FCC CFR47 PART 15 SUBPART C
CLASS II PERMISSIVE CHANGE
TEST REPORT

FOR

BLUETOOTH HEADSET

MODEL NUMBER: P590S

FCC ID: AL8-P590S

REPORT NUMBER: 07U10807-1, REVISION B

ISSUE DATE: MARCH 6, 2007

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

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA, 94538, USA
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	02/07/07	Initial Issue	T.Chan
B	03/06/07	Corrected FCC ID.	S. Radecki

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: BLUETOOTH HEADSET

MODEL: P590S

SERIAL NUMBER: 1856

DATE TESTED: FEBRUARY 06, 2007

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:

THANH NGUYEN
EMC TECHNICIAN
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 47173 Benicia Street, Fremont, 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 Plantronics P590S Bluetooth Headset.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power same as previous project (CCS Report 05U3529-1B) as below:

2400 to 2483.5 MHz Authorized Band

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

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral F antenna, each with a maximum gain of -2.0 dBi.

5.4. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is:

The P590S is electrically identical to the P590 (CCS Report 05U3529-1B). Mechanically, the plastic head band has been removed from the P590 and replaced with a cord in the P590S.

5.5. SOFTWARE AND FIRMWARE

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

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.

5.6. 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 2441MHz.

The worst-case configuration has been evaluated at Z position as shown in the setup photo.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Dell	PP01L	PLT 30925	Doc
AC Adapter	Dell	ADP-70EB	TH-09364U-17971-087-DRJ5	Doc
Power Supply	Agilent	E3620A	MY40005097	N/A
Level Shifter	Plantronics	N/A	N/A	N/A

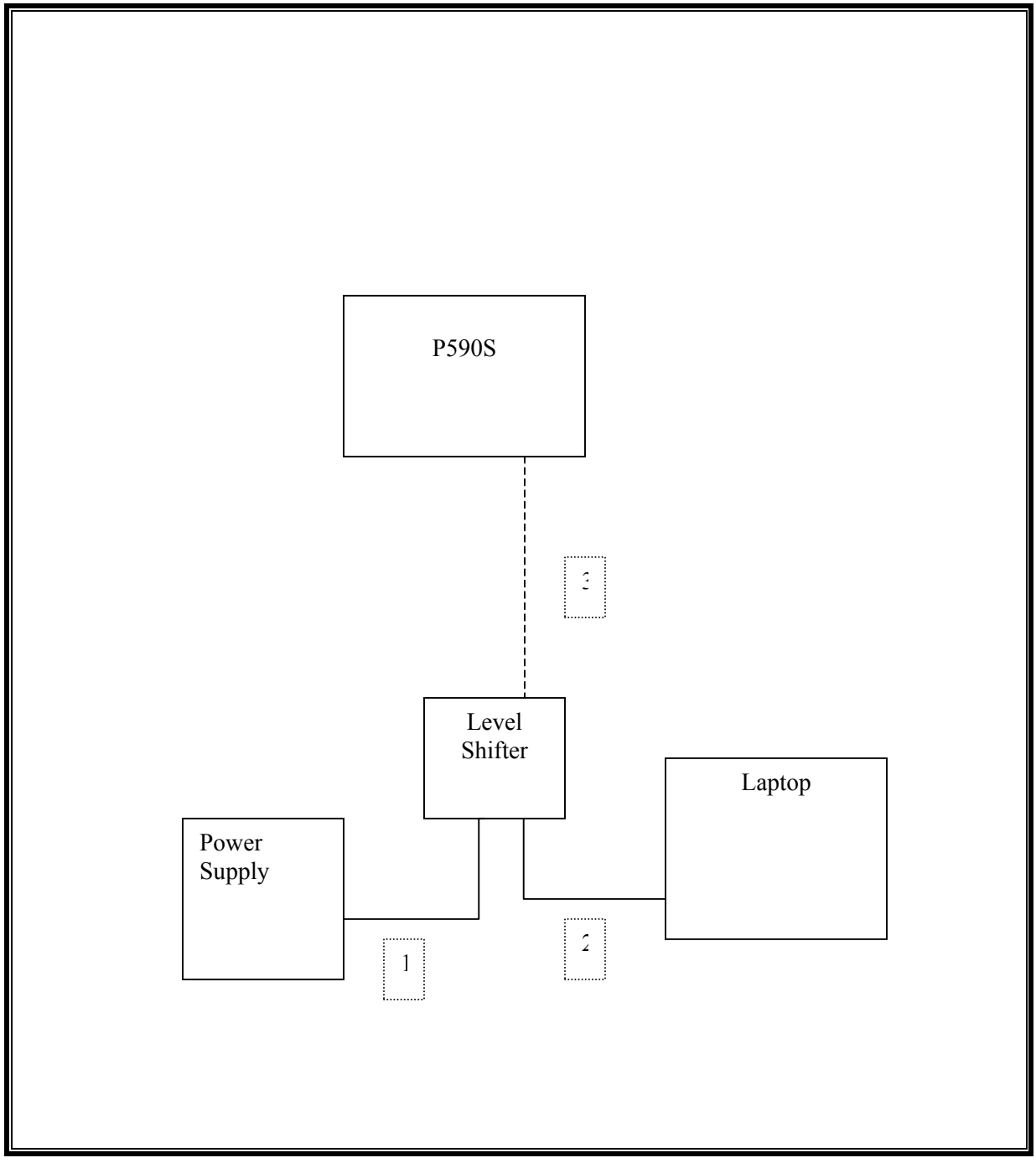
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	Power	1	Banana	Unshielded	0.5	
2	RS232	1	DB9	Serial	0.5	
3	Test	1	DB9	Serial	0.5	

TEST SETUP

For setup purposes the EUT is connected to the support equipment in order to set the transmit frequency. Once the EUT mode is set, it is disconnected from the support equipment and the EUT is tested in stand alone configuration.

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**	**Serial Number**	**Cal Due**
Quasi-Peak Adaptor	Agilent / HP	85650A	2521A01038	01/11/08
SA Display Section 2	Agilent / HP	85662A	2816A16696	04/07/08
SA RF Section, 1.5 GHz	Agilent / HP	85680B	2814A04227	01/07/08
Preamp 30-1000MHz	Sonoma Instrument	310N	185623	01/20/08
PSA 3Hz-44GHz	Agilent	E4446A	US42510266	10/17/07
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	04/22/07
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A0022704	08/13/07

7. LIMITS AND RESULTS

7.1. RADIATED EMISSIONS

7.1.1. 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.

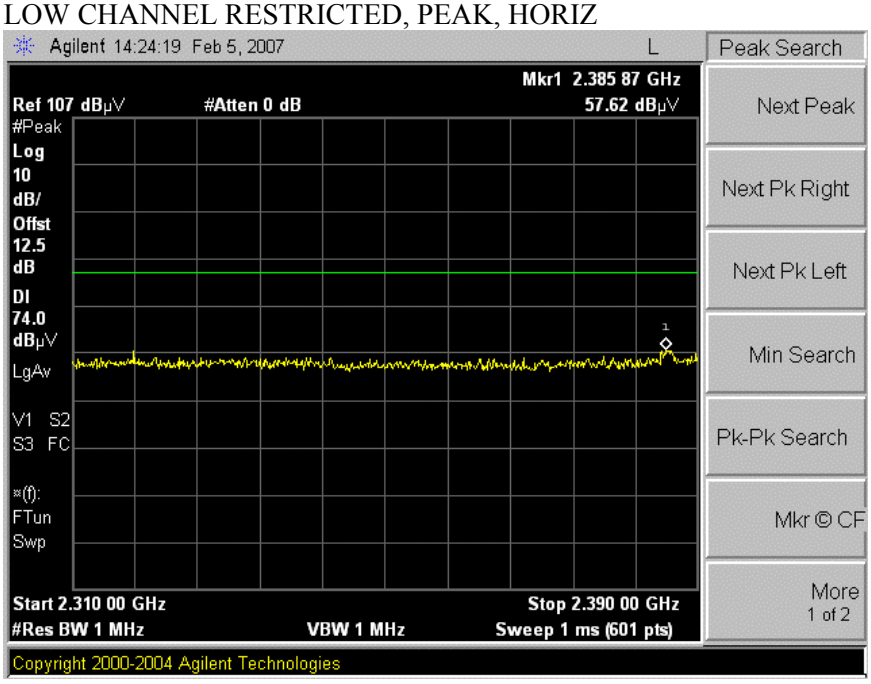
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The 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.

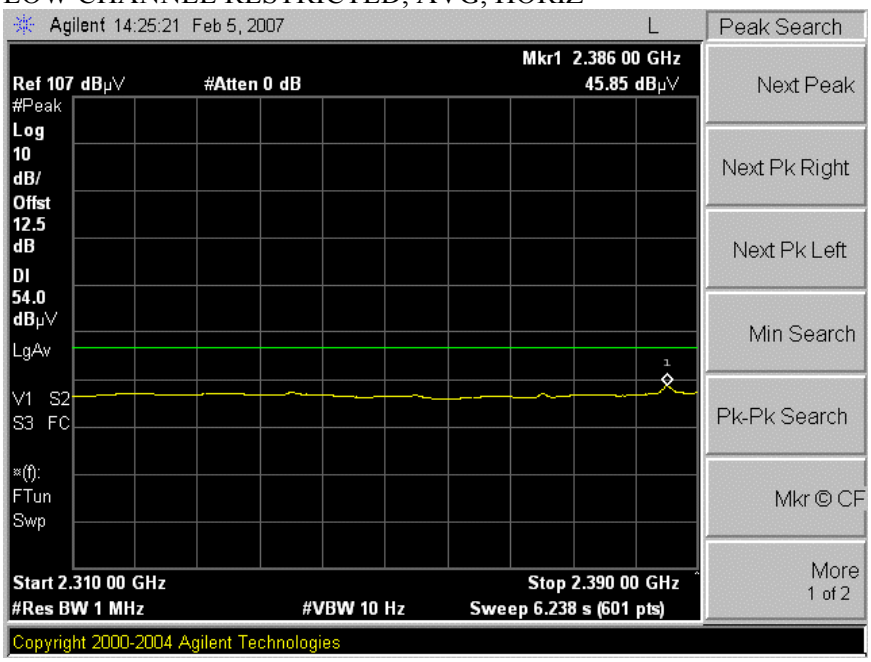
7.1.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

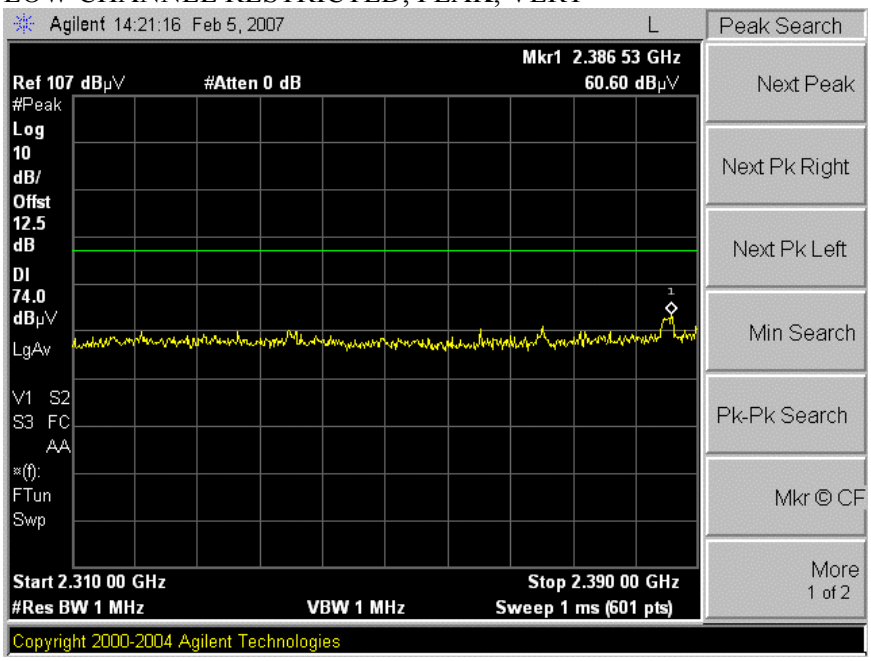


LOW CHANNEL RESTRICTED, AVG, HORIZ

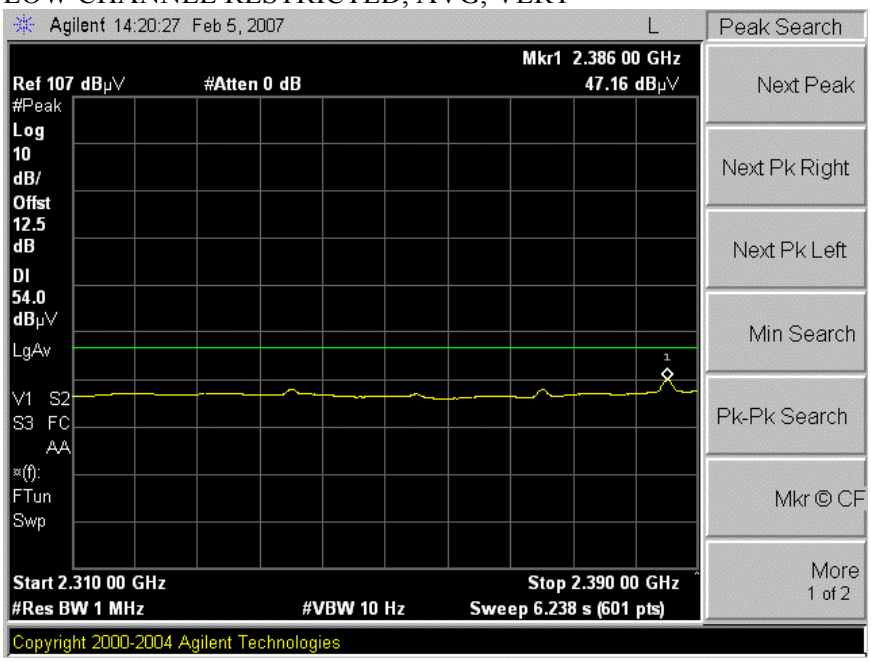


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

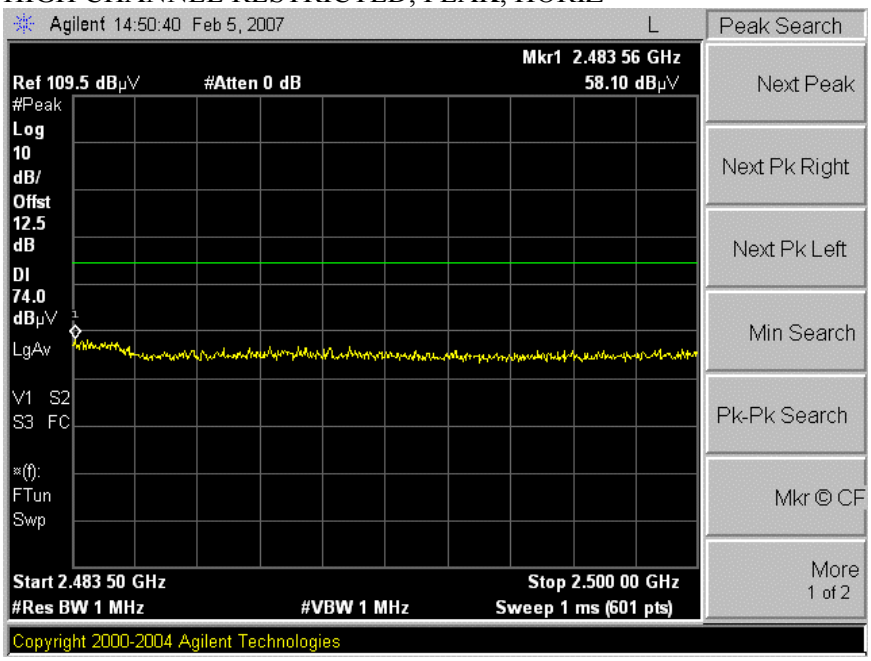


LOW CHANNEL RESTRICTED, AVG, VERT

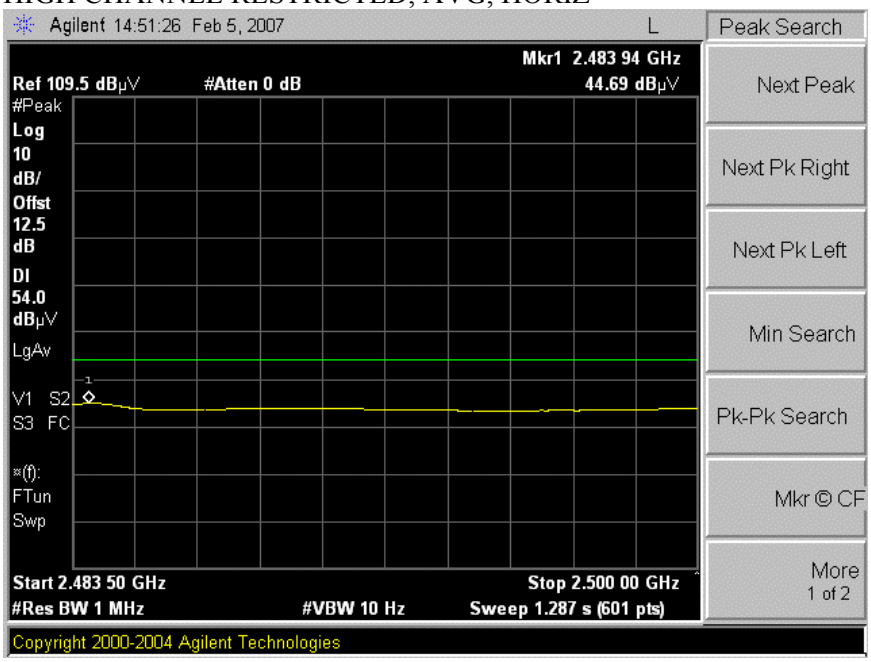


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

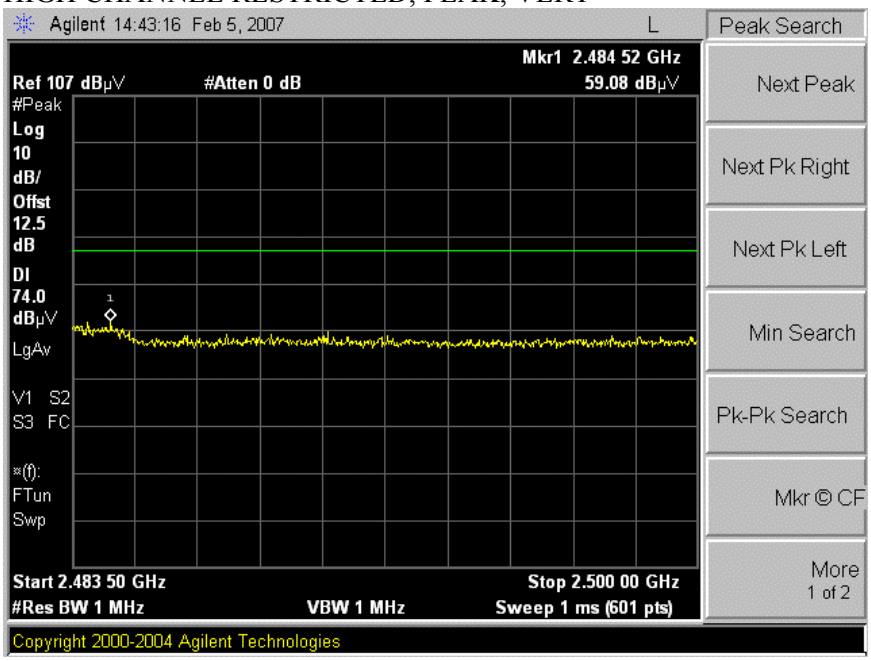


HIGH CHANNEL RESTRICTED, AVG, HORIZ

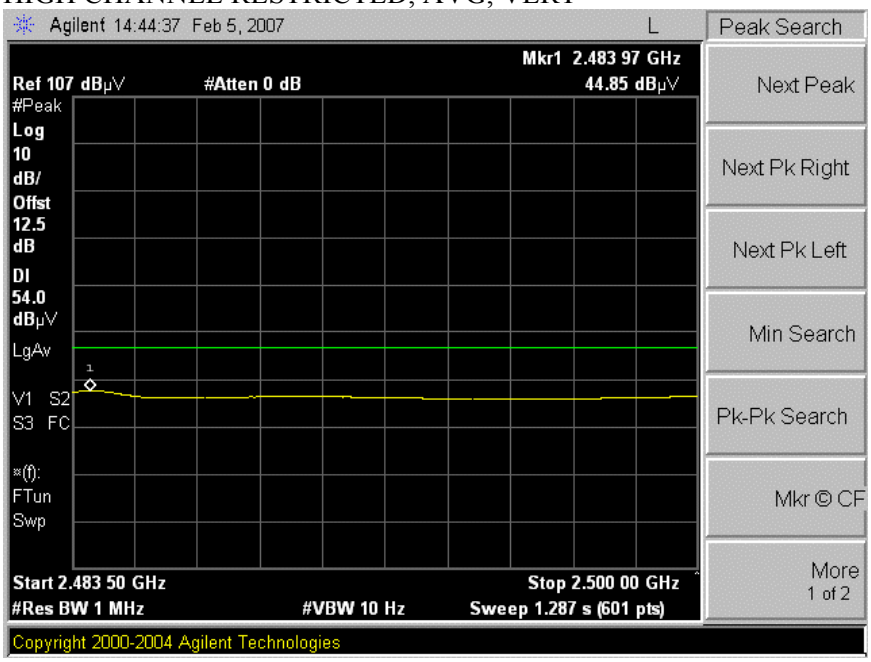


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Morgan Hill Open Field Site

Company:PLANTRONICS, INC.
Project #: 07U10807
Date:02/05/2007
Test Engineer:Thanh Nguyen
Configuration:EUT standalone at worst position.
Mode: Transmit

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Thanh 177079008		Gordon 203134001	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 Channel															
4.804	3.0	53.5	36.9	33.0	6.7	-34.8	0.0	0.6	58.9	42.3	74	54	-15.1	-11.7	H
7.206	3.0	42.9	30.5	35.4	8.8	-34.7	0.0	0.6	53.0	40.5	74	54	-21.0	-13.5	Noise floor
4.804	3.0	54.9	38.1	33.0	6.7	-34.8	0.0	0.6	60.3	43.5	74	54	-13.7	-10.5	V
7.206	3.0	42.5	30.3	35.4	8.8	-34.7	0.0	0.6	52.6	40.4	74	54	-21.4	-13.6	Noise floor
Mid Channel															
4.882	3.0	51.6	36.4	33.1	6.7	-34.9	0.0	0.6	57.2	41.9	74	54	-16.8	-12.1	V
7.323	3.0	43.0	30.1	35.5	8.8	-34.7	0.0	0.6	53.3	40.4	74	54	-20.7	-13.6	Noise floor
4.882	3.0	54.0	37.7	33.1	6.7	-34.9	0.0	0.6	59.5	43.3	74	54	-14.5	-10.7	H
7.323	3.0	41.9	30.0	35.5	8.8	-34.7	0.0	0.6	52.2	40.4	74	54	-21.8	-13.6	Noise floor
															V
High Channel															
4.960	3.0	50.6	36.1	33.1	6.8	-34.9	0.0	0.6	56.3	41.8	74	54	-17.7	-12.2	H
7.440	3.0	43.1	30.4	35.6	8.9	-34.6	0.0	0.6	53.7	41.0	74	54	-20.3	-13.0	Noise floor
4.960	3.0	52.5	36.7	33.1	6.8	-34.9	0.0	0.6	58.2	42.4	74	54	-15.8	-11.6	V
7.440	3.0	43.2	30.4	35.6	8.9	-34.6	0.0	0.6	53.8	41.0	74	54	-20.2	-13.0	Noise floor
No other emissions were detected above 2nd Harmonic															

Rev. 5.1.6

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		

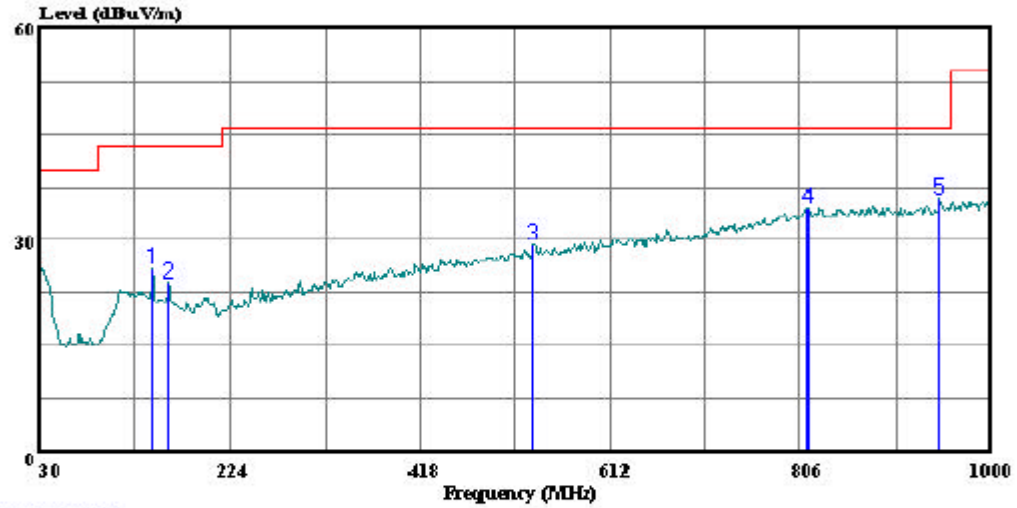
7.1.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

