



**Cirronet Corporation
FCC Part 15,
Certification Application
for the Model HN2010**

July 3, 2002

MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **Cirronet Corporation.**

MODEL: **HN2010**

FCC ID: **HSW-HN2010**

DATE: **July 3, 2002**

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

Equipment type: **Frequency Hopping Spread Spectrum Transceiver**

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

Phone Number: (770) 740-0717
Fax Number: (770) 740-1508

TABLE OF CONTENTS

**Agency Agreement
Letter of Confidentiality**

SECTION 1

GENERAL INFORMATION

- 1.1 Product Description
- 1.2 Related Submittal(s)
- 1.3 Description of Information Provided
- 1.4 Copy of Name and Address Change
- 1.5 Professional Installation Justification

SECTION 2

- 2.1 Test Report for the Original Part 15 Certification for the Modular Transceiver
- 2.2 Test Report for the Permissive Change Application for the Modular Transceiver
- 2.3 Test Report for Part 15 Class A Verification of the HN2010

SECTION 3

LABELING INFORMATION

SECTION 4

BLOCK DIAGRAM / SCHEMATIC OF TRANSCEIVER

SECTION 5

PHOTOGRAPHS

SECTION 6

THEORY OF OPERATION

SECTION 7

USER'S MANUAL

SECTION 8

RF EXPOSURE INFORMATION

SECTION 1

GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under Test (EUT) is a Cirronet Corporation, Model HN2010 transceiver which internally uses a modularly approved 2.4 GHz spread spectrum transceiver (HSW-2410M). Since this device is typically professionally installed, this application is being submitted to certify the entire device (under a new ID number) in order to eliminate the need for non-standard connectors as allowed by 15.203.

The HN-2010 is a wireless transceiver designed to provide repeater functionality between other HopNet products in point-to-point and point-to-multipoint applications. Two Cirronet WIT2410 transceiver modules (HSW-2410M) are used as the heart of the HN-2010 repeater. Additional power supply conditioning, battery backup, and interface circuitry has been designed into the HN-2010 to provide communications between the internal WIT2410s and between the outside world and the WIT2410 modules.

A typical application for the HN-2010 would be as part of a remote data gathering system. The unit would be placed between two widely separated HopNet transceivers where it would serve as a repeater to relay data back and forth between the units. This repeater functionality allows the system integrator to provide wireless connectivity over much greater distances than could be obtained with a single pair of radios.

Two antenna connectors are also provided at the front of the unit – one for each radio in the repeater. More detailed explanations of the function and use of the HN-2010 can be found in the HopNet product guide.

1.2 Related Submittal(s)/Grant(s)

The modular transceiver contained in this device has been previously approved under FCC ID: HSW-2410M by the FCC on 10/6/99 for use with seven different antennas. The modular transceiver was additionally approved through a permissive change by the FCC on 3/29/01 for use with an additional 5 antennas. A copy of these grants are provided on the following pages.

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT AUTHORIZATION

Certification

Digital Wireless Corporation
One Meca Way
Norcross GA 30093

Date of Grant: 10/6/99

Application Dated: 7/16/99

Attention: Mark Tucker, Sr Systems 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

HSW-2410M

Name of Grantee

Digital Wireless Corporation

Equipment Class : Part 15 Spread Spectrum Transmitter

Notes: Modular 2.4 GHz Transceiver

Grant NotesFCC Rule PartsFrequency Range (MHZ)OutputFrequencyEmissionWattsToleranceDesignator

15

2401.69 - 2469.89

0.05

Mail To:
Sandi McEnery, President
United States Technologies
3505 Francis Circle
Alpharetta, GA 30004



EA94846

In correspondence concerning this grant, please refer
to the FCC IDENTIFIER and the date of grant.

PDW

FCC 731A
October 1991

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

GRANT OF EQUIPMENT AUTHORIZATION

Certification

Cirronet
5375 Oakbrook Parkway
Norcross GA 30093

Date of Grant: 3/29/01

Application Dated: 3/2/01

Attention: Mark Tucker, VP of Engineering

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

HSW-2410M

Name of Grantee

Cirronet

Equipment Class : Part 15 Spread Spectrum Transmitter

Notes: Modular 2.4 GHz Transceiver

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
36	15	2401.69 - 2469.89	0.05		

For Fixed operation, the antenna(s) used for this transmitter must be fixed-mounted on outdoor permanent structures with a separation distance of at least 2 meters from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. For Mobile operation, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. Power is conducted.

36: Certain antennas used with this equipment require a minimum cable length, or have output power limitations as documented in the application.

Mail To:
Sandi McEnery, President
United States Technologies
3505 Francis Circle
Alpharetta, GA 30004
EA100217

1.3 Description of Information Provided

Since the EUT consists of 2 modularly approved transceivers and a previously tested composite device to the Part 15 Class A emissions requirements. The EUT is not being changed other than the fact that Cirronet wishes to use standard connectors vs. the non-standard connectors that were approved with the modular transceiver. Therefore, further testing has been deemed unnecessary. Copies of the previously issued test reports have been provided with this application.

1.4 Copy of Name and Address Change

Cirronet was known as Digital Wireless Corporation at the time the original transceiver module was approved. A copy of their name change as submitted to the FCC is included on the following page.



Office of Engineering and Technology Laboratory
Federal Communications Commission
7435 Oakland Mills Rd
Columbia MD 21046-1609

January 30th, 2001

Gentlemen,

This letter is written to officially inform the FCC that **Digital Wireless Corporation** (grant code: HSW) has now changed its name to **Cirronet**. All contact information remains the same as before. Management and ownership of the company are also the same. All of our old and any new certifications should be placed under the **Cirronet** name. For your records, the new name, address, and phone number are listed below.

Cirronet
5375 Oakbrook Parkway
Norcross, Georgia 30093
Ph: (678) 684-2000
FX: (678) 684-2001

Contact Individual:
Mark Tucker
VP of Engineering
mtucker@cirronet.com
(678) 684-2009

Regards,



Mark Tucker
VP of Engineering
Cirronet

1.6 Professional Installation Justification – Provided by Cirronet

For years, radio manufacturers such as California Microwave and Freewave Technologies have marketed and sold radios for use in the industrial monitoring and control market. These companies initially used licensed radio frequencies exclusively, but now also produce units operating under Part 15.247 using the 900MHz or 2.4GHz ISM band. The HN-2010 outdoor transceiver is designed for use in those markets and to compete against the products of those companies. California Microwave and Freewave currently claim the “Professional Installation” waiver to allow the use of a number of different antennas with their products. Cirronet would obviously like to work under the same set of operating rules for our equivalent product and so we formally request the professional installation waiver for compliance to part 15.203. Our justification for requesting this waiver is as follows.

The HN-2010 is specifically marketed to and designed for system-level installers – not the general public. As previously indicated, the HN-2010 is designed to function as a wireless repeater between radios located in remote locations. As such, the HN-2010 is marketed to municipalities, utility companies, oil/gas pipeline companies, and other similar users that need to monitor or control remote devices a long distance away from the central facilities. The HN-2010 is marketed through magazines like “Wireless Mobility” and “Wireless Systems Design”. Both of these magazines have a very specialized readership and are directed specifically towards wireless system integrators – not the general public. The photos included in this report also show the “industrial” look and feel of the product. Cost is yet another indication of the intended user of the product – at roughly \$2000 per unit the HN-2010 is clearly aimed towards industrial applications.

The intended application for The HN-2010 requires the unit to be used as part of a larger data gathering system. This overall system will be more complex and expensive than the repeater in and of itself and will warrant installation by trained employees of the system integrator. A few technical difficulties must be dealt with when installing the HN-2010 into an application. First, a custom-made power cable must be procured to power the HN-2010 from an external 9 volt supply. This cable must also be connected to the custom power connector on the HN-2010 faceplate. Second, since these links are designed to relay data between other HopNet radios located in remote locations, the HN-2010 will be mounted high atop a building or antenna mast to ensure line-of-sight propagation conditions. The amount of effort and expertise required to mount the product in these locations, by definition, implies professional installation. (Installation in these inaccessible locations also alleviates the possibility of the general public tampering with the transceiver and antenna.) Thirdly, tweaking of the system will be required during installation to achieve acceptable performance – antenna placement and adjustment of the radio parameters of the WIT2410s in the HN-2010. This type of technical adjustment dictates the use of trained personnel.

Given our control over the marketing, sale, and intended use of the HN-2010 and the need for trained personnel to install the product, we request the “professional installation” waiver for compliance to 15.203. We have included the statement “professional installation required” at the beginning of the HN-2010 (HopNet) users guide to alert users of the requirements.

SECTION 2

TESTS AND MEASUREMENTS

2.1 Test Report for the Original Part 15 Certification for the Modular Transceiver

Please refer to measurement data provided for the original modular transceiver. This information has been provided in a separate file. Only applicable portions of the original test report have been provided.

2.2 Test Report for the Permissive Change Application for the Modular Transceiver

Please refer to measurement data provided for the original modular transceiver. This information has been provided in a separate file. Only applicable portions of the permissive change test report have been provided.

2.3 Test Report for the Part 15 Class A Verification of the HN2010

Please refer to Part 15 Class A verification report provided for the EUT. This information has been provided in a separate file.