

FCC CFR47 PART 15 SUBPART C INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

900MHz MONAURAL and BINAURAL Headsets

MODEL NUMBER: WH300-XD, WH350-XD

FCC ID: AL8-WH3X0XD IC: 457A-WH3X0XD

REPORT NUMBER: 12U14646- 2, Revision C

ISSUE DATE: DECEMBER 26, 2012

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

Prepared by UL CCS 47173 BENICIA STREET FREMONT, CA 94538, U.S.A. TEL: (510) 771-1000 FAX: (510) 661-0888

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NVLAP LAB CODE 200065-0

Revision History

Rev.	lssue Date	Revisions	Revised By
	11/13/12	Initial Issue	Tim Lee
A	12/13/12	Corrected model number on cover page	A. Zaffar
В	12/20/12	Added AC Line Conducted Emission Data	T. Lee
С	12/26/12	Added AC Line Conducted Emission Test Setup Photos	T. Lee

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7. 8. 8.	ANTE 7.1.1. 7.1.2. 7.1.3. 7.1.4. 7.1.5. 7.1.6. RADI 3.1. L. 3.2. T 8.2.1. 8.2.1. 8.2.1. 8.3. T	ANA PORT TEST RESULTS 6 dB BANDWIDTH 99% BANDWIDTH OUTPUT POWER AVERAGE POWER POWER SPECTRAL DENSITY CONDUCTED SPURIOUS EMISSIONS ATED TEST RESULTS IMITS AND PROCEDURE RANSMITTER BELOW 1 GHz BANDEDGE HARMONICS AND SPURIOUS ENISSION RANSMITTER ABOVE 1 GHz	
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1. ATTESTATION OF TEST RESULTS

	APPI ICABI E STANDARDS
DATE TESTED:	OCTOBER 5 to NOVEMBER 12, 2012
	High Channel 150 For Conducted Unit S/N: Low channel S/N L004 Mid channel S/N M004 High Channel S/N H006
SERIAL NUMBER:	For Radiated Unit S/N: Low Channel 051 Mid Channel M001
MODEL:	WH300-XD, WH350-XD
EUT DESCRIPTION:	900MHz MONAURAL and BINAURAL Headsets
COMPANY NAME:	PLANTRONICS 345 ENCINAL STREET SANTA CRUZ, CA 95060, U.S.A.

APPLICABLE STANDARDS				
STANDARD	TEST RESULTS			
CFR 47 Part 15 Subpart C	Pass			
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass			
INDUSTRY CANADA RSS-GEN Issue 3	Pass			

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:

tii,

TIM LEE WISE PROJECT MANAGER UL CCS

Maukonpuyin

THANH NGUYEN EMC ENGINEER UL CCS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

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 <u>http://www.ccsemc.com</u>.

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 900 MHz Headset.

5.2. MANUFACTURER'S DESCRIPTION OF MODEL DIFFERENCES

WH300-XD is single speaker version, WH350-XD is two speaker headset version. The transmitter for both models is identical except for the speakers. Testing of Model WH350-XD is representative of Model WH300-XD.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range	Output Power	Output Power	
(MHz)	(dBm)	(mW)	
902.85 - 927.125	17.19	52.36	

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a dipole antenna with maximum peak gains of -2.5 dBi.

5.5. SOFTWARE AND FIRMWARE

The EUT's Firmware installed during testing was VB1

5.6. DESCRIPTION OF TEST SETUP

TEST SETUP

The EUT is the standalone unit, setup wireless link to the remote base.

