VK5DJ's YAGI CALCULATOR

Yagi design frequency =76.00 MHz
Wavelength =3945 mm
Parasitic elements contacting a square section metal boom 25.00 mm across.
Folded dipole mounted same as directors and reflector
Director/reflector diam =7 mm
Radiator diam =10 mm

ELEMENT LENGTHS AND SPACING
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

Reflector
1940 mm long at boom position = 30 mm (IT = 957.5 mm)

Radiator
Single dipole 1872 mm tip to tip at boom posn =819 mm (IT = 923.5 mm)
Folded dipole 1916 mm tip to tip at boom posn =819 mm (IT = 945.5 mm)

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	1804	296	1115	889.5	4.9	7.0
2	1789	710	1825	882.0	6.5	8.7
3	1774	848	2673	874.5	7.8	10.0
4	1761	986	3659	868.0	8.9	11.0
5	1749	1104	4764	862.0	9.8	11.9
6	1737	1183	5947	856.0	10.5	12.7
7	1727	1243	7190	851.0	11.2	13.3
8	1717	1302	8491	846.0	11.7	13.9

Spacings measured centre to centre from previous element
Tolerance for element lengths is +/- 12 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 8521 mm including two overhangs

The beam's estimated 3dB beamwidth is 41 deg

A half wave 4:1 balun uses 0.75 velocity factor RG-6 (foam PE) and is 1479 mm long plus leads

Here are some construction details for a folded dipole

Measurements are taken from the inside of bends
Folded dipole length measured tip to tip = 1916mm
Total rod length =3903mm
Centre of rod=1952mm
Distance HI=GF=913mm
Distance HA=GE=972mm
Distance HB=GD=1031mm
Distance HC=GC=1952mm
Gap at HG=15mm
Bend diameter BI=DF=75mm

If the dipole is considered as a flat plane (see ARRL Antenna Handbook) then its resonant frequency is 74.2MHz and K is 0.948