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Report No.:SZEM110800331601

Page: 1 of 13

## FCC Test Report

**Application No.:** SZEM1108003316IT

**Applicant/Manufacturer/** Shenzhen Lucallan Electronics Co.,Ltd.  
**Factory:**

**Address of Applicant/** 42nd Floor Sha san shang xia wei, The second industrial area, Sha san Rd.,

**Manufacturer/Factory:** Sha jing town, Baoan district, Shenzhen city, Guangdong China.

**FCC ID:** ZZCLK-UK001

### Equipment Under Test (EUT):

**EUT Name:** Wired keyboard

**Item No.:** LK-UK001

**Standards:** FCC PART15 SUBPART B: 2010

**Date of Receipt:** 2011-08-29

**Date of Test:** 2011-08-29 to 2011-09-24

**Date of Issue:** 2011-10-13

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

## 2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz)	FCC PART 15, SUBPART B: 2010	ANSI C63.4:2009	Class B	PASS
Conducted Emission (150kHz to 30MHz)	FCC PART 15, SUBPART B: 2010	ANSI C63.4:2009	Class B	PASS

### 3 Contents

	Page
1 COVER PAGE .....	1
2 TEST SUMMARY .....	2
3 CONTENTS .....	3
4 GENERAL INFORMATION.....	4
4.1 DETAILS OF E.U.T.....	4
4.2 DESCRIPTION OF SUPPORT UNITS.....	4
4.3 STANDARDS APPLICABLE FOR TESTING .....	4
4.4 TEST LOCATION.....	4
4.5 TEST FACILITY.....	5
4.6 DEVIATION FROM STANDARDS .....	5
4.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	5
5 EQUIPMENTS USED DURING TEST .....	6
6 TEST RESULTS.....	8
6.1 CONDUCTED EMISSIONS MAINS TERMINALS, 150kHz TO 30MHz.....	8
6.1.1 E.U.T. Operation.....	8
6.1.2 Measurement Data.....	8
6.2 RADIATED EMISSIONS, 30MHz TO 1GHz .....	11
6.2.1 E.U.T. Operation.....	11
6.2.2 Measurement Data.....	11-13

## 4 General Information

### 4.1 Details of E.U.T.

Power Supply: Supply by USB(PC)  
The highest frequency: 6MHz

### 4.2 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
PC	DELL	OPTIPLEX 755
LCD-displaying	DELL	E1909WF
KEYBOARD	DELL	SK-8115
MOUSE	DELL	MOC5110
PC	DELL	OPTIDLEX 330
LCD-displaying	DELL	SP2208WFPT
KEYBOARD	DELL	SK-8115
MOUSE	DELL	MOC5110
Coder	HengTong ELECTRON	HT4000
Printer	Canon	BJC-1000SP

### 4.3 Standards Applicable for Testing

The customer requested FCC tests for Wired keyboard.

The standard used was FCC PART 15, SUBPART B, CLASS B.

### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,  
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053      Fax: +86 755 2671 0594

No tests were sub-contracted.

#### **4.5 Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, March 16, 2011

- **Industry Canada (IC)**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

#### **4.6 Deviation from Standards**

None.

#### **4.7 Abnormalities from Standard Conditions**

None.

## 5 Equipments Used during Test

RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2012-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2012-03-11
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2012-05-29
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2011-11-09
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2012-05-26
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2011-11-09
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2011-11-09
9	Band filter	Amindeon	Asi 3314	SEL0094	2012-05-26
10	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2011-11-09
11	EMI Test Receiver (9K-3GHz)	Rohde & Schwarz	ESCI	SEL0175	2012-05-26

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2012-06-10
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2011-10-26
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2012-05-26
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2012-01-17
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2012-01-17
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2012-01-17
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2012-05-26
8	Coaxial Cable	SGS	N/A	SEL0024	2012-05-29

General used equipment					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2011-11-04
2	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2012-03-10
3	Barometer	ChangChun	DYM3	SEL0088	2012-05-18

## 6 Test Results

### 6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4
Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Limit:	
0.15M-0.5MHz	66dB(dB $\mu$ V)-56dB(dB $\mu$ V) quasi-peak, 56dB(dB $\mu$ V)-46dB(dB $\mu$ V) average
0.5M-5MHz	56dB(dB $\mu$ V) quasi-peak, 46dB(dB $\mu$ V) average
5M-30MHz	60dB(dB $\mu$ V) quasi-peak, 50dB(dB $\mu$ V) average
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