SETUP DIAGRAM FOR TESTS



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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						
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	01/26/13		
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/14/13		
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/31/13		
Antenna, Horn, 18 GHz	EMCO	3115	C00945	10/20/13		
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	08/06/13		
EMI Test Receiver, 30 MHz	R&S	ESHS 20	N02396	05/06/13		
Hi pass Filter, 1.5GHz	Micro-Tronics	BRC13192	N02683	CNR		
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/13		
Peak Power Sensor	Agilent / HP	57318	C01202	02/23/13		

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7. ANTENNA PORT TEST RESULTS

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(KHz)	(MHz)
Low	902.85	940.000	0.5
Middle	915	955.000	0.5
High	927.125	898.500	0.5

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6 dB BANDWIDTH





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7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency	99% Bandwidth
	(MHz)	(KHz)
Low	902.850	1084.9
Middle	915.000	1025.6
High	927.125	947.5

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99% BANDWIDTH





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99% BANDWIDTH HIGH CH	
🔆 Agilent 21:18:58 Nov 8, 2012	R T Measure
Ch Freq 927.125 MHz Occupied Bandwidth Averages:	Trig Free Meas Off
	Channel Power
Ref 20 dBm #Atten 20 dB #Samp	Occupied BW
10 dB/ → Offst 11	ACP
dB	Multi Carrier
#Res BW 30 kHz VBW 91 kHz #Swe	eep 100 ms (2001 pts)
Occupied Bandwidth Occ BV 947.4699 kHz	V % Pwr 99.00 % CCDF x dB -26.00 dB
Transmit Freq Error -31.704 kHz x dB Bandwidth 1.352 MHz*	More 1 of 2
Copyright 2000-2011 Agilent Technologies	

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7.1.3. OUTPUT POWER

<u>LIMIT</u>

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency	Output Power	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	902.85	17.19	30	-12.81
Middle	915	15.66	30	-14.34
High	927.125	13.62	30	-16.38

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OUTPUT POWER





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7.1.4. AVERAGE POWER

<u>LIMIT</u>

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency	Average Power
	(MHz)	(dBm)
Low	902.85	-0.54
Middle	915	1.04
High	927.125	0.19

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7.1.5. POWER SPECTRAL DENSITY

<u>LIMITS</u>

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3kHz and VBW > 3 kHz, sweep time = span/3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emissions in any 3 kHz band.

RESULTS

Channel	Frequency	PPSD	Limit	Margin
	(MHz)	(dBm)	(dBm)	(dB)
Low	902.85	-1.72	8	-9.72
Middle	915	1.18	8	-6.82
High	927.125	0.25	8	-7.75

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POWER SPECTRAL DENSITY





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7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 10 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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RESULTS

SPURIOUS EMISSIONS, LOW CHANNEL





SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





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8. RADIATED TEST RESULTS

8.1. 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	Field Strength Limit	Field Strength Limit
(MHz)	(uV/m) at 3 m	(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.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 10 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 900 MHz band.

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.

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8.2. TRANSMITTER BELOW 1 GHz

8.2.1. BANDEDGE

RESTRICTED BANDEDGE (HIGH CHANNEL)





HIGH CHANNEL RESTRICTED (VERTICAL AND HORIZONTAL DATA)

Project No	o:12U14646									
Client Nai	ne:Plantror	nics Inc.								
Model / D	evice:CS50	DXD								
Config / O	ther:EUT A	one / High	Channel							
Test By:To	m Chen									
Horizonta	920 - 1000	MHz								
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading		1GHz	T185 (dB)		Part 15		[cm]	_
		_		Chambr			Class B			
				3m			3m			
				Amplified						
				(dB)						
8	967.6099	27.4	PK	-23.6	22.7	26.5	54	-27.5	201	Horz
9	980.2718	28.69	РК	-23.5	22.9	28.09	54	-25.91	101	Horz
10	981.295	28.27	РК	-23.5	22.9	27.67	54	-26.33	301	Horz
11	984.0688	36.02	РК	-23.4	23	35.62	54	-18.38	101	Horz
12	984.6203	28.16	РК	-23.4	23	27.76	54	-26.24	301	Horz
13	987.7058	28.76	РК	-23.5	23.1	28.36	54	-25.64	201	Horz
14	992.0224	28.25	РК	-23.5	23.1	27.85	54	-26.15	101	Horz
Vertical 9	20 - 1000MH	z								
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading		1GHz	T185 (dB)		Part 15		[cm]	
		1		Character I.			Class D			
				Chambr			Class B			
				Chambr 3m			Class B 3m			
				Cnampr 3m Amplified			Class B 3m			
				Chambr 3m Amplified (dB)			3m			
1	967.3861	32.19	PK	Cnambr 3m Amplified (dB) -23.6	22.7	31.29	Class B 3m 54	-22.71	100	Vert
1	967.3861 980.4317	32.19 33.55	PK PK	Chambr 3m Amplified (dB) -23.6 -23.5	22.7 22.9	31.29 32.95	Class B 3m 54 54	-22.71 -21.05	100 100	Vert Vert
1 2 3	967.3861 980.4317 981.3749	32.19 33.55 31.56	РК РК РК	Chambr 3m Amplified (dB) -23.6 -23.5 -23.5	22.7 22.9 22.9	31.29 32.95 30.96	Class B 3m 54 54 54	-22.71 -21.05 -23.04	100 100 100	Vert Vert Vert
1 2 3 4	967.3861 980.4317 981.3749 982.2222	32.19 33.55 31.56 29.2	РК РК РК РК	Chambr 3m Amplified (dB) -23.6 -23.5 -23.5 -23.5	22.7 22.9 22.9 22.9	31.29 32.95 30.96 28.6	Class B 3m 54 54 54 54	-22.71 -21.05 -23.04 -25.4	100 100 100 100	Vert Vert Vert Vert
1 2 3 4 5	967.3861 980.4317 981.3749 982.2222 984.0608	32.19 33.55 31.56 29.2 46.33	РК РК РК РК	Chambr 3m Amplified (dB) -23.6 -23.5 -23.5 -23.5 -23.4	22.7 22.9 22.9 22.9 22.9 23	31.29 32.95 30.96 28.6 45.93	Class B 3m 54 54 54 54 54 54	-22.71 -21.05 -23.04 -25.4 -8.07	100 100 100 100 100	Vert Vert Vert Vert Vert
1 2 3 4 5 6	967.3861 980.4317 981.3749 982.2222 984.0608 984.7802	32.19 33.55 31.56 29.2 46.33 30.76	РК РК РК РК РК РК	Chambr 3m Amplified (dB) -23.6 -23.5 -23.5 -23.5 -23.4 -23.4 -23.4	22.7 22.9 22.9 22.9 22.9 23 23 23	31.29 32.95 30.96 28.6 45.93 30.36	Class B 3m 54 54 54 54 54 54 54	-22.71 -21.05 -23.04 -25.4 -8.07 -23.64	100 100 100 100 100 201	Vert Vert Vert Vert Vert Vert

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8.2.1. HARMONICS AND SPURIOUS ENISSION

LOW CHANNEL EMISSIONS



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Project No	12U14646									
Client Nar	ne:Plantron	ics Inc.								
Model / D	evice:CS500	XD								
Config / O	ther:EUT Ale	one / Low (Channel						[]	
Test By:To	om Chen	,,								
						(/				
Horizontal	30 - 1000M	Hz	· · · · · · · · · · · · · · · · · · ·	· · · · · ·	· · · · · ·	('	· · · · · ·	['		
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading	Ē '	1GHz	T185 (dB)	Ē !	Part 15	Ϊ '	[cm]	ſ ·
		- I	1 '	Chambr	1 - 1	1 1	Class B	1 '	ſ _ /	1
	1	i 1	1 '	3m	1 1	1 1	3m	1 '	1	1
		(I	1 '	Amplifie	1 '	1 1	1 /	1 '	1	1
		I!	I'	d (dB)	'	1!	1′	I'	1	1
1	37.9476	42.01	PK	-27.4	15.3	29.91	40	-10.09	400	Horz
2	54.0368	35.95	PK	-27.2	7	15.75	40	-24.25	400	Horz
3	127.504	29.64	PK	-26.5	13.9	17.04	43.5	-26.46	201	Horz
4	212.0204	32.82	PK	-25.8	10.4	17.42	43.5	-26.08	400	Horz
5	918.3913	32.05	PK	-23.9	22.3	30.45	46	-15.55	99	Horz
6	984.1047	35.17	PK	-23.4	23	34.77	54	-19.23	99	Horz
	L]	<u> </u>	L'	<u> </u>	<u> </u>	<u>ا</u>	Ļ'	Ļ'	<u> </u>	L
Vertical 30) - 1000MHz		└─── ′	└─── '	└─── ′	<u>ا</u> '	└─── ′	<u> </u>	<u> </u> '	<u> </u>
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading	1 /	1GHz	T185 (dB)	1 /	Part 15	1 /	[cm]	1
		(I	1 '	Chambr	1 '	1 1	Class B	1 '	1	1
	1	i 1	1 '	3m	1 '	1 1	3m	1 '	1	1
	1	()	1 /	Amplitie	1 1	1 /	1 /	1 /	1	1
7	27.56	20.26		d (dB)	15.6	- 27.56		12.44	100	
/	57.50	39.30	PK	-27.4	15.0	19 27	40	-12.44	201	Vert
<u>ہ</u>	52.0755	38.37	PK	-27.5	12.5	16.37	40	-21.05	201	Ven
10	414 2006	23.32	PK	-20.0	16.1	24.32	45.5	-27.00	201	Ven
11	921 8565	30.8	PK	-23.7	21.6	24.32	46	-21.00	100	Ven
12	921.8805	46.59		-23,9	22.3	44.99	46	-1.01	100	Vert
13	931.5727	43,45	PK	-23.8	22.4	42.05	46	-3.95	100	Vert
,			<u>ب ما</u>	,			L	12.11	100	Vort
14	984,1047	41.29	DK	-23.4	23.	40.89	' <u>54</u> ,	-13.11.	· 100.	-ven

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MID CHANNEL EMISSIONS



UL CCS FORM NO: CCSUP4701C 47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888 This report shall not be reproduced except in full, without the written approval of CCS.

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Device t Nr										
Project No.	1:12014040	•						[¹		
Client Nam	Ae:Plantron									
Model / D	evice:neaus	et whou	KD	ta the base (COF 4			<u> </u> !		
Conng / U	ther: Mauvo	anner wir	eless link	to the base v	.054					
Test by. In	ann Nguyei	1								
Horizonta	30 - 1000M	Hz								
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading		1GHz Chambr 3m Amplified (dB)	T185 (dB)		Part 15 Class B 3m		[cm]	
1	33.2954	29.85	РК	-27.5	18.8	21.15	40	-18.85	201	Horz
2	124.7902	29.92	PK	-26.5	14	17.42	43.5	-26.08	400	Horz
3	902.496	30.2	РК	-24.1	22.2	28.3	46	-17.7	99	Horz
	[]	[]			['	<u> </u>	[]	['	[]	
Vertical 30) - 1000MHz	,						['		
Marker	Test	Meter	Detector	25MHz-	Antenna	dBuV/m	CFR 47	Margin	Height	Polarity
No.	Frequency	Reading	1	1GHz	T185 (dB)	1 1	Part 15	'	[cm]	1
	1 1	1 /	1	Chambr	'	1 1	Class B	'	1 '	1
				3m Amplified (dB)			3m			
4	30.1938	28.8	РК	-27.5	21.1	22.4	40	-17.6	99	Vert
5	82.7258	31.26	РК	-27	7.5	11.76	40	-28.24	. 99	Vert
6	134.8701	29.58	РК	-26.5	13.5	16.58	43.5	-26.92	. 300	Vert
7	386.4808	31.73	PK	-25.5	15	21.23	46	-24.77	400	Vert
	894.1607	37.54	PK	-24	22.1	35.64	46	-10.36	99	Vert
8		· ,		24.4	22.2	34.7	46	-11.3	99	Vert
8	902.496	36.6	РК	-24.1	22.2					·

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HIGH CHANNEL EMISSIONS



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HIGH CH/	ANNEL	DATA								
Project No:1	2U14646									
Client Name	:Plantronic	CS								
Model / Devi	ice:WH350	-XD (s/n:05	51)							
Config / Othe	er:EUT (Hig	h Channel') Stand-alor	ne						
Test By:Olive	er Su									
Horizontal 30 - 1000MHz										
			25MHz- 1GHz ChmbrA	T243 Sunol	3m to 10m		CFR 47 Part 15			
Test	Meter	'	Amplified	Bilog.TXT	Conversi		Class B	1 '	Height	
Frequency	Reading	Detector	.TX (dB)	(dB)	on (dB)	dBuV/m	3m	Margin	[cm]	Polarity
31.5508	31.51	PK	-27.5	20.1	-10.5	13.61	40	-26.39	100	Horz
157.3561	38.59	PK	-26.5	12	-10.5	13.59	43.5	-29.91	200	Horz
186.0452	39.39	PK	-26.4	11.2	-10.5	13.69	43.5	-29.81	100	Horz
224.0388	48.6	PK	-26	10.6	-10.5	22.7	46	-23.3	100	Horz
240.9033	47.71	PK	-26	11.4	-10.5	22.61	46	-23.39	100	Horz
814.2966	35.11	РК	-23.2	21.3	-10.5	22.71	46	-23.29	200	Horz
Vertical 30 - 1000MHz										
31.1631	32.9	PK	-27.5	20.3	-10.5	15.2	40	-24.8	100	Vert
199.0328	36.09	PK	-26.2	12.2	-10.5	11.59	43.5	-31.91	100	Vert
224.2326	39.82	PK	-26	10.6	-10.5	13.92	46	-32.08	100	Vert
373.1055	36.57	PK	-25.3	15.2	-10.5	15.97	46	-30.03	200	Vert
414.5883	41.58	PK	-25.3	16.1	-10.5	21.88	46	-24.12	100	Vert
456.265	36.62	PK	-25.2	16.6	-10.5	17.52	46	-28.48	100	Vert

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8.3. TRANSMITTER ABOVE 1 GHz

Low and High channel

•		lincation	Service	.,	monter	- Chamo									
Test Engi		Oliver S	u												
Date:		10/15/12													
Project #		12U1464	6												
Company	7 1	Plantron	nics												
Test Targ	et:	FCC Cla	ass B												
Mode Op	er:	Ix													
	f	Measuren	nent Fred	wency	Z Amp	Preamp (Jain			Average	Field Stren	eth Limit			
	Dist	Distance	to Anter	ina	D Corr	Distance	Correc	t to 3 me	ters	Peak Fie	ld Strength	Limit			
	Read	Analyzer	Reading		Avg	Average	Field S	trength @	3 m	Margin	vs. Average	Limit			
	AF	Antenna	Factor		Peak	Calculate	d Peak	Field Stre	ength	Margin	vs. Peak Lis	nit			
	CL	Cable Los	55		HPF	High Pas	s Filter								
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Ant.High	Table Angle	Notes
GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	cm	Degree	
High (hannel	(927.075)	MHz)					ļ							
2.781	3.0	43.6	29.8	4.6	-36.7	0.0	0.6	41.8	74.0	-32.2	V	P	100.9	302.0	
2.781	3.0	25.3	29.8	4.6	-36.7	0.0	0.6	23.5	54.0	-30.5	V	A	100.9	302.0	
3.708	3.0	24.7	32.1	0.0 5 5	-30.1	0.0	0.6	26.8	74.0	-34.5	V	P A	104.5	127.4	
2.781	3.0	41.0	29.8	4.6	-36.7	0.0	0.6	39.2	74.0	-34.8	н	P	104.5	243.9	
2.781	3.0	25.6	29.8	4.6	-36.7	0.0	0.6	23.9	54.0	-30.1	H	Ā	100.7	243.9	
3.708	3.0	37.2	32.1	5.5	-36.1	0.0	0.6	39.2	74.0	-34.8	H	P	117.7	86.3	
3.708	3.0	25.0	32.1	5.5	-36.1	0.0	0.6	27.0	54.0	-27.0	H	A	117.7	86.3	
Low Cha	nnel (90	3MHz)						ļ							
2.709	3.0	55.9	29.6	4.6	-36.8	0.0	0.6	53.8	74.0	-20.2	H	P	159.9	73.6	
2.709	3.0	26.2	29.6	4.6	-36.8	0.0	0.6	24.1	54.0	-29.9	H	A	159.9	73.6	
3 612	3.0	24.9	31.9	5.4 5.4	-30.1	0.0	0.0	26.6	74.0 54.0	-34.9	п	r A	169.2	12.0	
2.709	3.0	55.7	29.6	4.6	-36.8	0.0	0.6	53.6	74.0	-20.4	V	P	109.2	276.7	
2.709	3.0	26.4	29.6	4.6	-36.8	0.0	0.6	24.4	54.0	-29.6	v	Ā	104.2	276.7	
	3.0	36.9	31.9	5.4	-36.1	0.0	0.6	38.6	74.0	-35.4	V	P	133.0	138.8	
3.612	3.0	25.1	31.9	5.4	-36.1	0.0	0.6	26.8	54.0	-27.2	V	A	133.0	138.8	
3.612 3.612														ļ	
3.612 3.612					1										
3.612 3.612	1														
3.612 3.612 Rev. 4.1.2	.7														

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Mid Channel data

Dempany: oroject #: ste: sate: est Engineer: onfiguration: icode: est Equipment: Horn 1-18GI T60; S/N: 2238 @3: H Frequency Cables - 3' cable 2280700 f Dist Rei GHz (m) dI id ch 915MHz 3.0 4 350 3.0 4 350 3.0 4 360 3.0 4 360 3.0 4 v. 11.10.11 11	Pla 12 11 Th EU Lin GHz 33m • 07700 700 •	antronics U14646 /7/2012 anh Nguy JT Heads IT HEAT IT HEA	en et 300/3 lid ch nplifer 8449B able 22	500XI 1-260	O and the GHz	Pre-am	Base (plifer	26-40GH	z					
oject #: ate: ast Engineer: onfiguration: iode: est Equipment: Horn 1-18G T60; S/N: 2238 @3i Hi Frequency Cables - 3' cable 2280700 3' cable 2280770 f Dist Re: GHz (m) dI id ch 915MHz 330 3.0 475 3.0 450 3.0 450 3.0 v. 11.10.11	12 11 Th EU Lii 83m • 807700 700 •	U14646 /7/2012 anh Nguy JT Headsonk with M Pre-an T34 HP 12' ca 12' ca	en et 300/: lid ch nplifer 9 8449B able 22	500XI 1-260	O and the GHz	Pre-am	Base (plifer	2 52	z					
ate: est Engineer: onfiguration: iode: est Equipment: Horn 1-18G T60; S/N: 2238 @3i Hi Frequency Cables - 3' cable 2280770 7 dble 2280770 8 dble 2280770 7 dble 2280770 8 dble 228070 8 dble 22807070 8 dble 2007070 8 dble 2007070 8 dble 2007070 8 dble 2	11. Th EU Lii 83m • 807700 700 •	/7/2012 aanh Nguy JT Heads IT	en et 300/: lid ch nplifer 8449B able 22	500XI	O and the GHz	e remote : Pre-am	Base (252 26-40GH	z					
est Engineer: onfiguration: iode: est Equipment: Horn 1-18G T60; S/N: 2238 @3i Hi Frequency Cables - 3' cable 2280770 3' cable 2280770 f Dist Re: GHz (m) dI id ch 915MHz 330 3.0 4 475 3.0 4 430 3.0 5 475 3.0 4 4360 3.0 4 v. 11.10.11	Th EU Lii 93m • 107700 700 •	aanh Nguy JT Headso nk with M Pre-an T34 HP 12' ca 12' ca	en et 300/: [id ch nplifer 9 84498 able 22	500XI) and the GHz	e remote : Pre-am	Base (252 26-40GH	z					
Difiguration: iode: iode: est Equipment: Horn 1-18G T60; S/N: 2238 @3i Hi Frequency Cables - 3' cable 2280 3' cable 2280700 f Dist GHz (m) ide h 915MHz 330 3.0 4550 3.0 4560 3.0 v. 11.10.11	GHz 33m • 507700 700 •	Pre-am T34 HP	nplifer 84498 able 22	1-260	GHZ	Pre-am	plifer	252 26-40GH	z	L o				
Ext Equipment: Horn 1-18G T60; S/N: 2238 @3i Hi Frequency Cables - 3' cable 2280 3' cable 2280770 f Dist Re: GHz (m) dI d ch 915MHz 30 3.0 4:5 3.0 4:60 3.0 4:60 3.0 4:60 3.0 4:00 4:00	GHz 3m • 07700 700 •	Pre-an T34 HP 12' ca	nplifer 8449B able 22	1-260	GHz	Pre-am	plifer	26-40GH	z	L.				
Horn 1-18G T60; S/N: 2238 @3 Hi Frequency Cables - 3' cable 2280 3' cable 2280770 3' cable 2280770 f Dist Re: GHz (m) dI id ch 915MHz 330 3.0 4 30 3.0 4 45560 3.0 4 300 3.0 5 560 3.0 4 300 3.0 5 3.0 4 4 300 3.0 5 3.0 4 4 300 3.0 5 3.0 4 4 300 3.0 4 4 4 4 4 10 1	GHz 23m • 107700 700 •	Pre-am T34 HP 12' ca	nplifer 8449B able 22	1-260	GHz •	Pre-am	plifer	26-40GH	z	ЦA				
T60; S/N: 2238 @34 Hi Frequency Cables 3' cable 2280' 3' cable 2280' 3' cable 2280' 3' cable 2280' 3' cable 2280' 3' cable 2280' 3' cable 2280' 3' cable 2280' 4 0 0 4 4 915MHz 3.0 4 330 3.0 4 560 3.0 4 4 500 3.0 4 4 560 3.0 4 560 3.0 4 4 560 3.0 4 560 3.0 4 4 560 3.0 4	93m • 107700 700 •	12' ca	8449B		•						rn > 180	Hz		Limit
H Frequency Cables - 3' cable 2280' 3' cable 2280770 f Dist Re: GHz (m) dl d ch 915MHz 330 3.0 4 475 3.0 4 330 3.0 4 330 3.0 4 330 3.0 4 345 3.0 4 356 3.0 4 360 3.0 4 375 3.	07700 700	12' ca	able 22						-				•	FCC 15.209
3' cable 2280' 3' cable 2280770 f Dist Re: GHz (m) dI d ch 915MHz 30 3.0 4 4 30 3.0 4 30 3.0 4 30 3.0 4 30 3.0 4 4 5 3.0 4 4 5 3.0 4 5 3.0 4 5 3.0 4 5 3.0 4 5 3.0 4 5 5 3.0 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	700 •	12' ca	able 22			,								
3' cable 2280770 f Dist Re: GHz (m) dl d ch 915MHz 130 3.0 4 175 3.0 4 130 3.0 5 160 3.0 4 160 3.0 4 160 3.0 4 10 10 4 v. 11.10.11 11	700 🗸	12' cal		28076	600	20' cal	ble 22	807500		HPF	Re	eject Filte	r <u>Peal</u> RB	<mark>k Measurements</mark> W=VBW=1MHz
f Dist Re: GHz (m) dl id ch 915MHz 330 3.0 4 330 3.0 5 5 560 3.0 4 4 350 3.0 4 4 360 3.0 4 4 360 3.0 4 4 v: 11.10.11 1 1			ble 228	07600	•	20' cab	le 2280	•			• R_	001	• <u>Avera</u> RBW=	ge Measurements 1MHz ; VBW=10Hz
GHz (m) dl id ch 915MHz 330 3.0 4 330 3.0 5 5 560 3.0 4 130 3.0 5 1475 3.0 4 150 3.0 4 160 3.0 4 v. 11.10.11 1 1	ead Pk R	ead Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
d ch 915MHz 330 3.0 4 175 3.0 5 160 3.0 4 130 3.0 5 175 3.0 4 160 3.0 4 v. 11.10.11	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
30 3.0 4 175 3.0 5 60 3.0 4 30 3.0 5 75 3.0 4 60 3.0 4 60 3.0 4 75 3.0 4 60 3.0 4 77 3.0 4 60 3.0 4														
v. 11.10.11	48.7	30.1	27.5	4.0	-36.6	0.0	0.0	43.6	25.0	74	54 54	-30.4	-29.0	V
30 3.0 5 175 3.0 4 160 3.0 4 v. 11.10.11 1	42.8	29.2	28.8 31.8	4.0 6.0	-35.7	0.0	0.0	48.2	31.2	74 74	54 54	-25.8 -28.1	-27.1	v
75 3.0 4	51.9	30.7	27.5	4.0	-36.6	0.0	0.0	46.8	25.6	74	54	-27.2	- 28.4	H
v. 11.10.11	46.7	29.1	28.8	4.6	-35.7	0.0	0.0	44.4	26.8	74	54 54	-29.6	-27.2	H
V. 11.10.11														
f Mea	easurement	Frequency	7		Amp	Preamp (Jain				Avg Lim	Average F	ield Strengt	h Limit
Dist Dist	stance to Ar	ntenna			D Corr	Distance	Correc	t to 3 mete	rs 2		Pk Lim	Peak Field	i Strength L	mit
Kead Anal	nalyzer Kead	шig w			Avg	Average .	rield S	Tield Store	om nath		Avg Mar	Margin vs	Average L	unut
CL Cab	able Loss	л			HPF	High Pas	u reak s Filter	ricid offe	ugui		L IVIGI	iviaigiti VS	. r can Liifiil	

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9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted I	imit (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

ANSI C63.4

RESULTS

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<u>6 WORST EMISSIONS (WORST CASE)</u>

Project No:	12U14646								
Client Nam	e:Plantron	ics							
Model/Dev	vice:BaseCO)52 and WI	1300/350XI	D Headset					
Test Volt/F	req:115VA	C/ 60Hz							
Test By:Tha	nh Nguyer	n							
Line-L1.15	- 30MHz								
Test	Meter	Detector	T24 IL	LC Cables	dB(uVolts)	CFR 47	Margin	CFR 47	Margin
Frequency	Reading		L1.TXT	1&3.TXT		Part 15		Part 15	
			(dB)	(dB)		Class B		Class B	
						QP		Avg	
0.15	38.43	РК	0.1	0	38.53	66	-27.47	-	-
0.15	15.42	Av	0.1	0	15.52	-	-	56	-40.48
0.8565	36.34	РК	0.1	0	36.44	56	-19.56	-	-
0.8565	19.51	Av	0.1	0	19.61	-	-	46	-26.39
2.382	37.9	РК	0.1	0.1	38.1	56	-17.9	-	-
2.382	20.59	Av	0.1	0.1	20.79	-	-	46	-25.21
Line-L2.15	- 30MHz								
Test	Meter	Detector	T24 IL	LC Cables	dB(uVolts)	CFR 47	Margin	CFR 47	Margin
Frequency	Reading		L1.TXT	1&3.TXT		Part 15		Part 15	
			(dB)	(dB)		Class B		Class B	
						QP		Avg	
0.159	35.44	РК	0.1	0	35.54	65.5	-29.96	-	-
0.159	14.09	Av	0.1	0	14.19	-	-	55.5	-41.31
0.6315	32.14	РК	0.1	0	32.24	56	-23.76	-	-
0.6315	16.04	Av	0.1	0	16.14	-	-	46	-29.86
4.0245	32.6	РК	0.1	0.1	32.8	56	-23.2	-	-
4.0245	16.8	Av	0.1	0.1	17	-	-	46	-29

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LINE 1 RESULTS



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LINE 2 RESULTS



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