KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

LTE-FDD/HSPA MODULE

Model: SIM7600AH

Trade Name: SIMCOM

Issued to

Shanghai Simcom Ltd.
SIM Technology Building,No.633, Jinzhong Road, Changning District, Shanghai, P.R. China 200233

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)
Issue Date: July 5, 2021

Note: This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document. The client should not use it to claim product endorsement by TAF, NIST or any government agencies. The test results in the report only apply to the tested sample.

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	July 5, 2021	Initial Issue	ALL	Allison Chen

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1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.

2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

§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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of the chapter.

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	* 100	6
3.0-30	1842/f	4.89/f	* $900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	* 100	30
1.34-30	824/f	2.19/f	* $180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Note 1 to Table 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

3. EUT SPECIFICATION

EUT	LTE-FDD/HSPA MODULE
Model	SIM7600AH
Model Discrepancy	N/A
Frequency band (Operating)	☒ LTE Band 2: 1850MHz ~ 1910MHz ☒ LTE Band 4: 1710MHz ~ 1755MHz ☒ LTE Band 12: 699 MHz ~ 716 MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2) Frequency Range 300MHz~1500MHz = f/1500 (mW/cm2) Frequency Range1500MHz~100000MHz = 1 (mW/cm2)
Antenna Specification	**WWAN** FPC Antenna LTE Band 2: Gain : 1.84 dBi (Numeric gain: 1.53) Worst LTE Band 4: Gain : -0.10 dBi (Numeric gain: 0.98) Worst LTE Band 12: Gain : -3.42 dBi (Numeric gain: 0.45) Worst
Maximum Measurement Average Power	**WWAN** LTE Band 2: 23.17 dBm (207.491 mW) LTE Band 4: 21.69 dBm (147.571 mW) LTE Band 12: 16.81 dBm (47.973 mW)
Maximum tune up power	**WWAN** LTE Band 2: 25.70 dBm (371.535 mW) LTE Band 4: 25.70 dBm (371.535 mW) LTE Band 12: 25.70 dBm (371.535 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

Remark:

1. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
2. The tune up power referred the AVG power of the test report T210324W02-RP2, T210324W02-RP3, T210324W02-RP4 for RF Exposure assessment purpose.

4. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ **Equation 1**

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

LTE Band 2 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
18900	1880	371.535	1.53	20	0.1131	1

LTE Band 4 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
20300	1745	371.535	0.98	20	0.0725	1

LTE Band 12 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
23130	711	371.535	0.45	20	0.0333	0.474

Remark:
The WiFi function could not be transmitted with WWAN simultaneously. And allow in the specific host of Connectpoint Inc., FCC ID: 2AVTJ-CP42.

--End of Report--