FCC TEST REPORT

For

Howell Technology Co., Ltd

MID

Model No.: AW133

Prepared for	:	Howell Technology Co., Ltd
Address	:	No.9 Building, Xinxintian Industrial Park, Xinsha Road, Shajing Town, Bao'an District, Shenzhen Guangdong, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Date of receipt of test sample	:	November 28, 2012
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	November 29, 2012 - December 05, 2012
Date of Report	:	December 05, 2012

FCC TEST REPORT
FCC CFR 47 PART 15 C(15.247)

Report Reference No.	**:**	**LCS121128210TF**
Date of Issue	:	December 05, 2012
Testing Laboratory Name.....	**:**	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name.....	**:**	**Howell Technology Co., Ltd**
Address	:	No.9 Building, Xinxintian Industrial Park, Xinsha Road, Shajing Town, Bao'an District, Shenzhen Guangdong, China
Test Specification		
Standard	:	FCC CFR 47 PART 15 Subpart C, ANSI C63.4-2003
Test Report Form No.....	**:**	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	:	Dated 2011-03

Test Item Description.	**:**	**MID**
Trade Mark	:	Howell
Manufacturer.....	:	Howell Technology Co., Ltd
Model/ Type reference.....	:	AW133
Ratings	:	DC 3.7V by Li-on Battery(3000 mAh)
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Yoyo Wang/ File administrators	Vito Cao/ Technique principal	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS121128210TF	December 05, 2012 Date of issue

Type / Model.....	: AW133
EUT.....	: MID
Applicant.....	**: Howell Technology Co., Ltd**
Address.....	: No.9 Building, Xinxintian Industrial Park, Xinsha Road, Shajing Town, Bao'an District, Shenzhen Guangdong, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: Howell Technology Co., Ltd**
Address.....	: No.9 Building, Xinxintian Industrial Park, Xinsha Road, Shajing Town, Bao'an District, Shenzhen Guangdong, China
Telephone.....	: /
Fax.....	: /
Factory.....	**: Howell Technology Co., Ltd**
Address.....	: No.9 Building, Xinxintian Industrial Park, Xinsha Road, Shajing Town, Bao'an District, Shenzhen Guangdong, China
Telephone.....	: /
Fax.....	: /

Test Result:	**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : MID

Model Number : AW133

Power Supply : DC 3.7V by Li-on Battery(3000 mAh)

Frequency Range : 2412.00-2462.00MHz, (Channel Number: 11, Channel Frequency=2412+5(K-1), K=1, 2, 3 ……11)

Modulation Technology : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)

Data Rates : IEEE 802.11b: 1-11Mbps
IEEE 802.11g: 6-54Mbps
IEEE 802.11n HT20: 6.5-65Mbps

Antenna Gain : 2.0dBi

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
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1.3. External I/O Port

I/O Port Description	Quantity	Cable
USB Port	1	0.8m,unshielded
Charging Port	1	1.4m,unshielded
Earphone Port	1	1.0m,unshielded
TF CARD Port	1	N/A

1.4. Description of Test Facility

Site Description EMC Lab. : Accredited by CNAS, June 04, 2010

The Certificate Registration Number. is L4595.

Accredited by FCC, July 14, 2011

The Certificate Registration Number. is 899208.

Accredited by Industry Canada, May. 02, 2011

The Certificate Registration Number. is 9642A-1

1.5. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.7. Description Of Test Modes

The EUT has been tested under operating condition.

This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in Z position.

Worst-case mode and channel used for 150kHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, that was determined to be 802.11g mode, mid channel.

Worst-case mode and channel used for 9kHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be 802.11g mode, mid channel.

Worst-Case data rates were utilized from preliminary testing of the Chipset, worst-case data rates used during the testing are as follows:
802.11b Mode : 1 Mbps, DSSS.
802.11g Mode : 6 Mbps, OFDM.
802.11n Mode HT20:.65Mbps, OFDM.
***Note: The EUT does not support 802.11n(HT40).

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd..

2.1. EUT Configuration

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

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to FCC's request, Test Procedure KDB558074 is required to be used for this kind of FCC 15.247 digital modulation device.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmit condition.

3.2. EUT Exercise Software

N/A

3.3. Special Accessories

N/A

3.4. Block Diagram/Schematics

Please refer to the report

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: 47 CFR FCC Part 15 Subpart C		
FCC Rules	**Description of Test**	**Result**
§15.247(b)	Maximum Conducted Output Power	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	6dB Bandwidth	Compliant
§15.247(a)	Occupied Bandwidth	Compliant
§15.209, §15.247(d)	Radiated and Conducted Spurious Emissions	Compliant
§15.205	Emissions at Restricted Band	Compliant
§15.207(a)	Conducted Emissions	Compliant
§15.203	Antenna Requirements	Compliant
§15.247(i)§2.1093	RF Exposure(MPE)	Compliant

5. TEST RESULT

5.1. Maximum Conducted Output Power Measurement

5.1.1. Standard Applicable

According to §15.247(b): For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

5.1.2. Measuring Instruments and Setting

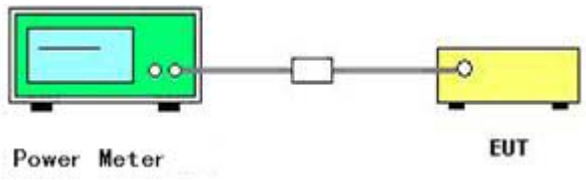
Please refer to section 6 of equipments list in this report. The following table is the setting of the power meter.

5.1.3. Test Procedures

a. The transmitter output (antenna port) was connected to the power meter.

b. Detector= power average (RMS).

5.1.4. Test Setup Layout



5.1.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.6. Test Result of Maximum Conducted Output Power(Average)

Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	802.11b,g,n

802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	10.56	30	Complies
6	2437	10.73	30	Complies
11	2462	10.61	30	Complies

802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	10.59	30	Complies
6	2437	10.81	30	Complies
11	2462	10.64	30	Complies

802.11n HT20

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412	9.69	30	Complies
6	2437	9.74	30	Complies
11	2462	9.71	30	Complies

5.2. Power Spectral Density Measurement

5.2.1. Standard Applicable

According to §15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

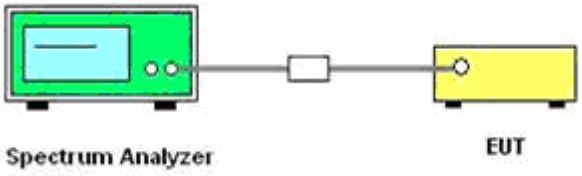
5.2.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

5.2.3. Test Procedures

1. The transmitter was connected directly to a Spectrum Analyzer through a directional couple.
2. The power was monitored at the coupler port with a Spectrum Analyzer. The power level was set to the maximum level.
3. Set the RBW = 100 kHz.
4. Set the VBW ≥ 300 kHz.
5. Set the span to a value that is 5-30 % greater than the EBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

5.2.4. Test Setup Layout



5.2.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.2.6. Test Result of Power Spectral Density

Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	802.11b,g,n

802.11b

Channel	Frequency	Power *Density* (dBm)	BWCF (dB)	Max. Limit (dBm)	Result
1	2412	-2.53	-15.2	8	Complies
6	2437	-1.26	-15.2	8	Complies
11	2462	-1.86	-15.2	8	Complies

802.11g

Channel	Frequency	Power *Density* (dBm)	BWCF (dB)	Max. Limit (dBm)	Result
1	2412	-7.51	-15.2	8	Complies
6	2437	-8.51	-15.2	8	Complies
11	2462	-8.56	-15.2	8	Complies

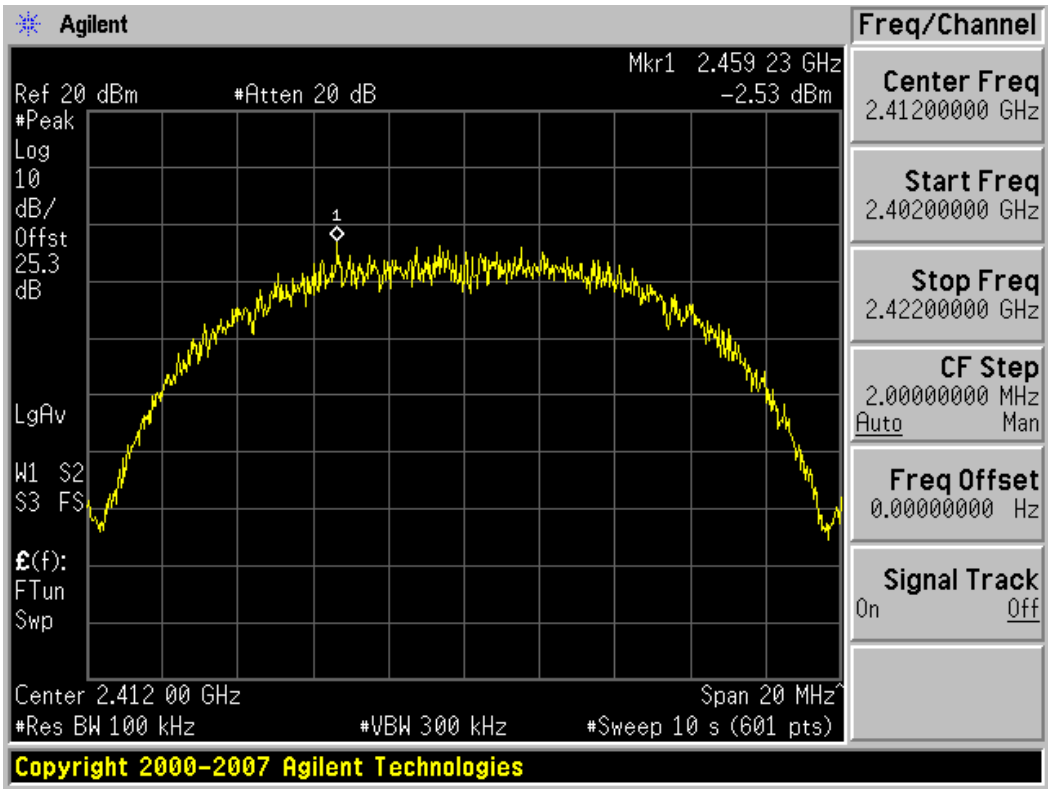
802.11n HT20

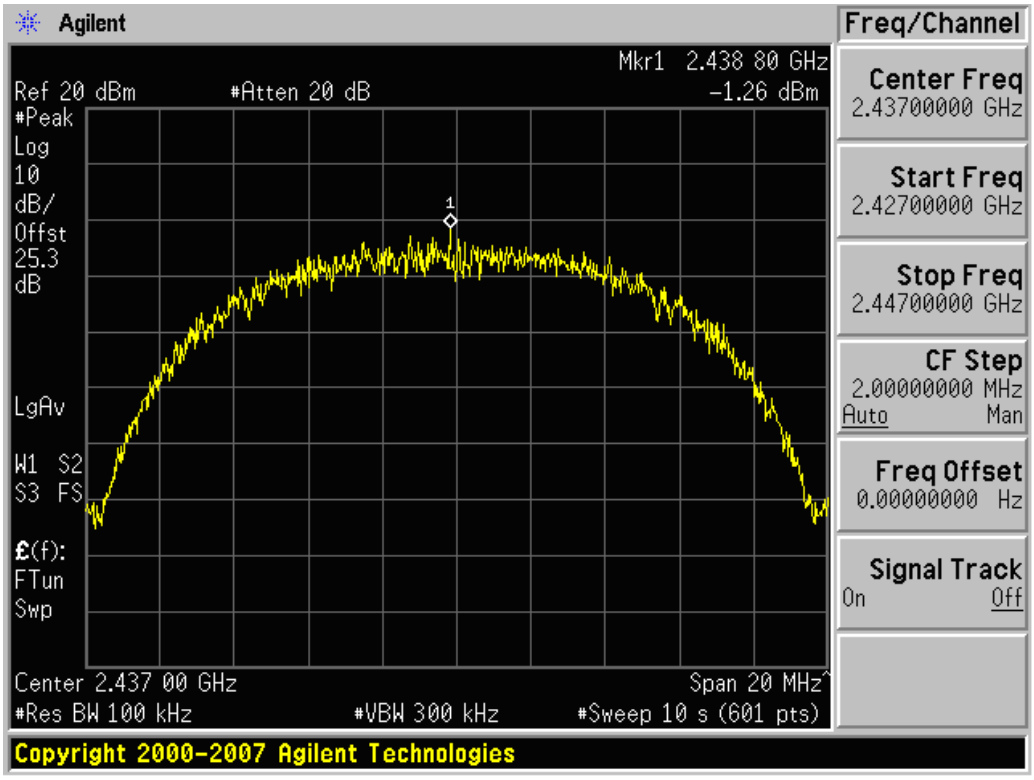
Channel	Frequency	Power *Density* (dBm)	BWCF (dB)	Max. Limit (dBm)	Result
1	2412	-8.22	-15.2	8	Complies
6	2437	-8.81	-15.2	8	Complies
11	2462	-8.13	-15.2	8	Complies

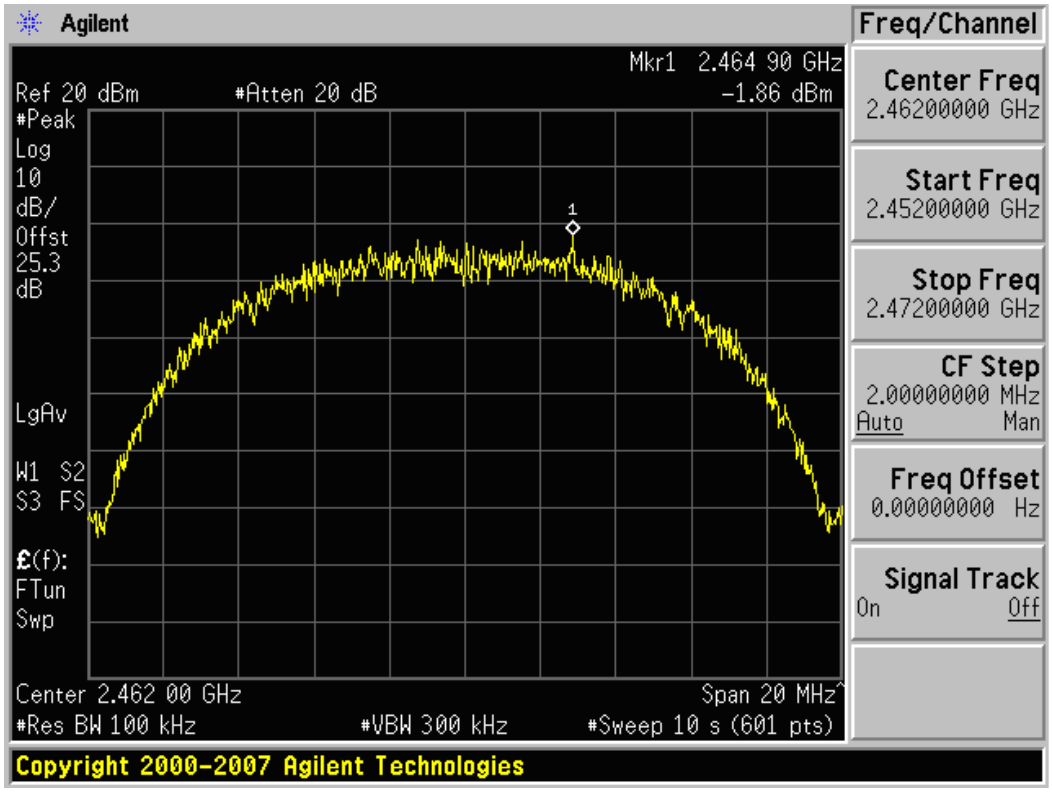
Note: Power Spectral Density =Power *Density* + *BWCF* $\leq$ 8 dBm

802.11b channel power density

Date: Dec. 01, 2012







802.11g channel power density

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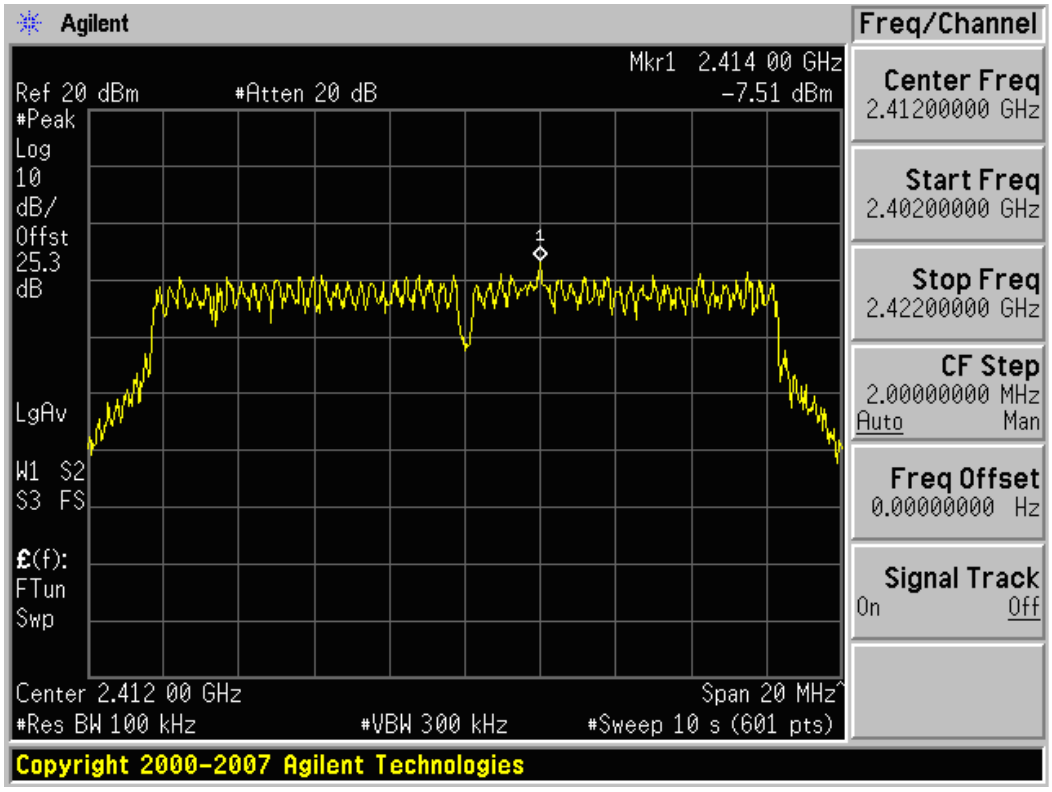

