



849 NW State Road 45
PO Box 370
Newberry, FL 32669

TEST REPORT

STANDARD (s):

**FCC Part 15, Subparts B, C, and D
IC RSS-213 & ICES-003
UPCS / LE-PCS Isochronous Device
Base & Handset: 1921.536 – 1928.448 MHz
ANSI C63.17 - 1998 (or 2005 Draft where applicable)
ANSI C63.4 – 2003**

APPLICANT: UNIDEN AMERICA CORPORATION
4700 AMON CARTER BLVD.
FORT WORTH, TEXAS 76155 76155

MODEL NUMBER: D1680(Base & Handset)

DESCRIPTION OF PRODUCT: 1.9 GHz UPCS CORDLESS TELEPHONE

FCC IDs: AMWUN175R (HANDSET)
IC: 513C-UN175

DATE SAMPLE RECEIVED FOR TESTING: 7/9/2010

DATE TESTED: 7/27/2010

TEST RESULTS: PASS FAIL

PLEASE NOTE: THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.

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1 GENERAL INFORMATION

The test results relate only to the items tested.

1.1 COMPLIANCE STATEMENT:

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment complies with the appropriate standards. No modifications were made to the equipment during testing in order to demonstrate compliance with these standards.

I attest that the necessary measurements were made, under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669.

Authorized Signatory Name: Mario R. de Aranzeta



Signature:

Function: ENGINEER

Date: 7/27/2010

Test engineer name: NAM NGUYEN

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1.2 EQUIPMENT UNDER TEST SPECIFICATION

Characterization of test item:

- Prototype
- Pre-production
- Production

Construction of equipment:

- Single unit
- Multiple units (If multiple units describe each one clearly)

TYPE OF EQUIPMENT:

- Fixed
- Mobile
- Portable Station

X	Transmitter		Simplex	X	Integral antenna (Handset and Base)
	Receiver	X	Duplex		Single antenna connector
	Transceiver				Two antenna connector
X	Battery charger				Vehicle battery adaptor

1.2.1 TRANSMITTER TECHNICAL CHARACTERISTICS

FREQUENCY CHARACTERISTICS (Method of frequency generation):

CRYSTAL SYNTHESIZER OTHER

MAXIMUM RATED TRANSMITTER OUTPUT POWER: 80mW for the Handset.

1.2.2 POWER SOURCE (S)

EXTERNAL DC SUPPLY: Nominal voltage __2.4 VDC NiMH rechargeable battery

BATTERY: Nickel Cadmium Lead acid Leclanche Lithium

1.3 RATIONAL FOR SELECTING TEST CONFIGURATION(S):

No deviation from technical specifications

1.4 DESCRIPTION ON HOW THE EUT WAS EXERCISED DURING TESTING:

(e.g software description, test signal, etc.)

The EUT was set in continuous transmit mode of operation.

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1.5 TEST STANDARDS

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2 TEST ENVIRONMENT

Temperature

Normal test temperature (Tnom): 22 °C

Relative Humidity 50 %

Details of power supply

Normal test voltage Handset (Vnom): 2.4___VDC

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3 TEST RESULTS

3.1 RADIATED PEAK TRANSMIT POWER

Clause: 15.319 (c)

Test procedure: ANSI C63.17 section 6.1.2

Technical requirements/Limits:

The peak transmit power shall not exceed 100 μ W multiplied by the square root of the emission bandwidth in hertz measured at 26dBc.

The measured emissions bandwidth is 1.5 MHz max

$$\text{Limit} = 100\mu\text{W} * \sqrt{(\text{BW in Hz})} = 0.122\text{W} = 20.8 \text{ dBm}$$

and Radiated limit $\leq 118 \text{ dB}\mu\text{V}/\text{m}$ at 3m by radiated measurement derived from Friis formula as follows $P = (E*d)^2/30G$, where $P = 0.122 \text{ W} = 20.8 \text{ dBm}$

This assumes a $G = \text{Numeric gain of TX antenna} = 1.585$ (2.0 dBi) worst-case across band
 $d = 3 \text{ m}$

Notes: The calculated limit of 118 dB μ V/m assumes free space conditions. This device was measured on a typical test site (OATS) with a reference ground plane as described in ANSI C63.4. This maximum value was obtained with the EUT set up at a height of 80cm. Placing the EUT at a height of 100cm reduces the maximum amplitude measured by about 3-4dB.

Test Conditions:

Power output measurements were performed on an Open Area Test Site at a distance of 3meter. The antenna for this device is integral.

SA Settings:

RBW \geq Emission BW (or increased until no more than 0.5 dB change in power), VBW $\geq 3 \times$ RBW
Span = zero, centered on channel center, Sweep: fast enough to resolve transmit pulse

Detection: Peak

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HANDSET:

HANDSET	UNIDEN AMERICA CORPORATION					
1668UT10	7/9/2010					
Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBμV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBμV/m
1,921.50	1,921.54	84.3	V	1.7	31.0	117.0
1,921.50	1,921.54	77.2	H	1.7	31.0	109.9
1,928.50	1,928.45	83.5	V	1.7	31.0	116.2
1,928.50	1,928.45	79	H	1.7	31.0	111.7

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3.2 TRANSMITTER SPURIOUS EMISSIONS

Clause: 15.319 (g) and 15.323(d)

Test procedure: ANSI C63.17 section 6.1.1

Technical requirements/Limits:

15.319(g) Notwithstanding other technical requirements specified in this subpart, attenuation of emissions below the general emission limits in Section 15.209 is not required.

15.323(d) Emissions outside the sub-band shall be attenuated below a reference power of 112 milliwatts as follows: 30 dB between the sub-band and 1.25 MHz above or below the sub-band; 50 dB between 1.25 and 2.5 MHz above or below the sub-band; and 60 dB at 2.5 MHz or greater above or below the subband. Compliance with the emission limits is based on the use of measurement instrumentation employing peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Conditions:

Lowest and Highest channel only. Radiated on an Open Area Test Site at a distance of 3meter.

3.2.1 HANDSET:

CH 5			CH 1		
Emission MHz	V dB μ V/m	H dB μ V/m	Emission MHz	V dB μ V/m	H dB μ V/m
3843.08	*	*	3856.90	*	*
5764.62	*	*	5785.35	*	*
7686.16	*	*	7713.80	*	*
9607.70	*	*	9642.25	*	*
11529.24	*	*	11570.70	*	*
13450.78	*	*	13499.15	*	*
15372.32	*	*	15427.60	*	*
17293.86	*	*	17356.05	*	*
19215.40	*	*	19284.50	*	*

* Noise floor. All harmonic emissions are >60dBc.

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3.3 GENERAL RADIATED SPURIOUS EMISSIONS

3.3.1 RADIATED SPURIOUS EMISSIONS

Clause: 15.109, 15.33, and 15.31

Test procedure: ANSI C63.4 - 2003

Technical requirements/Limits:

Emission Frequency (MHz)	Field Strength		At Distance (m)	Detector Type
	(μ V/m)	(dB μ V/m)		
0.009 – 0.490	2400/f (kHz)	67.6 / kHz	300	AV (9-90 kHz, 110-490 kHz) QP (others)
0.490 – 1.705	24000/f (kHz)	87.6 / kHz	30	QP
1.705 – 30.0	30	29.5	30	QP
30 – 88	100	40	3	QP
88 – 216	150	43.5	3	QP
216 – 960	200	46	3	QP
> 960	500	54	3	AV (> 1GHz)

Test Conditions:

Lowest and Highest channel only. Radiated on an Open Area Test Site at a distance of 3meter.
 PK: RBW \geq 100 kHz for $f < 1$ GHz, 1 MHz for $f \geq 1$ GHz, VBW \geq RBW
 Avg: RBW = 1 MHz for $f \geq 1$ GHz, VBW = 10Hz, Linear average. If the emission is pulsed, the device was modified for continuous operations, and the average level was calculated according to part 15.35(c)

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Results:

3.3.2 HANDSET IN STAND-BY MODE:

Emission Frequency MHz	Meter Reading dBμV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBμV/m	Margin dB
42.00	15.4	H	0.46	11.32	27.18	12.82
42.00	15.8	V	0.46	9.86	26.12	13.88
47.40	18.1	V	0.49	10.58	29.17	10.83
47.40	18.2	H	0.49	11.20	29.89	10.11
54.48	15.9	H	0.51	11.20	27.61	12.39
54.48	16.3	V	0.51	11.73	28.54	11.46
63.95	18.0	H	0.55	10.39	28.94	11.06
63.95	19.3	V	0.55	9.84	29.69	10.31
71.95	14.6	H	0.57	7.91	23.08	16.92
71.95	14.9	V	0.57	7.23	22.70	17.30
77.98	14.4	V	0.59	6.74	21.73	18.27
77.98	14.5	H	0.59	6.76	21.85	18.15
86.50	13.1	H	0.62	7.50	21.22	18.78
86.50	13.4	V	0.62	8.31	22.33	17.67
103.95	8.4	H	0.65	11.58	20.63	22.87
103.95	8.5	V	0.65	11.76	20.91	22.59
352.75	6.6	V	1.15	14.66	22.41	23.59
400.00	6.6	V	1.20	16.00	23.80	22.20
419.49	6.8	H	1.22	16.68	24.70	21.30
419.49	8.0	V	1.22	16.29	25.51	20.49
460.08	6.0	H	1.26	17.40	24.66	21.34
497.83	7.1	H	1.30	18.71	27.11	18.89

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4 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 3/10/10	3/10/12
AC Voltmeter	HP	400FL	2213A14499	CAL 3/23/09	3/23/11
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 6/10/09	6/10/11
Frequency Counter	HP	5385A	3242A07460	CAL 5/26/09	5/26/11
Hygro-Thermometer	Extech	445703	0602	CAL 1/30/09	1/30/11
Modulation Analyzer	HP	8901A	3435A06868	CAL 5/26/09	5/26/11
Digital Multimeter	Fluke	FLUKE-77-3	79510405	CAL 5/18/09	5/18/11
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 11/21/09	11/21/11
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 11/22/09	11/22/11
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 11/21/09	11/21/11
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 11/24/09	11/24/11
Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 4/25/10	4/25/12

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5 TEST SETUP PHOTOGRAPHS



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6 EUT EXTERNAL PHOTOGRAPHS

The photos are provided in a separate exhibit

7 EUT INTERNAL PHOTOGRAPHS

The photos are provided in a separate exhibit

8 LABEL PHOTOGRAPHS

The photos are provided in a separate exhibit

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