FCC CFR47 PART 15 SUBPART B
ICES-003 ISSUE 4

TEST REPORT

FOR

WIRELESS OFFICE AND CALL CENTER COMMUNICATION ACCESSORY

MODEL NUMBER: WO2

FCC ID: AL8-WO2
IC: 457A-WO2

REPORT NUMBER: 10U13328-2

ISSUE DATE: AUGUST 12, 2010

Prepared for
PLANTRONICS, INC.
345 ENCINAL STREET
SANTA CRUZ, CA 95060, U.S.A.

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	08/12/10	Initial Issue	F. Ibrahim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: PLANTRONICS, INC.
345 ENCINAL STREET
SANTA CRUZ, CA, 95060, U.S.A

EUT DESCRIPTION: WIRELESS OFFICE AND CALL CENTER COMMUNICATION ACCESSORY

MODEL: WO2

SERIAL NUMBER: 114

DATE TESTED: AUGUST 03- 05, 2010

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart B	Pass
ICES-003 ISSUE 4	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

FRANK IBRAHIM
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

THANH NGUYEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless Office and Call Center Communication Accessory that provides wide band voice and stereo audio reception.

The radio module is manufactured by Plamex SA DE CV, Avenida Production #216.
Parque Industrial Internacional, Tijuana Mesa De Otay, Tijuana, Baja California 22425, Mexico.

5.2. GENERAL INFORMATION

Power Requirements	100-240 VAC / 50-60 Hz
List of frequencies generated or used by the EUT	HUB = 10.368 MHz, 26.0 MHz MicClip = 16 MHz

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a printed PIFA antenna, with a maximum gain of 1.8 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was PNX 98 SITEL 19.16 BT 2.4.0 PIC 1.1 HW REV 28

The EUT driver software installed in the host support equipment during testing was EMC test V1.0 Windows Media Player V9.00.00.3344

The test utility software used during testing was Bluetest3.exe, exercise the Bluecore Build-in selftest (BIST) function.

5.5. CONFIGURATION

Access to CSR chip is provided via SPI input by a level shifter connected to the parallel port pf the PC used a terminal running CSR Bluetest3. The level shifter required 3.6 VDC to operate, which is provided by an external power supply.

5.6. MODE OF OPERATION

Normal mode of operation will include the base connected to a PC using windows media player to loop a 1 kHz tone and windows sound recorder to record the microphone input. A phone is attached to the base.