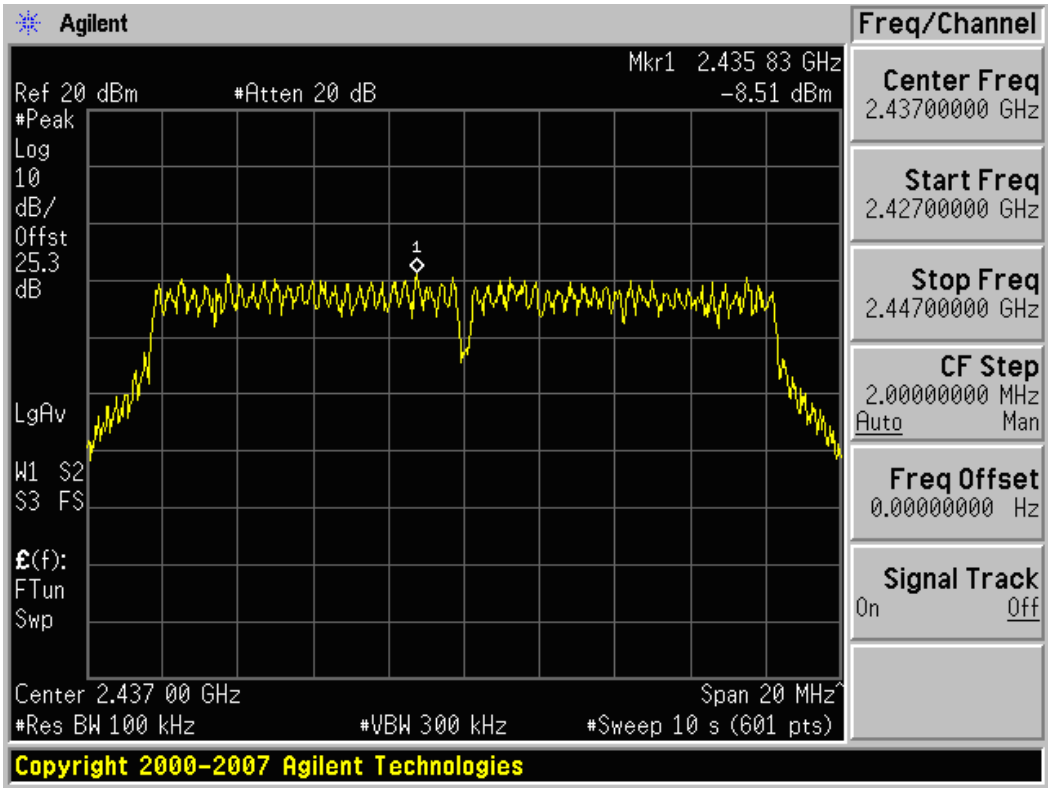
Agilent
Freq/Channel
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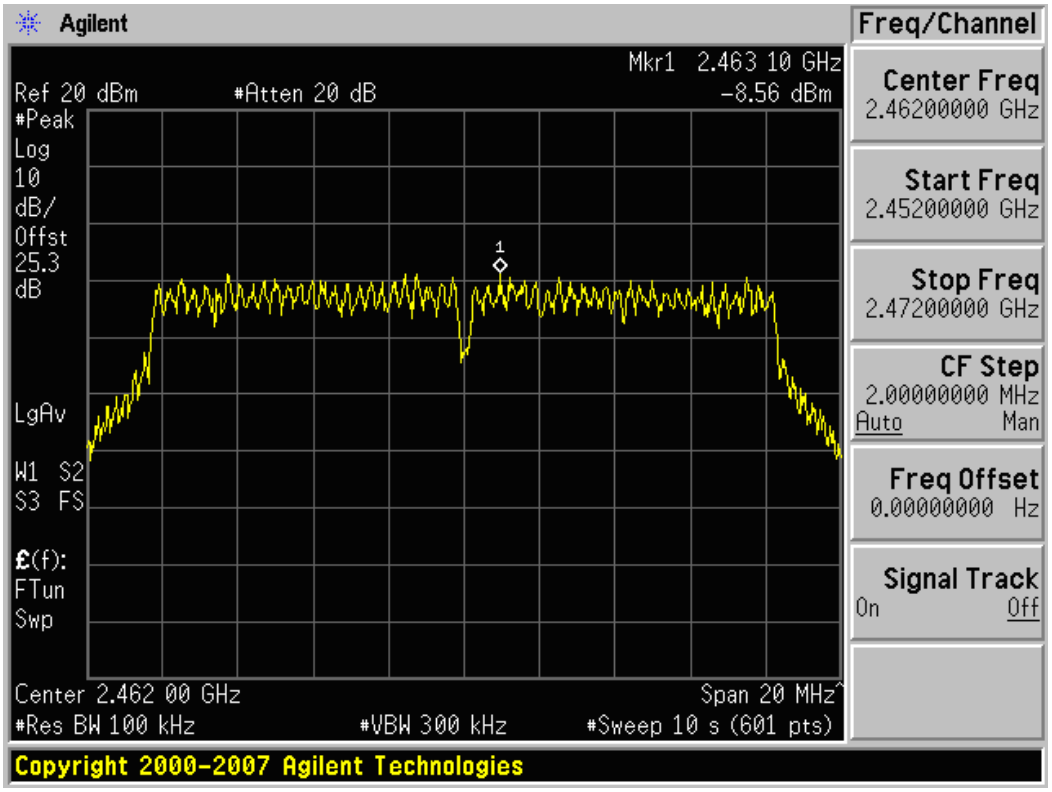
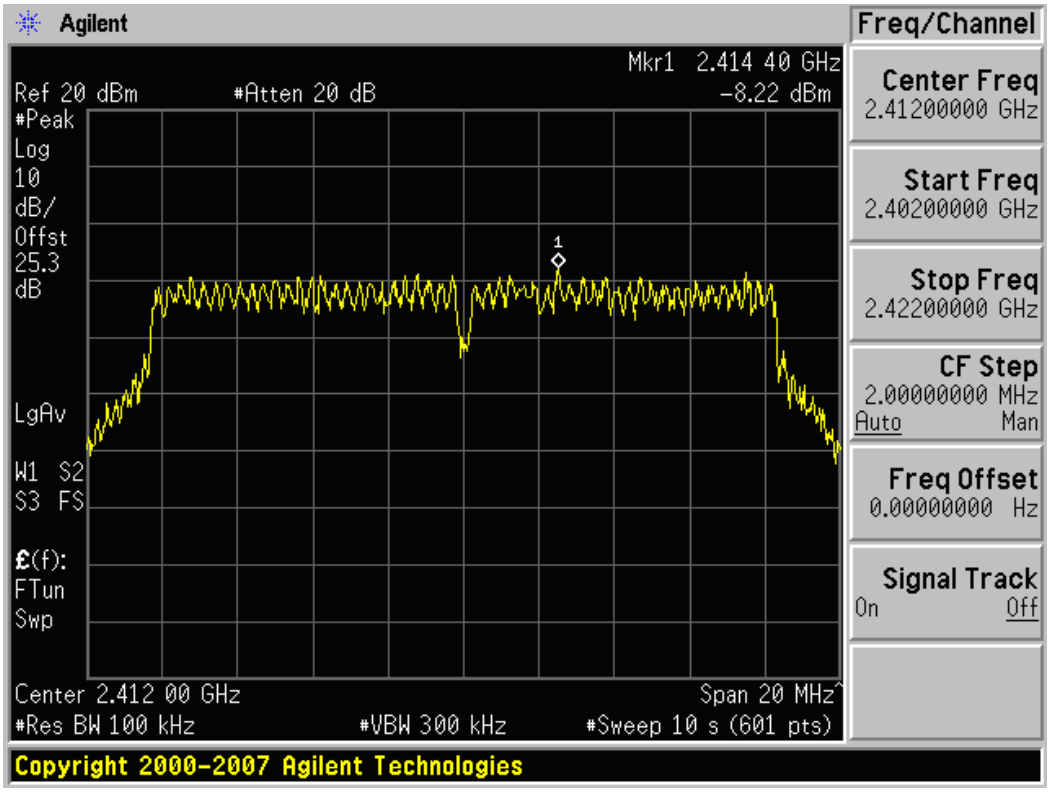
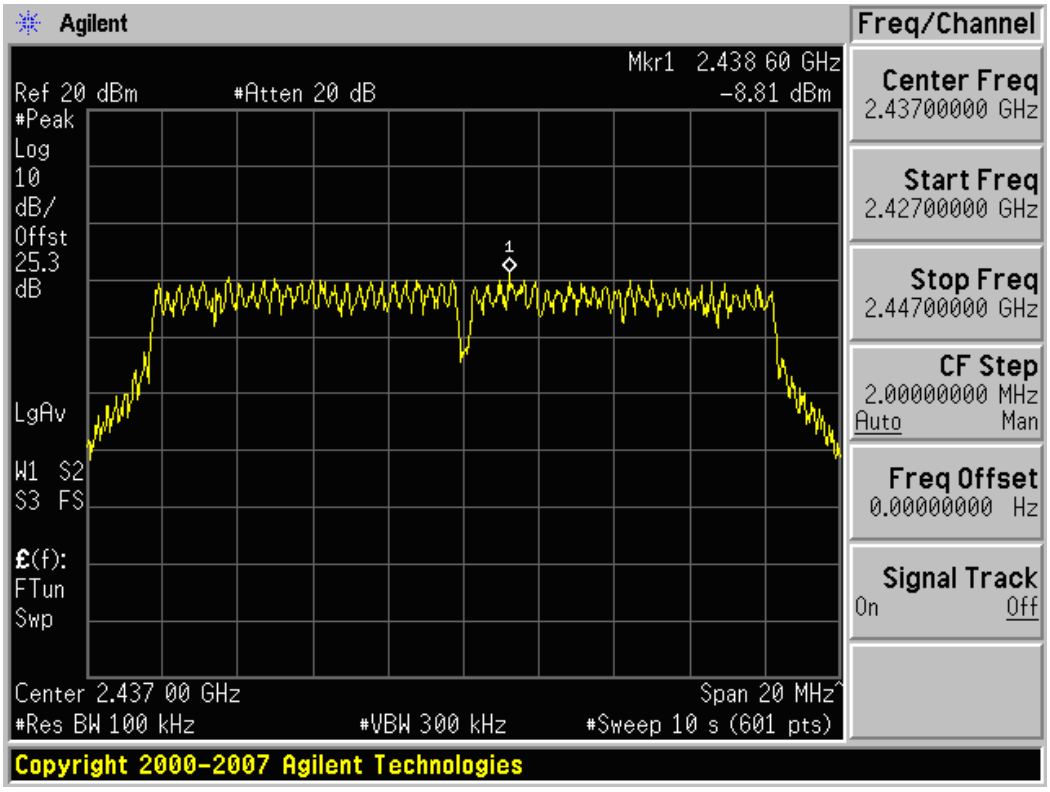
Ref 20 dBm
#Atten 20 dB
-8.51 dBm
#Peak
Log
10
dB/
Offst
25.3
dB
LgAv
W1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
2.43700000 GHz
Start Freq
2.42700000 GHz
Stop Freq
2.44700000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.437 00 GHz
Span 20 MHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 10 s (601 pts)
Copyright 2000-2007 Agilent Technologies

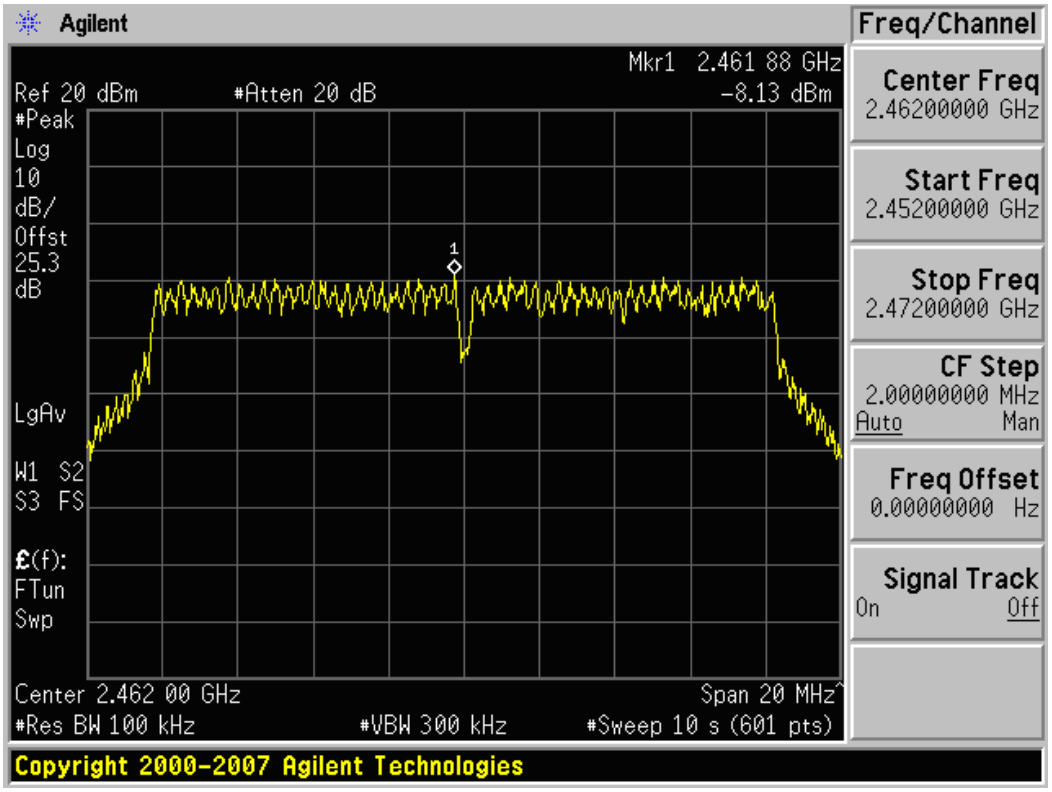

Agilent
Freq/Channel
Mkr1 2.463 10 GHz
Ref 20 dBm
#Atten 20 dB
-8.56 dBm
#Peak
Log
10
dB/
Offst
25.3
dB
LgAv
W1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
2.46200000 GHz
Start Freq
2.45200000 GHz
Stop Freq
2.47200000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.462 00 GHz
Span 20 MHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 10 s (601 pts)
Copyright 2000-2007 Agilent Technologies

802.11n HT20 channel power density

Date: Dec. 01, 2012






Agilent
Freq/Channel
Mkr1 2.461 88 GHz
Ref 20 dBm
#Atten 20 dB
-8.13 dBm
#Peak
Log
10
dB/
Offst
25.3
dB
1
LgAv
W1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
2.46200000 GHz
Start Freq
2.45200000 GHz
Stop Freq
2.47200000 GHz
CF Step
2.00000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.462 00 GHz
Span 20 MHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 10 s (601 pts)
Copyright 2000-2007 Agilent Technologies

5.3. 6 dB Spectrum Bandwidth Measurement

5.3.1. Standard Applicable

According to §15.247(a)(2): For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

5.3.2. Measuring Instruments and Setting

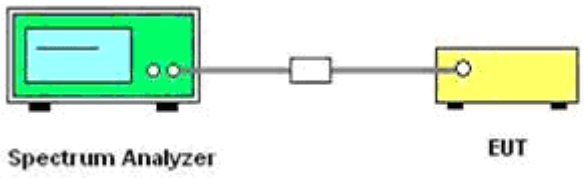
Please refer to section 6 of equipments list in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> RBW
Detector	Peak
Trace	Max Hold
Sweep Time	100ms

5.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.

5.3.4. Test Setup Layout



5.3.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.3.6. Test Result of 6dB Spectrum Bandwidth

Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	802.11b,g,n

802.11b

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	10.22	500	Complies
6	2437	10.14	500	Complies
11	2462	10.00	500	Complies

802.11g

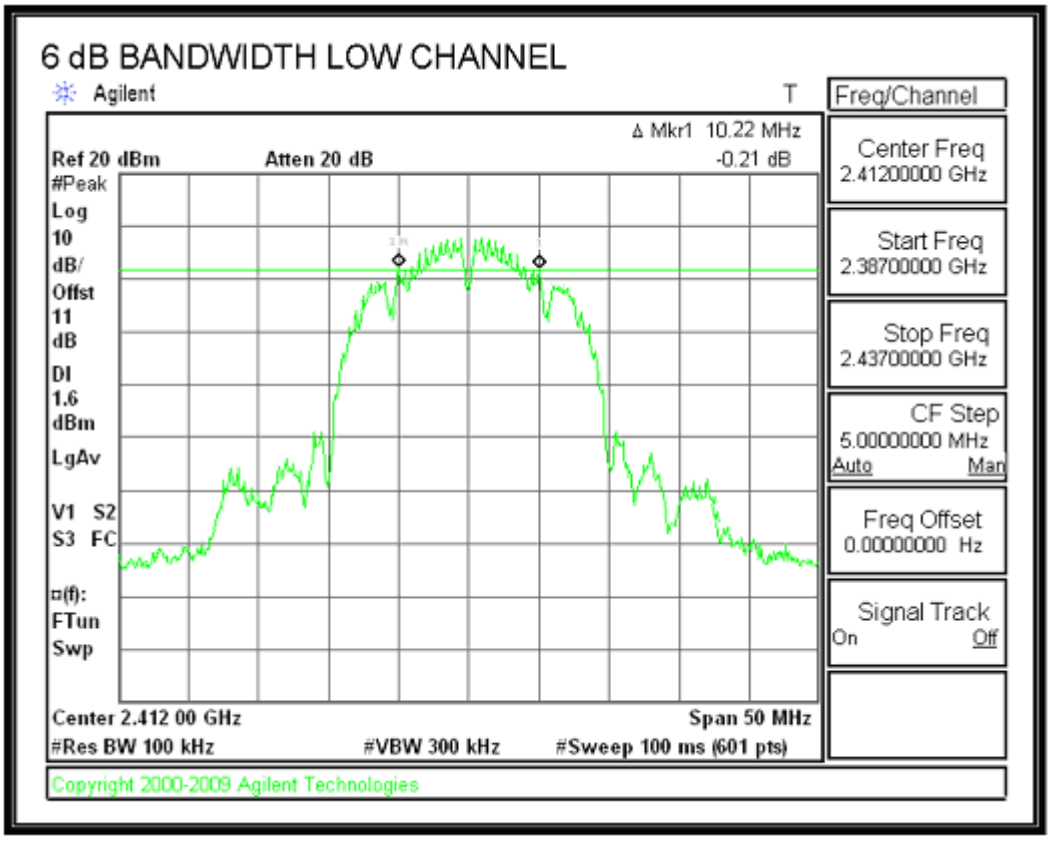
Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	16.25	500	Complies
6	2437	16.22	500	Complies
11	2462	16.37	500	Complies

