



**FCC CFR47 PART 15 SUBPART B  
ICES-003 ISSUE 4**

**TEST REPORT**

**FOR**

**WIRELESS OFFICE AND CALL CENTER COMMUNICATION ACCESSORY**

**MODEL NUMBER: C054**

**REPORT NUMBER: 11U13721-1**

**ISSUE DATE: MARCH 31, 2011**

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**NVLAP LAB CODE 200065-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	03/31/11	Initial Issue	S. Leitner

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## 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:** C054

**SERIAL NUMBER:** 03005 ( LO TX ), 03009 (HI TX)

**DATE TESTED:** MARCH 25, 2011

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	Pass
ICES-003 ISSUE 4	Pass

Compliance Certification Services (UL 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 UL 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 UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL 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 UL CCS By:

Tested By:




STEVE LEITNER  
EMC SUPERVISOR  
UL CCS

TOM CHEN  
EMC ENGINEER  
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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, and in accordance with CAN/CSA-CE/IEC CISPR 22:02 as referenced by ICES-003 Issue 4.

## 3. FACILITIES AND ACCREDITATION

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

UL 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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 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 Plantronics C054 Base with Plantronics plug-in power supply Model 83648-01.

#### GENERAL INFORMATION

Power Requirements	100-240 VAC / 50-60 Hz
List of frequencies generated or used by the EUT	20.736 MHz

### 5.2. TEST CONFIGURATIONS

The following configurations were investigated during preliminary testing:

EUT Configuration	Description
Desktop	2 EUT's are terminated to host phones with accessories installed

### 5.3. MODE(S) OF OPERATION

Mode	Description
Normal Operation	One system is locked to transmit at the High DECT frequency. The second system is locked to transmit at the Low DECT frequency.

## 5.4. DETAILS OF TESTED SYSTEM

### SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Headset	Plantronics	C540	3009	AL8-WH500
Headset	Plantronics	C540	3005	AL8-WH500
Phone	AT&T	88SP05	Z7303S01B	Not applicable
Phone	Lucent	6416D+M	00SP56027794	Not applicable
Handset Lifter	Plantronics	HL10	01922	Not applicable
Online Indicator	Plantronics	OLI	01920	Not applicable

