



7 June, 2012

Huawei Technologies Co.,Ltd  
Bantian, Longgang District, Shenzhen, China  
Tel.: (86) 755- 89650288  
Fax: (86) 755- 89650226

Dear Mr. Zhang Xinghai,

Enclosed you will find your file copy of a Part 15 report (FCC ID: QISU8186-7).

For your reference, TCB will normally take another one week for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

A handwritten signature in black ink, appearing to read "Shawn Xing", with a long horizontal stroke extending to the right.

Shawn Xing  
Manager

Enclosure



## Huawei Technologies Co.,Ltd

Application  
For  
Certification  
**(FCC ID: QISU8186-7)**  
Computer Peripheral

SZ12050427-14

Billy Li

7 June, 2012

- 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\_PC\_b  
FCC ID: QISU8186-7

**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](http://www.china.intertek-etlsemko.com)

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# INTERTEK TESTING SERVICES

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## LIST OF EXHIBITS

### *INTRODUCTION*

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<i>EXHIBIT 2:</i>	System Test Configuration
<i>EXHIBIT 3:</i>	Emission Results
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<i>EXHIBIT 5:</i>	Product Labeling
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<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Miscellaneous Information
<i>EXHIBIT 9:</i>	Test Equipment List

# INTERTEK TESTING SERVICES

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## MEASUREMENT / TECHNICAL REPORT

Huawei Technologies Co.,Ltd – MODEL: HUAWEI U8186-7/U8186-7

FCC ID: QISU8186-7

7 June, 2012

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

Equipment Type: JBP-Class B Computing Device Peripheral

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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.

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Transition Rules Request per 15.37?      Yes       No

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-11 Edition] provision.

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Report prepared by:

Shawn Xing  
Intertek Testing Services Shenzhen Ltd.  
Kejiyuan Branch  
6F, D Block, Huahan Building, Langshan Road  
Nanshan District, Shenzhen, P. R. China  
Phone: (86 755) 8601 6288  
Fax: (86 755) 8601 6751

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# INTERTEK TESTING SERVICES

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## INTERTEK TESTING SERVICES

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List of attached file

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated photos	radiated photos.pdf
Test Setup Photo	Conducted photos	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	Letter of Agency	agency.pdf

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

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## INTERTEK TESTING SERVICES

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### 1.0 General Description

#### 1.1 Product Description

The Equipment Under Test (EUT) is a middle and high end dual mode mobile phone. It supports HSDPA/WCDMA, GSM/GPRS/EDGE frequency bands and can be used to transfer data connecting PC by USB port through USB cable. The EUT is powered from internal lithium battery and charged by PC USB Port.

EUT Accessory List:

Accessory	Model	Manufacturer
Battery	HB4J1	BYD
		GuangYu
Headset	125G#+3261# 3.5MM-2	QuanCheng
	MEMD1532A761A00	LianChuang
USB Cable	LSA00350	LianSheng
	H09-000167	PengYi
AC Adapter	HS-050040U6	BYD
		HangJia

#### 1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

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## INTERTEK TESTING SERVICES

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### 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).

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 2**

**SYSTEM TEST CONFIGURATION**

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## INTERTEK TESTING SERVICES

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### 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 is powered by the fully charged batteries described in page 2 during the test. Only 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 5GHz 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

No special accessory.

#### 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.

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## INTERTEK TESTING SERVICES

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### 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:

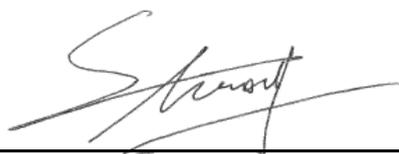
Refer List:

Description	Manufacturer	Model No.
Laptop	Lenovo	T420
Hard Disk	FUJITSU	AS160H-D-G
1.0m shielded USB Cable	FUJITSU	N/A
Headset	QuanCheng	125G#+3261# 3.5MM-2
Headset	LianChuang	MEMD1532A761A00
1.2m shielded USB Cable	LianSheng	LSA00350
1.2m shielded USB Cable	PengYi	H09-000167
Mini SD Card	SanDisk	2G

All the items listed under section 2.0 of this report are

*Confirmed by:*

*Shawn Xing*  
*Manager*  
*Intertek Testing Services Shenzhen Ltd.*  
*Kejiyuan Branch*  
*Agent for Huawei Technologies Co.,Ltd*

  
\_\_\_\_\_ *Signature*

\_\_\_\_\_ *7 June, 2012* *Date*

**INTERTEK TESTING SERVICES**

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**EXHIBIT 3**  
**EMISSION RESULTS**

## INTERTEK TESTING SERVICES

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### 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.

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## INTERTEK TESTING SERVICES

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### 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.

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

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

AV = Average Factor 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:

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

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## INTERTEK TESTING SERVICES

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### 3.1 Field Strength Calculation (cont'd)

#### Example

Assume a receiver reading of 62.0dB $\mu$ V is obtained. The antenna factor of 7.4dB and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0dB, and the resultant average factor was -10dB. The net field strength for comparison to the appropriate emission limit is 32dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

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

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

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

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

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

$$AV = -10\text{dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32\text{dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32\text{dB}\mu\text{V/m})/20] = 39.8\mu\text{V/m}$$

## INTERTEK TESTING SERVICES

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### 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission  
At  
245.840MHz (Data transfer Mode)

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

## INTERTEK TESTING SERVICES

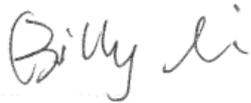
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### 3.3 Radiated Emission Data

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 3.4dB margin (Data transfer Mode)

#### **TEST PERSONNEL:**



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*Signature*

Billy Li, Team Leader  
*Typed / Printed Name*

7 June, 2012  
*Date*

## INTERTEK TESTING SERVICES

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Company: Huawei Technologies Co.,Ltd  
Model: HUAWEI U8186-7/U8186-7  
Operating Mode: Data transfer

Date of Test: 7 June, 2012

**Table 1**

### **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	245.840	50.0	20.0	12.6	42.6	46.0	-3.4
Horizontal	344.280	40.3	20.0	16.1	36.4	46.0	-9.6
Horizontal	393.265	36.5	20.0	17.1	33.6	46.0	-12.4
Vertical	240.005	50.0	20.0	12.5	42.5	46.0	-3.5
Vertical	344.280	40.2	20.0	16.1	36.3	46.0	-9.7
Vertical	442.250	44.2	20.0	18.3	42.5	46.0	-3.5
Vertical	1560.223	31.7	20.0	31.5	43.2	54.0	-10.8

#### NOTES:

1. Quasi-Peak detector was used for frequency up to 1GHz and PEAK detector was used for frequency from 1-5GHz.
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 1-5GHz are below the AV limit.

Test Engineer: Billy Li

## INTERTEK TESTING SERVICES

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### 3.4 Conducted Emission Configuration Photograph

Worst Case Conducted Configuration  
at  
0.194 MHz

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

## INTERTEK TESTING SERVICES

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### 3.5 Conducted Emission Data

Judgement: Passed by 5.3 dB margin

#### **TEST PERSONNEL:**



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*Signature*

Billy Li, Team Leader  
*Typed/Printed Name*

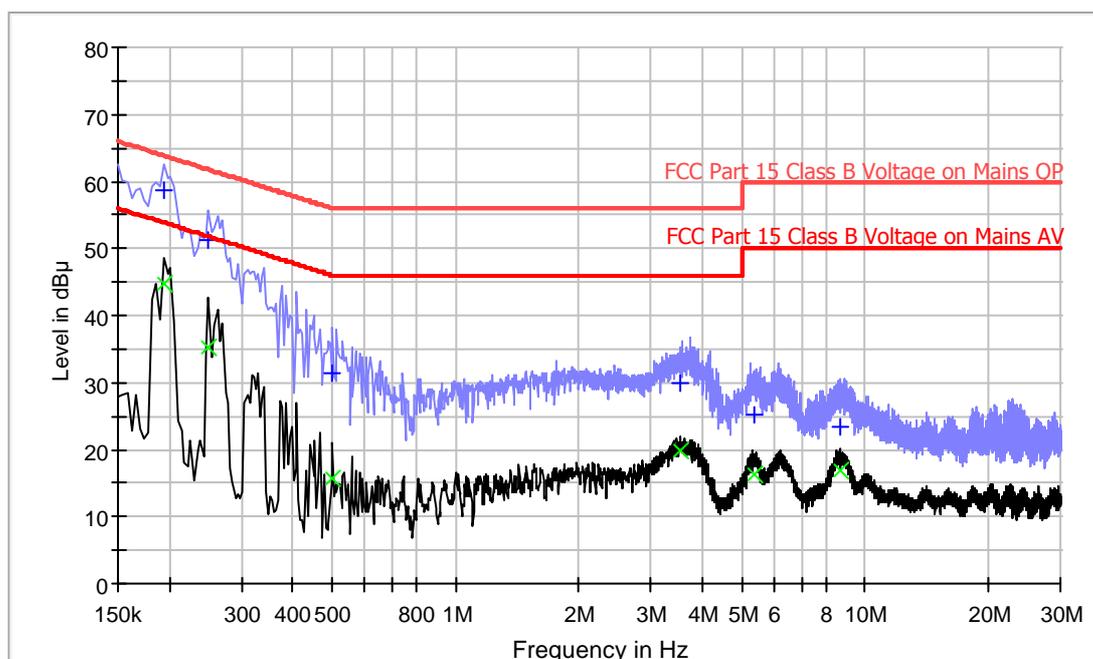
7 June, 2012  
*Date*

## INTERTEK TESTING SERVICES

Company: Huawei Technologies Co.,Ltd  
 Model: HUAWEI U8186-7/U8186-7  
 Worst Case Operating Mode: Data transfer

Date of Test: 7 June, 2012

### Conducted Emission Test - FCC



### Result Table-QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.194000	58.6	L1	9.6	5.3	63.9
0.250000	51.3	L1	9.6	10.5	61.8
0.502000	31.3	L1	9.6	24.7	56.0
3.542000	30.0	L1	9.7	26.0	56.0
5.350000	25.3	L1	9.8	34.7	60.0
8.698000	23.4	L1	9.9	36.6	60.0

### Result Table-AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.194000	44.8	L1	9.6	9.1	53.9
0.250000	35.2	L1	9.6	16.6	51.8
0.502000	15.7	L1	9.6	30.3	46.0
3.542000	19.9	L1	9.7	26.1	46.0
5.350000	16.2	L1	9.8	33.8	50.0
8.698000	16.8	L1	9.9	33.2	50.0