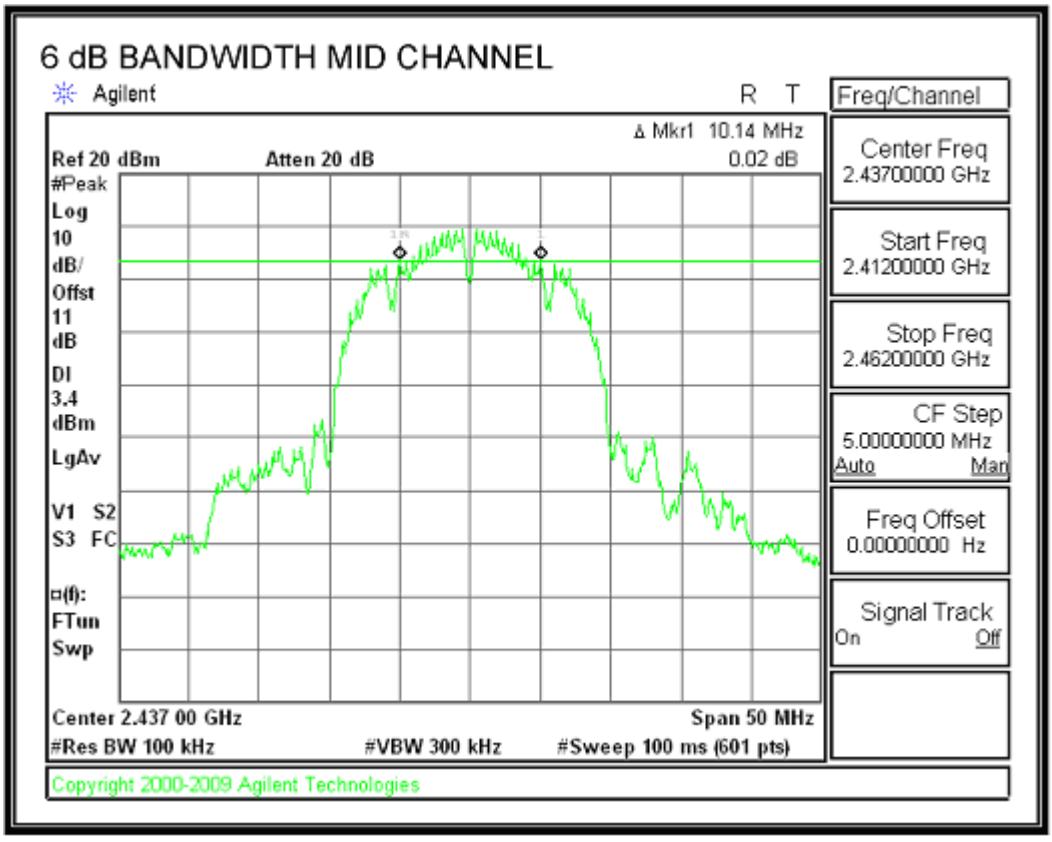
802.11n HT20

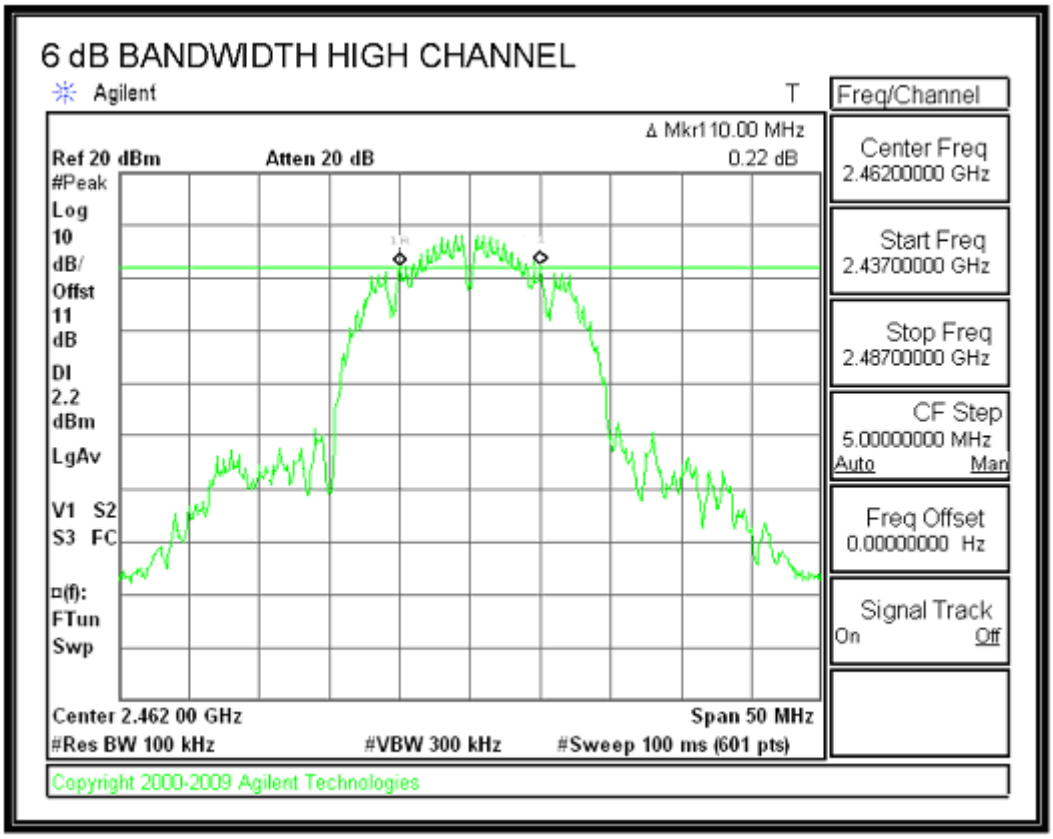
Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Result
1	2412	17.01	500	Complies
6	2437	16.96	500	Complies
11	2462	17.37	500	Complies

802.11b channel, 6dB bandwidth

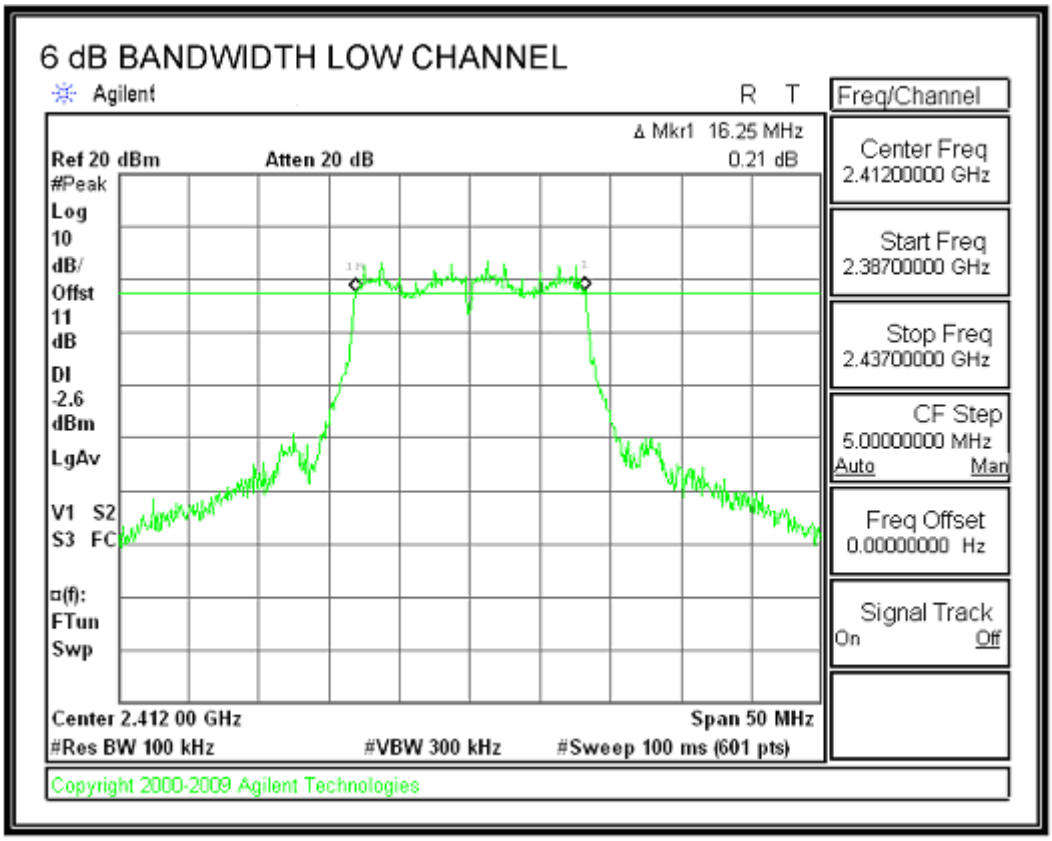
Date: Dec. 01, 2012

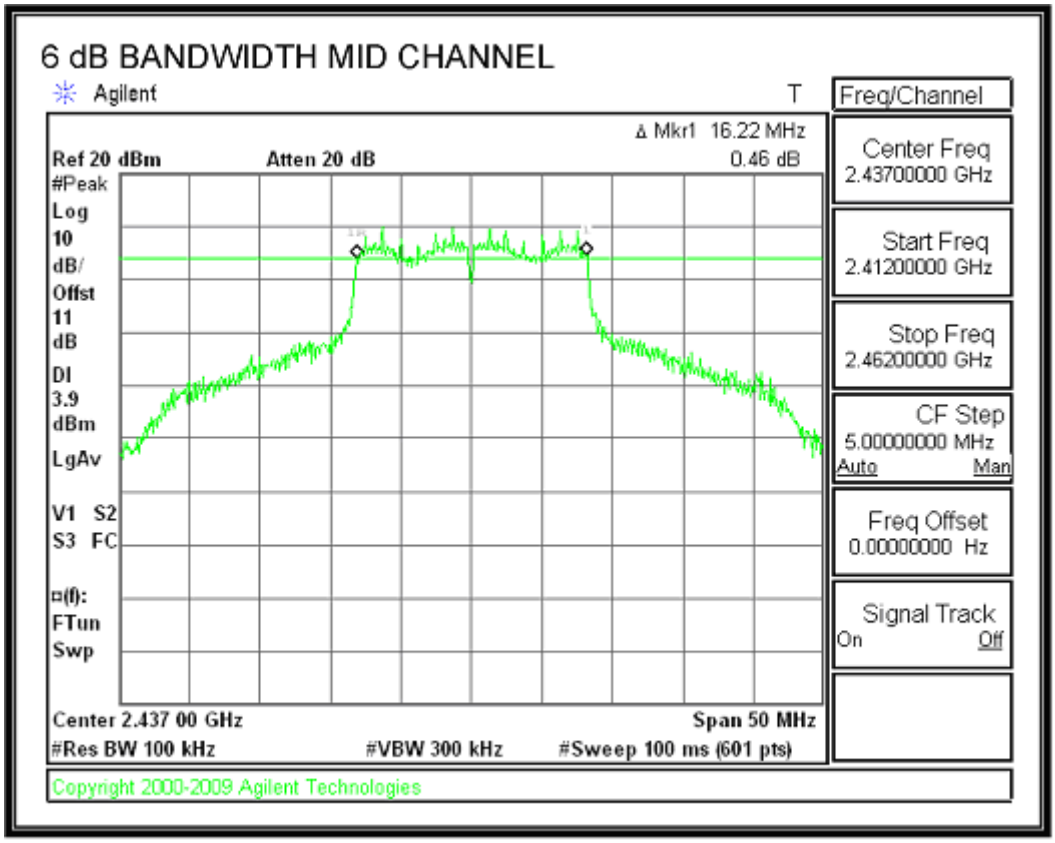


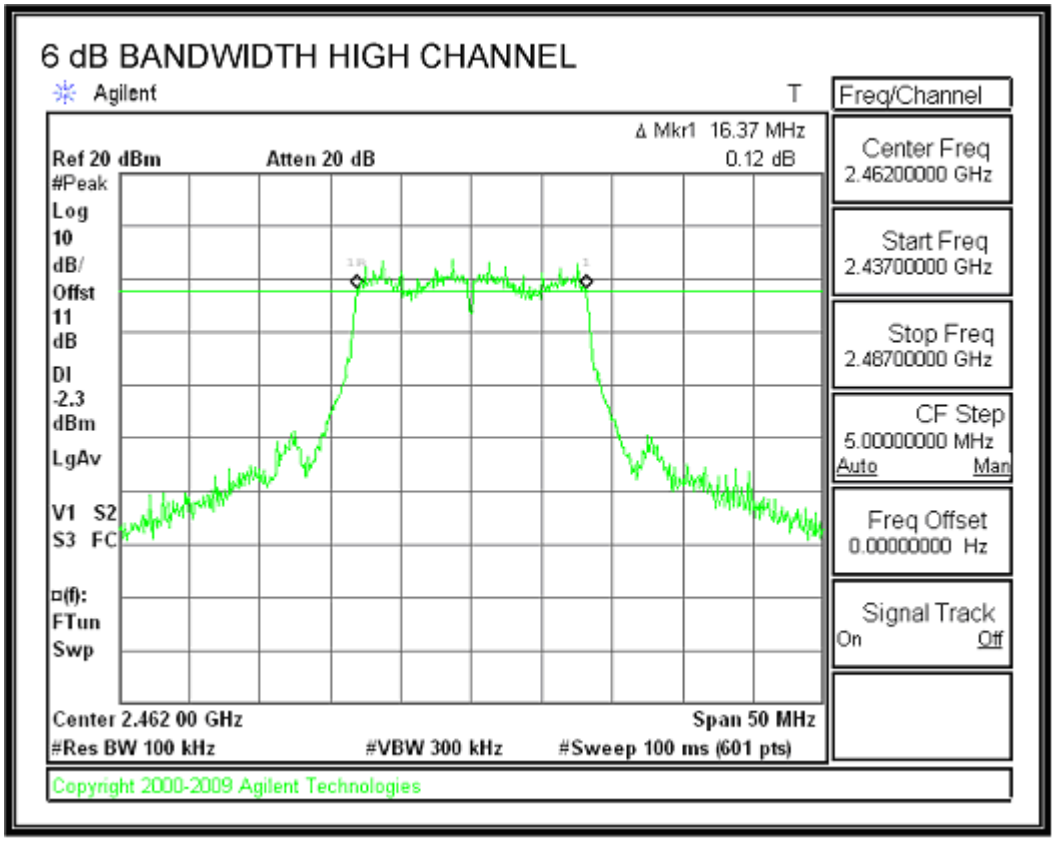




802.11g channel, 6dB bandwidth
Date: Dec. 01, 2012

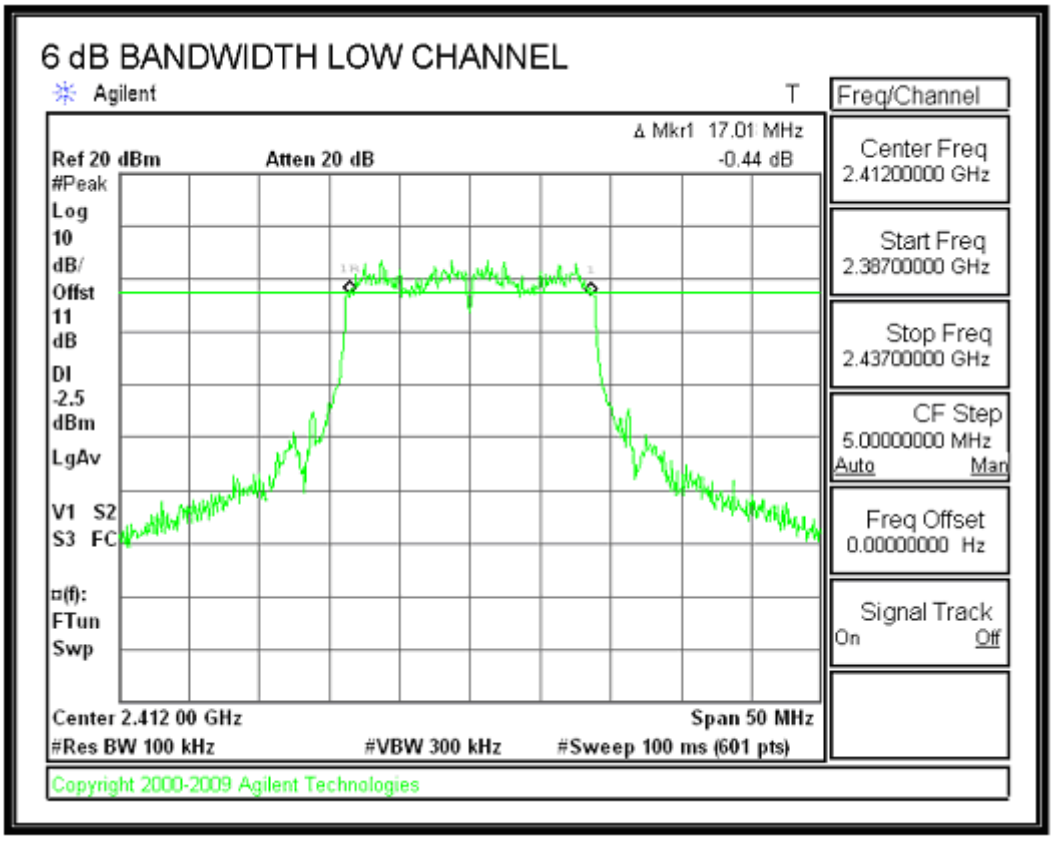


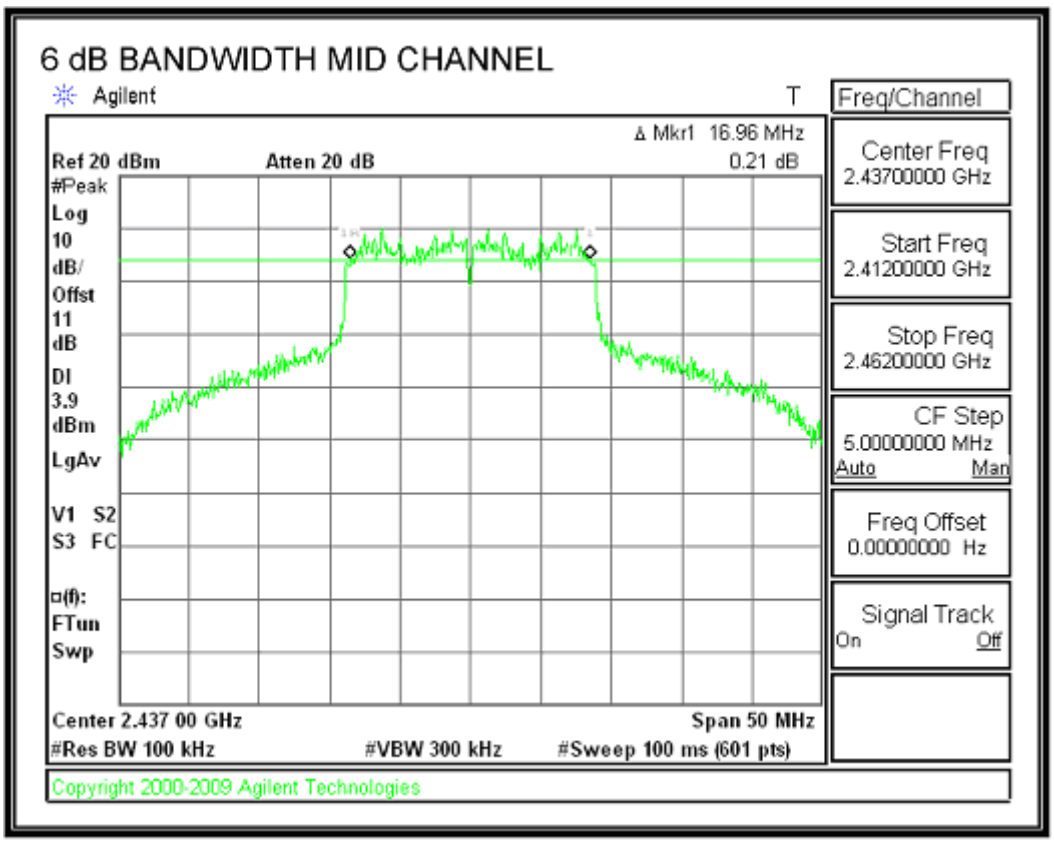


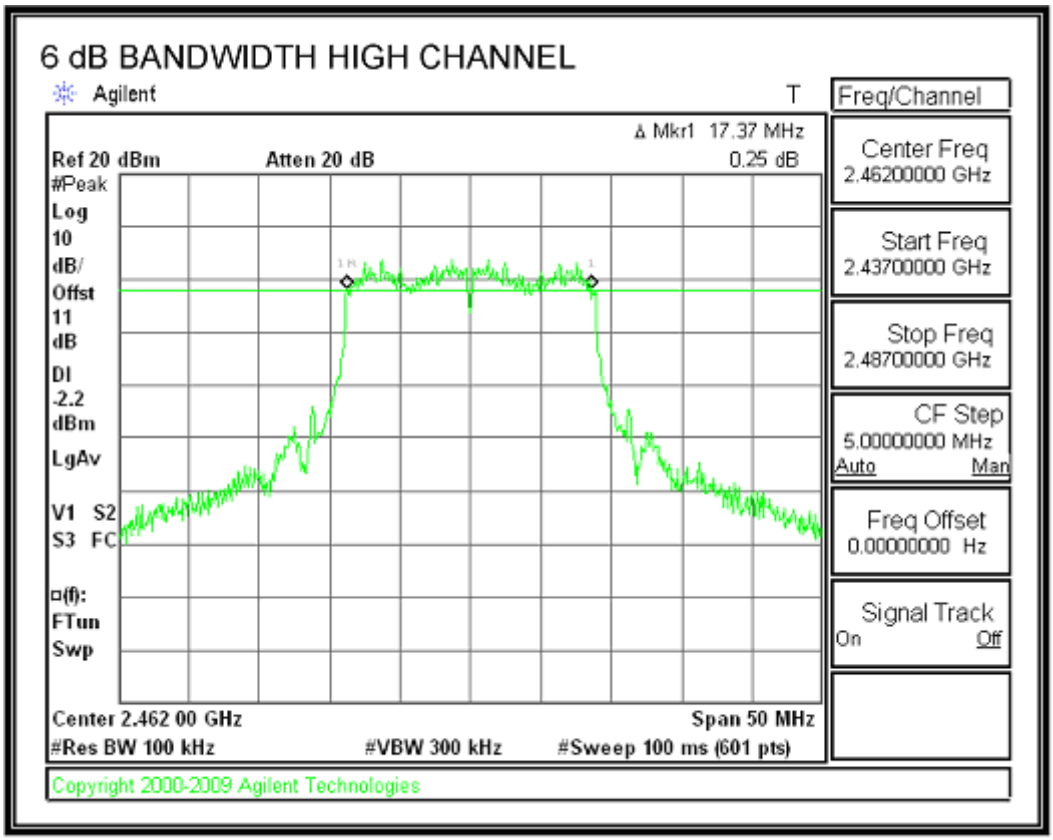


802.11n HT20 channel, 6dB bandwidth

Date: Dec. 01, 2012







5.4. Occupied Bandwidth

5.4.1. Standard Applicable

According to §15.247(a): Operation under the provisions of this section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

For systems using digital modulation techniques, the EUT may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

5.4.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of the Spectrum Analyzer.

