



中国认可  
国际互认  
检测  
TESTING  
CNAS L0310



# FCC

# RF Test Report

**Product Name: Smart Phone**

**Model Number: ANE-LX1**

**Report No: SYBH(Z-EMC) 20171223014005-3**

**FCC ID: QISANE-LX1**

**Reliability Laboratory of Huawei Technologies Co., Ltd.**

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

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District,  
Shenzhen, 518129, P.R.C

Tel: +86 755 28780808 Fax: +86 755 89652518



## 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.
3. The laboratory has been recognized by the US Federal Communications Commission (FCC) to perform compliance testing subject to the Commission's Certification rules. The Designation Number is CN1173, and the Test Firm Registration Number is 294140.
4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-1.
5. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named "Global Compliance and Testing Center of Huawei Technologies Co., Ltd", the both names have coexisted since 2009.
6. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
7. The test report is invalid if there is any evidence of erasure and/or falsification.
8. The test report is only valid for the test samples.
9. 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.



**Applicant:** Huawei Technologies Co., Ltd.  
**Address:** Administration Building, Headquarters of Huawei Technologies Co., Ltd.,  
Bantian, Longgang District, Shenzhen, 518129, P.R.C

**Date of Receipt Sample:** 2018-02-08  
**Start Date of Test:** 2018-02-08  
**End Date of Test:** 2018-02-10

**Test Result:** Pass

<b>Approved By</b> (Lab Manager)	<u>2018-02-12</u>	<u>Roger Zhang</u>	<u><i>Roger Zhang</i></u>
	Date	Name	Signature

<b>Prepared By</b> (Test Engineer)	<u>2018-02-11</u>	<u>Hua Mei</u>	<u><i>Hua Mei</i></u>
	Date	Name	Signature



## CONTENT

1	General Information.....	5
1.1	Applied Standard.....	5
1.2	Test Location .....	5
1.3	Test Environment Condition.....	5
2	Test Summary .....	6
2.1	Measurement Technical Requirements.....	6
3	Description of the Equipment under Test (EUT) .....	7
3.1	General Description .....	7
3.2	EUT Identity .....	7
3.3	Technical Description.....	8
4	General Test Conditions / Configurations.....	9
4.1	Test Modes .....	9
4.2	EUT Configurations.....	9
4.3	Test Environments .....	9
4.4	Test Setups.....	10
4.5	Test Conditions .....	12
5	Main Test Instruments .....	13
6	Appendixes.....	13



## 1 General Information

### 1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2, Subpart J  
47 CFR FCC Part 15, Subpart C  
47 CFR FCC Part 15, Subpart E

Test Method: KDB 789033 D02 General UNII Test Procedures New Rules v01r04  
ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices

### 1.2 Test Location

Test Location 1: Reliability Laboratory of Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

### 1.3 Test Environment Condition

Temperature: 15 to 30 °C (Ambient)  
Relative Humidity: 20 to 85 % (Ambient)  
Atmospheric Pressure: Not applicable



## 2 Test Summary

### 2.1 Measurement Technical Requirements

Band edge of Unwanted Emissions in the Restricted Bands (Radiated)	5150-525 0 5250-535 0 5470-572 5	15.209	FCC: Part 15.209	Appendix A	Pass
--	---	--------	------------------	------------	------

Remark: this report is only for band edge of Unwanted Emissions in the Restricted Bands (Radiated)



### 3 Description of the Equipment under Test (EUT)

#### 3.1 General Description

ANE-LX1 is 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 B5 and B8. The LTE frequency band is B1 and B3 and B7 and B8 and B20. 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, AGPS, NFC and WIFI 11a/n/ac etc. Externally it provides one micro SD card (it can also used as SIM card interface), earphone port (to provide voice service) and one SIM card interface. ANE-LX1 is dual SIM smart phone. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices

#### 3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

##### 3.2.1 Board

Board		
Description	Hardware Version	Software Version
Main Board	HL2ANNEM	ANE-LX1 8.0.0.40(C900)

##### 3.2.2 Sub-Assembly

Name	Manufacture	Description
Adapter	Huawei Technologies Co., Ltd.	Model: HW-059200UHQ Input voltage: 100-240V 50/60Hz ,0.5A Output Voltage: 5V  2A OR 9V  2A Rated Power: 10W OR 18W SN: B76596HB502880
Rechargeable Li	Huawei Technologies Co., Ltd.	Battery Model: HB366481ECW Rated capacity: 2900mAh Nominal Voltage:  +3.82V Charging Voltage:  +4.40V SN: 2157LYHB05X02AE1
USB Cable(Black)	Huawei Technologies Co., Ltd.	Data Cable USB A Male to Type C ,Shield



