

FCC Radio Test Report

FCC ID: QISY560-L03

This report concerns (check one): ☒ Original Grant ☐ Class II Change

Project No. : 1505C241
Equipment : Smart Phone
Model Name : HUAWEI Y560-L03, Y560-L03
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 : May 22, 2015
Date of Test : May 22, 2015~Jun. 23, 2015
Issued Date : Jun. 24, 2015
Tested by : BTL Inc.

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-9-1505C241	Original Issue.	Jun.19, 2015
BTL-FCCP-9-1505C241A	Compared with previous report (BTL-FCCP-9-1505C241), model HUAWEI Y560-L23, Y560-L23 support dual cards, and now, model HUAWEI Y560-L03, Y560-L03 only support single card, so the radiated emission by worst case has been retested and record in this report, the original models' test results please refer to original report.	Jun. 24, 2015

1. CERTIFICATION

Equipment : Smart Phone
Brand Name : HUAWEI
Model Name : HUAWEI Y560-L03, Y560-L03
Applicant : Huawei Technologies Co., Ltd.
Manufacturer : Huawei Technologies Co., Ltd
Address : Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
Bantian, Longgang District, Shenzhen, 518129, P.R.C
Date of Test : May 22, 2015~Jun. 23, 2015
Test Sample : ENGINEERING SAMPLE
Standard(s) : 47 CFR FCC Part 24 Subpart E & ANSI C63.4 : 2009
47 CFR FCC Part 2 & ANSI/TIA-603-C-2004

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-9-1505C241) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test result included in this report is only for the LTE BAND II approval part of the product.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 24 Subpart E & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
FCC			
2.1047(d)	Modulation Characteristics	N/A	
2.1046 24.232(c)	Radiated RF Output	N/A	
2.1049 24.238(a)	99% Occupied Bandwidth	N/A	
2.1051 24.238(a)	Spurious Emissions at Antenna Terminal	N/A	
2.1053 24.238(a)	Spurious Radiated Emissions	PASS	
24.238(a)	Band Edge Emissions	N/A	
2.1055 24.235	Frequency Stability	N/A	
24.232(d)	Peak to Average Ratio	N/A	

NOTE:

(1) "N/A" denotes test is not applicable in this test report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's test firm number for FCC: 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{CISPR} requirement.

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %** ◦

A. Radiated Measurement :

Test Site	Parameter	Uncertainty
DG-CB12	All emissions, radiated	± 6 dB

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone	
Brand Name	HUAWEI	
Model Name	HUAWEI Y560-L03, Y560-L03	
Model Difference	Only differ in model name.	
Product Description	Operation Frequency	LTE Band II: TX:1850.7MHz~1890.3MHz RX:1930.7MHz~1989.3MHz
	Modulation Type	QPSK;16QAM
	Bandwidth	1.4M/3M/5M/10M/15M/20M
	EIRP Output Power	26.98dBm
Power Source	#1 DC Voltage supplied from AC/DC adapter. Brand/Model: HUAWEI / HW-050100U01(US) Brand/Model: HUAWEI / HW-050100E01(EU) #2 Supplied from battery. Brand/Model: HUAWEI / HB474284RBC	
Power Rating	#1 I/P: 100-240V~ 50/60Hz 0.2A O/P: DC 5V 1A #2 DC 3.8V 2000mAh	

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- Table for Filed Antenna @LTE Band II

Ant.	Manufacture	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	-3.5

3.2 DESCRIPTION OF TEST MODES

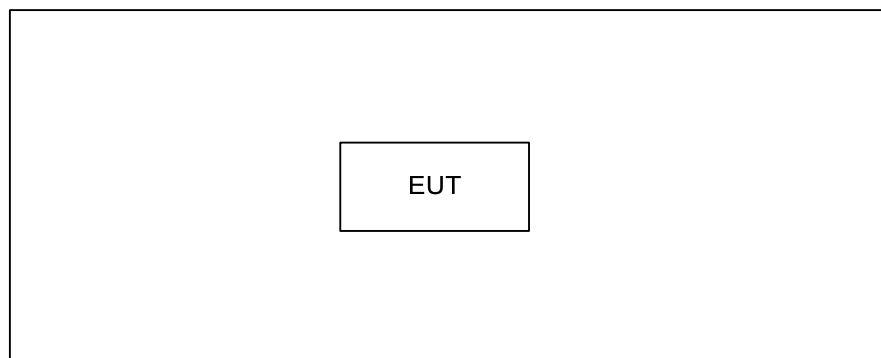
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Items	Worst TX Mode	Channel
Spurious Radiated Emissions	QPSK	Middle

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.
- (3) Both adapter and battery are evaluated, operated the battery is the worst and recorded as below test data

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
-	-	-	-	-	-	

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	

4. TEST RESULT

4.1 SPURIOUS RADIATED EMISSIONS MEASUREMENT

4.1.1 LIMIT

In the FCC 24.238(a), On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The limit translates in the relevant power range (1 to 0.001W). At 1W(Power Control Level 0) the specified minimum attenuation becomes 43dB and the limit of emission equal to -13dBm. At 0.001W(Power Control Level 15) the specified minimum attenuation becomes 13dB and the emission of limit equal to -13dBm. So the limit of emission is the same absolute specified line.

4.1.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	10th carrier harmonic
Detector	Positive Peak
Span	100 MHz
Sweep Time	1s
RB / VB	1 MHz / 1MHz
Attenuation	Positive Peak

4.1.3 TEST PROCEDURES

1. The EUT was placed on the top of the turntable in fully anechoic chamber.
2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. This measurement shall be repeated with the transmitter in standby mode where applicable.
4. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable. For 1~10th carrier harmonic measurement, the receiving Horn antenna was placed 1.5 meters far away from the turntable.
5. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
6. Replace the EUT by standard antenna and feed the RF port by signal generator.
7. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
8. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
9. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.

4.1.4 TEST SETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.4.

4.1.5 TEST DEVIATION

There is no deviation with the original standard.

4.1.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

4.1.7 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: DC 3.8V

4.1.8 TEST RESULTS

Please refer to the Attachment A.

5. LIST OF MEASUREMENT EQUIPMENTS

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016
2	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC012645B	980221	Oct. 22, 2015
3	Amplifier	Agilent	8449B	3008A02274	Nov. 02, 2015
4	Double Ridged Guide Antenna	ETS·LINDGREN	3115	00075846	Mar. 28, 2016
5	Antenna	SCHWARZBECK	VULB 9160	9160-3231	Mar. 28, 2016
6	Test Cable	N/A	CL-CB12-001	N/A	Oct. 22, 2015
7	Test Cable	N/A	CL-CB12-004	N/A	Oct. 22, 2015
8	Test Cable	N/A	CL-CB12-006	N/A	Oct. 22, 2015
9	Controller	CT	SC100	N/A	N/A
10	Wireless Communication Test SET	(8960 Series) Agilent	E5515C	MY48364183	Mar. 15, 2016
11	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 1710/1785-1690 /1805-60/12SS	38	Mar. 04, 2016
12	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 824/849-810/86 3-60/9SS	7	Mar. 04, 2016
13	Band Reject Filter	Wairwright Instruments Gmbh	WRCG 880/915-860/93 5-60/9SS	14	Mar. 04, 2016

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

ATTACHMENT A - SPURIOUS RADIATED EMISSION

Test Mode : TX Channel Middle-QPSK 1.4M/1RB

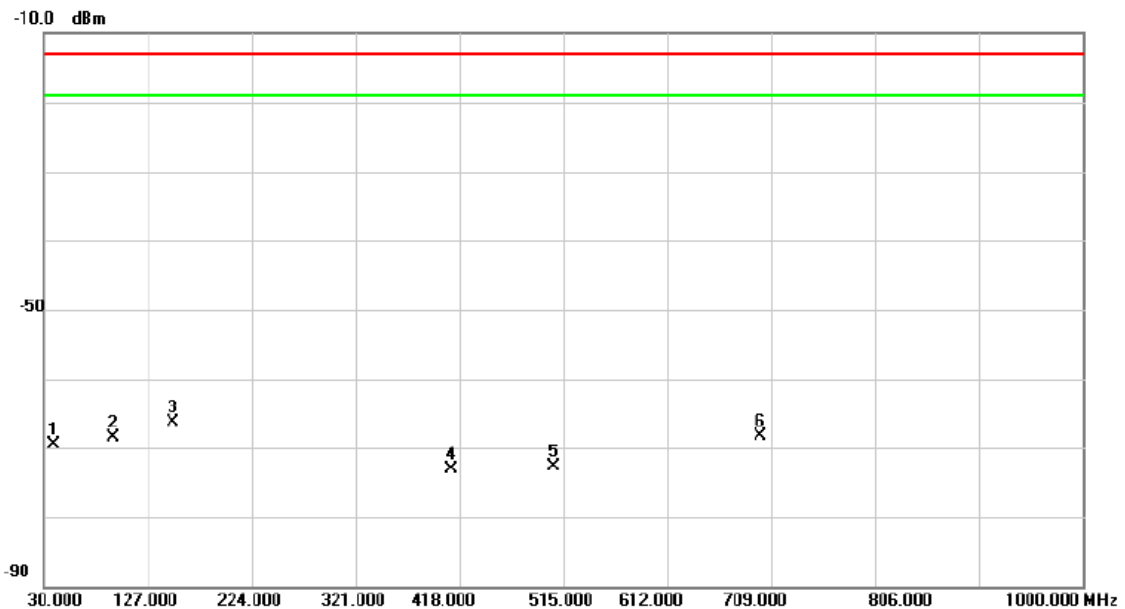
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Antenna Height cm	Table Degree degree	Comment
1	*	38.7300	-63.44	1.21	-62.23	-13.00	-49.23	peak		
2		58.1300	-67.11	1.31	-65.80	-13.00	-52.80	peak		
3		94.9900	-68.84	-3.56	-72.40	-13.00	-59.40	peak		
4		161.9200	-76.20	2.55	-73.65	-13.00	-60.65	peak		
5		509.1800	-80.56	7.53	-73.03	-13.00	-60.03	peak		
6		848.6800	-82.73	14.41	-68.32	-13.00	-55.32	peak		

Test Mode : TX Channel Middle-QPSK 1.4M/1RB

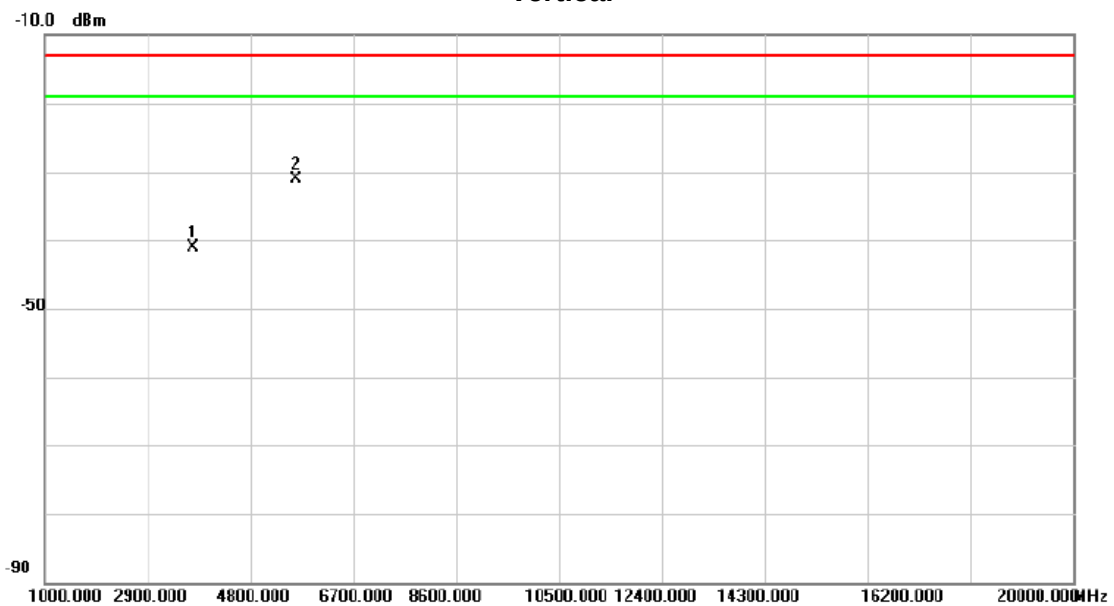
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1		39.7000	-71.56	1.97	-69.59	-13.00	-56.59	peak		
2		94.9900	-62.13	-6.29	-68.42	-13.00	-55.42	peak		
3	*	151.2500	-70.39	4.05	-66.34	-13.00	-53.34	peak		
4		411.2100	-79.54	6.44	-73.10	-13.00	-60.10	peak		
5		506.2700	-80.70	8.07	-72.63	-13.00	-59.63	peak		
6		699.3000	-82.30	13.93	-68.37	-13.00	-55.37	peak		

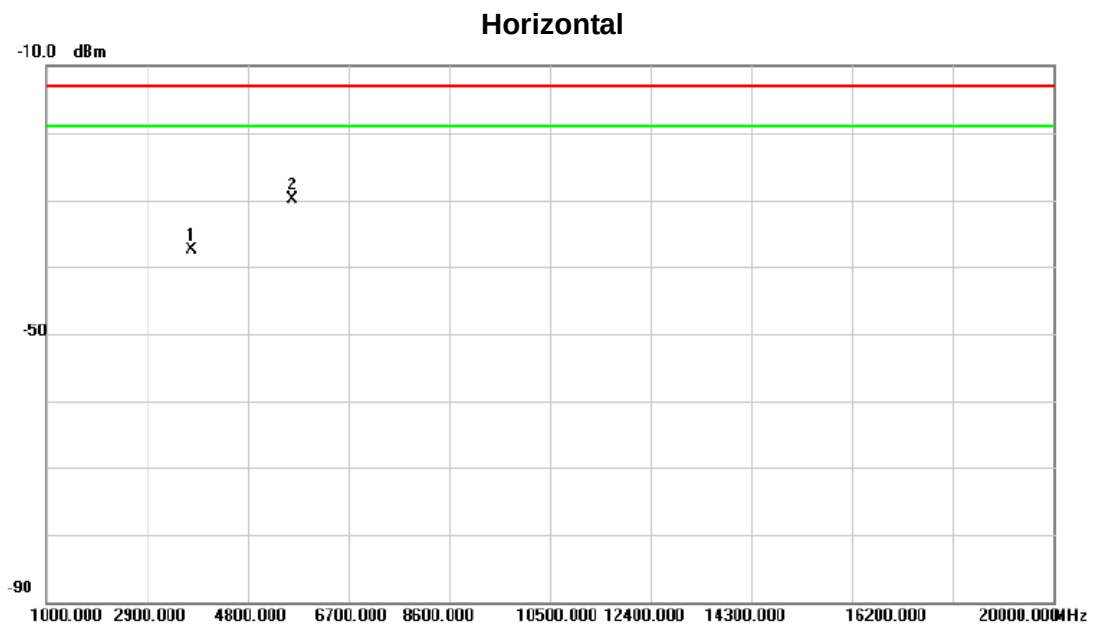
Test Mode : TX Channel Middle-QPSK 1.4M/1RB

Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Antenna Height cm	Table Degree degree	Comment
1		3758.870	-47.30	6.23	-41.07	-13.00	-28.07	peak		
2	*	5639.040	-44.34	13.21	-31.13	-13.00	-18.13	peak		

Test Mode : TX Channel Middle-QPSK 1.4M/1RB



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Antenna Height cm	Table Degree	Comment
1		3759.070	-44.99	7.50	-37.49	-13.00	-24.49	peak		
2	*	5638.620	-38.71	8.72	-29.99	-13.00	-16.99	peak		