

FCC Radio Test Report

FCC ID: QISY560-L03

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

Project No. : 1505C241A
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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BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

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-5-1505C241 | Original Issue. | Jun.19, 2015 |
| BTL-FCCP-5-1505C241A | Compared with previous report (BTL-FCCP-5-1505C241), 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-5-1505C241A) 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 GSM 1900MHz 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: | TX:1850.2MHz~1909.8MHz RX:1930.2MHz~1989.8MHz | |
| | Modulation Type: | GMSK;8-PSK | |
| | EIRP Output Power | 29.99 dBm | |
| 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~ 50/60H 0.2A O/P: DC 5V 1A #2 DC 3.8V 2000mAh | | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Channel List:

| Band | Channel | Frequency | |
|---------------------|---------|-----------|---------|
| | | (MHz) | |
| 1850.2MHz~1909.8MHz | 512 | Low | 1850.20 |
| | 661 | Mid | 1880.00 |
| | 810 | High | 1909.80 |

3. Table for Filed Antenna @GSM1900:

| 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

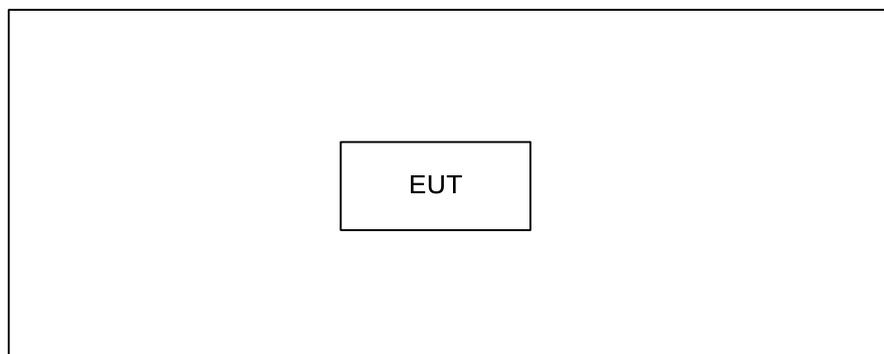
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

| Test Items | Worst TX Mode | Channel |
|-----------------------------|---------------|---------|
| Spurious Radiated Emissions | GSM | 661 |

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 positioning 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

Out of band emissions, The power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside the frequency block. The spurious emissions of limit equal to -13dBm .

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 |
| 14 | Band Reject Filter | Wairwright Instruments Gmbh | WRCG 1850/1910-1830 /1930-60/10SS | 17 | Mar. 04, 2016 |

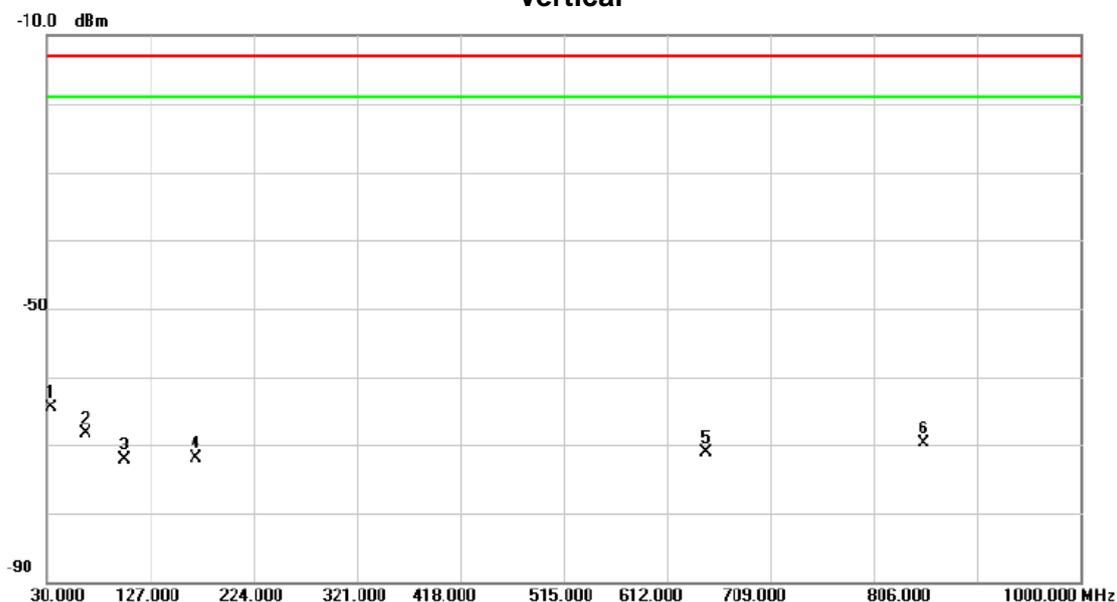
Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

