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FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

1200Mbps Wireless Dual Band 11AC Gigabit Router

MODEL No.: BL-W1200

FCC ID: S8J-W1200

Trade Mark: LB-LINK

REPORT NO.: ED151116018E1

Issue Date: April 26, 2016

Prepared for

Shenzhen Bilian Electronic Co., Ltd.

Building B1, Zhongxing Industrial Zone, Juling Jutang Community, Guanlan street, Bao'an, Shenzhen China

Prepared by

EMTEK(DONGGUAN) CO., LTD.
No.281, Guantai Road, Nancheng District,
Dongguan, Guangdong, China
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TEST RESULT CERTIFICATION

Applicant:	Shenzhen Bilian Electronic Co., Ltd. Building B1, Zhongxing Industrial Zone, Juling Jutang Community, Guanlan street, Bao'an, Shenzhen China
Manufacturer:	Shenzhen Bilian Electronic Co., Ltd. Building B1, Zhongxing Industrial Zone, Juling Jutang Community, Guanlan street, Bao'an, Shenzhen China
EUT Description:	1200Mbps Wireless Dual Band 11AC Gigabit Router
Model Number:	BL-W1200

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C	**PASS**

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247(2015).

The test results of this report relate only to the tested sample identified in this report.

Date of Test : November 16, 2016 to April 20, 2016

Prepared by : Ivy Huang/Editor

Reviewer : Alan He/Supervisor

Approve & Authorized Signer : Sam Lv/Manager

TABLE OF CONTENTS

1 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Modulation	802.11b: DSSS(DBPSK/DQPSK/CCK) 802.11a/g: OFDM(BPSK/QPSK/QAM16/QAM64) 802.11n/ac:OFDM(BPSK/QPSK/QAM16/QAM64/QAM256)
Operating Frequency Range	2412-2462MHz / 5725 ~ 5850MHz
Number of Channels	For 2.4GHz Band: 11 for 20MHz bandwidth; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth; 2 for 40MHz bandwidth; 1 for 80MHz bandwidth
Transmit Power Max	For 2.4GHz Band: 802.11b: 18.44dBm(0.069823W) 802.11g: 16.75dBm (0.047315W) 802.11n(HT20): 14.57dBm(0.028642W) 802.11n(HT40): 14.72dBm (0.029648W) For 5GHz Band: 802.11a: 19.11dBm(0.08147W) 802.11ac(VHT20): 17.59dBm(0.057412W) 802.11ac(VHT40): 14.02dBm(0.025235W) 802.11ac(VHT80): 12.31dBm(0.017022W)
Antenna Port	☒Ant2(TX2.4G); ☒Ant3(TX2.4G); ☒Ant2(TX5G); ☒Ant3(TX5G);
Antenna Gain	5.0dBi (For Per Antenna Port Max) 8.0dBi for MIMO(Ant2+Ant3 Directional Gain)
Power Supply for Adapter	Model: BL-POWER-12W Input: AC 100-240V~50/60Hz 0.3A MAX Output:DC 12V 1A

Note: *for more details, please refer to the User's manual of the EUT.*

2 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(2)	DTS (6dB) Bandwidth	PASS	
15.247(b)(3)	Maximum Peak Conducted Output Power	PASS	
15.247(e)	Maximum Power Spectral Density Level	PASS	
15.247(d)	Unwanted Emission Into Non-Restricted Frequency Bands	PASS	
15.247(d) 15.209	Unwanted Emission Into Restricted Frequency Bands (conducted)	PASS	
15.247(d) 15.209	Radiated Spurious Emission	PASS	
15.207	Conducted Emission Test	PASS	
15.247(b)	Antenna Application	PASS	

NOTE1: N/A (Not Applicable)
NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for FCC ID: S8J-W1200 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.
The composite system is compliance with Subpart B is authorized under a DOC procedure

3 TEST METHODOLOGY

3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:
FCC 47 CFR Part 2, Subpart J
FCC 47 CFR Part 15, Subpart C
FCC KDB 558074 D01 DTS Meas Guidance v03r05
FCC KDB 662911 D01 Multiple Transmitter Output v01
FCC KDB 662911 D02 MIMO With Cross Polarized Antenna V01
ANSI C63.10-2013

3.2 MEASUREMENT EQUIPMENT USED

3.2.1 Conducted Emission Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.
Test Receiver	Rohde&Schwarz	ESCS30	100018	5/16/2015
L.I.S.N.	Rohde&Schwarz	ENV216	100017	5/16/2015
RF Switching Unit	CDS	RSU-M2	38401	5/16/2015

3.2.2 Radiated Emission Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.
Test Receiver	Rohde & Schwarz	ESCI	1166.5950.03	5/16/2015
Loop Antenna	Schwarzbeck	FMZB 1519	012	5/16/2015
Bilog Antenna	Schwarzbeck	VULB9163	000141	5/16/2015
Power Amplifier	CDS	RSU-M352	818	5/16/2015
Power Amplifier	HP	8447F	OPT H64	5/16/2015
Color Monitor	SUNSPO	SP-140A	N/A	5/16/2015
Single Line Filter	JIANLI	XL-3	N/A	5/16/2015
Single Phase Power Line Filter	JIANLI	DL-2X100B	N/A	5/16/2015
3 Phase Power Line Filter	JIANLI	DL-4X100B	N/A	5/16/2015
DC Power Filter	JIANLI	DL-2X50B	N/A	5/16/2015
Cable	Schwarzbeck	PLF-100	549489	5/16/2015
Cable	Rosenberger	CIL02	A0783566	5/16/2015
Cable	Rosenberger	RG 233/U	525178	5/16/2015
Signal Analyzer	Rohde & Schwarz	FSV30	103040	5/16/2015
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1272	5/16/2015
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	5/16/2015
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	5/16/2015
Cable	H+S	CBL-26	N/A	5/16/2015
Cable	H+S	CBL-26	N/A	5/16/2015
Cable	H+S	CBL-26	N/A	5/16/2015

3.2.3 Radio Frequency Test Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.
Spectrum Analyzer	Rohde & Schwarz	FSV30	1321.3008K	5/16/2015
Signal Analyzer	Agilent	N9010A	My53470879	5/16/2015
Power meter	Anritsu	ML2495A	0824006	5/16/2015
Power sensor	Anritsu	MA2411B	0738172	5/16/2015

Remark: *Each piece of equipment is scheduled for calibration once a year.*

3.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n (ht20): MCS0; 802.11n (ht40): MCS8) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

☒Frequency and Channel list for 802.11 b/g/n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447		

☒Frequency and Channel list for 802.11 n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	5	2432	8	2447
4	2427	6	2437	9	2452
		7	2442		

☒Test Frequency and Channel for 802.11 b/g/n (HT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462

☒Test Frequency and channel for 802.11 n (HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452

4 TEST FACILITY

Site Description
EMC Lab. : Registered on FCC, June 18, 2014
The Certificate Number is 247565

Registered on Industry Canada, February 19, 2014
The Certificate Number is 9444A.

Name of Firm : EMTEK(DONGGUAN) CO., LTD.
Site Location : No.281, Guantai Road, Nancheng District, Dongguan, Guangdong, China

5 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

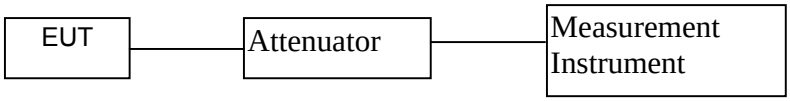
Parameter	Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%

Measurement Uncertainty for a level of Confidence of 95%

6 SETUP OF EQUIPMENT UNDER TEST

6.1 RADIO FREQUENCY TEST SETUP 1

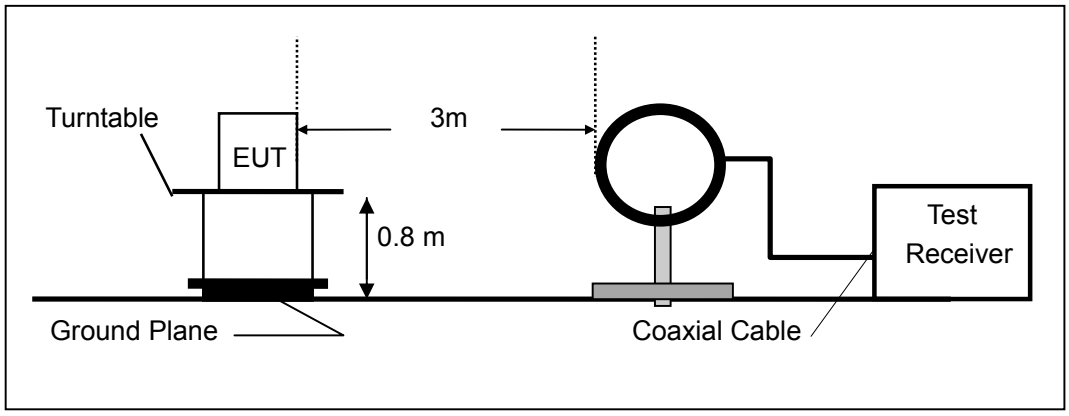
The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



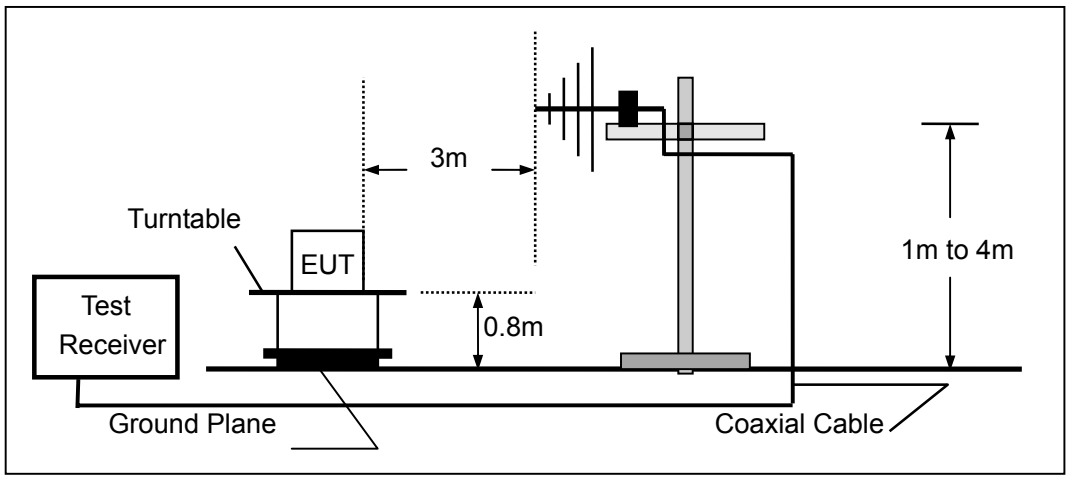
6.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

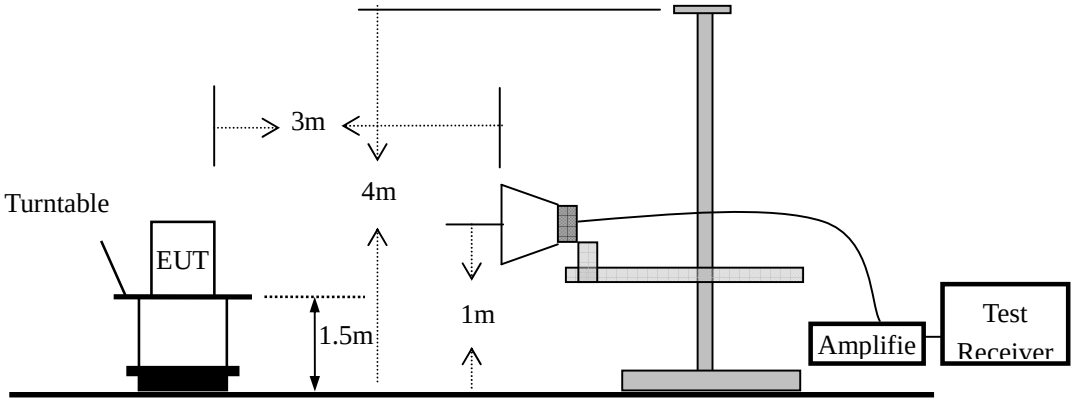
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

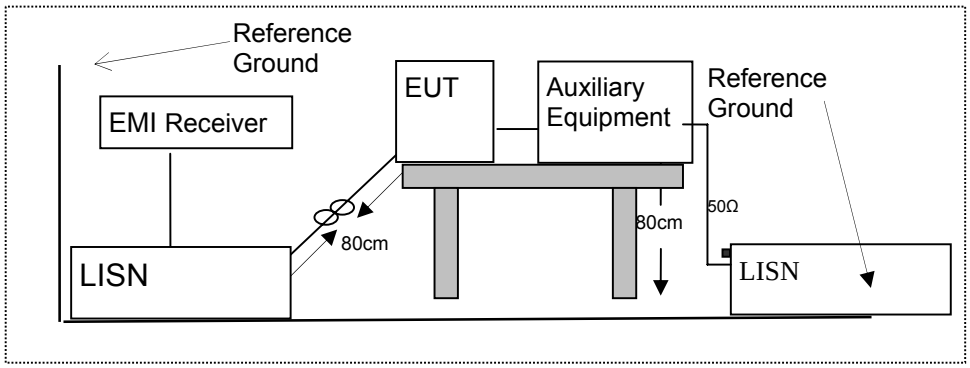


6.3 CONDUCTED EMISSION TEST SETUP

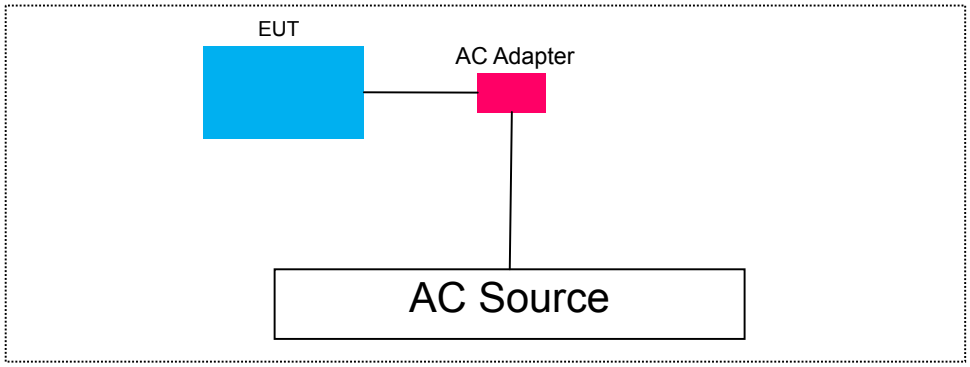
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in ANSI C63.10.2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



6.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



6.5 SUPPORT EQUIPMENT

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1.	N/A	N/A	N/A	N/A	N/A

Notes:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

7 TEST REQUIREMENTS

7.1 DTS (6DB) BANDWIDTH

7.1.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.1.2 Conformance Limit

The minimum -6 dB bandwidth shall be at least 500 kHz.

7.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

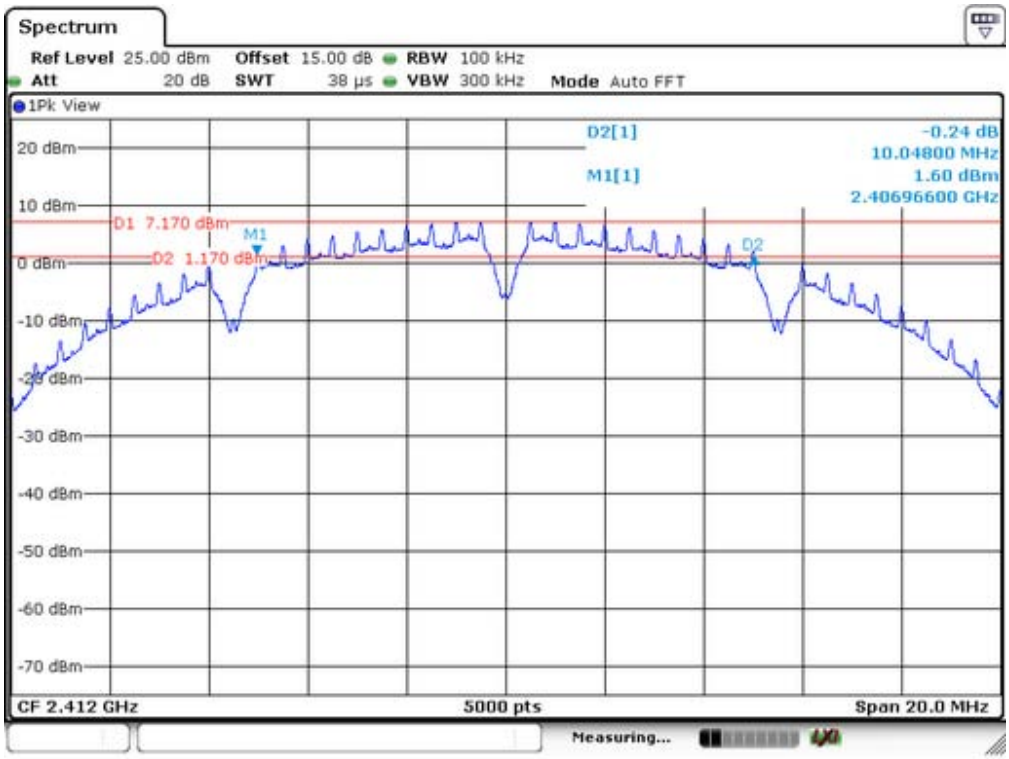
7.1.4 Test Procedure

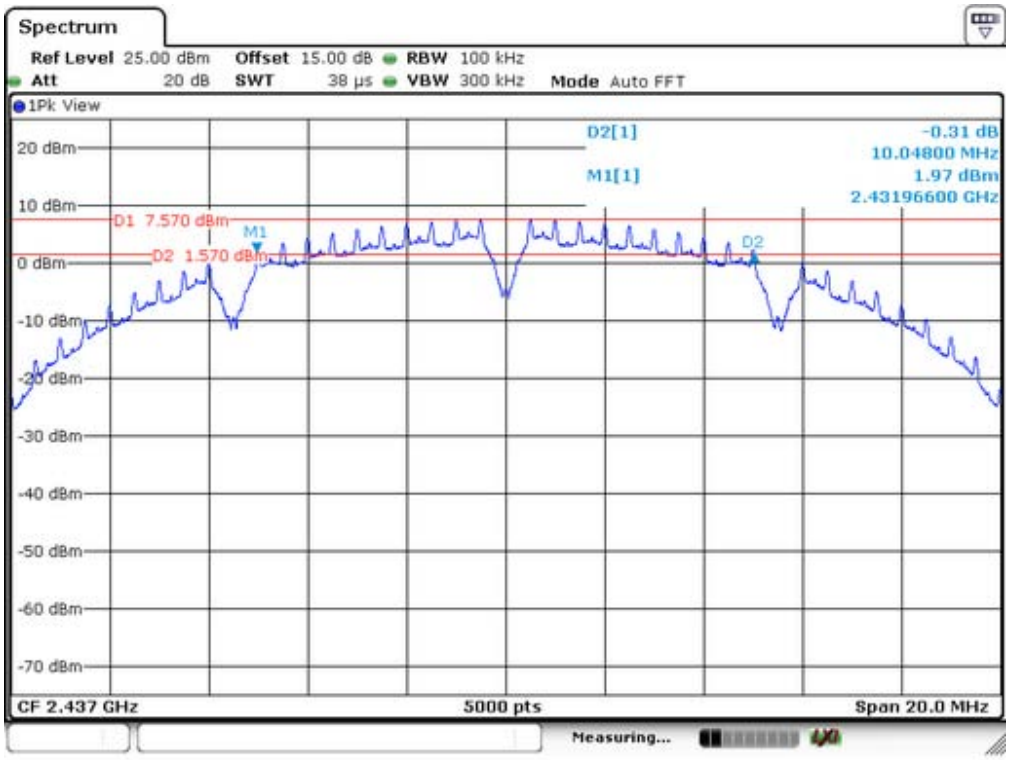
1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequency) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

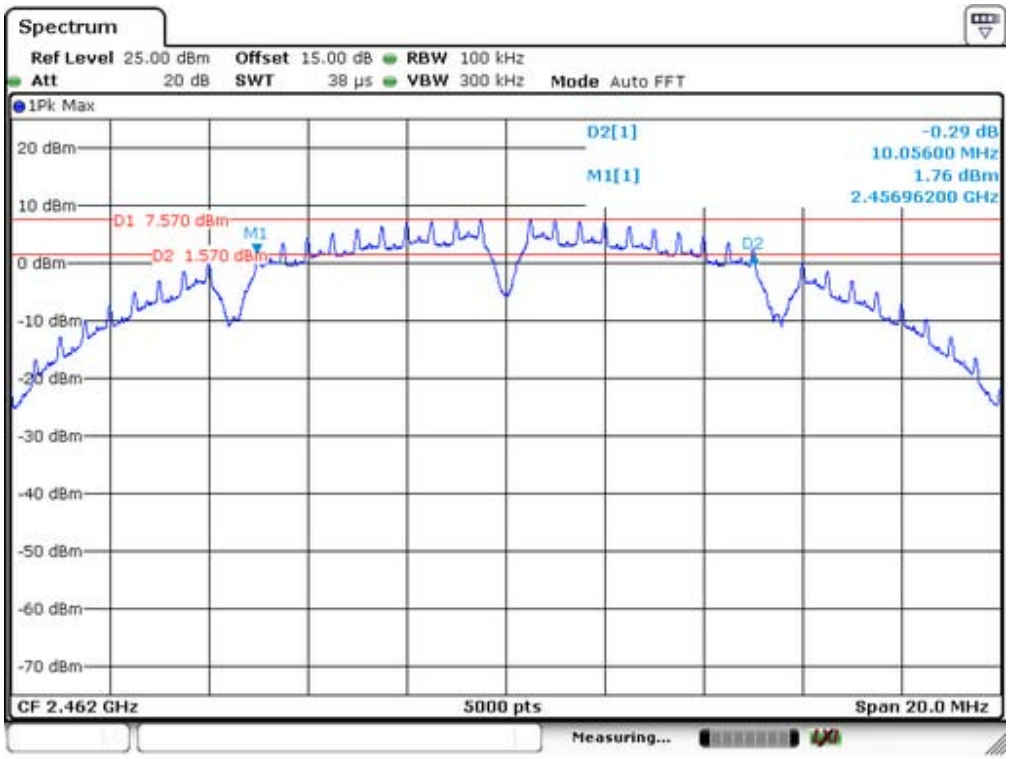
7.1.5 Test Results

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy

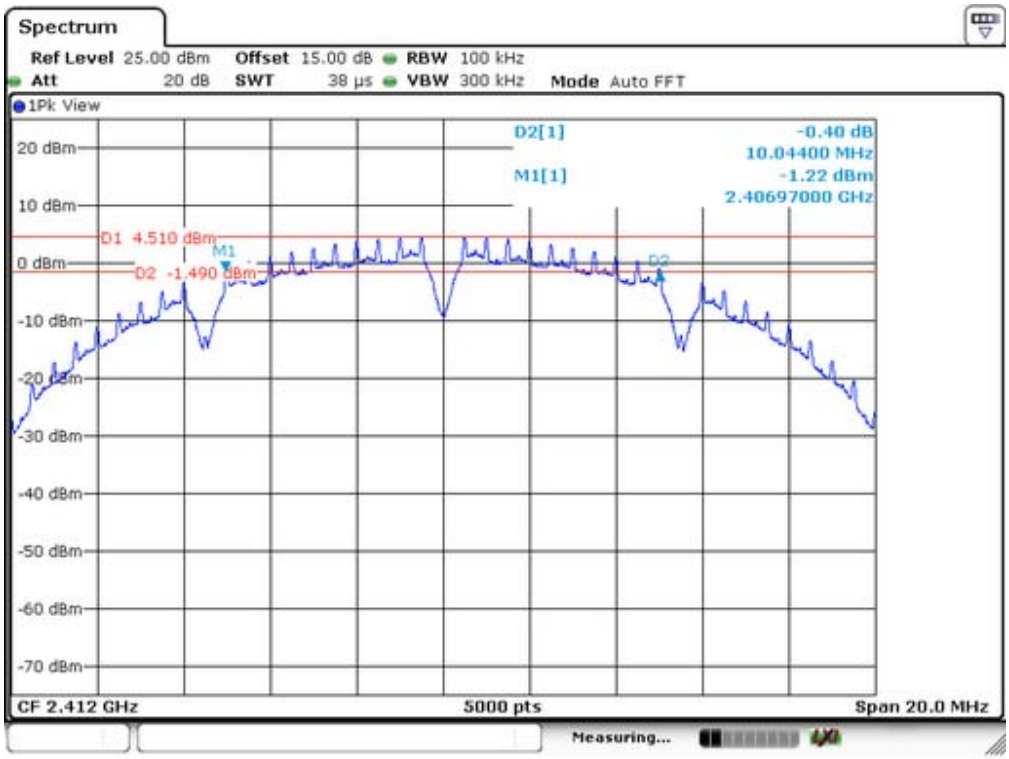
IEEE 802.11b SISO Ant2			
Channel frequency (MHz)	Measurement level (KHz)	Required Limit (KHz)	Result
2412	10048	>500	Pass
2437	10048	>500	
2462	10056	>500	

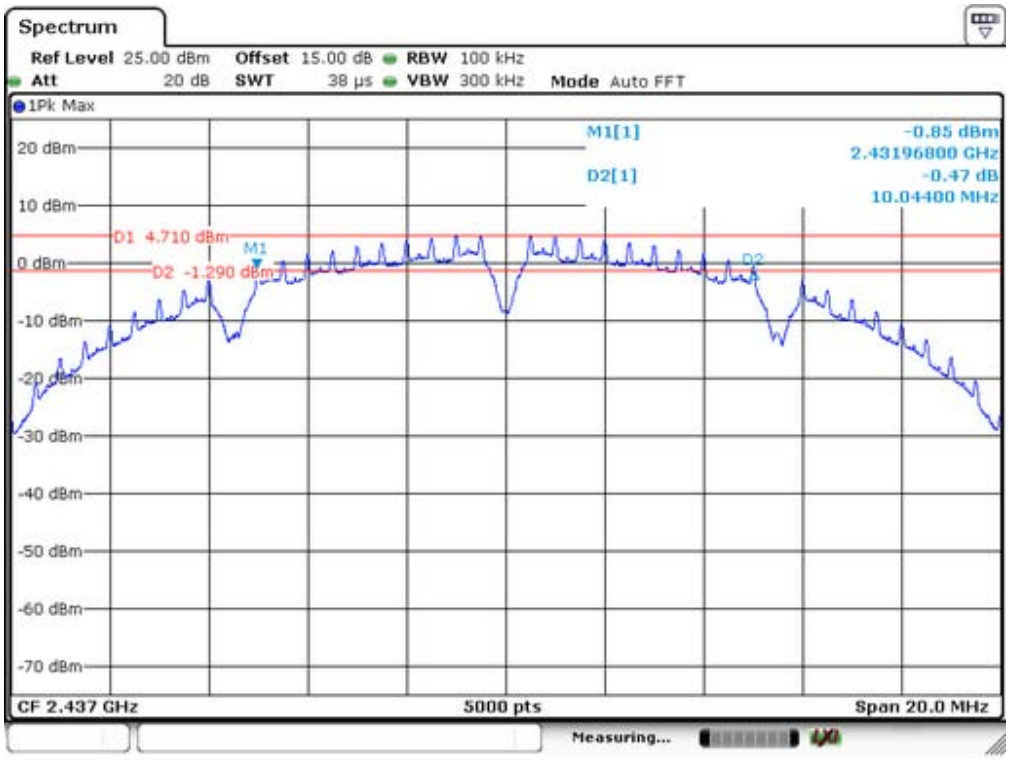

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.24 dB
10.04800 MHz
M1[1] 1.60 dBm
2.40696600 GHz
D1 7.170 dBm
D2 1.170 dBm
M1
D2
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

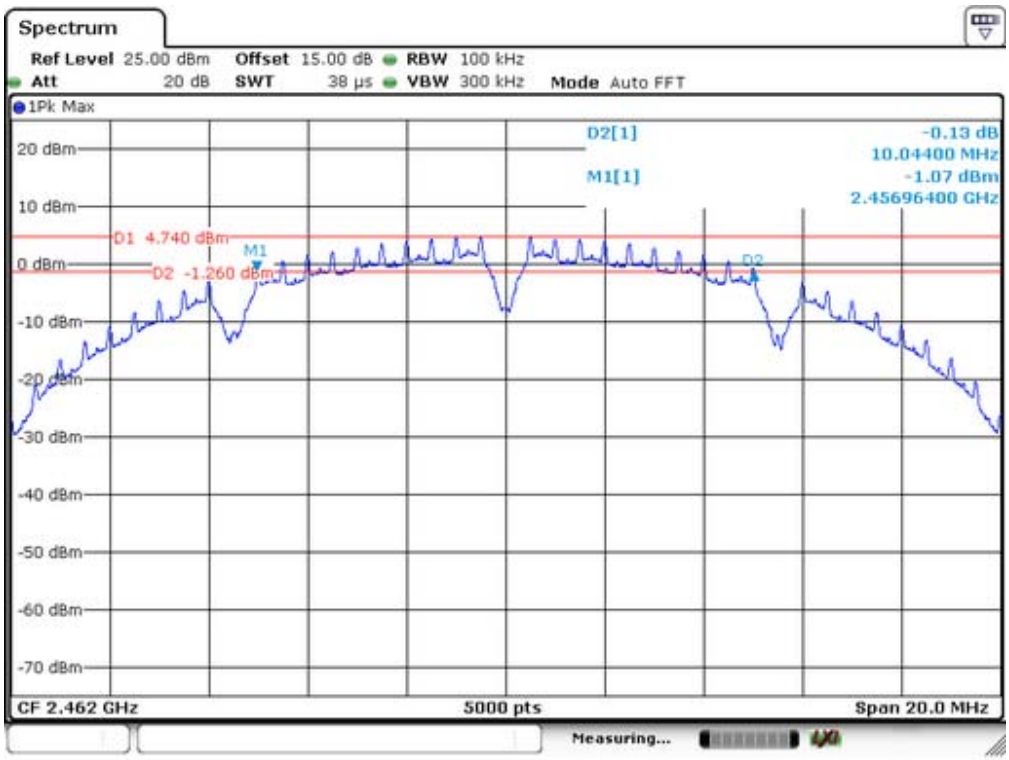

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.31 dB
10.04800 MHz
M1[1] 1.97 dBm
2.43196600 GHz
D1 7.570 dBm
D2 1.570 dBm
M1
D2
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...



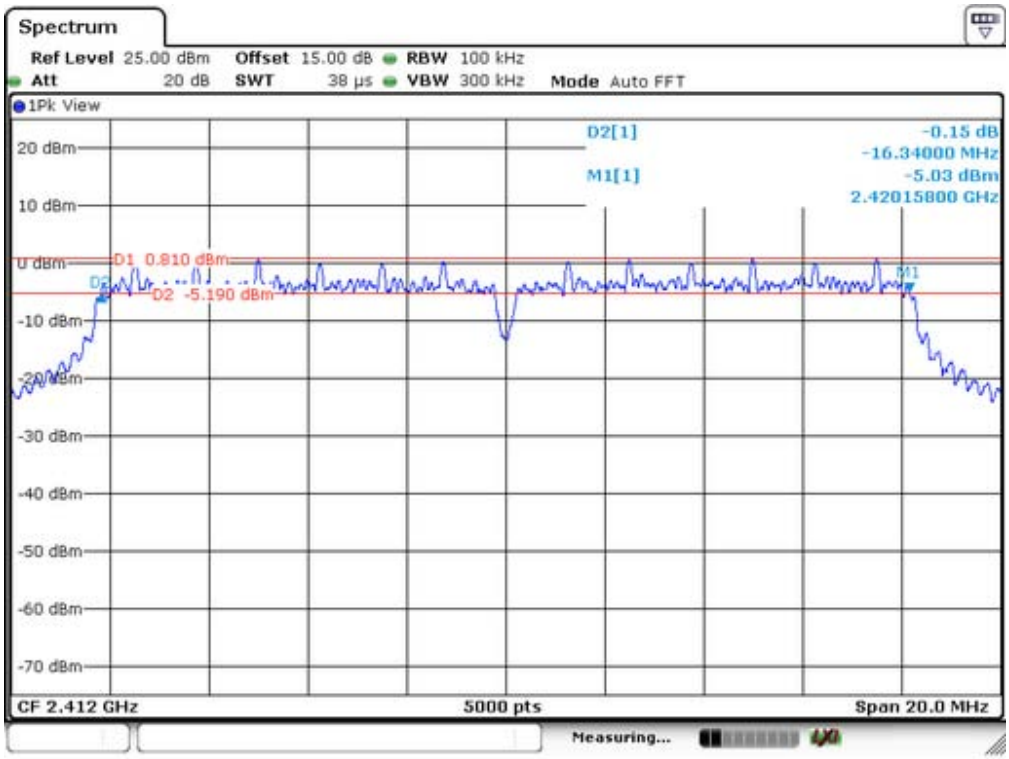
IEEE 802.11b SISO Ant3			
Channel frequency (MHz)	Measurement level (KHz)	Required Limit (KHz)	Result
2412	10044	>500	Pass
2437	10044	>500	
2462	10044	>500	

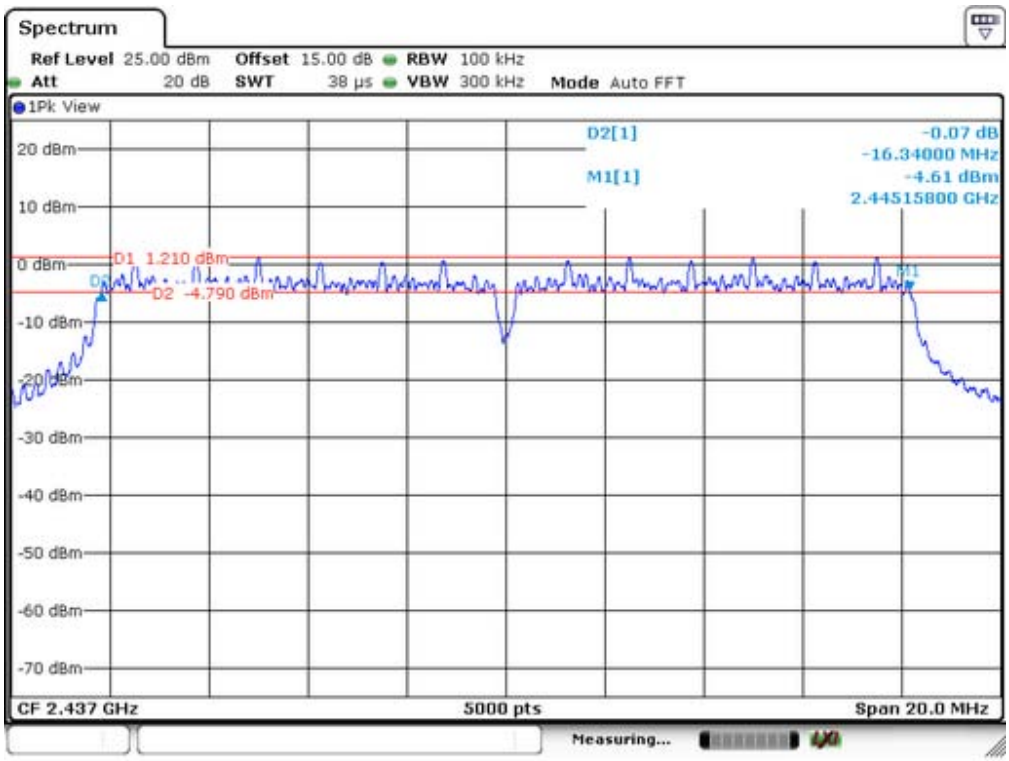

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.40 dB
10.04400 MHz
M1[1] -1.22 dBm
2.40697000 GHz
D1 4.510 dBm
D2 -1.490 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

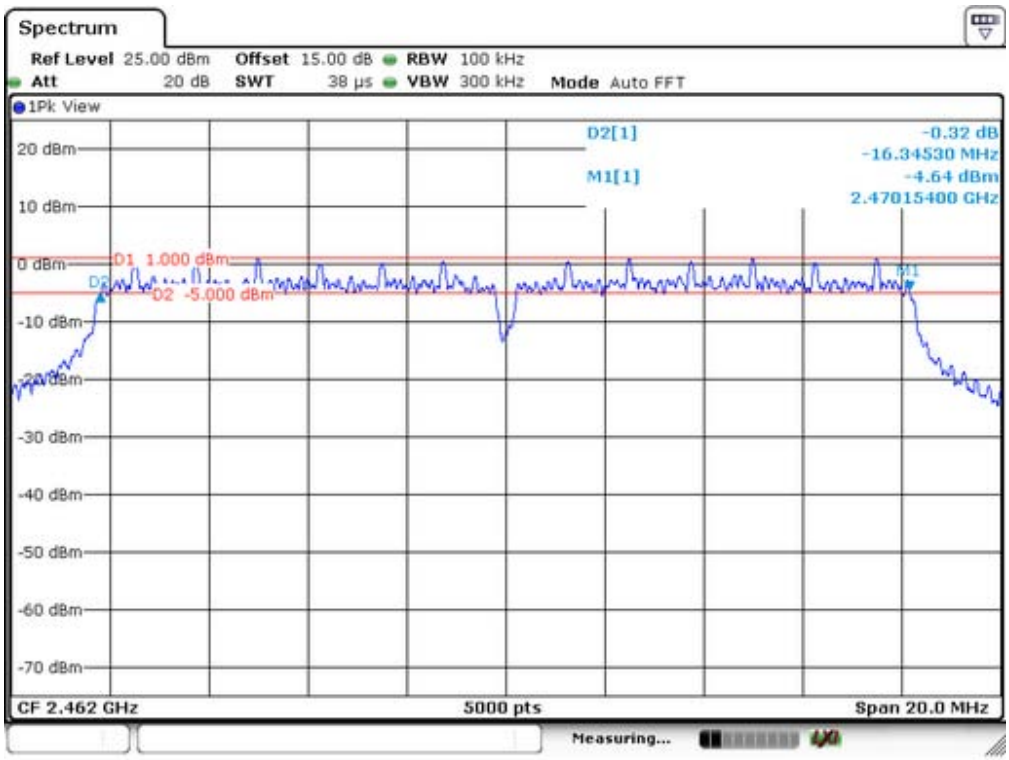

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -0.85 dBm
2.43196800 GHz
D2[1] -0.47 dB
10.04400 MHz
D1 4.710 dBm
D2 -1.290 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...



