RF Exposure Evaluation Declaration

Product Name : GSM/GPRS+GPS Module

Model No. :   SIM808

FCC ID: UDV-20160416

Applicant : Shanghai Simcom Ltd.

Address   : SIM Technology Building,No.633, Jinzhong
             Road, Changning District, Shanghai, P.R. China

Date of Receipt : 04-15-2016

Issued Date : 04-21-2016

Report No. : UL15820160415FCC002-2

Report Version : V1.0

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Report No. : UL20160415FCC002-2

Product Name :	GSM/GPRS+GPS Module
Applicant :	Shanghai Simcom Ltd.
Address :	SIM Technology Building,No.633, Jinzhong Road, Changning District, Shanghai, P.R. China.
Manufacturer :	Shanghai Simcom Ltd.
Address :	SIM Technology Building,No.633, Jinzhong Road, Changning District, Shanghai, P.R. China
Model No. :	SIM808
EUT Voltage	Extreme Low:3.4V,Nominal:3.8V,Extreme High:4.4V
Brand Name :	N/A
Applicable Standard :	FCC OET Bulletin 65 Supplement C (Edition 01-01)
Test Result :	Complied
Performed Location :	Unilab (Shanghai) Co.,Ltd.
	FCC 2.948 register number is 714465
	No.1350, Lianxi Road, Pudong New District, Shangha, China
	TEL:+86-21-5027-5125/FAX:+86-21-5027-7862

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(Supervisor: Eva Wang)

1. EUT Description

Product Name:	GSM/GPRS+GPS Module
Model Name:	SIM808
Hardware Version:	V2.01
Software Version:	SIM800R14.18
RF Exposure Environment:	Uncontrolled
GSM/ EDGE	
Support Band:	GSM850/PCS1900
GPRS Class:	12
Tx Frequency Range:	GSM 850: 824.2MHz to 848.8MHz PCS 1900: 1850.2MHz to 1909.8MHz
Rx Frequency Range:	GSM 850: 869.2MHz to 893.8MHz PCS 1900: 1930.2MHz to 1989.8MHz
Type of modulation:	GSM/GPRS for GMSK
Antenna Type:	External,separate RF-connector
Antenna Peak Gain:	GSM 850: 2.5dBi PCS 1900:2.5dBi

2. RF Exposure Evaluation

2.1 Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range(MHz)	Electric Filed Strength (V/m)	Magnetic Filed Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A)Limits for Occupation/Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B)Limits for General Occupation/UnControlled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*Pi*R2)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2.Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.
The temperature and related humidity: 21℃and 47％ RH.

2.3.Test Result of RF Exposure Evaluation

This device is evaluated by mobile device with general population/uncontrolled exposure condition
For this device, the calculation is using the most conservative values, and the results are as follows:

Test Mode	Antenna Gain (dBi)	Maximum Output Power (dBm)	Average Power (dBm)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
GSM 850	2.5	35	28.5	707.9	0.14	0.55
GPRS 850	2.5	35	28.5	707.9	0.14	0.55
PCS 1900	2.5	32	25.5	354.8	0.07	1.00
GPRS 1900	2.5	32	25.5	354.8	0.07	1.00

The averaged power calculated method are shown as below:
Averaged power=Maximum burst averaged power(1 Tx Slot)-9dB
Duty cycle =12.5%
AverageEIRP Power=Average Power+Antenna Gain

Test Mode	ERP (dBm)	EIRP (dBm)	Peak EIRP (mW)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
GSM 850	32.46	34.61	2890.7	363.9	0.07	0.55
GPRS 850	32.46	34.61	2890.7	363.9	0.07	0.55
PCS 1900	---------	29.16	824.1	103.8	0.02	1.00
GPRS 1900	---------	29.16	824.1	103.8	0.02	1.00

The frame-averaged power calculated method are shown as below:
AverageEIRP=Peak EIRP-9dB
Duty cycle =12.5%

This device can pass RF exposure limit.