

# RF Exposure Evaluation Declaration

Product Name : WCDMA/HSDPA Module

Model No. : SIM5320AL

FCC ID: UDV-1403022014008

Applicant : Shanghai Simcom Ltd.

Address : Building A, SIM Technology Building No.633,  
Jinzhong Road, Changning Disdriect,  
Shanghai P.R. China 200335

Date of Receipt : 08/14/2014

Issued Date : 09/02/2014

Report No. : UL15820140814FCC031- 3

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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Issued Date : 09/02/2014

Report No. : UL15820140814FCC031-3



Product Name : WCDMA/HSDPA Module  
Applicant : Shanghai Simcom Ltd  
Address : Building A, SIM Technology Building No.633, Jinzhong Road  
Changning Disdriect, Shanghai P.R. China 200335  
Manufacturer : Shanghai Simcom Ltd.  
Address : Building A, SIM Technology Building No.633, Jinzhong Road  
Changning Disdriect, Shanghai P.R. China 200335  
Model No. : SIM5320AL  
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)  
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  
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Documented By :

A handwritten signature in cursive script, appearing to read "Andy Wei".

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(Technical Engineer: Andy Wei)

Reviewed By :

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(Senior Engineer: Forest Cao)

Approved By :

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(Supervisor: Eva Wang)

## 1. EUT Description

Product Name:	WCDMA/HSDPA Module
Model Name:	SIM5320AL
Hardware Version:	V1.03
Software Version:	SIM5320AL_V1.5
RF Exposure Environment:	Uncontrolled
<b>UMTS/HSDPA</b>	
Support Band:	WCDMA Band II / V
Tx Frequency Range:	WCDMA Band II : 1850MHz ~1910MHz WCDMA Band V: 824MHz ~849MHz
Rx Frequency Range:	WCDMA Band II : 1930MHz ~1990MHz WCDMA Band V: 869MHz ~894MHz
Type of modulation:	WCDMA(UMTS/HSDPA): QPSK
Antenna Type:	Connector
Antenna Peak Gain:	WCDMA Band II / V: 1.0dBi

## 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	ERP (dBm)	EIRP (dBm)	Peak EIRP (mW)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
UMTS850	22.38	23.53	225.42	35.73	0.09	0.55
UMTS1900	/	21.87	153.82	24.38	0.07	1.00

Test Mode	Antenna Gain (dBi)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Average EIRP (mW)	Calculated RF Exposure at d = 20cm (mW/cm2)	MPE Limit (mW/cm2)
UMTS850	1.0	25	316.23	50.12	0.10	0.55
UMTS1900	1.0	25	316.23	50.12	0.10	1.00

This device can pass RF exposure limit.