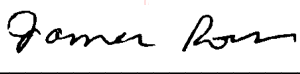


*FCC PART 15, SUBPART B and C*  
*TEST REPORT*  
*for*  
**EASY TOUCH WIRELESS**  
**MODEL: EASYTOUCH HANDHELD**

Prepared for  
PENTAIR WATER POOL & SPA  
10951 WEST LOS ANGELES AVENUE  
MOORPARK, CALIFORNIA 93021

Prepared by: 

KYLE FUJIMOTO

Approved by: 

JAMES ROSS

COMPATIBLE ELECTRONICS INC.  
114 OLINDA DRIVE  
BREA, CALIFORNIA 92823  
(714) 579-0500

DATE: NOVEMBER 3, 2005

|       | REPORT<br>BODY | APPENDICES |          |          |          |          | TOTAL |
|-------|----------------|------------|----------|----------|----------|----------|-------|
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**LIST OF APPENDICES**

| APPENDIX | TITLE                                                                                                                                                                               |
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| B        | Modifications to the EUT                                                                                                                                                            |
| C        | Additional Models Covered Under This Report                                                                                                                                         |
| D        | Diagrams, Charts, and Photos <ul style="list-style-type: none"><li>• Test Setup Diagrams</li><li>• Radiated Emissions Photos</li><li>• Antenna and Effective Gain Factors</li></ul> |
| E        | Data Sheets                                                                                                                                                                         |

**LIST OF FIGURES**

| FIGURE | TITLE                                             |
|--------|---------------------------------------------------|
| 1      | Plot Map And Layout of 3 Meter Radiated Test Site |

## GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: Easy Touch Wireless  
Model: EasyTouch Handheld  
S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified during the testing.

Manufacturer: Pentair Water Pool & Spa  
1400 North Shoreline Boulevard, Suite B1  
Mountain View, California 94043

Test Dates: October 21 and 24, 2005

Test Specifications: EMI requirements  
CFR Title 47, Part 15 Subpart B; and Subpart C, Sections 15.205, 15.209 and 15.249

Test Procedure: ANSI C63.4

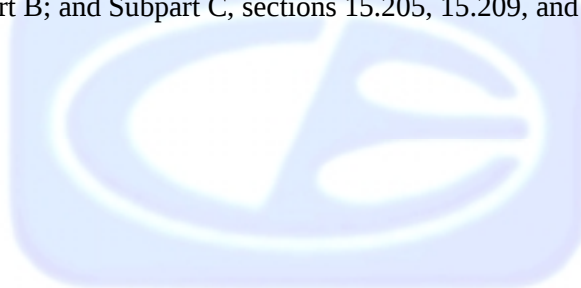
Test Deviations: The test procedure was not deviated from during the testing.

## SUMMARY OF TEST RESULTS

| TEST | DESCRIPTION                              | RESULTS                                                                                                                          |
|------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1    | Conducted RF Emissions, 150 kHz - 30 MHz | This test was not performed because the EUT operates on battery power only and cannot be plugged into the AC public mains.       |
| 2    | Radiated RF Emissions, 10 kHz – 9.3 GHz  | Complies with the <b>Class B</b> limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249. |

## 1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Easy Touch Wireless Model: EasyTouch Handheld. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.



## 2. ADMINISTRATIVE DATA

### 2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

### 2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

### 2.3 Cognizant Personnel

Pentair Water Pool & Spa

Ed Brown                      Engineer

Compatible Electronics, Inc.

James Ross                  Test Engineer

Kyle Fujimoto              Test Engineer

### 2.4 Date Test Sample was Received

The test sample was received prior to the initial test date of October 21, 2005.

### 2.5 Disposition of the Test Sample

The sample has not yet been returned to Pentair Water Pool & Spa as of the date of this report.

### 2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

|      |                                      |
|------|--------------------------------------|
| RF   | Radio Frequency                      |
| EMI  | Electromagnetic Interference         |
| EUT  | Equipment Under Test                 |
| P/N  | Model                                |
| S/N  | Serial Number                        |
| HP   | Hewlett Packard                      |
| ITE  | Information Technology Equipment     |
| CML  | Corrected Meter Limit                |
| LISN | Line Impedance Stabilization Network |
| TX   | Transmit                             |
| RX   | Receive                              |
| PCB  | Printed Circuit Board                |

### 3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

| SPEC                     | TITLE                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| CFR Title 47,<br>Part 15 | FCC Rules – Radio frequency devices (including digital devices)                                                                      |
| ANSI C63.4<br>2003       | Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz |

#### 4. DESCRIPTION OF TEST CONFIGURATION

##### 4.1 Description Of Test Configuration - EMI

Setup and operation of the equipment under test.

The Easy Touch Wireless Model: EasyTouch Handheld (EUT) was tested as a stand alone unit. The EUT was tested while it was continuously transmitting and receiving to a Transceiver Model: Virtual Cable. The EUT was also tested in three orthogonal axis.

The antenna is directly connected to the EUT's PCB by a screw.

The final radiated data was taken in the mode above. Please see Appendix E for the data sheets.

#### **4.1.1 Cable Construction and Termination**

There were no external cables connected to the EUT.



