

## Cutting the Cable (or Dish) with Antenna TV

By Tom McMorris (mcmorrisphoto.com)

In today's world it seems that the cost of everything keeps climbing and climbing including the price of cable or satellite TV.

My wife and I realized that most of the time we were watching Network TV (NBC, ABC, CBS) programming. So why should we pay for something that we can get for FREE! Over the past year we experimented with alternatives to cable or satellite TV and here is our journey.



Antenna TV first got our interest when we constructed a home-made TV antenna. I was amazed that we could actually receive some watchable channels.

The problem with this simple antenna is that it only received about three channels, not much of a replacement for our satellite TV.



We then investigated which off-air antennas were recommended for our area. One station listed the Winegard Antenna Model #HD7084P as best to receive their signal. One thing you need to pay attention to is what channels you want your antenna will receive. Many antennas only receive channels 7 and up so be careful if you want channels below 7 in your area.

I checked antennaweb.org and it said we should only be able to receive three channels!! I also checked the government website (<http://transition.fcc.gov/mb/engineering/maps/>) and it also said we would receive only about three channels. Other sites indicated we would not be able to receive any signals in our area. So don't automatically believe the information on the web sites.

In spite of the possibility of only receiving 3 channels (or none at all), we decided to purchase the above mentioned Winegard antenna along with a mast pole and mounted it on top of a pole near our house.



Note: When I mounted the antenna on the pole I added a piece of angle iron to the mast to reinforce it. The middle of the angle iron is attached by the top of the pole since that is where the most stress is on the mast.



The reception with our new antenna was ok, but sporadic. With a digital TV signal it is all or nothing. You either get a good signal or it is unwatchable unlike the old analog broadcast system.



At this point we were receiving channel 6 signals and it seems channels 10 and 13 signals would alternate as to reception. Note that most of the off-air channels have multiple channels. Channel 6 has 6.1 and 6.2- channel 10 has 10.1, 10.2 and 10.3. Channel 13 has 13.1, 13.2 and 13.3 etc.



We next added a bidirectional amplifier to our system where our coax TV cable comes into the house.

This type of amplifier is relatively inexpensive (about \$30 from Radio Shack model# 15-2505) and easy to put on your system. The amplifier helped to stabilize our signals and definitely helped make our channels more viewable, but it was still not great and not to the level where we would consider cutting our satellite TV.

After conducting more research I found out that, with digital TV, almost every off-air TV antenna setup needs a pre-amp to receive signals properly.

We purchased a Channel Master preamplifier model #CM-7777 (pictured to the right) to help us with our signal. This can be purchased on line at a variety of websites including [www.channelmasterstore.com](http://www.channelmasterstore.com)





The pre-amp has two parts- one that attaches to your mast just below your antenna (pictured above) and is connected in your feed line to the house.

The second part of the pre-amp goes in the house where your TV line come in and is also put in the line (shown to the left).

The part in the house has to be plugged into an outlet and feeds power back to the antenna to boost the signal.

The pre-amp on our antenna system made all the difference. We now receive 22 to 24 channels off-air at no cost and the signal is in High Definition (for the programs that are broadcasting in HD).

Reception on some channels can still be broken up from time to time depending on the weather.

Our neighbor, that still has both a satellite dish and an antenna, was watching a program on satellite when a storm came through. He lost the signal from the satellite so he switched to the “Free” antenna signal to watch it.

After a year of experimenting we finally “Cut the Cable” or in our case satellite TV and now use FREE- Antenna TV in HD. We were spending \$80 a month on satellite TV and we now spend zero saving us hundreds of dollars a year.

## **Additional Equipment-**

Do you want to record your off-air programs? No problem you have several choices of how to record shows. One is (and the easiest) to purchase an off air DVR from Channel Master. Go the Channel Master Store at [http://www.channelmasterstore.com/HD\\_DVR\\_with\\_no\\_subscription\\_p/cm7400r.htm](http://www.channelmasterstore.com/HD_DVR_with_no_subscription_p/cm7400r.htm) for information about their DVR. The DVR also provides you with a viewing guide.

Another way to record your programs is to connect a computer, with a video capture card and TV tuner card, to your antenna and TV. Using Window Media Center you can view the broadcast schedule and record programs. You can also view programs that are available on the Internet.

To maximize your reception you can add an antenna rotator. This device is mounted with the antenna and allows you to rotate the antenna to tune in your station. Information about the Channel Master rotator can be found at [http://www.channelmasterstore.com/TV\\_Antenna\\_Rotator\\_p/cm-9521a.htm](http://www.channelmasterstore.com/TV_Antenna_Rotator_p/cm-9521a.htm) .

## **Apple TV, Roku Box or Computer**

If you have a high speed Internet connection you can purchase an Apple TV or Roku box which allows you to stream movies etc. through your TV. You can also connect a computer to your TV to watch Internet content. More and more shows are available through the Internet although some charge for content such as Netflix.

## **Conclusions:**

In our case it has definitely been worth “Cutting the Cable”. We spent around \$400 to get our antenna set up so it will not be very long before it will pay for itself.

Is our set-up perfect—No, but it is pretty darn good especially since our TV is now FREE!

## What Do Really Need to Cut the Cable?

- A good antenna that will receive the channels you want
- A pre-amp to maximize your reception
- If you have an older TV you will need a converter box to change the signal from HD to analog. When broadcasters changed to digital the FCC gave out coupons that could be used toward the purchase of these boxes. They currently cost about \$40. Newer TVs do not need the converter boxes receive antenna signals.

## Antenna TV Channels We Receive

6.1 WRGB	13.3 Local Ch 13 Weather	45.3 WRGB (may be same as 6.1)
6.2 THIS	17.1, 17.2, 17.3 WMHT PBS	
10.1 WTEN	23.1 FOX WXXA	51.1 MY 4 Albany
10.2 Local Ch 10 Weather	23.2 FOX Music Videos	51.2 WNYA
10.3 Retro TV	28. 1, 28.2, 28.3, 28.4 VT PBS	55.1 ION
13.1 WNYT Ch 13		55.2 QUBO
13.2 Me TV	45.1 CW15	55.3 ION LIFE

## Do It Yourself TV Antennas

You may want to try a do-it-yourself antenna before you purchase a real antenna. If so here is information to make your own antenna.

We first came across plans for a "Do It Yourself" digital TV antenna in the January 2011 issue of Popular Mechanics.

The article on page 84 provides one version of how to build your own off-air TV antenna.

We also Googled home-made antennas and came up with various plans.

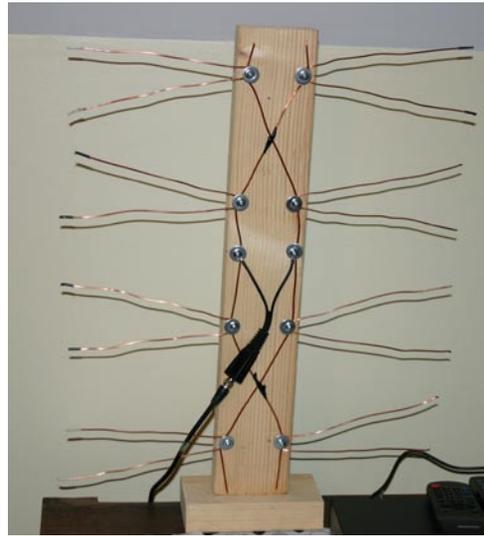
The one plan that seemed to be pretty generic comes up when you Google "coat hanger antenna plans". Below are three results for that search.

I made two antennas with the plans we found. We did not have washers available for the first one so we used soda bottle tops.

You can substitute various sizes of lumber, screws, etc., but from what the plans say you do not want to vary the distance between the screws.



First Antenna



Second Antenna

Pictured above are the two versions of the antenna I made. Here is what I used to make my second antenna:

1- 22inch- 2 x 4 with a 6 1/2 inch 2 x 4 piece for the base.

10- # 8 x 1 inch lath screws

10- 1/4 inch flat washers

2- 3 inch sheetrock screws to fasten the two pieces of 2 x 4 together.

8- 16 inch pieces of house wire that you bend in a V shape.

2- 22 1/2 inch long pieces of house wire to connect the V shaped pieces.

1- matching transformer, this has a coax connector on one end and two U connectors on the other. You need the transformer to connect your antenna to a coax cable. The transformers are available at hardware stores, Radio Shack (around \$5) or even Dollar Stores.

Caution- the transformers from Dollar Stores have short wires so you may need to modify your plans a little.

**Note-** the main difference between plan #1 and mine is that I used a 2 x 4 (22 inches long vs 20 inches) and I used a piece of 2 x 4 as a base.

**Plan #1** <http://current.org/ptv/ptv0821make.pdf>

**Plan #2** <http://www.tvantennaplans.com/> Has **how-to videos** and is similar to the first one.

**Plan #3** <http://uhfhdtvantenna.blogspot.com/> This plan is a little fancier than the others.

The final part I needed to make this work was a converter box since my old TV would not process digital signals.

When I connected all of this together- the converter box scanned for signals, and all of a sudden I was watching Public TV channel 28 out of Vermont.



As you see above- we received four crystal clear channels in this room- Ch. 28.1, 28.2, 28.3, & 28.4 which is PBS out of Vermont.

We liked the reception so much we made a second antenna and connected to a TV in another room. This time we put the antenna in a crawl space near the TV.

To our surprise we received three different channels on this set-up, Ch. 10.1, 10.2, & 10.3. Channel 10.1 is the regular Ch. 10 programming, Ch. 10.2 is usually Ch. 10 weather, and Ch. 10.3 is Retro TV (Dragnet, I Spy and Kojak) and again the picture is crystal clear.

Not bad for a project that used scrap lumber, old house wire, and a few screws.

I was impressed that such simple (and cheap) creations actually work as well as they do.

For only a few dollars anyone can make one of these antennas and receive FREE TV.

## **Here is a guide to TV antennas**

### **Types of Antennas**

Following is a description of different types of TV antennas, both indoor and outdoor. Information provided includes the type of antenna, a general description of how the category of antenna performs, a general description of the physical appearance of the antennas, and where they may optimally perform in relation to the color code of the station you want to receive.

### **Guide to Antenna Box Labeling**

When purchasing an antenna, look for the CEA-certified antenna mark for outdoor antennas (which corresponds to the colors on your stations list). There is also a CEA-certified indoor antenna mark, which does not apply to this mapping system, but certifies that your indoor antenna will work in geographic areas that are appropriate for indoor antennas.



## CEA-certified Antenna Mark for Outdoor Antennas

Antenna color codes are broken into six different zones. These zones identify the different types of antennas that are required for a consumer to receive optimal reception. Typically, the closer consumers live to the signal tower, the better reception they will receive. They may also be able to use an indoor antenna versus an outdoor. The farther away a consumer lives, the opposite is true. However, there are many variables that impact exactly which antenna a consumer will need.

### Indoor Antennas

Due to multiple variables in determining good reception in a specific location with indoor antennas, these antennas are not included in this mapping system. This mark, however, assures that an indoor antenna meets or exceeds CEA performance specifications for indoor antennas in households that can use indoor antennas.



### Outdoor Antennas

Look for the CEA-certified antenna mark on outdoor antennas, based on the colors of the stations you want to receive:

#### Outdoor Antenna Types

##### Small Multi-directional

- DESCRIPTION** The smallest of TV antennas, they receive equally well from all directions.
- APPEARANCE** Good looking designs including novel shaped disk and patch antennas, and antennas that attach to satellite systems.
- USE** This is where signal strength is highest and away from reflecting structures or low areas.
- COLOR CODE** Yellow

##### Medium Multi-directional

- DESCRIPTION** Somewhat larger and slightly more powerful
- APPEARANCE** These antennas include novel stick, wing shaped or disk antennas with long elements.

**USE** An amplified antenna is recommended in the green area anytime a long (20 feet or more) cable run from the antenna is required, or when more than one device (TV or VCR) is to be used with an antenna. They work best away from reflecting structures or low areas.

**COLOR CODE** Green

### Large Multi-directional

**DESCRIPTION** Bigger in size, these antennas receive more signal power. Better for greater distances from signal source and areas with low signal strength.

**APPEARANCE** Styles include element antennas. These antennas can be used to reject simple ghost situations.

**USE** When mounted at rooftop heights (30 feet or higher) outdoors, amplified antennas can be used in light green color code areas away from reflecting structures or low areas

**COLOR CODE** Light Green

### Small Directional

**DESCRIPTION** Antennas that act like large multidirectional on channels 2-6 but on higher channels these antennas start to have useful ghost reducing effects. Picture quality is excellent when no signal reflecting structures are around.

**APPEARANCE** Multi-element rooftop antennas.

**USE** Suitable for far edge of light green color code areas. Amplified antennas with rooftop mounting can be used in these areas if the area is free of signal reflecting structures and is not in a low area.

**COLOR CODE** Light Green

### Medium Directional

**DESCRIPTION** Most popular rooftop antenna because of its modest size and ghost reducing characteristics.

**APPEARANCE** Multi-element rooftop antennas.

**USE** If there are ghost producing reflective structures near TV receiver antenna location, this kind of antenna is best for yellow, green, light green and red color code areas. Amplified antennas with rooftop mounting can be used with the blue color code.

<b>COLOR CODES</b>	Yellow
	Green
	Light Green
	Red
	Blue

**Large Directional**

**DESCRIPTION** Large antennas used in weak signal areas for maximum possible TV reception.

**APPEARANCE** Multi-element rooftop antennas.

**USE** Can be used in any color code area, but requires an amplifier and roof mounting for blue and violet color codes. Amplifiers are not recommended for yellow color codes.

<b>COLOR CODES</b>	Green
	Light Green
	Red
	Blue - with amplifier

(Source antennaweb.org)