FCC Maximum Permissible Exposure(MPE) Test Report

Product Name: Smart Phone

Model: VOG-L04m

Report No.: SYBH(Z-SAR) 20190401030001

FCC ID: QISVOG-L04M

	APPROVED (Lab Manager)	PREPARED (Test Engineer)
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DATE	2019-04-22	2019-04-22

Reliability Laboratory of Huawei Technologies Co., Ltd.

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※ ※ Notice ※ ※

1. The laboratory has passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
2. The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01 & 2174.02 & 2174.03
3. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named as “Global Compliance and Testing Center of Huawei Technologies Co., Ltd”, the both names have coexisted since 2009.
4. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
5. The test report is invalid if there is any evidence of erasure and/or falsification.
6. The test report is only valid for the test samples.
7. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
8. If any question about this report, please contact the laboratory (PublicGCTC@huawei.com).

※ ※ **Modified History** ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	2019-04-22	Sun Shaobin

Table of Contents

1 EUT Description

Device Information：			
Product Name :	Smart Phone		
Model :	VOG-L04m		
FCC ID:	QISVOG-L04M		
Device Type :	Portable Device		
Device Phase:	Identical Prototype		
Exposure Category:	Uncontrolled environment/general population		
Hardware Version :	HL5VOGUEM		
Software Version :	9.1.0.130(SP3C792E1R1P5)		
Max Output power:	5W		
Device Operating Configurations:			
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	Wireless charging	110-148kHz	110-148kHz

1.1 General Description

VOG-L04m is a subscriber equipment in the GSM/WCDMA/LTE system. The GSM frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900.The UMTS frequency band is B1 and B2 and B4 and B5 and B6 and B8 and B19. The LTE frequency band is B1 and B2 and B3 and B4 and B5 and B6 and B7 and B8 and B9 and B12 and B17and B18 and B19 and B20 and B26 and B28 and B34 and B38 and B39 and B40 and B41 and B66. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, Bluetooth, NFC, Wi-Fi and Wirelessly Charging etc. VOG-L04m provides one USIM card interface and one HUAWEI Nano memory card interface. Externally it provides type C USB charging port, and the port could be used as the earphone port or data-transfer port.

Note: Only Wireless charging test data is included in this test report.

2 Test specification(s)

ANSI Std C95.1-1992	Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.(IEEE Std C95.1-1991)
KDB 447498 D01	General RF Exposure Guidance v06
KDB 680106 D01	RF Exposure Wireless Charging Apps v03

3 Testing laboratory

Test Site	Reliability Laboratory of Huawei Technologies Co., Ltd.
Test Location	NO.2 New City Avenue Songshan Lake Sci. & Tech. Industry Park, Dongguan, Guangdong, P.R.C
Telephone	+86 769 23830808
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State of accreditation	The Test laboratory (area of testing) is accredited according to ISO/IEC 17025. CNAS Registration number: L0310 A2LA TESTING CERT #2174.01 & 2174.02 & 2174.03

4 Applicant and Manufacturer

Company Name	HUAWEI TECHNOLOGIES CO., LTD
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

5 Application details

Start Date of test	2019-04-18
End Date of test	2019-04-19

6 Ambient Condition

Ambient temperature	18°C – 25°C
Relative Humidity	30% – 70%

7 Test Equipment

	Manufacturer	Device	Type	Serial number	Date of last calibration	Valid period
☒	NARDA	Electric and Magnetic field Probe-Analyzer	EHP-200A	170WX81023	2019-03-04	One year

Support Client Device

	Manufacturer	Device	Model Name
☒	HUAWEI	Smart Phone	VOG-L04m

8 RF Exposure Requirements

Per KDB 680106 D01:

1) The RF exposure requirements must be determined in conjunction with the device operating characteristics, according to the mobile and portable exposure requirements in Sections 2.1091 and 2.1093 of the rules. SAR and MPE limits do not cover the frequency range for wireless power transfer applications which operate below 100 kHz and 300 kHz respectively; therefore, RF exposure compliance needs to be determined with respect to Sections 1.1307 (c) and (d) of the FCC rules.

2) Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. The limit for Maximum Permissible Exposure (MPE), specified in 47CFR 1.1310, is listed below table:

Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/controlled Exposure				
Frequency Range(MHz)	Electric Field Strength(E)(V/m)	Magnetic Field Strength(H)(A/m)	Power Density (S)(mW/cm^2)	Averaging Time (minute)|E|^2,|H|^2 or S
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
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/uncontrolled Exposure				
Frequency Range(MHz)	Electric Field Strength(E)(V/m)	Magnetic Field Strength(H)(A/m)	Power Density (S)(mW/cm^2)	Averaging Time (minute)|E|^2,|H|^2 or S
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30
f=frequency in MHz				*Plane-wave equivalent power density

9 Measurement procedure

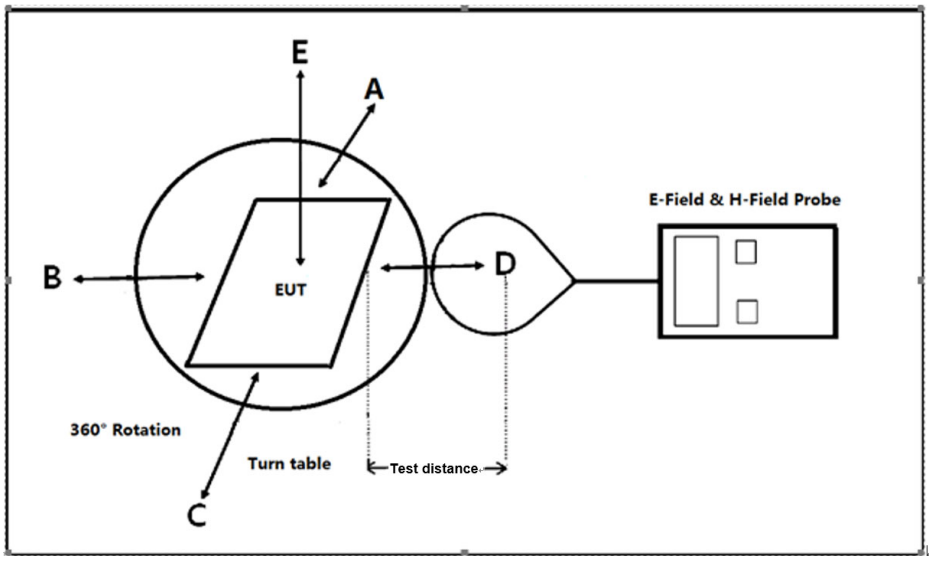

Figure: Test set-up

The EUT were measured according to the requirement of KDB 680106 D01v03, 201810 FCC TCB workshop RF Exposure Procedures and FCC KDB Inquiry Guidance:

Client device is placed directly in contact with the transmitter. The measurement probe was placed at test distance (10 cm) which is between the edge of the charger and the geometric center of probe. The turn table was rotated 360 degree to search of the highest strength.

The electric field strength and H-field strength measurement results at 10 cm from all applicable edges surrounding the DUT while it is actively charging the client device are performed. The highest emission level was recorded and compared with limit.

DUT configuration:

1) The wireless charging operating frequency: 110 kHz-148 kHz

2) The wireless charging maximum output power: 5W

3) The transfer system includes only single primary coil. The device only support one-to-one pairing with the client device.

4) The client device should be placed directly in contact with the transmitter

5) The test results at three different charging conditions at 10%, 50% and 90% are included.

10 H-field strength test results

DUT Charge amount	Frequency Range (kHz)	Test Distance (cm)	Test Position	Test Results(A/m)	Limit (A/m)	Conclusion
10%	110~148	10cm	Front	0.135	1.63	**pass**
10%	110~148	10cm	Back	0.138	1.63	**pass**
10%	110~148	10cm	Left	0.129	1.63	**pass**
10%	110~148	10cm	Right	0.131	1.63	**pass**
10%	110~148	10cm	Top	0.133	1.63	**pass**
10%	110~148	10cm	Bottom	0.135	1.63	**pass**
50%	110~148	10cm	Front	0.137	1.63	**pass**
50%	110~148	10cm	Back	0.139	1.63	**pass**
50%	110~148	10cm	Left	0.131	1.63	**pass**
50%	110~148	10cm	Right	0.133	1.63	**pass**
50%	110~148	10cm	Top	0.133	1.63	**pass**
50%	110~148	10cm	Bottom	0.135	1.63	**pass**
90%	110~148	10cm	Front	0.132	1.63	**pass**
90%	110~148	10cm	Back	**0.140**	1.63	**pass**
90%	110~148	10cm	Left	0.127	1.63	**pass**
90%	110~148	10cm	Right	0.132	1.63	**pass**
90%	110~148	10cm	Top	0.135	1.63	**pass**
90%	110~148	10cm	Bottom	0.133	1.63	**pass**

According to the Table above, the maximum H-field strength of the device with 10 cm test distance is 0.140A/m, which is below the reference level, so it is into compliance.
Note: According to Wireless Power Transfer guidance from 201810 FCC TCB workshop RF Exposure Procedures, no need to report E-field measurements. Only H-field required.

Appendix A. Calibration Certificate

(Please See Appendix No.: SYBH(Z-SAR)20190401030001-A, total: 5pages)

Appendix B. Photo documentation

(Please See Appendix No.: SYBH(Z-SAR) 20190401030001-B, total: 4pages)

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