

The Radio Hotel— Multi-banding Methods

by Rick Hiller – W5RH

What is the best multi-band antenna? Well....it depends on a number of factors.....number of bands desired, space available, dollars available, hanging supports available, equipment capability available, etc. The solutions vary, but I can reference you to a few of the more popular methods (and \$ cost) done both commercially and DIY. **Illustrations on the following page.**

\$ 40/15 Dipole -- Build a 40 meter dipole and feed it with coax. Once tuned, try loading it on 15 meters. Should be a close match (mine is 1.7:1 on 15), with your xcvr internal tuner finishing the matching. It is an 'easy up' single wire for two bands with a bit of gain on the higher band. Get it up as high in the air as you are able – 30, 40 or 50 feet will provide you great performance. Keep your fingers crossed for 15 Meters to open up. HI

\$ The McCoy Dipole – a single wire dipole fed by tuned feeders (open wire, ladder line, etc.) with an ATU/Matching Network in the shack acting as a variable transformer matching the antenna system to 50 ohm transceiver in/out impedance. Search QST's from 1955 to 1977 Call sign W1ICP—Lew McCoy. He has written a bunch of articles on antenna systems and various other subjects.

\$\$ Fan/Parallel Dipole – Coax fed, center feedpoint with multiple resonant wires for the bands desired. Alpha Delta DX series does an excellent and robust version of this type of multi-band antenna. Have a go at building one for the bands you need. It's pretty easy.

\$\$ The Off Center Fed (OCF) Dipole. It is a single wire for the lowest frequency band. Then for the other bands it takes advantage of the multiple standing waves on that single wire generated by each of the higher frequency Ham Bands we wish to cover. The 4:1 transformer fed feedpoint is strategically located to be a low Z current feed on each of the bands. Lots of commercial versions.

\$\$\$ Trap Dipole – popular for multi-band / tri-band Yagi-Uda's, but can be used on wire antennas. Requires 2 traps per band, except the lowest frequency band which uses the full antenna element length. Unidilla Traps were very popular years ago for this purpose, but now can only be found on the used market. QST has multiple articles about building your own traps.

\$\$\$ Sleeve Coupled dipoles – A single band resonant dipole (typically aluminum) is center, split fed. Then, resonant length elements of other higher bands are brought into close proximity to the driven dipole and will match. Proper separation is calculated based on frequency and wire/element diameters. No physical connection between elements is required. For a good example: check out Innovantennas.com and their “20m,17m,12m three band DESpole rotating dipole”.

\$\$\$\$ Stepp IR Dipoles, Verticals and Yagis – Automatically tuned, multi-band antenna systems. Go to www.Stepplr.com for a complete explanation. I will have one of these antennas at the November 14th meeting so you can see how it works.

Other antennas for multi-banding are the **End Fed Half Wave**, **TTFD – Tilted Terminated Folded Dipole**, **The LPDA – Log Periodic Dipole Array** and the **Discone**. Google search to get more information on the commercial versions available.

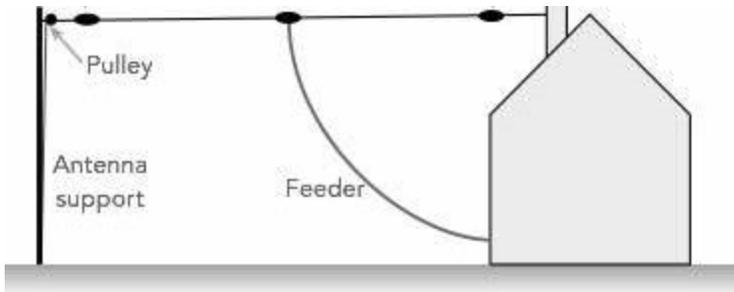
No matter which way you go, you will have multiple bands at your disposal and have lots of fun working the bands. Enjoy your hobby.....73...Rick – W5RH

Next time.... Dissecting Series #4 – The Stepp IR Small Vertical

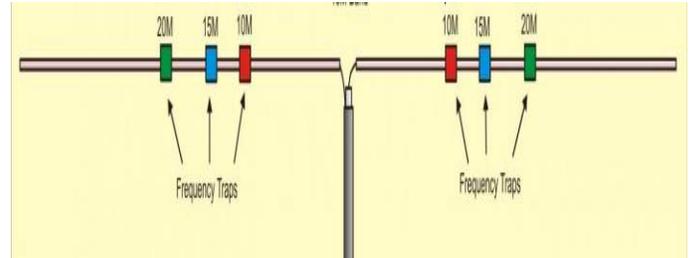
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Illustrations

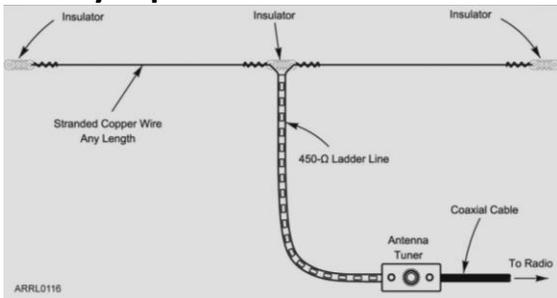
40/15 Dipole



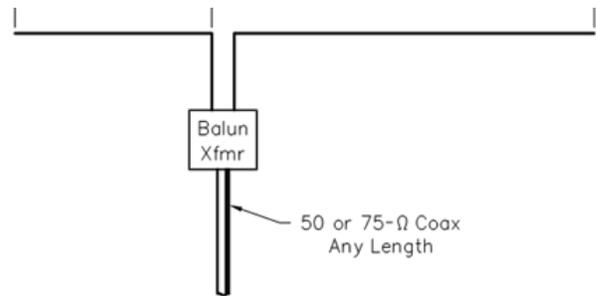
Trap Dipole



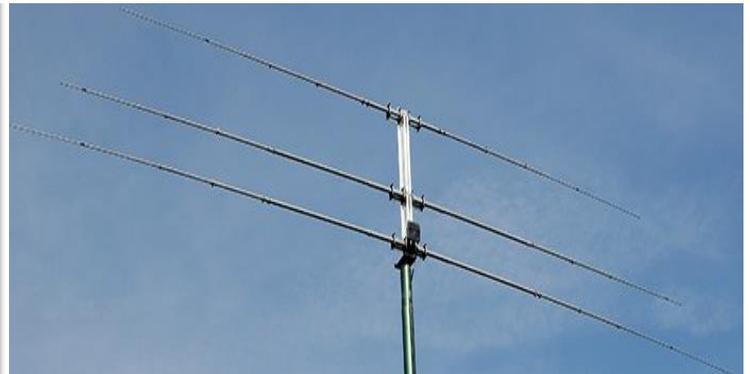
McCoy Dipole



Off Center Fed Dipole



Sleeve Coupled Dipoles



Fan Dipole

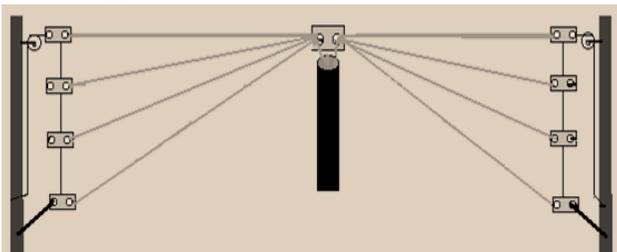


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