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FEDERAL COMMUNICATIONS COMMISSION Registration number: 282399 Report No.: GLEMR070401041RFT Page: 1 of 37 Contain FCC ID: TE7WN56XG

TEST REPORT

Application No. :	GLEMR070401041RF
Applicant:	TP-LINK TECHNOLOGIES CO., LTD
Contain FCC ID:	TE7WN56XG
Fundamental Carrier Frequency :	2.412GHz to 2.462GHz
Equipment Under Test (EUT):
Name:	54M Wireless ADSL2+ Router
Model No.:	TD-W8910G
Trade Mark:	TP-LINK
Standards:	FCC PART 15, SUBPART C: 2007 (Section 15.247);
Date of Receipt:	24 April 2007
Date of Test:	24 April to 25 May 2007
Date of Issue:	29 June 2007
Test Result :	PASS *

* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 2 of this report for further details.

Authorized Signature:

Stephen Gues 200) June

Stephen Guo Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



2 Test Summary

For the class II permissive change of the application for the EUT.				
Test	Test Requirement	Standard Paragraph	Result	
Maximum Peak Output Power	FCC PART 15 :2007	Section 15.247(b)(3)	PASS*	
6dB Bandwidth	FCC PART 15 :2007	Section 15.247(a)(2)	N/A	
Peak Power Spectral Density	FCC PART 15 :2007	Section 15.247(e)	N/A	
Radiated Spurious Emission	FCC PART 15 :2007	Section 15.109& 15.209	PASS	
Emission on Band Edges	FCC PART 15 :2007	Section 15.247 (d)	PASS*	
Conducted Emission	FCC PART 15 :2007	Section 15.107 & 15.207	N/A	

Remark:

*: The details result please refer to the section 6.2 & 6.6 of this report.

N/A: Not applicable.

The report was based on original result of RF module which had been certificated by FCC, it complemented all necessary testing since the RF module was installed into the EUT.



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SGS-CSTC Standards

Technical Services Ltd.

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4 General Information

4.1 Client Information

Applicant Name:	TP-LINK TECHNOLOGIES CO., LTD								
Applicant Address:	Building District,Sh	7, ienz	Section zhen, P.R.	2, C.	Honghualing	Industrial	Park,	Xili,	Nanshan

4.2 General Description of E.U.T.

Name:	54M Wireless ADSL2+ Router
Model No.:	TD-W8910G
Frequency Range:	2412MHz ~2462MHz
Channel Number:	11
Frequency of each channel:	2412MHz, 2417MHz, 2422MHz, 2427MHz, 2432MHz, 2437MHz, 2442MHz, 2447MHz, 2452MHz, 2457MHz, 2462MHz
Type of modulation:	DSSS(802.11b mode), OFDM(802.11g mode)
Function:	ADSL router with 802.11b/g wireless connect way
r unction.	Abol Todel with 602.115/g wireless connect way

4.3 Details of E.U.T.

	AC adapter
EUT Power Suppry.	1.Model:MT12-4120100-A1
	Input:120V~50/60Hz AC, Output:12V DC
	2.Model:DSA-12R-12 AUS 120120
	Input:100-120V ~50/60Hz AC, Output:12V DC

4.4 Description of Support Units

PC can wire or wireless connect the product to the LAN.

The EUT has been tested as an independent unit. with PC system PC1, PC2 and PC3.

Description	Manufacturer	Model No.	SN/Certificate NO
Test PC 1			
Personal Computer	IBM	8126	N/A
15" Monitor	IBM	6331-4CN	23-NTYF6/ FCC ID:ARSCM560S
Mouse	IBM	MU29J	23-048987
Keyboard	IBM	KB-0225	2747655
Test PC 2			
Personal Computer	Hewlett-Packard	Dx7208	CNG62707HF
17" Monitor	IBM	6737-P6N	VC-N2571/ FCC ID:BEJT17LD
Mouse	Maxell	MSMP-20	N/A
Keyboard	Hewlett-Packard	KB-0316	382925-AA1



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Test PC 3			
Personal Computer	DELL	DHS	N/A
15" Monitor	DELL	E551c	CN-0462RM-64180-24J- 00LG/ FCC ID:ARSCM356N
Mouse	IBM	MU29J	23-048982
Keyboard	IBM	SK-8820	08520200
ROM Programmer	DASI Electronics	EMP-100A	N/A
Printer	Hewlett-Packard	C5884A	DeskJet 670C
Notebook			
NoteBook	IBM	T40	99-FBAF9 03/09
NoteBook	IBM	X22	FX-24148 00/10

4.5 Standards Applicable for Testing

Only class II permissive change required by the applicant. The standard used was FCC PART 15, SUBPART C (2007) section 15.247.



