



Product Service

FCC TEST REPORT

Report Number : **68.850.11.022.01** Date of Issue: 10 May 2011

Model : **PC-A1007**

Product Type : Classmate Personal Computer

Applicant : Wanlida Group Co., Ltd.

Address : No.618, Jiahe Road, Wanlida Industry Zone,
Xiamen, Fujian, China 361006

Production Facility : Wanlida Group Co., Ltd.

Address : Wanlida Industry Zone, Nanjing, Fujian, China 363601

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including
Appendices : 20

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test site1:

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch
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Century Craftwork Culture Square,
No. 4001, Fuqiang Road,
Futian District 518048,
Shenzhen,P.R.C.

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

Test site2:

Company name: Audix Technology (shenzhen) Co.,Ltd
Block Shenzhen, Science & Industry Park,
Nantou, Shenzhen,
Guangdong,
China

Telephone: 86 755 2663 9496

Fax: 86 755 2663 2877

3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product: Classmate Personal Computer

Model no.: PC-A1007

Serial number: NIL

Options and accessories: NIL

Rating: DC 19V, 2.1A
AC Adaptor:
Input: 100-240V, 50-60Hz, 1A
Output: 19V DC, 2.1A

Antenna: Integral antenna inside enclosure of EUT, NOT accessible by end user
Antenna Gain=0.975dBi

RF Transmission
Frequency: 2412-2462MHz

Description of the EUT: NIL

Auxiliary Equipment and Cable Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
LCD monitor	DELL	1907FPt	7735430660P0G WD-04
SD card	Kingston	SD4/4GBFE	----
Earphone	OVANN	OV880V	----
iPod nano	APPLE	A1199	----
USB flash drive	Kingston	USB/4GB	---
VGA cable	DELL	Shield	140cm
AC Power cable	DELL	Unshield	180cm

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C, Oct. 1, 2009	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

5 Summary of Test Results

Technical Requirements					
FCC Part 15 Subpart C					
Test Condition	Pages	Test Result			Test Location
		Pass	Fail	N/A	
15.207 Conducted Emission AC Power Port	8	☒	☐	☐	Test Site2
15.247 (b) (1) Conducted peak output power	12	☒	☐	☐	Test Site2
15.247(d) 15.209 Spurious radiated emissions	14	☒	☐	☐	Test Site2

6 General Remarks

Remarks

This submittal(s) (test report) is intended for the Class 2 permissive change of FCC ID: SMFWIFI9002 comply with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

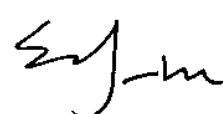
□ - **Does not** fulfill the general approval requirements.

