



TEST REPORT

Date: 2013-05-23

Report No.: 68.870.13.026.01F

Applicant: Philips Consumer Lifestyle
5/F., Philips Electronics Building, 5 Science Park East
Avenue, Hong Kong Science Park, Shatin N.T., Hong Kong.

Description of Samples: Model name: Wireless HD Home Monitor
Brand name: PHILIPS
Model no.: M120#/** ("#" can be A-Z consist or blank
denoting the various accessories or
different style packaging used,"/****" can be
"/07,/17,/37" denoting for different shipment
country)
FCCID: BOUM120

Date Samples Received: 2013-05-09

Date Tested: 2013-05-10 to 2013-05-16

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:

Approved by:-

Jim Huang
Project Engineer
Wireless & Telecom department

John Zhi
Project Manager
Wireless & Telecom department

**CONTENT:**

Cover	Page 1 of 44	
Content	Page 2-3 of 44	
<u>1.0</u>	<u>General Details</u>	
1.1	Test Laboratory	Page 4 of 44
1.2	Applicant Details	Page 4 of 44
1.3	Equipment Under Test [EUT]	Page 5 of 44
1.4	Related Submittal(s) Grants	Page 5 of 44
<u>2.0</u>	<u>Technical Details</u>	
2.1	Investigations Requested	Page 6 of 44
2.2	Test Standards and Results Summary	Page 6 of 44
<u>3.0</u>	<u>Test Methodology</u>	
3.1	Radiated Emission	Page 7 of 44
3.2	Field Strength Calculation	Page 7 of 44
3.3	Conducted Emission	Page 7 of 44
<u>4.0</u>	<u>Test Results</u>	
4.1	6dB Bandwidth Measurement	Page 8-14 of 44
4.2	Power Spectral Density	Page 15-21 of 44
4.3	Band Edge Measurement	Page 22-25 of 44
4.4	Maximum Output Power	Page 26-33 of 44
4.5	Out of Band Emissions and Emissions in Restricted Bands	Page 34-39 of 44
4.6	Conducted Emission on AC Mains	Page 40-42 of 44



5.0 RF Exposure Compliance Requirement

Page 43 of 44

6.0 List of Measurement Equipments

Page 44 of 44

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

5/F., Philips Electronics Building, 5Science Park East
Avenue, Hong Kong Science Park, Shatin N.T., Hong Kong.

Manufacturers

Philips Consumer Lifestyle

5/F., Philips Electronics Building, 5Science Park East Avenue,
Hong Kong Science Park, Shatin N.T., Hong Kong.

Factory

(1)Action Asia (Shenzhen) Co. Ltd.

(2)Action Industries (Malaysia) Sdn. Bhd.

(1)Dede Industrial Park Jianan Rd,FuyongHI-Tech
Park ,Shenzhen, China

(2)2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE
ZONE,13600 PERAI, PENANG, MALAYSIA.



1.3 Equipment Under Test [EUT]

Description of EUT

Product Description:	Wireless HD Home Monitor
Model No.:	M120#/** ("#" can be A-Z consist or blank denoting the various accessories or different style packaging used, "/**" can be "/07,/17,/37" denoting for different shipment country)
Brand Name:	PHILIPS
FCCID:	BOUM120
Rating:	DC5V, 1.5A powered by AC/DC adapter
	Model: HNx050150a("x" can be "B" or "D" to indicate different output wire type(USB or DC jack), "a" can be "A", "B", "C", "E", "J", "K", "U", "X" to indicate different countries fixed plug portion or exchangeable plug and all plastic painting color as non-conductive type)
Operated Frequency:	2412 -2462 MHz
No. of Operated Channel:	11 (802.11b/g/nHT20)
Data Rate:	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0-7, up to 150Mbps
Modulation:	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/64-QAM)
Accessories and Auxiliary Equipments:	AC/DC power adaptor.
Antenna Type:	Compact PCB antenna
Manufacture of Antenna:	Shenzhen South Star Technology Co., LTD
Antenna Gain:	2.0dBi
Antenna Model:	M120-YY

General Operation of EUT

The Equipment Under Test (EUT) is a Wireless HD Home Monitor System operated at 2.4GHz. This includes of an 802.11b/g/n module (transceiver). As our client' declaration, M120#/** Utilize the identical circuit design, PCB layout, shielding and interface with (M120/37), differences are as below:
 "#" can be A-Z consist or blank denoting the various accessories or different style packaging used, "/**" can be "/07,/17,/37" denoting for different shipment country.
 The tested model is M120/37.

Description of Test Modes

The EUT has been tested under operating condition. Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
 IEEE802.11b: Channel 1(2412MHz), Channel 6(2437MHz) and Channel 11(2462MHz) with 1Mbps data rate (worst case) are chosen for the final testing.
 IEEE802.11g: Channel 1(2412MHz), Channel 6(2437MHz) and Channel 11(2462MHz) with 6Mbps data rate (the worst case) are chosen for the final testing.
 IEEE802.11nHT20: Channel 1(2412MHz), Channel 6(2437MHz) and Channel 11(2462MHz) with MCS0 data rate (worst case) are chosen for the final testing.

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,ANSI C63.4: 2003 and KDB 558074 D01 v03r01.

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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6dB Bandwidth Measurement	Section 15.247 (a2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Spectral Density	Section 15.247 (e)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pseudorandom Hopping Algorithm	Section 15.247 (a1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Band Edge Measurement	Section 15.247	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Maximum Output Power	Section 15.247 (b3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Out of Band Emission	Section 15.247 (d)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emission in Restricted Band	Section 15.247 (d)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conducted Emission on AC Mains	Section 15.207	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RF Exposure	Section 15.247 (i)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Antenna Requirement	Section 15.203	<input checked="" type="checkbox"/> See note 1	<input type="checkbox"/>

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.

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:

$$\text{FS} = \text{R} + \text{System Factor}$$
$$\text{System Factor} = \text{AF} + \text{CF} + \text{FA} - \text{PA}$$

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:	2013-05-16
Mode of Operation:	Transmitting continuously 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	2412	10.193
Middle	2437	10.103
Highest	2462	10.099

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

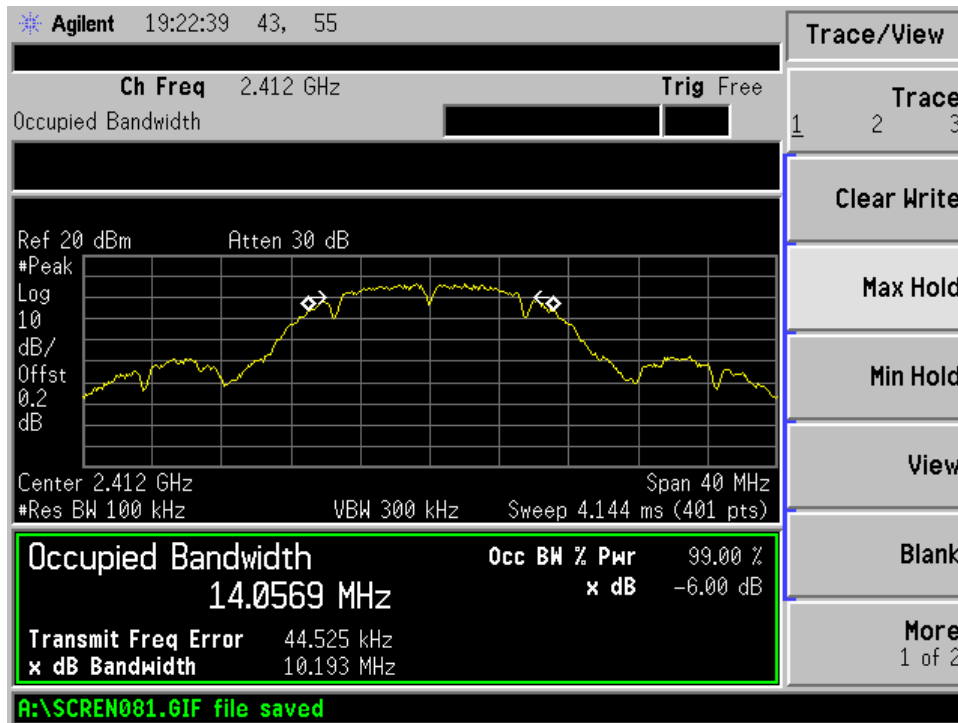
Limits for 6 dB bandwidth [Section 15.247 (a2)]:

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

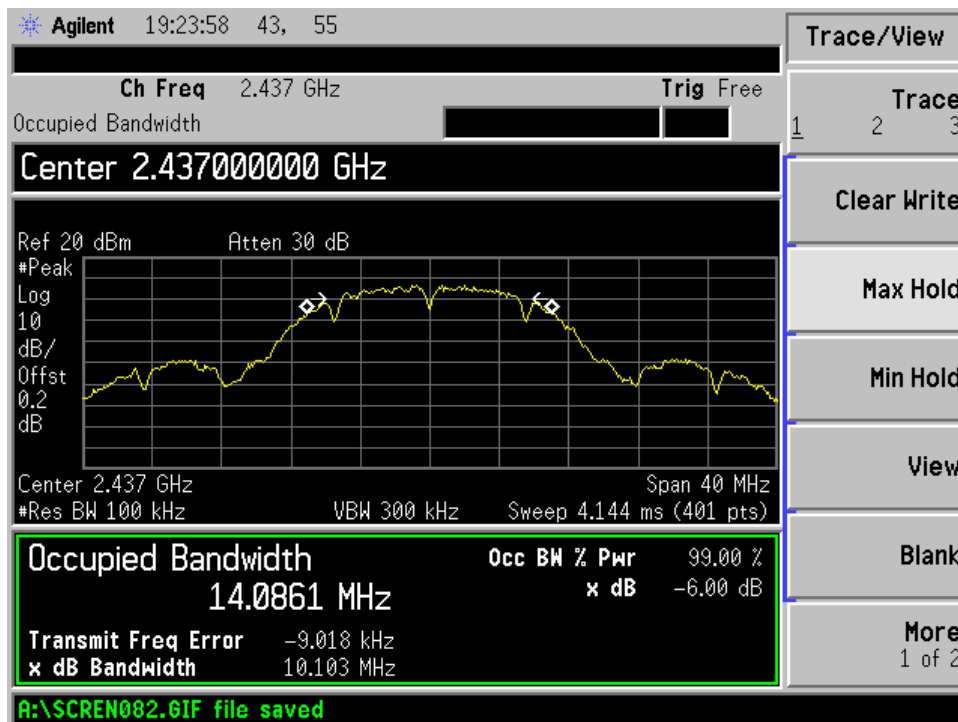


For 802.11B Mode

Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 10.193 MHz

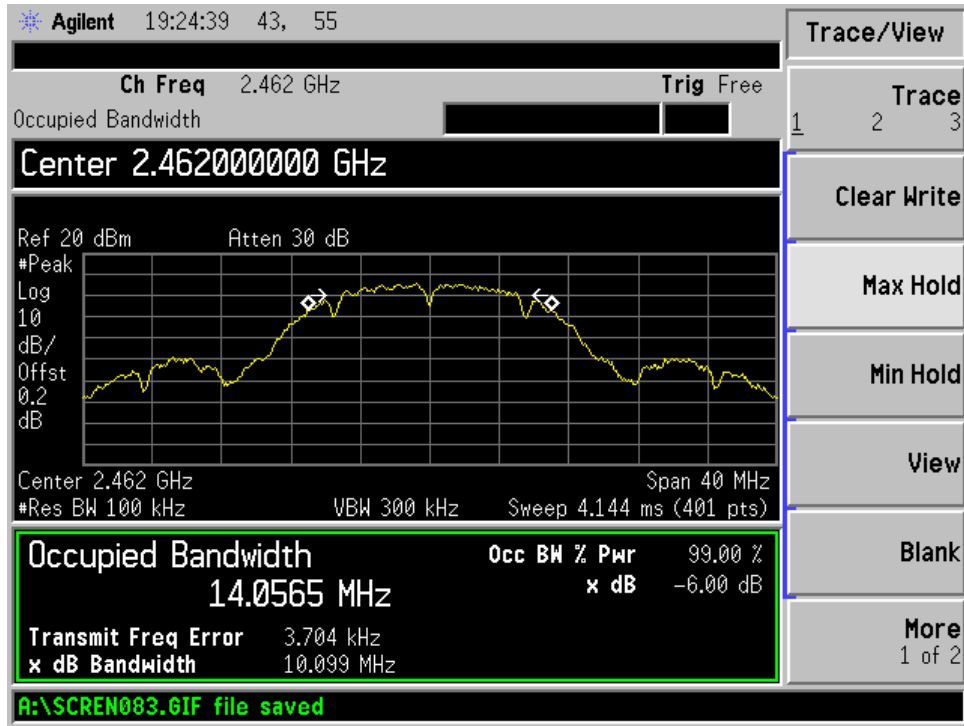


Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 10.103MHz





Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 10.099MHz





For 802.11G Mode

Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2412	16.315
Middle	2437	16.501
Highest	2462	16.293

