FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT AUTHORIZATION

Certification

SpaceLabs Incorporated
15220 NE 40th Street
Post Office Box 97013
Redmond, WA 98073-9713

Date of Grant: May 16, 1995

File No.: 31010/EQU 4-3-2

Application dated: February 21, 1995

Attention: Mr. Steve J. Cantwell, Staff Engineer

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: CM6010-0914-00

Name of Grantee: SpaceLabs Incorporated

FCC Rule Part(s): 15

Frequency (MHz) : 2400-2483.5

Equipment Class : Spread Spectrum Transmitter

Maximum Output Power: 100 mW

This grant is issued subject to the condition that the transmitter covered hereunder will not be marketed with any capability to coordinate its hopping sequence with the hopping sequence of other transmitters, or vice versa, for the purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

All electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marketed.

If the subject device requires shielded interface cables to ensure compliance, the user's manual must advise the user of this requirement.

This device has shown compliance with new rules adopted under Docket 87-389 and is not affected by Section 15.37, transition rule.

me 8315152004

In correspondence concerning this grant, please refer to the FCC IDENTIFIER, File No., and date of grant.

FCC 731A
October 1991

FEDERAL COMMUNICATIONS COMMISSION
Equipment Authorization Division
7435 Oakland Mills Road
Columbia, MD 21046
May 9, 1995

In reply refer to:
31010/EQU 4-3-2

Proxim, Inc
295 N. Bernardo Avenue
Mountain View, CA 94043

Attention: Altan Yazar

Re: Request for withholding from public disclosure proprietary information submitted pursuant to an application for Certification.
FCC ID: CM6010-0914-00

Gentlemen:

Your letter dated May 8, 1995, requests that the schematic and block diagram and the theory of operation submitted with the application for Certification be withheld from public disclosure. This request is made under the provisions of Section 0.457(d) of the Commission's Rules, and Section 552(b)(4) of the Freedom of Information Act. These sections authorize withholding from public inspection materials which would be privileged as a matter of law if retained by the person submitting them, and materials which would not customarily be released to the public by that person.

We accept your statement that the material for which confidentiality is requested falls within the scope of Section 552(b)(4) as trade secrets. Under the provisions of Section 0.457(d), the specified material will not be routinely available for public inspection.

Sincerely,

Julius P. Knapp

Julius P. Knapp
Chief, Equipment Authorization Division

Mail to:
SpaceLab Incorporated
15220 NE 40th Street
Post Office Box 97013
Redmond, WA 98073-9713

GC;me
FCC Form 731A

Approved by OMB
3060-0057
Expires 04/30/95

FEDERAL COMMUNICATIONS COMMISSION

FCC FORM 731
APPLICATION FOR EQUIPMENT AUTHORIZATION

For FCC use only	

See 47 CFR 1.1103 for FEE TYPE CODES and FEES, and paragraph C of the attached instructions.

SECTION I - ALL ITEMS IN THIS SECTION MUST BE COMPLETED

APPLICANT'S FULL BUSINESS NAME

SpaceLabs Medical

APPLICANT'S MAILING ADDRESS (Line 1) (Maximum 35 characters)

15220 NE 40th Street

APPLICANT'S MAILING ADDRESS (Line 2) (if required) (Maximum 35 characters)

P.O. Box 97013

CITY

Redmond

STATE OR COUNTRY (if foreign address)	ZIP CODE	COMPLETE FCC IDENTIFIER: GRANTEE CODE	EQUIPMENT PRODUCT CODE (14 characters maximum)
Washington	98073	C M 6	010-0914-00

Enter in Column (A) the correct Fee Type Code for the service for which you are applying. Fee Type Codes may be found in FCC Fee Filing Guides and paragraph C of attached instructions. Enter in Column (C) the result obtained from multiplying the value of the Fee Type Code in Column (A) by the number entered in Column (B).

	(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
(1)	E G C	0 0 0 1	$ 845.00	

SECTION II - Use only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

	(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
(2)	E B C	0 0 0 1	$ 125.00	
(3)		0 0 0 1	$	
(4)		0 0 0 1	$	

ADD ALL AMOUNTS SHOWN IN COLUMN C, LINES (1) THROUGH (4), AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE. →

TOTAL AMOUNT REMITTED WITH THIS APPLICATION OR FILING	FOR FCC USE ONLY
$ 970.00	

(5) NAME AND TITLE OF PERSON AT ABOVE ADDRESS FOR CONTACT, OR TO RECEIVE GRANT (THIS ITEM MUST BE COMPLETED):

Steve J. Cantwell, Staff Engineer

This form has been authorized for reproduction.

SECTION III

Bureau Use Only
LI
DN
DM
RG
Code
Reviewer

1.(a) INSTEAD OF APPLICANT, FCC IS AUTHORIZED TO MAIL ORIGINAL GRANT TO (See instructions):
Firm name,
number, street,
city,
state,
and ZIP Code

(b) NAME AND TITLE OF PERSON AT ABOVE ADDRESS TO RECEIVE GRANT:

2. INFORMATION CONTACT, IF DIFFERENT FROM ITEM 5, PAGE 1 (See instructions):
Firm name,
contact person,
number, street,
city,
state,
and ZIP Code

Northwest EMC, Inc.
Dean Ghizzone
120 S. Elliott Road
Suite 300
Newberg, OR 97132

3.(a) TELEPHONE NUMBER (include area code and extension - USA ONLY):
(503) 537-0728

3.(b) FAX NUMBER (include area code and extension - USA ONLY):
(503) 537-0735

4. Does this application include a request for confidentiality for any portion(s) of the data contained in this application pursuant to 47 CFR 0.459 of the Commission's Rules? (See instructions) [X] Yes [ ] No

5. Does the applicant desire the Commission to defer grant of this application pursuant to 47 CFR 0.457(d)(1)(ii)? (See instructions) [ ] Yes [X] No

6. Kind of equipment authorization requested (check ONE box only): [X] Certification [ ] Type Acceptance [ ] Type Approval [ ] Notification

7.(a) Kind of equipment:
Intentional Radiator/Frequency Hopping Ethernet Transceiver

(b) Equipment will be operated under FCC Rule Part(s):
15.247

Application is for (Check ONE box only):

[X] 1 Original equipment
[ ] 2 Change in identification of presently authorized equipment *
[ ] 3 Class II permissive change or modification of presently authorized equipment

* *If box 2 is checked, complete items 9(a) and (b).*

9.(a) FCC ID before change in identification:

(b) Grant date of FCC ID in 9(a) above:

10. EQUIPMENT SPECIFICATIONS:

(a) Frequency range in MHz	(b) Rated RF power output in watts	(c) Frequency tolerance %, Hz, ppm	(d) Emission designator	(e) Microprocessor model number
2400-2483.5				

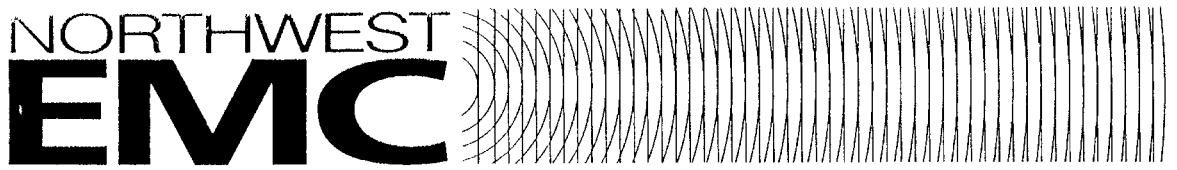
11. Type of equipment tested: [ ] Production [X] Pre-Production [ ] Prototype

12.(a) Is the equipment, or section(s) thereof, subject to more than one equipment authorization? [ ] Yes [ ] No
If YES, complete items 12(b), (c), (d), or (e) as appropriate.

(b) Additional equipment authorization(s) required for equipment: [ ] Certification [ ] Type Acceptance [ ] Type Approval [ ] Notification

(c) Granted FCC ID or FCC ID listed on RX or RX section application:	(d) Granted FCC ID or FCC ID listed on TX or TX section application:	(e) Granted FCC ID or FCC ID listed on other device application:

Complete and sign Page 3 (reverse side)



NORTHWEST EMC, INC.
120 South Elliott Road, Suite 300
Newberg, Oregon 97132
503/537-0728 • fax: 537-0735

February 21, 1995

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Reference: FCC ID: CM6010-0914-00

To Whom it May Concern:

Additional information is to be provided by:

Proxim, Inc.
295 N. Bernardo Avenue
Mountain View, CA 94043
Phone: (415) 960-1630
FAX: (415) 960-1984
Contacts: Brian Messinger or Altan Yazor

The information to be provided is:

- Frequency Block Diagram and Description
- Hardware Description

If you do not receive this information in time to promptly process this application, please contact me at:
Phone: (503) 537-0728
FAX: (503) 537-0735

Thank you for your assistance.

Sincerely,

Dean Ghizzone
President

SpaceLabs Medical

15220 N.E. 40th Street
P.O. Box 97013
Redmond, Washington 98073-9713
206-882-3700

February 2, 1995

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, Maryland 21046

To whom it may concern:

Northwest EMC Inc. is authorized to act as an agent of SpaceLabs Medical for matters relating to the FCC approval and registration of the Wireless Ethernet Transceiver, SpaceLabs Medical Part Number 010-0914-00.

The scope of this authorization is limited to report preparation and submittal, correspondence and the signing of all related documents, and any other lawful activity necessary to obtain FCC certification of the product.

This authorization shall expire twelve months from the date of this letter.

Sincerely,

Glenn Pelikan
Vice President, Advanced Product Development

GP:jt

cc: J. Helton
S. Mercanet
S. Cantwell

c:\wp51\susan\glenn\fccauth.fcc

Measurement/Technical Report

SpaceLabs Medical, Part No. 010-0914-00

FCC ID: CM6010-0914-00

17 February 1995

This report concerns (check one): Original Grant_X__ Class II Change_____	
Equipment Type: Intentional Radiator / Frequency Hopping Wireless Ethernet Transceiver	
Deferred grant requested per 47 CFR 0.457 (d)(1)(ii)? yes_____ no__X__	
If yes, defer until: _____N/A_____ date	
Intel Corporation agrees to notify the Commission by: _____N/A_____ date	
of the intended date of announcement of the product so that the grant can be issued on that date.	
Transition Rules Request per 15.37: yes_____ no__X__	
If no, assumed Part 15, Subpart B for unintentional radiators - new 47 CFR [10-1-92] provision.	
Report prepared by:	Dean Ghizzone Northwest EMC, Inc. 120 South Elliott Road, Suite 300 Newberg, OR 97132 (503) 537-0728 fax: (503) 537-0728 Report No. SPAC0024

Table of Contents

1.0 General Information

1.1 Product Description

Manufactured By ..... SpaceLabs Medical

Address..... 15220 N.E. 40th Street, P.O. Box 97013, Redmond, WA 98073-9713

Test Requested By:..... Steve Cantwell

Part No. 010-0914-00

FCC ID.....CM6010-0914-00

Serial Number(s) A001269

Date of Test .....January 19, 1995 - February 4, 1995

Job Number..... SPAC0024

Equipment Description:

The Equipment Under Test (EUT) is the SpaceLabs Medical Wireless, Frequency Hopping, Transceiver Board, Part No. 010-0914-00, FCC ID: CM6010-0914-00. The EUT is a low power, frequency hopping system, operating in the 2400 MHz - 2483.5 MHz band.

The EUT uses 82 channels, each 1 MHz wide. The system hopping rate is selected from a psuedorandomly ordered list of hopping frequencies. On average, each frequency is used equally.

- Worst case transmission time in a given channel: 390 mSeconds.

Antenna:

- The antenna used for both the 90309 and 90310 is 3.5" long, 0.4" in diameter.
- The 90309 uses the SpaceLabs Medical Model 117-0029-00, which mounts directly to the EUT. The 90310 uses Part No. 117-0030-00, which has a plastic base and 72" RG-179 coaxial cable attached for connection to the EUT. The two are the same antenna, one has a plastic base and coaxial cable for connection, the other mounts directly to the EUT.
- The antenna connector is a "Reverse Sex" SMA connector, M/A-COM Part No.2034-5145-02.

The EUT, along with the SpaceLabs Medical Wireless Ethernet Interface board, Part No. 670-0829-00 provides a Wireless Ethernet repeater interface. This Wireless Ethernet repeater interface can operate in either the SpaceLabs Medical Model 90309 PC Scout, or the Model 90310.

The SpaceLabs Medical, Model 90309 PC Scout, is a portable medical monitoring device. The SpaceLabs Medical, Model 90310, is a housing for the Wireless Ethernet repeater interface, used only for medical applications. The 90310 will house up to two of the wireless communications boards.

The EUT does not have the ability to coordinate its' hopping sequence with other similar transmitters for the purpose of avoiding simultaneous occupancy of individual hopping frequencies by multiple transmitters.

Hardware Description:

Hardware description for the Transceiver Board, SpaceLabs Medical Part No. 010-0914-00 is to be provided by:

Proxim, Inc.
295 N. Bernardo Avenue
Mountain View, CA 94043
Phone: (415) 960-1630
FAX: (415) 960-1984
Contacts: Brian Messinger or Altan Yazor

1.2 Related Submittals/Grants

None

1.3 Tested System Details

EUT and Peripherals

Item	FCC ID	Description and Serial No.
EUT	CM6010-0914-00	SpaceLabs Medical, Wireless, Frequency Hopping, Transceiver Board, Part No. 010-0914-00. Serial No. A001269
Interface Board	N/A	SpaceLabs Medical, Wireless Ethernet Interface board, Part No. 670-0829-00
Medical Monitor	N/A	SpaceLabs Medical, Model 90309, Portable Medical Monitor, Serial No. PAR319-5.
CNI	N/A	SpaceLabs Medical, Model 90310, Cellular Network Interface, Serial No. PAR327-1.
Power Supply	N/A	SpaceLabs Medical, Model 90486, used to power the 90310, Serial No. 100015.
Power Supply	N/A	SpaceLabs Medical, Part No. 650-0379-00, used to power the 90309.

Cables:

Ethernet Cable	3.5 meters in length, shielded, with metal connector backshells and no ferrite beads. SpaceLabs Medical Part No. 366139-012. Connected to the 90310 and/or 90309 Ethernet port.
Communications Cable	2.3 meters in length, shielded, metalized plastic connectors. Connected to the 90309 modular jack.
SDLC Cable	75 cm in length, shielded, with metal connector backshells. SpaceLabs Medical Part No. 012-0175-00. Connected to the 90309 SDLC port.
DC Cable	1.6 meters in length. No shielding, 4-wire, permanently attached to the 650-0379-00 Power Supply. Metal connector at the 90309 end of cable.
DC Cable	0.9 meters in length, metal connector backshells at both ends of cable. Supplied with the 90486 power supply. Molded ferrite beads at both ends of the cable.
AC Power Cable	2.0 meters in length. No shielding and no ferrite beads. Connected from AC input of the power supplies and to the AC mains.

1.4 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (1992). Radiated testing was performed at an antenna to EUT distance of 3 meters. Please reference Appendix I for further detail on Test Methodology.

1.5 Test Facility

The Open Area Test Site and conducted measurement facility used to collect the radiated and conducted data is located at

Northwest EMC, Inc.
120 South Elliott Road, Suite 300
Newberg, OR 97132
(503) 537-0728
Fax: 537-0735

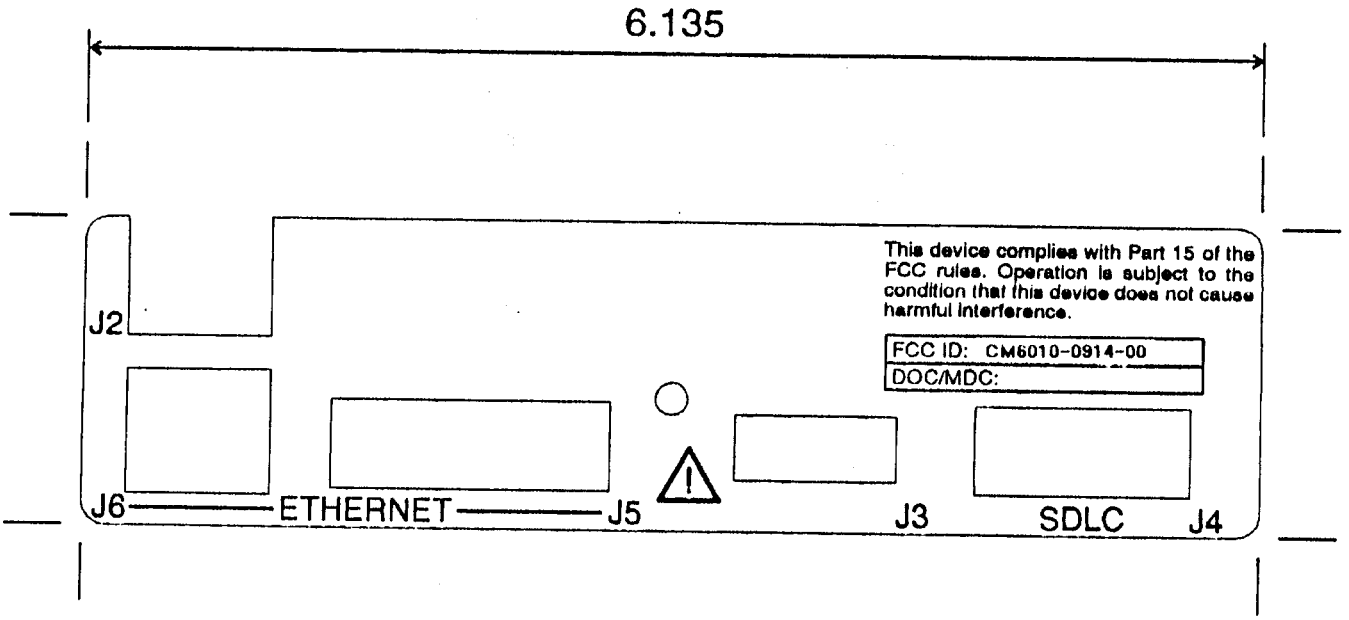
The Open Area Test Site, and conducted measurement facility used to collect this data is located at the address shown above. This site has been fully described in a report filed with the FCC, dated 12 January 1993, and accepted by the FCC in a letter dated March 18, 1993 (31040/SIT)(1300B3).

Northwest EMC, Inc., has been assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc., for product certification (Authorization No. ELA 119).

2.0 Product Labeling

Figure 2.1 FCC ID Label

Model 90309



Model 90310

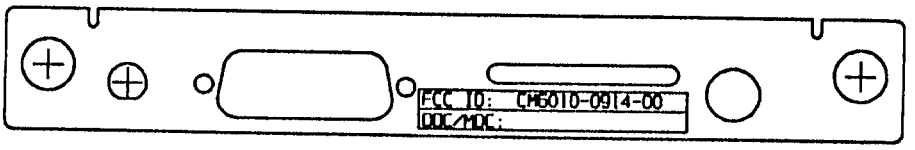


Figure 2.2 Location of Label on EUT (90309)

