



Test Report: 6W71016.1


Applicant: Syscan International Inc.
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Doval, Quebec
H9S 5T8

Apparatus: Livetrack Reader

FCC ID: UH3-LIVETRACK

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

Tested By: Nemko Canada Inc.
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Authorized By: 
Jin Xu, Wireless Specialist

Date: August 23, 2006

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:	Livetrack Reader
Specification:	FCC Part 15 Subpart C, 15.207 and 15.209
Compliance Status:	Complies
Exclusions:	The apparatus contains an already approved Bluetooth module, FCC ID: POOWML-C40 which did not for apart of this assessment.
Non-compliances:	None
Report Release History:	Original Release

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:

Livetrack Reader (M/N: SS, SSB, LS and LSB)

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	Livetrack Reader Version 2 LSB	G60-LTL00750
3	AC Adapter (MN # TR70A1201A03)	70120-0016723

The first samples were received on: July 31, 2006

1.3 Theory of Operation

The apparatus is used for reading RFID tags on livestock and storing the information. The apparatus can download the information to a computer via a serial connection of a Bluetooth connection.

1.4 Technical Specifications of the EUT

Manufacturer: Syscan International

Transmitter Frequency: 134.2kHz

Modulation: On/Off Keying

Antenna Data: Integral

Power Source: 7.4V LI-ion battery pack

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.	Next Cal.
Receiver	Rohde & Schwarz	ESHS 10	FA001918	Feb. 17/07
Spectrum Analyzer	Rohde & Schwarz	FSP	FA001920	March 17/07
Active Loop Antenna	Rohde & Schwarz	HFH2-Z2	FA000631	June 12/07
LISN	EMCO	4825/2	FA001545	Jan. 30/07
Transient Limiter	Hewlett-Packard	1194 7A	FA000975	May 18/07
Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 16/07
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 16/07

COU – Calibrate on Use

NCR – No Calibration Required

Section 3 : Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

The Following Technical Judgement was made during this assessment:

3.2.1 Model Differences

The difference between the models is that the 'B' extension represents the models that have the Bluetooth module. The 'S' and 'L' stands for the short or long enclosure. It was judged that the testing on one sample would be representative of all the models.

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.

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.207(a)	Conducted Emissions	Y	PASS
15.209(a)	Radiated Emissions, general requirements	Y	PASS
15.251(c)	20dB bandwidth	Y	PASS

Notes:

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

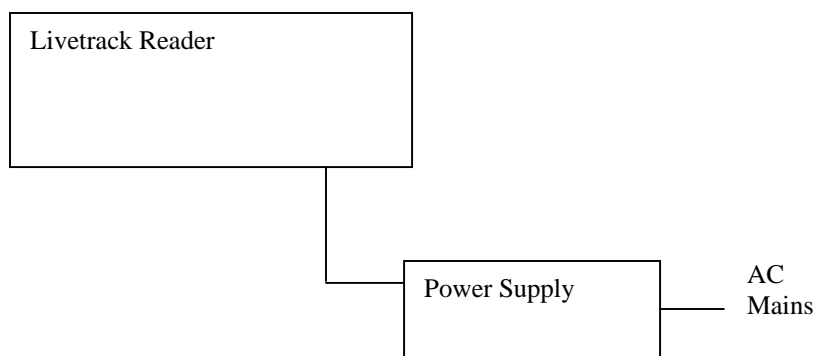
* Decreases with the logarithm of the frequency.

Test Conditions:

Sample Number:	1	Temperature:	22
Date:	Aug 11/06	Humidity:	30
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Shielded Room

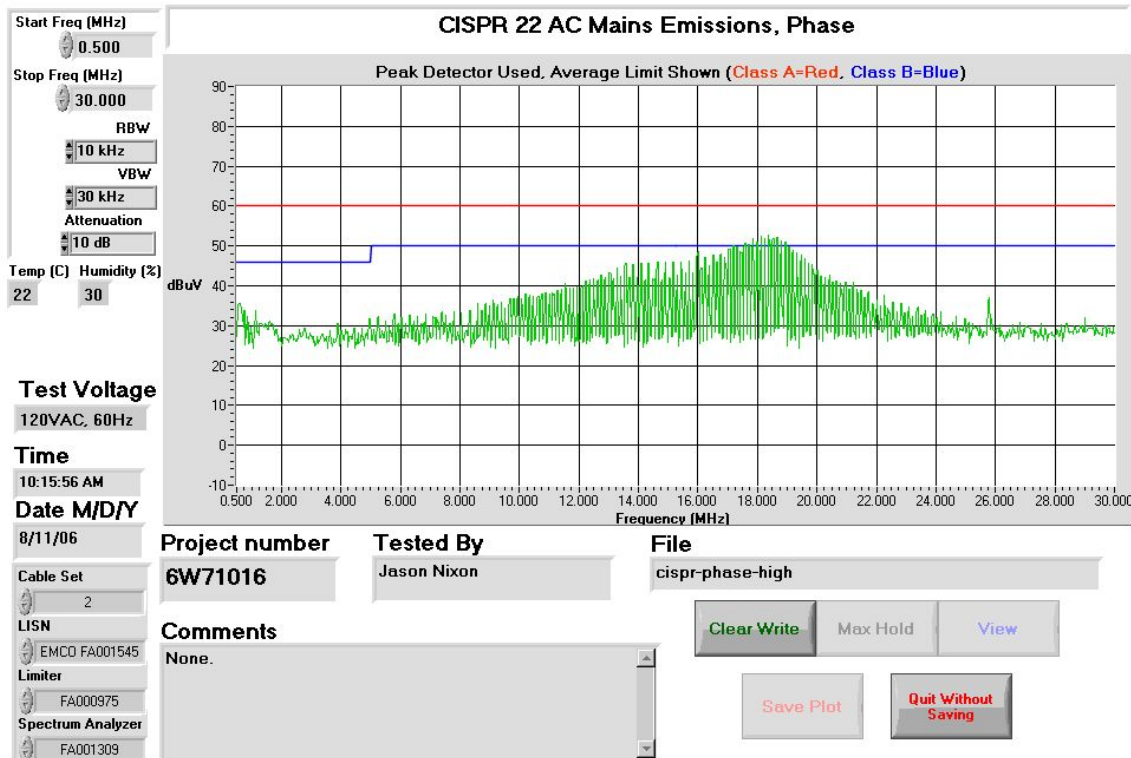
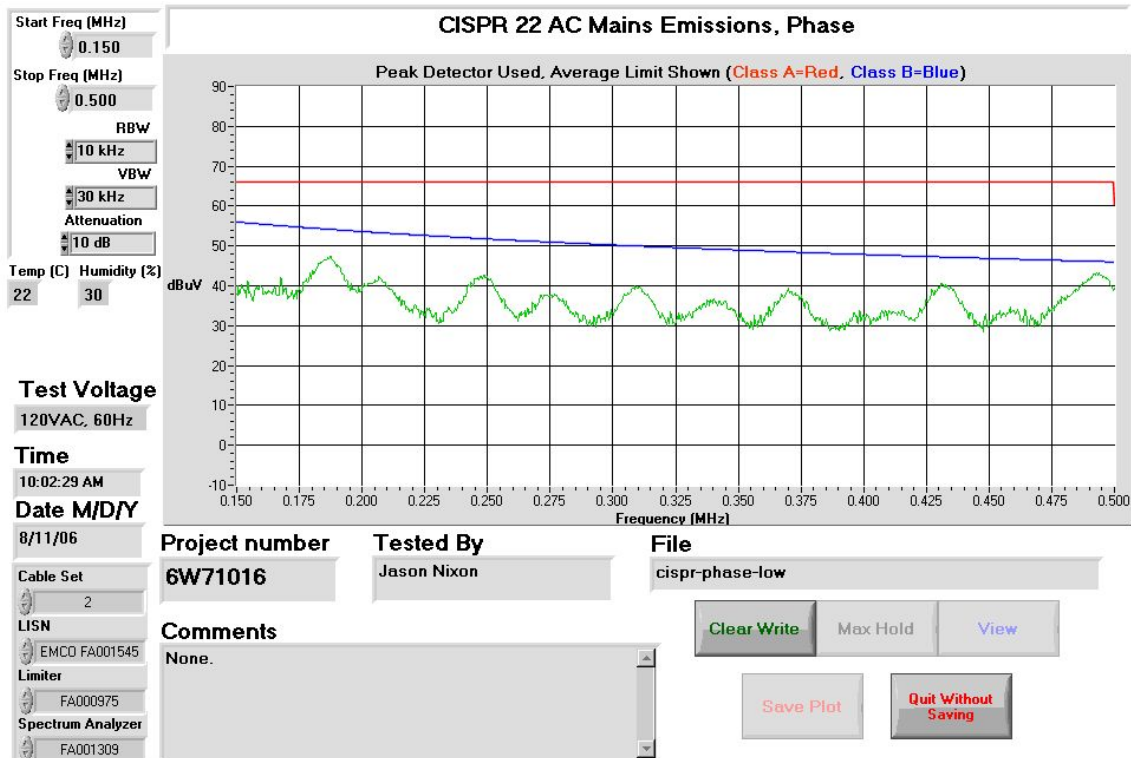
Test Results: See Attached table and Plots.

