

Features

- **Frequency Range**
30 MHz to 1 GHz
- **Adjustable (Tunable) Elements**
- **Dipoles considered “reference antenna”**
- **Rugged Carrying/Storage Case**
for transport and protected storage
- **Three-year Standard Warranty**



Description

The AD-100 V2.0 is a Half-Wave Tuned Dipole Antenna Kit, complete with custom carrying/storage case. The set includes the four standard antenna baluns 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 balun, 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 and VSWR. Antenna factors are instead determined by calculation. For a theoretical “loss-less” half-wave dipole:

$$\text{“Loss-less” Dipole Factor} = 20 \cdot \log(\text{Freq. in MHz}) - 31.9$$

In order to account for the loss of the balun:

$$\text{Dipole Factor} = 20 \cdot \log(\text{Freq. in MHz}) - 31.9 + \text{Balun Loss (dB)}$$

$$\text{Dipole Factor} = 20 \cdot \log(\text{Freq. in MHz}) - 31.9 + 0.5$$

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-100 V2.0 Half-Wave Tuned Dipole Antenna Kit is designed based on the Reference Antenna Example Drawings given in Appendix E of ANSI C63.5. As part of the manufacturing process, the insertion loss of each balun is verified and the VSWR is measured 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.

Specifications

Product	Half-Wave Tuned Dipole Antenna Kit
Model	AD-100 V2.0
Frequency Range	30 MHz to 1 GHz
Maximum Input Power	25 Watts (continuous)
Polarization	Linear
Input/Output Impedance	50Ω (nominal)
Antenna Factors	-1.3 to 29.1 dB/m (nominal)
Isotropic Gain	≈ 1 dBi (nominal)
VSWR	<2.0 (average 1.5):1
RF Connectors	N-type (female)
Overall Weight	19.5 lbs. [8.8 kg]
Min. Element Length	2.5 inches [63 mm]
Max. Element Length	109 inches [2777 mm]
Carrying Case Dimensions	38.5" x 18" x 7.25" [978 x 457 x 184 mm] (W)x(D)x(H)

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

AD-100 V2.0 HALF-WAVE TUNED DIPOLE ANTENNA KIT, 30-1000 MHz with carrying case

ABAL-AD100-DB1 V2.0 (30 MHz to 65 MHz)



ABAL-AD100-DB2 V2.0 (65 MHz to 180 MHz)



ABAL-AD100-DB3 V2.0 (180 MHz to 400 MHz)



ABAL-AD100-DB4 V2.0 (400 MHz to 1 GHz)



ATC-22M-AD ANTENNA TRIPOD CLAMP-22 mm ROD



AMA-22MR ANTENNA MAST ADAPTER-22 mm ROD (optional)



CASE-AD100 V2.0 CARRYING CASE (not pictured)

AELE-AD100-KIT V2.0 ANTENNA ELEMENT KIT

AELE-AD100V2-F3 300 mm FIXED ELEMENTS - 2 PIECES



AELE-AD100V2-F7 700 mm FIXED ELEMENTS - 4 PIECES



AELE-AD100V2-CS COLLAPSIBLE SHORT ELEMENTS - 2 PIECES



AELE-AD100V2-CL COLLAPSIBLE LONG ELEMENTS - 2 PIECES



Freq. (MHz)	Element Lengths (mm)	Element Lengths (inches)	Ant. Factor (dB/m)	Isotropic Gain (dBi)
30	2413	95	-1.3	1.1
35	2080	81.9	0	1.1
40	1803	71	1.1	1.1
45	1600	63	2.2	1.1
50	1438	56.6	3.1	1.1
60	1197	47.1	4.7	1.1
70	1026	40.4	6	1.1
80	889	35	7.2	1.1
90	791	31.1	8.2	1.1
100	714	28.1	9.1	1.1
120	589	23.2	10.7	1.1
140	500	19.7	12	1.1
160	438	17.2	13.2	1.1
180	389	15.3	14.2	1.1
200	352	13.9	15.1	1.1
250	283	11.1	17.1	1.1
300	235	9.3	18.6	1.2
400	175	6.9	21.1	1.2
500	143	5.6	23.1	1.1
600	117	4.6	24.7	1.1
700	102	4	26	1.1
800	89	3.5	27.2	1.1
900	79	3.1	28.2	1.1
1000	76	3	29.1	1.1