

JianYan Testing Group Shenzhen Co., Ltd.

Report No: JYTSZB-R12-2101881

FCC REPORT (WIFI)

Applicant: SWAGTEK

Address of Applicant: 10205 NW 19th St. Suite 101, Miami, FL, 33172

Equipment Under Test (EUT)

Product Name: 4.0 inch 4G Smart Phone

Model No.: L4T, UN40, RUSH

Trade mark: LOGIC, iSWAG, UNONU

FCC ID: 055402220

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 01 Jun., 2020

Date of Test: 01 Jun., to 08 Jul., 2020

Date of report issued: 26 Sep., 2021

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Project No.: JYTSZE2109060



2 Version

Version No.	Date	Description
00	26 Sep., 2021	Original

Remark:

This report was amended on FCC ID: O55402220 follow FCC Class II Permissive Change. The differences between them as below: The screen was replaced. The frequency LTE Band2 are added, and EMC and frequency band tests need to be supplemented.

Tested by:	Test Engineer	Date: _	26 Sep., 2021	
Reviewed by:	Winner thang	Date:	26 Sep., 2021	

Project Engineer

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4 Test Summary

Test Items	Section in CFR 47	Result
Antenna requirement	15.203 & 15.247 (b)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247 (d)	Pass
Spurious Emission	15.205 & 15.209	Pass

Remark:

- 1. Pass: The EUT complies with the essential requirements in the standard.
- 2. N/A: Not Applicable.
- 3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).
- 4. Pass*: refer to the FCC ID: 055402220, Report No.: CCISE200600503.

ANSI C63.4-2014 **Test Method:** ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02

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5 General Information

5.1 Client Information

Applicant:	SWAGTEK
Address:	10205 NW 19th St. Suite 101, Miami, FL, 33172
Manufacturer/ Factory:	SWAGTEK
Address:	10205 NW 19th St. Suite 101, Miami, FL, 33172

5.2 General Description of E.U.T.

Product Name:	4.0 inch 4G Smart Phone
Model No.:	L4T, UN40, RUSH
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20))
Channel numbers:	11 for 802.11b/802.11g/802.11(HT20)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 72.20Mbps
Antenna Type:	Internal Antenna
Antenna gain:	0.71dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-1400mAh
AC adapter:	Model: LM-FU050070USBO1
	Input: AC100-240V, 50/60Hz, 0.15A
	Output: DC 5.0V, 700mA
Remark:	Model No.: L4T, UN40, RUSH, were identical inside, the electrical circuit design, layout, components used and internal wiring.
	L4T model corresponds to the trademark LOGIC.
	UN40 model correspond to the trademark iSWAG.
	RUSH model corresponds to the trademark UNONU.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

Operation Frequency each of channel for 802.11b/g/n(HT20) Channel Frequency Channel Frequency Channel Frequency								
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz	
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz	
3 2422MHz 6 2437MHz 9 2452MHz								

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5.3 Test environment and test mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the FLIT in continuous transmitting with modulation

Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate, the follow list were the worst case.				
Mode Data rate				
802.11b 1Mbps				
802.11g 6Mbps				
802.11n(HT20)	6.5Mbps			

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC - Designation No.: CN1211

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

ISED – CAB identifier.: CN0021

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.

Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xingiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.

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Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.





5.9 Test Instruments list

Radiated Emission:							
Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
3m SAC	ETS	RFD-100	Q1984	04-14-2021	04-13-2024		
BiConiLog Antenna	SCHWARZBECK	VULB9163	9163-1246	03-07-2021	03-06-2022		
Biconical Antenna	SCHWARZBECK	VUBA 9117	9117#359	06-17-2021	06-17-2022		
Horn Antenna	SCHWARZBECK	BBHA9120D	912D-916	03-07-2021	03-06-2022		
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1067	04-02-2021	04-01-2022		
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1068	04-02-2021	04-01-2022		
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022		
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022		
Spectrum analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021		
Low Pre-amplifier	SCHWARZBECK	BBV9743B	00305	03-07-2021	03-06-2022		
High Pre-amplifier	SKET	LNPA_0118G-50	MF280208233	03-07-2021	03-06-2022		
Cable	Qualwave	JYT3M-1G-NN-8M	JYT3M-1	03-07-2021	03-06-2022		
Cable	Qualwave	JYT3M-18G-NN-8M	JYT3M-2	03-07-2021	03-06-2022		
Cable	Qualwave	JYT3M-1G-BB-5M	JYT3M-3	03-07-2021	03-06-2022		
Cable	Bost	JYT3M-40G-SS-8M	JYT3M-4	04-02-2021	04-01-2022		
EMI Test Software	Tonscend	TS+		Version:3.0.0.1	·		

Conducted Emission:						
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date	
				(mm-dd-yy)	(mm-dd-yy)	
EMI Test Receiver	Rohde & Schwarz	ESCI 3	101189	03-03-2021	03-02-2022	
LISN	Rohde & Schwarz	ENV432	101602	04-06-2021	04-05-2022	
LISN	Rohde & Schwarz	ESH3-Z5	843862/010	06-18-2020	06-17-2022	
ISN	Schwarzbeck	CAT3 8158	#96	03-03-2021	03-02-2022	
ISN	Schwarzbeck	CAT5 8158	#166	03-03-2021	03-02-2022	
ISN	Schwarzbeck	NTFM 8158	#126	03-03-2021	03-02-2022	
RF Switch	TOP PRECISION	RSU0301	N/A	03-03-2021	03-02-2022	
Cable	Bost	JYTCE-1G-NN-2M	JYTCE-1	03-03-2021	03-02-2022	
Cable	Bost	JYTCE-1G-BN-3M	JYTCE-2	03-03-2021	03-02-2022	
EMI Test Software	AUDIX	E3	V	ersion: 6.110919	b	

Conducted method:						
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
Spectrum Analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021	
Vector Signal Generator	Keysight	N5182B	MY59101009	11-27-2020	11-26-2021	
Analog Signal Generator	Keysight	N5173B	MY59100765	11-27-2020	11-26-2021	
Power Detector Box	MWRF-test	MW100-PSB	MW201020JYT	11-27-2020	11-26-2021	
Simulated Station	Rohde & Schwarz	CMW270	102335	11-27-2020	11-26-2021	
RF Control Box	MWRF-test	MW100-RFCB	MW200927JYT	N/A	N/A	
PDU	MWRF-test	XY-G10	N/A	N/A	N/A	
DC Power Supply	Keysight	E3642A	MY60296194	11-27-2020	11-26-2021	
Temperature Humidity Chamber	ZhongZhi	CZ-C-150D	ZH16491	11-01-2020	10-31-2021	
Test Software	MWRF-tes	MTS 8310	Version: 2.0.0.0			





6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement: FCC Part 15 C Section 15.203 /247(b)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

E.U.T Antenna:

The Wi-Fi antenna is an Internal antenna which cannot replace by end-user, the best case gain of the antenna is 0.71 dBi.







6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207				
Test Frequency Range:	150 kHz to 30 MHz				
Class / Severity:	Class B				
Receiver setup:	RBW=9 kHz, VBW=30 kHz				
Limit:	Frequency range (MHz) Limit (dBuV)				
	, , , ,	Quasi-peak	Average		
	0.15-0.5	66 to 56*	56 to 46*		
	0.5-5	56	46		
	5-30	60	50		
	* Decreases with the logarit	hm of the frequency.			
Test procedure	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement. 				
Test setup:	LISN	<u>·</u> st	er — AC power		
Test Instruments:	Refer to section 5.9 for deta	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details				
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.				

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6.3 Conducted Output Power

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)			
Limit:	30dBm			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.			





6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)			
Limit:	>500kHz			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.			

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6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)			
Limit:	8dBm/3kHz			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.			





6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.			

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6.6.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205						
Test Frequency Range:	2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz						
Test Distance:	3m						
Receiver setup:	Frequency	Detector	RBW	VBW	Remark		
·	Above 1GHz	Peak	1MHz	3MHz	Peak Value		
		RMS	1MHz mit (dBuV/m @	3MHz	Average Value Remark		
Limit:	Frequency		54.00		Average Value		
	Above 1GH	z <u> </u>	74.00		Peak Value		
Test Procedure:	 The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 						
Test setup:	150km	(Turntable)	Ground Reference Plane	Antenna T	Tower W		
Test Instruments:	Refer to section 5.9 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.						





6.7 Spurious Emission

6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.			
Test setup:				
	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.9 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Refer to the FCC ID: O55402220, Report No.: CCISE200600503.			

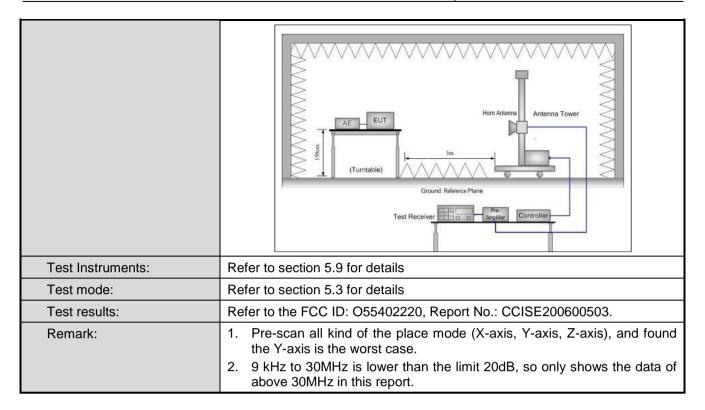


6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205						
Test Frequency Range:	9kHz to 25GHz						
Test Distance:	3m						
Receiver setup:	Frequency	Detecto		r RBW V		VBW Remark	
	30MHz-1GHz	Quasi-p	oeak	120KHz		KHz	Quasi-peak Value
	Above 1GHz	Pea		1MHz	3MHz		Peak Value
		RMS		1MHz			Average Value
Limit:	Frequency	I	Limit	(dBuV/m @3	m)	0	Remark
	30MHz-88MH 88MHz-216MH			40.0 43.5			uasi-peak Value uasi-peak Value
	216MHz-960M		45.5		Quasi-peak Value		
	960MHz-1GH		54.0		Quasi-peak Value		
			54.0		Average Value		
	Above 1GHz	_	74.0			Peak Value	
	 The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 						
Test setup:	Below 1GHz EUT Turn Table Ground I	0.8m	4m				

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