Counterpoise

Basics

- If the antenna is unbalanced, a radial system or counterpoise is necessary for operation.
- More radial wires are generally better. As the number gets larger, they improve the RF Ground less and less, to the point where there is no difference when adding one more radial to a system that already has 120 installed.
- Minimum systems of as few as 4 wires can provide an acceptable ground and increase the antenna's efficiency by a significant amount. Generally, 6-8 radials is the minimum that should be used.
- Radial wires should be as long as the antenna wire if possible. If you must use shorter wires, keep them as long as possible and use extra radial wires.
- Horizontal, unbalanced antennas, such as a long wire or random wire, need an RF Ground wire that should be 10-15% longer than the antenna wire itself. This is often called a counterpoise.
- The RF ground wire in this case can be laid out in many ways, just so long as it does not cross over itself to form a loop. Indoors, such wires are often run under carpets or along walls, out of windows, or anywhere else convenient.
- This wire will often have large RF voltages on it, so it should be kept away from people or insulated to prevent contact.

Wire

- Size #18 minimum.
- Length:
  - ¼ wavelength for 80 meters (3.75 MHz–middle of the band) = 62.4 feet
  - suggestion of 20 – 16 foot radials (total footage = 320 feet)
- Vendor
  - DX Engineering DXE-RADW-500 - DX Engineering Premium Radial Wire. Radial Wire, 14 AWG Stranded Copper, UV-resistant Black PVC Insulation, 500 ft. Length $98.99

Radial Plate

- Jones Stephens 6" Stainless Steel Round Coverall Strainer, PlumbingSupplyNow.Com, $15.12
- JONES STEPHENS 4 in. O.D. Stainless Steel Stamped Round Replacement Drain Strainer, Home Depot, $4.30. Ordered 5/22/21.