

The following material was extracted from earlier versions of the *ARRL Handbook*. Figure and equation sequence references are those from the 2012 edition.

Project: Dual-Band Antenna for 146/446 MHz

This project by Wayde Bartholomew, K3MF (ex-WA3WMG), first appeared in *The ARRL Antenna Compendium, Volume 5*. This mobile whip antenna won't take long to build, works well and only requires one feed line for the two-band coverage.

Wayde used a commercial NMO-style base and magnetic mount. For the radiator and decoupling stub, he used brazing rod coated with a rust inhibitor after all the tuning was done. You can start with a 2 meter radiator that's 20.5 inches long. This is an inch longer than normal so that it may be pruned for best SWR.

Next, tack on the 6.5-inch long 70-cm decoupling stub. Trim the length of the 2 meter radiator for best SWR at 146 MHz and then tune the 70-cm stub on 446 MHz by moving it up and down along the antenna for best SWR. There should be no significant interaction between the adjustments for either frequency.

Final dimensions are shown in Fig 21.110. The SWR in the repeater portions of both bands is less than 2:1.

ADAPTING FOR FIXED-STATION USE

You can use the dual-band mobile whip as the radiating element for the ground-plane antenna in Fig 21.108. Don't change the 2 meter radials. Instead, add two 70-cm radials at right angles to the 2 meter set as in Fig 21.111. The antenna is no longer two-dimensional, but you do have two bands with one feed line *and* automatic band switching.

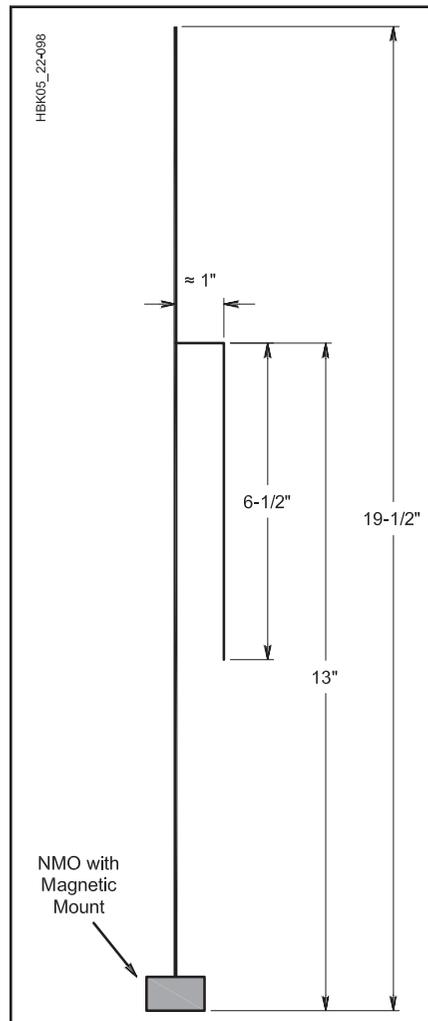


Fig 21.110 — Diagram of K3MF's dual-band 146/446-MHz mobile whip. Brazing rod is used for the 2 meter radiator and for the 70-cm decoupling stub.



Fig 21.111 — K3MF's whip can be used to make a dual-band ground-plane antenna. Separate radials for 2 meters and 70-cm simplifies tuning. (Photo by K8CH)