Radicom Research, Inc.

Preliminary Designer's Guide for the

WiFiHU2S-a/c

RoHS Compliant

SMD WiFi Modules

June 30, 2015

Table of Contents

Introduction

Thanks for purchasing Radicom Research's SMD WiFi Module. Radicom is committed to providing quality service and technical support in order to expedite the product development process. The WiFiHU2S Module is designed to fully support **IEEE802.11n™** Draft 2.0, **IEEE802.11e™** and **IEEE802.11i™** standards. If further information is required, please contact us and we will provide any additional help needed. The WiFiHU2S series offers SoftAP support. It can turn your Internet connected PC or Laptop into a WiFi Wireless Access Point. So any WiFi device such as iPhone, iPod, PDA, within range can connect to Internet by sharing your WiFiHU2S Access Point. The WiFiHU2S-a/c requires significant CPU power to run in SoftAP mode on 802.11n. Unless you have a very powerful CPU, it is recommended to use the SoftAP mode of WiFiHU2S in 802.11b or g modes only.

Features

- SoftAP support (Software enabled Access Point)
- Supports ACCESS Point (Host WiFi)
- IEEE 802.11b/g/n compatible WLAN
- 150Mbps receive PHY rate and 75Mbps transmit PHY rate using 20MHz bandwidth
- 300Mbps receive PHY rate and 150Mbps transmit PHY rate using 40MHz bandwidth
- 20MHz and 40MHz bandwidth transmission
- Operates in 2.4GHz Frequency Range
- Compatible with 802.11n draft 2.0 specification
- Backward compatible with 802.11b/g devices while operating at 802.11n data rates
- Frame aggregation for increased MAC efficiency (A-MSDU, A-MPDU)
- Low latency immediate High-Throughput Block Acknowledgement (HT-BA)
- Long NAV for media reservation with CF-End for NAV release
- PHY-level spoofing to enhance legacy compatibility
- Hardware antenna diversity
- Channel management and co-existence
- Multiple BSSID feature allows multiple MAC identities when used as a wireless bridge
- Supports Wake-On-WLAN via Magic Packet and Wake-up frame
- Transmit Opportunity (TXOP) Short Inter-Frame Spaces (SIFS) bursting for higher multimedia bandwidth
- Short Guard Interval (400ns)
- DSSS with DBPSK and DQPSK, CCK modulation with long and short preamble
- OFDM with BPSK, QPSK, 16QAM, and 64QAM modulation
  Convolutional Coding Rate: 1/2, 2/3, 3/4, and 5/6
- OFDM receive diversity with MRC using up to 2 receive paths. Switch diversity used for DSSS/CCK
- Selectable digital transmit and receive FIR filters
- Programmable scaling in transmitter and receiver to trade quantization noise against increased probability of clipping
- Fast receiver Automatic Gain Control (AGC)

Approvals (PENDING)

- FCC Part 15: FCC OET 65 Supplement C (SAR), 47 CFR FCC Part 15 Subpart C 15.247, 47 CFR FCC Part 15 Subpart B 2009 (Class B)
- IC RSS-102, IC ES-003 issue 4, IC RSS-247 issue 1:2015
- RoHS Compliant
- CE Marked: EN 61000-3-2:2006+A2:2009, EN 62311:2008, EN 300 328 V1.7.1, EN 301 489-1, V1.8.1, EN 61000-3-3:2008, EN 301 489-17 V2.1.1) EN 60950-1:2006+A11:2009+A1:2010+A12:2011

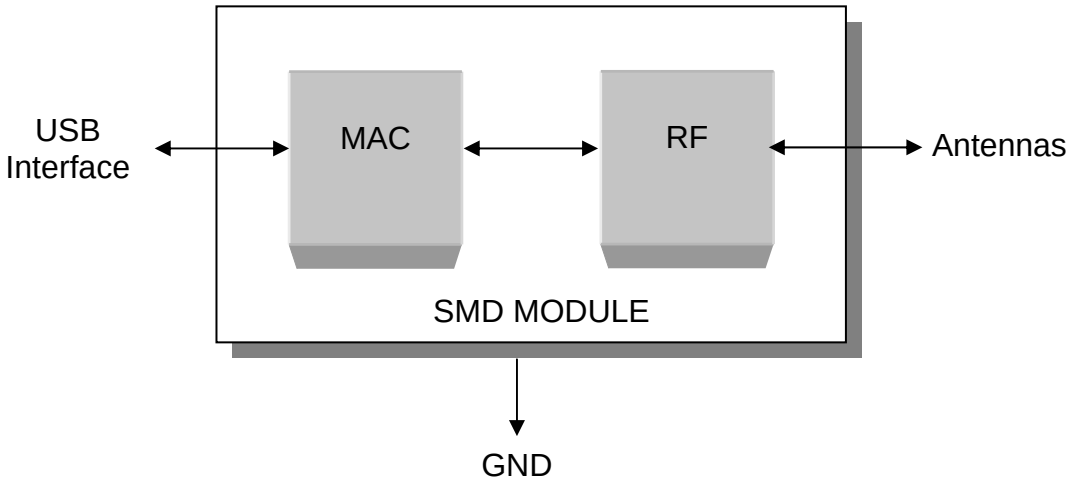
Support

- IEEE 802.11b/g/n compatible WLAN
- IEEE 802.11e QoS Enhancement (WMM)
- IEEE 802.11h TPC, Spectrum Measurement
- IEEE 802.11i (WPA, WPA2, WEP). Security ~ Open, shared key, and pair-wise key authentication services

Ratings

Parameter	Min	Typical	Max	Units
Maximum Data Rate			300M	bps
Operating Temperature HU	-40°		+85°	°C
Relative Humidity (non-condensing)	5 %		95	%
Operating Voltage	3.15	3.3	3.6	V
Current Consumption	155	160	168	mA
Transmit & Receive Level	-84(Rx)		+17 (Tx)	dBm

Block Diagram



Model and Ordering Information

This versatile WiFiHU2S family of products offers configuration options to meet the specific system. The WiFiHU2S is available as a SMD module with antennas interface. The WiFiHU2S also has many different antennas options.

Model	Description	Comments
WiFiHU2S-a 	**WiFi SMD Module with dual on board chip antennas**	**Uses onboard chip antennas. Not for use with External Antenna.**
WiFiHU2S-c * 	**WiFi SMD Module with dual on board U.FL connectors for attaching antenna cables and 2.4GHz 2 dBi Omni-directional antennas**	**Allows designer to determine antenna placement. Can use one or two cables and antennas**
AC6i-RP-SMA 	**6" U.FL. to RP-SMA female connector antenna cable**	**Antenna Cable for model WiFiHU2S-c**
ATN-2d-RP-SMA 	**Replacement antenna, 2.4GHz, 2dBi, RP-SMA, Omni-directional.**	**Antenna for model WiFiHU2S-c**

***These models can use either one or two cables and antennas. For ultimate performance, we recommend using two antennas with better adaptability for receiving. If user want to use only one set of cable and Antenna, try to use CON1 first.**

Connecting the WiFiHU2S to Your System

Prior to connecting the WiFiHU2S to a Window XP, the drivers should be installed. The WiFiHU2S Modules are designed for easy connection to any wireless network. If using Windows, load the provided drivers. The WiFiHU2S is now ready for use.

If you plan to embed the WiFiHU2S into your system, the SMD type can be mounted onto your main board to verify or test the module functions.

If you use external antenna, connect one end of Radicom approved antenna to the on board U.FL connector. For ultimate performance, we recommend using two antennas to get exceptional reception and throughput. If only using one antenna, you must use the correct antenna socket for good performance. Connect single antenna to the socket closest to the Radicom Research white silkscreen legend on the PCB.

General Layout Design Suggestions

• **General Layout Rules**- All Printed Circuit Boards must comply with UL94V0 standard for flammability. Always use RoHS compliant Parts and materials.

• **Suggestions for Layout:**

1. Do not place Power circuit, X'tal, Inductor, etc near RF area.

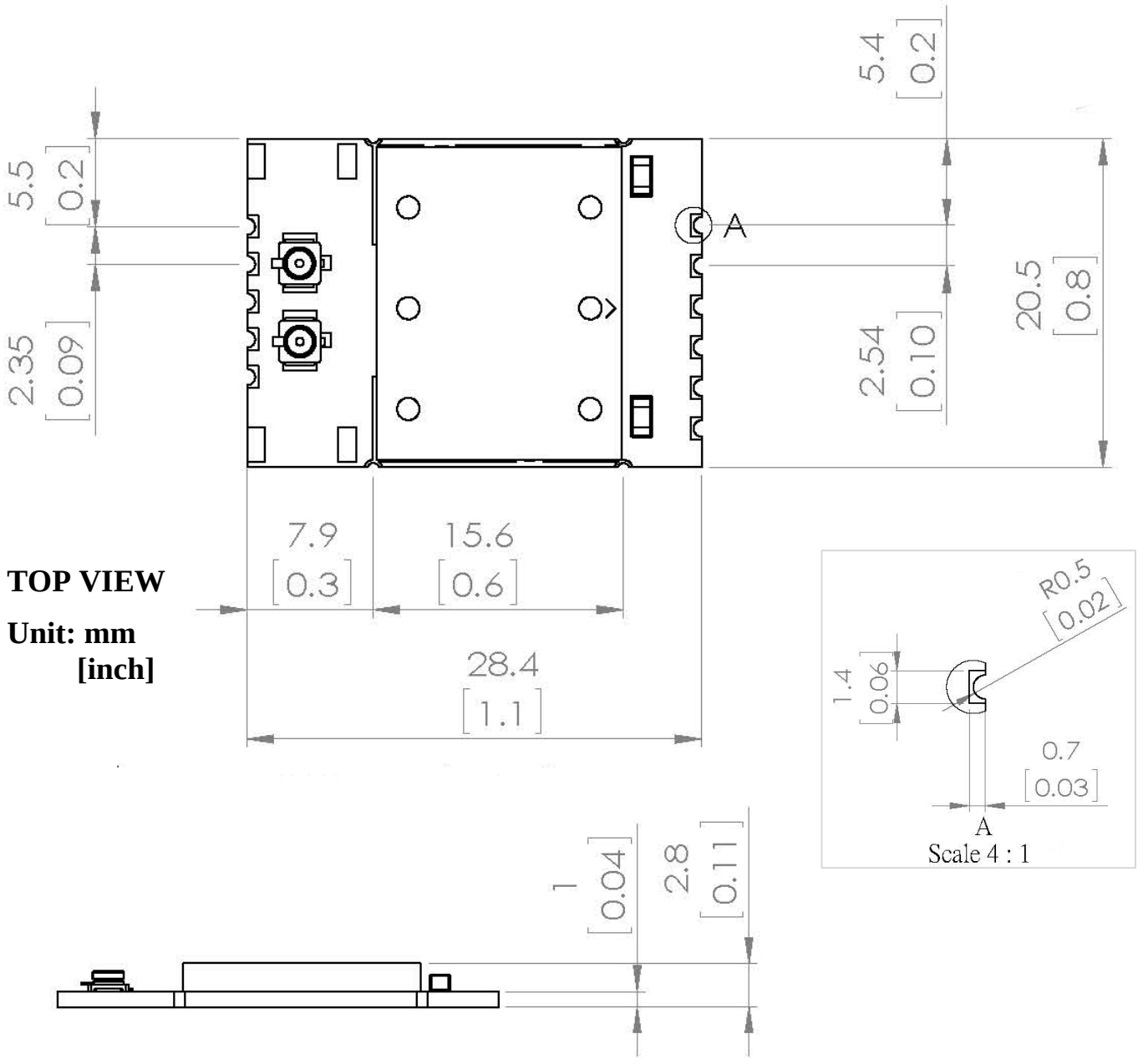
2. The bigger Antenna clearance area, the better. The Antenna circuitry needs to stay away from any circuit or component by at least 2mm. For best operation, Antenna clearance area means Top and Bottom both required to be cleared.