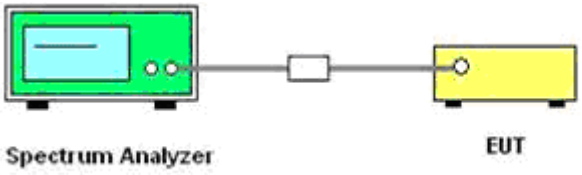
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> RBW
RBW	1% to 3% of the band
VBW	3 times the RBW
Detector	Peak
Trace	Max Hold
Sweep Time	100ms

5

5.4.3. Test Procedures

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal bandwidth measurement function is utilized.

5.4.4. Test Setup Layout



5.4.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.6. Test Result of 99% Occupied Bandwidth.

Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	802.11b,g,n

802.11b

Channel	Frequency	99% OBW (MHz)
1	2412	15.45
6	2437	15.61
11	2462	15.62

802.11g

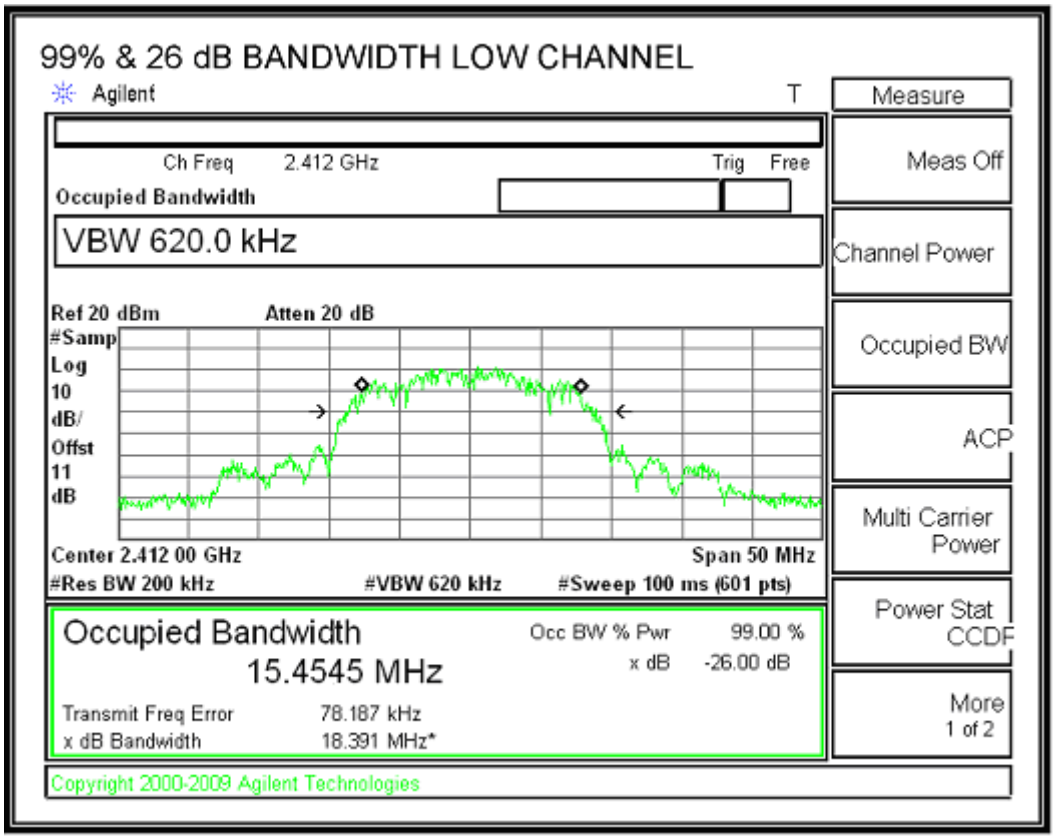
Channel	Frequency	99% OBW (MHz)
1	2412	16.37
6	2437	16.48
11	2462	16.48

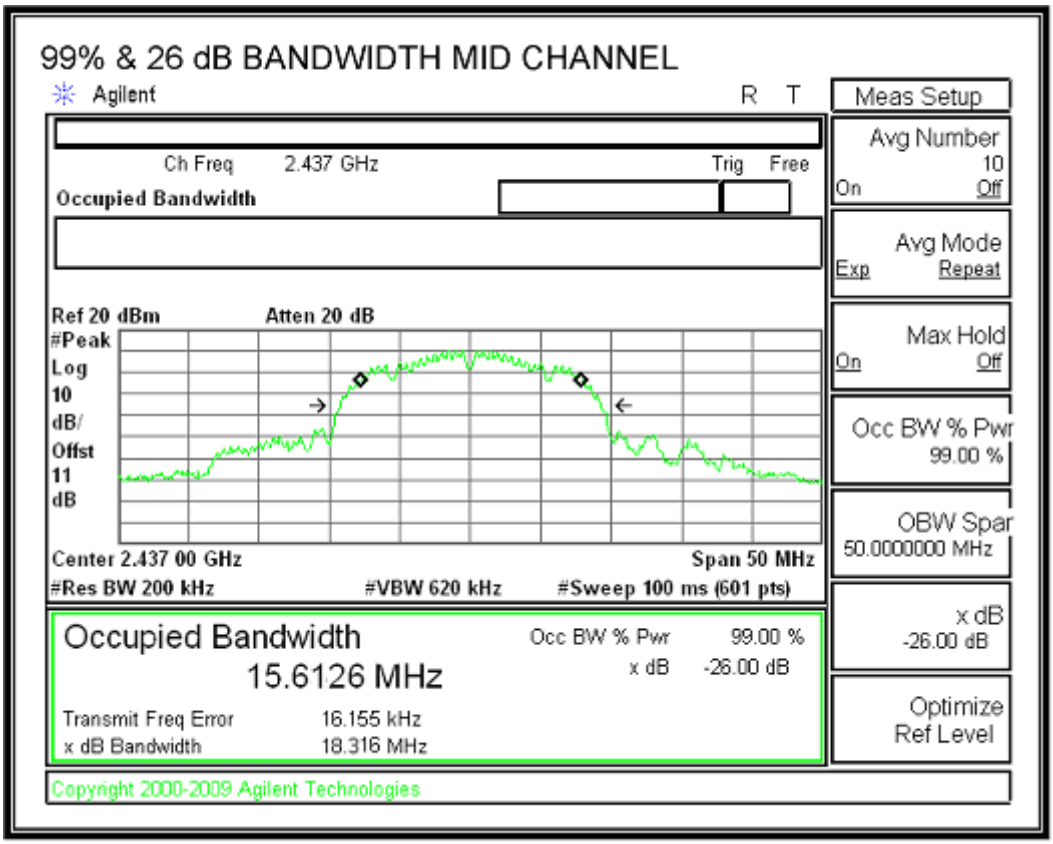
802.11n HT20

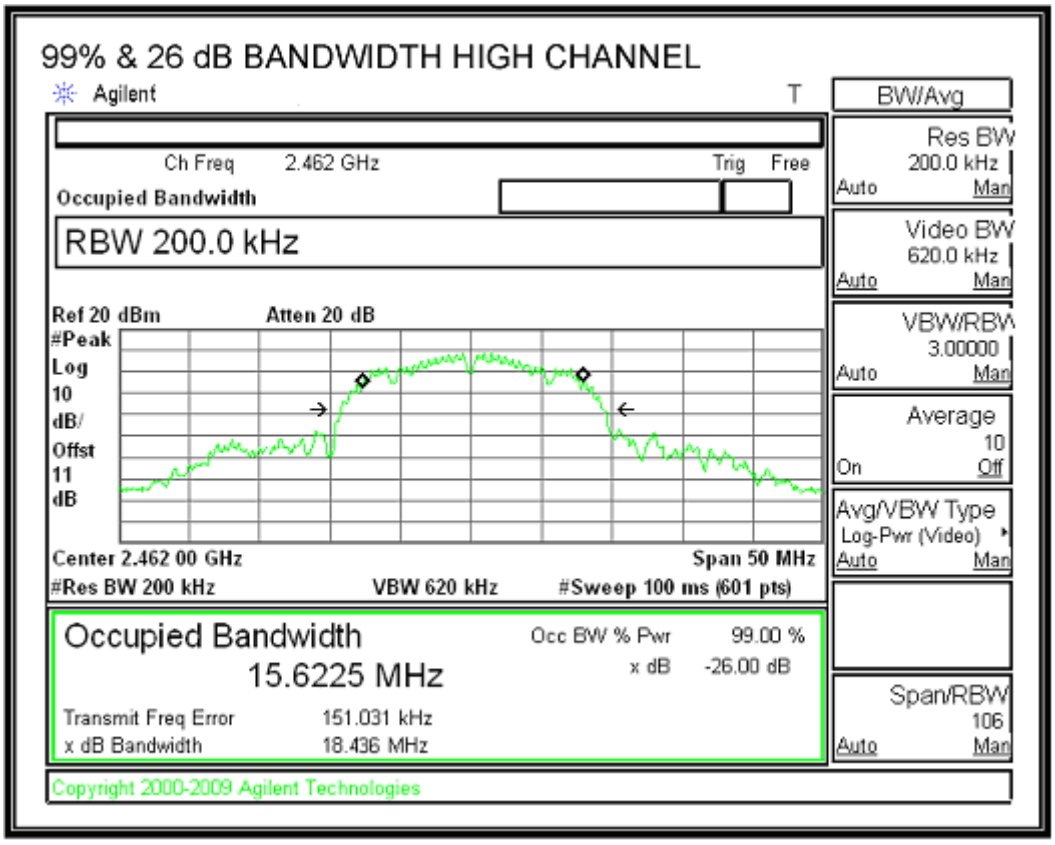
Channel	Frequency	99% OBW (MHz)
1	2412	17.45
6	2437	17.47
11	2462	17.43

802.11b channel, 99% Occupied Bandwidth.

Date: Dec. 01, 2012

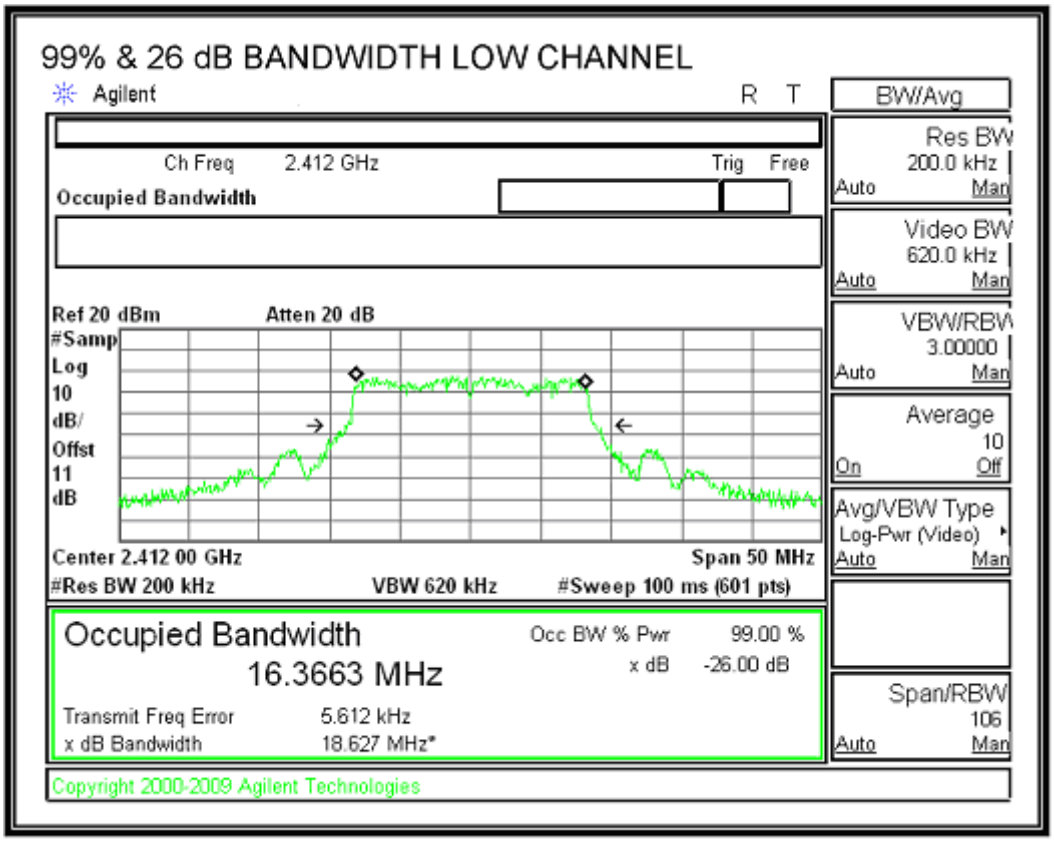


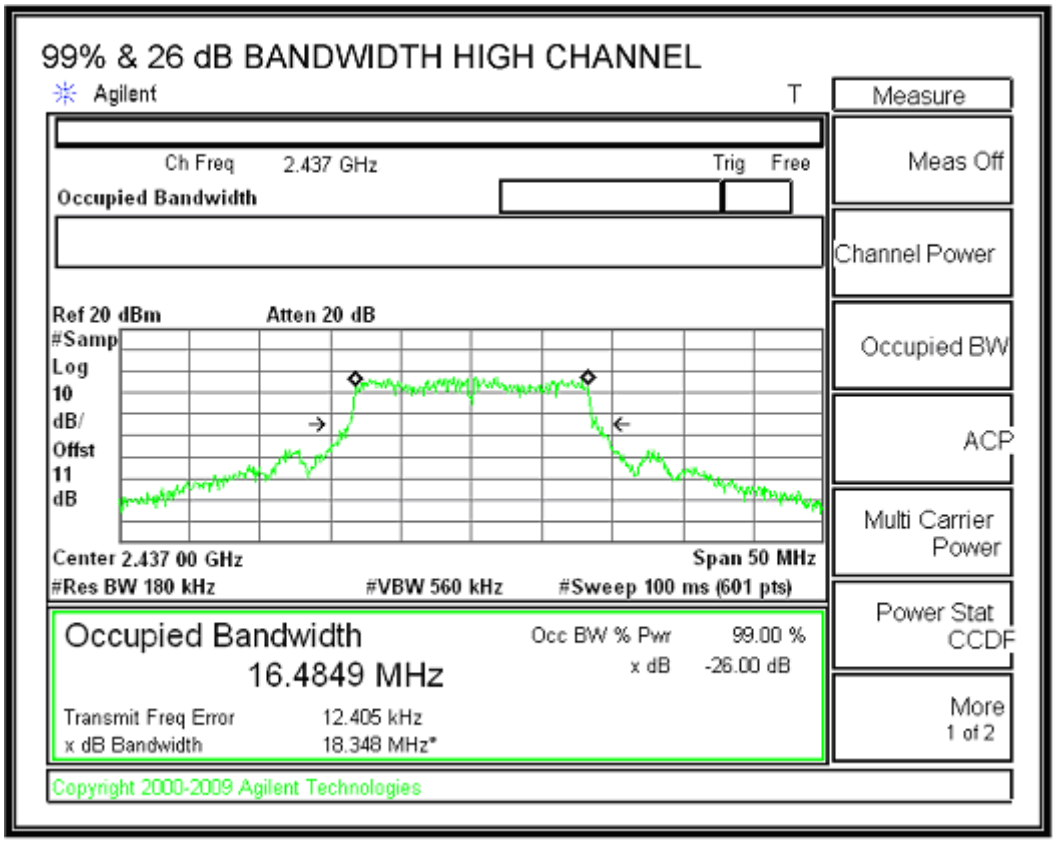


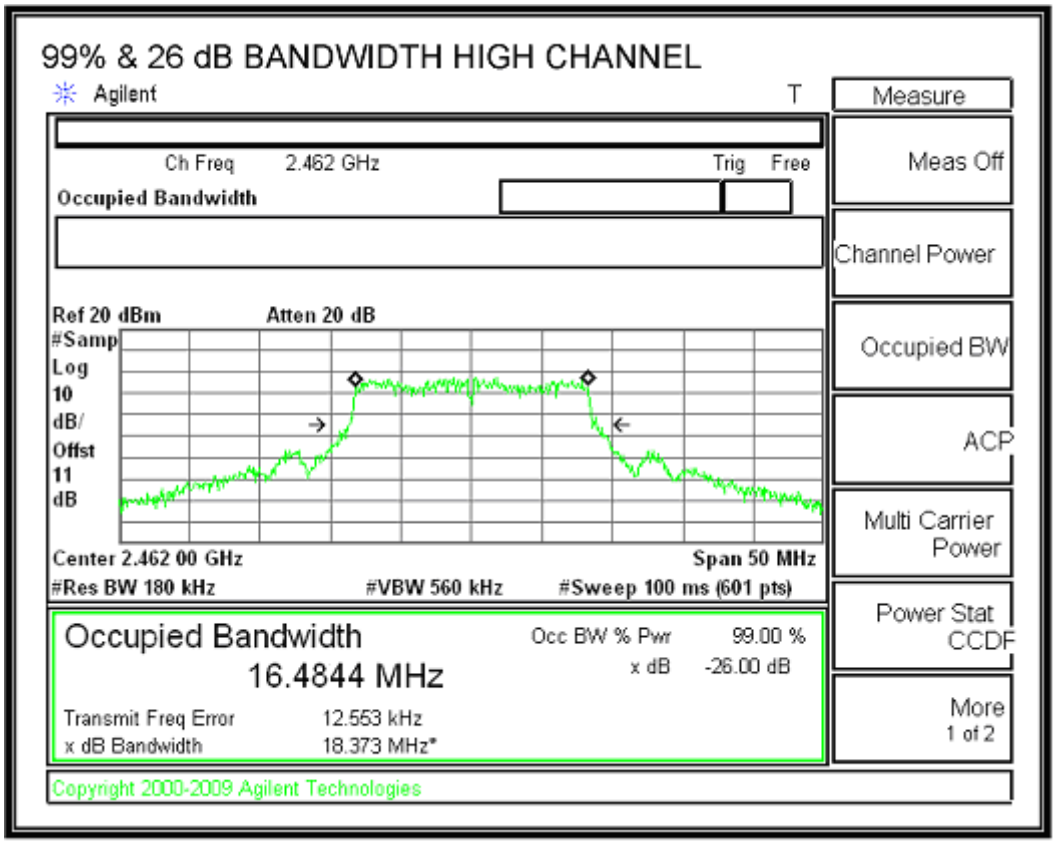


802.11g channel, 99% Occupied Bandwidth.

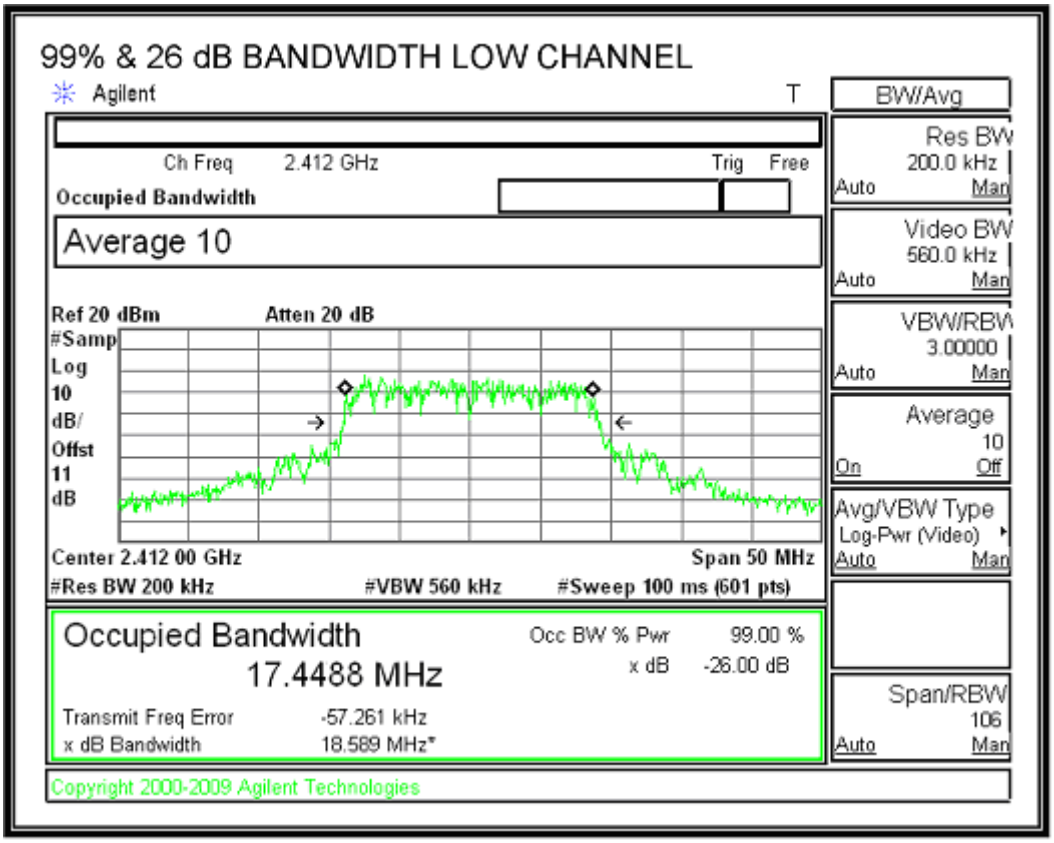
Date: Dec. 01, 2012

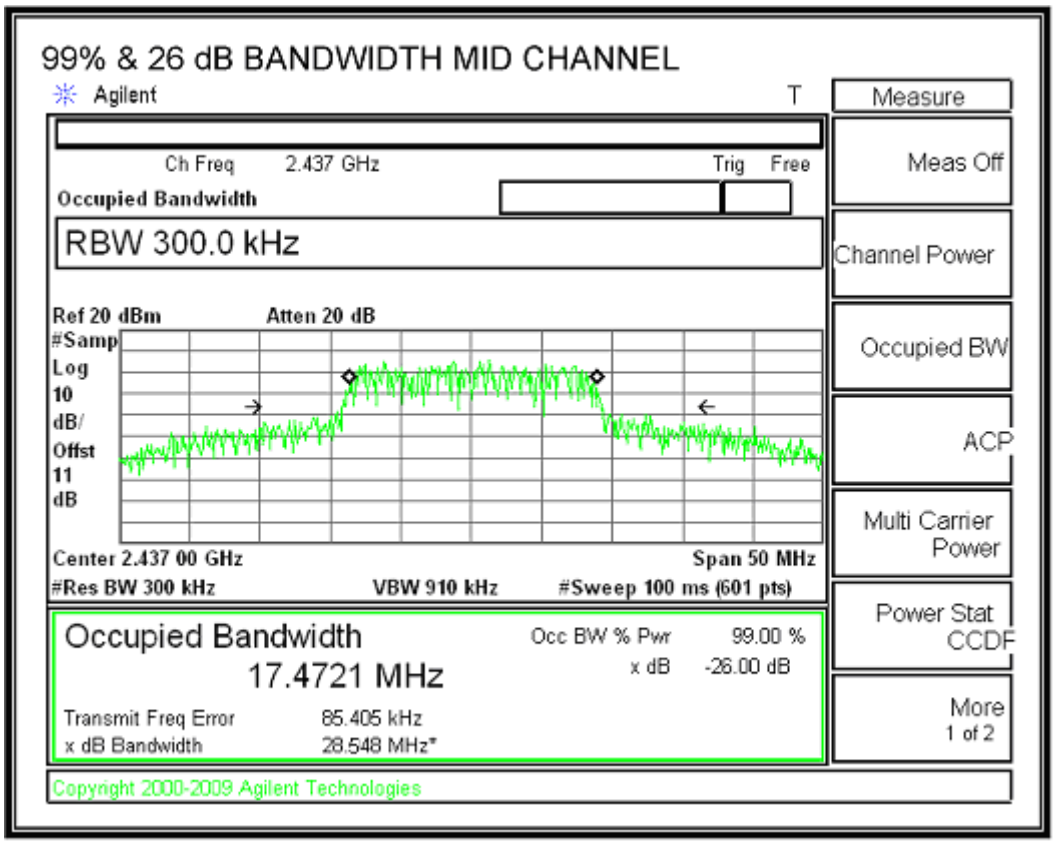


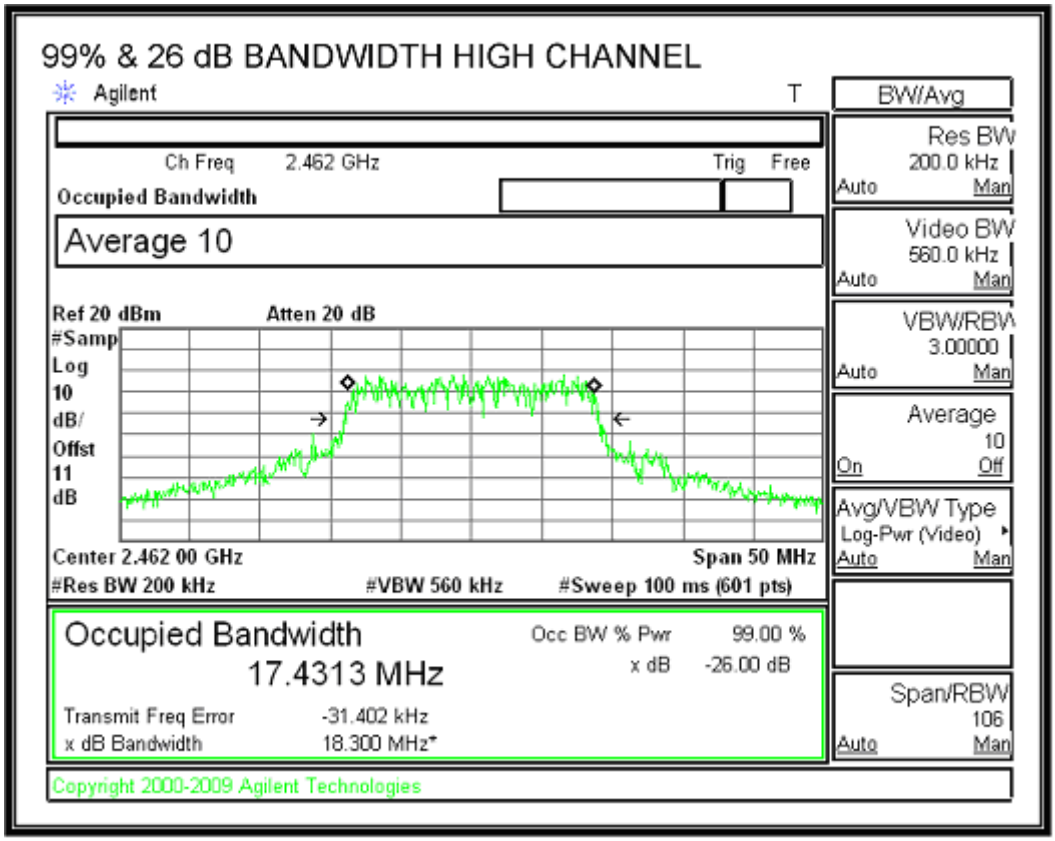




802.11n HT20 channel, 99% Occupied Bandwidth.
Date: Dec. 01, 2012







5.5. Radiated Emissions Measurement

5.5.1. Standard Applicable

According to §15.247 (d): 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies(MHz)	Field Strength(micorvolts/meter)	Measurement Distance(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.5.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

5.5.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.

4. For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading

5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

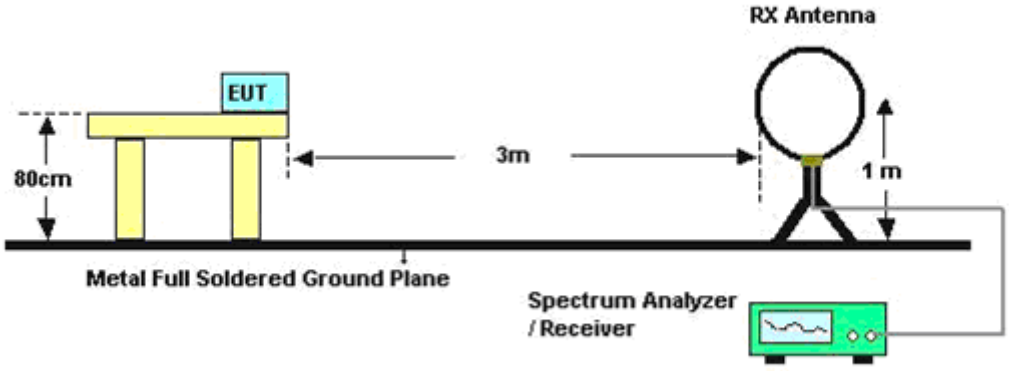
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.

9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

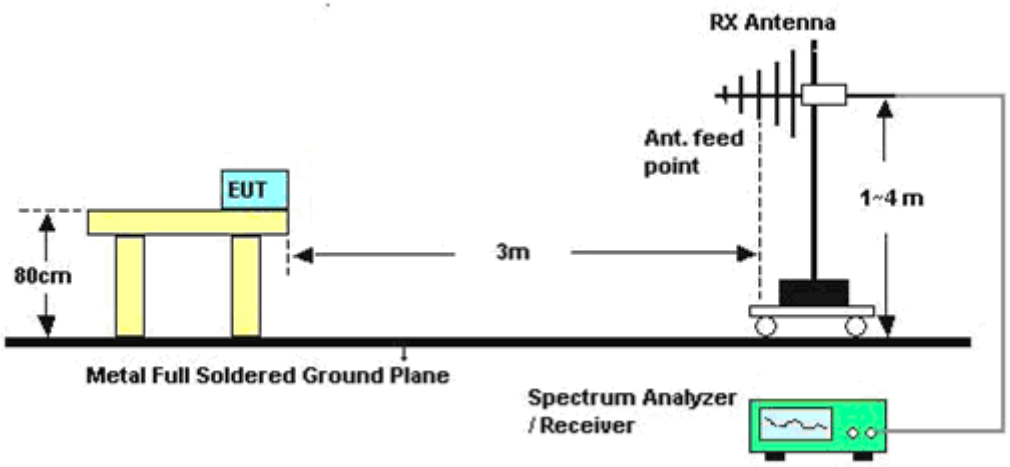
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

5.5.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

5.5.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.5.6. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	802.11b,g,n

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

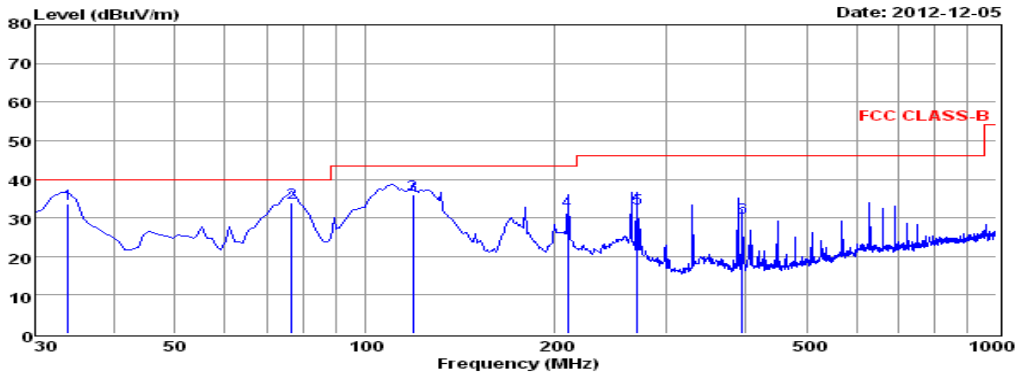
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

5.5.7. Results of Radiated Emissions (30MHz~1GHz)

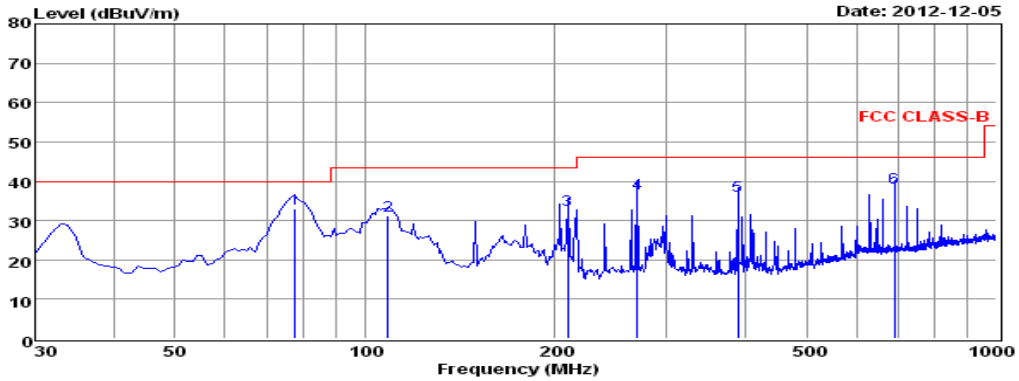
Temperature	25℃	Humidity	60%
Test Engineer	Leo Lee	Configurations	Normal Link



Env. /Ins: 24℃/56%
EUT: MID
M/N: AW133
Power Rating: AC 120V/60Hz
Test Mode: On
Operator: Ken
Memo:
pol: VERTICAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	33.88	21.03	0.37	12.31	0.00	33.71	40.00	-6.29	QP
2	76.56	25.28	0.47	8.03	0.00	33.78	40.00	-6.22	QP
3	119.24	24.75	0.64	10.61	0.00	36.00	43.50	-7.50	QP
4	209.45	20.23	0.86	10.87	0.00	31.96	43.50	-11.54	QP
5	269.59	19.17	0.99	12.35	0.00	32.51	46.00	-13.49	QP
6	395.69	13.72	1.30	14.96	0.00	29.98	46.00	-16.02	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.



Env. /Ins: 24℃/56%
EUT: MID
M/N: AW133
Power Rating: AC 120V/60Hz
Test Mode: On
Operator: Ken
Memo:
pol: HORIZONTAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	77.53	24.52	0.47	8.17	0.00	33.16	40.00	-6.84	QP
2	108.57	18.29	0.68	12.38	0.00	31.35	43.50	-12.15	QP
3	209.45	21.10	0.86	10.87	0.00	32.83	43.50	-10.67	QP
4	269.59	23.65	0.99	12.35	0.00	36.99	46.00	-9.01	QP
5	389.87	20.32	1.17	14.82	0.00	36.31	46.00	-9.69	QP
6	690.57	17.84	1.60	18.78	0.00	38.22	46.00	-7.78	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.

Note:

Pre-scan all mode and recorded the worst case results in this report (802.11g Channel 6).

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

5.5.8. Results for Radiated Emissions (Above 1GHz)

802.11b

Channel 1

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.12	45.69	33.06	35.04	3.94	74	-26.35	Peak	Horizontal
4824.23	37.27	33.06	35.04	3.94	54	-14.77	Average	Horizontal
4824.12	46.29	33.06	35.04	3.94	74	-25.75	Peak	Vertical
4824.25	38.17	33.06	35.04	3.94	54	-13.87	Average	Vertical

Channel 6

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.65	45.86	33.16	35.15	3.96	74	-26.17	Peak	Horizontal
4874.65	34.17	33.16	35.15	3.96	54	-17.86	Average	Horizontal
4874.65	44.34	33.16	35.15	3.96	74	-27.69	Peak	Vertical
4874.65	33.81	33.16	35.15	3.96	54	-18.22	Average	Vertical

Channel 11

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.37	44.31	33.26	35.14	3.98	74	-27.59	Peak	Horizontal
4924.37	32.73	33.26	35.14	3.98	54	-19.17	Average	Horizontal
4924.37	43.15	33.26	35.14	3.98	74	-28.75	Peak	Vertical
4924.37	31.89	33.26	35.14	3.98	54	-20.01	Average	Vertical

802.11g

Channel 1

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.75	45.34	33.06	35.04	3.94	74	-26.70	Peak	Horizontal
4824.96	35.61	33.06	35.04	3.94	54	-16.43	Average	Horizontal
4824.75	44.73	33.06	35.04	3.94	74	-27.31	Peak	Vertical
4824.96	33.66	33.06	35.04	3.94	54	-18.38	Average	Vertical

Channel 6

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.38	46.24	33.16	35.15	3.96	74	-25.79	Peak	Horizontal
4874.38	38.19	33.16	35.15	3.96	54	-13.84	Average	Horizontal
4874.38	45.71	33.16	35.15	3.96	74	-26.32	Peak	Vertical
4874.38	39.47	33.16	35.15	3.96	54	-12.56	Average	Vertical

Channel 11

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.85	48.67	33.26	35.14	3.98	74	-23.23	Peak	Horizontal
4924.85	39.13	33.26	35.14	3.98	54	-12.77	Average	Horizontal
4924.85	46.24	33.26	35.14	3.98	74	-25.66	Peak	Vertical
4924.85	40.27	33.26	35.14	3.98	54	-11.63	Average	Vertical

802.11n HT20

Channel 1

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.75	43.27	33.06	35.04	3.94	74	-28.77	Peak	Horizontal
4824.96	33.71	33.06	35.04	3.94	54	-18.33	Average	Horizontal
4824.75	42.13	33.06	35.04	3.94	74	-29.91	Peak	Vertical
4824.96	32.47	33.06	35.04	3.94	54	-19.57	Average	Vertical

Channel 6

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.42	44.61	33.16	35.15	3.96	74	-27.42	Peak	Horizontal
4874.42	34.13	33.16	35.15	3.96	54	-17.90	Average	Horizontal
4874.42	43.21	33.16	35.15	3.96	74	-28.82	Peak	Vertical
4874.42	33.59	33.16	35.15	3.96	54	-18.44	Average	Vertical

Channel 11

Freq MHz	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.68	47.14	33.26	35.14	3.98	74	-24.76	Peak	Horizontal
4924.68	38.27	33.26	35.14	3.98	54	-13.63	Average	Horizontal
4924.68	45.71	33.26	35.14	3.98	74	-26.19	Peak	Vertical
4924.68	39.79	33.26	35.14	3.98	54	-12.11	Average	Vertical

Notes:

1. *Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30 MHz.*
2. *Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.*
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.*

5.6. Conducted Spurious Emissions And Band Edges Test

5.6.1. Standard Applicable

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. 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)).

5.6.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
RB / VB (Emission in restricted band)	100KHz/300KHz
RB / VB (Emission in non-restricted band)	100KHz/300KHz

5.6.3. Test Procedures

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

Preliminary tests on individual chains, and on all chains with a combiner, were performed. The worst-case configuration was with a combiner, therefore final test were performed with all chains feeding a combiner.

5.6.4. Test Setup Layout

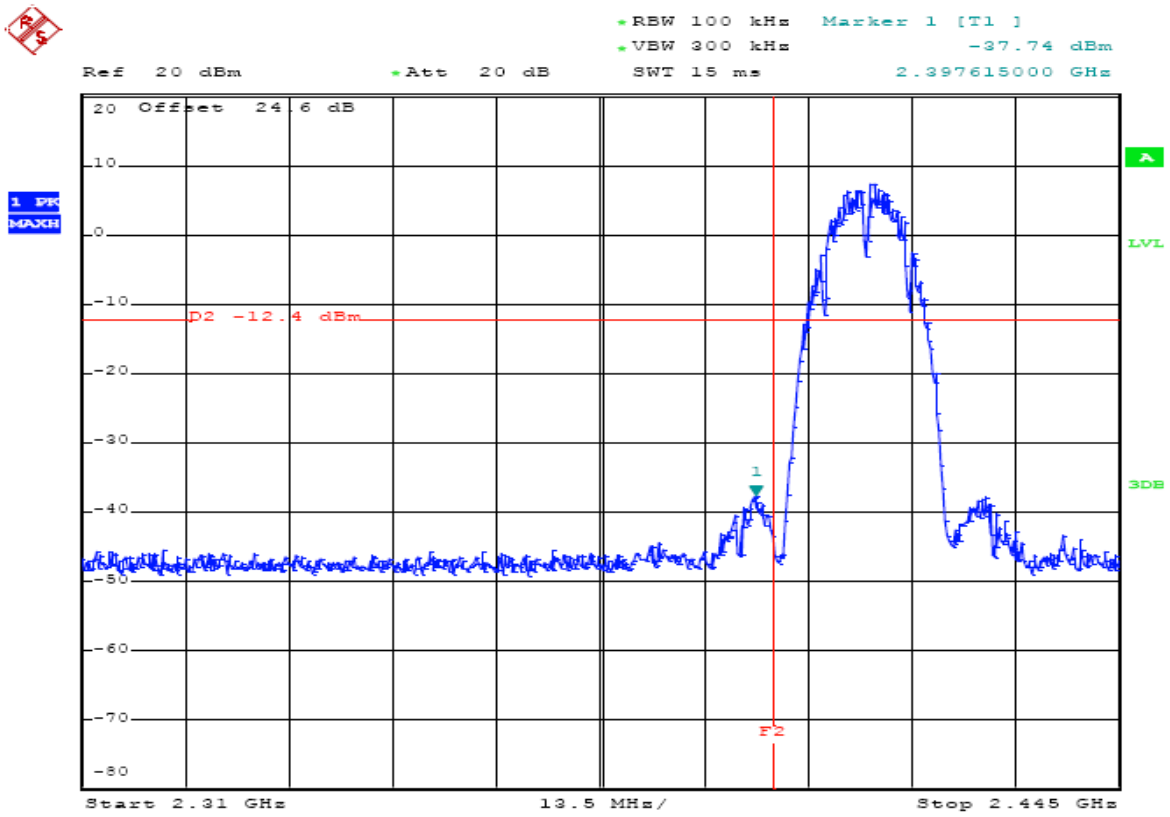
This test setup layout is the same as that shown in section 5.4.4.

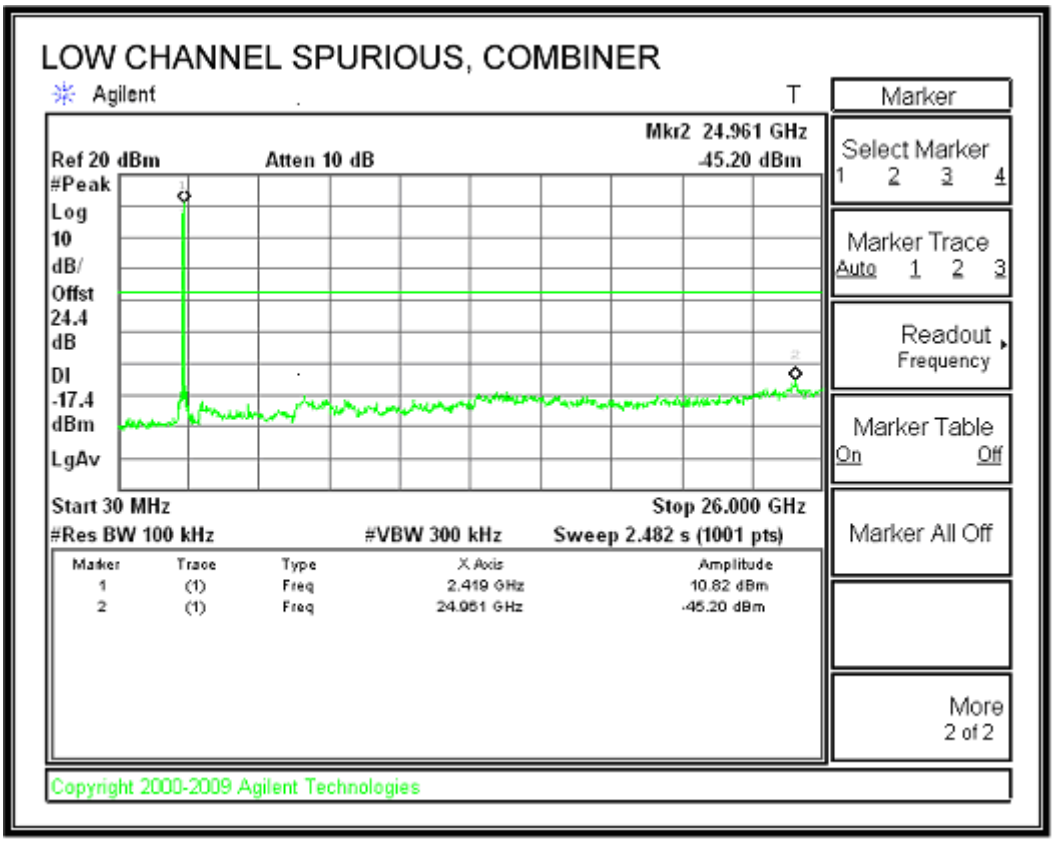
5.6.5. EUT Operation during Test

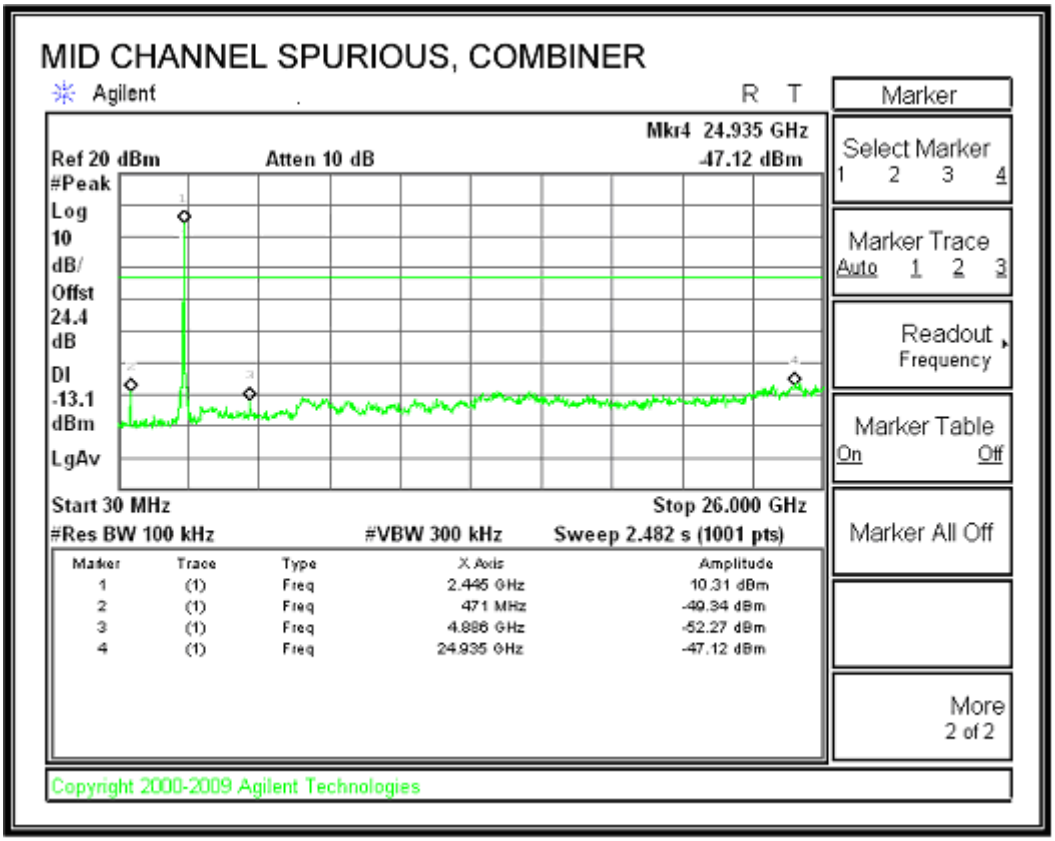
The EUT was programmed to be in continuously transmitting mode.

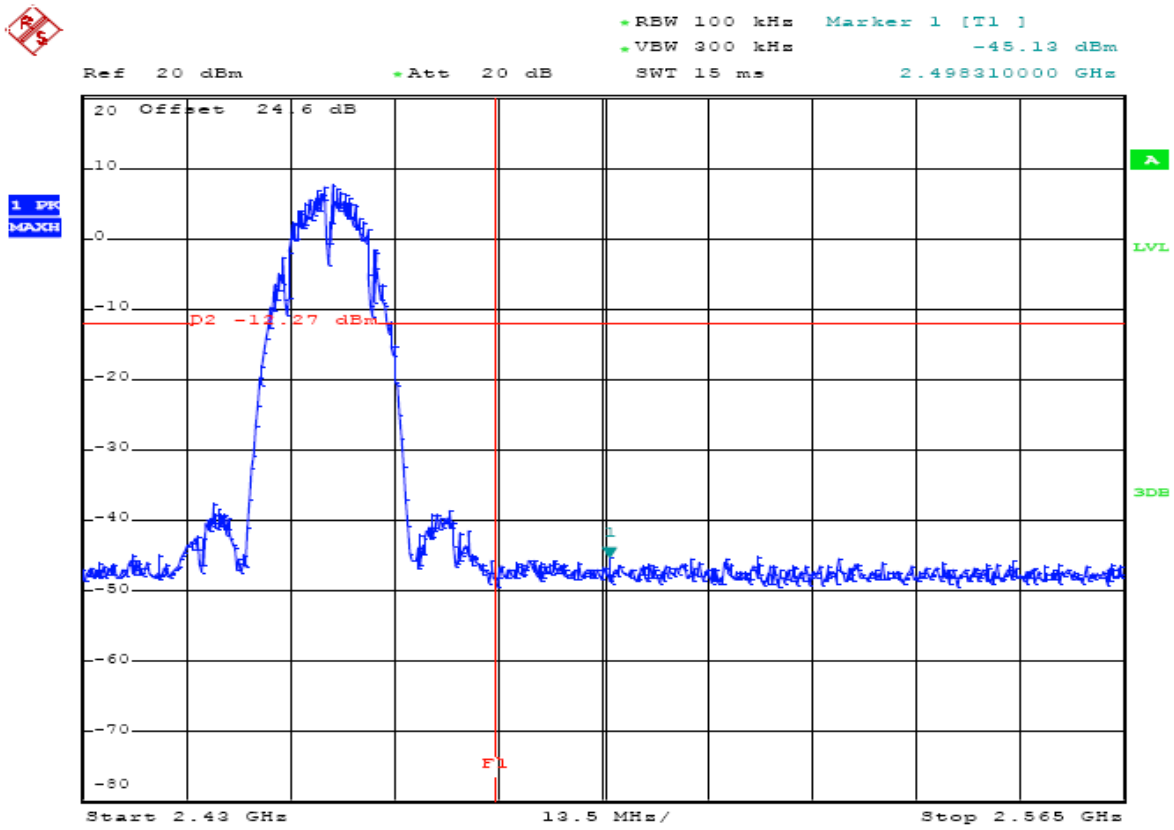
5.6.6. Test Results of Conducted Spurious Emissions And Band Edges Test

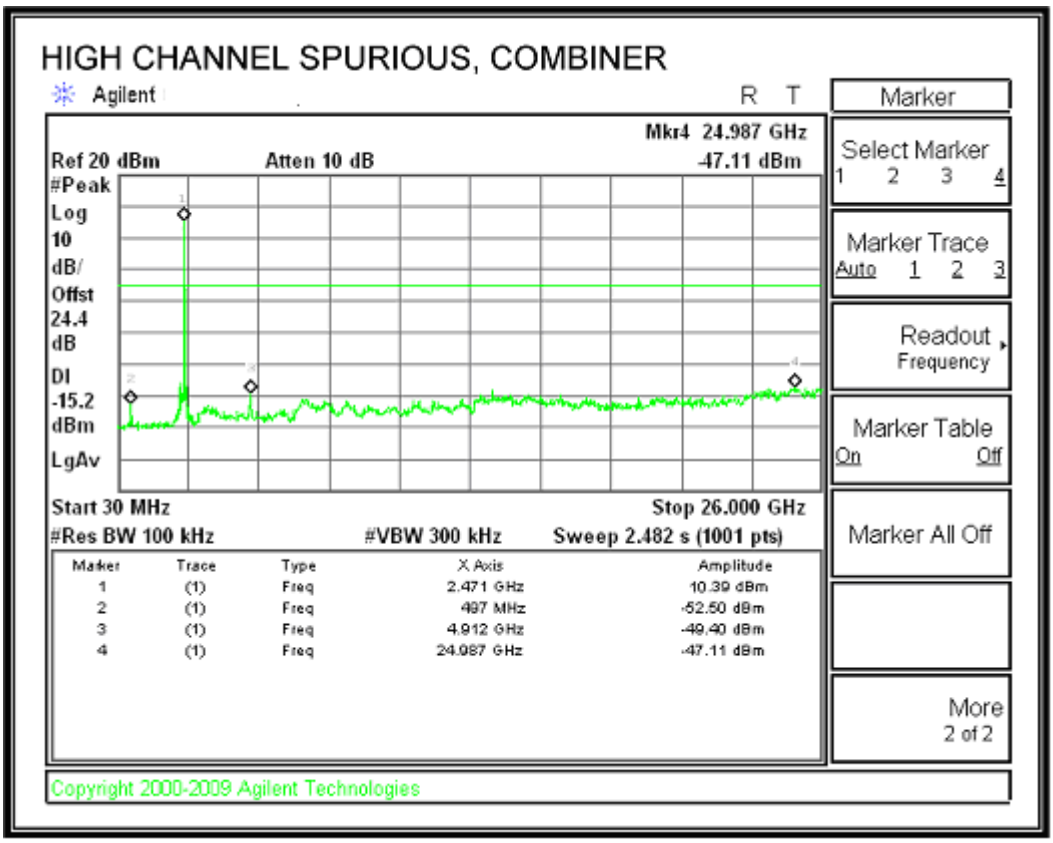
802.11b


RBW 100 kHz
VBW 300 kHz
SWT 15 ms
Marker 1 [T1]
-37.74 dBm
2.397615000 GHz
Ref 20 dBm
Att 20 dB
Offset 24.6 dB
D2 -12.4 dBm
Start 2.31 GHz
13.5 MHz/
Stop 2.445 GHz
LVL
3DB


LOW CHANNEL SPURIOUS, COMBINER
Agilent
Mkr2 24.961 GHz
Ref 20 dBm
Atten 10 dB
-45.20 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-17.4
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.419 GHz 10.82 dBm
2 (1) Freq 24.951 GHz -45.20 dBm
Marker
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
Copyright 2000-2009 Agilent Technologies


MID CHANNEL SPURIOUS, COMBINER
Agilent
R T
Mkr4 24.935 GHz
Ref 20 dBm
Atten 10 dB
-47.12 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-13.1
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace X Axis Amplitude
1 (1) Freq 2.445 GHz 10.31 dBm
2 (1) Freq 471 MHz -49.34 dBm
3 (1) Freq 4.886 GHz -52.27 dBm
4 (1) Freq 24.935 GHz -47.12 dBm
Marker
Select Marker 1 2 3 4
Marker Trace Auto 1 2 3
Readout Frequency
Marker Table On Off
Marker All Off
More 2 of 2
Copyright 2000-2009 Agilent Technologies


RBW 100 kHz
VBW 300 kHz
Marker 1 [T1]
-45.13 dBm
Ref 20 dBm
Att 20 dB
SWT 15 ms
2.498310000 GHz
Offset 24.6 dB
D2 -12.27 dBm
Start 2.43 GHz
13.5 MHz/
Stop 2.565 GHz


