

VK5DJ's YAGI CALCULATOR

Yagi design frequency =1296.80 MHz

Wavelength =231 mm

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

Folded dipole mounted same as directors and reflector

Director/reflector diam =6 mm

Radiator diam =6 mm

REFLECTOR

110.9 mm long at boom position = 30 mm (IT = 48.0 mm)

RADIATOR

Single dipole 105.0 mm tip to tip, spaced 46 mm from reflector at boom posn 76 mm (IT = 45.0 mm)

Folded dipole 107.1 mm tip to tip, spaced 46 mm from reflector at boom posn 76 mm (IT = 46.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	93.0	17.3	93.6	39.0	4.8	6.9
2	91.5	41.6	135.2	38.5	6.5	8.6
3	90.2	49.7	184.9	37.5	7.8	9.9
4	88.9	57.8	242.7	37.0	8.9	11.0
5	87.7	64.7	307.4	36.5	9.8	11.9
6	86.6	69.4	376.8	36.0	10.5	12.7
7	85.6	72.8	449.6	35.5	11.2	13.3
8	84.7	76.3	525.9	35.0	11.7	13.9
9	83.8	79.8	605.6	34.5	12.2	14.4
10	83.0	83.2	688.9	34.0	12.7	14.9
11	82.3	86.7	775.5	33.5	13.1	15.3
12	81.6	89.0	864.6	33.5	13.5	15.7
13	81.0	90.2	954.7	33.0	13.8	16.0
14	80.4	91.3	1046.0	32.5	14.2	16.3
15	79.8	92.5	1138.5	32.5	14.5	16.6
16	79.3	92.5	1231.0	32.0	14.7	16.9
17	78.9	92.5	1323.4	32.0	15.0	17.1
18	78.4	92.5	1415.9	31.5	15.2	17.4

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 1446 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 28 deg

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 107mm

Total rod length =238mm

Centre of rod=119mm

Distance BC=CD=41mm

Distance HI=GF=39mm

Distance HA=GE=58mm

Distance HB=GD=78mm

Distance HC=GC=119mm

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

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 1628mm of round 6mm rod
- 2) Length used by single dipole 105mm or folded dipole 238mm of round 6mm rod
- 3) Length used for boom 1446mm (allows for 30mm each end) square section 15mm

