



## 550 Inverted Cone Antenna

The Model 550 is an excellent choice for omnidirectional HF communications, where both ground wave and skywave coverage are required.

The 550's large diameter/height ratio provides excellent VSWR and pattern performance over a very wide frequency range—up to 20:1 for the Model 550-6 that operates at full efficiency down to 1.6 MHz—making it one of the few broadband antennas optimized for the lower maritime bands.

The true wideband capability of the 550 is achieved with full radiation efficiency. The antenna uses no tuners, special coupling units, terminations, resistors or lossy elements to achieve its high bandwidth, nor does it use any techniques or devices to couple RF energy to the ground, a technique sometimes used to increase bandwidth at the expense of efficiency.

### **Combine ground waves and skywaves for omnidirectional HF.**

The 550 is the simplest and safest antenna to erect in its class. The structure is fully stable

during the rigging sequence, without the need for temporary guys. The antenna does not use a rigid ring to maintain the shape of the cone, which can be difficult to install safely. Once erected, the Model 550 has outstanding structural rigidity, without troublesome deflections and mechanical oscillations that occur in antennas using rigid rings.

As with all TCI antennas, the Model 550 employs high-quality, exhaustively tested components and materials. All radiators and catenaries are Alumoweld, a wire composed of a high-strength steel core and a highly conductive, corrosion-resistant coating of aluminum. All feedline and radiator insulators are made of high-strength glazed alumina, a material with an extremely low loss tangent, which is virtually impervious to the effects of UV and salt spray. Neither fiberglass nor other synthetic materials are used anywhere in the antenna. A working life of 25 years or more is standard with the Model 550.

### **KEY FEATURES**

- › 1.6–32 MHz – covers entire maritime mobile service
- › Single tower
- › 2.0:1 VSWR maximum anywhere in band
- › Fully efficient
- › Rugged and safe to erect

# Model 550 Specifications

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|                           |   |
|---------------------------|---|
| Polarization              | Vertical  |
| Radiation Patterns        | Elevation: See patterns at right<br>Azimuth: Circular with $\pm 0.75$ dB  |
| Input Impedance           | 50 Ohms   |
| VSWR                      | 2.0:1 or less in specified frequency range  |
| Environmental Performance | Designed in accordance with EIA Specification RS-222C for loading of 190 km/h (116 mi/h) wind (higher environment models available) |
| Power Capability          | See "Power and Impedance Data" below.<br>No matching unit is needed.  |

### Power and Impedance Data

| Model Number<br>f=frequency<br>(see frequency<br>and size data) | Power<br>Handling<br>Capability | Connector     |
|---|---------------------------------|---------------|
| 550-f-02  | Receive                         | Type N Female |
| 550-f-03  | 10 kW Avg /<br>50 kW PEP        | 1-5/8" EIA    |
| 550-f-04  | 25 kW Avg /<br>50 kW PEP        | 3-1/8" EIA    |
| 550-f-05  | 5 kW Avg /<br>10 kW PEP         | 7/8" EIA      |
| 550-f-06  | 1 kW Avg /<br>2 kW PEP          | Type N female |

### Optional Equipment

- Lighting kit (may increase maximum VSWR to 2.2:1)
- Lighting arrestor/static drain kit (may not be adequate for transmitter protection circuits)
- DC ground choke for transmitter protection circuits (may increase maximum VSWR to 2.5:1)

### Frequency and Size Data

| Model Number<br>p=power (see below) | Frequency Range | Height |      | Diameter* |      |
|-------------------------------------|-----------------|--------|------|-----------|------|
|                                     |                 | ft     | m    | ft        | m    |
| 550-1-p                             | 1.9-32 MHz      | 122.0  | 37.2 | 250.0     | 76.2 |
| 550-2-p                             | 2.3-32 MHz      | 102.0  | 31.0 | 210.0     | 64.0 |
| 550-3-p                             | 2.8-32 MHz      | 82.0   | 25.0 | 176.6     | 53.9 |
| 550-4-p                             | 3.8-32 MHz      | 62.0   | 18.9 | 133.5     | 40.7 |
| 550-5-p                             | 5.5-32 MHz      | 42.0   | 12.8 | 92.4      | 28.2 |
| 550-6-p                             | 1.6-32 MHz      | 142.0  | 43.3 | 294.0     | 89.6 |

\*measured from extreme guy points

### ELEVATION PLANE PATTERNS Gain in dBi over perfect earth

