

**ENDFEDZ  
EF-QUAD  
10M/15M/20M/40M END FED HALFWAVE ANTENNA**

**PACKAGE CONTENTS:**

**ENDFEDZ EF-QUAD ANTENNA**

**OPERATION MANUAL**

**SMALL PARTS PACKING KIT:**

- **E2557 SOLDER LUG WITH 12 INCHES #18 WIRE**
- **E2311 MALE QUICK DISCONNECT CRIMP ON CONNECTOR**

## ASSEMBLY

1. This antenna is essentially a half wave radiator on 7 MHz / 1 wave on 14 MHz / 1.5 wave on 21 MHz and 2 wavelengths on 28 MHz with one important difference– the feedline is at the end of the antenna. The antenna is suspended at its ends by the two included insulators – one of which is integral to the matchbox.
2. In order to have the least possible influence on the antenna, insulated lines are recommended for attachment to the insulators. The antenna may be suspended horizontally or sloping. Portable operation is easily accomplished by suspending the far end from a tree limb and letting the matchbox hang just above the ground. It is important that the radiator be suspended so that the tuning stubs hang away from the main radiator.
3. Take care to erect the radiator wire in the same direction as the wire is connected to the matchbox. The wire is strain relieved at the box with a wire clip and thimble.
4. We recommend tying support rope to the eyebolt at the top of the box where the wire thimble is located to hang the antenna. The holes on the tabs at each end of the box will also work but they don't have the mechanical strength that the eyebolt does.
5. The wingnut connection next to the SO-239 connector is at ground. This can be used to connect a counterpoise if desired but is not necessary.

## TAKE THE TIME TO PROPERLY TUNE THE ANTENNA

6. Tuning is most easily accomplished by using an antenna analyzer attached to the far end of the coaxial cable that will be used with the antenna. Alternatively, of course, a suitable VSWR meter may be employed. This should be done at the lowest power setting that yields reliable VSWR readings.

## HOW TO TUNE THIS ANTENNA– A MUST READ

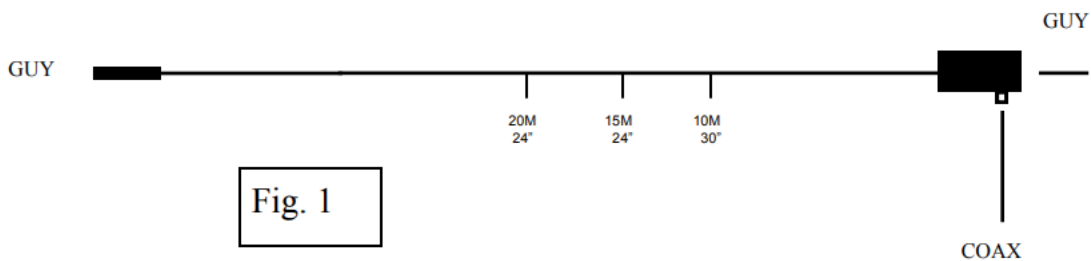
The EF-QUAD uses a novel method of tuning the individual bands that we believe is unique to this antenna. Take a moment to review how this works. The center of a half wave antenna is low impedance (minimum voltage/maximum current) and thus is virtually unaffected by grounding or metal (think of the boom of a classic Yagi– it is not “seen” by the elements). In the case of the EF-QUAD, a wire placed at the center (approx. 33') would have very little effect on 40 and 15 meters (33' is a point of current maxima on both bands), but would have a large effect on 20m and 10m which are points of current minima or high impedance. Similarly, a wire at 16.5' would have **some** lengthening effect on 40m and 15m (in between a low and high impedance point), virtually no effect on 20m (current maxima) and a large effect on 10m (current minima)