HIGH CHANNEL SPURIOUS, COMBINER
Agilent
R T
Marker
Mkr4 24.987 GHz
Ref 20 dBm
Atten 10 dB
-47.11 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-15.2
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.471 GHz 10.39 dBm
2 (1) Freq 497 MHz -52.50 dBm
3 (1) Freq 4.912 GHz -49.40 dBm
4 (1) Freq 24.987 GHz -47.11 dBm
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
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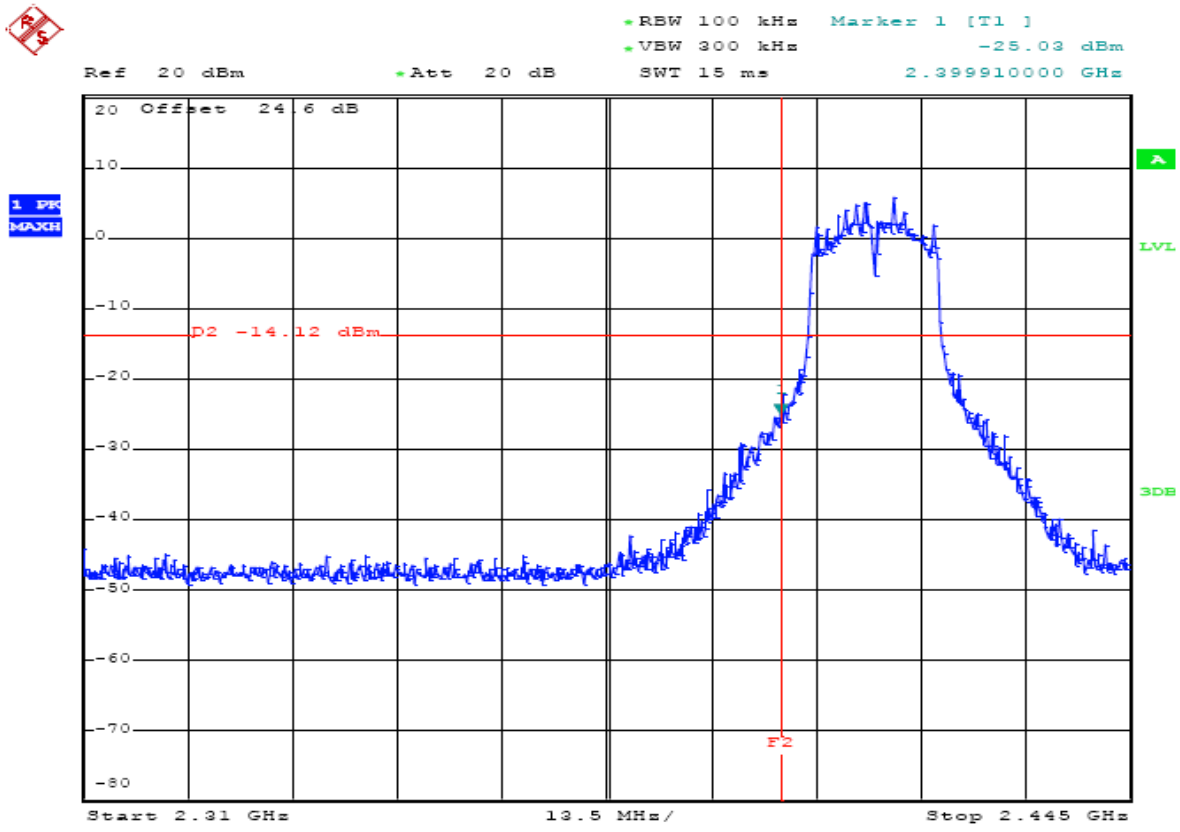
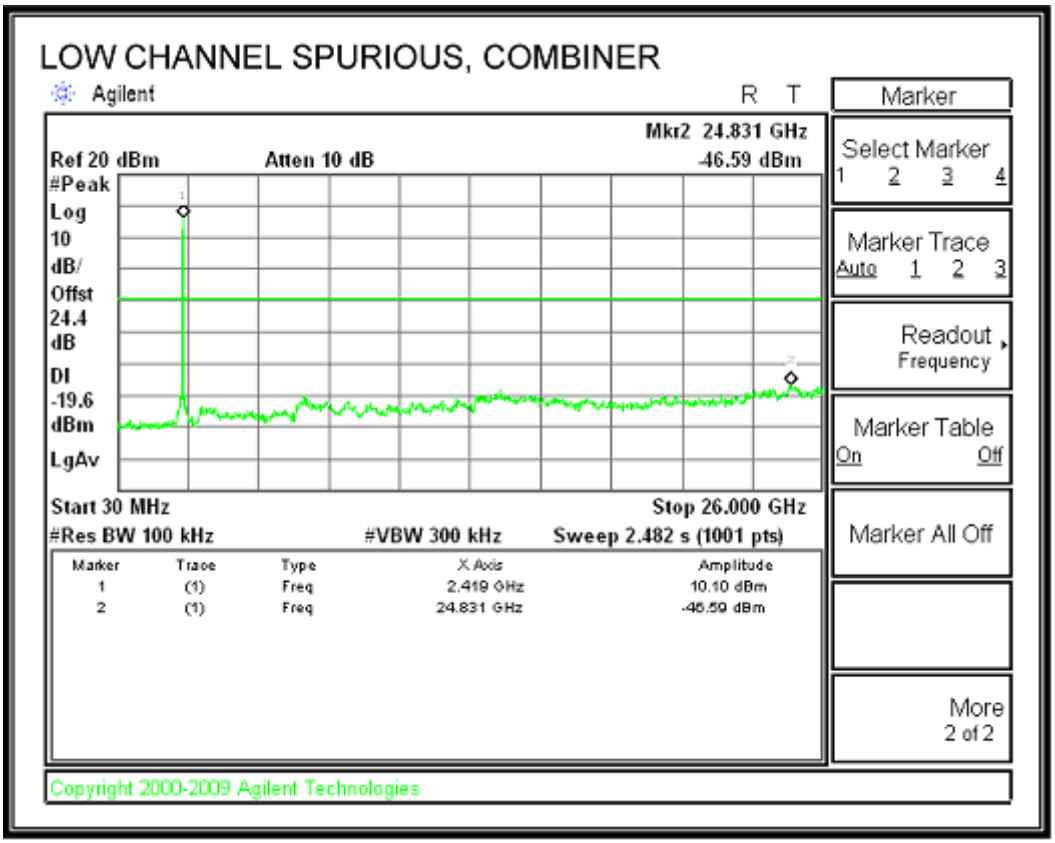
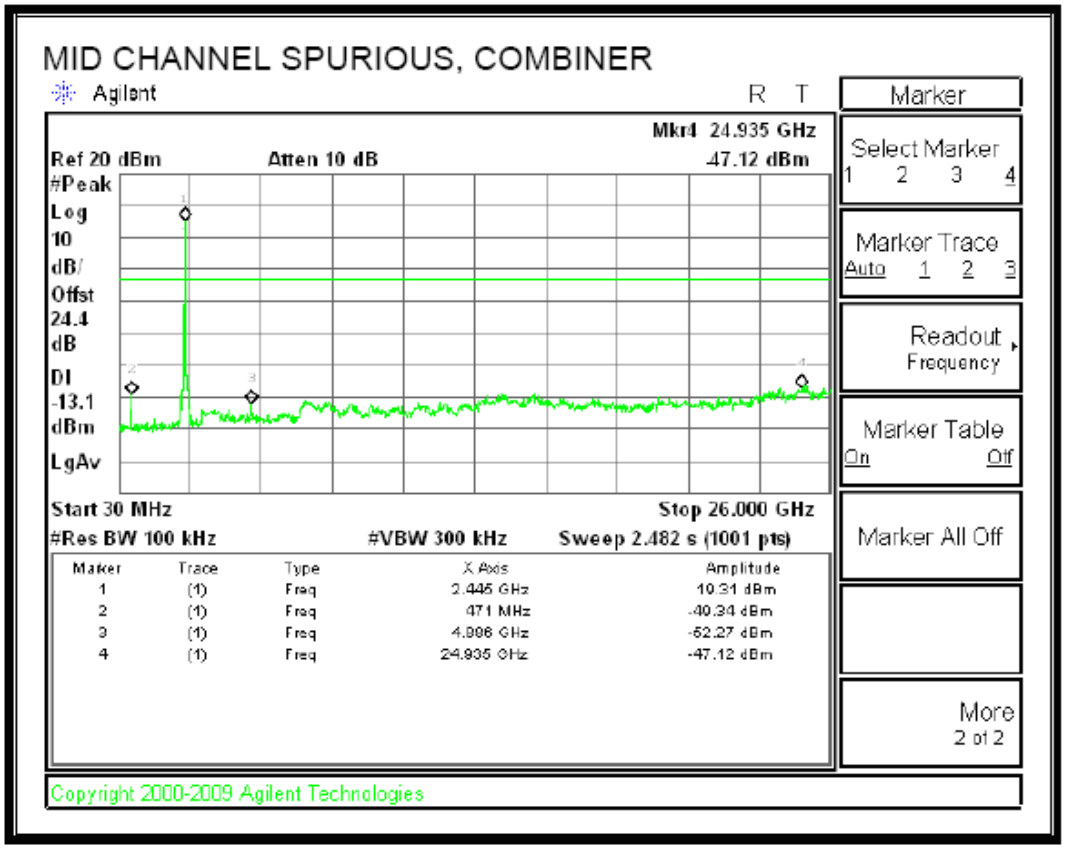
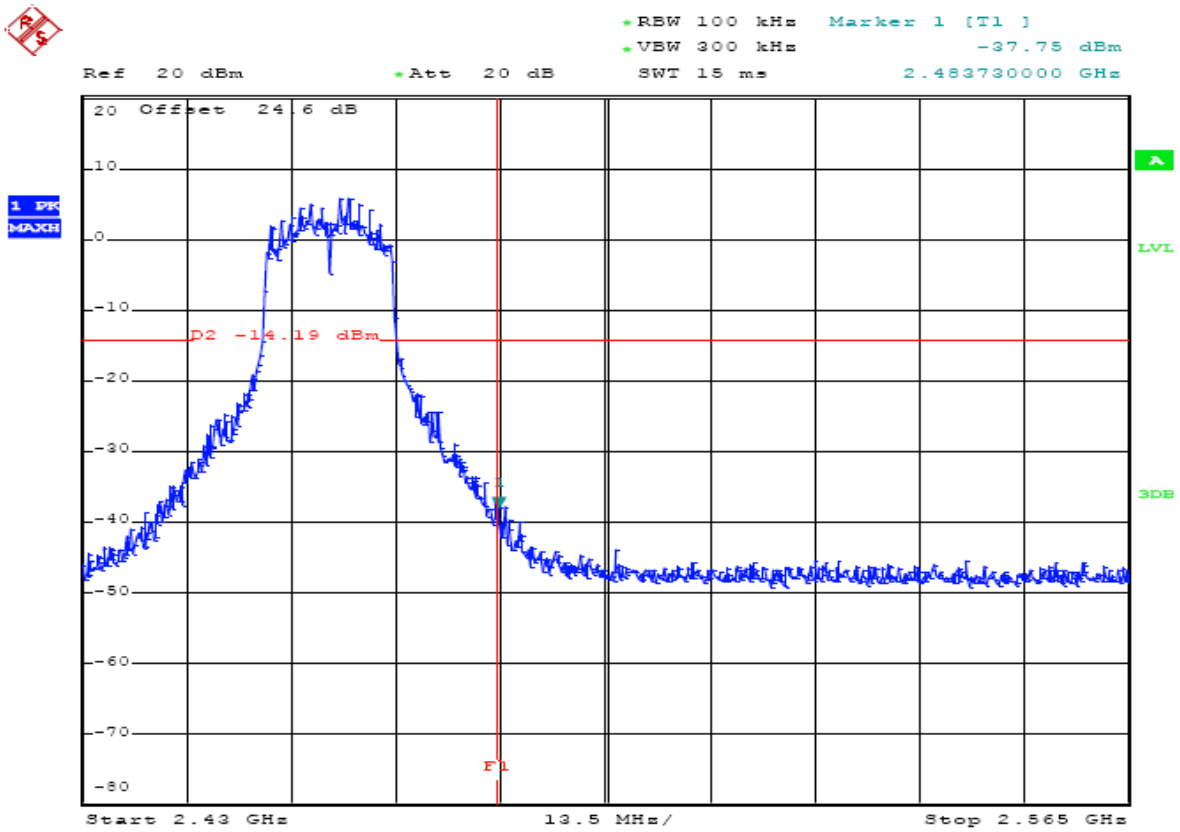
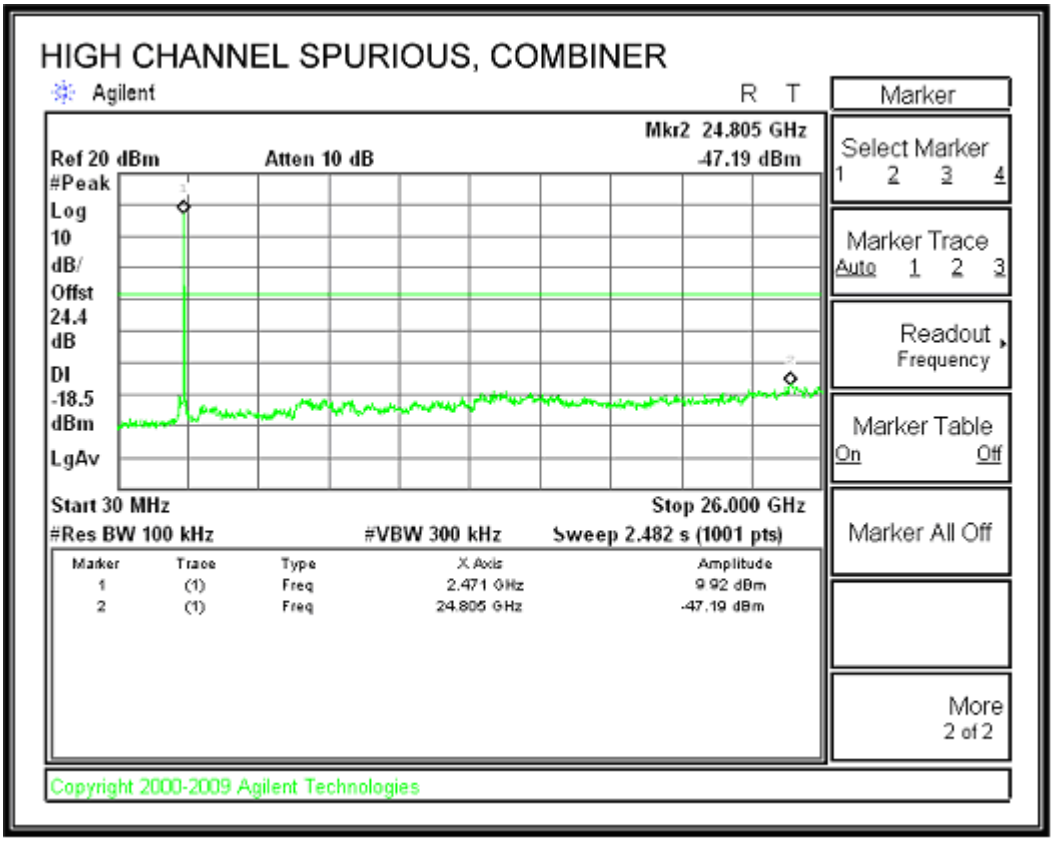
802.11g


RBW 100 kHz
VBW 300 kHz
Marker 1 [T1]
-25.03 dBm
Ref 20 dBm
Att 20 dB
SWT 15 ms
2.399910000 GHz
Offset 24.6 dB
D2 -14.12 dBm
F2
Start 2.31 GHz
13.5 MHz/
Stop 2.445 GHz
1 PK
MAXH
A
LVL
3DB

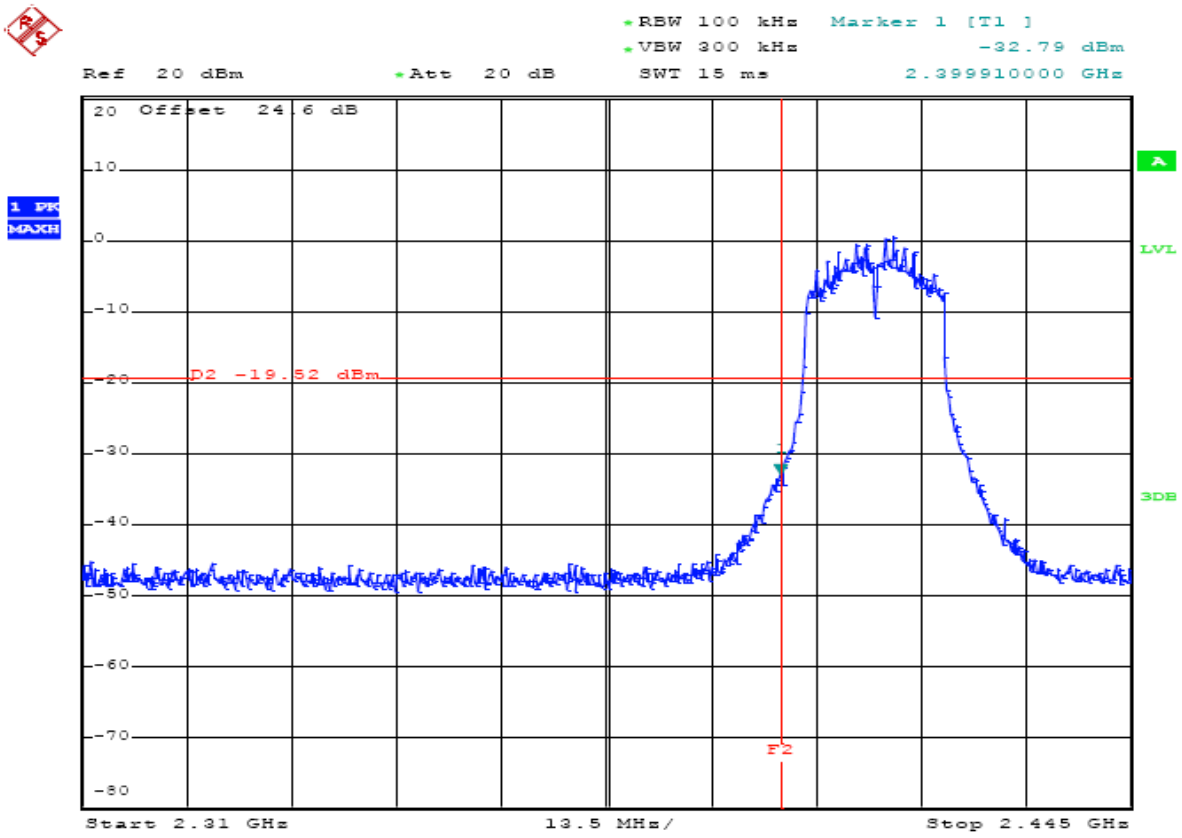


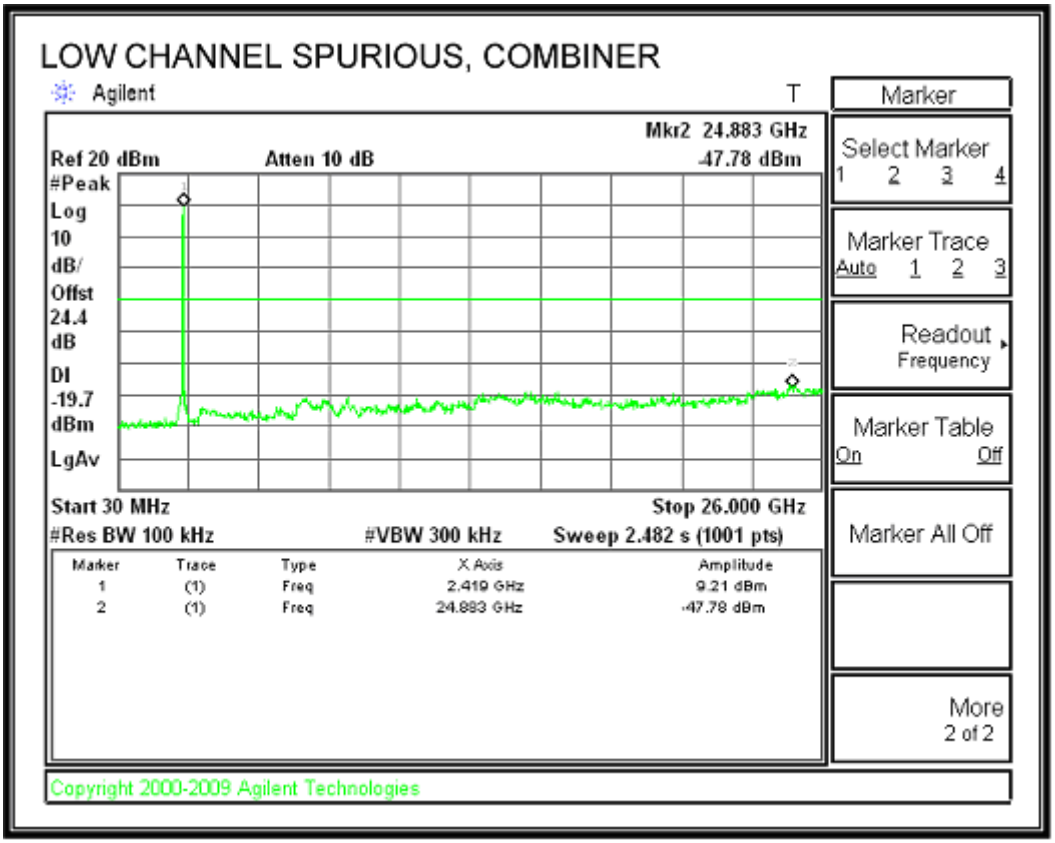






802.11n HT20


RBW 100 kHz
VBW 300 kHz
SWT 15 ms
Marker 1 [T1]
-32.79 dBm
2.399910000 GHz
Ref 20 dBm
Att 20 dB
Offset 24.6 dB
1 PK MAXH
D2 -19.52 dBm
A
LVL
3DB
F2
Start 2.31 GHz
13.5 MHz/
Stop 2.445 GHz


