

KTL Test Report: 9R02256

Applicant: Digital Security Controls Ltd.
3301 Langstaff Road
Vaughan, Ontario
L4K 4L2

**Equipment Under Test:
(E.U.T.)** LCD 5501Z32-900

FCC ID: **F5300SS5501Z32**

In Accordance With: **FCC Part 15, Subpart B**
Radio Receivers

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:

R. Grant, Wireless Group Manager

Date:

Total Number of Pages: 16

EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

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EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Section 1. Summary of Test Results

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 B. Measurement procedure ANSI C63.4-1992 was used for all tests. Radiated Emissions were measured on an open area test site.

New Submission

Production Unit

Class II Permissive Change

Pre-Production Unit

| | | |
|---|---|---|
| C | Y | Y |
|---|---|---|

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

TESTED BY: _____ DATE: _____
Kevin Carr, Technologist

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This report applies only to the items tested.

EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Summary Of Test Data

| Name Of Test | Para. No. | Results |
|-------------------------------|------------------|----------------|
| Antenna Conducted Emissions | 15.111 | N/A |
| Radiated Emissions | 15.109 | Complies |
| Powerline Conducted Emissions | 15.107 | Complies |

Footnotes For N/A's: Integral Antenna

Test Conditions:

Indoor Temperature: 21 °C
 Humidity: 13 %

Outdoor Temperature: 10 °C
 Humidity: 13 %

EQUIPMENT: LCD 5501Z32-900
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Section 2. Equipment Under Test (E.U.T.)

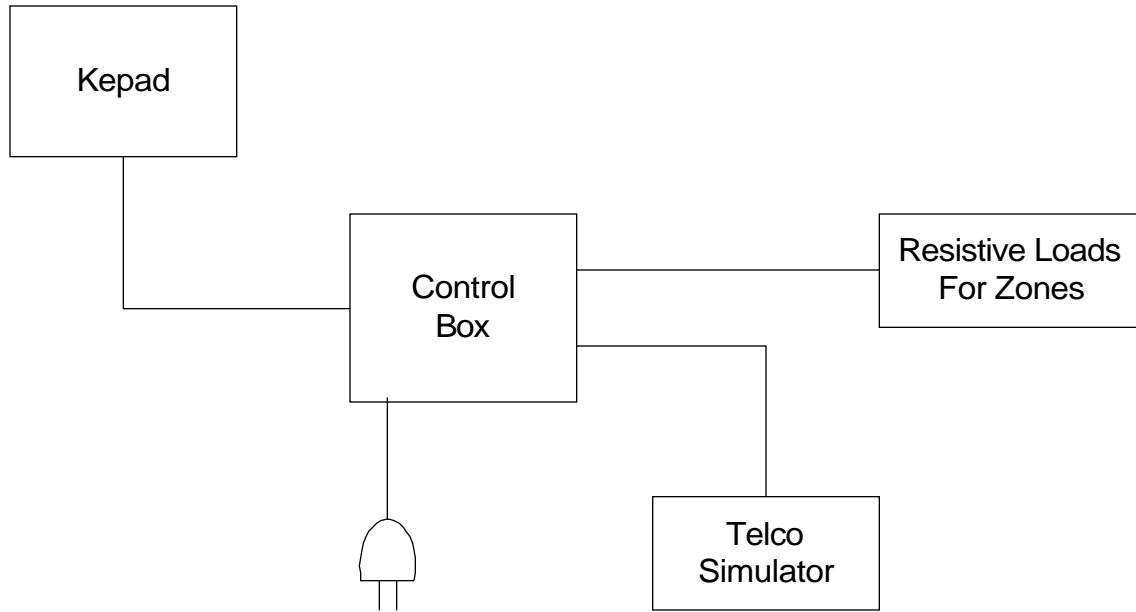
Manufacturer: Digital Security Controls Ltd.
Model No.: LCD 5501Z32-900
Serial No.: 70001078
Date Received In Laboratory: February 16, 2000
KTL Identification No.: Item #4

Equipment Details

Primary Power Requirement: 120 VAC

EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Configuration of the Equipment Under Test



EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Section 3. Radiated Emissions

| | |
|----------------------------------|-------------------------|
| NAME OF TEST: Radiated Emissions | PARA. NO.: 15.109(a) |
| TESTED BY: Kevin Carr | DATE: February 18, 2000 |

Minimum Standard:

| Frequency(MHz) | Field Strength (dB μ V/m @ 3m) |
|----------------|---------------------------------------|
| 30 - 88 | 40.0 |
| 88 - 216 | 43.5 |
| 216 - 960 | 46.0 |
| Above 960 | 54.0 |

Test Results: Complies. The worst-case emission level is 36.2 dB μ V/m @ 3m at 80.0 MHz. This is 3.8 dB below the specification limit.

Measurement Data: See attached table.

For super-regenerative receivers the receiver is cohered using a signal generator and dipole antenna.

Handheld equipment and equipment not designed to be mounted in any fixed orientation, the E.U.T. is tested in three orthogonal axis to obtain worst case results.

EQUIPMENT: LCD 5501Z32-900
 FCC ID: F5300SS5501Z32

Test Data - Radiated Emissions

| Test Distance (meters) : 3 | | Range: A Tower | | Receiver: ESVP H.P. 8564 | | RBW(kHz): 120 1 MHz | | Detector: PEAK, CISPR, Q-PEAK | | | |
|----------------------------|--------|----------------|---------------|--------------------------|----------------------|---------------------|-------------------|-------------------------------|-------------------------|----------------|-------------|
| Freq. (MHz) | Ant. * | Pol. (V/H) | Ant. HGT. (m) | Table (deg.) | RCVD Signal (dBµV/m) | Ant. Factor (dB)** | Amp. Gain (dB)*** | Dist. Corr. (dB) | Field Strength (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
| 48.0 | E/D1 | V | | | 28.7 | 3.3 | | | 32.0 | 40.0 | 8.0 |
| 48.0 | E/D1 | H | | | 20.9 | 3.3 | | | 24.2 | 40.0 | 15.8 |
| 54.86 | E/D1 | V | | | 18.4 | 5.2 | | | 23.6 | 40.0 | 16.4 |
| 54.83 | E/D1 | H | | | 21.0 | 5.2 | | | 26.2 | 40.0 | 13.8 |
| 64.0 | E/D2 | V | | | 26.5 | 5.1 | | | 31.6 | 40.0 | 8.4 |
| 64.0 | E/D2 | H | | | 22.4 | 5.1 | | | 27.5 | 40.0 | 12.5 |
| 68.5 | E/D2 | V | | | 20.8 | 5.6 | | | 26.4 | 40.0 | 13.6 |
| 68.5 | E/D2 | H | | | 25.4 | 5.6 | | | 31.0 | 40.0 | 9.0 |
| 80.0 | E/D2 | V | | | 28.0 | 7.5 | | | 35.5 | 40.0 | 4.5 |
| 80.0 | E/D2 | H | | | 28.7 | 7.5 | | | 36.2 | 40.0 | 3.8 |
| 877.32 | E/D4 | V | | | 2.5 | 34.6 | | | 37.1 | 46.0 | 8.9 |
| 877.37 | E/D4 | H | | | 2.8 | 34.6 | | | 37.4 | 46.0 | 8.6 |
| 1754.7 | Hrn2 | V | | | 56.8 | 32.3 | -46.5 | | 42.6 | 54.0 | 11.4 |
| 1754.9 | Hrn2 | H | | | 58.8 | 32.3 | -46.5 | | 44.6 | 54.0 | 9.4 |
| 2632.0 | Hrn2 | V | | | 54.0 | 36.0 | -47.8 | | 42.2 | 54.0 | 11.8 |
| 2632.0 | Hrn2 | H | | | 51.1 | 36.0 | -47.8 | | 39.3 | 54.0 | 14.7 |
| 3509.5 | Hrn2 | V | | | 46.0 | 40.6 | -47.1 | | 39.5 | 54.0 | 14.5 |
| 3509.5 | Hrn2 | H | | | 45.8 | 40.6 | -47.1 | | 39.3 | 54.0 | 14.7 |
| 4386.7 | Hrn2 | V | | | 46.0 | 41.9 | -45.9 | | 42.0 | 54.0 | 12.0 |
| 4386.8 | Hrn2 | H | | | 45.2 | 41.9 | -45.9 | | 41.2 | 54.0 | 12.8 |

