

FCC PART 15 CLASS B

MEASUREMENT AND TEST REPORT

For

YMAX Communications Corp.

5700 Georgia Avenue, West Palm Beach, Florida, USA

FCC ID: Y79S1013

Model Number: S1013

This Report Concerns: Original Report	Equipment Type: Magicjack plus
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Report Number:	RSC130322001
Report Date:	2013-04-25
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Note: This test report was prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Chengdu)

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

The **YMAX Communications Corp.**'s product, model number: **S1013** (FCC ID: **Y79S1013**) or the "EUT" as referred to in this report was the **Magicjack plus**, which has the plastic enclosure. The highest operating frequency was 160 MHz.

1.2 Mechanical Description of EUT

The EUT was measured approximately 90 mm L x 45 mm W x 25 mm H.
Rated input voltage: DC 5V.

AC Adaptor:

Manufacture: KTEC

Model number: KSAS0060500100VUU

Input: 100-240V ~ 50/60Hz 0.18A

Output: 5.0V ---1.0A

Note: All measurement and test data in this report was gathered from production sample, serial number: 130322001 (Assigned by BACL, Chengdu), the item was received on 2013-03-22.

1.3 EUT Photo



Model number: S1013

1.4 Objective

The following Class B report was prepared on behalf of **YMAX Communications Corp.**, in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC Part 15 Class B limits.

1.5 Related Submittal(s)/Grant(s)

No Related Submittals.

1.6 Test Methodology

All measurements contained in this report are conducted with ANSI C63.4-2003, 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 radiated and conducted emissions measurement is performed at BACL. The radiated testing is performed at an antenna-to-EUT distance of 3 Meters.

1.7 Test Facility

The test site used by BACL to collect test data is located in the 5040, HuiLongWan Plaza, No. 1, ShaWan Road, JinNiu District, ChengDu, China

Test site at BACL 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 July 31, 2009. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The system is configured for testing in a typical fashion (as a normally used by a typical user).

2.2 EUT Exercise Software

N/A

2.3 Special Accessories

No special accessories were supplied by BACL.

2.4 Equipment Modifications

No modification to the EUT was made by BACL to make sure the EUT comply with applicable limits.

2.5 Equipment under Test (EUT) General Description

Applicant	Description	Model Number	Serial Number
YMAX Communications Corp.	Magicjack plus	S1013	130322001

2.6 Local Support Equipment List and Details

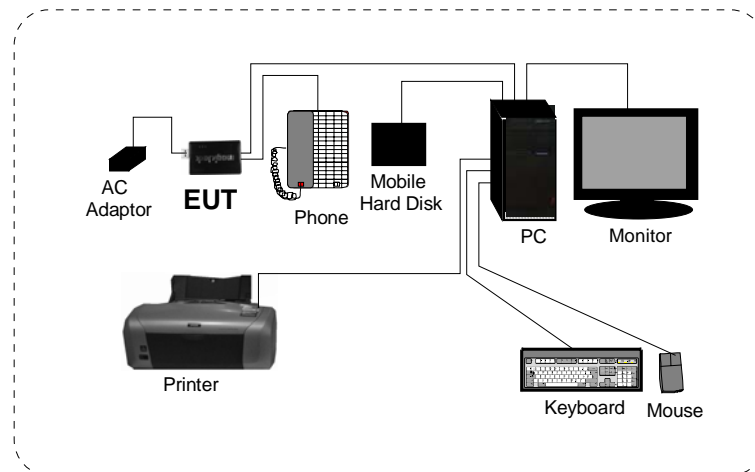
Manufacturer	Description	Model Number	Serial Number
IBM	PC	8176	None
DELL	Monitor	E157FPb	CN-OWH339-74261-894-3LOU
TOSHIBA	Mobile Hard Disk	V630700-A	1297FHOYSRE8
TSINGHUA TONGFANG	Keyboard	DV305	None
A4TECH	Mouse	OP-220	None
ESPON	Printer	STYLUS PHOTO R230	GXSK285854
BITTEL	Phone	HA9888(67)TSD	1209C13259(IOSI)
KTEC	AC Adaptor	KSAS0060500100VUU	None

2.7 External I/O Cable

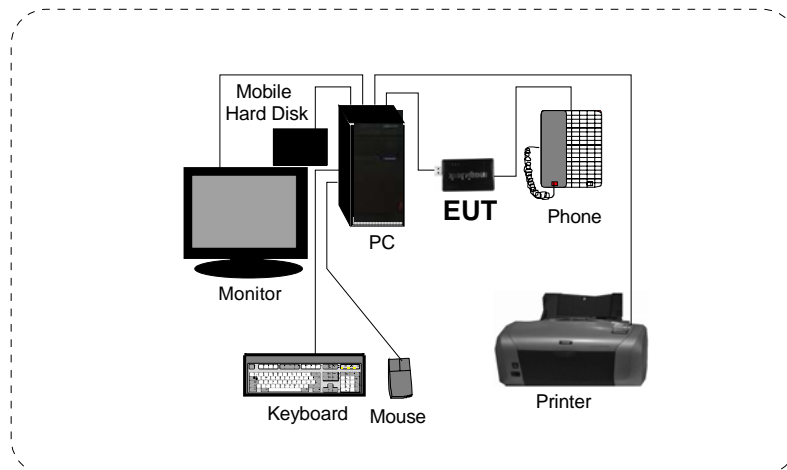
Cable Description	Length (m)	From	To
For Adaptor Mode			
Unshielded Detachable DC Power Cable	0.2	AC Adaptor	EUT
Unshielded Detachable RJ45 Cable	1.5	EUT	PC
Unshielded Detachable RJ11 Cable	0.4	EUT	Phone
Unshielded Detachable VGA Cable	1.0	PC	Monitor
Unshielded Detachable USB Cable	1.0	PC	Printer
Unshielded Detachable Keyboard Cable	1.3	PC	Keyboard
Unshielded Detachable Mouse Cable	1.3	PC	Mouse
USB Cable	0.5	PC	Mobile Hard Disk
For PC Mode			
Unshielded Detachable USB Cable	0.2	PC	EUT
Unshielded Detachable RJ11 Cable	0.4	EUT	Phone
Unshielded Detachable VGA Cable	1.0	PC	Monitor
Unshielded Detachable USB Cable	1.0	PC	Printer
Unshielded Detachable Keyboard Cable	1.3	PC	Keyboard
Unshielded Detachable Mouse Cable	1.3	PC	Mouse
USB Cable	0.5	PC	Mobile Hard Disk

2.8 Configuration of Test Setup

For Adaptor Mode

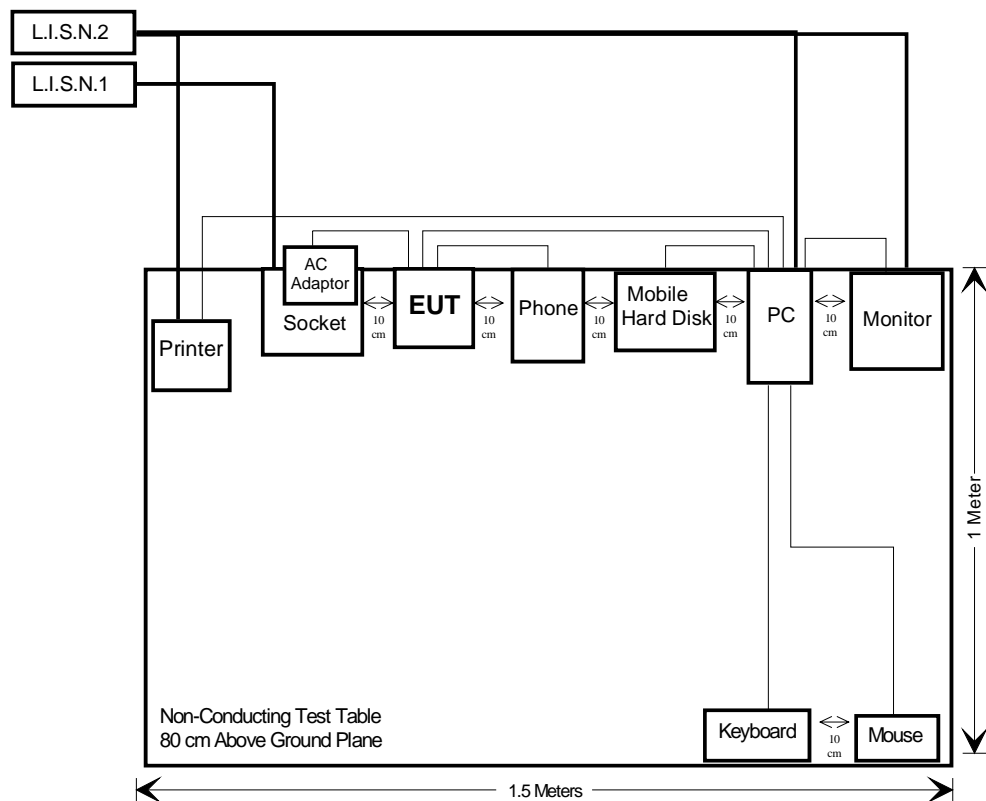


For PC Mode



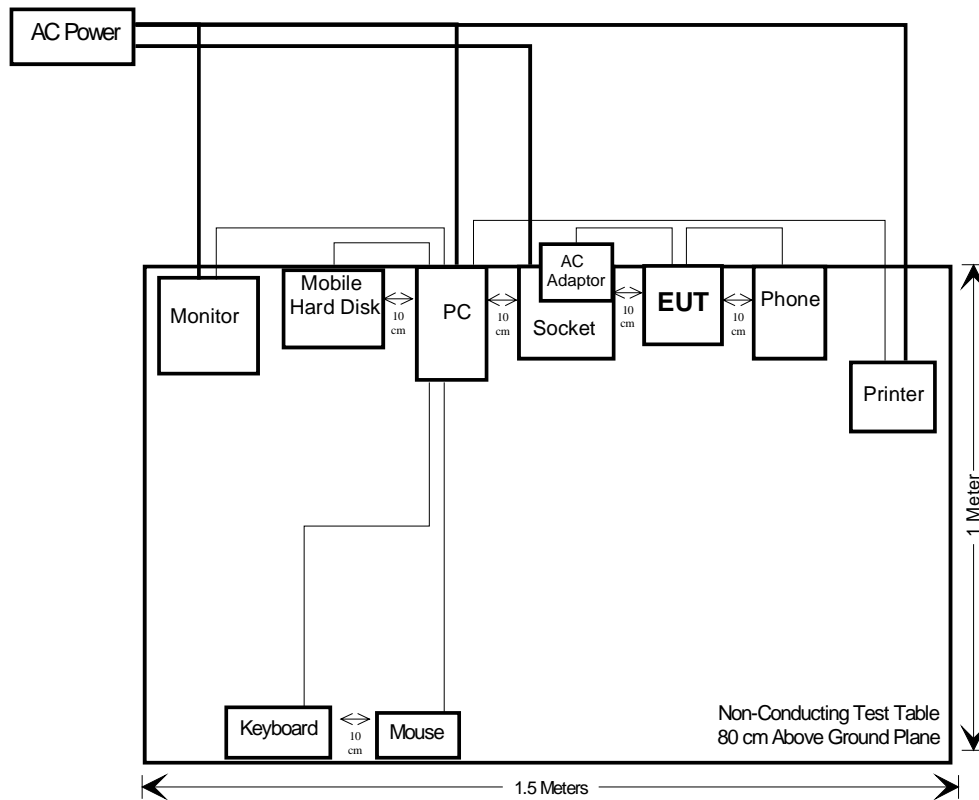
Block Diagram of Test Setup

Conducted emission:



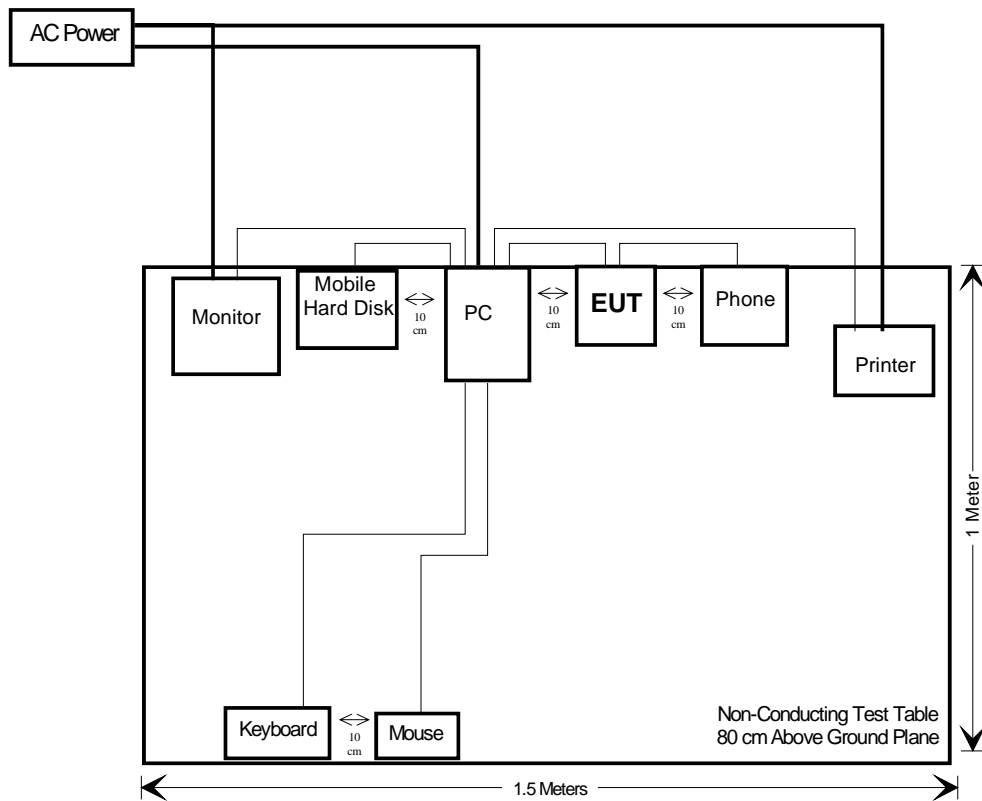
For Adaptor Mode

Radiated emission:



For PC Mode

Radiated emission:



3 - SUMMARY OF TEST RESULTS

Standard	Description	Result
FCC §15.107	Conducted Emission	Compliance
FCC §15.109	Radiated Emission	Compliance

