

# MPE Test Report

of

*Product Name*

**802.11a+g Access Point with PoE**

*Model*

**RDAT-81;IA300 ( IntraAir 300);  
WNA-0501P;WDAP-2000PE  
(Brand: Wistron NeWeb)**

*Applied by:*

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*Test Performed by:*

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**Report Number: ISL-05LR021MPE**

**Issue Date: 2005/09/21**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

ISL-T10-R29-1

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# 1. General

## 1.1 Certification of Accuracy of Test Data

**Standards:** CFR 47 Part 15 Subpart B Class B  
 CFR 47 Part 15 Subpart C (Section 15.247)  
 CFR 47 Part 15 Subpart E (Section 15.407)

**Test Procedure:** ANSI C63.4:2003

**Equipment Tested:** 802.11a+g Access Point with PoE  
 RDAT-81;IA300 ( IntraAir 300);WNA-0501P;WDAP-2000PE

**Model:**

**Applied by:** Wistron Neweb Corporation

**Sample received Date:** 2005/08/16

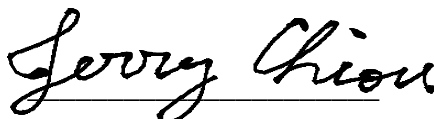
**Final test Date :** 2005/08/17-2005/09/15

**Test Result** PASS

**Test Site:** Chamber 02, Conduction 02

**Temperature** Refer to each site test data

**Humidity:** Refer to each site test data



**Test Engineer:** Jerry Chiou

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature

  
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 Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 10 pages, including 1 cover page , 1 contents page, and 8 pages for the test description. This report must not be use to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

## 2. Description of Equipment Under Test (EUT)

<b>EUT:</b>	
Description:	802.11a+g Access Point with PoE
Condition:	Pre-Production
Model:	RDAT-81;IA300 ( IntraAir 300); WNA-0501P; WDAP-2000PE
Serial Number:	N/A
FCC ID:	RDAT-81
Brand:	Wistron NeWeb
Frequency Range 802.11a:	5150~5350 MHz, 5725~5825 MHz
Frequency Range 802.11b/g:	2400~2483.5 MHz
Support channel:	
802.11a	12 Channels
802.11a Turbo mode	5 Channels
802.11b/g	11 Channels
Modulation Skill:	
802.11a Normal mode	OFDM (6 Mbps – 54 Mbps)
802.11a Turbo mode	OFDM (12 Mbps – 108 MBps)
802.11b	DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps)
802.11g	OFDM (6M - 54Mbps)
Antennas Type:	
Antenna 1	
Left / Right Antenna	Omni-directional Antenna (F1B-204406-52 , made by LONG CHU ELECTRONICS CO., LTD.)
Antenna 2	
Left / Right Antenna	Dipole (C478-510028-A , made by WHA YU INDUSTRIAL Co., LTD)
Antenna Connected:	The antenna is connected to the RF connector of the WLAN adapter.
Antenna peak Gain:	
Antenna 1	
Left / Right Antenna	1.82 dBi (11b/g) ,4.28 dBi(11a)
Antenna 2	
Left / Right Antenna	2.5 dBi (11b/g) ,5 dBi(11a)
WLAN Power Type :	3.3V DC from the EUT

The channel and the operation frequency of 802.11b and 802.11g is listed below:

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		

The channel and the operation frequency of 802.11a Normal Mode is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	5180	07	5300
02	5200	08	5320
03	5220	09	5745
04	5240	10	5765
05	5260	11	5785
06	5280	12	5805

The channel and the operation frequency of 802.11a Turbo Mode is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	5210	04	5760
02	5250	05	5800
03	5290		

All types of Antenna have been tested, we present the worst case(Antenna 2) test data in the report.

AC-DC Adapter: DVE (Model:DSA-12W-05)  
 Power Input Port: one  
 RJ-45 Port: 1-Port 8-pin (10Mbps/100Mbps)  
 Wireless Antenna: two

EMI Noise Source: Crystal: 40MHz(Y1), 25MHz(Y2)

EMI Solution: None

## 2.1 General Test Conditions

1. During the test, the EUT was set in continuously transmitting mode with a duty cycle of 99%.for 802.11a.
2. The EUT was set in continuously transmitting mode with a duty cycle of 99%.for 802.11b.
3. The EUT was set in continuously transmitting mode with a duty cycle of 99%.for 802.11g.
4. The channel 1, 6, 11 of 802.11b/g of EUT were all tested.

### 3. RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

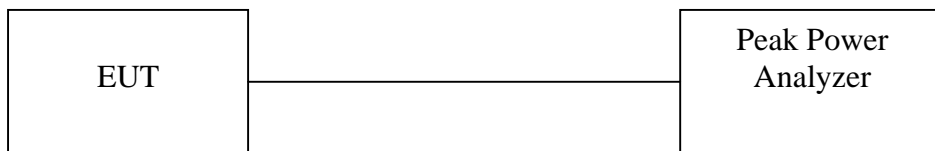
#### 3.1 Applied Standards

FCC PART 1.1307, 1.1310, 2.1091, 2.1093 RF EXPOSURE

#### 3.2 Test Procedure

The Transmitter output of EUT was connected to the Peak Power Analyzer

#### 3.3 Test Setup



#### 3.4 Calculation for Maximum Permissible Exposure (MPE)

From FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm<sup>2</sup>. The actual power density for the EUT with the antenna is calculated as shown below.

$$S = (P \times G) / (4 \times \pi \times d^2)$$

where:

S = power density

P = transmitter conducted power in (W)

G = antenna numeric gain

d = distance to radiation center (m)

802.11a

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m <sup>2</sup> )	Power Density (mW/cm <sup>2</sup> )
WHA YU INDUSTRIAL Co., LTD P/N:C478-510028-A	Dipole	5	3.16	5180 (Normal Mode)	16.57	45.39	20	0.2856	0.02856
				5240 (Normal Mode)	16.85	48.42	20	0.3046	0.03046
				5260 (Normal Mode)	18.65	73.28	20	0.4610	0.04610
				5320 (Normal Mode)	17.59	57.41	20	0.3612	0.03612
				5745 (Normal Mode)	16.44	44.06	20	0.2772	0.02772
				5765 (Normal Mode)	19.13	81.85	20	0.5149	0.05149
				5805 (Normal Mode)	19.33	85.70	20	0.5392	0.05392
				5210 (Turbo Mode)	16.86	48.53	20	0.3053	0.03053
				5250 (Turbo Mode)	16.34	43.05	20	0.2709	0.02709
				5290 (Turbo Mode)	16	39.81	20	0.2505	0.02505
				5760 (Turbo Mode)	14	25.12	20	0.1580	0.01580
				5800 (Turbo Mode)	13.46	22.18	20	0.1396	0.01396



802.11b

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance ( cm)	Power Density (W/m2)	Power Density (mW/cm2)
WHA YU INDUSTRIAL Co., LTD P/N:C478- 510028-A	Dipole	2.5	1.78	2412	20.9	123.03	20	0.4352	0.04352
				2437	21.12	129.42	20	0.4579	0.04579
				2462	21.85	153.11	20	0.5417	0.05417

802.11g

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance ( cm)	Power Density (W/m2)	Power Density (mW/cm2)
WHA YU INDUSTRIAL Co., LTD P/N:C478- 510028-A	Dipole	2.5	1.78	2412	20.2	104.71	20	0.3705	0.03705
				2437	19.96	99.08	20	0.3505	0.03505
				2462	20.09	102.09	20	0.3612	0.03612

**WARNING:**

It is the responsibility of the installer to ensure that the EUT is a WLAN module and a specified antenna inside. Only the specified antennas listed above may be used. The use of any other antenna is expressly forbidden in accordance with FCC rules CFR 47 part 15.204.

**NOTICE:**

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits for an uncontrolled environment when installed as directed. This equipment should be installed and operated with the specified antenna listed in this report.

#### 4. Appendix : Test Equipment

##### 4.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Rad. Above 1Ghz	Peak Power Analyzer	HP	8990A	3621A01269	01/02/2005	01/02/2006

Note: Calibration traceable to NIST or national or international standards.