Nemko Test Report:	6L0174RUS1
Applicant:	Allflex-Boulder 2820 Wilderness Place, Suite A Boulder, CO 80301 USA
Equipment Under Test: (E.U.T.)	RS601-3
In Accordance With:	**FCC Part 15, Subpart C, Paragraph 15.209** General Limits For Low Power Transmitters
Tested By:	Nemko USA Inc. 802 N. Kealy Lewisville, TX 75057 USA
Authorized By:	 Abe Cox, Key Account Manager
Date:	August 7, 2006
Number of pages:	18

Table Of Contents

Section 1. Summary Of Test Results

Manufacturer: Allflex

Model No.: RS601-3

Serial No.: 206302199

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, Subpart C for low power devices. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site.

☒	New Submission	☒	Production Unit
☐	Class II Permissive Change	☐	Pre-Production Unit

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: 100426-0

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This report applies only to the items tested.

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Powerline Conducted Emissions	15.207	Complies
Radiated Emissions	15.209	Complies
Occupied Bandwidth	Not Specified	Tested

Section 2. General Equipment Specification

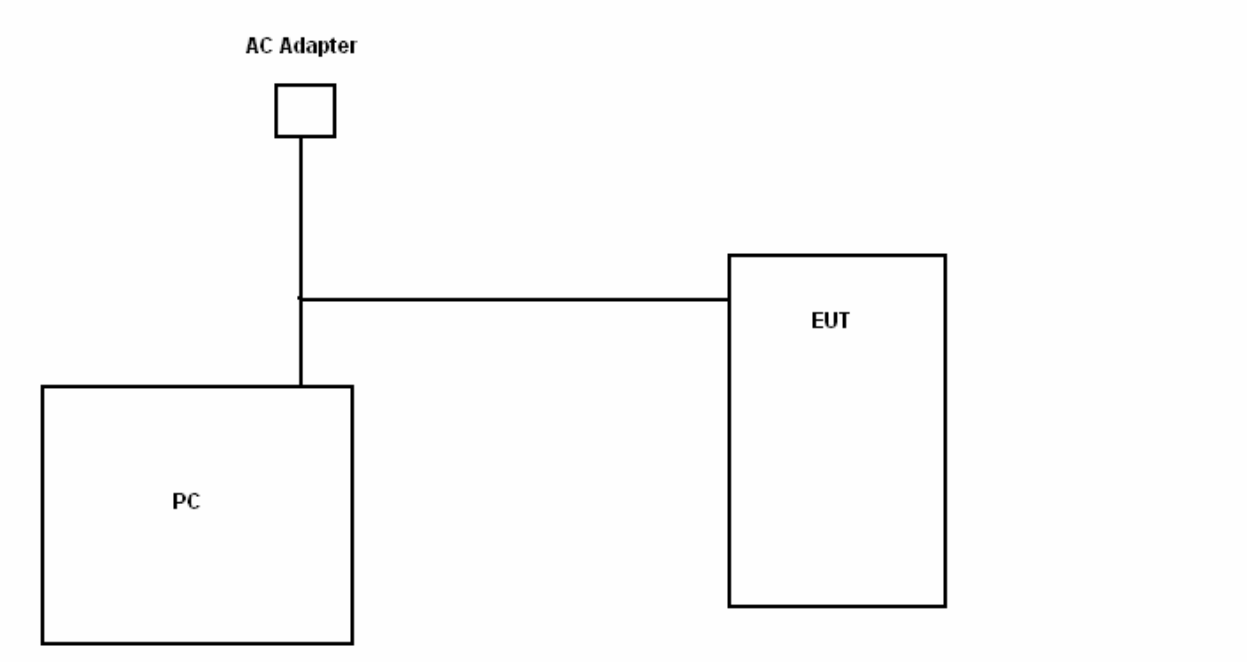
Frequency Range:	134.2 kHz Fixed
Operating Frequency(ies) of Sample:	134.2 kHz
20 dB Bandwidth	5.00 kHz

	Yes	No
Integral Antenna	☒	☐

Description of DUT

Handheld RFID reader

System Diagram



EUT: Allflex RS601-3
Charger: Allflex 95948 JL05
PC: Compaq Evo N600C

Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207
TESTED BY: David Light	DATE: 03 August 2006

Test Results: Complies. The worst-case emission level is 47.8 dBμV at 17.16 MHz on the hot side of the line. This is 2.24 dB below the average specification limit of 50 dBμV. This is a peak measurement.

Minimum Standard: §15.207 Conducted limits.

(a) 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 Conducted Emission (MHz)	Limit (dBmV) Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

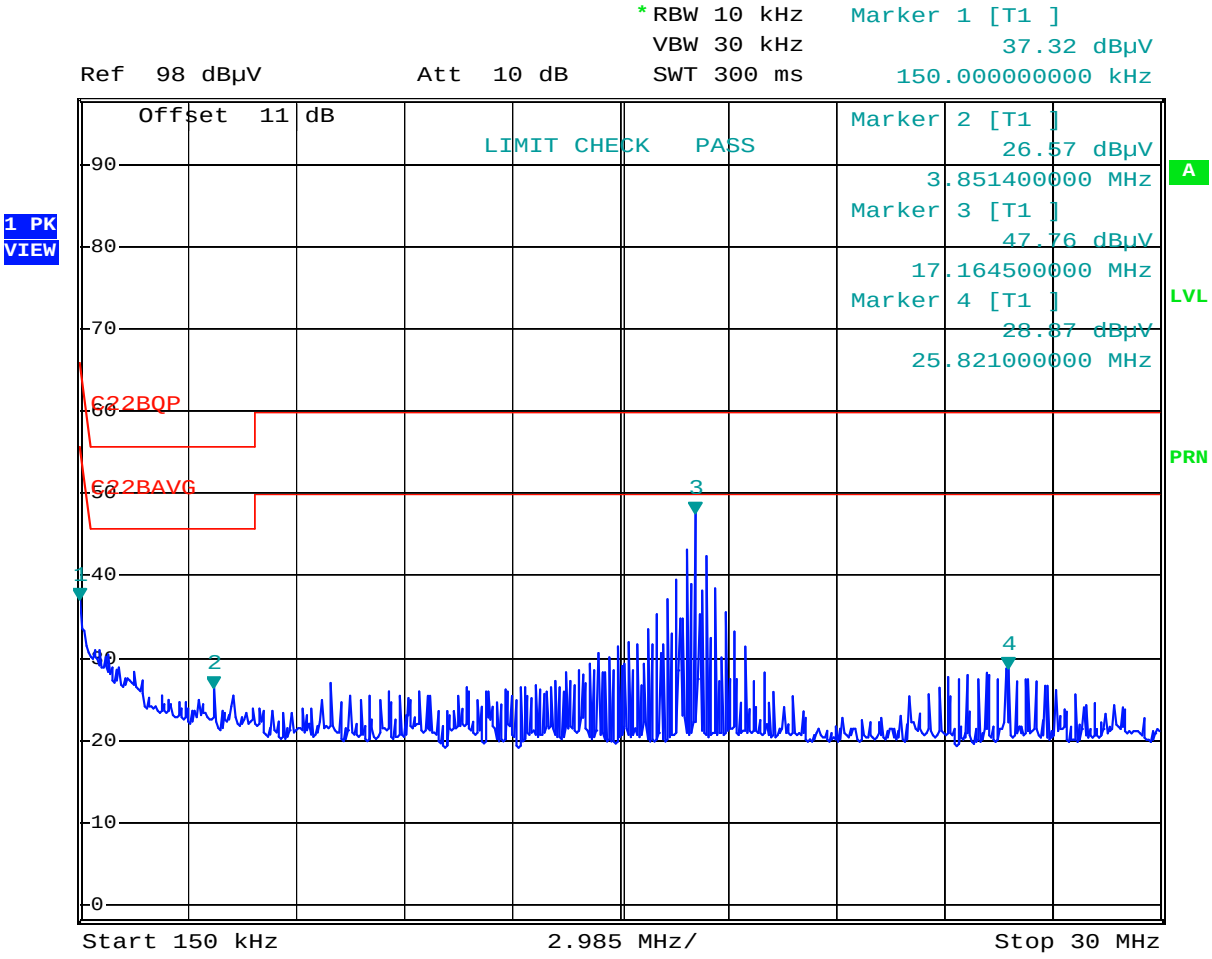
* Decreases with the logarithm of the frequency.

Measurement Data: See attached graph(s).

Method of Measurement: (Procedure ANSI C63.4-2003)

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 9 kHz bandwidth, CISPR Quasi-Peak Detector.

Test Data – Powerline Conducted Emissions



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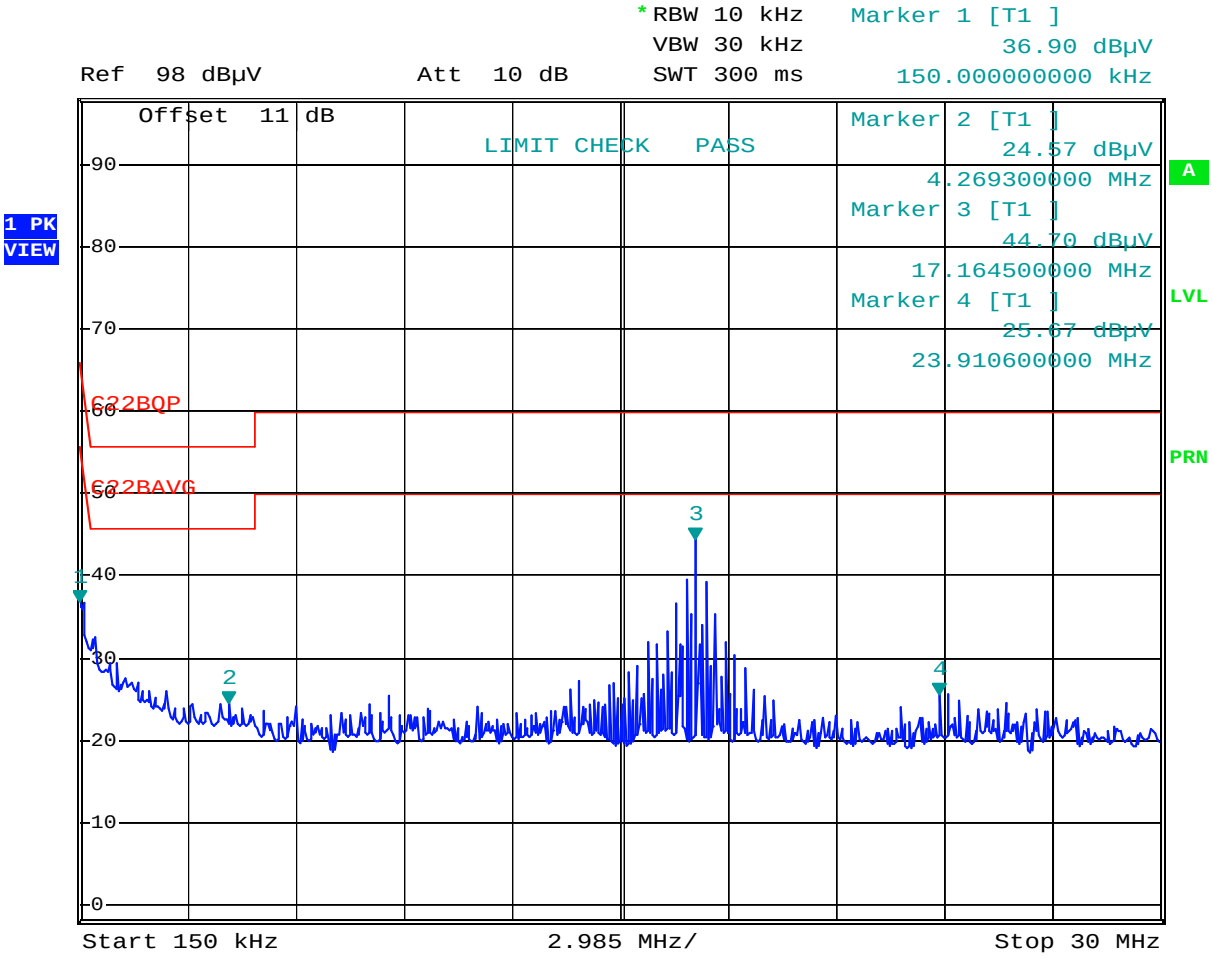
Line

Test Data – Powerline Conducted Emissions



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Neutral

Test equipment used: 1188-1977-704-1663-674-2076

22ºC / 32% RH

Powerline Conducted Photographs

Section 4. Radiated Emissions

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.209
TESTED BY: David Light	DATE: 02 August 2006

Minimum Standard: The field strength of emissions from the device shall not exceed the following limits.

Fundamental (MHz)	Field Strength (μV/m)	Field Strength (dBμV)
0.009 - 0.490	2400/F(kHz) @ 300m	—
0.490 - 1.705	24000/F(kHz) @ 30m	—
1.705 - 30	30 @ 30m	—
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Test Results: Complies. The worst-case emission level is 53.1 dBμV/m @ 3m at 134.2 MHz. This is 51.9 dB below the specification limit.

Measurement Data: **(Procedure ANSI C63.4-2003)**

Maximizing Emission Levels:
For hand held equipment or equipment that may be mounted in a variety of positions, the E.U.T. was tested on three orthogonal axis to determine orientation of worst-case emission levels. Below 30 MHz an active loop antenna is used at a fixed height of 1 meter. The loop is rotated about it's vertical axis to obtain worst-case results.

Spectrum Searched:
The spectrum was searched from the lowest frequency generated in the E.U.T. up to 1000 MHz, or the 10^{th} harmonic of the fundamental emission.

Near-Field Measurement:
Emissions below 30 MHz are measured in the near-field and an extrapolation factor of 40 dB per decade is used to determine the 10m limit.

Example: Measurement Distance = 10m
Specification Distance = 300m

10m Limit: Specified limit (at 300m) - (40 Log $\frac{10}{300}$)

Thus for measurement at 10m the specified limit is increased by 59 dB.

Test Data - Radiated Emissions

Radiated Emissions Data

Complete	X		Job # :	6L0174	Test # : REHE-01
Preliminary			Page	1	of 1

EUT Model # :	RS601-3				
EUT Part # :	930043-001				
EUT Serial # :	206302199				
EUT Config. :	Tx continuous - Terminated to laptop PC and Charger				
Specification :	15.209			Reference :	
Loop Ant. #:	1140	Temp. (deg. C) :	29	Date :	08/02/05
Bicon Ant.#:		Humidity (%) :	32	Time :	8:00
Log Ant.#:				Staff :	D. Light
Bilog Ant.#:				Photo ID:	NA
Dipole Ant.#:				Peak Bandwidth:	10 kHz
Cable 1 #:	2074			Video Bandwidth	10 kHz
Cable 2 #:		Distance:	3 m		
Limiter#:	na				
Atten #:	na				
Detector#:	1659				

Meas. Freq. (kHz)	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 Unc.	Comment
134.2	Loop	0	48.5	3.6	1.0	0.0	53.1	105.0	-51.9	Pass	Carrier
268.4	Loop	0	12.5	0	1.0	0.0	13.5	99.0	-85.5	Pass	Noise floor
402.6	Loop	0	19.5	-4.2	1.0	0.0	16.3	95.5	-79.2	Pass	Noise floor
536.8	Loop	0	21.1	-6.1	1.0	0.0	16.0	73.0	-57.0	Pass	Noise floor
1342	Loop	0	12	-12	1.0	0.0	1.0	68.0	-67.0	Pass	Noise floor

Searched spectrum 9 kHz to 1.5 MHz (10th Harmonic) - No emissions were detected within 20 dB of specification.

The device was tested with fresh batteries with charger attached.

The device was tested on three orthogonal axis'.

Radiated Photographs (Worst Case Configuration)

Section 5. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: N/A
TESTED BY: David Light	DATE: 03 August 2006

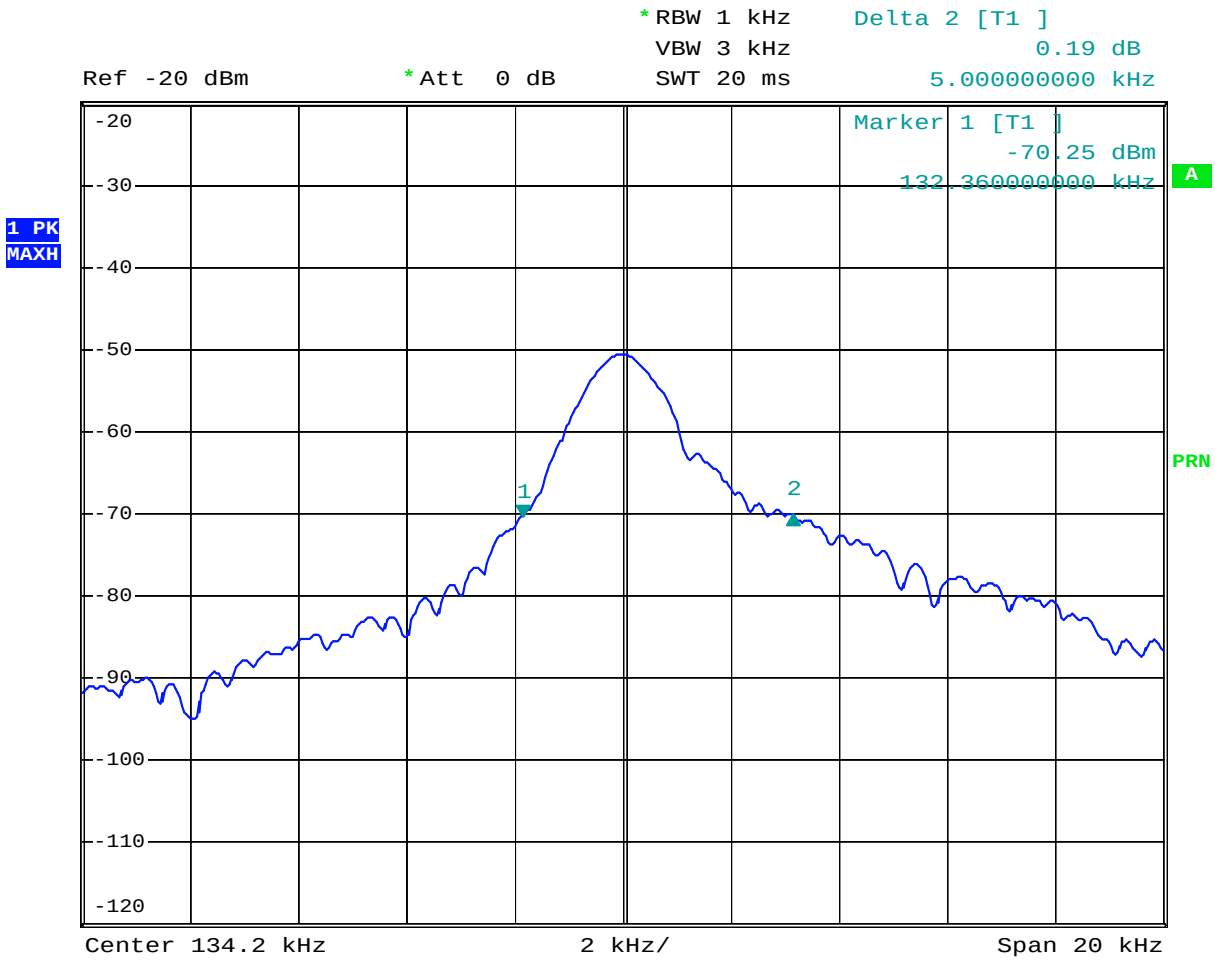
Minimum Standard: Not specified.

Test Results: The 99% power occupied bandwidth is 5.0 kHz.

Measurement Data: See attached graph(s).

Method of Measurement:

A spectrum analyzer was used to measure the 99% power occupied bandwidth of the fundamental emission. This value is used as the bandwidth for the emission designator.



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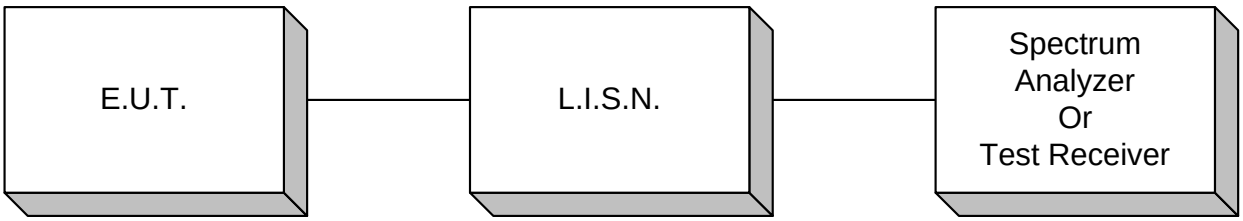
Section 6. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1188	LISN	EMCO 3825/2	1214	04/19/06	04/19/07
1977	CABLE, .8m	Nemko USA, Inc. RG223	N/A	03/09/06	03/09/07
704	FILTER, HIGH PASS, 5 KHz	SOLAR 7930-5.0	933126	04/20/06	04/20/07
1663	Spectrum Analyzer	Rhode & Schwarz FSP	973351	05/18/06	05/18/07
674	LIMITER	HP 11947A	3107A02200	04/19/06	04/19/07
2076	Cable	Nemko USA, Inc. None	None	08/10/05	08/10/06
1140	ACTIVE LOOP ANTENNA	A.H. SYSTEMS SAS-200/562B	213	03/09/06	03/09/08
2074	Cable	Nemko USA, Inc. None	None	08/10/05	08/10/06
1659	Spectrum Analyzer	Rhode & Schwarz FSP	973353	01/10/06	01/10/07

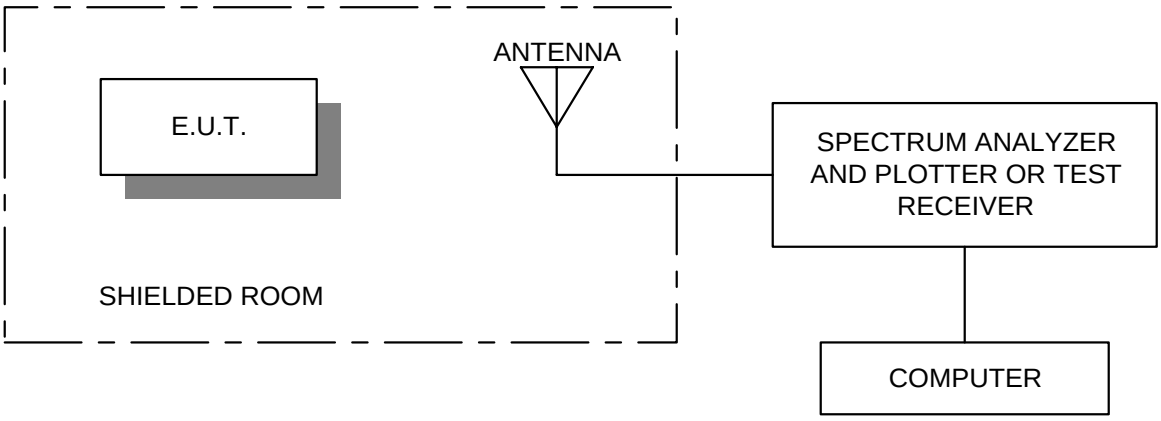
ANNEX A

TEST DIAGRAMS

Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions