



# Nemko



**Test Report:** 6W59556.2

**Applicant:** CG Air Systemes Inc.  
207 Parc Industriel  
Ste-Marguerite, Quebec  
G0S 2X0

**Apparatus:** CGR001

**FCC ID:** TYE-CGR001

**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:**   
Jin Xu, Wireless Specialist

**Date:** March 24, 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:** CGR001

**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: 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:

Hot Tub Remote Control Receiver (M/N: CGR001)

### **1.2 Samples Submitted for Assessment**

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

<b>Sample No.</b>	<b>Description</b>	<b>Serial No.</b>
12	Hot Tub Remote Receiver (CGR001)	_____
13	Whirlpool motor	_____
14	Sensation (suppose to be built in) bubble control remote LC10+	_____

The first samples were received on: January 13, 2006

### **1.3 Theory of Operation**

The EUT is a Receiver, which is used in conjunction with the CGT001 Hot Tub Remote control to turn on and off a Whirlpool motor.

### **1.4 Technical Specifications of the EUT**

**Manufacturer:** CG Air Systemes Inc.

**Receive Frequency:** 433.92MHz

**Receiver Type:** Superheterodyne

**Antenna Data:** Integral

**Power Source:** 120VAC 60Hz

## 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.
LISN	FCC	FCC-LISN-50-100-1-02	FA001775	May 03/05	May 03/06
LISN	FCC	FCC-LISN-50-100-1-02	FA001777	May 03/05	May 03/06
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
Power Source	California Instruments	5001ix	FA001770	May 18/05	May 18/06
1-26.5 GHz Amplifier	Hewlett-Packard	8449B	FA001761	May 19/05	May 19/06
0.1 – 1300 MHz Amplifier	Hewlett Packard	8447D	FA001747	May 18/05	May 18/06
Bilog	Schaffner	CBL6112B	FA001503	Sept. 16/05	Sept. 16/06

## **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:

## 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

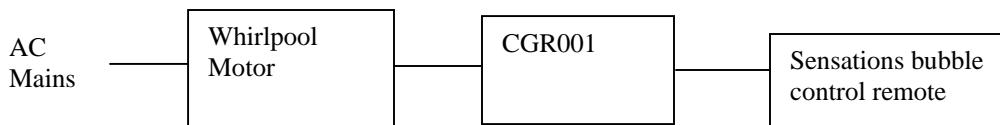
\* Decreases with the logarithm of the frequency.

### Test Conditions:

<b>Sample Number:</b>	12	<b>Temperature:</b>	22
<b>Date:</b>	January 30, 2006	<b>Humidity:</b>	54
<b>Modification State:</b>	0	<b>Tester:</b>	Jason Nixon
		<b>Laboratory:</b>	Almonte

**Test Results:** See Attached Plots.

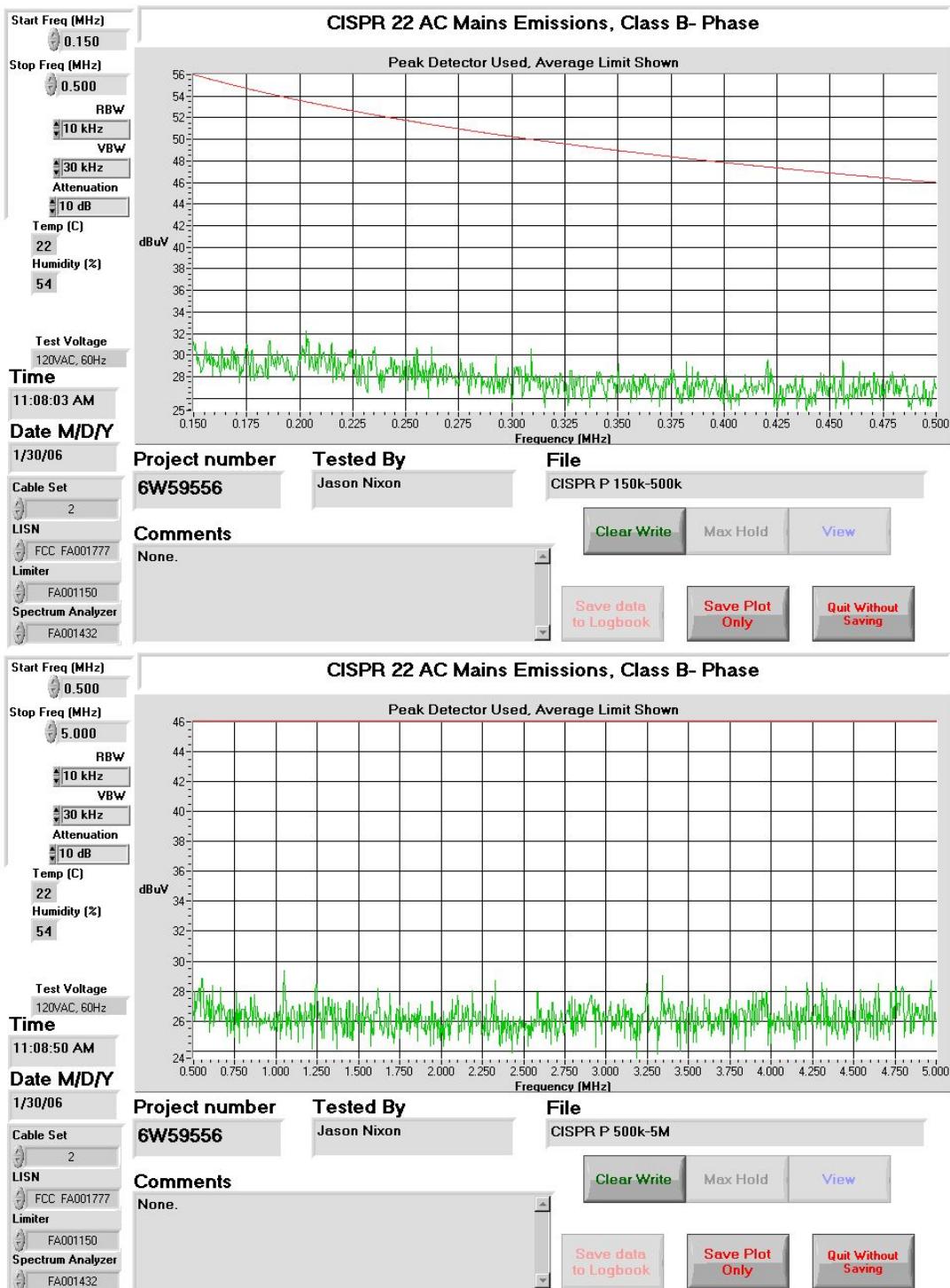
### Block Diagram of Test Setup:

