



Test Report: 5W49975.3 Issue 2

Applicant: Instantel Inc.
309 Legget Drive
Kanata, Ontario
K2K 3A3

Apparatus: International Exciter

FCC ID: ISEIEX

In Accordance With: FCC Part 15 Subpart C, 15.207 and 15.209
Intentional Radiators

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

Authorized By:

A handwritten signature in blue ink, appearing to read 'Sim Jagpal'.

Sim Jagpal, Resource Manager

Date: 26 August 2005

Total Number of Pages: 16

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. 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:	International Exciter
Specification:	FCC Part 15 Subpart C, 15.207 and 15.209
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None
Report Release History:	Issue 2 – Reported all field strength measurements in dBuV/m

Author: Jason Nixon, Telecom 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:

International Exciter (M/N: 806A6101)

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	International Exciter	303736 0013
2	DC power supply (M/N: DV-1280)	_____

The first samples were received on: August 10, 2005

1.3 Theory of Operation

The International Exciter is a low frequency transmitter that operates at 125KHz. The exciter's transmit signal causes Infant Tags to transmit an alarm to a Local Area Receiver.

1.4 Technical Specifications of the EUT

Manufacturer: Instantel Inc.

Transmitter Frequency: 125kHz

Modulation: On/Off Keying

Antenna Data: Integral

Power Source: 12VDC

Section 2 : Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.207 and 15.209
Intentional 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.
LISN	EMCO	4825/2	FA001545	Jan. 13/05	Jan. 13/06
Receiver	Rohde & Schwarz	ESHS 10	FA001918	Feb. 28/05	Feb. 28/06
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 18/05	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 18/05	May 18/06
Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	March 10/05	March 10/06
Bilog	Schaffner	CBL6112B	FA001504	NCR	NCR
0.1 – 1300 MHz Amplifier	Hewlett Packard	8447D	FA001909	Jan. 13/05	Jan. 13/06
Active Loop Antenna	Rohde & Schwarz	HFH2-Z2	FA000631	May 20/05	May 20/06

NCR – No Cal Required

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 C : 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.

Appendix A : Test Results

Clause 15.207(a) Conducted Emissions

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 mH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBmV)	
	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:

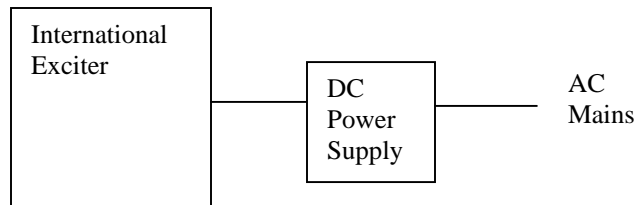
Sample Number:	1	Temperature:	23
Date:	August 15, 2005	Humidity:	34
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Shielded Room

Test Results: See Attached Plots and Table.

Conducted Results

Conductor	Frequency (MHz)	Detector	Emission Level (dBuV)	LISN Loss (dB)	Cable Loss (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	
1	Phase	0.1794	Quasi Peak	43.0	0.0	0.2	43.2	64.5	21.3
			Average	11.0	0.0	0.2	11.2	54.5	43.3
2	Phase	0.2432	Quasi Peak	41.1	0.0	0.2	41.3	62.0	20.7
			Average	9.3	0.0	0.2	9.5	52.0	42.5
3	Phase	0.2713	Quasi Peak	40.3	0.0	0.2	40.5	61.1	20.6
			Average	8.4	0.0	0.2	8.6	51.1	42.5
4	Phase	0.4597	Quasi Peak	37.2	0.0	0.2	37.4	56.7	19.3
			Average	5.8	0.0	0.2	6.0	46.7	40.7
5	Phase	0.4991	Quasi Peak	37.9	0.0	0.2	38.1	56.0	17.9
			Average	5.8	0.0	0.2	6.0	46.0	40.0
6	Phase	0.6542	Quasi Peak	40.3	0.0	0.0	40.3	56.0	15.7
			Average	7.6	0.0	0.0	7.6	46.0	38.4
7	Neutral	0.1792	Quasi Peak	42.6	0.0	0.2	42.8	64.5	21.7
			Average	10.7	0.0	0.2	10.9	54.5	43.6
8	Neutral	0.2415	Quasi Peak	40.4	0.0	0.2	40.6	62.0	21.4
			Average	8.5	0.0	0.2	8.7	52.0	43.3
9	Neutral	0.2709	Quasi Peak	39.3	0.0	0.2	39.5	61.1	21.6
			Average	7.3	0.0	0.2	7.5	51.1	43.6
10	Neutral	0.4613	Quasi Peak	37.0	0.0	0.2	37.2	56.7	19.5
			Average	5.0	0.0	0.2	5.2	46.7	41.5
11	Neutral	0.4995	Quasi Peak	37.0	0.0	0.2	37.2	56.0	18.8
			Average	5.0	0.0	0.2	5.2	46.0	40.8
12	Neutral	0.6481	Quasi Peak	37.8	0.0	0.0	37.8	56.0	18.2
			Average	5.1	0.0	0.0	5.1	46.0	40.9

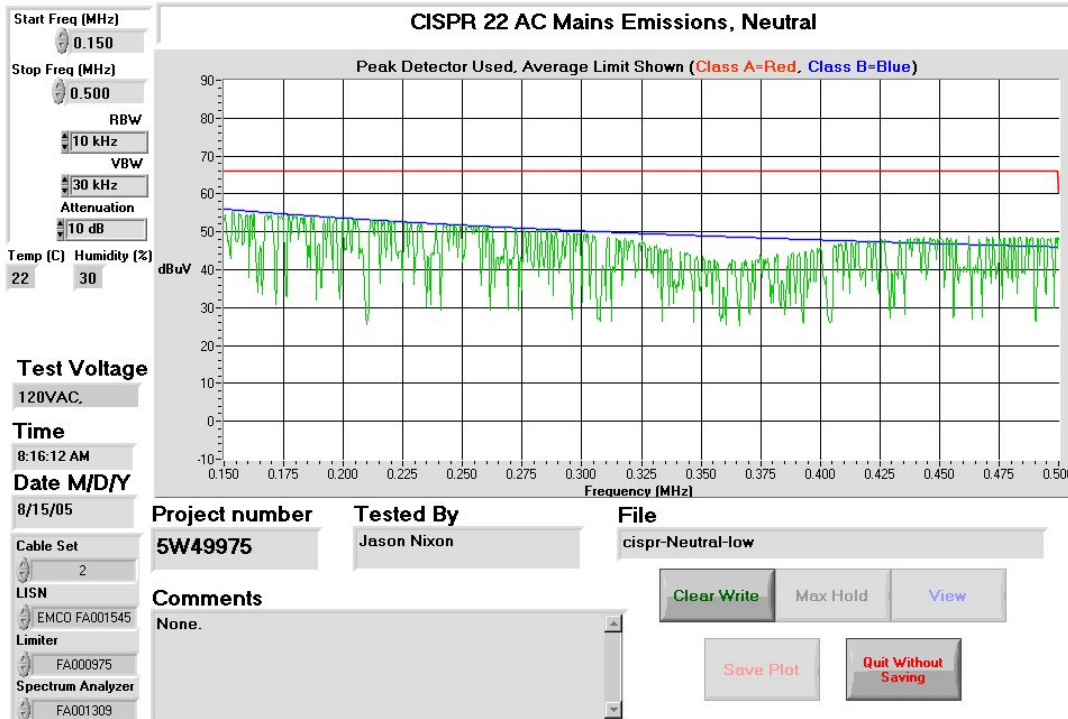
Block Diagram of Test Setup:



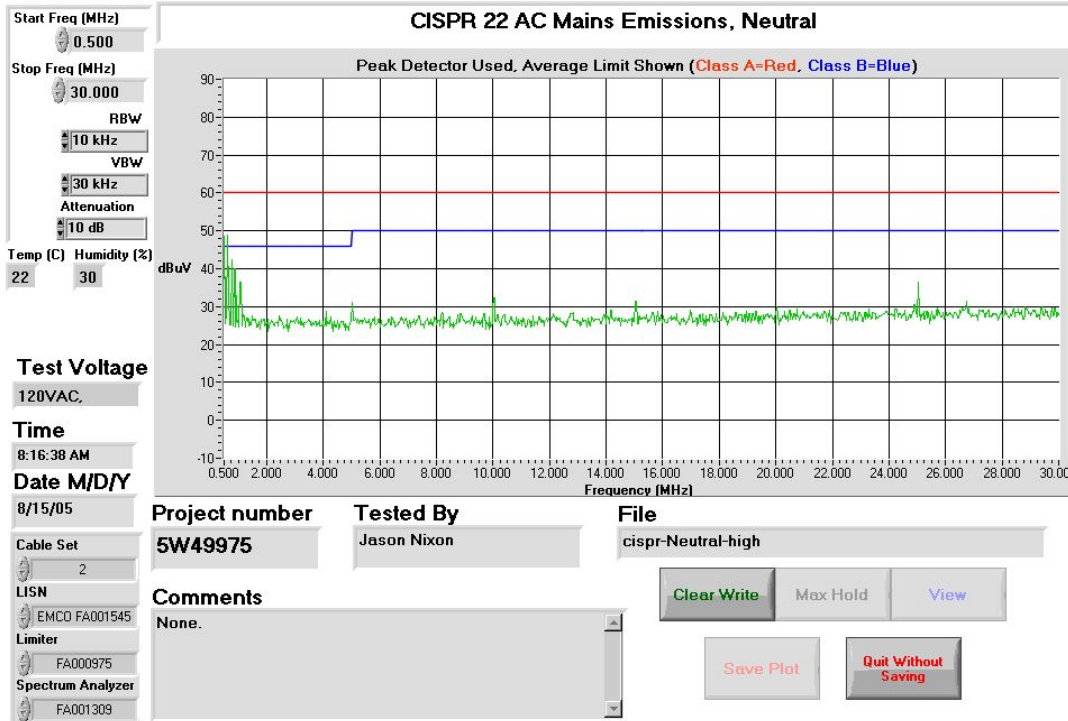
Additional Observations:

The plots were tested using a Peak detector and compared to the Average limit. Points found to be above the limit in the plots were tested using a receiver set to a Quasi-peak and average detector.