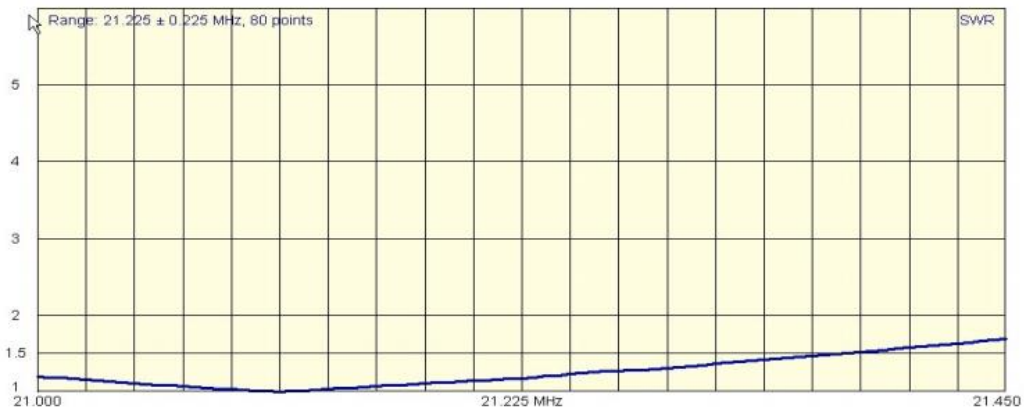
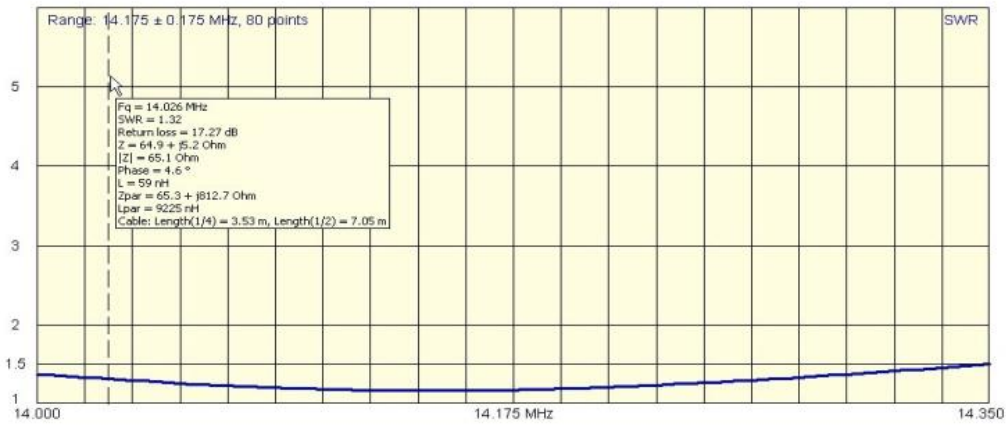
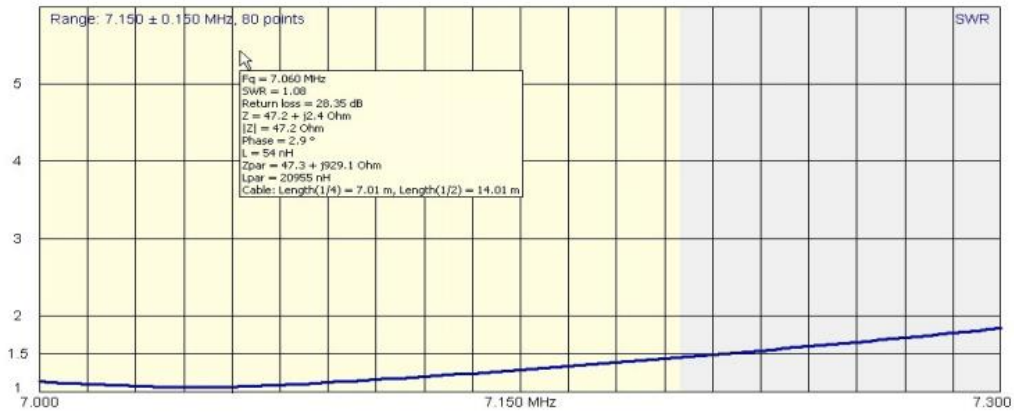
By strategically placing stubs of wire we can more or less independently tune the different bands. Note that it is not necessary to get each band perfectly centered. The

on-air difference between say 1.6:1 and 1:1 is absolutely unrecognizable. In addition, the EF-QUAD being a full half wave, or multiple thereof on each band displays excellent BW- See the specification box on the last page.

7. Set the tuning stub with the solder lug aside— you likely will not need it.
8. Because the stubs are required to hang away from the main radiator, vertical deployment is discouraged— a sloper or horizontal configuration should be used. Hang the antenna as it will be in its final deployment.
9. If the three stubs are not already attached to the main radiator, plug them in now. Refer to Figure 1 for their placement.
10. Tuning will be MUCH faster with an antenna analyzer. Find the frequency of lowest VSWR. Se arch around 7 MHz for the lowest VSWR. This should be low in the band or even below the band. Trim or fold back and wrap the wire around itself at the far end of the radiator in short lengths until the 40m VSWR is acceptable
11. Go to 20m and again find the frequency of lowest VSWR, which again should be low in the band. Cut the 20m stub to achieve acceptable VSWR on 20m.
12. Repeat for 15m and 10m with their appropriate stubs.
13. In order to reduce end loading effects— the guys at each end should be non-conducting material.
14. If you find you have initially cut the main radiator too short— install the tuning stub onto the matchbox. This will lower the best VSWR a bit on ALL bands

**NOTE:** If one or both ends use a tree for support, make sure to strain relieve the antenna with a pulley+ weight or a bungy if this is temporary installation. **No antenna can hold up to thousands of pounds of force exerted by a moving tree.**





NOTE:

The EF-QUAD may be used as a **monobander** on ANY band between 40m and 10m. This is can be accomplished by removing the factory radiator and installing the appropriate 1/2 wavelength wire. Calculate the approximate length from  $L = 468/F(\text{MHz})$ . As an example, a 25' 10" wire will allow operation on 17m as a monobander. Initially, cut the wire a bit long and trim for best VSWR.

**SPECIFICATIONS**

|                         |                                   |
|-------------------------|-----------------------------------|
| Polarity:               | Depends on mounting configuration |
| Design Z:               | 50 Ohms                           |
| V.S.W.R. Bandwidth 40m: | 300 kHz 1.5:1                     |
| V.S.W.R. Bandwidth 20m: | 450 kHz 1.5:1                     |
| V.S.W.R. Bandwidth 15m: | 350 kHz 1.5:1                     |
| V.S.W.R. Bandwidth 10m: | 500 kHz 1.5:1                     |
| Power Handling:         | <b>200W CW/SSB 50W A.M.</b>       |
| Weight:                 | 2 lbs.                            |
| Length:                 | 66' 6"                            |
| Hardware:               | Stainless Steel                   |
| Connector:              | Silver/Teflon SO-239              |
| Radiator                | #18 black poly coated copper clad |

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