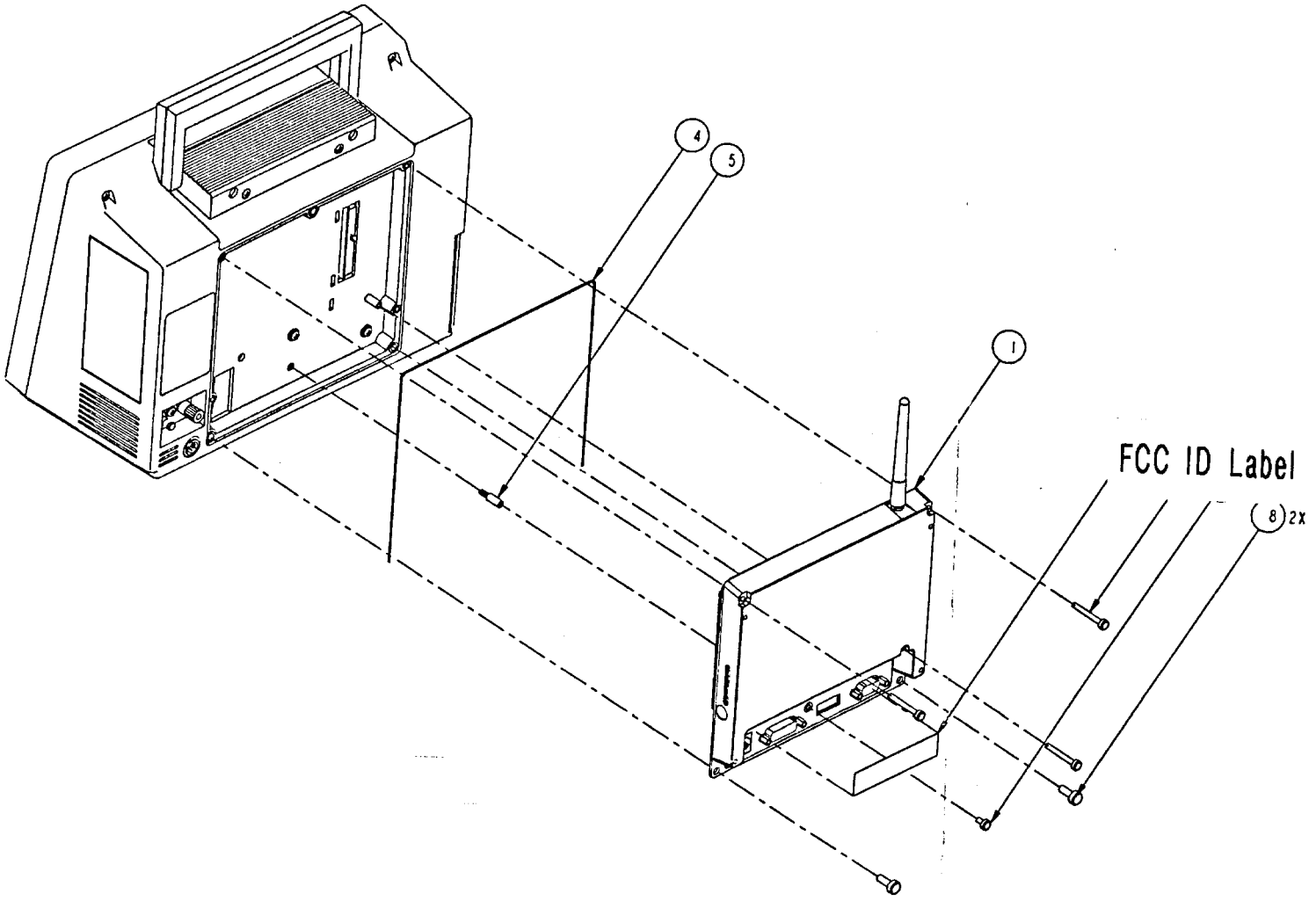
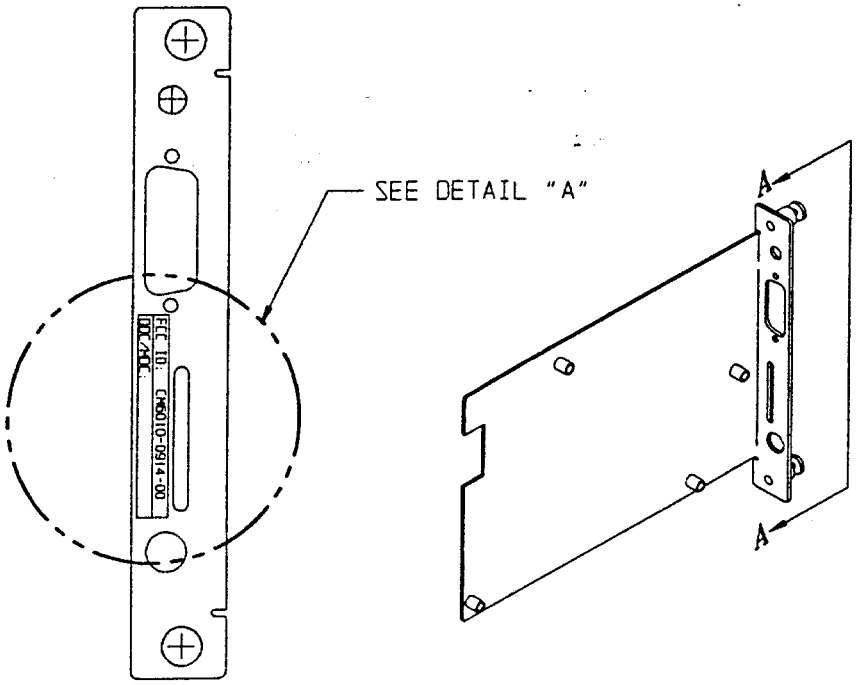
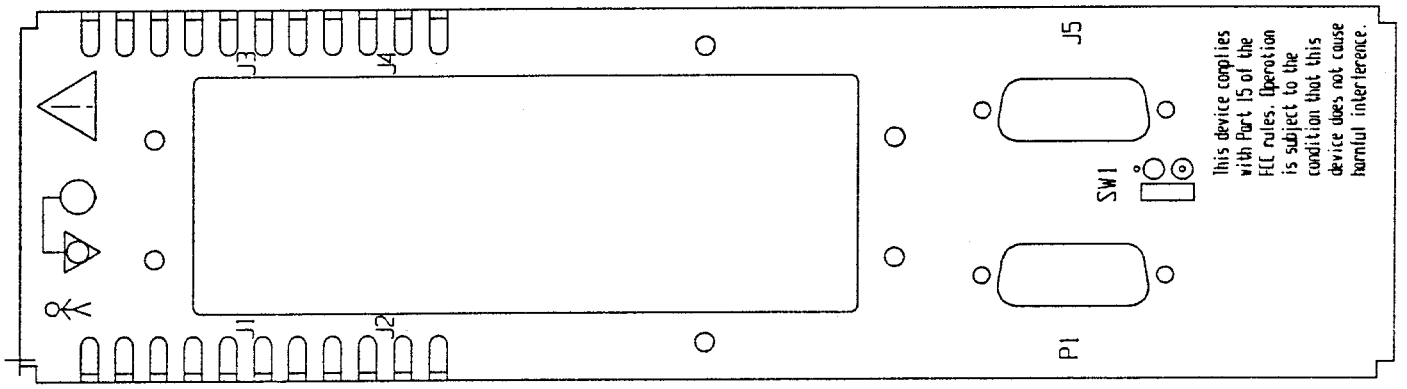


Figure 2.2.1 Location of Label on EUT (90310)





3.0 System Test Configuration

3.1 Justification

The EUT was configured for testing in a typical fashion, (as a customer would normally use it). The EUT was tested while connected to both the SpaceLabs Medical 90309 and 90310.

Preliminary testing of both the 90309 and 90310 demonstrated that the worst case emissions were present when using the 90310 configuration. Therefore, final emissions testing was conducted in the 90310 configuration.

The antenna is not adjustable, therefore, the length of the antenna was not varied during the test.

The radiated emissions testing was conducted with the EUT operating in a "Normal" Mode (Frequency Hopping) and in a fixed frequency mode. The worst case emissions were observed with the EUT operating in a fixed frequency mode. Measurements were made with the EUT operating at three frequencies (Channels) within the band, low, mid, and high.

Those measurements were made using a peak detector. The following averaging technique was used to adjust the specification limit:
The EUT while operating uses a 60% duty cycle, therefore the specification limit was reduced by 4.3 dB for harmonics and spurs measured with the EUT operating at a "fixed" frequency.

3.2 EUT Exercise Software

A firmware program was installed that allowed the EUT to operate in a "Normal" mode which caused the EUT to transmit in the normal frequency hopping mode. It also allowed a "Test" mode that fixed the transmit frequency on one channel.

3.3 Special Accessories

The EUT will be sold with the SpaceLabs Medical, Models 90309 and 90310. The antenna will be included with the EUT. Accessories available for those models will be available to the user..

3.4 Equipment Modifications

The EUT was tested with a standard SMA Connector to enable connection to the test equipment. Equipment offered for sale will be equipped with a "Reverse-Sex" SMA connector.

3.5 Configuration of Tested System

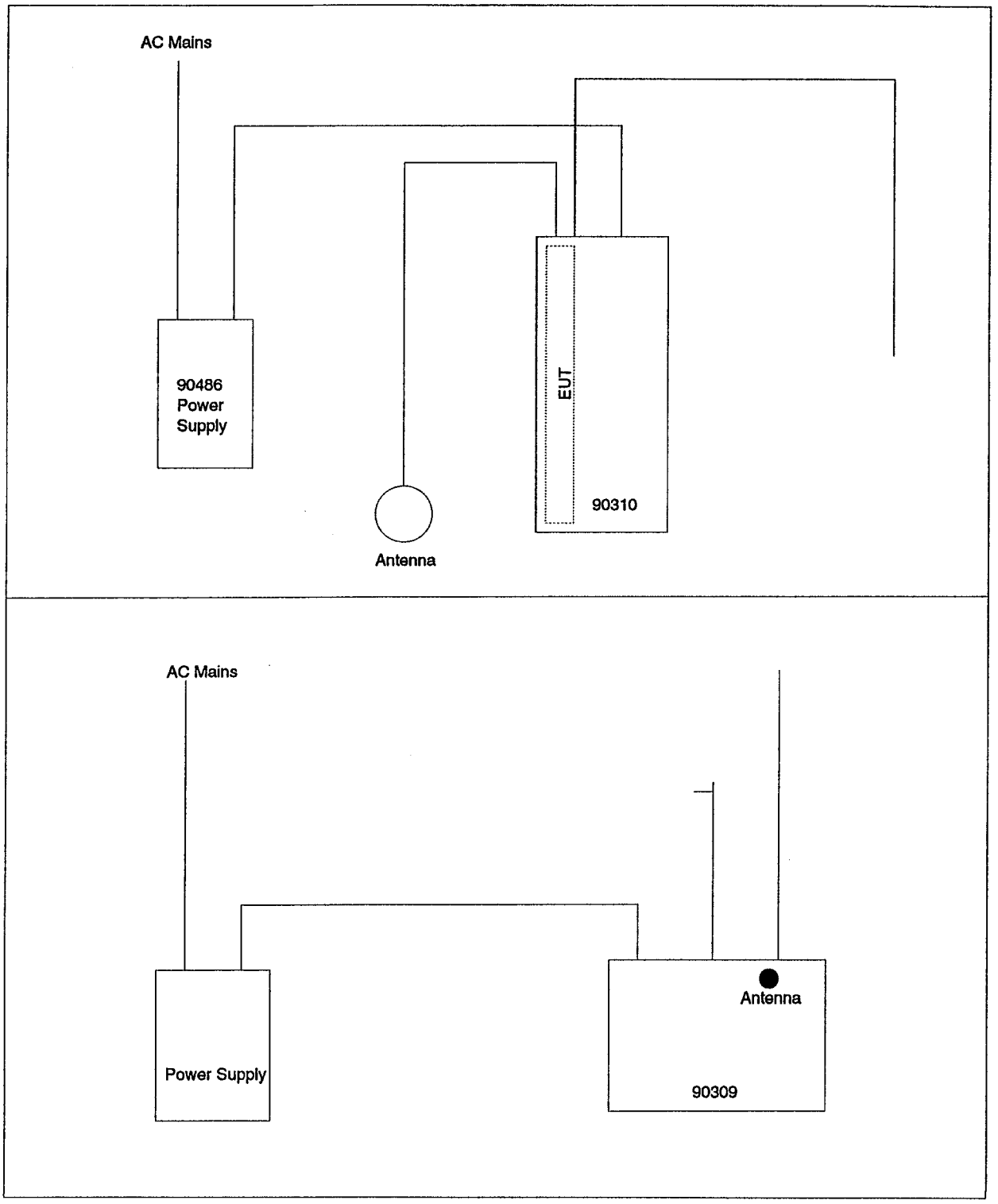
The EUT was mated to a SpaceLabs Medical Wireless Ethernet Interface board, Part No. 670-0829-00 providing an Ethernet repeater interface. This assembly was then tested while installed in a SpaceLabs Medical Model 90309 and Model 90310. The antenna was connected to the only available I/O port on the EUT. Cables were attached to the I/O ports of the 90309 and 90310.

4.0 Block Diagram of EUT

The Block Diagram for the Transceiver Board, SpaceLabs Medical Part No. 010-0914-00 (EUT) is to be provided by:

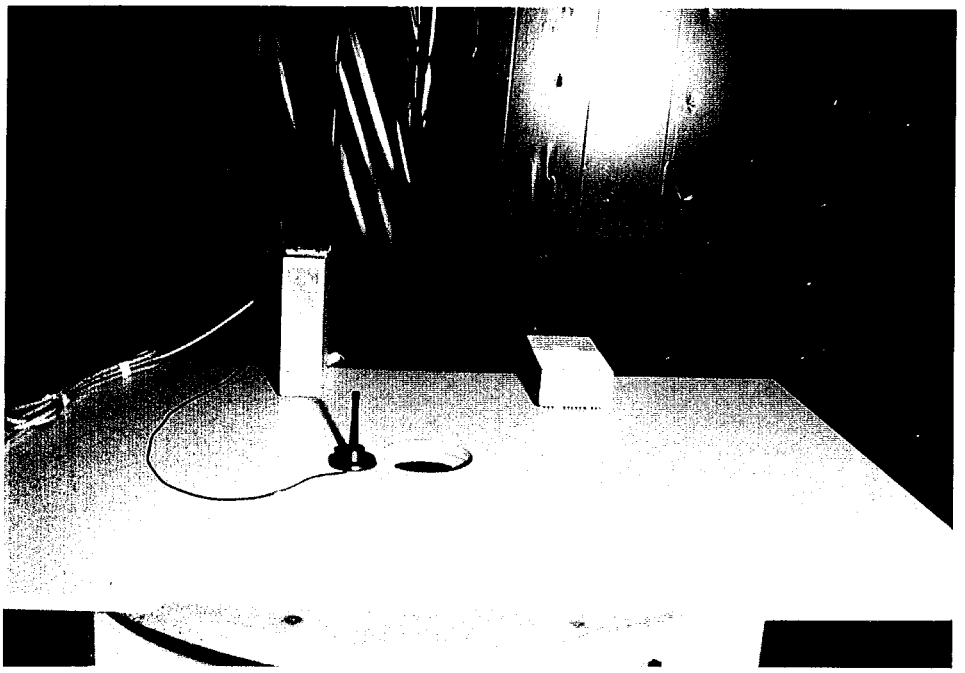
Proxim, Inc.
295 N. Bernardo Avenue
Mountain View, CA 94043
Phone: (415) 960-1630
FAX: (415) 960-1984
Contacts: Brian Messinger or Altan Yazor

Figure 3.1: Configuration of Tested System

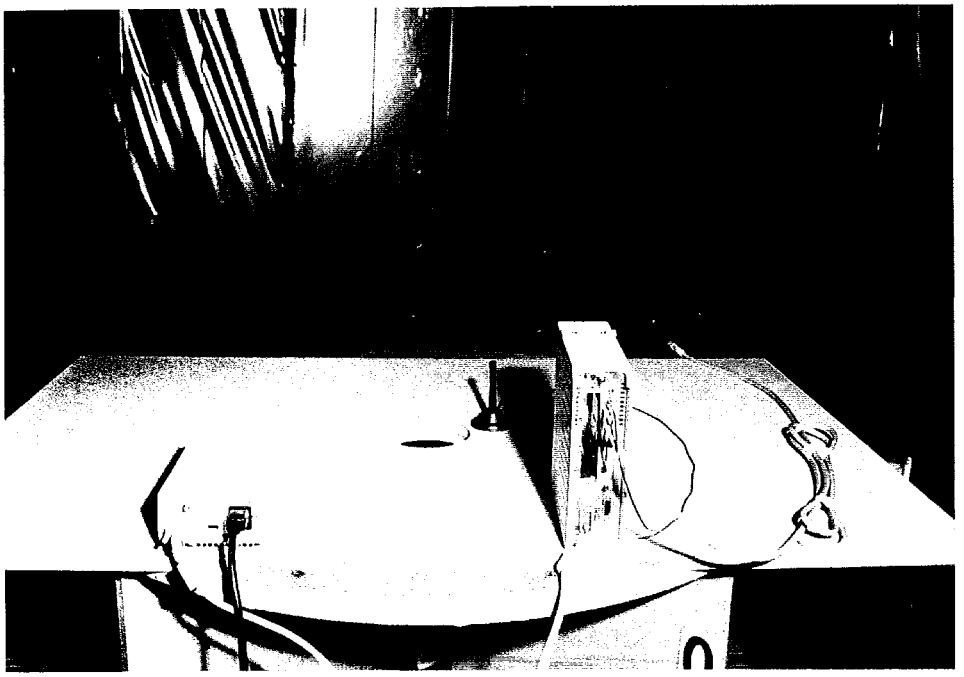


5.0 Photographs

Radiated Emissions,
Test Set-up.



Radiated Emissions,
Test Set-up.



4.1 Block Diagram Description

The Block Diagram Description for the Transceiver Board, SpaceLabs Medical Part No. 010-0914-00 (EUT) is to be provided by:

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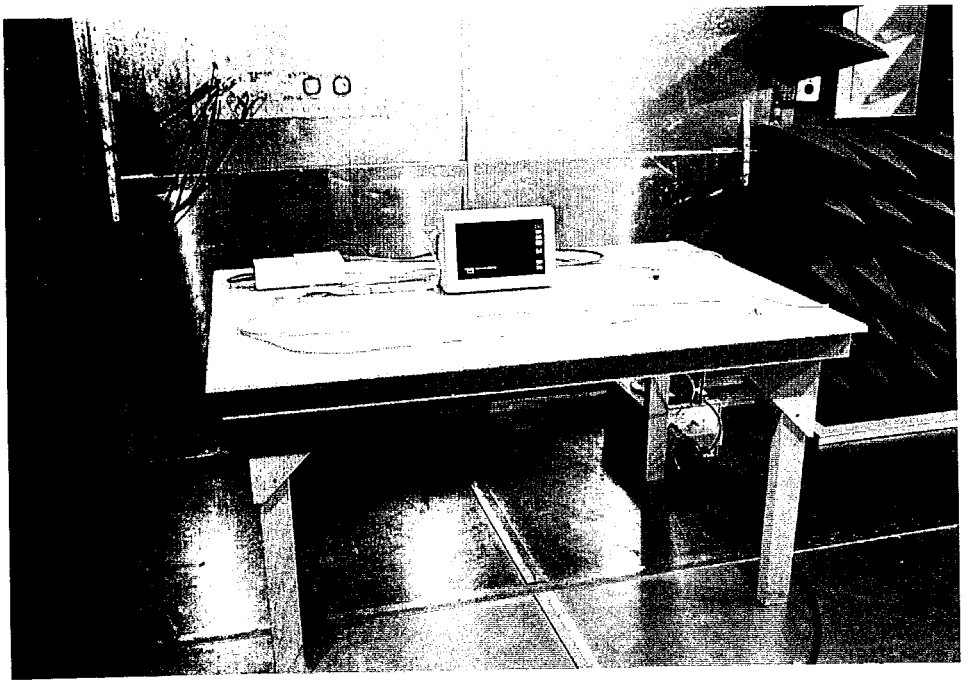
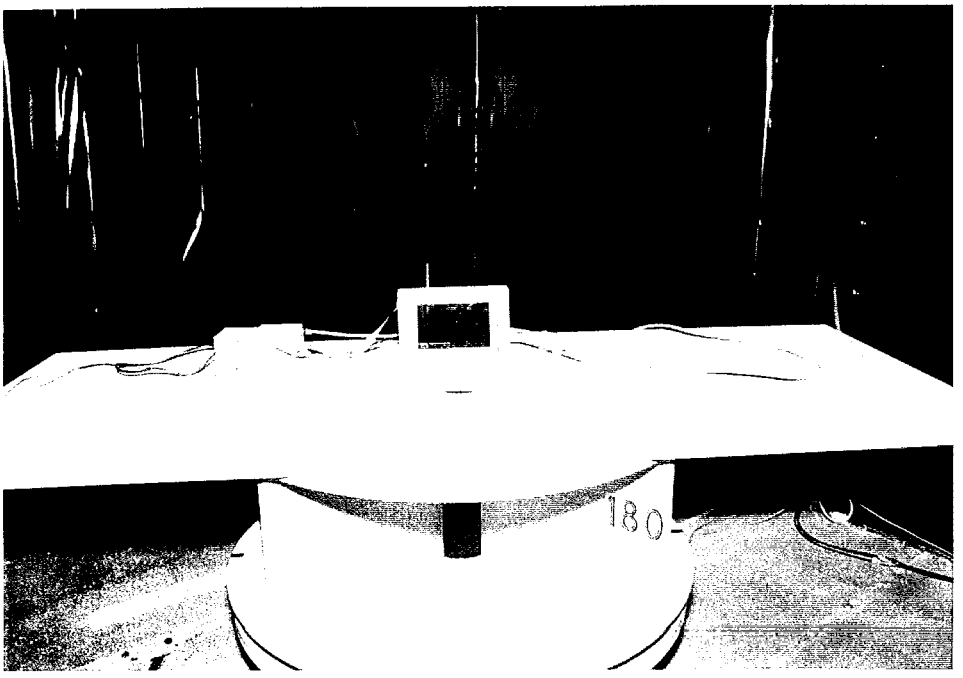
5.0 Photographs

Radiated Emissions,
Test Set-up.

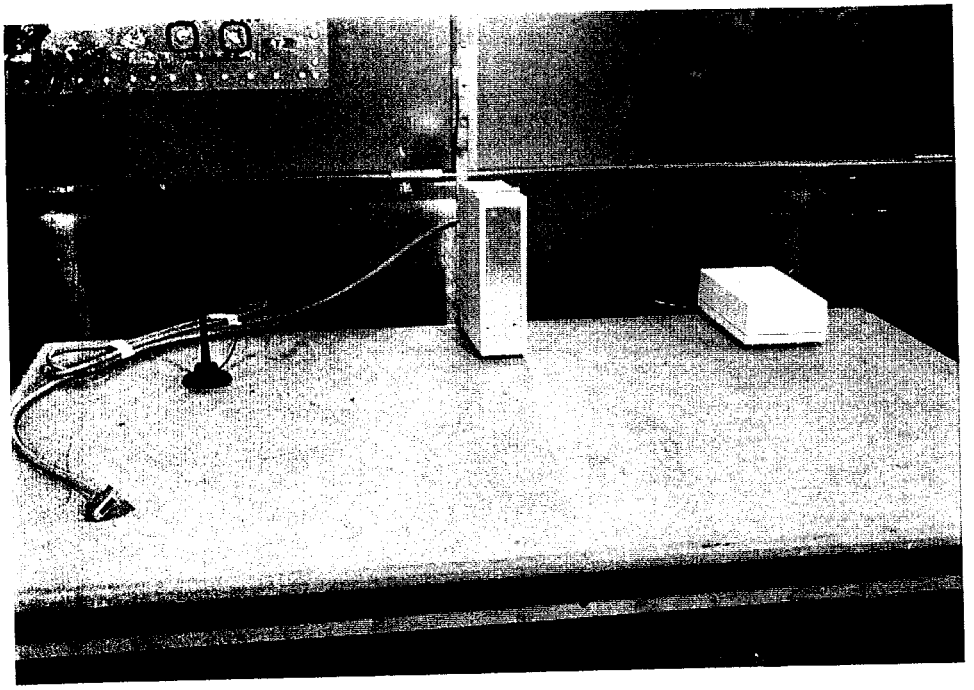


Conducted Emissions,
Test Set-up.



5.0 Photographs

Conducted Emissions,
Test Set-up.



Conducted Emissions,
Test Set-up.