Welcome to AntennaSelect™ Volume 51 – August 2020

Welcome to Volume 51 of our newsletter, AntennaSelect™. Every two months we will be giving you an "under the radome" look at antenna and RF Technology. If there are subjects you would like to see covered, please let us know what you would like to see by emailing us at: info@micronetixx.com

In this issue:

Covid-19 Update:

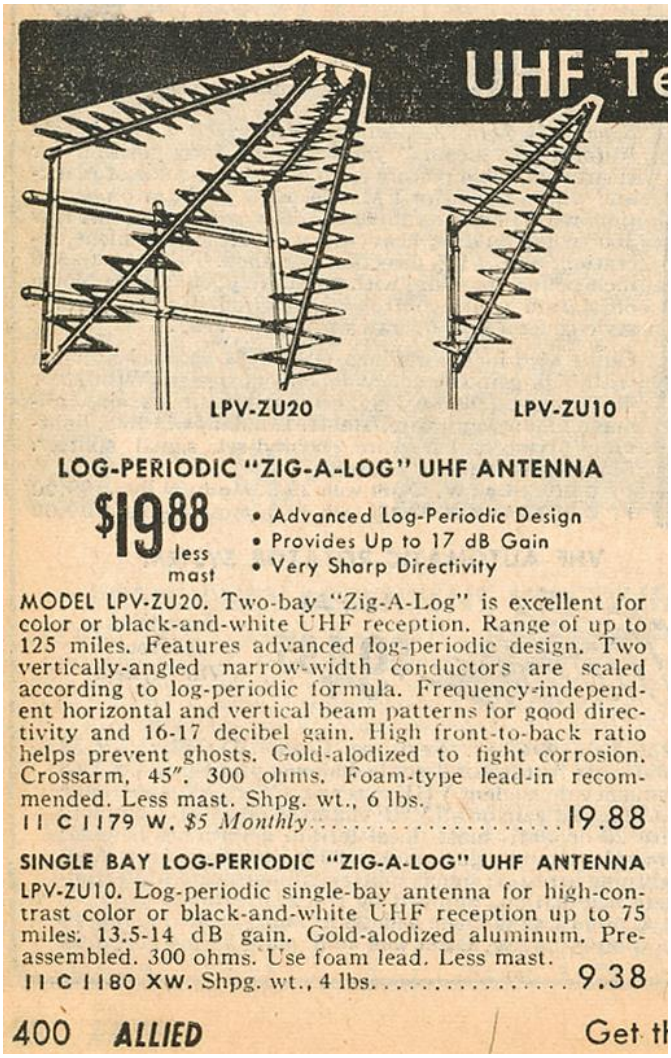
MICRONETIXX COMMUNICATIONS

Here is an update on Micronetixx's operations during the pandemic. We are and have been on a regular schedule over the past few months. None of our employees have reported any COVID-19 positive testing or illness. Many of the functions on the factory floor are more than 10 feet apart with only one principal operator at a given station. Quite a bit of our final testing is done outside of the building and only requires 2 staff members, following appropriate procedures.

Raw material used in the fabrication of our products has encountered no delays in getting to us.

DTV Over-The-Air Reception- Part 4; - A Look Back 50 Years

MICRONETIXX COMMUNICATIONS



UHF Te

LPV-ZU20 LPV-ZU10

LOG-PERIODIC "ZIG-A-LOG" UHF ANTENNA

$19.88 less mast

- Advanced Log-Periodic Design
- Provides Up to 17 dB Gain
- Very Sharp Directivity

MODEL LPV-ZU20. Two-bay "Zig-A-Log" is excellent for color or black-and-white UHF reception. Range of up to 125 miles. Features advanced log-periodic design. Two vertically-angled narrow-width conductors are scaled according to log-periodic formula. Frequency-independent horizontal and vertical beam patterns for good directivity and 16-17 decibel gain. High front-to-back ratio helps prevent ghosts. Gold-alodized to fight corrosion. Crossarm, 45". 300 ohms. Foam-type lead-in recommended. Less mast. Shpg. wt., 6 lbs.
11 C 1179 W. *$5 Monthly*..... 19.88

SINGLE BAY LOG-PERIODIC "ZIG-A-LOG" UHF ANTENNA

LPV-ZU10. Log-periodic single-bay antenna for high-contrast color or black-and-white UHF reception up to 75 miles. 13.5-14 dB gain. Gold-alodized aluminum. Preassembled. 300 ohms. Use foam lead. Less mast.
11 C 1180 XW. Shpg. wt., 4 lbs..... 9.38

400 ALLIED Get t

Out of the Allied Radio 1969 catalog is a picture of a rather strange pair of antennas. Designed by JFD Electronics these odd antennas are a variation of the log-periodic antenna. We wanted to keep reading lite this issue so we will go over more about the design in the next issue of AntennaSelect™. The basic design is a log-periodic antenna formed as a wedge. This will increase the gain by 2 dB or so. The boom is non-metallic, with the rear vertical element being aluminum.