Block Diagram of Test Setup:

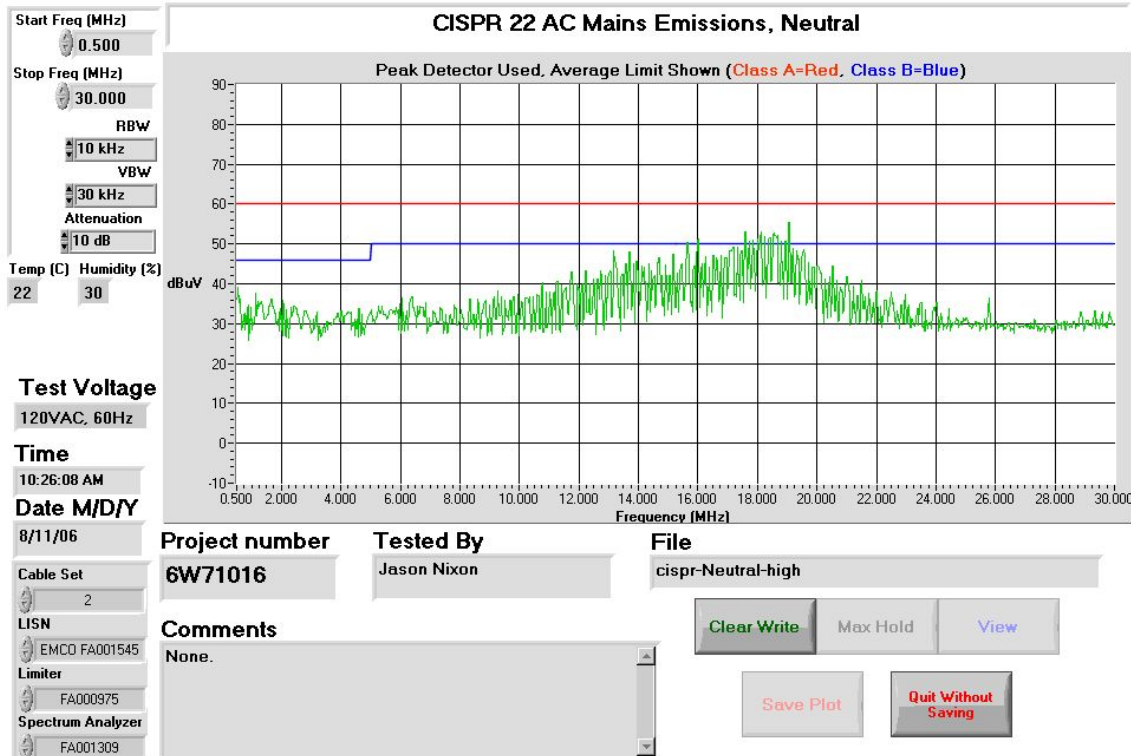
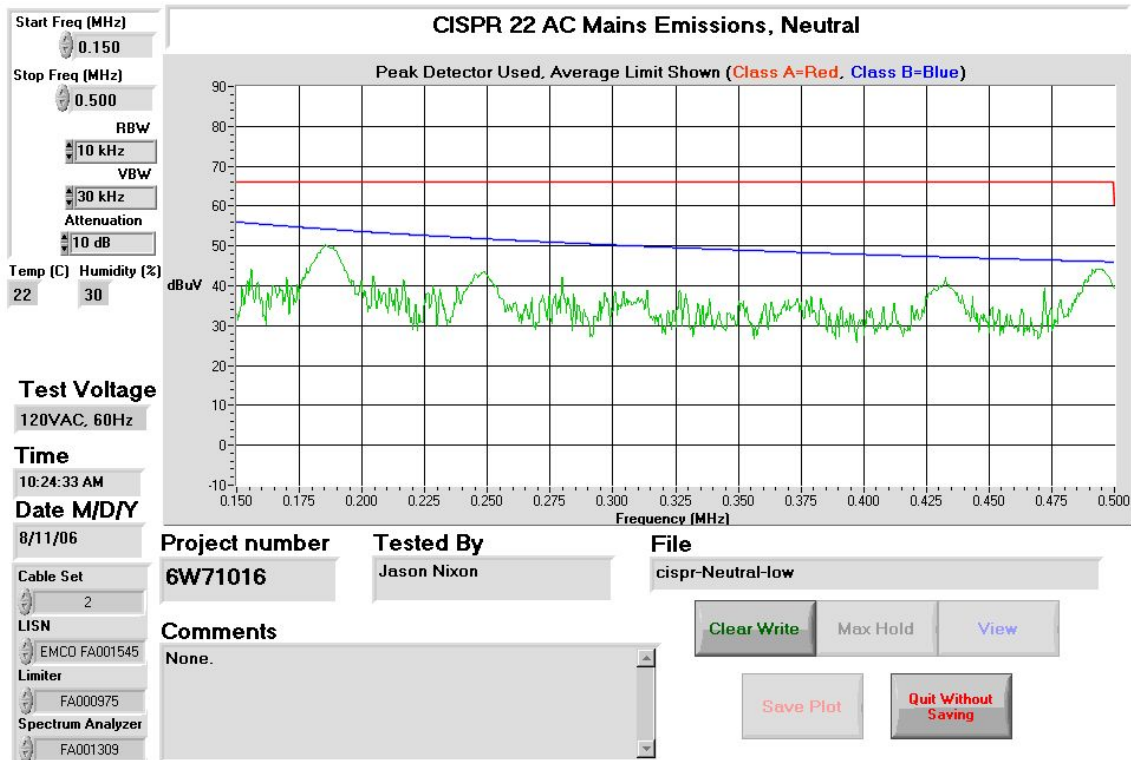


Conductor		Frequency (MHz)	Detector	Emission Level (dBuV)	LISN Loss (dB)	Cable Loss (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	Phase	18.3790	Quasi Peak	22.9	0.20	0.40	23.50	60.0	36.5
			Average	12.6	0.20	0.40	13.20	50.0	36.8
2	Phase	18.1400	Quasi Peak	29.3	0.20	0.40	29.90	60.0	30.1
			Average	18.5	0.20	0.40	19.10	50.0	30.9
3	Phase	18.6701	Quasi Peak	24.5	0.20	0.40	25.10	60.0	34.9
			Average	16.6	0.20	0.40	17.20	50.0	32.8
4	Phase	16.0180	Quasi Peak	17.3	0.20	0.48	17.98	60.0	42.0
			Average	10.0	0.20	0.48	10.68	50.0	39.3
5	Phase	13.7501	Quasi Peak	13.5	0.10	0.40	14.00	60.0	46.0
			Average	2.8	0.10	0.40	3.30	50.0	46.7
6	Phase	0.1871	Quasi Peak	39.7	0.00	0.02	39.72	64.2	24.4
			Average	35.0	0.00	0.02	35.02	54.2	19.1
7	Neutral	0.1871	Quasi Peak	45.5	0.00	0.02	45.52	64.2	18.6
			Average	38.7	0.00	0.02	38.72	54.2	15.4
8	Neutral	0.4899	Quasi Peak	41.1	0.00	0.20	41.30	56.2	14.9
			Average	40.2	0.00	0.20	40.40	46.2	5.8
9	Neutral	19.0600	Quasi Peak	49.1	0.20	0.34	49.64	60.0	10.4
			Average	44.1	0.20	0.34	44.64	50.0	5.4
10	Neutral	18.1400	Quasi Peak	34.9	0.20	0.40	35.50	60.0	24.5
			Average	26.8	0.20	0.40	27.40	50.0	22.6
11	Neutral	17.6100	Quasi Peak	42.9	0.20	0.41	43.51	60.0	16.5
			Average	31.7	0.20	0.41	32.31	50.0	17.7
12	Neutral	16.0200	Quasi Peak	21.8	0.20	0.48	22.48	60.0	37.5
			Average	17.6	0.20	0.48	18.28	50.0	31.7

Phase Conductor



Neutral Conductor



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:	26
Date:	Aug 1/06	Humidity:	31
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	OATS

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 with fully charged batteries.

All Measurements were performed at 3 meters. The limit was converted from 300m to 3m using $40\log(300/3) = 80\text{dB}$.

All measurements were performed using a Peak detector of 300Hz RBW/VBW below 150kHz and 10kHz RBW/VBW above 150kHz and below 30MHz.

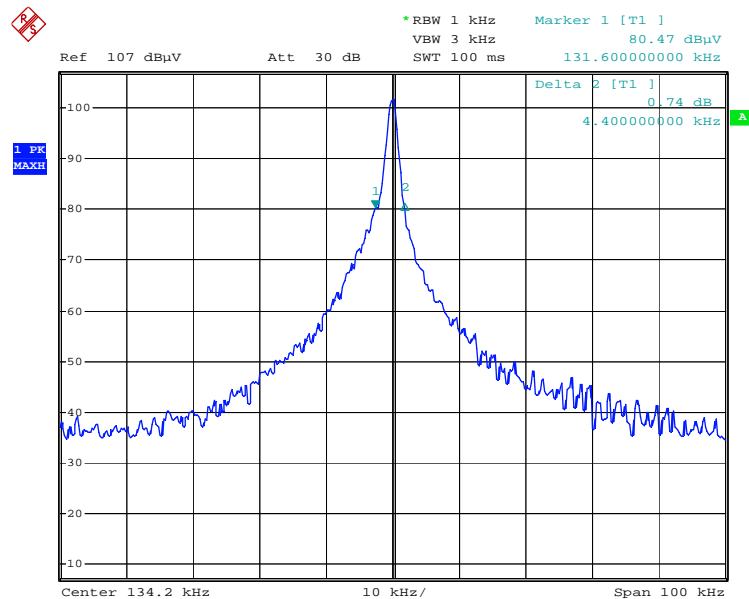
Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dB μ V)	Limit (dB μ V)	Margin (dB)
0.1342	Loop	V	103.5	105.0	1.5
0.4023	Loop	V	42.1	95.5	53.4

Clause 15.215(c) 20dB Bandwidth

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Test Conditions:

Sample Number:	1	Temperature:	24
Date:	Aug 1, 2006	Humidity:	36
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

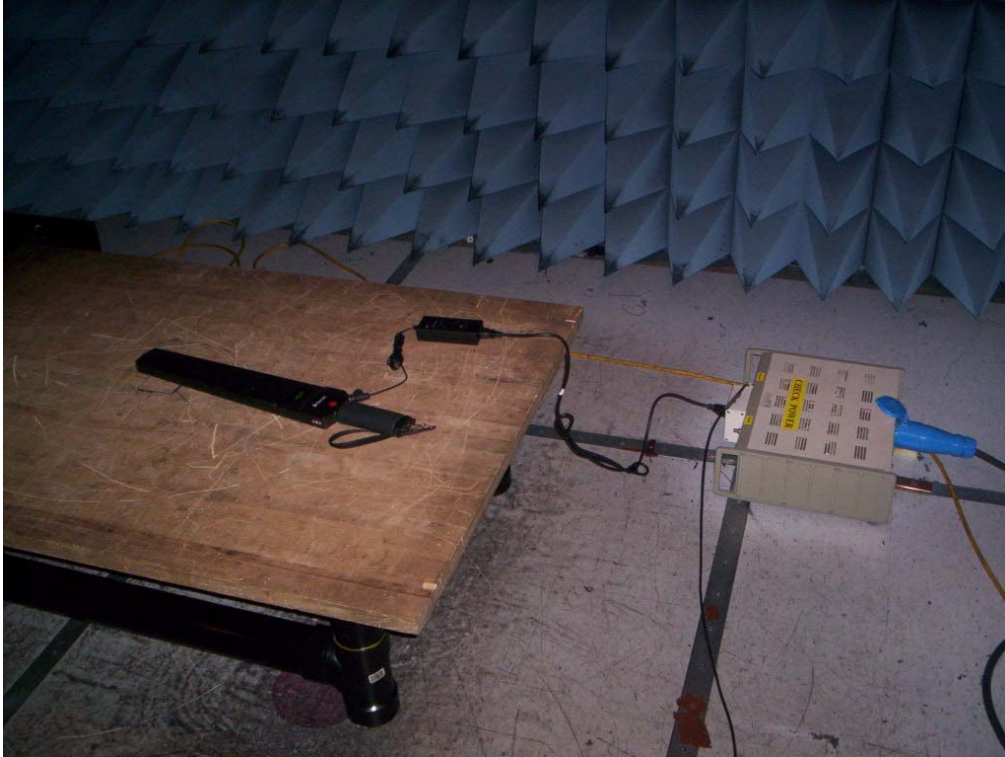
Test Results: See Attached Plots.

20dB Bandwidth

Date: 1.AUG.2006 20:00:21

Appendix B : Setup Photographs

Conducted Emissions Setup:

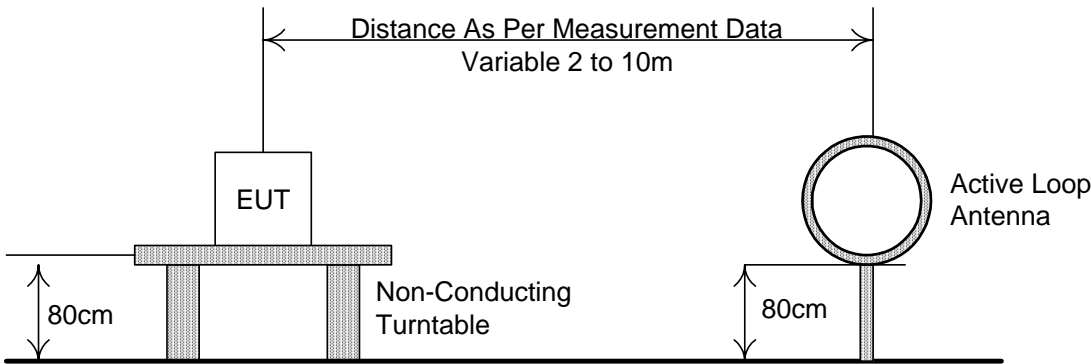


Spurious Emissions Setup:



Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions Below 30MHz



Conducted Emissions

