COM-POWER CORPORATION

Active Loop Antenna
AL-130R

Features

- **Frequency Range:** *9 kHz to 30 MHz*
- **Built-in, Battery Operated Preamplifier**
- **Fiber Optic Remote Monitor/Control option**
- **Electric or Magnetic Field Measurements**
- **Individual Calibration per IEEE 291 Included**
- **Three-year Standard Warranty**

Description

The AL-130R is an Active Loop Antenna (loop size: 19" x 19" [0.5 m x 0.5 m] with electrostatic shield), operating over the frequency range of 9 kHz to 30 MHz. It has a built-in, low-noise preamplifier, which increases overall measurement sensitivity as well as the overall signal to noise ratio.

The antenna is battery powered (rechargeable 6V NimH battery pack). The AL-130R can also be powered by the supplied charger/power adapter. The front panel has LED indicators for RF ON/OFF, power, battery low, amplifier saturation, as well as charging status.

Construction

The AL-130R is designed for durability, making it the ideal choice for daily use in most environments. It is constructed using high grade aluminum, which is also powder coated for additional durability.

Mounting

The AL-130R has a 1/4 inch x 20 threaded hole on the bottom of the preamplifier enclosure, which is used to secure the antenna to any tripod or antenna mast with a compatible mounting arrangement.

Com-Power's ***AT-220 Tripod*** *is the recommended support for this antenna. Using this tripod, the center-point of the loop can be adjusted from 0.95 meter to 1.35 meters (37" to 53").*

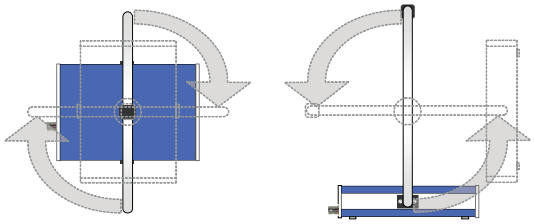
Calibration

The antenna is individually calibrated using NIST Traceable equipment per IEEE 291. The calibration data, along with certificate, are provided. Recognized ISO 17025 accredited calibration is also available upon request.

Application

The AL-130R Active Loop Antenna is intended for use as an EMI test antenna for qualification-level regulatory compliance measurements per most commercial product test procedures including, but not limited to, ANSI C63.4, along with most CISPR, EN, ETSI standards.

Typically, the antenna is positioned vertically with the center-point of the loop elevated one meter above the ground. The loop is then rotated about its horizontal and vertical axis to achieve the maximum reading at each frequency.



The AL-130R can be used for Electric field (E-Field) or magnetic field (H-Field) measurements. Factors are provided for both types of measurements.

Remote Operation *(Optional)*

As per ANSI C63.4-2014, the use of an active loop antenna for compliance testing is permitted in a non-sheilded environment ONLY if the saturation indicator is continuously monitored during the course of testing. Com-Power's Remote Antenna Interface ***(RAI-100)*** *comes in very handy for this application.*

The RAI-100 is a compact controller which is used to enable/disable the RF measurement circuit and monitor saturation and battery low indicators remotely via a fiber optic cable up to 30 mtrs in length.

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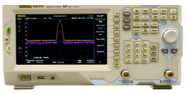
All values are typical, unless specified.
All specifications are subject to change without notice.

Product Name	**Active Loop Antenna**
Frequency Range	**9 kHz to 30 MHz**
Loop Size	**19" x 19"** (0.5 m x 0.5 m)
Nominal Impedance	**50Ω** (output port)
AC Adapter Output Power	**6 V_{DC}** (unregulated)**, 500 mA**
Battery Type	**6 V_{DC} NimH** (rechargeable)
Average Battery Life	**10-12 hours**
E-Field Antenna Factors	***13.4*** *to* ***16.4*** *(average:* ***14.9****) [dB(m^{-1})]*
Saturation Level	***>1 V/m / >120 dBµV/m*** *(>2.65 mA/m) / >68.5 dBµA/m)*
Antenna Factor Variation	**±1.5 dB**
Sensitivity (typical):	**-3 dBuA/m @ 10 kHz**
	-44 dBuA/m @ 1 MHz
RF Connector	**BNC-type** (female)
Specifications	**ANSI C63.4, CISPR, EN, ETSI,** etc.
Dimensions (H x W x D)	**20.1" x 19.7" x 10.6"** [51 x 50 x 27 cm]

Accessories available from Com-Power:

RAI-100 Remote Antenna Interface

AT-220 Antenna Tripod



SPA-800 Spectrum Analyzer

Also Available:
AB-900A Biconical Antenna
AM-741 Active Monopole Antenna
AL-100, ALP-100, ALC-100 Log Periodic Antennas

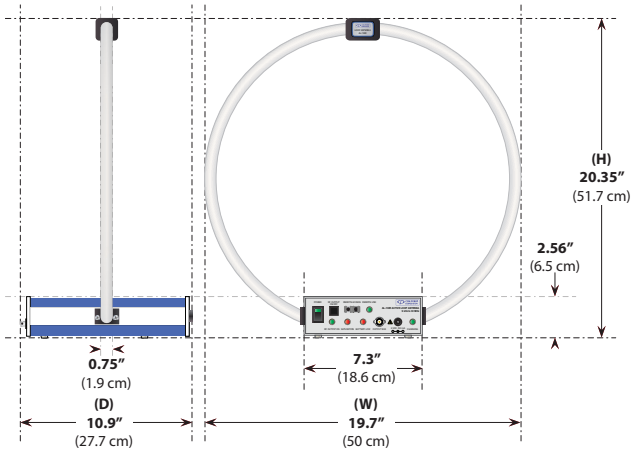
$$H\ [\text{H-Field}]\ (\text{magnetic field}) = E\ [\text{E-Field}]\ (\text{electric field}) - 51.5\ \text{dB}\ \text{Log}^{-1}[377\Omega]\ (\text{impedance of air})$$

MAGNETIC FIELD EQUATIONS
*(**AMPS** per meter)*

A/m = **[E-Field]** Strength (V/m) / 377Ω
dBA/m = **[E-Field]** Strength (dBV/m) – 51.5
dBA/m = Voltage (dBV) + **[E-Field]** Factor – 51.5
dBA/m = Voltage (dBV) + **[H-Field]** Factor

ELECTRIC FIELD EQUATIONS
*(**VOLTS** per meter)*

V/m = **[H-Field]** Strength (A/m) x 377Ω
dBV/m = **[H-Field]** Strength (dBA/m) + 51.5
dBV/m = Current (dBA) – **[E-Field]** Factor + 51.5 dB
dBV/m = Current (dBA) – **[H-Field]** Factor
dBV/m = Voltage (dBV) + **[E-Field]** Factor



Active Antenna Factors (E-Field & H-Field)