

VK5DJ's YAGI CALCULATOR

Yagi design frequency =868,35 MHz
 Wavelength =345 mm
 Elements using a non-metallic or separated boom
 Director/reflector diam =2,00 mm
 Radiator diam =2,00 mm

ELEMENT LENGTHS AND SPACING

Reflector
 168 mm long at boom position = 30 mm

Radiator
 Single dipole 162 mm tip to tip at boom posn =99 mm
 Folded dipole 165 mm tip to tip at boom posn =99 mm

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	Gain (dBd)	Gain (dBi)
1	150	26	125	5,7	7,9
2	149	62	187	7,1	9,2
3	147	74	261	8,2	10,4

Director spacings are measured from the 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 291 mm including two overhangs

The beam's estimated 3dB bandwidth is 62 deg

A half wave 4:1 balun uses 0,66 velocity factor RG-174 (PE) and is 114 mm long plus leads

Here are some construction details for a folded dipole

Measurements are taken from the inside of bends
 Folded dipole length measured tip to tip = 165mm
 Total rod length =349mm
 Centre of rod=174mm
 Distance HI=GF=70mm
 Distance HA=GE=86mm
 Distance HB=GD=102mm
 Distance HC=GC=174mm
 Gap at HG=5mm
 Bend diameter BI=DF=20mm

If the dipole is considered as a flat plane (see ARRL Antenna Handbook) then its resonant frequency is 868,4MHz and K is 0,900