4 - FCC §15.107 CONDUCTED EMISSION TEST

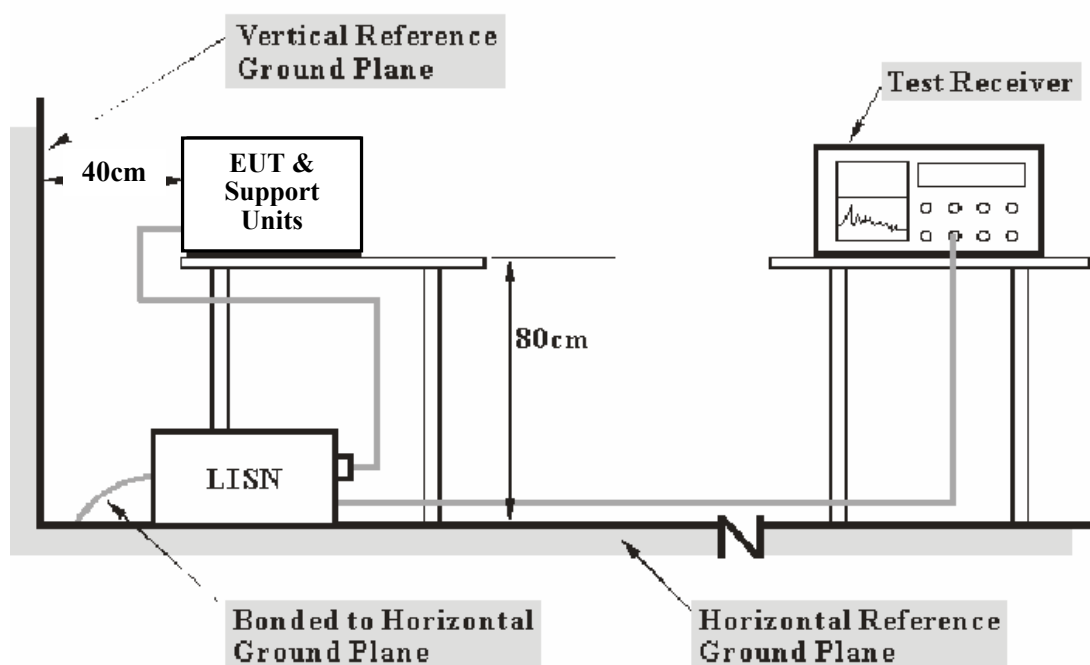
4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are EMI Test Receiver, cable loss, and L.I.S.N.

Based on CISPR 16-4-2, the Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Chengdu) is ± 3.17 dB.

4.2 EUT Setup

The setup of EUT was in accordance with ANSI C63.4-2003 measurement procedure. The specification used was the FCC Part 15 Class B limits.



- 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 power cables and excess cables shall be folded at the cable center into a bundle no longer than 40 cm.

The spacing between the peripherals unit & EUT was 10 cm.

A DC 5V power source was provided to EUT.

4.3 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:

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

4.4 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combination.

All data are recorded in the Quasi-peak and Average detection mode. Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with an "AV".

The EUT is in the normal operating mode during the final qualification test to represent the worst cases results.

4.5 Test Equipment List and Details

Manufacturer	Description	Model Number	Serial Number	Calibration Date	Calibration Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	10028	2012-05-24	2013-05-23
L.I.S.N.	Rohde & Schwarz	ENV216	3560.6550.06	2012-07-31	2013-07-31
AMN	SOLAR	9252-50-R-24-BNC	984412	N/A	N/A

4.6 Test Environment Conditions

Temperature:	25 °C
Relative Humidity:	58 %
ATM Pressure:	101.2

The testing was performed by Bruce Wu on 2013-05-07

4.7 Summary of Test Results

According to the data in the following, the EUT complied with the FCC Part 15 for a Class B device, with the *worst* margin reading of:

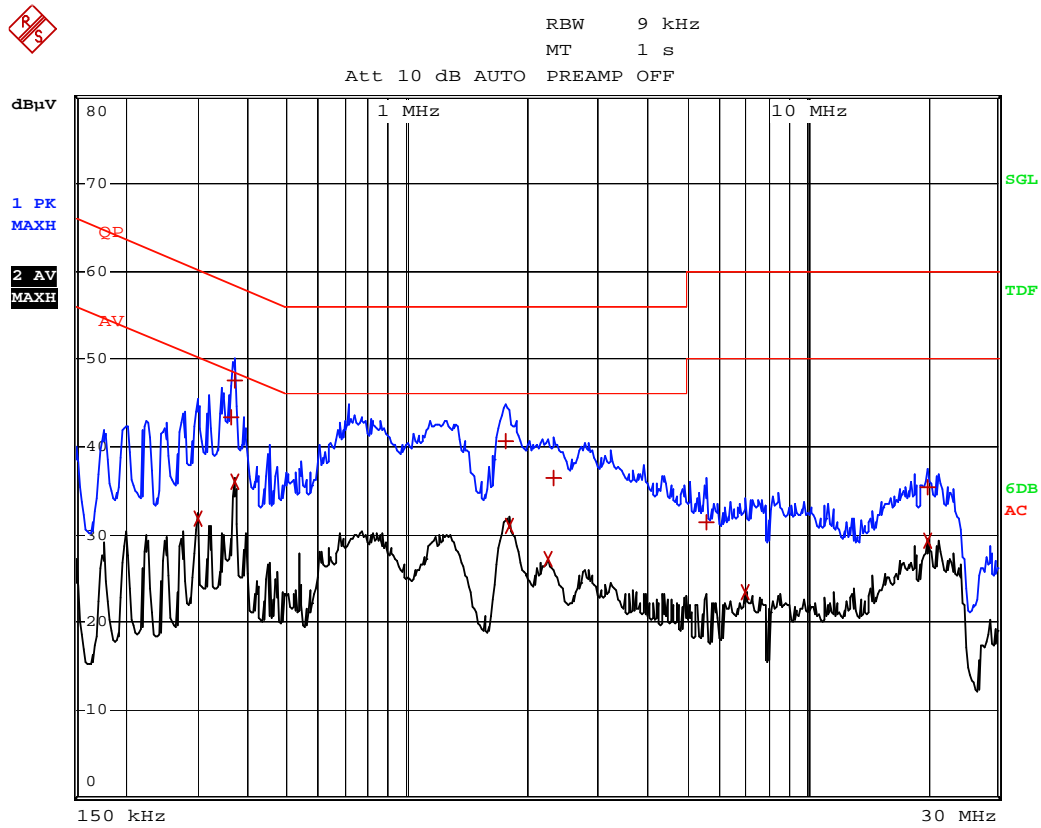
8.08 dB at 0.378 MHz in the Neutral conductor mode

4.8 Conducted Emission Test Data and Plots

Test mode: operating mode

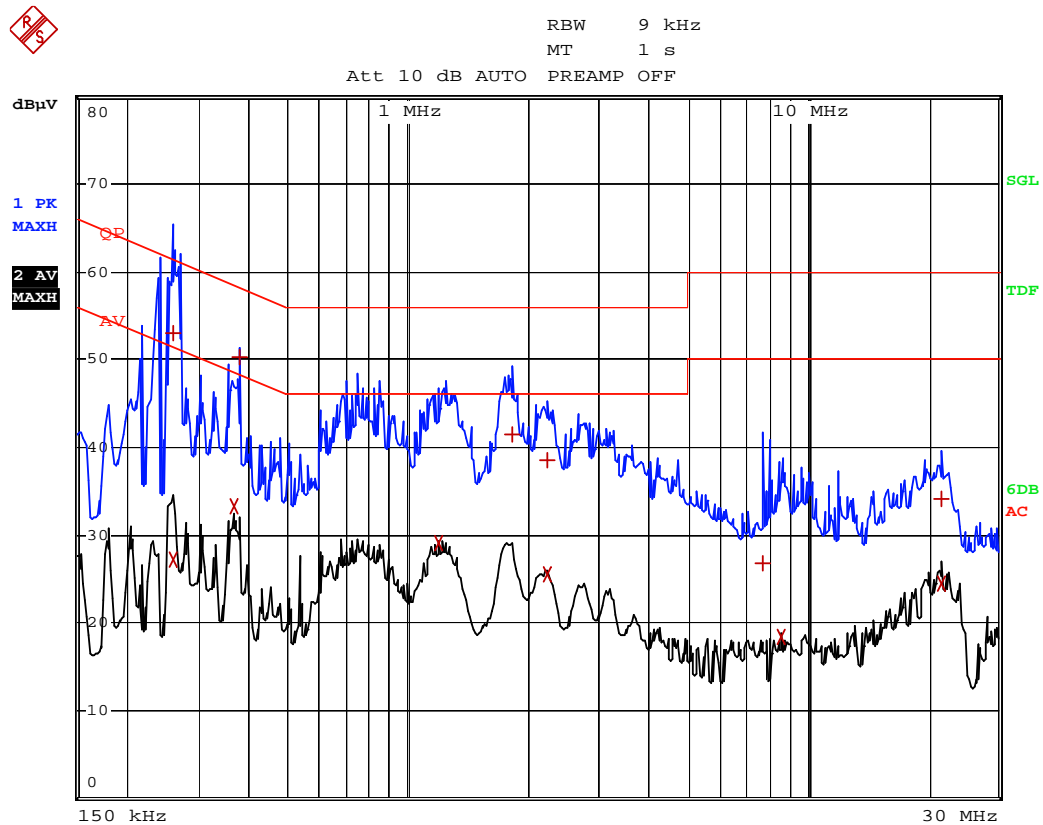
LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Peak	Line/Neutral	dBμV	dB
0.362	43.35	QP	Line	58.68	15.33
0.370	47.46	QP	Line	58.50	11.04
1.766	40.71	QP	Line	56.00	15.29
2.322	36.53	QP	Line	56.00	19.47
5.626	31.35	QP	Line	60.00	28.65
20.026	35.29	QP	Line	60.00	24.71
0.298	31.89	AV	Line	50.30	18.41
0.370	35.97	AV	Line	48.50	12.53
1.798	31.07	AV	Line	46.00	14.93
2.250	27.17	AV	Line	46.00	18.83
7.050	23.51	AV	Line	50.00	26.49
20.026	29.19	AV	Line	50.00	20.81
0.258	52.97	QP	Neutral	61.50	8.53
0.378	50.24	QP	Neutral	58.32	8.08
1.818	41.42	QP	Neutral	56.00	14.58
2.238	38.57	QP	Neutral	56.00	17.43
7.742	26.81	QP	Neutral	60.00	33.19
21.526	34.10	QP	Neutral	60.00	25.90
0.258	27.19	AV	Neutral	51.50	24.31
0.366	33.19	AV	Neutral	48.59	15.40
1.198	29.09	AV	Neutral	46.00	16.91
2.242	25.45	AV	Neutral	46.00	20.55
8.550	18.40	AV	Neutral	50.00	31.60
21.526	24.43	AV	Neutral	50.00	25.57

120 V/60 Hz, Line



Date: 7.MAY.2013 11:27:19

120 V/60 Hz, Neutral



Date: 7.MAY.2013 11:21:57

5 - FCC §15.109 RADIATED EMISSION TEST

5.1 Measurement Uncertainty

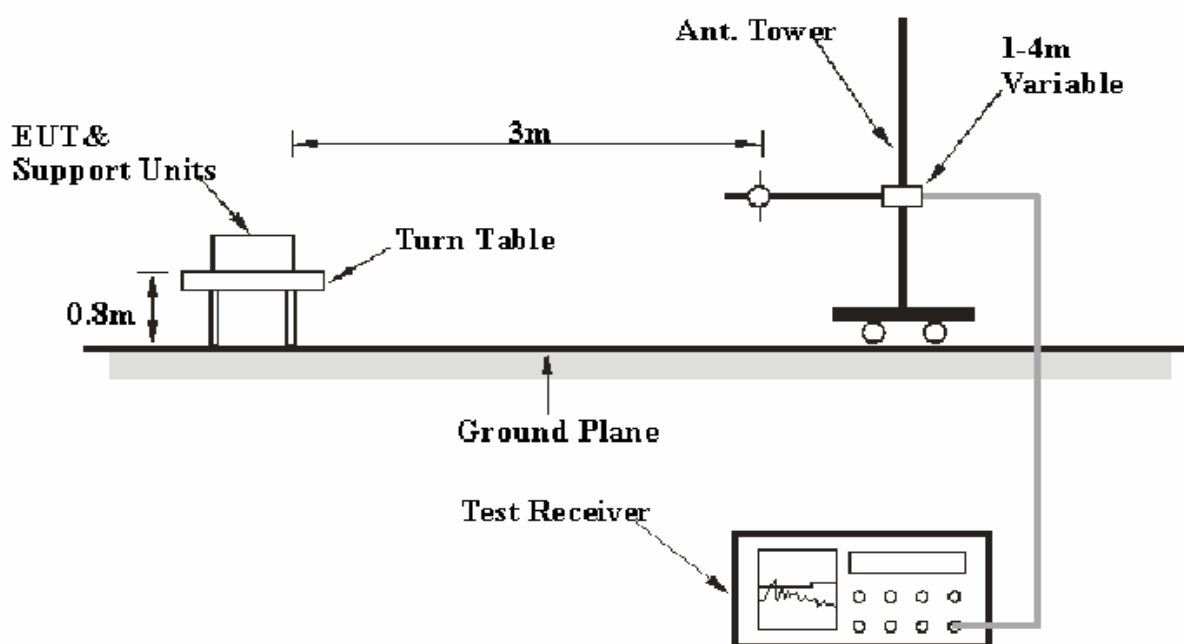
All measurements involve certain levels of uncertainties, especially in the field of EMI. The factors contributing to uncertainties are EMI Test Receiver, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor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

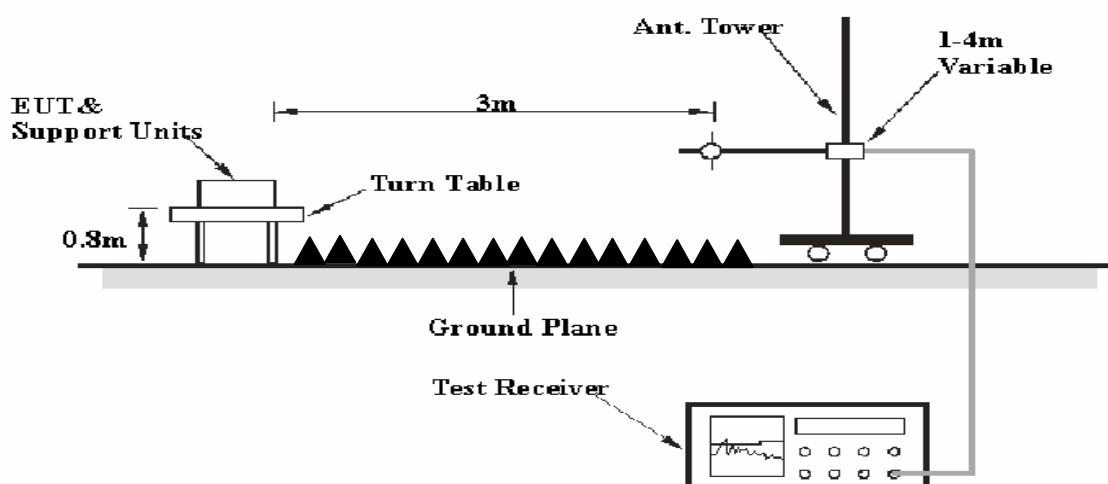
Based on CISPR 16-4-2, the Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is 30M~200MHz: 5.0 dB; 200M~1GHz: 6.2 dB; 1G~6GHz: 4.45 dB

5.2 EUT Setup

The radiated emission tests were performed in the 3 meter Semi Anechoic Chamber, using the setup in accordance with the ANSI C63.4-2003. The specification used was the FCC Part 15 Class B limits.

Below 1GHz:



Above 1GHz:

The excess cables shall be folded at the cable center into a bundle no longer than 40 cm.

The spacing between the peripherals unit & EUT was 10 cm.

A DC 5V power source was provided to EUT.

5.3 EMI Test Receiver Setup

According to FCC Rules, the highest frequency in the device is 160 MHz, so the frequency range to be tested from 30 MHz to 2000 MHz.

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

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>Detector</i>
30 MHz – 1000 MHz	120 kHz	300 kHz	QP
1 GHz – 2 GHz	1MHz	3MHz	AV

5.4 Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.

All data were recorded in the quasi-peak detection mode.

The EUT was in the normal operating mode during the final qualification test to represent the worst case results.

5.5 Corrected Amplitude & Margin Calculation

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

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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 7 dB μ V/m below the maximum limit for FCC Part 15 Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{FCC Part 15 Class B Limit} - \text{Corr. Ampl.}$$

5.6 Test Equipment List and Details

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Amplifier	Agilent	8447D	2944A10442	2012-05-24	2013-05-23
EMI Test Receiver	Rohde & Schwarz	ESCI	10028	2012-05-24	2013-05-23
Broadband Antenna	Sunol Sciences	JB3	A101808	2013-04-10	2014-04-09
Spectrum Analyzer	Rohde & Schwarz	FSL18	100180	2012-07-31	2013-07-30
Horn Antenna	EM TEST	3115	0036076	2013-04-09	2014-04-08
Amplifier	HP	8449B	3008A00277	2012-05-24	2013-05-23
Semi-Anechoic Chamber	EMCT	966	N/A	2012-06-25	2015-06-25

5.7 Test Software

Description	Manufacturer	Version
EMC32	R&S	V 8.52.0

5.8 Summary of Test Results

According to the data in the following, the EUT complied with the FCC Part 15 Class B standards, and had the worst margin of:

For Adaptor Mode

4.0 dB at 90.017500 MHz in the **Vertical** polarization for Normal Operating Mode, 30 MHz to 1000 MHz, 3 meters

For PC Mode

5.4 dB at 210.015000 MHz in the **Horizontal** polarization for Normal Operating Mode, 30 MHz to 1000 MHz, 3 meters

5.9 Radiated Emission Test Data

Test Environment Conditions

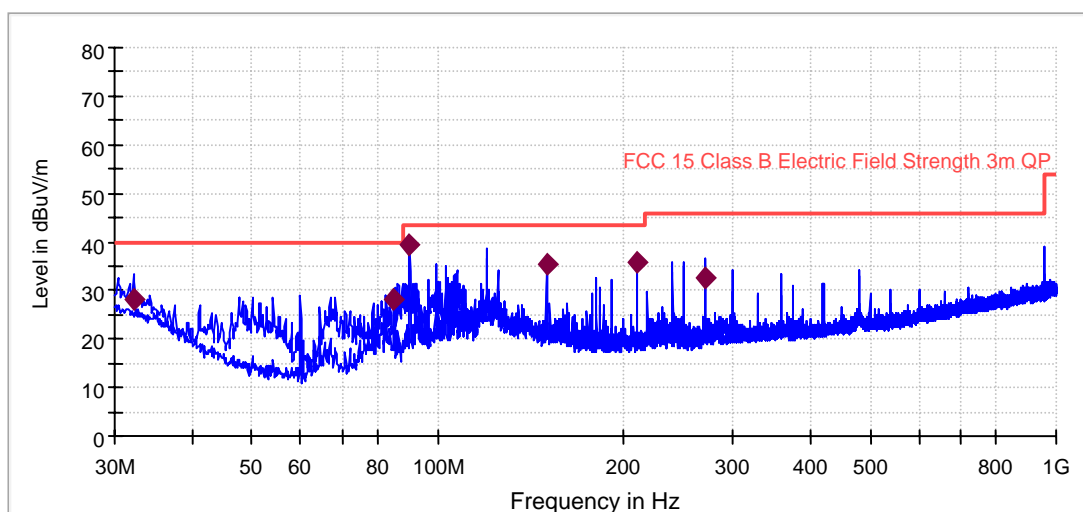
Temperature:	26 °C
Relative Humidity:	59%
ATM Pressure:	101.2 kPa

The testing was performed by Bruce Wu on 2013-05-07.

For Adaptor Mode

Below 1 GHz:

Electric Field Strength with AutoTest-RE



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna Height (cm)	Polarization (H/V)	Corrected Factor (dB)	Limit (dBμV/m)	Margin (dB)
32.222500	28.3	10.0	120.000	100.0	V	-6.6	40.0	11.7
85.007500	28.1	10.0	120.000	100.0	V	-19.2	40.0	11.9
90.017500	39.5	10.0	120.000	100.0	V	-19.1	43.5	4.0*
149.997500	35.6	10.0	120.000	100.0	V	-14.2	43.5	7.9
210.015000	35.9	10.0	120.000	100.0	V	-15.5	43.5	7.6
270.033750	32.4	10.0	120.000	100.0	H	-12.5	46.0	13.6