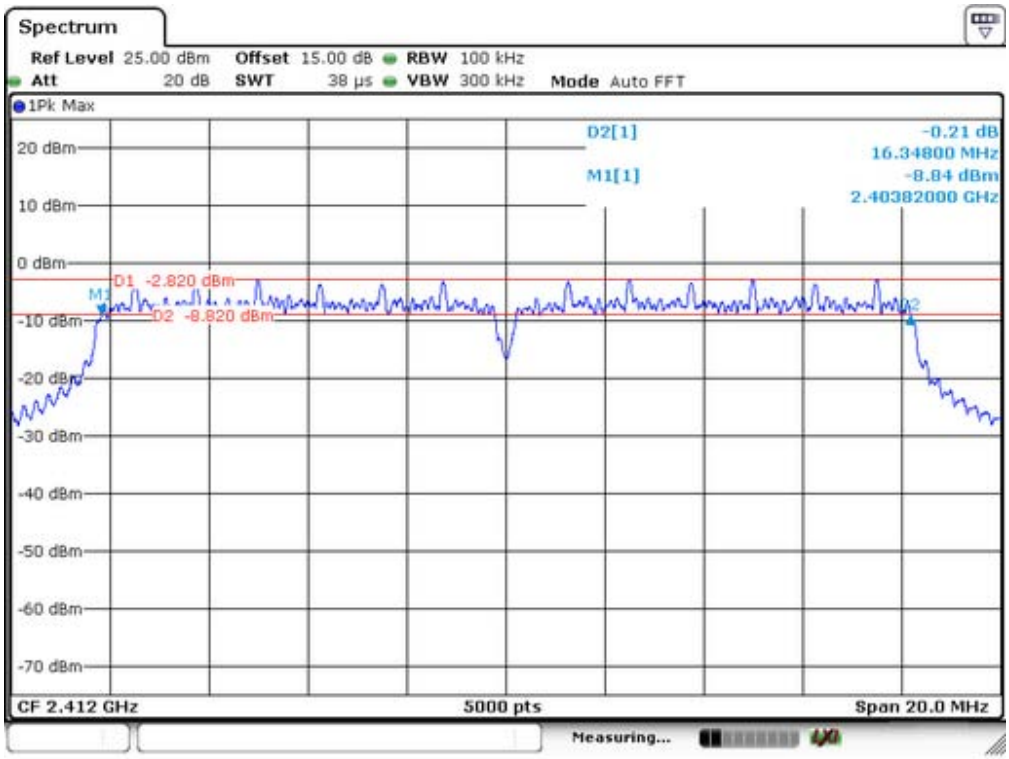
IEEE 802.11g SISO Ant2			
Channel frequency (MHz)	Measurement level (KHz)	Required Limit (KHz)	Result
2412	16340	>500	Pass
2437	16340	>500	
2462	16345	>500	

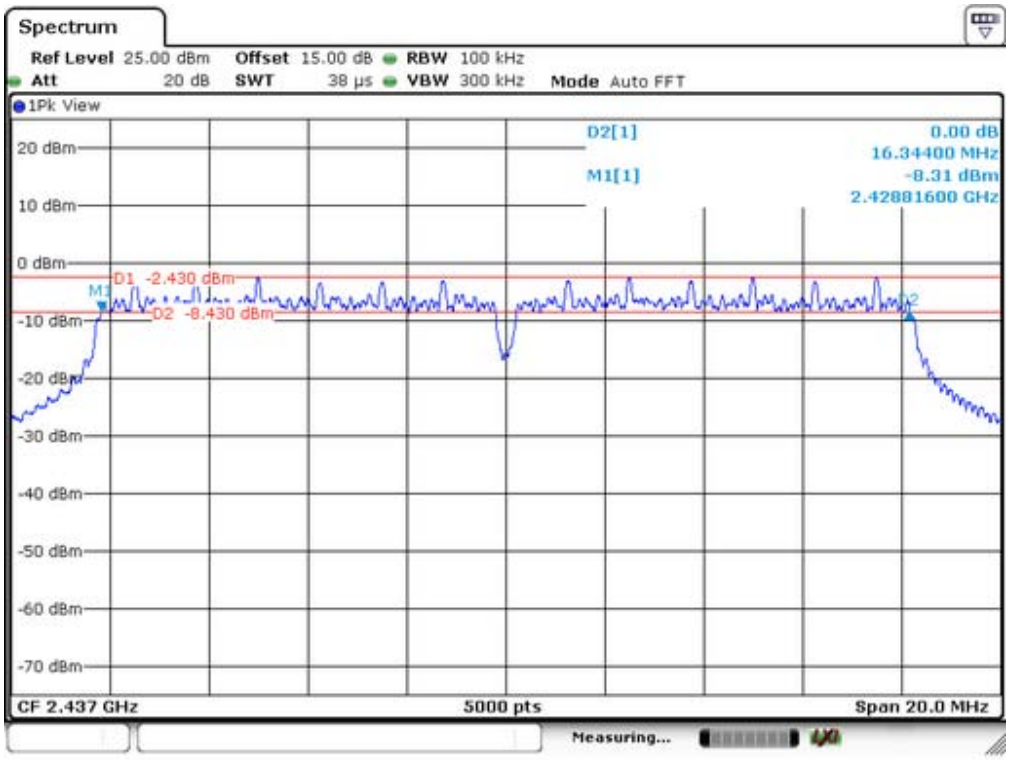

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.15 dB
-16.34000 MHz
M1[1] -5.03 dBm
2.42015800 GHz
D1 0.810 dBm
D2 -5.190 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

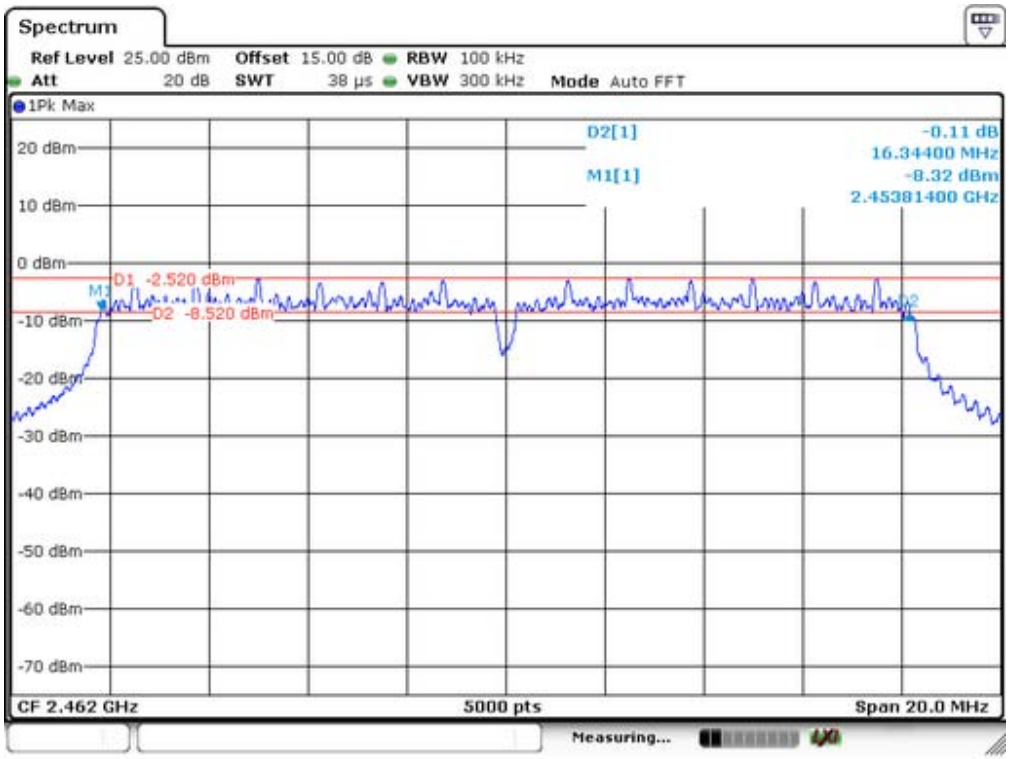

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.07 dB
-16.34000 MHz
M1[1] -4.61 dBm
2.44515800 GHz
D1 1.210 dBm
D2 -4.790 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...



IEEE 802.11g SISO Ant3			
Channel frequency (MHz)	Measurement level (KHz)	Required Limit (KHz)	Result
2412	16348	>500	Pass
2437	16344	>500	
2462	16344	>500	

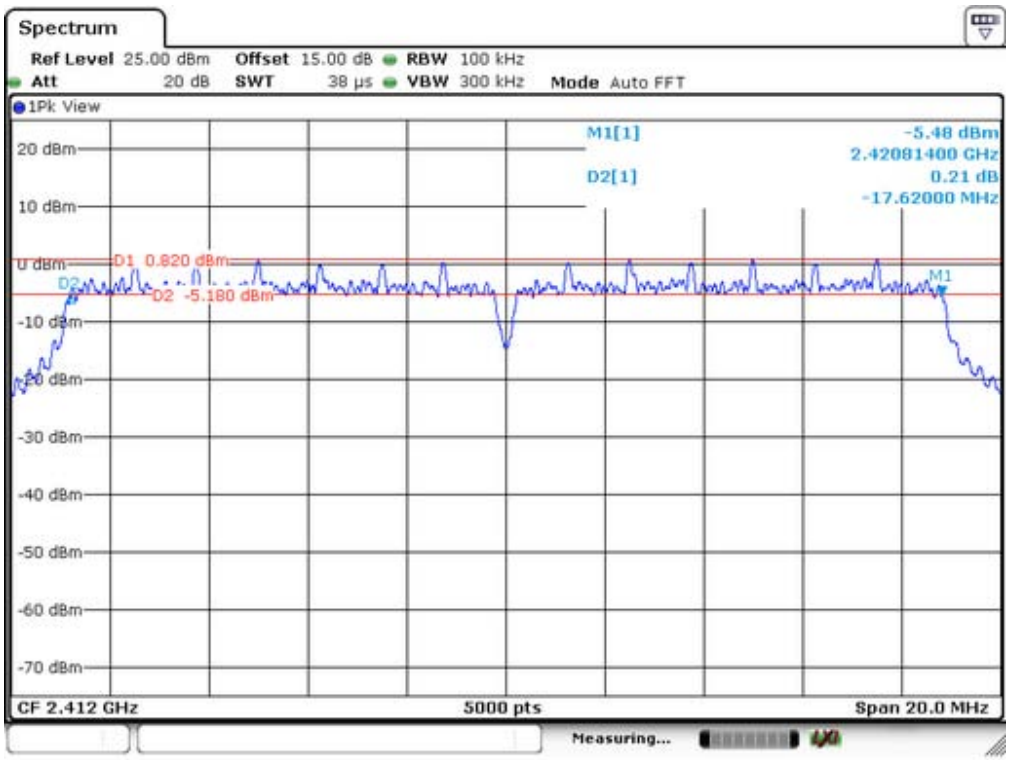

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D2[1] -0.21 dB
16.34800 MHz
M1[1] -8.84 dBm
2.40382000 GHz
D1 -2.820 dBm
D2 -8.820 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

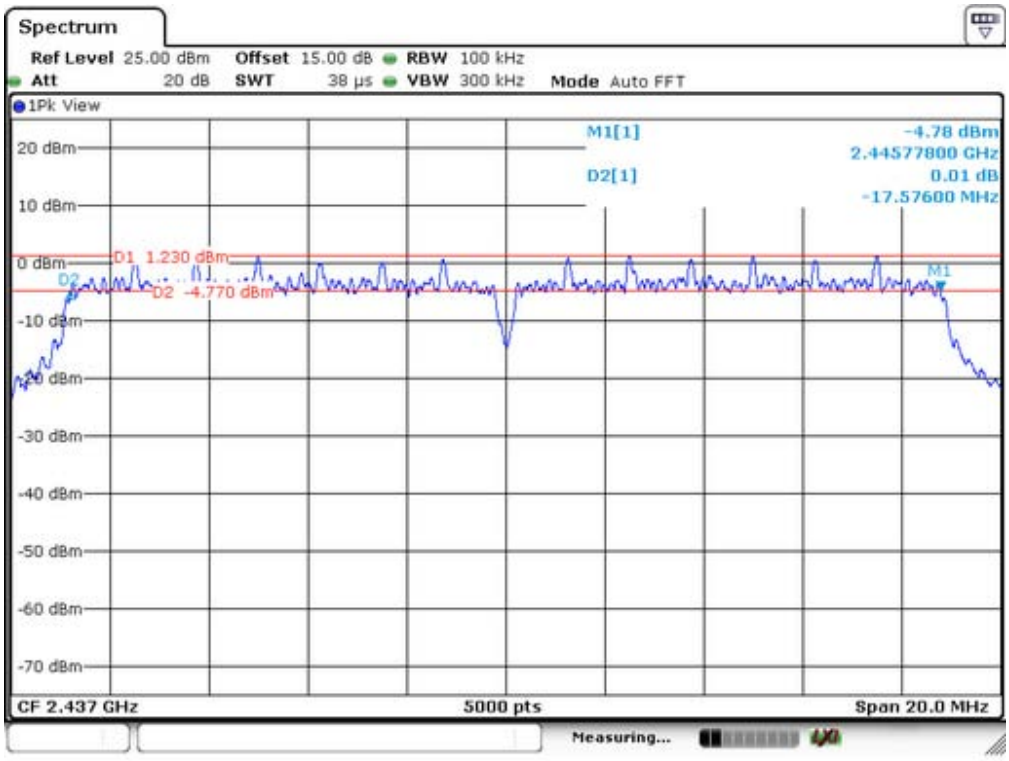

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] 0.00 dB
16.34400 MHz
M1[1] -8.31 dBm
2.42881600 GHz
D1 -2.430 dBm
D2 -8.430 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...

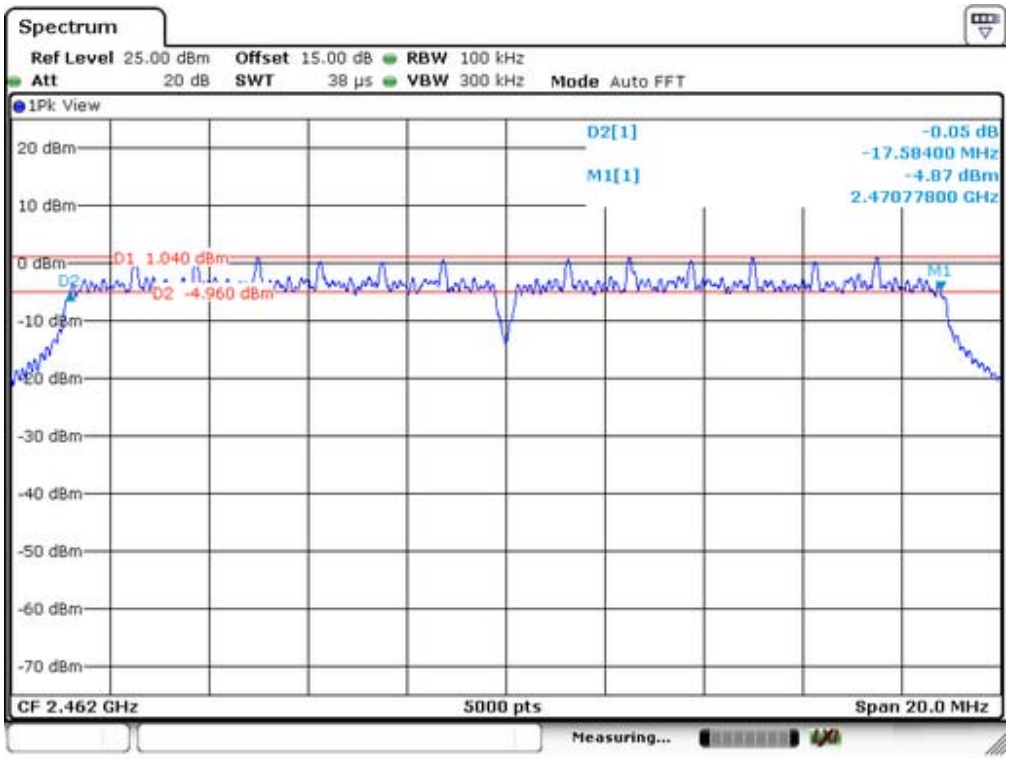


IEEE 802.11n(HT20) MIMO				
Channel frequency (MHz)	Measurement level (KHz)		Required Limit (KHz)	Result
	Ant2	Ant3		
2412	17620	17588	>500	Pass
2437	17576	17488	>500	
2462	17584	17588	>500	

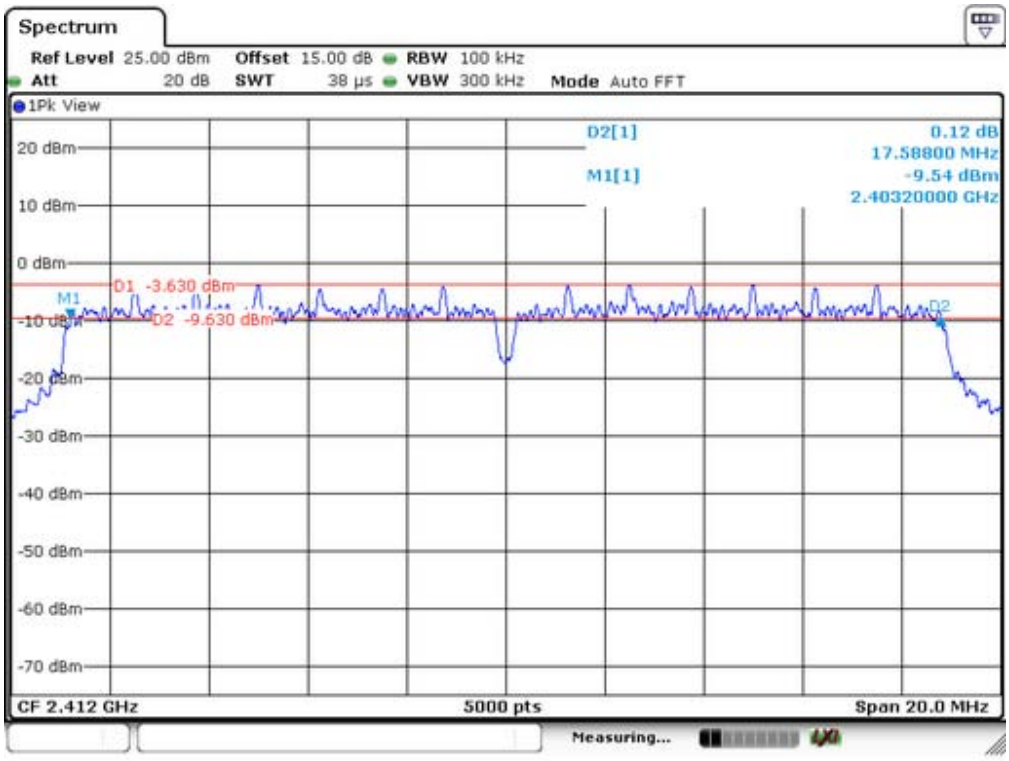
Ant2

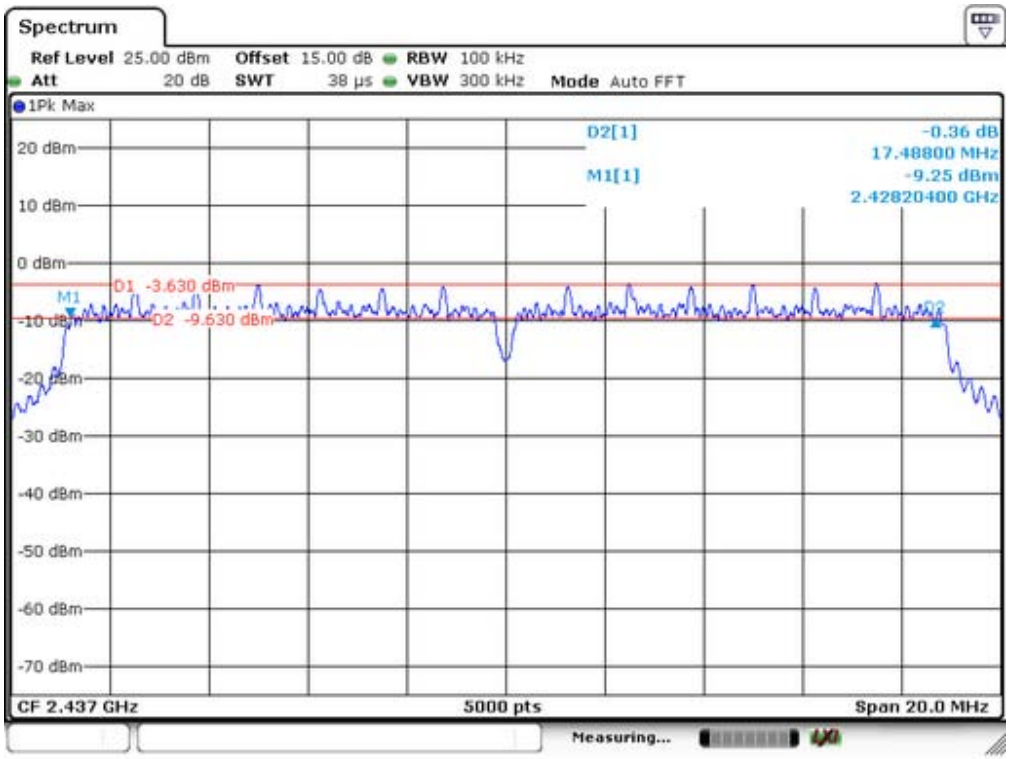

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
M1[1] -5.48 dBm
2.42081400 GHz
D2[1] 0.21 dB
-17.62000 MHz
D1 0.820 dBm
D2 -5.180 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

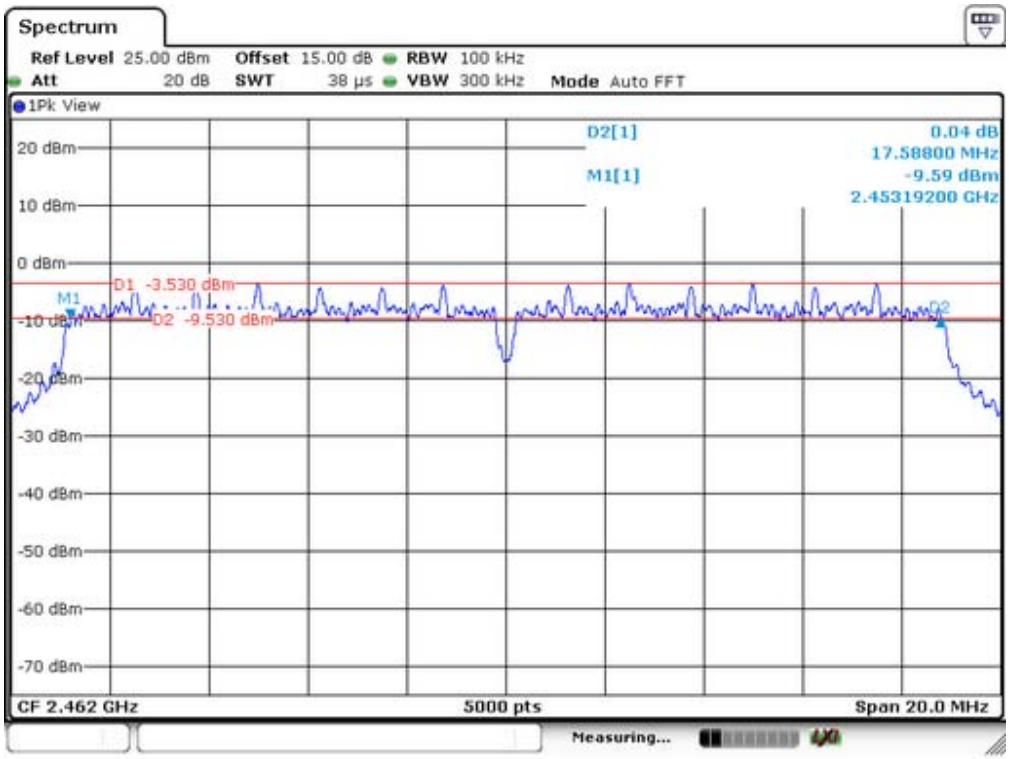

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
M1[1] -4.78 dBm
2.44577800 GHz
D2[1] 0.01 dB
-17.57600 MHz
D1 1.230 dBm
D2 -4.770 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.05 dB
-17.58400 MHz
M1[1] -4.87 dBm
2.47077800 GHz
D1 1.040 dBm
D2 -4.960 dBm
CF 2.462 GHz
5000 pts
Span 20.0 MHz
Measuring...

Ant3

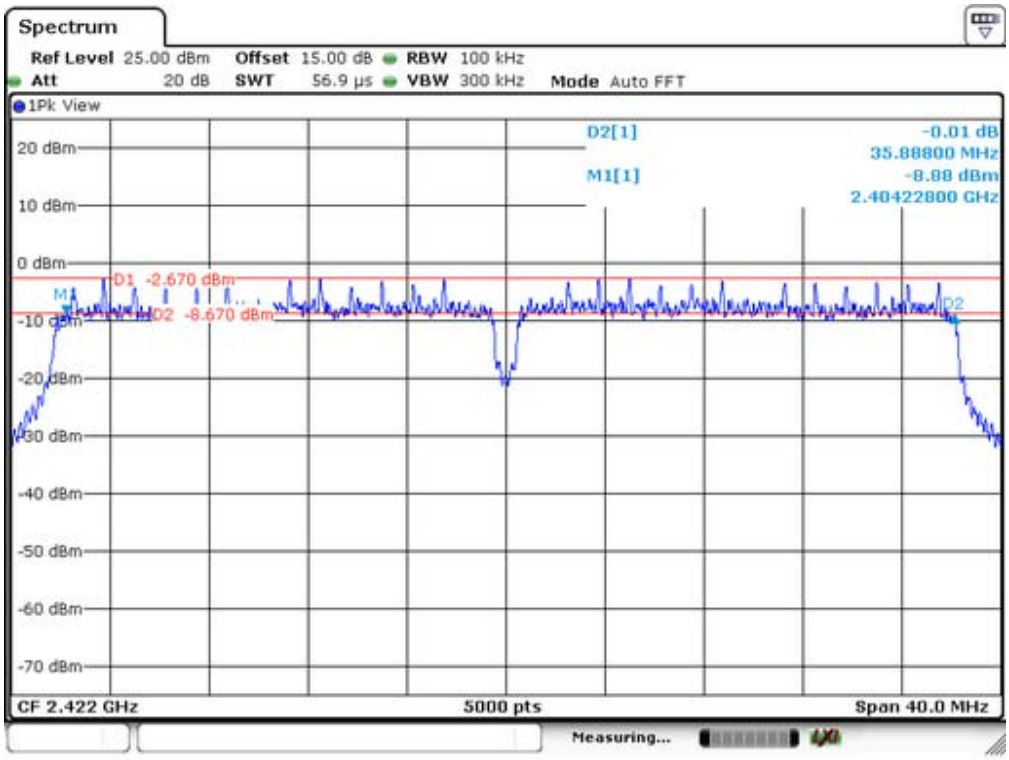

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] 0.12 dB
17.58800 MHz
M1[1] -9.54 dBm
2.40320000 GHz
D1 -3.630 dBm
D2 -9.630 dBm
CF 2.412 GHz
5000 pts
Span 20.0 MHz
Measuring...

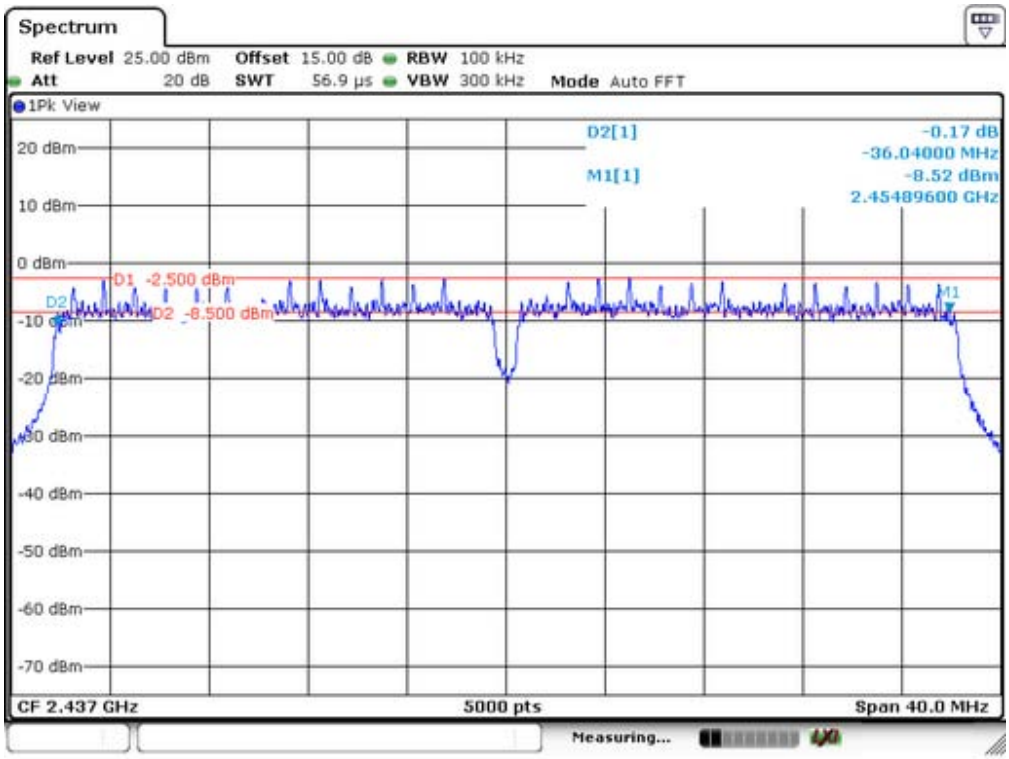

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D2[1] -0.36 dB
17.48800 MHz
M1[1] -9.25 dBm
2.42820400 GHz
D1 -3.630 dBm
D2 -9.630 dBm
CF 2.437 GHz
5000 pts
Span 20.0 MHz
Measuring...

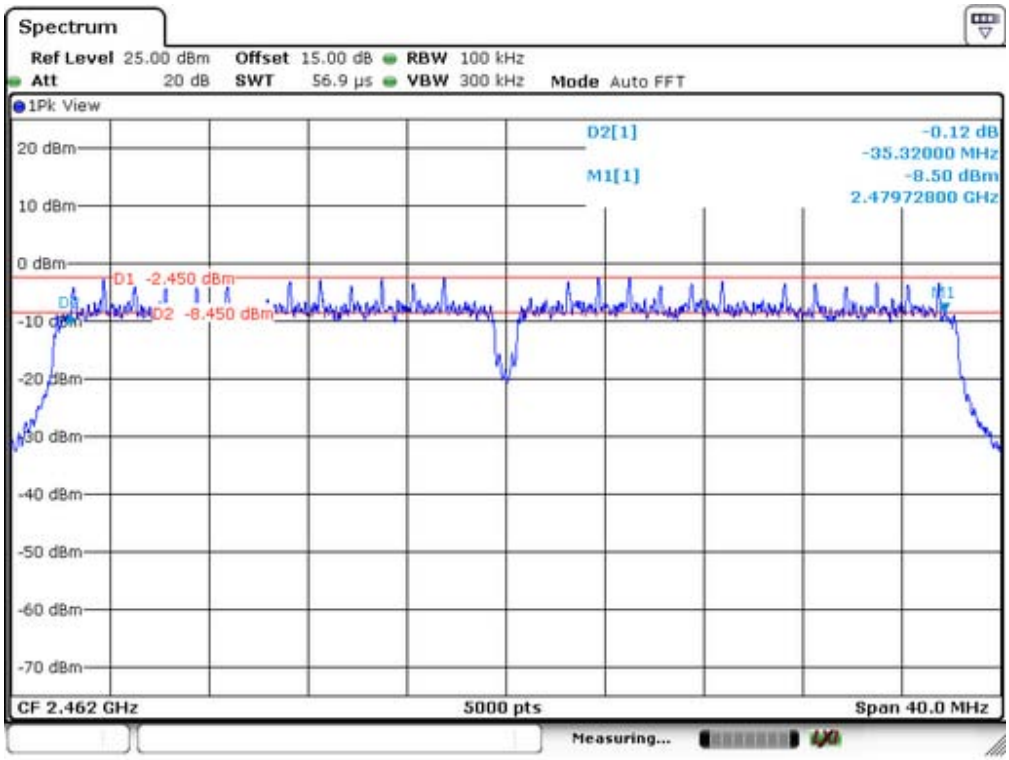

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] 0.04 dB
17.58800 MHz
M1[1] -9.59 dBm
2.45319200 GHz
D1 -3.530 dBm
D2 -9.530 dBm
CF 2.462 GHz
5000 pts
Span 20.0 MHz
Measuring...

IEEE 802.11n (HT40) MIMO				
Channel frequency (MHz)	Measurement level (KHz)		Required Limit (KHz)	Result
	Ant2	Ant3		
2422	35888	36000	>500	Pass
2437	36040	35568	>500	
2452	35320	35588	>500	

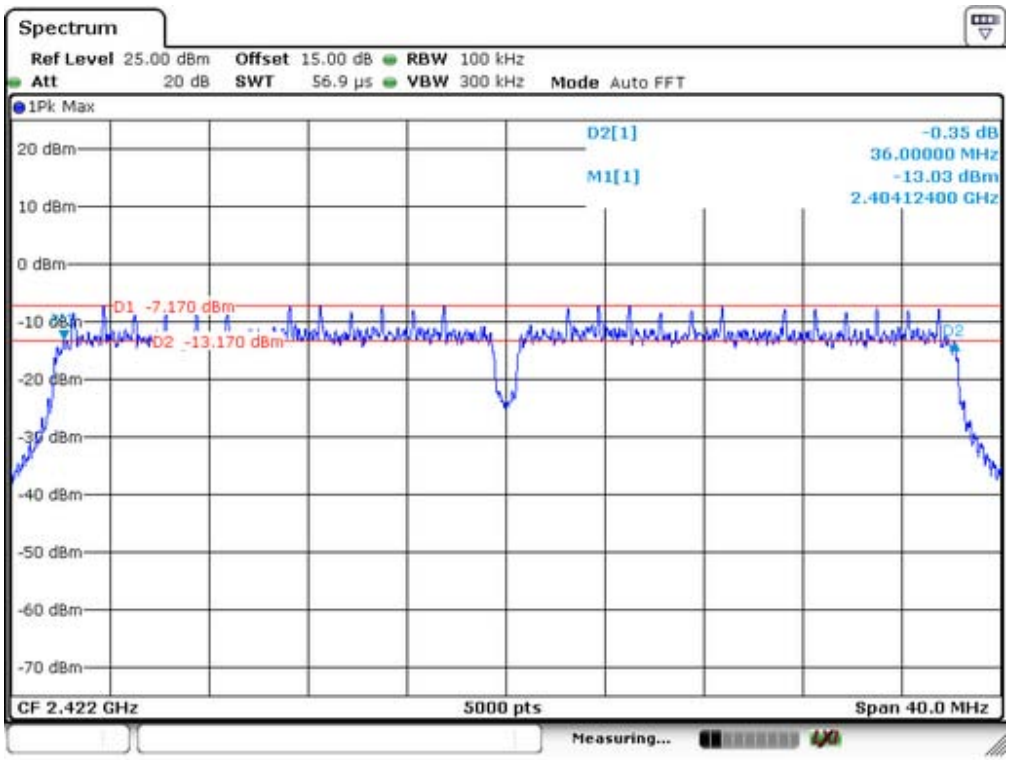
Ant2

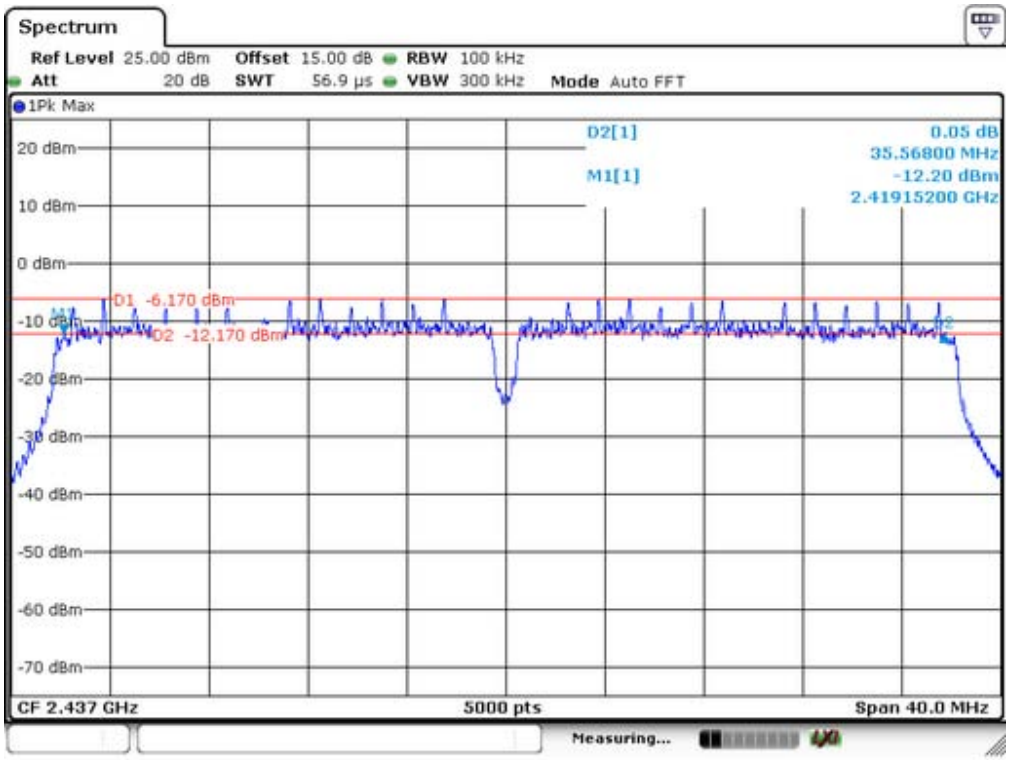


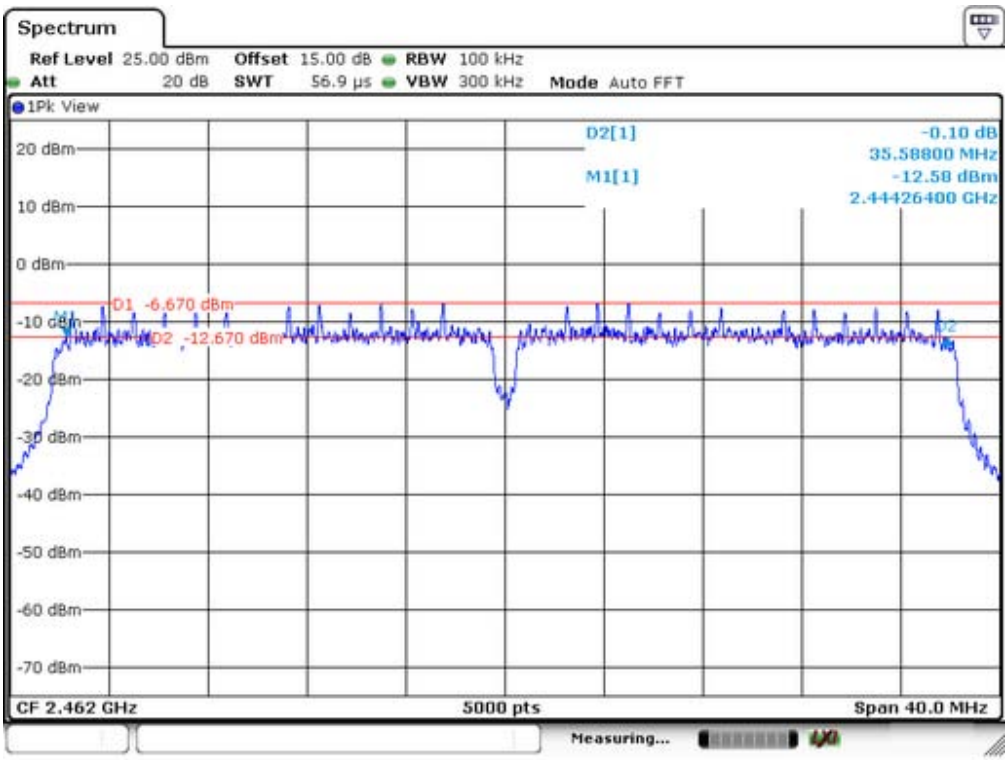

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 56.9 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.17 dB
-36.04000 MHz
M1[1] -8.52 dBm
2.45489600 GHz
D1 -2.500 dBm
D2 -8.500 dBm
CF 2.437 GHz
5000 pts
Span 40.0 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 56.9 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.12 dB
-35.32000 MHz
M1[1] -8.50 dBm
2.47972800 GHz
D1 -2.450 dBm
D2 -8.450 dBm
CF 2.462 GHz
5000 pts
Span 40.0 MHz
Measuring...

Ant3


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 56.9 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D2[1] -0.35 dB
36.00000 MHz
M1[1] -13.03 dBm
2.40412400 GHz
D1 -7.170 dBm
D2 -13.170 dBm
CF 2.422 GHz
5000 pts
Span 40.0 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 56.9 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D2[1] 0.05 dB
35.56800 MHz
M1[1] -12.20 dBm
2.41915200 GHz
D1 -6.170 dBm
D2 -12.170 dBm
CF 2.437 GHz
5000 pts
Span 40.0 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 100 kHz
Att 20 dB SWT 56.9 µs VBW 300 kHz Mode Auto FFT
1Pk View
D2[1] -0.10 dB
35.58800 MHz
M1[1] -12.58 dBm
2.44426400 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -6.670 dBm
D2 -12.670 dBm
CF 2.462 GHz
5000 pts
Span 40.0 MHz
Measuring...

7.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

7.2.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.2.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm).

7.2.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

7.2.4 Test Procedure

■ According to FCC Part15.247(b)(3)

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.
The testing follows FCC public Notice DA 00-705 Measurement Guidelines.
The RF output of EUT was connected to the power meter by RF cable and attnuator. The path loss was compensated to the results for each measurement.
Set to the maximum output power setting and enable the EUT transmit continuously.
Measure the conducted output power with cable loss and record the results in the test report.
Measure and record the results in the report.

■ According to FCC Part 15.247(b)(4):

Conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

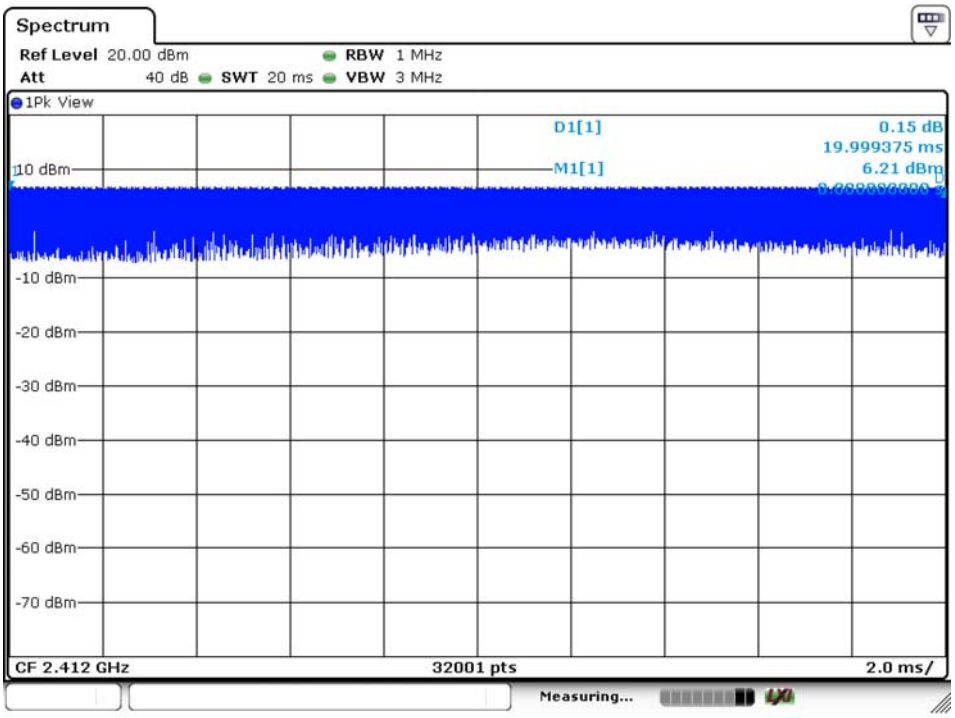
7.2.5 Test Results

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy

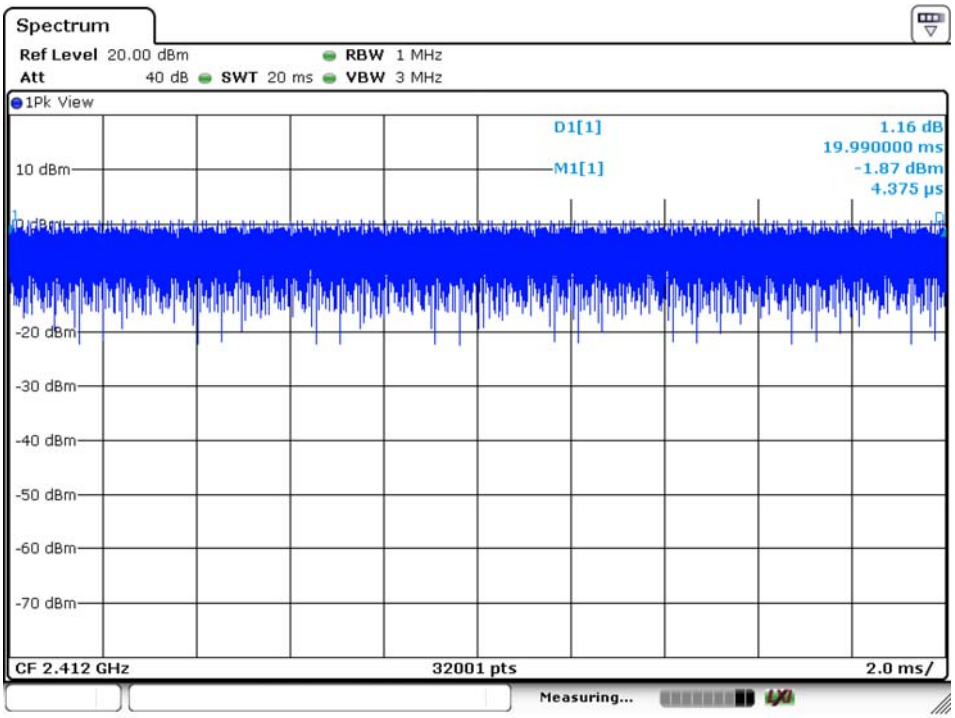
Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm)			Limit (dBm)	Verdict
			Ant2	Ant3	Sum		
802.11b	1	2412	16.36	13.13	--	30	PASS
	6	2437	16.67	13.69	--	30	PASS
	11	2462	16.58	13.59	--	30	PASS
802.11g	1	2412	15.09	11.76	--	30	PASS
	6	2437	15.71	8.35	--	30	PASS
	11	2462	15.50	8.14	--	30	PASS
802.11n (ht20)	1	2412	11.86	9.85	13.98	27.99	PASS
	6	2437	12.54	10.18	14.53	27.99	PASS
	11	2462	12.67	10.06	14.57	27.99	PASS
802.11n (ht40)	3	2422	13.12	8.20	14.33	27.99	PASS
	6	2437	13.75	6.96	14.58	27.99	PASS
	9	2452	13.93	6.90	14.72	27.99	PASS

Note:
1. For MIMO System, total power is calculated by combining the output power of each antenna according to KDB662911.
2. Antenna 2 Gain: 5dBi, Antenna 3 Gain: 5dBi. For antennas with gains of 6dBi or less, maximum allowed Transmitter output watt(+30dBm)
3. In MIMO, Ant2+Ant3 Directional Gain=G_{ANT}+10Log(N)dBi=5+10log(2)=8.01dBi> 6dBi, so the Power limit shall be reduced to 30-(8.01-6)=27.99dBm.

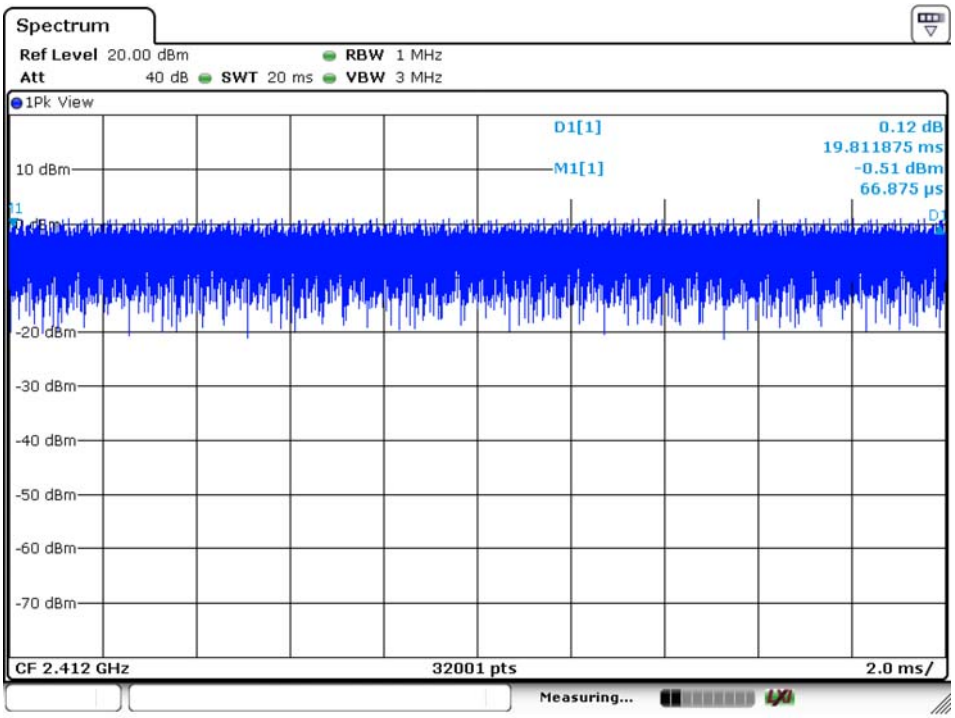
Duty Cycle Plot
802.11b:100%



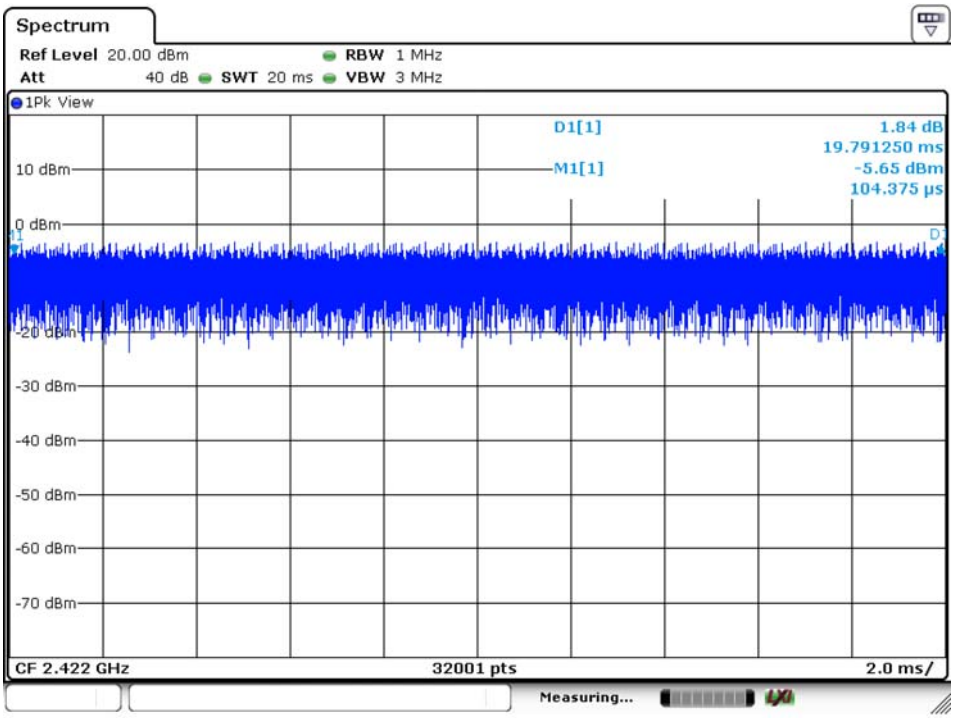
802.11g:100%



802.11n20:100%



802.11n40:100%



7.3 MAXIMUM POWER SPECTRAL DENSITY

7.3.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.3.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

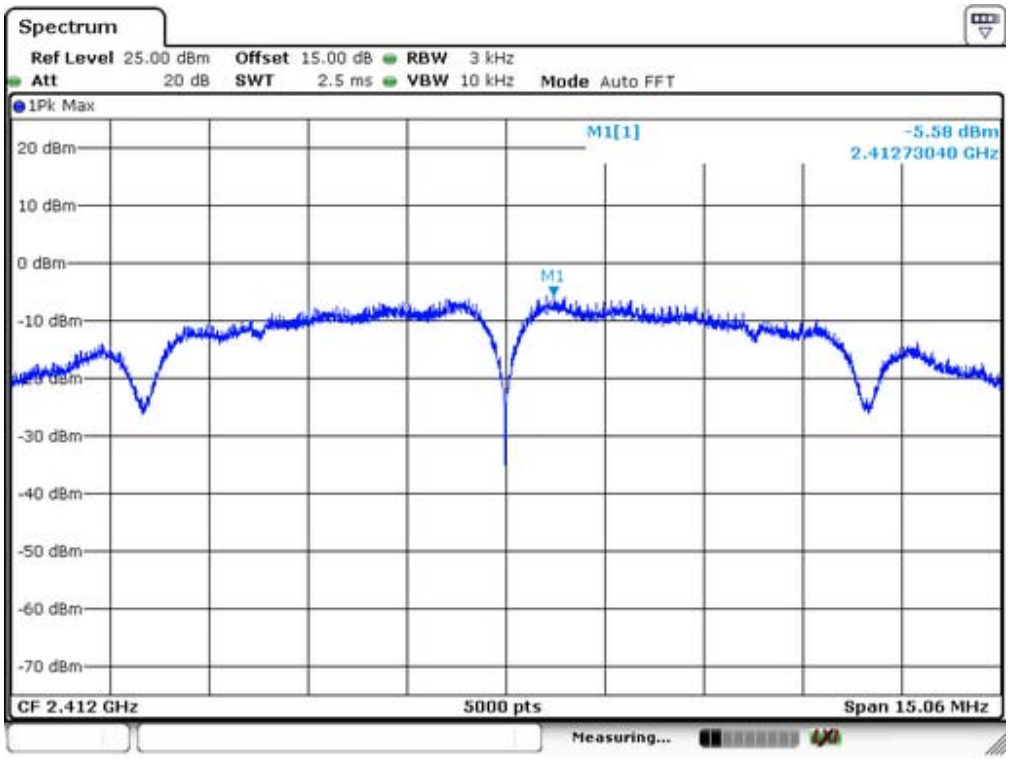
7.3.4 Test Procedure

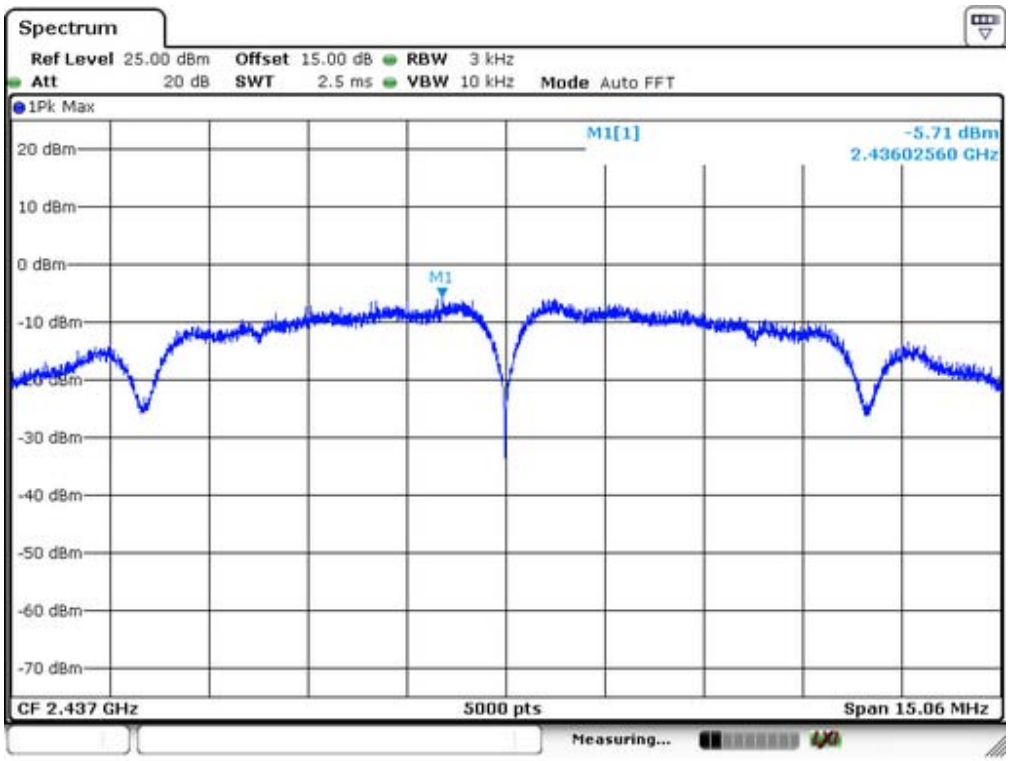
This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance
The transmitter output (antenna port) was connected to the spectrum analyzer
Set analyzer center frequency to DTS channel center frequency.
Set the span to 1.5 times the DTS bandwidth.
Set the RBW to: 3 kHz
Set the VBW to: 10 kHz.
Set Detector = peak.
Set Sweep time = auto couple.
Set Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum amplitude level within the RBW.

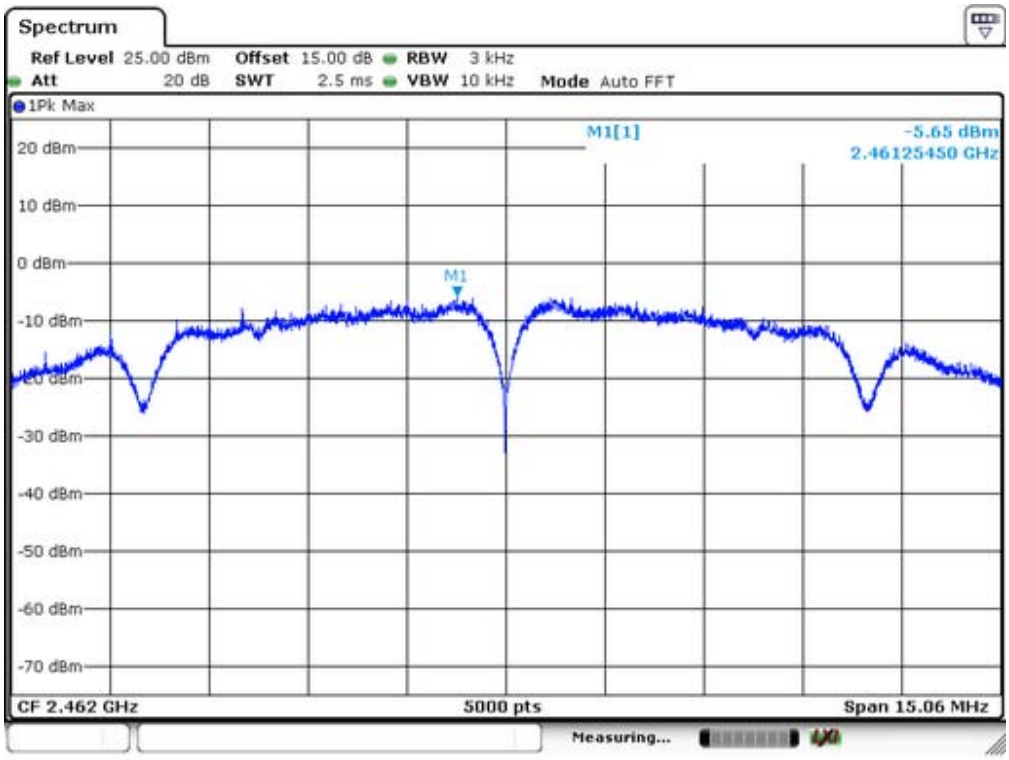
7.3.5 Test Results

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy

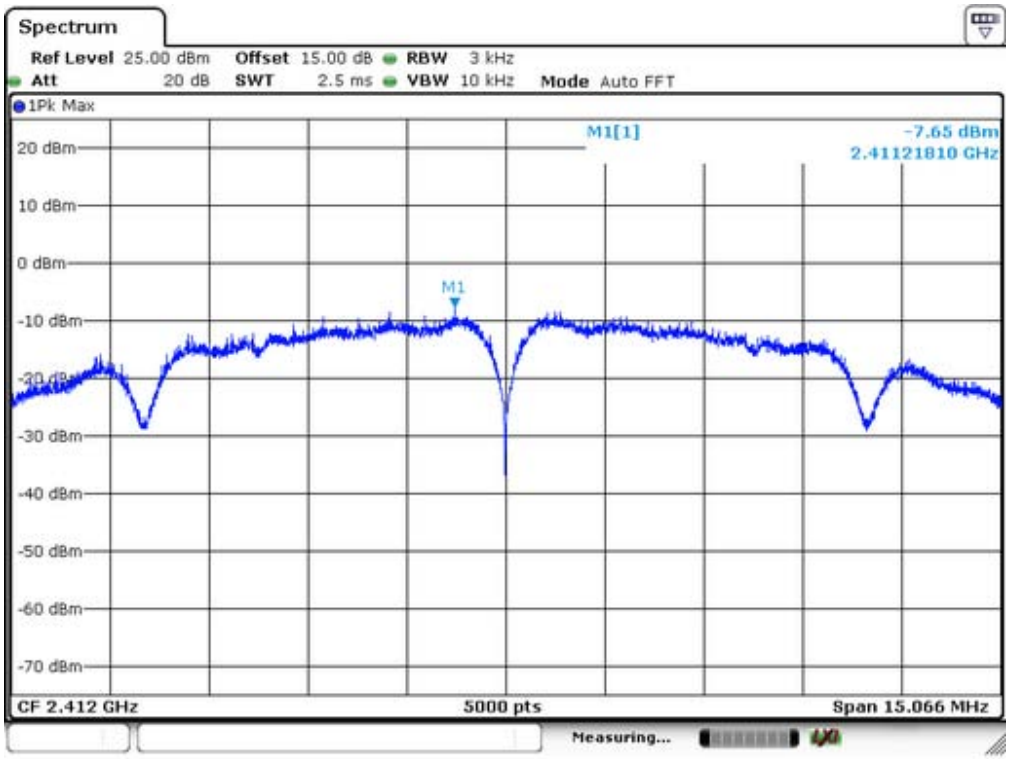
IEEE 802.11b SISO Ant2			
Channel frequency (MHz)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
2412	-5.58	8	Pass
2437	-5.71		
2462	-5.65		

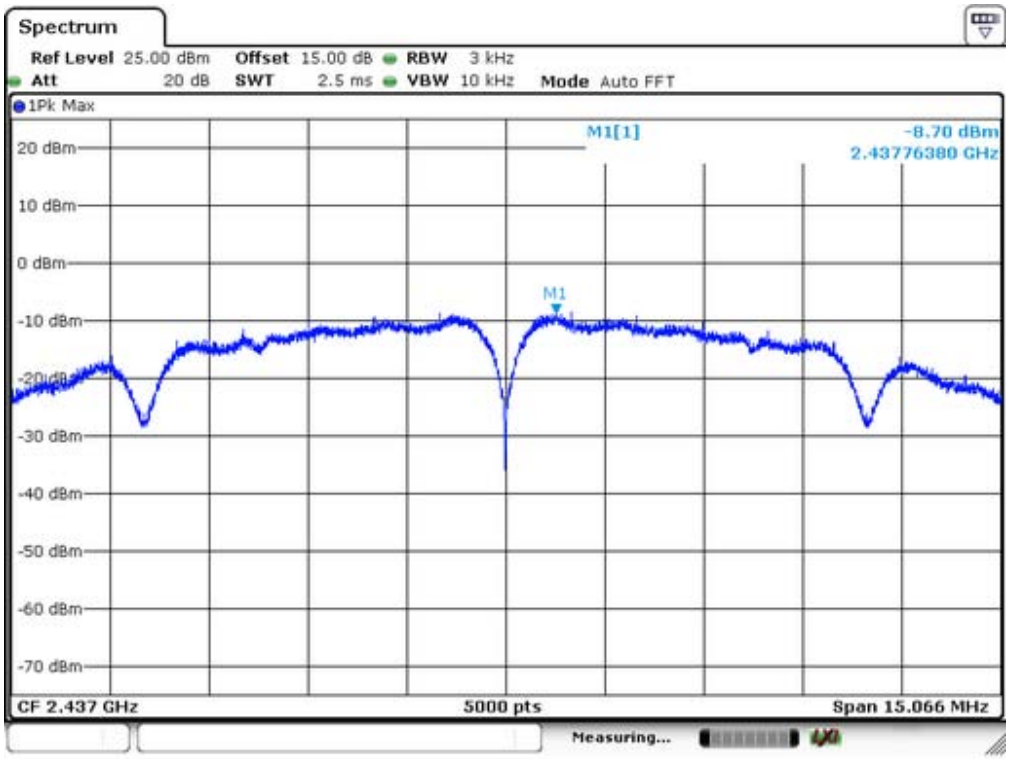

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -5.58 dBm
2.41273040 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
5000 pts
Span 15.06 MHz
Measuring...

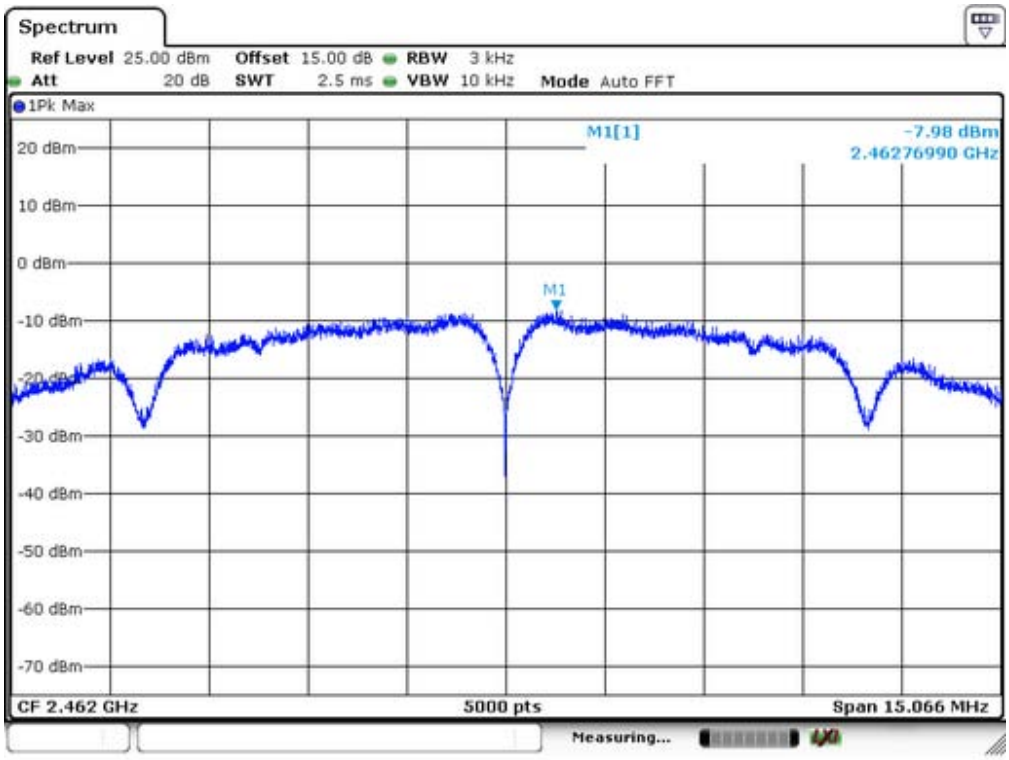

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -5.71 dBm
2.43602560 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 15.06 MHz
Measuring...



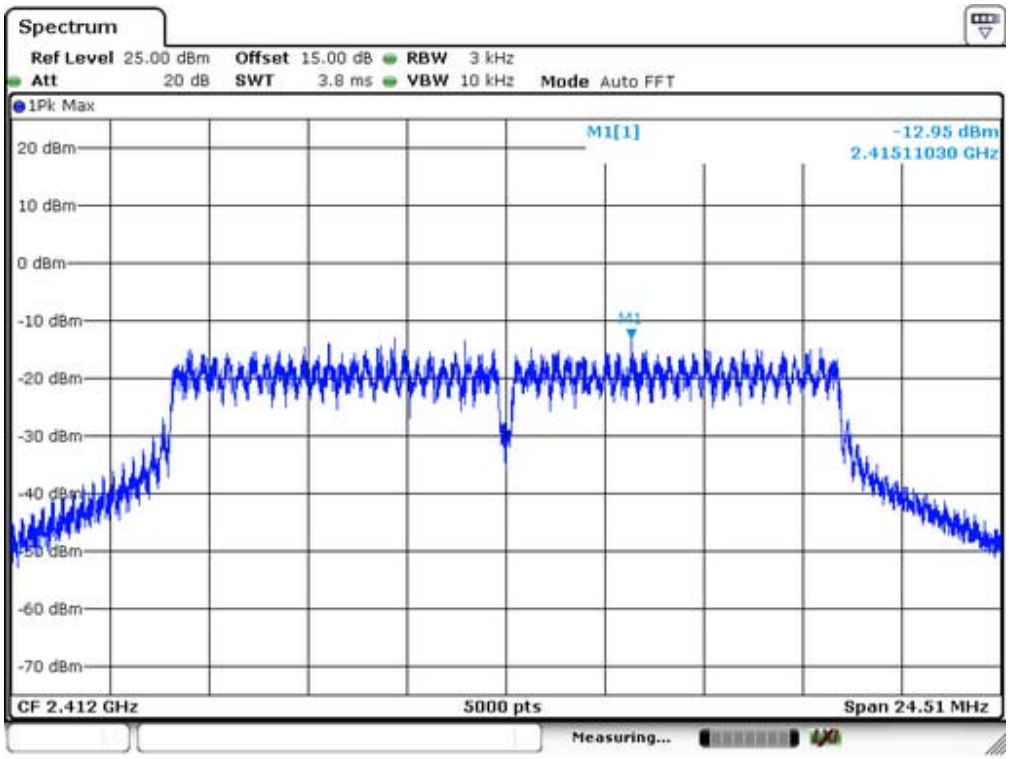
IEEE 802.11b SISO Ant3			
Channel frequency (MHz)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
2412	-7.65	8	Pass
2437	-8.70		
2462	-7.98		

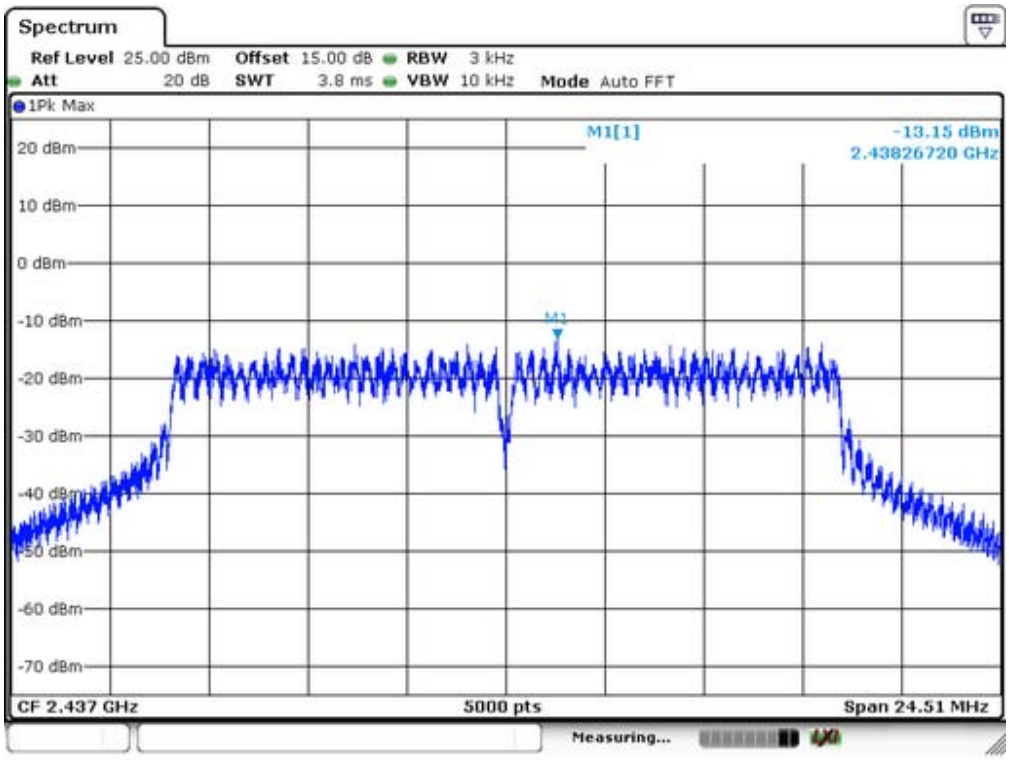

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1]
-7.65 dBm
2.41121810 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
5000 pts
Span 15.066 MHz
Measuring...

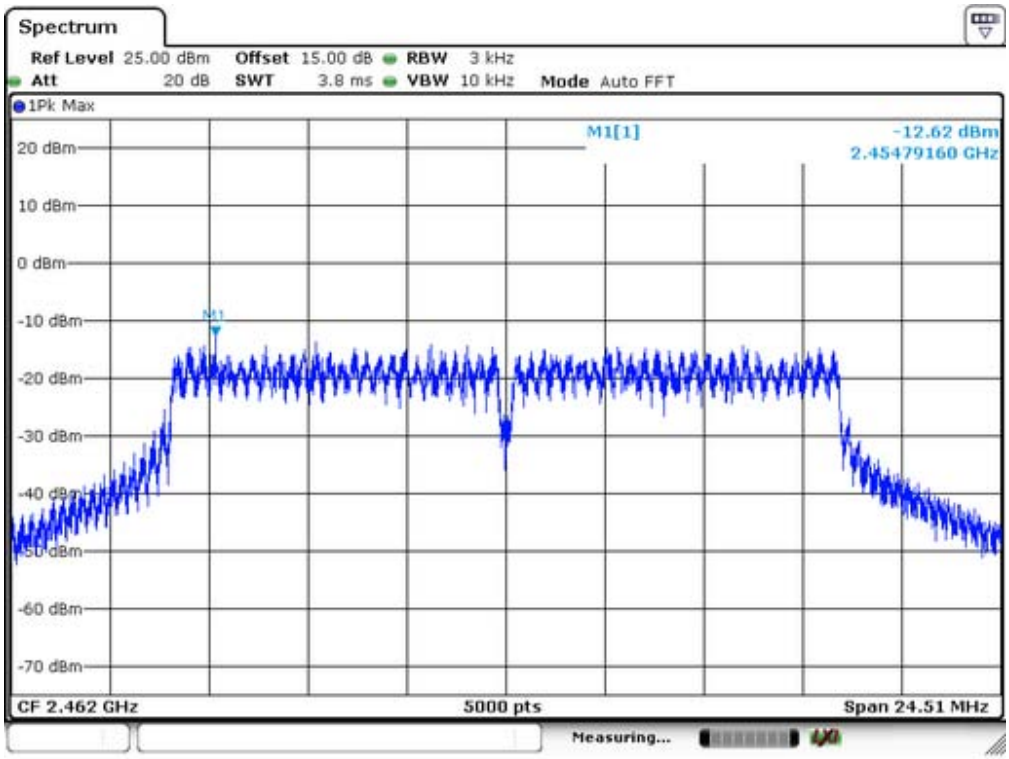

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1]
-8.70 dBm
2.43776380 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 15.066 MHz
Measuring...



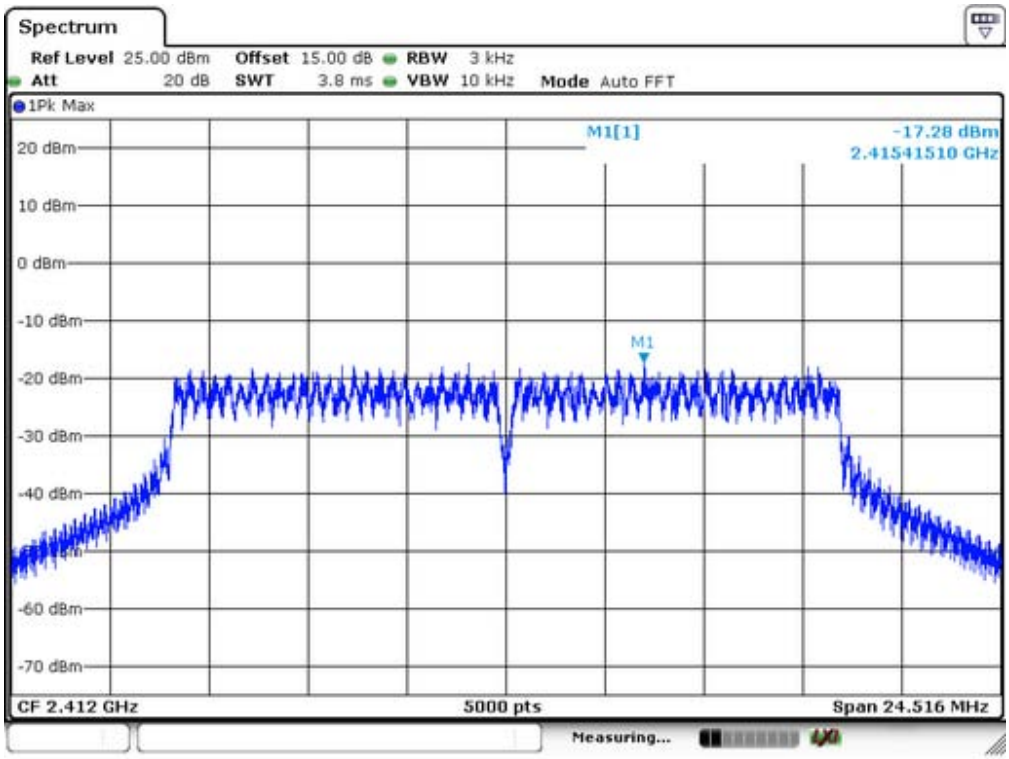
IEEE 802.11g(SISO) Ant 2			
Channel frequency (MHz)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
2412	-12.95	8	Pass
2437	-13.15		
2462	-12.62		

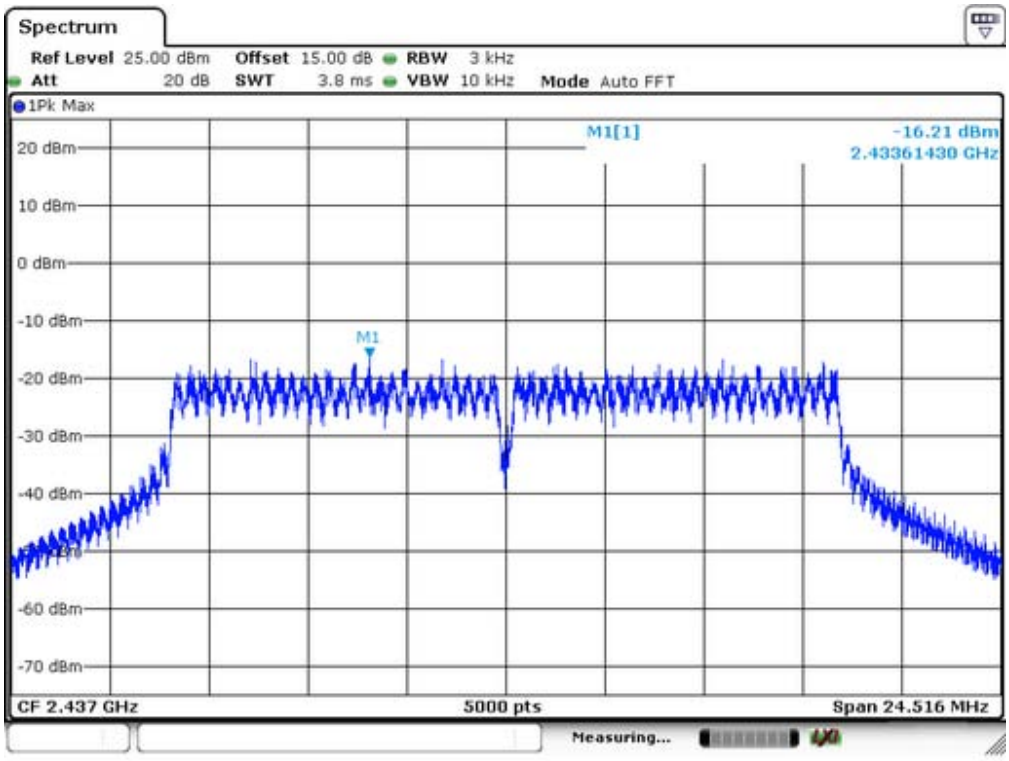

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1]
-12.95 dBm
2.41511030 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.412 GHz
5000 pts
Span 24.51 MHz
Measuring...

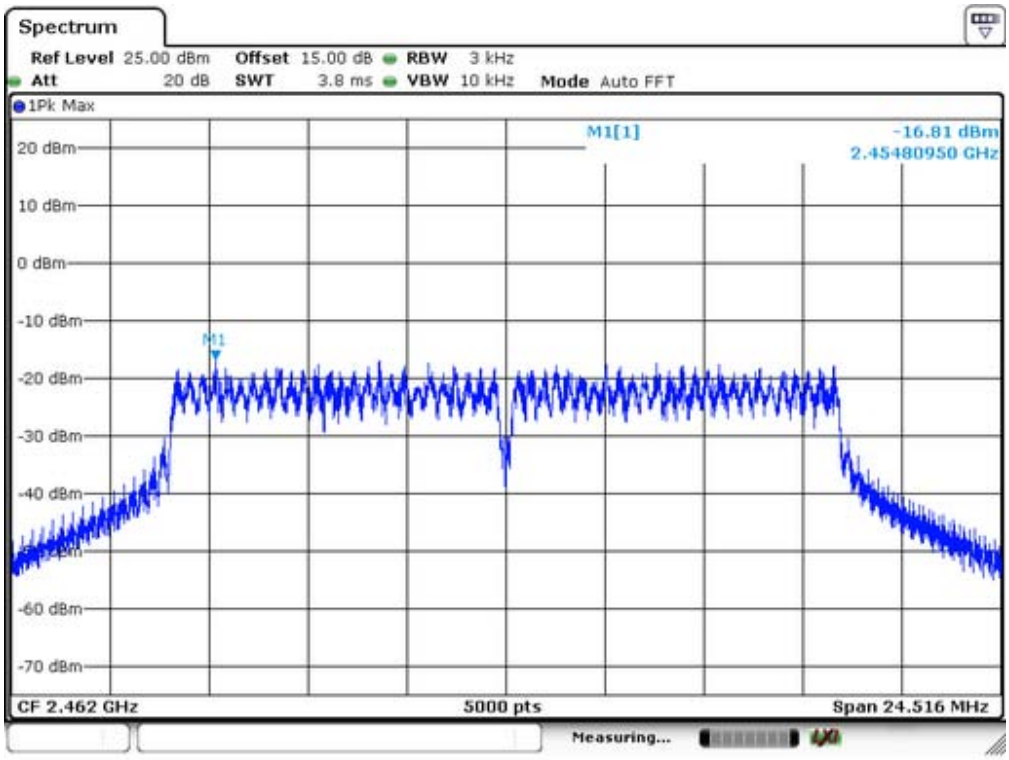

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1]
-13.15 dBm
2.43826720 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.437 GHz
5000 pts
Span 24.51 MHz
Measuring...



IEEE 802.11g(SISO) Ant3			
Channel frequency (MHz)	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
2412	-17.28	8	Pass
2437	-16.21		
2462	-16.81		

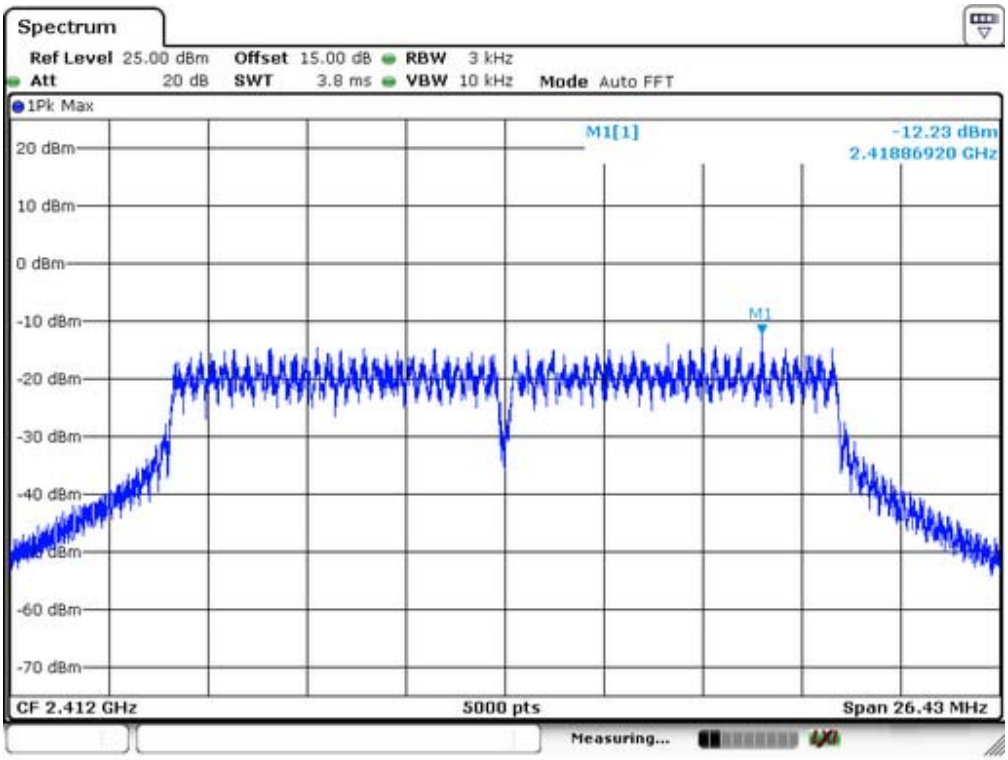

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -17.28 dBm
2.41541510 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
5000 pts
Span 24.516 MHz
Measuring...

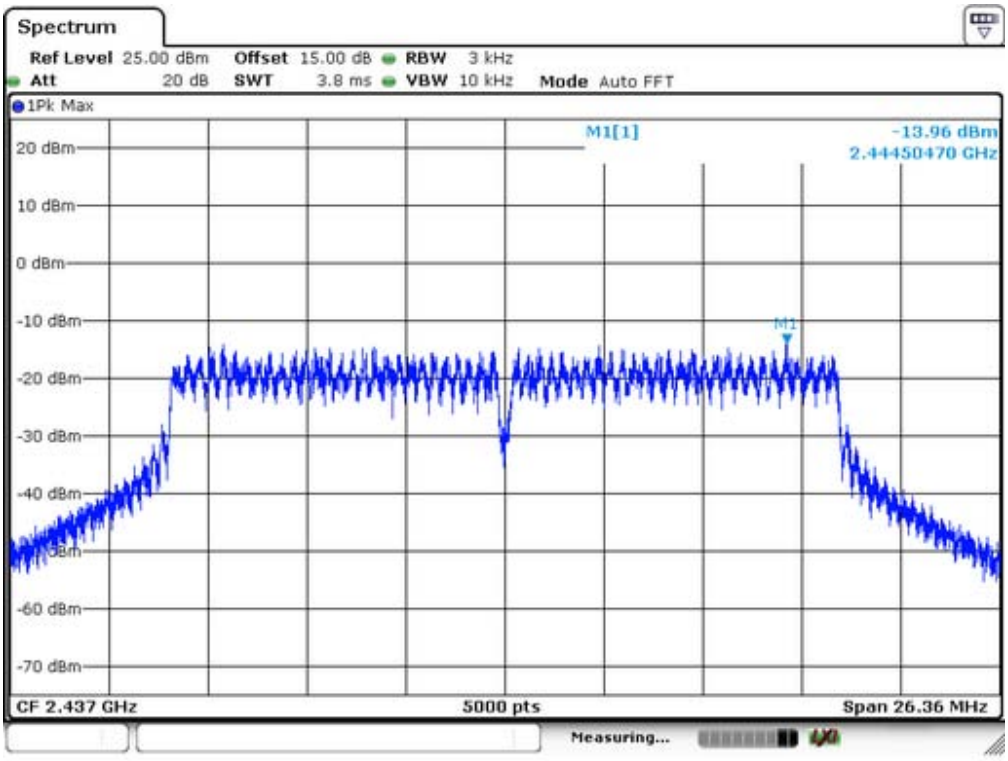

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -16.21 dBm
2.43361430 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 24.516 MHz
Measuring...

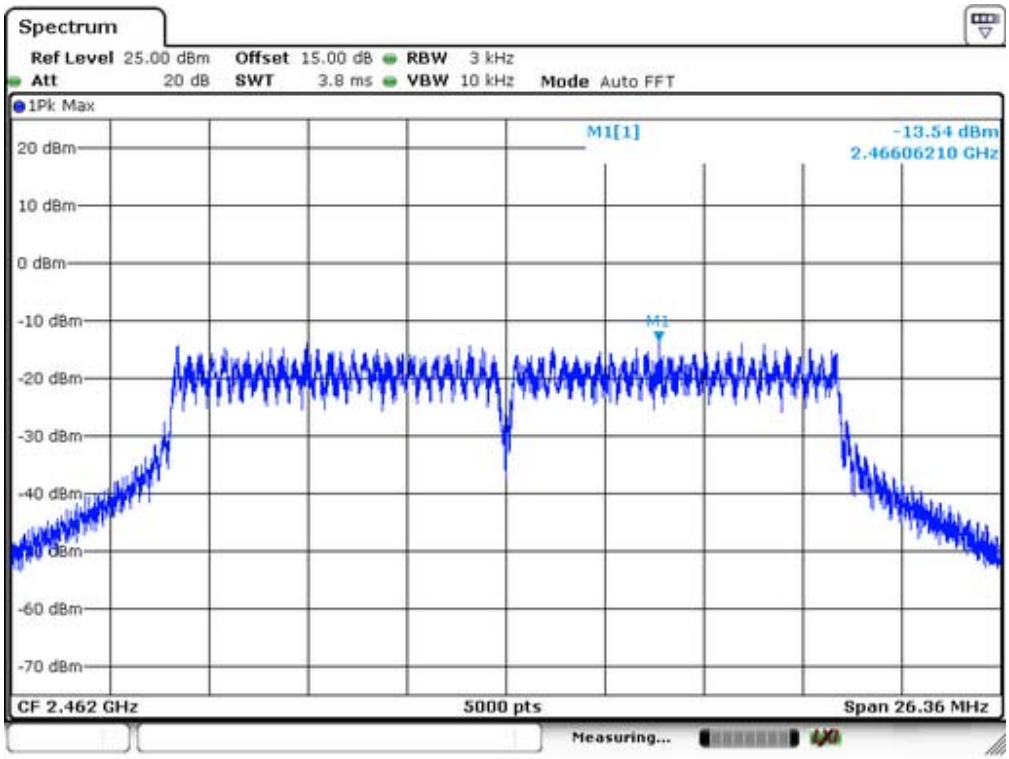


IEEE 802.11n(HT20) MIMO(Antenna Gain=5.01dBi)					
Channel frequency (MHz)	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
	Ant2	Ant3	Total		
2412	-12.23	-17.89	-11.19	8	Pass
2437	-13.96	-17.46	-12.36		
2462	-13.54	-17.38	-12.04		
Remark: In MIMO, Ant1+Ant2 Directional Gain=G_{ant}+10Log(N)dBi=2+10Log(2)=5.01dBi. Directional Gain was according to KDB662911.					

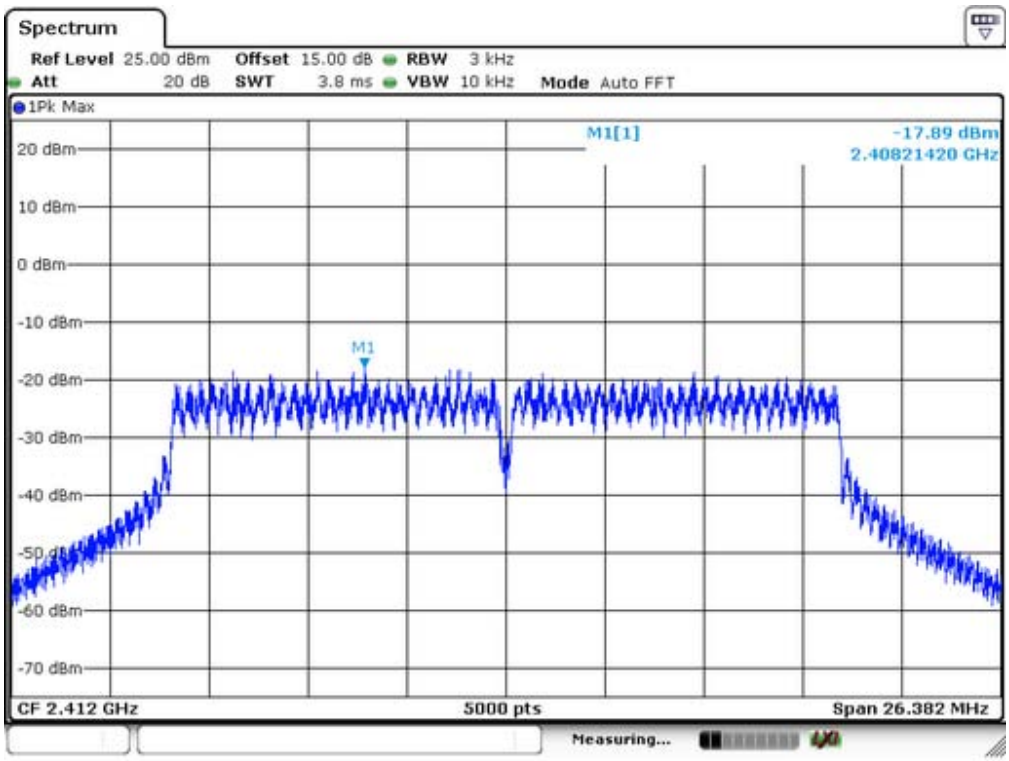
Ant2

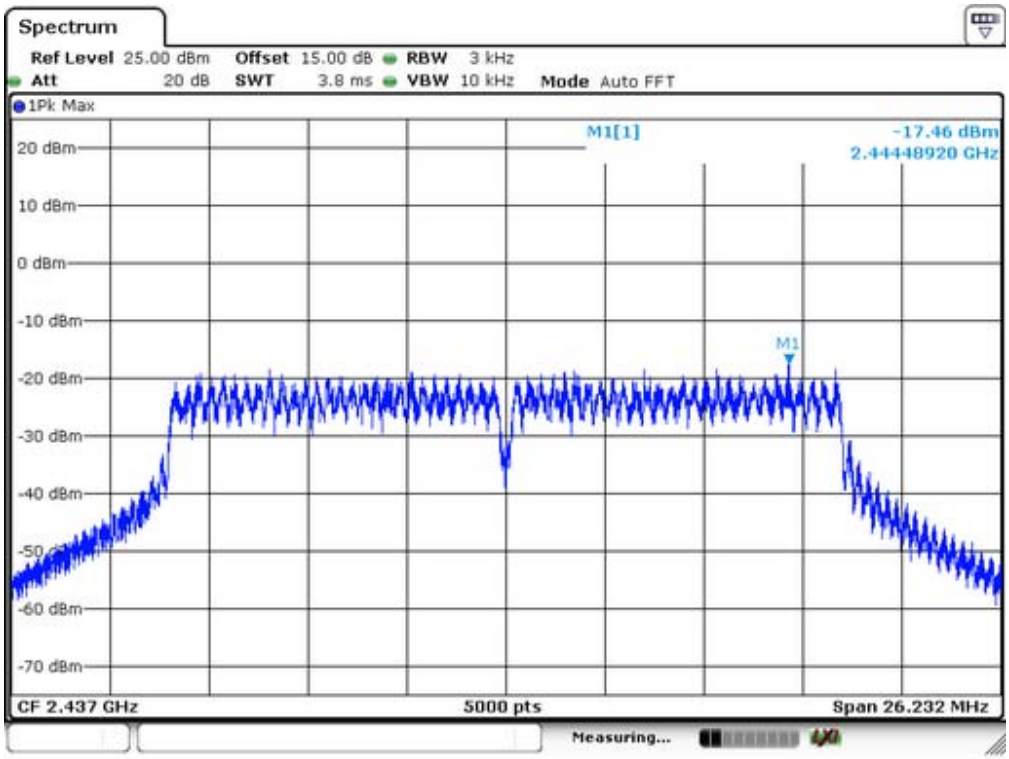

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -12.23 dBm
2.41886920 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
5000 pts
Span 26.43 MHz
Measuring...

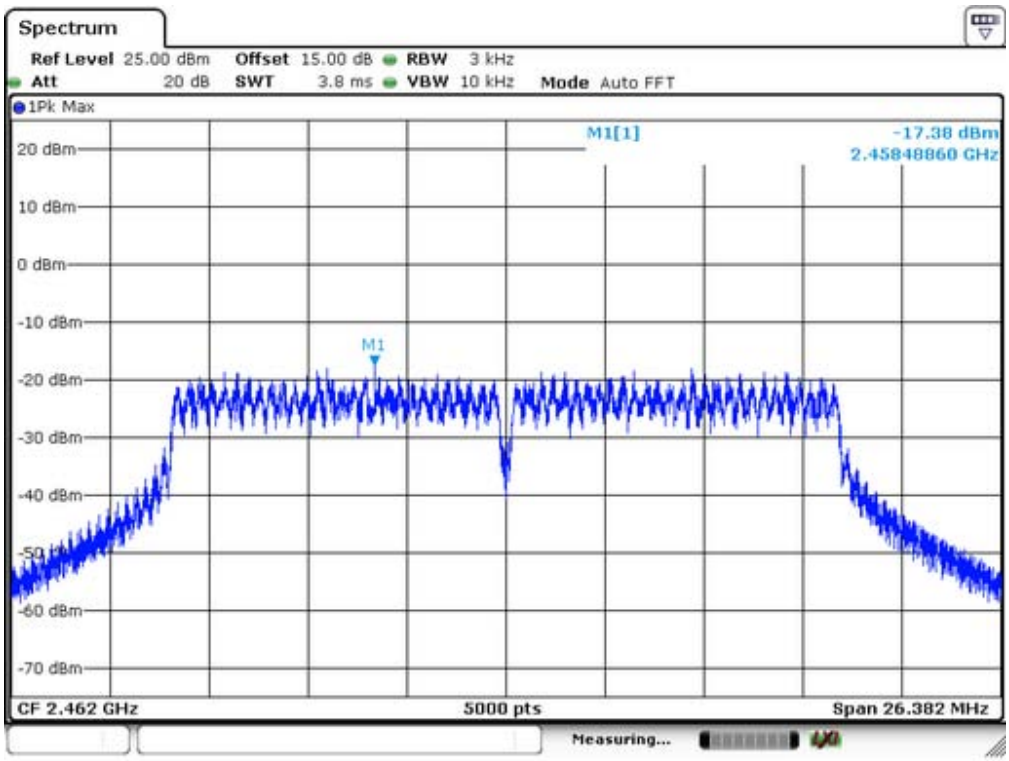

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -13.96 dBm
2.44450470 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 26.36 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -13.54 dBm
2.46606210 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
5000 pts
Span 26.36 MHz
Measuring...

Ant3

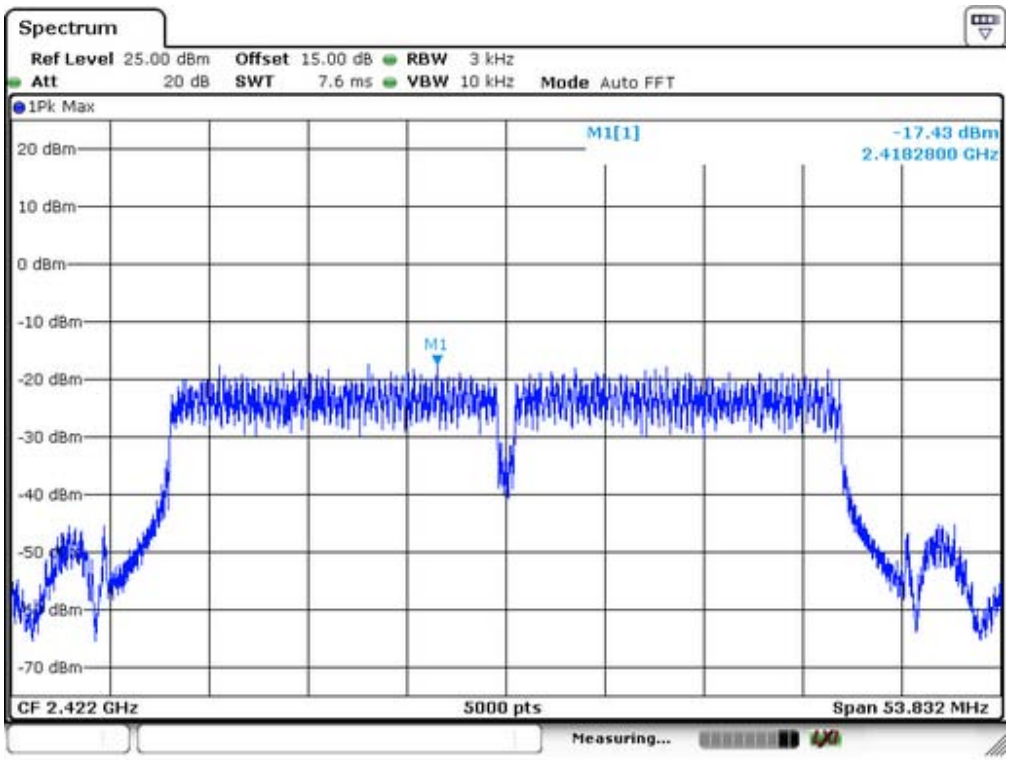

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -17.89 dBm
2.40821420 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
5000 pts
Span 26.382 MHz
Measuring...

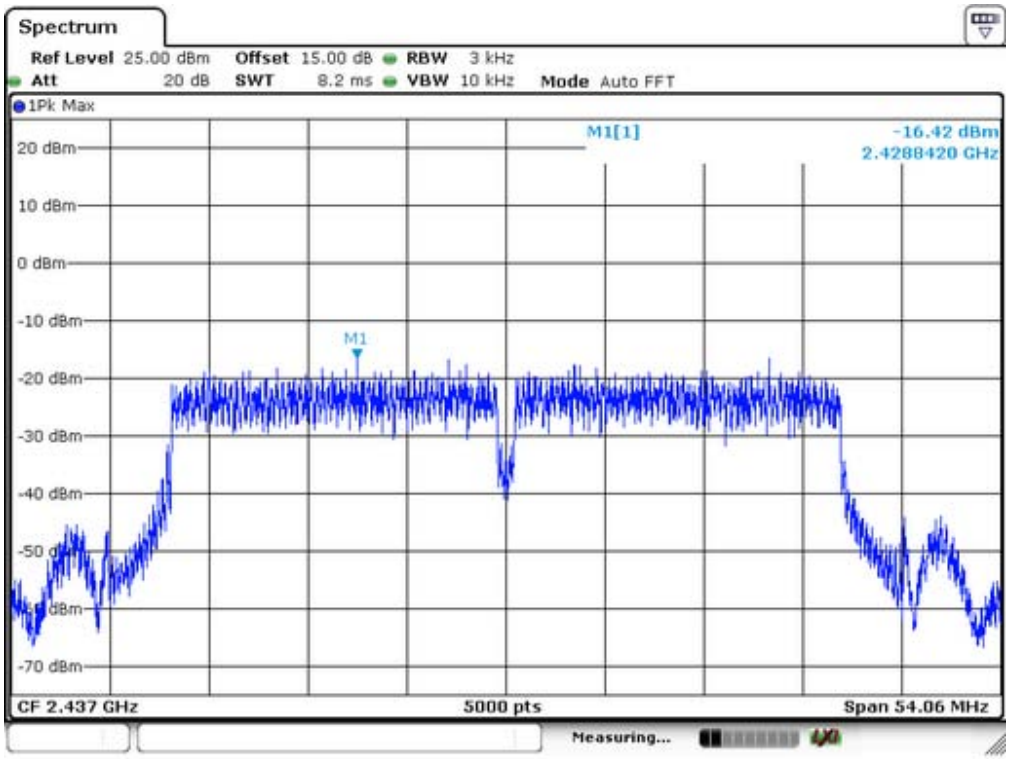

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -17.46 dBm
2.44448920 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 26.232 MHz
Measuring...

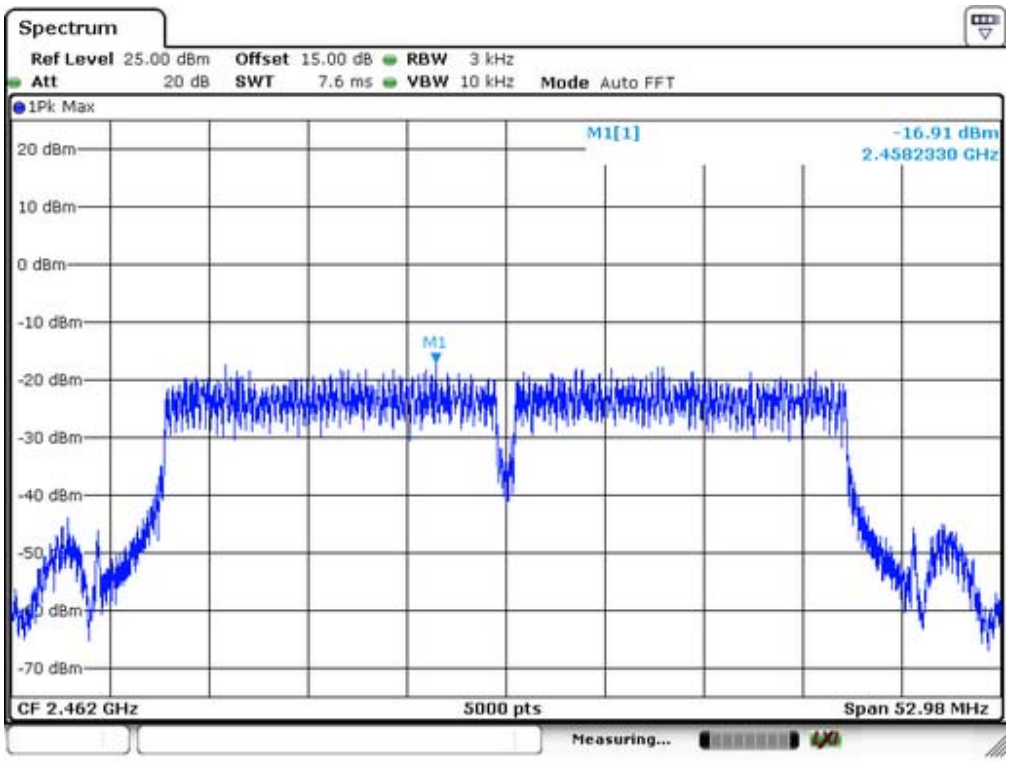

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -17.38 dBm
2.45848860 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
5000 pts
Span 26.382 MHz
Measuring...

IEEE 802.11n(HT40) MIMO(Antenna Gain=5.01dBi)					
Channel frequency (MHz)	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
	Ant 2	Ant 3	Total		
2422	-17.43	-22.06	-16.14	8	Pass
2437	-16.42	-19.83	-14.79		
2452	-16.91	-20.80	-15.42		
Remark: In MIMO, Ant1+Ant2 Directional Gain=G_{ant}+10Log(N)dBi=2+10Log(2)=5.01dBi. Directional Gain was according to KDB662911.					

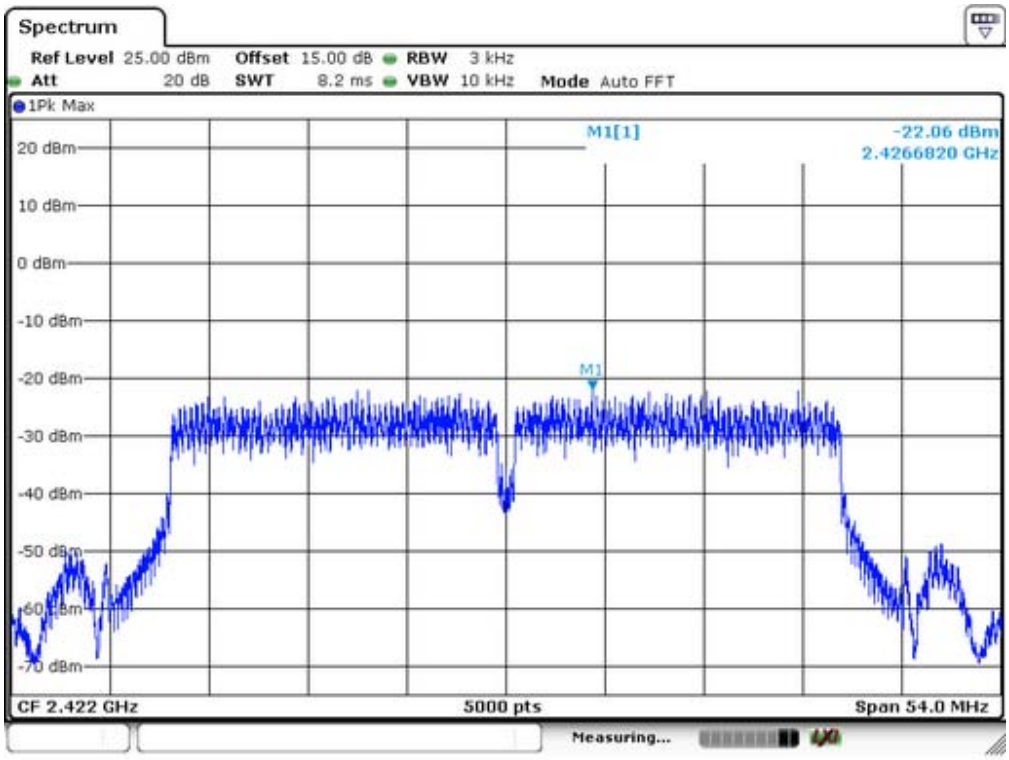
Ant 2

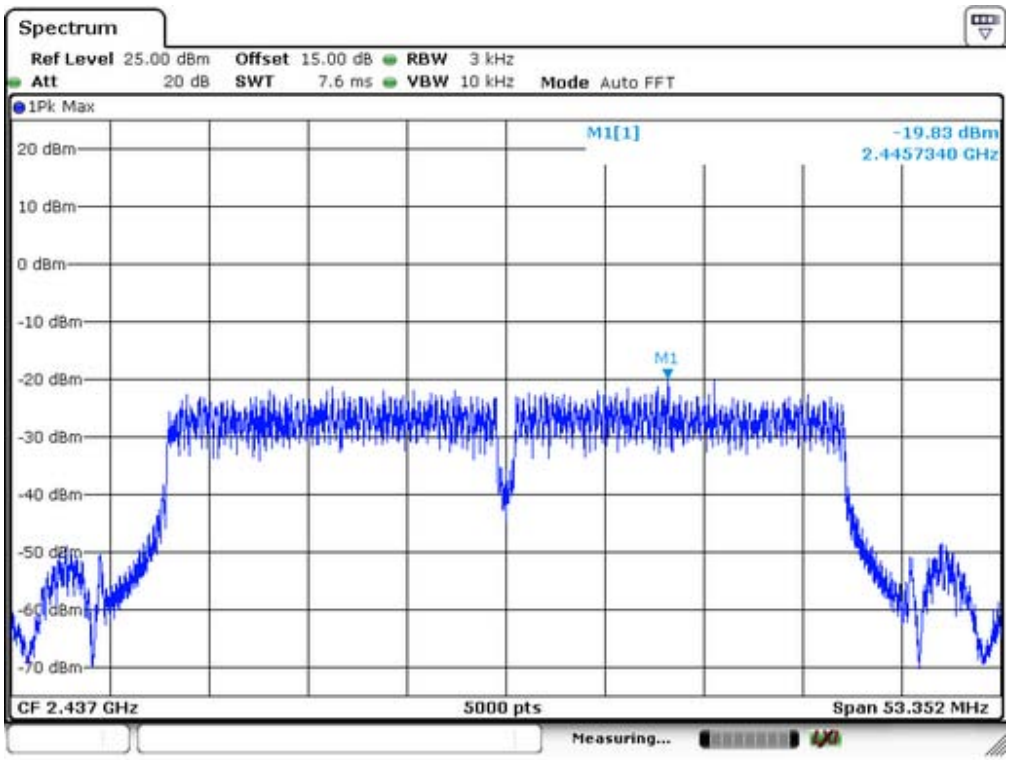


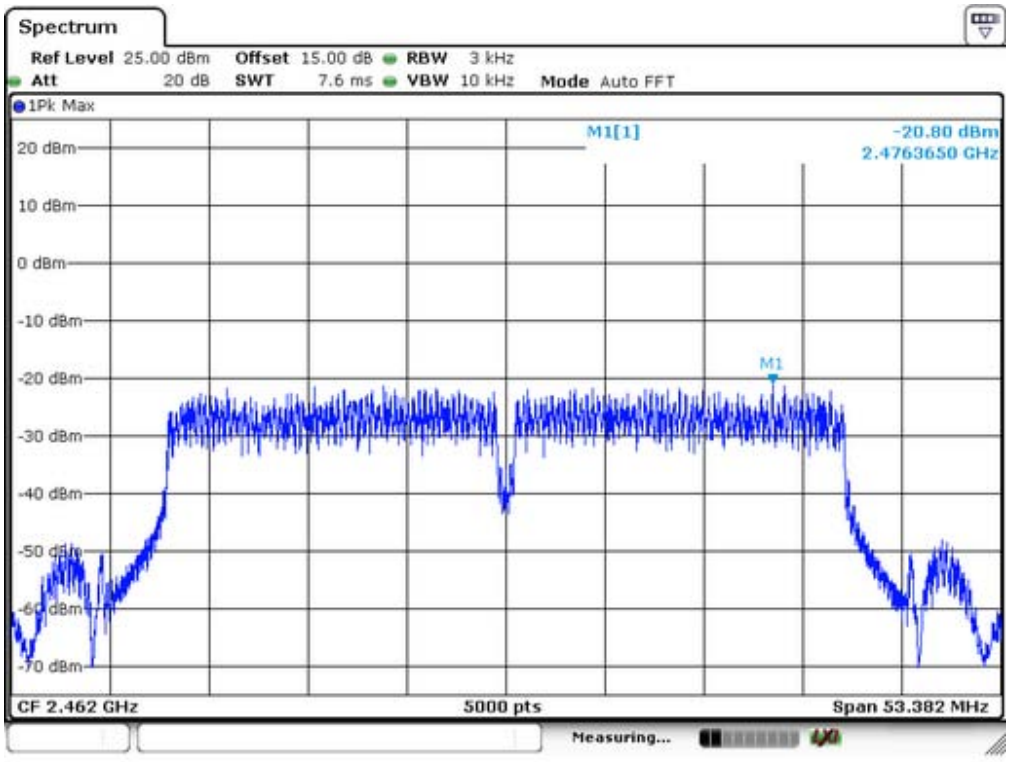

Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 8.2 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -16.42 dBm
2.4288420 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-70 dBm
M1
CF 2.437 GHz
5000 pts
Span 54.06 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 7.6 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -16.91 dBm
2.4582330 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-70 dBm
M1
CF 2.462 GHz
5000 pts
Span 52.98 MHz
Measuring...

Ant 3


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 8.2 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -22.06 dBm
2.4266820 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.422 GHz 5000 pts Span 54.0 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 7.6 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1] -19.83 dBm
2.4457340 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz 5000 pts Span 53.352 MHz
Measuring...


Spectrum
Ref Level 25.00 dBm Offset 15.00 dB RBW 3 kHz
Att 20 dB SWT 7.6 ms VBW 10 kHz Mode Auto FFT
1Pk Max
M1[1]
-20.80 dBm
2.4763650 GHz
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-70 dBm
M1
CF 2.462 GHz
5000 pts
Span 53.382 MHz
Measuring...

7.4 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

7.4.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 DTS 01 Meas. Guidance v03r05

7.4.2 Conformance Limit

According to FCC Part 15.247(d):
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

7.4.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

7.4.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

- **Reference level measurement**

Establish a reference level by using the following procedure:
Set instrument center frequency to DTS channel center frequency.
Set the span to ≥ 1.5 times the DTS bandwidth.
Set the RBW = 100 kHz.
Set the VBW ≥ 3 x RBW.
Set Detector = peak.
Set Sweep time = auto couple.
Set Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum PSD level.
Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

- **Emission level measurement**

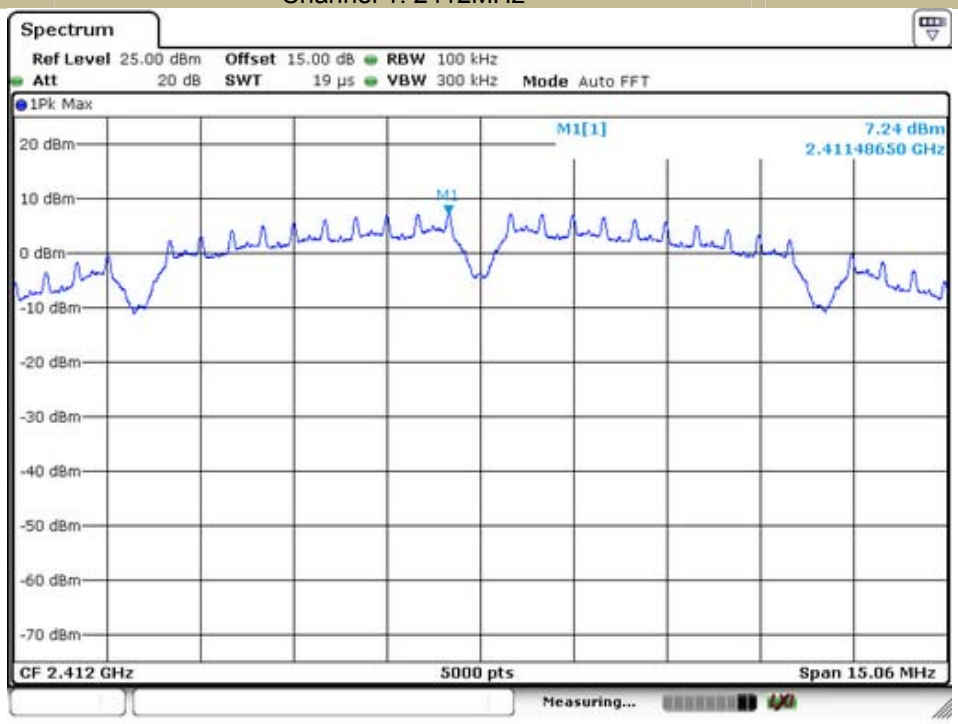
Set the center frequency and span to encompass frequency range to be measured.
Set the RBW = 100 kHz.
Set the VBW =300 kHz.
Set Detector = peak
Sweep time = auto couple.
Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum amplitude level.
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements . Report the three highest emissions relative to the limit.

7.4.5 Test Results

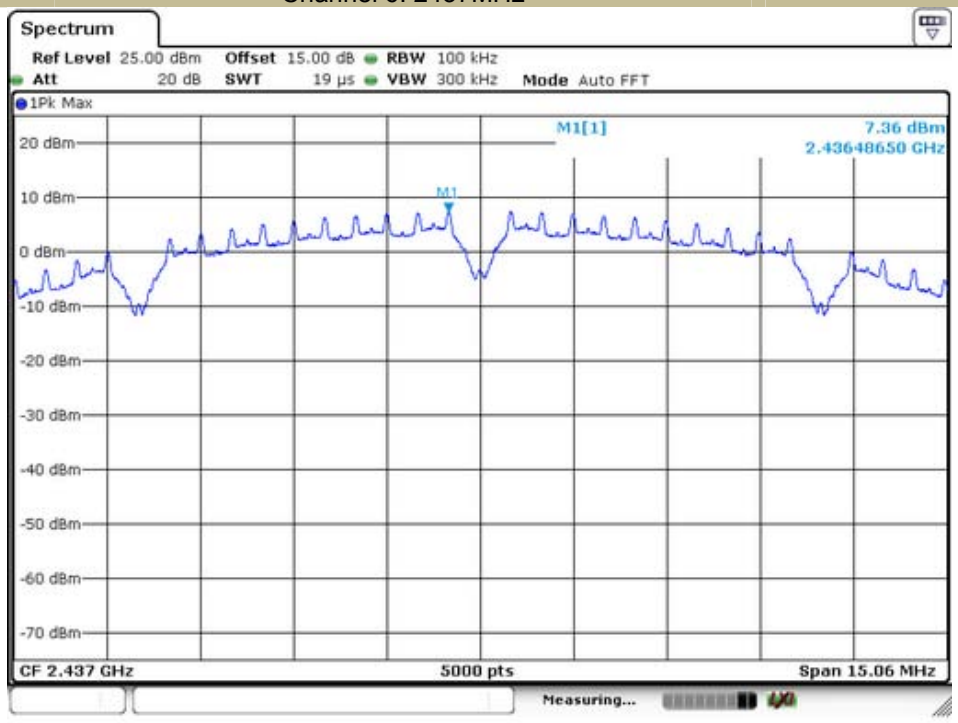
Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was(were) selected for the final test as listed below.

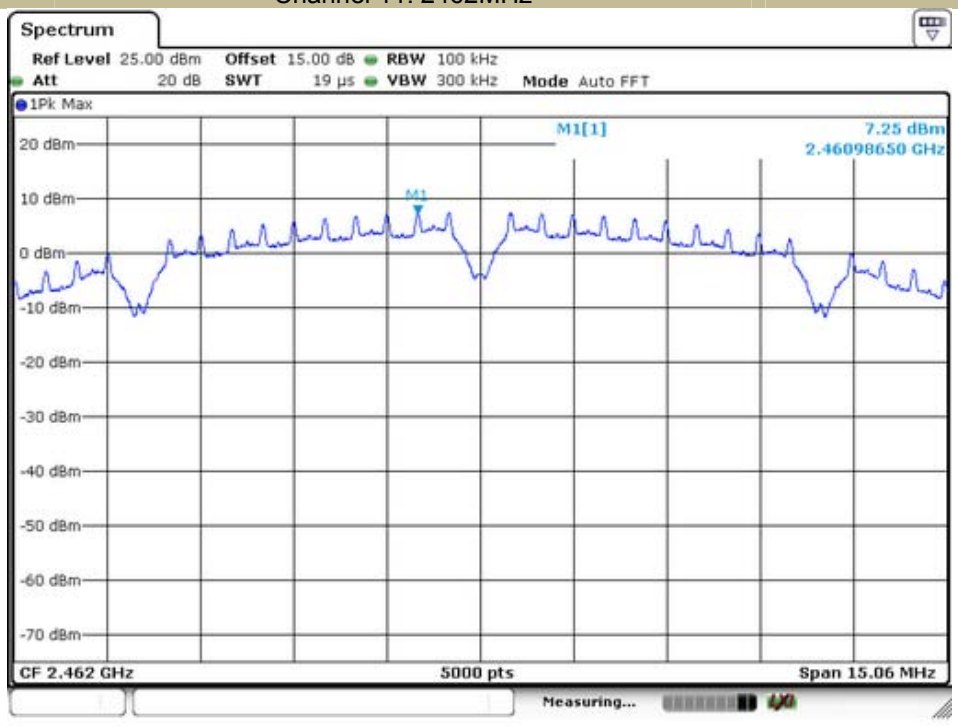
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 2 Channel 1: 2412MHz



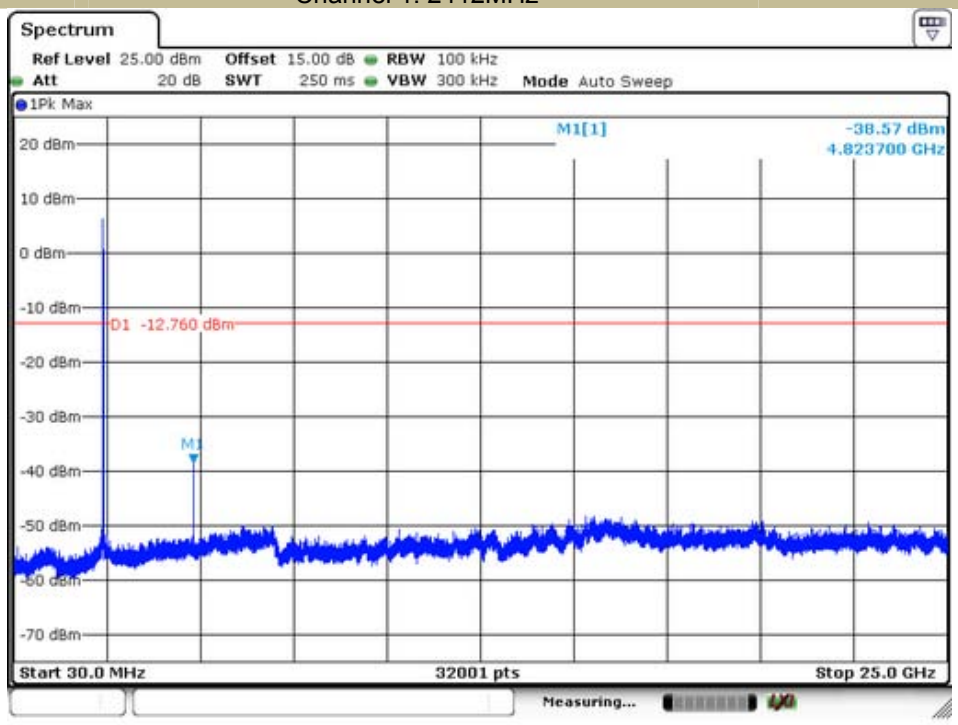
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 2 Channel 6: 2437MHz



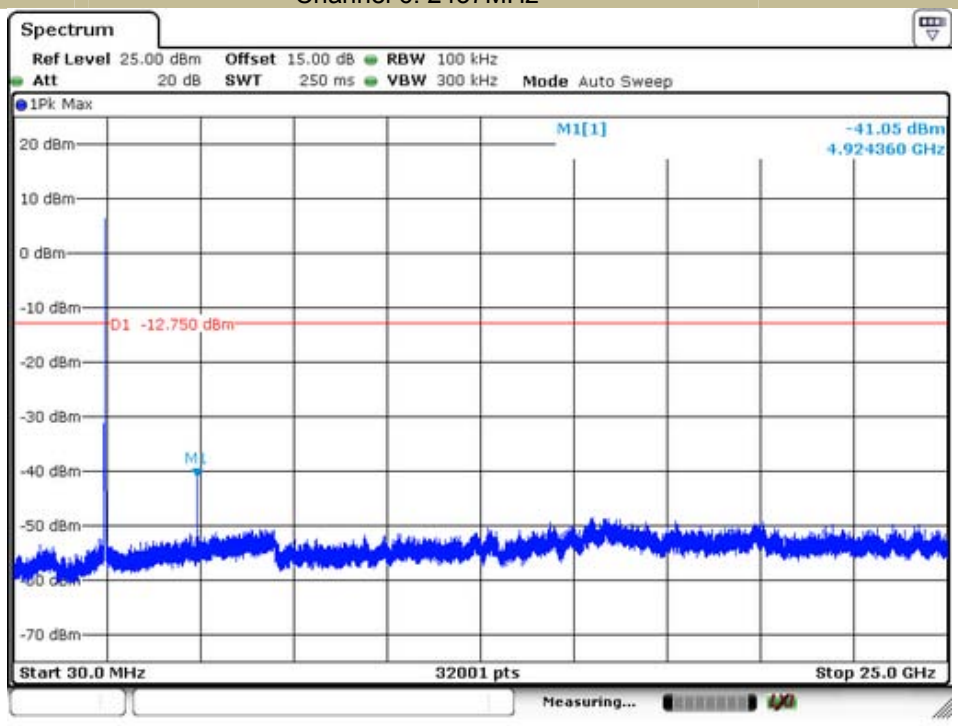
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 2 Channel 11: 2462MHz



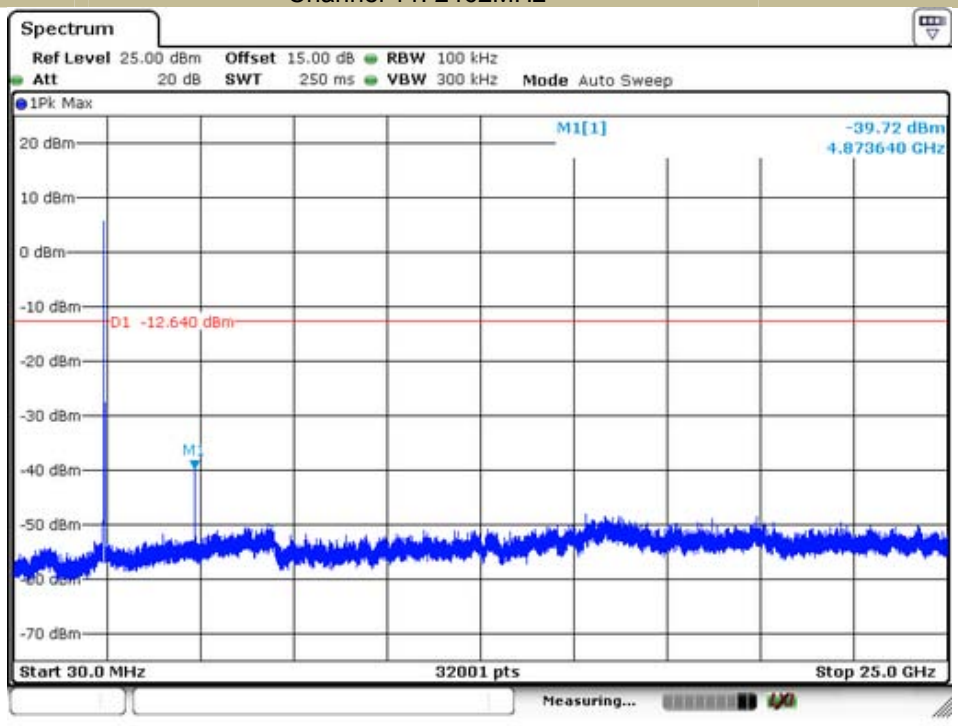
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 2 Channel 1: 2412MHz



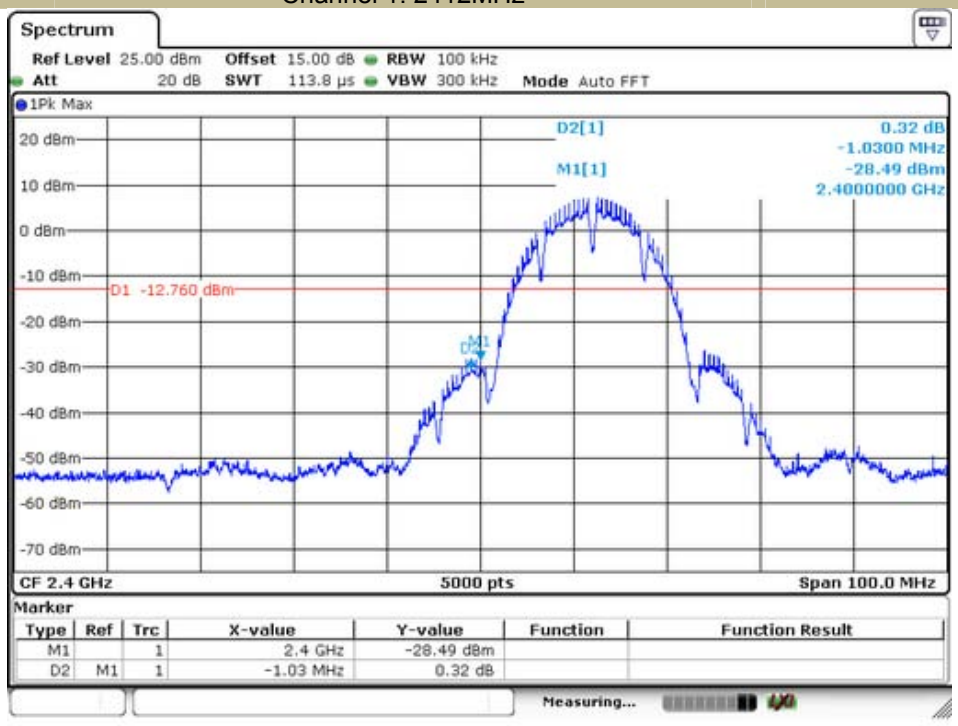
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 2 Channel 6: 2437MHz



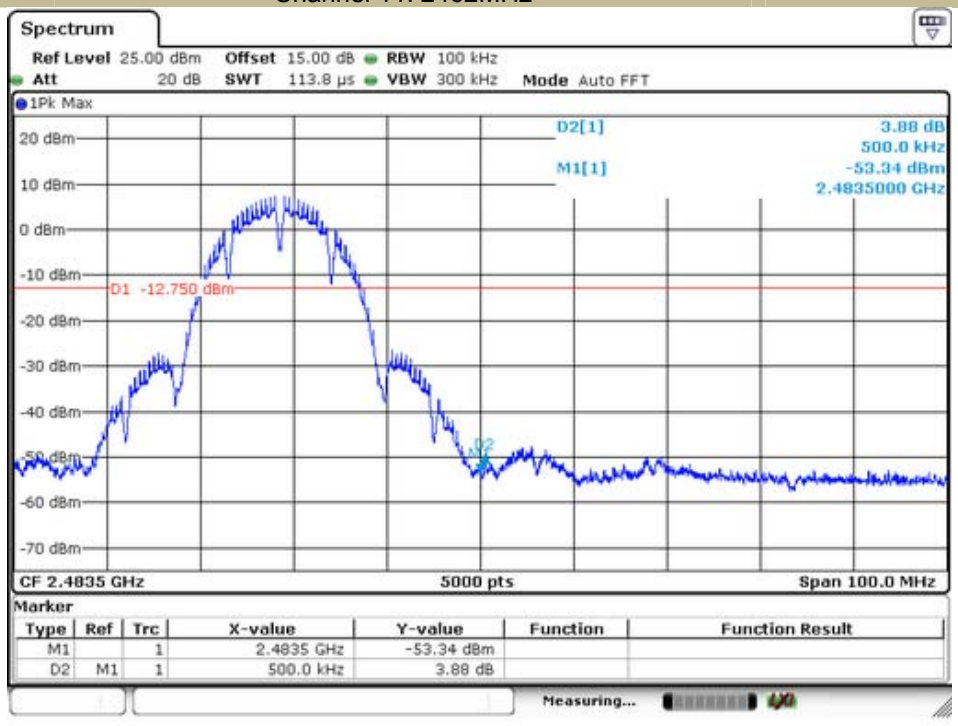
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 2 Channel 11: 2462MHz



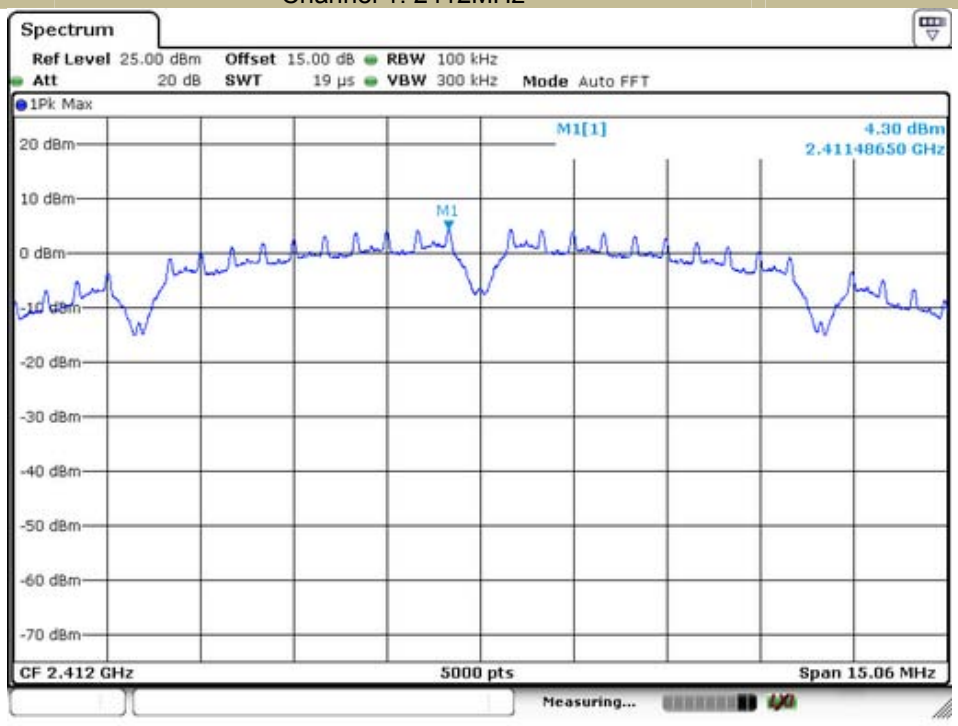
Test Model	Band edge 802.11b Ant 2 Channel 1: 2412MHz



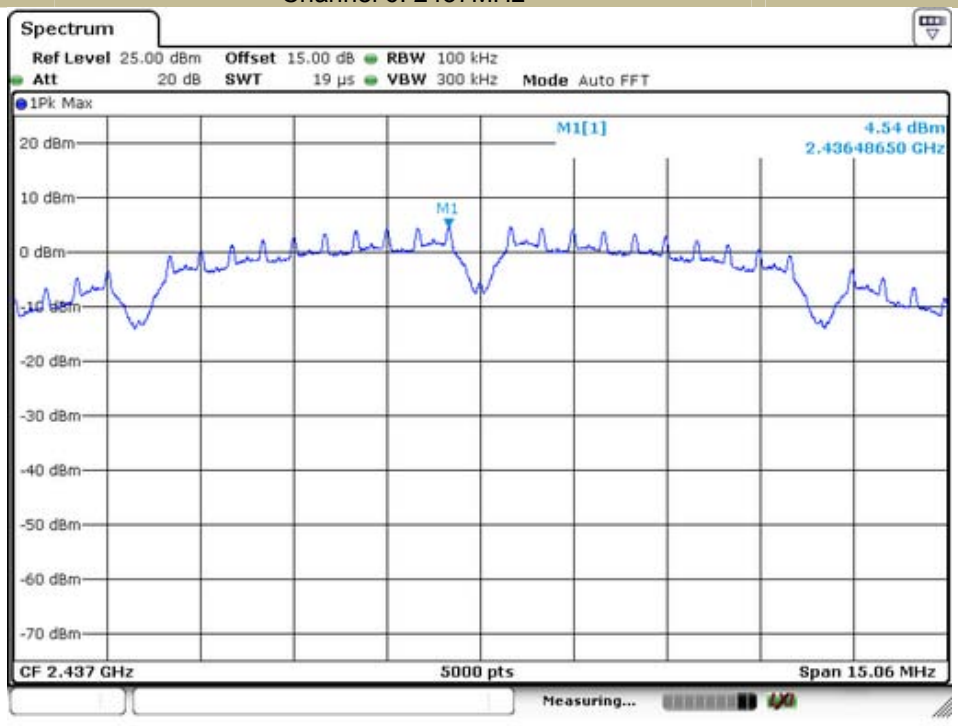
Test Model	Band edge 802.11b Ant 2 Channel 11: 2462MHz



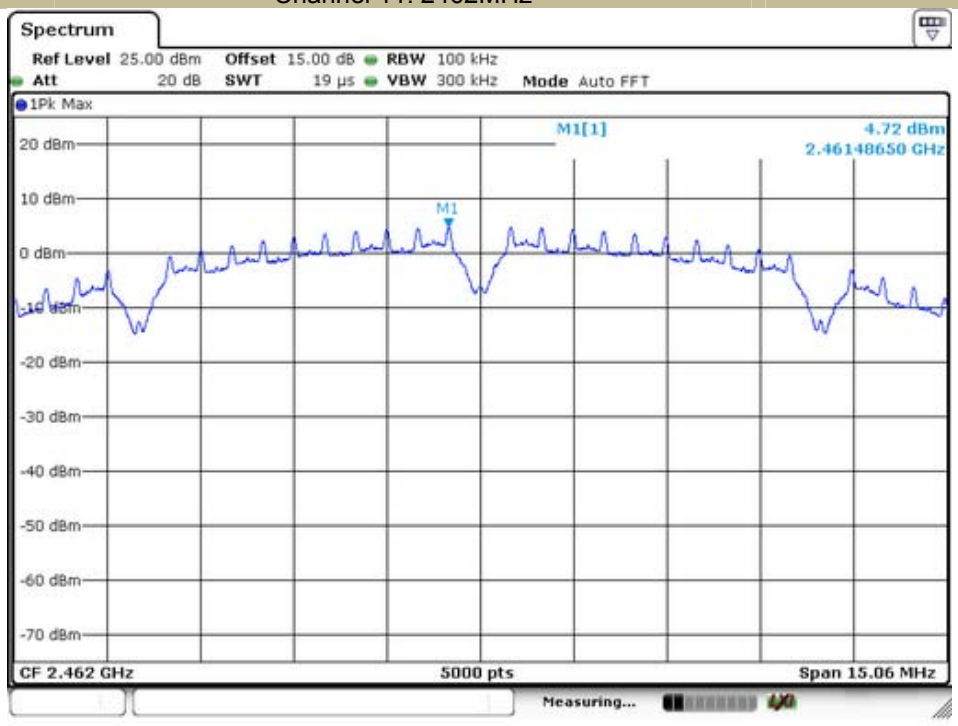
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 3 Channel 1: 2412MHz



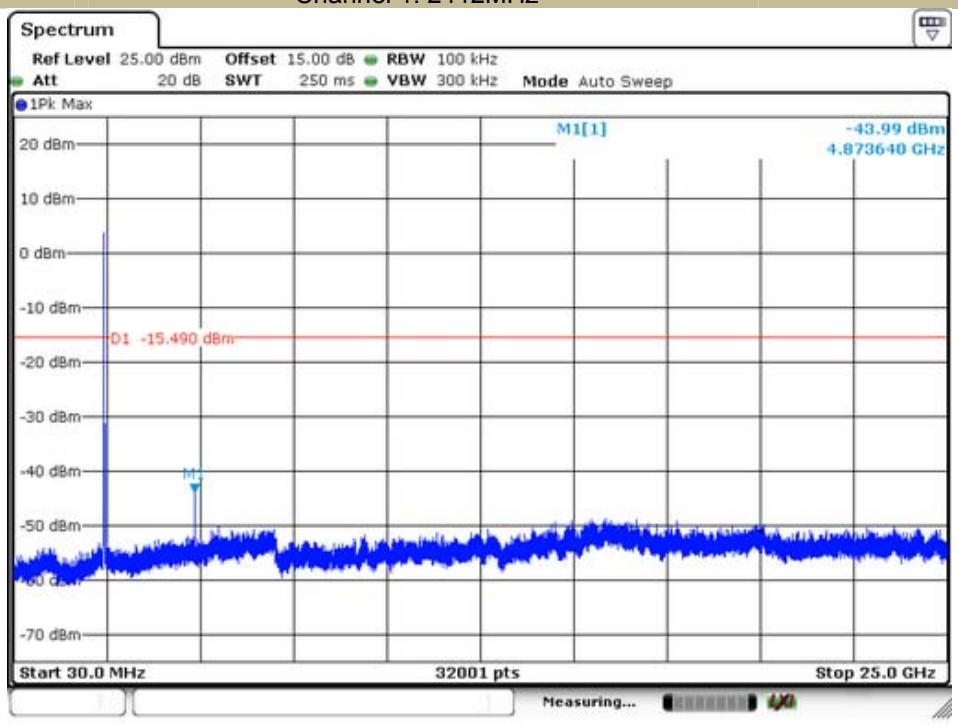
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 3 Channel 6: 2437MHz



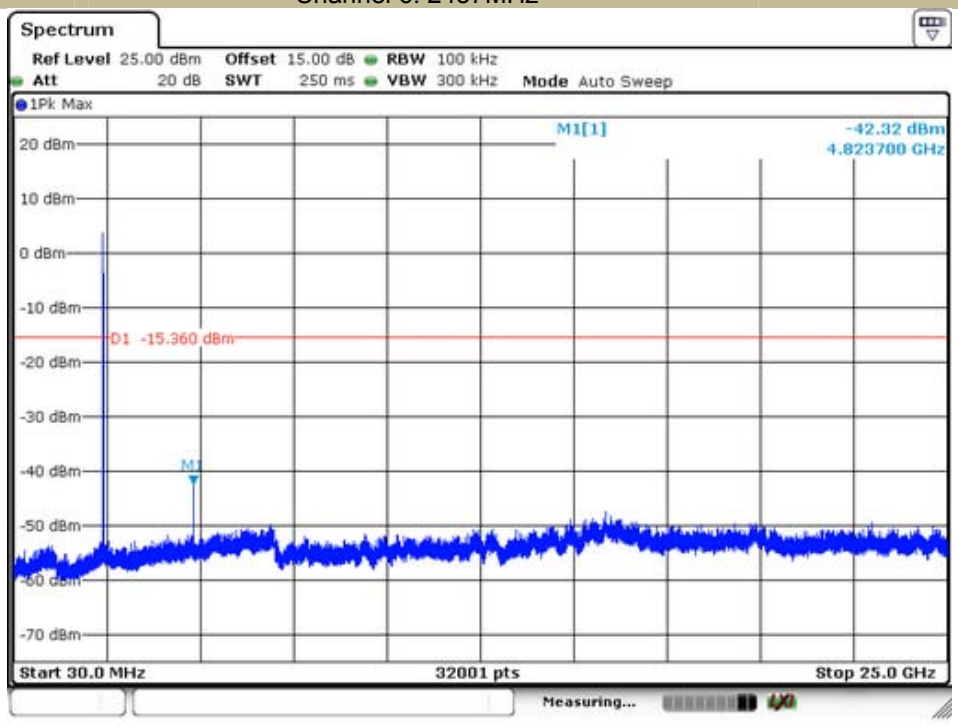
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11b Ant 3 Channel 11: 2462MHz



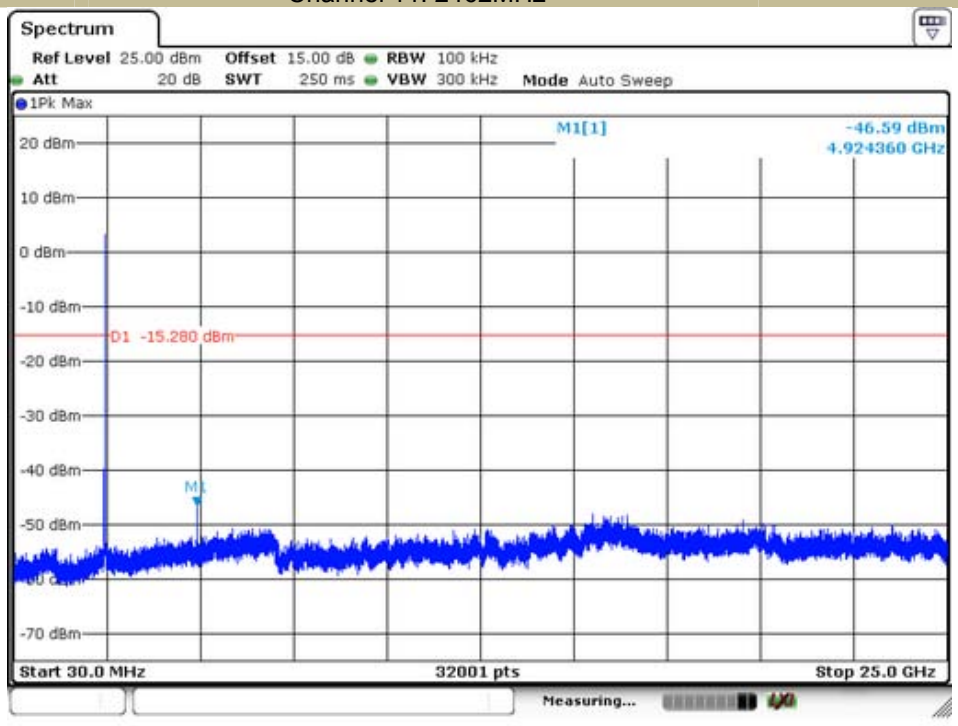
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 3 Channel 1: 2412MHz



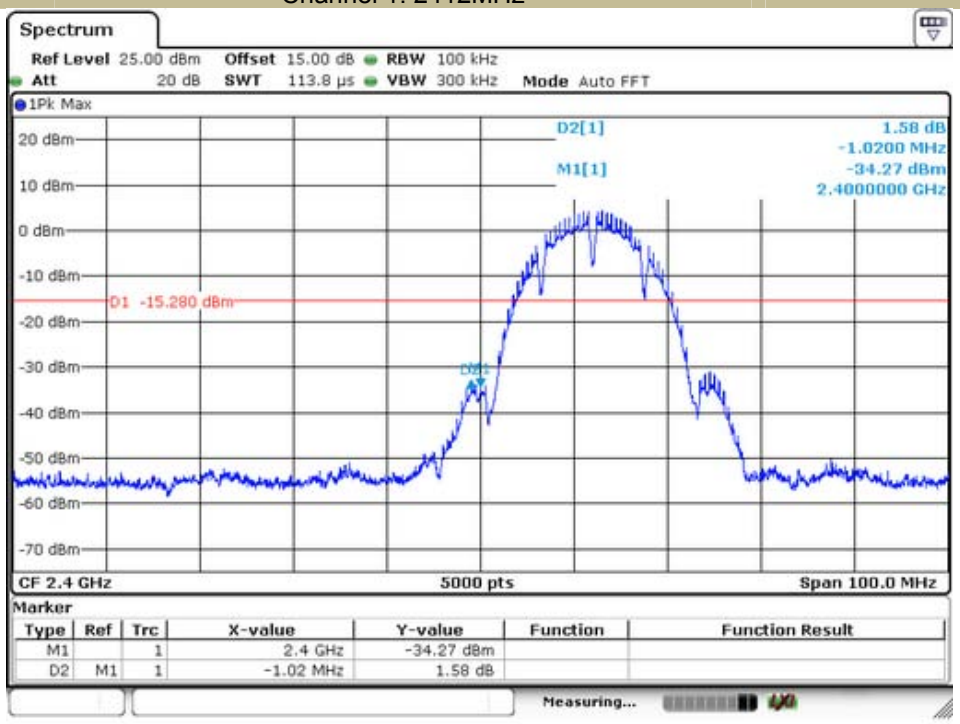
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 3 Channel 6: 2437MHz



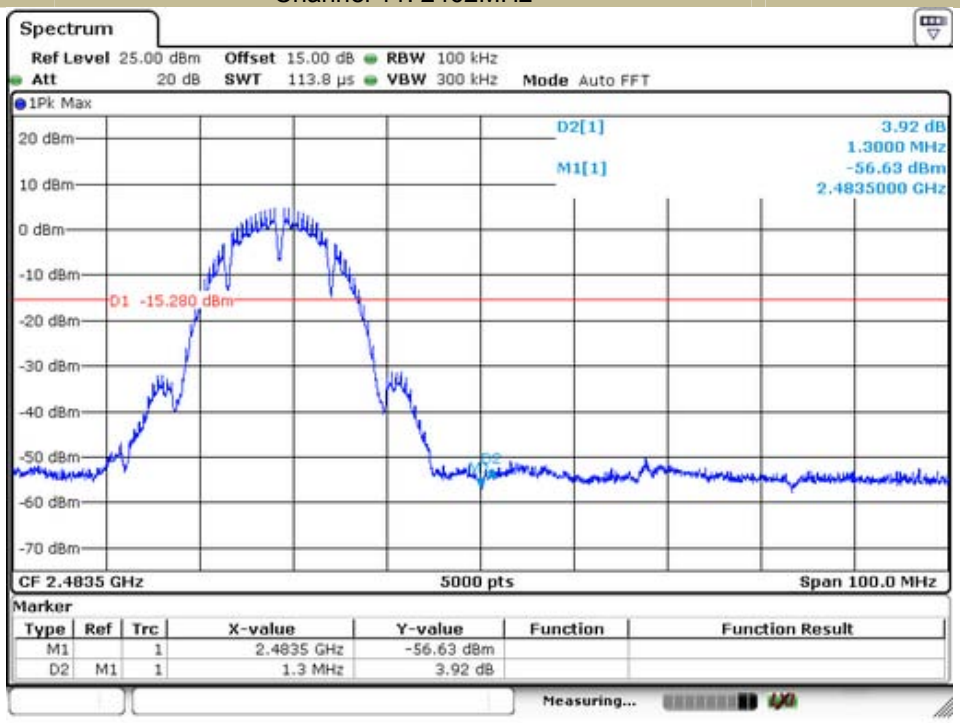
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11b Ant 3 Channel 11: 2462MHz



