

# FCC Report

**Applicant:** Ambient, LLC dba Ambient Weather

**Address of Applicant:** 6845 W. Frye Road Chandler, AZ 85226, Chandler Arizona United States

## Equipment Under Test (EUT)

**Product Name:** Wireless Night Light Thermometer

**Model No.:** WS01T, WS01T, WS01T-C

**FCC ID:** S2SWS01T

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart B:2014

**Date of sample receipt:** May 18, 2016

**Date of Test:** May 19-23, 2016

**Date of report issue:** May 24, 2016

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Lo

## Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of GTS or testing done by GTS in connection with, distribution or use of the product described in this report must be approved by GTS in writing.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

## 2 Version

Version No.	Date	Description
00	May 24, 2016	Original

Prepared By:

*Edward Pan*

Date:

May 24, 2016

Project Engineer

Check By:

*Andy Wu*

Date:

May 24, 2016

Reviewer

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	Pass
Radiated Emissions	Part15.109	Pass

*PASS: The EUT complies with the essential requirements in the standard.*

*Remark: Test according to ANSI C63.4:2014*

### Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

*Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.*

## 5 General Information

### 5.1 Client Information

Applicant:	Ambient, LLC dba Ambient Weather
Address of Applicant:	6845 W. Frye Road Chandler, AZ 85226, Chandler Arizona United States
Manufacturer/Factory:	Unit Connection Technology Co., Ltd
Address of Manufacturer/ Factory:	5/F., Block J, Shifeng Technology Park, Loucun, Guangming New District, Shenzhen ,China

### 5.2 General Description of EUT

Product Name:	Wireless Night Light Thermometer
Model No.:	WS01T, WS01T, WS01T-C
Power supply:	AC 120V 60Hz Or DC 3.0V Cell Battery

### 5.3 Test mode

Test mode:	
Operation mode	Receiver mode

Receiver Frequency : 433.92MHz

## 5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 28, 2013.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

## 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

## 5.6 Description of Support Units

None.

## 5.7 Deviation from Standards

None.

## 5.8 Abnormalities from Standard Conditions

None.

## 5.9 Other Information Requested by the Customer

None.

## 6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	ESU EMI Test Receiver	R&S	ESU26	GTS203	July. 03 2015	July. 02 2016
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	July. 06 2015	July. 05 2016
5	RF Amplifier	HP	8347A	GTS204	July. 03 2015	July. 02 2016
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial cable	GTS	N/A	GTS210	Jul. 05 2015	Jul. 04 2016
8	Thermo meter	N/A	N/A	GTS256	July. 07 2015	July. 06 2016
9	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 26 2016	Mar. 25 2017

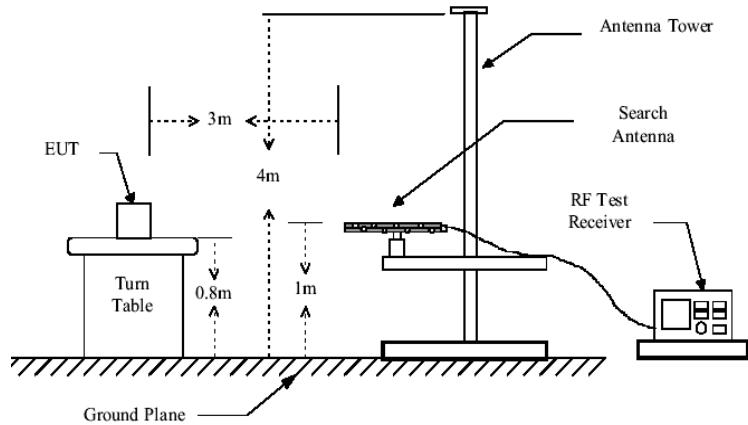
Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 05 2015	Sep. 05 2016
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	June 30 2015	June 29 2016
3	10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	June 30 2015	June 29 2016
4	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 30 2015	June 29 2016
5	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	June 30 2015	June 29 2016
6	Coaxial Cable	GTS	N/A	GTS227	June 30 2015	June 29 2016
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	July 07 2015	July 06 2016

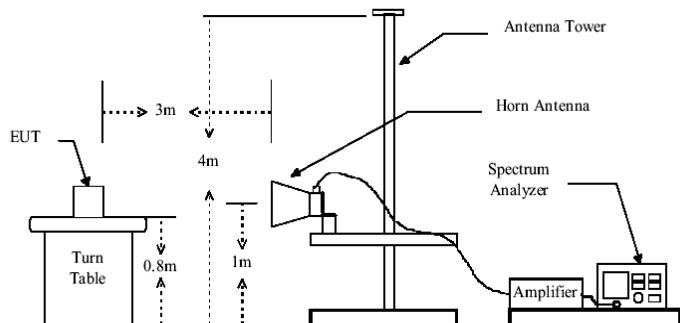
## 7 Test Results and Measurement Data

### 7.1 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109																								
Test Method:	ANSI C63.4:2014																								
Test Frequency Range:	30MHz to 2GHz																								
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																								
Receiver setup:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Detector</th> <th>RBW</th> <th>VBW</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>30MHz-1GHz</td> <td>Quasi-peak</td> <td>120kHz</td> <td>300kHz</td> <td>Quasi-peak Value</td> </tr> <tr> <td rowspan="2">Above 1GHz</td><td>Peak</td> <td>1MHz</td> <td>3MHz</td> <td>Peak Value</td> </tr> <tr> <td>Peak</td> <td>1MHz</td> <td>10Hz</td> <td>Average Value</td> </tr> </tbody> </table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value	
Frequency	Detector	RBW	VBW	Remark																					
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	Peak	1MHz	10Hz	Average Value																					
Limit:	<table border="1"> <thead> <tr> <th>Frequency</th> <th>Limit (dBuV/m @3m)</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>30MHz-88MHz</td> <td>40.00</td> <td>Quasi-peak Value</td> </tr> <tr> <td>88MHz-216MHz</td> <td>43.50</td> <td>Quasi-peak Value</td> </tr> <tr> <td>216MHz-960MHz</td> <td>46.00</td> <td>Quasi-peak Value</td> </tr> <tr> <td>960MHz-1GHz</td> <td>54.00</td> <td>Quasi-peak Value</td> </tr> <tr> <td rowspan="2">Above 1GHz</td><td>54.00</td> <td>Average Value</td> </tr> <tr> <td>74.00</td> <td>Peak Value</td> </tr> </tbody> </table>					Frequency	Limit (dBuV/m @3m)	Remark	30MHz-88MHz	40.00	Quasi-peak Value	88MHz-216MHz	43.50	Quasi-peak Value	216MHz-960MHz	46.00	Quasi-peak Value	960MHz-1GHz	54.00	Quasi-peak Value	Above 1GHz	54.00	Average Value	74.00	Peak Value
Frequency	Limit (dBuV/m @3m)	Remark																							
30MHz-88MHz	40.00	Quasi-peak Value																							
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216MHz-960MHz	46.00	Quasi-peak Value																							
960MHz-1GHz	54.00	Quasi-peak Value																							
Above 1GHz	54.00	Average Value																							
	74.00	Peak Value																							
Test Procedure:	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>																								
Test setup:	Below 1GHz																								



Above 1GHz



Test environment:	Temp.: 25 °C	Humid.: 52%	Press.: 1 012mbar
Measurement Record:	Uncertainty: $\pm 4.5\text{dB}$		
Test Instruments:	Refer to section 6 for details		
Test mode:	Receiver mode		
Test results:	Pass		

**Note:**

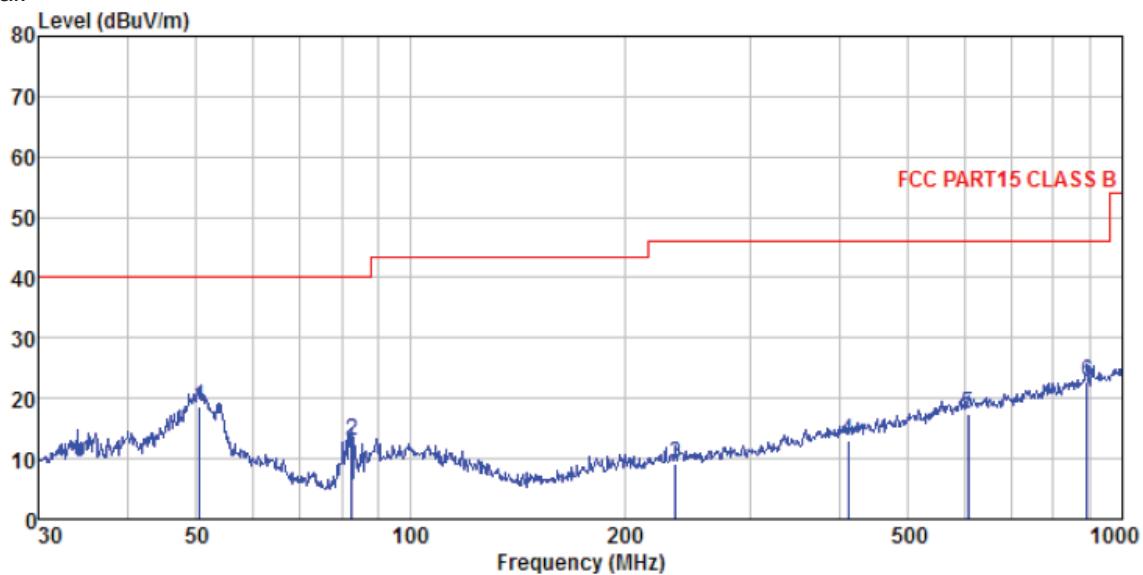
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

## Measurement Data

Below 1GHz

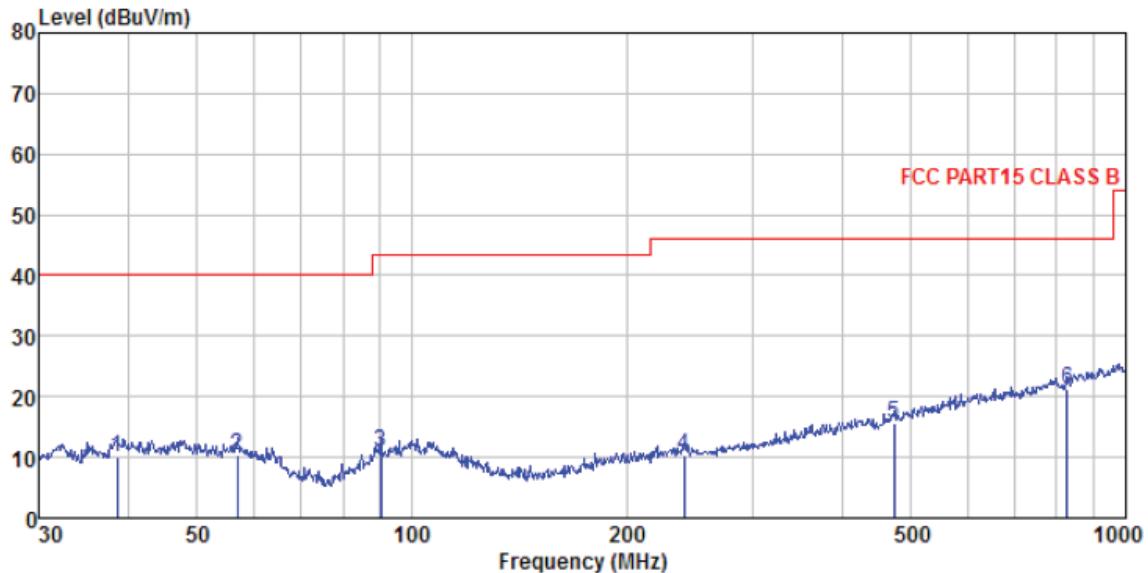
Horizontal:



Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL  
 Job No. : 0948  
 Test Mode : Operation mode  
 Test Engineer: Ben

	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	50.586	32.66	15.22	0.78	30.00	18.66	40.00 -21.34 QP
2	82.648	30.29	11.57	1.05	29.78	13.13	40.00 -26.87 QP
3	235.816	22.69	13.88	2.05	29.53	9.09	46.00 -36.91 QP
4	411.824	22.13	17.31	2.91	29.47	12.88	46.00 -33.12 QP
5	607.787	22.35	20.48	3.75	29.29	17.29	46.00 -28.71 QP
6	890.728	23.97	23.00	4.82	29.11	22.68	46.00 -23.32 QP

Vertical:

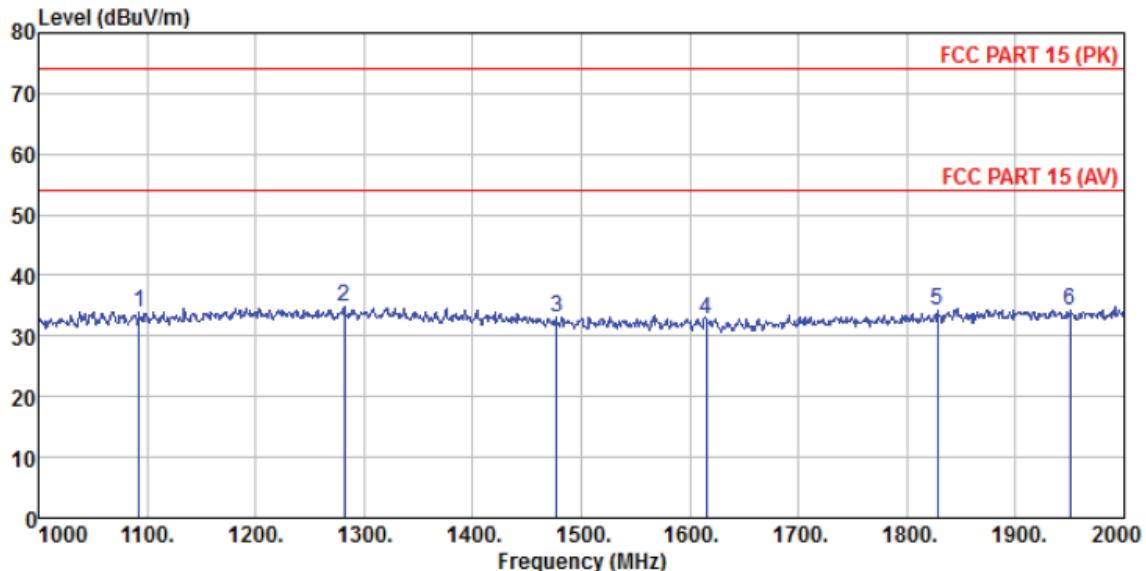


Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL  
 Job No. : 0948  
 Test Mode : Operation mode  
 Test Engineer: Ben

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	
1	38.616	24.14	15.25	0.65	30.05	9.99	40.00 -30.01 QP
2	56.991	24.47	14.89	0.84	29.94	10.26	40.00 -29.74 QP
3	90.537	25.51	14.07	1.11	29.74	10.95	43.50 -32.55 QP
4	240.830	23.73	14.09	2.08	29.57	10.33	46.00 -35.67 QP
5	473.835	23.89	17.95	3.20	29.35	15.69	46.00 -30.31 QP
6	827.493	23.46	22.37	4.57	29.17	21.23	46.00 -24.77 QP

Above 1GHz

Horizontal:



Condition : FCC PART 15 (PK) BBHA9120D ANT(>1GHZ) HORIZONTAL

Job No. : 0948

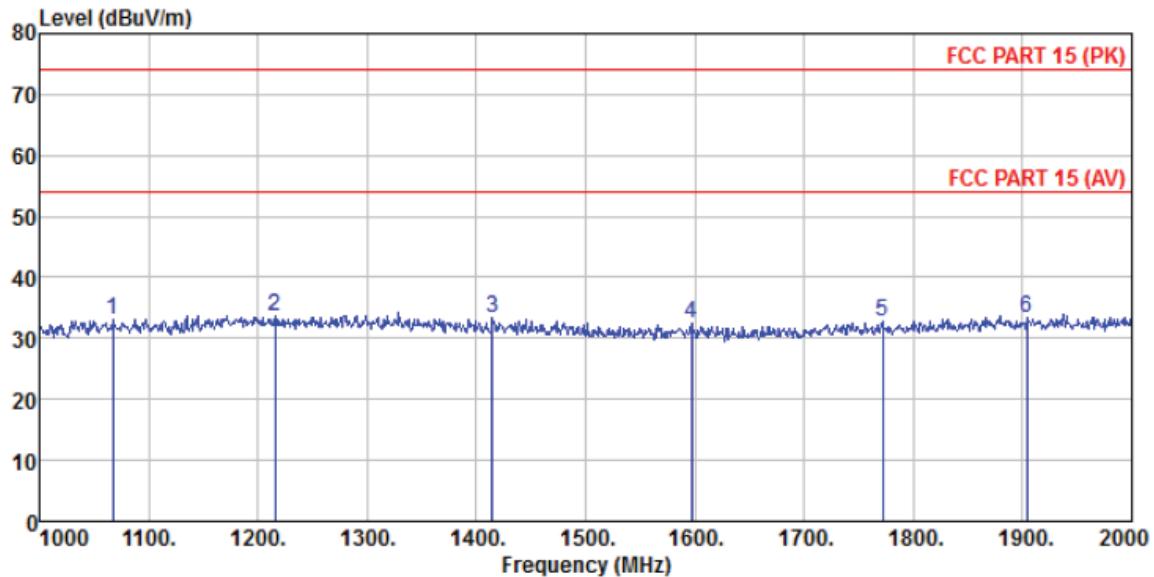
Test Mode : Operation mode

Test Engineer: Ben

ReadAntenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Level	Line	Limit	Remark

	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1093.000	37.69	24.74	4.38	32.89	33.92	74.00	-40.08 Peak
2	1282.000	37.87	25.59	4.53	33.24	34.75	74.00	-39.25 Peak
3	1477.000	36.72	25.27	4.67	33.56	33.10	74.00	-40.90 Peak
4	1615.000	37.00	24.95	4.75	33.79	32.91	74.00	-41.09 Peak
5	1828.000	37.98	25.42	4.87	34.17	34.10	74.00	-39.90 Peak
6	1950.000	37.76	25.93	4.93	34.37	34.25	74.00	-39.75 Peak

Vertical:



Condition : FCC PART 15 (PK) BBHA9120D ANT (>1GHZ) VERTICAL

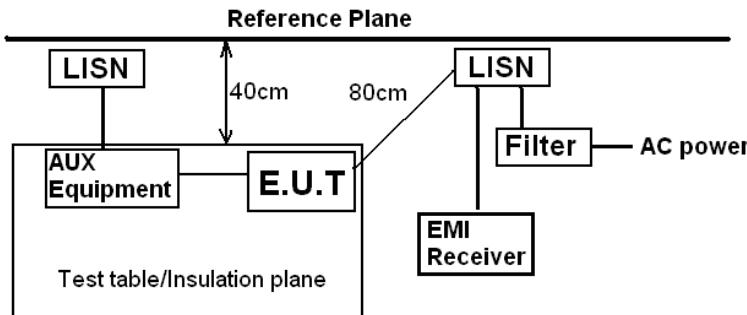
Job No. : 0948

Test Mode : Operation mode

Test Engineer: Ben

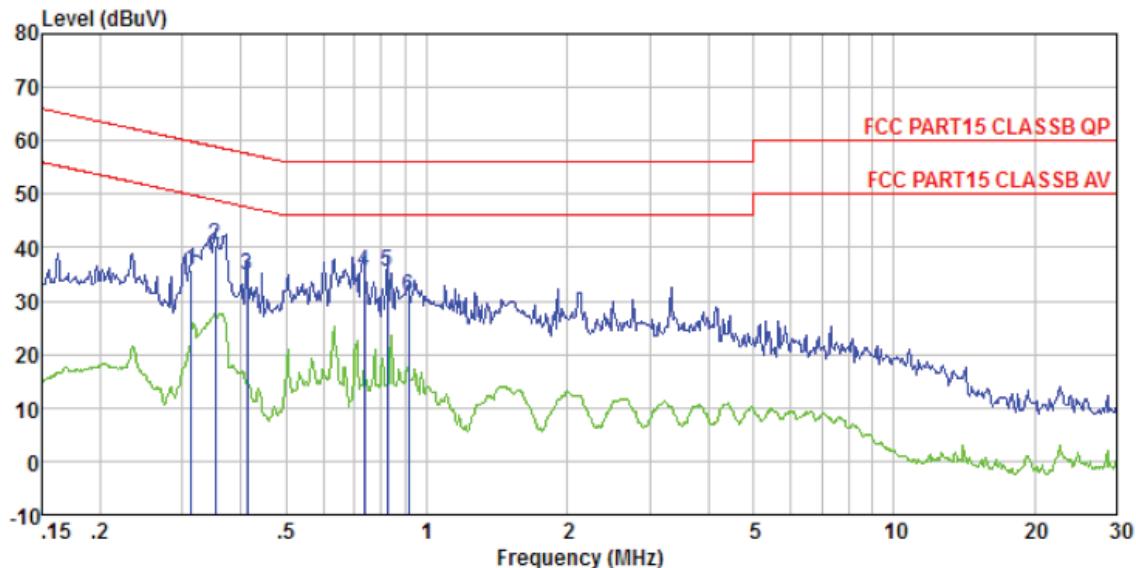
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	
1	1067.000	37.01	24.66	4.35	32.87	33.15	74.00 -40.85 Peak
2	1216.000	36.79	25.42	4.48	33.13	33.56	74.00 -40.44 Peak
3	1415.000	36.67	25.51	4.62	33.45	33.35	74.00 -40.65 Peak
4	1597.000	36.56	24.99	4.74	33.76	32.53	74.00 -41.47 Peak
5	1772.000	36.78	25.17	4.84	34.05	32.74	74.00 -41.26 Peak
6	1904.000	36.85	25.77	4.91	34.29	33.24	74.00 -40.76 Peak

## 7.2 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107																
Test Method:	ANSI C63.4:2014																
Test Frequency Range:	150kHz to 30MHz																
Class / Severity:	Class B																
Receiver setup:	RBW=9kHz, VBW=30kHz																
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dB<math>\mu</math>V)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>0.5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>			Frequency range (MHz)	Limit (dB $\mu$ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	0.5-30	60	50
Frequency range (MHz)	Limit (dB $\mu$ V)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
0.5-30	60	50															
	<p>* Decreases with the logarithm of the frequency.</p>																
Test setup:	 <p><i>Remark:</i>  <i>E.U.T: Equipment Under Test</i>  <i>LISN: Line Impedance Stabilization Network</i>  <i>Test table height=0.8m</i></p>																
Test procedure	<ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). They provide a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.</li> </ol>																
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar											
Test Instruments:	Refer to section 6 for details																
Test mode:	Refer to section 5.3 for details																
Test results:	Pass																

## Measurement Data

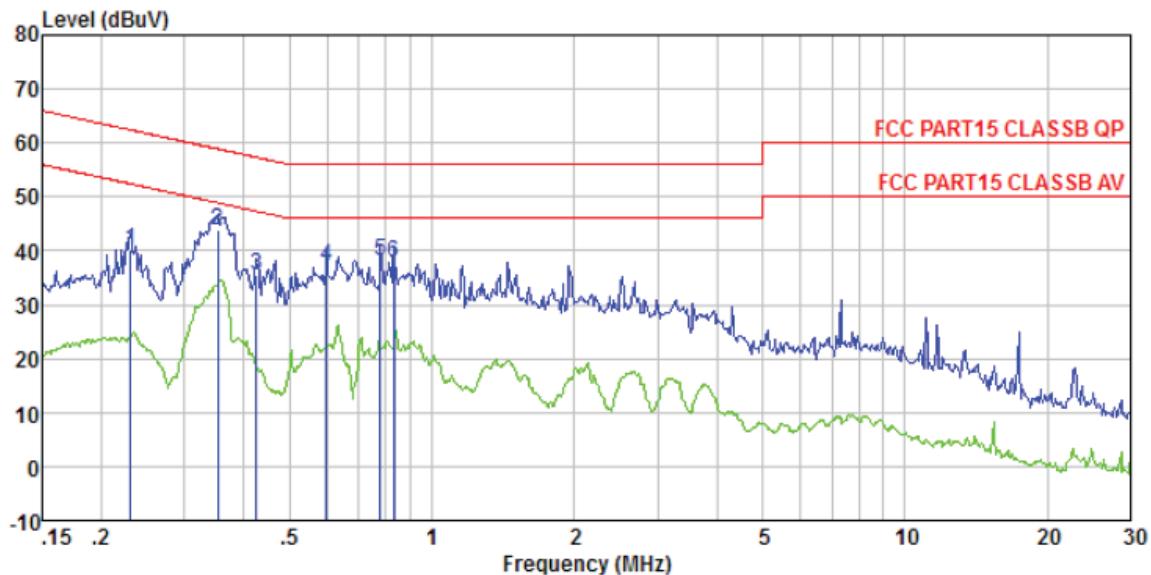
Test mode:	RX mode	Phase Polarity:	Line
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Site : Shielded room  
 Condition : FCC PART15 CLASSB QP LISN-2013 LINE  
 Job No. : 0948  
 Test mode : Operation mode  
 Test Engineer: Sky

Freq	Read	LISN	Cable	Limit	Over	Remark
	Level	Level	Factor	Loss	Line	
MHz	dBuV	dBuV	dB	dB	dBuV	dB
1	0.313	35.76	35.97	0.11	0.10	59.88 -23.91 QP
2	0.352	40.13	40.34	0.11	0.10	58.91 -18.57 QP
3	0.413	34.67	34.90	0.12	0.11	57.59 -22.69 QP
4	0.735	35.32	35.59	0.14	0.13	56.00 -20.41 QP
5	0.822	35.33	35.60	0.14	0.13	56.00 -20.40 QP
6	0.914	30.58	30.85	0.14	0.13	56.00 -25.15 QP

Test mode:	RX mode	Phase Polarity:	Neutral
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Site : Shielded room  
 Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL  
 Job No. : 0948  
 Test mode : Operation mode  
 Test Engineer: Sky

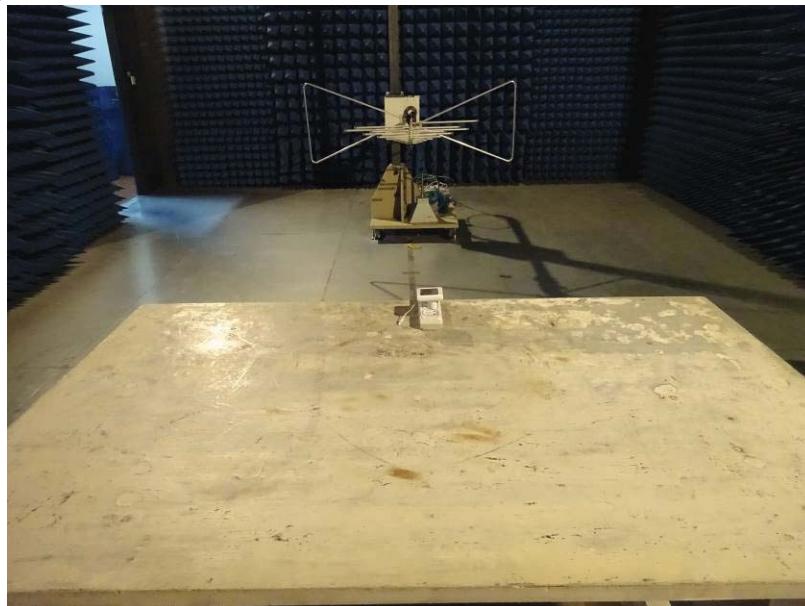
Freq	Read	LISN	Cable	Limit	Over	Remark
	MHz	dBuV	Level	Factor	Loss	
1	0.230	40.09	40.27	0.06	0.12	62.44 -22.17 QP
2	0.352	43.75	43.91	0.06	0.10	58.91 -15.00 QP
3	0.426	35.38	35.55	0.06	0.11	57.33 -21.78 QP
4	0.598	36.82	37.01	0.07	0.12	56.00 -18.99 QP
5	0.779	38.07	38.27	0.07	0.13	56.00 -17.73 QP
6	0.830	37.60	37.80	0.07	0.13	56.00 -18.20 QP

#### Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

## 8 Test Setup Photo

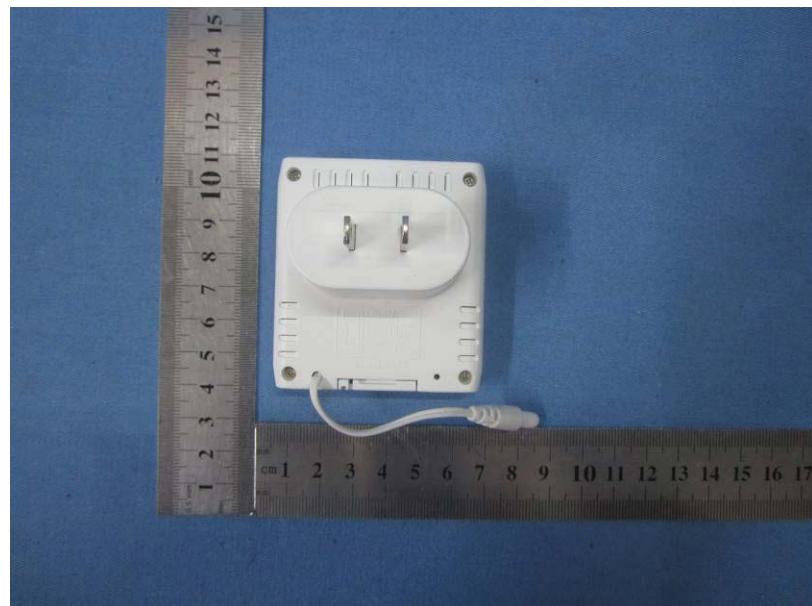
Radiated Emission

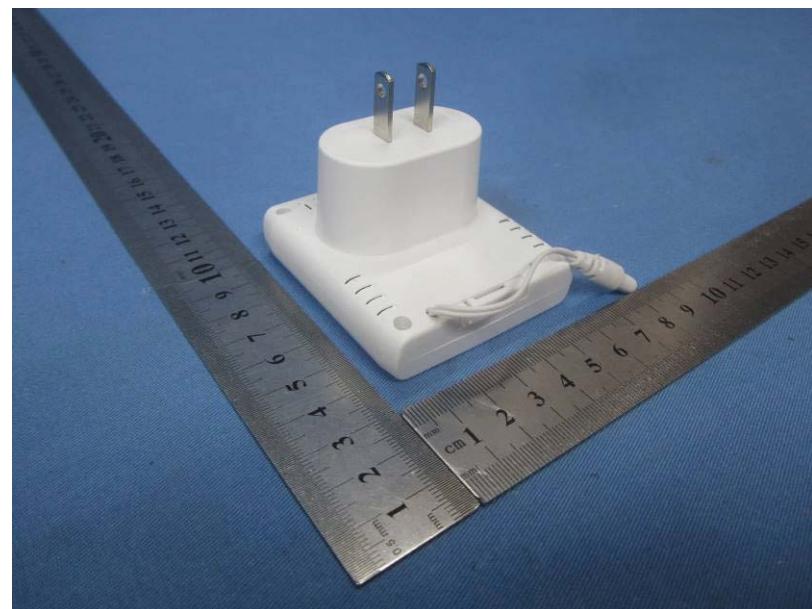
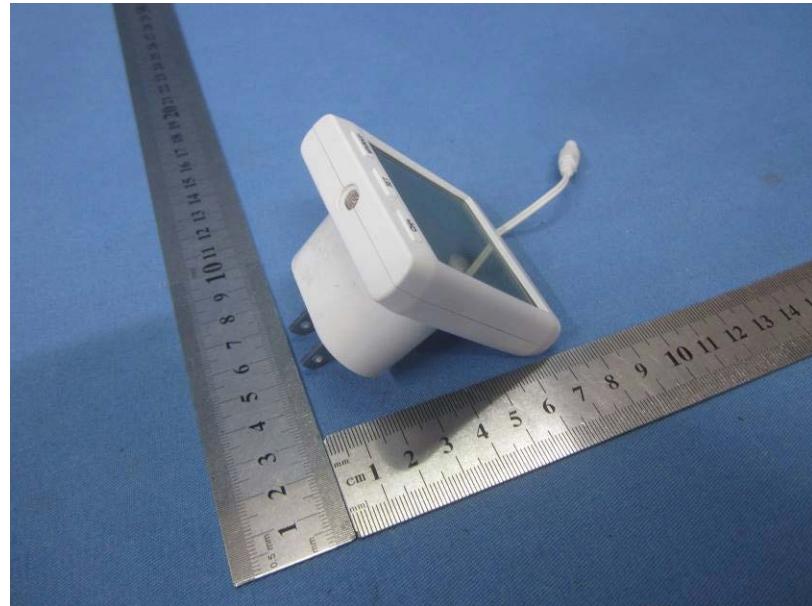


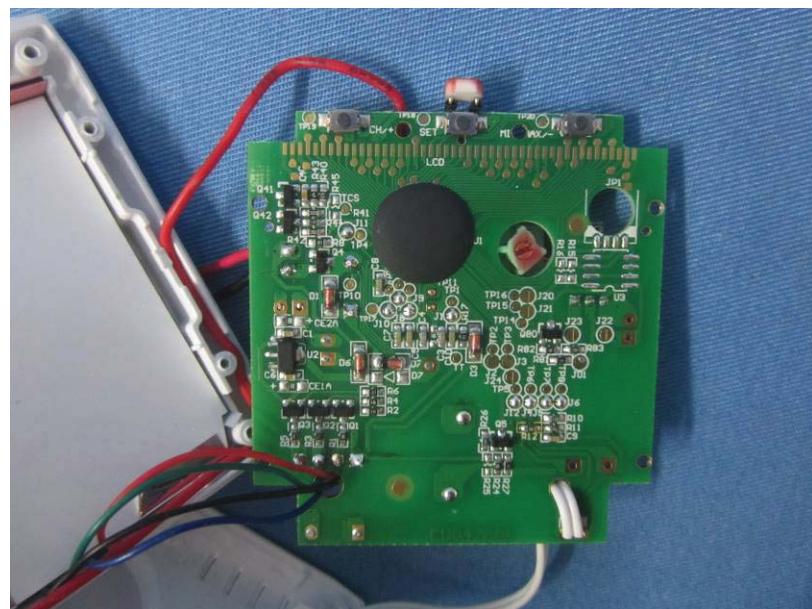
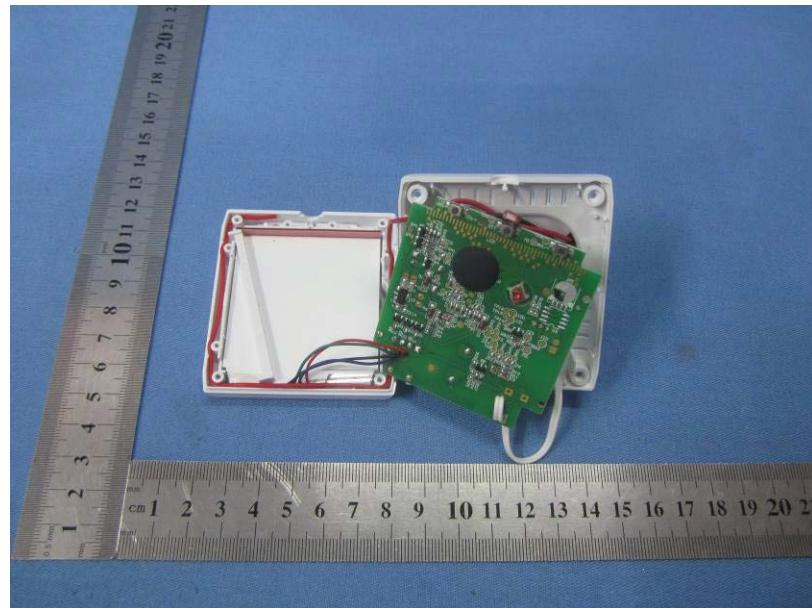
Conducted Emissions

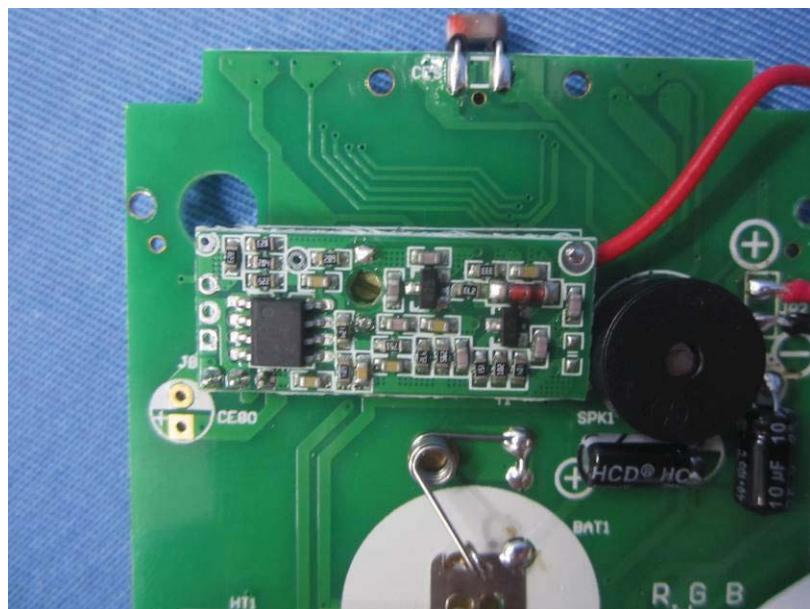
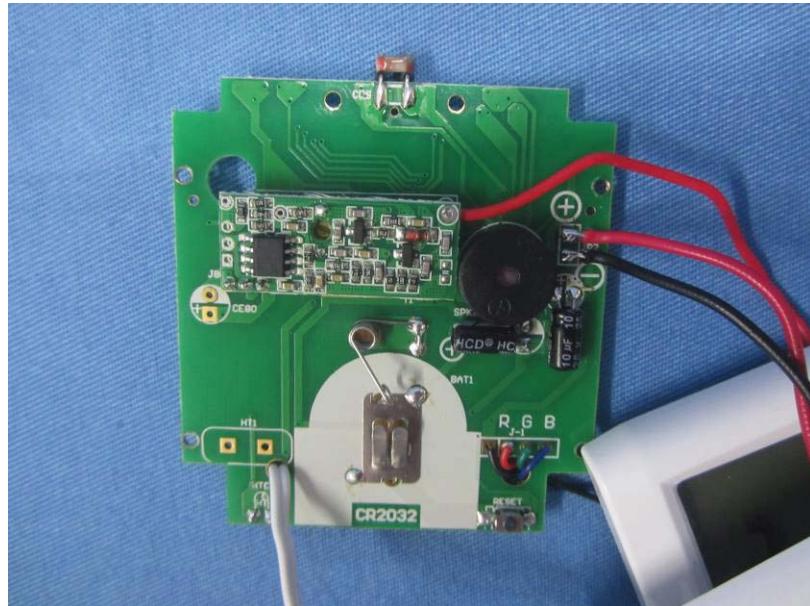


## 9 EUT Constructional Details









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