DAT-P-174/04-00 NO.L0447 Registration No.612767

TEST REPORT

Report No.: SRMC2008-H024-E0020

Product Name: Wireless Thermometer Transmitter

Product Model: TMT-53590

Manufacture: Competition-Pool Inc.

Specification: FCC Part 15

RSS-210 Issue 7, Annex 1

FCC ID: VXRTMT53590

IC ID: 7597A-TMT53590

The State Radio Monitoring Center, Equipment Testing Division

The State Radio Spectrum Monitoring and Testing Center

No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-68009202 Fax: 86-10-68009205

CONTENTS

1 General Information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission or The State Radio Monitoring Center.
The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company:	The State Radio Monitoring Center, Equipment Testing Division The State Radio Monitoring and Testing Center
Address:	No.80 Beilishi Road, Xicheng District, Beijing China
City:	Beijing
Country or Region:	China
Contacted Person:	Wang Junfeng
Tel:	+86 10 68009181 +86 10 68009202
Fax:	+86 10 68009195 +86 10 68009205
Email:	Wangjf@srrc.org.cn
Accreditations:	FCC Registration Number 612767 Canada Registration Number 7308A

1.3 Applicant's details

Company Name:	COMPETITION-POOL INC.
Address:	12775 rue Brault, Mirabel, Qc, Canada, J7J 0C4

1.4 Manufacturer's details

Company Name:	COMPETITION-POOL INC.
Address:	12775 rue Brault, Mirabel, Qc, Canada, J7J 0C4

1.5 Application details

Date of receipt of application: 10 Dec. 2007
Date of receipt of test sample: 4 May 2008
Date of test: 8 May 2008

1.6 Reference specification

FCC Part 15: 2006
RSS-210 Issue 7, Annex 1:2007

1.7 Information of EUT

MAIN EUT	
MANUFACTURING DESCRIPTION	Wireless Thermometer with Waterproof Transmitter operating on frequency 433.92MHz
MANUFACTURER	Competition-Pool Inc.
TYPE	TMT-53590
HARDWARE VERSION	5459
SOFTWARE VERSION	VT2.0
TRANSMITTER OPERATING RANGE	433.92MHz
RECEIVER OPERATING RANGE	N/A
COUNTRY OF ORIGIN	China
INTERMEDIATE FREQUENCIES	None
OUTPUT POWER (mW or dBm)	0.126mW
FCC ID	VXRTMT53590
INDUSTRY CANADA ID	7597A-TMT53590
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The Equipment Under Test (EUT) was a short range device which working in 433.92MHz using for detecting the temperature of the swimming pool then sending to the receiver by every 5 minutes.
POWER SUPPLY	
MANUFACTURING DESCRIPTION	The transmitter and receiver were powered by 2 AA new batteries respectively

1.8 Test Environment and Configuration

Environment	Temperature(℃)	Humidity(%)	Atmospheric Pressure(mbar)
Ambient	+25	42	1020

Normal Supply Voltage (Vdc)	3.0

Configuration 1	The transmitter was set to continuous transmitting for radiation emission testing.
Configuration 2	The transmitter was set to normal transmitting for Bandwidth testing.

2 Test information

2.1 Summary of the test results:

A brief summary of the tests carried out is shown below.

FCC Part 15C and RSS-210 Issue 7, Annex 1

Test	FCC Specification	RSS Specification	Test Description	Result
2.2	Part 15.231 (e)	RSS-210, A1.1.5	Radiated Emissions	Pass
2.3	Part 15.231 (c)	RSS-210, A1.1.3	Bandwidth Testing	Pass

This Test Report Is Issued by:	Checked by:
Tested by:	Issued date:
	2008.5.13

2.2 RADIATED EMISSIONS

2.2.1 Specification Reference

FCC Part 15 Subpart C, Section 15.205, 15.209, 15.231(e)
RSS-210 A1.1.5

2.2.2 Equipment Under Test

Wireless Thermal Meter Transmitter TMT-53590 working in configuration 1 described in section 1.8.

2.2.3 Date of Test

8 May 2008

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

The test set-up was made in accordance to the general provisions of ANSI C63.4-2003.

The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna.

The radiated emissions measurements were made in a typical installation configuration.

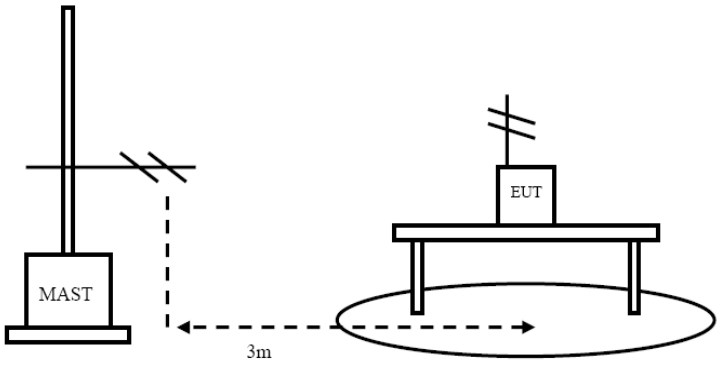
Then start the test software ES-K1. Sweep the whole frequency band through the range from 30MHz to 1GHz or above, using receive log period antenna HL562 or Ridge horn antenna HF906.

Frequency Range	RBW	VBW
30 – 1000 MHz	120 KHz	300 KHz
1 G –4. 5 G Hz	1 MHz	3 MHz

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level.

The measurements shall be repeated with orthogonal polarization of the test antenna.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.



2.2.6 Test Results

Radiated emissions at fundamental frequency and harmonics

Frequency (MHz)	Peak Field Strength			Average Field Strength			Height cm	Azimuth Deg	Polarization	Verdict
	Level dBμV/m	Limit dBμV/m	Margin dB	Level dBμV/m	Limit dBμV/m	Margin dB				
434.468938	87.07	92.87	-5.8	71.12	72.87	-1.75	100	180	V	Pass
867.735471	55.30	72.87	-17.57	38.14	52.87	-14.73	120	270	V	Pass
1300.601202*	31.91	74	-42.09	26.85	54	-27.15	150	180	V	Pass
1737.474950	35.33	74	-42.09	35.28	54	-18.72	100	0	V	Pass
2170.340681	37.35	74	-36.65	36.31	54	-17.69	108	270	V	Pass
2603.206413	43.05	74	-30.95	42.94	54	-11.06	210	0	V	Pass
3036.072144	33.85	74	-40.15	33.80	54	-20.20	230	270	V	Pass
3471.943888	36.35	74	-37.65	35.75	54	-18.25	100	270	V	Pass
3904.809619	36.21	74	-37.79	35.80	54	-18.20	120	270	V	Pass
4337.675351*	39.31	74	-34.69	37.78	54	-16.22	100	270	V	Pass

Note: 1) Negative sign(-) in Margin column signify levels below the limits.
2) All other emission not reported are below the equipment noise floor which is at least 6dB below the limit.
3) * Represent restricted frequency band per FCC 15.205 and RSS-210 Table 1.

Remarks

The equipment complies with the radiated spurious limits of 15.231 (b) or RSS-210, A1.1.2 substituted by the tighter limits of 15.231 (e) or RSS-210, A1.1.5, or the general radiated spurious limits of 15.209 as referenced by15.231(b) (2) via 15.205, for all frequencies in the range 30 MHz- 4500MHz.

2.3 BANDWIDTH TESTING

2.3.1 Specification Reference

FCC CFR 47: Part 15 Subpart C, Section 15.231(c)
RSS-210, Issue7 A1.1.3

Per 15.231 (c) or A1.1.3, The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz.

2.3.2 Equipment under Test

Wireless Thermal Meter Transmitter TMT-53590 working in configuration 2 described in section 1.8.

2.3.3 Date of Test

8 May 2008

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The EUT was transmitting at maximum power. A resolution bandwidth of 10 kHz and a video bandwidth of 10 kHz was used, the -20dB bandwidth and Occupied bandwidth (99% Power bandwidth) were measured.

The plot below shows the resultant display from the Spectrum Analyser.

2.3.6 Test Results

Bandwidth As Defined By The –20dB Points is 336.67KHz
The Occupied Bandwidth (99% Power bandwidth) is 511.58KHz

Frequency MHz	20dB Bandwidth KHz	Occupied Bandwidth KHz	Limit
433.92	336.67	511.58	$433.92X10^6$ X 0.25%=1084.8KHz

Remarks

EUT complies with 15.231(c) or RSS-210, A1.1.3. The 20dB Bandwidth and Occupied Bandwidth does not exceed 0.25% of the center frequency.

3 TEST EQUIPMENT AND MEASUREMENT UNCERTAINTY

3.1 Test Equipment

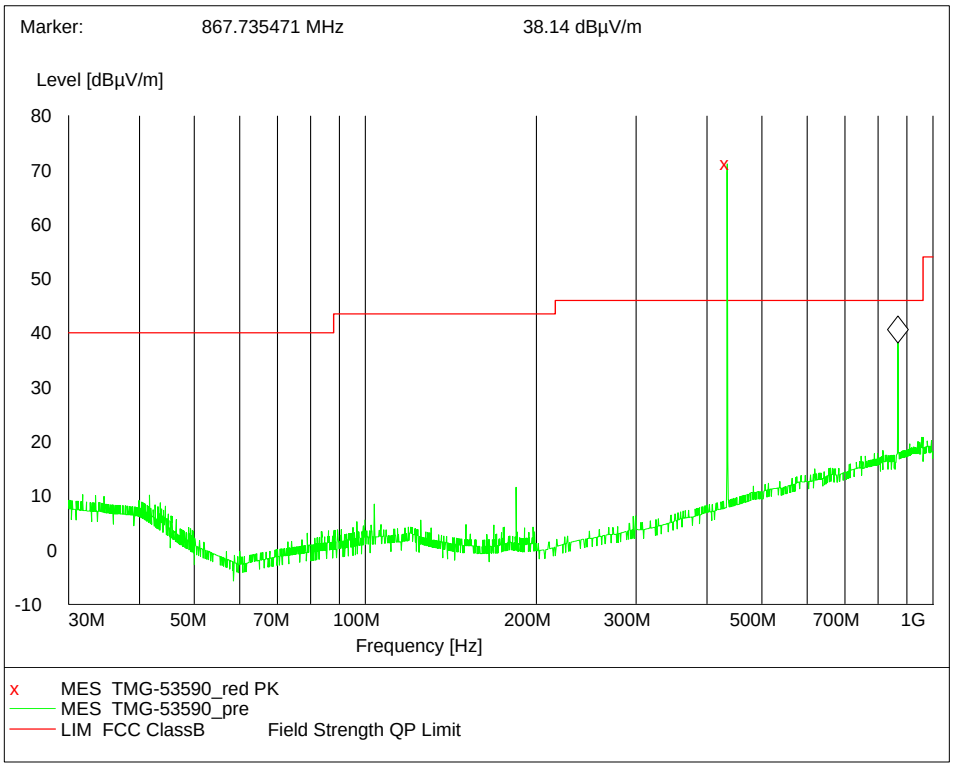
Instrument	Manufacturer	Type No	TE Number	Calibration Due
Test Receiver	Rohde & Schwarz	ESI 40	100015	Aug. 2008
Spectrum Analyzer	Agilent	8562A	3043A05575	June. 2008
Signal generator	Rohde & Schwarz	SMR 20	100086	Aug. 2008
Ultra log test antenna	Rohde & Schwarz	HL562	100016	Aug. 2008
Double-Ridged Waveguide Horn Antenna	Rohde & Schwarz	HF 906	100030	Aug. 2008
Turn Table	FRANKONIA	PS2000	--	Aug. 2008
Antenna Master	FRANKONIA	MA260	--	Aug. 2008
EMI test software	Rohde & Schwarz	ES-K1	--	Aug. 2008
Semi-Anechoic Chamber	FRANKONIA	23.18m×16.88m×9.60m	--	Aug. 2008
Hygrometer	AZ	8705	9151665	Dec. 2008

3.2 MEASUREMENT UNCERTAINTY

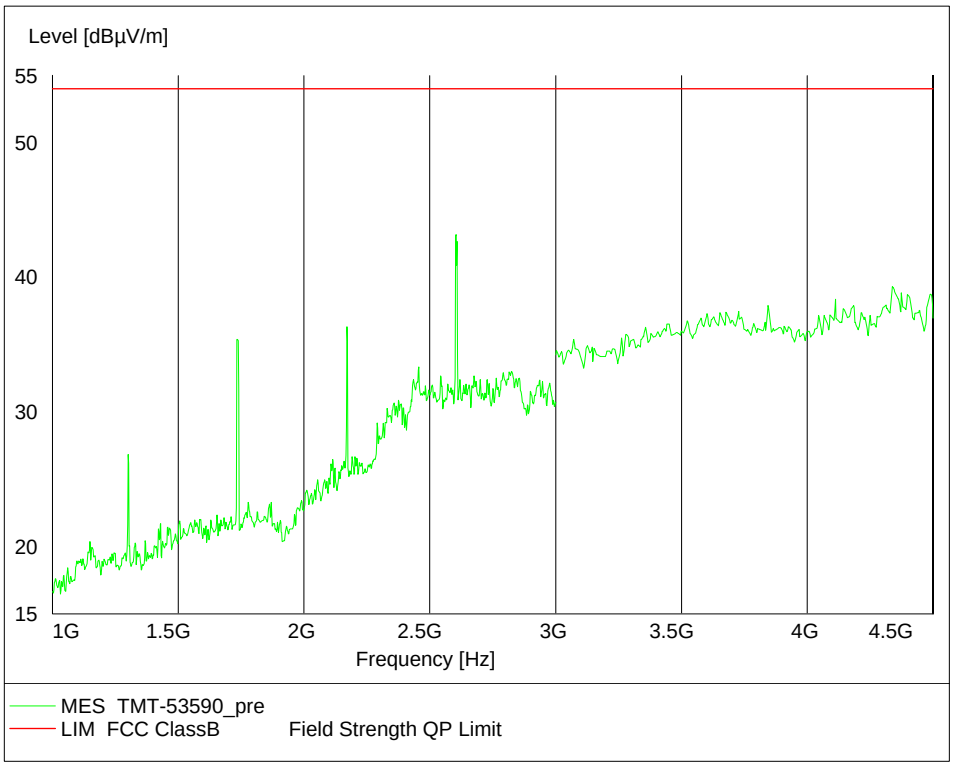
For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna,	30MHz to 1GHz Amplitude	3.1dB
Radiated Emissions, Horn Antenna,	1GHz to 40GHz Amplitude	3.3dB

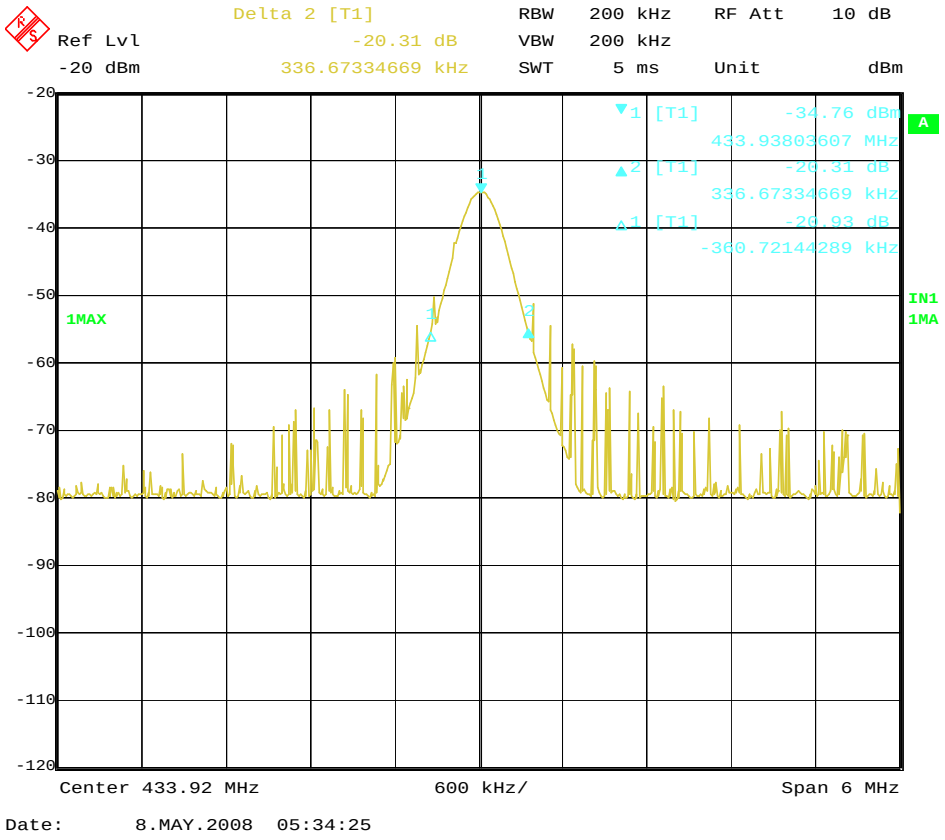
4 PLOTS OF TEST RESULTS



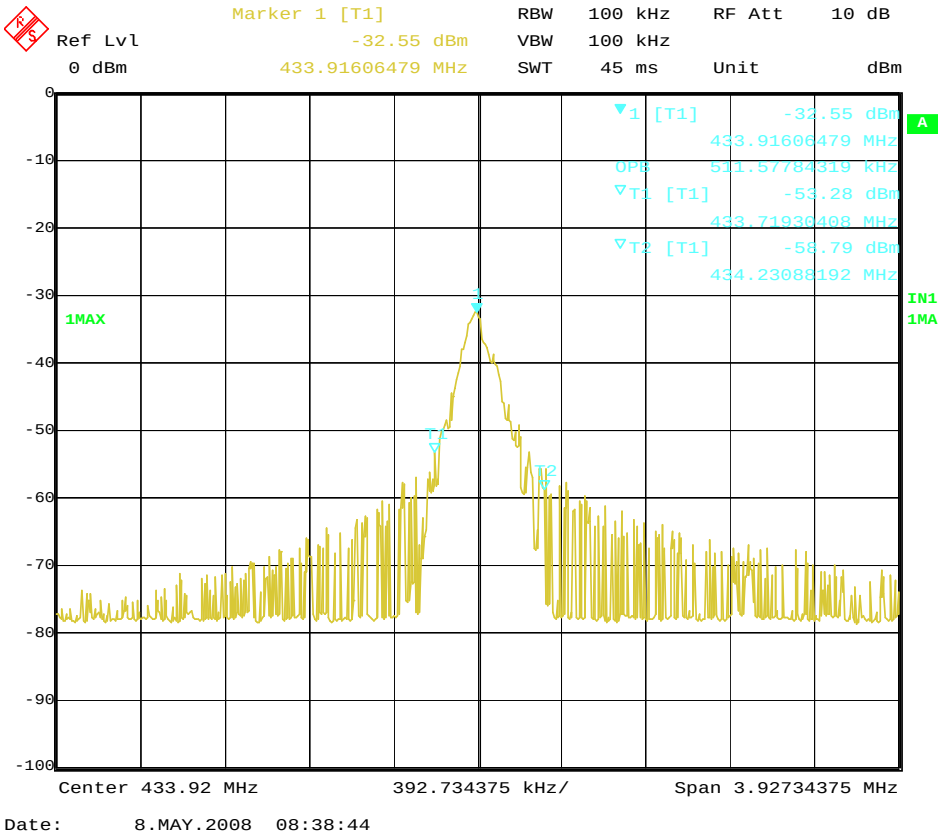
Plot1 Emission 30MHz- 1GHz (the emission beyond limit is that on operating frequency)



Plot2 Emission 1GHz- 4.5GHz



Plot3 Bandwidth under -20dB point



Plot4 Occupied Bandwidth (99% Power bandwidth)

APPENDIX

Appendix1 test setup