TEST REPORT

Date: 2012-01-12
Report No.: 68.870.11.014.01F

Applicant:	Philips Consumer Lifestyle 1600 Summer Street Stamford, CT 06905 United States	
Description of Samples:	Model name:	Wireless Home Monitor
	Brand name:	PHILIPS
	Model no.:	M100/zz (zz can be 00-99 denote for different country)
	FCCID:	BOUM100
Date Samples Received:	2011-12-30	
Date Tested:	2011-12-31 to 2012-01-12	
Investigation Requested:	FCC Part 15 Subpart C, Section 15.247	
Conclusions:	The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.	
Remarks:	----	

Checked by:

John Zhi
Project Engineer
Wireless & Telecom department

Approved by:-

Nicolas Cheng
Project Manager
Wireless & Telecom department

CONTENT:

Appendix A

Photos of Test Setup

Appendix B

External EUT Photos

Appendix C

Internal EUT Photos

1.0 General Details

1.1 Test Laboratory

SEM.Test Compliance Services Co., Ltd.
EMC Laboratory registered by FCC with
FCC Registration Number: 994117

Test By: Susan Su

Susan Su

1.2 Applicant Details

Applicant

Philips Consumer Lifestyle
1600 Summer Street Stamford, CT 06905 United States

Manufacturers

Action Asia (Shenzhen) Co. Ltd.
Dede Industrial Park Jianan Rd,FuyongHI-Tech Park ,Shenzhen, China

Action Industries (Malaysia) Sdn. Bhd.
2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE ZONE,13600 PERAI, PENANG, MALAYSIA.

1.3 Equipment Under Test [EUT]

Description of EUT

Product Description:	Wireless Home Monitor
Model No.:	M100/zz (zz can be 00-99 denote for different country)
Brand Name:	PHILIPS
FCCID:	BOUM100
Rating:	DC5.0V, 600mA powered by AC/DC power adaptor Model :ASUC30a-050060
Operated Frequency:	2412 -2462 MHz
No. of Operated Channel:	11
Accessories and Auxiliary Equipments:	AC/DC power adaptor.

Antenna Type:	Integral
Manufacture of Antenna:	ASD
Antenna Gain:	2dBi
Antenna Model:	N/A

General Operation of EUT

The Equipment Under Test (EUT) is a Wireless Home Monitor System operated at 2.4GHz.

DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g/n Operation Principle:

This Systems using digital modulation techniques may operate in the 2400–2483.5 MHz

1.4 Related Submittal(s) Grants

This is a signal application subject to Certificate Authorization.

2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2009 and ANSI C63.4: 2003 for FCC Verification

2.2 Test Standards and Results Summary Tables

Test Condition	Test Requirement	Test Result	
		Pass	N/A
Number of Frequency Hopping	Section 15.247 (a1)	☐	☒
6dB Bandwidth Measurement	Section 15.247 (a2)	☒	☐
Power Spectral Density	Section 15.247 (e)	☒	☐
Pseudorandom Hopping Algorithm	Section 15.247 (a1)	☐	☒
Band Edge Measurement	Section 15.247	☒	☐
Maximum Output Power	Section 15.247 (b3)	☒	☐
Out of Band Emission	Section 15.247 (d)	☒	☐
Radiated Emission in Restricted Band	Section 15.247 (d)	☒	☐
Conducted Emission on AC Mains	Section 15.207	☒	☐
RF Exposure	Section 15.247 (i)	☒	☐
Antenna Requirement	Section 15.203	☒ See note 1	☐

Note 1 : The EUT uses a permanently attached antenna, which in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

Remark: N/A - Not Applicable

3.0 Test Methodology

3.1 Radiated Emission

The sample was placed 0.8m above the ground plane on a standard emission test site *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*On a standard emission test site with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 994117.

3.2 Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

FS = R + System Factor
System Factor = AF + CF + FA – PA

Where FS = Net Field Strength in dBuV/m at 3 meters.
R = Reading of Spectrum Analyzer / Test Receiver in dBuV.
AF = Antenna Factor in dB.
CF = Cable Attenuation Factor in dB.
FA = Filter Attenuation Factor in dB.
PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

3.3 Conducted Emissions

The test was performed in accordance with ANSI C63.4: 2003, with the following: initial measurements were performed in peak and average detection modes on the live line of personal computer, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

4.0 Test Results

4.1 6 dB Bandwidth Measurement

Test Requirement:	FCC part 15 section 15.247 (a2)
Test Date:	2012-01-10
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Result: PASS

Test Setup:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

For 802.11B Mode

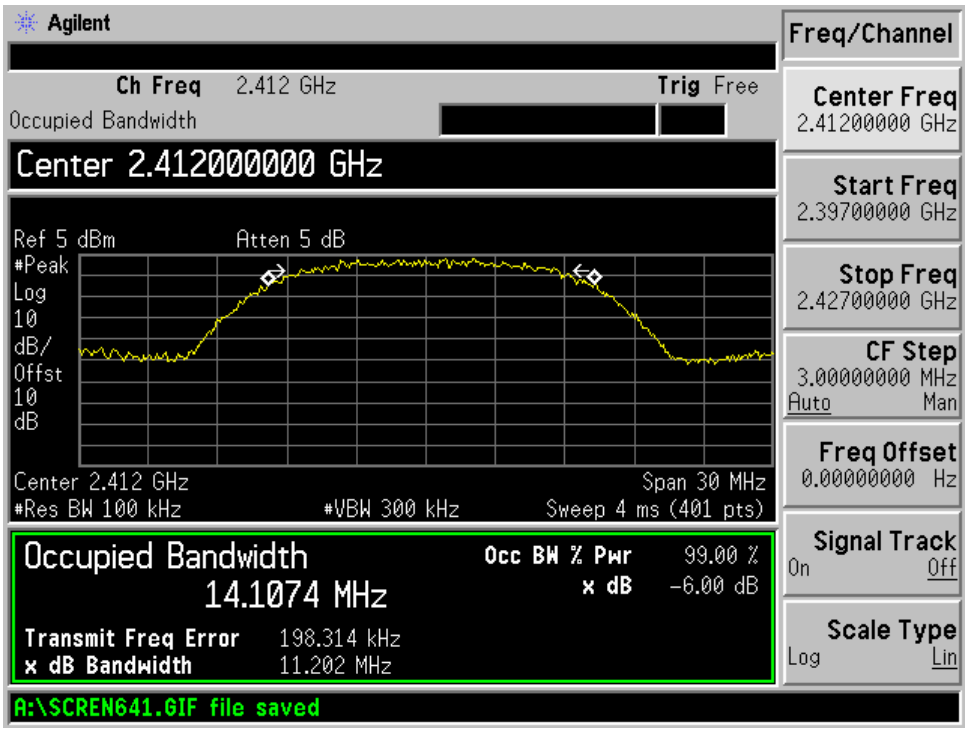
Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2.412	11.202
Middle	2.437	11.121
Highest	2.462	11.202

This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

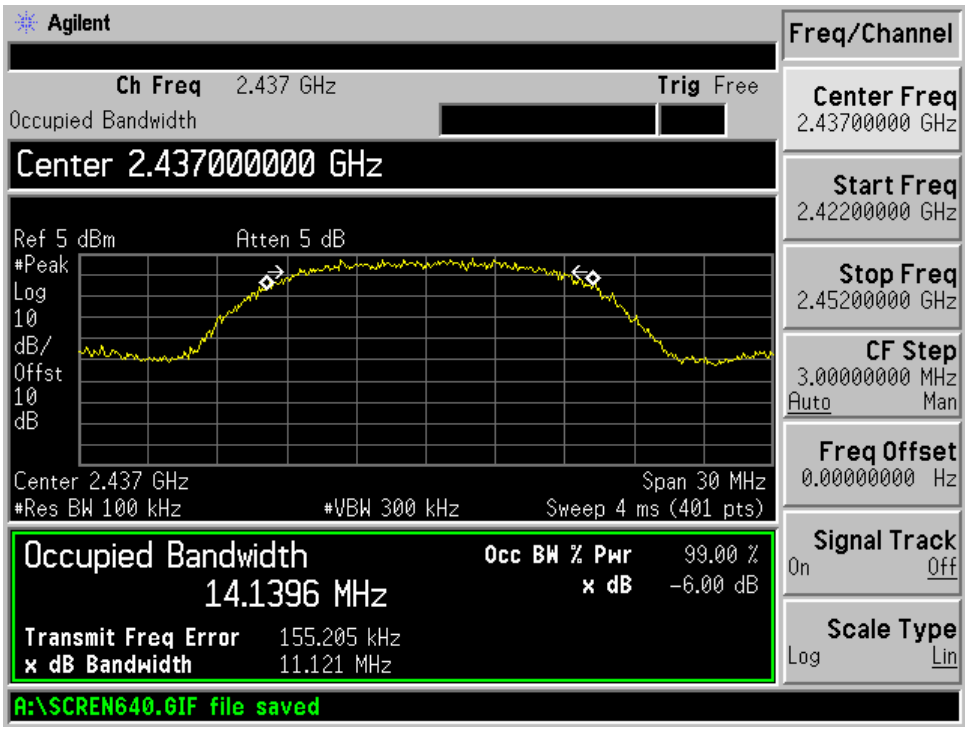
Limits for 6 dB bandwidth [Section 15.247 (a2)]:

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

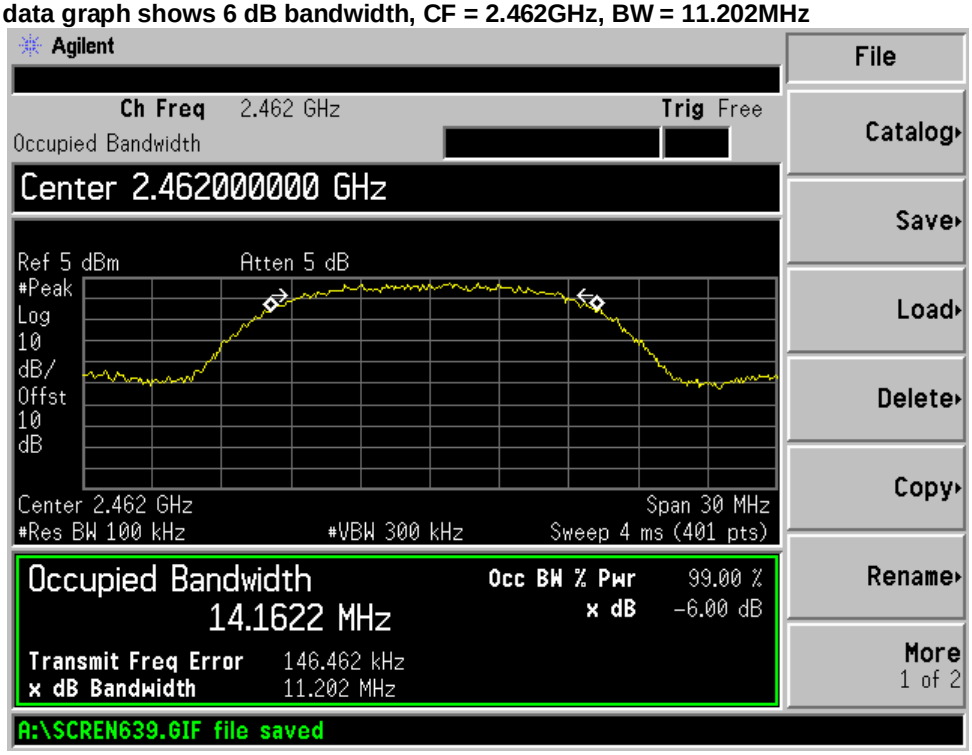
For 802.11B Mode
Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 11.202 MHz



Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 11.1210MHz



Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 11.202MHz



For 802.11G Mode

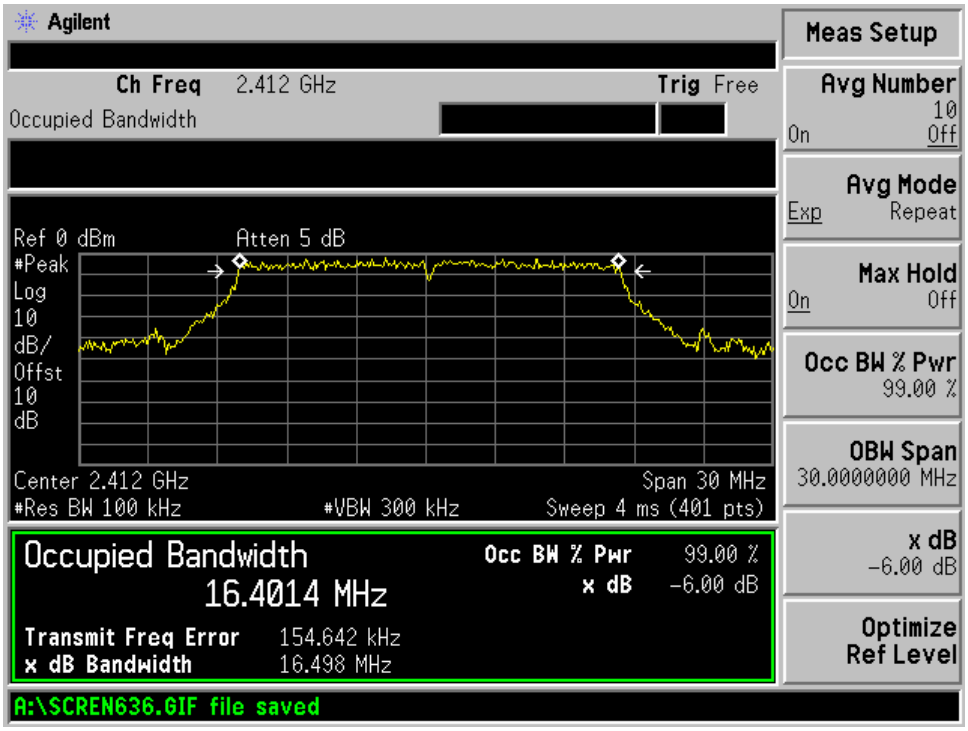
Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2.412	16.498
Middle	2.437	16.534
Highest	2.462	16.488

This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

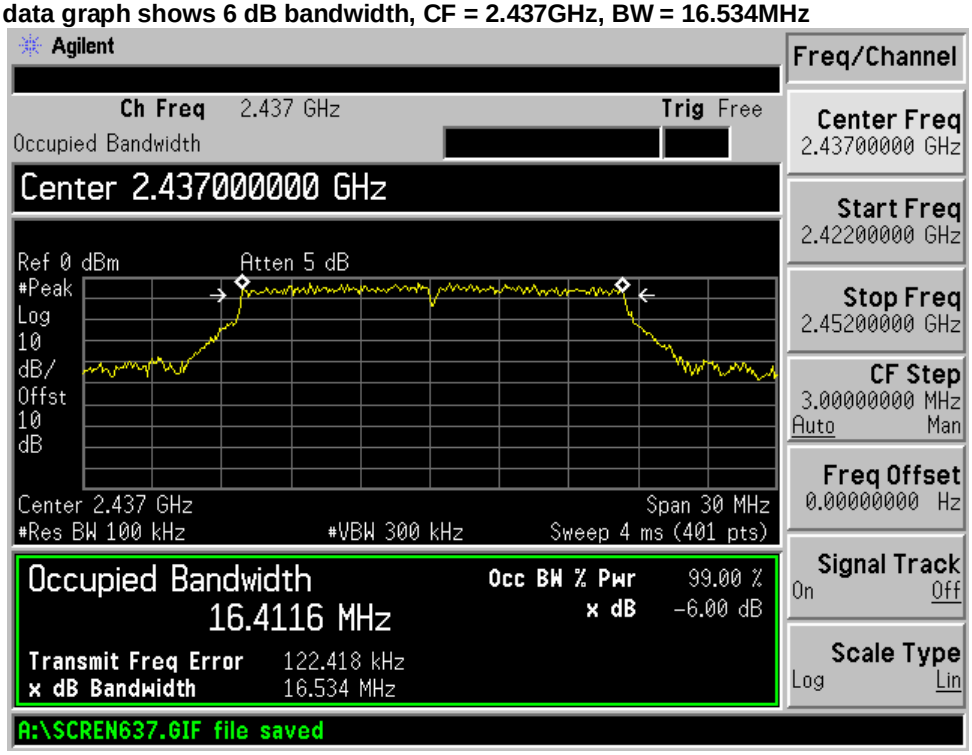
Limits for 6 dB bandwidth [Section 15.247 (a2)]:

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

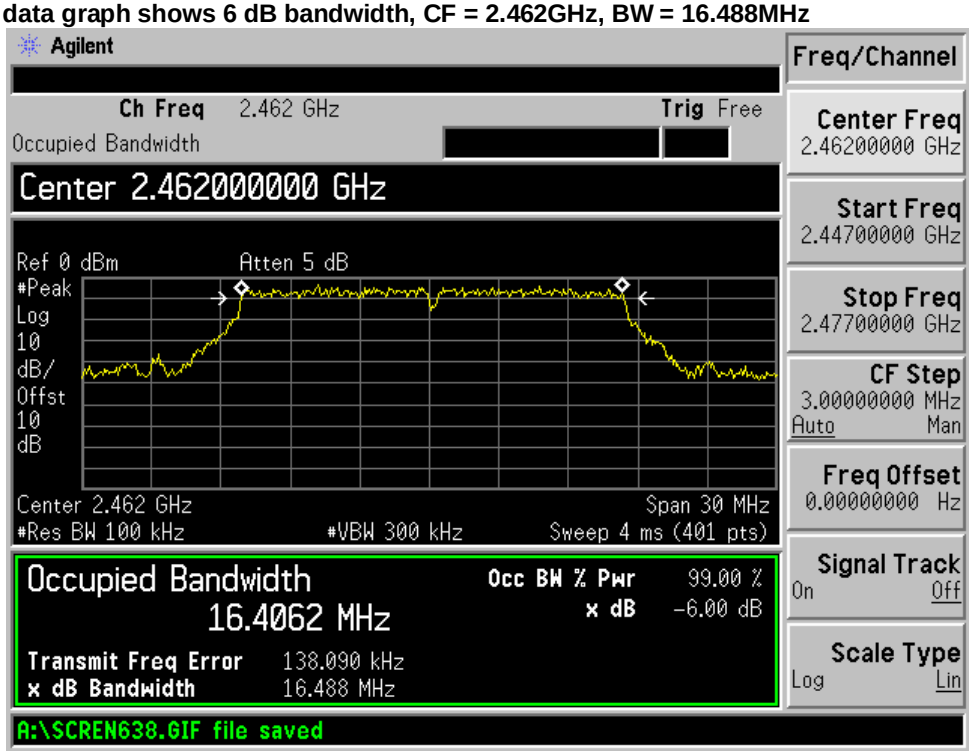
For 802.11G Mode
Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 16.498 MHz



Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 16.534MHz



Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 16.488MHz



For 802.11N HT20 Mode

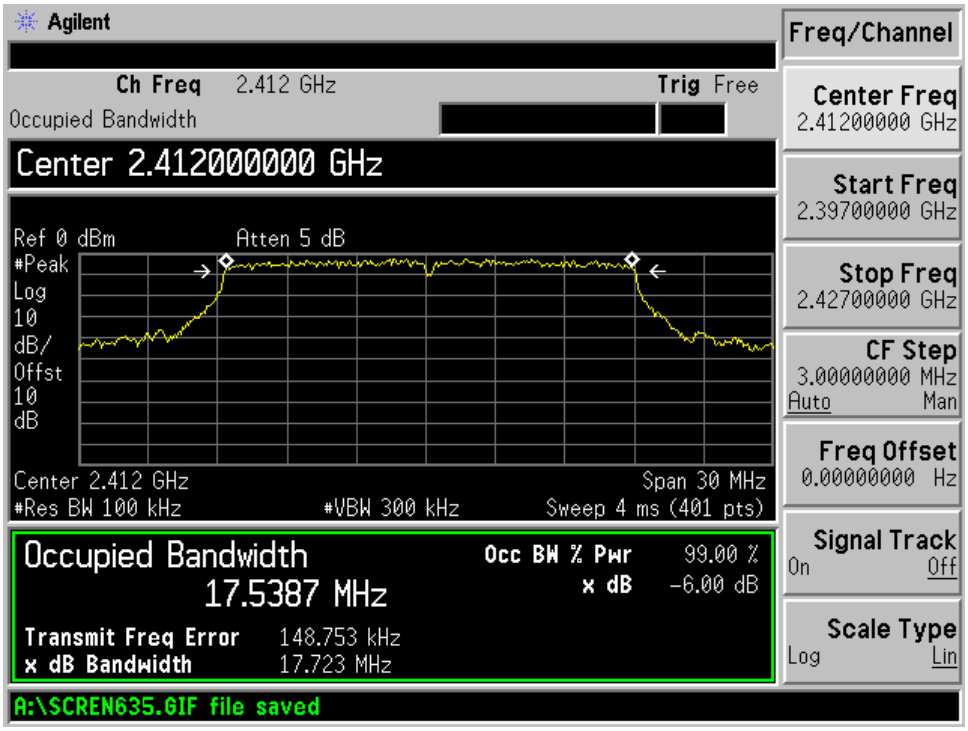
Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2.412	17.723
Middle	2.437	17.700
Highest	2.462	17.679

This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

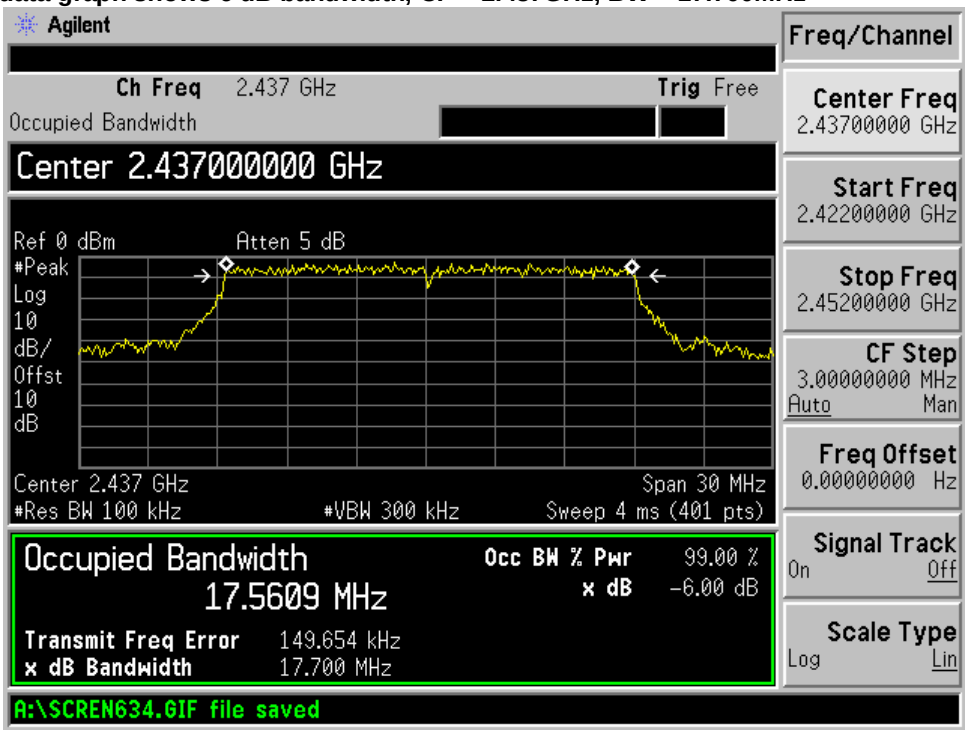
Limits for 6 dB bandwidth [Section 15.247 (a2)]:

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

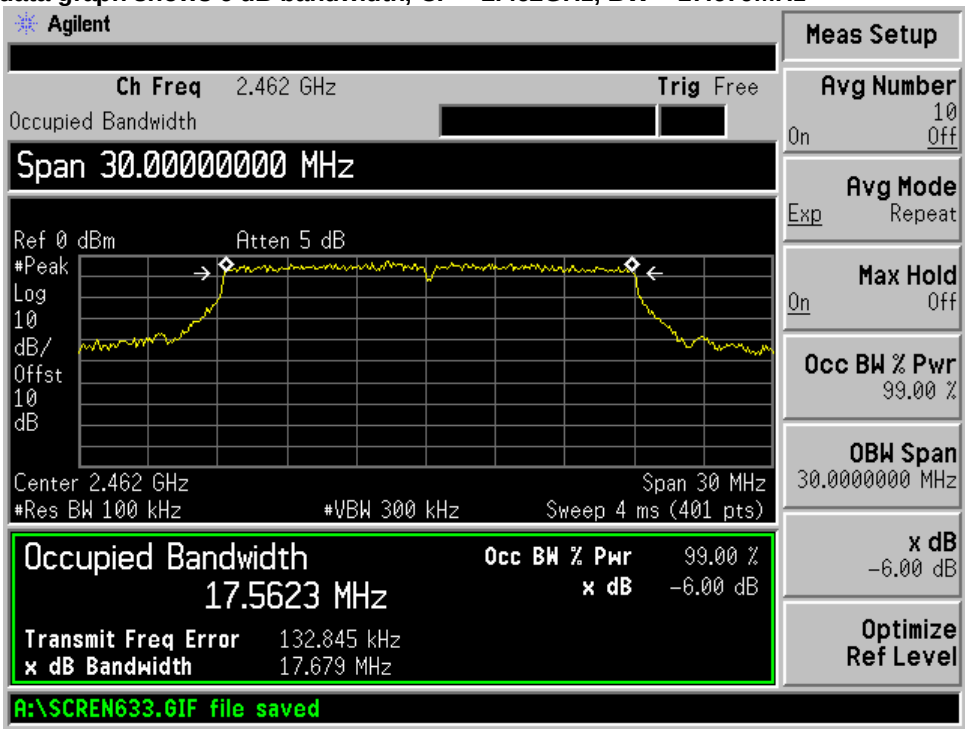
For 802.11N HT20 Mode
Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 17.723 MHz



Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 17.700MHz



Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 17.679MHz



For 802.11N HT40 Mode

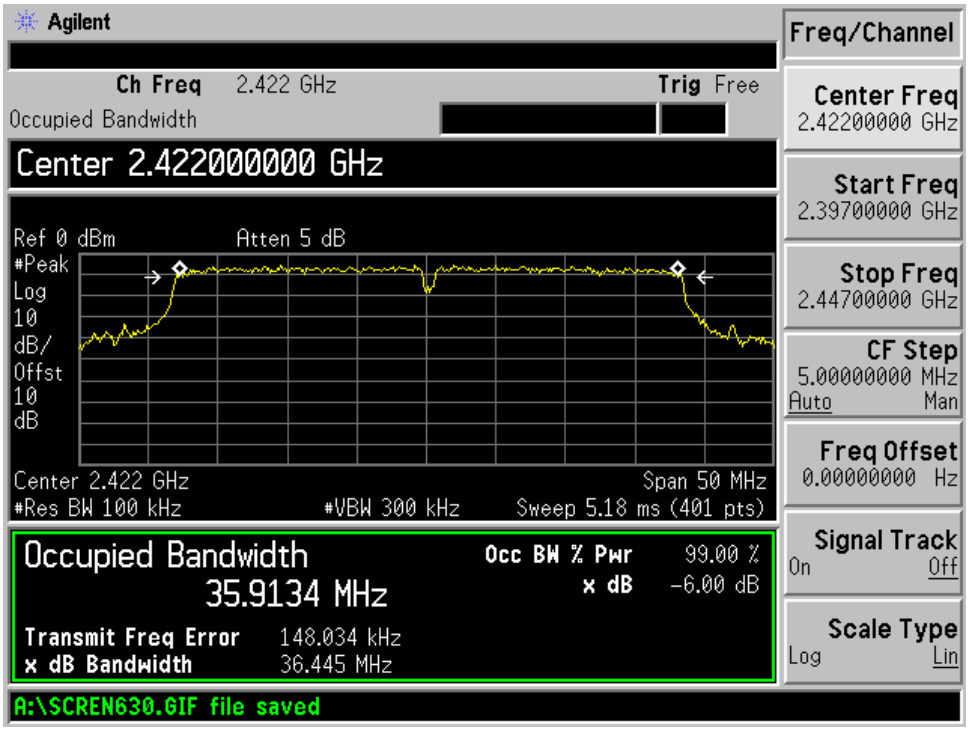
Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2.422	36.445
Middle	2.437	36.447
Highest	2.452	36.437

This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

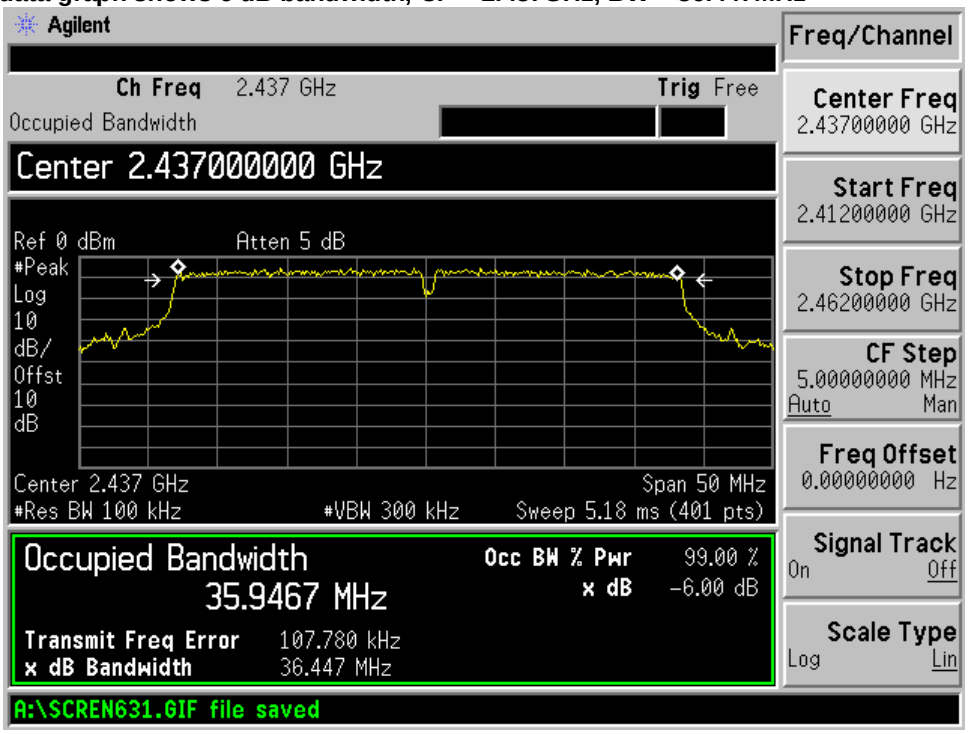
Limits for 6 dB bandwidth [Section 15.247 (a2)]:

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

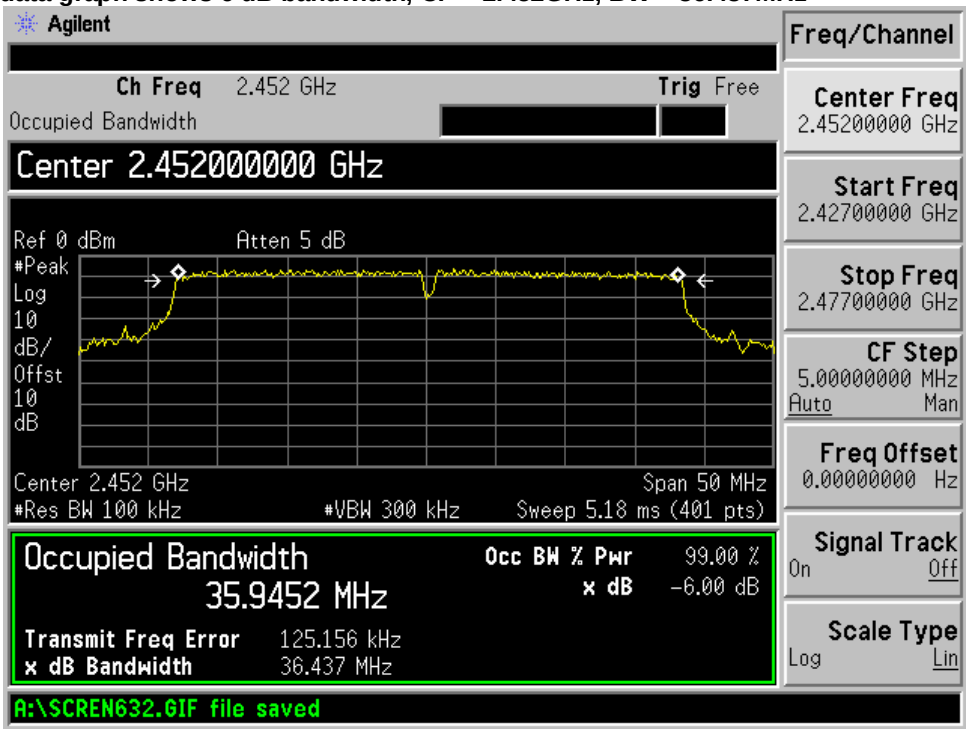
For 802.11N HT40 Mode
Result data graph shows 6 dB bandwidth, CF = 2.422GHz, BW = 36.445 MHz



Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 36.447MHz



Result data graph shows 6 dB bandwidth, CF = 2.452GHz, BW = 36.437MHz



4.2 Power Spectral Density

Test Requirement: FCC part 15 section 15.247 (e)
Test Date: 2012-01-10
Mode of Operation: Transmitting
Detector Function: Peak

Result : PASS

Measured Result :

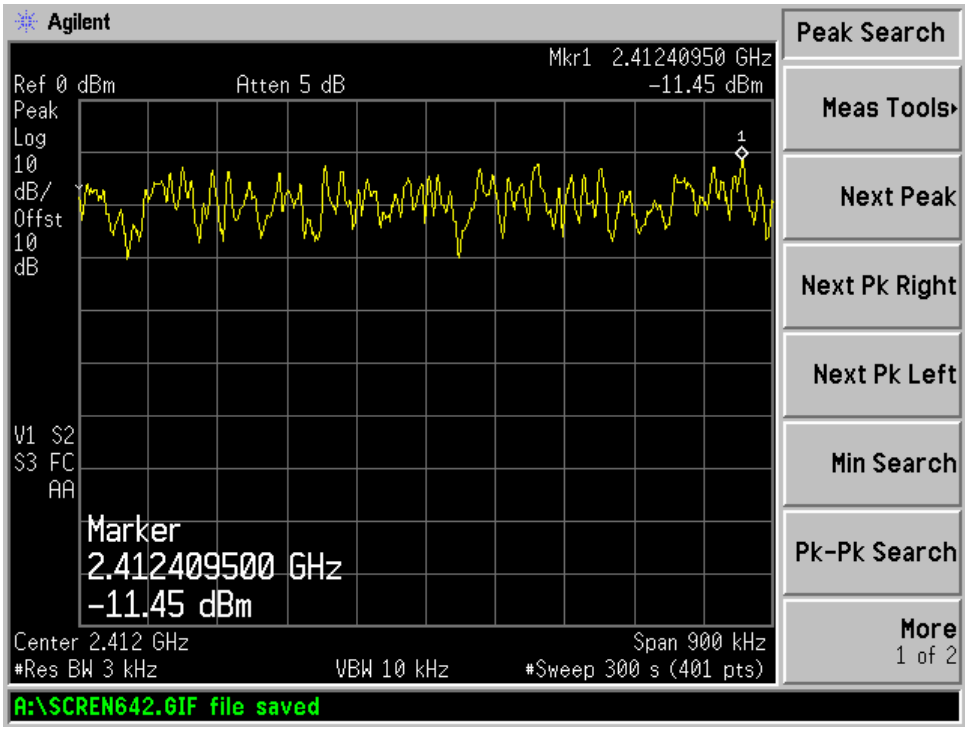
Test mode	Test channel	Corrected dBm/3kHz	Limit dBm/3kHz
802.11B	Low channel (2412MHz)	-11.45	8
	Middle channel (2437MHz)	-11.58	8
	High channel (2462MHz)	-12.19	8
802.11G	Low channel (2412MHz)	-15.73	8
	Middle channel (2437MHz)	-15.91	8
	High channel (2462MHz)	-17.09	8
802.11N HT20	Low channel (2412MHz)	-16.53	8
	Middle channel (2437MHz)	-17.07	8
	High channel (2462MHz)	-17.61	8
802.11N HT40	Low channel (2422MHz)	-19.62	8
	Middle channel (2437MHz)	-19.98	8
	High channel (2452MHz)	-20.36	8

Note: Above testing data is included of 0.5dB cable loss which between antenna port and spectrum.

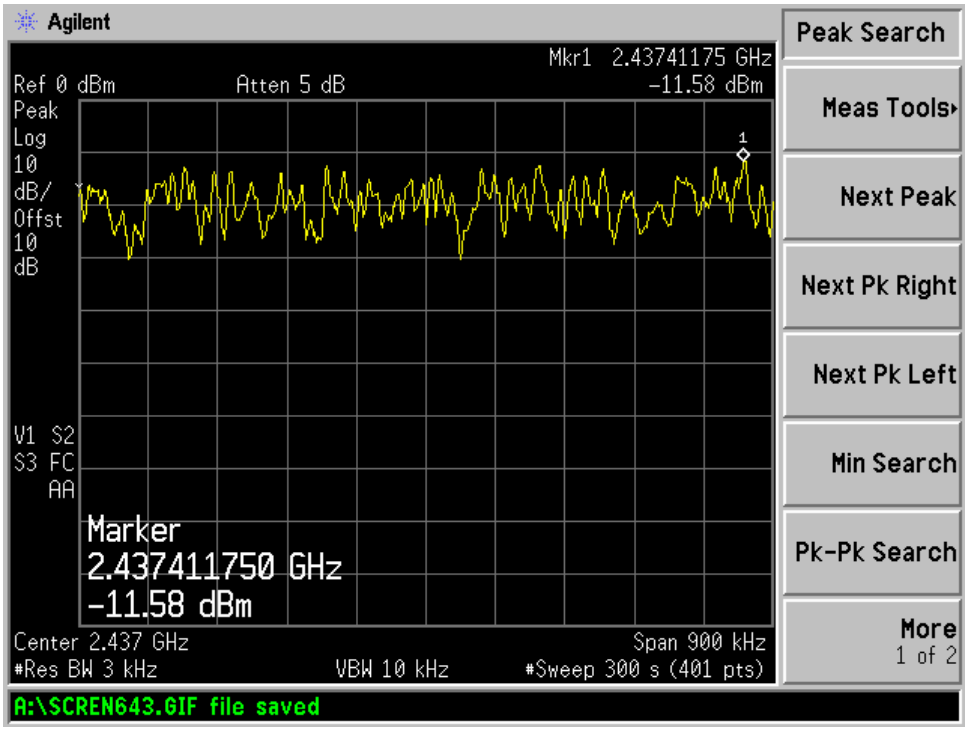
Limits for power spectral density [Section 15.247 (e)]:

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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

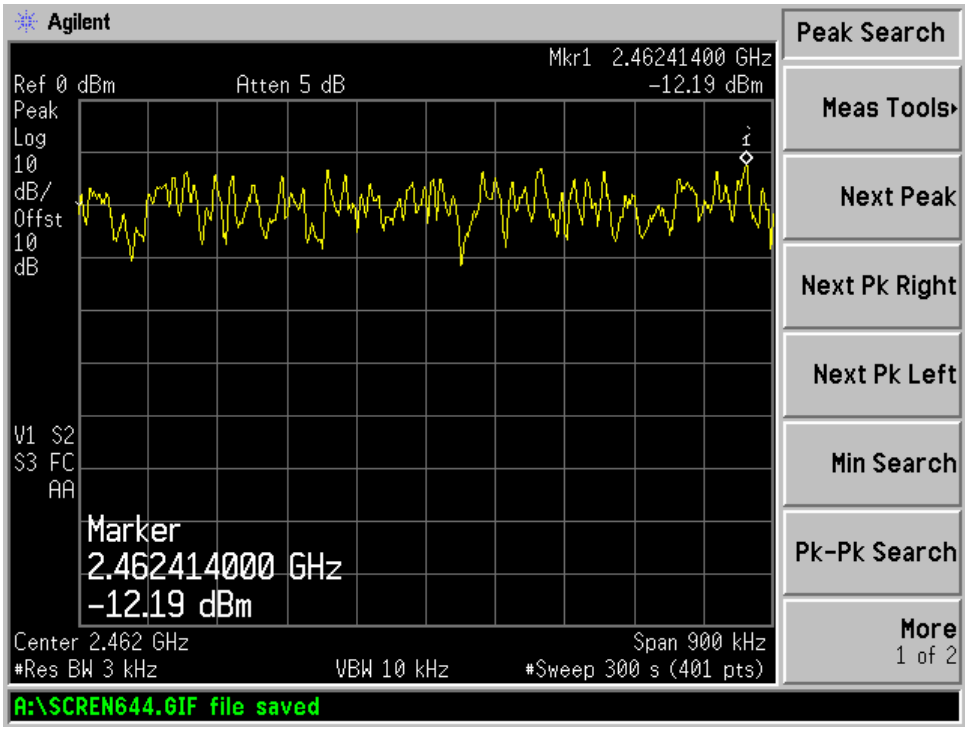
For 802.11B Mode
Result data graph shows Low channel power spectrum density is -11.45dBm at 3kHz RBW