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4.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.7 Other Information Requested by the Customer

None.

4.8 Test Facility

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

• NVLAP – Lab Code: 200611-0

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under

the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

• SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of

EMC TESTING SERVICES and SAFETY TESTING SERVICES.

• CNAS L0167

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in

compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

• FCC – Registration No.: 282399

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorized test laboratory for the DoC process.



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5 Equipments Used during Test

	Conducted Emission					
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m ³	N/A	N/A	N/A
EMC0102	LISN	Schaffner Chase	MNZ050D/1	1421	05-12-2006	05-12-2007
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	05-12-2006	05-12-2007
EMC0107	Coaxial Cable	SGS	2m	N/A	25-11-2006	25-11-2007

	RE in Chamber/OAT	S				
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0525	Compact Semi- Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	06-03-2006	06-03-2007
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	05-12-2006	05-12-2007
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	04-12-2006	04-12-2007
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	31-10-2006	31-10-2007
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	31-07-2006	31-07-2007
EMC0517	Horn Antenna	Rohde & Schwarz	HF906	100095	29-07-2006	29-07-2007
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2006	05-12-2007
EMC0520	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A0625 2	06-03-2006	06-03-2007
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A0164 9	06-03-2006	06-03-2007
EMC0523	Active Loop Antenna	EMCO	6502	00042963	09-08-2006	09-08-2008
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	22-08-2006	22-08-2007

	General used equipment					
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0050- EMC0053	Temperature, & Humidity	ZHENGZHOU BO YANG	WSB	N/A	05-12-2006	05-12-2007
EMC0054	Temperature, & Humidity	Shenzhen Tai Kong	THG-1	N/A	04-01-2007	04-01-2008
EMC0006	DMM	Fluke	73	70681569	27-09-2006	27-09-2007
EMC0007	DMM	Fluke	73	70671122	27-09-2006	27-09-2007



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6 Test Results

6.1 E.U.T. Operation

Input voltage:	120V AC
Operating Environment:	
Temperature:	23.0 -26.0 °C
Humidity:	43-60 % RH
Atmospheric Pressure:	992 -1016 mbar
EUT Operation:	Test the EUT with 802.11b mode (DSSS modulation type) and 802.11g mode (OFDM modulation type) with test software supplied. Test the EUT to transmit and receive data at lowest (Channel 1), middle (Channel 6), and highest channel (Channel 11), individually for the compliance test.



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6.2 Maximum Peak Output Power

Test Requirement:	FCC Part15 247(b)(3)
Test Method:	Base on ANSI 63.4.
Test Date:	8 May 2007
Test Limit:	For systems using digital modulation in the 902-928 MHz, 2400-
	2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.
Test mode:	Test in transmitting mode:
	802.11b (DSSS) Channel 1, Channel 6, Channel 11;
	802.11g (OFDM) Channel 1, Channel 6, Channel 11.

Test Procedure:

- 1. Remove the antenna from the EUT and then connect a 50ohm SMA RF cable from the antenna port to the peak power meter via power sensor.
- 2. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

Test Result:

802.11b(DSSS)

Test Channel	Fundamental Frequency (MHz)	Reading Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Limit (dBm)	Class II PC limit (dBm±20%)	PASS/ FAIL
1	2412	15.3	0.2	15.5	30.0	13.20	Pass
6	2437	14.9	0.2	15.1	30.0	13.14	Pass
11	2462	15.4	0.2	15.6	30.0	13.16	Pass

802.11g(OFDM)

Test Channel	Fundamental Frequency (MHz)	Reading Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Limit (dBm)	Class II PC limit (dBm±20%)	PASS/ FAIL
1	2412	14.6	0.2	14.8	30.0	13.18	Pass
6	2437	13.2	0.2	13.4	30.0	13.12	Pass
11	2462	13.5	0.2	13.7	30.0	11.60	Pass

Remark: Class II PC limit is the original FCC ID report value \pm 20%.



