

VK5DJ's YAGI CALCULATOR

Yagi design frequency =894.00 MHz

Wavelength =335 mm

Parasitic elements contacting a round section metal boom 18 mm across.

Folded dipole fully insulated from boom

Director/reflector diam =2.1 mm

Radiator diam =2.1 mm

REFLECTOR

175.2 mm long at boom position = 30 mm (IT = 78.5 mm)

RADIATOR

Single dipole 157.4 mm tip to tip, spaced 67 mm from reflector at boom posn 97 mm (IT = 69.5 mm)

Folded dipole 160.6 mm tip to tip, spaced 67 mm from reflector at boom posn 97 mm (IT = 71.5 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	157.6	25.2	122.2	70.0	4.8	6.9
2	156.0	60.4	182.6	69.0	6.5	8.6
3	154.5	72.1	254.7	68.0	7.8	9.9
4	153.0	83.8	338.5	67.5	8.9	11.0
5	151.7	93.9	432.4	67.0	9.8	11.9
6	150.5	100.6	533.0	66.5	10.5	12.7
7	149.4	105.6	638.6	65.5	11.2	13.3
8	148.3	110.7	749.3	65.0	11.7	13.9
9	147.4	115.7	865.0	64.5	12.2	14.4
10	146.5	120.7	985.7	64.0	12.7	14.9
11	145.6	125.8	1111.5	64.0	13.1	15.3
12	144.9	129.1	1240.6	63.5	13.5	15.7

COMMENTS

The abbreviation "IT" means "Insert To", it is the construction distance from the element tip to the edge of the boom for through boom mounting

Spacings measured centre to centre from previous element

Tolerance for element lengths is +/- 1 mm

Boom position is the mounting point for each element as measured from the rear of the boom and includes the 30 mm overhang. The total boom length is 1271 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 34 deg

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 161mm

Total rod length =358mm

Centre of rod=179mm

Distance BC=CD=62mm

Distance HI=GF=59mm

Distance HA=GE=88mm

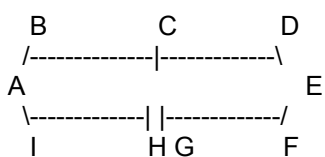
Distance HB=GD=117mm

Distance HC=GC=179mm

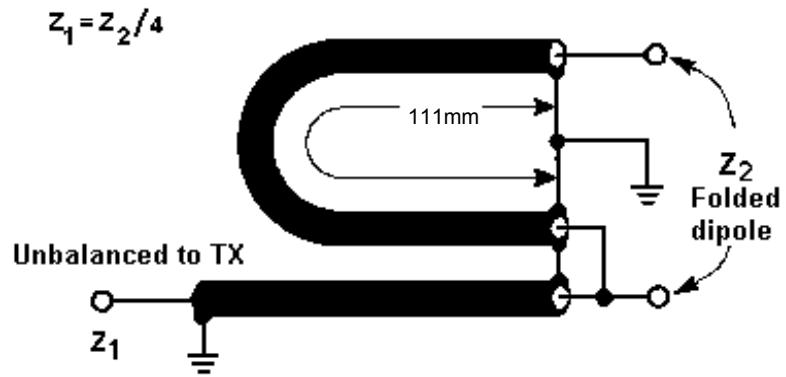
Gap at HG=5mm

Bend diameter BI=DF=37mm

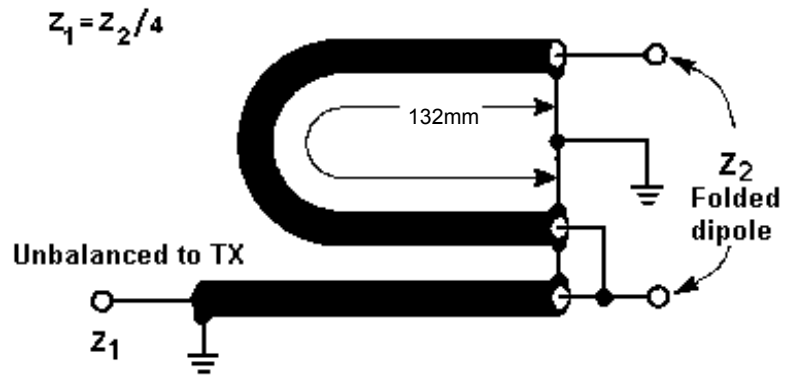
If the folded dipole is considered as a flat plane (see ARRL Antenna Handbook) then its resonant frequency is less than the flat plane algorithm's range of 10:1



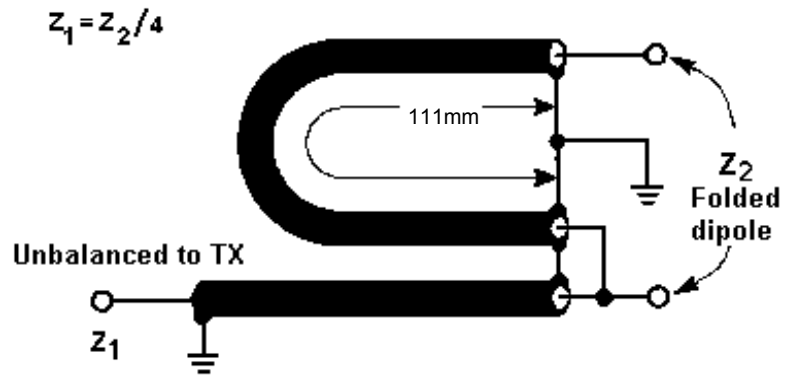
Balun for 894 MHz using 111 mm loop of RG-58 (PE)



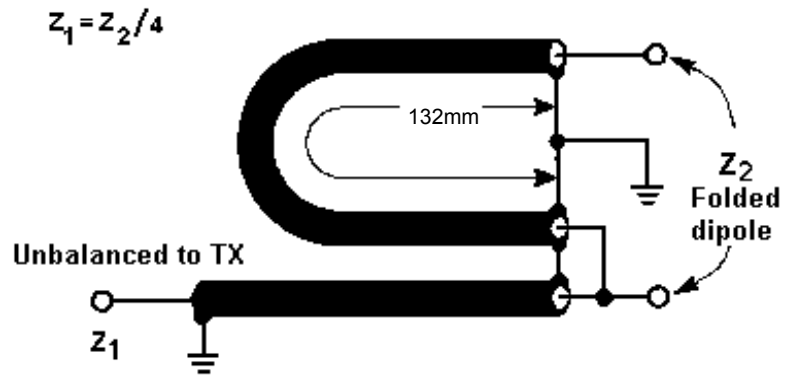
Balun for 894 MHz using 132 mm loop of RG-58 (foam PE)



Balun for 894 MHz using 111 mm loop of RG-59 (PE)



Balun for 894 MHz using 132 mm loop of RG-59 (foam PE)



Balun for 894 MHz using 126 mm loop of RG-6 (foam PE)

