



Nemko

Test Report: 3W06524

Applicant: Shopguard Systems

**Equipment Under Test:
(EUT)** JuniorGuard
8.2 MHz Transmitter

FCC ID: QVIS682TX

In Accordance With: **FCC Part 15.223**

Tested By: Nemko Canada Inc.
303 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By: Glen Westwell, Wireless Technologist

Date: 30 January 2003

Total Number of Pages: 16

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EQUIPMENT: *JuniorGuard Transmitter*

Section 1. Summary Of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart C for low power devices. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site. A description of the test facility is on file with the FCC.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE
TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



Tested By: _____
Russell Grant, Senior Approvals Eng.

Date: 28 January 2003

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This report applies only to the items tested.

EQUIPMENT: JuniorGuard Transmitter

Summary Of Test Data

Name Of Test	Para. No.	Result
Powerline Conducted Emissions	15.207	Complies
Radiated Emissions	15.223	Complies

Test Conditions:**Indoor**

Temperature: 20°C

Humidity: 25%

Outdoor

Temperature: -10°C

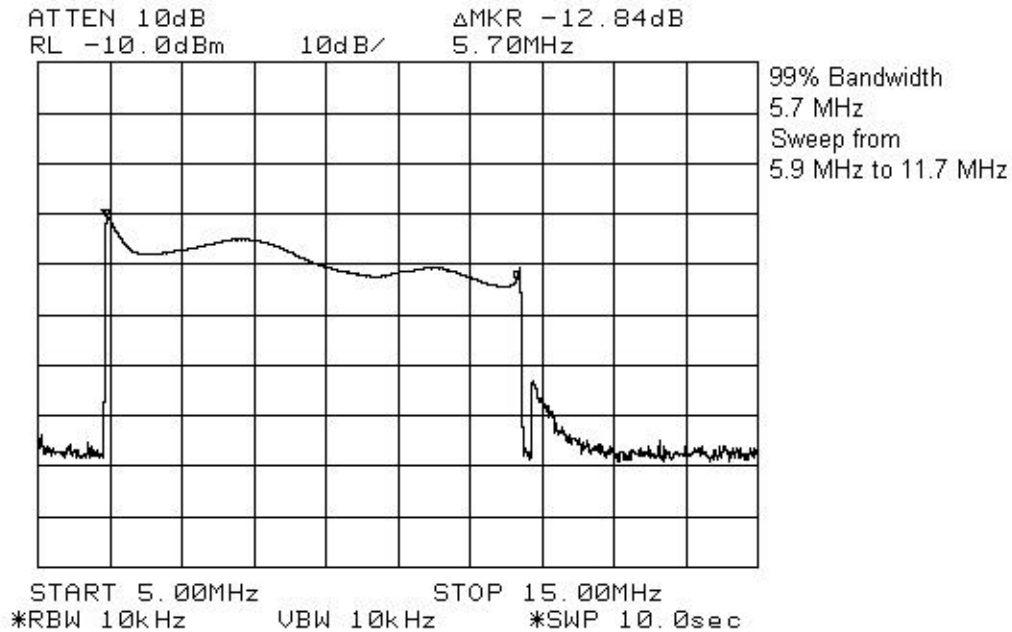
Humidity: 20%

EQUIPMENT: JuniorGuard Transmitter

Section 2. General Equipment Specification

Manufacturer:	Shopguard Systems
Model No.:	JuniorGuard
Serial No.:	None
Date Received In Laboratory:	Jan 21, 2003
Nemko Identification No.:	1
Equipment:	Swept Frequency Field Disturbance Sensor
Emission Designator:	N0N Unmodulated Carrier
Frequency:	Swept from 5.9 to 11.7 MHz

EQUIPMENT: JuniorGuard Transmitter



This equipment is linearly swept in frequency from 5.9 to 11.7 MHz. This is a 5.8 MHz sweep. There is no provision for stopping the sweep on discrete frequencies within the band. The restricted bands within this range are

Restricted Bands (MHz)		Restricted Bandwidth (MHz)
6.215	6.218	0.003
6.26775	6.26825	0.0005
6.31175	6.31225	0.0005
8.291	8.294	0.003
8.362	8.366	0.004
8.37625	8.38675	0.0105
8.41425	8.41475	0.0005
Total Restricted Bandwidth		0.022

Therefore the fundamental is outside of the restricted bands
 $(1 - 0.022/5.8) \times 100 = 99.62\%$ of the time the device is actively transmitting.

