Standards Council of Canada
Accredited Laboratory
Scope of Accreditation 75

Conseil canadien des normes
Laboratoire accrédité
Portée d'accréditation 75

TM

Test Report:	6W58613.1
Applicant:	Digital Security Controls, a division of Tyco Safety Products Canada Ltd. 3301 Langstaff Road Concord, ON L4K 4l2 Canada
Apparatus:	Wireless 433MHz Receiver, M/N #RF5132-433
FCC ID:	F5306PC5132
In Accordance With:	FCC Part 15 Subpart B, 15.107 and 15.109 Unintentional Radiators
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	 Sim Jagpal, Resource Manager
Date:	January 30, 2006
Total Number of Pages:	17

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart B. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed:	Wireless 433MHz Receiver, M/N #RF5132-433
Specification:	FCC Part 15 Subpart B, 15.107 and 15.109
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Original Release

Author: Daniel Hynes, EMC Specialist

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

TABLE OF CONTENTS

Section 1: Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:

Wireless 433MHz Receiver, M/N #RF5132-433

1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
1	Wireless 433MHz Receiver	None

The first samples were received on: December 23, 2005

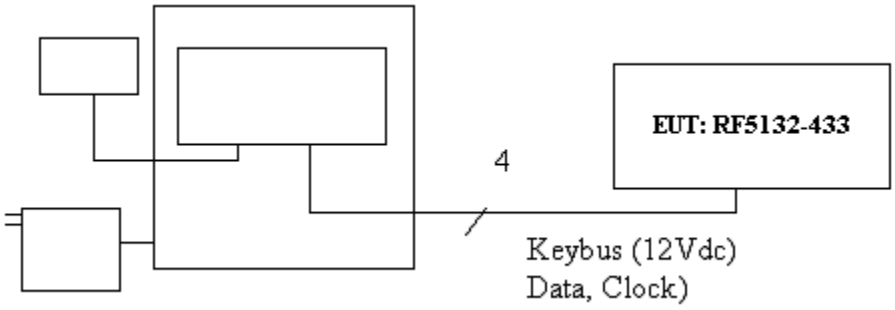
1.3 Theory of Operation

The Alarm receiver is used for Fire and Burglary Alarm systems using short range, low power communicators to supervise the protected premises. It receives at 433.92MHz.

1.4 Technical Specifications of the EUT

Manufacturer:	Digital Security Controls, a division of Tyco Safety Products Canada Ltd.
Receive Frequency:	433.92MHz
Receiver Type:	Super Heterodyne
Antenna Data:	Integral
Power Source:	12VDC from Host Alarm Panel

1.5 Block Diagram of the EUT



Section 2: Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart B, 15.107 and 15.109
Unintentional Radiators

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	15 – 30 ^{o}C
Humidity range	:	20 - 75 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

2.4 Test Equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
Spectrum Analyzer	Hewlett-Packard	8564E	FA001367	Feb 22/05	Feb 22/06
Receiver	Rohde & Schwarz	ESVS-30	FA001437	July 27/05	July 27/06
Biconical (2) Antenna	EMCO	3109	FA000904	Aug. 26/05	Aug. 26/06
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/05	Aug. 29/06
Horn Antenna #4	EMCO	3115	FA001451	May 26/05	May 26/06
1- 26.5 GHz Amplifier	Hewlett-Packard	HP 8449	FA001761	May 19/05	May 19/06
LISN	Tegam	95300-50	FA000736	Feb 09/05	Feb 09/06
LISN	Tegam	95300-50	FA000737	Feb 09/05	Feb 09/06
Spectrum Analyzer	Hewlett-Packard	8566B	FA001432	May 18/05	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001432	May 18/05	May 18/06
Transient Limiter	Hewlett-Packard	1194 7A	FA001150	May 25/05	May 25/06

Section 3: Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4: Results Summary

This section contains the following:

FCC Part 15 Subpart B: Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N	No: not applicable / not relevant.
Y	Yes: Mandatory i.e. the apparatus shall conform to these tests.
N/T	Not Tested, mandatory but not assessed. (See section 3.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

4.1 FCC Part 15 Subpart C: Test Results

Part 15	Test Description	Required	Result
15.107(a) 15.109(a)	Conducted Emissions for Class B Radiated Emissions for Class B	Y Y	PASS PASS

Notes: None

Appendix A: Test Results

Clause 15.107(a) Conducted Emissions

Frequency of Conducted limit (dBmV)

Emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

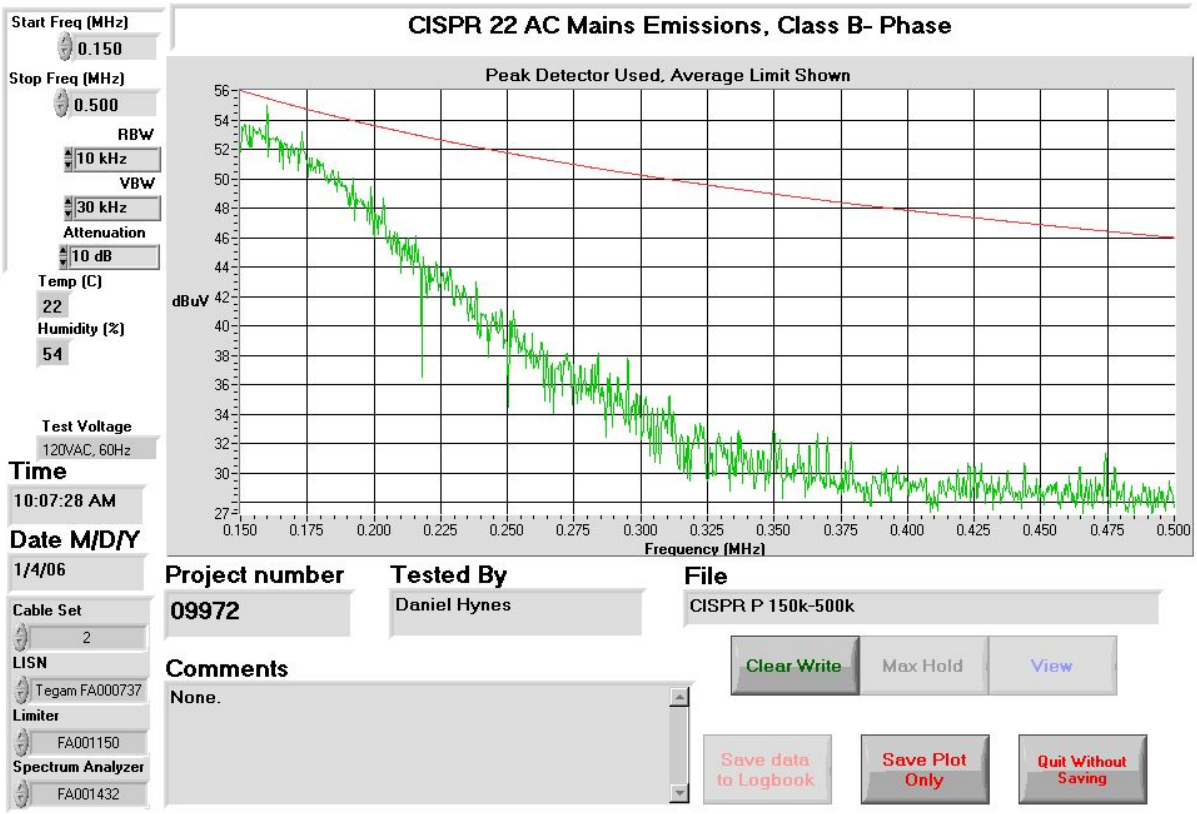
Test Conditions:

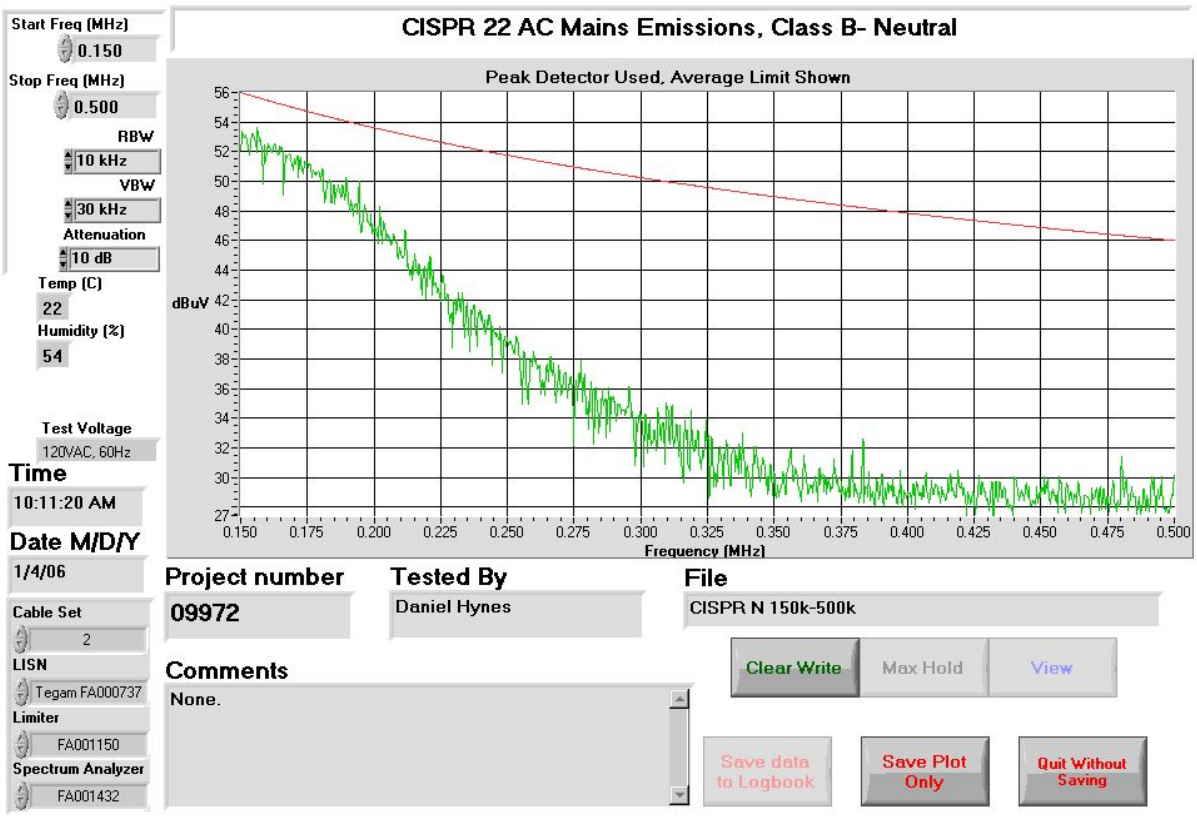
Sample Number:	1	**Temperature:**	22
Date:	January 4, 2006	**Humidity:**	54
Modification State:	0	**Tester:**	Daniel Hynes
		Laboratory:	Almonte

Test Results: See Attached Plots.

Additional Observations:

The EUT was assessed using a peak detector measured against the average limit.


CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Start Freq (MHz)
0.150
Stop Freq (MHz)
0.500
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:07:28 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
FA001432
Project number
09972
Tested By
Daniel Hynes
File
CISPR P 150k-500k
Comments
None.
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving


CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Start Freq (MHz)
0.150
Stop Freq (MHz)
0.500
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:11:20 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
FA001432
Project number
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Comments
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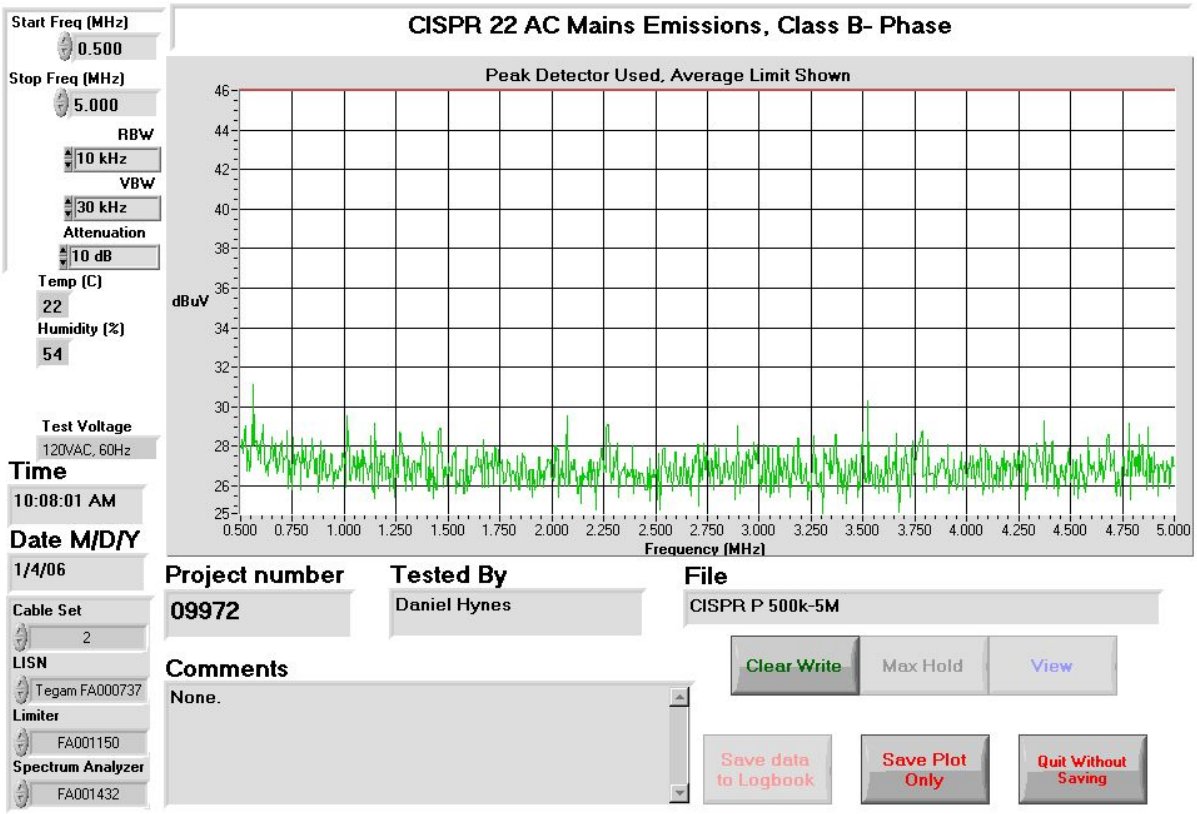
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Stop Freq (MHz)
5.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:08:01 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
FA001432
CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
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09972
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Daniel Hynes
