

**EMC**

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Job Number:	11U13543
Project Number:	SR7342894-T001
Date:	2011-02-15
Revision Date:	2011-03-23
Model:	QuickTouch II
FCC ID:	P4H-QTII
IC Number:	4249A-QTII

Electromagnetic Compatibility Test Report

For

Pentair Water Pool & Spa

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Job Number: 11U13543 File Number:
Model Number: QuickTouch II
Client Name: Pentair Water Pool & Spa
FCC ID: P4H-QTII IC Number: 4249A-QTII

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Test Report Details

Tests Performed By: **Underwriters Laboratories Inc.
1285 Walt Whitman Rd.
Melville, NY 11747**

Tests Performed For: **Pentair Water Pool & Spa
10951 W. Los Angeles Ave.
Moorpark, CA 93021**

Agent: **Secure Wireless, Inc
5817 Dryden Place, Suite D
Carlsbad, CA 92008**

Agent Contact: **Jay Stone**
Phone: **(866) 966-9473**
E-mail: **jay@mysecurewireless.com**

Test Report Date: **2011-02-15**
Test Report Revision Date: **2011-03-23**

Product Type: **Remote Control**

Product standards **FCC Part 15, Subpart C, 15.231, RSS-GEN Issue 3, RSS-210
Issue 8**

Model Number: **QuickTouch II**

Sample Serial Number: **Non-serialized production unit**

EUT Category: **Periodic Low Power Transmitter**

Testing Start Date: **2011-02-05**

Date Testing Complete: **2011-02-15**

Overall Results: Compliant

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any agency of the US government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None	Original	-	-
2011-03-12	Changed applicant and changed original applicant to agent.	B. DeLisi	M. Antola
2011-03-23	Changed model from Pentair QuickTouch II to QuickTouch II	B. DeLisi	Not required for this change.

1.0 GENERAL - Product Description

1.1 Equipment Description

The QuickTouch II is a remote control used for pool and spa control.

Per FCC Part 2.1093 (C) this device is not required to undergo testing for radio-frequency radiation exposure.

Antenna description: Permanently attached to the RF circuit board internal loop type.

The transmissions are triggered by the button push.

1.2 Equipment Marking Plate

Not available at time of test.

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1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Remote Control	Pentair Water Pool & Spa	QuickTouch II	None
Note: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)				

1.3.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	Mains	Batt	NA	NA	2 x 3V Lithium batteries
Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) Batt = Battery TP = Telecommunication Ports					

1.3.3 EUT Internal Operating Frequencies:

Frequency (MHz)	Description
4	Resonator
13.0625	Crystal
418	Transmit Frequency

1.3.4 Power Interface:

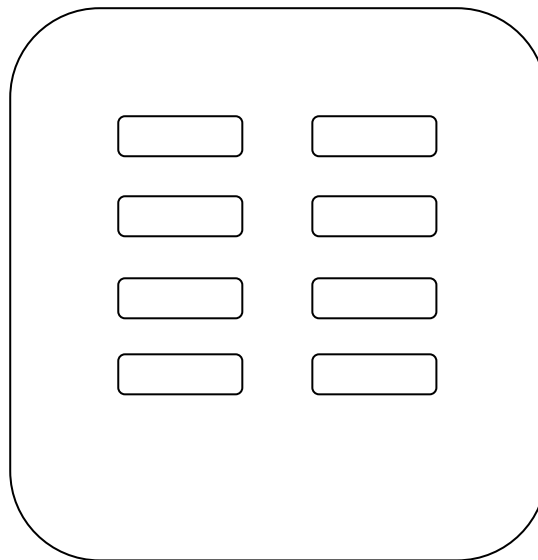
Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	6	-	-	DC	-	2 x 3Vdc Lithium Batteries

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1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



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1.5 EUT Configurations

Mode #	Description
1	Stand-alone

1.6 EUT Operation Modes

Mode #	Description
1	Continuously transmitting
2	Transmitting on button push

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2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

2.1 Deviations from standard test methods

None

2.2 Device Modifications Necessary for Compliance

None

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2.3 Reference Standards

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart C, 15.231	Code of Federal Regulations, Part 15, Radio Frequency Devices	2011
RSS-GEN, Issue 3	General Requirements and Information for the Certification of Radiocommunication Equipment	2010
RSS-210, Issue 8	Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	2010

2.4 Results Summary

This product is considered a Periodic Operating Transmitter

Requirement – Test	Result (Compliant / Non-Compliant)*
Cease Operation	Compliant
Radiated Emissions	Compliant
Occupied Bandwidth	Compliant
Pulse Train - Averaging Factor	Compliant

Test Engineer:

Reviewer:



Bob DeLisi (Ext.22452)
Senior Staff Engineer
International EMC Services
Conformity Assessment Services-

Michael Antola (Ext. 23053)
Senior Project Engineer
International EMC Services
Conformity Assessment Services

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

----- North America -----

Code of Federal Regulations Title 47	Part 15, Subpart C
Industry Canada	RSS-GEN, RSS-210

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

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4.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.	
Basic Standard		FCC Part 15, Subpart C, 15.215
Occupied Bandwidth Limits		
0.25% Fo		

Table 1 Occupied Bandwidth Configuration Settings

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	2
Supplementary information: None		

Table 2 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
0.010	-20	99
Supplementary information: None		

Table 3 Occupied Bandwidth Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2010-02-22	2011-02-22
Dipole Antenna	EMCO	3121C	3359	2010-12-08	2011-12-08
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07

