



Test Report: 6W58613.1


Applicant: Digital Security Controls,
a division of Tyco Safety Products Canada Ltd.
3301 Langstaff Road
Concord, ON L4K 4I2
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.
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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.

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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.

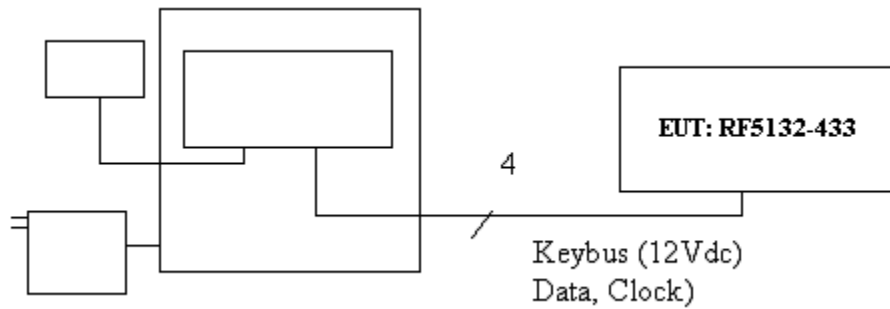
Receive Frequency: 433.92MHz

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 °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) | Conducted Emissions for Class B | Y | PASS |
| 15.109(a) | Radiated Emissions for Class B | Y | 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.

