INSTRUCTION MANUAL

LOG PERIODIC

ANTENNA

MODEL LPA-30

200 MHz - 1 GHz

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200 MHz - 1 GHz

ELECTRO-METRICS

MODEL LPA-30

SERIAL NO: N/A

ELECTRO-METRICS CORPORATION

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WARRANTY

This Model LPA-30 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 LPA-30 LOG PERIODIC ANTENNA

1.0 Description

The LPA-30 Log Periodic Antenna is a linearly polarized broadband antenna designed to operate from 200 to 1000 MHz. The antenna is capable of operating 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 antenna is constructed of aluminum and phenolic with a Type N connector. The antenna attaches to the Electro-Metrics Model TRI-136 Tripod using a derlin support rod (supplied) equipped with an aluminum base (5/8-11 threaded female connector). This allows the LPA-30 to be mounted at any point within a 90° arc in a horizontal plane. The antenna is portable and suitable for use in applications where space is limited; e.g. shielded rooms.

The antenna is calibrated at 1 and 3 meters with the calibration data included in the manual as gain and antenna factors vs frequency. The LPA-30 can be used for Specification Compliance Testing and is suitable for susceptability testing. The antenna is capable of handling up to a maximum power level of 1 kW.

NOTE: When performing measurements using the LPA-30 always include the level of attenuation within the measurement system plus coaxial cable losses, in addition to the actual antenna factors, for determining the signal level being measured.

Table 1.0 gives the approximate power required when the LPA-30 Antenna is used in radiated susceptibility testing. The power levels shown are based on the typical gain of the antenna and do not include cable losses between the power source and antenna terminals.

2.0 Specifications

2.1 Electrical

Frequency Range:	200 to 1000 MHz.
Input Impedance:	Calibrated in a 50Ω system.
Connector:	Type N.
Average VSWR:	Less than 2:1.

2.2 Mechanical

Length:	749 mm (29.5 inches).
Width:	749 mm (29.5 inches) maximum.
Depth:	63.5 mm (2.5 inches).
Weight:	1.8 kg (4 lbs).

TABLE 1.0

APPROXIMATE POWER REQUIREMENTS VS FREQUENCY FOR FIELD STRENGTHS AT 1 METER SPACING

ELECTRO-METRICS MODEL LPA-30 LOG PERIODIC ANTENNA (MAXIMUM POWER 1 kW)

FREQ. (MHz)	TYP. ANT. FACT.	TYP. GAIN NUM.	TYP. GAIN dB	1 V/m PWR (W) REQ.	10 V/m PWR (W) REQ.	20 V/m PWR (W) REQ.	100 V/m PWR (W) REQ.	200 V/m PWR (W) REQ.
200	17.0	0.84	-0.8	0.04	4.0	15.9	397.9	****
225	14.8	1.76	2.5	0.02	1.9	7.6	189.5	757.8
250	14.3	2.44	3.9	0.01	1.4	5.5	136.8	547.1
275	14.9	2.57	4.1	0.01	1.3	5.2	129.8	519.1
300	16.8	1.97	3.0	0.02	1.7	6.8	168.9	675.6
325	17.5	1.97	2.9	0.02	1.7	6.8	169.1	676.4
350	18.7	1.73	2.4	0.02	1.9	7.7	192.2	768.8
375	17.5	2.62	4.2	0.01	1.3	5.1	127.0	508.0
400	17.1	3.27	5.2	0.01	1.0	4.1	101.8	407.2
425	17.4	3.45	5.4	0.01	1.0	3.9	96.6	386.5
450	18.4	3.07	4.9	0.01	1.1	4.3	108.5	434.0
475	19.8	2.48	3.9	0.01	1.3	5.4	134.4	537.7
500	20.5	2.34	3.7	0.01	1.4	5.7	142.5	570.2
525	19.2	3.48	5.4	0.01	1.0	3.8	95.8	383.4
550	19.5	3.56	5.5	0.01	0.9	3.7	93.6	374.3
575	19.7	3.72	5.7	0.01	0.9	3.6	89.6	358.6
600	20.7	3.22	5.1	0.01	1.0	4.1	103.7	414.6
625	21.5	2.90	4.6	0.01	1.1	4.6	114.8	459.4
650	22.0	2.80	4.5	0.01	1.2	4.8	119.1	476.6
675	21.6	3.31	5.2	0.01	1.0	4.0	100.8	403.0
700	21.6	3.56	5.5	0.01	0.9	3.7	93.7	374.8
725	22.1	3.40	5.3	0.01	1.0	3.9	98.0	392.0
750	22.7	3.17	5.0	0.01	1.1	4.2	105.1	420.5
775	22.8	3.31	5.2	0.01	1.0	4.0	100.8	403.0
800	22.6	3.69	5.7	0.01	0.9	3.6	90.3	361.2
825	22.6	3.93	5.9	0.01	0.8	3.4	84.9	339.6
850	23.2	3.63	5.6	0.01	0.9	3.7	91.8	367.4
875	24.0	3.20	5.1	0.01	1.0	4.2	104.2	416.8
900	24.4	3.09	4.9	0.01	1.1	4.3	108.0	432.0
925	24.3	3.34	5.2	0.01	1.0	4.0	99.9	399.6
950	23.9	3.86	5.9	0.01	0.9	3.5	86.4	345.5
975	24.4	3.62	5.6	0.01	0.9	3.7	92.0	368.1
1000	25.1	3.24	5.1	0.01	1.0	4.1	102.8	411.1

******: Not recommended**

ELECTRO-METRICS
GAIN AND ANTENNA FACTORS
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1 METER CALIBRATION

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