

Poor Mans Bunning's 1:1 Current BALUN (VK2YMU)

If like me you had a look at the cost of a commercial BALUN you will question if its worth the effort to make your own and it is. You can build your own for less than \$20.00 All depends what you need to purchase from Bunning's or what you have in the parts (Junk) box.

The mostly used antenna for HF operations is the humble dipole, the kind of frequencies will be in the lower range of 180 to 40 Meters, thus the BALUN must operate in these range of frequencies with no loss, any loss will be translated into heat within the BALUN with reduction in propagation.

The construction has to be in such a manner that unit is also acting as the wire anchor point, apex support and center feed for the dipole.

A dipole Antenna has a balanced feed point impedance of 72 Ohms, this is an ideal balanced current feed point, however most of our equipment is 50 Ohms and Unbalanced, yes we can use an antenna tuner that provides a balanced output with the use of a ladder feed line, in practice we find that the slight difference in impedance from 72 to 50 Ohms is of no real consequence to the performance of the antenna.

Now we could simply feed the antenna with 50 Ohms coax, (Many do just this) But this results in common mode currents in the coax, this also detracts from the antenna radiation efficiency.

The other downside of common mode currents, is RF in the shack, getting into all sorts of things.

The BALUN serves to eliminate these unwanted currents by matching from an unbalanced to a balanced feed point, plus provides a strong wire and suspension mounting points.

The Picture below shows the unit I constructed from High Pressure PVC pipe and end caps, its suitable for powers in excess of 400 Watts. (Had one up for almost a year and showed no deterioration to heating besides that the container I chose crumbled under the exposure to UV radiation.

I have tested Black Ferrite, Red Ferrite and Green Ferrite, what I found is that the very top frequency is where the most noticeable difference is taking place.

If you are making one for 80 and 40 Meters, any one of the three will give you good results.



The data I tabulated below is on a Red Ferrite

Toroid : OD 30 mm

ID 20 mm

H 10 mm

Wire: 2 mm Electrical Cable

Copper D = 1 mm

Measurements:

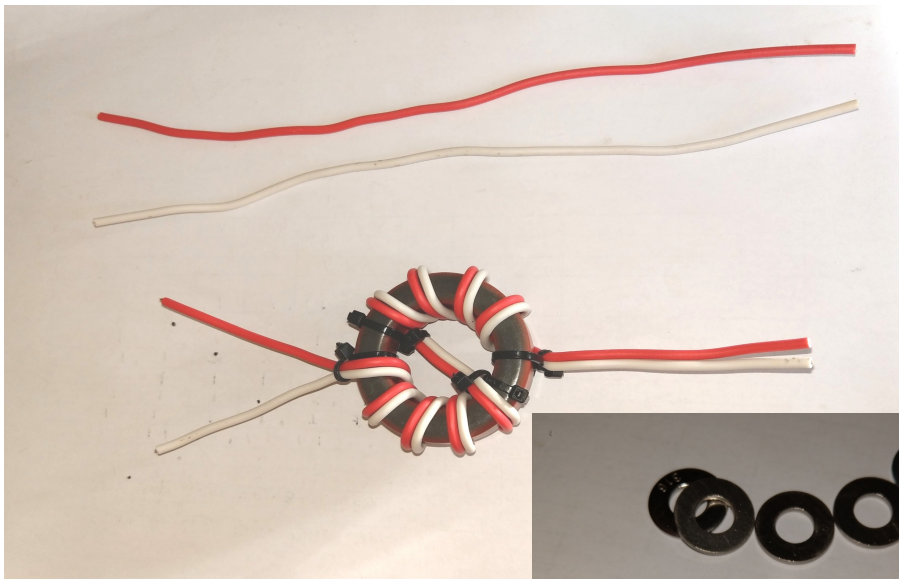
Are approximate and non critical

Container:

OD 60 mm PVC High Pressure Pipe

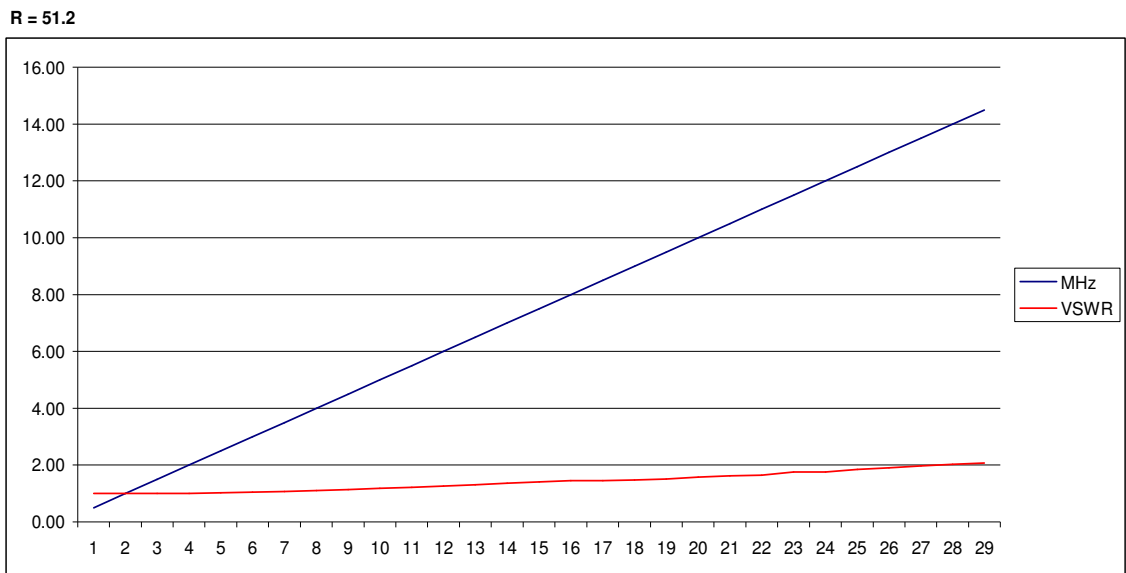
End Caps ID 60 mm

Fixings: Gal plated Wing nuts and screws. Eyelets



1:1 Current Balun

Fr MHz	SWR	Zx	Rs
0.50	1.01	56.10	56.47
1.00	1.00	52.49	52.56
1.50	1.00	52.62	52.69
2.00	1.01	52.79	52.87
2.50	1.02	53.06	53.13
3.00	1.05	53.31	53.36
3.50	1.07	53.61	53.61
4.00	1.11	54.10	53.99
4.50	1.14	54.62	54.36
5.00	1.18	55.20	54.72
5.50	1.22	55.91	55.18
6.00	1.27	56.61	55.51
6.50	1.31	57.52	56.03
7.00	1.36	58.36	56.40
7.50	1.41	59.47	57.02
8.00	1.46	60.62	57.59
8.50	1.46	63.06	60.61
9.00	1.48	61.20	61.38
9.50	1.51	64.77	61.66
10.00	1.58	66.74	62.93
10.50	1.62	67.90	63.64
11.00	1.65	68.47	63.67
11.50	1.76	71.66	65.53
12.00	1.76	71.87	65.90
12.50	1.85	74.80	67.74
13.00	1.90	76.42	68.78
13.50	1.97	78.68	70.25
14.00	2.03	80.60	71.42
14.50	2.07	82.29	72.55



Y Axis = VSWR & MHz



My construction closely mimics the MFJ-918
The main body is not as long, because I used a Toroid,
MFJ uses a Ferrite Rod .

Note this 1:1 Sells for over \$90.00

>>>> Rob VK2FAAA, this is for you... Now you can make one. <<<<