VK5DJ's YAGI CALCULATOR

Yagi design frequency =585.31 MHz
Wavelength =512 mm
Parasitic elements contacting a square section metal boom 25.00 mm across.
Folded dipole mounted same as directors and reflector
Director/reflector diam =3.25 mm
Radiator diam =3.25 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
269 mm long at boom position = 30 mm (IT = 122.0 mm)

Radiator
Single dipole 240 mm tip to tip at boom posn =132 mm (IT = 107.5 mm)
Folded dipole 265 mm tip to tip at boom posn =132 mm (IT = 120.0 mm)

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	242	38	171	108.5	5.4	7.6
2	239	92	263	107.0	6.9	9.0
3	237	110	373	106.0	8.1	10.2
4	235	128	501	105.0	9.1	11.2
5	233	143	645	104.0	9.9	12.1
6	231	154	798	103.0	10.7	12.8
7	229	161	960	102.0	11.3	13.4
8	228	169	1129	101.5	11.8	14.0
9	226	177	1305	100.5	12.3	14.5
10	225	184	1490	100.0	12.8	14.9

Spacings measured centre to centre from previous element
Tolerance for element lengths is +/- 2 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 1520 mm including
two overhangs

The beam's estimated 3dB beamwidth is 36 deg

A half wave 4:1 balun uses 0.75 velocity factor RG-6 (foam PE) and is 192 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 = 265mm
Total rod length =560mm
Centre of rod=280mm
Distance HI=GF=110mm
Distance HA=GE=138mm
Distance HB=GD=165mm
Distance HC=GC=280mm
Gap at HG=10mm
Bend diameter BI=DF=35mm

If the 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

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   B          C          D
  /-------------|------------\
 A                            E
  \-------------| |-------------/
   I          H G          F
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