FCC PART 15B, CLASS B

TEST REPORT

For

Gfive Intemet(HK) Limited

5F/Tower E,9th East ,Shangxue Industrial Park, Bantian ,longguang District, Shenzhen ,China

FCC ID: 2AHQFZ13Z8Z9

Report Type:	**Product Type:**
Original Report	Feature phones

Test Engineer:	Kobe Li
Report Number:	RSZ160608002-00A
Report Date:	2016-06-16
Reviewed By:	Simon Wang RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Gfive Intemet(HK) Limited* 's product, model number: GFIVE Z13 *(FCC ID: 2AHQFZ13Z8Z9)* or the "EUT" in this report was a *Feature phones* , which was measured approximately: 12.9 cm (L) × 5.4 cm (W) × 1.4 cm (H), rated with input voltage: DC 3.7V rechargeable Li-ion battery or DC 5.0V from adapter. The highest operating frequency is 2480MHz.

Adapter Information:
Input: AC 100-240V, 50/60Hz, 0.25A
Output: DC 5V, 1000mA

Note: The series product, model GFIVE Z8, GFIVE Z9 and GFIVE Z13, they are electrically identical schematics and the only difference between them is the model number. Model GFIVE Z13 was selected for fully testing, which was explained in the attached product similarity declaration letter.

**All measurement and test data in this report was gathered from production sample serial number: 1602464. (Assigned by Shenzhen BACL).The EUT supplied by the applicant was received on 2016-06-08.*

Objective

This test report is prepared on behalf of *Gfive Intemet(HK) Limited* in accordance with Part 2-Subpart J, Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15 B.

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS and Part 22H & 24E PCE submissions with FCC ID: 2AHQFZ13Z8Z9.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 5.81 dB for 30MHz-1GHz, and 4.88 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on October 31, 2013. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

EUT operation mode: Downloading (data transfer with computer)

EUT Exercise Software

"BurnIn test v5.3" exercise software was used.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Sandisk	T-F card	N/A	3491
BULL	Socket	GN-415K	5503290068073
DELL	Monitor	E178FPc	070072
DELL	PC	DCSCSF	127BP2X
ECOM	Modem	56000bps	21654684
Microsoft	Keyboard	1406	0200706128743
Microsoft	Mouse	1405	0204608630856
DELL	Monitor	E178WFPC	N51X2462

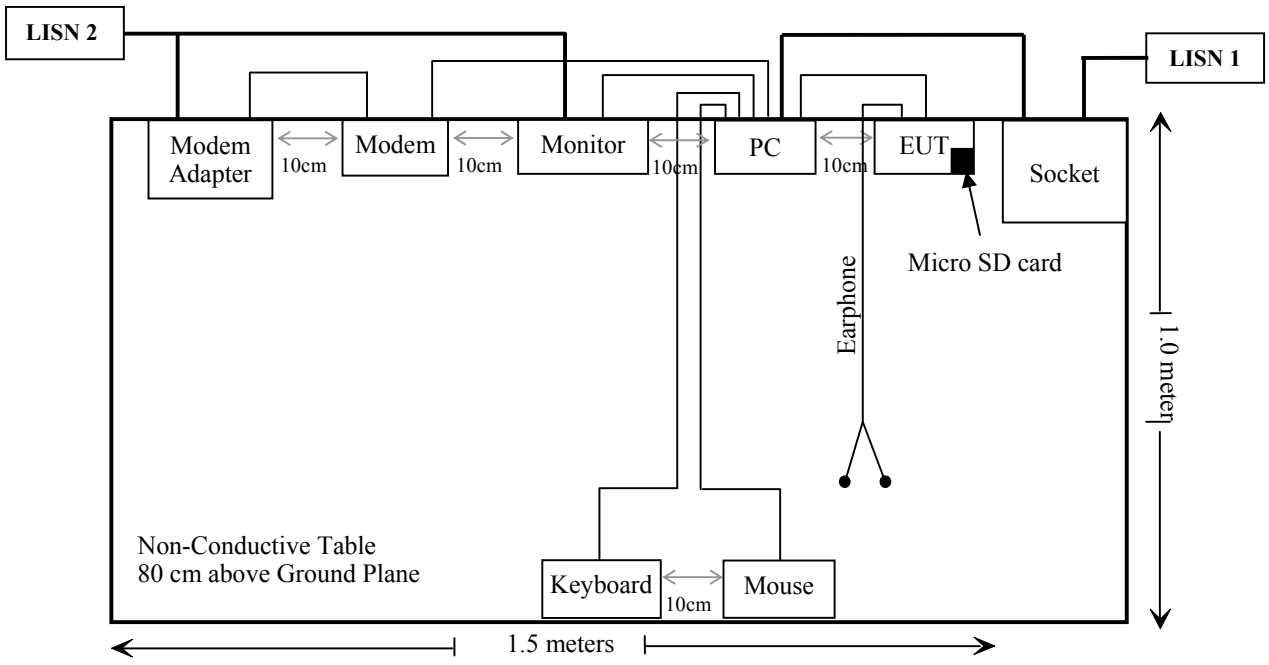
External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielding detachable AC cable	1.4	Monitor	LISN 2
Shielding detachable VGA cable	1.4	Monitor	PC
Un-shielding detachable AC cable	1.5	PC	LISN 1
Un-shielding Un-detachable earphone cable	1.14	Earphone	EUT
Shielding detachable USB cable	1.12	PC	EUT
Shielding detachable RS232 cable	1.6	PC	Modem
Un-shielding Un-detachable DC cable	1.4	Modem Adapter	Modem
Un-shielding detachable AC cable	1.5	Modem Adapter	LISN 2
Shielding Un-detachable USB cable	1.6	Keyboard	PC
Shielding Un-detachable USB cable	1.6	Mouse	PC
Un-shielding Un-detachable AC cable	1.0	Socket	LISN 1

Block Diagram of Test Setup

Test Mode: Downloading

CE:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC §15.107

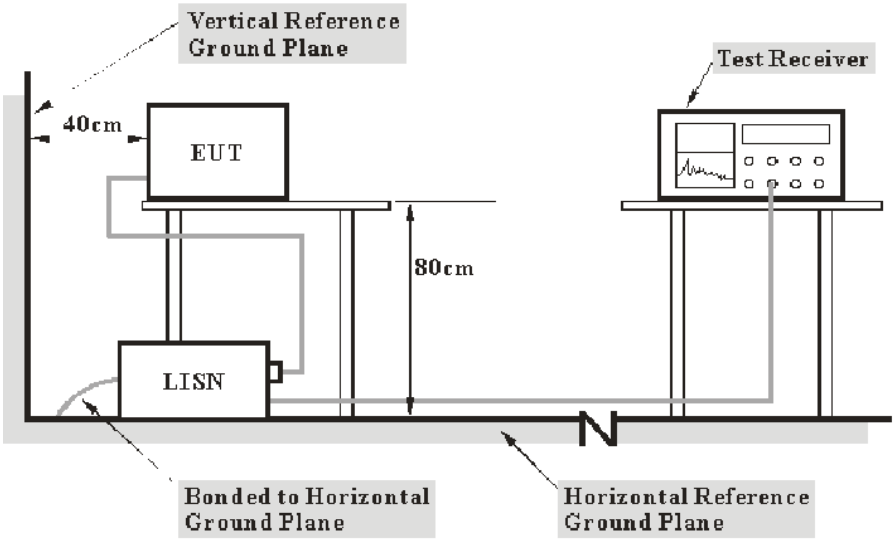
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN/ISN and receiver, LISN/ISN voltage division factor, LISN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Measurement uncertainty
AC Mains	3.34 dB (k=2, 95% level of confidence)
CAT 3	3.72 dB (k=2, 95% level of confidence)
CAT 5	3.74 dB (k=2, 95% level of confidence)
CAT 6	4.54 dB (k=2, 95% level of confidence)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with per ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN and the other relevant equipments were conncected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2016-06-01	2017-05-31
Rohde & Schwarz	LISN 1	ENV216	3560.6650.12-101613-Yb	2015-12-15	2016-12-14
COM-POWER	LISN 2	LI-200	12208	2015-12-15	2016-12-14
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2016-05-14	2017-05-14
Rohde & Schwarz	CE Test software	EMC 32	V8.53	NCR	NCR
Ducommun technologies	Conducted Emission Cable	RG-214	CB031	2015-06-15	2016-06-15

