

**Huawei Technologies Co., Ltd**

Application  
For  
Certification

**FCC ID: QISY520-U03A**

**WCDMA Digital Mobile Phone**

**Model: HUAWEI Y520-U03**

**2.4GHz Transceiver**

Report No.: 141120012SZN-003

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-13]

Prepared and Checked by:

Approved by:

Sign on file

Jenner Liu  
Assitant Engineer

---

Andy Yan  
Senior Project Engineer  
Date: December 05, 2014

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF no.: FCC 15C\_Tx\_b

**Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch**

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China  
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

**LIST OF EXHIBITS**

*INTRODUCTION*

<i>EXHIBIT 1:</i>	Summary of Tests
<i>EXHIBIT 2:</i>	General Description
<i>EXHIBIT 3:</i>	System Test Configuration
<i>EXHIBIT 4:</i>	Measurement Results
<i>EXHIBIT 5:</i>	Equipment Photographs
<i>EXHIBIT 6:</i>	Product Labeling
<i>EXHIBIT 7:</i>	Technical Specifications
<i>EXHIBIT 8:</i>	Instruction Manual
<i>EXHIBIT 9:</i>	Miscellaneous Information
<i>EXHIBIT 10:</i>	Test Equipment List

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Huawei Technologies Co., Ltd - MODEL: HUAWEI Y520-U03

FCC ID: QISY520-U03A

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

Equipment Type: DTS - Part 15 Digital Transmission Systems (Bluetooth LE portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes  No

If yes, defer until : \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes  No

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-13 Edition] provision.

Report prepared by:

Jenner Liu  
Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch  
6F, Block D, Huahan Building, Langshan Road,  
Nanshan District, Shenzhen, P. R. China  
Phone: (86 755) 8614 0639  
Fax: (86 755) 8601 6751

---

---

# INTERTEK TESTING SERVICES

---

---

## Table of Contents

<b>1.0 <u>Summary of test results</u></b> .....	2
<b>2.0 <u>General Description</u></b> .....	4
2.1 Product Description .....	4
2.2 Related Submittal(s) Grants .....	4
2.3 Test Methodology .....	5
2.4 Test Facility .....	5
<b>3.0 <u>System Test Configuration</u></b> .....	7
3.1 Justification .....	7
3.2 EUT Exercising Software .....	7
3.3 Details of EUT and Description of Peripherals .....	7
3.4 Measurement Uncertainty .....	8
3.5 Equipment Modification .....	8
3.6 Support Equipment List and Description .....	8
<b>4.0 <u>Measurement Results</u></b> .....	10
4.1 Maximum Conducted Output Power at Antenna Terminals .....	10
4.2 Minimum 6dB RF Bandwidth .....	11
4.3 Maximum Power Density .....	14
4.4 Out of Band Conducted Emissions .....	17
4.5 Out of Band Radiated Emissions .....	23
4.6 Transmitter Radiated Emissions in Restricted Bands .....	24
4.7 Field Strength Calculation .....	25
4.8 Radiated Spurious Emission .....	26
4.9 Conducted Emission .....	31
4.10 Radiated Emission from Digital Section of Transceiver .....	34
4.11 Transmitter Duty Cycle Calculation and Measurements .....	35
<b>5.0 <u>Equipment Photographs</u></b> .....	37
<b>6.0 <u>Product Labelling</u></b> .....	39
<b>7.0 <u>Technical Specifications</u></b> .....	41
<b>8.0 <u>Instruction Manual</u></b> .....	43
<b>9.0 <u>Miscellaneous Information</u></b> .....	45
<b>10.0 <u>Test Equipment List</u></b> .....	47

## INTERTEK TESTING SERVICES

---

### List of attached file

<b>Exhibit Type</b>	<b>File Description</b>	<b>Filename</b>
Cover Letter	Letter of Agency	agency.pdf
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 1**

### **SUMMARY OF TEST RESULTS**

## INTERTEK TESTING SERVICES

---

### 1.0 Summary of Test

**Huawei Technologies Co., Ltd - MODEL: HUAWEI Y520-U03**

**FCC ID: QISY520-U03A**

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 2**

### **GENERAL DESCRIPTION**



# INTERTEK TESTING SERVICES

---

## 2.0 General Description

### 2.1 Product Description

The Equipment Under Test (EUT) is a WCDMA Digital Mobile Phone Model: HUAWEI Y520-U03 with Bluetooth LE technology. The EUT was powered by AC/DC Adapter (input: 100-240Vac, 50/60Hz, output: 5Vdc, 550mA. For more detailed features description, please refer to the user's manual.

Type of Modulation: GFSK.

Antenna Type: Integral Antenna.

Antenna Gain: 0.5 dBi

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

### 2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (Bluetooth LE portion)

Remaining portions are subject to the following procedures:

1. Bluetooth FHSS (2.4G band): 141120012SZN-002
2. WiFi Transceiver (2.4G band): 141120012SZN-004
3. WCDMA Digital Mobile Phone (2G&3G): 141120012SZN-001, RXA1411-0267RF01R1.
4. PC Download (Class B personal computer and peripherals): 141120012SZN-005
5. Other function: 141120012SZN-006

TRF no.: FCC 15C\_TX\_b

FCC ID: QISY520-U03A

Report No.: 141120012SZN-003

## INTERTEK TESTING SERVICES

---

### 2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009) and KDB 558074. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

### 2.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 3**

### **SYSTEM TEST CONFIGURATION**

# INTERTEK TESTING SERVICES

---

## 3.0 System Test Configuration

### 3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions.

The EUT was powered by AC/DC Adapter (Input: 120Vac, 60Hz, Output: 5Vdc, 550mA), All packets mode in modulation type GFSK with different accessories listed in next page were tested, and only the worst case data was recorded in this report.

The simultaneous transmission spurious was tested, only the worst case data was recorded in this report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

### 3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

### 3.3 Special Accessories

One shielded USB cable attached.

## INTERTEK TESTING SERVICES

### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

### 3.5 Equipment Modification

Any modifications installed previous to testing by Huawei Technologies Co., Ltd will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

### 3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List

Description	Manufacturer	Model No.
Earphone (Black)	Goertek	HA1-3
	Quancheng	1293#+3283# 3.5MM-150
	Lianchuang	MEMD1532B528000
Earphone (White)	Merry	EMC323-011-01
	Goertek	HG-04A
USB Cable	/	Data Cable USB A Male to Micro USB, shielded, 100cm
Battery	BYD	HB5V1 (1730mAh)
	LISHEN	
	SUNWODA	HB5V1HV (1950mAh)
	SCUD	
AC/DC Adapter (Huawei)	BYD / HuntKey	HW-050055U1W Input: 100-240Vac, 50/60Hz, 0.2A; Output: 5Vdc, 550mA
	BYD / HuntKey	HW-050055E1W Input: 100-240Vac, 50/60Hz, 0.2A; Output: 5Vdc, 550mA
	BYD / HuntKey	HW-050055B1W Input: 100-240Vac, 50/60Hz, 0.2A; Output: 5Vdc, 550mA
	BYD /UE	HW-050055A1W Input: 100-240Vac, 50/60Hz, 0.2A; Output: 5Vdc, 550mA
	BYD /UE	HW-050055R1W Input: 100-240Vac, 50/60Hz, 0.2A; Output: 5Vdc, 550mA

Note: The Model: HUAWEI Y520-U03 have three different AC/DC Adapter power suppliers, which have already arranged the test accordingly, and only the worst case data was recorded in this report.

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 4**

### **MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.0 **Measurement Results**

#### 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

[x] The antenna power of the EUT was connected to the input of a broadband peak RF power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

Packet: DH1

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2402	-0.27	0.94
Middle Channel: 2440	0.04	1.01
High Channel: 2480	0.10	1.02

Cable loss: 0.3 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT dBm max. output level = 0.10dBm

For RF Exposure, the information is saved with filename: sar report.pdf.

The test plots are attached as below.

TRF no.: FCC 15C\_TX\_b

FCC ID: QISY520-U03A

Report No.: 141120012SZN-003

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 KHz according to FCC KDB 558074. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

Packet: DH1

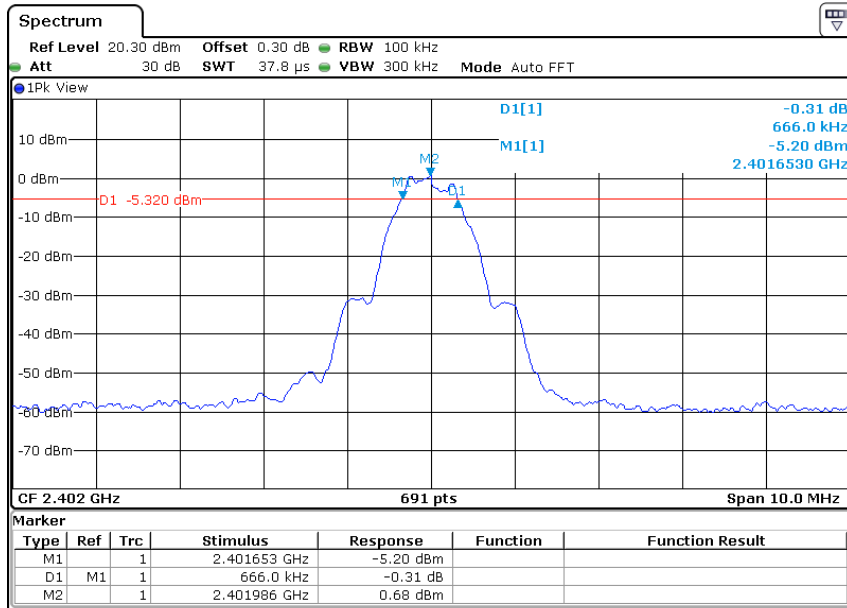
Frequency (MHz)	6 dB Bandwidth (KHz)
2402	666
2440	680
2480	666

The test plots are attached as below.

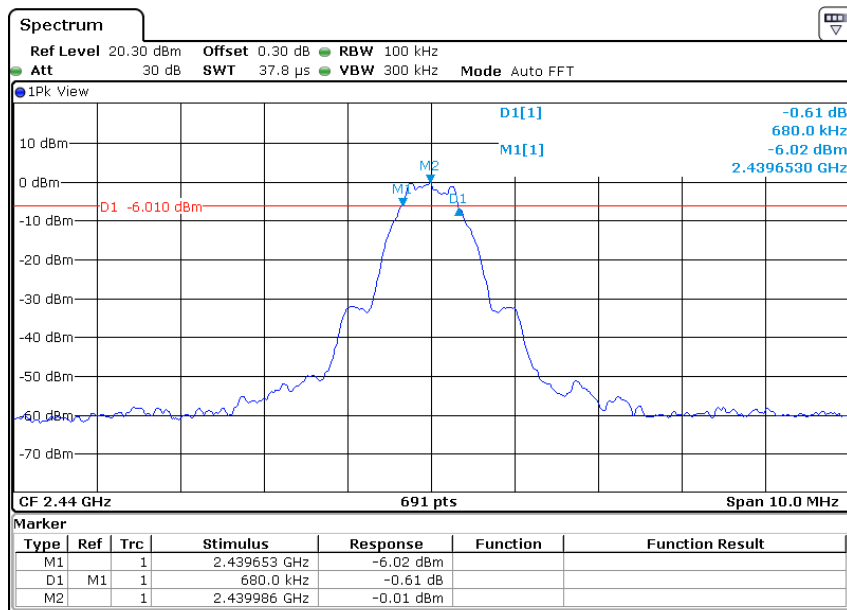


# INTERTEK TESTING SERVICES

## Low Channel



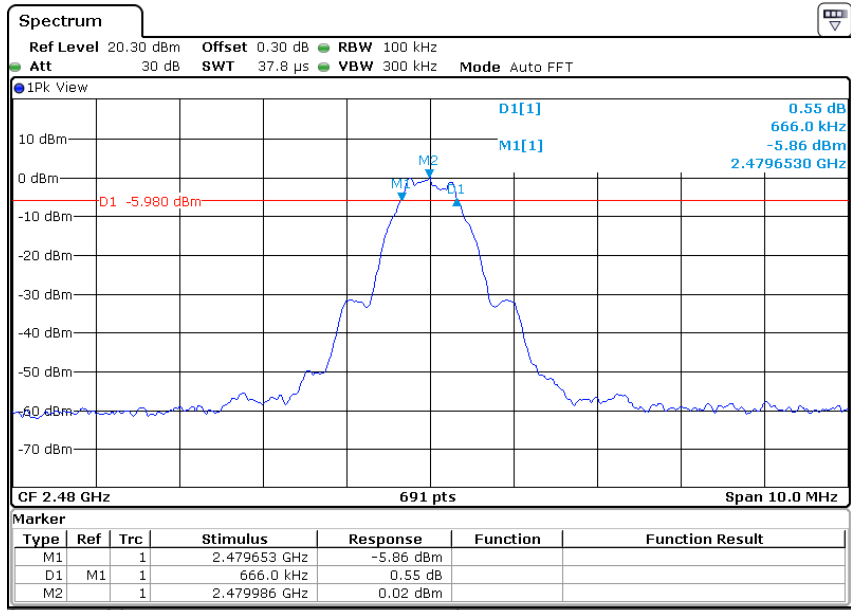
## Middle Channel



TRF no.: FCC 15C\_TX\_b  
 FCC ID: QISY520-U03A  
 Report No.: 141120012SZN-003

# INTERTEK TESTING SERVICES

## High Channel



## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Limit: The Power Density does not exceed 8dBm/ 3 kHz.

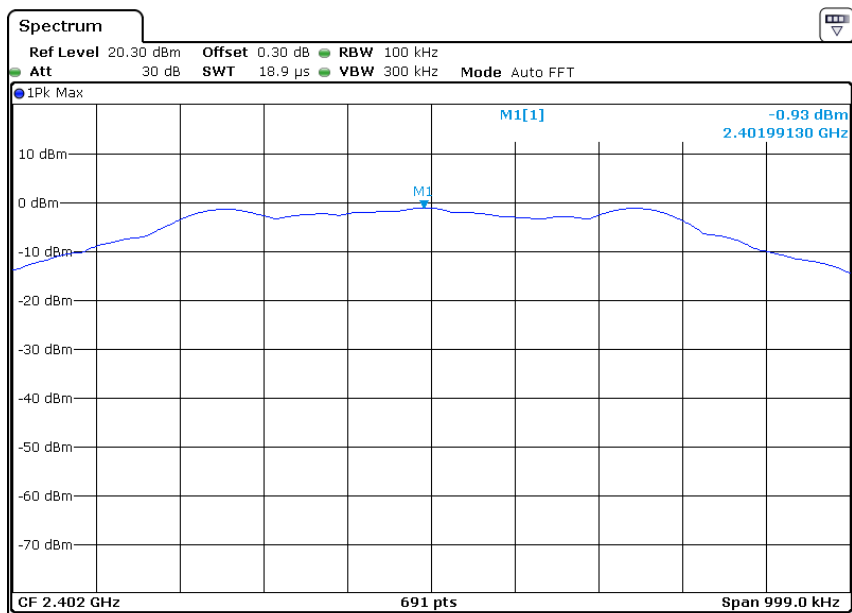
Packet: DH1

Frequency (MHz)	Power Density with RBW 100KHz
2402	-0.93
2440	-0.63
2480	-0.53

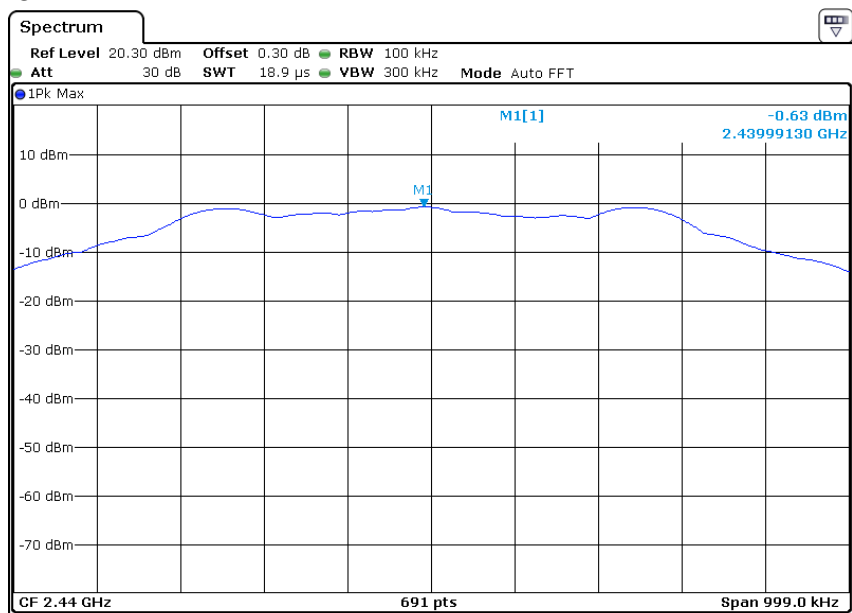
The test plots are attached as below.

# INTERTEK TESTING SERVICES

## Low Channel

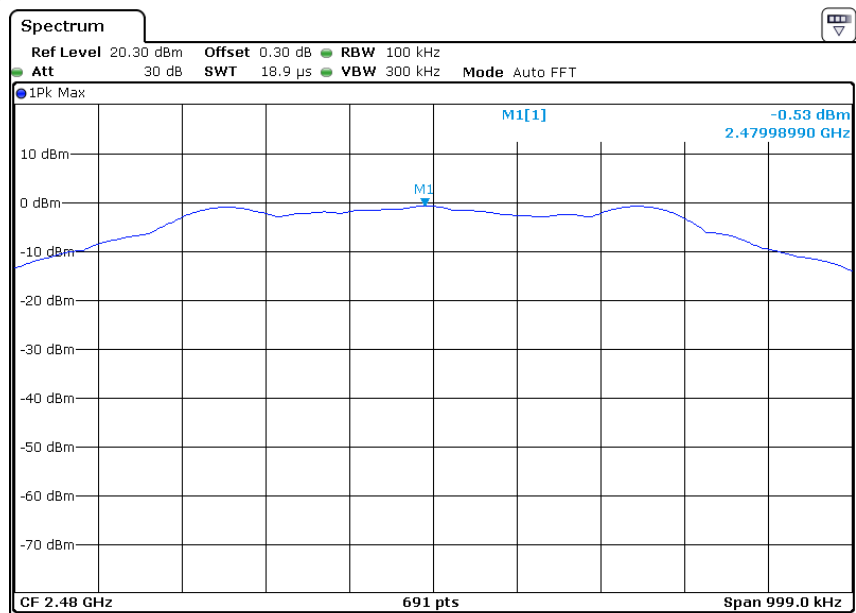


## Middle Channel



# INTERTEK TESTING SERVICES

## High Channel



## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd  
Date of Test: December 03, 2014  
Model: HUAWEI Y520-U03

#### 4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation. The Measurement Procedure was set according to the FCC KDB 558074.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

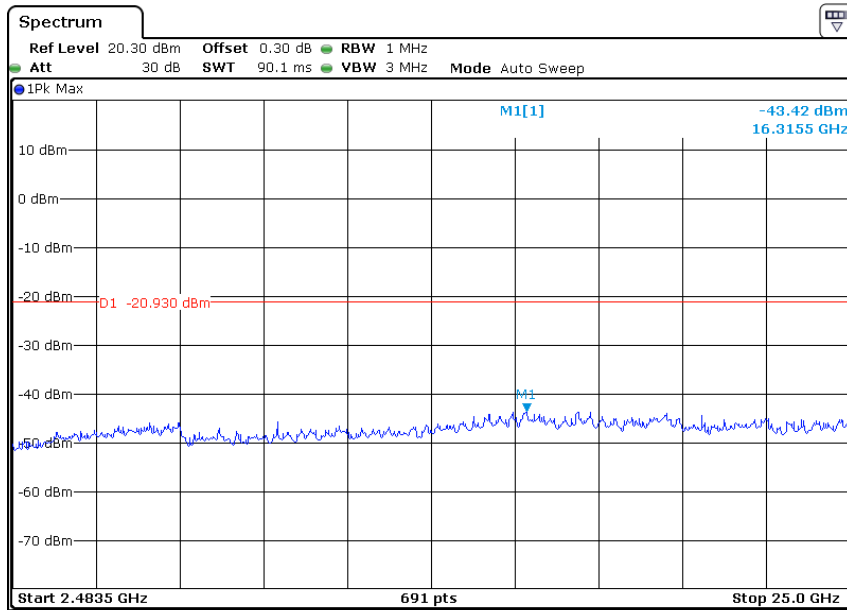
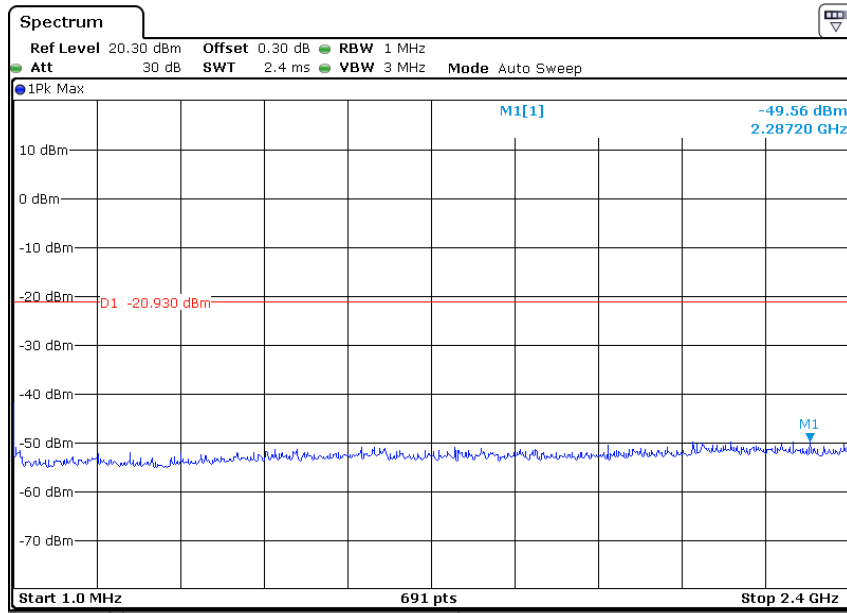
Refer to the attached test plot for out of band conducted emissions data with Packet: DH1

The test plots showed all spurious emission and up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

The test plots are attached as below.

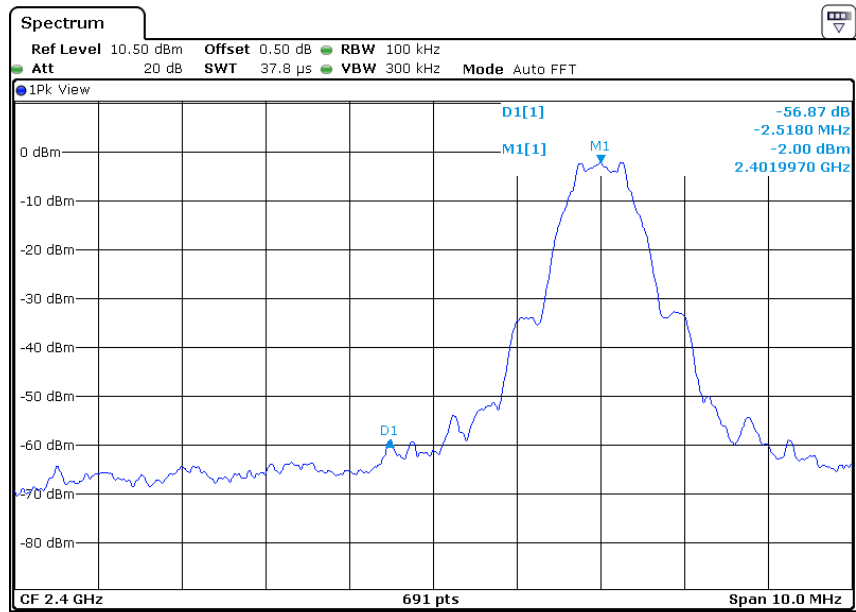
# INTERTEK TESTING SERVICES

Low Channel Reference Level: -0.93dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: QISY520-U03A  
Report No.: 141120012SZN-003

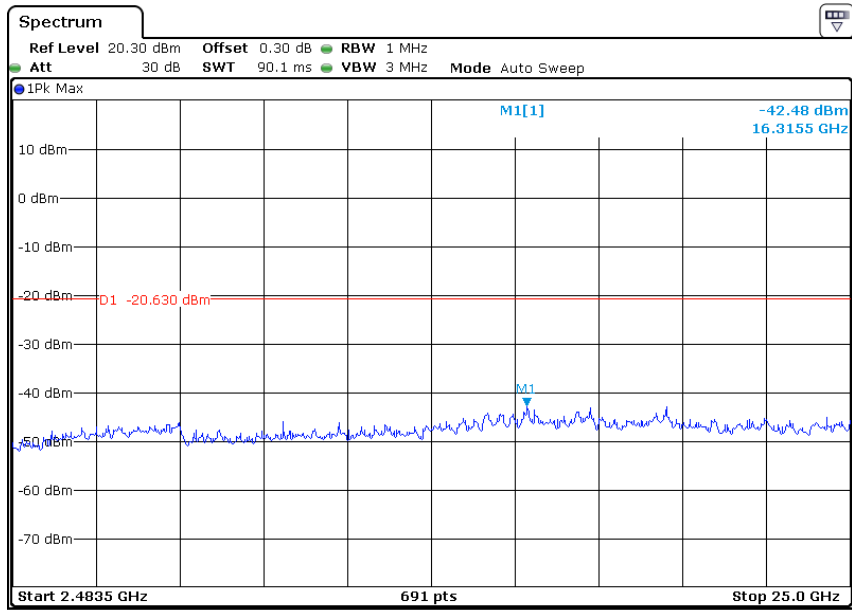
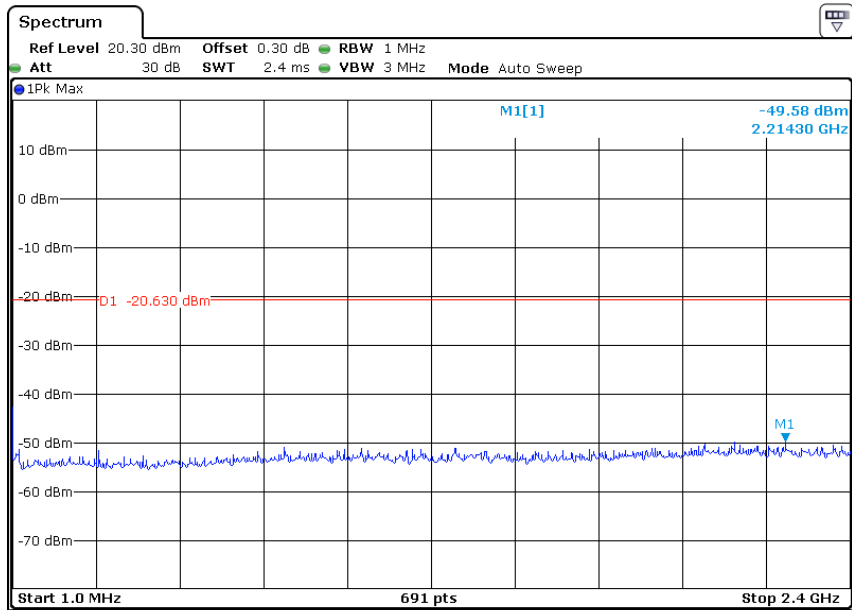
# INTERTEK TESTING SERVICES





# INTERTEK TESTING SERVICES

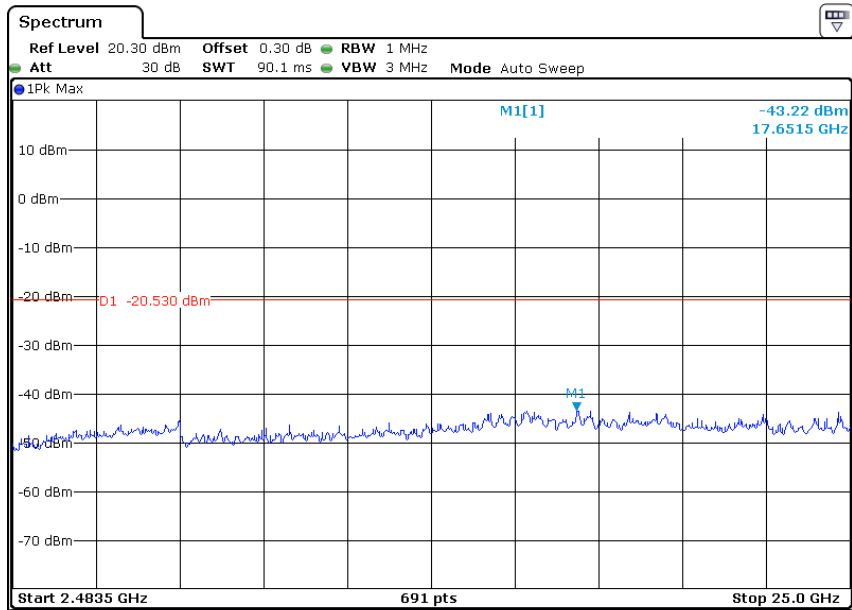
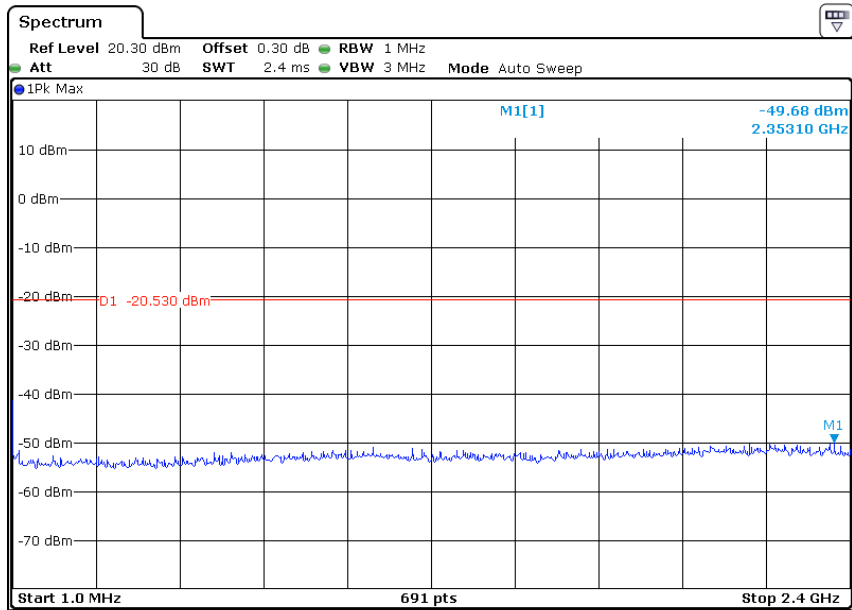
Middle Channel Reference Level: -0.63dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: QISY520-U03A  
Report No.: 141120012SZN-003

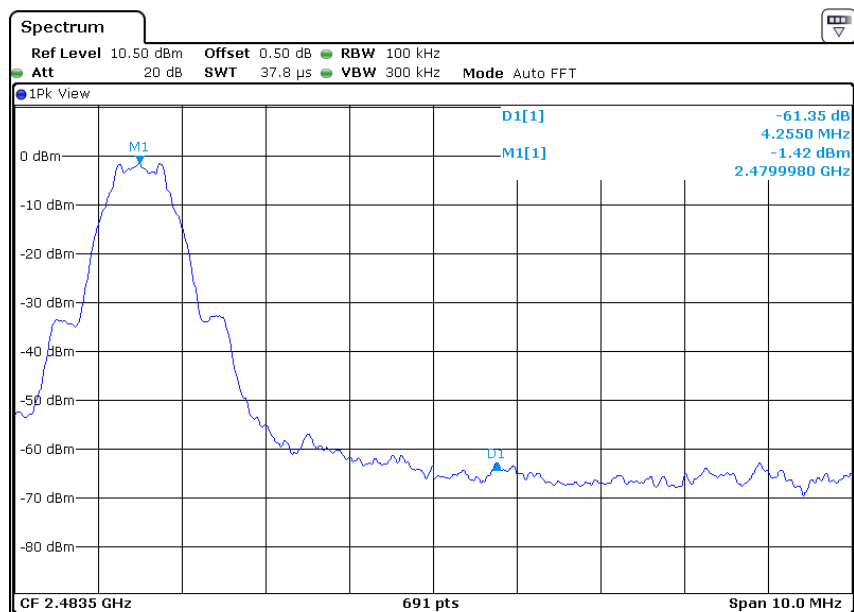
# INTERTEK TESTING SERVICES

High Channel Reference Level: -0.53dBm



TRF no.: FCC 15C\_TX\_b  
FCC ID: QISY520-U03A  
Report No.: 141120012SZN-003

# INTERTEK TESTING SERVICES



TRF no.: FCC 15C\_TX\_b  
FCC ID: QISY520-U03A  
Report No.: 141120012SZN-003

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Not required, since all emissions are more than 20dB below fundamental

See attached data sheet

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD$$

Where

- FS = Field Strength in dB $\mu$ V/m
- RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG + PD$$

#### Example

Assume a receiver reading of 62.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd  
Date of Test: December 03, 2014  
Model: HUAWEI Y520-U03

### 4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission at 30.485 MHz is passed by 6.4 dB margin.  
(Simultaneous transmission spurious was considered)

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd  
Date of Test: December 03, 2014  
Model: HUAWEI Y520-U03  
Worst Case Operating Mode: BT Link  
AC/DC Adapter: UE (HW-050055R1W)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	30.485	33.2	20.0	10.6	23.8	40.0	-16.2
Horizontal	32.910	30.2	20.0	12.0	22.2	40.0	-17.8
Horizontal	728.885	34.6	20.0	14.7	29.3	46.0	-16.7
Vertical	30.485	34.7	20.0	18.9	33.6	40.0	-6.4
Vertical	33.395	40.5	20.0	9.2	29.7	40.0	-10.3
Vertical	46.005	42.0	20.0	7.8	29.8	40.0	-10.2

- NOTES: 1. Quasi-Peak detector is used except for others stated.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. All emissions are below the QP limit.



## INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co., Ltd  
 Date of Test: December 03, 2014  
 Model: HUAWEI Y520-U03  
 Mode: Packet DH1 (TX-Channel 2402MHz)

### Radiated Emissions 2402MHz

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4804.000	51.0	36.7	35.5	49.8	74.0	-24.2
Horizontal	7206.000	56.4	36.1	36.5	56.8	74.0	-17.2
Horizontal	9608.000	59.3	36.2	37.0	60.1	74.0	-13.9
Horizontal	2389.025	52.7	36.7	28.1	44.1	74.0	-29.9

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4804.000	36.3	36.7	35.5	35.1	54.0	-18.9
Horizontal	7206.000	41.3	36.1	36.5	41.7	54.0	-12.3
Horizontal	9608.000	44.8	36.2	37.0	45.6	54.0	-8.4
Horizontal	2389.025	45.4	36.7	28.1	36.8	54.0	-17.2

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co., Ltd  
 Date of Test: December 03, 2014  
 Model: HUAWEI Y520-U03  
 Mode: Packet DH1 (TX-Channel 2440MHz)

### Radiated Emissions

Channel: 2440MHz

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4880.000	51.4	36.7	35.5	50.2	74.0	-23.8
Horizontal	7320.000	56.0	36.1	37.2	57.1	74.0	-16.9
Horizontal	9760.000	58.7	36.2	37.0	59.5	74.0	-14.5

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4880.000	36.4	36.7	35.5	35.2	54.0	-18.8
Horizontal	7320.000	41.2	36.1	37.2	42.3	54.0	-11.7
Horizontal	9760.000	45.1	36.2	37.0	45.9	54.0	-8.1

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
  2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
  3. Negative value in the margin column shows emission below limit.
  4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co., Ltd  
 Date of Test: December 03, 2014  
 Model: HUAWEI Y520-U03  
 Mode: Packet DH1 (TX-Channel 2480MHz)

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4960.000	51.8	36.7	35.5	50.6	74.0	-23.4
Horizontal	7440.000	55.8	36.1	37.2	56.9	74.0	-17.1
Horizontal	9920.000	57.1	36.2	38.9	59.8	74.0	-14.2
Horizontal	2483.561	57.6	36.7	28.1	49.0	74.0	-25.0

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	4960.000	37.4	36.7	35.5	36.2	54.0	-17.8
Horizontal	7440.000	41.2	36.1	37.2	42.3	54.0	-11.7
Horizontal	9920.000	43.4	36.2	38.9	46.1	54.0	-7.9
Horizontal	2483.561	46.0	36.7	28.1	37.4	54.0	-16.6

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

## INTERTEK TESTING SERVICES

---

### 4.9 Conducted Emission

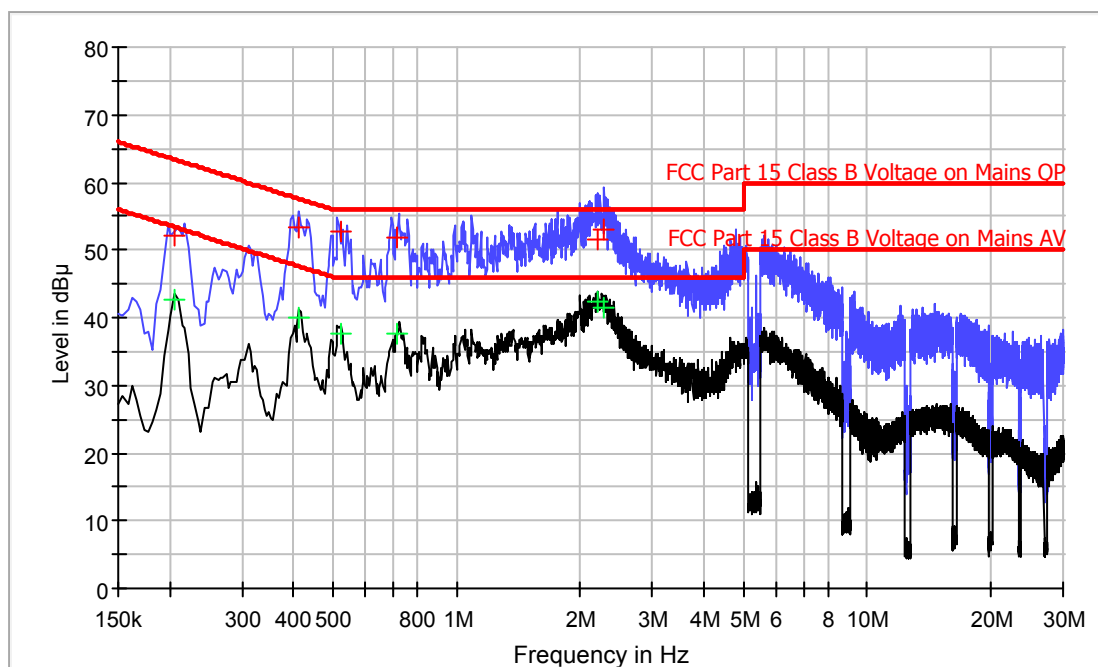
Worst Case Conducted emission at 2.294 MHz is Passed by 3.1 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

## INTERTEK TESTING SERVICES

Company: Huawei Technologies Co., Ltd  
 Date of Test: December 03, 2014  
 Model: HUAWEI Y520-U03  
 Worst Case Operating Mode: BT Link  
 AC/DC Adapter: UE (HW-050055R1W)

### Conducted Emission Test - FCC



#### Result Table QP

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.206	52.1	L1	9.8	11.3	63.4
0.414	53.3	L1	9.8	4.3	57.6
0.522	52.8	L1	9.8	3.2	56.0
0.714	51.9	L1	10.0	4.1	56.0
2.206	51.7	L1	10.0	4.3	56.0
2.294	52.9	L1	10.0	3.1	56.0

#### Result Table AV

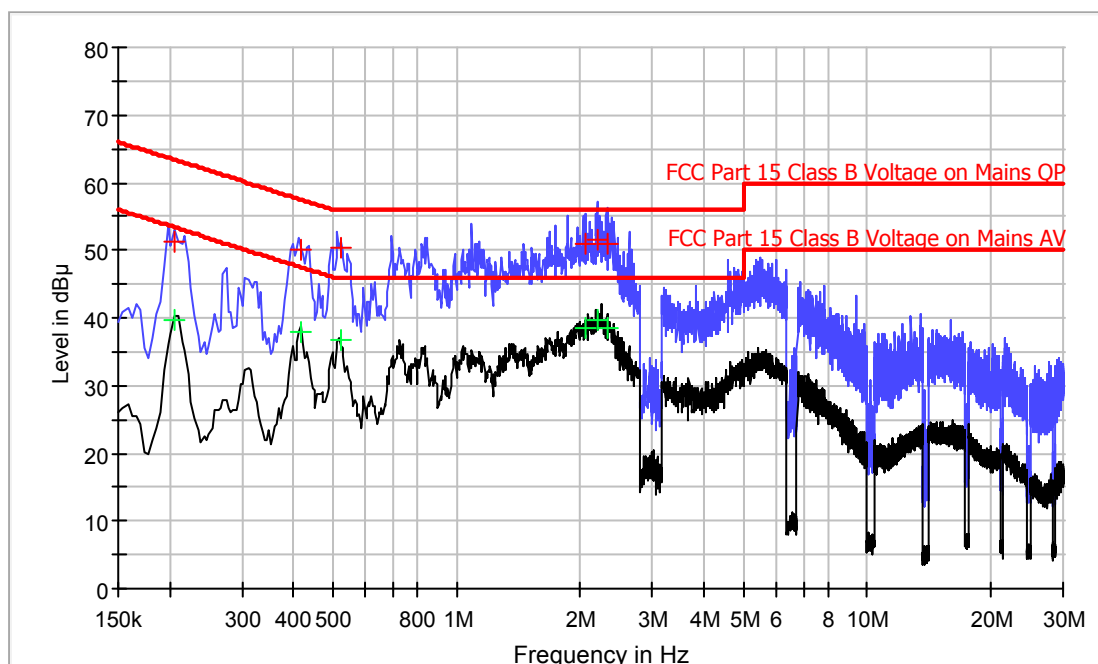
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.206	42.7	L1	9.8	10.7	53.4
0.414	40.1	L1	9.8	7.5	47.6
0.522	37.5	L1	9.8	8.5	46.0
0.714	37.6	L1	10.0	8.4	46.0
2.206	42.2	L1	10.0	3.8	46.0
2.294	41.4	L1	10.0	4.6	46.0

TRF no.: FCC 15C\_TX\_b  
 FCC ID: QISY520-U03A  
 Report No.: 141120012SZN-003

## INTERTEK TESTING SERVICES

Company: Huawei Technologies Co., Ltd  
 Date of Test: December 03, 2014  
 Model: HUAWEI Y520-U03  
 Worst Case Operating Mode: BT Link  
 AC/DC Adapter: UE (HW-050055R1W)

### Conducted Emission Test - FCC



#### Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.206	51.3	N	10.1	12.1	63.4
0.418	50.2	N	10.1	7.3	57.5
0.522	50.5	N	10.2	5.5	56.0
2.066	51.0	N	10.3	5.0	56.0
2.198	51.6	N	10.3	4.4	56.0
2.322	51.1	N	10.3	4.9	56.0

#### Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.206	39.8	N	10.1	13.6	53.4
0.418	37.9	N	10.1	9.6	47.5
0.522	36.6	N	10.2	9.4	46.0
2.066	38.5	N	10.3	7.5	46.0
2.198	39.6	N	10.3	6.4	46.0
2.322	38.4	N	10.3	7.6	46.0

TRF no.: FCC 15C\_TX\_b  
 FCC ID: QISY520-U03A  
 Report No.: 141120012SZN-003

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd  
Date of Test: December 03, 2014  
Model: HUAWEI Y520-U03

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

- Not required - No digital part
- Test results are attached
- Included in the separated report.

## INTERTEK TESTING SERVICES

---

Applicant: Huawei Technologies Co., Ltd

Date of Test: December 03, 2014

Model: HUAWEI Y520-U03

### 4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.



# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 5**

### **EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

---

### 5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.pdf.

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 6**

### **PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

---

### 6.0 Product Labelling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

**INTERTEK TESTING SERVICES**

---

**EXHIBIT 7**

**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

---

### 7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 8**

### **INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

---

### 8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.



# **INTERTEK TESTING SERVICES**

---

## **EXHIBIT 9**

### **MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

---

### 9.0 **Discussion of Pulse Desensitization**

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

# INTERTEK TESTING SERVICES

---

## EXHIBIT 10 TEST EQUIPMENT LIST

## INTERTEK TESTING SERVICES

### 10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	21-May-2014	21-May-2015
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	21-May-2014	21-May-2015
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	28-Jun-2014	28-Jun-2015
SZ185-01	EMI Receiver	R&S	ESCI	100547	10-Mar-2014	10-Mar-2015
SZ061-08	Horn Antenna	ETS	3115	00092346	19-Oct-2014	19-Oct-2015
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	03-Sep-2014	03-Sep-2015
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	29-Apr-2014	29-Apr-2015
EM031-03	EXA Spectrum Analyzer	R&S	FSV40	101506	09-Jun-2014	09-Jun-2015
SZ181-04	Preamplifier	Agilent	8449B	3008A0247 4	10-Mar-2014	10-Mar-2015
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	19-Apr-2014	19-Apr-2015
SZ062-02	RF Cable	RADIALL	RG 213U	--	03-Jul-2014	03-Jan-2015
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	09-Oct-2014	09-Apr-2015
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	09-Oct-2014	09-Apr-2015
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	21-May-2014	21-May-2015
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	01-Nov-2014	01-Nov-2015
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	01-Nov-2014	01-Nov-2015
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	16-Jun-2014	16-Jun-2015
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-2014	23-Aug-2015