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**FCC PART 95 SUBPART D
AND IC RSS-136 TEST REPORT
FOR CB TRANSCEIVERS**

APPLICANT	UNIDEN AMERICA CORPORATION
	4700 AMON CARTER BLVD. FORT WORTH TEXAS 76155 UNITED STATES
FCC ID	AMWUT561
IC	513C-UT561
MODEL NUMBER	BEARCAT 980 SSB
PRODUCT DESCRIPTION	AM 4W SSB 12W PEP MOBILE CB WITH WX
DATE SAMPLE RECEIVED	1/5/2012
DATE TESTED	1/23/2012
TESTED BY	Nam Nguyen
APPROVED BY	Mario de Aranzeta
TIMCO REPORT NO.	26AUT12TestReport.doc
TEST RESULTS	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

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



Testing Certificate 0955-01



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REPORT #: U\UNIDEN AMW\26AUT12\26AUT12TestReport.doc

GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

Summary

The device under test does:

- fulfill the general approval requirements as identified in this test report
- not fulfill the general approval requirements as identified in this test report

Attestations

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.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669



Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 1/25/2012



GENERAL INFORMATION

DUT Specification

DUT Description	AM 4W SSB 12WPEP MOBILE CB WITH WX	
FCC ID	AMWUT561	
IC	513C-UT561	
Model Number	BEARCAT 980 SSB	
Serial Number	N/A	
Operating Frequency	26.965-27.405 MHz	
No. of Channels	40	
Type of Emission	6K00A3E Bn = 2M M = 3000 Bn = 6000	2K70J3E Bn = M - M1 M1 = 300 Bn = 2700
Modulation	A3E/ J3E	
DUT Power Source	<input type="checkbox"/> 110-120Vac/50- 60Hz	
	<input checked="" type="checkbox"/> DC Power	
	<input type="checkbox"/> Battery Operated Exclusively	
Test Item	<input type="checkbox"/> Prototype	
	<input checked="" type="checkbox"/> Pre-Production	
	<input type="checkbox"/> Production	
Type of Equipment	<input type="checkbox"/> Fixed	
	<input checked="" type="checkbox"/> Mobile	
	<input type="checkbox"/> Portable	

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TEST ENVIRONMENT

Test Facility	Timco Engineering, Inc. 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition in the laboratory	Temperature: 26°C Relative humidity: 50%

TEST SETUP SUMMARY

Test Setup Diagram/Description	The DUT was placed on the turntable per setup per ANSI C63.4: 2003. A test set up photo is provided for clarification.
Deviation from the standard/procedure	No deviation
Modification of DUT	No modification
Applicable Standards	EIA/TIA-382-A, FCC CFR 47 PART 95, RSS-GEN, RSS-136

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EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/10/10	5/10/12
AC Voltmeter	HP	400FL	2213A14499	CAL 6/12/11	6/12/13
Antenna: Active Loop	ETS-Lindgren	6502	00062529	CAL 9/23/10	9/23/12
Frequency Counter	HP	5385A	2730A03025	CAL 8/17/11	8/17/13
Hygro-Thermometer	Extech	445703	0602	CAL 6/15/11	6/15/13
Modulation Analyzer	HP	8901A	3435A06868	CAL 7/18/11	7/18/13
Digital Multimeter	Fluke	FLUKE-77	35053830	CAL 9/9/11	9/9/13
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 10/28/11	10/28/13
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 10/28/11	10/28/13
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 10/28/11	10/28/13
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 10/28/11	10/28/13
Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 4/25/10	4/25/12
Antenna	ETS	3117	41534	9/22/2010	9/22/2012
Antenna	Electro metrics	LPA-25	1122	5/04/2011	5/04/2013
Antenna	Electro metrics	BIA-25	1096	5/04/2011	5/04/2013

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TEST PROCEDURE

Power Line Conducted Interference: The procedure used was EIA/TIA-382-A using a 50uH LISN. Both lines were observed with the DUT transmitting. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

Bandwidth 20 dB: The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 1 MHz and the video bandwidth (VBW) = 3 MHz 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 = 100 kHz, VBW = 300 kHz and the span set to 10.0 MHz and the spectrum was scanned from 30 MHz to the 10th Harmonic of the fundamental. Above 1 GHz the resolution bandwidth was 1 MHz and the VBW = 3 MHz and the span to 50 MHz.

Radiation Interference: The test procedure used was EIA/TIA-382-A using an Agilent spectrum receiver with pre-selector. The bandwidth (RBW) of the spectrum EIA/TIA-382-A receiver was 100 kHz up to 1 GHz and 1 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

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RF POWER OUTPUT

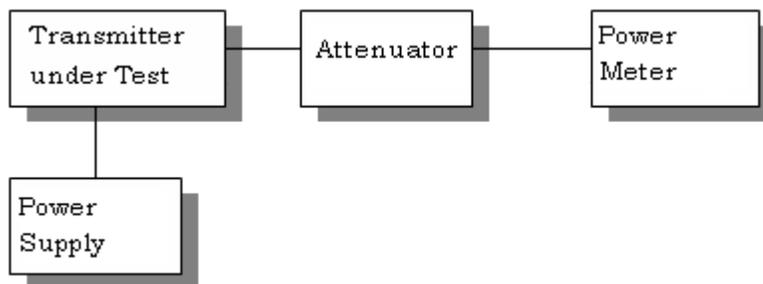
Rule Part No.: Part 2.1033(c), Part 95, RSS-136

Test Requirements:

Method of Measurement: RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector. With a nominal battery voltage, and the transmitter properly adjusted the RF output measures:

Test Data: OUTPUT POWER: 4 Watts
SSB = 12 W

Test Setup Diagram:



Part 2.1033 (C)(8) DC Input into the final amplifier

INPUT POWER: $(13.8V)(1.6A) = 22.08$ Watts

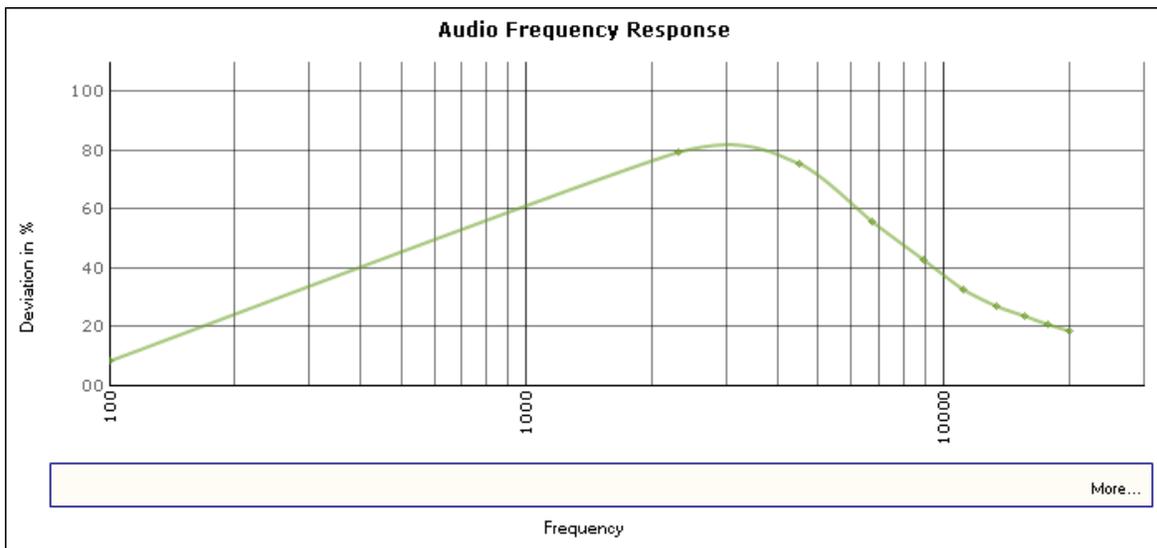
MODULATION CHARACTERISTICS

AUDIO FREQUENCY RESPONSE

Rule Part No.: Part 2.1047(a)(b), RSS-136

Method of Measurement:

The audio frequency response was measured in accordance with EIA/TIA-382-A with no exception. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 – 5000 Hz shall be submitted. The audio frequency response curve is shown below.

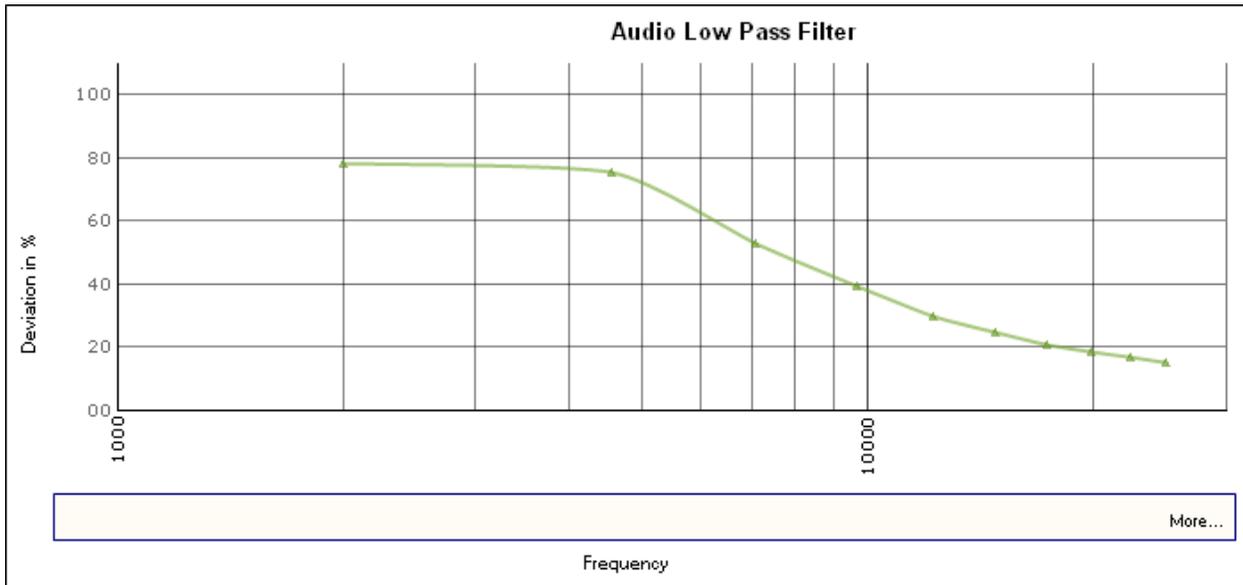


AUDIO LOW PASS FILTER RESPONSE

Rule Part No.: Part 2.1047(a)(b), RSS-136

Required for voice modulated communication equipment

For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all the circuitry installed between the modulation limiter and the modulated stage shall be submitted.



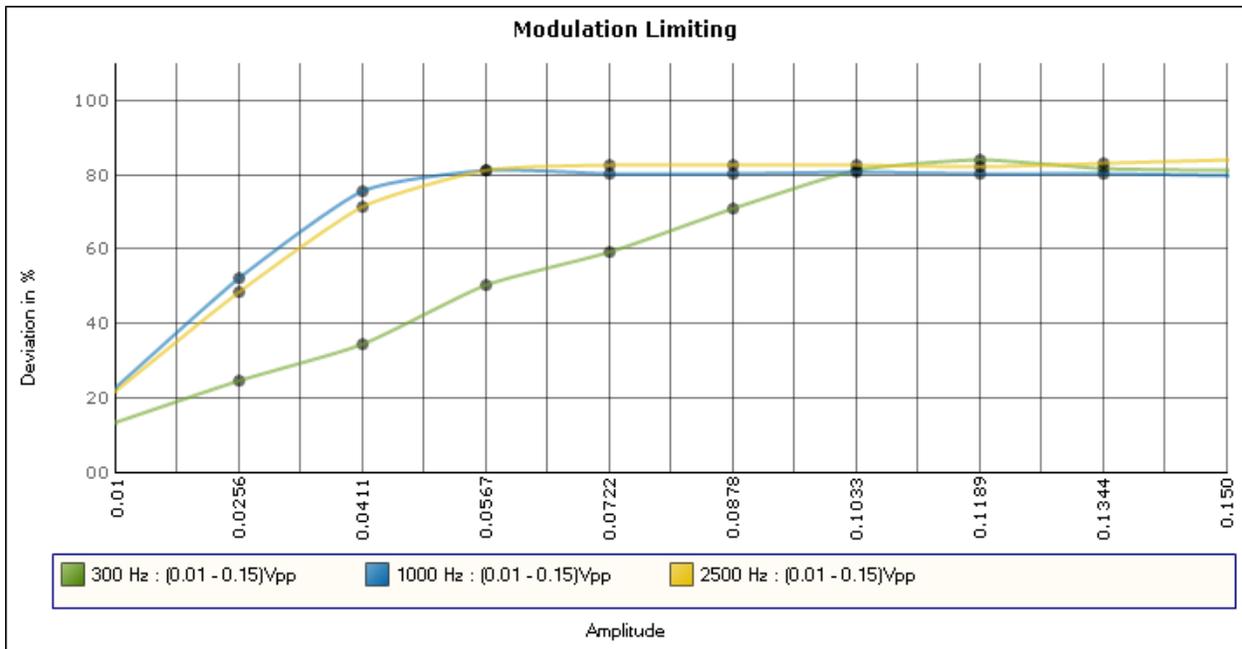
AUDIO INPUT VS MODULATION

Rule Part No.: Part 2.1047(a)(b), RSS-136

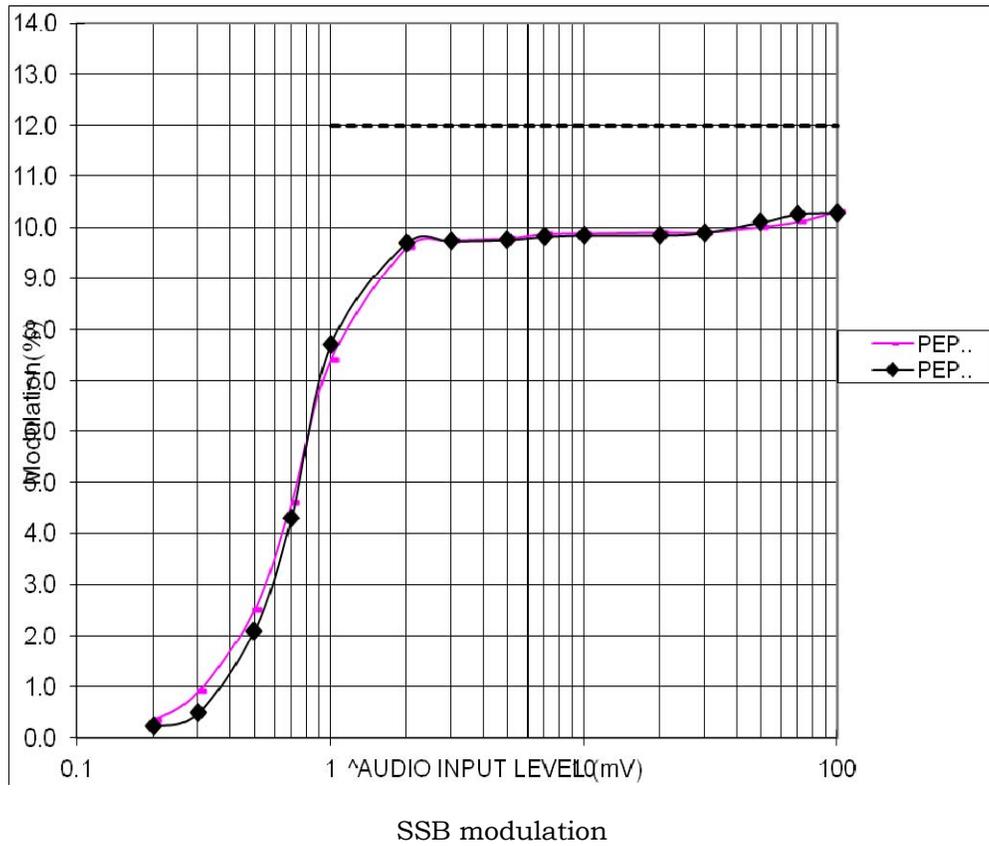
Test Requirements: Modulation cannot exceed 100%

Method of Measurement: The audio input level needed for a particular percentage of modulation was measured in accordance with EIA/TIA-382-A. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.

Test data:



AM modulation



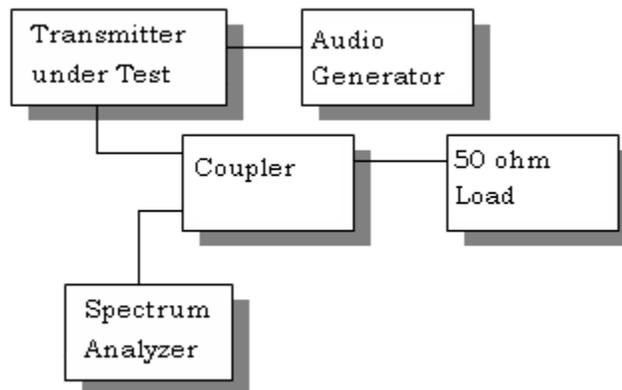
OCCUPIED BANDWIDTH

2.1049, RSS-136

95.631(c) Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25 dB and from 100 to 250% the sidebands must be attenuated by at least 35 dB. Beyond 250% the sidebands must be attenuated by at least $53 + 10\log(TP)$. The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the un-modulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth photographs follow.

Radiotelephone transmitter with modulation limiter.

Test procedure diagram

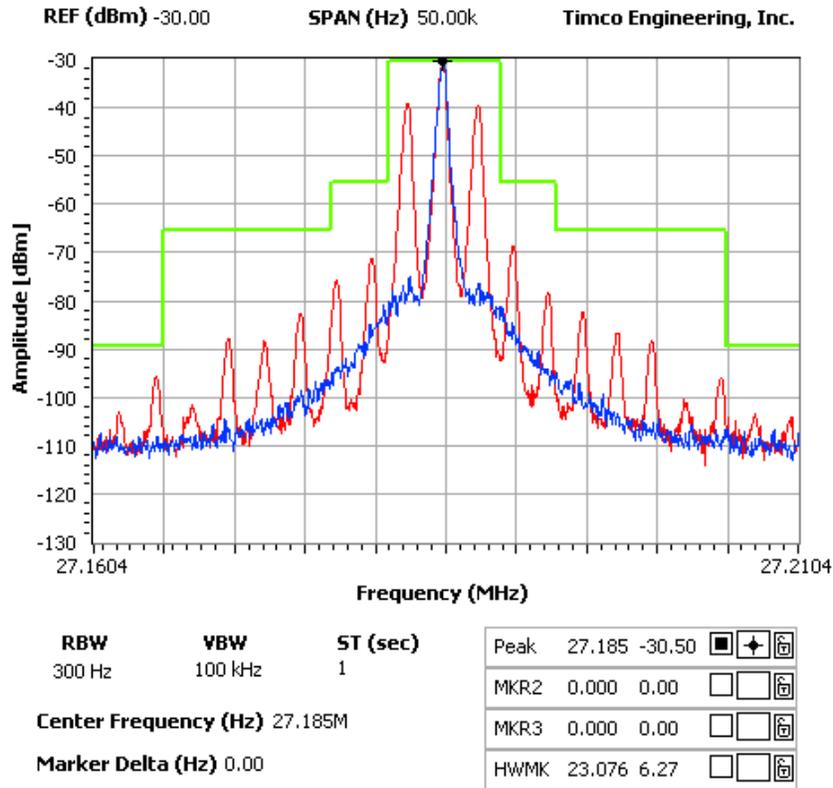


OCCUPIED BANDWIDTH PLOT

NOTES:

UNIDEN AMERICA CORPORATION - FCC ID: AMWUT561
OCCUPIED BANDWIDTH PLOT

FCC 95.635 Mask (1) (3) (8) (9)

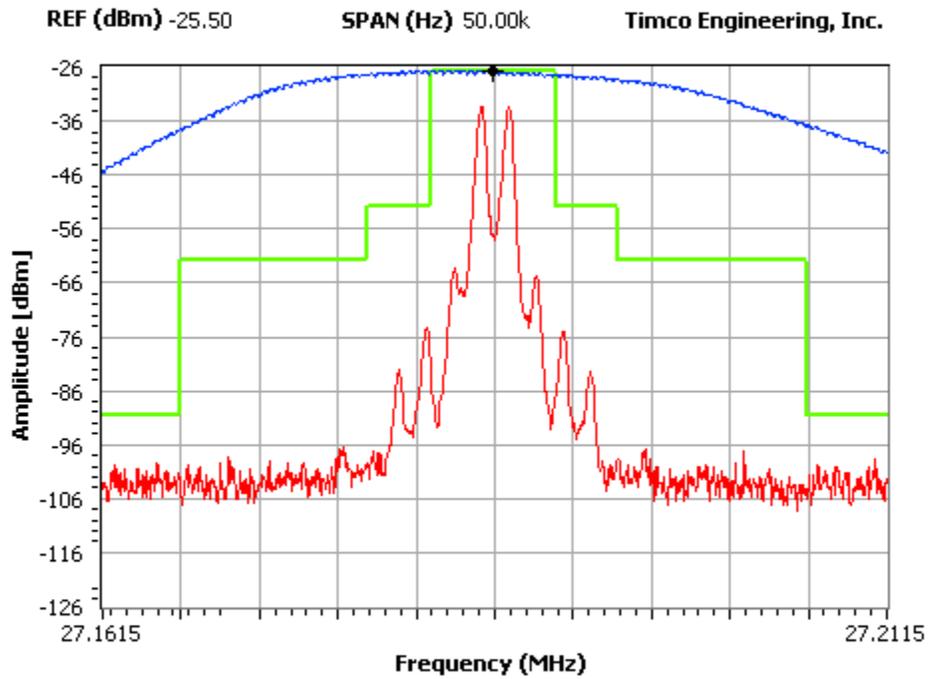


AM mode: modulation frequency 2.5 kHz

NOTES:

UNIDEN AMERICA CORPORATION - FCC ID: AMWUT561
OCCUPIED BANDWIDTH PLOT - USB

FCC 95.635 Mask (1) (3) (8) (9)



RBW	VBW	ST (sec)	Peak	27.186	-26.40	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
300 Hz	100 kHz	1	MKR2	0.000	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			MKR3	0.000	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			HWMK	23.076	6.27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Center Frequency (Hz) 27.187M

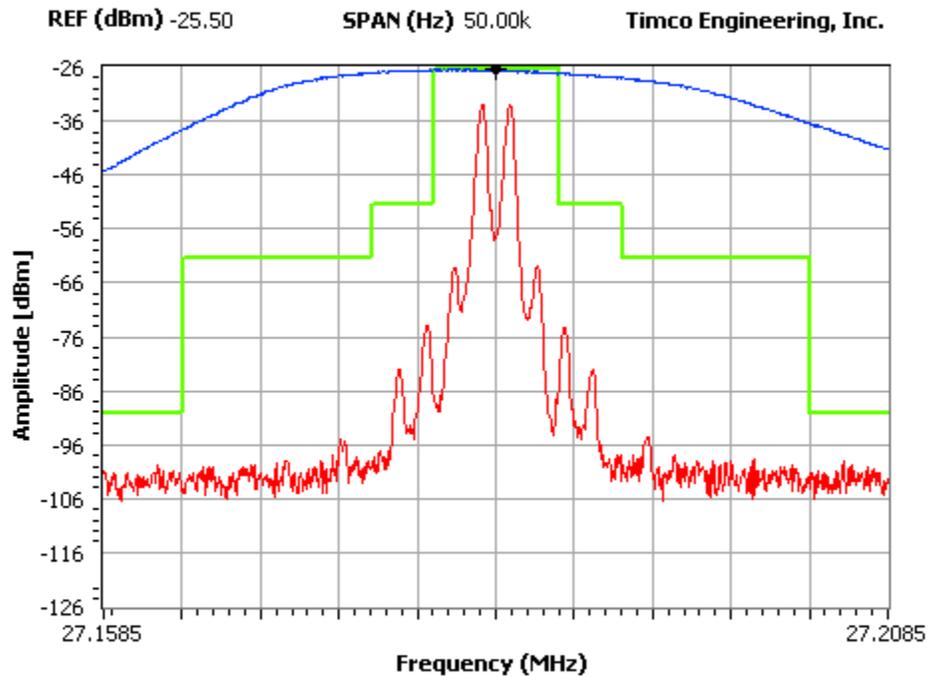
Marker Delta (Hz) 0.00

USB mode: modulation frequency 2.4 kHz and 500 Hz

NOTES:

UNIDEN AMERICA CORPORATION - FCC ID: AMWUT561
OCCUPIED BANDWIDTH PLOT - LSB

FCC 95.635 Mask (1) (3) (8) (9)



RBW	VBW	ST (sec)	Peak	27.184	-25.87	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
300 Hz	100 kHz	1	MKR2	0.000	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			MKR3	0.000	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			HWMK	23.076	6.27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Center Frequency (Hz) 27.184M

Marker Delta (Hz) 0.00

LSB mode: modulation frequency 2.4 kHz and 500 Hz



SPURIOUS EMISSIONS AT ANTENNA TERMINALS (CONDUCTED)

Rule Part No.: Part 2.1051(a), RSS-136

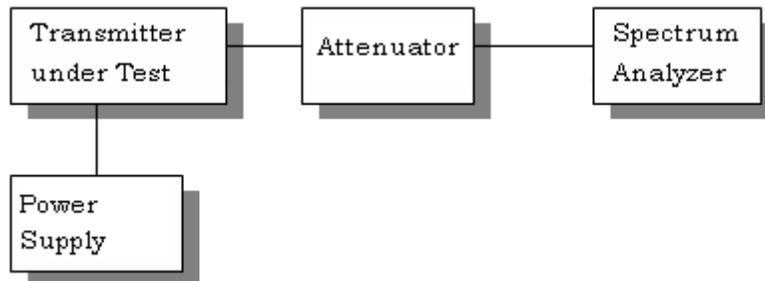
Requirements: $53 + 10\log(4.00) = 59.0\text{dB}$. Any emissions above 54 MHz must be 60 dBc.

Method of Measurement: The carrier was modulated 100% using a 2500 Hz tone. The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard EIA/TIA-382-A.

Test Data:

TF (MHz)	Emission Frequency (MHz)	dB below carrier (dBc)
27.185	54.37	71.7
	81.56	70.1
	108.74	77.8
	135.93	71
	163.11	81.1
	190.30	74.4
	217.48	75.4
	244.67	82.3
	271.85	75.6

Method of Measuring Conducted Spurious Emissions



METHOD OF MEASUREMENT: The procedure used was EIA/TIA-382-A.



FIELD STRENGTH OF SPURIOUS EMISSIONS

Rule Parts. No.: Part 2.1053, 95.635(b)(8)(9), RSS-136

Requirements: Emissions must be attenuated by at least the following below the output of the transmitter.

53 + 10log(4.00) = 59.0 dB or
FCC Limit for: 8kHz Authorized BW

At least 53+10Log(T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%. At least 60dB on any frequency twice or greater than twice the fundamental.

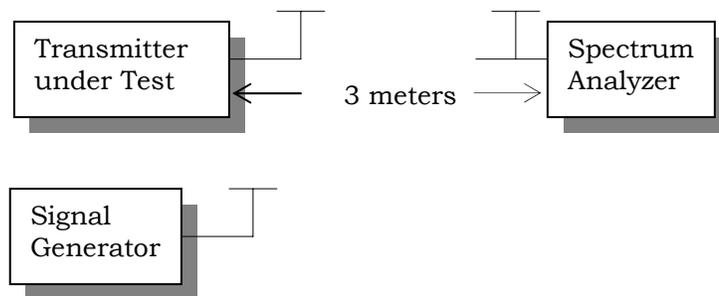
Test Data:

TF (MHz)	Emission Frequency (MHz)	Ant. Polarity	dB Below Carrier (dBc)
27.185	54.37	V	87.6
	81.56	V	79.2
	108.74	V	75.1
	135.93	H	68.2
	163.11	H	74.5
	190.30	H	70.0
	217.48	V	61.6
	244.67	H	75.0
	271.85	H	62.3

METHOD OF MEASUREMENT

The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per EIA/TIA-382-A using the substitution method. Measurements were made at the test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669.

Test Setup Diagram:





TRANSMITTER SPURIOUS AND HARMONIC EMISSIONS RSS-136

Rule Parts. No.: RSS-136

Requirements: Emissions must be attenuated by at least the following below the output of the transmitter.

$53 + 10\log(4.00) = 59.0$ dB or
FCC Limit for: 8kHz Authorized BW

At least $53+10\log(T)$ dB on any frequency removed from the center of the authorized bandwidth by more than 250%. At least 60dB on any frequency twice or greater than twice the fundamental.

Test Data:

TF (MHz)	Emission Frequency (MHz)	Ant. Polarity	dB Below Carrier (dBc)
27.185	54.37	V	87.6
	81.56	V	79.2
	108.74	V	75.1
	135.93	H	68.2
	163.11	H	74.5
	190.30	H	70.0
	217.48	V	61.6
	244.67	H	75.0
	271.85	H	62.3



FREQUENCY STABILITY

2.1055(a)(b)(d), RSS-136

Temperature and voltage tests were performed to verify that the frequency remains within the .005%, 50 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 °C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 °C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 °C.

Readings were also taken at ±15% of the battery voltage of 13.8 VDC.

Test Data:

Assigned Frequency (Ref. Frequency) (MHz)		27.185023
Temperature (°C)	Frequency (MHz)	Frequency Stability (PPM)
-30	27.185542	19.09
-20	27.185556	19.61
-10	27.185506	17.76
0	27.185455	15.88
+10	27.185289	9.78
+20	27.185108	3.11
+30	27.184924	-3.65
+40	27.184765	-9.49
+50	27.184683	-12.53

Assigned Frequency (Ref. Frequency) (MHz)		
% Battery	Frequency (MHz)	Frequency Stability (PPM)
-15%	27.185021	-0.07
0	27.185023	0.00
+15%	27.185018	-0.18



MEASUREMENTS UNDER TEMPERATURE AND VOLTAGE EXTREMES RSS 136

The maximum frequency difference between any of the measured frequencies shall not exceed 1360 Hz

Reference frequency: 27.185057 MHz

TEMPERATURE °C	% Battery	Measured Frequency (MHz)	Difference in measured (Hz)
0°C	90	27.185425	368
0°C	110	27.185427	370
40°C	90	27.184775	-282
40°C	110	27.184772	-285