

# AM/FM Reception Tips

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Colorado Public Radio transmits signals from AM and FM station and translator antennas across the state. All radio reception is affected by distance, physical obstacles and other broadcast signals. But often the handicaps imposed on radio signals can be lessened with relatively simple enhancements. Below are some general tips and a few examples of the kinds of antennas that may improve your reception. At the end we suggest some places to find a wide array of antennas to help you enjoy your radio more.

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## What Affects AM Reception

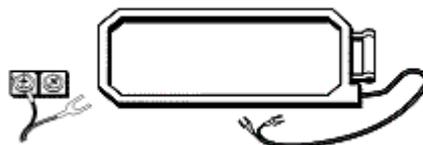
AM reception, which travels both on the ground and through the air, is prone to interference by a variety of sources: other radio stations, lightning storms, and nightfall, when an outlying AM station's signal can reflect off the ionosphere and skip over areas that receive the signal during the day.

## How To Improve AM Reception

With their external antennas, **car radios** tend to receive AM radio best, but sound and signal quality varies from car to car. Cars that employ their rear window defrosters as antennas may receive AM signals better than those with traditional external antennas; some people can find improvement by replacing their factory-installed antenna with an aftermarket antenna of higher quality. Reception may be disturbed as a car moves from one location to another, passing in and out of areas where the signal is obstructed by power lines or tall buildings.

**Portable and desktop radios** also often work well with AM broadcasts. Many contain internal, ferrite loop antennas; sometimes the power cord is also the antenna. These antennas are relatively directional, meaning that the quality of the received signal changes depending on where you put the radio. You may improve reception simply by moving your radio around until you are able to catch more of the signal. In some cases an external AM antenna may improve reception with a portable radio as it does with a component receiver.

When it comes to AM reception, not all **component AM/FM receivers** are created equal. Some have built-in antennas; some do not. Many high-end receivers, however, do have an external connection for an **AM loop antenna**, which might have come with the receiver when you purchased it.



If your stereo receives AM poorly or not at all, you will need to install this loop antenna-usually a rectangular piece of plastic with two wires that connect to two screws on your receiver-and orient it appropriately for the best reception.

Better external loop antennas are also available. These are usually 8 to 12 inches in diameter and can be oriented and tuned just like you tune your radio to help eliminate nighttime interference and noise. Some must be hooked up directly to the external connections on your receiver; others need only be placed in close proximity to your receiver's existing AM antenna.



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## What Affects FM Reception

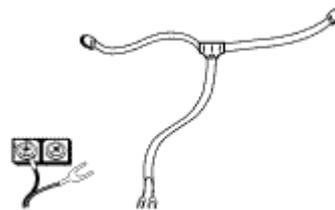
FM broadcasts deliver greater audio fidelity and are less susceptible to static, but they do have their own reception-related challenges. All radio waves travel in straight lines, and an unobstructed, line-of-sight path to a transmitting antenna makes for the best FM reception. Naturally, the farther the signal reaches, the weaker it gets, especially when out of line-of-sight. And when there are reflecting surfaces-tall buildings or mountains, for instance-near your receiving antenna, FM radio waves are also prone to a disturbance known as "multi-path." Like ripples in a small pool, these multiplied waves can cancel out the original broadcast signal at select points.

## How To Improve FM reception

Because of multi-path reception, **car radios** are usually the worst receivers for FM. As your car moves, your antenna gathers signal reflections from multiple directions, wiping out the stereo portion of the signal and adding noise. One solution is to shorten the height of your antenna, reducing the sensitivity of your tuner so that it locks in on only the main broadcast signal.

**Portable and desktop radios** often have telescoping antennas or use the power cord or headphone cord as the antenna. When using one of these receivers, the position of the unit and the orientation of the antenna can be critical. If your receiver uses its power cord as an antenna, stretching out or moving the cord can improve reception. The same is true for units using the headphone cord as the radio antenna.

Most high-end **component AM/FM stereo receivers** require an external antenna, and many manufacturers supply the simplest kind: a T-shaped, flexible wire antenna called a **dipole antenna**. Attach this to the receiver's antenna terminals and orient the dipole as needed for best reception. If the dipole offers no appreciable



improvement, you may need an external antenna. Designed specifically for FM reception, these look like TV antennas and are usually installed on a roof, on the sides of buildings or in an attic. Again, after connecting the antenna to your receiver, orient it until you get the best reception.

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## Sources for AM and FM Antennas

First, a word of caution: Make sure that any antenna you purchase is returnable if it does not give you the result you desire. That said, there are many sites both locally and on the Internet that offer antennas or the instructions necessary for building your own.

Radio Shack and similar electronics and hardware stores often stock antennas for both AM and FM reception. A good **AM loop antenna** sells for \$10 to \$50 depending on features and looks. FM antennas and combined AM/FM antennas are often available as well, for prices that can range from \$20 to \$200 depending on the features you want. Often it is best to call around first to find someone knowledgeable about radio antennas. And there are also many online resources, including:

**Radio Shack:** <http://www.radioshack.com/>  
**Terk Technologies:** <http://www.terk.com/>  
**C. Crane Company:** <http://www.ccrane.com/>  
**OneCall:** <http://www.onecall.com/>

If you find a good source for information and products for improving reception, please let us know, either by calling 1-800-722-4449 or by [contacting us online](#).