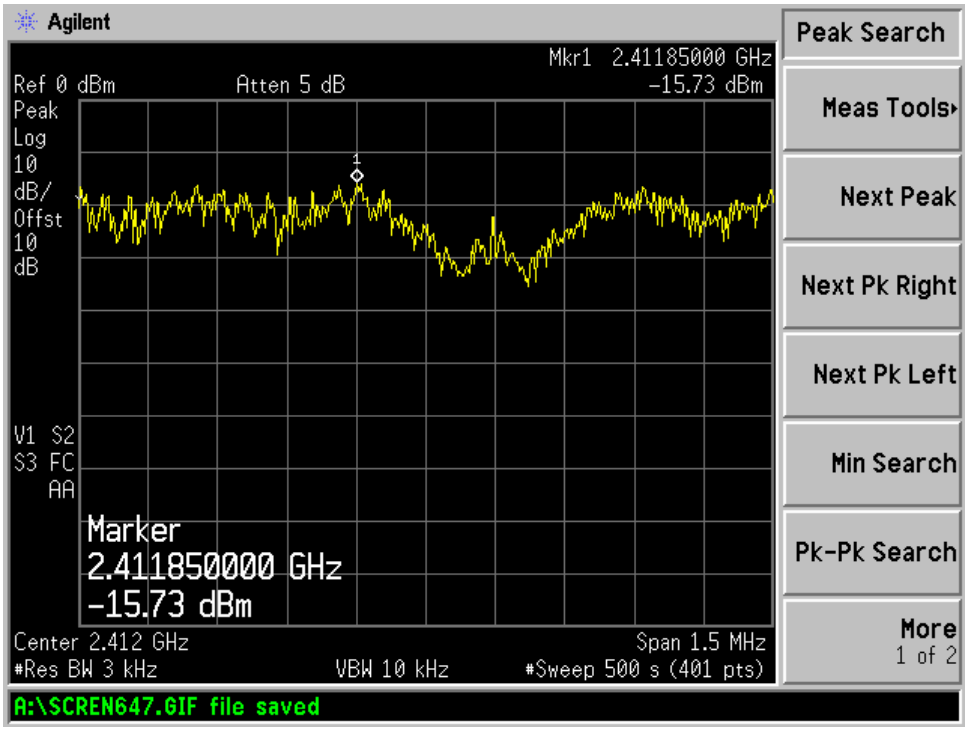
Result data graph shows middle channel power spectrum density is -11.58dBm at 3kHz RBW



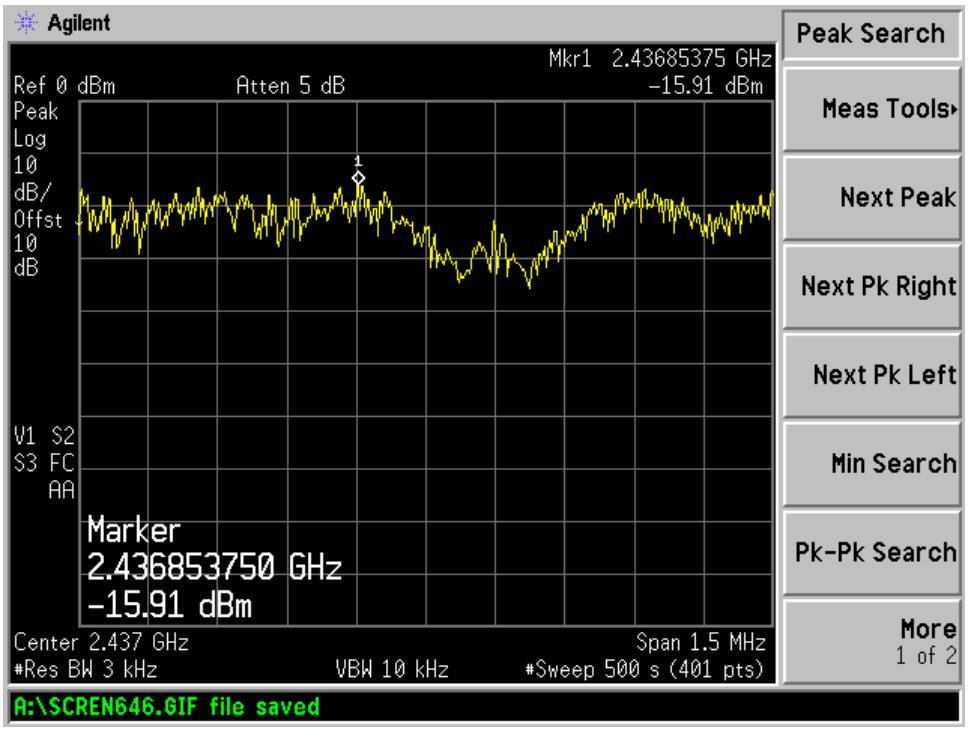
Result data graph shows high channel power spectrum density is -12.19dBm at 3kHz RBW



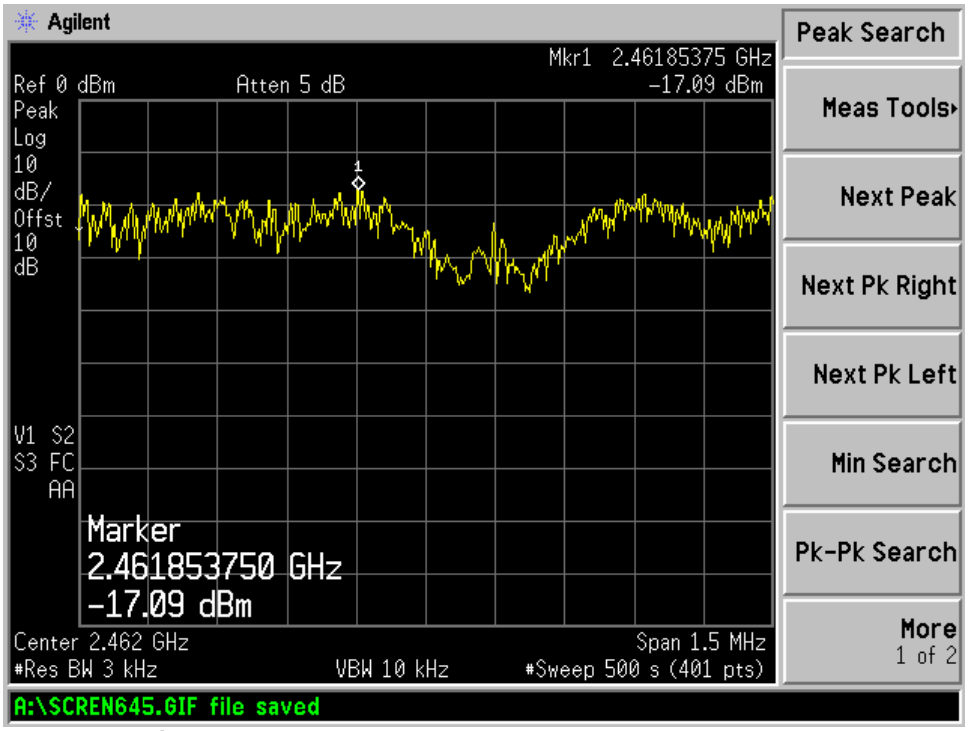
For 802.11G Mode
Result data graph shows Low channel power spectrum density is -15.73dBm at 3kHz RBW



Result data graph shows middle channel power spectrum density is -15.91dBm at 3kHz RBW

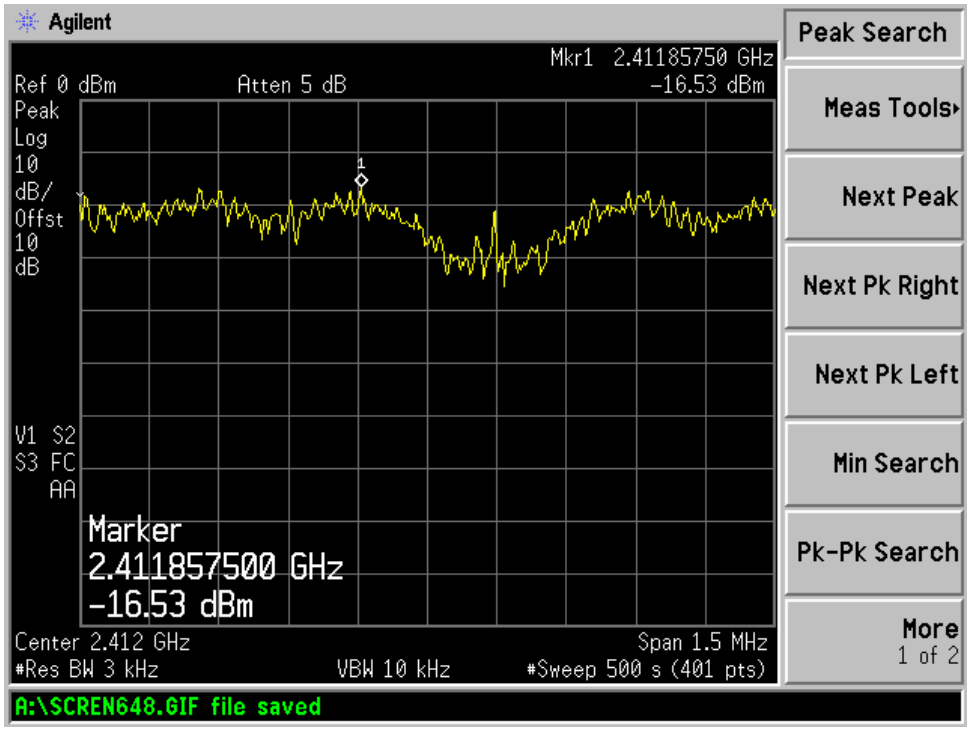


Result data graph shows high channel power spectrum density is -17.09dBm at 3kHz RBW

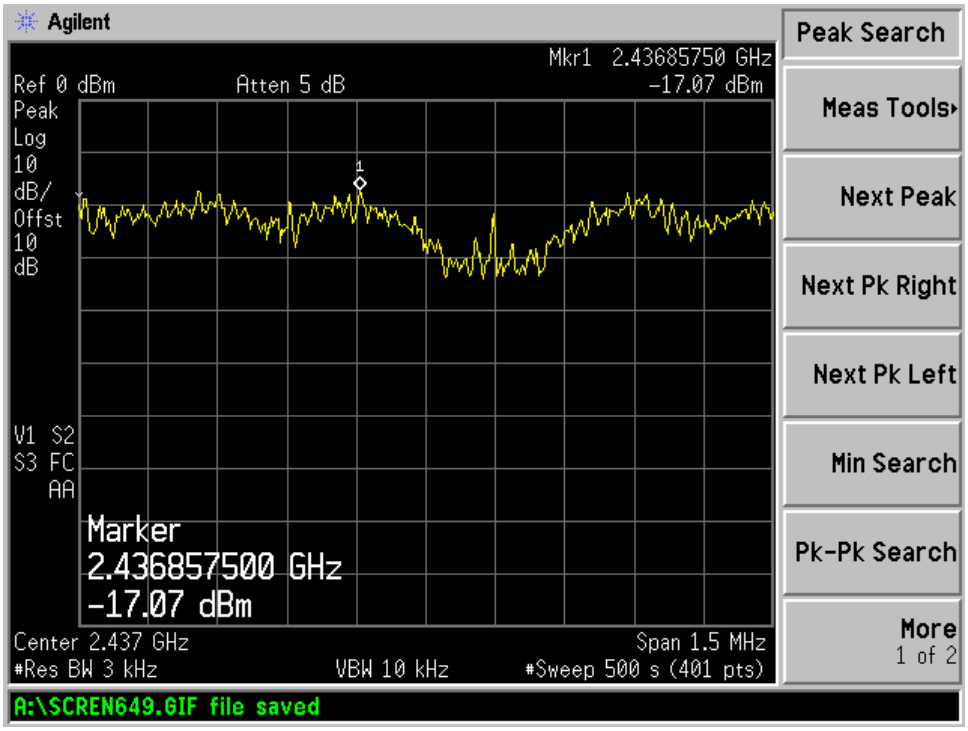


For 802.11HT20 Mode

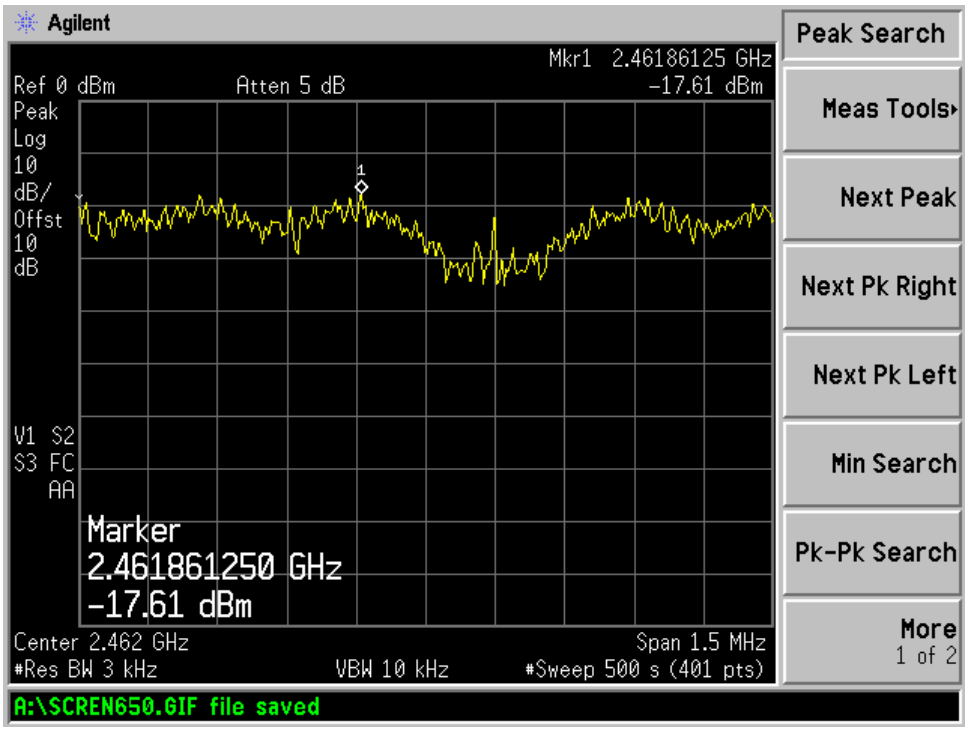
Result data graph shows Low channel power spectrum density is -16.53dBm at 3kHz RBW



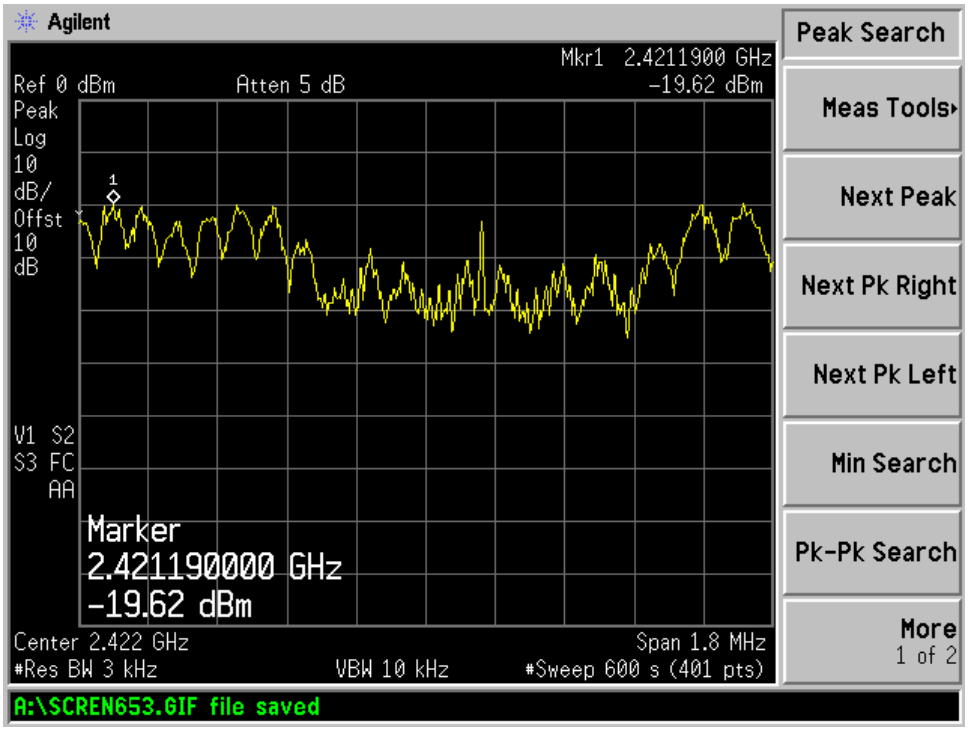
Result data graph shows middle channel power spectrum density is -17.07dBm at 3kHz RBW



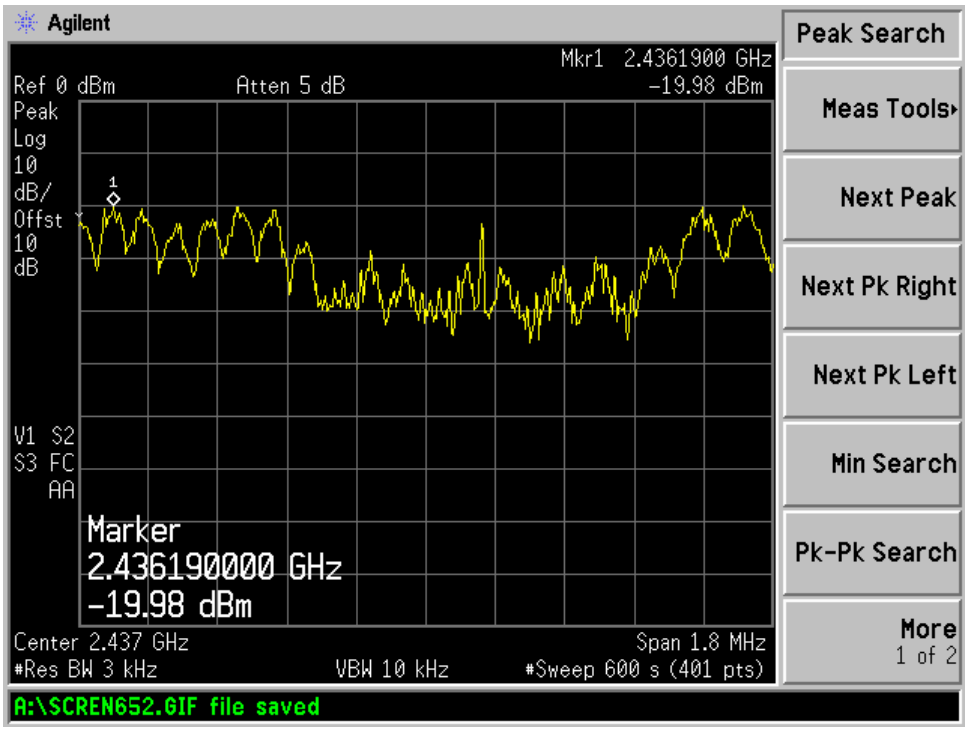
Result data graph shows high channel power spectrum density is -17.61dBm at 3kHz RBW



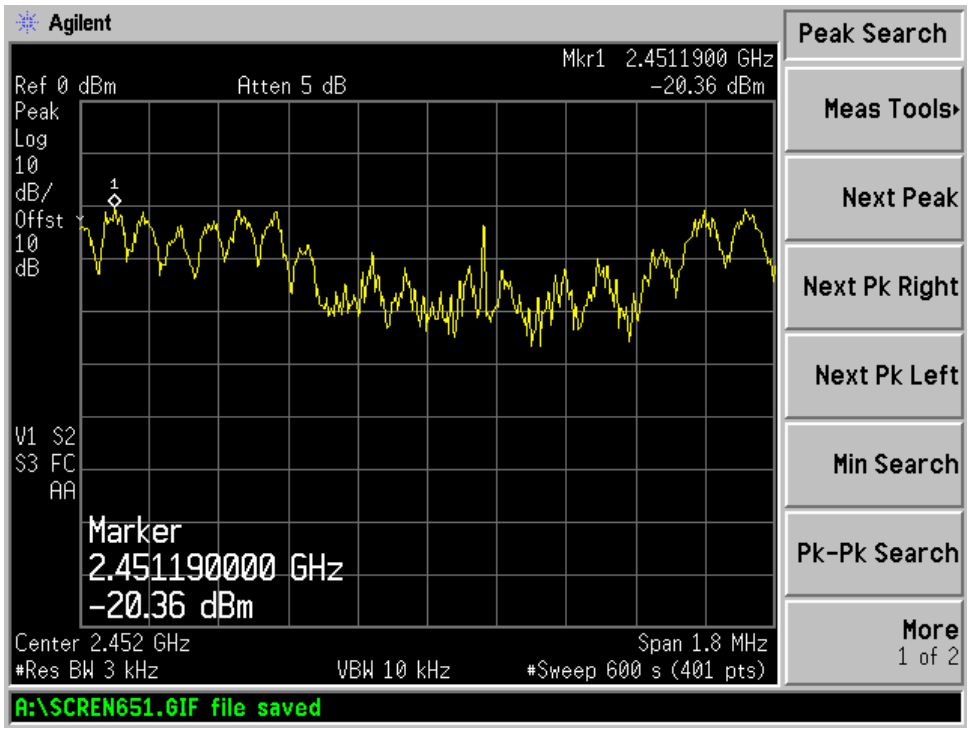
For 802.11HT40 Mode
Result data graph shows Low channel power spectrum density is -19.62dBm at 3kHz RBW



Result data graph shows middle channel power spectrum density is -19.98dBm at 3kHz RBW



Result data graph shows high channel power spectrum density is -20.36dBm at 3kHz RBW



4.3 Band Edge Measurement

Test Requirement:	FCC part 15 section 15.247
Test Date:	2012-01-11
Mode of Operation:	Transmitting mode.
Detector Function:	Max Hold

Result: PASS

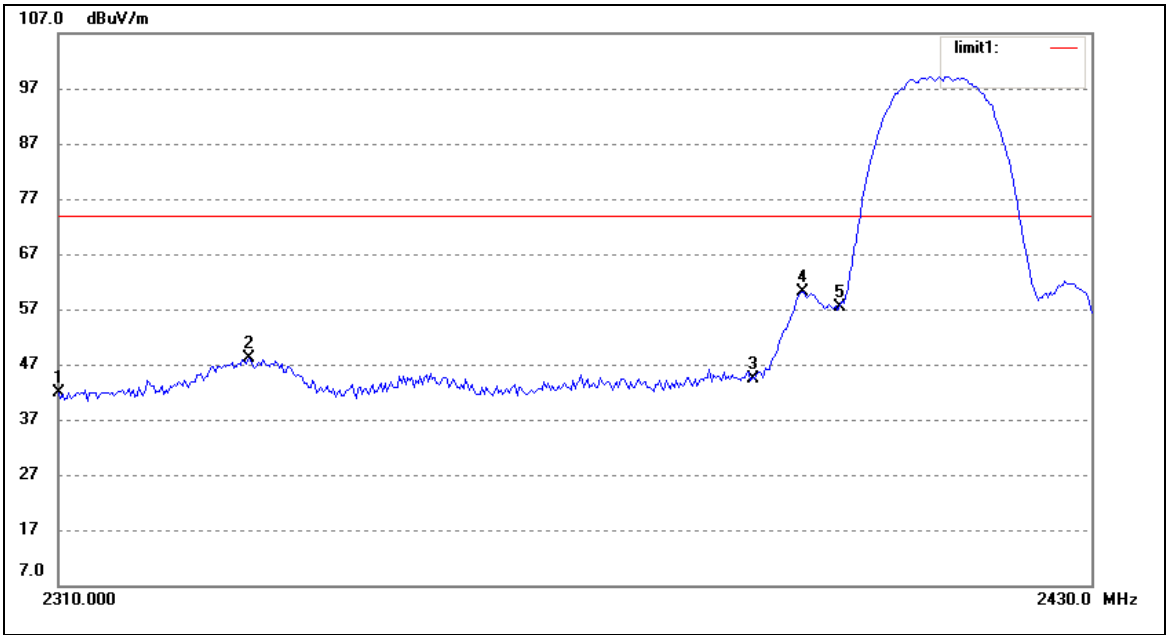
Measured Result :

Refer to the diagram and table, it shows the frequency of lower band edge and upper band edge is 2.412GHz and 2.462GHz separately.

Limits of Band Edge for Carrier Frequencies Operated within the Bands [Section 15.247]:

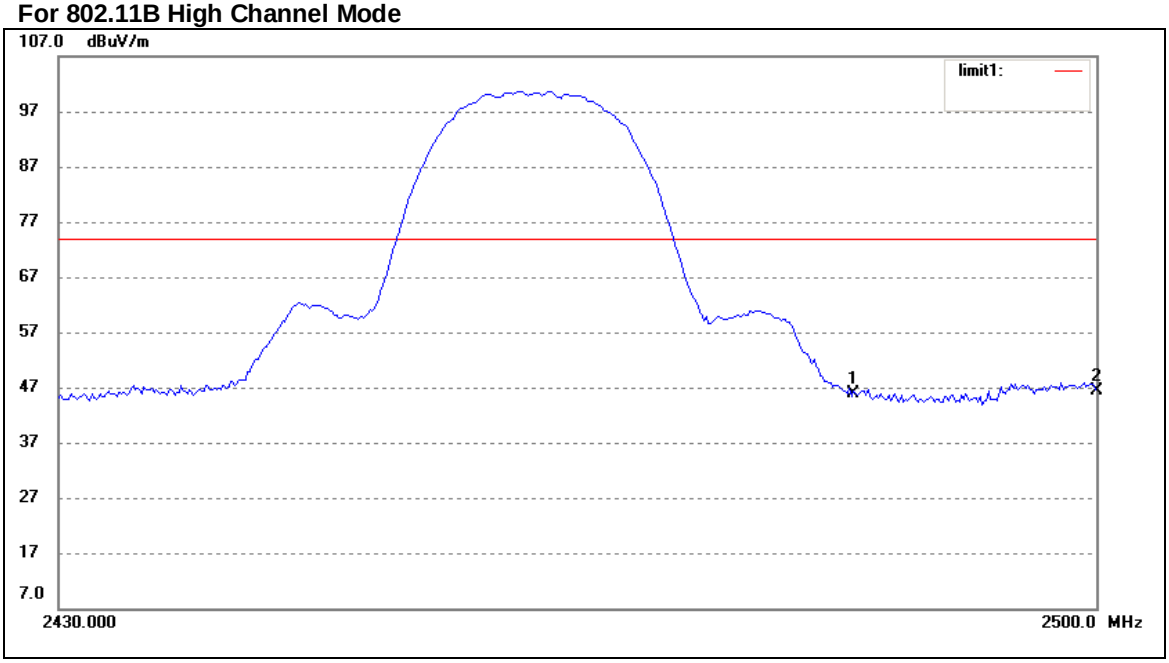
The carrier frequencies should operate within 2400-2483.5MHz.

Result data graph shows the frequency of lowest channel.
For 802.11B Low Channel Mode



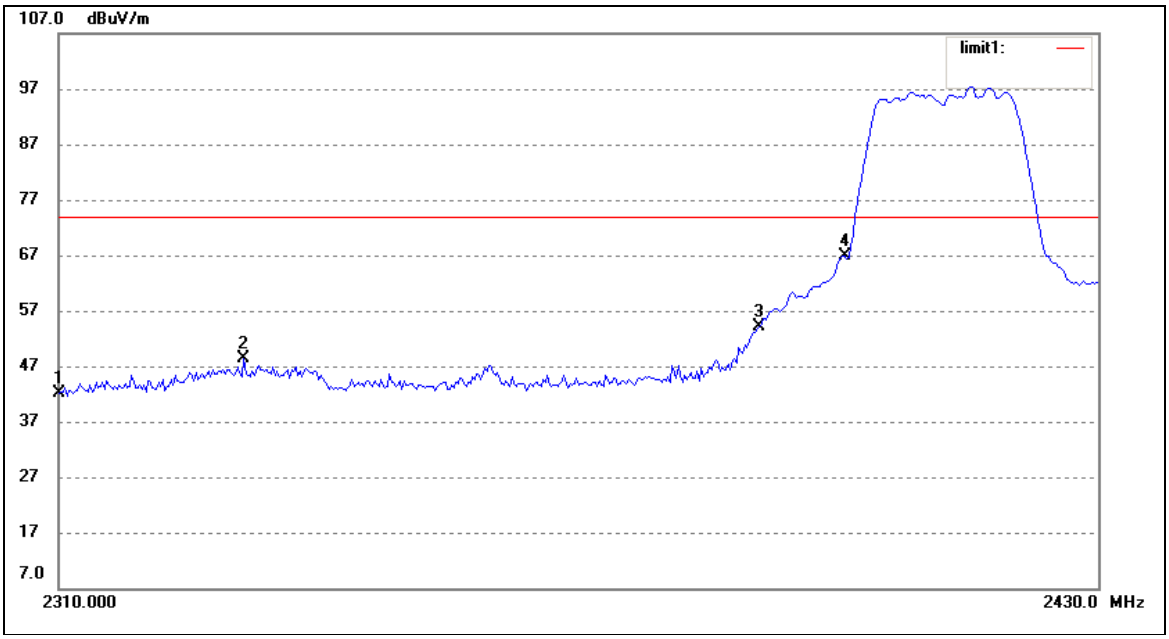
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	49.34	-7.51	41.83	74.00	-32.17	peak
2	2331.626	55.62	-7.47	48.15	74.00	-25.85	peak
3	2390.000	51.60	-7.34	44.26	74.00	-29.74	peak
4	2395.785	67.44	-7.32	60.12	74.00	-13.88	peak
5	2400.000	64.81	-7.31	57.50	74.00	-16.50	peak
6	2412.832	106.52	-7.28	99.24	fundamental		peak

For 802.11B High Channel Mode



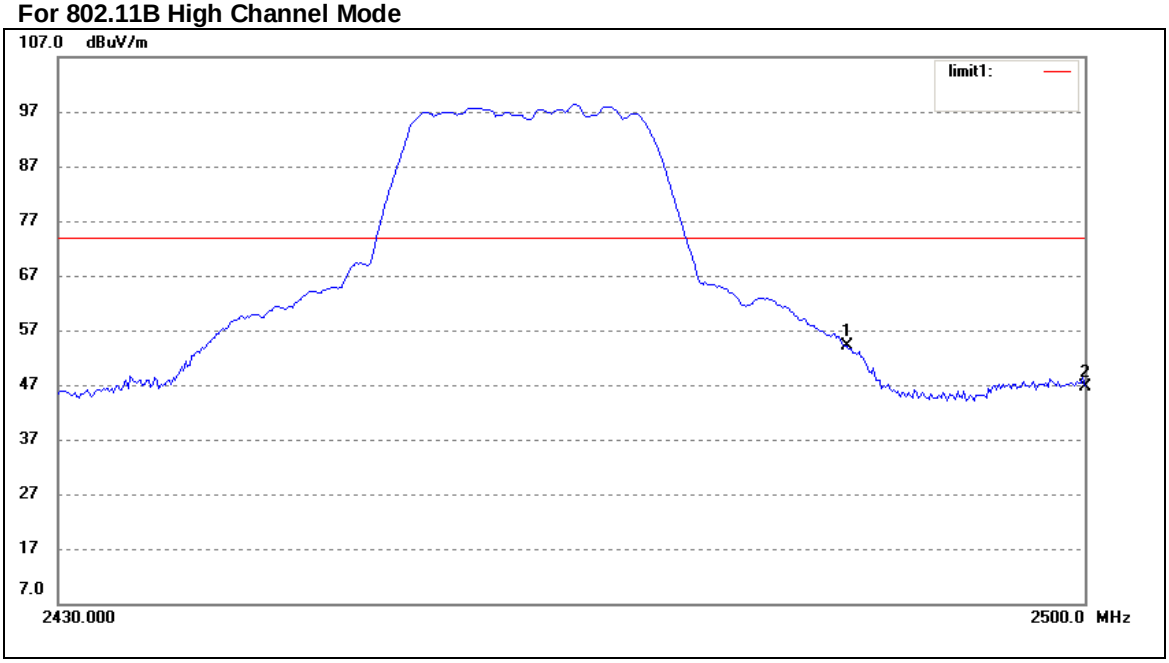
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	52.91	-7.13	45.78	74.00	-28.22	peak
2	2500.000	53.54	-7.08	46.46	74.00	-27.54	peak

For 802.11G Low Channel Mode



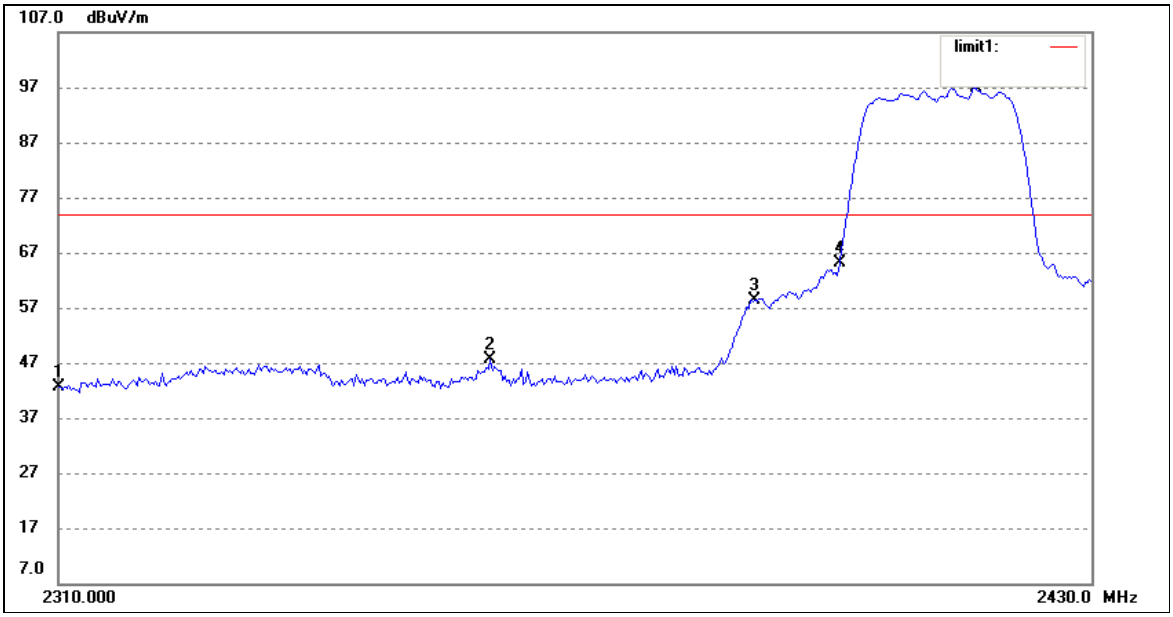
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	49.55	-7.51	42.04	74.00	-31.96	peak
2	2330.918	55.86	-7.47	48.39	74.00	-25.61	peak
3	2390.000	61.51	-7.34	54.17	74.00	-19.83	peak
4	2400.000	74.20	-7.31	66.89	74.00	-7.11	peak
5	2415.032	104.76	-7.28	97.48	fundamental		peak

For 802.11B High Channel Mode



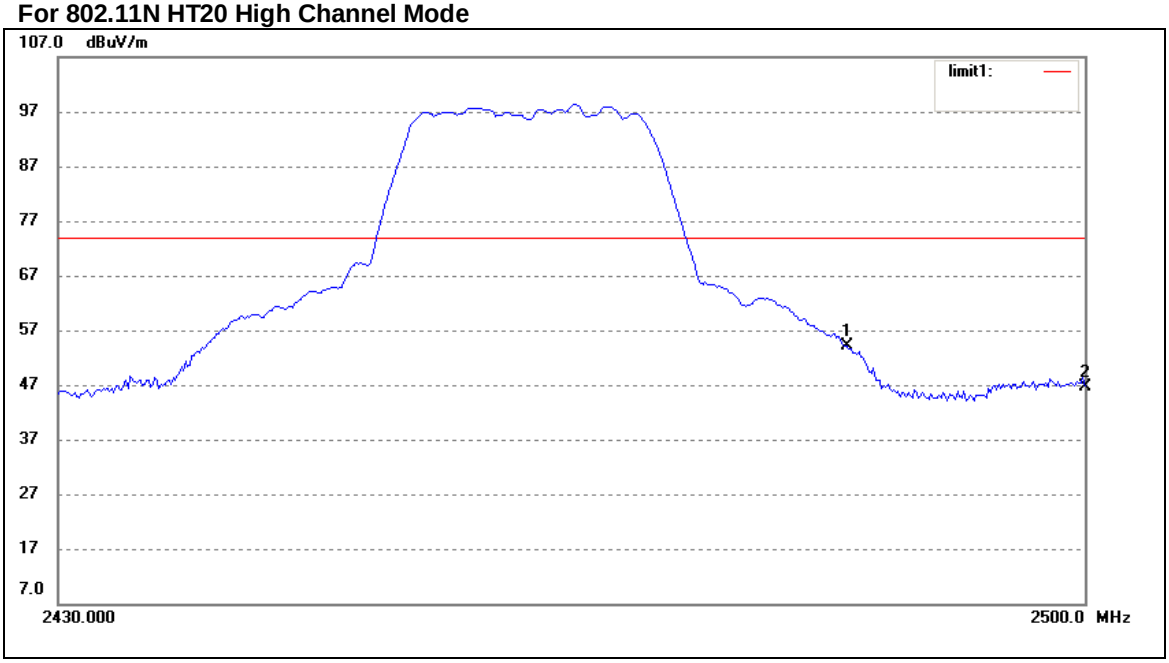
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	61.38	-7.13	54.25	74.00	-19.75	peak
2	2500.000	53.71	-7.08	46.63	74.00	-27.37	peak

For 802.11N HT20 Low Channel Mode



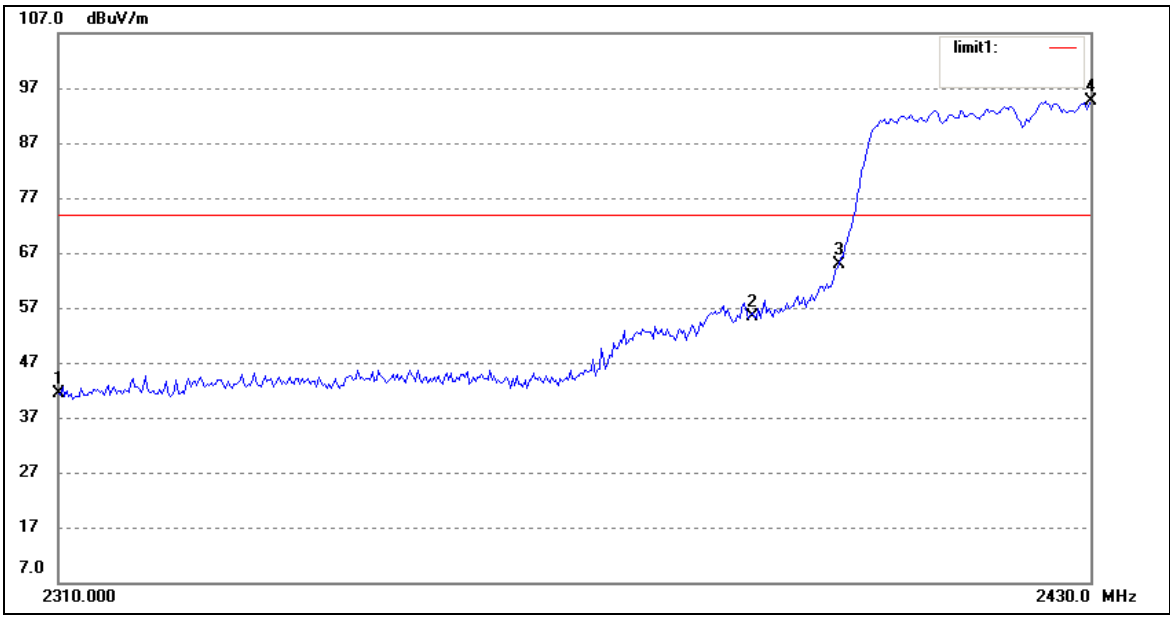
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	50.21	-7.51	42.70	74.00	-31.30	peak
2	2359.422	54.97	-7.40	47.57	74.00	-26.43	peak
3	2390.000	65.72	-7.34	58.38	74.00	-15.62	peak
4	2400.000	72.37	-7.31	65.06	74.00	-8.94	peak
5	2416.256	104.25	-7.27	96.98	fundamental		peak

For 802.11N HT20 High Channel Mode



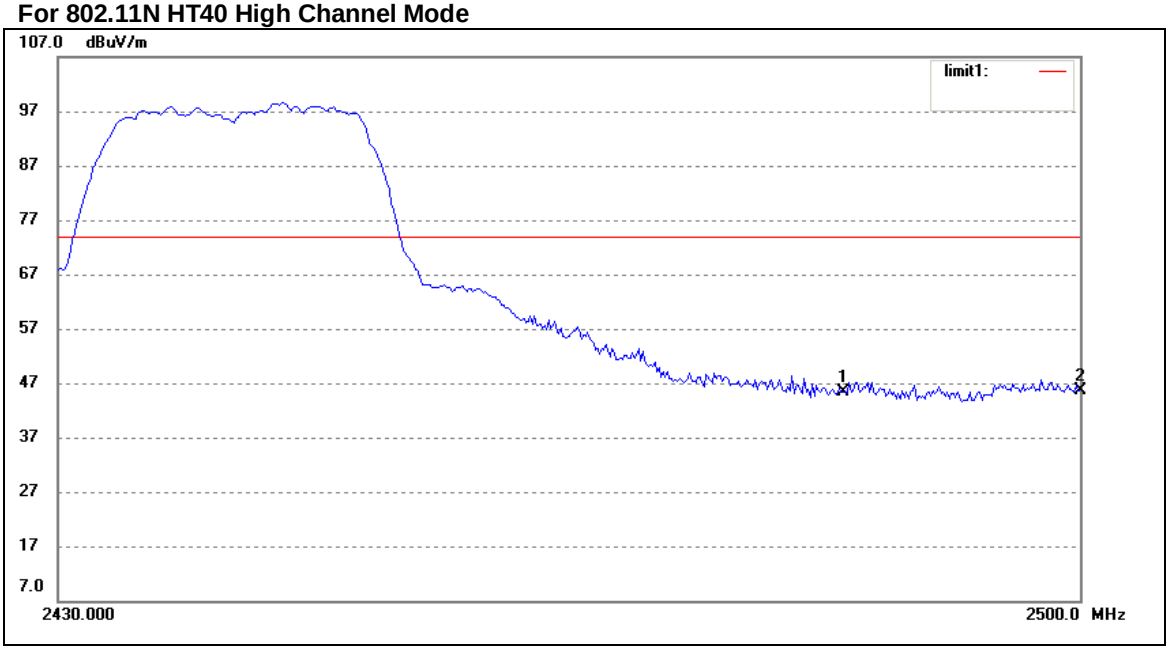
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	66.29	-7.13	59.16	74.00	-14.84	peak
2	2500.000	54.04	-7.08	46.96	74.00	-27.04	peak

For 802.11N HT40 Low Channel Mode



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	48.77	-7.51	41.26	74.00	-32.74	peak
2	2390.000	62.78	-7.34	55.44	74.00	-18.56	peak
3	2400.000	72.27	-7.31	64.96	74.00	-9.04	peak
4	2430.000	101.77	-7.24	94.53	fundamental		peak

For 802.11N HT40 High Channel Mode



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	52.43	-7.13	45.30	74.00	-28.70	peak
2	2500.000	52.68	-7.08	45.60	74.00	-28.40	peak

4.4 Maximum Output Power

Test Requirement:	FCC part 15 section 15.247 (b3)
Test Method:	ANSI C63.4:2003
Test Date:	2012-01-10
Mode of Operation:	Transmitting mode.
Detector Function:	Peak
Measurement BW:	RBW 1MHz ; VBW 3MHz

Test Procedure :

According to section 15.247(b)-power output of the KDB-558074 (2005), the method #1 of the power output option2 was used, the following is the measurement procedure.

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.

2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz.

4. Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode.

5. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.

6. Trace average 100 traces in power averaging mode.

7. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges.

Result : PASS

Transmitting Mode: Transmits continuously

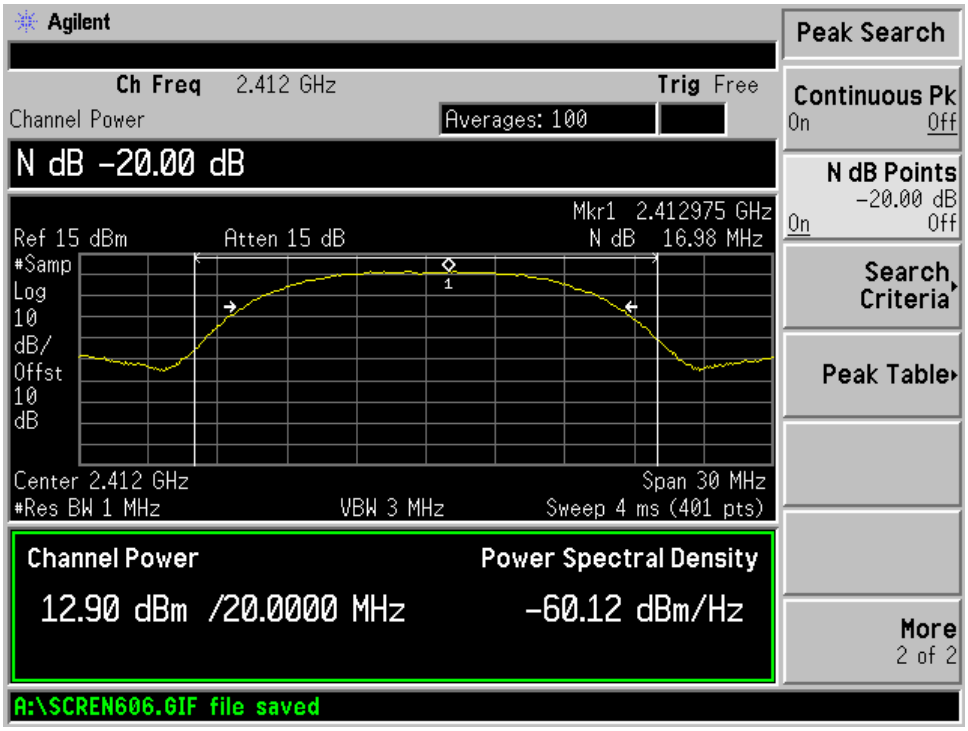
Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11b 1Mbps	2412	12.90	19.50	1000
	2437	12.42	17.46	1000
	2462	11.66	14.66	1000
802.11b 11Mbps	2412	12.22	16.67	1000
	2437	12.28	16.90	1000
	2462	11.85	15.31	1000
802.11g 6Mbps	2412	9.52	8.95	1000
	2437	9.13	8.18	1000
	2462	8.44	6.98	1000
802.11g 54Mbps	2412	10.08	10.18	1000
	2437	8.86	7.69	1000
	2462	8.47	7.03	1000
802.11n HT20 MCS0	2412	9.57	9.05	1000
	2437	9.87	9.70	1000
	2462	8.46	7.02	1000
802.11n HT20 MCS15	2412	9.54	9.00	1000
	2437	9.01	7.96	1000
	2462	9.19	8.30	1000
802.11n HT40 MCS0	2422	9.51	8.93	1000
	2437	9.18	8.28	1000
	2452	8.78	7.55	1000
802.11n HT40 MCS15	2422	9.74	9.42	1000
	2437	9.27	8.45	1000
	2452	8.71	7.43	1000

Note: Above testing data is included of 0.5dB cable loss which between antenna port and spectrum.

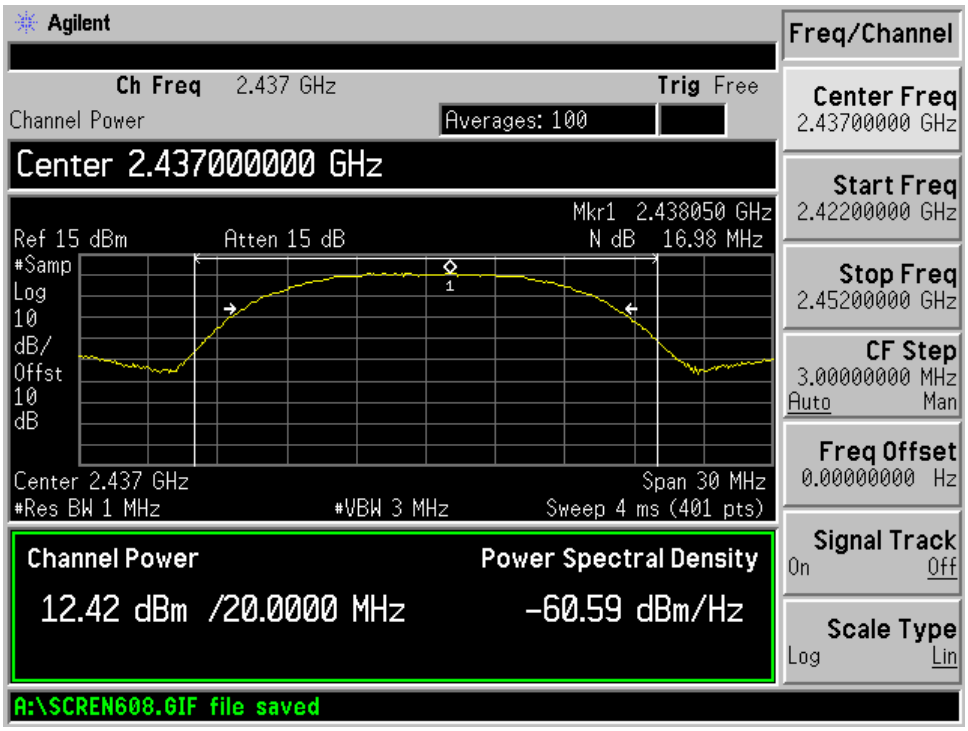
Limits for Maximum Output Power [Section 15.247 (b3)]:

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

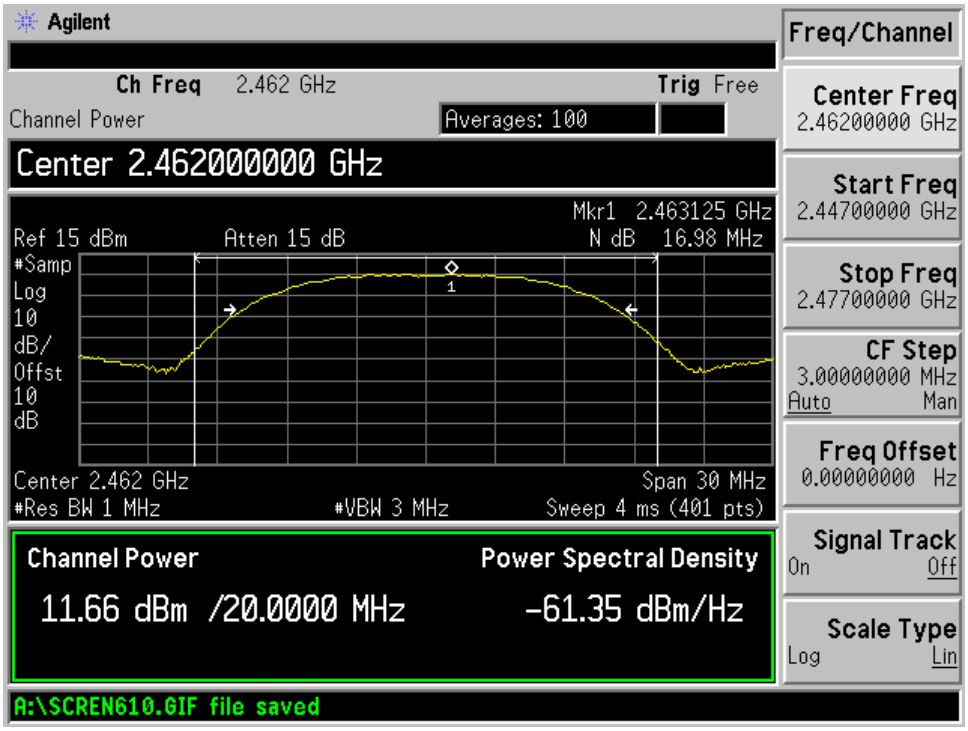
For 802.11B 1Mbps Mode
Result data graph shows Low channel conducted power = 12.90dBm



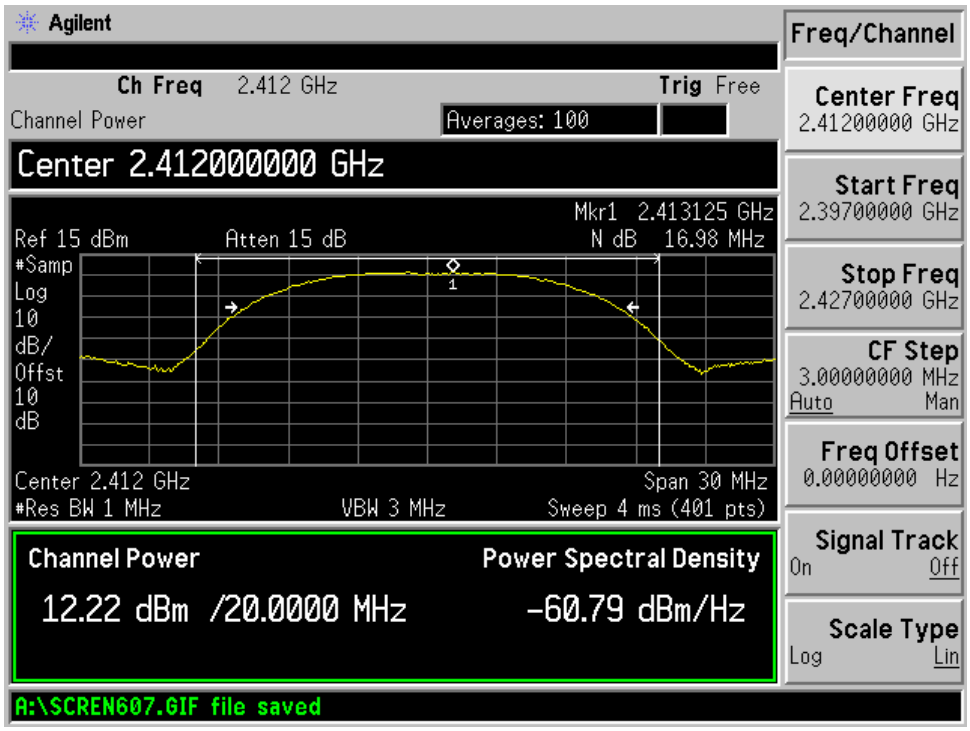
Result data graph shows middle channel conducted power = 12.42dBm



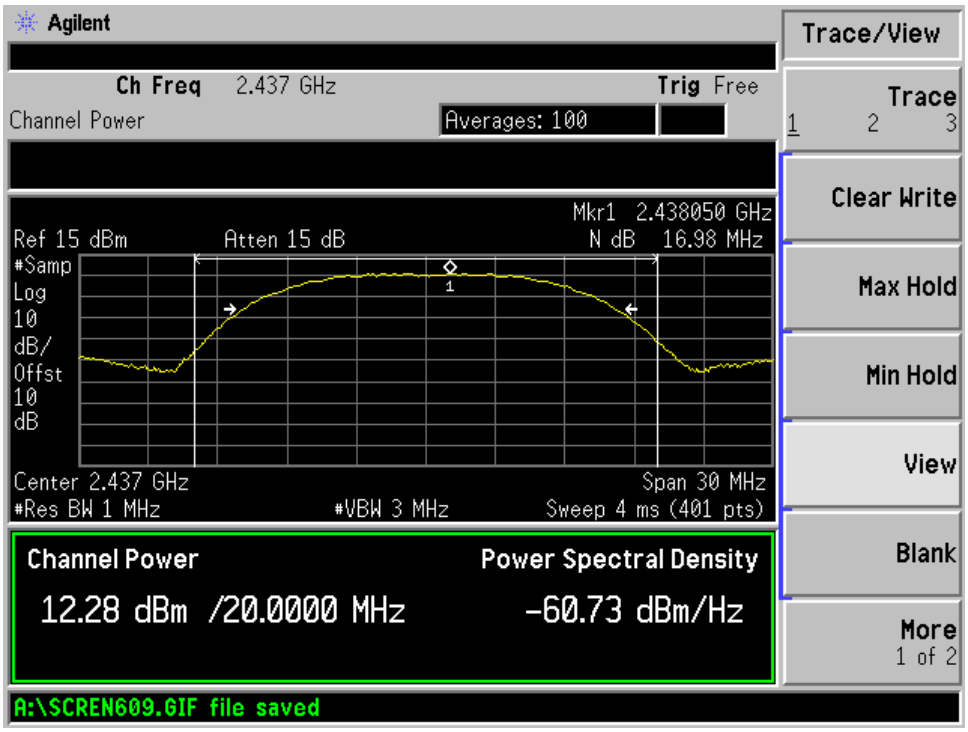
Result data graph shows high channel conducted power = 11.66dBm



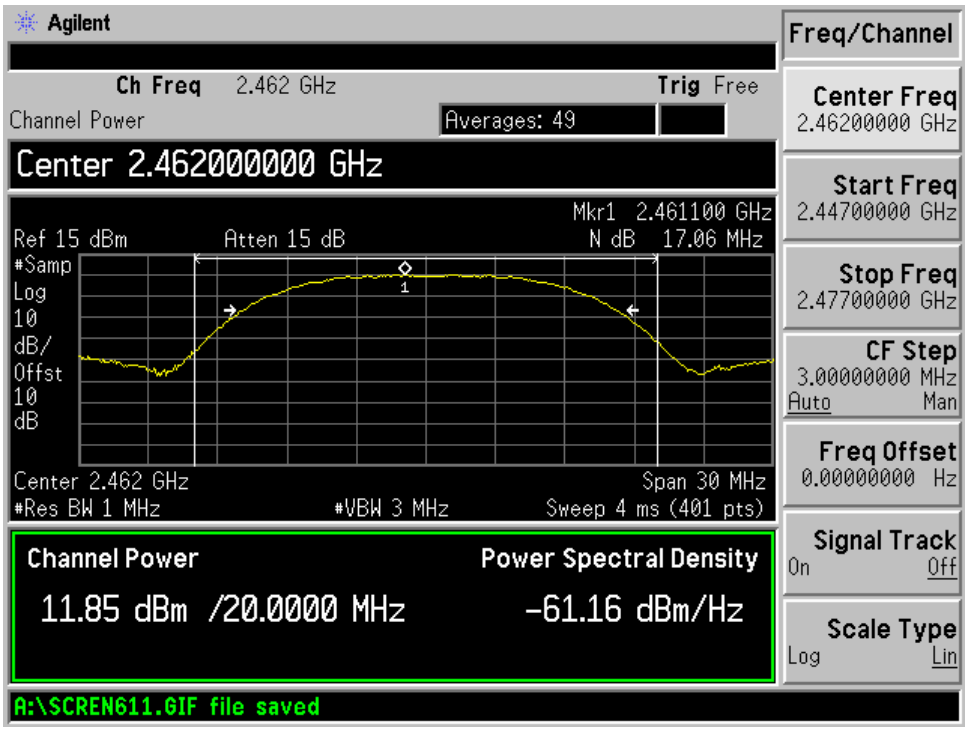
For 802.11B 11Mbps Mode
Result data graph shows Low channel conducted power = 12.22dBm



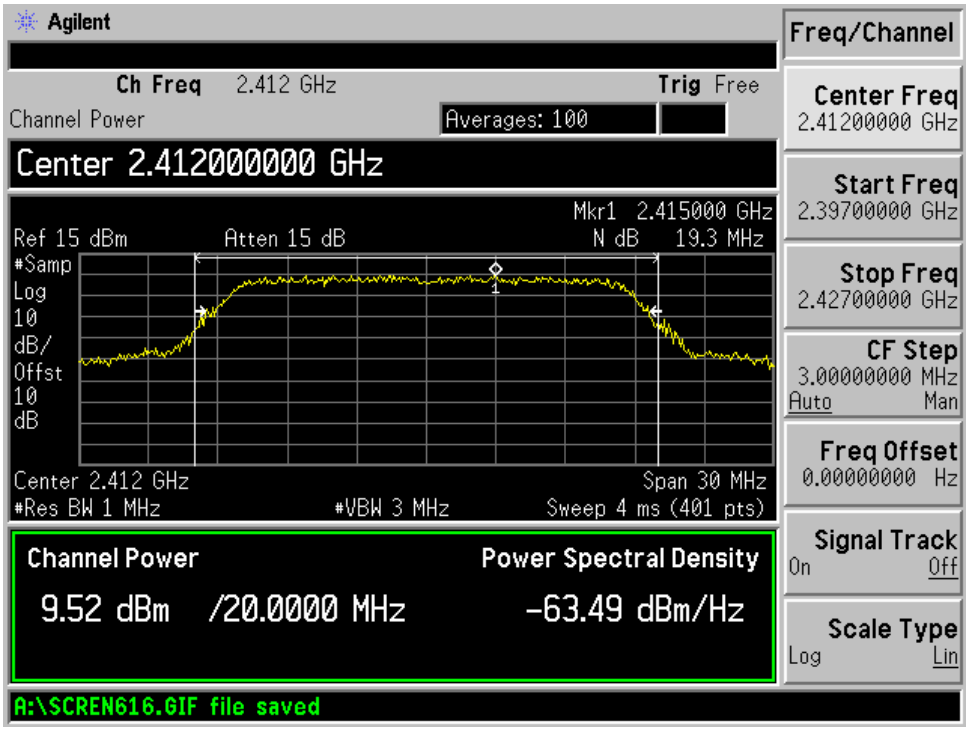
Result data graph shows middle channel conducted power = 12.28dBm



