Exhibit 6: Test Report

TEST REPORT FROM:

COMMUNICATION CERTIFICATION LABORATORY

Type of Report: Certification

TEST OF: DRD225RD

FCC ID: G95DSS98B

To FCC PART 15, Subpart B

Test Report Serial No: 73-6559

Applicant:

Thomson Consumer Electronics, Inc.
P.O. Box 6139
Indianapolis, IN 46206-6139

Issue Date: June 22, 1998

Dates of Test: June 18, 1998

CERTIFICATION OF ENGINEERING REPORT

This report has been prepared by Communication Certification Laboratory to determine compliance of the device described below with the requirements of FCC PART 15, Subpart B. This report may be reproduced in full, partial reproduction may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

- Applicant: Thomson Consumer Electronics, Inc.
- Manufacturer: Thomson Consumer Electronics, Inc.
- Brand Name: RCA
- Model Number: DRD225RD
- FCC ID: G95DSS98B

On this 22nd day of June, 1998, I, individually, and for Communication Certification Laboratory, certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge, and are made in good faith.

COMMUNICATION CERTIFICATION LABORATORY

Checked by: Roger J. Midgley
EMC Manager

Tested by: Jeffrey L. Draney
EMC Technician

SECTION 1. CLIENT INFORMATION AND RESPONSIBLE PARTY:

1.1 Client Information:

Company Name: Thomson Consumer Electronics, Inc.
P.O. Box 6139
Indianapolis, IN 46206-6139

Contact Name: Eugene E. Janson
Title: Compliance Manager

SECTION 2. EQUIPMENT UNDER TEST (EUT)

2.1 Identification of EUT:

Trade Name: RCA
Model Name or Number: DRD225RD
Country of Manufacture: Mexico

2.2 Description of EUT:

The DRD225RD is a digital satellite receiver to be used for Ku-Band satellite transmission. The DRD225RD receives a 974 to 1426 MHz signal from the LNB and converts the signal to a standard modulated TV signal (channel 3 or 4).

The DRD225RD provides the following features: Channel 3/4 RF modulator, S-video, composite video, right/left audio output, VCR IR output, telco jack, home control data port, satellite tuner input and ac input. Universal TV, VCR, Cable remote control.

The DRD225RD Digital Satellite Receiver has nine different models, (RCA DRD222RB, RCA DRD225RD, RCA DS325RD, DSS NS2151ND, DSS NS2251ND, RCA DS223RD, RCA DCD205RD, TBD VS2255TD, RCA DSM232RD). All models utilize the same PC boards. The DRD225RD is the fully populated satellite receiver, which features an UHF RF Remote Control receiver (FCC ID:G95REM001). The data used in this report reflects the DRD225RD satellite receiver.

2.3 Modification Incorporated/Special Accessories on EUT:

There were no modifications or special accessories required to comply with the specification.

Signature: Eugene E. Janson

Title: Compliance Manager

2.4 EUT and Support Equipment:

The FCC ID numbers for all the EUT and support equipment used during the test are listed on the following page:

Brand Name Model Number Serial No.	FCC ID Number	Description	Name of Interface Ports/Interface Cables
BN: RCA MN: F27732SB SN: 641411834 (2)	N/A	27″ color Television	Composite video audio, video In, RF In./ RG-59 cables fitted with F connectors, RCA connectors, S-video.
BN: RCA MN: DRD225RD (1)	G95DSS98B	Satellite Receiver	Composite video audio, RF Out, RF In, Dish Input, Modem Port/ RG-59 cables fitted with F connectors, RCA connectors, Coaxial cable, VCR Control Output, Modular cable.
BN: X-10 MN: CM11A	B4SCM10A	2 Way Computer Interface	Unshielded modular cable (2).
BN: Toshiba MN: 2060	N/A	2 X 6 PBX	Modular Telephone cables (2).

Note:
(1) EUT
(2) Interface port connected to EUT (See Section 2.5)

The support equipment listed was not modified in order to achieve compliance with this standard.

2.5 Interface Ports on EUT:

Name of Port(s)	No. of Ports Fitted to EUT.	Cable Descriptions/Length
S-video	One	Mini DIN cable.
Baseband Video Out	One	Shielded RCA cable.
Audio Out	Two	Shielded RCA cable.
Dish Input	One	Coaxial cable.
Infrared Control Circuit	One	Unshielded VCR Control Output.
UHF remote control Receiver	One	Coax cable.
Modem port	One	Modular telephone cable.
Home Control	One	Modular telephone cable.
TV Antenna Input	One	Coaxial cable.
RF Output to TV	One	Coaxial cable.

SECTION 3. TEST SPECIFICATION, METHODS & PROCEDURES

3.1 Test Specification:

Title: FCC PART 15, Subpart B (47 CFR 15).

Limits and methods of measurement of radio interference characteristics of radio frequency devices.

Purpose of Test: The tests were performed to demonstrate Initial compliance.

3.2 Methods & Procedures:

3.2.1 § 15.107 Conducted Limits

(a) Except for Class A digital devices, for equipment 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 450 kHz to 30 MHz shall not exceed 250 microvolts. Compliance with the provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

(b) For a Class A digital device 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 450 kHz to 30 MHz shall not exceed the limits in the following table. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals. The lower limit applies at the band edges.

Frequency of emission (MHz)	Conducted limit (microvolts)
0.45 - 1.705	1000
1.705 - 30.0	3000

3.2.2 § 15.109 Radiated Limits

(a) 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 (microvolts/meter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

(b) The field strength of radiated emission from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of emission (MHz)	Field Strength (microvolts/meter)
30 - 88	90
88 - 216	150
216 - 960	210
Above 960	300

(c) In the emission tables above, the tighter limit applies at the band edges. §15.33 and §15.35 which specify the frequency range over which radiated emissions are to be measured and the detector functions and other measurement standards apply.

3.2.3 Output Signal Level

The voltage corresponding to the peak envelope power of the video modulated signal during maximum amplitude peaks across a resistance (R ohms) matching the rated output impedance of the device, shall not exceed 346.4 times the square root of (R) microvolts. The voltage corresponding to peak envelope power of the sound modulated signal, if provided by the TV interface device, shall not exceed 77.5 times the square root of (R) microvolts.

Criteria

R = 75 ohms, the maximum allowable RMS output voltage of the video carrier is 3000 microvolts and that of the sound carrier, if provided, is 671 microvolts.

3.2.4 Output Terminal Conducted Interference Limits

At any RF output terminal, the maximum voltage of any emission appearing on frequencies removed by more than 4.6 MHz below or 7.4 MHz above the video carrier frequency on which the

TV interface device is operated shall not exceed 10.95 times the square root of (R) microvolts when terminated with a resistance (R ohms) matching the rated output impedance of the TV interface device.

Criteria

R = 75 ohms, the maximum allowable RMS output terminal conducted interference is 94.8 microvolts.

3.2.5 Transfer Switch

(a) A TV interface device shall be equipped with the receiver transfer switch for connecting the antenna terminals of the TV receiver selectively to either the receiving antenna or to the radio frequency output of the TV interface device. In either position, the maximum voltage at the receiving antenna input terminals of the switch when terminated with a resistance (R ohms) matching the rated impedance of the antenna input of the switch, shall not exceed 0.346 times the square root of (R) microvolts. The maximum voltage shall correspond to peak envelope power of the video modulated signal during maximum amplitude peaks.

(b) A transfer switch is not required for a TV interface device that, when connected, results in the user no longer having any need to receive standard over-the-air broadcast signals via a separate antenna. A transfer switch is also not required for devices that are intended to be used as accessories to an approved TV Interface Device.

Criteria

R = 75 ohms, the maximum allowable RMS voltage from the transfer switch is 3.0 microvolts.

3.2.6 Section 15.111 Antenna power conduction limits for receivers:

With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminals at any frequency within the range of measurements specified in 15.33 shall not exceed 2.0 nanowatts.

The DRD225RD RF remote control antenna connector was connected to the spectrum analyzer using a 50 to 75 ohm matching

transformer. The frequency range from 30 MHz to 3.1 GHz was scanned.

Criteria

The maximum allowable antenna power conduction is 2.0 nanowatts (-57.0 dBm).

3.2.7 Test Procedure

The line conducted, radiated emissions and TV interface direct connect testing was performed according to the procedures in ANSI C63.4 (1992). Testing was performed at CCL's Wanship open area test site #2, located at 550 West Wanship Road, Wanship, UT. This site has been fully described in a report submitted to the FCC, and was accepted in a letter dated October 29, 1997 (31040/SIT).

CCL participates in the National Voluntary Laboratory Accreditation Program (NVLAP) and has been accepted under NVLAP Lab Code:100272-0, which is effective until September 30,1998.

For radiated emissions testing that is performed at distances closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

SECTION 4. OPERATION OF EUT DURING TESTING.

4.1 Operating Environment:

Power Supply: 120VAC
AC Mains Frequency: 60Hz

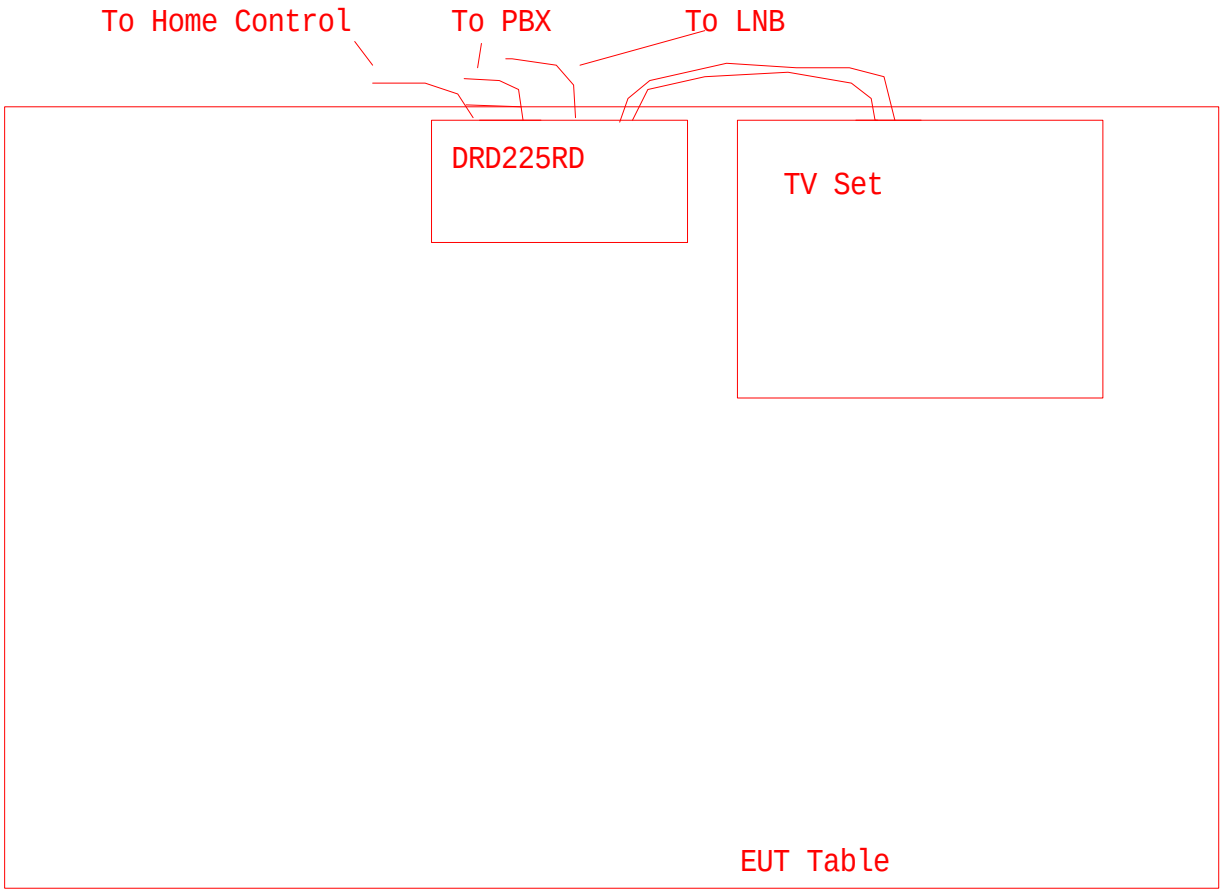
4.2 Operating Modes:

The DRD225RD was receiving a feed from the satellite and outputting video & audio signals to the TV.

4.3 Configuration & Peripherals:

The DRD225RD was placed on the table and connected to the support equipment listed in Section 2.4 via each port listed in Section 2.5. Shown in Section 4.4 is a block diagram of the test configuration.

4.4 Block Diagram of Test Configuration:



SECTION 5. SUMMARY OF TEST RESULTS:

5.1 FCC PART 15, Subpart B

5.1.1 Summary of Tests:

Port	Environmental Phenomena	Frequency Range (MHz)	Result
AC Power	Line Conducted - (Hot Lead to Ground)	0.45 to 30	Complied
AC Power	Line Conducted - (Neutral Lead to Ground)	0.45 to 30	Complied
Enclosure	Radiated Interference Field Strength (Vertical Polarity)	30 to 5000	Complied
Enclosure	Radiated Interference Field Strength (Horizontal Polarity)	30 to 5000	Complied
Enclosure	TV Interface Direct Connect tests.	30 to 1000	Complied

5.2 Result

In the configuration tested, the EUT complied with the requirements of the specifications; however, the results of the following tests were within measurement uncertainties of the limit: Radiated Emissions - (Vertical Polarity) and Radiated Emissions - (Horizontal Polarity).

SECTION 6. MEASUREMENTS, EXAMINATIONS AND DERIVED RESULTS:

6.1 General Comments:

This section contains the test results only. Details of the test methods used, etc., can be found in Appendix 2 of this report.

6.2 Measurements Uncertainties:

The measurement uncertainties stated were calculated in accordance with the requirements of NAMAS Document NIS63 with a confidence level of 95%. The complete measurements uncertainty budget including the calculations can be found in Appendix 4 of this report.

Tests Performed	Total Measurement Uncertainty
Radiated Interference - Biconical Antenna @ 3 Meters (30 MHz to 200 MHz)	± 4.3 dB
Radiated Interference - Biconical Antenna @ 10 Meters (30 MHz to 200 MHz)	± 4.3 dB
Radiated Interference - Log-Periodic Antenna @ 3 Meters (200 MHz to 1 GHz)	± 6.0 dB
Radiated Interference - Log-Periodic Antenna @ 10 Meters (200 MHz to 1 GHz)	± 2.7 dB
Line Conducted - (10 kHz to 30 MHz)	± 3.3 dB
TV Interface Direct Connect - (30 MHz to 1000 MHz)	N/A

6.3 Test Results:

6.3.1 Line Conducted Data - (Hot Lead)

Frequency MHz	Detector	Measured Level $dB\mu V$	Limit $dB\mu V$
0.46	Peak	35.1	48.0
0.60	Peak	28.3	48.0
10.05	Peak	28.5	48.0
10.64	Peak	27.3	48.0
12.83	Peak	26.4	48.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was: ± 3.3 dB.

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 12.9 dB.

6.3.2 Line Conducted Data - (Neutral Lead)

Frequency MHz	Detector	Measured Level $dB\mu V$	Limit $dB\mu V$
9.79	Peak	29.8	48.0
10.05	Peak	30.5	48.0
10.61	Peak	28.8	48.0
13.84	Peak	27.0	48.0
20.19	Peak	25.1	48.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was: ± 3.3 dB.

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 17.5 dB.

6.3.3 Radiated Interference Level Data (Vertical Polarity)

Frequency MHz	Detector	Receiver Reading $dB\mu V$	Correction Factor dB	Corrected Reading $dB\mu V/m$	3 m Limit $dB\mu V/m$
168.2	Peak	23.6	11.0	34.6	43.5
209.6	Quasi-Peak	27.4	13.2	40.6	43.5
243.2	Peak	21.5	14.8	36.3	46.0
315.2	Peak	22.1	17.7	39.8	46.0
320.0	Peak	21.4	18.1	39.5	46.0
336.0	Peak	18.5	18.0	36.5	46.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was: ± 4.3 dB (30 MHz to 200 MHz) and ± 6.0 dB @ 3 meters ± 2.7 dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 2.9 dB; however, this value is within measurement uncertainties stated for this test.

6.3.4 Radiated Interference Level Data (Horizontal Polarity)

Frequency MHz	Detector	Receiver Reading dBμV	Correction Factor dB	Corrected Reading dBμV/m	3 m Limit dBμV/m
168.2	Peak	21.7	11.0	32.7	43.5
243.2	Peak	20.7	14.8	35.5	46.0
294.4	Peak	19.3	16.3	35.6	46.0
315.2	Peak	18.0	17.7	35.7	46.0
320.0	Peak	18.4	18.1	36.5	46.0
336.0	Peak	23.1	18.0	41.1	46.0
377.6	Peak	16.4	19.4	35.8	46.0

Measurement Uncertainty

The measurement uncertainty (with a 95% confidence level) for this test was: ± 4.3 dB (30 MHz to 200 MHz) and ± 6.0 dB @ 3 meters ± 2.7 dB @ 10 meters (200 MHz to 1 GHz).

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 4.9 dB; however, this value is within measurement uncertainties stated for this test.

6.3.5 Output Signal Level

CHANNEL 3

Frequency MHz	Level μV	Criteria Limit μV
61.29	1230.00	3000.0
65.80	180.00	671.0

CHANNEL 4

Frequency MHz	Level μV	Criteria Limit μV
67.31	1050.00	3000.0
71.87	180.00	671.0

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 7.7 dB.

6.3.6 Output Terminal Conducted Interference Limits

CHANNEL 3

Frequency MHz	Level μV	Criteria Limit μV
47.84	11.50	94.8
52.44	10.20	94.8
122.80	30.20	94.8
184.30	10.8	94.8

CHANNEL 4

Frequency MHz	Level μV	Criteria Limit μV
53.88	11.50	94.8
58.43	8.91	94.8
134.70	24.50	94.8
201.60	8.41	94.8

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 25.7 dB.

6.3.7 Transfer Switch

CHANNEL 3 WITH POWER ON

Frequency MHz	Level μV	Criteria Limit μV
61.29	2.04	3.0

CHANNEL 3 WITH POWER OFF

Frequency MHz	Level μV	Criteria Limit μV
61.45	1.97	3.0

CHANNEL 4 WITH POWER ON

Frequency MHz	Level μV	Criteria Limit μV
67.35	1.53	3.0

CHANNEL 4 WITH POWER OFF

Frequency MHz	Level μV	Criteria Limit μV
67.35	1.29	3.0

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 3.3 dB.

6.3.8 Section 15.111 Antenna power conduction limits for receivers:

Frequency MHz	Level dBm	Criteria Limit dBm
308.0	-69.8	-57.0
616.0	-85.2	-57.0
1650.0	-84.4	-57.0
1958.0	-69.7	-57.0
2574.0	-87.7	-57.0
2684.0	-88.1	-57.0

Comments

A detailed description of the test configuration can be found in Appendix 2 of this report.

RESULT

The EUT complied with the specification limit by a margin of 12.7 dB.

6.4 Sample Field Strength Calculation:

The field strength is calculated by adding the Correction Factor (Antenna Factor + Cable Factor), to the measured level from the receiver. The basic equation with a sample calculation is shown below:

FS = RA + CF Where

RA = Receiver Amplitude
CF = Correction Factor (Antenna Factor + Cable Factor)

Assume a receiver reading of 52.5 $dB\mu V$ is obtained from the receiver. The correction factor of 8.5 dB is added to the receiver reading, giving a field strength of 61.0 $dB\mu V/m$.

APPENDIX 1 TEST PROCEDURES AND TEST EQUIPMENT

Line Conducted Emissions:

The line-conducted emission from the digital apparatus was measured using a spectrum analyzer with a quasi-peak adapter for peak, quasi-peak and average readings. The quasi-peak adapter uses a bandwidth of 9 kHz, with the spectrum analyzer's resolution bandwidth set at 100 kHz, for readings in the 450 kHz to 30 MHz frequency range.

The line conducted emissions measurements are performed in a screen room using a (50 Ω/50 μH) Line Impedance Stabilization Network (LISN).

Where mains flexible power cords are longer than 1 m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4 m in length.

Where the EUT is a collection of digital apparatus with each digital apparatus having its own power cord, the point of connection for the LISN is determined from the following rules:

a) Each power cord, which is terminated in a mains supply plug, shall be tested separately.
b) Power cords, which are not specified by the manufacturer to be connected via a host unit, shall be tested separately.
c) Power cords which are specified by the manufacturer to be connected via a host unit or other power supplying equipment shall be connected to that host unit and the power cords of that host unit connected to the LISN and tested.