### I/O CABLES

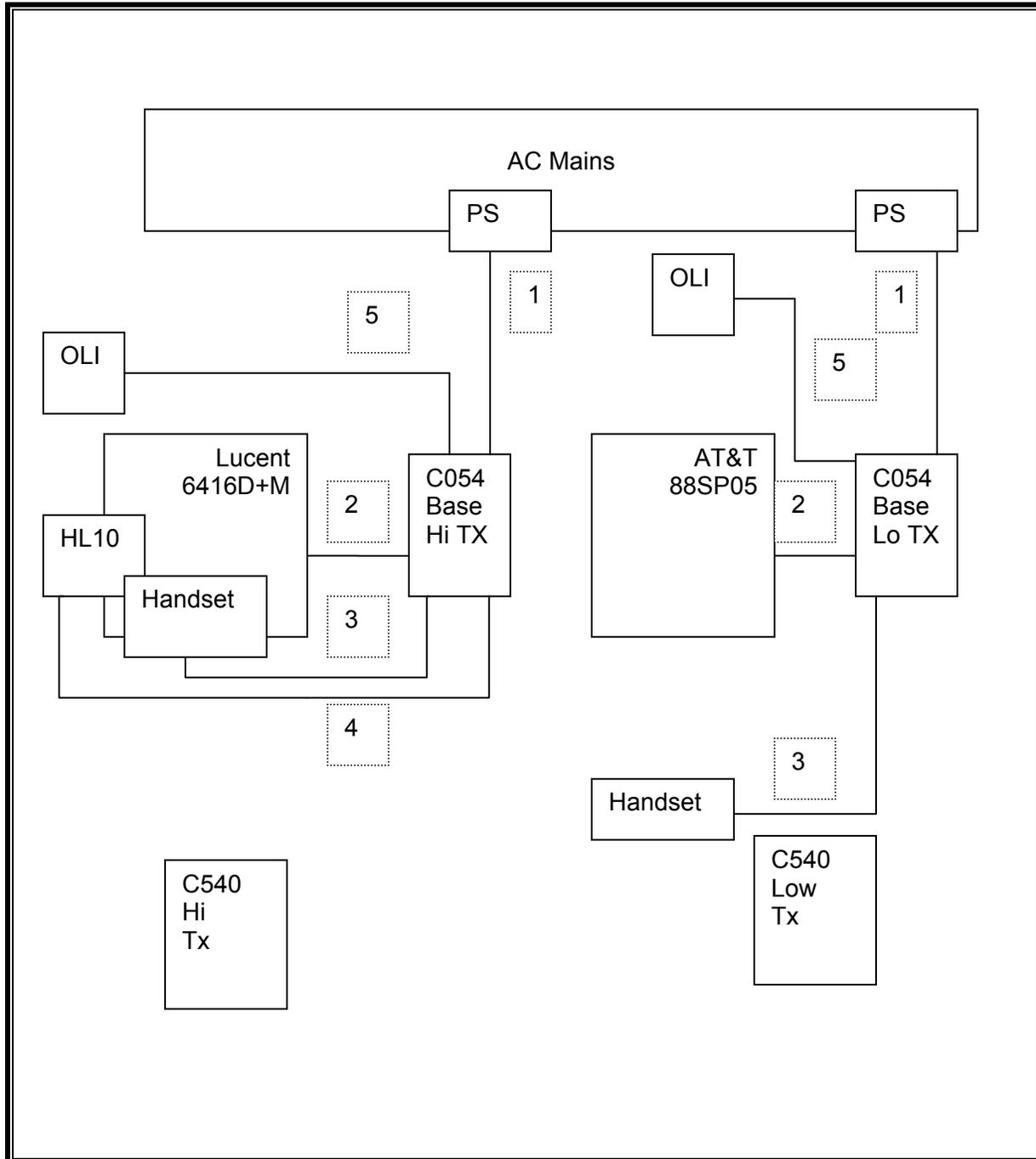
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length m	Remarks
1	DC Power	2	DC	Unshielded	2	None
2	Handset	2	RJ11	Unshielded TP	0.1	None
3	Handset	2	RJ11	Unshielded TP	0.5	None
4	HL10	1	Bantam	Unshielded	0.5	None
5	OLI	1	Bantam	Unshielded	0.5	None

### TEST SETUP

The two EUTs were tested together and were transmitting simultaneously. One was set to transmit at the High Channel of 1928 MHz and the other set to transmit at the Low Channel of 1921 MHz. The High Channel setup included the Plantronics Handset Lifter and Online Indicator accessories, which were active during testing. Refer to the following test setup diagram.

### 01922

**TEST SETUP DIAGRAM**



## 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 Due
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	1/27/2012
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	7/12/2011
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	8/30/2011
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	5/6/2011
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11/10/2011

## 7. APPLICABLE LIMITS AND TEST RESULTS

### 7.1. RADIATED EMISSIONS

#### TEST PROCEDURE

ANSI C63.4

The highest clock frequency generated or used in the EUT is 20.736 MHz, therefore the frequency range was investigated from 30 MHz to 1000 MHz.

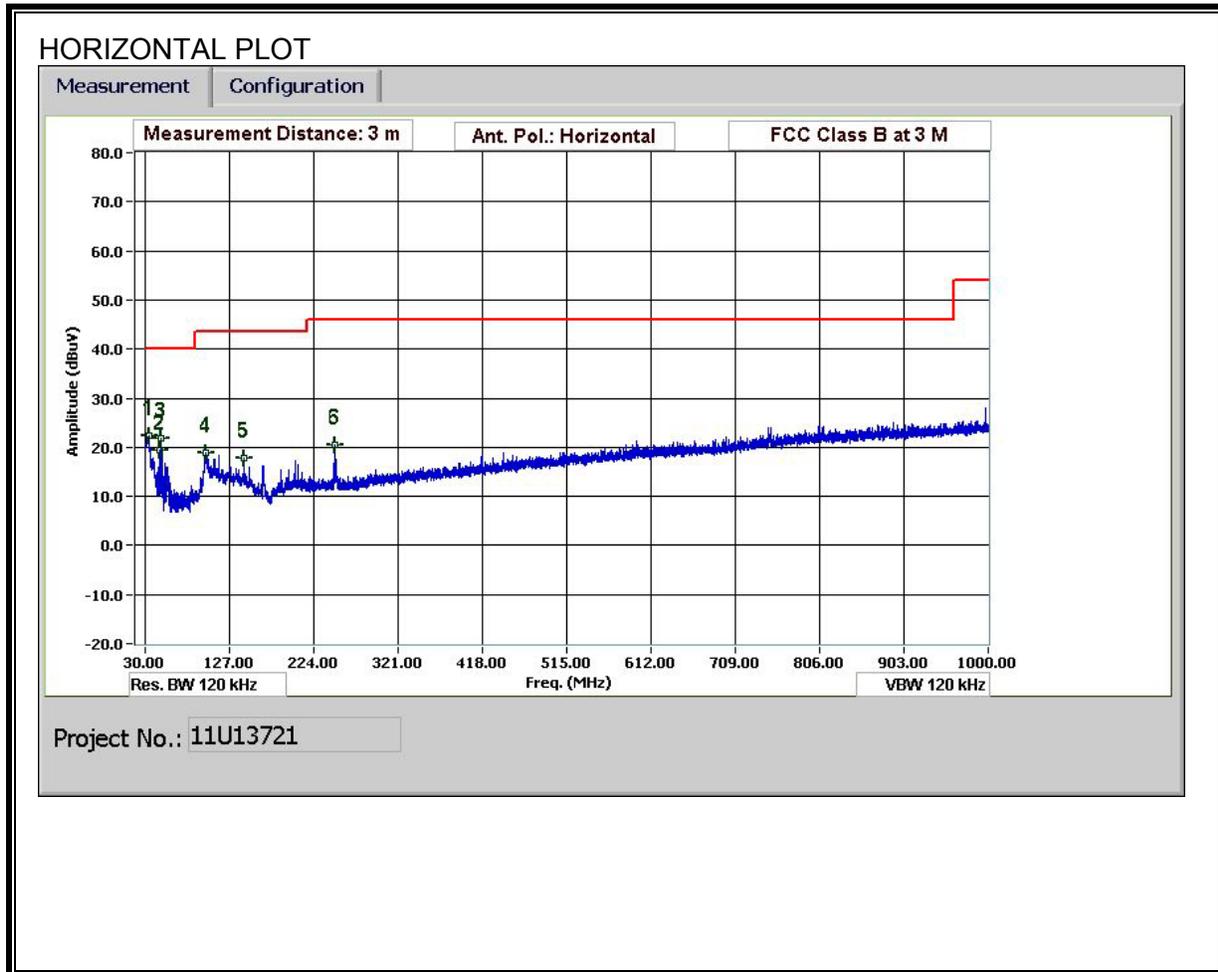
#### LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

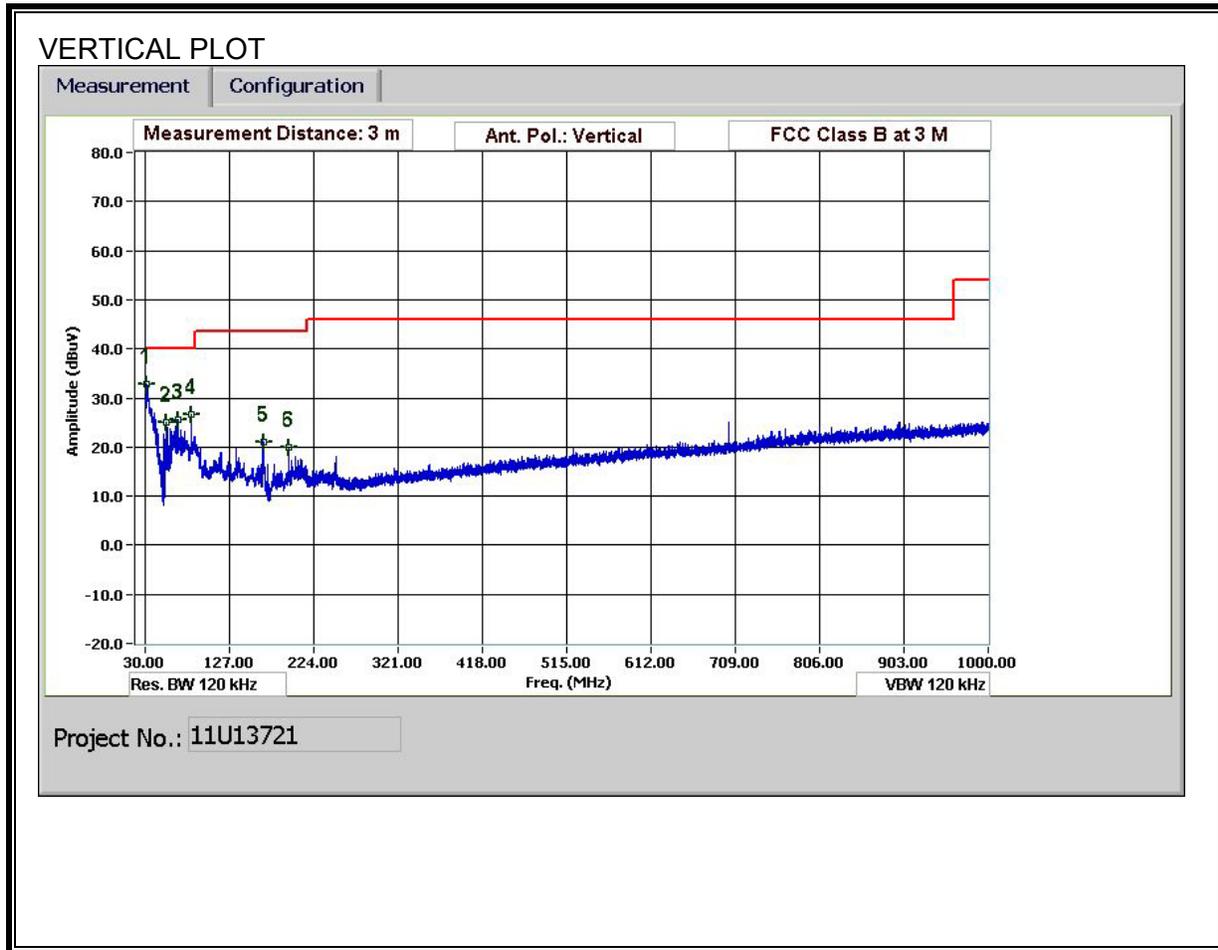
Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB $\mu$ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

**RESULTS**

**RADIATED EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)**



**RADIATED EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**



**HORIZONTAL AND VERTICAL DATA**

**30-1000MHz Frequency Measurement**

Compliance Certification Services, Fremont 5m Chamber

Test Engr: Tom Chen  
 Date: 03/25/11  
 Project #: 11U13721  
 Company: Plantronics  
 Test Target: FCC Class B  
 Mode Oper: Normal, Configuration 1

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	Pad dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
<b>Vertical</b>													
31.92	3.0	42.4	19.5	0.5	29.7	0.0	0.0	32.7	40.0	-7.3	V	P	
54.121	3.0	46.2	7.9	0.6	29.6	0.0	0.0	25.1	40.0	-14.9	V	P	
67.202	3.0	46.4	8.2	0.7	29.6	0.0	0.0	25.7	40.0	-14.3	V	P	
83.762	3.0	47.8	7.6	0.8	29.6	0.0	0.0	26.6	40.0	-13.4	V	P	
166.446	3.0	38.6	10.4	1.2	29.3	0.0	0.0	20.9	43.5	-22.6	V	P	
195.367	3.0	35.9	11.6	1.3	28.9	0.0	0.0	19.9	43.5	-23.6	V	P	
<b>Horizontal</b>													
33.96	3.0	32.9	18.5	0.5	29.7	0.0	0.0	22.3	40.0	-17.7	H	P	
46.441	3.0	38.3	10.2	0.6	29.6	0.0	0.0	19.4	40.0	-20.6	H	P	
47.881	3.0	41.5	9.3	0.6	29.6	0.0	0.0	21.7	40.0	-18.3	H	P	
99.843	3.0	37.4	10.0	0.9	29.5	0.0	0.0	18.8	43.5	-24.7	H	P	
143.165	3.0	33.2	13.0	1.1	29.3	0.0	0.0	17.9	43.5	-25.6	H	P	
247.929	3.0	36.1	11.8	1.4	28.8	0.0	0.0	20.5	46.0	-25.5	H	P	

Rev. 1.27.09

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

## 7.2. AC MAINS LINE CONDUCTED EMISSIONS

### TEST PROCEDURE

ANSI C63.4

### LIMIT

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Notes:

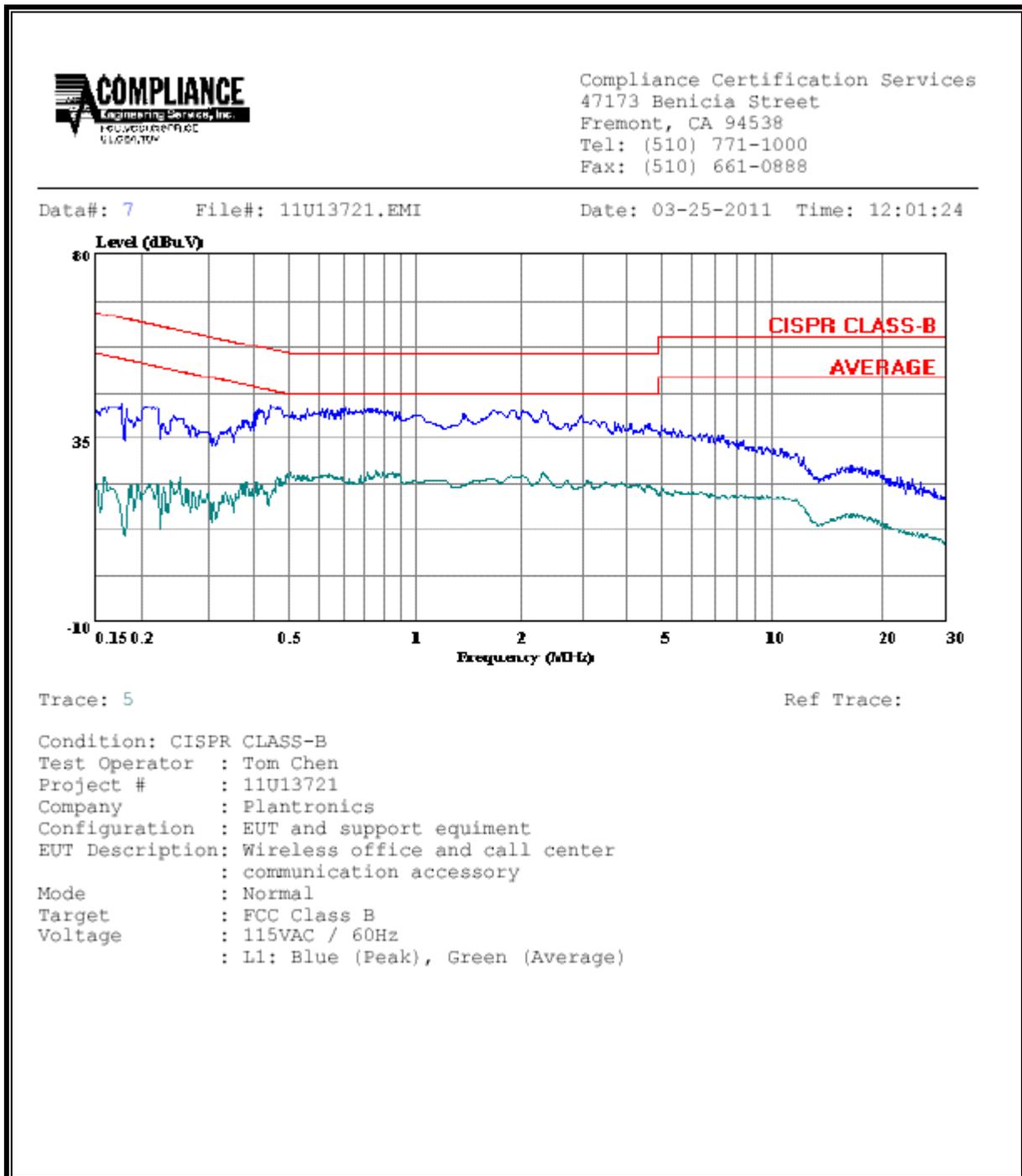
1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

**RESULTS****6 WORST EMISSIONS**

Configuration1 C054 Base

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	EN_B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.45	42.70	--	22.15	0.00	56.89	46.89	-14.19	-24.74	L1
0.71	42.14	--	24.21	0.00	56.00	46.00	-13.86	-21.79	L1
2.03	41.93	--	25.51	0.00	56.00	46.00	-14.07	-20.49	L1
0.17	42.13	--	18.72	0.00	65.01	55.01	-22.88	-36.29	L2
0.49	38.37	--	18.55	0.00	56.10	46.10	-17.73	-27.55	L2
0.74	38.54	--	20.20	0.00	56.00	46.00	-17.46	-25.80	L2
6 Worst Data									

**LINE 1 RESULTS**



Trace: 5

Ref Trace:

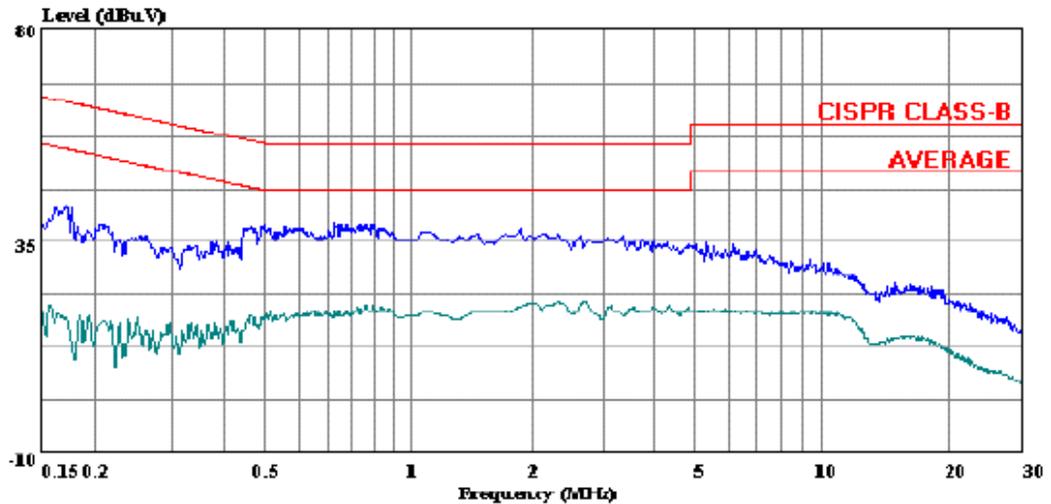
Condition: CISPR CLASS-B  
 Test Operator : Tom Chen  
 Project # : 11U13721  
 Company : Plantronics  
 Configuration : EUT and support equipment  
 EUT Description: Wireless office and call center  
 : communication accessory  
 Mode : Normal  
 Target : FCC Class B  
 Voltage : 115VAC / 60Hz  
 : L1: Blue (Peak), Green (Average)

**LINE 2 RESULTS**



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

Data#: 14 File#: 11U13721.EMI Date: 03-25-2011 Time: 12:15:04



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B  
 Test Operator : Tom Chen  
 Project # : 11U13721  
 Company : Plantronics  
 Configuration : EUT and support equipment  
 EUT Description: Wireless office and call center  
 : communication accessory  
 Mode : Normal  
 Target : FCC Class B  
 Voltage : 115VAC / 60Hz  
 : L2: Blue (Peak), Green (Average)