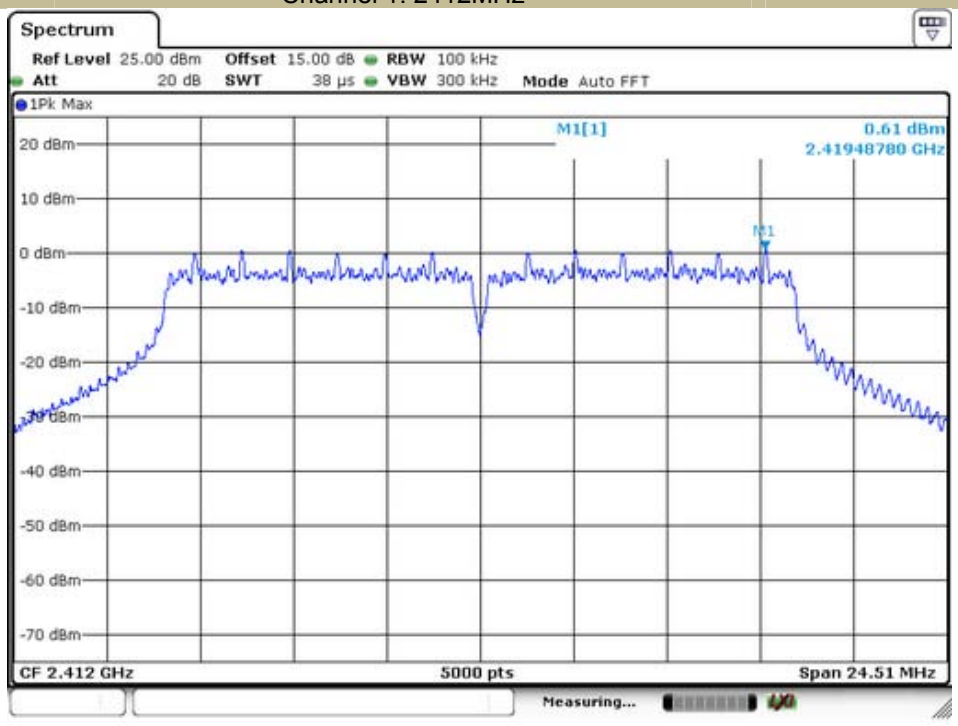
Test Model	Band edge 802.11b Ant 3 Channel 1: 2412MHz



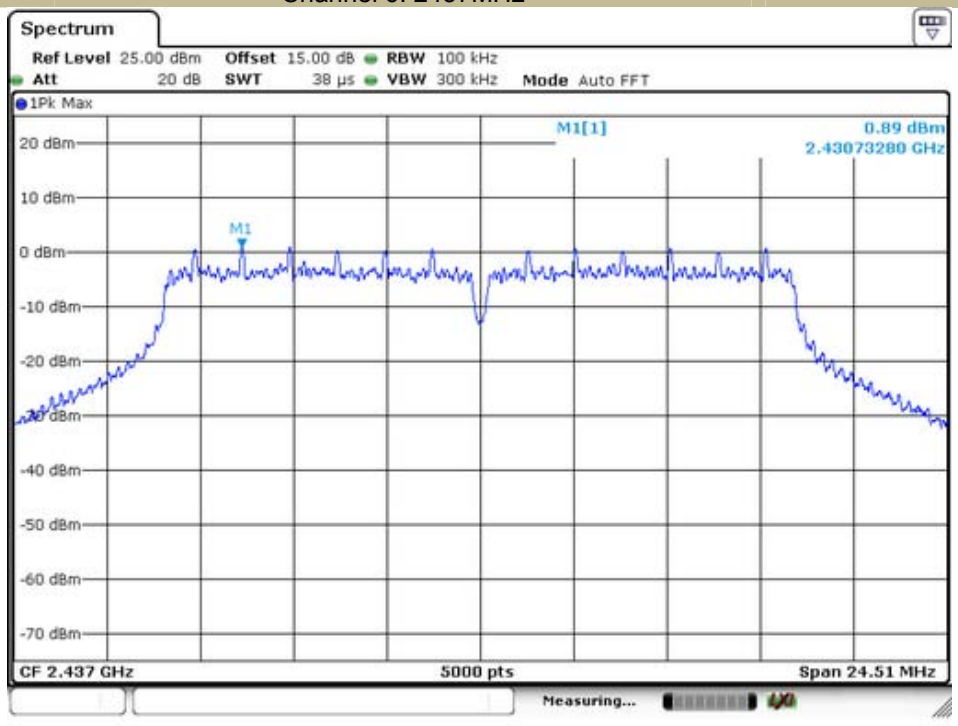
Test Model	Band edge 802.11b Ant 3 Channel 11: 2462MHz



Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11g Ant 2 Channel 1: 2412MHz

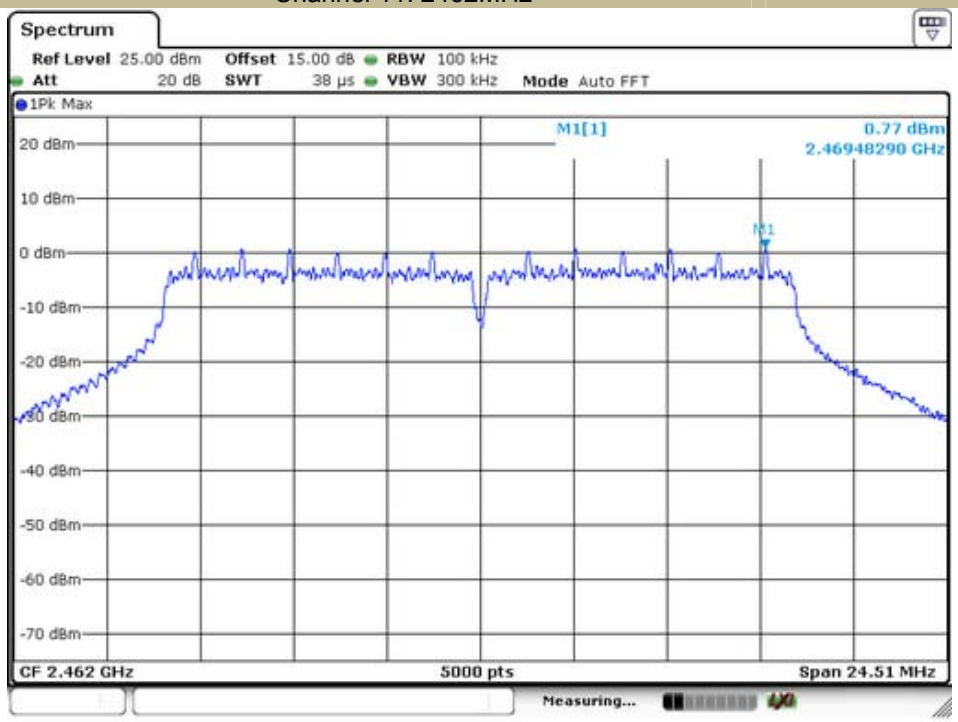


Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11g Ant 2 Channel 6: 2437MHz

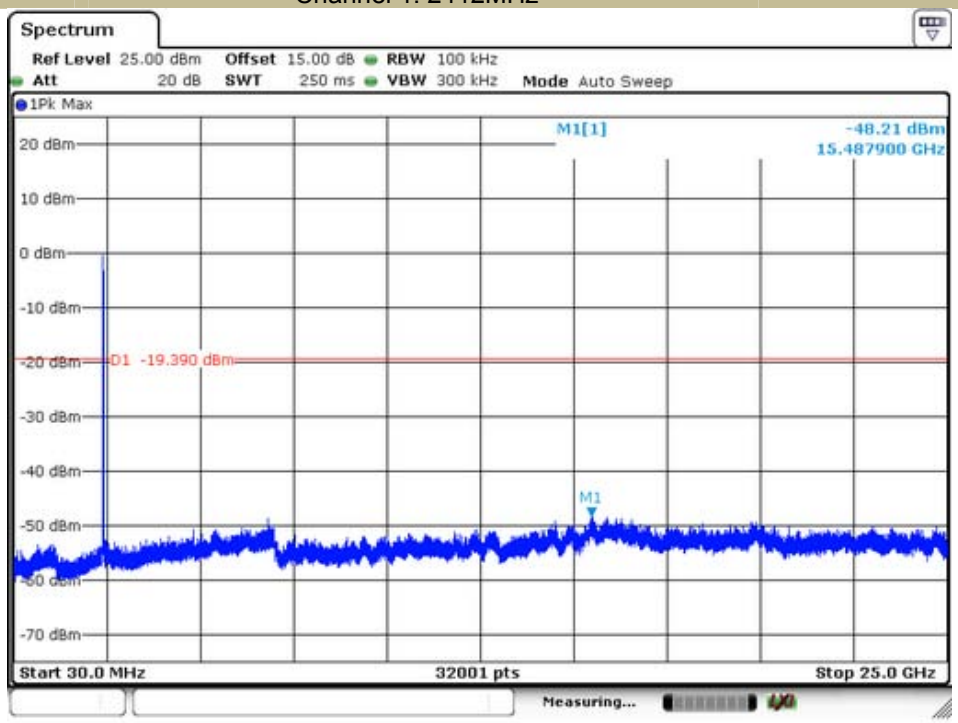


Test Model	PSD(Power Spectral Density) RBW=100kHz

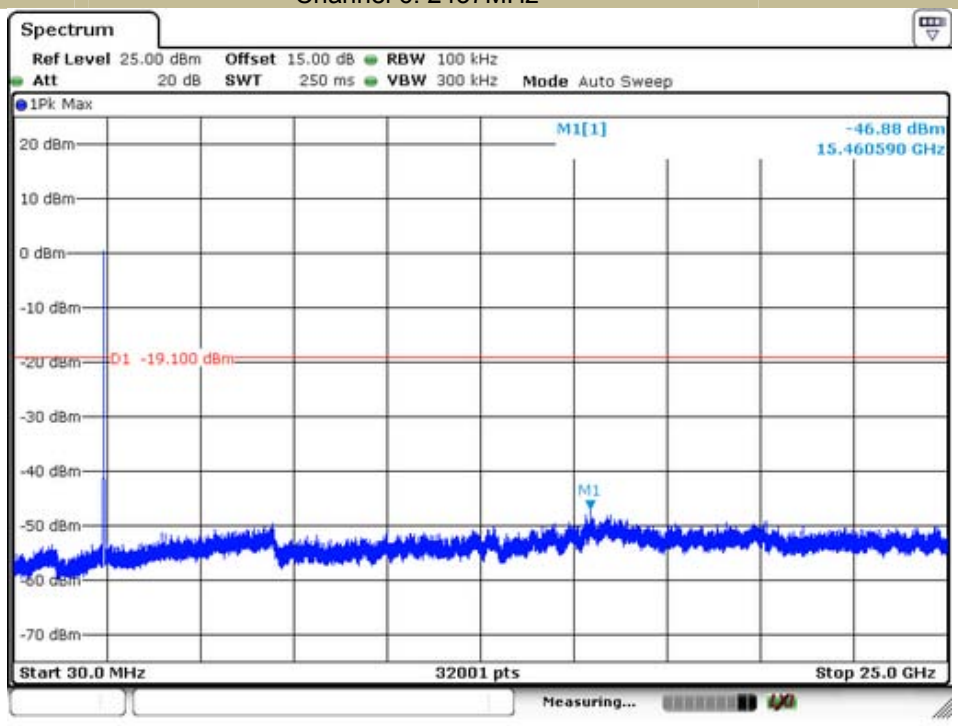
802.11g Ant 2 Channel 11: 2462MHz



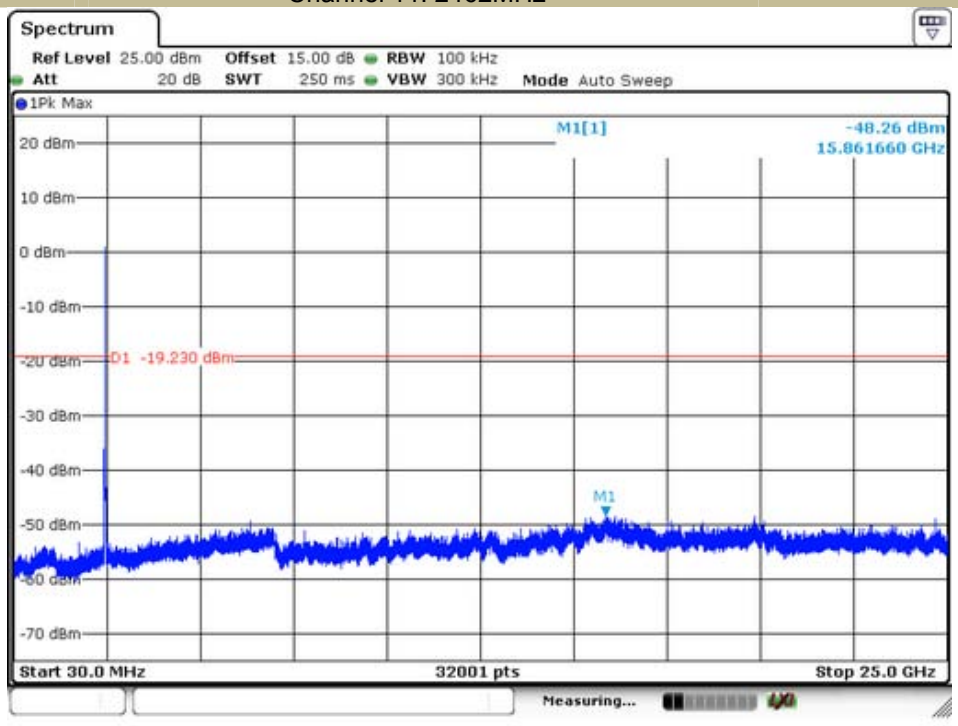
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 2 Channel 1: 2412MHz



Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 2 Channel 6: 2437MHz

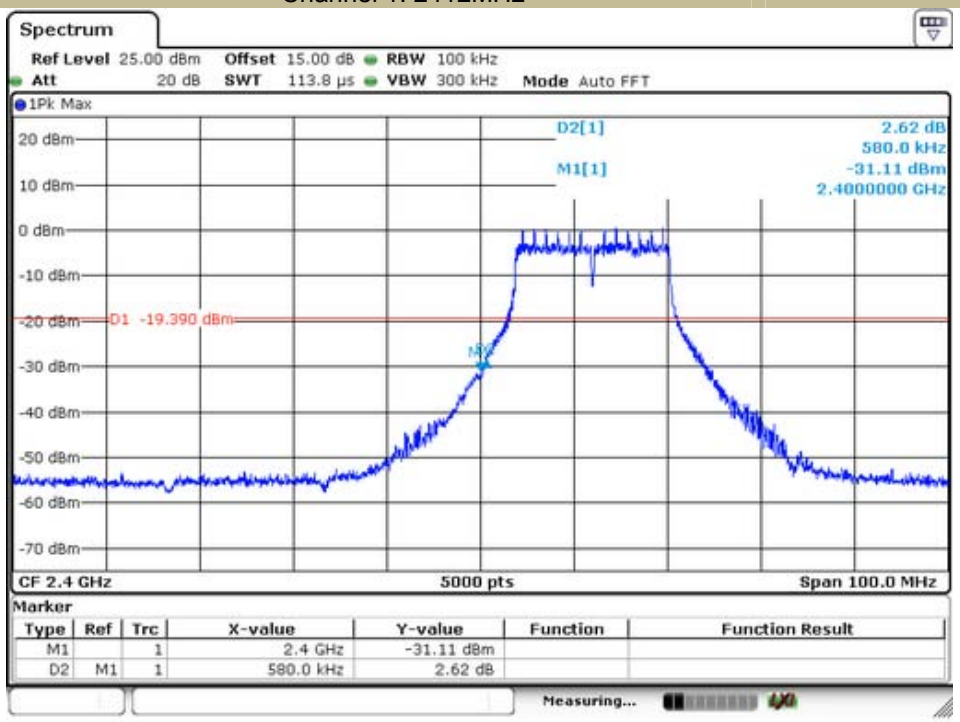


Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 2 Channel 11: 2462MHz

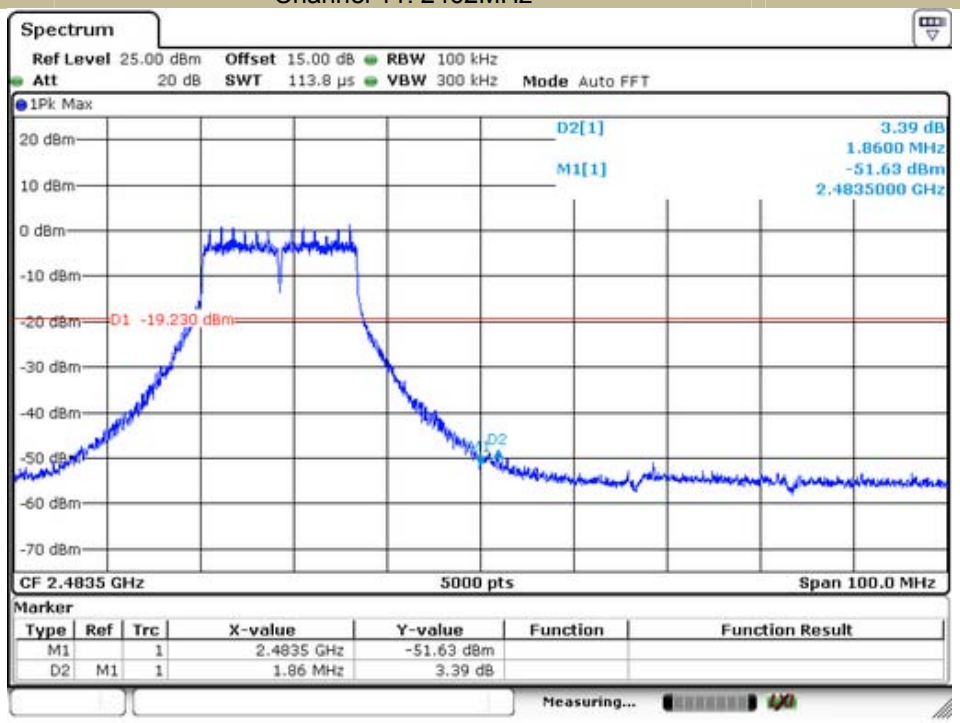


Test Model	Band edge

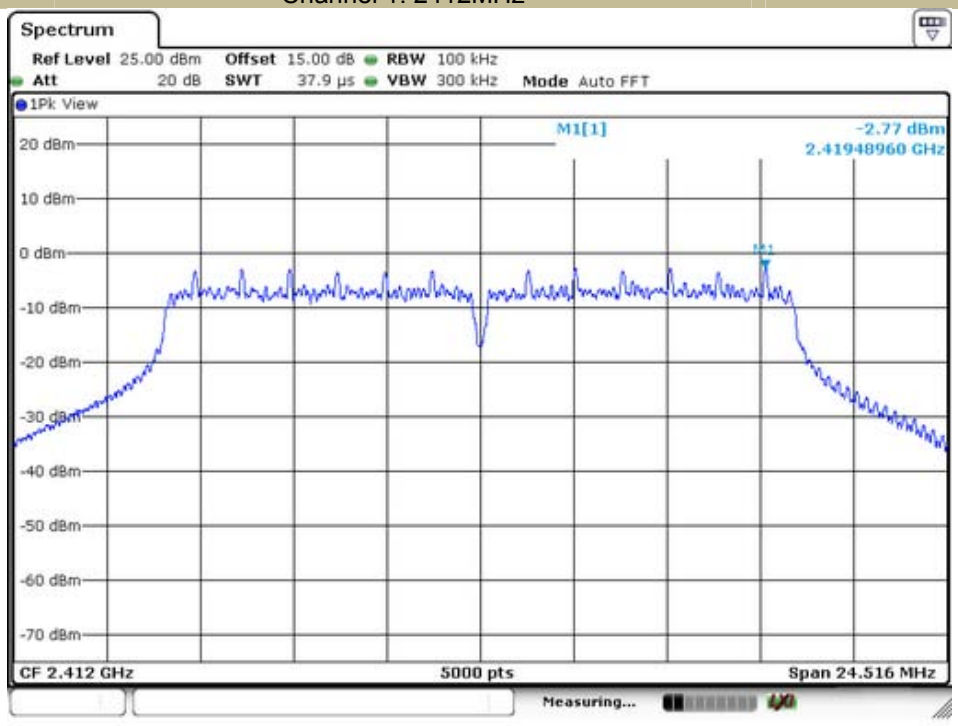
802.11g Ant 2 Channel 1: 2412MHz



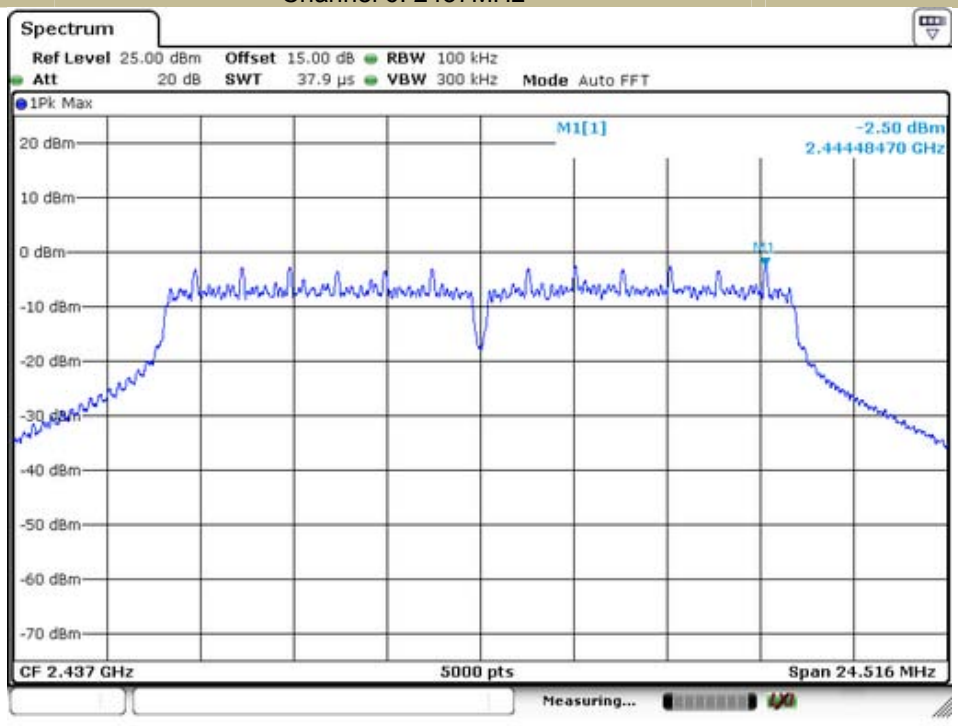
Test Model	Band edge 802.11g Ant 2 Channel 11: 2462MHz



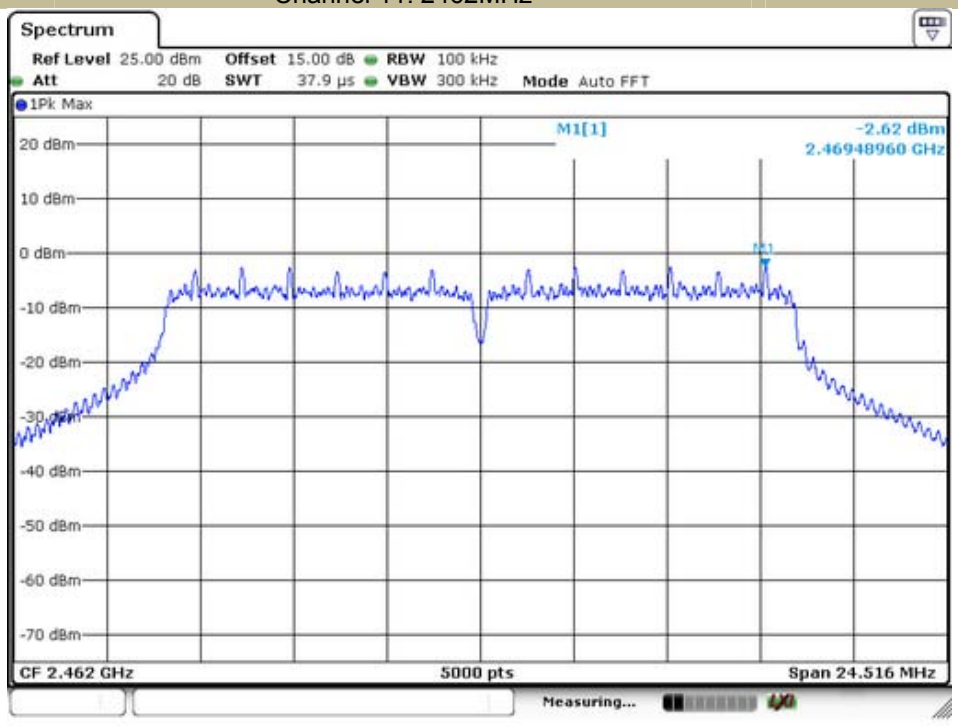
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11g Ant 3 Channel 1: 2412MHz



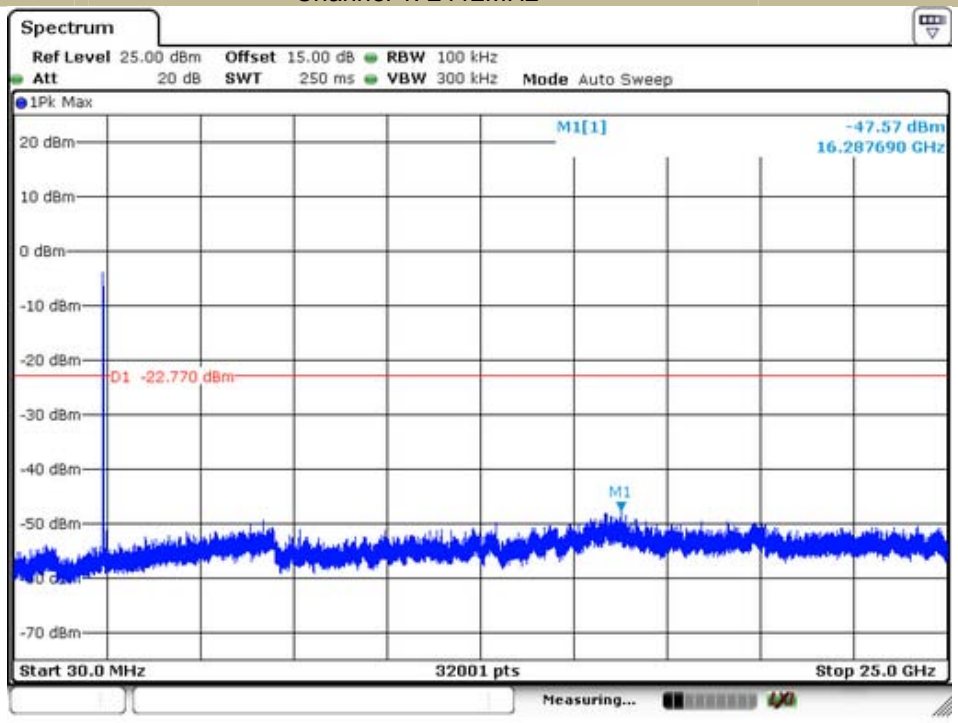
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11g Ant 3 Channel 6: 2437MHz



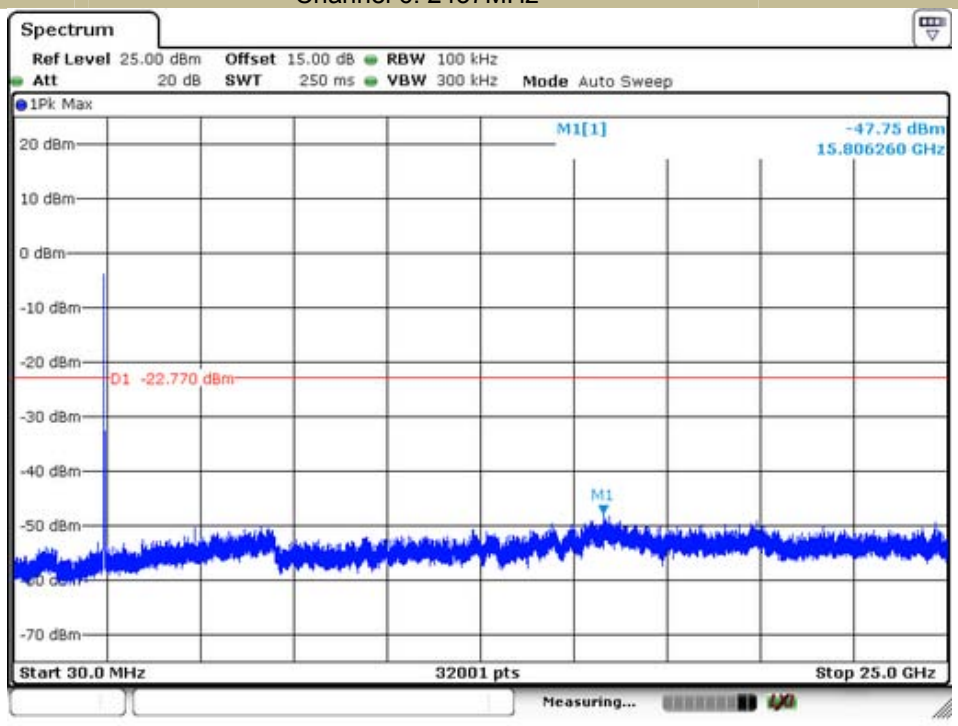
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11g Ant 3 Channel 11: 2462MHz



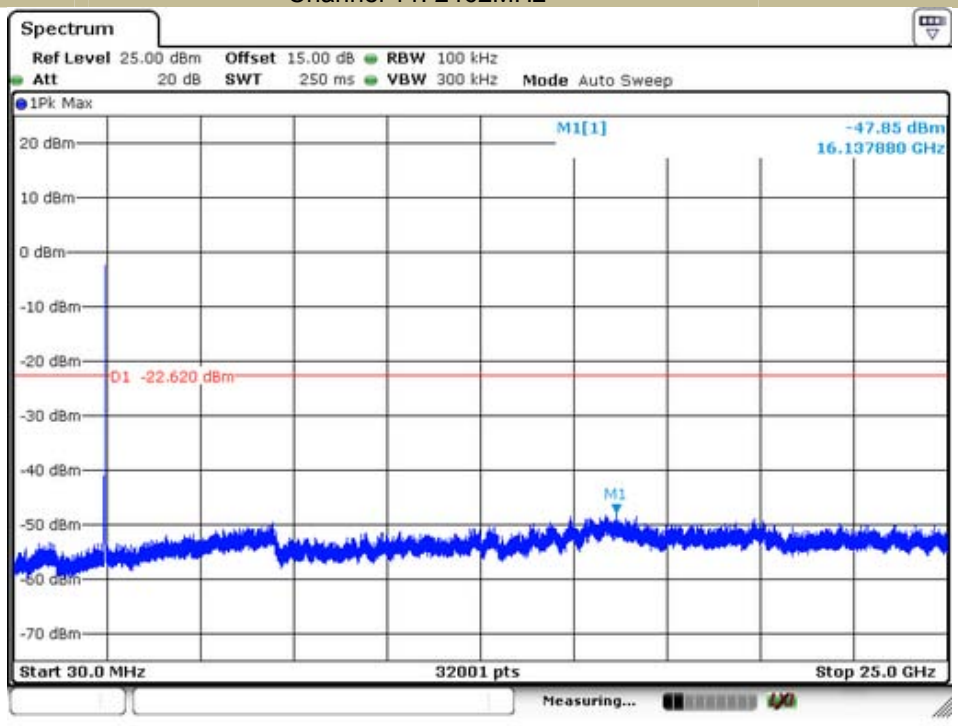
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 3 Channel 1: 2412MHz



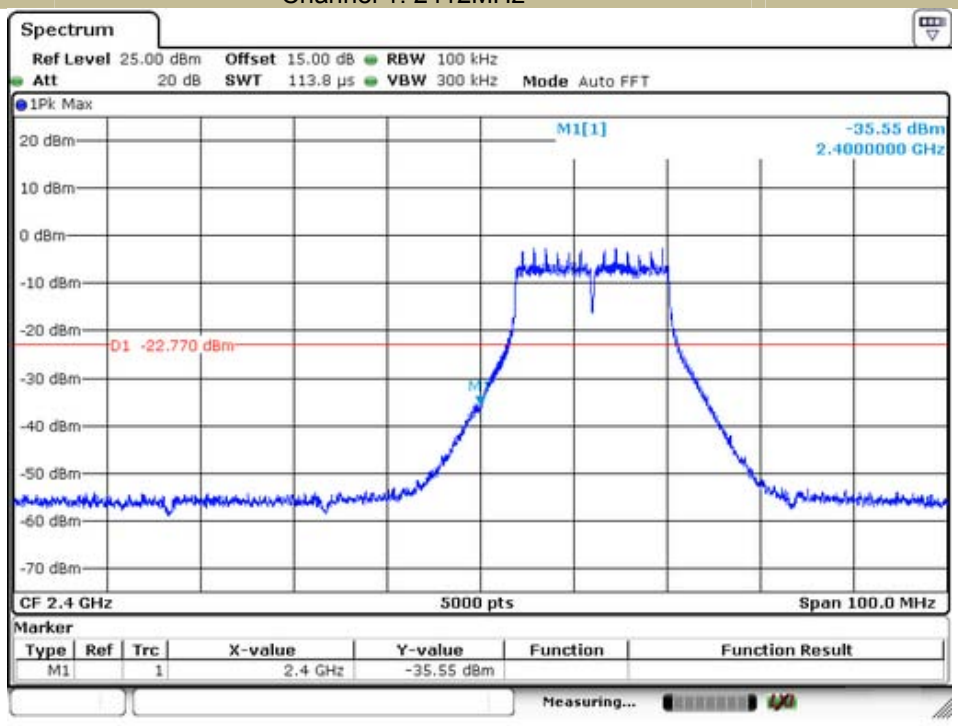
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 3 Channel 6: 2437MHz



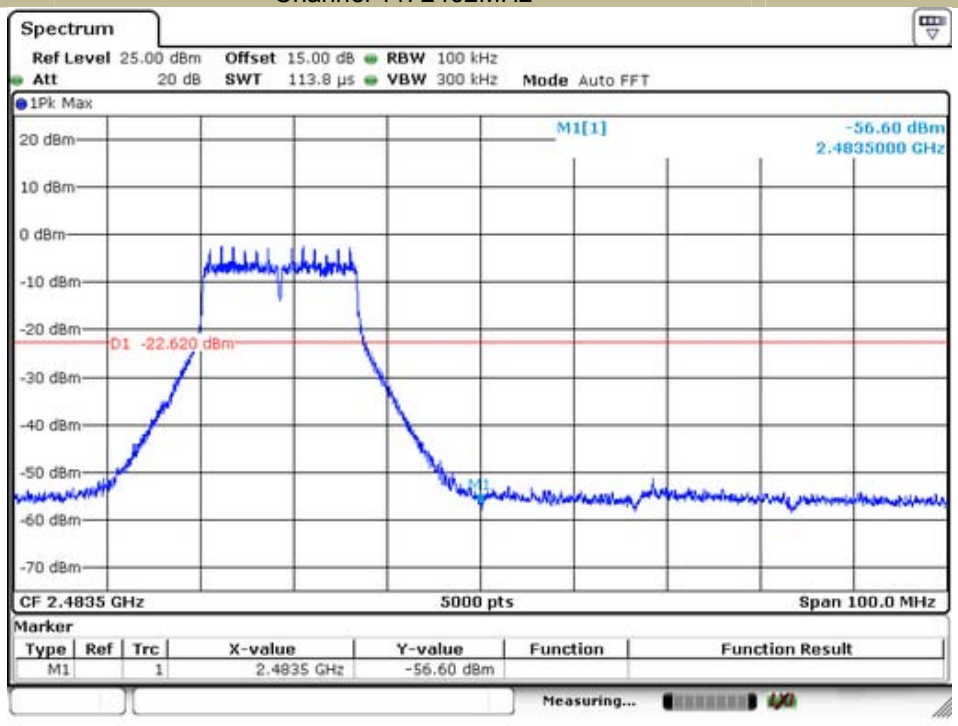
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11g Ant 3 Channel 11: 2462MHz



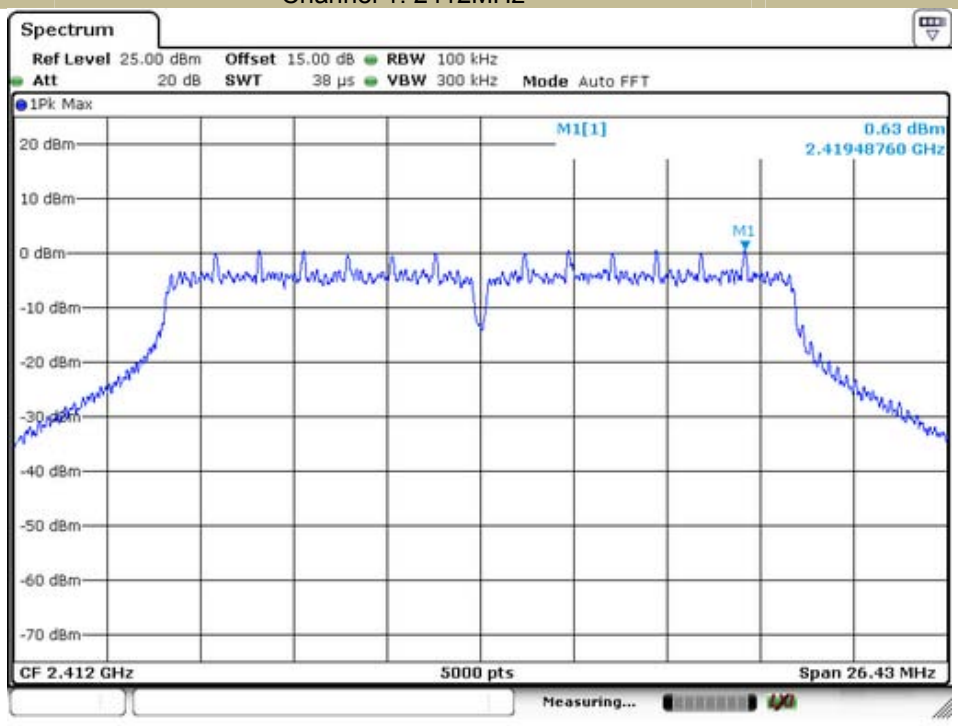
Test Model	Band edge 802.11g Ant 3 Channel 1: 2412MHz