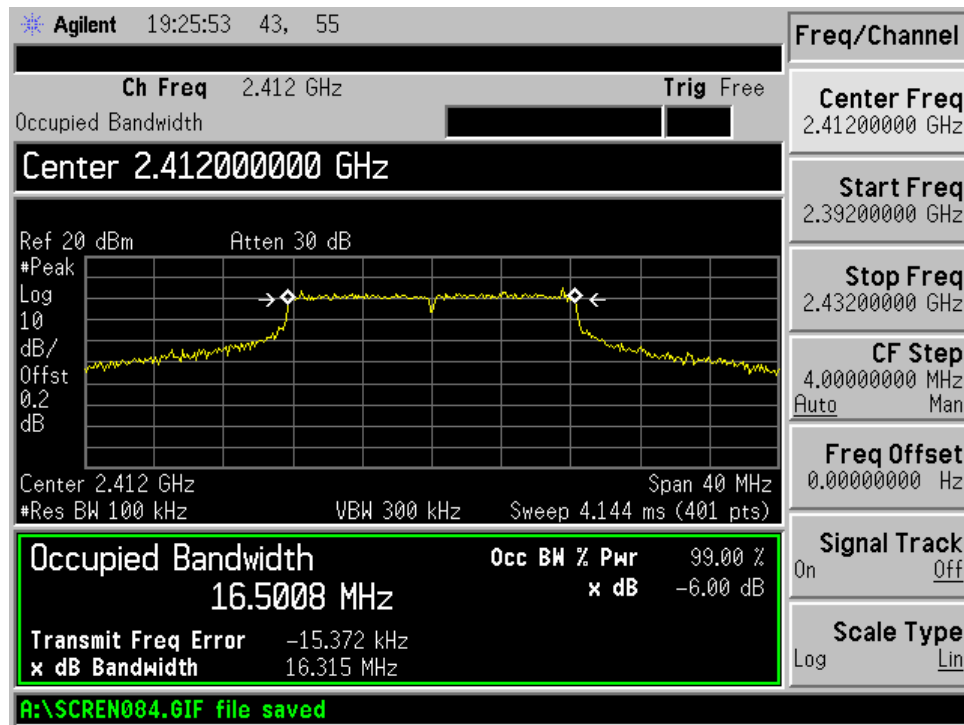
This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

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

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

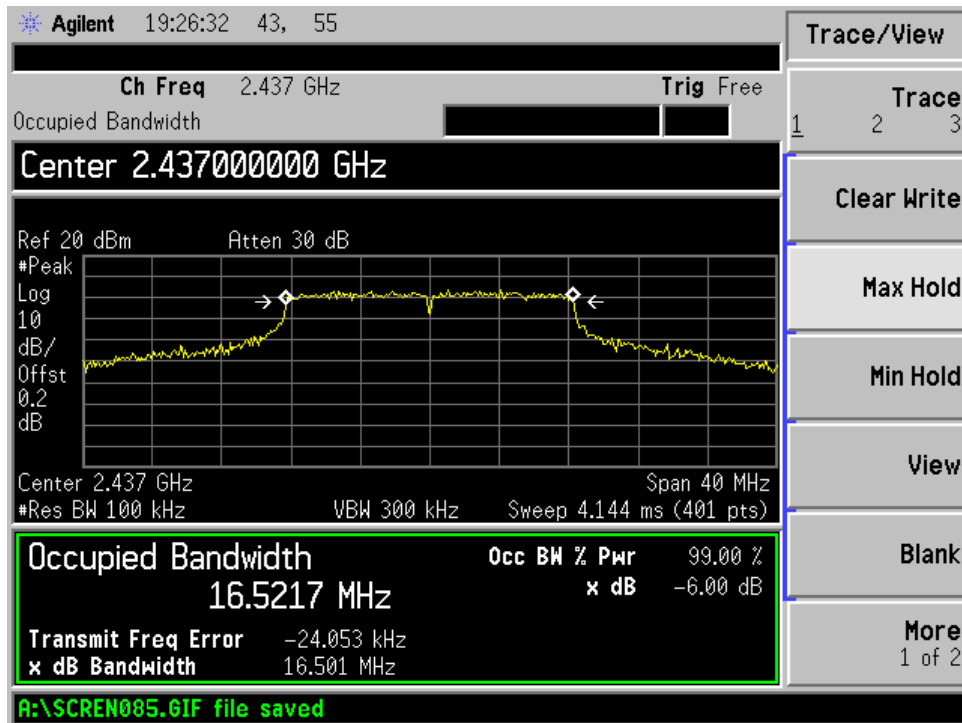
For 802.11G Mode

Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 16.315 MHz

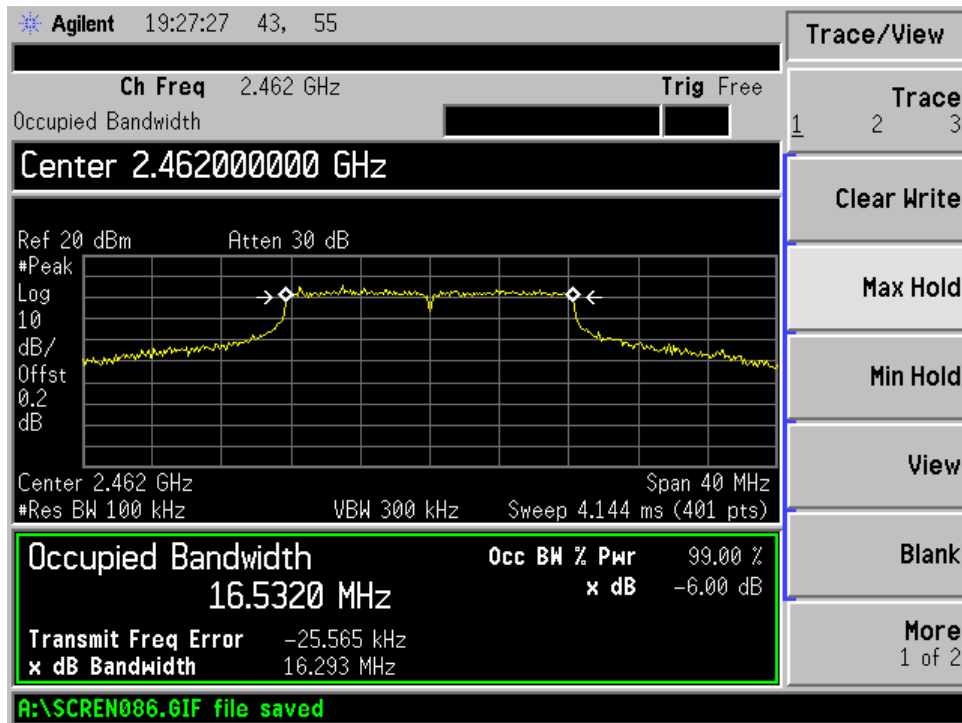




Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 16.501MHz



Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 16.293MHz





For 802.11N HT20 Mode

Channel	Measured frequency (MHz)	6dB Bandwidth (MHz)
Lowest	2412	17.790
Middle	2437	17.281
Highest	2462	17.637

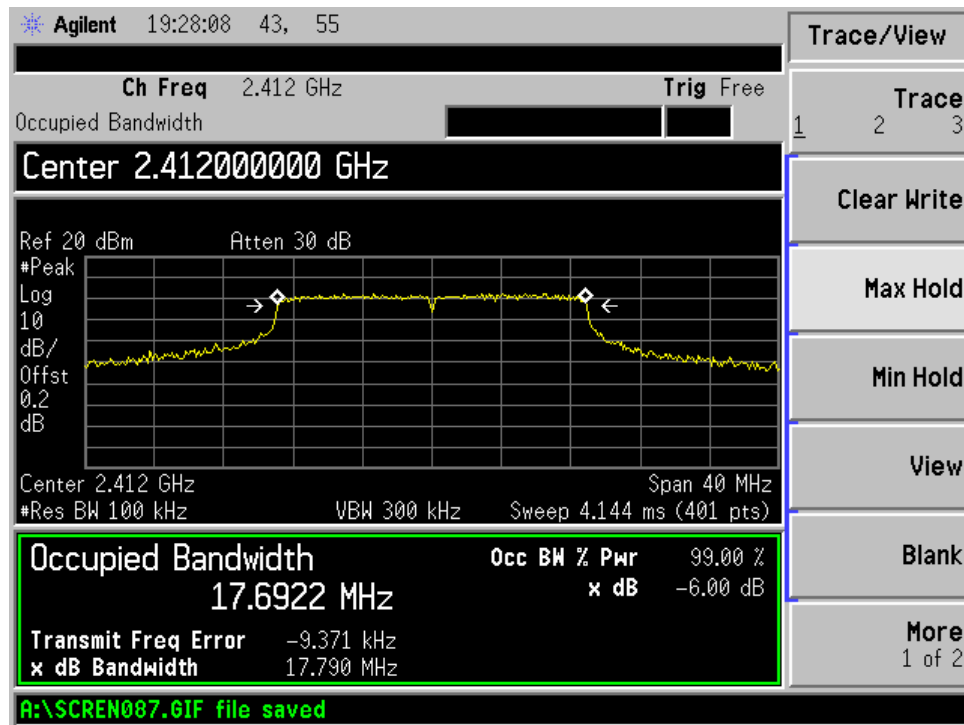
This result is used for checking the systems using digital modulation techniques may operate in the 2400–2483.5 MHz.

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

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

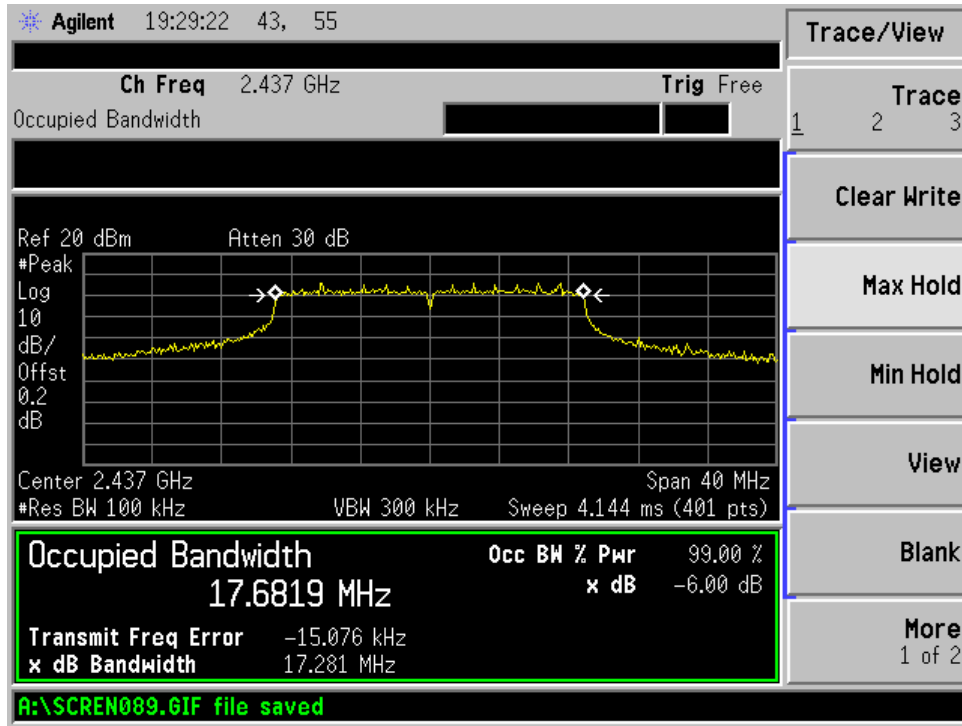
For 802.11N HT20 Mode

Result data graph shows 6 dB bandwidth, CF = 2.412GHz, BW = 17.790 MHz

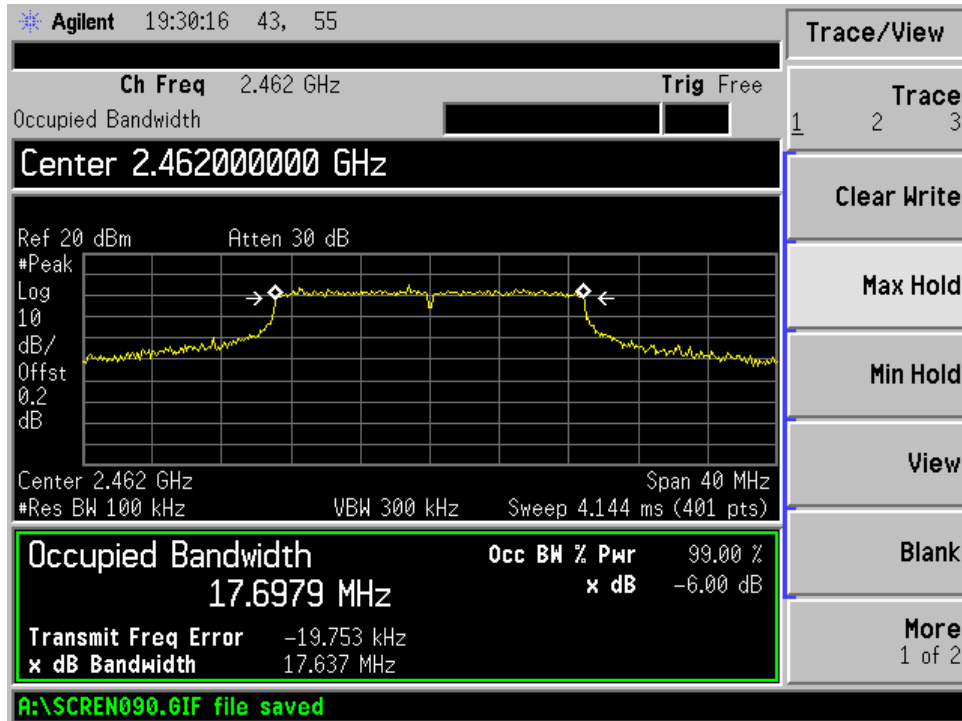




Result data graph shows 6 dB bandwidth, CF = 2.437GHz, BW = 17.281MHz



Result data graph shows 6 dB bandwidth, CF = 2.462GHz, BW = 17.637MHz





4.2 Power Spectral Density

Test Requirement:	FCC part 15 section 15.247 (e)
Test Date:	2013-05-16
Mode of Operation:	Transmitting continuously mode
Detector Function:	Peak

Result : PASS

Measured Result :

Test mode	Test channel	Reading dBm/100kHz	Limit dBm/3kHz
802.11B	Low channel (2412MHz)	3.009	8
	Middle channel (2437MHz)	3.156	8
	High channel (2462MHz)	3.144	8
802.11G	Low channel (2412MHz)	-1.263	8
	Middle channel (2437MHz)	-1.382	8
	High channel (2462MHz)	-1.497	8
802.11N HT20	Low channel (2412MHz)	-2.240	8
	Middle channel (2437MHz)	-2.944	8
	High channel (2462MHz)	-2.487	8

Note: 1. Above testing data has been considered with 0.2dB cable loss which between antenna port and spectrum.

