



Testing Tomorrow's Technology

**Cirronet Corporation
FCC Part 15, Certification Application
EM2420HP Zigbee Radio**

**UST Project: 06-0159
Issue Date: August 7, 2006**

**3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com**



Testing Tomorrow's Technology

I certify that I am authorized to sign for the manufacturer and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

UNITED STATES TECHNOLOGIES, INC. (AGENT RESPONSIBLE FOR TEST):

By: 

Name: Louis A. Feudi

Title: Operations Manager

Date: August 7, 2006

**Cirronet Corporation
5375 Oakbrook Parkway
Norcross, GA 30093**

By: _____

Name: _____

Title: _____

Date: _____

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MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: Cirronet Corporation
MODEL: EM2420HP Zigbee Radio
FCC ID: HSW-2420HP
DATE: August 7, 2006

This report concerns (check one): Original grant ☒ X
Class II change ☐ _____

Equipment type: 2.4 GHz Zigbee Radio

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes ☐ No ☒ X

If yes, defer until: _____
date

N.A. 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.

Report prepared by:

United States Technologies, Inc.
3505 Francis Circle
Alpharetta, GA 30004

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SECTION 1

GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under Test (EUT) is a Cirronet Corporation, Model EM2420HP Zigbee Radio modular 2.4 GHz spread spectrum transceiver. The EUT will be used with integrated antenna.

1.2 Related Submittal(s)/Grant(s)

The EUT will be used to send/receive data. The transceiver presented in this report will be used with other like transceivers:

The EUT is subject to the following authorizations:

- a) Certification as a transceiver (modular approval)
- b) Verification as a digital device

The information contained in this report is presented for the certification & verification authorization(s) for the EUT. The manufacturer desires to seek a modular approval on this device.

SECTION 2

TESTS AND MEASUREMENTS

TEST AND MEASUREMENTS

2.1 Configuration of Tested System

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). Conducted and radiated emissions data were taken with the test receiver or spectrum analyzer's resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Block diagrams of the tested systems are shown in Figures 1a and 16. Test configuration photographs for spurious and fundamental emissions are shown in Figure 2a -g.

The sample used for testing was received by U.S. Technologies on July 24, 2006 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 by US Tech, to bring the EUT into compliance with FCC Part 15, Class B Limits for the transmitter portion of the EUT or the Class B Digital Device Requirements.

**FIGURE 1
TEST CONFIGURATION**

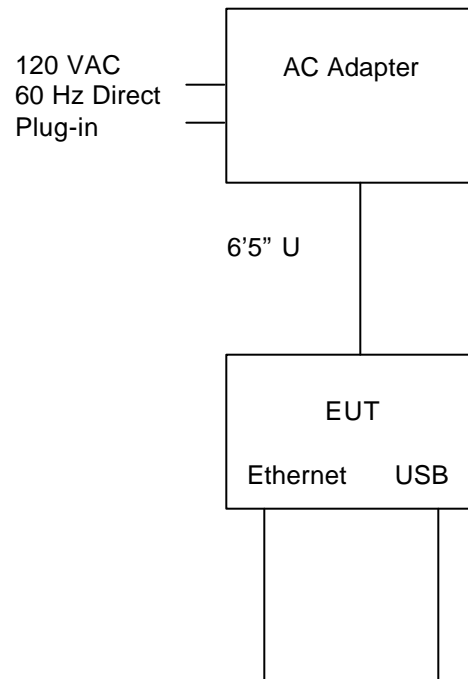


TABLE 1

Test Date: JULY 24, 2006
UST Project: 06-0159
Customer: Cirronet Corporation
Model: EM2420HP Zigbee Radio

EUT and Peripherals

PERIPHERAL MANU.	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
(EUT) Cirronet Corporation	EM2420HP Zigbee Radio	008517	HSW- 2420HP	7' U Ethernet 6'8" U USB
AC Adapter Volgen	SPU10R-1	None	None	6'5" U 120 VAC/ 60 Hz Direct Plug-in

TABLE 2
TEST INSTRUMENTS

EQUIPMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	8558B	HEWLETT-PACKARD	2332A10055	3/21/06
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	7/03/06
SIGNAL GENERATOR	8648B	HEWLETT-PACKARD	3642U01679	9/15/05
RF PREAMP	8447D	HEWLETT-PACKARD	2944A06291	5/24/06
BICONICAL ANTENNA	BIA-25	ELECTRO-METRICS	2451	5/25/06
LOG PERIODIC	3146	EMCO	3110-3236	9/19/05
LISN (x 2) 8028-50-TS24-BNC	8028	SOLAR ELE.	910494 & 910495	3/29/06
HORN ANTENNA	SAS-571	A. H. SYSTEMS	605	04/1/05
PREAMP	8449B	HEWLETT PACKARD	3008A00480	08/10/06
CALCULATION PROGRAM	N/A	N/A	Ver. 6.0	N/A

Test Date: JULY 24, 2006
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FIGURE 2a

Photograph(s) for Spurious Emissions (Front)



Test Date: JULY 24, 2006
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FIGURE 2b

Photograph(s) for Spurious Emissions (Back)



Test Date: JULY 24, 2006
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FIGURE 2c

Photograph(s) for Conducted Emissions



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.

Cirronet Corporation will sell the EM2420HP Zigbee Radio with the following integral antenna.

MANUFACTURER	TYPE OF ANTENNA	MODEL	GAIN dB	TYPE OR CONNECTOR
Fractus	patch	FR05-S1-NO-1-004	0 dBi	Integral, mounted on PCB