

Nemko Test Report: 2L0493RUS1

Applicant: AFX Technology Group, Inc.
4407 N. Beltwood Parkway
Suite #108
Dallas, TX 75244

Equipment Under Test: Model 851
(E.U.T.)

In Accordance With: **FCC Part 15, Subpart C, 15.249**
For 900 MHz Transmitters

Tested By: Nemko Dallas Inc.
802 N. Kealy
Lewisville, Texas 75057-3136

Authorized By: 
Tom Tidwell, Wireless Group Manager

Date: 10/21/02

Total Number of Pages: 18

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EQUIPMENT:
FCC ID:

Section 1. Summary Of Test Results

Manufacturer: AFX Technology Group, Inc

Model No.: 851

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site.

 New Submission Production Unit

 Class II Permissive Change Pre-Production Unit

D	S	C
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 Equipment Code

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST
SPECIFICATIONS HAVE BEEN MADE.
See "Summary of Test Data".



NVLAP LAB CODE: 100351-0

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FCC PART 15, SUBPART C
FOR 900 MHz TRANSMITTERS
PROJECT NO.:
ANNEX A

EQUIPMENT:

FCC ID:

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Conducted Emissions	15.207	Complies
Radiated Emissions	15.249	Complies

EQUIPMENT:
FCC ID:

Section 2. General Equipment Specification

Frequency Range: 918 MHz

Operating Frequency(ies) of Sample: 918 MHz

Tunable Bands: N/A

Number of Channels: 1

Channel Spacing: N/A

User Frequency Adjustment: None

Integral Antenna

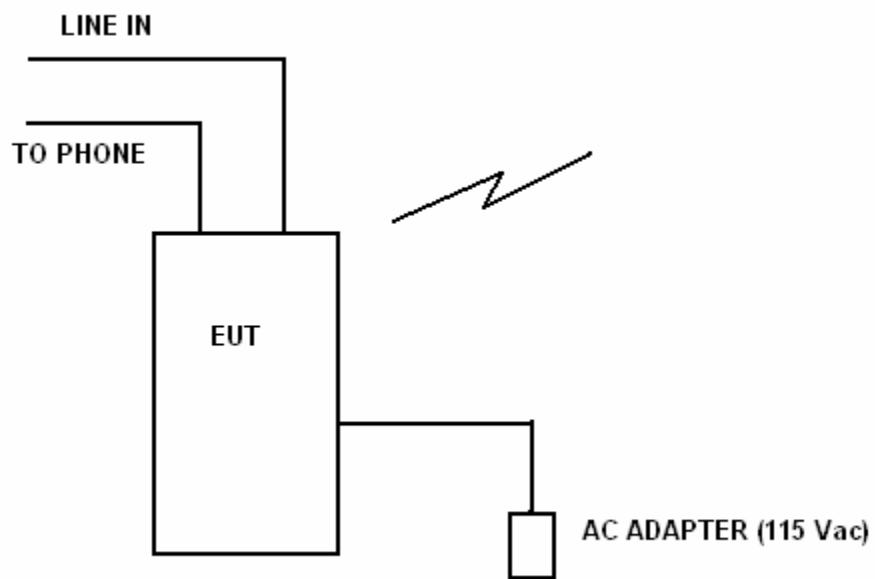
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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EQUIPMENT:
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Description of Operation

The device is a single frequency radio used for power outage notification.

System Diagram



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Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207
TESTED BY: David Light	DATE:

Minimum Standard:

Frequency (MHz)	Maximum Powerline Conducted RF Voltage (μ V) (dB μ V)	
0.45 - 30.0	250	48

Test Results: Complies. See attached graph(s).

Measurement Data: See attached graph(s).

Method of Measurement: **(Procedure ANSI C63.4-1992)**

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak Detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak Detector.

EQUIPMENT:
FCC ID:

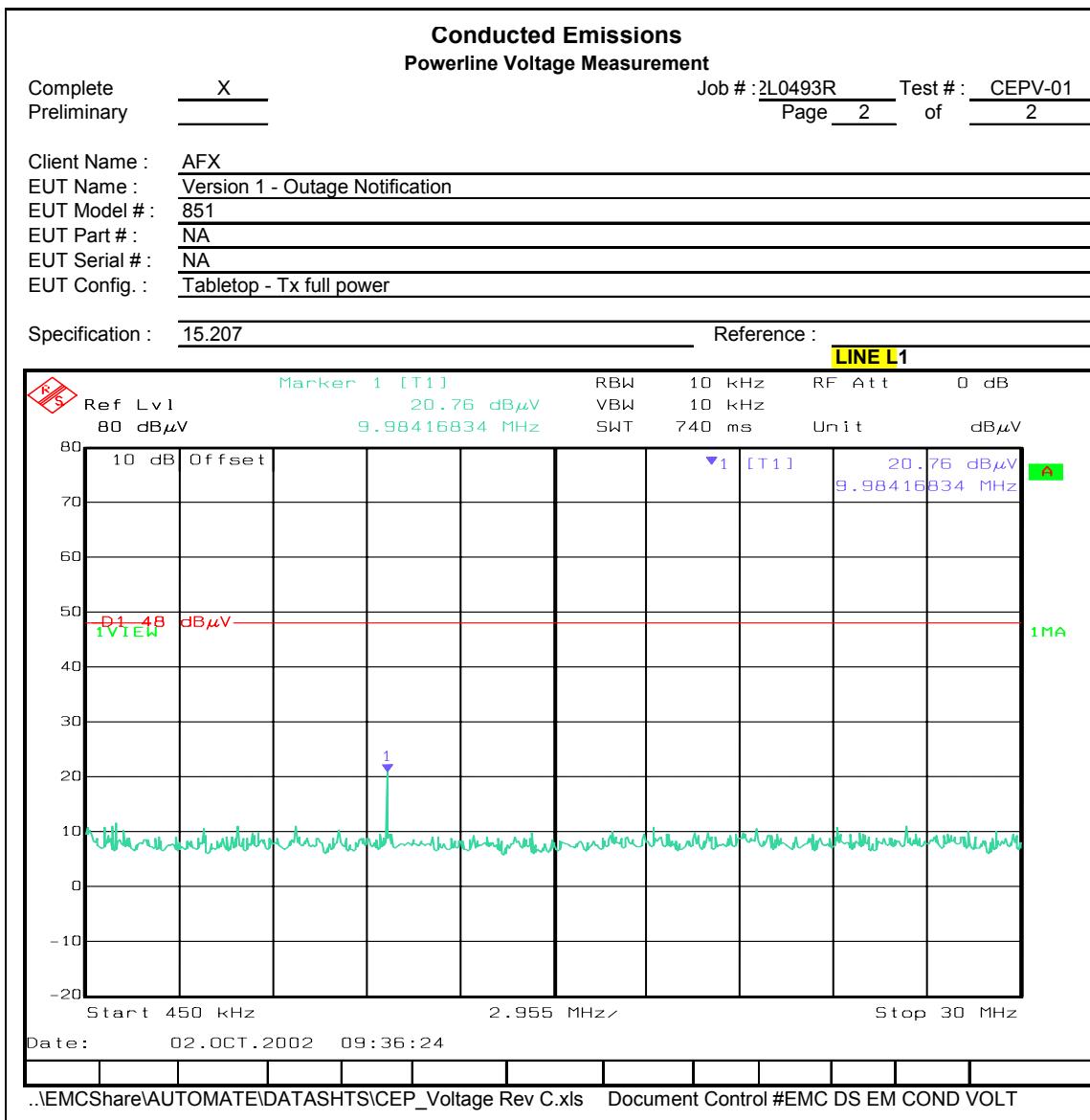
Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Conducted Emissions		Powerline Voltage Measurement																									
Complete	<input checked="" type="checkbox"/>	Job # : <u>2L0493R</u> Test # : <u>CEPV-01</u>																									
Preliminary	<input type="checkbox"/>	Page <u>1</u> of <u>2</u>																									
Client Name :	AFX																										
EUT Name :	Version 1 - Outage Notification																										
EUT Model # :	851																										
EUT Part # :	NA																										
EUT Serial # :	NA																										
EUT Config. :	Tabletop - Tx full power																										
Specification :	15.207					Reference :																					
Transducer # :	1258	Temp. (deg. C) :	24			Date : #####																					
HP Filter # :	1555	Humidity (%) :	50			Time : 9:00																					
Cable 1 # :	1547	EUT Voltage :	115			Staff : DL																					
Cable 2 # :	1534	EUT Frequency :	60			Location : Lab 2																					
Detector 1 # :	1036	Peak Bandwidth:	10kHz			Photo ID: None																					
Detector 2 # :		QP Bandwidth	10kHz																								
Limiter # :	674	Avg. Bandwidth	10kHz																								
LINE L2																											
<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%;">Ref Lvl</td> <td style="width: 20%;">Marker 1 [T1]</td> <td style="width: 20%;">RBW</td> <td style="width: 10%;">10 kHz</td> <td style="width: 10%;">RF Att</td> <td style="width: 10%;">0 dB</td> </tr> <tr> <td></td> <td>80 dBμV</td> <td>17.71 dBμV</td> <td>VBW</td> <td>10 kHz</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>9.98416834 MHz</td> <td>SWT</td> <td>740 ms</td> <td>Unit</td> <td>dBμV</td> </tr> </table>							Ref Lvl	Marker 1 [T1]	RBW	10 kHz	RF Att	0 dB		80 dB μ V	17.71 dB μ V	VBW	10 kHz					9.98416834 MHz	SWT	740 ms	Unit	dB μ V	
	Ref Lvl	Marker 1 [T1]	RBW	10 kHz	RF Att	0 dB																					
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						A																					
<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">D1-4B</td> <td style="width: 10%;">dBμV</td> <td style="width: 10%;">17.71 dBμV</td> <td style="width: 10%;">9.98416834 MHz</td> <td style="width: 10%;">1MA</td> </tr> </table>						D1-4B	dBμV	17.71 dBμV	9.98416834 MHz	1MA																	
D1-4B	dBμV	17.71 dBμV	9.98416834 MHz	1MA																							
Start 450 kHz 2.955 MHz Stop 30 MHz																											
Date: 02.OCT.2002 09:34:08																											
..\EMCShare\AUTOMATE\DATASHTS\CEP_Voltage Rev C.xls Document Control #EMC DS EM COND VOLT																											

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FCC PART 15, SUBPART C
FOR 900 MHz TRANSMITTERS
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EQUIPMENT:
FCC ID:

Conducted Photographs (Worst Case Configuration)



EQUIPMENT:

FCC ID:

Section 4. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: David Light	DATE: 10/11/2002

Minimum Standard: Para no. 15.249

(a) The field strengths shall not exceed the following:

Fundamental (MHz)	Field Strength (mV/m)	Field Strength (dB μ V)	Harmonic (mV/m)	Harmonic (dB μ V)
902-928	50	94	0.5	54

(b) Field strength limits are specified at a distance of 3 metres.

(c) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated limits of 15.209 whichever is the less attenuation.

(d) ...for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Test Results: Complies

Measurement Data: See attached table.

Footnotes:

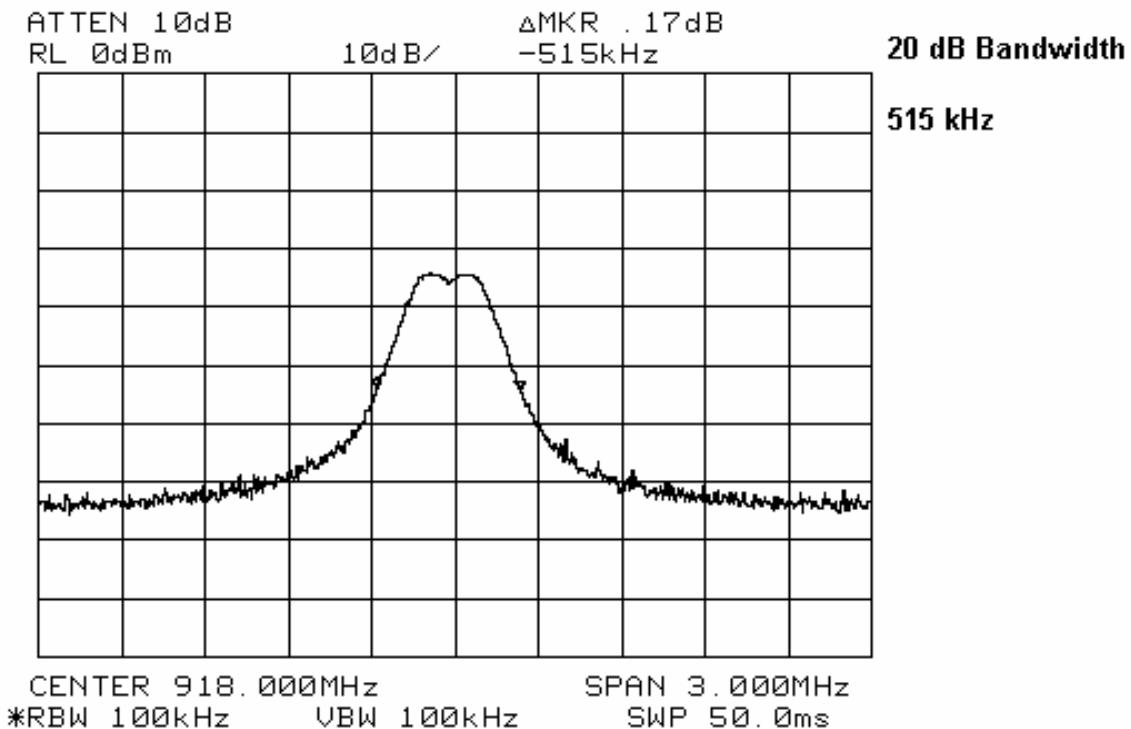
- 1) The EUT was tested at 98 Vac and 132 Vac with no variation in output power.
- 2) The EUT was tested on three orthogonal axis. The position tested was determined to be worst case.

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EQUIPMENT:
FCC ID:

20 dB Bandwidth Plot



EQUIPMENT:
FCC ID: _____

Test Data - Radiated Emissions

Radiated Emissions Data											
Complete	<u>X</u>		Job # : <u>2L0493R</u>				Test # : <u>REHE-01</u>				
Preliminary	_____		Page <u>1</u>				of <u>1</u>				
Client Name :	AFX										
EUT Name :	VERSION 1 - OUTAGE NOTIFICATION										
EUT Model # :	<u>851</u>										
EUT Part # :	NA										
EUT Serial # :	NA										
EUT Config. :	TABLETOP - TX FULL POWER										
Specification :	CFR47 Part 15, Subpart B, Class B				Reference :						
Rod. Ant. #:			Temp. (deg. C) :	<u>24</u>		Date : #####					
Bicon Ant. #:			Humidity (%) :	<u>50</u>		Time : 1:00					
Log Ant. #:	<u>759</u>		EUT Voltage :	<u>115</u>		Staff : DL					
Bilog Ant. #:			EUT Frequency :	<u>60</u>		Photo ID: NA					
Dipole Ant. #:			Phase:	<u>1</u>		Peak Bandwidth: 100 KHz					
Cable#:	<u>1983</u>		Location:	<u>AOATS</u>		Video Bandwidth 100 KHz					
Preampl#:	NA		Distance:	<u>3M</u>							
Limiter#:	NA		Additional Test Equipment Used:				1304-1016-1464-1484-1485				
Searched spectrum to the 10th harmonic of the carrier											
Meas. Freq. (MHz)	Ant. Pol. (H/V)	Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
918	H	0	59.6	23.3	9.1	0.0	92.0	94.0	-2.0	Pass	QP
918	V	0	51.5	23.3	9.1	0.0	83.9	94.0	-10.1	Pass	QP
1836	H	0	51.5	26.8	2.8	31.8	49.3	54.0	-4.7	Pass	Peak reading
2754	H	0	49.7	29.2	3.7	32.5	50.1	54.0	-3.9	Pass	Peak reading
3672	H	0	47	30.9	3.6	31.7	49.8	54.0	-4.2	Pass	Peak reading
4590	H	0	45.7	32.5	4.1	30.8	51.5	54.0	-2.5	Pass	Peak reading
5508	H	0	44.7	33.6	4.7	28.4	54.6	74.0	-19.4	Pass	Peak reading
5508	H	0	33.3	33.6	4.7	28.4	43.2	54.0	-10.8	Pass	Average reading
6426	H	0	43.8	34.8	5.2	31.9	51.9	54.0	-2.1	Pass	Peak reading
7344	H	0	44.7	36.1	5.2	34.2	51.8	54.0	-2.2	Pass	Peak reading
8262	H	0	43.2	37	5.7	33.2	52.7	54.0	-1.3	Unc.	Peak reading
9180	H	0	42	37.6	5.6	33.2	52.0	54.0	-2.0	Pass	Peak reading
1836	V	0	49.2	26.8	2.8	31.8	47.0	54.0	-7.0	Pass	Peak reading
2754	V	0	53.3	29.2	3.7	32.5	53.7	74.0	-20.3	Pass	Peak reading
2754	V	0	46.7	29.2	3.7	32.5	47.1	54.0	-6.9	Pass	Average reading
3672	V	0	51.7	30.9	3.6	31.7	54.5	74.0	-19.5	Pass	Peak reading
3672	V	0	43.5	30.9	3.6	31.7	46.3	54.0	-7.7	Pass	Average reading
4590	V	0	45.7	32.5	4.1	30.8	51.5	54.0	-2.5	Pass	Peak reading
5508	V	0	45.3	33.6	4.7	28.4	55.2	74.0	-18.8	Pass	Peak reading
5508	V	0	34.8	33.6	4.7	28.4	44.7	54.0	-9.3	Pass	Average reading
6426	V	0	41.7	34.8	5.2	31.9	49.8	54.0	-4.2	Pass	Peak reading
7344	V	0	44	36.1	5.2	34.2	51.1	54.0	-2.9	Pass	Peak reading
8262	V	0	41.5	37	5.7	33.2	51.0	54.0	-3.0	Pass	Peak reading
9180	V	0	41.7	37.6	5.6	33.2	51.7	54.0	-2.3	Pass	Peak reading

