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MPE Calculation REPORT

Report No.: GSM11541602M02 According to

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

For

SAGEM COMMUNICATIONS

Model Name: HILONC

Final Hardware Version: V2

Final Software Version: HIC.A



Prepared by

Date:

2009-01-19

Project Leader:

Approved by Lab Manager:

2009-01-20

Zhiang Yuan

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SHGSM



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Change History

Version	Change Contents	Author	Date
V1.0	First edition	Will Ni	2009-01-19
5 5G	2 50 65 665 565	562 50 CC	GG5
c 65 5	3 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	500 500	5 5GS
CG5	50 6 50 65 50 50 50	65 50° 5	65 5G



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Standards

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

5 25 200 50	6 6 50 50 65 60 60 50	a -65
Identity	Document Title	Version
FCC OET Bulletin 65 supplement	Evaluating Compliance with FCC Guidelines for	6 5
Supplement	Human Exposure to Radiofrequency	2001
5 56 5 25 263	Electromagnetic Fields	2001

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

This report details the results of the testing carried out on one sample, 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 report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS-CSTC Shanghai GSM Lab or testing done by SGS-CSTC Shanghai GSM Lab should be approved by SGS Shanghai GSM Lab in connection with distribution or use of the product described in this report in writing.

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1. General Information

1.1 Testing Laboratory

1.1.1 Responsible Testing Laboratory

	mmunications Laboratory Idards Technical Services Co., Ltd Shanghai Branch
Address:	9F, 3rd Building, No.889, Yishan Rd, Xuhui District, Shanghai, China 200233
Telephone:	+86 (0) 21 6495 1616
Fax:	+86 (0) 21 5450 0149
Internet:	http://www.cn.sgs.com
Contact:	Mr. Zhiang Yuan
Email:	Zhiang.yuan@sgs.com

1.1.2 Testing Locations

Wireless Teleco	mmunications Laboratory
SGS-CSTC Stand	dards Technical Services Co., Ltd Shanghai Branch
Address:	9F, 3rd Building, No.889, Yishan Rd, Xuhui District, Shanghai, China 200233
Telephone:	+86 (0) 21 6495 1616
Fax:	+86 (0) 21 5450 0149
Internet:	http://www.cn.sgs.com
Contact:	Mr. Zhiang Yuan
Email:	Zhiang.yuan@sgs.com

1.1.3 SGS Wireless Shanghai, Personnel

Project Management Team

Forename	Surname	
Cai	Cai G	
S Lisa	Song	
Anya	Xu	
James	Xia	

Test Engineer

a C.J. 6	
Forename	Surname
S Will	Ni so
Ken	Wang
Zenger	Zhang

Testing Environments

Ambient Temperature:	18~25℃	SGS	50 65	2G5	500-5
Relative Humidity:	25~60%	SC2	. 50 65	365	5000

9/F, 3rd Building, No. 889, Yishan Road, Shanghai, China 200233 中国•上海•宜山路 889 号 3 号楼 9 层 邮编:200233 (86 -21) 61402666*2736

f (86 -21) 54500149 f (86 -21) 54500149

www.cn.sgs.com sgs.china@sgs.com



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1.3 Client information

1.3.1 Details of Applicant

Company Name	SAGEM COMMUNICATIONS
56 25 26	Le Ponan de Paris, 27 rue Leblanc, 75015 PARIS,
Address	France
Telephone	0755-33331230
Contact	Minghui Xiong and Tiejun Fu
Email 5	Minghui.xiong@sagem.com and Tiejun.fu@sagem.com

1.3.2 Details of Manufacture

Company Name	SAGEM COMMUNICATIONS
5 cg 5 cg	Le Ponan de Paris, 27 rue Leblanc, 75015 PARIS,
Address	France
Telephone	0755-33331230
Contact	Minghui Xiong and Tiejun Fu
Email	Minghui.xiong@sagem.com and Tiejun.fu@sagem.com

1.4 Equipment Under Test (EUT) and Accessories

Description	GSM/GPRS Module			
Brand Name	SAGEM	G5 50° 5° 65 50°		
Model Name	HILONC	5 65 56 5 56 5		
Final Hardware Version	V23 50 5 50 50 50 5 50 5 50 5 50 5 50 5 5			
Final Software Version	HIC,A	es as son son ses		
Normal Voltage	3.7V	5 65 65 56 5		
Low Voltage	3.2V	6 5 65 665 66 6		
High Voltage	4.5V	5 5 565 50 55		
Antenna Type	external Anter	external Antenna		
5 65 563 5	GSM 850	Tx: 824~849 MHz		
CCM Fraguency Bondo		Rx: 869~894 MHz		
GSM Frequency Bands	PCS 1900	Tx: 1850~1910 MHz		
205 50° 2 5 00		Rx: 1930~1990 MHz		
Modulation Mode	GMSK			
CCM Dawer Class	GSM 850	4: 33dBm(Nominal)		
GSM Power Class	PCS 1900	1: 30dBm(Nominal)		
GPRS Multislot Class	Class10	GS 505 50 CS CGS		



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1.5 Test Standards and Limits

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(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/cm²)	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/f²)*	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



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2. Measurement and Calculation

2.1 Summary of Results

Frequency Band	Limit (mW/cm²)	Result (mW/cm²)	Verdict
GSM850	0.55	0.085	Pass
PCS1900	1.0	0.027	Pass

2.2 Result of GSM850

Test Results: MPE Limit Calculation: the EUT's operating frequencies @824~849 MHz; as per the original test report the Measured maximum ERP is 33.34 dBm. Duty factor is 1/4 for GPRS operation (class 10).

 $S = EIRP^*$ Duty factor $/ 4\pi R^2$

EIRP = 33.34 + 2.14 = 35.48dBm = 3531.8mW

R = distance to the center of radiation of antenna = 20 cm

 $S = 3531.8*(1/4)/(4\pi * 20^2) = 0.085 \text{mW/cm}^2$

MPE limit = 824/1500 = 0.55mW/cm²

2.3 Result of PCS1900

Test Results: MPE Limit Calculation: the EUT's operating frequencies @ 1850~1910 MHz MHz; as per the original test report The Measured maximum EIRP is 25.25dBm.Duty factor is 1/4 for GPRS operation (class 10).

 $S = EIRP^* Duty factor / 4\pi R^2$

EIRP = 25.25 + 2.14 = 27.39dBm = 548.3mW

R = distance to the center of radiation of antenna = 20 cm

 $S = 548.3*(1/4)/(4\pi * 20^2) = 0.027 \text{mW/cm}^2$

MPE limit = 1.0mW/cm^2

Note: $\pi = 3.142$

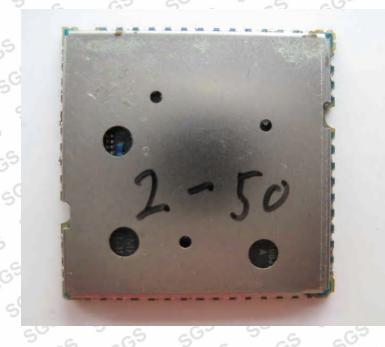
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Photographs of Antenna Annex.B



End of Report