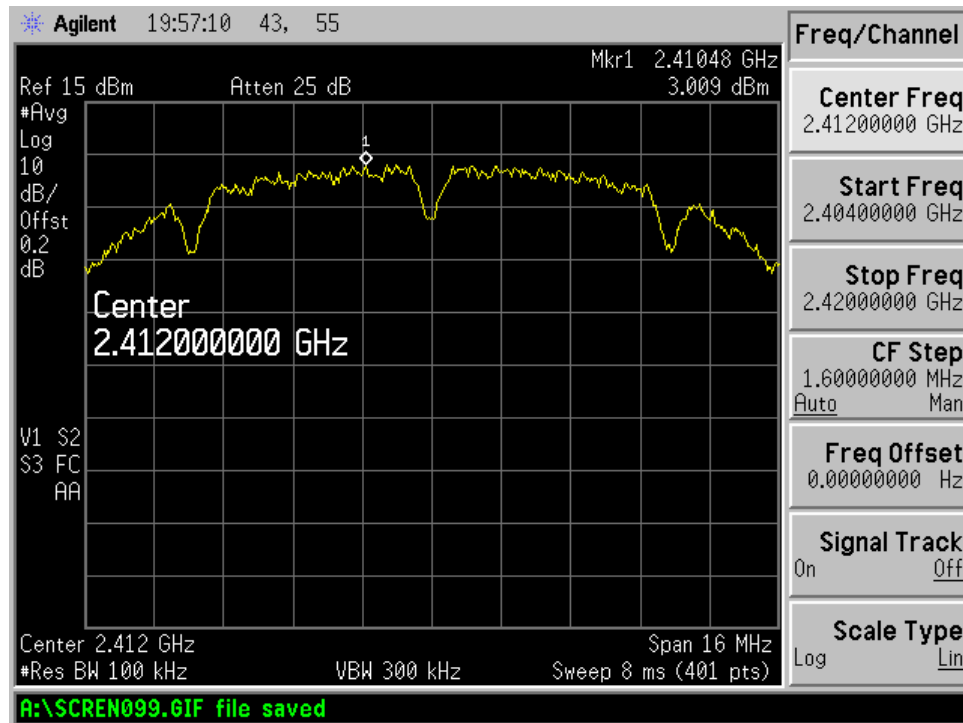
Limits for power spectral density [Section 15.247 (e)]:

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.

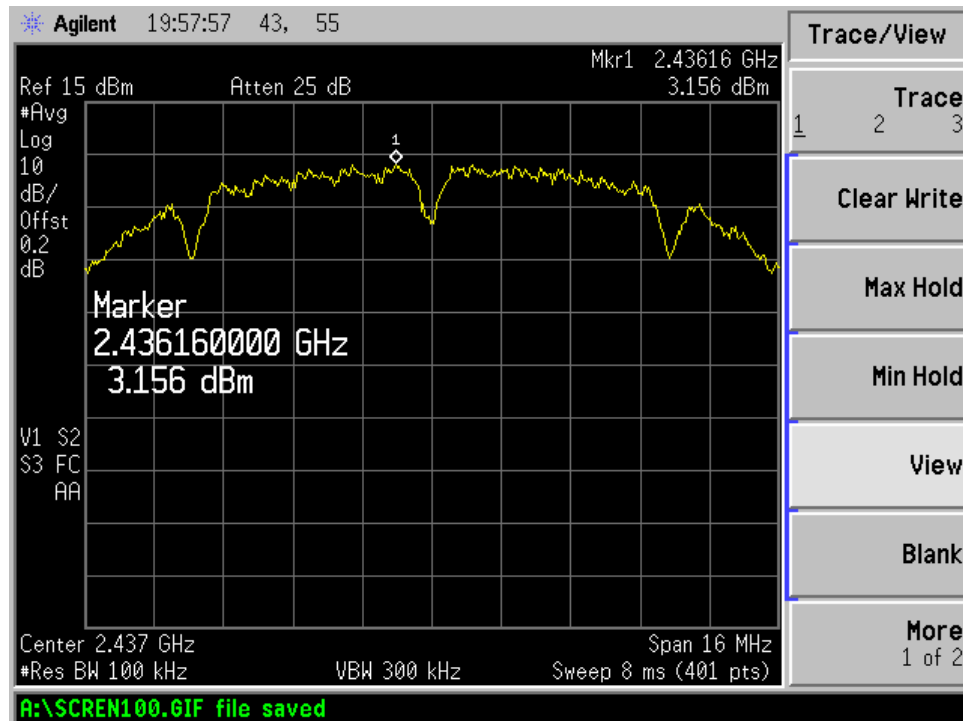


For 802.11B Mode

Result data graph shows Low channel power spectrum density is 3.009dBm at 100 KHz RBW

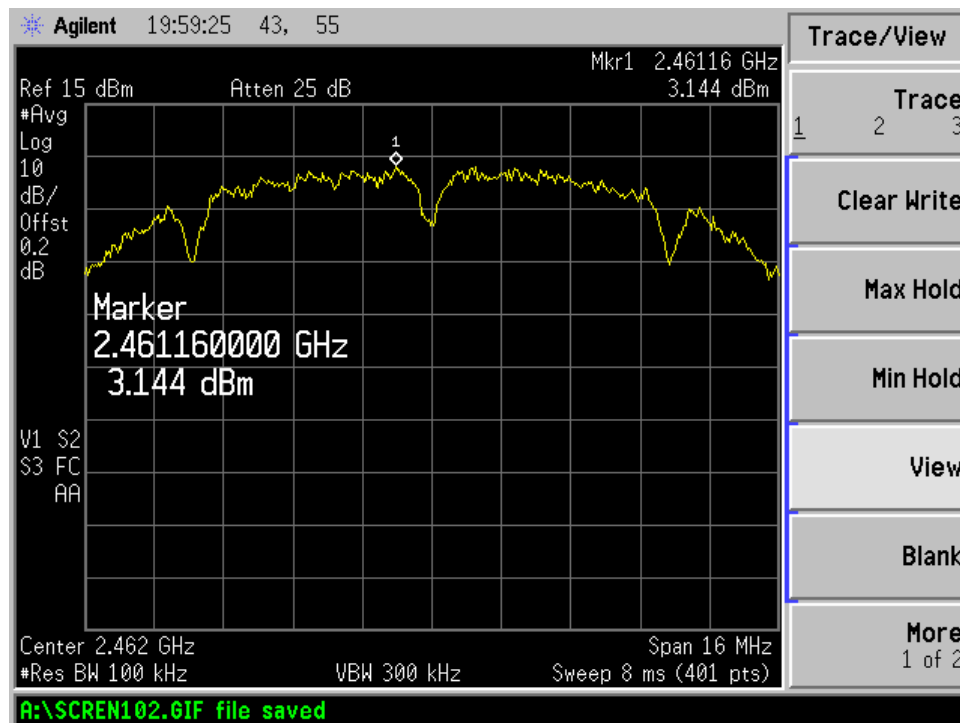


Result data graph shows middle channel power spectrum density is 3.156dBm at 100 KHz RBW





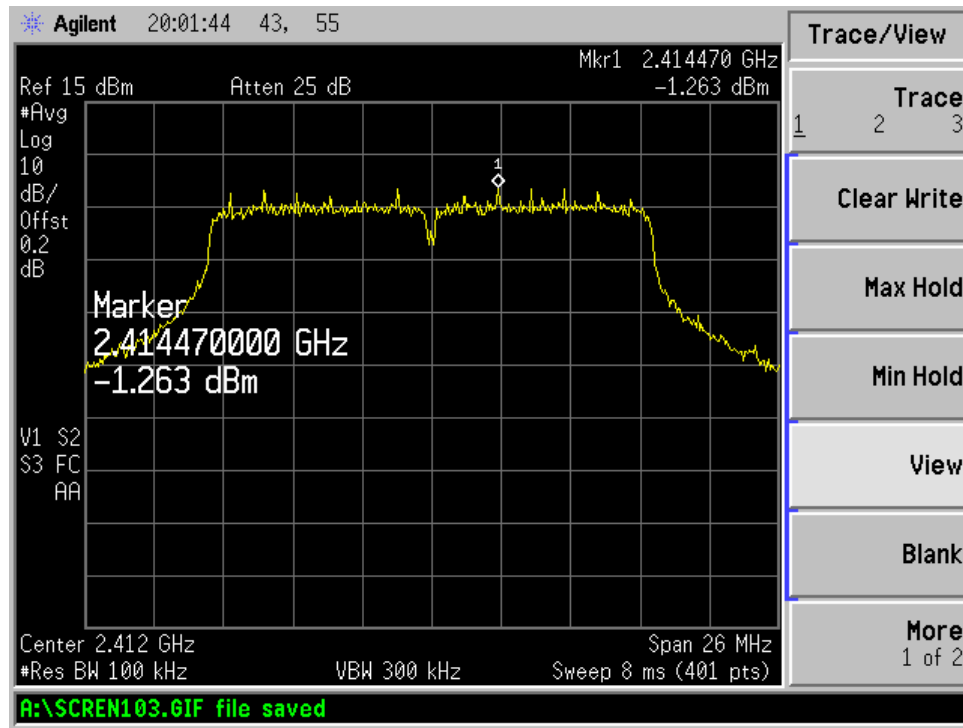
Result data graph shows high channel power spectrum density is 3.144dBm at 100 KHz RBW



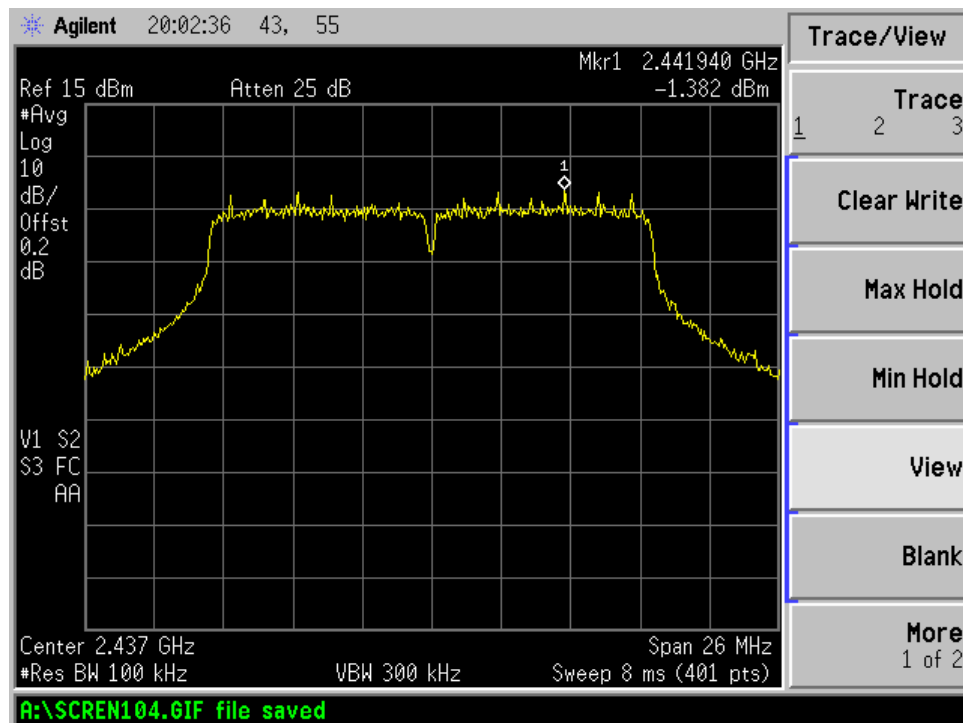


For 802.11G Mode

Result data graph shows Low channel power spectrum density is -1.263dBm at 100 KHz RBW

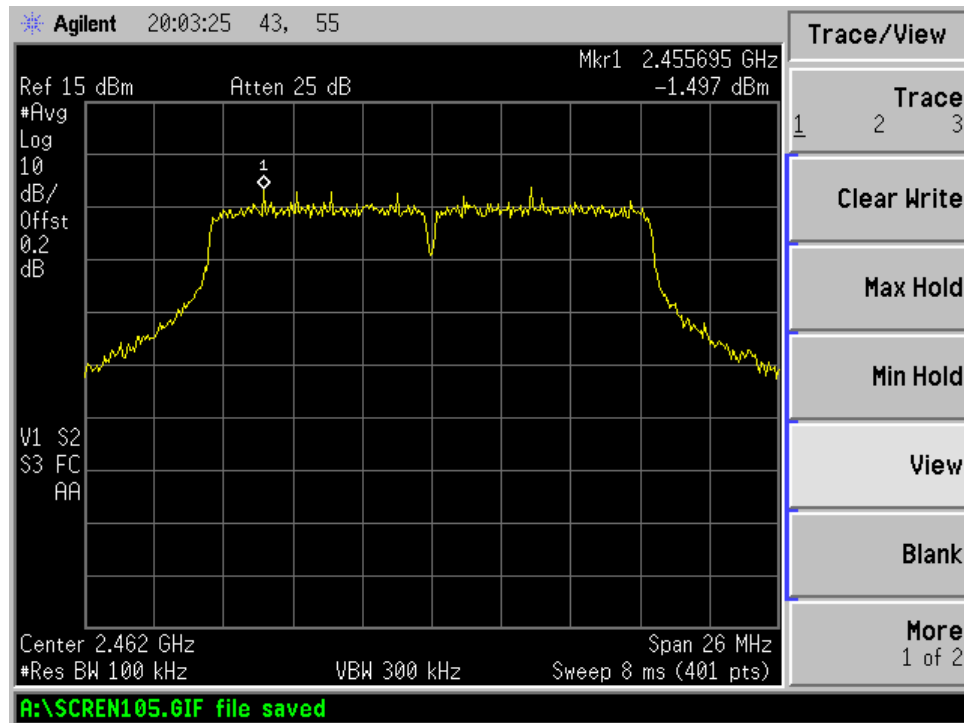


Result data graph shows middle channel power spectrum density is -1.382dBm at 100 KHz RBW





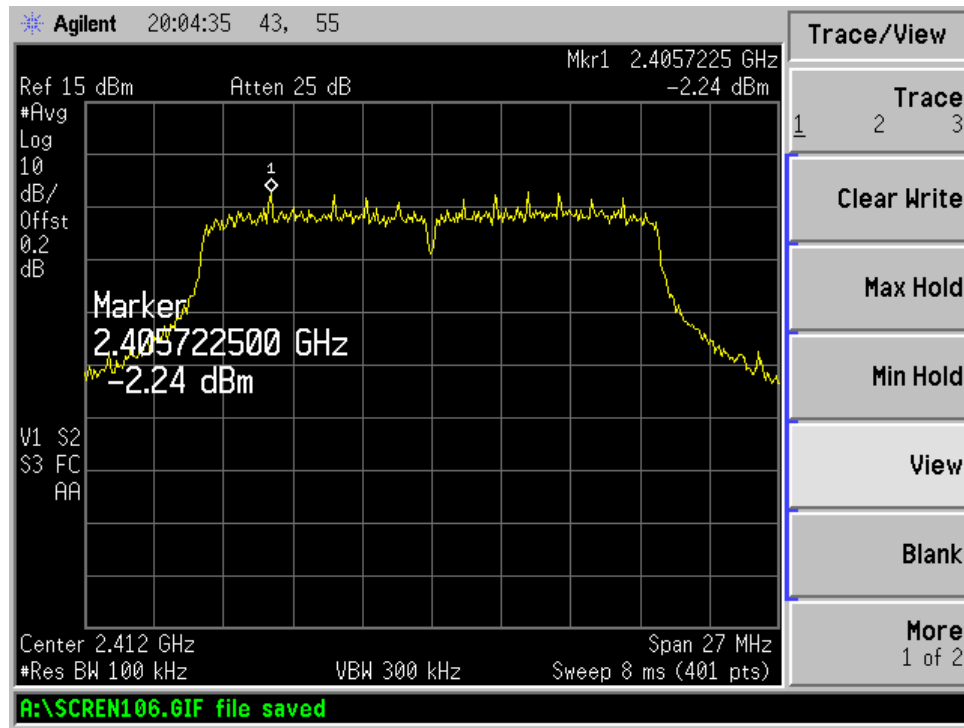
Result data graph shows high channel power spectrum density is -1.497dBm at 100 KHz RBW



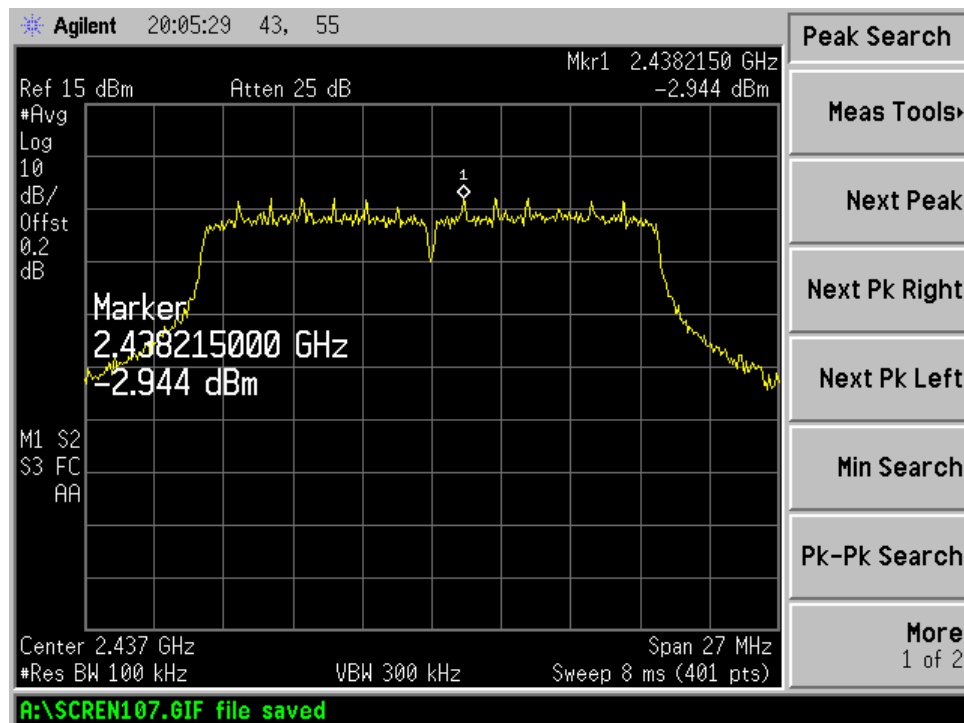


For 802.11HT20 Mode

Result data graph shows Low channel power spectrum density is -2.240dBm at 100 KHz RBW

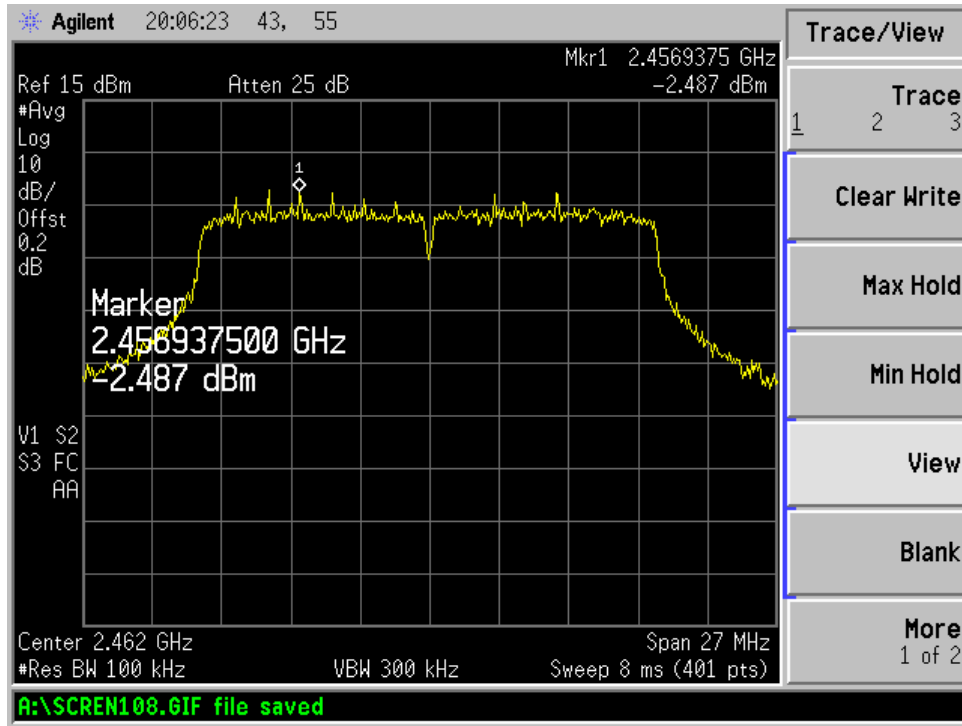


Result data graph shows middle channel power spectrum density is -2.944dBm at 100 kHz RBW





Result data graph shows high channel power spectrum density is 2.487dBm at 100 KHz RBW





4.3 Band Edge Measurement

Test Requirement: FCC part 15 section 15.247
 Test Date: 2013-05-16
 Mode of Operation: Transmitting continuously mode.
 Detector Function: Max Hold

Result: PASS

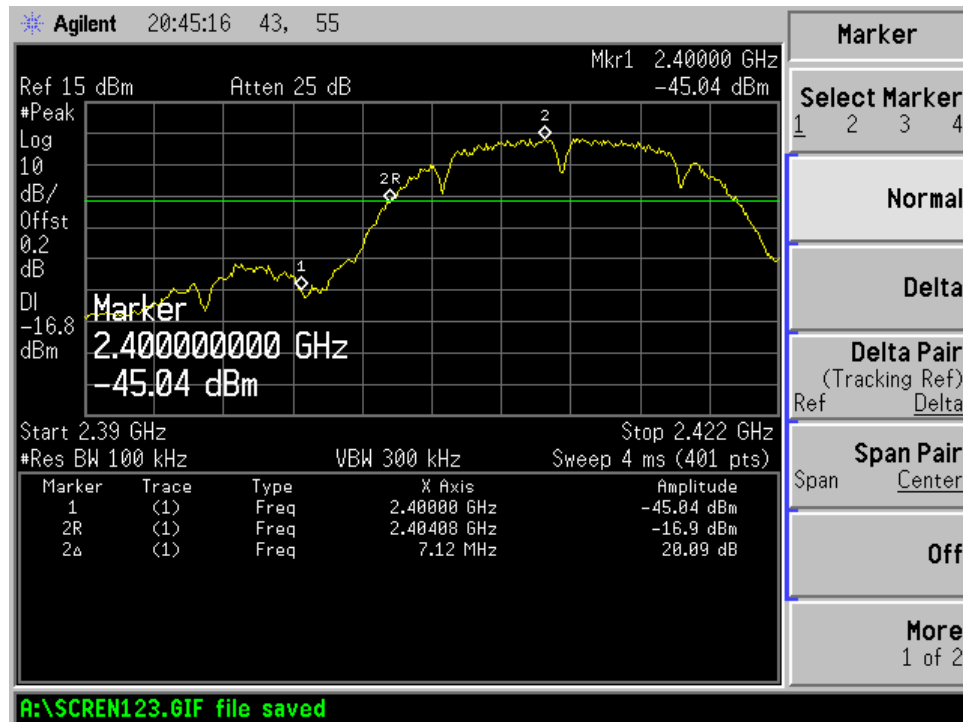
Measured Result :

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]:

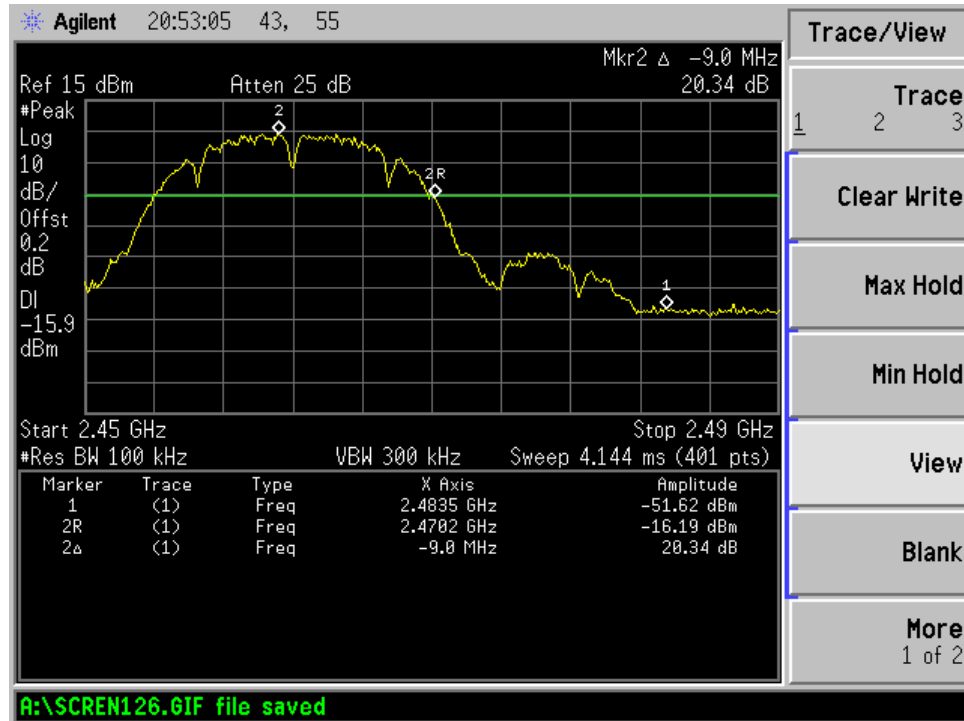
The carrier frequencies should operate within 2400-2483.5MHz.

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

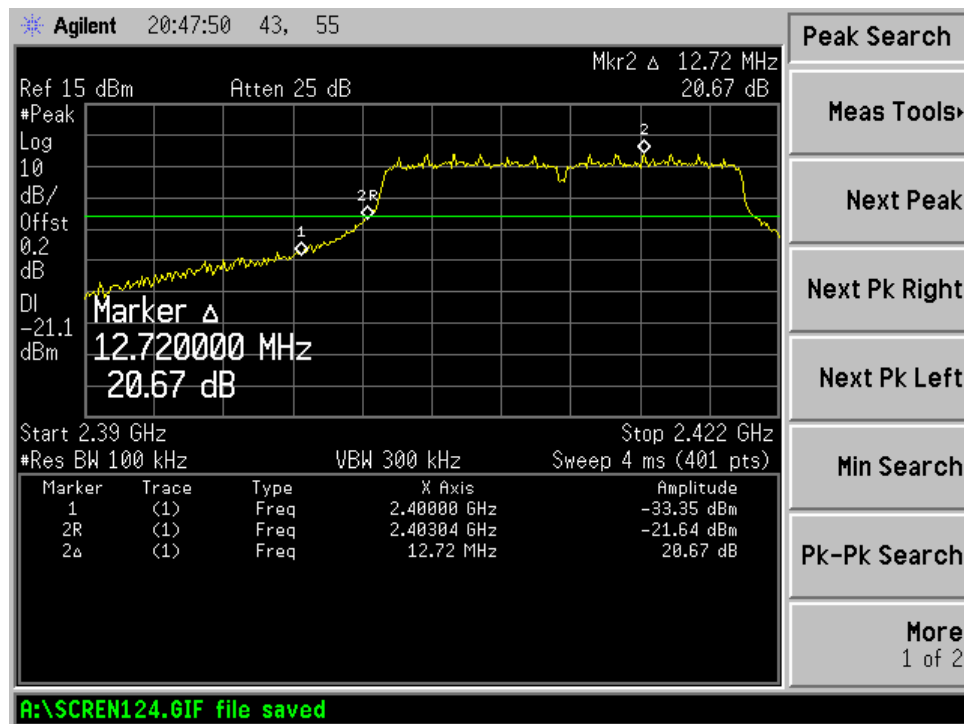




For 802.11B High Channel Mode

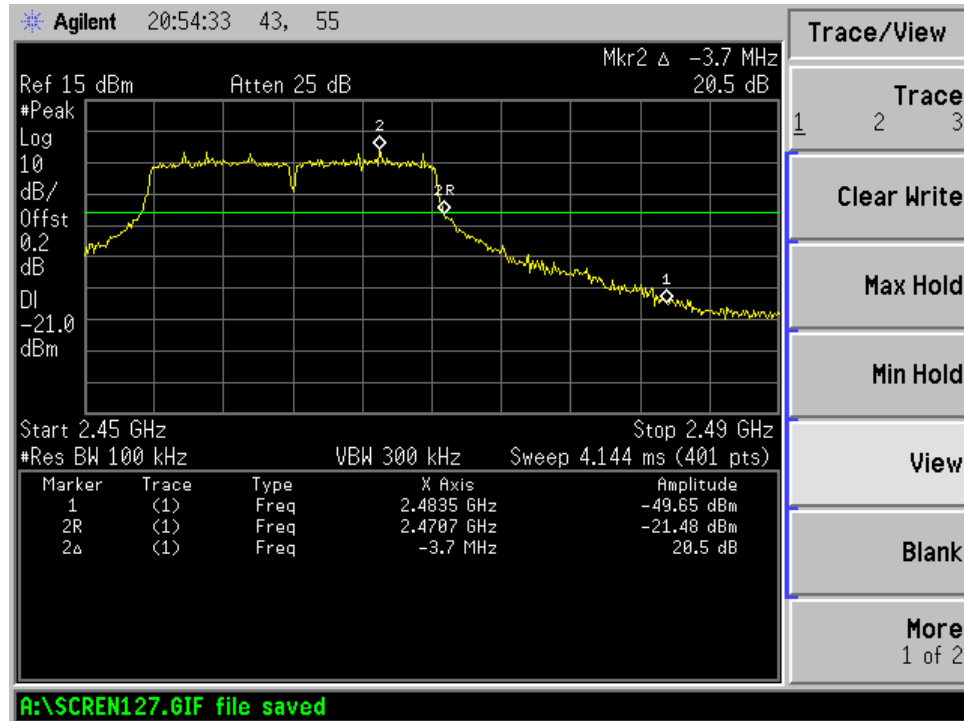


For 802.11G Low Channel Mode

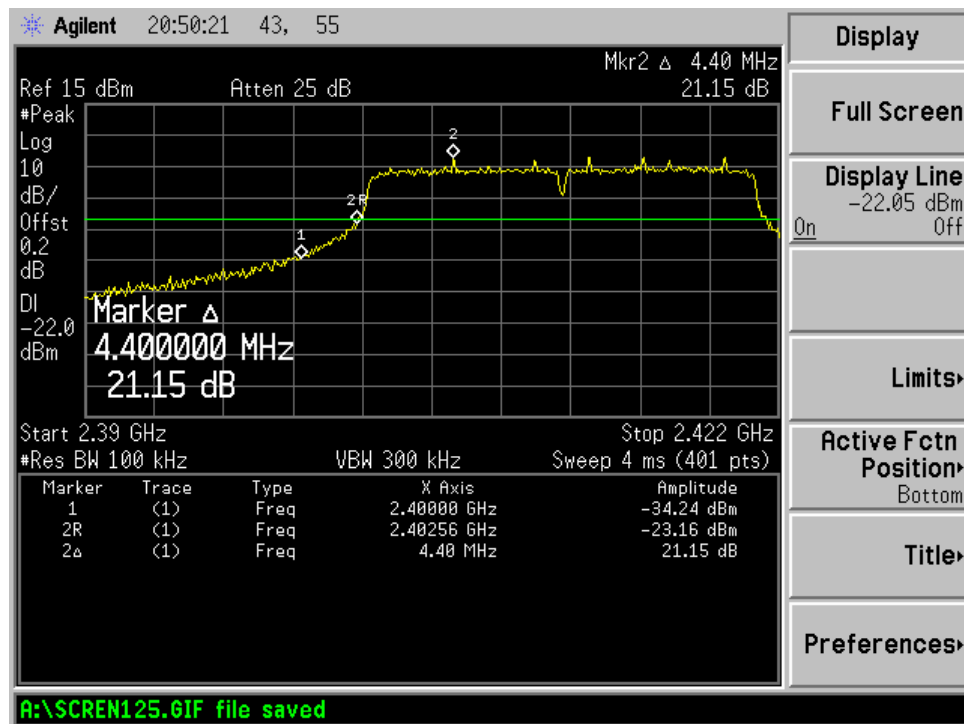




For 802.11B High Channel Mode

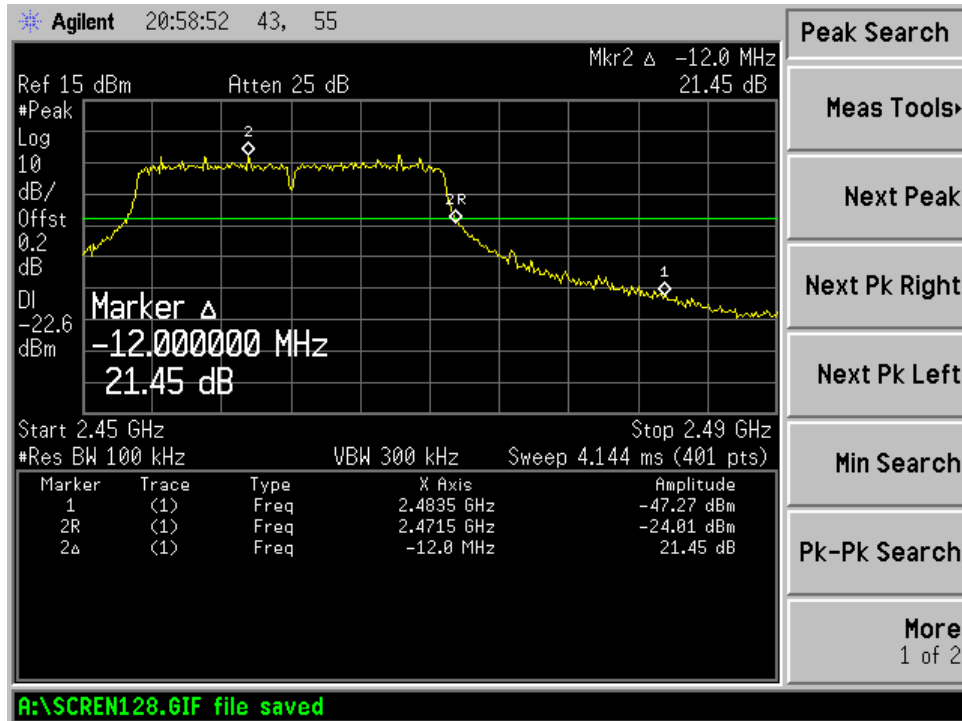


For 802.11N HT20 Low Channel Mode





For 802.11N HT20 High Channel Mode





4.4 Maximum Output Power

Test Requirement:	FCC part 15 section 15.247 (b3)
Test Method:	ANSI C63.4:2003
Test Date:	2013-05-16
Mode of Operation:	Transmitting continuously mode
Detector Function:	Peak
Measurement BW:	RBW 1MHz ; VBW 3MHz

Test Procedure :

According to section 15.247(b)-power output of the KDB-558074 D01 v03r01, the measurement procedure PK2 was used, the following is the measurement procedure.

1. Set the span $\geq 1.5 \times$ DTS bandwidth (6dB bandwidth).
2. Set RBW = 1 MHz, Set VBW =3 MHz.
3. Detector = peak; sweep time =auto couple.
4. Trace mode = max hold; allow the trace to fully stabilize.
5. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

**Result : PASS**

Transmitting Mode: Transmits continuously

Test mode	Frequency MHz	Output Power dBm	Output Power mW	Limit mW
802.11b 1Mbps	2412	17.36	54.45	1000
	2437	17.32	53.95	1000
	2462	17.89	61.52	1000
802.11g 6Mbps	2412	15.78	37.84	1000
	2437	15.55	35.89	1000
	2462	15.11	32.43	1000
802.11n HT20 MCS0	2412	14.64	29.11	1000
	2437	14.98	31.47	1000
	2462	14.75	29.85	1000

Note: Above testing data is base on the cable loss which between antenna port and spectrum is 0.2dB

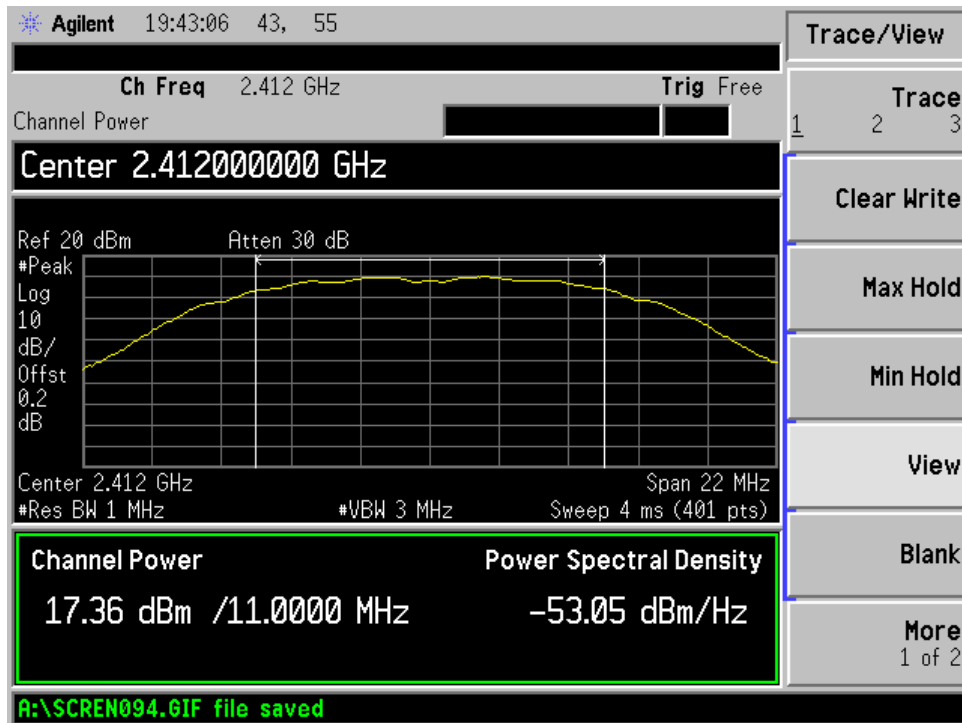
Limits for Maximum Output Power [Section 15.247 (b3)]:

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

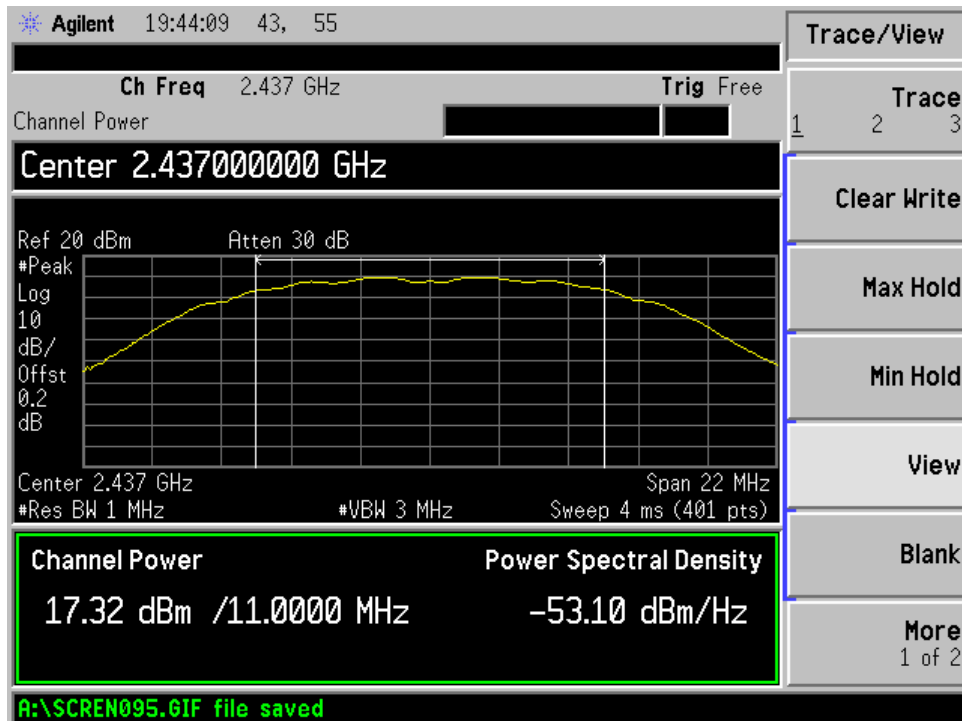


For 802.11B Mode

Result data graph shows Low channel conducted power = 17.36dBm

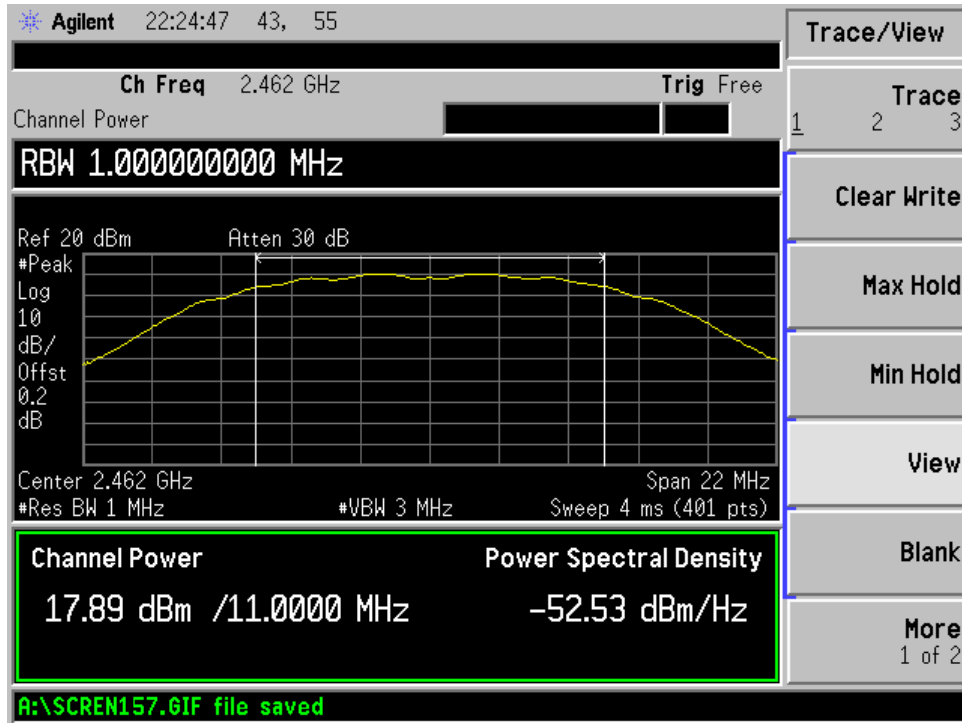


Result data graph shows middle channel conducted power = 17.32dBm





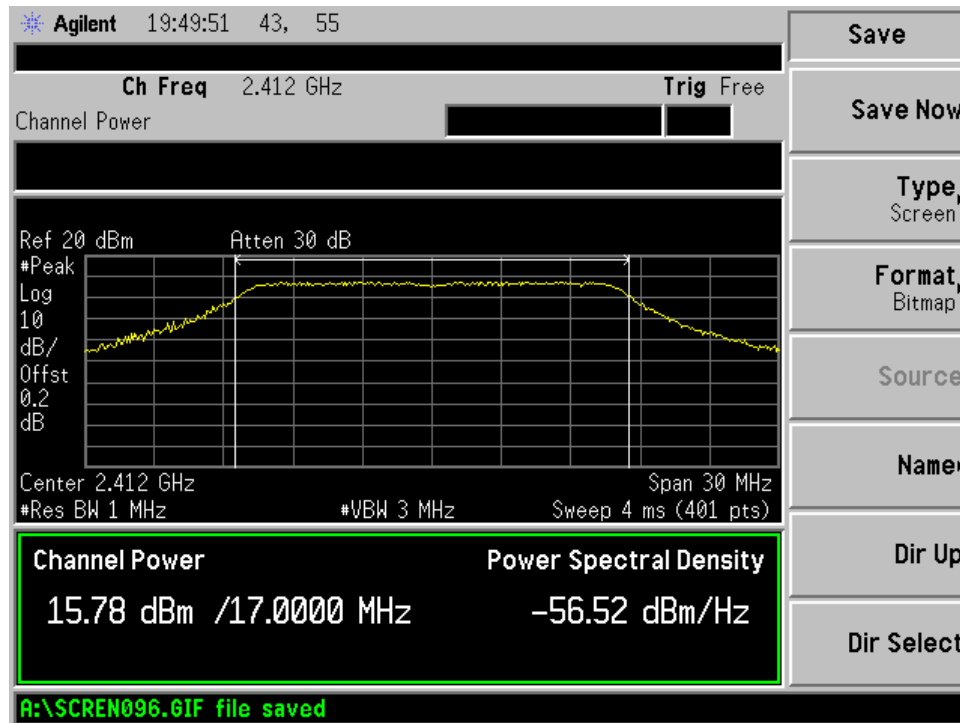
Result data graph shows high channel conducted power = 17.89dBm



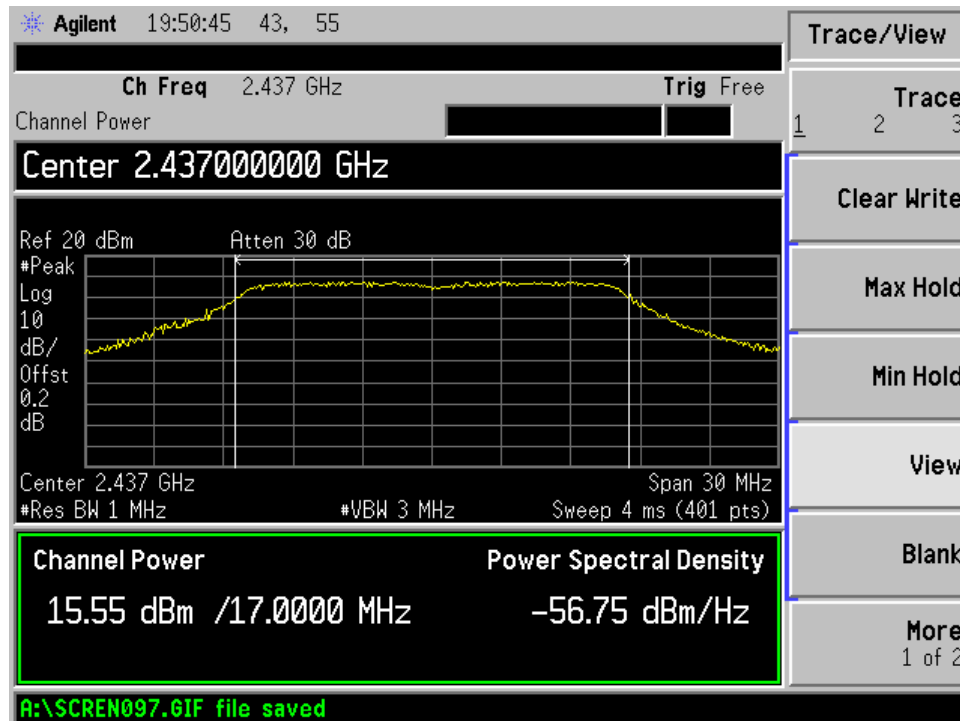


For 802.11G Mode

Result data graph shows Low channel conducted power = 15.78dBm

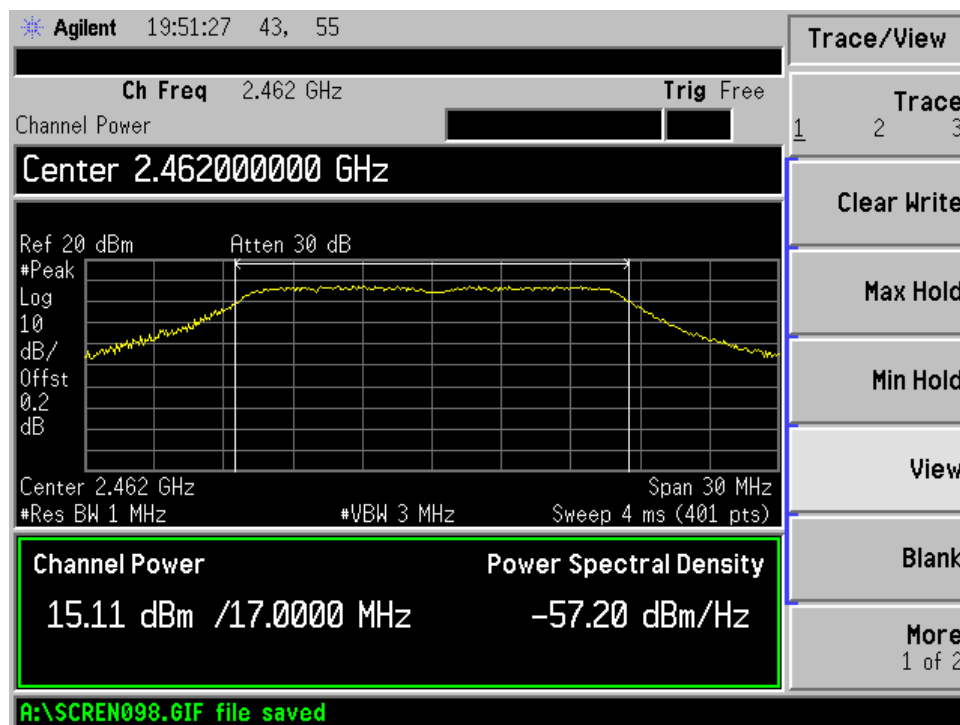


Result data graph shows middle channel conducted power = 15.55dBm





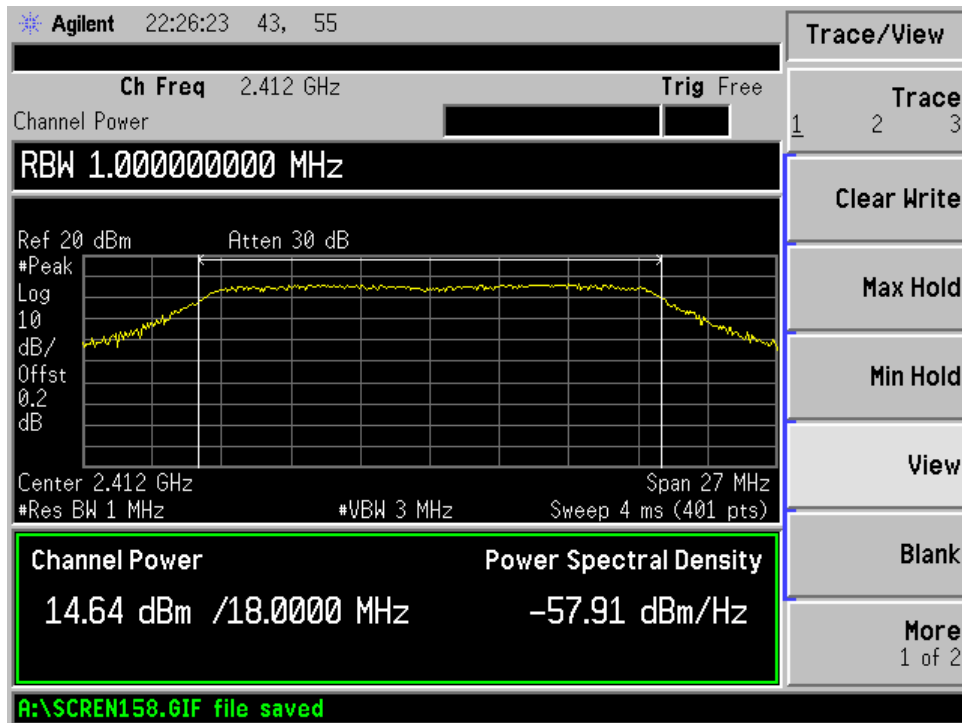
Result data graph shows high channel conducted power = 15.11dBm



