

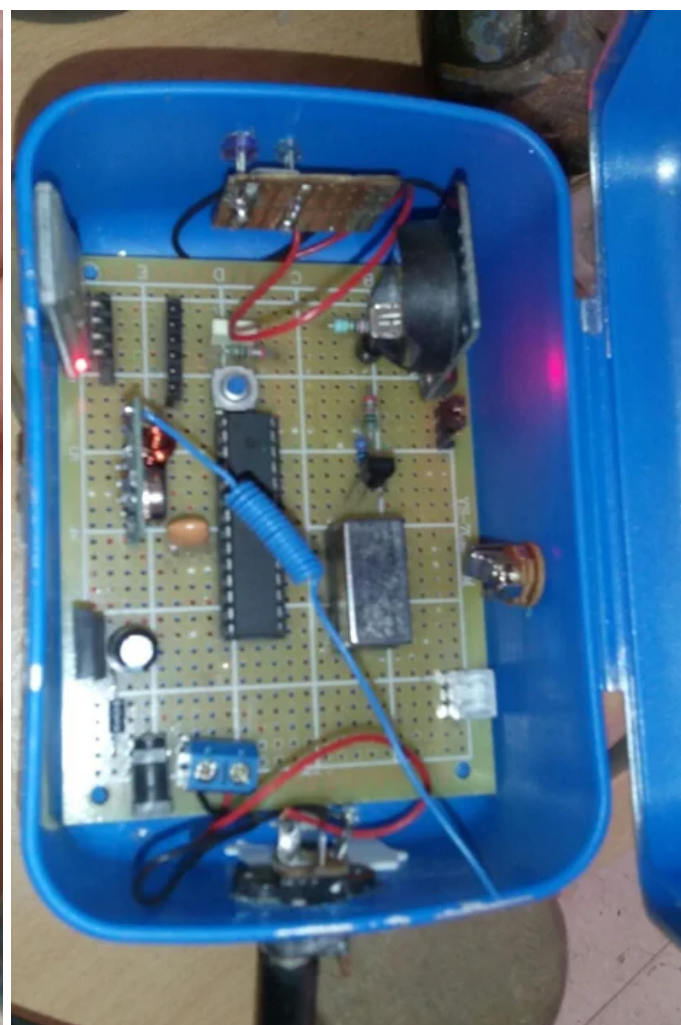
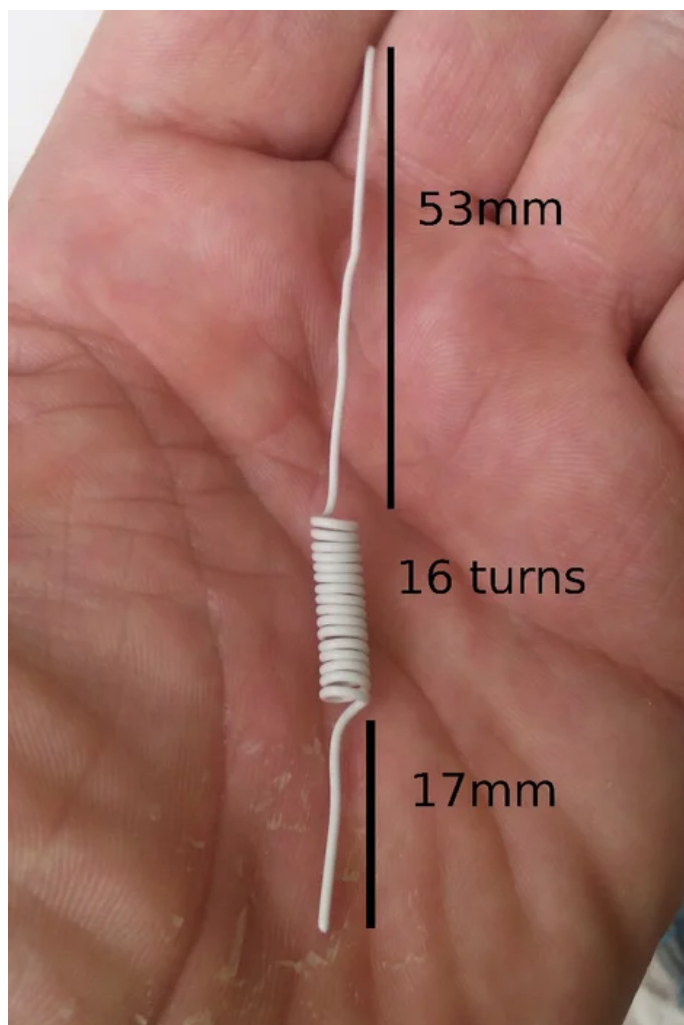
AUTODESK
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433 MHz Coil Loaded Antenna

By [diy_bloke](#) in [CircuitsRemote Control](#)



Introduction: 433 MHz Coil Loaded Antenna



In my 433 MHz projects I have been using a cheap (0.70 cnts) pair of Tx/Rx modules. I have mostly used the transmitter and that is actually fairly OK with just a simple $1/4$ lambda antenna, but is open for improvement

The receiver however is a bit crappy: without antenna the reach is maybe no further than a meter, but even with a $1/4$ lambda antenna it is marginally more, even with free Line of Sight.

For any serious project that involved receiving data it seemed I needed the much better (and more expensive) RXB8 receiver. But as said, also the reach of the transmitter could use a bit of improvement.

However, when mining the internet for a coil antenna (trying to improve on the lengthy 17.2 cm stick antenna) I came across a design of Ben Schueler, apparently once published in *elektor*

magazine. A reference to [Ben's pdf \(back up\)](#) would suffice to build it, but so is my picture and I can add my experience with it as well.

It is a so called coil loaded design consisting of 0.6mm wire wrapped around a 2.5mm core. The picture gives a clear description: a length of 25 cm wire should be enough. At the base it is 17 mm long. Then goes into 16 turns over a 2.5 mm diameter core (Ben advises to use 1.5mm² black installation wire for this. I just used a screwdriver)

The results with this antenna are very good. The distance (with the cheap receiver as well as the transmitter) that can be covered easily goes to 25 m with line of sight, but also in-house the distance will be increased reaching other rooms with concrete walls in between, were earlier 3 meters with line of sight would be pushing the limits already.

I am not the only one with this experience. Many people confirm to me that it dramatically increased the range of the cheap Tx/Rx pair, read the comments!