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EQUIPMENT:
FCC ID:

Section 5. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1258	LISN .15mhz-30mhz	EMCO 0	1305	07/09/02	07/09/03
1555	Filter high pass 5KHz	Solar Electronics 7930-5.0	933125	06/06/02	06/06/03
1547	CABLE .6m	KTL RG223	N/A	08/06/02	08/06/03
1534	CABLE, 9M	KTL RG223	NA	08/06/02	08/06/03
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	12/18/01	12/19/03
674	LIMITER	HP 11947A	3107A02200	CBU	NA
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	06/03/02	06/03/03
1983	CABLE	KTL Site A OATS	N/A	08/05/02	08/05/03
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	07/30/01	07/31/03
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	01/02/01	01/03/03
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	07/15/02	07/15/03
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/15/02	07/15/03
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/15/02	07/15/03

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FOR 900 MHz TRANSMITTERS
PROJECT NO.:
ANNEX A

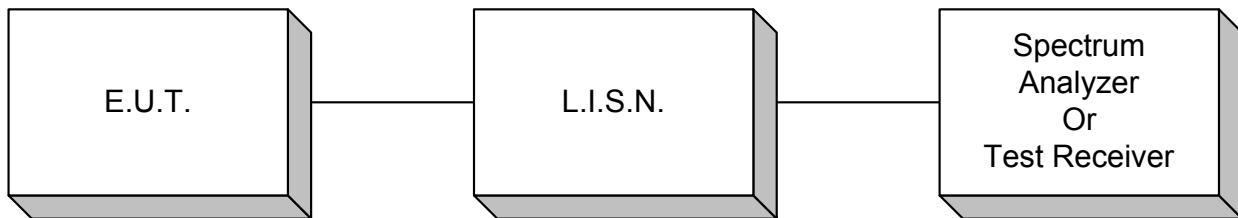
EQUIPMENT:
FCC ID:

ANNEX A

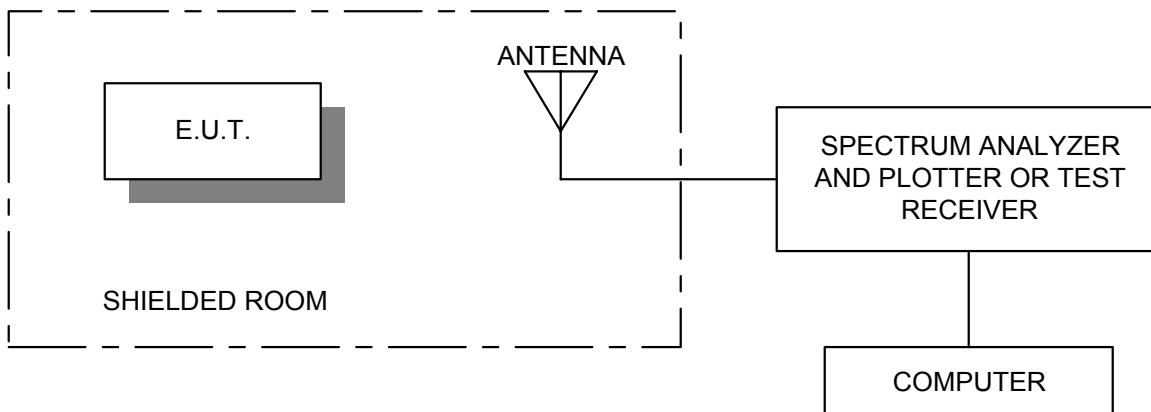
TEST DIAGRAMS

EQUIPMENT:
FCC ID:

Conducted Emissions



Radiated Prescan



EQUIPMENT:
FCC ID:

Test Site For Radiated Emissions

