

RADIO FREQUENCY RADIATION EXPOSURE REPORT

Mobiles /Fixed Base Station Maximum Permissible Exposure (MPE)

OF

Product Name: Wireless 802.11a/b/g SDIO Adaptor

Brand Name: Silex

Model Name: SX-SDWAG-02

Model Different: N/A

FCC ID: N6C-SXSDWAG02

IC: 4908B-SXSDWAG02

Report No.: ER/2009/50004

Issue Date: Jun. 01, 2009

Prepared for: For FCC:
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619-0237 Japan

For IC:
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VERIFICATION OF COMPLIANCE

Applicant: For FCC:
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For IC:
SILEX TECHNOLOGY AMERICA INC.
495 Woodward Avenue Milton Ontario L9T 3B7 Canada

Product Name: Wireless 802.11a/b/g SDIO Adaptor

Brand Name: Silex

FCC ID: N6C-SXSDWAG02

IC: 4908B-SXSDWAG02

Model No.: SX-SDWAG-02

Model Difference: N/A

File Number: ER/2009/50004

Date of test: May. 04, 2009 ~ May. 25, 2009

Date of EUT Received: May. 04, 2009

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091 and RSS102.

The test results of this report relate only to the tested sample identified in this report.

Test By:		Date	Jun. 01, 2009
	_____ <i>Sky Wang / Asst. Supervisor</i>		_____
Prepared By:		Date	Jun. 01, 2009
	_____ <i>Gigi Yeh/ Clerk</i>		_____
Approved By:		Date	Jun. 01, 2009
	_____ <i>Vincent Su/Manager</i>		_____

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Report Version

Version No.	Date	Description
00	Jun. 01, 2009	Initial creation of document

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1. GENERAL INFORMATION

General:

Product Name:	Wireless 802.11a/b/g SDIO Adaptor
Brand Name:	Silex
Model Name:	SX-SDWAG-02
Model Difference:	N/A
Power Supply:	3.3Vdc

WLAN: 802.11 a/b/g

Frequency Range	2412MHz– 2462MHz	5150MHz– 5350MHz	5470MHz– 5725MHz	5725MHz – 5825MHz
Channel number	11 channels	8 channels	11 channels	5 channels
Rated Power	b : 17.28 dBm g : 14.67 dBm	14.67 dBm	14.89 dBm	14.68 dBm
Modulation Technology	DSSS, OFDM	OFDM	OFDM	OFDM
Antenna Designation	Dipole Antenna, 1.5dBi	Dipole Antenna, 0.4dBi	Dipole Antenna, 1.7dBi	Dipole Antenna, 2.1dBi
Type of Emission	16M5M5D	16M6M1D	16M7M1D	22M3M4D
Modulation type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM			
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps; 802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps			

The EUT is compliance with IEEE 802.11 a/b/g Standard.

This report applies for frequency IEEE 802.11 a/b/g

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1.1 Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
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
1500-15000	/	/	1.0	30

F = frequency in MHz

* = Plane-wave equipment power density

1.2 Maximum Permissible Exposure (MPE) Evaluation

MPE Prediction (802.11b/g)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

2412MHz

Maximum peak output power at antenna input terminal:	17.28	(dBm)
Maximum peak output power at antenna input terminal:	53.45643594	(mW)
Duty cycle:	100	(%)
Maximum Pav :	53.45643594	(mW)
Antenna gain (typical):	1.5	(dBi)
Maximum antenna gain:	1.412537545	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0150297	(mW/cm ²)
Measurement Result:		
The predicted power density level at 20 cm is	0.15029702	(W/m ²)
This is below the uncontrolled exposure limit of 1 mW/cm ²	2412	MHz

Measurement Result

The predicted power density level at 20 cm is 0.15029702 W/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 2412MHz.

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MPE Prediction (802.11a)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

The worst case: 802.11a mode 5.8G

Maximum peak output power at antenna input terminal:	14.68	(dBm)
Maximum peak output power at antenna input terminal:	29.37649652	(mW)
Duty cycle:	100	(%)
Maximum Pav :	29.37649652	(mW)
Antenna gain (typical):	2.1	(dBi)
Maximum antenna gain:	1.621810097	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5745	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0094831	(mW/cm ²)
Measurement Result:		
The predicted power density level at 20 cm is	0.094831009	(W/m ²)
This is below the uncontrolled exposure limit of 1 mW/cm	5745	MHz

Measurement Result

The predicted power density level at 20 cm is 0.094831009 W/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 5725MHz.

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MPE Prediction (802.11a)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

The worst case: 802.11a mode UNIII

Maximum peak output power at antenna input terminal:	14.67	(dBm)
Maximum peak output power at antenna input terminal:	29.30893245	(mW)
Duty cycle:	100	(%)
Maximum Pav :	29.30893245	(mW)
Antenna gain (typical):	0.4	(dBi)
Maximum antenna gain:	1.096478196	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5180	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0063966	(mW/cm ²)
Measurement Result:		
The predicted power density level at 20 cm is	0.063966173	(W/m ²)
This is below the uncontrolled exposure limit of 1 mW/cm	5180	MHz

Measurement Result

The predicted power density level at 20 cm is 0.063966173 W/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 5180MHz.

MPE Prediction (802.11a)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

The worst case: 802.11a mode UNII2

Maximum peak output power at antenna input terminal:	14.89	(dBm)
Maximum peak output power at antenna input terminal:	30.8318795	(mW)
Duty cycle:	100	(%)
Maximum Pav :	30.8318795	(mW)
Antenna gain (typical):	1.7	(dBi)
Maximum antenna gain:	1.479108388	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	5600	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm ²)
Power density at predication frequency at 20 (cm)	0.0090772	(mW/cm ²)
Measurement Result:		
The predicted power density level at 20 cm is	0.090771679	(W/m ²)
This is below the uncontrolled exposure limit of 1 mW/cm	5600	MHz

Measurement Result

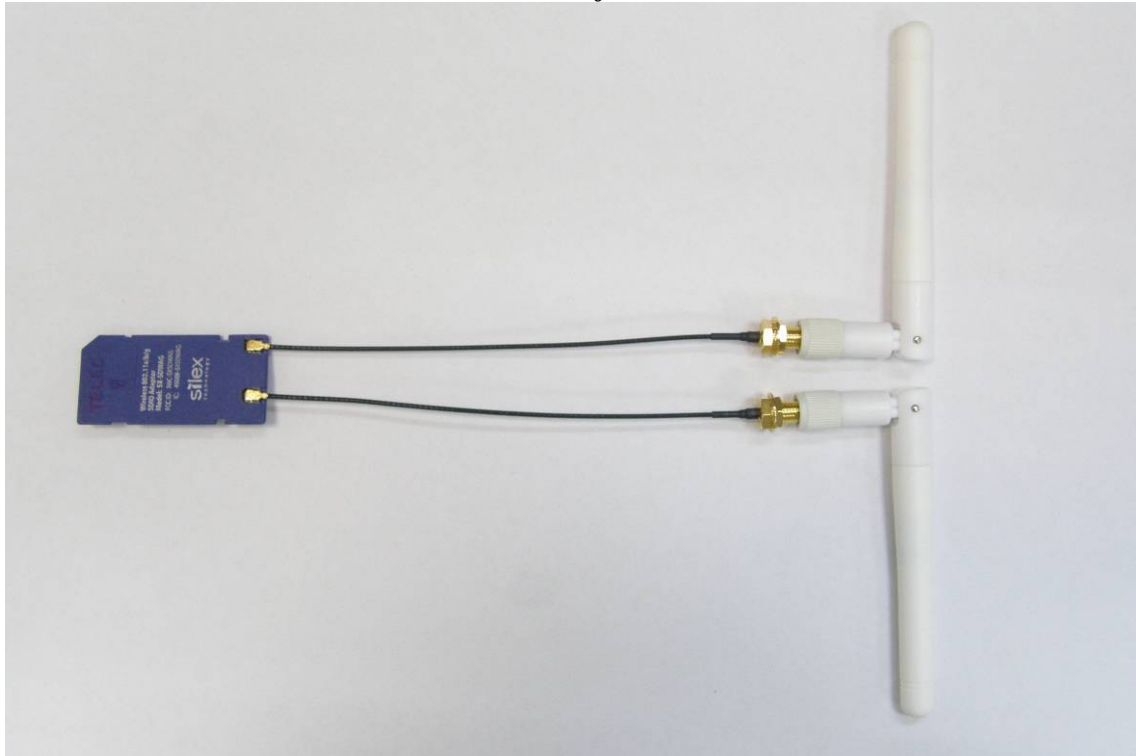
The predicted power density level at 20 cm is 0.090771679 W/cm². This is below the uncontrolled exposure limit of 1 mW/cm² at 5180MHz.

APPENDIX 1 PHOTOGRPHS OF EUT

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All View of EUT



Antenna



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Front View of EUT



Back View of EUT



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Open View of EUT

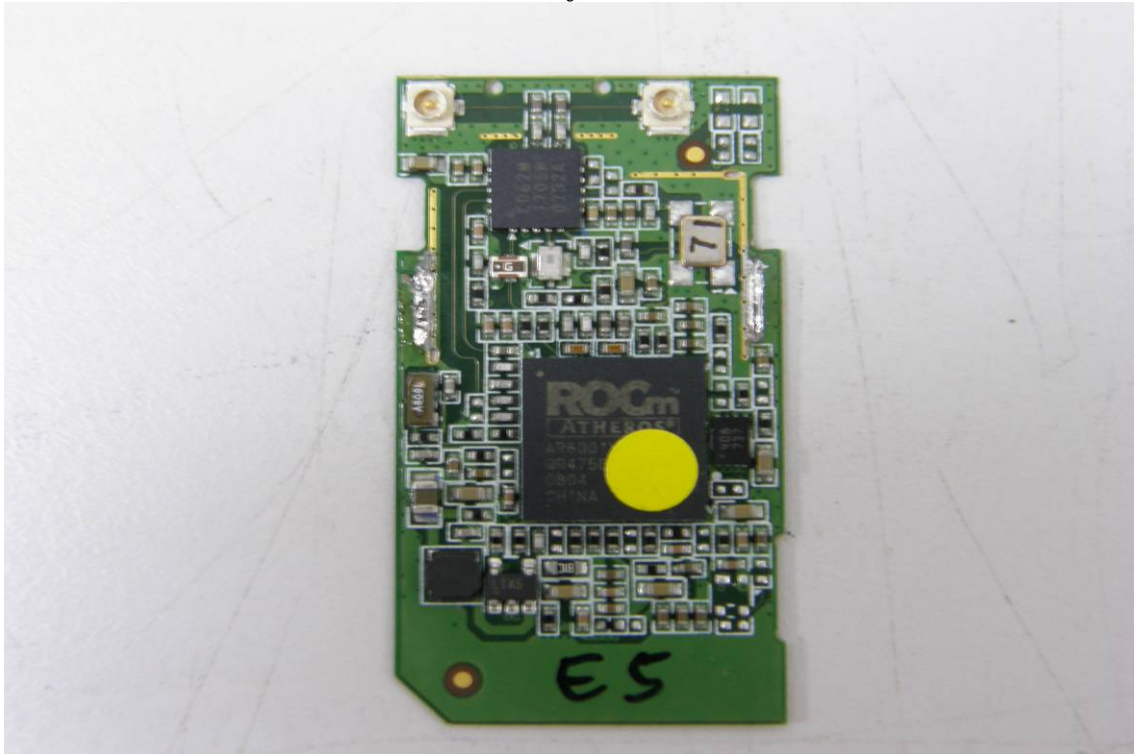


Internal of EUT - 1

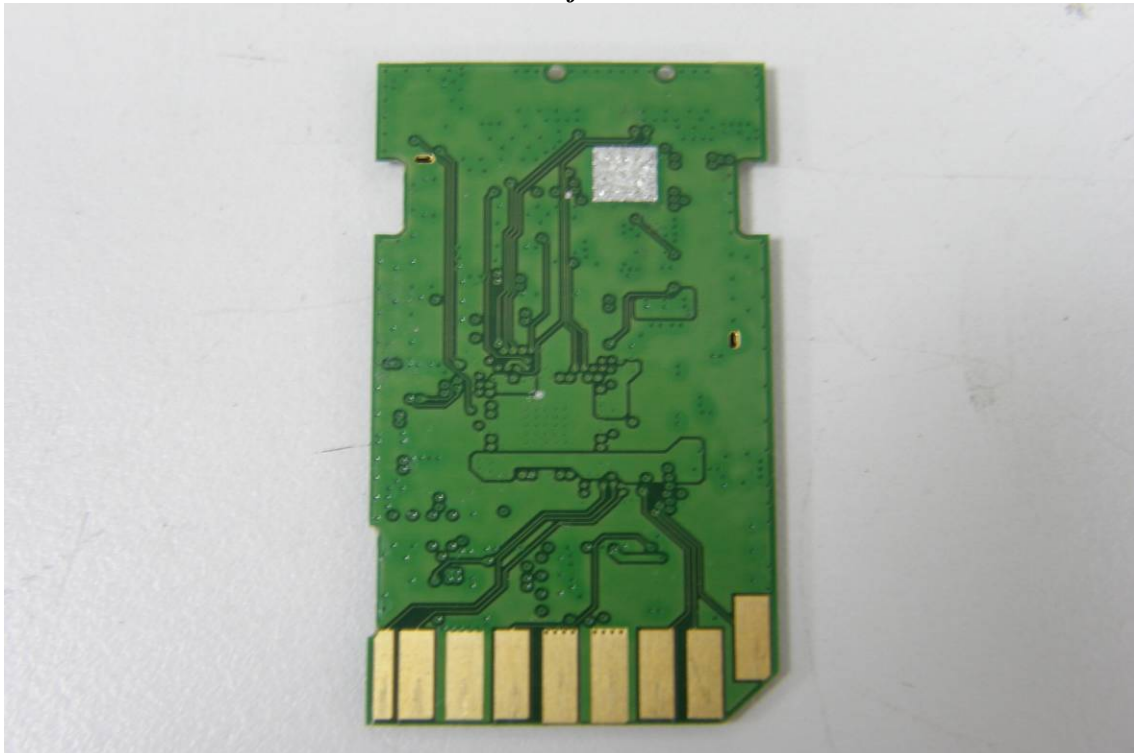


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Internal of EUT – 2



Internal of EUT – 3



~ End of Report ~

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