FCC TEST REPORT

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant : HONG FU JIN PRECISION INDUSTRY

(SHENZHEN) CO LTD

NO.2, 2ND DONGHUAN RD, 10TH YOUSONG

Report No.: TEFI0911269

Address : INDUSTRIAL DISTRICT, LONGHUA, BAOAN,

SHENZHEN, GUANGDONG, CHINA

Equipment : Webstation, Personal Portable Infotainment Device

Model No. : WS171

FCC ID : XWJ-CMSLBEE1USJYC

Trade Name : Webstation

Laboratory Accreditation



ting Laborator

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of Cerpass Technology Corp. the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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Issued Date : Dec. 10, 2009

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CERTIFICATE OF COMPLIANCE

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant : HONG FU JIN PRECISION INDUSTRY

(SHENZHEN) CO LTD

NO.2, 2ND DONGHUAN RD, 10TH YOUSONG

Address : INDUSTRIAL DISTRICT, LONGHUA, BAOAN,

SHENZHEN, GUANGDONG, CHINA

Equipment : Webstation, Personal Portable Infotainment Device

Model No. : WS171

FCC ID : XWJ-CMSLBEE1USJYC

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was *passed* the test performed according to **FCC Rules and regulations Part subpart C (2009).**

The test was carried out on Dec. 08, 2009 at Cerpass Technology Corp.

Signature

Anson Chou

EMC/RF B.U. Vice General Manager

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1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

FCC Rule	. Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. Conducted Emission	Pass
15.209 15.247(d)	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b) . Maximum Peak Output Power		Pass
15.247(d)	15.247(d) . 100kHz Bandwidth of Frequency Band Edges	
15.247(e)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass

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2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Spreading	802.11b: DSSS, CCK(QPSK, BPSK) 802.11g: OFDM(16QAM, QPSK,BPSK)
Frequency Range	2.4~2.5GHz
Number of channels	802.11b/g USA, Canada, and Taiwan: CH1~11(11channels) Most European Countries: CH1~13(13channels) France: CH1~7(7channel)
Data Rate	802.11b: 11, 5.5, 2, 1Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps
Transmit Power	802.11b:18.99dBm 802.11g:17.23dBm
Antenna Type/ Gain	PCB Antenna/ 0.99dBi

2.2 Carrier Frequency of Channels

802.11b, 802.11g

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01 2412		07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	12	

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2.3 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included Printer, Modem, Earphone, PC, Keyboard, Mouse, Monitor, and EUT for EMI test.
- c. The EUT was executed to keep transmitting and receiving data via Wireless.
- d. The following test mode was performed for conduction and radiation test:
 - 802.11b/g: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz

2.4 Description of Test System

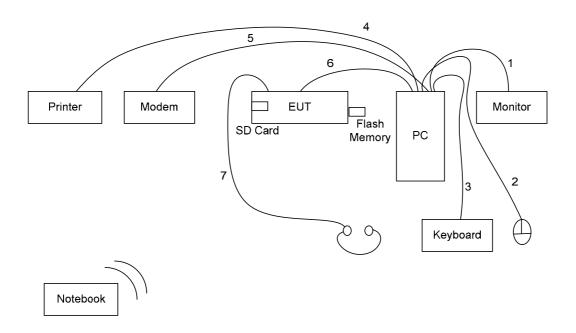
Device	Manufacturer	Model No.	Description
PC	IBM	IGV	Power Cable, Unshielding 1.8 m
Monitor	PHILIPS	202P73	Data Cable, VGA Shielding 1.35 m Power Cable, Adapter Unshielding 1.8 m
Keyboard	IBM	KB-0225	Data Cable, PS2 Shielding 1.35 m
Mouse	IBM	MO28VO	Data Cable, PS2 Shielding 1.85 m
Modem	ACEXX	DM-1414	Data Cable, RS232 Unshielding 1.35 m Power Cable, Adapter Unshielding 1.8 m
Printer	HP	Desk Jet 400	Data Cable, PRINT Unshielding 1.6 m Power Cable, Adapter Unshielding 1.8 m
Earphone MIC MIC-4 Data		Data Cable, Audio Shielding, 1.35m	
Remote Workstation			_
Notebook DELL PP10L Power Cable, Adapter Uns		Power Cable, Adapter Unshielding 1.8 m	

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2.5 Connection Diagram of Test System



- 1. The VGA cable is connected from PC to the Monitor.
- 2. The PS2 cable is connected from PC to the Mouse.
- 3. The PS2 cable is connected from PC to the Keyboard.
- 4. The Print cable is connected from PC to the Printer.
- 5. The RS232 cable is connected from PC to the Modem.
- 6. The USB cable is connected from EUT to the PC.
- 7. The Audio cable is connected from EUT to the Earphone.

*The EUT keeps to transmit and receive data via Wireless.

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2.6 General Information of Test

Test Site :	Cerpass Technology Corp. 2F-11, No. 3, Yuan Qu St. (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS1-SD):	No. 7-2, Moshihkeng, Fongtian Village, Shihding Township, Taipei County, Taiwan, R.O.C.
FCC Registration Number :	TW1049, TW1056, 982971, 488071
IC Registration Number :	4934C-1, 4934D-1
VCCI Registration Number :	T-543 for Telecommunication Test C-3328 for Conducted emission test R-3013 for Radiated emission test
Test Voltage:	AC 120V
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart C
Frequency Range Investigated:	Conducted: from 150kHz to 30MHz Radiation: from 30MHz to 24620MHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.

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2.7 Measurement Uncertainty

Measurement Item	Measurement Frequency	surement Frequency Polarization Uncerta	
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	2.71 dB
Padiated Emission	30 MHz ~ 25GHz	Vertical	4.11 dB
Radiated Emission	30 MHZ ~ 25GHZ	Horizontal	4.10 dB
6 dB Bandwidth			7500 Hz
Maximum Peak Output Power			1.4 dB
100kHz Bandwidth of Frequency Band Edges			2.2 dB
Power Spectral Density			2.2 dB

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2.8 History of this test report

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 $\hfill\square$ Additional attachment as following record:

Attachment No.	Issue Date	Description
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3. Antenna Requirements

3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

3.2 Antenna Construction and Directional Gain

Antenna type: PCB Antenna Antenna Gain: 0.99 dBi

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4. Test of Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

^{*}Decreases with the logarithm of the frequency.

