My Random Wire Attic Antenna

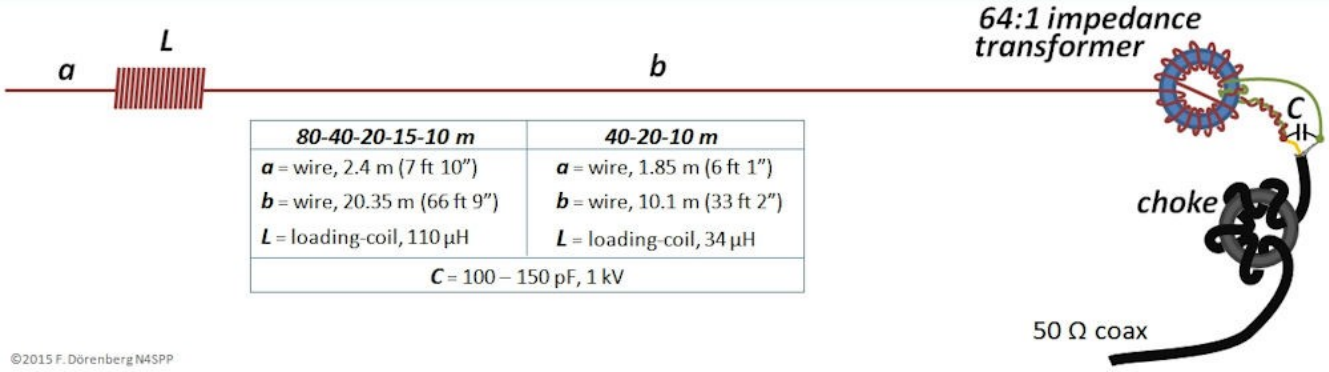
John Westerkamp, W8LRJ

I wanted a cheap antenna that I could use to do FT-8 that required just a wire strung across my attic. I could get about 60 feet maximum, so settled on a 53 foot or so random wire which would be good from 10 to about 40 meters (and maybe 80 meters with a tuner). To connect that to my HF rig, I needed to go from AWG #14 antenna wire to 50 ohm coaxial cable to connect to my tuner. Since the impedances do not match (for maximum power transfer and low SWR), I had to build a matching network (come to Tech Night next week to learn about matching networks and to build one!).

Random Wire lengths that are not half wavelengths or multiples at any frequency from 1.8-30 MHz.

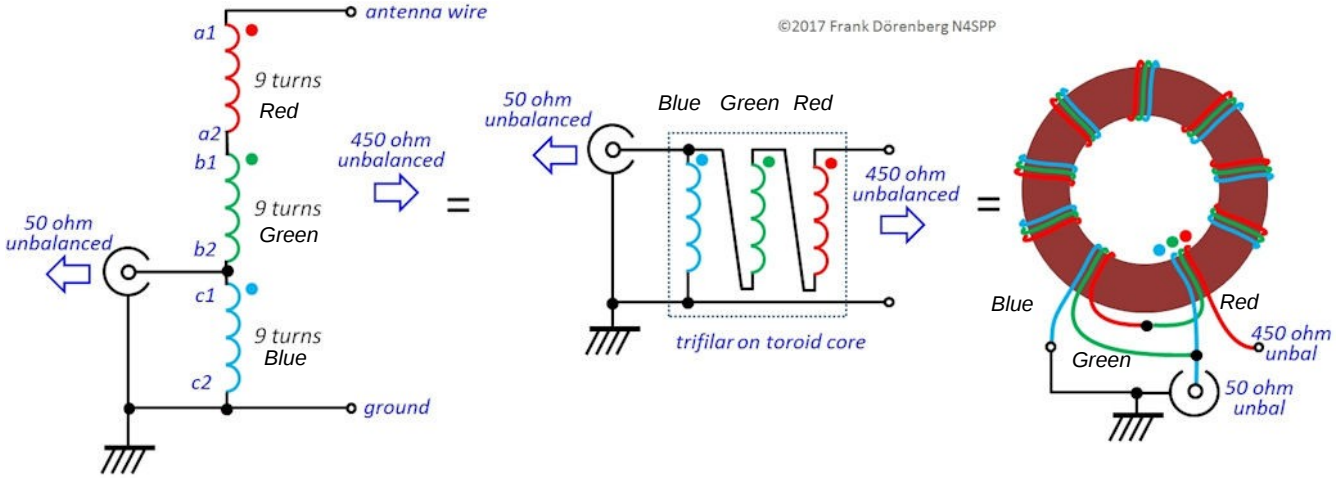
REVISED: 29 35.5 41 53 58 71 84 107 119 148 203 347 407 423

http://www.hamuniverse.com/randomwireantennalengths.html



80-40-20-15-10 m	40-20-10 m
a = wire, 2.4 m (7 ft 10")	**a** = wire, 1.85 m (6 ft 1")
b = wire, 20.35 m (66 ft 9")	**b** = wire, 10.1 m (33 ft 2")
L = loading-coil, 110 µH	**L** = loading-coil, 34 µH
C = 100 – 150 pF, 1 kV	

I actually used just a 53 foot wire, a 9:1 unun (unbalanced-to-unbalanced) wound on an FT240-43 toroid, and went without a capacitor (I am lazy). The coil, L, is a loading coil (inductor) that makes the antenna look longer than it is so that it works better at 40 and 80 meters (I did not use one). Here is the 27:9 matching toroid that I wound (3:1 turns ratio or 9:1 impedance ratio). The coax just runs down through the wall from my attic to my HF rig in my home office/shack. I have made DX contacts in 60 countries from South America to Europe to Russia with 50 watts on FT-8.



From https://www.nonstopsystems.com/radio/frank_radio_antenna_multiband_end-fed.htm.