5.7. DESCRIPTION OF TEST SETUP

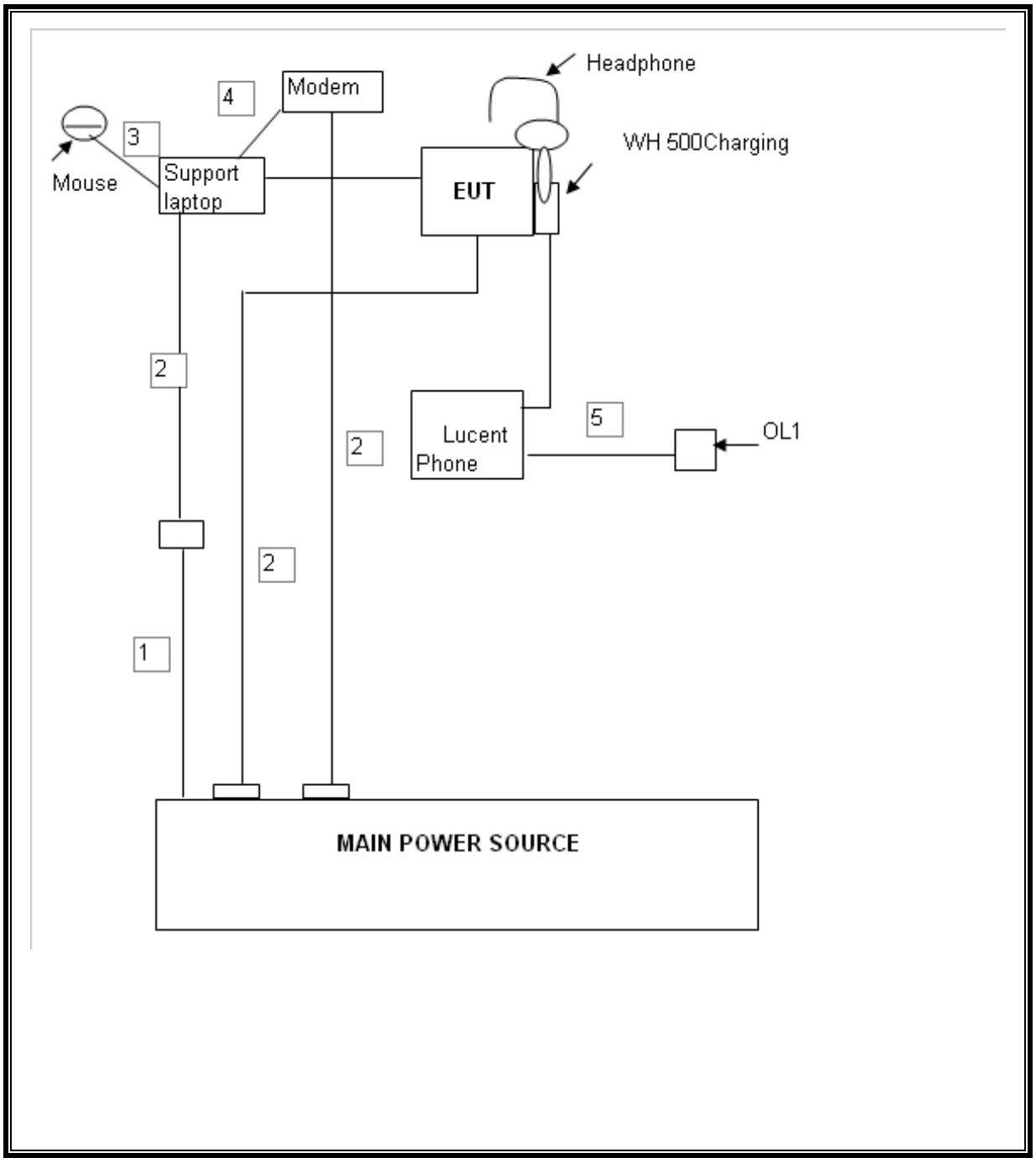
SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	D400	Plantronics 31938	DoC
AC/DC Adapter	Dell	LA90PS0-09	CN0DF266-71615-855	DoC
SPI Interface Connect.	Plantronics	N/A	N/A	N/A
Level Shifter	Plantronics	N/A	N/A	N/A
DC Power Supply	HP	E3610	CCS02844	DoC
Modem	HP	E3610	CCS02844	DoC
Phone	Lucent	6416D+M	CCS01921	DoC
USB Mouse	Dell	M-UK DELL 3	CCS02145	DoC

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	US 115V	Un-shielded	2m	N/A
2	DC	3	AC Adapter	Un-shielded	1.5m	N/A
3	USB	1	USB	shielded	1m	N/A
4	SERIAL	1	DB9	Un-shielded	1m	N/A
5	IO	1	VIDEO	Un-shielded	1M	N/A

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**Asset**	**Cal Date**	**Cal Due**
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	01/14/09	12/18/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	03/31/09	12/19/10
PSA Series Spectrum Analyzer	Agilent / HP	E4446A	C01069	01/05/10	04/05/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/29/09	10/29/10
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	10/29/09	10/29/10
EMI Receiver	R & S	ESHS 20	N02396	02/06/09	08/06/10

7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

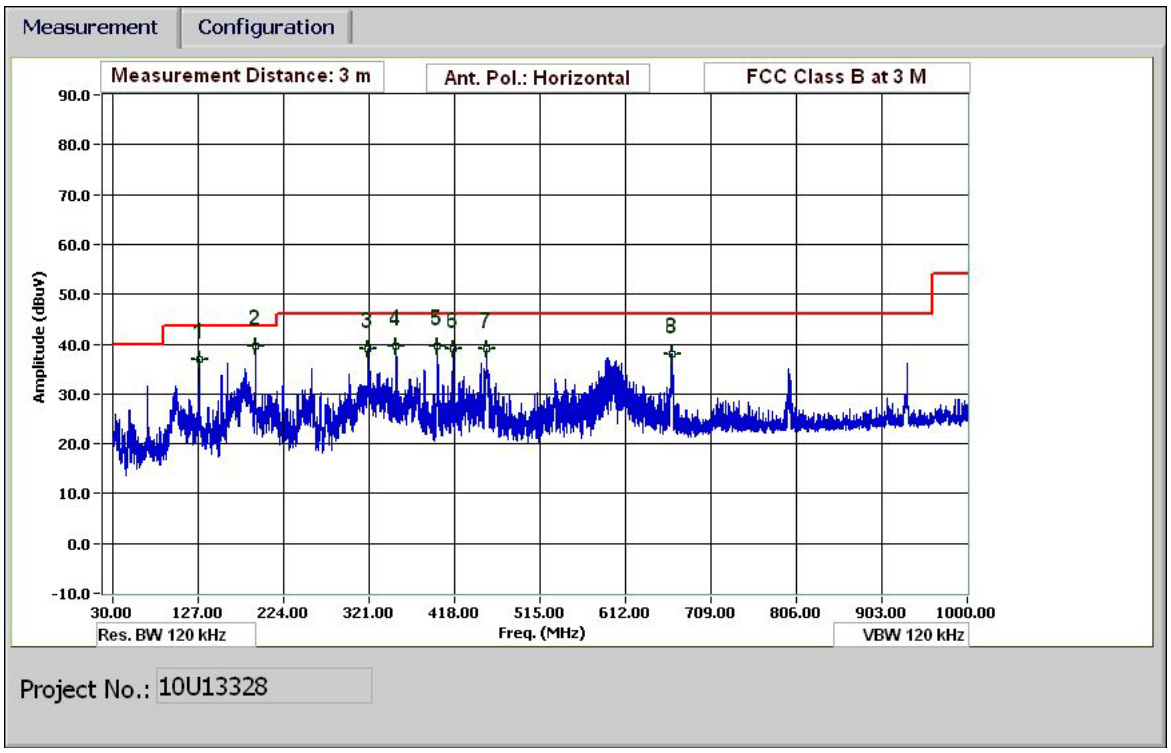
For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

7.2. RADIATED EMISSIONS BELOW 1 GHz

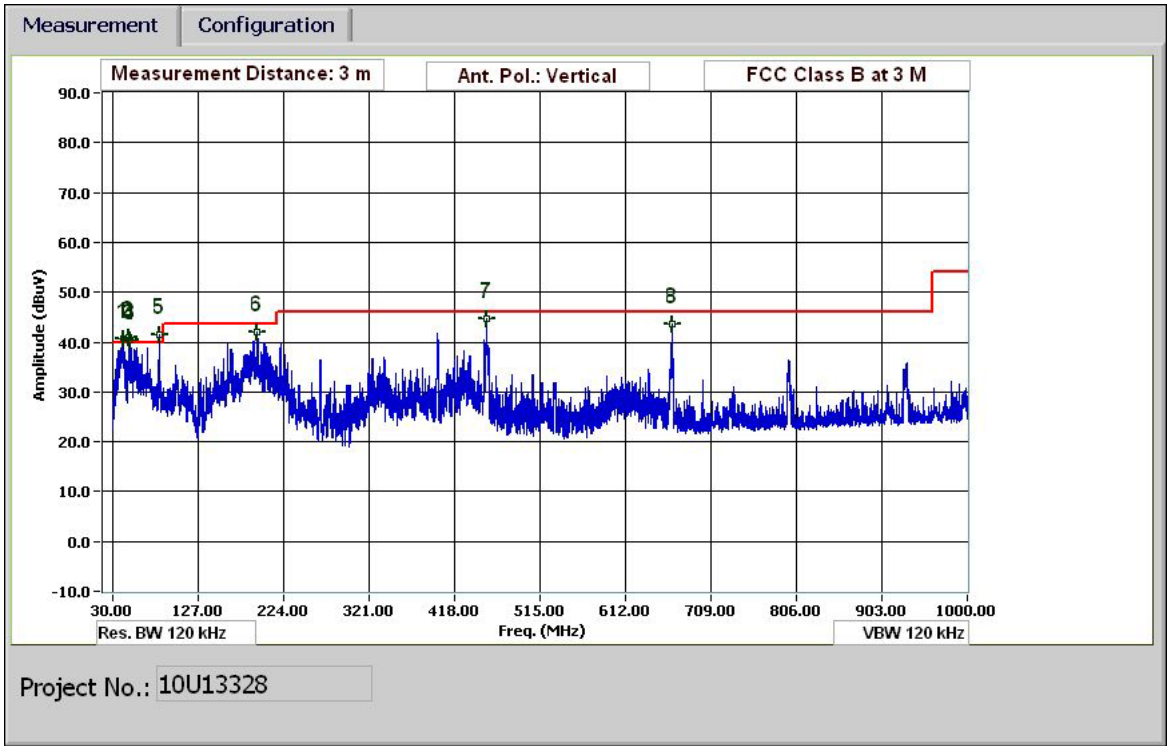
SPURIOUS EMISSIONS 30 TO 1000 MHz HORIZONTAL

