



Product Service

## RF - TEST REPORT

Report Number : **68/760.9.130.01** Date of Issue: 25 June 2009

Model : **PC-81006N**

Product Type : Notebook

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 : 18

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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

Company name: Jiangsu TÜV Product Service Ltd. – Shenzhen Branch  
6th Floor, H Hall,  
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

Company name: China Shenzhen Academy of Metrology and Quality Inspection,  
Metrology and Quality Inspection building,  
Central Section of LongZhu Road,  
Nan Shan,  
Shenzhen,

Telephone: 86 755 2694 1599  
Fax: 86 755 2694 1545

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: Notebook

Model no.: PC-81006N

Serial number: NIL

Options and accessories: NIL

Rating: DC 12V 3A, 36W  
AC Adaptor:  
Model: MPA-12030  
Input: 100-240V ~ 50/60Hz 1A MAX  
Output: +12V DC 3A

Antenna: Integral antenna inside the EUT, NOT accessible by end user

RF Transmission  
Frequency: 2400-2483.5MHz

Description of the EUT: NIL

#### Auxiliary Equipment and Cable Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
LCD monitor	Lenovo	9227-AE1	V1TDB38
Keyboard	Lenovo	SK-8825 (L)	02553778
Mouse	Lenovo	MO28UOL	4418011108
Headphone	Ouyun	OH601	----
USB flash drive	Kingston	Data Traveller	----
SD card	Kingston	SD4/4GBFE	----
VGA cable	Lenovo	Shield	140cm
AC Power cable	Lenovo	Unshield	180cm



Product Service

## 4 Summary of Test Standards

<b>Test Standards</b>	
FCC Part 15 Subpart C	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		
		Pass	Fail	N/A
15.107 15.207 Conducted Emission AC Power Port	8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247 (b) (1) Conducted peak output power	12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.247(d) 15.209 15.109 Spurious radiated emissions	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for the Class 2 permissive change of 8.2.11 b/g PCIExpress Minicard, Model No.: A5BXB63, FCC ID: PPD-AR5BXB63.

The product [PC-81006N] uses 2 provided hard disks: Model WD2500BEVT-22ZCT0 and Model MHZ2160BH G2. The worse results are listed inside the report, which test with hard disk MHZ2160BH G2.

### 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: May 22 2009

Testing Start Date: May 22 2009

Testing End Date: Jun 10 2009

- Jiangsu TÜV Product Service Ltd. – Shenzhen Branch -

Reviewed by:

Prepared by:

Paul Yu  
EMC Project Manager

Ken Li  
EMC Test Engineer

## 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 (R&S Test Receiver ESCS30) is used to test the emissions from both sides of AC line

#### Limit

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

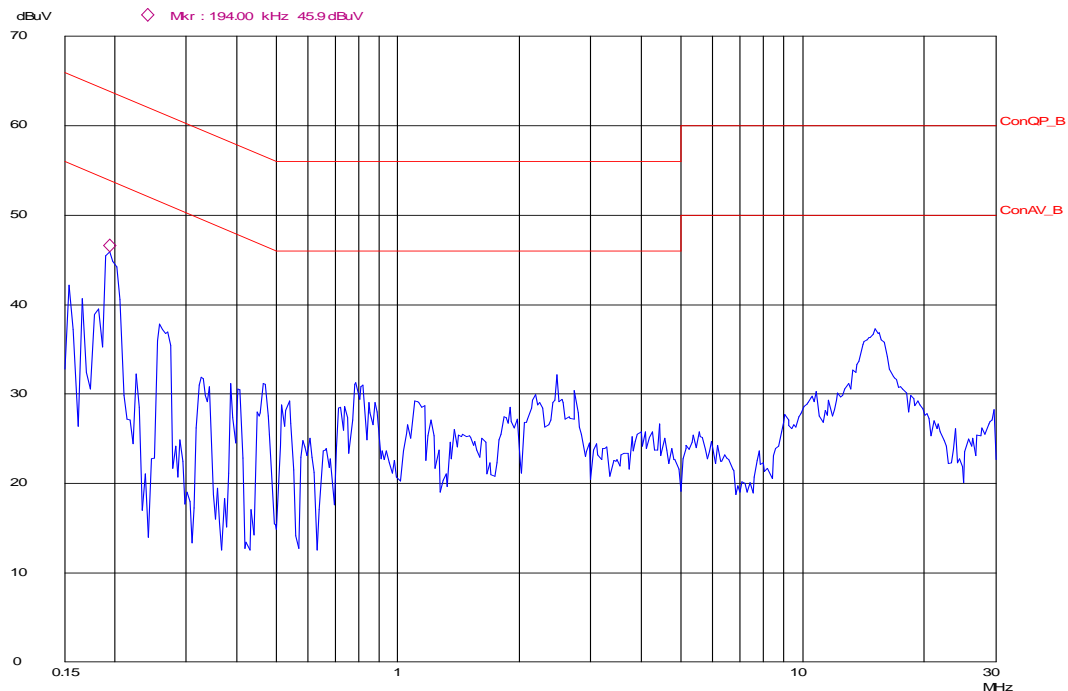
Decreasing linearly with logarithm of the frequency



