FCC PART 15B

MEASUREMENT AND TEST REPORT

For

YMAX Communications Corp.

5700 Georgia Avenue, West Palm Beach,

Florida 33405, USA

FCC ID: Y79K1103

Model: K1103

This Report Concerns:	**Equipment Type:**
Original Report	Magicjack Plus

Test Engineer:	Fisher He Fisher·he Kevin Ding Kevin. Ding
Report Number:	RSC110121002
Report Date:	2011-03-11
Reviewed By:	David Li David
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1 - General Information

1.1 Product Description for Equipment Under Test (EUT)

The YMAX Communications Corp.*'s* product, model number: K1103 (FCC ID: Y79K1103) or the "EUT" as referred to in this report is the Magicjack plus, which has the plastic enclosure.

1.2 Mechanical Description of EUT

The EUT is measured approximately 61 mm L x 38 mm W x 15 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: 110121001, (Assigned by BACL), the item was received on 2010-01-21.*

1.3 EUT Photo

Model number: K1103

1.4 Objective

The following CLASS B report is 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 15B, 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 C63.4-2009, 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 Room 5040, Huillongwan Plaza, No. 1, Shawan Road, Jinniu District, Chengdu, Sichuan, 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 C63.4-2009.

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.

2.6 Local Support Equipment List and Details

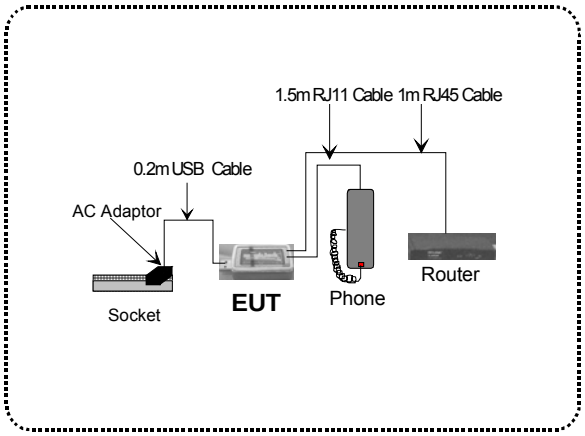
Manufacturer	Description	Model Number	Serial Number	FCC ID
For Adaptor Mode				
KTEC	AC Adaptor	KSAS0060500100VUU	N/A	DOC
TCL	Phone	HCD868(19)TSDL	010Y00ZK9C0114300121	N/A
TP-LINK	Router	TL-R402M	0580108754	N/A
For PC Mode				
TCL	Phone	HCD868(19)TSDL	010Y00ZK9C0114300121	N/A
DELL	PC	DHP	2QG9T71	DOC
SAMSUNG	Monitor	710N	MJ17HCJY40102K	GH17LS
IBM	Keyboard	SK-8815	09161634	N/A
IBM	Mouse	MO28UO	89P5088	N/A

2.7 External I/O Cable

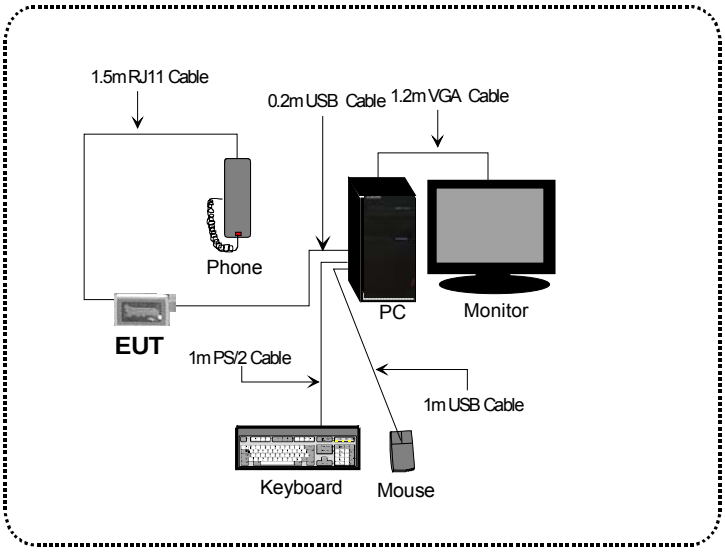
Cable Description	Length (m)	From	To
For Adaptor Mode			
AC Power Cable	1	L.I.S.N.2 or AC Power Socket	Router
USB Cable	0.2	AC Adaptor	EUT
RJ11 Cable	1.5	EUT	Phone
RJ45 Cable	1	EUT	Router
For PC Mode			
AC Power Cable	1.5	L.I.S.N.1 or AC Power Socket	PC
AC Power Cable	1.5	L.I.S.N.2 or AC Power Socket	Monitor
RJ11 Cable	1.5	EUT	Phone
USB Cable	0.2	EUT	PC
VGA Cable	1.2	Monitor	PC
PS/2 Cable	1	Keyboard	PC
USB Cable	1	Mouse	PC

2.8 Configuration of Test Setup

For Adaptor Mode



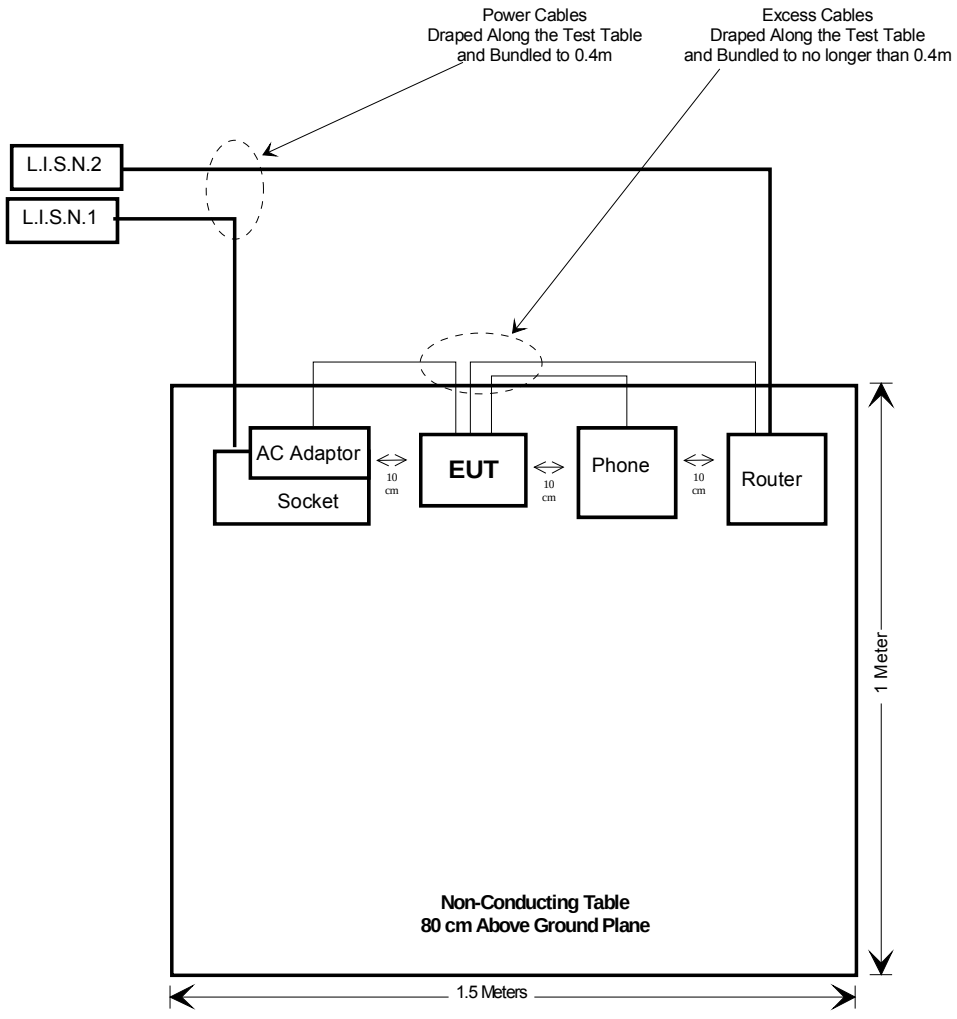
For PC Mode



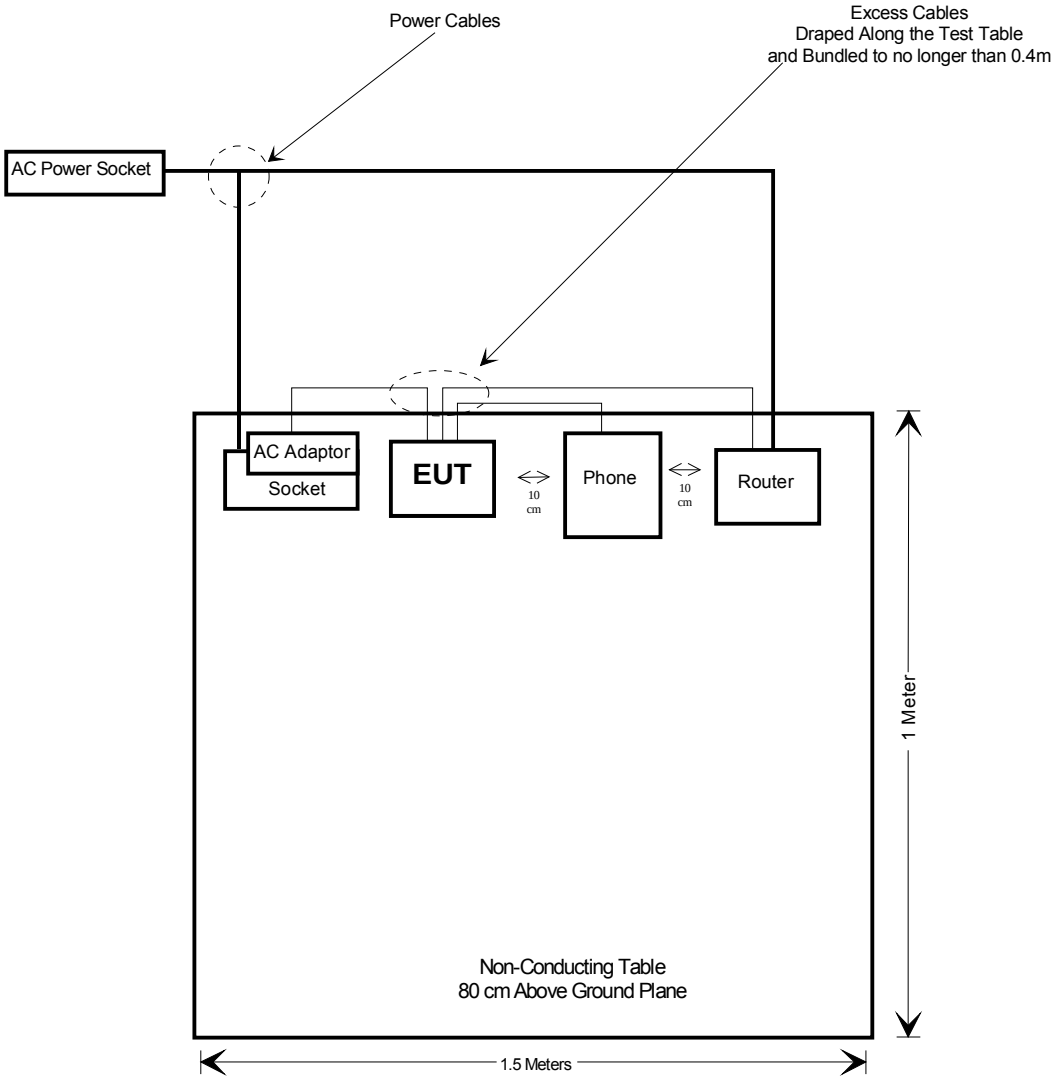
2.9 Block Diagram of Test Setup

For Adaptor Mode

Conducted emission:

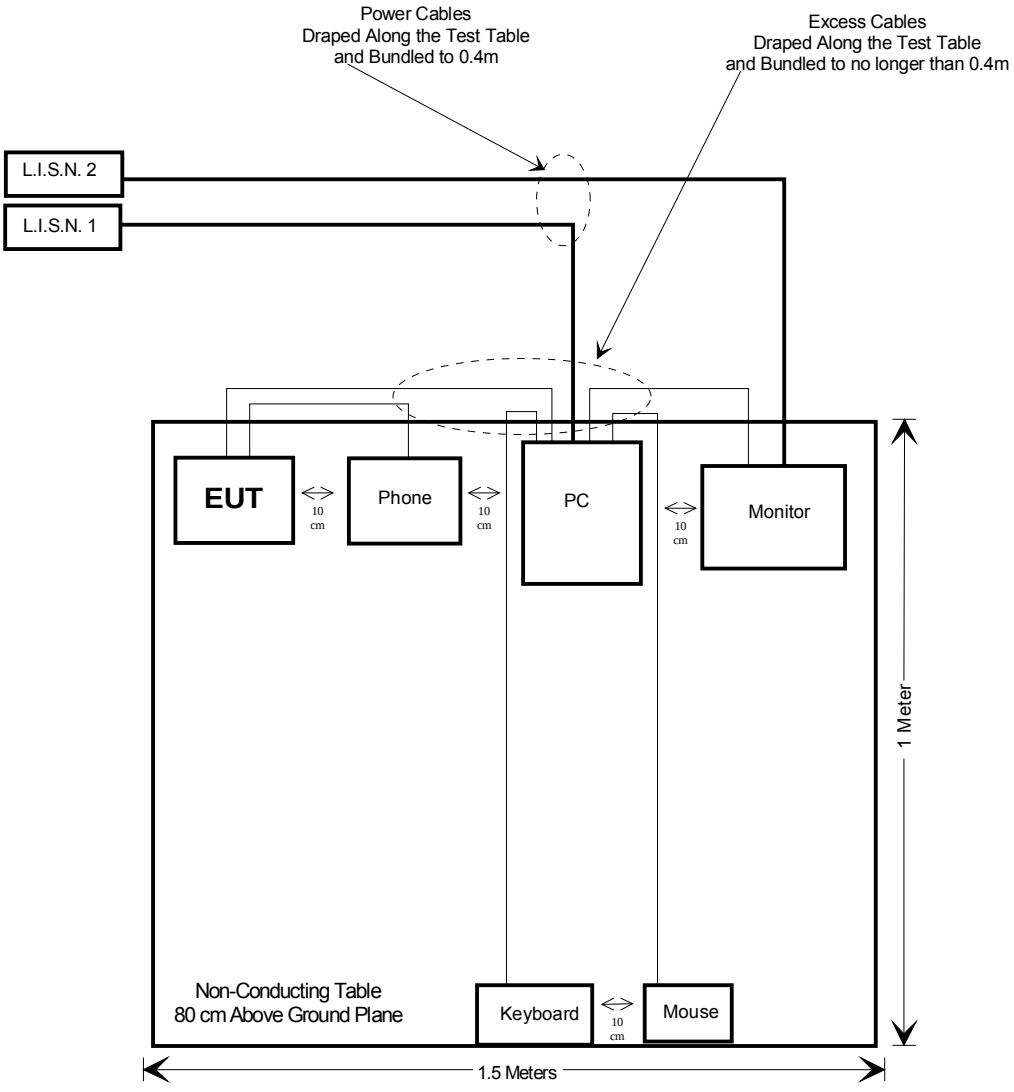


Radiated emission:

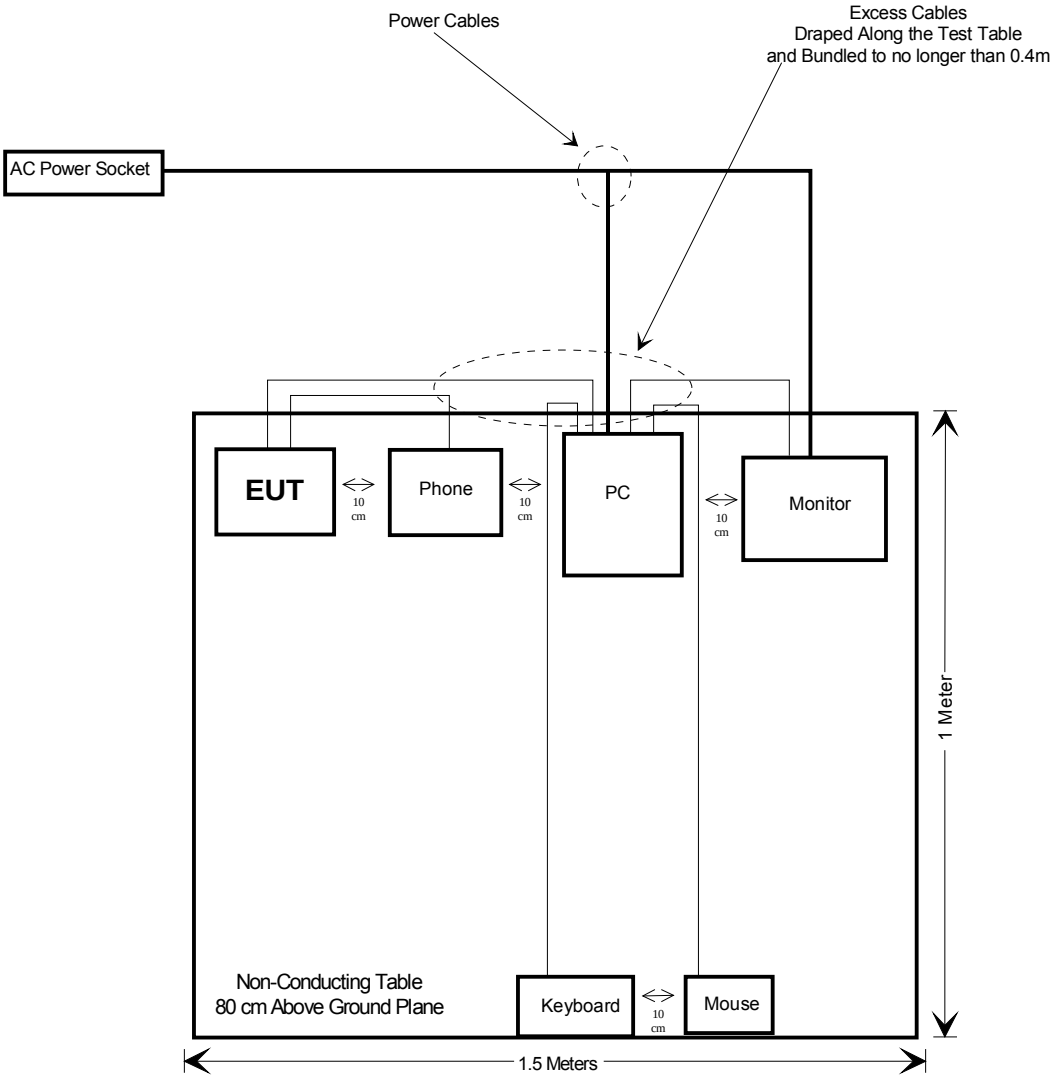


For PC Mode

Conducted emission:



Radiated emission:



3 - Summary of Test Results

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

4 - FCC §15.107 AC Line Conducted Emissions

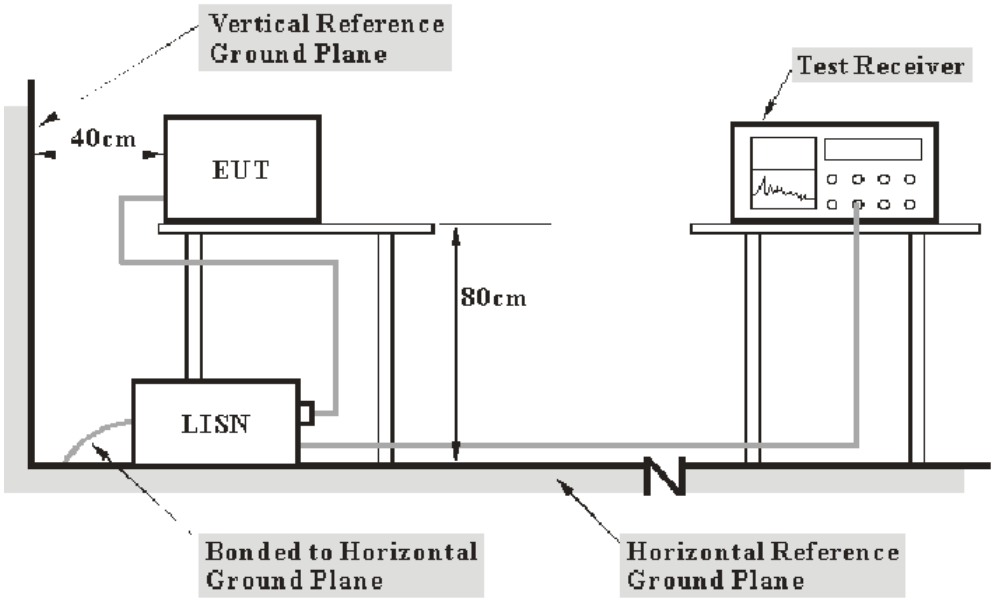
4.1 Measurement Uncertainty

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 NIS 81, the Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ±2.4 dB.

4.2 EUT Setup

The measurement is performed at BACL, using the same setup per ANSI C63.4-2009 measurement procedure. The specification used is the FCC Part 15.107 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 separation between the neighboring unit & EUT is 10 cm in the horizontal.

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:

Frequency Range	***IF B/W***
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 Due Date
SOLAR	L.I.S.N.	9252-50-R-24BNC	984412	2011-06-30
Rohde & Schwarz	EMI Test Receiver	ESCI	10028	2012-03-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2012-03-26

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (ChengDu) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

4.6 Test Environment Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0 KPa

The testing was performed by Kevin Ding and Fisher He.

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:

For Adaptor Mode

5.90 dB at **1.24 MHz** in the **Neutral** conductor mode

For PC Mode

4.91 dB at **1.32 MHz** in the **Line** conductor mode

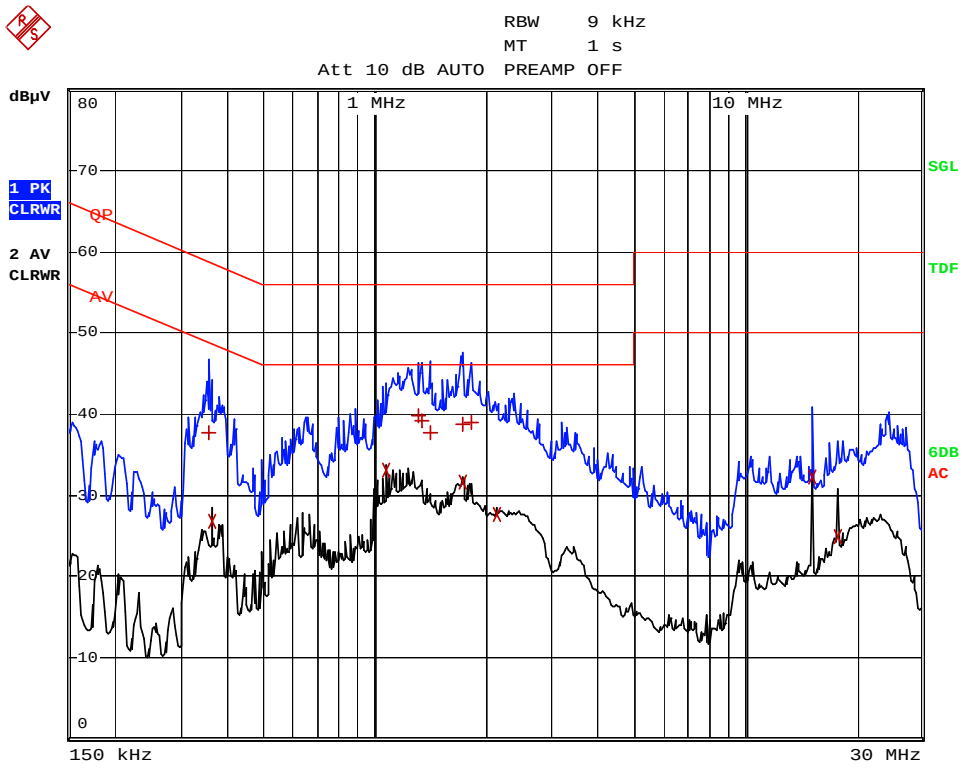
4.8 Conducted Emissions Test Data and Plots

For Adaptor Mode

Test mode: operating mode

Line Conducted Emissions				FCC Part 15.107, Class B	
Frequency (MHz)	**Cord. Amplitude (dBµV)**	**Detector (QP/Ave/Peak)**	**Phase (Line/Neutral)**	**Limit (dBµV)**	**Margin (dB)**
1.24	40.10	Ave	Neutral	46.00	5.90
1.27	45.71	QP	Neutral	56.00	10.29
1.43	44.92	QP	Neutral	56.00	11.08
2.02	33.56	Ave	Neutral	46.00	12.44
1.07	43.35	QP	Neutral	56.00	12.65
1.07	32.97	Ave	Line	46.00	13.03
1.53	42.05	QP	Neutral	56.00	13.95
1.79	41.76	QP	Neutral	56.00	14.24
1.73	31.68	Ave	Line	46.00	14.32
15.15	35.45	Ave	Neutral	50.00	14.55
1.99	40.45	QP	Neutral	56.00	15.55
1.31	39.75	QP	Line	56.00	16.25
0.36	31.99	Ave	Neutral	48.68	16.69
1.33	39.24	QP	Line	56.00	16.76
1.83	38.88	QP	Line	56.00	17.12
1.73	38.79	QP	Line	56.00	17.21
15.15	32.32	Ave	Line	50.00	17.68
1.41	37.65	QP	Line	56.00	18.35
2.14	27.59	Ave	Line	46.00	18.41
21.69	29.81	Ave	Neutral	50.00	20.19
0.35	37.67	QP	Line	58.87	21.20
0.36	26.73	Ave	Line	48.68	21.95
17.89	24.97	Ave	Line	50.00	25.03
17.51	21.36	Ave	Neutral	50.00	28.64

120 V/60 Hz, Line



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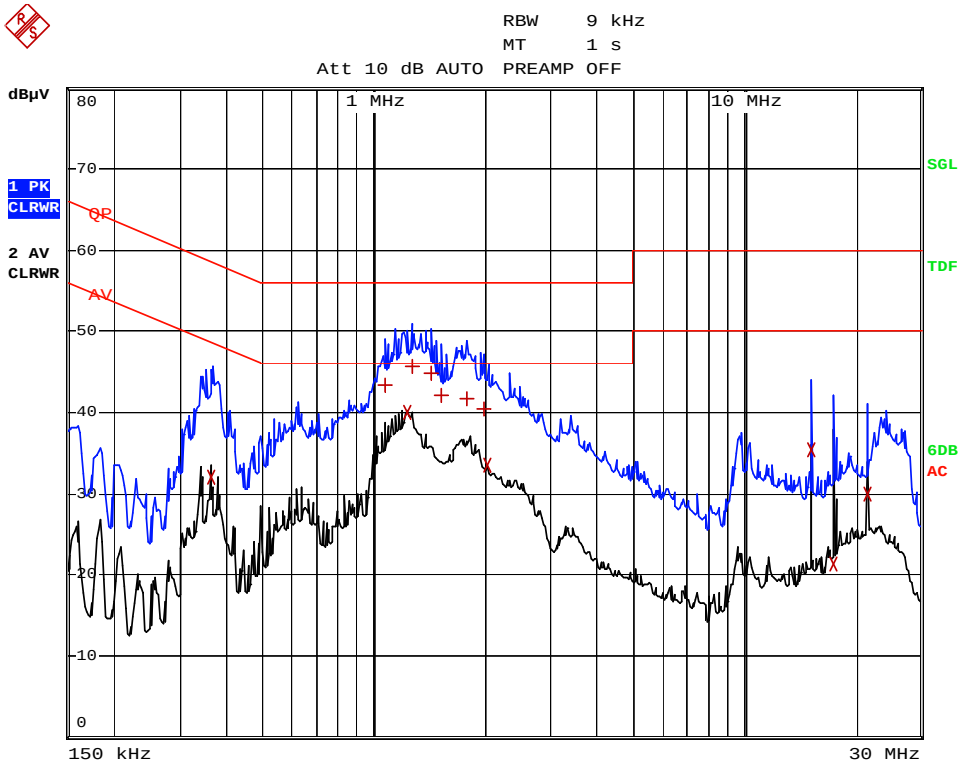
120 V/60 Hz, Neutral



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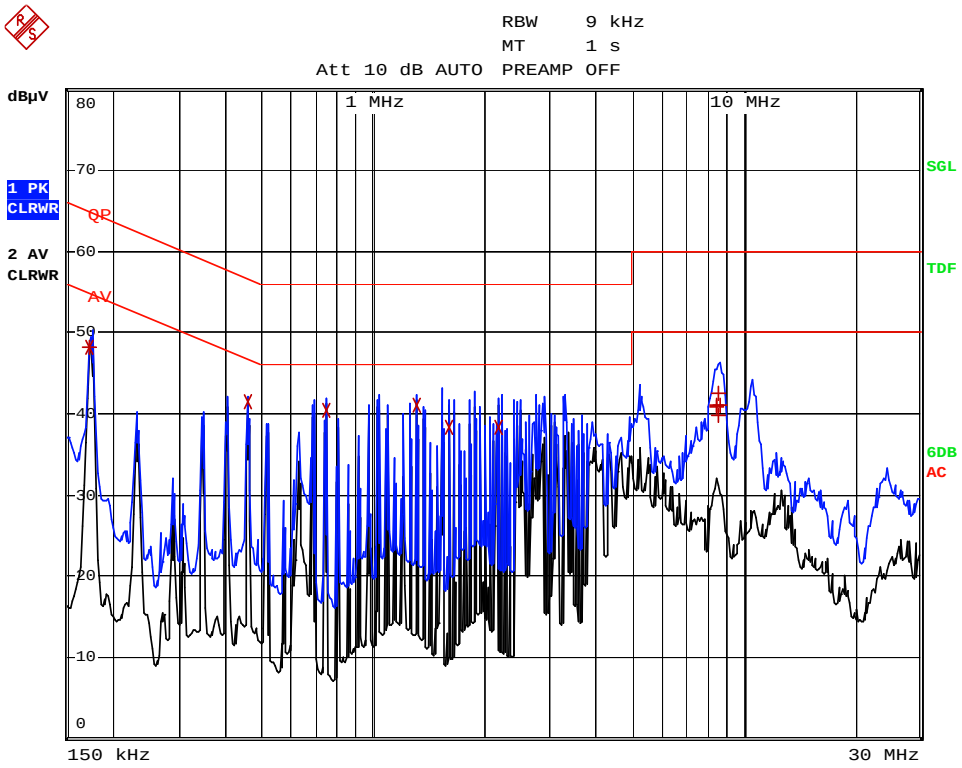
For PC Mode

Test mode: operating mode

Line Conducted Emissions				FCC Part 15.107, Class B	
Frequency (MHz)	**Cord. Amplitude (dBµV)**	**Detector (QP/Ave/Peak)**	**Phase (Line/Neutral)**	**Limit (dBµV)**	**Margin (dB)**
1.32	41.09	Ave	Line	46.00	4.91
0.46	41.57	Ave	Line	46.73	5.16
0.75	40.38	Ave	Line	46.00	5.62
0.17	48.26	Ave	Line	54.77	6.51
0.17	47.51	Ave	Neutral	54.77	7.26
1.61	38.36	Ave	Line	46.00	7.64
2.18	38.27	Ave	Line	46.00	7.73
2.23	37.60	Ave	Neutral	46.00	8.40
1.66	37.47	Ave	Neutral	46.00	8.53
1.31	37.32	Ave	Neutral	46.00	8.68
1.03	36.83	Ave	Neutral	46.00	9.17
2.52	34.74	Ave	Neutral	46.00	11.26
0.17	48.27	QP	Line	64.77	16.50
0.17	47.63	QP	Neutral	64.77	17.14
8.67	42.54	QP	Line	60.00	17.46
8.68	41.67	QP	Neutral	60.00	18.33
8.58	41.21	QP	Neutral	60.00	18.79
8.72	41.14	QP	Line	60.00	18.86
8.53	40.95	QP	Line	60.00	19.05
8.58	40.81	QP	Line	60.00	19.19
8.63	39.78	QP	Line	60.00	20.22
8.33	39.78	QP	Neutral	60.00	20.22
8.87	39.42	QP	Neutral	60.00	20.58
8.64	37.44	QP	Neutral	60.00	22.56

120 V/60 Hz, Line



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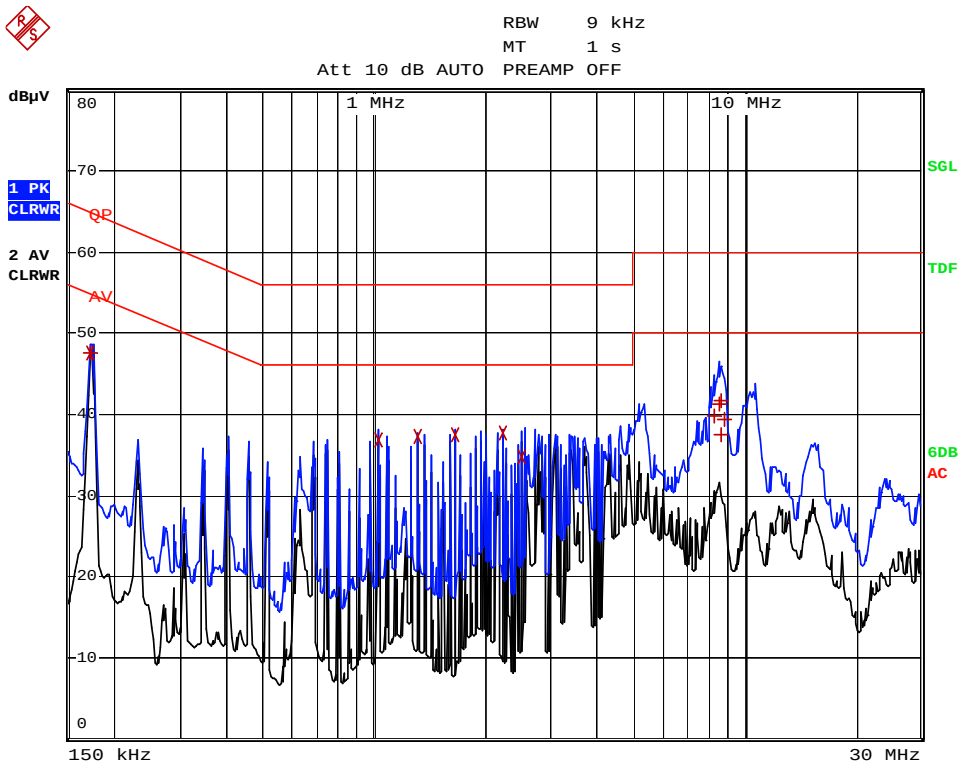
120 V/60 Hz, Neutral



