

VK5DJ's YAGI CALCULATOR

Yagi design frequency =2422.00 MHz

Wavelength =124 mm

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

Folded dipole fully insulated from boom

Director/reflector diam =1.5 mm

Radiator diam =1.5 mm

REFLECTOR

60 mm long at boom position = 30 mm (IT = 22.5 mm)

RADIATOR

Single dipole 57 mm tip to tip, spaced 25 mm from reflector at boom posn 55 mm (IT = 21.0 mm)

Folded dipole 59 mm tip to tip, spaced 25 mm from reflector at boom posn 55 mm (IT = 22.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	52	9	64	18.5	-2.5	-0.3
2	51	22	86	18.0	3.9	6.1
3	51	27	113	18.0	6.3	8.4
4	50	31	144	17.5	7.8	10.0
5	50	35	179	17.5	9.0	11.2
6	49	37	216	17.0	9.9	12.1
7	49	39	255	17.0	10.7	12.8
8	48	41	296	16.5	11.3	13.5
9	48	43	338	16.5	11.9	14.0
10	47	45	383	16.0	12.4	14.5
11	47	46	429	16.0	12.9	15.0
12	47	48	477	16.0	13.3	15.4
13	46	48	525	15.5	13.6	15.8
14	46	49	574	15.5	14.0	16.1

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.

total boom length is 604 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 32 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 = 59mm

Total rod length =141mm

Centre of rod=70mm

Distance BC=CD=17mm

Distance HI=GF=14mm

Distance HA=GE=34mm

Distance HB=GD=54mm

Distance HC=GC=70mm

Gap at HG=5mm

Bend diameter BI=DF=25mm

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

