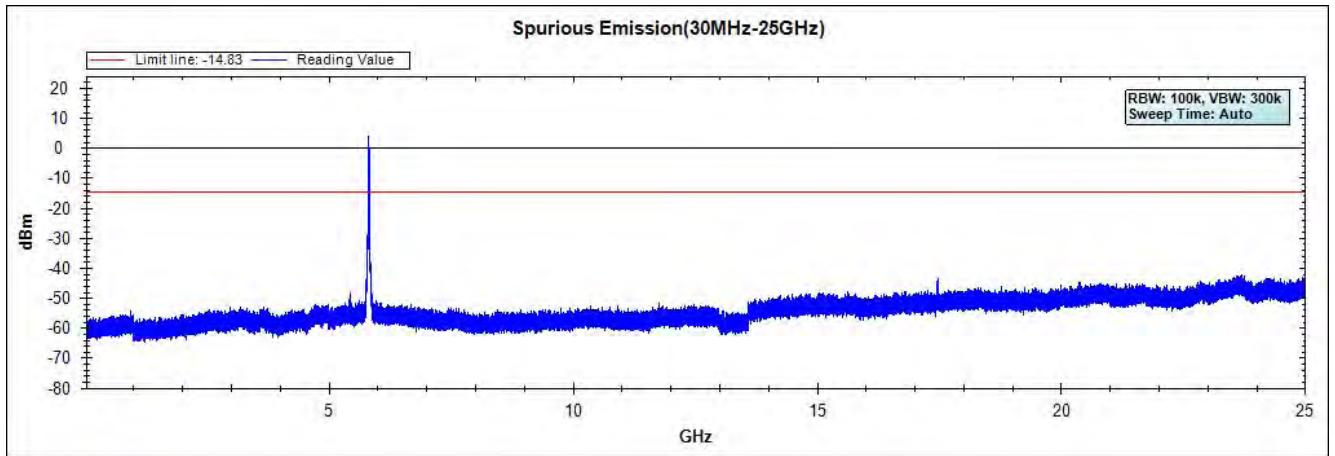


**Channel 157 (5785MHz) 25GHz - 40GHz**

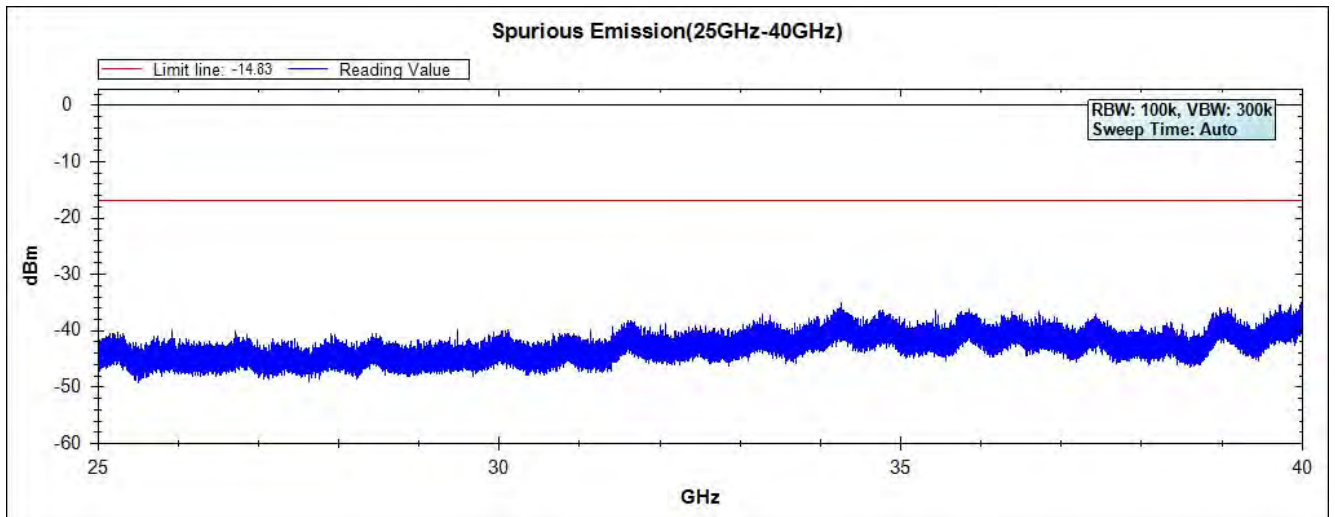


Note: The above test pattern is synthesized by multiple of the frequency range.

Channel 165 (5825MHz) 30MHz -25GHz



Channel 165 (5825MHz) 25GHz - 40GHz

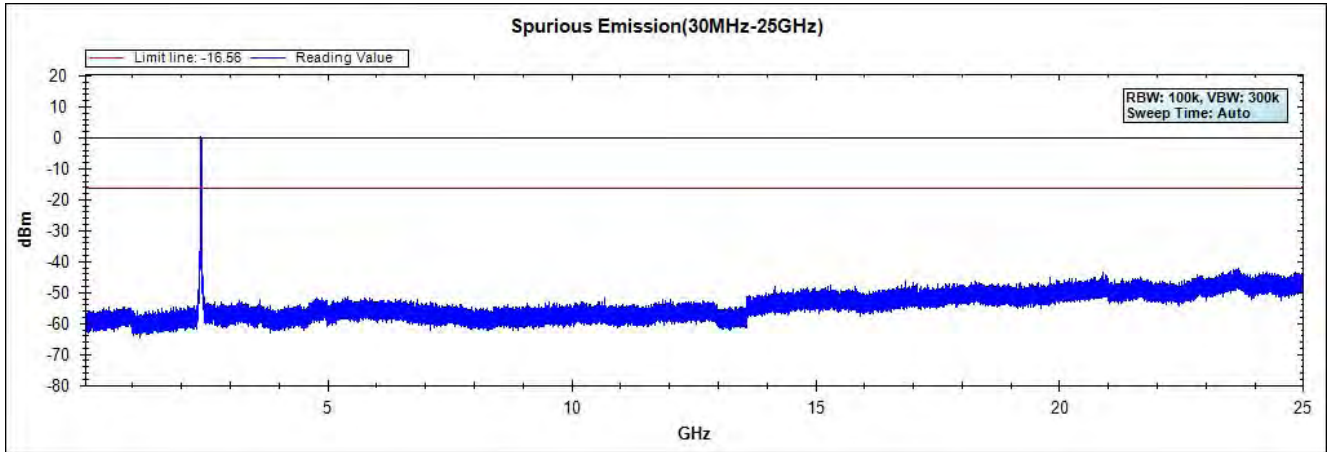


Note: The above test pattern is synthesized by multiple of the frequency range.

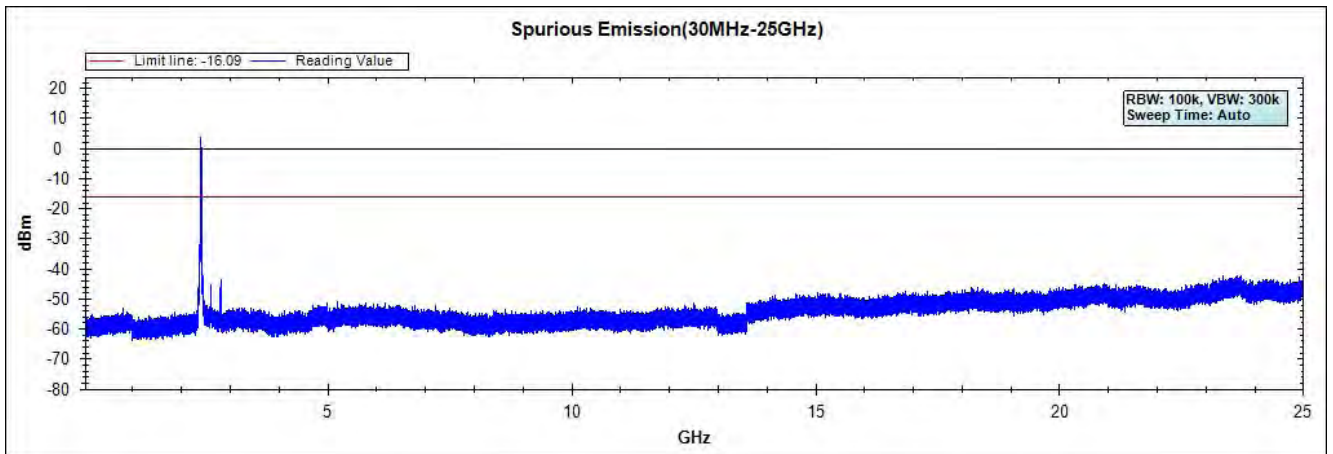


Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

**Channel 01 (2412MHz) 30MHz -25GHz (Chain A)**

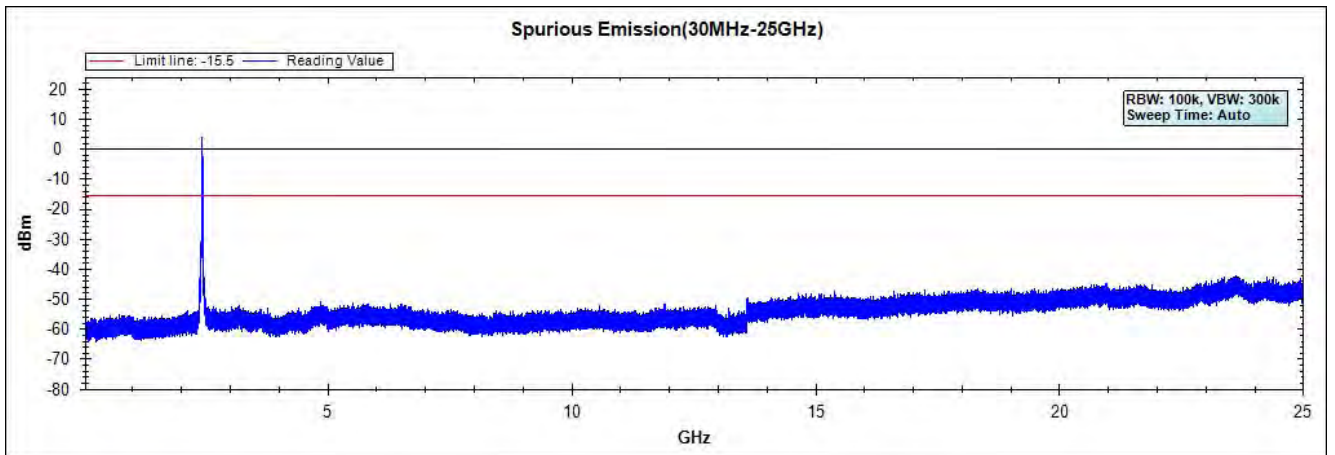


**Channel 01 (2412MHz) 30MHz -25GHz (Chain B)**

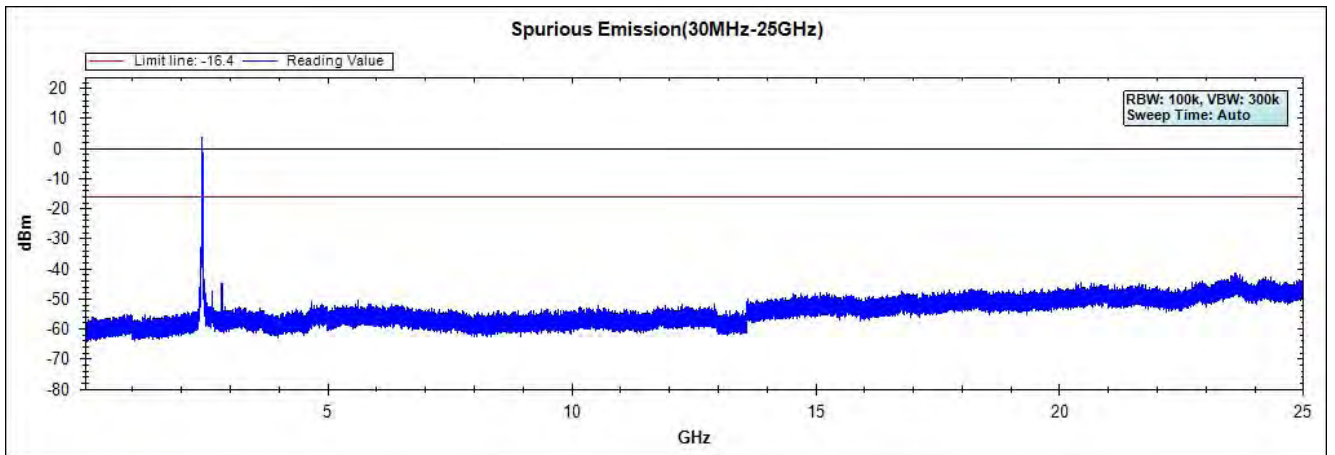


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 06 (2437MHz) 30MHz -25GHz (Chain A)**

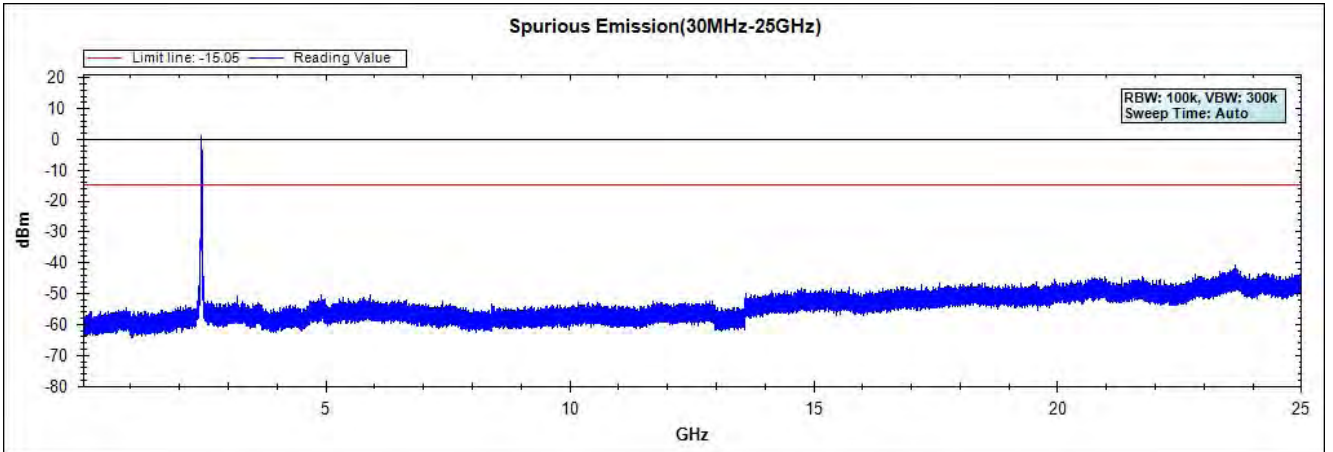


**Channel 06 (2437MHz) 30MHz -25GHz (Chain B)**

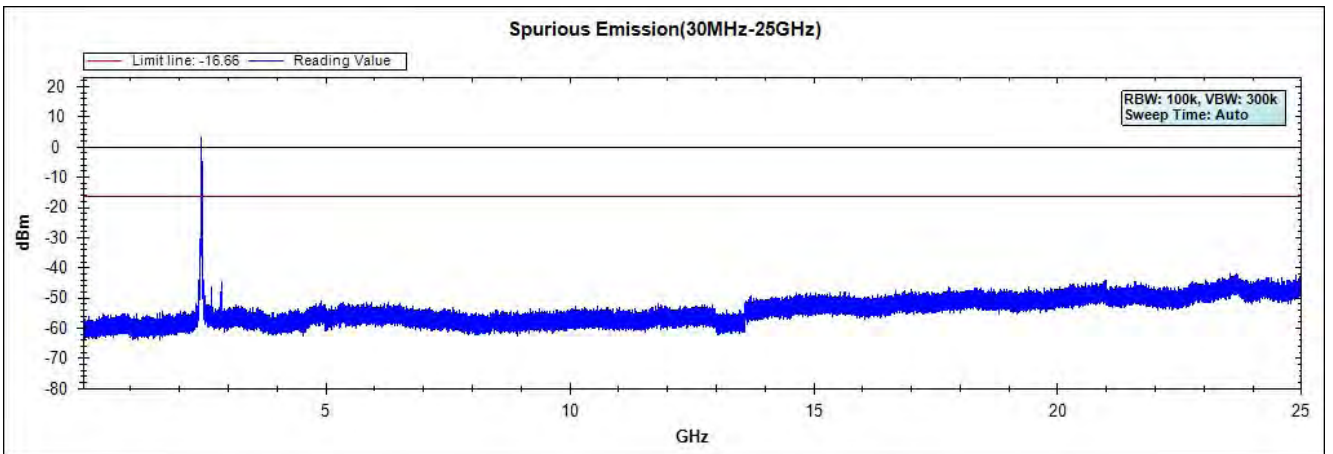


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 11 (2462MHz) 30MHz -25GHz (Chain A)**



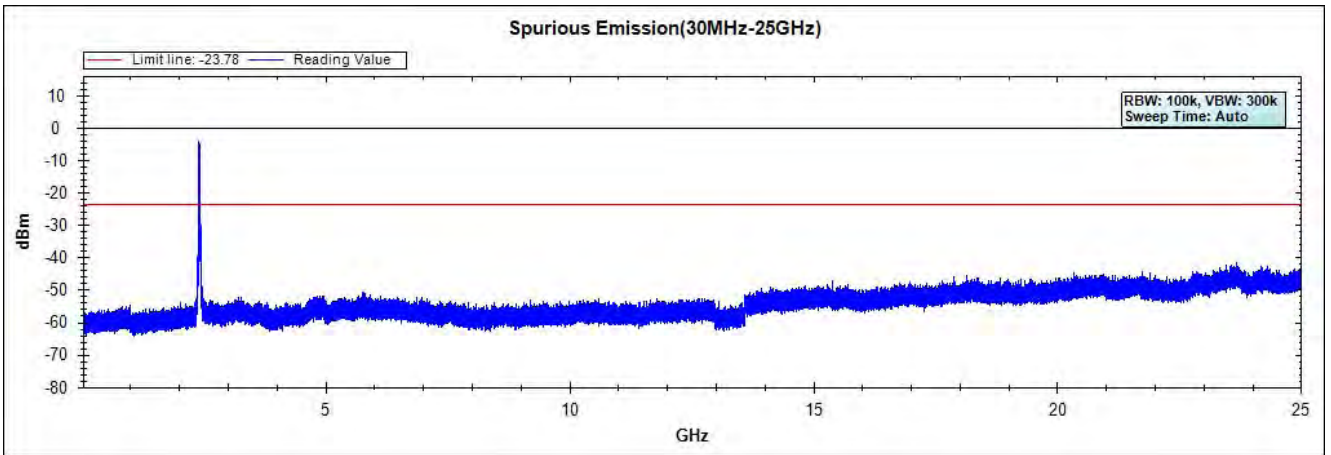
**Channel 11 (2462MHz) 30MHz -25GHz (Chain B)**



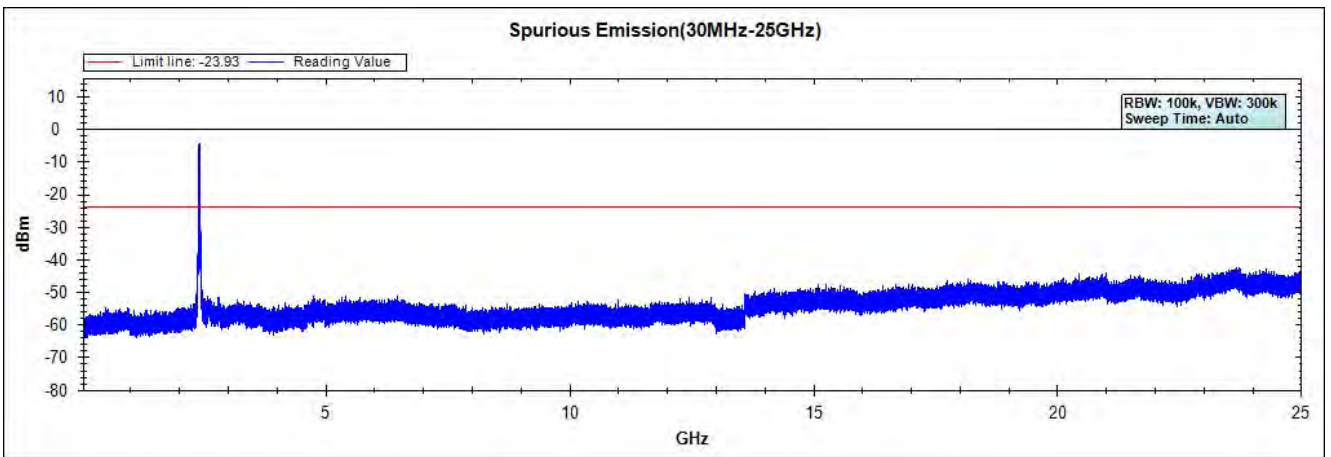
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

**Channel 01 (2422MHz) 30MHz -25GHz (Chain A)**

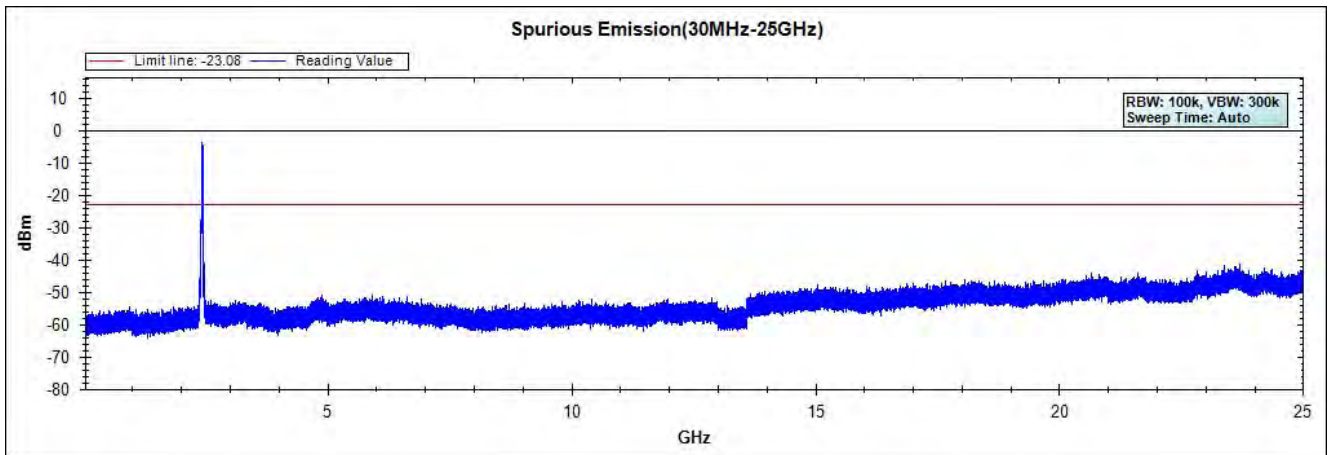


**Channel 01 (2422MHz) 30MHz -25GHz (Chain B)**

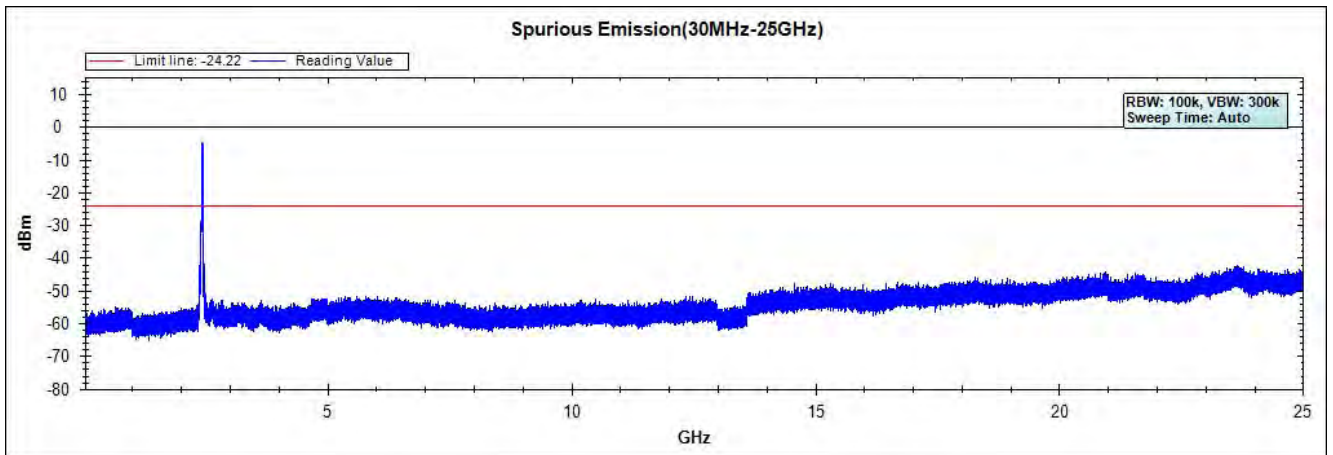


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 04 (2437MHz) 30MHz -25GHz (Chain A)**

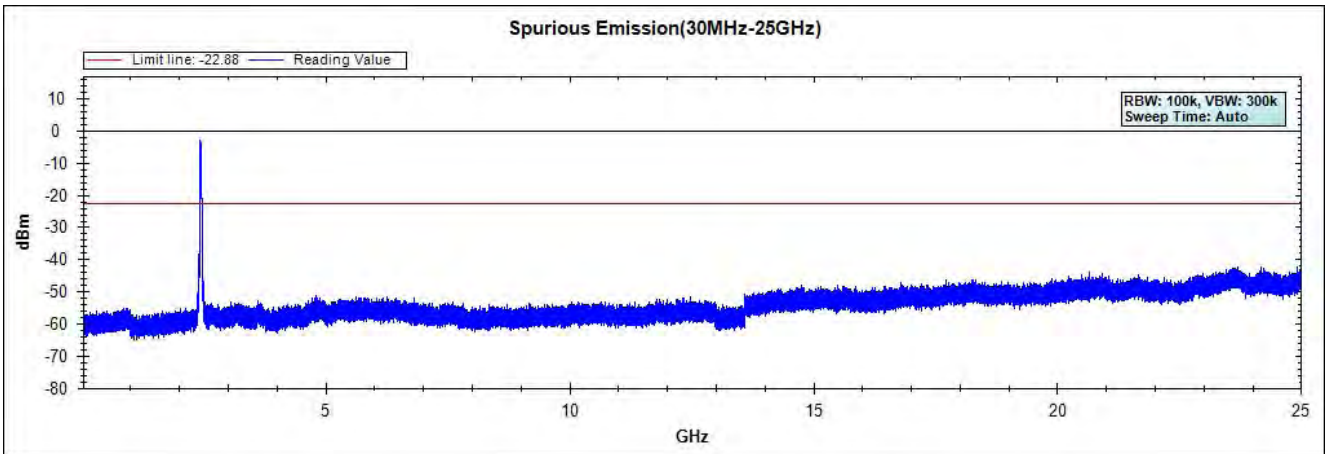


**Channel 04 (2437MHz) 30MHz -25GHz (Chain B)**

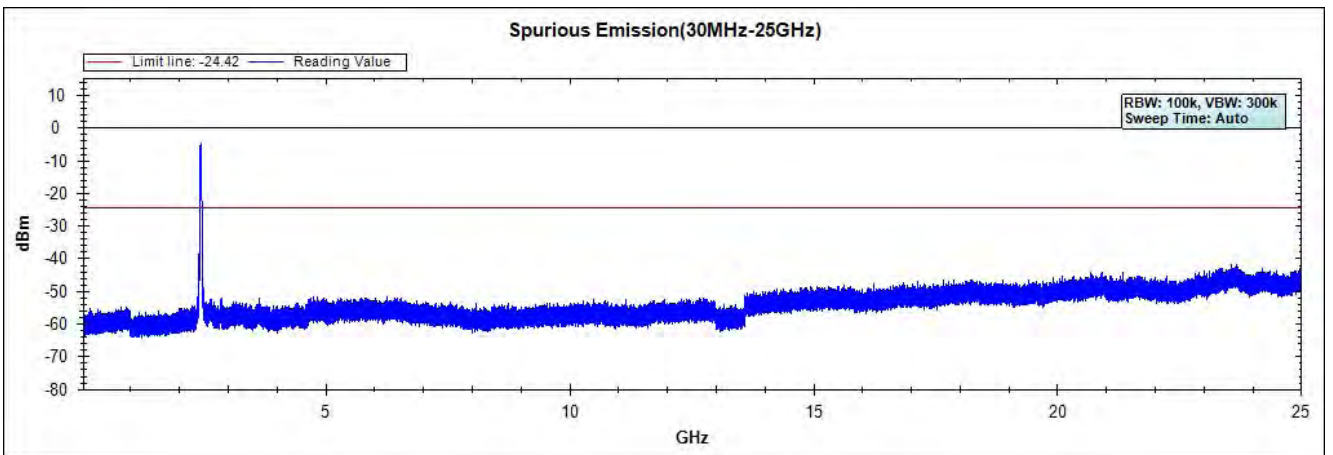


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 07 (2452MHz) 30MHz -25GHz (Chain A)**



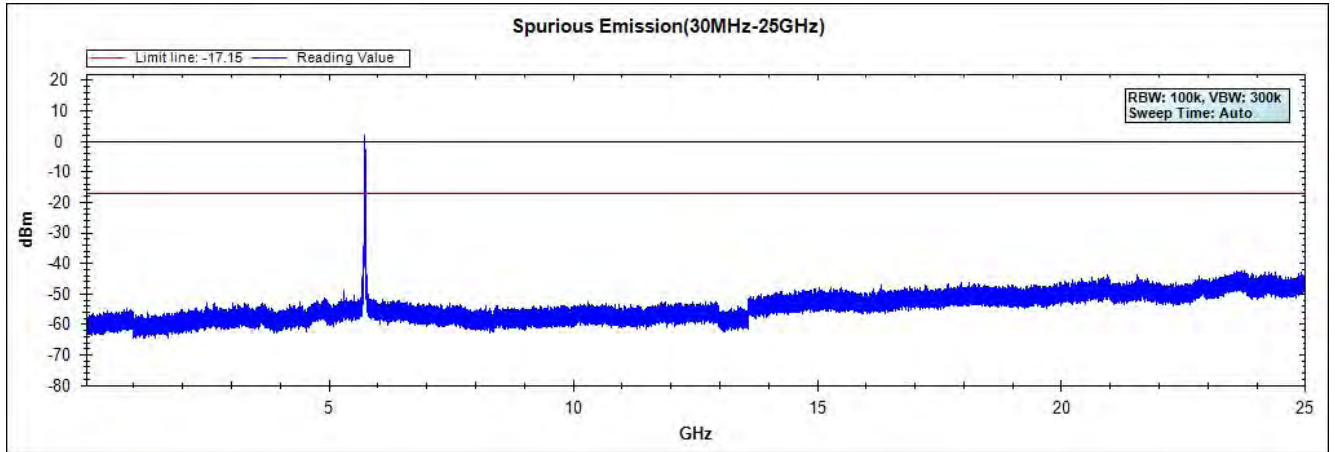
**Channel 07 (2452MHz) 30MHz -25GHz (Chain B)**



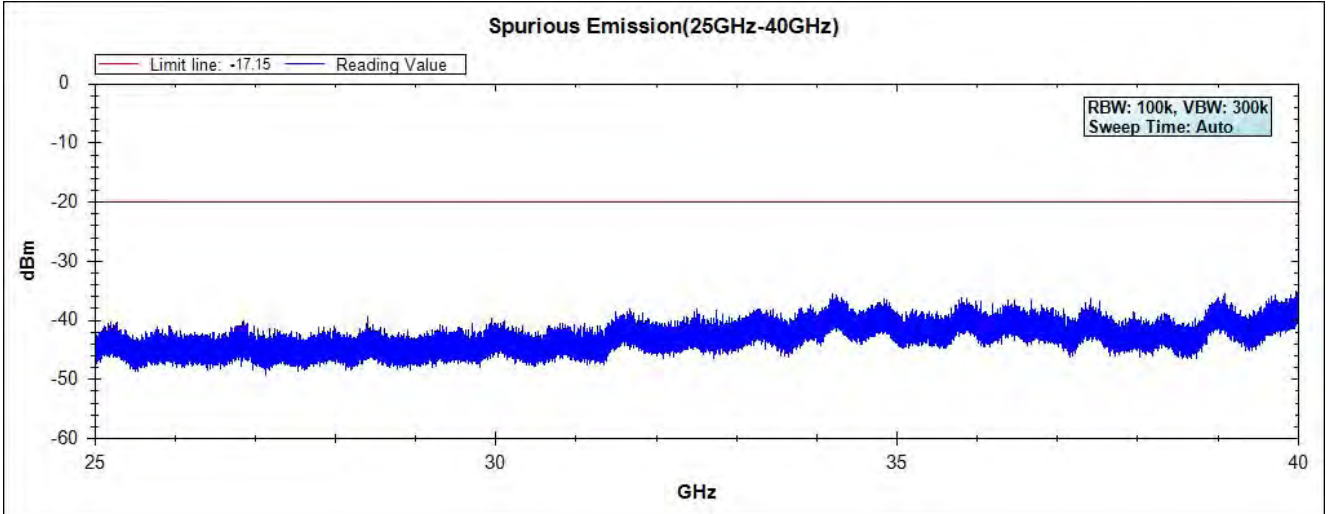
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Channel 49 (5745MHz) 30MHz-25GHz (Chain A)**

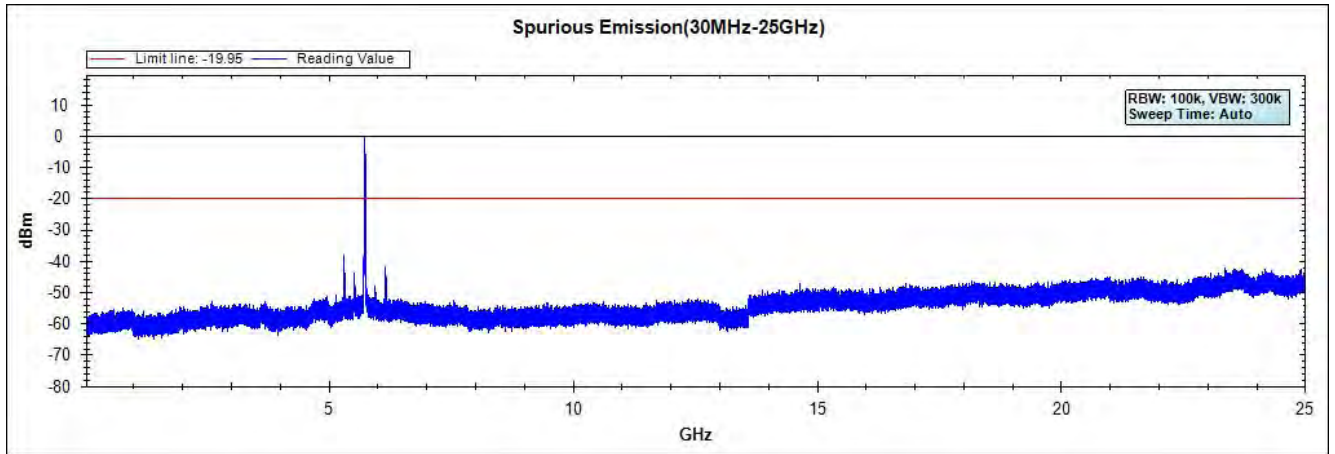


**Channel 49 (5745MHz) 25GHz-40GHz (Chain A)**

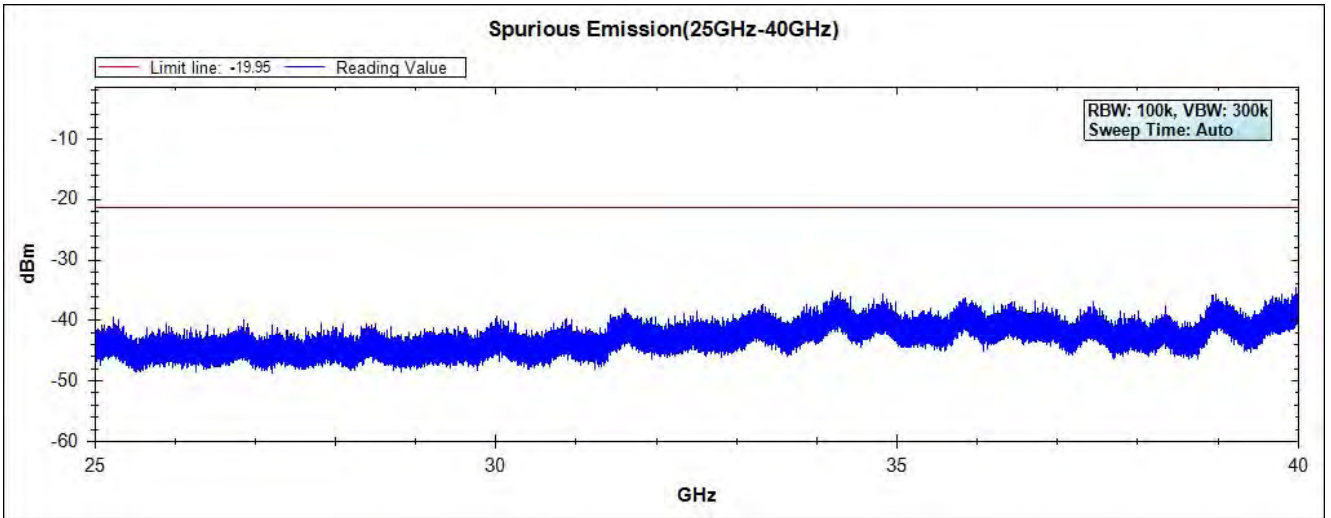


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 49 (5745MHz) 30MHz-25GHz (Chain B)**



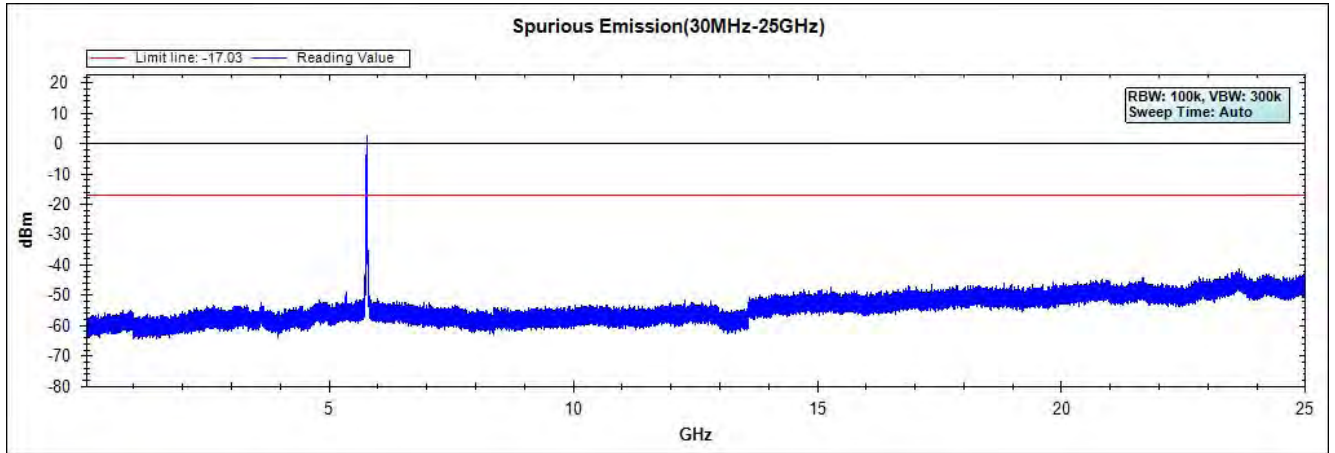
**Channel 49 (5745MHz) 25GHz-40GHz (Chain B)**



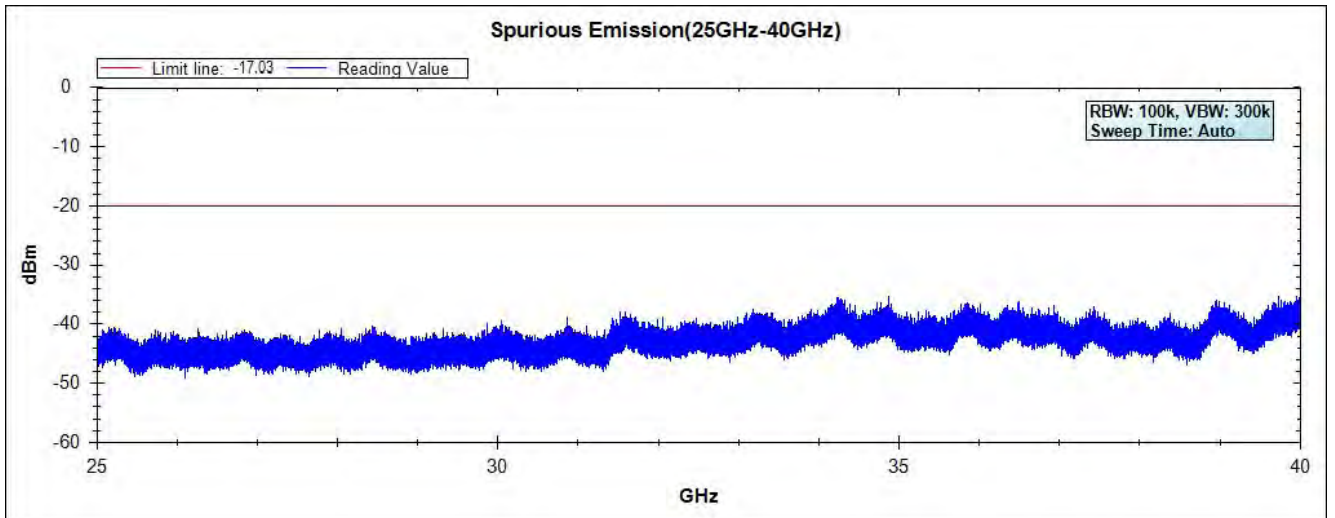
Note: The above test pattern is synthesized by multiple of the frequency range.