## Conducted Emission

### Conducted Disturbance

EUT: MN-PC-81006N  
 Op Cond: WIFI Transmitting  
 Test Spec: L  
 Comment: AC 120V/60Hz



Frequency MHz	Cable Loss dB	Reading dBµV	QP Test result dBµV	QP Limit dBµV	Margin dB
0.202	9.8	34.9	44.7	63.5	18.8
0.270	9.8	26.5	36.3	61.1	24.8

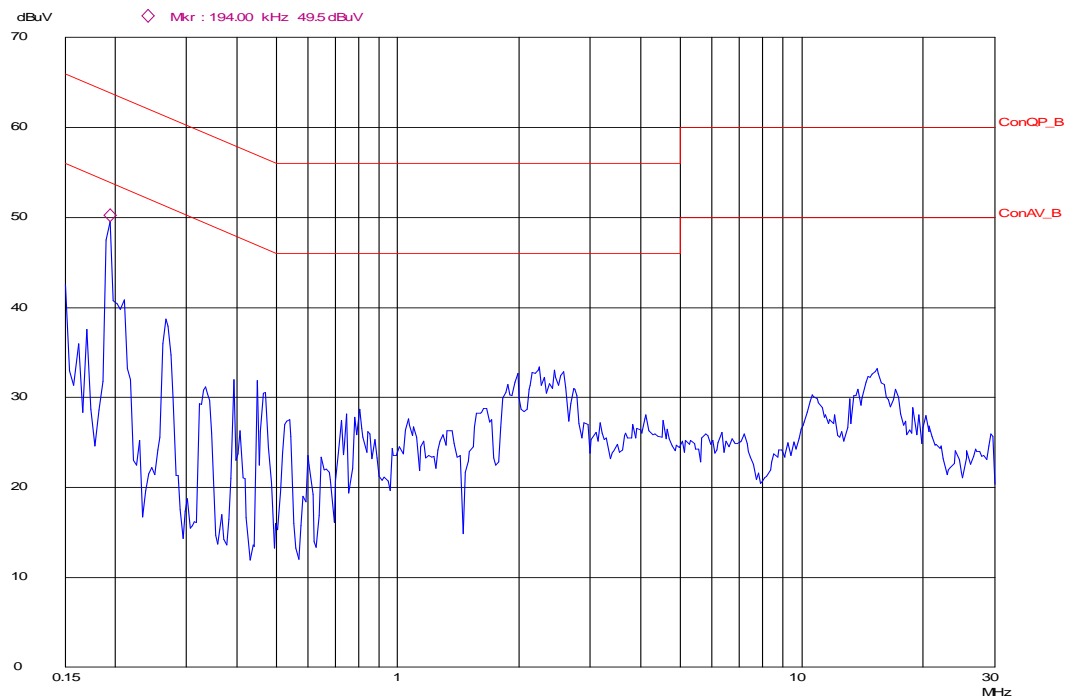
Frequency MHz	Cable Loss dB	Reading dBµV	AV Test result dBµV	AV Limit dBµV	Margin dB
0.202	9.8	22.3	32.1	53.5	21.4
0.270	9.8	12.6	22.4	51.1	28.7

Remark: Test Result= Reading + Cable Loss

## Conducted Emission

### Conducted Disturbance

EUT: MN-PC-81006N  
 Op Cond: WiFi Transmitting  
 Test Spec: N  
 Comment: AC 120V/60Hz



Frequency MHz	Cable Loss dB	Reading dBµV	QP Test result dBµV	QP Limit dBµV	Margin dB
0.202	9.8	36.6	46.4	63.5	17.1
0.266	9.8	27.1	36.9	61.2	24.3

Frequency MHz	Cable Loss dB	Reading dBµV	AV Test result dBµV	AV Limit dBµV	Margin dB
0.202	9.8	20.9	30.7	53.5	22.8
0.266	9.8	10.8	20.6	51.2	30.6

Remark: Test Result= Reading + Cable Loss



## Test Equipment List

### Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2009-12-05
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2009-12-05

## 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	≤1	≤30

## Conducted peak output power

### IEEE 802.11g Modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	16.01	Pass
CH2 2437MHz	16.67	Pass
CH3 2462MHz	17.52	Pass

### IEEE 802.11b Modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
CH1 2412MHz	16.08	Pass
CH2 2437MHz	17.05	Pass
CH3 2462MHz	18.00	Pass



## Test Equipment

### Maximum transmit power Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
Spectrum Analyzer	Agilent	E4446A	US44300459	2010-05-10

## 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 $\mu$ 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

## Spurious radiated emissions

### IEEE 802.11g Modulation test result-2402MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBuV/m	Detector	Result
80.055	1.4	9.6	25.1	36.1	Horizontal	40.0	QP	Pass
188.082	2.2	10.3	20.0	32.5	Vertical	43.5	QP	Pass
4804.000	3.8	33.3	18.4	55.5	Horizontal	74	PK	Pass
4804.000	3.8	33.3	8.3	45.5	Horizontal	54	AV	Pass
4804.000	3.8	33.3	17.3	54.4	Vertical	74	PK	Pass
4804.000	3.8	33.3	8.8	45.9	Vertical	54	AV	Pass

### Test Result-2437MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBuV/m	Detector	Result
4874.000	3.9	33.3	21.3	58.5	Horizontal	74	PK	Pass
4874.000	3.9	33.3	10.2	47.4	Horizontal	54	AV	Pass
4874.000	3.9	33.3	19.0	56.2	Vertical	74	PK	Pass
4874.000	3.9	33.3	8.5	45.7	Vertical	54	AV	Pass

### Test Result-2462MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dBuV/m	Detector	Result
4924.000	3.9	33.3	21.6	58.8	Horizontal	74	PK	Pass
4924.000	3.9	33.3	11.7	48.9	Horizontal	54	AV	Pass
4924.000	3.9	33.3	20.3	57.5	Vertical	74	PK	Pass
4924.000	3.9	33.3	9.3	46.5	Vertical	54	AV	Pass

Remark: Emission Level= Cable Loss(include amplifier factor) + Antenna Factor + Reading

## Spurious radiated emissions

### IEEE 802.11b Modulation test result-2402MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
164.332	2.2	10.1	22.3	34.6	Horizontal	43.5	QP	Pass
72.168	1.2	5.3	27.2	33.7	Vertical	40.0	QP	Pass
4804.000	3.8	33.3	18.2	55.3	Horizontal	74	PK	Pass
4804.000	3.8	33.3	8.0	45.1	Horizontal	54	AV	Pass
4804.000	3.8	33.3	16.5	53.6	Vertical	74	PK	Pass
4804.000	3.8	33.3	7.4	44.5	Vertical	54	AV	Pass

### Test Result-2437MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4874.000	3.9	33.3	18.9	56.1	Horizontal	74	PK	Pass
4874.000	3.9	33.3	7.3	44.5	Horizontal	54	AV	Pass
4874.000	3.9	33.3	17.8	55.0	Vertical	74	PK	Pass
4874.000	3.9	33.3	7.5	44.7	Vertical	54	AV	Pass

### Test Result-2462MHz

Frequency MHz	Cable Loss dB	Antenna Factor dB/m	Reading dBuV	Emission Level dBuV/m	Polarization	Limit dB $\mu$ V/m	Detector	Result
4924.000	3.9	33.3	20.6	57.8	Horizontal	74	PK	Pass
4924.000	3.9	33.3	7.4	44.6	Horizontal	54	AV	Pass
4924.000	3.9	33.3	19.5	56.7	Vertical	74	PK	Pass
4924.000	3.9	33.3	6.5	43.7	Vertical	54	AV	Pass

Remark: Emission Level= Cable Loss(include amplifier factor) + Antenna Factor + Reading





## Test Equipment List

### Spurious radiated emissions Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL.DUE.DATE
Spectrum	Agilent	E4446A	US44300459	2010-05-10
SG	HP	83723B	US34490501	2010-05-10
Amp	HP	8449B	3008A02495	2010-05-24
Antenna	EMCO	3115	9607-4877	2010-05-27

## 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 $\mu$ V/m)	U=4.6dB; k=2(30MHz-1GHz)
CE	Disturbance Voltage (dB $\mu$ V)	U=3.3dB; k=2