

Test Report: 0R03047.1

Applicant: Gecko Electronics
450 Des Canetons
Quebec, Quebec
G2E 5W6

**Equipment Under Test:
(EUT)** Interface Module And Freepad

In Accordance With: **FCC Part 15, Subpart C, 15.249**

Tested By: Nemko Canada Inc.
(Formerly 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: 24

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EQUIPMENT: Interface Module And Freepad

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 15.249. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site.



New Submission



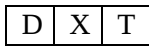
Production Unit



Class II Permissive Change



Pre-Production Unit



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: _____
Wayne Clarke, Wireless Technologist

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This report applies only to the items tested.

EQUIPMENT: Interface Module And Freepad

Summary Of Test Data

Name Of Test	Para. No.	Result
Conducted Emissions	15.207	N/A
Radiated Emissions	15.249	Complies

Footnotes For N/A's: The EUT is battery powered.**Test Conditions:****Interface Module:**

Indoor Temperature: 22 °C
 Humidity: 50 %

Outdoor Temperature: 8 °C
 Humidity: 75 %

Freepad Unit:

Indoor Temperature: 23 °C
 Humidity: 45 %

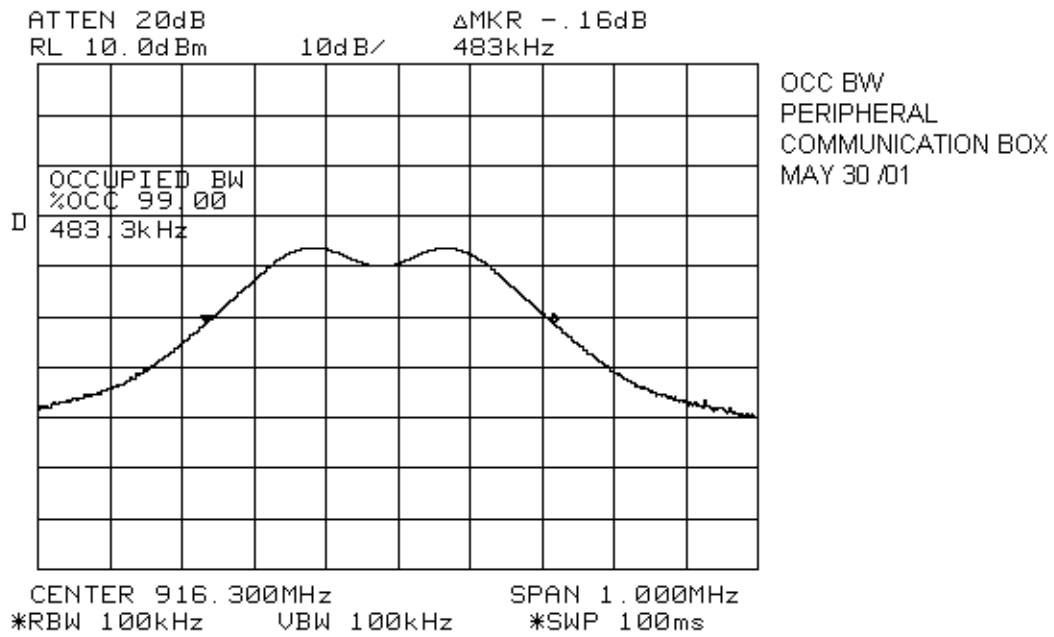
Outdoor Temperature: 29 °C
 Humidity: 88 %

EQUIPMENT: Interface Module And Freepad

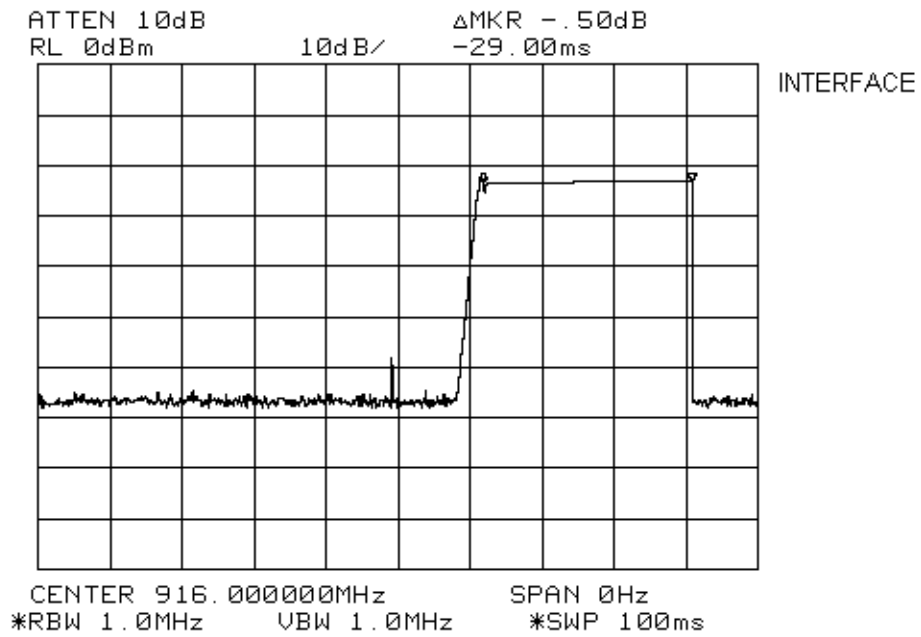
Section 2a. General Equipment Specification**Interface Module****Manufacturer:** Gecko Electronics**Model No.:** RFMR-1**Serial No.:** 02189280**Date Received In Laboratory:** March 15, 2001**Nemko Identification No.:** Item #1**Frequency Range:** 916MHz Fixed Frequency**Operating Frequency(ies) of Sample:** 916MHz**Number of Channels:** One**Emission Designator:** 483KL1D**Crystal Frequencies:** 7.07549, 7.15909MHz**User Frequency Adjustment:** None**Integral Antenna:****Yes****No**

$$\begin{aligned}
 \text{Duty Cycle:} &= 20 \log \frac{\text{OnTime}_{ms}}{100ms} \\
 &= 20 \log \frac{29}{100} \\
 &= -10.7\text{dB}
 \end{aligned}$$