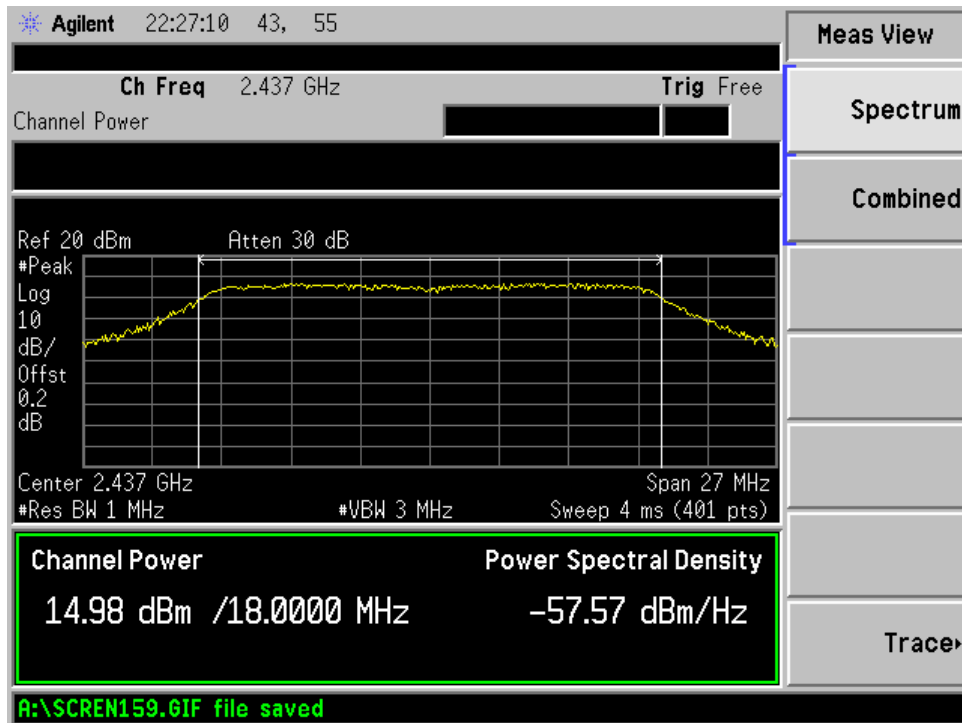


For 802.11N HT20 Mode

Result data graph shows Low channel conducted power = 14.64dBm

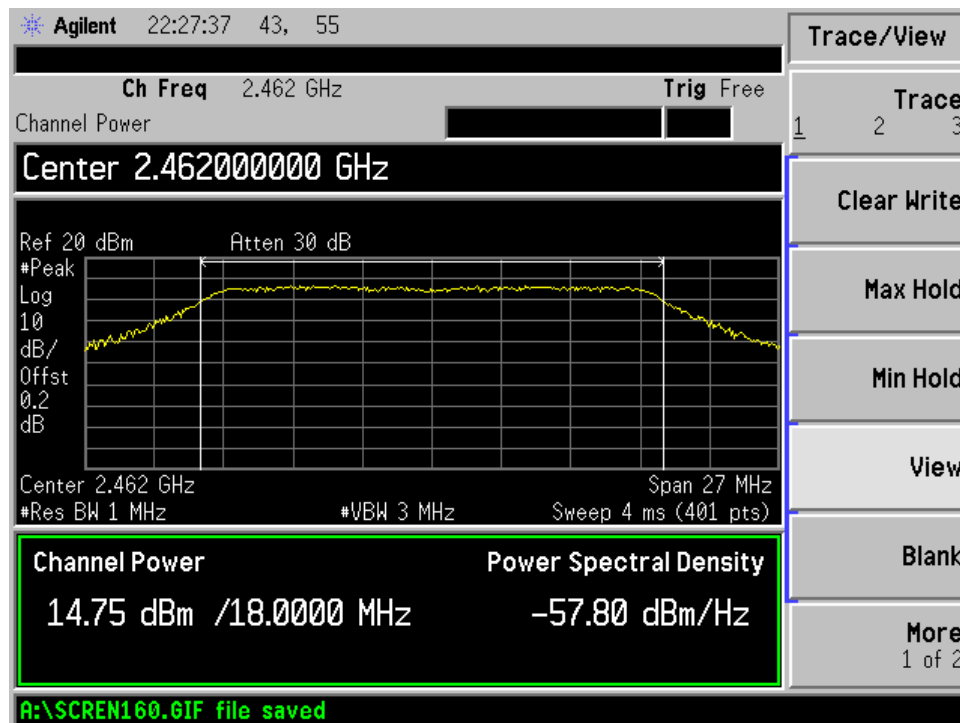


Result data graph shows middle channel conducted power = 14.98dBm





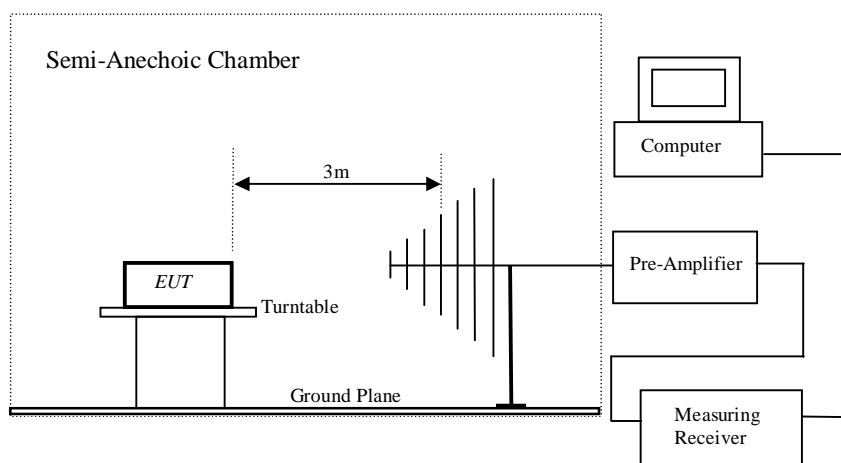
Result data graph shows high channel conducted power = 14.75dBm



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:	2013-05-16
Mode of Operation:	Transmitting continuously 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 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 [$\mu\text{V}/\text{m}$]	Field Strength [dB $\mu\text{V}/\text{m}$]
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.

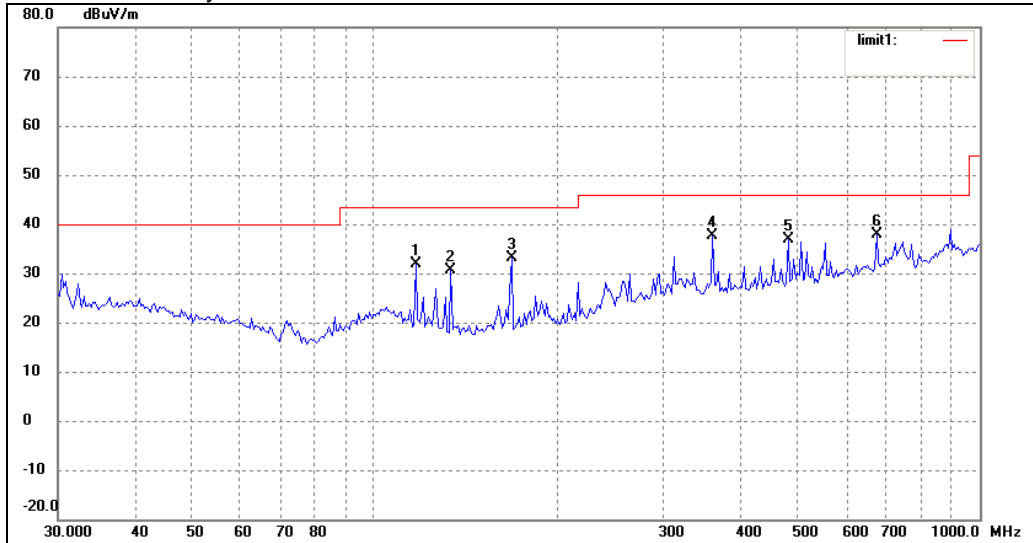
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.



Result : PASS

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

Below 1GHz emissions
Horizontal Polarity



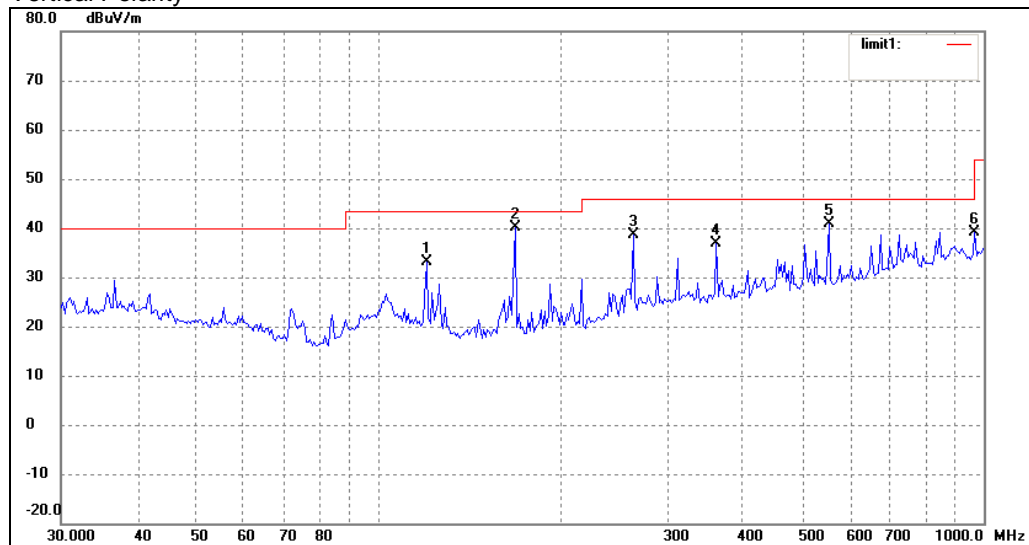
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	116.9495	26.74	5.17	31.91	43.50	-11.59	QP
2	133.6188	26.76	3.86	30.62	43.50	-12.88	QP
3	168.4138	29.51	3.69	33.20	43.50	-10.30	QP
4	361.7139	26.84	10.69	37.53	46.00	-8.47	QP
5	482.2156	25.27	11.49	36.76	46.00	-9.24	QP
6	675.2080	22.52	15.36	37.88	46.00	-8.12	QP



Result : PASS

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

Below 1GHz emissions
Vertical Polarity



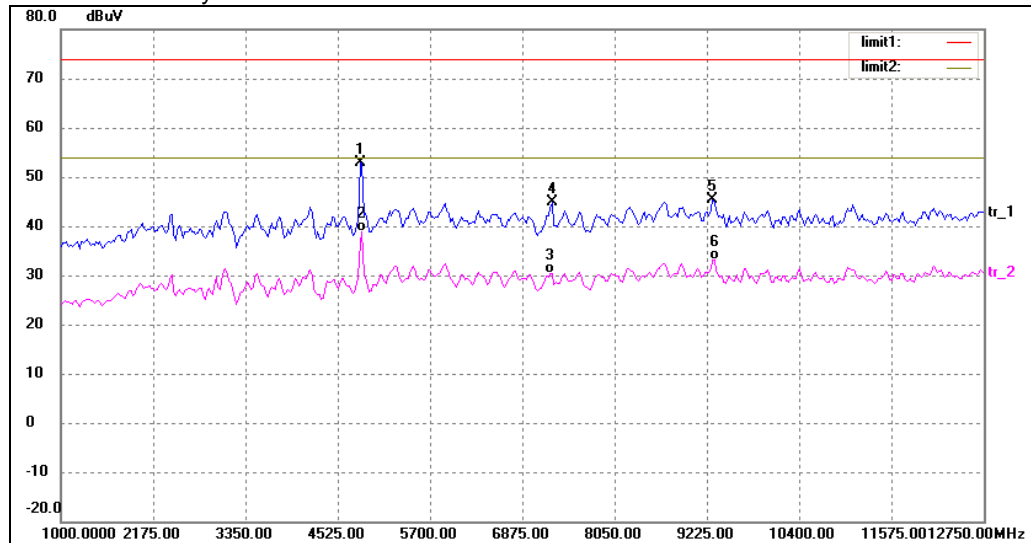
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	120.2766	28.24	4.85	33.09	43.50	-10.41	QP
2	168.4138	36.36	3.69	40.05	43.50	-3.45	QP
3	263.8190	30.58	8.00	38.58	46.00	-7.42	QP
4	361.7139	26.24	10.69	36.93	46.00	-9.07	QP
5	554.8254	27.64	13.27	40.91	46.00	-5.09	QP
6	965.5421	20.77	18.37	39.14	54.00	-14.86	QP