4.2 Test Procedures

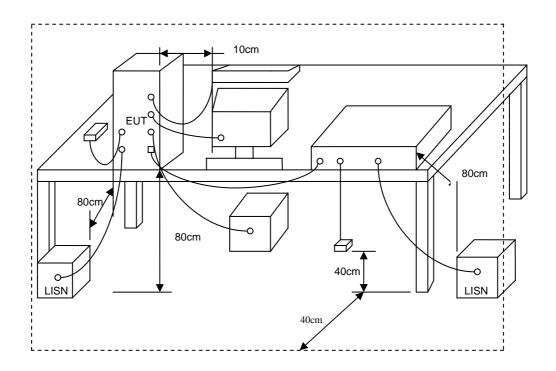
- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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4.3 Typical Test Setup



4.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Receiver	R&S	ESCI	100443	2008/12/19	2009/12/18
LISN	NSLK 8127	Schwarzbeck	8127-516	2009/05/15	2010/05/14
LISN	ROLF HEINE	NNB-2/16Z	03/10058	2009/04/18	2010/04/17

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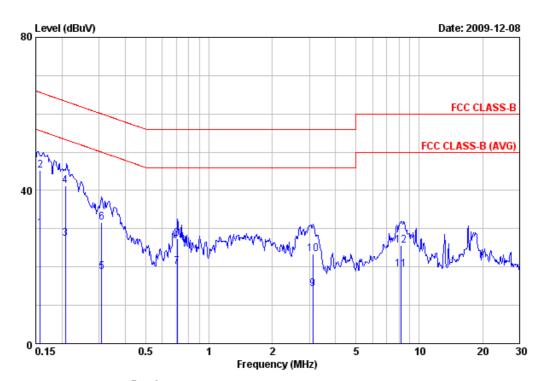
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4.5 Test Result and Data

Power	:	AC 120V	Pol/Phase :	LINE
Test Mode		802.11g CH1	Temperature :	23 °C
Memo			Humidity :	60 %

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Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	0.16	30.07	0.05	30.12	55.59	-25.47	Average
2	0.16	45.28	0.05	45.33	65.59	-20.26	QP
3	0.21	27.37	0.05	27.42	53.32	-25.90	Average
4	0.21	41.16	0.05	41.21	63.32	-22.11	QP
5	0.31	18.61	0.05	18.66	50.01	-31.35	Average
6	0.31	31.61	0.05	31.66	60.01	-28.35	QP
7	0.71	19.94	0.05	19.99	46.00	-26.01	Average
8	0.71	27.45	0.05	27.50	56.00	-28.50	QP
9	3.12	14.18	0.10	14.28	46.00	-31.72	Average
10	3.12	23.25	0.10	23.35	56.00	-32.65	QP
11	8.16	19.12	0.24	19.36	50.00	-30.64	Average
12	8.16	25.33	0.24	25.57	60.00	-34.43	QP

Notes:

- 1. Result = Read Value + Factor
- 2. Factor = LISN Factor + Cable Loss
- 3. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
- 4. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 5. The data is worse case.

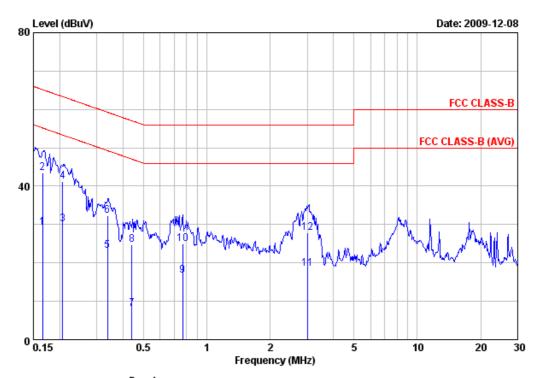
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Power :	AC 120V	Pol/Phase :	NEUTRAL
Test Mode :	802.11g CH1	Temperature :	23 °C
Memo :		Humidity :	60 %

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		Read					
Item	Freq	Value	Factor	Result	Limit	Margin	Remark
	\mathtt{MHz}	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	0.17	29.25	0.05	29.30	55.16	-25.86	Average
2	0.17	43.34	0.05	43.39	65.16	-21.77	QP
3	0.21	29.97	0.05	30.02	53.32	-23.30	Average
4	0.21	41.26	0.05	41.31	63.32	-22.01	QP
5	0.34	23.13	0.05	23.18	49.27	-26.09	Average
6	0.34	32.22	0.05	32.27	59.27	-27.00	QP
7	0.44	8.06	0.05	8.11	47.07	-38.96	Average
8	0.44	24.72	0.05	24.77	57.07	-32.30	QP
9	0.77	16.57	0.05	16.62	46.00	-29.38	Average
10	0.77	24.93	0.05	24.98	56.00	-31.02	QP
11	3.02	18.47	0.05	18.52	46.00	-27.48	Average
12	3.02	27.90	0.05	27.95	56.00	-28.05	QP

Notes:

- 1. Result = Read Value + Factor
- 2. Factor = LISN Factor + Cable Loss
- 3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
- 4. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 5. The data is worse case.

Test engineer:_

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5. Test of Radiated Emission

5.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

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Frequency (MHz)	Distance Meters	Radiated (µ V / M)	Radiated (dB µ V/ M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

Frequency (MHz)	Distance Meters	Radiated (dB µ V/ M)
30-230	10	30
230-1000	10	37

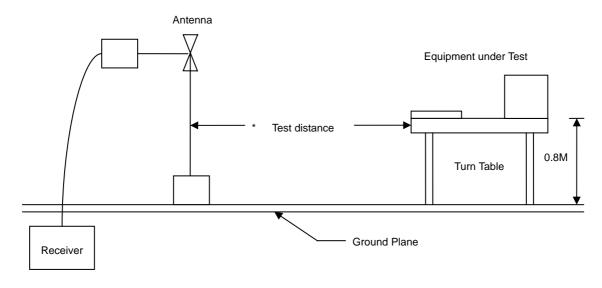
5.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- "Cone of radiation" has been considered to be 3dB beamwidth of the measurement antenna.

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5.3 Typical Test Setup



5.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schaffner	CBL6112B	2840	2009/05/14	2010/05/13
EMI Receiver	R&S	ESCI	100443	2008/12/19	2009/12/18
Amplifier	Agilent	8447D	2944A10593	2009/05/21	2010/05/20
AC Power Converter	APC	AFC-11005	F103120008	N/A	N/A

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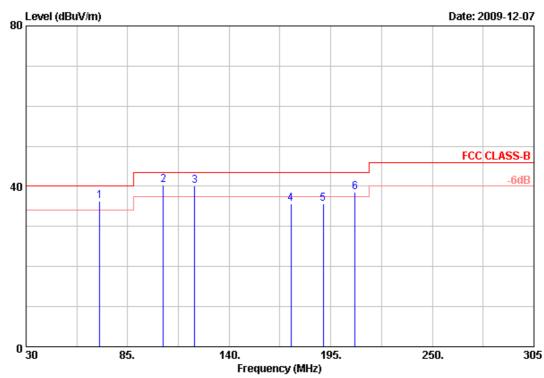
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5.5 Test Result and Data

Power :	AC 120V	Pol/Phase	:	VERTICAL
Test Mode :	Transmit / Receive	Temperature	:	23 °C
Operation Channel :	1	Humidity	:	60 %
Modulation Type :	802.11g	Atmospheric Pressure	:	1020 hPa
Memo :		Rate	:	11 Mbps



		Read						Ant	Tab
Item	Freq	Value	Factor	Result	Limit	Margin	Remark	Pos	Pos
	\mathtt{MHz}	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	69.88	51.48	-15.05	36.43	40.00	-3.57	QP	100	0
2	104.25	51.66	-11.28	40.38	43.50	-3.12	QP	100	0
3	121.30	50.15	-10.01	40.14	43.50	-3.36	QP	100	0
4	173.55	47.69	-12.05	35.64	43.50	-7.86	Peak	100	0
5	190.88	46.17	-10.47	35.70	43.50	-7.80	Peak	100	0
6	208.20	48.50	-9.85	38.65	43.50	-4.85	QP	100	0

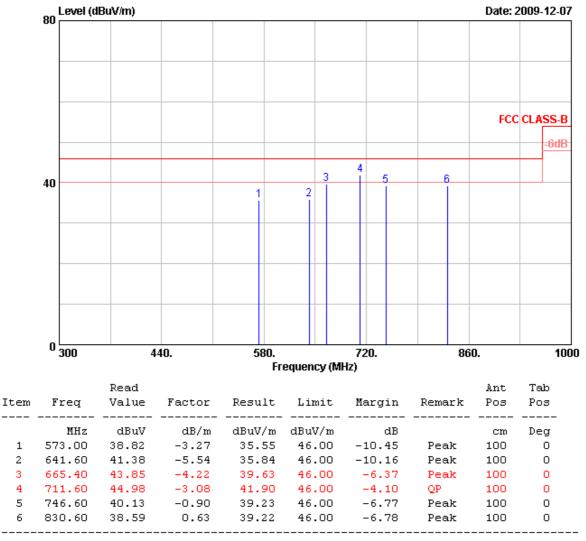
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 6. The data is worse case.

