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# FCC Test Report

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Report No.: AGC10091010SZ02F1

**FCC ID** : YTKH-BOX  
**PRODUCT DESIGNATION** : Wireless Telehealth Hub  
**BRAND NAME** : Boston Life Labs  
**MODEL NAME** : H-Box  
**CLIENT** : Boston Life Labs LLC  
**DATE OF ISSUE** : Jan.17, 2011  
**STANDARD(S)** : FCC Part 15 Rules

## Attestation of Global Compliance Co., Ltd.

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## 1. VERIFICATION OF COMPLIANCE

Product Designation: Wireless Telehealth Hub  
Brand Name: Boston Life Labs  
Model Name: H-Box  
Manufacturer: Boston Life Labs LLC.  
Applicant: Cambridge Innovation Center,One Broadway 14th, Cambridge,MA 02142,USA  
Boston Life Labs LLC.(Shenzhen)  
Type of Test: FCC Class B  
Measurement Procedure: ANSI C63.4: 2003  
File Number: AGC10091010SZ02F1  
Date of test: Jan.16,2011  
Deviation: None  
Condition of Test Sample: Normal

The above equipment was tested by Attestation of Global Compliance Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003 This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Checked By: Forrest Lei  
Forrest Lei Jan.17, 2011

Authorized By: King Zhang  
King Zhang Jan.17, 2011

## 2. PRODUCT INFORMATION

Housing Type: Plastic  
EUT Rating Voltage: DC3.7V by battery(Charging Voltage AC120V)  
Voltage During Test: DC3.7V&AC120V

I/O Ports of EUT

I/O Port Type	Q'TY	Cable	Tested with
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### 3. TEST FACILITY

<b>Facility</b>	Attestation of Global Compliance Co., Ltd.
<b>Location:</b>	1F, No.2 Building, Huafeng No.1 Technical,Industrial Park, Sanwei, Xixiang, Baoan District,Shenzhen,China
<b>Description:</b>	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2009
<b>Site Filing:</b>	The FCC Registration Number is 259865 The IC Number is 9083A
<b>Instrument Tolerance:</b>	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.

#### 4. TEST EQUIPMENT LIST

##### Equipment used during the tests:

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/29/2010	06/28/2011
Test Receiver	R&S	ESCI	N/A	06/29/2010	06/28/2011
Biconilog Antenna	ETS	3142C	N/A	06/29/2010	06/28/2011
Multi_device Controller	ETS	2090	N/A	06/29/2010	06/28/2011
LISN	ETS	3816	N/A	06/29/2010	06/28/2011

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

## 5. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
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*\*\*Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*

*Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.*

## 6. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (if need).
2. Power on the EUT, running applicable software.
3. Make sure the EUT operates normally during the test.

