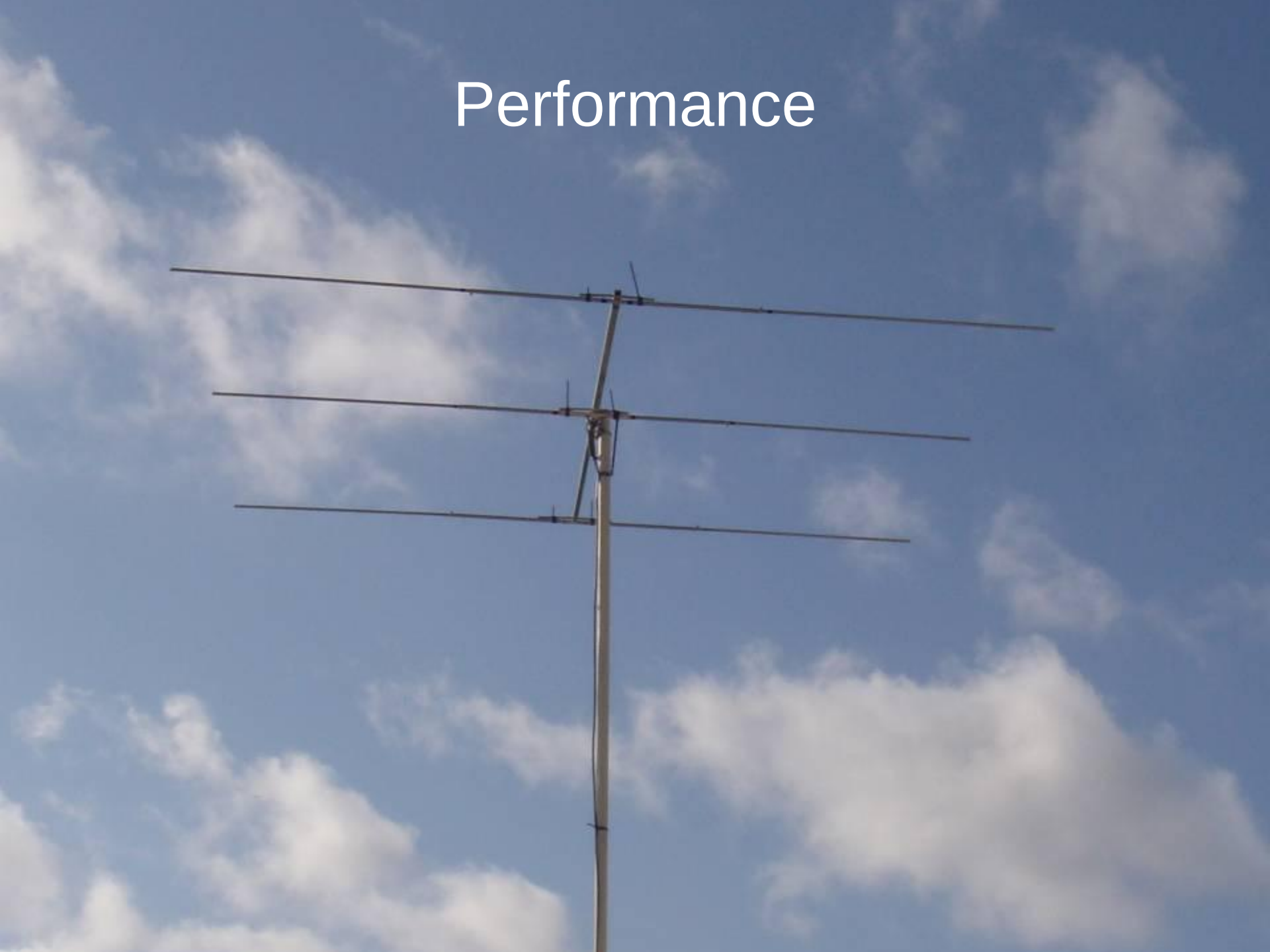
Light DX-pedition antenna for 6m

This compact 3-element Yagi was built for DX-pedition to VK9X in October 2012

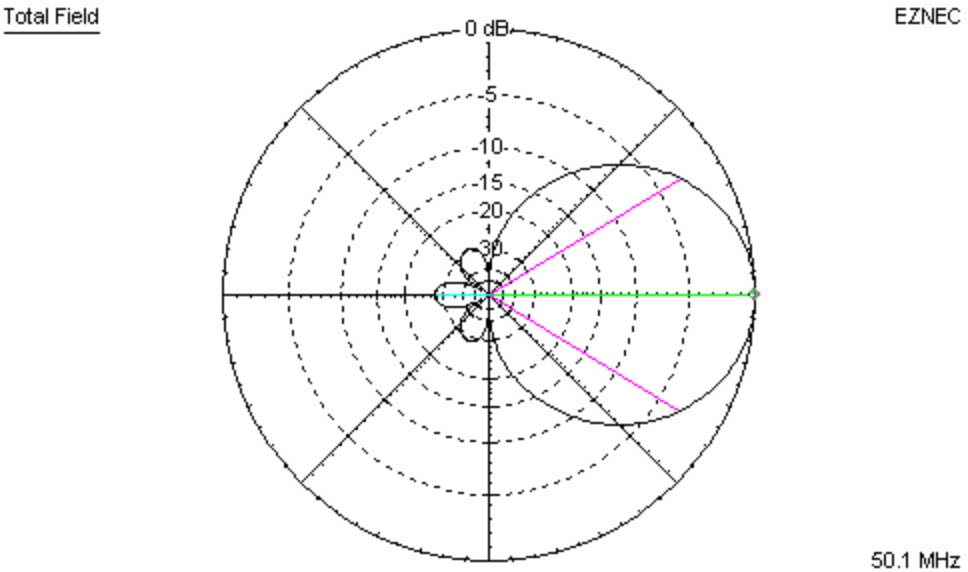
The longest QSO was KH7Y 11000km

OH1TV

Performance



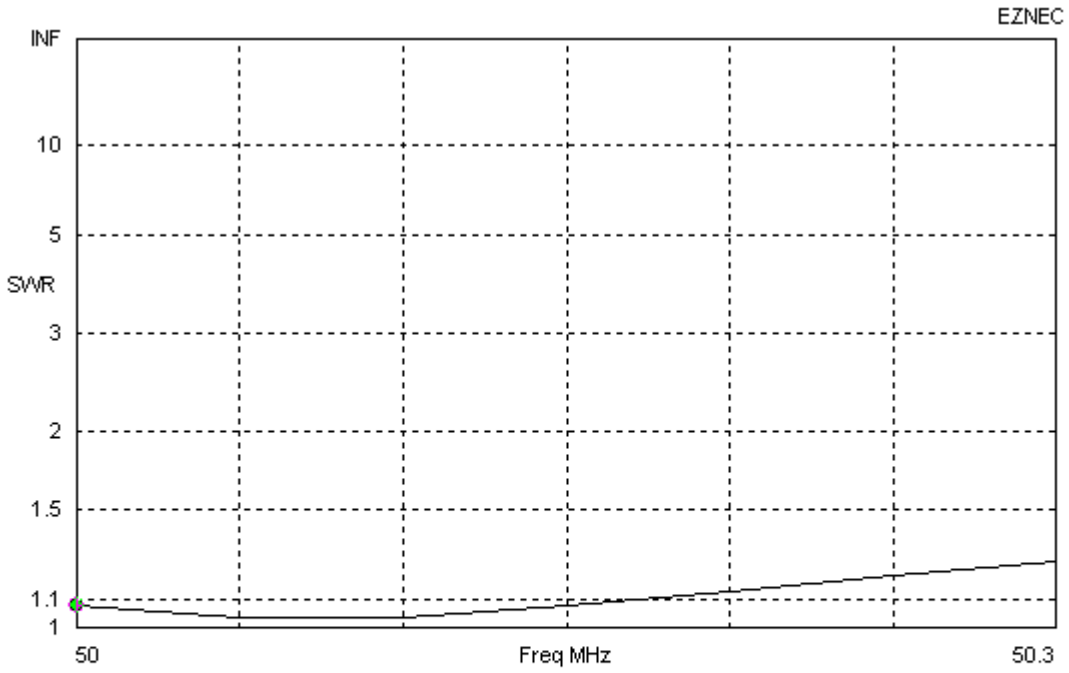
Radiation pattern in free space



Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	0.0 deg.	Gain	8.19 dBi
Outer Ring	8.19 dBi		0.0 dBmax

Slice Max Gain	8.19 dBi @ Az Angle = 0.0 deg.
Front/Back	27.45 dB
Beamwidth	62.7 deg.; -3dB @ 328.6, 31.3 deg.
Sidelobe Gain	-19.26 dBi @ Az Angle = 180.0 deg.
Front/Sidelobe	27.45 dB