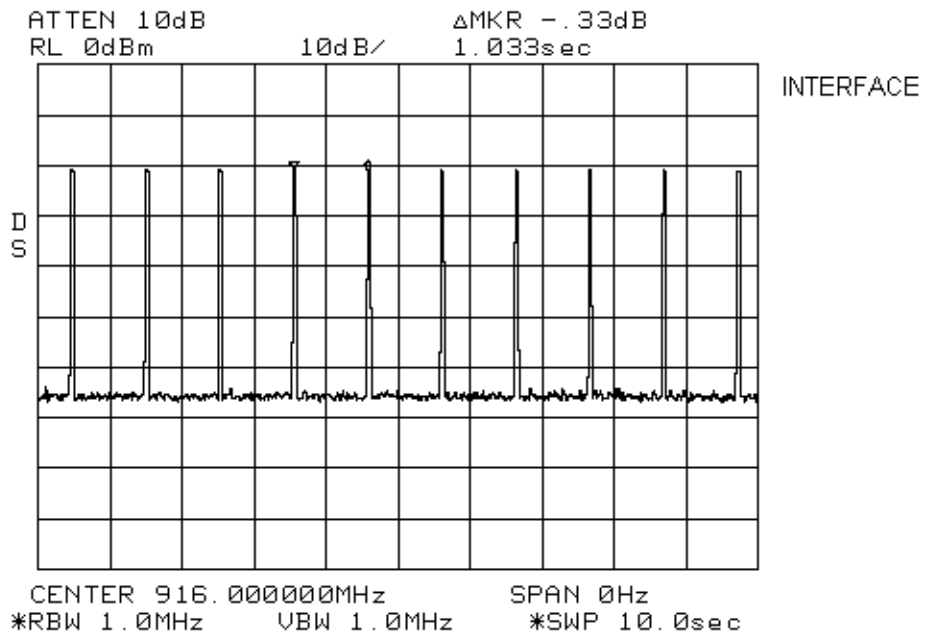
EQUIPMENT: Interface Module And Freepad



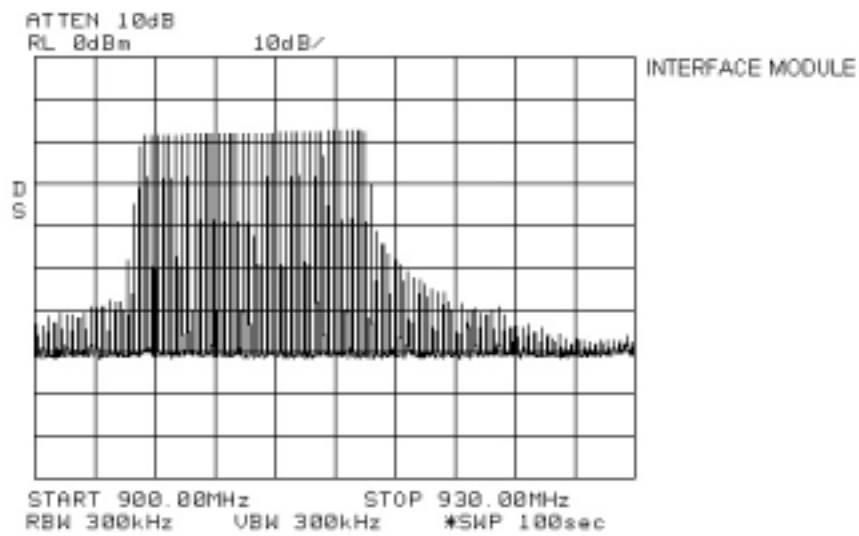
EQUIPMENT: Interface Module And Freepad



EQUIPMENT: Interface Module And Freepad



EQUIPMENT: Interface Module And Freepad

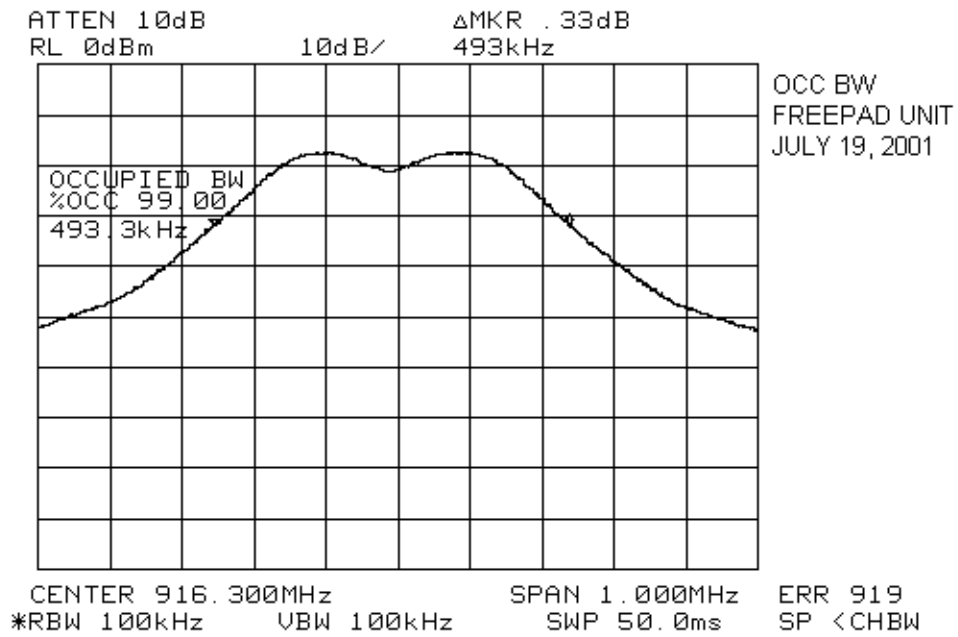


EQUIPMENT: Interface Module And Freepad

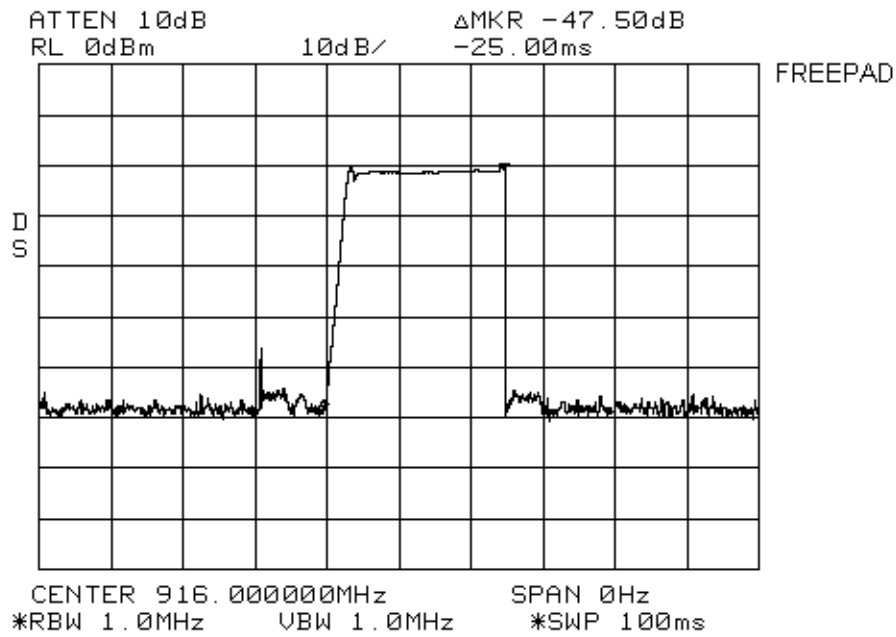
Section 2b. General Equipment Specification**Freepad Unit****Manufacturer:** Gecko Electronics**Model No.:** RFMT-1**Serial No.:** 02202A00**Date Received In Laboratory:** July 13, 2001**Nemko Identification No.:** Item #27**Frequency Range:** 916MHz Fixed Frequency**Operating Frequency(ies) of Sample:** 916MHz**Number of Channels:** One**Emission Designator:** 493KL1D**Crystal Frequencies:** 7.07549, 7.15909MHz**User Frequency Adjustment:** None**Integral Antenna:****Yes**
☒**No**
☐**Duty Cycle:**

$$\begin{aligned}
 &= 20 \text{ Log } \frac{\text{OnTime}ms}{100ms} \\
 &= 20 \text{ Log } \frac{25}{100} \\
 &= -12.0dB
 \end{aligned}$$

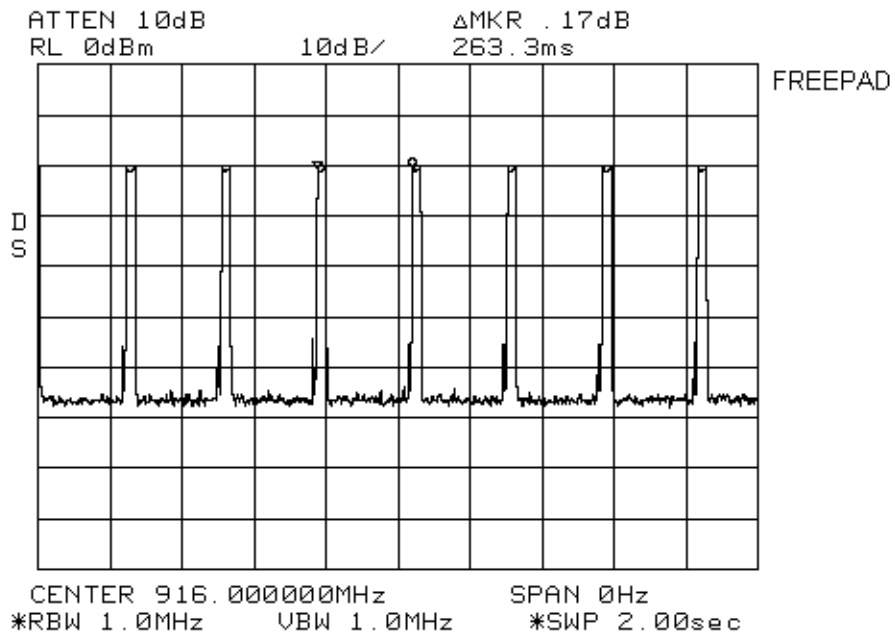
EQUIPMENT: Interface Module And Freepad



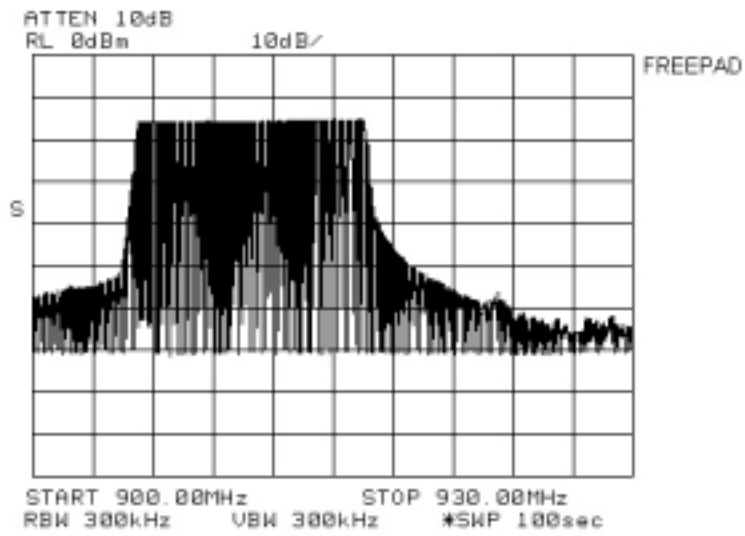
EQUIPMENT: Interface Module And Freepad



EQUIPMENT: Interface Module And Freepad



EQUIPMENT: Interface Module And Freepad



EQUIPMENT: Interface Module And Freepad

Section 3a. Radiated Emissions**Interface Module****Para. No.: 15.249****Test Performed By:** Wayne Clarke**Date of Test:** March 26, 2001**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) The emission limits shown above are based on measurement instrumentation employing a CISPR quasi-peak detector below 1000 MHz and an averaging detector above 1000 MHz. However, the peak field strength of any emission shall not exceed the average limit by more than 20 dB.

Test Results: Complies. The worst-case emission level is 92.7 dB μ V/m @ 3m at 916 MHz. This is 1.3 dB below the specification limit.**Measurement Data:** See attached table.**Maximizing Emission Levels:**

For hand held equipment or equipment that may be mounted in a variety of positions, the EUT was tested on three orthogonal axis to determine orientation of worst-case emission levels.

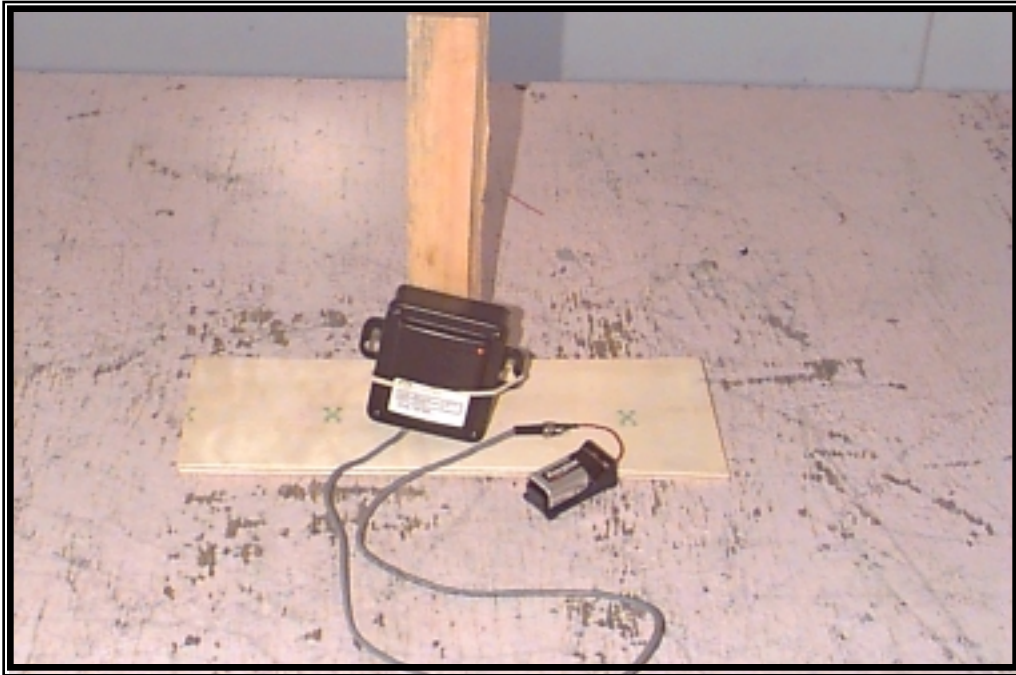
*EQUIPMENT: Interface Module And Freepad***Test Data - Radiated Emissions**

Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP/HP 8565E		RBW(kHz): 120/1000		Detector: CISPR/Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBµV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle (dB)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
916.0	L/P1	V	63.8	28.9			92.7	94.0	1.3
916.0	L/P1	H	62.7	28.9			91.6	94.0	2.4
1832.0	Hrn2	V	71.3	32.8	-48.1	-10.7	45.3	54.0	8.7
1832.0	Hrn2	H	74.7	32.8	-48.1	-10.7	48.7	54.0	5.3
2748.0	Hrn2	V	80.8	37.3	-60.0	-10.7	47.4	54.0	6.6
2748.0	Hrn2	H	83.8	37.3	-60.0	-10.7	50.4	54.0	3.6
3664.0	Hrn2	V	80.0	40.6	-57.6	-10.7	52.3	54.0	1.7
3664.0	Hrn2	H	78.2	40.6	-57.6	-10.7	50.5	54.0	3.5
4580.0	Hrn2	V	57.3	42.9	-55.5	-10.7	34.0	54.0	20.0
4580.0	Hrn2	H	65.0	42.9	-55.5	-10.7	41.7	54.0	12.3
5496.0	Hrn2	V	51.6	45.8	-53.6	-10.7	33.1	54.0	20.9
5496.0	Hrn2	H	63.5	45.8	53.6	-10.7	45.0	54.0	9.0
6412.0	Hrn2	V	51.3	47.5	-55.5	-10.7	32.6	54.0	21.4
6412.0	Hrn2	H	60.7	47.5	-55.5	-10.7	42.0	54.0	12.0
Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected									

EQUIPMENT: Interface Module And Freepad

Radiated Photographs (Worst Case Configuration)

Front View



EQUIPMENT: Interface Module And Freepad

Section 3b. Radiated Emissions**Freepad Unit****Para. No.: 15.249****Test Performed By:** Wayne Clarke**Date of Test:** July 19, 2001**Minimum Standard:** Para no. 15.249

(b) 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

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

(f) 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.

(g) The emission limits shown above are based on measurement instrumentation employing a CISPR quasi-peak detector below 1000 MHz and an averaging detector above 1000 MHz. However, the peak field strength of any emission shall not exceed the average limit by more than 20 dB.

Test Results: Complies. The worst-case emission level is 53.6 dB μ V/m @ 3m at 1832.0 MHz. This is 0.4 dB below the specification limit.**Measurement Data:** See attached table.**Maximizing Emission Levels:**

For hand held equipment or equipment that may be mounted in a variety of positions, the EUT was tested on three orthogonal axis to determine orientation of worst-case emission levels.

*EQUIPMENT: Interface Module And Freepad***Test Data - Radiated Emissions**

Test Distance (meters) : 3		Range: A Tower		Receiver: ESVP/HP 8565E		RBW(kHz): 120/1000		Detector: CISPR/Peak	
Freq. (MHz)	Ant. *	Pol. (V/H)	RCVD Signal (dBμV/m)	Ant. Factor (dB)**	Amp. Gain (dB)***	Duty Cycle (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
916.00	ED	V	50.5	32.5			83.0	94.0	11.0
916.00	ED	H	55.5	32.5			88.0	94.0	6.0
1832.0	H2	V	81.3	32.8	-48.5	-12.0	53.6	54.0	0.4
1832.0	H2	H	72.8	32.8	-48.5	-12.0	45.1	54.0	8.9
2748.0	H2	V	80.0	37.3	-59.7	-12.0	45.6	54.0	8.4
2748.0	H2	H	78.2	37.3	-59.7	-12.0	43.8	54.0	10.2
Notes: B/C = Biconical, B/L = Biconilog, L/P = Log-Periodic, H = Horn, D/P = Dipole * Re-measured using dipole antenna. ** Includes cable loss when amplifier is not used. *** Includes cable loss. () Denotes failing emission level. N.D. = Not Detected									

EQUIPMENT: Interface Module And Freepad

Radiated Photographs (Worst Case Configuration)

Front View



*EQUIPMENT: Interface Module And Freepad***Section 4. Test Equipment List****Interface Module**

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8564E	3846A01407	May 31/99	Nov. 30/00
	Plotter	Hewlett Packard	7470A	2308A30807	NCR	NCR
1 Year	Receiver	Rohde & Schwarz	ESVP	892661/014	April 5/00	April 5/01
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/00	Dec. 1/01
1 Year	Log Periodic Antenna 1	EMCO	LPA-25	1141	Aug. 3/00	Aug. 3/01
1 Year	RF AMP	JCA	2-4 GHz	FA001496	May 30/01	May 30/02
1 Year	RF AMP	JCA	1-2 GHz	FA001498	May 30/01	May 30/02
1 Year	RF AMP	JCA	4-8 GHz	FA001497	May 30/01	May 30/02

Interface Module

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	3442A00245	June 8/01	June 8/02
	Plotter	Hewlett Packard	7470A	2308A30807	NCR	NCR
1 Year	Receiver	Rohde & Schwarz	ESVP	879962	Apr. 3/01	Apr. 3/02
	Dipole	EMCO	3121C	9405-1029	Apr. 16/01	Apr. 16/0d4
1 Year	Log Periodic Antenna 1	EMCO	LPA-25	1141	Aug. 3/00	Aug. 3/01
1 Year	RF AMP	JCA	2-4 GHz	FA001496	May 30/01	May 30/02
1 Year	RF AMP	JCA	1-2 GHz	FA001498	May 30/01	May 30/02
1 Year	RF AMP	JCA	4-8 GHz	FA001497	May 30/01	May 30/02

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

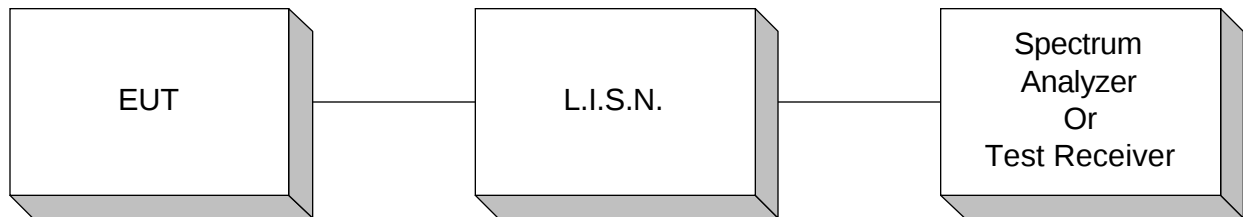
EQUIPMENT: Interface Module And Freepad

Annex A

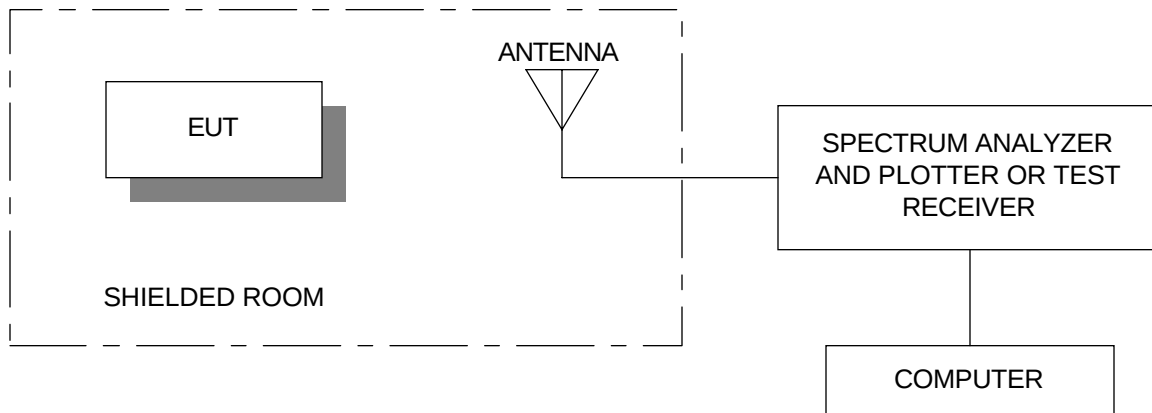
Test Diagrams

EQUIPMENT: Interface Module And Freepad

Conducted Emissions



Radiated Prescan



Test Site For Radiated Emissions

