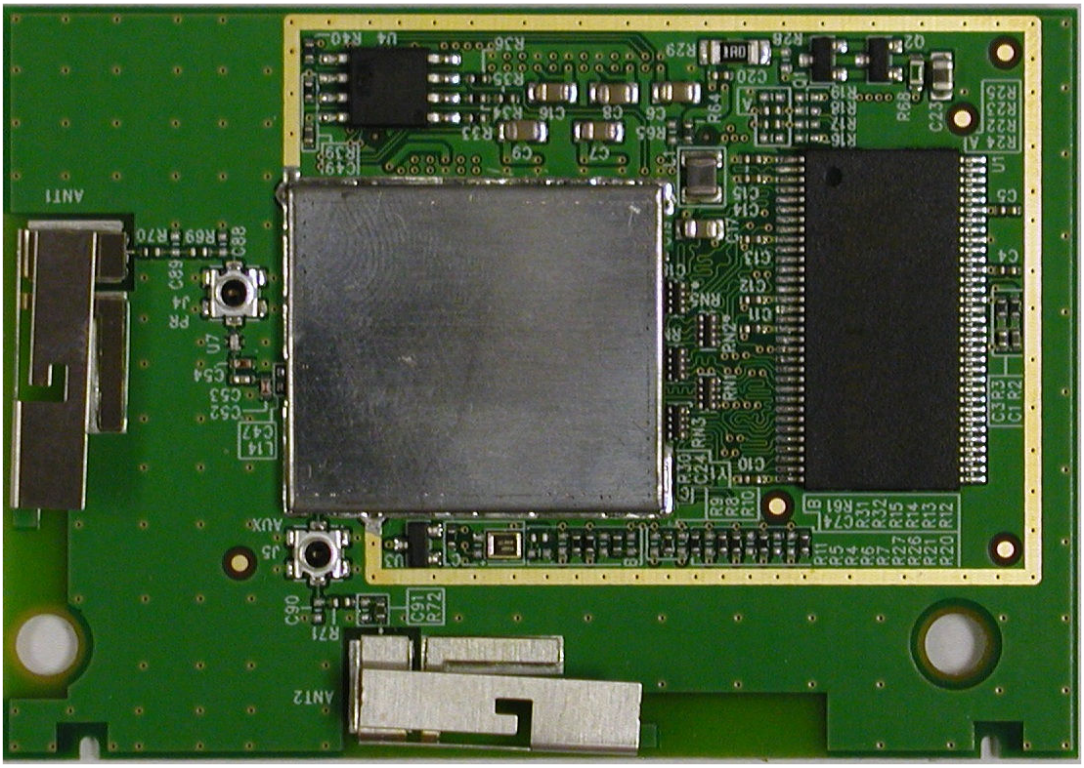

Wi3-530 802.11b/g/n AP Module

User Manual

140-00205-100 Rev A

February 2012

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Contents

About This User Manual

This user manual provides detailed specifications, diagrams and additional information required to install the Wi3-530 802.11b/g/n AP module into a product. The intended audiences are the developers and engineers responsible for the integration of the module in another product.

Safety Precautions

- To prevent damage to the WI3-530 module's electronic circuit components, follow established ESD practices and procedures for handling static-sensitive devices. All ESD-sensitive components must be stored and shipped in ESD-conductive bags or bubble-wrap and labeled as such using the standardized ESD adhesive warning label.
- Ethernet electrical wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other types of wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating devices.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.

Emissions Disclaimer

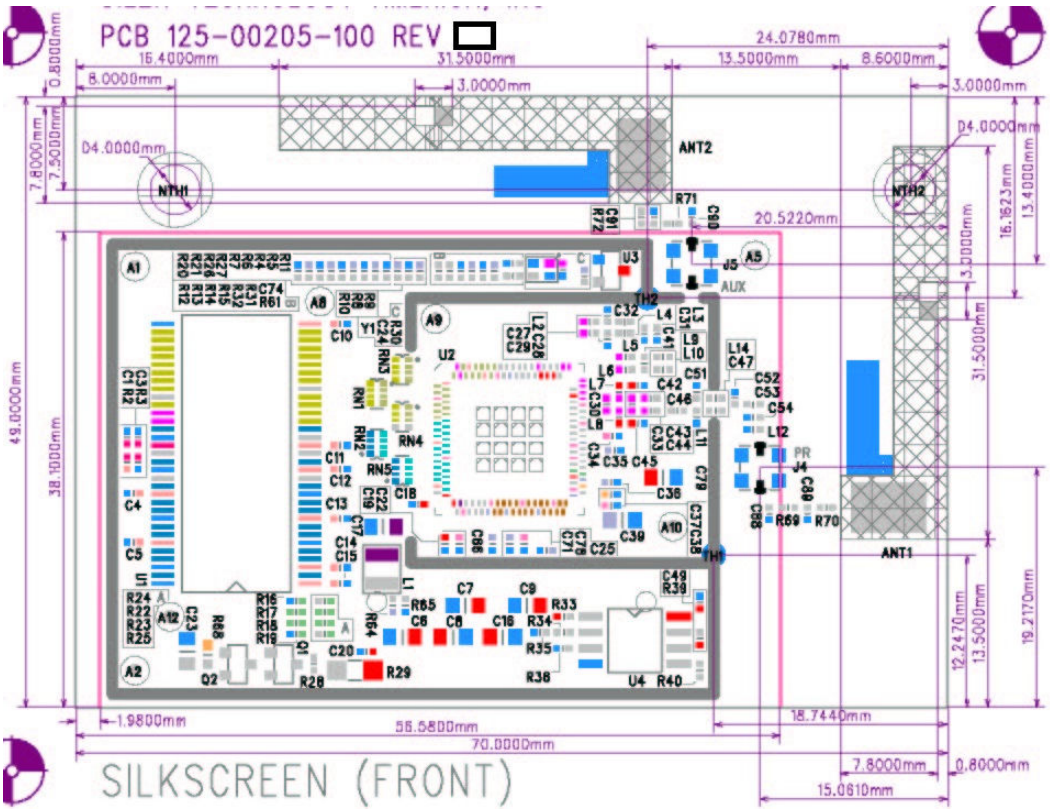
Final emission certification per FCC, IC, CE and other agency requirements are the responsibility of the OEM (refer to chapter 2 for additional information).

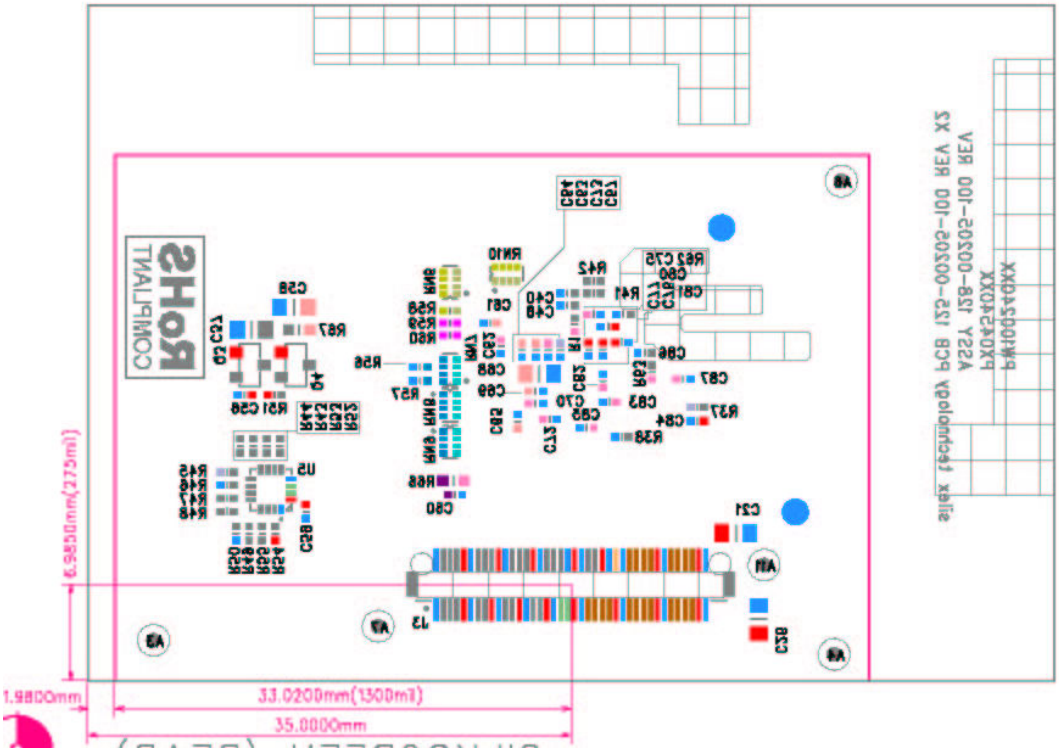
Chapter 1: Introduction

The WI3-530 is an 802.11b/g/n radio/baseband module in a 70 x 49 mm form factor. Designed for wireless local area network (WLAN) access point applications.

WI3-530 features include:

- Highly Integrated Access Point System for 802.11b/g/n WLAN
- Integrated antennas with receive diversity support
- Integrated Atheros AR9331 Single Chip
- WEP, WPA (TKIP), WPA2 security
- Linux drivers available from Silex (porting will be required in most cases)


PCB 125-00205-100 REV
SILKSCREEN (FRONT)
ANT1
ANT2
AUX
70.0000mm
56.5800mm
38.1000mm
49.0000mm
31.5000mm
20.5220mm
18.7440mm
15.0610mm


RoHS COMPLIANT
33.0200mm(1300mil)
35.0000mm
1.9800mm

Chapter 2
Hardware Specifications/Compliance

FCC Information

FCC ID: AUH-1004-W530

NOTICE

In accordance with FCC Part 15, the WI3-530 is listed as a Modular Transmitter device. End products that include the WI3-530 shall have the words “Contains Transmitter module FCC ID: AUH-1004-W530” or “Contains FCC ID: AUH-1004-W530” on an exterior label.

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply within the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

The transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested

that some biological effects might occur, but such findings have not been confirmed by additional research.

To satisfy RF exposure requirements, this device and its antenna(s) must operate with a separation distance of at least 20 centimeters from all persons and must not be co-located or operated in conjunction with any other antenna or transmitter. End-users must be provided with specific operating instructions for satisfying RF exposure.

FCC WARNING:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Information for Canadian Users (IC Notice)

IC:10251A-1004W530

The term "IC" before the radio certification number only signifies that Industry Canada technical specifications were met. This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Regulations. End products that include the WI3-530 shall have the words "Contains transmitter module IC: 10251A-1004W530" or "Contains IC: 10251A-1004W530" on a visible exterior label.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

This radio transmitter 10251A-1004W530 has been approved by Industry Canada to operate with the antennas listed below, and having a maximum gain of 0 dB @ 2.4 GHz. Antennas not included in this list or having a higher gain are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

- Ethertronics Prestta WLAN Embedded 50 Ohm Antenna, Part No. 1000146

Le présent émetteur radio 10251A-1004W530 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

- Ethertronics Prestta WLAN Embedded 50 Ohm Antenna, Part No. 1000146

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio

interference to others, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than required for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research.

Specifications

Operating environment:	Temperature: 0º to +55ºC (32º to +131ºF) Humidity: 20% to 80%
Storage environment:	Temperature: -40º to +70ºC (-40º to +158ºF) Humidity: 20% to 90%
Supply voltage:	3.3V ± 5%
Host interface:	Proprietary 80-pin Header
IEEE 802.11b	Frequency: 2412MHz-2462MHz Transmission system: DSSS Transmission speed: 1/2/5/11Mbps Automatic detection Channel: 1-11
IEEE 802.11g	Frequency: 2412MHz-2462MHz Transmission system: OFDM Transmission speed: 6/9/12/18/24/36/48/54Mbps Automatic detection Channel: 1-11
IEEE 802.11n	Frequency: 2412MHz-2462MHz Transmission system: OFDM Transmission speed: 7/14/21/28/43/57/65/72Mbps Automatic detection Channel: 1-11

Chapter 3
Installation

Installation Requirements

The WI3-530 must be installed in a device that contains a 80-pin header.

The WI3-530 has FCC/IC single modular approval, which can eliminate the need for you to obtain FCC Part 15 Subpart C and RSS-210/GEN (intentional radiation) approvals for your device. In order to use this FCC/IC single modular approval for the WI3-530, OEM integrators must:

1. Include “Contains transmitter module FCC ID: AUH-1004-W530, IC: 10251A-1004W530” or “Contains FCC ID: AUH-1004-W530, IC: 10251A-1004W530” on the exterior label of your device.
2. fix the useable channels to 1 through 11 during the OEM manufacturing process for use in the United States and Canada domain and disable any commands or menu selections in the web interface so the channel selections or domains cannot be changed by the end user.
3. ensure the driver does not permit use of channels 12-14 in ad-hoc mode in the United States and Canada by using the same disabling method.
4. include all required statements in your final product user’s manual (per 15.21, 15.27, 15.105, RSS-GEN, RSS-210, etc) and final product labeling (per 15.19, RSS-GEN). Refer to FCC/IC Information in previous chapter.
5. not provide instructions on how to remove or install the WI3-530 to your end users.
6. provide regulated +3.3 VDC +/- 5% power to the WI3-530.

If you do not follow the above instructions, then it is your responsibility to obtain the necessary FCC approvals.

Installation Procedure

To install the WI3-530:

1. Be sure to use the proper antistatic handling techniques.

2. Connect the 80-pin header plug of the Wi3-530 into the 80-pin header receptacle (Hirose DF12(3.0)-80DP-0.5V(86)) on your host platform.

3. Secure the Wi3-530 to your host platform with appropriate spacers, screws & nuts and other means to hold the unit in place securely.

Appendix A
Antenna Information

Antenna Specifications

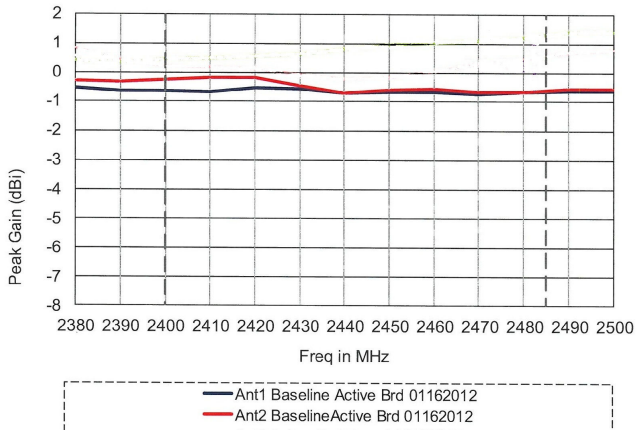
The antenna is the Ethertronics Prestta WLAN Embedded Antenna, Part No. 1000146.

Table 1 Electrical Specifications

Parameter	Value
Antenna Type	Isolated Magnetic Dipole
Frequency Range	2.4 to 2.5 GHz
Impedance	50 Ohms
Gain (peak)	2.4 GHz = 0 dBi
VSWR	≤ 3.0
Test Connector	U.FL Micro Coaxial Switch

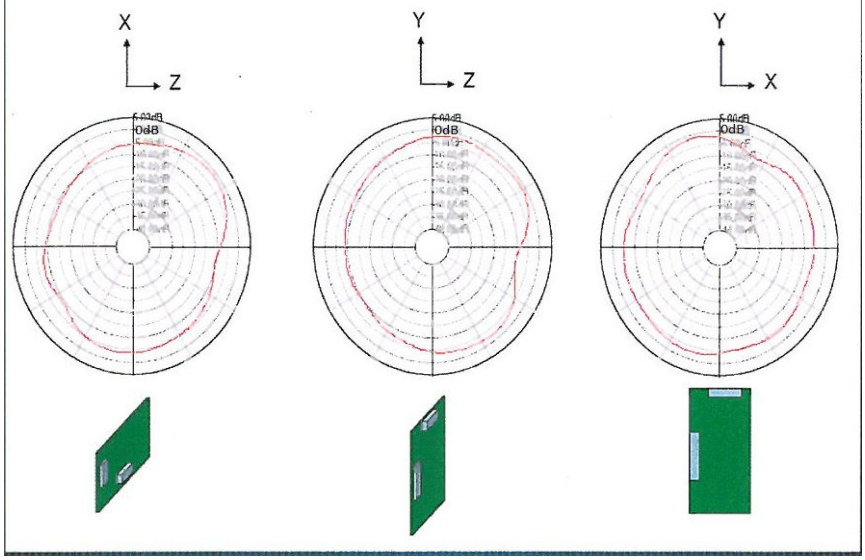
Peak Gain WLANbg

ethertronics



Radiation Pattern Baseline Active Board WLANbg Ant1

ethertronics



Appendix B
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