**Channel 157 (5785MHz) 30MHz-25GHz (Chain A)**

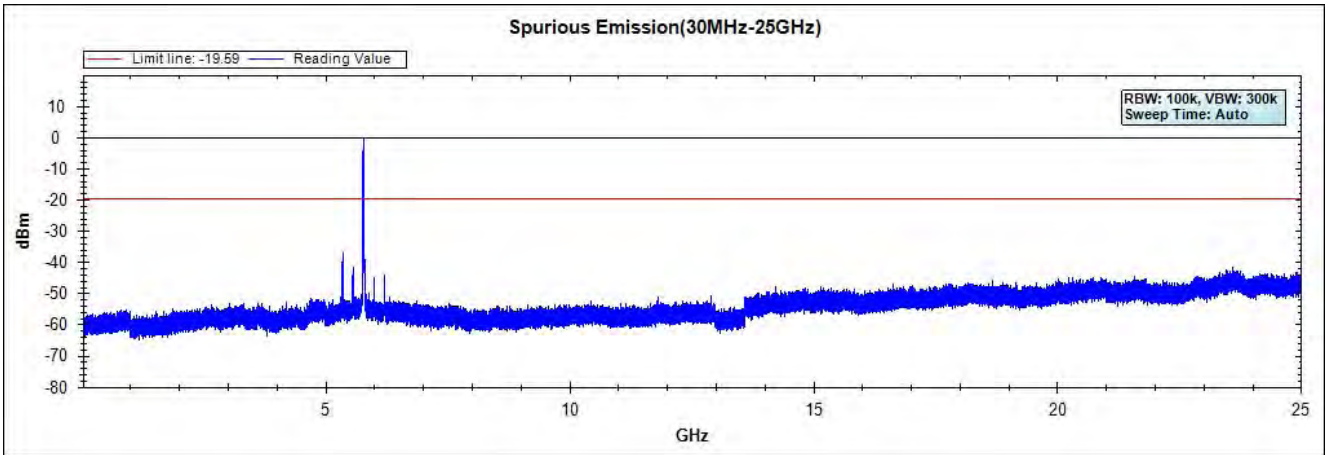


**Channel 157 (5785MHz) 25GHz-40GHz (Chain A)**

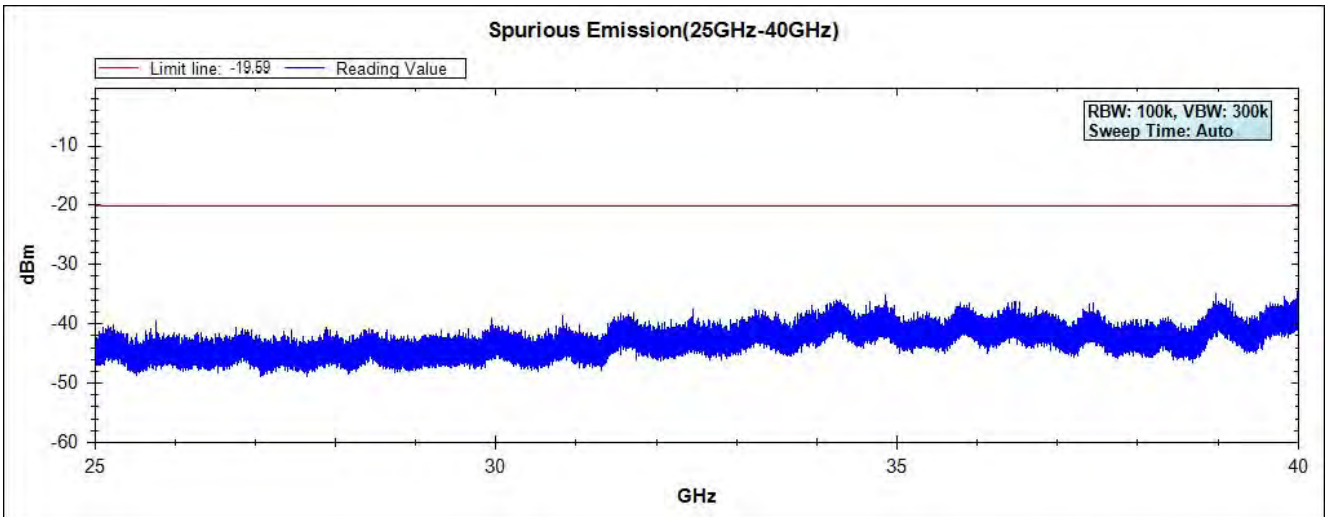


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 157 (5785MHz) 30MHz-25GHz (Chain B)**

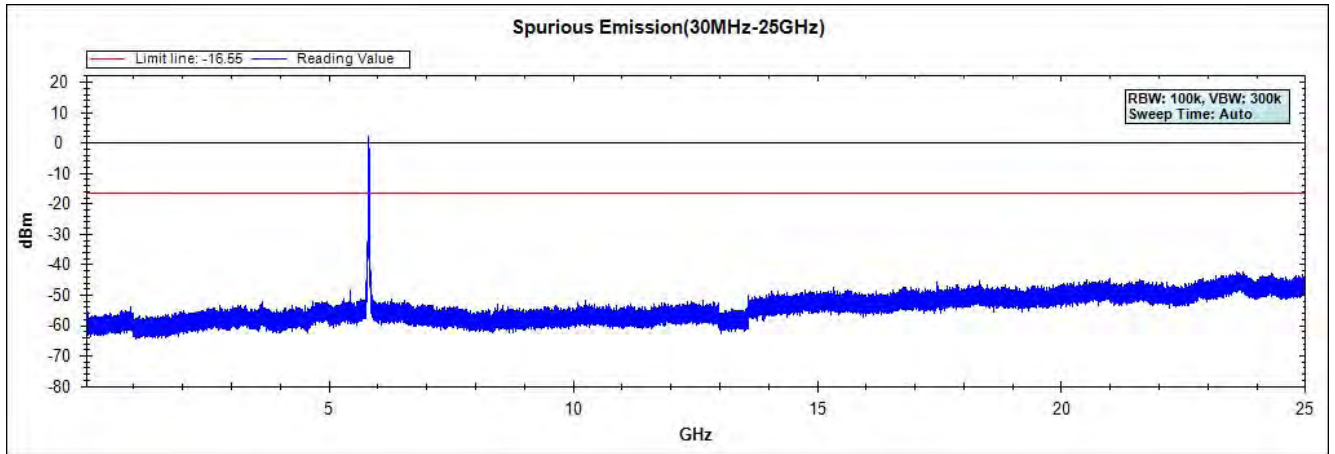


**Channel 157 (5785MHz) 25GHz-40GHz (Chain B)**

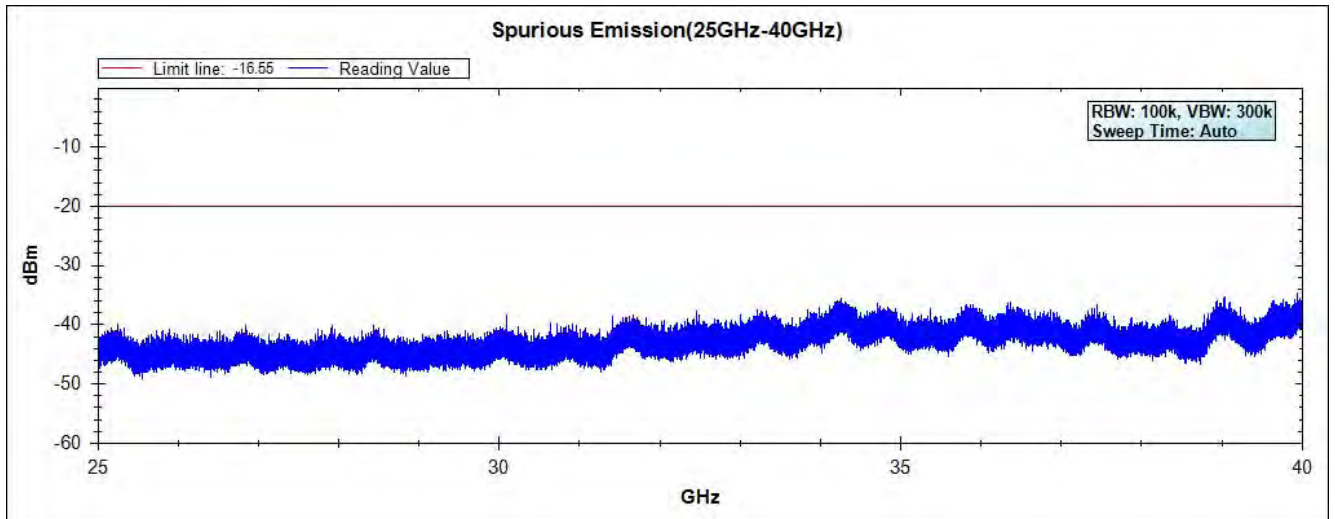


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 165 (5825MHz) 30MHz-25GHz (Chain A)**

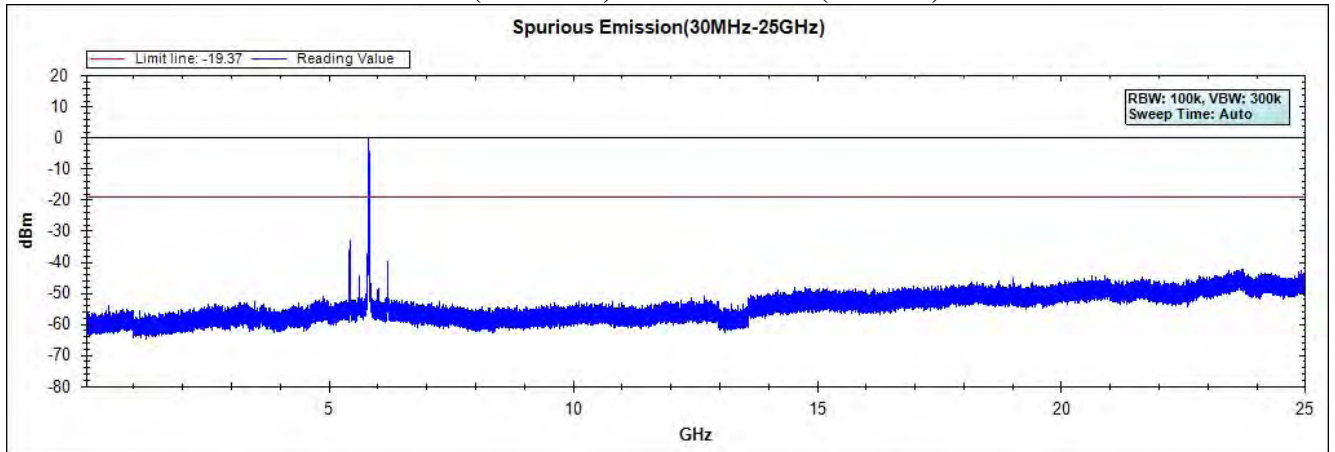


**Channel 165 (5825MHz) 25GHz-40GHz (Chain A)**

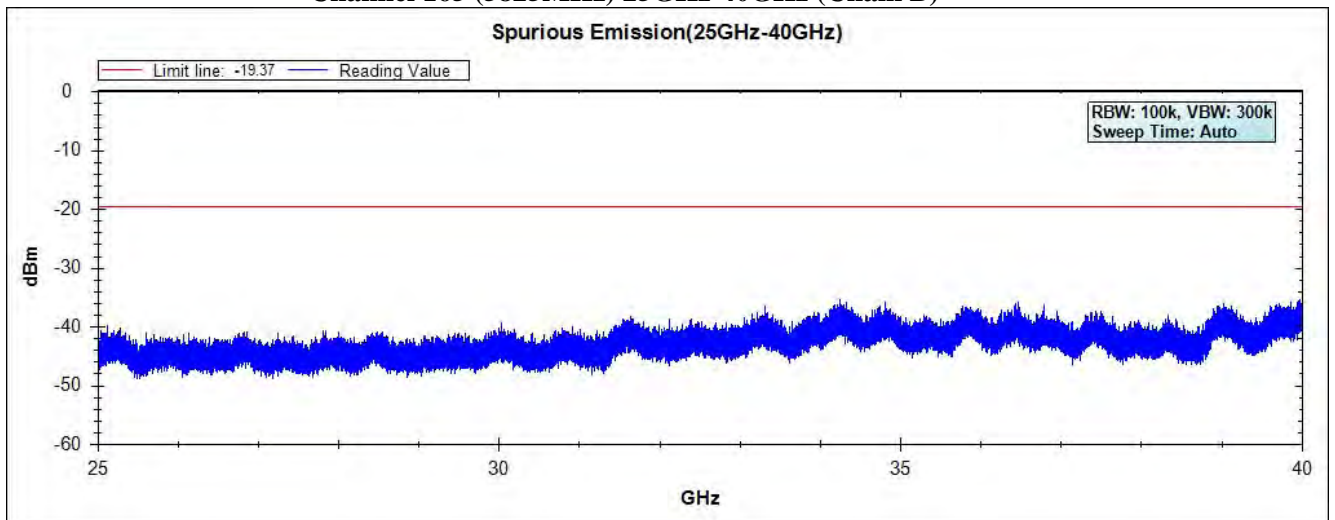


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 165 (5825MHz) 30MHz-25GHz (Chain B)**



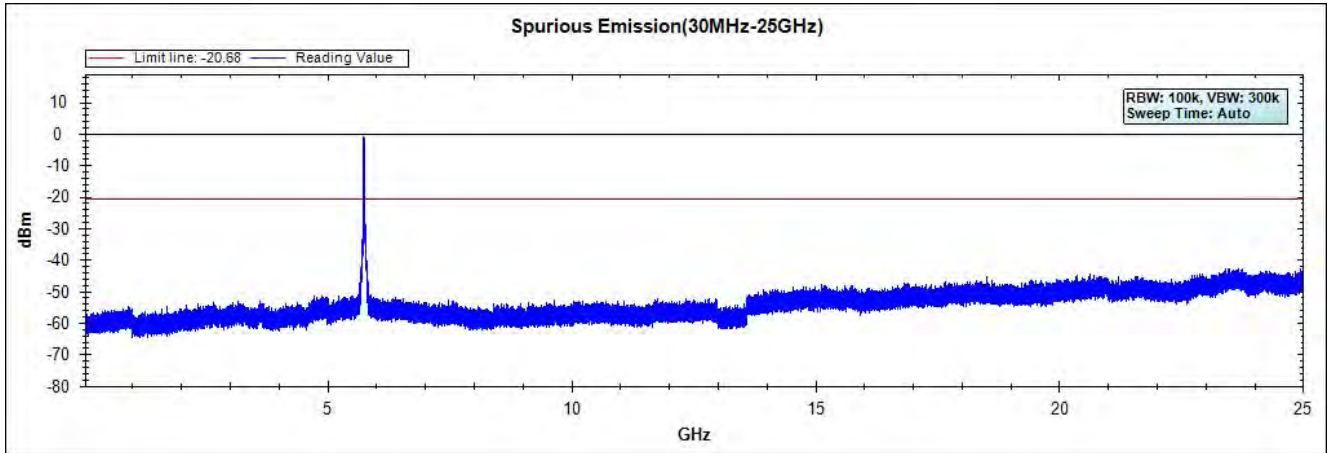
**Channel 165 (5825MHz) 25GHz-40GHz (Chain B)**



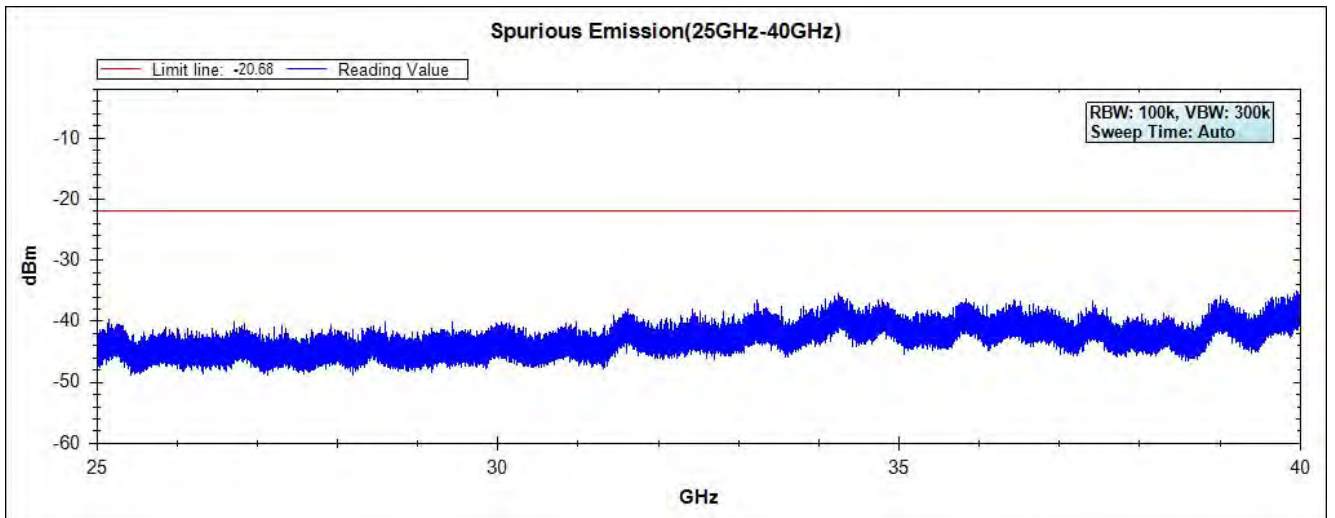
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : Wireless Motherboard  
Test Item : RF Antenna Conducted Spurious  
Test Site : No.3 OATS  
Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Channel 151 (5755MHz) 30MHz-25GHz (Chain A)**

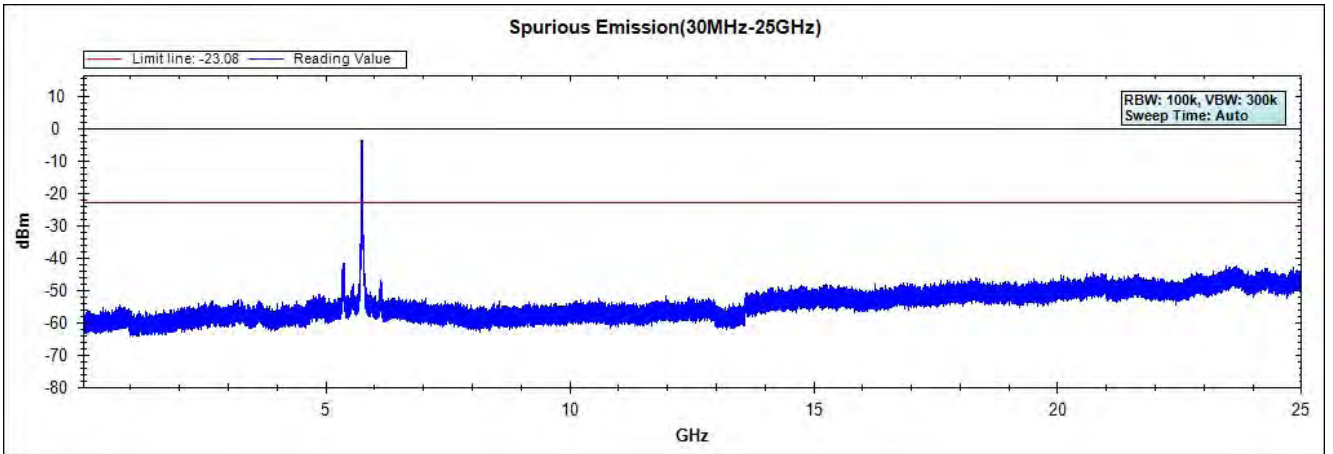


**Channel 151 (5755MHz) 25GHz-40GHz (Chain A)**

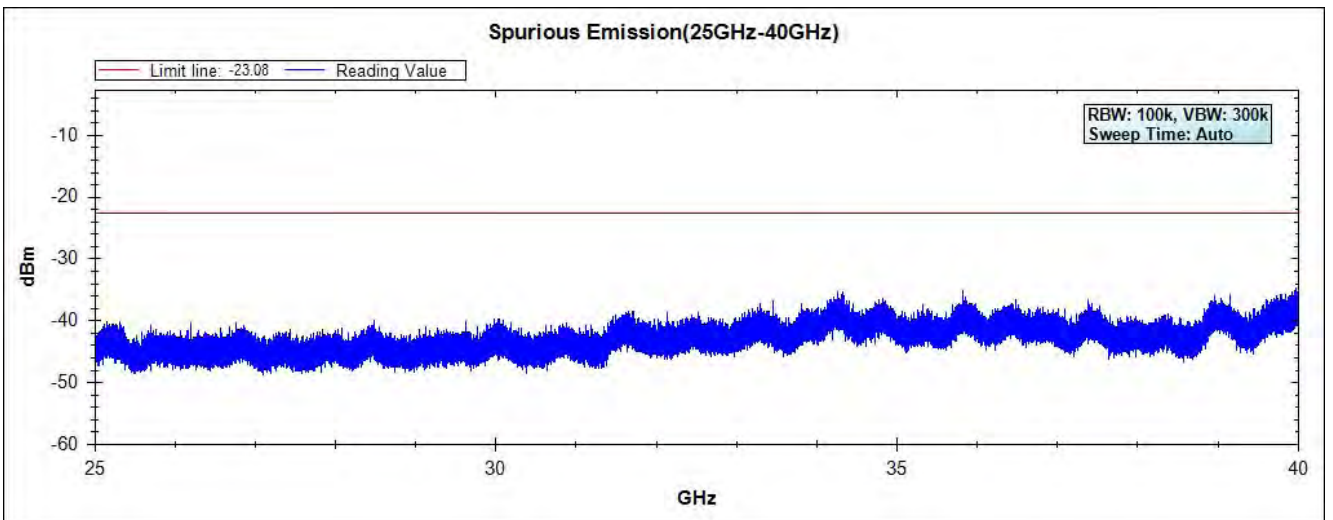


Note: The above test pattern is synthesized by multiple of the frequency range.

**Channel 151 (5755MHz) 30MHz-25GHz (Chain B)**

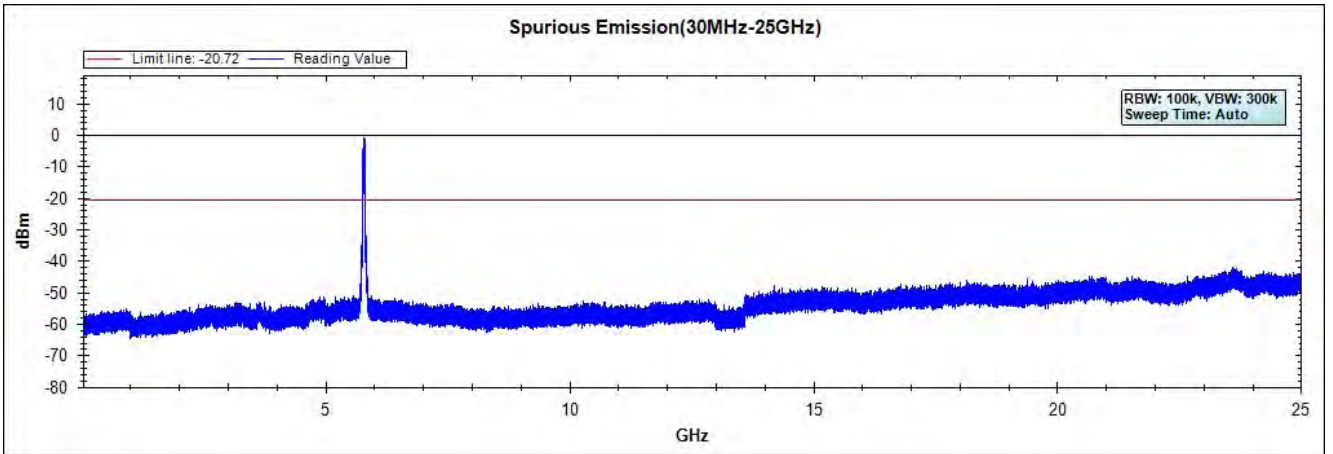


**Channel 151 (5755MHz) 25GHz-40GHz (Chain B)**

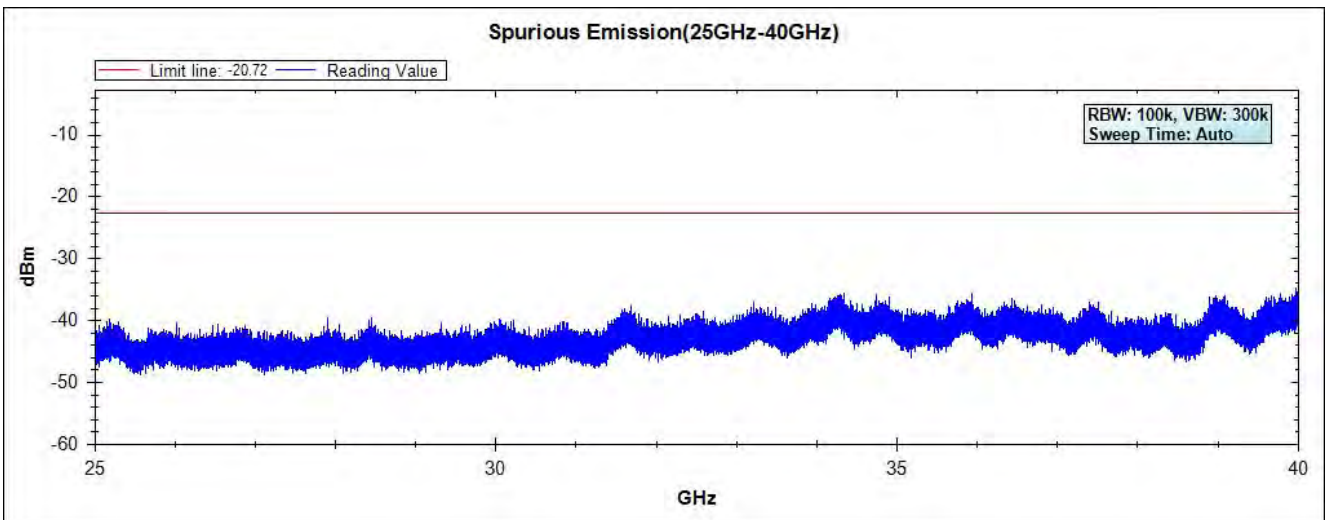


Note: The above test pattern is synthesized by multiple of the frequency range.

Channel 159 (5795MHz) 30MHz-25GHz (Chain A)

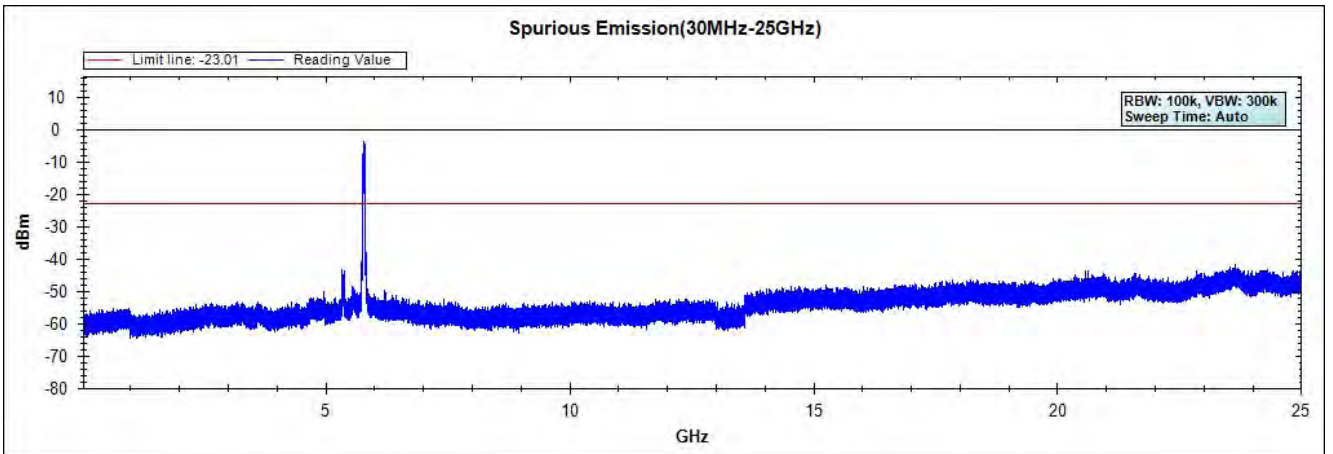


Channel 159 (5795MHz) 25GHz-40GHz (Chain A)

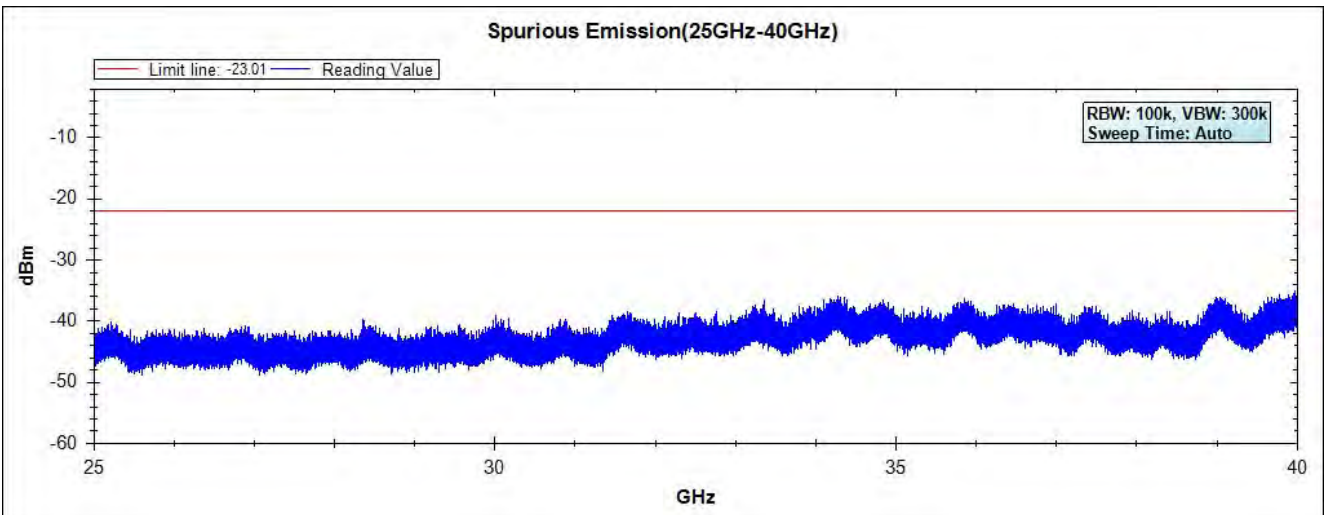


Note: The above test pattern is synthesized by multiple of the frequency range.

Channel 159 (5795MHz) 30MHz-25GHz (Chain B)



Channel 159 (5795MHz) 25GHz-40GHz (Chain B)



Note: The above test pattern is synthesized by multiple of the frequency range.



## 6. Band Edge

### 6.1. Test Equipment

#### RF Radiated Measurement:

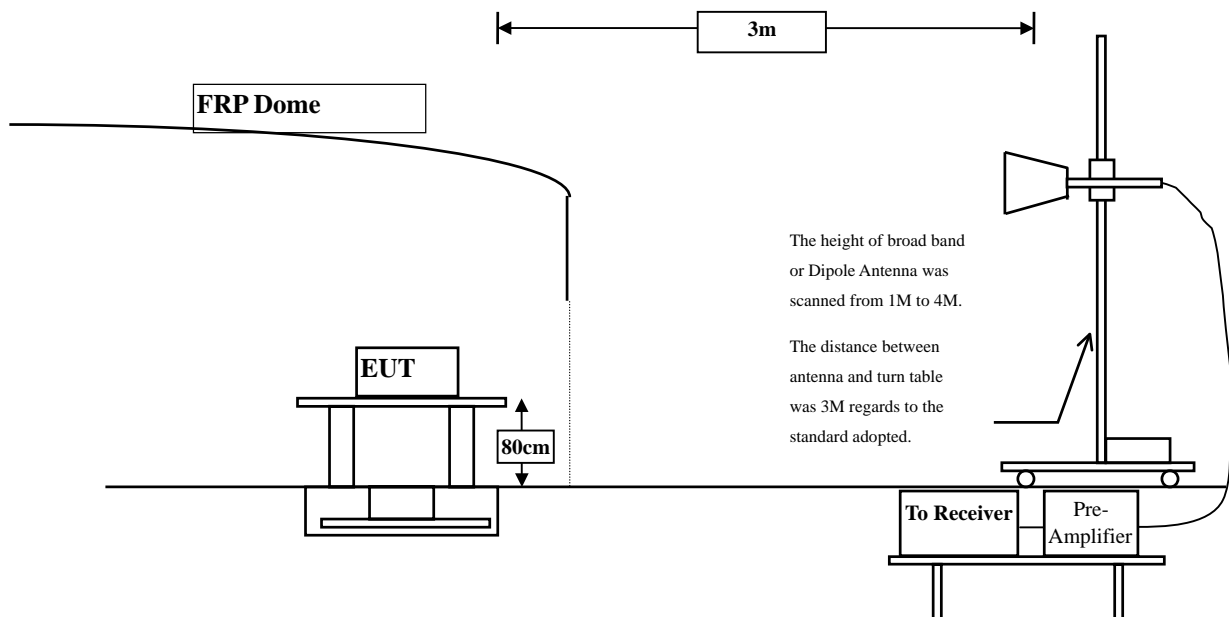
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2013
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2013
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2013
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2014
	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 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 C63.10, 2009 and tested according to DTS test procedure of ANSI C63.10, 2009 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 C63.10:2009. on radiated measurement.

### **6.5. Uncertainty**

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

### 6.6. Test Result of Band Edge

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (Chip Antenna)

#### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	31.509	27.156	58.665	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	32.170	63.731	--	--	--
01 (Peak)	2413.000	31.646	72.249	103.895	--	--	--
01 (Average)	2390.000	31.509	17.821	49.330	74.00	54.00	Pass
01 (Average)	2400.000	31.561	26.040	57.601	--	--	--
01 (Average)	2412.800	31.645	68.317	99.961	--	--	--

Figure Channel 01: Horizontal (Peak)

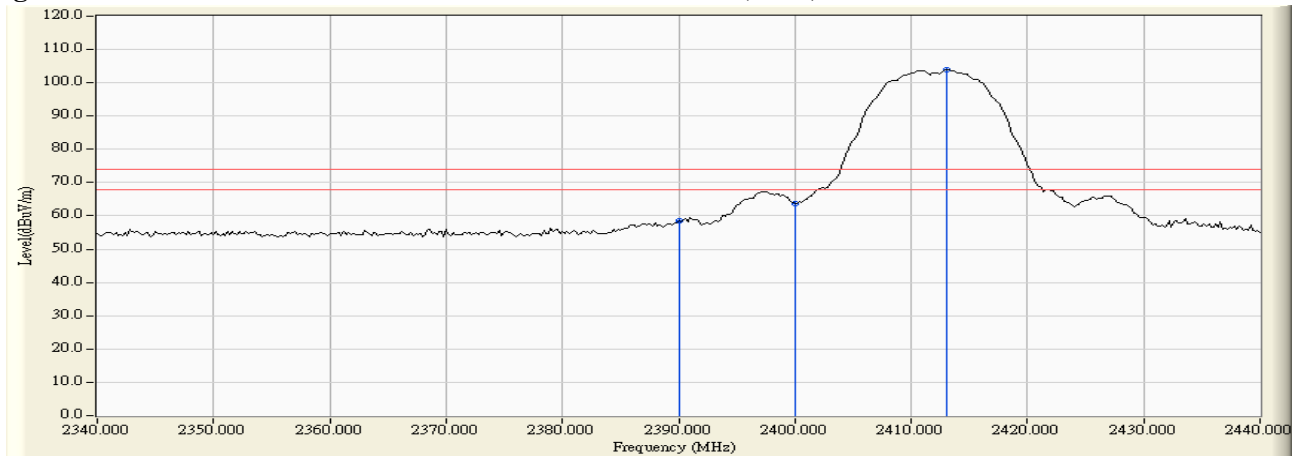
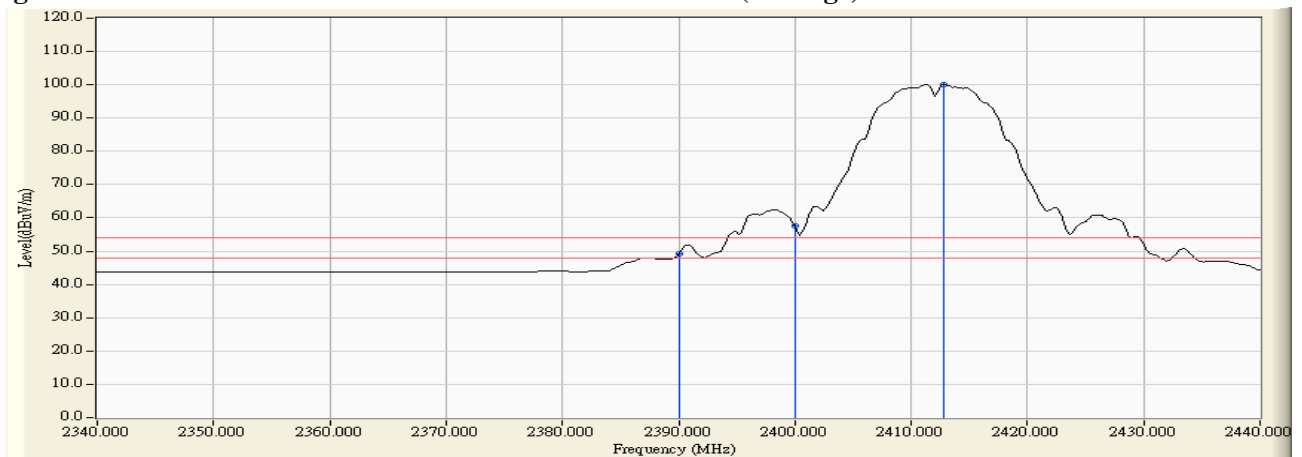


Figure Channel 01: Horizontal (Average)



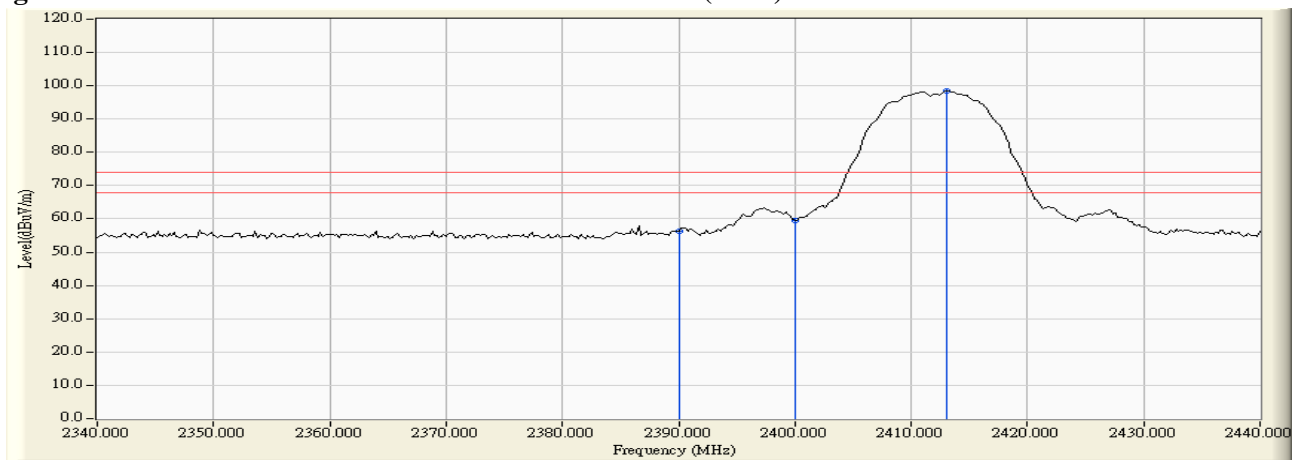
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (Chip Antenna)

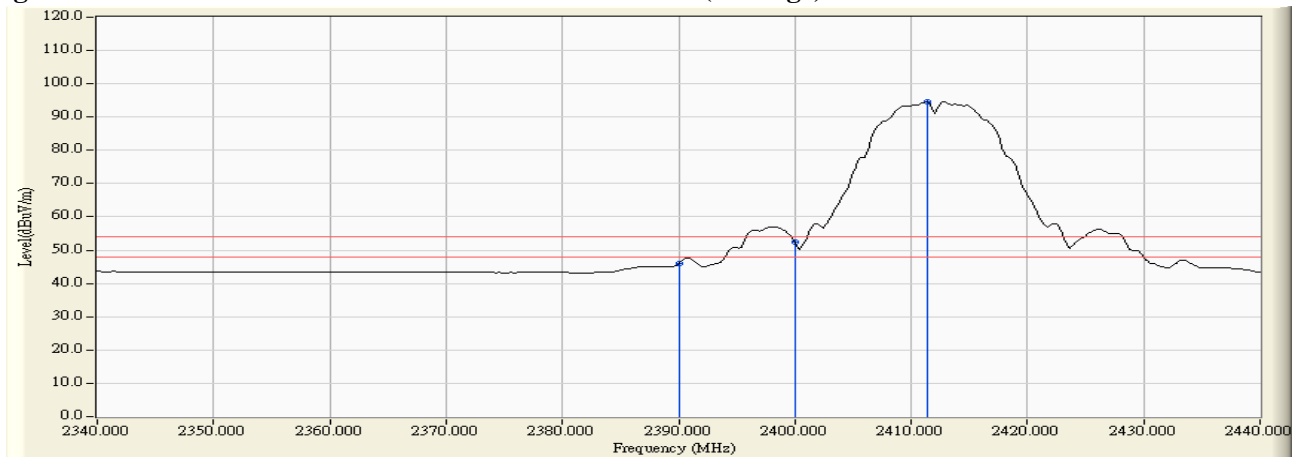
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	25.501	56.416	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	28.732	59.644	--	--	--
01 (Peak)	2413.000	30.956	67.405	98.361	--	--	--
01 (Average)	2390.000	30.915	15.125	46.040	74.00	54.00	Pass
01 (Average)	2400.000	30.912	21.675	52.587	--	--	--
01 (Average)	2411.400	30.945	63.522	94.467	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

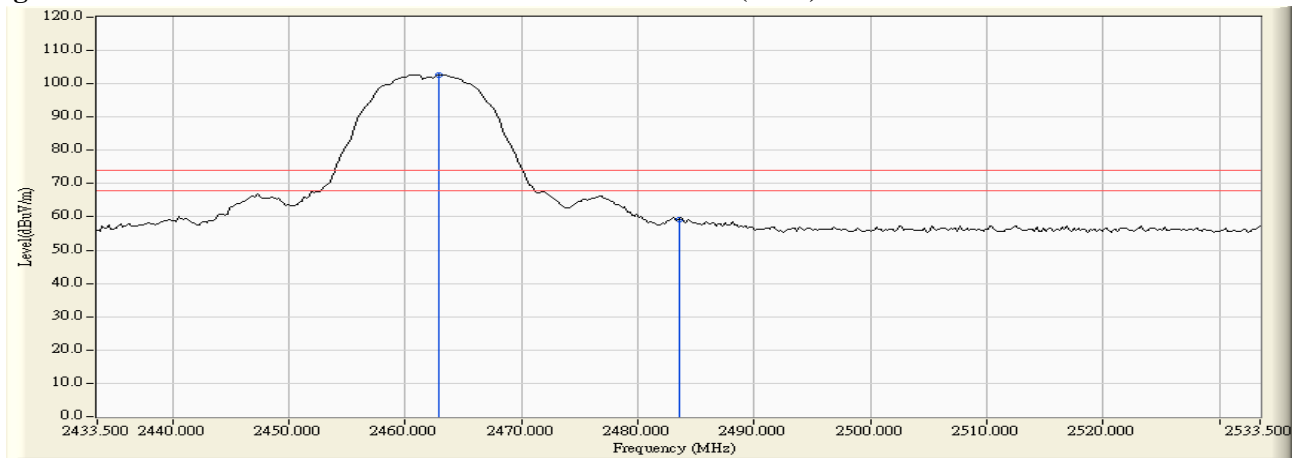
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (Chip Antenna)

**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2462.900	32.026	70.758	102.784	--	--	--
11 (Peak)	2483.500	32.182	27.128	59.310	74.00	54.00	Pass
11 (Average)	2461.300	32.014	66.926	98.940	--	--	--
11 (Average)	2483.500	32.182	18.298	50.480	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

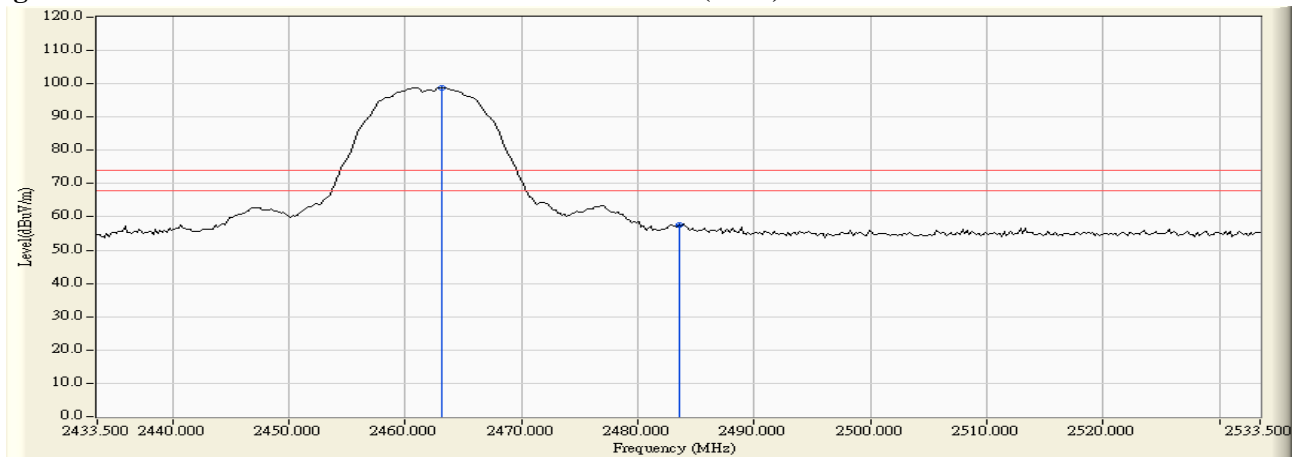
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (Chip Antenna)

**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2463.100	31.298	67.591	98.889	--	--	--
11 (Peak)	2483.500	31.435	26.167	57.602	74.00	54.00	Pass
11 (Average)	2461.100	31.285	63.752	95.036	--	--	--
11 (Average)	2483.500	31.435	16.245	47.680	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

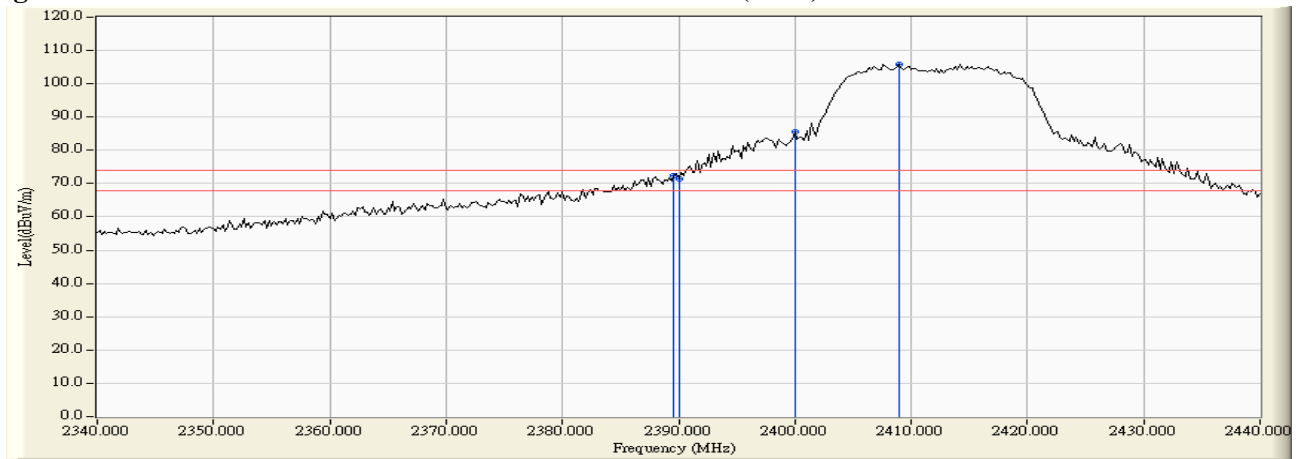
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (Chip Antenna)

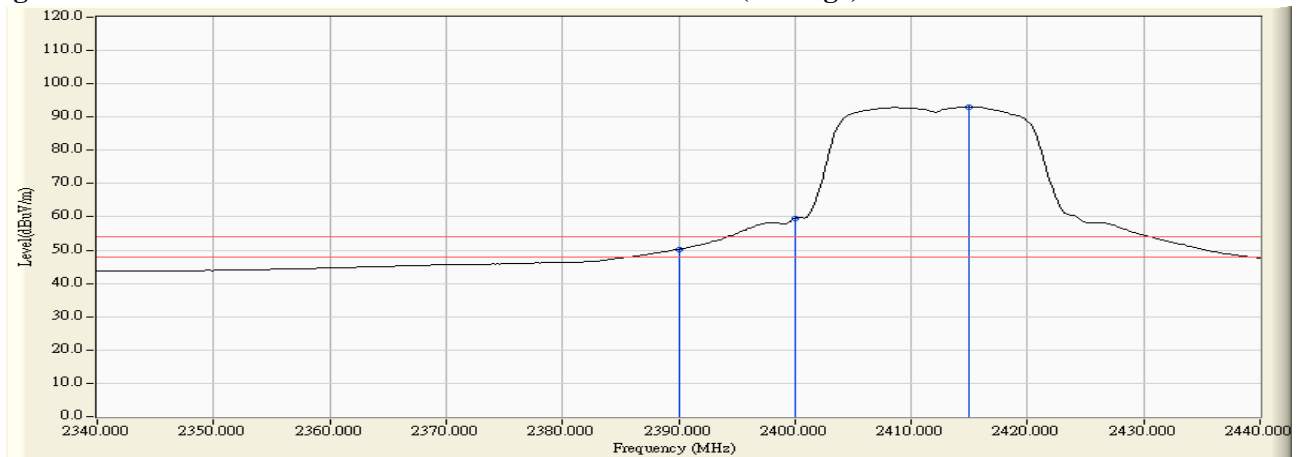
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2389.600	31.508	40.916	72.424	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	39.852	71.361	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	54.163	85.724	--	--	--
01 (Peak)	2409.000	31.618	74.179	105.797	--	--	--
01(Average)	2390.000	31.509	18.770	50.279	74.00	54.00	Pass
01(Average)	2400.000	31.561	28.031	59.592	--	--	--
01(Average)	2415.000	31.661	61.310	92.971	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



**Note:**

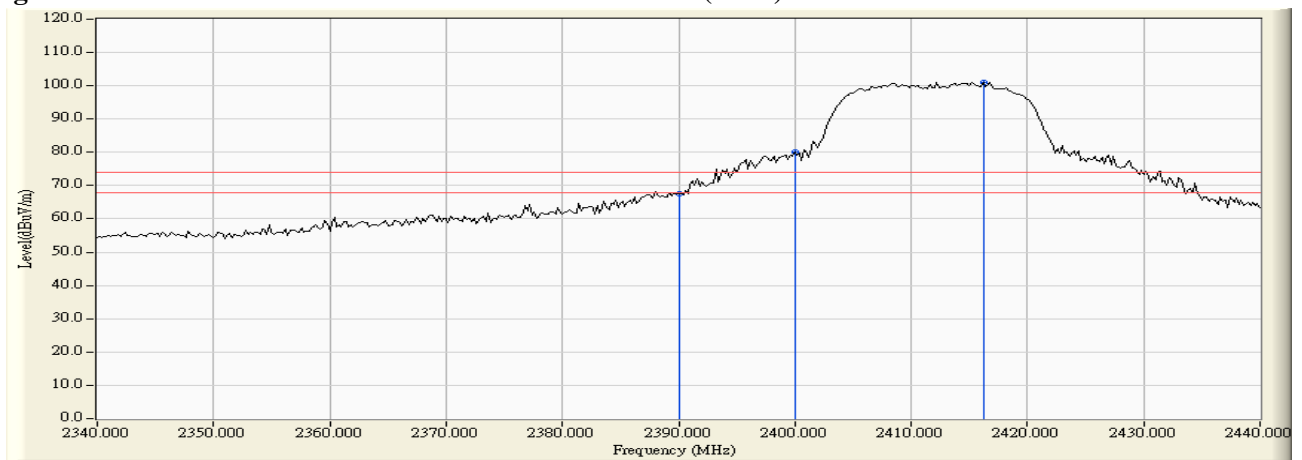
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (Chip Antenna)

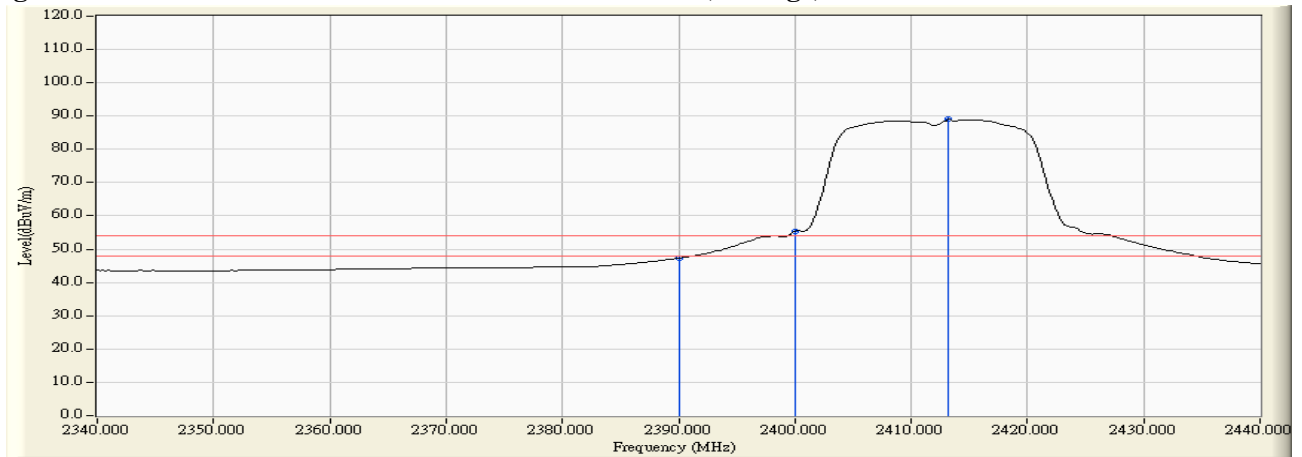
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	36.707	67.622	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	49.047	79.959	--	--	--
01 (Peak)	2416.200	30.978	70.010	100.988	--	--	--
01 (Average)	2390.000	30.915	16.314	47.229	74.00	54.00	Pass
01 (Average)	2400.000	30.912	24.419	55.331	--	--	--
01 (Average)	2413.200	30.957	58.018	88.975	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

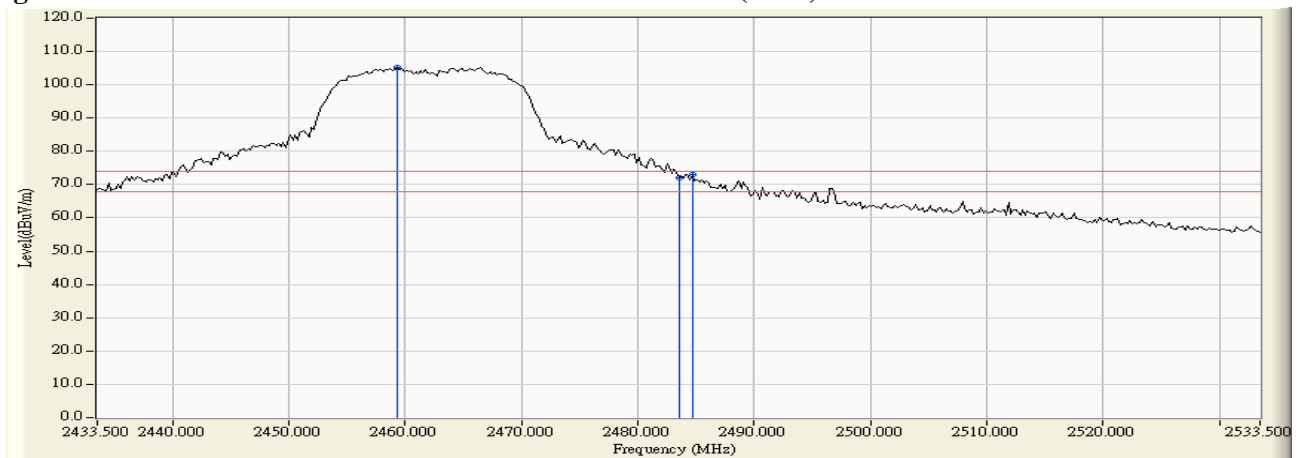


Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (Chip Antenna)

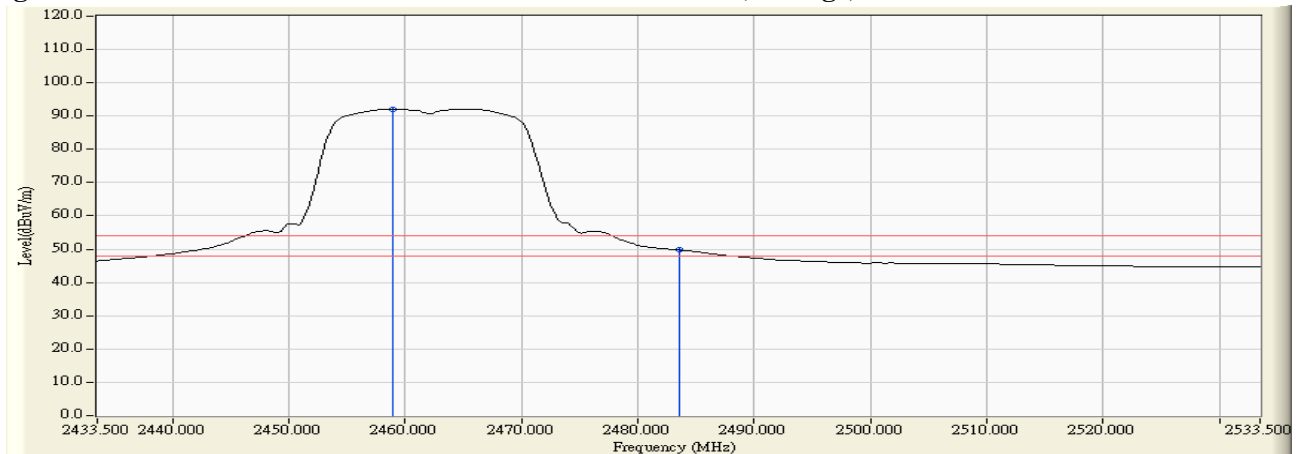
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2459.300	31.999	73.170	105.169	--	--	--
11 (Peak)	2483.500	32.182	39.775	71.957	74.00	54.00	Pass
11 (Peak)	2484.700	32.192	40.802	72.993	74.00	54.00	Pass
11 (Average)	2458.900	31.997	60.149	92.145	--	--	--
11 (Average)	2483.500	32.182	17.554	49.736	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

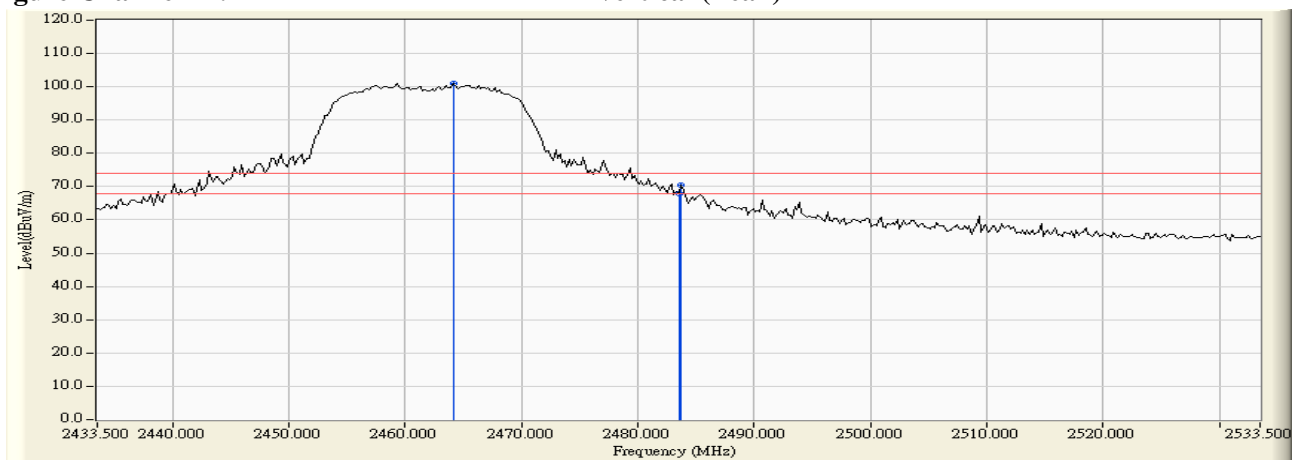
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (Chip Antenna)

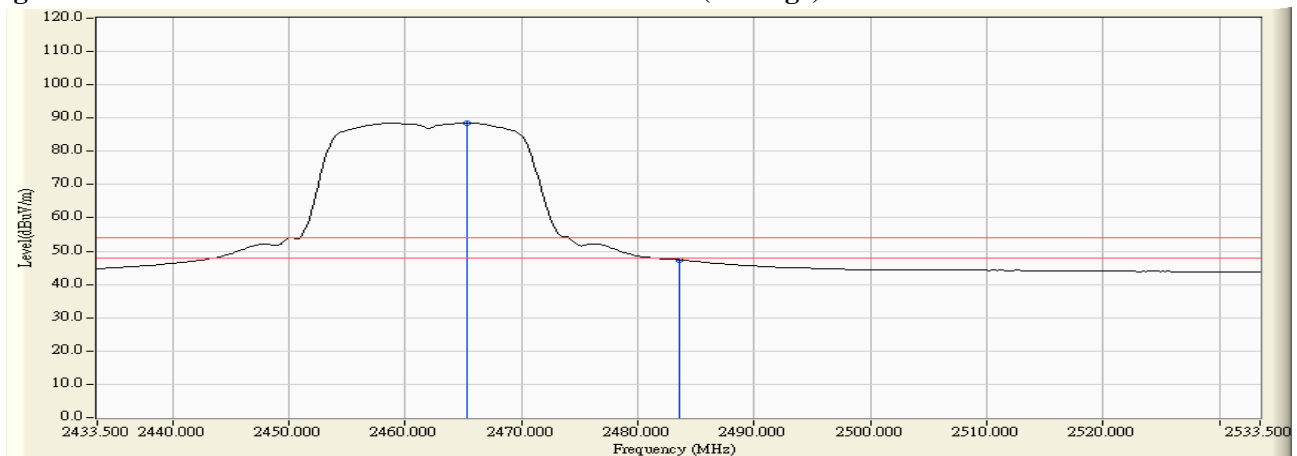
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2464.100	31.305	69.776	101.081	--	--	--
11 (Peak)	2483.500	31.435	36.455	67.890	74.00	54.00	Pass
11 (Peak)	2483.700	31.437	38.982	70.419	74.00	54.00	Pass
11 (Average)	2465.300	31.313	57.161	88.474	--	--	--
11 (Average)	2483.500	31.435	16.004	47.439	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

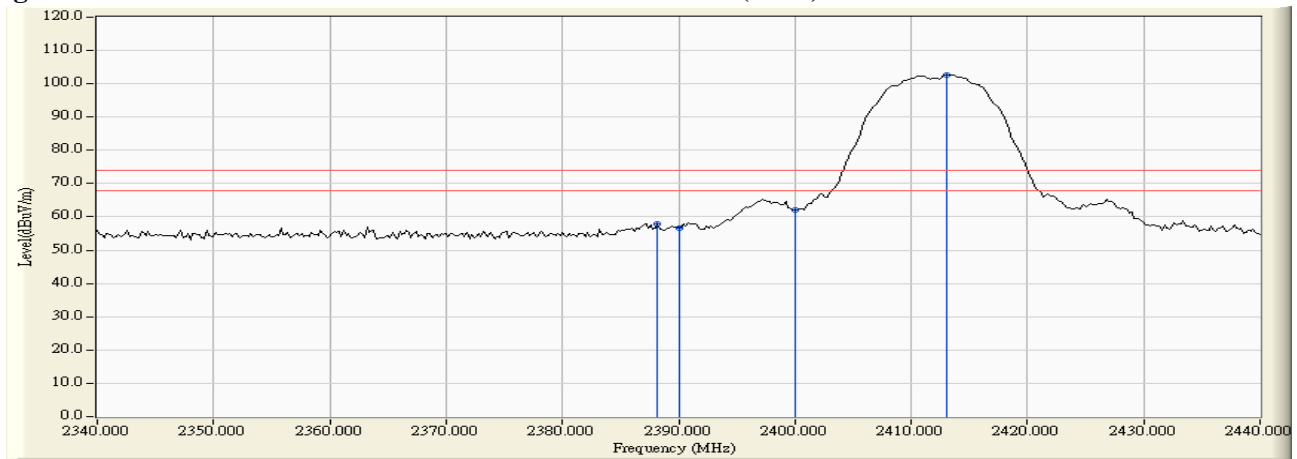
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (PIFA Antenna)

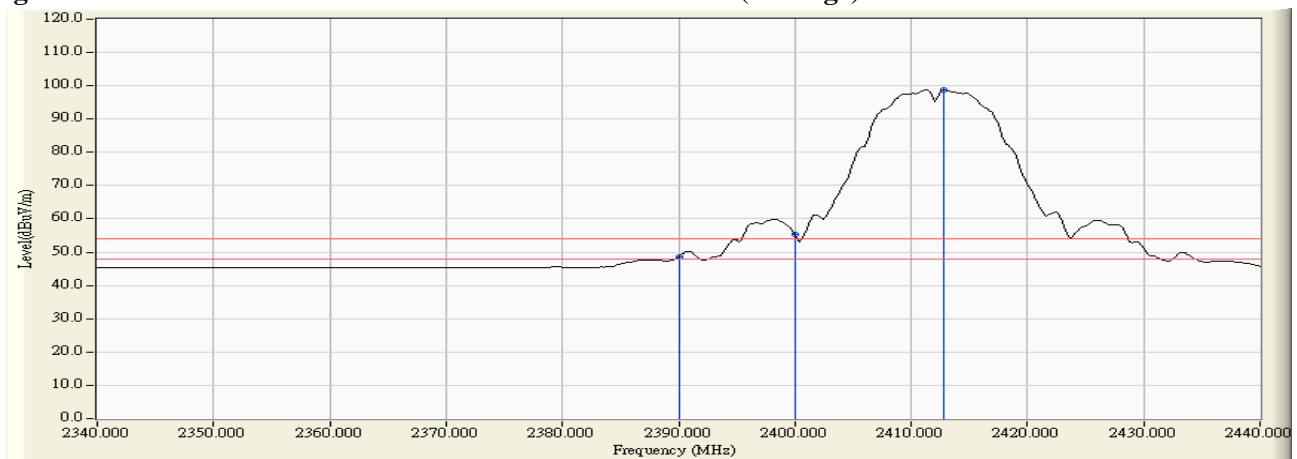
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2388.200	31.502	26.281	57.783	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	25.195	56.704	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	30.495	62.056	--	--	--
01 (Peak)	2413.000	31.646	71.075	102.721	--	--	--
01 (Average)	2390.000	31.509	17.017	48.526	74.00	54.00	Pass
01 (Average)	2400.000	31.561	23.775	55.336	--	--	--
01 (Average)	2412.800	31.645	67.091	98.735	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