**5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT****5.1 EUT and Accessory List**

| EQUIPMENT                 | MANUFACTURER             | MODEL              | SERIAL NUMBER | FCC ID                 |
|---------------------------|--------------------------|--------------------|---------------|------------------------|
| EASY TOUCH WIRELESS (EUT) | PENTAIR WATER POOL & SPA | EASYTOUCH HANDHELD | N/A           | <b>P4HEASYTOUCH</b>    |
| TRANSCIVER                | PENTAIR WATER POOL & SPA | VITRUALCABLE       | N/A           | <b>P4HVIRTUALCABLE</b> |

**5.2 EMI Test Equipment**

| <b>EQUIPMENT TYPE</b>                  | <b>MANU-FACTURER</b>   | <b>MODEL NUMBER</b> | <b>SERIAL NUMBER</b> | <b>CAL. DATE</b>  | <b>CAL. CYCLE</b> |
|----------------------------------------|------------------------|---------------------|----------------------|-------------------|-------------------|
| Radiate Emissions Data Capture Program | Compatible Electronics | 2.0                 | N/A                  | N/A               | N/A               |
| Spectrum Analyzer – Main Section       | Hewlett Packard        | 8566B               | 3638A08784           | June 10, 2005     | 1 Year            |
| Spectrum Analyzer – Display Section    | Hewlett Packard        | 85662A              | 3701A22279           | June 10, 2005     | 1 Year            |
| Quasi-Peak Adapter                     | Hewlett Packard        | 85650A              | 2430A00424           | June 11, 2005     | 1 Year            |
| EMI Receiver                           | Rohde & Schwarz        | ESIB40              | 100172               | October 28, 2004  | 1 Year            |
| Preamplifier                           | Com-Power              | PA-102              | 1017                 | January 5, 2005   | 1 Year            |
| Microwave Preamplifier                 | Com-Power              | PA-122              | 25195                | February 25, 2005 | 1 Year            |
| Loop Antenna                           | Com-Power              | AL-130              | 17089                | September 3, 2004 | 2 Year            |
| Biconical Antenna                      | Com Power              | AB-900              | 15227                | March 11, 2005    | 1 Year            |
| Log Periodic Antenna                   | Com Power              | AL-100              | 16060                | August 22, 2005   | 1 Year            |
| Horn Antenna                           | Antenna Research       | DRG-118/A           | 1053                 | January 16, 2004  | 2 Year            |
| Antenna Mast                           | Com Power              | AM-100              | N/A                  | N/A               | N/A               |
| Antenna Mast                           | EMCO                   | 2090                | 9609-1176            | N/A               | N/A               |
| Turntable                              | Com Power              | TT-100              | N/A                  | N/A               | N/A               |
| Computer                               | Hewlett Packard        | 4530                | US91912319           | N/A               | N/A               |
| Monitor                                | Hewlett Packard        | D5258A              | TW74500641           | N/A               | N/A               |
| Computer                               | Hewlett Packard        | D5251A 888          | US74458128           | N/A               | N/A               |
| Monitor                                | Hewlett Packard        | D5258A              | DK74889705           | N/A               | N/A               |

**6. TEST SITE DESCRIPTION****6.1 Test Facility Description**

Please refer to section 2.1 and 7.1 of this report for EMI test location.

**6.2 EUT Mounting, Bonding and Grounding**

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT is battery powered and was not grounded.

## 7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

### 7.1 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com-Power Active Loop Antenna Model: AL-130 was used for frequencies from 9 kHz to 30 MHz, the Com-Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies from 1 GHz to 9.3 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The measurement bandwidths and transducers used for the radiated emissions test were:

| FREQUENCY RANGE   | EFFECTIVE MEASUREMENT BANDWIDTH | TRANSDUCER           |
|-------------------|---------------------------------|----------------------|
| 10 kHz to 150 kHz | 200 Hz                          | Active Loop Antenna  |
| 150 kHz to 30 MHz | 9 kHz                           | Active Loop Antenna  |
| 30 MHz to 300 MHz | 120 kHz                         | Biconical Antenna    |
| 300 MHz to 1 GHz  | 120 kHz                         | Log Periodic Antenna |
| 1 GHz to 9.3 GHz  | 1 MHz                           | Horn Antenna         |

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data. The final qualification data sheets are located in Appendix E.

## 8. CONCLUSIONS

The Easy Touch Wireless Model: EasyTouch Handheld meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.





**APPENDIX A**

***LABORATORY RECOGNITIONS***

---

## ***LABORATORY RECOGNITIONS***

### **Compatible Electronics has the following agency accreditations:**

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

### **Compatible Electronics is recognized or on file with the following agencies:**

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)



**APPENDIX B**

***MODIFICATIONS TO THE EUT***

## MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 or FCC Class B specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.





**APPENDIX C**

***ADDITIONAL MODELS COVERED  
UNDER THIS REPORT***

## ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Easy Touch Wireless  
Model: EasyTouch Handheld  
S/N: N/A

There are no additional models covered under this report.



