

Grounding an AM radio system

The AM ground in an AM system is critical, not only for system performance, but also often for lightning protection. The goal is to provide a low resistance connection to the local Earth, less than 25 ohms if possible, less than 5 ohms is ideal. The ground resistance in an area will be determined by your ground system and:

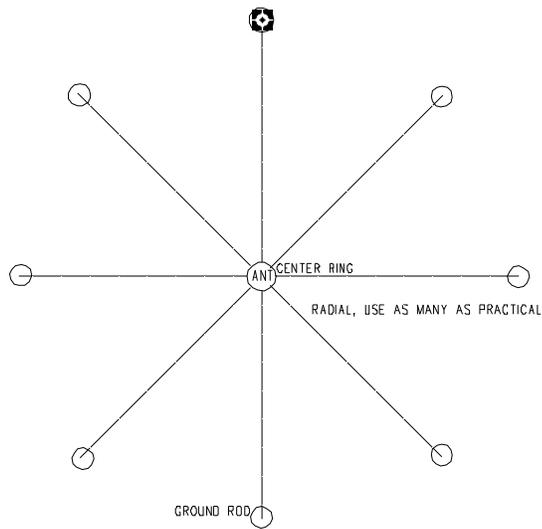
- Moisture content of soil
- Mineral content of soil
- Soil type
- Soil contaminants

In general the higher the moisture content, the lower the resistivity will be.

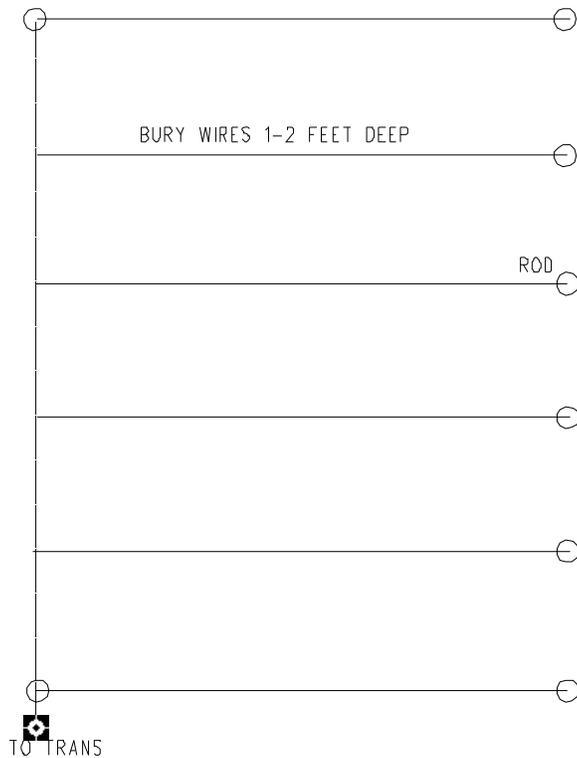
What you are trying to do is make an electrical connection to the earth over a broad area. What that means is if you have multiple rods keep them at least 6 feet apart, don't concentrate on just a small area of dirt. For example don't place 10 rods in a 2 foot circle. The more yard area you can cover with your system the better. A 20 foot diameter circle would keep the rods about 6 feet apart. Keeping the system spread out allows the currents to flow more efficiently.

Working with different installation sites you have to be creative in making a good ground. You may find existing structures and/or items that can help you connect to the Earth. A buried tank, deep well casing, metal fence, Metal tube lawn sprinkler system, all can be useful.

- Sand and gravel, even when wet can make a poor ground.
- Use corrosion resistant connectors when possible
- Solder (electrical type solder) all connections or be sure all connections are bright and shiny & then tightly clamped.
- You can use an Earth resistance meter to check the resistivity value of your system. Also see the troubleshooting page of the transmitter manual.
- If you are connecting to a utility water pipe, connect to it within 5 feet of where it comes in from the dirt. This keeps someone else from coming in later and putting in non-conductive pipe, making your ground useless.
- Sodium bentonite can be used to enhance a ground.
- If you are using ground radials, they should be as long as your antenna is high to be effective.
- Try to use the moistest dirt possible. For example if there is an air conditioning system, install a rod where the condensate drips. Look to see where the rain comes off the roof to find moist areas. Look for any creeks or ponds. Running a long wire to a creek or pond far away may not be effective, the ground system needs to be in the area of the antenna. Or you can possibly install the transmitter in the area of any great natural ground.



- Generally the deeper your rod, the lower the resistivity will be. Bury any horizontal wires, the more ground/dirt contact the better. Just an inch or two below the surface will do. You can use a flat blade shovel to create a “trench” that the wire can be laid into. This works well with lawns. It is best to bury your rods entirely if possible to avoid anyone tripping over them, the lawn mower hitting them, ect.



The type of trench ground system above can work well with sandy soil.