

VK5DJ's YAGI CALCULATOR

Yagi design frequency =868.00 MHz

Wavelength =345 mm

Parasitic elements contacting a square section metal boom 25 mm across.

Folded dipole mounted same as directors and reflector

Director/reflector diam =6 mm

Radiator diam =6 mm

REFLECTOR

186.2 mm long at boom position = 30 mm (IT = 80.5 mm)

RADIATOR

Single dipole 158.9 mm tip to tip, spaced 69 mm from reflector at boom posn 99 mm (IT = 67.0 mm)

Folded dipole 182.1 mm tip to tip, spaced 69 mm from reflector at boom posn 99 mm (IT = 78.5 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	162.1	25.9	125.0	68.5	4.8	6.9
2	160.0	62.2	187.1	67.5	6.5	8.6
3	158.1	74.3	261.4	66.5	7.8	9.9
4	156.4	86.3	347.8	65.5	8.9	11.0
5	154.7	96.7	444.5	65.0	9.8	11.9

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 474 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 52 deg

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 182mm

Total rod length =394mm

Centre of rod=197mm

Distance BC=CD=74mm

Distance HI=GF=69mm

Distance HA=GE=96mm

Distance HB=GD=124mm

Distance HC=GC=197mm

Gap at HG=10mm

Bend diameter BI=DF=35mm

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

