LXE

125 Technology Parkway
Norcross, Georgia, USA 30092

Frequency Hopping Spread Spectrum Transmitter

Model:	7521
FCC ID:	IMKAP2-1121
Manufacturer:	Proxim Inc. 295 North Bernardo Mountain View, CA 94043
Scope of Testing:	FCC Part 15, Subpart C
Section/Standard:	47 CFR § 15.247

Issue Date: August 13, 1999

Table of Contents

1.0 GENERAL

1.1 Introduction

The purpose of this report is to demonstrate compliance with Part 15, Subpart C of the FCC's Code of Federal Regulations. Testing was performed by LXE Inc., a division of EMS Technologies, Inc.

1.2 Product Description

The equipment under test (EUT) is the combination of the Proxim Inc. Model 7520 with various antennas described below. The 7520 is Frequency Hopping Spread Spectrum(FHSS) transmitter operates over the frequency range of 2400.0 to 2483.5 MHz. The following antennas are covered by this report:

- Cushcraft Model S2403 - 3dB Omni - N Connector(Note 1)
- Cushcraft Model S2400 - 0dB Omni - N Connector (Notes 1 & 2)
- LXE Model Spire - LXE P/N(s): 155845-0001 - 6dB Omni - RTNC Connector(Note 3)
- LXE Model Spire - LXE P/N(s): 155846-0001 - 3dB Omni - RTNC Connector(Notes 2 & 3)

Note 1: Models numbers generalized to incorporate the many configurations of the antenna, including cable pigtail lengths, connector types and genders. Antennas were tested with shortest cable length available and were assumed to be worst case.

Note 2: Antenna not tested. Compliance is assumed based on data from higher gain antenna of same type.

Note 3: The LXE Model and part numbers given are for the base unit of the antenna. Additional models are available that include different cable pigtail lengths, connector types, genders etc.... Antennas were tested with shortest cable length available and were assumed to be worst case.

2.0 LOCATION OF TEST FACILITY

The LXE test facility is located at the following address:

LXE, Inc.
An Electromagnetic Sciences Company
125 Technology Parkway
Norcross, GA US 30092-2993
Tel: (770) 447-4224
Fax: (770) 447-6928

Radiated emission tests were conducted at the manufacture's test facility at a location specifically prepared for this testing. The radiated emissions test site meets the characteristics of ANSI C63.4:1992, CISPR 16 and EN 55022:1994. This site has been fully described and submitted to the FCC, and accepted in their letter marked 31040/SIT, 1300F2.

3.0 DESCRIPTION OF OPEN AREA TEST SITE

The open area test site(OATS) is located in the center of the rooftop of the building. The roof is located at a height of approximately 8 meters above the ground. The 3 meters radiated emissions test site is an open, flat area (open area) test site approximately 6.2m x 9.2m in dimension. All reflecting objects including test personnel lie outside the perimeter of the ellipse. The 3 meters test site ground plane is made of a 1/4" metal screen mesh which extends 2 meters past the mast and equipment under test(EUT). Material of the ground plane, comprised of individual 1/4" metal screen mesh rolls, were soldered at the seams with gaps smaller than 1/10 of the wavelength at 1000MHz. The ground plane is connected to the earth ground by ground rods. All wiring is done at floor level around the test site periphery. The radiated emissions test setup is shown in figure 1.

3.1 Radiated Emissions Testing Facility Drawing

All dimensions are in meters(m)

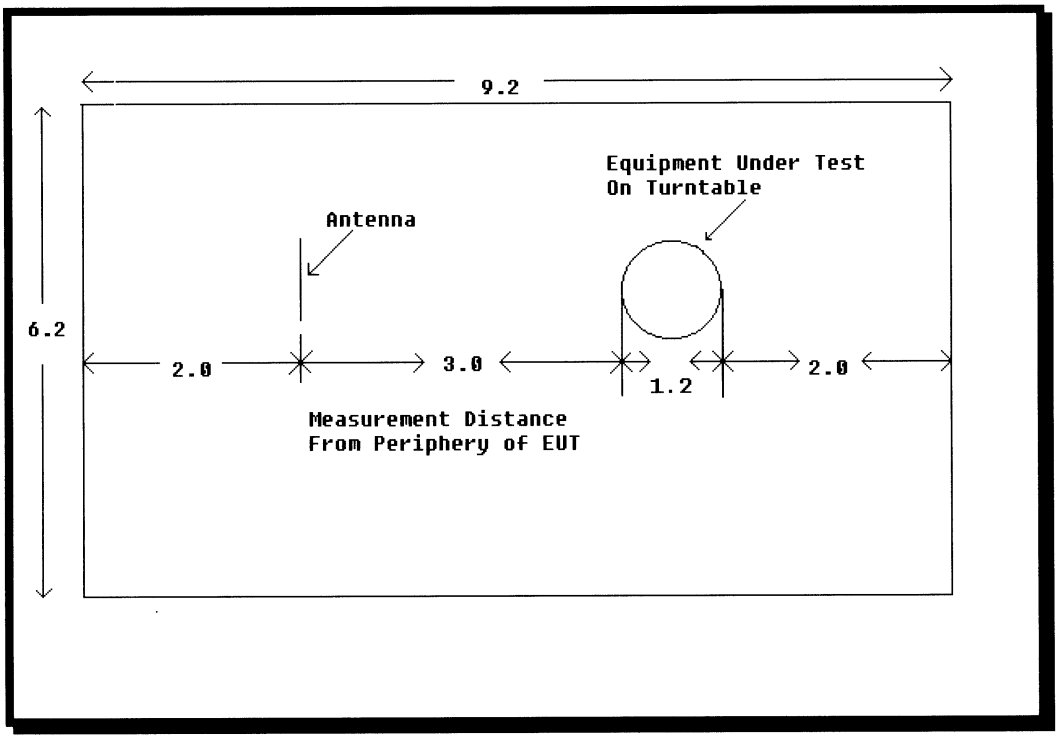


Figure 1: Open Area Test Site(OATS)

4.0 APPLICABLE STANDARD REFERENCES

The following standards were used for this test:

1 - ANSI C63.4-1992: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz

2 - US Code of Federal Regulations (CRF): Title 47, Part 15, Radio Frequency Devices, Subpart C, Intentional Radiators (October 1997)

3 - FCC Report and Order 97-114, Appendix C, April 10, 1997.

5.0 LIST OF TEST EQUIPMENT

Table 1: Test and Support Equipment

Description	Manufacturer	Model/Part #	Serial #	Calibration Due Date
Spectrum Analyzer	Hewlett Packard	HP 8563E	3304A00657	05/05/00
Preamplifier	LXE	20-1000 MHz	001	04/12/00
Preamplifier	Hewlett Packard	83006A	3116A01317	10/05/99
HI-Pass Filter	MiniCircuits	SHP-1000	NONE	02/26/00
HI-Pass Filter	MicroWave Circuits	H3G020G2	0001	01/05/00
LISN	EMCO	3810/2NM	9505-1024	04/29/99
Biconical Antenna	EMCO	3104C	9012-4360	05/06/00
Log Periodic	EMCO	3146	3011-2946	04/01/00
Horn Antenna	ElectroMetric	RGA-60	6166	04/05/00
Horn Antenna	ElectroMetric	RGA-60	6165	08/20/99
Dipole Antenna Set	CDI	Roberts Dipole	265	04/03/00
RF Cable			NSN	10/05/99
RF Cable			7015	10/05/99
RF Cable			6986	10/05/99
Antenna Mast	CDI	CDI	N/A	N/A
Turntable	CDI	CDI	N/A	N/A
RF Enclosure	Lindgren Enclosure	14-2/2-0	8147	N/A

6.0 TEST METHODOLOGY

For the radiated emissions tests, measurements were made over the frequency range of 30MHz to 10 times the highest fundamental frequency. Measurements of the radiated field strength were made at a distance of 3m from the boundary of the equipment under test(EUT)and the receiving antenna. The antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. A nonconductive remotely controlled turntable approximately 0.91m x 1.2m x 0.8m was used to measure radiated emissions from all sides of the EUT. The turntable has a center opening that allows cabling to be routed directly down to the conducting ground plane.

Due to high ambient noise levels and small EUT size, radiated emission measurements may be made at a distance of 1 meter. An inverse proportionality factor of 20 dB per decade is used to normalize the measured data to the specified distance to determine compliance. The formula used to calculate an inverse proportionality factor is 20 log (D1/D2), where D1 is the distance used and D2 is the specified distance.

Radiated measurements were made with the Spectrum Analyzer's resolution bandwidth set to 120KHz for measurements above 30MHz and below 1000MHz, and 1MHz for measurements above 1000 MHz.

7.0 SUPPORT EQUIPMENT

Table 2: Support Equipment

Manufacturer	Equipment Type	Model Number	Serial Number	FCC ID
WinBook XP	LapTop Computer	ANL-4	10AUA01756	JRUANL-4M66
DELL	AC/DC Power Adapter	ADP-45GB	N6745067248	NONE

8.0 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

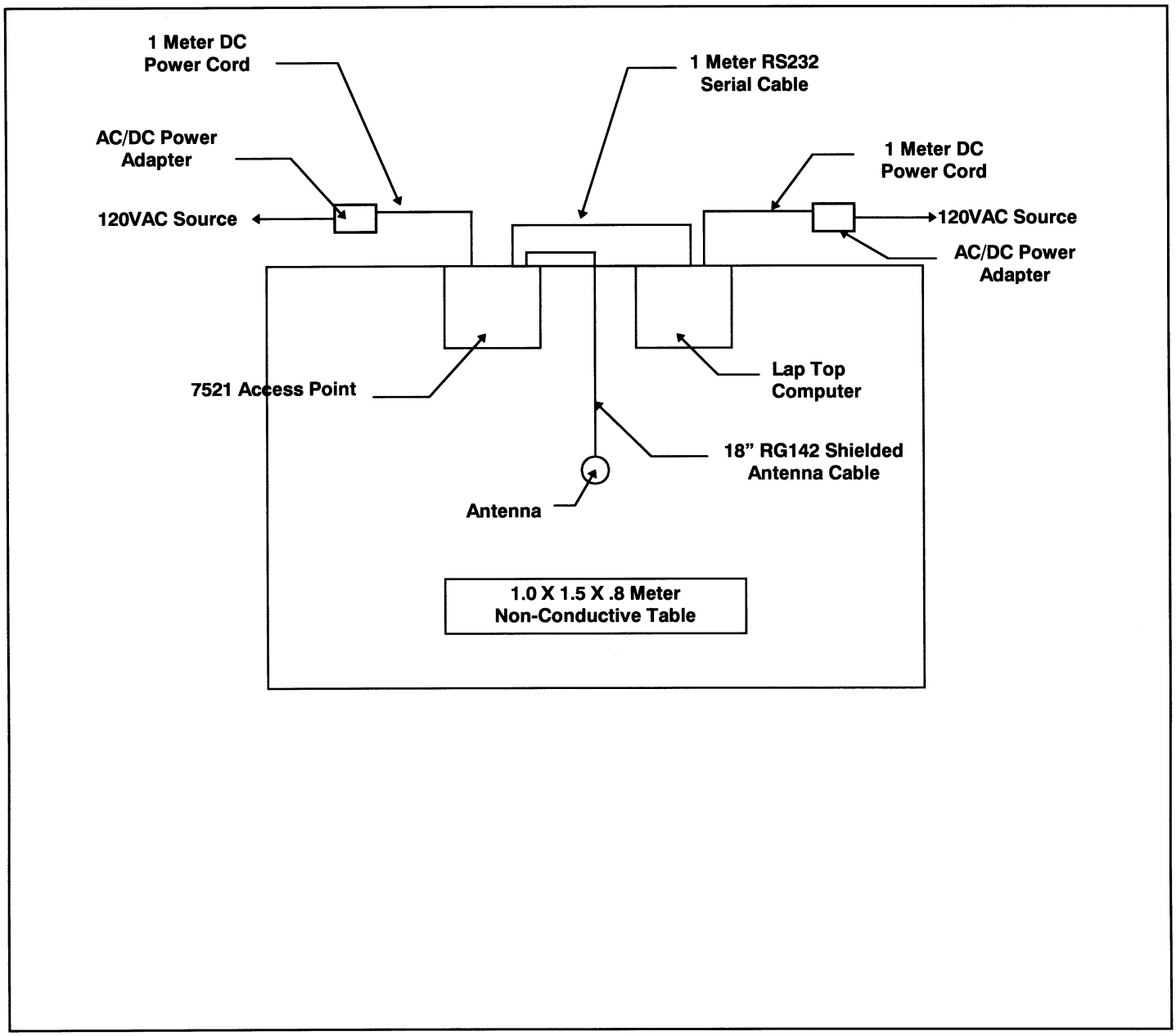


Figure 2: Test Setup Block Diagram

9.0 TEST SETUP PHOTOGRAPHS

The following photos are of the Cushcraft Model S2403 - 3dB omni antenna and depict the setup for all of the antennas tested.

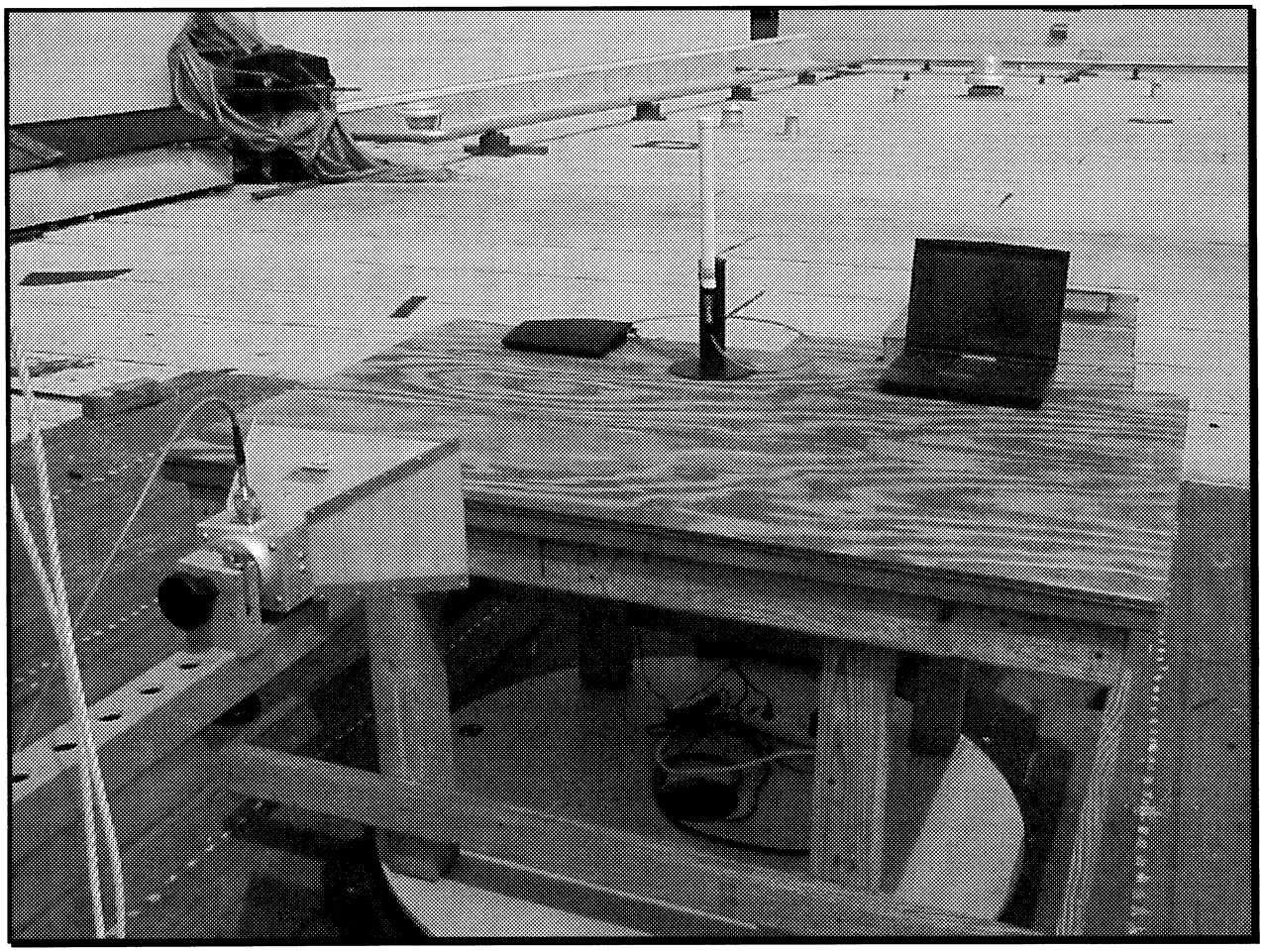


Figure 3: Front View

9.0 TEST SETUP PHOTOGRAPHS(cont.)

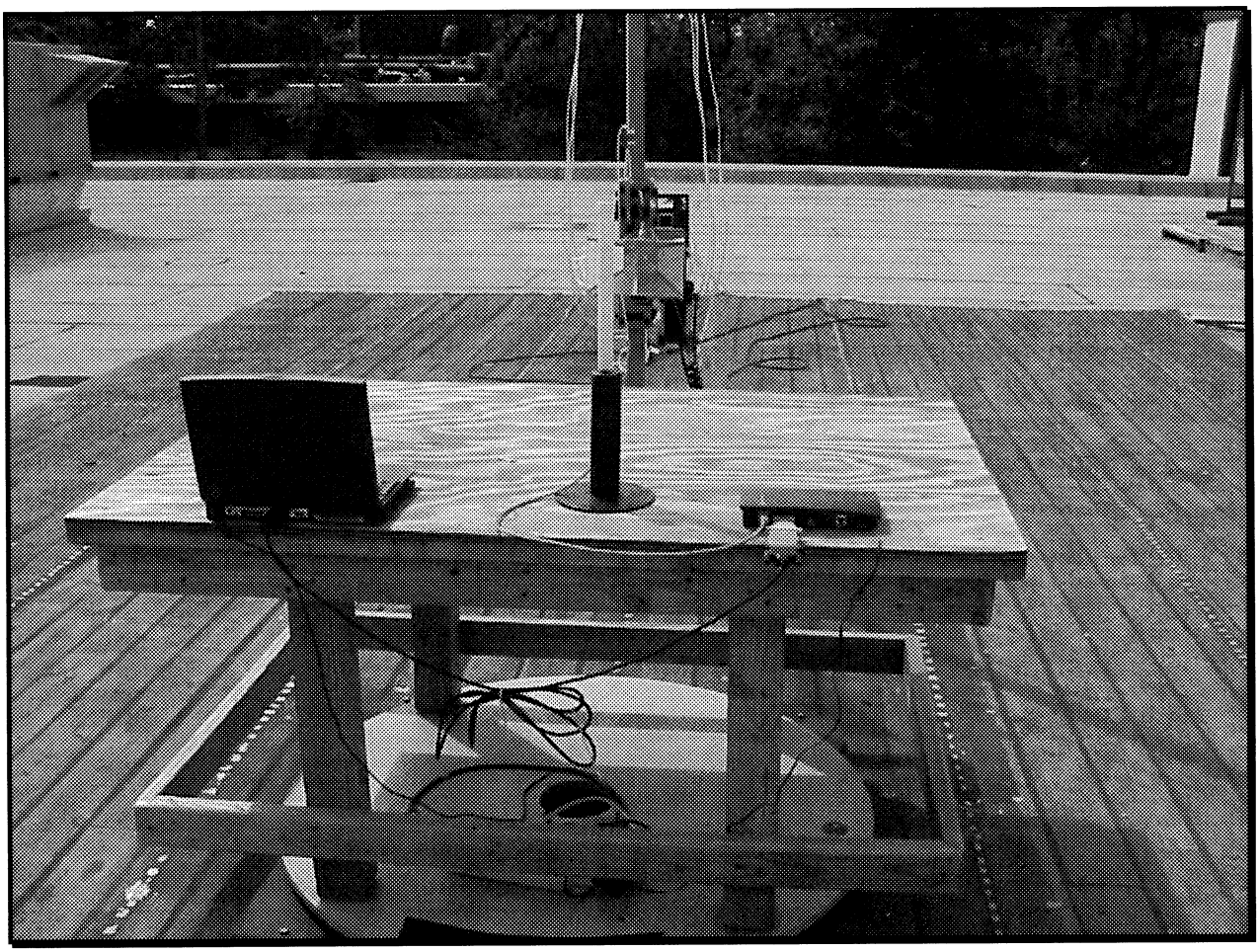


Figure 4: Back View

10.0 SUMMARY OF TESTS

Radiated field strength measurements are taken with a spectrum analyzer. For peak measurements the spectrum analyzer was set with both the VBW and the RBW at 1MHz. Average measurements, if required, were taken with the RBW at 1MHz and the VBW at 10Hz. The sweep rate was set to auto to optimize the measurement. Adequate attenuation was used to protect the analyzer from damage.

10.1 Antenna Requirement - FCC Section 15.203

The radio is equipped with a unique coupling arrangement to prevent the general population to use unauthorized antennas with the radio. However, all of the antennas defined in section 1.2 all use standard N connectors with the exception of the Spire antennas. The standard connectors are preferred by our field service engineers for quick installation, repair and easy maintenance. These antennas will only be used in applications in which LXE personnel or trained sub-contractors install the equipment. Justification for use of these connectors is contained in a separate attachment within this report.

10.2 Radiated Spurious Emissions(Restricted Bands)

Peak radiated spurious emissions found in the restricted bands are reported below in table 3. Average measurements, if taken, are given below the peak measurements. Along with the tabular data shown in table 3 below, plots were also taken of all signals deemed important enough to document. The plots are in the order of tabular data and are included in a separate attachment

Table 3: Radiated Spurious Emissions

Frequency (MHz)	Antenna Distance (m)	Level (dBm)	Detector Function (P/A)	Correction Factors (dB)	Corrected Level (dBm)	Corrected Level (uV/m)	Limit (uV/m)	Margin (dB)	Final Result (Pass/Fail)
Cushcraft S2403 3dB Omni									
Low Channel									
4802	1	-68.00	p	4.01	-63.99	141.47	5000	4858.53	**PASS**
7203	1	-69.50	p	9.35	-60.15	220.12	5000	4779.88	**PASS**
9602*	1	-70.67	p	11.74	-58.93	253.09	5000	4746.91	**PASS**
Mid Channel									
4882	1	-70.67	p	4.23	-66.44	106.71	5000	4893.29	**PASS**
7322	1	-68.50	p	9.56	-58.94	252.94	5000	4747.06	**PASS**
9765*	1	-73.50	p	12.02	-61.48	188.71	5000	4811.29	**PASS**
High Channel									
4960	1	-65.50	p	4.45	-61.05	198.37	5000	4801.63	**PASS**
7440	1	-69.33	p	9.77	-59.56	235.39	5000	4764.61	**PASS**
9920*	1	-71.67	p	12.28	-59.39	240.23	5000	4759.77	**PASS**
LXE Model Spire: Part Number 156846-0001 - 6dB Omni									
Low Channel									
4802	1	-63.33	p	4.01	-59.32	242.20	5000	4757.80	**PASS**
7204	1	-68.00	p	9.35	-58.65	261.67	5000	4738.33	**PASS**
9604*	1	-74.67	p	11.74	-62.93	159.75	5000	4840.25	**PASS**
Mid Channel									
4882	1	-66.00	p	4.23	-61.77	182.69	5000	4817.31	**PASS**
7322	1	-68.50	p	9.56	-58.94	252.94	5000	4747.06	**PASS**
9765*	1	-74.00	p	12.02	-61.98	178.15	5000	4821.85	**PASS**
High Channel									
4960	1	-69.67	p	4.45	-65.22	122.74	5000	4877.26	**PASS**
7440*	1	-72.67	p	9.77	-62.90	160.24	5000	4839.76	**PASS**

* Measurement was of the noise floor. Plot not taken.

Correction Factors

Correction factors include the following:

Antenna Factors + Cable Attenuation + High Pass Filter Loss - Amp Gain - Range Correction

Range Correction = 20Log(D1/D2) Where D1 is the specified distance used and D2 is the distance used to make measurements = [20Log(3/1)] = 9.54 dB

Sample Calculations

Corrected Level(dBm) = Receiver Level + Correction Factors

Conversion from dBm to uV/m = Antilog(dBm + 107)/20)

11.0 RF Safety 15.247(b)(4)

The LXE installation instructions for this equipment will be updated to ensure that the MPE distances given in table 4 below are maintained.

Table 4: Minimum MPE distance requirements

Manufacturer	Model	System EIRP (dBm)	MPE Distance (cm)
Cushcraft	S2403	23	3.98
Cushcraft	S2400	20	2.83
LXE	6dBSpire	26	5.63
LXE	3dBSpire	23	3.98

13.0 CONCLUSION

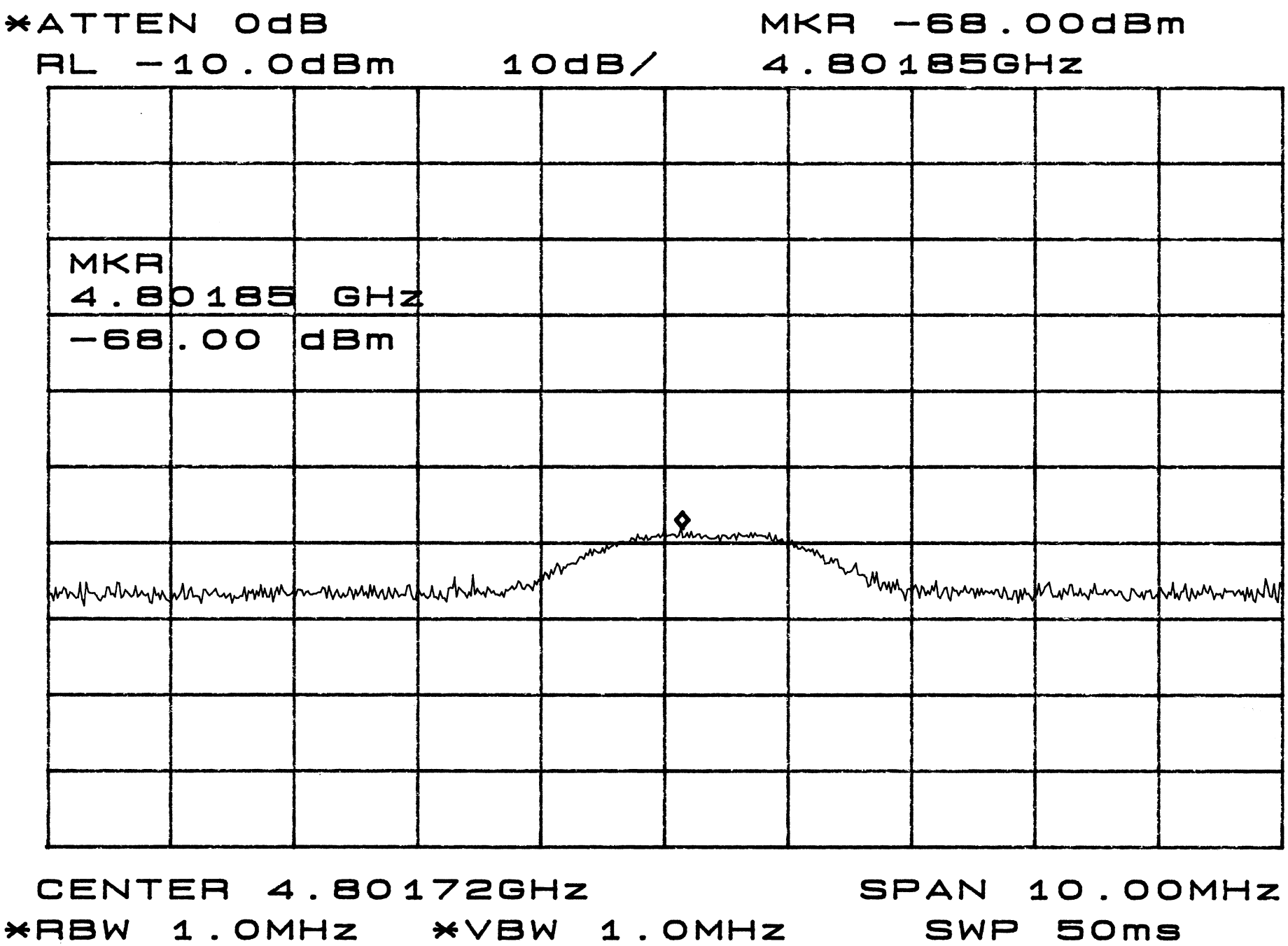
The product covered by this report has been tested and found to comply with the requirements as described in Part 15, Subpart C, Section 15.247 of the FCC Code of Federal Regulations.

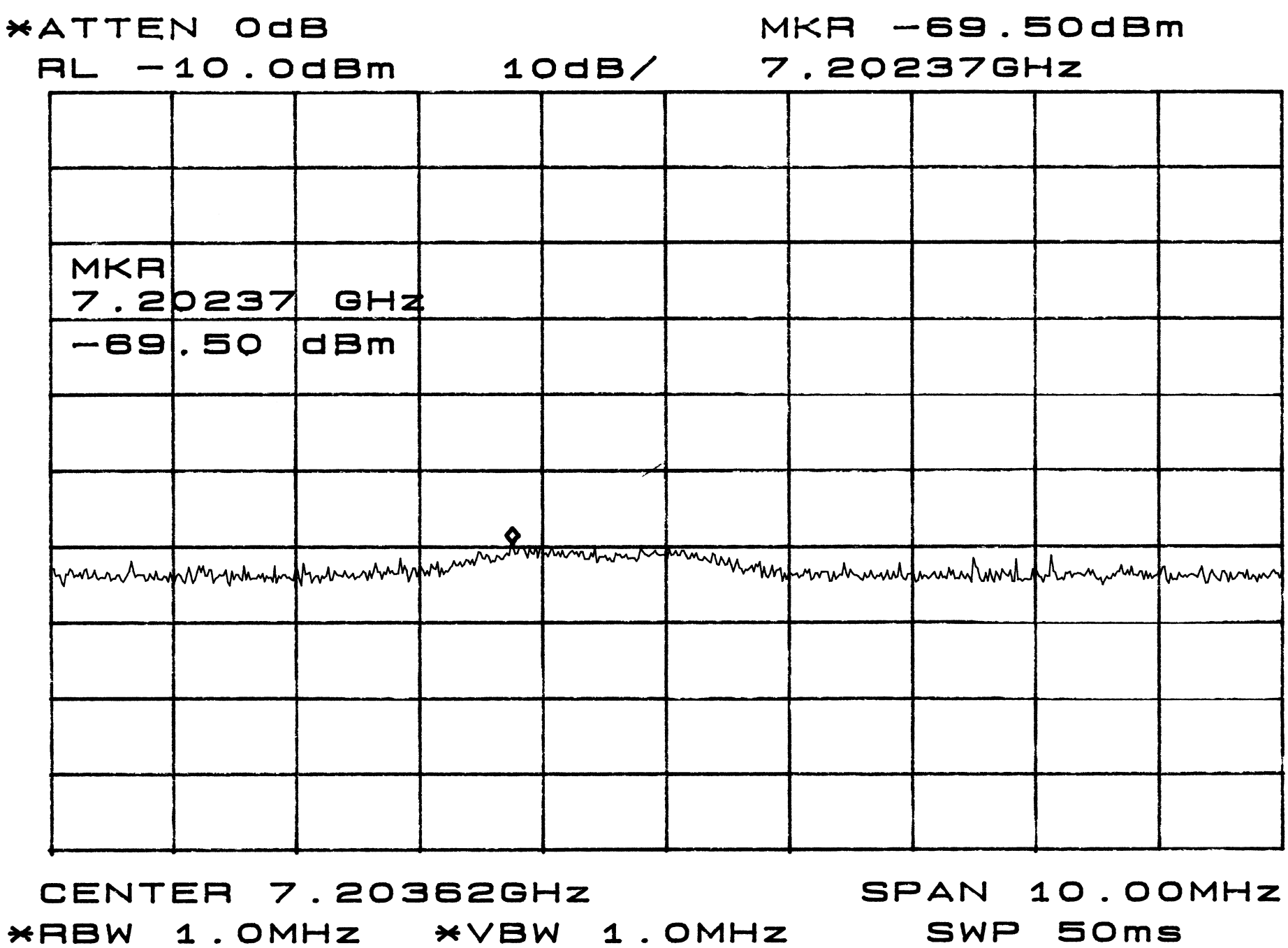
Testing Performed By:_____
Sam Wismer
RF Approvals Engineer

Report Reviewed By:_____
Erik Collins
EMI/EMC Engineer

Radiated Spurious Emission Data Plots

Cushcraft S2403 3dB Omni


*ATTEN 0dB
MKR -68.00dBm
RL -10.0dBm
10dB/
4.80185GHz
MKR
4.80185 GHz
-68.00 dBm
CENTER 4.80172GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms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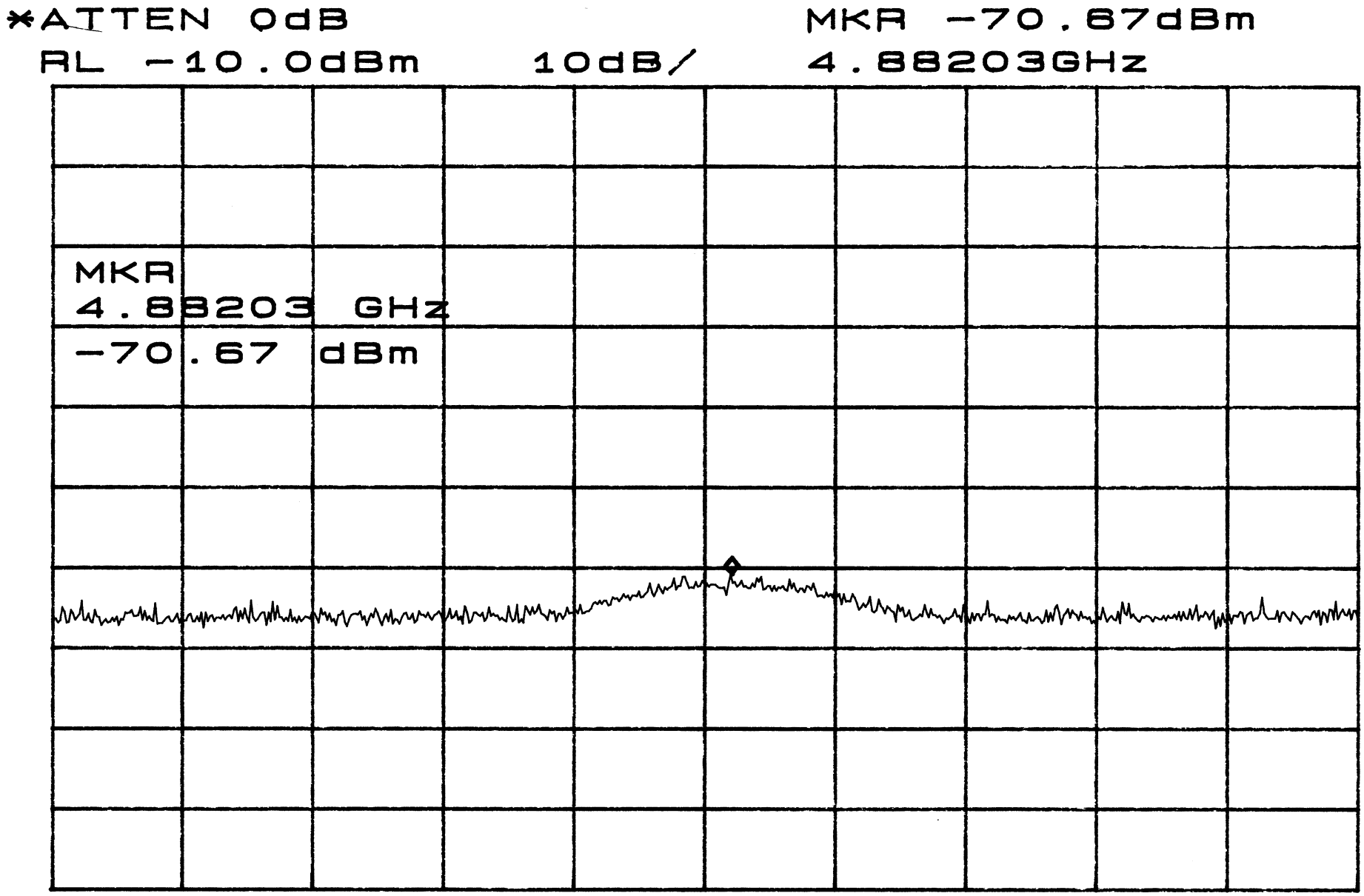
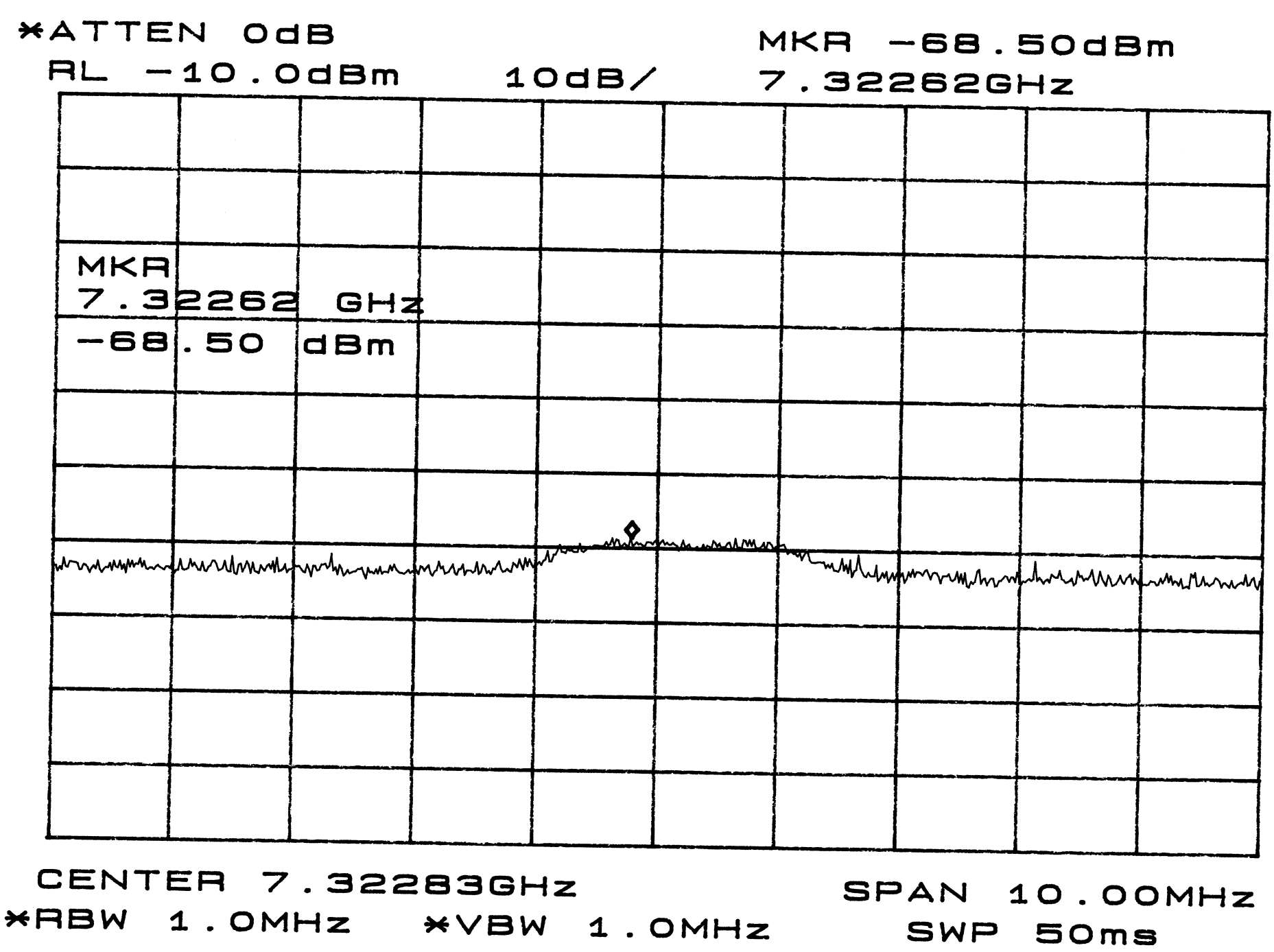
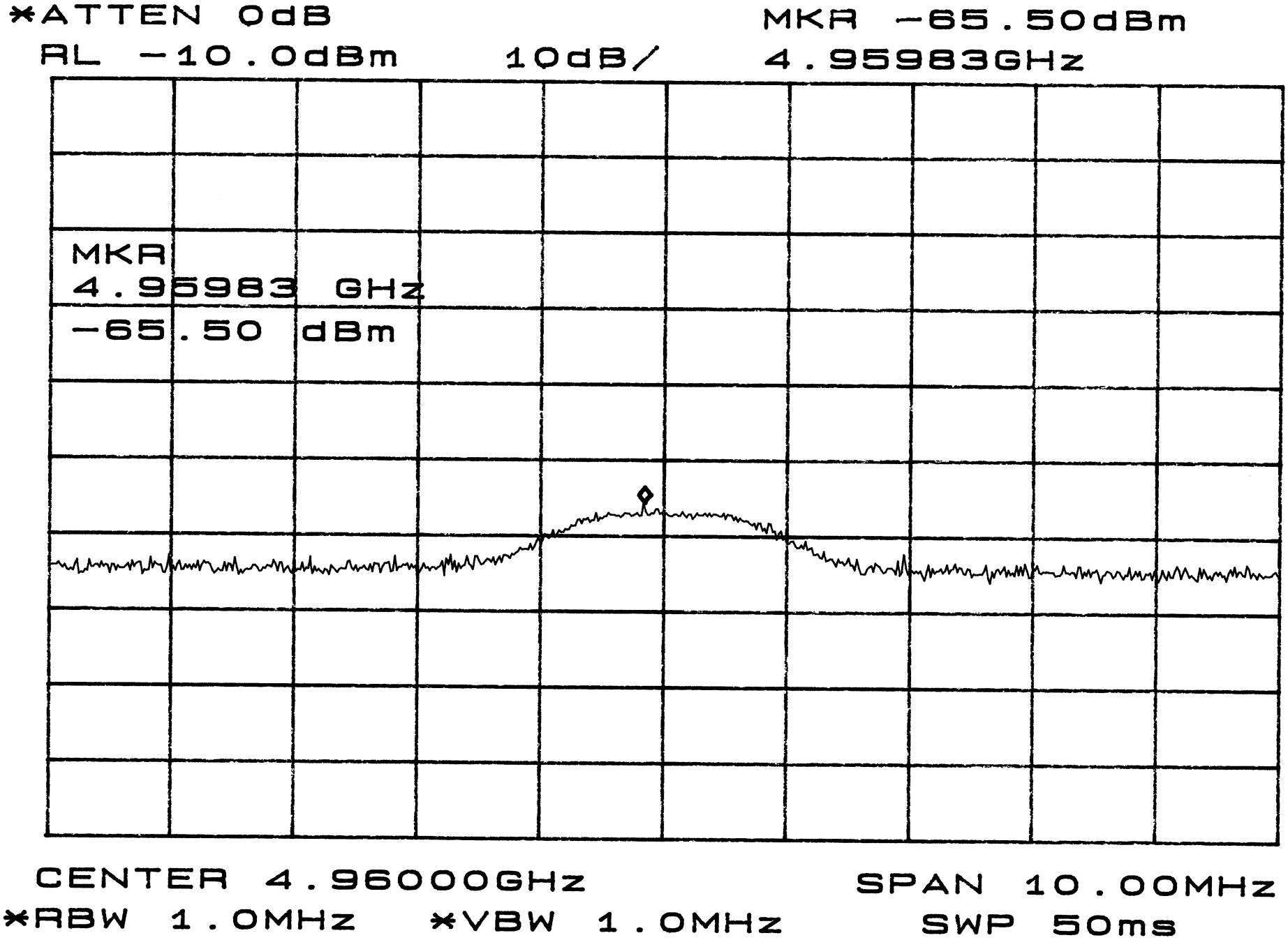
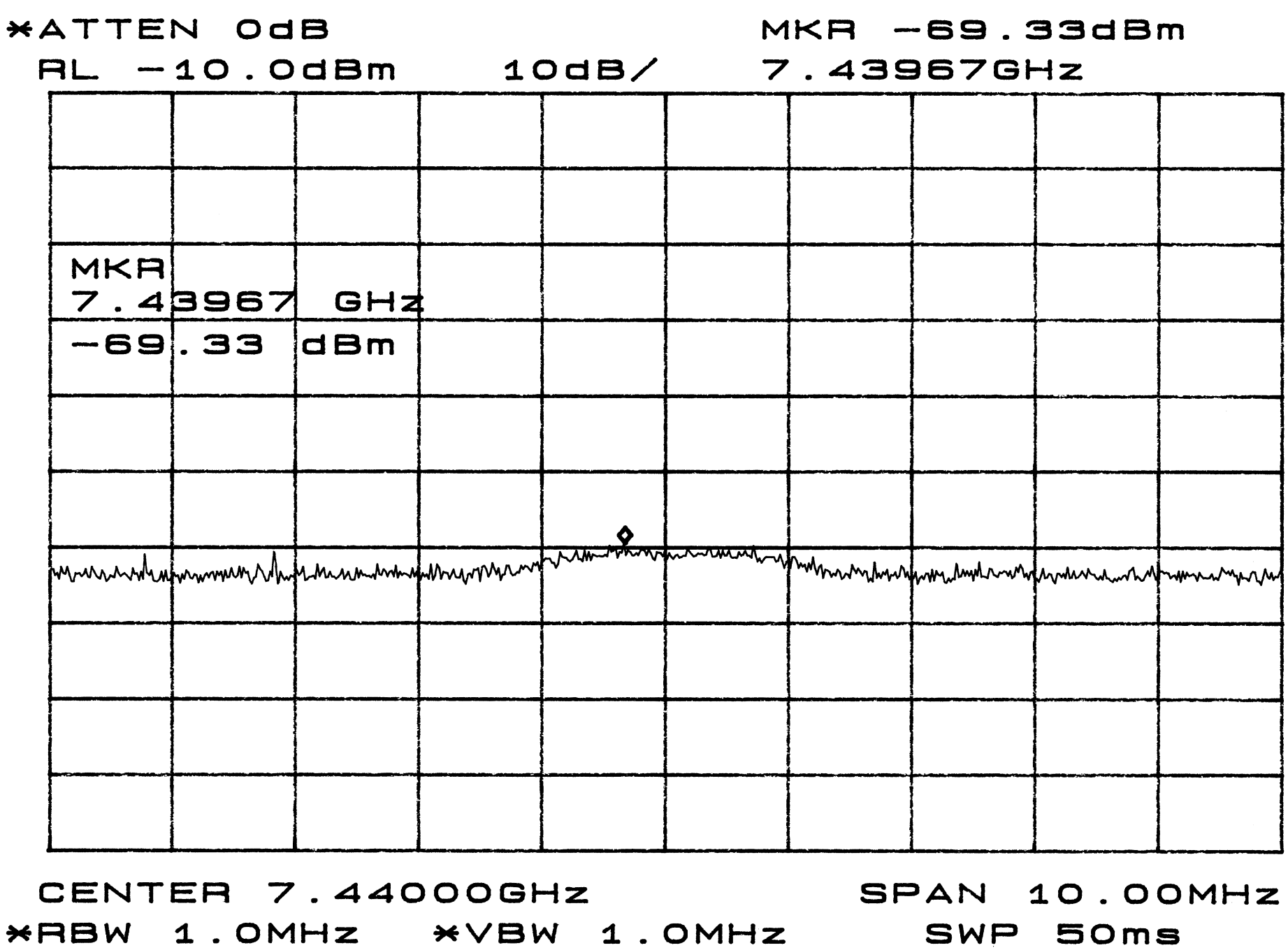
MKR -69.50dBm
RL -10.0dBm
10dB/
7.20237GHz
MKR
7.20237 GHz
-69.50 dBm
CENTER 7.20362GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms


*ATTEN 0dB
MKR -70.67dBm
RL -10.0dBm
10dB/
4.88203GHz
MKR
4.88203 GHz
-70.67 dBm
CENTER 4.88183GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

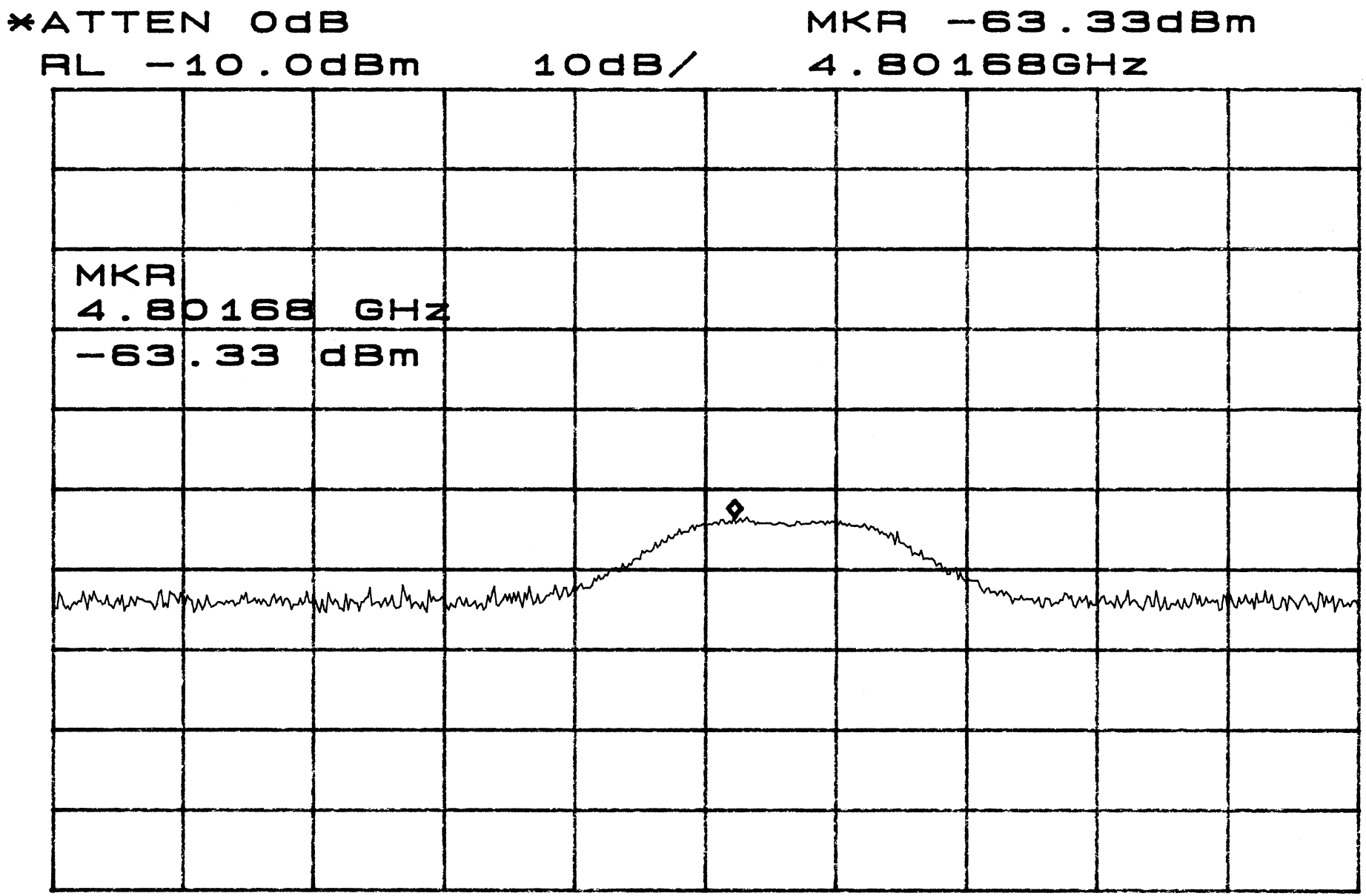

*ATTEN 0dB
RL -10.0dBm
10dB/
MKR -68.50dBm
7.32262GHz
MKR
7.32262 GHz
-68.50 dBm
CENTER 7.32283GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

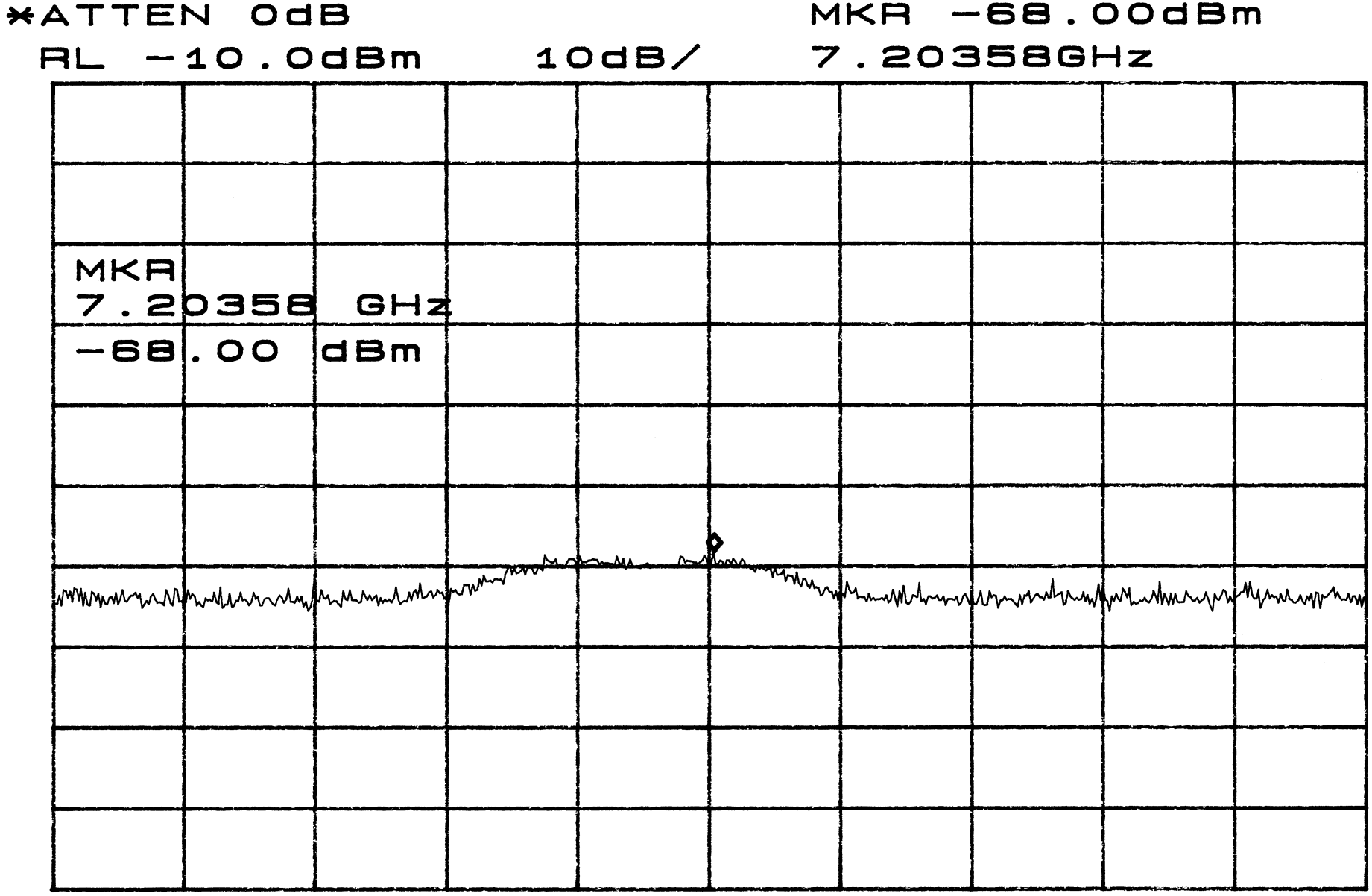

*ATTEN 0dB
MKR -65.50dBm
RL -10.0dBm
10dB/
4.95983GHz
MKR
4.95983 GHz
-65.50 dBm
CENTER 4.96000GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

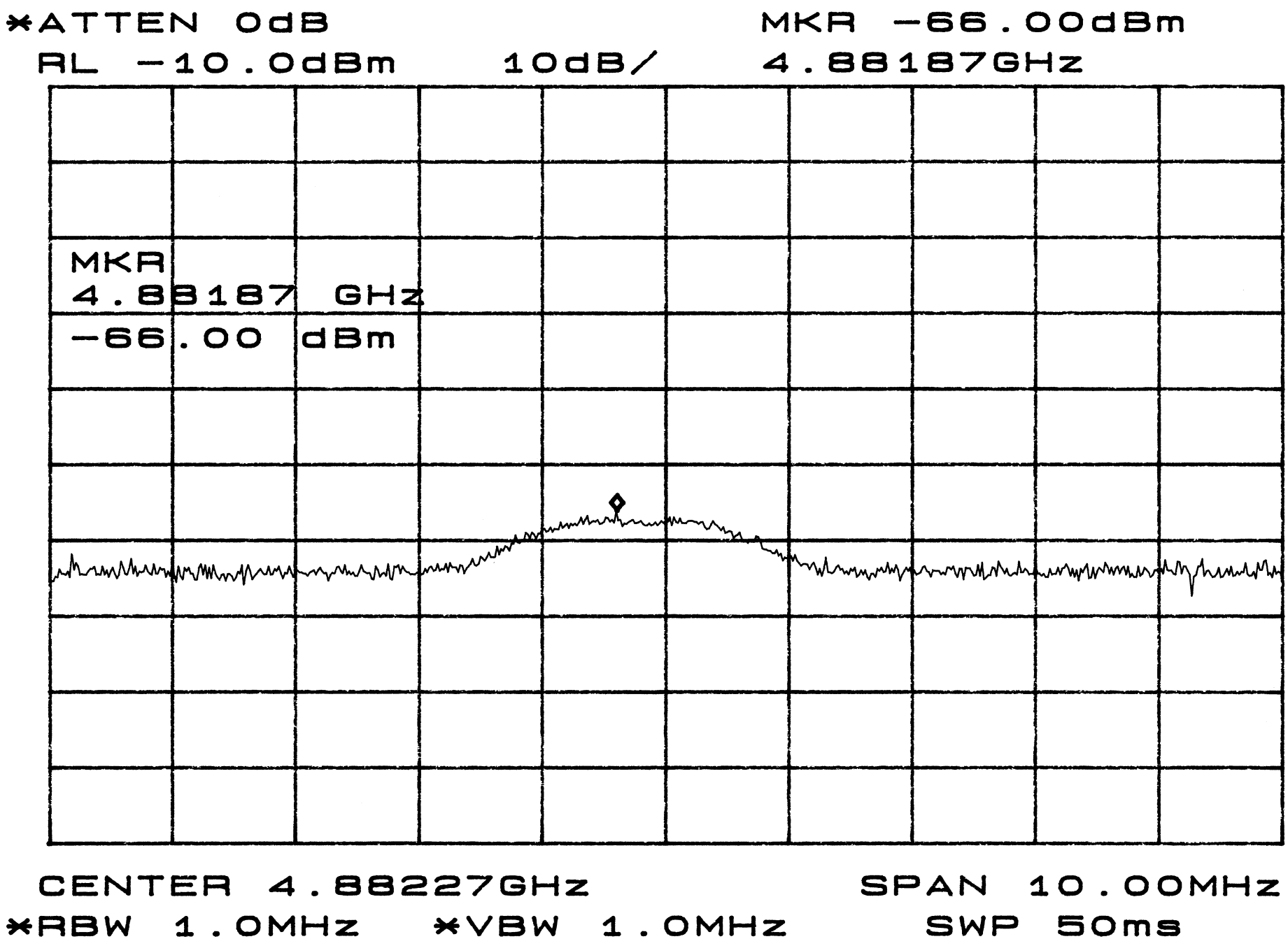

*ATTEN 0dB
MKR -69.33dBm
RL -10.0dBm
10dB/
7.43967GHz
MKR
7.43967 GHz
-69.33 dBm
CENTER 7.44000GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

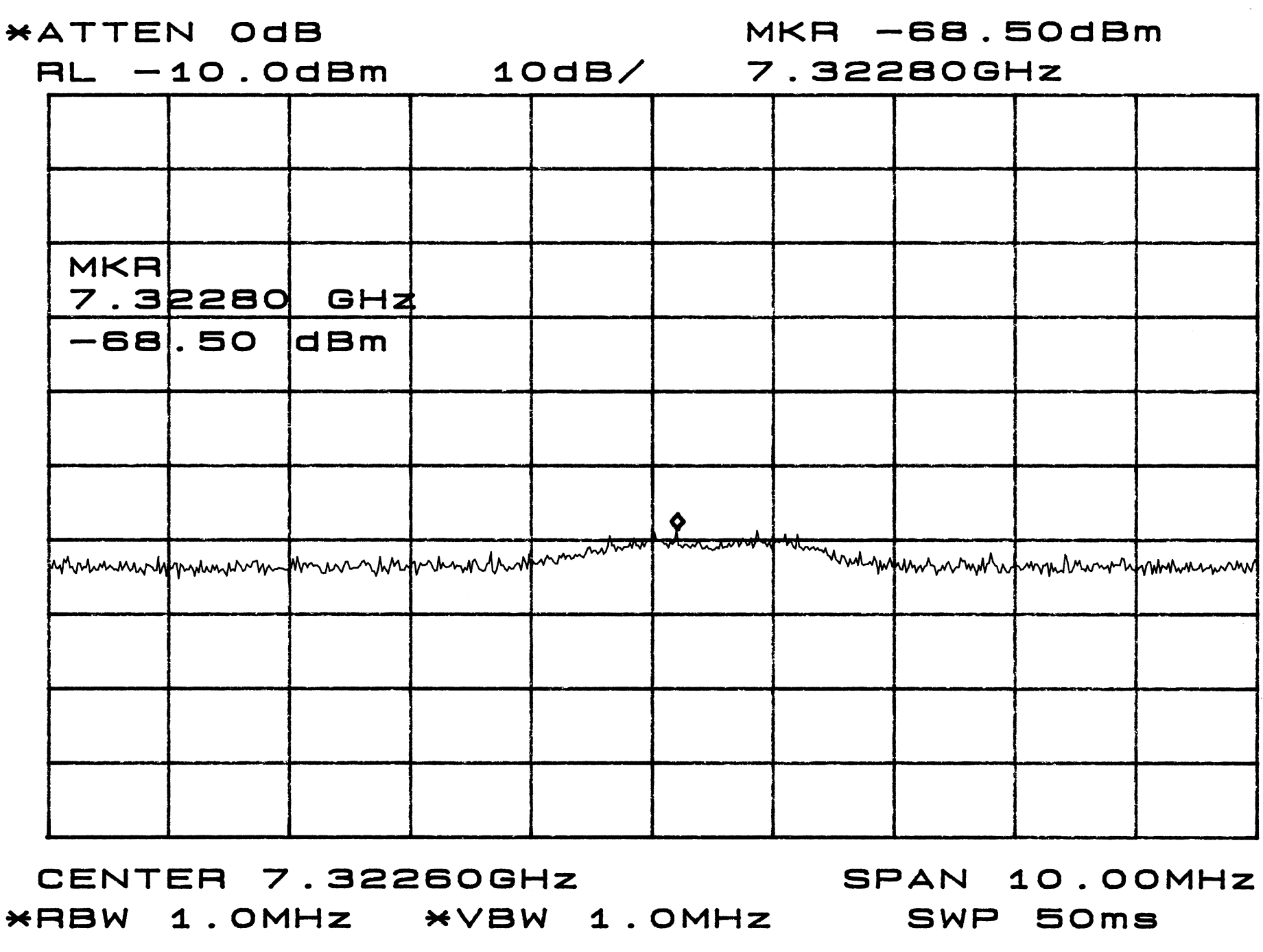
Radiated Spurious Emission Data Plots

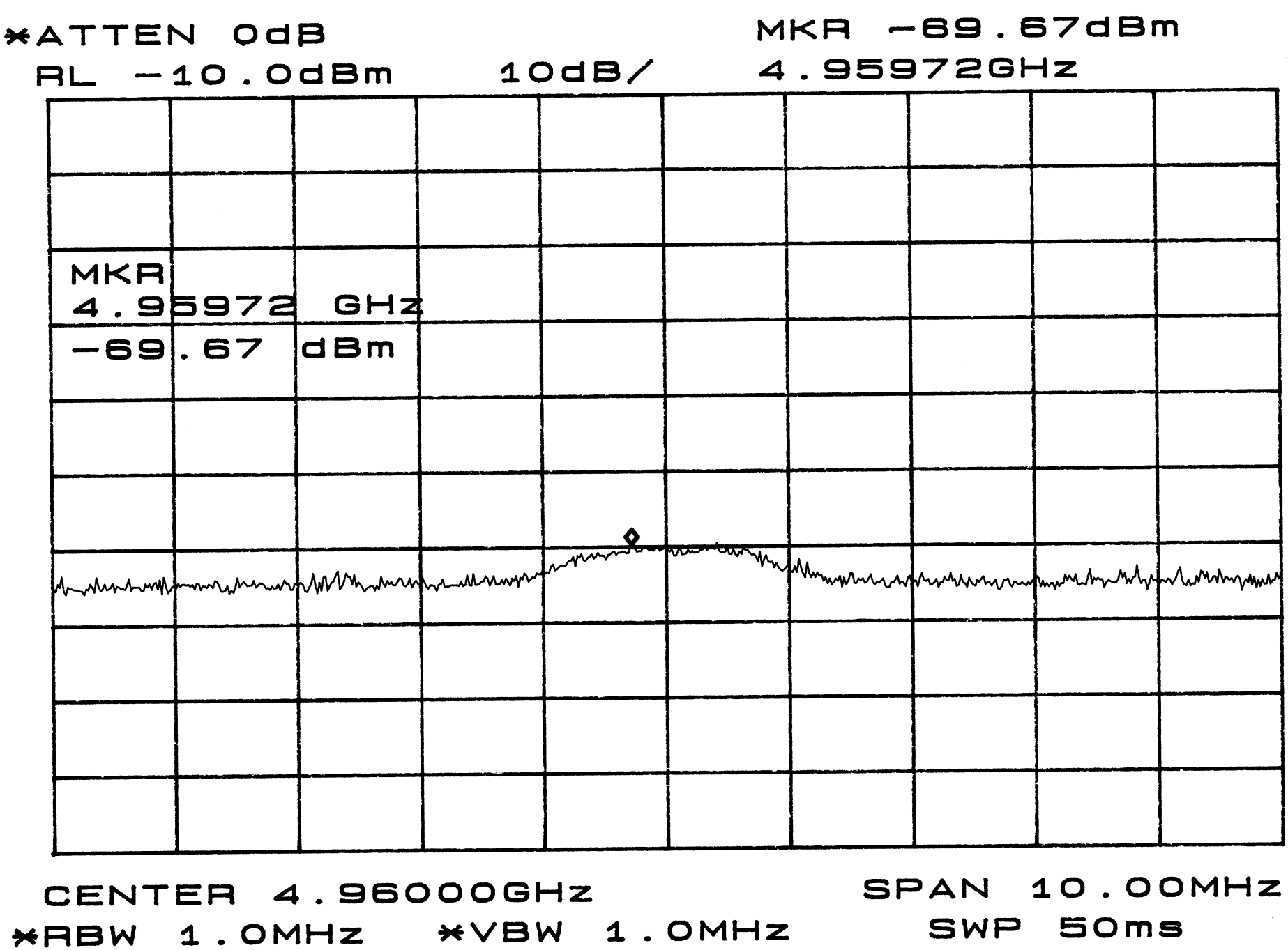
LXE Model Spire: 6dB Omni


*ATTEN 0dB
MKR -63.33dBm
RL -10.0dBm
10dB/
4.80168GHz
MKR
4.80168 GHz
-63.33 dBm
CENTER 4.80147GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms


*ATTEN 0dB
MKR -68.00dBm
RL -10.0dBm
10dB/
7.20358GHz
MKR
7.20358 GHz
-68.00 dBm
CENTER 7.20355GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms


*ATTEN 0dB
MKR -66.00dBm
RL -10.0dBm
10dB/
4.88187GHz
MKR
4.88187 GHz
-66.00 dBm
CENTER 4.88227GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms


*ATTEN 0dB
MKR -68.50dBm
RL -10.0dBm
10dB/
7.32280GHz
MKR
7.32280 GHz
-68.50 dBm
CENTER 7.32260GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms


*ATTEN 0dB
MKR -69.67dBm
RL -10.0dBm
10dB/
4.95972GHz
MKR
4.95972 GHz
-69.67 dBm
CENTER 4.96000GHz
SPAN 10.00MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

Antenna Photos

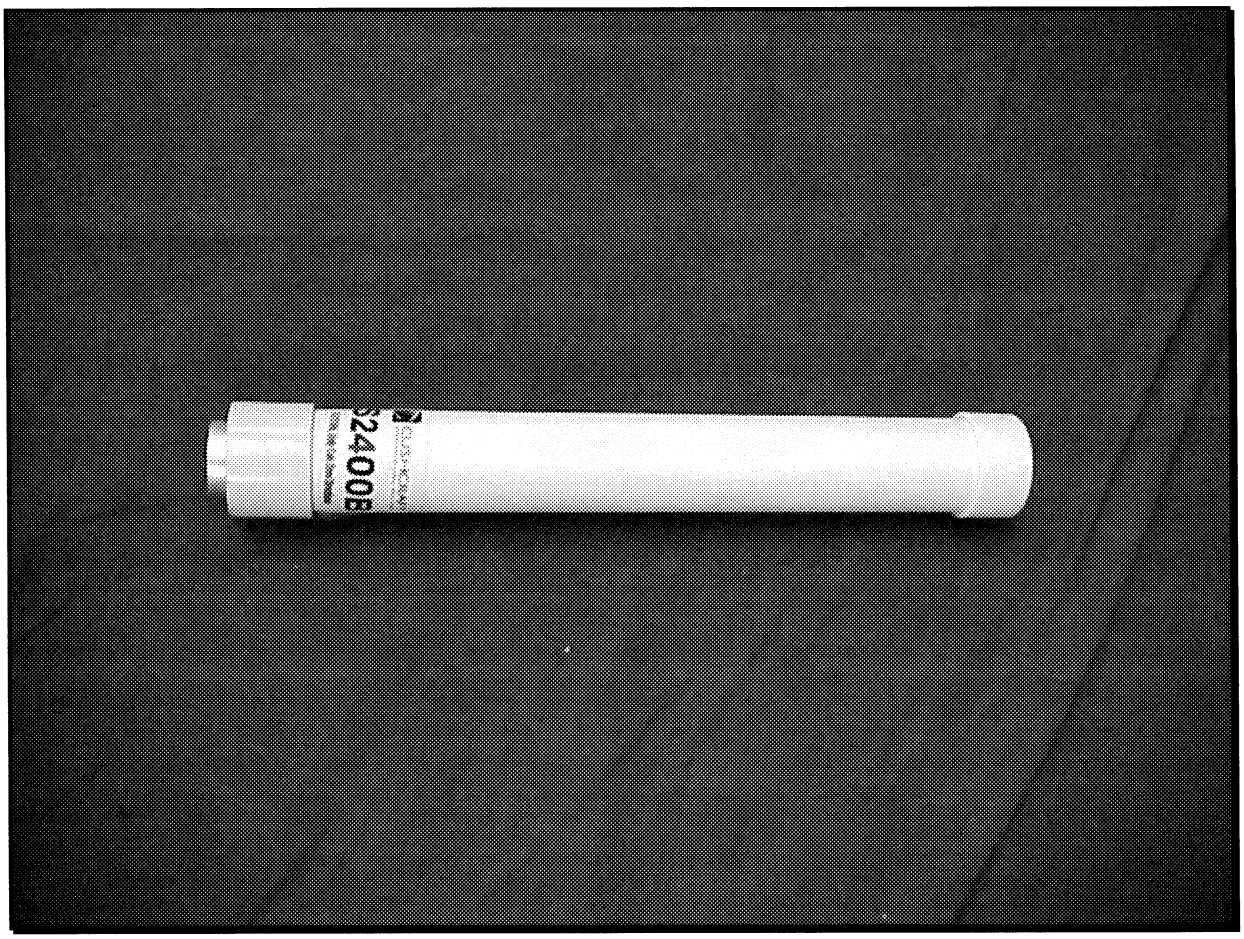


Figure 1: Cushcraft Model S2400 - 0dBi Omni

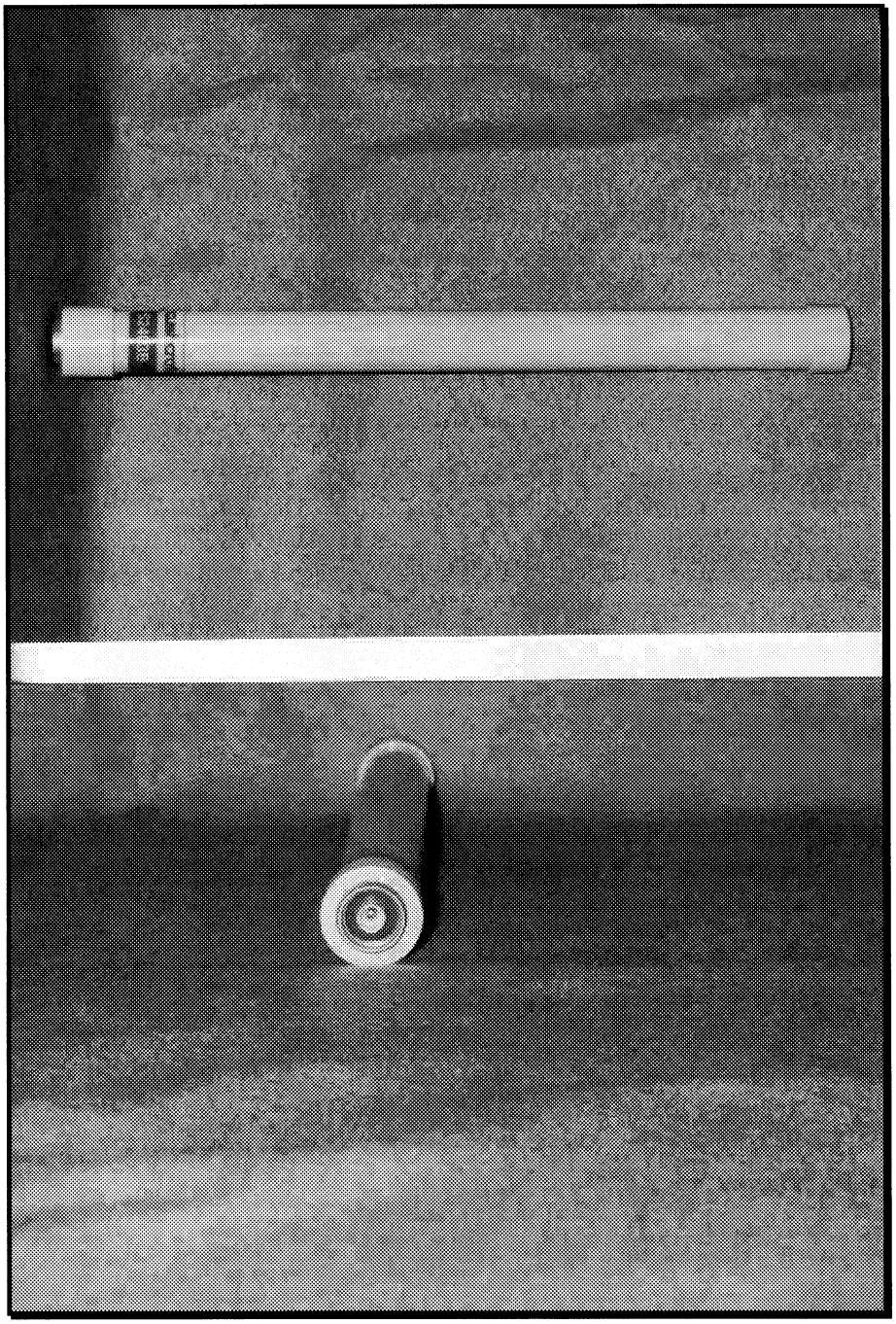


Figure 2: Cushcraft Model S2403 - 3dBi Omni

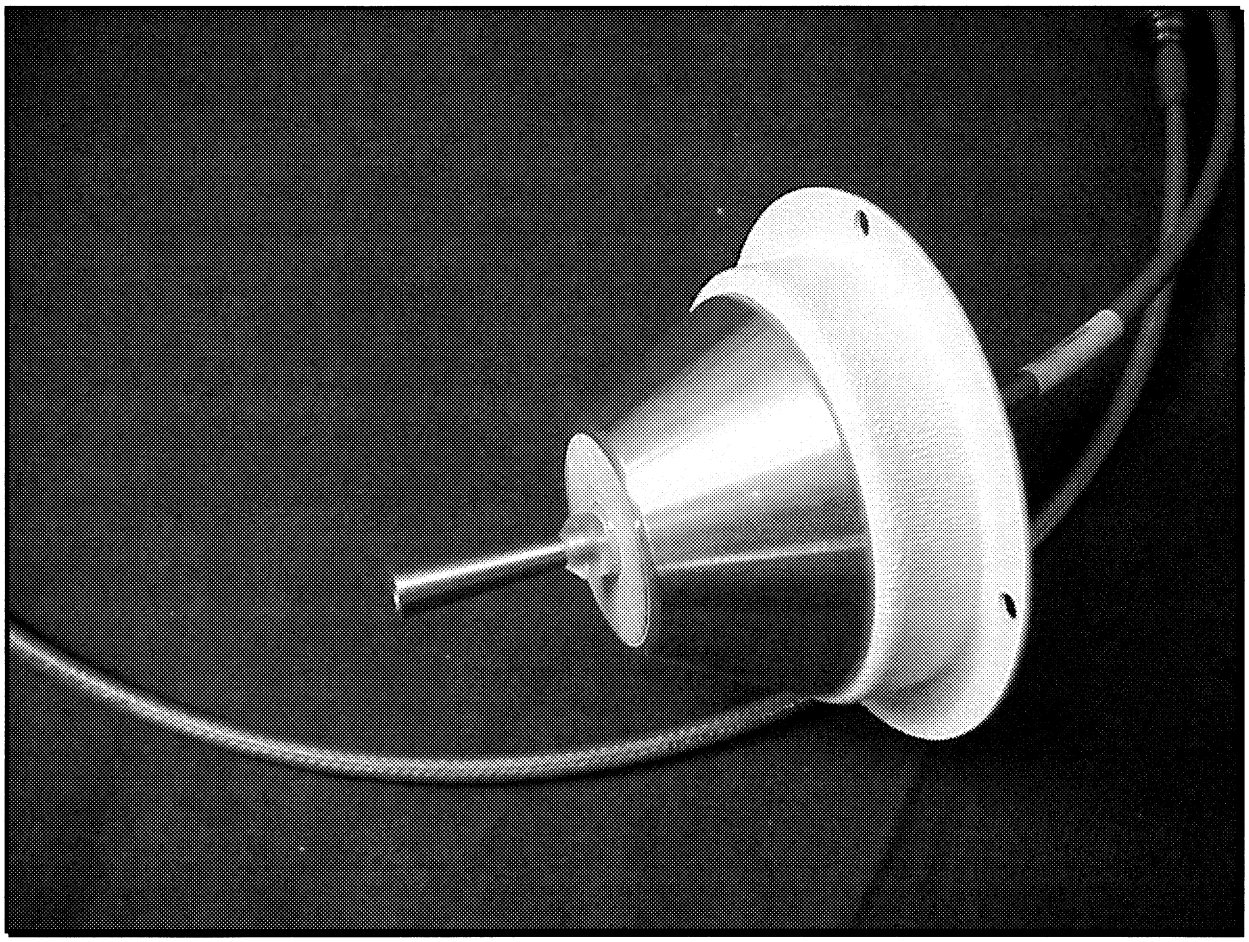


Figure 3: LXE Model Spire - 3dBi Omni

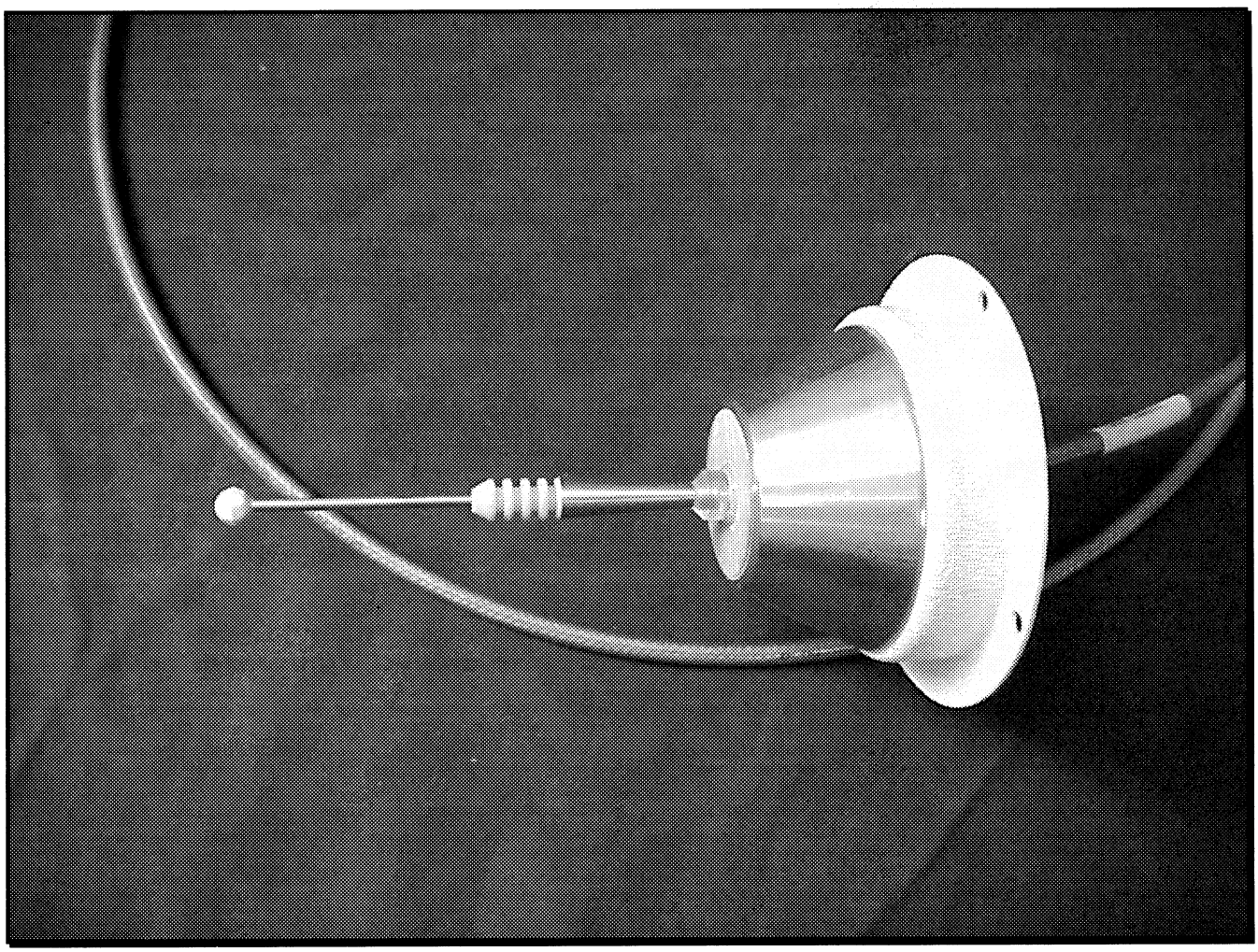
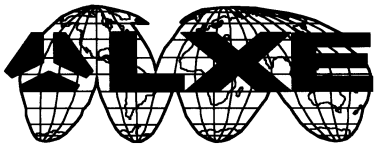


Figure 4: LXE Model Spire - 6dBi Omni



Worldwide Product Approvals

August 13, 1999

Federal Communications Commission
Equipment Authorization Division,
Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21046

RE: IMKAP2-1121

Dear Sir:

This letter is to justify the use of antennas equipped with standard RF connectors for which this class 2 permissive change application pertains to. The antennas listed below will be equipped with standard N-type connectors, the preferred connectors of our field service engineers. The antennas are as follows:

- Cushcraft Model S2403 - 3dB Omni - N Connector(Note 1)
- Cushcraft Model S2400 - 0dB Omni - N Connector (Notes 1 & 2)

Note 1: Models numbers generalized to incorporate the many configurations of the antenna, including cable pigtail lengths, connector types and genders. Antennas were tested with shortest cable length available and were assumed to be worst case.

Note 2: Antenna not tested. Compliance is assumed based on data from higher gain antenna of same type.

These antennas are professionally installed by LXE's Field Service Department or by LXE certified contractors only, as attested to below. And in so doing, it is the position of LXE that the use of standard RF connectors on the antenna coupled to the intentional radiator is permissible. The information provided below and herewith, attests to this position taken by LXE.

In an email received from Mr. Joe Dichoso dated September 11, 1998, he presented LXE with a list of criteria that must be met in order to justify professional installation(See attached copy). We are certain that we meet this criteria and offer the following information for consideration:

Marketing

These antennas, nor the radio are not offered for sale at retail or by mail order. The general public can not separately purchase this or any other antenna used by LXE in the installation of its systems. In fact, it may only be purchased directly from LXE Inc. through our trained staff of customer service personnel, and then only as a component of a new or existing system to be installed by LXE's Field Engineers. It is the firm policy of LXE Inc. to offer its systems only through direct sales and installation or through authorized resellers who meet stringent qualification criteria.

Professional Installation

LXE's systems are only installed by engineers who have demonstrated a thorough understanding of RF wireless systems and have passed an extensive three month company training and certification program. Authorized resellers who may install systems equipment must also be certified through in-house LXE training.

In the case of the antennas described herein, other specialized, proprietary equipment offered by LXE is necessary to facilitate the actual installation. These antennas are designed especially for use with either a patent pending Ceiling Enclosure for wireless access points available only from LXE, or for commercial or industrial installations, such as warehouses or shipping ports. Further, a specially designed adapter cable is required to effect connection of the antenna to the access point transceiver unit. No individual system components are ever offered for sale to the general public and most can only be obtained directly from

LXE, Inc. 125 Technology Parkway Norcross, GA 30092-9200 USA
TEL: (770) 447-4224 FAX: (770) 447-6928 EMAIL: wismer_s@lxe.com

Worldwide Product Approvals

August 13, 1999

LXE. Unless these unique components are utilized in conjunction, attachment of the antenna to the transceiver is nearly impossible. The dissimilarity of the connector on the antenna and of that on the transceiver further act to inhibit improper installations. Even if unauthorized persons managed to obtain the required equipment, specialized knowledge and tools are still required for assembly of the parts into a functional system.

Application

LXE provides wireless computer systems to customers in various parts of the industrial business sector and does not offer its products for sale to the general public at large. The sale of such systems are predicated upon installation and service of this equipment by trained, experienced field personnel (most often from LXE's own Field Service department) who have successfully completed the prescribed company training courses.

Exhibits

In addition to the above assertion, I have included some information in the form of attached exhibits that will further attest to our professional installation claim.

Exhibit A - Criteria for Professional Installation as defined by the FCC.

Exhibit B - LXE Field Service Engineers Training Course Syllabus. This document gives an overview of the training course required by LXE and LXE contracted field service engineers.

Exhibit C - LXE Field Service Engineers Training Manual. This document is the training manual for the above defined course.

Exhibit D - Indented bill of materials for the "RTNC to N" pigtail cable assembly(LXE P/N: 155145-0001). This BOM indicates all the parts required to build this cable assembly. In addition, a drawing with corresponding LXE P/N is included in this exhibit that shows detail build techniques. The cable cannot be used properly without this drawing showing how to assemble it.

I trust that we have satisfied the criteria of professional installation and the commission will act in our favor. However if we are deficient in presenting our case, please let us know what additional information is required and we will supply it promptly. I appreciate your consideration.

Sincerely,

R. Sam Wismer
RF Approvals Engineer
LXE, Inc.

LXE, Inc. 125 Technology Parkway Norcross, GA 30092-9200 USA
TEL: (770) 447-4224 FAX: (770) 447-6928 EMAIL: wismer_s@lxe.com

EXHIBIT A: E-mail from Mr. Joe Dichoso
Outlining the Criteria for
Professional Installation

Wismer, Sam

From: Joe Dichoso[SMTP:JDICHOSO@fcc.gov]
Sent: Thursday, September 17, 1998 4:51 PM
To: Wismer, Sam
Subject: RE: Proffesional Installation -Reply -Reply

>----------
>From: Joe
Dichoso[SMTP:JDICHOSO@fcc.gov]
>Sent: Friday, September 11, 1998 9:33 AM
>To: Wismer, Sam
>Subject: Proffesional Installation -Reply
>
>Sam, In order to use a standard connector, you
>must justify professional installation.
>The applicant should confirm the following when
>justifying Professional installation:
>
>Professional installation
>To qualify for professional installation, you must
>explain why the hardware cannot simply be
>purchased and installed by the average
>(technically inclined) person
>
>1) Marketing
>* The device cannot be sold retail,to the general
>public or by mail order. It must be sold to
dealers.
>
>2) Requires professional installation;
> -installation must be controlled.
> -installed by licensed professionals (EUT sold
to
>dealer who hire installers)
> -installation requires special training (special
>programming, access to keypad, field strength
>measurements made) What is unique,
>sophisticated, complex, or specialized about your
>equipment which REQUIRES it to be installed by
a
>professional installer?
>
>3) Application
> -The intended use is not for the general public.
>For industry/commercial use.
>
>***If the above conditions are met, then you may
>use a standard connector and the authorization
will
>be subject to the above conditions.
>
>
>>>> "Wismer, Sam" <wismer_r@lxe.com>
>09/11/98 09:03am >>>
>>Joe,
>>We currently have a product, an intentional
>radiator, that utilizes a

>>standard antenna connector(Type N). It is
>currently undergoing testing a
>>test facility, however the Engineer is taking
issue
>with the use of this
>>connector. He cites 15.203 that states the
>antenna must employ a unique
>>coupling device. I contend that the section of
>15.203 that pertains to
>>professional installation applies to our
>equipment. I believe we can use
>>this type of connector because these units are
>professional installed by our
>>service group only. Further to this, they are
>installed such that they are
>>not accessible by unauthorized personell(Either
>installed in a ceiling
>>enclosure or a Nema type enclosure). If
>something happens to the unit or
>>antenna, our technical service group is called in
>for the repair. We do not
>>provide instruction for the customer to repair the
>equipment themselves. Can
>>you please confirm that this is an acceptable
use
>of the N connector for an
>>intentional radiator?
>>
>>Your attention to this matter is appreciated
>>
>>Kind Regards
>>
>>
>>Sam Wismer
>>RF Approvals Engineer
>>LXE, Engineering
>>Ext. 3654
>>
>>Check out our Website at:
>>http://www.lxe.com
>>
>
>

EXHIBIT B: LXE Field Service Engineers Training Course Syllabus

6200 Advance Training Syllabus

Date: 9/29/97
Total Hours: 81

I. Introduction to LAN Cable Building and Operating Specifications

A. Termination of 10Base5 LAN (Lab/Instr) (3.0 hr)
   1. Backbone and AUI
B. Termination of 10Base2 LAN (Lab/Instr) (1.0 hr)
C. Termination of 10BaseT LAN (Lab/Instr) (2.0 hr)
D. Termination of Token Ring Type 1 Cable (Lab/Instr) (2.0 hr)
E. Termination of Radio to Antenna Cable (Lab/Instr) (1.0 hr)

II. Facility Analysis

A. System Overview (Instr) (1.5 hr)
   1. Message Flow
B. Equipment Familiarization (Instr) (.25 hr)
   1. IFR
   2. Auto-Transmitter
   3. Cabling
C. FA Folder (Instr) (0.5 hr)
D. IFR Familiarization (Instr) (.25 hr)
E. Site Familiarization (Instr) (2.0 hr)
F. Facility Analysis Practice (Lab) (9.0 hr)
   1. FA Simulations
   2. Building FA
G. FA Report (Instr) (1.0 hr)

III. Preliminary System Installation

A. Inventory (Lab) (1.0 hr)
B. FA Verification (Review FA) (0.5 hr)
C. Customer Supplied Information (0.5 hr)

IV. System Installation

A. Installation of LAN (Lab) (2.0 hr)
B. System Configuration using ENG Notice (Lab) (38 hr)
   1. LDS, 3270, 5250 and Ansi
C. Troubleshooting (Lab) (6.0 hr)
   1. Network
   2. 6200
   3. Terminals

V. Peripherals

A. Modems (Lab) (2.0 hr)
B. Scanners (Lab) (1.5 hr)
C. Battery Maintenance (Instr) (1.0 hr)

VI. Finals

A. Subnetting (4.0 hr)
B. Quiz (1.0 hr)
C. Critique (0.5 hr)

VII. Additions

A. SNAC Box (Lab) (8.0 hr)
B. Modem Elim. (Lab) (4.o hr)

EXHIBIT C: LXE Field Service Engineers Training Manual

LXE INC.

INSTRUCTOR'S GUIDE
FOR
ACCELERATED INSTALL TRAINING

Course Objective

This course is designed to accelerate the students ability to install the LXE's, Mercury Generation of wireless terminals. This will be accomplished through hands on experience in: Installation and testing of three types of Local Area Networks. The installation of radio to antenna cables (Heliax). Determine and program equipment parameters as per the customers requirements to interface with various host computers. Establish communications between an LXE terminal and the customers application, utilizing an LDS, 3270, 5250 or TCP/IP protocol. Troubleshoot installed equipment down to the faulty module and return the system to a normal operating condition.

Course Overview

Module I	Introduction to Cable Building
Module II	Installation Prerequistets
Module III	Installation of Mercury Generation Equipment and Host to End User Communications
Module IV	Trouble Analysis and Repair

Intermediate Objectives

Termination of 10Base5 Local Area Networks (1.5 hr)

Given an LXE Field service Tool Kit, students will be able to successfully install and test a 10BASE5 (Thicknet) network, including AUI attachments and transceivers.

Termination of 10Base2 Local Area Networks (1.5 hr)

Given an Lxe Field service Tool Kit, students will be able to successfully install and test a 10BASE2 (Thinnet) network.

Termination of 10BaseT Local Area Networks (2.0 hr)

Given an Lxe Field service Tool Kit, students will be able to successfully install and test a 10BASE T (Unshielded Twisted Pair) network.

Termination of Radio to Antenna Cable (Heliax) (1.0 hr)

Given an Lxe Field service Tool Kit, students will be able to successfully install and test Radio to Antenna cables (Heliax).

Inventory Equipment, Verification of Mounting Locations and Customer Supplied Information (2.0 hr)

Given an LXE Installation folder and a Shipping Invoice, students will be able to inventory all necessary equipment required to perform an installation and verify designated mounting locations.
Given a list of application requirements, the students will be able to obtain all information essential for the installation from the customer.

Installation of Local Area Network and Antenna Cables (1.5 hr)

Given an LXE Field Service Tool Kit and an Installation folder, students will be able to install Antenna Cables and Local Area Networks as per the Facility Analysis Report.

Loading Software (10 hr)

Given an LXE Field Service Tool Kit and the appropriate Flash Code, students will be able to properly load and configure LXE's Mercury Generation of equipment to communicate with the following host emulations: LDS, 3270, 5250 and TCP/IP.

Trouble Analysis **(8 hr)**

Given an LXE Field Service Tool Kit and an IFR, students will be able to diagnose failures in the Network Controller, RFU, Terminals and Local Area Networks. Once failures are diagnosed, students will be able to make the necessary repairs and bring the equipment to a normal operating condition.

Class Materials

Class materials listed below were calculated for a student roster of four. It is also required that the Course be instructed in Class Room A or B because of accessible host connections. All students are required to have an LXE Issued Tool Kit and Laptop Computer.

Parts Required

Thicknet/AUI

50 ft	6200L331	Thicknet PVC Cable
12	6200L306	Connector N Type M PVC Screw
5	6200L308	Connector N Type F Term
1	62001350	Boot, N Type Term
1	6200L313	N Type Grounding Kit
20 ft	6200L335	Standard AUI Cable
8	6200L300	Connector AUI F
8	6200L301	Connector AUI M
5	6200L360	E'net Transceiver(Vamp Clamp)

Thinnet

55 ft	6200L329	Thinnet, PVC Cable
19	6200L303	Connector, BNC M PVC Crimp
2	6200L340	Terminator, BNC M
2	6200L302	Connector, BNC T

Heliax

5 ft	9887L04	Cable, RFU/ANT, 1/2" Heliax
5	9887L03	Connectors, RFU/ANT 1/2" Heliax

Twisted Pair

40 ft	6200L32	Twisted Pair Cable
17	6200L312	Connector RJ45 Plug
3	6200L325	Twisted Pair Transceiver

Equipment

4	6220 series	6220 Net. Cont. or Equivalent
4	6280RFU	6280 RFUs or Equivalent

6	HD Diskettes	Flash/Cons
4		DB25 to DB9 Null Modem Cable

Module I

Introduction

Welcome Class
- Introduce your self
- Course TiTle
- Building Layout (exit doors, bathrooms, break areas and telephones)
- Class Introduction (If four or less students)
- Questions
- Handouts

Termination of 10base5/AUI Local Area Network (1.5 hr)

Instructional Lab

AUI cable and Vamp Clamp/Transceiver (Handout)

1) Handout Materials- One ft. Cable, Two Connectors and One Vamp Clamp/x'ceiver per Stu. — Max length. Pinout Cut Inst
2) Max cable lengths
3) Attachment points/Max attachments
4) Construct cable using cutting and crimping tool. (Inst. then Stu.)

Termination of 10base2 Local Area Network (1.5 hr) Instructional Lab

"T" adapters, Terminators, Transceiver (Handout)

1) Handout Materials-Six ft. Cable and Two connectors per Stu. — Max length. Cut Inst.
2) Max cable lengths/Hubs & Concentrator
3) Construct cable using cutting and

crimping tool. (Inst. then Stu.)

Termination of 10base T Local Area Network **(2.0 hr)**

Instructional Lab

Types of cables, Connectors/Transceiver (Handout)
Max length
Pinout

1) Handout Materials-Three ft. cable and Two Connectors per Stu.
1) Max Cable lengths/Hubs & Concentrator
2) Construct cable using cutting and crimping tool. (Inst. then Stu.)

Termination of Radio to Antenna Cable (Heliax) **(1.0 hr)**

Instructional Lab

Types of LXE External RF Cables (Handout)
Connector
Instruction

1) Handout Materials-One ft. Cable and One Connector per Stu.
2) Heliax (Installation Caution)
3) Construct cable using cutting tools. (Inst. then Stu.)

Module II

Inventory of Equipment/Setup Information and Verification of Mounting Locations **(2.0 hr)**

Instructional Lecture (Handout)

Inventory

1) Required RFUs, Network Controllers
2) Heliax, Host/Modem (DB 25)
3) AUI connectors/RJ45/BNC connectors
4) Terminals
5) Scanners/Holsters (If ordered)

Verification of Mounting

1) Network Controllers/AC Power
2) RFU Platform/AC Power
3) Ethernet Wiring/Heliax
4) Antennas

Equipment Setup Information

1) Host Information
   A. TCP/IP (IP Address, Autologin, Gateway/Router, Host Name, Subnetmask Term. Type)
   B. LDS Anych (Line Speed, Xon/Xoff, Retry DTE/DCE, IP Address/Gateway)
   C. IBM 3270 (Line type, Sta. Add., XID, NRZ, LU Term, IP Address/Gateway)
   D. IBM 5250 (Line Type, NRZ, Cnt. Type, Sta. Add., DTE/DCE, IP Address/Gateway)

2) Terminal Parameters
   A. Barcode Types/RS232
   B. All Terminal Emulations

Module III

Installation of Local Area Network **(1.0 hr)** None Instructional Lab

1) Handout Materials
   Stu #1 12 ft. of RG-58 cable, 2 BNC connectors, 2 "T" adapters and 2 terminators
   Stu #2 12 ft. of RG-58 cable, 2 BNC connectors, 2 "T" adapters and 2 terminators
   Stu #3 32 ft. of Type CL2 cable, 2 N Type connectors, 1 Vamp Clamp/X'ceiver, 1 terminator, one Ground Terminator and one boot(Isolator)
   Stu #4 12 ft. of UTP cable, 2 RJ45 connectors, 2 UTP transceivers
2) Stu. #1 At Station #1 Build Thinnet Network
3) Stu. #2 At Station #2 Build Thinnet Network
4) Stu. #3 At Station #3 Build Thicknet Network
5) Stu. #4 At Station #4 Build UTP Network

Installation of Antenna Cable **(.5 hr)**

Instructional Lecture

1)Mounting Antennas
2)Mounting Pigtail
3)Grooming Cables

Note: No Cables Will be built. Stu. will use Local Antennas

Load NMWS Software/Connect Equip. **(2.0 hr)**

None Instructional Lab

1)Each Student at Work Stations
2)Attach All Cables to Equip.

Note: Each Stu. should be given NMWS/Flash disks.

Loading Flash Software for various Emulations and RF Protocols **(4.0 hr)**

None Instructional Lab

1)Stu. #1 Station #1 (LDS/NB)
Stu. #2 Station #2 (3270/NB)
Stu. #3 Station #3 (5250/SS)
Stu. #4 Station #4 (TCP/IP/SS)
2)Stu. #1 Station #2 (3270/NB)
Stu. #2 Station #3 (5250/SS)
Stu. #3 Station #4 (TCP/IP)
Stu. #4 Station #1 (LDS/NB)
3)Stu. #1 Station #3 (5250/SS)
Stu. #2 Station #4 (TCP/IP/SS)
Stu. #3 Station #1 (LDS/NB)
Stu. #4 Station #2 (3270/NB)
4)Stu. #1 Station #4 (TCP/IP/SS)
Stu. #2 Station #1 (LDS/NB)
Stu. #3 Station #2 (3270/NB)
Stu. #4 Station #3 (5250/SS)

(Handout) Eng. Notice #249

Note:Stu. utilizing Eng. Note. Install Flash code. After each Step- Stu. must proceed thru Ini. Equi

Configuration Files **(2.0 hr)**

None Instructional Lab

1) Network
2) Host

(Handout)
Eng. Notice 249. Setup instruction should be at station

Setup terminals to operate with Configured System **(2.0 hr)**

None Instructional Lab

1) Download Emulation to Terminals
2) Configure Various Scanners

(Handout)
Eng. Notice 249
Scanner Handout
Setup handout should be at station

Obtain Host Communications **(1.0 hr)**

Instructional Lab

1) Check Systems for operation
2) Initialize Equipment-Instructor
3) Start Next session at Loading Flash

Initialize equipment- Instructor
All students change stations
Start instructions at LOADING FLASH

AFTER THIRD CHANGE DO NOT INITIALIZE EQUIPMENT

Module IV

Trouble Analysis **(8.0 hr)**

None Instructional Lab

1) Stu. #1 station #1
   A. Network bug in LAN
2) Stu. #2 Station #2
   A. RF bug in RFU (disconnect cable from radio)

Note: Only two Stu. in Lab while T'Shoot

3) Stu. #3 Station #1
4) Stu. #4 Station #2

5) Stu. #1 Station #2
6) Stu. #2 Station #1

7) Stu. #3 Station #2
8) Stu. #4 Station #1

9) Stu. #1 Station #1
   A. Software bug in Controller (Incorrect Cons)

10) Stu. #2 Station #2
A. RF bug in Terminal

Quiz **(.5 hr)**

Review Quiz and answer sheets before Quiz (Handout)
Show Answers on transparency after test

Class Critique **(.5 hr)**

(Handout)

CLASS QUIZ

What is the maximum length on one segment of ethernet 10base5 cable?

A. 100 ft.
B. 1600 ft.
C. 1000 ft.
D. 8200 ft.

What is the maximum length of AUI cable that can be used and still meet IEEE 802.3 standards?

A. 100 ft.
B. 64 ft.

C. 1000 ft.
D. 164 ft.

What is the approximately distance between termination points along a 10base5 network cable?

A. 8 ft.
B. 4 ft.
C. 2 ft.
D. None of the above

The hole that is drilled into the thicknet ethernet to attach the transceiver should be made before applying the vamp clamp.

A. T
B. F

The maximum length of 10base2 cable that can be used in one segment and still meet IEEE 802.3 standards is 324 ft.

A. T
B. F

When terminating a thinnet cable the first cut should be aligned using point "A" on the stripping tool.

A. T
B. F

After terminating a thinnet cable with a 50 ohm load and placing a test meter at the opposite end, you should read approximately

A. 100 ohms
B. 50 ohms
C. 40 ohms
D. 25 ohms

After terminating both ends of a thicknet cable and applying a vamp clamp, a test meter would read _____ ohms from the ground pin to the center pin.

A. 10 ohms
B. 100 ohms
C. 50 ohms
D. 25 ohms

What is the maximum length of UTP cable that can be used on one segment and still meet IEEE 802.3 standards?

A. 100 ft.
B. 300 ft.
C. 400 ft.
D. 500 ft.

When terminating a UTP cable a DB 15 connector should be attached to one end of the cable and a RJ45 connector should be attached to the other end.

A. T
B. F

Heliax cable is connected between which to devices

A. Network Controller and RFU
B. Host computer and the RFU
C. Host computer and the antenna
D. None of the above

Heliax cable is terminated with a TNC crimp on connector.

A. T
B. F

When should the inventory of the equipment to be installed be completed?

A. After verifying mounting locations
B. First arrival on site
C. When a Connector or cable is found to be missing
D. None of the above

Where should you be able to obtain the IP Addresses to be loaded into the system be found.

A. Job Folder
B. Use LXE defaults
C. Customer's MIS Department
D. None of the above

Barcode information is obtained from which source.

A. Job Folder
B. Use LXE defaults
C. Customer's MIS Department
D. None of the above

Given two lengths of thicknet cable measuring 1000 ft. apiece and they are to be installed on the same network, what is required to make this installation meet IEEE 802.3 standards

A. Repeater
B. Modems
C. Thinnet hub
D. None of the above

What is the maximum number of devices that can be attached to one segment of thicknet cable.

A. 50
B. 70
C. 75
D. 100

All Terminal firmware contains which two emulation softwares

A. LDS and 5250
B. 5250 and 3270
C. TCP/IP and LDS
D. TCP/IP and 3270

What information is typed into the Inet on Ethernet field after booting the unit and stopping it at the first countdown

A. Flash revision
B. The host IP address
C. The hardware (MAC) address
D. The IP address of the unit to be installed

Given a host IP Address of 192.152.6.6 and a Network Controller IP Address of 141. 186.6.7, what device is required in the network to make the Network controller capable of communicating to the host

A. Repeater
B. Transceiver
C. Modem
D. Router

Flash code is loaded into a controller using a HD 3 1/2" floppy

A. T
B. F

Both ends of a 10base5 (thicknet) network must be grounded.

A. T
B. F

The transmit frequency of the RFU in a 450 Narrow Band configuration must be set to a higher of the two frequencies in the frequency pair.

A. T
B. F

Name_____ **Date:**_____

EXHIBIT D: LXE Parts List and Drawing for the Reverse-TNC to N Cable Assembly(155145-0001)

Bills of Material Consolidated Cost Report
(USD)

Cost Type: Frozen
Revision Date: 15-OCT-98 12:00
Alternate BOM:

embly: 6430A053TYPEN CABLE, RTNC TO TYPE N Category: 0001 UOM: EA

el	Op Seq	Item/ Cost Element	Description/ Sub-Elem	Department	Last Rev	Make Buy	Include in Rollup	Based on Rollup	Asset/Costed	Phtm	Yield/ Basis	UOM	Quantity/ Rate or Amount	Shrink/ Basis Factor	Extended Qty/ Rate or Amount	Item Unit Cost/ Res Unit Cost	Extended Cost
		155145-0001	CABLE ASSY RTNC TO TYPE "		B	Buy	Yes	Yes	No			EA		0.00	1.00	18.82832	
	10	Resource	WIRER	WIRING				Yes			Item	HRS	0.19	1.00	0.19	9.87000	1.84569
	10	Overhead	PRODUCTION	WIRING							Res value	USD	2.20	1.85	2.20		4.06052
		422274-0175	CBL, COAX RG142 M17/60-RG		B	Buy	No	Yes	No			FT		0.00	2.50	1.14223	
		Material									Item		1.07	1.00	2.68		2.67500
		Material Over	HANDLG OHD								Ttl value	USD	0.07	2.68	0.07		0.18058
		6430A053TYPEN	CABLE, RTNC TO TYPE N		B	Make	Yes	Yes	No			EA		0.00	1.00	18.82832	
		723565-8727	WASHER, N TYPE CONN		B	Buy	No	Yes	No			EA		0.00	1.00	0.12810	
		Material	Material								Item	USD	0.12	1.00	0.12		0.12000
		Material Over	HANDLG OHD								Ttl value	USD	0.07	0.12	0.07		0.00810
		730120-0208	NUT,N TYPE CONN		B	Buy	No	Yes	No			EA		0.00	1.00	0.00000	
		Material Over	HANDLG OHD								Ttl value	USD	0.07	0.00	0.07		0.00000
		758302-2101	CONN, RTNC PLUG RG-142		B	Buy	No	Yes	No			EA		0.00	1.00	3.39465	
		Material									Item		3.18	1.00	3.18		3.18000
		Material Over	HANDLG OHD								Ttl value	USD	0.07	3.18	0.07		0.21465
		758438-2101	CONN, TYPE "N" RG142 BULK		B	Buy	No	Yes	No			EA		0.00	1.00	6.67188	
		Material									Item		6.25	1.00	6.25		6.25000
		Material Over	HANDLG OHD								Ttl value	USD	0.07	6.25	0.07		0.42188
		910034-0004	BAG,STATIC DISSIPATIVE 10		B	Buy	No	Yes	No			BX		0.00	1.00	8.86025	
		Material									Item		8.30	1.00	8.30		8.30000
		Material Over	HANDLG OHD								Ttl value	USD	0.07	8.30	0.07		0.56025
																	27.81667

Cost Element	Report Value	Standard Cost	Difference	Percent
Material	12.11	12.11	0.00	0.0
Material Overhead	0.82	0.82	0.00	0.0
Resource	1.85	1.85	0.00	0.0
Outside Processing	0.00	0.00	0.00	0.0
Overhead	4.06	4.06	0.00	0.0
Total	18.84	18.84	0.00	100.0

* This cost may include this level material, material overhead or routing costs.
\# This cost includes previous levels not displayed on the report.

Bills of Material Consolidated Cost Report
(USD)

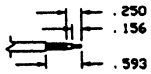
Cost Type: Frozen
Revision Date: 15-OCT-98 12:00
Alternate BOM:

***** End of Report *****

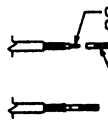
NOTES:

1. PERFORM CONTINUITY AND SHORT TESTS.
2. SEE PROCESS DETAIL FOR ASSEMBLY INSTRUCTIONS AND STRIP LENGTHS.
3. LABEL WITH PART NUMBER AND CURRENT REVISION (155145-0001_).
4. ASSEMBLY INSTRUCTIONS FOR RTNC PLUG (758302-2101).

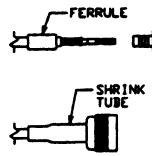
(A) CUT CABLE (422274-0175) AS SHOWN.



(B) SLIDE H/S TUBING AND FERRULE ONTO CABLE. PLACE CONTACT ON CABLE CENTER CONDUCTOR SO THAT IT BUTTS AGAINST CABLE DIELECTRIC. CRIMP CONTACT IN PLACE USING DANIELS HAND HELD CRIMP TOOL EQUIPPED WITH Y205 DIE "B" CAVITY. FLARE SLIGHTLY END OF CABLE BRAID TO FACILITATE INSERTION OF INNER FERRULE.



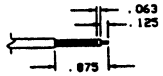
(C) INSTALL CABLE ASSEMBLY INTO BODY ASSEMBLY SO THAT FERRULE ON BODY SLIDES UNDER BRAID. PUSH CABLE ASSEMBLY FORWARD UNTIL CONTACT SNAPS INTO PLACE IN INSULATOR. SLIDE FERRULE OVER BRAID AND UP AGAINST CONNECTOR BODY. CRIMP FERRULE USING DANIELS HAND HELD CRIMP TOOL EQUIPPED WITH Y205 DIE "A" CAVITY.



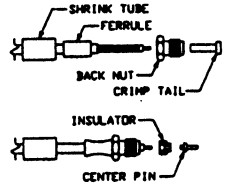
5. ASSEMBLY INSTRUCTIONS FOR TYPE 'N' BULKHEAD (758438-2101).

(MACOM TNC CONNECTOR)

(A) CUT CABLE (422274-0175) AS SHOWN.



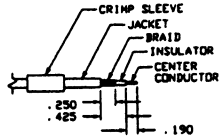
(B) SLIP CENTER CONTACT OVER BRAIDED CENTER CONDUCTOR AND SOLDER IN PLACE.



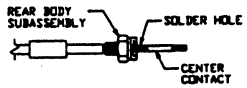
(C) PUSH CRIMP SLEEVE ONTO JACKET. PUSH CABLE INTO CONNECTOR ALLOWING CRIMP TAIL TO GO BETWEEN BRAID AND FOIL COVERED DIELECTRIC. PUSH CRIMP SLEEVE OVER EXPOSED BRAID AND CRIMP USING DIES #3 SIMONDS CRIMP TOOL.

(JOHNSON TNC CONNECTOR)

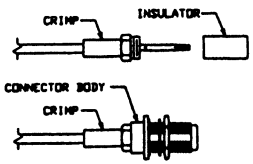
(A) CUT CABLE (422274-0175) AS SHOWN.



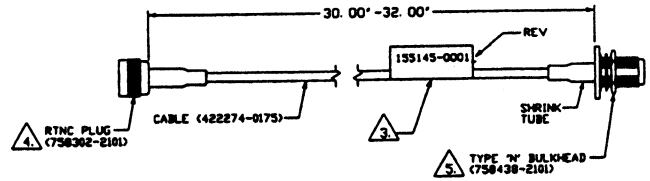
(B) FLARE BRAID AND SLIDE CABLE INTO CRIMP STEM OF REAR BODY SUBASSEMBLY, UNTIL CABLE DIELECTRIC BOTTOMS OUT ON CENTER CONTACT. SOLDER CENTER CONDUCTOR TO CONTACT THROUGH THE SOLDER HOLE. SOLDER MUST NOT BE ALLOWED TO GATHER AND RUN OUTSIDE OF CONTACT.



(C) ARRANGE BRAID UNIFORMALY AROUND CRIMP STEM. SLIDE CRIMP SLEEVE OVER BRAID AND CRIMP SECURELY USING DANIELS HAND CRIMPER EQUIPPED WITH Y205 DIE. SLIDE INSULATOR OVER CENTER CONDUCTOR AND SLIDE CENTER CONTACT ASSEMBLY INTO CONNECTOR BODY.



THREAD REAR BODY SUBASSEMBLY INTO BODY AND TIGHTEN SECURELY (30 INCH POUNDS).



REVISIONS			
REV	DESCRIPTION	APPROVED	DATE
A	ENGINEERING RELEASE (01)	DICK CLARK	24JUN98
B	PER ECO 2228	PAUL LONG	12-17-98

APPROVED		DATE
DR BY	R CLARK	21MAY98
CHK		
PROJ ENG	DICK CLARK	23JUN98
PROJ MGR	JOHN TUCKER	23JUN98
MED	PAUL LONG	23JUN98
PMC	HELEN CERMINARO	23JUN98
QA	F LAND	23JUN98
SFTY	BRIAN SLOVIK	23JUN98

LXE Inc.
125 Technology Parkway
Norcross, GA 30092-9200 USA

CABLE ASSEMBLY RTNC TO TYPE 'N'

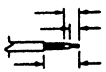
SIZE	DWG NO	REV
D	155145	B

SCALE 1:1 | PART NO 155145-0001 | SHEET 1 OF 1

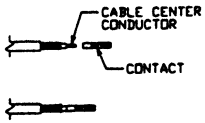
NOTES:

1. PERFORM CONTINUITY AND SHORT TESTS.
2. SEE PROCESS DETAIL FOR ASSEMBLY INSTRUCTIONS AND STRIP LENGTHS.
3. LABEL WITH PART NUMBER AND CURRENT REVISION (155145-0001_).
4. ASSEMBLY INSTRUCTIONS FOR RTNC PLUG (758302-2101).

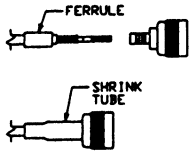
(A) CUT CABLE (422274-0175) AS SHOWN.



(B) SLIDE H/S TUBING AND FERRULE ONTO CABLE. PLACE CONTACT ON CABLE CENTER CONDUCTOR SO THAT IT BUTTS AGAINST CABLE DIELECTRIC. CRIMP CONTACT IN PLACE USING DANIELS HAND HELD CRIMP TOOL EQUIPPED WITH Y205 DIE "B" CAVITY. FLARE SLIGHTLY END OF CABLE BRAID TO FACILITATE INSERTION OF INNER FERRULE.



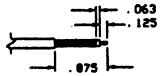
(C) INSTALL CABLE ASSEMBLY INTO BODY ASSEMBLY SO THAT FERRULE ON BODY SLIDES UNDER BRAID. PUSH CABLE ASSEMBLY FORWARD UNTIL CONTACT SNAPS INTO PLACE IN INSULATOR. SLIDE FERRULE OVER BRAID AND UP AGAINST CONNECTOR BODY. CRIMP FERRULE USING DANIELS HAND HELD CRIMP TOOL EQUIPPED WITH Y205 DIE "A" CAVITY.



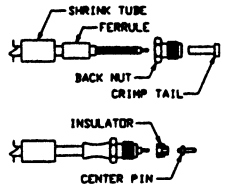
5. ASSEMBLY INSTRUCTIONS FOR TYPE 'N' BULKHEAD (758438-2101).

(MACOM TNC CONNECTOR)

(A) CUT CABLE (422274-0175) AS SHOWN.



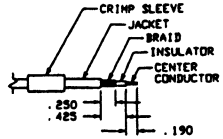
(B) SLIP CENTER CONTACT OVER BRAIDED CENTER CONDUCTOR AND SOLDER IN PLACE.



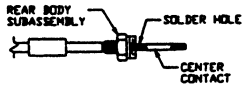
(C) PUSH CRIMP SLEEVE ONTO JACKET. PUSH CABLE INTO CONNECTOR ALLOWING CRIMP TAIL TO GO BETWEEN BRAID AND FOIL COVERED DIELECTRIC. PUSH CRIMP SLEEVE OVER EXPOSED BRAID AND CRIMP USING DIES #3 SIMONDS CRIMP TOOL.

(JOHNSON TNC CONNECTOR)

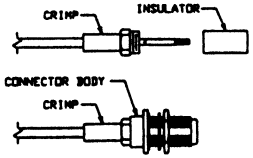
(A) CUT CABLE (422274-0175) AS SHOWN.



(B) FLARE BRAID AND SLIDE CABLE INTO CRIMP STEM OF REAR BODY SUBASSEMBLY, UNTIL CABLE DIELECTRIC BOTTOMS OUT ON CENTER CONTACT. SOLDER CENTER CONDUCTOR TO CONTACT THROUGH THE SOLDER HOLE. SOLDER MUST NOT BE ALLOWED TO GATHER AND RUN OUTSIDE OF CONTACT.



(C) ARRANGE BRAID UNIFORMALY AROUND CRIMP STEM. SLIDE CRIMP SLEEVE OVER BRAID AND CRIMP SECURELY USING DANIELS HAND CRIMPER EQUIPPED WITH Y205 DIE. SLIDE INSULATOR OVER CENTER CONDUCTOR AND SLIDE CENTER CONTACT ASSEMBLY INTO CONNECTOR BODY.



THREAD REAR BODY SUBASSEMBLY INTO BODY AND TIGHTEN SECURELY (30 INCH POUNDS).

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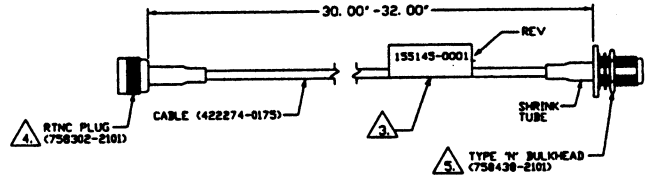

APPROVED		DATE
DR BY	R CLARK	21MAY98
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PROJ ENG	DICK CLARK	23JUN98
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LXE
LXE Inc.
125 Technology Parkway
Norcross, GA 30092-9200 USA

CABLE ASSEMBLY
RTNC TO TYPE 'N'

SIZE	AUTOCAD DWG NO	REV
D	155145.DWG	155145 B
SCALE 1:1	PART NO 155145-0001	SHEET 1 OF 1