

Signal Shorts

[Bill Fawcett](#)
Director of Engineering

The Problem

WMRA has published a [coverage map](#) which shows where we expect our signal to reach, based on formulas devised by the FCC. Yet even within our established coverage area, there are locales in which the signal sounds "fuzzy". In most cases, the topography of the area is causing "multi-path" interference, that is, reflections of the signal off of nearby mountains adds to the direct signal, but delayed somewhat in time, and scrambles the received signal. This is the same phenomenon that causes "ghosts" on your TV (shadow-images on your screen, not the "X-Files").

Multipath is a significant problem along the I-81 corridor North of Harrisonburg to Strasburg. Also at Penn Laird along Route 33. Multipath problems are so site-specific that moving a radio a few feet may make a difference. The next time you get a fuzzy signal at a traffic light you may note that it clears up by advancing a few feet (watch out for the car in front of you, or you may have other, more serious, problems). Switching to mono, if possible, will also help.

Other areas suffer from terrain obstructions. This may be noted at Massanutten Resort, and in the UVA area of Charlottesville.

For those outside of the predicted coverage area, signal strength (the lack of) may be a problem, as may interference. North of Charlottesville this is a big problem, with interference from a high-power station in Washington D.C. causing problems.

Lastly, the downtown Charlottesville area suffers from interference from WCYK's 105.1 translator.

IMPORTANT UPDATE In the original article I talked about reception problems in the Charlottesville Area. I am happy to report that steps have been taken to greatly improve our signal.

I had mentioned that interference in the downtown area was arising from Clear Channel's 105.1 translator. On-site testing revealed that their co-located 94.1 translator was the actual offender (in conjunction with the 105.1 translator). Clear Channel has replaced one defective transmitter, added filters to both, and has made changes to their antennas. They also plan to relocate both transmitters located at Court Square to another location in the near future (near future meaning sometime before the rapture).

Our thanks to Engineer Mike Hurst and Clear Channel for taking steps to resolve this problem.

We are currently investigating interference generated by a television signal in the Charlottesville area, but you should find reception much improved at this point.

The Receiver

The first thing to look at is your radio. Clock Radio's are notoriously bad. Combination Radio/TV's, or Radio/Flashlights are not much better. A good quality radio will usually have an external antenna jack, and not rely on an internal, telescoping whip or power-cord type antenna.

Many people have spent large sums on a Bose Wave radio, which is advertised very heavily in many prestigious magazines. The radio section of that appliance has been a [disappointment](#) to many located in problem areas.

Most higher quality component stereos have acceptable radios. Most "entertainment center" all-in-one

bookshelf systems do not.

Two radios worth looking at are the GE Superradio II (portable) and the KLOSS table radio. The [GE Superadio II](#) may be found at many "megalo-mart" type stores, or the Harrisonburg Rocking R True-Value Hardware store for about \$50. This radio is really known for its high-quality AM radio section, but the mono FM tuner works quite well.

Another radio that is gaining a good reputation is the [Henry Kloss Model One](#) table radio. [Henry Kloss](#) was involved with the AR company back in the fifties, later forming KLH and then Advent. I wish I still had my AR tuner (which looks very much like the present Kloss model one) that brought me my introduction to public radio back in the seventies.

The Antenna

The Superradio II and the Kloss Model One both feature antenna jacks, as do most of the better radios. If your radio has an antenna jack, you can use an external antenna. In most cases this will clear up the signal. The antenna must be aimed at our transmission tower. [Contact us](#) with your address and we will tell you where to point the antenna.

For most applications, the Radio Shack 15-1636A 6 element yagi antenna is sufficient. It sells for about \$20.00, and Radio Shack can also outfit you with coaxial cable and an antenna mast. The antenna is small enough to mount in most large attics, but reception may be better if you mount it outdoors.

A really fine FM reception antenna may be obtained from [Stark Electronics](#). The Winegard Model CA6065 is just over 10' in length, so it is not for everybody, but it really pulls the signal in. It costs about \$85.00, which is still about 1/7th the cost of the professional-grade antennas we use for reception at our own repeater sites.

Generally, the small indoor amplified-type antennas, or those you plug into a wall outlet, are useless. Trust me!

WMRA is committed to making improvements to our transmission, in as much as is possible. With the rough terrain endemic to this part of the state, a little work on your end will bring great reward.

The WMRA network is a system of transmitters covering much of the Shenandoah Valley and The Central Piedmont of Virginia. Because of the rugged terrain, some areas are not served as well as others. Do you have a question about your reception or interference?

[Submit a question](#) to our Director of Engineering for a customized signal analysis and a reply, usually within a few days. Be sure to include your STREET ADDRESS and any location description which may help him locate your house or office on a digital topographic map. Write to: fawcetwd@jmu.edu

