

# The Attic All-Bander Antenna

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*Here is a multi-band dipole that covers 10 to 80 meters, for operators who have limited space.*

**M**ANY fine articles have been written recently for those of us not in a position to enjoy an antenna farm. The most recent one by W2LCB<sup>1</sup> left much to be desired where multi-band operation is concerned. It described several excellent indoor antennas but each type covered one band and a climb to the attic was necessary when QSYing from one band to another. Wouldn't it be simpler to do all the band-switching from the old operating position? You betcha!

Another article, Little But Oh My<sup>2</sup>, described a 40 meter half wave doublet in which the physical length was shortened by the use of series inductances.

The features of these various antennas have been combined in the single antenna shown in fig. 1, a multiband dipole. The sections for 10, and 20 meters can be constructed without any problem, for most attics are long enough to contain them. The 40 meter antenna will function on 15 so that only 10 and 20 need be strung for the higher bands. Of course, there is nothing to prevent the addition of 15 meter elements (each 11 feet long) if desired.

The 40 meter antenna uses the idea outlined in Geisler's<sup>2</sup> article. Each element contains 34 feet; a 15 foot run to a coil containing 15 feet of wire plus an additional four feet after the coil. The coil forms were from an ARC-5 and just hold 15 feet of wire. The additional 4 feet may be bent around and nailed down to the rafters.

## Construction

For the 75/80 meter antenna simply double the 40 meter dimensions. I used standard coil stock which comes in 10" lengths such as B&W 3" diameter at 10 turns per inch. Forty turns will provide 31 feet and one 10" length is sufficient for both ends of the 75/80 meter antenna. There should be about 8' of wire at each end, which can be bent back to any convenient mounting to form the end capacity. It must be realized that this antenna will *not* be as good a performer as if it were stretched out in a horizontal plane. If

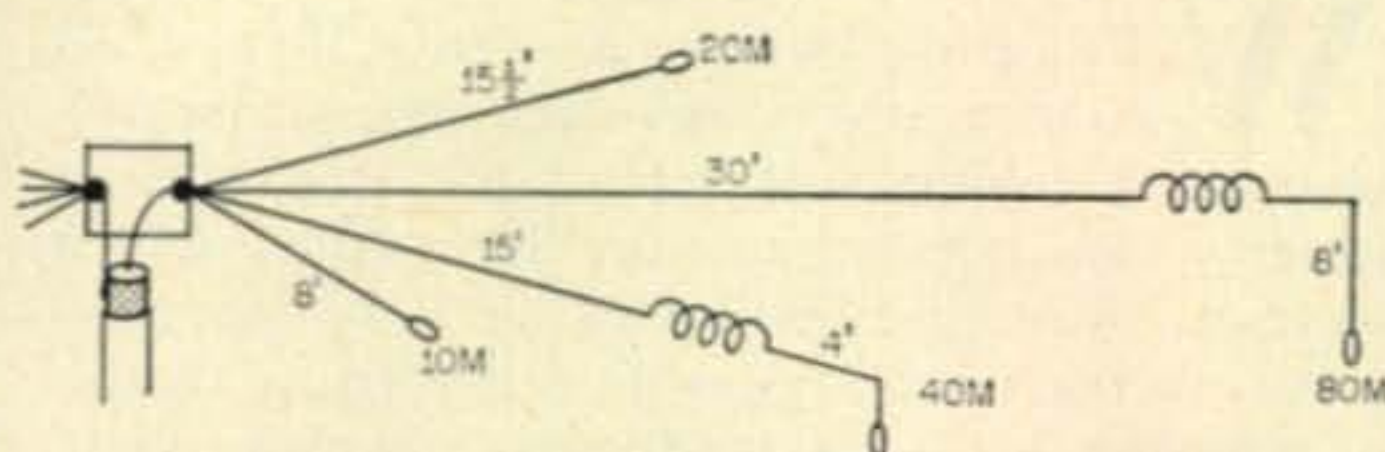


Fig. 1—Structural arrangement of the all-band attic antenna. The coil specifications for the 40 and 80 meter antennas are discussed in the text.

your attic has windows at each end and a convenient place to tie the ends outside the house, by all means do so. However, we wanted to see whether it could be completely mounted in the attic and still do a creditable job. It did, although not as well as our outdoor all-band homebrew trap vertical antenna for 75/80 meters.

## Feeding The Antenna

Frequently, little thought is given to feeding a dipole. The dipole is a balanced antenna and should be fed with a balanced transmission line for optimum performance. If the transmitter output is unbalanced (and most are), a matching device, or balun, must be used. There are two ways of approaching this problem. The balun may be placed at the transmitter output to feed balanced 75 ohm twin lead, or the transmitter may be fed into coax with the balun, to convert from unbalanced to balanced, at the antenna.

The problem with the use of the balun is that it is cut for a specific frequency and in most instances will not function at another frequency. Thus, for a multi-band antenna, several baluns have to be used. The lengths and construction techniques for these baluns may be found in handbooks.<sup>3</sup>

The balun is often simply ignored and coax is run directly to the antenna. The result may be a slight loss of signal and radiation from the transmission line (possible TVI). This is what I have done and the results have been satisfactory.

Results with the all-band antenna described have been most gratifying. Much DX has been worked as well as local and stateside contacts and the signal reports are consistently excellent. In fact, you may have a difficult time convincing other stations that your antenna is skrunched up in the attic! ■

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<sup>1</sup>Mickey, Irving B., "Indoor Antenna Farming," *CQ*, August 1961, p. 40.

<sup>2</sup>Geisler, Leonard E., "Little But . . . Oh My," *CQ*, February 1958, p. 36.

<sup>3</sup>Orr, W. I., "S-9 Signals," *Radio Publications Inc.*, Wilton, Conn, pages 7, 10, 14, 15.