MULTI-BAND DIPOLES

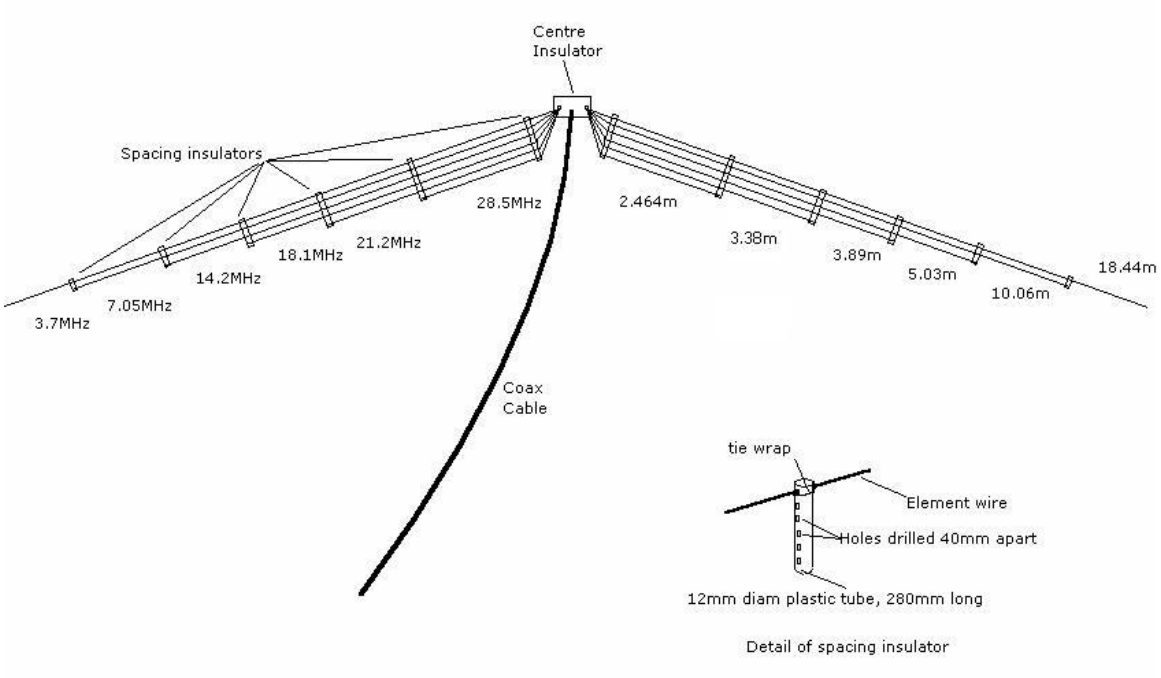
FREQUENCY-A dipole antenna will not only work well on the frequency it is cut for, but also for the multiples of that frequency. For example if you cut a dipole for 7.0 Mhz will also work not badly on 14 Mhz, 21 Mhz and 28 Mhz. A dipole will work well on frequencies that are an ODD multiple of ½ wavelength frequency the antenna is cut for.
For example, if the dipole is cut for 7.0 Mhz it will work well on 21 Mhz. This way if you can pick and choose your frequency you can make one antenna work on two or three bands.

As was stated above you can use the dipole on the harmonics or multiples of the frequency it is cut for. However if you are short on space you can build a multi-band dipole. This way you will get an antenna that will operate on several frequencies.

Instead of using a single strand of wire you can use wire that has several insulated wires in it.

These MUST be insulated wires to insure that they do not touch each other. You then cut the top wire to be the longest, the second wire to be the second longest, the third wire to be the third longest etc.. The longest wire is attached to the end insulators to your supports (masts) and all wires are fed to the center insulator to attach to the coax feed line.

Each shorter antenna is attached back to the longer one above it using an insulator at the end of the wire. This is hung off the antenna above using a non conductive material (rope) or short piece of wire.



Use ½ hot water PVC pipe

INSTALLATION- Once you have the antenna cut all you have to do is put it between two masts. Make sure that you use the free side of the end insulators to attach some rope. Tie this rope from the end insulators to the masts. Leave some slack on the antenna. If you pull too tight the antenna will break in the wind or if snow and or ice should coat the antenna.

KEEP AWAY FROM OVERHEAD WIRES!!