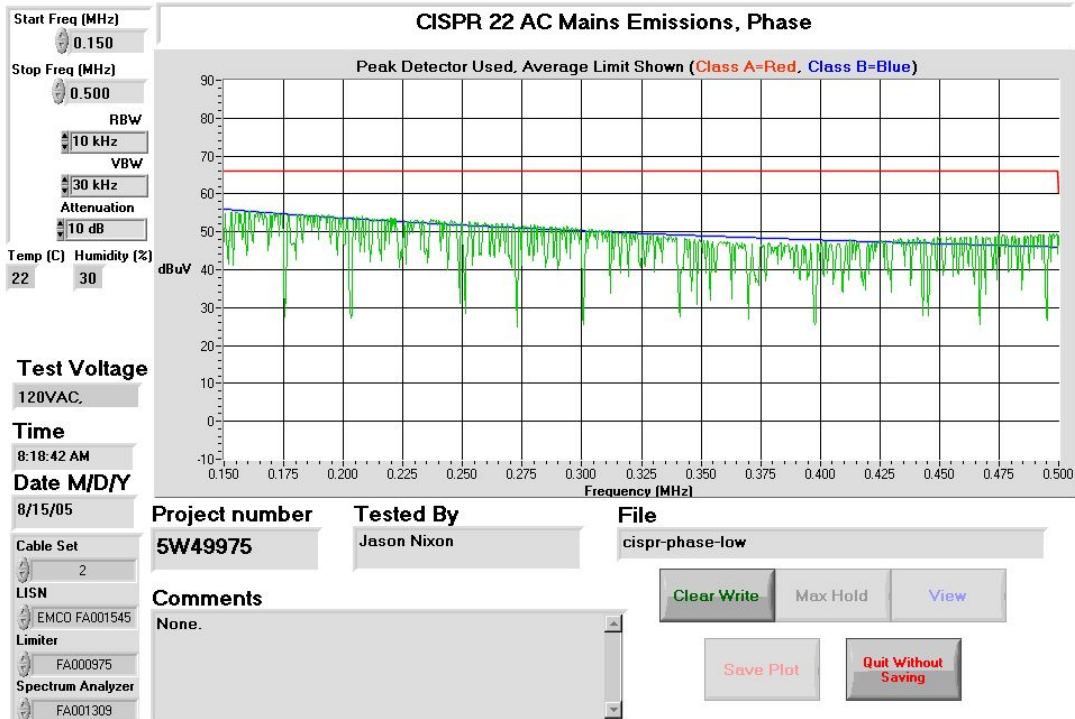
Neutral Low Frequencies



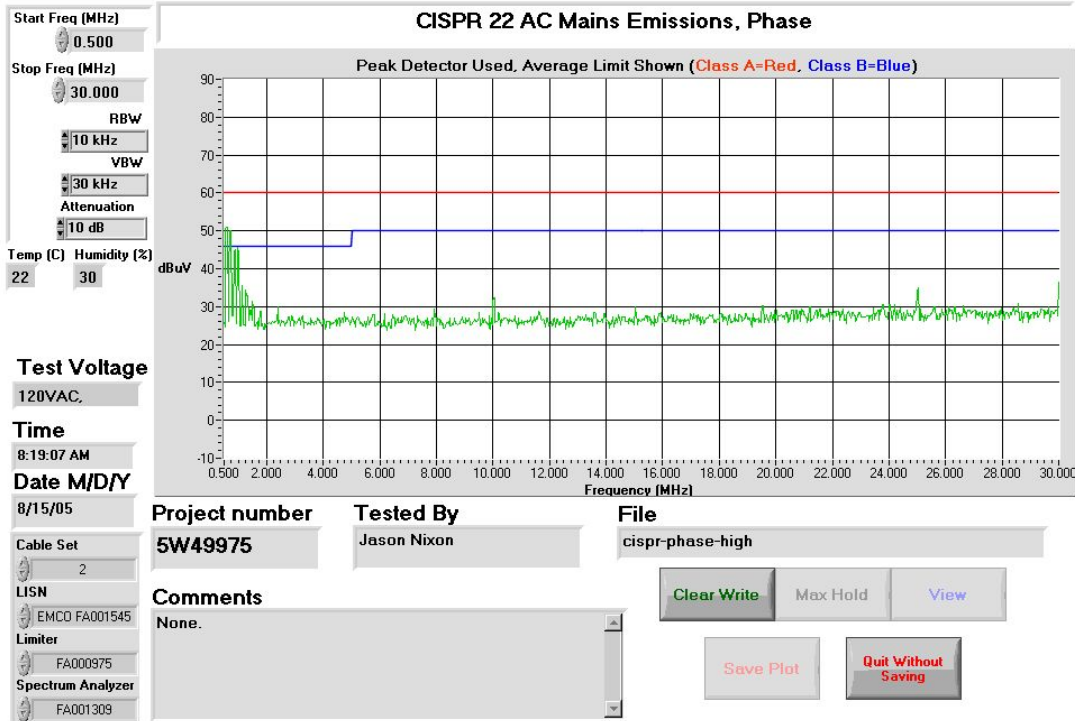
Neutral High Frequencies



Phase Low Frequencies



Phase High Frequencies



Clause 15.209(a) Radiated Emissions, General Limits

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Conditions:

Sample Number:	1	Temperature:	32
Date:	August 10, 2005	Humidity:	56
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Outdoors

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 9kHz to 30MHz.

The EUT was measured on three orthogonal axis.

Measurement equipment setup was set to Average Detector for measurements in the 110-490 kHz range. Any other measurements below 30MHz were performed using a Quasi-peak measurement with a bandwidth of 10kHz.

All Measurements were performed at 3 meters and extrapolated to the required distance using the 40dB/decade rule.

The Supply voltage was varied +/-15% and found that there was no change in the Field Strength.

Fundamental

Freq. (MHz)	RCVD Signal (dBμV)	Distance correction to 300m (dB)	Level (dBμV)	Limit (dBμV)	Margin (dB)
125kHz	102.6	80	22.6	25.6	3.0

Harmonics

Freq. (MHz)	RCVD Signal (dBμV)	Distance correction to 300m (dB)	Level (dBμV)	Limit (dBμV)	Margin (dB)
377.36kHz	53.3	80	-26.7	16.1	42.8

Appendix B : Setup Photographs

Conducted Emissions Setup:

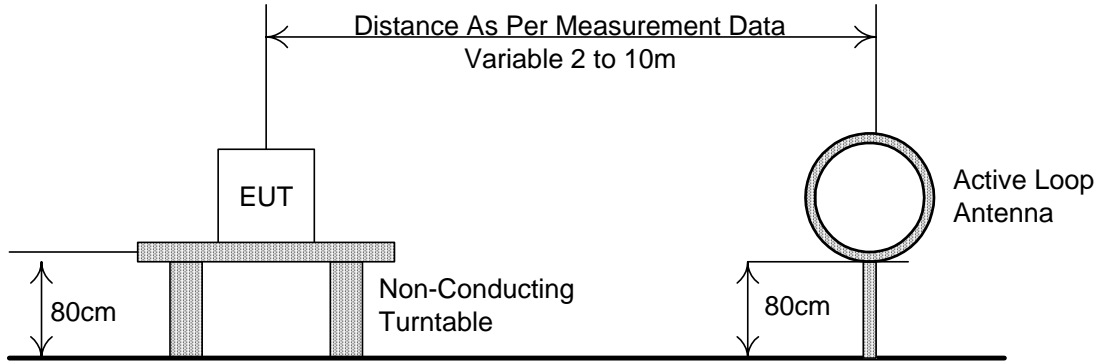


Spurious Emissions Setup:

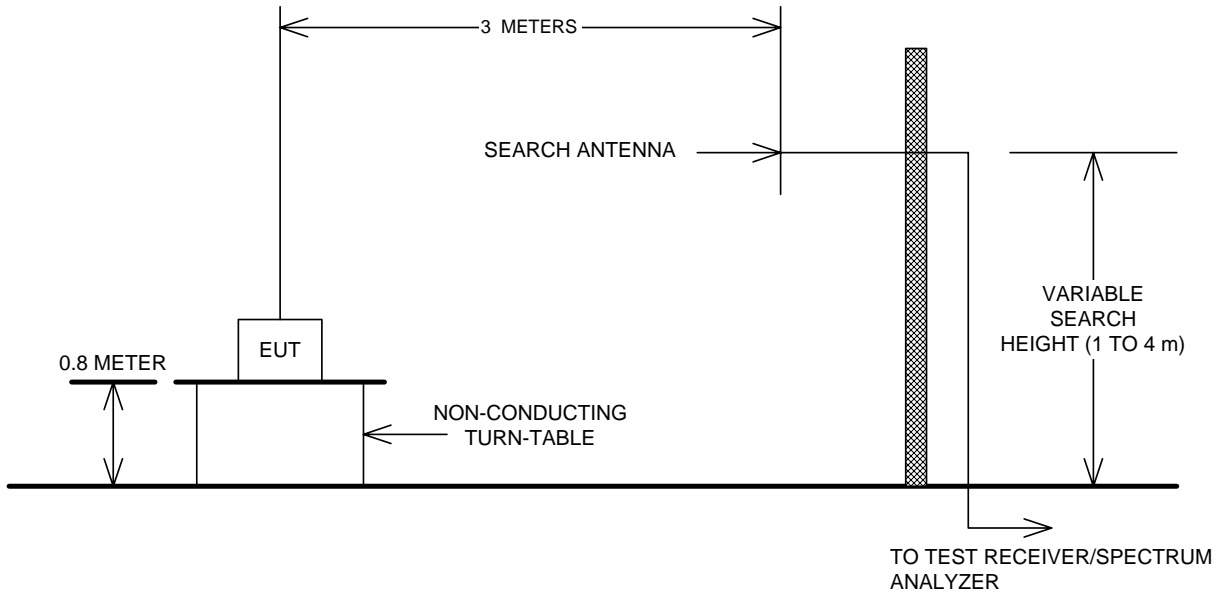


Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions Below 30MHz



Test Site For Radiated Emissions Above 30MHz



Conducted Emissions

