

MPE REPORT

Report No.: SRTC2010-H024-E0027

Product Name: 2.4GHz Wireless Module

Product Model: SIA2420

Applicant: Shenyang Institute of Automation Chinese
Academy of Sciences

Manufacture: Shenyang Institute of Automation Chinese
Academy of Sciences

Specification: FCC Part2.1093

OET Bulletin 65 Supplement C[June 2001]

FCC ID: YZIWIA-SIA2420

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-68009202 Fax: 86-10-68009205

CONTENTS

1. General information	3
1.1 Notes of the test report	3
1.2 Information about the testing laboratory	3
1.3 Applicant's details	3
1.4 Manufacturer's details	3
1.5 Application details	4
1.6 Reference specification	4
1.7 Information of EUT	4
1.7.1 General information	4
1.7.2 EUT details	5
1.7.3 Auxiliary equipment details	5
2. Test information	6
2.1 Summary of the calculation results	6
2.2 Calculation result	7
2.2.1 Maximum Permissible Exposure (MPE)	7

1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).

The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
Address: No.80 Beilishi Road, Xicheng District, Beijing China
City: Beijing
Country or Region: China
Contacted person: Wang Junfeng
Tel: +86 10 68009181 +86 10 68009202
Fax: +86 10 68009195 +86 10 68009205
Email: wangjf@srrc.org.cn / wangjunfeng@srtc.org.cn

1.3 Applicant's details

Company: Shenyang Institute of Automation Chinese
Academy of Sciences
Address: 114 Nanta Street, Shenhe District, Shenyang, China
City: Shenyang
Country or Region: China
Grantee Code: YZI
Contacted person: Zhao Xuefeng
Tel: 86-024-23970700
Fax: 86-024-23970013
Email: xuefeng@sia.cn

1.4 Manufacturer's details

Company: Shenyang Institute of Automation Chinese
Academy of Sciences
Address: 114 Nanta Street, Shenhe District, Shenyang, China
City: Shenyang
Country or Region: China
Contacted person: Zhao Xuefeng
Tel: 86-024-23970700
Fax: 86-024-23970013
Email: xuefeng@sia.cn

1.5 Application details

Date of receipt of test sample: 27th Aug 2010

Date of test: 27th Aug 2010 to 10th Nov 2010

1.6 Reference specification

FCC Part2.1093, OET Bulletin 65 Supplement C [June 2001]

1.7 Information of EUT

1.7.1 General information

Name of EUT	2.4GHz Wireless Module
FCC ID	YZIWIA-SIA2420
Frequency range	2.4000GHz~2.4835GHz
Rated output power	20dBm
E.I.R.P.	25.5dBm
Modulation type	O-QPSK
Emission Designator	5M00Q1D
Duplex mode	TDD
Antenna type	External
Power Supply	DC power
Rated Power Supply Voltage	3.3V
Extreme Temperature	Lowest: -30°C Highest: +50°C
Extreme Voltage	Minimum: 2.8V Maximum: 3.5V
HW Version	SIA2420-V6.2
SW Version	SIA2010-V6.1

1.7.2 EUT details

Name	Model	Serial Number
2.4GHz Wireless Module	SIA2420	0X2400000100000007


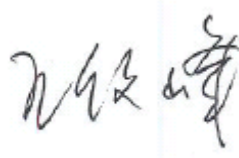
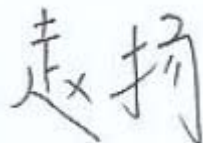
1.7.3 Auxiliary equipment details

N/A

2. Test information

2.1 Summary of the calculation results

No.	Test case	FCC reference	Verdict
1	MPE Calculation	FCC Part2.1093, OET Bulletin 65 Supplement [June 2001]	Pass

<p>This Test Report Is Issued by: Mr. Song Qizhu Director of the test lab</p> 	<p>Checked by: Mr. Wang Junfeng Deputy director of the test lab</p> 
<p>Tested by: Mr. Zhao Yang Test engineer</p> 	<p>Issued date:</p> <p>2010.12.22</p>

2.2 Calculation result

2.2.1 Maximum Permissible Exposure (MPE)

Limit:

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) 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

(B) 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

Calculation procedure:

In accordance with 47CFR FCC Part 2.1091, the product has been defined as a mobile device where a distance of 0.2m normally can be maintained between the user and product.

Calculation formula:

$$\text{Power Density: } P_d (\text{W/m}^2) = E^2 / 377$$

$$E (\text{V/m}) = (30 * P * G)^{0.5} / d$$

E: Electric Field Strength (V/m)

P: Peak RF Output Power (W)

G: Antenna Numeric Gain (Numeric)

d: Separation Distance Between the Radiator and Human Body (m)

So the calculation formula can be changed as:

$$P_d = (30 * P * G) / (377 * d^2)$$

Note:

The EIRP measurement was performed using the peak conducted power measurement in conjunction with the maximum declared antenna gain (6dBi).

Calculation result:

Channel No.	Maximum conductd power(mW)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Verdict
1	80.35	0.0636	1.0	Pass
8	84.53	0.0669	1.0	Pass
15	88.31	0.0699	1.0	Pass