VK5DJ's YAGI CALCULATOR

Yagi design frequency =144,00 MHz
Wavelength =2082 mm
Parasitic elements contacting a square section metal boom 25 mm across.
Folded dipole mounted same as directors and reflector
Director/reflector diam =8 mm
Radiator diam =8 mm

REFLECTOR
1025,9 mm long at boom position = 30 mm (IT = 500,5 mm)

RADIATOR
Single dipole 983,4 mm tip to tip, spaced 416 mm from reflector at boom posn 446 mm (IT = 479,0 mm)
Folded dipole 1012,7 mm tip to tip, spaced 416 mm from reflector at boom posn 446 mm (IT = 494,0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	932,2	156,1	602,5	453,5	4,8	6,9
2	922,9	374,7	977,3	449,0	6,5	8,6
3	914,2	447,6	1424,9	444,5	7,8	9,9
4	906,1	520,5	1945,3	440,5	8,9	11,0
5	898,7	582,9	2528,3	437,0	9,8	11,9
6	891,7	624,6	3152,8	433,5	10,5	12,7
7	885,3	655,8	3808,6	430,0	11,2	13,3
8	879,4	687,0	4495,7	427,0	11,7	13,9
9	873,9	718,3	5213,9	424,5	12,2	14,4
10	868,8	749,5	5963,4	422,0	12,7	14,9

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 +/- 6 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 5993 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 37 deg

A half wave 4:1 balun uses 0,66 velocity factor RG-58 (PE) and is 687 mm long plus leads
FOLDED DIPOLE CONSTRUCTION
Measurements are taken from the inside of bends
Folded dipole length measured tip to tip = 1013mm
Total rod length =2067mm
Centre of rod=1034mm
Distance BC=CD=481mm
Distance HI=GF=474mm
Distance HA=GE=513mm
Distance HB=GD=552mm
Distance HC=GC=1034mm
Gap at HG=15mm
Bend diameter BI=DF=50mm

If the folded dipole is considered as a flat plane (see ARRL Antenna Handbook) then its resonant frequency is
140,7MHz and K is 0,951


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