Notes:
 B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole
 * Re-measured using dipole antenna. () Denotes failing emission level.
 (1) 120 kHz, Q-Peak, (2) 10 kHz, Peak, (3) 100 kHz RGW, 300 kHz VBW, Peak,
 (4) 300 kHz RBW, 1 MHz VBW, Peak, (5) 1 MHz RBW, 3 MHz VBW, Peak, (6) 1 MHz RBW, 10 Hz VBW, Peak

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Radiated Photographs (Worst Case Configuration)

Front View



Rear View



EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Section 4. Powerline Conducted Emissions

| | |
|---|-------------------------|
| NAME OF TEST: Powerline Conducted Emissions | PARA. NO.: 15.107 |
| TESTED BY: Kevin Carr | DATE: February 18, 2000 |

Minimum Standard: The RF energy feed back into the power lines shall not exceed 48 dB μ V on any frequency between 0.45 MHz and 30 MHz inclusive.

Test Results: Complies. See attached graphs.

Measurement Data: See attached graphs.

EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Powerline Conducted Photographs (Worst Case Configuration)

Front View

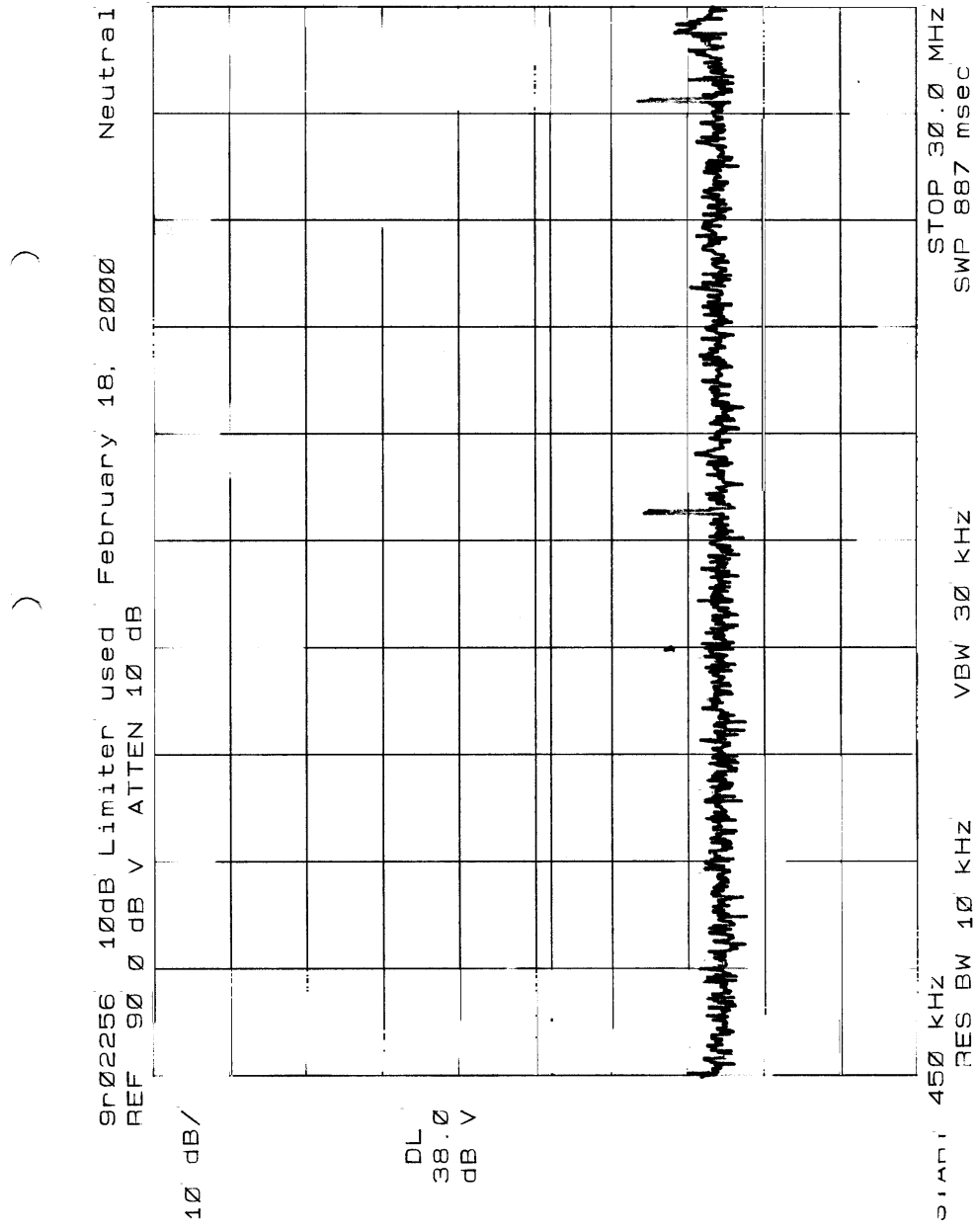


Rear View



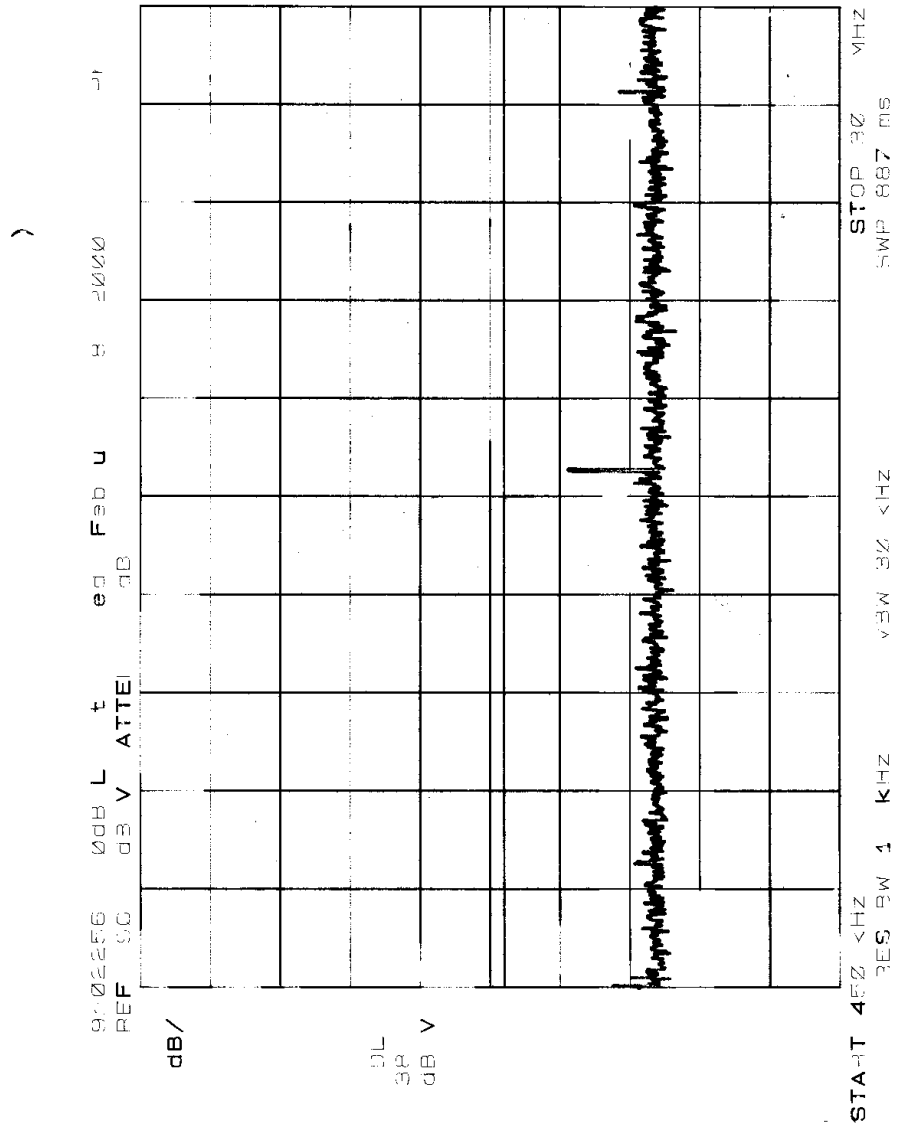
EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Conducted Emissions – 120 VAC, 60 Hz



EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

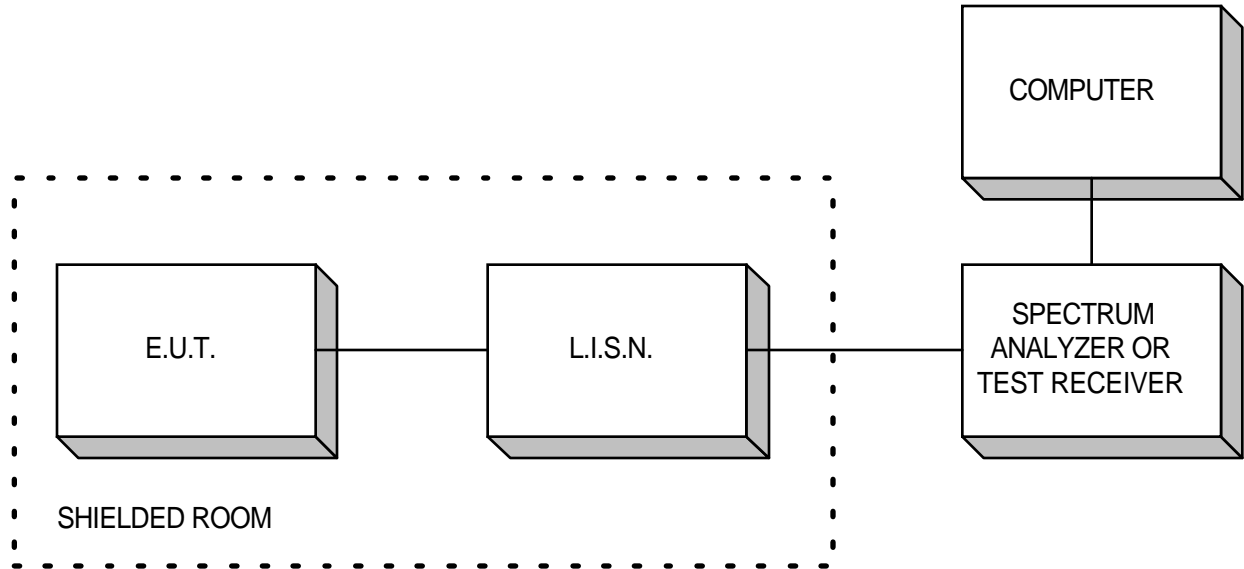
Conducted Emissions – 120 VAC, 60 Hz



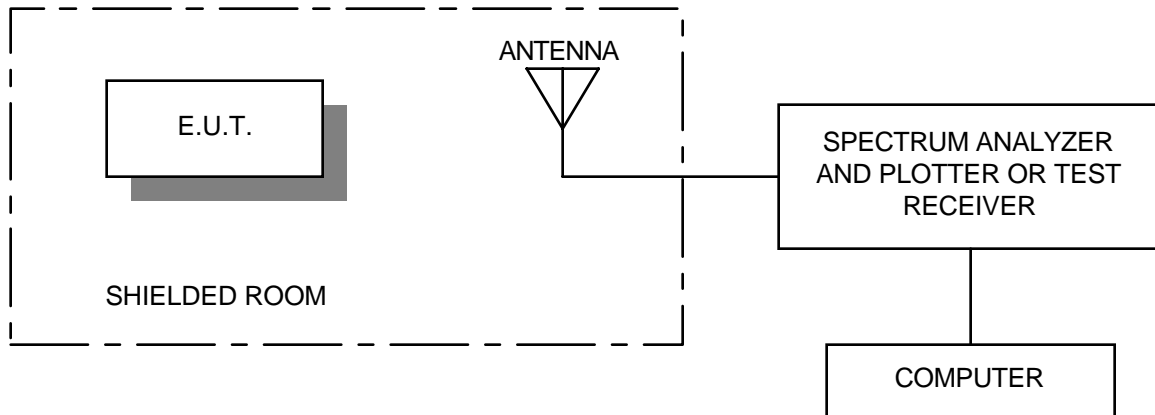
EQUIPMENT: LCD 5501Z32-900
FCC ID: F5300SS5501Z32

Section 5. Block Diagrams

Conducted Emissions

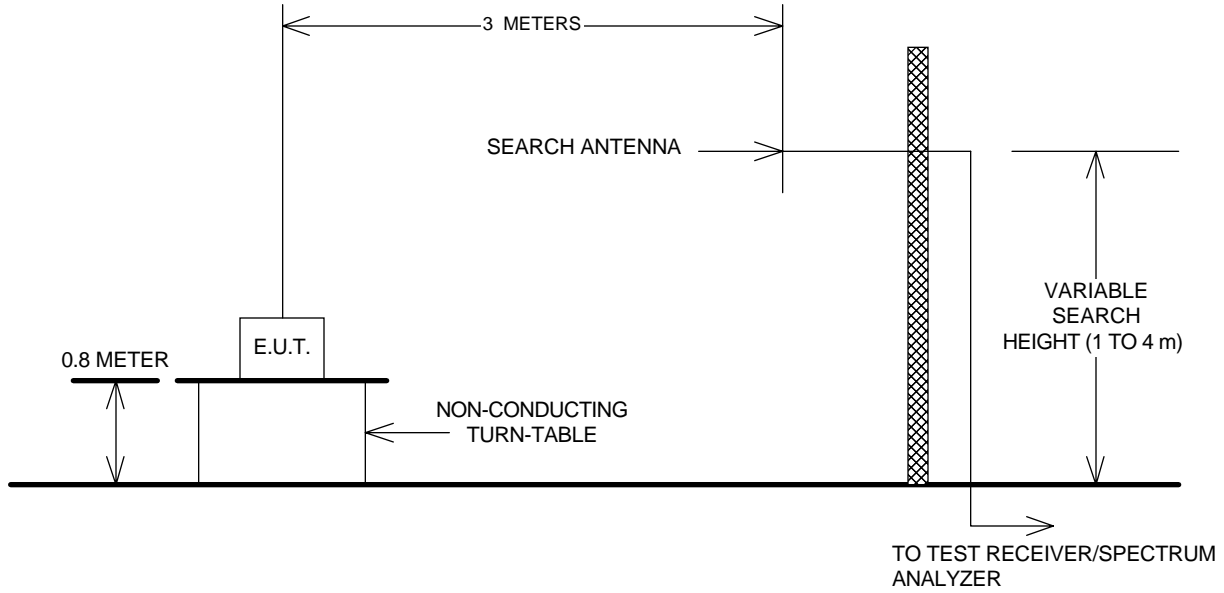


Radiated Prescan



EQUIPMENT: LCD 5501Z32-900
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Outdoor Test Site For Radiated Emissions



The spectrum was searched up to the 10th harmonic of the fundamental frequency of operation.

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Section 6. Test Equipment List

| CAL CYCLE | EQUIPMENT | MANUFACTURER | MODEL | SERIAL | LAST CAL. | NEXT CAL. |
|------------------|-----------------------------|---------------------|--------------|---------------|------------------|------------------|
| 1 Year | Spectrum Analyzer | Hewlett Packard | 8564E | 3846A01407 | May 31/99 | May 31/00 |
| 1 Year | Spectrum Analyzer-1 | Hewlett Packard | 8566B | 2311A02238 | Nov. 6/99 | Nov. 6/00 |
| 1 Year | Spectrum Analyzer Display-1 | Hewlett Packard | 8566B | 2314A04759 | Nov. 6/99 | Nov. 6/00 |
| 1 Year | Quasi-peak adapter-1 | Hewlett-Packard | 85650A | 2043A00302 | Nov. 11/99 | Nov. 11/00 |
| 1 Year | LISN | Rohde & Schwarz | ESH2-Z5 | 890485/017 | Aug. 24/99 | Aug. 24/00 |
| 1 Year | Receiver | Rohde & Schwarz | ESVP | 892661/014 | Mar. 29/99 | Mar. 29/00 |
| 2 Year | Horn Antenna | EMCO #2 | 3115 | 4336 | Nov. 11/99 | Nov. 11/00 |
| 1 Year | Dipole Antenna Set | EMCO #2 | 3121C | FA001349 | Apr. 5/99 | Apr. 5/00 |
| 1 Year | Plotter | Hewlett Packard | 7550A | FA001129 | NCR | NCR |
| 1 Year | RF Amplifier | DBS | AWT-8035 | FA001428 | Jan. 7/00 | Jan. 7/01 |

NA: Not Applicable
 NCR: No Cal Required
 COU: CAL On Use