3. Do not use metal materials near Antenna area. For example, battery snaps, USB connector, iron case, etc.

Note: These guidelines are for design reference; real performance still depends on the actual design.

WiFiHU2S Module Mechanical Dimension

The WiFiHU2S Modules are designed for easy connection to any wireless network. The SMD modules have half-holes which can be mounted onto your main board device.



TOP VIEW

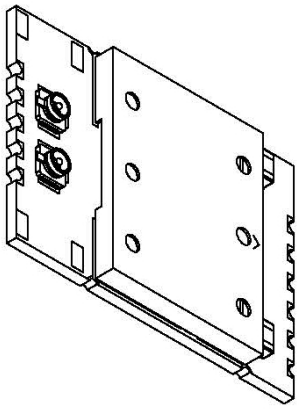
Unit: mm
[inch]

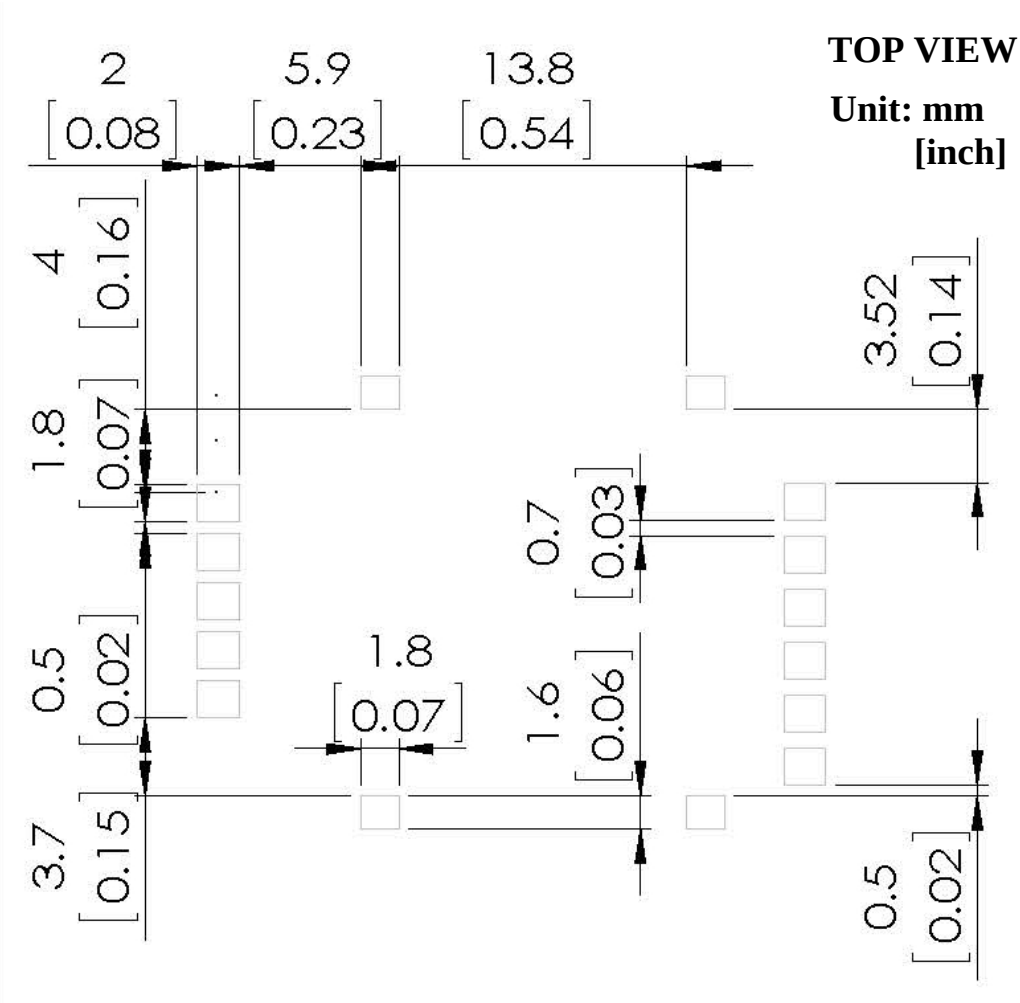
Notes:

1. Dimension of WiFiHU2S module = 1.12” x 0.81” x 0.12”
2. Board thickness = 0.04”
3. Tolerance = ±0.0075”
4. Please refer to the Layout Guideline for pad size.

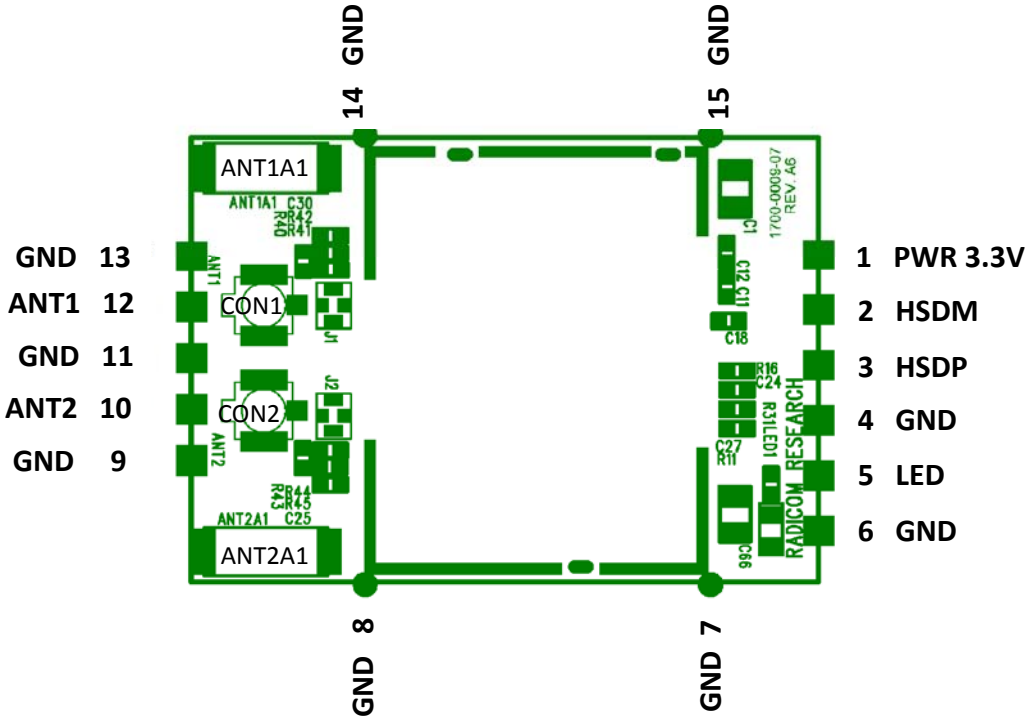
WiFiHU2S Module Layout Pad Guideline

The suggested layout pad for WiFiHU2S SMD Modules should follow the dimension as follows.





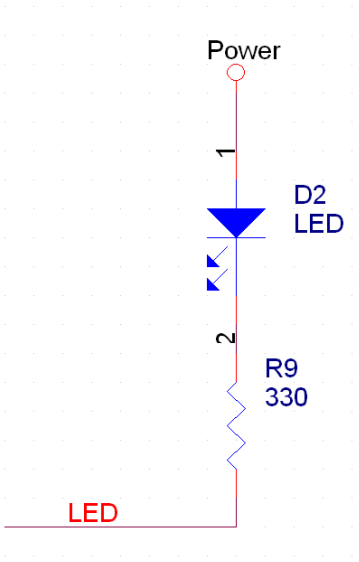
WiFiHU2S Module Pinout Diagram and Definition



Pin#	Pin Name	Type	Description	I/O Voltage Range
01	Power	Power	Input power 3.3V	Input voltage :3.15V~3.6V
02	HSDM	I/O	USB Data minus	
03	HSDP	I/O	USB Data plus	
04	GND	Power	System Ground	
05	LED	O	Output See Note 1	Voh: 2.4V ~ 3.3V Vol: 0V ~ 0.4V
06	GND	Power	System Ground	
07	GND	Power	System Ground	
08	GND	Power	System Ground	
09	GND	-	See Note 2	
10	ANT2	RF	RF Transmit & Receive See Note 2	
11	GND		See Note 2	
12	ANT1	RF	RF Transmit & Receive See Note 2	
13	GND	-	See Note 2	
14	GND	Power	System Ground	
15	GND	Power	System Ground	

Note:

1. **LED is active low output signal.**
   When RF transmit or receive, LED is active. LED reference circuit is on right hand side.



2. **Pin 9 to pin 13 are extra pins for antenna signal output which are NOT necessary by using chip antenna or connectors on WiFiHU2.**

FCC, IC, and CE Label Location and Module Model Identification

(PENDING)

The WiFiHU2S module family is FCC Part 15 and IC (Industry Canada) certified. The WiFiHU2S is also CE marked. The modules are labeled with the appropriate WiFiHU2S module model number and FCC Part 15 ID, IC registration number and CE mark. The label can be found on top of the metal shielding on the WiFiHU2S Module.

Radicom Research Inc.
Model: WiFiHU2S-a
FCC ID: K7T-WIFIHU2
IC: 2377A- WIFIHU2

Radicom Research Inc.
Model: WiFiHU2S-c
FCC ID: K7T- WIFIHU2
IC: 2377A- WIFIHU2

Important Regulatory Compliance and User Information

The final product with the modules installed needs to be tested for FCC Part 15, IC (Industry Canada) CE, EMI/RFI compliance. Radicom certification documentation will help streamline the final product approval process. Contact Radicom for more information. To maintain compliance in the finished product, carefully follow guidelines in this section.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users. For laptop installations, the antenna must be installed to ensure that the proper spacing is maintained in the event the users places the device in their lap during use.

2) The transmitter module may not be co-located with any other transmitter or antenna. As long as the two conditions above are met, further transmitter testing will not

be required. However, the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with the module installed (for example, digital device emissions, PC peripheral requirements, etc).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Host (End Product) Labeling Requirements

To maintain compliance, the end product hosting the WiFiHU2S module must be properly labeled to identify that this module is installed. This transmitter module is authorized only when used in devices where the antenna is installed such that 20 cm is maintained between the antenna and users. The final end product must have a label located in a visible area with the following information:

Contains Transmitter Module
Model: XXXXXXX
FCC ID: K7T- WIFIHU2
IC: 2377A- WIFIHU2
CE

The XXXXXXX reflects the correct model installed into the host equipment: The models are WiFiHU2-a, WiFiHU2-c, WiFiHU2-a-1-NE, or WiFiHU2-c-1-NE
The label shall be securely affixed to a permanently attached part of the device, in a location where it is visible or easily accessible to the user, and shall not be readily detachable. The label shall be sufficiently durable to remain fully legible and intact on the device in all normal conditions of use throughout the device's expected lifetime. These requirements may be met either by a separate label or nameplate permanently attached to the device or by permanently imprinting or impressing the label directly onto the device. The label text shall be legible without the aid of magnification, but is not required to be larger than 8-point font size.

End User Information: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF Exposure compliance. The end user should NOT be provided any instructions on how to remove or install the device. The users manual for end users must include the following information in a prominent location.

FCC RF Radiation Exposure Statement

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna used on this transmitter must be installed to provide a separation of at least 20 cm from all persons and must not be co-located or operating in conjunction with any antenna or transmitter. This device contains a low power transmitter. When this device is operational, use only with the supplied, or recommended antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations. Changes or modifications not expressly approved by the manufacturer or party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with 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 and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 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 circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

IC (Industry Canada) Statement:

"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 present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de license. L'exploitation est autorisee aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit acceptor tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Europe – R&TTE Compliance Statement:
Hereby, Radicom Research Inc. declares that this equipment complies with the essential requirements and other relevant provisions of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

CE Declaration of Conformity

For the following equipment:

Radicom Research Inc. WiFi USB Modem Module
Model(s): WiFiHU2-a, WiFiHU2-c, WiFiHU2-a-1-NE, WiFiHU2-c-1-NE

is herewith confirmed to comply with the requirements set out in the Council (European parliament) Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility of Radio and Telecom device (1999/5/CE). For the evaluation regarding this Directive, the following standards were applied:

EN 61000-3-2:2006+A2:2009, EN 300 328 V1.7.1, EN 62311: 2008,
EN 301 489-1, V1.8.1, EN 61000-3-3:2008, EN 301 489-17 V2.1.1
EN 60950-1:2006+A11:2009+A1: 2010+A12:2011

This equipment is marked with the CE and can be used throughout the European community.

France – 2.4GHz for Metropolitan France:
In all Metropolitan departments, wireless LAN frequencies can be used under the following conditions, either for public or private use:

- Indoor use: maximum power (EIRP*) of 100 mW for the entire 2400-2483.5 MHz frequency band
- Outdoor use: maximum power (EIRP*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP*) of 10 mW for the 2454-2483 MHz band

Caution: Exposure to Radio Frequency Radiation.
To comply with RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

WiFiHU2S Regulatory Domain Frequencies

The channel identifiers, channel center frequencies, and regulatory domains of each 22-MHz-wide channel are shown in following table.

Model: WiFiHU2S Family	Frequency (MHZ)	Regulatory Domains					
		Japan	ETSI	North America	Israel	France Outdoor	Mexico
1	2412	v	v	v		v	
2	2417	v	v	v		v	
3	2422	v	v	v	v	v	
4	2427	v	v	v	v	v	
5	2432	v	v	v	v	v	
6	2437	v	v	v	v	v	
7	2442	v	v	v	v	v	
8	2447	v	v	v	v	v	
9	2452	v	v	v	v	v	
10	2457	v	v	v			v
11	2462	v	v	v			v
12	2467	v	v				
13	2472	v	v				
14	2484	v					

Driver Installation Guide For Windows XP

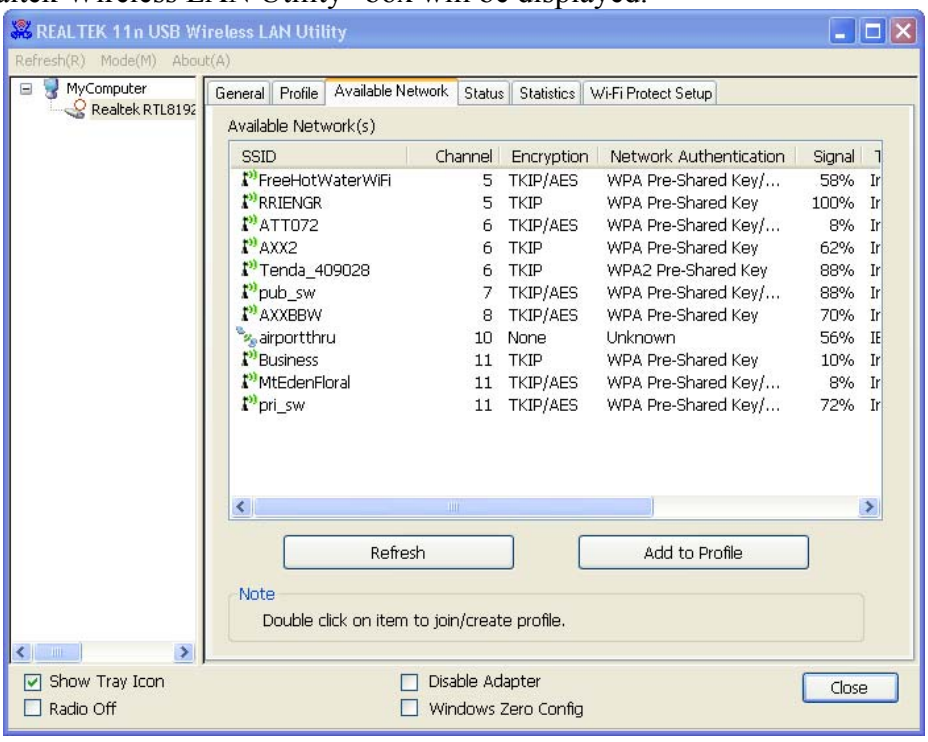
Do not plug the WiFiHU2S module into USB port until the drivers are loaded.

Insert the installation disc into CD-ROM. Open the WiFiHU2S Drivers + Manual Folder. Open the WiFiHU2S Driver Folder. Open the Windows folder and select “Setup.exe”.

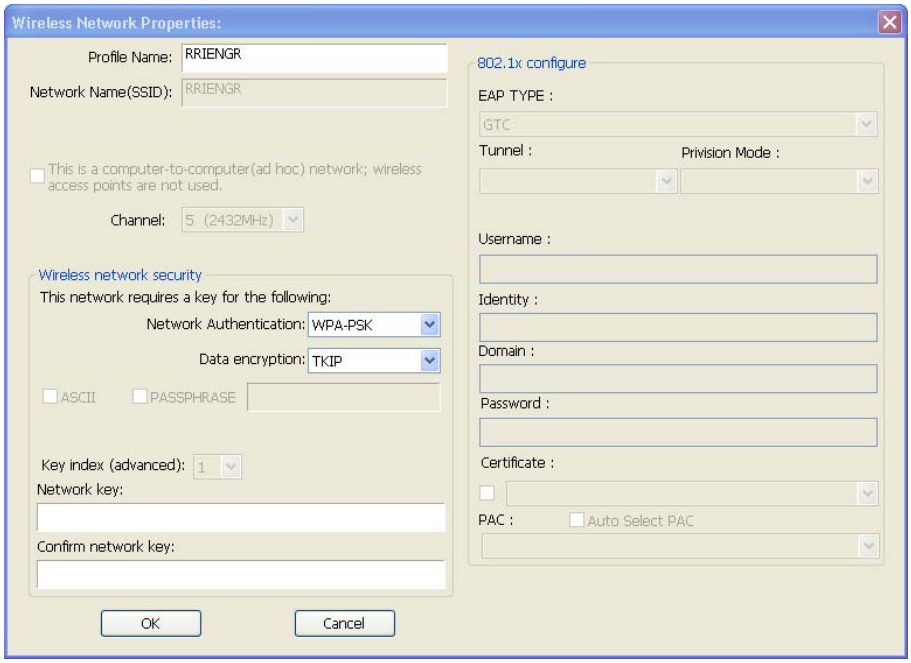
Click Next. Windows will now install the driver. This may take a few moments.

Click Finish. Windows will now restart. After the computer reboots, plug the WiFiHU2S into a USB port. Windows will briefly display “Found New Hardware” and automatically load the drivers.

Left Click the 5 red signal strength bars of the Realtek Icon in the Window system tray. The “Realtek Wireless LAN Utility” box will be displayed.

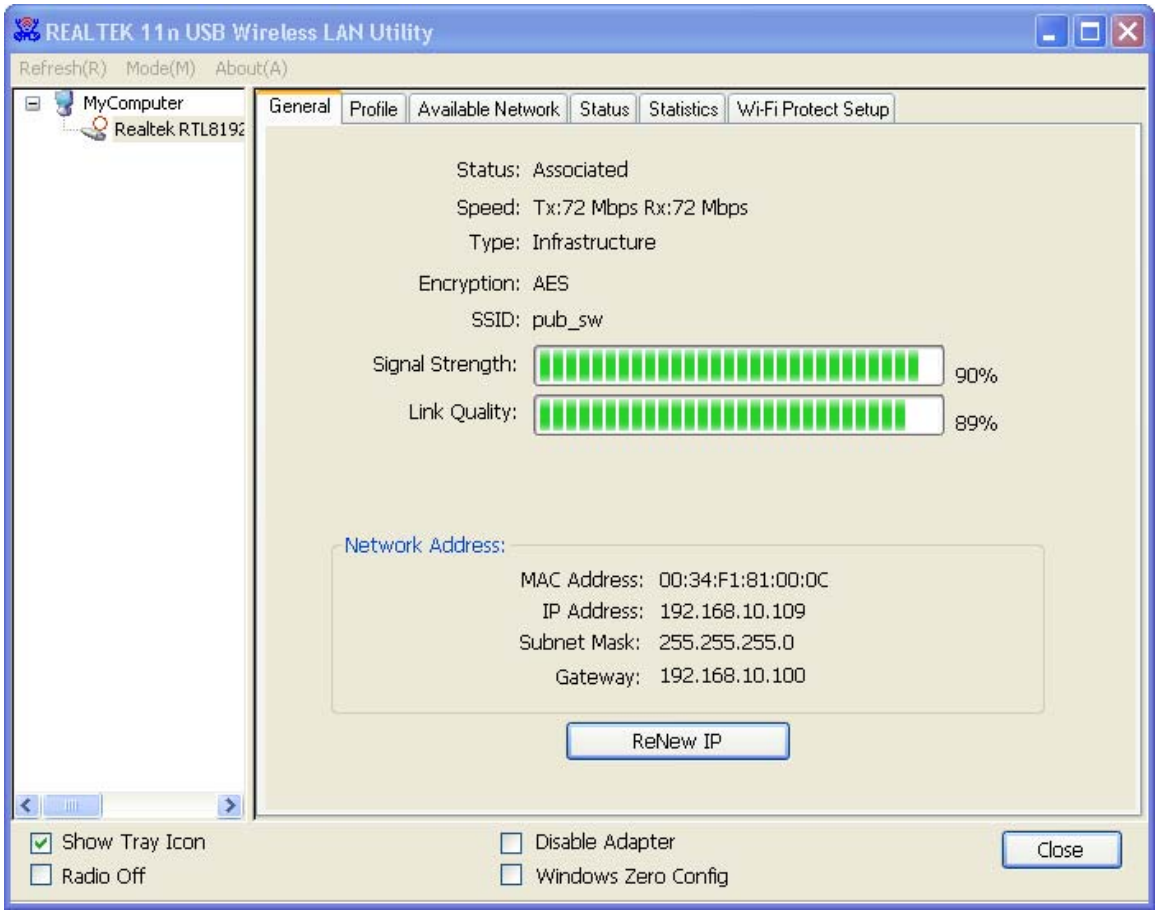


Left Click the “Available Network” box. Highlight and Double Click the network you want to connect with. The “Wireless Network Property” box will appear.



Enter and then confirm the Network Key, then Click OK.

The “LAN Utility” box will display the Signal Strength and Link Quality.



The WiFiHU2S is now connected to the network. The signal strenghth bars in the Realtek Icon in the system tray should be green.

WiFiHU2S USB Linux Driver Quick Installation Guide

Software Package & Platform requirements:

- The software package contains one WiFiHU2S Linux driver (source code) that supports Linux Kernel version 2.6.18 thru 2.6.38 and Kernel version 3.0.2, and WiFiHU2S documents.
- Platform requirements: Linux based platform and WiFiHU2S Linux driver.

NOTE: Kernel versions 2.6.41 and 3.2.1 will automatically detect the WiFiHU2S.

WiFiHU2S installation steps verified under following environments:

(1) Fedora 11, Kernel version: 2.6.30-105.2.23.fc11.i686.PAE
(2) Fedora 15. Kernel version: 2.6.38.6-26.rc1.fc15.i686.PAE

Operation Steps:

1. Copy the WiFiHU2S Linux driver (rtl8188C_8192C_usb_linux_v3.4.3-4369.20120622.tar.gz) into Download directory.
2. cd Download
3. tar –zxvf rtl8188C_8192C_usb_linux_v3.4.3-4369.20120622.tar.gz
4. cd rtl8188C_8192C_usb_linux_v3.4.3-4369.20120622
5. make
6. sudo insmod 8192u.ko
7. plug WiFiHU2S into computer
8. sudo ifconfig wlan0 up
   To enable WiFiHU2S. The name of WiFiHU2S is wlan0.
9. sudo iwlist wlan0 scan
   Search for any wireless AP (router).
10. sudo ifconfig wlan0 192.168.1.101
    Set WiFiHU2S IP address, need to find out which IP address you can use.
11. Go to top right Network Icon and choose suitable AP (or router) to connect.
12. If you want to use NetworkManager, go to top right Network Icon and choose suitable AP (or router) to connect.
13. If you want to issue commands only, you need to disable NetworkManager and issue network command

WiFiHU2S USB Linux SoftAP Installation

This section is for installing the WiFiHU2S to operate in SoftAP modem in Linux Fedora and Ubuntu. **Note: The WiFiHU2S can support up to 8 remote users.**

WiFiHU2S USB Linux SoftAP Installation for Fedora environment

Following commands were issued under Fedora 15 with Kernel 2.6.39. These commands also issued in Fedora 14 with Kernel 2.6.37.

The command log stored in WiFiHU2S_Drivers/Linux/wpa_supplicant_hostapd/Fedora_cmd_log.txt.

cd WiFiHU2S_Drivers_Manual/

cd WiFiHU2S_Drivers/

cd Linux/

cd driver/

tar -zxvf rtl8188C_8192C_usb_linux_v3.4.3_4369.20120622.tar.gz

cd rtl8188C_8192C_usb_linux_v3.4.3_4369.20120622

sudo make

sudo insmod 8192cu.ko

sudo service NetworkManager stop

sudo ifconfig wlan0 192.168.1.101 up

cd ../wpa_supplicant_hostapd-0.8/hostapd/

sudo make

sudo ./hostapd ../../rtl_hostapd_2G.conf –B

sudo ./hostapd_cli all_sta

WiFiHU2S USB Linux SoftAP Installation for Ubuntu environment

This section is for installing the WiFiHU2S to operate in SoftAP modem in Ubunbtu 11.04 with Kernel version 2.6.38 and 2.6.39.
To setup a bridge between eth0 and wlan0: These steps enable bridge setting in rtl_hostapd_2G.conf (unmark #bridge=br0).

cd WiFiHU2S_Drivers_Manual/

cd WiFiHU2S_Drivers/

cd Linux/

cd driver/

tar -zxvf rtl8188C_8192C_usb_linux_v3.4.3_4369.20120622.tar.gz

cd rtl8188C_8192C_usb_linux_v3.4.3_4369.20120622

sudo make

sudo insmod 8192cu.ko

sudo service network-manager stop

sudo ifconfig wlan0 192.168.1.101

cd ../wpa_supplicant_hostapd-0.8/hostapd/

sudo make

sudo brctl add br0

sudo brctl addif br0 wlan0

sudo brctl addif br0 eth0s

sudo brctl setfd br0

sudo ./hostapd ../../rtl_hostapd_2G.conf –B

sudo dhclient br0

Installing the WiFiHU2S in SoftAP Mode for Windows 7

1. Plug the WiFiHU2S into an available USB port. Make sure that the PC has Internet Access. Turn on PC.

2. Create a destination folder and copy the WiFiHU2S driver Radicom from the provided driver cd. Enter the driver folder, then WiFiHU2S, and select "Setup.exe".

3. From the Start icon enter > All Program > Accessory > right click on the Command Prompt, and run as administrator. Windows User Account Control box will show up, click on yes to allow Windows Command process to change the computer.

4. Type following two commands followed by the Enter Key to execute.

   Command 1 is to setup up name and remote password

   netsh wlan set hostednetwork mode=allow ssid=<ssid_name> key=<passphrase> keyusage=persistent

   For the <ssid_name> , enter ssid= followed by the name that you want to use for this WiFHU2 SoftAP Network you are creating.

   For the <passphrase> , enter the password for the remote WiFi device will need to enter to access the WiFiHU2S SoftAP.

   True syntax for the first command using ssid name "MyNetwork" and passphrase "Monkey22":

   netsh wlan set hostednetwork mode=allow ssid=MyNetwork key=Monkey22 keyusage=persistent

   Command 2 is to start the new network

   netsh wlan start hostednetwork

5. From Start icon > control panel, select network and sharing center, and then select change adapter settings on the left.

6. Check to see your Wireless Network Connection(n) with the assigned ssid <ssid_name> appears with "Microsoft Virtual WiFi Miniport Adapter(n)" displayed underneath.

7. Make sure that the Wired Local Area Network is set to DHCP mode. To check, Right click the wired local area network, check properties and Double Click “Internet Protocol Version 4 (TCP/Ipv4)”. Make sure “Obtain an IP address automatically” and “Obtain DNS Server address automatically” are set. Click “OK” to exit.

8. On Local Area Connection properties, select the sharing tab on top and enable option to allow Internet Connection Sharing. Then select the New Wireless Network Connection(n) using Microsoft Virtual WiFi Miniport Adapter in Home networking connection option. Click “OK”. Windows will the prompt you to accept these changes. Click “Yes”

9. You can now access the WiFiHU2S in SoftAP mode from a remote WiFi device, Search for the New WiFiHU2S network name and issue the Password to connect.

Note: The WiFiHU2S can support up to 8 remote users.

Limited Warranty

Warranty Coverage and Duration

Radicom Research, Inc. ("RRI") warrants to the original purchaser its RRI-manufactured products ("Product") against defects in material and workmanship under normal use and service for a period of one year from the date of delivery. During the applicable warranty period, at no charge, RRI will, at its option, either repair, replace or refund the purchase price of this Product, provided it is returned in accordance with the terms of this warranty to RRI. Repair, at the option of RRI, may include the replacement of parts, boards or other components with functionally equivalent reconditioned or new parts, boards or other components. Replaced parts, boards or other components are warranted for the balance of the original applicable warranty period. All replaced items shall become the property of RRI.

RRI MAKES NO GUARANTEE OR WARRANTY THAT THE PRODUCT WILL PREVENT OCCURRENCES, OR THE CONSEQUENCES THEREOF, WHICH THE PRODUCT IS DESIGNED TO DETECT.

This expressed limited warranty is extended by RRI to the original end-user purchaser only, and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by RRI, and RRI assumes no obligation or liability for additions or modifications to this warranty. In no case does RRI warrant the installation, maintenance or service of the Product.

RRI is not responsible in any way for any ancillary equipment not furnished by RRI that is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because of wide variations in topographical and atmospheric conditions, which may require availability of repeater stations or of particular radio frequencies, RRI assumes no liability for range, coverage or suitability of the Product for any particular application. Buyer acknowledges that RRI does not know a particular purpose for which buyer wants the Product, and that buyer is not relying on RRI's skill and judgment to select or furnish suitable goods.

What this Warranty does NOT Cover:

(a) Defects or damage resulting from use of the Product in other than its normal and customary manner.

(b) Defects or damage from misuse, accident or neglect.

(c) Defects of damage from improper testing, operation, maintenance, installation, alteration, modification or adjustment.

(d) Disassembly or repair of the Product in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

(e) Any Product that has had its serial number or date code removed or made illegible.

How to Receive Warranty Service:

To obtain warranty service, contact RRI by phone (408) 383 9006 for RMA Department or email to rma@radi.com for an RMA (Return Merchandise Authorization) number. Deliver or send the Product, transportation and insurance prepaid to RRI, with the RMA number clearly marked on the outside of the package.

General Provision

This warranty sets forth the full extent of RRI's responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at RRI's option, is the exclusive remedy.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. ANY APPLICABLE IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. TO THE FULLEST EXTENT PERMITTED BY LAW, RRI DISCLAIMS ANY LIABILITY FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVING OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE OR FAILURE OF SUCH PRODUCT.

Contacting Radicom Research

If more information or technical support is needed, please contact us:

2148 Bering Drive

San Jose, CA. 95131

Telephone: (408) 383 9006

Fax: (408) 383 9007

or
e-mail: sales@radi.com

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