

Figure 1: Ultra Wide Band Antenna Setup

RF Ultra Wide Band Antenna Frequency Range

I previously described a new Ultra Wide Band Antenna for use from 750 MHz to 6 GHz. However, I only showed a network analyzer VSWR under 2.0 from 750 MHz out to 3 GHz. Many people wanted some evidence that it works beyond 3 GHz. They also wanted to know about power handling with frequency and could it be used for both Rx and Tx.

Qspectrum displays the output from the HackRF One SDR as shown in Figure 1. A screen capture of this spectrum is shown in Figure 2 in more detail. Please note that there are some very strong signals beyond 3 GHz out to nearly 6 GHz where the graph ends.

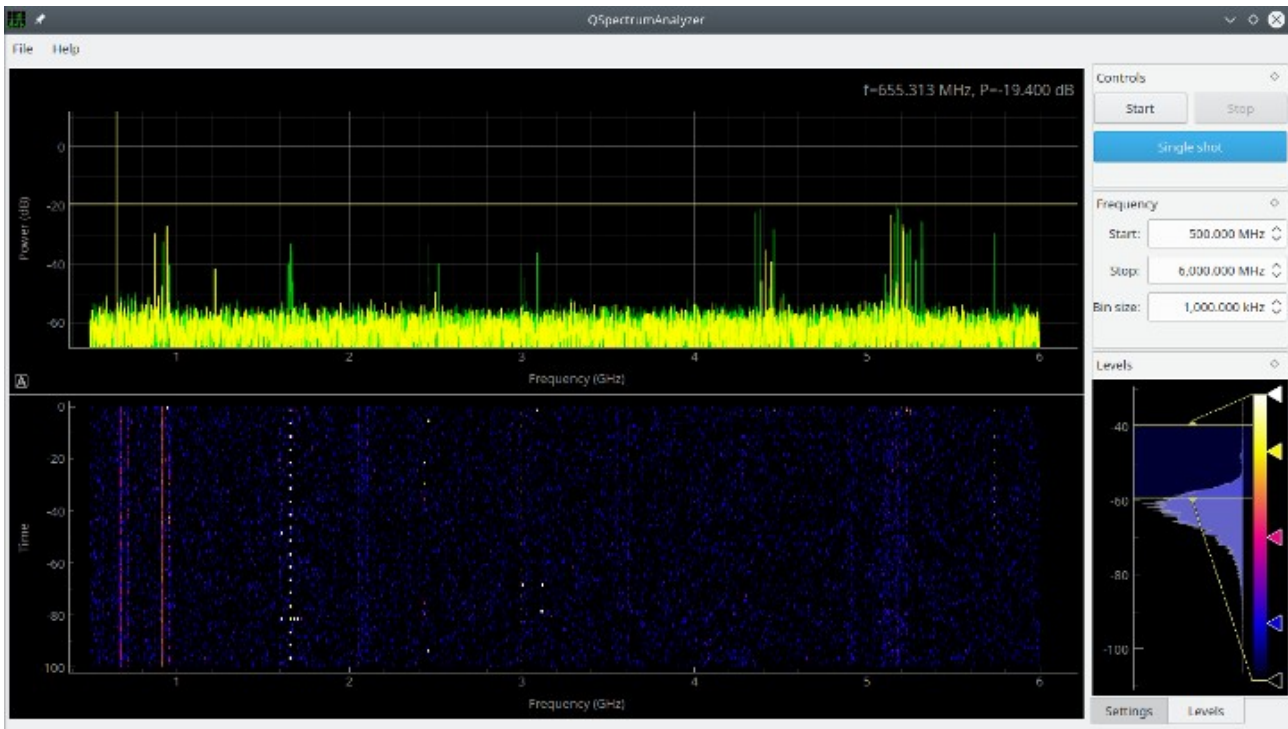


Figure 2: HackRF Spectrum from 500 MHz to 6 Ghz using the antenna

I frequently TX using the HackRF or BladeRF using one antenna. I Rx on another SDR, such as the RTL-SDR with another identical antenna. I usually need at least two antennas for most of my projects. The power with frequency can be seen in Figure 3 following the SMA curve.

It works very well with WiFi, Bluetooth, Zigbee and other systems within the bandwidth as well as cell phones and other WLAN devices. I use them with Ubertooth One and a UD100 Bluetooth Adapter. The Bluetooth range with this setup is awesome.

The main project for this antenna is on KickStarter at:

<https://www.kickstarter.com/projects/jrmagnetics/rf-ultra-wide-band-antenna?ref=discovery&term=rf%20antenna>

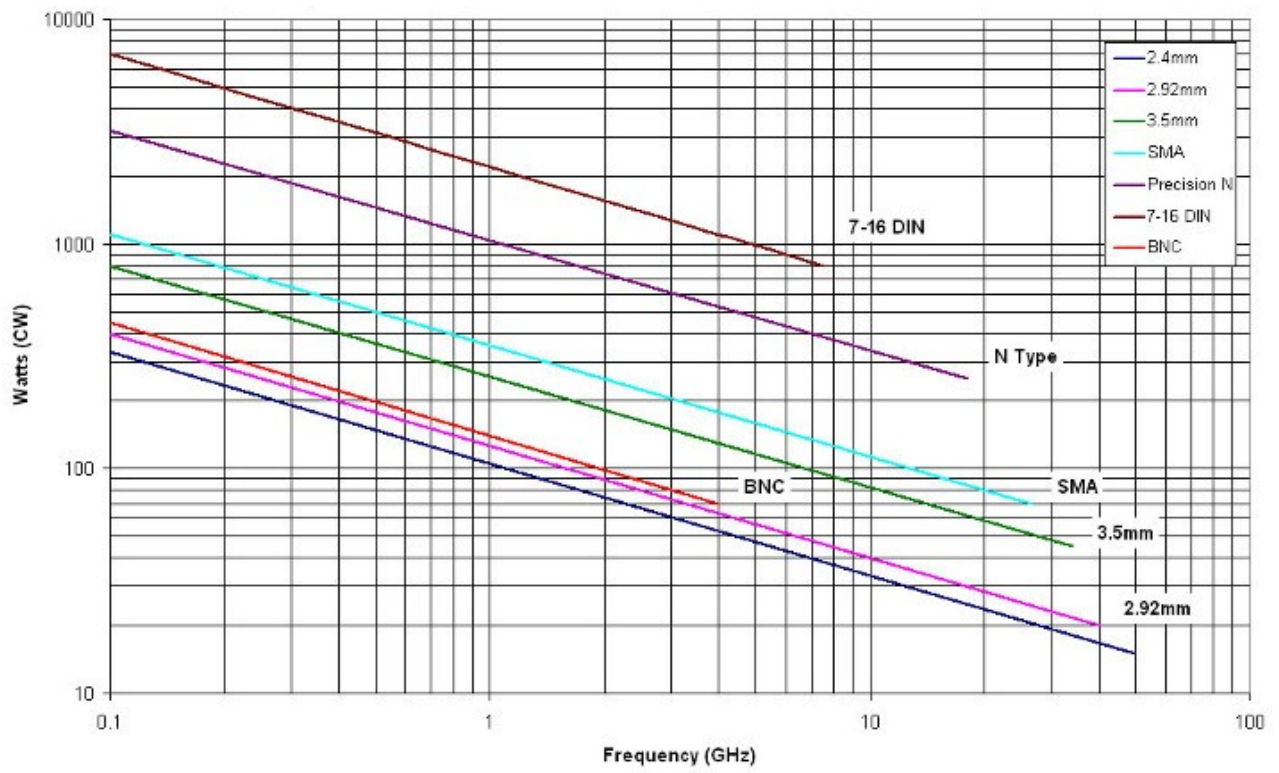


Figure 3: SMA Connector Power versus Frequency