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6.3 6dB Bandwidth

Test Requirement:	FCC Part15 247(a)(2)
Test Method:	Base on ANSI 63.4.
Test Date:	N/A
Test Limit:	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 500kHz.
Test mode:	Test in transmitting mode: Channel 1, Channel 6, Channel 11.

Test Procedure:

- 1. Remove the antenna from the EUT and then connect a 50ohm SMA RF cable from the antenna port to the spectrum analyzer.
- 2. Set the RBW=VBW=100KHz, SPAN>> Bandwidth.
- 3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

Test Result:

N/A, not applicable, the test item did not required by the client.



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6.4 Peak Power Spectral Density

Test Requirement:	FCC Part15 247(e)
Test Method:	Base on ANSI 63.4.
Test Date:	N/A
Test Limit:	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.
Test mode:	Test in transmitting mode: Channel 1, Channel 6, Channel 11.

Test Procedure:

- 1. Remove the antenna from the EUT and then connect a 50ohm SMA RF cable from the antenna port to the spectrum analyzer.
- 2. Set the RBW=3KHz, VBW=10KHz, SPAN=300KHz, Sweep Time=100s.
- 3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

Test Result:

N/A, not applicable, the test item did not required by the client.



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6.5 Radiated Spurious Emissions

Test Requirement:	FCC Part 15.109 & 15.209
Test Method:	ANSI C63.4
Test Date:	25 April to 27 May 2007
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber and OATS) Frequency range 30 MHz – 25GHz for transmitting mode. Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz),1 MHz resolution bandwidth and Peak and Average-Peak detector apply(1000 MHz – 25GHz). Receive antenna scan height 1 m - 4 m, polarization Vertical / Horizontal
15.109&15.209 Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m above 960MHz

Test Configuration:





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Test Procedure: The procedure uesd was ANSI Standard C63.4 2003. The receive was scanned from 30MHz to 25GHz. When an emission was found, the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier . The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Peramlifer Factor

The following test results were performed on the EUT



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Test in 802.11b(DSSS) mode Channel 1 (2412MHz) in transmitting status:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
97.560	Vertical	35.2	43.5	8.3
249.220	Vertical	40.4	46.0	5.6
299.660	Vertical	35.8	46.0	10.2
431.580	Vertical	34.2	46.0	11.8
664.380	Vertical	36.2	46.0	9.8
843.280	Vertical	35.3	46.0	10.7
101.780	Horizontal	38.7	43.5	4.8
230.790	Horizontal	45.3	46.0	0.7
249.220	Horizontal	44.6	46.0	1.4
279.551	Horizontal	45.6	46.0	0.4
299.660	Horizontal	42.1	46.0	3.9
498.510	Horizontal	36.5	46.0	9.5

Test in 802.11b(DSSS) mode Channel 1(2412MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement						
Test	Measuring Le	vel (dBuV/m)	Limits	Margin (dB)		
Frequency (MHz)	Vertical	Horizontal	(dBuV/m)	Vertical	Horizontal	
4824.000	72.8	70.4	74.0	1.2	3.6	
7236.000	N/A	N/A	74.0	N/A	N/A	
Average Measurement						
4824.000	51.3	50.5	54.0	2.7	3.5	
7236.000	N/A	N/A	54.0	N/A	N/A	



Test in 802.11b(DSSS) mode Channel 6(2437MHz) in transmitting status:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
103.560	Vertical	36.3	43.5	7.2
249.220	Vertical	40.2	46.0	5.8
299.660	Vertical	36.8	46.0	9.2
431.580	Vertical	33.1	46.0	12.9
664.380	Vertical	36.2	46.0	9.8
746.340	Vertical	35.3	46.0	10.7
97.350	Horizontal	38.4	43.5	5.1
230.790	Horizontal	44.6	46.0	1.4
249.220	Horizontal	42.9	46.0	3.1
279.551	Horizontal	45.2	46.0	0.8
299.660	Horizontal	42.5	46.0	3.5
650.320	Horizontal	37.5	46.0	8.5