### 3.3 Technical Description

Characteristics	Description			
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11a (20 MHz channel bandwidth) , <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ac (40 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (80 MHz channel bandwidth)			
TX/RX Operating Range	All	$fc = 5000 \text{ MHz} + N * 5 \text{ MHz}$ , where: - $fc$ = "Operating Frequency" in MHz, - $N$ = "Channel Number".		
	5150-5250 MHz (U-NII)	$N = 36$ to $48$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 38$ to $46$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 42$ for the $80 \text{ MHz}$ channel bandwidth.		
	5250-5350 MHz (U-NII)	$N = 52$ to $64$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 54$ to $62$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 58$ for the $80 \text{ MHz}$ channel bandwidth.		
	5470-5650 MHz (U-NII)	$N = 100$ to $120$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 102$ to $110$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 106$ for the $80 \text{ MHz}$ channel bandwidth.		
	5650-5725 MHz (U-NII)	$N = 132$ to $144$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 134$ to $142$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 138$ for the $80 \text{ MHz}$ channel bandwidth.		
Antenna	Type	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated		
	Ports	<input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3, <input type="checkbox"/> Ant 4		
	Smart System	<input checked="" type="checkbox"/> SISO (for 802.11a/n/ac), <input type="checkbox"/> MIMO (for 802.11n/ac), <input type="checkbox"/> Diversity (for 802.11a) :           Tx      &           Rx		
	Gain	4.0 dBi (per antenna port, max.)		
	Remark	When the EUT is put into service, the practical maximum antenna gain should NOT exceed the value as described above.		
Power Supply	Type	<input checked="" type="checkbox"/> AC/DC Adapter	<input type="checkbox"/> PoE:	<input type="checkbox"/> Other:



## 4 General Test Conditions / Configurations

### 4.1 Test Modes

NOTE: Worst cases for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11A	IEEE 802.11a with data rate of 6 Mbps using SISO mode.
11N20	IEEE 802.11n with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11N40	IEEE 802.11n with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC20	IEEE 802.11ac with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11AC40	IEEE 802.11ac with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC80	IEEE 802.11ac with data rate of MCS0 and bandwidth of 80 MHz using SISO mode.

### 4.2 EUT Configurations

#### 4.2.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, <ul style="list-style-type: none"> <li>● All TX tests are performed at all TX antenna ports of the EUT, and</li> <li>● All RX tests are performed at all RX antenna ports of the EUT.</li> </ul>

### 4.3 Test Environments

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.6V
	VN	3.8V
	VH	4.35V

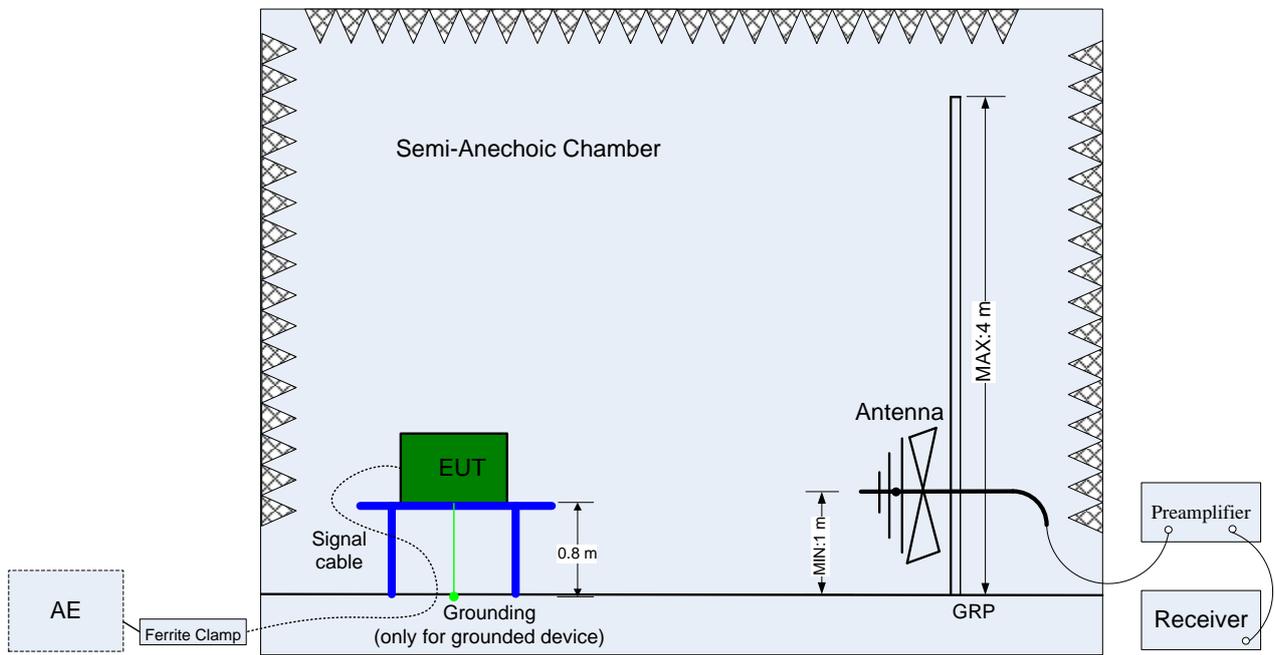
NOTE: VL= lower extreme test voltage  
 VN= nominal voltage  
 VH= upper extreme test voltage  
 TN= normal temperature

