Product Review: MFJ-1775 6-Band Rotatable Mini-Dipole
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Introduction

When I saw the MFJ-1775 compact dipole the MFJ catalog, it caught my interest as I live on a small city lot with a backyard completely taken up with a swimming pool. So I only have room for a 43-foot vertical in the corner of my yard, up against a cedar fence and surrounded by large shrubs. Obviously not the best antenna situation, though it has been good enough to provide me plenty of fun. However, I have wanted something that could possibly give me improved performance, especially on the higher HF bands.

MFJ-1775 Description

The MFJ-1775 is a mini 14-foot 40/20/15/10/6/2-meter rotatable dipole designed to fit on the smallest roof, making it perfect for town houses, apartments and condos. It can even be mounted inside an attic. It is light, inconspicuous and low profile, and is not much bigger than a TV antenna making it easily turned by a lightweight TV rotator. Efficient end-loading coils and capacity hats permit full 1500 watt legal limit power on the HF bands. Full-length half-wave dipoles for 6- and 2-meters are incorporated into the antenna, but power handling is reduced on these bands due to the design of the balun.

RF Specifications

	Power		
Band	CW	SSB	2:1 SWR BW
40m	1500	1500	40 KHZ
20m	1500	1500	60 KHZ
15m	1500	1500	400 KHZ
10m	1500	1500	1.2 MHZ
6m	300	750	600 KHZ
2m	200	300	4.0 MHZ

Mechanical Specifications

Mast Size:	1- to 1-1/2” diameter
Overall Length:	14 feet
Turning Radius:	7 feet
Weight:	15 pounds
Wind Load:	2 square feet

The MFJ-1775 Experience

The MFJ-1775 is delivered in a 6” x 6” by 5-1/2 foot box. I guess I was expecting a larger package – after all, this is an HF antenna! However, the longest piece supplied is just 5-feet in length, so everything fits easily into the small box. Photo A shows all the components of the disassembled antenna spread out on the floor of my “shack”.

Photo A: MFJ-1775 Unpacked – All parts are shown

I assembled the entire antenna inside my home, except for the final job of attaching the end loading coils. I moved the antenna outside for the final assembly using saw-horses for support. It took me just under two hours for the complete assembly. Photo B shows the completed antenna. Note how difficult it is to see the capacity hat spokes! MFJ warns you to use eye protection to prevent injury when working around this antenna.

Photo B: Fully assembled MFJ-1775

Next comes antenna tuning. This entails trimming the capacity spokes with a pair of heavy wire cutters while monitoring SWR with an antenna analyzer. First, you must mount the antenna temporarily at a height of about 6-8 feet so that you have access to the spokes for trimming. I had a 1.5-inch diameter tube, and a 1.375-inch diameter tube that I telescoped together so that I could lower the antenna to about 5-feet for trimming, and then extend it to about 10-feet for checking the tuning. The tubes were attached to fence posts with hose clamps. Photos C and D show my trim/test set-up. The MFJ-1775 Assembly/Test manual gives approximate spoke trimming lengths versus frequency change, and recommends that you "sneak up" on the desired resonance points, as it is hard to add spoke length if you trim too far. I was careful to do this, and wound up trimming about ¼" at a time from the spokes. This tuning effort took me approximately three hours. Six- and 2-meter tuning takes just a few minutes, as adjusting those dipoles

is very easy. There are some spurious 2-meter resonances that could be confusing, but the MFJ manual does a good job of explaining how to tune around these resonances.

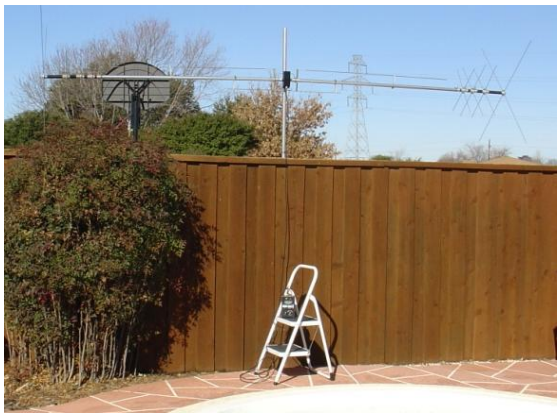

Photo C: Trimming Height

Photo D: Measuring Height

Once the antenna was tuned, it was time for me to put it up. My desired location was a mast on my chimney. As the MFJ-1775 is so light, it was very easy for me to install it - literally a one-man job. The Photos E and F show the MFJ-1775 in its final position. Note how unobtrusive the antenna is!

Photo E: Sidewalk view of the MFJ-1775

Photo F: Close-up of the MFJ-1775

Performance

As everyone knows, HF band conditions are still poor, and may continue to be so for the next several years. However, there is good activity on 40- and 20-meters. And I have been lucky enough to find a little activity on 15- and 10-meters as well. So, how does the antenna perform? I was pleasantly surprised.

My antenna conditions are as follows: The MFJ-1775 is located at a height of about 30-feet as shown in the photos. This antenna was compared against my ground-mounted 43-foot vertical which is mounted in the corner of my yard, surrounded by a cedar fence on two sides and a 15-foot shrub immediately in front of it. The vertical has ten short

random length radials fanning out 90-degrees towards one side of the swimming pool, one radial tied into the swimming pool electrical ground, one radial tied into the steel landscape edging around one end of the pool, one radial extending along my neighbor's fence that "T's" off my fence, two radials extending along my fence and grounded every 6-feet to the steel fence posts, and one radial that sneaks through my fence and ties into the CATV ground in the alley! Definitely not the best antenna location and ground plane overall, but about the best I can do.

I used my Elecraft K3 S-meter for the antenna comparison. I have a MFJ-4726 transceiver/antenna switch (see the review of the MFJ-4726 on this website) so I can rapidly switch antennas for performance comparisons. The results shown below are based on two weeks of active operating and monitoring. However I'm not claiming that these S-units will translate exactly between different radios.

Band	MFJ-1775 compared to Butternut
40M	+0 to -3 S-units better/worse than vertical
20M	+1 to -1 S-unit better/worse than vertical
15M	+1 to +2 S-units better than vertical
10M	+1 to +3 S-units better than vertical t

Generally the MFJ-1775 averages about 1-2 S-unit worse than the vertical on 40-meters (at 30-feet, the MFJ-1775 is about ½ the desired height for a 40 meter dipole), and performs about the same as the vertical on 20-meters. The MFJ-1775 almost always outperforms the vertical on 15- and 10-meters. And the MFJ-1775 has a 2-3 S-unit LOWER noise floor on 40-meters compared to the vertical. Not bad for a shortened, loaded dipole at 30-feet!

And how about 6- and 2-meters? Well, there has been no 2-meter activity since I've put up the antenna. However, I have had numerous 6-meter openings and I can easily work both coasts running my K3 at 100 watts.

Conclusion

If you are unable to put in an effective antenna system due to property restrictions, you may want to consider the MFJ-1775. Of course there is a bandwidth trade-off due to the reduced size of this antenna on the 40- and 20-meter bands. However, the MFJ-1775 is a surprising performer. And besides getting coverage of the popular 40-, 20-, 15-, and 10-meter bands, you get 6- and 2-meters thrown in to boot!