

## Before modification

Here you can see my Fritz!Box in yesterday's setup. As you see, the antenna is not positioned in a good situation. Lots of obstacles, and conducting materials in the near surroundings of the antenna. You cannot remove the standard antenna because of regulations for the manufacturer. Too bad, isn't it?



First, we remove all cabling. Might be a good idea to document what ethernet cable is sitting where, so you can hook it up easily after the modification. A simple photo will do just fine.



This is what your Fritz!Box looks like: soon it will be history! Note the new pigtail in front of the Fritz!Box.



Now please continue reading on the "Add a new antenna connector" page!

## Add a new antenna connector to your FRITZ!Box

This modification is done on a FRITZ!Box Fon WLAN 7170, but it works for other models too!

In a few easy steps I show you how I performed this on my Fritz!Box. It doubled the W-LAN field strength in my living room. Also, it helps you keeping your W-LAN signals away from places where you don't need (or want) them, and improve security! Together with the radio output parameters in your Fritz!Box you can deliver the right amount of W-Lan field strength where you need it, and no more.



These are the new parts: antenna, coax cable, and modification kit

The antenna is a cavity resonator (paint can), built by Johannes Falk. Affordable, and very well made. It is often seen on parabolic prime focus antenna's. It has about 9dBi gain. Also, it directs the W-LAN signal in your direction of choice. If you choose another antenna, make sure you get the right connectors, male or female. Most antenna's use N connectors, which are much larger, and a bit more difficult to solder to your cable. If you doubt your soldering skills, just buy a ready made cable with connectors fitted.

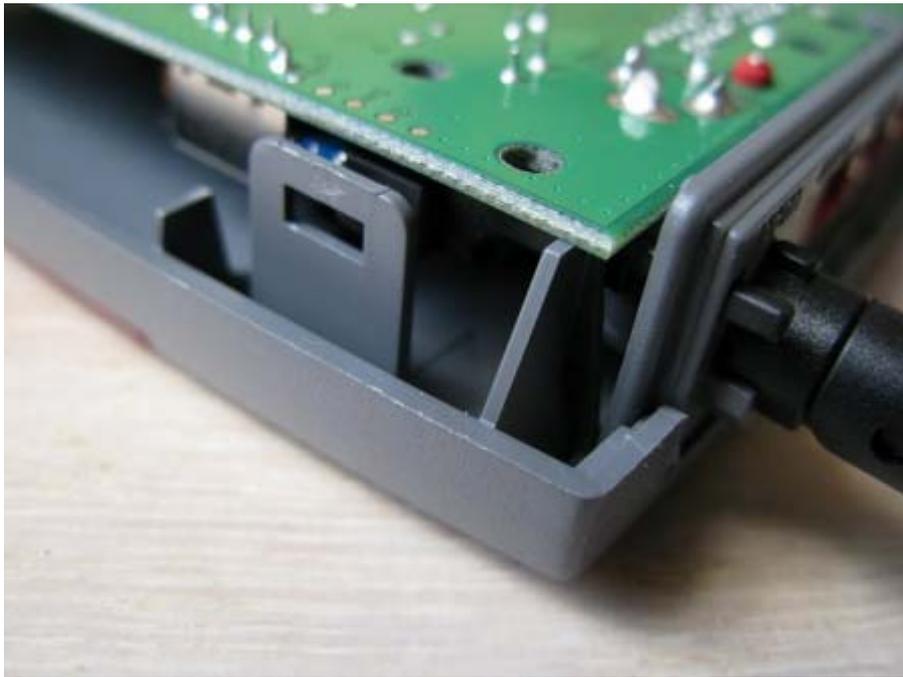


Take a look into the antenna cavity. The metal pin is the actual antenna. With the screw the antenna is tuned to the right frequency. Johannes provides measuring reports for each individual antenna. The can around the antenna put the signals in the right direction and adds to the antenna gain. With the screwholes in the backside you can choose either for horizontal or vertical polarisation.

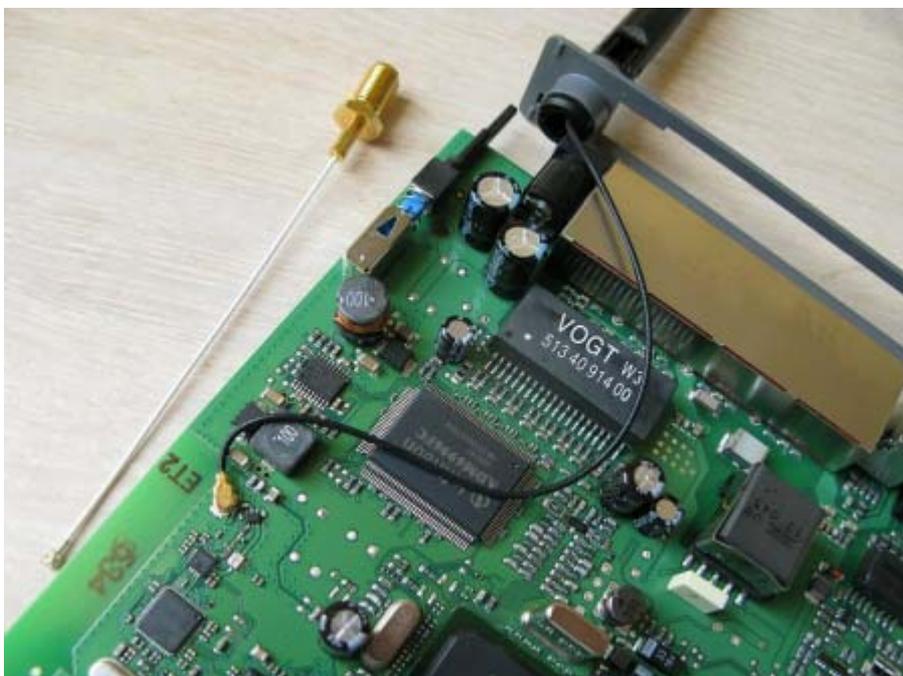
### **Stop!**

Before you do anything: log into your Fritz!Box and check the relative signal strength of your favourite W-Lan device. (Notebook, IP camera, whatever) It gives you a quality percentage and throughput. Write this down, and see what improvement you've made after the modification! I went from 45% to 85% in most cases. Everything depends on the distance, physical materials of your house, obstructions, etc. But, with added antenna gain, you can make a BIG difference!

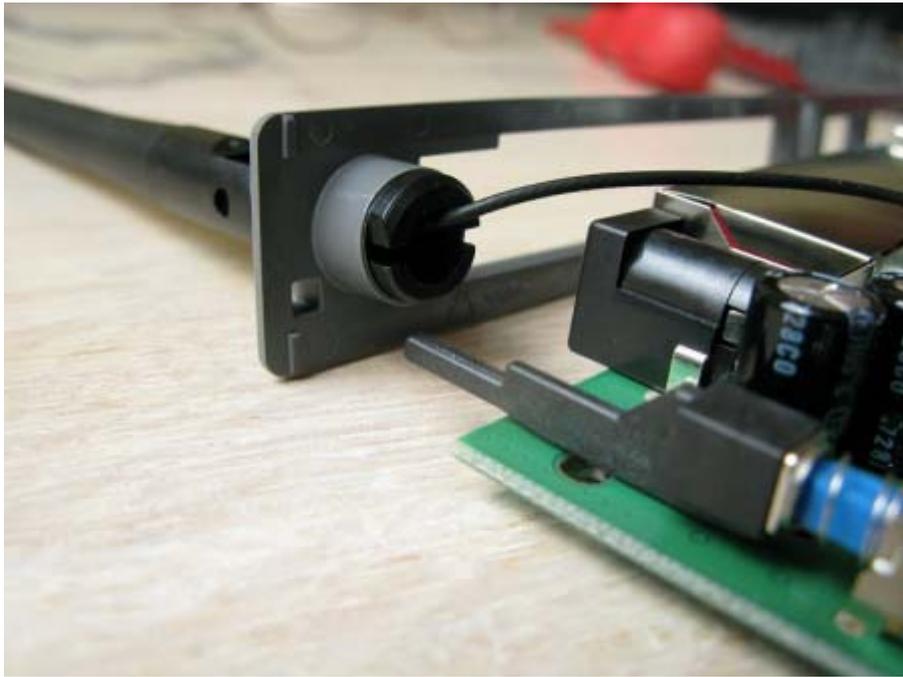
## The modification



Let's start with the actual modification. It is very easy to open the Fritz!Box. There are four clips, no screws. With a small screwdriver just push the clips sideways. Be careful. If you perform the right movement, the enclosure opens very smoothly. Also, closing it again is just as simple.



After you open the case, this is what you see. The backplate easily comes loose after you open the enclosure. The antenna sits in a plastic tube in the rear side. The new chassis-connector and cable combo lies beside the case.



Now, remove the antenna from the rear panel. Again, that is very simple. Just squeeze the halves in the antenna foot a bit, and slide it out. Done! The Fritz!Box is a very clever and service friendly designed machine.



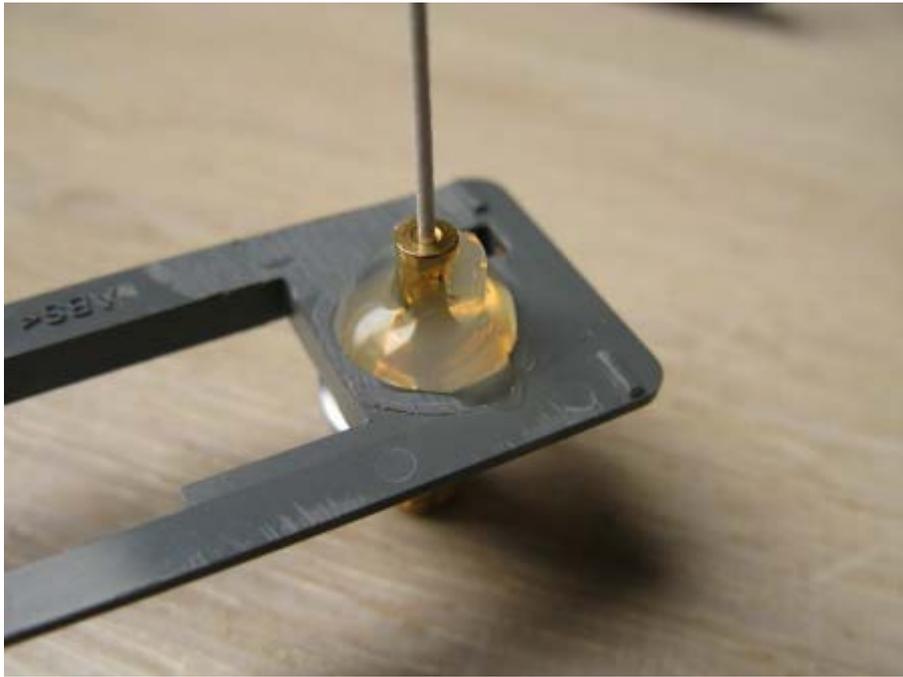
Now, carefully remove the thin coax connector from the printboard. Now, the old fixed antenna is free and can be removed.



Take a close look at the rear panel. Old antenna is removed. You need to modify the plastic rear panel, in order to place the new SMA antenna connector. The bus, in which the old antenna was held, needs to be cleared!



With a small sharp knife and a file you can smooth up the backpanel. Be very careful if you use a heated knife. I had to glue the new SMA connector in. The backplate was too thick to fix the new connector, and leave enough thread sticking out for a secure connection. Even with thin metal rings, the combination with washers and locknut was too thick.



After cooling down, you can click the new printconnector in place on the prinboard.

Putting everything together again is fairly simple. Mind the little stick that protrudes the backpanel just beside the new connector.



Your Fritz!Box should look like this in this stage!



Detailed view of inside backpanel with new connector.





Now close the enclosure again, and hook up a W-LAN antenna of your choice!

Enjoy!

Please remember: this modification is done entirely on your own risk!

<http://fritzbox.wordpress.com/>

## After the modification: practical set-up

Now it's time to put your Fritz!Box back to work!

Hookup your ethernet and telephone cables. First attach the new W-LAN antenna and cable before you apply power to the Fritz!Box.

Like any transmitter: using it without an antenna is not a good idea, you might damage the transmit circuitry inside.



As you can see, there are four mounting holes on the backside of the antenna. This gives you the possibility to radiate your W-LAN signals either horizontally or vertically. If you use only one screw in the bracket, you can play with antenna pointing direction for the best results!

Just experiment a bit to get the best results.

### **Important!**

Every antenna has an optimum working frequency. My antenna performed best at W-LAN channel 7. There was about 10% difference between best and worst readings.

So, interesting enough to play a bit with the channel of your choice!



Here is the new situation! Bottom right you see the Fritz!Box with its new antenna cable. The antenna now has a much better and higher position, radiates in the right direction, and the radiated energy is not absorbed by its surrounding metals!

**Results: a great W-LAN signal in the living room and surrounding quarters!**

An affordable easy modification with excellent results!

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