

# Antenna Reference Guide

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When Congress and the Federal Communications Commission changed television viewing from analog to digital, the method in which to receive the signal also changed. In the “old days” someone could put rabbit-ears on top of their TV, or point an antenna on the outside towards Toledo, Fort Wayne, or Dayton.

Digital Television is more “fragile” than analog, meaning that it’s unforgiving to interference and signals which are flawed by reflections. You probably saw what is called a Ghost in an analog picture years ago. The ghost is caused when the signal from the television station goes directly to the antenna, and a reflection of that signal also meets the antenna. The two signals arrive at different times, causing the ghost in the picture. If you were like my father, you would daily adjust the antenna for the best picture, but it was never perfect and you lived with what you got.

Today, digital can not have reflections. This causes a complete loss of reception. Therefore, we at WLIO do not recommend anyone use rabbit-ears, a non-directional “pancake” antenna, or any small indoor antenna. Since June 2009, we have seen less than 2% success with receiving signals with indoor or non-directional antennas.

The only way to successfully receive a digital station with 100% certainty is with an outdoor antenna of good quality, with decent cable from the antenna to the set. There are several antennas that we have found that do the job.

Some people have chosen to use Dish Network or DirecTV as their premium choice. One service does not carry our stations. The other one does, but they charge a fee for local stations, and the signal you get will not be in HD. What we recommend is when buying your service, ask them to put an “over the air” antenna on the same pipe as the dish mounts, and program your box so you get all the local stations.



The antenna you see to the left is the Winegard model HD-1080. This antenna safely mounts to the top of the pole holding the dish. It is a UHF and VHF antenna. They cost between \$19 to \$35 at various stores and web sites. One dish installation company was installing them at no charge if people wanted their local stations. The connection from the antenna can be fed down the same coax with a combiner, or Siamese-coax to the

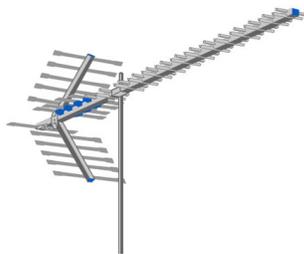
television set. Looking at our coverage maps, if you are in the green areas, you can use this antenna with good success. The only time we have seen these antennas fail is when not installed properly.

If you are out further from the television station, you may have to get a larger antenna. If you are out in the red area of our coverage map, you may have to get a tower or place the antenna up high. The antenna should be at minimum 30 to 50 feet up off the ground, and in the clear of obstructions. With a 30 foot tower in the country, for example near Lafayette OH, you should be able to get stations in Lima, Fort Wayne, and Toledo OH.

## ANTENNAS

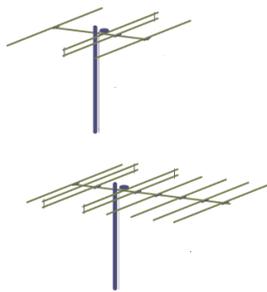
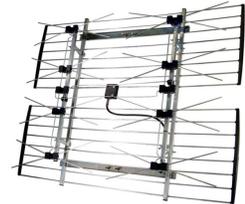
Like anything in life, quality is not free. A cheap antenna will give you cheap results. Antennas come in two styles, band specific, and combo. A band specific antenna is one that will receive a VHF station or a UHF station. VHF antenna starts at channel 7 and go to channel 13. (The antenna is also good for picking up FM stations). A UHF antenna is used for channels 14 to 51. A combo antenna receives channels 7 to 51, but there is a slight degradation in signal quality. Rule of thumb ... the farther away from the station, the larger, or more gain you need.

If you are in the 71 to 81+ dBu range (green on our map), you can use the Winegard HD-1080 antenna or a combo antenna to the right. The longer elements are used for VHF pickup, while the front, shorter elements and the "V" are for UHF station pickup. This antenna weighs about 8 pounds and can be mounted to the chimney or a pole attached to the soil stack on the roof of the house. Cost \$60



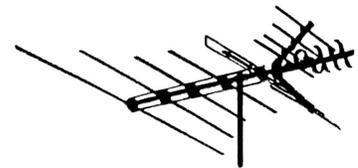
The UHF only corner reflector is the most common antenna in the 71 to 81+ dBu range (green on our map) for reception of UHF TV stations. This antenna will not pick up VHF stations reliably. This antenna weighs about 8 pounds as well, and costs in the \$20 to \$30 range. It's very common among antenna installers.

Another antenna is the Flat Panel style as seen to the right. These are typically used for more distant viewing, (because they have more gain), but they are preferred by more antenna people because of accuracy. They weigh 14 pound and cost about \$30 to \$50 in stores.



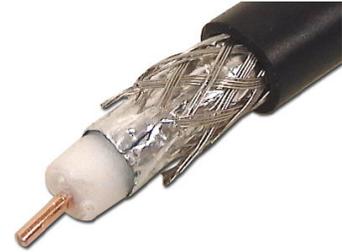
The antennas to the left are VHF only. The top antenna is for local viewing, while the antenna on the bottom is for distant viewing. You can not receive UHF stations on this antenna. The top antenna is about 7 to 8 pounds and costs about \$30. The bottom antenna is 10 pounds and costs about \$45. These antennas can be mounted with the UHF antennas above and combined so one pole can hold two antennas. A common cable comes down to the television set.

A combo antenna, one which will receive UHF and VHF stations together is often a good choice. You will pay about \$75 for a good antenna. They come in sizes from small to large. Seen at the right is the medium antenna. The largest of these antennas can be 6 feet long.



## CABLE

Always use a good quality RG-6 coax cable from the antenna to the set. I strongly suggest not using a cable called twin-lead. An RG-6 cable has the lowest loss, and it's designed not to pick up interference from other signals or the reflections of the TV signal. It's the best to use. However, you have to buy connectors that go on the end of the cable, and installing them can be a pain. Sometimes it's easier to have someone install them for you. The cable should run from the antenna to the set.



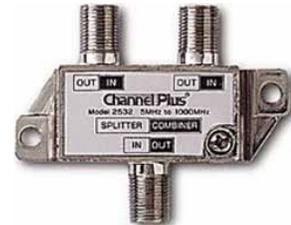
## ROTORS



Unless you want to point your antenna in one direction and never move it, a rotor is a good investment. Seen to the left is a rotor attached to a pipe on the chimney. This allows the viewer in Bluffton to point the antenna toward us, towards Fort Wayne, or towards Toledo. A rotor costs about \$75 for a good quality device. Be sure to allow for a loop of Coax Cable when you go past the rotor, so the cable will not bind up and cause the cable to break.

## SPLITTERS

Splitters allow you to take the signal from the antenna and feed it to two or more television sets. The caveat to this is whichever direction you point the antenna is going to be the signals for both sets. In other words, if you live in Findlay, and the antenna is pointing toward Lima, your other set can't get Toledo. They make splitters up to 12 outputs, and some come amplified. (read below).



## BOOSTERS

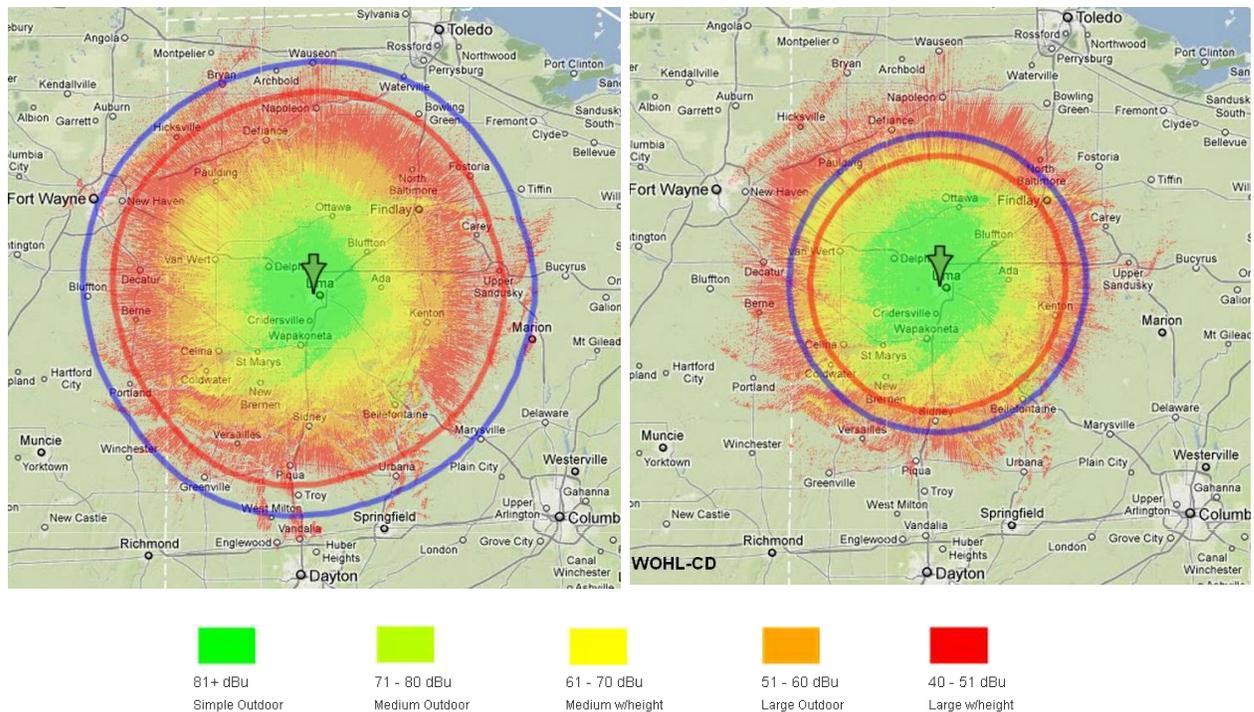


Boosters, like you see to the left, are amplifiers of TV signals. They also amplify other things, which is why I don't like them. If you are out in the country, away from high power TV, and radio signals, a booster might work pretty well. If you live in Lima, and you get one to get Toledo or Fort Wayne, be prepared to have problems. Our station, as well as other TV stations, and FM stations may cause intermodulations distortion. This can actually cause you to lose stations you wish to view. Be very careful when buying a booster, and make sure it's a very good quality device. Again, you get what you pay for!

## LARGE ANTENNAS

If you live in the yellow or red areas of the maps, you may have to get a large antenna and mount it on a tower or pole. When doing so, be careful of high voltage lines. The power coming into your house from the street is lethal.

See the maps below to judge what type of antenna you need for viewing.



WLIO's coverage area is seen on the left. WOHL's coverage area is on the right. When selecting your antenna, the green area is where you can use a small antenna. The red area requires a large antenna and it needs to have some height.

Again, stay away from indoor or non-directional antennas. These antennas, (while making bold claims), typically don't work. You won't have too much success unless you are lucky.

One final note; we do not grant waivers, (regardless of what the installer or satellite salesman tells you), if you don't want to get an antenna. We have performed extensive tests in the west central Ohio area, and we have found no locations where you can't get a signal with a standard television antenna.

If you are a landlord, you are obligated by law to provide reasonable access to tenants to receive television signals. This may mean you need to grant them the ability to install an antenna, or install it for them. Tenants have the right to receive free over the air television.

WLIO and WOHL are the stations for the ABC, NBC, CBS, and Fox network. You may not direct them to take a paid for TV option bypassing WLIO and WOHL.

## Satellite Dish Antenna Choices



The antennas above represent the indoor variety. Many come with claims of superior performance. These types of antennas typically don't work unless you are within three miles of the TV station, and your TV set is on the second floor of the home with the antenna facing the station's location.



The antennas above represent the outdoor non-directional antennas. The one on the left is a non-directional antenna, which was designed for the RV industry. The one on the right is what some satellite dish people were told would work for receiving over the air television. As quoted in one trade magazine, "it picks up poorly in all directions."



The picture to the left shows the correct way to install a TV antenna on a satellite dish system. The satellite position is set first, and then the antenna is positioned toward your local stations. You can also install a rotor if you want to receive different towns.

Your satellite dish installer should have no trouble in setting you up with an antenna like this. The antenna seen to the left is a medium to large UHF antenna used for reception in outlying counties. You may wish to substitute a smaller antenna if you live within 20 miles of WLIO & WOHL.