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Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Transmit / Receive	Temperature	:	23 °C
Operation Channel	:	1	Humidity	:	60 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate	:	11 Mbps



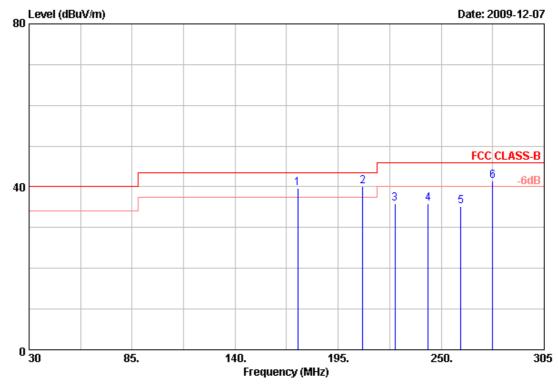
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 6. The data is worse case.

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Power	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode	Transmit / Receive	Temperature :	23 °C
Operation Channel	: 1	Humidity :	60 %
Modulation Type	802.11g	Atmospheric Pressure :	1020 hPa
Memo		Rate :	11 Mbps



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos 	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	173.55	56.94	-17.31	39.63	43.50	-3.87	QP	100	0
2	208.20	56.88	-16.72	40.16	43.50	-3.34	QP	100	0
3	225.25	51.02	-15.23	35.79	46.00	-10.21	Peak	100	0
4	243.13	51.59	-15.65	35.94	46.00	-10.06	Peak	100	0
5	260.45	49.12	-13.88	35.24	46.00	-10.76	Peak	100	0
6	277.50	54.71	-13.21	41.50	46.00	-4.50	QP	100	0

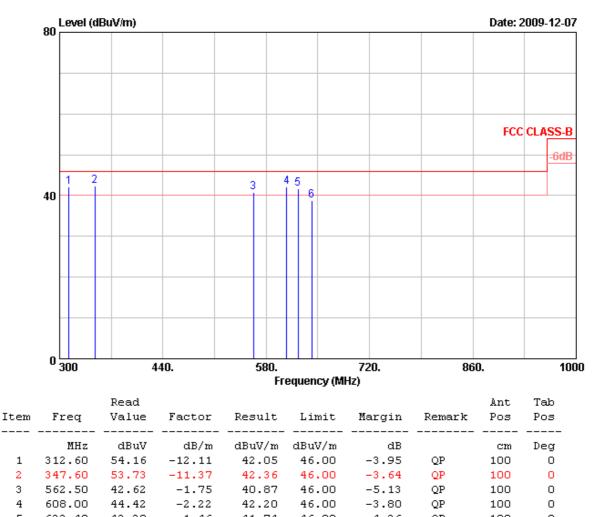
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 6. The data is worse case.

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Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	1	Humidity :	60 %
Modulation Type :	802.11g	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	11 Mbps



641.60 39.91

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier

623.40 43.20 -1.46 41.74 46.00 -4.26 QP

-1.16 38.75 46.00

- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. All emission below 1GHz at 802.11b/g mode are all the same, so the 802.11g mode chosen as representative in final test.
- 5. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
- 6. The data is worse case.

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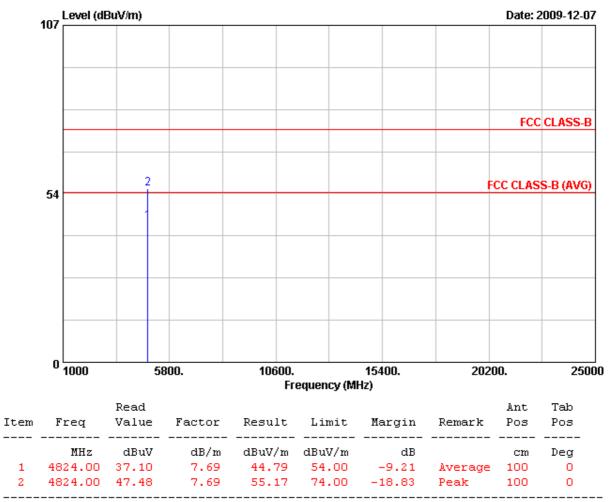
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0

100

-7.25 Peak 100

Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	1	Humidity :	60 %
Modulation Type :	802.11b	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	11 Mbps



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

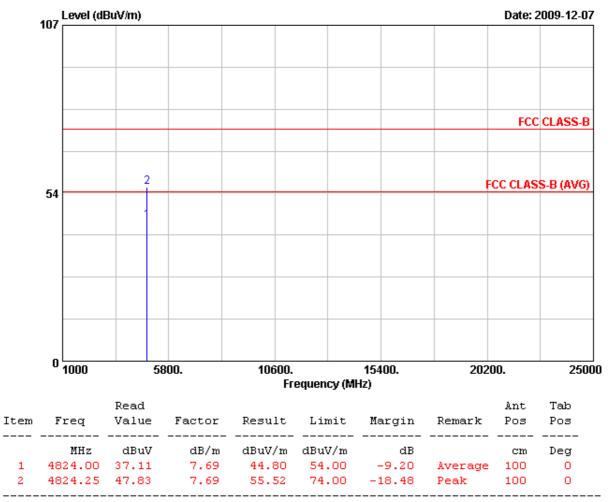
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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	23 °C
Operation Channel	:	1	Humidity	:	60 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate	:	11 Mbps

Report No.: TEFI0911269



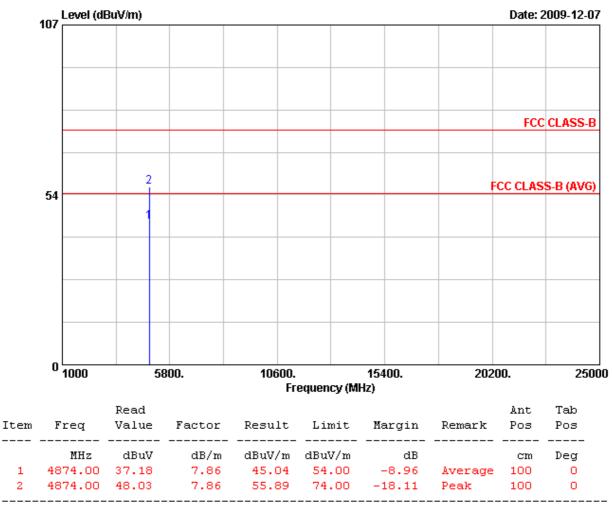
Notes:

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is $1 \, \text{MHz}$ and video bandwidth is $10 \, \text{Hz}$ for Average detection at frequency above $1 \, \text{GHz}$.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	6	Humidity :	60 %
Modulation Type :	802.11b	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	11Mbps



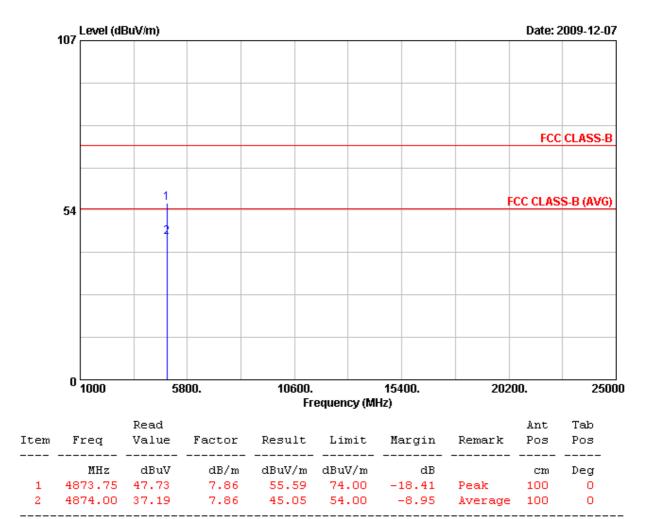
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above $_{1GHz}$
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature		23 °C
Operation Channel	:	6	Humidity		60 %
Modulation Type	:	802.11b	Atmospheric Pressure		1020 hPa
Memo	:		Rate		11 Mbps

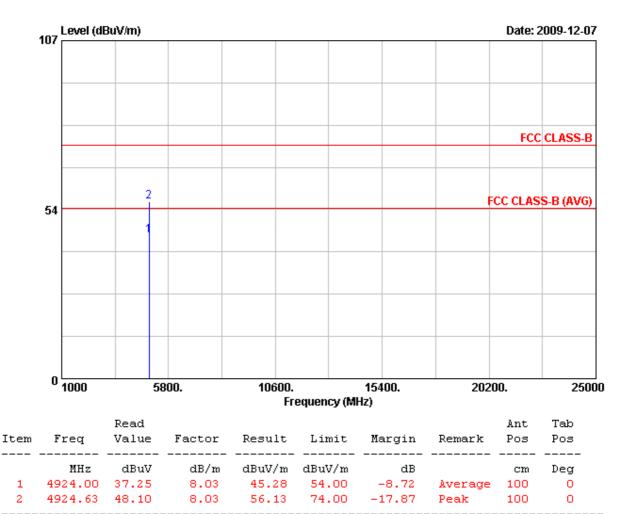


- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	11	Humidity :	60 %
Modulation Type :	802.11b	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	11 Mbps



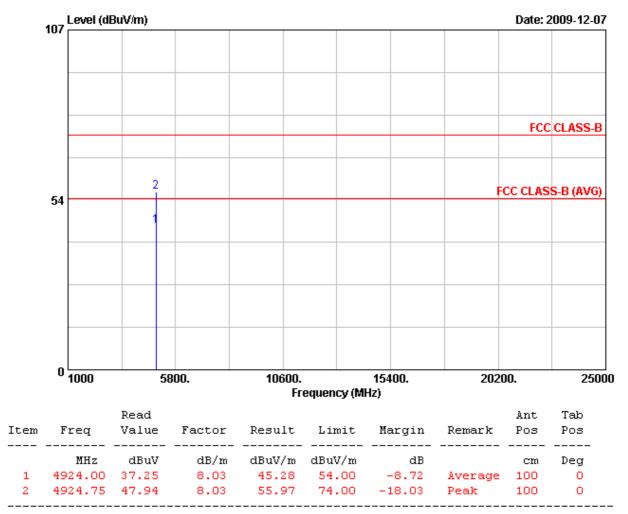
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	23 °C
Operation Channel	:	11	Humidity	:	60 %
Modulation Type	:	802.11b	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate	:	11Mbps



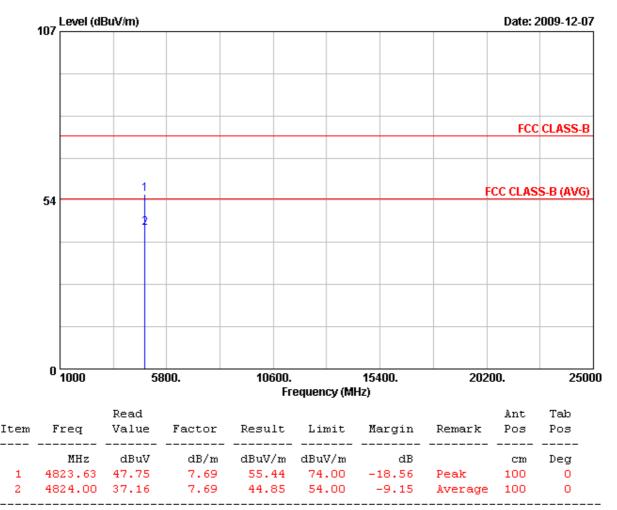
- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power	AC 120V	Pol/Phase :	VERTICAL
Test Mode	Transmit / Receive	Temperature :	23 °C
Operation Channel	1	Humidity :	60 %
Modulation Type	802.11g	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	54 Mbps



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

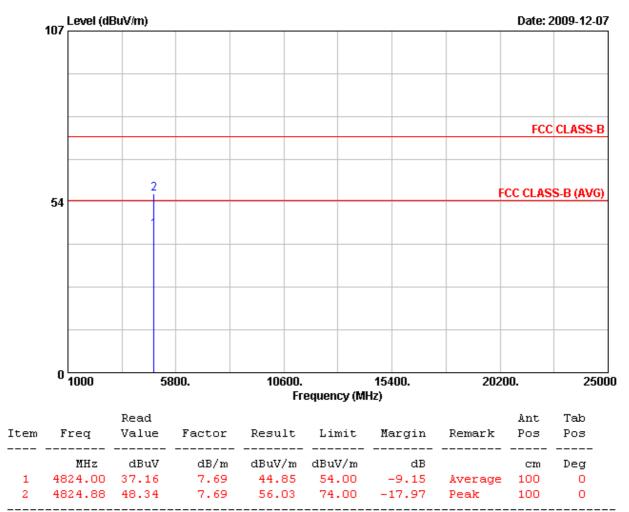
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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature	:	23 °C
Operation Channel	:	1	Humidity	:	60 %
Modulation Type	:	802.11g	Atmospheric Pressure	:	1020 hPa
Memo	:		Rate		54 Mbps

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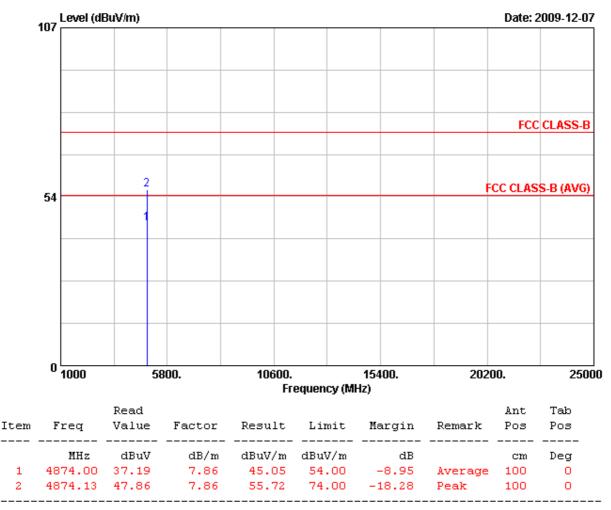
Notes:

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	6	Humidity :	60 %
Modulation Type :	802.11g	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	54 Mbps



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

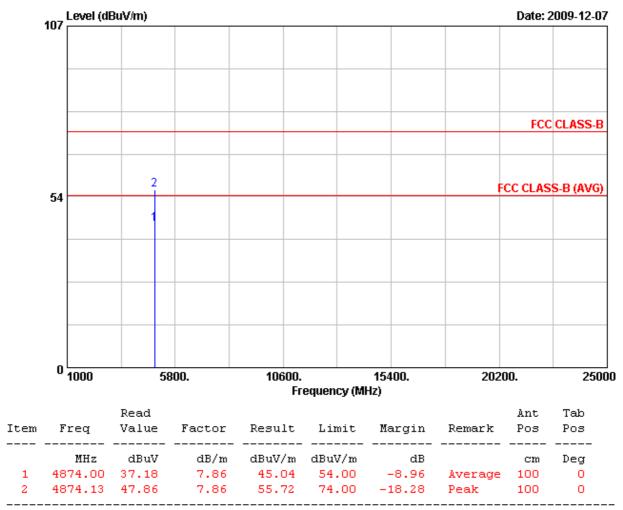
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Power	:	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature :	23 °C
Operation Channel	:	6	Humidity :	60 %
Modulation Type	:	802.11g	Atmospheric Pressure :	1020 hPa
Memo	:		Rate :	54 Mbps



- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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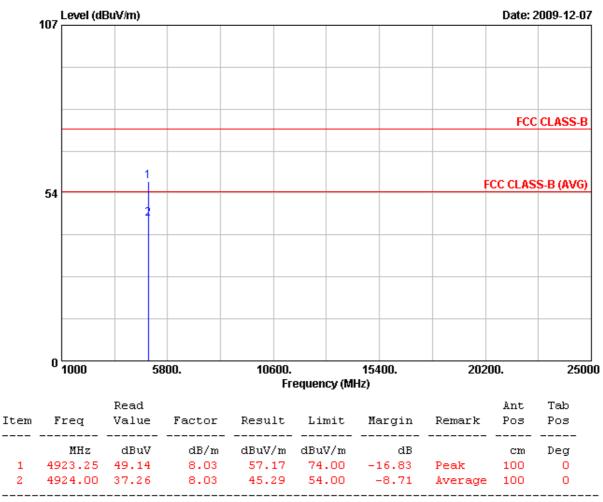
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Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Transmit / Receive	Temperature :	23 °C
Operation Channel :	11	Humidity :	60 %
Modulation Type :	802.11g	Atmospheric Pressure :	1020 hPa
Memo :		Rate :	54 Mbps

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Notes:

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

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Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Transmit / Receive	Temperature		23 °C
Operation Channel	:	11	Humidity		60 %
Modulation Type	:	802.11g	Atmospheric Pressure		1020 hPa
Memo	:		Rate		54 Mbps

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	107 Level (dE	BuV/m)						Date: 2	2009-12-07
								FCC	CLASS-B
	54	2					F	CC CLAS	S-B (AVG)
	0 1000	58	800.	10600. Fr	equency (M	15400. Hz)	202	00.	2500
em	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
1		37.25	8.03	45.28	54.00	dB -8.72 -18.43	Average	100	Deg O

Notes:

- 1. Result = Read Value + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is $1\,\mathrm{MHz}$ and video bandwidth is $3\,\mathrm{MHz}$ for Peak detection at frequency above $1\,\mathrm{GHz}$.
- 5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
- 6. The other emissions is too low to be measured.
- 7. The data is worse case.

Test engineer:

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6. 6dB Bandwidth Measurement Data

6.1 Test Limit

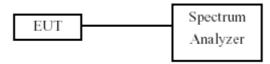
The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

6.2 Test Procedures

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
- c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

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6.3 Test Setup Layout



6.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

6.5 Test Result and Data

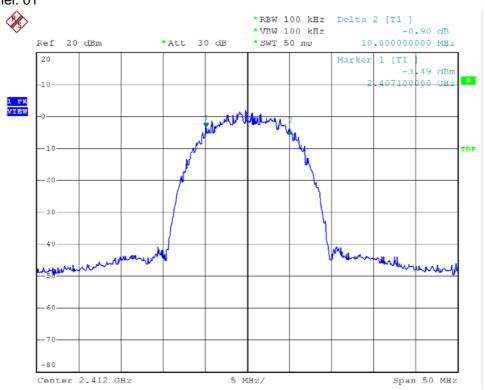
Test Date: Dec. 03, 2009 Temperature: 25°C Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
	01	2412	10.0
802.11b (11Mbps)	06	2437	9.9
	11	2462	9.9
	01	2412	16.5
802.11g (54Mbps)	06	2437	16.5
	11	2462	16.5

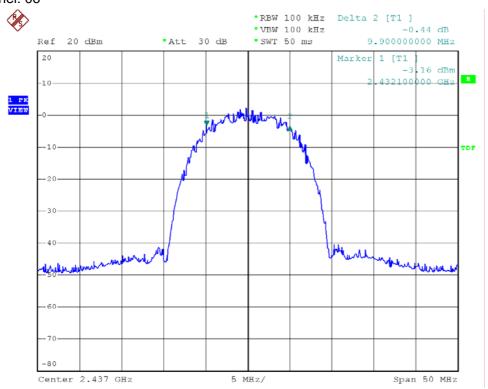
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Modulation Standard: 802.11b (11Mbps) Channel: 01



Modulation Standard: 802.11b (11Mbps) Channel: 06



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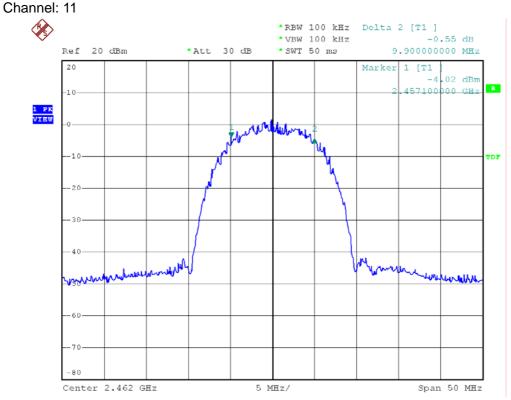
Issued Date : Dec. 10, 2009

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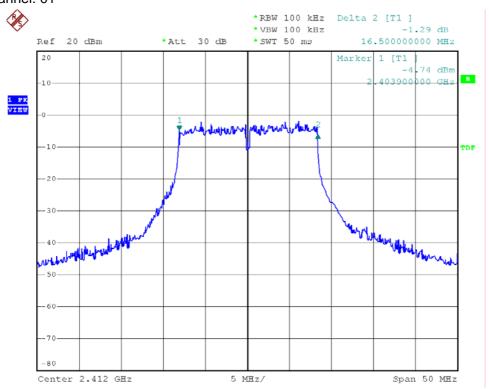
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Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11g (54Mbps) Channel: 01



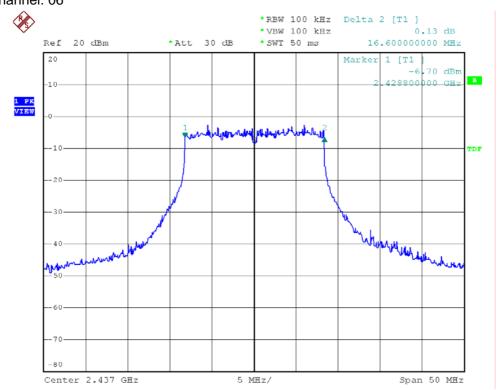
Tel:886-2-2655-8100 Fax:886-2-2655-8200

Issued Date : Dec. 10, 2009

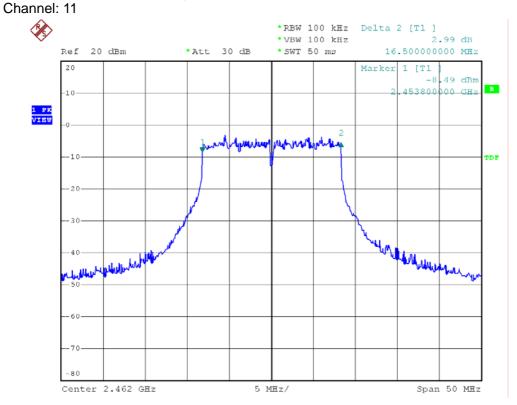
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Modulation Standard: 802.11g (54Mbps)



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7. Maximum Peak Output Power

7.1 Test Limit

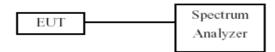
The Maximum Peak Output Power Measurement is 30dBm.

7.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

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7.3 Test Setup Layout



7.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

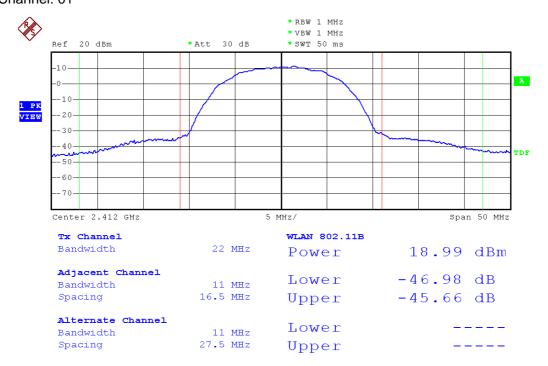
7.5 Test Result and Data

Test Date: Dec. 03, 2009 Temperature: 25°C Humidity: 65% Atmospheric pressure: 1020 hPa

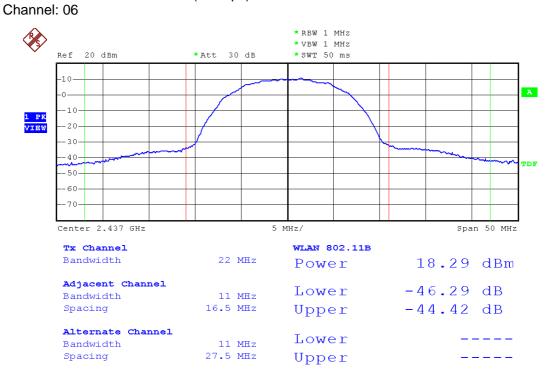
Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Output (mW)
	01	2412	18.99	79.3
802.11b (11Mbps)	06	2437	18.29	67.5
(THVIDPS)	11	2462	17.76	59.7
000.44	01	2412	17.23	52.8
802.11g (54Mbps)	06	2437	16.84	48.3
	11	2462	16.20	41.7

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Modulation Standard: 802.11b (11Mbps)



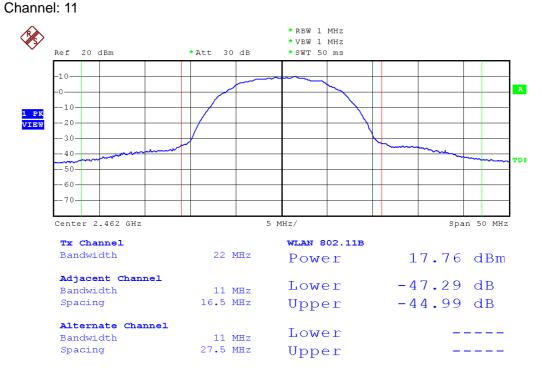
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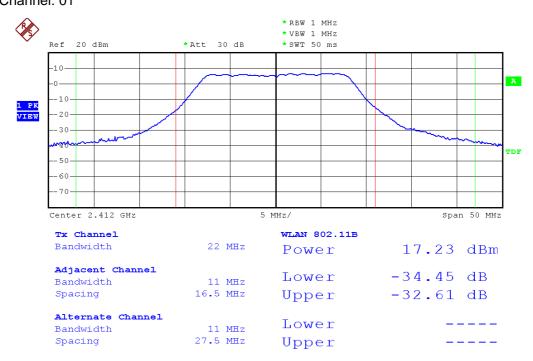


Modulation Standard: 802.11b (11Mbps)



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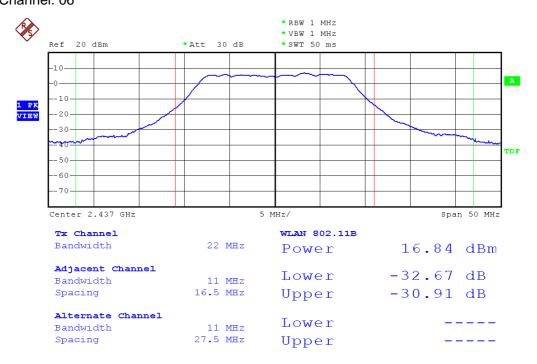
Modulation Standard: 802.11g (54Mbps) Channel: 01



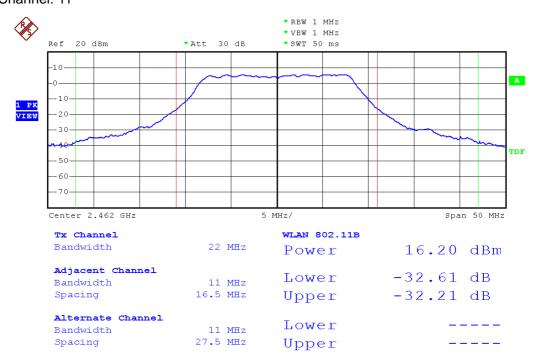
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Modulation Standard: 802.11g (54Mbps) Channel: 11



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8. Band Edges Measurement

8.1 Test Limit

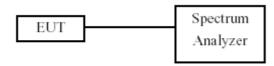
Below –20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

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8.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
- b. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. The band edges was measured and recorded.

8.3 Test Setup Layout



8.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

8.5 Test Result and Data

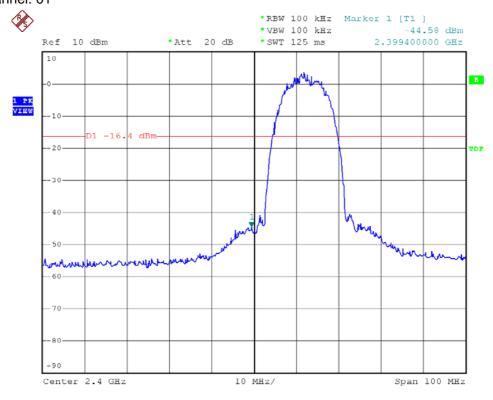
Test Date: Dec. 03, 2009 Temperature: 25°C Atmospheric pressure: 1020 hPa Humidity: 65%

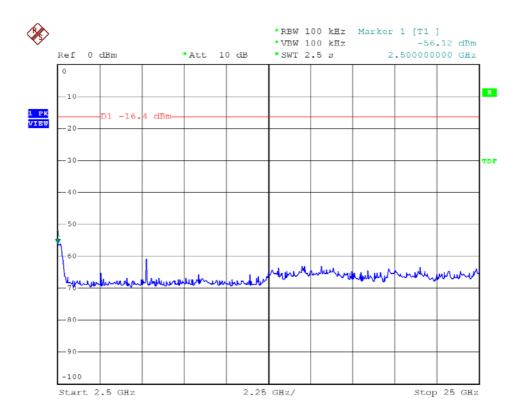
Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)	maximum value (dBm)
802.11b	01	2412	2399.40	-44.58
(11Mbps)	11	2462	2484.90	-53.72
802.11g	01	2412	2400.00	-35.74
(54Mbps)	11	2462	2484.30	-48.45

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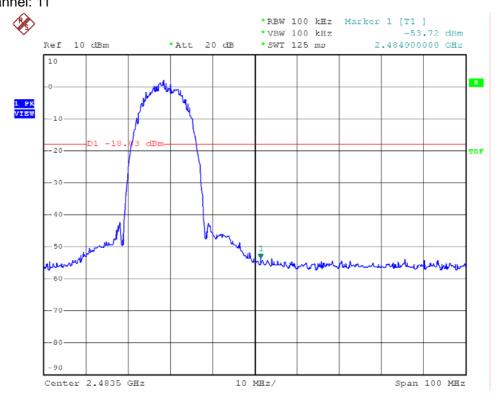
Tel:886-2-2655-8100 Fax:886-2-2655-8200

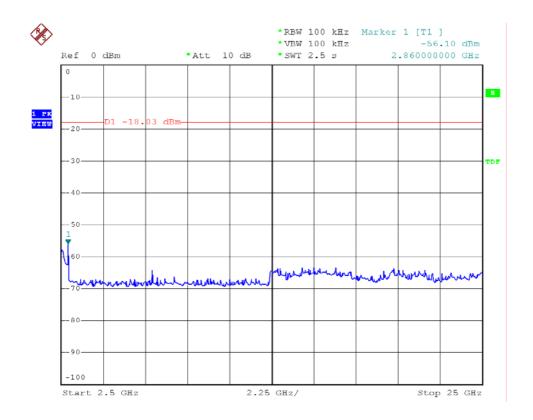
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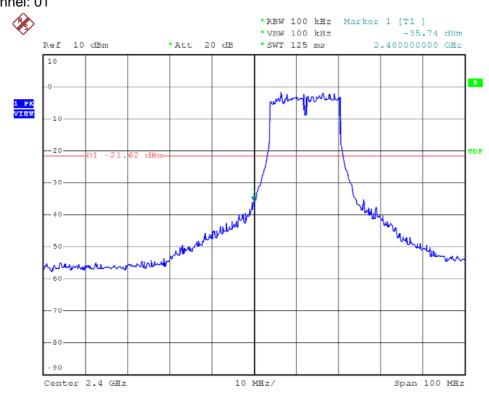
Issued Date : Dec. 10, 2009

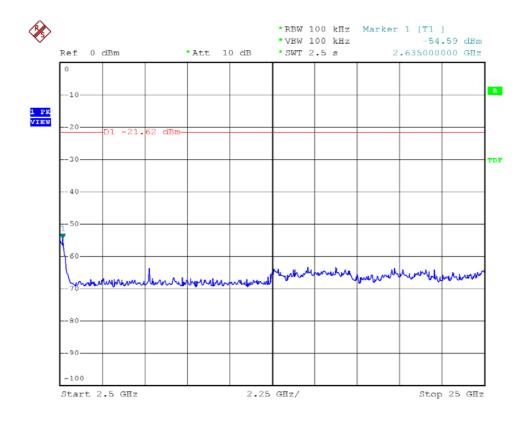
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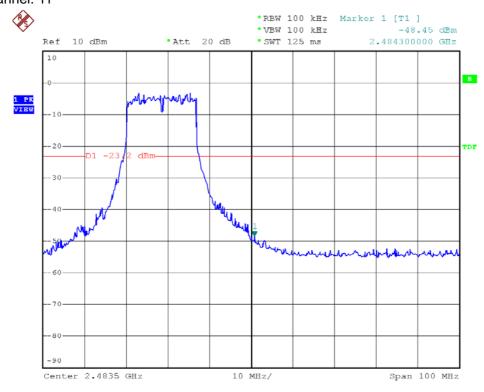
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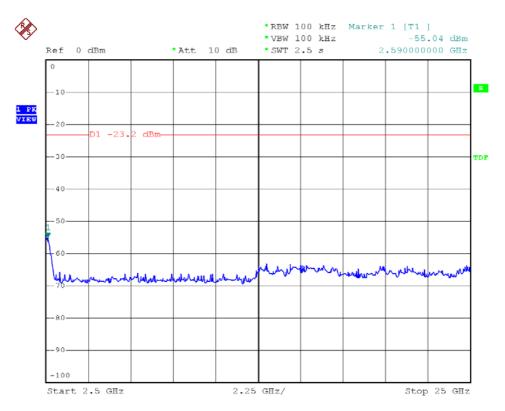
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8.6 Restrict Band Emission Measurement Data

Test Date : Dec. 07, 2009

Temperature : 22° C Humidity : 62% Atmospheric Pressure : 1022 hPa

Modulation Standard: IEEE 802.11b (11Mbps)

Channel 1 Fundamental Frequency: 2412 MHz										
Frequency (MHz)	Ant-Pol H/V	Meter Reading	Corrected Factor	orrected Result Remark (dBuV/m)		Limit@3m (dBuV/m) Margin (dB)		Table (Deg.)	Ant High	
,		J		,		Peak	Ave.	, ,	\ 39·/	(m)
2387.72	Н	50.50	-0.67	49.83	Peak	74	54	-24.17	205	1.0
2390.00	Н	38.60	-0.96	37.93	Ave	74	54	-16.07	205	1.0
2389.76	V	49.93	-0.67	49.26	Peak	74	54	-24.74	135	1.0
2390.00	V	38.14	-0.67	37.47	Ave	74	54	-16.53	135	1.0
Channel 11	nnel 11 Fundamental Frequency: 2462 MHz						2 MHz			
2484.42	Н	50.55	-0.26	50.29	Peak	74	54	-23.71	203	1.25
2483.50	Н	38.32	-0.27	38.05	Ave	74	54	-15.95	203	1.25
2485.56	V	50.85	-0.26	50.59	Peak	74	54	-23.41	139	1.12
2483.50	V	38.30	-0.27	38.03	Ave	74	54	-15.97	139	1.12

Modulation Standard: IEEE 802.11g (54Mbps)

Modulation	otariaara. I	LLL 002.1	ig (o-ivibpo	,						
Channel 1 Fundamental Frequency: 2412 MHz										
Frequency (MHz)	Ant-Pol H/V	Meter Reading	Corrected Factor	Result (dBuV/m)	Remark	Limit@3m Remark (dBuV/m)		Margin (dB)	Table (Deg.)	Ant High
, ,				,		Peak	Ave.	, ,		(m)
2388.34	Н	51.90	-0.67	51.23	Peak	74	54	-22.77	205	1.0
2390.00	Н	39.60	-0.67	38.93	Ave	74	54	-15.07	205	1.0
2384.26	V	51.31	-0.69	50.62	Peak	74	54	-23.38	124	1.0
2390.00	V	38.85	-0.67	38.18	Ave	74	54	-15.82	124	1.0
Channel 11	11 Fundamental Frequency: 2462 MHz						2 MHz			
2484.42	Н	50.23	-0.26	49.97	Peak	74	54	-24.03	204	1.23
2483.50	Н	38.59	-0.27	38.32	Ave	74	54	-15.68	204	1.23
2484.72	V	49.99	-0.26	49.73	Peak	74	54	-24.27	141	1.1
2483.50	V	38.47	-0.27	38.20	Ave	74	54	-15.80	141	1.1

Notes:

- 1. Result = Meter Reading + Factor
- 2. Factor = Antenna Factor + Cable Loss Amplifier
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
- 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.

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9. Power Spectral Density

9.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

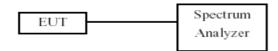
9.2 Test Procedures

- a. The transmitter output was connected to spectrum analyzer.
- b. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.

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- c. The power spectral density was measured and recorded.
- d. The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

9.3 Test Setup Layout



9.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

9.5 Test Result and Data

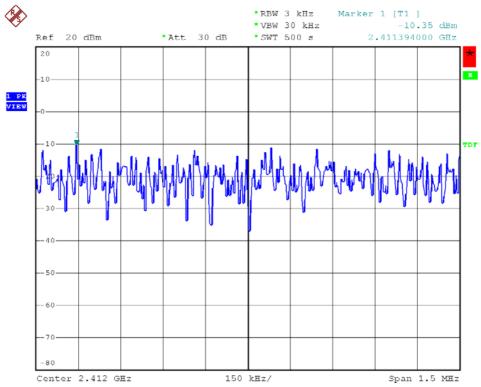
Temperature: 25°C Test Date: Dec. 03, 2009 Atmospheric pressure: 1020 hPa Humidity: 65%

Modulation Standard	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)
	01	2412	-10.35
802.11b (11Mbps)	06	2437	-11.20
	11	2462	-11.79
	01	2412	-15.31
802.11g (54Mbps)	06	2437	-14.37
	11	2462	-14.32

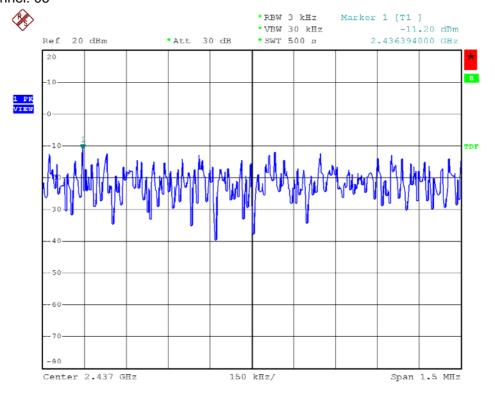
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Modulation Standard: 802.11b (1Mbps) Channel: 06



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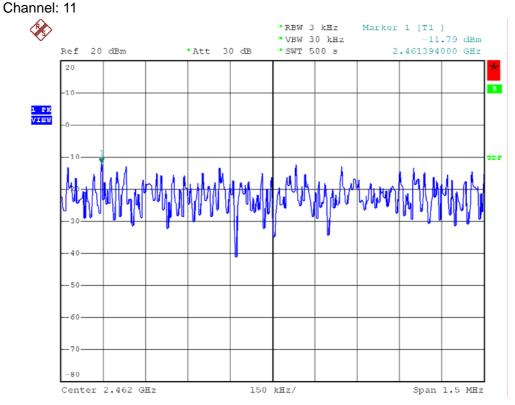
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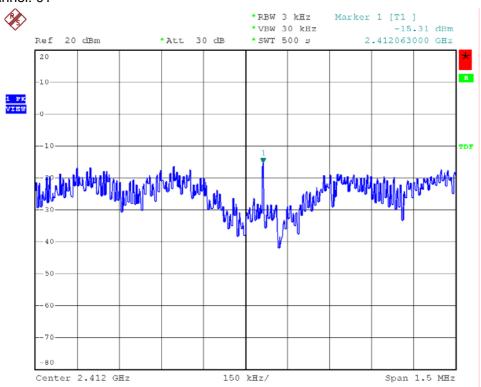
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Modulation Standard: 802.11b (11Mbps)



Modulation Standard: 802.11g (54Mbps) Channel: 01



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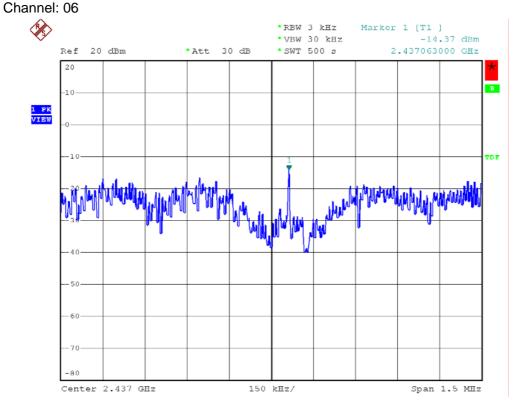
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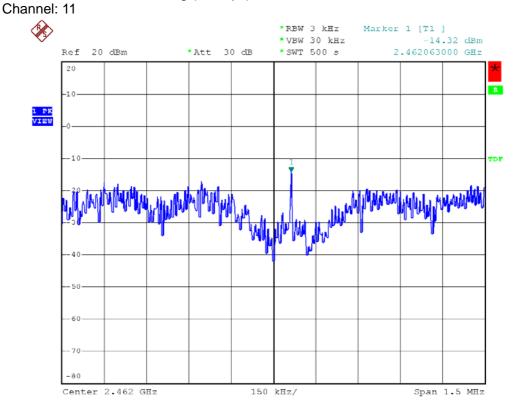
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Modulation Standard: 802.11g (54Mbps)



Modulation Standard: 802.11g (54Mbps)



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10. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 - 0.11000	16.42000 - 16.42300	399.9 – 410.0	4.500 - 5.250
0.49500 - 0.505**	16.69475 – 16.69525	608.0 - 614.0	5.350 - 5.460
2.17350 - 2.19050	16.80425 – 16.80475	960.0 - 1240.0	7.250 - 7.750
4.12500 - 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 - 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 - 9.200
4.20725 - 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 - 9.500
6.21500 - 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 - 12.700
6.26775 - 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 - 13.400
6.31175 - 6.31225	123.00000 – 138.00000	2200.0 - 2300.0	14.470 – 14.500
8.29100 - 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 - 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 - 8.38675	156.70000 – 156.90000	2655.0 - 2900.0	22.010 – 23.120
8.41425 - 8.41475	162.01250 – 167.17000	3260.0 - 3267.0	23.600 - 24.000
12.29000 - 12.29300	167.72000 – 173.20000	3332.0 - 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 - 3358.0	36.430 - 36.500
12.57675 – 12.57725	322.00000 - 335.40000	3600.0 - 4400.0	Above 38.6
13.36000 - 13.41000			

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10.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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^{**:} Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz