

DRAFT

100 mi/h W6NL/Moxon for W2SC

The winds aloft at K3LR proved to be greater than anticipated, and the original 2007 W6NL/Moxon 40m Yagis suffered wind damage. A new design was developed in 2010, using a new stronger center section of 1.66" OD pipe along with the original parts of the 2007 design. Element guying is not required for the new configuration. At the suggestion of W2SC, a related 2012 design uses standard tubing diameter for the center sections.

These new center sections are 1.5" tubing, reinforced to triple wall thickness for the first 24", then double wall thickness. This will permit use standard clamps from DX Engineering to fit the 1.5" OD of the inner tube. It is believed that these clamps will fit into the original Cushcraft XM240 aluminum channel that was used to mount the elements to the boom.

The tee loading sections are unchanged in the new design. Here are the dimensions (in inches) of the 2007 and 2010 element sections:

2007 K3LR			2012 W2SC		
Driven Element					
Diameter	Section	Total	Section	Total	
1.5			48	48	New
1.375	42	42	39	87	
1.25	45	87	45	132	
1.125	44	131	44	176	
1	29	160	29	205	
0.875	44.5	204.5	2	207	New
0.75	3	207.5	3	210	
0.625	3	210.5	3	213	
0.5	39	249.5	39	252	
0.375	32.5	282	32.5	284.5	
Reflector					
Diameter	Section	Total	Section	Total	
1.5			48	48	New
1.375	42	42	39	87	
1.25	45	87	45	132	
1.125	44	131	44	176	
1	29	160	29	205	
0.875	44.5	204.5	25	230	New
0.75	27	231.5	3	233	New
0.625	3	234.5	3	236	
0.5	39	273.5	39	275	
0.375	13.25	286.75	13.25	288.25	

All of the original element tubing can be used (except for the bent sections, which should be replaced). The 0.875" OD sections are cut shorter, as are the 0.75" OD sections of the reflector. This design has the same electrical performance as the 2010 design for K3LR, but has sufficiently reduced element deflection that element guying is not necessary.

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