LXE, Inc.
FCC Part 15, Class II Permissive Change
Wireless LAN Card, Model 480628-3700

February 19, 1999

January 19, 1999

AGENCY AGREEMENT

Federal Communications Commission
P.O. Box 429
Columbia, MD 21045

Gentlemen:

I hereby appoint United States Technologies to act as our agent in preparation of an application for equipment authorization of LXE Model 480628-3700 under Part 15 of the FCC Rules and Regulations. I certify that all exhibits properly describe the device or system for which authorization is sought, that the information described in the User's Manual will be provided with each item manufactured or distributed by the applicant, and that the labels described in the exhibits will be will be affixed to each item manufactured or distributed by the applicant. I further certify that appropriate arrangements have been made to assure that production units of this equipment bearing the name and FCC IDENTIFIER listed in this application will continue to comply with the Commission's requirements.

I further certify by signature below that no party (per 47 CFR 1.2002(b)) to the application is subject to denial of federal benefits, including FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 853(a).

This appointment also includes the authority to complete FCC form 731 on our behalf and sign the application as an authorized agent.

Name: R. Sam Wismer Signature: R. Sam Wismer

Title: RF Approvals Engineer Date: January 19, 1999

LXE, Inc. 125 Technology Parkway Norcross, GA 30092-9200 USA
TEL: (770) 447-4224 FAX: (770) 447-6928 EMAIL: rsw3347@lxe.com

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SECTION 1

GENERAL INFORMATION

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1.1 Product Description

The Equipment Under Test (EUT) is a LXE, Inc. Wireless LAN Card, Model 480628-3700, FCC ID: KDZ480628-3700. The LXE, Inc. Model 480628-3700 is a 2.4 GHz PCMCIA Wireless LAN Card which has been previously approved by the FCC. The purpose of this test was to evaluate the EUT with 2 different antennas that were not considered in the original application.

1.2 Related Submittal(s)/Grant(s)

The EUT will be used with part of a system to send and receive voice and/or data. The transceiver presented in this report has been previously approved under FCC ID: KDZ480628-3700.

According to the manufacturer, the EUT had not been changed or modified since the original application had been granted by the FCC. The manufacture desired to add 2 new types of antennas to their existing grant of approval. Therefore since the equipment was considered previously approved and the only change was to the antenna, it was deemed necessary only to perform spurious emissions testing.

SECTION 2

TESTS AND MEASUREMENTS

TEST AND MEASUREMENTS

2.1 Configuration of Tested System and Test Procedure

The sample was tested per ANSI C63.4, Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (1992). Radiated emissions data was taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 120 kHz for measurements under 1 GHz and 1 MHz for measurements over 1 GHz. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. A block diagram of the tested system is shown in Figure 1. Test configuration photographs for spurious emissions are shown in Figure 2.

Previous testing for the EUT had been performed by a different laboratory. Therefore U.S. Technologies reviewed the original report in order to replicate the original configuration as closely as possible.

The sample used for testing was received by U.S. Technologies on January 13, 1999 in good condition.

2.2 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and submitted to the FCC, and accepted in their letter marked 31040/SIT. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number IC2982.

2.3 Test Equipment

Table 2 describes test equipment used to evaluate this product.

2.4 Modifications

No modifications were made to bring the EUT into compliance to meet the 47CFR 15.247 spurious emissions requirement.

FIGURE 1a

TEST CONFIGURATION

(Patch Antenna – 0 dB Gain)

