TEST REPORT

Report Number: 3197926MPK-003
Project Number: 3197926
November 10, 2010

Testing performed on the
Hearing System
Model Number: SoundBite
FCC ID: YTESM03

to

FCC Part 15.209 and RSS-210 Issue 7

for

Sonitus Medical, Inc.

Test Performed by:	Test Authorized by:
Intertek	Sonitus Medical, Inc.
1365 Adams Court	1825 S. Grant St, Suite 350
Menlo Park, CA 94025 USA	San Mateo, CA 94402, USA

Prepared by: _____ Date: November 10, 2010
Martin Liu

Reviewed by: _____ Date: November 10, 2010
Ollie Moyrong

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1.0 Summary of Tests

TEST	REFERENCE FCC	REFERENCE RSS-210	RESULTS
Field Strength of Fundamental and Spurious Emissions	15.209	A2.6	Complies
Line Conducted Emissions	15.207	RSS-GEN	Complies
Antenna requirement	15.203		Complies. The antenna is permanently connected, internal to EUT.
Occupied Bandwidth			Complies

2.0 General Description

2.1 Product Description

Overview of the EUT

Applicant name & address	Sonitus Medical, Inc. 1825 S. Grant St, Suite 350 San Mateo, CA 94402, USA
Contact info	Mr. Sam Mostafavi, sam@sonitusmedical.com
Model No.	SoundBite
FCC Identifier	YTESM03
Operating Frequency	Single frequency, 10.6 MHz
Number of Channels	1
Type of Modulation	CPFSK
Antenna Type	Internal Antenna

EUT receive date: August 23, 2010

EUT receive condition: The EUT was received in good condition with no apparent damage.

Test start date: August 25, 2010

Test completion date: November 8, 2010

Sonitus Medical, Inc. supplied the following description of the EUT:

The Sonitus Medical hearing system is designed to detect sound in the audio range via an externally placed microphone, transmit the signal wirelessly to an intra-oral unit in contact with the teeth and reproduce the audio signal which propagates to the cochlea via bone conduction. The system is comprised of the following sub-systems.

1) Behind the Ear (BTE) Device

   Unit worn behind the ear incorporating a microphone placed within the ear canal. The BTE module wirelessly communicates with the In The Mouth (ITM)

2) In The Mouth (ITM) Device

   Retainer with embedded electronics, battery and piezoelectric actuator that is worn around the upper back teeth. It receives the wireless signal from the BTE and transmits sound to the cochlea via bone conduction through the teeth.

3) Charging Unit

   An AC powered charging system that provides charging capability for at least 2 ITM devices and the BTE.

2.2 Related Submittal(s) Grants

This report is for use with an application for certification of a low power transmitter.

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4. Radiated tests were performed at an antenna to EUT distance of 10 meters, unless stated otherwise in the **"Data Sheet"** of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The 10m anechoic chamber and conducted measurement facility used to collect the radiated data is site #1. This test facility and site measurement data have been fully placed on file with the FCC and A2LA accredited.

3.0 System Test Configuration

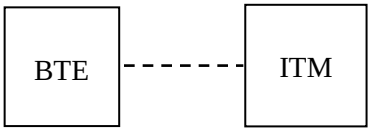
3.1 Support Equipment and Description

Item #	Description	Model No.	Serial No.
1	Dell Lap Top	Studio XPS 1340	08096
2	Creative Labs Sound Card	SB0710	MASB0710735R00560Q
3	Korg Contact Microphone	CM-100L	Not Labeled

3.2 Block Diagram of Test Setup

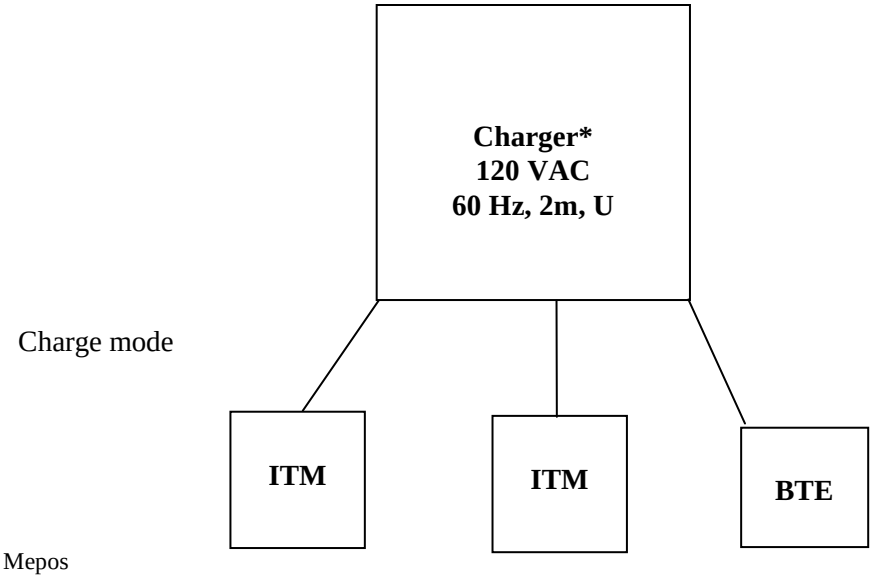
The diagrams shown below details the interconnection of the EUT and support equipment. For specific layout, refer to the test configuration photograph in the relevant section of this report.

Test Setup for radiated emissions tests



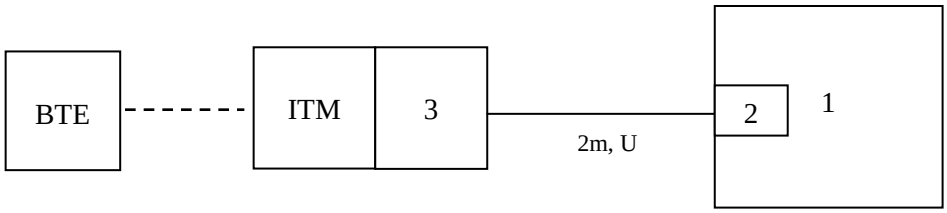
---------- = BTE communicating with ITM

Test Setup for AC line conducted emissions tests



* Make: Mepos
Model: GMWA

Test Setup to verify communication link between ITM and BTE prior to testing using contact microphone and computer



- - - - - - - - - - = BTE Transmitting and ITM Receiving

S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Length in Meters

3.3 Justification

For emission testing, the test procedures, as described in American National Standards Institute C63.4, were employed. The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst-case emissions.

Tests for radiated emissions and occupied bandwidth were performed on the EUT when removed from the charger and after a continuous communications link was established between the ITM and BTE. AC line conducted tests were performed when the ITM and BTE were connected to the charger. EUT communications link is disabled when BTE and ITM are installed on the charger.

3.4 Software Exercise Program

None.

3.5 Mode of operation during test

A continuous communication link was established between the ITM and BTE.

Prior to testing, the communication link between the ITM and BTE was verified by the following:

With the BTE placed next to the ITM at 5 centimeter distance, the system goes into audio feedback and the ITM outputs a vibratory signal that results in a 4.5 kHz tone. The tone is passed to a microphone that is touching the ITM. The output of the contact microphone is connected to a sound card located in the laptop computer. A software program on the laptop computer named "TrueRTA, Real Time Audio Spectrum Analyzer, Version 1.4.1" by True Audio Company is used to display the 4.5 kHz tone received from the ITM. The software displays a frequency spectrum in the range 200Hz to 10 kHz. The dynamic range of the measuring amplitude is -140 dBuV to +10 dBuV. The average noise floor displayed on the software was -80 dBuV (+/- 5dBuV) at 4.5 kHz. With the ITM outputting a 4.5 kHz tone, the measured value was -50 dBuV(+/- 5dBuV) at 4.5 kHz. The photos on page 15 of this report shows screen shots of the TrueRTA software that was used to verify the communication link between the ITM and BTE.

After verification of the communication link, the laptop and microphone were removed from the test setup. The BTE and ITM remained in the same position on the table for measurements for radiated emissions.

EUT communications link is disabled when BTE and ITM are installed on the charger.

3.6 Modifications required for Compliance

No modifications were installed by Intertek Testing Services during compliance testing in order to bring the product into compliance (Please note that this does not include changes made specifically by Sonitus Medical, Inc. prior to compliance testing).

3.7 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Transmitter Radiated Emissions
15.209

Requirements

The Field Strength of emissions at fundamental frequency and emissions radiated outside of the specified frequency band shall not exceed the general radiated emission limits in 15.209.

Procedure

Below 30 MHz
During the test the EUT is rotated and the measuring antenna angle are varied during the search for maximum signal level.

Radiated emissions are taken at 10 meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

Above 30 MHz
During the test the EUT is rotated and the measuring antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at 10 meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

Radiated emission measurements were performed from 1 MHz to 1 GHz.
Analyzer resolution was:
9 kHz or greater for frequencies below 30 MHz
100 kHz or greater for frequencies 30 MHz to 1000 MHz

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

Field Strength Calculation

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 is as follows:

FS = RA + AF + CF – AG – DCF

Where FS = Field Strength in dB (μV/m)

RA = Receiver Amplitude (including preamplifier) in dB (μV)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB (1/m)

AG = Amplifier Gain in dB

DCF = Distance Correction Factor

Test Result

The data below shows the significant emission frequencies, the limit and the margin of compliance.

Radiated emissions at fundamental frequency and second harmonic

BTE and ITM

Antenna (Axis: Parallel)

Frequency	Final Peak FS	Limit@30m	Margin	RA	CF	AG	AF	DCF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
10.6	12.2	29.5	-17.3	46.7	0.4	32.1	17.2	-20.0
21.2	7.5	29.5	-22.0	41.6	0.5	32.1	17.5	-20.0

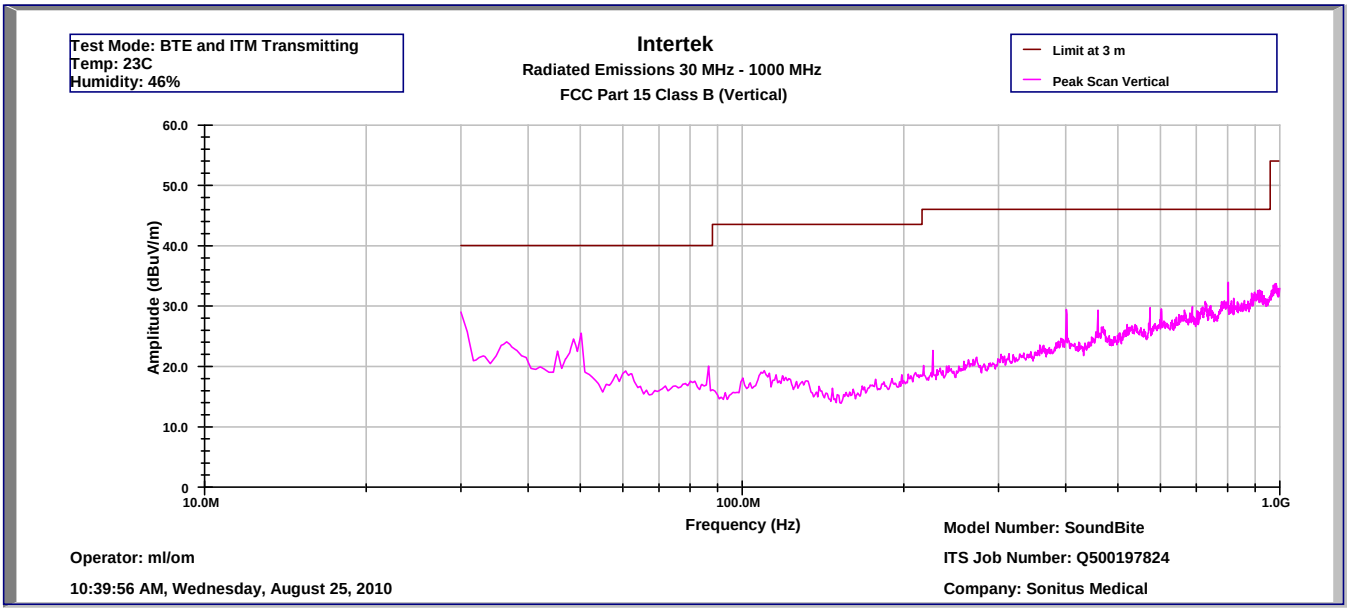
Antenna (Axis: Perpendicular)

Frequency	Final Peak FS	Limit@30m	Margin	RA	CF	AG	AF	DCF
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
10.6	11.7	29.5	-17.8	46.2	0.4	32.1	17.2	-20.0
21.2	7.2	29.5	-22.3	41.3	0.5	32.1	17.5	-20.0

All other emissions not reported are below the measuring instrument's noise floor which is at least 20 dB below the limits.

Spurious Radiated emissions above 30 MHz

BTE and ITM



Intertek Testing Services
Radiated Emissions 30 MHz- 1000 MHz
FCC Part 15 Class B (Pk-Vertical)

Operator: ml/om

Model Number: SoundBite
ITS Job Number: Q500197824

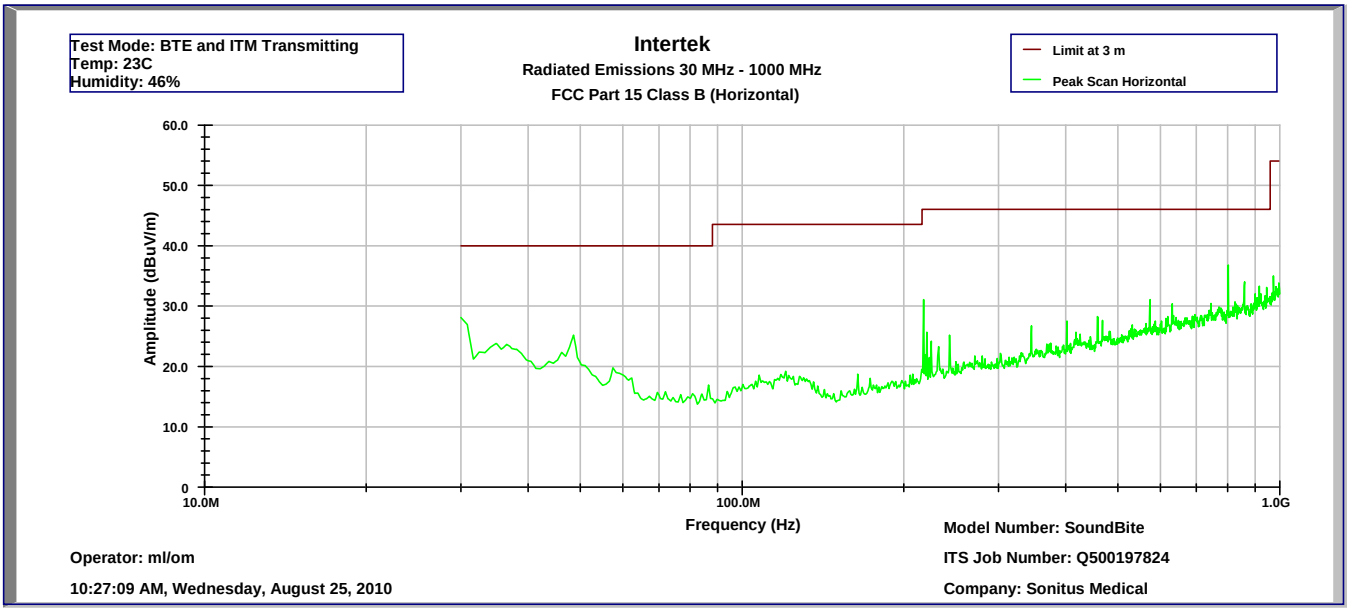
Current Time - 11:36:01 AM, Wednesday, August 25, 2010 Company: Sonitus Medical

Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
(MHz)	dB(uV/m)	dB(uV/m)	dB	db(uV)	dB	dB	dB	dB(1/m)
30.0	29.0	40.0	-11.0	32.9	0.6	32.1	10.5	17.0
50.2	25.5	40.0	-14.5	33.2	0.8	32.1	10.5	13.1
401.0	29.4	46.0	-16.6	32.2	2.4	32.0	10.5	16.4
802.8	33.9	46.0	-12.1	30.6	3.4	32.2	10.5	21.6

Test Mode: BTE and ITM Transmitting
Temp: 23C
Humidity: 46%

Spurious Radiated emissions above 30 MHz

BTE and ITM



Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (Pk-Horizontal)

Operator: ml/om
Model Number: SoundBite
ITS Job Number: Q500197824
Current Time - 11:35:15 AM, Wednesday, August 25, 2010 Company: Sonitus Medical

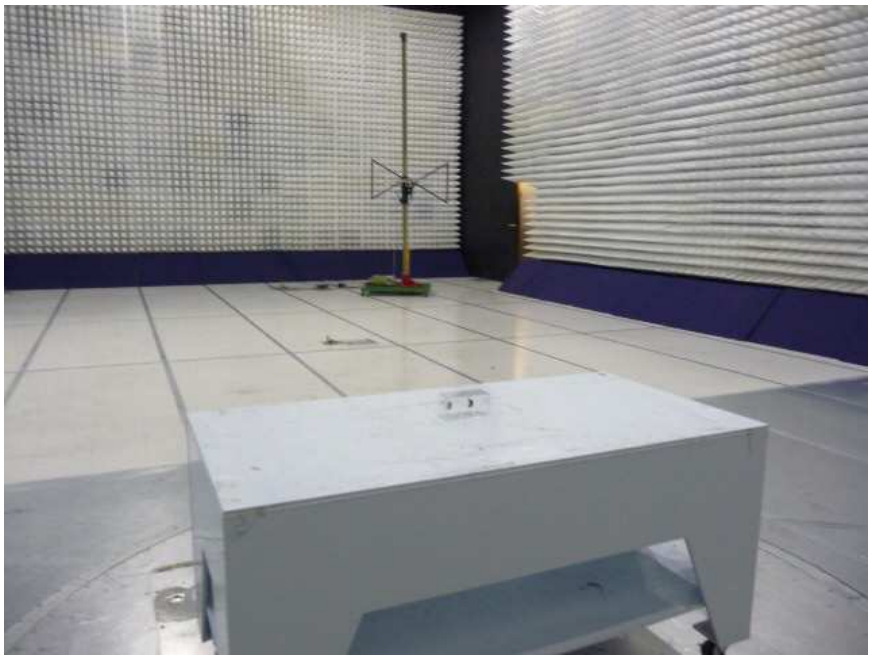
Frequency	Peak FS	Limit@3m	Margin	RA	CF	AG	DCF	AF
(MHz)	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB	dB(1/m)
30.0	28.1	40.0	-11.9	31.6	0.6	32.1	10.5	17.4
217.5	31.1	46.0	-14.9	39.9	1.7	32.0	10.5	11.0
220.8	25.7	46.0	-20.3	34.2	1.7	32.0	10.5	11.2
224.8	24.1	46.0	-21.9	32.2	1.8	32.0	10.5	11.7
243.4	25.2	46.0	-20.8	32.8	1.8	32.0	10.5	12.0
802.8	36.8	46.0	-9.2	34.6	3.4	32.2	10.5	20.4
974.1	35.0	54.0	-19.0	29.6	3.7	31.0	10.5	22.1

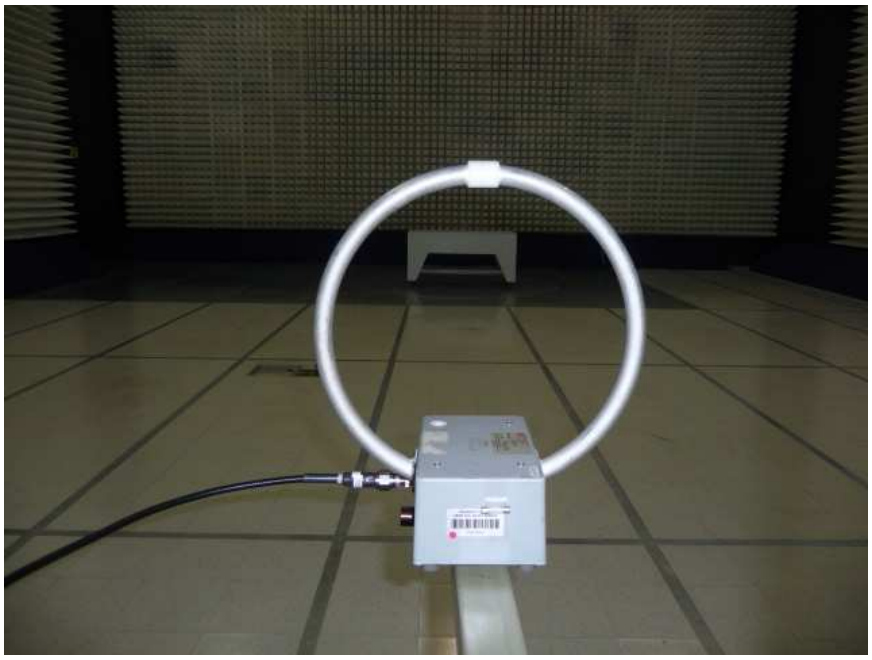
Test Mode: BTE and ITM Transmitting
Temp: 23C
Humidity: 46%

The EUT passed by 17.3 dB at fundamental frequency and by 9.2 dB at spurious emission frequencies.

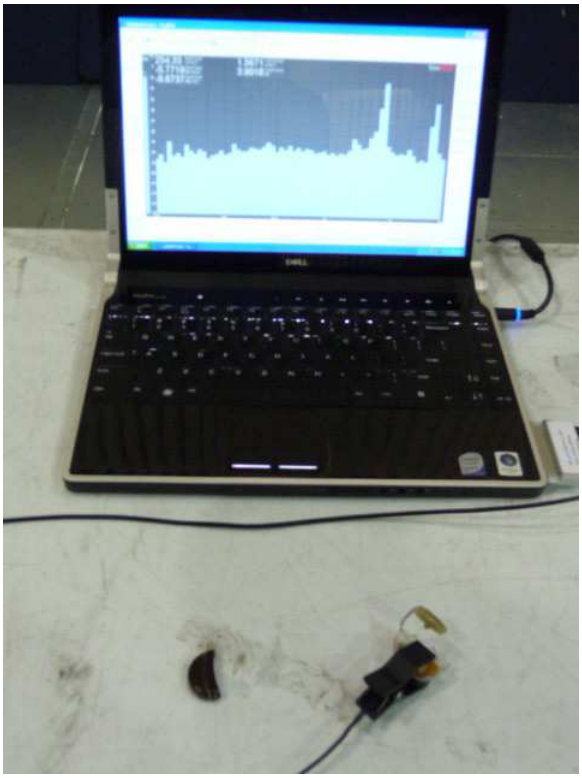
Test configuration photographs

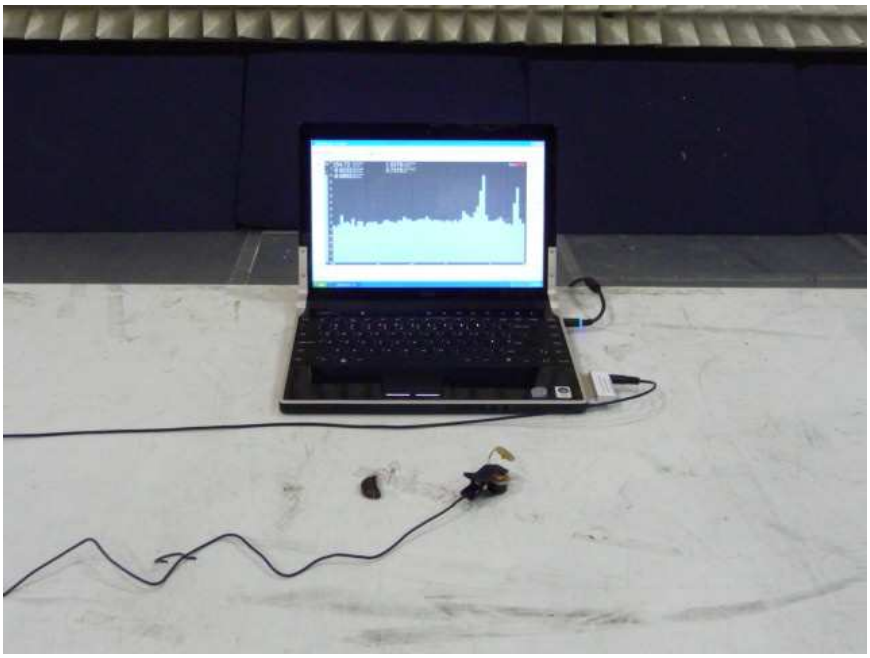
Test configuration photographs





Communication link between ITM and BTE verified prior to test using contact microphone and computer





4.2 AC Line Conducted Emission
FCC Rule 15.207

AC line conducted emission test was performed according the ANSI C63.4 standard. The EUT was connected to its charger, which was connected to the AC Line through the LISN.

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification. Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

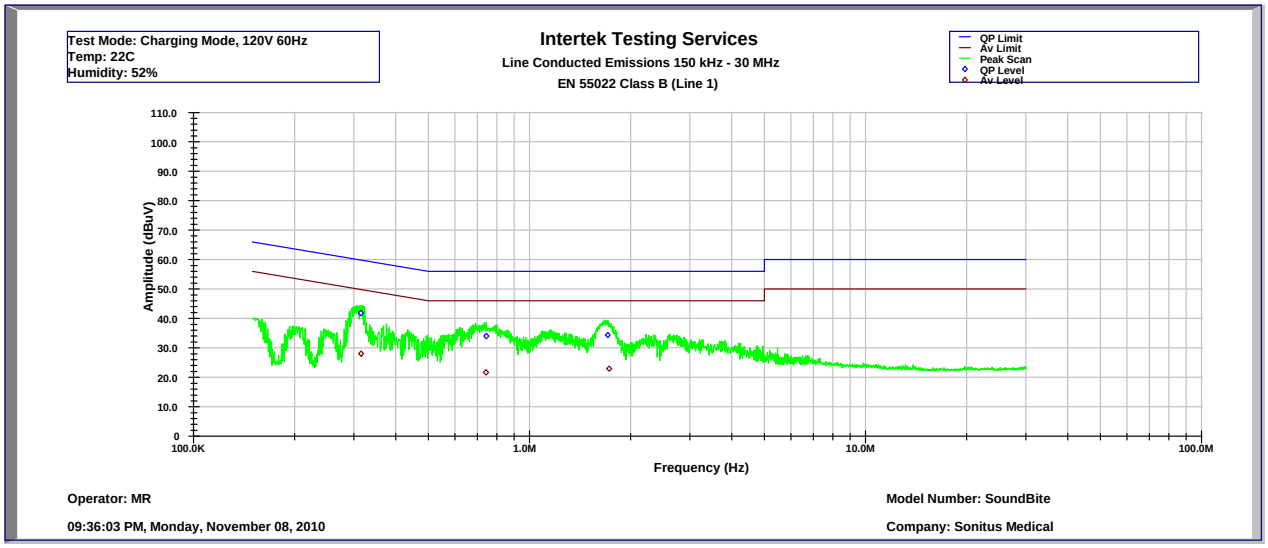
The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by 3 to 12 mm of insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.4 and EN 55011.

Test Result

The data below shows the significant emission frequencies, the limit and the margin of compliance.



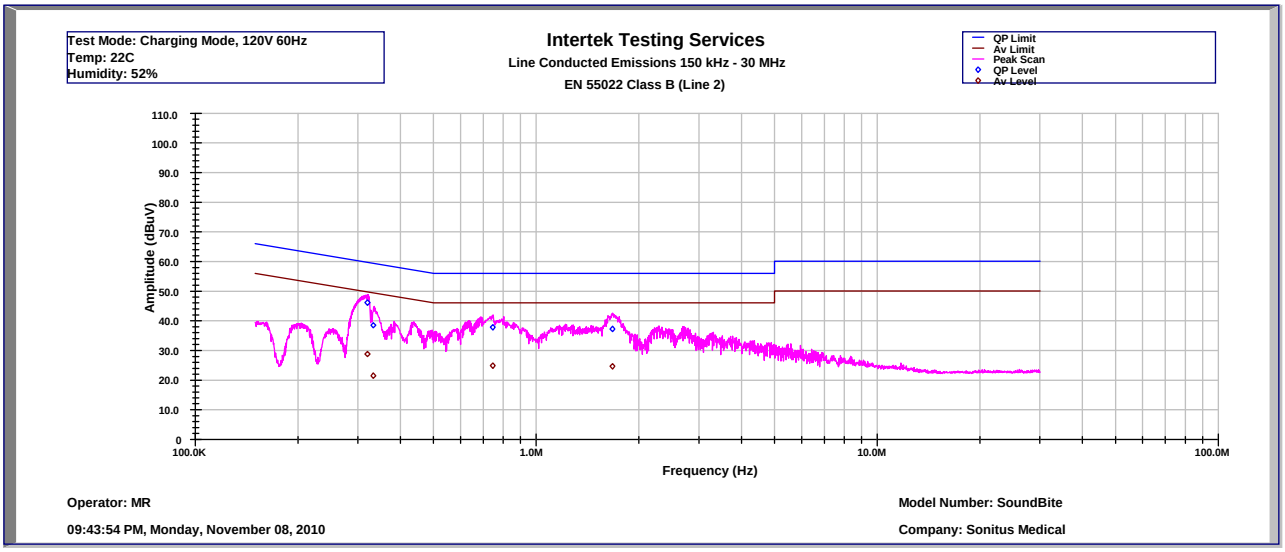
Intertek Testing Services
Line Conducted Emissions 150 kHz - 30 MHz
EN 55022 Class B (Line 1)

Operator: MR — Model Number: SoundBite

11/8/10 — Company: Sonitus Medical

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dB(uV)	dB(uV)	dB(uV)	dB(uV)	dB	dB
0.321	27.1	41.6	51.1	61.1	-24	-19.5
0.678	21.1	34.4	46	56	-24.8	-21.6
1.673	21.9	34.3	46	56	-24.1	-21.7

Test Mode: Charging Mode, 120V 60Hz
Temp: 22C
Humidity: 52%



Intertek Testing Services
Line Conducted Emissions 150 kHz - 30 MHz
EN 55022 Class B (Line 2)

Operator: MR

Model Number: SoundBite

09:38:09 PM, Monday, November 08, 2010

Company: Sonitus Medical

Frequency	Av Level	QP Level	Av Limit	QP Limit	Av Margin	QP Margin
MHz	dB(uV)	dB(uV)	dB(uV)	dB(uV)	dB	dB
0.320	28.8	46.1	51.1	61.1	-22.4	-15
0.333	21.5	38.5	50.8	60.8	-29.3	-22.3
0.746	24.8	37.8	46	56	-21.2	-18.2
1.673	24.6	37.2	46	56	-21.4	-18.8

Test Mode: Charging Mode, 120V 60Hz
Temp: 22C
Humidity: 52%

Results: **Complies** by 15.0 dB at 120VAC, 60 Hz

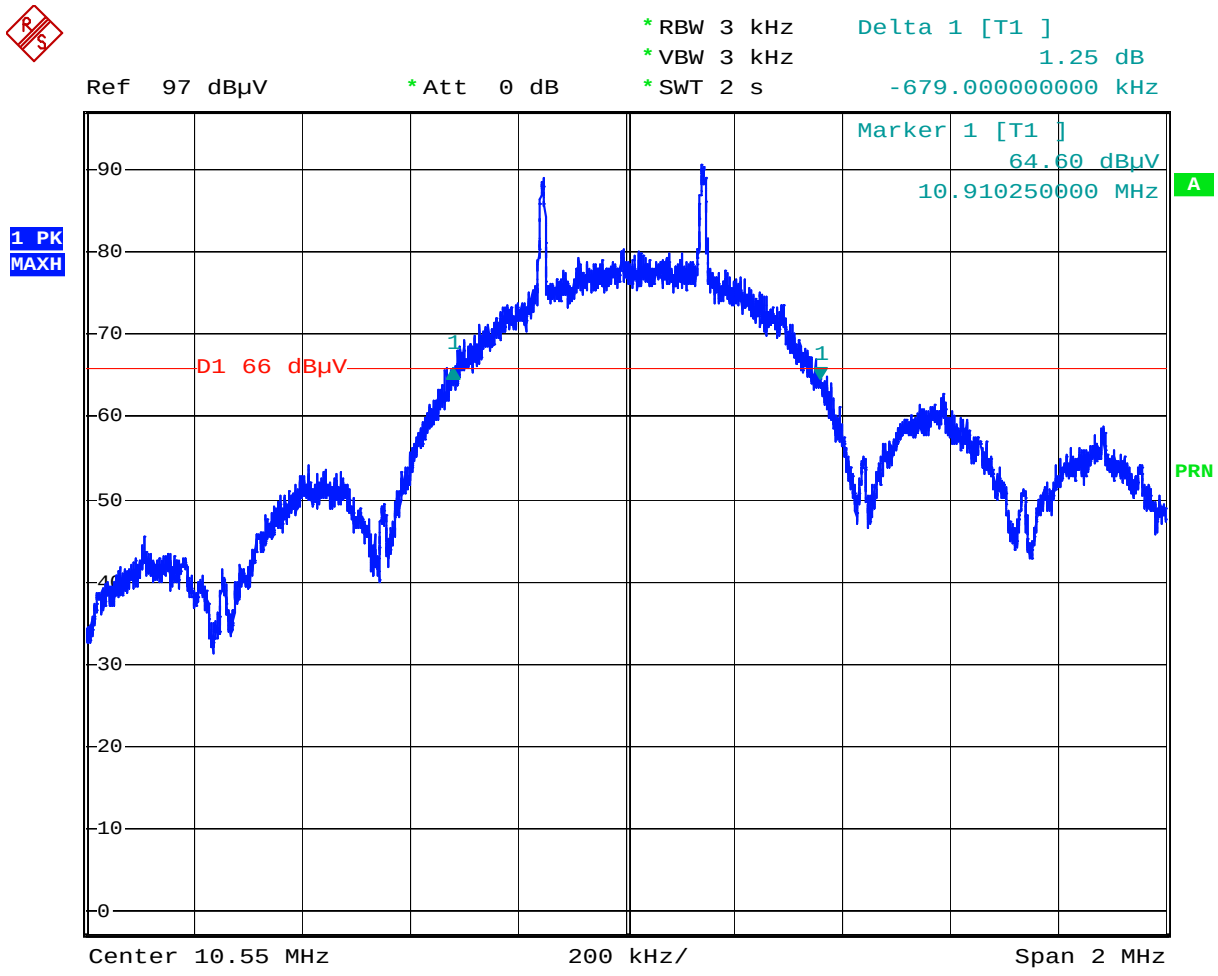
Test configuration photographs:

4.3 Occupied Bandwidth

The EUT was setup to transmit in normal operating condition.

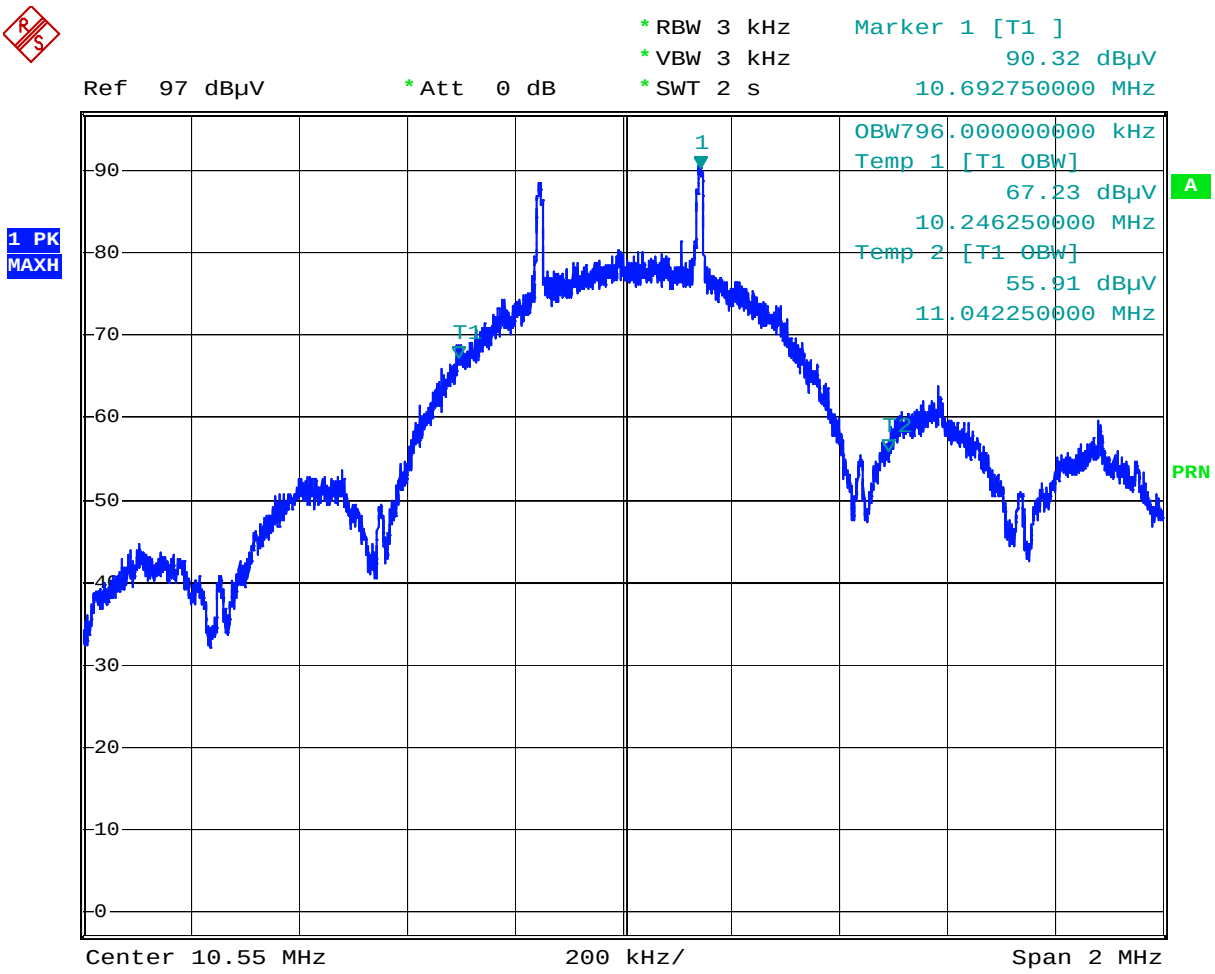
Measurements were made with the loop antenna at 10 cm distance using a Spectrum Analyzer. The spectrum analyzer reading was plotted.

Plot 1



Comment: 26 dB BW

Plot 2



Comment: 99% BW

5.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Used on August 25, 2010

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	12/04/10
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	12/04/10
BI-Log Antenna	Antenna Research	LPB-2513/A	1154	12	06/28/11
Pre-Amplifier	Sonoma	310N	185634	12	11/19/10
Loop Antenna	EMCO	6512	1029	12	06/04/11
Spectrum Analyzer	Rohde&Schwarz	FSP40	036612004	12	10/16/10

Used on November 8, 2010

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
Spectrum Analyzer	HP	8951EM	3536A00451	12	6/16/11
LISN	FCC	FCC-LISN-50-50-M-H	2011	12	9/25/11

6.0 Document History

Revision/ Job Number	Writer Initials	Date	Change
1.0 / 3197926	ML	August 28, 2010	Original document. Issue report 3197926MPK-003.
2.0 / 3197926	ML	November 10, 2010	Revise 3197926MPK-003 report with data for new Power Adaptor.