Test in 802.11b(DSSS) mode Channel 6(2437MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement						
Test	Measuring Le	vel (dBuV/m)	Limits	Margi	n (dB)	
Frequency (GHz)	Vertical	Horizontal	(dBuV/m)	Vertical	Horizontal	
4874.000	71.6	70.5	74.0	2.4	3.5	
7311.000	N/A	N/A	74.0	N/A	N/A	
Average Measurement						
4874.000	53.2	51.2	54.0	0.8	2.8	
7311.000	N/A	N/A	54.0	N/A	N/A	



Test in 802.11b(DSSS) mode Channel 11(2462MHz) in transmitting status:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
103.560	Vertical	36.3	43.5	7.2
249.220	Vertical	40.2	46.0	5.8
299.660	Vertical	36.8	46.0	9.2
431.580	Vertical	33.1	46.0	12.9
664.380	Vertical	36.2	46.0	9.8
746.340	Vertical	35.3	46.0	10.7
97.350	Horizontal	38.4	43.5	5.1
230.790	Horizontal	44.6	46.0	1.4
249.220	Horizontal	42.9	46.0	3.1
279.551	Horizontal	45.2	46.0	0.8
299.660	Horizontal	42.5	46.0	3.5
650.320	Horizontal	37.5	46.0	8.5

Test in 802.11b(DSSS) mode Channel 11(2462MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement						
Test	Measuring Le	vel (dBuV/m)	Limits	Margin (dB)		
Frequency (GHz)	Vertical	Horizontal	(dBuV/m)	Vertical	Horizontal	
4924.000	71.9	69.8	74.0	2.1	4.2	
7386.000	N/A	N/A	74.0	N/A	N/A	
Average Measurement						
4924.000	52.5	51.0	54.0	1.5	3.0	
7386.000	N/A	N/A	54.0	N/A	N/A	



Remark:

- 1). N/A: Not applicable. For this intentional radiator operates below 25 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And the disturbance of this intentional radiator above the third harmonic is too weak to measure.
- 2). According to 15.249 (d) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 3) Any other emissions are too weak to be detected and are not reported.



Test in 802.11g(OFDM) mode Channel 1 (2412MHz) in transmitting status:

Frequency (MHz)	Frequency Antenna (MHz) Polarization		Limit dBuV/m)	Margin (dB)
97.560	Vertical	35.2	43.5	8.3
249.220	Vertical	40.4	46.0	5.6
299.660	Vertical	35.8	46.0	10.2
431.580	Vertical	34.2	46.0	11.8
664.380	Vertical	36.2	46.0	9.8
843.280	Vertical	35.3	46.0	10.7
101.780	Horizontal	38.7	43.5	4.8
230.790	Horizontal	45.3	46.0	0.7
249.220	Horizontal	44.6	46.0	1.4
279.551	Horizontal	45.6	46.0	0.4
299.660	Horizontal	42.1	46.0	3.9
498.510	Horizontal	36.5	46.0	9.5

Test in 802.11g(OFDM) mode Channel 1(2412MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement							
Test	Measuring Le	vel (dBuV/m)	Limits	Margin (dB)			
Frequency (MHz)	Vertical	Horizontal	(dBuV/m)	Vertical	Horizontal		
4824.000	72.8	70.4	74.0	1.2	3.6		
7236.000	N/A N/A		74.0	N/A	N/A		
Average Measurement							
4824.000	51.3	50.5	54.0	2.7	3.5		
7236.000	N/A	N/A	54.0	N/A	N/A		



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Test in 802.11g(OFDM) mode Channel 6(2437MHz) in transmitting status:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
103.560	Vertical	36.3	43.5	7.2
249.220	Vertical	40.2	46.0	5.8
299.660	Vertical	36.8	46.0	9.2
431.580	Vertical	33.1	46.0	12.9
664.380	Vertical	36.2	46.0	9.8
746.340	Vertical	35.3	46.0	10.7
97.350	Horizontal	38.4	43.5	5.1
230.790	Horizontal	44.6	46.0	1.4
249.220	Horizontal	42.9	46.0	3.1
279.551	Horizontal	45.2	46.0	0.8
299.660	Horizontal	42.5	46.0	3.5
650.320	Horizontal	37.5	46.0	8.5

Test in 802.11g(OFDM) mode Channel 6(2437MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement							
Test	Measuring Le	vel (dBuV/m)	Limits	Margi	n (dB)		
Frequency (GHz)	Vertical	Horizontal	(dBuV/m)	Vertical	Horizontal		
4874.000	71.6	70.5	74.0	2.4	3.5		
7311.000	N/A	N/A	74.0	N/A	N/A		
Average Measurement							
4874.000	53.2	51.2	54.0	0.8	2.8		
7311.000	N/A	N/A	54.0	N/A	N/A		



Test in 802.11g(OFDM) mode Channel 11(2462MHz) in transmitting status:

Frequency Antenna (MHz) Polarization		Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
103.560	Vertical	36.3	43.5	7.2
249.220	Vertical	40.2	46.0	5.8
299.660	Vertical	36.8	46.0	9.2
431.580	Vertical	33.1	46.0	12.9
664.380	Vertical	36.2	46.0	9.8
746.340	Vertical	35.3	46.0	10.7
97.350	Horizontal	38.4	43.5	5.1
230.790	Horizontal	44.6	46.0	1.4
249.220	Horizontal	42.9	46.0	3.1
279.551	Horizontal	45.2	46.0	0.8
299.660	Horizontal	42.5	46.0	3.5
650.320	Horizontal	37.5	46.0	8.5

Test in 802.11g(OFDM) mode Channel 11(2462MHz) in transmitting status:

1~25 GHz Harmonics & Spurious Emissions

Peak Measurement							
Test Frequency (GHz)Measuring Level (dBuV/m) VerticalLimits (dBuV/m)	Measuring Le	vel (dBuV/m)	Limits	Margin (dB)			
	Vertical	Horizontal					
4924.000	71.9	69.8	74.0	2.1	4.2		
7386.000	N/A	N/A	74.0	N/A	N/A		
Average Measurement							
4924.000	52.5	51.0	54.0	1.5	3.0		
7386.000	N/A	N/A	54.0	N/A	N/A		



Remark:

- 1). N/A: Not applicable. For this intentional radiator operates below 25 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And the disturbance of this intentional radiator above the third harmonic is too weak to measure.
- 2). According to 15.249 (d) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 3) Any other emissions are too weak to be detected and are not reported.



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6.6 Band Edges Requirement

Test Requirement:	FCC Part 15.247(d)
Test Method:	Based on ANSI 63.4
	Operation within the band 2400 – 2483.5 MHz
Test Date:	25 April 2007
Requirements:	Section 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 radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.6.1 100 kHz Bandwidth Outside the Frequency Band

Method of Measurement: Set RBW of spectrum analyzer to 100 kHz and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.

Test Result:

1. 802.11b (DSSS) mode:

The Lower Edge 2.4000GHz: the value is -41.8dB below 2.412GHz(channel 1) the lowest fundamental carrier that is attenuated more than 20dB. And the Max emission level is -34.9dB below the 2.412GHz(channel 1) fundamental carrier that is attenuated more than 20dB.

The Upper Edge 2.4835GHz: the value is -41.0dB below 2.462GHz(channel 11) the highest fundamental carrier that is attenuated more than 20dB. And the Max emission level is -28.8dB below the 2.412GHz(channel 1) fundamental carrier that is attenuated more than 20dB

2. 802.11g(OFDM) mode:

The Lower Edge 2.4000GHz: the value is -38.9dB below 2.412GHz(channel 1) the lowest fundamental carrier that is attenuated more than 20dB. And the Max emission level is -31.7dB below the 2.412GHz(channel 1) fundamental carrier that is attenuated more than 20dB.

The Upper Edge 2.4835GHz: the value is -44.4dB below 2.462GHz(channel 11) the highest fundamental carrier that is attenuated more than 20dB. And the Max emission level is -43.2dB below the 2.412GHz(channel 1) fundamental carrier that is attenuated more than 20dB.

The unit does meet the FCC requirements.



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The graph as below, represents the emissions take for this device.





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2. For Highest Channel: the fundamental frequency is 2.462GHz.



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2. For Highest Channel: the fundamental frequency is 2.462GHz.





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6.6.2 Radiated Emissions which fall in the restricted bands

Test Requirement:	Section 15.247 (d) 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)).
Test Method:	Base on ANSI 63.4.
Test Date:	25 April 2007
Measurement Distance:	3m (Semi-Anechoic Chamber)
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m above 960MHz
Detector:	Peak for pre-scan , 120kHz resolution bandwidth within 1GHz, 1MHz resolution bandwidth above 1GHz

Test Configuration:





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Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 25GHz.When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. Pre-scan the restricted band **2310~2390MHz** and **2483.5~2500MHz** to find the worst case emissions to report.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

Test Result:

802.11b mode

1. Channel 1 (2.402GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margi	n (dB)
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	67.8	52.3	74.0	54.0	6.2	1.7
2483.500	57.9	51.4	74.0	54.0	16.1	2.6

2. Channel 6 (2.437GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margi	n (dB)
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	58.3	49.8	74.0	54.0	15.7	4.2
2483.500	57.6	51.2	74.0	54.0	16.4	2.8

3. Channel 11 (2.462GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margi	n (dB)
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	56.9	50.3	74.0	54.0	17.1	3.7
2483.500	60.1	51.5	74.0	54.0	13.9	2.5



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802.11g mode

1. Channel 1 (2.402GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margi	n (dB)
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	65.8	50.2	74.0	54.0	8.2	3.8
2483.500	54.5	49.6	74.0	54.0	19.5	4.4

2. Channel 6 (2.437GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margin (dB)	
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	56.8	49.1	74.0	54.0	17.2	4.9
2483.500	53.5	48.5	74.0	54.0	20.5	5.5

3. Channel 11 (2.462GHz)

Test Frequency	Peak Level	Average Level	Peak Limit	Average Limit	Margin (dB)	
(MHz)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	Peak	AV
2390.000	55.3	50.1	74.0	54.0	18.7	3.9
2483.500	54.1	48.2	74.0	54.0	19.9	5.8

The unit does meet the FCC requirements.



Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz	
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15	
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46	
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75	
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5	
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2	
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5	
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7	
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4	
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5	
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2	
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4	
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12	
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0	
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8	
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5	
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)	
13.36 - 13.41				



6.7 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	FCC Part 15B 15.107 and Part C & 15.207
Test Method:	ANSI C63.4
Test Date:	24 April 2007
Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit.

EUT Operation:

Test result:

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT :



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AC adapter 1. Model:DSA-23R-23AUS12012



		Read	Cable	LISN		Limit	Over	
	Freq	Level	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	42.45	0.00	0.00	42.45	66.00	-23.55	ÓP
2	0.150	39.25	0.00	0.00	39.25	56.00	-16.75	x- AVERAGE
3	0.203	37.21	0.00	0.10	37.31	63.49	-26.18	QР
4	0.203	33.14	0.00	0.10	33.24	53.49	-20.25	AVERAGE
5	0.253	33.87	0.00	0.10	33.97	61.64	-27.67	QР
6	0.253	31.68	0.00	0.10	31.78	51.64	-19.86	AVERAGE
7	0.302	33.37	0.00	0.10	33.47	60.19	-26.72	QР
8	0.302	29.39	0.00	0.10	29.49	50.19	-20.70	AVERAGE
9	0.358	30.81	0.00	0.10	30.91	58.78	-27.87	QР
10	0.358	28.14	0.00	0.10	28.24	48.78	-20.54	AVERAGE
11	1.065	28.53	0.01	0.09	28.63	56.00	-27.37	QР
12	1.065	27.26	0.01	0.09	27.36	46.00	-18.64	AVERAGE



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AC adapter 2. Model:MT12-4120100-A1



1	0.150	48.27	0.00	0.00	48.27	66.00 -17.73	QP
2	0.150	42.96	0.00	0.00	42.96	56.00 -13.04	AVERAGE
3	0.153	46.71	0.00	0.01	46.72	65.82 -19.11	Q₽
4	0.153	42.46	0.00	0.01	42.47	55.82 -13.36	AVERAGE
5	0.211	48.61	0.00	0.10	48.71	63.18 -14.47	QР
6	0.211	45.82	0.00	0.10	45.92	53.18 -7.26	AVERAGE
7	0.354	38.13	0.00	0.10	38.23	58.87 -20.64	QР
8	0.354	35.48	0.00	0.10	35.58	48.87 -13.29	AVERAGE
9	0.567	35.55	0.00	0.06	35.61	56.00 -20.39	QР
10	0.567	33.57	0.00	0.06	33.63	46.00 -12.37	AVERAGE
11	5.031	34.97	0.08	0.10	35.15	60.00 -24.85	QР
12	5.031	32.56	0.08	0.10	32.74	50.00 -17.26	AVERAGE



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