

Thank you for purchasing the 6 Antenna Exteme WiFi_Expert Mod Kit for your E4200 Version 1 Linksys router. First we will show you how to install the antennas for your router. Next we will teach you how to setup the DD-WRT firmware which will turn your \$100 router into a powerful, highly configurable \$600 router. Finally we will provide you with a tool that will help test the performance of your newly modified router.



E4200 Antenna Installation Instructions:

1. Soldering required (here is the list of tools you will need)

Phillips screw driver

8mm Socket with a ratchet

8mm Open End Wrench

Soldering Gun

Butter Knife or flat metal object (not sharp)

Cutting pliers

Needle



2. Open the unit. Remove the rubber stands first and then, all you need is a small Philips screw driver.



OPENING UP THE UNIT

The top and bottom of the router separate nicely with some help from you.

Wedge them apart with a kitchen knife or an object that is not sharp.

Begin prying the unit open just down from the vent holes.

The case is on tight, so pry open around the edges a little at a time.

Be patient; she'll eventually pop open for you.

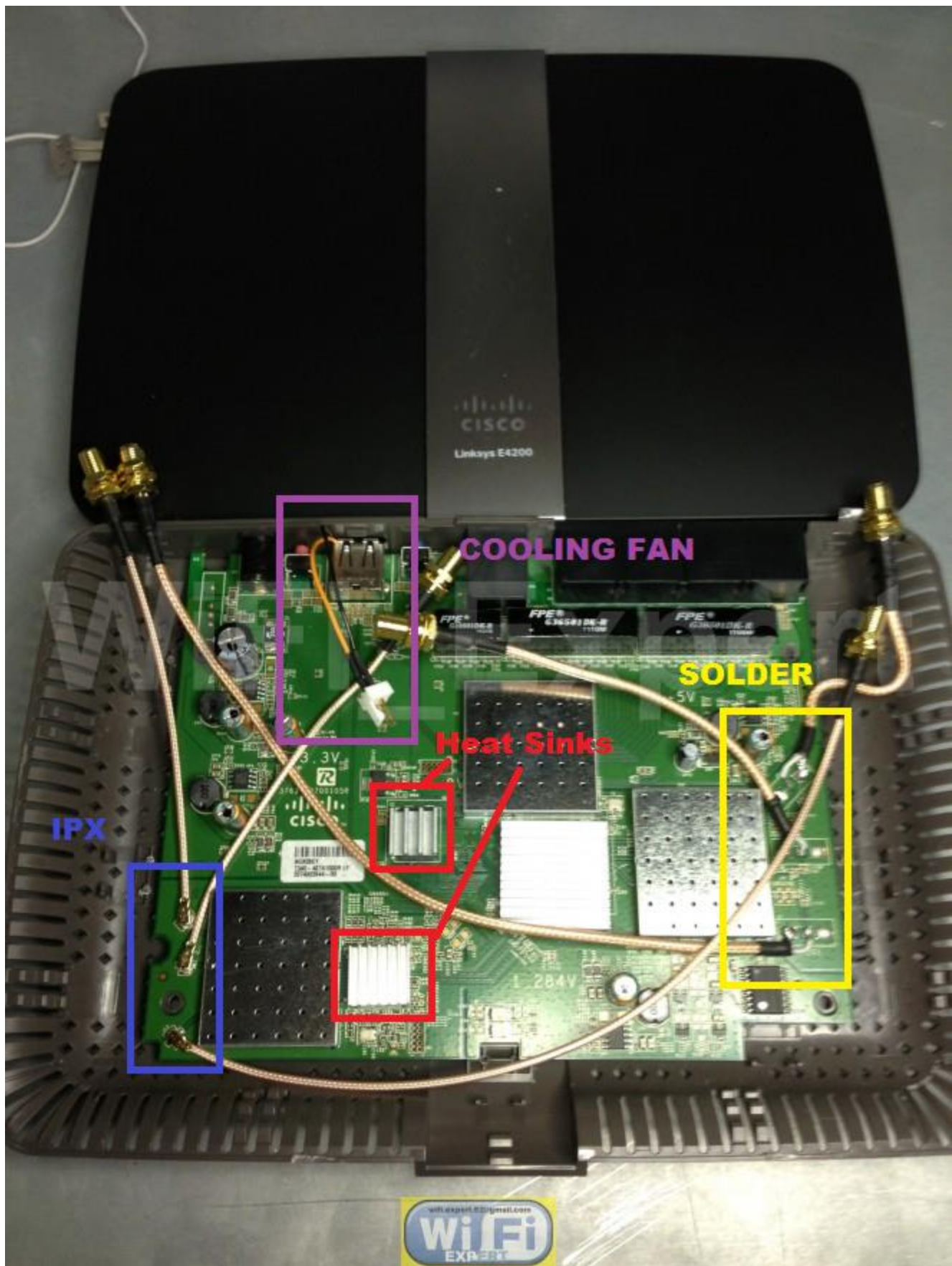
If you brake couple of clips don't worry about it, happens to the best of us.

