

Q. Can a discone antenna be used as an effective TV antenna to receive distant VHF and UHF channels? (Gary Cernak, Easthampton, MA)

A. In a word, no. While discones can cover the majority of the VHF and UHF TV channels, the broadcasters transmit their signals horizontally polarized so that traditional TV beam-style antennas can be used to receive them. Discones are vertically polarized, so you already start with a substantial signal loss from cross polarization.

Q. I live in an area that has marginal reception for weather radios – sometimes I get the alerts, sometimes I don't. The radio has a jack for an external antenna. Would it work to just attach a longwire type antenna to it or would something else be more suitable like some sort of homebrew antenna? (Dale Demerest, KC8LZG)

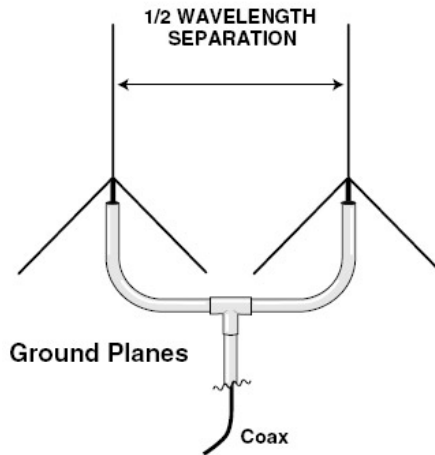
A. Since the receiver is frequency-specific (the 162 MHz weather band), you can optimize reception with a simple, center-fed, 32-inch vertical dipole (two in-line 16-inch elements fed at their common "touch" point). Feed it with low-loss coax like TV-type RG-59/U or RG-6/U for best transmission characteristics. If the signal is reasonably strong and you aren't using more than about 50 feet of cable, standard RG-58/U cable will work, too.

Similar "drooping radial" ground-plane antennas have been used by hams on the two-meter band (144-148 MHz) for decades. These use a female, chassis-mount, SO-239 coax connector (Radio Shack #278-201) and five identical lengths of stiff copper wire (17" lengths for the weather band).

One wire is soldered straight out from the center solder pin (it will be facing directly upward when mounted); the other four through the mounting holes (hanging downward when mounted) and flared out at roughly a 45 degree angle from the axis of the connector.

The nice thing about this home-brew antenna is that it can be simply set on a convenient length of mastpipe, with the coax going up through the pipe and screwed onto the SO-239 connector which simply sits on the top of the pipe.

A side benefit of this antenna is that it makes a dandy scanner antenna for the 150 and 450 MHz bands, and if you use 19-inch lengths for the elements, it's a great two-meter (144-148 MHz) and 70 cm. (420-450 MHz) transmitting



Ground plane illustration from Bob Grove's *Antenna Factbook*, viewable on line at www.monitoringtimes.com/mtsubscriber/antenna-factbook.pdf

antenna!

A random "longwire" shortwave-style antenna will only work if it just happens to be the right length for an appropriate harmonic of its naturally-resonant frequency, and in the vertical plane (which is unlikely in a shortwave wire antenna). If these conditions aren't met, it will only hear VHF signals if they are so strong that they overcome the poor suitability of the random wire length and configuration.

If you aren't up to the task of doing it yourself, the Grove OMNI II does a great job for such applications, works on all the scanner bands as well, and is inexpensive (\$29.95 plus shipping).

Q. I have two Grove LAR1F lightning arresters on my ICOM IC-R9500 receiver which is grounded with #6 AWG wire to a 6-ft 3/4-in ground rod. Some of my friends question the LAR1F because it doesn't have a ground lug to connect directly to a bus bar like the Alpha Delta and Polyphaser arresters have. Is that a problem? (Daniel Gillet, Canada)

A. In some 25 years of selling these little units, we have never had a report of static electricity from a nearby lightning strike damaging a radio which was protected by an LAR1F device. I have these on all my receivers and scanners and have been using the same ones for more nearly 20 years!

The more expensive units are very well built and offer excellent protection, but nothing

will survive a direct lightning strike to the antenna; the voltage and current are just too high to be redirected to ground by any of these devices. It's always recommended to detach the antenna connectors from radios during stormy weather.

You can easily emulate the grounding used on the more expensive devices by simply attaching a metal hose clamp around the LAR1F and slip the #6 ground wire under it as you tighten the clamp.

Q. How do I know if my gas-discharge lightning arrester has been hit by a surge? Do they need periodic replacement? (Ray Clemmer, email)

A. I have gas-discharge lightning protectors on all my antennas, and they've been there for well over a decade. They defend against voltage induced on your antenna line by nearby strikes, but, as mentioned above, nothing can survive a direct hit.

If the voltage from a nearby strike was high enough to ionize the gas (electrically charge it so it conducts), it recovers immediately. It can do this nearly indefinitely considering the rarity of such events. If there were a strike close enough to damage the device, you would either notice a reduction in signal levels from metal particles shorting out the device or notice nothing at all because it may have merely released its gas through a crack in the seal (in which case it's no longer protective). If you can see the glass envelope, the appearance of darkness on the glass may indicate vaporized metal in a damaged protector.

It's a good idea to periodically examine all antenna system parts for damage from wind, lightning and squirrels! Outdoor coax should be replaced every five years or so, and antennas should be replaced when their joints and contacts exhibit corrosion unless those joints can be cleaned and weather protected.

If you have an ohmmeter, you can remove the protector from the circuit and measure its correct conductivity and insulation: There should be a dead short (0 ohms) between the input and output center pins, and completely open (infinitely high resistance) across either of the connectors from the center to the shell.

Every so often I simply tune in a local frequency of known signal strength to test my antenna system, like NOAA weather or commercial AM, FM and TV broadcasters.

Questions or tips sent to Ask Bob, c/o MT are printed in this column as space permits. Mail your questions along with a self-addressed stamped envelope in care of MT, or e-mail to bobgrove@monitoringtimes.com. (Please include your name and address.)