

Darwin Amateur Radio Club

80 Meter Shortened Dipole Antenna

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With the sunspot activity declining and all indications suggesting activity will continue to be low for the next few years it appears the best HF frequency for Local NT coverage will be 80 Meters. Many of us on suburban blocks however are space challenged when it comes to erecting a full size 80 Meter dipole.

The ARRL Antenna book has a section on Shortened dipoles with a chart for determining the approximate inductance values for off center loaded dipoles.

My back yard can easily fit a 40 meter dipole so I decided to construct a Half size 80 meter loaded dipole. The position of placement of the loading coil will play a part in the overall efficiency of the shortened antenna. If the coil is placed too close to the feed point the loading coil will carry high current and losses will be high, if it is placed too far out the required inductance to resonate the antenna will be very large and losses due to low Q will result. I decided to place the coils at 65% of the length and the ARRL Table suggested a coil having a reactance of about 1500 ohms this translates to a coil with an inductance of 67UH. I achieved this by winding 55 turns of 1.5 mm enameled wire onto a 150 mm length of 40mm PVC water pipe. The outside diameter of the 40mm pipe is actually about 47mm.

This Diagram I borrowed from VK3CAE website <http://www.qsl.net/vk3jeg/loadpole.html>

Update Sept 2017: Sorry This Link now seems to be broken, however more information on loading coils and inductance calculators can be found here <https://m0ukd.com/calculators/loaded-quarter-wave-antenna-inductance-calculator/>

Take a look at all of M0UKD calculators.

I used the same dimensions as VK3CAE 6.4 meters to the loading coil and adjusted the outer section (approximately 3.4 meters) to resonate on our local NET frequency of 3.555 MHz.. the resultant antenna had an almost perfect match at 3.555 MHz with a 2:1 Bandwidth of 67Khz.

If you find you have more or less space use the Table in the ARRL Antenna book to customize your version of the shortened dipole.

Hope to see you on 80 meters in the near future.

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