EQUIPMENT: JuniorGuard Transmitter

Section 3. Powerline Conducted Emissions**Para. No.: 15.207**

Test Performed By: Russell Grant	Date of Test: Jan 28, 2003
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Minimum Standard:

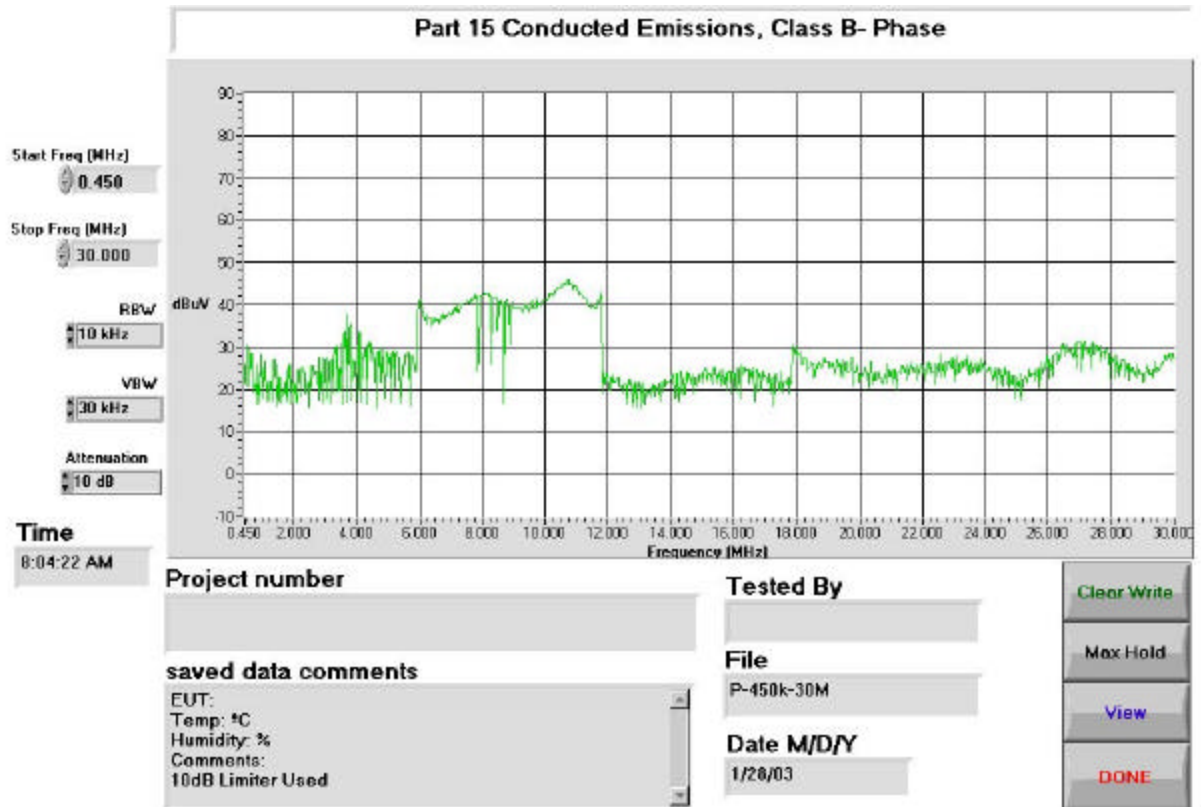
Frequency (MHz)	Maximum Powerline Conducted RF Voltage	
	(μV)	(dBμV)
0.45 - 30.0	250	48

Test Results: Complies**Measurement Data:** See attached graph(s).

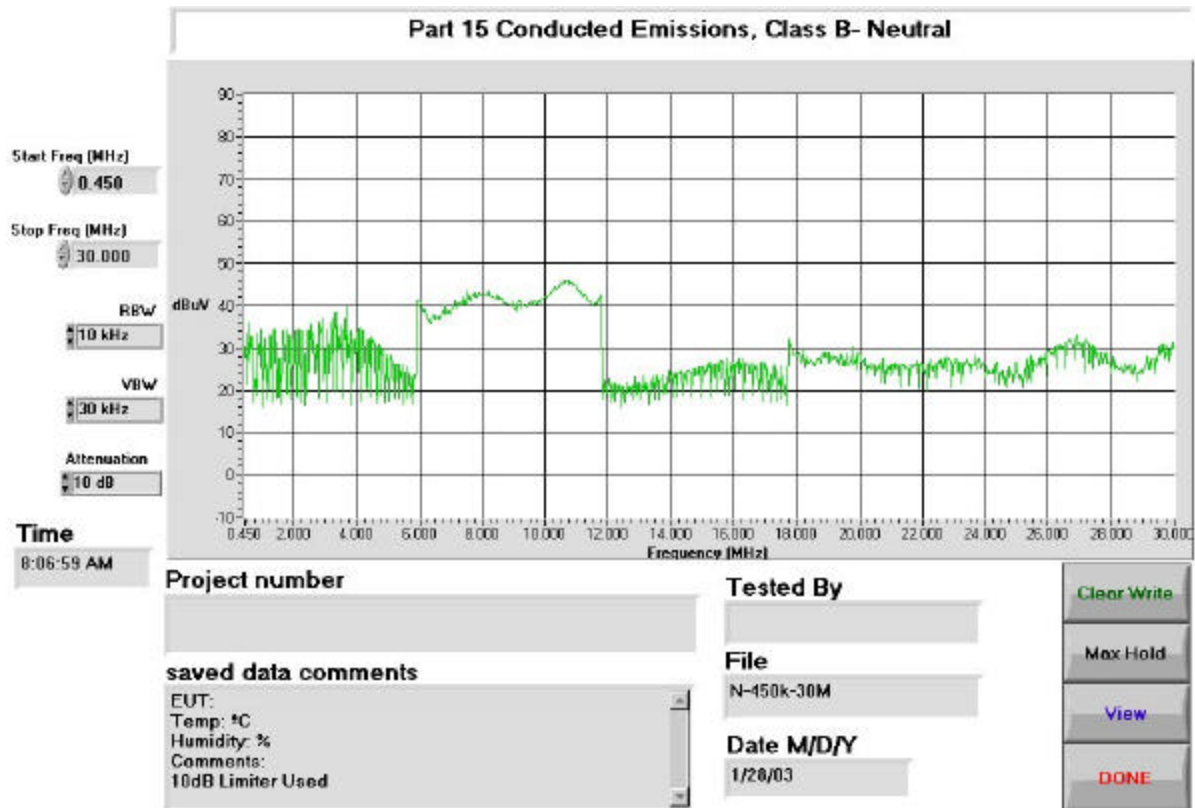
EQUIPMENT: JuniorGuard Transmitter

Power Line Conducted Emissions					
Frequency of Emission (MHz)	Received Signal quasi-peak(dBuV)	Broadband Correction Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)
Phase Conductor					
6	38	-13	25	48	23
8	43	-13	30	48	18
10.6	47	-13	34	48	14
Neutral Conductor					
6	39	-13	26	48	22
8	43	-13	30	48	18
10.6	45	-13	32	48	16
All emissions with greater than 6 dB quasi peak to average ratio are reduced by 13 dB for comparison to the specification limit.					

EQUIPMENT: JuniorGuard Transmitter



EQUIPMENT: JuniorGuard Transmitter



EQUIPMENT: JuniorGuard Transmitter

Power Line Conducted Photo



EQUIPMENT: JuniorGuard Transmitter

Section 4. Radiated Emissions**Para. No.: 15.223****Test Performed By: Russell Grant****Date of Test: Jan 28, 2003****Minimum Standard:**

Fundamental (MHz)	Field Strength (μV/m)	Field Strength (dBμV)
0.009 - 0.490	2400/F(kHz) @ 300m	—
0.490 - 1.705	24000/F(kHz) @ 30m	—
Fundamental 1.705 - 10	100 @ 30m	40
10 - 30	30 @ 30m	29.5
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Test Results: Complies**Measurement Data:** See attached table.

The spectrum was searched from 9 kHz to 1 GHz. All emissions within 20 dB of the specification limit were measured and reported.

The input power was adjusted from +/-15% to determine stability and verify worst case emissions.

EQUIPMENT: JuniorGuard Transmitter

Standard:		FCC Pat B					Date:		28-Jan-03		Tester:		Done#		1		
Tower:		A		Distance:		3m		Location:		Ottawa		Test Lab					
Receiver:		ESVP		Comment:			Temp				Humidity:						
Frequency (MHz)		Antenna	Polarity	RCVD Signal (dBuV)	Ant. Factor (dB)	Sig. Sub Factor	Amp Gain (dB)	Duty Cycle Corr.	Cable Loss (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Amp			
1	350000	BC1	V	240	115				08	363	400	38					
2	350000	BC1	H	230	132				08	370	400	31					
3	530000	BC1	V	250	98				08	357	400	43					
4	530000	BC1	H	260	103				08	372	400	28					
5	1080000	BC1	V	250	110				13	373	435	62					
6	1080000	BC1	H	240	109				13	362	435	74					

The bandwidth of the emission is greater than 10% of the center frequency.

The fundamental emission level at 8.2 MHz is 71 dBuV at 3 m and 57 dBuV 6 m. This is 14 dB per octave extrapolation factor. From 3 to 30 m is $1/\log 2 = 3.3$ octave. Therefore the fundamental emission level is

$71 - 3.3 \times 14 = 24.8$ dBuV/m @ 30 m. This is 15.2 dB below the 40 dBuV/m specification limit.

EQUIPMENT: JuniorGuard Transmitter

Set-Up Photo

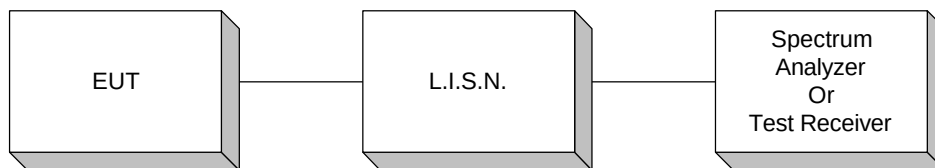


Pre-Scan Photo

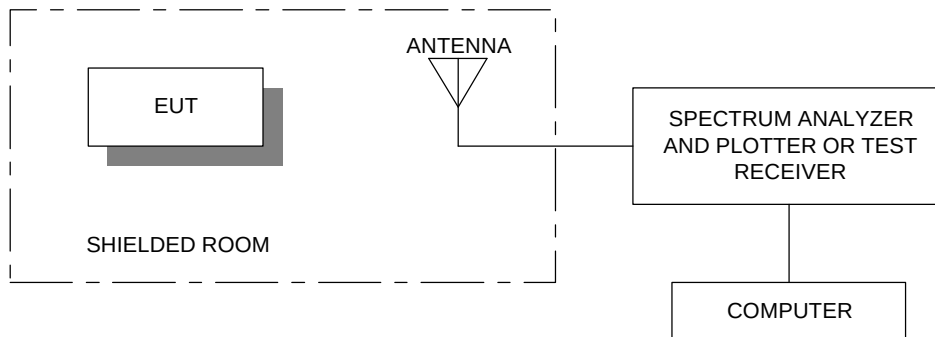


Section 5. Block Diagrams

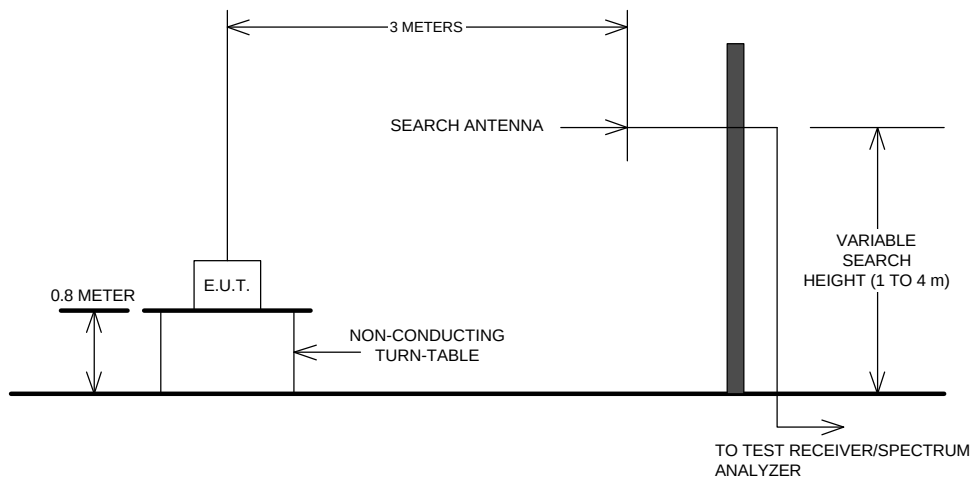
Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions



EQUIPMENT: JuniorGuard Transmitter

Section 6. Test Equipment List**RADIO TEST EQUIPMENT LIST**

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981
1 Year	Spectrum Analyzer-1	Hewlett Packard	8566B	2311A02238
1 Year	Spectrum Analyzer Display-1	Hewlett Packard	8566B	2314A04759
1 Year	LISN	EMCO	4825/2	0002-1/47
1 Year	Receiver	Rohde & Schwarz	ESH3	892473/002
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014
1 Year	Active Loop Antenna	Rohde & Schwarz	HFH2-Z2	FA000631