AHARS / LMARC J-POLE DUAL BAND ANTENNA
2mtr (146 MHz) and 70cm (432 MHz)

This antenna provides a dual band 2m ~ 70cm antenna for base and portable application.
The design is based on an article that appeared many years ago (1987) in CQ magazine, a version is produced by Arrow Antennas in the USA.

Neither AHARS or LMARC claim any originality to this design.
It has a low VSWR <1.5:1 over a wide bandwidth on both bands (see graph) and is an ideal solution for dual band transceivers.
The antenna has a single feed point via either an SO239 or an 'N' type connector, the 'N' connector is recommended for 70cm and provides better waterproofing qualities.

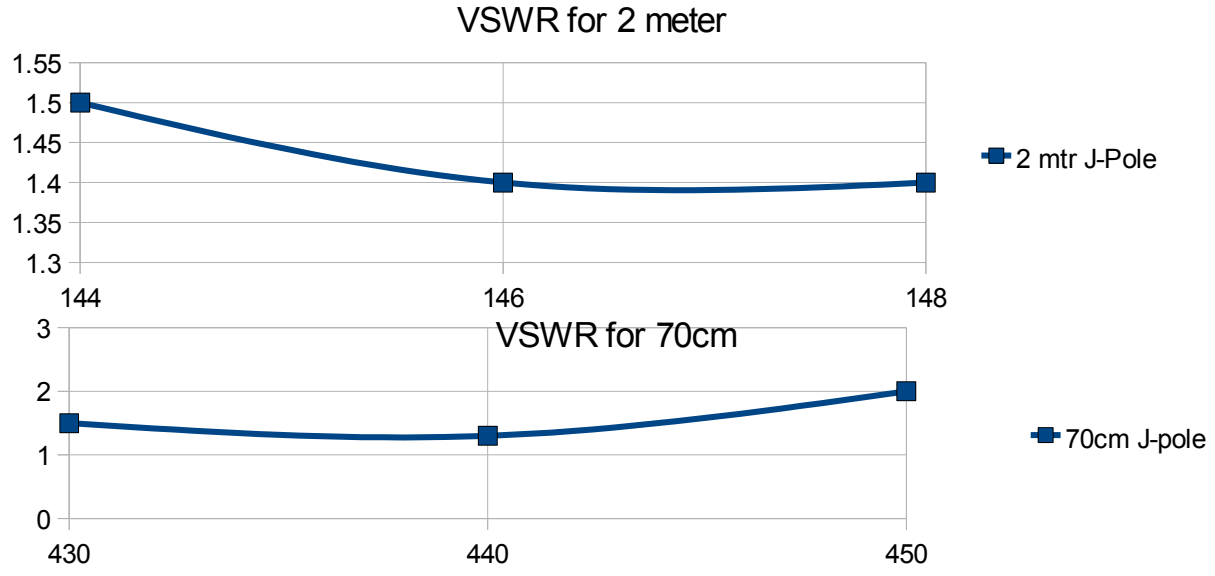
The antenna is a dual 'J' pole design having a common driven element for both antennas and two grounded resonator elements, the antenna does not require a ground plane for operation but mounting the antenna on a well grounded metal pole or tower is recommended.
The principle of a 'J' pole is well understood, basically the lower 'U' section being the matching section of a ¼ wave stub feeding a half wave length antenna element. The antenna exhibits better gain than a ¼ wave ground plane and about the same gain as a ½ wave dipole on both bands with the main vertical plane radiation being at 5° or less with respect to the horizon and the horizontal plane being omnidirectional.

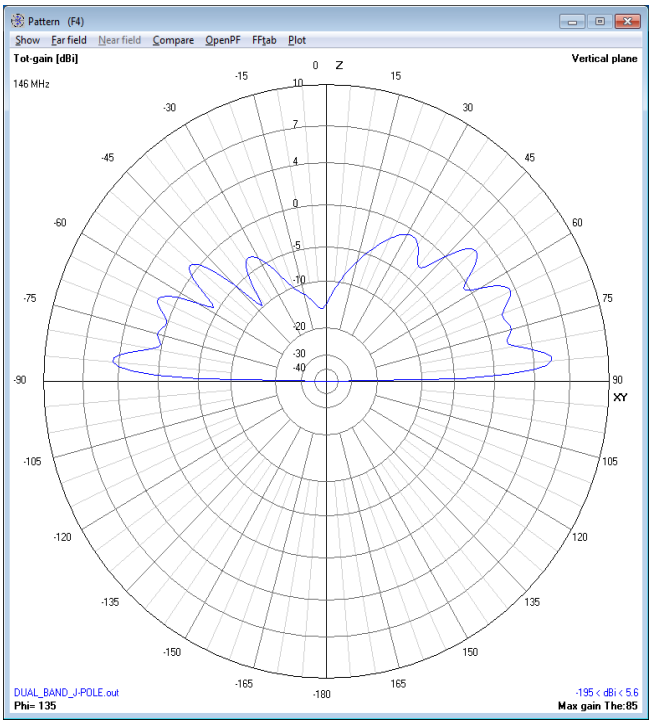
In this antenna the feed point is at the current point of the 1/4 wave stub there by providing a lower impedance that can be easily matched to the coax feeder.

It had been noted an N series connector with RG-8 or RG-213 coax provided the best performance.

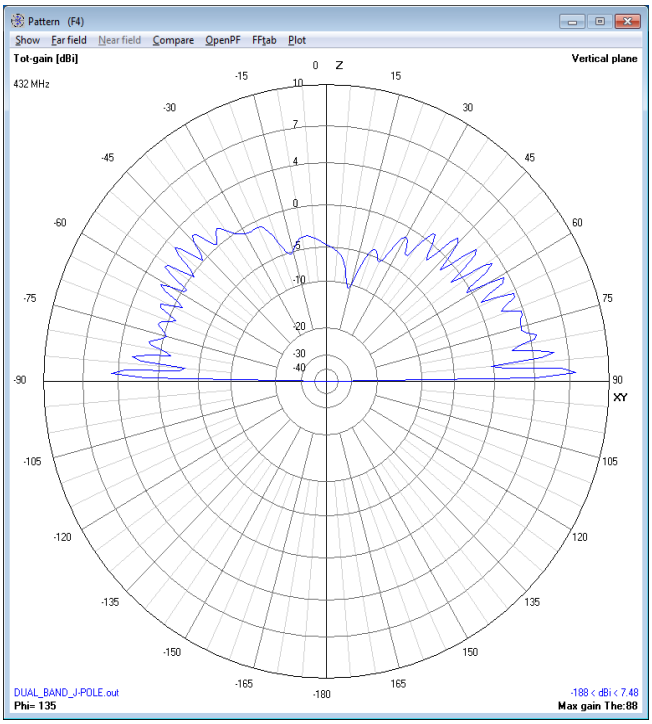
The construction of the antenna has been altered a little from the original design through the use of modern analytical design software.

The author can vouch for the performance of this antenna on both frequencies, in all cases the performance being excellent.





Vertical Radiation Pattern of J-Pole mounted 4 m above average soil (S=5mS/m; ε_r=13) at 146 MHz modeled with 4NEC2



Vertical Radiation Pattern of J-Pole mounted 4 m above average soil (S=5mS/m; ε_r=13) at 432 MHz modeled with 4NEC2