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Test Report:	82581-1TRFWL
Applicant:	Vtech Engineering Canada 200-7671 Alderbridge Way Richmond, BC V6X 1Z9
Apparatus:	ia5823 Handset
FCC ID:	EW780-5735-03
In Accordance With:	FCC Part 15 Subpart C, 15.249 Class II Permissive Change Operation in the 902-928MHz, 2400 - 2483.5 MHz, 5725-5850MHz and 24.0-24.25 GHz
Tested By:	Nemko Canada Inc. 303 River Road Ottawa, Ontario K1V 1H2
Authorized By:	Roman Kuleba, Wireless Specialist
Date:	March 29, 2007
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 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: ia5823 Handset

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:

ia5823 Handset

1.2 Samples Submitted for Assessment

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

Sample No.	Description	Serial No.
1	ia5823 Base	GA07/01547
2	ia5823 Handset	GA07/01573
3	Power supply (M/N: U090020D12)	None

The first samples were received on: March 14, 2007

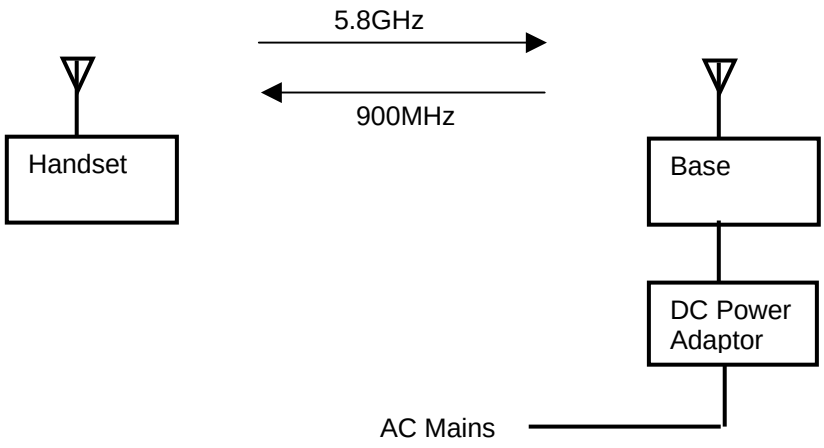
1.3 Theory of Operation

The EUT is a cordless phone handset. It transmits to the base at 5.8GHz and receives at 900MHz.

1.4 Technical Specifications of the EUT

Operating Frequency:	Tx: 5863.8 to 5872.5MHz Rx: 912.75 to 917.1MHz
Emission Designator	F3E, F1D
Modulation:	Voice: FM, nominal deviation is 30kHz Data: FSK at 1000bps
Receiver Type:	Super Heterodyne
Antenna Data:	Integral
Power Source:	3.6VDC Ni-Cd Battery pack

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 ^{o}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.
LISN	Rohde & Schwarz	ENV216	FA002023	Aug. 28/07
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU	FA002043	Oct. 24/07
Spectrum Analyzer	Hewlett-Packard	8565E	FA000981	Oct. 06/07
Horn Antenna #2	EMCO	3115	FA000825	Jan. 30/08
18.0 – 40.0GHz Horn Antenna	EMCO	3116	FA001847	May 3/07
1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	Aug. 02/07
2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	Aug. 02/07
4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	Aug. 02/07
5.0 – 18.0 GHz Amplifier	NARDA	DWT-186N23U40	FA001409	COU
18.0 – 26.0 GHz Amplifier	NARDA	BBS-1826N612	FA001550	COU
26 – 40.0 GHz Amplifier	NARDA	DBL-2640N610	FA001556	COU
Biconical (1) Antenna	EMCO	3109	FA000805	May 03/07
Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Sept. 12/07

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 Technical Judgement 1

It was judged that the Class II permissive changes were only to the RF portion of the transmitter and that only emissions would require testing. The original assessment was performed in Nemko Test Report 6W71776.

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)	Powerline Conducted Emissions	Y	PASS
15.209(a)	Radiated Emissions within Restricted Bands	Y	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	PASS

Notes:

Appendix A : Test Results

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:

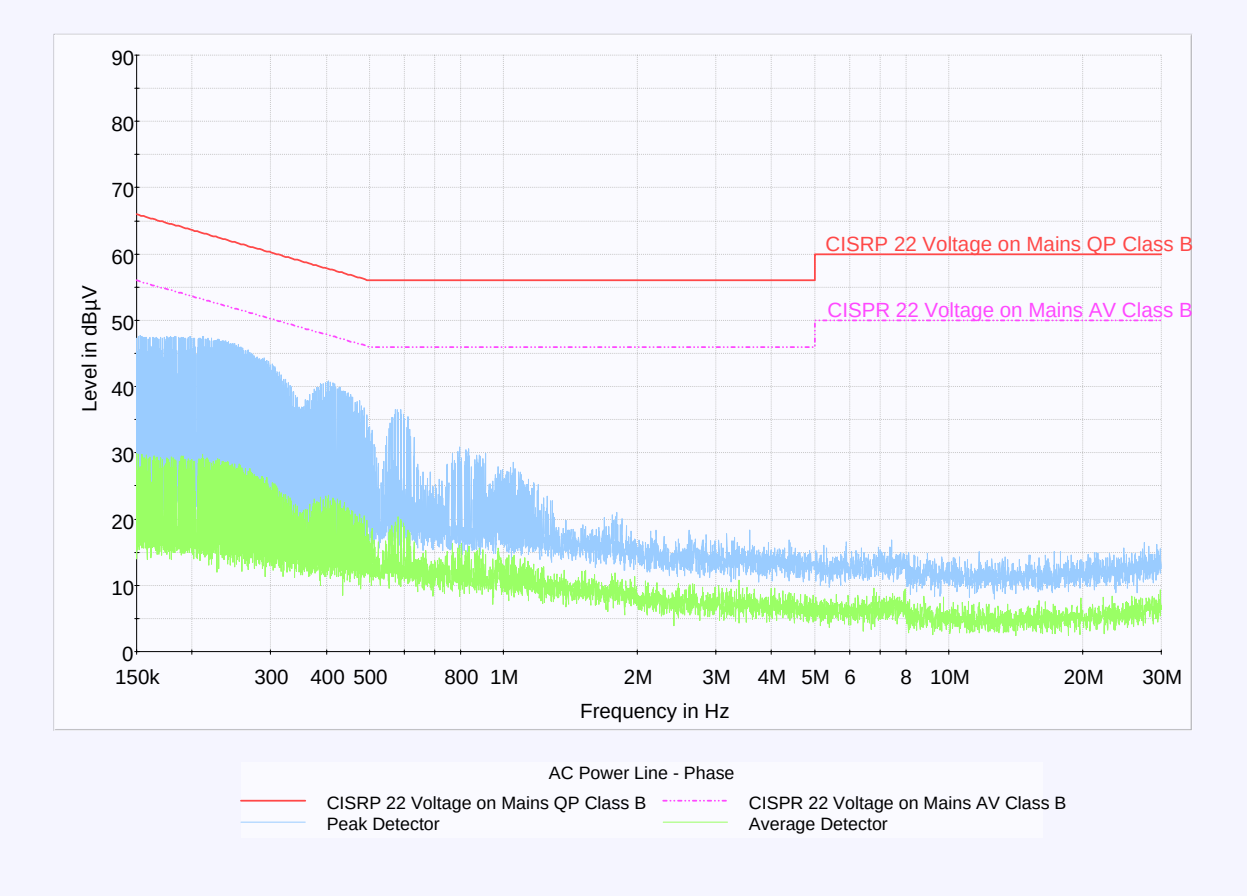
Sample Number:	1/2	**Temperature (°C):**	23
Date:	March 16, 2007	**Humidity (%):**	12
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	Shielded Room

Test Results: See Attached Plots.

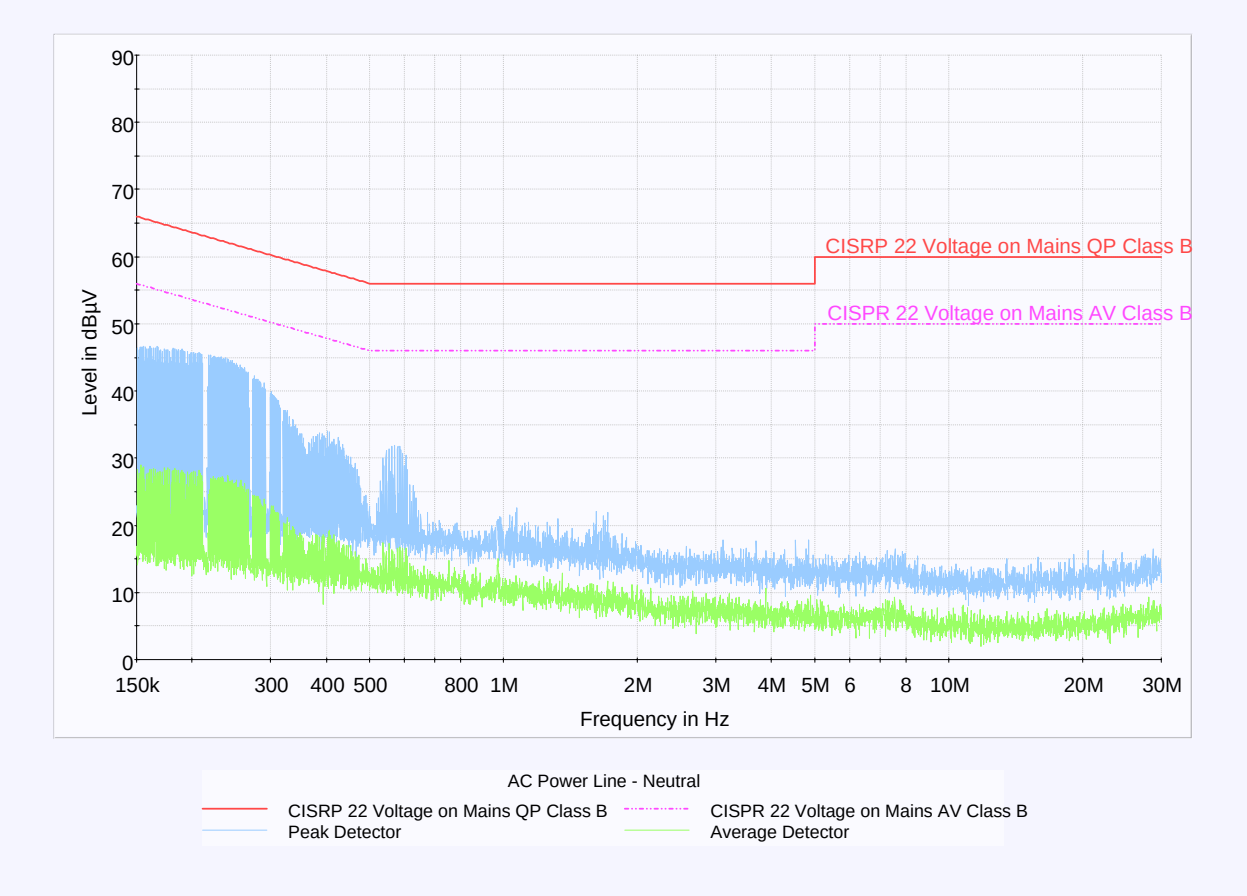
Additional Observations:

All plots were taken in a 10kHz RBW and have been corrected with the cable and LISN losses to show compliance.

Phase


90
80
70
60
50
40
30
20
10
0
Level in dBµV
CISRP 22 Voltage on Mains QP Class B
CISPR 22 Voltage on Mains AV Class B
150k
300
400
500
800
1M
2M
3M
4M
5M
6
8
10M
20M
30M
Frequency in Hz
AC Power Line - Phase
CISRP 22 Voltage on Mains QP Class B
CISPR 22 Voltage on Mains AV Class B
Peak Detector
Average Detector

Neutral


90
80
70
60
50
40
30
20
10
0
Level in dBµV
CISRP 22 Voltage on Mains QP Class B
CISPR 22 Voltage on Mains AV Class B
150k
300
400
500
800
1M
2M
3M
4M
5M
6
8
10M
20M
30M
Frequency in Hz
AC Power Line - Neutral
CISRP 22 Voltage on Mains QP Class B
CISPR 22 Voltage on Mains AV Class B
Peak Detector
Average Detector

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 (°C):**	10
Date:	March 16, 2007	**Humidity (%):**	45
Modification State:	0	**Tester:**	Jason Nixon
		Laboratory:	OATS

Test Results: See attached Table

Additional Observations:

The Spectrum was searched from 30MHz to 40GHz

The EUT was measured on three orthogonal axis with fully charged batteries.

All measurements below 8GHz were measured at 3m and 1m above 8GHz.

Emissions below 8GHz

Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dBμV)	Ant. Factor (dB)	Amp. Gain (dB)	Cable Loss (dB)	Level dBuV/m	Limit dBuV/m	Margin (dB)	Detector
5863.8000	Horn2	V	52.7	34.4	N/A	9.6	96.7	114	17.3	Peak
5863.8000	Horn2	H	51.8	34.4	N/A	9.6	95.8	114	18.2	Peak
5863.8000	Horn2	V	49.8	34.4	N/A	9.6	93.8	94	0.2	Average
5863.8000	Horn2	H	47.0	34.4	N/A	9.6	91.0	94	3.0	Average
5868.0000	Horn2	V	52.0	34.4	N/A	9.7	96.1	114.0	17.9	Peak
5868.0000	Horn2	H	52.7	34.4	N/A	9.7	96.7	114.0	17.3	Peak
5868.0000	Horn2	V	48.8	34.4	N/A	9.7	92.9	94.0	1.1	Average
5868.0000	Horn2	H	49.8	34.4	N/A	9.7	93.9	94.0	0.1	Average
5872.5000	Horn2	V	51.2	34.4	N/A	9.7	95.3	114.0	18.7	Peak
5872.5000	Horn2	H	51.7	34.4	N/A	9.7	95.8	114.0	18.2	Peak
5872.5000	Horn2	V	47.2	34.4	N/A	9.7	91.3	94.0	2.7	Average
5872.5000	Horn2	H	47.0	34.4	N/A	9.7	91.1	94.0	2.9	Average

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

Level = RCVD Signal + Ant. Factor – Amp. Gain + Cable Loss

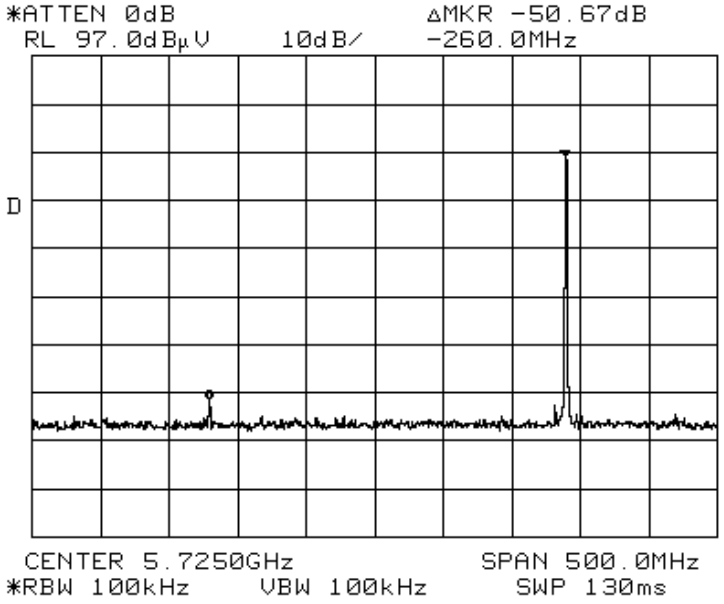
Emissions above 8GHz

Freq. (MHz)	Ant	Pol. V/H	RCVD Signal (dBμV)	Ant. Factor (dB)	Amp. Gain/ cable loss (dB)	Distance Correction (dB)	Level dBuV/m	Limit dBuV/m	Margin (dB)	Detector
11727.600	Horn2	V	54.3	39.1	38.3	9.5	45.6	54	8.4	Peak
11727.600	Horn2	H	52.8	39.1	38.3	9.5	44.1	54	9.9	Peak
11736.000	Horn2	V	54.7	39.1	38.3	9.5	46.0	54	8.0	Peak
11736.000	Horn2	H	52.8	39.1	38.3	9.5	44.2	54	9.8	Peak
11745.000	Horn2	V	54.2	39.1	38.3	9.5	45.5	54	8.5	Peak
11745.000	Horn2	H	51.8	39.1	38.3	9.5	43.2	54	10.8	Peak

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

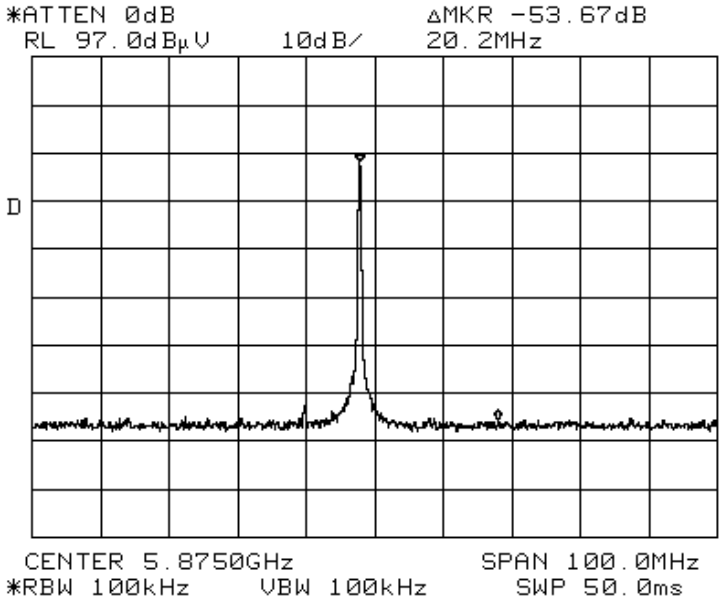
Level = RCVD Signal + Ant. Factor – Amp. Gain/cable loss – Distance correction

Lower Bandedge



Lower Bandedge
50dBc

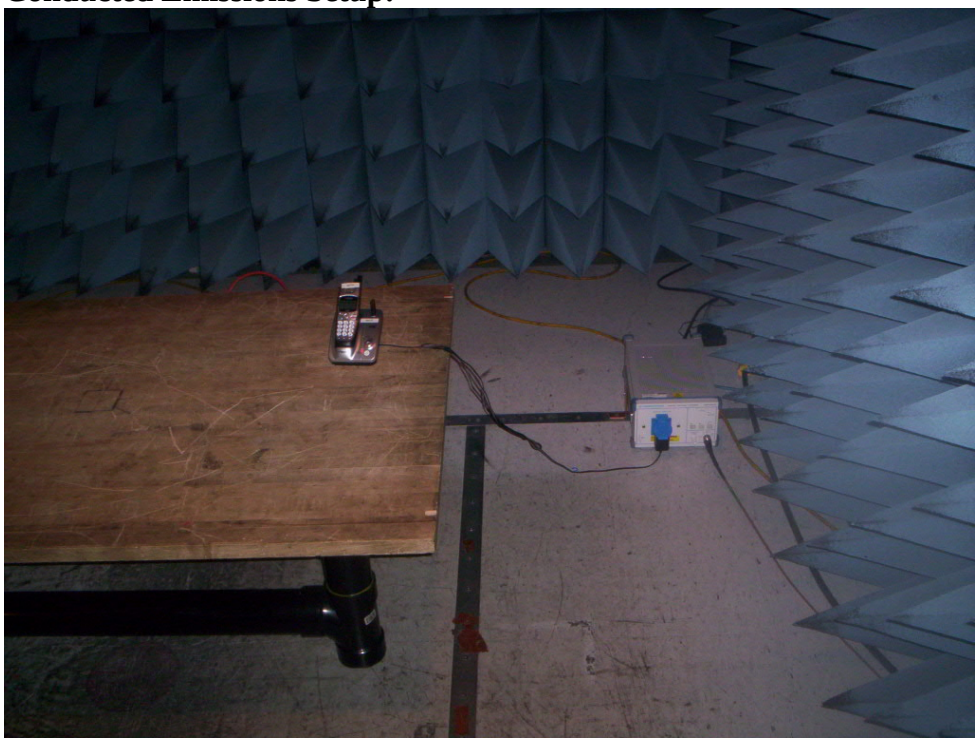
Upper Bandedge



Upper Bandedge
50dBc

Appendix B : Setup Photographs

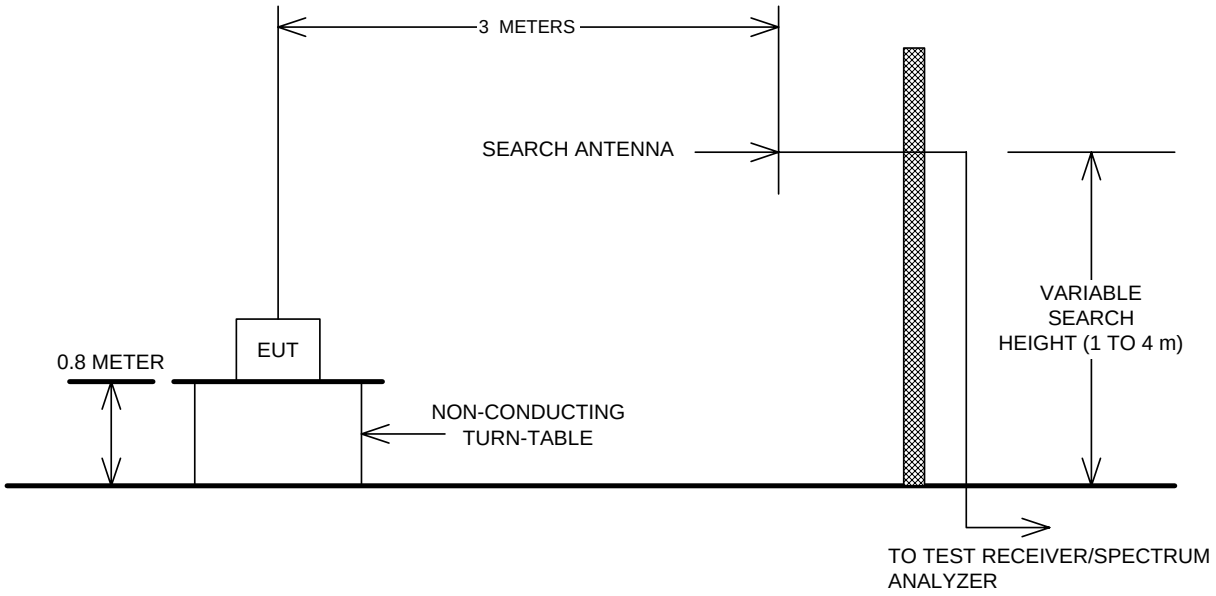
Conducted Emissions Setup:



Spurious Emissions Setup:

Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Emissions