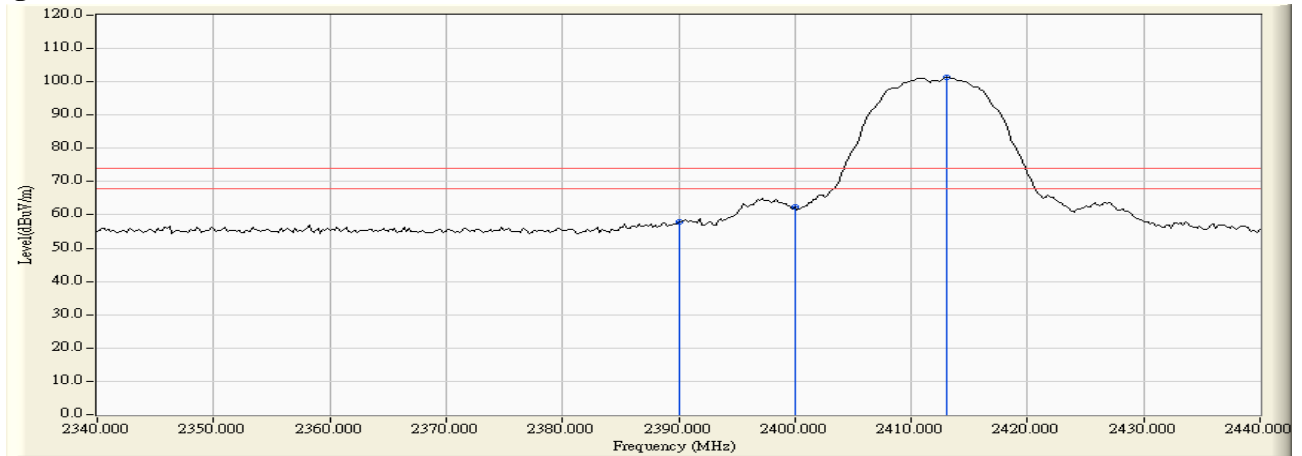
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (PIFA Antenna)

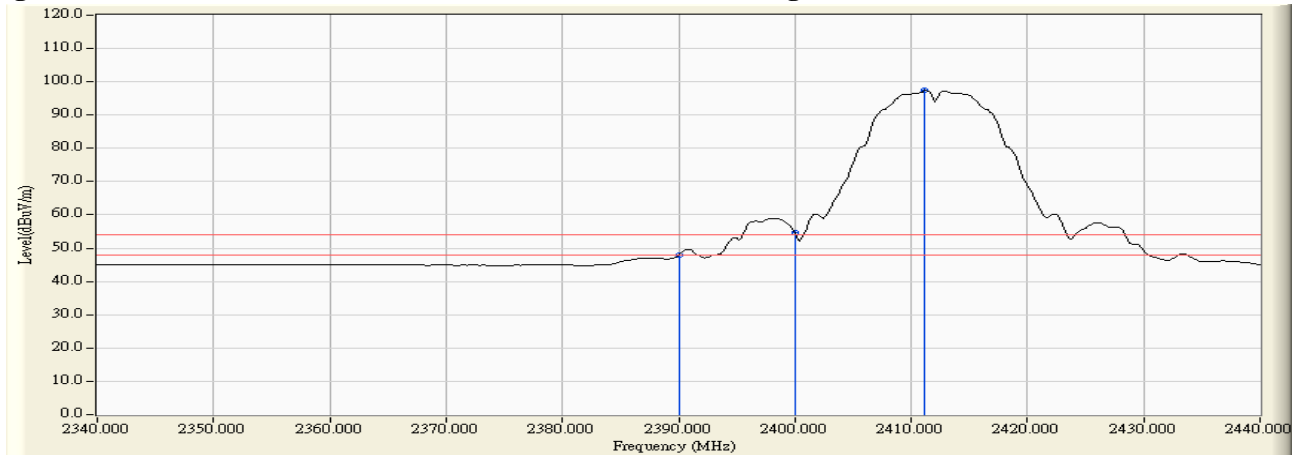
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	26.900	57.815	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	31.511	62.423	--	--	--
01 (Peak)	2413.000	30.956	70.379	101.335	--	--	--
01 (Average)	2390.000	30.915	17.004	47.919	74.00	54.00	Pass
01 (Average)	2400.000	30.912	23.658	54.570	--	--	--
01 (Average)	2411.200	30.944	66.389	97.333	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

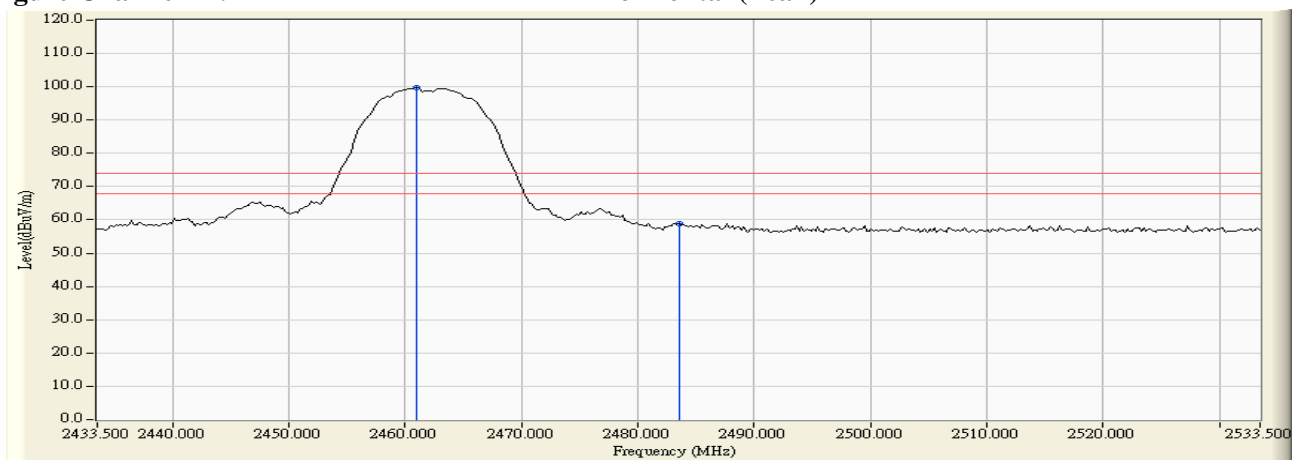
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (PIFA Antenna)

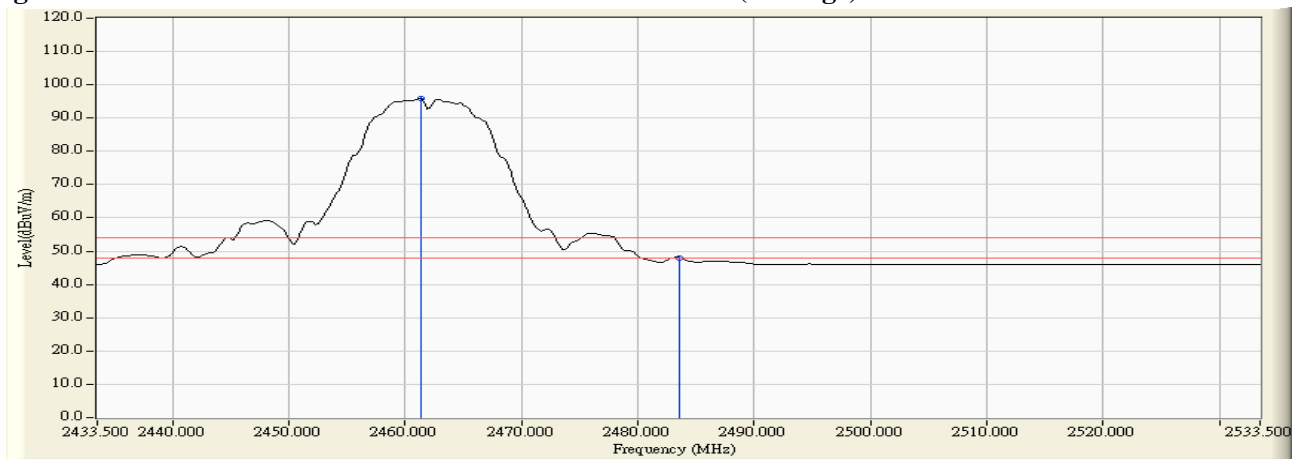
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.900	32.011	67.704	99.715	--	--	--
11 (Peak)	2483.500	32.182	26.752	58.934	74.00	54.00	Pass
11 (Average)	2461.300	32.014	63.911	95.925	--	--	--
11 (Average)	2483.500	32.182	15.863	48.045	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

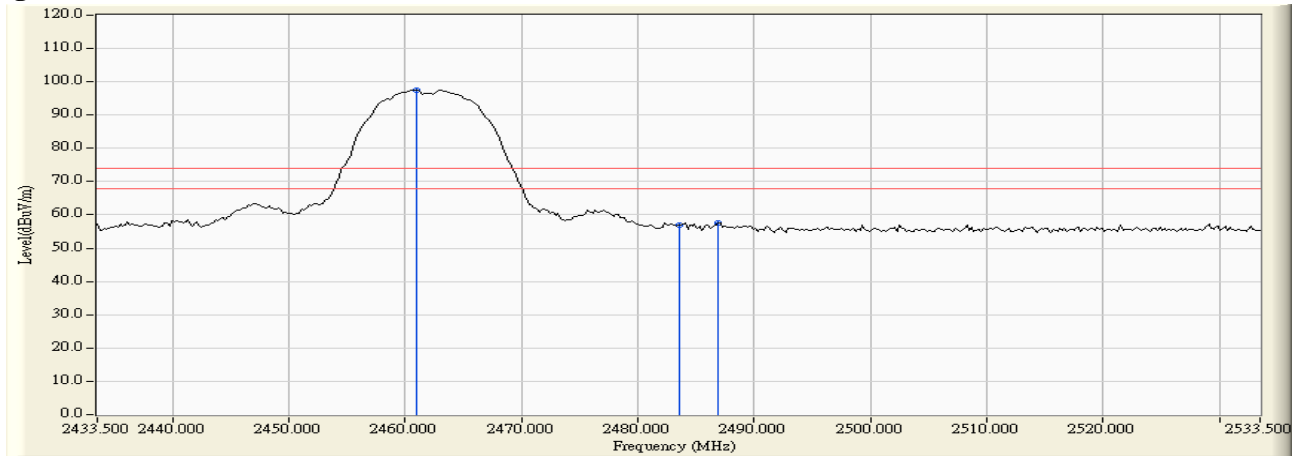
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (PIFA Antenna)

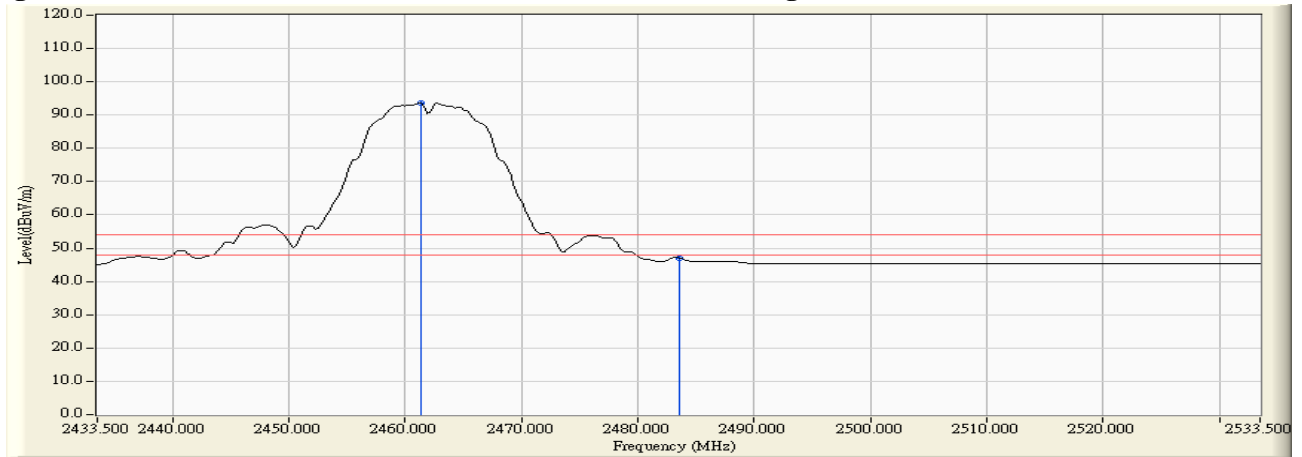
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2460.900	31.283	66.219	97.502	--	--	--
11 (Peak)	2483.500	31.435	25.656	57.091	74.00	54.00	Pass
11 (Peak)	2486.900	31.459	26.045	57.503	74.00	54.00	Pass
11 (Average)	2461.300	31.286	62.438	93.724	--	--	--
11 (Average)	2483.500	31.435	15.689	47.124	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

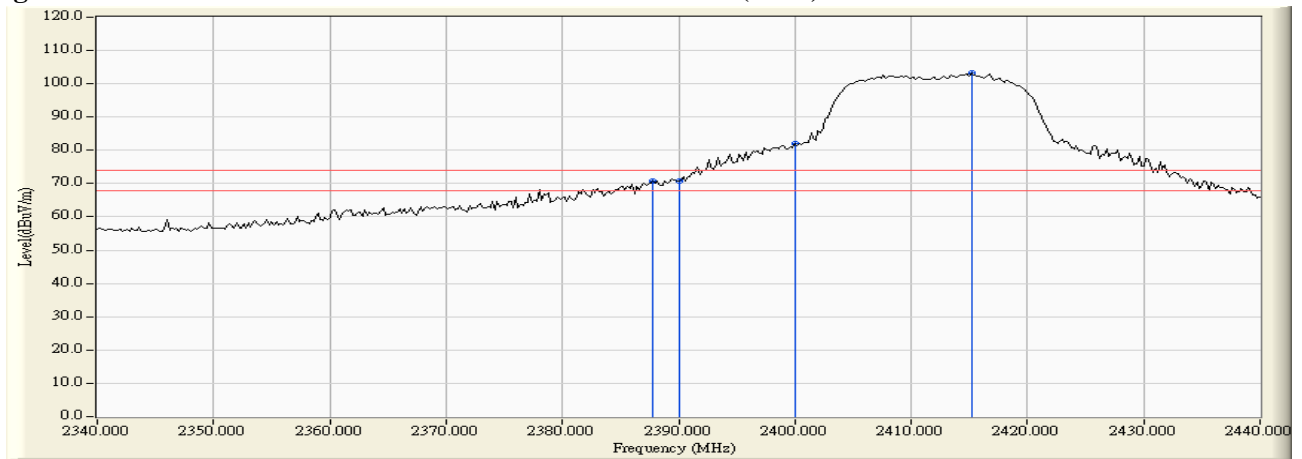
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (PIFA Antenna)

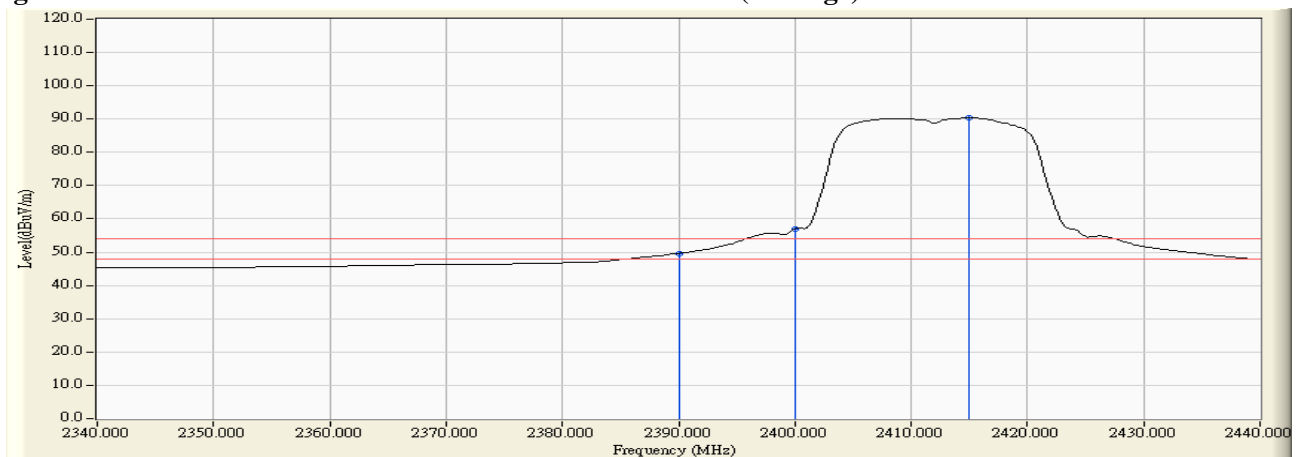
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2387.800	31.501	39.402	70.903	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	39.309	70.818	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	50.461	82.022	--	--	--
01 (Peak)	2415.200	31.662	71.630	103.293	--	--	--
01(Average)	2390.000	31.509	18.148	49.657	74.00	54.00	Pass
01(Average)	2400.000	31.561	25.495	57.056	--	--	--
01(Average)	2415.000	31.661	58.660	90.321	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



**Note:**

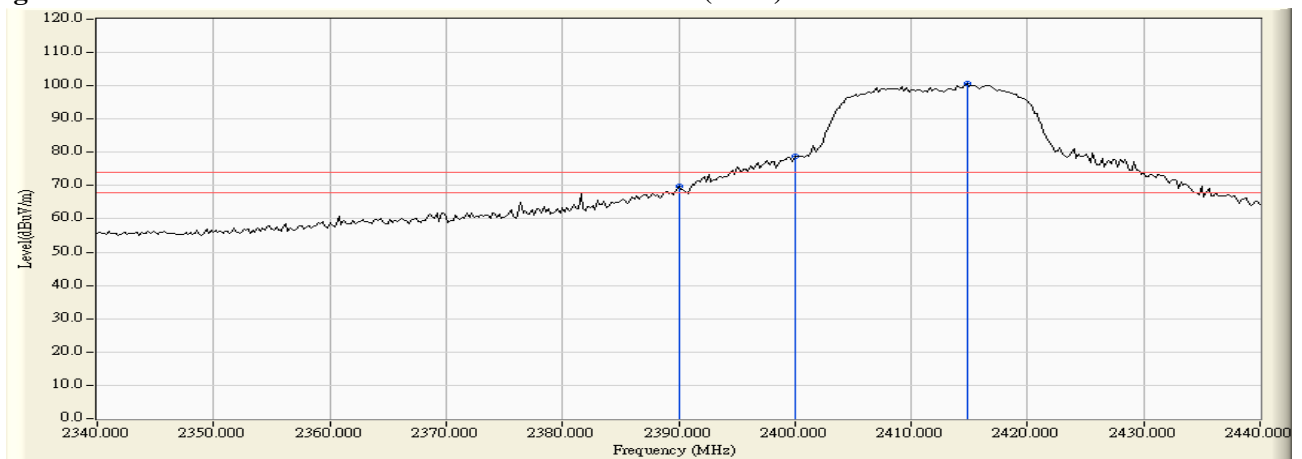
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (PIFA Antenna)

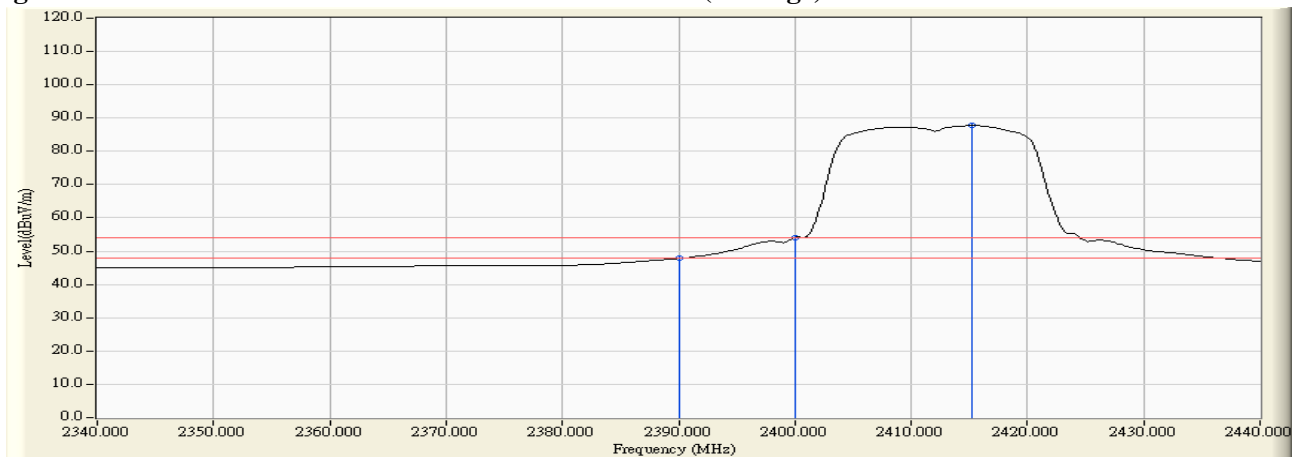
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	38.894	69.809	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	47.752	78.664	--	--	--
01 (Peak)	2414.800	30.968	69.704	100.672	--	--	--
01 (Average)	2390.000	30.915	16.887	47.802	74.00	54.00	Pass
01 (Average)	2400.000	30.912	23.288	54.200	--	--	--
01 (Average)	2415.200	30.971	56.766	87.737	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

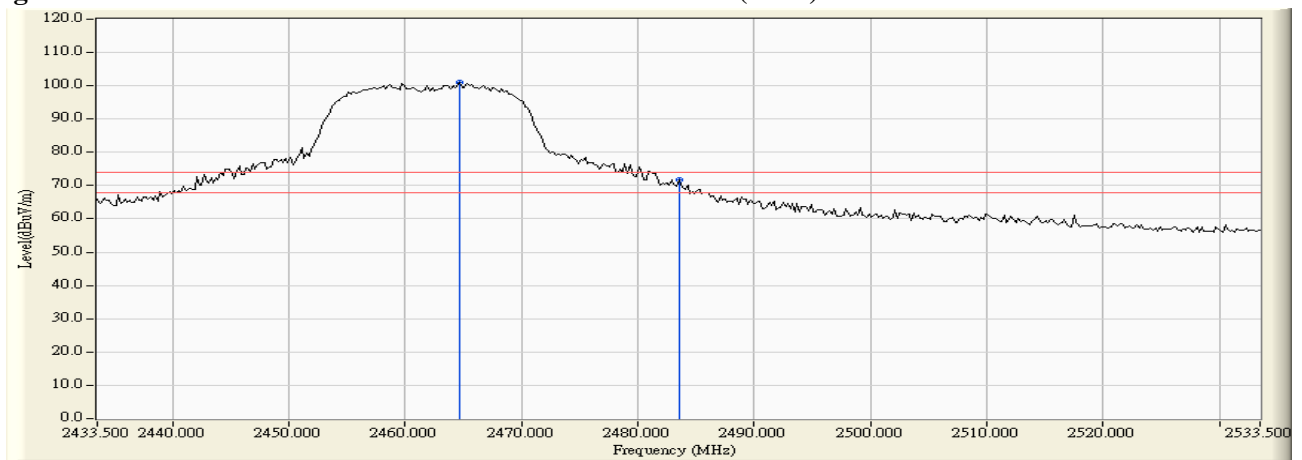


Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (PIFA Antenna)

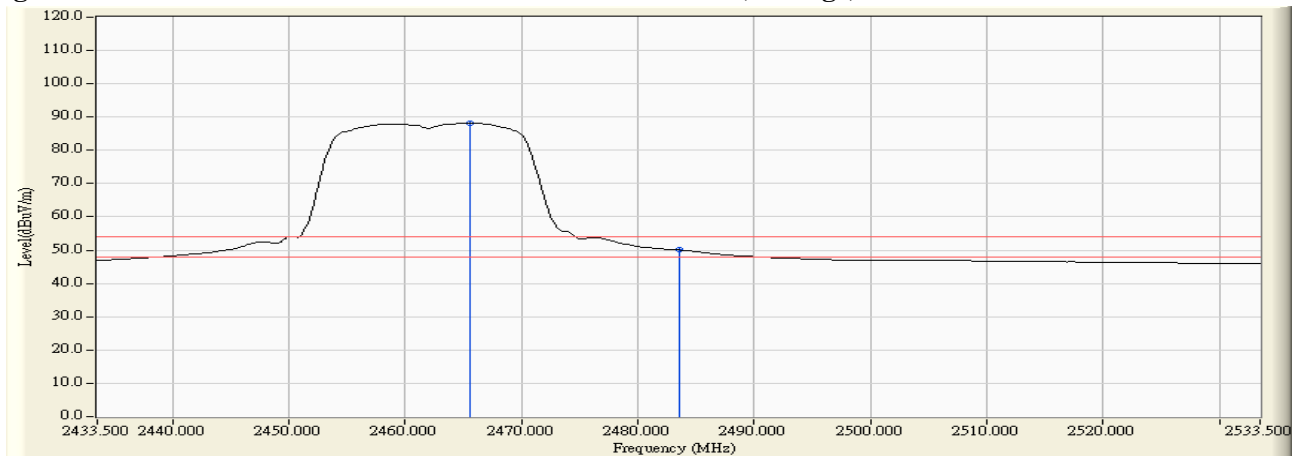
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2464.700	32.039	68.876	100.916	--	--	--
11 (Peak)	2483.500	32.182	39.423	71.605	74.00	54.00	Pass
11 (Average)	2465.500	32.046	56.178	88.224	--	--	--
11 (Average)	2483.500	32.182	17.849	50.031	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

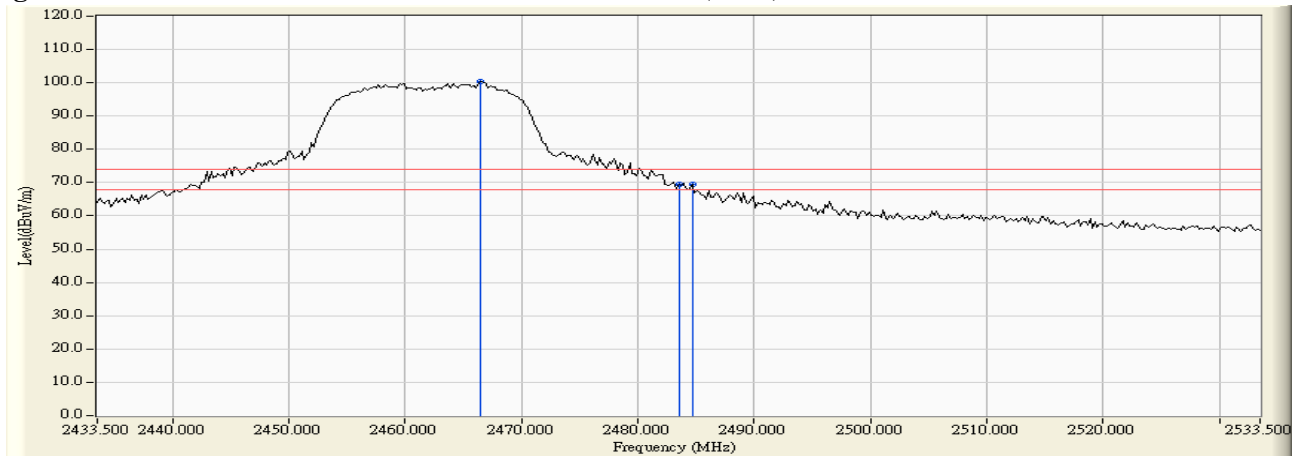
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (PIFA Antenna)

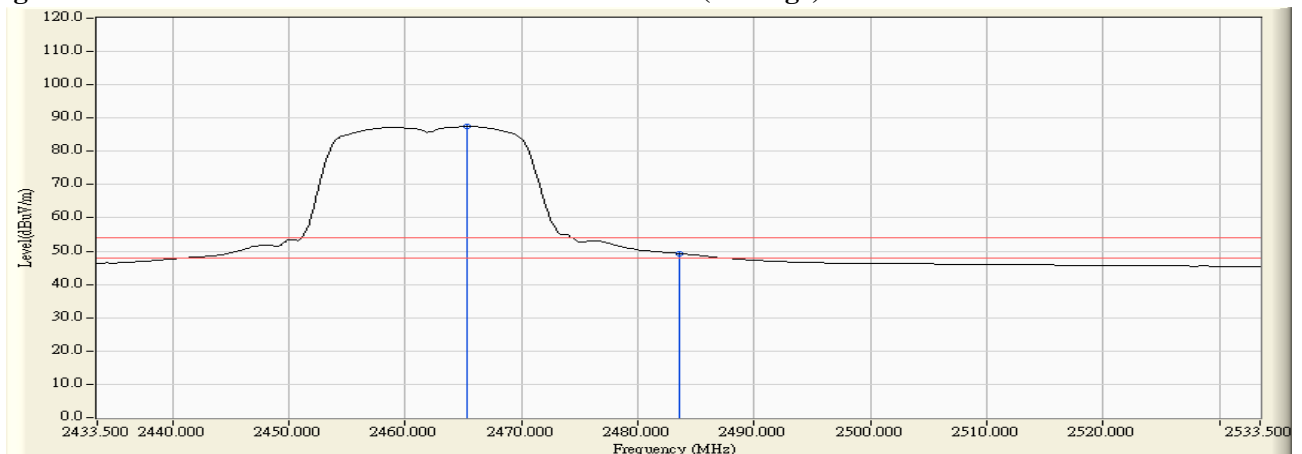
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2466.500	31.320	68.952	100.273	--	--	--
11 (Peak)	2483.500	31.435	38.094	69.529	74.00	54.00	Pass
11 (Peak)	2484.700	31.444	37.915	69.358	74.00	54.00	Pass
11 (Average)	2465.300	31.313	56.146	87.459	--	--	--
11 (Average)	2483.500	31.435	17.841	49.276	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

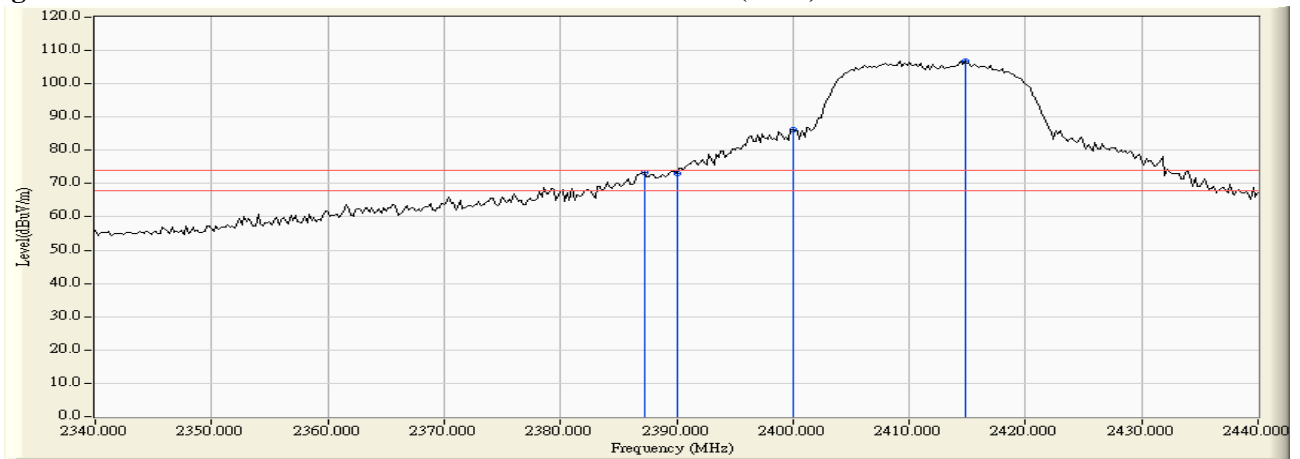
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

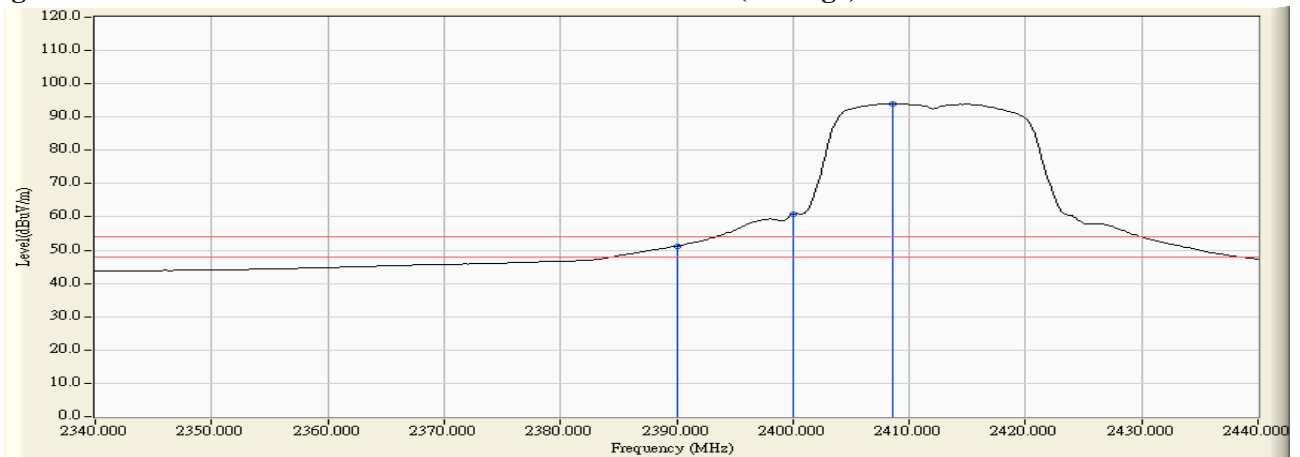
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2387.200	31.498	41.774	73.272	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	41.553	73.062	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	54.527	86.088	--	--	--
01 (Peak)	2414.800	31.660	75.115	106.775	--	--	--
01 (Average)	2390.000	31.509	19.737	51.246	74.00	54.00	Pass
01 (Average)	2400.000	31.561	29.244	60.805	--	--	--
01 (Average)	2408.600	31.616	62.393	94.008	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



Note:

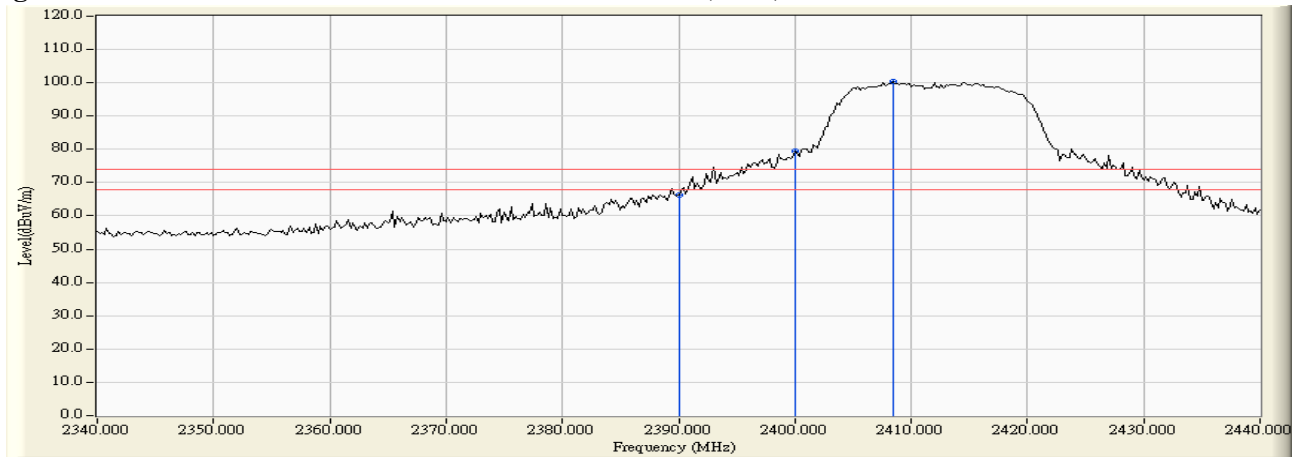
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

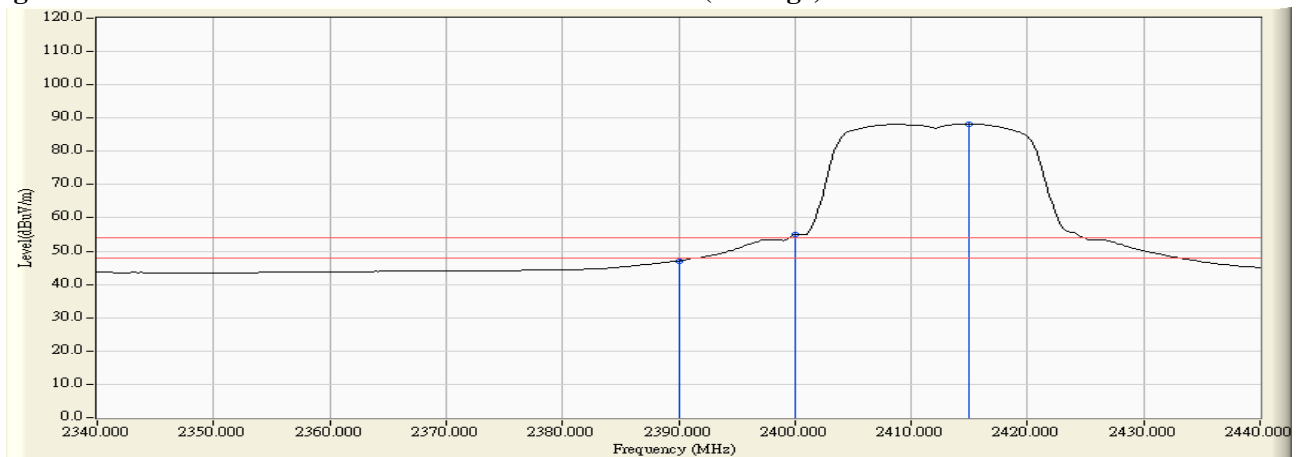
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	35.512	66.427	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	48.483	79.395	--	--	--
01 (Peak)	2408.400	30.936	69.336	100.271	--	--	--
01 (Average)	2390.000	30.915	16.161	47.076	74.00	54.00	Pass
01 (Average)	2400.000	30.912	24.015	54.927	--	--	--
01 (Average)	2415.000	30.970	57.323	88.293	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