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5 - FCC §15.109 Radiated Spurious Emissions

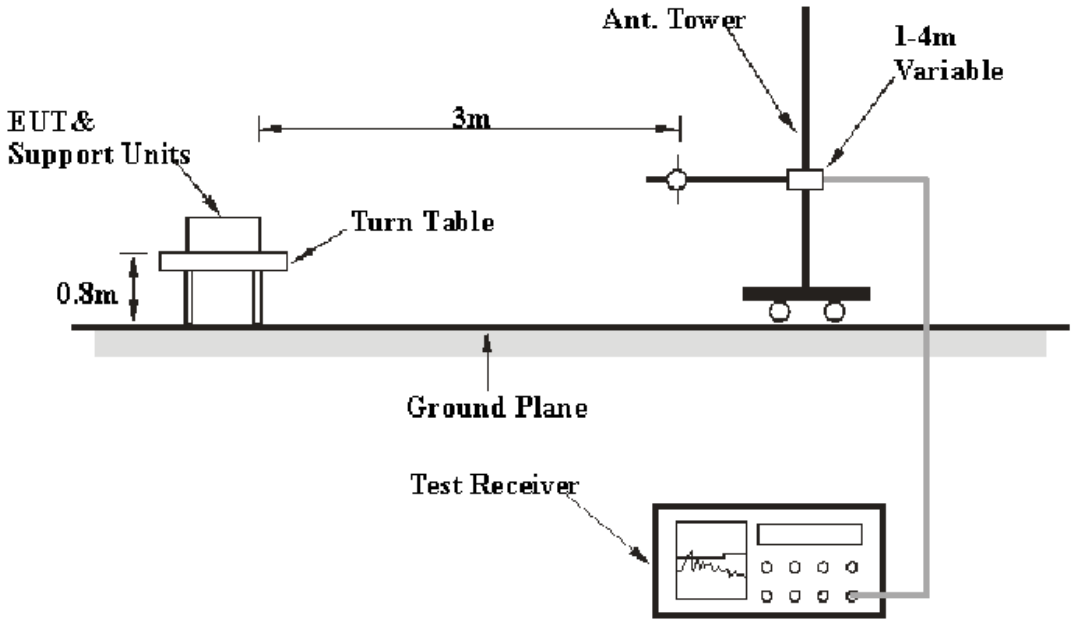
5.1 Measurement Uncertainty

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 NIS 81, the Treatment of Uncertainty in EMI Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ±4.0 dB.

5.2 EUT Setup

The radiated emission tests are performed at BACL, using the setup in accordance with the ANSI C63.4-2009. The specification used is the FCC Part 15.109 Class B limits.



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

The separation between the neighboring unit & EUT is 10 cm in the horizontal.

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 160MHz, so the frequency range to be tested from 30 MHz to 2000MHz.

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

Frequency Range	***RBW***	***Video B/W***	***Detector***
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1GHz – 2GHz	1MHz	3MHz	AV

5.4 Test Procedure

Maximizing procedure was performed on the 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:

Corr. Amp. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

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 maximum limit for FCC Part 15B, Class B. The equation for margin calculation is as follows:

Margin = FCC Part 15 Class B Limit – Corr. Amp.

5.6 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Due Date
HP	Pre-Amplifier	8447E	1937A01046	2011-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	10028	2011-10-16
Sunol Sciences	Broadband Antenna	JB3	A040904-2	2011-08-14

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Chengdu) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

5.7 Test Environment Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0 KPa

The testing was performed by Kevin Ding and Fisher He.

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:

4.5 dB at **400.014994 MHz** in the **Horizontal** polarization for Normal Operating Mode, 30 to 1000 MHz, 3m

16.4 dB at **1601.33 MHz** in the **Vertical** polarization for Normal Operating Mode, 1000 to 2000 MHz, 3m

For PC Mode:

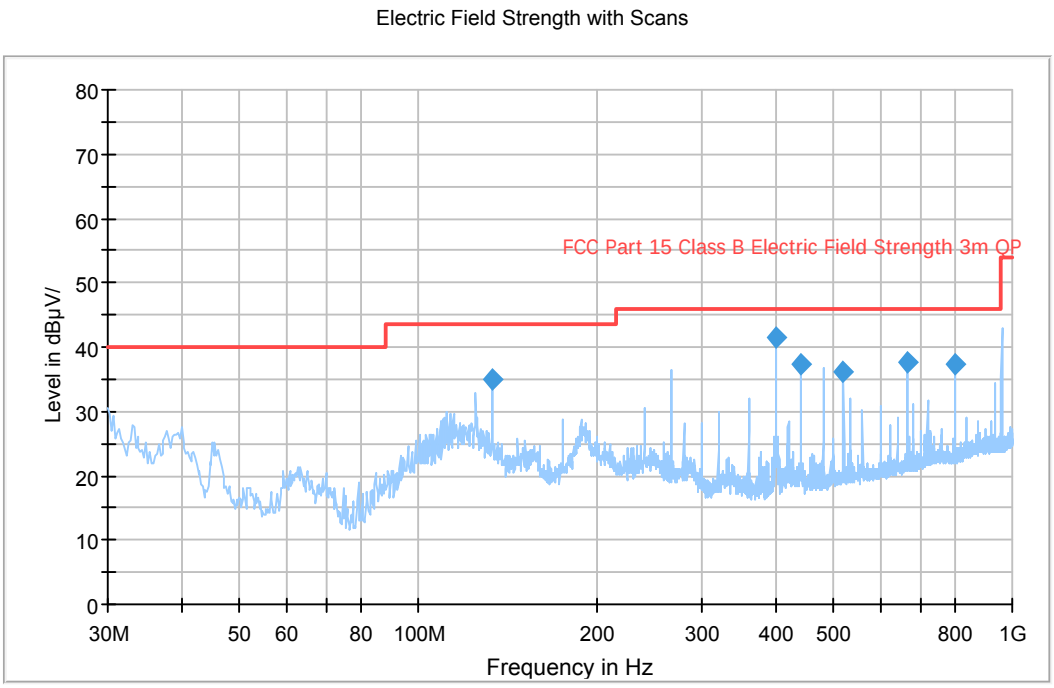
5.5 dB at **366.486018 MHz** in the **Horizontal** polarization for Normal Operating Mode, 30 to 1000 MHz, 3m

16.9 dB at **1601.19 MHz** in the **Vertical** polarization for Normal Operating Mode, 1000 to 2000 MHz, 3m

5.9 Radiated Emission Test Data and Plots

For Adaptor Mode:

1) Below 1 GHz:



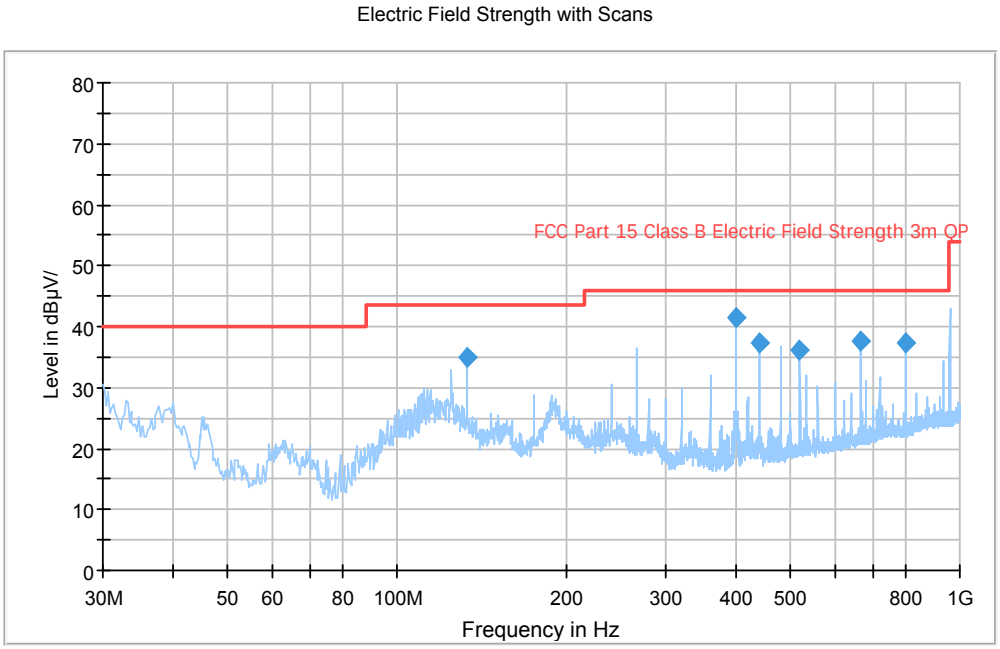
Frequency (MHz)	Cord. Amp. (dBµV/m)	Test Antenna		Turntable Position (deg)	Corr. Faction (dB)	Margin (dB)	Limit (dBµV/m)
		Height (cm)	Polarity (H/V)				
400.014994	41.5	100.0	H	0.0	-9.5	4.5	46.0
666.721650	37.6	100.0	H	199.0	-4.5	8.4	46.0
133.334992	35.0	100.0	V	0.0	-12.3	8.5	43.5
800.059973	37.5	100.0	V	199.0	-2.6	8.5	46.0
440.001490	37.3	100.0	H	0.0	-8.5	8.7	46.0
520.040491	36.1	100.0	H	42.0	-6.9	9.9	46.0

2) Above 1 GHz:

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Direction (Degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBuV)	Limit (dBμV/m)	Margin (dB)
			Height (m)	Polar (H/V)	Factor (dB/m)					
1601.33	45.3	23	1.3	V	25.0	2.3	35.0	37.6	54	16.4
1601.33	40.5	35	1	H	25.0	2.3	35.0	32.8	54	21.2
1250.87	40.6	335	1.2	V	23.9	2.0	35.0	31.5	54	22.5
1500.41	39.2	100.00	1.5	V	25.0	2.2	35.0	31.4	54	22.6
1250.87	38.7	105.00	1.8	H	23.9	2.0	35.0	29.6	54	24.4
1500.41	33.5	90.00	1.7	H	25.0	2.2	35.0	25.7	54	28.3

For PC Mode:

1) Blow 1 GHz:



Frequency (MHz)	Cord. Amp. (dBµV/m)	Test Antenna		Turntable Position (deg)	Corr. Faction (dB)	Margin (dB)	Limit (dBµV/m)
		Height (cm)	Polarity (H/V)				
366.486018	40.5	100.0	H	236.0	-10.0	5.5	46.0
366.466564	39.8	100.0	H	242.0	-10.0	6.2	46.0
33.325709	32.6	100.0	V	174.0	-8.9	7.4	40.0
699.645044	37.1	100.0	H	66.0	-4.1	8.9	46.0
497.798578	35.4	218.0	H	0.0	-7.2	10.6	46.0
239.921000	19.0	350.0	V	252.0	-13.4	27.0	46.0

2) Above 1 GHz:

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Direction (Degree)	Test Antenna			Cable Loss (dB)	Pre-Amp. (dB)	Cord. Amp. (dBuV)	Limit (dBμV/m)	Margin (dB)
			Height (m)	Polar (H/V)	Factor (dB/m)					
1601.19	44.8	30	1.3	V	25.0	2.3	35.0	37.1	54	16.9
1441.32	42.3	271	1.5	V	23.9	2.2	35.0	33.4	54	20.6
1601.19	40.3	40	1.2	H	25.0	2.3	35.0	32.6	54	21.4
1920.16	39.8	45.00	1.8	V	25.0	2.5	35.0	32.3	54	21.7
1441.32	39.1	267.00	2.7	H	23.9	2.2	35.0	30.2	54	23.8
1920.16	34.6	60.00	2.4	H	25.0	2.5	35.0	27.1	54	26.9

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