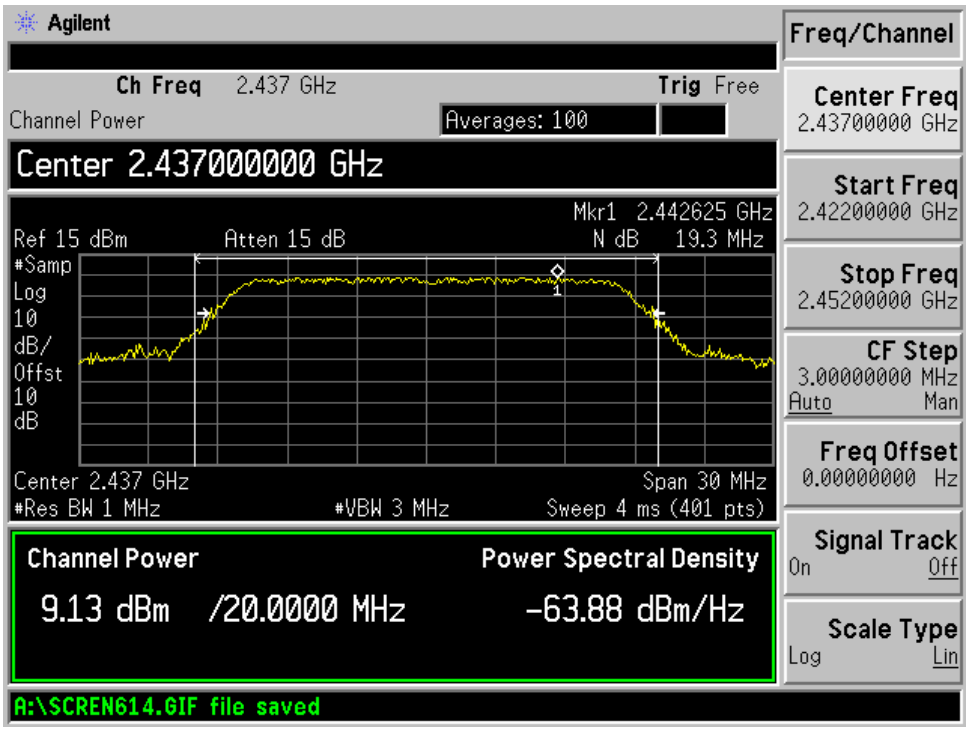
Result data graph shows high channel conducted power = 11.85dBm



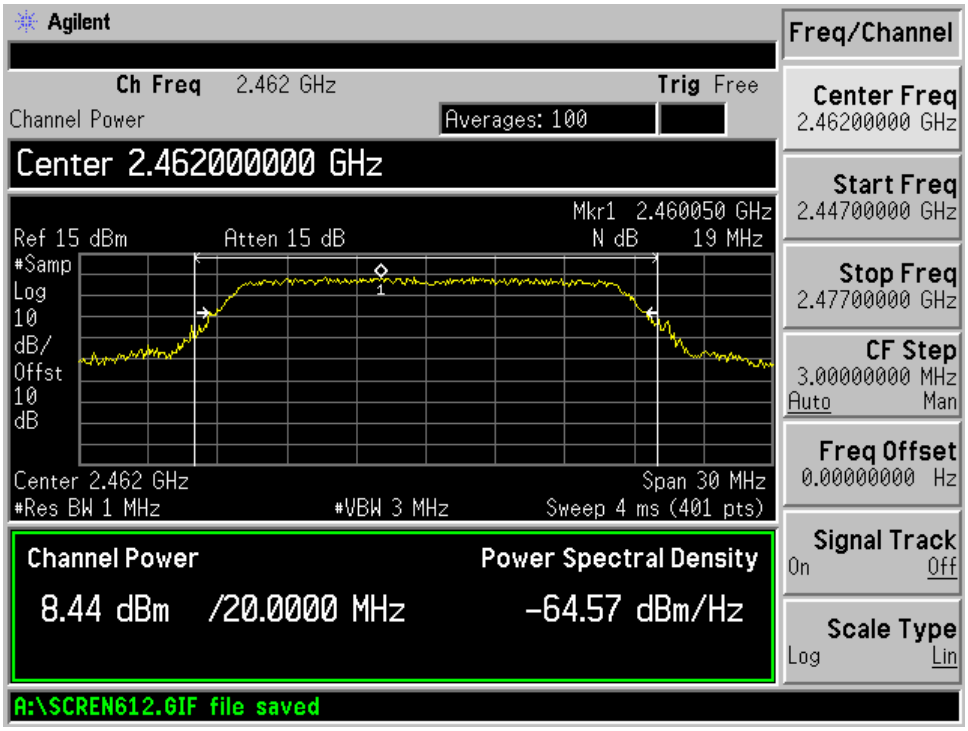
For 802.11G 6Mbps Mode
Result data graph shows Low channel conducted power = 9.52dBm



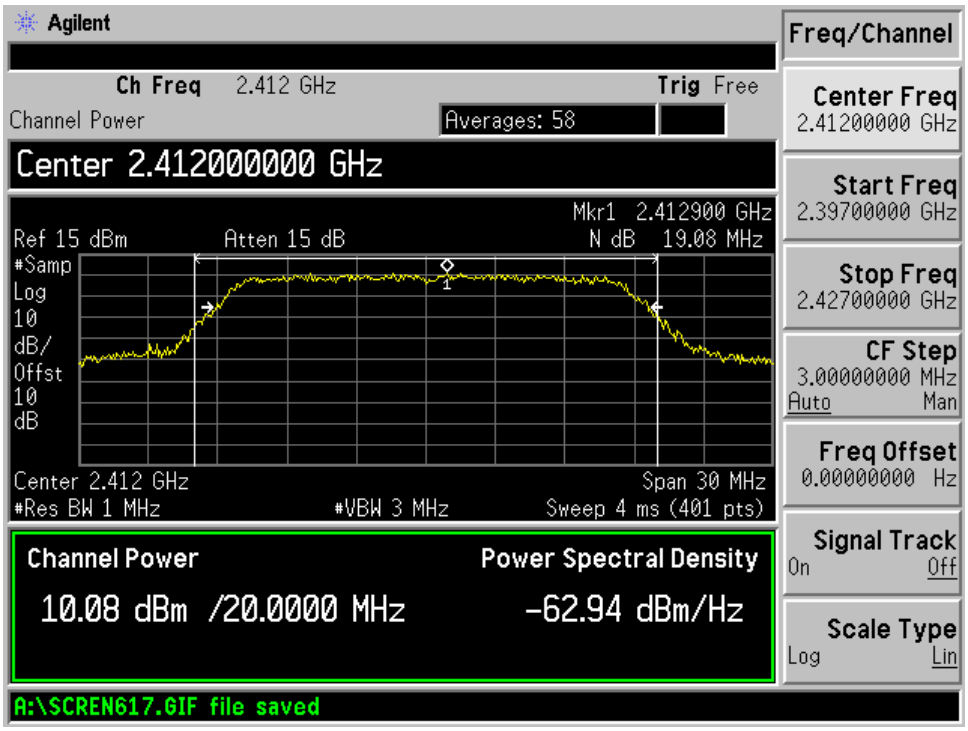
Result data graph shows middle channel conducted power = 9.13dBm



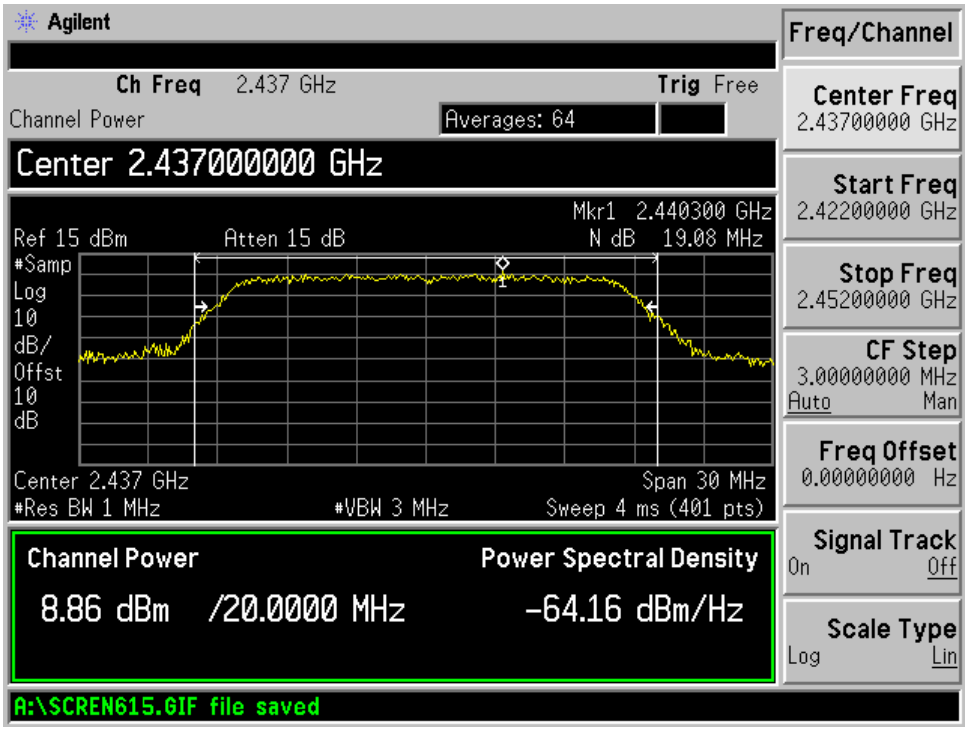
Result data graph shows high channel conducted power = 8.44dBm



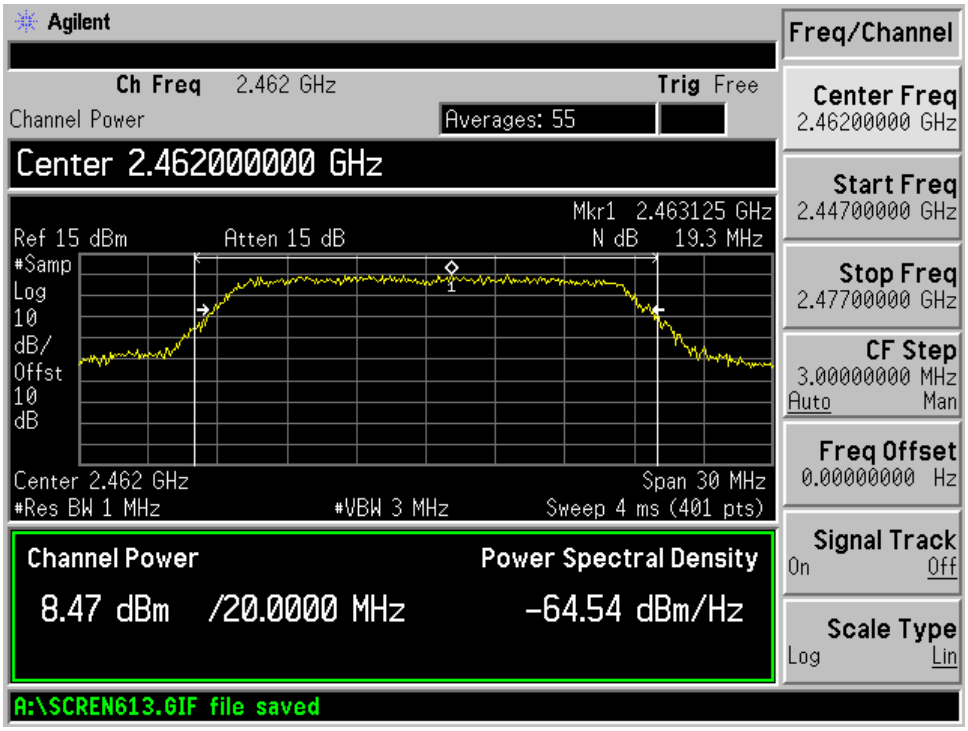
For 802.11G 54Mbps Mode
Result data graph shows Low channel conducted power = 10.08dBm



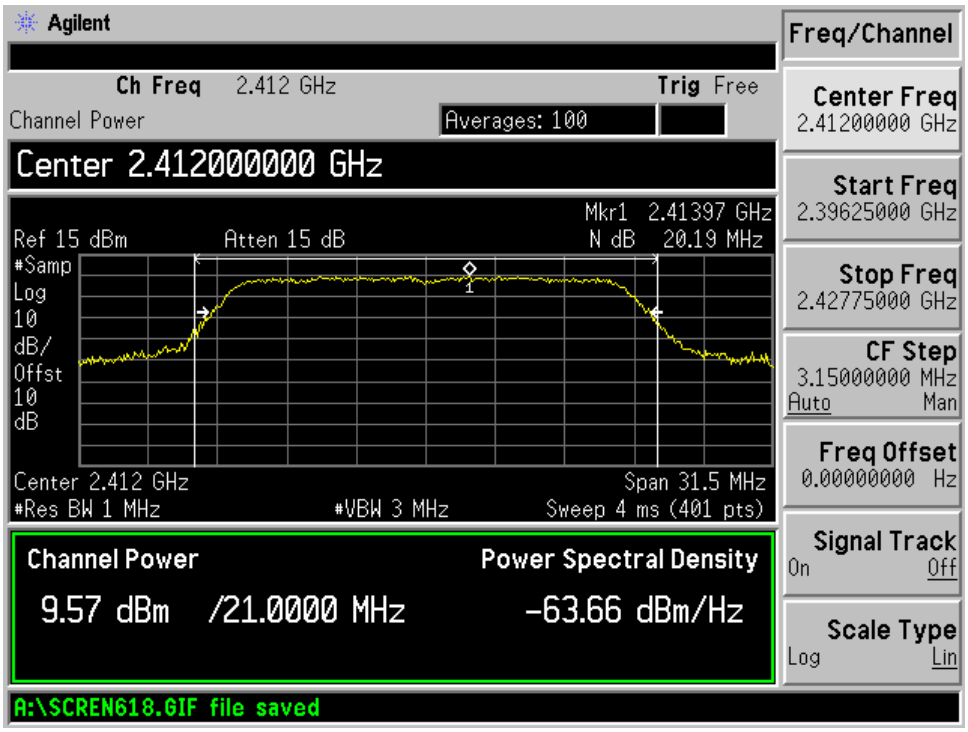
Result data graph shows middle channel conducted power = 8.86dBm



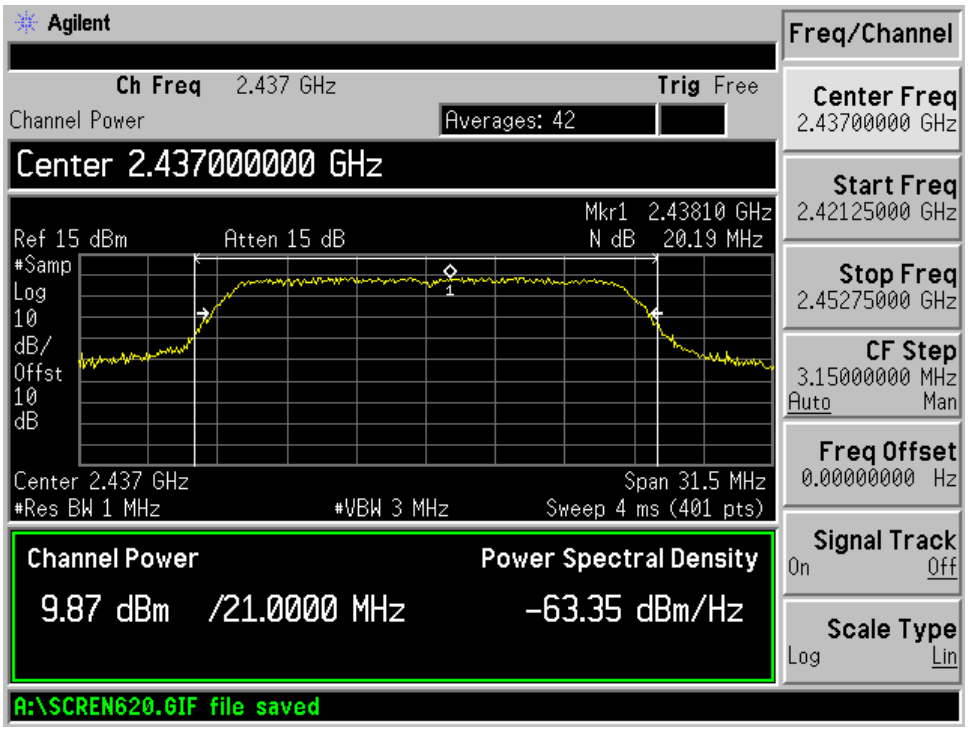
Result data graph shows high channel conducted power = 8.47dBm



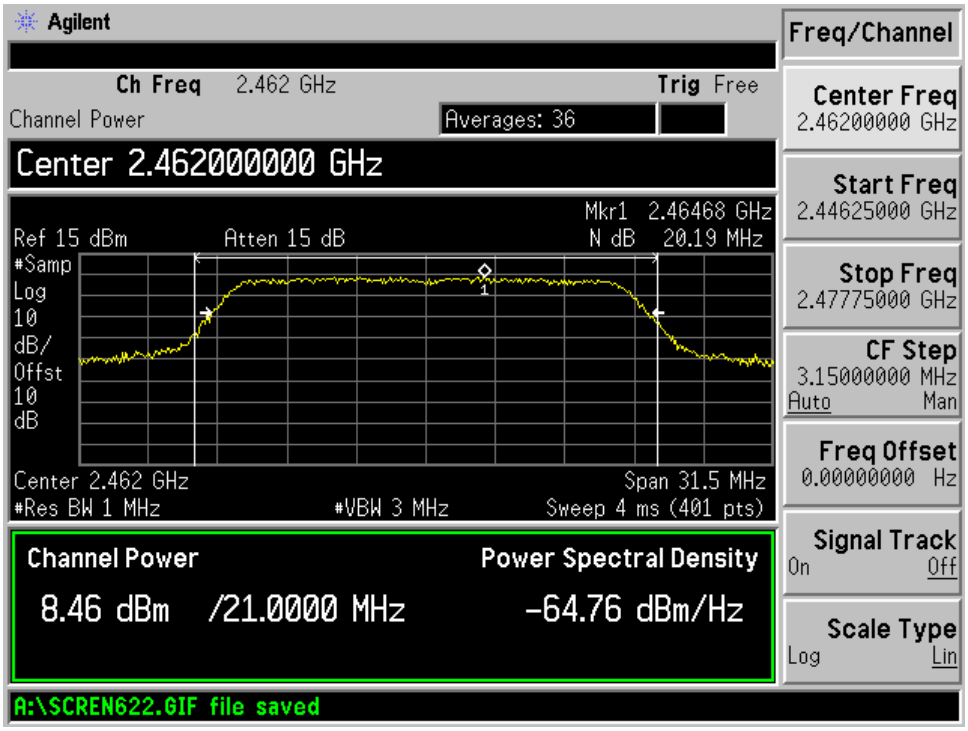
For 802.11N HT20 MCS0Mbps Mode
Result data graph shows Low channel conducted power = 9.57dBm



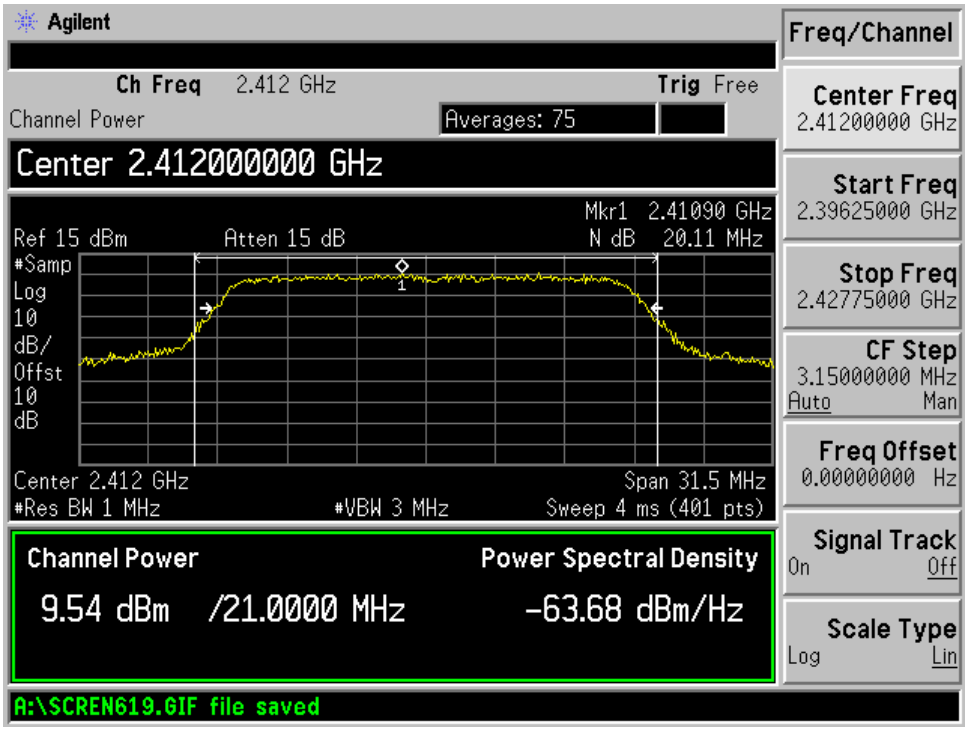
Result data graph shows middle channel conducted power = 9.87dBm