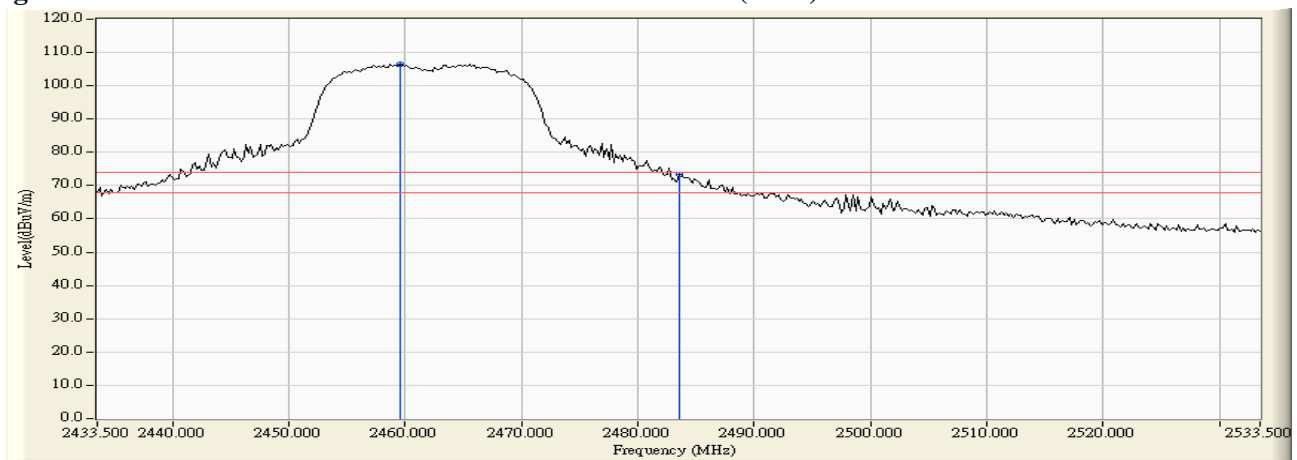
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

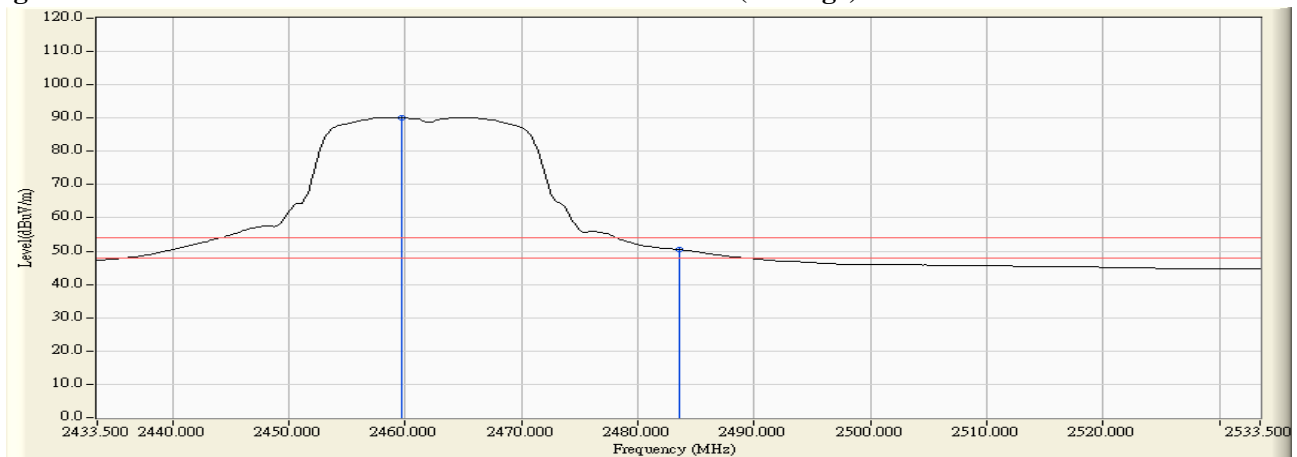
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2459.500	32.001	74.589	106.589	--	--	--
11 (Peak)	2483.500	32.182	41.009	73.191	74.00	54.00	Pass
11 (Average)	2459.700	32.002	58.162	90.164	--	--	--
11 (Average)	2483.500	32.182	18.353	50.535	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



**Note:**

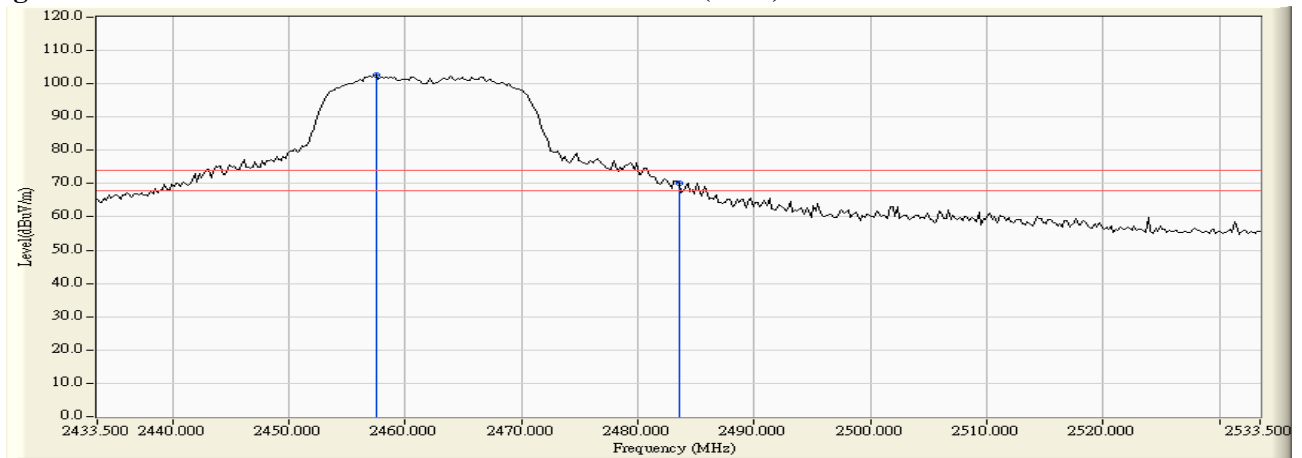
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band)

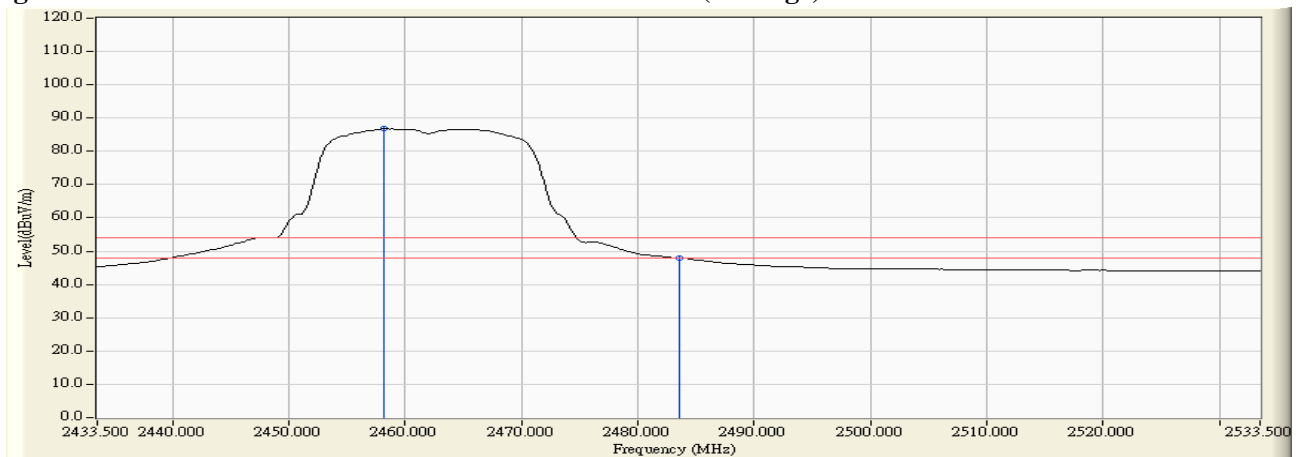
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2457.500	31.260	71.256	102.516	--	--	--
11 (Peak)	2483.500	31.435	38.717	70.152	74.00	54.00	Pass
11 (Average)	2458.100	31.263	55.466	86.730	--	--	--
11 (Average)	2483.500	31.435	16.530	47.965	74.00	54.00	Pass

**Figure Channel 11: Vertical (Peak)**



**Figure Channel 11: Vertical (Average)**



**Note:**

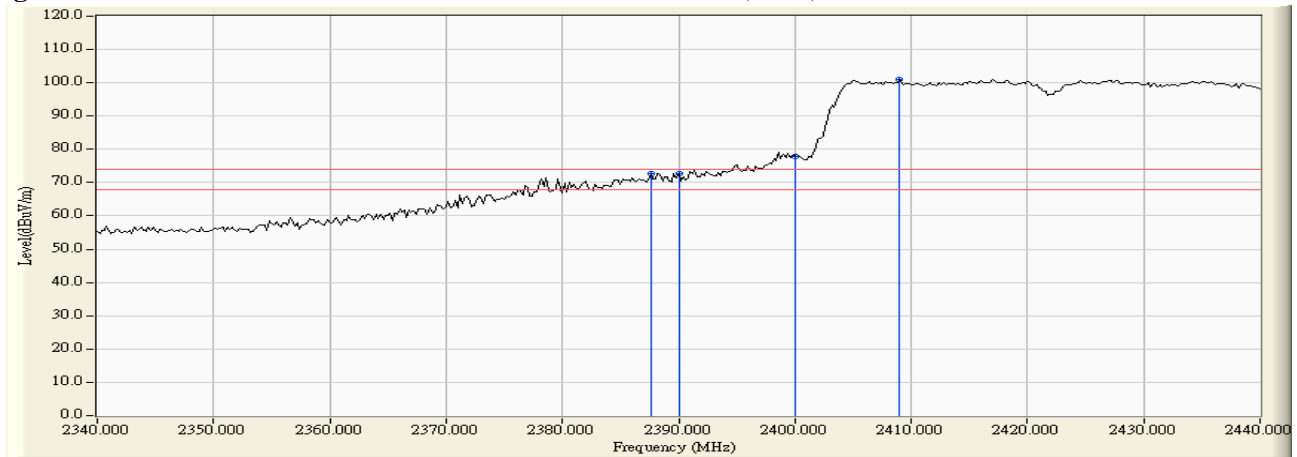
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

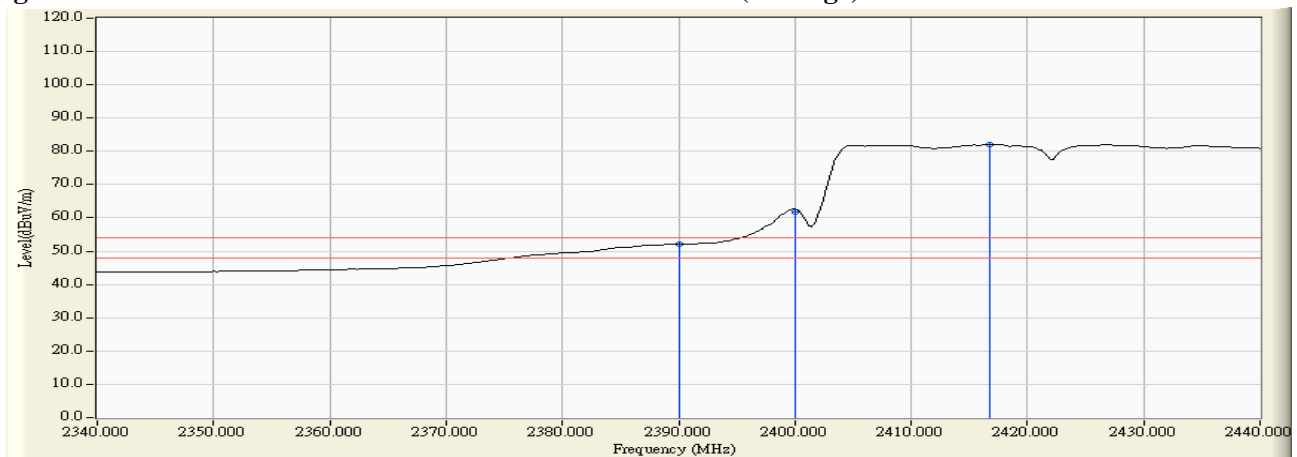
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2387.600	31.500	41.358	72.858	74.00	54.00	Pass
01 (Peak)	2390.000	31.509	41.228	72.737	74.00	54.00	Pass
01 (Peak)	2400.000	31.561	46.327	77.888	--	--	--
01 (Peak)	2409.000	31.618	69.538	101.156	--	--	--
01 (Average)	2390.000	31.509	20.634	52.143	74.00	54.00	Pass
01 (Average)	2400.000	31.561	30.320	61.881	--	--	--
01 (Average)	2416.800	31.675	50.414	82.089	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



**Note:**

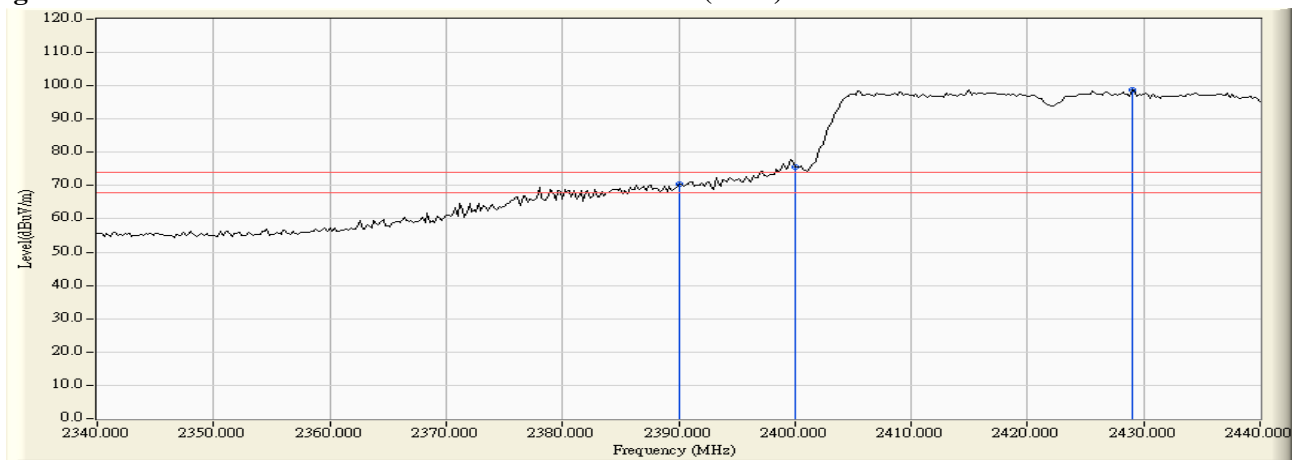
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

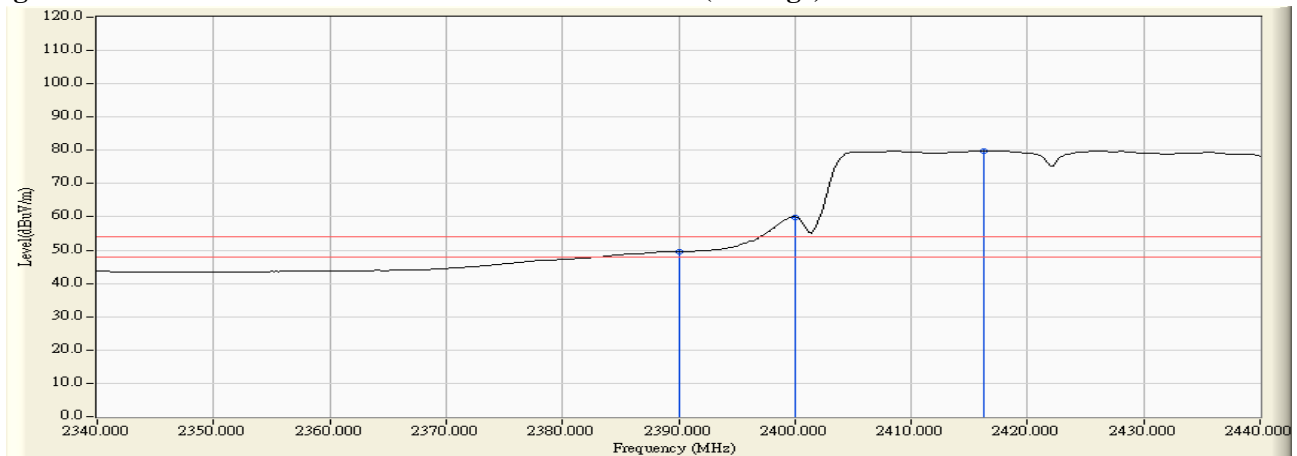
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
01 (Peak)	2390.000	30.915	39.686	70.601	74.00	54.00	Pass
01 (Peak)	2400.000	30.912	44.738	75.650	--	--	--
01 (Peak)	2429.000	31.066	67.742	98.807	--	--	--
01 (Average)	2390.000	30.915	18.549	49.464	74.00	54.00	Pass
01 (Average)	2400.000	30.912	28.968	59.880	--	--	--
01 (Average)	2416.200	30.978	48.942	79.920	--	--	--

**Figure Channel 01: Vertical (Peak)**



**Figure Channel 01: Vertical (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

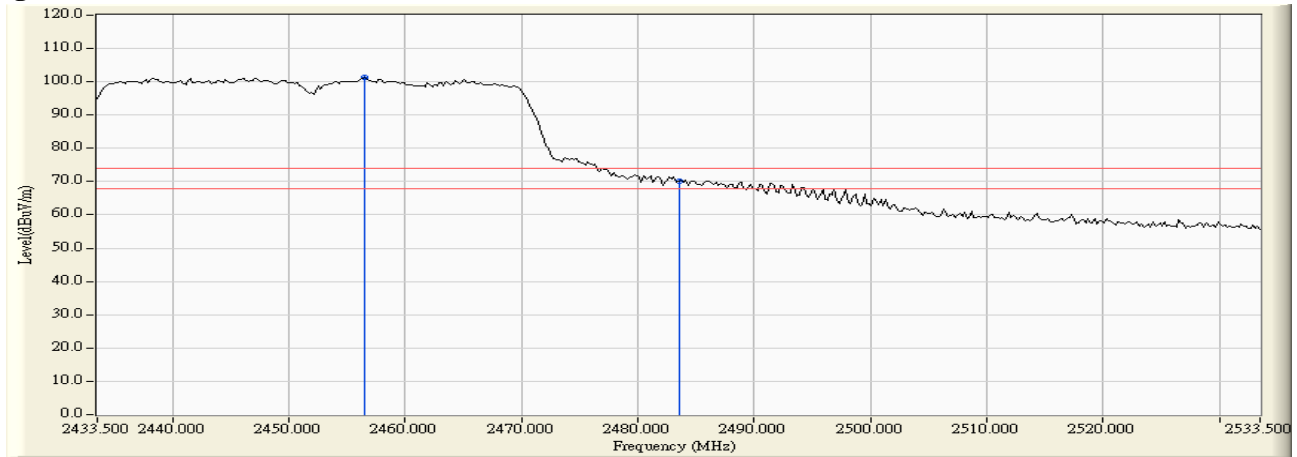


Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

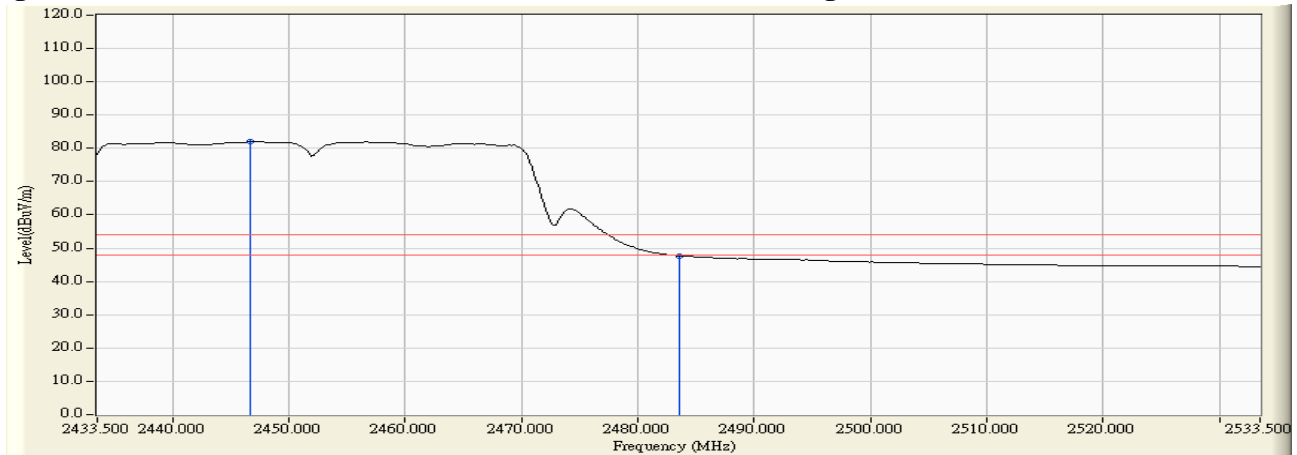
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
07 (Peak)	2456.500	31.977	69.327	101.305	--	--	--
07 (Peak)	2483.500	32.182	38.074	70.256	74.00	54.00	Pass
07 (Average)	2446.700	31.903	50.079	81.982	--	--	--
07 (Average)	2483.500	32.182	15.564	47.746	74.00	54.00	Pass

**Figure Channel 07: Horizontal (Peak)**



**Figure Channel 07: Horizontal (Average)**



**Note:**

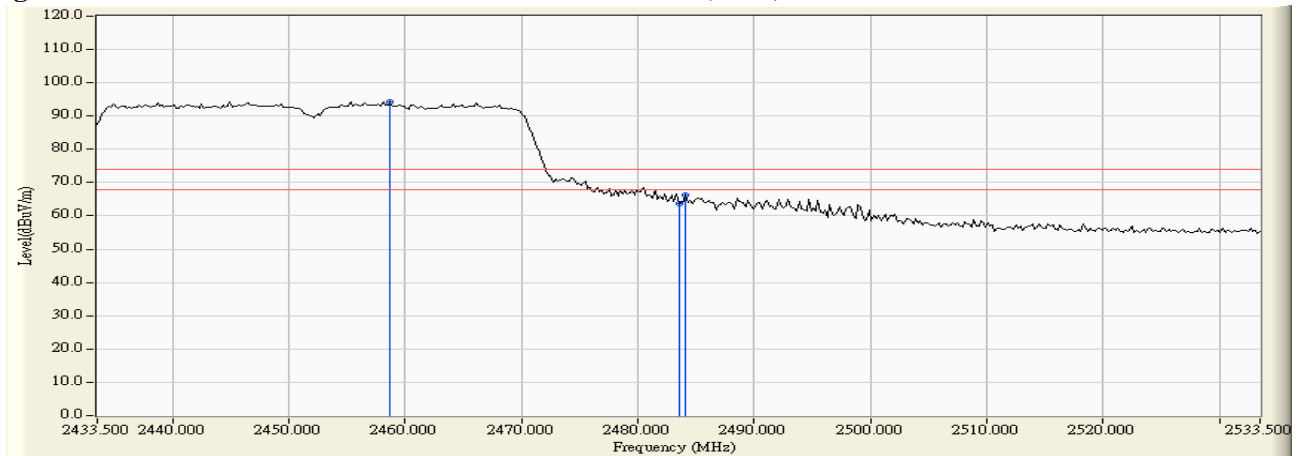
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band)

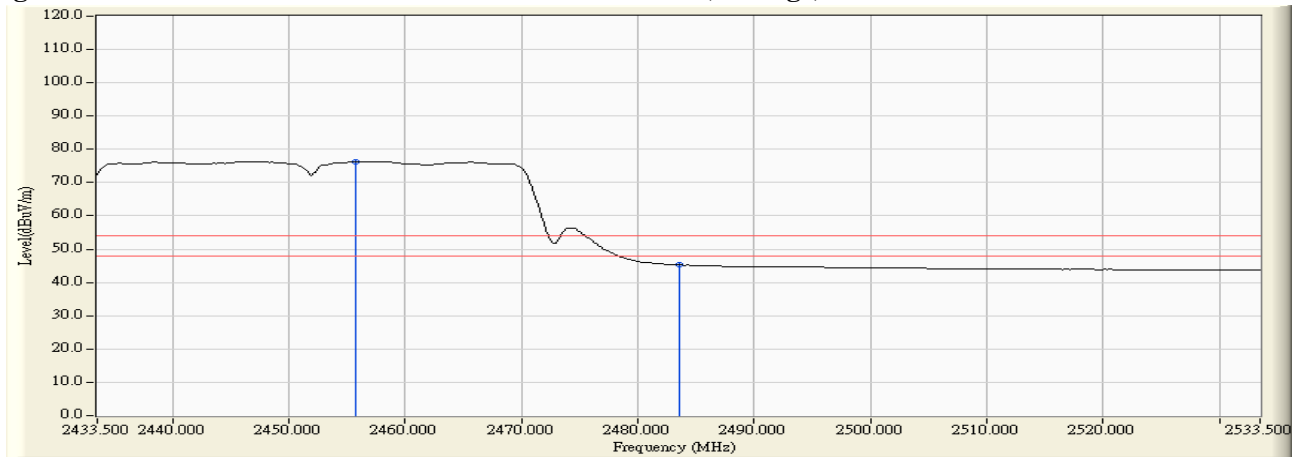
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
07 (Peak)	2458.700	31.268	63.005	94.273	--	--	--
07 (Peak)	2483.500	31.435	32.216	63.651	74.00	54.00	Pass
07 (Peak)	2484.100	31.439	34.715	66.154	74.00	54.00	Pass
07 (Average)	2455.700	31.247	45.082	76.329	--	--	--
07 (Average)	2483.500	31.435	13.788	45.223	74.00	54.00	Pass

**Figure Channel 07: Vertical (Peak)**



**Figure Channel 07: Vertical (Average)**

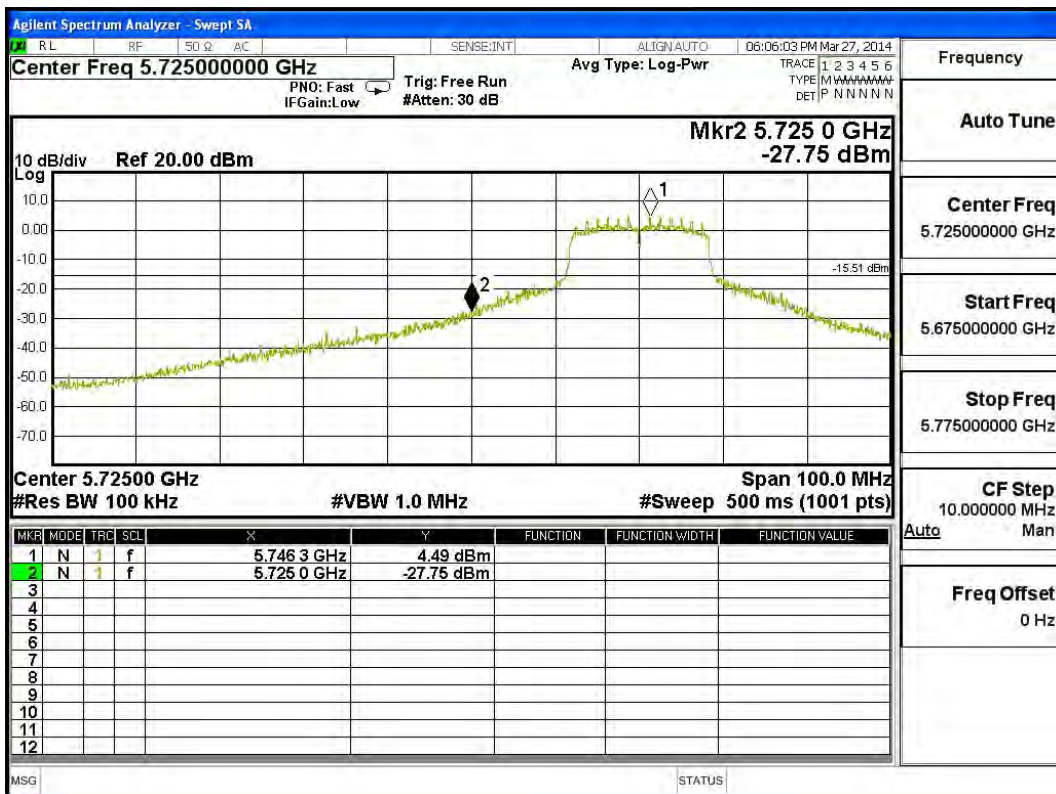


**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps

Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5745	32.24	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps

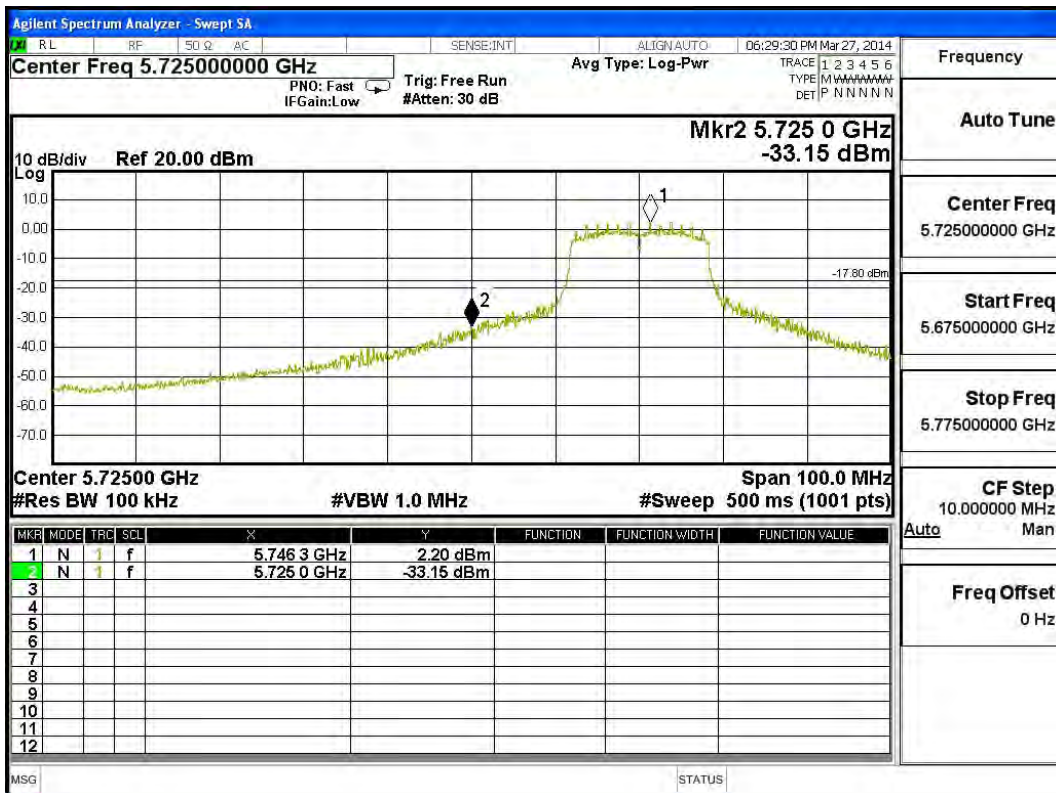
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5825	34.86	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Chain A**

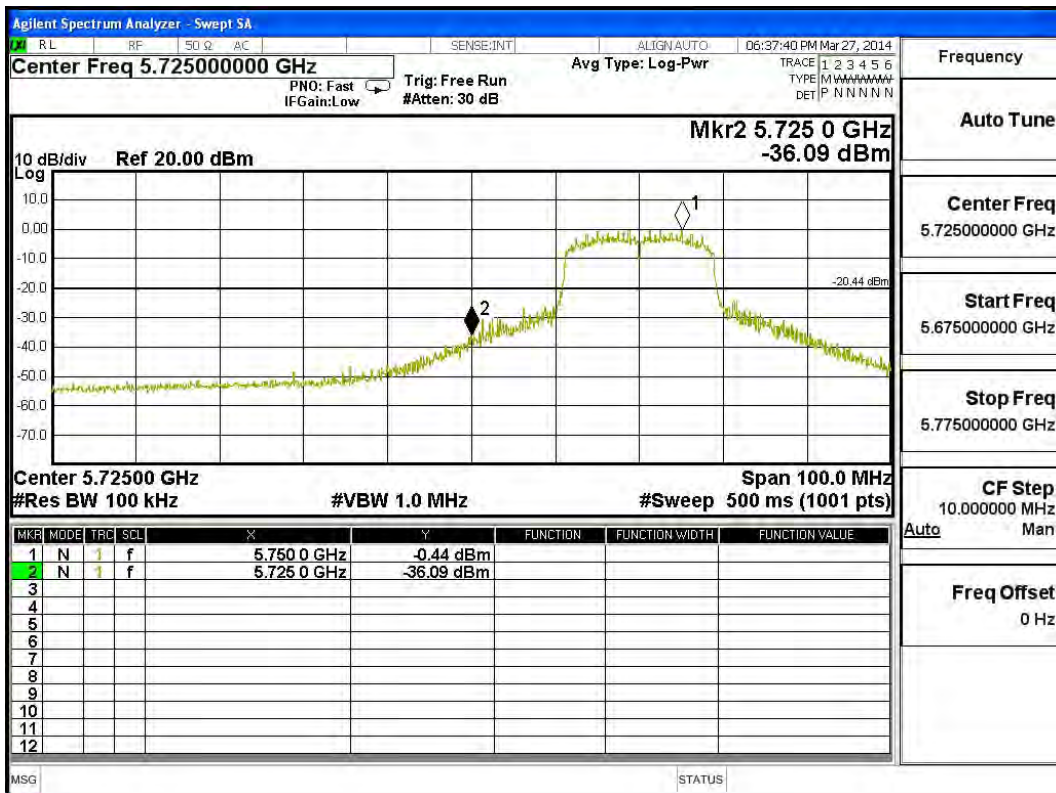
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5745	35.35	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Chain B**

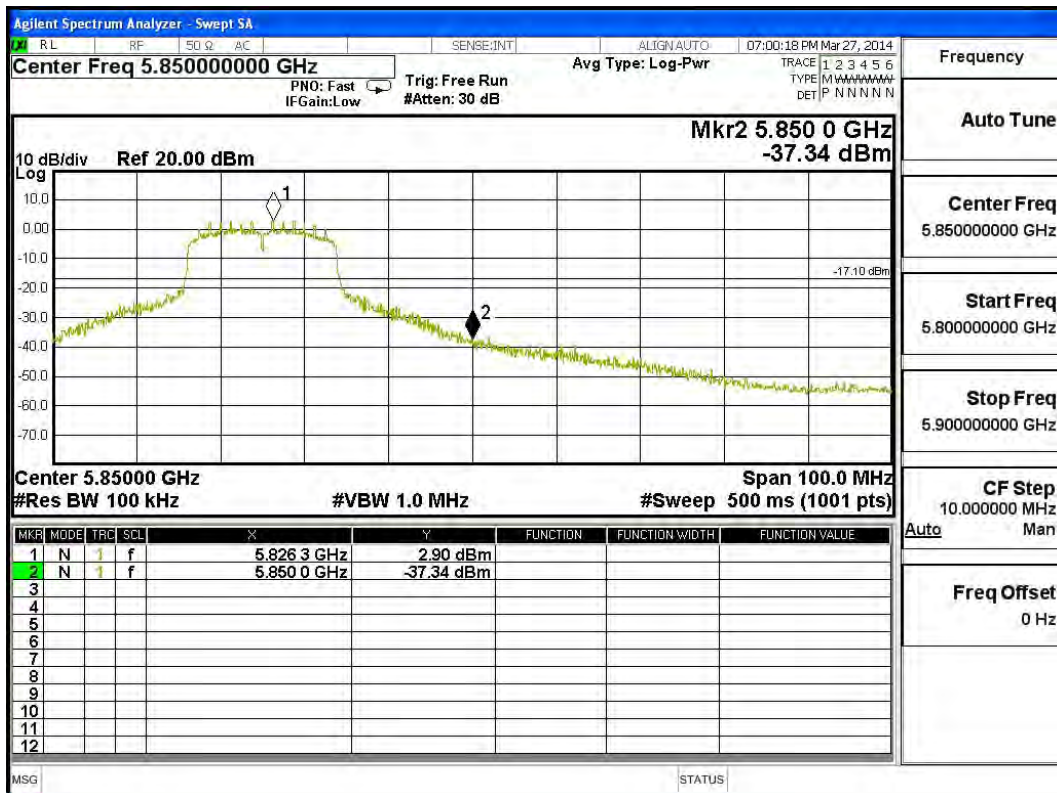
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5745	35.65	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Chain A**

