Features

- **Frequency Range**
  30 MHz to 1 GHz

- **Adjustable (Tunable) Elements**

- **Dipoles considered "reference antenna"**

- **Rugged Carrying/Storage Case**
  for transport and protected storage

- **One-year Standard Warranty**

Description

The AD-100A is a Half-Wave Tuned Dipole Antenna Set, complete with custom carrying/storage case. The set includes the four standard antenna balans described in ANSI C63.5, along with all of the necessary antenna elements for the frequency range of 30 MHz to 1 GHz. This frequency range is divided into four subranges, corresponding to the frequency range of each individual balan, as shown in the following table.

Start Freq. (MHz)	Stop Freq. (MHz)	Balun Designation
30	65	dB1
65	180	dB2
180	400	dB3
400	1000	dB4

Calibration

Per ANSI C63.4 & CISPR 16-1-4, no calibration of half-wave dipoles is required beyond verification of balun loss (<0.5 dB) and VSWR (<1.5:1). Antenna factors are instead determined by calculation. For a theoretical "loss-less" half-wave dipole:

"Loss-less" Dipole Factor = 20*log(Freq. in MHz) - 31.9

In order to account for the loss of the balun:

Dipole Factor = 20*log(Freq. in MHz) - 31.9 + Balun Loss (dB)

Dipole Factor = 20*log(Freq. in MHz) - 31.9 + 0.5

NIST Traceable or 17025 Accredited Calibration of the AD-100 Tuned Dipole Set is, however, available upon request.

Application

Dipole antennas are considered to be the reference (or standard) antenna. They are still the preferred antennas for discrete frequency field strength measurements associated with Normalized Site Attenuation (NSA) calibrations of Open Area Test Sites (OATS) and Semi-Anechoic Chambers (SAC), and for most radiated electromagnetic interference (EMI) compliance tests. Also, they are the only type of antenna that is to be used for calibration of broadband antennas (such as biconical dipoles log periodic dipole arrays, etc.) when employing the reference antenna method described in ANSI C63.5: 2006.

Dipoles are also used as the "substitution antenna" for Effective Radiated Power (ERP) and/or Effective Isotropic Radiated Power (EIRP) tests of intentional radiators (RF transmitters).

Construction

The AD-100A Tuned Dipole Antenna Set is designed based on the Reference Antenna Example Drawings given in Appendix E of ANSI C63.5: 2006. As part of the manufacturing process, the insertion loss of each balun is verified to be less than 0.5 dB, and the VSWR less than 1.5:1 with the elements tuned to resonance at a low, middle and high end of each balun's respective frequency range.

The antennas are designed for durability using high quality materials. This makes the AD-100A set the ideal choice for use in laboratory environments.

Specifications

Product Name	**Tuned Dipole Antenna Set**
Frequency Range	**30 MHz to 1 GHz**
Polarization	**Linear**
Nominal Impedance	**50Ω**
RF Connectors	**BNC-type** (female)
Min. Element Length	**2.6 inches** [6.6 cm]
Max. Element Length	**114 inches** [290 cm]
Antenna Factor	see table below
Isotropic Gain	**1.6 dBi**
VSWR	**less than 1.5 : 1**
Specifications	**ANSI, CISPR, EN, ETSI, etc.**
Dimensions (H x W x D)	see diagram below
Weight	**15 lbs.** [6.8 kg] (including baluns, elements & case)

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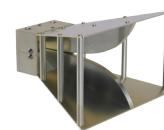*All values are typical, unless specified.*

Related Items available from Com-Power...

PAM-103A Preamplifier (1 MHz to 1 GHz)
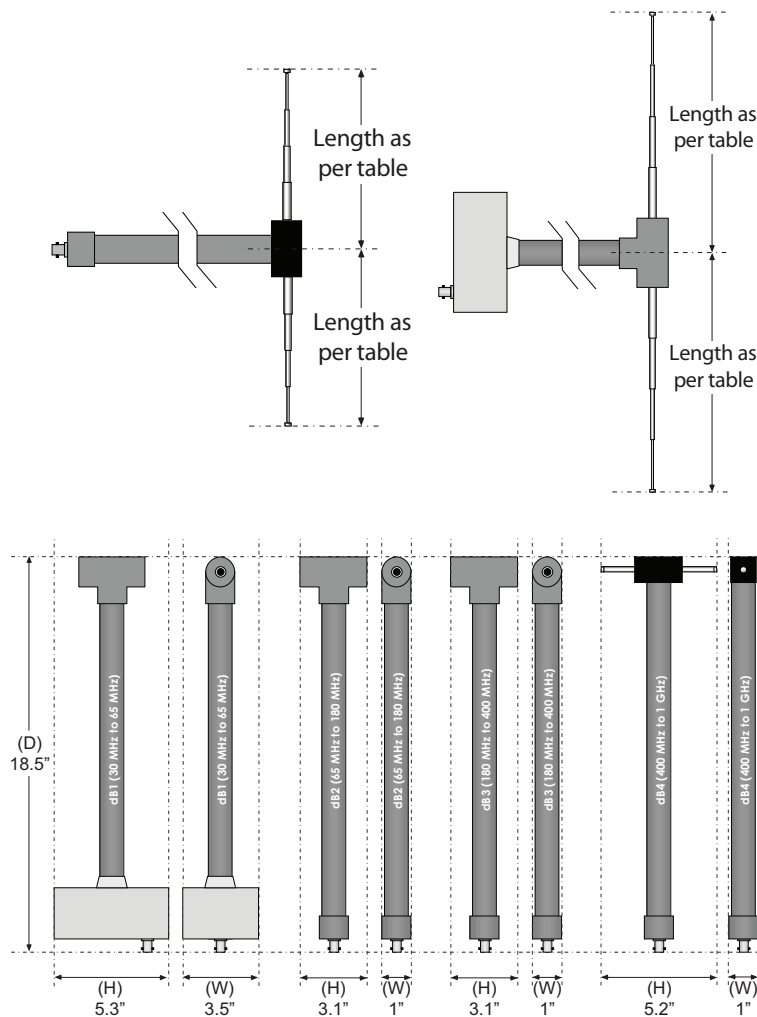
AT-812 Antenna Tripod

AH-118 Horn Antenna (1-18 GHz)

Also Available:
AH-840 Horn Antenna (18-40 GHz)
AB-900 Biconical Antenna
AL-100, ALC-100, ALP-100 Log Periodic Antennas

Freq.	Element Length		Antenna Factor
(MHz)	(cm)	(inches)	(dB[m⁻¹])
30	241.3	95	-1.8
35	208	81.9	-0.5
40	180.3	71	0.6
45	160	63	1.7
50	143.8	56.6	2.6
60	119.7	47.1	4.2
70	102.6	40.4	5.5
80	88.9	35	6.7
90	79.1	31.1	7.7
100	71.4	28.1	8.6
120	58.9	23.2	10.2
140	50	19.7	11.5
160	43.8	17.2	12.7
180	38.9	15.3	13.7
200	35.2	13.9	14.6
250	28.3	11.1	16.6
300	23.5	9.3	18.1
400	17.5	6.9	20.6
500	14.3	5.6	22.6
600	11.7	4.6	24.2
700	10.2	4	25.5
800	8.9	3.5	26.7
900	7.9	3.1	27.7
1000	7.6	3	28.6