

VA7FI's AREDN Setup

The goal is for my **computers** to connect to other **AREDN nodes**. Currently, I achieve this two different ways:

1. Through an internet tunnel (which is not really radio)
2. Via the 5.8 GHz band.

I also have my system running off of 12 V batteries so it (and my internet connection) continues to work during power outages.



July 1, 2021

I installed a **Mikrotik LDF-5** (the n model, **not** the ac model) on a used TELUS satellite TV dish.

- The first task was to mount the LDF-5 to the dish roughly where the old receiver was. Unfortunately, the arm and the LDF-5 mounting bracket were both a bit too short so the LDF-5 was too close to the dish, and it was too low:



- So I bolted a second arm on top of the first to raise the LDF-5 and move it a bit further away:



- Initially, the dish was mounted on a post with a 45° angle, but after field testing it, it was found to be a bit much (an angle of 20° would be ideal, but I used a vertical post later.



July 4, 2021 Test

A few days later, Chris (VE7TOP) and I made a successful connection on 5.860 GHz (Ch. 172) between Nanaimo (49.227263, -123.975836) and Roberts Creek (49.45465, -123.64199): a distance of 35 km.



- Here's my setup and the view from the dish. The red circle marks the spot where Chris is. The **log periodic** was so Chris and I could talk on VHF to perform the adjustments.



- Here are my settings:



- For the first test, Chris used a dish ( : add details). After adjusting the dish's

directions and elevations, the best signal strength I received was above -60dBm (which is pretty impressive!) with an SNR of over 35dB:



- For the second test, Chris switched to a 120° sector antenna (: add details). Here, the best signal strength I received was a bit above 80dBm with with an SNR of about 17dB:



These two tests show that it is possible to establish a connection between Nanaimo and the Sunshine Coast. The 120° sector antenna might be pushing it a little bit, but a 60° sector antenna would be enough to cover Gibsons through Halfmoon Bay and would offer an additional 4dB of gain over the 120° sector antenna.



Aug 1, 2021

Today, I managed to install my AREDN dish up the tree, run the CAT5 to the house, and connect it to the hAP. I started working at 7:45 this morning and finished around 5pm (after climbing up and down three times).

I aimed the dish roughly towards Mount Benson (222°), but unfortunately, I didn't manage to make a connection to the node there.



Oct 31, 2021

Yesterday, the folks on the Island went back to Mount Benson and adjusted the tilt on their antennas. After the adjustment, I started getting an intermittent signal. So today, I went back up the tree and used that signal to fine-tune the adjustment of my dish and managed to squeeze an extra 5-10 dB! Here's a graph of the signal before, during, and after the adjustment:



Unfortunately, it looks like I can hear the Mount Benson node 6-7 dB more strongly than it can hear me. I'm transmitting at 25 dBm (≈ 315 mW). I don't know what their node's power is, but I'm guessing it's a little more than mine.



Here's the status report pages for both nodes. It looks like I might be able to reach 1.6 mbps, which is pretty impressive compared to VHF packet, but still pretty slow compared to the other stations.

