



INSTRUCTION MANUAL

MAGNETIC FIELD

PROBE

MODEL MFB-30

10 kHz - 520 kHz

INSTRUCTION MANUAL

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

© 1993 ELECTRO-METRICS CORP.

MAGNETIC FIELD PROBE

10 kHz - 520 kHz

ELECTRO-METRICS

MODEL MFA-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: LPA30-0993

ISSUE DATE: SEPTEMBER 01 1993

WARRANTY

This Model MFA-30 Magnetic Field Probe 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 MAGNETIC FIELD PROBE ELECTRO-METRICS MODEL MFA-30

1.0 Description

The MFA-30 Magnetic Field Probe is a small shielded loop antenna covering 10-520 kHz. It is designed for use with any 50-ohm impedance EMI receiver (e.g. Electro-Metrics Model EMC-30 Interference Analyzer), spectrum analyzer, or similar instrument.

The probe is electrostatically shielded and therefore sensitive only to the magnetic component of the electromagnetic field. A rubberized coating, colored red, protects the probe against minor damage and the environment.

The probe is color-coded red to differentiate the MFA-30 from the MFB-30 and MFC-30.

The handheld probe is normally used to search for RF leakage and in determining which side of an article under test radiates the highest level prior to running a MIL-STD or FCC radiated emissions test. It may also be used to measure magnetic field emissions from the cases and cables of electrical and electromechanical equipment. These measurements are similar to Method RE01 of MIL-STD-461/462, but extend in frequency above 50 kHz up to 230 MHz.

The probe is designed to work into a 50-ohm system and the calibration chart is based on this use. The calibration chart give values of antenna factor for finding the magnetic field strength H.

To find the magnetic field strength H, in dB(μ A/m):

Add the factor from the MFA-30 probe chart, in dB(S/m), to the measured two-terminal input voltage on the 50-ohm instrumentation in dB(μ V).

To find the flux density B in dB(pT):

Add 2 dB to the field strength H reading.

The MFA-30 Magnetic Field Probe is, electrically, a magnetic dipole and thus having a dipole pattern must be oriented for best sensitivity.

2.0 Specifications

2.1 Electrical

Frequency (calibrated): MFA-30: 10-520 kHz (RED)

(Probe Factor Chart furnished with each calibrated probe.)

Impedance: 50 Ω , nominal.

2.2 Mechanical

Length: 240 mm (9.5")

Inside Circle: Approx. 50 mm (2").

Across Circle: 90 mm (3.5").

Outside Diameter of Ring: 92 mm (3.6).

Weight: 454 g (1 lb).

FIGURE 1
FACTOR CHART
FOR
MFA-30 MAGNETIC FIELD PROBE
PAGE 3A