VK5DJ's YAGI CALCULATOR

Yagi design frequency =2463.00 MHz
Wavelength =122 mm
Parasitic elements fastened to a non-metallic or separated from boom
Folded dipole mounted same as directors and reflector
Director/reflector diam =3 mm
Radiator diam =3 mm

REFLECTOR
58.4 mm long at boom position = 30 mm (IT = 19.0 mm)

RADIATOR
Single dipole 55.4 mm tip to tip, spaced 24 mm from reflector at boom posn 54 mm (IT = 17.5 mm)
Folded dipole 56.5 mm tip to tip, spaced 24 mm from reflector at boom posn 54 mm (IT = 18.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	49.1	9.1	63.5	14.5	4.8	6.9
2	48.4	21.9	85.4	14.0	6.5	8.6
3	47.7	26.2	111.6	14.0	7.8	9.9
4	47.0	30.4	142.0	13.5	8.9	11.0
5	46.4	34.1	176.1	13.0	9.8	11.9
6	45.8	36.5	212.6	13.0	10.5	12.7
7	45.3	38.3	250.9	12.5	11.2	13.3
8	44.8	40.2	291.1	12.5	11.7	13.9
9	44.4	42.0	333.1	12.0	12.2	14.4
10	43.9	43.8	376.9	12.0	12.7	14.9
11	43.5	45.6	422.5	12.0	13.1	15.3
12	43.2	46.9	469.4	11.5	13.5	15.7
13	42.9	47.5	516.9	11.5	13.8	16.0
14	42.5	48.1	565.0	11.5	14.2	16.3
15	42.3	48.7	613.6	11.0	14.5	16.6
16	42.0	48.7	662.3	11.0	14.7	16.9
17	41.8	48.7	711.0	11.0	15.0	17.1
18	41.5	48.7	759.7	11.0	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 +/- 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 790 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 28 deg

A half wave 4:1 balun uses 0.66 velocity factor RG-55A (PE) and is 40 mm long plus leads
FOLDED DIPOLE CONSTRUCTION
Measurements are taken from the inside of bends
Folded dipole length measured tip to tip = 56mm
Total rod length =137mm
Centre of rod=68mm
Distance BC=CD=16mm
Distance HI=GF=13mm
Distance HA=GE=33mm
Distance HB=GD=53mm

Distance HC=GC=68mm
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 861mm of round 3mm rod
2) Length used by single dipole 55mm or folded dipole 137mm of round 3mm rod
3) Length used for boom 790mm (allows for 30mm each end) square section 20mm