

13cms Dipole and Reflector

By Dick VK3ABK

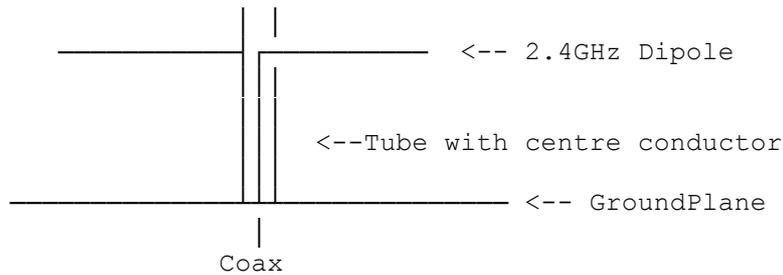
(Tech list on Apr 07)

Roy, ZS6MI, has asked for details of a 2.4GHz 'antennae' (!)

I take this as a challenge, but with some reservation.

Hey, Roy. Insects have 'antennae', Hams have 'antennas'!

But just to stay friends, here is a suggestion for your flat plate antenna.



A dipole for 2.4GHz ($300/2400 \times .95$ divided by 2 = 5.9 cm) can be made from any stiff copper wire, one half soldered to a copper or brass tube, say 10mm OD which would be about 8mm ID, and the other half soldered to a centre coaxial conductor. This is done down the end of the 10mm tube, which is big enough for a 60 Watt soldering iron. The 8mm ID tube and a 3.5mm centre conductor, near enough to 1/8 inch welding rod, would give you a 50 Ohm transmission line ($Z = 138 \log D/d$) near enough for the dipole.

This forms a 'stub fed' dipole (see the recent coaxial dipole bulletins) at one quarter wave (half the dipole dimension will do) from the ground plane, or plate, of any large dimension. The advantages of this construction are, an electrically and mechanically solid construction, with an inbuilt support for the dipole that is 'electrically ground' at the ground plane support. The antenna is easily water-proofed, or can be mounted inside a plastic cake box or similar.

I just worked this out as an exercise to show how you can design an antenna from 'principles', rather than looking up texts and many formulas. (formulae?!) You could be more fundamental (and domestic) and you just want to see if WIFI can be received, by using a toilet roll tube wound and spaced with 3 or 4 turns of wire to form a 2.4 GHz helix (just the right diameter for a full wave) and mount this alone or on a ground plane.

Many ways to spend a cold night playing with microwave antennas, and using an array of dipoles mounted on a 'flat plate' is a good way to go.

Hope this helps.

73. Dick. VK3ABK.

Y don't U send an interesting bul?

73 de John G8MNY @ GB7CIP