U.S. TECH

A TRADITION IN TESTING SERVICES

April 18, 2002

Mr. Mark Tucker
Cirronet Corporation
5375 Oakbrook Parkway
Norcross, GA 30093

Dear Mr. Tucker:

Enclosed please find Cirronet Corporation's file copy of the Part 15 Certification Application for the model HN1510.

Cirronet Corporation should expect to receive a certification grant for this product within the next 6-8 weeks.

If you have any questions, please don't hesitate to call. Thank you for your business.

Sincerely,

Timothy R. Johnson
NARTE Certified EMC Engineer
No. EMC-002205-NE

U.S. TECH

A TRADITION IN TESTING SERVICES

Cirronet Corporation
FCC Part 15,
Certification Application
for the Model HN1510

April 18, 2002

MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: **Cirronet Corporation.**

MODEL: **HN1510**

FCC ID: **HSW-HN1510**

DATE: **April 18, 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

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GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under Test (EUT) is a Cirronet Corporation, Model HN1510 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-1510 is an all-purpose data transceiver designed to provide wireless connectivity for indoor point-to-point and point-to-multipoint applications. The radio used in the HN-1510 is the Cirronet WIT2410 transceiver module (FCC ID: HSW-2410M). Additional power supply and interface circuitry has been designed into the HN-1510 to provide communications between the external connector and the WIT2410 module and to provide external power conditioning for the module.

A typical application for the HN-1510 would be as part of a factory or industrial site data gathering system. The unit would be connected to a data collection instrument by means of a serial port cable. The transceiver with its antenna would then mounted above ground level – the ceiling or wall of a factory building for example - and steered towards a data collection receiver in another section of the plant.

The HN-1510 connects to the host by means of a standard serial port cable that attaches directly to the faceplate of the device. Power is provided to the unit through a special cable and locking connector. The antenna can be attached directly to the HN-1510 housing or remotely by means of a coaxial cable. Further explanations of the function and use of the HN-1510 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 Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
	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

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
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 a modularly approved transceiver 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-1510 ***indoor*** 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-1510 is specifically marketed to and designed for system-level installers – not the general public. As previously indicated, the HN-1510 is designed to provide a bi-directional wireless data link between locations in a factory or industrial plant. As such, the HN-1510 is marketed to manufacturers and other similar users who need to remotely monitor or control devices scattered throughout an industrial plant. The HN-1510 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 $1100 per unit, the HN-1510 is clearly aimed towards industrial applications.

The intended application for The HN-1510 requires the unit to be embedded in a larger data gathering system. This system will be more complex and expensive than the transceiver in and of itself and will warrant initial installation by trained employees of the system integrator. A few technical difficulties must be dealt with when installing the HN-1510 into an application. First, a special power insertion cable must be purchased/made and attached to the custom locking connector used on the HN-1510 faceplate. Second, since these links are designed to convey data from one remote location within a plant to another, the HN-1510 and/or its antenna will be mounted upon the wall or ceiling of the facility to ensure line-of-sight propagation conditions between radios. The amount of effort and expertise required to mount the product in these restricted locations, by definition, implies professional installation. Installation in an industrial facility, by definition a restricted location, also alleviates the possibility of the general public tampering with the transceiver and antenna. Third, a certain amount of tweaking of the system will be required during installation to achieve acceptable performance – usually antenna steering or adjustment of the radio parameters in the HN-1510. The technical expertise required to make these adjustments also dictates the use of trained personnel.

Given our control over the marketing, sale, and intended use of the HN-1510 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-1510 (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 HN1510

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