

RF EXPOSURE REPORT



Report No.: 16070174-FCC-H2

Supersede Report No.: N/A

Applicant	SWAGTEK	
Product Name	4.5 inch Smart Phone	
Model No.	X4.5 LITE	
Serial No.	SPARK , UM450	
Test Standard	FCC 2.1093:2015	
Test Date	Feb 25 to March 27 , 2016	
Issue Date	April 08, 2016	
Test Result	☒ Pass ☐ Fail	
Equipment complied with the specification ☒		
Equipment did not comply with the specification ☐		
<i>Winnie Zhang</i>	<i>David Huang</i>	
Winnie Zhang Test Engineer	David Huang Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070174-FCC-H2	NONE	Original	March 28, 2016
16070174-FCC-H2	V1	Change product name	April 08, 2016

2. Customer information

Applicant Name	SWAGTEK
Applicant Add	10205 NW19th Street,STE101,Miami, Florida, 33172, United States
Manufacturer	SWAGTEK
Manufacturer Add	10205 NW19th Street,STE101,Miami, Florida, 33172, United States

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT: 4.5 inch Smart Phone

Main Model: X4.5 LITE

Serial Model: SPARK , UM450

Date EUT received: Feb 24 , 2016

Test Date(s): Feb 25 to March 27 , 2016

Antenna Gain:

GSM850: -1.5 dBi
 PCS1900: 1.2dBi
 UMTS-FDD Band V:-1.2dBi
 UMTS-FDD Band IV:1.8 dBi
 UMTS-FDD Band II: 1.9dBi
 Bluetooth/BLE: 2.1dBi
 WIFI:2.5dBi
 GPS:1.5dBi

Type of Modulation:

GSM / GPRS: GMSK
 UMTS-FDD: QPSK, 16QAM
 802.11b/g/n: DSSS, OFDM
 Bluetooth: GFSK, π /4DQPSK, 8DPSK
 BLE: GFSK
 GPS:BPSK

RF Operating Frequency (ies):

GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz
 PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz
 UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz
 UMTS-FDD Band IV TX:1712.4 ~ 1752.6 MHz;
 RX : 2112.4 ~ 2152.6 MHz
 UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz;
 RX: 1932.4 ~ 1987.6 MHz
 WIFI:802.11b/g/n(20M): 2412-2462 MHz
 WIFI:802.11n(40M): 2422-2452 MHz
 Bluetooth& BLE: 2402-2480 MHz
 GPS RX:1575.42 MHz

Number of Channels:	GSM 850: 124CH
	PCS1900: 299CH
	UMTS-FDD Band V : 102CH
	UMTS-FDD Band IV: 202CH
	UMTS-FDD Band II : 277CH
	WIFI :802.11b/g/n(20M): 11CH
	WIFI :802.11n(40M): 7CH
	Bluetooth: 79CH
	BLE: 40CH
Port:	GPS:1CH
	Power Port, Earphone Port, USB Port
	Adapter:
	Model: N/A
	Input: AC 100-240V; 50/60Hz;0.2A
	Output: DC 5.0V,700mA
	Battery:
Input Power:	Model: N/A
	Capacity: 1700mAh
	Related Voltage:3.7V
Trade Name :	LOGIC , ISWAG , UNONU
GPRS Multi-slot class	8/10/12
FCC ID:	O55-45012

5. FCC §2.1093 - Radiofrequency radiation exposure evaluation: portable devices.

5.1 RF Exposure

Standard Requirement:

According to §15.247 (i) and §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,¹⁶ where

- $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

$$\text{result} = P\sqrt{F} / D$$

P= Maximum turn-up power in mW

F= Channel frequency in GHz

D= Minimum test separation distance in mm

5.2 Test Result

Bluetooth Mode:

Modulation	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)	Max Tune Up Power (dBm)	Max Tune Up Power (mW)	Result	Limit
GFSK	Low	2402	2.267	2±1	3	1.995	0.62	3
	Mid	2441	2.550	2±1	3	1.995	0.62	3
	High	2480	1.455	2±1	3	1.995	0.63	3
$\pi/4$ DQPSK	Low	2402	2.230	2±1	3	1.995	0.62	3
	Mid	2441	2.429	2±1	3	1.995	0.62	3
	High	2480	1.423	2±1	3	1.995	0.63	3
8-DPSK	Low	2402	2.356	2±1	3	1.995	0.62	3
	Mid	2441	2.547	2±1	3	1.995	0.62	3
	High	2480	1.525	2±1	3	1.995	0.63	3

WIFI Mode:

Modulation	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)	Max Tune Up Power (dBm)	Max Tune Up Power (mW)	Result	Limit
802.11b	Low	2412	9.55	8.6±1	9.5	8.913	2.77	3
	Mid	2437	8.79	8.5±1	9.5	8.913	2.79	3
	High	2462	9.39	8.5±1	9.5	8.913	2.80	3
802.11g	Low	2412	8.47	8.5±1	9.5	8.913	2.77	3
	Mid	2437	9.25	8.5±1	9.5	8.913	2.79	3
	High	2462	9.40	8.5±1	9.5	8.913	2.80	3
802.11n (20M)	Low	2412	8.48	8.5±1	9.5	8.913	2.77	3
	Mid	2437	8.40	8.5±1	9.5	8.913	2.79	3
	High	2462	9.26	8.5±1	9.5	8.913	2.80	3
802.11n (40M)	Low	2422	9.35	8.5±1	9.5	8.913	2.77	3
	Mid	2437	9.32	8.5±1	9.5	8.913	2.79	3
	High	2452	9.23	8.5±1	9.5	8.913	2.80	3

BLE Mode:

Modulation	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)	Max Tune Up Power (dBm)	Max Tune Up Power (mW)	Result	Limit
GFSK	Low	2402	-5.082	-6±1	-5	0.316	0.10	3
	Mid	2440	-5.692	-6±1	-5	0.316	0.10	3
	High	2480	-6.635	-6±1	-5	0.316	0.10	3

Result: Compliance

No SAR measurement is required.