

VK5DJ's YAGI CALCULATOR

Yagi design frequency =2427.00 MHz

Wavelength =124 mm

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

Folded dipole mounted same as directors and reflector

Director/reflector diam =2.053 mm

Radiator diam =2.053 mm

REFLECTOR

59.6 mm long at boom position = 30 mm (IT = 17.0 mm)

RADIATOR

Single dipole 56.9 mm tip to tip, spaced 25 mm from reflector at boom posn 55 mm (IT = 15.5 mm)

Folded dipole 58.0 mm tip to tip, spaced 25 mm from reflector at boom posn 55 mm (IT = 16.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	51.1	9.3	64.0	12.5	4.8	6.9
2	50.3	22.2	86.2	12.0	6.5	8.6
3	49.7	26.6	112.8	12.0	7.8	9.9
4	49.0	30.9	143.6	11.5	8.9	11.0
5	48.5	34.6	178.2	11.0	9.8	11.9
6	47.9	37.1	215.3	11.0	10.5	12.7
7	47.4	38.9	254.2	10.5	11.2	13.3
8	47.0	40.8	295.0	10.5	11.7	13.9

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 +/- 0 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 325 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 41 deg

A half wave 4:1 balun uses 0.66 velocity factor RG-174 (PE) and is 41 mm long plus leads

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 58mm

Total rod length =113mm

Centre of rod=56mm

Distance BC=CD=26mm

Distance HI=GF=21mm

Distance HA=GE=26mm

Distance HB=GD=30mm

Distance HC=GC=56mm

Gap at HG=10mm

Bend diameter BI=DF=6mm

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 451mm of round 2.053mm rod

- 2) Length used by single dipole 57mm or folded dipole 113mm of round 2.053mm rod
3) Length used for boom 325mm (allows for 30mm each end) square section 26mm

