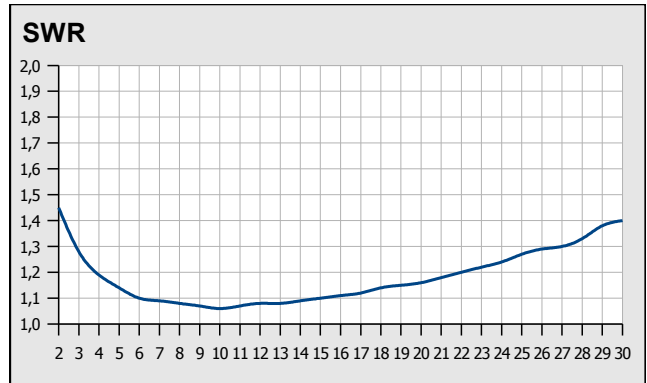
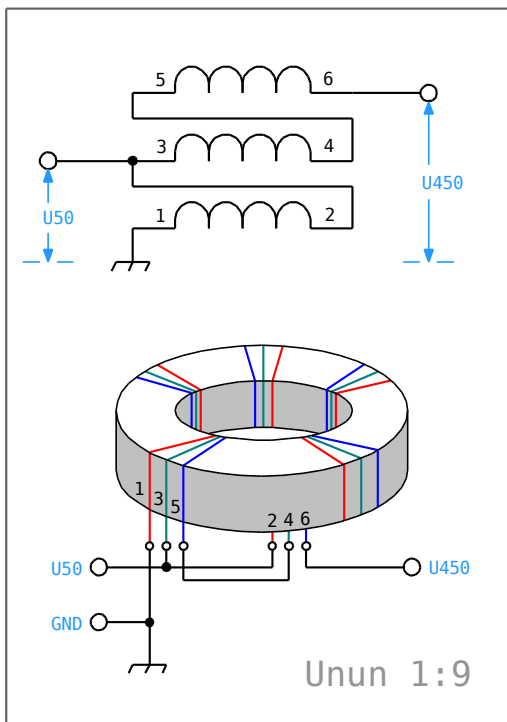


Unun 1:9

This is a short description of wide band antenna transformer used as impedance transformer with various long-wire antennas; random and long wires, Beveridges and with some vertical antennas. This medium power unun can handle about 100W transmitter power. It is of unbalanced magnetic voltage transformer type with galvanic contact between input and output windings. This construction is a traditional trifilar winding over 36 mm ferrite toroid core.

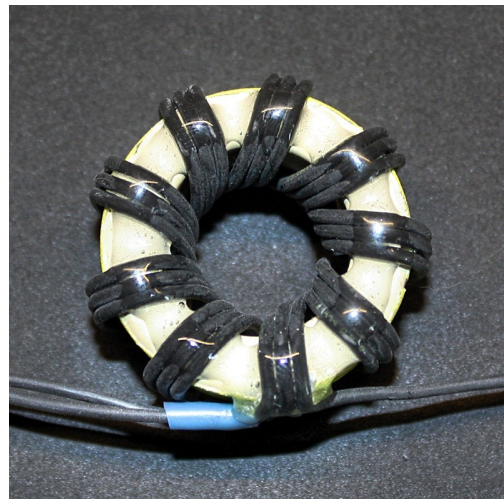
- Unbalanced to unbalanced, impedance **1 to 9**, 50 Ω to 450 Ω.
- Frequency range from **2 to 30MHz** with SWR less than **1 : 1,5**
- Power handling capacity near **100W** carrier, with proper antenna.

Circuit Diagram



This SWR curve was measured with miniVNA antenna analyzer with 450Ω low inductance resistor.

Toroid Core



Ferrite Toroid Core

With protos we used **Ferroxcube TN36x23x15-4C65**. Also Amidon **FT140-61** might be suitable... but iron powder not.

Winding

We used traditional trifilar winding without twisting the coil wires. Details on pictures. We tested the turns count with 3x8, 3x9 and 3x10 turns; more turns lowers the SWR on low bands, less turns on high bands. With **3 x 9 turns** we got best results on widest frequency range. We now used Suhner Radox 125 **0,5mm²** high temperature equipment wire; also standard **ø 1,0mm** enamelled copper wire works fine.

Enclosure

The protos were boxed into ABS enclosures, Hammond 1594BBK, output connectors are heavy duty wire terminals and the coaxial connector is standard BNC female with flange. The enclosures were finally potted with beeswax. The box is intended to fix with weather proof sticker anchors and cable ties.

Enclosure

