CHOKING BALUN FOR HF BANDS

Inline Reisert Choking balun for HF and upper MF bands. (0.5MHz - 60MHz). FT140-43 Ferrite Toroid Core

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To isolate the potential feed-line common mode RF on the coax cable for HF/MF bands ranging from 0.5MHz to 60MHz, a choking balun is required. A ferrite toroidal core with a simple coax cable wound onto it was chosen for this purpose.

Using a choking balun helps prevent unwanted RFI by eliminating feed-line common mode currents and radiation. It ensures that all power is directed to the antenna, improving efficiency. Additionally, it reduces noise or EMI picked up by the coax shield and balances the power between the driven elements of the antenna.

The use of a choking balun will help mitigate the below issues:

- Prevents unwanted RFI by eliminating feed-line common mode currents and radiation
- All power goes to the antenna, improving efficiency
- Reduces noise or EMI picked-up by your coax shield
- Power is balanced between driven elements of antenna

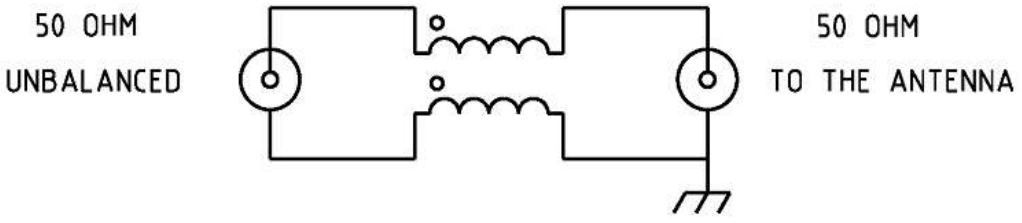

Figure 1 Schematic of the 1:1 choking balun

Type	Choking Balun
Ratio	1:1
Frequency Range	0.5 ~ 60MHz
Choking Impedance	1k Ohms (-20dB) min to >10k Ohms (-40dB) *Ref: Figure 3*
Core Used	FT140-43 Ferrite Toroid Core
Number of turns	19 (9.5 + 9.5). *Ref: Figure 2*
SWR	1:1 *Ref: Figure 5*

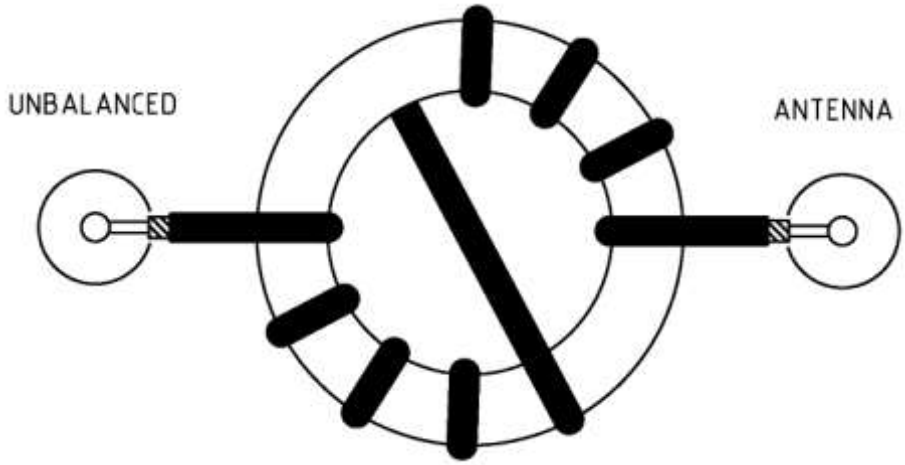

Figure 2 Winding details of the 1:1 choking balun

Construction

The construction simply involved winding 9.5 turns of RG316 coax with a crossover and an additional 9.5 turns onto an FT140-43 Ferrite Toroid Core. This arrangement resulted in a total of 19 turns, which achieved an average lumped value inductive reactance of 40uH to common mode RF currents across a frequency range of approximately 0.5MHz to 60MHz.

Parts list.

- FT140-43 Ferrite Toroid Core
- About 1.1mtr of RG316 coax.

Photo 1 Choking balun assembled.

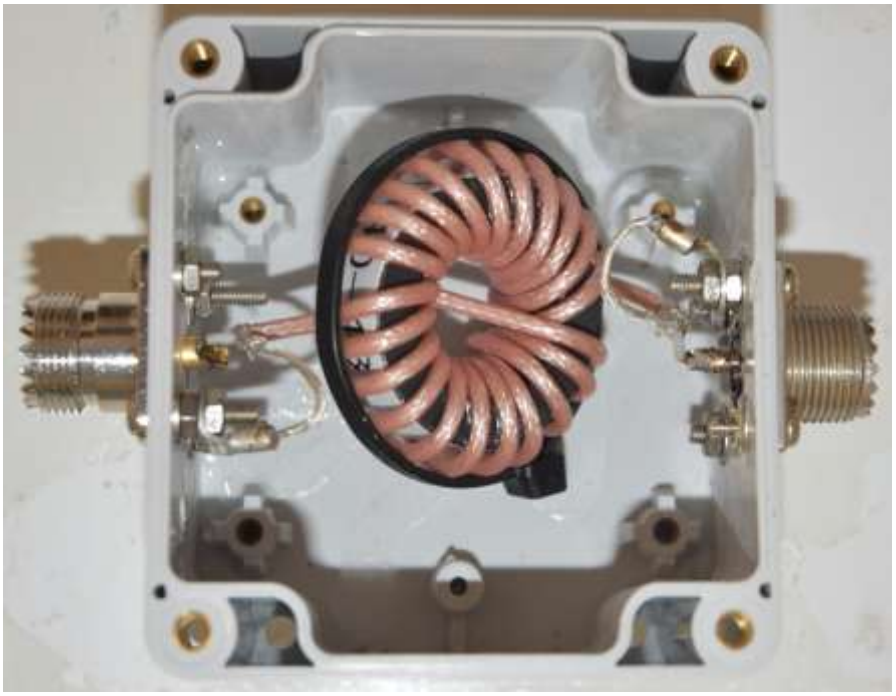

Photo 2 Choking balun assembled.