

CERTIFICATE OF CALIBRATION CONFORMANCE

EMC TEST SYSTEMS, L.P.

A Subsidiary of ESDO Electronics Corporation

**P.O. BOX 80589
AUSTIN, TX 78708-0589
(512) 835-4684**

THIS ANTENNA HAS BEEN INDIVIDUALLY CALIBRATED USING ONE OR MORE OF THE FOLLOWING STANDARD PROCEDURES AS GUIDANCE:

ANSI C63.5 THE AMERICAN NATIONAL STANDARDS INSTITUTE, COMMITTEE 63.5

CALIBRATION UNCERTAINTY: ± 2 dB (30 MHz - 1000 MHz)

CALIBRATION TRACEABILITY: ALL MEASURING AND TEST EQUIPMENT ARE TRACEABLE TO THE NATIONAL INSTITUTE FOR STANDARDS AND TECHNOLOGY (NIST) AND METHODS COMPLIANT WITH THE OBJECTIVES OF MILITARY STANDARD (MIL-STD) 45662A

ENVIRONMENT: TEMPERATURE -5 TO 35 C, RELATIVE HUMIDITY 10% TO 90%

**MANUFACTURER: COMPLIANCE DESIGN
MODEL NUMBER: ROBERTS DIPOLE ANTENNA (ANT1, ANT2, ANT3, ANT4)
SERIAL NUMBER: 747
TRACKING NUMBER: R 4609
DATE OF CALIBRATION: 28 APR 97 (DD/MM/YY)**

TEST DISTANCE: (3) (10) METERS

RECERTIFICATION DATE: 12 MONTH INTERVAL RECOMMENDED

EQUIPMENT USED:	MODEL	SERIAL NUMBER	CAL DUE DATE
	HP 8753C	3029A01587	06 OCT 97
	HP 85047A	3033A02186	06 OCT 97

CONDITION OF ANTENNAS:

PRECALIBRATION

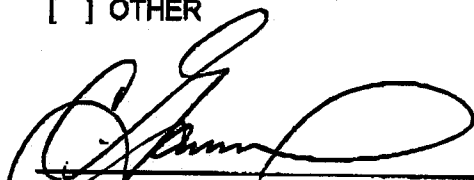
- IN TOLERANCE
- OUT OF TOLERANCE
- OTHER

POST CALIBRATION

- IN TOLERANCE
- OUT OF TOLERANCE
- OTHER



**CALIBRATION BY
ARTHUR E. COOK**



**CALIBRATION LAB MANAGER
CHARLES GARRISON**

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 1 Serial Number: 747
3.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
30	-2.7	1.74	2.4
35	-1.2	1.68	2.2
40	0.0	1.67	2.2
45	1.1	1.65	2.2
50	1.8	1.74	2.4
55	3.7	1.35	1.3
60	5.0	1.18	0.7

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dB μ V to convert to field intensity in dB μ V/meter. Calibrated 28 Apr 97 (DD/MM/YYYY). Calibration per ANSI C63.5.

EMC TEST SYSTEMS, L.A.
AN ESCO ELECTRONICS SUBSIDIARY**Gain and Antenna Factors for Dipole Antenna**
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 1 Serial Number: 747
10.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
30	-0.7	1.10	0.4
35	0.4	1.16	0.7
40	1.6	1.17	0.7
45	2.4	1.22	0.9
50	3.5	1.17	0.7
55	4.7	1.07	0.3
60	5.6	1.04	0.2

Specification compliance testing factor (10.0 meter spacing) to be added to receiver meter reading in $\text{dB}\mu\text{V}$ to convert to field intensity in $\text{dB}\mu\text{V}/\text{meter}$. Calibrated 28 Apr 97 (DD/MM/YYYY). Calibration per ANSI C63.5.

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 2 Serial Number: 747
3.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
50	3.0	1.39	1.2
55	3.5	1.42	1.5
60	4.4	1.38	1.4
65	4.7	1.49	1.7
70	5.7	1.40	1.5
75	6.7	1.26	1.0
80	7.3	1.26	1.0
85	8.1	1.17	0.7
90	8.3	1.26	1.0
95	9.2	1.14	0.6
100	9.8	1.10	0.4
105	10.2	1.10	0.4
110	10.5	1.14	0.6
115	10.6	1.22	0.9
120	10.5	1.35	1.3
125	10.9	1.32	1.2
130	11.0	1.41	1.5
135	11.4	1.38	1.4
140	11.7	1.39	1.4
145	12.2	1.34	1.3
150	12.2	1.44	1.6

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dB μ V to convert to field intensity in dB μ V/meter. Calibrated 28 Apr 97 (DD/MM/YYYY). Calibration per ANSI C63.5.

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Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 2 Serial Number: 747
10.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
50	1.7	1.78	2.5
55	3.7	1.37	1.4
60	4.5	1.34	1.3
65	5.1	1.36	1.3
70	6.0	1.30	1.1
75	6.4	1.35	1.3
80	6.5	1.50	1.8
85	6.6	1.64	2.2
90	7.0	1.69	2.3
95	7.3	1.75	2.4
100	8.0	1.65	2.2
105	8.7	1.54	1.9
110	9.3	1.49	1.7
115	9.9	1.42	1.5
120	10.1	1.46	1.6
125	10.5	1.47	1.7
130	10.8	1.47	1.7
135	11.0	1.51	1.8
140	11.2	1.57	1.9
145	11.6	1.52	1.8
150	11.8	1.58	2.0

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 3 Serial Number: 747
3.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
140	11.6	1.42	1.5
150	11.5	1.68	2.3
160	12.3	1.56	1.9
170	12.7	1.62	2.1
180	12.7	1.83	2.6
190	13.1	1.87	2.7
200	13.5	1.88	2.8
210	13.8	1.91	2.8
220	14.3	1.90	2.8
230	14.7	1.89	2.8
240	15.5	1.70	2.3
250	16.1	1.59	2.0
260	16.8	1.49	1.7
270	17.5	1.37	1.4
280	17.8	1.37	1.4
290	17.9	1.44	1.6
300	17.8	1.58	2.0
310	18.3	1.50	1.8
320	19.2	1.30	1.1
330	19.4	1.32	1.2
340	19.2	1.45	1.6
350	19.2	1.54	1.9
360	19.3	1.59	2.0
370	19.5	1.62	2.1
380	19.9	1.54	1.9
390	20.4	1.45	1.6
400	21.1	1.32	1.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in $\text{dB}\mu\text{V}$ to convert to field intensity in $\text{dB}\mu\text{V}/\text{meter}$. Calibrated 28 Apr 97 (DD/MM/YYYY). Calibration per ANSI C63.5.

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 4 Serial Number: 747
3.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
400	20.5	1.50	1.7
425	21.5	1.34	1.3
450	22.1	1.30	1.1
475	22.9	1.21	0.8
500	23.1	1.29	1.1
525	23.0	1.46	1.6
550	23.5	1.41	1.5
575	24.6	1.20	0.8
600	25.0	1.21	0.8
625	25.3	1.22	0.9
650	25.4	1.29	1.1
675	26.4	1.08	0.3
700	26.2	1.24	0.9
725	25.9	1.43	1.5
750	26.2	1.43	1.5
775	26.4	1.43	1.6
800	26.8	1.41	1.5
825	27.3	1.33	1.2
850	27.0	1.52	1.8
875	27.1	1.56	1.9
900	27.4	1.53	1.9
925	28.7	1.21	0.8
950	29.4	1.10	0.4
975	30.4	0.90	-0.5
1000	32.4	0.60	-2.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dB μ V to convert to field intensity in dB μ V/meter. Calibrated 25 Apr 97 (DD/MM/YYYY). Calibration per ANSI C63.5.

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 3 Serial Number: 747
10.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
140	11.8	1.35	1.3
150	12.2	1.42	1.5
160	11.9	1.72	2.4
170	12.3	1.79	2.5
180	12.4	1.96	2.9
190	13.3	1.76	2.5
200	14.0	1.66	2.2
210	14.4	1.68	2.2
220	14.9	1.65	2.2
230	14.9	1.81	2.6
240	15.6	1.68	2.2
250	15.9	1.67	2.2
260	17.0	1.40	1.5
270	18.2	1.15	0.6
280	18.4	1.20	0.8
290	18.3	1.31	1.2
300	18.5	1.33	1.2
310	18.9	1.29	1.1
320	19.0	1.37	1.4
330	19.7	1.24	0.9
340	19.4	1.40	1.5
350	19.5	1.44	1.6
360	19.9	1.39	1.4
370	20.0	1.42	1.5
380	20.7	1.28	1.1
390	21.6	1.11	0.4
400	22.1	1.04	0.2

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Gain and Antenna Factors for Dipole Antenna
Manufactured by Compliance Design, Inc.
Model Number: Roberts Ant 4 Serial Number: 747
10.0 Meter Calibration

Frequency (MHz)	Antenna Factor (dB)	Gain Numeric	Gain dBi
400	19.5	1.88	2.7
425	21.1	1.48	1.7
450	21.5	1.50	1.7
475	21.9	1.55	1.9
500	22.2	1.60	2.0
525	22.7	1.54	1.9
550	23.6	1.40	1.4
575	24.0	1.37	1.4
600	24.8	1.24	0.9
625	25.2	1.23	0.9
650	26.1	1.09	0.4
675	26.4	1.10	0.4
700	25.6	1.41	1.5
725	26.7	1.17	0.7
750	26.7	1.26	1.0
775	27.4	1.14	0.6
800	28.1	1.03	0.1
825	27.5	1.26	1.0
850	28.6	1.05	0.2
875	28.9	1.04	0.2
900	29.9	0.87	-0.6
925	29.5	1.01	0.0
950	29.2	1.14	0.6
975	29.8	1.05	0.2
1000	30.8	0.88	-0.6

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