## 7 FCC LINE CONDUCTED EMISSION TEST

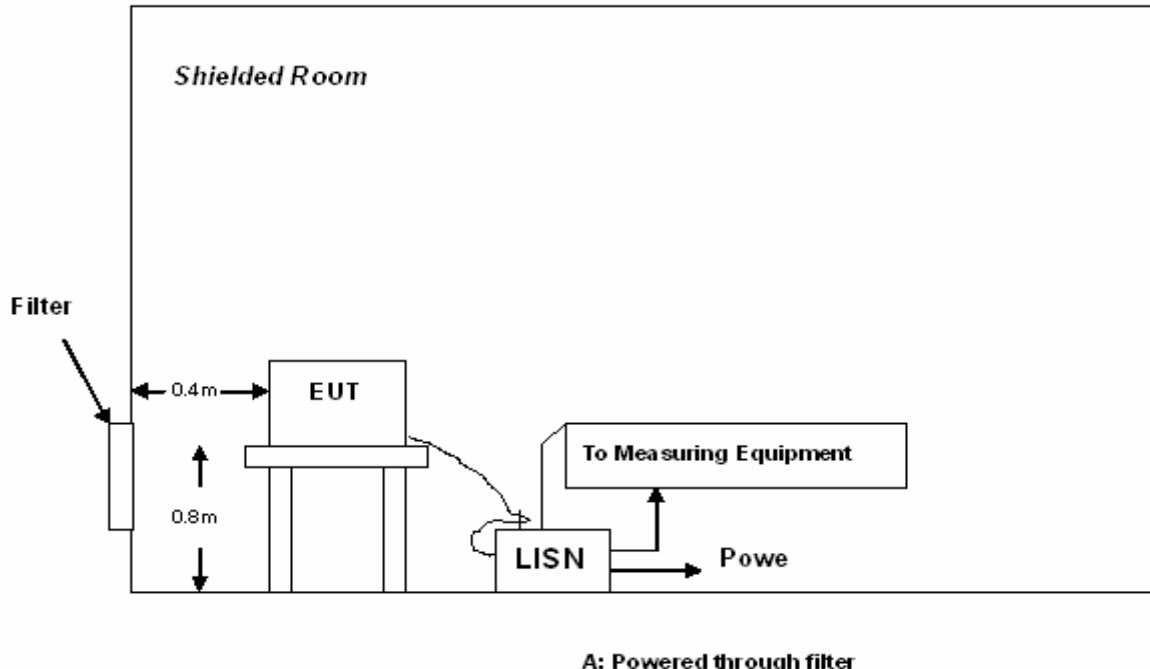
### 7.1 LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.( dBuV)	Average( dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

\*\*Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

### 7.2 BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



### 7.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) All support equipments received AC120V power from a LISN, if any.
- 5) The EUT received power from support PC
- 6) The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.
- 9) The following test mode(s) were scanned during the preliminary test:

Preliminary Line Conducted Emission Test				
Frequency Range Investigated		150 KHz TO 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
315MHZ Receive	01/16/2011	AGC10091010SZ02	H-Box-0(L,N)	<input checked="" type="checkbox"/>

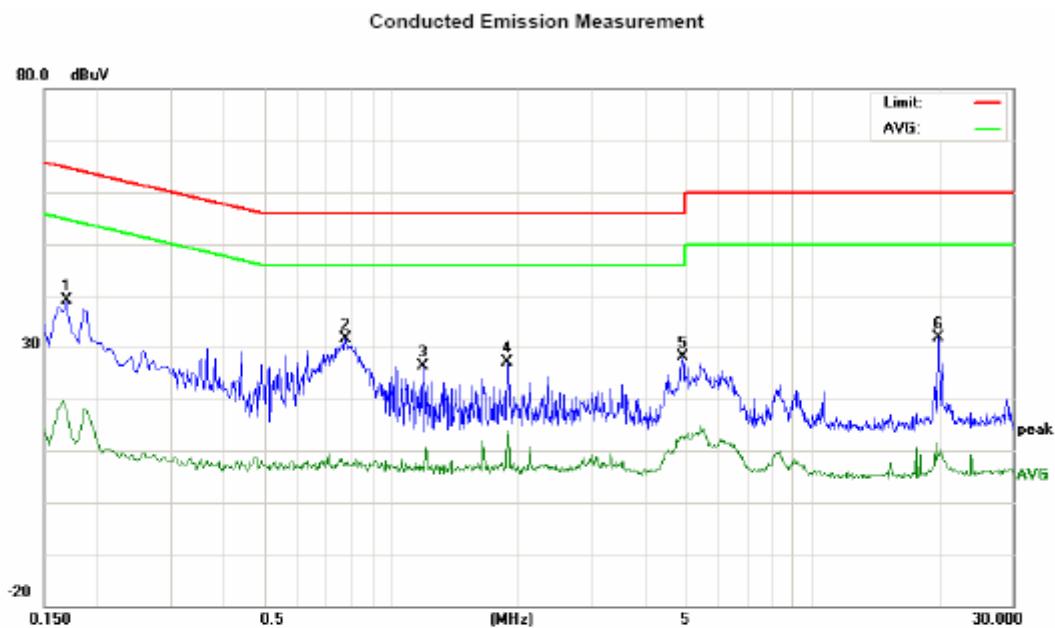
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 7.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3) The test data of the worst case condition(s) was reported on the Summary Data page.

## 7.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

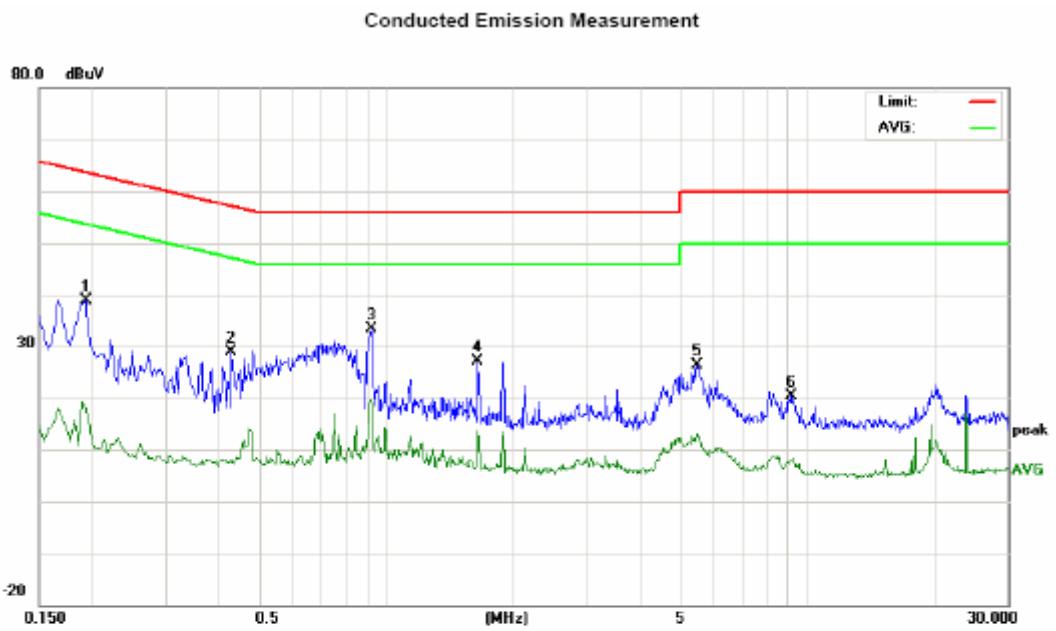
### TEST RESULT OF LINE CONDUCTED EMISSION TEST-LINE LINE



Site: Conduction Phase: L1 Temperature: 26  
Limit: FCC Class B Conduction(QP) Power: Humidity: 60 %  
EUT:  
M/N:  
Mode:  
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP	AVG	
1	0.1700	28.91		7.81	10.18	38.09		17.79	64.96	54.96	-25.87	-37.17	P	
2	0.7820	21.22		-2.90	10.29	31.51		7.39	56.00	48.00	-24.49	-38.61	P	
3	1.1940	16.09		-3.63	10.37	26.48		6.74	56.00	48.00	-29.54	-39.26	P	
4	1.8940	16.94		2.39	10.25	27.19		12.64	56.00	48.00	-28.81	-33.36	P	
5	4.9340	17.92		2.48	10.24	28.18		12.72	56.00	48.00	-27.84	-33.28	P	
6	20.0140	21.86		-0.70	10.11	31.77		9.41	60.00	50.00	-28.23	-40.59	P	

## TEST RESULT OF LINE CONDUCTED EMISSION TEST-NEUTRAL LINE



Site: Conduction Phase: **N** Temperature: 26  
Limit: FCC Class B Conduction(QP) Power: Humidity: 60 %  
EUT:  
M/N:  
Mode:  
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP	AVG	
1	0.1940	28.65	20.00	4.69	10.21	38.88	30.21	14.90	63.86	53.86	-33.65	-38.96	P	
2	0.4300	18.42		-2.28	10.35	28.77		8.07	57.25	47.25	-28.48	-39.18	P	
3	0.9260	22.99		8.69	10.40	33.39		19.09	56.00	46.00	-22.61	-26.91	P	
4	1.6620	16.88		3.34	10.33	27.21		13.87	56.00	46.00	-28.79	-32.33	P	
5	5.4980	16.11		2.80	10.25	26.38		13.05	60.00	50.00	-33.64	-36.95	P	
6	9.1899	10.11		-2.12	10.27	20.38		8.15	60.00	50.00	-39.62	-41.86	P	

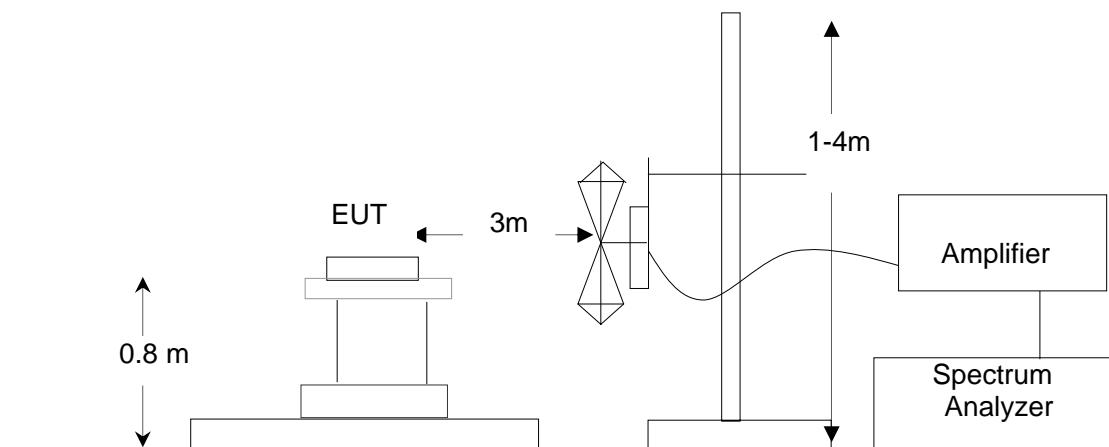
## 8. FCC RADIATED EMISSION TEST

### 8.1 LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dB <sub>u</sub> V/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

\*\*Note: The lower limit shall apply at the transition frequency.

### 8.2 BLOCK DIAGRAM OF RADIATED EMISSION TEST



### 8.3 PRELIMINARY PROCEDURE OF RADIATED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
- 5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The following test mode(s) were scanned during the preliminary test:

Preliminary Radiated Emission Test				
Frequency Range Investigated			30 MHz TO 1000 MHz	
Mode of operation	Date of test	Report No.	Data#	Worst Mode
315 Receive AC	01/16/2011	AGC10091010SZ02	H-Box-0 (H,V)	<input checked="" type="checkbox"/>
315 Receive DC	01/16/2011	AGC10091010SZ02	H-Box-1 (H,V)	

Then, the EUT and cable(s) configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

### 8.4 FINAL PROCEDURE OF RADIATED EMISSION TEST

EUT and support equipment were set up on the turntable as per step 7 of the preliminary test.

The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

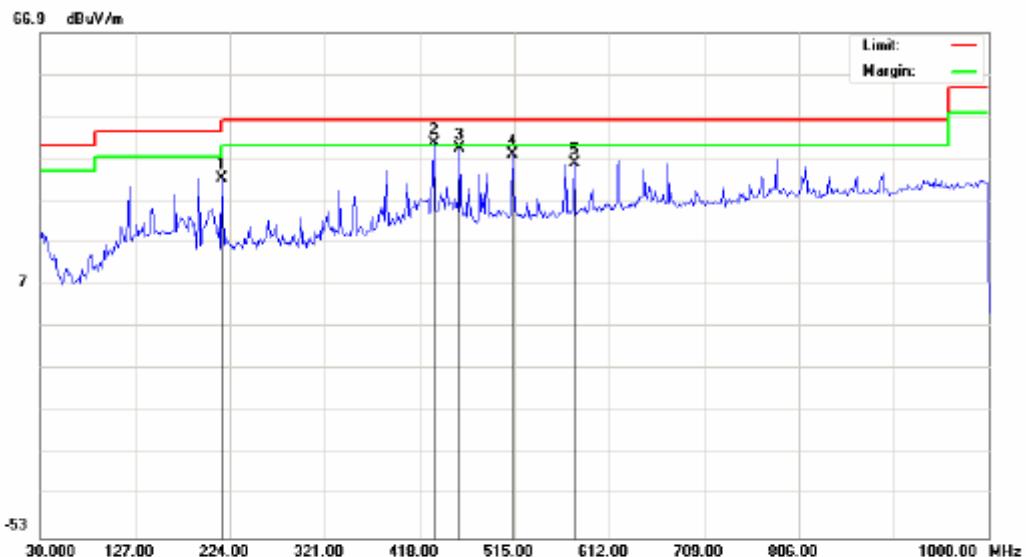
Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P/Peak. reading is presented.

The test data of the worst case condition(s) was reported on the Summary Data page.

## 8.5 TEST RESULT OF RADIATED EMISSION TEST

### RESULT OF RADIATED EMISSION AT-HORIZONTAL

Radiated Emission Measurement

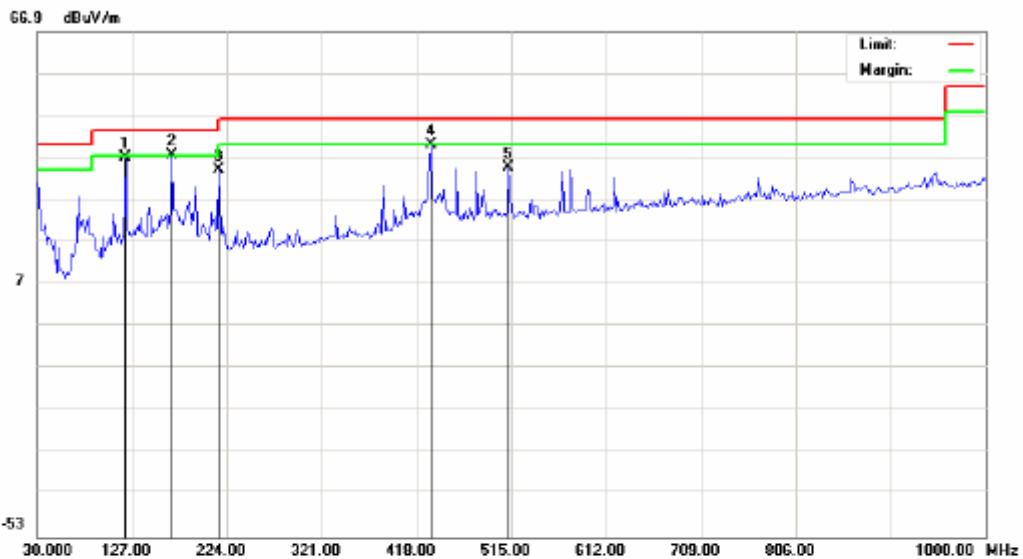


Site: site #1	Polarization: <i>Horizontal</i>	Temperature: 26
Limit: FCC Class B 3M Radiation	Power:	Humidity: 60 %
EUT:	Distance: 3m	
M/N:		
Mode:		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
1		215.9165	17.53	14.73	32.26	43.50	-11.24	peak			
2	*	432.6500	19.07	21.46	40.53	46.00	-5.47	QP			
3		458.4166	17.82	21.57	39.39	46.00	-6.61	QP			
4		513.3831	14.87	23.14	38.01	46.00	-7.99	QP			
5		576.4333	11.37	24.63	36.00	46.00	-10.00	peak			

## RESULT OF RADIATED EMISSION-VERTICAL

### Radiated Emission Measurement

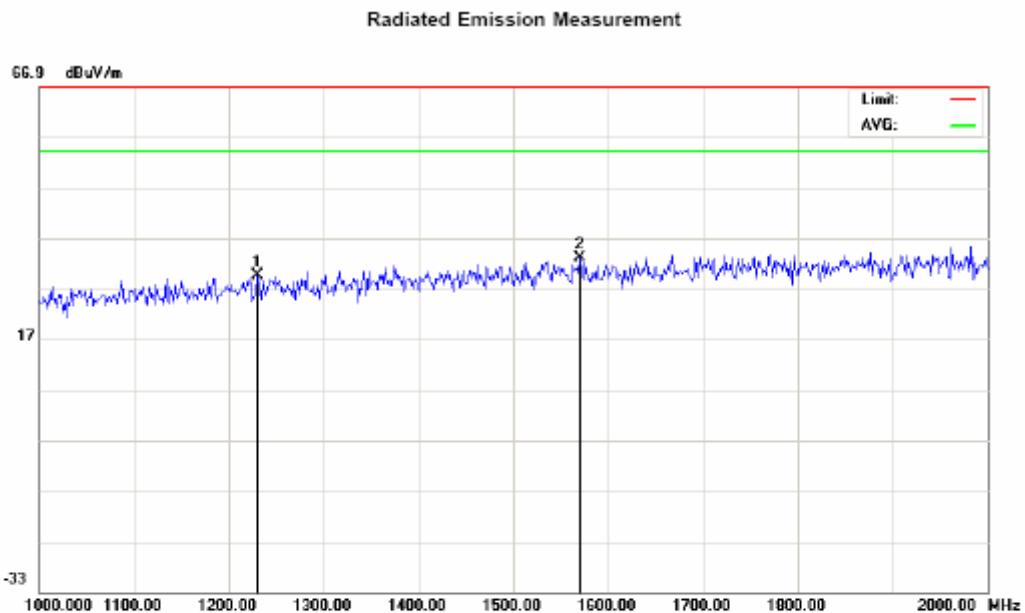


Site: site #1      Polarization: **Vertical**      Temperature: 26  
Limit: FCC Class B 3M Radiation      Power:      Humidity: 60 %  
EUT:      Distance: 3m  
M/N:  
Mode:  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		120.5332	18.57	18.35	36.92	43.50	-6.58	QP			
2	*	167.4165	17.80	19.92	37.72	43.50	-5.78	QP			
3		215.9166	19.18	14.73	33.91	43.50	-9.59	QP			
4	!	432.5500	18.63	21.46	40.09	46.00	-5.91	QP			
5		511.7667	11.44	23.12	34.56	46.00	-11.44	peak			

ABOVE 1GHZ

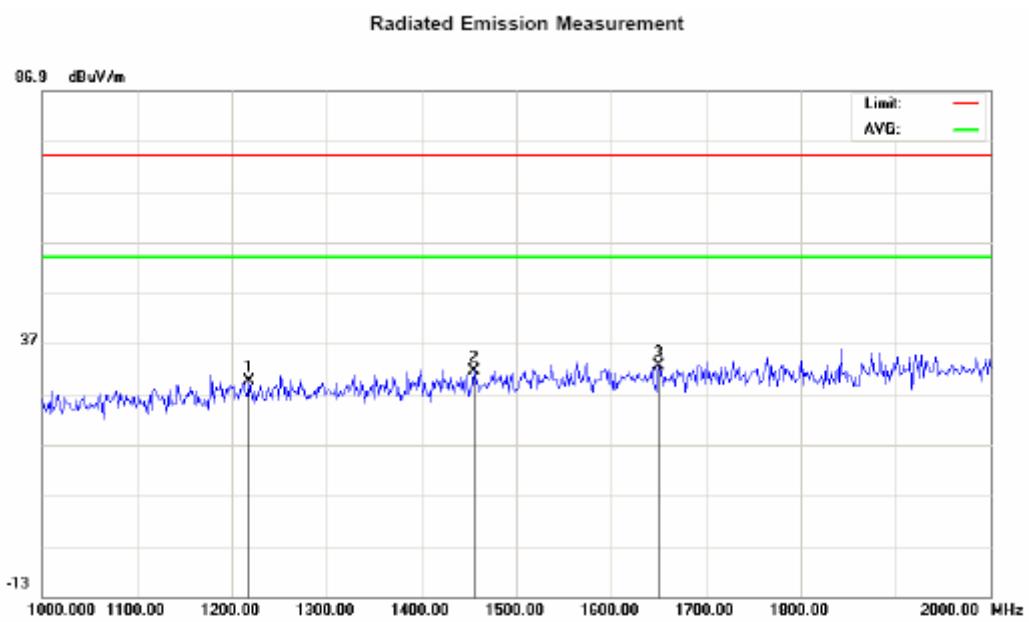
## RESULT OF RADIATED EMISSION AT-HORIZONTAL



Site: site #1 Polarization: **Horizontal** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: AC 120V/60Hz Humidity: 60 %  
EUT: Distance: 3m  
M/N:  
Mode:  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1230.000	-0.98	30.60	29.64	74.00	-44.36	peak			
2	*	1570.000	-0.15	33.14	32.99	74.00	-41.01	peak			

## RESULT OF RADIATED EMISSION AT-VERTICAL



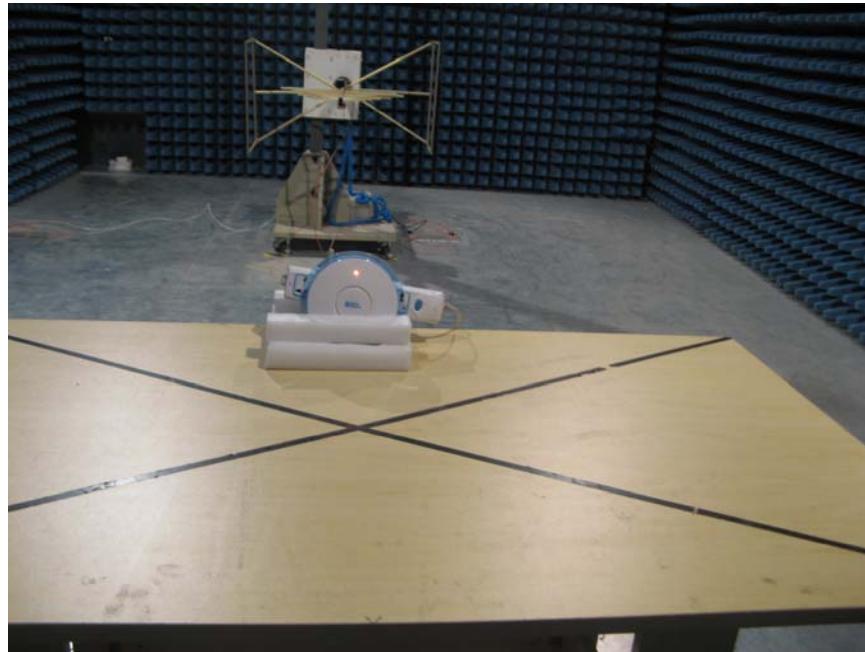
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Site: site #1      Polarization: **Vertical**      Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)      Power: AC 120V/60Hz      Humidity: 60 %  
EUT:      Distance: 3m  
M/N:  
Mode:  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1218.333	-1.02	30.53	29.51	74.00	-44.49	peak			
2		1455.000	-0.67	32.32	31.65	74.00	-42.35	peak			
3	*	1650.000	-1.18	33.67	32.49	74.00	-41.51	peak			

**APPENDIX 1**  
**PHOTOGRAPHS OF TEST SETUP**

**TEST SETUP OF RADIATED EMISSION**



**TEST SETUP OF CONDUCTED EMISSION**



## APPENDIX 2

### PHOTOGRAPHS OF EUT

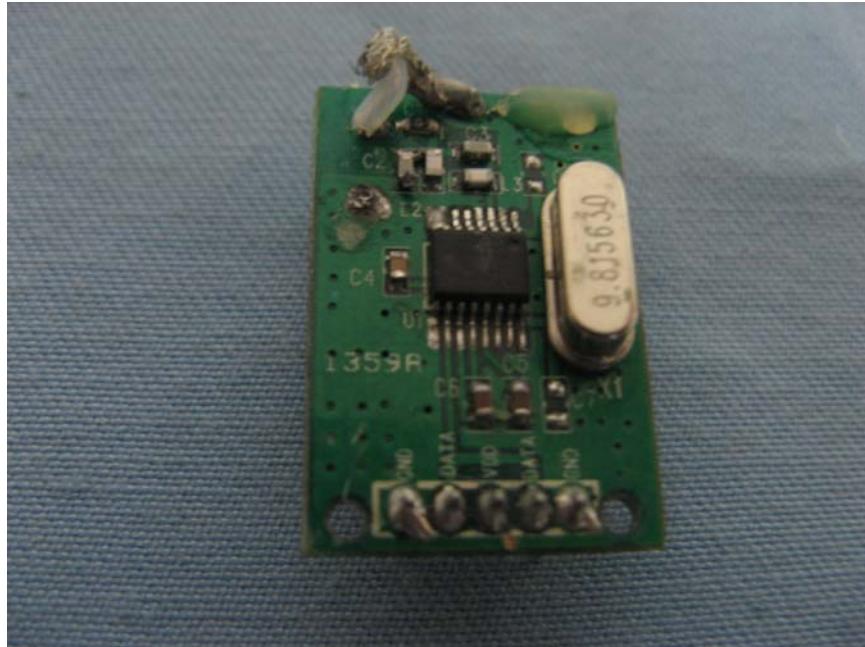
TOP VIEW OF EUT



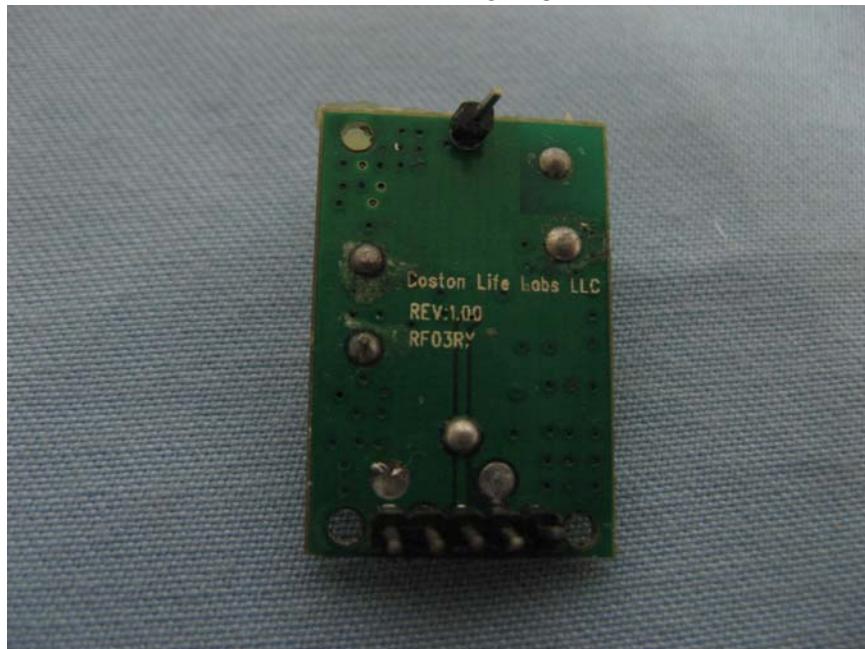
BOTTOM VIEW OF EUT



INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



---END OF REPORT---