File
CISPR P 500k-5M
Comments
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Clear Write
Max Hold
View
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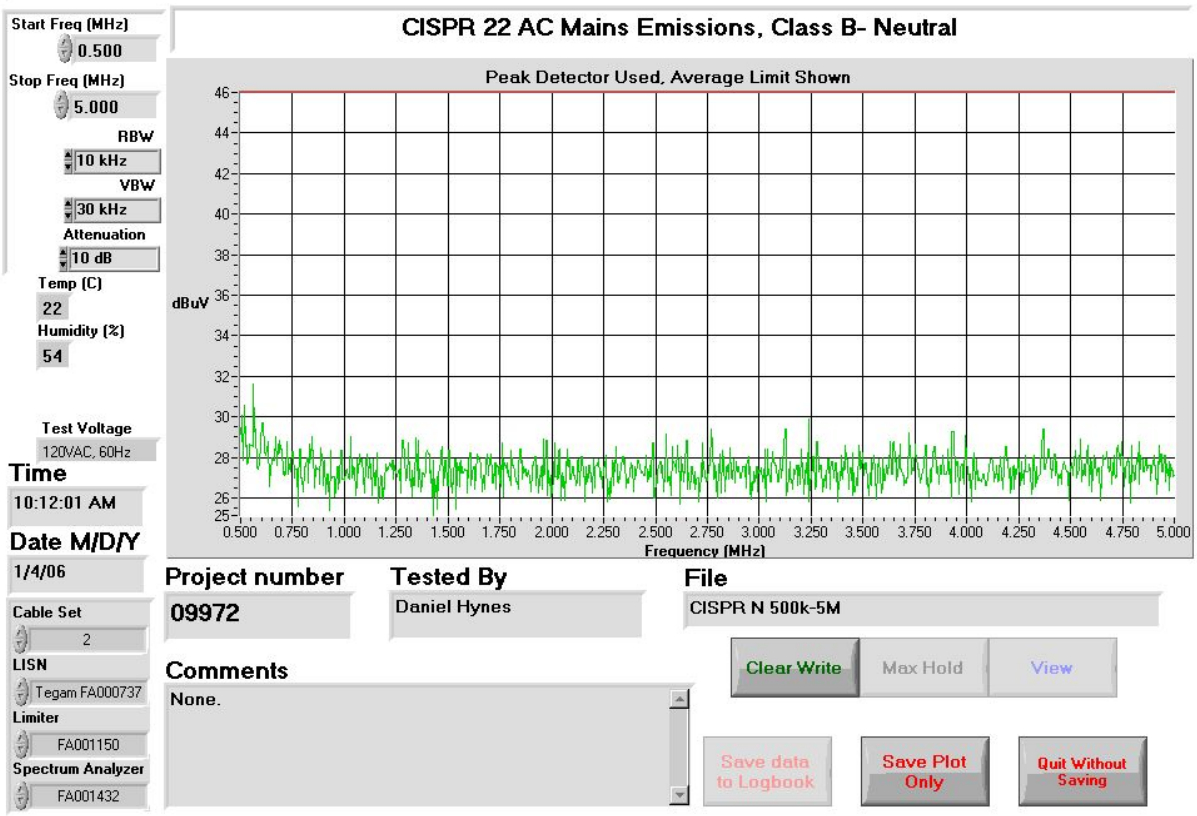
Save Plot Only
Quit Without Saving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Stop Freq (MHz)
5.000
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10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
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Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:12:01 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
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CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
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Tested By
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File
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Comments
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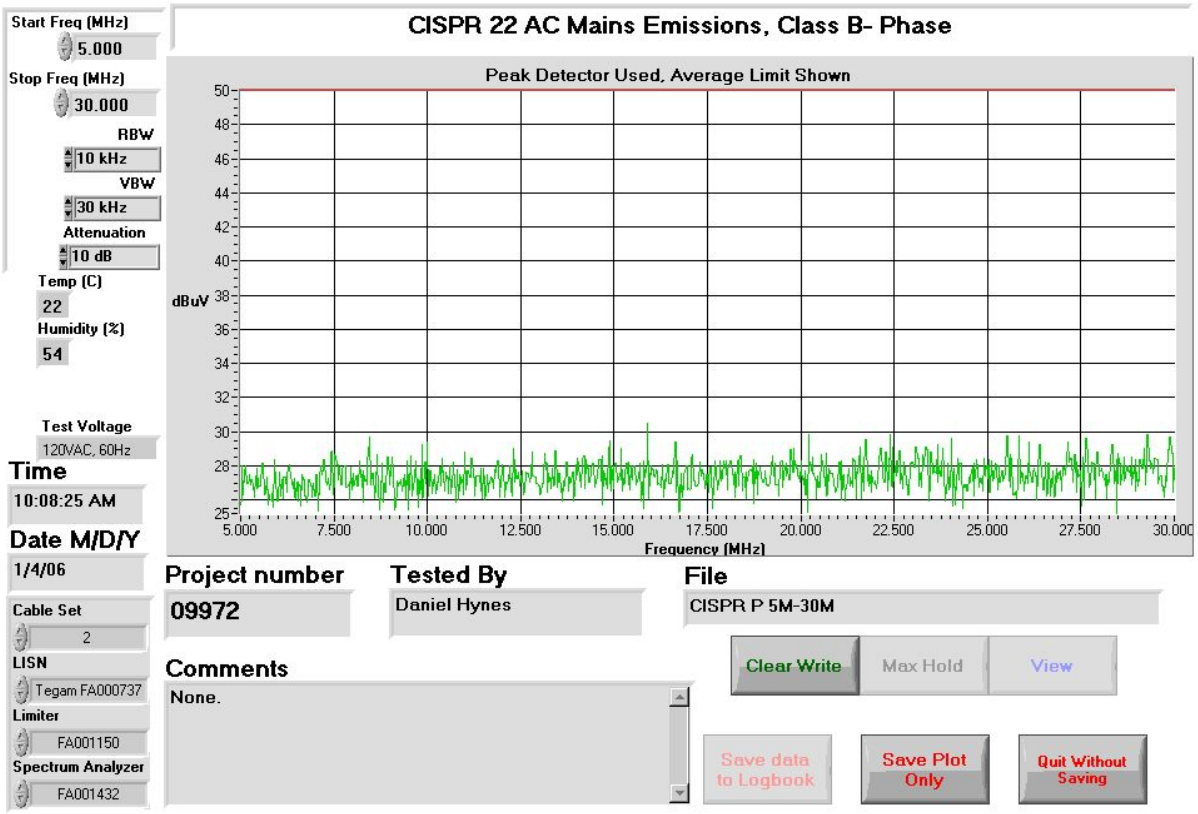
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving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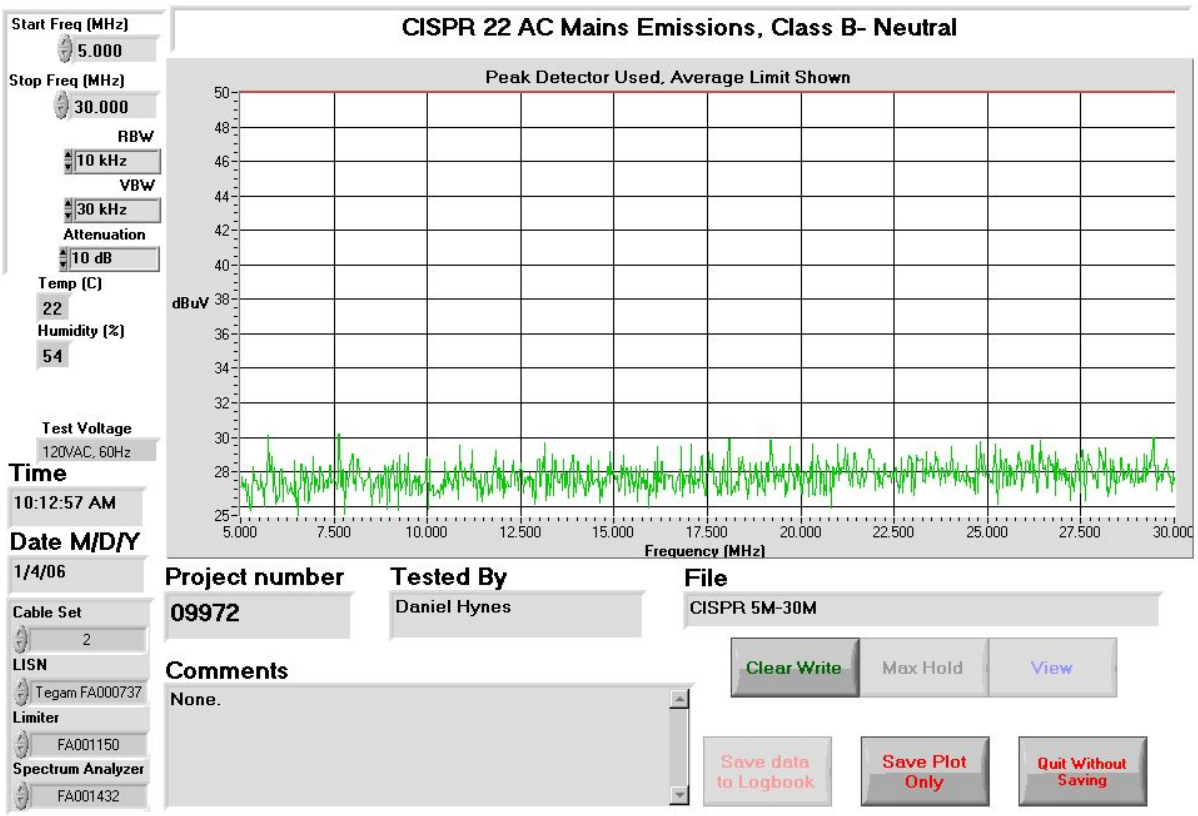
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
22
Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:08:25 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
FA001432
CISPR 22 AC Mains Emissions, Class B- Phase
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
09972
Tested By
Daniel Hynes
File
CISPR P 5M-30M
Comments
None.
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving


Start Freq (MHz)
5.000
Stop Freq (MHz)
30.000
RBW
10 kHz
VBW
30 kHz
Attenuation
10 dB
Temp (C)
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Humidity (%)
54
Test Voltage
120VAC, 60Hz
Time
10:12:57 AM
Date M/D/Y
1/4/06
Cable Set
2
LISN
Tegam FA000737
Limiter
FA001150
Spectrum Analyzer
FA001432
CISPR 22 AC Mains Emissions, Class B- Neutral
Peak Detector Used, Average Limit Shown
dBuV
Frequency (MHz)
Project number
09972
Tested By
Daniel Hynes
File
CISPR 5M-30M
Comments
None.
Clear Write
Max Hold
View
Save data to Logbook
Save Plot Only
Quit Without Saving

Clause 15.109(a) Radiated Emissions

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvoltsmeter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Test Conditions:

Sample Number:	1	**Temperature:**	20
Date:	January 6 & 18, 2006	**Humidity:**	30
Modification State:	0	**Tester:**	Daniel Hynes
		Laboratory:	Almonte & Ottawa

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

The EUT was measured on three orthogonal axis.

Measurement equipment setup was 120kHz Quasi-peak detector for measurements below 1GHz and 1MHz RBW/VBW peak detector above 1GHz.

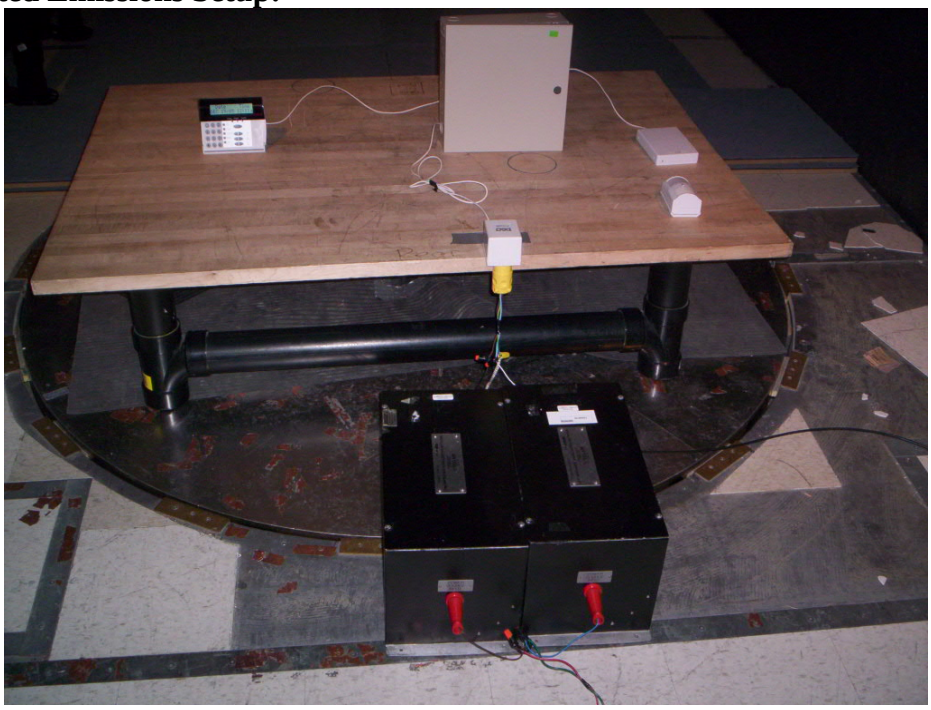
All Measurements were performed at 3 meters.

Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
32.0066	BC2	V	9.4	12.3	N/A	1.1	22.8	40.0	17.2
64.0125	BC2	V	12.6	7.9	N/A	1.4	21.9	40.0	18.1
80.0164	BC2	V	12.8	8.7	N/A	1.8	23.3	40.0	16.7
176.2903	BC2	V	8.7	13.3	N/A	2.4	24.4	43.5	19.1
423.2370	LP1	V	16.6	16.0	N/A	3.6	36.2	46.0	9.8
433.9200	LP1	H	8.0	16.7	N/A	3.8	28.5	46.0	17.5
846.4740	LP1	H	8.5	22.8	N/A	5.6	36.9	46.0	9.1
867.8400	LP1	H	8.4	23.3	N/A	5.5	37.2	46.0	8.8
1269.6600	Horn4	V	51.8	24.7	37.8	5.7	44.5	54.0	9.5
1301.7600	Horn4	V	50.5	24.8	37.7	5.6	43.2	54.0	10.8
1692.8800	Horn4	H	49.7	26.1	37.1	6.8	45.5	54.0	8.5
1735.6800	Horn4	V	49.3	26.3	37.1	6.9	45.4	54.0	8.6
2116.1000	Horn4	V	48.5	27.8	36.9	7.2	46.6	54.0	7.4
2169.6000	Horn4	V	50.3	27.9	36.9	7.4	48.7	54.0	5.3

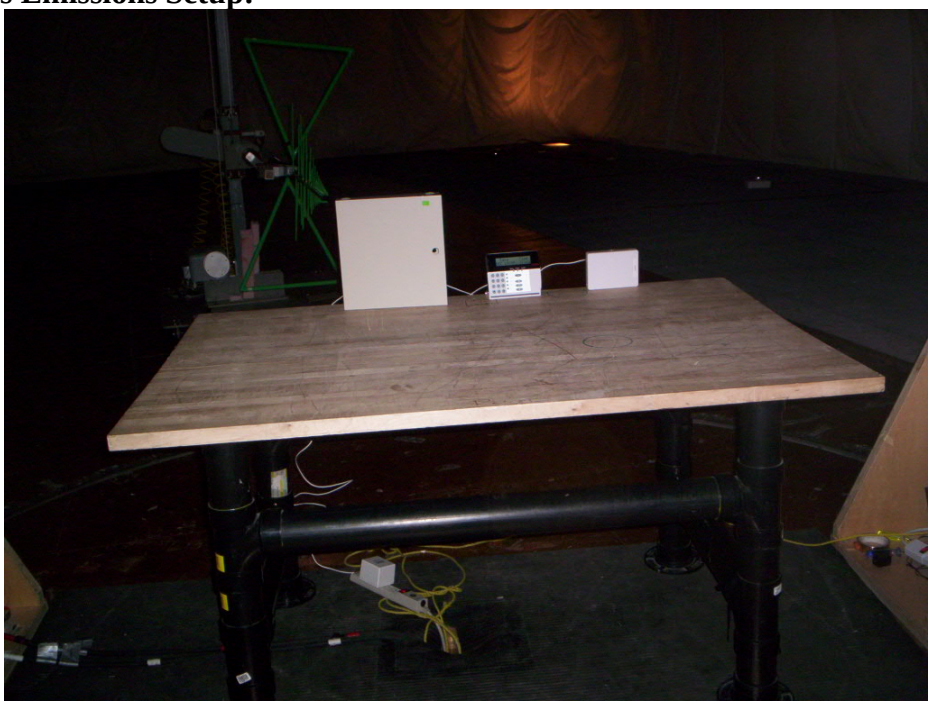
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole
Note 2: Positive Peak detector used

Appendix B: Setup Photographs

Conducted Emissions Setup:

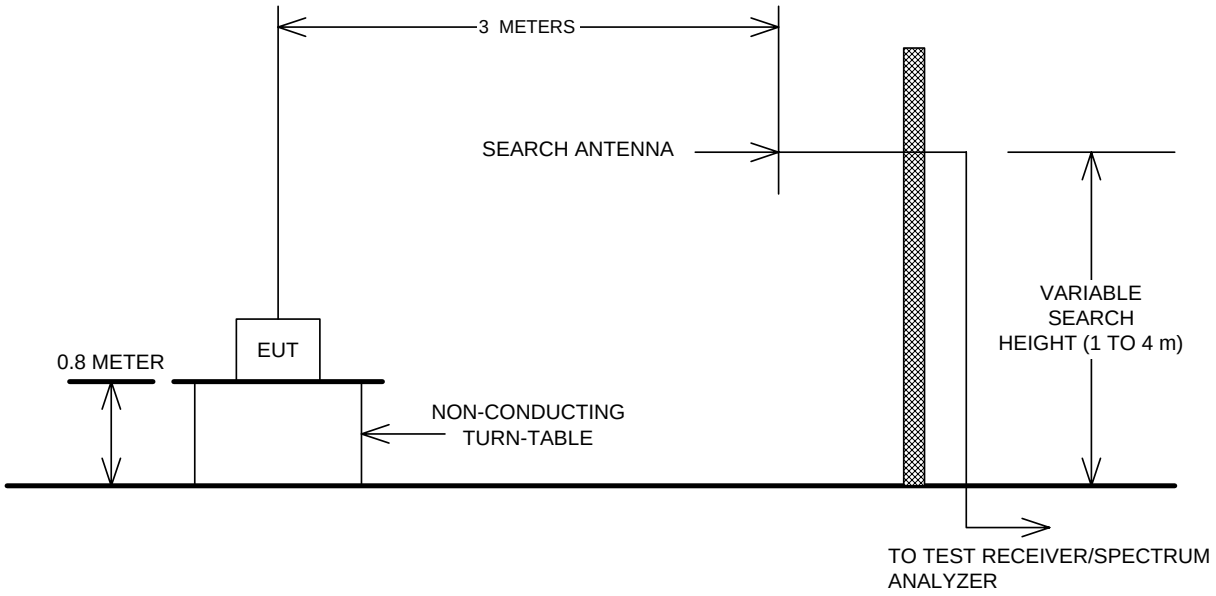


Spurious Emissions Setup:



Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions