EMISSIONS TEST REPORT

Report Number: 3130853BOX-001
Project Number: 3130853

Testing performed on the

BodyBugg

Model: 908902PROD2

To

FCC Part 15 Subpart B

For

BodyMedia, Inc.

Test Performed by:	Test Authorized by:
Intertek – ETL SEMKO	BodyMedia, Inc.
70 Codman Hill Road	4 Smithfield Street Suite 1200
Boxborough, MA 01719	Pittsburgh, PA 15222

Prepared by: _____ Date: 08/17/2007
Nicholas Abbondante

Reviewed by: _____ Date: 08/27/07
Jeff Goulet

1.0 Job Description

1.1 Client Information

This EUT has been tested at the request of:

Company:	BodyMedia, Inc. 4 Smithfield Street Suite 1200 Pittsburgh, PA 15222
Contact:	Mr. Scott Boehmke
Telephone:	412-288-9901 x1041
Fax:	412-288-9902
Email:	skb@bodymedia.com

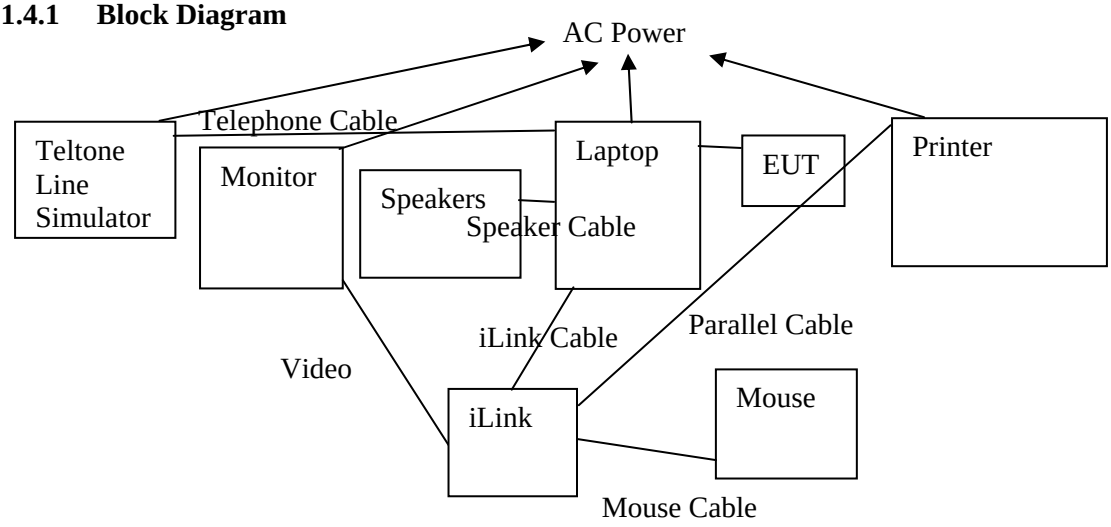
1.2 Equipment Under Test

Equipment Type:	BodyBugg
Model Number(s):	908902PROD2
Serial number(s):	06445006
Manufacturer:	BodyMedia, Inc.
EUT receive date:	08/03/2007
EUT received condition:	Prototype in Good Condition
Test start date:	08/17/2007
Test end date:	08/17/2007

1.3 Test Plan Reference: Tested according to the standards listed and ANSI C63.4:2003.

1.4 Test Configuration

1.4.1 Block Diagram



1.4.2. Cables:

Cable	Shielding	Connector	Length (m)	Qty.
Laptop DC Mains	Braid	Metal/360 Jack	1.8	1
Laptop AC Mains	None	Plastic	0.3	1
Printer Parallel	Braid	Metal/360 DB25	1.7	1
Telephone	None	Plastic RJ11	4.3	1
Video	Braid	Metal/360 DB15	1.5	1
Speaker	None	Metal/Jack	0.8	1
Mouse RS-232	Foil	Metal/360 DB9	2.4	1
Monitor AC Mains	None	Plastic	1.8	1
Teltone Power	None	Plastic	2.3	1
Printer AC Mains	None	Plastic	1.9	1
BodyBugg USB	Braid	Metal/360 USB	1.8	1
Link Port Cable	Braid/Foil	Metal/360	0.2	1

1.4.3. Support Equipment:

Name: Sony Vaio Laptop
Model No.: PCG-5202
Serial No.: 28308633 3220085

Name: Sony i.Link Port Replicator
Model No.: PCGA-UPR5
Serial No.: 28994300 1297622

Name: Sony AC Adapter
Model No.: PCGA-AC19V1
Serial No.: 0039 D 0139326

Name: Epson Stylus Printer
Model No.: P930A
Serial No.: AZN1057576

Name:	Speakers
Model No.:	N/L
Serial No.:	N/L

Name:	Teltone Line Simulator
Model No.:	TLS-5A-02
Serial No.:	032314

Name:	Philips Monitor
Model No.:	105S11
Serial No.:	31308333

Name:	Microsoft Mouse
Model No.:	Serial – PS/2 Compatible Mouse
Serial No.:	0021122

1.5 Mode(s) of Operation:

The EUT was connected to the Sony VAIO host laptop and was powered normally from the USB port. The EUT was not transmitting during testing.

2.0 Test Summary

TEST STANDARD	RESULTS	
FCC Part 15 Subpart B		
SUB-TEST	**TEST PARAMETER**	**COMMENT**
Radiated Emissions	Emissions must be below Class B limits	Pass
AC Line-Conducted Emissions	Emissions must be below Class B limits	Pass

REVISION SUMMARY – The following changes have been made to this Report:

Date	Project No.	Project Handler	Page(s)	Item	Description of Change

3.0 Sample Calculations

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dBμV/m

Level in μV/m = [10(32 dBμV/m)/20] = 39.8 μV/m

The following is how net line-conducted readings were determined:

NF = RF + LF + CF + AF
Where NF = Net Reading in dBμV
RF = Reading from receiver in dBμV
LF = LISN Correction Factor in dB
CF = Cable Correction Factor in dB
AF = Attenuator Loss Factor in dB

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV

Example:

NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 dBμV
$UF = 10^{(48.1\ dB\mu V / 20)}$ = 254 μV/m

3.1 Measurement Uncertainty

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.
The expanded uncertainty (k = 2) for radiated emissions from 30 to 1000 MHz has been determined to be:

±3.5 dB at 10m, ±3.8 dB at 3m

The expanded uncertainty (k = 2) for mains conducted emissions from 150 kHz to 30 MHz has been determined to be:

±2.6 dB

The expanded uncertainty (k = 2) for telecom port conducted emissions from 150 kHz to 30 MHz has been determined to be:

±3.2 for ISN and voltage probe measurements
±3.1 for current probe measurements

3.2 Site Description

Test Site(s): 1

Our OATS are 3m and 10m sheltered emissions measurement ranges located in a light commercial environment in Boxborough, Massachusetts. They meet the technical requirements of ANSI C63.4-2003 and CISPR 22:1993/EN 55022:1994 for radiated and conducted emission measurements. The shelter structure is entirely fiberglass and plastic, with outside dimensions of 33 ft x 57 ft. The structure resembles a quonset hut with a center ceiling height of 16.5 ft.

The testing floor is covered by a galvanized sheet metal groundplane that is earth-grounded via copper rods around the perimeter of the site. The joints between individual metal sheets are bridged with a 2 inch wide metal strips to provide low RF impedance contact throughout. The sheets are screwed in place with stainless steel, round-head screws every three inches. Site illumination and HVAC are provided from beneath the ground reference plane through flush entry ports, the port covers are electrically bonded to the ground plane.

A flush metal turntable with 12 ft. diameter and 5000 lb. load capacity (12,000 lb. in Site 3) is provided for floor-standing equipment. A wooden table 80 cm high is used for table-top equipment. The turntable is electrically connected to the ground plane with three copper straps. The straps are connected to the turntable at the center of it with ground braid. The copper strap is directly connected to the groundplane at the edges of the turntable. The turntable is located on the south end of the structure and the antennas are mounted 3 and 10 meters away to the north. The antenna mast is a non-conductive with remote control of antenna height and polarization. The antenna height is adjustable from 1 to 4 meters.

All final radiated emission measurements are performed with the testing personnel and measurement equipment located below the ground reference plane. The site has a full basement underneath the turntable where support equipment may be remotely located. Operation of the antenna, turntable and equipment under test is controlled by remote controls that manipulate the antenna height and polarization and with a turntable control. Test personnel are located below the ellipse when measurements are performed, however the site maintains the ability of having personnel manipulate cables while monitoring test equipment. Ambient radiated emissions are 6 dB or more below the relevant FCC emission limits.

AC mains power is brought to the equipment under test through a power line filter, to remove ambient conducted noise. 50 Hz (240 VAC single phase), 60 Hz power (120 VAC single phase, 208 VAC three phase), and 60 Hz (480 VAC three phase) are available. Conducted emission measurements are performed with a Line Impedance Stabilization Network (LISN) or Artificial Mains Network (AMN) bonded to the ground reference plane. A removable vertical groundplane (2 meter X 2 meter area) is used for line-conducted measurements for table top equipment. The vertical groundplane is electrically connected to the reference groundplane.

The EMC Lab has two Semi-anechoic Chambers and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference groundplanes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

Test Results: Pass

Test Standard: FCC Part 15 Subpart B

Test: Radiated Emissions

Performance Criterion: Emissions must be below Class B limits

Test Environment:

Environmental Conditions During Testing:		Ambient (°C):	21	Humidity (%):	72	Pressure (hPa):	1001
Pretest Verification Performed		Yes		Equipment under Test:		908902PROD2	
Test Engineer(s):	Nicholas Abbondante			EUT Serial Number:		06445006	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR1	05/20/2008
2	EMI Receiver	Hewlett Packard	8542E/85420 E	145-092	02/16/2008
3	10 Meter in floor cable for site 1	ITS	RG214B/U	S1 10M FLR	09/08/2007
4	ANTENNA	EMCO	3142	9711-1223	02/06/2008

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

Test Results:

Radiated Emissions

Company: BodyMedia, Inc. | Antenna & Cables: N | Bands: N, LF, HF, SHF
Model #: 908902PROD2 | Antenna: LOG2 02-06-08 V10.txt | LOG2 02-06-08 H10.txt
Serial #: 06445006 | Cable(s): Site1, 10m Floor 9-8-07.cbl | NONE.
Engineers: Nicholas Abbondante | Location: Site 1 | Barometer: BAR1
Project #: 3130853 | Date(s): 08/17/07
Standard: FCC Part 15 Subpart B Class B | Temp/Humidity/Pressure: 21c | 72% | 1001mB
Receiver: HP 8542E (145-092) | Limit Distance (m): 3
PreAmp: NONE. | Test Distance (m): 10
PreAmp Used? (Y or N): N | Voltage/Frequency: 120V/60Hz | Frequency Range: 30-1000 MHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC
QP	V	31.480	9.9	16.1	0.8	0.0	-10.5	37.3	40.0	-2.7	120/300 kHz	
QP	V	73.910	10.2	6.5	1.3	0.0	-10.5	28.5	40.0	-11.5	120/300 kHz	RB
QP	V	130.100	11.7	6.6	1.9	0.0	-10.5	30.7	43.5	-12.8	120/300 kHz	RB
QP	V	137.000	8.7	7.0	2.0	0.0	-10.5	28.1	43.5	-15.4	120/300 kHz	RB
QP	V	149.100	7.7	8.4	2.1	0.0	-10.5	28.6	43.5	-14.9	120/300 kHz	
QP	V	164.100	5.2	9.2	2.2	0.0	-10.5	27.1	43.5	-16.4	120/300 kHz	RB
QP	V	230.600	10.7	11.8	2.6	0.0	-10.5	35.6	46.0	-10.4	120/300 kHz	
QP	V	298.900	15.7	13.7	3.0	0.0	-10.5	42.8	46.0	-3.2	120/300 kHz	
QP	V	330.100	2.0	14.6	3.3	0.0	-10.5	30.3	46.0	-15.7	120/300 kHz	RB
QP	V	362.800	-0.9	15.7	3.5	0.0	-10.5	28.8	46.0	-17.2	120/300 kHz	
QP	V	384.100	8.2	16.2	3.6	0.0	-10.5	38.4	46.0	-7.6	120/300 kHz	
QP	V	395.800	6.9	16.4	3.6	0.0	-10.5	37.4	46.0	-8.6	120/300 kHz	
QP	H	892.300	3.4	23.9	8.0	0.0	-10.5	45.7	46.0	-0.3	120/300 kHz	

FCC Part 15 Subpart B Radiated Emissions Setup Photos

FCC Part 15 Subpart B Radiated Emissions Setup Photos

Test Results: Pass

Test Standard: FCC Part 15 Subpart B

Test: AC Line-Conducted Emissions

Performance Criterion: Emissions must be below Class B limits

Test Environment:

Environmental Conditions During Testing:		Ambient (°C):	21	Humidity (%):	72	Pressure (hPa):	1001
Pretest Verification Performed		Yes		Equipment under Test:		908902PROD2	
Test Engineer(s):	Nicholas Abbondante			EUT Serial Number:		06445006	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	**Equipment Type**	**Make**	**Model No.**	**Serial No.**	**Next Cal. Due**
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR1	05/20/2008
2	EMI Receiver	Hewlett Packard	8542E/85420E	145-092	02/16/2008
3	Cable, BNC - BNC, 15' long	Belden	RG-58/U	CBL022	01/04/2008
4	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS20	01/04/2008
5	LISN, 50uH, .01 - 50MHz, 24A	Solar Electronics	9252-50-R-24-BNC	941714	10/11/2008

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	3/07/07 Revision

Test Results:

Conducted Emissions

Company:	BodyMedia, Inc.	Receiver:	HP 8542E (145-092)
Model #:	908902PROD2	Cable:	CBL022 01-04-08.txt
Serial #:	06445006	LISN 1:	LISN12 [1] 10-11-07.txt
Engineer(s):	Nicholas Abbondante	LISN 2:	LISN12 [2] 10-11-07.txt
Project #:	3130853	LISN 3:	NONE.
Standard:	FCC Part 15 Subpart B Class B	LISN 4:	NONE.
Barometer:	BAR1	Attenuator:	DS20 01-04-08.txt

Location: Site 1 Date: 08/17/07 Temp/Humidity/Pressure: 21c 72% 1001mB

Voltage/Frequency: 120V/60Hz Frequency Range: 150 kHz - 30 MHz

Net is the sum of worst-case lisn, cable, & attenuator losses, and initial reading, factors are not shown

Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor; Bandwidth denoted as RBW/VBW

Detector Type	Frequency MHz	Reading Line 1 dB(uV)	Reading Line 2 dB(uV)	Reading Line 3 dB(uV)	Reading Line 4 dB(uV)	Net dB(uV)	QP Limit dB(uV)	Margin dB	Bandwidth
QP	0.174	29.2	30.1			51.8	64.8	-13.0	9/30 kHz
QP	0.234	20.5	22.5			44.1	62.3	-18.3	9/30 kHz
QP	0.337	13.5	13.6			35.1	59.3	-24.2	9/30 kHz
QP	6.050	8.6	8.9			30.5	60.0	-29.5	9/30 kHz
QP	17.570	-3.6	-8.9			18.0	60.0	-42.0	9/30 kHz
QP	21.720	-8.0	-3.8			19.6	60.0	-40.4	9/30 kHz
QP	24.710	-7.1	-9.0			19.5	60.0	-40.5	9/30 kHz
QP	28.580	-7.8	-3.5			27.1	60.0	-32.9	9/30 kHz

Detector Type	Frequency MHz	Reading Line 1 dB(uV)	Reading Line 2 dB(uV)	Reading Line 3 dB(uV)	Reading Line 4 dB(uV)	Net dB(uV)	Average Limit dB(uV)	Margin dB	Bandwidth
AVG	0.174	15.9	17.2			38.9	54.8	-15.9	9/30 kHz
AVG	0.234	8.7	11.3			32.9	52.3	-19.5	9/30 kHz
AVG	0.337	-7.8	-6.1			15.4	49.3	-33.9	9/30 kHz
AVG	6.050	6.9	6.3			28.5	50.0	-21.5	9/30 kHz
AVG	17.570	-9.8	-15.4			11.8	50.0	-38.2	9/30 kHz
AVG	21.720	-14.8	-10.3			13.1	50.0	-36.9	9/30 kHz
AVG	24.710	-12.6	-14.6			14.0	50.0	-36.0	9/30 kHz
AVG	28.580	-14.1	-9.8			20.8	50.0	-29.2	9/30 kHz

FCC Part 15 Subpart B AC Line-Conducted Emissions Setup Photos

FCC Part 15 Subpart B AC Line-Conducted Emissions Setup Photos