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APPLICANT: UNIDEN AMERICA CORPORATION
FCC ID: AMWUC717

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DATE: MARCH 16, 2001
REPORT #: T:\CUS\U\UNIDEN\96ZA1\96ZA1RPT.DOC

APPLICANT: UNIDEN AMERICA CORPORATION
FCC ID: AMWUC717

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 HAS 65536 POSSIBLE SECURITY CODES. ONE SECURITY CODE OUT OF 65536 IS PRE-PROGRAMMED WHEN MANUFACTURED AT THE FACTORY. THE CPU CONTROLS THE RF FREQUENCY CHANNEL. AND THE ASIC CONTROLS ADPCM CODEC AND AUDIO SIGNAL SWITCHING ALSO SET UP THE SPREADING CODE. BEFORE THE COMMUNICATION LINK IS ESTABLISHED, THE DEVICE SEARCHES FOR A VACANT RF CHANNEL AND THEN TRANSMITS RF SIGNAL ON THE VACANT CHANNEL.

APPLICANT: UNIDEN AMERICA CORPORATION
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TEST EQUIPMENT LIST

1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/ preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter HP 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 10/17/00
2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
3.___Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
4._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
5.___Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
6._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319
7.___18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
8.___Horn 40-60GHz: ATM Part #19-443-6R
9._X_Line Impedance Stabilization Network: Electro-Metrics Model ANS-25/2, S/N 2604 Cal. 2/9/00
10.___Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
11.___Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
12.___Peak Power Meter: HP Model 8900C, S/N 2131A00545
13._X_Open Area Test Site #1-3meters Cal. 12/22/99
14.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
15.___Signal Generator: HP 8614A, S/N 2015A07428
16.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Cal. 6/10/00
17._X_Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Cal. 11/24/99
18.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
19.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
20.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
21.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal data transmission on a network.

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz 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)=100kHz and the video bandwidth(VBW) =300KHz and the span set as shown on plot.

TEST PROCEDURES CONTINUED

POWER OUTPUT: The RF power output was measured at the antenna feed point by removing the permanent antenna and connecting the UUT to a peak power meter, HP Model No. 8900C.

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

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a prese-lector. 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 = 1.0MHz. 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 30Khz and a span of 5MHz, slightly greater than the 6dB bandwidth, then the emission was centered on the display and the span and RBW reduced.A 1.5MHz span, 3Khz 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 reponse was then plotted, a correction factor of measured using the noise power density and adding the correction of 35dB and any attenuation used was added.

15.247(e): PROCESSING GAIN, This gain is supplied by the manufacturer of the UUT.

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.

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NUMBER: 15.207

MINIMUM REQUIREMENTS:	FREQUENCY MHz	LEVEL dBuV
	0.450-30	48 dBuV or 250 uV

TEST PROCEDURE: ANSI STANDARD C63.4-1992

THE HIGHEST EMISSION READ FOR LINE 1 WAS 129.0 uV @ 570kHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 116.0 uV @ 570kHz.

THE GRAPHS IN EXHIBITS 9-10 REPRESENT THE EMISSIONS READ FOR POWERLINE 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: MARCH 16, 2001

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: OCCUPIED BANDWIDTH

RULES PART NUMBER: 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 6dB Bandwidth = 1.530 MHz

Handset 6 dB Bandwidth = 1.510 MHz

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. Power was measured by disconnecting the antennas and measuring across a 50 ohm load as recommended by the manufacturer using a HP peak power meter Model 8900C. The antennas are non directional and do not exceed 6 dBi gain. The power output was measured at three places in the band highest is reported below.

POWER OUTPUT - LIMIT +30 dBm

BASE PEAK POWER OUTPUT = +18 dBm or 63 mWatts
HANDSET PEAK POWER OUTPUT = +18 dBm or 63 mWatts

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: ANTENNA CONDUCTED SPURIOUS EMISSIONS

RULES PART NUMBER: 15.247(c) Spurious Emissions must be 20dBc.

FREQUENCY MHz	ATTENUATION dBc
BASE	
905.7	0.0
1811.4	53.1
2717.1	70.6
3622.8	75.3
4528.5	90.4
5434.2	86.6
6339.9	79.3
7245.6	82.3
8151.3	75.2
9057.0	87.3
913.9	0.0
1827.8	55.1
2741.7	70.7
3655.6	73.7
4569.5	85.7
5483.4	85.8
5483.5	78.5
6397.3	88.4
7311.2	88.4
8225.1	77.2
9139.0	91.4
924.1	0.0
1848.2	57.3
2772.3	70.2
3696.4	71.7
4620.5	81.0
5544.6	82.4
6468.7	80.9
7392.8	95.8
8316.9	79.3
9241.0	93.7

APPLICANT : UNIDEN AMERICA CORPORATION

FCC ID : AMWUC717

NAME OF TEST: ANTENNA CONDUCTED SPURIOUS EMISSIONS

RULES PART NUMBER: 15.247(c) Spurious Emissions must be 20dBc.

FREQUENCY MHz	ATTENUATION dBc
HANDSET	
905.7	0.0
1811.4	44.4
2717.1	74.2
3622.8	70.2
4528.5	76.0
5434.2	82.5
6339.9	75.1
7245.6	75.8
8151.3	72.9
9057.0	89.0
913.9	0.0
1827.8	46.3
2741.7	73.9
3655.6	67.5
4569.5	76.6
5483.4	81.3
6397.3	74.3
7311.2	74.1
8225.1	79.7
9139.0	91.3
924.1	0.0
1848.2	49.8
2772.3	71.5
3696.4	65.8
4620.5	83.7
5544.6	77.8
6468.7	73.7
7392.8	81.9
8316.9	81.6
9241.0	93.5

The searches were made to the tenth harmonic.

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: RADIATED SPURIOUS EMISSIONS - HANDSET

RULES PART NUMBER: 15.247(c)

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

Manufacturer supplied a CW test mode for radiated and power output measurements and included a peak to duty cycle/DSSS mode correction factor of -6.02 dB which was applied to the following values.
Even without the correction factor the unit complies with current rules.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	0 ACF dB	C.F. dB	FIELD STRENGTH dBuV/m	FCC LIMIT dBuV/m	MARGIN dB	ANT POL
HANDSET								
905.7	84.9	4.2	24.18	-6.02	107.26	127.34	20.08	V
1811.40	28.2	2.5	27.25	-6.02	51.93	87.26	35.33	H
2711.10r	14.8	4.1	29.79	-6.02	42.67	54.00	11.33	H
3266.90R	13.0	4.4	32.06	-6.02	43.44	54.00	10.56	V
4528.60R	14.9	5.0	33.59	-6.02	47.47	54.00	6.53	V
5434.30R	8.4	7.2	34.61	-6.02	44.19	54.00	9.81	V
6340.00	14.4	7.5	35.63	-6.02	51.51	87.26	35.75	H
7245.80	4.5	7.6	36.65	-6.02	42.73	87.26	44.53	H
8150.50R	2.0	9.5	37.59	-6.02	43.07	54.00	10.93	V
913.9	84.5	4.2	24.14	-6.02	106.82	127.34	20.52	V
1827.80	29.2	2.5	27.31	-6.02	52.99	86.82	33.83	H
2741.70R	15.2	4.1	29.85	-6.02	43.13	54.00	10.87	V
3655.60R	11.4	4.4	32.14	-6.02	41.92	54.00	12.08	V
4569.50R	15.6	5.0	33.64	-6.02	48.22	54.00	5.78	V
5483.40	9.7	7.2	34.67	-6.02	45.55	86.82	41.27	V
6397.30	14.2	7.6	36.79	-6.02	52.57	86.82	34.25	H
7311.20R	4.7	9.5	37.64	-6.02	45.82	54.00	8.18	H
924.16	84.2	4.2	24.10	-6.02	106.48	127.34	20.86	V
1848.30	29.1	2.5	27.39	-6.02	52.97	86.48	33.51	H
2772.40R	15.8	4.1	29.93	-6.02	43.81	54.00	10.19	H
3696.60R	14.0	4.4	32.24	-6.02	44.62	54.00	9.38	V
4620.80R	15.5	5.0	33.70	-6.02	48.18	54.00	5.82	V
5544.90	9.4	7.2	34.74	-6.02	45.32	86.48	41.16	H
6469.10	14.2	7.5	35.78	-6.02	51.46	86.48	35.02	H
7393.20R	5.8	7.6	36.82	-6.02	44.2	54.00	9.8	H