Keep away from these as should the antenna ever come into contact with an overhead wire you will do permanent damage to your radio if not yourself. All you have to do is feed the coax to your radio and listen to the stations come in. It would be best to install a lightening arrester in the coax feed line to help protect your receiver. These are available from many radio supply stores. Follow the instructions carefully! In areas where thunder storms or snow storms are common a lightening arrester is a must for safety.

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CONSTRUCTION- Once you have selected a frequency and calculated the length of wire you need add two feet to this length. This is done so you will have six (6) inches of wire at each end to wrap around the insulators. Once you have this extended length of wire cut it in half. This will give you both sides of the dipole.

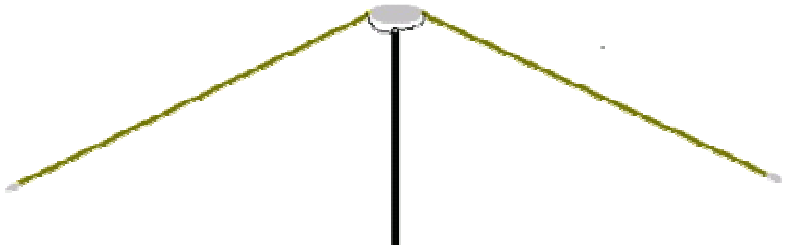
Attach an end insulator to one end of each piece of wire. You can use the egg shaped insulators sold by many radio supply stores.

TIP

I should also mention that I use a good silicone seal on all my connections. 3M makes a very good clear calk, spreads nicely, and really seals out the moisture. No moisture, no corrosion. I have taken down antennas that have been up 5 years before a storm got them, and the connections were just as new and shiny as the day I put them up. Everything else was weathered, but not my connections. Just thought I would pass it on for trouble free connections.

I see a lot of my friends wrap their connections in tape. That’s ok for a while, but that tape will weather, and come apart when you don’t want it too. Now you have a bare connection. Wrap that tape in clear silicone, it will last forever.

Alpha Delta model Del Tel C can be purchase at AES for $30.00. This is a fused unit for protection.



Assuming level ground, the minimum height of vee will be (length of leg * sin(angle from horizontal) plus the height of endpoints of vee above ground. The horizontal spread of Vee will be the distance from endpoint to endpoint, plus the tie off points..

10 Meters
28.400 Mhz at 45 degrees is 16′-5.75″ +2′ (12″ for each leg for the dog bone)
Each leg is 8′-2.87″
Total vee length is 15′-7.8″
Each vee leg is 7′-9.9″
Min vertical height is 5.53′
Min horizontal spread is 11.06′ (5,53′ from center of push up pole)

15 Meters
21.300 Mhz at 45 degrees is 21′-11.6″ + 2′ (12″ for each leg for the dog bone)
Each leg is 10′-10.8″
Total vee length is 20′-10.4″
Each vee leg is 10′-5.2″
Min vertical height is 7.38′
Min horizontal spread is 14.76′ (7.375′ from center of push up pole)

17 Meters
18.140 Mhz at 45 degrees is 25′9.6″ +2′ (12″ for each leg for the dog bone)
Each leg is 12′-10.8″
Total vee length is 24′-6″
Each vee leg is 12′-3″
Min vertical height is 8.67′
Min horizontal spread is 17.34′ (8.67′ from center of push up pole)

20 Meters
14.280 Mhz at 45 degrees is 32′-9.28″ + 2′ (12″ for each leg for the dog bone)
Each leg is 16′-4.64″
Total vee length is 31′-1.56″
Each vee leg is 15′-6.78″
Min vertical height is 11.01′
Min horizontal spread is 22.02′ (11.01′ from center of push up pole)

40 Meters
7.200 Mhz at 45 degrees is 65′ + 2′ (12″ for each leg for the dog bone)
Each leg is 32′6″
Total vee length is 61′9″
Each vee leg 30′10.5″
Min vertical height is 21.83′
Min horizontal spread is 43.66′ (21.83′ from center of push up pole)

75 Meters
3.900 Mhz at 45 degrees is 120′ + 2′ (12″ for each leg for the dog bone)
Each leg is 60′.
Total vee length is 114′,
Each leg is 57′,
Min vertical height is 40.3′,
Min horizontal Spread is 80.6′ (40.3′ from center of push up pole) page 3 of 3