



Comet CHA-250B Broadband Vertical Antenna

By Bob Grove W8JHD

Can simplicity yield good two-way communications? Is it really necessary to have ground radials, traps, counterpoise elements, reflectors and directors on antennas to provide usable communications? Even better, what if an antenna never needed tuning or adjustment on any frequency in the HF spectrum?

Comet Antennas has released their new CHA-250B HF vertical antenna – a straight, aluminum pipe with no parasitic elements, designed for continuous (no gaps) transmit coverage from 3.5-57 MHz (claimed voltage standing wave ratio less than 1.5:1), and reception from 1 to at least 90 MHz (claimed VSWR 3:1 at 150 MHz). Its power-handling capacity will accommodate most any conventional HF transceiver – 125 watts full carrier (AM/FM/CW) and 250 watts single side band.

A hermetically-sealed matching unit at the base is affixed with a standard SO-239 connector to fit PL-259-terminated coax cable. This lightweight antenna (7 lbs.) is 24 feet long; its thin profile accepts wind loading to 67 MPH without permanent deformation. Nonetheless, it's going to sway in the breeze!

But don't be misled by the light weight; with 24 feet of leverage, even a few pounds on the long end can put considerable torque on the guy holding the short end! The instructions wisely point out that installation requires four hands.

❖ Assembly

Everything necessary to assemble the antenna, including an Allen wrench for final set-screw tightening, is in the box; all you will need to provide will be a ruler or tape measure to insert

the element sections the correct depth, and a screwdriver to tighten one clamp. Hole alignments are accurate and burr-free; the entire assembly procedure takes about 15 minutes. Two husky U-clamps allow the antenna to be attached to any mast pipe of up to nearly 3 inches in diameter.

❖ Our field test

We decided that the best way to appraise the performance the new Comet antenna was to do an A/B test against a competitor, the well-established GAP Titan. Since it's approximately the same maximum length, but a different architecture, it would be an interesting comparison.

While the GAP can be mounted close to the ground (it also operates without a ground plane or radials), the instructions that come with the Comet say it "must be installed at least 35 feet above the ground." Was that elevation really necessary, or just a recommendation to avoid obstructions? We decided to test it up high and down low to find out if there was any difference.

❖ Reception

Over a two-day period to get average daytime/nighttime performance throughout the HF spectrum, we switched between the two antennas and discovered that whether the Comet was near the ground with its element touching tree leaves, or 15 feet above ground and out in the open, reception was the same.

Below 2 MHz, the GAP outperformed the Comet by an average of 40 dB; from 2-6.5

MHz, the two antennas were equal in performance; from 6.5-8 MHz the GAP was ahead by a few dB; from 8-12 MHz the Comet was ahead by a few dB; and from 12-28 MHz the GAP won again.

❖ Transmission

So how about transmission? On 40 and 20 meters, the GAP was 2-3 S-units (as much as 18 dB) better than the Comet; this was consistent with the difference in reception. All contacts reported a considerable difference between the two antennas, with the GAP always noticeably stronger.

❖ Recommendations

At a manufacturer's listing of \$469, the antenna may seem a bit pricey, especially when compared to the superior performance of the GAP Titan which is priced more than \$100 less. Some moderate discounting is available from *MT's* amateur radio advertisers.

Even as a "low profile" shortwave-listening antenna, LF Engineering's high-performance H800 Skymatch active antenna is only 3 feet high and one-third the cost of the Comet, yet the Skymatch's reception is roughly equivalent to a 100-foot wire antenna! So what is the attraction for the CHA-250B?

Although not a competitive DX antenna, and with the full understanding that more cumbersome antennas have better performance, there are applications for the CHA-250B. Its full-HF, continuous-frequency-coverage capability without tuning or adjustments, light weight, minimal composition, ease of assembly, and no power-supply requirement like that of active antennas, make the Comet antenna appealing for Field Day, emergency deployment, portable operating, DXpeditions, low-profile receiving and two-way installations, local HF communications, and scene-of-disaster communications.

For additional information on the Comet CHA-250B HF vertical, contact NCG Companies, Inc., 1275 North Grove St., Anaheim, CA 92806; toll-free phone 800.962.2611; they can also be contacted by email at sales@natcommgroup.com, or visit their web site at www.cometantenna.com.

