RF Exposure Evaluation Declaration

Product Name: LTE-FDD MODULE

Model No. : SIM7500V

FCC ID: UDV-201706

Applicant : Shanghai Simcom Ltd.
Address : SIM Technology Building.,No.633, Jinzhong Rd,
Changning District, Shanghai, P.R.China

Date of Receipt : 06-30-2017

Test Date : 07-01-2017~07-02-2017

Issued Date : 07-03-2017

Report No. : UL15820170630FCC026-2

Report Version : V1.0

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Product Name :	LTE-FDD MODULE
Applicant :	Shanghai Simcom Ltd.
Address :	SIM Technology Building.,No.633, Jinzhong Rd, Changning District, Shanghai, P.R.China
Manufacturer :	Shanghai Simcom Ltd.
Address :	SIM Technology Building.,No.633, Jinzhong Rd, Changning District, Shanghai, P.R.China
Model No. :	SIM7500V
EUT Voltage :	MIN: 3.4V, NOR:3.8V, MAX:4.2V (DC)
Brand Name :	SIMCom
FCC ID:	UDV-201706
Applicable Standard :	FCC's Rules (47 C.F.R. §1.1310 and 2.1091) Industry Canada RSS-102,Issue 5
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, Shangha, China TEL:+86-21-5027-5125 FAX:+86-21-5027-7862

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1. EUT Description

Product Name:	LTE-FDD MODULE
Model Name:	SIM7500V
Hardware Version:	V1.02
Software Version:	SIM7500V_V1.1
RF Exposure Environment:	Uncontrolled
LTE	
Support Band:	LTE Band 4& LTE Band 13
Tx Frequency Range:	LTE Band 4: 1710 MHz -1755 MHz LTE Band 13: 777 MHz -787 MHz
Rx Frequency Range:	LTE Band 4: 2110 MHz -2155 MHz LTE Band 13: 746 MHz -756 MHz
Type of modulation:	LTE: QPSK,16-QAM,64QAM
Antenna Type:	External Antenna(SMA connector)
Antenna Peak Gain:	Band4: 3.49dBi Band13: 2.2dBi

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/cm^2)	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: $Pd = (Pout*G)/(4*Pi*R^2)$

Where

Pd = power density in mW/cm^2

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/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: 20℃and 56%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	Band Width（MHz）	Antenna Gain (dBi)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Calculated RF Exposure at d = 20cm (mW/cm^2)	MPE Limit (mW/cm^2)
LTE Band13	5	2.2	25.7	620.9	0.12	0.52
	10	2.2	25.7	620.9	0.12	
LTE Band4	1.4	3.49	25.7	620.9	0.12	1
	3	3.49	25.7	620.9	0.12	
	5	3.49	25.7	620.9	0.12	
	10	3.49	25.7	620.9	0.12	
	15	3.49	25.7	620.9	0.12	
	20	3.49	25.7	620.9	0.12	
Duty cycle =100%						

Test Mode	Band Width（MHz）	ERP (dBm)	EIRP (dBm)	Maximum Output Power (mW)	Calculated RF Exposure at d = 20cm (mW/cm^2)	MPE Limit (mW/cm^2)
LTE Band13	5	23.87	26.02	399.9	0.08	0.52
	10	23.93	26.08	405.5	0.08	
LTE Band4	1.4	--	23.59	228.6	0.05	1
	3	--	23.62	230.1	0.05	
	5	--	23.49	223.3	0.04	
	10	--	23.54	225.9	0.04	
	15	--	23.52	224.9	0.04	
	20	--	23.36	216.8	0.04	
Duty cycle =100%						

This device can pass RF exposure limit.