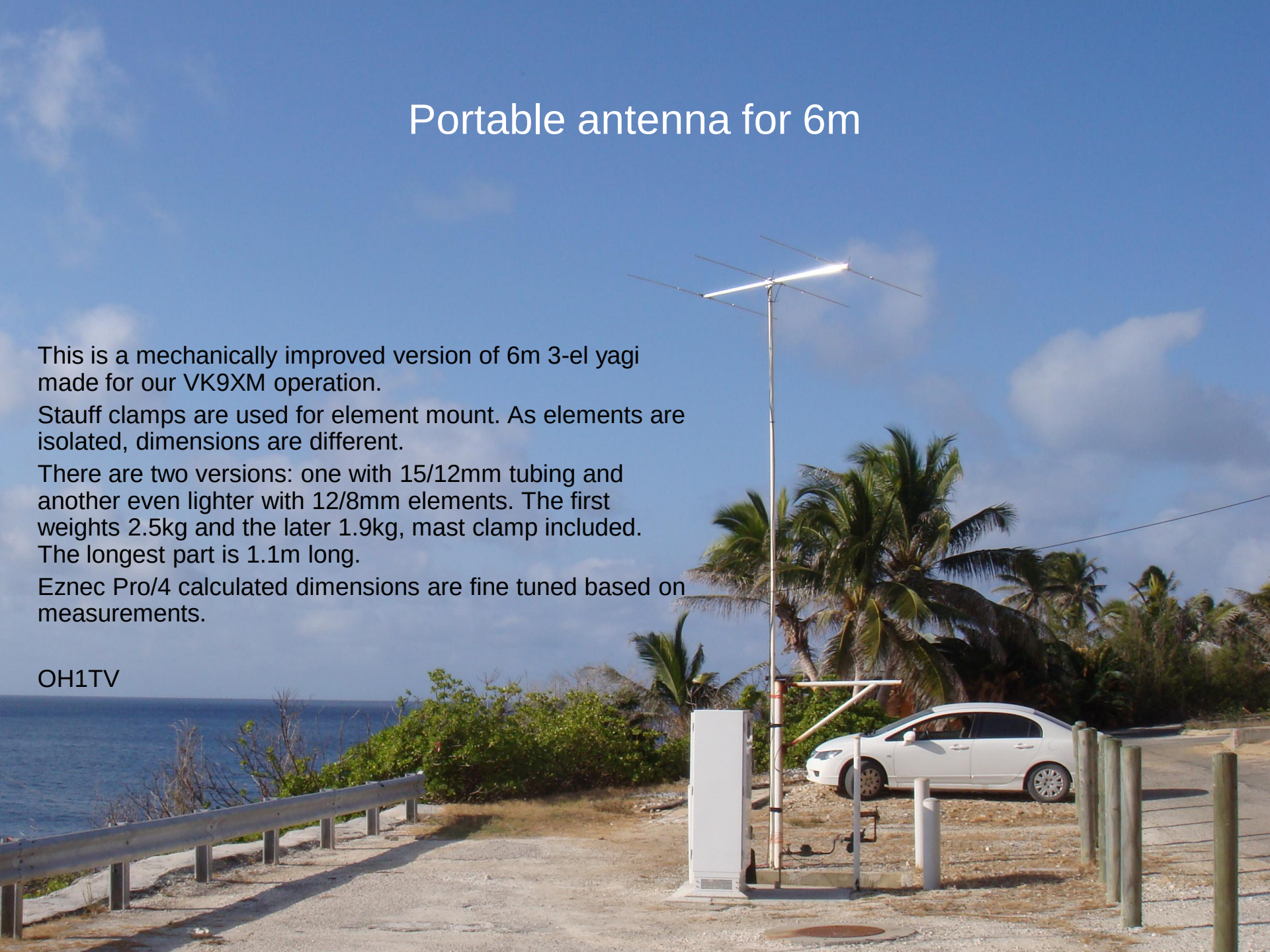
Portable antenna for 6m



This is a mechanically improved version of 6m 3-el yagi made for our VK9XM operation.

Stauff clamps are used for element mount. As elements are isolated, dimensions are different.

