

VK5DJ's YAGI CALCULATOR

Yagi design frequency =433.90 MHz

Wavelength =691 mm

Parasitic elements fastened to a non-metallic or separated from boom

Folded dipole fully insulated from boom

Director/reflector diam =9.5 mm

Radiator diam =9.5 mm

REFLECTOR

334.1 mm long at boom position = 30 mm (IT = 155.0 mm)

RADIATOR

Single dipole 319.7 mm tip to tip, spaced 138.2 mm from reflector at boom posn 168.2 mm (IT = 148.0 mm)

Folded dipole 326.1 mm tip to tip, spaced 138.2 mm from reflector at boom posn 168.2 mm (IT = 151.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	288.7	51.8	220.0	132.5	4.8	6.9
2	284.8	124.4	344.4	130.5	6.5	8.6
3	281.1	148.5	492.9	128.5	7.8	9.9
4	277.8	172.7	665.7	127.0	8.9	11.0
5	274.7	193.5	859.1	125.5	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 +/- 2 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 889 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 52 deg

A half wave 4:1 balun uses 0.66 velocity factor RG-58C (PE) and is 228 mm long plus leads

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 326mm

Total rod length =682mm

Centre of rod=341mm

Distance BC=CD=146mm

Distance HI=GF=141mm

Distance HA=GE=168mm

Distance HB=GD=196mm

Distance HC=GC=341mm

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

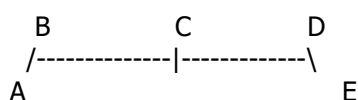
MATERIALS GUIDE for purchase. Allow extra, do NOT use these figures for cutting

NO allowance for saw cuts or purchased lengths resulting in waste

1) Length used by directors and reflector 1741.1mm of round 9.5mm rod

2) Length used by single dipole 319.7mm or folded dipole 682.2mm of round 9.5mm rod

3) Length used for boom 889.1mm (allows for 30mm each end) round stock 24mm diameter



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