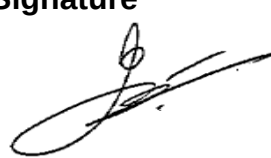
Sample Received Date: 06 April 2011

Testing Start Date: 08 April 2011

Testing End Date: 27 April 2011

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch –

Tested By Test Lab Engineer	<u>2011-05-10</u>	<u>Sunny Lu</u>	
	Date	Name	

Prepared By Project Engineer	<u>2011-05-10</u>	<u>Ken Li</u>	
	Date	Name	

Reviewed By Assistant EMC Manager	<u>2011-05-10</u>	<u>Paul Yu</u>	
	Date	Name	

7 Technical Requirement

7.1 Conducted Emission

Test Method

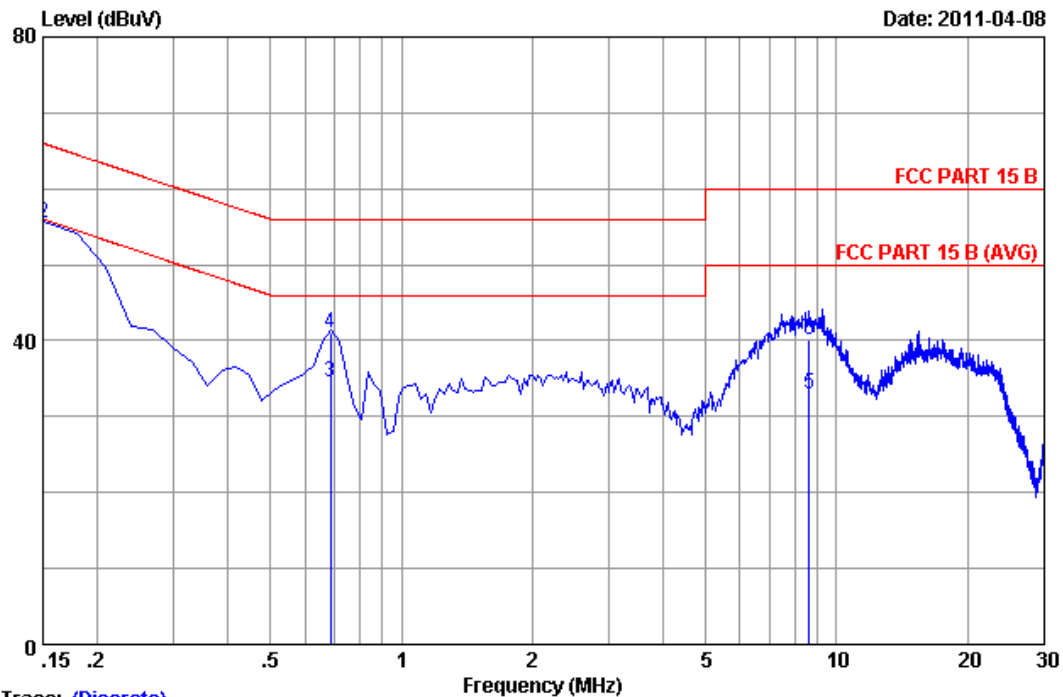
- 1 The EUT was placed on a table, which is 0.8m above ground plane
- 2 The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
- 3 Maximum procedure was performed to ensure EUT compliance
- 4 A EMI test receiver is used to test the emissions from both sides of AC line

Limit

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Note: "*" Decreasing linearly with logarithm of the frequency

Conducted Emission



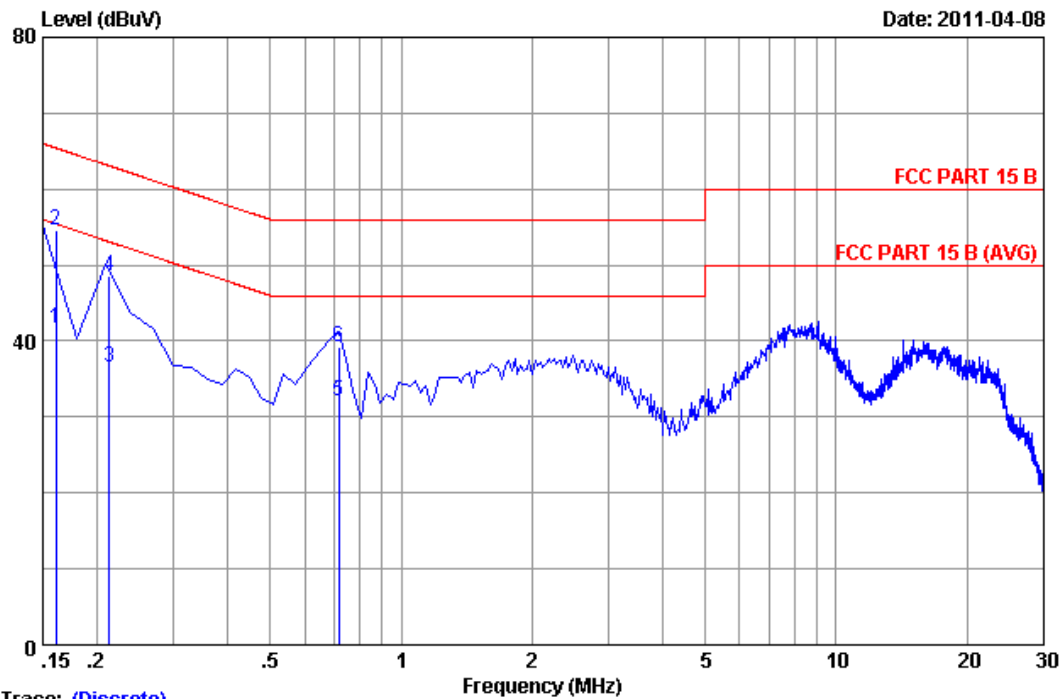
Trace: (Discrete)

Site no :1#conduction Data No :8
 Dis./Ant. : ** 2011 ESH2-25 LINE
 Limit : FCC PART 15 B
 Env./Ins. : 29.5°C/55% Engineer : Restar
 EUT : PC-A1007
 Power Rating : AC 120V/60Hz
 Test Mode : WIFI

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.17	9.88	32.00	42.05	56.00	13.95	Average
2	0.15000	0.17	9.88	45.50	55.55	66.00	10.45	QP
3	0.68700	0.19	9.89	24.50	34.58	46.00	11.42	Average
4	0.68700	0.19	9.89	31.00	41.08	56.00	14.92	QP
5	8.657	0.57	9.98	22.51	33.06	50.00	16.94	Average
6	8.657	0.57	9.98	29.51	40.06	60.00	19.94	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)
 +Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

Conducted Emission



Trace: (Discrete)

Site no : 1#conduction Data No : 7
 Dis./Ant. : ** 2011 ESH2-Z5 NEUTRAL
 Limit : FCC PART 15 B
 Env./Ins. : 29.5°C/55% Engineer : Restar
 EUT : PC-A1007
 Power Rating : AC 120V/60Hz
 Test Mode : WIFI

No	Freq (MHz)	LISN		Cable		Emission		Margin (dB)	Remark
		Factor (dB)		Loss (dB)	Reading (dBuV)	Level (dBuV)	Limits (dBuV)		
1	0.16100	0.21		9.88	31.50	41.59	55.41	13.82	Average
2	0.16100	0.21		9.88	44.50	54.59	65.41	10.82	QP
3	0.21300	0.21		9.88	26.50	36.59	53.09	16.50	Average
4	0.21300	0.21		9.88	38.50	48.59	63.09	14.50	QP
5	0.71700	0.23		9.89	22.00	32.12	46.00	13.88	Average
6	0.71700	0.23		9.89	29.00	39.12	56.00	16.88	QP

Remarks: 1. Emission Level=LISN Factor+Cable Loss (Include 10dB pulse limit)
 +Reading.

2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

**Test Equipment List****Conducted Emission Test**

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Dec.18, 11
L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Mar.30, 12
L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 12
Terminator	Hubersuhner	50Ω	No. 1	May.08, 12
Terminator	Hubersuhner	50Ω	No. 2	May.08, 12
RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 12
Coaxial Switch	Anritsu	MP59B	M55367	May.08, 12
Passive Probe	Rohde & Schwarz	ESH2-Z3	299.7810.52	May.08, 12
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 12

7.2 Conducted peak output power

Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

Limits for conducted peak output power measurements

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

Conducted peak output power

IEEE 802.11b modulation (1Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	21.50	Pass
CH6 2437MHz	21.55	Pass
CH11 2462MHz	21.58	Pass

IEEE 802.11g modulation (6Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	20.72	Pass
CH6 2437MHz	21.45	Pass
CH11 2462MHz	21.51	Pass

IEEE 802.11n HT20 modulation (6.5Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	21.77	Pass
CH6 2437MHz	22.53	Pass
CH11 2462MHz	22.52	Pass

IEEE 802.11n HT40 modulation (13.5Mbps) Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH3 2422MHz	21.08	Pass
CH6 2437MHz	21.10	Pass
CH9 2452MHz	21.02	Pass



Product Service

Test Equipment

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum Analyzer	Agilent	E4446A	US44300459	May 08 2012

7.3 Spurious radiated emissions

Test Method

- 1 The EUT is placed on a turntable, which is 0.8m above ground plane.
- 2 The turntable shall be rotated for 360 degrees to determine the position of maximum emission level
- 3 EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

Limit

Frequency MHz	Field Strength uV/m	Field Strength dB μ V/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

Radiated Emission

IEEE 802.11b modulation (1 Mbps) CH1 2412MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
354.950	15.35	2.72	0	20.80	40.00	Vertical	46.00	QP	Pass
708.050	20.72	4.53	0	16.50	41.75	Vertical	46.00	QP	Pass
1609.000	27.05	5.91	36.94	57.47	53.49	Vertical	74	PK	Pass
1609.000	27.05	5.91	36.94	56.01	52.03	Vertical	54	AV	Pass
4824.000	34.32	10.64	35.08	43.43	53.31	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	31.25	41.13	Vertical	54	AV	Pass
7236.000	-	-	-	-	-	-	-	-	-
7236.000	-	-	-	-	-	-	-	-	-

IEEE 802.11b modulation (1 Mbps) CH6 2437MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1624.000	27.15	5.95	36.94	59.12	55.28	Vertical	74	PK	Pass
1624.000	27.15	5.95	36.94	56.08	52.24	Vertical	54	AV	Pass
4874.000	34.41	10.69	35.03	43.75	53.82	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	32.54	42.61	Vertical	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

IEEE 802.11b modulation (1 Mbps) CH11 2462MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1639.000	27.24	5.95	36.92	59.86	56.13	Vertical	74	PK	Pass
1639.000	27.24	5.95	36.92	56.11	52.13	Vertical	54	AV	Pass
4924.000	34.49	10.76	34.98	44.51	54.78	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	32.73	43.00	Vertical	54	AV	Pass
7386.000	-	-	-	-	-	-	-	-	-
7386.000	-	-	-	-	-	-	-	-	-

Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) If the Amp. factor is "0", means the test system did not configure with amplifier.
- (3) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

Radiated Emission

IEEE 802.11g modulation (6 Mbps) CH1 2412MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
354.950	15.35	2.72	0	21.91	41.11	Vertical	46.00	QP	Pass
708.050	20.72	4.53	0	17.45	42.70	Vertical	46.00	QP	Pass
1609.000	27.05	5.91	36.94	44.91	40.93	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	42.22	52.10	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	31.20	41.08	Vertical	54	AV	Pass
7236.000	-	-	-	-	-	-	-	-	-
7236.000	-	-	-	-	-	-	-	-	-

IEEE 802.11g modulation (6 Mbps) CH6 2437MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1630.000	27.15	5.95	36.92	42.37	38.55	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	42.02	52.09	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	32.66	42.73	Vertical	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

IEEE 802.11g modulation (6 Mbps) CH11 2462MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1645.000	27.24	5.99	36.92	45.25	41.56	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	43.07	53.34	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	32.16	42.43	Vertical	54	AV	Pass
7386.000	-	-	-	-	-	-	-	-	-
7386.000	-	-	-	-	-	-	-	-	-

Remark:

- (4) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (5) If the Amp. factor is "0", means the test system did not configure with amplifier.
- (6) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

Radiated Emission

WIFI Mode IEEE 802.11n HT20 modulation (6.5 Mbps) CH1 2412MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
354.950	15.35	2.72	0	20.77	39.97	Vertical	46.00	QP	Pass
708.050	20.72	4.53	0	16.32	41.57	Vertical	46.00	QP	Pass
1606.000	27.05	5.91	36.94	42.83	38.85	Vertical	74	PK	Pass
4824.000	34.32	10.64	35.08	43.11	52.99	Horizontal	74	PK	Pass
4824.000	34.32	10.64	35.08	32.08	41.96	Horizontal	54	AV	Pass
7236.000	-	-	-	-	-	-	-	-	-
7236.000	-	-	-	-	-	-	-	-	-

WIFI Mode IEEE 802.11n HT20 modulation (6.5 Mbps) CH6 2437MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1624.000	27.15	5.95	36.94	47.15	43.31	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	42.61	52.68	Horizontal	74	PK	Pass
4874.000	34.41	10.69	35.03	32.15	42.22	Horizontal	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

WIFI Mode IEEE 802.11n HT20 modulation (6.5 Mbps) CH11 2462MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1645.000	27.24	5.99	36.92	47.99	44.30	Vertical	74	PK	Pass
4924.000	34.49	10.76	34.98	42.71	52.98	Horizontal	74	PK	Pass
4924.000	34.49	10.76	34.98	32.11	42.38	Horizontal	54	AV	Pass
7386.000	-	-	-	-	-	-	-	-	-
7386.000	-	-	-	-	-	-	-	-	-

Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.

Radiated Emission

WIFI Mode IEEE 802.11n HT40 modulation (13.5 Mbps) CH1 2422MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
354.950	15.35	2.72	0	21.33	41.53	Vertical	46.00	QP	Pass
708.050	20.72	4.53	0	17.44	42.69	Vertical	46.00	QP	Pass
1621.000	27.15	5.95	36.94	42.59	38.75	Vertical	74	PK	Pass
4844.000	34.35	10.67	35.05	42.55	52.52	Horizontal	74	PK	Pass
4844.000	34.35	10.67	35.05	31.55	41.52	Horizontal	54	AV	Pass
7266.000	-	-	-	-	-	-	-	-	-
7266.000	-	-	-	-	-	-	-	-	-

WIFI Mode IEEE 802.11n HT40 modulation (13.5 Mbps) CH6 2437MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1624.000	27.15	5.95	36.94	45.17	41.33	Vertical	74	PK	Pass
4874.000	34.41	10.69	35.03	42.77	52.84	Horizontal	74	PK	Pass
4874.000	34.41	10.69	35.03	31.27	41.34	Horizontal	54	AV	Pass
7311.000	-	-	-	-	-	-	-	-	-
7311.000	-	-	-	-	-	-	-	-	-

WIFI Mode IEEE 802.11n HT40 modulation (13.5 Mbps) CH11 2452MHz Test Result

Frequency	Antenna Factor	Cable Loss	Amp. Factor	Reading	Emission Level	Polarization	Limit	Detector	Result
MHz	dB/m	dB	dB	dBuV	dBuV/m		dBμV/m		
1636.000	27.15	5.95	36.92	47.49	43.67	Vertical	74	PK	Pass
4904.000	34.46	10.74	35.00	42.88	53.08	Horizontal	74	PK	Pass
4904.000	34.46	10.74	35.00	31.55	41.75	Horizontal	54	AV	Pass
7356.000	-	-	-	-	-	-	-	-	-
7356.000	-	-	-	-	-	-	-	-	-

Remark:

- (1) Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
- (2) Data of measurement within this frequency range shown “-” in the table above means the reading of emissions are attenuated more than 20db below the permissible limits or the field strength is too small to be measured.



Product Service

Test Equipment List

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL DUE DATE
Spectrum	Agilent	E4446A	US44300459	May 08, 2012
Amp	HP	8449B	3008A02495	May 08, 2012
Antenna	EMCO	3115	9607-4877	May 17, 2012
Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 2011
HF Cable	Hubersuhne	Sucoflex104	---	May 08, 2012

8 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

Items		Extended Uncertainty
RE	Field strength (dB μ V/m)	U=4.32dB (30MHz-25GHz)