#### 6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C      Humidity: 55 % RH      Atmospheric Pressure: 1004 mbar

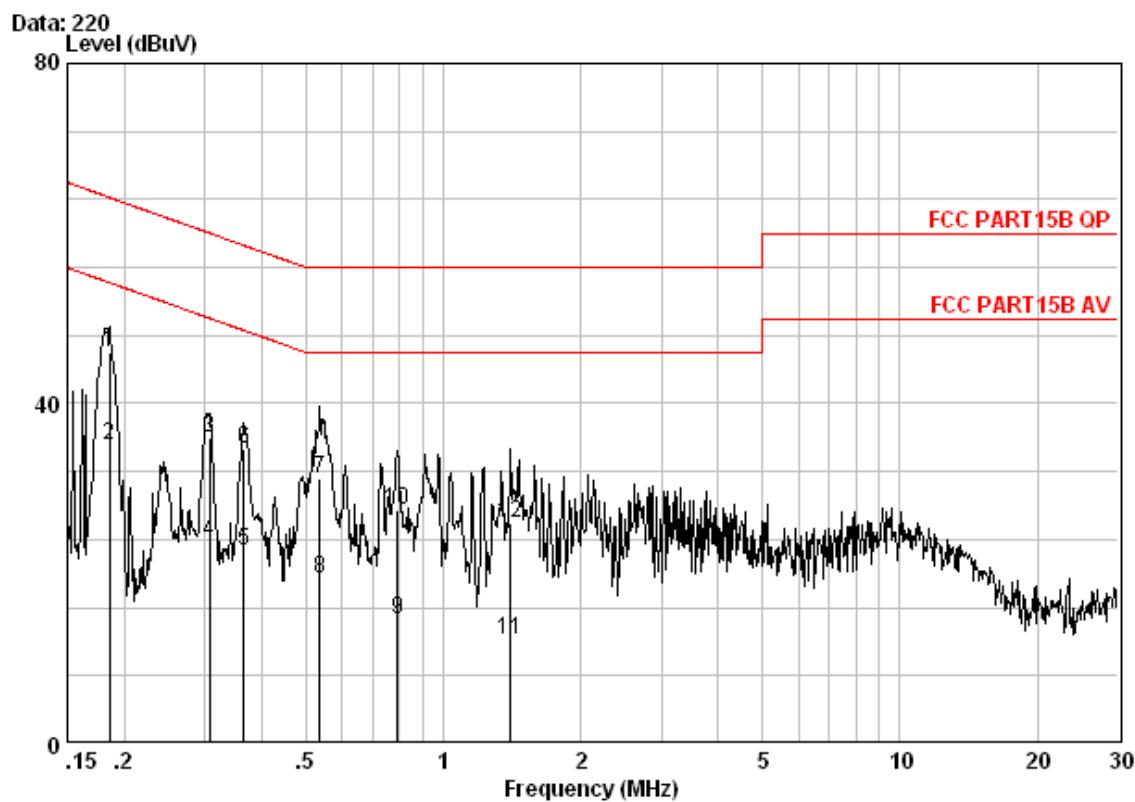
EUT Operation: Test the EUT in PC mode, keep EUT working normally with PC connected.

#### 6.1.2 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

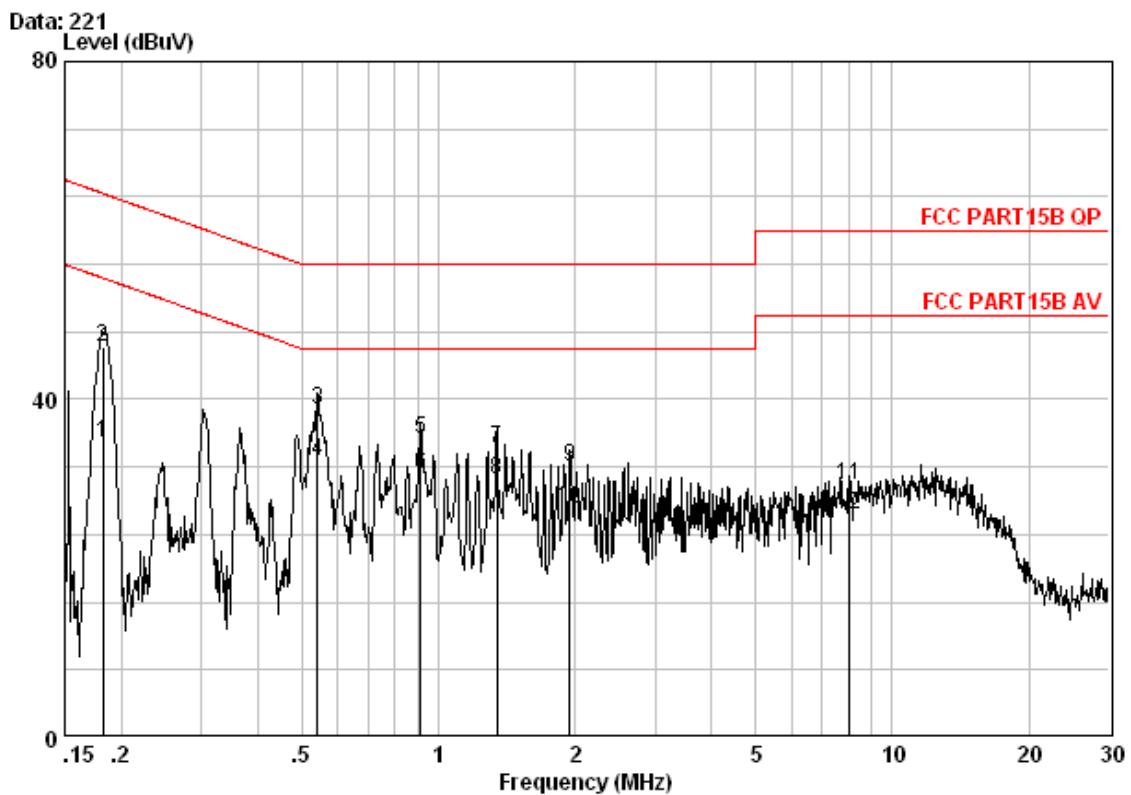
## Live Line



Site : Shielding Room  
Condition : FCC PART15B QP CE-20101216 LINE  
Job No. : 3316IT  
Mode : PC

Freq	Cable	LISN	Read	Limit	Over	Remark
	Loss	Factor	Level			
MHz	dB	dB	dBuV	dBuV	dBuV	dB
1	0.18541	0.14	9.60	36.32	46.06	64.24 -18.18 QP
2	0.18541	0.14	9.60	25.32	35.06	54.24 -19.18 Average
3	0.30671	0.16	9.60	26.11	35.87	60.06 -24.19 QP
4	0.30671	0.16	9.60	14.11	23.87	50.06 -26.19 Average
5	0.36531	0.16	9.60	12.96	22.72	48.61 -25.88 Average
6	0.36531	0.16	9.60	24.96	34.72	58.61 -23.88 QP
7	0.53498	0.16	9.62	21.30	31.08	56.00 -24.92 QP
8	0.53498	0.16	9.62	9.70	19.48	46.00 -26.52 Average
9	0.79180	0.18	9.70	4.80	14.68	46.00 -31.32 Average
10	0.79180	0.18	9.70	17.60	27.48	56.00 -28.52 QP
11	1.403	0.20	9.70	2.20	12.10	46.00 -33.90 Average
12	1.403	0.20	9.70	16.10	26.00	56.00 -30.00 QP

## Neutral Line



Site : Shielding Room  
 Condition : FCC PART15B QP CE-20101216 NEUTRAL  
 Job No. : 3316IT  
 Mode : PC

Freq	Cable	LISN	Read	Limit	Over	Remark	
	MHz	Loss	Factor	Level	Level		
1	0.18249	0.14	9.60	25.24	34.98	54.37	-19.39 Average
2	0.18249	0.14	9.60	36.58	46.32	64.37	-18.05 QP
3	0.54068	0.16	9.62	29.00	38.78	56.00	-17.22 QP
4	0.54068	0.16	9.62	22.89	32.68	46.00	-13.32 Average
5	0.91357	0.19	9.70	25.42	35.32	56.00	-20.68 QP
6	0.91357	0.19	9.70	21.23	31.12	46.00	-14.88 Average
7	1.345	0.20	9.70	24.37	34.27	56.00	-21.73 QP
8	1.345	0.20	9.70	20.56	30.46	46.00	-15.54 Average
9	1.949	0.20	9.70	22.11	32.01	56.00	-23.99 QP
10	1.949	0.20	9.70	17.12	27.02	46.00	-18.98 Average
11	8.062	0.25	9.86	19.82	29.94	60.00	-30.06 QP
12	8.062	0.25	9.86	16.20	26.32	50.00	-23.68 Average



## 6.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class / Severity:	Class B
Limit:	40.0 dB $\mu$ V/m between 30MHz & 88MHz 43.5 dB $\mu$ V/m between 88MHz & 216MHz 46.0 dB $\mu$ V/m between 216MHz & 960MHz 54.0 dB $\mu$ V/m above 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

### 6.2.1 E.U.T. Operation

Operating Environment:

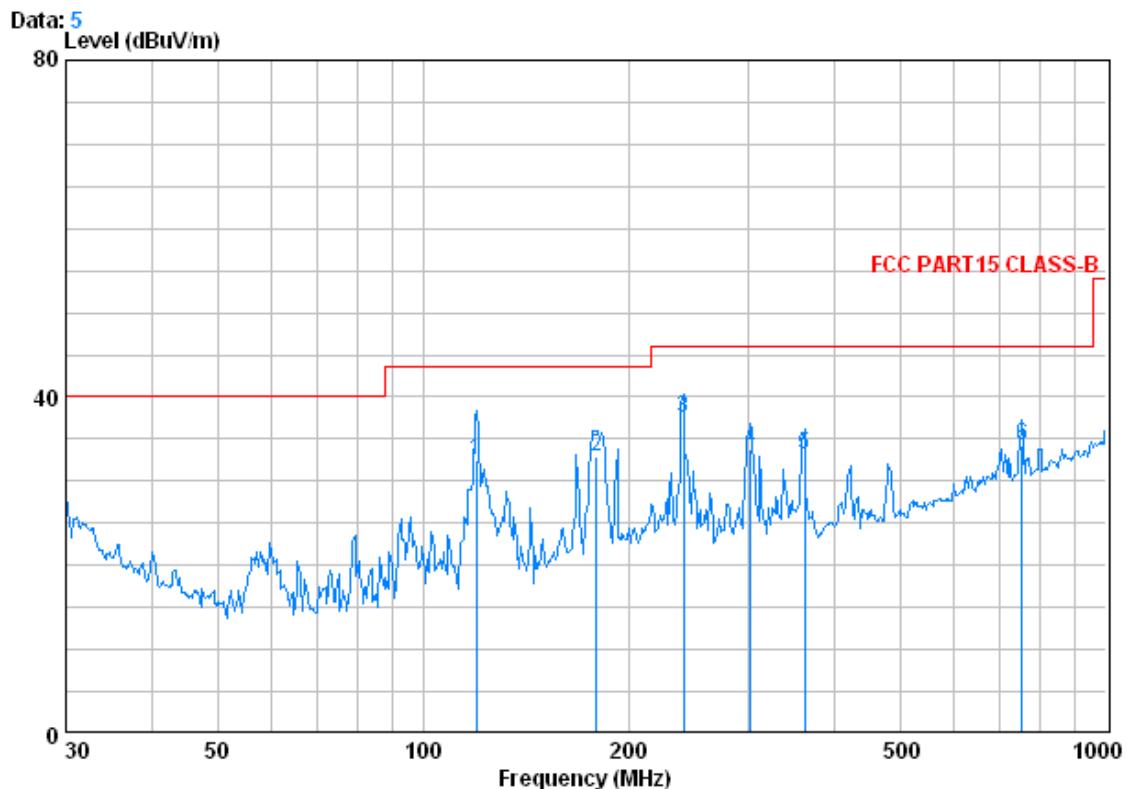
Temperature: 25.0 °C      Humidity: 55% RH      Atmospheric Pressure: 1004 mbar

EUT Operation: Test the EUT in PC mode, keep EUT working normally with PC connected.

### 6.2.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Horizontal



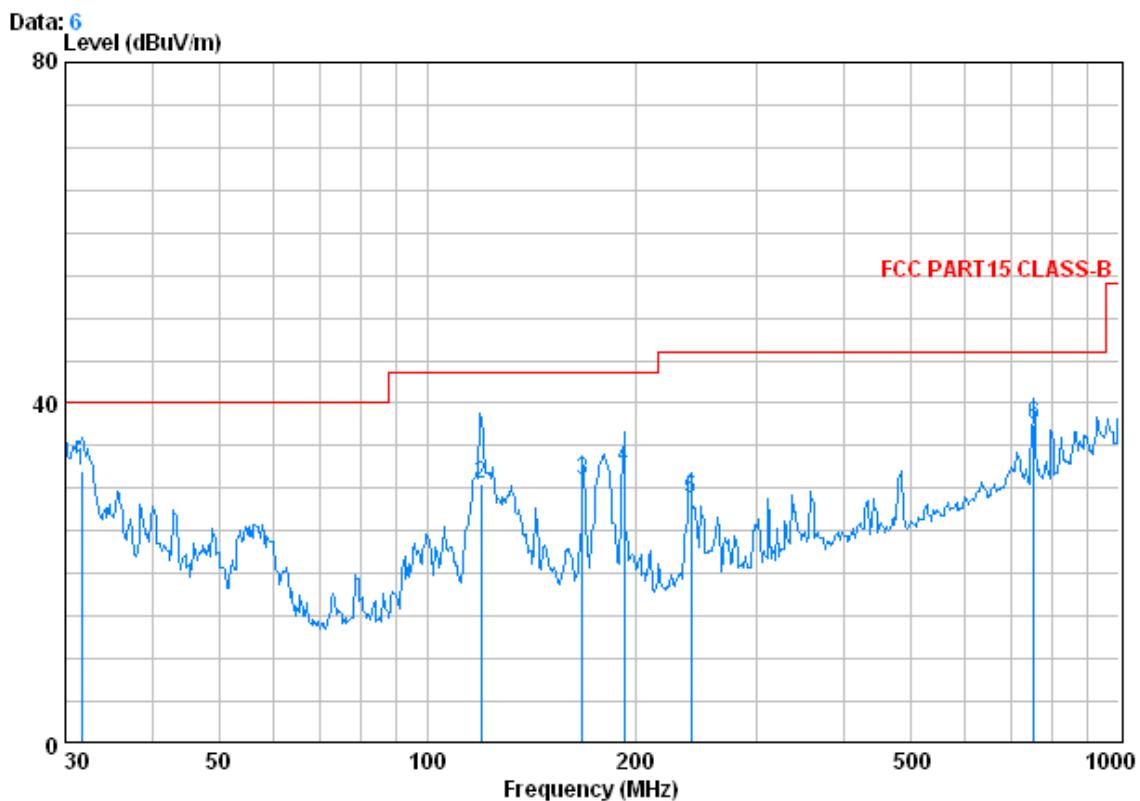
Condition : FCC PART15 CLASS-B 3m 0042673 HORIZONTAL

Job No. : 3316IT

Mode : PC

Freq	Cable			Antenna	Preamp	Read	Limit	Line	Over
	Loss	Factor	Factor			Level			
	MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	dB
1	119.700	1.25	7.90	27.07	50.30	32.38	43.50	-11.12	
2	179.386	1.37	9.87	26.78	48.55	33.02	43.50	-10.48	
3	240.830	1.63	12.01	26.56	50.34	37.43	46.00	-8.57	
4	301.422	1.90	13.94	26.40	44.44	33.89	46.00	-12.11	
5	361.714	2.09	15.68	26.87	42.29	33.20	46.00	-12.80	
6	752.743	3.07	21.73	27.35	36.80	34.25	46.00	-11.75	

Vertical



Condition : FCC PART15 CLASS-B 3m 0042673 VERTICAL

Job No. : 3316IT

Mode : PC

	Freq	Cable			Antenna	Preamp	Read	Limit	Over
		Loss	Factor	Factor		Level	Level		
	MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	dB
1	0	31.620	0.60	14.54	27.35	44.23	32.02	40.00	-7.98
2		119.600	1.25	7.93	27.07	48.50	30.61	43.50	-12.89
3		167.824	1.35	9.52	26.82	46.82	30.87	43.50	-12.63
4		192.419	1.39	10.12	26.73	47.74	32.53	43.50	-10.97
5		240.830	1.63	12.01	26.56	41.79	28.87	46.00	-17.13
6		752.743	3.07	21.73	27.35	40.00	37.45	46.00	-8.55