



Nemko



Test Report: 6W61089.4

Applicant: Telemedic Inc
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St-Hyacinthe, Quebec
J2S 8L1

Apparatus: Base de Communication E90

FCC ID: T3W-E90-001

In Accordance With: FCC Part 15 Subpart C, 15.249
Operation in the 902-928MHz, 2400 - 2483.5 MHz,
5725-5850MHz and 24.0-24.25 GHz

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

Jin Xu, Wireless Specialist

Date: May 4, 2006

Total Number of Pages: 19

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: Base de Communication E90

Specification: FCC Part 15 Subpart C, 15.249

Compliance Status: Complies

Exclusions: None

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:

Base de Communication (M/N: E90)

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	Base de Communication E90	17050005
4	DC Power Adapter (PN: DPR090080-P5P-SZ)	None

The first samples were received on: February 14, 2006

1.3 Theory of Operation

The E90 receive signals from other peripherals and then transmits them by either RS232, LAN or PSTN to a server.

1.4 Technical Specifications of the EUT

Manufacturer: Digico Fabrication Électronique Inc

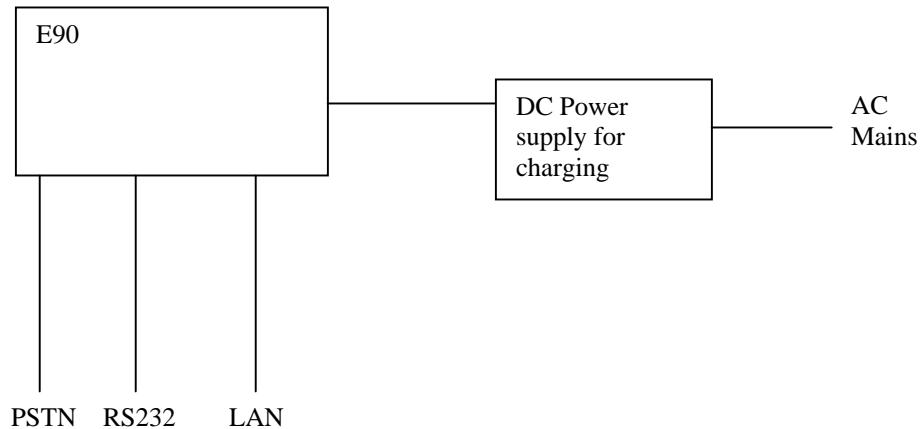
Operating Frequency: 916.48MHz

Emission Designator F1D

Modulation: FSK

Antenna Data: Integral

Power Source: 120VAC 60Hz

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 C, 15.249

Operation in the 902-928MHz, 2400 - 2483.5 MHz, 5725-5850MHz
and 24.0-24.25 GHz bands

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.
Spectrum Analyzer	Rohde & Schwarz	FSP	FA001920	March 22/06
Horn Antenna #1	EMCO	3115	FA000649	Jan. 12/07
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug. 29/06
Biconical (1) Antenna	EMCO	3109	FA000805	April 22/06
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	July 14/06
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	July 14/06
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	July 14/06
5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU
LISN	Tegam	95300-50	FA000736	Jan. 30/07
LISN	Tegam	95300-50	FA000737	Jan. 30/07
Spectrum Analyzer	Hewlett-Packard	8566B	FA001432	May 18/06
Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001432	May 18/06
Receiver	Rohde & Schwarz	ESHS 10	FA001929	April 20/06
Transient Limiter	Hewlett-Packard	1194 7A	FA001150	May 25/06

COU – Cal On Use

Section 3 : Observations

3.1 Modifications Performed During Assessment

The following modification was performed to achieve compliance:

3.1.1 Modification state 1

As originally submitted the apparatus was found to be non-compliant to clause 15.249(a) . An 18ohm resistor was added from the antenna connector to ground. Following this modification the apparatus was found to be fully compliant.

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 in its final modified state.

4.1 FCC Part 15 Subpart C : Test Results

Part 15	Test Description	Required	Result
15.31(e)	Variation of power supply	Y	PASS
15.215(c)	20dB Bandwidth	Y	PASS
15.207(a)	Powerline Conducted Emissions	Y	PASS
15.209(a)	Radiated Emissions within Restricted Bands	Y (1)	PASS
15.249(a)	Radiated emissions not in Restricted Bands	Y	PASS
15.249(b)	Fixed Point-to-Point operation in the 24.0-24.25 GHz Band	N	
15.249(d)	Spurious emissions (except Harmonics)	Y (1)	PASS

Notes:

(1) No emissions were detected within 20dB below the limit.

Appendix A : Test Results

Clause 15.215(c) 20dB Bandwidth

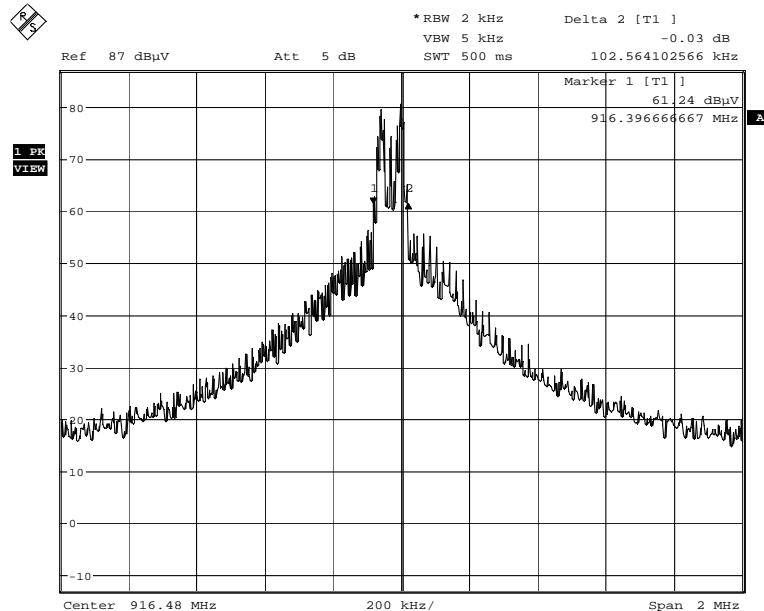
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific 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:	22
Date:	February 22, 2006	Humidity:	13
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Wireless

Test Results: See Attached Plots.

20dB Bandwidth:



E90 20dB Bandwidth
Date: 22.FEB.2006 10:37:27

Clause 15.207(a) Powerline 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:

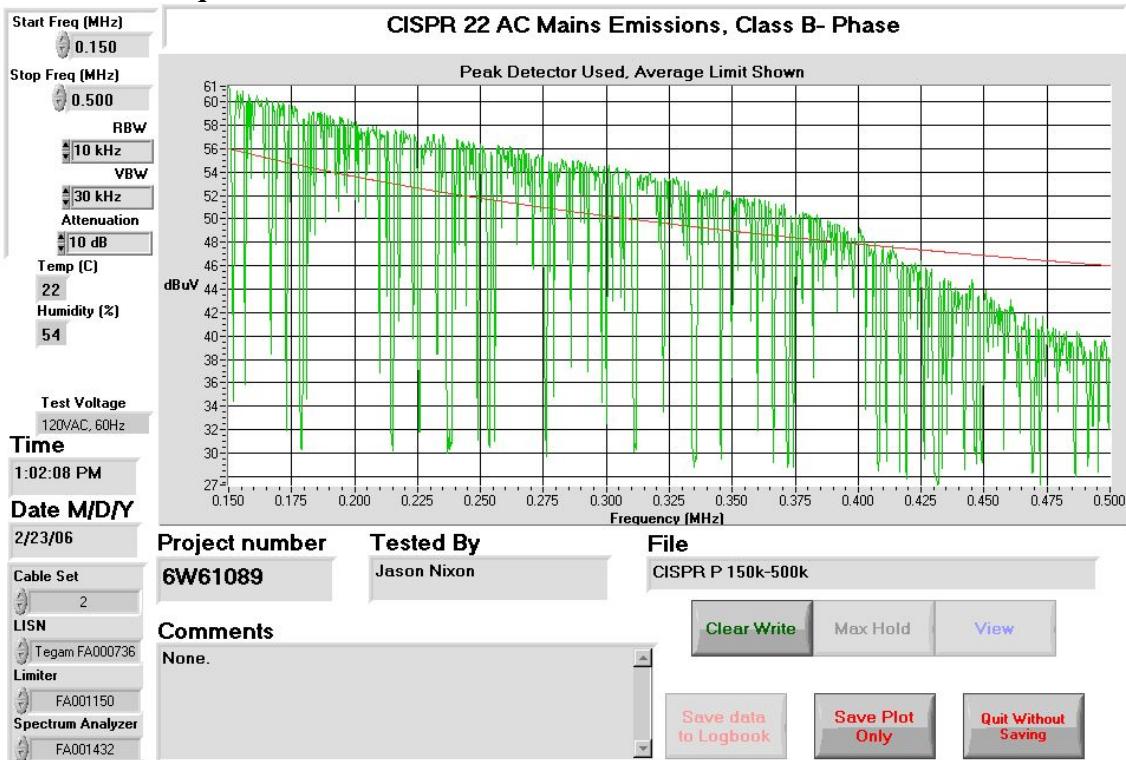
Sample Number:	2	Temperature:	22
Date:	February 23, 2006	Humidity:	54
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Almonte – Shielded Room

Test Results: See Attached Plots and Table.**Additional Observations:**

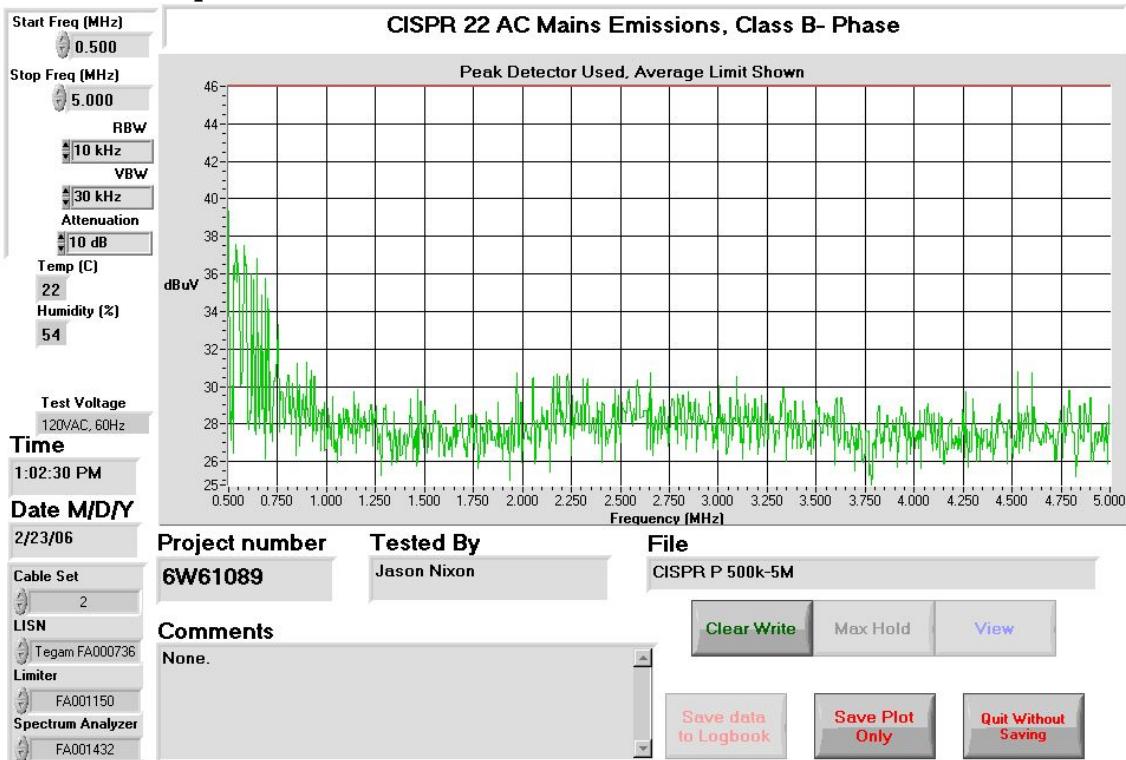
Measurements were performed using a Peak detector and compared to the Average limit.

Conductor	Frequency (MHz)	Detector	Emission Level (dBuV)	LISN Loss (dB)	Cable Loss (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	
1	Phase	0.1521	Quasi Peak	48.8	0.10	0.00	48.90	65.9	17.0
			Average	22.2	0.10	0.00	22.30	55.9	33.6
2	Phase	0.2085	Quasi Peak	46.5	0.10	0.19	46.79	63.3	16.5
			Average	24.1	0.10	0.19	24.39	53.3	28.9
3	Phase	0.2526	Quasi Peak	45.1	0.10	0.15	45.35	61.7	16.3
			Average	16.6	0.10	0.15	16.85	51.7	34.8
4	Phase	0.2967	Quasi Peak	43.8	0.10	0.10	44.00	60.3	16.3
			Average	15.6	0.10	0.10	15.80	50.3	34.5
5	Phase	0.3247	Quasi Peak	42.6	0.10	0.10	42.80	59.6	16.8
			Average	15.3	0.10	0.10	15.50	49.6	34.1
6	Phase	0.3576	Quasi Peak	40.4	0.10	0.10	40.60	58.8	18.2
			Average	14.1	0.10	0.10	14.30	48.8	34.5
7	Neutral	0.1504	Quasi Peak	49.0	0.10	0.00	49.10	66.0	16.9
			Average	20.9	0.10	0.00	21.00	56.0	35.0
8	Neutral	0.1644	Quasi Peak	48.3	0.10	0.00	48.42	65.2	16.8
			Average	18.2	0.10	0.00	18.30	55.2	36.9
9	Neutral	0.2028	Quasi Peak	46.7	0.00	0.20	46.90	63.5	16.6
			Average	21.8	0.00	0.20	22.00	53.5	31.5
10	Neutral	0.2669	Quasi Peak	44.6	0.00	0.13	44.73	61.2	16.5
			Average	15.8	0.00	0.13	15.93	51.2	35.3
11	Neutral	0.3191	Quasi Peak	43.0	0.00	0.10	43.10	59.7	16.6
			Average	14.7	0.00	0.10	14.80	49.7	34.9
12	Neutral	0.3894	Quasi Peak	38.6	0.00	0.10	38.70	58.1	19.4
			Average	18.7	0.00	0.10	18.80	48.1	29.3

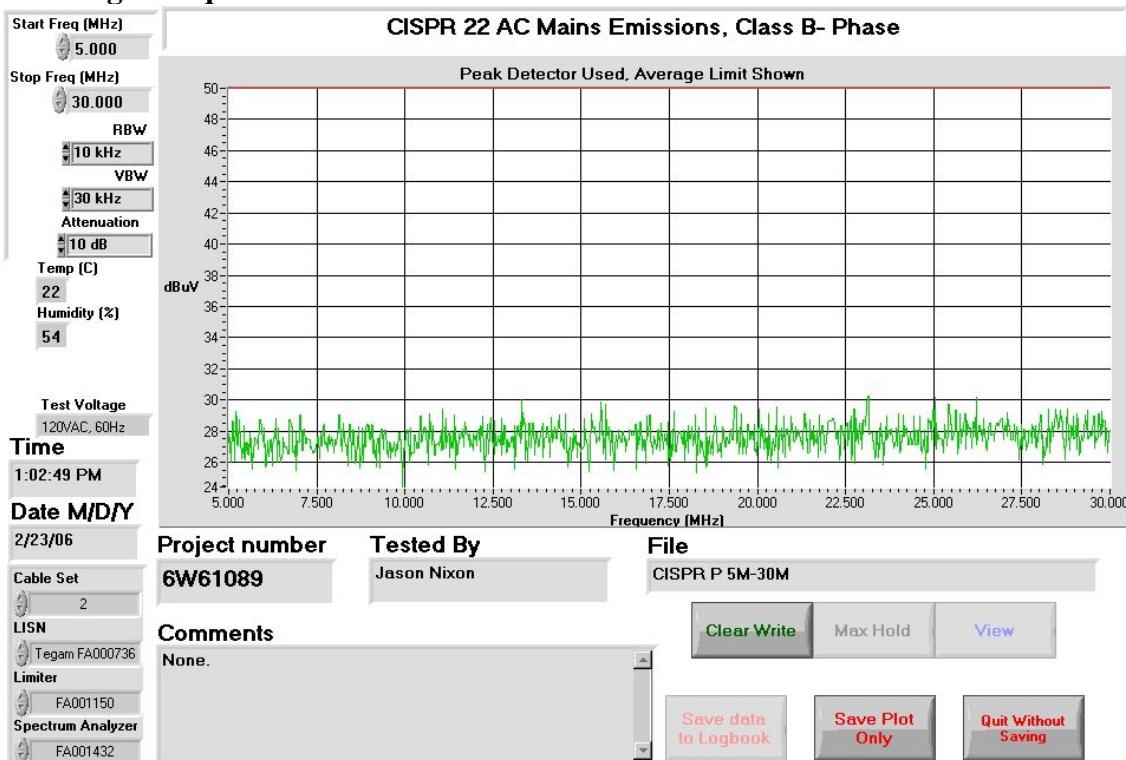
Phase – Low Frequencies



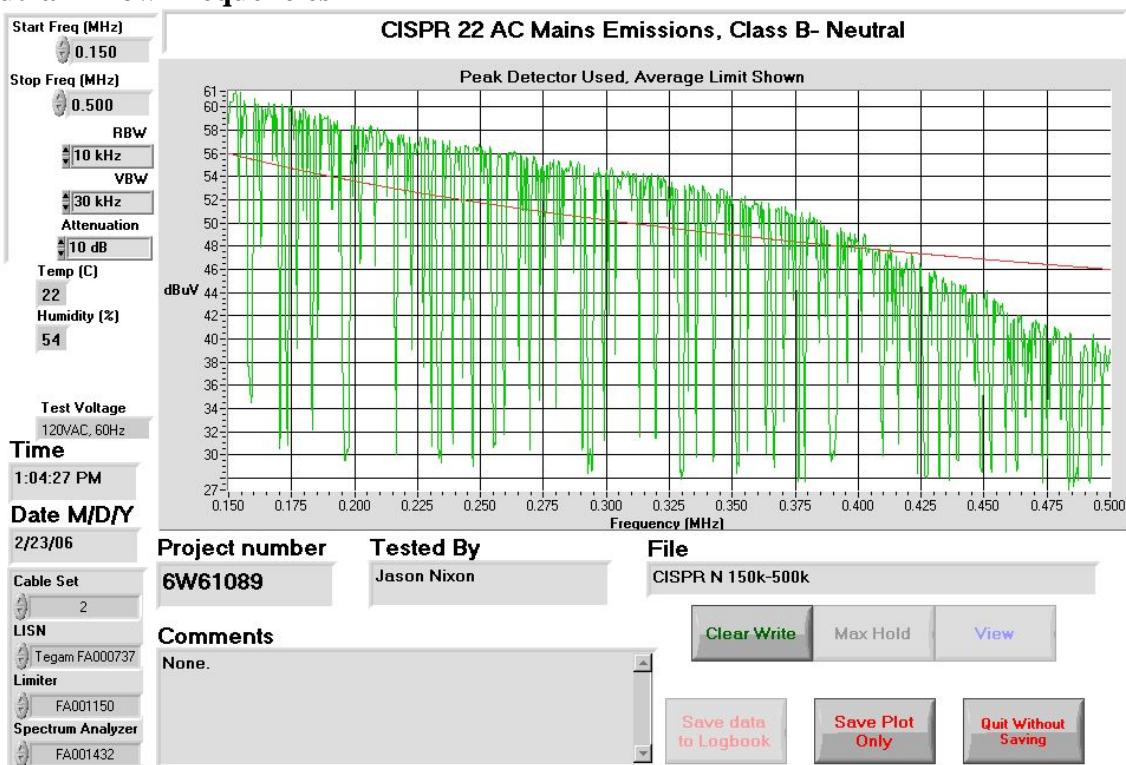
Phase – Mid Frequencies



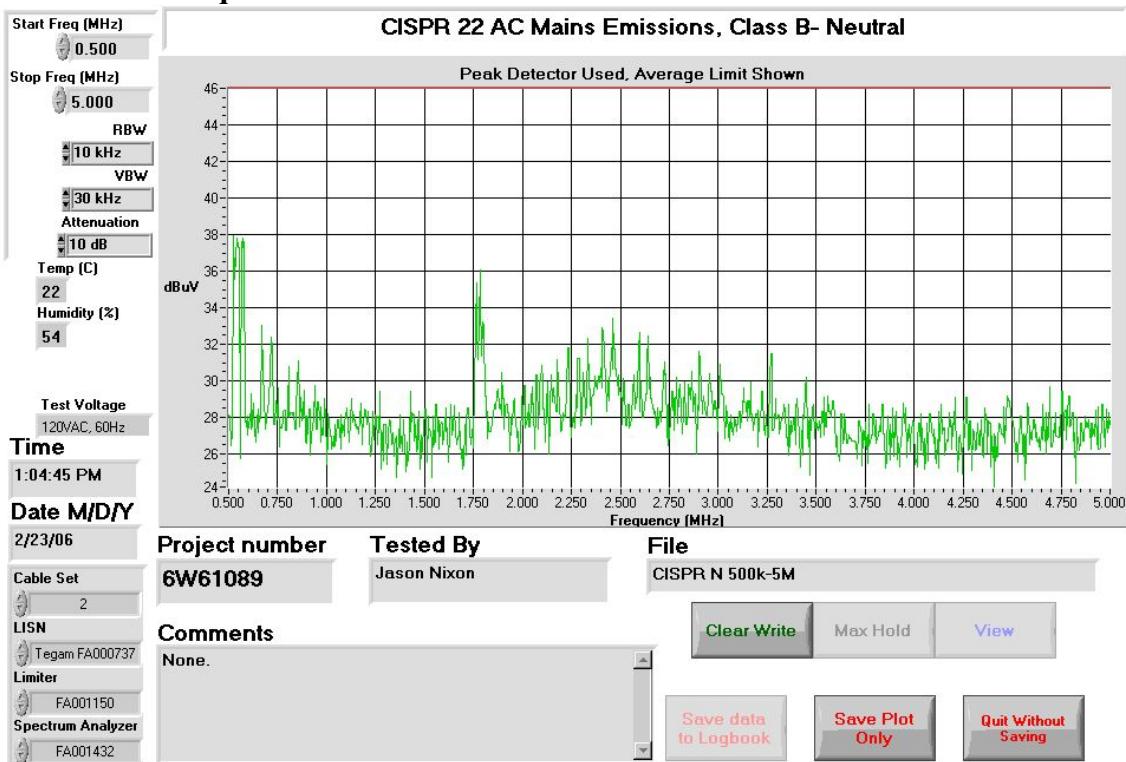
Phase – High Frequencies



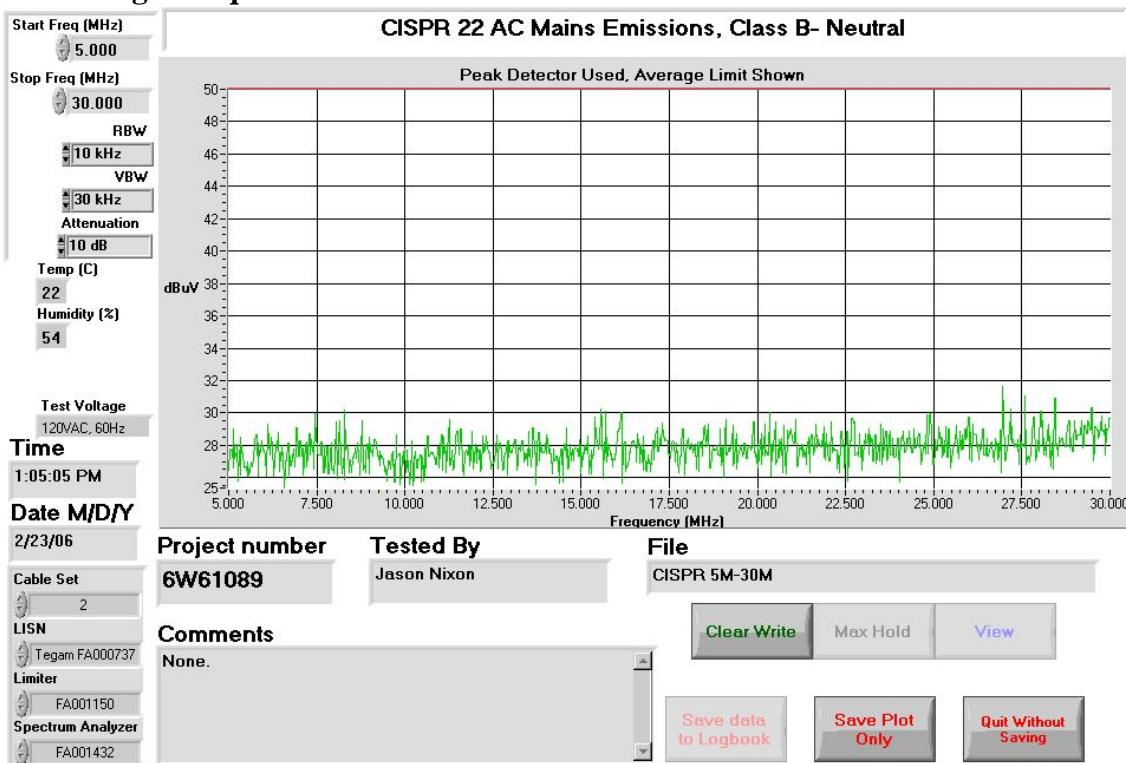
Neutral – Low Frequencies



Neutral – Mid Frequencies



Neutral – High Frequencies



Clause 15.249(a) Radiated emissions not in Restricted Bands

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Test Conditions:

Sample Number:	2	Temperature:	13
Date:	February 23, 2006	Humidity:	42
Modification State:	0	Tester:	Jason Nixon
		Laboratory:	Almonte

Test Results: See attached Table

Additional Observations:

The Spectrum was searched from 30MHz to the 10GHz.

The EUT was measured on three orthogonal axis. The fundamental field strength did not change with a variation of +/-15% on the power supply voltage.

Measurements below 1GHz were performed using a 120kHz RBW Quasi-peak detector and emissions above 1GHz were performed using a 1MHz RBW/VBW peak detector. All measurements were performed at 3m.

Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dB μ V)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
916.4475	LP1	V	61.1	23.1	N/A	4.6	88.8	94.0	5.2	Q-Peak
916.4475	LP1	H	63.6	23.8	N/A	4.6	92.0	94.0	2.0	Q-Peak
1832.8950	Horn1	V	64.3	27.1	47.9	4.1	47.7	54.0	6.3	Peak
1832.8950	Horn1	H	65.2	27.3	47.9	4.1	48.7	54.0	5.3	Peak
2749.3400	Horn1	V	67.3	30.1	59.2	5.4	43.6	54.0	10.3	Peak
2749.3400	Horn1	H	67.2	30.3	59.2	5.4	43.7	54.0	10.3	Peak

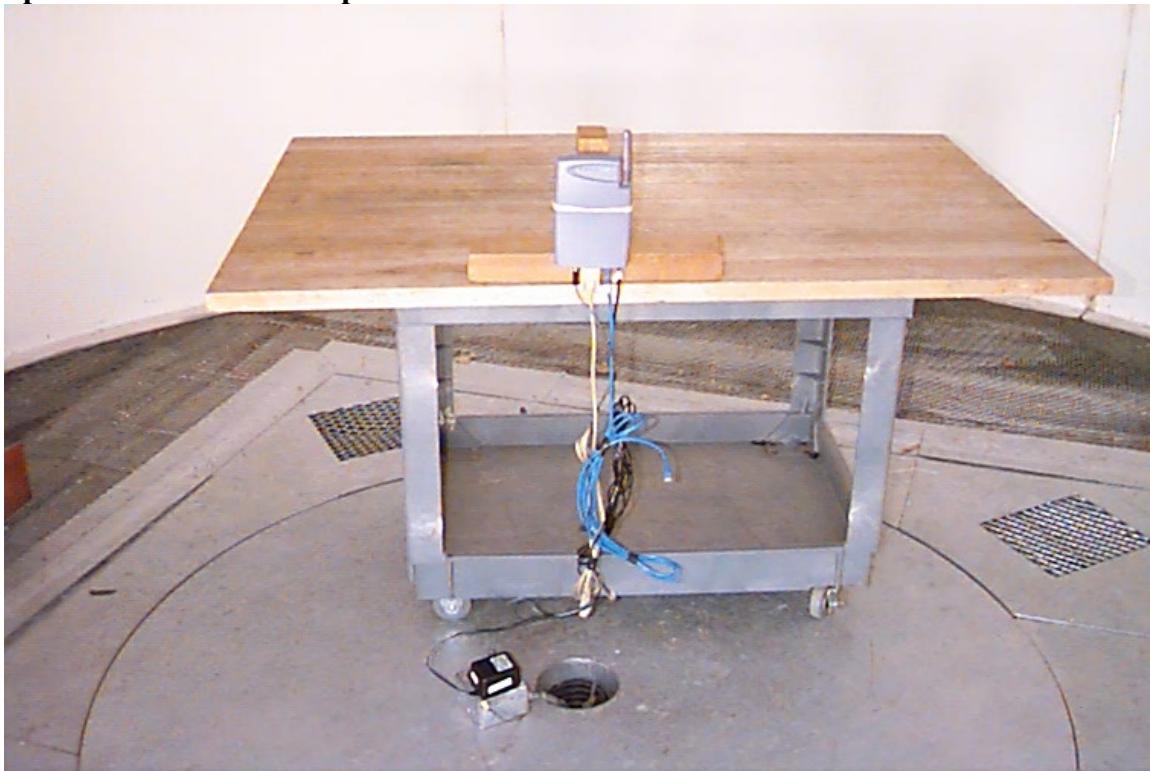
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole

Appendix B : Setup Photographs

Conducted Emissions Setup:

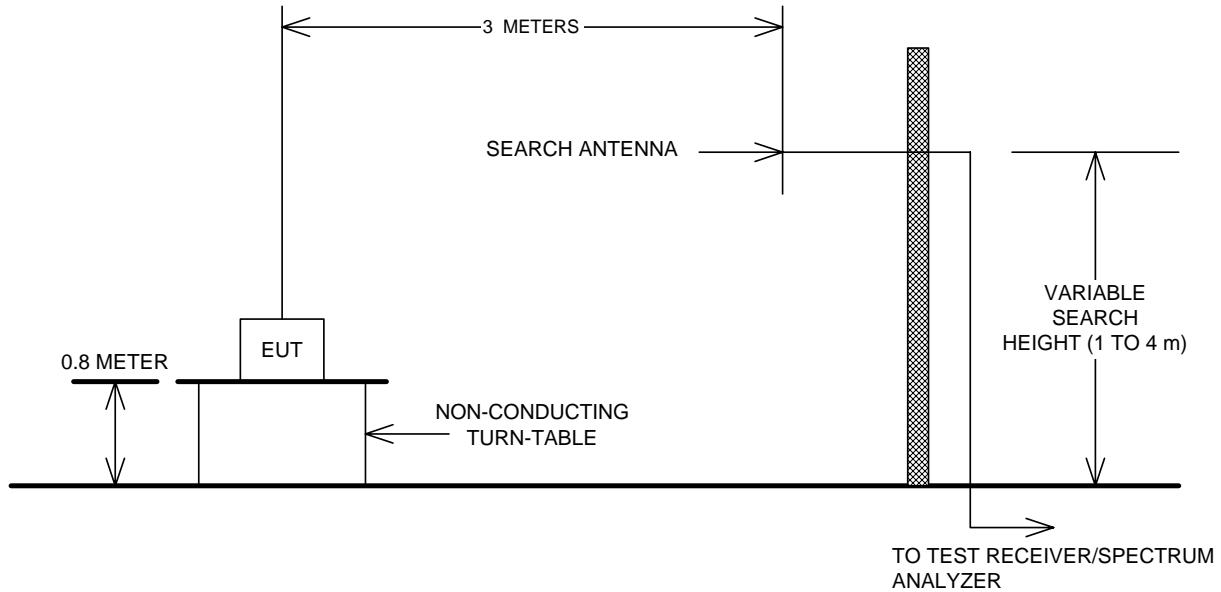


Spurious Emissions Setup:



Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions

