

# technology showcase

by Harold Ort, N2RLL, Editor

new product performance analysis

## Barker & Williamson's BWD-90 1.8–30 Folded Dipole Antenna

There's no such thing as a perfect antenna, but after using the Barker & Williamson folded dipole for a few months that fact might be more appropriately stated: The B&W Folded Dipole may not be the perfect antenna, but it is perfectly suited to nearly any radio enthusiasts' situation, and its performance is very good.

Unless you've got an unlimited bankroll, have very forgiving and understanding neighbors, a park-sized yard and a better-half who's into radio more than you are, your "antenna farm" is always going to be a compromise. I'd like a 100-foot tower, but I also prefer not sleeping in the shed.

Let's take a look at this reasonably priced folded dipole from B&W. First, the company has been making antennas for the commercial and government world since 1932. These folded dipoles are used by amateurs all over the world. (For those of you involved with emergency communications, note that the new radios you will be using, sooner or later, will have ALE—Automatic Link Establishment—frequency hopping and require a broadband antenna to operate; conventional autotuners are not fast enough to work.) The B&W antenna is broadbanded, require no tuner, can be mounted in a variety of configurations including inverted V, flat top, and sloper, and have continuous coverage from 1.8 to 30 MHz.

Running some big power? No problem. They're rated at 2-kW PEP CW/SSB (ICAS, Intermittent Commercial and Amateur Service). They're constructed of either—your choice—copperweld or stainless steel, and require no special mounts or supports. The company also sent us the model FDMK optional mounting kit (\$39 plus UPS shipping) which is highly recommended for an inverted V.

My two favorite amateur bands are 10 and 20 meters. When I'm not ragchewing or chasing DX I'm trying to catch up on the latest foreign broadcast news and commentary and monitoring military comms on the utility frequencies. Frankly, the beauty of the B&W antenna is that it covers the entire HF spectrum with no gaps, making it an excellent choice for the ham/shortwave listener and DXer. Plus, I've finally boxed my antenna tuner and stored it in the closet. That's right—no tuner is needed!

### Out Of The Box

The B&W 1.8–30 Folded Dipole comes fully assembled. The sturdy, clear plastic mounting hardware is all pre-drilled and ready to use. All you have to do is carefully plan your installation, as you would for any antenna, lay it out in the yard and



Five minutes after it arrived I cut open the B&W box. That's all there is—nothing fancy or complicated.

decide how you're going to mount it. Like most antennas, erecting it isn't a one-person job. Get help. It's a whole lot easier and safer with a helper.

Take a look at the photo of the antenna and you'll see why taking the time to carefully unpack and unroll the ends is so important. I'd advise you to already have your mounting location chosen. Ideally it should be at least 25 feet high (or 12 feet for an inverted V or sloper) and 40 feet high for operation at low frequencies. Remember, height is most important. The well-written B&W instructions say, "The location will usually be deter-



The antenna's balun and balancing network fasten to this part of the Barker & Williamson mounting kit.



*One leg of the antenna bolted to a 20-foot pole; the other is attached to a similar pole on the back of a shed.*



*Mother Nature dished out the goods this past winter (and Spring!) and the B&W Folded Dipole didn't fold under the pressure.*



*The shack end of the installation. The coax runs perpendicular to the antenna down the wooden pole and into the window to the right of the air conditioner.*

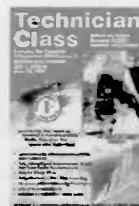
mined by tradeoffs of height, available supports, and interfering objects. Sometimes multiple trials may be necessary to judge which installation is best." That was certainly true for me. My ham transceiver, a new Ten-Tec Jupiter, was suffering from RF feedback; really the fault was mine for initially mounting the antenna too close to the shack, and once I changed the location it worked fine.

My final mounting location is shown in the photo. It is about 20 feet above

ground (the instructions call it a "flat top three-pole installation.") on a 10-foot weatherproof wooden pole. The two 45-foot antenna legs are at about a 45-degree angle into my yard.

The B&W instructions are very clear about how to keep the antenna vertically oriented. This part gets a little tricky, but if you're a former Boy Scout or handier with rope than I am, you'll do fine. My antenna hangs in the nearly proper vertical position (not flat), doesn't twist in

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the wind, and works quite well, indeed.

Total time from opening the box to finally bringing the coax into the shack was about 90 minutes. Your mileage may vary, of course.

### Using The B&W—The Logs Say It All

Let's clear the air before going any further: This antenna isn't a 1,000-foot longwire broadcast band signal catcher. But it is a very good all-around performer on the entire HF spectrum—and by that I mean all the way down to the broadcast band. My comparisons for shortwave listening/DXing would be my old standbys: a homebrew end-fed longwire and a 50-foot sloper, both fed with coax. With few exceptions, the B&W wins, hands down.