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, the worst margin as below:

3.8 dB at 2.41379 MHz in the Line Conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

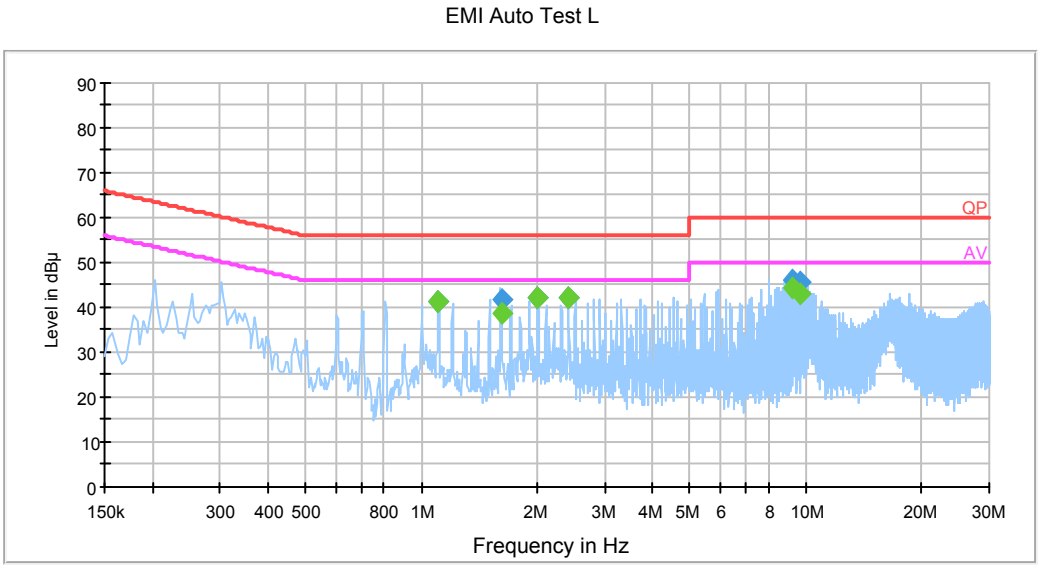
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Kobe Li on 2016-06-12.

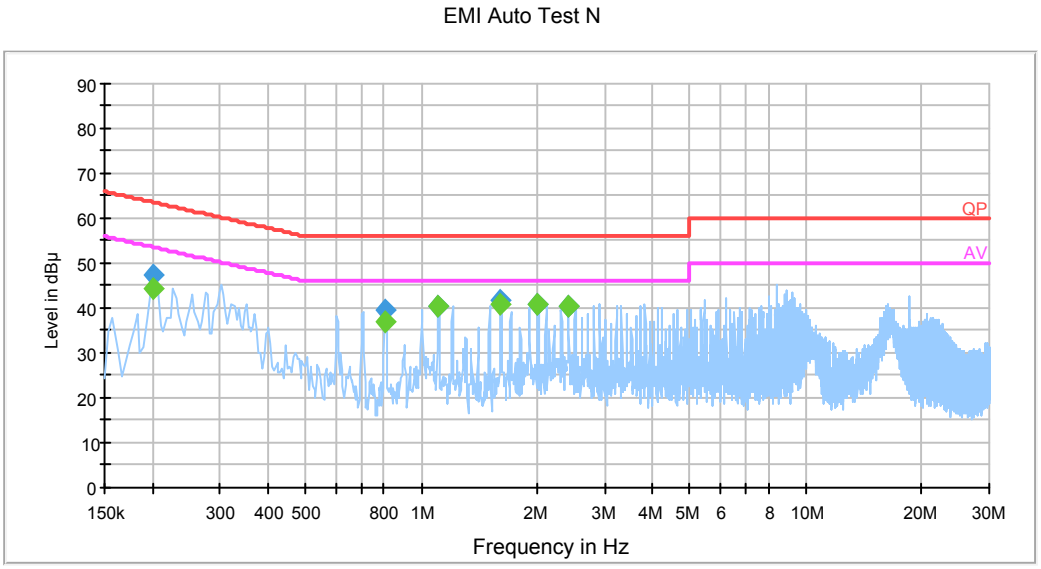
EUT Operation Mode: Downloading

AC 120V/60 Hz, Line:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
1.105410	41.3	20.0	56.0	14.7	QP
1.105410	41.2	20.0	46.0	4.8	Ave.
1.613850	41.6	20.0	56.0	14.4	QP
1.613850	38.6	20.0	46.0	7.4	Ave.
2.011850	42.1	20.0	56.0	13.9	QP
2.011850	42.1	20.0	46.0	3.9	Ave.
2.413790	42.2	20.0	56.0	13.8	QP
2.413790	42.2	20.0	46.0	3.8	Ave.
9.255190	46.2	20.1	60.0	13.8	QP
9.255190	44.4	20.1	50.0	5.6	Ave.
9.658690	45.5	20.1	60.0	14.5	QP
9.658690	43.1	20.1	50.0	6.9	Ave.

AC 120V/60 Hz, Neutral:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
0.201500	47.4	20.0	63.5	16.1	QP
0.201500	44.4	20.0	53.5	9.1	Ave.
0.805910	39.7	19.9	56.0	16.3	QP
0.805910	36.9	19.9	46.0	9.1	Ave.
1.105410	40.4	20.0	56.0	15.6	QP
1.105410	40.5	20.0	46.0	5.5	Ave.
1.609850	41.7	20.0	56.0	14.3	QP
1.609850	40.9	20.0	46.0	5.1	Ave.
2.011850	40.8	20.0	56.0	15.2	QP
2.011850	40.8	20.0	46.0	5.2	Ave.
2.413790	40.5	20.0	56.0	15.5	QP
2.413790	40.4	20.0	46.0	5.6	Ave.

Note:
1) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

According to FCC§15.109

Measurement Uncertainty

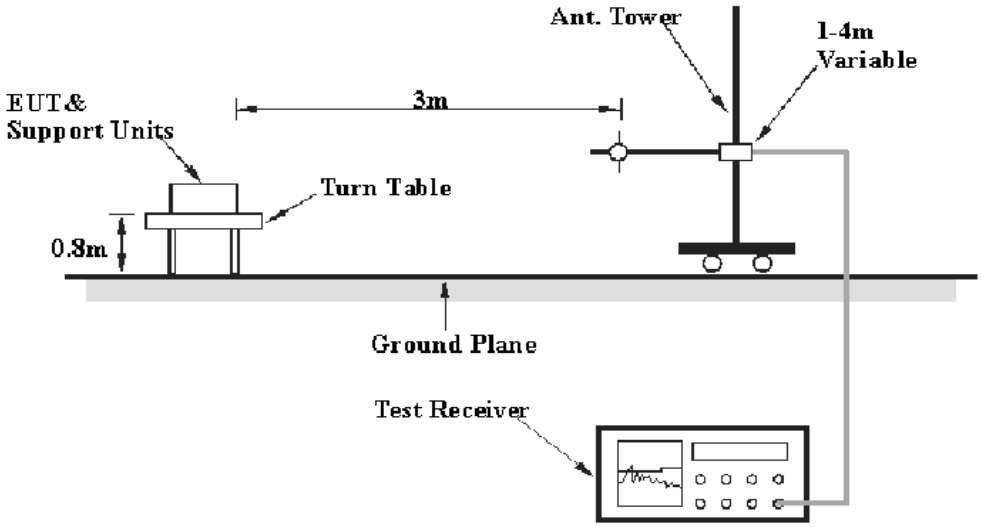
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is 5.81 dB for 30MHz-1GHz and 4.88 dB for above 1GHz, 1.95dB for conducted measurement at antenna port. And the uncertainty will not be taken into consideration for the test data recorded in the report.

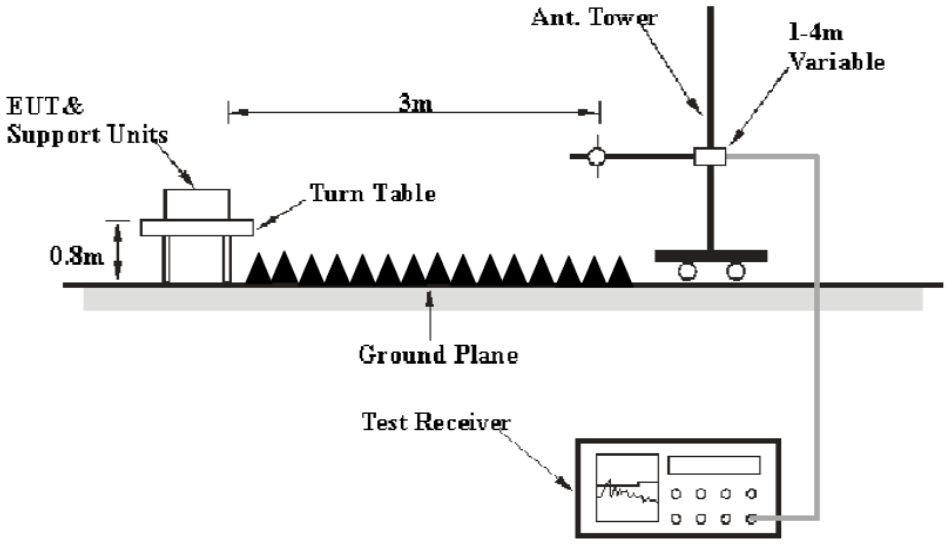
Frequency	Polarity	Measurement uncertainty
30 MHz~200 MHz	Horizontal	4.04 dB (k=2, 95% level of confidence)
	Vertical	4.52 dB (k=2, 95% level of confidence)
200 MHz~1 GHz	Horizontal	4.72 dB (k=2, 95% level of confidence)
	Vertical	5.81 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	Horizontal/Vertical	4.64 dB (k=2, 95% level of confidence)
Above 6 GHz	Horizontal/Vertical	4.88 dB (k=2, 95% level of confidence)

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

According to FCC 15.33 requirements, the EUT system was measured from 30 MHz to 12.4 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2016-05-06	2017-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2015-12-15	2016-12-14
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-07	2017-12-06
Mini	Amplifier	ZVA-183-S+	5969001149	2016-04-23	2017-04-23
A.H. System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2015-12-11	2016-12-11
TDK	Chamber	Chamber A	2#	2013-10-15	2016-10-15
TDK	Chamber	Chamber B	1#	2015-07-23	2016-07-22
R&S	Auto test Software	EMC32	V9.10	NCR	NCR
Ducommun technologies	RF Cable	UFA210A-1-4724-30050U	MFR64369 223410-001	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	104PEA	218124002	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	RG-214	1	2015-06-15	2016-06-15
Ducommun technologies	RF Cable	RG-214	2	2015-06-15	2016-06-15

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the worst margin reading as below:

7.97 dB at **30.179875 MHz** in the **Vertical** polarization

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

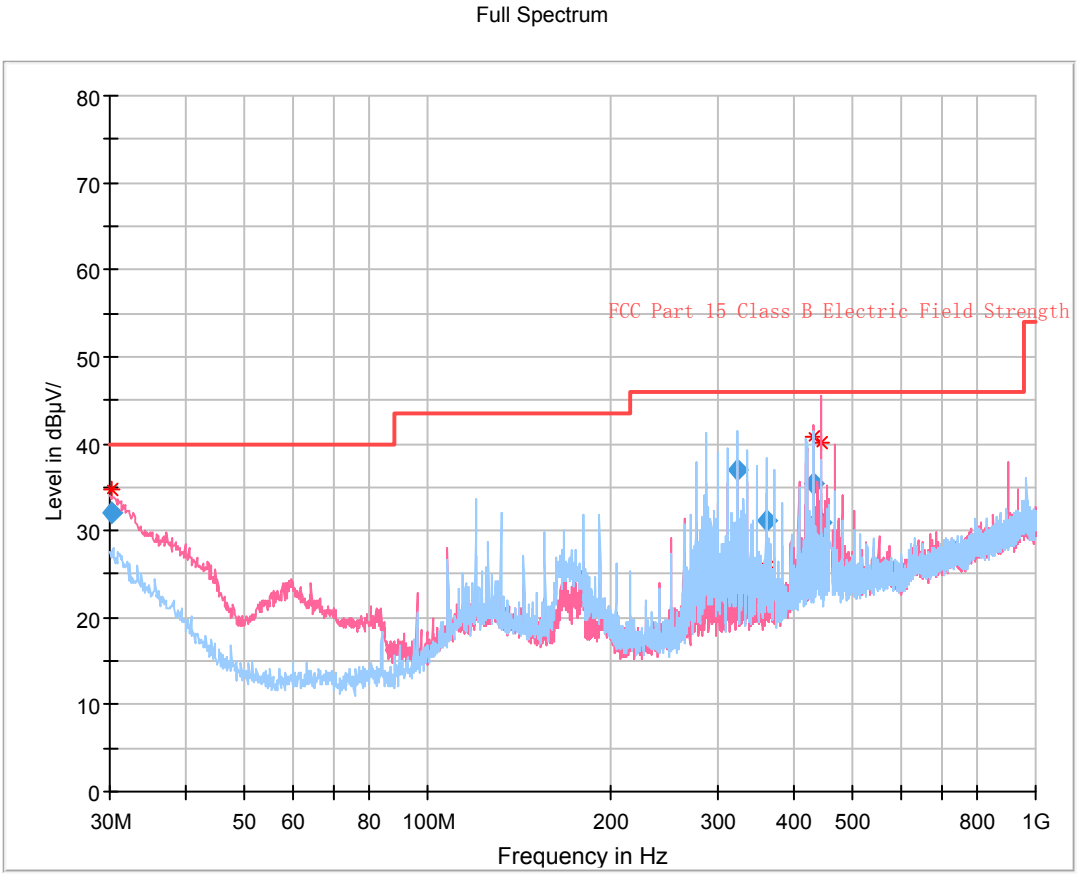
Temperature:	25℃
Relative Humidity:	55 %
ATM Pressure:	101.1 kPa

The testing was performed by Kobe Li on 2016-06-12.

Operating Mode: Downloading

AC 120V/60Hz:

Below 1GHz



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.179875	32.03	40.00	7.97	500.0	120.000	170.0	V	323.0	-0.3
287.994500	25.24	46.00	20.76	500.0	120.000	157.0	H	307.0	-6.6
323.995250	36.96	46.00	9.04	500.0	120.000	389.0	H	306.0	-6.0
359.937375	31.07	46.00	14.93	500.0	120.000	385.0	H	294.0	-5.7
432.032125	35.30	46.00	11.30	500.0	120.000	191.0	V	19.0	-3.8
444.029625	31.00	46.00	16.00	500.0	120.000	191.0	V	22.0	-3.8

Above 1GHz

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15B	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
1273.84	67.81	PK	352	2.3	H	-11.84	55.97	74	18.03
1273.84	35.43	Ave.	352	2.3	H	-11.84	23.59	54	30.41
1230.12	61.36	PK	338	1.2	V	-12.06	49.30	74	24.70
1230.12	39.28	Ave.	338	1.2	V	-12.06	27.22	54	26.78
1991.29	60.73	PK	279	1.9	H	-6.99	53.74	74	20.26
1991.29	34.69	Ave.	279	1.9	H	-6.99	27.70	54	26.30
1994.29	53.62	PK	245	1.1	V	-6.99	46.63	74	27.37
1994.29	30.98	Ave.	245	1.1	V	-6.99	23.99	54	30.01

Note:

1) Corrected Amplitude = Meter Reading + Correction Factor
2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
3) Margin = Limit – Corrected Amplitude
4) The data below 20dB to the limit was not recorded.

******* END OF REPORT *******