

VK5DJ's YAGI CALCULATOR

Yagi design frequency =1296,00 MHz

Wavelength =231 mm

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

Folded dipole fully insulated from boom

Director/reflector square section =4 mm

Radiator square section =4 mm

REFLECTOR

111,4 mm long at boom position = 100 mm (IT = 51,5 mm)

RADIATOR

Single dipole 105,9 mm tip to tip, spaced 46,3 mm from reflector at boom posn 146,3 mm (IT = 49,0 mm)

Folded dipole 108,0 mm tip to tip, spaced 46,3 mm from reflector at boom posn 146,3 mm (IT = 50,0 mm)

DIRECTORS

Dir	Length	Spaced	Boom position		IT	Gain	Gain
(no.)	(mm)	(mm)	(mm)		(mm)	(dBd)	(dBi)
1	94,5	17,3	163,6		43,0	4,8	6,9
2	93,1	41,6	205,3		42,5	6,5	8,6
3	91,8	49,7	255,0		42,0	7,8	9,9
4	90,6	57,8	312,8		41,5	8,9	11,0
5	89,4	64,8	377,6		40,5	9,8	11,9
6	88,4	69,4	447,0		40,0	10,5	12,7
7	87,4	72,9	519,8		39,5	11,2	13,3
8	86,5	76,3	596,2		39,5	11,7	13,9
9	85,7	79,8	676,0		39,0	12,2	14,4
10	84,9	83,3	759,3		38,5	12,7	14,9
11	84,2	86,7	846,0		38,0	13,1	15,3
12	83,6	89,1	935,1		38,0	13,5	15,7
13	83,0	90,2	1025,3		37,5	13,8	16,0

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 100 mm overhang. The total boom length is 1025 mm including two ends of 100 mm and 0 mm

The ACTIVE boom length is 925 mm is the length used in gain calculations (see manual)

The beam's estimated 3dB beamwidth is 32 deg

A half wave 4:1 balun uses 0,66 velocity factor RG-58 (PE) and is 76 mm long plus leads

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends

Folded dipole length measured tip to tip = 108mm

Total rod length = 240mm

Centre of rod = 120mm

Distance BC = CD = 42mm

Distance HI = GF = 39mm

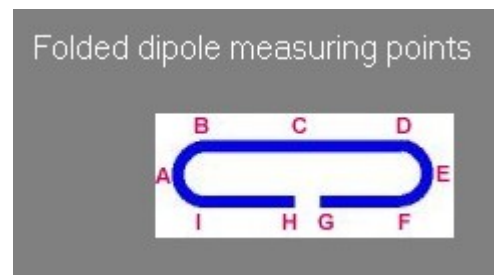
Distance HA = GE = 59mm

Distance HB = GD = 78mm

Distance HC = GC = 120mm

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 1254,4mm of square section 4mm

2) Length used by single dipole 105,9mm or folded dipole 239,6 mm of square section 4mm

3) Length used for boom 1025,3 mm allowing for overhangs of 100 mm and 0 mm of 8 mm square section