

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)



## Test Report

Product Name: 2.4 GHz WIRELESS MICROPHONE

FCC ID: AMWUT601

Applicant:

**UNIDEN AMERICA CORPORATION  
181 N. COUNTRY CLUB RD.  
P.O. BOX 580  
LAKE CITY, SC 29560**

**Date Receipt: 4/29/2005**

**Date Tested: 5/6/2005**

**APPLICANT: UNIDEN AMERICA CORPORATION**

**FCC ID: AMWUT601**

**REPORT #: U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc**

**COVER SHEET**

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

## TABLE OF CONTENTS

### TEST REPORT CONTAINING:

PAGE 1-6.....LIST OF TEST EQUIPMENT  
PAGE 7.....TEST PROCEDURES  
PAGE 8-9.....RADIATION INTERFERENCE TEST DATA  
PAGE 10.....METHOD OF MEASURING RADIATED SPURIOUS EMISSIONS

### EXHIBITS INCLUDED:

CLASS II PERMISSIVE CHANGE REQUEST LETTER  
TEST SET UP PHOTOGRAPHS

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

**TABLE OF CONTENTS**

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

## EMC Equipment List

| Device                          | Manufacturer    | Model         | Serial Number         | Cal/Char Date   | Due Date or Status |
|---------------------------------|-----------------|---------------|-----------------------|-----------------|--------------------|
| 3-Meter OATS                    | TEI             | N/A           | N/A                   | Listed 1/13/03  | 1/12/06            |
| 3/10-Meter OATS                 | TEI             | N/A           | N/A                   | Listed 3/27/04  | 3/26/07            |
| Tan Tower Spectrum Analyzer     | HP              | 8566B Opt 462 | 3138A07786 3144A20661 | CAL 9/23/03     | 9/23/05            |
| Tan Tower RF Preselector        | HP              | 85685A        | 3221A01400            | CAL 9/23/03     | 9/23/05            |
| Tan Tower Quasi-Peak Adapter    | HP              | 85650A        | 3303A01690            | CAL 9/23/03     | 9/23/05            |
| Tan Tower Preamplifier          | HP              | 8449B-H02     | 3008A00372            | CAL 9/23/03     | 9/23/05            |
| Blue Tower Spectrum Analyzer    | HP              | 8568B         | 2928A04729 2848A18049 | CAL 4/15/03     | 4/15/05            |
| Blue Tower RF Preselector       | HP              | 85685A        | 2620A00294            | CAL 4/27/04     | 4/27/06            |
| Blue Tower Quasi-Peak Adapter   | HP              | 85650A        | 2811A01279            | CAL 4/15/03     | 4/15/05            |
| Silver Tower Spectrum Analyzer  | HP              | 8566B Opt 462 | 3552A22064 3638A08608 | CAL 3/22/04     | 3/22/06            |
| Silver Tower RF Preselector     | HP              | 85685A        | 2926A00983            | CAL 3/22/04     | 3/22/06            |
| Silver Tower Quasi-Peak Adapter | HP              | 85650A        | 3303A01844            | CAL 3/22/04     | 3/22/06            |
| Silver Tower Preamplifier       | HP              | 8449B         | 3008A01075            | CAL 3/22/04     | 3/22/06            |
| Biconnical Antenna              | Electro-Metrics | BIA-25        | 1171                  | CAL 4/26/01     | 4/26/03            |
| Biconnical Antenna              | Eaton           | 94455-1       | 1096                  | CAL 8/17/04     | 8/17/06            |
| Biconnical Antenna              | Eaton           | 94455-1       | 1057                  | CAL 3/18/03     | 3/18/05            |
| BiconiLog Antenna               | EMCO            | 3143          | 9409-1043             | No Cal Required |                    |
| Log-Periodic Antenna            | Electro-Metrics | LPA-25        | 1122                  | CAL 8/26/04     | 8/26/06            |
| Log-Periodic Antenna            | Electro-Metrics | LPA-30        | 409                   | CAL 3/4/03      | 3/4/05             |
| Log-Periodic                    | Eaton           | 96005         | 1243                  | CAL             | 5/8/05             |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

