



**Spectrum Research
& Testing Lab., Inc.**

No.167,Ln. 780, Shan-Tong
Rd.,Ling 8, Shan-Tong Li,
Chung-Li City, Taoyuan County
320, Taiwan (R.O.C.)

TEST REPORT

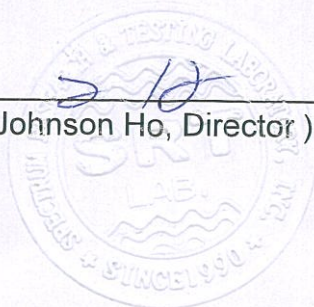
Reference No.: A12040901
Report No.: FCCA12040901
FCC ID: JY8DW09
Page: 1 of 8
Date: May. 18, 2012

Product Name: Wi-Reader
Model No.: DW09
Applicant: Apotop
4F, No.119, Jiankang Road, Jhonghe Dist., New Taipei City
23858, Taiwan.
Date of Receipt: Apr. 09, 2012
Finished date of Test: May. 14, 2012
Applicable Standards: FCC 47CFR
ANSI/IEEE C95.1-1992
FCC OET Bulletin 65

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.

Tested By : Jeff Lo , Date: 05/18/2012
(Jeff Lo)

Approved By : Johnson Ho , Date: 5/18/2012
(Johnson Ho, Director)





**Spectrum Research
& Testing Lab., Inc.**
No.167,Ln. 780, Shan-Tong
Rd.,Ling 8, Shan-Tong Li,
Chung-Li City, Taoyuan County
320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A12040901
Report No.: FCCA12040901
FCC ID: JY8DW09
Page:2 of 8
Date: May. 18, 2012

Table of Contents

1.	DOCUMENT POLICY AND TEST STATEMENT	3
1.1	DOCUMENT POLICY	3
1.2	TEST STATEMENT	3
1.3	EUT MODIFICATION.....	3
2.	DESCRIPTION OF EUT AND TEST MODE	4
2.1	GENERAL DESCRIPTION OF EUT	4
3.1	RF POWER EXPOSURE EVALUATION TEST	5
3.1.1	LIMIT	5
3.1.2	TEST PROCEDURE.....	6
3.1.3	EUT OPERATING CONDITION.....	7
3.1.4	CONNECT POWER AT THE ANTENNA CONNECTOR RESULT	8



**Spectrum Research
& Testing Lab., Inc.**

No.167,Ln. 780, Shan-Tong
Rd.,Ling 8, Shan-Tong Li,
Chung-Li City, Taoyuan County
320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A12040901
Report No.:FCCA12040901
FCC ID: JY8DW09
Page:3 of 8
Date: May. 18, 2012

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.

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.

DC power source from external power adapter which has Input: AC 120 V, 60Hz ,
Output: DC 5.0V , 0.45A

1.3 EUT MODIFICATION

- No modification in SRT Lab.



2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wi-Reader
MODEL NO.	DW09
POWER SUPPLY	DC power source from external USB power adapter which has Input: AC 120V ,60Hz , Output: DC 5.0 V , 0.45 A
CABLE	N/A
FREQUENCY BAND	2400 MHz ~ 2483.5 MHz
CARRIER FREQUENCY	2412 MHz ~ 2462 MHz
NUMBER OF CHANNEL	11 (802.11b,g), 7 (802.11n)
CHANNEL SPACING	5 MHz
RATED RF OUTPUT POWER	2.4GHz -11b:12.04 dBm (0.0160 W) -11g:12.23 dBm (0.0167 W) -11n:12.76 dBm (0.0189 W)
MODULATION TYPE	IEEE802.11b DSSS(BPSK/QPSK/CCK) IEEE802.11g OFDM(BPSK/16QAM/64QAM) IEEE802.11n SISO-OFDM(BPSK/16QAM/64QAM)
MODE OF OPERATION	Half duplex
BIT RATE OF TRANSMISSION	11b: 1, 2, 5.5, 11Mbps; 11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 11n: MCS0~MCS7 (Max. 150Mbps)
ANTENNA TYPE	PIFA
ANTENNA GAIN	-3.22 dBi
CHANNEL BANDWIDTH	20 MHz(802.11b,g) 40MHz(802.11n)

NOTE :

1. For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.



3.1 RF POWER EXPOSURE EVALUATION TEST

3.1.1 LIMIT

According to the requirement of IEEE C95.1 and FCC OET Bulletin 65.

Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.



**Spectrum Research
& Testing Lab., Inc.**

No.167,Ln. 780, Shan-Tong
Rd.,Ling 8, Shan-Tong Li,
Chung-Li City, Taoyuan County
320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A12040901
Report No.: FCCA12040901
FCC ID: JY8DW09
Page:6 of 8
Date: May. 18, 2012

3.1.2 TEST PROCEDURE

1. The EUT was operating in transmitter mode and could be controlled its channel. The power instrument read power value.
2. The EUT uses a chip antenna and the antenna gain is 0dBi declared by manufacturer.
3. As discussed in OET Bulletin 65, calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a non-directional antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations (1) or (2) below [for conversion to electric or magnetic field strength see Equation (3) above]. These equations are generally accurate in the far-field of an antenna but will over-predict power density in the near field, where it could be used for making a " worst case" or conservative prediction.

$$S=PG/4 \pi R^2 \quad (\text{Eq.1})$$

$$S=\text{connect power}/4 \pi R^2 \quad (\text{Eq. 2})$$

$$S=E^2/3770=37.7H^2 \quad (\text{Eq. 3})$$

where: S = power density (mW/cm²)

E = electric field strength (V/m)

H = magnetic field strength (A/m)

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

where: connect power = equivalent (or effective) isotropically radiated power.



**Spectrum Research
& Testing Lab., Inc.**

No.167,Ln. 780, Shan-Tong
Rd.,Ling 8, Shan-Tong Li,
Chung-Li City, Taoyuan County
320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A12040901
Report No.:FCCA12040901
FCC ID: JY8DW09
Page:7 of 8
Date: May. 18, 2012

3.1.3 EUT OPERATING CONDITION

- 1.Setup the EUT and all peripheral devices .
- 2.Turn on the power of all equipment and EUT.
- 3.We will use the following programs under Windows XP system to test EUT.
- 3.1"EMI Test" program.

PC sent "H" pattern signal and detect following peripherals directly or via EUT:

- Color Monitor
- Keyboard
- Mouse
- Printer
- HDD

- 3.2"Ping IP", program.

Use the ping command to link LAN port and local simulation PC through Ethernet hub.



Spectrum Research & Testing Lab., Inc.
 No.167, Ln. 780, Shan-Tong Rd., Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan County 320, Taiwan (R.O.C.)

TEST REPORT

Reference No.: A12040901
 Report No.: FCCA12040901
 FCC ID: JY8DW09
 Page: 8 of 8
 Date: May. 18, 2012

3.1.4 CONNECT POWER AT THE ANTENNA CONNECTOR RESULT

Temperature:	<u>22°C</u>	Humidity:	<u>53%RH</u>
Spectrum Detector:	<u>PK.</u>	Tested Mode:	<u>802.11b/g/n</u>
Tested By:	<u>Jeff Lo</u>	Modulation Type:	<u>DSSS, OFDM</u>
Tested Date:	<u>May. 10, 2012</u>		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	MPE Distance (cm)	Antenna Gain (dBi)	PEAK POWER OUTPUT		Calculated RF Exposure (mW/cm ²)	LIMIT (mW/cm ²)
				dBm	mW		
1	2412	20	-3.22	7.89	6.15	0.0012	1.0
7	2442	20	-3.22	8.82	7.62	0.0015	1.0
11	2462	20	-3.22	6.91	4.90	0.0009	1.0

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	MPE Distance (cm)	Antenna Gain (dBi)	PEAK POWER OUTPUT		Calculated RF Exposure (mW/cm ²)	LIMIT (mW/cm ²)
				dBm	mW		
1	2412	20	-3.22	9.01	7.96	0.0015	1.0
7	2442	20	-3.22	7.62	5.78	0.0011	1.0
11	2462	20	-3.22	7.18	5.22	0.0010	1.0

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	MPE Distance (cm)	Antenna Gain (dBi)	PEAK POWER OUTPUT		Calculated RF Exposure (mW/cm ²)	LIMIT (mW/cm ²)
				dBm	mW		
5	2422	20	-3.22	8.98	7.90	0.0015	1.0
8	2437	20	-3.22	9.54	8.99	0.0017	1.0
11	2452	20	-3.22	9.08	8.09	0.0016	1.0