Ham Antennas by Par Electronics

By Larry Van Horn, N5FPW

This month we got a chance to test two ham antennas from the Par Electronics Company located here in North Carolina. We will be testing a 15 meter End-Fedz and a 6 meter Moxon.

❖ Par HF Ham End-Fedz

All of the Par End-Fedz antennas are full length, half wave dipoles, but with an important difference: The coax connector is at one end of the dipole. These antennas can be mounted horizontally, vertically, or as a sloper. No ground plane or counterpoise is needed.

I hung the antenna's far end from a tree limb and the coax at the bottom. The end insulators made suspension easy.

Here are some of the engineering specifics regarding the family of Par End-Fedz antennas: The UV resistant ABS plastic housing encloses an efficient matching network, allowing the antenna to be fed with common 50 ohm coaxial cable.

All hardware is stainless and the SO-239 connector is silver/teflon. The radiator wire is custom made in 21 mile runs. It is a #18 gauge stranded copperweld with a tough polyethylene jacket. Breaking strength is 200 pounds and, unlike the vinyl jacket found on the vast majority of antenna wire, the polyethylene jacket is 100% UV stable, very tough and slippery – almost like Teflon®.

One end comes with a #10 solder lug, making attachment to the matchbox simple

and allowing the radiator portion to be replaced if it ever becomes necessary. Power rating is a conservative 100 watts.

These antennas are lightweight and they are ideal for portable work. The all black construction makes them difficult to see. I would highly recommend these antennas for hams who live in areas with restricted antenna covenants.

Six years ago I tested the SWL version of this antenna (EF-SWL); see the September 2003 issue of *Monitoring Times*. I found this antenna to have superior performance, including noise reduction techniques, over antennas having a much larger capture area.

After testing the 15 meter version of this wire antenna, the family of HF Par End Fedz appears to exhibit similar characteristics as its EF-SWL cousin. The radiation pattern for these antennas is identical to a center fed dipole. They have an exceptional low-noise characteristic when compared to other antennas that I have used here on our Brasstown antenna farm. I found this antenna comparable to a 40 meter version of the G5RV. With the matchbox and a proper pruning of the 15-meter End-Fedz, a tuner was not required for proper operations of the antenna. The antenna has a bandwidth of about 400 Hz between 1.5:1 points.

I highly recommend this family of wire antennas for hams who need a portable antenna or have limited space. Prices vary depending on the model; call for pricing.

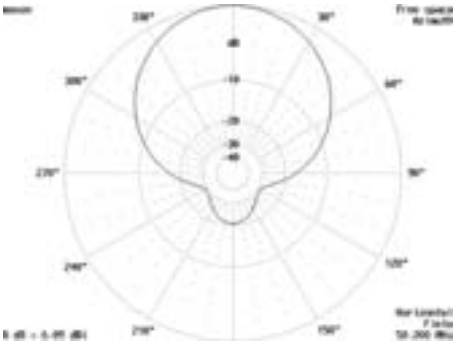
HF End Fedz Specifications
Power Handling: Depends on model (see chart below)
Connector Type: Silver/Teflon SO-239
Radiator: Custom #18 Stranded Copperclad
Radiator Coating: Black Polyethylene
Hardware: Stainless Steel
Polarity: Determined by User

Model	Band	1.5: VSWR	Length	Power Handling (Watts)
EF-40	40 meters	225 kHz@2.1	66 feet	200W
EF-30	30 meters	1.5:1	45 feet	200W
EF-10/20/40	10/20/40 meters	500/300/100 kHz@2.1	40 feet	25W
EF-20H	20 meters	300 kHz	33 feet	300W
EF-20	20 meters	300 kHz	33 feet	100W
EF-17H	17 meters	350 kHz	28 feet	300W
EF-17	17 meters	350 kHz	28 feet	100W
EF-15H	15 meters	400 kHz	22 feet	300W
EF-15	15 meters	400 kHz	22 feet	100W
EF-12H	12 meters	500 kHz	15.5 feet	300W
EF-12	12 meters	500 kHz	17.5 feet	100W
EF-10H	10 meters	600 kHz	16.5 feet	300W
EF-10	10 meters	600 kHz	16.5 feet	100W
EF-6	6 meters	1.2 MHz	9.2 feet	300W

❖ Par SM-50 6 Meter Moxon

This antenna is a clever version of G6XN's Moxon design for 6-meters. If you aren't familiar with what a Moxon antenna is, it's essentially a two-element Yagi that has its element ends bent back toward the opposite element to form a rectangular shape. Not only does this shrink the size of the antenna when compared to a Yagi, but it also improves the electrical performance of the antenna. This antenna will give you nearly the same gain as a 2-element Yagi, and a front to back ratio equivalent of a 3-element Yagi.

The SM-50 is a directional 6-meter antenna occupying approximately 50 percent of the space of a 2-element Yagi, yet having similar gain and better front to back. The stressed design allows the antenna to be lightweight yet strong. Once the matchbox and reflector wire are attached (using a Phillips screw-driver) the antenna tunes and mounts without tools. In addition, it can be broken down and reas-



sembled in under a minute, making it ideal for portable/rover use.

How well does it work?

I was very impressed with the performance of this antenna. Not only are local noise levels reduced (in my noisy RF environment), but the antenna forward gain and front to back are exceptional. When I turned the antenna 180 degrees away from the signal I was trying to receive, the 16 dB front to back knocked even local signals down in signal strength. Even under dead band conditions, I could hear stations in the Atlanta area over 90 miles away with reasonable signal levels. I even heard several 50 MHz beacons under dead band conditions that have never been heard before in my shack.

While we aren't in the E-Skip season as this antenna is being tested, I did jump up to 50.260 MHz and conduct some meteor scatter (JT6M and FSK144 mode) communications. The SM-50 performed quite well, and even with 50 watts, communications were possible with several stations in the midwestern United States.

Construction of this antenna is solid and should give the user a long life, even under some harsh environmental conditions. The suggested list price for the SM-50 antenna is $79.00.

So, if you are looking for an easy antenna to install, or something you can drag along for field day, this antenna is one of the most cost-effective antennas for 6-meters that I have tested. Now if I could only get some sunspots to test out some F2 skip and add a few countries to ye ole logbook!

SM-50 Specifications
Polarity: Horizontal
Gain: 5.8 dBi
Front to Back: 16 dB
Design impedance: 50 ohms
1.5 VSWR bandwidth: 1.4 MHz between 1.5:1 points
Power handling: 1000 watts
Weight: 3 pounds
Size: Rectangular 84 inches by 31 inches
Hardware: Stainless Steel
Mast Bracket is supplied: 3/4 inch to 1-1/2 inch mast are accommodated

How to Purchase

Dale Parfitt's service is excellent and the quality of all components is a very high standard in both of the antennas we tested. I should note that due to the high demand for Par antennas, you may have to wait up to 60 days after ordering your antenna to get it in hand. But your patience will be well rewarded with a quality product that will perform quite well.

Par antennas are available from Grove Enterprises or direct from the manufacturer.

SOURCES
Grove Enterprises, 7540 Highway 64 West, Brasstown, NC 28902; telephone: 800-438-8155; FAX: 828-837-2216; **www.grove-ent.com**
Manufacturer:
Par Electronics, Inc, P.O. Box 645, Glenville, NC 28736; telephone: 828-743-1338; FAX: 828-743-1219; **www.parelectronics.com**, **w4op@parelectronics.com**.

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