COMPLIANCE WORLDWIDE INC.
TEST REPORT 287-06

In Accordance with the Requirements of

Industry Canada RSS 210, Issue 6, Annex II
Federal Communications Commission CFR Title 47 Part 15.231, Subpart C
Low Power License-Exempt Radio Communication Devices
Intentional Radiators
Issued to

Nel-Tech Labs
4 Ash Street Extension
Derry, NH 03038

for

CVS Alarm II 433 MHz Transmitter
FCC ID: UOXALLIANCE24380
IC: 3358A-TXTYPE1

Report Issued on November 2, 2006

Prepared by

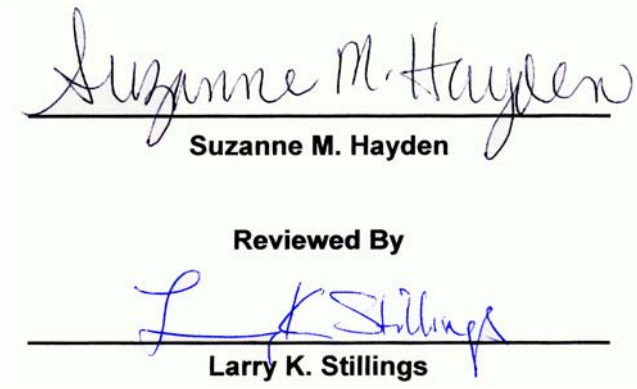


Table of Contents

1. Scope 3
2. Product Details 3
3. Product Configuration 3
4 Measurements Parameters 5
5 Measurement Summary 6
6 Measurement Data 6
7. Test Site Description 6

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

1. Scope

This test report certifies that the Nel Tech Labs, Inc. CVS Alarm II 433 MHz transmitter, as tested, meets the RSS 210 Annex II Rules and FCC Part 15.231, Subpart C requirements. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required

2. Product Details

2.1. Manufacturer: Nel Tech Labs, Inc.

2.2. Model Number: Alliance 24380

2.3. Serial Number: TX064100315

2.4. Description: CVS Alarm II 433 MHz transmitter

2.5. Power Source: (3) AA Battery powered

2.6. EMC Modifications: R14 value was changed from 0 ohms to 1.5k ohms.

3. Product Configuration

3.1. Cables

Cable Type	Length	Shield	From	To
N/A				

3.2. Support Equipment

Device	Manufacturer	Model	Serial No.
CVS Multi Message Receiver	Nel Tech Labs, Inc.	Alliance 24380	TX064100315

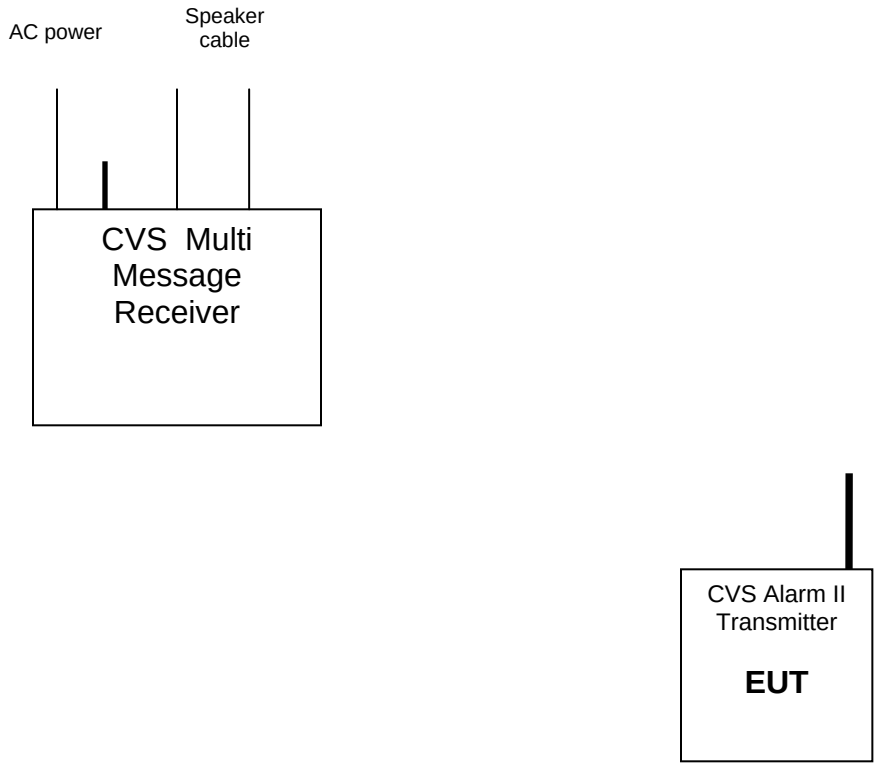
3.3. Operational Characteristics

N/A

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

3. Product Configuration (continued)

3.4. Block Diagram



Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

4 Measurements Parameters

4.1 Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Last Cal	Cal Due
EMI Receiver	Hewlett Packard	8546A	3650A00360	1/5/2005	1/5/2007
Spectrum Analyzer	Hewlett Packard	8593E	3829A03887	3/13/2006	3/13/2007
Biconilog Antenna	Com-Power	AC220	25509	1/31/2006	1/31/2007
Horn Antenna	Electro-Metrics	EM-6961	6337	8/25/2006	8/25/2008

4.2 Measurement & Equipment Setup

Test Date:	10/13/06
Test Engineer:	Robert J. McCall
Normal Site Temperature (15 - 35°C):	21.7
Extreme Test Temperatures (°C):	0 and +35
Relative Humidity (20 -75%RH):	32
Frequency Range:	418 MHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	Depends on measurement
EMI Receiver Avg Bandwidth:	Depends on measurement
Detector Function:	Depends on measurement

4.3 Test Procedure

Test measurements were made in accordance FCC Part 15.231: Operation within the bands 40.66 – 40.70 MHz and above 70 MHz.

The test methods used to generate the data in this test report are in accordance with ANSI C63.4: 2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

5 Measurement Summary

Test Requirement	FCC Rule Requirement	Test Report Section	Result	Comment
Antenna Requirement	15.203	N.A	Compliant	Unit has a permanently mounted antenna.
Radiated Field Strength of Fundamental	15.231 (b)	6.1	Compliant	
Radiated Field Strength of Harmonics	15.231 (a)	6.2	Compliant	
Occupied Bandwidth		6.3	Compliant	
Spurious Radiated Emissions	15.231 (b), 15.209	6.4	Compliant	
Conducted Emissions	15.207	N.A	Compliant	Unit is battery operated

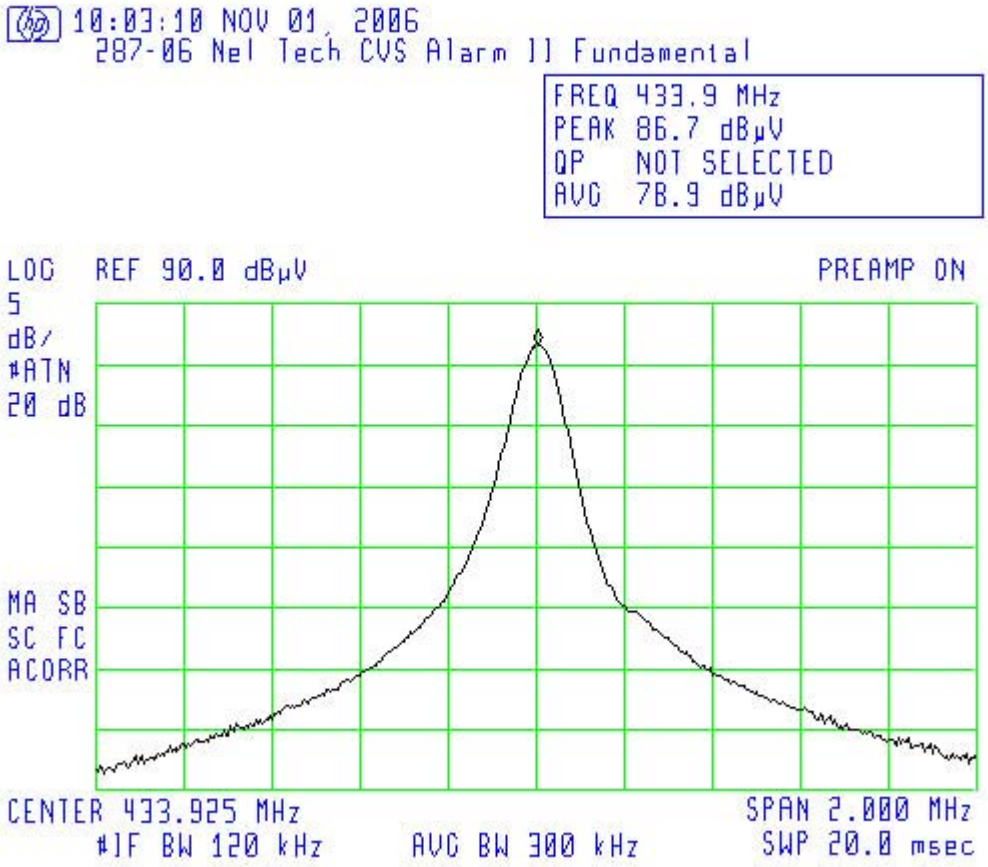
Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6 Measurement Data

6.1 Radiated Field Strength of Fundamental (15.231, Section (b))

Requirement: The 3 meter field strength of the fundamental emissions from intentional radiators operated within the 260-470 MHz frequency bands shall comply with the limits specified in FCC Part 15.231, Section (b).

Frequency (MHz)	Amplitude (dBµV/m)		Limit (dBµV/m)	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Average			H/V	cm	Deg	P/F
433.94	86.7	78.9	80.82	-1.92	H	100	294	Passed



Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6 Measurement Data (continued)

6.2 Radiated Field Strength of Harmonics (15.231, Section (a))

Requirement: The 3 meter field strength of the harmonic emissions from intentional radiators operated within the 260-470 MHz frequency band shall comply with the limits specified in FCC Part 15.231, Section (b). Peak field strength may not be greater than 20 dB above the average limit.

Frequency (MHz)	Amplitude (dBµV/m)		Q-P Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	QP			H/V	cm	Deg	
867.88	48.9	47.2	60.82	-13.62	H	116	134	Passed

Frequency (MHz)	Amplitude (dBµV/m)		Average Limit	Margin (dB)	Ant Pol	Ant Ht	TT Pos	Result
	Peak	Avg			H/V	cm	Deg	
1301.82[1]	47.2	36.9	60.82	-23.92	H	100	204	Passed
1735.76	43.2	30.5	60.82	-30.32	V	170	204	Passed
2169.70	34.3	24.5	60.82	-36.32	V	100	178	Passed
2603.64	28.7	16.6	60.82	-44.22	Noise Floor			Passed
3037.58	30.8	---	60.82	-30.02	Noise Floor			Passed
3471.52	30.1	---	60.82	-30.72	Noise Floor			Passed
3905.46[1]	34.1	---	60.82	-26.72	Noise Floor			Passed
4339.40[1]	31.6	---	60.82	-29.22	Noise Floor			Passed

[1] Frequency falls within the Restricted Bands of Operation. See FCC Part 15, Section 15.205 for additional information.

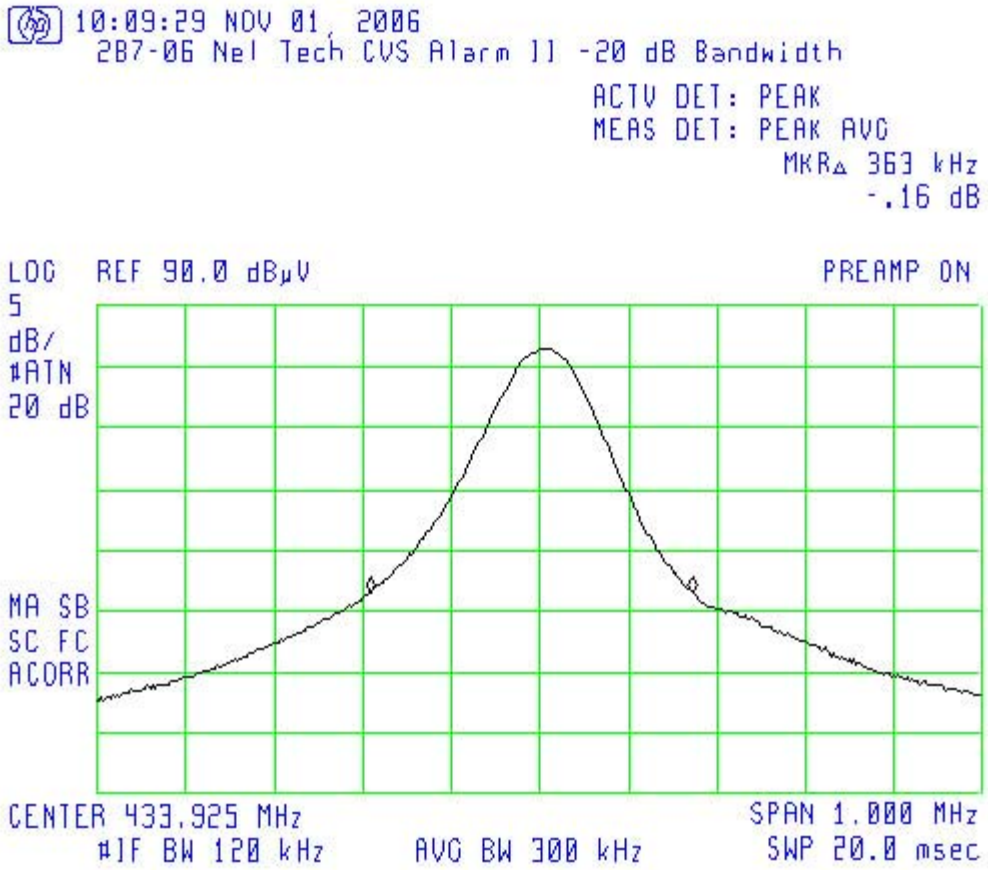
Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6 Measurement Data (continued)

6.3 Occupied Bandwidth

Requirement: The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Fundamental Frequency	-20 dB Bandwidth	Limit	Result
(MHz)	(kHz)	(MHz)	P/F
433.94	363	1.08	Passed



Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6.4 Spurious Radiated Emissions, 30 MHz to 1 GHz (15.231, Section (b))

Requirement: 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 Section 15.209, whichever is the lesser attenuation.

6.4.1. Spurious Radiated Emissions, 30 MHz to 1 GHz Test Setup

6.4.1.1 Regulatory Limit: FCC Part 209, Quasi-Peak

Frequency Range (MHz)	Distance (Meters)	Limit (dBµV/m)
30 to 88	3	40.0
88 to 216	3	43.5
216 to 960	3	46.0
960 to 1000	3	54.0

6.4.1.2 Measurement Equipment Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due
EMI Receiver	Hewlett Packard	8546A	3650A00360	1/5/2007
Biconilog Antenna	Com-Power	AC220	25509	1/31/2007

6.4.1.3. Measurement & Equipment Setup

Test Date:	10/13/2006
Test Engineer:	Robert J. McCall
Site Temperature (°C):	20.6
Relative Humidity (%RH):	30
Frequency Range:	30 MHz to 1 GHz
Measurement Distance:	10 Meters
EMI Receiver IF Bandwidth:	120 kHz
EMI Receiver Avg Bandwidth:	300 kHz
Detector Functions:	Peak and Quasi-Peak.
Antenna Height:	1 to 4 meters

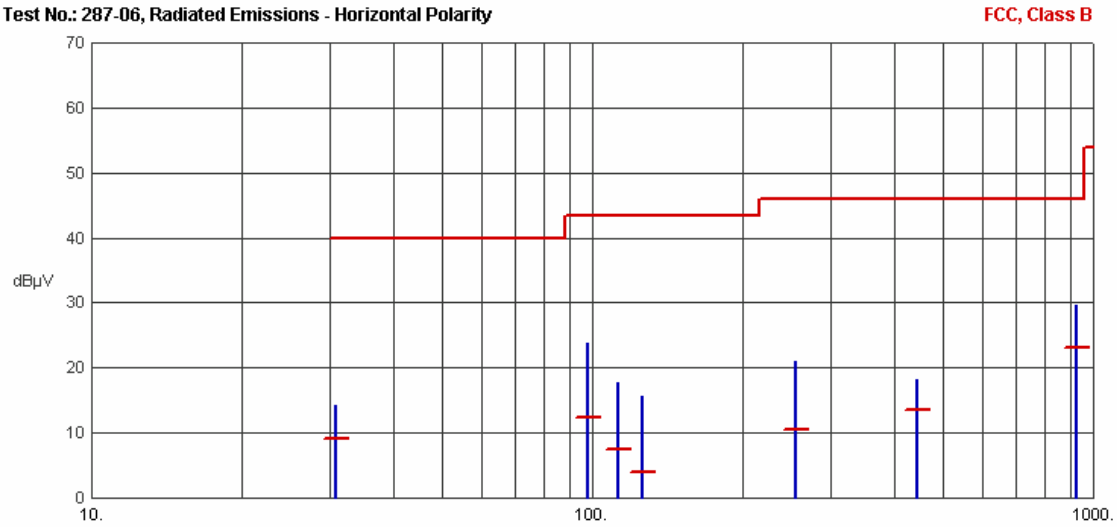
6.4.1.4. Test Procedure

Test measurements were made in accordance with ANSI C63.4-2003, Standard Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronics Equipment in the Range of 9 kHz to 40 GHz.

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6.4 Spurious Radiated Emissions (30 MHz to 1 GHz) Test Results (continued)

6.4.2 Horizontal Polarity

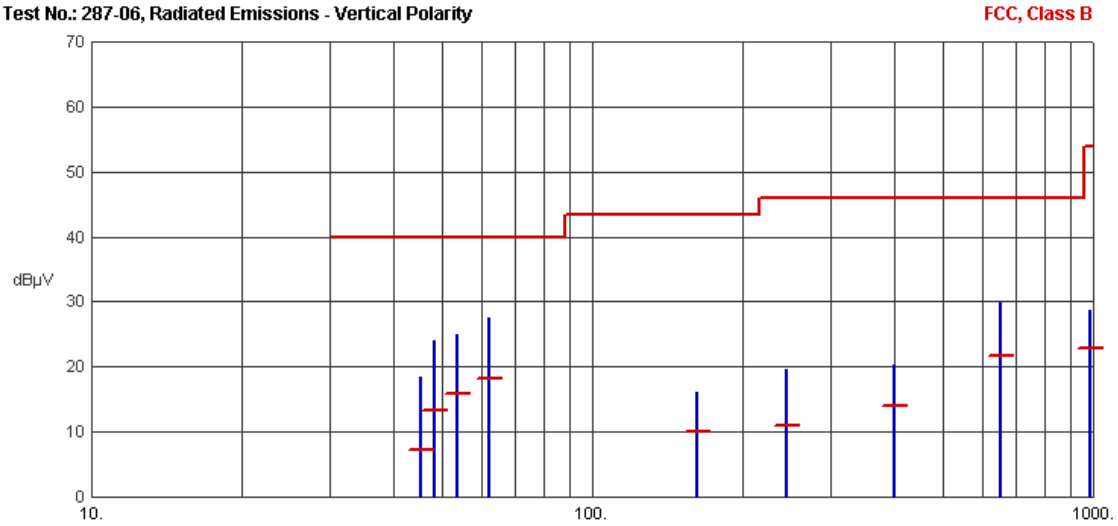


Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
30.7820	14.33	9.10	40.00	-30.90	N/A	N/A	
98.1478	23.83	12.28	43.50	-31.22	N/A	N/A	
112.5157	17.85	7.50	43.50	-36.00	N/A	N/A	
125.6661	15.64	3.97	43.50	-39.53	N/A	N/A	
255.0852	20.94	10.57	46.00	-35.43	N/A	N/A	
444.3178	18.27	13.43	46.00	-32.57	N/A	N/A	
924.9866	29.71	23.03	46.00	-22.97	N/A	N/A	

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

6.4 Spurious Radiated Emissions (30 MHz to 1 GHz) Test Results (continued)

6.4.3 Vertical Polarity



Frequency (MHz)	Pk Amp (dBµV/m)	QP Amp (dBµV/m)	QP Limit (dBµV/m)	Margin (dB)	Ant Ht (cm)	Table (Deg)	Comments
45.4888	18.53	7.22	40.00	-32.78	N/A	N/A	
48.4849	24.01	13.31	40.00	-26.69	N/A	N/A	
53.8667	24.89	15.94	40.00	-24.06	N/A	N/A	
62.2470	27.59	18.19	40.00	-21.81	N/A	N/A	
161.7823	16.07	9.97	43.50	-33.53	N/A	N/A	
244.4061	19.57	11.04	46.00	-34.96	N/A	N/A	
400.7370	20.24	14.08	46.00	-31.92	N/A	N/A	
653.7374	29.76	21.71	46.00	-24.29	N/A	N/A	
985.4959	28.68	22.86	54.00	-31.14	N/A	N/A	

6.5 Spurious Radiated Emissions (> 1 GHz) Test Results

There were no spurious emissions above 1 GHz other than the harmonics previously reported.

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com

7. Test Site Description

Compliance Worldwide is located at 357 Main Street in Sandown, New Hampshire. The test sites at Compliance Worldwide are used for conducted and radiated emissions testing in accordance with Federal Communications Commission (FCC) and Industry Canada standards. A description of the test sites is on file with the FCC (registration number **96392**) and Industry Canada (file number **IC 3023)**.

The radiated emissions test site is a 3 and 10 meter enclosed open area test site (OATS). Personnel, support equipment and test equipment are located in the basement beneath the OATS ground plane.

The conducted emissions site is part of a 16' x 20' x 12' ferrite tile chamber and uses one of the walls for the vertical ground plane required by EN 55022.

Both sites are designed to test products or systems 1.5 meters W x 1.5 meters L x 2.0 meters H, floor standing or table top.

Compliance Worldwide, Inc. - 357 Main Street - Sandown, NH 03873
(603) 887 3903 Fax 887 6445
http://www.cw-inc.com