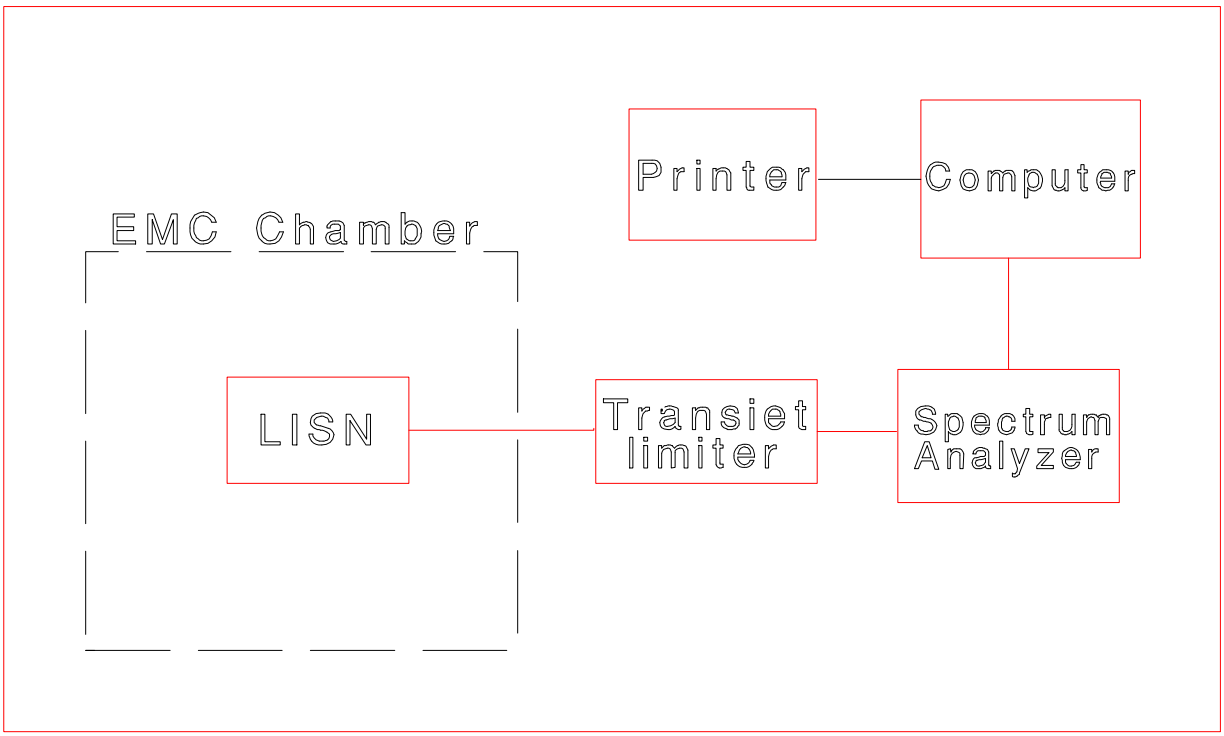
Desktop digital apparatus are placed on a non-conducting table at least 80 cm from the metallic floor. The equipment is placed a minimum of 40 cm from all walls. Floor standing equipment is placed directly on the earth grounded floor.

Type of Equipment	Manufacturer	Model Number	Serial Number
Wanship Open Area Test Site #2	CCL	N/A	N/A
Test Software	CCL	Conducted Emissions	Revision 1.2
Spectrum Analyzer	Hewlett Packard	8566B	2332A02726
Quasi-Peak Detector	Hewlett Packard	8565A	2043A00287

Type of Equipment	Manufacturer	Model Number	Serial Number
LISN	EMCO	3825/2	9305-2099
Conductance Cable Wanship Site #2	CCL	Cable J	N/A
Transient Limiter	Hewlett Packard	11947A	3107A02266

All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal following outlined calibration procedures.

Line Conducted Emissions Test



Radiated Interference Emissions:

The radiated emission from the digital apparatus was measured using a spectrum analyzer with a quasi-peak adapter for peak and quasi-peak readings. A preamplifier with a fixed gain of 26 dB and a power amplifier with a fixed gain of 22 dB were used to increase the sensitivity of the measuring instrumentation. The quasi-peak adapter uses a bandwidth of 120 kHz, with the spectrum analyzer's resolution bandwidth set at 1 MHz, for readings in the 30 to 1000 MHz frequency range.

A biconilog antenna was used to measure the frequency range of 30 to 1000 MHz and a Double Ridge Guide antenna was used to measure the frequency range of 1000 MHz to 5000 MHz, at a distance of 3 meters from the EUT. The readings obtained by these antennas are correlated to the levels obtained with a tuned dipole antenna by adding antenna factors.

The configuration of the digital apparatus was varied to find the maximum radiated emission. The EUT was connected to the peripherals listed in Section 2.4 via the interconnecting cables listed in Section 2.5. These interconnecting cable were manipulated manually by a technician to obtain worst case radiated emissions. The digital apparatus was rotated 360 degrees, and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission. Where there were multiple interface ports all of the same type, cables are either placed on all of the ports or cables added to these ports until the emissions do not increase by more than 2 dB.

Desktop digital apparatus is measured on a non-conducting table one meter above the ground plane. The table is placed on a turntable which is level with the ground plane. The turntable has slip rings, which supply AC power to the digital apparatus. For equipment normally placed on floors, the equipment shall be placed directly on the turntable.

Type of Equipment	Manufacturer	Model Number	Serial Number
Wanship Open Area Test Site #2	CCL	N/A	N/A
Test Software	CCL	Radiated Emissions	Revision 1.3
Spectrum Analyzer	Hewlett Packard	8566B	2332A02726
Quasi-Peak Detector	Hewlett Packard	8565A	2043A00287

Type of Equipment	Manufacturer	Model Number	Serial Number
Biconilog Antenna	EMCO	3142	9601-1008
Double Ridged Guide Antenna	EMCO	3115	2129
3 Meter Radiated Emissions Cable Wanship Site #2	CCL	Cable K	N/A
10 Meter Radiated Emissions Cable Wanship Site #2	CCL	Cable L	N/A
Pre/Power-Amplifier	Hewlett Packard	8447F	3113A05161
6 dB Attenuator	Hewlett Packard	8491A	32835

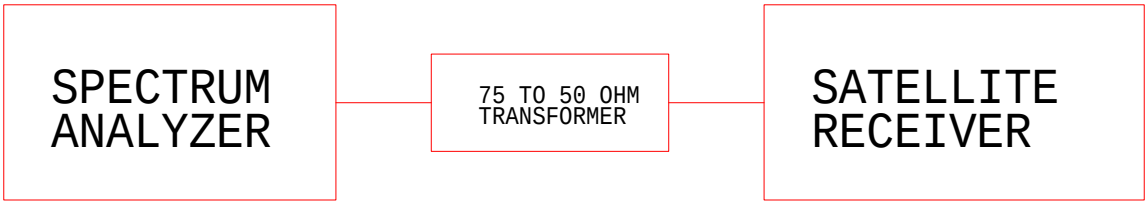
All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal following outlined calibration procedures.

TV Interface Direct Connect Tests:

Measurements were made with a 75 to 50 ohm matching transformer. The measurement data was compensated by 1.8 dB for the loss in the matching transformer. A preamplifier with a fixed gain of 26 dB and a power amplifier with a fixed gain of 22 dB were used to increase the sensitivity of the measuring instrumentation. The spectrum analyzer's resolution bandwidth set at 100 kHz for readings in the 30 to 1000 MHz frequency range, and 1 MHz for readings above 1000 MHz.

Type of Equipment	Manufacturer	Model Number	Serial Number
Wanship Open Area Test Site #2	CCL	N/A	N/A
Spectrum Analyzer	Hewlett Packard	8566B	2332A02726
Quasi-Peak Detector	Hewlett Packard	8565A	2043A00287
Low Loss Cable Wanship Site #2	CCL	Cable B	N/A

Type of Equipment	Manufacturer	Model Number	Serial Number
75 to 50 Ohm Transformer	Panatron, Inc.	T147314-6227-F-F/N-F	909-629-0748



APPENDIX 2. MEASUREMENT UNCERTAINTY BUDGET AND CALCULATIONS

Measurement Uncertainty Budget

The measurements uncertainties were calculated in accordance with the requirements of NAMAS Document Draft NIS63 with a confidence level of 95%.

MEASUREMENT UNCERTAINTY - RADIATED EMISSIONS 30 MHz TO 1 GHz

Contribution	Distribution	Uncertainty (dB)	
		Biconical Antenna 3m/10m	Log-Periodic Antenna 3m/10m
Antenna factor calibration	Gaussian(2s)	±1.0	±1.0
Cable loss calibration	Gaussian(2s)	±0.5	±0.5
Spectrum Analyzer Specification	Rectangular	±1.6	±1.6
Pre-Amplifier Specification	Rectangular	±1.0	±1.0
Antenna factor variation with height	Rectangular	±2.0	±0.5
Antenna directivity	Rectangular	±0.5	±3.0/±0.5
Antenna phase center variation	Rectangular	0.0	±1.0/±0.2
Antenna factor frequency interpolation	Rectangular	±0.2	±0.2
Measurement distance variation	Rectangular	±0.5	±0.5
Site imperfections	Rectangular	±1.0	±1.0
Mismatch	U-shaped	±1.2	±0.5
Random	Gaussian(1s)	±0.7	±0.7
Total Uncertainty @ 95% min confidence probability		±4.3/±4.3	±6.0/±2.7

REFERENCES:

1. ANSI C63.6-1988 American national standard guide for the computation of errors in open-area test site measurements.

2. ANSI C63.5-1988 American national standard for calibration of antennas used for radiated emission measurements in Electromagnetic Interference (EMI) control.

3. Draft NIS63 The treatment of uncertainty in EMC measurements.

MEASUREMENT UNCERTAINTY CALCULATIONS:

TOTAL UNCERTAINTY FORMULA

$$U = 2\sqrt{S_s1^2 + S_s2^2 ..... + S_{sm}^2 + S_r^2}$$

TOTAL UNCERTAINTY FOR BICONICAL ANTENNA @ 3 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 2.0^2 + 0.5^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{1.2^2}{2} + 0.7^2} = 4.27dB$$

TOTAL UNCERTAINTY FOR BICONICAL ANTENNA @ 10 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{1.0}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 2.0^2 + 0.5^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{1.2^2}{2} + 0.7^2} = 4.27dB$$

TOTAL UNCERTAINTY FOR LOG-PERIODIC ANTENNA @ 3 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 0.5^2 + 3.0^2 + 1.0^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{0.5^2}{2} + 0.7^2} = 5.96dB$$

TOTAL UNCERTAINTY FOR LOG-PERIODIC ANTENNA @ 10 METERS

$$U = 2\sqrt{\left(\frac{1.0}{2}\right)^2 + \left(\frac{0.5}{2}\right)^2 + \frac{1.6^2 + 1.0^2 + 0.5^2 + 0.5^2 + 0.2^2 + 0.2^2 + 0.5^2 + 1.0^2}{3} + \frac{0.5^2}{2} + 0.7^2} = 2.71dB$$

MEASUREMENT UNCERTAINTY - CONDUCTED EMISSIONS 10 kHz TO 30 MHz

Contribution	Distribution	Uncertainty (dB)
		9 kHz to 30 MHz
Spectrum Analyzer Specification	Rectangular	±1.6
High-Pass Filter Specification	Rectangular	±1.0
LISN Specification	Rectangular	±1.5
Cable Calibration	Gaussian(2s)	±0.2
Mismatch	U-shaped	±0.6
Random	Gaussian(1s)	±0.8
Total Uncertainty @ 95% min confidence probability		±3.3

REFERENCES:

1. ANSI C63.6-1988 American national standard guide for the computation of errors in open-area test site measurements.

2. Draft NIS63 The treatment of uncertainty in EMC measurements.

MEASUREMENT UNCERTAINTY CALCULATIONS:

TOTAL UNCERTAINTY FORMULA

$$U = 2\sqrt{S_s1^2 + S_s2^2 ..... + S_{sm}^2 + S_r^2}$$

TOTAL UNCERTAINTY - CONDUCTED EMISSIONS

$$U = 2\sqrt{\frac{1.6^2 + 1.0^2 + 1.5^2}{3} + \left(\frac{0.2}{2}\right)^2 + \frac{0.6^2}{2} + 0.8^2} = 3.33\ dB$$