INSTRUCTION MANUAL

MAGNETIC FIELD

PROBE

MODEL MFC-30

22 MHz - 230 MHz

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ELECTRO-METRICS

MODEL MFC-30

SERIAL NO: N/A

ELECTRO-METRICS CORPORATION

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WARRANTY

This Model MFC-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 MFC-30

1.0 Description

The MFC-30 Magnetic Field Probe is a small shielded loop antenna covering 22 MHz-230 MHz. 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 blue rubberized coating protects the probe against minor damage and the environment.

The probe is color-coded blue to differentiate the MFC-30 from the MFA-30 and MFB-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(μA/m):

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

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

> Add 2 dB to the field strength H reading.

The MFC-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):	MFC-30: 22 MHz-230 MHz (BLUE)

(Probe Factor Chart furnished with each calibrated probe.)

Impedance:	50Ω, 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

MFC-30 MAGNETIC FIELD PROBE

PAGE 3A