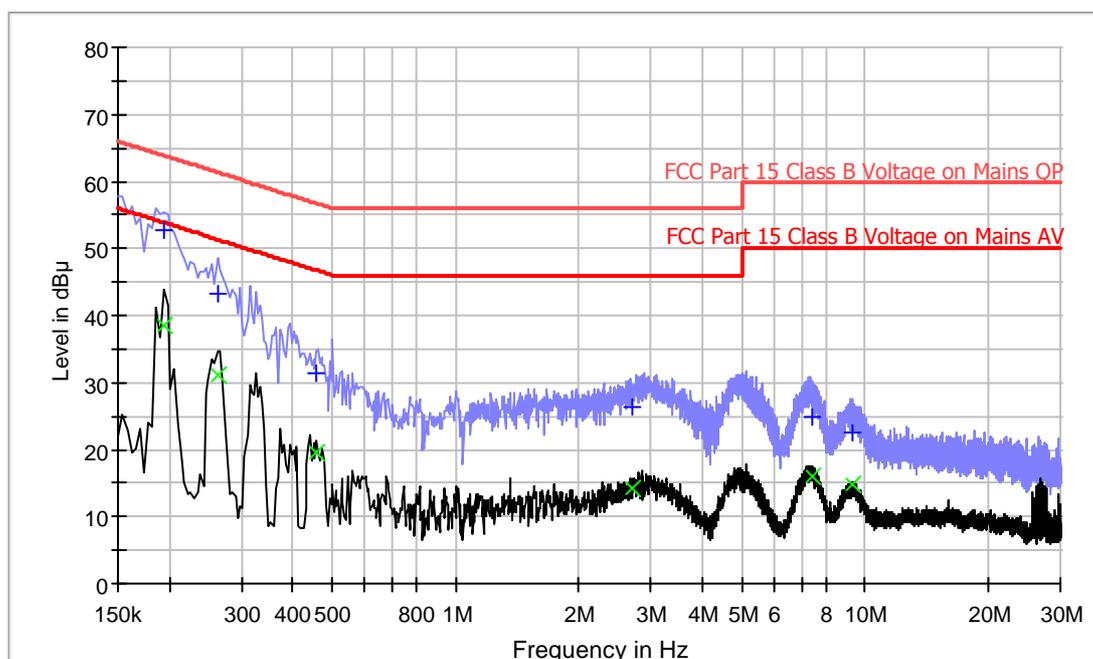
Test Engineer: Billy Li

## INTERTEK TESTING SERVICES

Company: Huawei Technologies Co.,Ltd  
 Model: HUAWEI U8186-7/U8186-7  
 Worst Case Operating Mode: Data transfer

Date of Test: 7 June, 2012

### Conducted Emission Test - FCC



### Result Table-QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.194000	52.7	N	9.6	11.2	63.9
0.262000	43.4	N	9.6	18.0	61.4
0.458000	31.5	N	9.6	25.2	56.7
2.714000	26.4	N	9.7	29.6	56.0
7.414000	24.9	N	9.9	35.1	60.0
9.266000	22.5	N	10.0	37.5	60.0

### Result Table-AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.194000	38.5	N	9.6	15.4	53.9
0.262000	31.2	N	9.6	20.2	51.4
0.458000	19.4	N	9.6	27.3	46.7
2.714000	14.3	N	9.7	31.7	46.0
7.414000	16.0	N	9.9	34.0	50.0
9.266000	14.7	N	10.0	35.3	50.0

Test Engineer: Billy Li

**INTERTEK TESTING SERVICES**

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**EXHIBIT 4**

**EQUIPMENT PHOTOGRAPHS**

## INTERTEK TESTING SERVICES

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### 4.0 **Equipment Photographs**

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

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**INTERTEK TESTING SERVICES**

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**EXHIBIT 5**  
**PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 5.0 **Product Labelling**

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

**INTERTEK TESTING SERVICES**

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**EXHIBIT 6**  
**TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

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### 6.0 Technical Specifications

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

**EXHIBIT 7**  
**INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 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.

**INTERTEK TESTING SERVICES**

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**EXHIBIT 8**

**MISCELLANEOUS INFORMATION**

## INTERTEK TESTING SERVICES

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### 8.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

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## INTERTEK TESTING SERVICES

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### 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 and in PK & AV mode from frequency band 1GHz to 5GHz 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 5GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

## INTERTEK TESTING SERVICES

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### 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.

**INTERTEK TESTING SERVICES**

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**EXHIBIT 9**

**TEST EQUIPMENT LIST**

## INTERTEK TESTING SERVICES

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### 9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	02-Jul-11	02-Jan-13
SZ185-01	EMI Receiver	R&S	ESCI	100547	11-Mar-12	11-Mar-13
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	11-Mar-12	11-Mar-13
SZ061-08	Horn Antenna	ETS	3115	00092346	15-Oct-11	15-Oct-12
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-Mar-12	11-Mar-13
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	11-Mar-12	11-Mar-13
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	03-Mar-12	03-Mar-13
SZ062-02	RF Cable	RADIALL	RG 213U	--	17-Mar-12	17-Sep-12
SZ062-06	RF Cable	RADIALL	0.04-26.5GHz	--	01-Nov-11	01-Nov-12
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	25-Feb-12	25-Aug-12
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	05-Nov-11	05-Nov-12
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	05-Nov-11	05-Nov-12
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	05-Nov-11	05-Nov-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-10	16-Sep-13