INSTRUCTION MANUAL

PARALLEL ELEMENT

ANTENNA

MODEL PEA-30

10 kHz – 30 MHz

INSTRUCTION MANUAL

PARALLEL ELEMENT ANTENNA

28 MHz – 1 GHz

ELECTRO-METRICS

MODEL PEA-30

SERIAL NO: N/A

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WARRANTY

This Model PEA-30 Parallel Element 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 PEA-30 PARALLEL ELEMENT ANTENNA

1.0 Description

The Model PEA-30 Antenna is a broadband parallel element antenna designed to generate electric fields from 10 kHz to 30 MHz for susceptibility testing in accordance with MIL-STD-462 (RS03) plus other Military and DOD Specifications.

The PEA-30 is constructed with removable antenna elements for ease of handling and portability. Two Type "N" (receptacle) connectors are mounted on one side of the rectangular antenna body. The upper connector is the input to the antenna while the lower connector is for the 50-ohm 1 kW load (supplied with antenna) required for proper operation. A tripod mount (CMT-30X) is provided which enables the antenna to be mounted to a standard tripod.

The typical E-Field available at a drive voltage of 224 V (1 kW in 50 ohms) is shown in Figure 1 on page 4.

2.0 PEA-30 Specifications

2.1 Electrical

Frequency Range:	10 kHz to 30 MHz.
Input Impedance:	50Ω, with supplied 50Ω 1 kW load connected to OUTPUT Connector.
Field Pattern:	At 1 meter on the centerline, the field is a linearly polarized essentially homogeneous E-Field.
Field Strength Capability:	Refer to Table 1.
Maximum Power Capability:	1000 Watts
Input/Output Connectors:	Type N, Receptacle.

2.2 Mechanical

Length:	1041 mm (41").
Width:	With elements: 825.5 mm (32.5"). Without elements: 305 mm (12").
Height:	102 mm (4").
Elements:	Length: 473 mm (18.625"). Width: 305 mm (12") Thickness: 5.1 mm (0.20"). Number: 4.
Weight:	16.4 kg (36 lbs).

3.0 Installation

To mount the antenna on the tripod:

a. Screw the CMT-30X Boom Plug into the bottom adapter hole (5/8 x 11).

b. Attach the AMT-30 Antenna Mounting Adapter to the tripod using the 5/8-11 mounting stud/handle on the tripod.

c. Slide the CMT-30X Boom Plug into the AMT-30 Antenna Mounting Adapter.

d. Attach the four rectangular elements as follows:

1) Slide the three angled slots on the end of the element under the heads of the thumb screws located on one of four element mounting plates (two (2) each side of the antenna main body).

2) Secure the element by tightening down the three thumb screws.

3) Repeat for the other three elements.

4.0 Operation

a. Connect the signal source to the INPUT (Type "N") connector on the antenna main frame.

b. Connect the 50-ohm 1 kW load (supplied with antenna) to the OUTPUT (Type "N") connector on the antenna main frame.

c. Use a power monitor at the signal source to determine the input power level.

The field strength power capability is approximately 1000 W. The typical E-Field available at a drive voltage of 1 kW into 50 ohms is shown in Figure 1 on page 4.

A field intensity monitor (e.g. interference analyzer) on the opposite side of the PEA-30 from the test sample and at the corresponding distance should be used to give an approximation of the field seen by the test sample.

CAUTION

If the signal generator or power amplifier used to drive the PEA-30 Antenna requires a (matched) 50-ohm load, a 50-ohm 1000 watt dummy load or non-inductive power resistor should be connected in parallel with the antenna across the output terminals of the signal source.
THE PEA-30 BY ITSELF DOES NOT PRESENT A 50-OHM LOAD TO THE SIGNAL SOURCE.

TABLE 1

TYPICAL E-FIELD AVAILABLE FROM PEA-30 AT A DRIVE VOLTAGE OF 224 V (1 kW in 50 ohms)

FREQUENCY. (Hz)	E-FIELD (V/m)
10 k	35
50 k	28
100 k	29
500 k	32
1 M	31
5 M	29
10 M	23
15 M	23
20 M	26
25 M	32
30 M	30

Typical on an open area test site. Shielded enclosure effect will cause large variations in the actual E-Field obtained in a normal susceptibility test.

The E-Field at any frequency is directly proportional to the drive power.

For Example:

At 100 kHz, an E-Field of 10 V/m would be produced by a drive power of 119 Watts of RF.