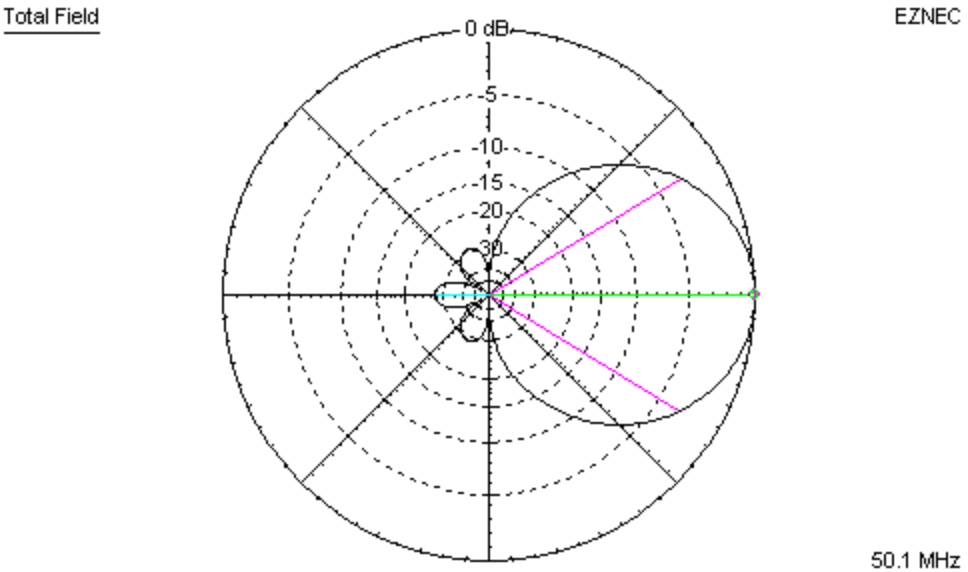
There are two versions: one with 15/12mm tubing and another even lighter with 12/8mm elements. The first weights 2.5kg and the later 1.9kg, mast clamp included. The longest part is 1.1m long.

Eznec Pro/4 calculated dimensions are fine tuned based on measurements.

OH1TV

6m antenna, elements 15/12mm

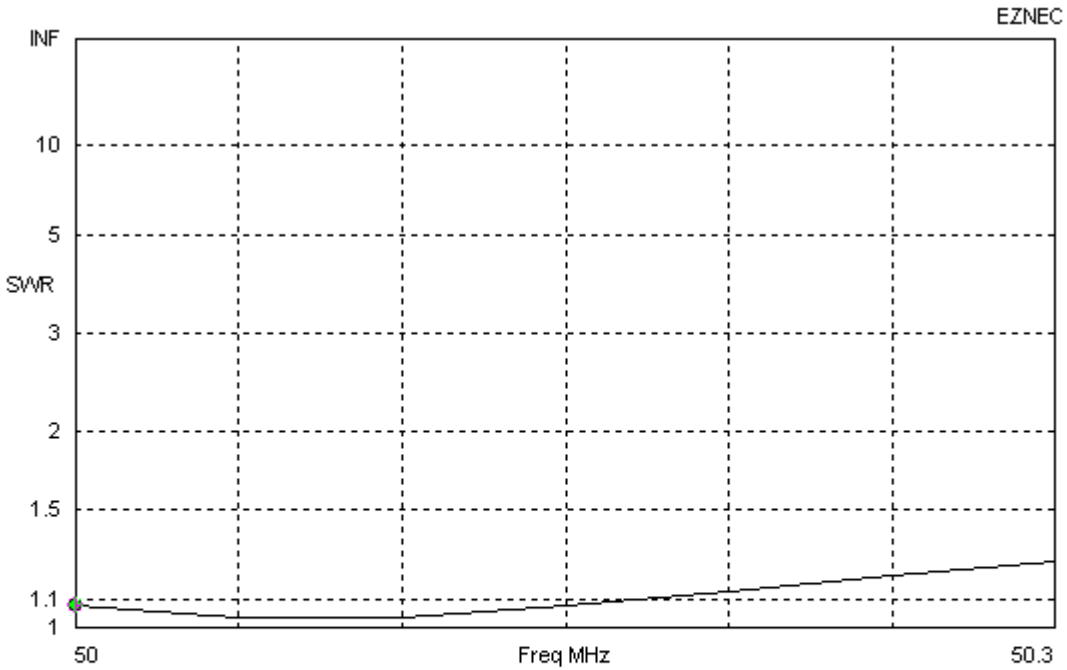
Radiation pattern in free space



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		

Dimensions (15/12mm version)

Weight 2.5kg with mast clamp

Dimensions from element center line in mm 7.12.2014
Isolated elements

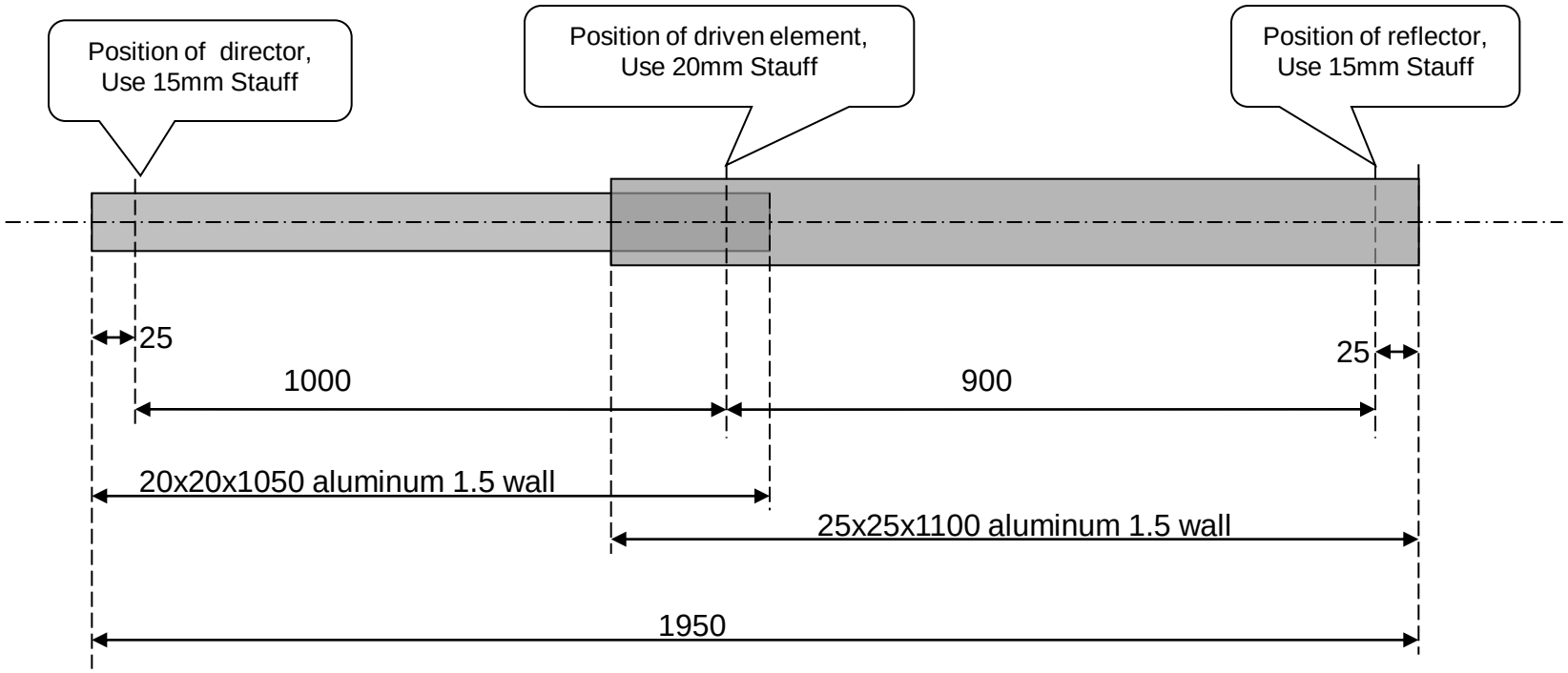
Frequency **MHz**	**Element**	Tube **15mm**	Tube **12mm**	Element **Position**	Hairpin **L / nH**	Fine tuning **mm/100kHz**
50.1	reflector	500	1007			3.0
	total		**1507**	0		
	driven	500	902		146	
	total		**1402**	900		
	director	500	859			
	total		**1359**	1900		

OH1TV

Boom parts
25x25x1100mm
20x20x1030mm
Total assembled length 1950mm
Longest part 1100mm

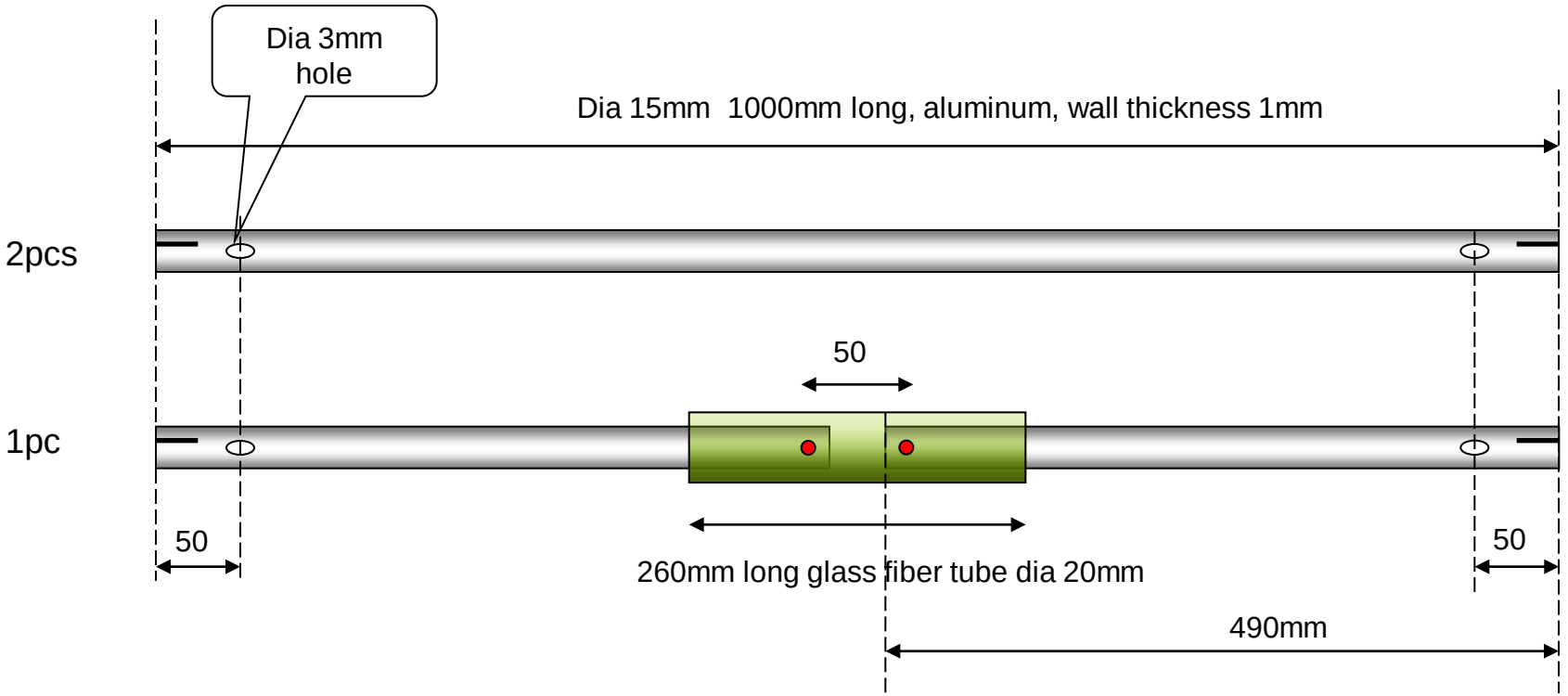
Boom (15/12mm version)

Stauff clamps are used for element mounting, one pair per element
Two dia 6mm holes are drilled for each clamp.



Element center sections (15/12mm version)

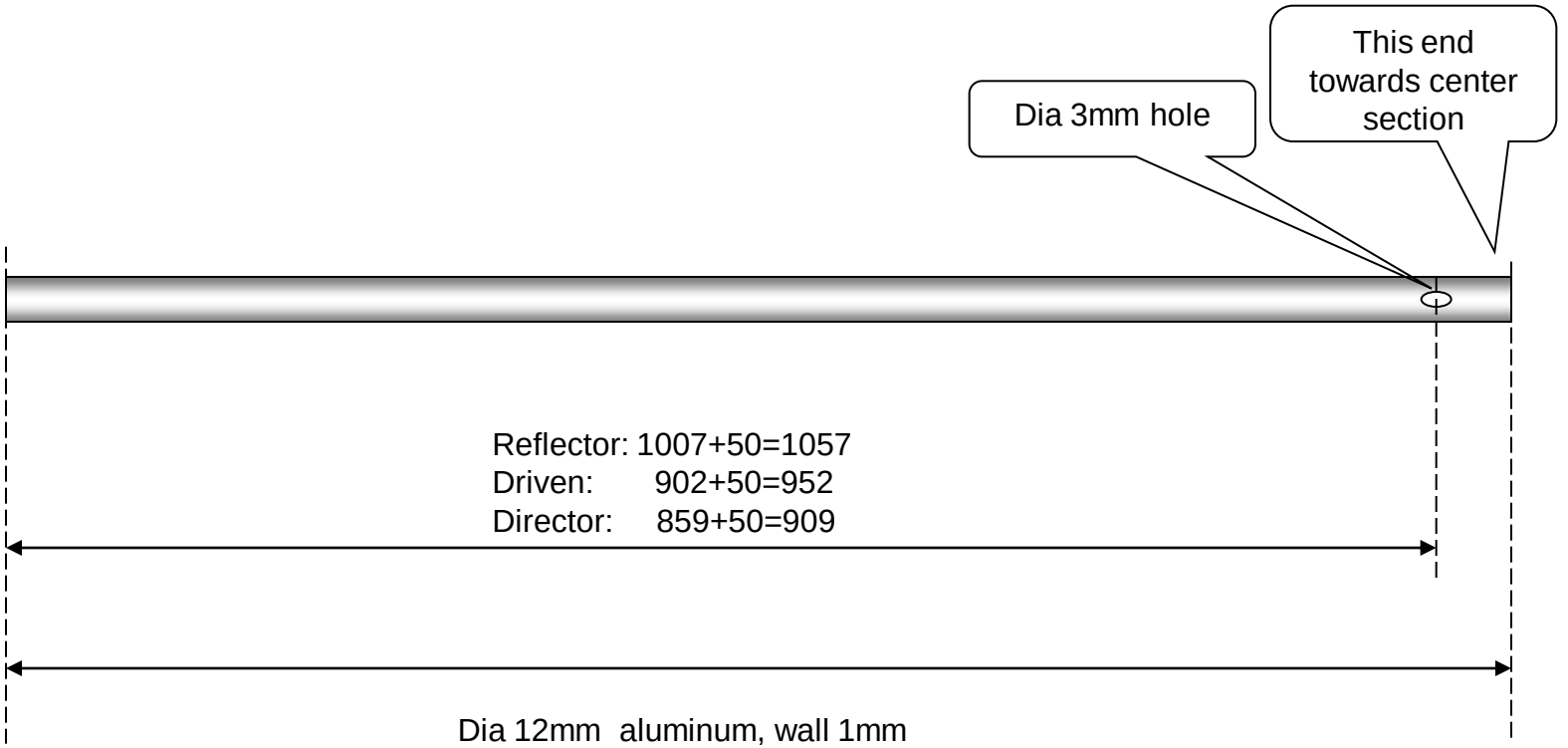
Reflector, driven element and director



Glass fiber tube is glued with epoxy, Araldit or similar

Second sections (15/12mm version)

2pcs of each



Dimensions (10/8mm version)

Weight 1.9kg with mast clamp

Lighter version, verified 4.12.2014

Isolated elements

Frequency **MHz**	Element	Tube **12mm**	Tube **8mm**	Element **Position**	Hairpin **L /nH**	Fine tuning **mm/100kHz**
50.1	reflector	550	975			3.0
	total		**1525**	0		
	driven	550	875		150	
	total		**1425**	900		
	director	550	833			
	total		**1383**	1900		

OH1TV

Boom parts

20x20x1100mm

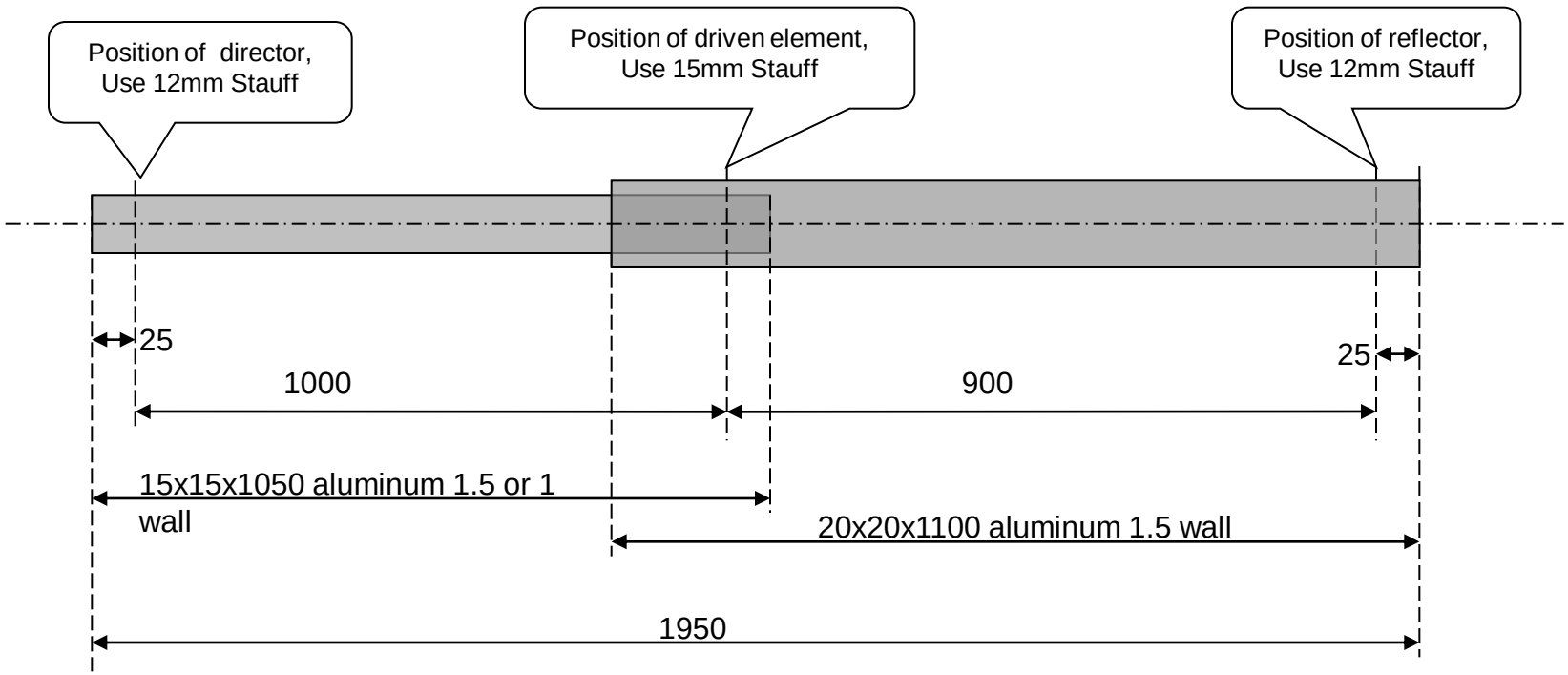
15x15x1030mm

Total assembled length 1950mm

Longest part 1100mm

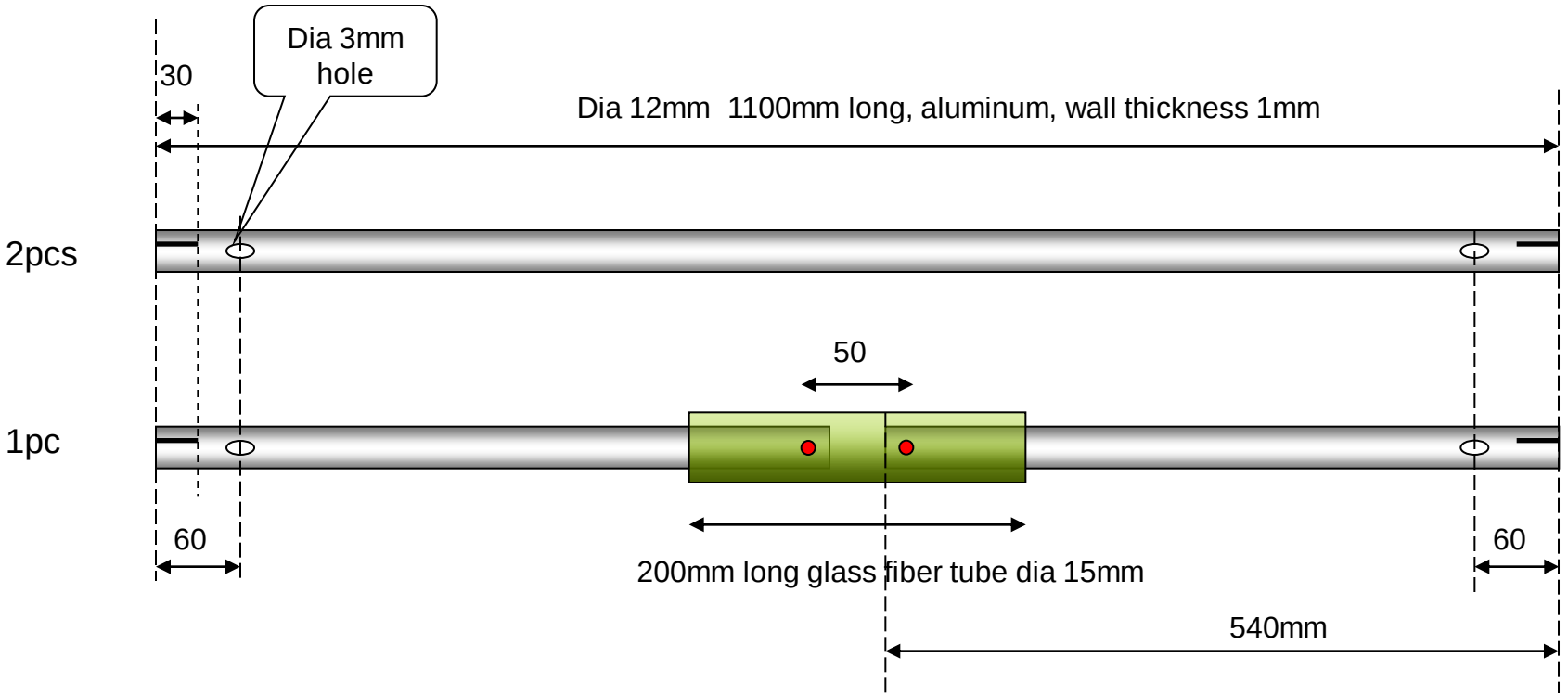
Boom (12/8mm version)

Stauff clamps are used for element mounting, one pair per element
Two dia 6mm holes are drilled for each clamp.



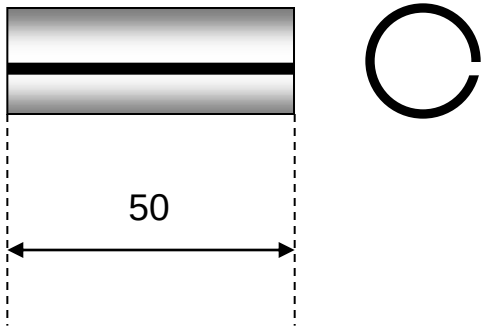
Element center sections (12/8mm version)

Reflector, driven element and director



Glass fiber tube is glued with epoxy, Araldit or similar

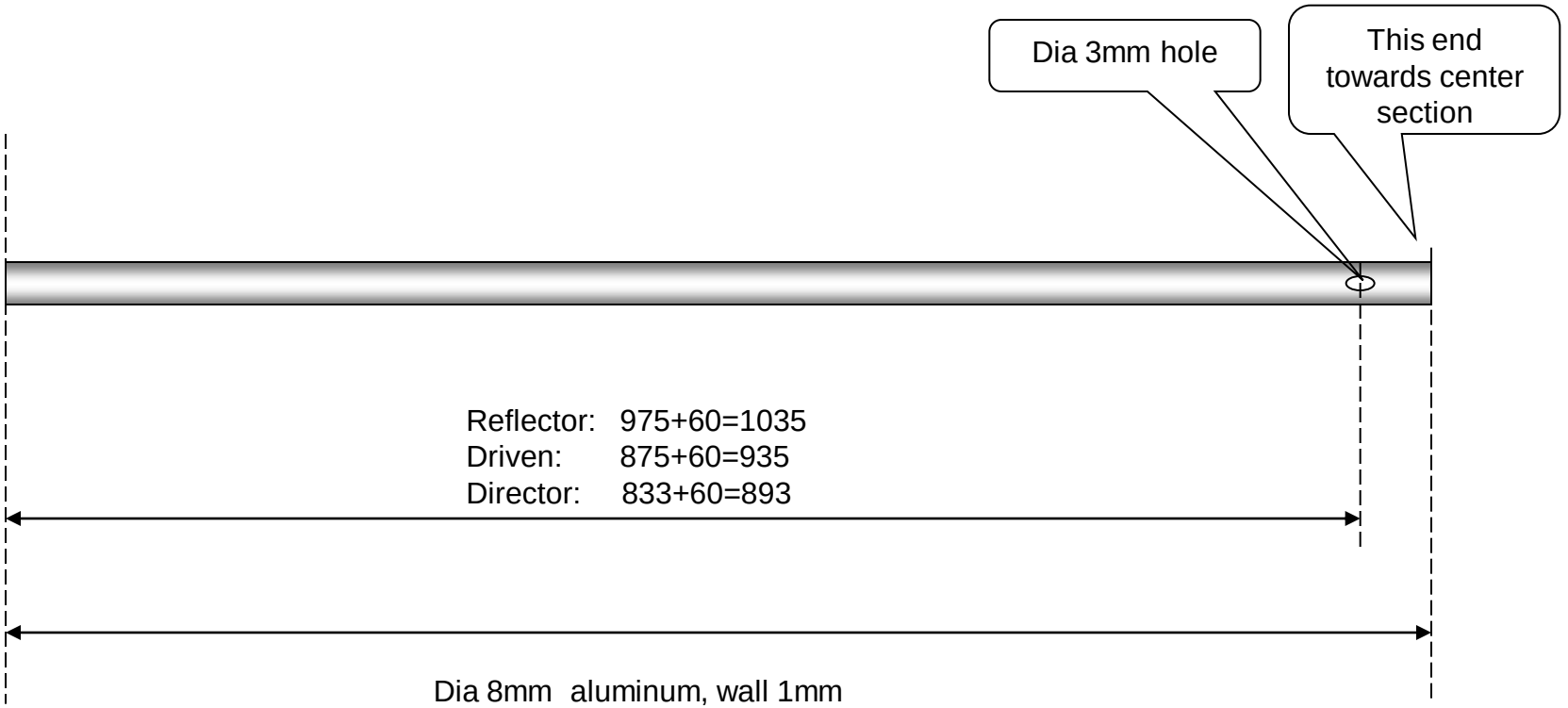
Fitting between 12 and 8mm tubes, 6pcs



Dia 10mm aluminum tube, 50mm long
Enlarge inside diameter to 9mm, best done on a lathe
Cut a slot on one side as in the picture
Push inside each end of 12mm center sections, align the slots
Dia 8mm end tube shall now fit nicely into center sections

Second sections (12/8mm version)

2pcs of each



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

End of center section

Angle grinder is used to cut about 2mm wide and 30mm long slot
Hole for screw is dia 3mm

Center section / second section joint

Hose clamp is needed to make good contact between the parts.
M3 screw or split pin alone is not enough on 50MHz.
Clamps marked 11mm seem to work best for 12mm tube.

Element to boom

Screws are M6

Driven element and hairpin

Current balun is 3pcs Amidon FB-43-1020