HORIZONTAL PLOT

COMPLIANCE Engineering Services, Inc.
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 8 File#: Clifford.EMI Date: 02-05-2007 Time: 10:49:04



(Audix ATC)
Trace: 7 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Thanh Nguyen
Project #: : 07U10807
Company: : PLANTRONICS, INC.
EUT: : BLUETOOTH HEADSET
Model No. : P590S
Configuration : EUT only
Target of Test : FCC B
Mode of Operation: Transmit worst case

HORIZONTAL DATA

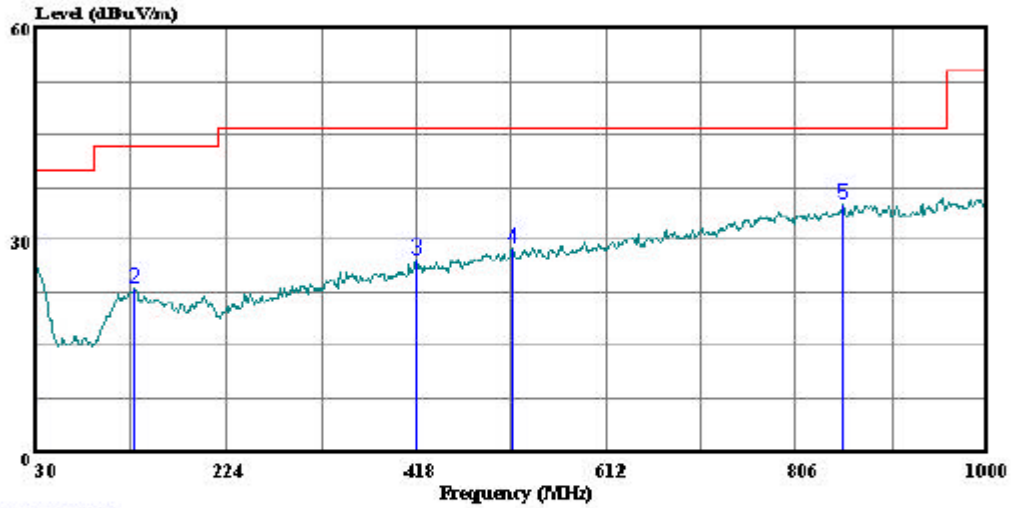
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	145.430	11.37	14.54	25.90	43.50	-17.60	Peak
2	159.980	10.02	13.81	23.83	43.50	-19.67	Peak
3	533.430	8.66	20.70	29.36	46.00	-16.64	Peak
4	812.790	9.71	24.77	34.48	46.00	-11.52	Peak
5	948.590	9.34	26.45	35.79	46.00	-10.21	Peak

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

VERTICAL PLOT

47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1052
Fax: (510) 661-0888

Data#: 6 File#: Clifford.EMI Date: 02-05-2007 Time: 10:42:48



(Audix ATC)

Trace: 5 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Thanh Nguyen
Project #: : 07U10807
Company: : PLANTRONICS, INC.
EUT: : BLUETOOTH HEADSET
Model No. : P950S
Configuration : EUT only
Target of Test : FCC B
Mode of Operation: Transmit worst case

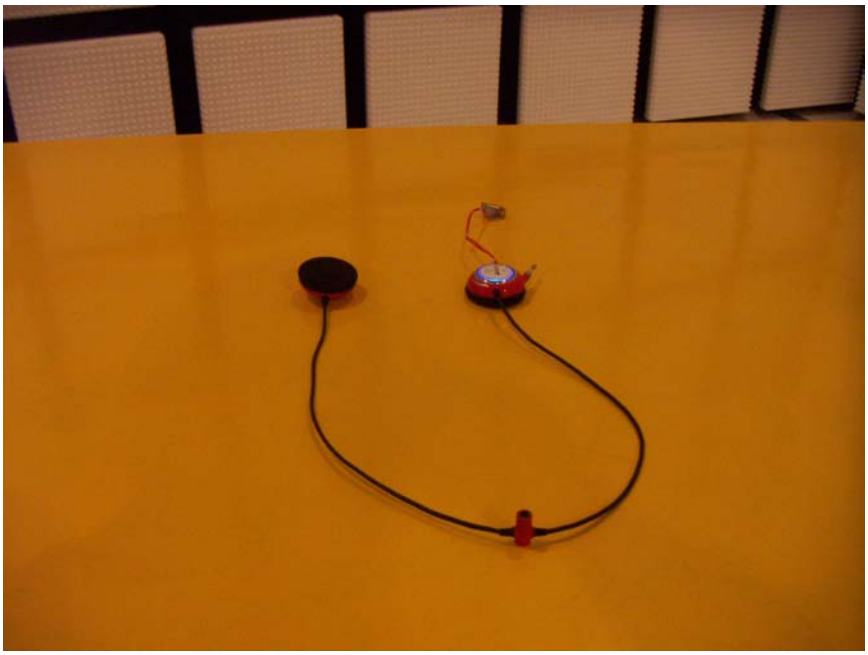
VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	6.15	20.45	26.60	40.00	-13.40	Peak
2	130.880	7.96	15.09	23.05	43.50	-20.45	Peak
3	417.030	8.80	18.47	27.27	46.00	-18.73	Peak
4	516.940	8.24	20.48	28.71	46.00	-17.29	Peak
5	853.530	9.78	25.30	35.08	46.00	-10.92	Peak

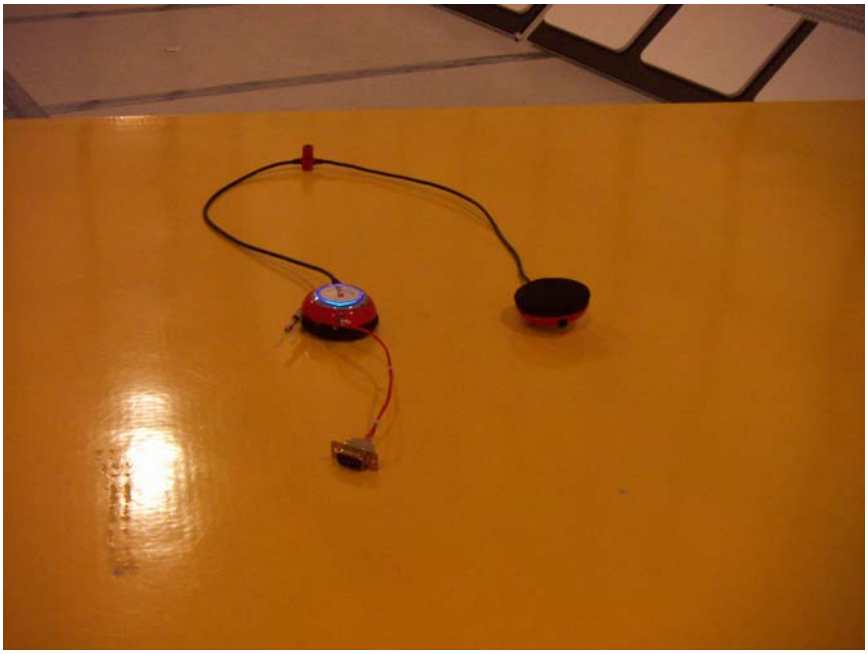
8. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION

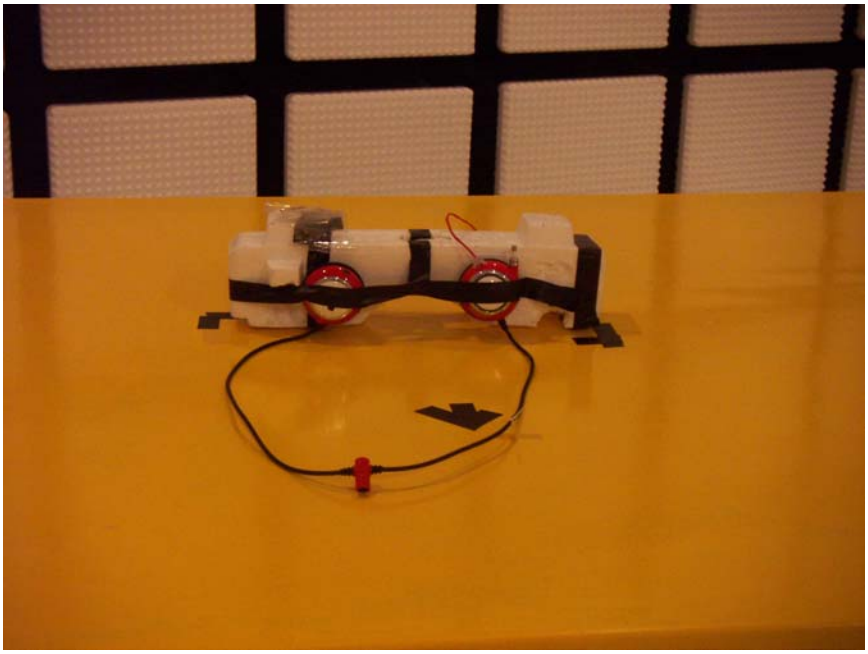
X-AXIS FRONT PHOTO



X-AXIS BACK PHOTO



Y-AXIS FRONT PHOTO



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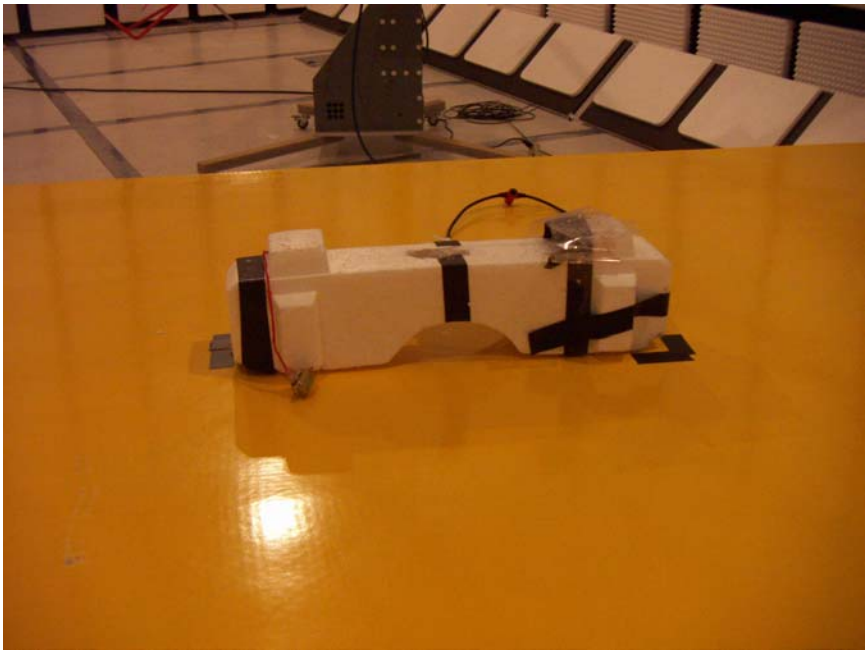
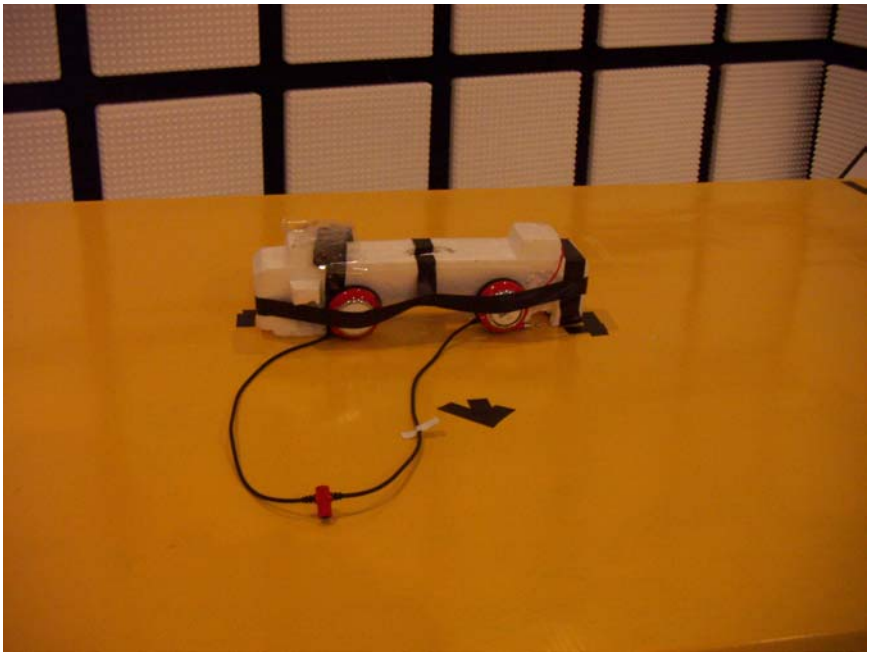
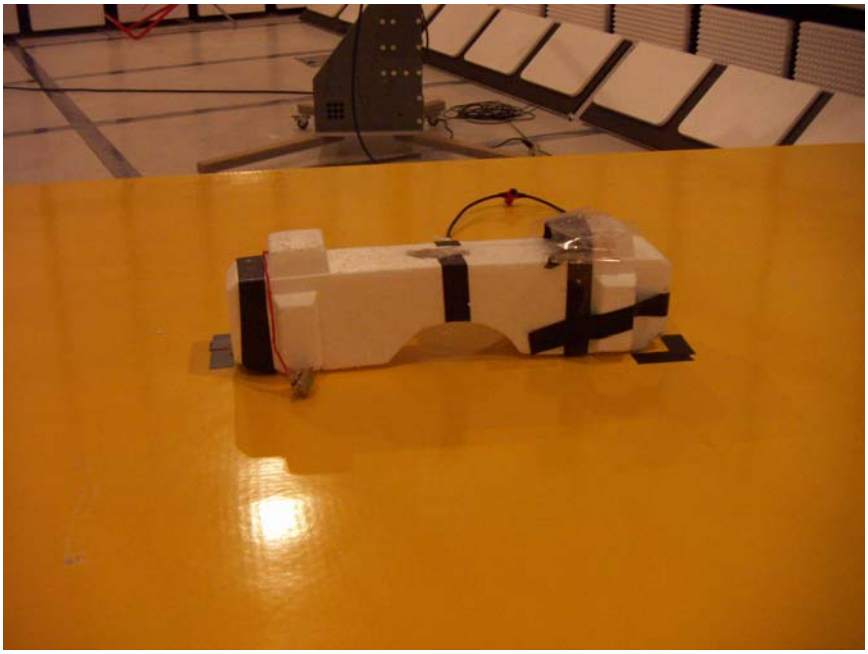


Z-AXIS FRONT PHOTO



Z-AXIS BACK PHOTO



END OF REPORT