Huawei Technologies Co., Ltd

Application
For
Certification
FCC ID: QISY520-U03

WCDMA Digital Mobile Phone

Model: HUAWEI Y520-U03

Class B Personal Computer Peripherals

Report No.: 140710013SZN-005

Prepared and Checked by:	Approved by:
Sign on file	Digitally signed by Andy Yan Location: Intertek Testing Services
Jenner Liu Assistant Engineer	Andy Yan Senior Project Engineer Date: August 15, 2014

TRF No.: FCC 15C_PC_b

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LIST OF EXHIBITS

MEASUREMENT / TECHNICAL REPORT

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

FCC ID: QISY520-U03

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

Equipment Type: JBP-Part 15 Class B Computing Device/Peripherals

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

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 ___X___

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

Report prepared by:

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Exhibit Type	File Description	Filename
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 Photos	external photos.pdf
Internal Photo	Internal Photos	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidential Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a WCDMA Digital Mobile Phone. The personal computers can through this WCDMA Digital Mobile Phone to read and write datas. For more detailed features description, please refer to the user's manual.

1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

Remaining portions are subject to the following procedures:
1. Bluetooth FHSS mode: 140710013SZN-002.
2. Bluetooth LE mode: 140710013SZN-003.
3. WiFi Transceiver (2.4G band): 140710013SZN-004.
4. WCDMA Digital Mobile Phone (2G&3G): 140710013SZN -001.
5. Other function: 140710013SZN-006.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). 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.

1.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, 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).

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The device was powered by PC USB Port (PC Adapter is powered by AC 120V/60Hz) during the test. The worst case data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 6.5GHz (The highest frequency of the internal sources of the EUT is 1.3GHz, the measurement shall be made up to 6.5GHz (Refer to 15.33 b (1)) was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

N/A

2.3 Special Accessories

Shielded USB cable is attached.

2.4 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.

2.5 Measurement Uncertainty

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

2.6 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
Laptop	Lenovo	T420
	Smart.drive	HD-003
	Smart.drive	Unshielded, Length 155cm
	Smart.drive	Unshielded, Length 180cm

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

EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included 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.

3.1 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

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB/m
AG = Amplifier Gain 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

3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0dBμV is obtained. The antenna factor of 7.4dB/m and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The net field strength for comparison to the appropriate emission limit is 42dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0dBμV
AF = 7.4dB/m
CF = 1.6dB
AG = 29.0dB

FS = 62 + 7.4 + 1.6 – 29 = 42dBμV/m

Level in μV/m = Common Antilogarithm [(42dBμV/m)/20] = 125.9μV/m

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
At
45.520MHz (Data transfer Mode)

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

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 8.2dB margin (Data transfer Mode)

TEST PERSONNEL:

Sign on file

Jenner Liu Assistant Engineer
Typed/Printed Name

25 July 2014
Date

Applicant: Huawei Technologies Co., Ltd
Model: HUAWEI Y520-U03
Worst case operating Mode: Data transfer

Table 1

Radiated Emissions (30MHz~6.5GHz)

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	30.020	31.1	20.0	9.5	20.6	40.0	-19.4
Horizontal	149.795	31.6	20.0	13.8	25.4	43.5	-18.1
Horizontal	949.560	32.2	20.0	21.8	34.0	46.0	-12.0
Horizontal	1998.000	30.3	20.0	29.9	40.2	54.0	-13.8
Horizontal	2016.000	31.2	20.0	29.6	40.8	54.0	-13.2
Horizontal	2216.000	30.0	20.0	31.1	41.1	54.0	-12.9
Vertical	45.520	38.0	20.0	13.8	31.8	40.0	-8.2
Vertical	75.560	26.0	20.0	19.4	25.4	40.0	-14.6
Vertical	252.130	26.3	20.0	22.1	28.4	46.0	-17.6
Vertical	1996.000	33.2	20.0	26.9	40.1	54.0	-13.9
Vertical	2998.000	30.3	20.0	30.9	41.2	54.0	-12.8

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz and Peak detector is used for frequency from 1-6.5GHz.

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 up to 1GHz are below the QP limit and all emissions between 1-6.5GHz are below the AV limit.

3.4 Conducted Emission at Mains Terminal

3.5 Conducted Emission Configuration Photograph

Worst Case Conducted Configuration
at
0.170 MHz (Data transfer Mode)

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

3.6 Conducted Emission Data

Judgement: Passed by 17.3 dB margin(Data transfer Mode)

TEST PERSONNEL:

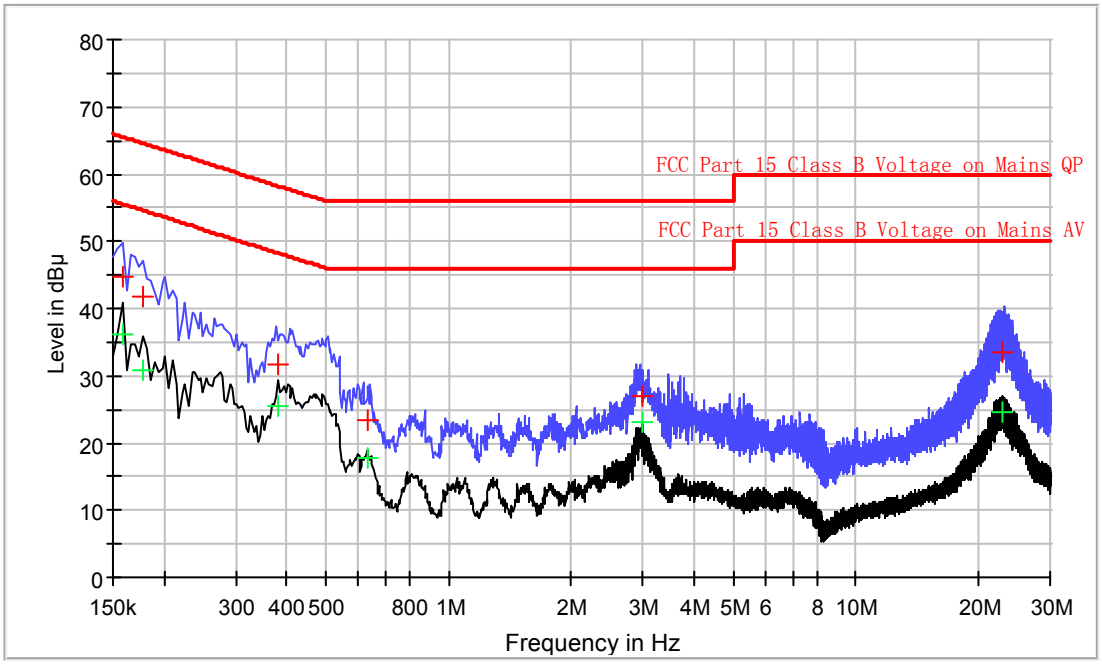
Sign on file

Jenner Liu Assistant Engineer
Typed/Printed Name

25 July 2014
Date

Applicant: Huawei Technologies Co., Ltd
Model: HUAWEI Y520-U03
Worst case operating Mode: Data transfer
Phase: Live

Conducted Emission Test - FCC



Result Table QP

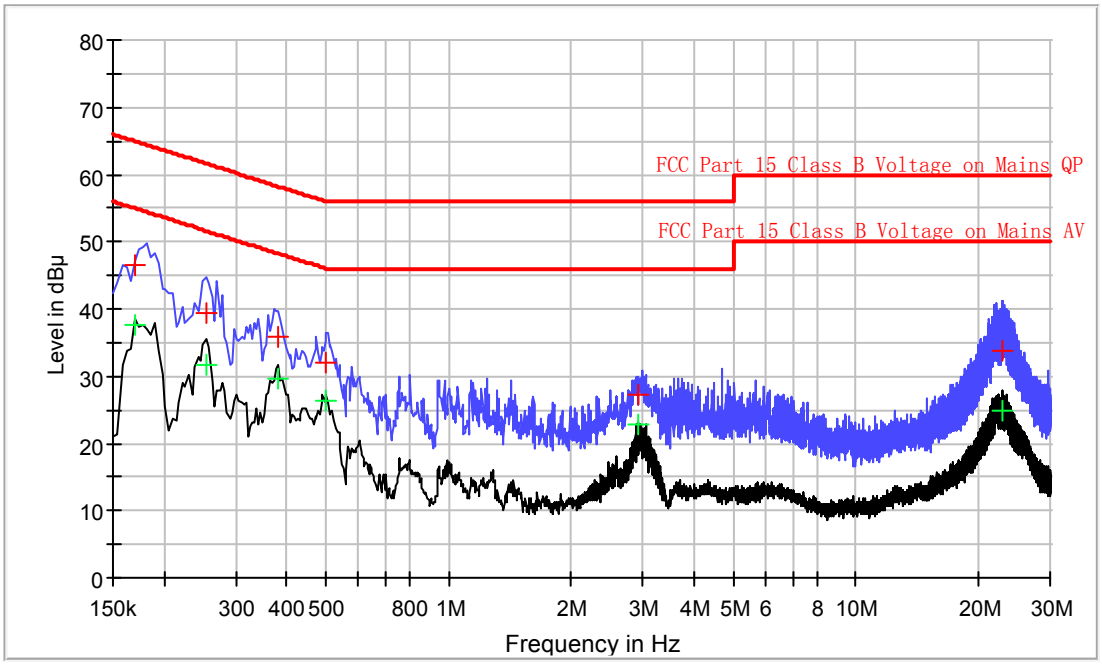
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.158	44.6	L1	9.9	21.0	65.6
0.178	41.9	L1	9.9	22.7	64.6
0.382	31.6	L1	9.7	26.6	58.2
0.630	23.4	L1	9.5	32.6	56.0
2.986	27.1	L1	9.8	28.9	56.0
22.850	33.5	L1	10.6	26.5	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.158	36.2	L1	9.9	19.4	55.6
0.178	30.9	L1	9.9	23.7	54.6
0.382	25.5	L1	9.7	22.7	48.2
0.630	17.8	L1	9.5	28.2	46.0
2.986	23.1	L1	9.8	22.9	46.0
22.850	24.6	L1	10.6	25.4	50.0

Applicant: Huawei Technologies Co., Ltd
Model: HUAWEI Y520-U03
Worst case operating Mode: Data transfer
Phase: Neutral

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.170	46.6	N	9.9	18.4	65.0
0.254	39.4	N	9.8	22.2	61.6
0.382	35.7	N	9.6	22.5	58.2
0.502	31.9	N	9.5	24.1	56.0
2.938	27.3	N	9.8	28.7	56.0
22.890	33.8	N	10.6	26.2	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.170	37.7	N	9.9	17.3	55.0
0.254	31.8	N	9.8	19.8	51.6
0.382	29.6	N	9.6	18.6	48.2
0.502	26.4	N	9.5	19.6	46.0
2.938	22.9	N	9.8	23.1	46.0
22.890	24.9	N	10.6	25.1	50.0

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

EXHIBIT 5

PRODUCT LABELLING

5.0 Product Labelling

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

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

EXHIBIT 7

INSTRUCTION MANUAL

7.0 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.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of computer peripheral operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2009.

The computer peripheral equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions are in QP mode from the frequency band 30MHz to 1GHz with RBW setting 120kHz. Detector function for radiated emissions are in PK & AV mode from the frequency band above 1GHz with RBW setting 1MHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 6.5GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

8.1 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 – 2009.

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

EXHIBIT 10

TEST EQUIPMENT LIST

10.0 **Test Equipment List**

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	Biconilog Antenna	ETS	3142C	00066460	28-Jun-2014	28-Jun-2015
SZ061-09	Horn Antenna	ETS	3115	00092346	16-Nov-2013	16-Nov-2014
EM031-03	EXA Spectrum Analyzer	R&S	FSV40	101506	09-Jun-2014	09-Jun-2015
SZ181-04	Preamplifier	Agilent	8449B	3008A02 474	10-Mar-2014	10-Mar-2015
SZ185-01	EMI Receiver	R & S	ESCI	100547	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	--	19-Apr-2014	19-Oct-2014
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	19-Apr-2014	19-Oct-2014
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	09-Nov-2013	09-Nov-2014
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	09-Nov-2013	09-Nov-2014
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	09-Nov-2013	09-Nov-2014
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-2013	23-Aug-2014