FCC CFR47 PART 15 SUBPART C
CERTIFICATION
TEST REPORT
FOR

BLUETOOTH HEADSET

MODEL NUMBER: P590; 590; 590S

FCC ID: AL8P590

REPORT NUMBER: 05U3529-1B

ISSUE DATE: SEPTEMBER 06, 2005

Prepared for
PLANTRONICS, INC.
345 ENCINAL STREET
SANTA CRUZ, CA 95060, USA

Prepared by
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d.b.a.
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**Details of specific model(s) tested and model differences shall be identified in body of report*

LAB CODE:200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
A	8/9/05	Initial Issue	Thu
B	9/6/05	Added two models: 590 and 590S	Thu
		Added Sections 5.2 and 5.3	Thu
		Added an I/O Cable table and setup diagram under Section 5.8	Thu
		Added test result and plots under Section 7.3	Thu
		Added LC setup photos under Section 8	Thu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: PLANTRONICS, INC.
345 ENCINAL STREET
SANTA CRUZ, CA. 95060
USA

EUT DESCRIPTION: BLUETOOTH HEADSET

MODEL: P590; 590; 590S

SERIAL NUMBER: 50 (Emission) & 136 (Conduction)

DATE TESTED: July 20 to August 26, 2005

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. 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 Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

VIEN TRAN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth Headset which operated in 2402 – 2480 MHz band.

The radio module is manufactured by Plamex SA De CV.

5.2. MODEL(S) TESTED

EUT Model: P590

5.3. MANUFACTURER'S DESCRIPTION OF MODEL DIFFERENCE

Model 590 is identical to the tested model P590 except for the model number for marketing purposes; 590S is identical to P590 except for being sold "bundled" with Analog Dongle, model: 35BAA or 590A.

5.4. MAXIMUM OUTPUT POWER

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

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Output Power (dBm)	Output Power (mW)
2402 - 2480	2.66	1.85

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an F antenna (manufactured by Plantronics), with a maximum gain of -2 dBi.

5.6. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was RFC Stack 1.2 (b01472), rev. 2.0 a.

The EUT driver software installed in the host support equipment during testing was CSRBC01, rev.1.20.

The test utility software used during testing was Bluetest and PStool, rev. 1.20.0.0.

5.7. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2441 MHz.

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	PP01L	6P326A01	DoC
AC Adapter	Dell	AA20031	9364U	N/A
Test Fixture	Plantronics	N/A	N/A	N/A
DC Power Supply (5V)	Speedy-Tech	66879-01	N/A	N/A
DC Power Supply (3.8V)	HP	E3610A	N/A	N/A
CD Player	Craig	CD2863	N/A	N/A
Pulsar Desktop Charging Stand	Plantronics	PDCS	119	N/A

I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	DC	1	DC Plug	Unshielded	2m	No
2	Audio	1	Line Out	Unshielded	.2m	No
3	AC	2	US115	Unshielded	1.5m	No
4	DC	1	DC	Unshielded	1.5m	No
5	Parallel	1	DB25	Shielded	1.5m	No
6	Serial	1	DB9	Shielded	1.5m	No
7	BNC	1	BNC	Shielded	1.5m	No

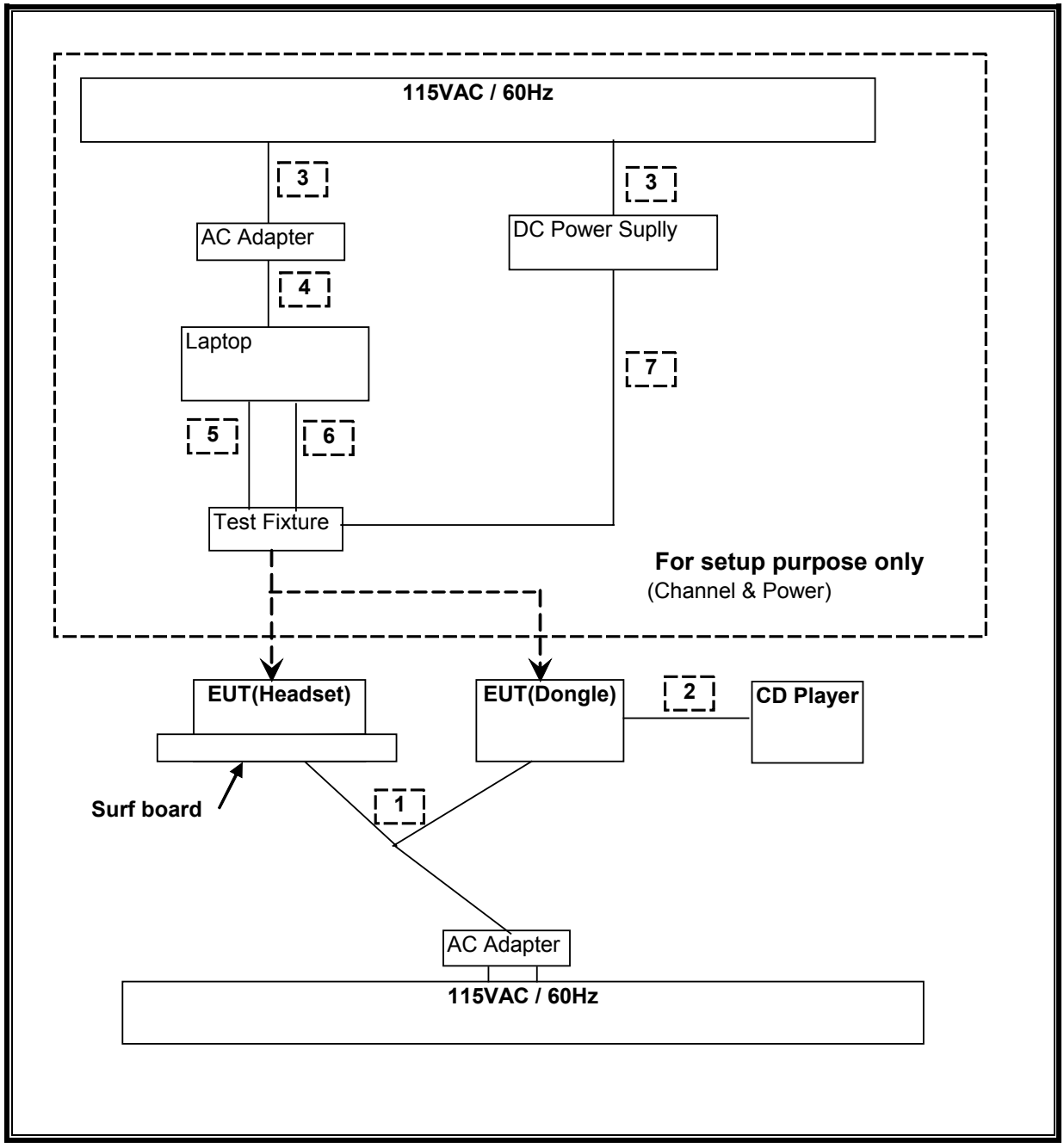
I/O CABLES - With USB Charging Cable for Line Conducted Emissions testing

TEST SETUP

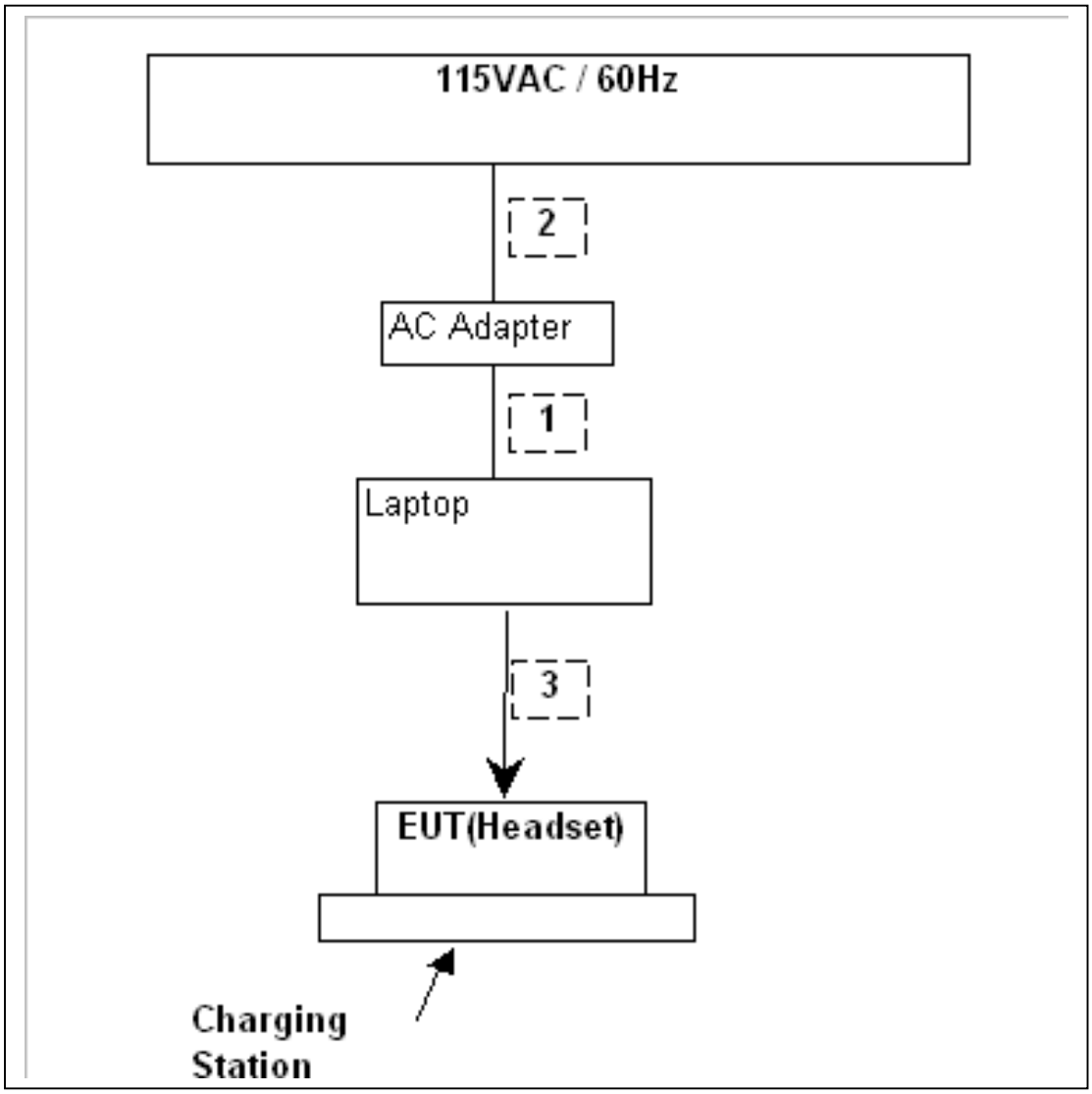
I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	DC	1	DC Plug	Unshielded	2m	No
2	AC	1	US115	Unshielded	1.5m	No
3	USB	1	USB	Shielded	2m	Charging

The EUT is installed in a test fixture in order to setup channel and power. Test software from laptop exercised the radio card.

SETUP DIAGRAM FOR TESTS



SETUP DIAGRAM FOR TESTS – With USB Charging Cable for Line Conducted Emissions testing



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**	**Serial Number**	**Cal Due**
Spectrum Analyzer	Agilent	E4446A	MY43360112	1/13/2006
Peak Power Meter	Agilent	E4416A	GB41291160	2/9/06
Peak / Average Power Sensor	Agilent	E9327A	US40440755	2/10/06
Preamplifier, 1 ~ 26.5 GHz	HP	8449B	3008A00369	8/17/06
Antenna, Horn 1 ~ 18 GHz	EMCO	3117	29301	9/12/05
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/05
RF Filter Section	HP	85420E	3705A00256	11/21/05
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	12/22/05
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/05
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/21/05
Site A Line Stabilizer / Conditioner	Tripplite	LC-1800a	A0051681	CNR
EMI Test Receiver	R & S	ESHS 20	827129/006	10/22/05

7. LIMITS AND RESULTS

7.1. ANTENNA PORT CHANNEL TESTS

7.1.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

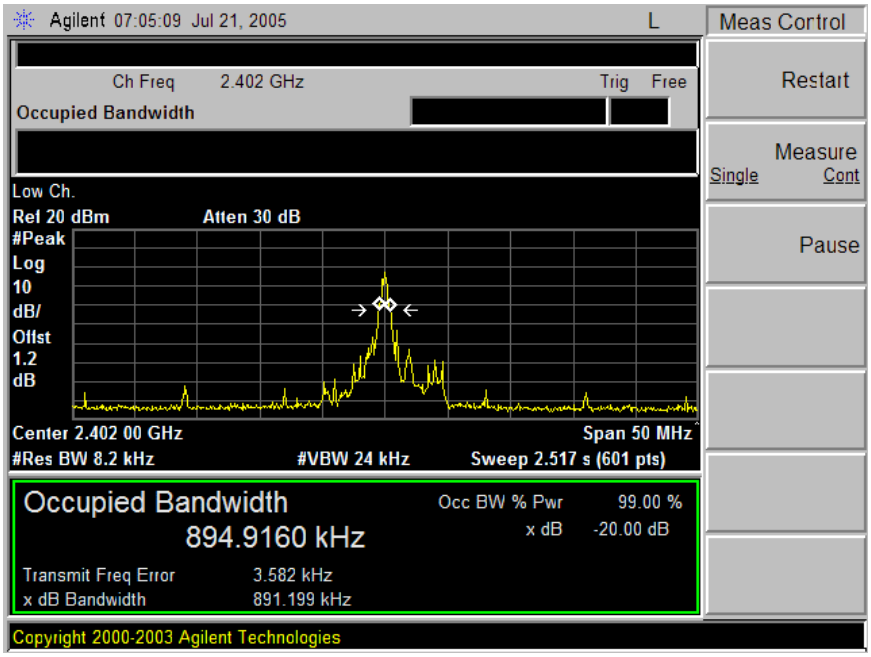
RESULTS

No non-compliance noted:

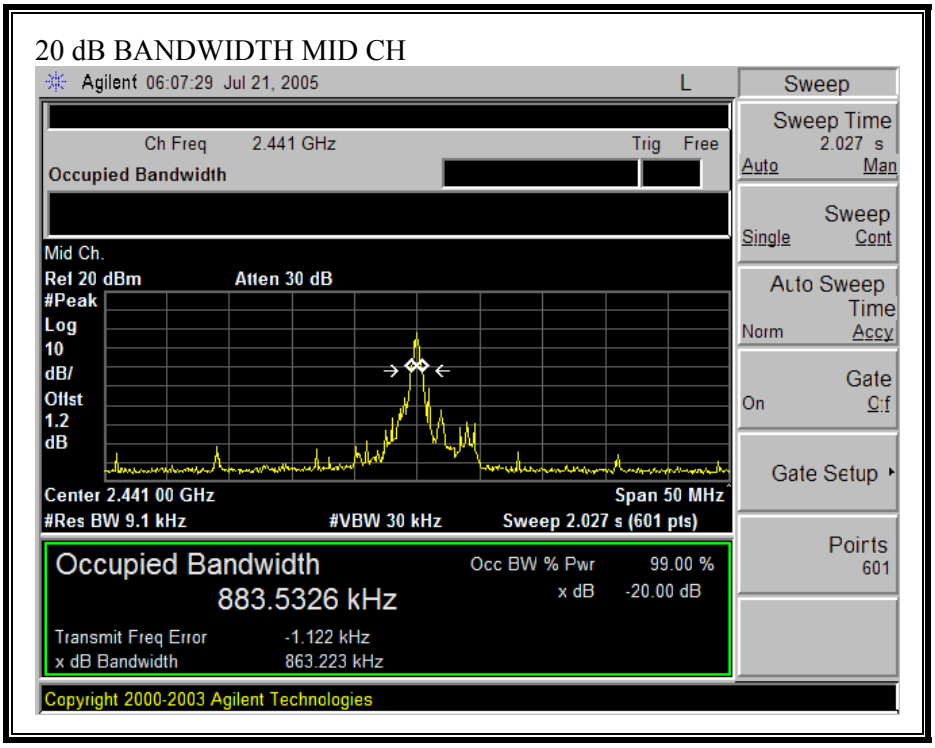
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	2402	891.199
Middle	2441	862.233
High	2480	880.480

20 dB BANDWIDTH

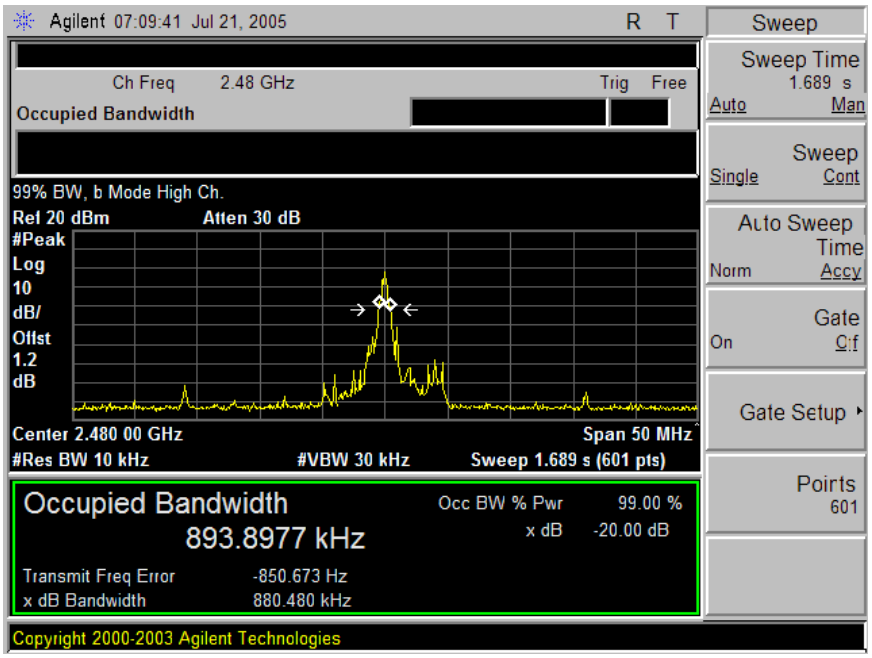
20 dB BANDWIDTH LOW CH



20 dB BANDWIDTH MID CH



20 dB BANDWIDTH HIGH CH



7.1.2. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt.

§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is -2 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output power is connected to peak power.

RESULTS

No non-compliance noted:

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	2.29	30	-27.71
Middle	2441	2.66	30	-27.34
High	2480	2.14	30	-27.86

7.1.3. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 1.2 dB cable was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	-2.66
Middle	2441	-2.36
High	2480	-2.87

7.1.4. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

§15.247 (f) The digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

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 = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

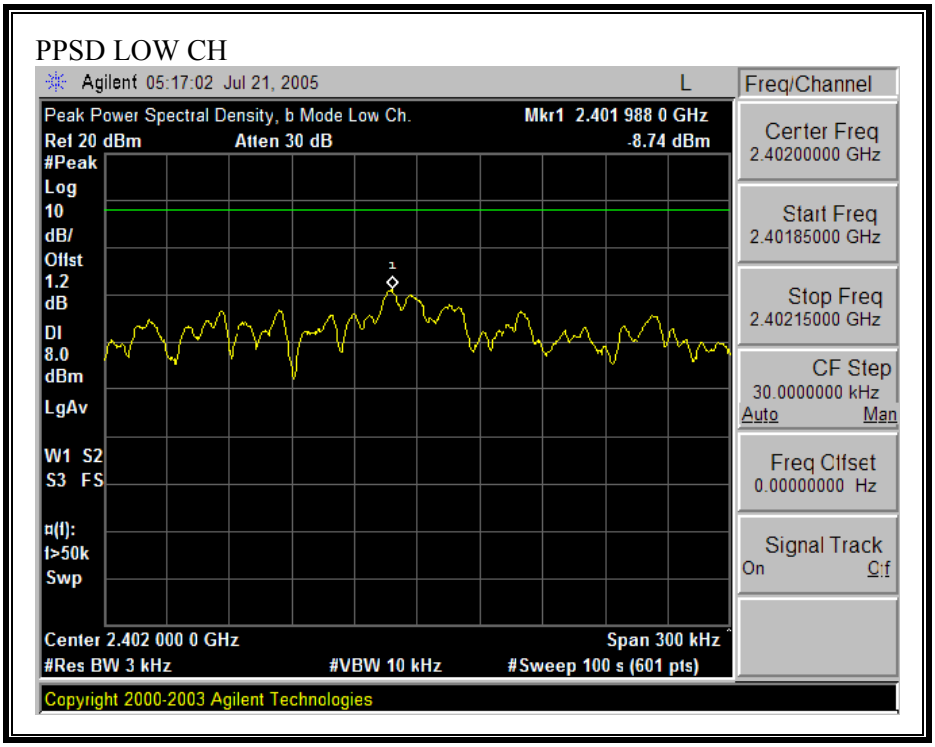
RESULTS

No non-compliance noted:

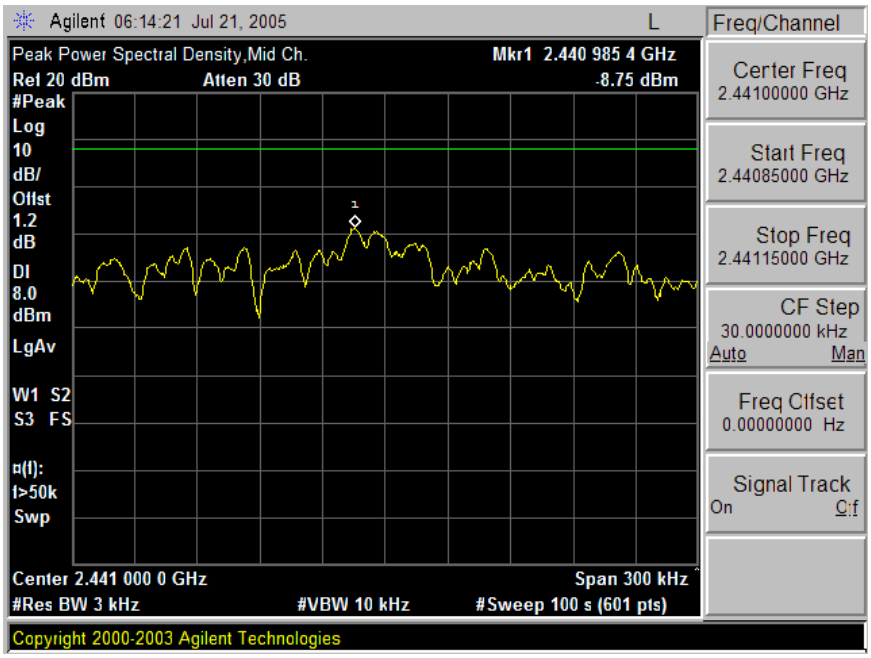
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-8.74	8	-16.74
Middle	2441	-8.75	8	-16.75
High	2480	-9.11	8	-17.11

PEAK POWER SPECTRAL DENSITY

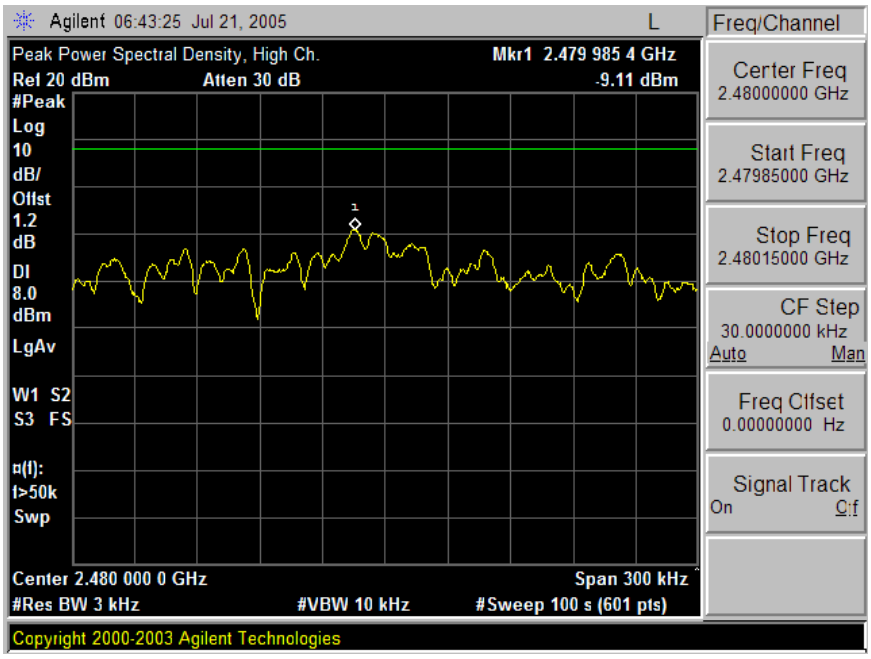
PPSD LOW CH



PPSD MID CH



PPSD HIGH CH



7.1.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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.

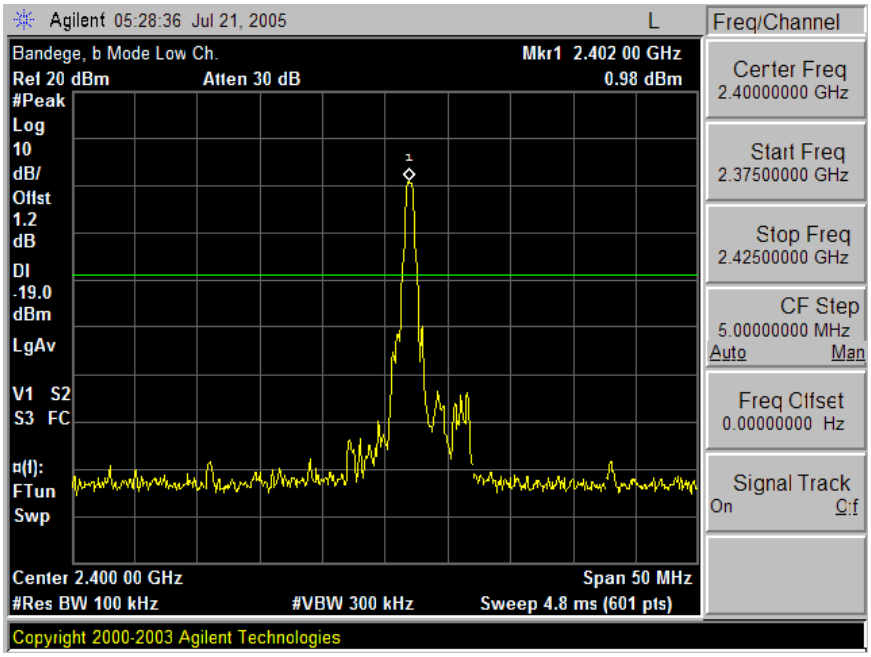
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

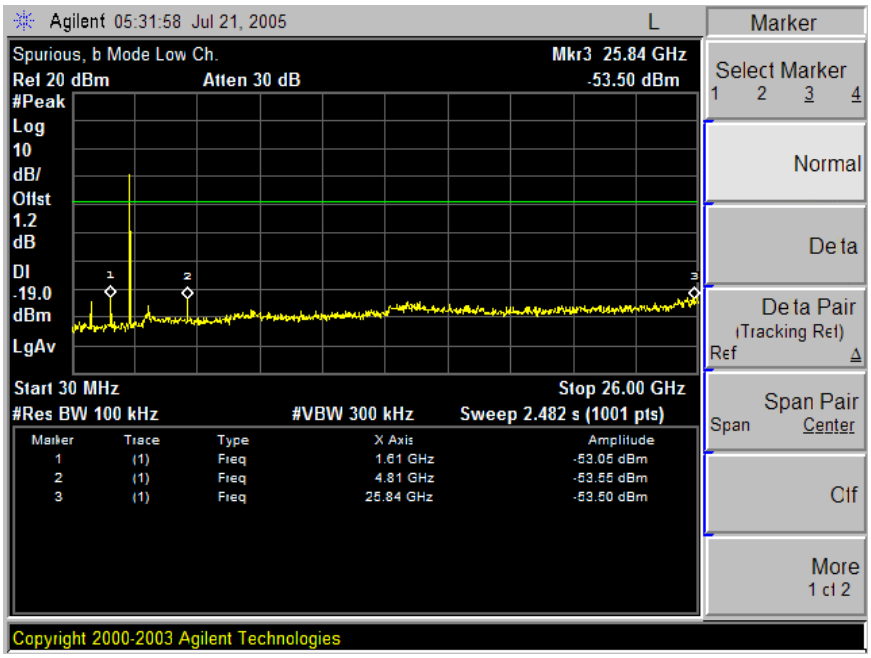
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE

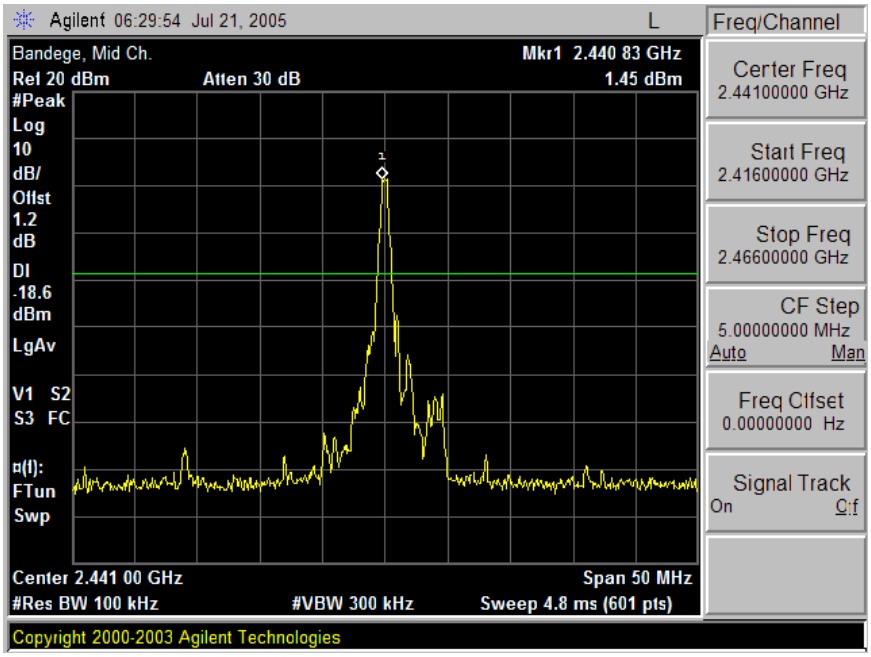


LOW CHANNEL SPURIOUS

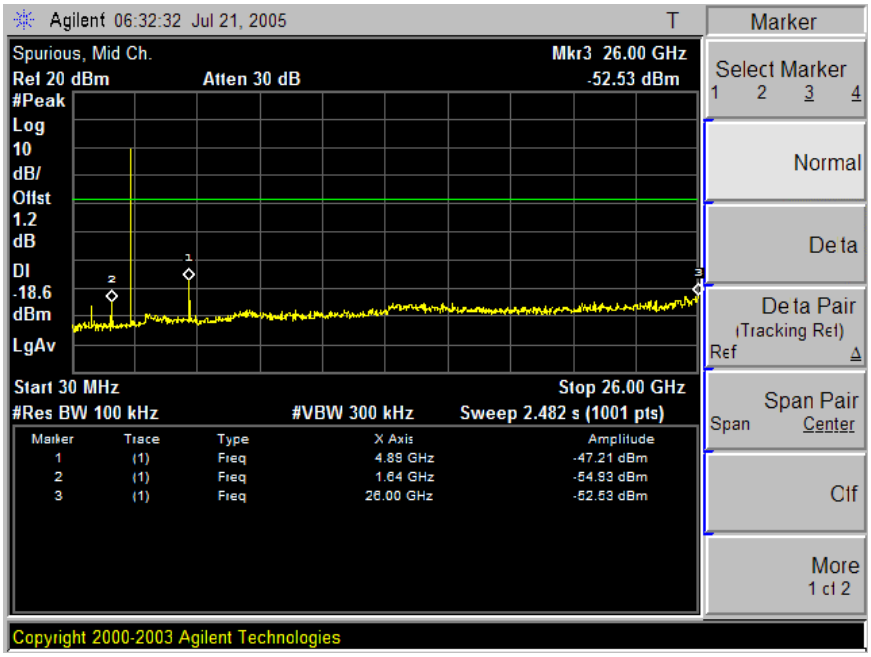


SPURIOUS EMISSIONS, MID CHANNEL

MID CHANNEL REFERENCE

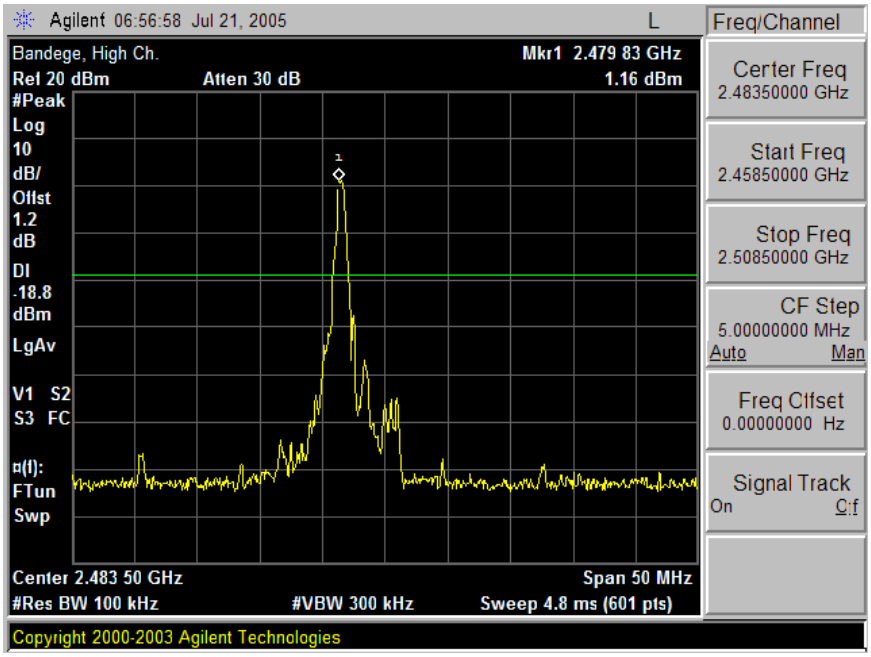


MID CHANNEL SPURIOUS

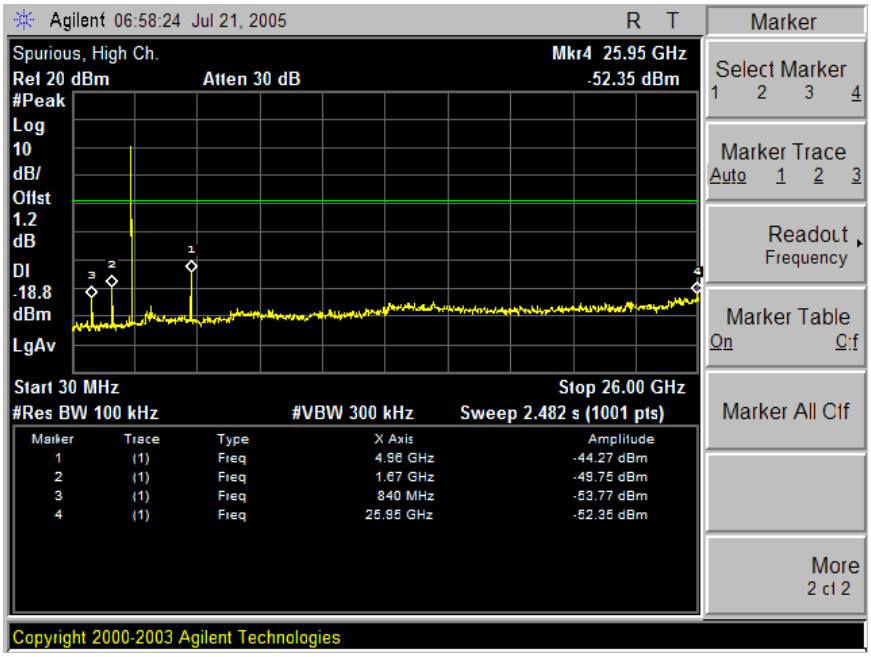


SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE

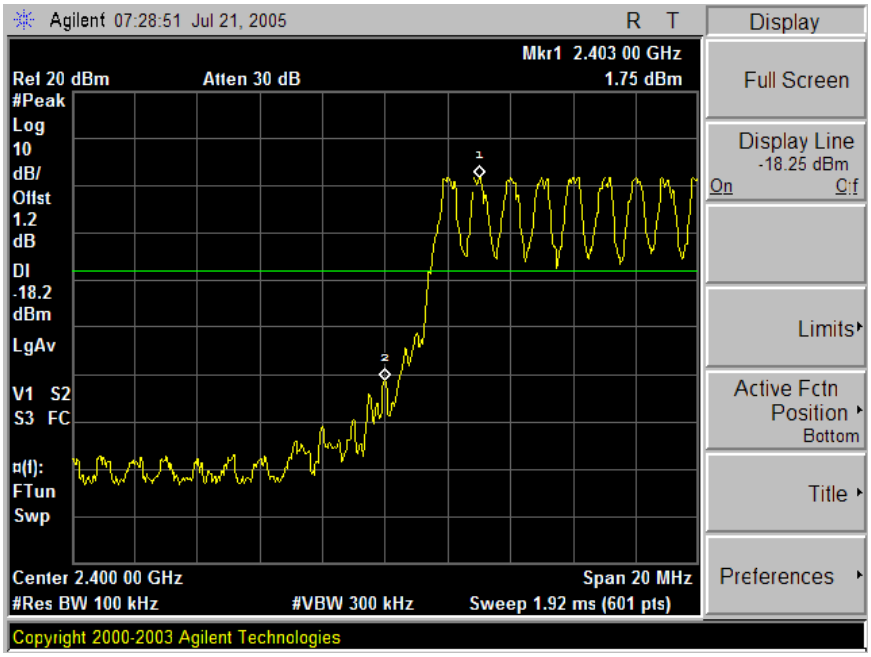


HIGH CHANNEL SPURIOUS

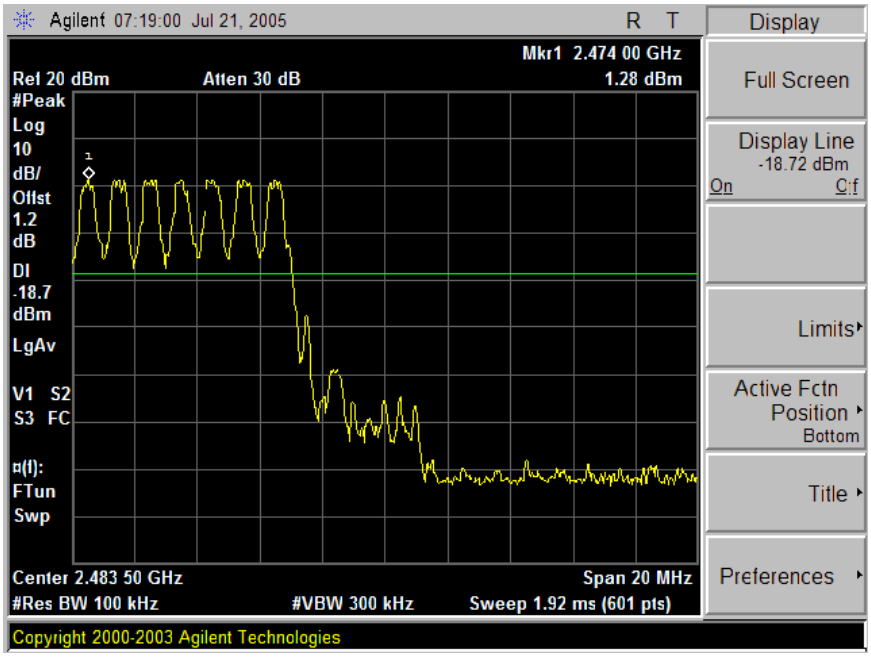


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

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.

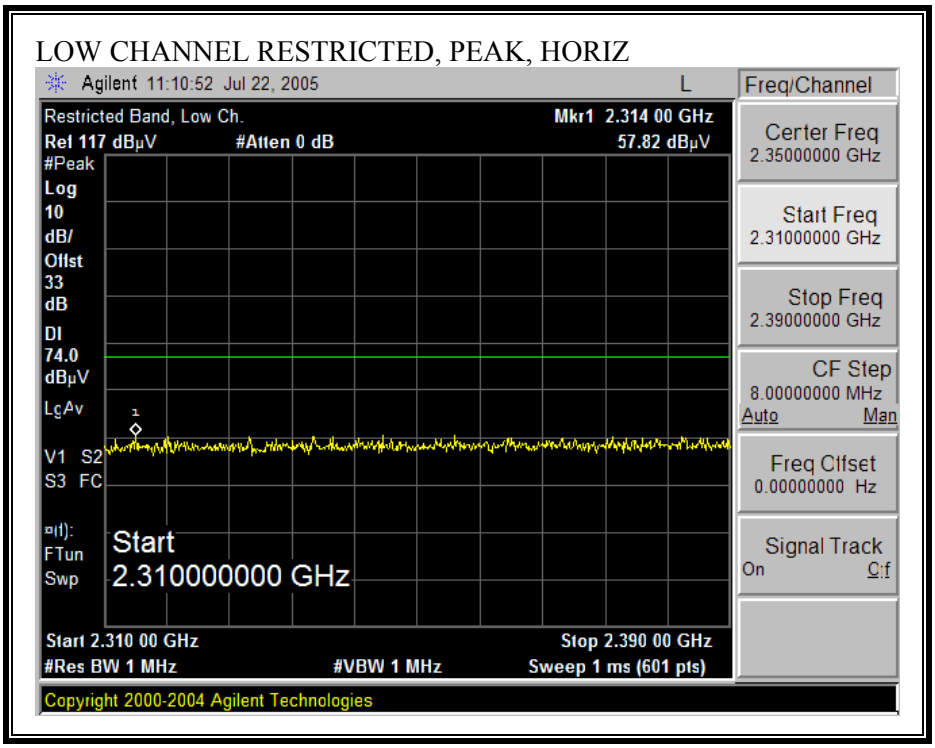
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

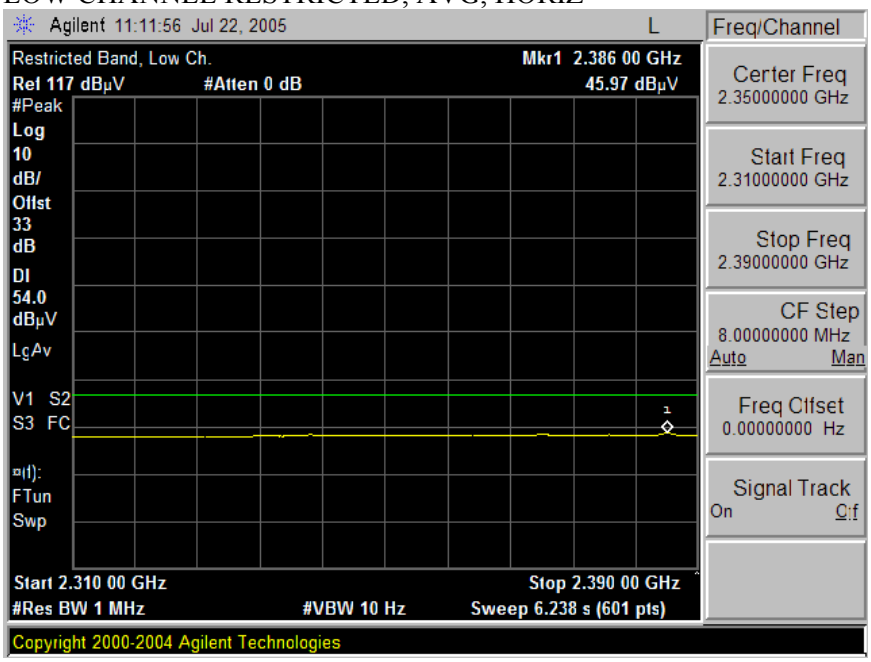
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

7.2.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

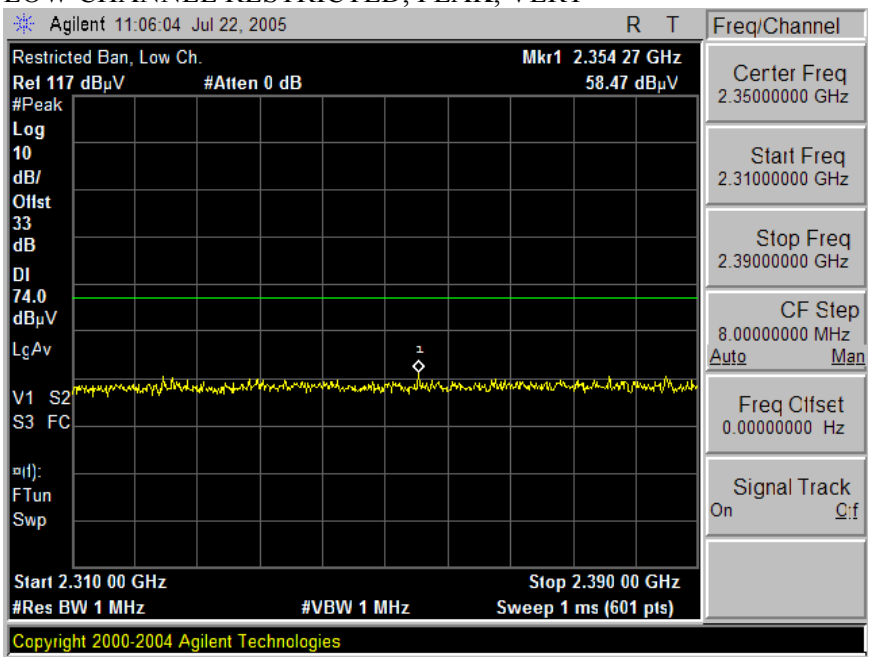


LOW CHANNEL RESTRICTED, AVG, HORIZ

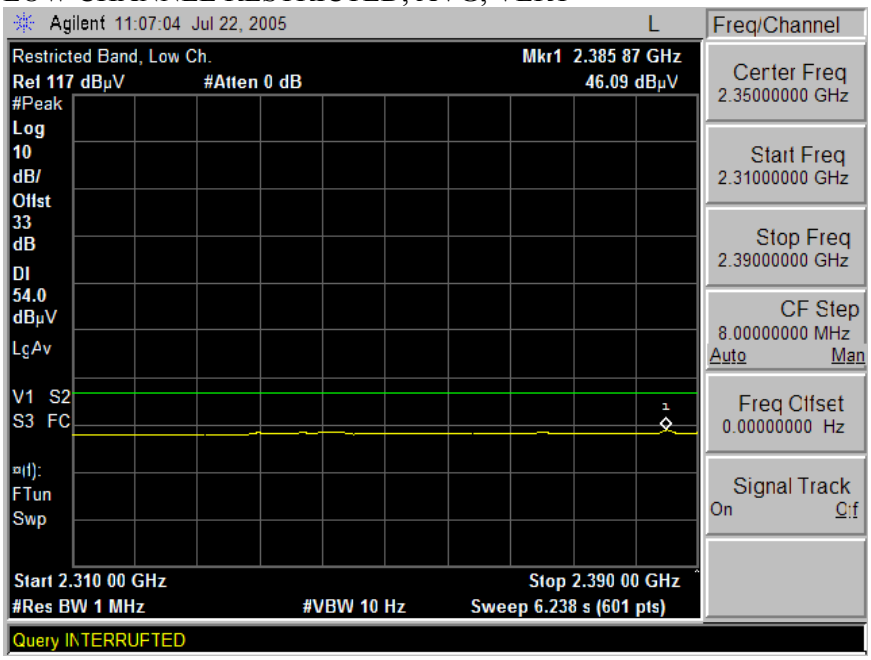


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

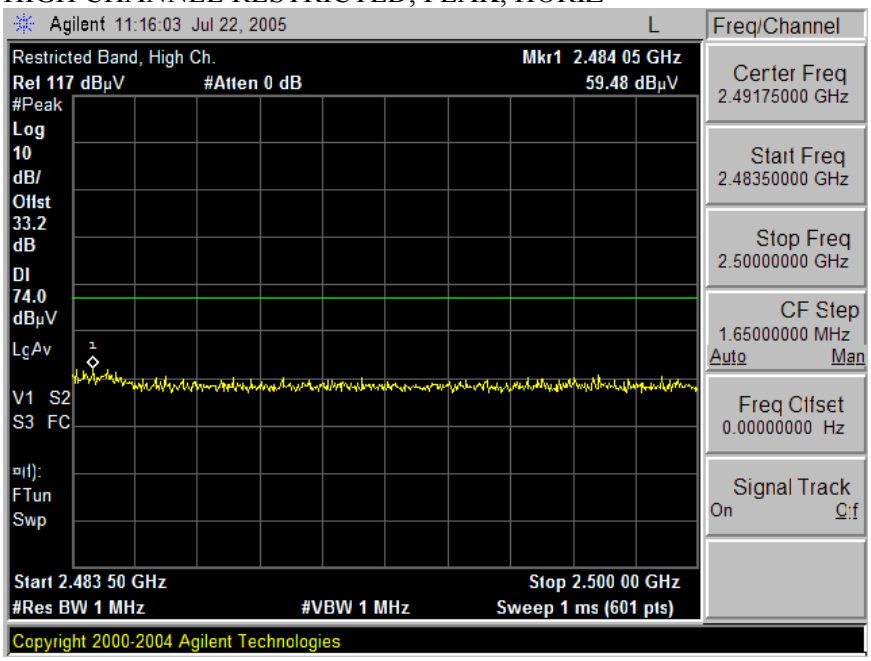


LOW CHANNEL RESTRICTED, AVG, VERT

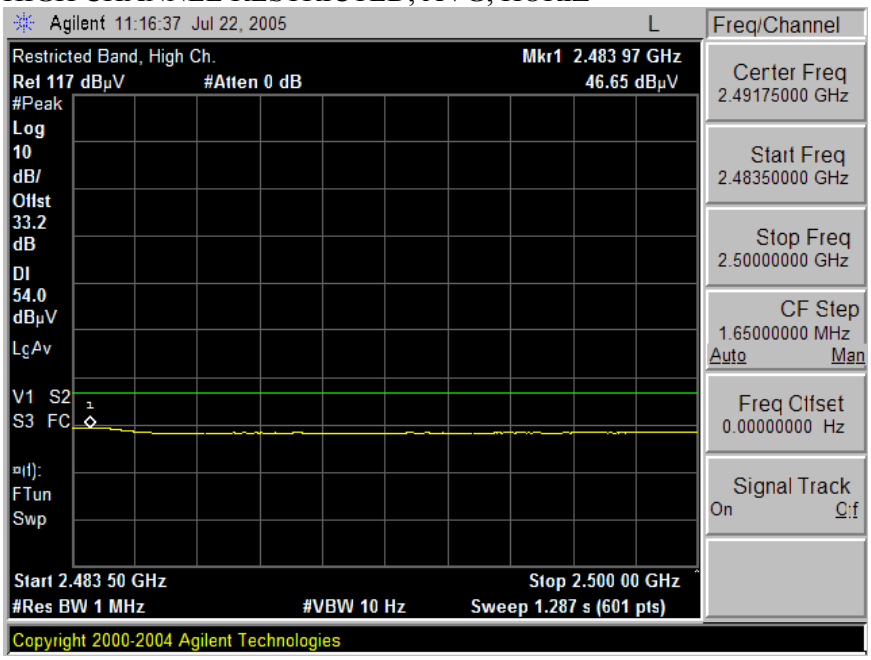


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

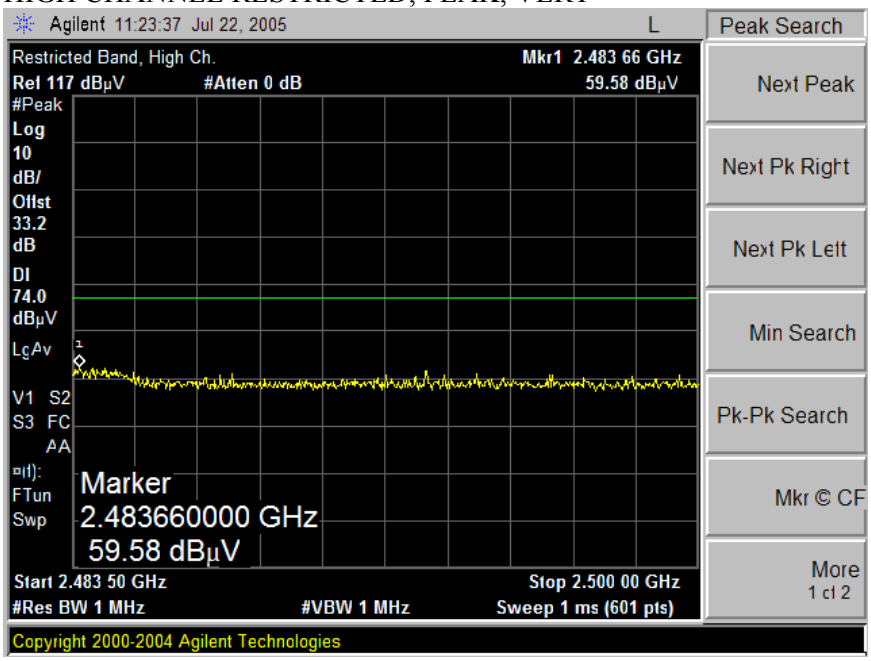


HIGH CHANNEL RESTRICTED, AVG, HORIZ

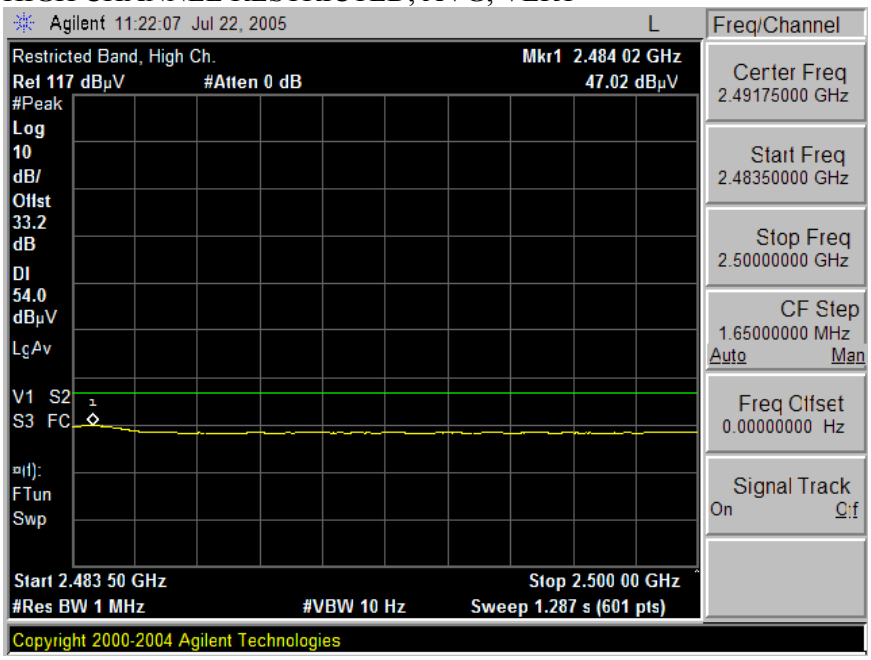


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

07/22/05 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: VIEN TRAN
Project #: 05U3529-1
Company: PLANTRONICS
EUT Descrip.: BLUETOOTH HEADSET
EUT M/N: P590
Test Target: FCC PART 15
Mode Oper: TRANSMITTING_LOW, MID & HI CHANNELS_HARMONIC & SPUR

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn >18GHz	Limit
T119; S/N: 29301 @3m	T34 HP 8449B			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
2_Vien			12 Vien	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz

Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
LOW CH = 2402 MHz															
4.804	3.0	59.1	39.2	34.0	3.1	-33.6	0.0	0.6	63.2	43.3	74	54	-10.8	-10.7	V
7.206	3.0	43.2	30.9	35.6	3.7	-33.3	0.0	0.6	49.8	37.5	74	54	-24.2	-16.5	V
9.608	3.0	46.6	32.9	37.1	4.3	-33.9	0.0	0.8	54.9	41.2	74	54	-19.1	-12.8	V
12.010	3.0	42.5	30.0	38.4	5.6	-33.5	0.0	0.9	54.0	41.5	74	54	-20.0	-12.5	V, NOISE FLOOR
4.804	3.0	57.6	39.0	34.0	3.1	-33.6	0.0	0.6	61.7	43.1	74	54	-12.3	-10.9	H
7.206	3.0	43.0	31.0	35.6	3.7	-33.3	0.0	0.6	49.6	37.6	74	54	-24.4	-16.4	H
9.608	3.0	47.2	33.3	37.1	4.3	-33.9	0.0	0.8	55.5	41.6	74	54	-18.5	-12.4	V
12.010	3.0	41.0	30.0	38.4	5.6	-33.5	0.0	0.9	52.5	41.5	74	54	-21.5	-12.5	V, NOISE FLOOR
MID CH = 2441 MHz															
4.882	3.0	55.5	37.0	34.1	3.1	-33.5	0.0	0.6	59.8	41.3	74	54	-14.2	-12.7	V
7.323	3.0	43.1	31.1	35.6	3.7	-33.3	0.0	0.6	49.8	37.8	74	54	-24.2	-16.2	V
9.764	3.0	44.2	32.0	37.3	4.4	-34.0	0.0	0.8	52.8	40.6	74	54	-21.2	-13.4	V
12.205	3.0	41.9	29.5	38.5	5.6	-33.4	0.0	0.9	53.5	41.1	74	54	-20.5	-12.9	V, NOISE FLOOR
4.882	3.0	56.7	37.3	34.1	3.1	-33.5	0.0	0.6	61.0	41.6	74	54	-13.0	-12.4	H
7.323	3.0	42.1	30.5	35.6	3.7	-33.3	0.0	0.6	48.8	37.2	74	54	-25.2	-16.8	H
9.764	3.0	44.6	32.1	37.3	4.4	-34.0	0.0	0.8	53.2	40.7	74	54	-20.8	-13.3	V
12.205	3.0	40.0	30.0	38.5	5.6	-33.4	0.0	0.9	51.6	41.6	74	54	-22.4	-12.4	V, NOISE FLOOR
HI CH =2480 MHz															
4.960	3.0	58.8	38.5	34.1	3.1	-33.5	0.0	0.6	63.2	42.9	74	54	-10.8	-11.1	V
7.440	3.0	42.0	30.5	35.7	3.8	-33.3	0.0	0.6	48.8	37.3	74	54	-25.2	-16.7	V
9.920	3.0	43.0	31.0	37.6	4.5	-34.0	0.0	0.8	51.9	39.9	74	54	-22.1	-14.1	V
12.400	3.0	43.0	29.5	38.6	5.6	-33.4	0.0	0.9	54.7	41.2	74	54	-19.3	-12.8	V, NOISE FLOOR
4.960	3.0	57.3	37.6	34.1	3.1	-33.5	0.0	0.6	61.7	42.0	74	54	-12.3	-12.0	H
7.440	3.0	43.2	31.1	35.7	3.8	-33.3	0.0	0.6	50.0	37.9	74	54	-24.0	-16.1	H
9.920	3.0	41.4	30.1	37.6	4.5	-34.0	0.0	0.8	50.3	39.0	74	54	-23.7	-15.0	V
12.400	3.0	40.0	30.2	38.6	5.6	-33.4	0.0	0.9	51.7	41.9	74	54	-22.3	-12.1	V, NOISE FLOOR
NO OTHER EMISSION S WERE DETECTED AFTER 5TH HARMONIC															

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

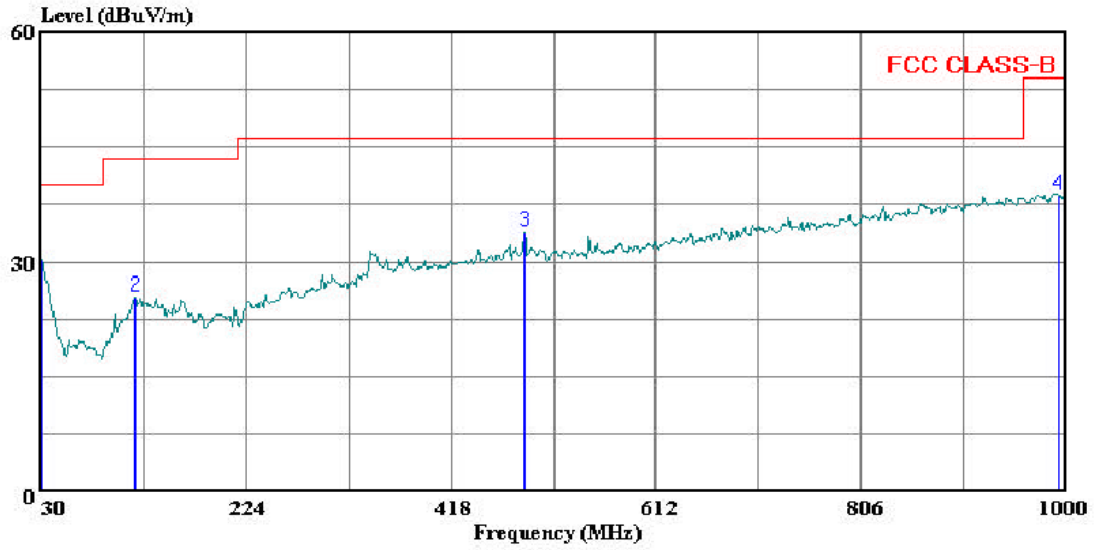
7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 4 File#: Clifford.EMI Date: 07-25-2005 Time: 09:16:53



(Audix ATC)

Trace: 3 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : VIEN TRAN
Project #: : 05U3529
Company: : PLANTRONICS
EUT: : HEADSET
Model No. : P590
Configuration : DONGLE, HEADSET,CD PLAYER
Target of Test : FCC B
Mode of Operation: Tx ON

HORIZONTAL DATA

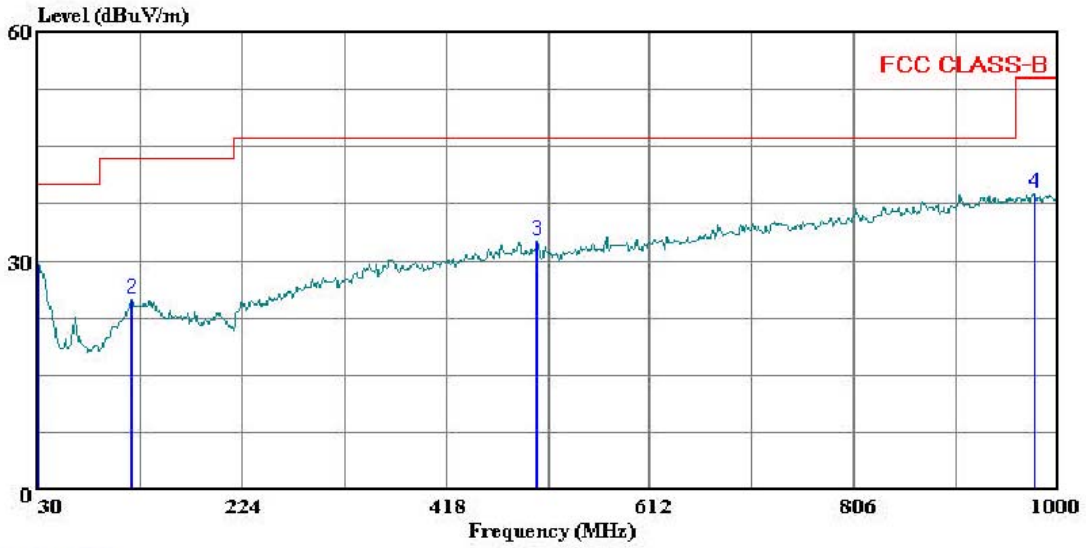
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	9.92	20.45	30.37	40.00	-9.63	Peak
2	119.240	10.22	15.05	25.27	43.50	-18.23	Peak
3	487.840	13.81	20.00	33.81	46.00	-12.19	Peak
4	993.210	11.77	26.93	38.70	54.00	-15.30	Peak

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

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 2 File#: Clifford.EMI Date: 07-25-2005 Time: 09:07:00



(Audix ATC)

Trace: 1 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : VIEN TRAN
Project #: : 05U3529
Company: : PLANTRONICS
EUT: : HEADSET
Model No. : P590
Configuration : DONGLE, HEADSET, CD PLAYER
Target of Test : FCC B
Mode of Operation: Tx ON

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	8.98	20.45	29.43	40.00	-10.57	Peak
2	119.240	9.80	15.05	24.85	43.50	-18.65	Peak
3	504.330	12.34	20.26	32.60	46.00	-13.40	Peak
4	977.690	12.11	26.75	38.86	54.00	-15.14	Peak

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator 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 µH/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 boundary between the frequency ranges.

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 resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

RESULTS

No non-compliance noted:

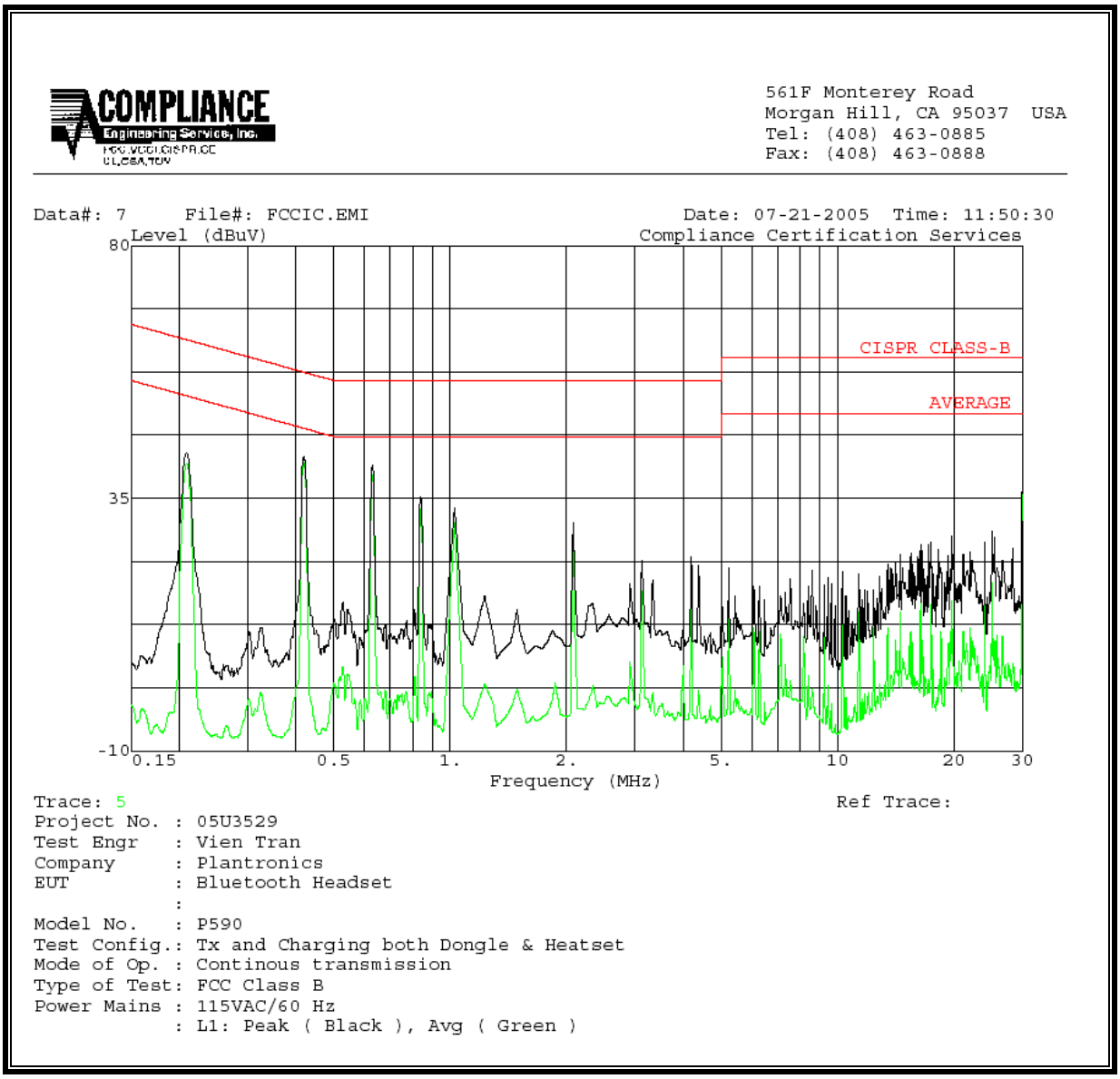
6 WORST EMISSIONS – without USB Charging Cable

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit		Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.21	43.12	--	--	0.00	63.24	53.24	-20.12	-10.12	L1
0.42	42.50	--	--	0.00	57.47	47.47	-14.97	-4.97	L1
25.05	29.12	--	--	0.00	60.00	50.00	-30.88	-20.88	L1
0.21	40.76	--	--	0.00	63.24	53.24	-22.48	-12.48	L2
0.42	38.42	--	--	0.00	57.47	47.47	-19.05	-9.05	L2
19.12	26.80	--	--	0.00	60.00	50.00	-33.20	-23.20	L2
6 Worst Data									

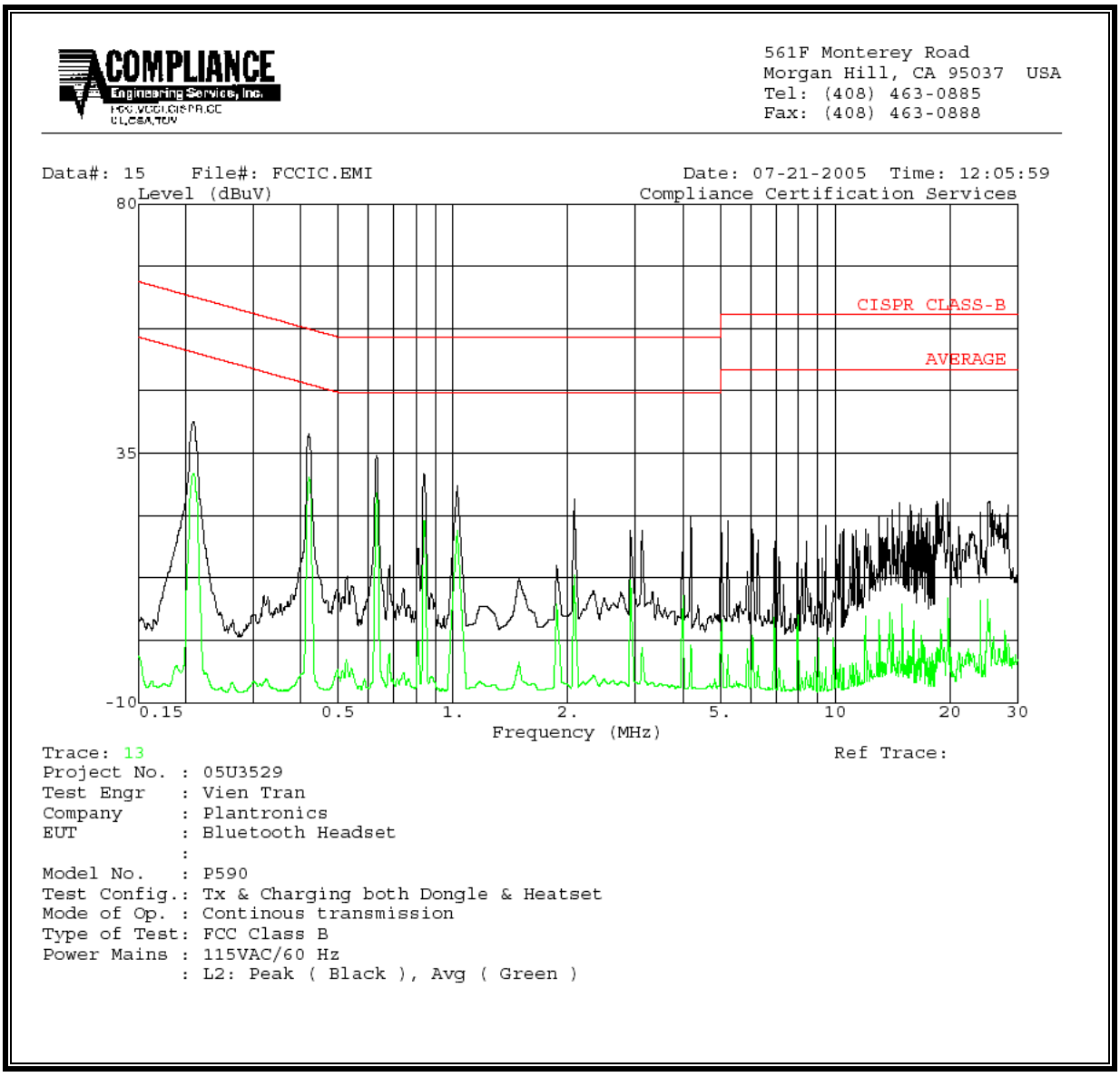
6 WORST EMISSIONS – with USB Charging Cable (Part No.: 70218)

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	51.84	--	15.16	0.00	65.62	55.62	-13.78	-40.46	L1
0.19	50.89	--	50.89	0.00	63.86	53.86	-12.97	-2.97	L1
0.21	49.15	--	37.57	0.00	63.32	53.32	-14.17	-15.75	L1
0.16	51.38	--	14.71	0.00	65.73	55.73	-14.35	-41.02	L2
0.19	50.00	--	38.70	0.00	63.91	53.91	-13.91	-15.21	L2
0.21	48.76	--	36.50	0.00	63.05	53.05	-14.29	-16.55	L2
6 Worst Data									

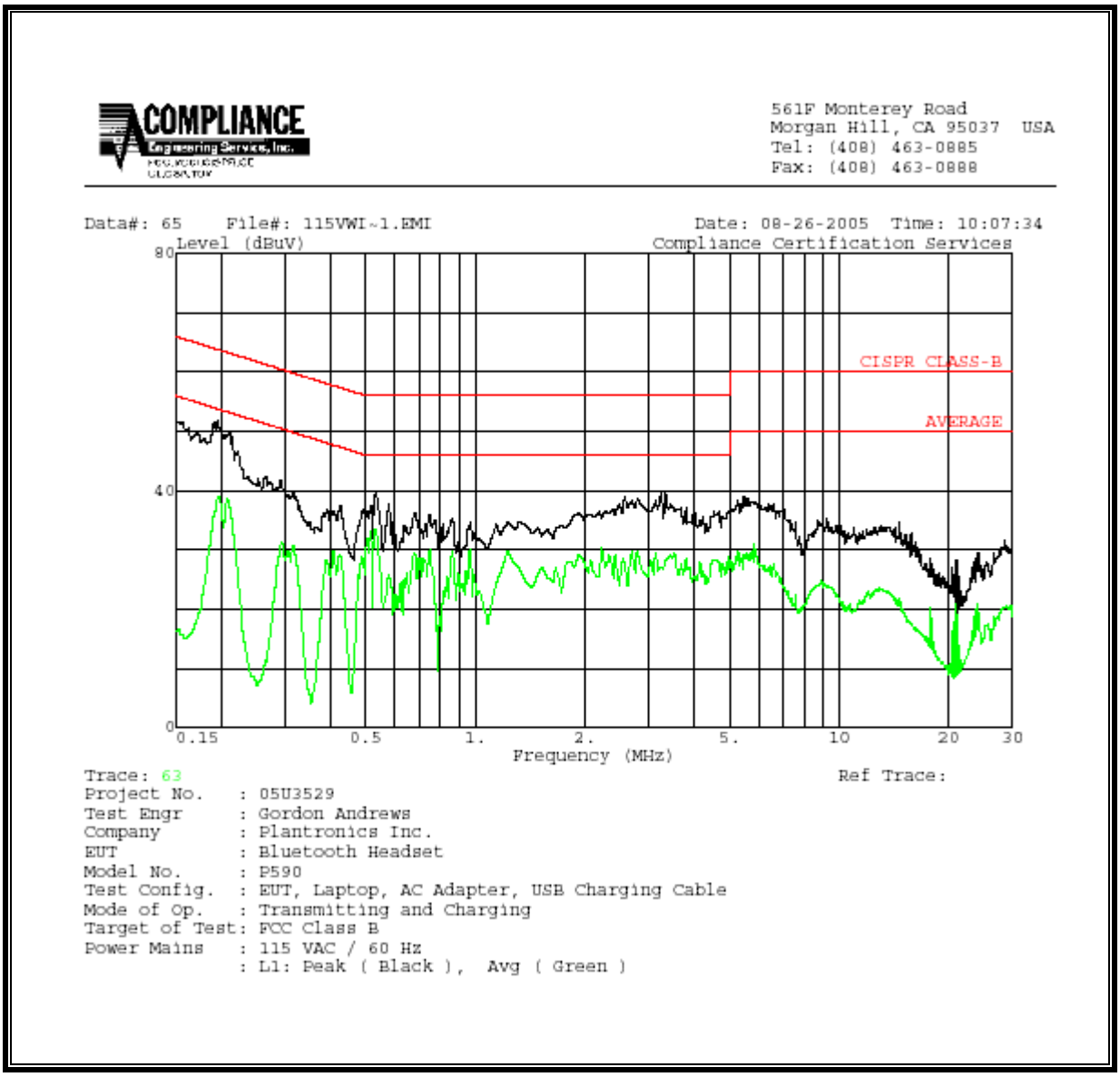
LINE 1 RESULTS – without USB Charging Cable



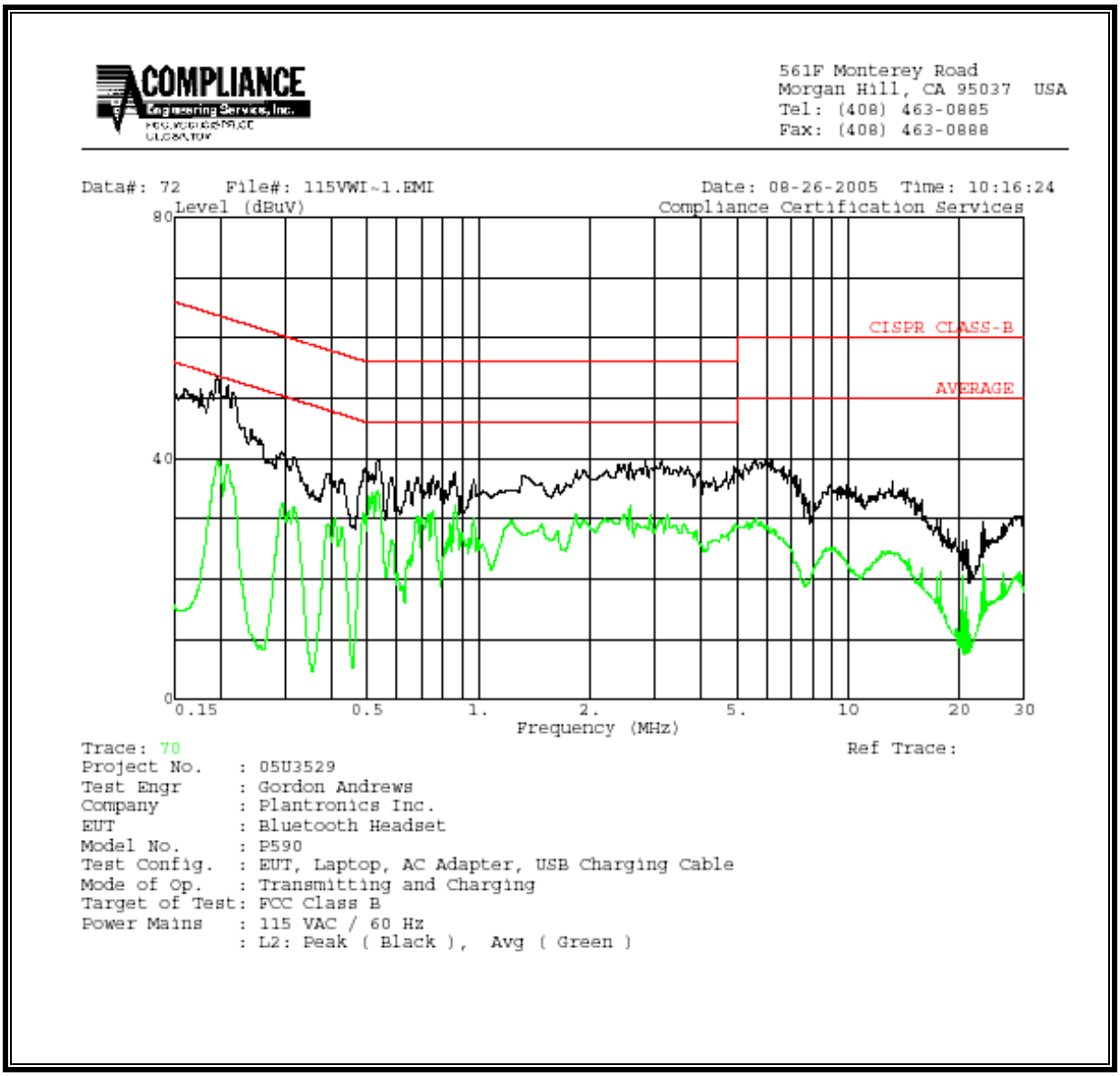
LINE 2 RESULTS– without USB Charging Cable



LINE 1 RESULTS – with USB Charging Cable (Part No.: 70218)



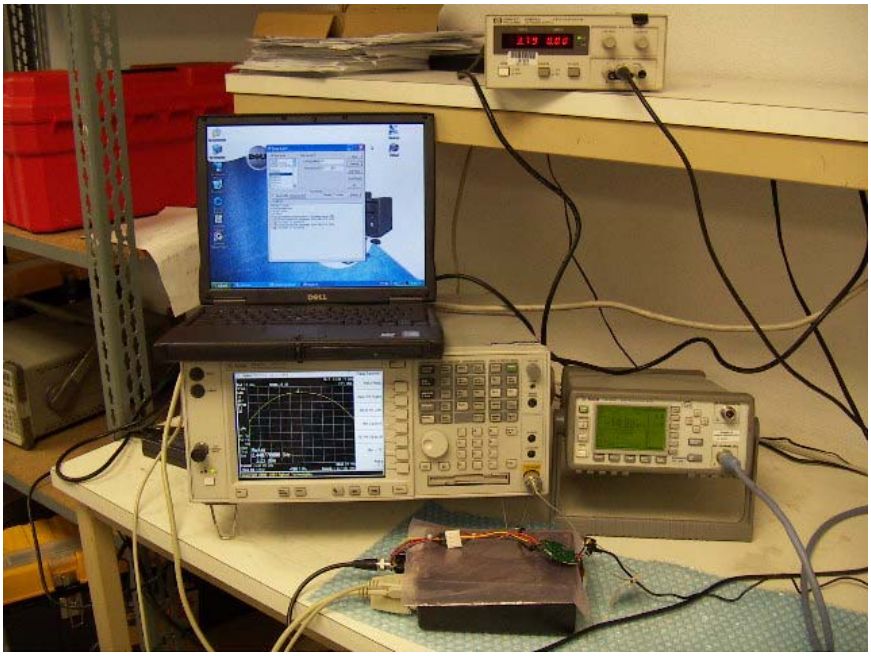
LINE 2 RESULTS– with USB Charging Cable (Part No.: 70218)



8. SETUP PHOTOS

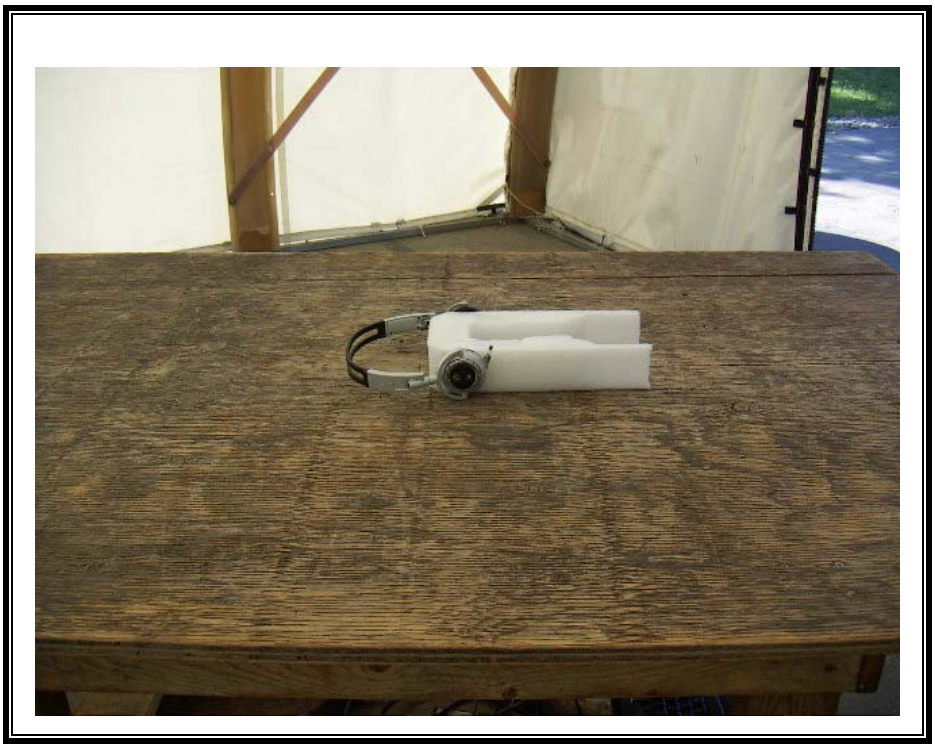
ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP

ANTENNA PORT CONDUCTED PHOTO

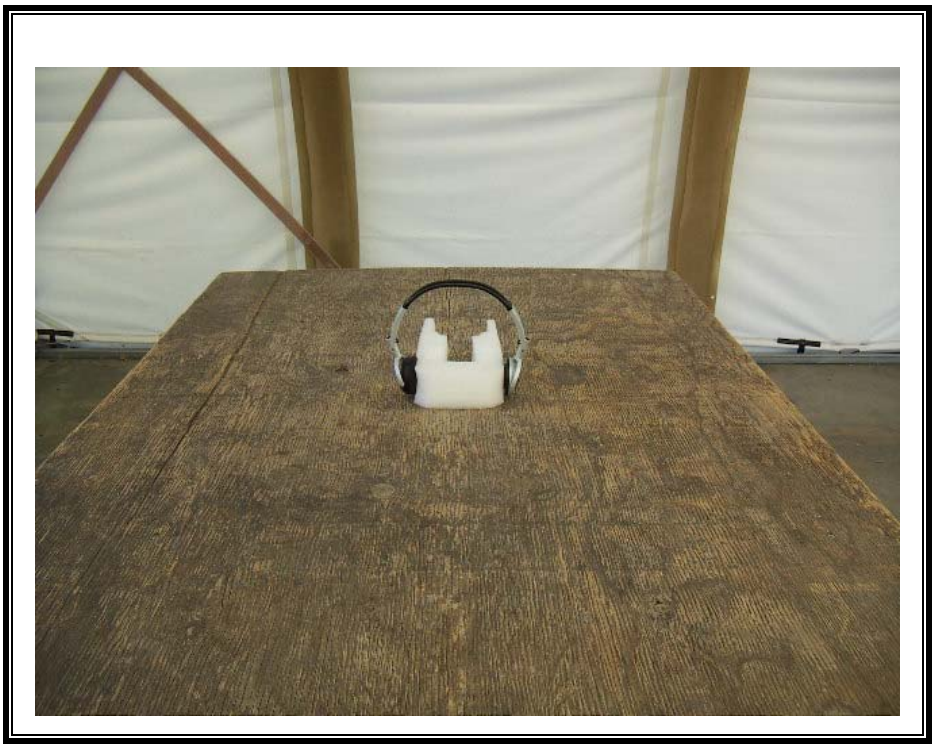


RADIATED RF MEASUREMENT SETUP – ABOVE 1 GHz

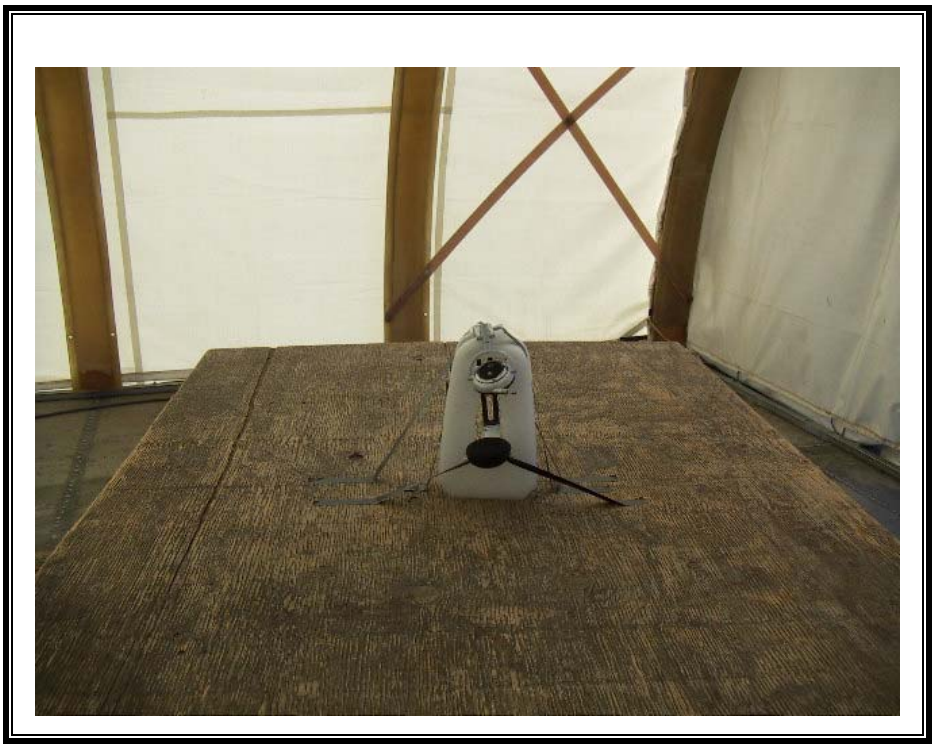
HEADSET - EUT AT X POSITION



HEADSET - EUT AT Y POSITION

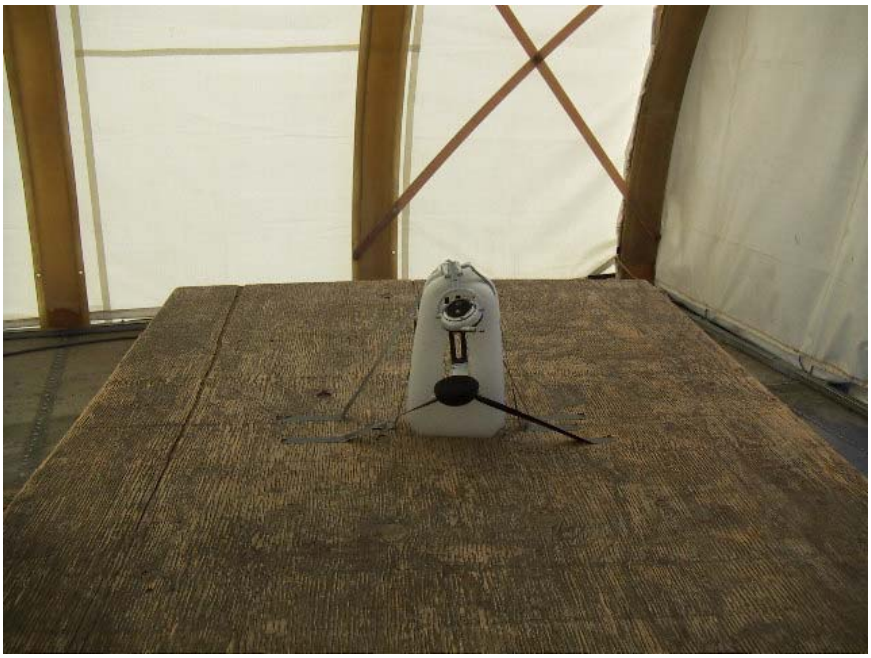


HEADSET - EUT AT Z POSITION



HEADSET WORST CASE: EUT AT Z POSITION

RADIATED FRONT PHOTO



RADIATED BACK PHOTO

RADIATED RF MEASUREMENT SETUP – BELOW 1 GHz

RADIATED FRONT PHOTO

RADIATED BACK PHOTO

POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP – without USB Charging Cable

LINE CONDUCTED FRONT PHOTO

LINE CONDUCTED BACK PHOTO

POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP – with USB Charging Cable

LINE CONDUCTED FRONT PHOTO

LINE CONDUCTED BACK PHOTO

END OF REPORT