I found it to receive equally well on 49 and 120 meters; early morning reception of Papua, New Guinea, on 4890 and early evening Radio Kuwait on 11990 were nearly equally strong. It falls a little short on the low end near the middle of the broadcast band, but that's to be expected (remember, I've only mounted it 20 feet or so above ground). The usual listening fare on 11175, 11244 USB was very strong, and stations from Hickham to Andrews were loud and clear.

On the amateur bands (I didn't attempt any QSOs on 160 meters) the B&W Folded Dipole performed exceptionally well. Standard of comparison on 20 meters is a homebrew dipole cut for 14,300, and on 10 meters, a vertical antenna at 28,500. Overall there was little difference in signal strength and reports, with one exception: On the crowded 40-meter band in between international broadcasters with tons of heterodyne and hash, the B&W worked beyond my expectations. After all, 7 MHz is getting low enough where my limited antenna height might be a problem.

Several QSOs over a four-week period in all kinds of band conditions netted stations from Florida to Massachusetts, all but a couple giving me excellent signal reports. Two days into the New Year—making for a good catch and great day—on 14270, station WA8REI at Port Huron, Michigan, on the St. Claire River was 5/9, and reported my signal to be above many of the other calling stations. My output power in all instances was about 100 watts.

I checked SWR (standing wave ratio) at several operating locations. At one of my favorite locations on 20 meters, near 14300, it was 1.4:1 and didn't vary much until operating at 28500 where it was 1.5:1—certainly very acceptable. The B&W "Typical SWR" chart shows that on 160 meters it would be about 2.0:1, in which case you'd probably use a tuner. In fact many

## B&W's Lineup Of Antennas

New Part #	Length	SWR<2:1	SWR<3:1	Use	MSRP	Old Part #
BWD-20	20 ft	14-30 MHz 20-10 Meters	30-54 MHz 6 Meters	Attic antenna for 20-6 M	\$199	None
BWD-45	45 ft	7-30 MHz 40-10 Meters	30-54 MHz 6 Meters	Larger attic antenna covers 40-6 M	\$209	None
BWD-65	65 ft	4-30 MHz 75-10 Meters	30-54 MHz 6 Meters	Short MARS antenna	\$219	AC-5-30
BWD-90	90 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Covers all of HF in 90 ft	\$229	BWD-1.8-30
BWD-180	180 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Enhanced 160 M, about 1 S-unit better	\$349	None

New Part #	Length	SWR<2:1	SWR<3:1	Use	MSRP	Old Part #
BWDS-20	20 ft	14-30 MHz 20-10 Meters	30-54 MHz 6 Meters	Extra short outdoor antenna	\$349	None
BWDS-45	45 ft	7-30 MHz 40-10 Meters	30-54 MHz 6 Meters	Short outdoor antenna	\$349	None
BWDS-65	65 ft	4-30 MHz 75-10 Meters	30-54 MHz 6 Meters	Short MARS antenna	\$349	ACS-5-30
BWDS-90	90 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Covers all of HF in 90 ft	\$374	BWDS-1.8-30
BWDS-180	180 ft	1.8-30 MHz 160-10 Meters	30-54 MHz 6 Meters	Enhanced 160 M, about 1 S-unit better	\$499	None

operators opt to use a tuner regardless, just to be safe, but I didn't. My noise level on 160 meters is quite high regardless of the antenna, so operating there is pretty much out of the question anyway. The lowest SWR I measured was at 7250, where it was typically 1.3:1.

A quick word about the resistive termination in the B&W Folded Dipole: Many operators will tell you it creates losses. B&W's President, Jeffrey Engel, says, "The termination only dissipates energy that otherwise did not get radiated out of the antenna due to impedance mismatch and radiator inefficiency. In other words, if the SWR was 1:1 and the antenna wire was a perfect radiator, the termination would dissipate 0 watts." In my experience if there's any loss, it's certainly negligible. Again, you're reminded of the inherent tradeoff: It covers the HF spectrum from 1.8 to 30 MHz with no gaps and doubles as an excellent all-around SWL/DX antenna with a superior signal-to-noise ratio. What more could the pickiest operator want? Frankly, I think the B&W 1.8-30 is outstanding!

For more information on the Barker & Williamson Folded Dipole antennas, contact the company at 603 Cidco Rd., Cocoa, FL 32926; Phone: 321-639-1510; Web: <bwantennascom>. The BWD-90 1.8-30 Folded Dipole costs \$229, plus UPS shipping, and there are currently 10 available models, from short attic units to extra long 160-meter antennas! Please tell the folks at B&W that you read about it in *Popular Communications*. ■