



TEST REPORT

Applicant: Thermor Ltd.

Address of Applicant: 16975 Leslie St., Newmarket, ON, L3Y 9A1, Canada

Equipment Under Test (EUT)

Product Name: DELUXE INDOOR/OUTDOOR THERMOMETER WITH COMFORT INDICATOR

Model No.: 336NC, 336BC, 336BU, 336NU

FCC ID: VX5-336RX

Applicable standards: FCC CFR Title 47 Part 15 Subpart B:2010

Date of sample receipt: August 23, 2012

Date of Test: August 28-29, 2012

Date of report issued: August 30, 2012

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.

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2 Version

Version No.	Date	Description
00	August 30, 2012	Original

Prepared by:

Oscar. Li

Date:

August 30, 2012

Project Engineer

Reviewed by:

Hans. Hu

Date:

August 30, 2012

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:	Thermor Ltd.
Address of Applicant:	16975 Leslie St., Newmarket, ON, L3Y 9A1, Canada

5.2 General Description of E.U.T.

Product Name:	DELUXE INDOOR/OUTDOOR THERMOMETER WITH COMFORT INDICATOR
Model No.:	336NC, 336BC, 336BU, 336NU
Power supply:	DC 4.5V(3*1.5V("AA" Size battery))

5.3 Test mode

Receive mode	Keep the EUT in receive the weather data.
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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 fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, July 20, 2010.
- Industry Canada (IC)
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-1.

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

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna. Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

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	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2013
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 03 2012	Jul. 02 2013
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 26 2012	Feb. 25 2013
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	Mar. 10 2012	Mar. 09 2013
6	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 03 2012	Jul. 02 2013
7	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 03 2012	Jul. 02 2013
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial cable	GTS	N/A	GTS210	Jul. 03 2012	Jul. 02 2013
10	Coaxial Cable	GTS	N/A	GTS211	Jul. 03 2012	Jul. 02 2013

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 2000MHz																							
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>AV</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	AV	1MHz	10Hz	Average Value	
Frequency	Detector	RBW	VBW	Remark																				
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value																				
Above 1GHz	Peak	1MHz	3MHz	Peak Value																				
	AV	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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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"> 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. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 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. 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. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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																							

	<p>Above 1GHz</p>		
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:

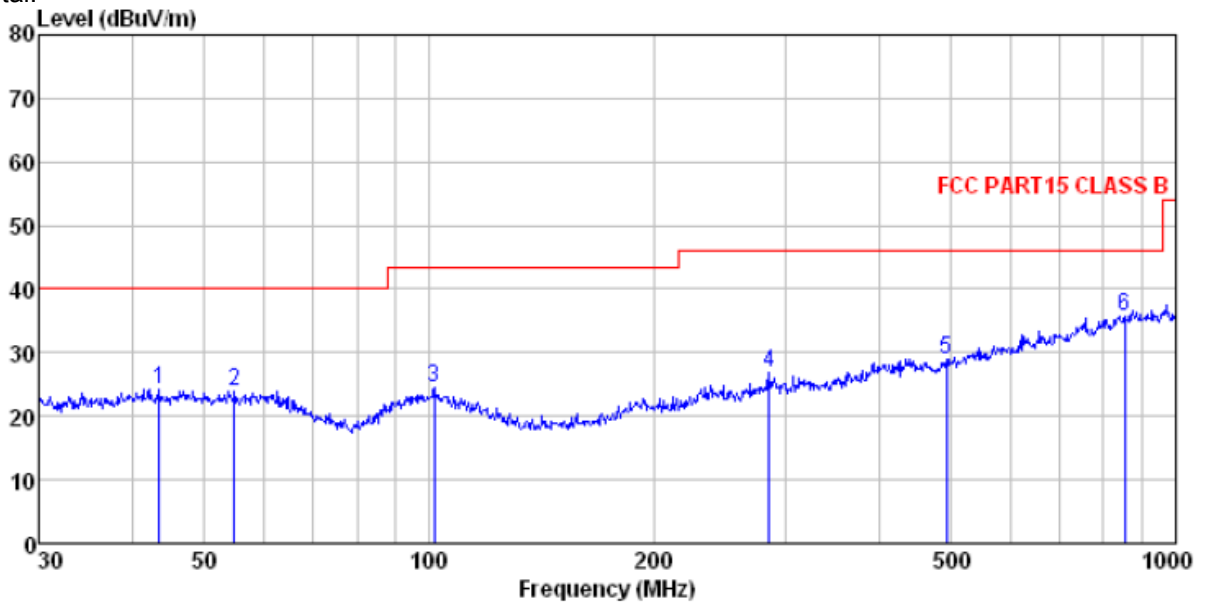
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$Final\ Test\ Level = Receiver\ Reading + Antenna\ Factor + Cable\ Factor - Preamplifier\ Factor$$

Measurement Data

Below 1GHz

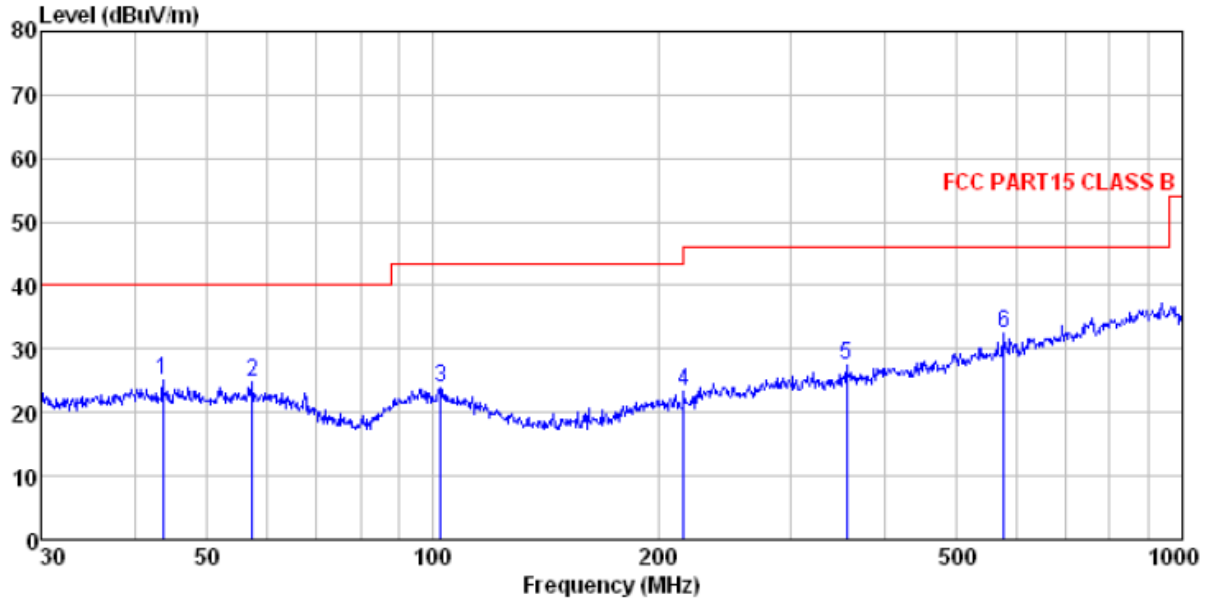
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 HORIZONTAL
 Job No. : 967RF
 Test Mode : Receiving mode
 Test Engineer: Oscscar

	Freq MHz	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
		Level dBuV	Factor dB/m	Loss dB	Factor dB	dBuV/m	Line dBuV/m	Limit dB	
1	43.506	39.05	16.57	0.70	32.02	24.30	40.00	-15.70	QP
2	54.835	39.00	16.11	0.82	31.95	23.98	40.00	-16.02	QP
3	101.644	39.14	16.03	1.21	31.77	24.61	43.50	-18.89	QP
4	284.977	40.93	15.78	2.29	32.17	26.83	46.00	-19.17	QP
5	492.469	38.92	18.39	3.27	31.59	28.99	46.00	-17.01	QP
6	854.025	38.74	23.64	4.68	31.24	35.82	46.00	-10.18	QP

Vertical:

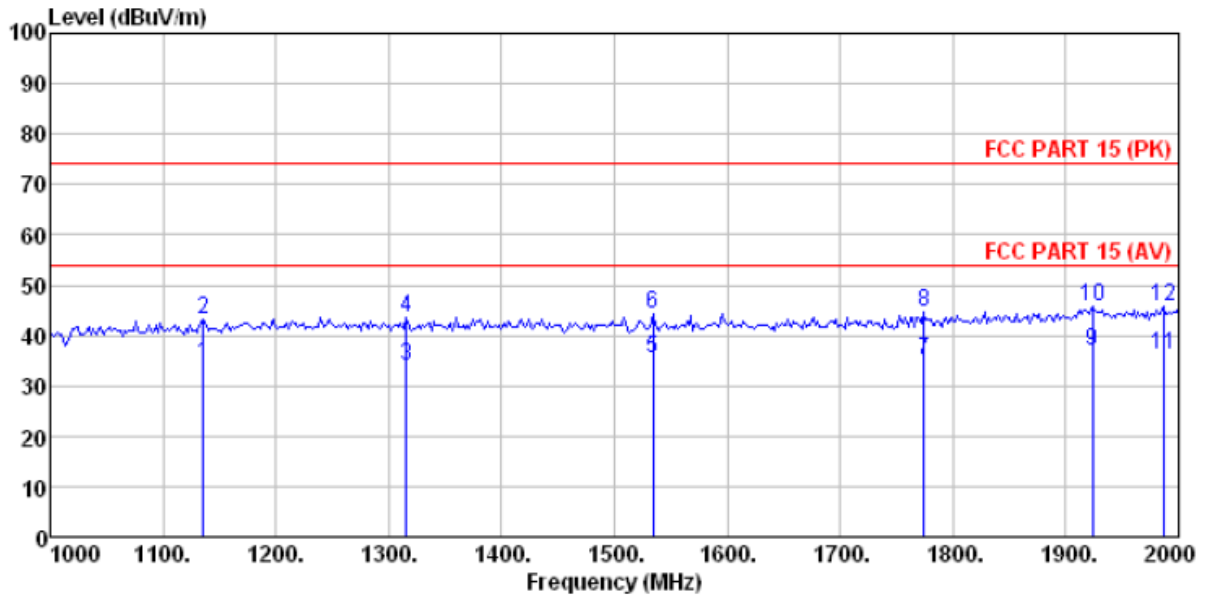


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163 -2012-05 VERTICAL
 Job No. : 967RF
 Test Mode : Receiving mode
 Test Engineer: Oscar

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	MHz	Level	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	43.659	39.73	16.57	0.70	32.02	24.98	40.00 -15.02 QP
2	57.392	39.79	15.96	0.84	31.94	24.65	40.00 -15.35 QP
3	102.360	38.42	15.98	1.21	31.77	23.84	43.50 -19.66 QP
4	216.024	39.49	14.12	1.93	32.15	23.39	46.00 -22.61 QP
5	356.676	40.54	16.40	2.65	32.00	27.59	46.00 -18.41 QP
6	578.670	39.80	20.11	3.64	31.15	32.40	46.00 -13.60 QP

Above 1GHz

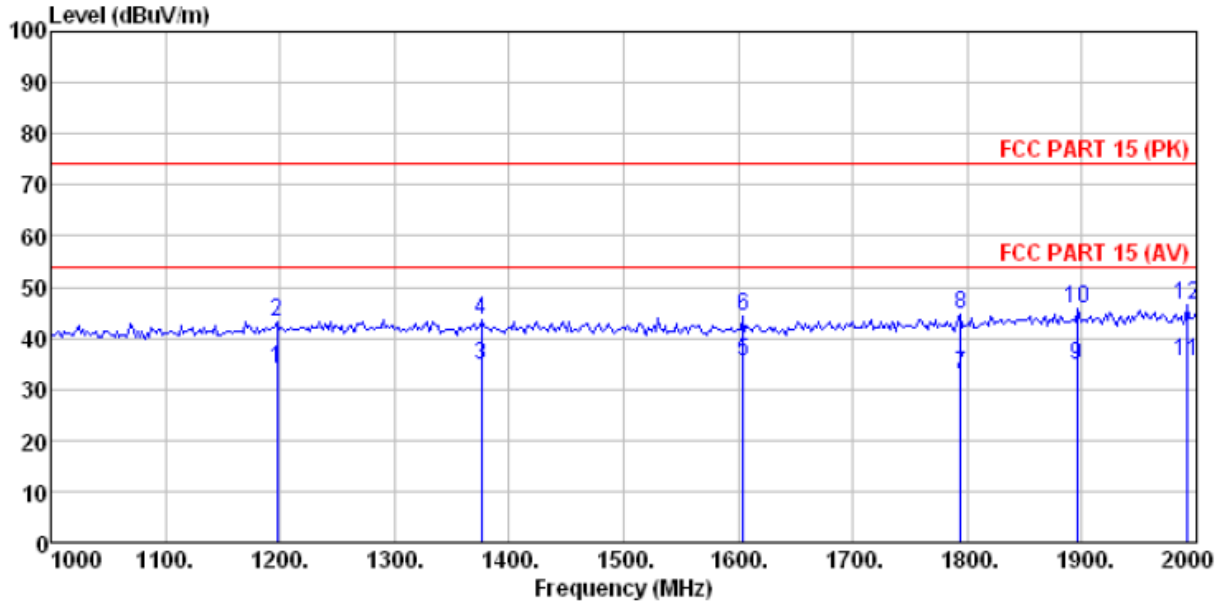
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
 Job No. : 967RF
 Test Mode : Receiveing mode
 Test Engineer: Osccar

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1136.000	36.48	24.92	4.41	31.41	34.40	54.00	-19.60	Average
2	1136.000	45.08	24.92	4.41	31.41	43.00	74.00	-31.00	Peak
3	1316.000	35.16	25.66	4.56	31.59	33.79	54.00	-20.21	Average
4	1316.000	44.91	25.66	4.56	31.59	43.54	74.00	-30.46	Peak
5	1534.000	37.22	25.14	4.70	31.70	35.36	54.00	-18.64	Average
6	1534.000	46.02	25.14	4.70	31.70	44.16	74.00	-29.84	Peak
7	1774.000	36.48	25.17	4.84	31.37	35.12	54.00	-18.88	Average
8	1774.000	45.91	25.17	4.84	31.37	44.55	74.00	-29.45	Peak
9	1924.000	37.48	25.84	4.92	31.19	37.05	54.00	-16.95	Average
10	1924.000	46.08	25.84	4.92	31.19	45.65	74.00	-28.35	Peak
11	1986.000	36.14	26.06	4.95	31.11	36.04	54.00	-17.96	Average
12	1986.000	45.83	26.06	4.95	31.11	45.73	74.00	-28.27	Peak

Vertical:

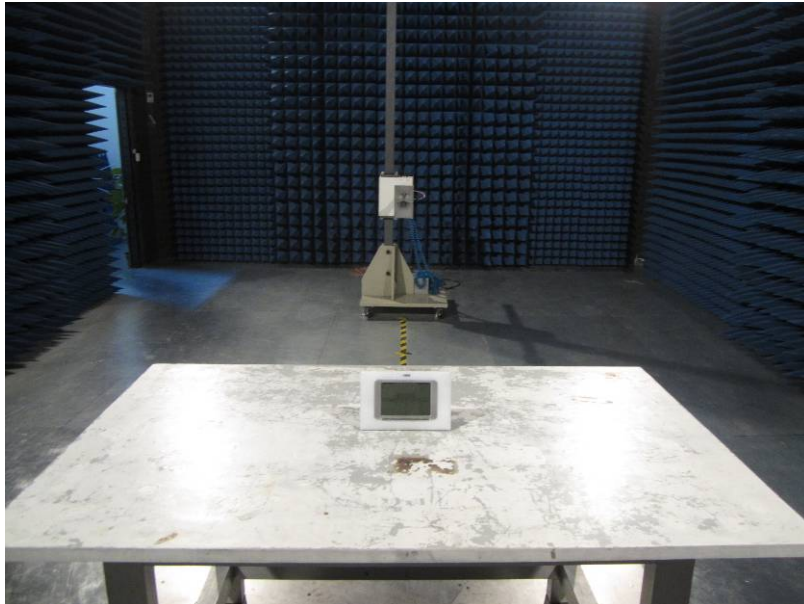
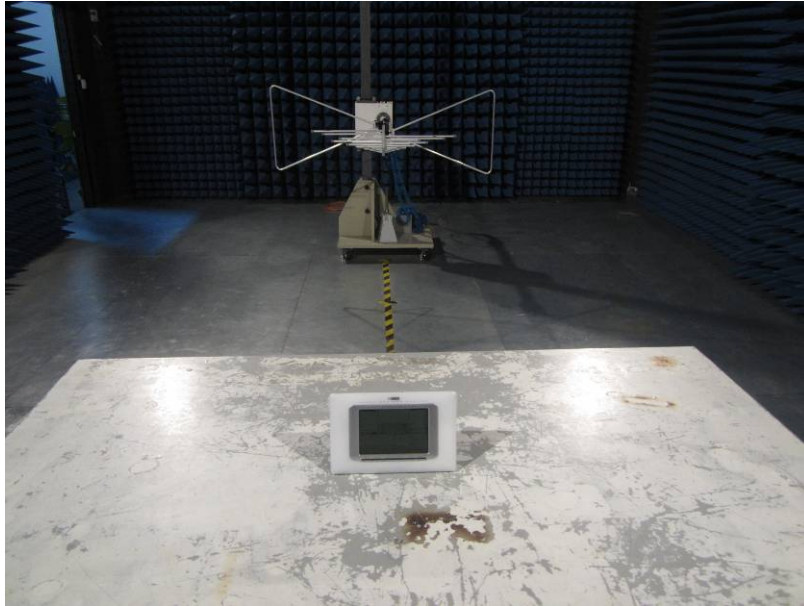


Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
 Job No. : 967RF
 Test Mode : Receiveing mode
 Test Engineer: Osccar

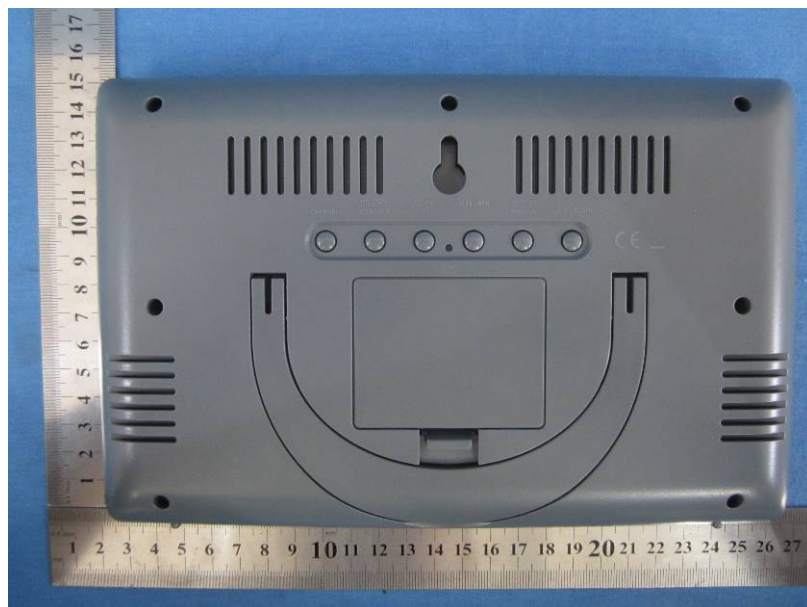
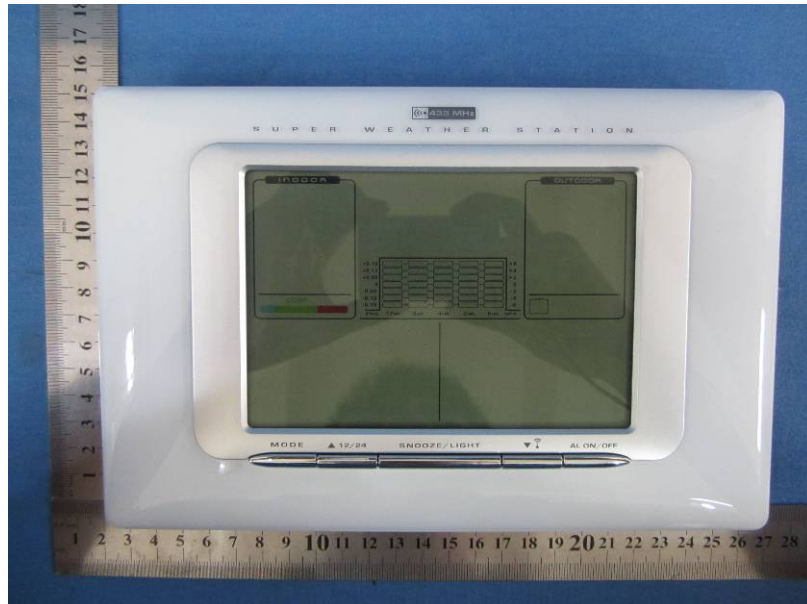
	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1198.000	35.67	25.34	4.47	31.47	34.01	54.00	-19.99	Average
2	1198.000	44.97	25.34	4.47	31.47	43.31	74.00	-30.69	Peak
3	1376.000	36.17	25.65	4.60	31.64	34.78	54.00	-19.22	Average
4	1376.000	45.09	25.65	4.60	31.64	43.70	74.00	-30.30	Peak
5	1604.000	37.18	24.97	4.75	31.60	35.30	54.00	-18.70	Average
6	1604.000	46.14	24.97	4.75	31.60	44.26	74.00	-29.74	Peak
7	1794.000	34.17	25.25	4.85	31.34	32.93	54.00	-21.07	Average
8	1794.000	45.77	25.25	4.85	31.34	44.53	74.00	-29.47	Peak
9	1896.000	35.14	25.72	4.91	31.21	34.56	54.00	-19.44	Average
10	1896.000	46.17	25.72	4.91	31.21	45.59	74.00	-28.41	Peak
11	1992.000	35.48	26.08	4.95	31.11	35.40	54.00	-18.60	Average
12	1992.000	46.43	26.08	4.95	31.11	46.35	74.00	-27.65	Peak

8 Test Setup Photo

Radiated Emission

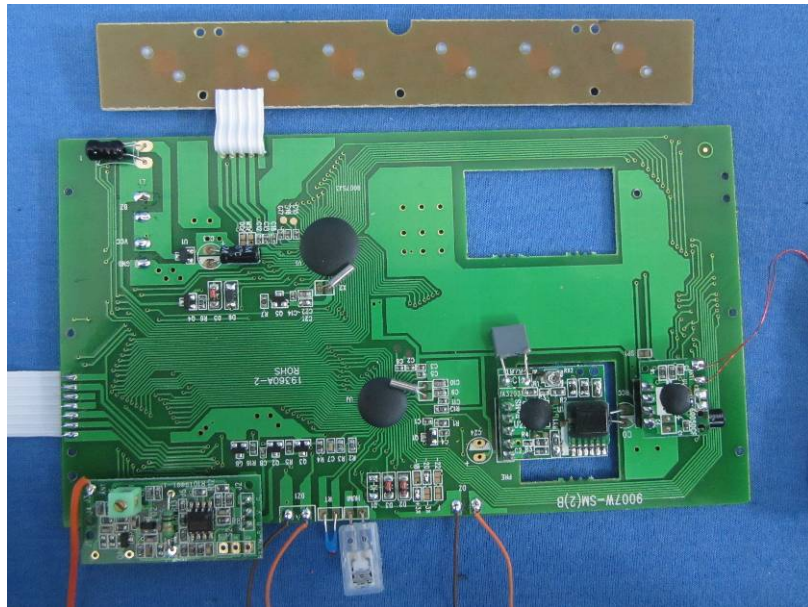
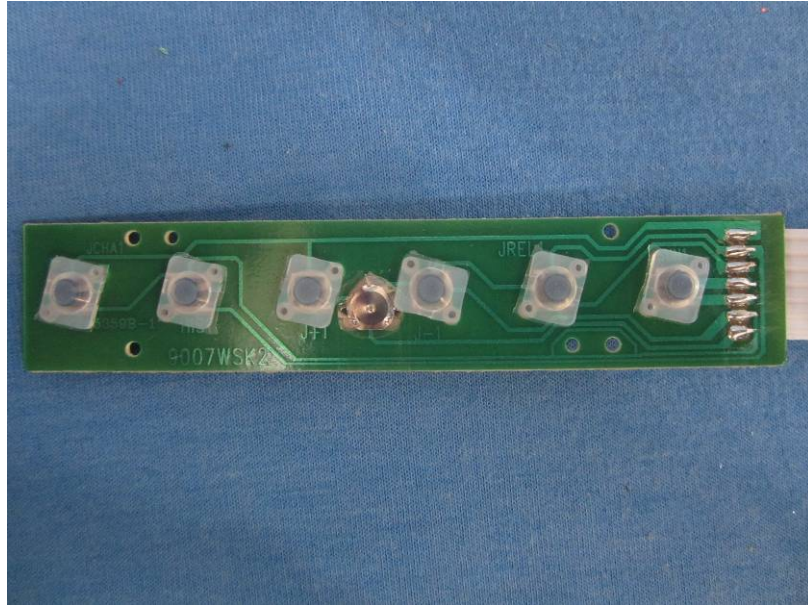


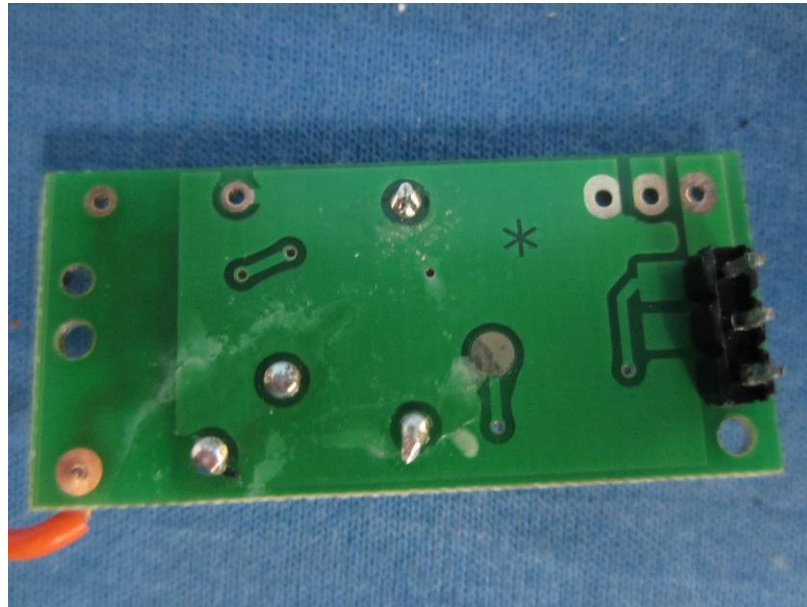
9 EUT Constructional Details











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