HORIZONTAL PLOT



SPURIOUS EMISSIONS 30 TO 1000 MHz VERTICAL

VERTICAL PLOT



DATA

30-1000MHz Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Test Engr: Thanh Nguyen
Date: 08/03/10
Project #: 10U13328
Company: Plantronics
EUT Description: UPCS DECT. 6.0 radio
EUT M/N: WO2
Test Target: FCC 15.247
Mode Oper: Digital Configuration, Video displaying and Audio Recording

f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters		
Read	Analyzer Reading	Filter	Filter Insert Loss		
AF	Antenna Factor	Corr.	Calculated Field Strength		
CL	Cable Loss	Limit	Field Strength Limit		

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Ant. High cm	Table Angle Degree	Notes
Digital Configuration															
95.403	3.0	53.2	8.8	0.9	28.3	0.0	0.0	34.6	43.5	-8.9	V	QP	100.0	0 - 360	
111.843	3.0	53.2	12.1	1.0	28.3	0.0	0.0	38.0	43.5	-5.5	V	QP	100.0	0 - 360	
127.444	3.0	53.7	13.6	1.1	28.3	0.0	0.0	40.1	43.5	-3.4	V	P	100.0	0 - 360	
438.857	3.0	52.6	15.6	1.9	28.0	0.0	0.0	42.1	46.0	-3.9	V	P	100.0	0 - 360	
473.898	3.0	48.9	16.3	2.0	27.9	0.0	0.0	39.2	46.0	-6.8	V	P	100.0	0 - 360	
733.829	3.0	43.4	20.0	2.5	27.3	0.0	0.0	38.6	46.0	-7.4	V	P	100.0	0 - 360	
846.754	3.0	47.2	21.4	2.7	27.6	0.0	0.0	43.7	46.0	-2.3	V	P	100.0	0 - 360	
98.883	3.0	56.9	9.7	0.9	28.3	0.0	0.0	39.1	43.5	-4.4	H	QP	100.0	0 - 360	
399.495	3.0	53.0	14.9	1.8	28.1	0.0	0.0	41.6	46.0	-4.4	H	P	100.0	0 - 360	
486.019	3.0	50.3	16.5	2.0	27.9	0.0	0.0	40.9	46.0	-5.1	H	P	100.0	0 - 360	
498.019	3.0	49.9	16.7	2.0	27.8	0.0	0.0	40.8	46.0	-5.2	H	P	100.0	0 - 360	
620.904	3.0	48.6	18.7	2.3	27.5	0.0	0.0	42.1	46.0	-3.9	H	P	100.0	0 - 360	
733.829	3.0	48.6	20.0	2.5	27.3	0.0	0.0	43.9	46.0	-2.1	H	P	100.0	0 - 360	
790.231	3.0	46.7	20.8	2.6	27.4	0.0	0.0	42.7	46.0	-3.3	H	P	100.0	0 - 360	

Rev. 1.27.09
Note: No other emissions were detected above the system noise floor.

8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

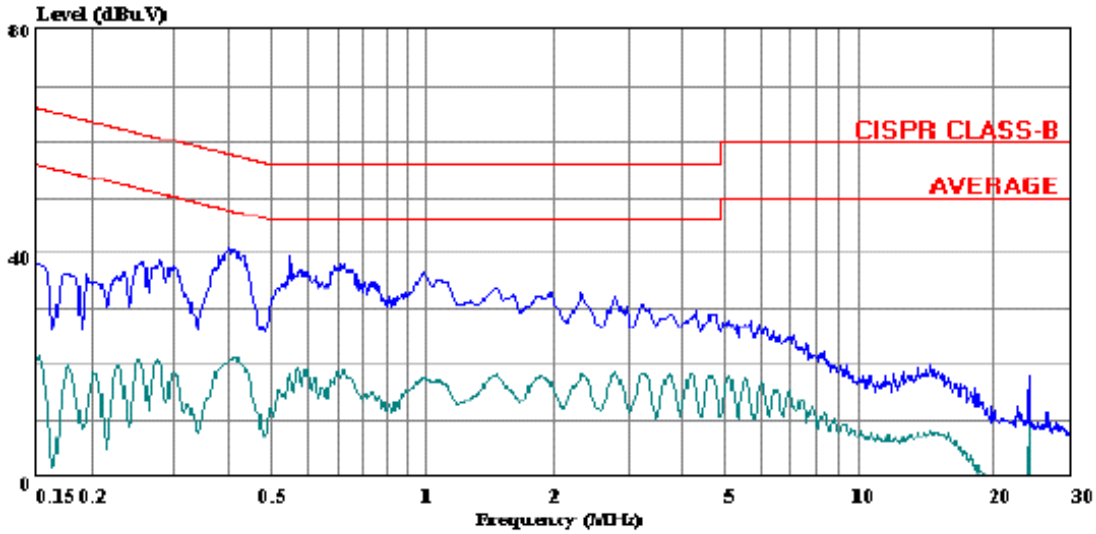
6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.28	38.93	--	--	0.00	60.76	50.76	-21.83	-11.83	L1
0.42	40.72	--	--	0.00	57.55	47.55	-16.83	-6.83	L1
0.55	39.33	--	--	0.00	56.00	46.00	-16.67	-6.67	L1
0.28	43.59	--	--	0.00	60.76	50.76	-17.17	-7.17	L2
0.39	49.87	--	31.55	0.00	58.04	48.04	-8.17	-16.49	L2
0.73	43.75	--	--	0.00	56.00	46.00	-12.25	-2.25	L2
6 Worst Data									

LINE 1 RESULTS

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 42 File#: 10U13328_LC.EMI Date: 08-04-2010 Time: 13:34:15



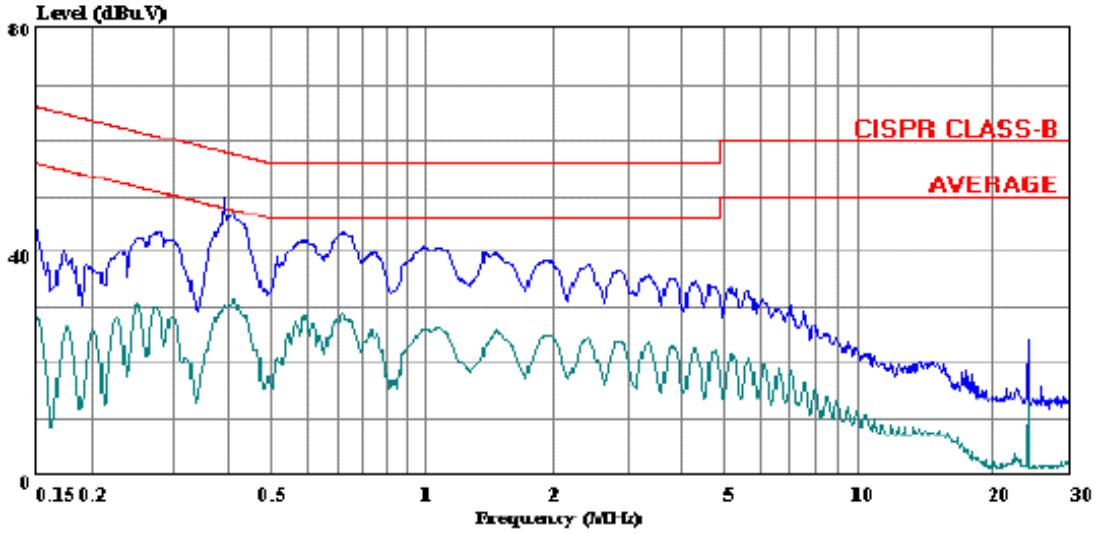
Trace: 40 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Thanh Nguyen
Project #: : 10U13328
Company: : Plantronics
Configuration:: EUT with support Equipment
Mode : : Video H pattern; play record, Audio 1KHz
Target: : CISPR 22 Class B
Voltage: : EUT AC/DC Adapter, Wireless Unit
: Line 1; 115VAC / 60Hz

LINE 2 RESULTS

Compliance Certification Service
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 49 File#: 10U13328_LC.EMI Date: 08-04-2010 Time: 13:52:26



Trace: 47 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Thanh Nguyen
Project #: : 10U13328
Company: : Plantronics
Configuration:: EUT with support Equipment
Mode : : Video H pattern; play record, Audio 1KHz
Target: : CISPR 22 Class B
Voltage: : EUT AC/DC Adapter, Wireless Unit
: Line 2; 115VAC / 60Hz