

Evaluation of a Chameleon V4 Mobile HF Antenna



Wouldn't be great if we could put just one simple mobile antenna on the vehicle, and it would tune up on multiple HF bands without the need to change "hamsticks", or use an expensive "screw-driver" antenna?

Well, the folks at Chameleon Antenna, Santa Ana California, have come up with something close, the V4 Chameleon Antenna. (website: <http://chameleonantenna.com/>) For \$99 USF, the Chameleon V4 covers the range of 14.350 MHz to 160 MHz (20M to 2M). It measures 60" overall, using a 56"

slender whip.

As advertised, I found it to be simple but robust and appears to offer little wind resistance.

My interest was mainly for 6M, 10M, 17M and 20M. Using my 706MKIIG and the LDG Z100 autotuner, I had no trouble getting a match on bands from 6m , even to 40m. (Note: only spec'd to 20M)

Mounting:

The manufacturer points out that a good solid ground to the vehicle chassis is essential for best performance. Note that this antenna is not intended for use in a mag-mount. It has a separate SO-239 connector on the side.

The base of the V4 terminates in a 3/8-24 threaded stud, but this is intended to be grounded. I did so by mounting a 3/8-24 threaded nut on a ground plate clamped to one of my Jeep's roof mount bars. I ensured a good ground using a short length of tinned braid connected to a screw in a tapped hole in the bar itself.

SWR Performance:

This is essentially a non-resonant antenna, with the exposed whip length chosen to not be self-resonant in any ham band. In fact the $\frac{1}{4}$ wave resonance works out to be around 49 mHZ, and was verified as that with my MFJ-269 antenna analyser.

Here are the SWR's that I measured on the V4 antenna, not using a tuner:

Band	Test Frequency	Measured SWR
6 m	50.125	1.8
	52.030	2.0
10 m	28.365	2.2
12 m	24.940	2.2
15 m	21.285	2.4
17 m	18.144	2.6
20 m	14.185	2.6

Note that this range of swr's are well within the auto-tune range of most any tuner.

Actual operating results:

I love technology, experimentation and the challenge of making hardware work, but for an "expert" opinion of the actual performance of this antenna, I turned to my friend Joe Verdirame, VE3LNU, who used it for a week on his daily commute into downtown Toronto. Joe is a self-acknowledged mobile HF addict and makes dx contacts on a daily basis.

Here is a bullet summary of our joint findings:

- Remember, since this is not a resonant antenna, there will be some performance compromise compared to a resonant "Hamstick", or tuned screw-driver type mobile antenna.
- However, when conditions are reasonable, it will work for you; mobile contacts were made using this unit into France, and Wales on 17m, and Kansas on 6m
- Our perception is that using the V4, the receive sensitivity is somewhat less than experienced with a tuned hamstick. When band conditions are good, this would not be a significant issue.
- The manufacturer suggests it is not intended for 40 or 80m. However, our findings were that it was easily matched on 40 with the auto-tuner.
- The manufacturer suggests that in stationary use, such as field day, expeditions, etc. connecting a 25 ft elevated wire to the V4 can make a huge difference.
- Overall, the antenna may be a good choice for the amateur who is willing to compromise a little and who likes to operate mostly in the range of 6 to 20, meters, with maybe the occasional foray to 40

meters. If used stationary with a counterpoise, my guess is it likely would yield acceptable results on 40.

I am pleased with the antenna. However I am a casual HF mobile user and enjoy the convenience of having multiband ops in a single antenna, even if its not the utmost in efficiency.

I have programmed my 706MKIIG with a half dozen "dx" frequencies in each ham band from 160 to 6m. Using the V4, I can quickly scan through the bands to note which (if any) are active. Then I can switch to VFO on a given band, auto-tune and operate.

Note that I am not promoting use of this antenna and have no financial interest in Chameleon Antenna. I am simply sharing my findings with other hams.

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