

### Defeating Atmospheric Interference by Underground Antennas

Two versions: linear and spiral, to cover wavelengths of 150 to 500 meters (i.e. MW) The linear version is about a 25 meter length of copper wire about 1.5 mm in diameter, with adequate insulation (the end needs special attention!) buried about 0.5 meter deep. The directivity, if any, can be defeated by connecting another wire at a right angle to the first.

The spiral version is buried in a one meter deep and 0.9 meter wide hole, as follows: Well insulated copper wire (insulate the bare end as well) 1.5 mm in diameter is laid in the bottom of the hole starting from the outside in a spiral with 7.5 to 10 cm between the turns. Do not cut the wire when you reach the innermost turn of the spiral, but put a 15 to 20 cm layer of earth on the winding. With the remaining wire (poking out of the earth) wind another spiral in reverse order (starting at the innermost turn). You wind four spirals this way, each wound in reverse order to the last, and separated by 15 to 20 cm of earth. Then the remainder of the hole is filled up with earth and the wire connected to the receiver. This version is not directive, but is less sensitive than the linear version.

It has been possible to receive distant stations without interference during heavy thunderstorms with lightning (with no danger of the antenna being struck by lightning!), but care should be taken that interference can not enter the receiver in other ways. (Ed. note: shielded lead-in should be used for example). This design was eventually used with a good amplifier/preselector to make up for losses.

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