| Device                           | Manufacturer                | Model      | Serial Number | Cal/Char Date | Due Date or Status |
|----------------------------------|-----------------------------|------------|---------------|---------------|--------------------|
| Antenna                          |                             |            |               | 5/8/03        |                    |
| Dipole Antenna Kit               | Electro-Metrics             | TDA-30/1-4 | 152           | CAL 3/21/01   | 3/21/04            |
| Dipole Antenna Kit               | Electro-Metrics             | TDA-30/1-4 | 153           | CAL 9/26/02   | 9/26/05            |
| Double-Ridged Horn Antenna       | Electro-Metrics             | RGA-180    | 2319          | CAL 2/17/03   | 2/17/05            |
| Horn Antenna *(at 3 meters)      | Electro-Metrics             | EM-6961    | 6246          | CAL 3/31/03   | 3/31/05            |
| Horn Antenna *(at 10 meters)     | Electro-Metrics             | EM-6961    | 6246          | CAL 6/4/03    | 6/4/05             |
| Passive Loop Antenna             | EMC Test Systems            | EMCO 6512  | 9706-1211     | CHAR 7/10/01  | 7/10/03            |
| Harmonic Mixer with Horn Antenna | Oleson Microwave Labs       | M08HW/A    | F30425-1      | CHAR 4/25/03  | 4/25/05            |
| Harmonic Mixer with Horn Antenna | Oleson Microwave Labs       | M12HW/A    | E30425-1      | CHAR 4/25/03  | 4/25/05            |
| LISN                             | Electro-Metrics             | ANS-25/2   | 2604          | CAL 8/27/04   | 8/27/06            |
| LISN                             | Electro-Metrics             | EM-7820    | 2682          | CAL 3/12/03   | 3/12/05            |
| Termaline Wattmeter              | Bird Electronic Corporation | 611        | 16405         | CAL 7/16/04   | 7/16/06            |
| Termaline Wattmeter              | Bird Electronic Corporation | 6104       | 1926          | CAL 7/16/04   | 7/16/06            |
| Oscilloscope                     | Tektronix                   | 2230       | 300572        | CAL 7/3/03    | 7/3/05             |
| System One                       | Audio Precision             | System One | SYS1-45868    | CHAR 4/25/02  | 4/25/04            |
| Temperature Chamber              | Tenney Engineering          | TTRC       | 11717-7       | CHAR 1/22/02  | 1/22/04            |
| AC Voltmeter                     | HP                          | 400FL      | 2213A14499    | CAL 7/19/04   | 7/19/06            |
| AC Voltmeter                     | HP                          | 400FL      | 2213A14261    | CHAR 10/15/01 | 10/15/03           |
| AC Voltmeter                     | HP                          | 400FL      | 2213A14728    | CHAR 10/15/01 | 10/15/03           |
| Digital Multimeter               | Fluke                       | 77         | 35053830      | CHAR 1/8/02   | 1/8/04             |
| Digital Multimeter               | Fluke                       | 77         | 43850817      | CHAR 1/8/02   | 1/8/04             |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