## 4.4 Test Setups

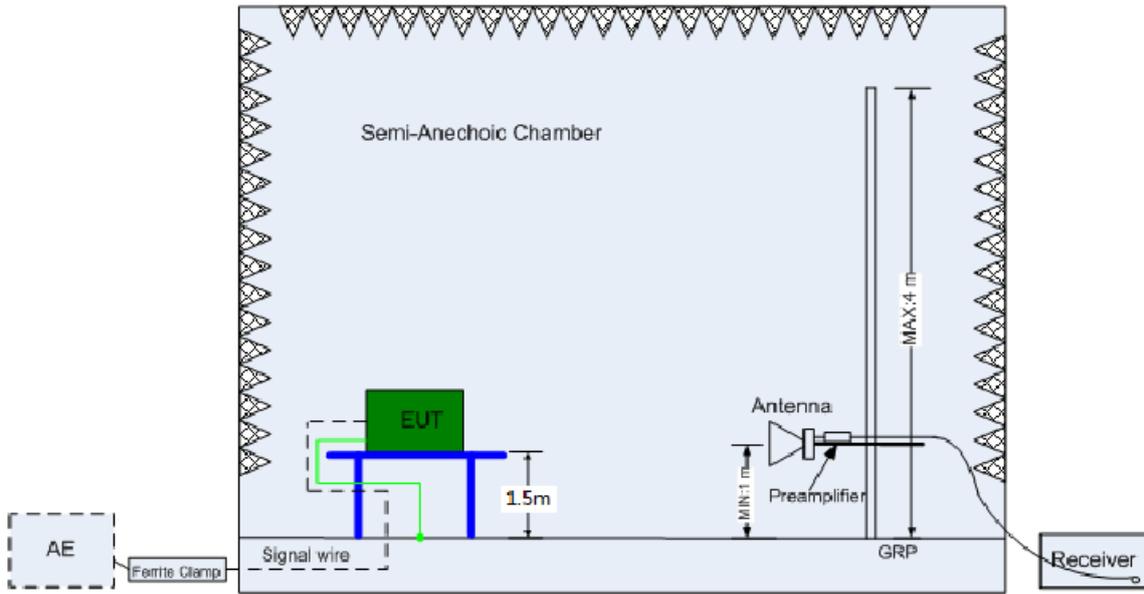
### 4.4.1 Test Setup 1

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.4. The test distance is 3 m (for 30 MHz to 26.5 GHz) or 1 m (for 26.5 GHz to 40 GHz). The setup is according to ANSI C63.10, ANSI C63.4 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).



(Below 1 GHz)



(Above 1 GHz)

## 4.5 Test Conditions

### 4.5.1 U-NII

Test Case	Test Conditions			
	Configuration	Description		
		Test Env.	NTNV	
		Test Setup	Test Setup 1	
		EUT Conf.	All EUT conf. with Tx modes.	
Unwanted Emissions (Radiated)	Meas. Method	FCC KDB 789033 §G), (Radiated)		
	Test Env.	NTNV		
	Test Setup	Test Setup 1		
	EUT Conf.	5150-5250	All EUT Test Mode 20MHz BandWidth: Ch36(5180MHz) 40MHz BandWidth: Ch38(5190MHz) 80MHz BandWidth: Ch42(5210MHz)	
		5250-5350	All EUT Test Mode 20MHz BandWidth: Ch64(5320MHz) 40MHz BandWidth: Ch62(5310MHz) 80MHz BandWidth: Ch58(5290MHz)	
		5470-5725	All EUT Test Mode 20MHz BandWidth: Ch100(5500MHz) ,Ch140(5700MHz) 40MHz BandWidth: Ch102(5510MHz),Ch134(5670MHz), 80MHz BandWidth: Ch106(5530MHz), Ch122(5610MHz)	



## 5 Main Test Instruments

NOTE: Unless otherwise specified, the calibration intervals for test instruments were Annual (per year). The other intervals, if applicable, are marked with (##y), which denotes ## years calibration interval.

Main Test Equipments					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal- Due
EMI Test receiver	R&S	ESU26	100150	Jan. 20, 2018	Jan. 20, 2019
Power amplifier	R&S	SCU 18	10162	May 16, 2017	May 16, 2018
Horn Antenna	R&S	HF906	100684	May 27, 2017	May 28, 2019
Software Information					
Test Item	Software Name	Manufacturer	Version		
RE	EMC32	R&S	V9.25.0		

## 6 Appendixes

Appendix No.	Description
001	5G WLAN Appendix for ANE-LX1(SISO)

END