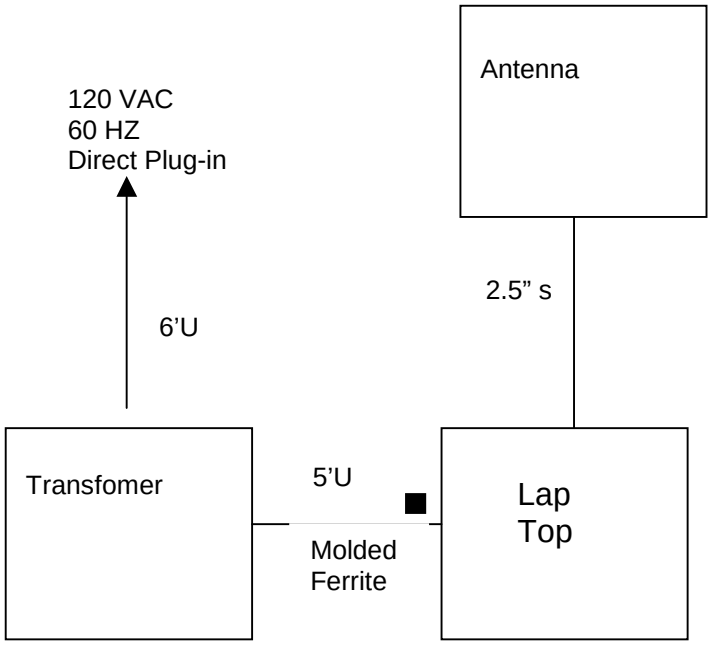
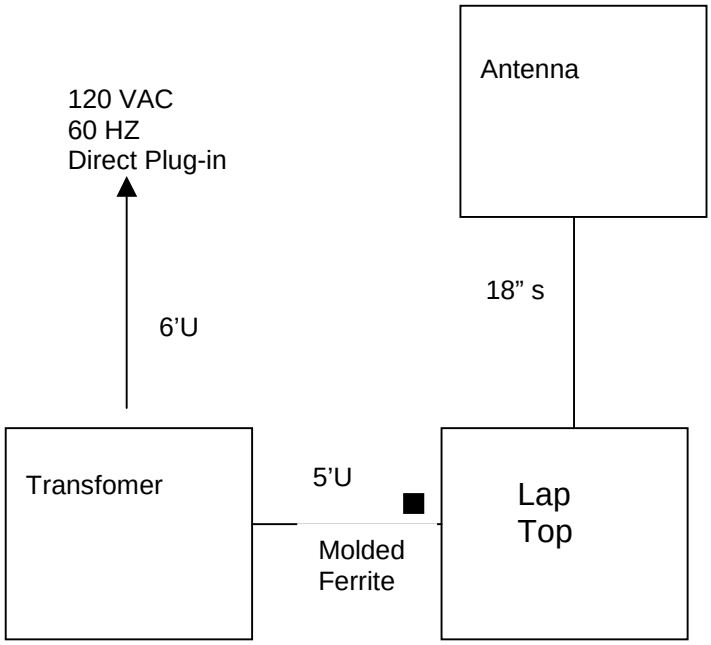


FIGURE 1b

TEST CONFIGURATION

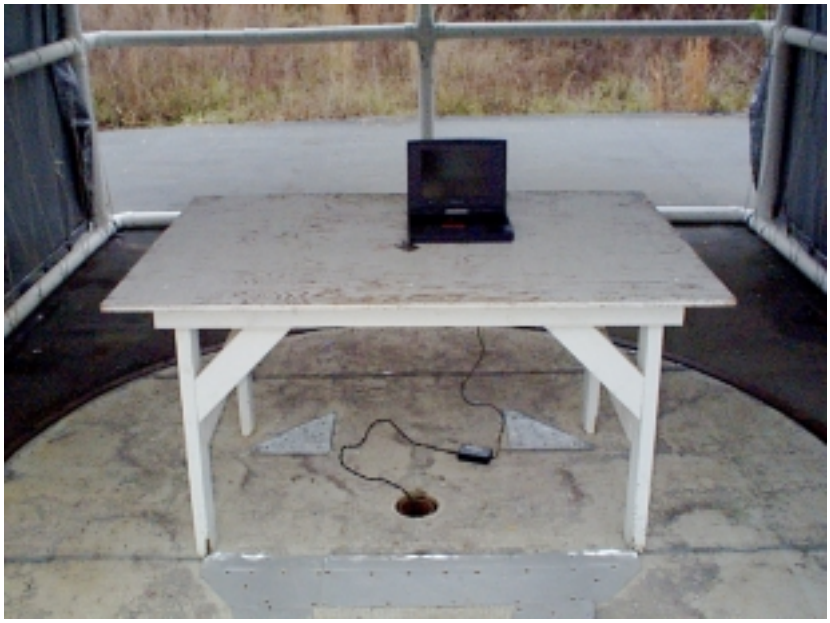
(Omni Antenna – 9 dB Gain)



Test Date: January 13, 1999
UST Project: 99-011
Customer: LXE, Inc.
Model: Wireless LAN Card, Model 480628-3700

FIGURE 2a

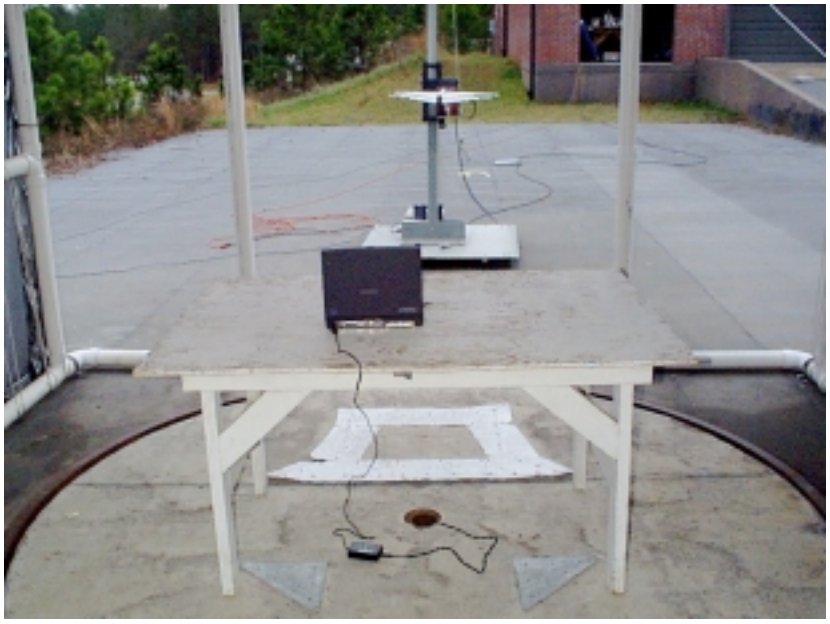
Photograph(s) for Spurious and Fundamental Emissions (Front) (Patch Antenna – 0 dB Gain)



Test Date: January 13, 1999
UST Project: 99-011
Customer: LXE, Inc.
Model: Wireless LAN Card, Model 480628-3700

FIGURE 2b

Photograph(s) for Spurious and Fundamental Emissions (Back)
(Patch Antenna – 0 dB Gain)



Test Date: January 13, 1999
UST Project: 99-011
Customer: LXE, Inc.
Model: Wireless LAN Card, Model 480628-3700

FIGURE 2c

Photograph(s) for Spurious and Fundamental Emissions (Front) (Omni Antenna – 9 dB Gain)

Test Date: January 13, 1999
UST Project: 99-011
Customer: LXE, Inc.
Model: Wireless LAN Card, Model 480628-3700

FIGURE 2d

Photograph(s) for Spurious and Fundamental Emissions (Back)
(Omni Antenna – 9 dB Gain)

TABLE 1

EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Transceiver (EUT) LXE, Inc.	Wireless LAN Card, Model 480628-3700	98UT11300001	KDZ480628-3700 (Pending)	Internal to Lap Top
Patch Antenna (EUT) LXE, Inc.	0 dB Gain	None	None	2.5" s
Omni Antenna (EUT) LXE, Inc.	9 dB Gain	None	None	18" s
Lap Top WinBook XP	ANL-4	10AUA01756	JRUANL-4D75	5' u
Transformer Dell	P/N: 55522	N6745067248	None	6' u Power Cord

TABLE 2
TEST INSTRUMENTS

TYPE	MANUFACTURER	MODEL	SN.
SPECTRUM ANALYZER	HEWLETT-PACKARD	8593E	3205A00124
SPECTRUM ANALYZER	HEWLETT-PACKARD	8558B	2332A09900
S A DISPLAY	HEWLETT-PACKARD	853A	2404A02387
COMB GENERATOR	HEWLETT-PACKARD	8406A	1632A01519
RF PREAMP	HEWLETT-PACKARD	8447D	1937A03355
RF PREAMP	HEWLETT-PACKARD	8449B	3008A00480
HORN ANTENNA	EMCO	3115	3723
BICONICAL ANTENNA	EMCO	3110	9307-1431
LOG PERIODIC ANTENNA	EMCO	3146	9110-3600
BILOG	CHASE	CBL6112A	2238
LISN	SOLAR ELE.	8012	865577
LISN	SOLAR ELE.	8028	910494
LISN	SOLAR ELE.	8028	910495
THERMOMETER	FLUKE	52	5215250
MULTIMETER	FLUKE	85	53710469
FUNCTION GENERATOR	TEKTRONIX	CFG250	CFG250TW15059
PLOTTER	HEWLETT-PACKARD	7475A	2325A65394

2.5 Antenna Description (Paragraph 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The Model LXE, Inc. Wireless LAN Card, Model 480628-3700 will incorporate one of the following 2 antennas:

1) Manufacturer: LXE, Inc.
   125 Technology Parkway
   Norcross, GA 30092-9200
   Type: Patch
   Model Number: 155814-0001
   Gain: 0 dB
   Connector: Custom designed connector

2) Manufacturer: Mobile Mark (OD9-2400)
   Type: Omni
   Model Number: 155581-0001
   Gain: 9 dB
   Connector: Reverse TNC connector

2.6 Peak Radiated Spurious Emissions in the Frequency Range 30 -10000 MHz (FCC Section 15.247(c))

A preliminary scan was performed on the EUT to determine frequencies that were caused by the transmitter portion of the product. Significant emissions that fell within restricted bands were then measured on an OAT's site. Radiated measurements below 1 GHz were tested with a RBW = 120 kHz. Radiated measurements above 1 GHz were measured using a RBW = VBW = 1 MHz. The results of peak radiated spurious emissions falling within restricted bands are given in Table 4a (low), Table 4b, (mid), Table 4c (high) and Figure 5a through 5c for the patch antenna and Table 4d (low), Table 4e, (mid), Table 4f (high) and Figure 5d through 5f for the omni antenna.

TABLE 4a PEAK RADIATED SPURIOUS EMISSIONS (Low) – Patch Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.82389	-58.3	34.2	34.7	4.2	463.7	5000

TABLE 4b PEAK RADIATED SPURIOUS EMISSIONS (Mid) – Patch Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.88378	-57.0	34.2	34.7	4.2	542.2	5000

TABLE 4c PEAK RADIATED SPURIOUS EMISSIONS (High)– Patch Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.92400	-54.9	34.2	34.8	4.1	693.7	5000

*** = Data adjusted by + 1 dB for high pass filter**
**** = Instrumentation ground floor**

SAMPLE CALCULATION:
RESULTS (uV/m @ 3m) = Antilog ((-58.3 – 34.2 + 34.7 + 4.2 + 107)/20) = 463.7
CONVERSION FROM dBm TO dBuV = 107 dB

Test Results
Reviewed By: _____ Name: Tim R. Johnson

Figure 5a
Peak Radiated Spurious Emissions 15.247(c) Low
(Patch Antenna – 0 dB Gain)

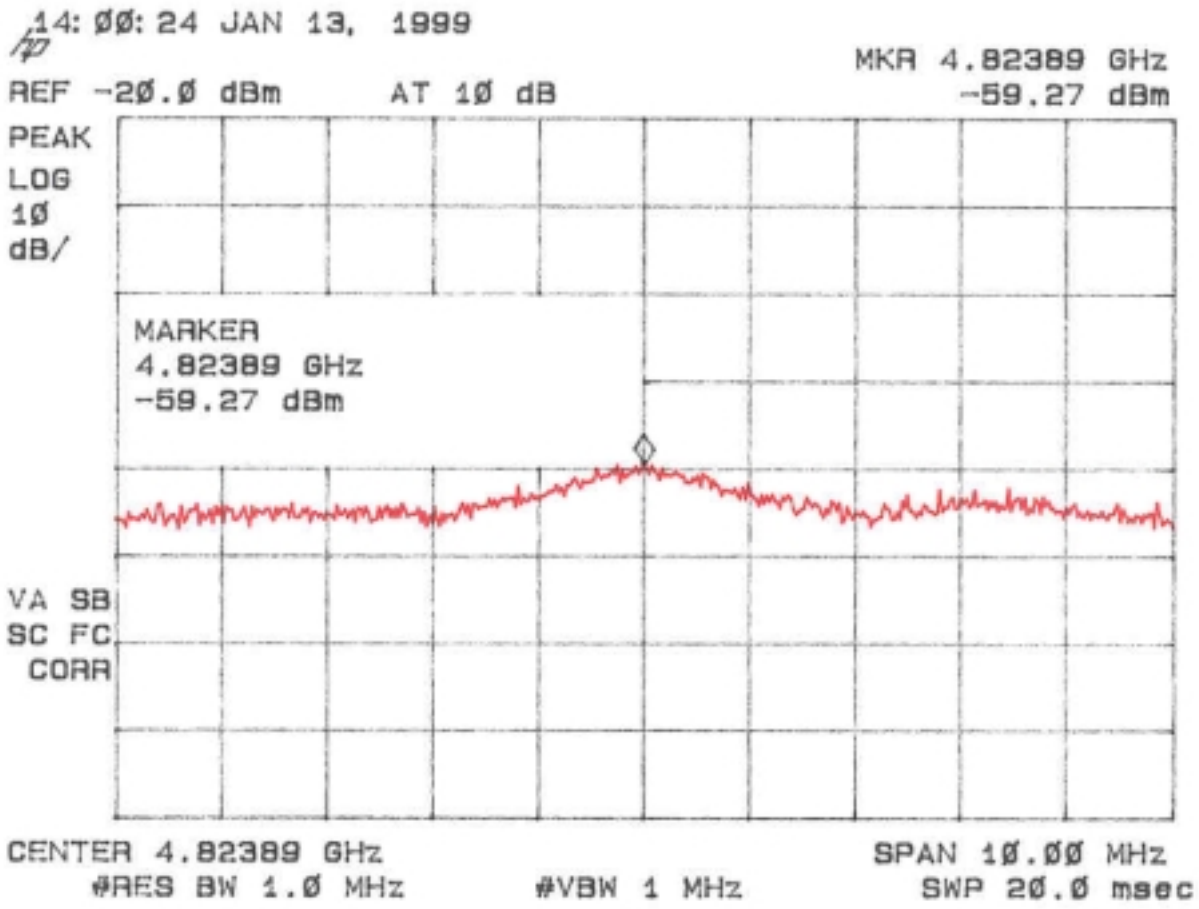


Figure 5b
Peak Radiated Spurious Emissions 15.247(c) Mid
(Patch Antenna – 0 dB Gain)

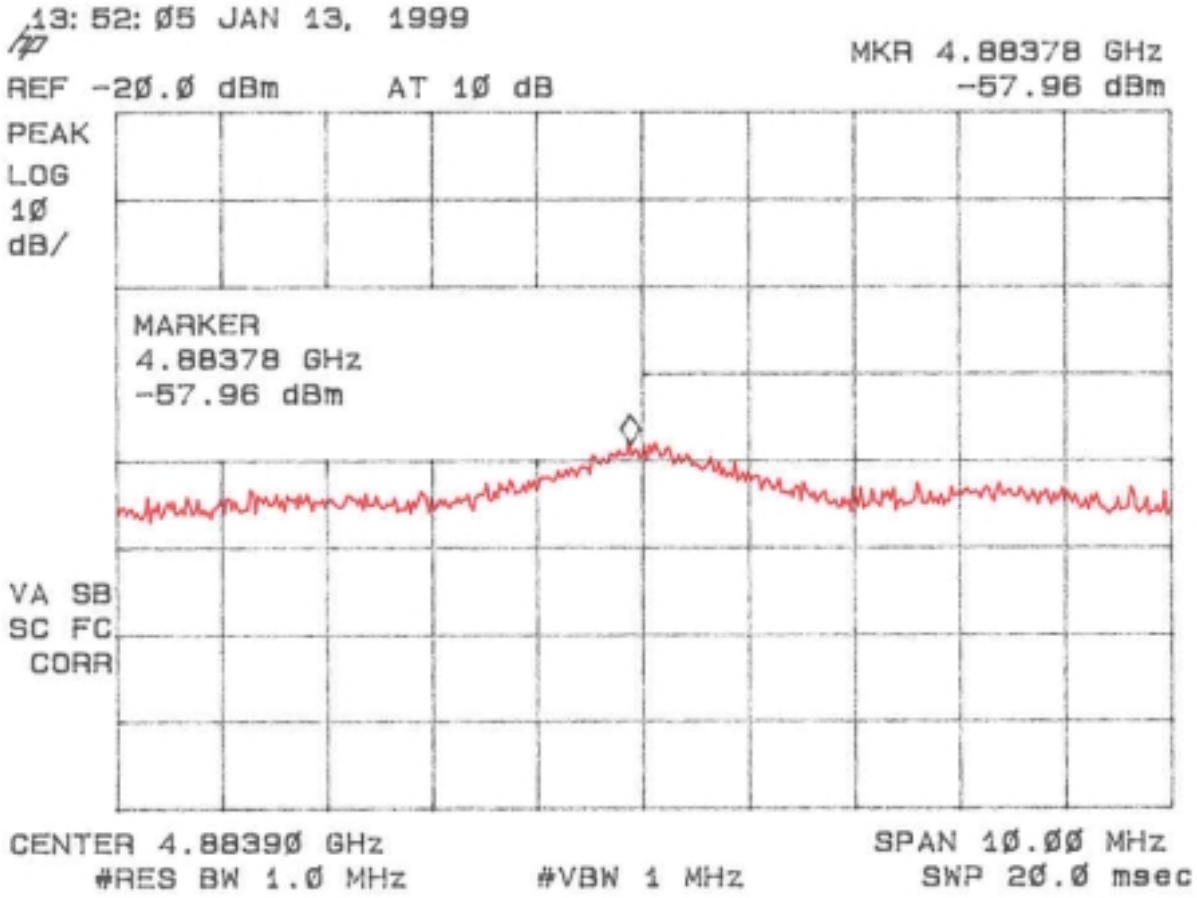


Figure 5c
Peak Radiated Spurious Emissions 15.247(c) High
(Patch Antenna – 0 dB Gain)

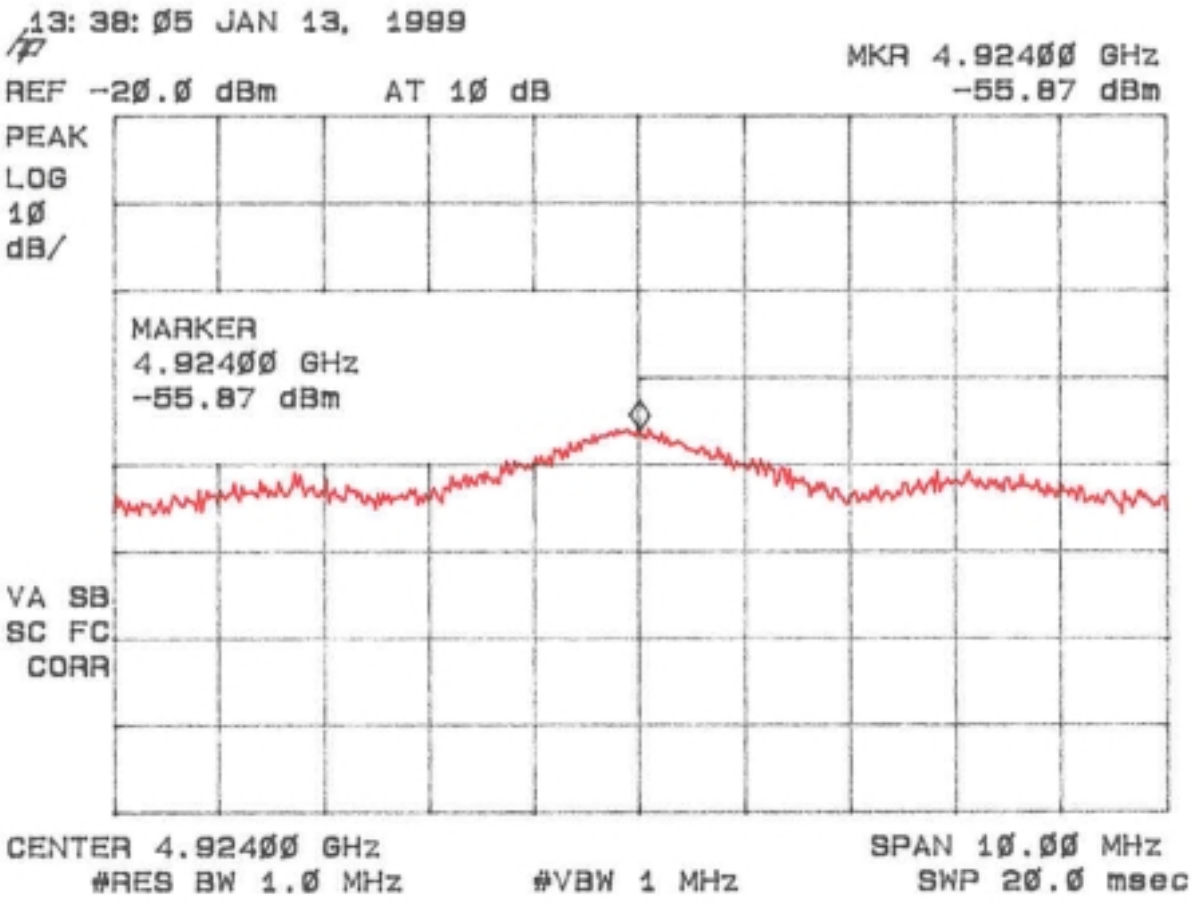


TABLE 4d PEAK RADIATED SPURIOUS EMISSIONS (Low) – Omni Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.82423	-60.8	34.2	34.7	4.2	347.7	5000

TABLE 4e PEAK RADIATED SPURIOUS EMISSIONS (Mid) – Omni Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.88413	-60.8	34.2	34.7	4.2	350.1	5000

TABLE 4f PEAK RADIATED SPURIOUS EMISSIONS (High)– Omni Antenna

Freq. (GHz)	Test Data* (dBm) @3m	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.92360	-60.6	34.2	34.8	4.1	359.9	5000

*** = Data adjusted by + 1 dB for high pass filter**
**** = Instrumentation ground floor**

SAMPLE CALCULATION:
RESULTS (uV/m @ 3m) = Antilog ((-60.8 – 34.2 + 34.7 + 4.2 + 107)/20) = 347.7
CONVERSION FROM dBm TO dBuV = 107 dB

Test Results
Reviewed By: _____ Name: Tim R. Johnson

Figure 5d
Peak Radiated Spurious Emissions 15.247(c) Low
(Omni Antenna – 9 dB Gain)

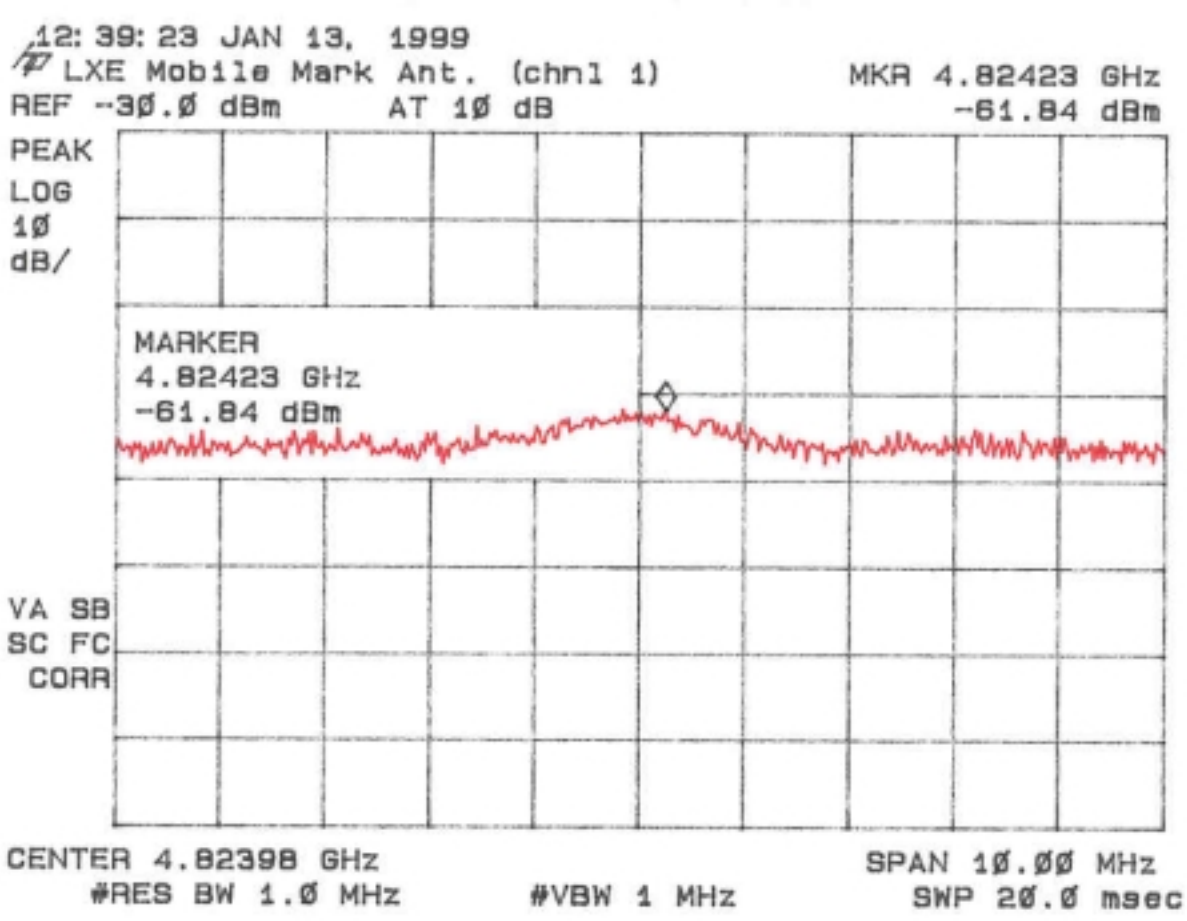


Figure 5e
Peak Radiated Spurious Emissions 15.247(c) Mid
(Omni Antenna – 9 dB Gain)

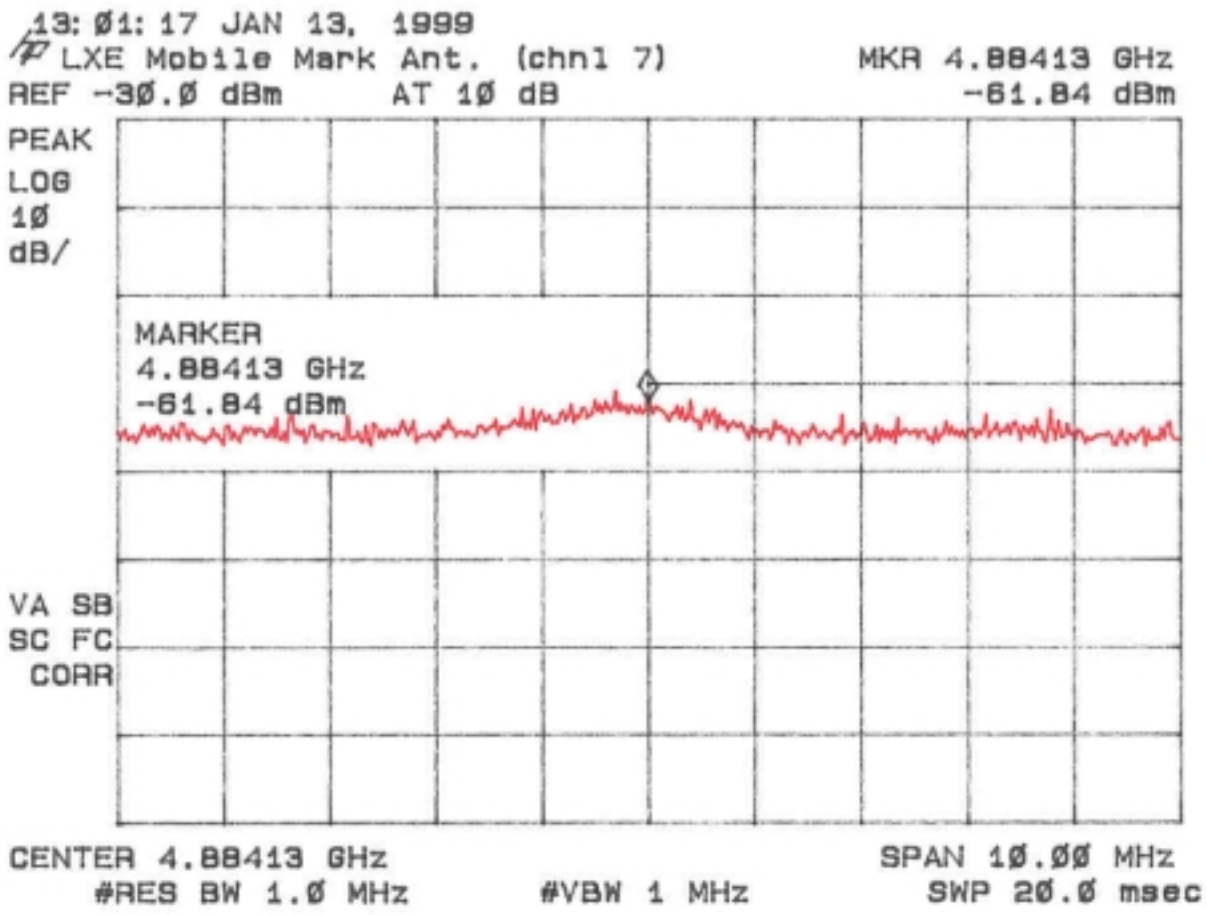


Figure 5f
Peak Radiated Spurious Emissions 15.247(c) High
(Omni Antenna – 9 dB Gain)