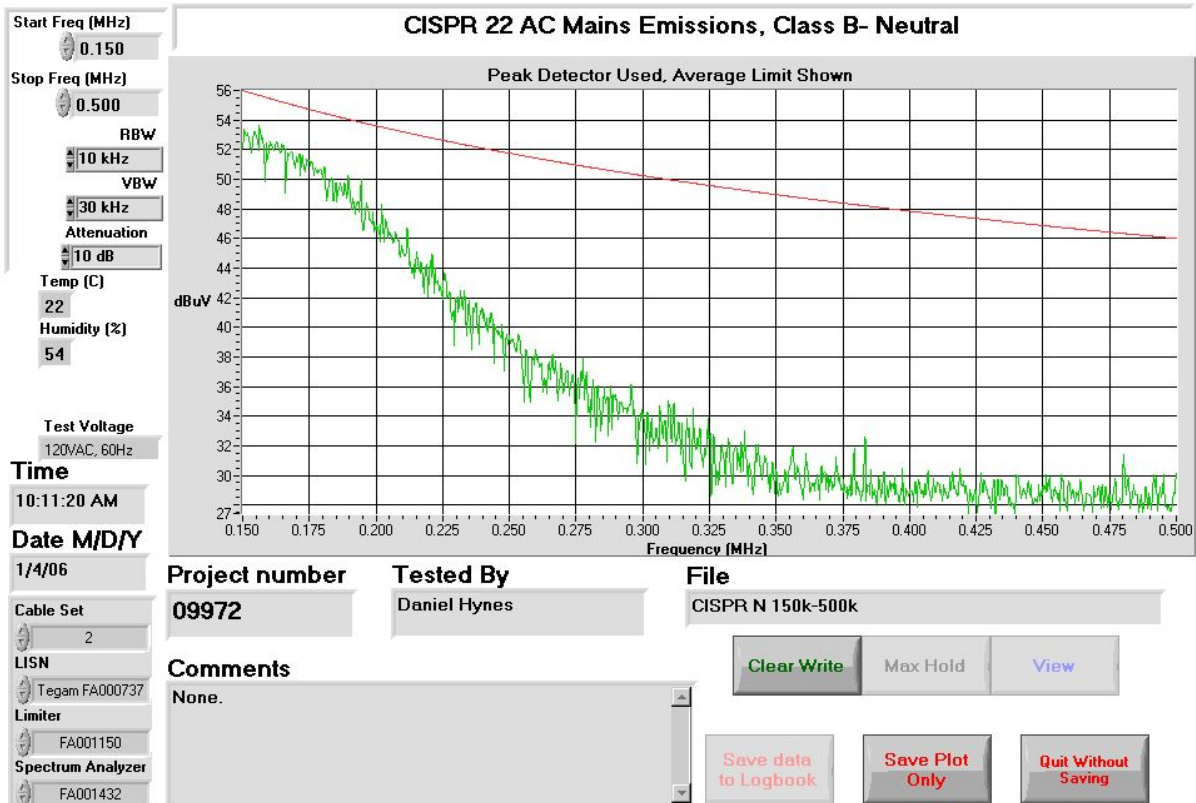
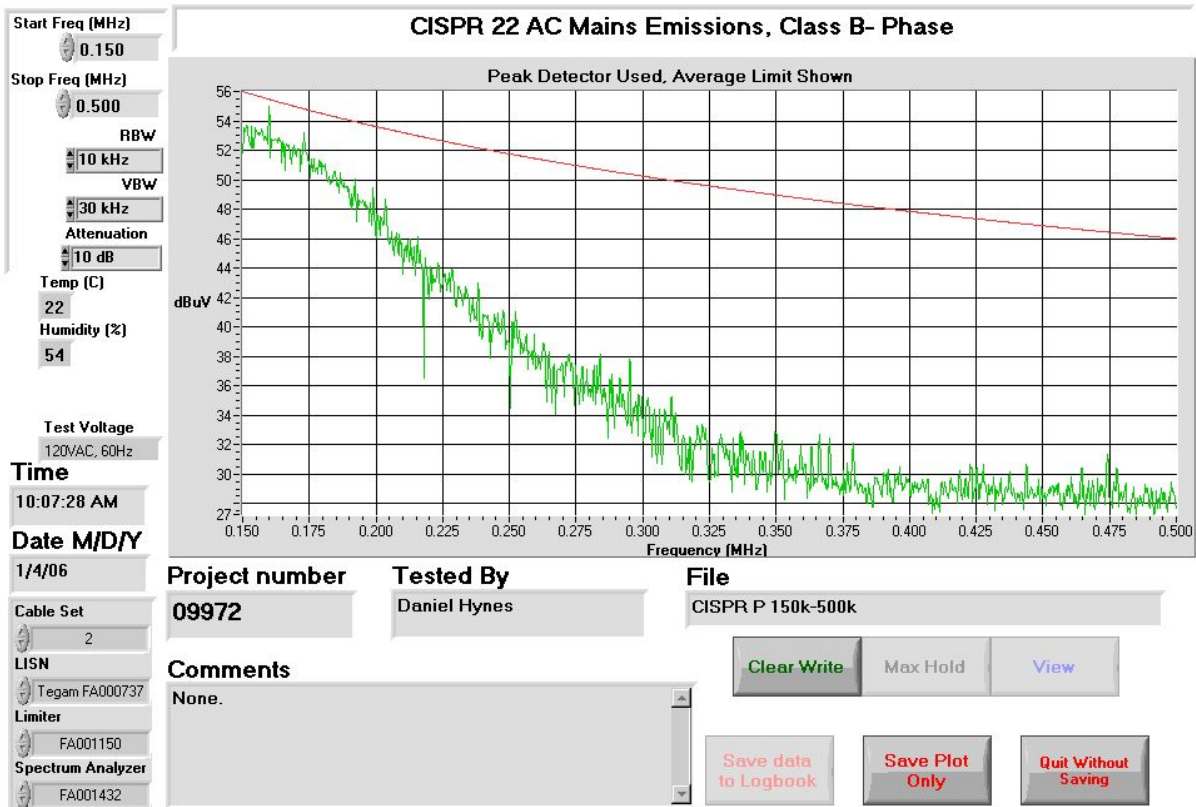
Test Conditions:

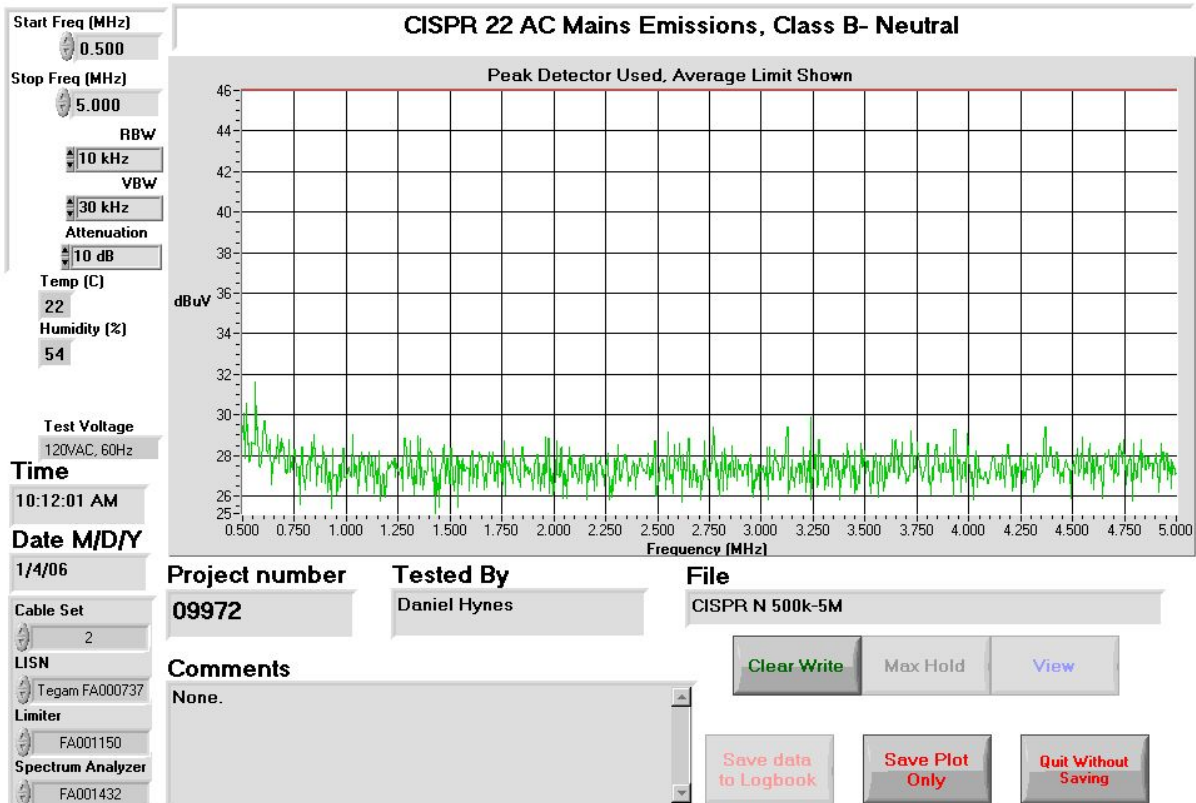
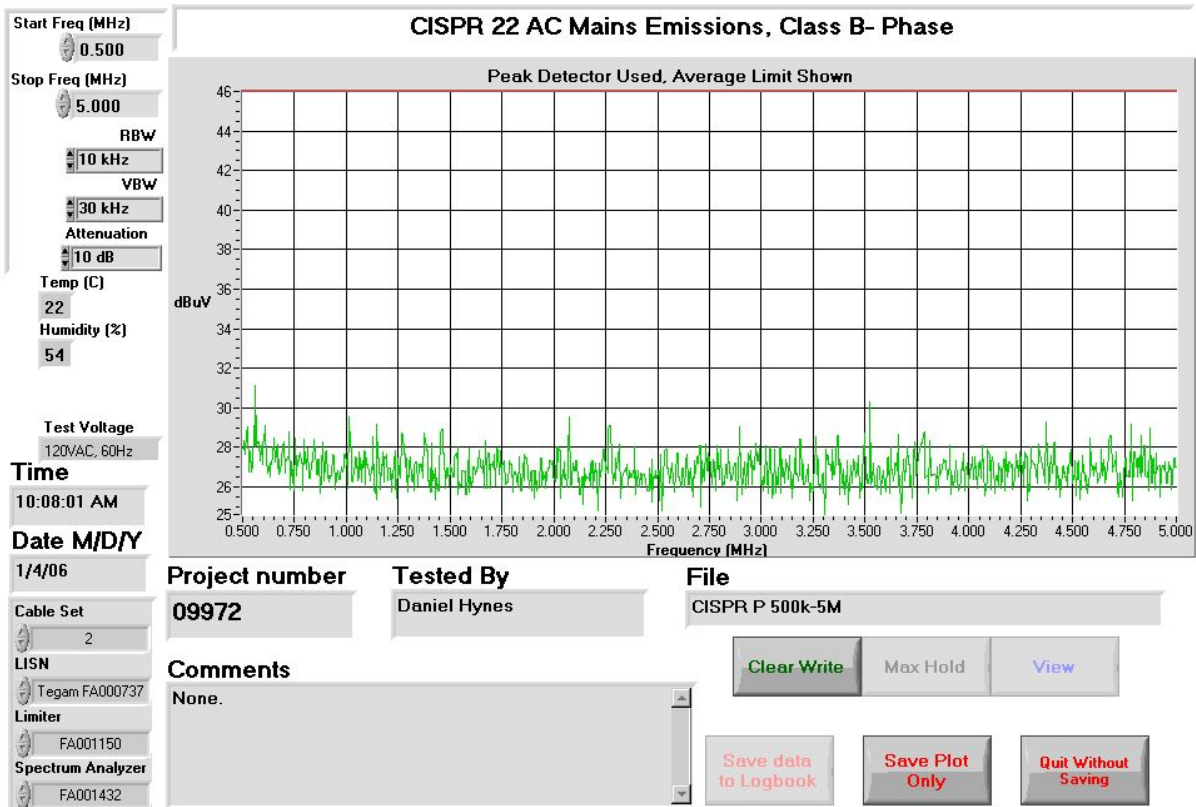
| | | | |
|----------------------------|-----------------|---------------------|--------------|
| Sample Number: | 1 | Temperature: | 22 |
| Date: | January 4, 2006 | Humidity: | 54 |
| Modification State: | 0 | Tester: | Daniel Hynes |
| | | Laboratory: | Almonte |

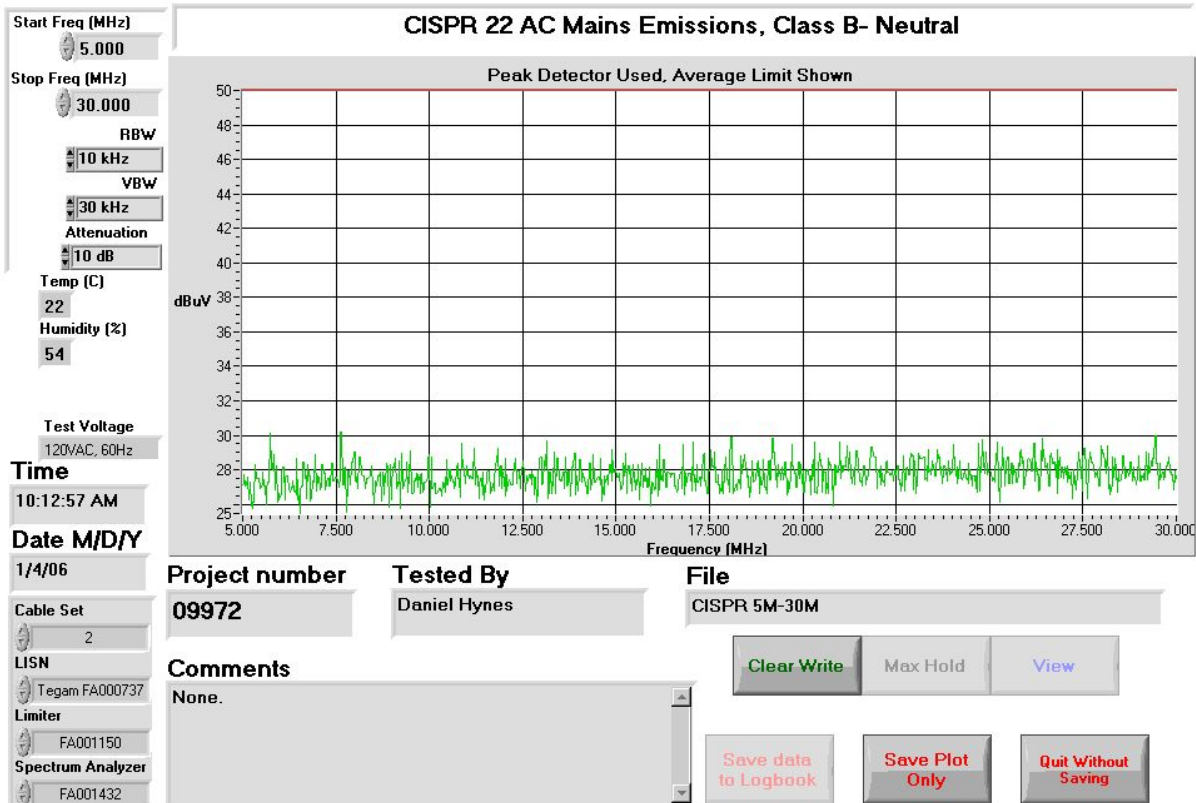
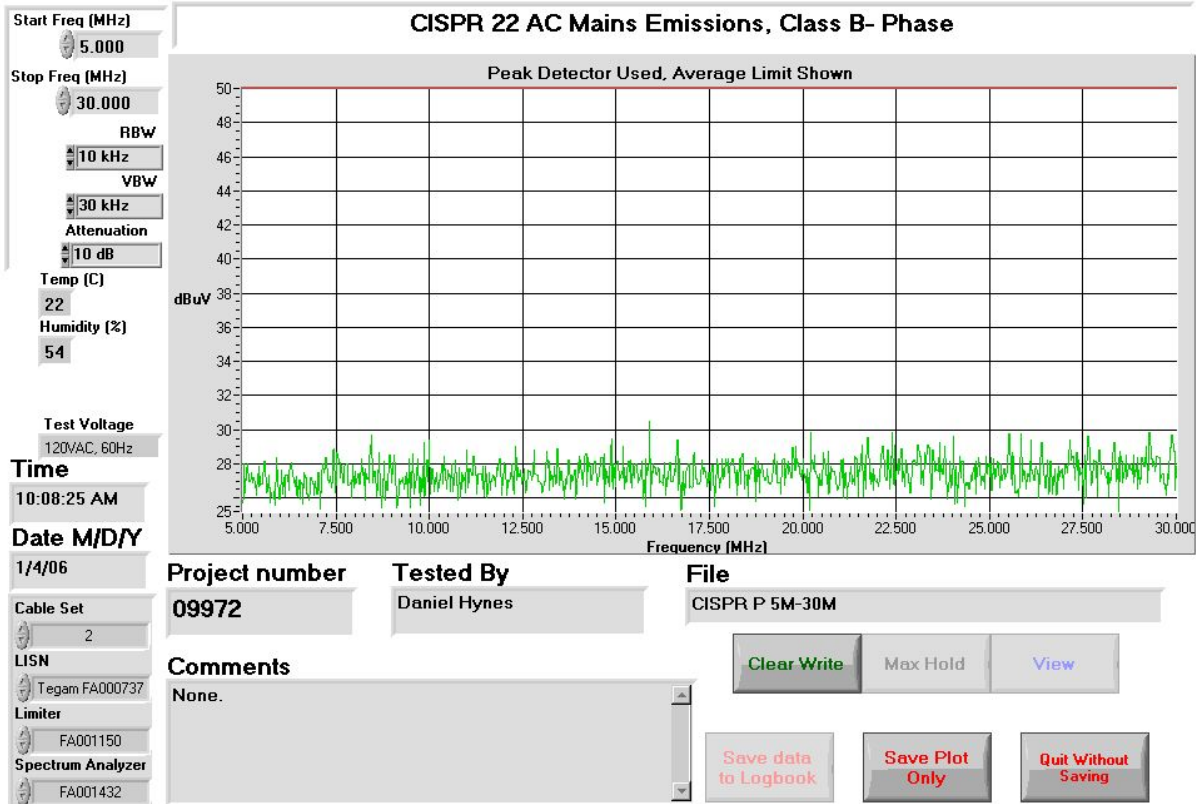
Test Results: See Attached Plots.

Additional Observations:

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







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.

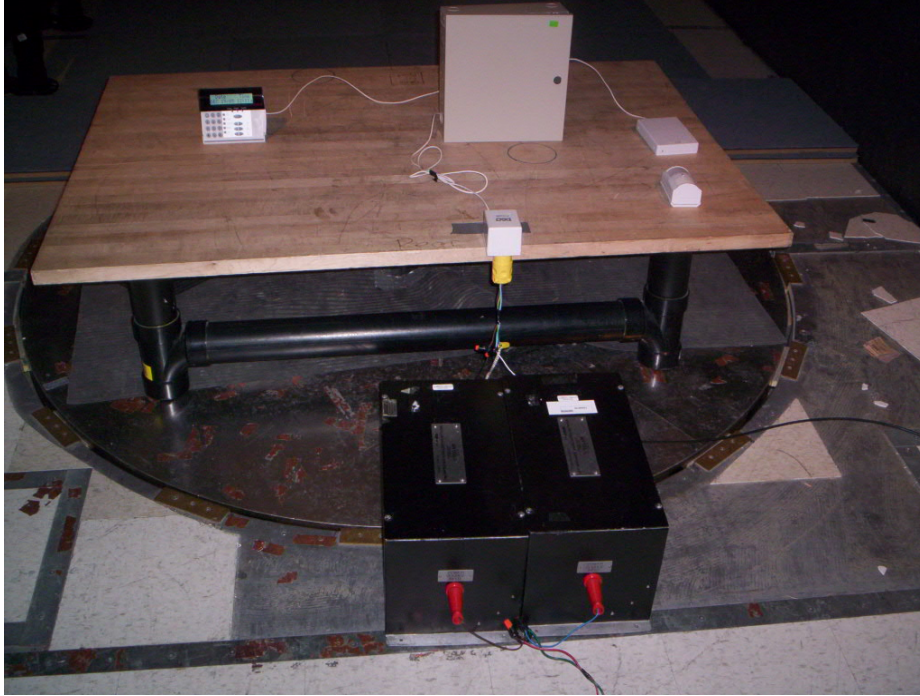
All Measurements were performed at 3 meters.

| 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:

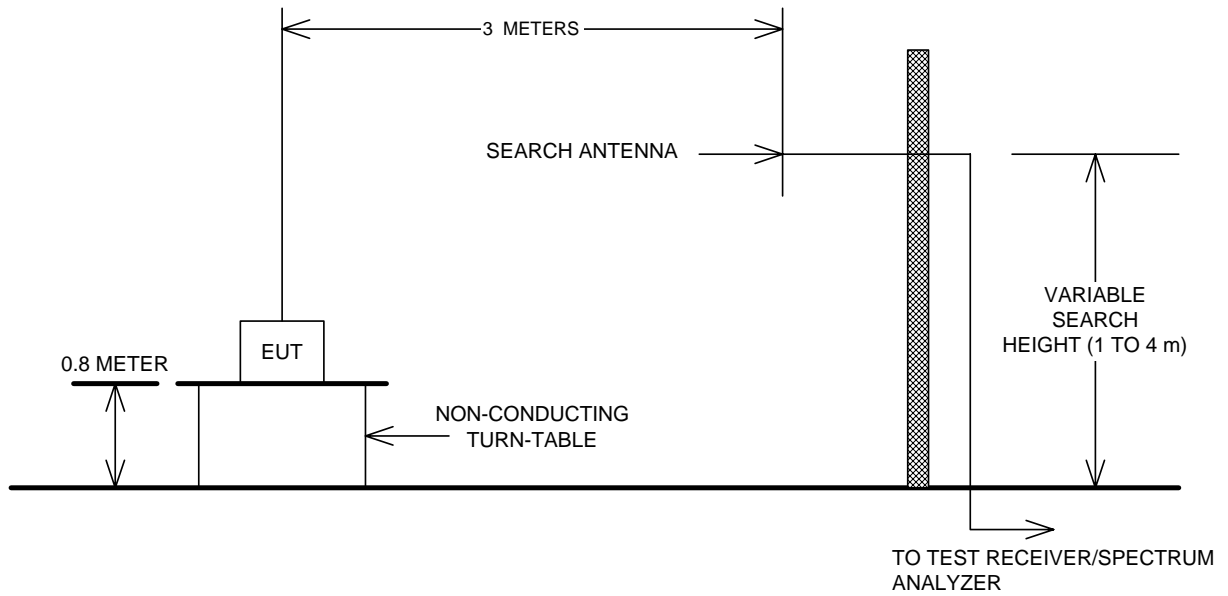


Spurious Emissions Setup:



Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions

