



**Spectrum Research &
Testing Lab., Inc.**
No. 101-10, Ling 8,
Shan-Tong Li, Chung-Li
City, Taoyuan, Taiwan

TEST REPORT

Reference No.: A09041601
FCC ID: RSQ6820
Report No.: FCBA09041601
Page: 1 of 18
Date: Apr. 21, 2009

Product Name: AP-100
Model Number: 6820
Applicant: ARCHER WIRELESS CO., LTD
8F, NO. 442, CHUNG SHUN RD., SEC. 2,
CHUNG HO CITY, TAIPEI HSIENG, TAIWAN, ROC
Date of Receipt: Apr. 16, 2009
Finished date of Test: Apr. 20, 2009
Applicable Standards: 47 CFR Part 15, Subpart B, Class B
ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By : Kunter Jin , Date: Apr. 21, 2009
(Kunter Jin)

Approved By : JH Date: 4/21/2009
(Johnson Ho, Director)



NVLAQ®

Lab Code: 200099-0



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1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.2 TEST STATEMENT

- The test results in the report apply only to the unit tested by SRT Lab.
- There was no deviation from the requirements of test standards during the test.
- Power system, single-phase 120VAC, 60Hz, supplied under test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.



2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	AP-100 (AP-100 is the Receiver only)
MODEL NO.	6820
POWER SUPPLY	DC 3V · 0.9A
Carrier Frequency	445 ~ 460 MHz
Number of Channel	1
RF Output Power	N/A
Modulation Type	Single tone
I.F. & L.O.	N/A
Mode of operation	Simplex
Bit Rate of Transmission	0.512 / 1.2 Kbps
Antenna Type	PCB Print
Operating Temperature Range	-10~60℃

NOTE :

1. For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.
2. (AP-100 is the Receiver only)

2.2 DESCRIPTION OF SUPPORT UNIT

The transmitter part of EUT was tested along and configured by the requirement of ANSI C63.4. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

No	Device	Brand	Model #	FCC ID/DoC	Cable
1	Pager Tester	Credix	PT-7200	N/A	1.5m unshielded DC cable

NOTE : For the actual test configuration, please refer to the photos of testing.



2.3 DESCRIPTION OF TEST MODE

EUT link to PT-7200, standby.

List as below :

Test Mode	Freq.(MHz)
1 (Link)	452.5
2 (Standby)	N/A

3 DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product and according to the specifications provided by the applicant, must comply with the requirements of the following standards:

47 CFR Part 15, Subpart B

ANSI C63.4: 2003

All tests have been performed and recorded as the above standards.

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4 CONDUCTED EMISSION TEST

The test item was not performed, because the EUT uses 3Vdc battery as power source.



5. FUNDAMENTAL & SPURIOUS RADIATED EMISSION TEST

5.1 LIMIT

FCC Part15, Subpart C Section 15.109 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Distance (m)	Field Strength (dB μ V/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
ABOVE 960	3	54.0

- NOTE** :
1. In the emission tables above , the tighter limit applies at the band edges.
 2. Distance refers to the distance between measuring instrument , antenna , and the closest point of any part of the device or system.

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5.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test :

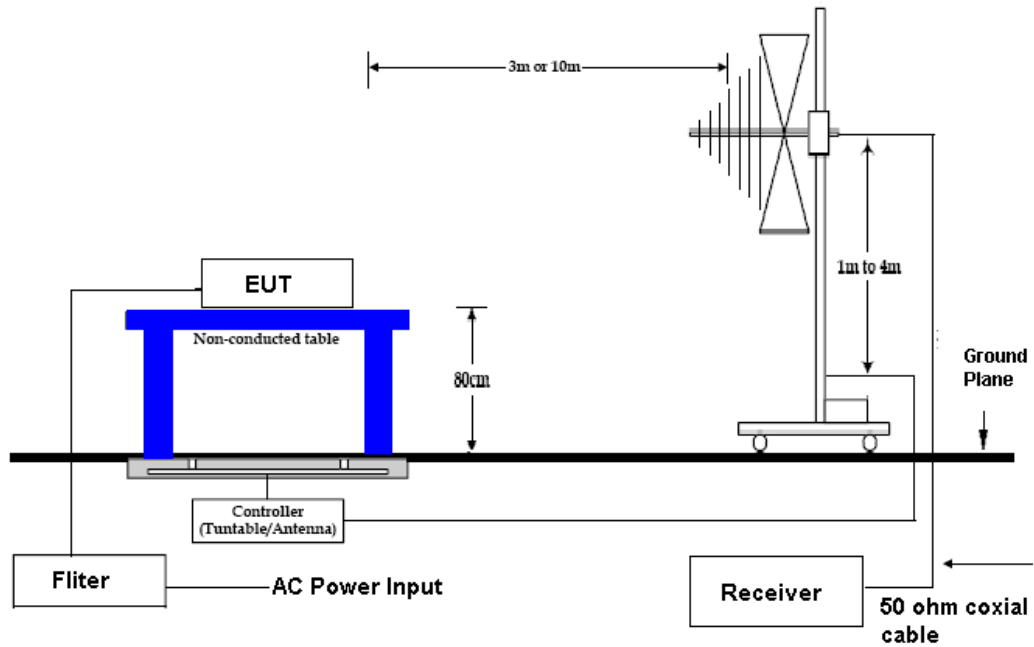
Equipment/ Facilities	Specification	Manufacturer	Model#/ Serial#	Due Date of Cal. & Cal. Center
EMI TEST RECEIVER	9kHz TO 2.75 GHz	ROHDE & SCHWARZ	ESCS30 / 830245/012	JUN. 2009 ETC
BI-LOG ANTENNA	26 MHz TO 2 GHz	EMCO	3142B / 0005-1534	JUN. 2009 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	NOV. 2009 SRT
COAXIAL CABLE	25M	TIMES	J400 / #25M	AUG. 2009 ETC
FILTER	2 LINE, 30A	FIL.COIL	FC-943 / 869	NCR
LOOP ANTENNA	9kHz TO 30MHz	ROHDE & SCHWARZ	HFH2-Z2	DEC. 2009

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.



5.3 TEST SET-UP

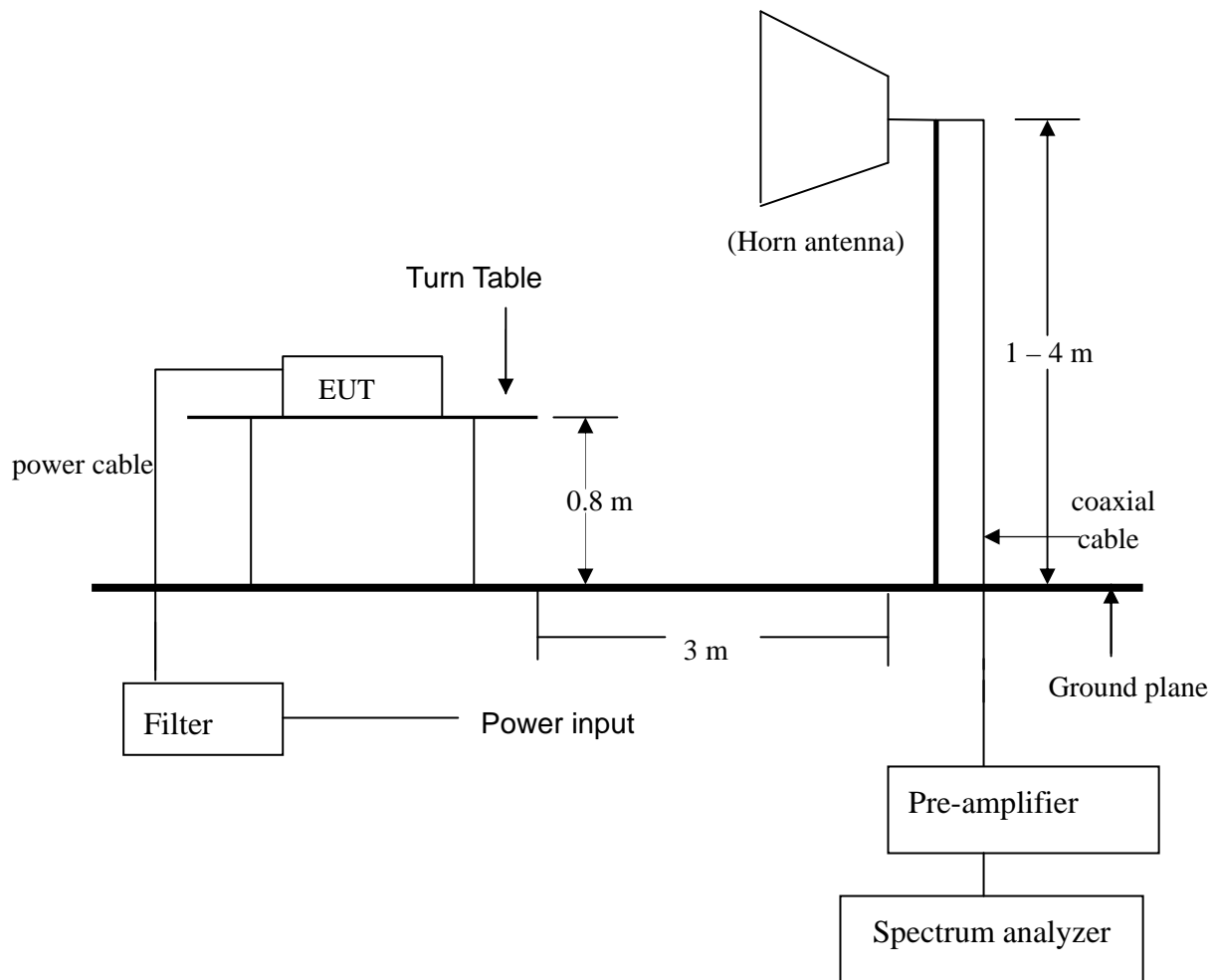


NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.



TEST SET- UP (1GHz - 25GHz)



NOTE :

- 1.The EUT system was put on a wooden table with 0.8m heights above a ground plane.
- 2.For the actual test configuration, please refer to the photos of testing.



5.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4 and CISPR 22. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz. All readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak and average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.

5.5 EUT OPERATING CONDITION

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EUT link to PT-7200, standby.

List as below :

Test Mode	Freq.(MHz)
1 (Link)	452.5
2 (Standby)	N/A

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5.6 TEST RESULT

Temperature:	25°C	Humidity:	60 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	Standby
Tested By:	Kunter Jin	Tested Date:	Apr. 17, 2009

Antenna Polarization: Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
63.7785	1.06	4.53	16.5	22.1	40.0	-17.9	86	4.00
90.6545	1.21	7.10	15.5	23.8	43.5	-19.7	148	3.90
621.5849	4.17	19.62	10.9	34.7	46.0	-11.3	25	2.40
657.5465	4.67	20.34	10.8	35.8	46.0	-10.2	99	2.30
859.4850	4.58	23.05	6.7	34.3	46.0	-11.7	279	1.60
938.6541	4.87	23.17	7.1	35.1	46.0	-10.9	234	1.20

Antenna Polarization: Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
63.8458	1.06	4.53	18.1	23.7	40.0	-16.3	167	1.00
73.5545	1.19	6.48	22.2	29.9	40.0	-10.1	202	1.10
206.3849	2.00	9.65	17.4	29.1	43.5	-14.4	19	1.40
700.5965	4.00	21.20	10.3	35.5	46.0	-10.5	315	2.70
850.7850	4.55	22.80	7.2	34.6	46.0	-11.5	301	3.40
922.2541	4.80	23.61	7.0	35.4	46.0	-10.6	97	3.70

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. “*” The test value exceeded -20dB, So will not record it. : Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.



TEST REPORT

Temperature:	25°C	Humidity:	60 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	Link
Tested By:	Kunter Jin	Tested Date:	Apr. 17, 2009

Antenna Polarization: Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
68.1450	1.10	7.10	11.5	18.2	40.0	-21.8	95	4.00
204.6545	1.85	10.70	10.4	22.0	43.5	-21.5	162	3.70
534.5849	3.20	18.63	7.7	29.4	46.0	-16.6	76	2.70
647.5465	3.53	20.47	6.5	31.4	46.0	-14.6	36	2.40
850.6951	4.08	22.80	3.2	30.6	46.0	-15.5	210	1.60
938.2254	4.29	23.57	3.6	31.6	46.0	-14.4	144	1.20

Antenna Polarization: Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
91.8458	1.26	7.90	12.1	20.5	43.5	-23.0	118	1.10
204.1355	1.85	10.70	11.6	23.2	43.5	-20.3	202	1.40
534.3849	3.20	18.63	8.5	30.2	46.0	-15.8	32	2.30
647.5965	3.53	20.47	6.3	31.2	46.0	-14.8	306	2.50
850.1579	4.08	22.80	3.2	30.6	46.0	-15.5	145	3.40
938.9254	4.29	23.57	3.5	31.5	46.0	-14.5	179	3.80

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. “*” The test value exceeded -20dB, So will not record it. : Measurement does not apply for this frequency.
3. Emission Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.



TEST REPORT

Temperature:	25 °C	Humidity:	60 %RH
Frequency Range:	1 –5 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Tested Mode:	Link
Tested By:	Kunter Jin	Tested Date:	Apr. 17, 2009

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1043.00	-34.58	24.29	52.5	46.3	42.2	36.0	74.0	54.0	-31.8	-18.0	176	1.60
1235.50	-33.73	24.72	58.3	52.2	49.3	43.2	74.0	54.0	-24.7	-10.8	303	1.54
1610.00	-32.89	25.72	52.2	48.5	45.0	41.3	74.0	54.0	-29.0	-12.7	69	1.31
1906.00	-32.63	26.84	69.5	51.1	63.7	45.3	74.0	54.0	-10.3	-8.7	179	1.37
2108.50	-32.43	27.42	36.8	*	31.8	*	74.0	54.0	-42.2	*	259	1.75
2408.00	-32.17	28.02	50.0	47.6	45.8	43.4	74.0	54.0	-28.2	-10.6	170	1.37

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1043.50	-34.58	24.29	49.9	46.2	39.6	35.9	74.0	54.0	-34.4	-18.1	106	1.60
1234.50	-33.73	24.72	41.6	*	32.6	*	74.0	54.0	-41.4	*	223	1.54
1611.50	-32.89	25.72	44.3	*	37.1	*	74.0	54.0	-36.9	*	47	1.37
1906.00	-32.63	26.84	62.8	53.1	57.0	47.3	74.0	54.0	-17.0	-6.7	314	1.17
2108.50	-32.43	27.42	41.4	*	36.4	*	74.0	54.0	-37.6	*	117	1.30
2408.50	-32.17	28.02	52.2	42.9	48.0	38.7	74.0	54.0	-26.0	-15.3	91	1.47

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. “*” The test value exceeded -20dB, So will not record it. : The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emission Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field strength of fundamental frequency.



6. PHOTOS OF TESTING

- RADIATION TEST (LINK under 1G)





- RADIATION TEST (standby under 1G)





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- RADIATION TEST (Link-Above 1G)





7. TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction