

Drone Radio Antennas

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3 Exercises

3.1 Antenna construction

The final dipole antenna we constructed can be seen in figure 1.

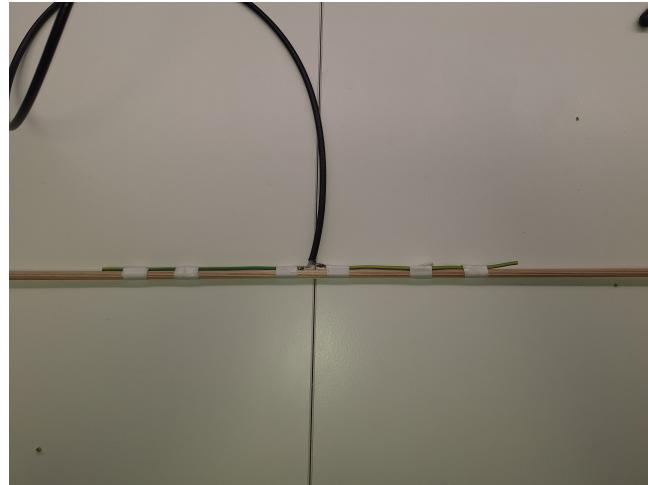


Figure 1: Our constructed dipole antenna

3.2 Antenna tuning

The results of tuning the antenna can be seen in figure 2.

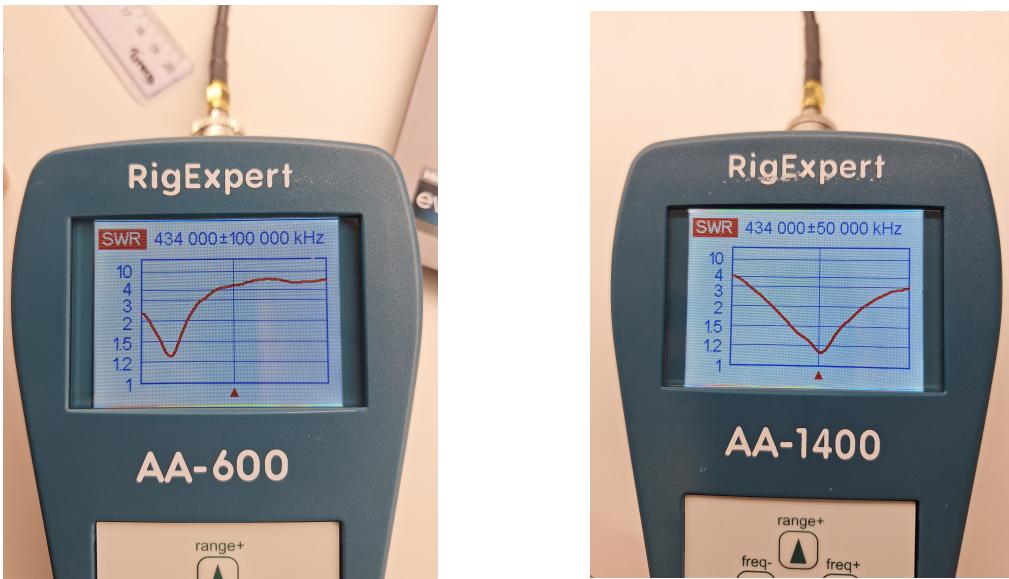


Figure 2: The SWR before and after tuning

3.3 Antenna near field obstacles

We initially missed this part of the assignment, and our antenna had broken by the time we discovered it. As a result, we decided to skip this section.

3.4 Range test

The results from the field test can be seen in figure 3.

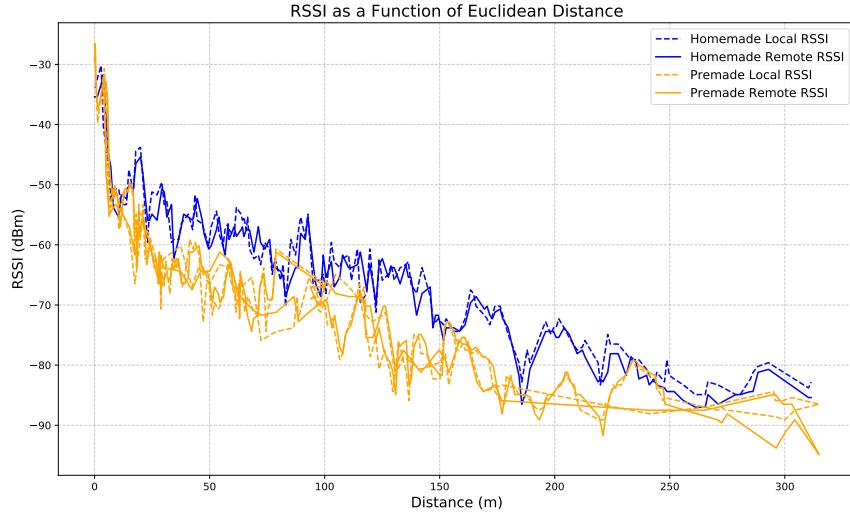


Figure 3: The local and remote RSSI for our own antenna and the provided antenna.

Note that the gain our homemade antenna is generally higher than for the provided antenna, which means that we could go fly further as a drone while maintaining a good signal. On the distance from 0 to 300 m, our antenna had an average remote RSSI of -66.68 dBm and the provided antenna had an average of -70.59 dBm. Therefore, in average our antenna performed about 5.8 % better.