| Device                 | Manufacturer         | Model           | Serial Number | Cal/Char Date | Due Date or Status |
|------------------------|----------------------|-----------------|---------------|---------------|--------------------|
| Digital Multimeter     | HP                   | E2377A          | 2927J05849    | CHAR 1/8/02   | 1/8/04             |
| Multimeter             | Fluke                | FLUKE-77-3      | 79510405      | CHAR 9/26/01  | 9/26/03            |
| Peak Power Meter       | HP                   | 8900C           | 2131A00545    | CAL 7/2/03    | 7/2/05             |
| Power Sensor           | Agilent Technologies | 84811A          | 2551A02705    | CAL 7/2/03    | 7/2/05             |
| Power Meter            | HP                   | 432A            | 1141A07655    | CAL 4/15/03   | 4/15/05            |
| Power Sensor           | HP                   | 478A            | 72129         | CAL 4/15/03   | 4/15/05            |
| Power Meter And Sensor | Bird                 | 4421-107 & 4022 | 0166 & 0218   | CAL 4/16/03   | 4/16/05            |
| Digital Thermometer    | Fluke                | 2166A           | 42032         | CAL 7/19/04   | 7/19/06            |
| Thermometer            | Traulsen             | SK-128          |               | CHAR 1/22/02  | 1/22/04            |
| Thermometer            | Extech               | 4028            | 14871-2       | CAL 3/7/03    | 3/7/05             |
| Hygro-Thermometer      | Extech               | 445703          | 0602          | CAL 10/4/02   | 10/4/04            |
| Frequency Counter      | HP                   | 5352B           | 2632A00165    | CAL 8/3/04    | 8/3/06             |
| Frequency Counter      | HP                   | 5385A           | 2730A03025    | CAL 3/7/03    | 3/7/05             |
| Service Monitor        | IFR                  | FM/AM 500A      | 5182          | CAL 11/22/00  | Out of Service     |
| Comm. Serv. Monitor    | IFR                  | FM/AM 1200S     | 6593          | CAL 5/12/02   | 5/12/04            |
| Signal Generator       | HP                   | 8640B           | 2308A21464    | CAL 8/26/04   | 8/26/06            |
| Sweep Generator        | Wiltron              | 6648            | 101009        | CAL 4/15/03   | 4/15/05            |
| Sweep Generator        | Wiltron              | 6669M           | 007005        | CAL 3/3/03    | 3/3/05             |
| Modulation Analyzer    | HP                   | 8901A           | 3435A06868    | CAL 9/5/01    | 9/5/03             |
| Modulation Meter       | Boonton              | 8220            | 10901AB       | CAL 4/15/03   | 4/15/05            |
| Near Field Probe       | HP                   | HP11940A        | 2650A02748    | CHAR 2/1/01   | Out of Service     |
| BandReject Filter      | Lorch                | 5BR4-           | Z1            | CHAR          | 4/17/05            |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

| Device                                 | Manufacturer                  | Model            | Serial Number | Cal/Char Date   | Due Date or Status |
|----------------------------------------|-------------------------------|------------------|---------------|-----------------|--------------------|
|                                        | Microwave                     | 2400/60-N        |               | 4/17/03         |                    |
| BandReject Filter                      | Lorch Microwave               | 6BR6-2442/300-N  | Z1            | CHAR 4/17/03    | 4/17/05            |
| BandReject Filter                      | Lorch Microwave               | 5BR4-10525/900-S | Z1            | CHAR 4/12/03    | 4/12/05            |
| Notch Filter                           | Lorch Microwave               | 5BRX-850/X100-N  | AD-1          | CHAR 4/17/03    | 4/17/05            |
| High Pass Filter                       | Unk                           | 3768(5)-400      | 041           | CHAR 12/17/02   | 12/17/04           |
| High Pass Filter                       | Microlab                      | HA-10N           |               | CHAR 11/17/02   | 11/17/04           |
| High Pass Filter                       | Microlab                      | HA-20N           |               | CHAR 12/17/02   | 12/17/04           |
| Audio Oscillator                       | HP                            | 653A             | 832-00260     | CHAR 12/1/02    | 12/1/04            |
| Audio Generator                        | B&K Precision                 | 3010             | 8739686       | CHAR 12/1/02    | 12/1/04            |
| Frequency Counter                      | HP                            | 5382A            | 1620A03535    | CHAR 3/2/01     | Out of Service     |
| Frequency Counter                      | HP                            | 5385A            | 3242A07460    | CAL 3/7/03      | 3/7/05             |
| Amplifier                              | HP                            | 11975A           | 2738A01969    | No Cal Required |                    |
| Egg Timer                              | Unk                           |                  |               | CHAR 2/1/02     | 2/1/04             |
| Measuring Tape-20M                     | Kraftixx                      | 0631-20          |               | CHAR 2/1/02     | 2/1/04             |
| Measuring Tape-7.5M                    | Kraftixx                      | 7.5M PROFI       |               | CHAR 2/1/02     | 2/1/04             |
| Coaxial Cable #51                      | Insulated Wire Inc.           | NPS 2251-2880    | Timco #51     | CHAR 1/23/02    | 1/23/04            |
| Coaxial Cable #64                      | Semflex Inc.                  | 60637            | Timco #64     | CHAR 1/24/02    | 1/24/04            |
| Coaxial Cable #65                      | General Cable Co.             | E9917 RG233/U    | Timco #65     | CHAR 1/23/02    | 1/23/04            |
| Coaxial Cable #106                     | Unknown                       | Unknown          | Timco #106    | CHAR 1/23/02    | 1/23/04            |
| Injection Probe                        | Fischer Custom Communications | F-120-9A         | 270           | CAL 6/1/01      | 6/1/03             |
| Power Line Coupling/Decoupling Network | Fischer Custom Communications | FCC-801-M2-16A   | 01048         | CAL 8/29/01     | 8/29/03            |
| Power Line                             | Fischer Custom                | FCC-801-M3-      | 01060         | CAL             | 8/29/03            |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

| Device                                   | Manufacturer                  | Model                | Serial Number  | Cal/Char Date   | Due Date or Status |
|------------------------------------------|-------------------------------|----------------------|----------------|-----------------|--------------------|
| Coupling/Decoupling Network              | Communications                | 16A                  |                | 8/29/01         |                    |
| VHF/UHF Current Probe                    | Fischer Custom Communications | F-52                 | 130            | CAL 8/30/01     | 8/30/03            |
| Passive Impedance Adapter                | Fischer Custom Communications | FCC-801-150-50-CDN   | 01117 & 01118  | CAL 8/29/01     | 8/29/03            |
| Radiating Field Coil                     | Fischer Custom Communications | F-1000-4-8/9/10-L-1M | 9859           | CAL 10/15/98    | 10/15/00           |
| EMC Immunity Test System                 | Keytek                        | CEMASTER             | 9810210        | CAL 2/1/02      | 2/1/04             |
| Compliance Test System - AC Power Source | California Instruments        | 1251RP               | L05865         | CAL 2/25/04     | 2/25/06            |
| Compliance Test System - PACS-1 Module   | California Instruments        | PACS-1               | X71484         | CAL 2/25/04     | 2/25/06            |
| Isotropic Field Probe                    | Amplifier Research            | FP5000               | 22839          |                 |                    |
| Isotropic Field Probe                    | Amplifier Research            | FP5000               | 300103         |                 |                    |
| Capacitor Clamp                          | Keytek                        | CM-CCL               | 9811359        | No Cal Required |                    |
| Amplifier                                | Amplifier Research            | 10W1000B             | 23117          | No Cal Required |                    |
| Field Monitor                            | Amplifier Research            | FM5004               | 22288          | No Cal Required |                    |
| ELF Meter                                | F. W. Bell                    | 4060                 | Not Serialized |                 | Out of Service     |
| Standard Gain Horn 1.0-2.4 GHz           | Polarad                       | CA-L                 | 235            | No Cal Required |                    |
| Standard Gain Horn 2.14-4.34 GHz         | Polarad                       | CA-S                 | 203            | No Cal Required |                    |
| Standard Gain Horn 3.95-5.85 GHz         | Scientific-Atlanta Inc.       | 11A-3.9              | 8448CG         | No Cal Required |                    |
| Standard Gain Horn 8.2-12.5 GHz          | Systron Donner                | DBG-520-20           | Not Serialized | No Cal Required |                    |
| Standard Gain Horn 18.0-26.3 GHz         | Systron Donner                | DBE-520-20           | Not Serialized | No Cal Required |                    |
| Standard Gain Horn 26.5-40.2 GHz         | Systron Donner                | DBD-520-20           | Not Serialized | No Cal Required |                    |
| Standard Gain Horn 40.0-60.0 GHz         | ATM                           | 19-443-6R            | Not Serialized | No Cal Required |                    |
| Double-Ridged Horn                       | EMCO                          | 3116                 | 9011-2145      |                 | Out of             |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45

