COM-POWER CORPORATION

Active Monopole Antenna
AM-741R

Features

- **Frequency Range** *9 kHz to 30 MHz (useable up to 60 MHz)*
- **Active Matching Network**
- **Fiber Optic Remote Monitor/Control option**
- **Battery Operated**
- **Individual Calibration Included**
- **Three-year Standard Warranty**

Description

The AM-741R is an Active Monopole Antenna operating over the frequency range of 9 kHz to 30 MHz (usable up to 60 MHz). Its removeable, telescoping rod element is adjustable from 23 to 105 cm (approximately). Most standards specify a rod height of 104 cm (41 inches).

Due to the high impedance of the rod element, a matching network with a high input impedance and 50Ω output impedance (for connection to the measurement equipment) is needed. The AM-741R provides this and also incorporates a low-noise preamplifier, thereby increasing the sensitivity and signal to noise ratio of the measurement system.

The preamplifier can be powered by its internal, rechargeable 6 V_{DC} NimH battery pack or the supplied charger/power adapter. The front panel has indicators for RF ON/OFF, power, battery low, amplifier saturation, as well as charging status.

The matching network enclosure is secured to the bottom side of the of a 60.5 cm square, polished aluminum counterpoise.

Mounting

The AM-741 has a 1/4 inch x 20 threaded hole on the bottom of the matching network enclosure, which is used to secure the antenna to a tripod.

Com-Power's ***AT-220 Tripod*** *is the recommended support for this antenna.*

Remote Operation (Optional)

Remote antenna interface ***(RAI-100)*** *is a fiber optic controller which can be used to monitor saturation and battery low conditions. It also allows the user to remotely enable/disable the RF measurement circuit.*

Application

The AM-741R Active Monopole Antenna is used for radiated emissions measurements, typically below 30 MHz. It is commonly used for tests according to RE102 of MIL-STD-461, Section 21 of RTCA DO-160, CISPR 25 (automotive), and other various standards.

It is required per most test procedures, that the counterpoise be bonded directly to the ground plane on (or over) which the Equipment Under Test (EUT) is installed.

However, per the latest revisions of MIL-STD 461, the antenna may only be grounded through the shield of the output cable via a metallic bracket bonded to the chamber floor, directly below the antenna. It also specifies that the output cable be fitted with a ferrite, centered between the bracket and antenna output, having an impedance of 20-30Ω at 20 MHz. Com-Power's ***AMS-741 Monopole Grounding Kit****, which includes the output cable (with ferrite), elbow adapter and grounding bracket, is available separately.*

Calibration

The antenna is individually calibrated per SAE ARP958 using NIST traceable equipment. The data, along with certificate, are provided. Recognized ISO 17025 accredited calibration is also available upon request.

Calibration of the matching network is performed using the Equivalent Capacitance Substitution Method (ECSM). The RF voltage from a 50Ω source is delivered to one leg of a T-connector, with the second leg terminated with 50Ω, and the third leg connected to the antenna input port through a 10 pF capacitor, which acts as a "dummy antenna", simulating the high impedance of the rod. Com-Power's ***AMC-10pF Calibration Capacitor*** *is available separately.* *See diagram on next page.*

COM-POWER CORPORATION

Active Monopole Antenna
AM-741R

Specifications

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

Product Name	**Active Monopole Antenna**
Frequency Range	**9 kHz to 30 MHz** (useable to 60 MHz)
Polarization	**Vertical**
Nominal Impedance	**50Ω** (output port)
Battery Type	**6 V_{DC} NimH** (rechargeable)
Average Battery Life	**10-12 hours** (new, fully charged battery)
Active Antenna Factors (typical)	***-1.2*** *to* ***-0.3*** *(average:* ***-0.5****) [dB(m^{-1})]* (9 kHz to 30 MHz)
Antenna Factor Variation (maximum)	**±0.5 dB** (9 kHz to 30 MHz)
Dynamic Range	***103 dB @ 1 MHz*** *[1 kHz bandwidth]*
Lower Limit of Field Strength Measurement	***7 dBµV/m*** *(2.2 µV/m)* ***@ 1 MHz*** *[1 kHz bandwidth]*
Upper Limit of Field Strength Measurement	***110 dBµV/m*** *(0.35 V/m)* ***@ 1 dB compression***
VSWR (output port)	***1.01*** *to* ***1.329*** *(average:* ***1.06****) :1 (typical)*
Return Loss (output port)	***17.0*** *to* ***41.1*** *(average:* ***33.1****) dB (typical)*
RF Connectors (input/output ports)	**N-type** (female)
Specifications	MIL-STD-461, RTCA DO-160, CISPR 25, etc.
Weight	**9.5 lbs.** *[4.3 kg]*

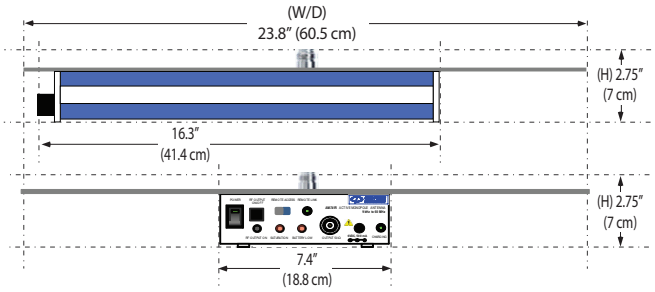
Accessories available from Com-Power:

AMC-10pF Calibration Capacitor

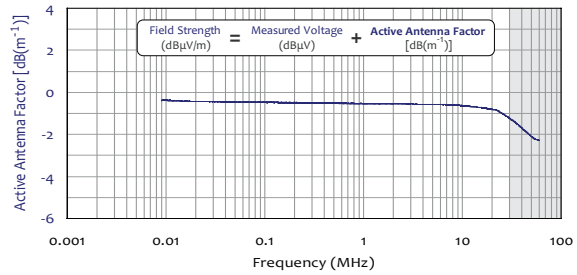
AMS-741 Grounding Kit (for MIL-STD-461)

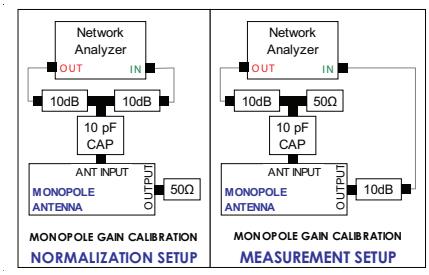
AT-220 Antenna Tripod

RAI-100 Remote Antenna Interface

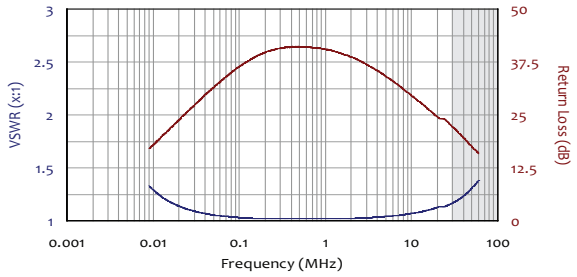


Active Antenna Factor





VSWR / Return Loss (output port)



Matching Network Gain and Rod Factor