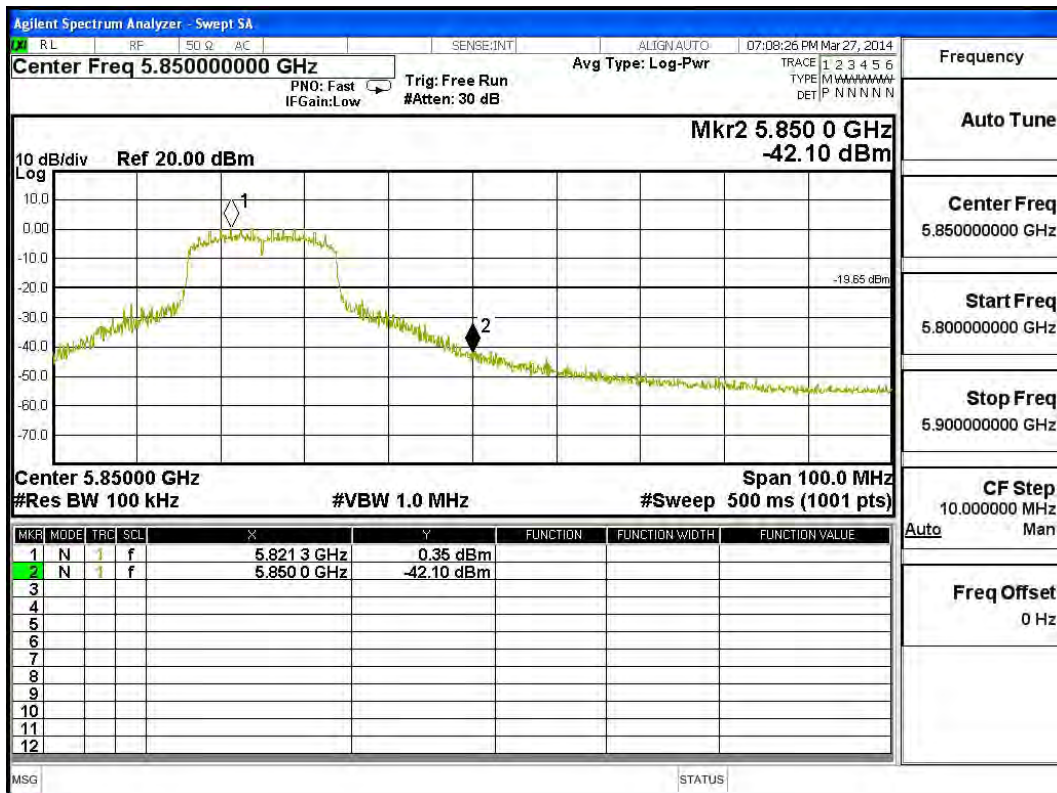
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5825	40.24	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band)

**Chain B**

Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5825	42.45	>20	PASS

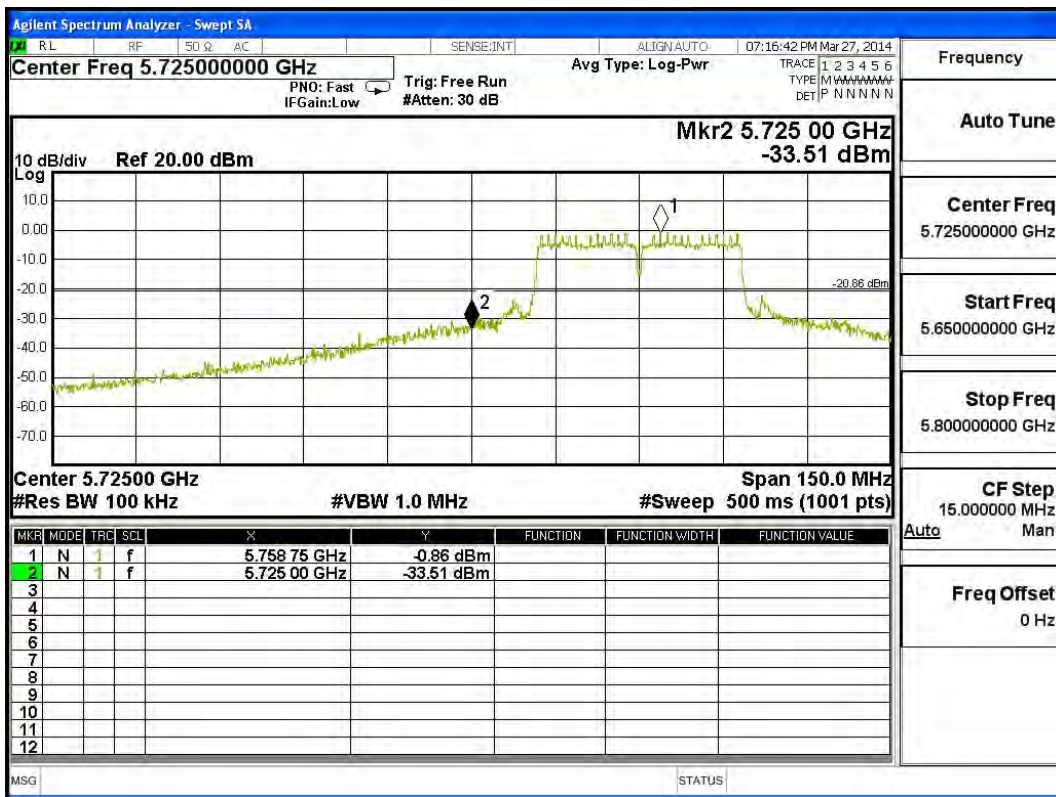




Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Chain A**

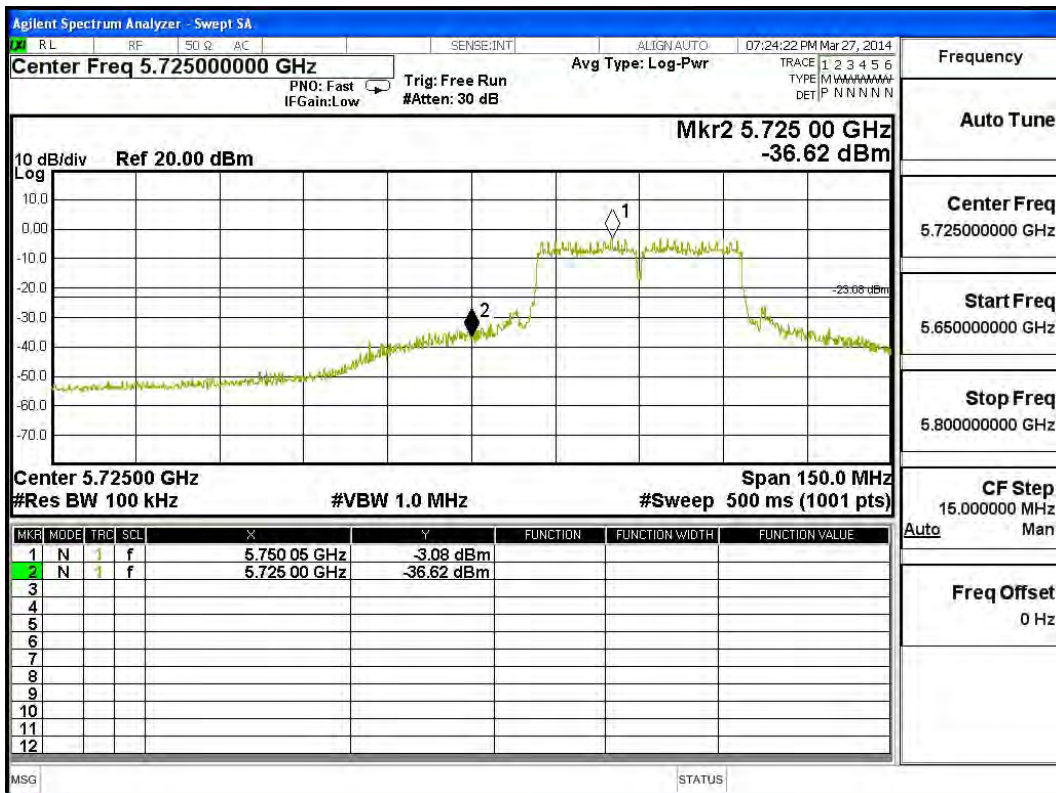
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5755	32.65	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Chain B**

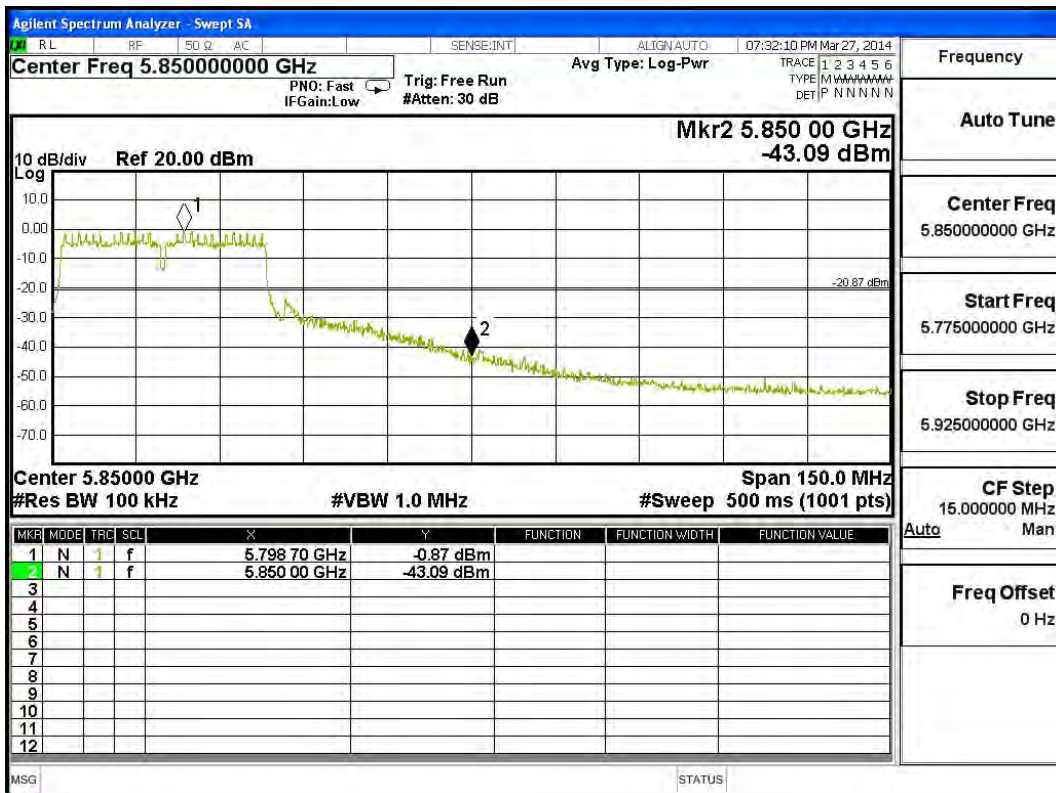
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5755	33.54	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Chain A**

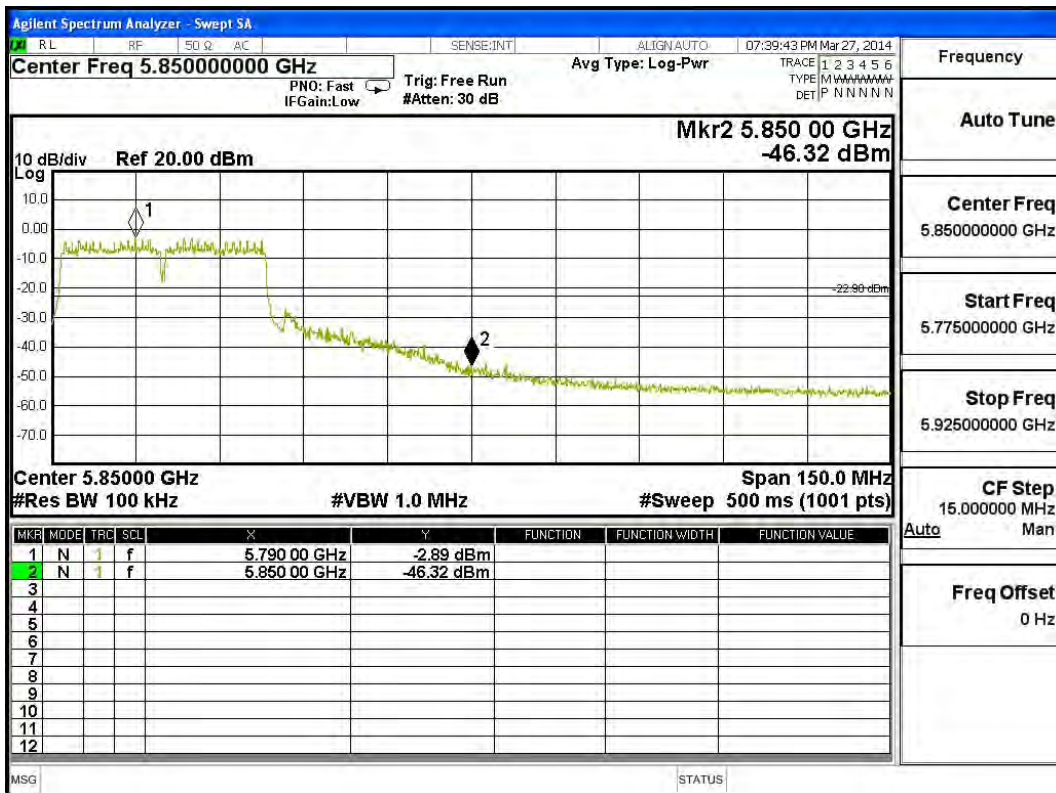
Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5795	42.22	>20	PASS



Product : Wireless Motherboard  
 Test Item : Band Edge  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band)

**Chain B**

Test Frequency (MHz)	Measurement Level $\Delta$ (dB)	Limit $\Delta$ (dB)	Result
5795	43.43	>20	PASS



## 7. Occupied Bandwidth

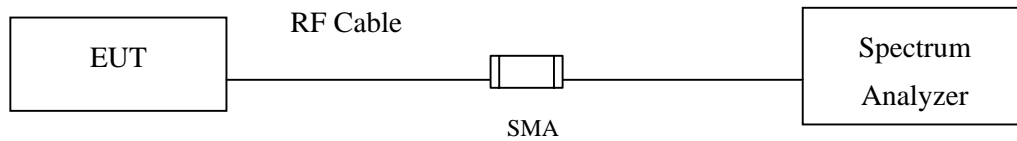
### 7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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 C63.10, 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 7.5. Uncertainty

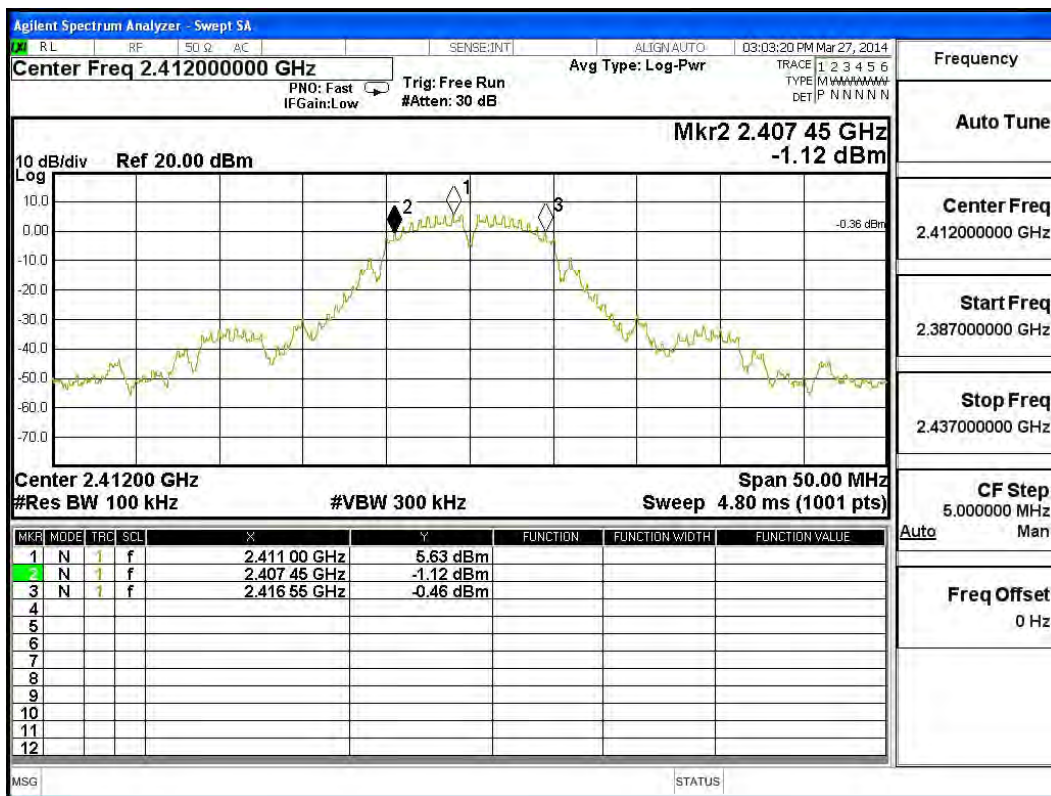
± 150Hz

### 7.6. Test Result of Occupied Bandwidth

Product : Wireless Motherboard  
 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	9100	>500	Pass

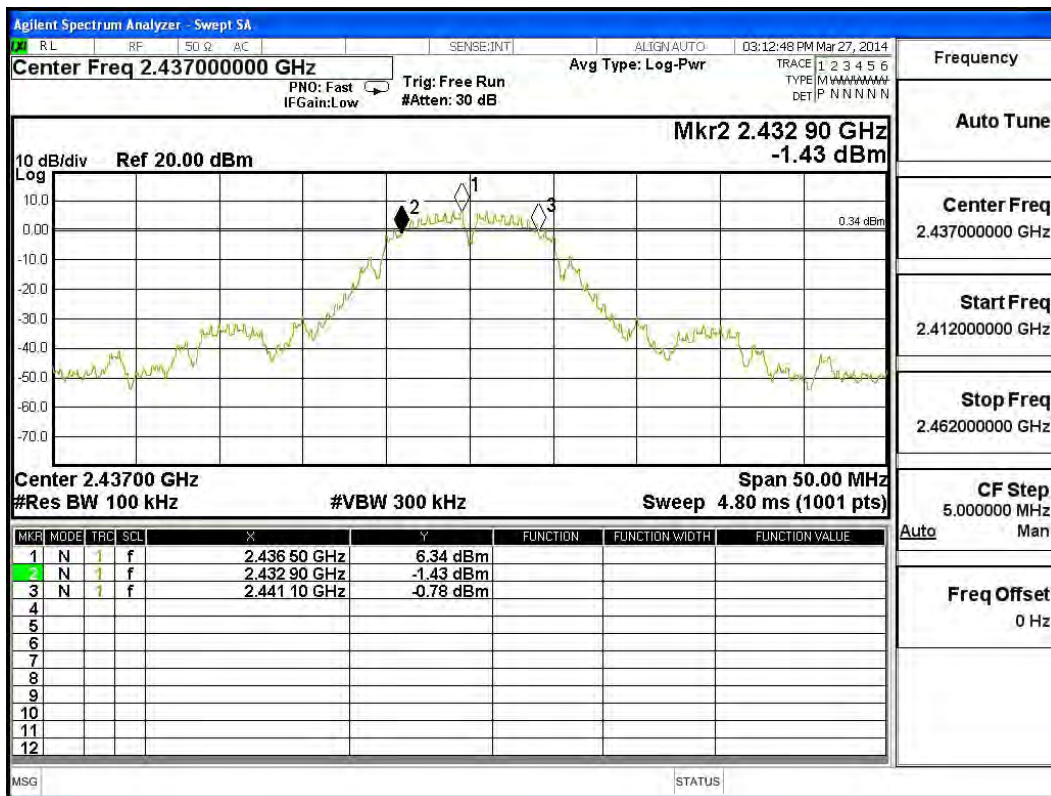
Figure Channel 1:



Product : Wireless Motherboard  
 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	8200	>500	Pass

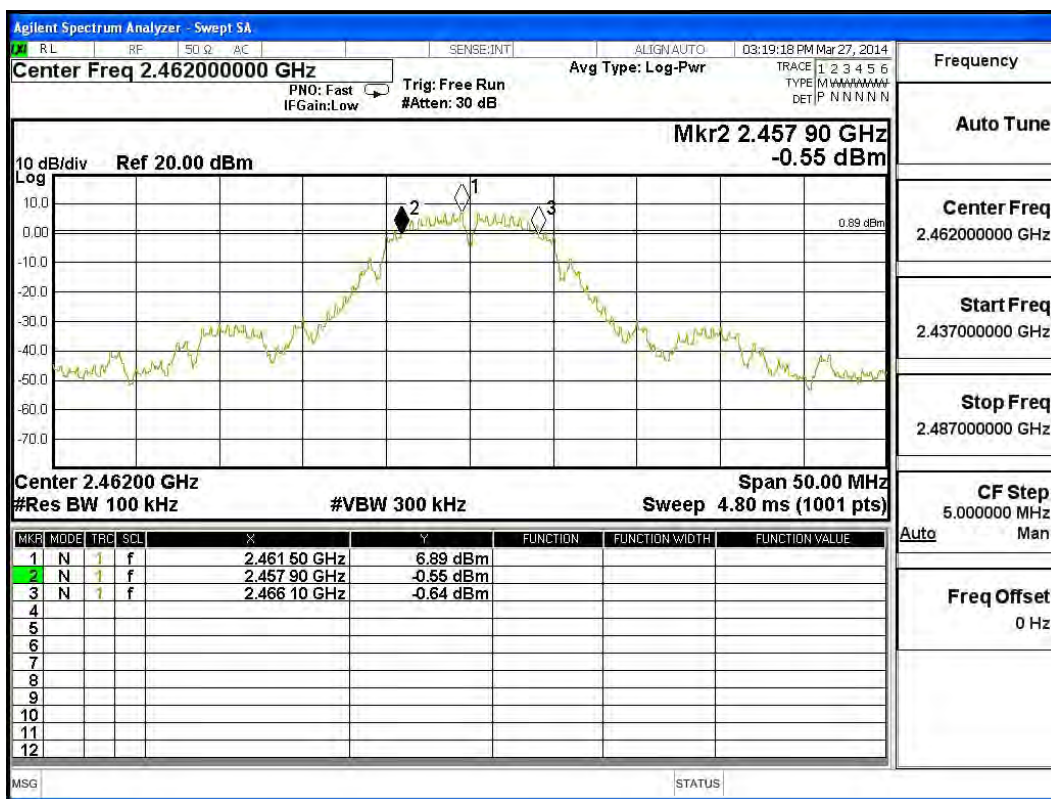
Figure Channel 6:



Product : Wireless Motherboard  
 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	8200	>500	Pass

**Figure Channel 11:**

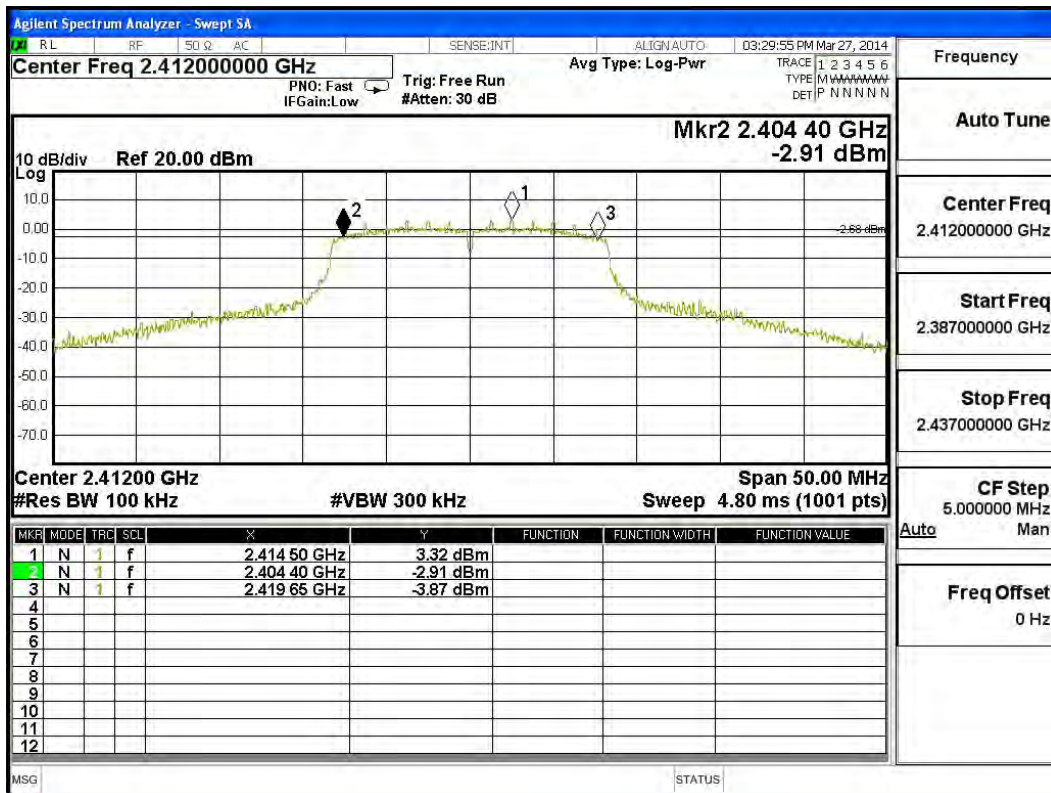




Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	15250	>500	Pass

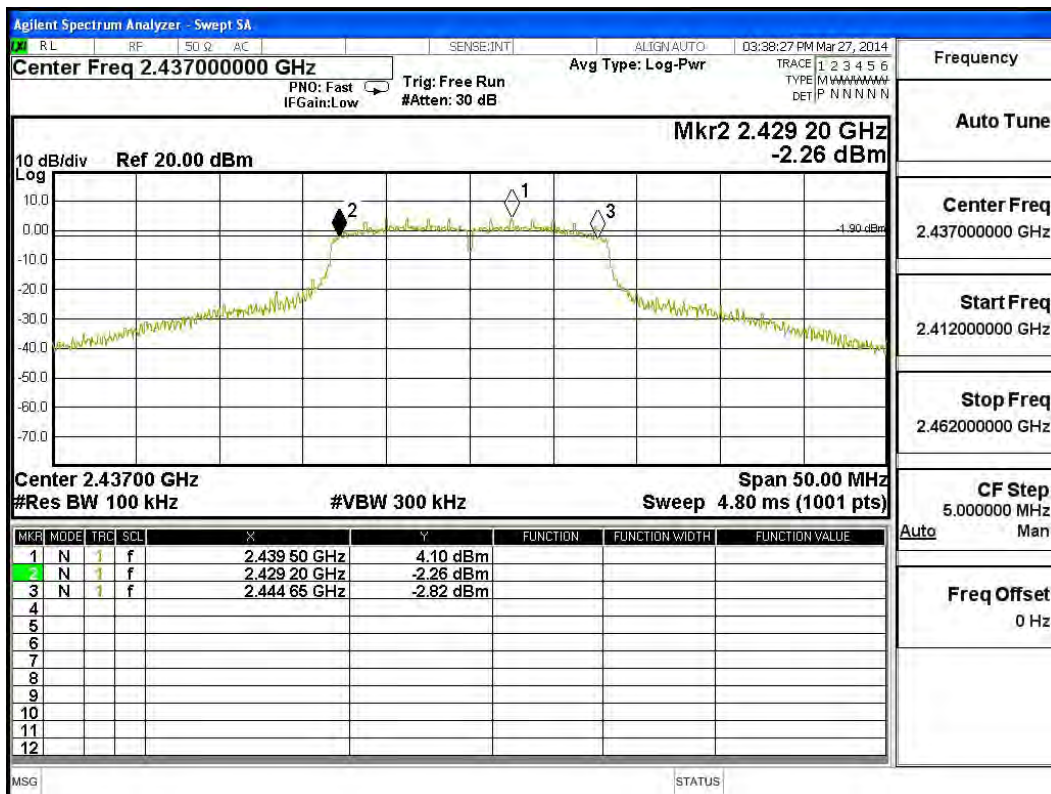
Figure Channel 1:



Product : Wireless Motherboard  
 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	15450	>500	Pass

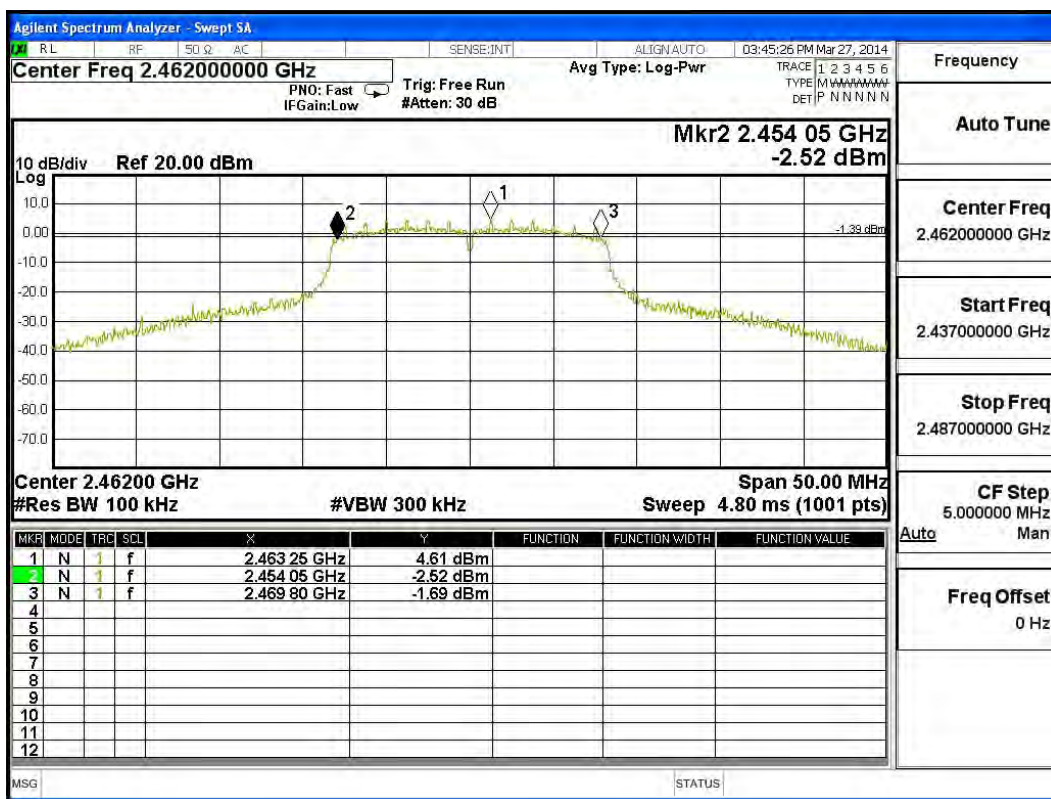
Figure Channel 6:



Product : Wireless Motherboard  
 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	15750	>500	Pass

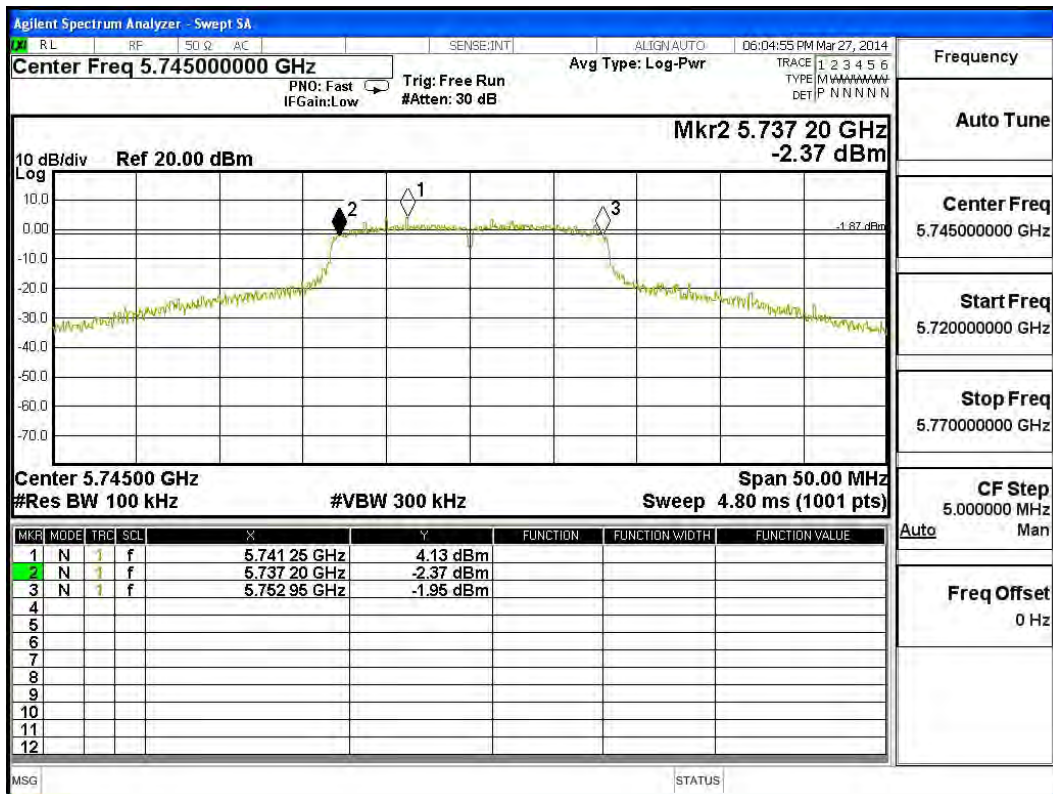
**Figure Channel 11:**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15750	>500	Pass

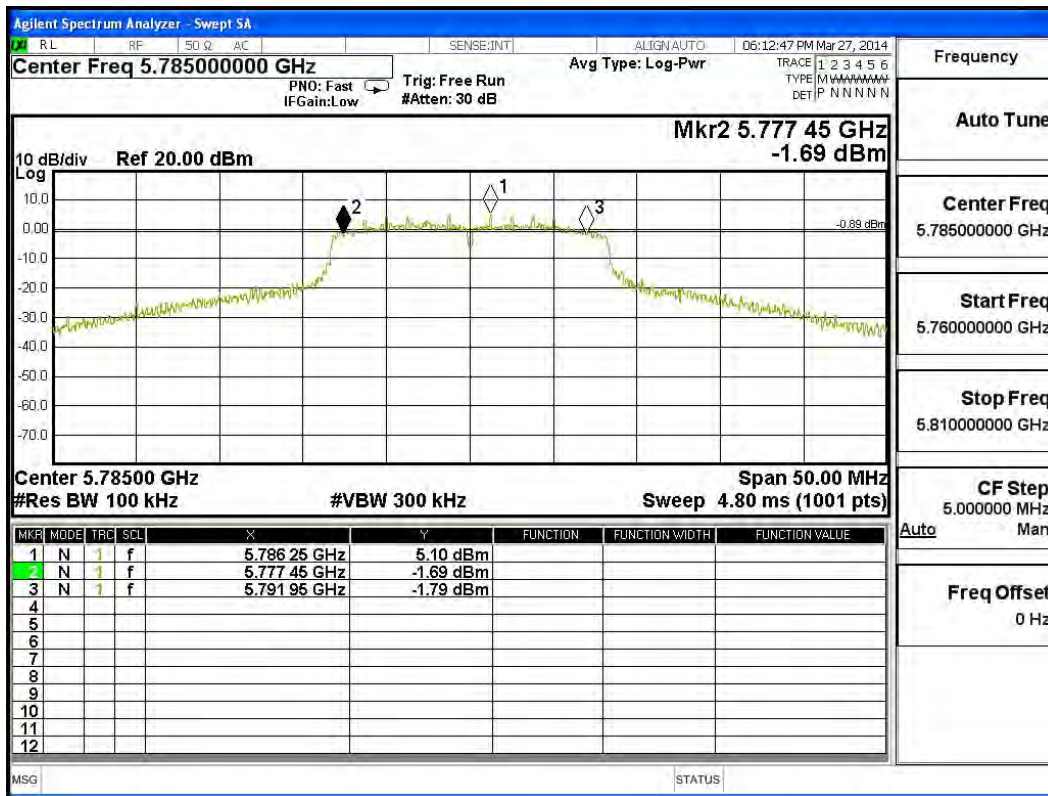
Figure Channel 149:



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	14500	>500	Pass

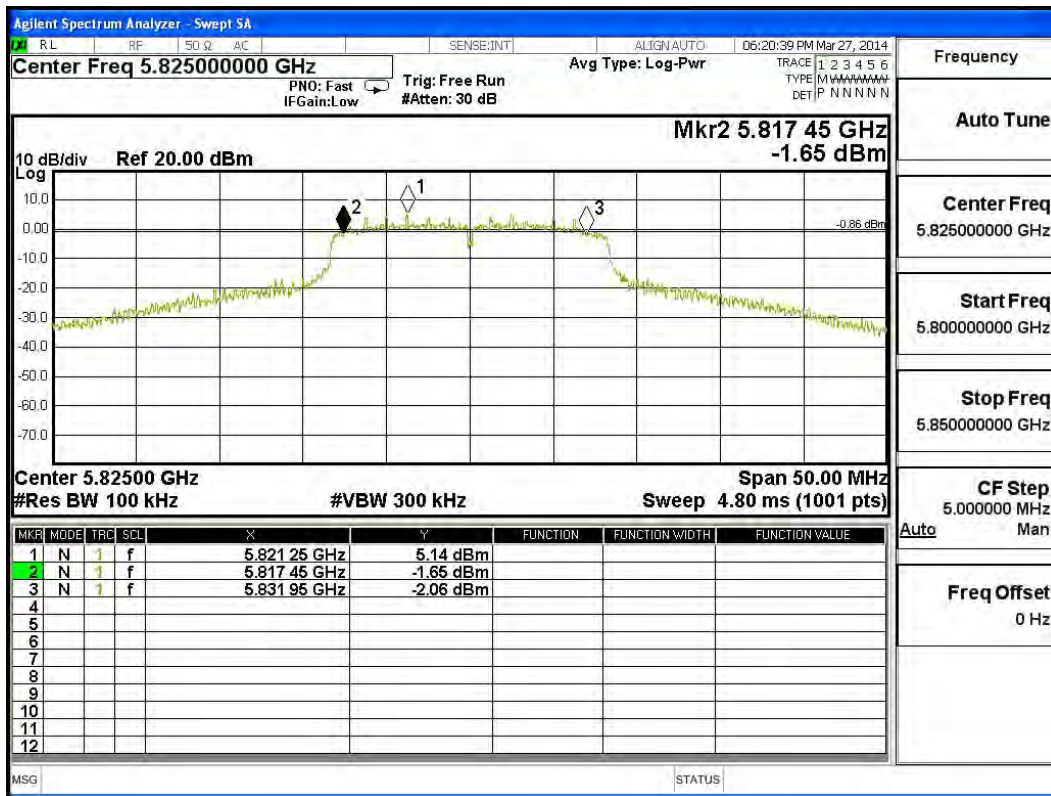
Figure Channel 157:



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	14500	>500	Pass

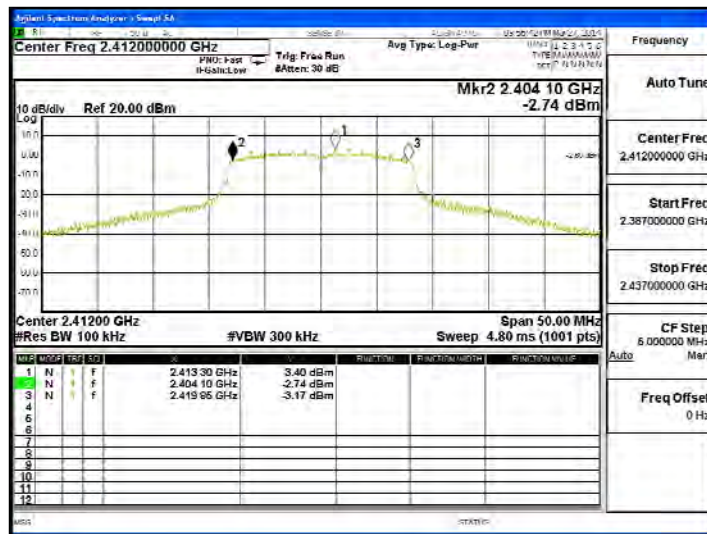
Figure Channel 165:



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2412MHz)

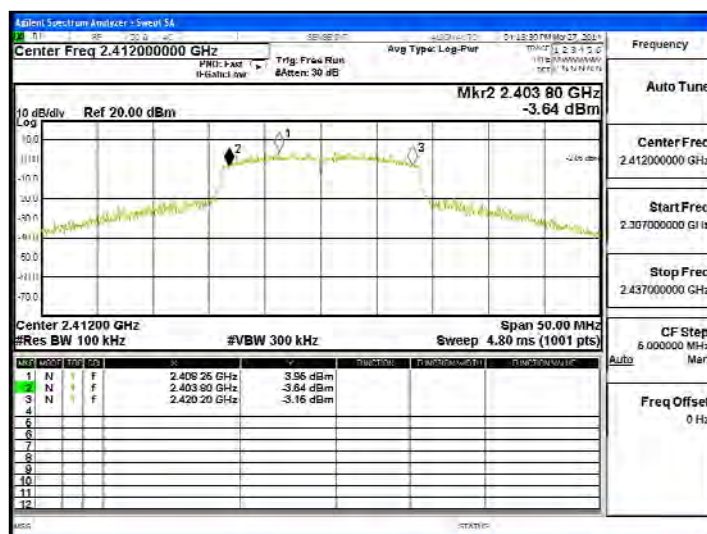
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	15750	>500	Pass

**Figure Channel 1: (Chain A)**



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

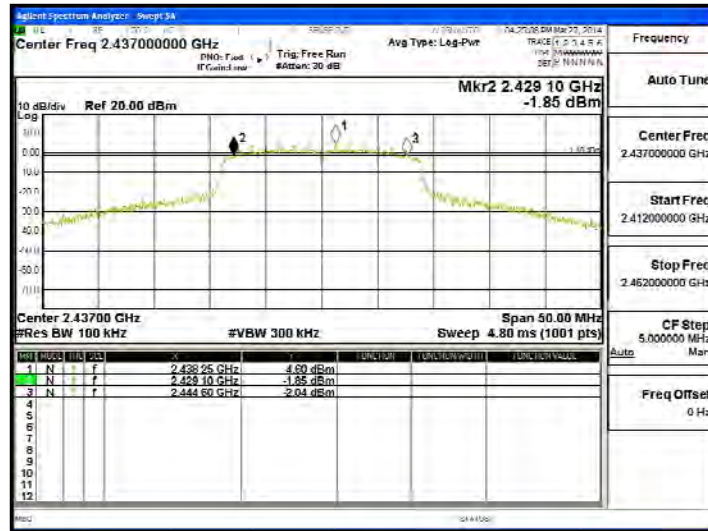
**Figure Channel 1: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2437MHz)

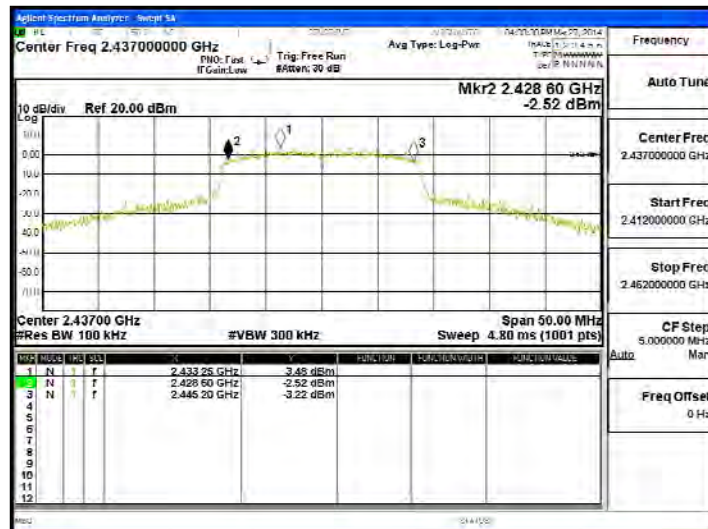
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	15500	>500	Pass

**Figure Channel 6: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16600	>500	Pass

**Figure Channel 6: (Chain B)**

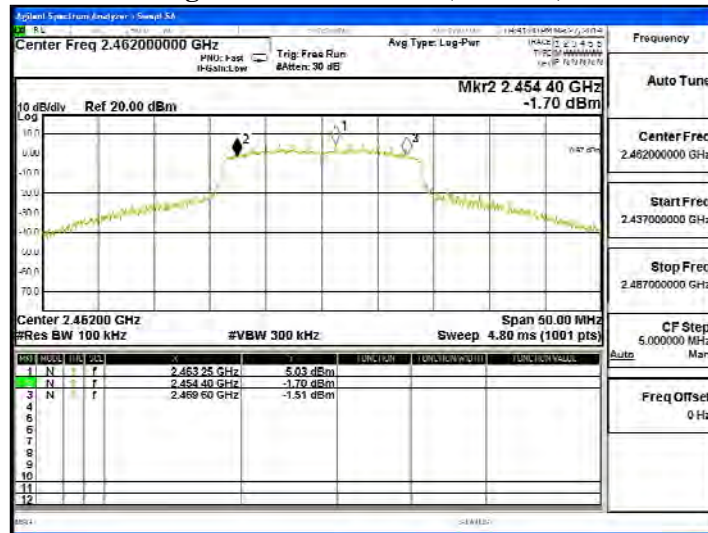




Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2462MHz)

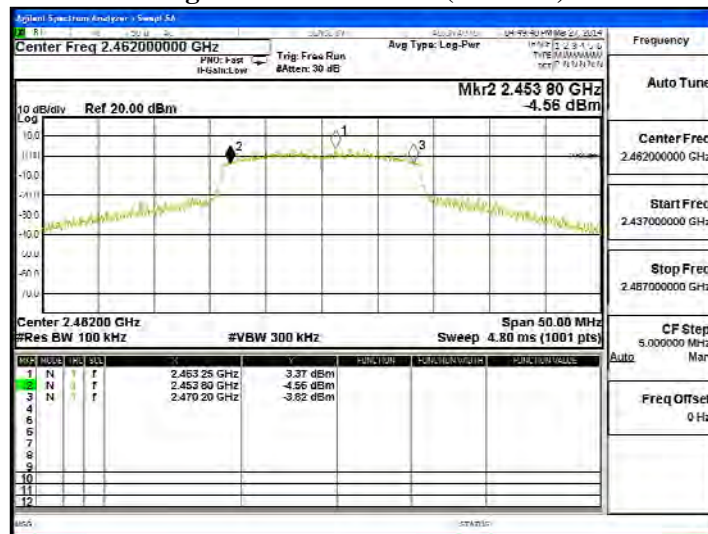
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	15200	>500	Pass

**Figure Channel 11: (Chain A)**



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

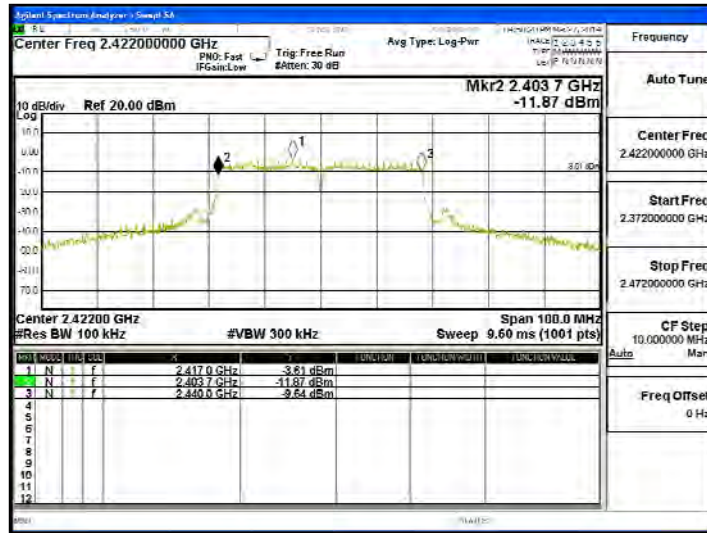
**Figure Channel 11: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2422MHz)

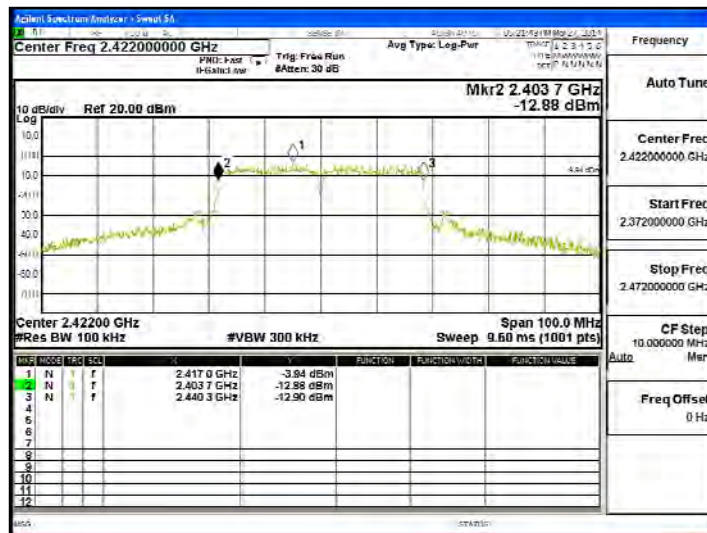
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2422.00	36300	>500	Pass

**Figure Channel 1: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2422.00	36600	>500	Pass

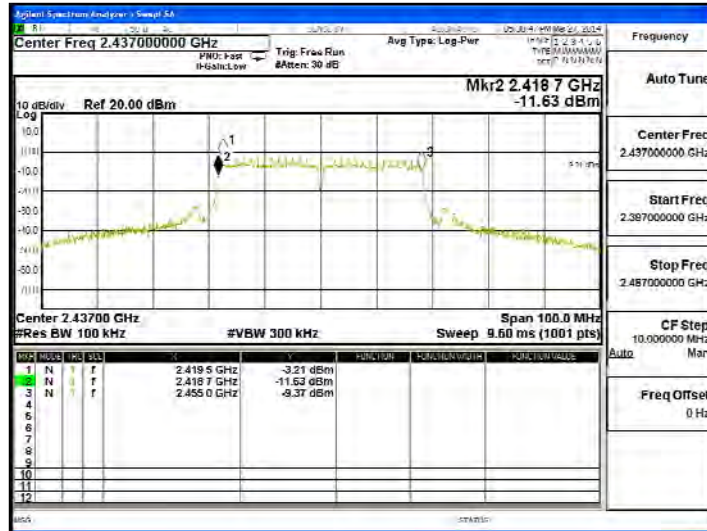
**Figure Channel 1: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437MHz)

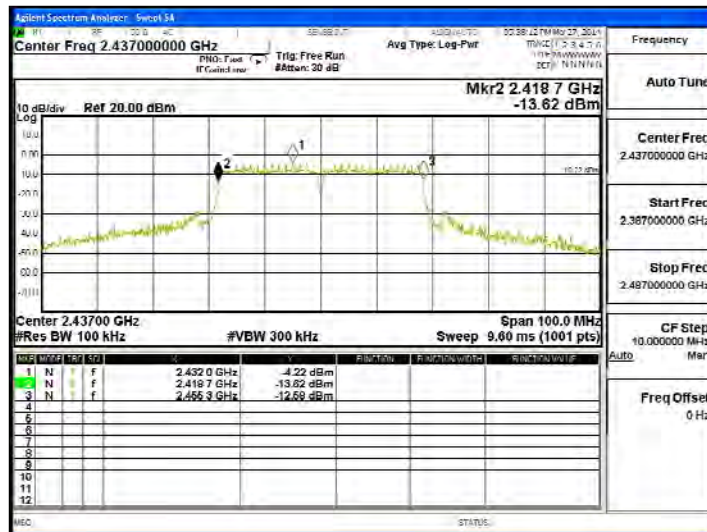
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
4	2437.00	36300	>500	Pass

Figure Channel 4: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
4	2437.00	36600	>500	Pass

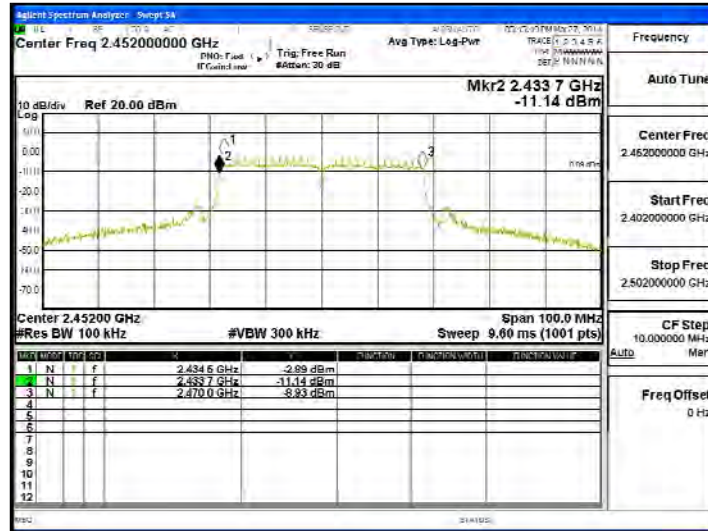
Figure Channel 4: (Chain B)



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2452MHz)

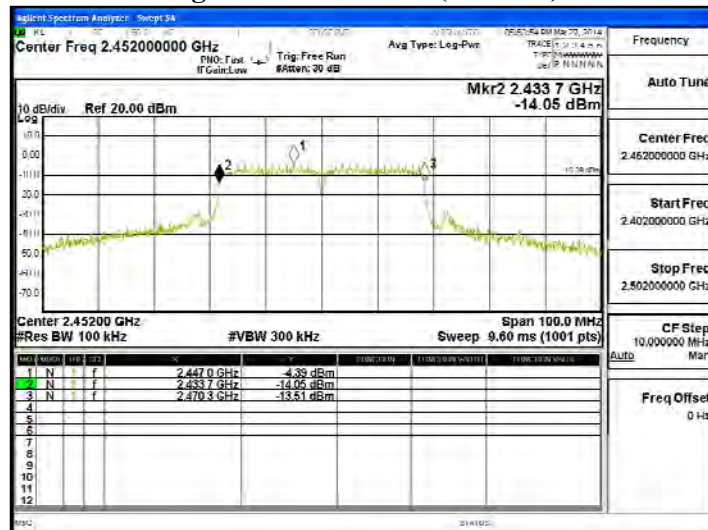
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
7	2452.00	36300	>500	Pass

**Figure Channel 7: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
7	2452.00	36600	>500	Pass

**Figure Channel 7: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5745MHz)

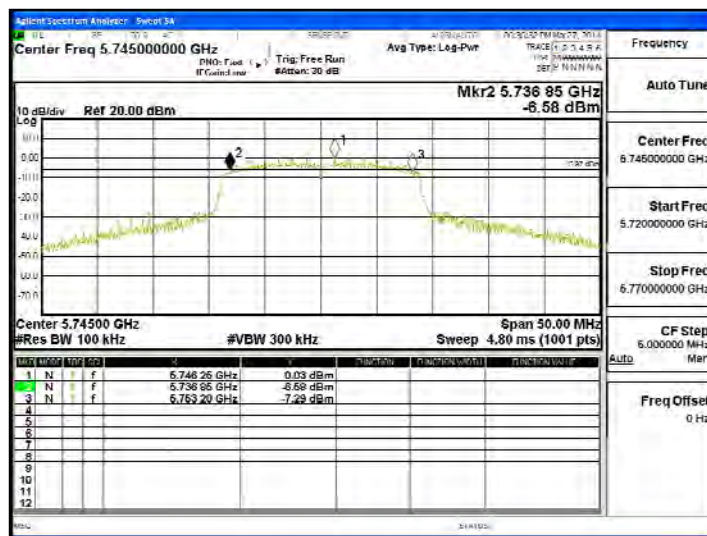
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15200	>500	Pass

**Figure Channel 149: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	16350	>500	Pass

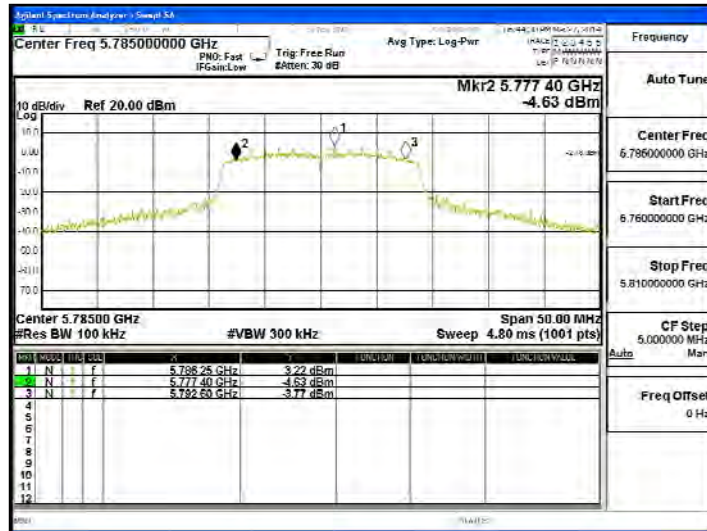
**Figure Channel 149: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5785MHz)

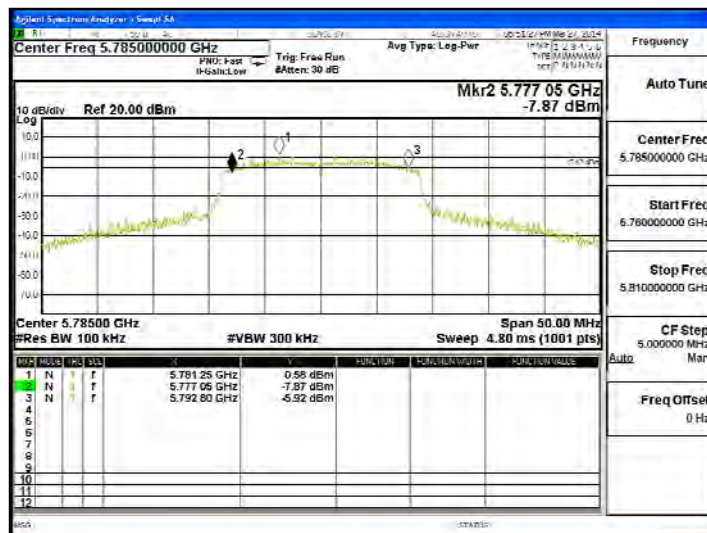
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15200	>500	Pass

**Figure Channel 157: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	15750	>500	Pass

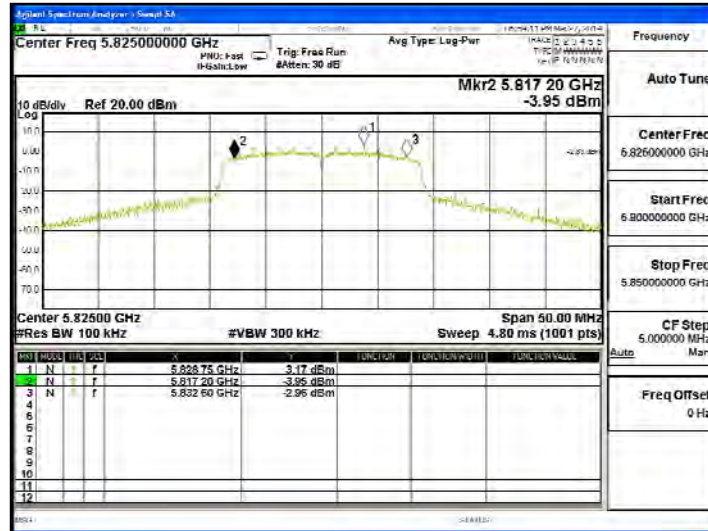
**Figure Channel 157: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5825MHz)

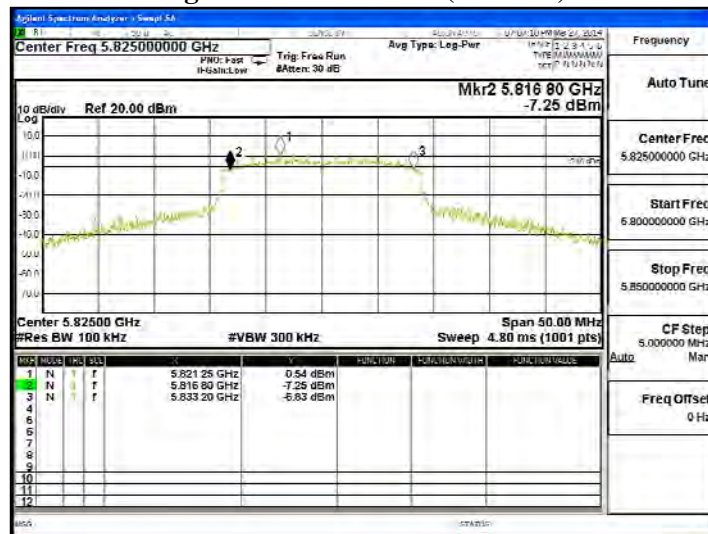
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	15400	>500	Pass

**Figure Channel 165: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	16400	>500	Pass

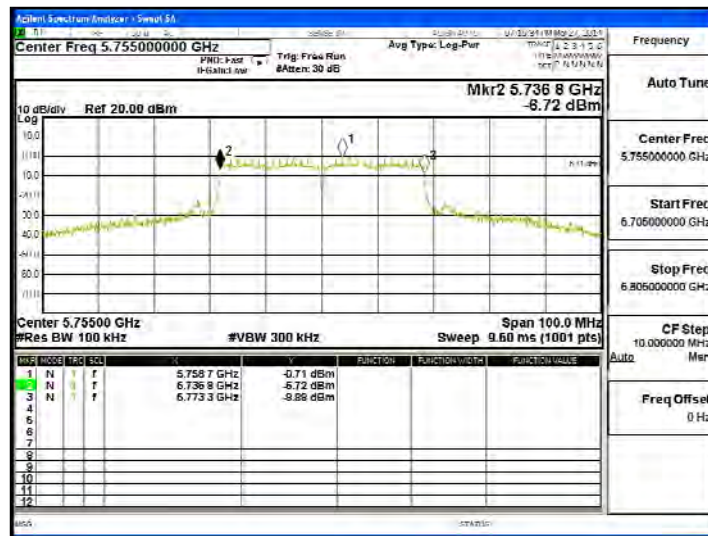
**Figure Channel 165: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

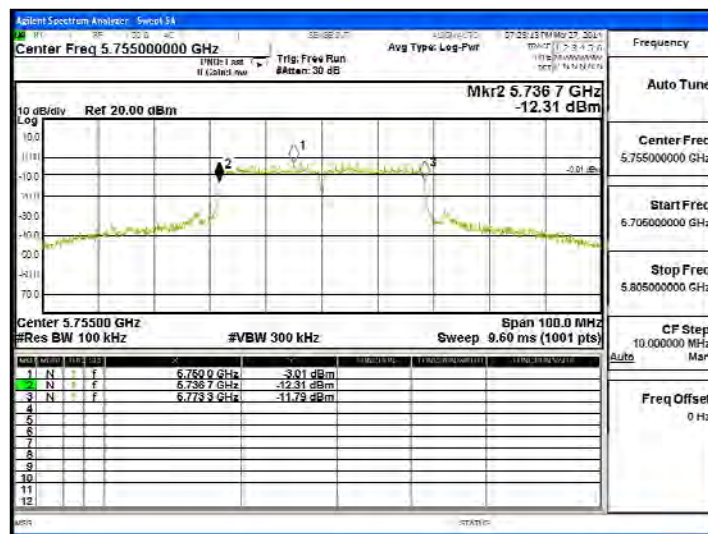
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	36500	>500	Pass

**Figure Channel 151: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	36600	>500	Pass

**Figure Channel 151: (Chain B)**





Product : Wireless Motherboard  
 Test Item : Occupied Bandwidth Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5795MHz)

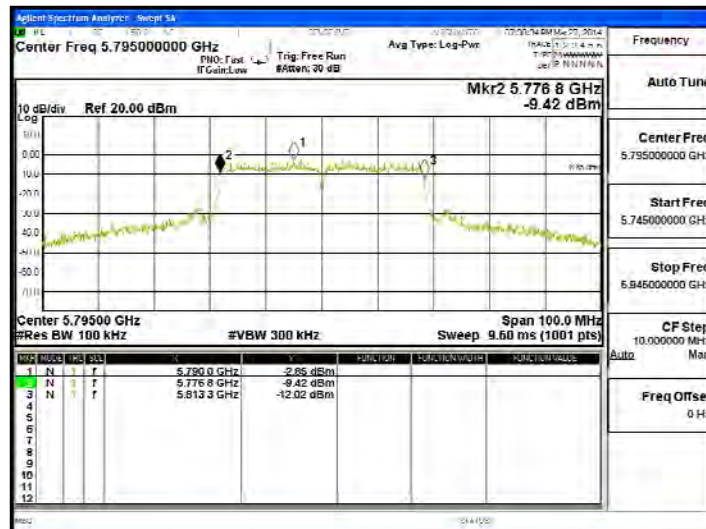
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	36600	>500	Pass

**Figure Channel 159: (Chain A)**



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	36500	>500	Pass

**Figure Channel 159: (Chain B)**



## 8. Power Density

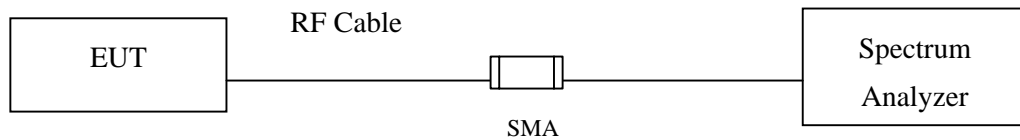
### 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

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 C63.10, 2009; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

### 8.5. Uncertainty

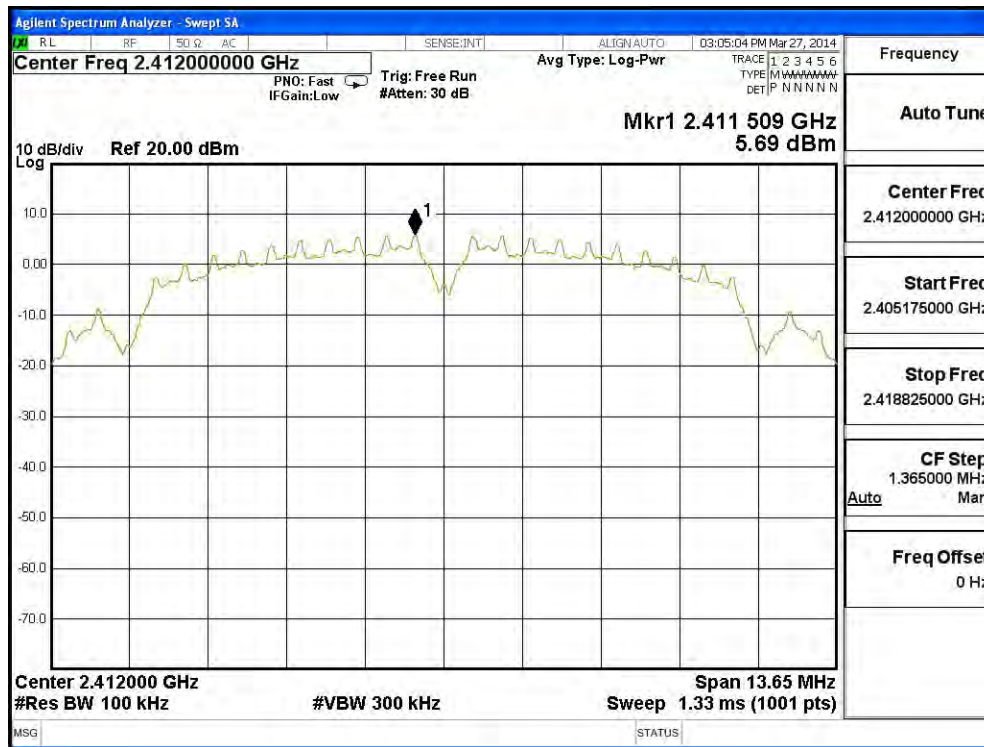
± 1.27 dB

### 8.6. Test Result of Power Density

Product : Wireless Motherboard  
 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	5.690	< 8dBm	Pass

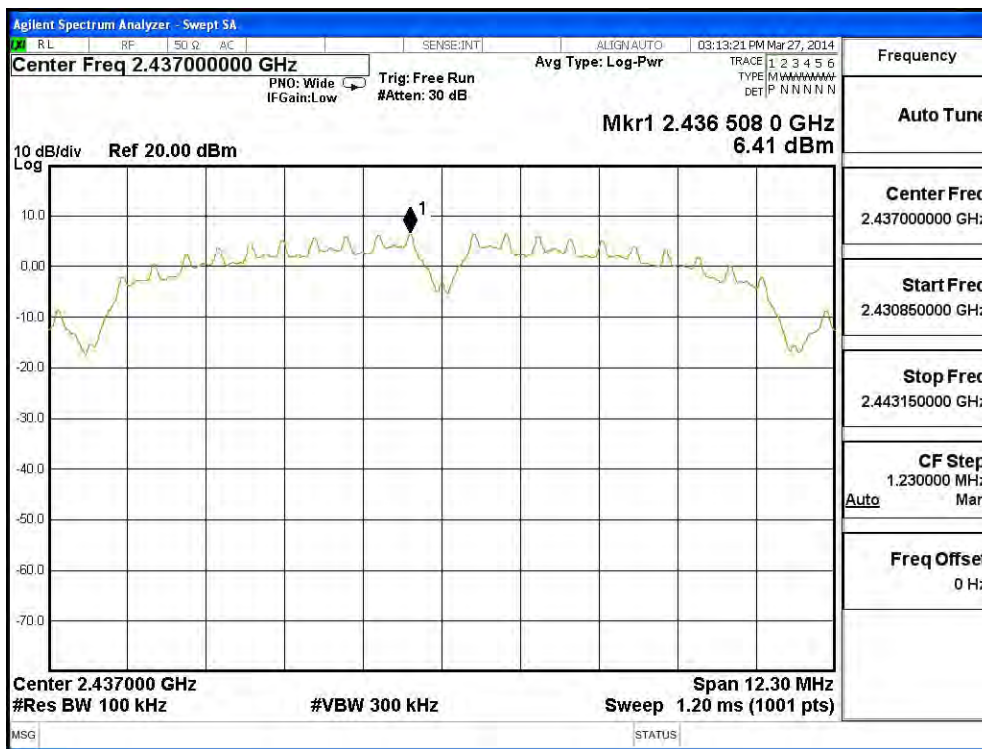
Figure Channel 1:



Product : Wireless Motherboard  
 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	6.410	< 8dBm	Pass

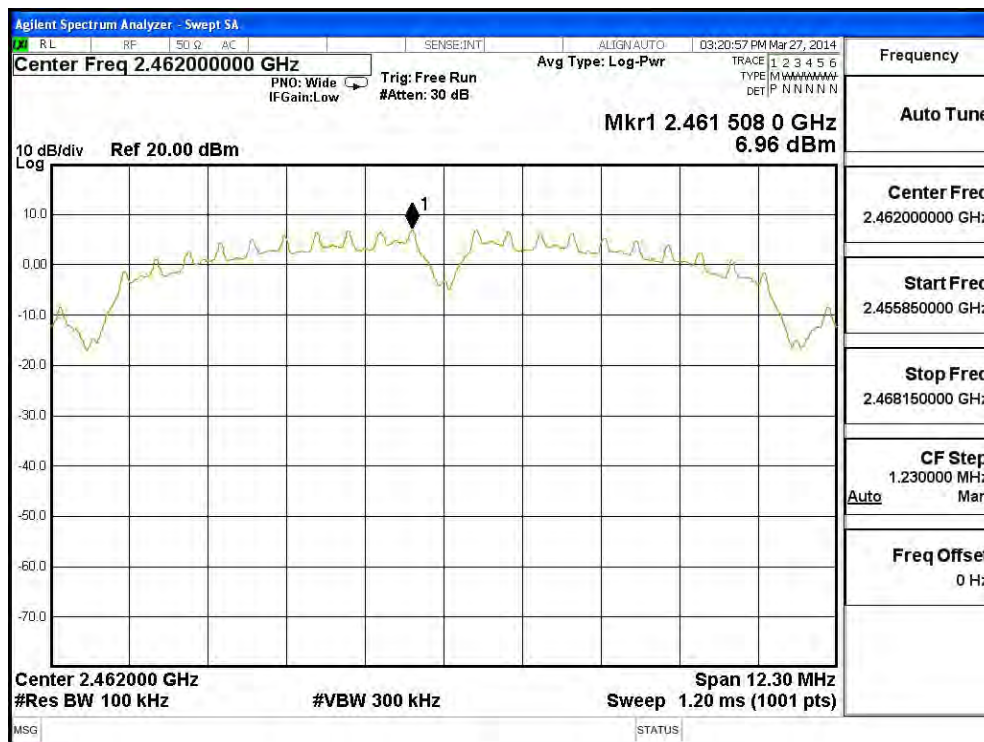
**Figure Channel 6:**



Product : Wireless Motherboard  
 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	6.960	< 8dBm	Pass