Result : PASS

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

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
1	4807.000	52.39	0.55	52.94	74.00	-21.06	peak
2	4830.500	38.38	0.57	38.95	54.00	-15.05	AVG
3	7227.500	26.68	3.68	30.36	54.00	-23.64	AVG
4	7251.000	41.14	3.71	44.85	74.00	-29.15	peak
5	9295.500	39.19	6.10	45.29	74.00	-28.71	peak
6	9319.000	27.10	6.13	33.23	54.00	-20.77	AVG

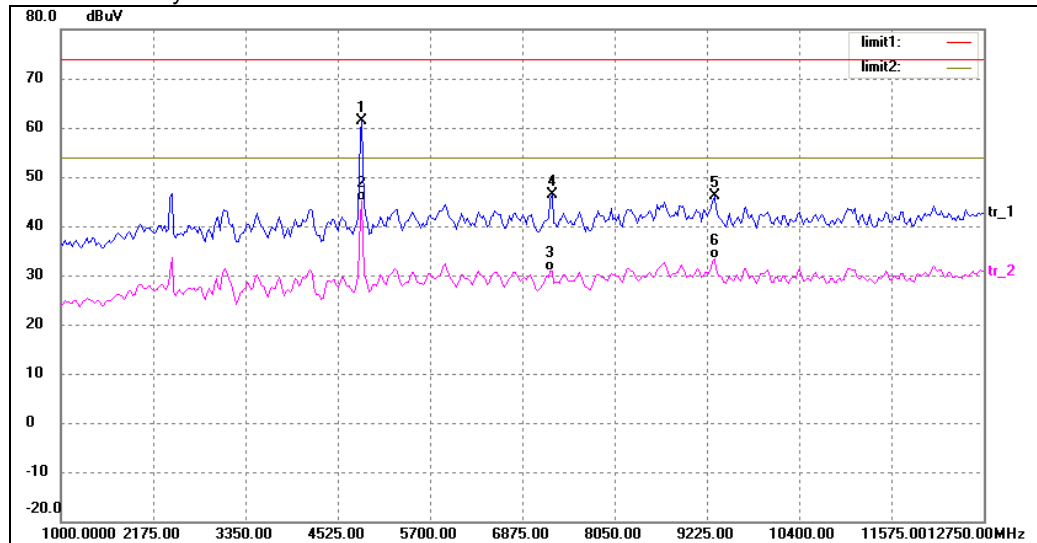
Remark: Only background noise was measured from 12.5GHz-26GHz.



Result : PASS

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

Above 1GHz Emission test data
Vertical Polarity



No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4830.500	60.89	0.57	61.46	74.00	-12.54	peak
2	4830.500	44.60	0.57	45.17	54.00	-8.83	AVG
3	7227.500	27.14	3.68	30.82	54.00	-23.18	AVG
4	7251.000	42.59	3.71	46.30	74.00	-27.70	peak
5	9319.000	39.92	6.13	46.05	74.00	-27.95	peak
6	9319.000	27.15	6.13	33.28	54.00	-20.72	AVG

Remark: Only background noise was measured from 12.5GHz-26GHz.

Result Summary:

- 1) Communication mode: All other emissions are more than 20dB below FCC part 15.209 limits.
- 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 highest channel's emission data graph from 30MHz-26GHz.

Remarks:

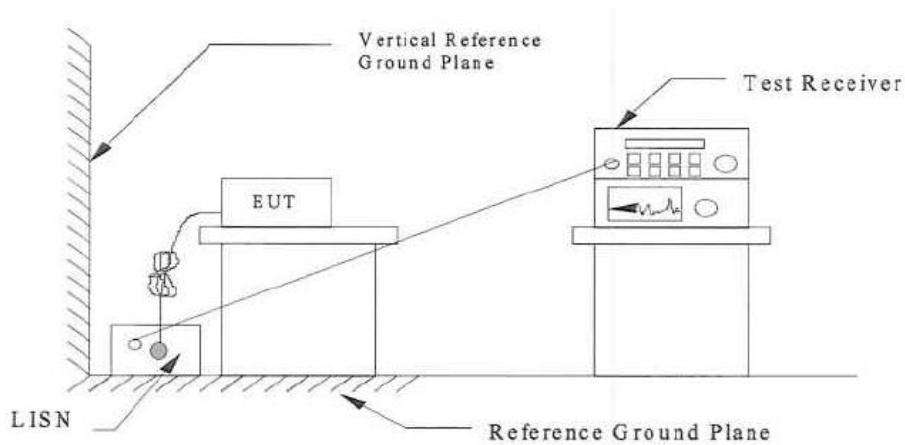
1. " * " Radiated emissions which fall in the restricted bands as defined in Section 15.205(a).
2. Emission level with more than 20dB below the FCC required limit is not mentioned in table.
3. Delta to Limit = Field strength (dB μ V/m) – Limit (dB μ V/m).
4. Calculated measurement uncertainty: 9kHz -30MHz: 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:	2013-05-15
Mode of Operation:	Transmitting continuously mode
Detector Function:	CISPR Quasi Peak
Measurement BW:	100 kHz
Worst Case Channel:	Highest Channel

Results : PASS

Test Setup:



Limits for Conducted Emission [Section 15.207]:

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

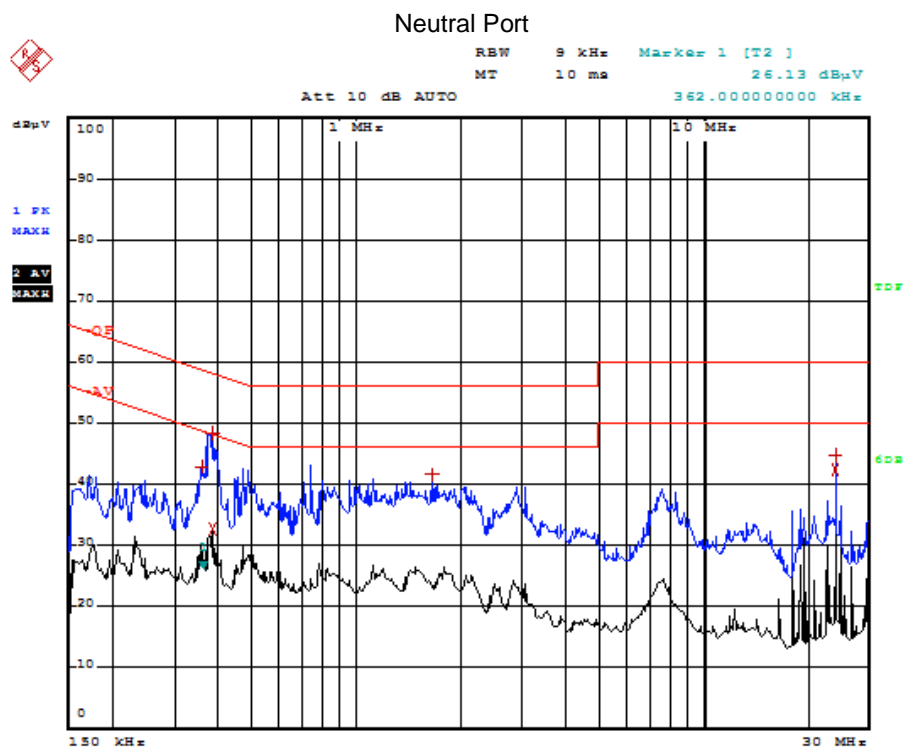
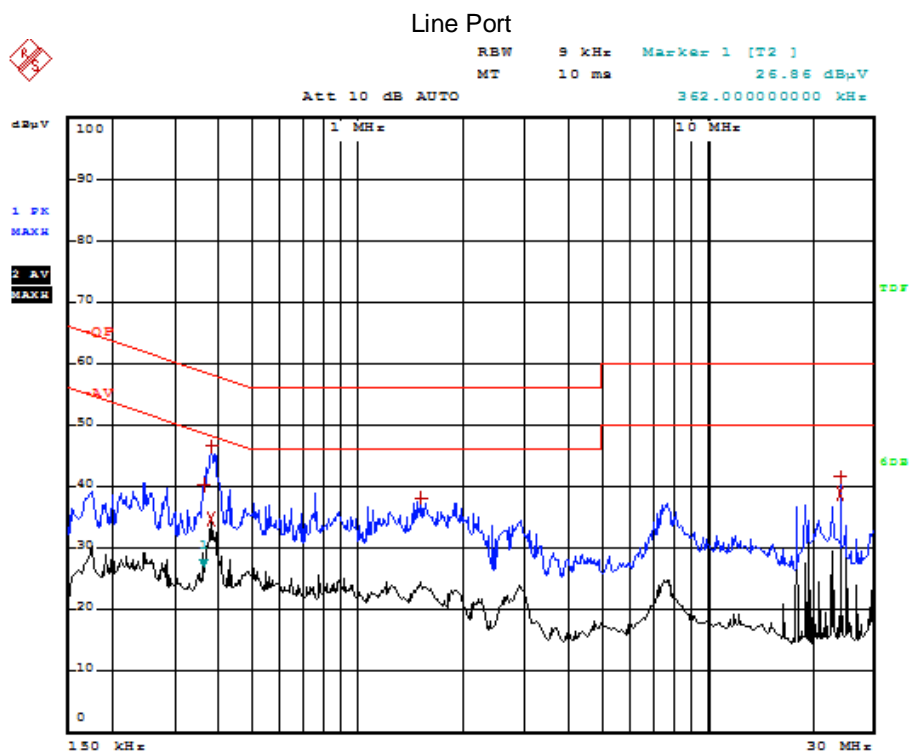
* Decreases with the logarithm of the frequency.

Remarks:

Calculated measurement uncertainty: ± 2.88 dB



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





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

Frequency (MHz)	Detector (QP/AV)	Phase	Result (dB μ V)	Limit (dB μ V)	Margin
0.362	QP	L	40.27	58.68	-18.41
0.382	QP	L	46.49	58.23	-11.74
0.382	AV	L	34.64	48.23	-13.59
1.522	QP	L	38.29	56.00	-17.71
23.978	QP	L	41.54	60.00	-18.46
23.978	AV	L	39.09	50.00	-10.91
0.358	QP	N	42.95	58.77	-15.82
0.386	QP	N	48.38	58.15	-9.77
0.386	AV	N	32.58	48.15	-15.57
1.650	QP	N	41.61	56.00	-14.39
23.978	QP	N	44.75	60.00	-15.25
23.978	AV	N	42.30	50.00	-7.70



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:	<input type="checkbox"/> Portable (< 20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others :
Exposure Classification:	<input type="checkbox"/> Occupational/ Controlled exposure <input checked="" type="checkbox"/> General Population / Uncontrolled exposure
Max Transmit Power	61.52mW
Antenna Gain	2.0dBi (Numeric gain:1.58)
Evaluation Applied:	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

MPE calculation:

The maximum radiated power (EIRP) = the maximum output power+ antenna gain
 = 17.89dBm+2.0dBi
 =19.89dBm
 =97.50mW

The power density at 20cm from the antenna: = EIRP / 4 π R²
 = 0.02mW / 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	07 May 13	06 May 14
R&S	Test Receiver	ESI26	838786/013	07 May 13	06 May 14
Positioning Controller	C&C	CC-C-1F	N/A	07 May 13	06 May 14
SCHWARZBECK	Trilog Broadband Antenna	VULB9163	9163-333	20 Apr 13	19 Apr 14
ETS	Horn Antenna	3117	00086197	20 Mar 13	19 Apr 14
Agilent	Pre-amplifier	8447F	3113A06717	07 May 13	06 May 14
Compliance Direction	Pre-amplifier	PAP-0118	24002	07 May 13	06 May 14
Anechoic chamber	Albatross Projects	MCDC	----	04.Dec2008	03 Dec 2013

Line Conducted

Manufacturer	Equipment	Model No.	Serial No.	Cal. Date	Due Date
Rohde & Schwarz	EMI Test Receiver	ESPI	101611	07 May 13	06 May 14
Schwarz beck	L.I.S.N	NSLK8126	8126-224	07 May 13	06 May 14
Rohde & Schwarz	Pulse Limiter	ESH3-Z2	100911	07 May 13	06 May 14
EMCO	AMN	3825/2	11967C	07 May 13	06 May 14
FCC	Current Probe	F-33-4	091684	07 May 13	06 May 14

N/A Not Applicable or Not Available