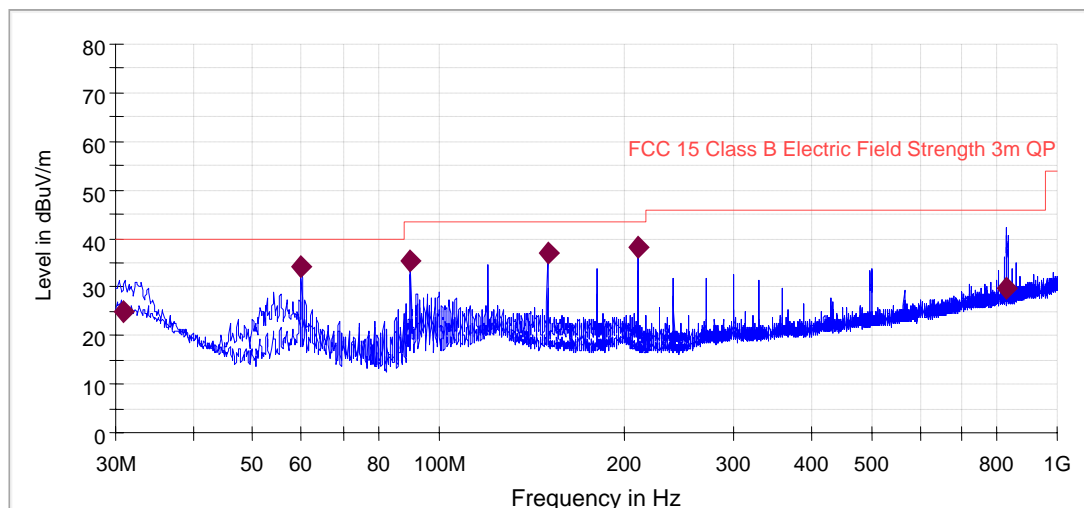
* Within Measurement Uncertainty

Above 1 GHz:

Frequency	Reading Value	Polarity	Detector	Corrected Factor	Corrected Amplitude	Limit	Antenna Height	Turntable Position	Margin
MHz	(dBuV/m)	V/H	(PK / Ave.)	(dB)	(dBμV/m)	(dBμV/m)	(cm)	(deg.)	(dB)
1224.500	55.71	V	PK	0.53	56.24	74	100	28	17.76
1224.500	37.89	V	AV	0.53	38.42	54	100	28	15.58
1224.470	53.63	H	PK	0.53	54.16	74	100	35	19.84
1224.470	33.96	H	AV	0.53	34.49	54	100	35	19.51
1993.200	52.090	V	PK	3.1	55.19	74	105	84	18.81
1993.200	31.160	V	AV	3.1	34.26	54	105	84	19.74

For PC Mode**Below 1 GHz:**

Electric Field Strength with AutoTest-RE



Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna Height (cm)	Polarization (H/V)	Corrected Factor (dB)	Limit (dB μ V/m)	Margin (dB)
30.840000	24.9	10.0	120.000	100.0	V	-5.7	40.0	15.1
59.988750	34.3	10.0	120.000	225.0	V	-20.2	40.0	5.7
90.017500	35.4	10.0	120.000	200.0	H	-19.1	43.5	8.1
149.997500	37.0	10.0	120.000	175.0	H	-14.2	43.5	6.5
210.015000	38.1	10.0	120.000	125.0	H	-15.5	43.5	5.4*
830.335000	29.9	10.0	120.000	175.0	H	-4.3	46.0	16.1

* Within Measurement Uncertainty

Above 1 GHz:

Frequency	Reading Value	Polarity	Detector	Corrected Factor	Corrected Amplitude	Limit	Antenna Height	Turntable Position	Margin
MHz	(dBuV/m)	V/H	(PK / Ave.)	(dB)	(dB μ V/m)	(dB μ V/m)	(cm)	(deg.)	(dB)
1224.480	56.83	V	PK	0.53	57.36	74	100	28	16.64
1224.480	39.74	V	AV	0.53	40.27	54	100	28	13.73
1224.470	55.72	H	PK	0.53	56.25	74	100	35	17.75
1224.470	36.16	H	AV	0.53	36.69	54	100	35	17.31
1993.120	53.100	V	PK	3.1	56.20	74	105	84	17.80
1993.160	33.020	V	AV	3.1	36.12	54	105	84	17.88

Test Result: Pass

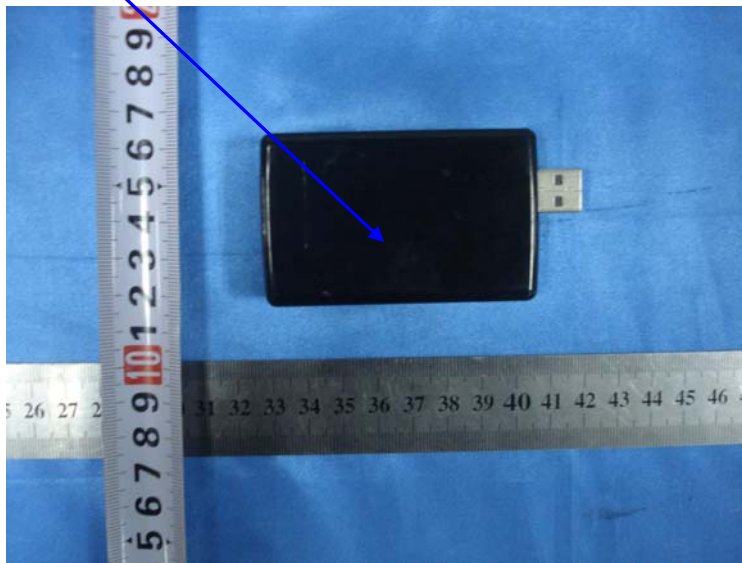
6 - FCC LABELING REQUIREMENTS

6.1 As per FCC §15.19: Labeling Requirements (a) (3)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation. FCC ID: Y79S1013.

6.2 Suggested Label Location on EUT



****END OF REPORT****