KK1CW Antenna Designs

By Walt Lau

A SPECIAL DESIGNED ANTENNA FOR SSB AND CW

(A) Enter Design freq. in box

144.2 Mhz

(B) Enter ODs K formulas for Driven Ele.

0.935 OD

& Dir. Ele.

0.947 OD

Samples for

Ele. OD	K
1/2 =	0.92
3/8 =	0.935
1/4 =	0.945
1/8 =	0.95

Beam Element Lengths

	in feet	in inches
Full Wave	6.38	76.56
3/4 Wave	4.79	57.42
5/8 Wave	3.99	47.85
1/2 Wave	3.19	38.28
1/4 Wave	1.60	19.14
1st. Dir.		36.73

Wave Length in space

	in feet	in inches
Full Wave	6.82	81.89
3/4 Wave	5.12	61.41
5/8 Wave	4.26	51.18
1/2 Wave	3.41	40.94
1/4 Wave	1.71	20.47
1/8 Wave	0.85	10.24
25%	1.71	20.47
50%	0.85	40.94
10%	0.68	8.19
15%	1.02	12.28
20%	1.36	16.38
30%	2.05	24.57
39%	2.66	31.94
60%	4.09	49.13

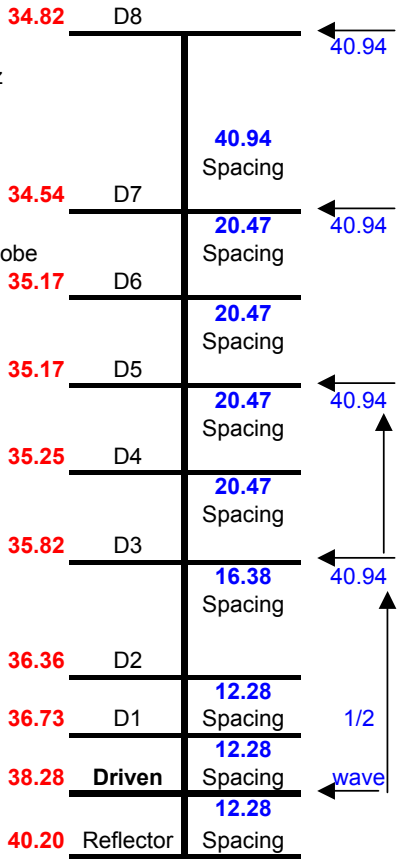
Hit Enter when finish

Please Note:

Free space wave length measurements are used only for spacing between elements and stacked beams.

10 Element Beam Specs.

SWR	**1.2:1**	144.-144.3 Mhz
SWR	**1.1:1**	@ 144.200 Mhz
Boom	**14.67**	FT.
Input	**50**	Ohms
Gain	**13.416**	dBd
Beamwidth	E=30 / H= 35 degs.	
Front to Back	**25**	dB
Side Lobes	**10**	db below main lobe



EXAMPLE: For a 5 element beam **144.2 MHz**

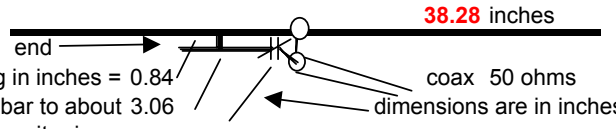
Boom length ← 4.44 feet or 53.23 inches →

	reflector	driven	dir 1	dir 2	dir 3
Element lengths in inches	40.20	38.28	36.73	36.36	35.82
Spacing between ele. in inches	12.28	12.28	12.28	16.38	

Info relating to my antenna design

Antenna impedance repeats itself every 1/2 wave length. So You can start with only 5 elements and tune for best SWR. Then Add more elements later and not have to retune for best SWR. Why; Because from the drive element to the 3rd director is a 1/2 wave length long. Just make sure that your spacing and length are right when you add more elements; it's that easy. Tune antenna outside; pointing away from walls, buildings, trees and Nothing in front of beam and at least 6 feet off the ground.

Driven Element and gamma matching dimensions



Adjustable Variable capacitor is a t about 6 1/2" long and placed inside the tube to make the capacitor - adj. For 1.1:1 SWR

Note: *Gamma diameter OD is1/3 to 1/4 the size of the driven element / if bigger you must add to the Gamma spacing.*