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: RADIATED SPURIOUS EMISSIONS - BASE

TEST DATA CONTD.:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	C.F. dB	FIELD STRENGTH dBuV/m	FCC LIMIT dBuV/m	MARGIN dB	ANT POL
BASE								
905.70	90.20	4.2	27.70	-6.02	116.08	127.34	11.26	V
1811.40	36.60	2.5	27.25	-6.02	60.33	96.08	35.75	V
2717.10R	20.40	4.1	29.79	-6.02	48.27	54.00	5.73	H
3622.90R	7.40	4.4	32.06	-6.02	37.84	54.00	16.16	H
4528.60R	13.50	5.0	33.59	-6.02	46.07	54.00	7.93	V
5434.30R	4.00	7.2	34.61	-6.02	39.79	54.00	14.21	H
6340.00	8.10	7.5	35.63	-6.02	45.21	96.08	50.87	V
7245.80	9.50	7.6	36.65	-6.02	47.73	96.08	48.35	H
8151.50R	6.10	9.5	37.59	-6.02	47.17	54.00	6.83	H
913.90	90.40	4.2	27.80	-6.02	116.38	127.34	10.96	V
1827.80	34.00	2.5	27.31	-6.02	57.79	96.38	39.01	V
2741.70R	18.00	4.1	29.85	-6.02	45.93	54.00	8.07	H
3655.60R	5.70	4.4	32.14	-6.02	36.22	54.00	17.78	H
4569.60R	5.00	5.0	33.64	-6.02	37.62	54.00	16.38	V
5483.50	2.90	7.2	34.67	-6.02	38.75	96.38	57.63	H
6397.40	8.70	7.5	35.70	-6.02	45.88	96.38	50.50	V
7311.30R	8.30	7.6	36.73	-6.02	46.61	54.00	7.39	H
8225.20R	1.80	9.5	37.64	-6.02	42.92	54.00	11.08	H
924.16	90.40	4.2	27.90	-6.02	116.48	127.34	10.86	V
1848.30	31.00	2.5	27.39	-6.02	54.87	96.48	41.61	H
2772.40R	15.50	4.1	29.93	-6.02	43.51	54.00	10.49	V
3696.60R	7.20	4.4	32.24	-6.02	37.82	54.00	16.18	V
4620.80R	5.30	5.0	33.70	-6.02	37.98	54.00	16.02	V
5544.90	4.30	7.2	34.74	-6.02	40.22	96.48	56.26	V
6469.10	6.80	7.5	35.78	-6.02	44.06	96.48	52.42	V
7393.20R	7.20	7.6	36.82	-6.02	45.60	54.00	8.40	V
8317.40R	0.60	9.5	37.70	-6.02	41.78	54.00	12.22	H

SAMPLE CALCULATION: FSdBuV/m = MR(dBuV) + ACFdB + COAX+ C.F.

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-1992. 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 10 GHz using a Hewlett Packard Model 8566B Spectrum Analyzer, Hewlett Packard Model 85685A Preselector, Hewlett Packard Model 85650A Quasi-Peak Adaptor, and an appropriate antenna. Low loss coax was used above 1 GHz. Measurements were made at Timco Engineering, Inc. 849 NW State Road 45 Newberry, Fl.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: Joseph Scoglio DATE: MARCH 16, 2001

APPLICANT: UNIDEN AMERICA CORPORATION

FCC ID: AMWUC717

NAME OF TEST: POWER SPECTRAL DENSITY

RULES PART NUMBER: 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.

BASE	HANDSET
10.6 dBuV	6.5 dBuV
50 dB ATTN	50 dB ATTN
35 dB CF	35 dB CF
95.6 dBuV	91.5 dBuV
95.6 dBuV-107=11.4 dBm	91.5 dBuV-107=15.5 dBm

NAME OF TEST: PROCESSING GAIN

RULES PART NUMBER: 15.247(e)

REQUIREMENTS: The processing gain shall be at least 10 dB.

TEST DATA:

The processing gain of this unit is at least 12.1dB . This information was provided by the manufacturer,and data included as in exhibits 25a – 25f.