



**INSTRUCTION MANUAL**

**BICONICAL ANTENNA**

**MODEL EM-6912A**

**30 MHz - 300 MHz**

# INSTRUCTION MANUAL

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**BICONICAL ANTENNA**

**30 MHz - 300 MHz**

**ELECTRO-METRICS**

**MODEL EM-6912A**

**SERIAL NO: TYPICAL**

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## **WARRANTY**

**This Model EM-6912A Biconical 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 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-6912A BICONICAL ANTENNA

#### 1.0 Description

The EM-6912A Biconical Antenna performs E-field measurement over the frequency range of 30 MHz to 300 MHz in accordance with FCC Part 15 and 18, VDE 0871 and 0875, MIL-STD-461 Methods RE02, RE102, plus other commercial, military, and government EMI specifications.

The fixed biconical elements are made from aluminum rod that are welded to the end pieces. Each element cage has a cross piece connecting the center element to an outer element to eliminate a common resonance. The elements screw into terminals located at opposite sides of a circular PVC housing containing the balun network.

A Tripod Mounting Clamp included with the antenna, is used to mount the antenna to the EM-6136 Tripod.

Each antenna is calibrated at 1 meter, 3 meters and 10 meters during manufacturing, with the data included in the manual as gain and antenna factors versus frequency. Refer to Table 1.0 for the maximum power handling capability of the EM-6912A.

The balun, feedline, and element cage design contribute to producing a response curve that is almost linear. This makes the antenna ideal for vertical and horizontal swept site attenuation measurements per ANSI and FCC specifications.

To ensure consistency of data collection, the antenna should be orientated in the same position in each measurement run. In order to maintain the same orientation, the antenna name label on the antenna housing should:

- a) Horizontal orientation: Name label facing downwards to ground.
- b) Vertical orientation: Name label on the right side of the antenna should be on the right side as observed from the connector end of the antenna.

**Note:** The data on the calibration chart below 30 MHz is for informational use only. Calibration tolerances are not specified below 30 MHz.

#### 2.0 Specifications

##### 2.1 Electrical

Frequency (calibrated): 30-300 MHz

(Antenna Factor Chart furnished with each antenna.)

Input Impedance:	Matched to 50Ω NOMINAL.
VSWR:	Average: 1.4:1 with 6 dB fixed attenuator. Maximum: 1.8:1 with 6 dB fixed attenuator.
Maximum Continuous Power:	0.5 W
Peak Power:	1.0 W
Output Connector:	BNC, female.

## 2.2 Mechanical

Length:	129.8 cm (51") tip-to-tip.
Diameter:	50.8 cm (20").
Depth:	54 cm (21.5") including balun.
Weight including fixed elements:	2.7 kg (6 lb).

**Table 1.0**  
**Typical Power Handling Before Saturation**  
**Electro-Metrics Model EM-6912A Biconical Antenna**

Frequency (MHz)	Power (Max.) (mW)	Frequency (MHz)	Power (Max.) (mW)
30	82.4	110	4.72
35	108.8	115	6.32
40	66.9	120	4.93
45	107.4	125	4.89
50	82.8	130	3.40
55	85.8	135	3.79
60	93.3	140	1.02
65	42.0	145	0.7147
70	31.6	150	0.5071
75	26.5	155	0.4735
80	16.9	160	0.4286
85	7.63	200	0.4297
90	10.2	220	0.4282
95	8.92	270	0.4276
100	5.64	300	0.4297
105	7.89		

### 3.0 Calibration Data

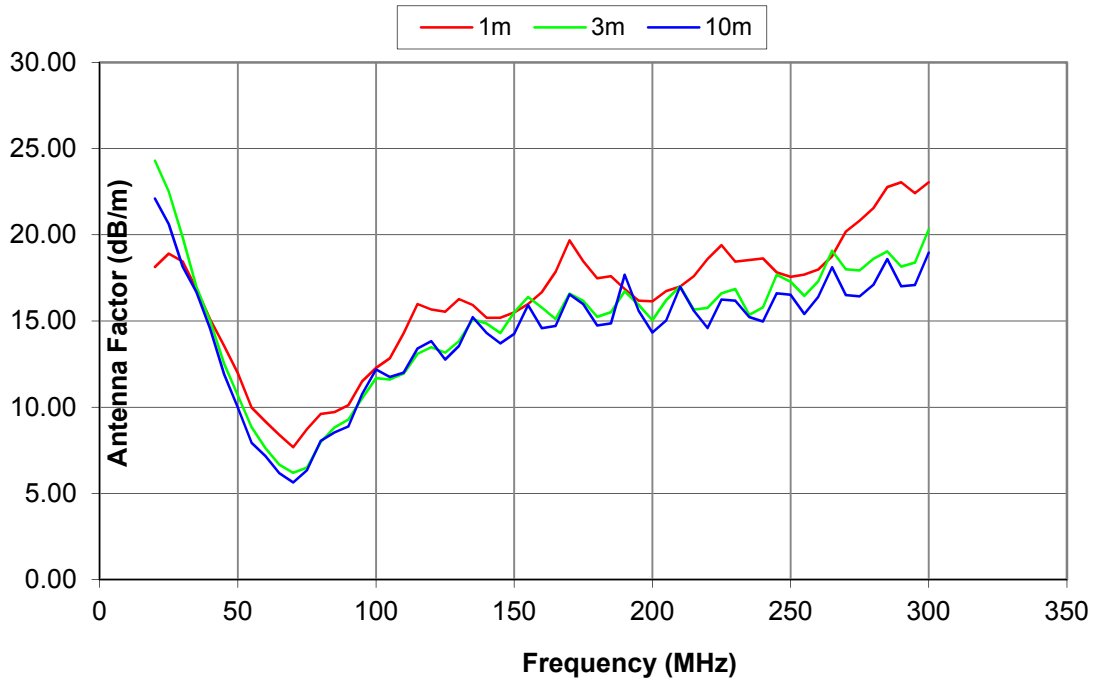
The Electro-Metrics Model EM-6912-A Biconical Antenna is calibrated at 1 Meter, 3 Meter, and 10 Meter. The data is presented in tabulated form as Gain and Antenna Factors versus Frequency, Figure 1-3.

<b>Figure 1:</b>	<b>1 Meter: Page 3</b>
<b>Figure 2:</b>	<b>3 Meter: Page 4</b>
<b>Figure 3:</b>	<b>10 Meter: Page 5</b>

**Typical Gain and Antenna Factors  
are shown in the following charts**

**The manual for each individual antenna will be shown as noted above.**

**EM-6912A Typical Antenna Factors**



**EM-6912A Typical Gain Factors**