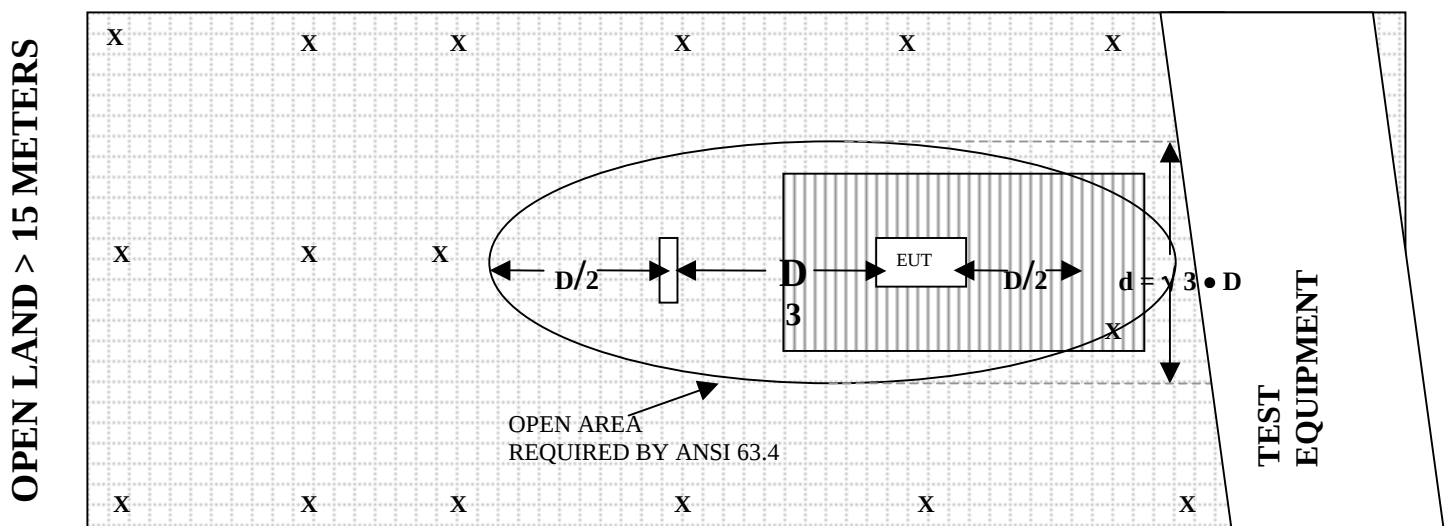


**APPENDIX D**

***DIAGRAMS, CHARTS, AND PHOTOS***

**FIGURE 1: PLOT MAP AND LAYOUT OF  
3 METER RADIATED TEST SITE**

**OPEN LAND > 15 METERS**



**OPEN LAND > 15 METERS**

|   |                          |                                                                                     |                 |
|---|--------------------------|-------------------------------------------------------------------------------------|-----------------|
| X | = GROUND RODS            |  | = GROUND SCREEN |
| D | = TEST DISTANCE (meters) |  | = WOOD COVER    |

**COM-POWER AL-130****LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: SEPTEMBER 3, 2004

| <b>FREQUENCY<br/>(MHz)</b> | <b>MAGNETIC<br/>(dB/m)</b> | <b>ELECTRIC<br/>(dB/m)</b> |
|----------------------------|----------------------------|----------------------------|
| 0.009                      | -40.8                      | 10.7                       |
| 0.01                       | -40.9                      | 10.6                       |
| 0.02                       | -41.8                      | 9.7                        |
| 0.05                       | -42.0                      | 9.5                        |
| 0.07                       | -41.5                      | 10.0                       |
| 0.1                        | -41.7                      | 9.8                        |
| 0.2                        | -44.1                      | 7.4                        |
| 0.3                        | -41.6                      | 9.9                        |
| 0.5                        | -41.5                      | 10.0                       |
| 0.7                        | -41.4                      | 10.1                       |
| 1                          | -41.0                      | 10.5                       |
| 2                          | -40.6                      | 10.9                       |
| 3                          | -40.8                      | 10.7                       |
| 4                          | -41.0                      | 10.5                       |
| 5                          | -40.4                      | 11.1                       |
| 10                         | -40.7                      | 10.8                       |
| 15                         | -41.6                      | 9.9                        |
| 20                         | -41.3                      | 10.2                       |
| 25                         | -43.0                      | 8.5                        |
| 30                         | -42.6                      | 8.9                        |

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15227

CALIBRATION DATE: MARCH 11, 2005

| FREQUENCY<br>(MHz) | FACTOR<br>(dB) | FREQUENCY<br>(MHz) | FACTOR<br>(dB) |
|--------------------|----------------|--------------------|----------------|
| 30                 | 11.10          | 120                | 13.20          |
| 35                 | 10.80          | 125                | 12.60          |
| 40                 | 11.10          | 140                | 12.10          |
| 45                 | 10.50          | 150                | 11.90          |
| 50                 | 11.70          | 160                | 13.10          |
| 60                 | 10.70          | 175                | 15.40          |
| 70                 | 7.70           | 180                | 14.50          |
| 80                 | 6.30           | 200                | 16.00          |
| 90                 | 8.00           | 250                | 16.10          |
| 100                | 10.00          | 300                | 19.70          |

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: AUGUST 22, 2005

| FREQUENCY<br>(MHz) | FACTOR<br>(dB) | FREQUENCY<br>(MHz) | FACTOR<br>(dB) |
|--------------------|----------------|--------------------|----------------|
| 300                | 12.73          | 700                | 19.72          |
| 400                | 13.38          | 800                | 20.49          |
| 500                | 15.12          | 900                | 21.31          |
| 600                | 16.27          | 1000               | 24.25          |

**ANTENNA RESEARCH DRG-118/A****HORN ANTENNA**

S/N: 1053

CALIBRATION DATE: JANUARY 16, 2004

| <b>FREQUENCY<br/>(GHz)</b> | <b>FACTOR<br/>(dB)</b> | <b>FREQUENCY<br/>(GHz)</b> | <b>FACTOR<br/>(dB)</b> |
|----------------------------|------------------------|----------------------------|------------------------|
| 1.0                        | 24.4                   | 10.0                       | 38.7                   |
| 1.5                        | 25.2                   | 10.5                       | 39.0                   |
| 2.0                        | 28.2                   | 11.0                       | 38.9                   |
| 2.5                        | 28.5                   | 11.5                       | 41.3                   |
| 3.0                        | 30.1                   | 12.0                       | 40.5                   |
| 3.5                        | 31.0                   | 12.5                       | 40.0                   |
| 4.0                        | 31.2                   | 13.0                       | 40.2                   |
| 4.5                        | 31.9                   | 13.5                       | 40.5                   |
| 5.0                        | 33.2                   | 14.0                       | 41.6                   |
| 5.5                        | 33.7                   | 14.5                       | 44.8                   |
| 6.0                        | 34.3                   | 15.0                       | 41.4                   |
| 6.5                        | 35.0                   | 15.5                       | 39.2                   |
| 7.0                        | 36.7                   | 16.0                       | 39.4                   |
| 7.5                        | 37.3                   | 16.5                       | 40.9                   |
| 8.0                        | 37.1                   | 17.0                       | 42.6                   |
| 8.5                        | 37.3                   | 17.5                       | 45.1                   |
| 9.0                        | 37.7                   | 18.0                       | 41.7                   |
| 9.5                        | 38.6                   |                            |                        |

**COM-POWER PA-102****PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 5, 2005

| <b>FREQUENCY<br/>(MHz)</b> | <b>FACTOR<br/>(dB)</b> | <b>FREQUENCY<br/>(MHz)</b> | <b>FACTOR<br/>(dB)</b> |
|----------------------------|------------------------|----------------------------|------------------------|
| 30                         | 38.4                   | 300                        | 38.5                   |
| 40                         | 38.3                   | 350                        | 38.5                   |
| 50                         | 38.2                   | 400                        | 38.3                   |
| 60                         | 38.4                   | 450                        | 38.0                   |
| 70                         | 38.4                   | 500                        | 38.0                   |
| 80                         | 38.3                   | 550                        | 38.1                   |
| 90                         | 38.3                   | 600                        | 38.2                   |
| 100                        | 37.7                   | 650                        | 37.8                   |
| 125                        | 38.4                   | 700                        | 37.9                   |
| 150                        | 38.6                   | 750                        | 37.5                   |
| 175                        | 38.4                   | 800                        | 37.2                   |
| 200                        | 38.5                   | 850                        | 37.6                   |
| 225                        | 38.3                   | 900                        | 36.9                   |
| 250                        | 38.6                   | 950                        | 37.0                   |
| 275                        | 38.4                   | 1000                       | 36.3                   |

**COM-POWER PA-122****MICROWAVE PREAMPLIFIER**

S/N: 25195

CALIBRATION DATE: FEBRUARY 25, 2005

| <b>FREQUENCY<br/>(GHz)</b> | <b>FACTOR<br/>(dB)</b> | <b>FREQUENCY<br/>(GHz)</b> | <b>FACTOR<br/>(dB)</b> |
|----------------------------|------------------------|----------------------------|------------------------|
| 1.0                        | 31.45                  | 6.0                        | 31.35                  |
| 1.1                        | 31.34                  | 6.5                        | 31.10                  |
| 1.2                        | 31.29                  | 7.0                        | 30.54                  |
| 1.3                        | 31.28                  | 7.5                        | 29.72                  |
| 1.4                        | 31.25                  | 8.0                        | 29.22                  |
| 1.5                        | 31.21                  | 8.5                        | 28.75                  |
| 1.6                        | 31.14                  | 9.0                        | 28.67                  |
| 1.7                        | 31.07                  | 9.5                        | 29.14                  |
| 1.8                        | 31.12                  | 10.0                       | 30.12                  |
| 1.9                        | 31.04                  | 11.0                       | 29.30                  |
| 2.0                        | 31.20                  | 12.0                       | 29.86                  |
| 2.5                        | 31.56                  | 13.0                       | 30.57                  |
| 3.0                        | 32.17                  | 14.0                       | 29.90                  |
| 3.5                        | 32.56                  | 15.0                       | 30.14                  |
| 4.0                        | 32.51                  | 16.0                       | 31.13                  |
| 4.5                        | 32.52                  | 17.0                       | 29.97                  |
| 5.0                        | 32.33                  | 18.0                       | 28.77                  |
| 5.5                        | 31.60                  |                            |                        |



**FRONT VIEW**

PENTAIR WATER POOL & SPA

EASY TOUCH WIRELESS

Model: EASYTOUCH HANDHELD

FCC SUBPART B AND C – RADIATED EMISSIONS – 10-21-05 and 10-24-05

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**REAR VIEW**

PENTAIR WATER POOL & SPA  
EASY TOUCH WIRELESS  
Model: EASYTOUCH HANDHELD  
FCC SUBPART B AND C – RADIATED EMISSIONS – 10-21-05 and 10-24-05

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**



**FRONT VIEW**

PENTAIR WATER POOL & SPA  
EASY TOUCH WIRELESS  
Model: EASYTOUCH HANDHELD  
FCC SUBPART B AND C – RADIATED EMISSIONS – 10-21-05 and 10-24-05

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

**Brea Division**  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

**Agoura Division**  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

**Silverado Division**  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

**Lake Forest Division**  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400



**REAR VIEW**

PENTAIR WATER POOL & SPA  
EASY TOUCH WIRELESS  
Model: EASYTOUCH HANDHELD  
FCC SUBPART B AND C – RADIATED EMISSIONS – 10-21-05 and 10-24-05

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

**Brea Division**  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

**Agoura Division**  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

**Silverado Division**  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

**Lake Forest Division**  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400



**APPENDIX E**

***DATA SHEETS***



***RADIATED EMISSIONS***

***DATA SHEETS***

**FCC 15.249**

Pentair Water Pool &amp; Spa

Each Touch Wireless

Model: Easytouch Handheld

Date:10/21/05

Lab: B

Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 916.48         | 94.22           | H         | 94    | 0.22   | Peak                  | 1.5                   | 90                      | X-Axis   |
| 916.48         | 93.26           | H         | 94    | -0.74  | QP                    | 1.5                   | 90                      | X-Axis   |
| 916.48         | 85.82           | H         | 94    | -8.18  | Peak                  | 1                     | 180                     | Y-Axis   |
| 916.48         | 90.92           | H         | 94    | -3.08  | Peak                  | 1.25                  | 90                      | Z-Axis   |
| 916.48         | 81.92           | V         | 94    | -12.08 | Peak                  | 1.5                   | 90                      | X-Axis   |
| 916.48         | 92.92           | V         | 94    | -1.08  | Peak                  | 1.75                  | 225                     | Y-Axis   |
| 916.48         | 85.62           | V         | 94    | -8.38  | Peak                  | 2                     | 90                      | Z-Axis   |

**FCC 15.249**

Pentair Water Pool & Spa  
 Each Touch Wireless  
 Model: EasyTouch Handheld  
**Y-Axis**

Date:10/21/05  
 Lab: B  
 Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 47.32           | H         | 74    | -26.68 | Peak                  | 2.68                  | 225                     |          |
| 1833.08        | 46.86           | H         | 54    | -7.14  | Avg                   | 2.68                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 46.50           | H         | 74    | -27.5  | Peak                  | 1.76                  | 90                      |          |
| 2749.62        | 46.04           | H         | 54    | -7.96  | Avg                   | 1.76                  | 90                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 49.48           | H         | 74    | -24.52 | Peak                  | 1.42                  | 225                     |          |
| 3666.16        | 49.02           | H         | 54    | -4.98  | Avg                   | 1.42                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 52.03           | H         | 74    | -21.97 | Peak                  | 1.46                  | 270                     |          |
| 4582.7         | 51.57           | H         | 54    | -2.43  | Avg                   | 1.46                  | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 44.75           | H         | 74    | -29.25 | Peak                  | 1.49                  | 90                      |          |
| 5499.24        | 44.29           | H         | 54    | -9.71  | Avg                   | 1.49                  | 90                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 45.89           | H         | 74    | -28.11 | Peak                  | 1.76                  | 0                       |          |
| 6415.78        | 45.43           | H         | 54    | -8.57  | Avg                   | 1.76                  | 0                       |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 48.50           | H         | 74    | -25.5  | Peak                  | 1.76                  | 225                     |          |
| 7332.32        | 48.04           | H         | 54    | -5.96  | Avg                   | 1.76                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 48.29           | H         | 74    | -25.71 | Peak                  | 1.76                  | 225                     |          |
| 8248.86        | 47.83           | H         | 54    | -6.17  | Avg                   | 1.76                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.46           | H         | 74    | -24.54 | Peak                  | 2.05                  | 180                     |          |
| 9165.4         | 49.00           | H         | 54    | -5     | Avg                   | 2.05                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

**FCC 15.249**

Pentair Water Pool & Spa  
 Each Touch Wireless  
 Model: EasyTouch Handheld  
**Y-Axis**

Date:10/21/05  
 Lab: B  
 Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 49.47           | V         | 74    | -24.53 | Peak                  | 1.27                  | 225                     |          |
| 1833.08        | 49.01           | V         | 54    | -4.99  | Avg                   | 1.27                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 43.10           | V         | 74    | -30.9  | Peak                  | 1.89                  | 225                     |          |
| 2749.62        | 42.64           | V         | 54    | -11.36 | Avg                   | 1.89                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 48.13           | V         | 74    | -25.87 | Peak                  | 1.29                  | 225                     |          |
| 3666.16        | 47.67           | V         | 54    | -6.33  | Avg                   | 1.29                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 45.62           | V         | 74    | -28.38 | Peak                  | 1.53                  | 225                     |          |
| 4582.7         | 45.16           | V         | 54    | -8.84  | Avg                   | 1.53                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 47.41           | V         | 74    | -26.59 | Peak                  | 1.83                  | 225                     |          |
| 5499.24        | 46.95           | V         | 54    | -7.05  | Avg                   | 1.83                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 46.13           | V         | 74    | -27.87 | Peak                  | 1.83                  | 270                     |          |
| 6415.78        | 45.67           | V         | 54    | -8.33  | Avg                   | 1.83                  | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 47.68           | V         | 74    | -26.32 | Peak                  | 1.46                  | 225                     |          |
| 7332.32        | 47.22           | V         | 54    | -6.78  | Avg                   | 1.46                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 48.92           | V         | 74    | -25.08 | Peak                  | 1.81                  | 180                     |          |
| 8248.86        | 48.46           | V         | 54    | -5.54  | Avg                   | 1.81                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.65           | V         | 74    | -24.35 | Peak                  | 1.81                  | 180                     |          |
| 9165.4         | 49.19           | V         | 54    | -4.81  | Avg                   | 1.81                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

**FCC 15.249**

Pentair Water Pool & Spa  
 Each Touch Wireless  
 Model: EasyTouch Handheld  
**X-Axis**

Date:10/21/05  
 Lab: B  
 Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 45.92           | H         | 74    | -28.08 | Peak                  | 2.23                  | 180                     |          |
| 1833.08        | 45.46           | H         | 54    | -8.54  | Avg                   | 2.23                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 42.67           | H         | 74    | -31.33 | Peak                  | 2.49                  | 90                      |          |
| 2749.62        | 42.21           | H         | 54    | -11.79 | Avg                   | 2.49                  | 90                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 49.86           | H         | 74    | -24.14 | Peak                  | 2.59                  | 180                     |          |
| 3666.16        | 49.40           | H         | 54    | -4.6   | Avg                   | 2.59                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 48.47           | H         | 74    | -25.53 | Peak                  | 1.57                  | 180                     |          |
| 4582.7         | 48.01           | H         | 54    | -5.99  | Avg                   | 1.57                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 45.67           | H         | 74    | -28.33 | Peak                  | 1.57                  | 225                     |          |
| 5499.24        | 45.21           | H         | 54    | -8.79  | Avg                   | 1.57                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 46.23           | H         | 74    | -27.77 | Peak                  | 1.57                  | 225                     |          |
| 6415.78        | 45.77           | H         | 54    | -8.23  | Avg                   | 1.57                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 50.00           | H         | 74    | -24    | Peak                  | 2.19                  | 135                     |          |
| 7332.32        | 49.54           | H         | 54    | -4.46  | Avg                   | 2.19                  | 135                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 48.61           | H         | 74    | -25.39 | Peak                  | 1.5                   | 180                     |          |
| 8248.86        | 48.15           | H         | 54    | -5.85  | Avg                   | 1.5                   | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.89           | H         | 74    | -24.11 | Peak                  | 1.84                  | 270                     |          |
| 9165.4         | 49.43           | H         | 54    | -4.57  | Avg                   | 1.84                  | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

**FCC 15.249**

Pentair Water Pool & Spa  
 Each Touch Wireless  
 Model: EasyTouch Handheld  
**X-Axis**

Date:10/21/05

Lab: B

Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 44.16           | V         | 74    | -29.84 | Peak                  | 2.69                  | 270                     |          |
| 1833.08        | 43.70           | V         | 54    | -10.3  | Avg                   | 2.69                  | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 43.89           | V         | 74    | -30.11 | Peak                  | 2.27                  | 315                     |          |
| 2749.62        | 43.43           | V         | 54    | -10.57 | Avg                   | 2.27                  | 315                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 45.50           | V         | 74    | -28.5  | Peak                  | 2.32                  | 90                      |          |
| 3666.16        | 45.04           | V         | 54    | -8.96  | Avg                   | 2.32                  | 90                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 44.04           | V         | 74    | -29.96 | Peak                  | 2.32                  | 180                     |          |
| 4582.7         | 43.58           | V         | 54    | -10.42 | Avg                   | 2.32                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 45.01           | V         | 74    | -28.99 | Peak                  | 1.75                  | 180                     |          |
| 5499.24        | 44.55           | V         | 54    | -9.45  | Avg                   | 1.75                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 45.31           | V         | 74    | -28.69 | Peak                  | 1.75                  | 180                     |          |
| 6415.78        | 44.85           | V         | 54    | -9.15  | Avg                   | 1.75                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 48.07           | V         | 74    | -25.93 | Peak                  | 1.57                  | 225                     |          |
| 7332.32        | 47.61           | V         | 54    | -6.39  | Avg                   | 1.57                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 47.85           | V         | 74    | -26.15 | Peak                  | 1.57                  | 225                     |          |
| 8248.86        | 47.39           | V         | 54    | -6.61  | Avg                   | 1.57                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.62           | V         | 74    | -24.38 | Peak                  | 1.44                  | 180                     |          |
| 9165.4         | 49.16           | V         | 54    | -4.84  | Avg                   | 1.44                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

**FCC 15.249**

Pentair Water Pool &amp; Spa

Each Touch Wireless

Model: EasyTouch Handheld

**Z-Axis**

Date:10/21/05

Lab: B

Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 48.82           | V         | 74    | -25.18 | Peak                  | 2.21                  | 45                      |          |
| 1833.08        | 48.36           | V         | 54    | -5.64  | Avg                   | 2.21                  | 45                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 41.15           | V         | 74    | -32.85 | Peak                  | 2.71                  | 135                     |          |
| 2749.62        | 40.69           | V         | 54    | -13.31 | Avg                   | 2.71                  | 135                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 50.21           | V         | 74    | -23.79 | Peak                  | 1.56                  | 180                     |          |
| 3666.16        | 49.75           | V         | 54    | -4.25  | Avg                   | 1.56                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 46.57           | V         | 74    | -27.43 | Peak                  | 2.21                  | 225                     |          |
| 4582.7         | 46.11           | V         | 54    | -7.89  | Avg                   | 2.21                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 44.97           | V         | 74    | -29.03 | Peak                  | 1.88                  | 135                     |          |
| 5499.24        | 44.51           | V         | 54    | -9.49  | Avg                   | 1.88                  | 135                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 45.78           | V         | 74    | -28.22 | Peak                  | 2.15                  | 180                     |          |
| 6415.78        | 45.32           | V         | 54    | -8.68  | Avg                   | 2.15                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 46.97           | V         | 74    | -27.03 | Peak                  | 1.49                  | 90                      |          |
| 7332.32        | 46.51           | V         | 54    | -7.49  | Avg                   | 1.49                  | 90                      |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 48.55           | V         | 74    | -25.45 | Peak                  | 2.3                   | 270                     |          |
| 8248.86        | 48.09           | V         | 54    | -5.91  | Avg                   | 2.3                   | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.28           | V         | 74    | -24.72 | Peak                  | 1.84                  | 180                     |          |
| 9165.4         | 48.82           | V         | 54    | -5.18  | Avg                   | 1.84                  | 180                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

**FCC 15.249**

Pentair Water Pool & Spa  
 Each Touch Wireless  
 Model: EasyTouch Handheld  
**Z-Axis**

Date:10/21/05

Lab: B

Tested By: Kyle Fujimoto

| Freq.<br>(MHz) | Level<br>(dBuV) | Pol (v/h) | Limit | Margin | Peak /<br>QP /<br>Avg | Ant.<br>Height<br>(m) | Table<br>Angle<br>(deg) | Comments |
|----------------|-----------------|-----------|-------|--------|-----------------------|-----------------------|-------------------------|----------|
| 1833.08        | 47.93           | H         | 74    | -26.07 | Peak                  | 1.5                   | 225                     |          |
| 1833.08        | 47.47           | H         | 54    | -6.53  | Avg                   | 1.5                   | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 2749.62        | 46.88           | H         | 74    | -27.12 | Peak                  | 1.74                  | 225                     |          |
| 2749.62        | 46.42           | H         | 54    | -7.58  | Avg                   | 1.74                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 3666.16        | 47.91           | H         | 74    | -26.09 | Peak                  | 1.25                  | 135                     |          |
| 3666.16        | 47.45           | H         | 54    | -6.55  | Avg                   | 1.25                  | 135                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 4582.7         | 45.60           | H         | 74    | -28.4  | Peak                  | 1.91                  | 225                     |          |
| 4582.7         | 45.14           | H         | 54    | -8.86  | Avg                   | 1.91                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 5499.24        | 44.79           | H         | 74    | -29.21 | Peak                  | 2.13                  | 225                     |          |
| 5499.24        | 44.33           | H         | 54    | -9.67  | Avg                   | 2.13                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 6415.78        | 45.21           | H         | 74    | -28.79 | Peak                  | 1.92                  | 225                     |          |
| 6415.78        | 44.75           | H         | 54    | -9.25  | Avg                   | 1.92                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 7332.32        | 47.49           | H         | 74    | -26.51 | Peak                  | 1.92                  | 270                     |          |
| 7332.32        | 47.03           | H         | 54    | -6.97  | Avg                   | 1.92                  | 270                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 8248.86        | 49.95           | H         | 74    | -24.05 | Peak                  | 1.77                  | 225                     |          |
| 8248.86        | 49.49           | H         | 54    | -4.51  | Avg                   | 1.77                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |
| 9165.4         | 49.96           | H         | 74    | -24.04 | Peak                  | 1.77                  | 225                     |          |
| 9165.4         | 49.50           | H         | 54    | -4.5   | Avg                   | 1.77                  | 225                     |          |
|                |                 |           |       |        |                       |                       |                         |          |

Pentair Water Pool & Spa  
Each Touch Wireless  
Model: EasyTouch Handheld

Lab: B

### X-Axis Worst Case Polarization

[illegible]

|                                                        |                                                                                                                                                                                     |                      |              |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|
| <b>Test Location</b>                                   | : Compatible Electronics                                                                                                                                                            | <b>Page</b>          | : 1/1        |
| <b>Customer</b>                                        | : Pentair Water Pool & Spa                                                                                                                                                          | <b>Date</b>          | : 10/24/2005 |
| <b>Manufacturer</b>                                    | : Pentair Water Pool & Spa                                                                                                                                                          | <b>Time</b>          | : 8:47:36    |
| <b>Eut name</b>                                        | : Easy Touch Wireless                                                                                                                                                               | <b>Lab</b>           | : D          |
| <b>Model</b>                                           | : EasyTouch Handheld                                                                                                                                                                | <b>Test Distance</b> | : 3 Meters   |
| <b>Serial #</b>                                        | : N/A                                                                                                                                                                               |                      |              |
| <b>Specification</b>                                   | : FCC B                                                                                                                                                                             |                      |              |
| <b>Distance correction factor (20 * log(test/spec)</b> |                                                                                                                                                                                     |                      | : 0.00       |
| <b>Test Mode</b>                                       | : Spurious Emissions - Receive Mode- 30 MHz to 1000 MHz<br>Vertical and Horizontal Polarization<br>Temperature 69 Degrees F., Relative Humidity 72%<br>Test Engineer: Kyle Fujimoto |                      |              |

| Pol | Freq<br>MHz | Rdng<br>dBuV | Cable<br>loss<br>dB | Ant<br>factor<br>dB | Amp<br>gain<br>dB | Cor'd<br>rdg = R<br>dBuV | Limit<br>= L<br>dBuV/m | Delta<br>R-L<br>dB |
|-----|-------------|--------------|---------------------|---------------------|-------------------|--------------------------|------------------------|--------------------|
| 1H  | 49.640      | 39.80        | 0.80                | 11.62               | 38.20             | 14.01                    | 40.00                  | -25.99             |
| 2V  | 112.248     | 40.30        | 1.20                | 12.03               | 38.06             | 15.47                    | 43.50                  | -28.03             |
| 3V  | 160.476     | 39.00        | 1.34                | 13.18               | 38.51             | 15.01                    | 43.50                  | -28.49             |
| 4H  | 224.840     | 39.30        | 1.70                | 16.05               | 38.30             | 18.75                    | 46.00                  | -27.25             |
| 5H  | 259.720     | 37.50        | 1.88                | 16.85               | 38.52             | 17.71                    | 46.00                  | -28.29             |
| 6H  | 298.120     | 37.00        | 2.00                | 19.58               | 38.49             | 20.09                    | 46.00                  | -25.91             |
| 7H  | 323.480     | 63.20        | 2.15                | 12.90               | 38.50             | 39.75                    | 46.00                  | -6.25              |
| 8V  | 350.076     | 51.40        | 2.30                | 13.08               | 38.50             | 28.28                    | 46.00                  | -17.72             |
| 9V  | 482.876     | 38.60        | 2.67                | 14.85               | 38.00             | 18.12                    | 46.00                  | -27.88             |
| 10V | 854.880     | 55.90        | 3.52                | 20.95               | 37.53             | 42.84                    | 46.00                  | -3.16              |
| 11H | 854.922     | 52.40        | 3.52                | 20.95               | 37.53             | 39.34                    | 46.00                  | -6.66              |



**Test Location** : Compatible Electronics  
**Customer** : Pentair Water Pool & Spa  
**Manufacturer** : Pentair Water Pool & Spa  
**Eut name** : Easy Touch Wireless  
**Model** : EasyTouch Handheld  
**Serial #** : N/A  
**Specification** : FCC B  
**Distance correction factor (20 \* log(test/spec))** : 0.00  
**Test Mode** : Spurious Emissions - - Transmit Mode - 10 kHz to 1000 MHz  
 Vertical and Horizontal Polarization  
 Temperature 69 Degrees F., Relative Humidity 72%  
 Test Engineer: Kyle Fujimoto

**Page** : 1/1  
**Date** : 10/21/2005  
**Time** : 9:08:54  
**Lab** : D  
**Test Distance** : 3 Meters

| Pol | Freq<br>MHz | Rdng<br>dBuV | Cable<br>loss<br>dB | Ant<br>factor<br>dB | Amp<br>gain<br>dB | Cor'd<br>rdg = R<br>dBuV | Limit<br>= L<br>dBuV/m | Delta<br>R-L<br>dB |
|-----|-------------|--------------|---------------------|---------------------|-------------------|--------------------------|------------------------|--------------------|
| 1H  | 30.865      | 39.20        | 0.61                | 11.04               | 38.39             | 12.46                    | 40.00                  | -27.54             |
| 2V  | 37.198      | 47.90        | 0.67                | 10.94               | 38.33             | 21.19                    | 40.00                  | -18.81             |
| 3V  | 87.980      | 63.90        | 1.10                | 7.67                | 38.30             | 34.37                    | 40.00                  | -5.63              |
| 4V  | 181.300     | 41.40        | 1.45                | 14.60               | 38.43             | 19.03                    | 43.50                  | -24.47             |
| 5H  | 194.105     | 50.50        | 1.56                | 15.57               | 38.48             | 29.15                    | 43.50                  | -14.35             |
| 6V  | 199.096     | 45.80        | 1.59                | 15.94               | 38.50             | 24.83                    | 43.50                  | -18.67             |
| 7H  | 237.098     | 35.10        | 1.75                | 16.08               | 38.45             | 14.48                    | 46.00                  | -31.52             |
| 8V  | 299.096     | 39.20        | 2.00                | 19.64               | 38.50             | 22.35                    | 46.00                  | -23.65             |
| 9H  | 309.522     | 57.70        | 2.06                | 12.80               | 38.50             | 34.06                    | 46.00                  | -11.94             |
| 10H | 323.200     | 64.20        | 2.14                | 12.90               | 38.50             | 40.74                    | 46.00                  | -5.26              |
| 11H | 324.400     | 65.10        | 2.15                | 12.91               | 38.50             | 41.66                    | 46.00                  | -4.34              |
| 12V | 325.600     | 54.50        | 2.16                | 12.92               | 38.50             | 31.07                    | 46.00                  | -14.93             |
| 13H | 332.044     | 54.20        | 2.20                | 12.96               | 38.50             | 30.86                    | 46.00                  | -15.14             |
| 14H | 356.044     | 52.50        | 2.31                | 13.12               | 38.47             | 29.46                    | 46.00                  | -16.54             |
| 15H | 357.738     | 53.00        | 2.32                | 13.13               | 38.47             | 29.98                    | 46.00                  | -16.02             |
| 16H | 365.738     | 48.20        | 2.33                | 13.18               | 38.43             | 25.28                    | 46.00                  | -20.72             |
| 17H | 383.922     | 47.10        | 2.37                | 13.29               | 38.36             | 24.40                    | 46.00                  | -21.60             |
| 18H | 384.146     | 46.10        | 2.37                | 13.29               | 38.36             | 23.40                    | 46.00                  | -22.60             |
| 19H | 462.993     | 48.00        | 2.63                | 14.52               | 38.00             | 27.15                    | 46.00                  | -18.85             |
| 20H | 523.793     | 47.50        | 2.75                | 15.41               | 38.05             | 27.61                    | 46.00                  | -18.39             |
| 21V | 534.100     | 33.20        | 2.77                | 15.54               | 38.07             | 13.44                    | 46.00                  | -32.56             |
| 22H | 641.545     | 46.70        | 3.12                | 17.77               | 37.87             | 29.72                    | 46.00                  | -16.28             |
| 23H | 646.850     | 52.40        | 3.17                | 17.95               | 37.82             | 35.70                    | 46.00                  | -10.30             |