



INSTRUCTION MANUAL

DOUBLE RIDGED GUIDE

ANTENNA

MODEL RGA-30

200 MHz - 2 GHz

INSTRUCTION MANUAL

**THIS INSTRUCTION MANUAL AND ITS
ASSOCIATED INFORMATION IS
PROPRIETARY. UNAUTHORIZED
REPRODUCTION IS FORBIDDEN.**

© 1994 ELECTRO-METRICS CORP.

DOUBLE RIDGED GUIDE

ANTENNA

200 MHz - 2 GHz

ELECTRO-METRICS

MODEL RGA-30

SERIAL NO: N/A

ELECTRO-METRICS CORPORATION

231 Enterprise Road, Johnstown, New York 12095
Phone: (518) 762-2600 Fax: (518) 762-2812

EMAIL: info@emihq.com

WEB: <http://www.electro-metrics.com>

MANUAL REV. NO: RGA30-0894

ISSUE DATE: AUGUST 01 1994

WARRANTY

This Model RGA-30 Double Ridged Guide 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 RGA-30 DOUBLE RIDGED GUIDE ANTENNA

1.0 Description

The Electro-Metrics Model RGA-30 Double Ridged Guide Antenna is a linearly polarized broadband antenna covering 200 MHz to 2 GHz. Built in accordance with ECOM Drawings DL-ES-A-217563, the RGA-30 performs EMI measurements and specification compliance testing.

The antenna is precision machined from aluminum. The Type "N" (female, 50Ω) connector is mounted on the base block of the antenna. Two (2) plate adapter brackets are provided which enables the antenna to be mounted to a standard tripod in either a horizontal or vertical position.

To mount the antenna on the tripod:

- a. Screw the CMT-30X Boom Plug into either the bottom or side plate 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.

Each Model RGA-30 Antenna is individually calibrated during the manufacturing process with the calibration data (at 1 meter) included in the manual as gain and antenna factors vs frequency. The antenna factor should be used in specification compliance testing to convert the receiver reading, in dB(μV), to field intensity units, in dB(μV)/m. The conversion is accomplished by adding the antenna factor in dB to the receiver reading in dB above 1 microvolt.

VSWR is checked for conformance to the typical characteristics shown in Figure 1, while typical 3 dB and 6 dB E-Plane and H-Plane beamwidths are shown in Table 2 on Page 4.

Table 1 on Page 3 gives the approximate power required for use of the Model RGA-30 Antenna in radiated susceptibility measurement procedures. The power levels given are based on the typical gain of the antenna and do not consider cable losses between the power source and antenna terminals.

2.0 Specifications

2.1 Electrical

Frequency Range (calibrated):	200 MHz to 2 GHz.
Impedance:	50 Ω nominal.
Average VSWR:	<1.5.
Average Power Gain:	7.8 dB.
Rated Power:	500 W.
Average 3 dB Beamwidth:	E plane 50°. H plane 45°.
Connector:	Type N, (female).

2.2 Mechanical

Width:	965 mm (38").
Height:	686 mm (27").
Depth:	914 mm (36").
Weight:	11.9 kg (26 lbs).

TABLE 1

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

**ELECTRO-METRICS MODEL RGA-30 DOUBLE RIDGE GUIDE ANTENNA
(MAXIMUM POWER 800 WATTS)**

FEQ. (MHz)	TYP. ANT. FACT.	TYP. GAIN NUM.	TYP. GAIN dB	1 V/m PWR (W) REQ.	20 V/m PWR (W) REQ.	50 V/m PWR (W) REQ.	100 V/m PWR (W) REQ.	200 V/m PWR (W) REQ.
200	10.5	4.0	6.0	0.01	4.0	20	90	360
300	13.0	5.0	7.0	0.01	2.5	15	65	260
400	13.5	7.0	8.5	0.005	2.0	10	45	190
500	16.5	6.0	8.0	0.005	2.0	15	55	220
600	18.0	6.0	8.0	0.005	2.0	15	55	220
700	18.0	8.0	9.0	0.005	1.5	10	40	160
800	19.0	8.5	9.0	0.005	1.5	10	40	150
900	20.0	8.0	9.0	0.005	1.5	10	40	160
1000	23.0	5.0	7.0	0.005	2.5	15	60	260
1100	23.0	6.0	8.0	0.005	2.0	15	55	220
1200	23.0	8.0	9.0	0.005	2.0	10	40	170
1300	25.0	5.5	7.5	0.005	2.0	15	60	240
1400	25.0	7.0	8.5	0.005	2.0	10	50	200
1500	27.0	5.0	7.0	0.010	3.0	15	65	270
1600	26.0	7.5	9.0	0.005	2.0	10	45	180
1700	26.0	7.5	9.0	0.005	2.0	10	45	180
1800	27.0	7.5	9.0	0.005	2.0	10	45	180
1900	29.0	4.5	6.5	0.010	3.0	20	70	300
2000	33.0	2.0	3.5	0.015	6.0	40	150	600

TABLE 2
ELECTRO-METRICS
MODEL RGA-30
DOUBLE RIDGED GUIDE ANTENNA
TYPICAL 3 dB/6 dB E-PLANE & H-PLANE BEAMWIDTHS

FREQUENCY (GHz)	3 dB BEAMWIDTH E-PLANE (DEGREES)	3 dB BEAMWIDTH H-PLANE (DEGREES)	6 dB BEAMWIDTH E-PLANE (DEGREES)	6 dB BEAMWIDTH H-PLANE (DEGREES)
0.19	102	84	151	120
0.20	92	79	148	113
0.25	82	65	94	91
0.30	65	64	94	93
0.35	66	58	92	82
0.40	55	51	79	75
0.50	42	54	59	78
0.60	39	46	62	64
0.70	41	37	71	54
0.80	31	30	50	46
0.90	31	33	70	59
1.00	65	39	78	56
1.10	55	36	72	53
1.20	48	30	65	46
1.30	52	31	67	47
1.40	54	34	75	47
1.50	51	34	72	47
1.60	49	37	75	48
1.70	57	40	72	50
1.80	53	37	68	48
1.90	34	25	60	36
2.00	56	42	83	53

**ELECTRO-METRICS
GAIN AND ANTENNA FACTORS
MODEL RGA-30
DOUBLE RIDGED GUIDE ANTENNA**

1 METER CALIBRATION

PAGE 5A