SWR



Freq	50 MHz	Source #	1
SWR	**1.077**	Z0	50 ohms
Z	53.42 at 1.9 deg.		
	= 53.39 + j 1.773 ohms		
Refl Coeff	0.03701 at 26.62 deg.		
	= 0.03309 + j 0.01658		
Ret Loss	28.6 dB		

Structure and dimensions

Dimensions

Dimensions from element center line in mm 19.9.2012

Frequency **MHz**	**Element**	Tube **15mm**	Tube **12mm**	Element **Spacing**	Hairpin **L / uH**	Fine tuning **mm/100kHz**
50.1	reflector	500	1015			3.0
	total	500	**1515**			
				900		
	driven	500	908		0.153	
	total	500	**1408**			
				1000		
	director	500	865			
	total	500	**1365**			

OH1TV

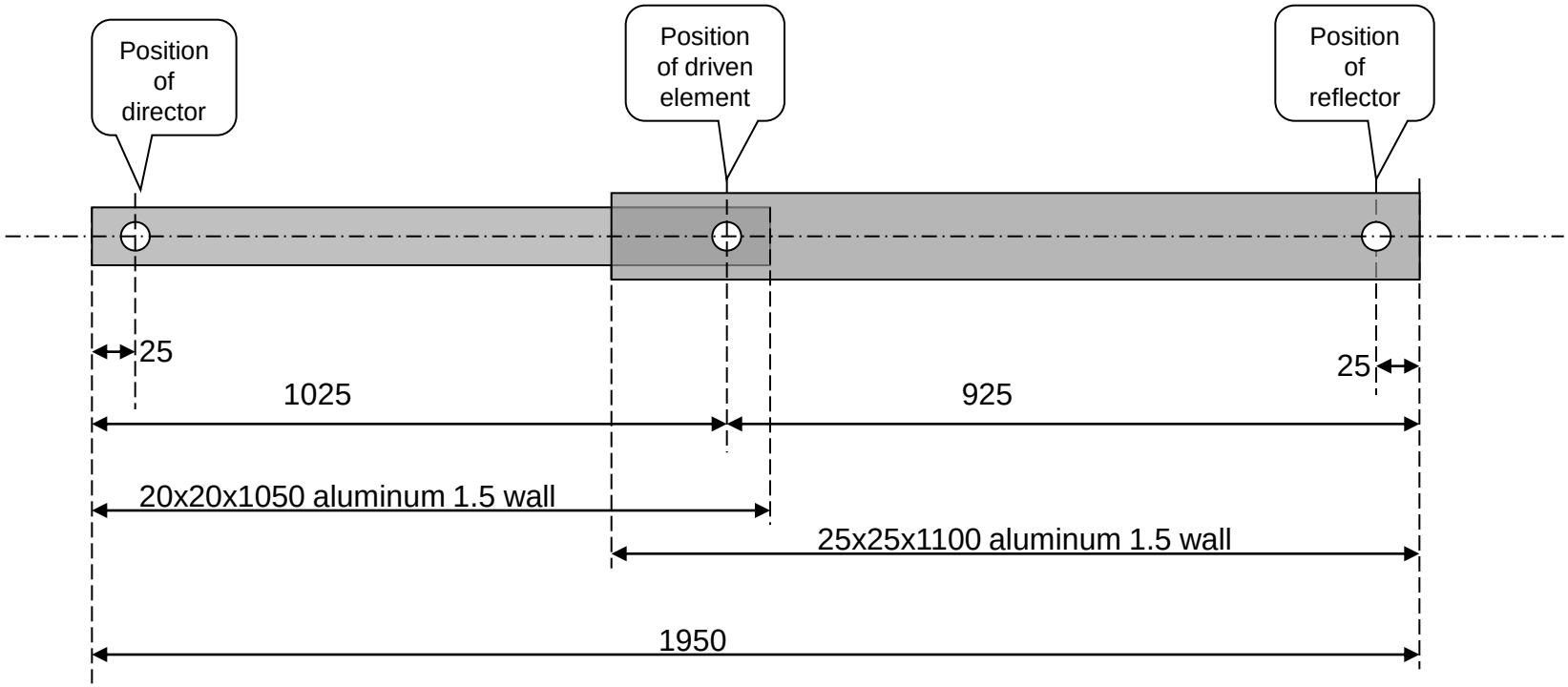
Boom parts

25x25x1100mm, dia 10mm holes 25mm and 925mm from one end
20x20x1050mm, dia 10mm holes 25 and 1025mm from one end
Total assembled length 1950mm

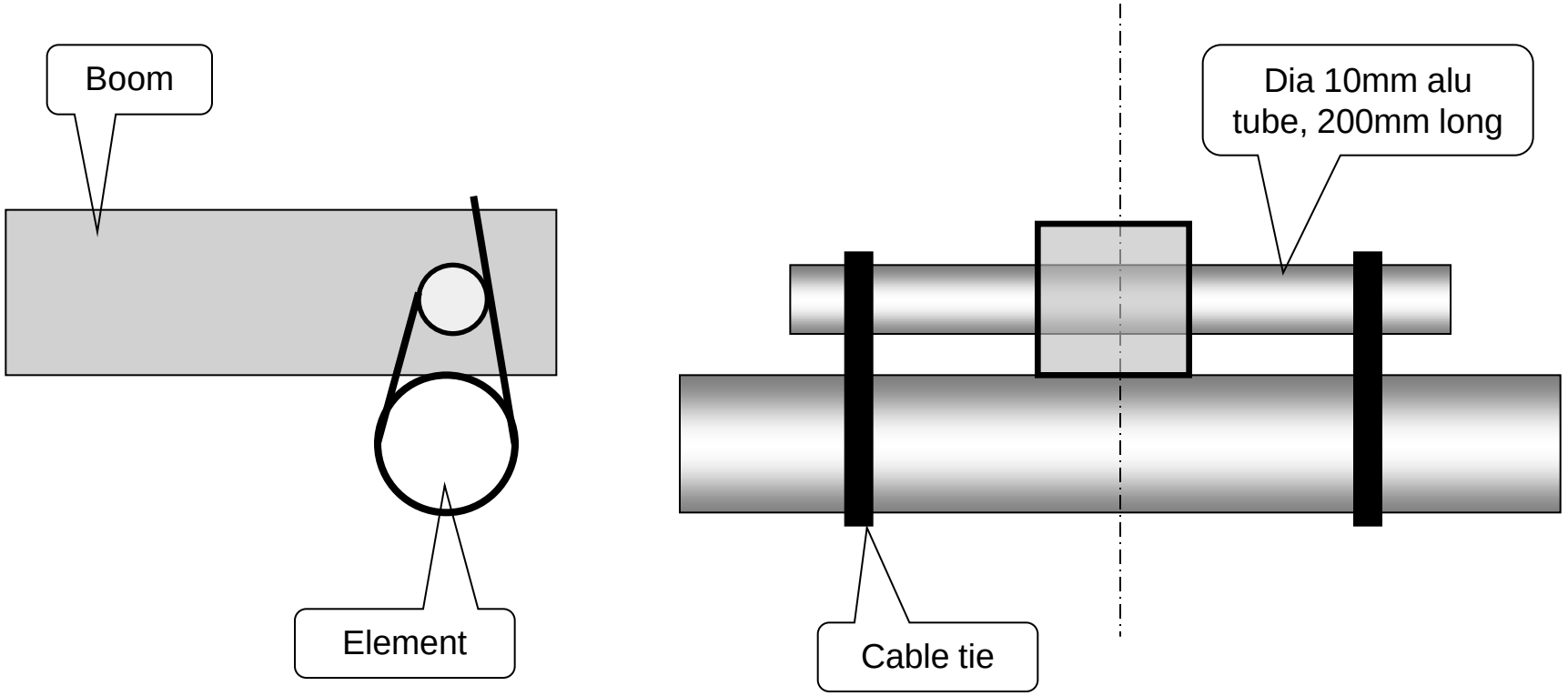
Longest part 1100mm

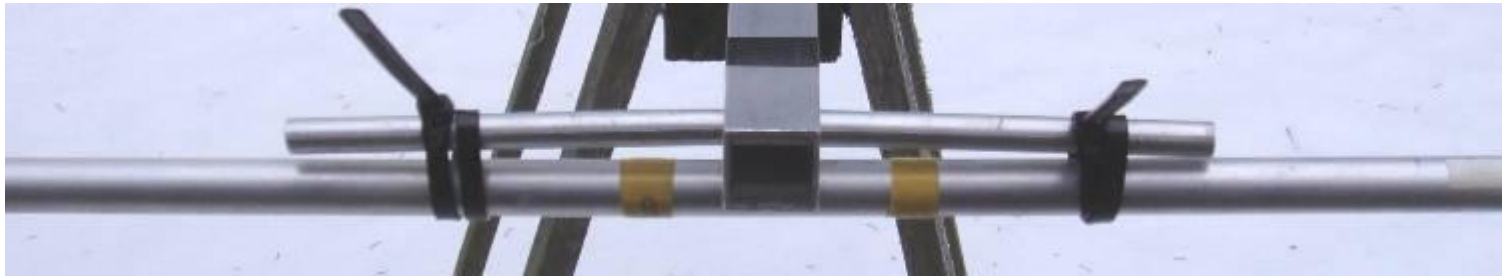
Boom

- All holes dia 10mm in line
- Dia 10mm and 200mm long aluminum tube pin is inserted to each of the 3 holes
- The two parts of the boom are locked together by one of the pins



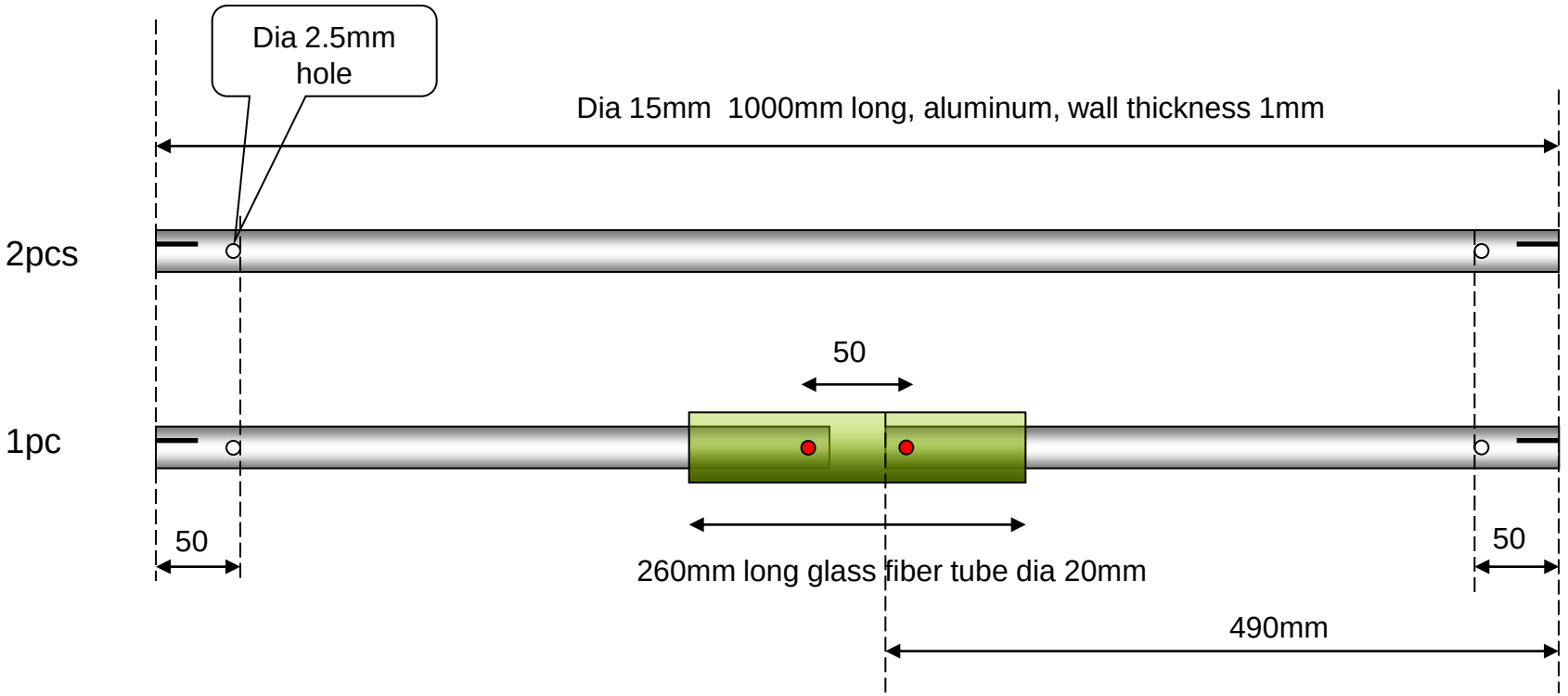
Element to boom





Element center sections

Reflector, driven element and director



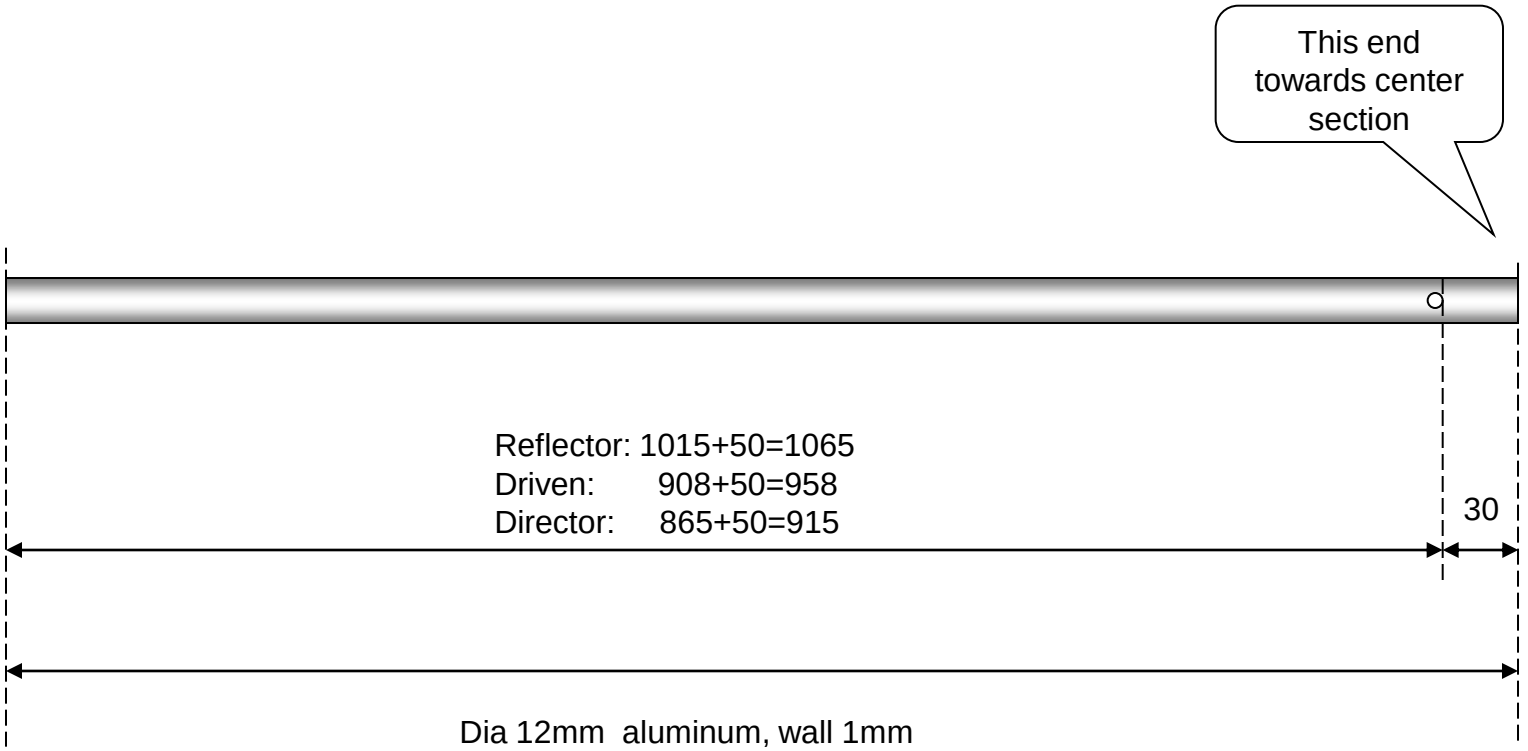
Glass fiber tube is glued with epoxy, Araldit or similar

End of center section

Angle grinder is used to cut about 2mm wide and 30mm long slot
Hole for split pin is 50mm from the end, size 2.5mm

Second sections

2pcs of each



Dia 12mm aluminum, wall 1mm
Reflector: 1095
Driven: 988
Director: 945

Center section / second section joint

Hose clamp is needed to make good contact between the parts.
Split pin alone is not enough on 50MHz.

Hairpin

- Copper terminal lugs are soldered to both ends of dia 2mm copper wire. Distance from terminal hole center to center is 260mm
- Rounded to circular form.
- Inductance is 153nH, good for this 6m antenna

Driven element and hairpin

Top view

Bottom view

These pictures are from 12m 2-element antenna but the structure used in 6m 3-elementer is exactly the same