Job Number: 11U13543 File Number:
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Client Name: Pentair Water Pool & Spa
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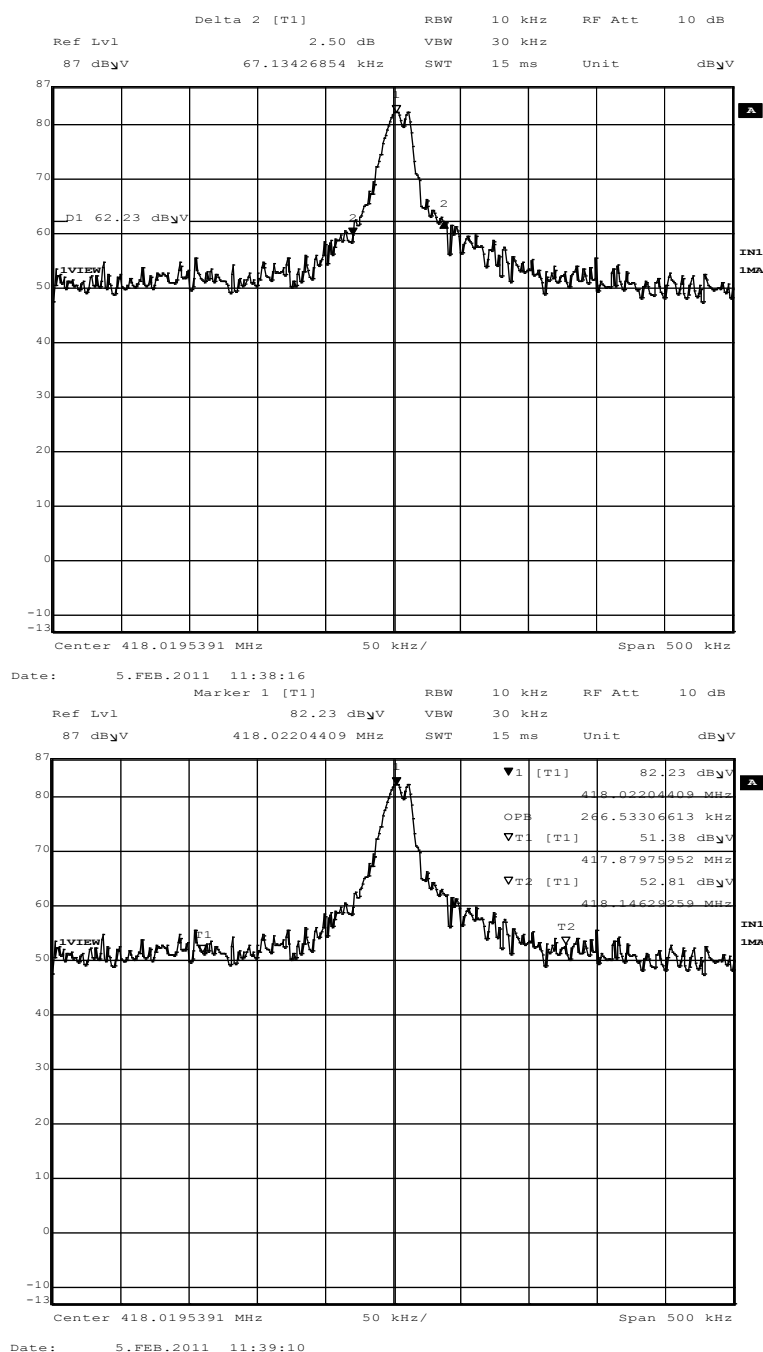
Figure 1 Test Setup for Occupied Bandwidth



Table 4 Occupied Bandwidth Results

Power Mode	Frequency (MHz)	20dB OBW (kHz)	99% OBW (kHz)	Limit (MHz)	Result
Battery	418	67.13	266.53	1.05	Pass

Figure 2 Occupied Bandwidth Graph



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4.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.
Basic Standard	FCC Part 15, 15.215
Cease Operation Limits	
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.	

Table 5 Cease Operation Configuration Settings

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	2
Supplementary information: None		

Table 6 Cease Operation Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2010-02-22	2011-02-22
Dipole Antenna	EMCO	3121C	3359	2010-12-08	2011-12-08
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07

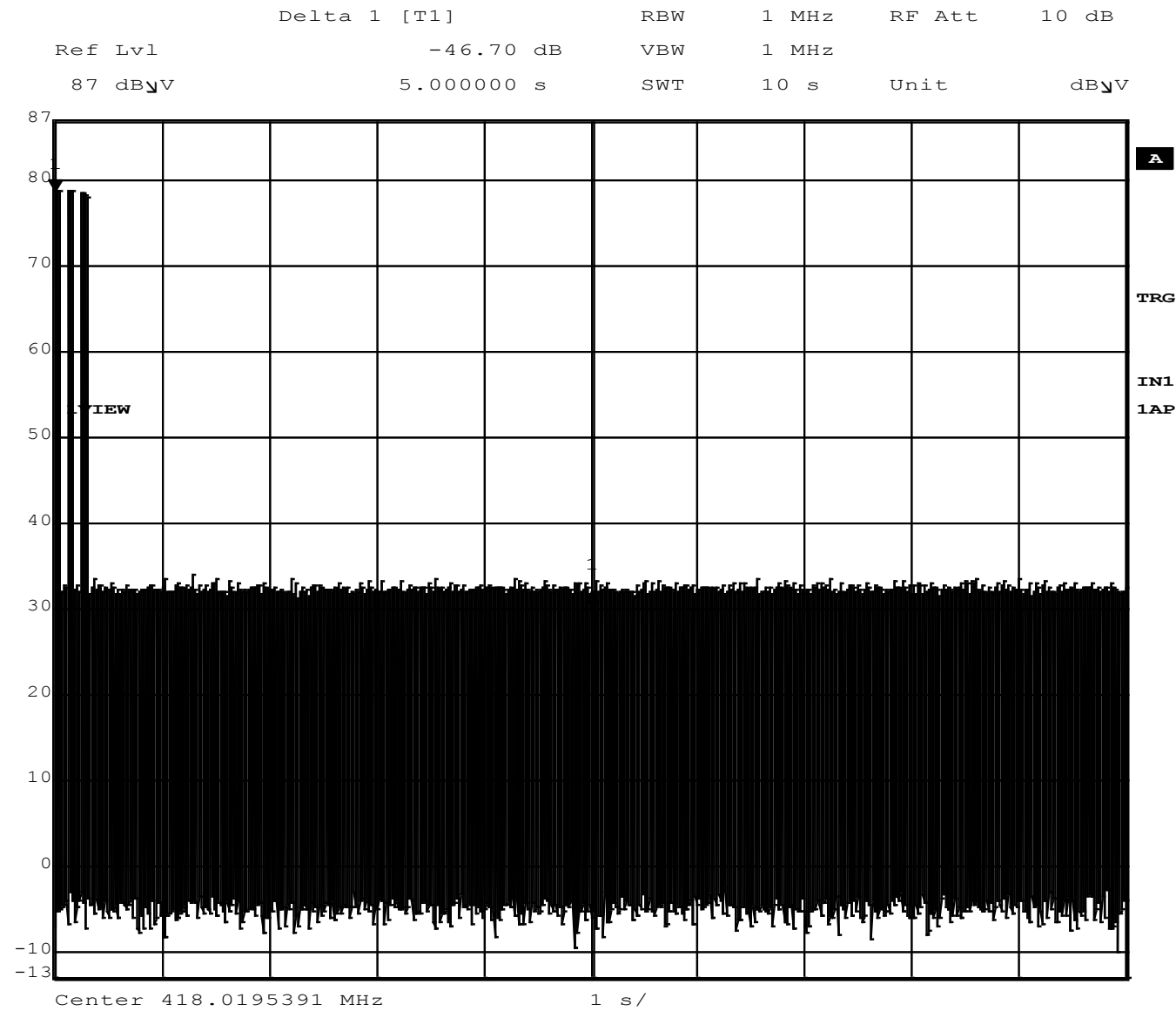
Job Number: 11U13543 File Number:
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Figure 3 Test Setup for Cease Operation



Figure 4 Cease Operation Graph



Date: 5.FEB.2011 11:27:08

Job Number: 11U13543 File Number:
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4.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.		
Basic Standard		FCC Part 15 Subpart A, 15.35	
Pulse Train Limits			
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.			

Table 7 Pulse Train Configuration Settings

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	2
Supplementary information: None		

Table 8 Pulse Train Calculation

Pulse Width (mS)	Total Transmission time or 100ms which ever is lesser	Average Correction Factor (dB) $20 \log \left(\frac{PulseWidth}{TotalTransmissionTime} \right)$
$18 \times 0.417 = 7.51$ $23 \times 0.834 = 19.18$ $19.18 + 7.51 = 26.69$ (total on time)	100	-11.47

Table 9 Pulse Train Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2010-02-22	2011-02-22
Dipole Antenna	EMCO	3121C	3359	2010-12-08	2011-12-08
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07

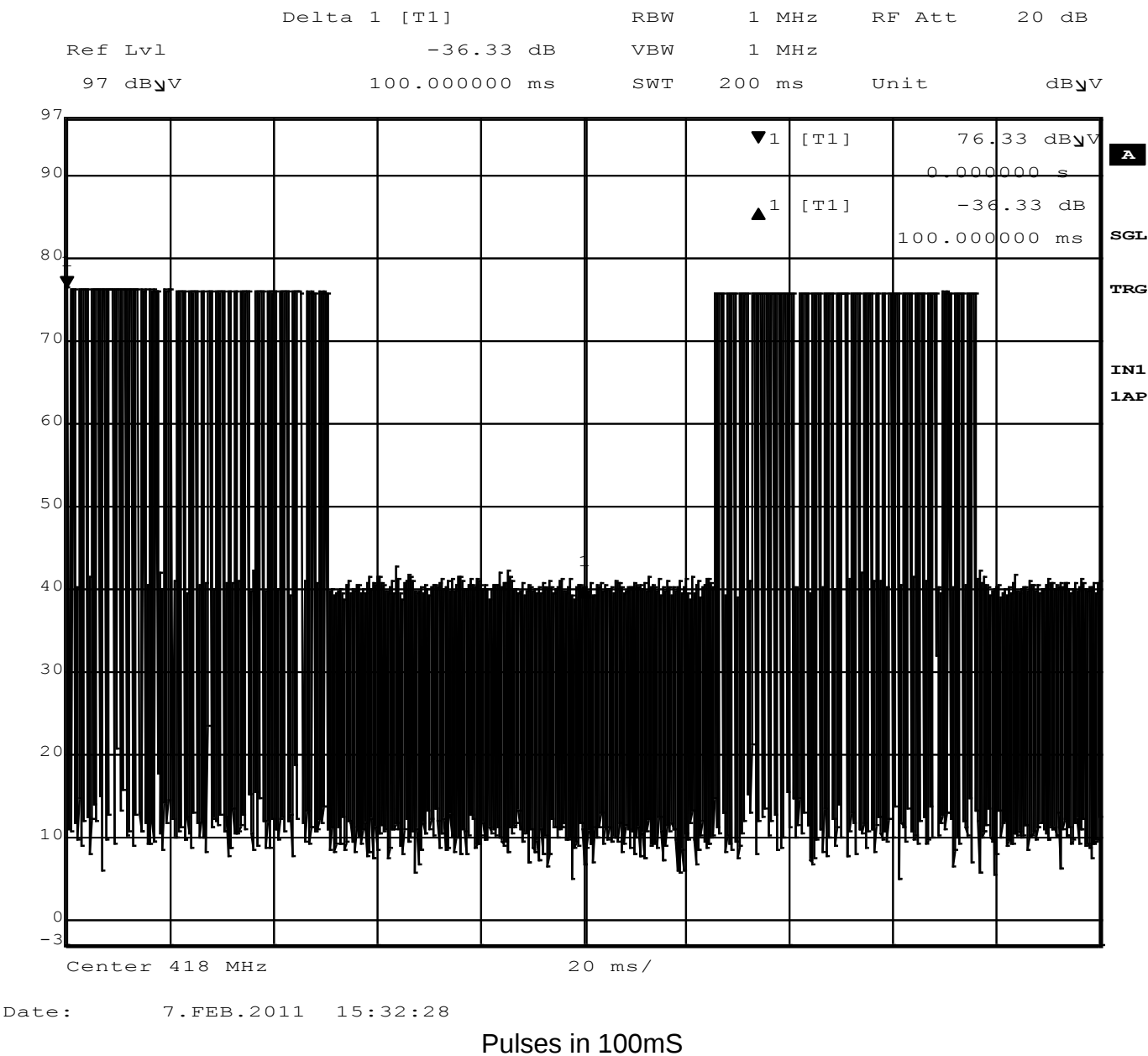
Job Number: 11U13543 File Number:
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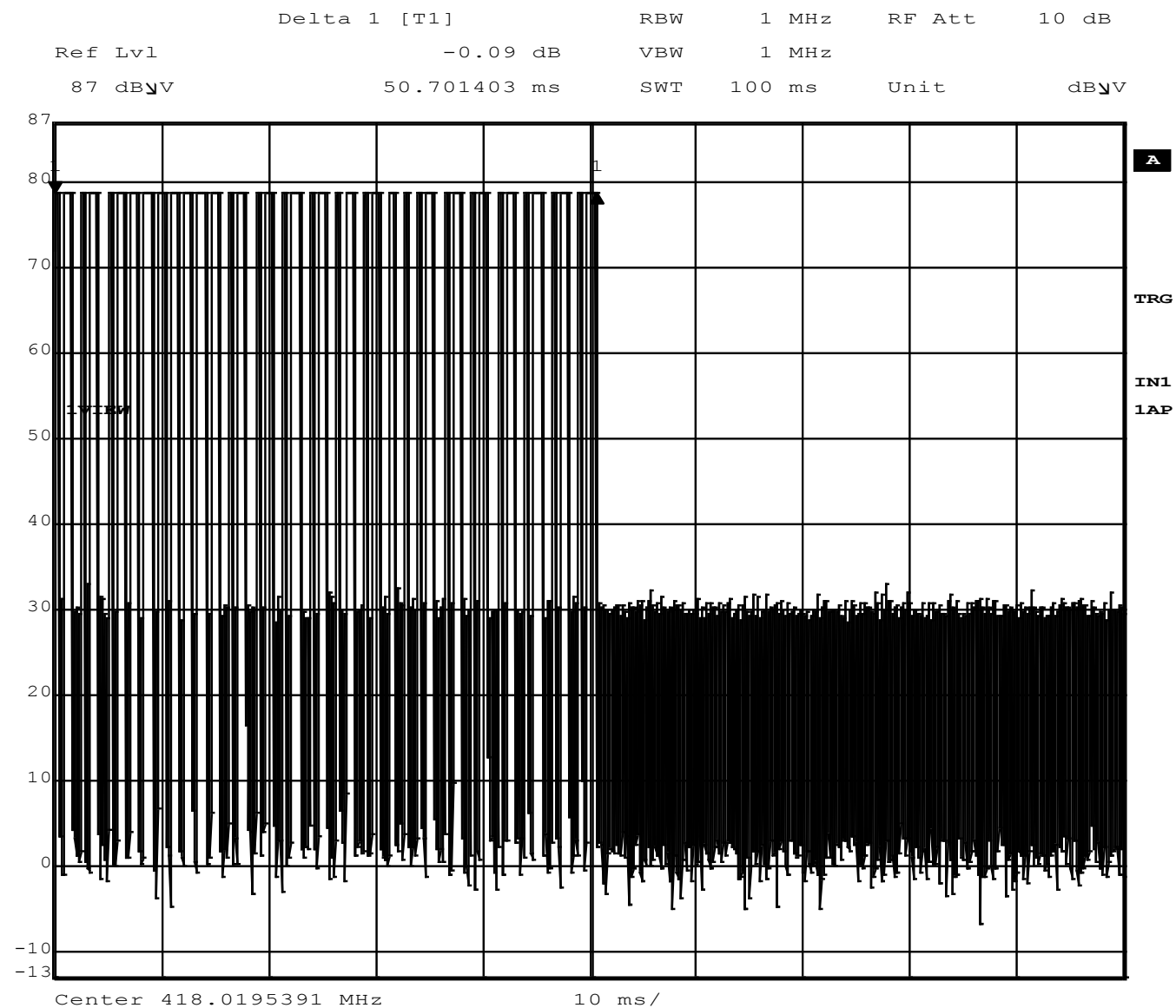
Figure 5 Test Setup for Pulse Train



Figure 6 Pulse Train Graph

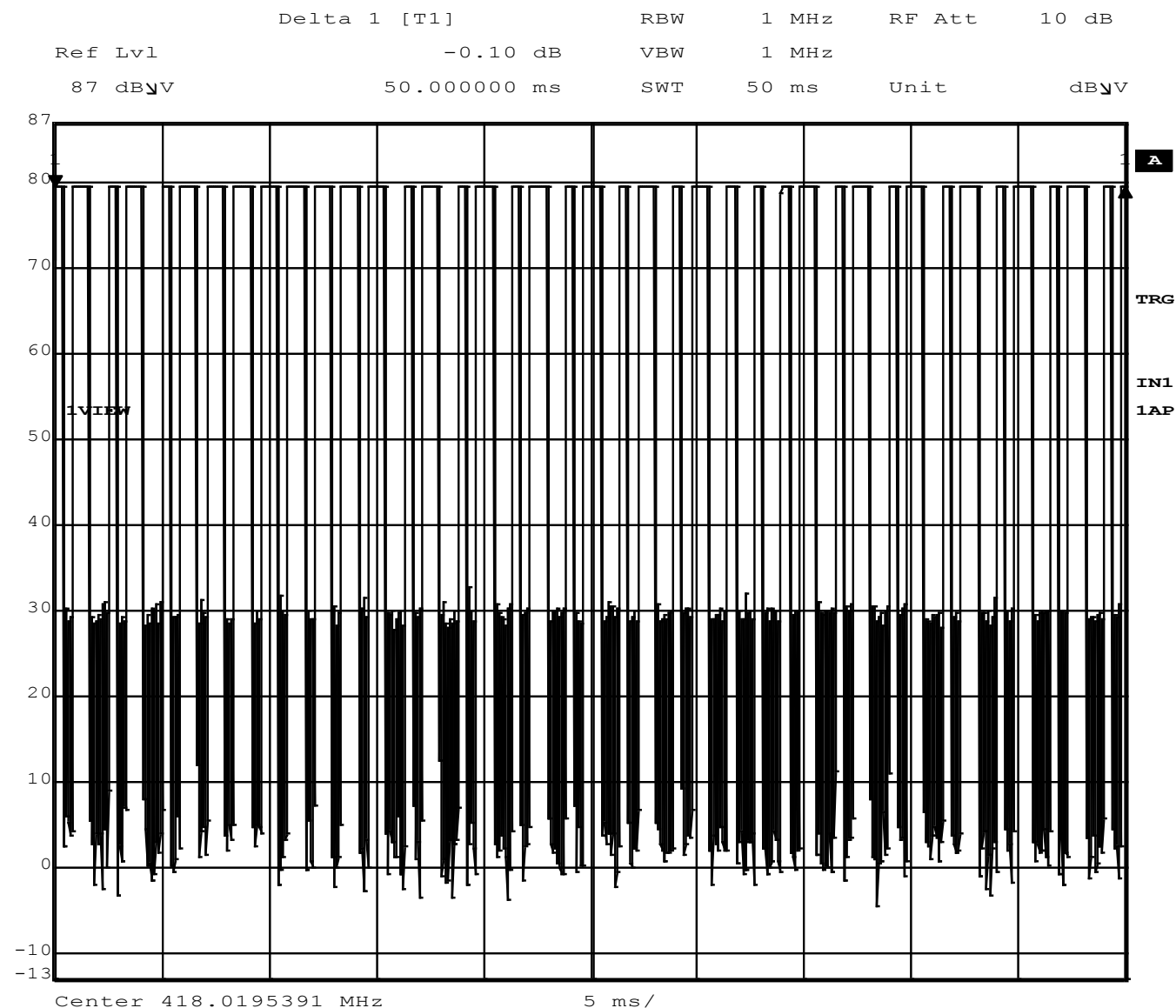


Job Number: 11U13543 File Number:
 Model Number: QuickTouch II
 Client Name: Pentair Water Pool & Spa
 FCC ID: P4H-QTII IC Number: 4249A-QTII



Date: 5.FEB.2011 11:14:57

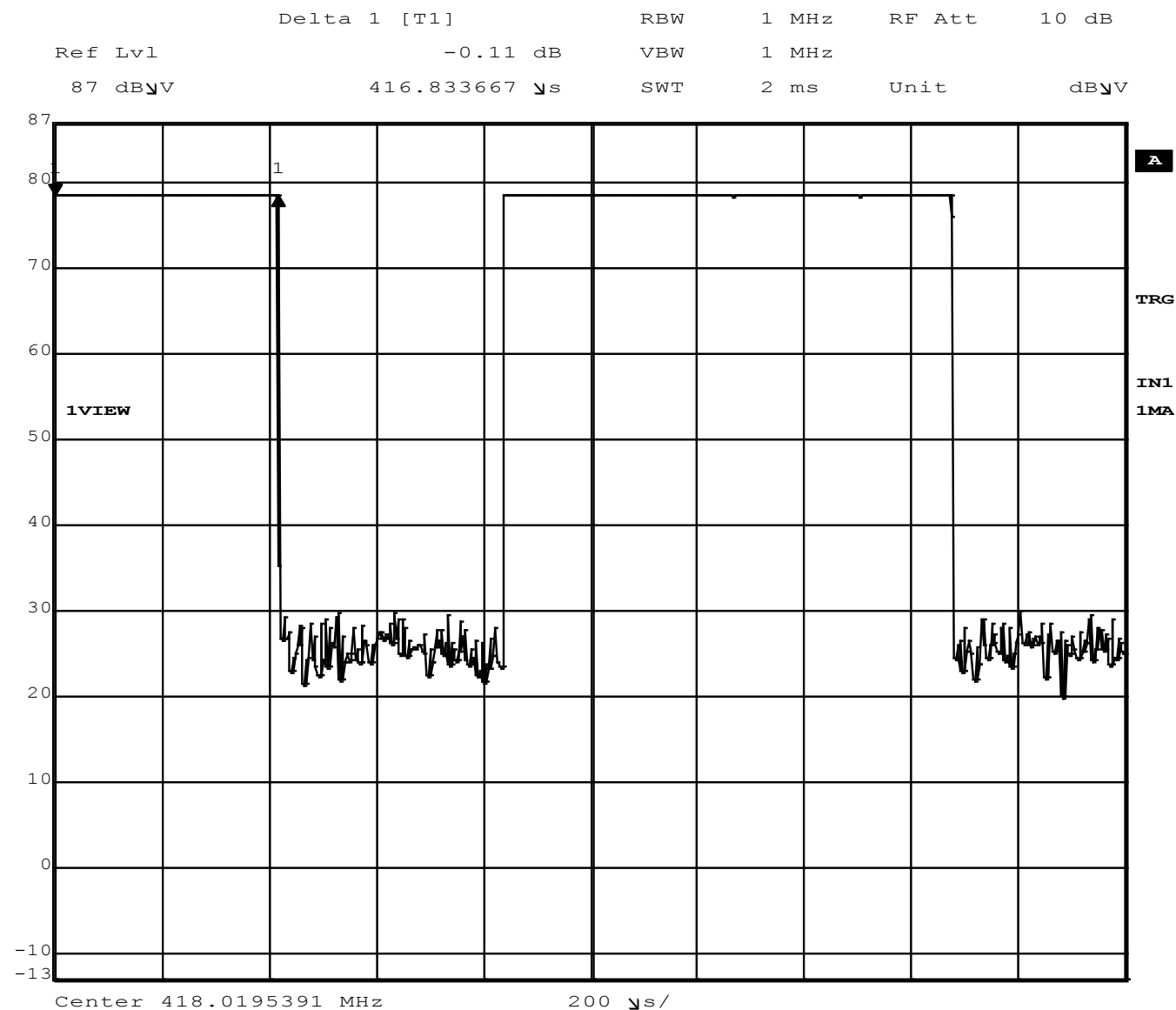
Job Number: 11U13543 File Number:
 Model Number: QuickTouch II
 Client Name: Pentair Water Pool & Spa
 FCC ID: P4H-QTII IC Number: 4249A-QTII



Date: 5.FEB.2011 11:23:13

Number of pulses

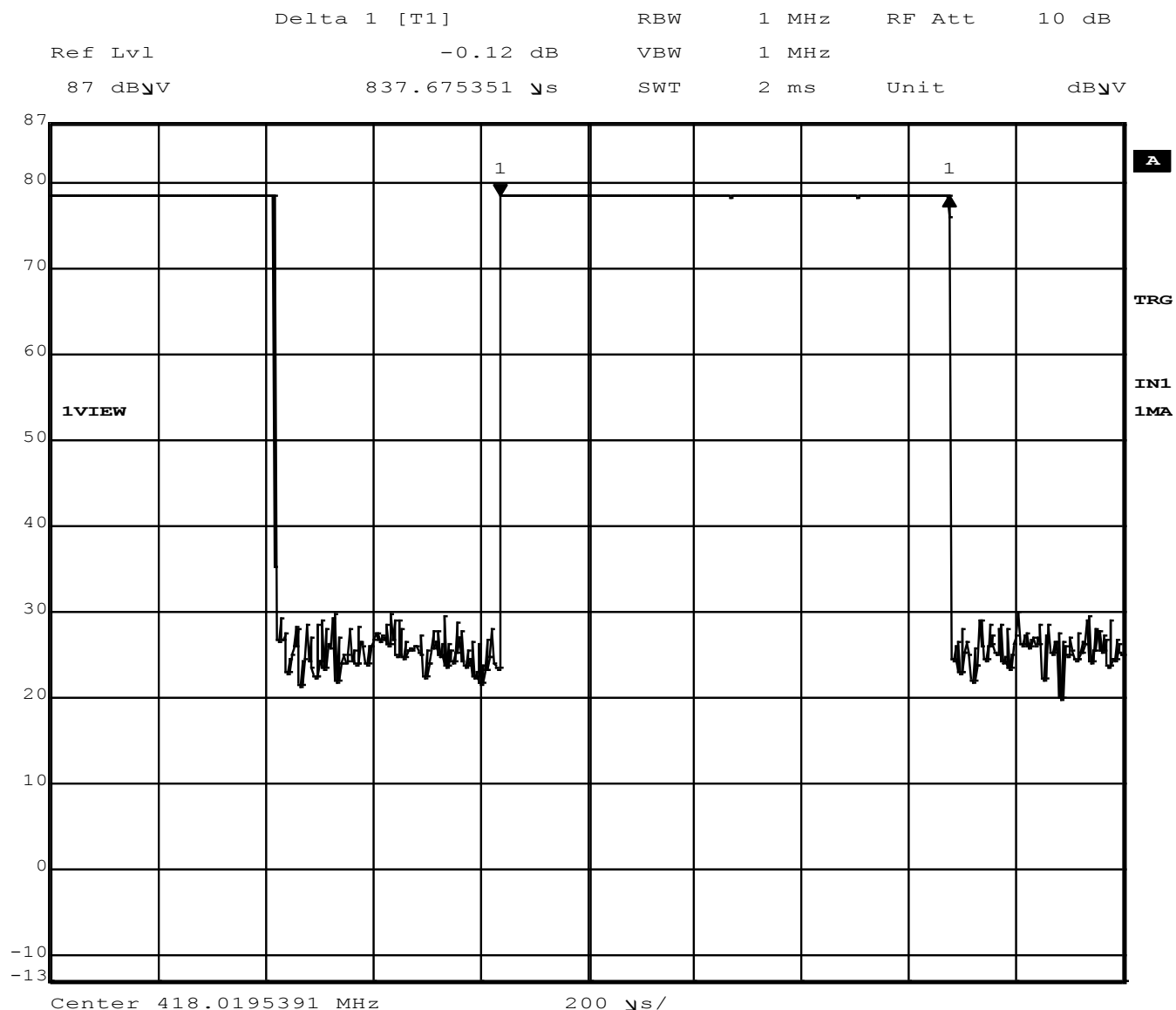
Job Number: 11U13543 File Number:
 Model Number: QuickTouch II
 Client Name: Pentair Water Pool & Spa
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Date: 5.FEB.2011 11:25:58

First pulse width – 416.8 μ s

Job Number: 11U13543 File Number:
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Date: 5.FEB.2011 11:25:33

Second Pulse width 837.7uS

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4.4 Test Conditions and Results – RADIATED EMISSIONS

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.		
Basic Standard		FCC Part 15, Subpart C, 15.209, 15.231	
UL LPG		80-EM-S0029	
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	30 MHz – 1GHz	(3 meter measurement distance)	
Fully configured sample scanned over the following frequency range	1GHz – 4.2 GHz	(3 meter measurement distance)	
Limits			
Frequency (MHz)	Limit (dBμV/m)		
	Quasi-Peak	Peak	Average
	General Emissions		
0.009 – 0.490	128.5 – 93.8	-	-
0.490 – 1.705	73.8 – 63	-	-
1.705 – 30	69.5	-	-
30 – 88	40	-	-
88 – 216	43.5	-	-
216-960	46	-	
1000-10000	-	74	54
Fundamental - 418	NA	100.3	80.3
Spurious	NA	80.3	60.3
Supplementary information: Spurious limits are only applied against products of the transmitter. All other emissions must meet the general limits.			

Table 10 Radiated Emissions EUT Configuration Settings

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	1
Supplementary information: Device checked for maximum emissions in 3 orthogonal axis. Worst case emissions are reported.		

Table 11 Radiated Emissions Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESIB40	34968	2010-02-22	2011-02-22
Bicon Antenna	Schaffner	VBA6106A	43441	2010-09-09	2011-09-09
Log-P Antenna	Schaffner	UPA6109	44067	2010-04-26	2011-04-26
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.3	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07
Multimeter	Fluke	83III	ME5B-305	2011-02-01	2012-02-29
Above 1GHz (Band Optimized System)					
Spectrum Analyzer	Agilent	E7405A	19695	2010-02-22	2011-02-22
Horn Antenna (1-2 GHz)	ETS	3161-01	51442	2008-03-28	See * below
Horn Antenna (2-4 GHz)	ETS	3161-02	48107	2007-09-27	See * below
Horn Antenna (4-8 GHz)	ETS	3161-03	48107	2007-09-27	See * below
Signal Path Controller	HP	11713A	50250	N/A	N/A
Gain Controller	HP	11713A	50251	N/A	N/A
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A
System Controller	UL	BOMS2	50252	N/A	N/A
Measurement Software	UL	Version 9.3	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2010-12-07	2012-12-07
Multimeter	Fluke	87V	44547	2011-02-01	2012-02-29
* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration. * Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than $2D^2/\lambda$. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.					

Figure 7 Test setup for Radiated Emissions

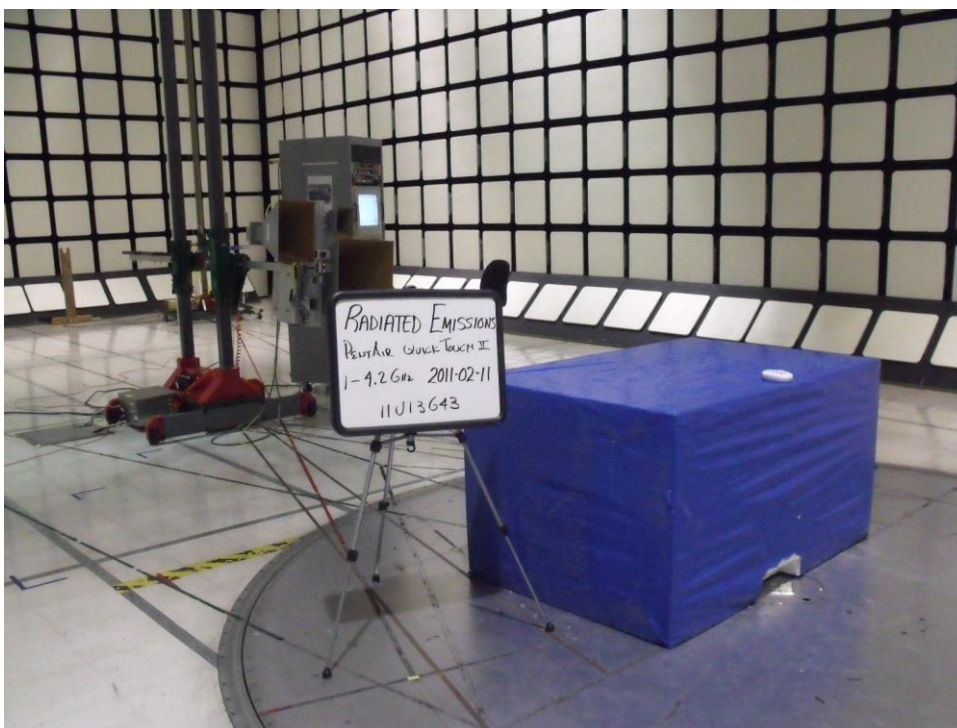
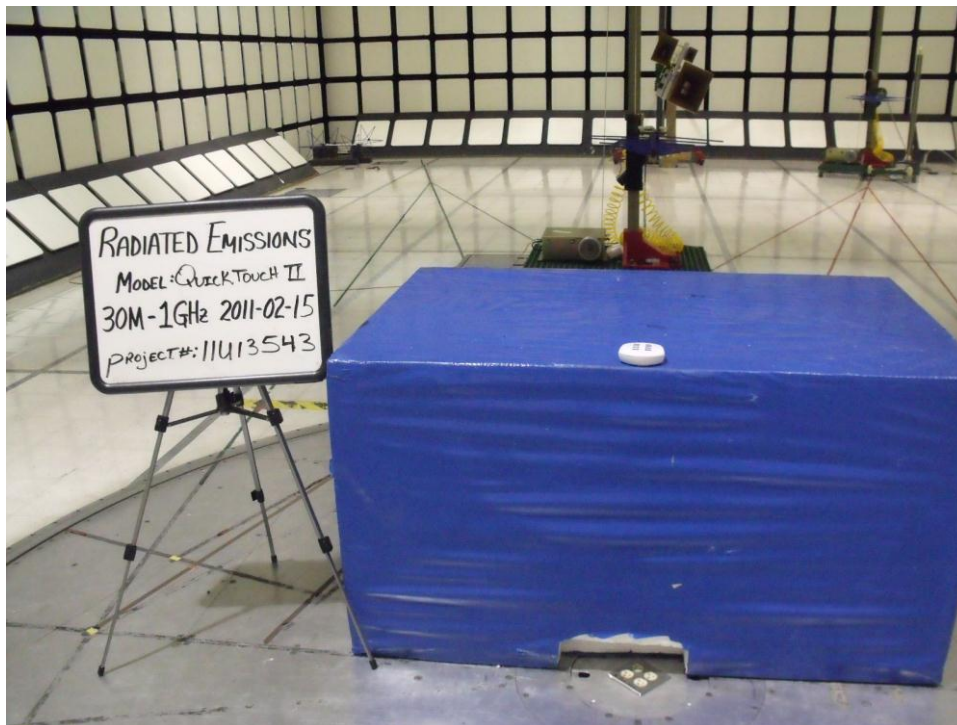
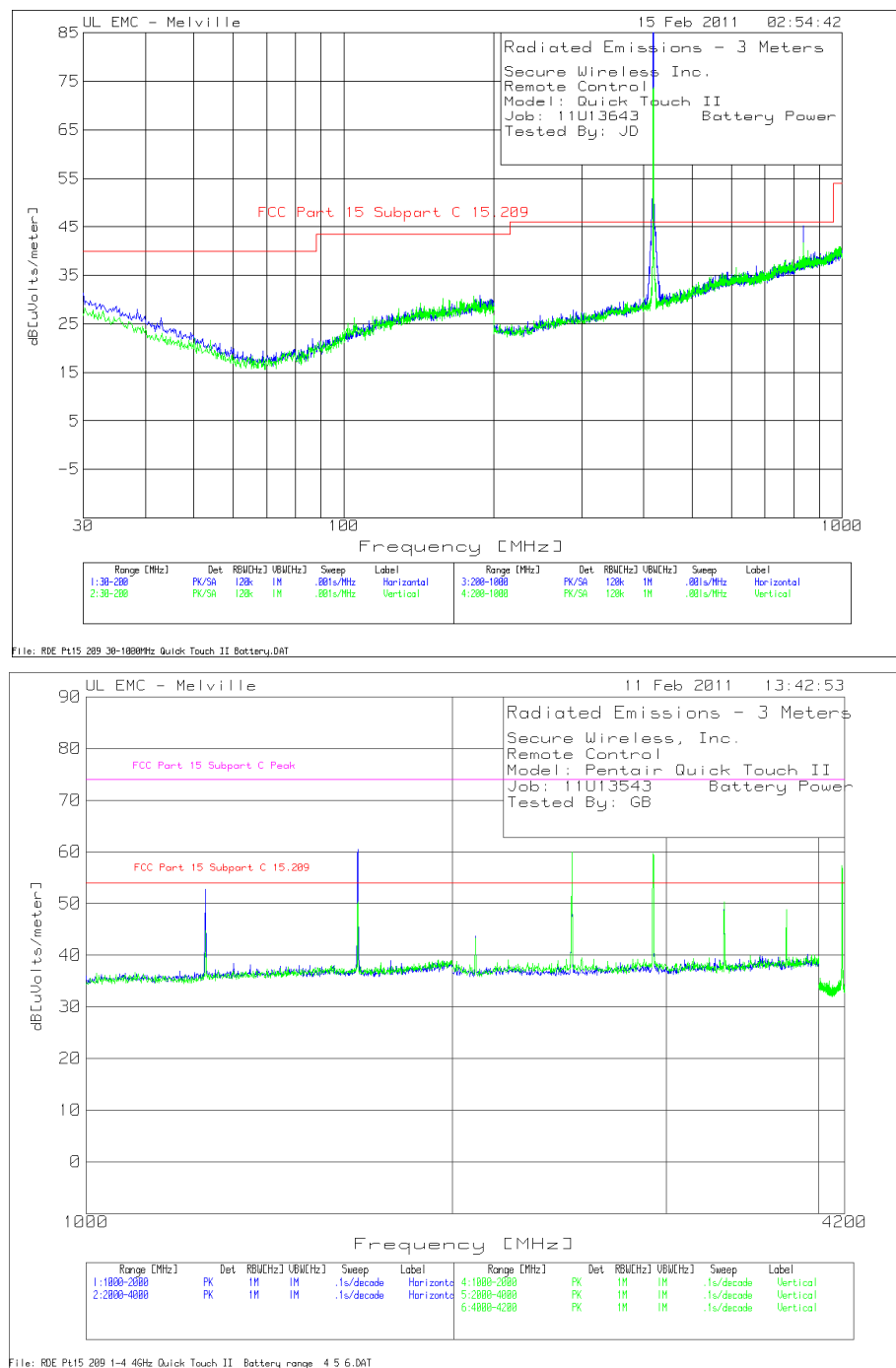


Figure 8 Radiated Emissions Graph



Note: the name Secure Wireless Inc. in the title block is the agent and the data represents data for Pentair Water Pool & Spa and the model number Pentair QuickTouch II is incorrectly stated and should be QuickTouch II.

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Table 12 Radiated Emissions Data Points

Pentair Water Pool & Spa														
Remote Control														
Model: Quick Touch II														
Job: 11U13643 Battery Power														
Tested By: JD														
Test	Meter	Detector	Gain/Loss	Transducer	DCF	Level	Corrected Level	Limit 1	Margin 1 [dB]	Limit 2	Margin 2 [dB]	Azimuth [deg]	Height [cm]	Polarity
Frequency	Reading	Type	Factor	Factor	dB	dB[uVolts/meter]	dB[uVolts/meter]	dB[uVolts/meter]		dB[uVolts/meter]				
[MHz]	[dB(uV)]		[dB]	[dB]										
Horizontal 200 - 1000MHz														
418.0068	67.77	PK	1.1	16.5	-11.47	85.37	73.9	80.3	-6.4	-	-	28	249	Horz
836.02	20.3	PK	1.6	22.8	-11.47	44.7	33.23	-	-	60.3	-27.07	250	347	Horz
Vertical 200 - 1000MHz														
418.0024	58.6	PK	1.1	16.3	-11.47	76	64.53	80.3	-15.77	-	-	273	264	Vert
836.0265	19.1	PK	1.6	23.1	-11.47	43.8	32.33	-	-	60.3	-27.97	357	196	Vert
LIMIT 1: FCC Part 15 Subpart C 15.231 Fundamental														
LIMIT 2: FCC Part 15 Subpart C 15.231 Spurious														
LIMIT 3: NONE														
LIMIT 4: NONE														
LIMIT 5: NONE														
LIMIT 6: NONE														
PK - Peak detector (maximized)														
QP - Quasi-Peak detector														
LnAv - Linear Average detector														
LgAv - Log Average detector														
Av - Average detector														
CAV - CISPR Average detector														
RMS - RMS detection														
CRMS - CISPR RMS detection														

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Pentair Water Pool & Spa
 Remote Control
 Model: Quick Touch II
 Job: 11U13543 Battery Power
 Tested By: GB

Test	Meter	Detector	Gain/Loss	Transducer	DCF	Level	Corrected	Limit 1	Margin 1	Limit 2	Margin 2	Azimuth	Height	Polarity
Frequency	Reading	Type	Factor	Factor	dB	dB[uVolts/ meter]	dB[uVolts/m eter]	dB[uVolts/ meter]	[dB]	dB[uVolts/ meter]	[dB]	[deg]	[cm]	
[MHz]	[dB(uV)]		[dB]	[dB]										
Horizontal 1000 - 2000MHz														
1254.175	82.09	PK	-45.1	20.2	-11.47	57.19	45.72	54	-8.28	74	-16.81	331	298	Horz
1672.175	84.99	PK	-44.55	20.8	-11.47	61.24	49.77	54	-4.23	74	-12.76	256	400	Horz
Horizontal 2000 - 4000MHz														
2090.2	68.18	PK	-44.44	21.2	-11.47	44.94	33.47	54	-20.53	74	-29.06	360	365	Horz
2508.15	84.87	PK	-43.73	21.4	-11.47	62.54	51.07	54	-2.93	74	-11.46	154	364	Horz
2926.175	83.21	PK	-43.16	21.6	-11.47	61.65	50.18	54	-3.82	74	-12.35	111	322	Horz
3344.25	72.97	PK	-42.83	22.1	-11.47	52.24	40.77	54	-13.23	74	-21.76	282	343	Horz
3762.3	74.67	PK	-43.02	22.4	-11.47	54.05	42.58	54	-11.42	74	-19.95	265	343	Horz
Horizontal 4000 - 4200MHz														
4180.2	85.44	PK	-53.32	27.9	-11.47	60.02	48.55	54	-5.45	74	-13.98	134	356	Horz
Vertical 1000 - 2000MHz														
1254.05	80.93	PK	-45.1	20.2	-11.47	56.03	44.56	54	-9.44	74	-17.97	135	306	Horz
1672.2	84.81	PK	-44.55	20.8	-11.47	61.06	49.59	54	-4.41	74	-12.94	252	292	Horz
Vertical 2000 - 4000MHz														
2090.075	69.67	PK	-44.44	20.8	-11.47	46.03	34.56	54	-19.44	74	-27.97	135	187	Horz
2508.2	85.05	PK	-43.73	21.7	-11.47	63.02	51.55	54	-2.45	74	-10.98	167	366	Horz
2926.125	83.11	PK	-43.16	21.9	-11.47	61.85	50.38	54	-3.62	74	-12.15	112	312	Horz
3344.25	74.34	PK	-42.83	21.9	-11.47	53.41	41.94	54	-12.06	74	-20.59	47	351	Horz
3762.375	73.66	PK	-43.02	22.4	-11.47	53.04	41.57	54	-12.43	74	-20.96	251	398	Horz
Vertical 4000 - 4200MHz														
4180.2	85.16	PK	-53.32	27.8	-11.47	59.64	48.17	54	-5.83	74	-14.36	134	355	Horz

LIMIT 1: FCC Part 15 Subpart C 15.209

LIMIT 2: FCC Part 15 Subpart C Peak

PK - Peak detector (Maximized)
 QP - Quasi-Peak detector
 LnAv - Linear Average detector
 LgAv - Log Average detector
 Av - Average detector
 CAV - CISPR Average detector
 RMS - RMS detection
 CRMS - CISPR RMS detection

Appendix A

Accreditations and Authorizations



NVLAP Lab code: 100255-0

NVLAP: The National Institute of Standards and Technology (NIST) administers the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is comprised of laboratory accreditation programs (LAPs) which are established on the basis of requests and demonstrated need. Each LAP includes specific calibration and/or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests. Accreditation criteria are established in accordance with the U.S. Code of Federal Regulations (CFR, Title 15, Part 285), NVLAP Procedures and General Requirements, and encompass the requirements of ISO/IEC 17025. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/1002550.htm>



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91040).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2181



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: (Radiated Emissions) R-797, (Conducted Emissions) C-832, C-83400, and C-81879 and (Conducted Emissions - Telecommunications Ports) T-1582 and T-1583.

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Model Number: QuickTouch II
Client Name: Pentair Water Pool & Spa
FCC ID: P4H-QTII IC Number: 4249A-QTII

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ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 2004/108/EC, Annex III (2-3). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6

