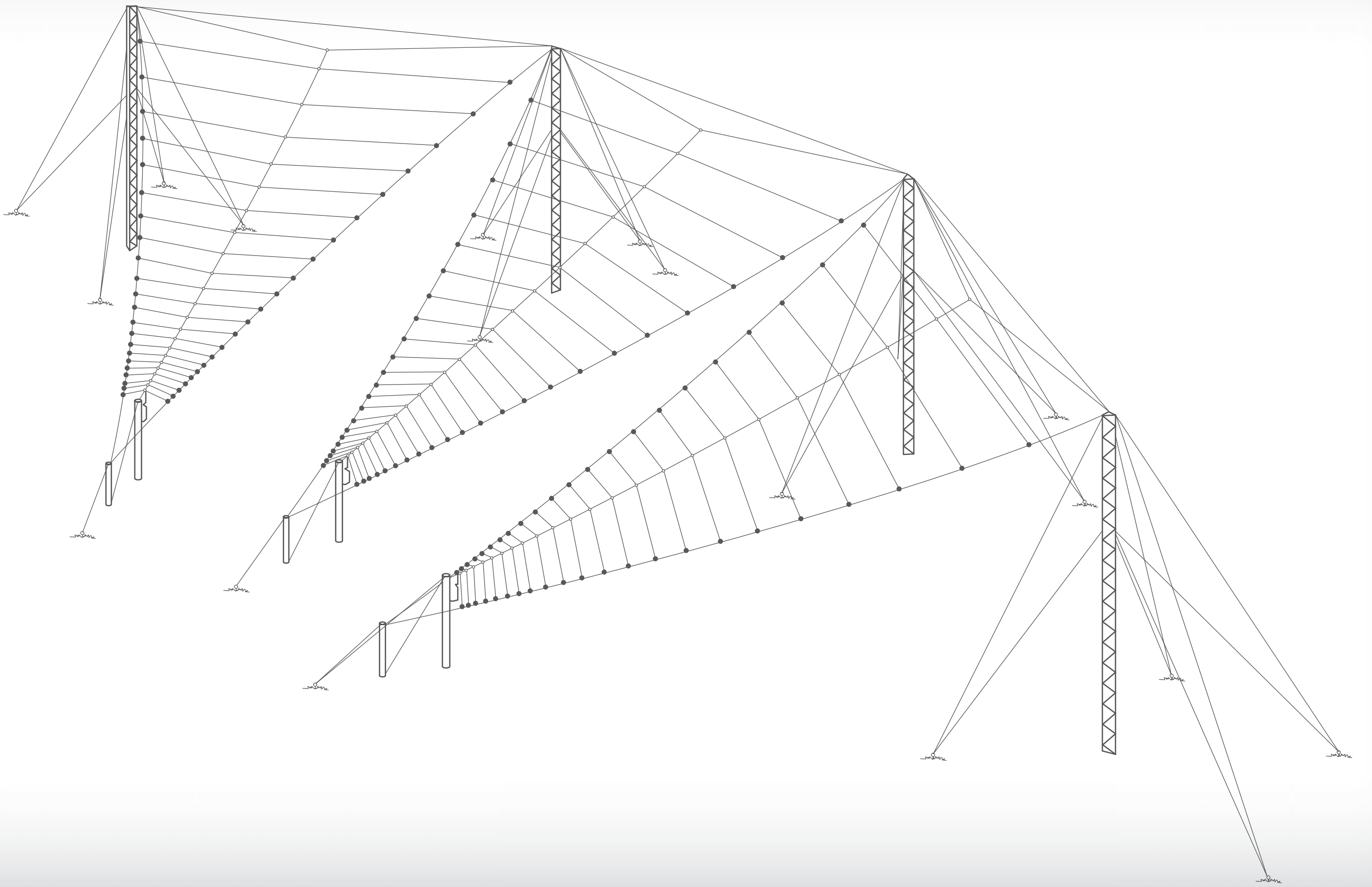


548 Log-Periodic Antenna

Log-periodic antennas are used extensively for high frequency communications circuits because of their wide frequency bandwidth and compact size. In applications where a single antenna is required, TCI normally supplies horizontally polarized log-periodic antennas supported by a single-tower support structure. (See TCI Model 501 data sheet.)

However, there are many applications where a horizontally polarized log-periodic antenna supported by two tower structures is beneficial. When the co-location of several antennas is required, a smaller, compact array can be formed by horizontal antennas sharing common towers. The Model 548 is designed specifically for applications of this nature.

The 548's compact, simplified design suits it for applications where antenna siting is difficult, and lends itself to the necessary modifications for installation in difficult situations or where stringent communication requirements occur.

Co-locate antennas more easily with a two-tower solution.

The 548 is a transposed dipole, horizontally polarized log-periodic antenna composed of high-quality, exhaustively tested components and materials. All radiators, feedlines, drop wires and catenaries are Alumoweld, a wire composed of a high-strength steel core surrounded by a highly conductive, corrosion-resistant, welded coating of aluminum. All feedline and radiator tip insulators are made of high-strength glazed alumina, a material with an extremely low loss tangent (.001), which is virtually impervious to the effects of ultraviolet radiation, dirt, and salt spray.

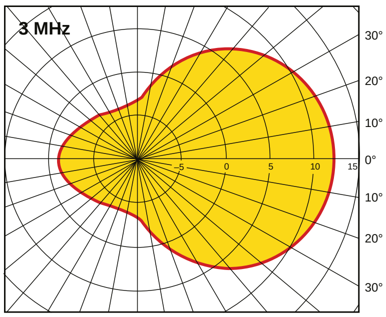
Fixed-station log-periodic antennas traditionally have used fiberglass for the catenary and drop wire assemblies on the basis of its excellent dielectric and tensile strength properties. However, field experience has shown that minute, difficult-to-detect flaws in the material, RF burning, and small nicks incurred during installation may result in catastrophic failure later on. Fiberglass will also deteriorate when stored for long periods at high temperature and humidity. These facts all indicate that a material other than fiberglass should be used in antennas. Alumoweld satisfies this requirement.

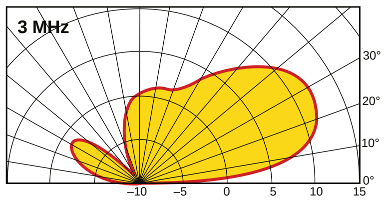
KEY FEATURES

- Two-tower design for use in arrays
- High power gain
- Wide bandwidth
- Rugged construction
- Factory preassembled

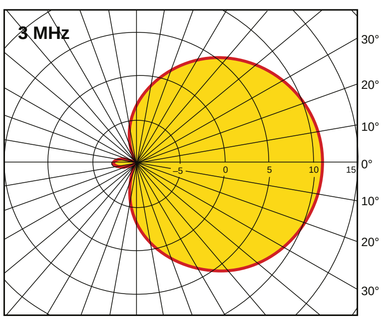
Azimuth and Elevation Patterns (Azimuth pattern at elevation angle of beam maximum) gain

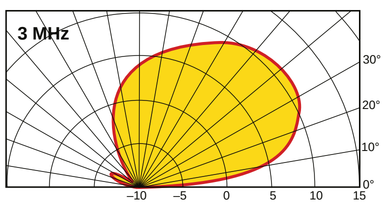
Constant take-off angle

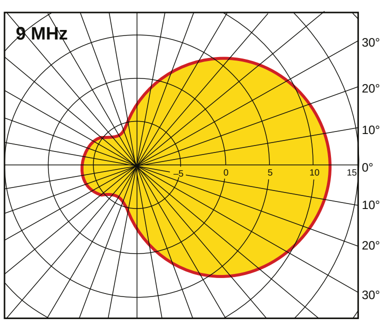


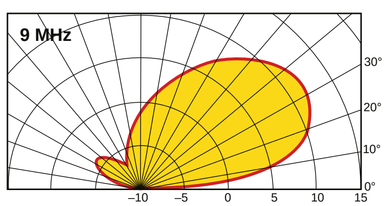


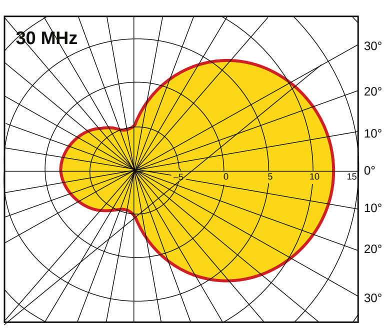
Variable take-off angle

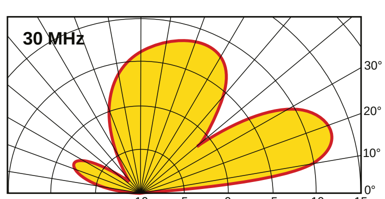












Model 548
Specifications

Polarization	Horizontal
VSWR	2.0:1 Maximum
Azimuth Beamwidth	60° Minimum
Front-to-Back Ratio	13 dB Minimum
Environmental Performance	Designed in accordance with EIA Specifi cation RS-222C for loading of 225 km/h (140 mi/h) wind, no ice, 145 km/h (90 mi/h) wind, 12 mm (1/2") radial ice; or 160 km/h (100 mi/h), wind, no ice. Also complies with EIA specification EIA-222-E for the indicated wind speeds at the top of the mast.

Gain and Pattern Data

Take-off Angle	Frequency	Gain Relative to Isotropic	Lower Half-Power Point	Nominal Take-off Angle	Upper Half-Power Point	Azimuthal Beamwidth between Half-Power Points
Variable	3 MHz	11.2 dBi	18°	35°	67°	76°
	4 MHz	11.2 dBi	18°	35°	67°	76°
	9 MHz	11.6 dBi	16°	30°	53°	76°
	25 MHz	12.5 dBi	11°	22°	33°	70°
	30 MHz	12.3 dBi	10°	20°	30°	70°
Constant	3–30 MHz	12 dBi	13°	27°	45°	70°

Size and Frequency Data (Single Curtain, Two Towers)

Model Number	Take-off Angle	Frequency	Height		Length*		Width*		Tower Spacing	
			m	ft.	m	ft.	m	ft.	m	ft.
548-1-N	Variable	4–30 MHz	30.5	100	85.5	280.4	106.2	348.6	64.0	210
548-3-N	Variable	3–30 MHz	39.6	130	110.7	363	121.5	398.5	76.2	250
548-1K-N	Constant	4–30 MHz	48.6	159	117.7	386	127.4	418	64.0	210
548-3K-N	Constant	3–30 MHz	61	200	155.5	510	160.7	527	76.2	250

*measured from extreme guy points

Power and Impedance Data

Model Number	Input Impedence	Power Handling Capability	Connector
548-N-02	50 Ohms	Receive	Type N Female
548-N-03	50 Ohms	10 kW Avg /50 kW PEP	1-5/8" EIA Female
548-N-06	50 Ohms	1 kW Avg /2 kW PEP	Type N Female
548-N-28	50 Ohms	5 kW Avg/10 KW PEP	7/8" EIA Female

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