Newberry, Florida 32669

<http://www.timcoengr.com>

888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

| Device                                 | Manufacturer             | Model        | Serial Number         | Cal/Char Date      | Due Date or Status |
|----------------------------------------|--------------------------|--------------|-----------------------|--------------------|--------------------|
| Antenna                                |                          |              |                       |                    | Service            |
| Standard Gain Horn<br>12.4-18.0 GHz    | ATM                      | 62-442-6     | D262108-01            | No Cal<br>Required |                    |
| Standard Gain Horn<br>5.85-8.2 GHz     | ATM                      | 137-442-2    | D261908-01            | No Cal<br>Required |                    |
| AC Voltmeter                           | HP                       | 400F         | 0950A05433            | CAL<br>8/13/03     | 8/13/05            |
| RF Power Amplifier                     | Ophir RF                 | 5150F        | 1041 'X1'             | No Cal<br>Required |                    |
| Electric Field<br>Sensor               | Amplifier<br>Research    | FP6001       | 302504                |                    |                    |
| Electric Field<br>Sensor               | Amplifier<br>Research    | FP6001       | 302510                | CAL<br>6/1/04      | 6/1/06             |
| Surge Generator                        | Com-Power<br>Corporation | SG-168       | 25802                 | CAL<br>2/27/04     | 2/27/06            |
| RF Power Amplifier                     | Ophir RF, Inc.           | 5150F        | 1041                  | CHAR<br>10/31/03   | 10/31/05           |
| 3-Meter Anechoic<br>Chamber            | Panashield               | N/A          | N/A                   | Listed<br>5/12/04  | 5/11/07            |
| Digital Multimeter                     | Fluke                    | 77III        | 79510408              | CAL<br>7/19/04     | 7/19/06            |
| Open-Frame Tower<br>Spectrum Analyzer  | HP                       | 8566B/85662A | 2627A03154/2648A14276 | CAL<br>7/9/04      | 7/9/06             |
| Open-Frame Tower RF<br>Preselector     | HP                       | 85685A       | 3107A01282            | CAL<br>7/9/04      | 7/9/06             |
| Open-Frame Tower<br>Quasi-Peak Adapter | HP                       | 85650A       | 2046A00305            | CAL<br>7/9/04      | 7/9/06             |
| Signal Generator                       | HP                       | 8648C        | 3847A04696            | CAL<br>9/27/04     | 9/27/06            |

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2003 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 76°F with a humidity of 55%.

**BANDWIDTH 6.0dB:** The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)=1.0MHz and the video bandwidth (VBW) =3.0MHz and the span set as shown on plot.

**POWER OUTPUT:** The RF power output was measured at the antenna feed point using a peak power meter.

**ANTENNA CONDUCTED EMISSIONS:** The RBW=100KHz, VBW=300KHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10<sup>th</sup> Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1.0MHz and the VBW = 3.0MHz and the span to 50MHz.

**ANTENNA CONNECTION:** This device uses an integral antenna.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. The bandwidth (RBW) of the spectrum analyzer was 100kHz up to 1GHz and 1.0MHz above 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 3.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 76°F with a humidity of 55%.

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

15.247(c), 15.205 & 15.209(b) Field strength of spurious emissions:

## REQUIREMENTS:

|                                                                  |                                                                     |                                                                                                       |
|------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| FIELD STRENGTH<br>of Fundamental:<br>902-928MHz<br>2.4-2.4835GHz | FIELD STRENGTH<br>of Harmonics<br><br>127.37dBuV/m<br>54 dBuV/m @3m | S15.209<br>30 - 88 MHz 40 dBuV/m @3M<br>88 -216 MHz 43.5<br>216 -960 MHz 46<br>ABOVE 960 MHz 54dBuV/m |
|------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

## REQUIREMENTS FOR EMISSIONS THAT FALL IN A RESTRICTED BAND:

|                                             |           |
|---------------------------------------------|-----------|
| FIELD STRENGTH LIMITS FOR PEAK READINGS:    | 74 dBuV/m |
| FIELD STRENGTH LIMITS FOR AVERAGE READINGS: | 54 dBuV/m |

## TEST DATA - WITH HYPERLINK MODEL HGV-2409U ANTENNA - 8 dBi GAIN:

| Tuned<br>Frequency<br>MHz | Emission<br>Frequency<br>MHz | Meter<br>Reading<br>dBuV | Ant.<br>Polarity | Coax<br>Loss<br>dB | Correction<br>Factor<br>dB | Field<br>Strength<br>dBuV/m | Margin<br>dB |
|---------------------------|------------------------------|--------------------------|------------------|--------------------|----------------------------|-----------------------------|--------------|
| 2,407.4                   | 2,407.40                     | 60.0                     | H                | 1.86               | 32.41                      | 94.27                       |              |
| 2,407.4                   | 2,407.40                     | 73.8                     | V                | 1.86               | 32.41                      | 108.07                      |              |
| 2,407.4                   | 4,814.80 R                   | 2.7                      | V                | 2.64               | 34.89                      | 40.23                       | PK 33.77     |
| 2,407.4                   | 4,814.80 R                   | 8.7                      | H                | 2.64               | 34.89                      | 46.23                       | PK 27.77     |
| 2,407.4                   | 7,222.20                     | 4.0                      | H                | 3.37               | 35.87                      | 43.24                       | 10.76        |
| 2,407.4                   | 7,222.20                     | 7.2                      | V                | 3.37               | 35.87                      | 46.44                       | 7.56         |
| 2,407.4                   | 9,629.60                     | 7.0                      | V                | 3.86               | 37.41                      | 48.27                       | 5.73         |
| 2,440.2                   | 2,440.20                     | 63.9                     | H                | 1.88               | 32.48                      | 98.26                       |              |
| 2,440.2                   | 2,440.20                     | 72.8                     | V                | 1.88               | 32.48                      | 107.16                      |              |
| 2,440.2                   | 4,880.40 R                   | 4.1                      | V                | 2.66               | 34.93                      | 41.69                       | PK 32.31     |
| 2,440.2                   | 4,880.40 R                   | 8.7                      | H                | 2.66               | 34.93                      | 46.29                       | PK 27.71     |
| 2,440.2                   | 7,320.60 R                   | 3.9                      | H                | 3.40               | 35.81                      | 43.11                       | PK 30.89     |
| 2,440.2                   | 7,320.60 R                   | 7.1                      | V                | 3.40               | 35.81                      | 46.31                       | PK 27.69     |
| 2,440.2                   | 9,760.80                     | 2.5                      | H                | 3.88               | 37.62                      | 44.00                       | 10.00        |
| 2,440.2                   | 9,760.80                     | 5.5                      | V                | 3.88               | 37.62                      | 47.00                       | 7.00         |
| 2,477.0                   | 2,477.00                     | 61.7                     | H                | 1.89               | 32.55                      | 96.14                       |              |
| 2,477.0                   | 2,477.00                     | 70.0                     | V                | 1.89               | 32.55                      | 104.44                      |              |
| 2,477.0                   | 4,954.00 R                   | 4.4                      | V                | 2.69               | 34.97                      | 42.06                       | PK 31.94     |
| 2,477.0                   | 4,954.00 R                   | 8.0                      | H                | 2.69               | 34.97                      | 45.66                       | PK 28.34     |
| 2,477.0                   | 7,431.00 R                   | 2.1                      | V                | 3.43               | 35.74                      | 41.27                       | PK 32.73     |

\*Harmonics were checked through the 10<sup>th</sup> harmonic\*

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUT601

REPORT #: U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

15.247(c), 15.205 & 15.209(b) Field strength of spurious emissions:

## REQUIREMENTS:

|                                                                  |                                                                     |                                                                                                       |
|------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| FIELD STRENGTH<br>of Fundamental:<br>902-928MHz<br>2.4-2.4835GHz | FIELD STRENGTH<br>of Harmonics<br><br>127.37dBuV/m<br>54 dBuV/m @3m | S15.209<br>30 - 88 MHz 40 dBuV/m @3M<br>88 -216 MHz 43.5<br>216 -960 MHz 46<br>ABOVE 960 MHz 54dBuV/m |
|------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

## REQUIREMENTS FOR EMISSIONS THAT FALL IN A RESTRICTED BAND:

|                                             |           |
|---------------------------------------------|-----------|
| FIELD STRENGTH LIMITS FOR PEAK READINGS:    | 74 dBuV/m |
| FIELD STRENGTH LIMITS FOR AVERAGE READINGS: | 54 dBuV/m |

## TEST DATA - WITH HYPERLINK MODEL HGV-2404U ANTENNA - 4 dBi GAIN:

| Tuned<br>Frequency<br>MHz | Emission<br>Frequency<br>MHz | Meter<br>Reading<br>dBuV | Ant.<br>Polarity | Coax<br>Loss<br>dB | Correction<br>Factor<br>dB | Field<br>Strength<br>dBuV/m | Margin<br>dB |
|---------------------------|------------------------------|--------------------------|------------------|--------------------|----------------------------|-----------------------------|--------------|
| 2,407.4                   | 2,407.40                     | 58.9                     | H                | 1.86               | 32.41                      | 93.17                       |              |
| 2,407.4                   | 2,407.40                     | 73.6                     | V                | 1.86               | 32.41                      | 107.87                      |              |
| 2,407.4                   | 4,814.80 R                   | 1.0                      | V                | 2.64               | 34.89                      | 38.53                       | PK 35.47     |
| 2,407.4                   | 4,814.80 R                   | 7.1                      | H                | 2.64               | 34.89                      | 44.63                       | PK 29.37     |
| 2,407.4                   | 7,222.20                     | 2.2                      | H                | 3.37               | 35.87                      | 41.44                       | 12.56        |
| 2,407.4                   | 7,222.20                     | 5.3                      | V                | 3.37               | 35.87                      | 44.54                       | 9.46         |
| 2,407.4                   | 9,629.60                     | 5.1                      | V                | 3.86               | 37.41                      | 46.37                       | 7.63         |
| 2,440.2                   | 2,440.20                     | 62.0                     | H                | 1.88               | 32.48                      | 96.36                       |              |
| 2,440.2                   | 2,440.20                     | 72.9                     | V                | 1.88               | 32.48                      | 107.26                      |              |
| 2,440.2                   | 4,880.40 R                   | 1.6                      | V                | 2.66               | 34.93                      | 39.19                       | PK 34.81     |
| 2,440.2                   | 4,880.40 R                   | 7.1                      | H                | 2.66               | 34.93                      | 44.69                       | PK 29.31     |
| 2,440.2                   | 7,320.60 R                   | 3.3                      | H                | 3.40               | 35.81                      | 42.51                       | PK 31.49     |
| 2,440.2                   | 7,320.60 R                   | 8.0                      | V                | 3.40               | 35.81                      | 47.21                       | PK 26.79     |
| 2,440.2                   | 9,760.80                     | 2.1                      | V                | 3.88               | 37.62                      | 43.60                       | 10.40        |
| 2,477.0                   | 2,477.00                     | 59.9                     | H                | 1.89               | 32.55                      | 94.34                       |              |
| 2,477.0                   | 2,477.00                     | 72.1                     | V                | 1.89               | 32.55                      | 106.54                      |              |
| 2,477.0                   | 4,954.00 R                   | 4.9                      | V                | 2.69               | 34.97                      | 42.56                       | PK 31.44     |
| 2,477.0                   | 4,954.00 R                   | 8.0                      | H                | 2.69               | 34.97                      | 45.66                       | PK 28.34     |
| 2,477.0                   | 9,908.00                     | 2.3                      | V                | 3.89               | 37.85                      | 44.04                       | 9.96         |

APPLICANT: UNIDEN AMERICA CORPORATION

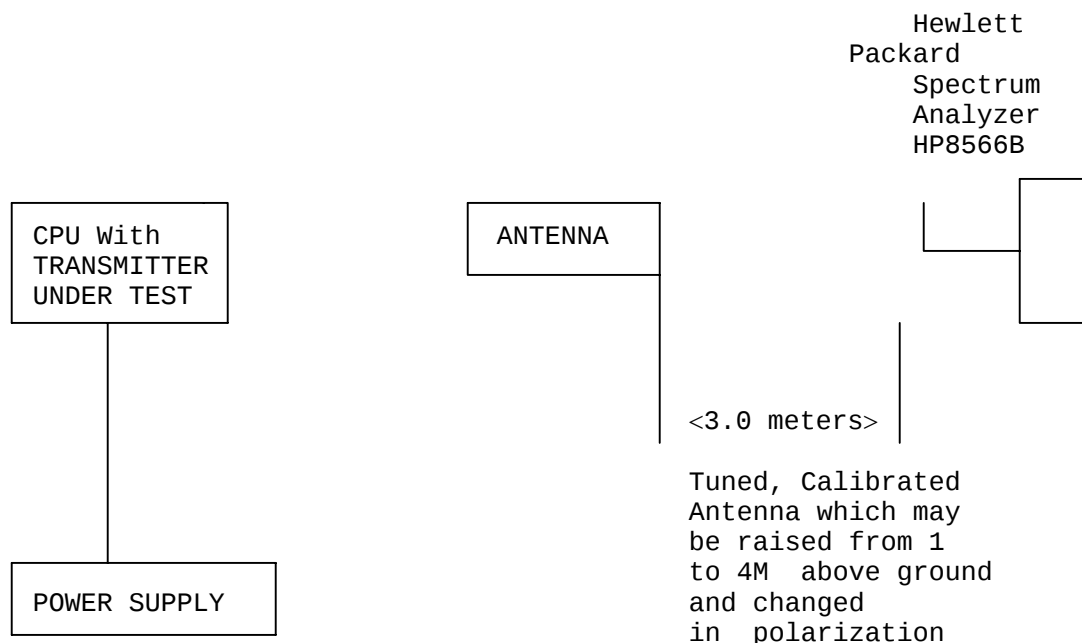
FCC ID: AMWUT601

REPORT #: U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc

# TIMCO ENGINEERING INC.

849 NW State Road 45  
Newberry, Florida 32669  
<http://www.timcoengr.com>  
888.472.2424 F 352.472.2030 email: [sid@timcoengr.com](mailto:sid@timcoengr.com)

## Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground on a rotatable platform.

**METHOD OF MEASUREMENT:** The procedure used was ANSI STANDARD C63.4-2003 & the FCC/OET Guidance on Measurements for Direct Sequence Spread Spectrum Systems – Public Notice 54797 Dated July 12, 1995. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUT601

**REPORT #:** U:\U\Uniden AMW\917AUT5\917AUT5TestReport.doc