INSTRUCTION MANUAL

BICONICAL

ANTENNA

MODEL BIA-30C

20 MHz – 200 MHz

INSTRUCTION MANUAL

BICONICAL ANTENNA

20 MHz – 300 MHz

ELECTRO-METRICS

MODEL BIA-30C

SERIAL NO: N/A

ELECTRO-METRICS CORPORATION

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MANUAL REV. NO: BIA30-0196 **ISSUE DATE: JANUARY 01 1996**

WARRANTY

This Model BIA-30C 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 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 BIA-30C BICONICAL ANTENNA

1.0 Description

The BIA-30C Biconical Antenna is designed to perform E-field measurements from 20 MHz to 300 MHz in accordance with FCC Part 15 and 18, VDE 0871 and 0875, MIL-STD-461 Method RE02, plus other commercial, military, and government EMI specifications.

The six moveable biconical element rods are made from aluminum rods. The ball-shaped end of the element mounts in a cone shaped bracket with corresponding rounded holes and slots for the elements. The element rods are held in place by a round retaining plate. A moveable ring slides down the rods and is secured on a threaded stud on the retaining plate. The elements mount in a balun network containing the necessary impedance-matching components.

Each series of antennas is calibrated during manufacturing, with the calibration data (at 1 and 3 meters) included in the manual as gain and antenna factors vs frequency for use in Specification Compliance Testing. For the maximum power handling capability of the BIA-30C, refer to Table 1.

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.

A 20 dB preamplifier is recommended in-line with the receiving antenna to minimize the required transmitted power and reduce the possibility of saturation of the transmitting antenna.

When the BIA-30C is oriented vertically, the same element orientation need not be maintained from measurement to measurement. This insensitivity to orientation in the vertical plane is a result of the balun and other design features.

2.0 Specifications

2.1 Electrical

Frequency Range:	20-300 MHz
Input Impedance:	Matched to 50Ω.
VSWR:	Average: 1.4:1 with 6 dB pad.
	Maximum: 1.8:1 with 6 dB pad.
Max. Continuous Power:	0.5 W.
Peak Power:	1.0 W.
Connector:	BNC, female.

2.2 Mechanical

Length:	1220 mm (48") tip-to-tip.
Diameter:	508 mm (20") maximum.
Depth:	560 mm (22") including balun.
Weight:	2.7 kg (6 lbs).

TABLE 1

TYPICAL POWER HANDLING BEFORE SATURATION

ELECTRO-METRICS MODEL BIA-30C 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		

GAIN AND ANTENNA FACTORS

FOR

MODEL BIA-30C

BICONICAL ANTENNA

AT

1 METER, 3 METER

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1 METER CALIBRATION

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3 METER CALIBRATION

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