3. Remove the UFL antenna connectors and stock antennas (use cutters to clip the plastic caps that hold antennas in place).

4. Detach the 3 stock UFL cables and get the board out the way of the drilling and unsolder the other 3. **Please note you need to be patient with this as Factory soldering is very strong and takes time to un solder. Heat up your soldering gun to 750 degrees and apply some additional solder on top to melt it faster. Be careful not to overheat the board when removing factory solder. It can damage your router permanently!**



5. Install the 2 heat sinks by applying a drop of crazy glue on to two chips. Prepare for soldering. Measure each cable first before cutting it (only for soldering cable). Follow the image bellow for the placement of each cable, you can substitute as you wish just make sure you don't cut the cable too short. Of course the shorter the cable the better. In the back of the board solder on the heat sink wires. You have 2 grounds (use either one).

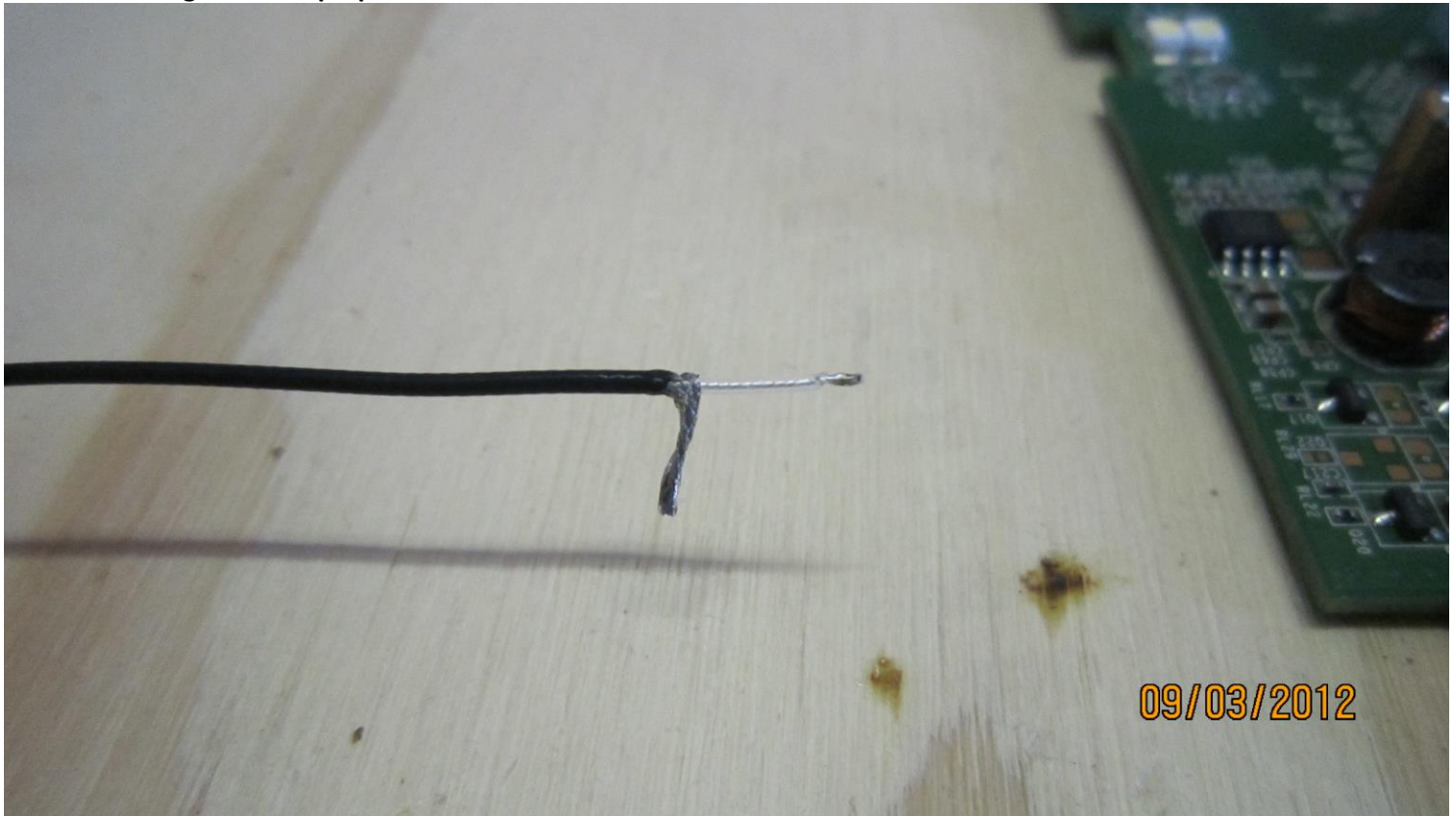




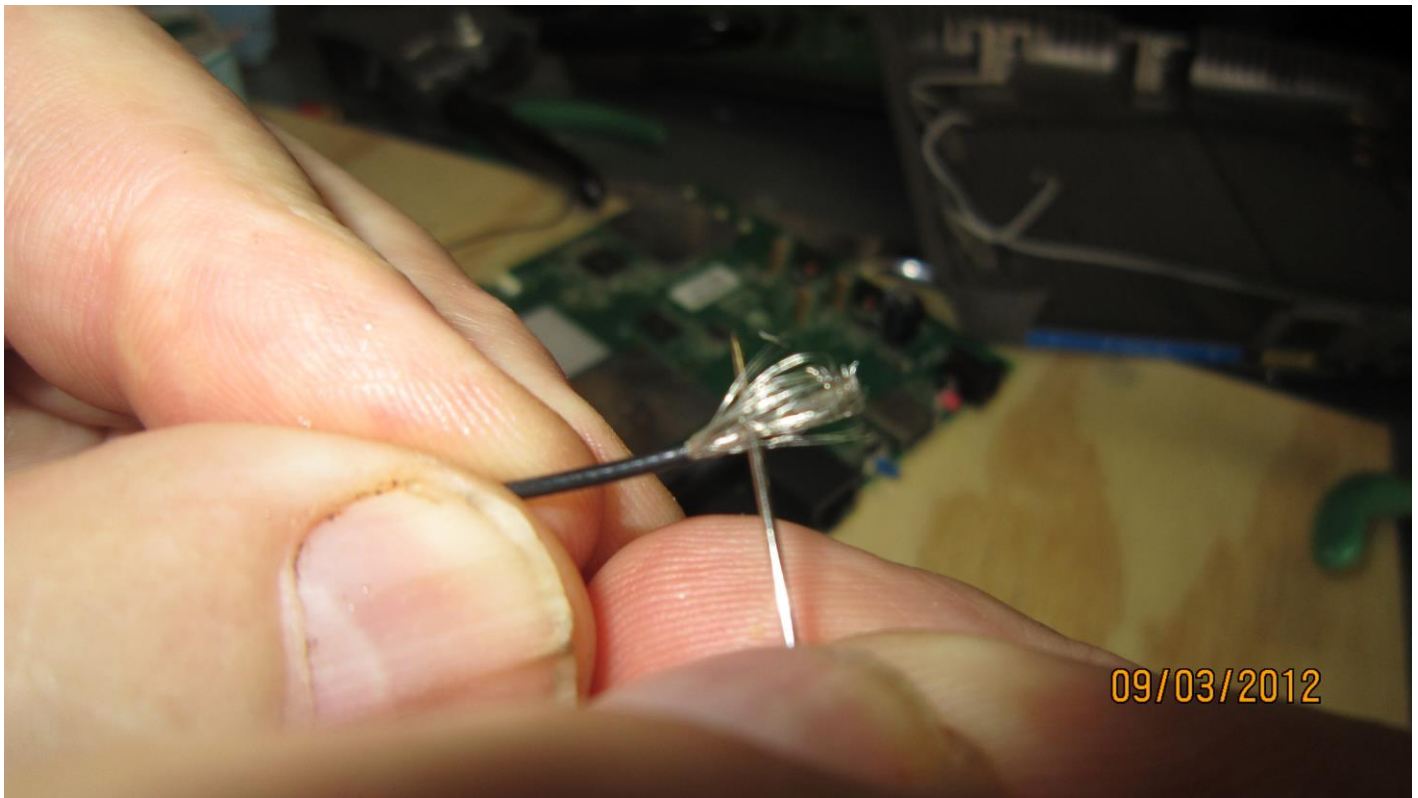
Above is the anatomy of the U.FL cable minus the foil (this is actually coax cable which is almost the same)

When soldering cable to the board you have 2 contact points, first point is for the outer conductor and 2nd is for inner conductor. Make sure the insulation is not broken (you can use the volt meter after completing the solder to confirm that)