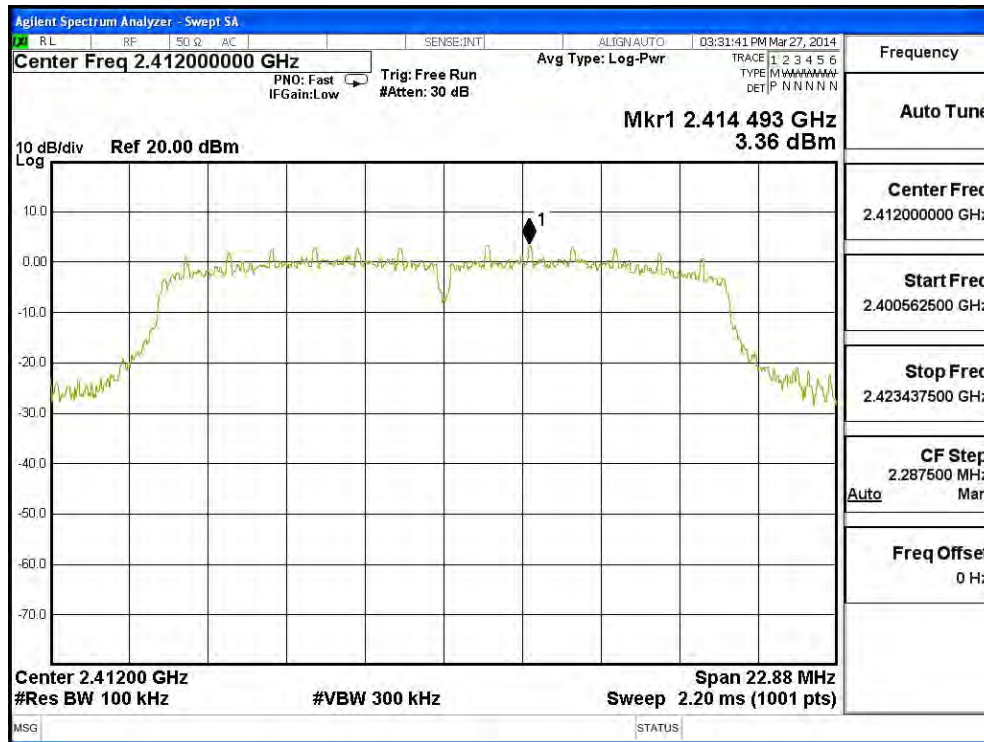
**Figure Channel 11:**



Product : Wireless Motherboard  
 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	3.360	< 8dBm	Pass

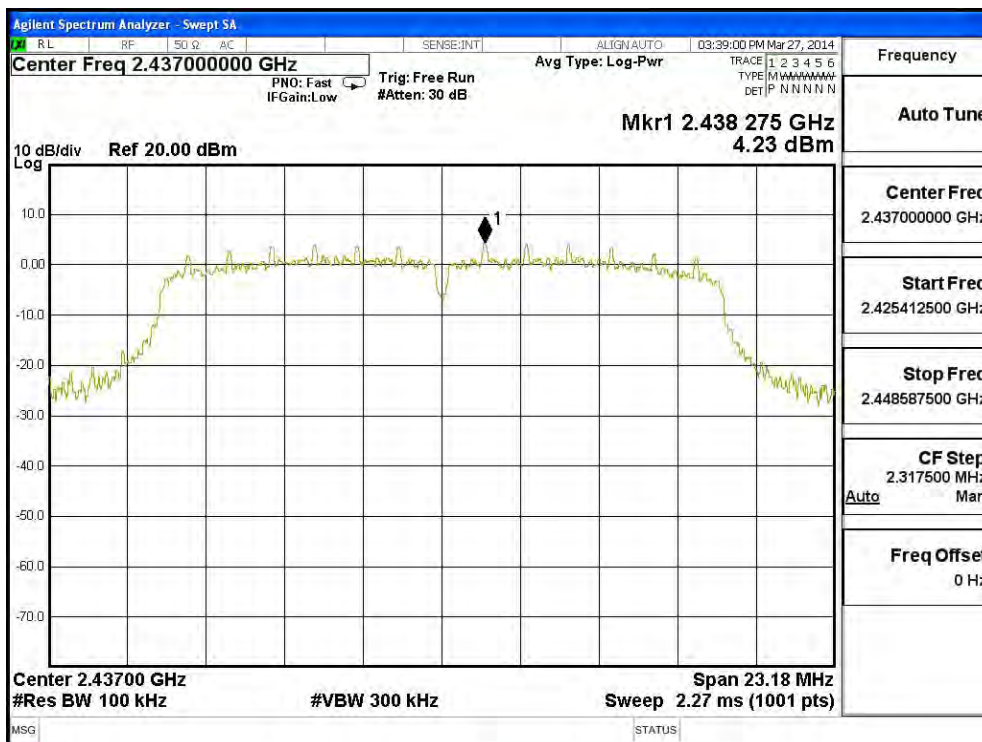
**Figure Channel 1:**



Product : Wireless Motherboard  
 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	4.230	< 8dBm	Pass

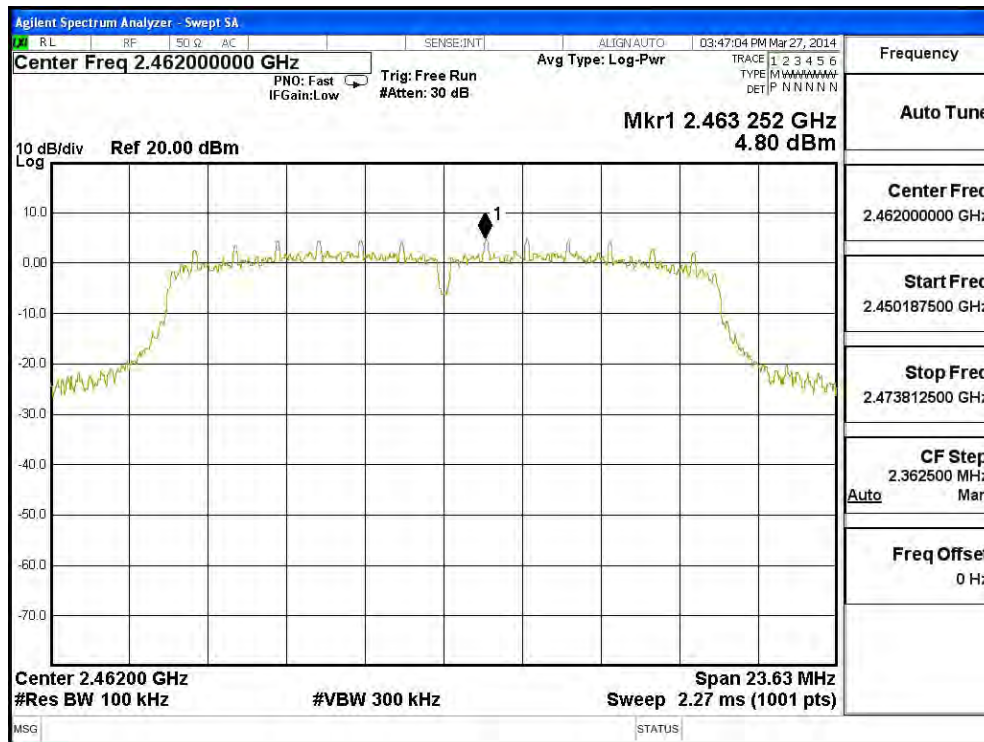
**Figure Channel 6:**



Product : Wireless Motherboard  
 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	4.800	< 8dBm	Pass

**Figure Channel 11:**

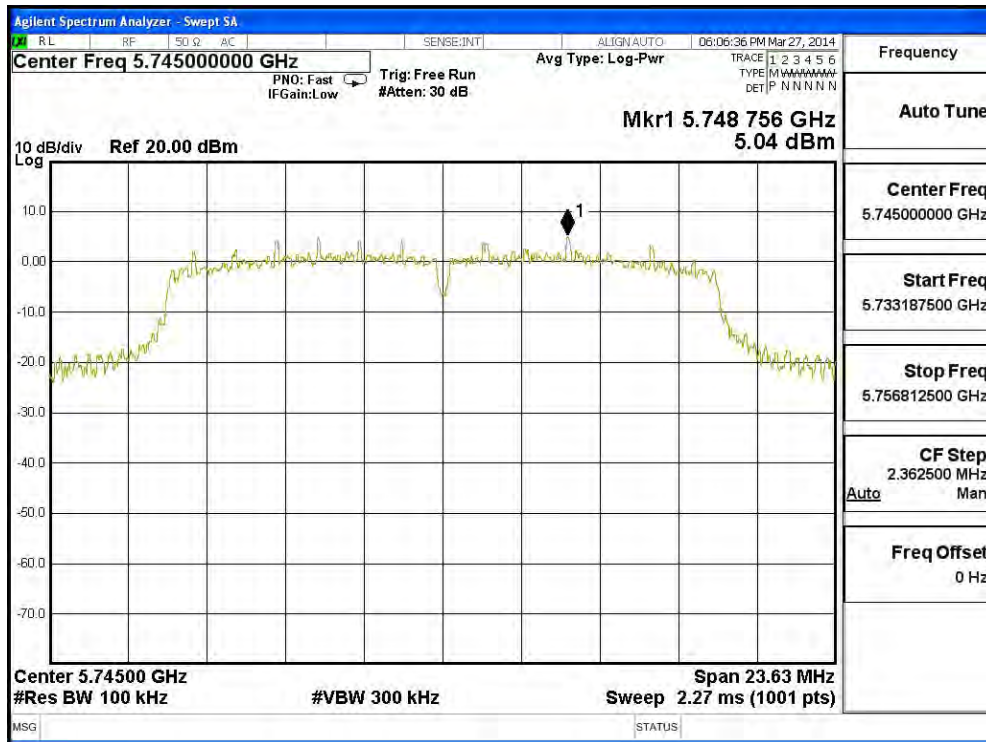




Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745.000	5.040	< 8dBm	Pass

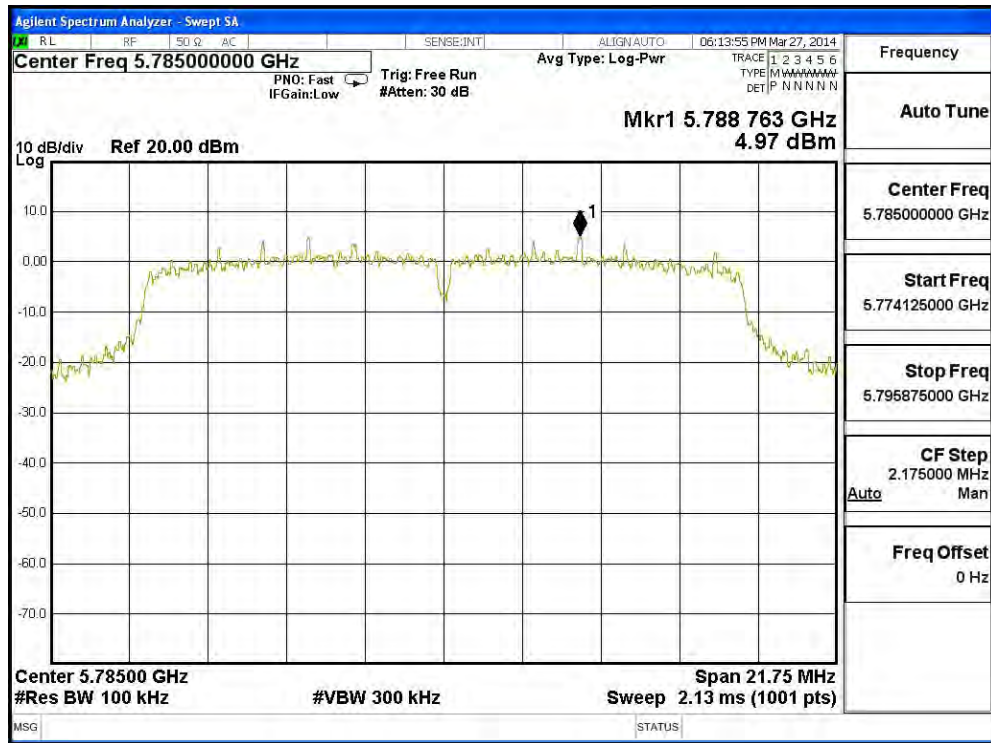
**Figure Channel 149:**



Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
157	5785.000	4.970	< 8dBm	Pass

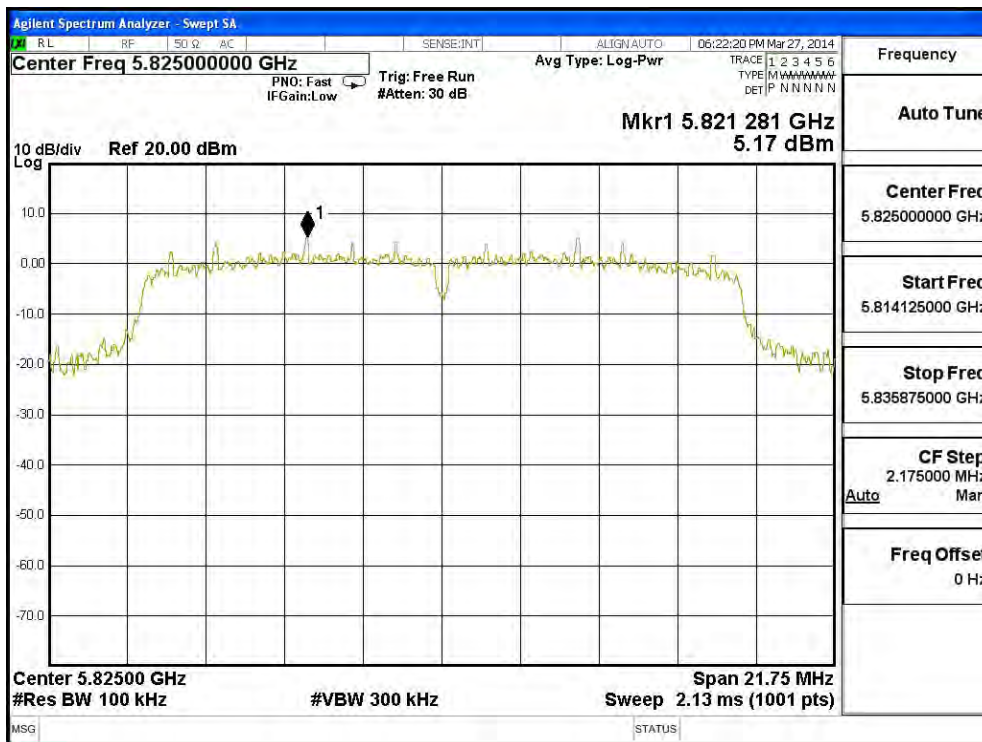
**Figure Channel 157:**



Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825MHz)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
165	5825.000	5.170	< 8dBm	Pass

**Figure Channel 165:**

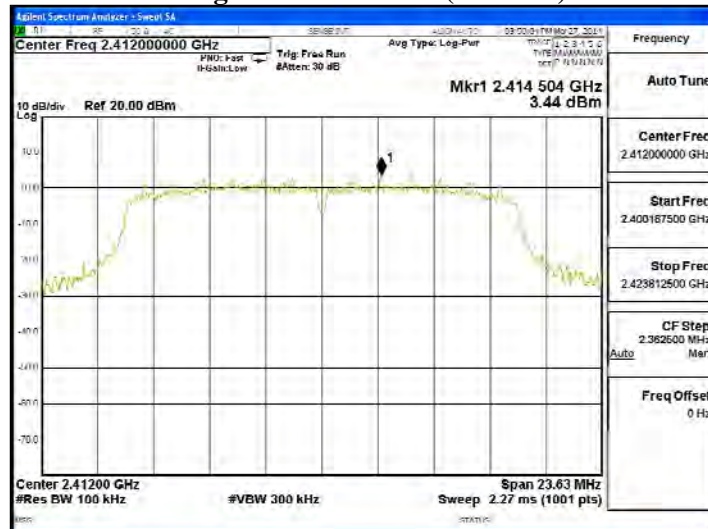


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2412MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.440	6.450	< 8dBm	Pass
B	3.910	6.920	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 1: (Chain A)**



**Figure Channel 1: (Chain B)**

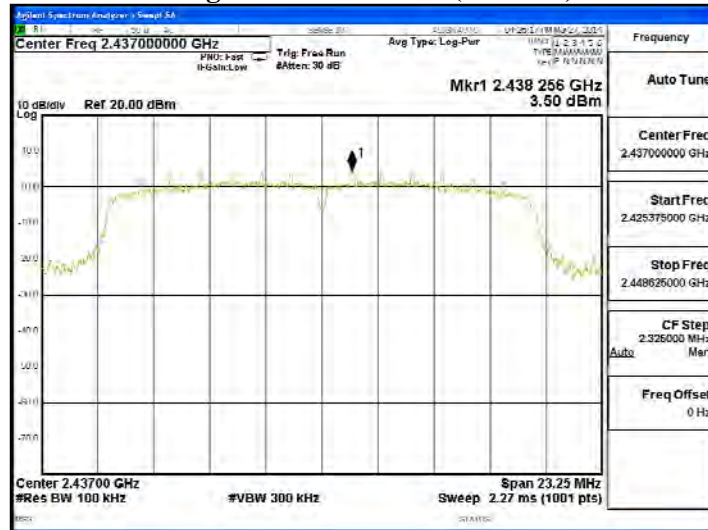


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2437MHz)

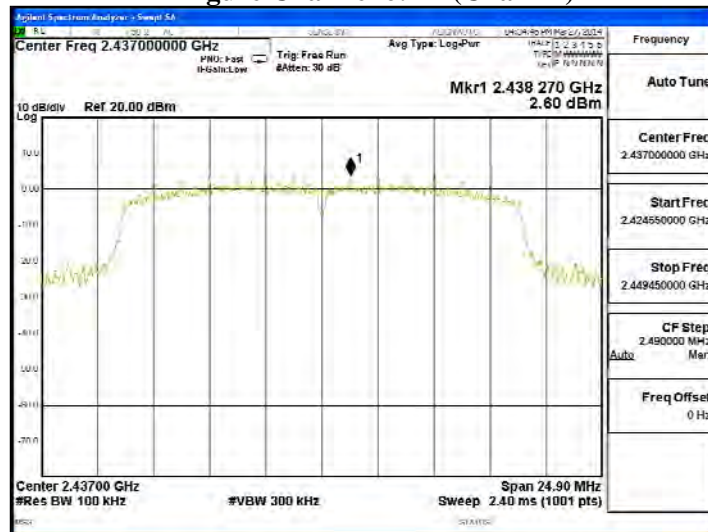
CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sup>1</sup>	Limit	Result
A	3.500	6.510	< 8dBm	Pass
B	2.600	5.610	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 6: (Chain A)**



**Figure Channel 6: (Chain B)**

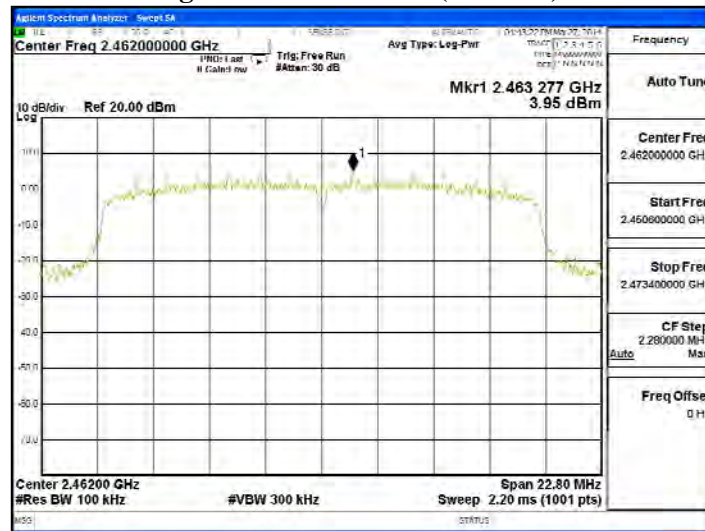


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit - 802.11n-20BW\_14.4Mbps(2.4G Band) (2462MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.950	6.960	< 8dBm	Pass
B	2.340	5.350	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 11: (Chain A)**



**Figure Channel 11: (Chain B)**

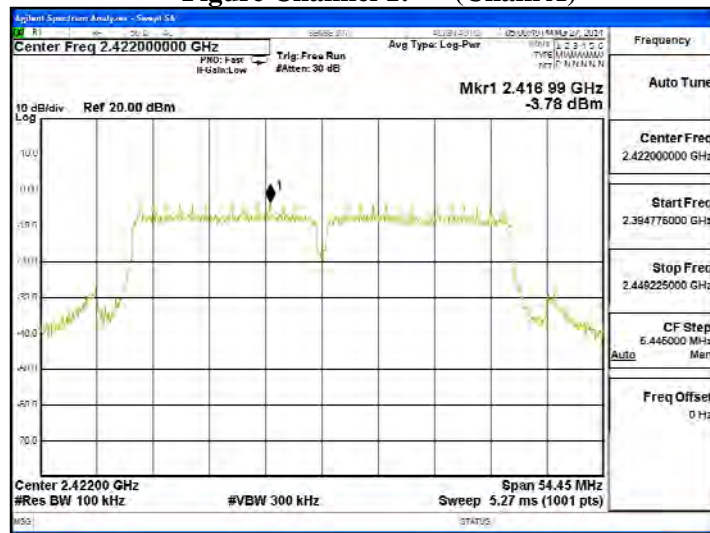


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2422MHz)

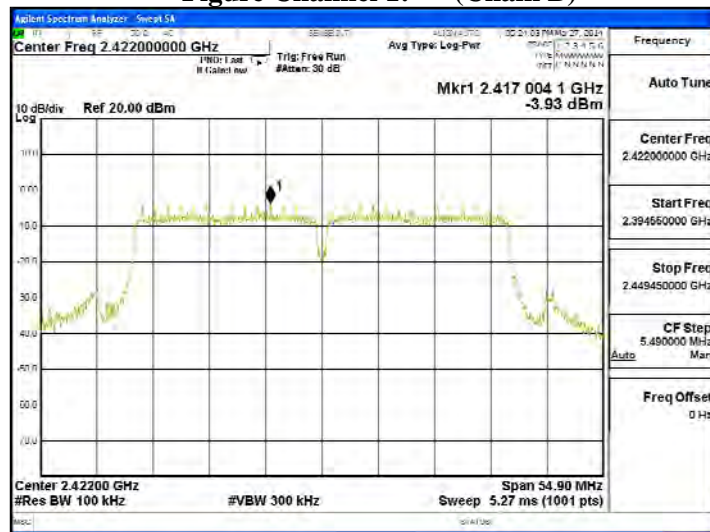
CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-3.780	-0.770	< 8dBm	Pass
B	-3.930	-0.920	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 1: (Chain A)**



**Figure Channel 1: (Chain B)**

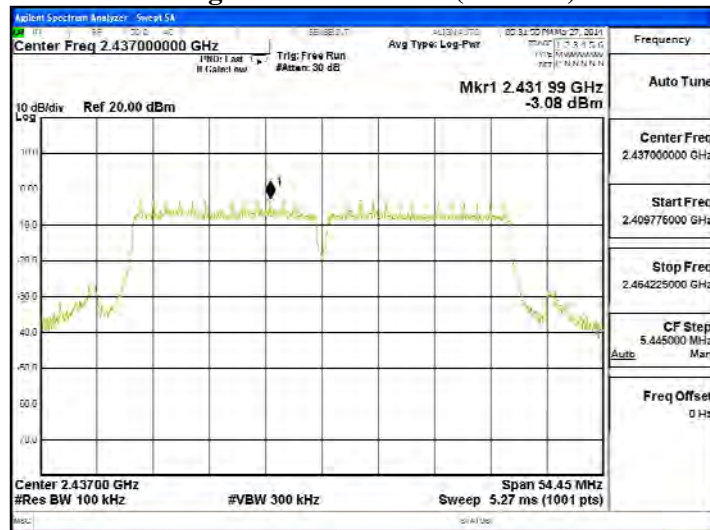


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2437MHz)

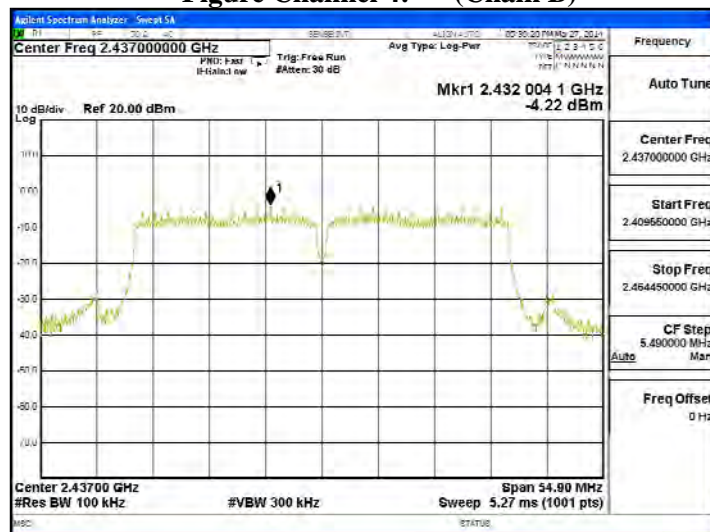
CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-3.080	-0.070	< 8dBm	Pass
B	-4.220	-1.210	< 8dBm	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 4: (Chain A)**



**Figure Channel 4: (Chain B)**



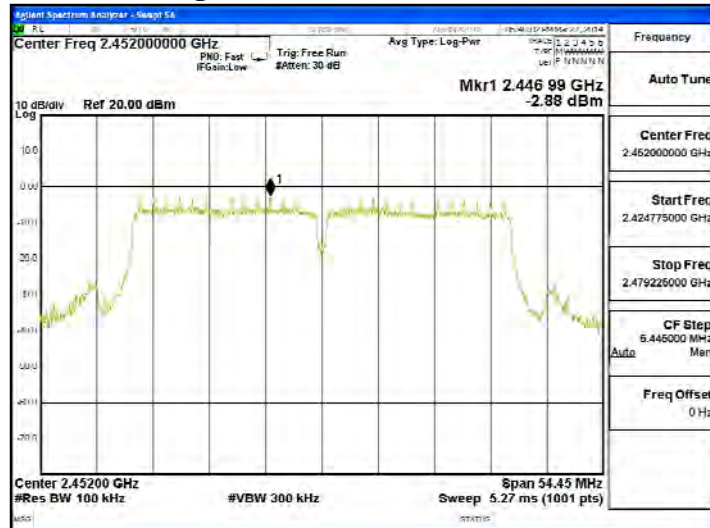


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 5: Transmit - 802.11n-40BW\_30Mbps(2.4G Band) (2452MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-2.880	0.130	< 8dBm	Pass
B	-4.420	-1.410	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 7: (Chain A)**



**Figure Channel 7: (Chain B)**

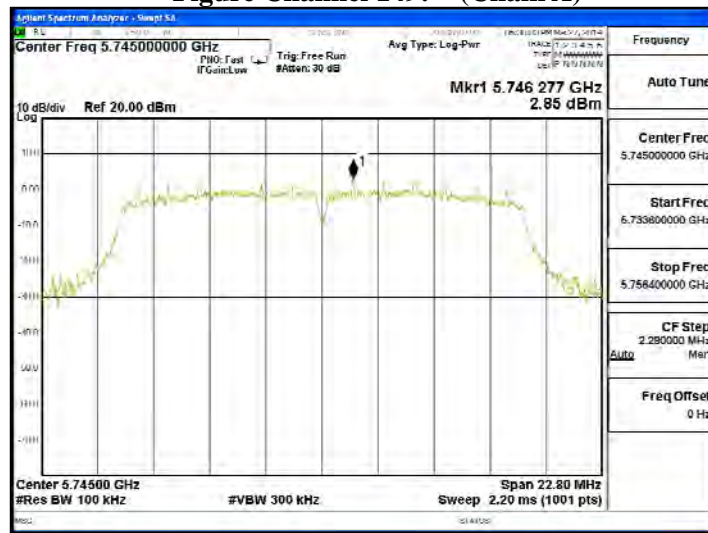


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5745MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	2.850	5.860	< 8dBm	Pass
B	0.050	3.060	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 149: (Chain A)**



**Figure Channel 149: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5785MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	2.970	5.980	< 8dBm	Pass
B	0.410	3.420	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 157: (Chain A)**



**Figure Channel 157: (Chain B)**



Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 6: Transmit - 802.11n-20BW\_14.4Mbps(5G Band) (5825MHz)

CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	3.450	6.460	< 8dBm	Pass
B	0.630	3.640	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 165: (Chain A)

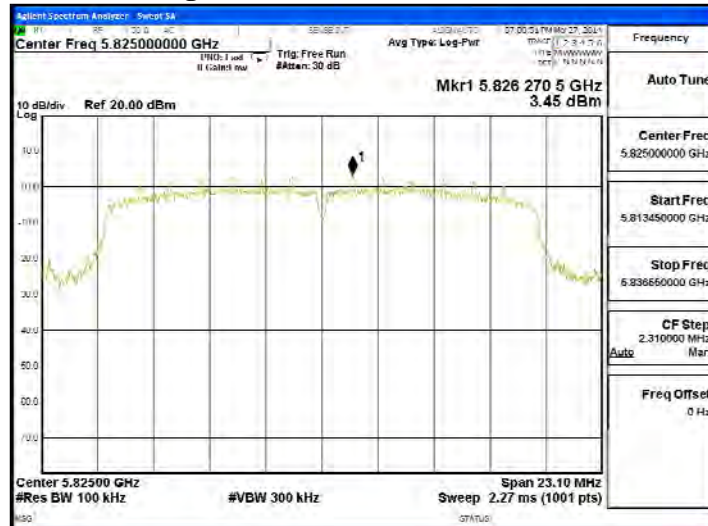
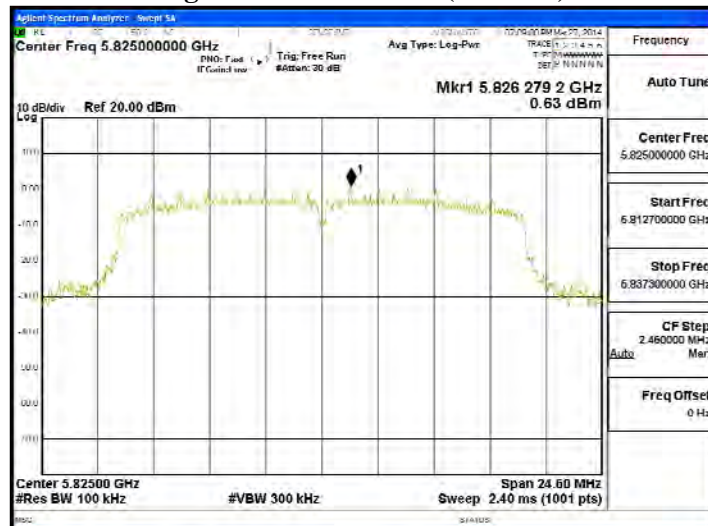


Figure Channel 165: (Chain B)

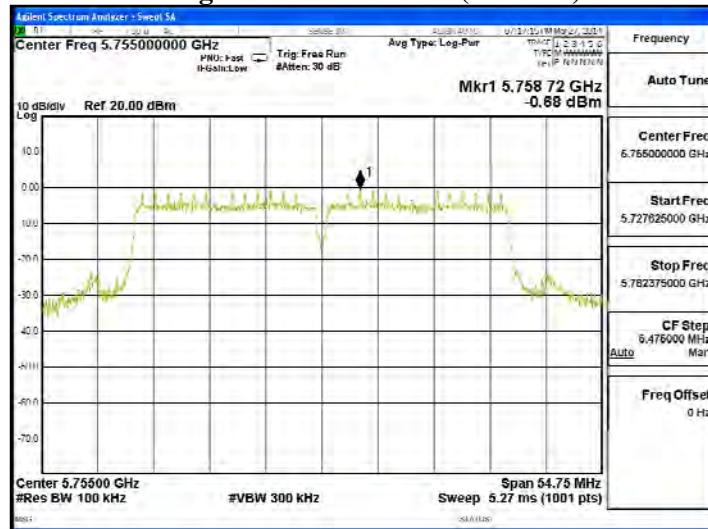


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5755MHz)

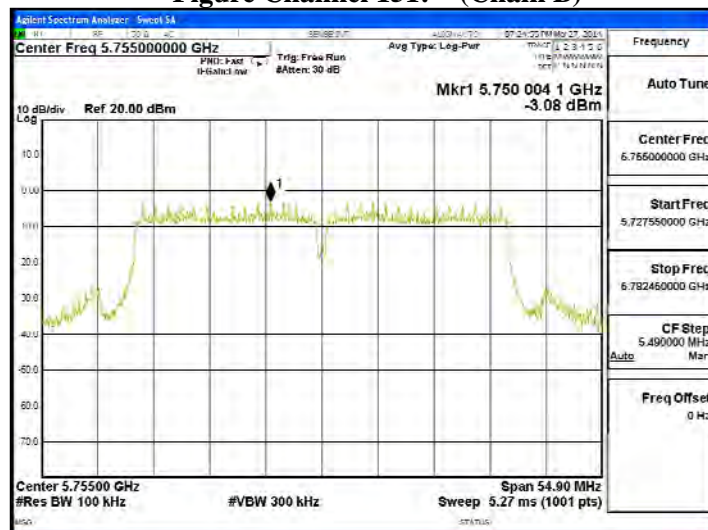
CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-0.680	2.330	< 8dBm	Pass
B	-3.080	-0.070	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 151: (Chain A)**



**Figure Channel 151: (Chain B)**

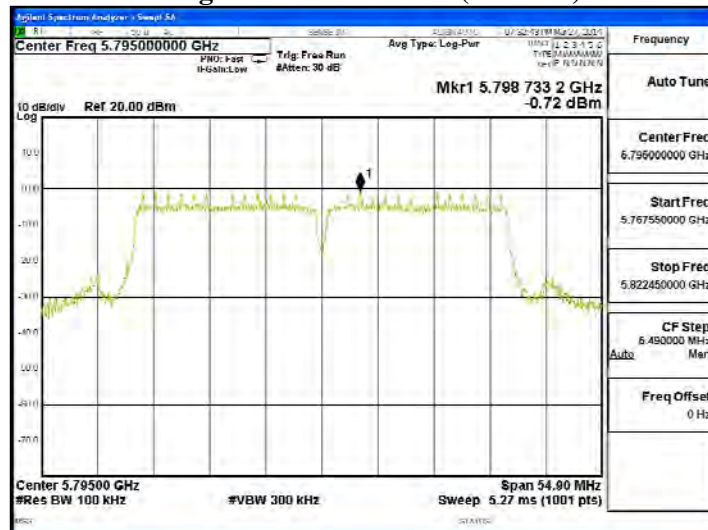


Product : Wireless Motherboard  
 Test Item : Power Density Data  
 Test Site : No.3OATS  
 Test Mode : Mode 7: Transmit - 802.11n-40BW\_30Mbps(5G Band) (5795MHz)

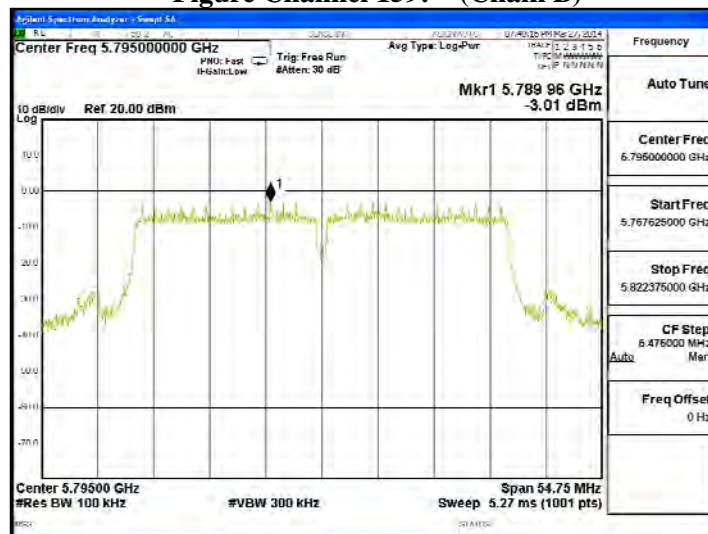
CHAIN	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Limit	Result
A	-0.720	2.290	< 8dBm	Pass
B	-3.010	0.000	< 8dBm	Pass

Note 1: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Figure Channel 159: (Chain A)**



**Figure Channel 159: (Chain B)**



## 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.