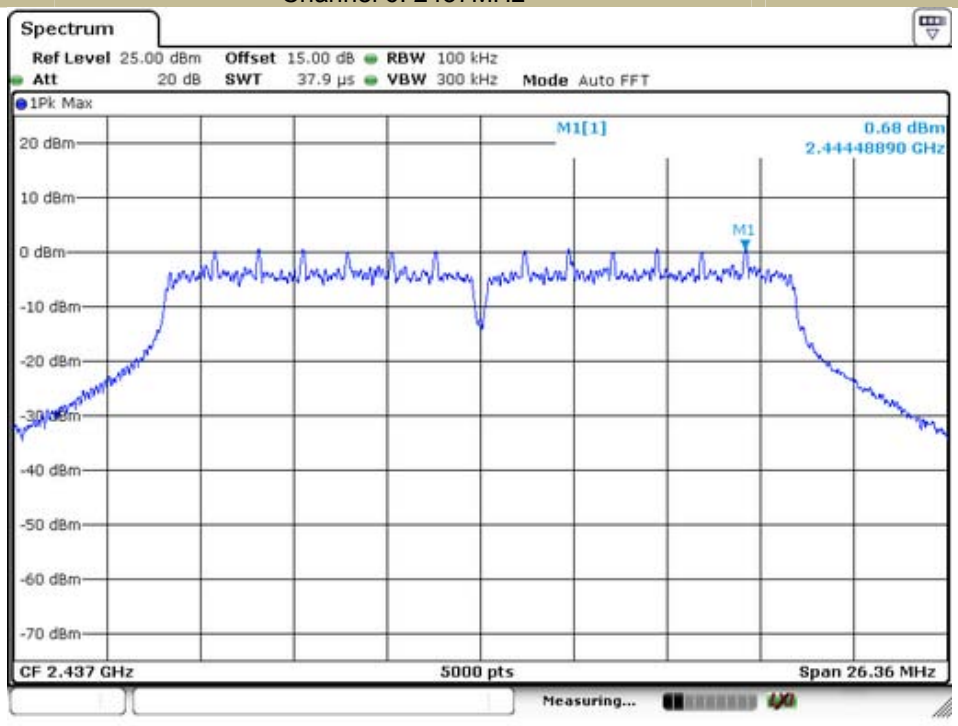
Test Model	Band edge 802.11g Ant 3 Channel 11: 2462MHz



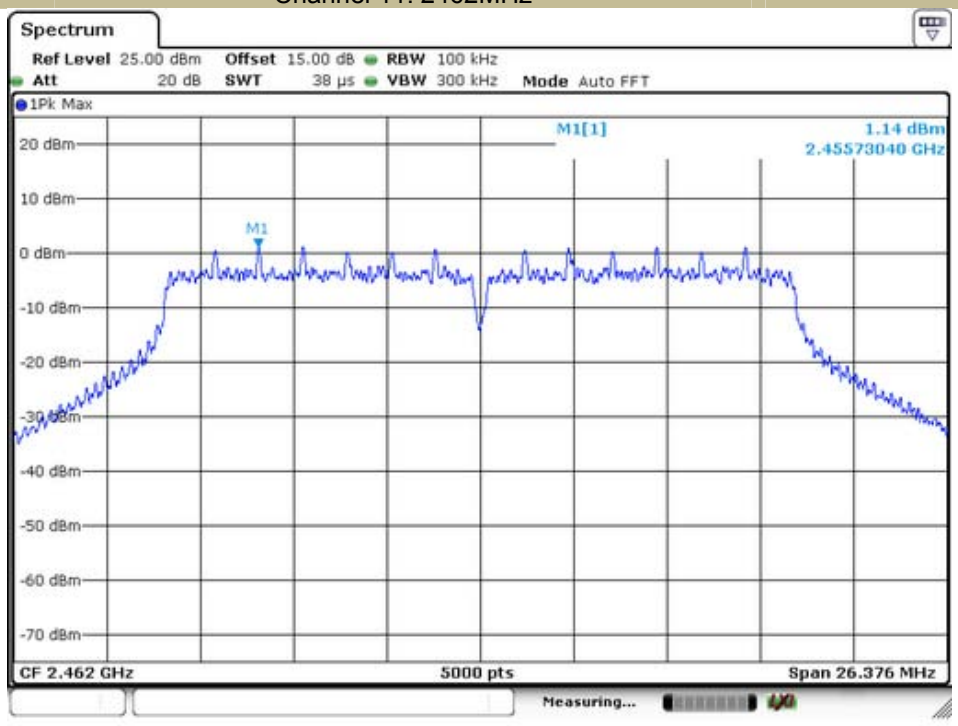
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT20) MIMO Channel 1: 2412MHz



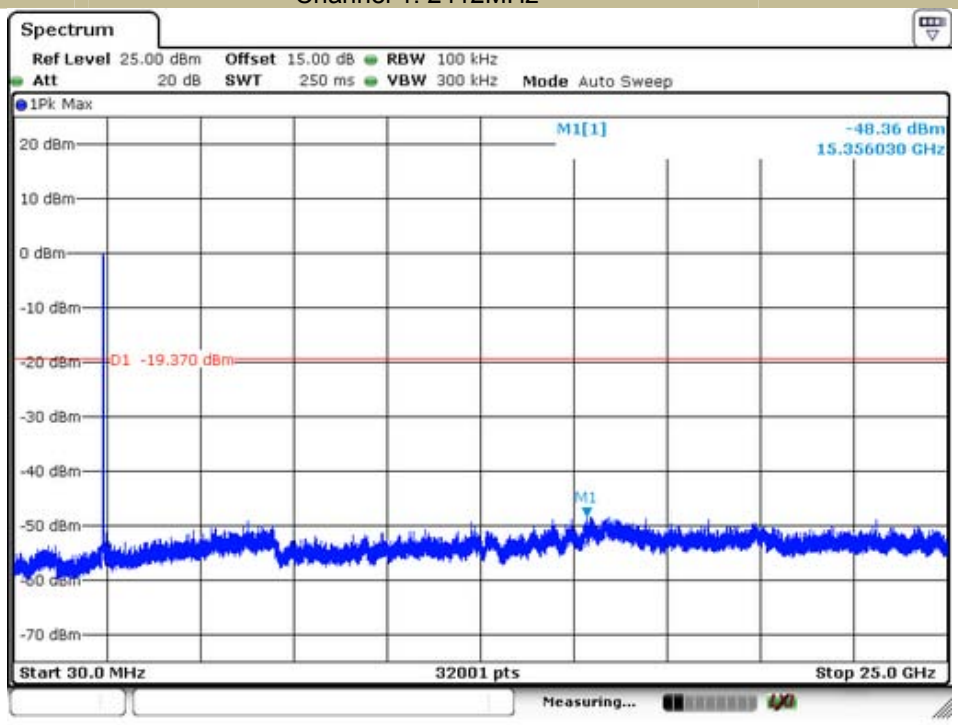
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT20) MIMO Channel 6: 2437MHz



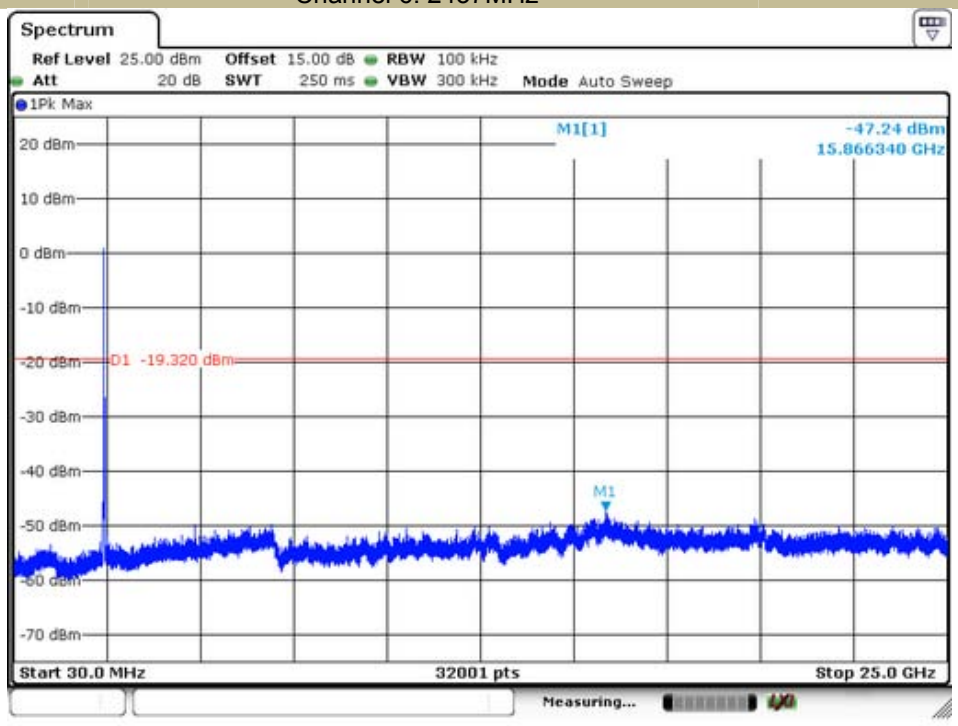
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT20) MIMO Channel 11: 2462MHz



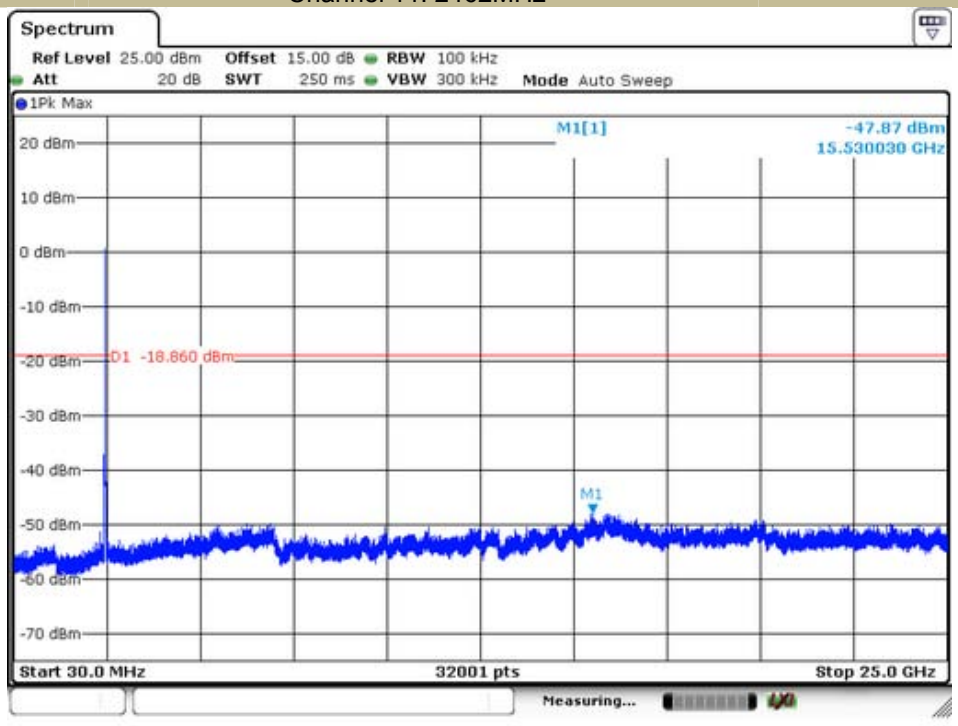
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT20) MIMO Channel 1: 2412MHz



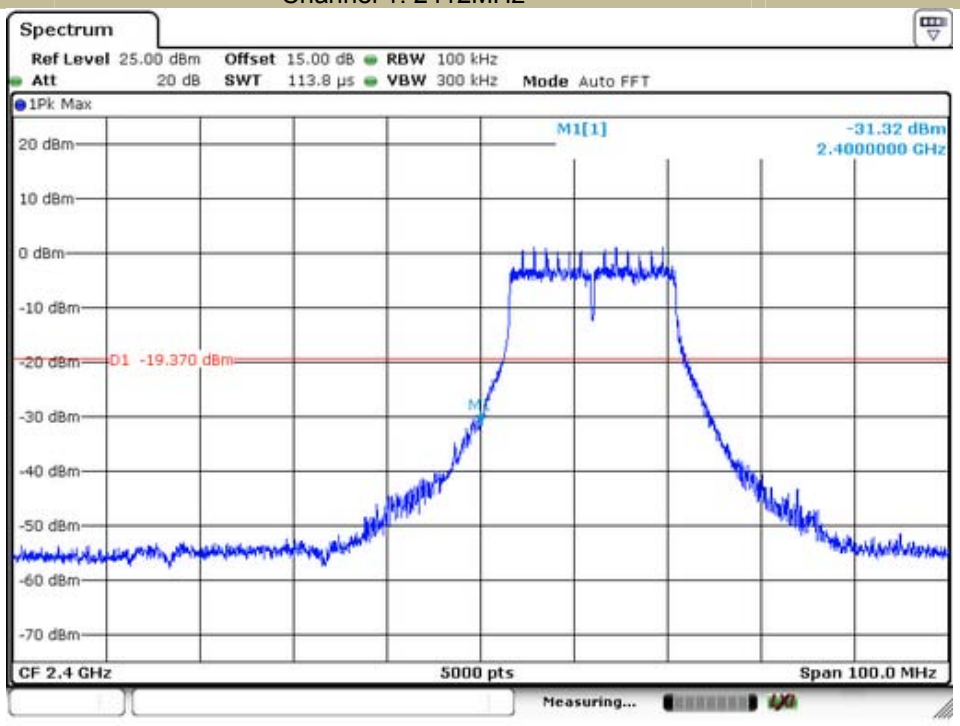
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT20) MIMO Channel 6: 2437MHz



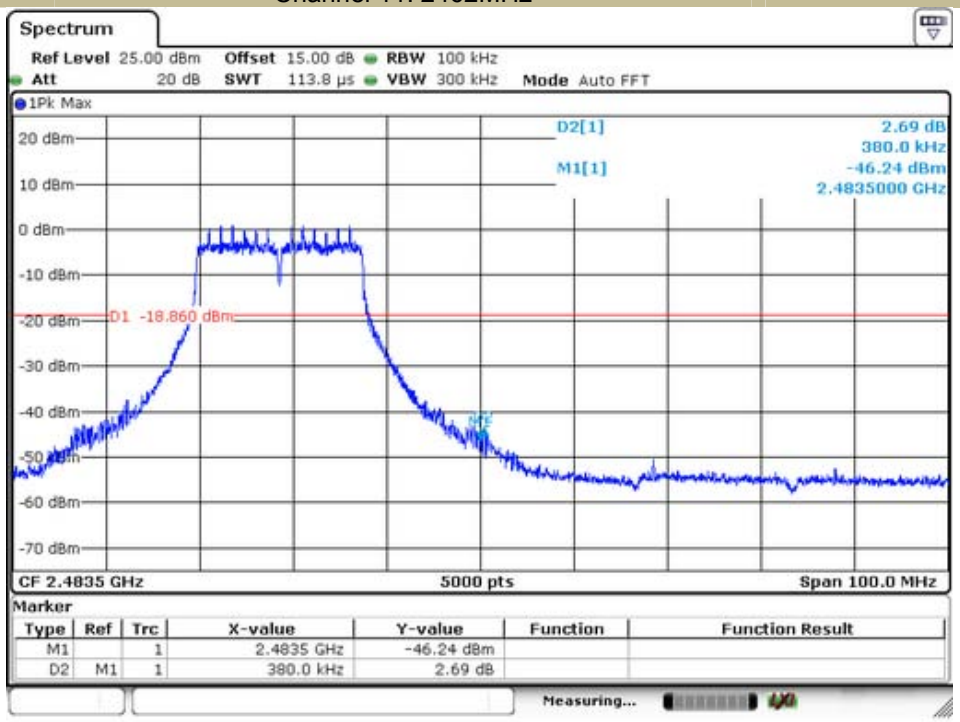
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT20) MIMO Channel 11: 2462MHz



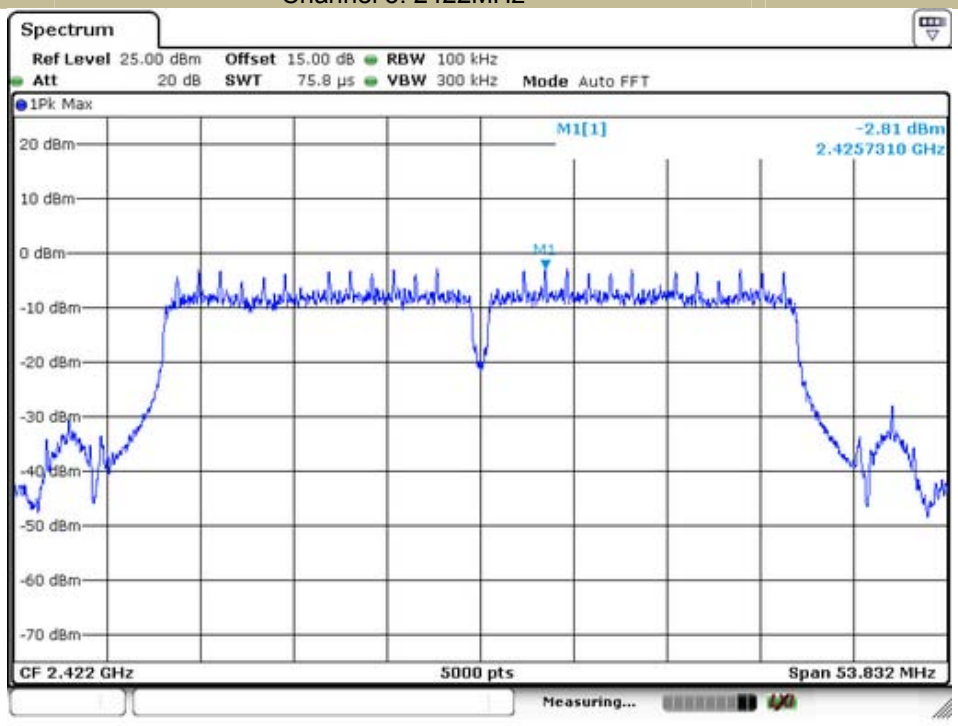
Test Model	Band edge 802.11n(HT20) MIMO Channel 1: 2412MHz



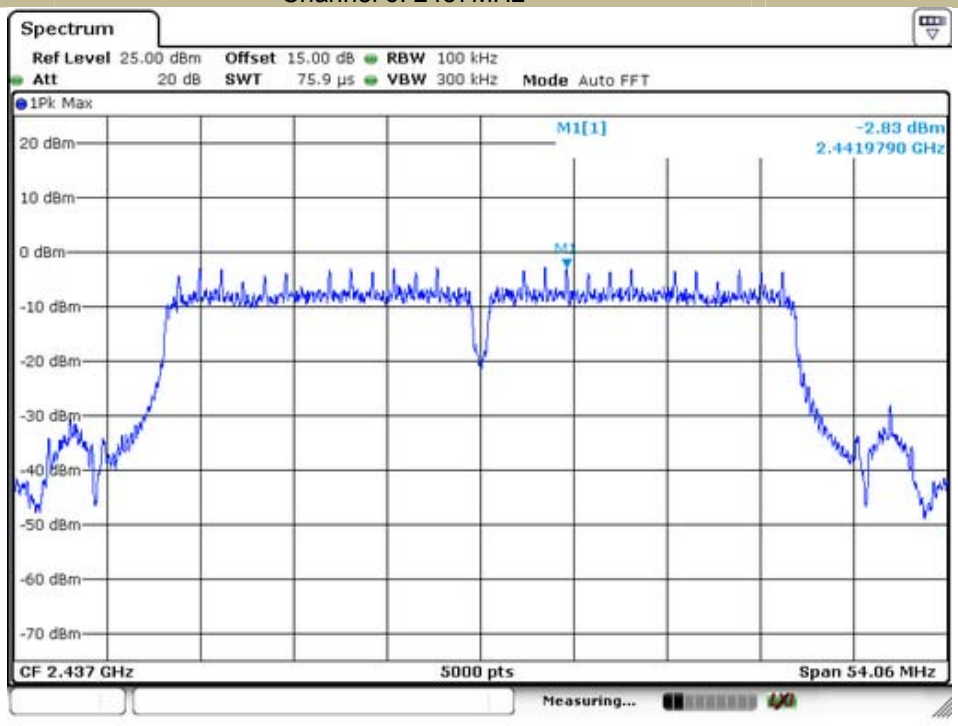
Test Model	Band edge 802.11n(HT20) MIMO Channel 11: 2462MHz



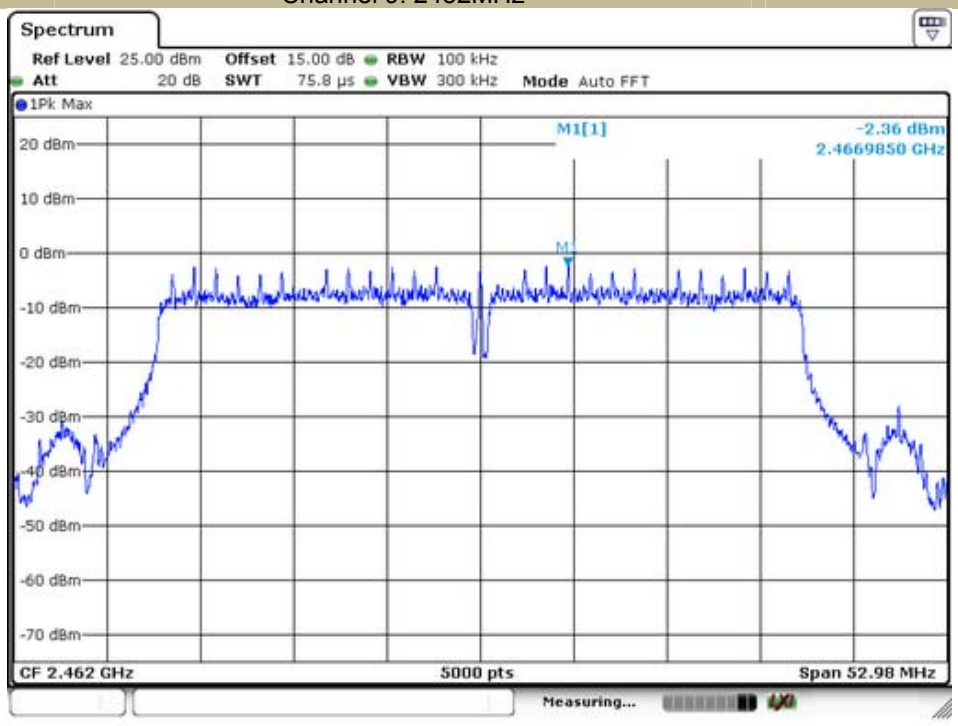
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT40) MIMO Channel 3: 2422MHz



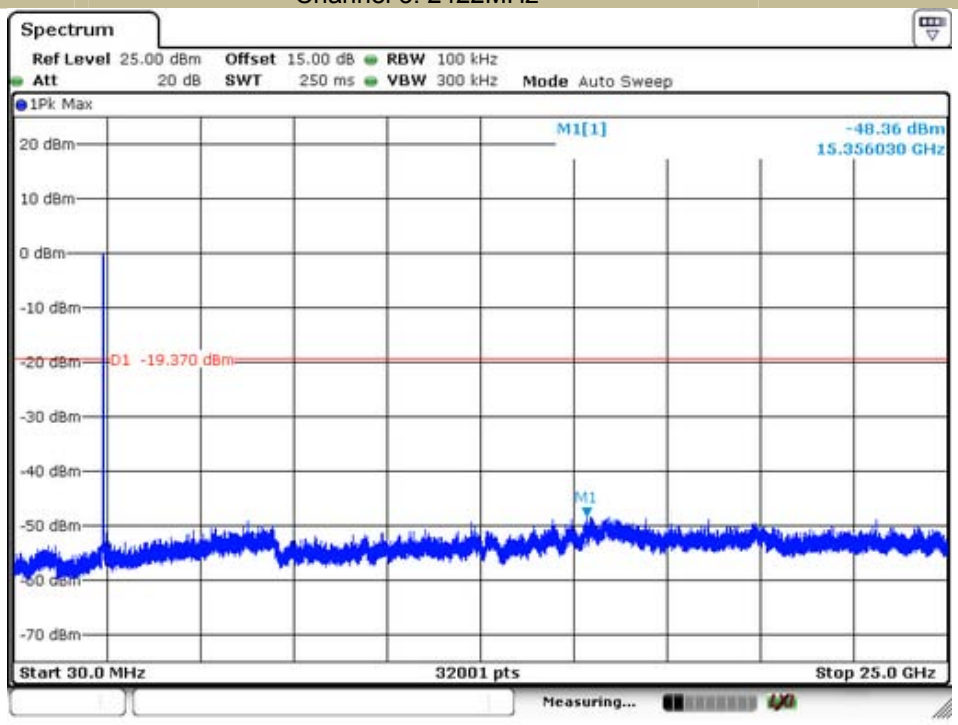
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT40) MIMO Channel 6: 2437MHz



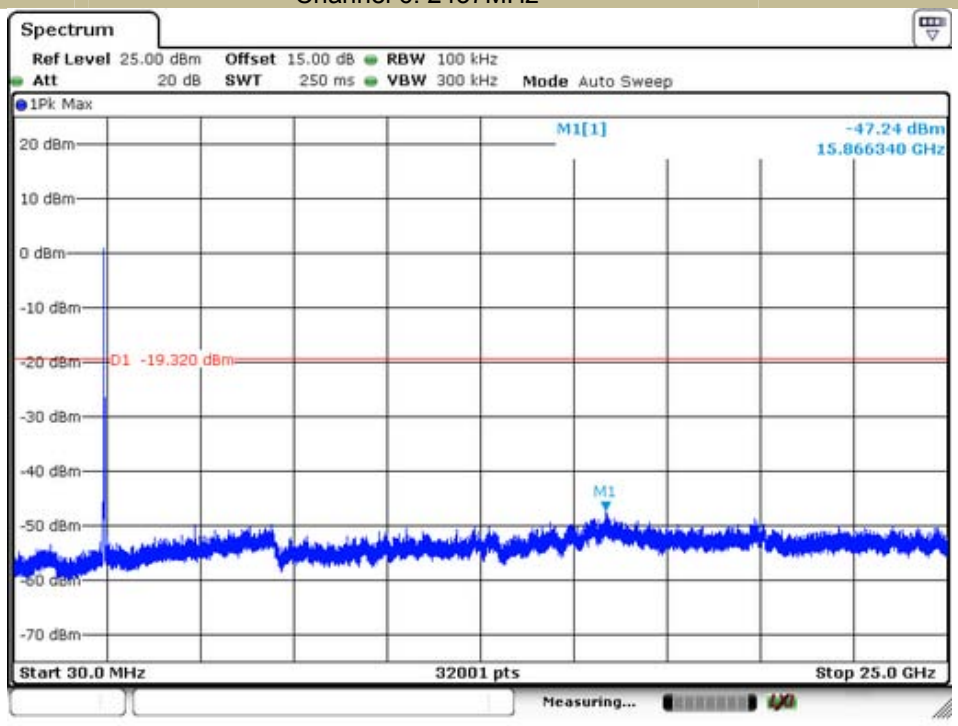
Test Model	PSD(Power Spectral Density) RBW=100kHz 802.11n(HT40) MIMO Channel 9: 2452MHz



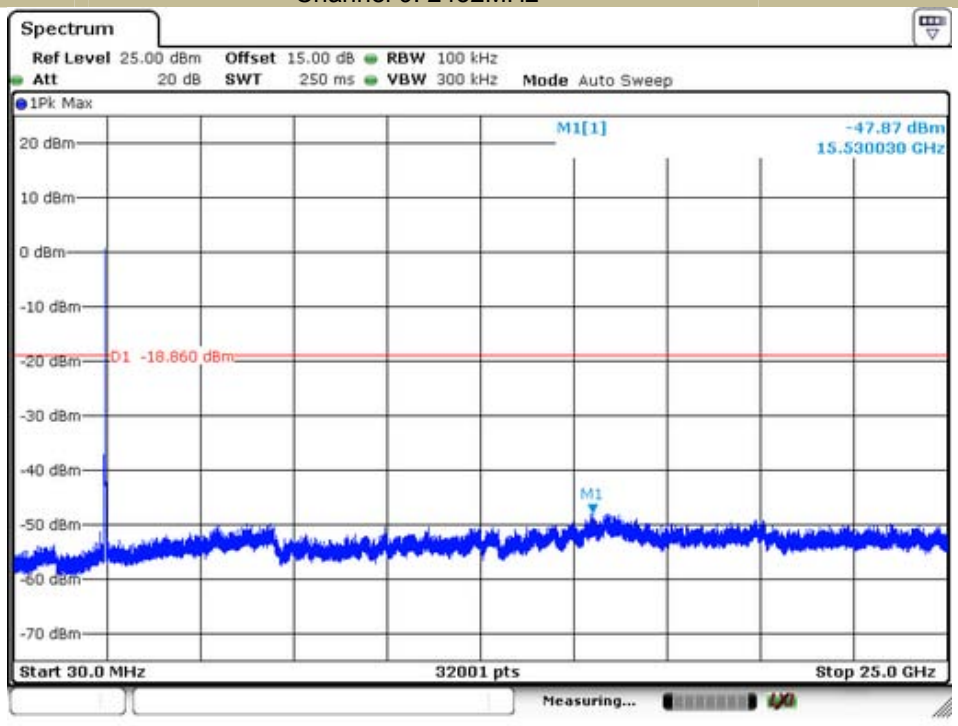
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT40) MIMO Channel 3: 2422MHz



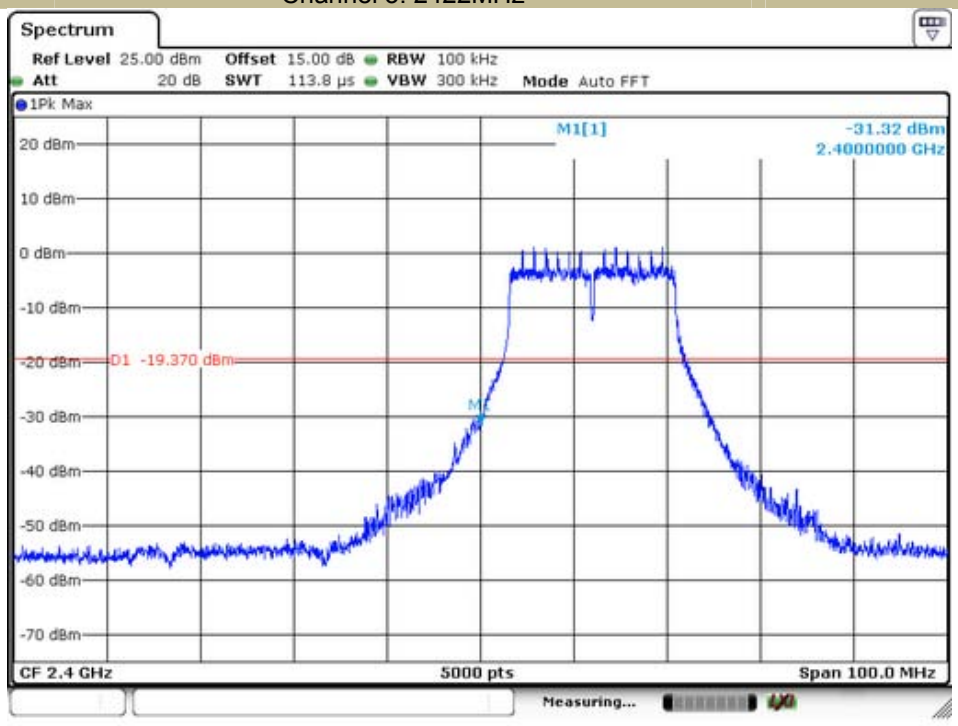
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT40) MIMO Channel 6: 2437MHz



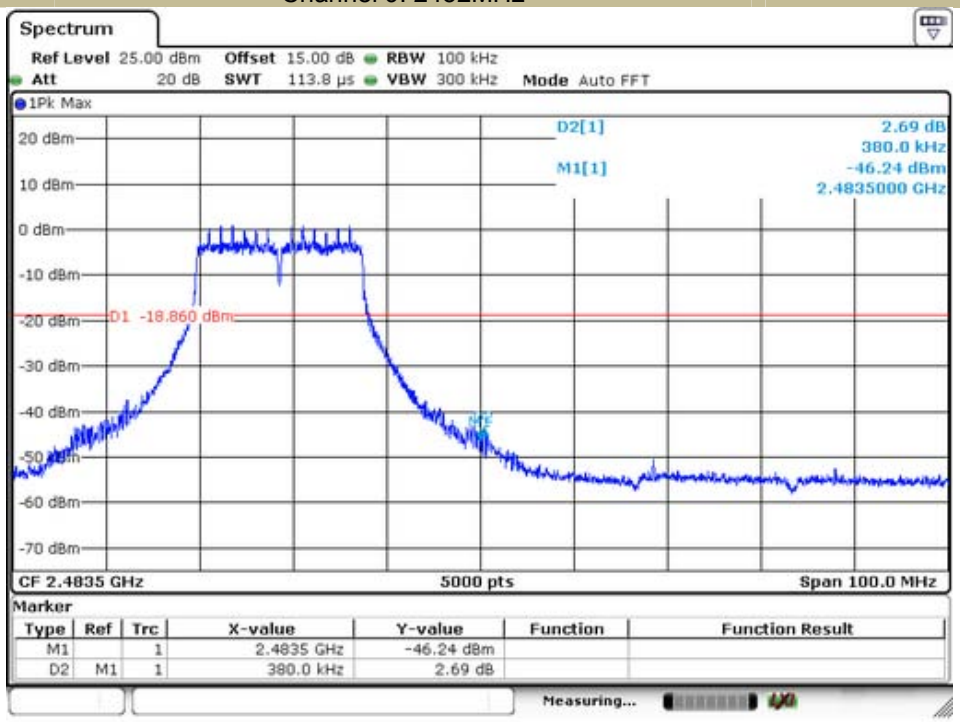
Test Model	Unwanted Emissions in non-restricted frequency bands 802.11n(HT40) MIMO Channel 9: 2452MHz



Test Model	Band edge 802.11n(HT40) MIMO Channel 3: 2422MHz



Test Model	Band edge 802.11n(HT40) MIMO Channel 9: 2452MHz



7.5 RADIATED SPURIOUS EMISSION

7.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and KDB 558074 DTS 01 Meas. Guidance v03r05

7.5.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

According to FCC Part15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

7.5.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

7.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:
The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz(1GHz to 25GHz), 100 kHz for f < 1 GHz(30MHz to 1GHz), 200Hz for f<150KHz(9KHz to 150KHz), 9KHz for f<30MHz(150KHz to 30KHz)
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is

the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.
Repeat above procedures until all frequency measured was complete.

For Average Measurement:

VBW=10Hz, when duty cycle is no less than 98 percent.
VBW≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(μs)	1/T(KHz)	Average Correction Factor	VBW Setting
2412-2462	100	-	-	0	10Hz

7.5.5 Test Results

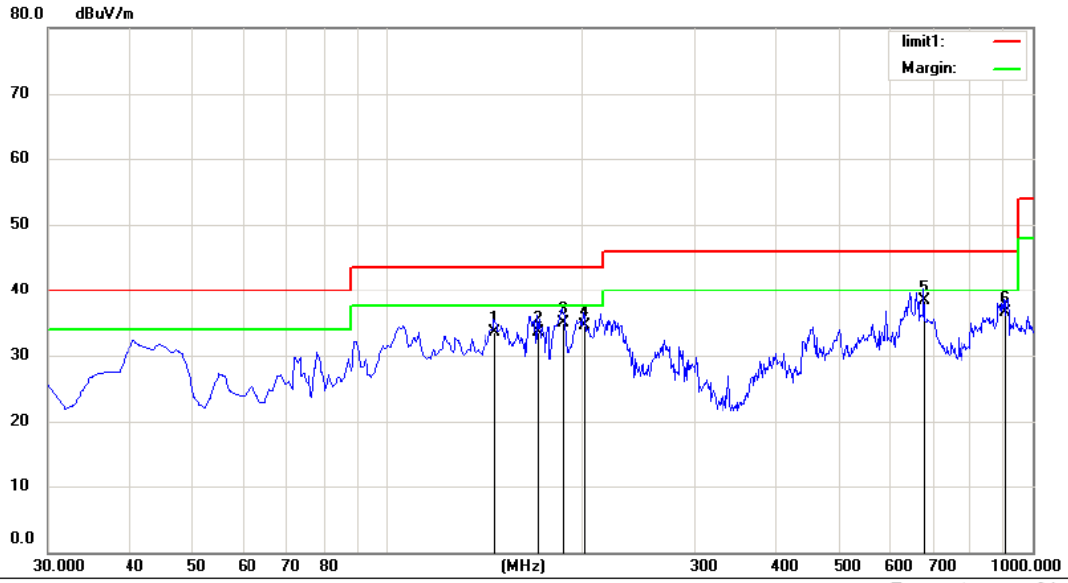
- Spurious Emission below 30MHz (9KHz to 30MHz)

Temperature:	24℃	Test Date:	December 25, 2015
Humidity:	53 %	Test By:	King Kong
Test mode:	TX Mode		

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

- Spurious Emission below 1GHz (30MHz to 1GHz)
- All the modulation modes were tested the data of the worst mode (ANT 2: TX 802.11b) are recorded in the following pages and the others modulation methods do not exceed the limits.
-
- Please refer to the following test plots:



Site Chamber #1 Polarization: **Horizontal** Temperature: 24

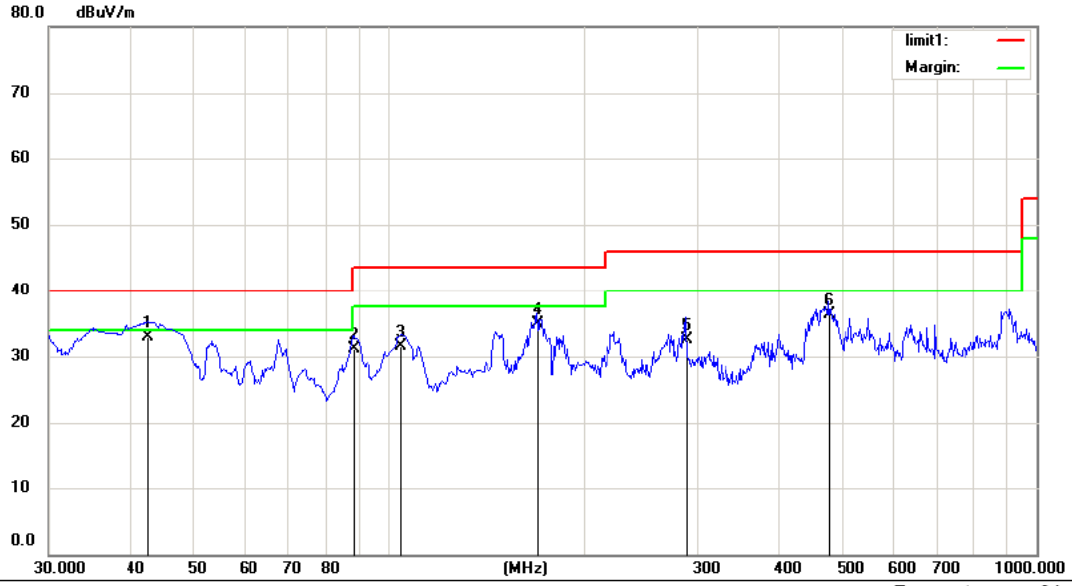
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		147.3700	51.01	-17.56	33.45	43.50	-10.05	QP			
2		171.6200	52.06	-18.51	33.55	43.50	-9.95	QP			
3		187.1400	53.40	-18.41	34.99	43.50	-8.51	QP			
4		201.6900	52.18	-17.60	34.58	43.50	-8.92	QP			
5	*	679.9000	45.82	-7.57	38.25	46.00	-7.75	QP			
6		903.9700	40.06	-3.46	36.60	46.00	-9.40	QP			

*:Maximum data x:Over limit !:over margin Operator: John



Site Chamber #1 Polarization: **Vertical** Temperature: 24

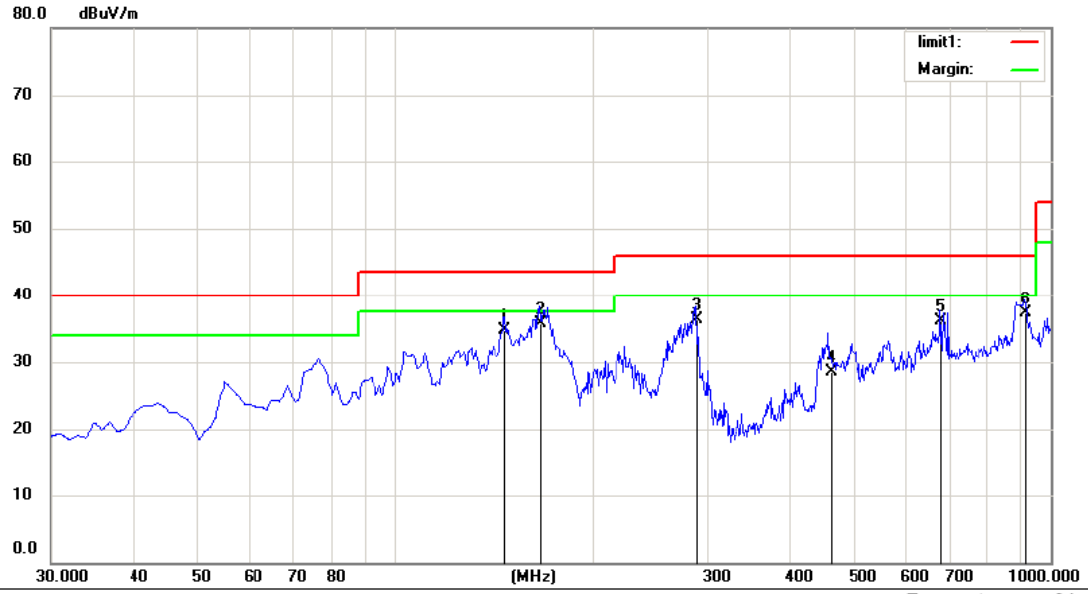
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	42.6100	46.35	-13.49	32.86	40.00	-7.14	QP			
2		88.2000	52.39	-21.21	31.18	43.50	-12.32	QP			
3		104.6900	49.67	-18.26	31.41	43.50	-12.09	QP			
4		169.6800	53.32	-18.42	34.90	43.50	-8.60	QP			
5		288.0200	47.32	-14.77	32.55	46.00	-13.45	QP			
6		477.1700	46.99	-10.61	36.38	46.00	-9.62	QP			

*:Maximum data x:Over limit !:over margin Operator: John



Site Chamber #1 Polarization: **Horizontal** Temperature: 24

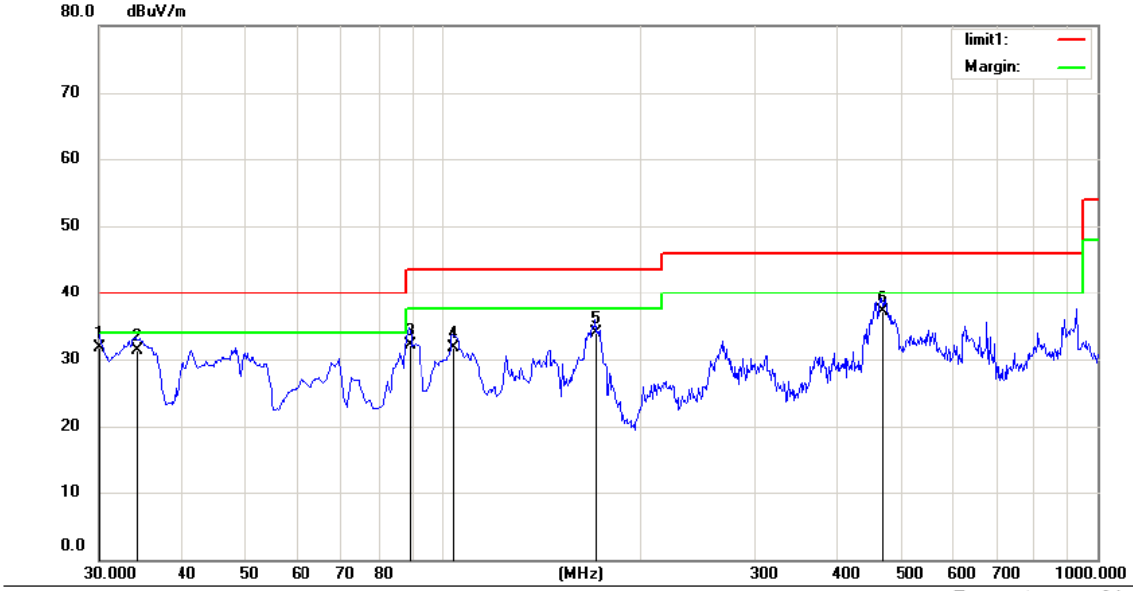
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2437

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		147.3700	52.34	-17.56	34.78	43.50	-8.72	QP			
2	*	166.7700	54.16	-18.40	35.76	43.50	-7.74	QP			
3		288.0200	51.09	-14.77	36.32	46.00	-9.68	QP			
4		461.6500	39.46	-10.96	28.50	46.00	-17.50	QP			
5		679.9000	43.58	-7.57	36.01	46.00	-9.99	QP			
6		914.6400	40.27	-3.02	37.25	46.00	-8.75	QP			

*:Maximum data x:Over limit !:over margin Operator: John



Site Chamber #1 Polarization: **Vertical** Temperature: 24

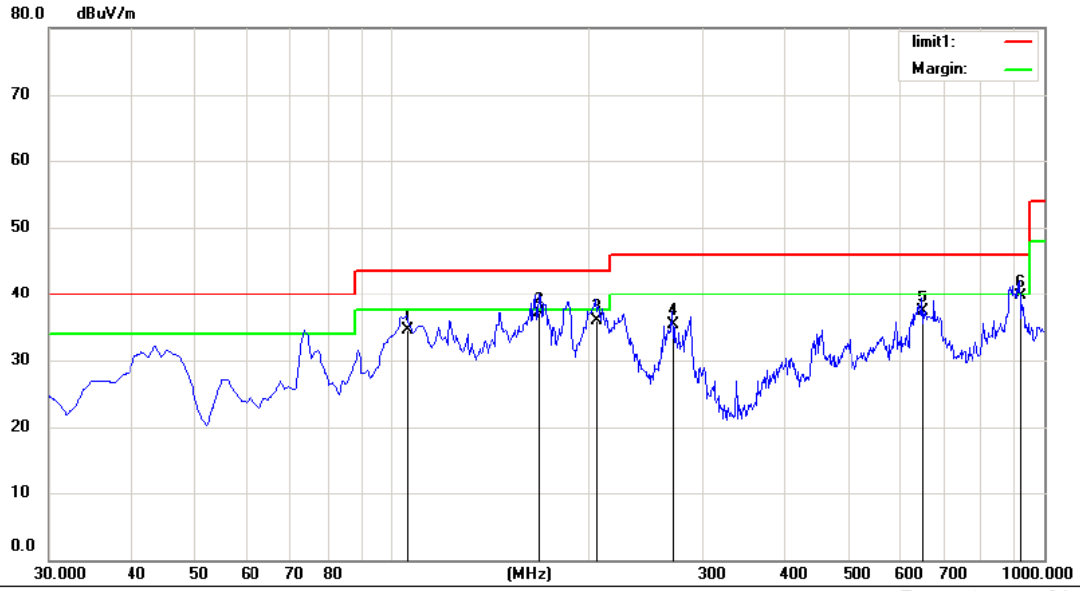
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2437

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	30.0000	46.77	-15.15	31.62	40.00	-8.38	QP			
2		34.1561	45.60	-14.26	31.34	40.00	-8.66	QP			
3		89.1700	53.21	-21.04	32.17	43.50	-11.33	QP			
4		103.8055	50.06	-18.41	31.65	43.50	-11.85	QP			
5		171.6200	52.46	-18.51	33.95	43.50	-9.55	QP			
6		468.4400	47.89	-10.82	37.07	46.00	-8.93	QP			

*:Maximum data x:Over limit !:over margin Operator: John



Site Chamber #1 Polarization: **Horizontal** Temperature: 24

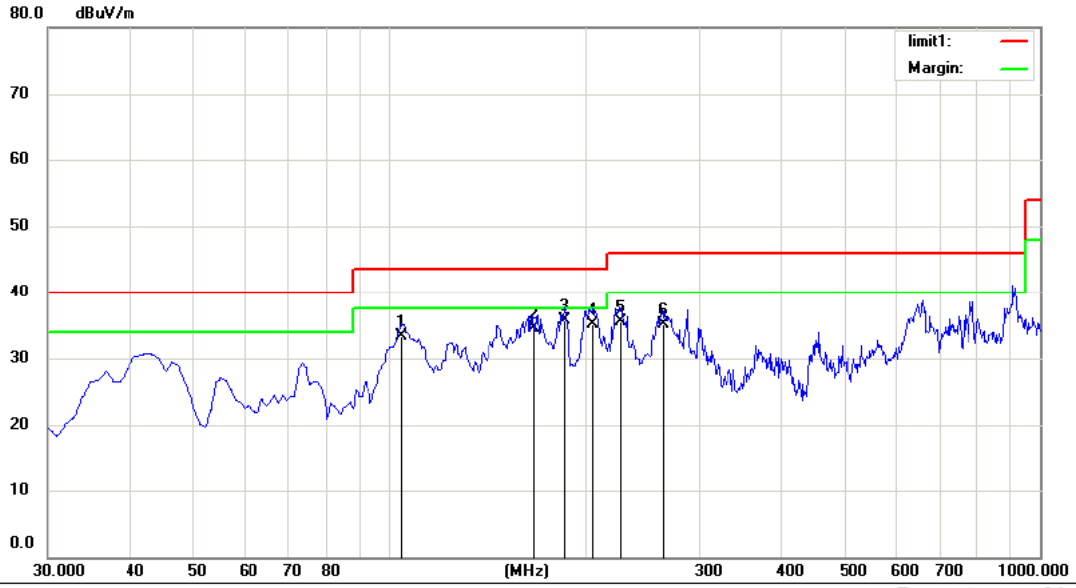
Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		105.6600	52.67	-18.12	34.55	43.50	-8.95	QP			
2		168.7100	55.49	-18.42	37.07	43.50	-6.43	QP			
3		205.6751	53.19	-17.33	35.86	43.50	-7.64	QP			
4		269.5900	50.47	-15.20	35.27	46.00	-10.73	QP			
5		650.8000	45.18	-7.92	37.26	46.00	-8.74	QP			
6	*	918.5200	42.46	-2.85	39.61	46.00	-6.39	QP			

*:Maximum data x:Over limit !:over margin Operator: John



Site Chamber #1 Polarization: **Vertical** Temperature: 24

Limit: (RE)FCC PART 15 class B 3m Power: AC 120V/60Hz Humidity: 55 %

Mode: TX 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		104.6900	51.63	-18.26	33.37	43.50	-10.13	QP			
2		166.7700	52.84	-18.40	34.44	43.50	-9.06	QP			
3	*	186.1700	54.22	-18.45	35.77	43.50	-7.73	QP			
4		205.5700	52.39	-17.34	35.05	43.50	-8.45	QP			
5		226.9100	51.68	-16.10	35.58	46.00	-10.42	QP			
6		263.7700	50.39	-15.34	35.05	46.00	-10.95	QP			

*:Maximum data x:Over limit !:over margin Operator: John

■ Spurious Emission Above 1GHz (1GHz to 25GHz)
All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 1: 2412MHz

Freq.	Ant. Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4824	V	66.55	45.89	74	54	-7.45	-8.11
7236	V	63.49	44.07	74	54	-10.51	-9.93
9648	V	61.87	42.21	74	54	-12.13	-11.79
12060	V	60.37	40.95	74	54	-13.63	-13.05
14472	V	59.54	39.67	74	54	-14.46	-14.33
16884	V	57.67	38.11	74	54	-16.33	-15.89
4824	H	66.43	44.01	74	54	-7.57	-9.99
7236	H	65.31	42.22	74	54	-8.69	-11.78
9648	H	63.69	41.59	74	54	-10.31	-12.41
12060	H	61.33	40.78	74	54	-12.67	-13.22
14472	H	60.58	39.19	74	54	-13.42	-14.81
16884	H	59.67	38.38	74	54	-14.33	-15.62

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 6: 2437MHz

Freq.	Ant. Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4874	V	66.31	45.82	74	54	-7.69	-8.18
7311	V	64.29	44.17	74	54	-9.71	-9.83
9688	V	63.34	42.83	74	54	-10.66	-11.17
12185	V	61.46	41.52	74	54	-12.54	-12.48
14622	V	60.49	40.48	74	54	-13.51	-13.52
17059	V	58.37	38.31	74	54	-15.63	-15.69
4874	H	65.63	45.59	74	54	-8.37	-8.41
7311	H	64.44	44.57	74	54	-9.56	-9.43
9688	H	62.37	43.94	74	54	-11.63	-10.06
12185	H	61.45	41.98	74	54	-12.55	-12.02
14622	H	60.92	40.37	74	54	-13.08	-13.63
17059	H	58.55	38.64	74	54	-15.45	-15.36

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 11: 2462MHz

Freq.	Ant. Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
4924	V	65.74	45.05	74	54	-8.26	-8.95
7386	V	65.08	43.47	74	54	-8.92	-10.53
9848	V	64.69	42.17	74	54	-9.31	-11.83
12310	V	62.59	41.21	74	54	-11.41	-12.79
14772	V	61.83	40.78	74	54	-12.17	-13.22
17234	V	59.59	38.65	74	54	-14.41	-15.35
4924	H	66.74	45.72	74	54	-7.26	-8.28
7386	H	64.46	44.83	74	54	-9.54	-9.17
9848	H	63.85	42.27	74	54	-10.15	-11.73
12310	H	61.68	41.91	74	54	-12.32	-12.09
14772	H	60.78	39.95	74	54	-13.22	-14.05
17234	H	58.39	38.63	74	54	-15.61	-15.37

All emissions not reported were more than 20dB below the specified limit or in the noise floor.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " – " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 1: 2412MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AVG(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)
2390.00	H	55.53	74	43.25	54
2390.00	V	54.33	74	42.28	54
2484.50	H	56.82	74	44.36	54
2484.50	V	55.42	74	43.36	54

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 6: 2437MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AVG (dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)
2390.00	H	55.28	74	43.25	54
2390.00	V	55.17	74	42.93	54
2484.50	H	56.48	74	44.25	54
2484.50	V	55.06	74	44.18	54

Temperature :	28℃	Test Date :	December 18, 2015
Humidity :	65 %	Test By:	Andy
Test mode:	802.11b	Frequency:	Channel 11: 2462MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AVG (dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)
2390.00	H	55.68	74	43.53	54
2390.00	V	55.25	74	43.42	54
2484.50	H	56.69	74	44.28	54
2484.50	V	55.37	74	43.76	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and AVG Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

7.6 CONDUCTED EMISSIONS TEST

7.6.1 Applicable Standard

According to FCC Part 15.207(a)

7.6.2 Conformance Limit

	Conducted Emission Limit	
Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

7.6.3 Test Configuration

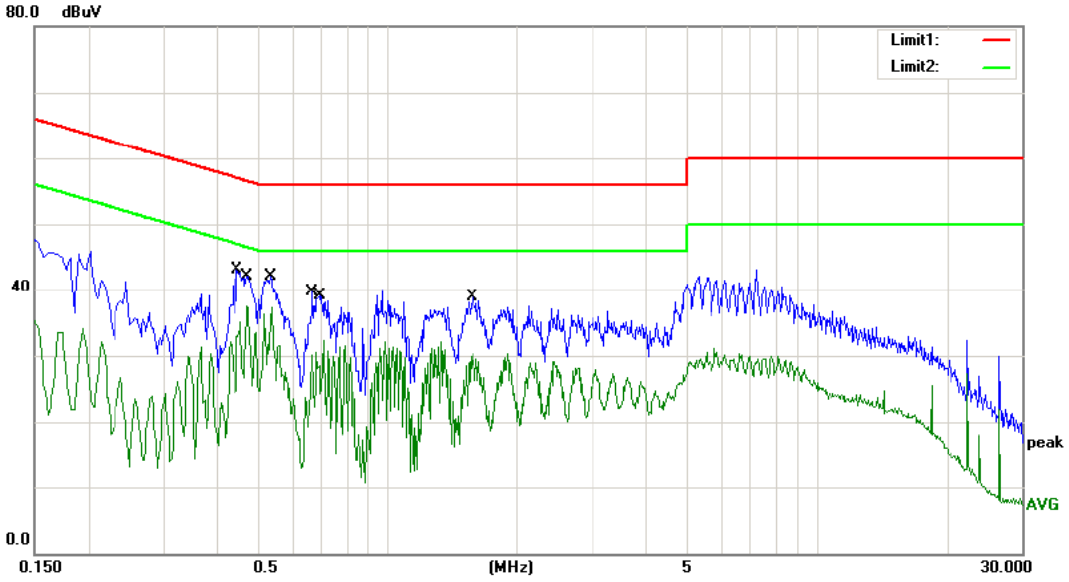
Test according to clause 7.3 conducted emission test setup

7.6.4 Test Procedure

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

7.6.5 Test Results

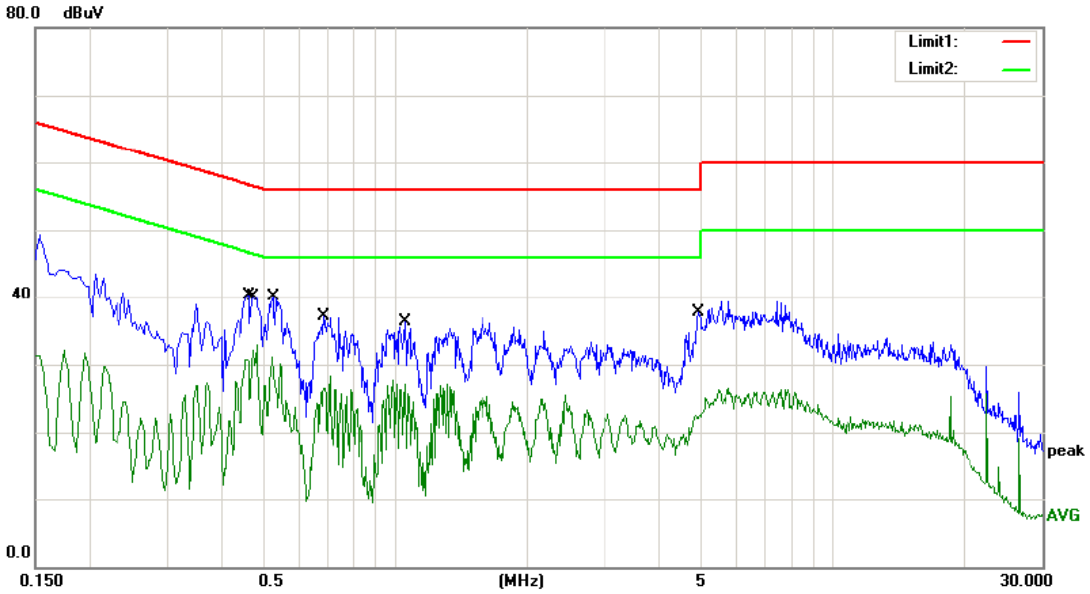
Please refer to following pages.



Site site #1 Phase: L1 Temperature: 24
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %
Mode: TX2412
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4460	33.00	10.18	43.18	56.95	-13.77	QP	
2		0.4460	22.75	10.18	32.93	46.95	-14.02	AVG	
3		0.4700	31.99	10.18	42.17	56.51	-14.34	QP	
4		0.4700	27.34	10.18	37.52	46.51	-8.99	AVG	
5		0.5340	31.87	10.19	42.06	56.00	-13.94	QP	
6	*	0.5340	27.07	10.19	37.26	46.00	-8.74	AVG	
7		0.6660	29.47	10.19	39.66	56.00	-16.34	QP	
8		0.6660	19.88	10.19	30.07	46.00	-15.93	AVG	
9		0.6980	28.68	10.19	38.87	56.00	-17.13	QP	
10		0.6980	18.30	10.19	28.49	46.00	-17.51	AVG	
11		1.5700	28.80	10.17	38.97	56.00	-17.03	QP	
12		1.5700	20.16	10.17	30.33	46.00	-15.67	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:



Site site #1 Phase: N Temperature: 24

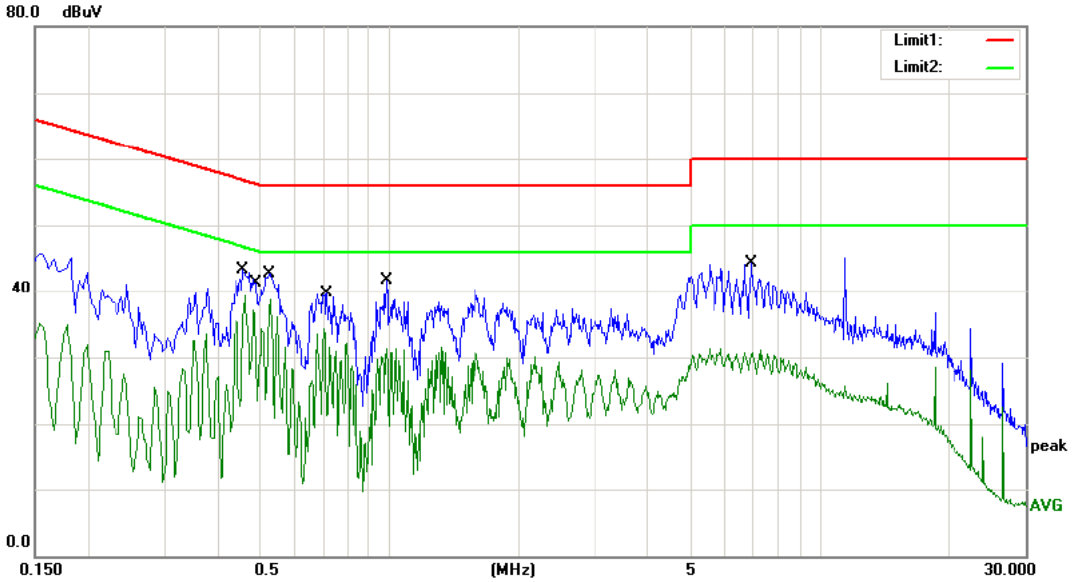
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 55 %

Mode: TX2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4620	30.15	10.18	40.33	56.66	-16.33	QP	
2		0.4620	20.43	10.18	30.61	46.66	-16.05	AVG	
3		0.4740	29.98	10.18	40.16	56.44	-16.28	QP	
4	*	0.4740	21.94	10.18	32.12	46.44	-14.32	AVG	
5		0.5260	29.94	10.19	40.13	56.00	-15.87	QP	
6		0.5260	20.82	10.19	31.01	46.00	-14.99	AVG	
7		0.6860	26.92	10.19	37.11	56.00	-18.89	QP	
8		0.6860	15.74	10.19	25.93	46.00	-20.07	AVG	
9		1.0500	26.05	10.18	36.23	56.00	-19.77	QP	
10		1.0500	14.55	10.18	24.73	46.00	-21.27	AVG	
11		4.9140	27.69	10.10	37.79	56.00	-18.21	QP	
12		4.9140	12.30	10.10	22.40	46.00	-23.60	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:



Site site #1 Phase: *L1* Temperature: 24

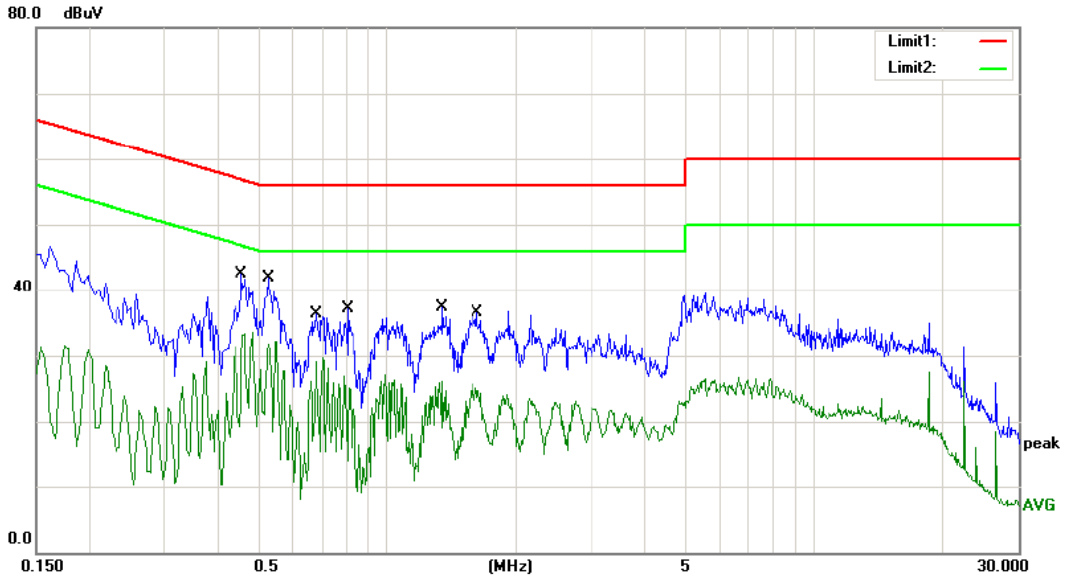
Limit: (CE)FCC PART 15 class B_QP Power: AC 240V/50Hz Humidity: 55 %

Mode: TX2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4580	33.20	10.18	43.38	56.73	-13.35	QP	
2		0.4580	29.15	10.18	39.33	46.73	-7.40	AVG	
3		0.4900	31.18	10.19	41.37	56.17	-14.80	QP	
4		0.4900	26.94	10.19	37.13	46.17	-9.04	AVG	
5		0.5260	32.61	10.19	42.80	56.00	-13.20	QP	
6	*	0.5260	28.58	10.19	38.77	46.00	-7.23	AVG	
7		0.7140	29.47	10.19	39.66	56.00	-16.34	QP	
8		0.7140	24.05	10.19	34.24	46.00	-11.76	AVG	
9		0.9860	31.45	10.18	41.63	56.00	-14.37	QP	
10		0.9860	21.22	10.18	31.40	46.00	-14.60	AVG	
11		6.9340	34.25	10.14	44.39	60.00	-15.61	QP	
12		6.9340	20.61	10.14	30.75	50.00	-19.25	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:



Site site #1 Phase: N Temperature: 24

Limit: (CE)FCC PART 15 class B_QP Power: AC 240V/50Hz Humidity: 55 %

Mode: TX2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4540	32.37	10.18	42.55	56.80	-14.25	QP	
2	*	0.4540	22.98	10.18	33.16	46.80	-13.64	AVG	
3		0.5260	31.80	10.19	41.99	56.00	-14.01	QP	
4		0.5260	21.44	10.19	31.63	46.00	-14.37	AVG	
5		0.6780	26.08	10.19	36.27	56.00	-19.73	QP	
6		0.6780	18.88	10.19	29.07	46.00	-16.93	AVG	
7		0.8060	26.88	10.18	37.06	56.00	-18.94	QP	
8		0.8060	14.93	10.18	25.11	46.00	-20.89	AVG	
9		1.3420	27.22	10.17	37.39	56.00	-18.61	QP	
10		1.3420	16.01	10.17	26.18	46.00	-19.82	AVG	
11		1.6180	26.27	10.17	36.44	56.00	-19.56	QP	
12		1.6180	14.45	10.17	24.62	46.00	-21.38	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator:

7.7 ANTENNA APPLICATION

7.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

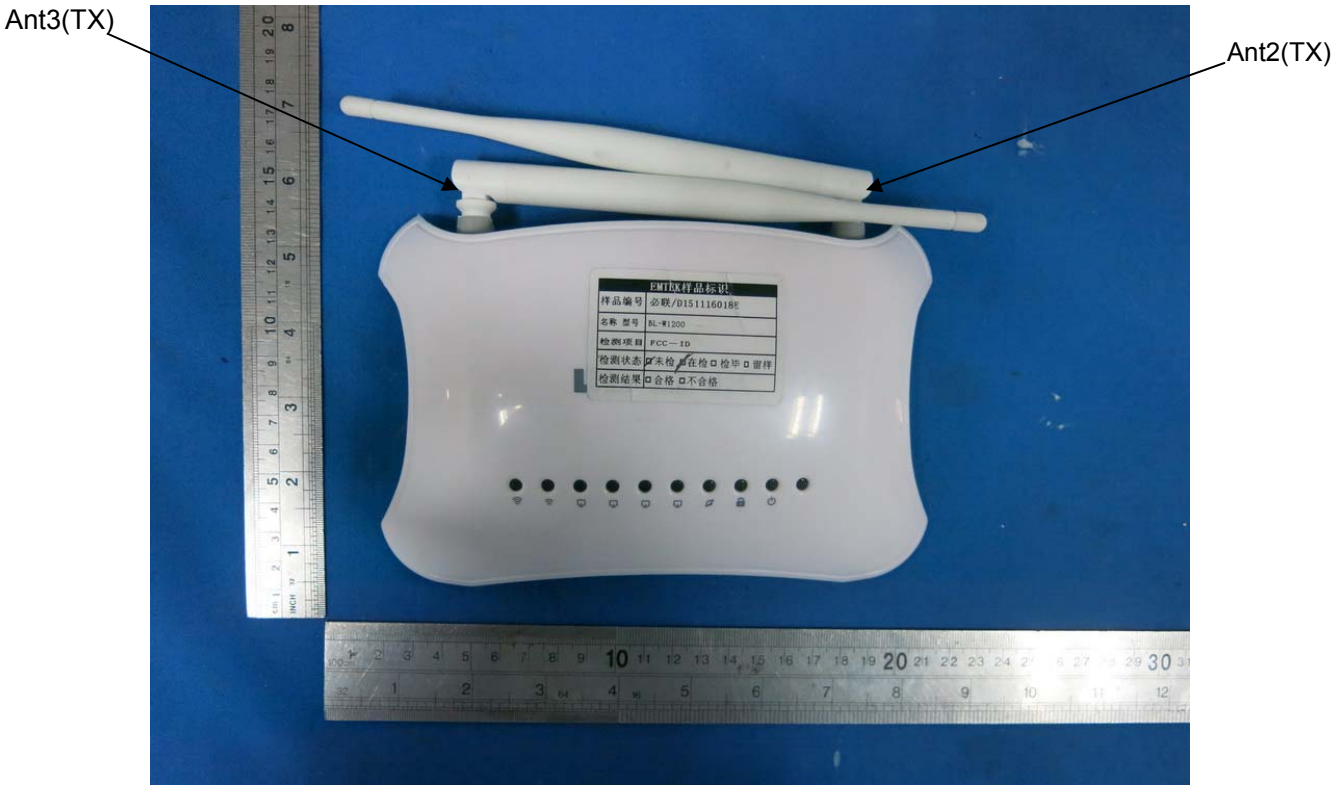
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

7.7.2 Result

The EUT'S antenna, permanent attach antenna, is external antenna. The antenna's gain is 5dBi and meets the requirement.

APPENDIX I
(PHOTOS OF EUT)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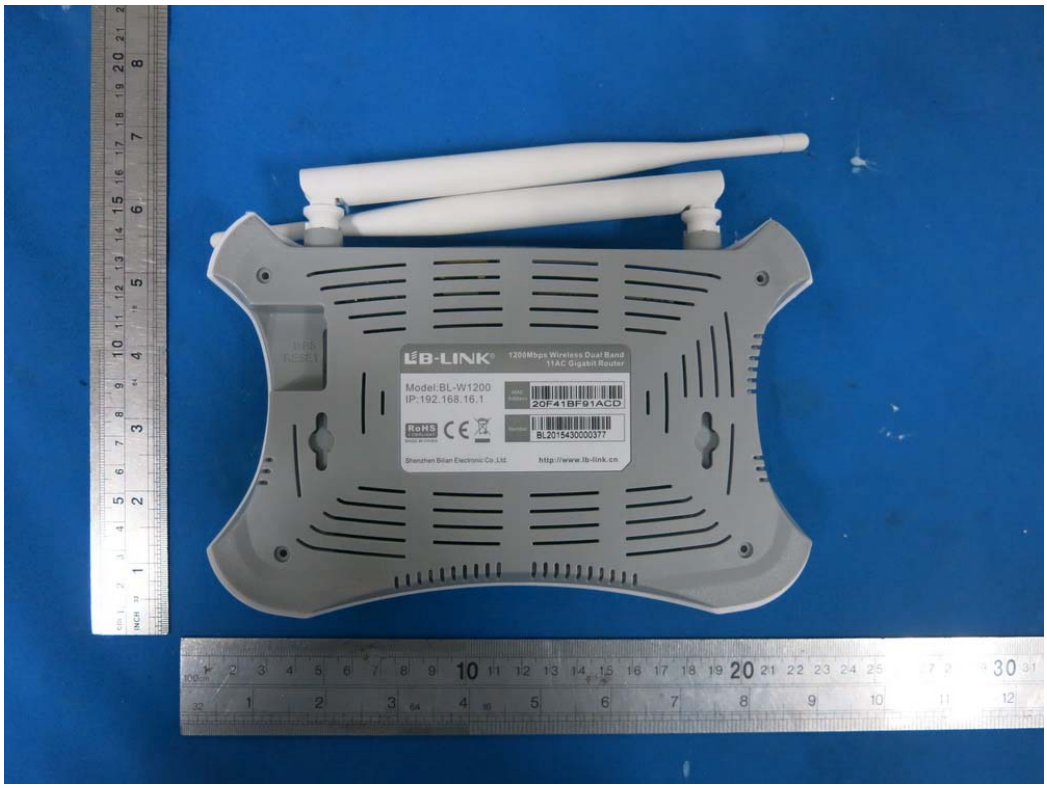
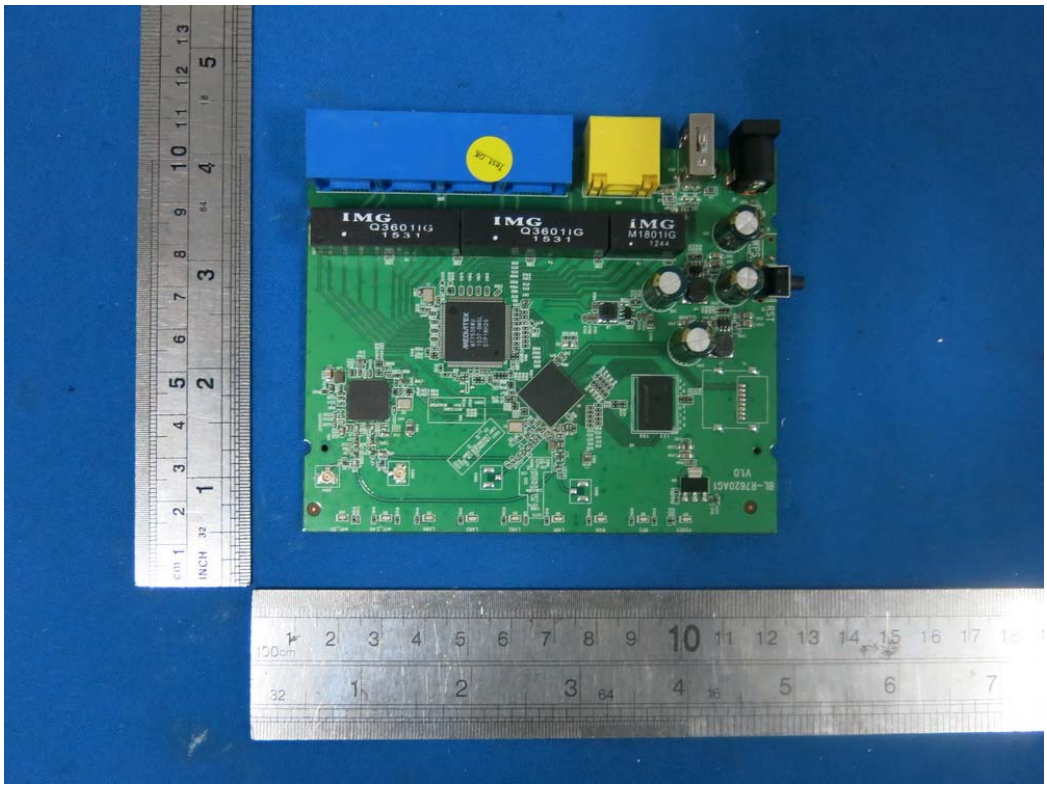
Ant2(TX)
EMTEK样品标识
样品编号 必联/D151116018E
名称 型号 BL-W1200
检测项目 FCC—ID
检测状态 ☑未检 □在检 □检毕 □留样
检测结果 □合格 □不合格


LB-LINK
1200Mbps Wireless Dual Band 11AC Gigabit Router
Model:BL-W1200
IP:192.168.16.1
20F41BF91ACD
BL2015430000377
http://www.lb-link.cn


IMG
Q3601IG
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