Each of the Zig-Zag elements are a stamped single piece of aluminum. The antenna is feed at its apex. The right antenna uses two of the Zig Zag antennas spread to a distance of 45 inches in the rear. The vertical height is about 36 inches. Pairing the two Zig Zag antennas together adds about 3 dB to he total gain. Both would be considered high gain antennas with more than 10 dB of gain over the entire UHF band (channels 14 to 69).

The drawback to this antenna was the amount of space needed to mount it, plus the thin plastic boom would bend and break quickly. The author has only seen one of these, which was bought in a surplus shop. I doubt any of them are in service outdoors.

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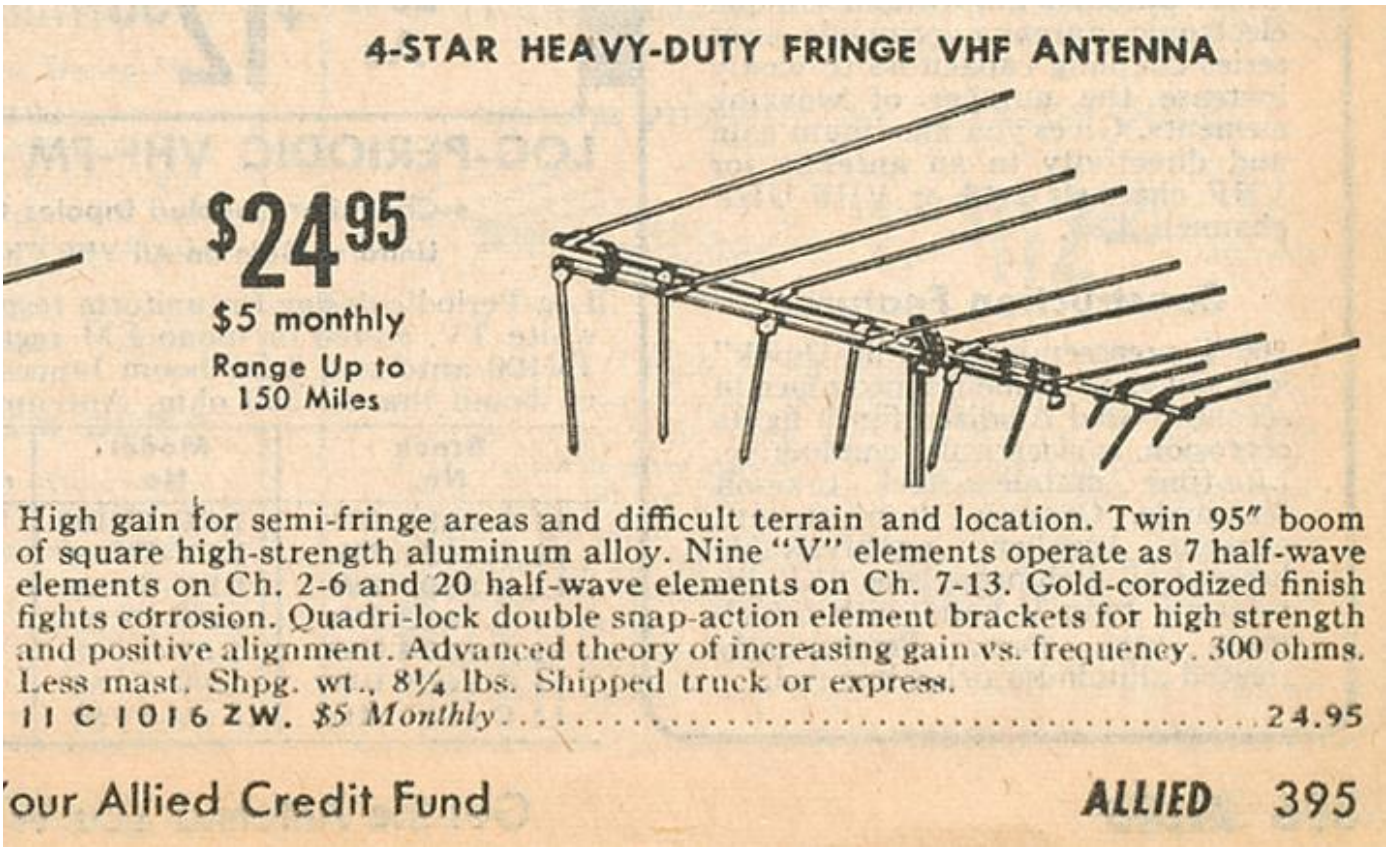

From the same 1969 Allied Radio catalog, the VHF antenna pictured above is a variant of a log periodic antenna. At channels 2 to 6, the elements serve as a standard log periodic. At channel 7 to 13 the antenna functions as a 3/2 wavelength or third harmonic mode design. The three elements in the front are directors. The elements are swept forward for slightly more gain.

This type of antenna was manufactured and sold by a number of companies. Many of these companies had little or no engineering department to develop antennas. The antennas were simple knock offs of other designs.

You could buy such an antenna at major department stores and neighborhood hardware shops. Often they were given the mileage range one could expect from the antenna. The antenna above was probably rated for a 100 to 120 mile range. Would that even be possible? Well yes if you mounted on top of Mt. Washington, New Hampshire. If you were lucky, the antenna might last a week or two before the winds up there tore the antenna to pieces!

TV and FM Antenna Heater/De-Icer Systems

MICRONETIXX COMMUNICATIONS

Heaters in FM antennas are often used when the station wants to prevent the buildup of ice on the antenna elements. The heaters provide enough warmth to the antenna elements to keep ice from building up. Depending on the design, a heating system will add only a few pounds to each antenna bay. A temperature controller located in the transmitter building turns on the heaters when the outside temperature drops to 37 to 40 degrees Fahrenheit. When the temperature rises above about 40 degrees, the heaters are switched off.

Heaters are not designed to remove accumulated ice buildups. Turning on a heater after ice has formed will help the ice to thin and fall off, but the time needed may be several hours.

The heater system in the antenna bay is quite simple. Nichrome wire forms the heating element. Nichrome wire is available in a number of grades and sizes from 10 gauge down to 40 gauge. The design constraints of the heater are: 1) It must fit inside the antenna elements 2) provide the proper resistance to produce the right level of heat and 3) be mechanically stable from both an operational and installation standpoint and finally, 4) Be properly insulated.

A straight section of small Nichrome wire (26 gauge) has a resistance of about 2.5 Ohms per foot. The Nichrome wire is not insulated, so a common method is to wind it into a continuous coil. At Micronetixx we wind the heater wire into a coil using specially-designed tooling and heat-tolerant Insulation.

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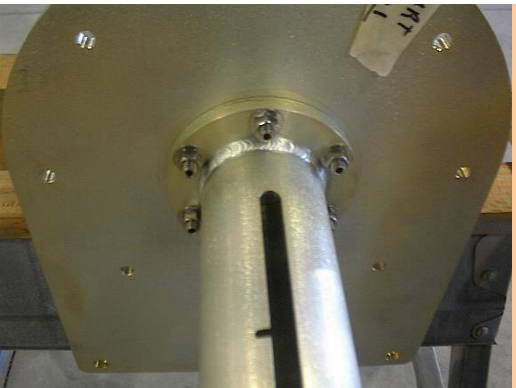
Paint On a Radome?

Yes it is possible and even helpful to paint a radome. We had one request to provide an antenna with a forest green pylon. (WATER-BASED PAINT IS THE KEY!!) The antenna was on a short tower in a county park. One method to fulfilling the request was to provide a radome with a color as close as possible to the surroundings. Over time the radome would fade due to damage from sunlight. This might take 3 to 5 years. The metal parts around the antenna (aluminum, galvanized steel) could be painted with a water based paint to match the radome.

It is also possible to paint a fiberglass radome with a high quality water based paint. Painting the radome will extend the service life of the radome by 3 to 5 years. The paint protects the surface of the radome. By keeping direct sunlight from breaking down the outer surface of the radome. After the paint has sluffed from the radome, sunlight begins to break down the outer surface, leaving very small pits on the radome. Moisture can enter those pits and when it freezes, further break down the surface. After some period of time the radome gets a “sunburn” causing more surface damange, and a quicker rate of damage from moisture penetrating deeper into the radome structure.

Be on the lookout for the next volume of AntennaSelect coming out in October



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