

ELECTRONICS

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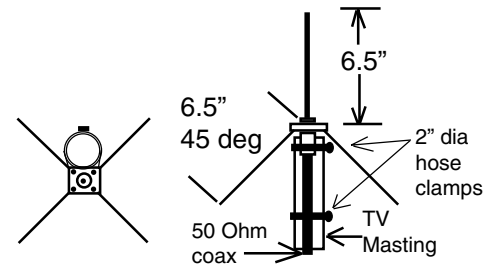
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Ground Plane Antenna You Can Build

The Ground Plane vertical omni directional antenna is very easy to build with just some #12 solid copper electrical wire and a UG58 type N chassis jack. Gain is about 2 dBd 15 degrees above the horizon. The drop off on the horizon is only a dB or so and insignificant. By using the very flexible and coated solid copper electrical wire, the ground plane is easily transported and set up for R/C ATV reception, transmitting at public service events and demos where omni directional coverage is desired.

Use Belden 8214 coax and UG21 type N plug with Teflon dielectric at the ground plane end - they are very low loss at UHF and above and water proof. You can use PL259 on the radio end if need be to match the equipment, but they must be made properly to prevent losses and really should not be used above 420 MHz. Hold the N plug to the top of the TV masting with a 2" diameter hose clamp. Align the 1/4 wave vertical element to be as perpendicular to the ground as possible and the 4 radials at 45 degrees. Place the antenna high and in the clear in order to maintain line of sight to the transmitter antenna - 2 or 3 of the 5 foot Radio Shack 15-862 TV masts work well and held in place with a 15-517 mast tripod mount; all are easily transported in a car.



426.25 ATV Ground Plane

Construction:

Start by cutting 5 wires a half inch longer than listed for the desired frequency and strip one end on each 1/4 inch. Solder the quarter wave vertical wire to center socket, measure from flange surface to the top of the wire for the frequency in use and cut to length. Solder the 4 radial wires to the respective holes in the UG-58 jack or bolt on solder lugs and solder to them. Bend the radials to a 45 degree angle away from the coax and masting. Then trim to length measuring from the outer edge of the dielectric to the tip of the wire.

| Frequency MHz | Length Inches |
|---------------|---------------|
| 146 | 19.1 |
| 426.25 | 6.5 |
| 915 | 3.0 |
| 1265 | 2.2 |
| 2398 | 1.2 |

Length of the vertical radiator and 4 radials in inches is 2800 divided by Frequency in MHz.

