


EMISSION TEST REPORT**Report Number: 3095618BOX.006****Project Number: 3095618****Testing performed on the****SenseWear Pro3 Wireless Communicator****Model: 908902PROD2****To****Basic Standards from FCC Part 15 Subparts B & C
(FCC § 15.109, § 15.249)****For****BodyMedia**

Test Performed by:
Intertek – ETL SEMKO
70 Codman Hill Road
Boxborough, MA 01719

Test Authorized by:
BodyMedia
4 Smithfield Street
Suite 1200
Pittsburgh, PA 15222


Prepared by:


Vathana F. Ven

Date:

4/28/06

Reviewed by:


Michael F. Murphy

Date:

4-28-06

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1.0 Job Description

1.1 Client Information

This EUT has been tested at the request of:

Company: BodyMedia
4 Smithfield Street
Suite 1200
Pittsburg, PA 15222
Contact: Maria Fattore-Gill
Telephone: 412-288-9901
Fax: 412-288-9902
Email: maria@bodymedia.com

1.1 Equipment Under Test:

Equipment Type: SenseWear Pro3 Wireless Communicator
Model Number(s): 908902PROD2
Serial number(s): BOX0604141312-005
Manufacturer: BodyMedia
EUT receive date: April 14, 2006
EUT received condition: A production unit was received with no visible damage.
Test start date: April 21, 2006
Test end date: April 27, 2006

1.2 Test Plan Reference: ANSI C63.4-2005

1.3 Test Configuration:

1.3.1 EUT Voltage Range:

The EUT operates at a voltage of 120/230 Vac 50/60 Hz via pc.

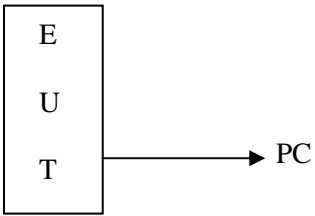
1.3.2 Cables:

Description	Shielding	Connector	Length (m)	Qty.
USB Cable	Braid	Metal/360	1	1
AC Mains Cable	None	Plastic	2	1

1.3.3 Support Equipment:

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

1.3.4 Block Diagram:

**1.4 Mode(s) of Operation:**

The Wireless Communicator was plugged into the USB port of a laptop computer which was powered from the AC mains. During all tests, the Wireless Communicator were transmitting to each other in a continuous loop.

1.5 EUT Cycle Time:

Continuous.

1.6 Monitoring of Sample:

N/A

1.7 Sample Performance Criteria:

Below specified limits.

1.8 Floor Standing Equipment: Applicable:___ Not Applicable: X

For floor standing equipment, 40cm RFI field uniformity data is located in the chamber equipment folder.

2.0 Test Summary

TEST STANDARD	RESULTS	
Basic Standards from FCC Part 15 Subpart C, Section 249 & FCC Part 15 Subpart B, Class B		
SUB-TEST	TEST PARAMETER	COMMENT
FCC § 15.209, § 15.109 FCC § 15.249	Radiated Emissions	Pass
FCC § 15.207, § 15.107	Line-conducted Emissions	Pass

Notes:

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

<u>Date</u>	<u>Project</u> <u>No.</u>	<u>Project</u> <u>Handler</u>	<u>Page(s)</u>	<u>Item</u>	<u>Description of Change</u>
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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 dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- 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 dB μ V 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 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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

$$\text{Level in } \mu\text{V/m} = [10(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

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

$$NF = RF + LF + CF + AF$$

Where

- NF = Net Reading in dB μ V
- RF = Reading from receiver in dB μ V
- LF = LISN Correction Factor in dB
- CF = Cable Correction Factor in dB
- AF = Attenuator Loss Factor in dB

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where UF = Net Reading in } \mu\text{V}$$

Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V} / 20)} = 254 \mu\text{V/m}$$

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): 2

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: Basic Standards from FCC § 15.109, FCC § 15.209, FCC § 15.249

Test: Radiated emissions

Performance Criterion: Readings below specified limits

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	31 23	Pressure (hPa):	993 999	Ambient (°C):	22 23
Pretest Verification Performed	Yes		Equipment under Test:		SenseWear Pro3 Wireless Communicator	

Maximum Test Disturbance Parameters: Readings below specified limits.

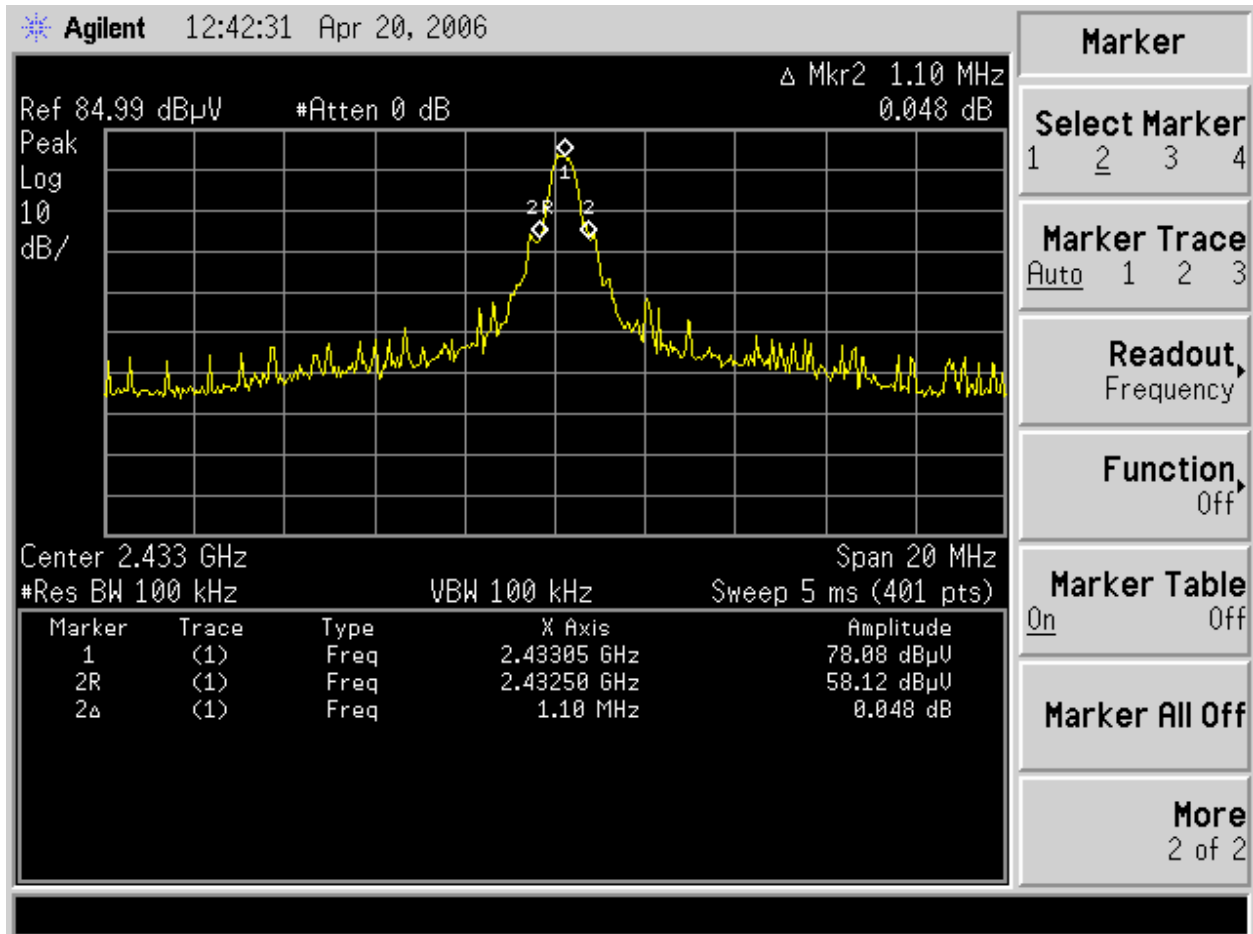
Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	ANTENNA	EMCO	3142	9701-1116	11/10/2006
2	Spectrum Analyzer 20hz - 40 Ghz	Rohde & Schwartz	FSEK-30	100225	07/26/2006
3	3 Meter In floor cable for site 2	ITS	RG214B/U	S2 3M FLR	09/02/2006
4	HORN ANTENNA	EMCO	3115	9602-4675	09/13/2006
5	High Frequency Cable 40Ghz	Megaphase	TM40 K1K1 197	CBL028	12/12/2006
6	High Frequency Cable 40Ghz	Megaphase	TM40 K1K1 80	CBL030	12/12/2006
7	PREAMPLIFIER 1-40 GHz	MITEQ	NSP4000-NF	507145	11/21/2006
8	EMI Receiver Set W/RF Filter	Hewlett Packard	8542E	3520A00125	02/08/2007
9	Spectrum Analyzer	Agilent	E7405A	US40240205	08/09/2006

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	2/07/05 Revision

Test Results:



Test Results Continue:

Channel 0 Radiated Emissions

Company: BodyMedia
 Model #: 908902PROD2
 Serial #: BOX0604141312-005
 Engineers: Vathana Ven
 Project #: 3095618
 Standard: FCC § 15.109, FCC § 15.209, FCC § 15.249
 Receiver: HP 8542E (REC2/RECFL2)
 PreAmp: PRE8 11-21-06.amp
 Barometer: BAR2
 Temp/Humidity/Pressure: 22/31%/993 22/31%/998
 PreAmp Used? (Y or N): N
 Location: Site 2
 Date(s): 04/26/06 04/27/06
 Limit Distance (m): 10
 Test Distance (m): 3
 Voltage/Frequency: 120/230 V 50/60 Hz
 Frequency Range: 30 MHz - 1 GHz
 Antenna & Cables: N Bands: N, LF, HF, SHF
 LF Antenna: NONE.
 N Antenna: LOG1 11-10-06 V3.ant
 HF Antenna: EMC02 8-11-06 V3m.ant
 SHF Antenna: EMC04 V 1m 12-13-2006.txt
 LF Cable(s): NONE.
 N Cable(s): S2 3M FLR 9-2-2006.cbl
 HF Cable(s): CBL028 12-12-2006.txt
 SHF Cable(s): NONE.
 EMC02 8-11-06 H3m.ant
 EMC04 H 1m 12-13-2006.txt
 NONE.
 NONE.
 CBL030 12-12-2006.txt
 NONE.
 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
QP	V	195.300	14.3	10.4	2.1	0.0	10.5	16.3	30.0	-13.7	120/300 kHz
QP	H	232.000	17.9	11.9	2.1	0.0	10.5	21.5	37.0	-15.5	120/300 kHz
QP	H	240.050	18.9	12.2	2.1	0.0	10.5	22.7	37.0	-14.3	120/300 kHz
QP	H	296.400	25.8	13.9	2.1	0.0	10.5	31.3	37.0	-5.7	120/300 kHz
QP	H	329.300	19.3	14.8	2.2	0.0	10.5	25.8	37.0	-11.2	120/300 kHz
QP	H	336.000	17.7	15.0	2.3	0.0	10.5	24.6	37.0	-12.4	120/300 kHz
QP	H	395.100	11.2	16.5	2.6	0.0	10.5	19.9	37.0	-17.1	120/300 kHz
QP	H	493.800	21.8	18.2	2.9	0.0	10.5	32.4	37.0	-4.6	120/300 kHz

Radiated Emissions

Company: BodyMedia
 Model #: 908902PROD2
 Serial #: BOX0604141312-005
 Engineers: Vathana Ven
 Project #: 3095618
 Standard: FCC § 15.109, FCC § 15.209, FCC § 15.249
 Receiver: HP 8542E (REC2/RECFL2)
 PreAmp: PRE8 11-21-06.amp
 Barometer: BAR2
 Temp/Humidity/Pressure: 22/31/993
 PreAmp Used? (Y or N): Y
 Location: Site 2
 Date(s): 04/26/06
 Limit Distance (m): 3
 Test Distance (m): 3
 Voltage/Frequency: Battery power
 Frequency Range: 30 MHz - 1 GHz
 Antenna & Cables: HF Bands: N, LF, HF, SHF
 LF Antenna: NONE.
 N Antenna: LOG1 11-10-06 V3.ant
 HF Antenna: EMC02 8-11-06 V3m.ant
 SHF Antenna: EMC04 V 1m 12-13-2006.txt
 LF Cable(s): NONE.
 N Cable(s): S2 3M FLR 9-2-2006.cbl
 HF Cable(s): CBL028 12-12-2006.txt
 SHF Cable(s): NONE.
 EMC02 8-11-06 H3m.ant
 EMC04 H 1m 12-13-2006.txt
 NONE.
 NONE.
 CBL030 12-12-2006.txt
 NONE.
 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	IC
PK	H	1091.000	42.0	24.4	2.8	20.7	0.0	48.5	54.0	-5.5	1/3 MHz	RB	RB
AVG	H	1091.000	16.1	24.4	2.8	20.7	0.0	22.6	54.0	-31.4	1/3 MHz	RB	RB
PK	V	1291.000	43.9	24.7	3.1	20.8	0.0	50.9	54.0	-3.1	1/3 MHz		RB
AVG	V	1291.000	27.5	24.7	3.1	20.8	0.0	34.5	54.0	-19.5	1/3 MHz		RB
PK	V	2433.000	60.6	28.3	4.6	0.0	0.0	93.5	108.0	-14.5	1/3 MHz		
PK	H	4866.000	42.2	33.1	6.9	22.5	0.0	59.7	74.0	-14.3	1/3 MHz	RB	RB
AVG	H	4866.000	36.0	33.1	6.9	22.5	0.0	53.5	54.0	-0.5	1/3 MHz	RB	RB
PK	H	7299.000	32.4	36.0	9.0	21.4	0.0	56.0	74.0	-18.0	1/3 MHz	RB	RB
AVG	H	7299.000	30.0	36.0	9.0	21.4	0.0	53.6	54.0	-0.4	1/3 MHz	RB	RB
PK	H	9732.000	28.7	38.0	11.2	19.0	0.0	58.9	74.0	-15.1	1/3 MHz		
AVG	H	9732.000	19.5	38.0	11.2	19.0	0.0	49.7	54.0	-4.3	1/3 MHz		

Test Results Continue:

Channel 90 Radiated Emissions

Company: BodyMedia
 Model #: 908902PROD2
 Serial #: BOX0604141312-005
 Engineers: Vathana Ven
 Project #: 3095618
 Standard: FCC § 15.109, FCC § 15.209, FCC § 15.249
 Receiver: HP 8542E (REC2/RECFL2)
 PreAmp: PRE8 11-21-06.amp
 Barometer: BAR2
 Temp/Humidity/Pressure: 22/31%/993 22/31%/998
 Location: Site 2
 Date(s): 04/26/06 04/27/06
 Limit Distance (m): 10
 Test Distance (m): 3
 Voltage/Frequency: 120/230 V 50/60 Hz
 Frequency Range: 30 MHz - 1 GHz
 Antenna & Cables: N Bands: N, LF, HF, SHF
 LF Antenna: NONE.
 N Antenna: LOG1 11-10-06 V3.ant
 HF Antenna: EMC02 8-11-06 V3m.ant
 SHF Antenna: EMC04 V 1m 12-13-2006.txt
 LF Cable(s): NONE.
 N Cable(s): S2 3M FLR 9-2-2006.cbl
 HF Cable(s): CBL028 12-12-2006.txt
 SHF Cable(s): NONE.
 Bands: N, LF, HF, SHF
 NONE.
 LOG1 11-10-06 H3.ant
 EMC02 8-11-06 H3m.ant
 EMC04 H 1m 12-13-2006.txt
 NONE.
 NONE.
 CBL030 12-12-2006.txt
 NONE.
 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
QP	V	195.300	14.3	10.4	2.1	0.0	10.5	16.3	30.0	-13.7	120/300 kHz
QP	H	232.000	17.9	11.9	2.1	0.0	10.5	21.5	37.0	-15.5	120/300 kHz
QP	H	240.050	18.9	12.2	2.1	0.0	10.5	22.7	37.0	-14.3	120/300 kHz
QP	H	296.400	25.8	13.9	2.1	0.0	10.5	31.3	37.0	-5.7	120/300 kHz
QP	H	329.300	19.3	14.8	2.2	0.0	10.5	25.8	37.0	-11.2	120/300 kHz
QP	H	336.000	17.7	15.0	2.3	0.0	10.5	24.6	37.0	-12.4	120/300 kHz
QP	H	395.100	11.2	16.5	2.6	0.0	10.5	19.9	37.0	-17.1	120/300 kHz
QP	H	493.800	21.8	18.2	2.9	0.0	10.5	32.4	37.0	-4.6	120/300 kHz

Radiated Emissions

Company: BodyMedia
 Model #: 908902PROD2
 Serial #: BOX0604141312-005
 Engineers: Vathana Ven
 Project #: 3095618
 Standard: FCC Part 15 Subpart B Class B
 Receiver: HP 8542E (REC2/RECFL2)
 PreAmp: PRE8 11-21-06.amp
 Barometer: BAR2
 Temp/Humidity/Pressure: 22/31%/993
 Location: Site 2
 Date(s): 04/26/06
 Limit Distance (m): 3
 Test Distance (m): 3
 Voltage/Frequency: 120/230 V 50/60 Hz
 Frequency Range: 30 MHz - 1 GHz
 Antenna & Cables: HF Bands: N, LF, HF, SHF
 LF Antenna: NONE.
 N Antenna: LOG1 11-10-06 V3.ant
 HF Antenna: EMC02 8-11-06 V3m.ant
 SHF Antenna: EMC04 V 1m 12-13-2006.txt
 LF Cable(s): NONE.
 N Cable(s): S2 3M FLR 9-2-2006.cbl
 HF Cable(s): CBL028 12-12-2006.txt
 SHF Cable(s): NONE.
 Bands: N, LF, HF, SHF
 NONE.
 LOG1 11-10-06 H3.ant
 EMC02 8-11-06 H3m.ant
 EMC04 H 1m 12-13-2006.txt
 NONE.
 NONE.
 CBL030 12-12-2006.txt
 NONE.
 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	IC
PK	H	1091.000	42.0	24.4	2.8	20.7	0.0	48.5	54.0	-5.5	1/3 MHz	RB	RB
AVG	H	1091.000	16.1	24.4	2.8	20.7	0.0	22.6	54.0	-31.4	1/3 MHz	RB	RB
PK	V	1291.000	43.9	24.7	3.1	20.8	0.0	50.9	54.0	-3.1	1/3 MHz	RB	RB
AVG	V	1291.000	27.5	24.7	3.1	20.8	0.0	34.5	54.0	-19.5	1/3 MHz	RB	RB
PK	H	2450.980	59.7	28.5	4.6	0.0	0.0	92.8	108.0	-15.2	1/3 MHz	RB	RB
PK	H	4901.960	41.0	33.2	6.9	22.6	0.0	58.5	74.0	-15.5	1/3 MHz	RB	RB
AVG	H	4901.960	34.0	33.2	6.9	22.6	0.0	51.5	54.0	-2.5	1/3 MHz	RB	RB
PK	H	7352.940	38.5	36.2	9.0	21.3	0.0	62.3	74.0	-11.7	1/3 MHz	RB	RB
AVG	H	7352.940	29.9	36.2	9.0	21.3	0.0	53.7	54.0	-0.3	1/3 MHz	RB	RB
PK	H	9803.920	30.3	38.1	11.3	19.0	0.0	60.7	74.0	-13.3	1/3 MHz	RB	RB
AVG	H	9803.920	20.0	38.1	11.3	19.0	0.0	50.4	54.0	-3.6	1/3 MHz	RB	RB

Test Results Continue:

Channel 180 Radiated Emissions

Company: BodyMedia
Model #: 908902PROD2
Serial #: BOX0604141312-005
Engineers: Vathana Ven
Project #: 3095618
Standard: FCC § 15.109, FCC § 15.209, FCC § 15.249
Receiver: HP 8542E (REC2/RECFL2)
PreAmp: PRE8 11-21-06.amp
Barometer: BAR2
Temp/Humidity/Pressure: 22/31%/993 22/31%/998
PreAmp Used? (Y or N): N
Voltage/Frequency: 120/230 V 50/60 Hz
Antenna & Cables: N Bands: N, LF, HF, SHF
LF Antenna: NONE.
N Antenna: LOG1 11-10-06 V3.ant
HF Antenna: EMC02 8-11-06 V3m.ant
SHF Antenna: EMC04 V 1m 12-13-2006.txt
LF Cable(s): NONE.
N Cable(s): S2 3M FLR 9-2-2006.cbl
HF Cable(s): CBL028 12-12-2006.txt
SHF Cable(s): NONE.
Bands: N, LF, HF, SHF
NONE.
LOG1 11-10-06 H3.ant
EMC02 8-11-06 H3m.ant
EMC04 H 1m 12-13-2006.txt
NONE.
NONE.
CBL030 12-12-2006.txt
Frequency Range: 30 MHz - 1 GHz
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
QP	V	195.300	14.3	10.4	2.1	0.0	10.5	16.3	30.0	-13.7	120/300 kHz
QP	H	232.000	17.9	11.9	2.1	0.0	10.5	21.5	37.0	-15.5	120/300 kHz
QP	H	240.050	18.9	12.2	2.1	0.0	10.5	22.7	37.0	-14.3	120/300 kHz
QP	H	296.400	25.8	13.9	2.1	0.0	10.5	31.3	37.0	-5.7	120/300 kHz
QP	H	329.300	19.3	14.8	2.2	0.0	10.5	25.8	37.0	-11.2	120/300 kHz
QP	H	336.000	17.7	15.0	2.3	0.0	10.5	24.6	37.0	-12.4	120/300 kHz
QP	H	395.100	11.2	16.5	2.6	0.0	10.5	19.9	37.0	-17.1	120/300 kHz
QP	H	493.800	21.8	18.2	2.9	0.0	10.5	32.4	37.0	-4.6	120/300 kHz

Radiated Emissions

Company: BodyMedia
Model #: 908902PROD2
Serial #: BOX0604141312-005
Engineers: Vathana Ven
Project #: 3095618
Standard: FCC Part 15 Subpart B Class B
Receiver: HP 8542E (REC2/RECFL2)
PreAmp: PRE8 11-21-06.amp
Barometer: BAR2
Temp/Humidity/Pressure: 22/31%/993
PreAmp Used? (Y or N): Y
Voltage/Frequency: 120/230 V 50/60 Hz
Antenna & Cables: HF Bands: N, LF, HF, SHF
LF Antenna: NONE.
N Antenna: LOG1 11-10-06 V3.ant
HF Antenna: EMC02 8-11-06 V3m.ant
SHF Antenna: EMC04 V 1m 12-13-2006.txt
LF Cable(s): NONE.
N Cable(s): S2 3M FLR 9-2-2006.cbl
HF Cable(s): CBL028 12-12-2006.txt
SHF Cable(s): NONE.
Bands: N, LF, HF, SHF
NONE.
LOG1 11-10-06 H3.ant
EMC02 8-11-06 H3m.ant
EMC04 H 1m 12-13-2006.txt
NONE.
NONE.
CBL030 12-12-2006.txt
Frequency Range: 30 MHz - 1 GHz
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	IC
PK	H	1091.000	42.0	24.4	2.8	20.7	0.0	48.5	54.0	-5.5	1/3 MHz	RB	RB
AVG	H	1091.000	16.1	24.4	2.8	20.7	0.0	22.6	54.0	-31.4	1/3 MHz	RB	RB
PK	V	1291.000	43.9	24.7	3.1	20.8	0.0	50.9	54.0	-3.1	1/3 MHz	RB	RB
AVG	V	1291.000	27.5	24.7	3.1	20.8	0.0	34.5	54.0	-19.5	1/3 MHz	RB	RB
PK	H	2469.100	59.6	28.5	4.6	0.0	0.0	92.7	108.0	-15.3	1/3 MHz	RB	RB
PK	H	4938.332	42.9	33.3	6.9	22.6	0.0	60.5	74.0	-13.5	1/3 MHz	RB	RB
AVG	H	4938.332	35.3	33.3	6.9	22.6	0.0	52.9	54.0	-1.1	1/3 MHz	RB	RB
PK	H	7407.093	37.9	36.3	9.0	21.3	0.0	61.9	74.0	-12.1	1/3 MHz	RB	RB
AVG	H	7407.093	28.5	36.3	9.0	21.3	0.0	52.5	54.0	-1.5	1/3 MHz	RB	RB
PK	H	9876.400	30.3	38.1	11.4	18.9	0.0	60.8	74.0	-13.2	1/3 MHz	RB	RB
AVG	H	9876.400	20.0	38.1	11.4	18.9	0.0	50.5	54.0	-3.5	1/3 MHz	RB	RB

FCC Part 15 Subpart C Radiated emissions setup photos



Test Results: Pass

Test Standard: Basic Standards from FCC § 15.107, § 15.207

Test: Line-Conducted Emissions

Performance Criterion: Below Class B Limits

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	32	Pressure (hPa):	1000	Ambient (°C):	20
Pretest Verification Performed	Yes		Equipment under Test:		SenseWear Pro3 Wireless Communicator	

Maximum Test Disturbance Parameters: N/A

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	EMI Receiver Set W/RF Filter	Hewlett Packard	8542E	3520A00125	02/28/2007
2	LISN, 50uH, .01 - 50MHz, 24A	Solar Electronics	9252-50-R-24-BNC	941713	07/05/2007
3	Cable, BNC - BNC, 15' long	Belden	RG-58/U	CBL022	01/03/2007
4	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	08/02/2007
5	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS24	08/12/2006

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	2/07/05 Revision

Test Results:

Conducted Emissions

Company: BodyMedia
 Model #: 908902PROD2
 Serial #: BOX0604141312-005
 Engineer(s): Vathana Ven
 Project #: 3095618
 Standard: FCC Part 15 Subpart B Class B
 Barometer: Temp/Humidity/Pressure: 22/31%/998
 Voltage/Frequency: 120 Vac/60 Hz
 Receiver: HP 8542E (REC2/RECFL2)
 Cable: CBL022 1-03-07.cbl.txt
 LISN 1: LISN11 [1] 7-05-06.lsn
 LISN 2: LISN11 [2] 7-05-06.lsn
 LISN 3: NONE.
 LISN 4: NONE.
 Attenuator: DS24 8-12-06.txt
 Location: Site 2
 Date: 04/27/06
 Frequency Range: 0.150-30 MHz

Net is the sum of worst-case lsn, 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	0.150	10.3			9.8	31.1	66.0	-34.9	9/30 kHz
QP	0.160	10.7			10.0	31.5	65.5	-34.0	9/30 kHz
QP	0.174	29.5			28.9	50.3	64.8	-14.5	9/30 kHz
QP	0.234	19.8			20.5	41.2	62.3	-21.1	9/30 kHz
QP	0.290	12.5			15.5	36.2	60.5	-24.3	9/30 kHz
QP	0.292	14.3			15.2	35.9	60.5	-24.5	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	0.150	-14.5			-13.0	7.7	56.0	-48.3	9/30 kHz
AVG	0.160	-7.9			-9.6	12.9	55.5	-42.6	9/30 kHz
AVG	0.174	17.9			17.3	38.7	54.8	-16.1	9/30 kHz
AVG	0.234	9.3			9.7	30.4	52.3	-21.9	9/30 kHz
AVG	0.290	3.5			5.5	26.2	50.5	-24.3	9/30 kHz
AVG	0.292	4.0			5.0	25.7	50.5	-24.7	9/30 kHz

Setup photos:

