

## 3151 LOG PERIODIC DIPOLE ARRAY

ETS-Lindgren's Model 3151 Foreshortened Log Periodic Dipole Antenna is a linearly-polarized log periodic dipole array (LPDA).



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The 3151 features a convenient space saving design with the use of top hat-loaded, low-frequency elements. This reduced-sized design has optimized impedance loading to simulate the moderate gain of a full-size LPDA. Without size reduction, the longest dipole element length would be approximately 7.5 m (24.6 ft). Instead, this antenna's entire width is only 3.5 m (11.5 ft).

To enhance measurement repeatability, the model 3151's longest elements are supported with nylon straps to ensure consistent

element positioning. The 3151 antenna features a specially-designed feed to handle high power requirements of up to 5 kW for generating high electric field strength. A hairpin matching stub is used to improve the low-frequency VSWR, which minimizes mismatch loss between the amplifier and antenna.

The antenna is constructed of lightweight, corrosion-resistant aluminum, providing years of trouble-free service. All elements are attached with knurled knobs for easy assembly. The included wheeled pedestal permits horizontal and vertical antenna polarization, and tilt-angle adjustments. A pneumatic cylinder is used to change polarization, and can be remotely controlled using an optional ETS-Lindgren controller.

### Key Features

- 20 MHz to 220 MHz Frequency Range
- High Power Feed Handles up to 5 kW RF Input Power
- Space Saving Design Features  
Tophat-loaded, Low-frequency Elements
- Mounted on Wheeled Base for Easy Mobility

### Features

#### Electric Field Distribution

The model 3151 is used for both horizontal and vertical polarizations. The phase center /source position of the antenna shifts from the rear to the front end of the boom as frequency increases. To ensure a high field strength at the low frequency range (30 MHz to 45 MHz), the LPDA antenna needs to be placed at a close distance. However, the beam width of the antenna gets narrower at higher frequencies. Therefore, the antenna needs to be placed at a farther distance at higher frequencies to cover a larger uniform area. If the same distance is kept for the high and low frequency ranges, the field uniformity is compromised above 80 MHz.

## Specifications

### Electrical Specifications

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**Frequency Maximum:** 220 MHz

**Frequency Minimum:** 20 MHz

**Pattern Type:** Directional

**Polarization:** Linear

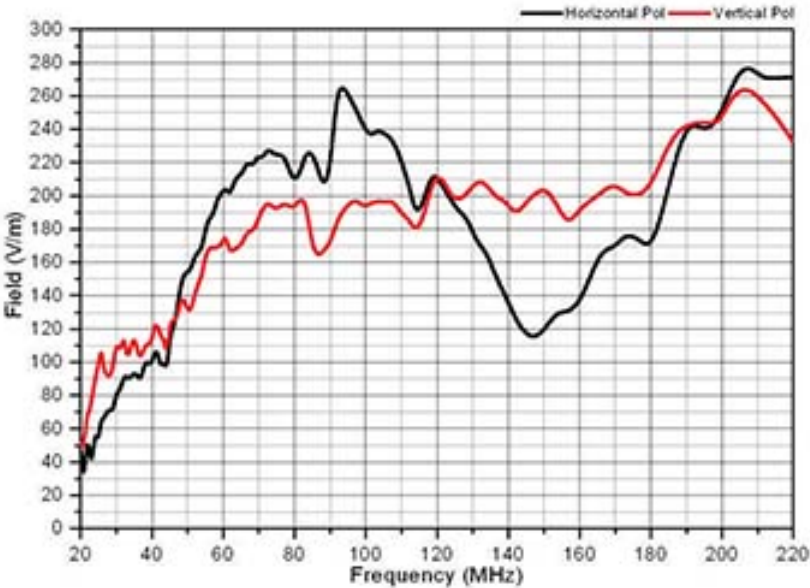
### Other Specifications

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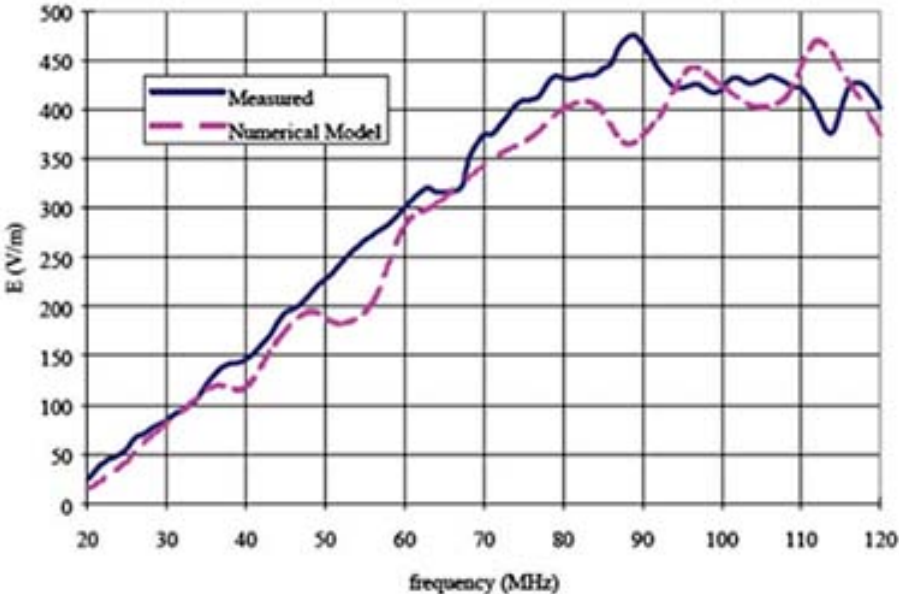
- Tophat-loaded LPDA Antenna with 1 5/8" EIA Connector
- Mounting Bracket
- Air Polarization Control Assembly
- Standard Fixed Height Pedestal Positioner with Air Polarization and Manually Adjusted Tilt

Product Charts

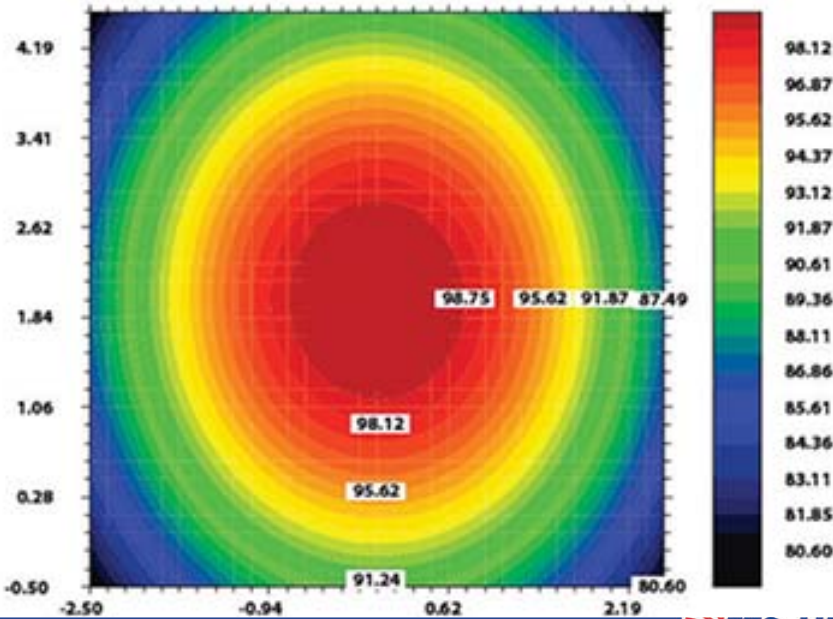
3151 Log Periodic Dipole Array Antenna Field Generated for Max Power



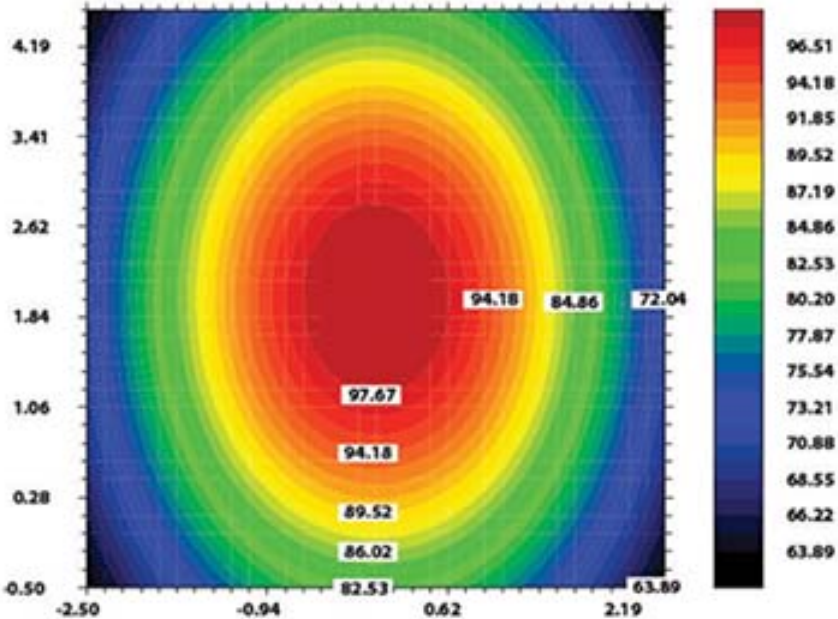
3151 Log Periodic Dipole Array Antenna E-field (V/m) Above Conducting Ground P=10 kw; d=3 m



3151 Log Periodic Dipole Array Antenna Boresight d=3 m mf=30 MHz



3151 Log Periodic  
Dipole Array Antenna  
Boresight  
d=3 m  
mf=60 MHz



3151 Log Periodic  
Dipole Array Antenna  
Boresight  
d=3 m  
mf=80 MHz