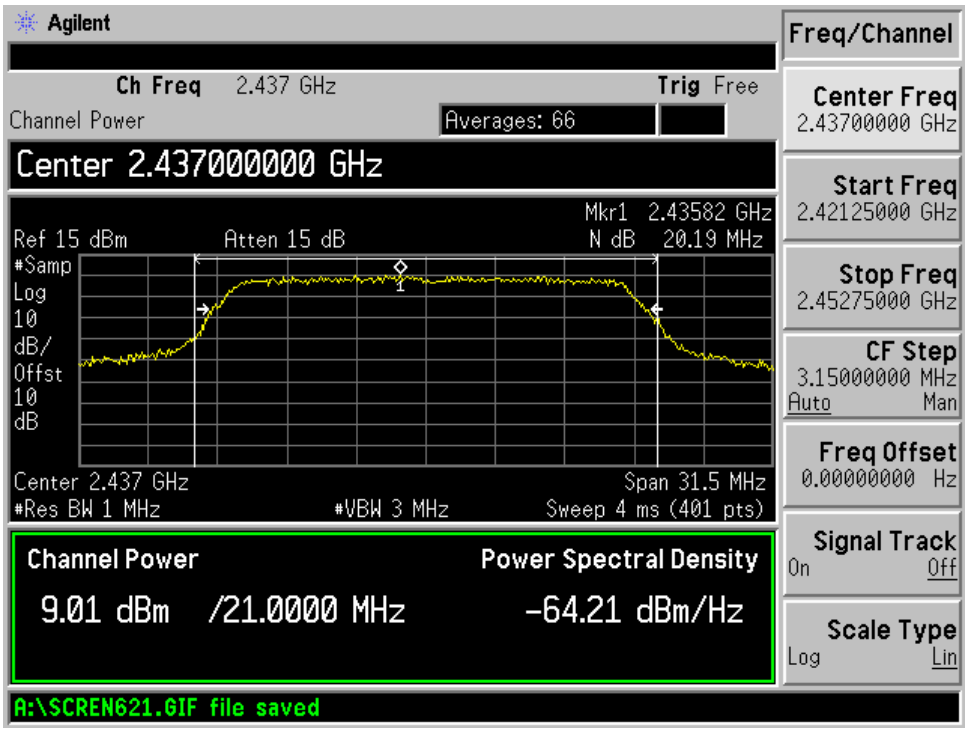
Result data graph shows high channel conducted power = 8.46dBm



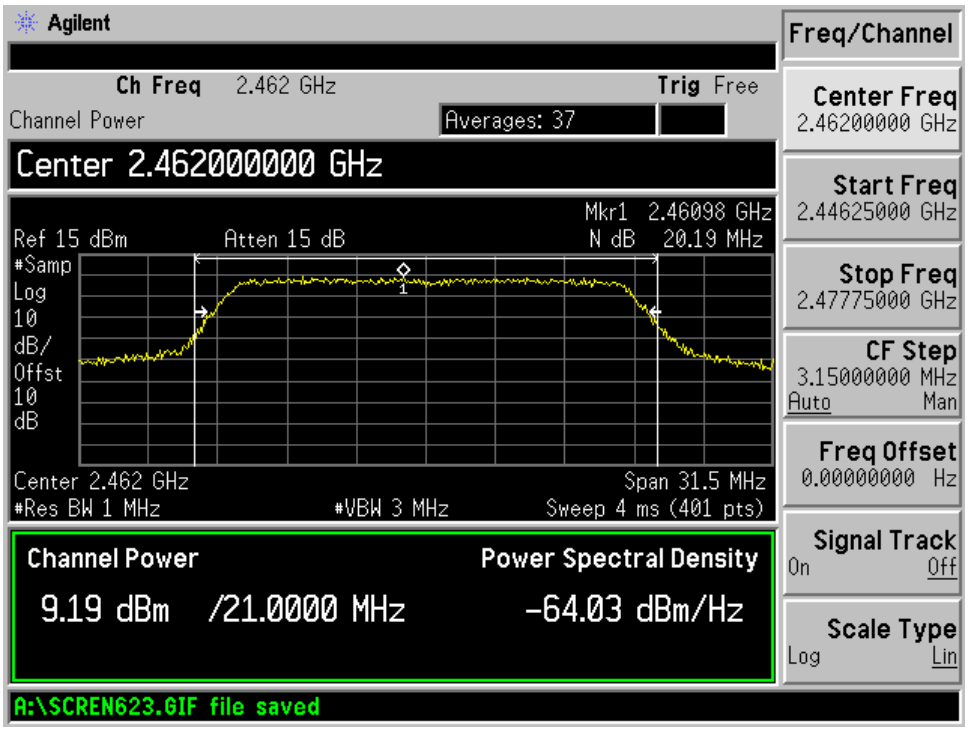
For 802.11N HT20 MCS15 Mbps Mode
Result data graph shows Low channel conducted power = 9.54dBm



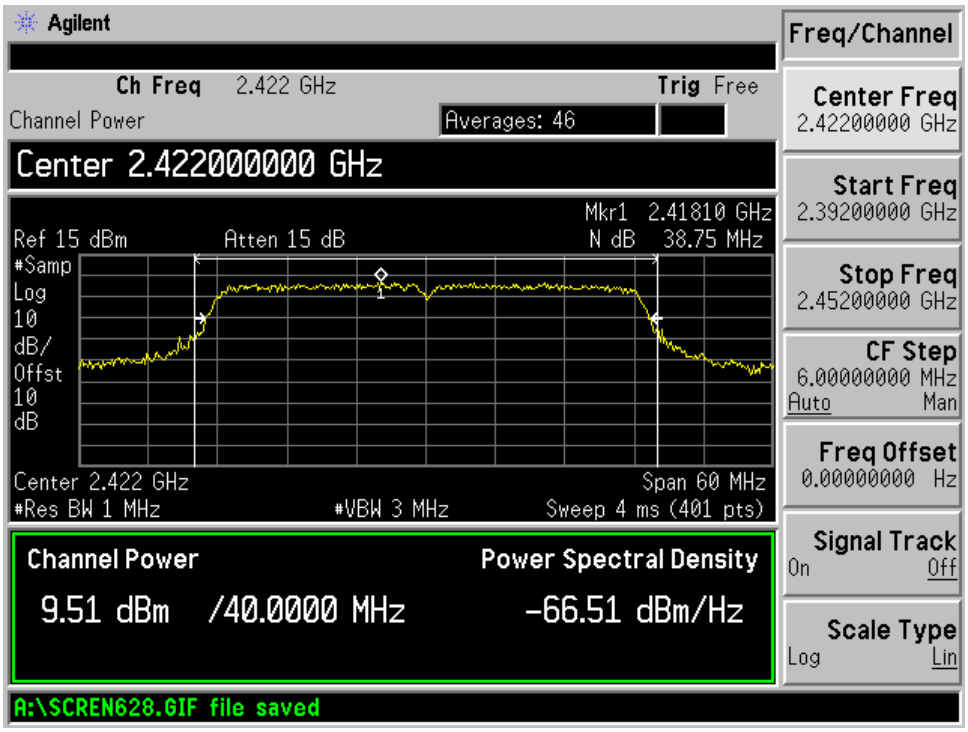
Result data graph shows middle channel conducted power = 9.01dBm



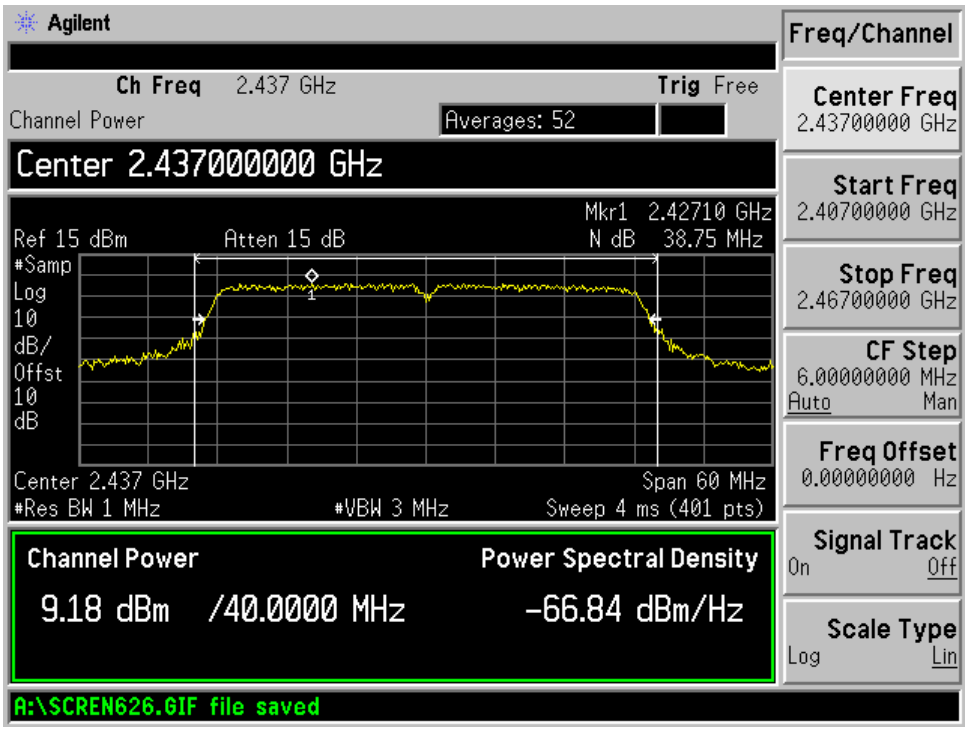
Result data graph shows high channel conducted power = 9.19dBm



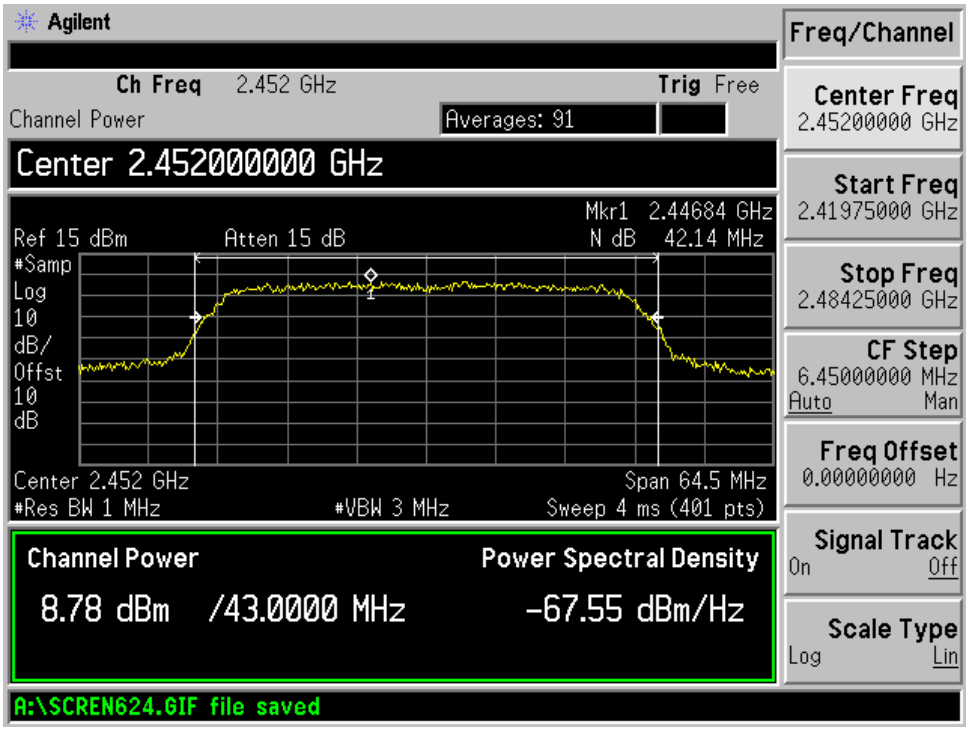
For 802.11N HT40 MCS0 Mbps Mode
Result data graph shows Low channel conducted power = 9.51dBm



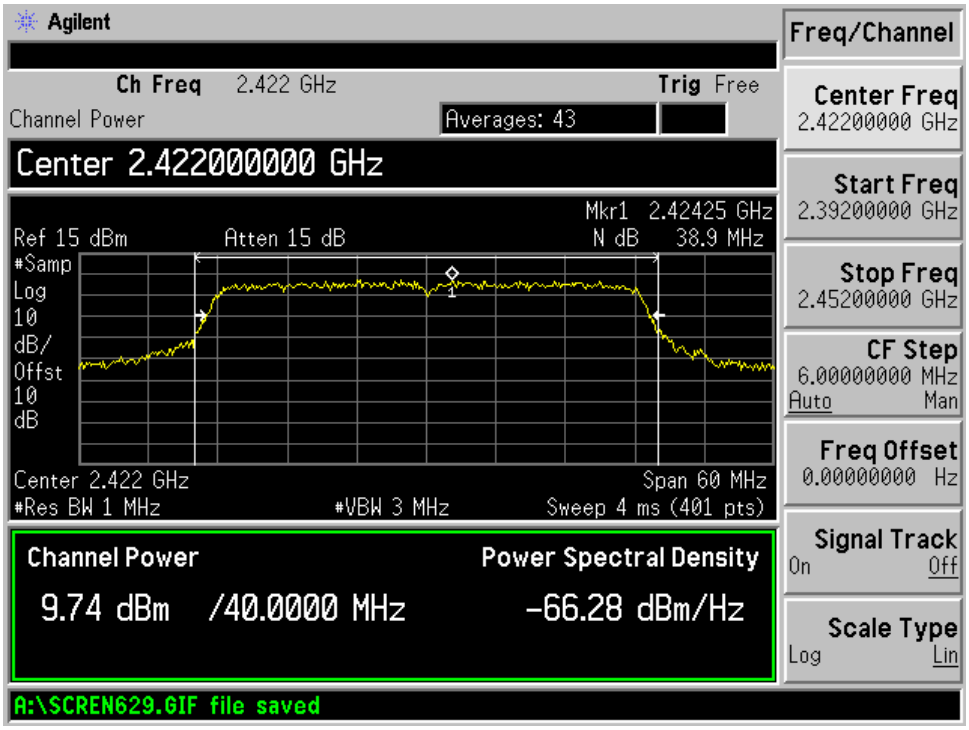
Result data graph shows middle channel conducted power = 9.18dBm



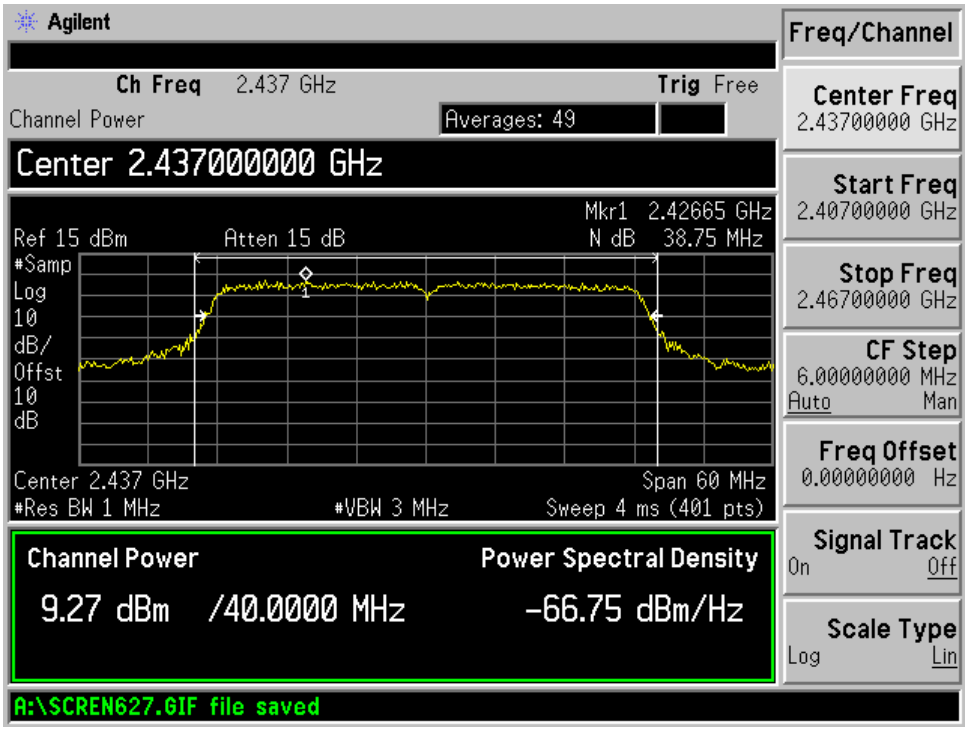
Result data graph shows high channel conducted power = 8.78dBm



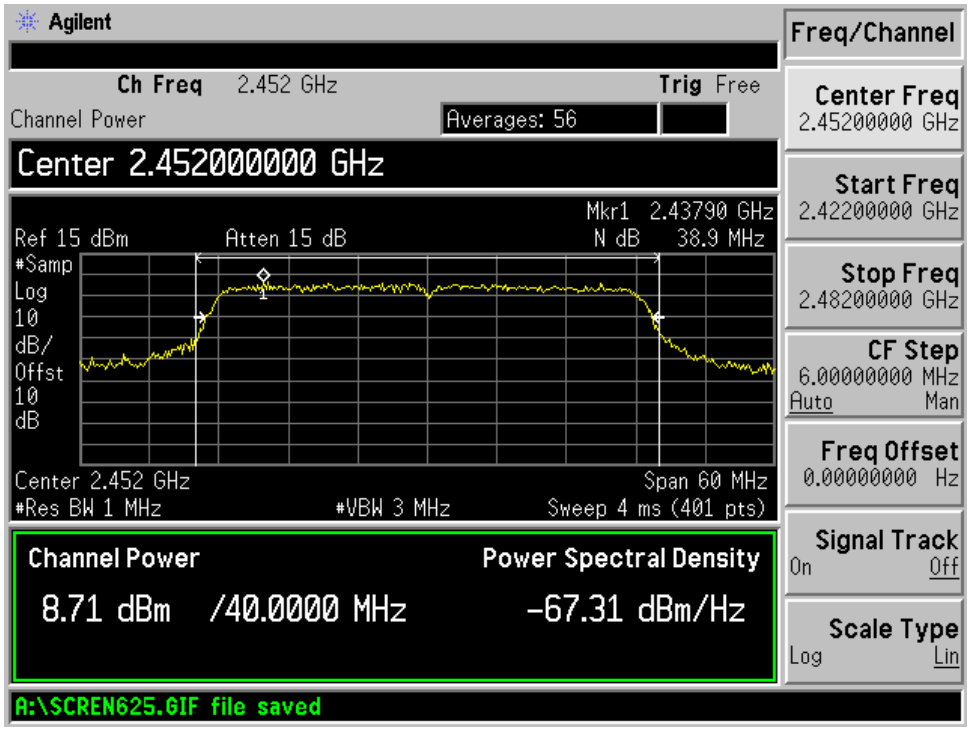
For 802.11N HT40 MCS15 Mbps Mode
Result data graph shows Low channel conducted power = 9.74dBm



Result data graph shows middle channel conducted power = 9.27dBm



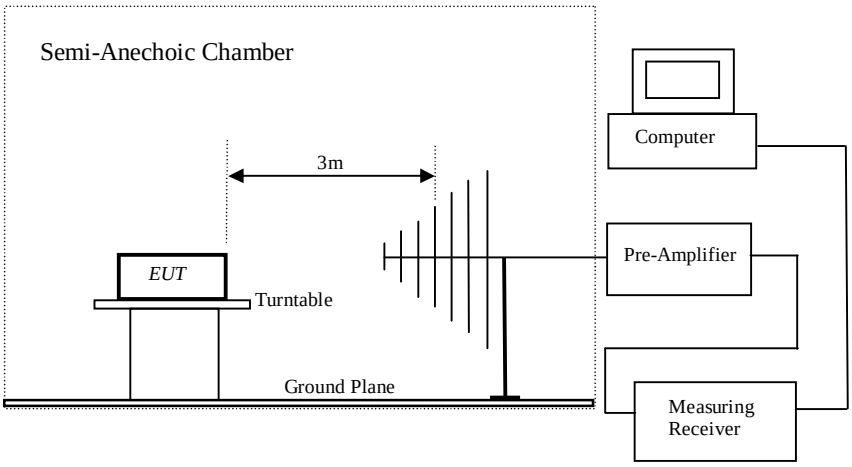
Result data graph shows high channel conducted power = 8.71dBm



4.5 Out of Band Emissions and Emissions in Restricted Bands

Test Requirement:	FCC part 15 section 15.247 (d)
Test Method:	ANSI C63.4:2003
Test Date:	2012-01-11
Mode of Operation:	Transmitting mode.
Detector Function:	Peak
Measurement BW:	RBW 100KHz ; VBW 300KHz

Test Setup:



Result : PASS

Out of Frequency Band Emissions:

For out of band emissions that are close to or exceed 20dB attenuation requirement, and emission falls into restricted band, radiated emission was performed in order to show compliance with the general radiated emission requirement.

Result Summary:

Refer to Figure 10 to 11 for the emission data graph, result shows that the significant emissions detected are with more than 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

Limits for Out of Frequency Band Emission [Section 15.247 (d)]:

In any 100kHz 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 100kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in Section 15.209(a) is not required.

Limit for Radiated Emission Falling in Restricted Bands [Section 15.209]:

Frequency (MHz)	Field Strength [μV/m]	Field Strength [dBμV/m]
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

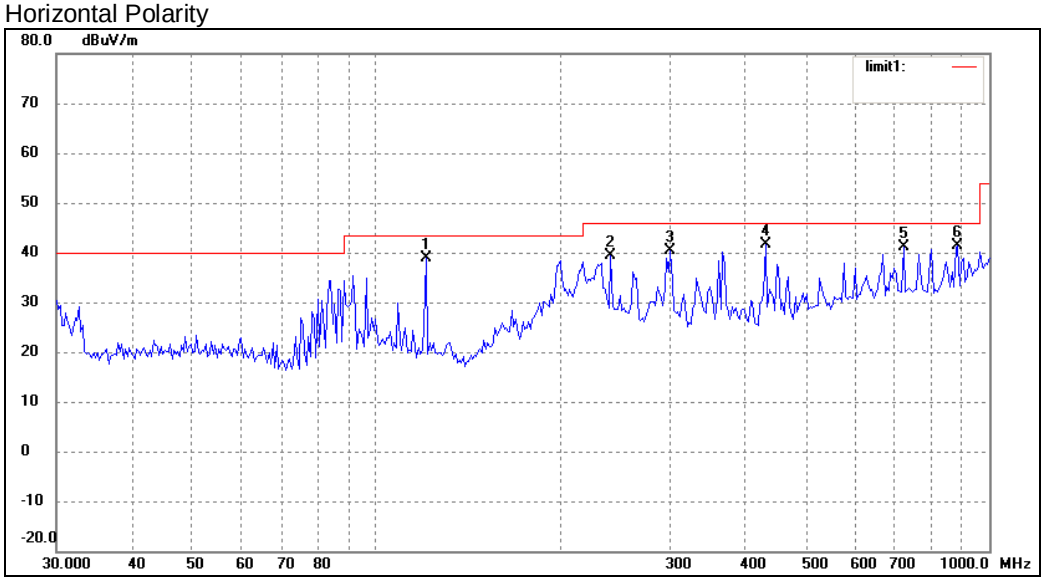
Radiated emissions, which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209.

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result : PASS

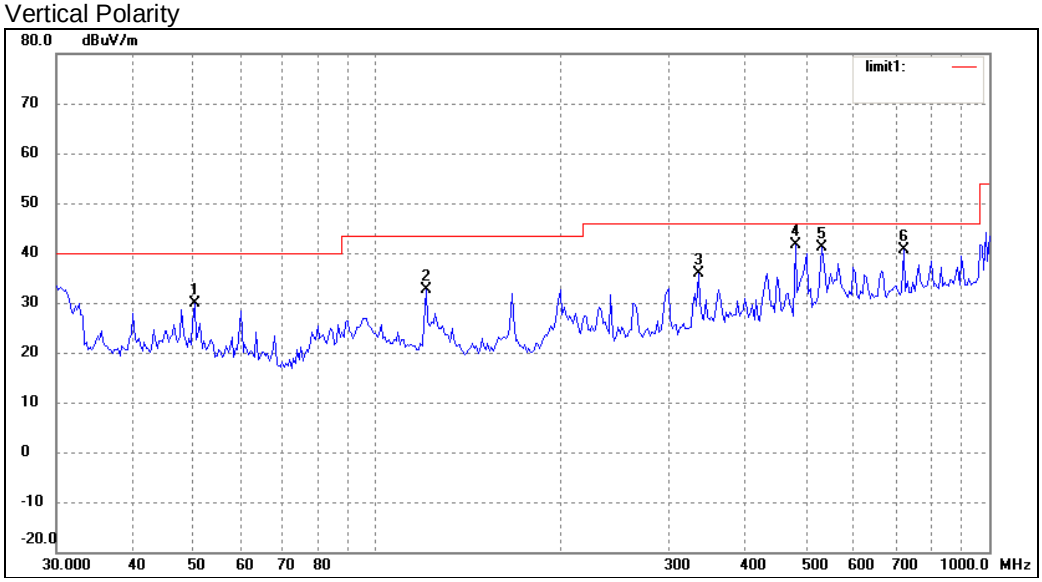
All Emission and Emissions Fall into Restricted Band were recorded as below:

Below 1GHz emissions
Horizontal Polarity



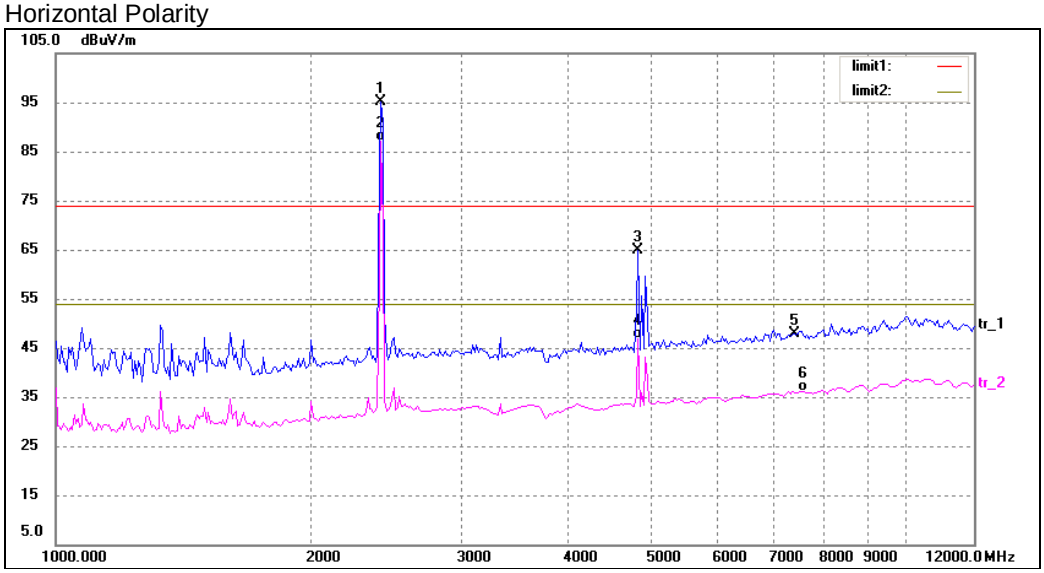
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	*120.2766	33.02	5.91	38.93	43.50	-4.57	QP
2	*240.8303	30.90	8.45	39.35	46.00	-6.65	QP
3	301.4223	30.63	9.78	40.41	46.00	-5.59	QP
4	431.0316	29.84	11.82	41.66	46.00	-4.34	QP
5	724.2611	23.30	17.86	41.16	46.00	-4.84	QP
6	887.6099	20.67	20.67	41.34	46.00	-4.66	QP

Vertical Polarity



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	50.4089	21.99	7.95	29.94	40.00	-10.06	QP
2	*120.2766	26.70	5.91	32.61	43.50	-10.89	QP
3	*334.8589	25.59	10.31	35.90	46.00	-10.10	QP
4	482.2156	28.88	12.67	41.55	46.00	-4.45	QP
5	531.9635	25.96	15.12	41.08	46.00	-4.92	QP
6	724.2611	22.85	17.86	40.71	46.00	-5.29	QP

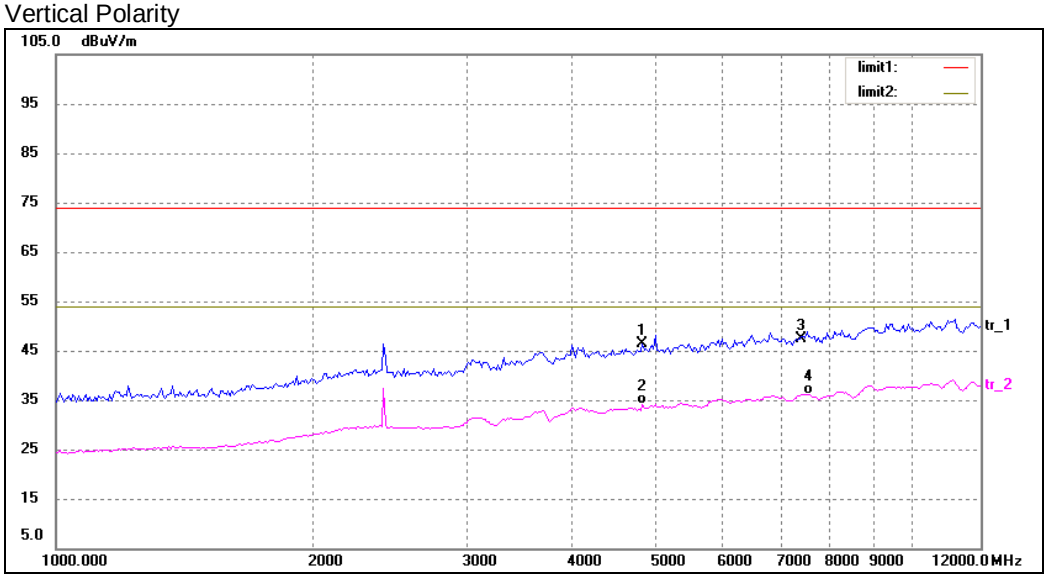
Above 1GHz Emission test data
Horizontal Polarity



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
3	*4832.823	69.60	-4.62	64.98	74.00	-9.02	peak
4	*4832.823	51.51	-4.62	46.89	54.00	-7.11	AVG
5	*7373.297	49.82	-1.84	47.98	74.00	-26.02	peak
6	*7484.052	37.94	-1.76	36.18	54.00	-17.82	AVG

Remark: Only background noise was measured from 12GHz-26GHz.

Vertical Polarity



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	*4832.823	50.96	-4.62	46.34	74.00	-27.66	peak
2	*4832.823	38.78	-4.62	34.16	54.00	-19.84	AVG
3	*7373.297	49.13	-1.84	47.29	74.00	-26.71	peak
4	*7558.812	37.93	-1.69	36.24	54.00	-17.76	AVG

Remark: Only background noise was measured from 12GHz-26GHz.

Result Summary:

1) Communication mode: All other emissions are more than 20dB below FCC part 15.209 limit.
2) No further spurious emissions found between 30 MHz and lowest internal used/generated frequency and from 30MHz to 1GHz.
3) Test data is base on the worst case lowest channel's emission data graph from 30MHz-26GHz.

Remarks:

1. " * " Radiated emissions which fall in the restricted bands as defined in Section 15.205(a).

2. Emission level with more than 20dB below the FCC required limit is not mentioned in table.

3. Delta to Limit = Field strength (dBµV/m) – Limit (dBµV/m).

4. Calculated measurement uncertainty: 9kHz -30MHz: 1.8dB.
30MHz -1GHz: 5.2dB.
1GHz -18GHz: 5.1dB.

4.6 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC part 15 Section 15.207 Class B
Test Method:	ANSI C63.4:2003
Test Date:	2012-01-11
Mode of Operation:	-Transmitting mode
Detector Function:	CISPR Quasi Peak
Measurement BW:	100 kHz
Worst Case Channel:	Lowest Channel

Results: PASS

- Refer following the result data graph.

Limits for Conducted Emission [Section 15.207]:

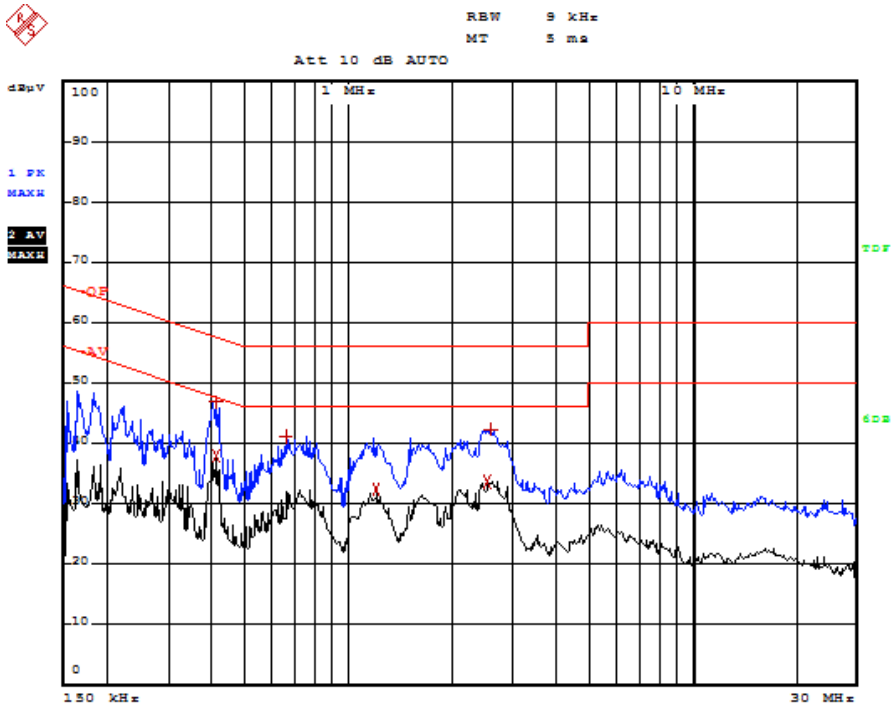
Frequency Range [MHz]	Quasi-Peak Limit [dBμV]	Average Limit [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

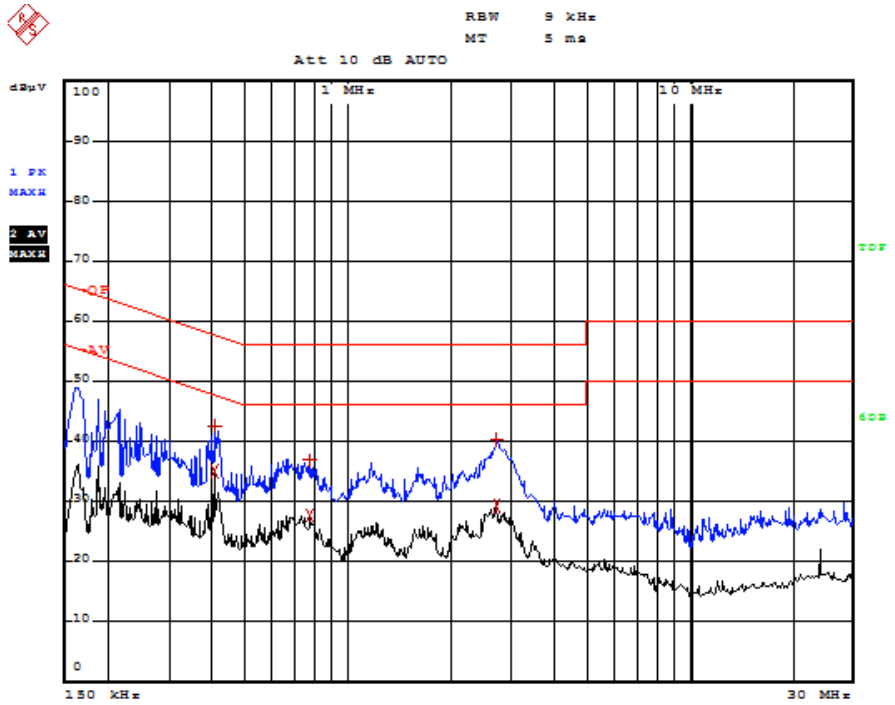
Remarks:
Calculated measurement uncertainty: ±2.8dB

Result data graph shows the conducted emission (Live and Neutral).

Line Port



Neutral Port



Result data table shows the conducted emission (Live and Neutral).

Frequency (MHz)	Detector (QP/AV)	Phase	Result (dBµV)	Limit (dBµV)	Margin
0.410	QP	L	46.84	57.64	-10.80
0.410	AV	L	37.80	47.64	-9.84
0.654	QP	L	40.98	56.00	-15.02
1.202	AV	L	32.46	46.00	-13.54
2.538	AV	L	33.77	46.00	-12.23
2.582	QP	L	42.28	56.00	-13.72
0.406	QP	N	42.77	57.73	-14.96
0.406	AV	N	35.15	47.73	-12.58
0.774	QP	N	36.91	56.00	-19.09
0.774	AV	N	27.68	46.00	-18.32
2.718	AV	N	29.14	46.00	-16.86
2.734	QP	N	40.27	56.00	-15.73

5.0 RF Exposure Compliance Requirement

Test Requirement: FCC part 15 section 15.247 (i)
Test Method: FCC part 15 section 1.1307 (b1)
OET Bulletin 65, Edition 01-01

Results: PASS

Systems operation under the provision of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the Commission's guideline,
The EUT is considered as a mobile device according to OET Bulletin 65, Edition 01-01, therefore distance to human body of min. 20cm is determined.

Frequency Band:	2.412GHz ~2.462GHz
Device Category:	☐ Portable (< 20cm separation) ☒ Mobile (>20cm separation) ☐ Others :
Exposure Classification:	☐ Occupational/ Controlled exposure ☒ General Population / Uncontrolled exposure
Max Transmit Power	30.9mW
Antenna Gain	2dBi (Numeric gain:1.58)
Evaluation Applied:	☒ MPE Evaluation ☐ SAR Evaluation

MPE calculation:

Refer to clause 4.4 of this test report, it shows that The maximum output power = 12.90dBm,
The maximum radiated power(EIRP)=the maximum output power+ antenna gain
=12.90dBm+2dBi=14.90dBm=30.90mW

The power density at 20cm from the antenna : = EIRP / 4π R²
= 0.00614mW / cm²

Limits for General Population/Uncontrolled Exposure [OET Bulletin 65, Edition 01-01]:

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(180/f^2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

6.0 List of Measurement Equipment

Radiated Emission

Manufacturer	Equipment	Model No.	Serial No.	Cal. Date	Due Date
R&S	Spectrum Analyzer	FSP30	836079/035	2011-12-20	2012-12-19
R&S	Test Receiver	ESI26	838786/013	2011-12-20	2012-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2011-12-20	2012-12-19
SCHWARZBECK	Trilog Broadband Antenna	VULB9163	9163-333	2012-01-09	2013-01-08
ETS	Horn Antenna	3117	00086197	2012-01-09	2013-01-08
Agilent	Pre-amplifier	8447F	3113A06717	2011-12-20	2012-12-19
Compliance Direction	Pre-amplifier	PAP-0118	24002	2011-12-20	2012-12-19
Anechoic chamber	Albatross Projects	MCDC	----	2011-03-20	2012-03-19

Line Conducted

Manufacturer	Equipment	Model No.	Serial No.	Cal. Date	Due Date
Rohde & Schwarz	EMI Test Receiver	ESPI	101611	2011-12-20	2012-12-19
Schwarz beck	L.I.S.N	NSLK8126	8126-224	2011-12-20	2012-12-19
Rohde & Schwarz	Pulse Limiter	ESH3-Z2	100911	2011-12-20	2012-12-19
EMCO	AMN	3825/2	11967C	2011-12-20	2012-12-19
FCC	Current Probe	F-33-4	091684	2011-12-20	2012-12-19

N/A Not Applicable or Not Available