ATTACHMENT A - SPURIOUS RADIATED EMISSION

Test Mode : TX CH661 GSM

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 | * | 33.8800 | -63.35 | -1.20 | -64.55 | -13.00 | -51.55 | peak | | |
| 2 | | 66.8600 | -68.94 | 0.65 | -68.29 | -13.00 | -55.29 | peak | | |
| 3 | | 102.7500 | -70.85 | -1.28 | -72.13 | -13.00 | -59.13 | peak | | |
| 4 | | 169.6800 | -71.86 | -0.01 | -71.87 | -13.00 | -58.87 | peak | | |
| 5 | | 648.8600 | -81.17 | 10.09 | -71.08 | -13.00 | -58.08 | peak | | |
| 6 | | 852.5600 | -84.09 | 14.39 | -69.70 | -13.00 | -56.70 | peak | | |

Test Mode : TX CH661 GSM

Horizontal



| No. | Mk. | Freq. MHz | Reading Level dBm | Correct Factor dB | Measure- ment dBm | Limit dBm | Margin dB | Detector | Antenna Height cm | Table Degree degree | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|--------------|----------|-------------------------|---------------------------|---------|
| 1 | * | 32.9100 | -68.73 | 0.96 | -67.77 | -13.00 | -54.77 | peak | | | |
| 2 | | 103.7200 | -68.36 | -3.33 | -71.69 | -13.00 | -58.69 | peak | | | |
| 3 | | 169.6800 | -71.62 | -1.28 | -72.90 | -13.00 | -59.90 | peak | | | |
| 4 | | 511.1200 | -78.19 | 8.07 | -70.12 | -13.00 | -57.12 | peak | | | |
| 5 | | 588.7200 | -78.87 | 8.90 | -69.97 | -13.00 | -56.97 | peak | | | |
| 6 | | 723.5500 | -81.72 | 13.41 | -68.31 | -13.00 | -55.31 | peak | | | |

Test Mode : TX CH661 GSM

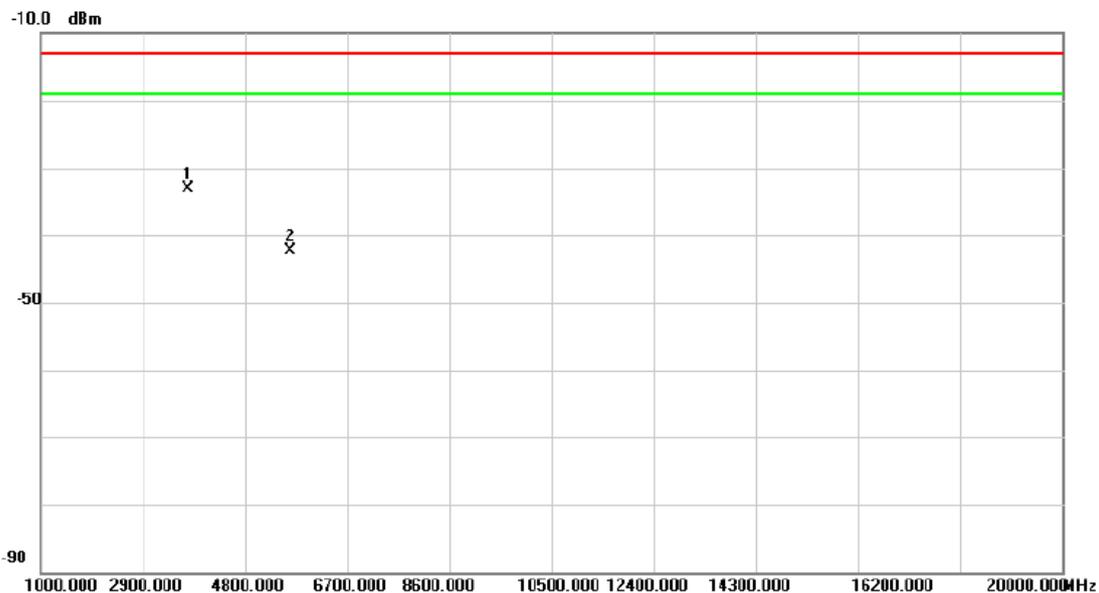
Vertical



| No. | Mk. | Freq. MHz | Reading Level dBm | Correct Factor dB | Measure- ment dBm | Limit dBm | Margin dB | Detector | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|--------------|----------|---------|
| 1 | | 3759.980 | -44.60 | 6.24 | -38.36 | -13.00 | -25.36 | peak | |
| 2 | * | 5639.660 | -50.89 | 13.22 | -37.67 | -13.00 | -24.67 | peak | |

Test Mode : TX CH661 GSM

Horizontal



| No. | Mk. | Freq. MHz | Reading Level dBm | Correct Factor dB | Measure- ment dBm | Limit dBm | Margin dB | Detector | Comment |
|-----|-----|--------------|-------------------------|-------------------------|-------------------------|--------------|--------------|----------|---------|
| 1 | * | 3759.980 | -40.53 | 7.50 | -33.03 | -13.00 | -20.03 | peak | |
| 2 | | 5640.300 | -51.02 | 8.72 | -42.30 | -13.00 | -29.30 | peak | |