Report No.: GTSE13070117101

TEST REPORT

Applicant:	Ambient, LLC dba Ambient Weather
Address of Applicant:	6845 W. Frye Road Chandler, AZ 85226
Equipment Under Test (EUT)	
Product Name:	Wireless Thermometer
Model No.:	WS09, WS09-C, WS091, WS091-C
FCC ID:	S2SWS09
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B:2012
Date of sample receipt:	July 23, 2013
Date of Test:	July 23-August 02, 2013
Date of report issue:	August 02, 2013
Test Result :	PASS *

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

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*August 02, 2013*	*Original*

Prepared By: hank. yan ***Date:*** *August 02, 2013*

Project Engineer

Check By: Hans. Hu ***Date:*** *August 02, 2013*

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	N/A
Radiated Emissions	Part15.109	PASS

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

N/A: not applicable.

5 General Information

5.1 Client Information

Applicant:	Ambient, LLC dba Ambient Weather
Address of Applicant:	6845 W. Frye Road Chandler, AZ 85226
Manufacturer:	Shenzhen Kello Sciece Technology Co., Ltd.
Address of Manufacturer:	32nd Building Area B Tanglang Industrial Park Xili Shenzhen Guangdong China
Factory:	Shenzhen Kello Sciece Technology Co., Ltd.
Address of Factory:	32nd Building Area B Tanglang Industrial Park Xili Shenzhen Guangdong China

5.2 General Description of EUT

Product Name:	Wireless Thermometer
Model No.:	WS09, WS09-C, WS091, WS091-C
Test Model No.:	WS09
Remark:	*WS09, WS09-C, WS091 and WS091-C are identical in the same PCB layout, interior structure and electrical circuits. The only differences are the appearance color and model name for commercial purpose.*
Power supply:	DC 6.0V(4*1.5V(”AAA” Size battery))

5.3 Test mode

Receiving mode	Keep the EUT in Receiving mode.

5.4 Test Facility

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

● **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

● **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly 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: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
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	Mar. 29 2013	Mar. 28 2014
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	Jun. 29 2013	Jun. 29 2014
4	BiConiLog Antenna	SCHWARZBECK	VULB9163	GTS214	Jun. 29 2013	Jun. 29 2014
5	Double -ridged waveguide horn	SCHWARZBECK	9120D	GTS208	Jun. 29 2013	Jun. 29 2014
6	RF Amplifier	HP	8347A	GTS204	Jun. 29 2013	Jun. 29 2014
7	Preamplifier	HP	8349B	GTS206	Jun. 29 2013	Jun. 29 2014
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Jul. 07 2013	Jul. 06 2014
10	Coaxial Cable	GTS	N/A	GTS211	Jul. 07 2013	Jul. 06 2014
11	Thermo meter	N/A	N/A	GTS256	Jul. 01 2013	Jul. 01 2014

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Barometer	ChangChun	DYM3	GTS257	Jul. 27 2013	Jul. 27 2014

7 Test Results and Measurement Data

7.1 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 2GHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Receiver setup:	

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

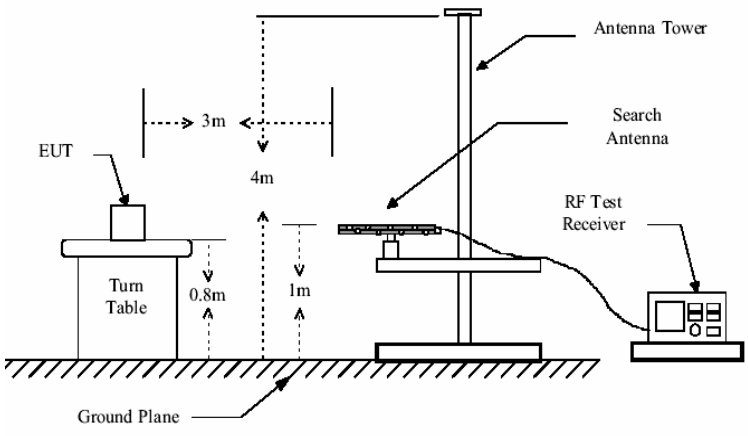
Limit:

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

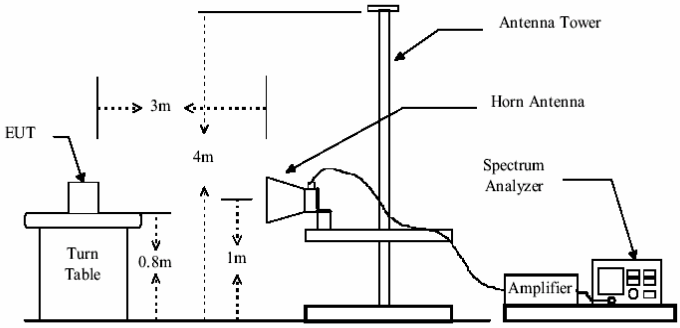
Test Procedure:

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.
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.
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.
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.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
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.

Test setup: Below 1GHz



Above 1GHz



Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Measurement Record:	Uncertainty: ± 4.5dB
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

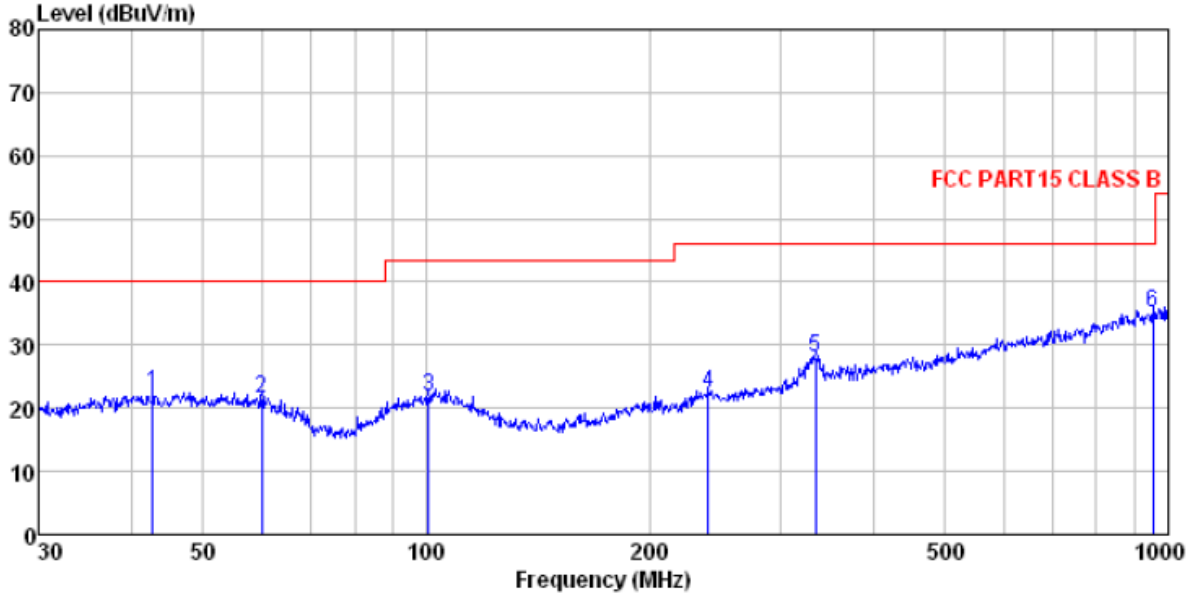
Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

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

Measurement Data

Below 1GHz

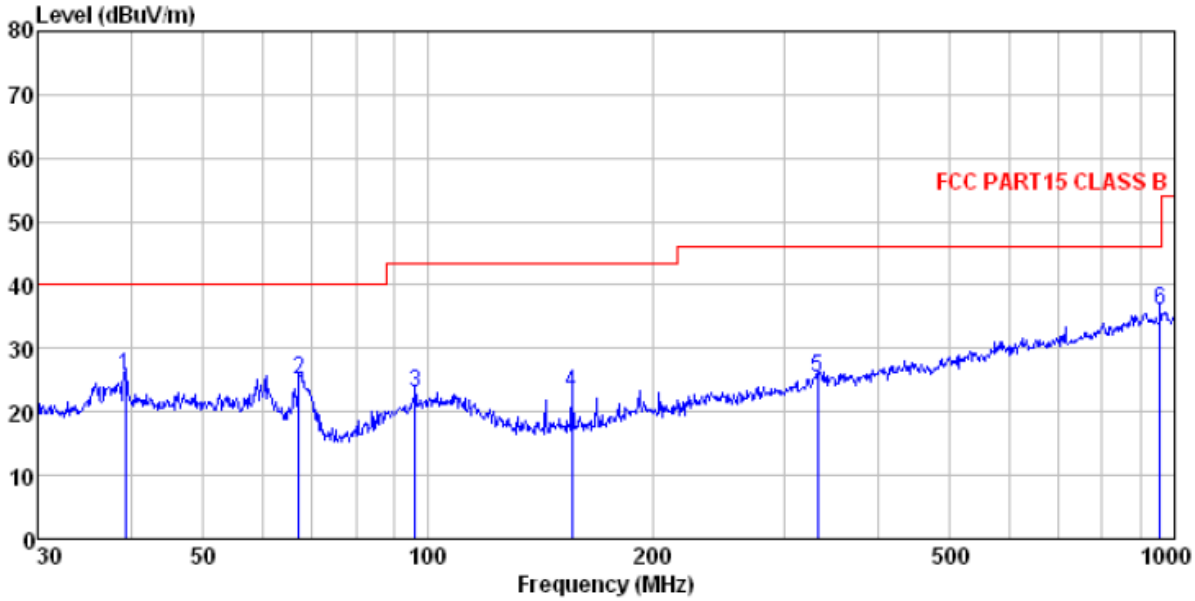
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M HORIZONTAL
Job No. : 1171RF
Test Mode : Receiving mode
Test Engineer: Hank

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	42.750	38.25	15.56	0.69	32.03	22.47	40.00	-17.53	QP
2	60.069	37.86	14.69	0.86	31.94	21.47	40.00	-18.53	QP
3	100.581	37.42	15.11	1.19	31.76	21.96	43.50	-21.54	QP
4	239.987	38.33	14.09	2.07	32.16	22.33	46.00	-23.67	QP
5	334.859	41.71	15.92	2.54	32.07	28.10	46.00	-17.90	QP
6	952.094	37.83	23.43	5.04	31.21	35.09	46.00	-10.91	QP

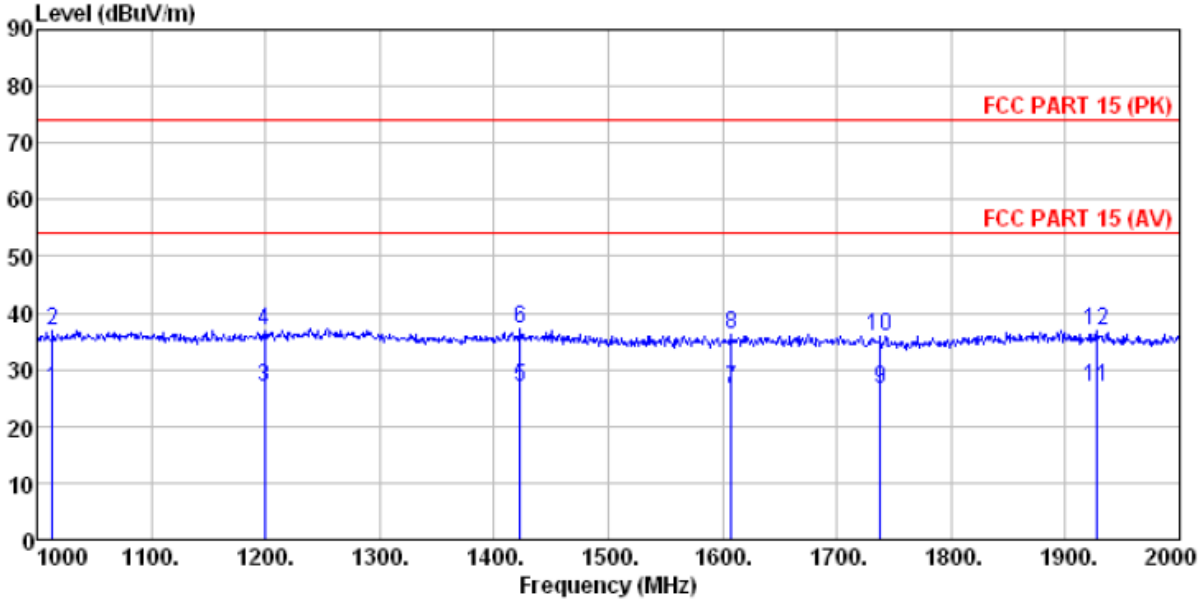
Vertical:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL
Job No. : 1171RF
Test Mode : Receiving mode
Test Engineer: Hank

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	39.299	41.81	15.39	0.65	32.06	25.79	40.00	-14.21	QP
2	67.202	44.42	11.75	0.92	31.90	25.19	40.00	-14.81	QP
3	96.099	38.83	14.90	1.16	31.75	23.14	43.50	-20.36	QP
4	155.910	43.03	10.51	1.60	32.00	23.14	43.50	-20.36	QP
5	332.519	39.16	15.86	2.53	32.08	25.47	46.00	-20.53	QP
6	955.438	38.74	23.46	5.06	31.21	36.05	46.00	-9.95	QP

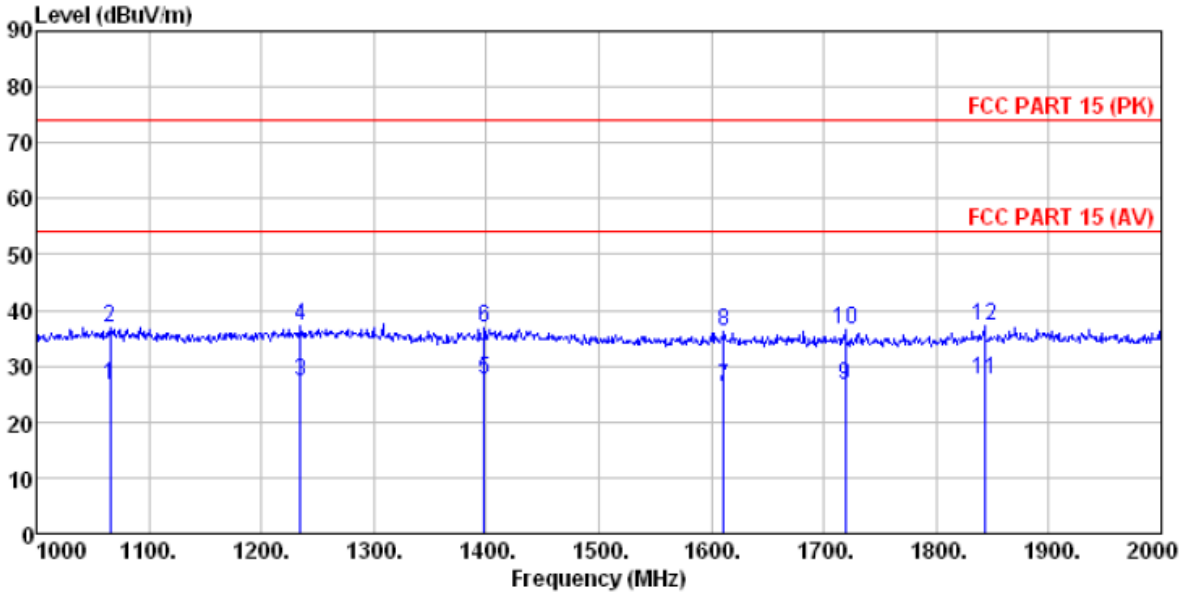
Above 1GHz
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
Job No. : 1171RF
Test Mode : Receiving mode
Test Engineer: Hank

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1014.000	30.42	24.55	4.30	32.78	26.49	54.00	-27.51	Average
2	1014.000	40.86	24.55	4.30	32.78	36.93	74.00	-37.07	Peak
3	1199.000	30.03	25.34	4.47	33.10	26.74	54.00	-27.26	Average
4	1199.000	40.19	25.34	4.47	33.10	36.90	74.00	-37.10	Peak
5	1423.000	30.37	25.47	4.63	33.47	27.00	54.00	-27.00	Average
6	1423.000	40.54	25.47	4.63	33.47	37.17	74.00	-36.83	Peak
7	1608.000	30.66	24.96	4.75	33.79	26.58	54.00	-27.42	Average
8	1608.000	40.32	24.96	4.75	33.79	36.24	74.00	-37.76	Peak
9	1738.000	30.85	25.05	4.82	34.00	26.72	54.00	-27.28	Average
10	1738.000	40.11	25.05	4.82	34.00	35.98	74.00	-38.02	Peak
11	1928.000	30.57	25.86	4.92	34.34	27.01	54.00	-26.99	Average
12	1928.000	40.43	25.86	4.92	34.34	36.87	74.00	-37.13	Peak

Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
Job No. : 1171RF
Test Mode : Receiving mode
Test Engineer: Hank

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1066.000	30.44	24.66	4.35	32.87	26.58	54.00	-27.42	Average
2	1066.000	40.87	24.66	4.35	32.87	37.01	74.00	-36.99	Peak
3	1235.000	30.49	25.48	4.49	33.16	27.30	54.00	-26.70	Average
4	1235.000	40.29	25.48	4.49	33.16	37.10	74.00	-36.90	Peak
5	1398.000	30.77	25.58	4.61	33.42	27.54	54.00	-26.46	Average
6	1398.000	40.07	25.58	4.61	33.42	36.84	74.00	-37.16	Peak
7	1611.000	30.37	24.96	4.75	33.79	26.29	54.00	-27.71	Average
8	1611.000	40.23	24.96	4.75	33.79	36.15	74.00	-37.85	Peak
9	1719.000	30.72	25.01	4.81	33.97	26.57	54.00	-27.43	Average
10	1719.000	40.71	25.01	4.81	33.97	36.56	74.00	-37.44	Peak
11	1843.000	31.44	25.50	4.88	34.20	27.62	54.00	-26.38	Average
12	1843.000	41.01	25.50	4.88	34.20	37.19	74.00	-36.81	Peak