

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 Disdrict,
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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Changning Disrict, Shanghai P.R. China 200335

Manufacturer : Shanghai Simcom Ltd.

Address : Building A, SIM Technology Building No.633, Jinzhong Road
Changning Disrict, 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
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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
UMTS/HSDPA	
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 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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = power density in mW/cm^2

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^2 . 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/cm ²)	MPE Limit (mW/cm ²)
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/cm ²)	MPE Limit (mW/cm ²)
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.