

## Antennas and Digital Television

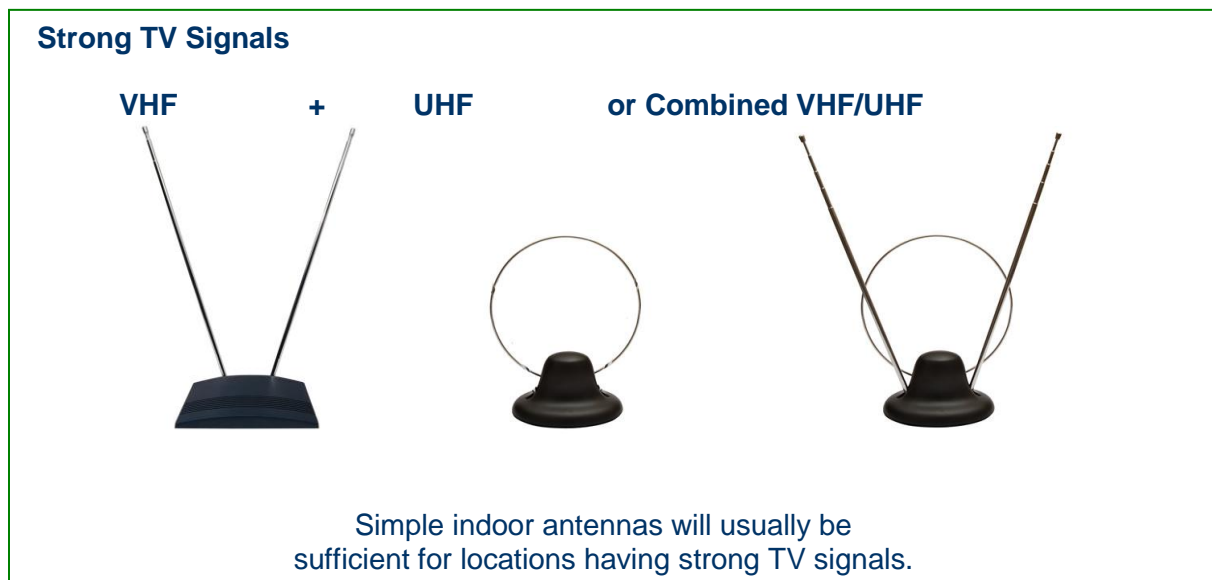
Broadcast TV stations in the U.S. have switched from analog to digital transmissions. This guide provides information on TV antennas and tips for obtaining good quality reception of digital broadcasts.

### What Kind of Antenna Do I Need to Receive Digital TV Signals?

To receive digital TV signals from all stations, it is important that your antenna be able to receive both VHF channels (channels 2-13) and UHF channels (channels 14-51). Some antennas only provide good reception of VHF or UHF channels, but not both. For example, indoor “rabbit ears” usually need to be augmented with an additional “wire loop” or “bowtie” antenna (see pictures below) in order to pick up signals on UHF channels. Consumers should be aware that even if they use a digital-to-analog converter box, they will still need to use an antenna to receive DTV signals. Many of the antennas currently being sold as “HDTV Antennas,” perform best at receiving UHF signals; some of these models state that they provide reception of signals on channels 7-13 but actually perform less well receiving those channels. If you obtain one of these antennas, be sure it provides good reception of all the VHF channels as well as the UHF channels. The reception capabilities of TV antennas also vary considerably, so be sure to talk to retail consultants and look at information on the packaging and/or the Internet to make sure that any new antenna you may choose provides good reception of both VHF and UHF channels. In addition, if you use an indoor antenna and receive signals on VHF channels, you may need to use an antenna with amplification. To check for the DTV signals that are available at your location, use the DTV Reception Maps available at [www.fcc.gov/mb/engineering/maps](http://www.fcc.gov/mb/engineering/maps).

### Antennas for Reception in Different Signal Conditions

The antennas shown below will work for the indicated signal strength in most instances, but may not work in all cases. Indoor reception of TV signals may be affected by factors such as nearby buildings, trees, terrain or home construction.



## Moderate TV Signals

High quality indoor antenna (check the box for information) or an outdoor antenna may be appropriate



## Weak TV Signals



Outdoor antenna is appropriate. See [www.antennaweb.org](http://www.antennaweb.org) for guidance on the type of outdoor antenna you may need.

You can check the signal strength of your local stations at [www.fcc.gov/mb/engineering/maps/](http://www.fcc.gov/mb/engineering/maps/). This webpage will help you find out whether you remained in the coverage area of your local stations once they started broadcasting in digital. In addition, for consumers who may wish to purchase outdoor antennas, information on the appropriate type of outdoor antenna for your location can be obtained at [www.antennaweb.org](http://www.antennaweb.org). Note that the type of antenna needed at a specific location may vary depending on geographic location, the height at which the antenna is used, the presence of nearby structures and other local factors.

## Try Using Your Existing Antenna First

If your television received good quality reception on analog channels 2-51 with a broadcast antenna, it should be able to receive digital television (DTV) signals, including high definition television (HDTV) signals, with the same antenna. You do not need to purchase a "DTV antenna" or an "HDTV antenna" to receive DTV or HDTV signals; however, your antenna must be able to receive both VHF and UHF signals as indicated above.

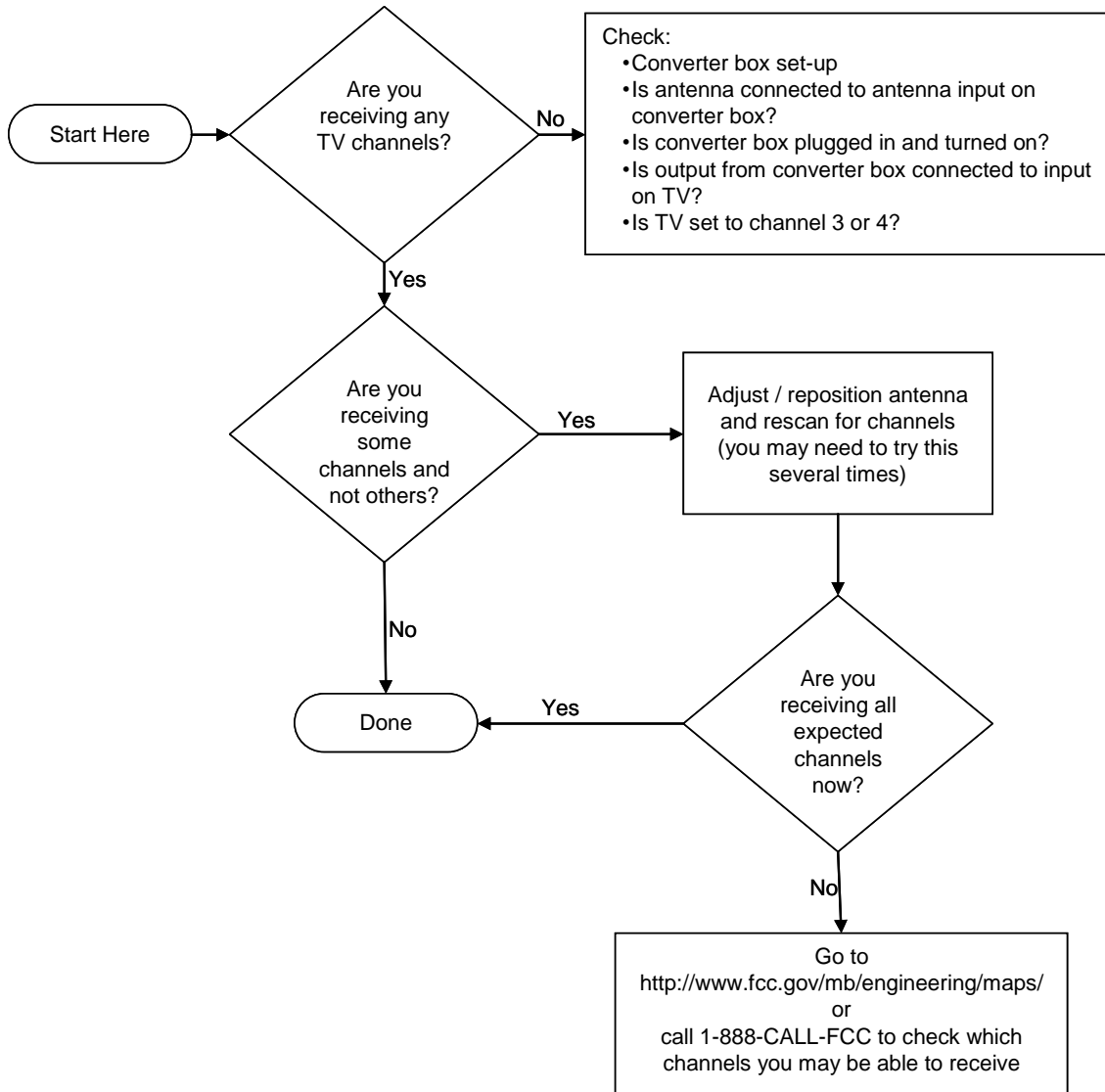
Before making any changes to your current antenna or antenna system, you should check, using your digital-to-analog converter box or digital TV, to see if your antenna receives the digital signals being broadcast in your area. Once you have connected your digital-to-analog converter box to your analog TV and to your antenna, you should perform a "channel scan." You should also perform a channel scan if your antenna is connected to a digital TV.

Digital-to-analog converter boxes and digital TVs have a button, usually on the remote control that is labeled "set-up" or "menu" or some similar term. Press that button to access the set-up menu. Scroll to



the option that allows you to search for digital broadcast channels that are available in your area using the directional arrow buttons on your remote. Consult the owner’s manual of your digital-to-analog converter box or digital TV for detailed instructions on how to perform a channel scan for your device. **You should perform a channel scan periodically to check whether additional digital channels have become available.** In many cases, this is all you need to do to watch digital television broadcasts.

**Flowchart for diagnosing reception problems**



**Reception Tips**

- Digital TV reception can often be improved just by changing the location of your current antenna, even as little as a few inches. For example, moving it away from other objects or placing it higher or lower can often improve reception. Be sure to move the antenna slowly as digital TV tuners need a little time to properly detect the signal. You need to rescan for available signals if you are missing channels.



- Antennas typically need to be oriented or “aimed” to get the best signal from the desired station. While adjusting your antenna, it may be helpful to access the “signal strength meter” on your digital-to-analog converter box or digital television to determine whether your adjustments are improving the signals’ strength. The signal strength meter is usually accessed through the menu feature on your remote control. Refer to the owner’s manual of your device for detailed instructions on how to access its signal strength meter. Remember to do another channel scan after you have adjusted your antenna. For outdoor antennas, a rotor that re-orientes the antenna can improve performance, particularly when trying to receive stations that transmit from different locations.
- If you are unable to get satisfactory reception with your current indoor antenna, you may wish to add a clip-on bow-tie element (see picture above) or obtain a combination indoor antenna that includes features for reception of both VHF and UHF signals and/or an amplifier to boost the received signal.
- Generally, an outdoor antenna will get better reception than an indoor antenna.
- If you are near a station’s broadcast tower, reception of that station, as well as other stations, can be impeded by strong signal “overload.”
- If you decide to replace or upgrade your outdoor antenna, websites such as [www.antennaweb.org](http://www.antennaweb.org) provide information on the locations of broadcast transmitters and the types of outdoor antennas appropriate for the stations you wish to receive. If you need assistance with upgrading your antenna system, check with a local antenna retailer or antenna installer.
- If you are not receiving certain digital TV stations, this does not necessarily mean there is a problem with your antenna or receiver. Check with the TV station to find out whether they are planning changes that will improve reception.
- To check for the DTV signals that are available at your location, use the DTV Reception Maps available at [www.fcc.gov/mb/engineering/maps](http://www.fcc.gov/mb/engineering/maps).

### For More Information

For more information about the DTV transition, go to [www.dtv.gov](http://www.dtv.gov). For information about other communications issues, visit the FCC’s Consumer website at [www.fcc.gov/consumers](http://www.fcc.gov/consumers), or contact the FCC’s Consumer Center by calling 1-888-CALL-FCC (1-888-225-5322) voice or 1-888-TELL-FCC (1-888-835-5322) TTY; faxing 1-866-418-0232; or writing to:

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