INSTRUCTION MANUAL

LOG PERIODIC

ANTENNA

MODEL EM-6945

500 MHz - 25 GHz

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ELECTRO-METRICS

MODEL EM-6945

SERIAL NO: 455

ELECTRO-METRICS CORPORATION

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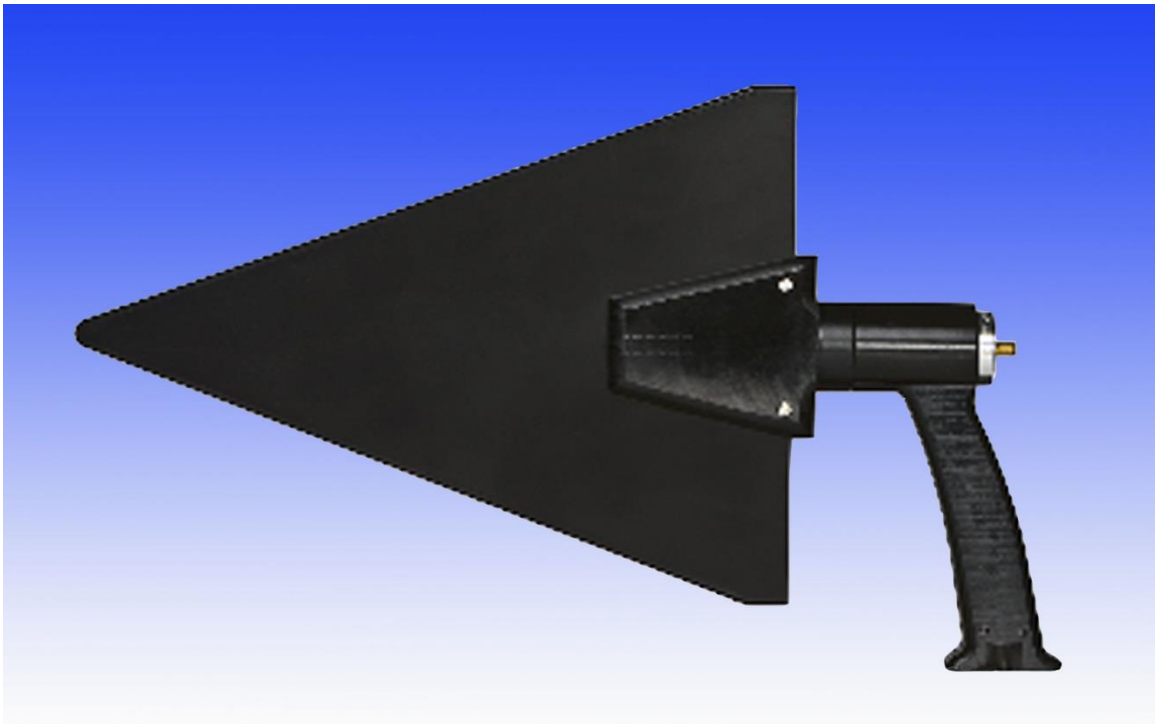
WARRANTY

This Model EM-6945 Log Periodic Antenna is warranted for a period of 12 months (USA only) from date of shipment against defective materials and workmanship. This warranty is limited to the repair of or replacement of defective parts and is void if unauthorized repair or modification is attempted. Repairs for damage due to misuse or abnormal operating conditions will be performed at the factory and will be billed at our commercial hourly rates. Our estimate will be provided before the work is started.

DESCRIPTION AND USE ELECTRO-METRICS MODEL EM-6945 'VECTOR' LOG PERIODIC ANTENNA



1.0 Description

The EM-6945 Log Periodic Antenna is a linearly polarized broadband antenna operating from 0.5 to 25 GHz as either a transmitting or receiving antenna. The linearly polarized design permits separate measurement of horizontal and vertical electric field components over its operating frequency range.

The EM-6945 Antenna consists of a PC board with the antenna elements etched on each side and inserted into a ABS plastic base. The output connector is a Type "k" (2.92mm) protruding from the upper area of the handle. A triangular ABS plastic cover, permanently fastened to the handle, is used to protect the PC board from damage and the environment.

The EM-6945 Antenna attaches to any ¼-20 tripod mount with a free-wheeling nut that allows the antenna to be mounted without rotation. The EM-6945 can be orientated in either a vertical or horizontal position with respect to a horizontal plane. The detented rotation joint provides a positive stop at 90 degree intervals. Vector is the ideal hand-held device for locating the origin of signal emitters. Perfect for SIGINT, multi-band communications applications, or any other application where space is limited (e.g. shielded rooms), and a small, rugged, high performance directional antenna is required.

Optional calibration for each antenna is available at 1, 3, or 10 meters. Calibration data includes gain and antenna factors vs frequency.

The EM-6945 can be used as either a receiving or transmitting antenna and is rated for a maximum power level of 5 W. The gain and efficiency of the EM-6945 LPA are optimized to obtain greatest directional sensitivity from 500 MHz to 25 GHz. The nominal gain of the antenna is 4-8 dBi to 19 GHz, with excellent front to back ratio to 25 GHz and above.

NOTE: **When performing signal amplitude measurements using the EM-6945, always include the attenuation within the measurement system plus coaxial cable losses. This, in addition to the antenna factors, will determine the signal level being measured.**

2.0 Specifications

2.1 Electrical

Frequency Range:	0.5 to 25 GHz.
Impedance:	50Ω nominal.
Average VSWR: Worst Case:	<1.7:1 (typical) < 2.6:1 (typical)
Gain:	**500 MHz - 25 GHz Nominal > 0dBi** **600 MHz - 19 GHz Nominal 4-8dBi** **19 GHz - 25 GHz Nominal 4-0dBi**

Beamwidth:	**E-Plane**	**H-Plane**
	70 deg @ 500 MHz	**170 deg @ 500 MHz**
	52 deg @ 2 GHz	**80 deg @ 2 GHz**
	40 deg @ 12 GHz	**65 deg @ 12 GHz**
	18 deg @ 25 GHz	**51 deg @ 25 GHz**

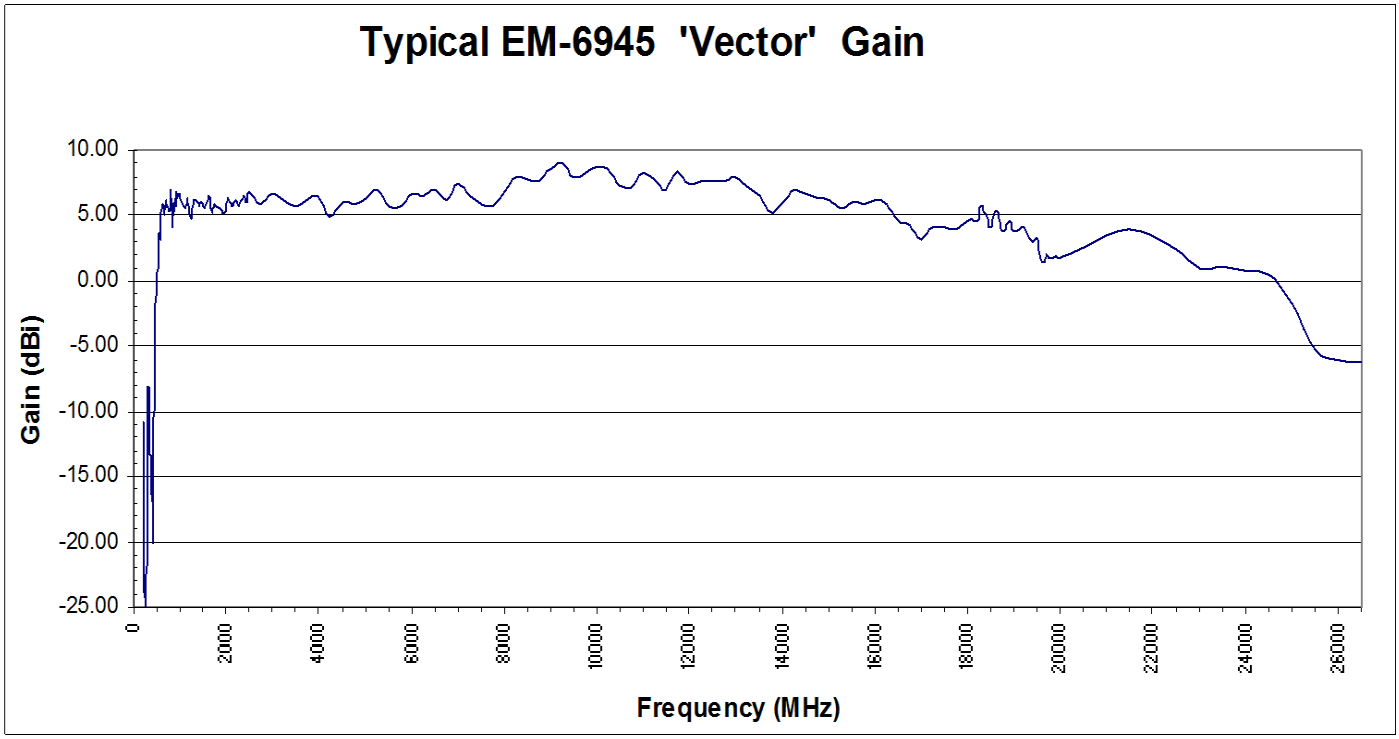
Maximum Continuous Power:	5 W
Connector:	Type "k" (2.92mm).

2.2 Mechanical

Length:	394 mm (15.5").
Width:	216 mm (8.5").
Height (w/handle):	153 mm (6").
Weight:	680 g (1.5 lbs).

3.0 Typical Performance Data

The Electro-Metrics Model EM-6945 Log Periodic Antenna can be calibrated at 1, 3, or 10 meters, when purchased with optional calibration. The data presented on the following pages is typical performance data, and is to be used for reference only. Use of the data shown here to obtain accurate signal level determination is not recommended. Each individual antenna will have variations in performance from the typical data, and errors in the measured signal level may occur if typical data is used



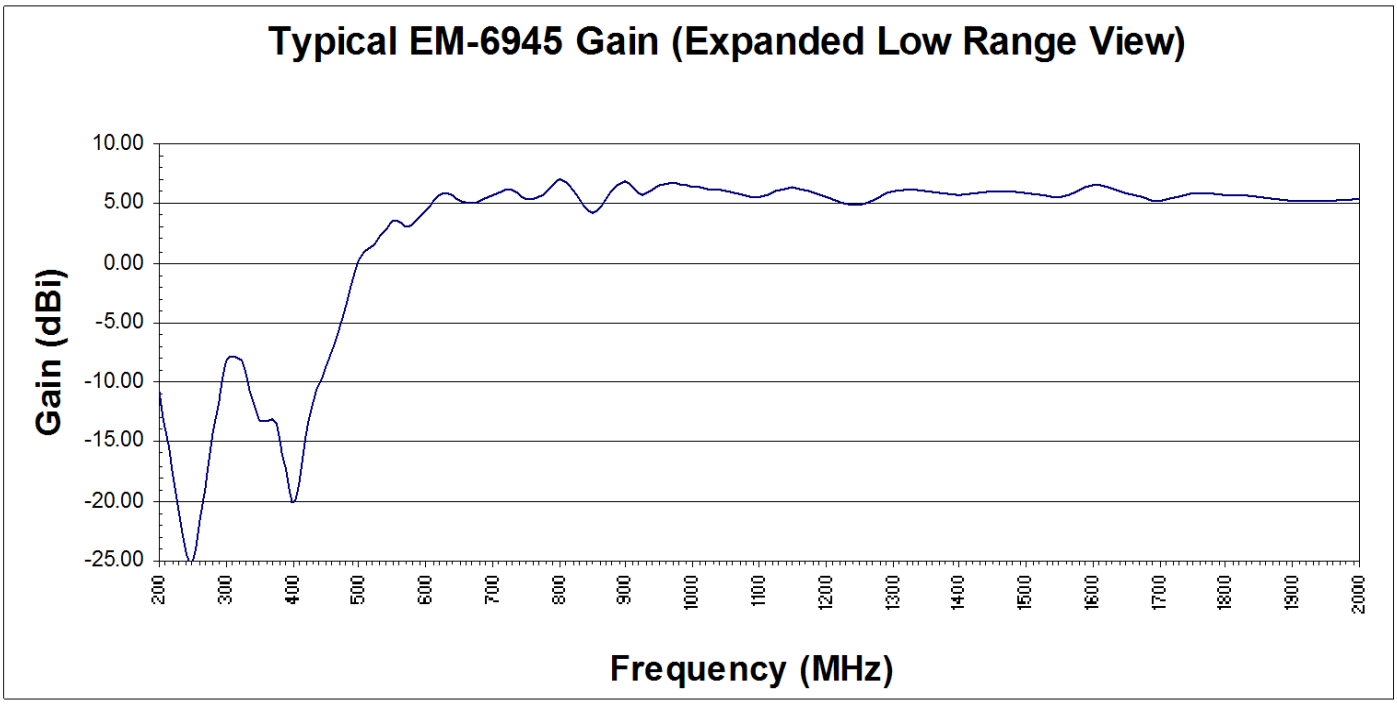
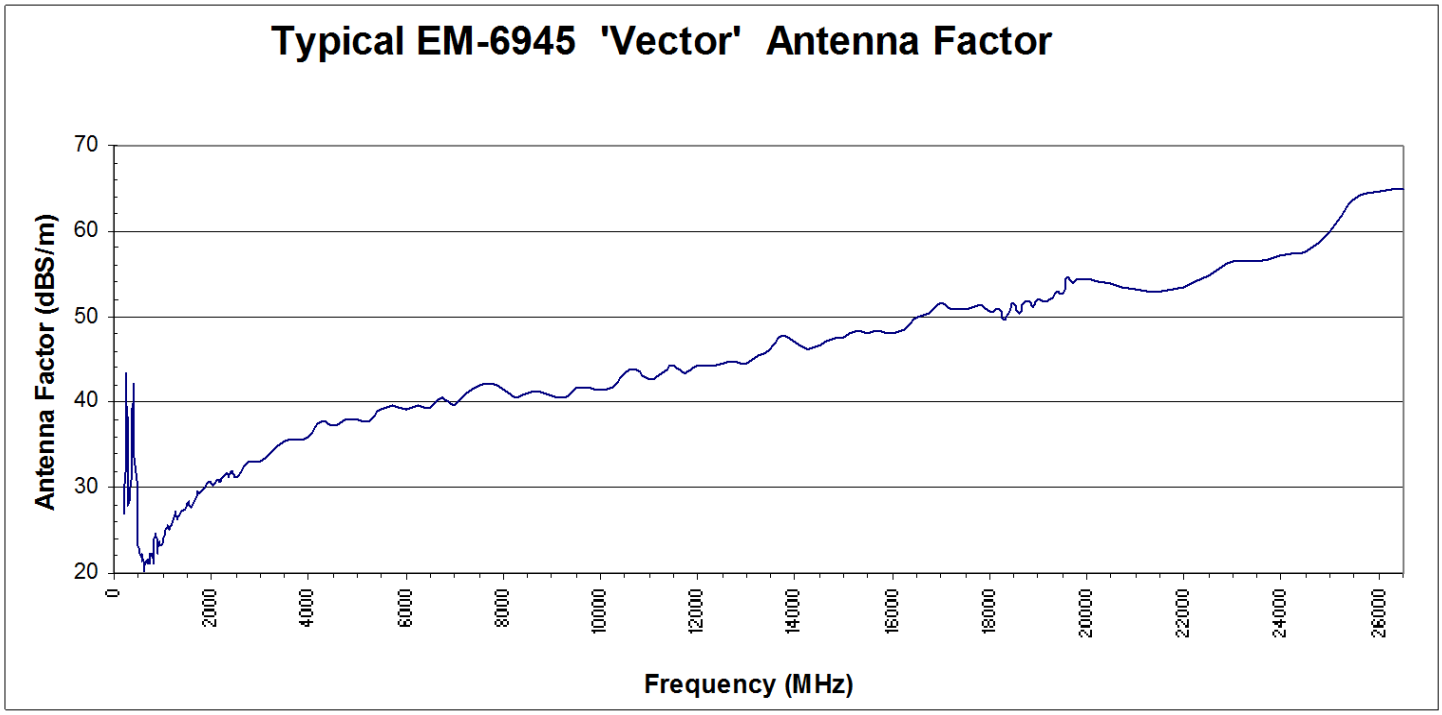


Figure 1.0
EM-6945 Log Periodic Antenna
Typical Gain



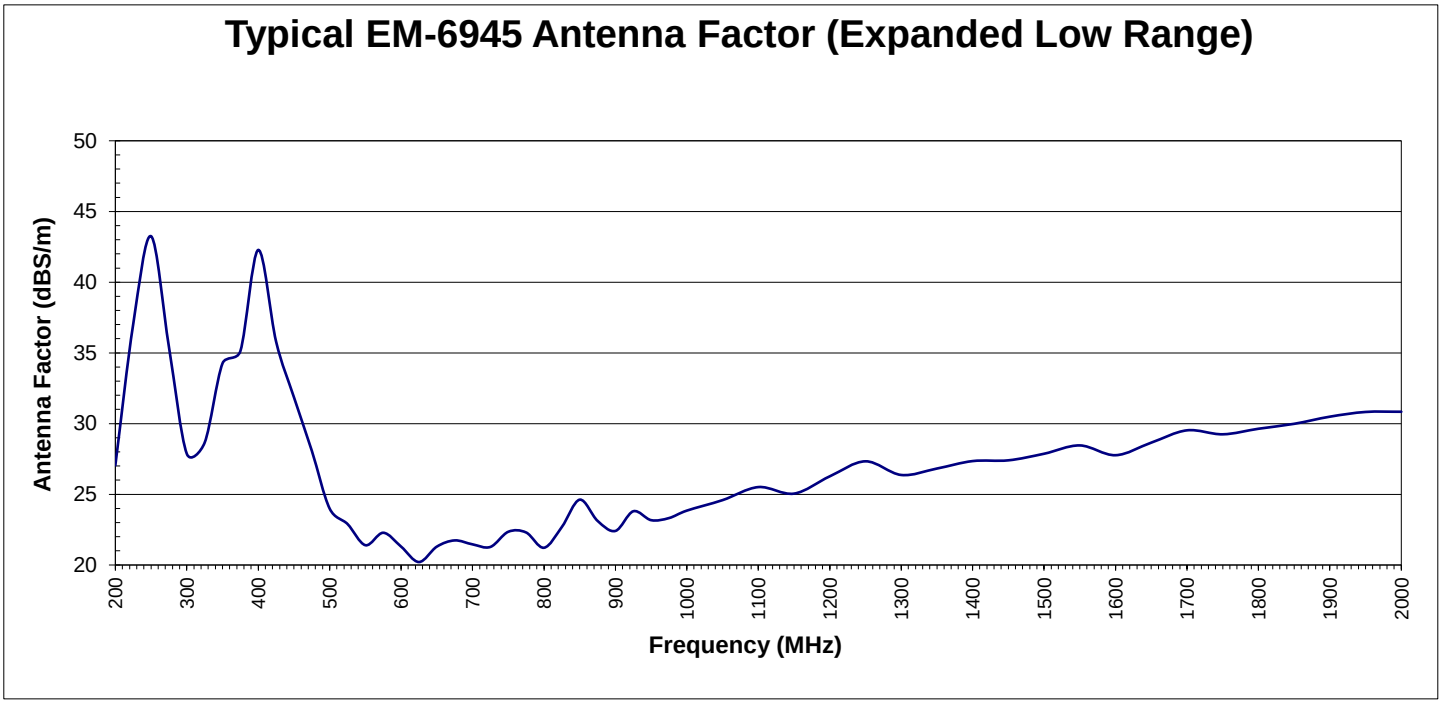


Figure 2.0
EM-6945 Log Periodic Antenna
Typical Antenna Factor

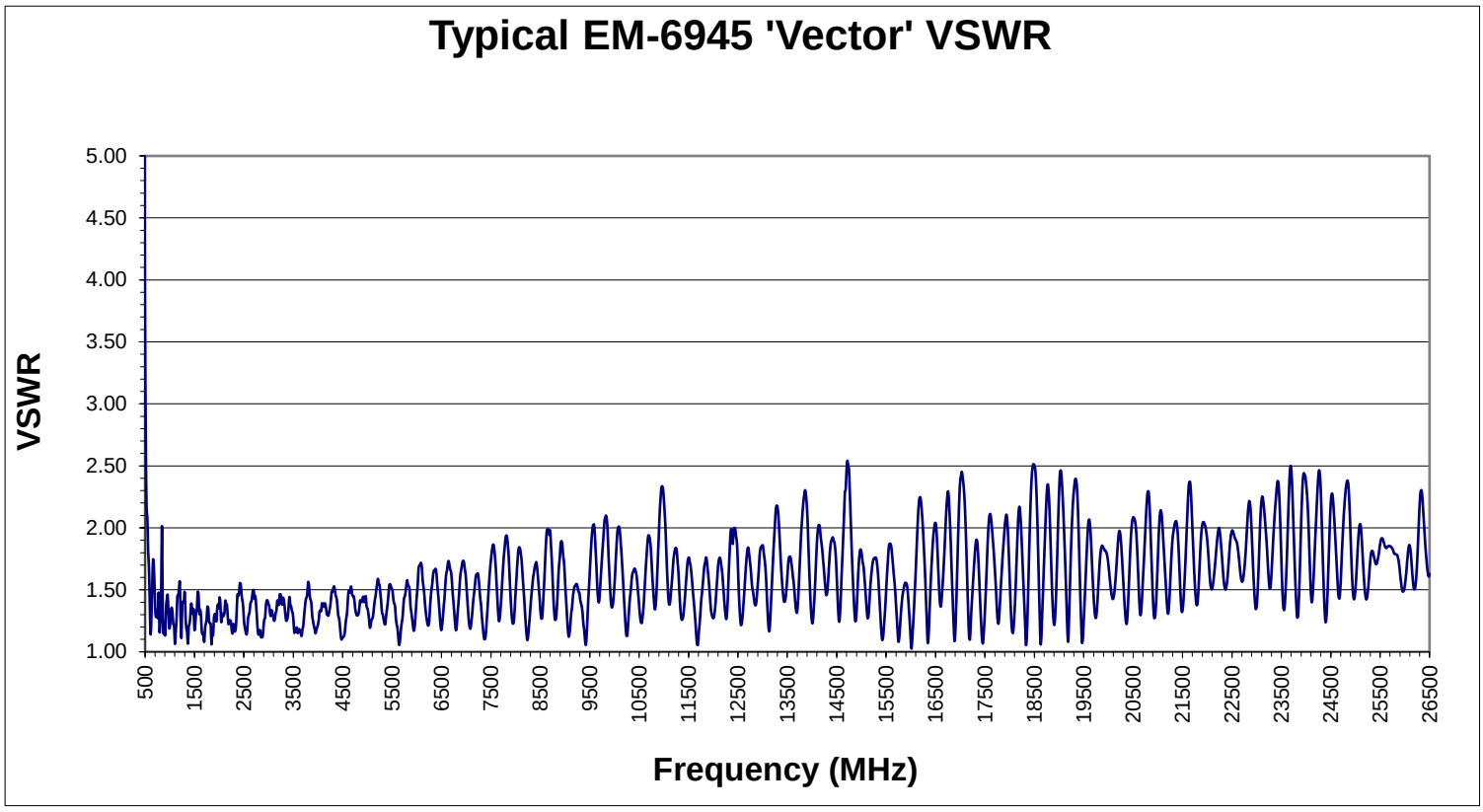


Figure 3.0
EM-6945 Log Periodic Antenna
Typical VSWR