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CNAS L0310



FCC Maximum Permissible Exposure(MPE) Test Report

Product Name: Smart Phone

Model: VOG-L29m VOG-L09m

Report No.: SYBH(Z-SAR)20190408014001

FCC ID: QISVOG-LX9M

	APPROVED (Lab Manager)	PREPARED (Test Engineer)
BY	<i>Wei Manbin</i>	<i>Sun Shaobin</i>
DATE	2019-04-22	2019-04-22

Reliability Laboratory of Huawei Technologies Co., Ltd.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd)

No.2, New City Avenue, Songshan Lake Sci. & Tech. Industry Park,
Dongguan, Guangdong, 523808, P.R.C
Tel: +86 769 23830808 Fax: +86 769 23837628

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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.
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※ ※ Modified History ※ ※

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

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1 EUT Description

Device Information:			
Product Name :	Smart Phone		
Model :	VOG-L29m VOG-L09m		
FCC ID:	QISVOG-LX9M		
Device Type :	Portable Device		
Device Phase:	Identical Prototype		
Exposure Category:	Uncontrolled environment/general population		
Hardware Version :	HL5VOGUEM		
Software Version :	9.1.0.130(SP2C432E131R1P5)		
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-L29m/VOG-L09m 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 B17 and B18 and B19 and B20 and B26 and B28 and B34 and B38 and B39 and B40 and B41. 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-L29m is a dual SIM smart phone, and one of the SIM card interfaces could be used as HUAWEI Nano memory card interface. VOG-L09m provides one SIM 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.

Difference Description:

1) The difference between VOG-L29m and VOG-L09m:

The only difference between VOG-L29m and VOG-L09m is that VOG-L09m deletes into single SIM card by software. Other parts of the two models are the same.

2) The difference between model VOG-L04m and model VOG-L29m is show in the below table:

	Model	VOG-L04m	VOG-L29m
Licensed Frequency	LTE BAND	FCC Band: B2/B4/ B5/B7/B12/B17/B26/B38/ B41 (2535~2655MHz) /B66	FCC Band: B2/B4/ B5/B7/B12/B17/B26/B38/ B41 (2535~2655MHz)
	UMTS BAND	the same	the same
	GSM	the same	the same
	IC	the same	the same
	Antenna	the same	the same
	NFC	the same	the same

Unlicensed Frequency	Bluetooth	the same	the same
	2.4G Wi-Fi	the same	the same
	5.8G Wi-Fi	the same	the same
	IC	the same	the same
	Antenna	the same	the same
Hardware	Ram / Rom	the same	the same
	Camera	the same	the same
	PCB	the same	the same
	USB Port	the same	the same
	SIM	one	two
	Hardware version	the same	the same
RF	RF circuit	The hardware channel of WCDMA B4 and LTE B2/4/7(include CA band) is different, Irrelevant to other frequency bands	The hardware channel of WCDMA B4 and LTE B2/4/7(include CA band) is different, Irrelevant to other frequency bands
Appearance	Dimension	the same	the same
	Color	different	different
Accessory	Battery	the same	the same
	External Charger	the same	the same
	USB label	the same	the same
	Earphone	the same	the same

According to the difference description above, full test is performed on VOG-L04m. Since VOG-L29m, VOG-L09m and VOG-L04m are same for WPT, VOG-L29m and VOG-L09m can share the same WPT MPE test data of VOG-L04m in this 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
Fax	+86 769 23837628
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
<input checked="" type="checkbox"/>	NARDA	Electric and Magnetic field Probe-Analyzer	EHP-200A	170WX81023	2019-03-04	One year

Supporting Client Device:

	Manufacturer	Device	Model Name
<input checked="" type="checkbox"/>	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

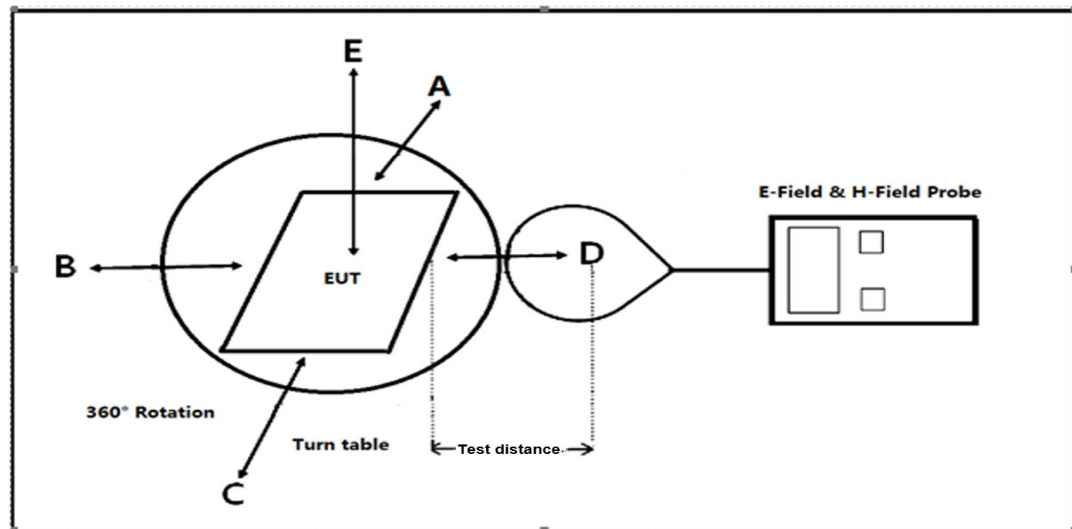


Figure: Test set-up

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.

The EUT were measured according to the requirement of KDB 680106 D01v03.

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

Charge amount	Frequency Range (kHz)	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)20190408014001-A, total: 5pages)

Appendix B. Photo documentation

(Please See Appendix No.: SYBH(Z-SAR)20190408014001-B, total: 4pages)

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