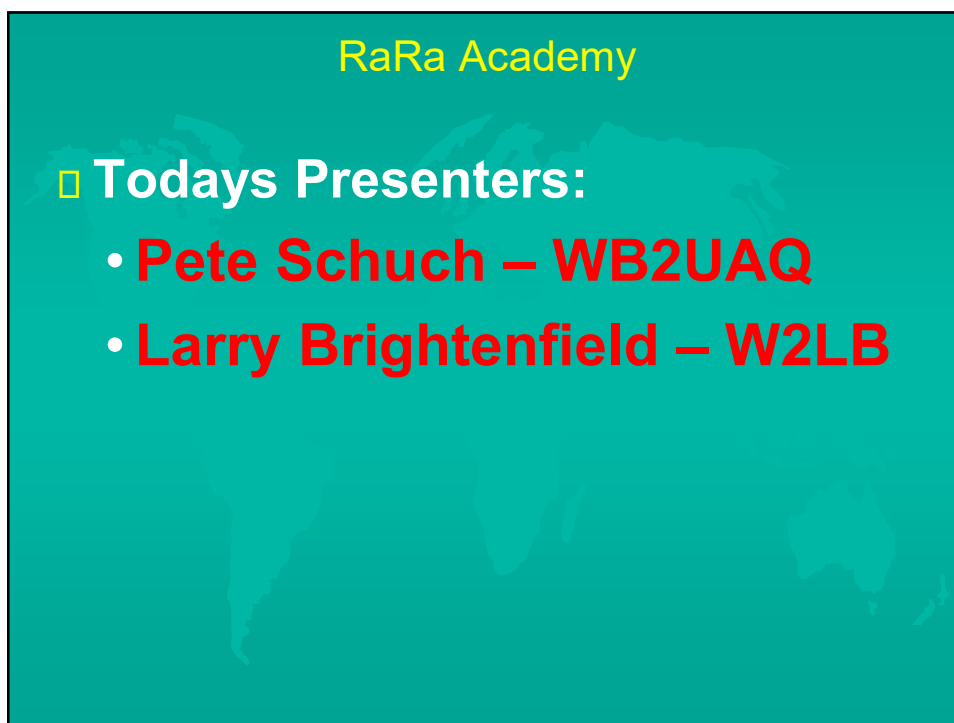




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RaRa Academy

□ **Today's Main Topics:**

- **Balun Basics**
- **Balun Transformer Design**
- **Transformer Ratios**

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RaRa Academy

□ **What is a BALUN or UNUN:**

- A device to connect different types of antennas to various feed lines. Can transform impedances, choke common mode or change balanced to unbalanced
- **BALUN – Balanced to Unbalanced**
 - Balanced Antennas – Dipole, OCFD, LOOP
- **UNUN – Unbalanced to Unbalanced**
 - Unbalanced Antennas – Vertical, EFHW, Random Wire

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RaRa Academy 1:1 Choke Balun

The image shows a photograph of an MFJ-918 Current Balun, which is a cylindrical metal component with two sets of terminals. To the right of the photograph are two circuit diagrams. The top diagram shows an unbalanced impedance (Unbalanced Z) connected to one terminal and a balanced impedance (Balanced Z) connected to the other two terminals. The bottom diagram shows an unbalanced impedance (Unbalanced Z) connected to the center tap and a balanced impedance (Balanced Z) connected to the two outer terminals.

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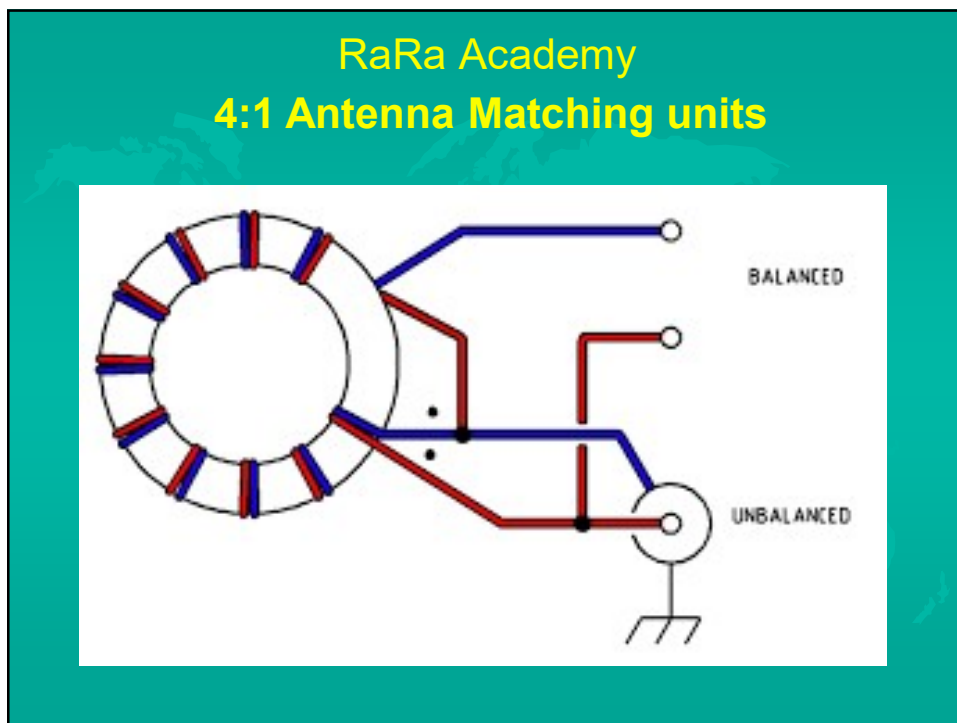
RaRa Academy □ Dipole Antenna & 1:1 Balun

The diagram illustrates a dipole antenna system. A horizontal wire of length L is shown, with a center insulator and two end insulators. A 1:1 balun is connected to the center insulator, and a 50 Ohm coaxial cable is connected to the balun, leading to a transmitter.

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RaRa Academy 4:1 Antenna Matching units

The Classical Coax-Fed Windom

Feedpoint Impedance 235-to-270Ω
(Height-Dependant)

Works fundamental frequency
and even harmonic frequencies

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RaRa Academy 49:1 UNUN TO EFHW

49:1 Transformer

Primary 2 Turns.
Secondary 14 turns (Total turns)

To End Fed Half Wave Antenna.

Parts List

Toroid Core:
Mouser Part #623-5943003801
240-43 Toroid 12.7mm x 61mm

**Use 1, 2 or 3 cores depending on transmitter output to be used.*

Capacitor:
Mouser Part #81-DHRME4C221K2BB
100 - 110 pF. You can use TWO
220 pF @ 15 kV in series.

Antenna:
80m - 10m use a 134' wire.
40m - 10m use a 67' wire, etc.

Wire:
14 gauge enameled wire.**

**** When using 3 toroid cores start with a Primary wire of ~13" and Secondary of ~80" long. 1 & 2 cores will use less wire.**

To TX Gnd.

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BALUN CONSTRUCTION

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Questions

**SUBMIT QUESTIONS and FEEDBACK
TO:
education@rochesterham.org**

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