LOW CHANNEL SPURIOUS, COMBINER
Agilent
T
Mkr2 24.883 GHz
Ref 20 dBm
Atten 10 dB
-47.78 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-19.7
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.419 GHz 9.21 dBm
2 (1) Freq 24.883 GHz -47.78 dBm
Marker
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
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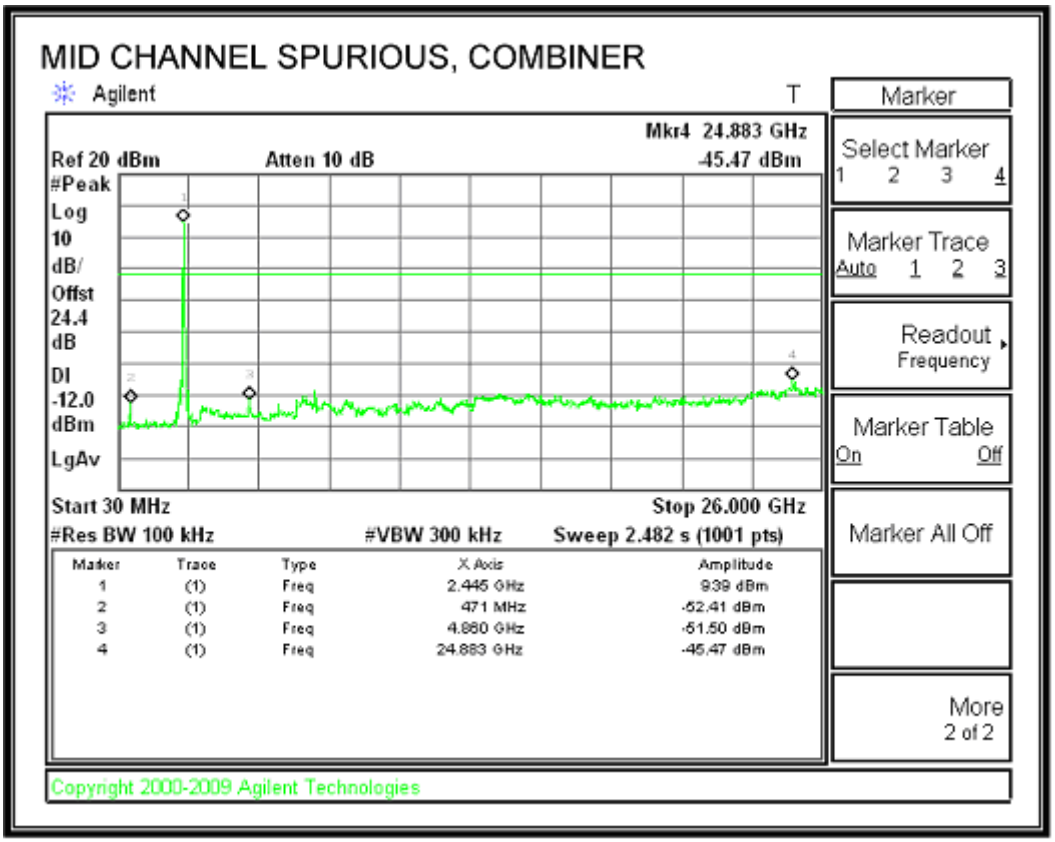
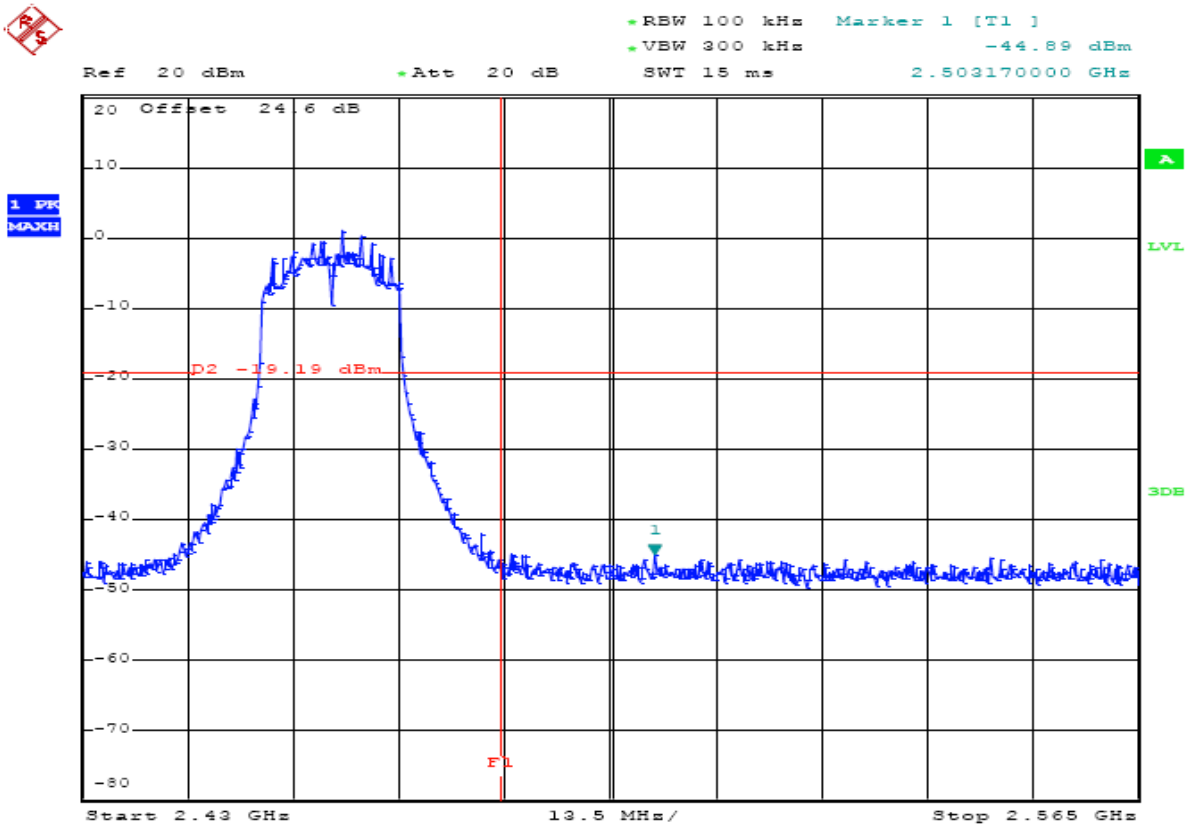
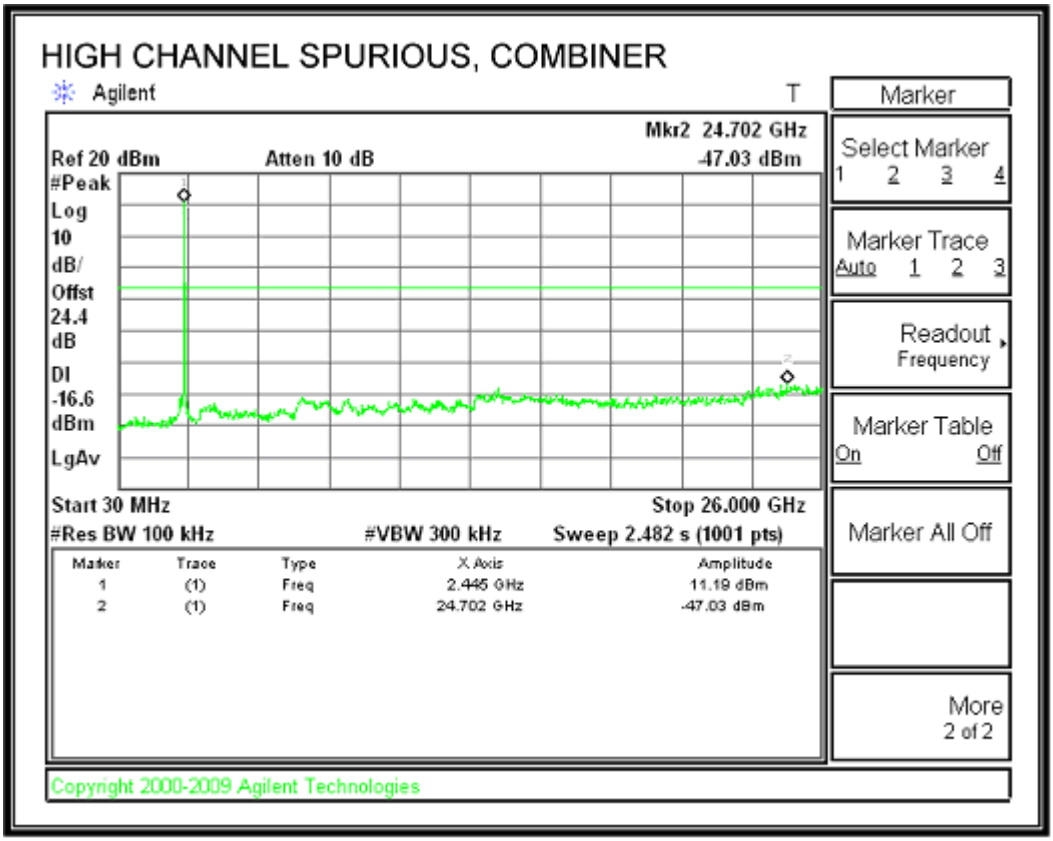

MID CHANNEL SPURIOUS, COMBINER
Agilent
T
Marker
Mkr4 24.883 GHz
Ref 20 dBm
Atten 10 dB
-45.47 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-12.0
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.445 GHz 939 dBm
2 (1) Freq 471 MHz -52.41 dBm
3 (1) Freq 4.880 GHz -51.50 dBm
4 (1) Freq 24.883 GHz -45.47 dBm
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
Copyright 2000-2009 Agilent Technologies


RBW 100 kHz
VBW 300 kHz
SWT 15 ms
Marker 1 [T1]
-44.89 dBm
2.503170000 GHz
Ref 20 dBm
Att 20 dB
Offset 24.6 dB
D2 -19.19 dBm
Start 2.43 GHz
13.5 MHz/
Stop 2.565 GHz
LVL
3DB


HIGH CHANNEL SPURIOUS, COMBINER
Agilent
T
Mkr2 24.702 GHz
Ref 20 dBm
Atten 10 dB
-47.03 dBm
#Peak
Log
10
dB/
Offst
24.4
dB
Dl
-16.6
dBm
LgAv
Start 30 MHz
Stop 26.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.482 s (1001 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.445 GHz 11.19 dBm
2 (1) Freq 24.702 GHz -47.03 dBm
Marker
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
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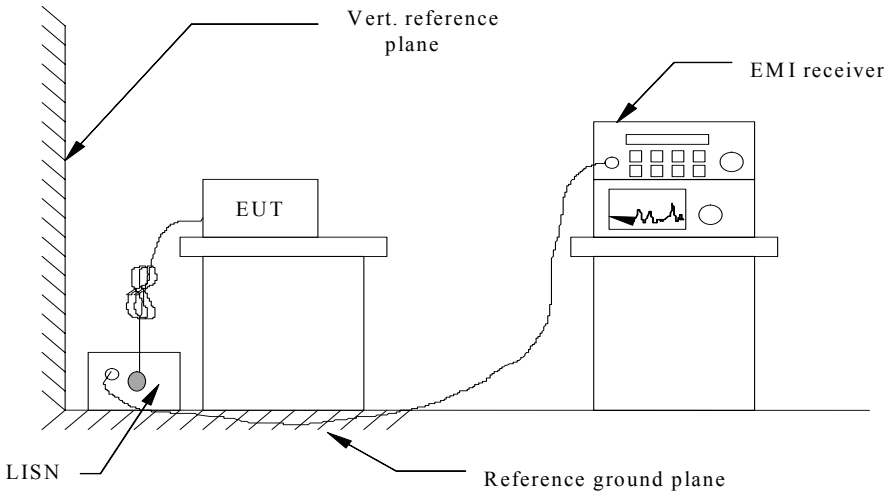
5.7. Power line conducted emissions

5.7.1 Standard Applicable

According to§15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

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

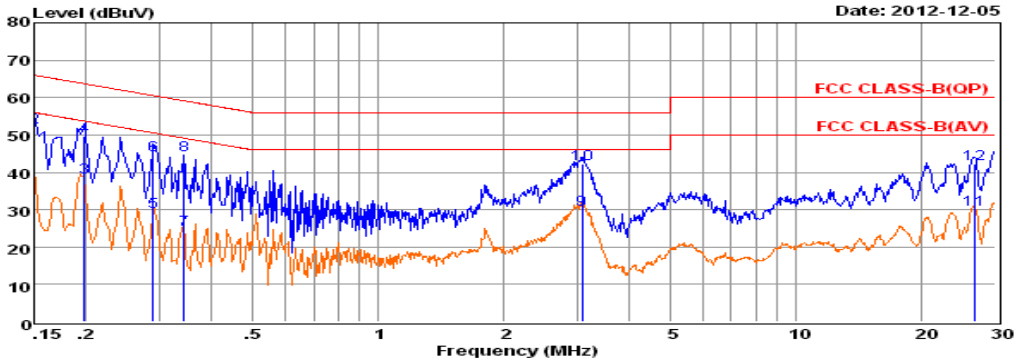
5.7.2 Block Diagram of Test Setup



5.7.3 Test Results

PASS.

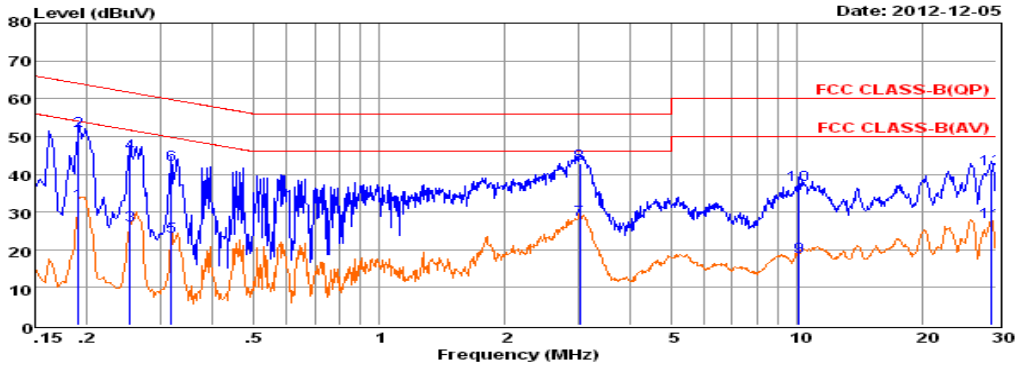
The test data please refer to following page.



Env. Ins: 24*/56%
EUT: MID
M/N: AW133
Power Rating: AC 120V/60Hz
Test Mode: On
Operator: Ken
Memo:
Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.15	30.21	9.70	0.02	39.93	56.00	-16.07	Average
2	0.15	42.24	9.70	0.02	51.96	66.00	-14.04	QP
3	0.20	29.08	9.59	0.02	38.69	53.71	-15.02	Average
4	0.20	40.11	9.59	0.02	49.72	63.71	-13.99	QP
5	0.29	19.81	9.60	0.03	29.44	50.54	-21.10	Average
6	0.29	34.88	9.60	0.03	44.51	60.54	-16.03	QP
7	0.34	14.93	9.61	0.03	24.57	49.13	-24.56	Average
8	0.34	35.00	9.61	0.03	44.64	59.13	-14.49	QP
9	3.07	20.46	9.64	0.06	30.16	46.00	-15.84	Average
10	3.07	32.40	9.64	0.06	42.10	56.00	-13.90	QP
11	26.70	20.11	9.83	0.13	30.07	50.00	-19.93	Average
12	26.70	32.16	9.83	0.13	42.12	60.00	-17.88	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
2. The emission levels that are 20dB below the official limit are not reported.



Env. Ins: 24*/56%
EUT: MID
M/N: AW133
Power Rating: AC 120V/60Hz
Test Mode: On
Operator: Ken
Memo:
Pol: LINE

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.19	22.81	9.62	0.02	32.45	54.02	-21.57	Average
2	0.19	41.90	9.62	0.02	51.54	64.02	-12.48	QP
3	0.25	16.74	9.63	0.03	26.40	51.64	-25.24	Average
4	0.25	35.79	9.63	0.03	45.45	61.64	-16.19	QP
5	0.32	13.84	9.62	0.03	23.49	49.75	-26.26	Average
6	0.32	32.86	9.62	0.03	42.51	59.75	-17.24	QP
7	3.03	18.14	9.64	0.06	27.84	46.00	-18.16	Average
8	3.03	33.12	9.64	0.06	42.82	56.00	-13.18	QP
9	10.13	8.49	9.69	0.08	18.26	50.00	-31.74	Average
10	10.13	27.45	9.69	0.08	37.22	60.00	-22.78	QP
11	29.06	17.47	9.71	0.14	27.32	50.00	-22.68	Average
12	29.06	31.43	9.71	0.14	41.28	60.00	-18.72	QP

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
2. The emission levels that are 20dB below the official limit are not reported.

Note: Pre-scan all mode and recorded the worst case results in this report (802.11g Channel 6)

5.8. Antenna Requirements

5.8.1. Standard Applicable

According to § 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.

5.8.2. Antenna Connector Construction

The directional gains of antenna used for transmitting is 2.0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

5.8.3. Results: Compliance.

6. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2012	June 17,2013
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 18,2012	June 17,2013
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 18,2012	June 17,2013
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 18,2012	June 17,2013
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 18,2012	June 17,2013
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 18,2012	June 17,2013
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 18,2012	June 17,2013
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	June 18,2012	June 17,2013
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	June 18,2012	June 17,2013
Spectrum Analyzer	Agilent	E4446A	MY41440289	9k-26.5GHz	June 18,2012	June 17,2013
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	June 18,2012	June 17,2013
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 18,2012	June 17,2013
By-log Antenna	SCHAFFNER	CBL 6112D	22237	30MHz-1GHz	June 18,2012	June 17,2013
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 18,2012	June 17,2013
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 18,2012	June 17,2013
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 18,2012	June 17,2013
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 18,2012	June 17,2013
Spectrum Meter	R&S	FSP 30	100023	9kHz-30GHz	June 18,2012	June 17,2013
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2012	June 17,2013
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2012	June 17,2013
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 18,2012	June 17,2013
AC Power Source	HPC	HPA-500E	HPA-9100024	AC 0~300V	June 18,2012	June 17,2013
DC power Soure	GW	GPC-6030D	C671845	DC 1V-60V	June 18,2012	June 17,2013
Temp. and Humidigy	Giant Force	GTH-225-20-S	MAB0103-00	N/A	June 18,2012	June 17,2013
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 18,2012	June 17,2013
RF CABLE-2m	JYE Bao	RG142	CB)35-2m	20MHz-1GHz	June 18,2012	June 17,2013
Vector signal Generator	R&S	SMU200A	102098	100kHz~6GHz	June 18,2012	June 17,2013
Signal Generator	R&S	SMR40	10016	10MHz~4oGHa	June 18,2012	June 17,2013
Oscilloscope	Tektonix	TDS380	B016197	400MHz/2GRS	June 18,2012	June 17,2013

7. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

AW131	AW132	AW134	AW135
AW71	AW79	RW71	RW72

Belong to the tested device:

Product description : MID

Model name : AW133

Remark: PCB board, structure and internal of these model(s) are the same, Only model number is different for these model, So no additional models were tested.

----------THE END OF REPORT----------