FCC Test Report

Client Information:

Applicant: SHARETRONIC GROUP CO.,LTD

Applicant add.: Xinfa Industrial Estate Xingqiao Baoan District ,Shen Zhen, China

EUT Information:

EUT Name: Netbook

Model No.: (1) SN009, (2) SN010, (3) SN011, (4) SN012, (5) SN013, (6) SN014

Brand Name: N/A

Prepared By:

Asia Institute Technology (Dongguan) Limited
Add. : No.6 Binhe Road, Tianxin Village, Huangjiang, Dongguan, Guangdong, China.

Date of Receipt: Dec. 15, 2009 Date of Test: Jan. 04~07, 2010

Date of Issue: Jan. 08, 2010 Test Result: **Pass**

Test procedure used: ANSI C63.4-2003

This device described above has been tested by Asia Institute Technology (Dongguan) Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

Reviewed by: Jim He
Test director

Approved by: Bovey Yang
Technical director

1 Contents

2 Test Summary

2.1 Compliance with FCC Part 15 subpart C

Test	Test Requirement	Stanadard Paragraph	Result
Conduction Emissions	FCC Part 15 C:2008	Section 15.203	**PASS**
Antenna Requirement	FCC Part 15 C:2008	Section 15.247(c)	**PASS**
Occupied Bandwidth	FCC Part 15 C:2008	Section 15.247(a)(2)	**PASS**
Peak power density	FCC Part 15 C:2008	Section 15.215(e)	**PASS**
Maximum Peak Output Power	FCC Part 15 C:2008	Section 15.215(b)(3)	**PASS**
Band edge	FCC Part 15 C:2008	Section 15.215(d)	**PASS**
Conducted Spurious Emissions	FCC Part 15 C:2008	Section 15.215(d)	**PASS**
Radiated Emissions	FCC Part 15 C:2008	Section 15.215(d)	**PASS**
RF Exposure requirement	FCC Part 15 C:2008	Section 15.247(i)	**PASS**

2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, The following measurements uncertainty Level have estimated based on ANSI C63.4:2003, the maximum value of the uncertainty as below

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	Radiated Emission Test	±3.57dB

3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

.FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Asia Institute Technology (Dong guan) Limited have been registered by Federal Communications Commission (FCC) on Dec.07, 2006.

.Industry Canada(IC)-Registration No: IC6819A-1 & IC6819A-2

The 3m Semi-Anechoic Chamber and 3m/10m Open Area Test Site of Asia Institute Technology (Dongguan) Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Nov.07, 2006.

.VCCI- Registration No: R-2482 & C-2730

The 3m/10m Open Area Test Site and Shielding Room of Asia Institute Technology (Dongguan) Limited have been registered by Voluntary Control Council for Interference on Jan.24, 2007.

.TUV Rhineland

Asia Institute Technology (Dongguan) Limited has been assessed on Jan.16, 2007 that it can carry out EMC tests by order and under supervision of TUV Rhineland.

.ITS- Registration No: TMPSHA031

Asia Institute Technology (Dongguan) Limited has been assessed and included in Intertek Shanghai TMP Program regarding Laboratory facilities and test equipment on Nov.10, 2006.

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None

4 General Information

4.1 General Description of EUT

Manufacturer:	DONGGUAN HANYANG COMPUTER CO .,LTD
Manufacturer Address:	Weiqiang Technology, Park, YinHe Industrial Estate QinfXi Town, DongGuan, GuangDong
EUT Name:	Netbook
Model No:	(1) SN009, (2) SN010, (3) SN011, (4) SN012, (5) SN013, (6) SN014
Operation frequency:	IEEE 802.11b: 2412 ~ 2462 MHz IEEE 802.11g: 2412 ~ 2462 MHz
Channel Number:	IEEE 802.11b/g mode: 11 Channels
Modulation Technology:	IEEE 802.11b mode: DSSS IEEE 802.11g mode: OFDM
AntennaType:	PIFA Antenna
Brand Name:	N/A
Serial No:	N/A
Power Supply Range:	N/A
Power Supply:	DC 19V from adapter AC 100-240V 50/60Hz
Power Cord:	AC Input Line: 1.8m / Unshielded / Undetachable / Without ferrite core
Signal Cable:	N/A
Model description: (1) SN009, (2) SN010, (3) SN011, (4) SN012, (5) SN013, (6) SN014 All the models are totally identical, Just corlor is different.	

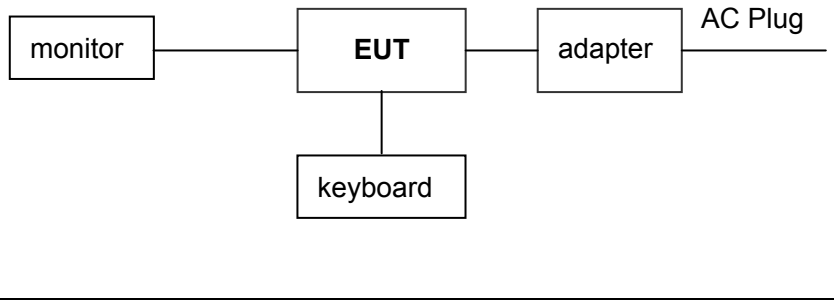
Description of Channel:

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

4.2 Description of Test conditions

(1) EUT was tested in normal configuration (Please See following Block diagram)

1. Block diagram of EUT configuration



(2) E.U.T. test conditions:

15.31(e) :For intentional radiators, measurements of the variation of the input power or the adiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% ofthe nominal rated supply voltage. For battery operated equipment, theequipment tests shall be performed using a new battery.

(3) Test frequencies:

According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and. if required. reported for each band in which the device can be operated with the device operating at the number of fequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

(4) Frequency range of radiated measurements:

According to the 15.33,The test range will be upto the tenth harmonic of the highest fundamental frequency

4.3 Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	signal cable
1	SWITCHING POWER SUPPLY	Great Wall	ADP40S-1902100	N/A	1.8m/ Unshielded / Detachable	N/A
2	Keyboard	DELL	SK-8115	CN-ONM432-71616-81M-OLKB	N/A	1.5m/unshielded /undetachable
3	Monitor	DELL	T980KACDK21SN	TWS20006045	1.8m/unshielded /detachable	1.8m/shielded /detachable

5 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	Agilent	E4446A	MY43360458	2009.04.17	2010.04.16
2	EMI Measuring Receiver	Schaffner	SCR3501	235	2009.04.08	2010.04.07
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2009.09.08	2010.03.07
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2009.04.08	2010.04.07
5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2009.07.15	2010.07.14
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9120A	451	2009.07.15	2010.07.14
7	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2009.09.08	2010.03.07
8	EMI Test Receiver	R&S	ESCI	100124	2009.12.28	2010.12.27
9	LISN	Kyoritsu	KNW-242	8-837-4	2009.04.08	2010.04.07
10	LISN	Kyoritsu	KNW-407	8-1789-3	2009.04.08	2010.04.07
11	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2009.09.08	2010.03.07

6 Test Result

6.1 Antenna Requirement

6.1.1 Standard requirement

15.203 requirement: For intentional device, 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.

15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

6.1.2 EUT Antenna

The antenna is PIFA type and antenna gain is 2.3dbi max

6.2 Conduction Emissions Measurement

6.2.1 limit

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

Note:Decreases with the logarithm of the frequency.

6.2.2 Test result

EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

6.2.3 Test result

Test Data: 2010-1-4

Operating Environment: 20.3°C, 58% RH, 102 Kpa

Line

Frequency (MHz)	Factor (dB)	Reading Level (dBμV)	Quasi peak (dBμV)	Margin (dB)	Limit (dBμV)	Reading Level (dBuV)	Average (dBμV)	Margin (dB)	Limit (dBμV)
0.298	10.759	17.474	28.233	-33.538	61.771	11.374	22.133	-29.638	51.771
0.442	10.465	26.930	37.395	-20.262	57.657	15.830	26.295	-21.362	47.657
0.566	10.314	22.578	32.892	-23.108	56.000	12.978	23.292	-22.708	46.000
0.858	10.224	20.289	30.513	-25.487	56.000	11.689	21.913	-24.087	46.000
1.802	10.180	21.324	31.504	-24.496	56.000	12.224	22.404	-23.596	46.000
***6.389**	**10.200**	**33.491**	**43.691**	**-16.309**	**60.000**	**25.791**	**35.991**	**-14.009**	**50.000**

Neutral

Frequency (MHz)	Factor (dB)	Reading Level (dBuV)	Quasi peak (dBμV)	Margin (dB)	Limit (dBμV)	Reading Level (dBuV)	Average (dBμV)	Margin (dB)	Limit (dBμV)
***0.410**	**10.558**	**31.255**	**41.813**	**-16.758**	**58.571**	**21.655**	**32.213**	**-16.358**	**48.571**
0.454	10.461	28.412	38.873	-18.441	57.314	19.812	30.273	-17.041	47.314
0.870	10.226	18.308	28.534	-27.466	56.000	11.208	21.434	-24.566	46.000
1.070	10.200	20.128	30.328	-25.672	56.000	12.028	22.228	-23.772	46.000
1.630	10.180	18.630	28.810	-27.190	56.000	9.030	19.210	-26.790	46.000
6.381	10.210	31.871	42.081	-17.919	60.000	21.271	31.481	-18.519	50.000

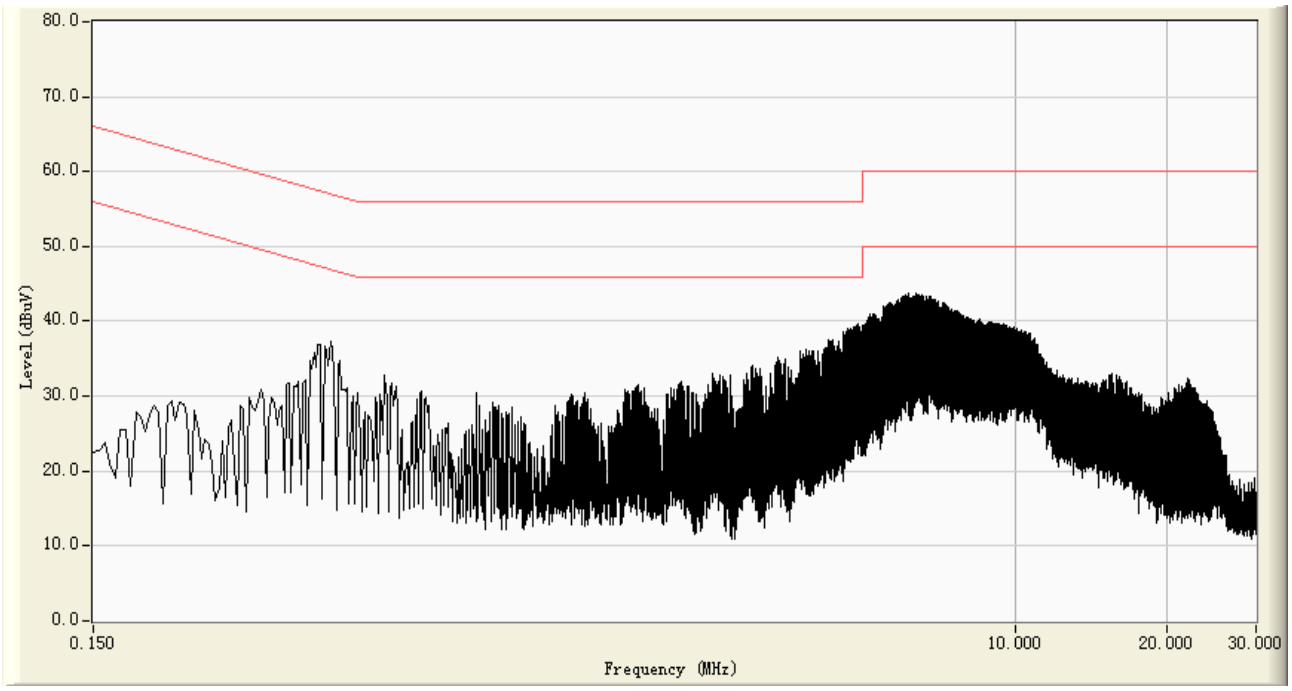
Note: '*' means the worst case

Quasi peak/Average = Reading Level + Factor

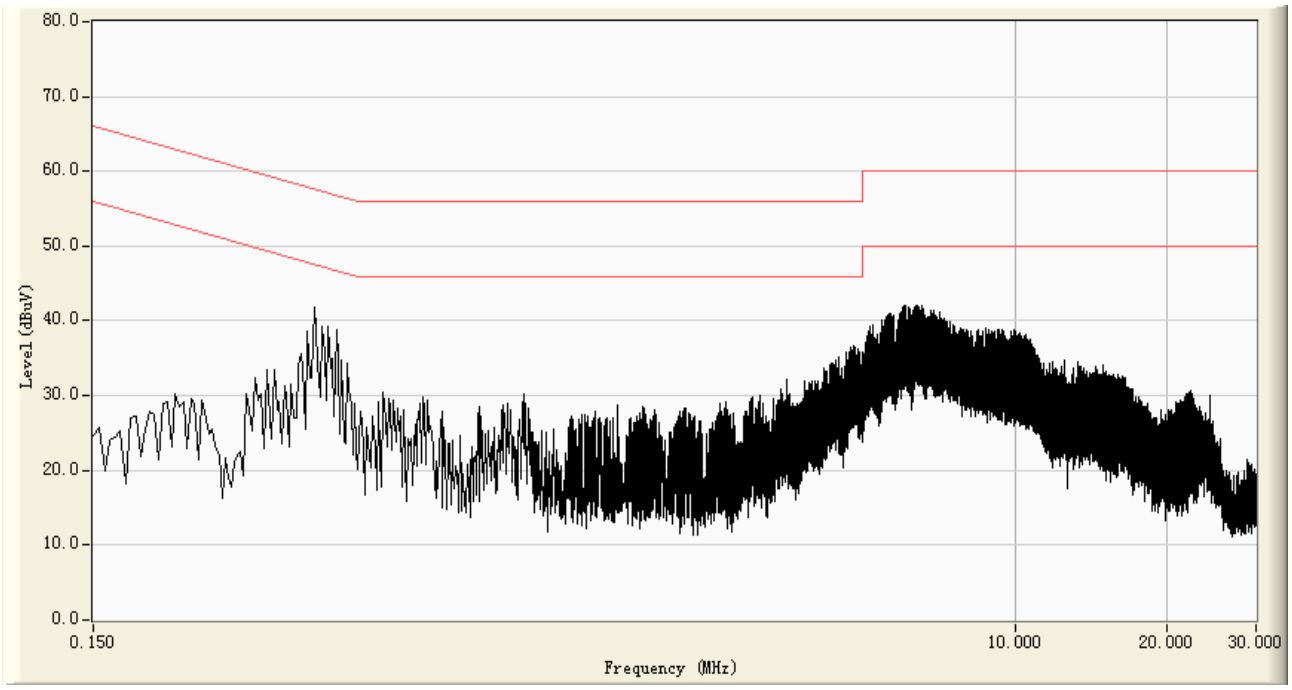
Factor= Cable Loss + LISN insertion loss

Mode: Running

Line --Operating mode: running



Neutral --Operating mode: running



6.3 Occupied Bandwidth

6.3.1 limit

15.247(a) (2) Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3.2 Test procedure

(1) Connected the antenna port to the Spectrum Analyzer , set the Spectrum Analyzer as RBW=100kHz,VB𝕎≧RBW,Sweep time=Auto, Detector Function=Peak

(2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB down one side of the emission.

(3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation

6.3.3 Test result

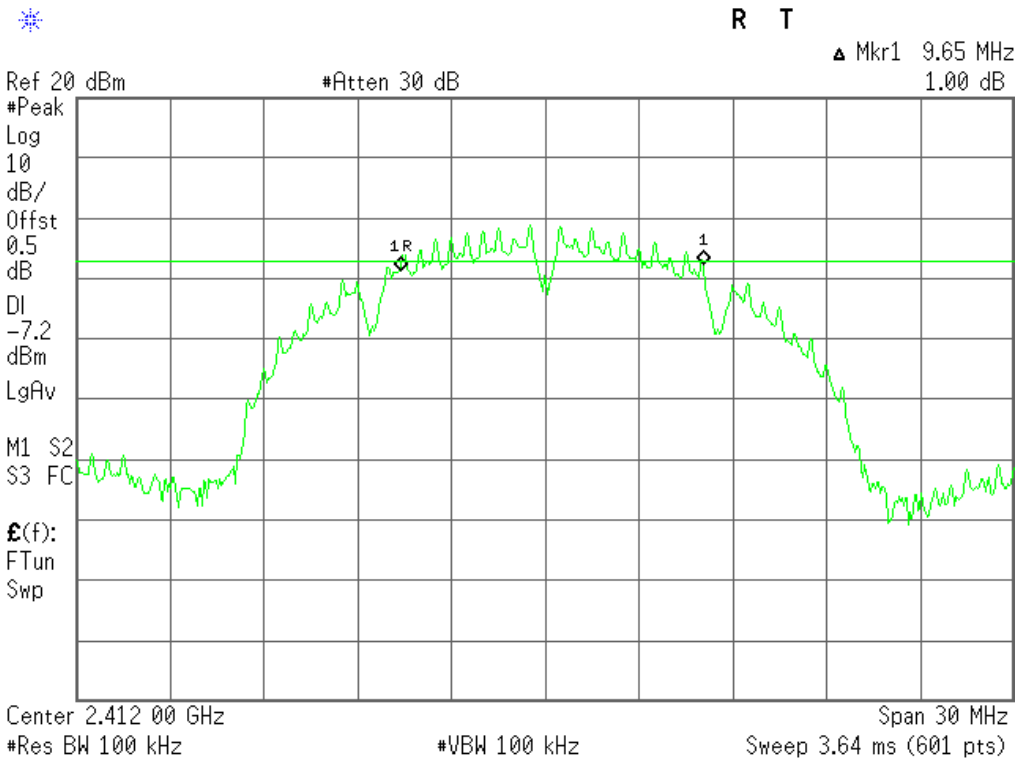
802.11 b

channel	Channel frenqucy (MHz)	6dB bandwidth (MHz)	Limit (KHz)	Conclusion
Low	2412	9.65	500	Pass
Middle	2437	9.20	500	Pass
Highest	2462	9.20	500	Pass

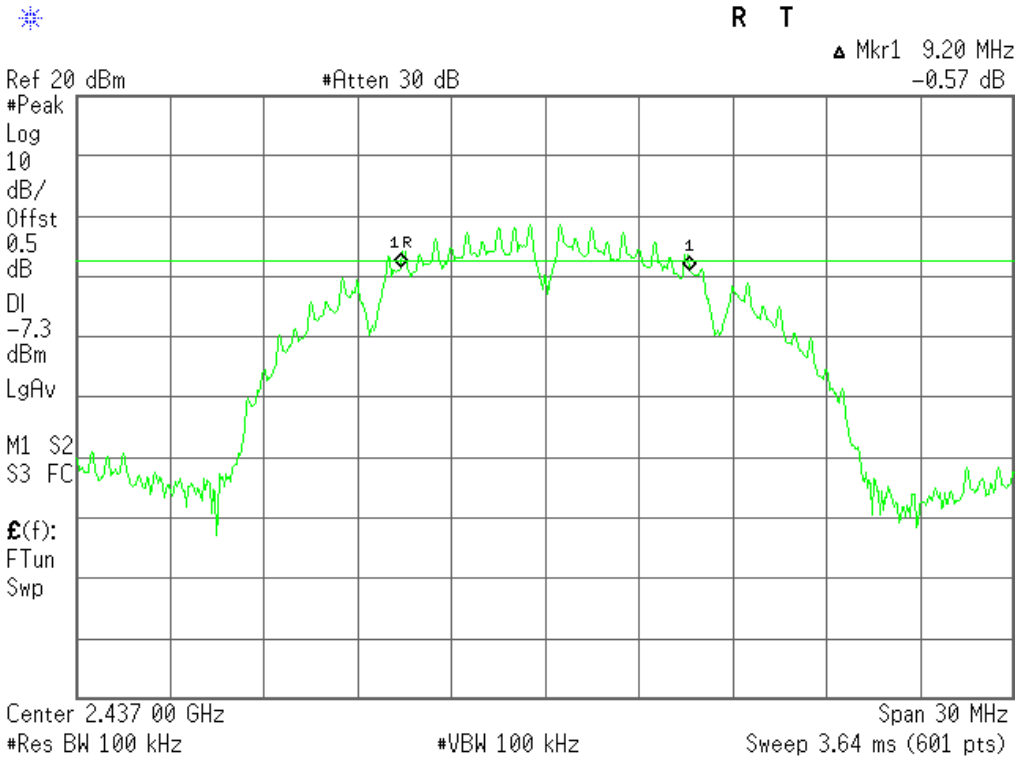
802.11 g

channel	Channel frenqucy (MHz)	6dB bandwidth (MHz)	Limit (KHz)	Conclusion
Low	2412	16.40	500	Pass
Middle	2437	16.40	500	Pass
Highest	2462	16.45	500	Pass

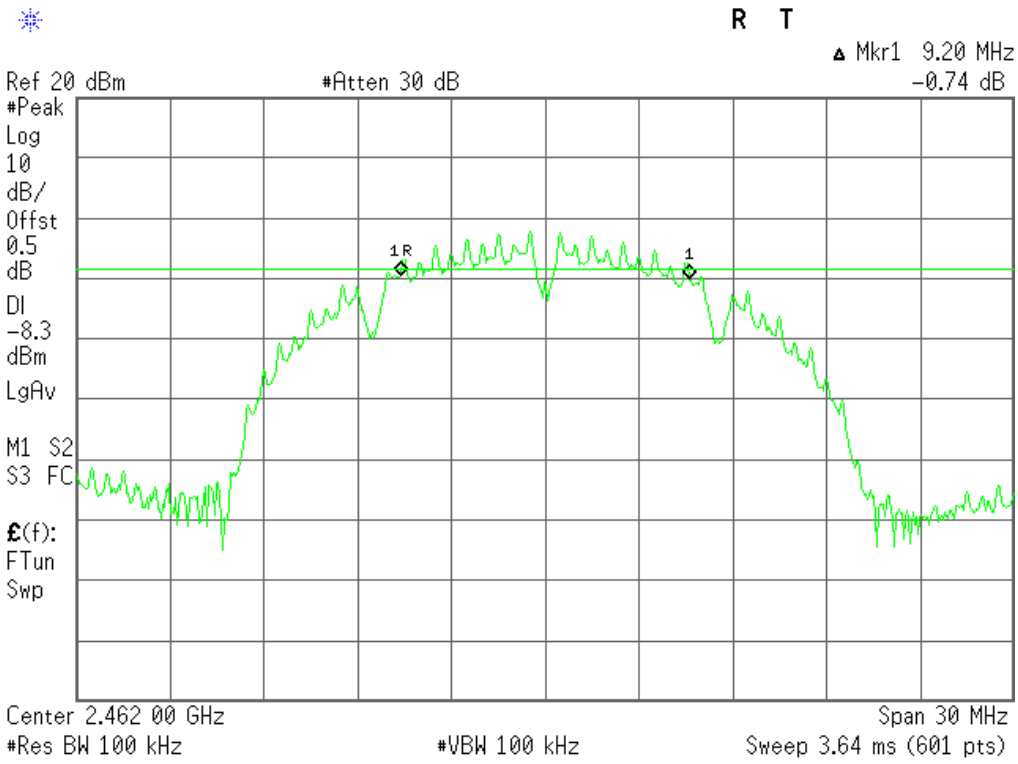
Low (802.11 b)



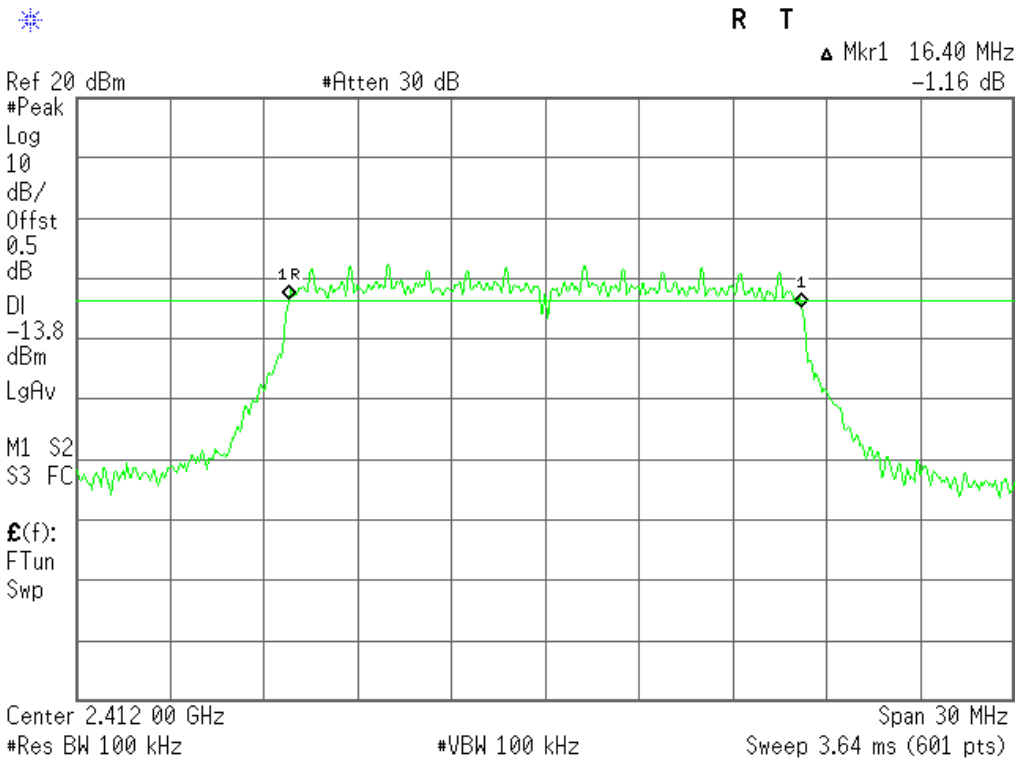
Middle (802.11 b)



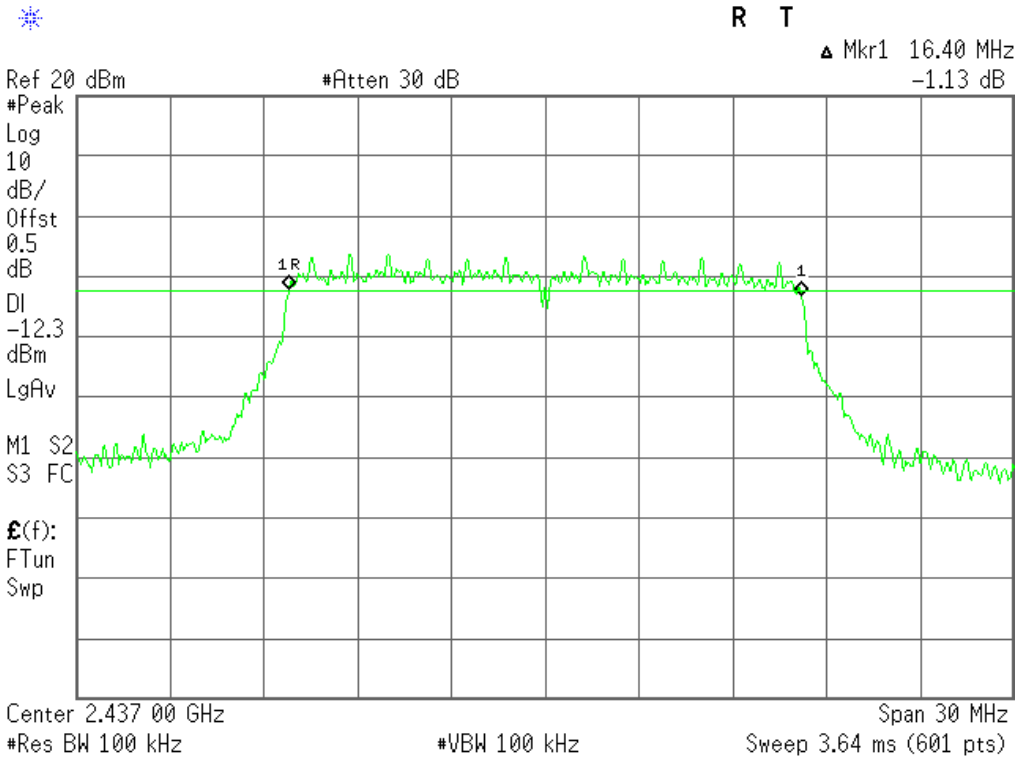
Highest (802.11 b)



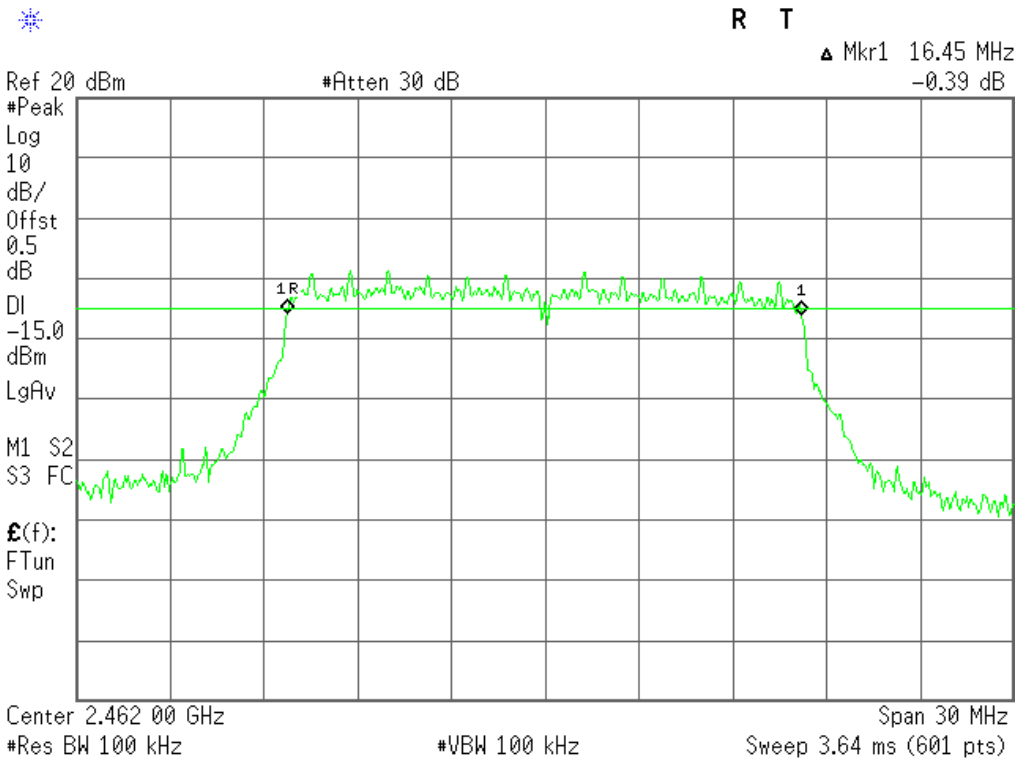
Low (802.11 g)



Middle (802.11 g)



Highest (802.11 g)



6.4 Peak Power Density

6.4.1 limit

15.247(a) (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.

6.4.2 Test procedure

(1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=3kHz,VBW=10kHz, Detector Function=Peak

(2) The EUT should be transmitting at its maximum data rate. Use the marker-peak function to set the marker to the peak of the emission

(3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation

6.4.3 Test result

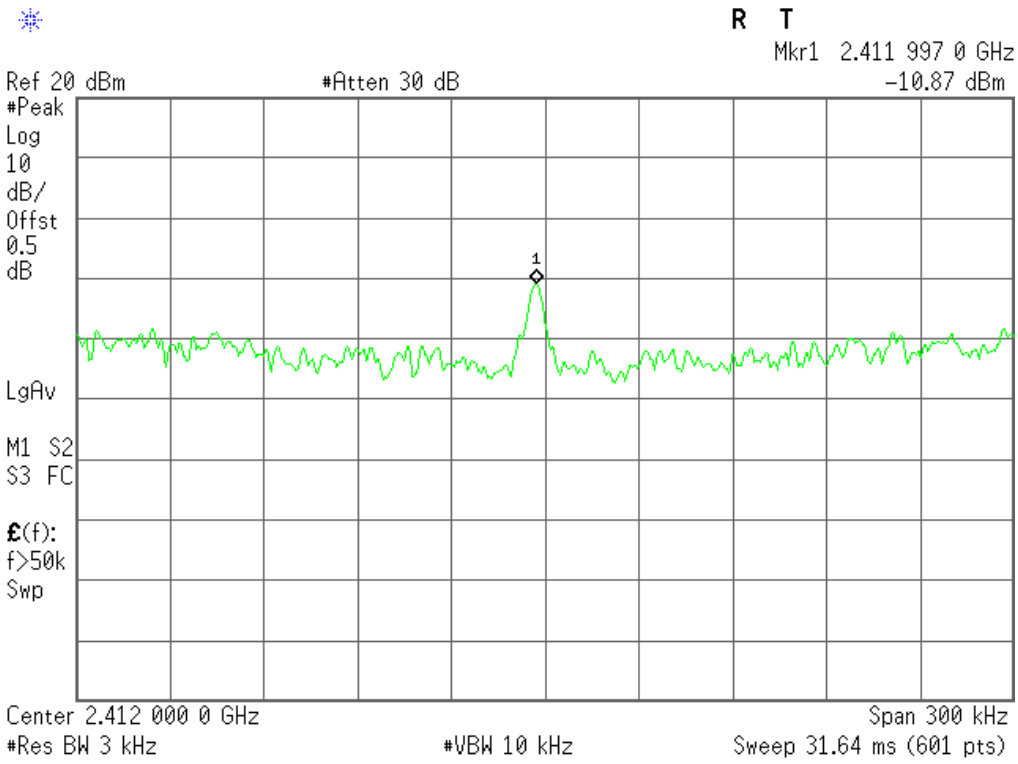
802.11 b

channel	Channel frenqucy (MHz)	Peak power density (dBm)	Limit (dBm)	Conclusion
Low	2412	-10.87	8	Pass
Middle	2437	-11.28	8	Pass
Highest	2462	-12.77	8	Pass

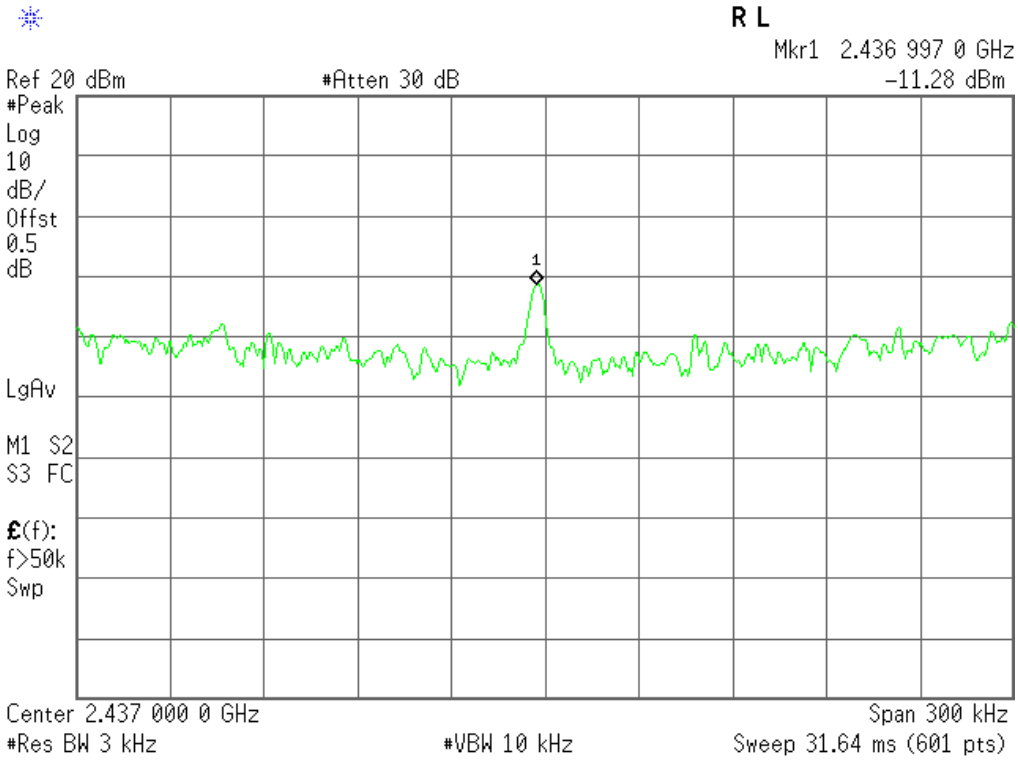
802.11 g

channel	Channel frenqucy (MHz)	Peak power density (dBm)	Limit (dBm)	Conclusion
Low	2412	-12.35	8	Pass
Middle	2437	-13.33	8	Pass
Highest	2462	-13.31	8	Pass

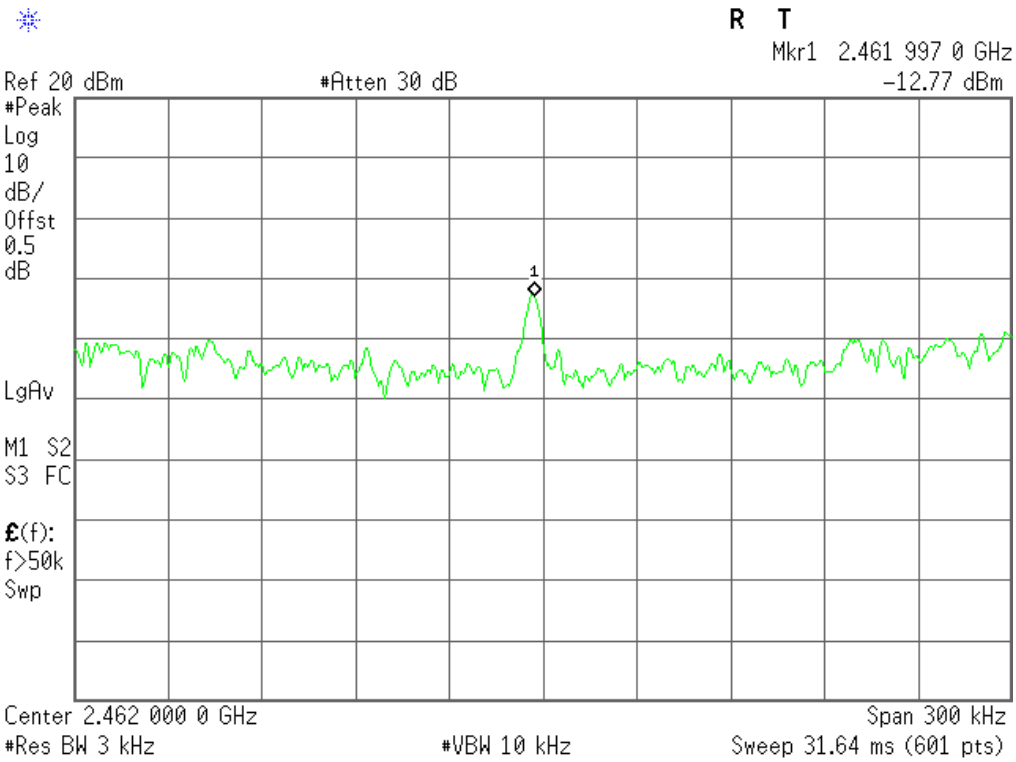
Low (802.11 b)



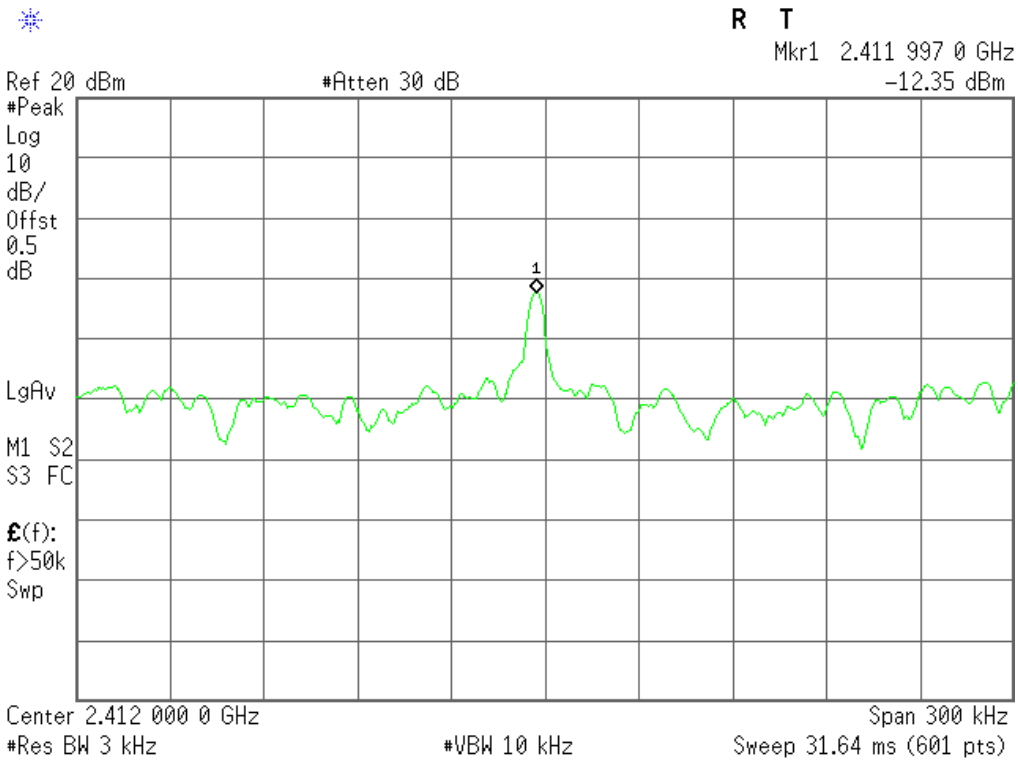
Middle (802.11 b)



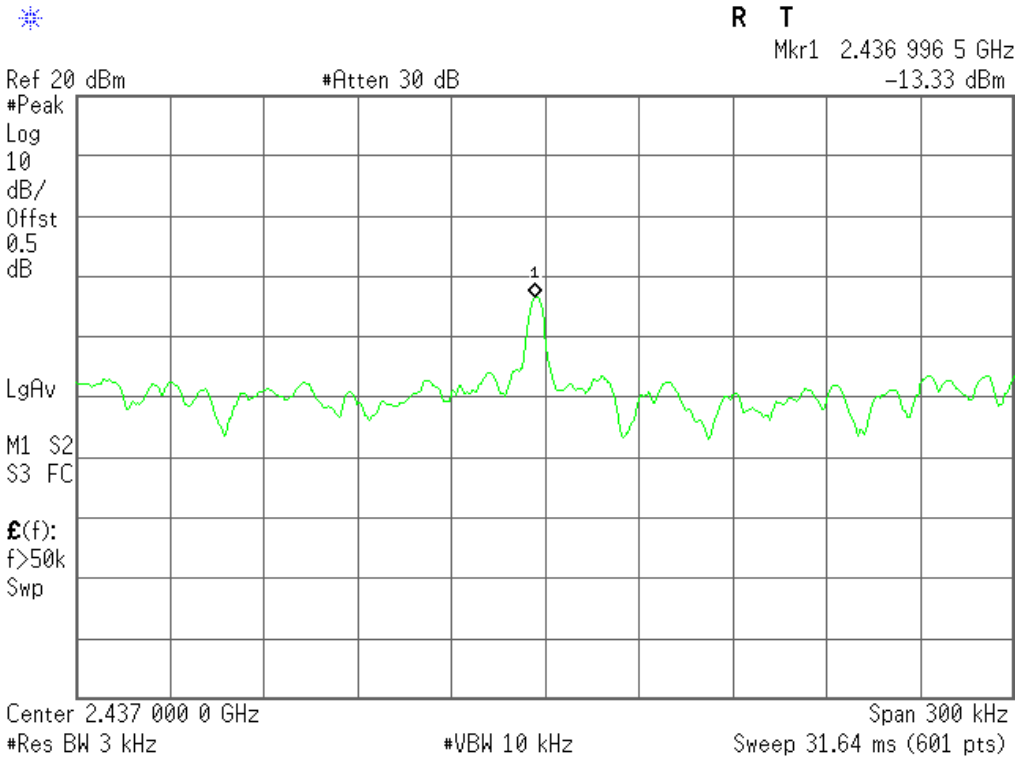
Highest (802.11 b)



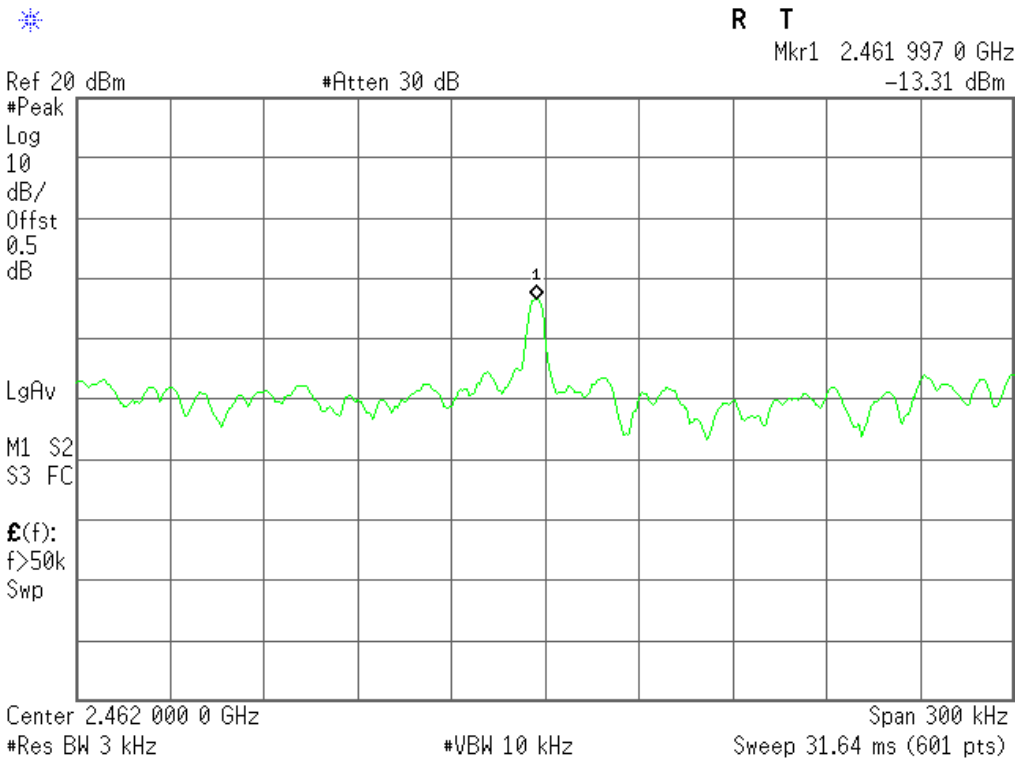
Low (802.11 g)



Middle (802.11 g)



Highest (802.11 g)



6.5 Maximum Peak Output Power

6.5.1 limit

15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

6.5.2 Test procedure

(1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=1MHz,VBW≧RBW,Sweep time=Auto, Detector Function=Peak,

(2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use channel function to find Maximum power. The indicated level is the output power

(3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation

6.5.3 Test result

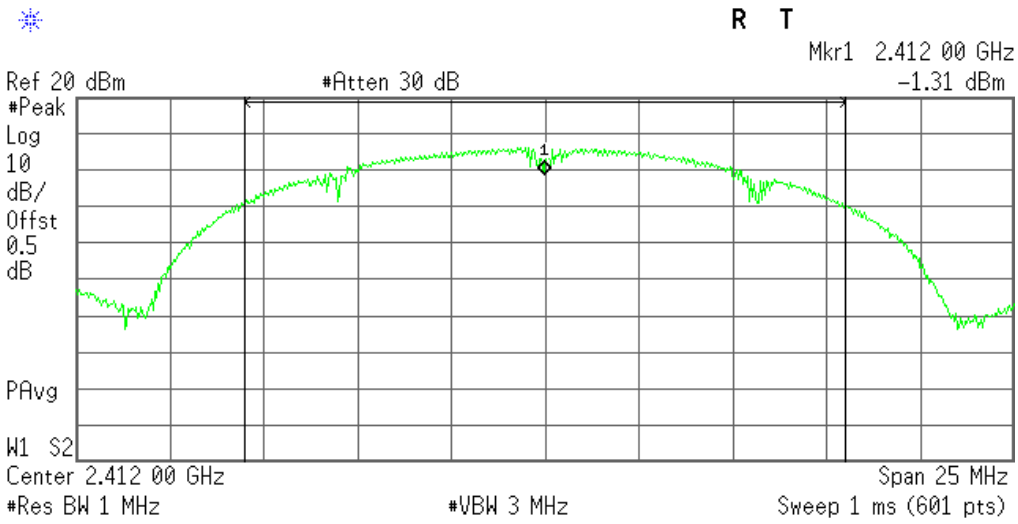
802.11 b

channel	Channel frenqucy (MHz)	Read Power (dBm)	Limit (dBm)	Conclusion
Low	2412	13.09	30	Pass
Middle	2437	13.01	30	Pass
Highest	2462	12.22	30	Pass

802.11 g

channel	Channel frenqucy (MHz)	Read Power (dBm)	Limit (dBm)	Conclusion
Low	2412	9.58	30	Pass
Middle	2437	10.32	30	Pass
Highest	2462	10.10	30	Pass

Low (802.11 b)



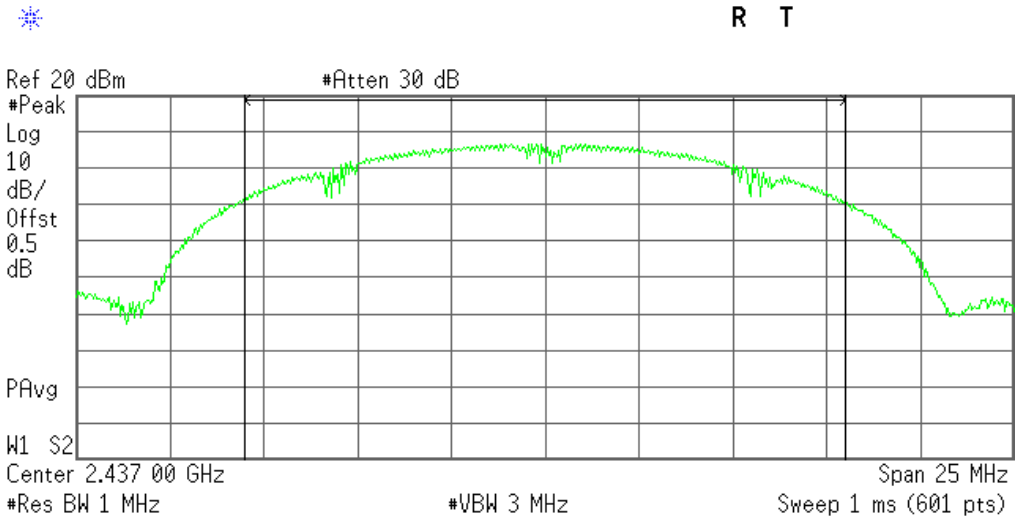
Channel Power

13.09 dBm /16.0000 MHz

Power Spectral Density

-57.95 dBm/Hz

Middle (802.11 b)



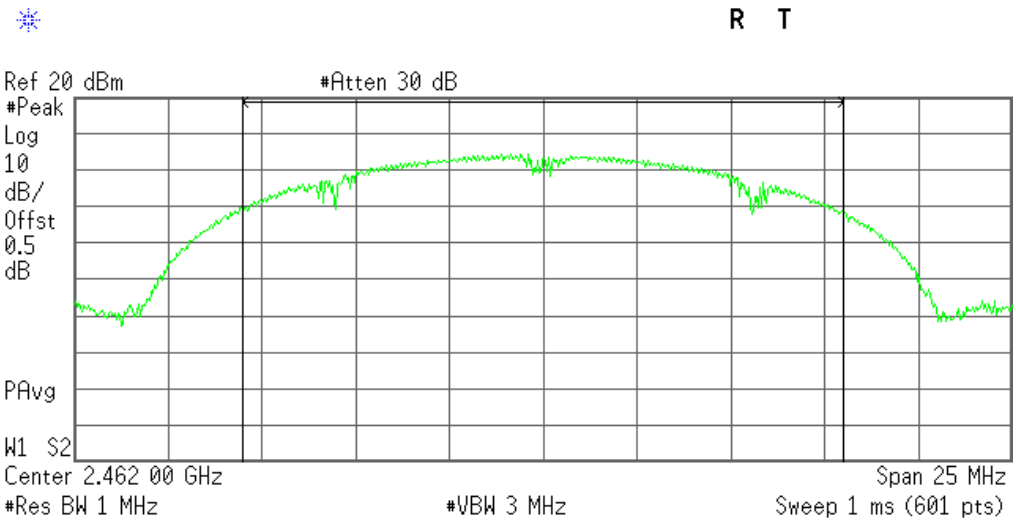
Channel Power

13.01 dBm /16.0000 MHz

Power Spectral Density

-57.33 dBm/Hz

Highest (802.11 b)



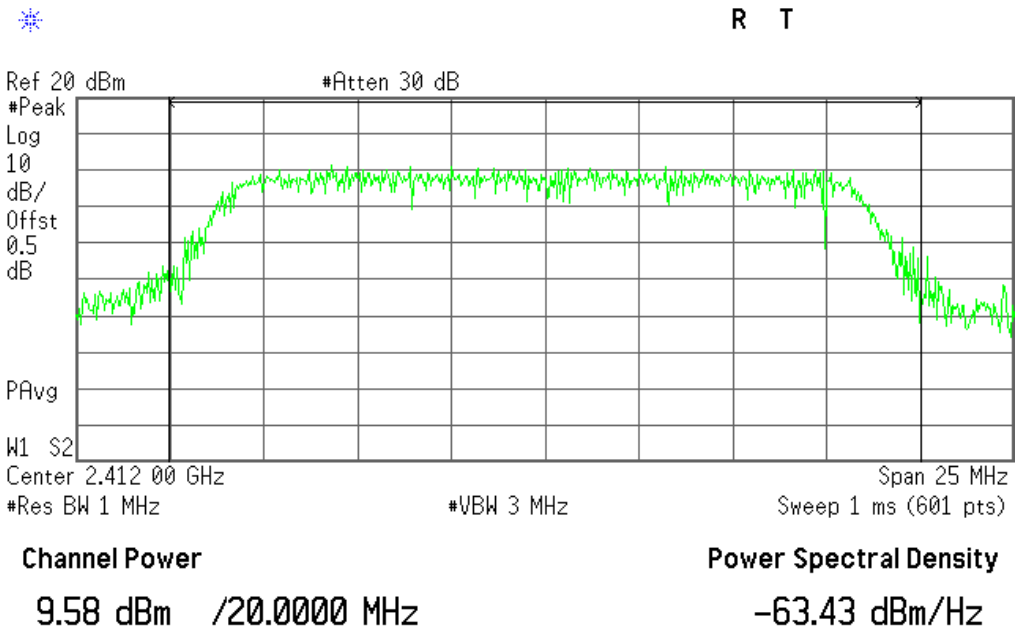
Channel Power

12.22 dBm /16.0000 MHz

Power Spectral Density

-59.82 dBm/Hz

Low (802.11 g)



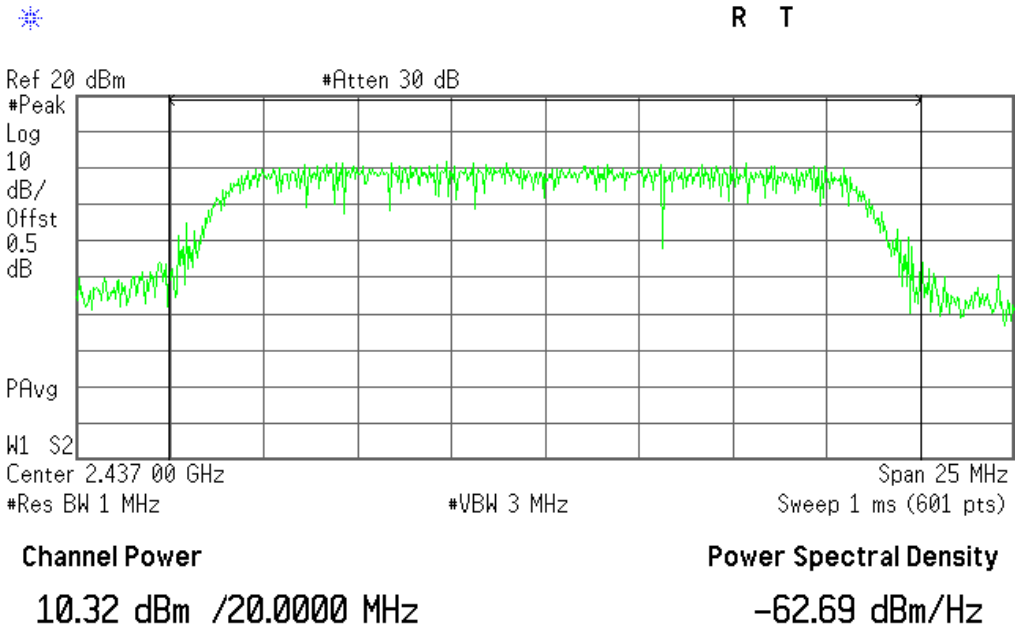
Channel Power

9.58 dBm /20.0000 MHz

Power Spectral Density

-63.43 dBm/Hz

Middle (802.11 g)



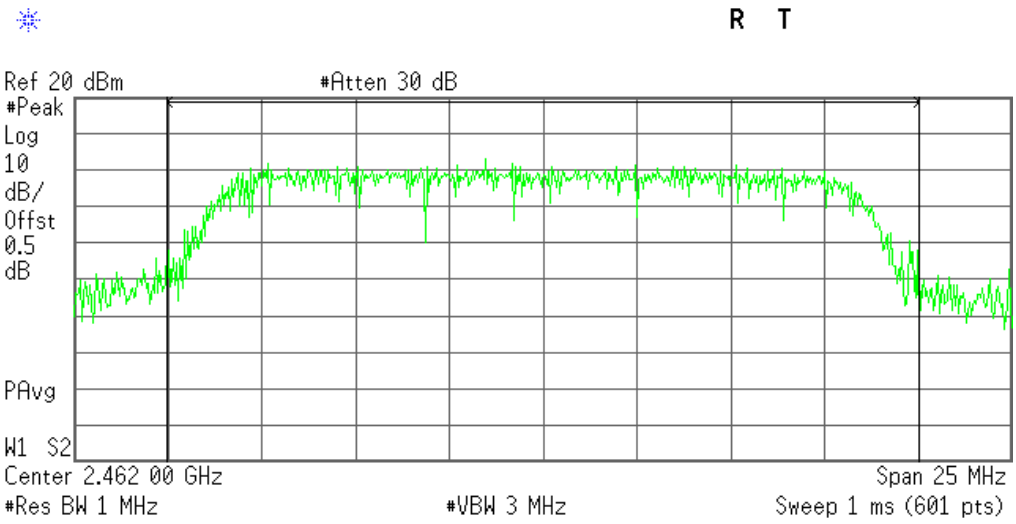
Channel Power

10.32 dBm /20.0000 MHz

Power Spectral Density

-62.69 dBm/Hz

Highest (802.11 g)



Channel Power

10.10 dBm /20.0000 MHz

Power Spectral Density

-62.91 dBm/Hz

6.6 Band edge

6.6.1 limit

15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

6.6.2 Test procedure

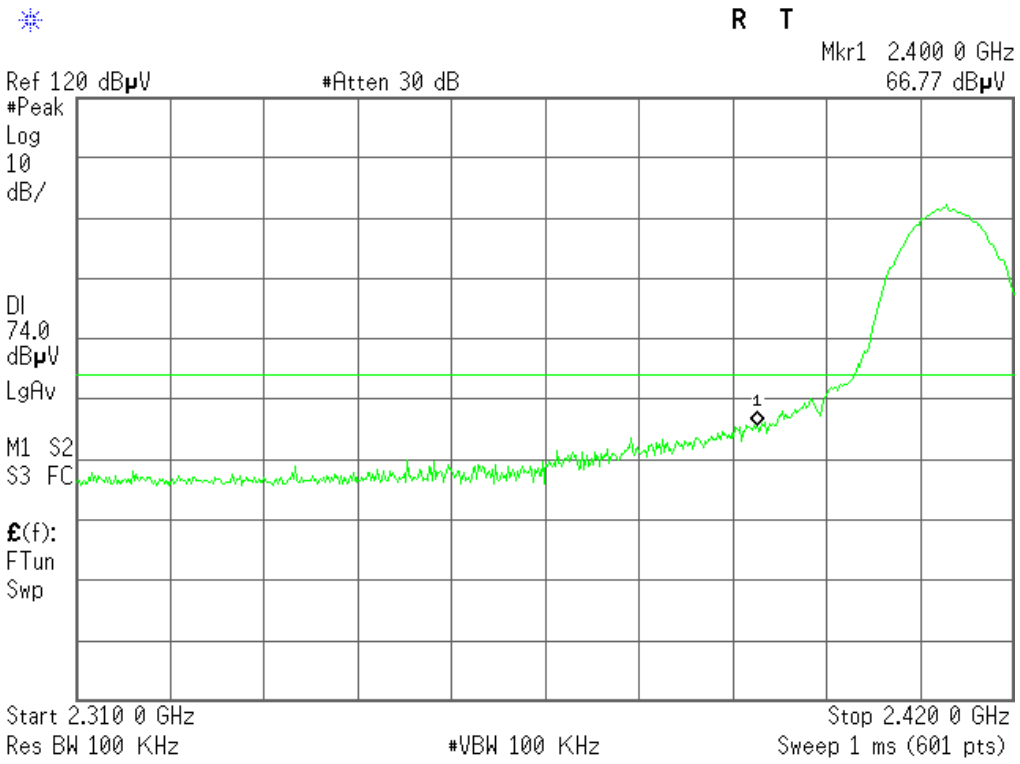
(1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=100KHz,VBW≧RBW,Sweep time=Auto, Detector Function=Peak

(2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. And then marker the bandedge Level.

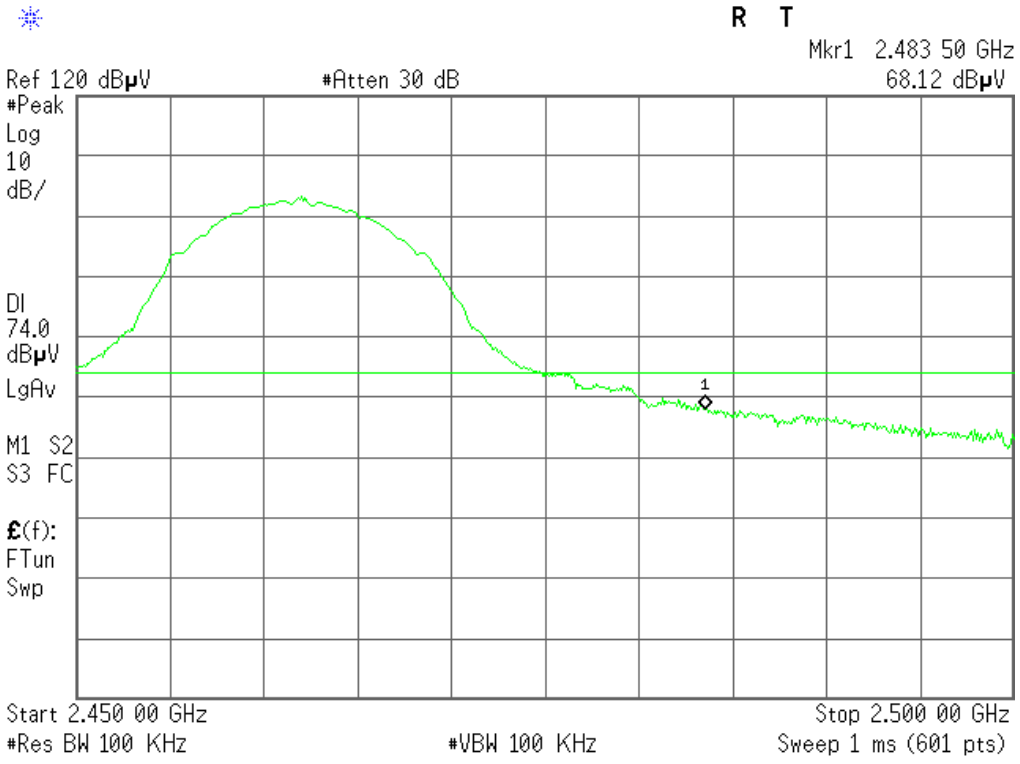
(3) The above procedure shall be repeated at the lowest, and the highest frequency of the stated frequency range with modulated mode.

6.6.3 Test result

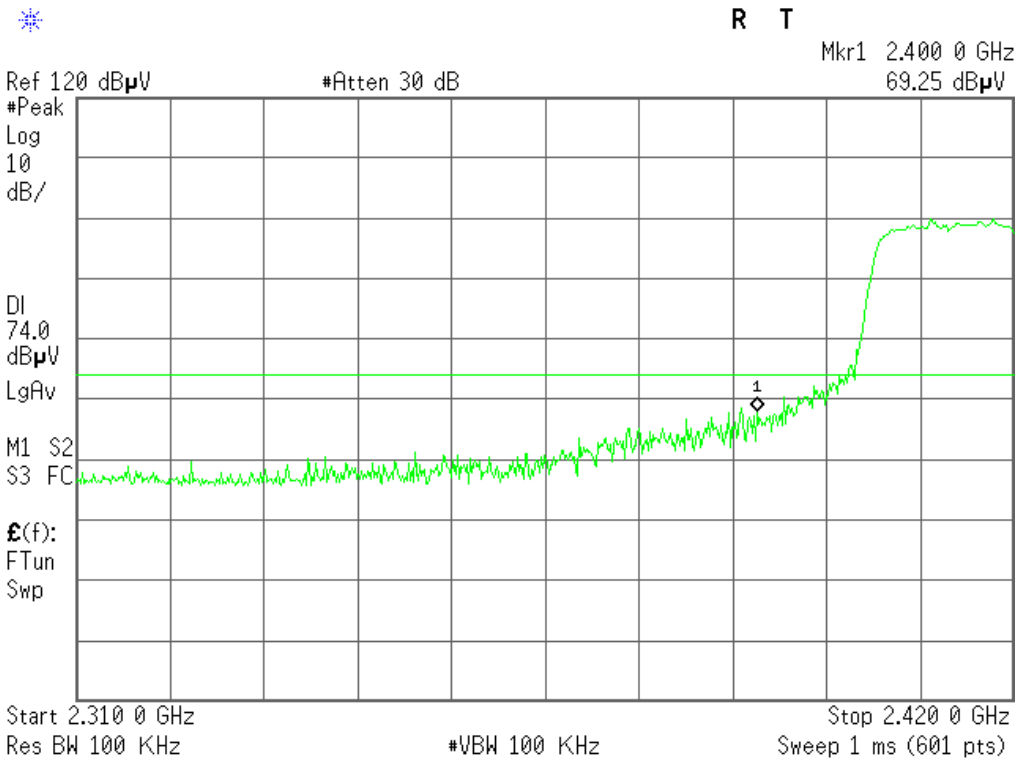
Low (802.11 b)



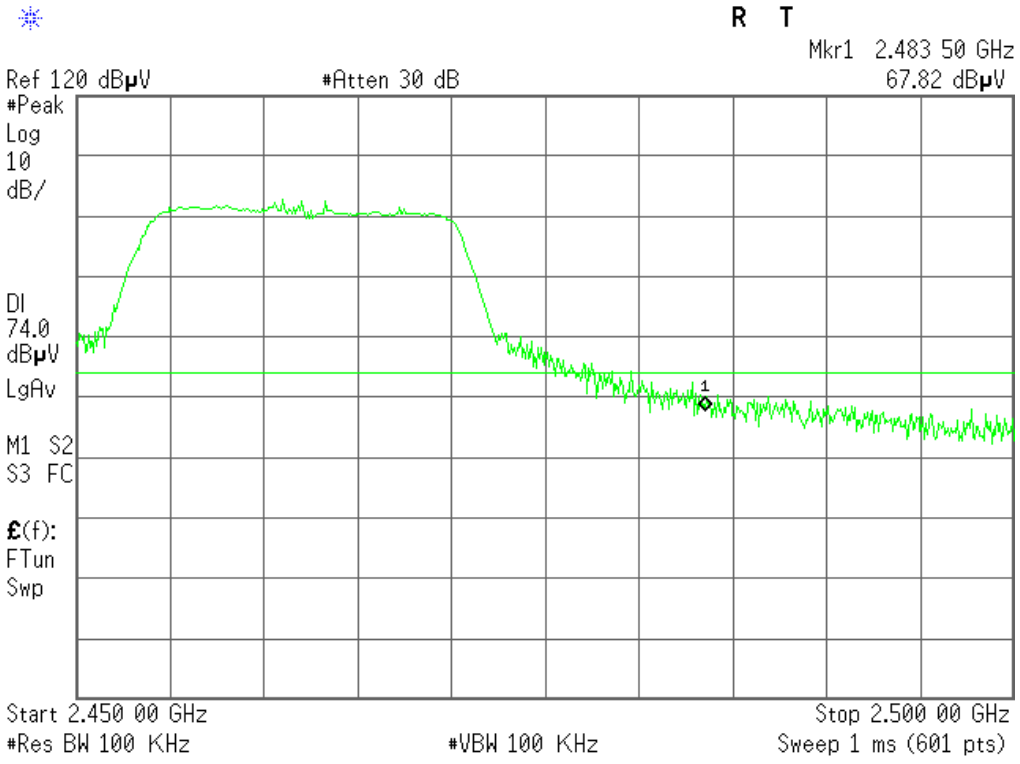
Highest (802.11 b)



Low (802.11 g)



Highest (802.11 g)



6.7 Conducted Spurious Emissions

6.7.1 limit

15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

6.7.2 Test procedure

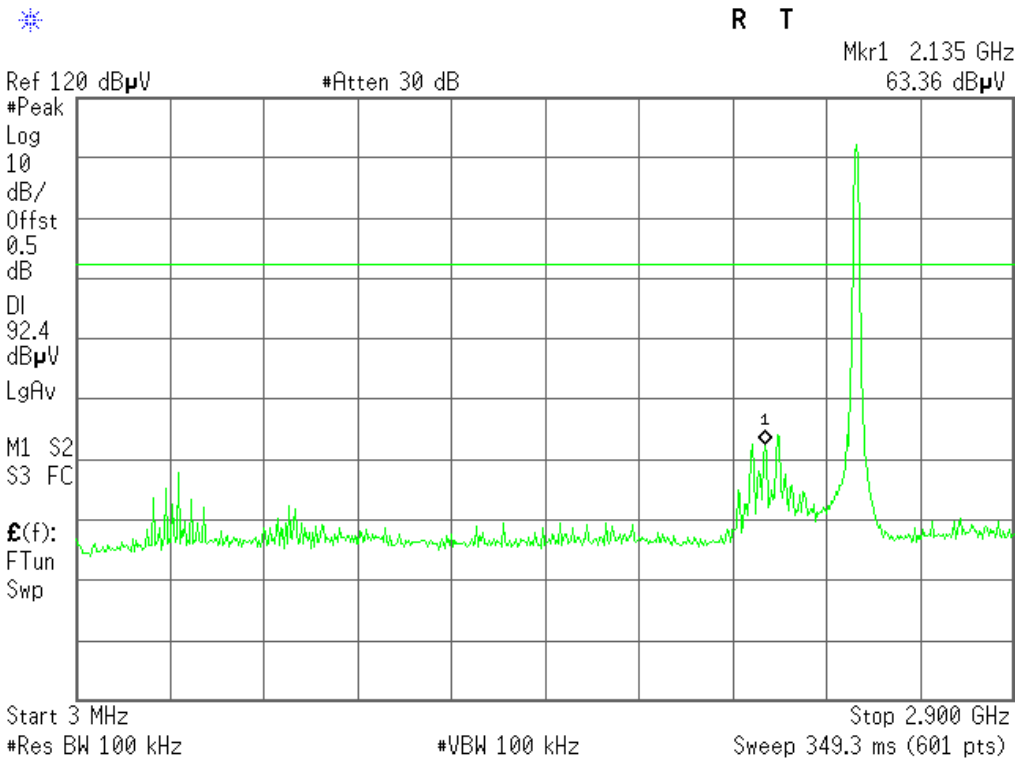
(4) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=100KHz,VBW≧RBW,Sweep time=Auto, Detector Function=Peak

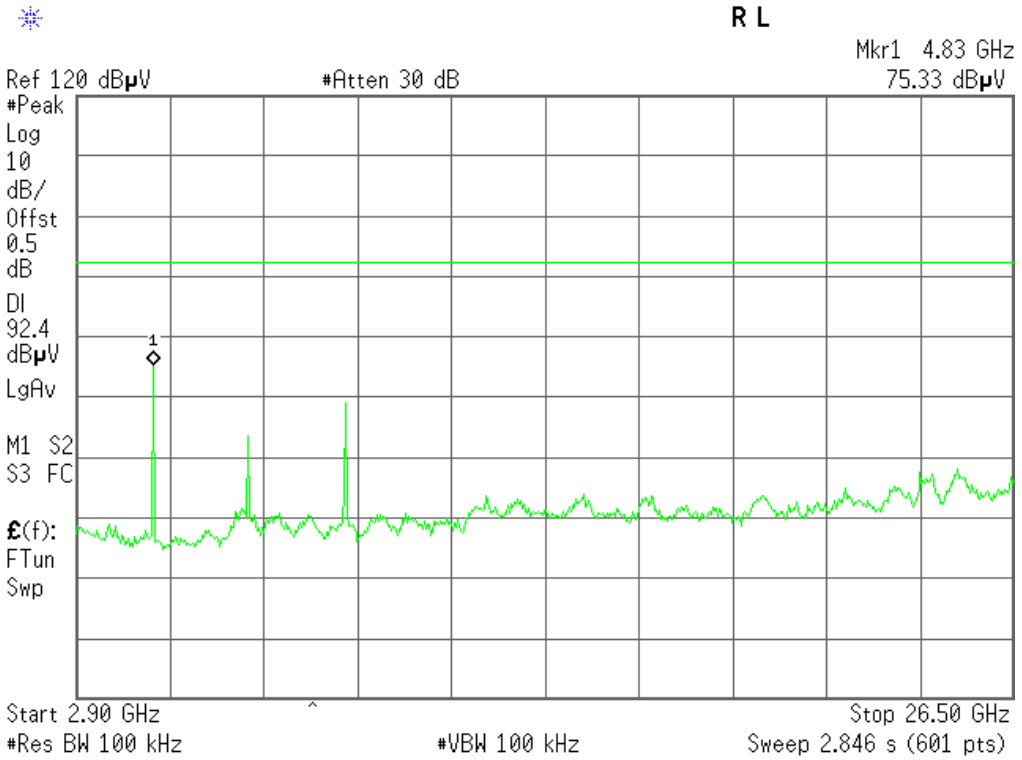
(5) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. And then marker the bandedge Level.

(6) The above procedure shall be repeated at the lowest, and the highest frequency of the stated frequency range with modulated mode.

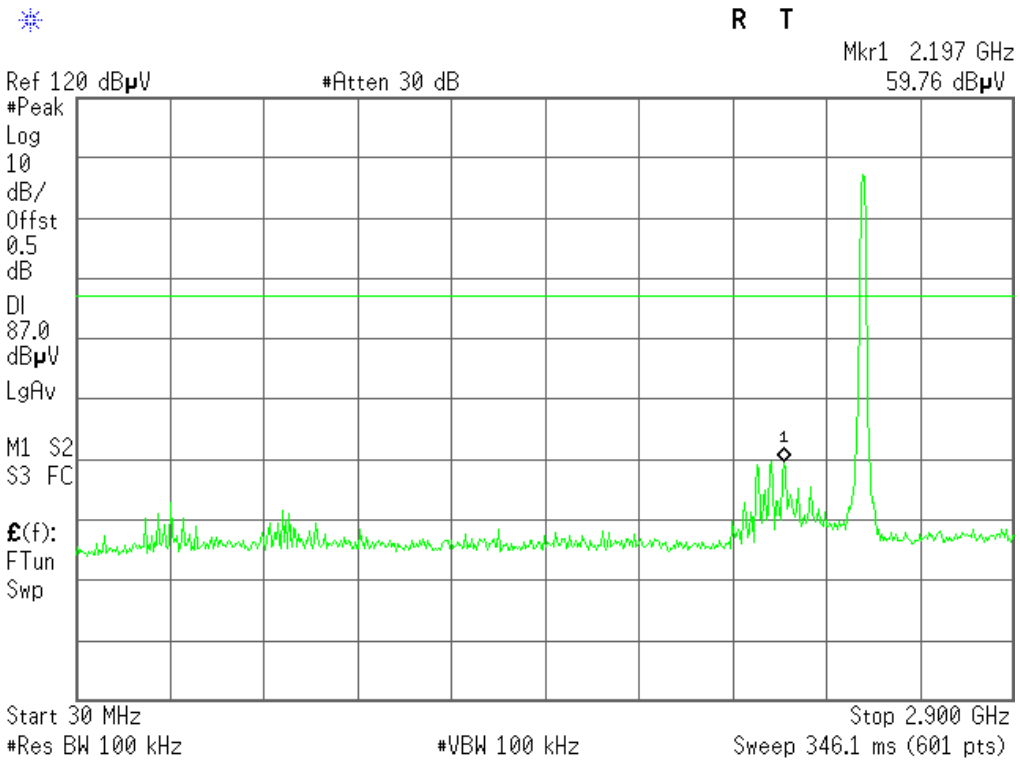
6.7.3 Test result

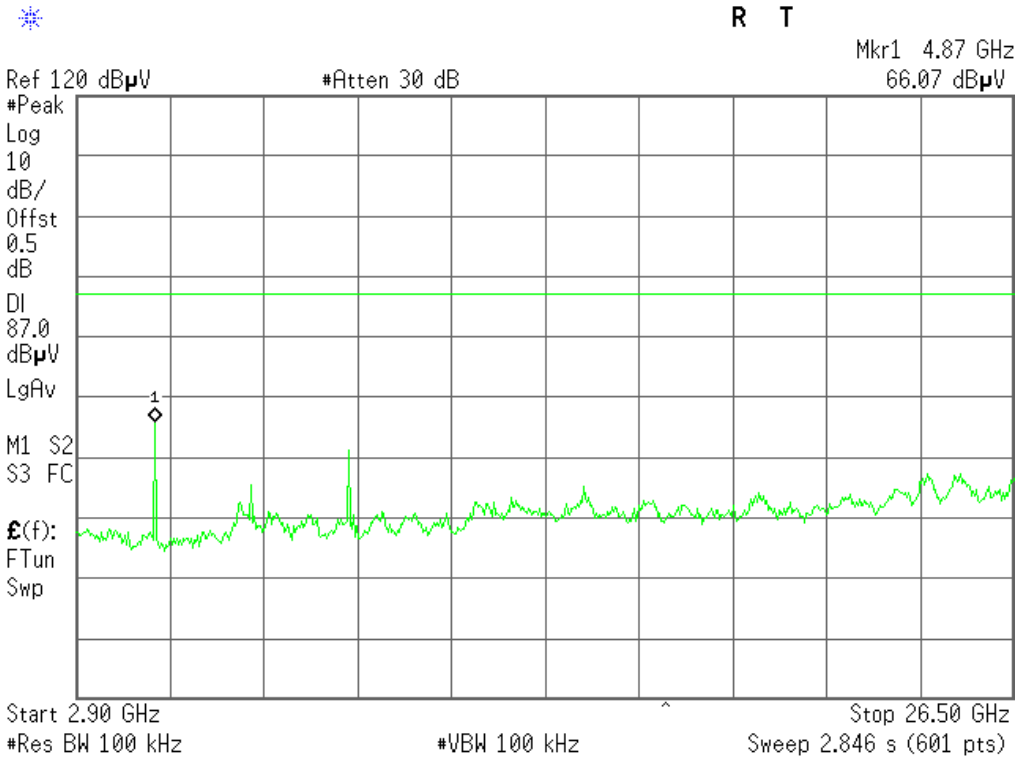
Low (802.11 b)


R T
Mkr1 2.135 GHz
Ref 120 dBµV
#Atten 30 dB
63.36 dBµV
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
92.4
dBµV
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 3 MHz
Stop 2.900 GHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 349.3 ms (601 pts)

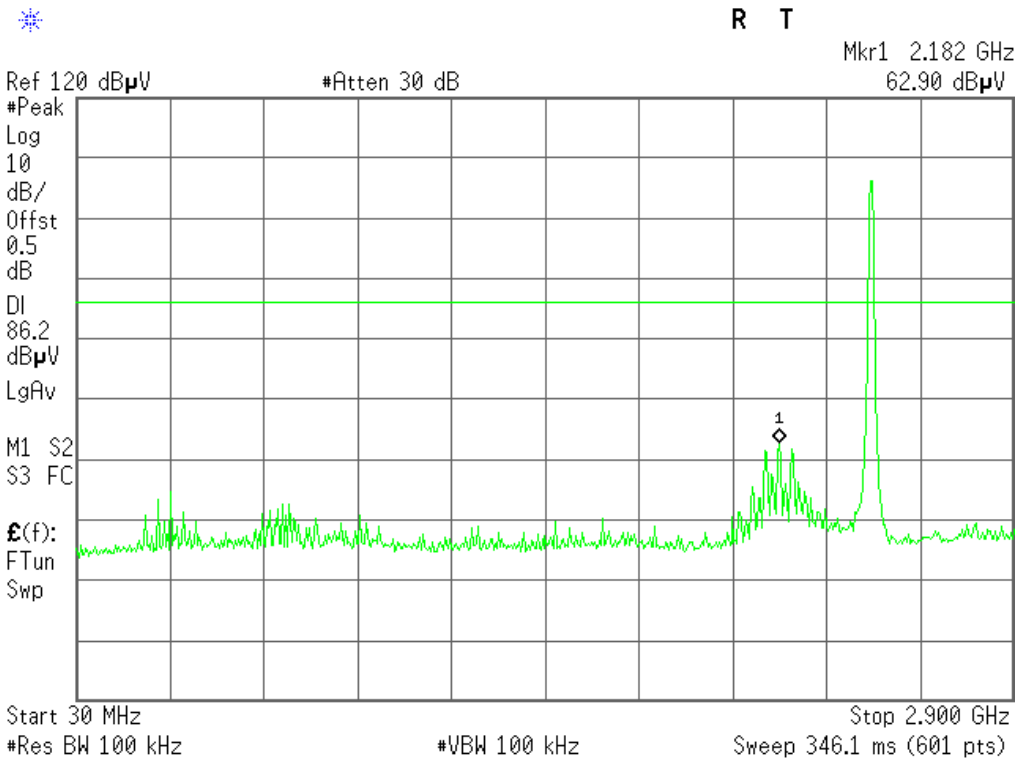

R L
Mkr1 4.83 GHz
Ref 120 dBµV
#Atten 30 dB
75.33 dBµV
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
92.4
dBµV
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 2.90 GHz
Stop 26.50 GHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 2.846 s (601 pts)

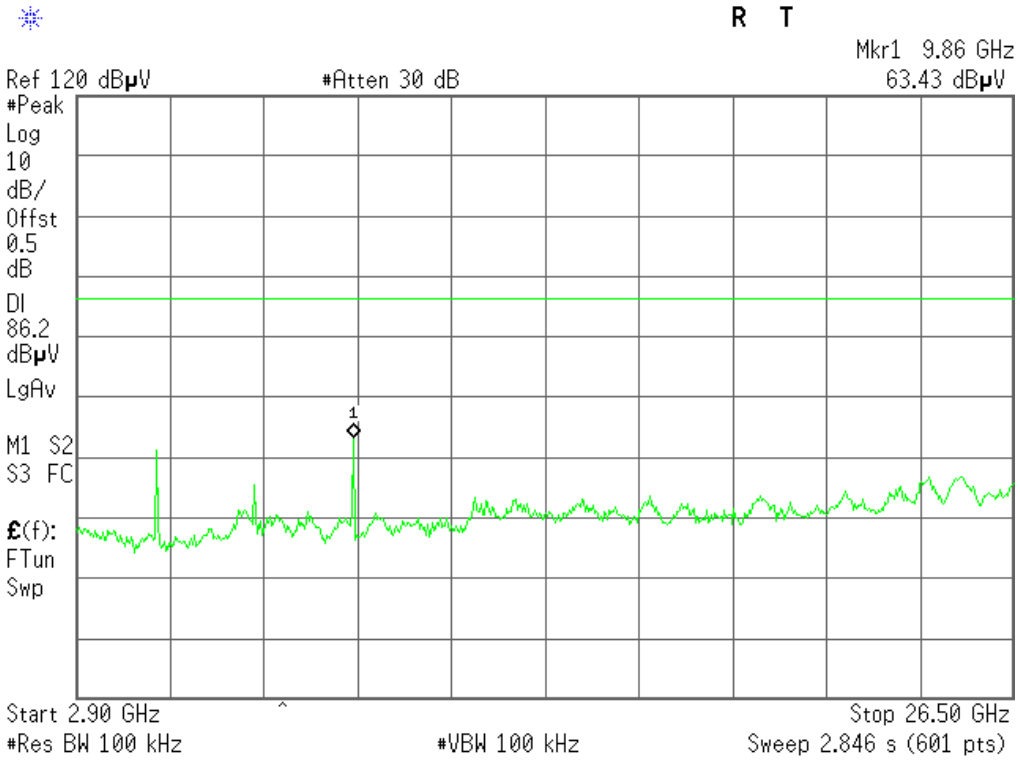
Middle (802.11 b)



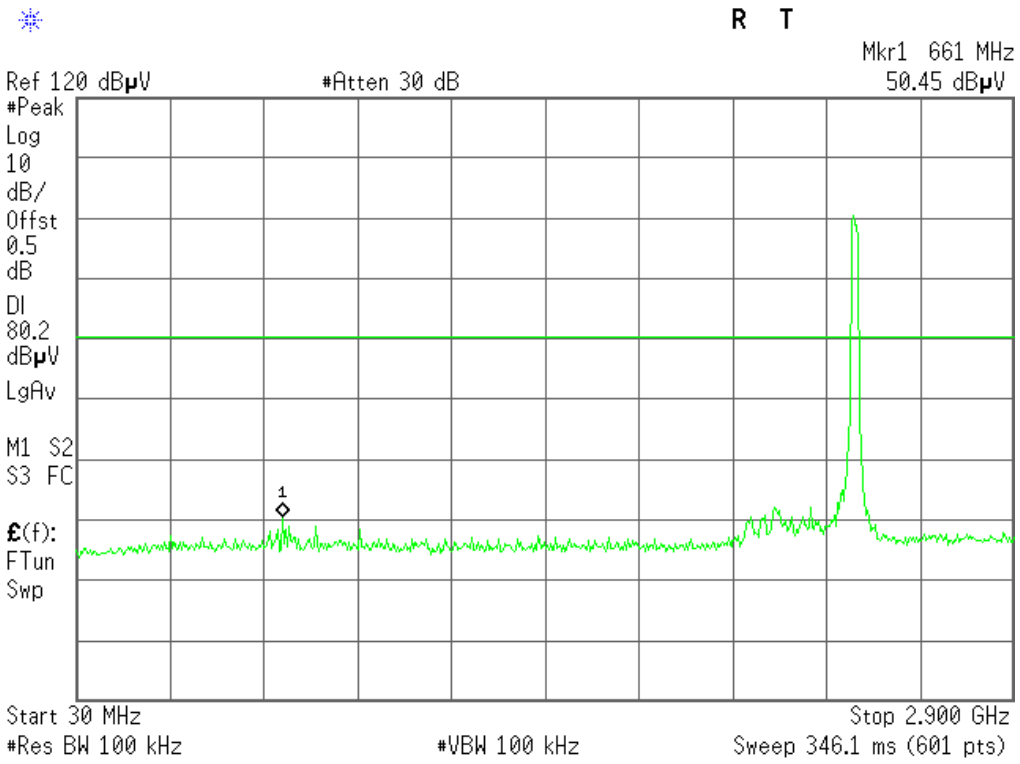


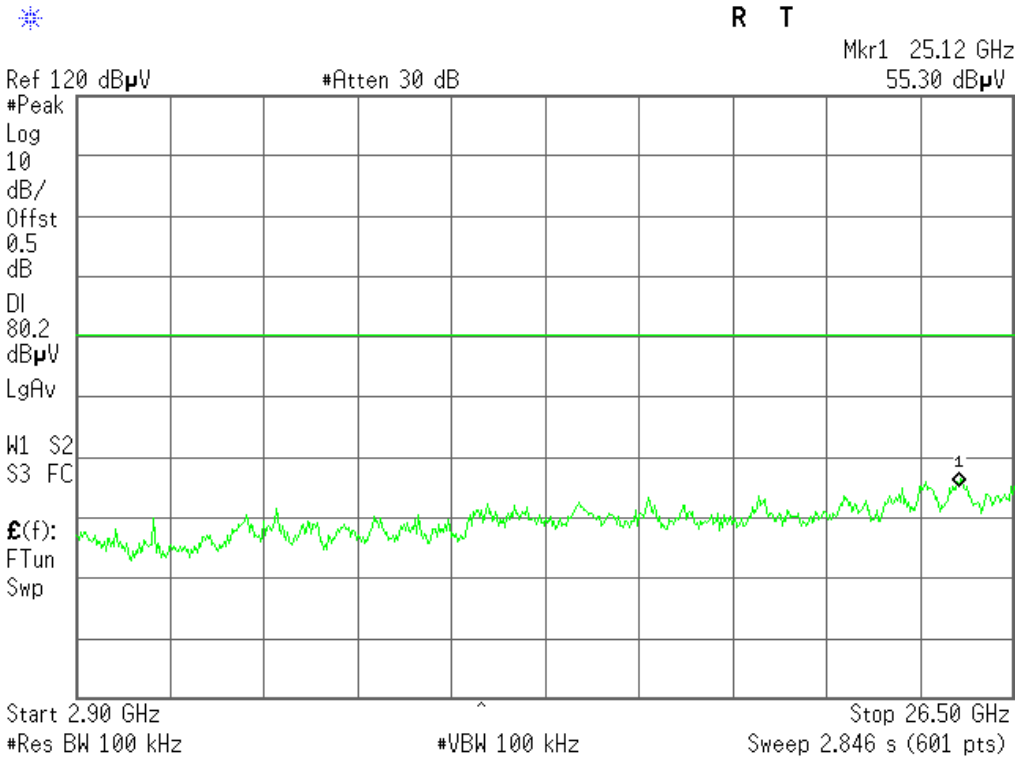
Highest (802.11 b)



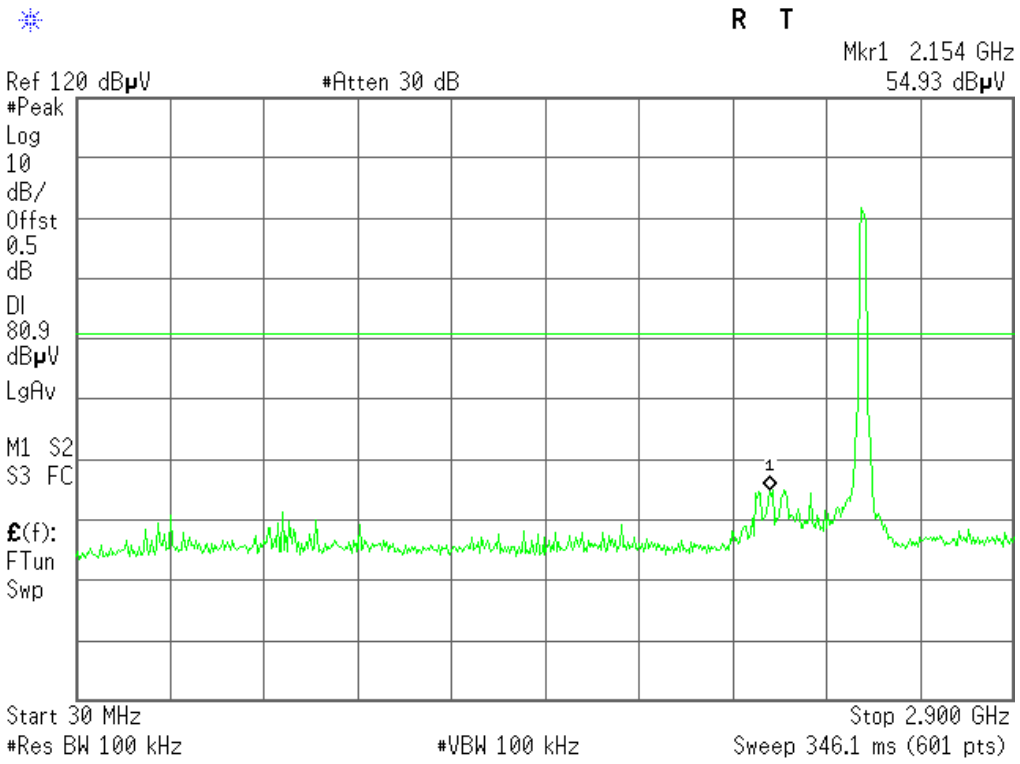


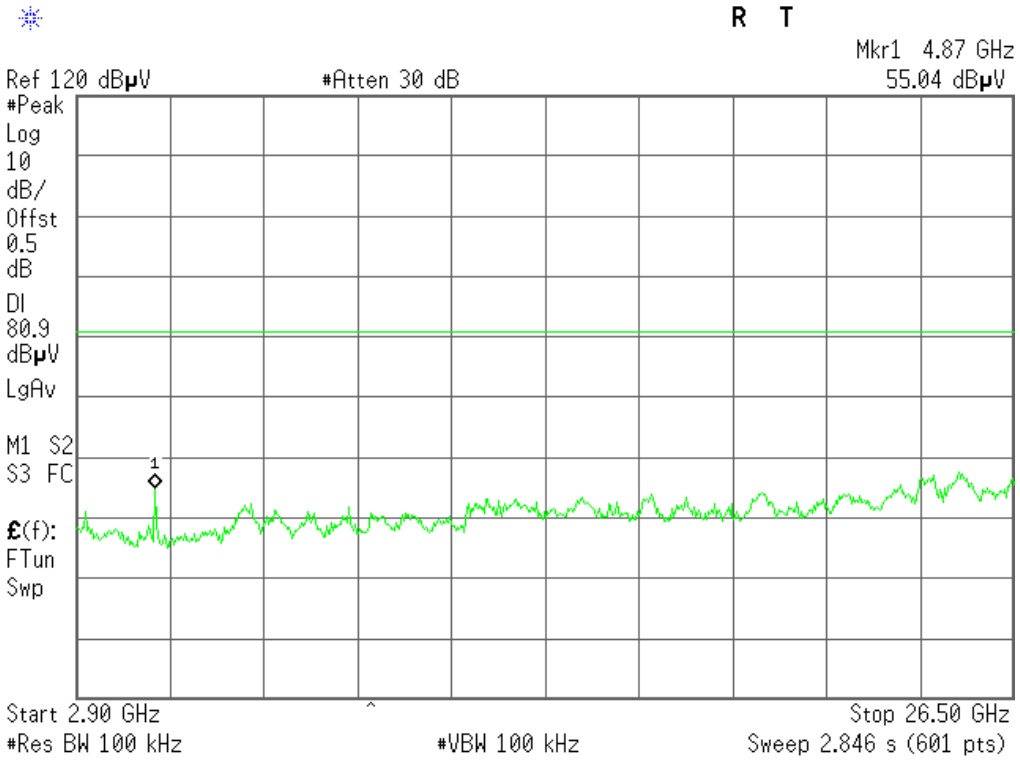
Low (802.11 g)


R T
Mkr1 661 MHz
50.45 dBµV
Ref 120 dBµV
#Atten 30 dB
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
80.2
dBµV
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 2.900 GHz
Sweep 346.1 ms (601 pts)

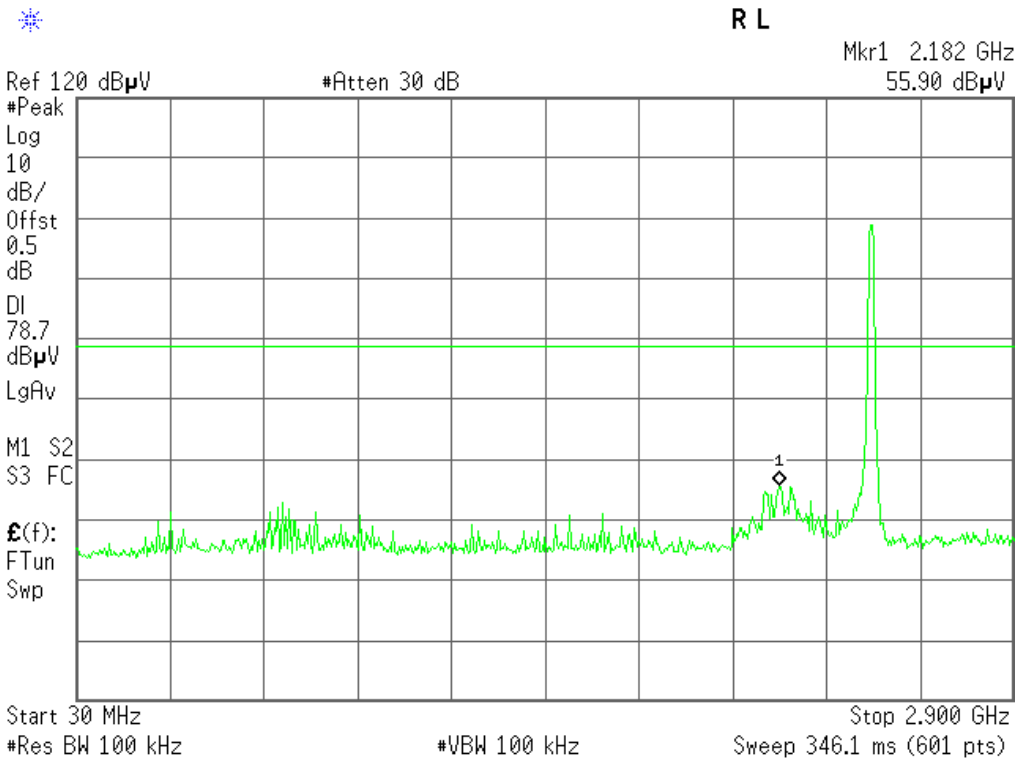

R T
Mkr1 25.12 GHz
55.30 dBµV
Ref 120 dBµV
#Atten 30 dB
#Peak
Log
10
dB/
Offst
0.5
dB
Dl
80.2
dBµV
LgAv
W1 S2
S3 FC
£(f):
FTun
Swp
Start 2.90 GHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 26.50 GHz
Sweep 2.846 s (601 pts)

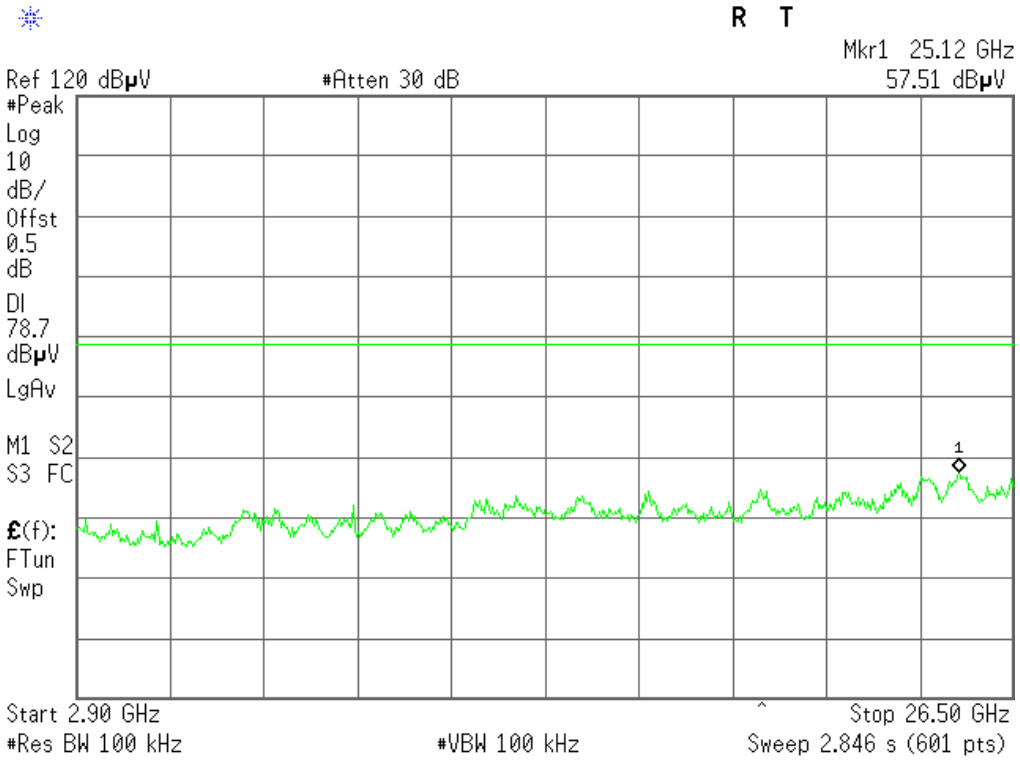
Middle (802.11 g)





Highest (802.11 g)





6.8 Radiated Emissions Measurement

6.8.1 Limit

15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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))

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

6.8.2 Test procedure

EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

6.8.3 Test Result

Test Data: 2010-01-07

Frenqucy Range:30MHz to 1GHz

Measurement Distance: 3 m

Operating Environment: 20.3°C, 50% RH ,102 Kpa

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
124.090	14.690	16.958	31.648	-11.852	43.500	QUASIPEAK
256.980	15.680	12.334	28.014	-17.986	46.000	QUASIPEAK
375.320	19.170	10.733	29.903	-16.097	46.000	QUASIPEAK
431.580	20.750	10.891	31.641	-14.359	46.000	QUASIPEAK
***450.010**	**21.230**	**13.706**	**34.936**	**-11.064**	**46.000**	**QUASIPEAK**
975.750	30.160	11.522	41.682	-12.318	54.000	QUASIPEAK

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
***78.500**	**11.000**	**18.701**	**29.701**	**-10.299**	**40.000**	**QUASIPEAK**
119.240	14.320	13.373	27.693	-15.807	43.500	QUASIPEAK
450.010	21.230	9.581	30.811	-15.189	46.000	QUASIPEAK
524.700	22.740	6.442	29.182	-16.818	46.000	QUASIPEAK
675.050	25.840	3.140	28.980	-17.020	46.000	QUASIPEAK
975.750	30.160	10.037	40.197	-13.803	54.000	QUASIPEAK

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Test Data: 2010-01-07
Frenqucy Range: 1GHz to 25GHz
Measurement Distance: 3 m
Operating Environment: 21°C, 53% RH, 102 Kpa

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.15	4.24	48.10	52.34	-21.66	74.00	PEAK
2288.15	4.24	37.09	41.33	-12.67	54.00	AVERAGE
2390.10	4.92	47.13	52.05	-21.95	74.00	PEAK
***2390.10**	**4.92**	**39.17**	**44.09**	**-9.91**	**54.00**	**AVERAGE**
4823.33	11.01	45.76	56.77	-17.23	74.00	PEAK
4823.33	11.01	32.23	43.24	-10.76	54.00	AVERAGE
7236.56	18.44	35.80	54.24	-19.76	74.00	PEAK
7236.56	18.44	22.54	40.98	-13.02	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.13	4.24	48.98	53.22	-20.78	74.00	PEAK
2288.13	4.24	36.97	41.21	-12.79	54.00	AVERAGE
2390.10	4.92	47.33	52.25	-21.75	74.00	PEAK
2390.10	4.92	36.41	41.33	-12.67	54.00	AVERAGE
4825.00	11.01	46.83	57.84	-16.16	74.00	PEAK
***4825.00**	**11.01**	**34.31**	**45.32**	**-8.68**	**54.00**	**AVERAGE**
7233.45	18.42	37.20	55.62	-18.38	74.00	PEAK
7233.45	18.42	23.38	41.80	-12.20	54.00	AVERAGE

Note: '*' means the worst case
Measurement Level = Reading Level + Factor
Factor=Ant Factor + Cable Loss
Low Channel:2412 MHz (802.11 b)

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.17	4.24	46.65	50.89	-23.11	74.00	PEAK
2288.17	4.24	36.78	41.02	-12.98	54.00	AVERAGE
4875.00	11.08	46.68	57.76	-16.24	74.00	PEAK
***4875.00**	**11.08**	**33.24**	**44.32**	**-9.68**	**54.00**	**AVERAGE**
7311.34	18.22	34.67	52.89	-21.11	74.00	PEAK
7311.34	18.22	21.52	39.74	-14.26	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.22	4.24	47.94	52.18	-21.82	74.00	PEAK
2288.22	4.24	37.05	41.29	-12.71	54.00	AVERAGE
4874.67	11.08	47.08	58.16	-15.84	74.00	PEAK
***4874.67**	**11.08**	**35.27**	**46.35**	**-7.65**	**54.00**	**AVERAGE**
7312.45	18.22	36.06	54.28	-19.72	74.00	PEAK
7312.45	18.22	23.88	42.10	-11.90	54.00	AVERAGE

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Middle Channel :2437 MHz (802.11 b)

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.17	4.24	45.65	49.89	-24.11	74.00	PEAK
2288.17	4.24	35.75	39.99	-14.01	54.00	AVERAGE
2483.50	4.92	45.60	50.52	-23.48	74.00	PEAK
2483.50	4.92	35.92	40.84	-13.16	54.00	AVERAGE
4925.00	11.15	45.28	56.43	-17.57	74.00	PEAK
***4925.00**	**11.15**	**32.12**	**43.27**	**-10.73**	**54.00**	**AVERAGE**
7389.97	17.99	33.21	51.20	-22.80	74.00	PEAK
7389.97	17.99	20.76	38.75	-15.25	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.35	4.24	47.67	51.91	-22.09	74.00	PEAK
2288.35	4.24	36.03	40.27	-13.73	54.00	AVERAGE
2483.50	4.92	44.65	49.57	-24.43	74.00	PEAK
2483.50	4.92	34.85	39.77	-14.23	54.00	AVERAGE
4924.67	11.15	46.78	57.93	-16.07	74.00	PEAK
***4924.67**	**11.15**	**33.93**	**45.08**	**-8.92**	**54.00**	**AVERAGE**
7388.66	17.99	35.77	53.76	-20.24	74.00	PEAK
7388.66	17.99	23.29	41.28	-12.72	54.00	AVERAGE

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

High Channel :2462 MHz (802.11 b)

Test Data: 2010-01-07
Frenqucy Range: 1GHz to 25GHz
Measurement Distance: 3 m
Operating Environment: 21°C, 53% RH, 102 Kpa

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.16	4.24	48.47	52.71	-21.29	74.00	PEAK
2288.16	4.24	35.03	39.27	-14.73	54.00	AVERAGE
***2390.10**	**4.92**	**65.68**	**70.60**	**-3.40**	**74.00**	**PEAK**
2390.10	4.92	44.23	49.15	-4.85	54.00	AVERAGE
4825.00	11.01	45.73	56.74	-17.26	74.00	PEAK
4825.00	11.01	30.24	41.25	-12.75	54.00	AVERAGE
7235.43	18.43	35.69	54.12	-19.88	74.00	PEAK
7235.43	18.43	21.02	39.45	-14.55	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.32	4.24	48.47	52.71	-21.29	74.00	PEAK
2288.32	4.24	36.87	41.11	-12.89	54.00	AVERAGE
2390.10	4.92	59.05	63.97	-10.03	74.00	PEAK
***2390.10**	**4.92**	**40.80**	**45.72**	**-8.28**	**54.00**	**AVERAGE**
4824.33	11.01	45.73	56.74	-17.26	74.00	PEAK
4824.33	11.01	32.25	43.26	-10.74	54.00	AVERAGE
7234.56	18.42	35.69	54.11	-19.89	74.00	PEAK
7234.56	18.42	22.31	40.73	-13.27	54.00	AVERAGE

Note: '*' means the worst case
Measurement Level = Reading Level + Factor
Factor=Ant Factor + Cable Loss
Low Channel:2412 MHz (802.11 g)

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.23	4.24	45.98	50.22	-23.78	74.00	PEAK
2288.23	4.24	35.54	39.78	-14.22	54.00	AVERAGE
4875.00	11.08	44.71	55.79	-18.21	74.00	PEAK
***4875.00**	**11.08**	**32.73**	**43.81**	**-10.19**	**54.00**	**AVERAGE**
7315.42	18.22	34.53	52.75	-21.25	74.00	PEAK
7315.42	18.22	21.50	39.72	-14.28	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.17	4.24	47.58	51.82	-22.18	74.00	PEAK
2288.17	4.24	35.91	40.15	-13.85	54.00	AVERAGE
4873.67	11.08	45.85	56.93	-17.07	74.00	PEAK
***4873.67**	**11.08**	**33.04**	**44.12**	**-9.88**	**54.00**	**AVERAGE**
7312.56	18.22	35.05	53.27	-20.73	74.00	PEAK
7312.56	18.22	21.93	40.15	-13.85	54.00	AVERAGE

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Middle Channel :2437 MHz (802.11 g)

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.21	4.24	45.58	49.82	-24.18	74.00	PEAK
2288.21	4.24	33.61	37.85	-16.15	54.00	AVERAGE
2483.50	4.92	58.99	63.91	-10.09	74.00	PEAK
***2483.50**	**4.92**	**39.68**	**44.60**	**-9.40**	**54.00**	**AVERAGE**
4924.53	11.15	43.71	54.86	-19.14	74.00	PEAK
4924.53	11.15	30.19	41.34	-12.66	54.00	AVERAGE
7383.45	18.01	35.70	53.71	-20.29	74.00	PEAK
7383.45	18.01	21.94	39.95	-14.05	54.00	AVERAGE

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
2288.12	4.24	47.74	51.98	-22.02	74.00	PEAK
2288.12	4.24	36.05	40.29	-13.71	54.00	AVERAGE
2483.50	4.92	54.33	59.25	-14.75	74.00	PEAK
***2483.50**	**4.92**	**36.88**	**41.80**	**-12.20**	**54.00**	**AVERAGE**
4925.00	11.15	44.63	55.78	-18.22	74.00	PEAK
4925.00	11.15	30.64	41.79	-12.21	54.00	AVERAGE
7385.00	18.01	36.98	54.99	-19.01	74.00	PEAK
7385.00	18.01	22.86	40.87	-13.13	54.00	AVERAGE

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

High Channel :2462 MHz (802.11 g)

6.9 RF Exposure requirement

6.9.1 Limits

Unless excluded by specific FCC test procedures, portable devices with output power > 60/f(GHz) mW shall include SAR data for equipment approval. The FCC Laboratory may be contacted if SAR is expected to be very low, especially for devices operating below 300 MHz, to determine if SAR evaluation is necessary

6.9.2 Result

Operating Mode:802.11 b

Channal (MHz)	Peak Output Power (dBm)	Limit of Power (dBm)	Result
2412	13.09	13.96	Pass
2437	13.01	13.91	Pass
2462	12.22	13.87	Pass

Operating Mode:802.11 g

Channal (MHz)	Peak Output Power (dBm)	Limit of Power (dBm)	Result
2412	9.58	13.96	Pass
2437	10.32	13.91	Pass
2462	10.10	13.87	Pass