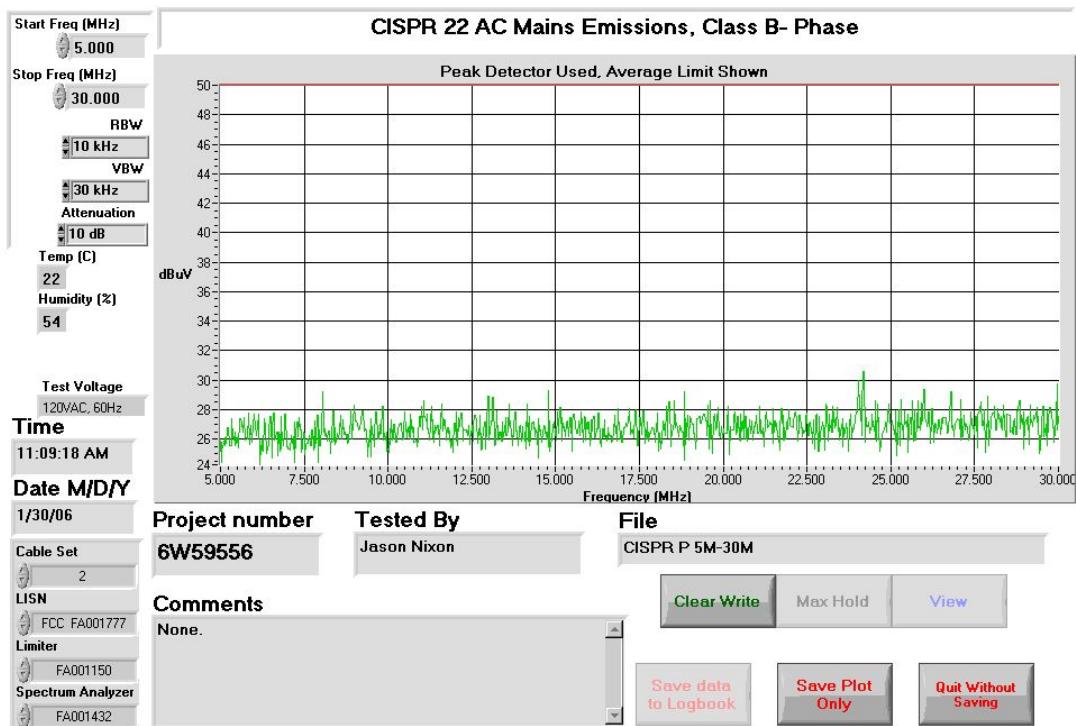


### Additional Observations:

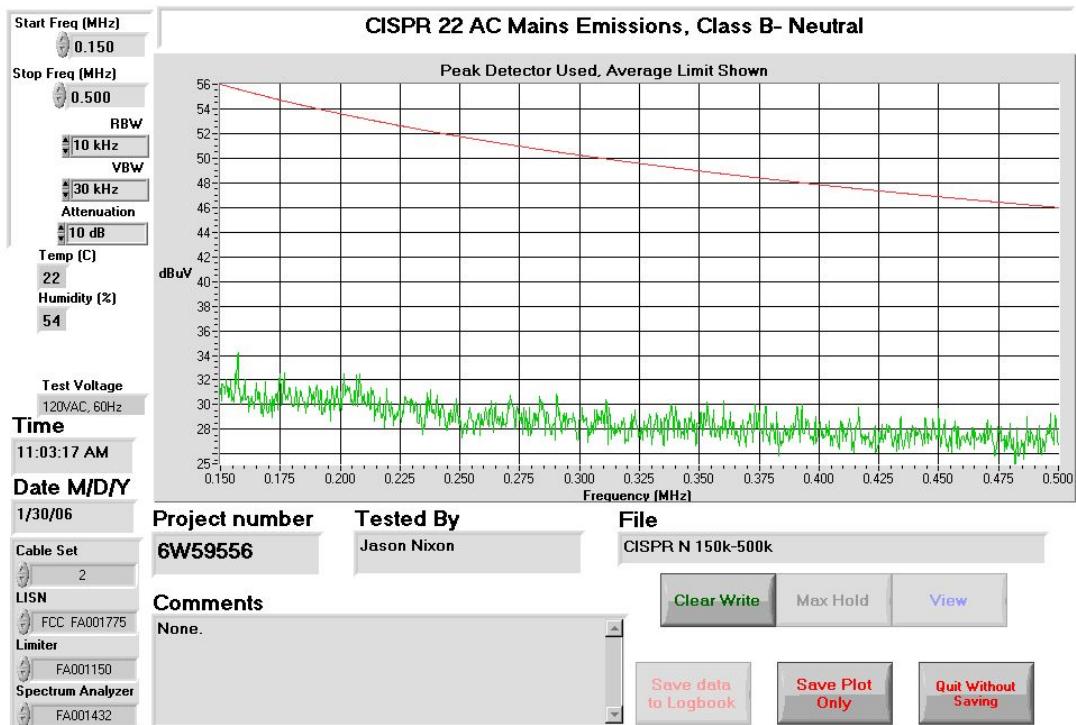
All plots were performed using a peak detector and compared to the average limit.

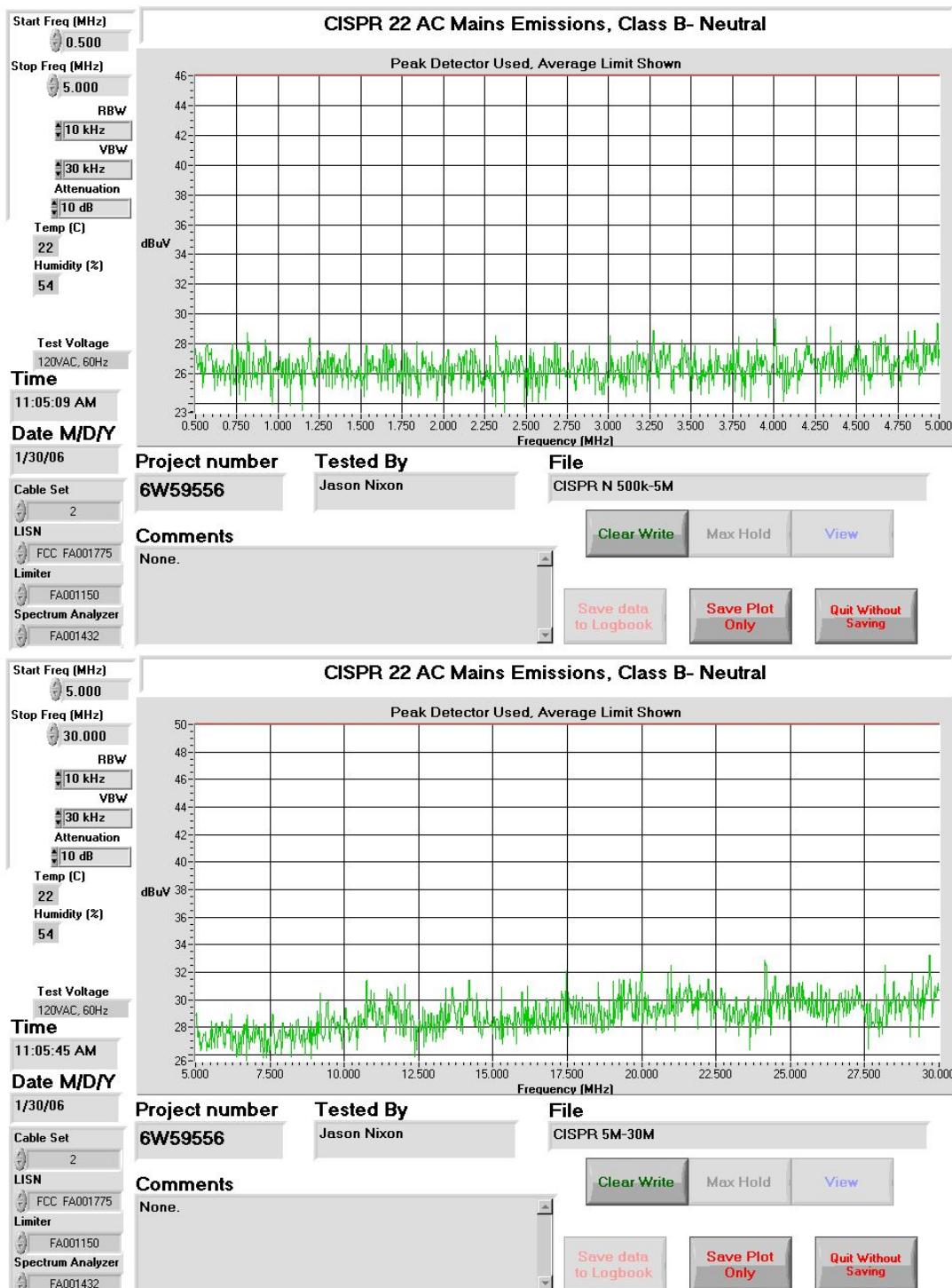
## Phase





## Neutral





**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:**

<b>Sample Number:</b>	12	<b>Temperature:</b>	10
<b>Date:</b>	January 30, 2006	<b>Humidity:</b>	93
<b>Modification State:</b>	0	<b>Tester:</b>	Jason Nixon

**Laboratory:** Almonte – OATS**Test Results:**

See Attached Table for Results

**Additional Observations:**

The Spectrum was searched from 30MHz to the 2GHz.

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 (dB $\mu$ V)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)
32.2084	BL	V	19.3	16.7	N/A	0.8	36.8	40.0	3.2
32.2084	BL	H	11.2	18.7	N/A	0.8	30.7	40.0	9.3
40.2593	BL	V	11.9	12.3	N/A	1.1	25.3	40.0	14.7
40.2593	BL	H	8.5	14.0	N/A	1.1	23.6	40.0	16.4
48.3138	BL	V	16.4	8.7	N/A	1.1	26.2	40.0	13.8
48.3138	BL	H	11.6	9.9	N/A	1.1	22.5	40.0	17.5
54.3501	BL	V	15.1	7.1	N/A	1.1	23.3	40.0	16.7
54.3501	BL	H	9.1	7.6	N/A	1.1	17.8	40.0	22.2
56.3671	BL	V	21.8	6.7	N/A	1.2	29.8	40.0	10.2
56.3671	BL	H	13.5	7.2	N/A	1.2	21.9	40.0	18.1
58.3756	BL	V	11.3	6.5	N/A	1.2	19.0	40.0	21.0
58.3756	BL	H	8.5	6.8	N/A	1.2	16.5	40.0	23.5

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

## Appendix B : Setup Photographs

### Conducted Emissions Setup:

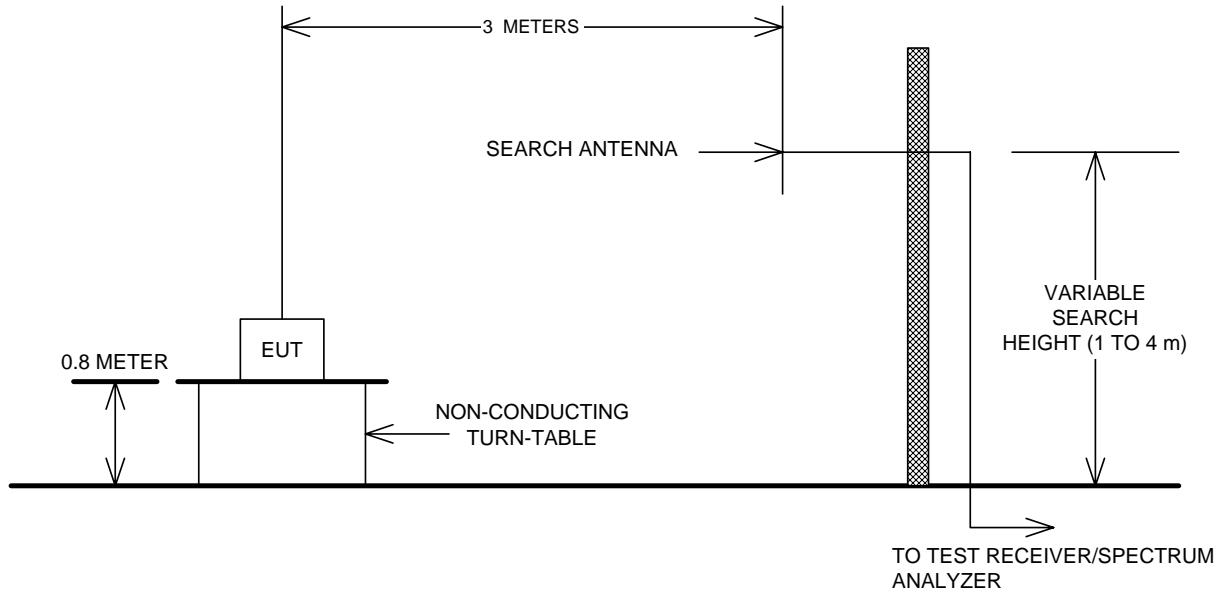


**Spurious Emissions Setup:**



## Appendix C : Block Diagram of Test Setups

### Test Site For Radiated Emissions



### Conducted Emissions

