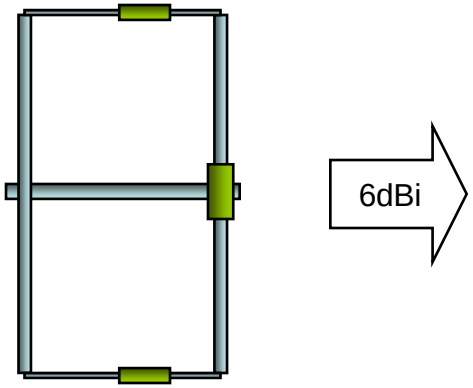


Moxon antenna for 50MHz

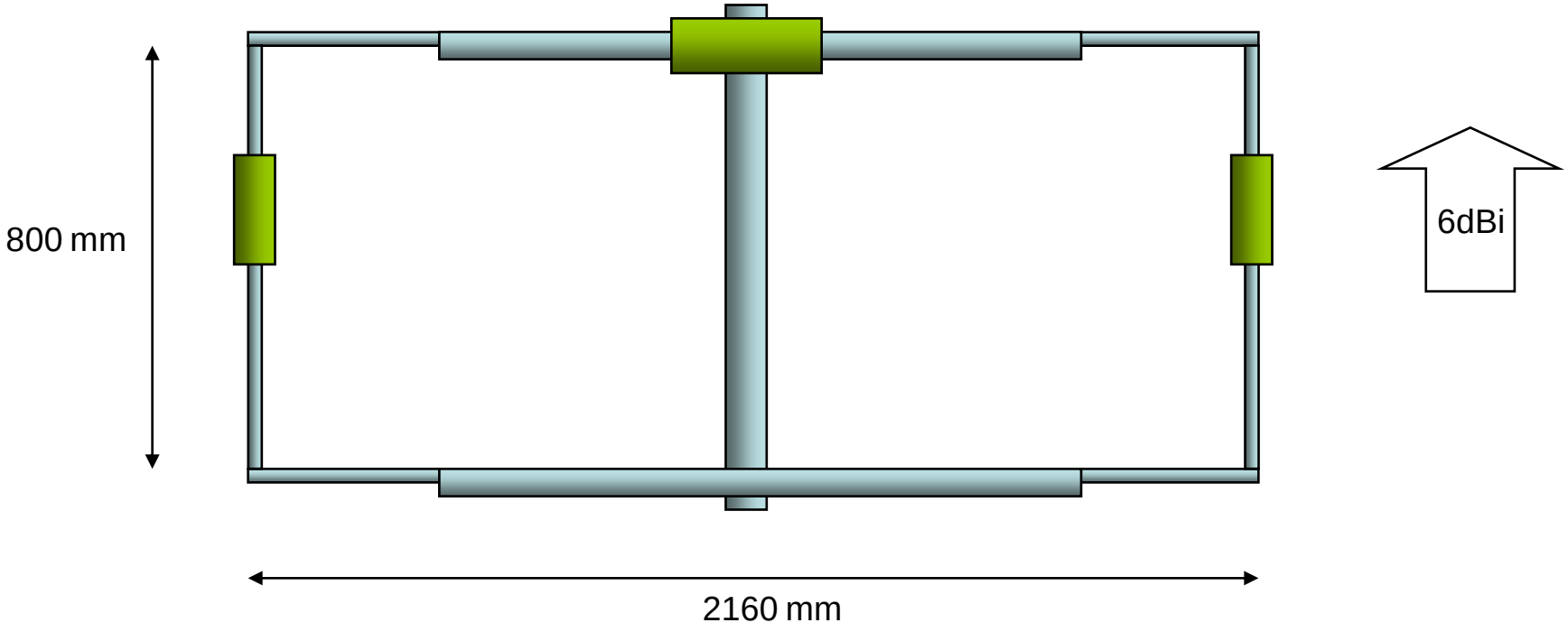
Pekka Ketonen

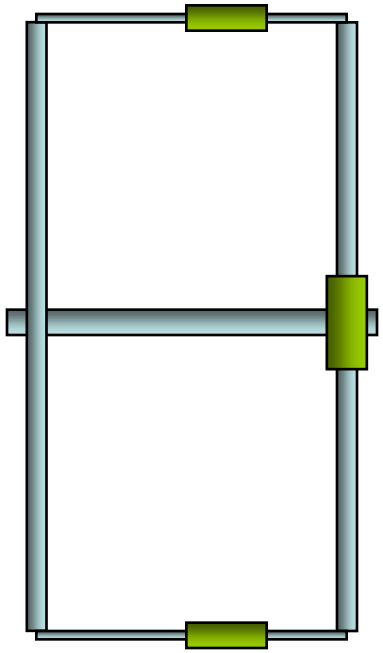
Moxon antenna 50 MHz
Specifications

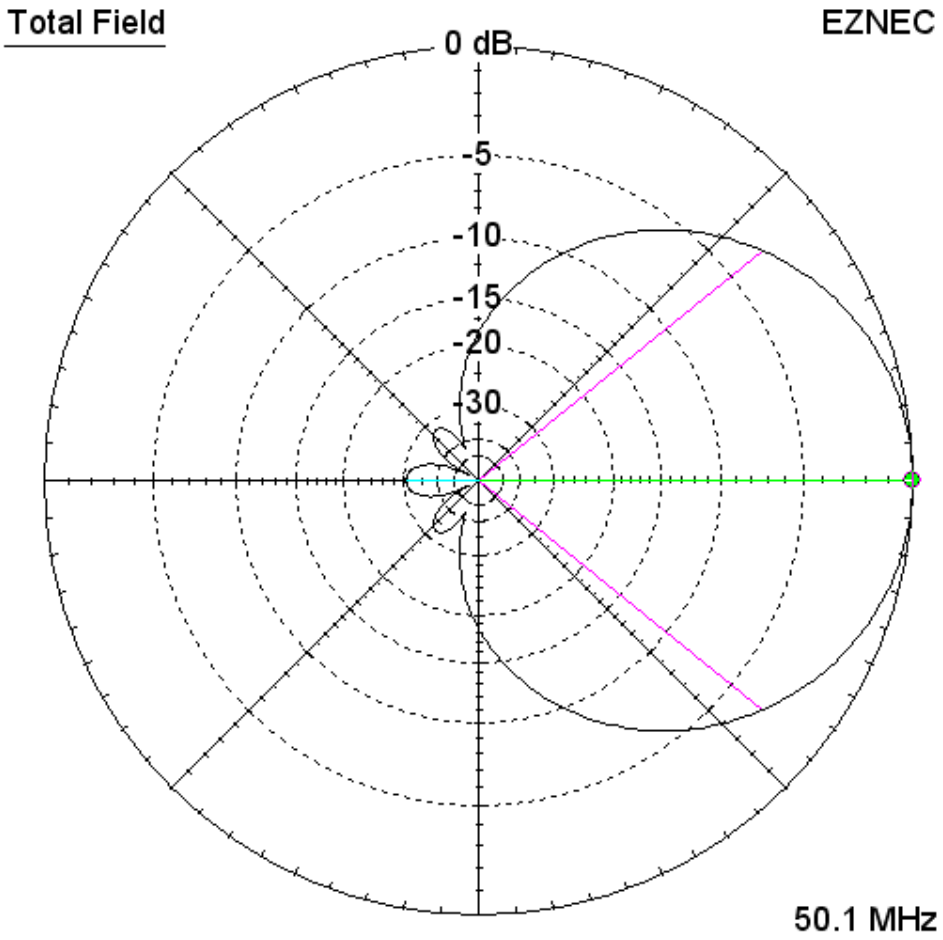
This antenna was designed for a local OT-network where radios are always on. Station distances are 10...100 km.

- Frequency range 50.0 - 50.5 MHz
- Power gain 5.5 - 6.1 dBi
- Impedance 50 ohm
- SWR <1.2
- Front to back > 25 dB
- Dimensions 216cm x 80 cm horizontal plane

Moxon antenna for 50 MHz



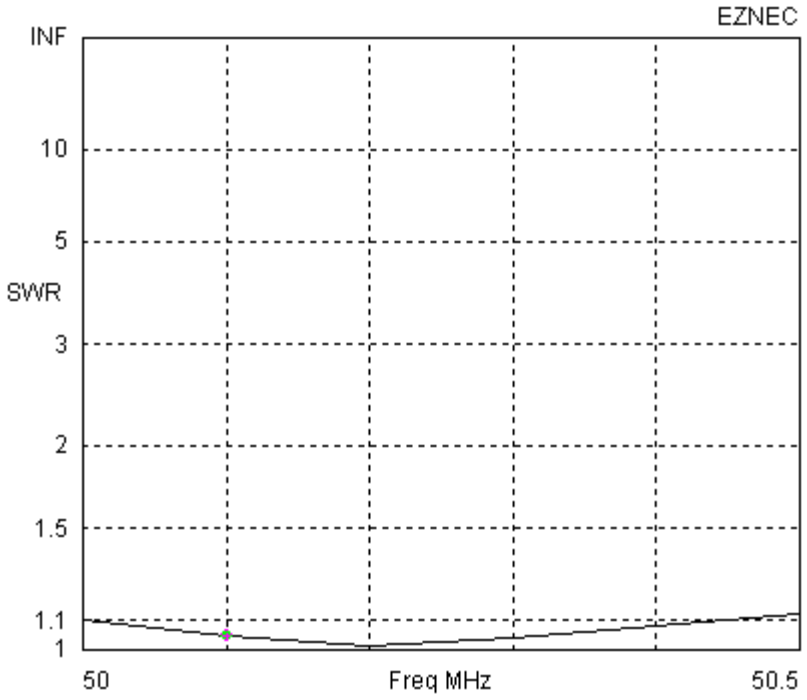




Azimuth Plot	
Elevation Angle	0.0 deg.
Outer Ring	6.13 dBi

Cursor Az	0.0 deg.
Gain	6.13 dBi
	0.0 dBmax

Slice Max Gain	6.13 dBi @ Az Angle = 0.0 deg.
Front/Back	30.73 dB
Beamwidth	78.0 deg.; -3dB @ 321.0, 39.0 deg.
Sidelobe Gain	-24.6 dBi @ Az Angle = 180.0 deg.
Front/Sidelobe	30.73 dB

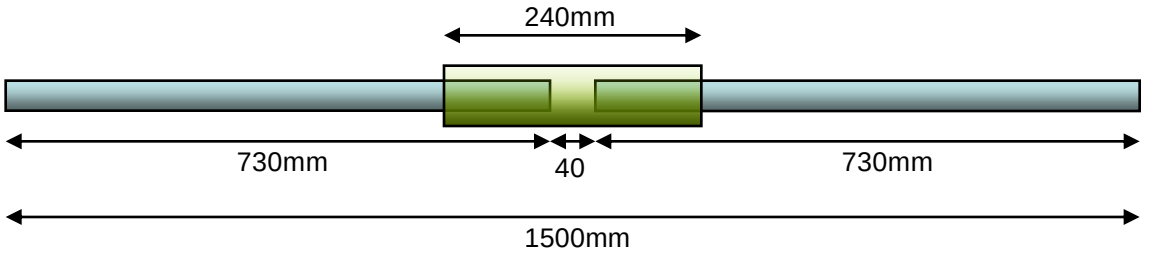


Freq	50.1 MHz	Source #	1
SWR	**1.05**	Z0	50 ohms
Z	48.74 at -2.36 deg.		
	= 48.7 - j 2.006 ohms		
Refl Coeff	0.0242 at -121.72 deg.		
	= -0.01272 - j 0.02058		
Ret Loss	32.3 dB		

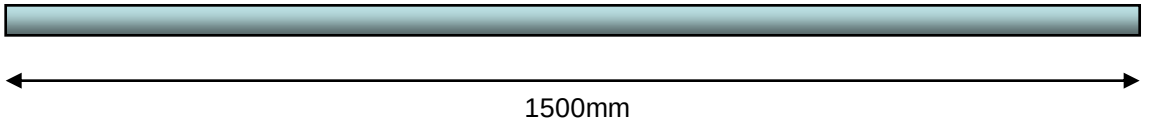
Parts, element center sections

Driven element, center section
tube outer diameter 16mm, wall thickness 1.5mm

Glass fiber isolator inner diameter 17mm, outer diameter 20mmm
Glued with Araldit (epoxy)



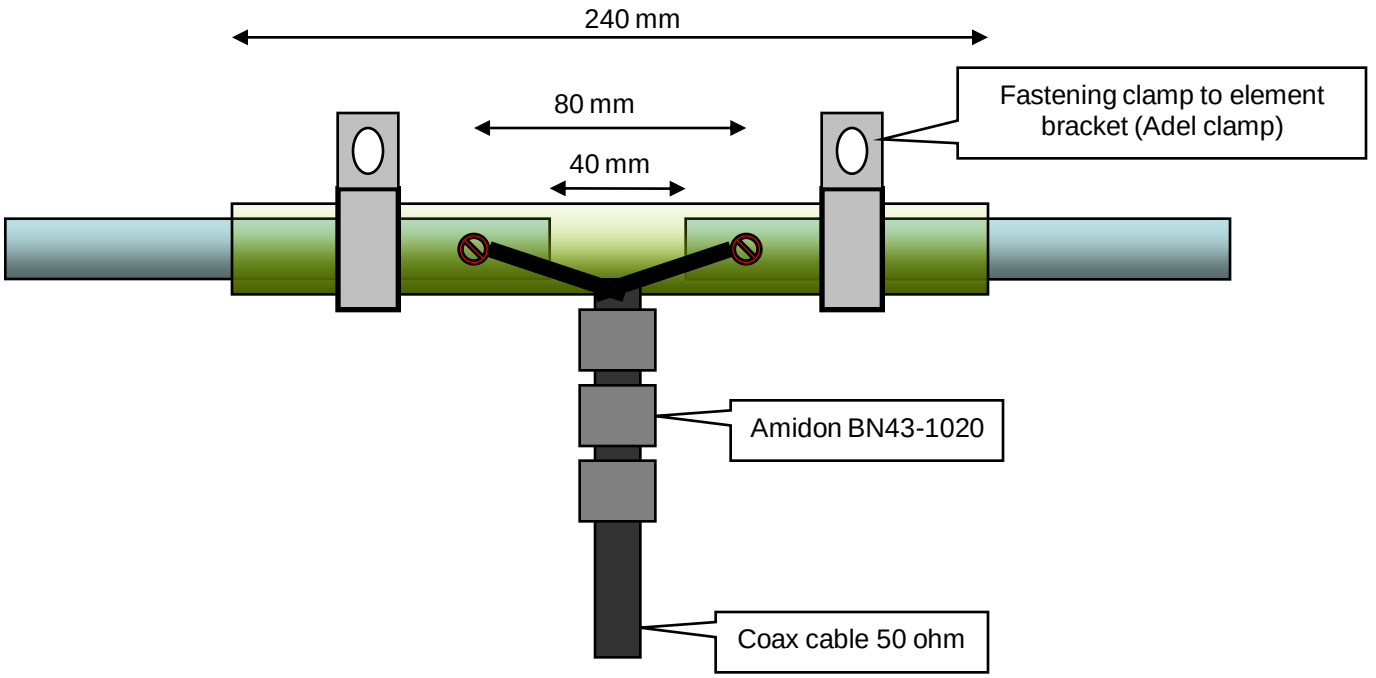
Reflector element, center section
tube outer diameter 16mm



Feedpoint construction

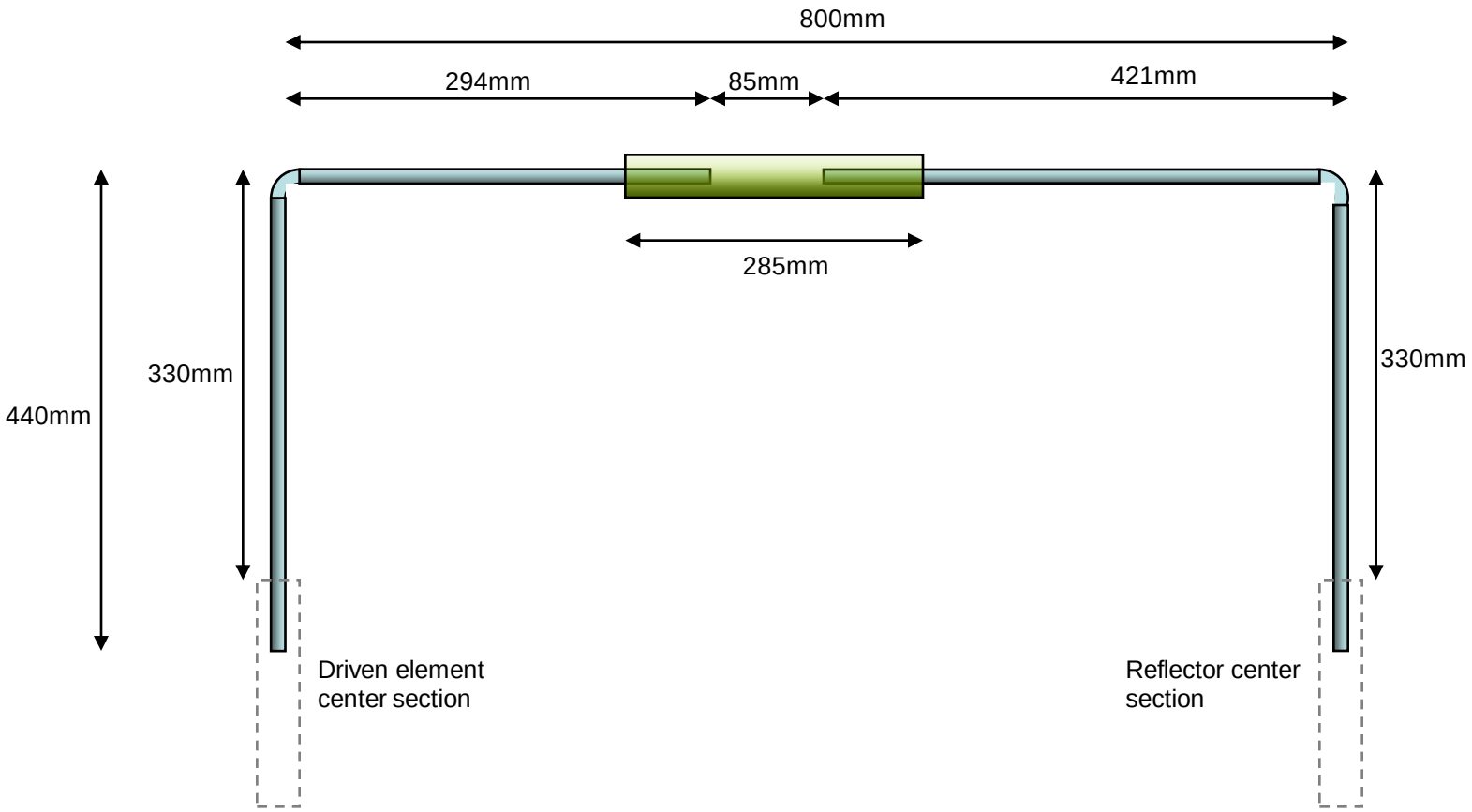
Driven element, center section
tube outer diameter 16mm, wall thickness 1.5mm

Glass fiber isolator inner diameter 17mm, outer diameter 20mmm
Glued with Araldit (epoxy)



Parts, element end sections

All aluminium tube outer diameter 12mm
Isolator tube inner diameter 13mm

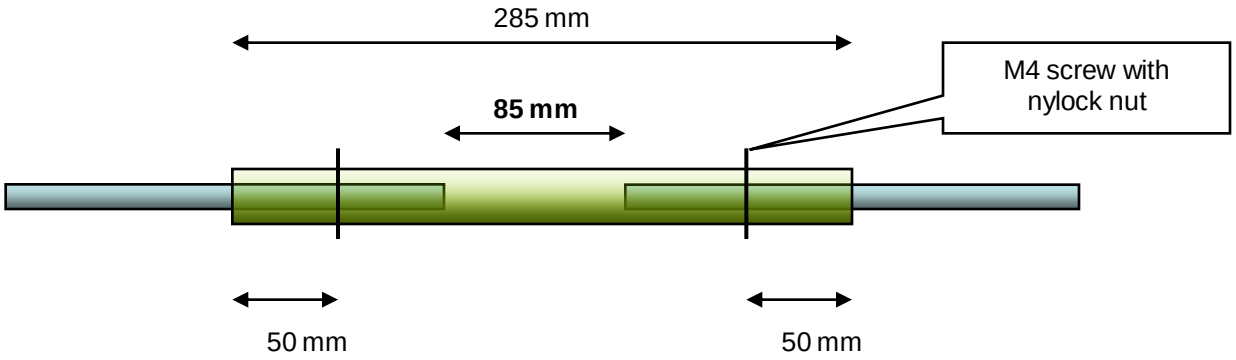


End section isolator assembly

All aluminium tube outer diameter 12mm
Isolator tube inner diameter 13mm

The most important dimension is the 85mm long gap.

Locked with M4 screw, not glued

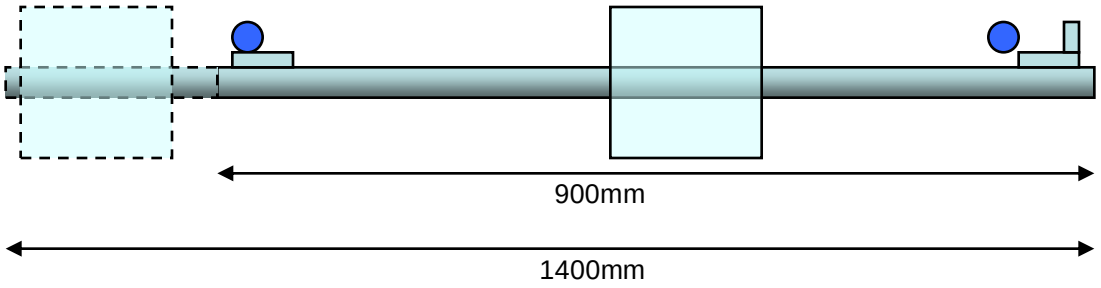


Parts, boom

Boom material aluminium tube, outer diameter 25mm

For side mounting tube length 1400mm
For normal mast mounting boom lenght 900mm

For side mounting mast bracket behind the reflector



Other parts

- Element to boom bracket
  - Driven element
    - Mounting plate:: 160 x 40x 30 x 3 mm V-shaped aluminium
    - Element to mounting plate: Adel clamps 19mm, screws
    - Mounting plate to boom: 25mm exhaust pipe clamp
  - Reflector
    - Mounting plate: 60 x 40 x 3 mm aluminium
    - Element to mounting plate: 3 Screws
    - Mounting plate to boom: 25mm exhaust pipe clamp
- Boom to mast bracket
    - Mounting plate 120 x 120 x 5 mm aluminium
    - 25mm exhaust pipe clamps, 2 pcs
    - xx mm exhaust pipe clamps, 2 pcs, size depends on your mast
- Center section to end section joints
    - 4 pcs 16mm hose clamps, 4 pcsM4 screws with nylock nuts for locking
- Current balun
    - 3 Amidon tubular ferrites BN43 -1020 on coax near feed point
- Glue, Araldit or similar

EZNEC ver. 5.0

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---------- ANTENNA DESCRIPTION ----------

Frequency = 50.1 MHz
Wire Loss: Aluminum (6061-T6) -- Resistivity = 4E-08 ohm-m, Rel. Perm. = 1

---------- WIRES ----------

No.	End 1 Conn.	End 1 Coord. (m) X	Y	Z	End 2 Conn.	End 2 Coord. (m) X	Y	Z	Dia (mm)	Segs
1	W4E1	0,	-1.08,	0	W2E1	0,	-0.75,	0	12	2
2	W1E2	0,	-0.75,	0	W3E1	0,	0.75,	0	16	7
3	W2E2	0,	0.75,	0	W5E1	0,	1.08,	0	12	2
4	W1E1	0,	-1.08,	0		-0.294,	-1.08,	0	12	1
5	W3E2	0,	1.08,	0		-0.294,	1.08,	0	12	1
6	W9E1	-0.8,	-1.08,	0	W7E1	-0.8,	-0.75,	0	12	2
7	W6E2	-0.8,	-0.75,	0	W8E1	-0.8,	0.75,	0	16	6
8	W7E2	-0.8,	0.75,	0	W10E1	-0.8,	1.08,	0	12	2
9	W6E1	-0.8,	-1.08,	0		-0.379,	-1.08,	0	12	2
10	W8E2	-0.8,	1.08,	0		-0.379,	1.08,	0	12	2

Total Segments

EZNEC