

Thank you for purchasing the 6 Antenna Mod Kit for your 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 \$60 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.



### **E3000 Antenna Installation Instructions:**

1. Soldering required
2. Open the unit. You can use a torque wrench (size T10) or the sharp end of a kitchen knife will work (we don't recommend this).



**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.**

**Please note don't try to separate the blue lid from the top portion of the case.**



3. Remove the UFL antenna connectors.



4. Now this part requires some patience.

5. Fitting your new UFL connectors into the little holes can take a little practice, and patience

6. So do this first: Practice removing the original UFL antenna cables and then putting them back on.

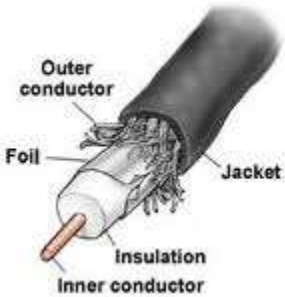
7. You will be attaching 3 UFL cables (see images below for reference)





8. Now you are ready to drill.

9. 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 unsolder. 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!



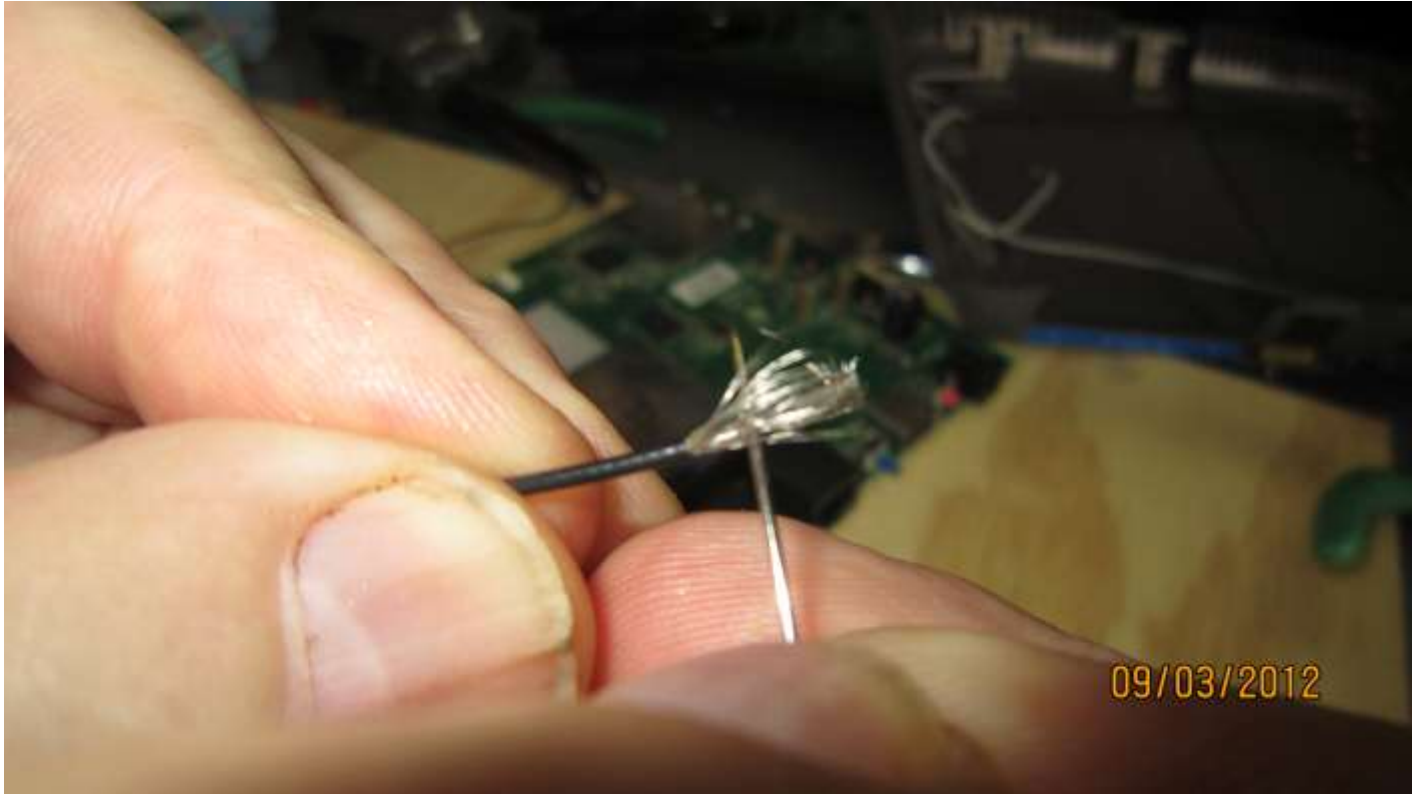
Above is the anatomy of the U.FL cable minus the foil (this is actually coax cable which is almost the same)

When soldering cable to the board you have 2 contact points, first point is for the outer conductor and 2<sup>nd</sup> 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:



10. Mark on the unit with a pen or whatever you want to use, where you want to drill (see image below 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 surface 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 the factory antennas. If you drill some plastic on a side not a big deal.



The 2 top side antennas can be a bit tricky when installing the cable, just be patient and you'll get it



The placement of the 2 center holes doesn't have to be exact but make sure to use picture below for reference to avoid hitting some components.

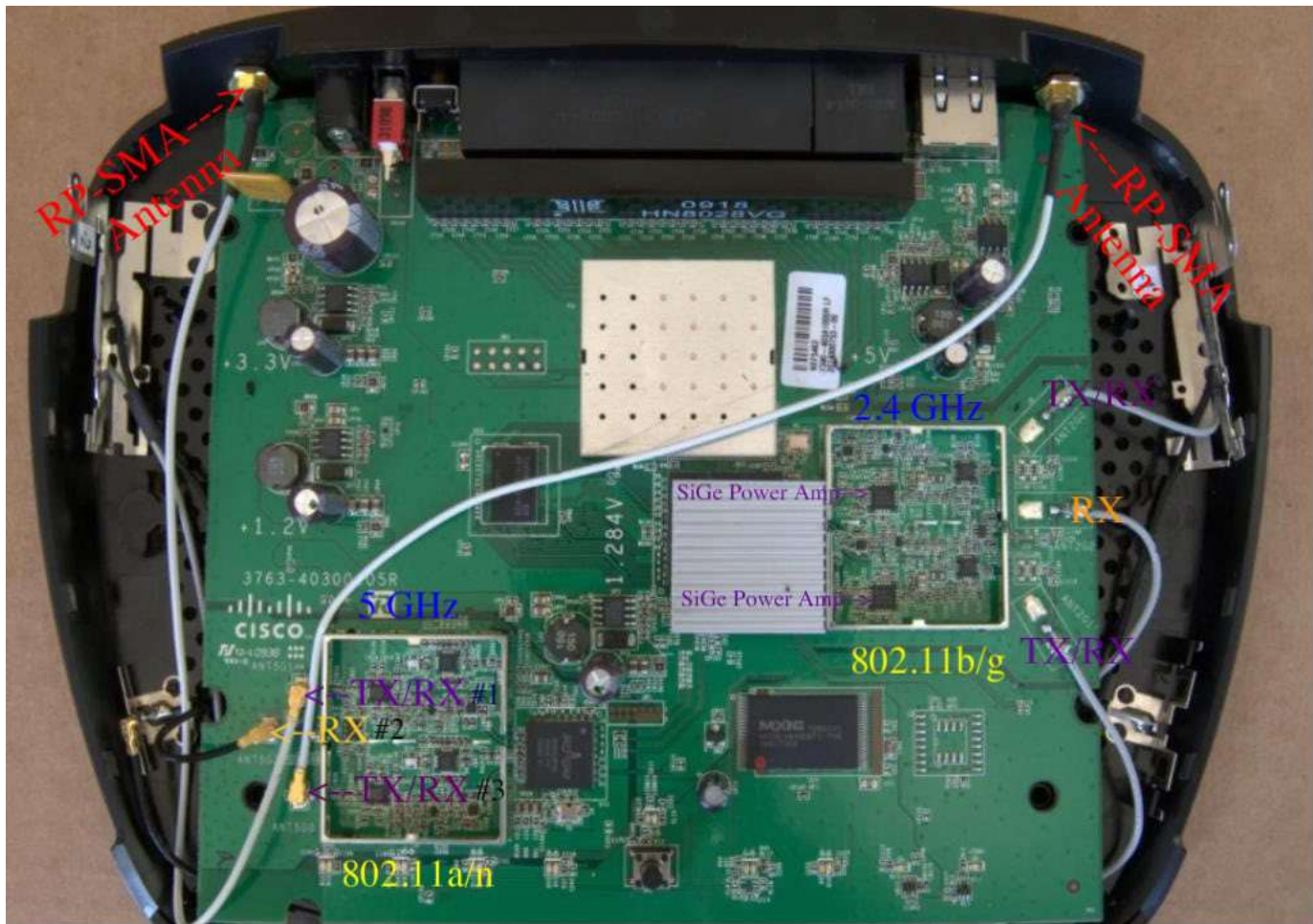


14. After drilling there will be a little plastic left around the inside hole that will need removing. Just use a kitchen knife or other small knife to remove the plastic.

15. Now comes the hard part, soldering the wires.

Prepare the wires as shown in the pictures above.

First you need to determine which wire goes where. Look below for the diagrams.  
BEFORE SOLDERING:



RP-SMA Antenna

RP-SMA Antenna

2.4 GHz

TX/RX

SiGe Power Amp

RX

SiGe Power Amp

802.11b/g

TX/RX

5 GHz

TX/RX #1

RX #2

TX/RX #3

802.11a/n

3763-40300-05R

CISCO

0918 HN8028VG

+2.84V

+3.3V

+1.2V

+5V



NOW: LOOK AT THE COLOR CODE 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 2<sup>nd</sup> is a belkin)  
Note how insulation is left on all the way until 2<sup>nd</sup> 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. Do not remove any built in antennas. Be sure the nut on the RP-SMA plug is nice and tight, 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\\_E3000](http://www.dd-wrt.com/wiki/index.php/Linksys_E3000)

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.

BSSID	Channel	Vendor	Privacy	Max Rate	Network Type	Last Seen
00:0C:85:00:00:00	36	Intel	None	54	Infrastructure	5:47:34 PM
00:13:87:17:17:17	1	Chatter	WPA,TKIP	54	Infrastructure	5:47:33 PM
00:1F:83:FB:FA:89	3	Apple Inc.	WPA2,CCMP	108.00	Infrastructure	5:47:34 PM
00:17:14:19:17:19	6	Apple	None	54	Infrastructure	5:47:34 PM
00:14:35:00:17:19	6	Apple	None	54	Infrastructure	5:47:34 PM
00:17:14:19:17:19	11	Apple	WPA2,CCMP	108.00	Infrastructure	5:47:34 PM
00:17:14:19:17:19	11	Apple	None	54	Infrastructure	5:47:34 PM
00:0C:85:00:00:00	11	U.S. Robotics Inc.	WPA2,CCMP	54	Infrastructure	5:47:34 PM
00:13:87:17:17:17	6	Chatter	WEP	54	Infrastructure	5:47:34 PM
00:13:87:17:17:17	11	Chatter	WPA,TKIP	108.00	Infrastructure	5:47:33 PM
00:14:35:00:17:19	6	Apple	WEP	54	Infrastructure	5:47:33 PM
00:0C:85:00:00:00	1	Intel	WEP	54	Infrastructure	5:48:01 PM

