

Yagi design frequency = 85.00 MHz
Wavelength = 3527 mm
Parasitic elements contacting a square section metal boom 25 mm across.
Folded dipole mounted same as directors and reflector
Director/reflector diam = 10 mm
Radiator diam = 10 mm

REFLECTOR

1731.9 mm long at boom position = 30 mm (IT = 853.5 mm)

RADIATOR

Single dipole 1671.6 mm tip to tip, spaced 705 mm from reflector at boom posn 735 mm (IT = 823.5 mm)
Folded dipole 1712.6 mm tip to tip, spaced 705 mm from reflector at boom posn 735 mm (IT = 844.0 mm)

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)	Boom position (mm)	IT (mm)	Gain (dBd)	Gain (dBi)
1	1588.7	264.5	999.9	782.0	4.8	6.9
2	1573.7	634.9	1634.8	774.5	6.5	8.6
3	1559.8	758.3	2393.1	767.5	7.8	9.9

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 +/- 11 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 2423 mm including two overhangs of 30 mm

The beam's estimated 3dB beamwidth is 65 deg

A half wave 4:1 balun uses 0.75 velocity factor RG-6 (foam PE) and is 1323 mm long plus leads

FOLDED DIPOLE CONSTRUCTION

Measurements are taken from the inside of bends
Folded dipole length measured tip to tip = 1713mm
Total rod length = 3457mm
Centre of rod = 1729mm
Distance BC = CD = 831mm
Distance HI = GF = 819mm
Distance HA = GE = 858mm
Distance HB = GD = 897mm
Distance HC = GC = 1729mm
Gap at HG = 25mm
Bend diameter BI = DF = 50mm

If the folded dipole is considered as a flat plane (see ARRL Antenna Handbook) then its resonant frequency is 83.2MHz and K is 0.951

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 6454mm of round 10mm rod
- 2) Length used by single dipole 1672mm or folded dipole 3457mm of round 10mm rod
- 3) Length used for boom 2423mm (allows for 30mm each end) square section 25mm

Yagi Results

Yagi design frequency =85.00 MHz
 Wavelength =3527 mm
 Parasitic elements contacting a square section metal boom 25 mm across.
 Folded dipole mounted same as directors and reflector
 Director/reflector diam =10 mm
 Radiator diam =10 mm

REFLECTOR
 1731.9 mm long at boom position = 30 mm (IT = 853.5 mm)

RADIATOR
 Single dipole 1671.6 mm tip to tip
 Folded dipole 1712.6 mm tip to tip

DIRECTORS

Dir (no.)	Length (mm)	Spaced (mm)
1	1588.7	264.5
2	1573.7	634.9
3	1559.8	758.3

COMMENTS
 The abbreviation "IT" means tip to tip for through boom mounting
 Spacings measured centre to centre
 Tolerance for element lengths = ±0.5 mm
 Boom position is the mounting position. The total boom length is 1731.9 mm
 The beam's estimated 3dB beamwidth is 12.5 degrees

A half wave 4:1 balun uses 0.5 wavelengths of RG-6 (foam PE) coaxial cable.
FOLDED DIPOLE CONSTRUCTION
 Measurements are taken from the centre of the folded dipole length measurements.
 Total rod length =3457mm
 Centre of rod =1729mm
 Distance BC=CD=831mm
 Distance HI=GF=819mm

Balun
 4:1 Balun Construction

$Z_1 = Z_2 / 4$

RG-6 (foam PE)

1323 mm

Unbalanced to TX

Z_1

Z_2 Folded dipole

Folded dipole measuring points

Print results
 Create YD
 Create .maa
 Balun
 Back

Print Back

Version 2.6.18 Copyright 2003-2015