

# End-Fed Antenna

V 1.0



# What is an End-Fed Antenna

- A portable antenna with a single radial
- Fed at one end instead of being Center-Fed like a dipole
- Only requires a single support
- Often no tuner is needed
- Flexible configuration
  - Sloper, Vertical, Inverted L, etc
- Popular as it is easy to deploy (POTA)
- Allows multiband operation



# Types of End-Fed

- Halfwave ENFHW
  - specific length cut to the lowest frequency
  - 40m will often work with 40, 20, 15, and 10 meter
- Random Wire
  - length that is not resonant on any desired frequency
  - common lengths 29, 35.5, 51, 74, and 84 feet
- Long Wire EFLW
  - it is at least 1 to 1.5 wavelengths long
  - 64 to 96 feet for 40 m

<https://myantennas.com/wp/product/eflw-3k/>



# Matching

- Matching Transformer UNUN Impedance 2000 to 5000 ohms
  - 64:1
  - 49:1
  - 9:1
  - 4:1
- Counterpoise because they are fed at the end you will need a
  - small counterpoise wire
  - coax shield
- Using the shield for the counterpoise will cause common mode current on the shield

# Matching



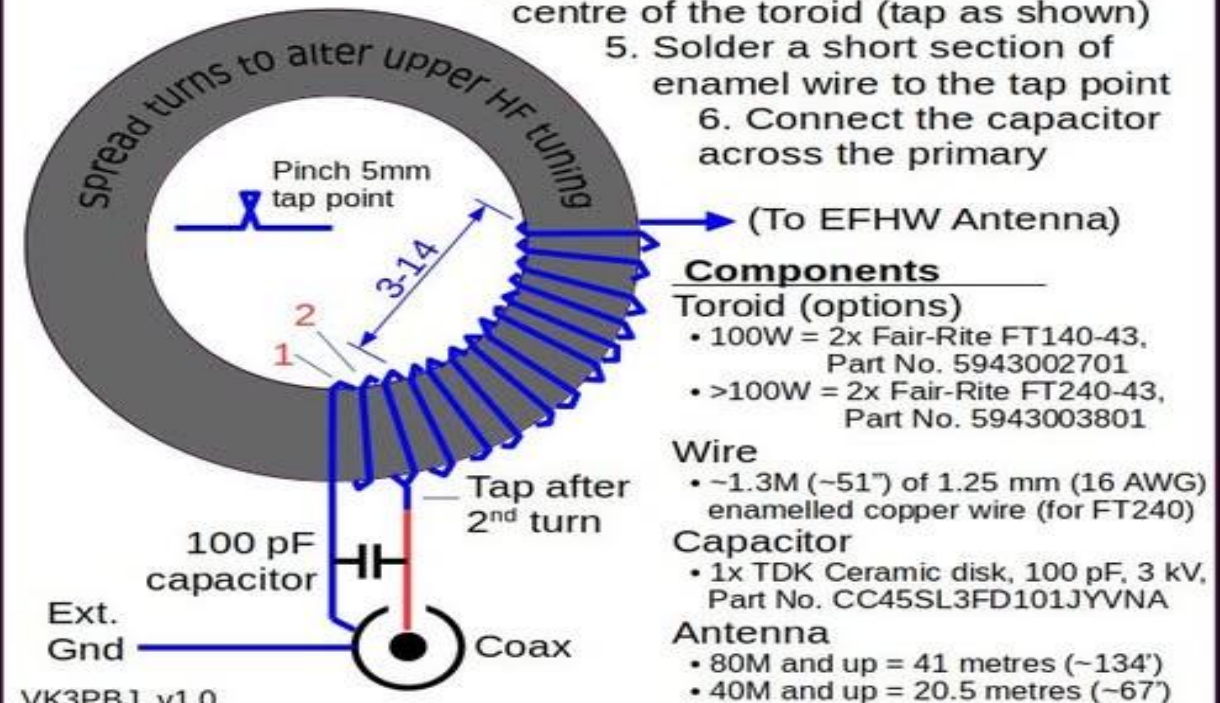
## 49:1 Autotransformer

Primary tapped at 2<sup>nd</sup> turn

14 turns in total (ratio is 2/14)

### Method

1. Fix the two toroids together (superglue works fine)
2. Do not cover the toroid with tape as this only retains heat
3. Cut the length of enamel wire and pinch a 5mm (~1/4") tap point 20cm (~8") from one end (for the primary tap)
4. Tightly wind 14 turns through the centre of the toroid (tap as shown)
5. Solder a short section of enamel wire to the tap point
6. Connect the capacitor across the primary



### Components

#### Toroid (options)

- 100W = 2x Fair-Rite FT140-43, Part No. 5943002701
- >100W = 2x Fair-Rite FT240-43, Part No. 5943003801

#### Wire

- ~1.3M (~51") of 1.25 mm (16 AWG) enamelled copper wire (for FT240)

#### Capacitor

- 1x TDK Ceramic disk, 100 pF, 3 kV, Part No. CC45SL3FD101JYVNA

#### Antenna

- 80M and up = 41 metres (~134')
- 40M and up = 20.5 metres (~67')

VK3PBJ, v1.0

# Pros and Cons

## ➤ Pro

- light and easy to set up
- only one support needed
- multiband
- often no tuner required

## ➤ Cons

- requires a transformer (high voltage)
- high common mode currents
- potential high noise

<https://www.arrl.org/end-fed-half-wave-antenna-kit>

# 40m Through 10m

## ➤ 40m Through 10m

- 49:1 Transformer
- 67' of wire
- coax counterpoise

# Questions

- We will do the End-Fed build on a Sunday in June before Field.
- Unless everyone wants to do it on Field Saturday.