

# RF Exposure Evaluation Declaration

Product Name : GSM/WCDMA Module

Model No. : SIM5360A

FCC ID: UDV-SIM5360A

FCC ID: 8460A-SIM5360A

Applicant : Shanghai Simcom Ltd.

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

Date of Receipt : 02/07/2014

Issued Date : 10/07/2014

Report No. : UL15820140702FCC/IC30-6

Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# RF Exposure Evaluation Declaration

Issued Date : 10/07/2014  
Report No. : UL15820140702FCC/IC30

Product Name : GSM/WCDMA Module  
Applicant : Shanghai Simcom Ltd.  
Address : Building A, SIM Technology Building No.633, Jinzhong Road, Changning District, Shanghai P.R. China  
Manufacturer : Shanghai Simcom Ltd.  
Address : Building A, SIM Technology Building No.633, Jinzhong Road, Changning District, Shanghai P.R. China  
Model No. : SIM5360A  
EUT Voltage : Extreme Low:3.4V, Nominal:3.8V, Extreme High:4.2V  
Brand Name : SIMCom  
Applicable Standard : FCC OET Bulletin 65 Supplement C (Edition 01-01)  
Industry Canada RSS-102 ,Issue 4  
Test Result : Complied  
Performed Location : Unilab (Shanghai) Co.,Ltd.  
FCC 2.948 register number is 714465  
IC register number is 11025A-1  
No.1350, Lianxi Road, Pudong New District, Shanghai, China  
TEL:+86-21-5027-5125/FAX:+86-21-5027-5126-876

Documented By :



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Reviewed By :



(Senior Engineer: Forest Cao)

Approved By :



(Supervisor: Eva Wang)

## 1. EUT Description

Product Name:	GSM/WCDMA Module
Model Name:	SIM5360A
Hardware Version:	V1.03
Software Version:	SIM5360A_V3.5
RF Exposure Environment:	Uncontrolled
<b>GSM/ EDGE</b>	
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 EDGE for 8PSK
Antenna Type:	Connector
Antenna Peak Gain:	GSM 850/PCS 1900: 1dBi
<b>WCDMA</b>	
Support Band:	WCDMA Band II
Tx Frequency Range:	WCDMA Band II : 1850MHz ~1910MHz
Rx Frequency Range:	WCDMA Band II : 1930MHz ~1990MHz
Type of modulation:	WCDMA(UMTS): QPSK
Antenna Type:	Connector
Antenna Peak Gain:	WCDMA Band II : 1dBi
Support Band:	WCDMA Band V
Tx Frequency Range:	WCDMA Band V: 824MHz ~849MHz
Rx Frequency Range:	WCDMA Band V: 869MHz ~894MHz
Type of modulation:	WCDMA(UMTS): QPSK
Antenna Type:	Connector
Antenna Peak Gain:	WCDMA Band V: 1dBi

## 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 Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. 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: 22°C and 45% 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	1	35	26	501.2	0.10	0.55
PCS 1900	1	31	22	158.5	0.03	1.00
The averaged power calculated method are shown as below: Averaged power=Maximum burst averaged power(1 Tx Slot)-9dB Average EIRP Power=Average Power+Antenna Gain						

Test Mode	Antenna Gain (dBi)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
WCDMA 850	1	25	316.2	0.08	0.55
WCDMA 1900	1	25	316.2	0.08	1.00

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	32.61	34.76	2992.3	376.7	0.07	0.55
PCS 1900	-----	29.87	970.5	122.2	0.02	1.00
The frame-averaged power calculated method are shown as below: Average EIRP=Peak EIRP-9dB						

Test Mode	ERP (dBm)	EIRP (dBm)	Peak EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
WCDMA 850	23.16	25.31	339.6	0.07	0.55
WCDMA 1900	-----	22.60	182.0	0.04	1.00

This device can pass RF exposure limit.