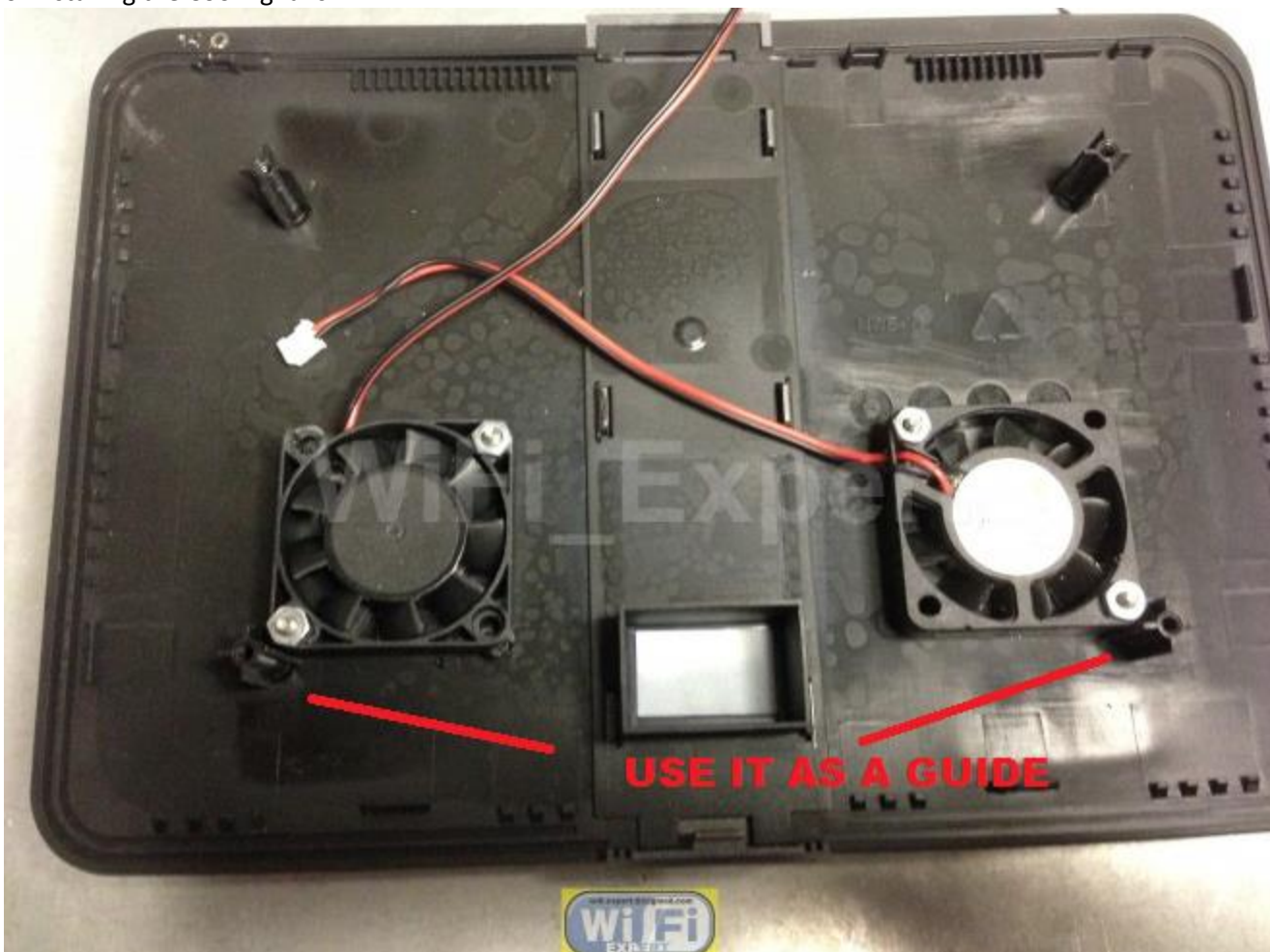
Here is the image of cable preparation:



Use a needle to separate the outer portion of cable see below:



6. Installing the Cooling fans.



Use the screw base as the guide for fan placement. Drill 4 holes to mount the fans. At this point you can decide if you want the fans inside or outside of the router. You can use one fan to suck air in and one to blow it out as shown on the picture above. You can use 5/16 drill bit to create vent wholes like the one shown below.



7. **Drilling the antenna mount holes.** Mark on the unit with a pen or whatever you want to use, where you want to drill (see image bellow where the antenna is mounted). Make sure measure it with main board in place to see how much space you need to clear it. If you drill too low you won't be able to insert the U.FI cables!

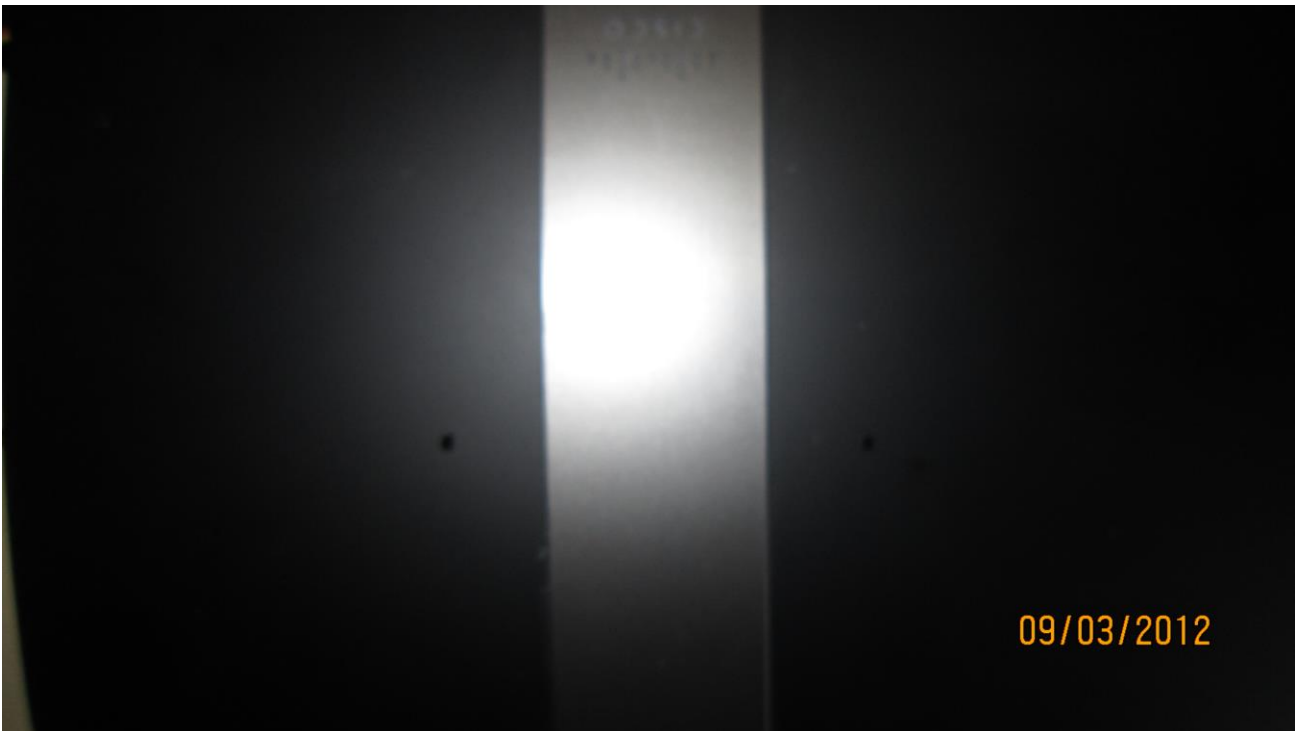


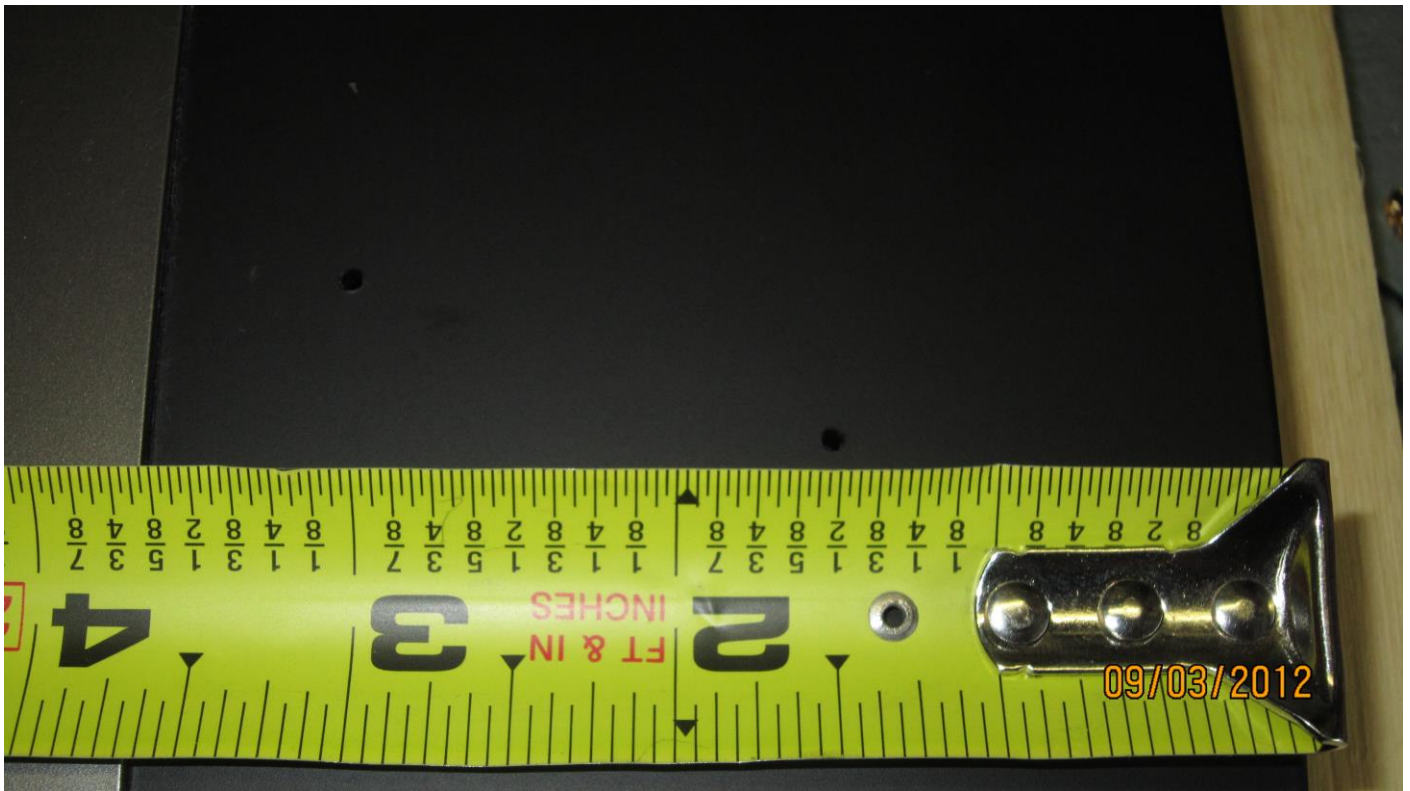
11. **Your mark should be just a fraction above center point so the RP-SMA adapter will clear the board. <<Very important IF YOU DRILL TOO LOW THE BOARD WON'T CLEAR**

12. Drill a smaller hole first with a smaller bit and then go ahead and finish the drilling with the 1/4" drill bit.

13. You may want to get someone to help you hold the unit in place as you drill. Hold the unit vertically on a solid service before drilling. Take your time. No hurry!

Here are images for the other 4 holes. Note the placement of the holes in order to clear internal components.







Outer holes (closer to the edges)

2 Inches from top

1.5 inches from the side

Inner holes (closer the center)

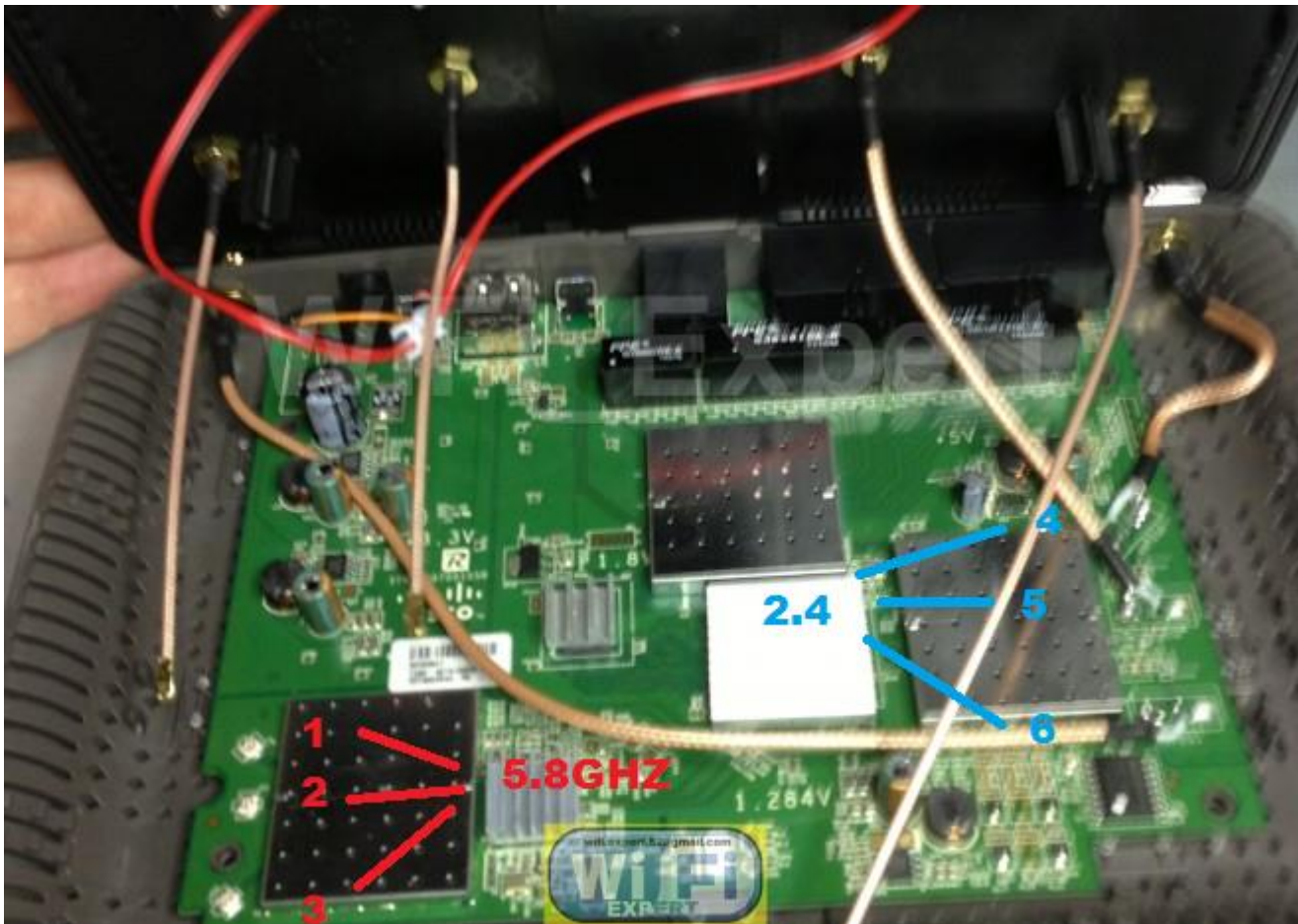
2 ¼ Inches from the top

3 Inches from the side



8. After drilling there will be a little plastic left around the inside hole that will need removing. Just use a kitchen knife or other small knife to remove the plastic.

9. It is best to drill the holes first and then solder the wires to make sure you cut it as short as possible. Bellow you can see all the wires in place.



- 1 = 5ghz TX/RX
- 2= 5ghz RX
- 3= 5ghz TX/RX
- 4=2.4ghz TX/RX
- 5=2.4ghz RX
- 6=2.4ghz TX/RX

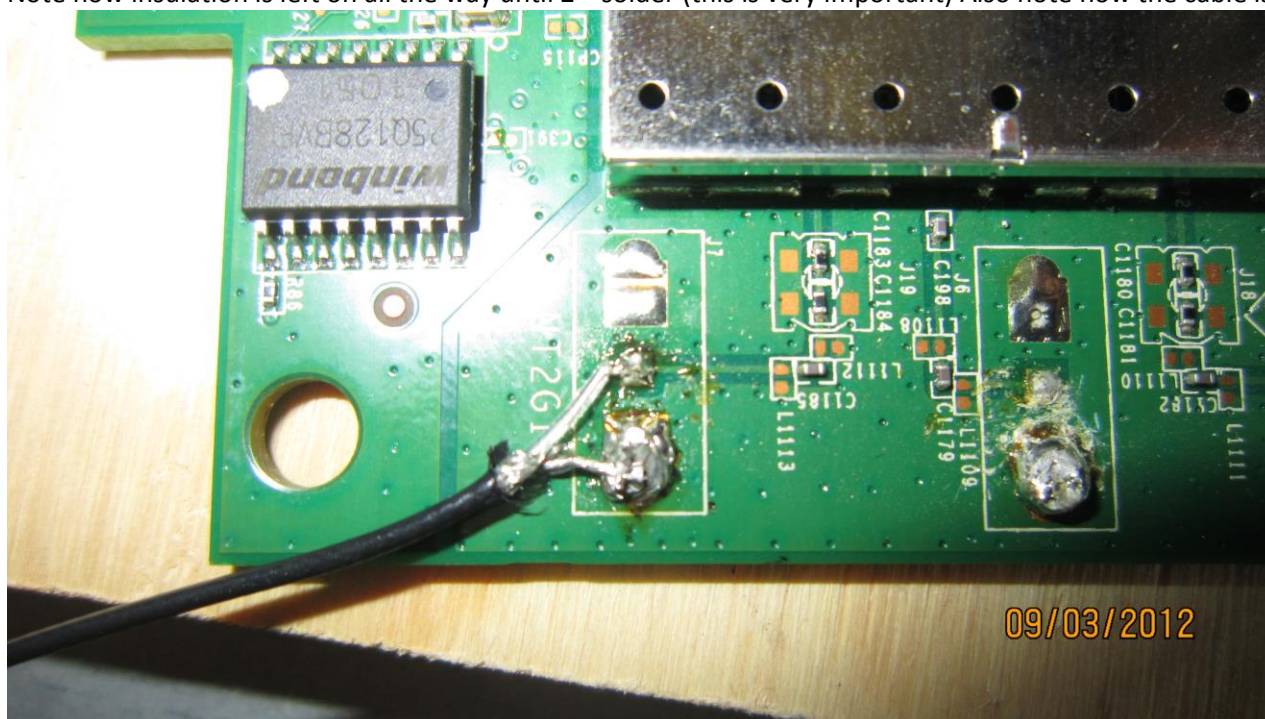
LOOK AT THE Numbers TO DETERMINE WHICH ANTENNA GOES WHERE.

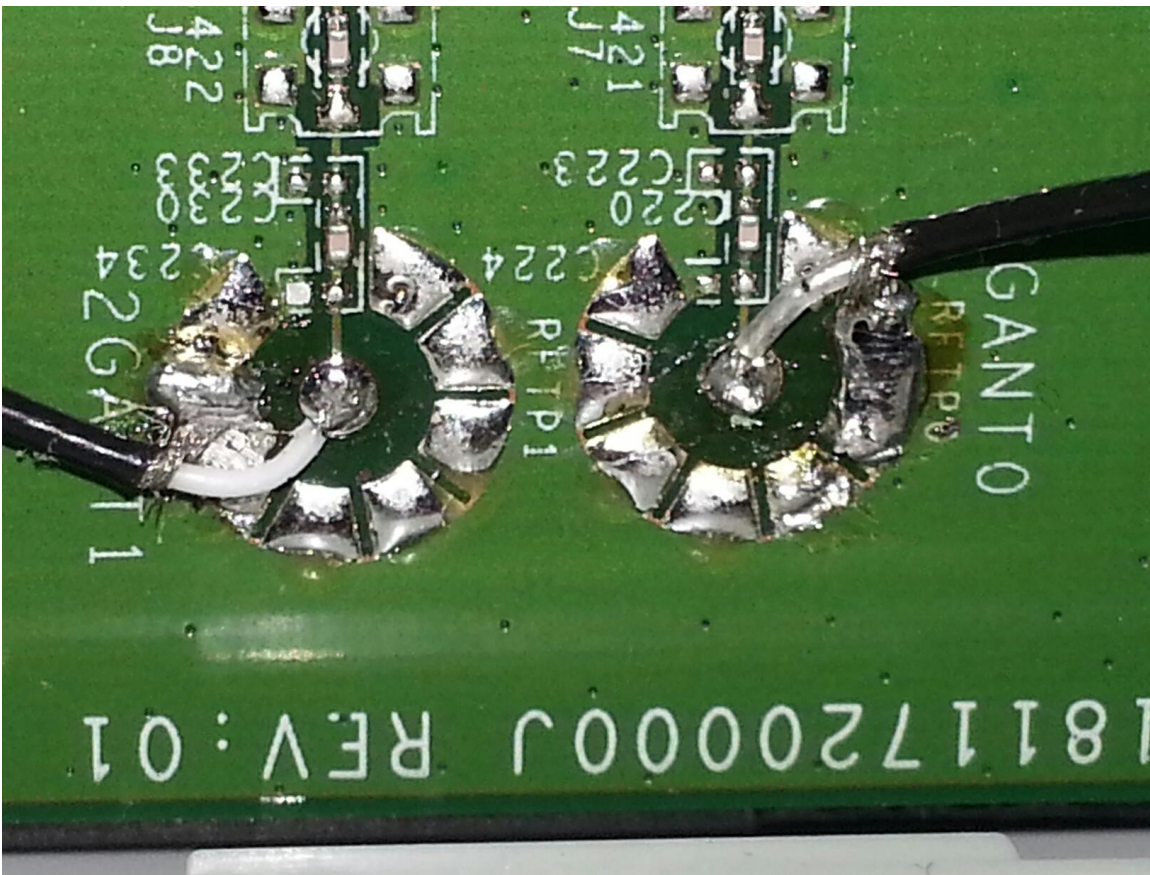
Also note you are supplied 2 longer wires (1 is plug in and 1 needs to be soldered)



Here is a good example of proper soldering (First image is e3000 and 2nd is a belkin)

Note how insulation is left on all the way until 2nd solder (this is very important) Also note how the cable is split into 2.





Take your time and make sure each solder is done properly, use the volt meter on each end of the wire to test the contact.

17. Attach the UFL cables and the RP-SMA Plugs and of course the Antennas and you are set to go.
You can remove all built in antennas as mentioned before.

Be sure the nut on the RP-SMA plug is nice and tight (use 8mm wrench and socket here), otherwise your antennas will flop.



NOTE: When putting the case back together make sure none of the cables get pinched with screws or case. You can secure them in place by using clear tape.

Enjoy

DD-WRT:

For optimal performance we recommend replacing the Linksys firmware with DD-WRT. This is a free third party firmware that will help turn your \$60 router into a powerful, highly configurable \$600 router.

http://www.dd-wrt.com/wiki/index.php/Linksys_E4200

This is for advance users only.

WiFi Radar Scanner:

<http://www.metageek.net/products/inssider/> (free download)

The WiFi Radar Scanner will show the signal strength of your router. We recommend using it before and after installing the antennas to see the improvement of the signal strength. It can also show you which antenna position and router location can give you the best signal. The closer to -0db the better the signal, and the closer to -100db the worse.

File	View	Help	Start GPS Athreos AR5803 Wireless Network Adapter Stop					
MAC Address	SSID	RSSI	Channel	Vendor	Privacy	Max Rate	Network Type	Last Seen
<input checked="" type="checkbox"/> 00:90:4B:32:CC:94	Motorola	-59	1	GenTek Technology Co., Ltd.	None	54	Infrastructure	6:47:34 PM
<input checked="" type="checkbox"/> 00:12:17:47:07:5B	574 Chatham	-52	1	Cisco-Linksys, LLC	WPA-TKIP	54	Infrastructure	6:47:25 PM
<input checked="" type="checkbox"/> 00:1F:33:F8:F0:69	AbVista1-Wireless	-80	2	Netgear Inc.	RSNA/CCMP	130 (N)	Infrastructure	6:47:34 PM
<input checked="" type="checkbox"/> 68:7F:74:09:17:0A	dd-wrt	-57	6	Cisco-Linksys, LLC	None	144 (N)	Infrastructure	6:47:34 PM
<input checked="" type="checkbox"/> 00:0D:8B:EC:F7:96	default	-79	6	D-Link Corporation	None	54	Infrastructure	6:47:34 PM
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<input checked="" type="checkbox"/> 00:1D:7E:10:27:97	CR1A	-92	11	Cisco-Linksys, LLC	WPA-TKIP	150 (N)	Infrastructure	6:47:05 PM
<input checked="" type="checkbox"/> 00:1C:F8:F8:54:60	7664 4233	-91	6	Motorola CHS	WEP	54	Infrastructure	6:47:30 PM
<input checked="" type="checkbox"/> CD:83:0A:02:74:41	ZWIRE287	-90	1	ZWire	WEP	54	Infrastructure	6:45:01 PM

