

# 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: 5.8GHz CORDLESS TELEPHONE

FCC ID: AMWUP758

Applicant:

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

**Date Receipt: 10/31/2005**

**Date Tested: 11/16/2005**

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUP758

REPORT #: U\UNIDEN AMW\2213UT5\2213UT5TestReport.doc

COVER SHEET

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## TABLE OF CONTENTS LIST

### TEST REPORT:

PAGE 1.....	EQUIPMENT LIST
PAGE 2.....	TEST PROCEDURE
PAGE 3.....	POWER LINE CONDUCTED INTERFERENCE
PAGE 4-7.....	POWER LINE CONDUCTED INFERENCE PLOT
PAGE 8-9.....	OCCUPIED BANDWIDTH
PAGE 10.....	PEAK POWER OUTPUT
PAGE 11.....	RADIATED SPURIOUS EMISSIONS - HANDSET
PAGE 12.....	RADIATED SPURIOUS EMISSIONS - BASE
PAGE 13.....	POWER SPECTRAL DENSITY

### EXHIBITS:

REQUEST FOR CONFIDENTIALITY LETTER
BLOCK DIAGRAM
SCHEMATIC
USERS MANUAL
LABEL SAMPLE
LABEL LOCATION
EXTERNAL PHOTOGRAPHS
INTERNAL PHOTOGRAPHS
OPERATIONAL DESCRIPTION
TEST SET UP PHOTOGRAPH

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## EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date Listed	Due Date
3-Meter OATS	TEI	N/A	N/A	1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro- Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Double- Ridged Horn Antenna	Electro- Metrics	RGA-180	2319	CAL 12/29/04	12/29/06
LISN	Electro- Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro- Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log- Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05

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## 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. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed. The ambient temperature of the UUT was 74°F with a humidity of 44%.

**BANDWIDTH 6.0dB:** The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)= 100 kHz and the video bandwidth (VBW) =300 kHz and the span set as shown on plot.

**ANTENNA CONDUCTED EMISSIONS:** The RBW=100 kHz, VBW > or = RBW and the spectrum was scanned from 30 MHz to the 10th Harmonic of the fundamental.

**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 100 kHz up to 1GHz and 1.0MHz above 1 GHz with an appropriate sweep speed. The VBW above 1.0 GHz was = 1.0 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 74°F with a humidity of 44%.

**15.247(d) POWER SPECTRAL DENSITY:** The peak within the pass band was located with a RBW set to 30 kHz and a span of 5 MHz, slightly greater than the 6 dB bandwidth, then the emission was centered on the display and the span and RBW reduced. A 1.5MHz span, 3 kHz RBW, and a sweep time to sweep time set to 500 seconds. Since spectral line spacing could not be resolved, the noise power density method was used. The response was then plotted, a correction factor of measured using the noise power density and adding the correction of 35 dB and any attenuation used was added.

**15.214(d):** This device complies with the security code requirements of 15.214(d)(1)(2) and (3) by means of the following:

This device is a spread spectrum direct sequence transmitter. Security codes are inherent to the design and as such changed every time the handset and base are re-synchronized.

**2.1033(b)(4) ANTENNA AND GROUND SYSTEM:** This unit uses a short, inductively loaded, antenna element for the base unit and the handset. The antenna is permanently attached to the unit and no provision is made for connection to an external antenna.

No ground connection is provided. The only ground in use is the ground plane on the printed circuit board.

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**APPLICANT:** UNIDEN AMERICA CORPORATION  
**FCC ID:** AMWUP758 (BASE UNIT)  
**NAME OF TEST:** POWER LINE CONDUCTED INTERFERENCE  
**RULES PART NO.:** 15.207

REQUIREMENTS:	QUASI-PEAK	AVERAGE
.15 - 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 - 5.0	56	46
5.0 - 30.	60	50

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003. The spectrum was scanned from .15 to 30 MHz.

**TEST DATA BASE UNIT:**

THE PLOTS ON THE FOLLOWING PAGES REPRESENT THE EMISSIONS READ FOR POWER LINE CONDUCTED FOR THIS DEVICE.

**TEST RESULTS:** Both lines were observed with the UUT transmitting. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

**PERFORMED BY:** JOE SCOGLIO

**DATE:** 11/16/2005

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# TIMCO ENGINEERING INC.

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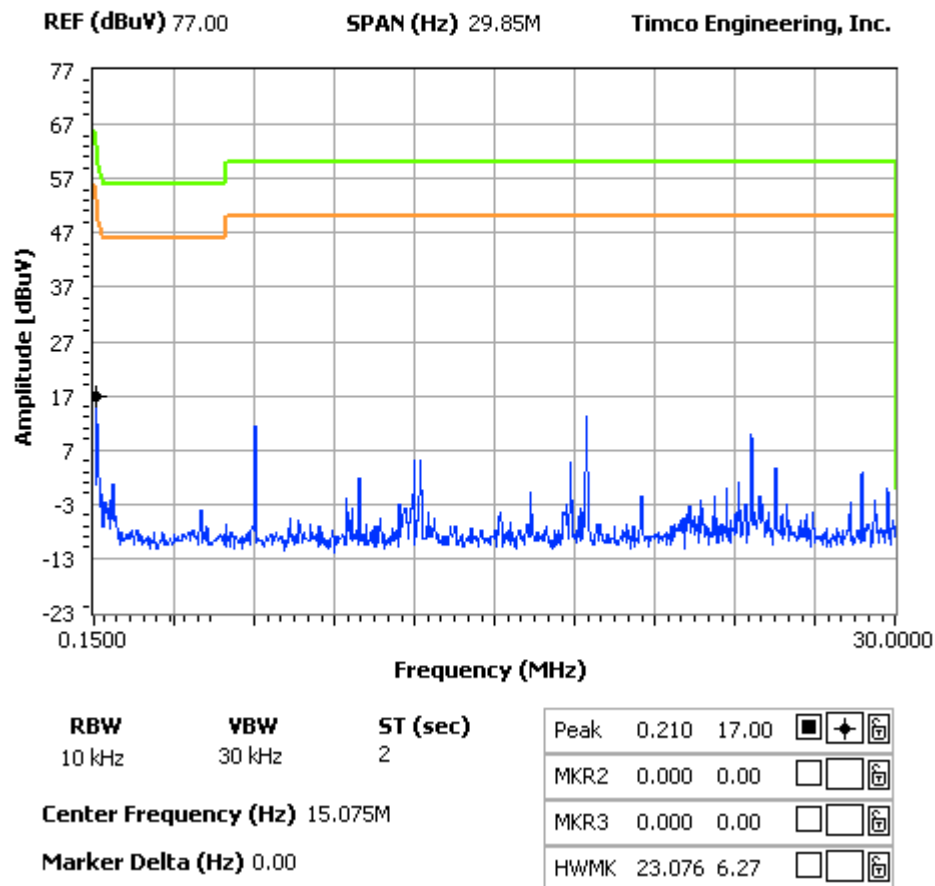
<http://www.timcoengr.com>

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## NOTES:

2213but5 ac line conducted line 1 off hook tx

## FCC 15.107 Mask Class B



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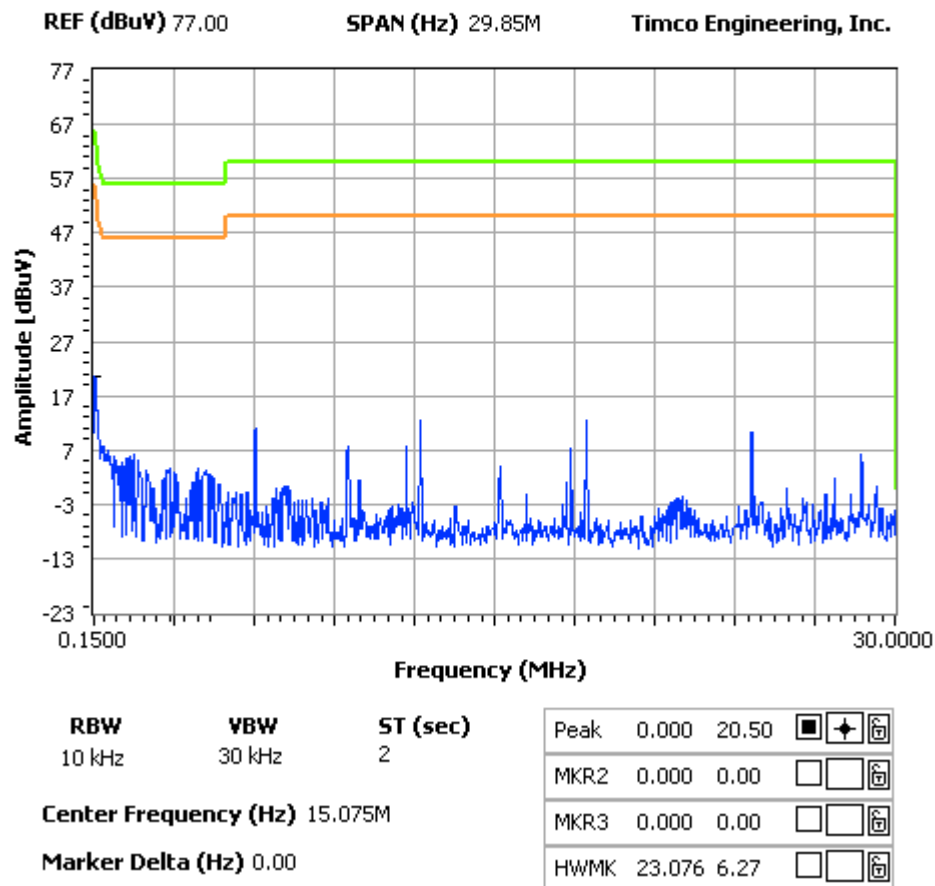
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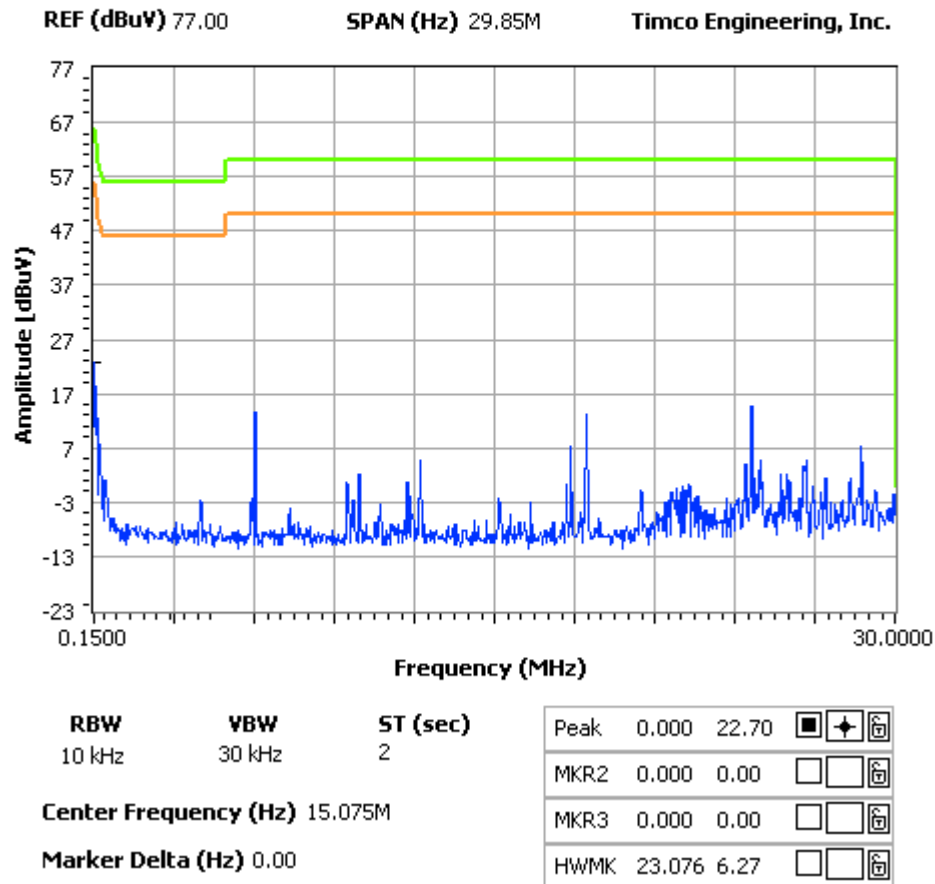
<http://www.timcoengr.com>

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## NOTES:

2213but5 ac line conducted line 2 off hook tx

## FCC 15.107 Mask Class B



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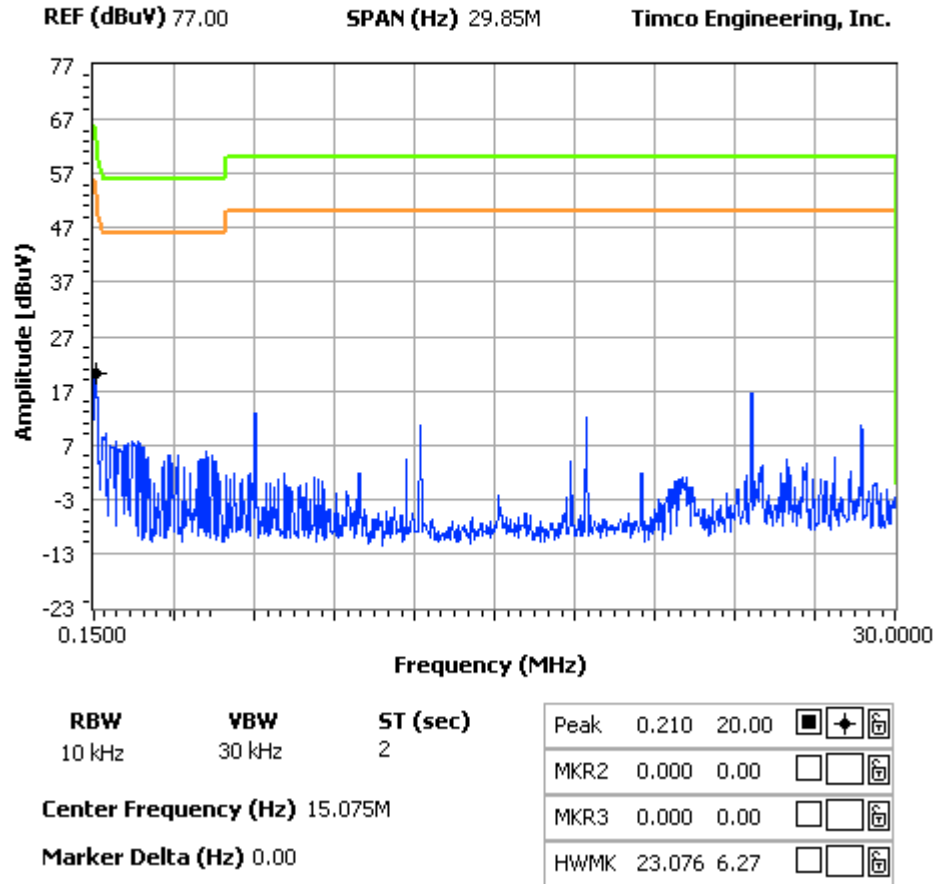
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## NOTES:

2213but5 ac line conducted line 2 on hook

## FCC 15.107 Mask Class B



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**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUP758

**NAME OF TEST:** OCCUPIED BANDWIDTH

**RULES PART NO.:** 15.247

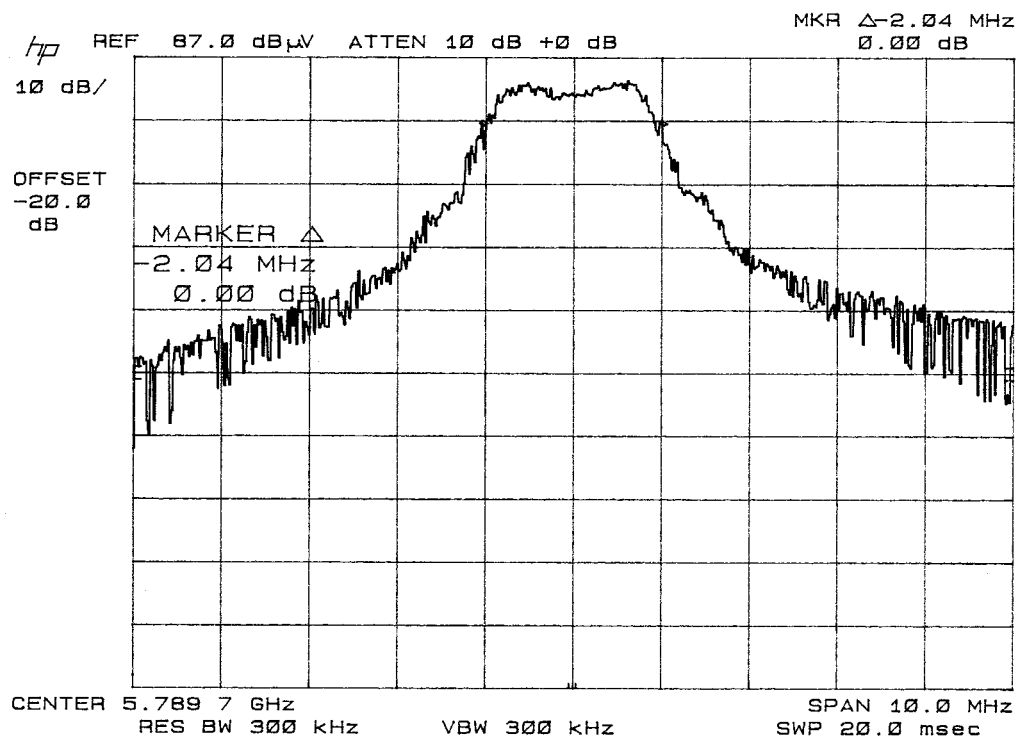
15.247(a)(2)

6dB bandwidth shall be at least 500 kHz as shown in the accompanying plots. The bandwidth was measured at three places in the band and the narrowest is reported below.

Base 6 dB Bandwidth = 1.81 MHz

Handset 6 dB Bandwidth = 2.04 MHz

## 6 dB BANDWIDTH PLOT - HANDSET



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FCC ID: AMWUP758

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**APPLICANT:** UNIDEN AMERICA CORPORATION

**FCC ID:** AMWUP758

**NAME OF TEST:** OCCUPIED BANDWIDTH

**RULES PART NO.:** 15.247

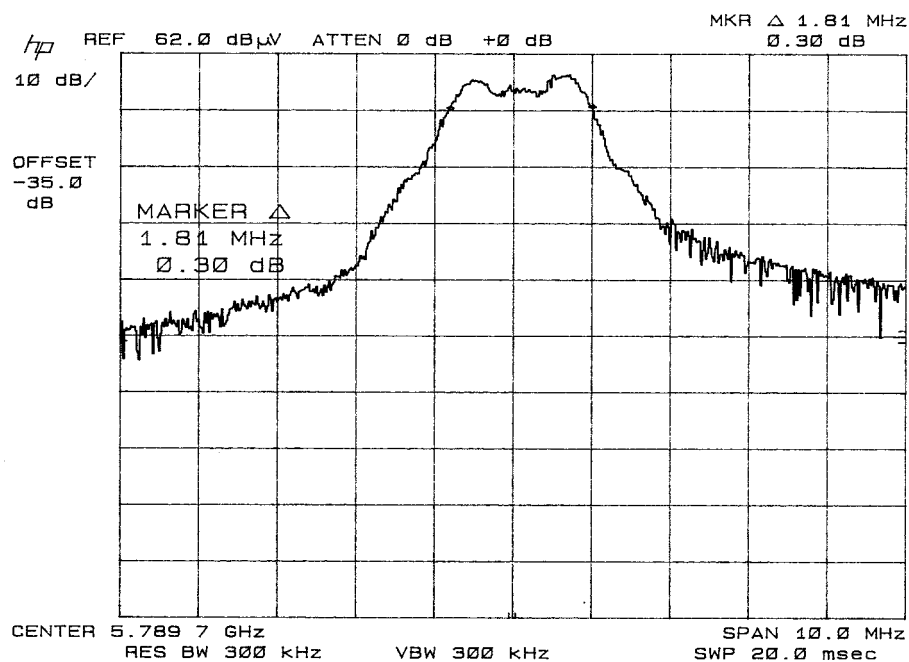
15.247(a)(2)

6dB bandwidth shall be at least 500 kHz as shown in the accompanying plots. The bandwidth was measured at three places in the band and the narrowest is reported below.

Base 6 dB Bandwidth = 1.81 MHz

Handset 6 dB Bandwidth = 2.04 MHz

## 6 dB BANDWIDTH PLOT - BASE



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## 15.247(B) PEAK POWER OUTPUT

The maximum peak output power shall not exceed 1 watt (30 dBm). If directional transmitting antennas with a gain of more than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Both the base and handset have a maximum power output of less than +30 dBm. The power output was measured at three places in the band and the highest is reported below.

The power output was measured radiated as the antenna is permanently attached.

The antenna gain is less than 6 dBi.

BASE POWER: 118.99 dBuV/m = 238 mW or 23.8 dBm = 0.24 Watts Peak

HANDSET POWER: 120.74 dBuV/m = 356 mW or 25.5 dBm = 0.36 Watts Peak

BASE POWER: 17.78 dBm or 0.06 Watts source based time averaged

HANDSET POWER: 19.48 dBm or 0.089 Watts source based time averaged

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**APPLICANT:** UNIDEN AMERICA CORPORATION  
**FCC ID:** AMWUP758  
**NAME OF TEST:** RADIATED SPURIOUS EMISSIONS - HANDSET  
**RULES PART NO.:** 15.247(c)

## REQUIREMENTS:

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental:	of Harmonics	30 - 88 MHz 40 dBuV/m @3M
902-928MHz		88 - 216 MHz 43.5
2.4-2.4835GHz		216 - 960 MHz 46
127.38dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54dBuV/m

Emissions that fall in the restricted bands (15.205) must be less than or equal to 500 uV/m (54 dBuV/m). Spurious not in a restricted band must be 20 dBc.

## TEST DATA HANDSET:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
5,741.0	5,741.00	68.1	H	5.22	35.39	108.71	18.67
5,741.0	5,741.00	78.7	V	5.22	35.39	119.31	8.07
5,741.0	11,482.00	12.3	H	7.59	29.80	49.69	4.31
5,741.0	11,482.00	14.4	V	7.59	29.80	51.79	2.21
5,741.0	17,223.00	22.6	H	10.37	35.43	68.40	30.91
5,741.0	17,223.00	24.5	V	10.37	35.43	70.30	29.01
5,789.6	5,789.60	68.8	H	5.24	35.45	109.49	17.89
5,789.6	5,789.60	79.1	V	5.24	35.45	119.79	7.59
5,789.6	11,579.30	12.1	H	7.63	29.80	49.53	4.47
5,789.6	11,579.30	15.2	V	7.63	29.80	52.63	1.37
5,789.6	17,369.00	22.5	H	10.41	35.50	68.41	31.38
5,789.6	17,369.00	24.4	V	10.41	35.50	70.31	29.48
5,828.0	5,828.00	69.4	H	5.25	35.49	110.14	17.24
5,828.0	5,828.00	80.0	V	5.25	35.49	120.74	6.64
5,828.0	11,656.00	12.1	H	7.66	29.80	49.56	4.44
5,828.0	11,656.00	14.3	V	7.66	29.80	51.76	2.24
5,828.0	17,484.00	22.8	H	10.45	35.56	68.81	31.93
5,828.0	17,484.00	24.6	V	10.45	35.56	70.61	30.13

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**APPLICANT:** UNIDEN AMERICA CORPORATION  
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**NAME OF TEST:** RADIATED SPURIOUS EMISSIONS - BASE

## TEST DATA BASE:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
5,741.0	5,741.00	63.9	H	5.22	35.39	104.51	22.87
5,741.0	5,741.00	77.2	V	5.22	35.39	117.81	9.57
5,741.0	11,482.00	12.8	H	7.59	29.80	50.19	3.81
5,741.0	11,482.00	16.0	V	7.59	29.80	53.39	0.61
5,741.0	17,223.10	14.9	V	10.37	35.43	60.70	37.11
5,741.0	17,223.10	15.1	H	10.37	35.43	60.90	36.91
5,789.7	5,789.70	63.2	H	5.24	35.45	103.89	23.49
5,789.7	5,789.70	78.3	V	5.24	35.45	118.99	8.39
5,789.7	11,579.40	12.7	H	7.63	29.80	50.13	3.87
5,789.7	11,579.40	16.5	V	7.63	29.80	53.93	0.07
5,789.7	17,369.40	14.6	H	10.41	35.50	60.51	38.48
5,789.7	17,369.40	15.1	V	10.41	35.50	61.01	37.98
5,828.1	5,828.10	64.5	H	5.25	35.49	105.24	22.14
5,828.1	5,828.10	77.7	V	5.25	35.49	118.44	8.94
5,828.1	11,656.10	13.4	H	7.66	29.80	50.86	3.14
5,828.1	11,656.10	16.5	V	7.66	29.80	53.96	0.04
5,828.1	17,484.20	14.8	H	10.45	35.56	60.81	37.63
5,828.1	17,484.20	15.2	V	10.45	35.56	61.21	37.23

**METHOD OF MEASUREMENT:** The procedure used was ANSI STANDARD C63.4-2003. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was scanned from 30 MHz to the 10<sup>th</sup> harmonic of the fundamental. Low loss coax was used above 1 GHz. Measurements were made at Timco Engineering, Inc. 849 NW State Road 45Newberry, Fl.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

**PERFORMED BY:** Joseph Scoglio **DATE:** 11/16/05

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**NAME OF TEST:** POWER SPECTRAL DENSITY

**RULES PART NO.:** 15.247(d)

**REQUIREMENTS:** The power spectral density averaged over any 1-second interval shall not be greater than 8 dBm in any 3 kHz bandwidth within these bands.

## TEST DATA:

The spectrum line spacing could not be resolved so the noise power density was measured;

## Measurement Method:

Starting from the settings that were used for the 6 dB bandwidth the peak signal was located and the span was reduced and the sweep time increased in a manner to maintain calibration and to keep the peak emission in the display, then the sweep time was increased to 500seconds at 1.5MHz span and a RBW changed to 3 kHz. The spectrum analyzer was put into the noise power mode and the plots made.

<u>BASE</u>	<u>HANDSET</u>
44.20dBuV	49.60dBuV
35.45dB ATTN	35.45dB ATTN
5.24dB CF	5.24dB CF
84.89 dBuV	90.29 dBuV
84.89 dBuV-107= -22.11 dBm	90.29 dBuV-107= -16.71 dBm

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