

MPE Evaluation Report

Applicant Name: Silicon Controls Pty Ltd

Applicant Address: Unit 14A, 2 Eden Park Drive, North Ryde NSW 2113, Australia

The following samples were submitted and identified on behalf of the client as:

Sample Description	Module
SGS Ref	SHEMO09110126503
Model Number	SC414C7411
FCC ID	XV2SC414001
Final Hardware Version Tested	SC414C7411 built to BOM revision 4
Final Software Version Tested	X17
Date Initial Sample Received	11-18, 2009
Testing Start Date	11-19, 2009
Testing End Date	11-20, 2009

According to:

FCC Rules 47 CFR §2.1091

FCC OET Bulletin 65 supplement C

Comments/ Conclusion:

The configuration tested complied to the certification requirements specified in this report.

Signed for on behalf of SGS

Hailiang Cai

Project Manager

Peter Xu

Technical Manager

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**Change History**

Version	Change Contents	Author	Date
V1.0	First edition	Hailiang Cai	11-23, 2009
V2.0	Applicant information updated	Hailiang Cai	11-30, 2009

1. Report Overview

This report details the results of testing carried out on the samples listed in section 15, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this test report is used in any configuration other than that detailed in the test report, the manufacturer must ensure the new configuration complies with all relevant standards and certification requirements. Any mention of SGS Shanghai Wireless Telecommunications lab or testing done by SGS Shanghai Wireless Telecommunications lab made in connection with the distribution or use of the tested product must be approved in writing by SGS Shanghai Wireless Telecommunications lab.

2. Test Lab Declaration or Comments

The manufacturer declares that the equipment SC414C7411 is an initial model of the model SC414 with test report number SHEMA09110126503 and structurally identical to the basic one.

3. Applicant Declaration or Comments

None

4. Measurement Uncertainty

Measurements and results are all in compliance with the standards listed in section 10 of this report. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria.

5. Testing Environment

Normal Temperature	+20 to +24 °C
Relative Humidity	35 to 60 %

6. Primary Test Laboratory

Name:	Wireless Telecommunications Laboratory SGS-CSTC Standards Technical Services(Shanghai) Co., Ltd
Address:	9F, 3rd Building, No.889, Yishan Rd, Xuhui District, Shanghai, China 200233
Telephone:	+86 (0) 21 6140 2666
Fax:	+86 (0) 21 5450 0149
Internet:	http://www.cn.sgs.com
Contact:	Mr. Peter Xue
Email:	peter.xue@sgs.com

7. Details of Applicant

Name:	Silicon Controls Pty Ltd
Address:	Unit 14A, 2 Eden Park Drive, North Ryde NSW 2113, Australia
Telephone:	+61 2 8877 6023
Contact:	Anthony Carr
Email:	tonyc@siliconcontrols.com

8. Details of Manufacturer

Name:	Silicon Controls Pty Ltd
Address:	Unit 14A, 2 Eden Park Drive, North Ryde NSW 2113, Australia
Telephone:	+61 2 8877 6023
Contact:	Anthony Carr
Email:	tonyc@siliconcontrols.com

9. Other testing Locations

Name:	Not Required
Address:	--
Telephone:	--
Contact:	--
Email:	--

10. Referenced Documents

The Equipment under Test (EUT) has been tested at SGS's (own or subcontracted) laboratories according to

FCC Rules 47 CFR §2.1091 & FCC OET Bulletin 65 supplement C

The following table summarizes the specific reference documents such as harmonized standards or test specifications which were used for testing at SGS's (own or subcontracted) laboratories.

Identity	Document Title	Version
FCC Rules 47 CFR§2.1091	Radiofrequency radiation exposure evaluation: mobile devices	2001
FCC OET Bulletin 65 supplement C	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields	2001

(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

RF Exposure Limits

11. Primary Laboratory Accreditation Details



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12. SGS Shanghai Wireless Telecommunications lab, Personnel

SGS Wireless Shanghai Project Management Team and list of approved Testers for SGS Wireless Shanghai.

Surname	Forename	Initials
CAI	CAI	CAICAI
Xue	Peter	PETERXUE
Xu	Anya	ANYA
Ni	Lemon	LEMONNI
Tao	Kevin	KEVINTAO
Wang	Lawrence	LAWRENCE
Zhang	Sean	SEANZH
Liu	Felix	FILEX
Ruan	Roger	ROGER
Tan	Terry	TERRY
Zhang	Zenger	ZENGER
Wang	Ken	KENWANG
Gao	Keilefen	KEILEFENGAO
Tang	Eva	EVATANG
Ho	James	JAMESHO
Tang	Kenny	KENNY
Hailiang	Cai	HAILIANG
Kuang	Connie	CONNIE
Chan	Hik Kwong	HKC
Nie	Neo	Neo

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13. Test Equipment Information

Equipment	Model	S/N	Cal. date	Cal. due date
R&S Universal Radio Communication Tester	CMU200	103633	2008-12-08	2009-12-07

14. Detailed Results

14.1 Summary of Results

Frequency Band	Limit (mW/ cm ²)	Result (mW/ cm ²)	Verdict
GSM850	0.55	0.06	Pass
PCS1900	1.0	0.06	Pass

14.2 Measurement of RF conducted Power

Mode		GPRS			
Slot (Uplink)		1	2	3	4
Band	Channel	GMSK			
GSM850	128	32.5	32.5	-	-
	190	32.4	32.4	-	-
	251	32.3	32.3	-	-
PCS1900	512	29.2	29.2	-	-
	661	29.5	29.5	-	-
	810	29.3	29.3	-	-

14.3 MPE Evaluation

$$S = PG * \text{Duty factor} / 4\pi R^2$$

P = Peak Power Input to antenna (milli watts)

G =Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) =20 cm

Note:

$$1) P \text{ (milli watts)} = 10^{\frac{dBm}{10}}$$

$$2) G \text{ (Antenna gain in numeric)} = 10^{\text{(Antenna gain in dBi)} / 10}$$

3) Duty factor

Mode		Duty factor
GSM/GPRS/EGPRS	1 Slot uplink	1/8
	2 Slot uplink	1/4
	3Slot uplink	3/8
	4 Slot uplink	1/2

$$4) \pi = 3.142$$

The maximum power density for GSM850 is shown as below:

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure (mW/cm ²)	Limit (mW/cm ²)
-1.85	0.65	32.5	1778.28	0.06	0.55

The maximum power density for PCS1900 is shown as below:

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure (mW/cm ²)	Limit (mW/cm ²)
1.15	1.30	29.5	891.25	0.06	1.0

14.4 Measurement Uncertainty

Extended Uncertainty (k=2) 95%	0.5dB
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15. Identification of Samples

Product Name	SC414 Cellular Dialer	
Brand Name	GASLOG	
Marketing Name	N/A	
Final Hardware Version	SC414C7411 built to BOM revision 4	
Final Software Version	X17	
Normal Voltage	3.9 V	
Low Voltage	3.5 V	
High Voltage	4.0 V	
Battery Type	Single AA Lithium	
Antenna Type	Internal	
GSM Frequency Bands	GSM850	Tx: 824~849 MHz
		Rx: 869~894 MHz
	PCS1900	Tx: 1850~1910 MHz
		Rx: 1930~1990 MHz
Modulation Mode	GMSK	
GSM / GPRS Power Class	GSM850	4
	PCS1900	1
Reference Number	SHEMO09110126503	
Serial Number	NA	
IMEI	355927000326293	
Date of receipt	11-18, 2009	
Date of Testing Start	11-19, 2009	
Date of Testing End	11-20, 2009	

16. Photographs of EUT

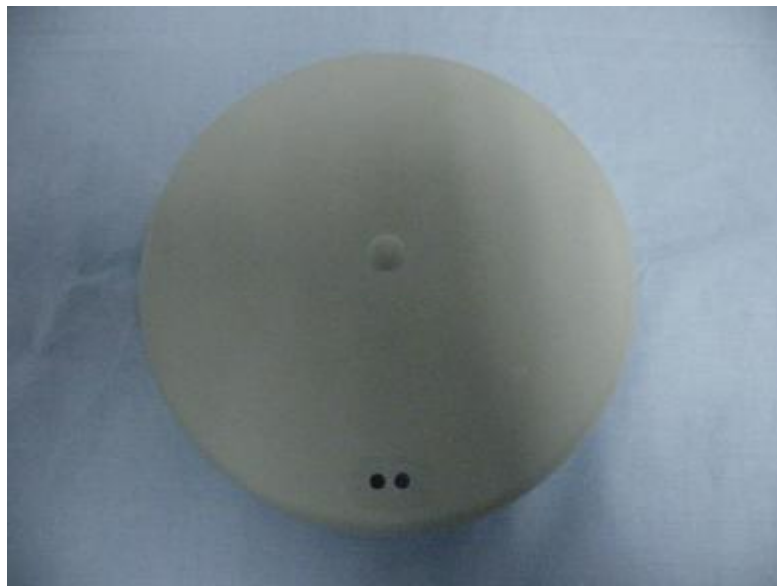


Fig.16-1 Front View



Fig.16-2 Back View



Fig.16-3 Internal View of EUT



Fig.16-4 Internal View of EUT



Fig.16-5 Internal View of EUT

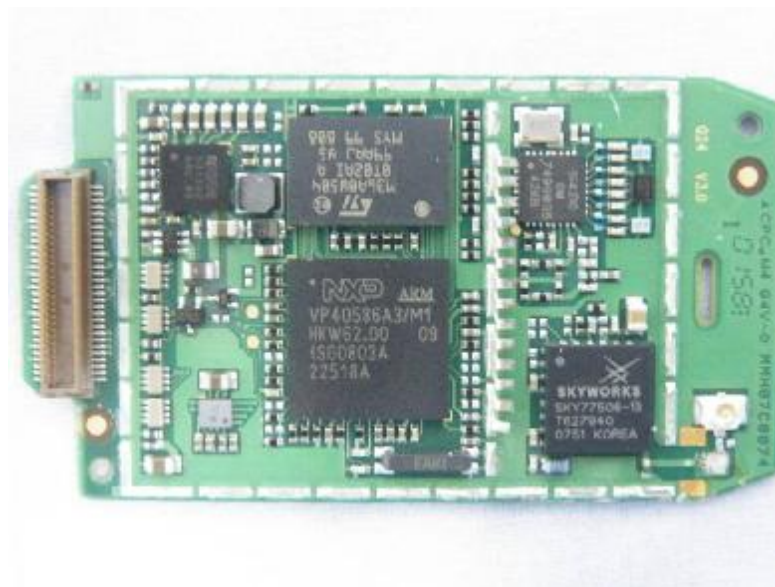


Fig.16-6 Internal View of EUT



Fig.16-7 Accessories

END OF REPORT

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