TRIDENT TA4M4L yagi

Trident TA4M4L

Manufactory claimed specs

Specifications

Freq. Range	70-70.5 MHz.
Gain	11.022 dBi. (Free space)
Front to Rear	19.9 dB.
Feed Impedance	50 Ohms
Power Handling	1.5 Kw.
Matching	Hairpin.
Boom Length	3.2 Metres. 43 mm Diameter.
Element Diameters	13 mm. Stepped down to 9.5 mm.
Feeder Connection	2 x 4 mm Threaded Terminals
Weight	4.5 kgs.

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In brief

70 MHz band 4 elements yagi with hairpin
Metal : duralumin
Total boomlength = 3.207M
Element diameter = ∅ 12.7 / 9.5 mm
Round boom = ∅ 42.8 mm
Total weight = 4.5 Kg

BAND	Active elts	Gain (dBd)	F/B ratio	min SWR
70 MHz	4	8.8	19.9	1.05

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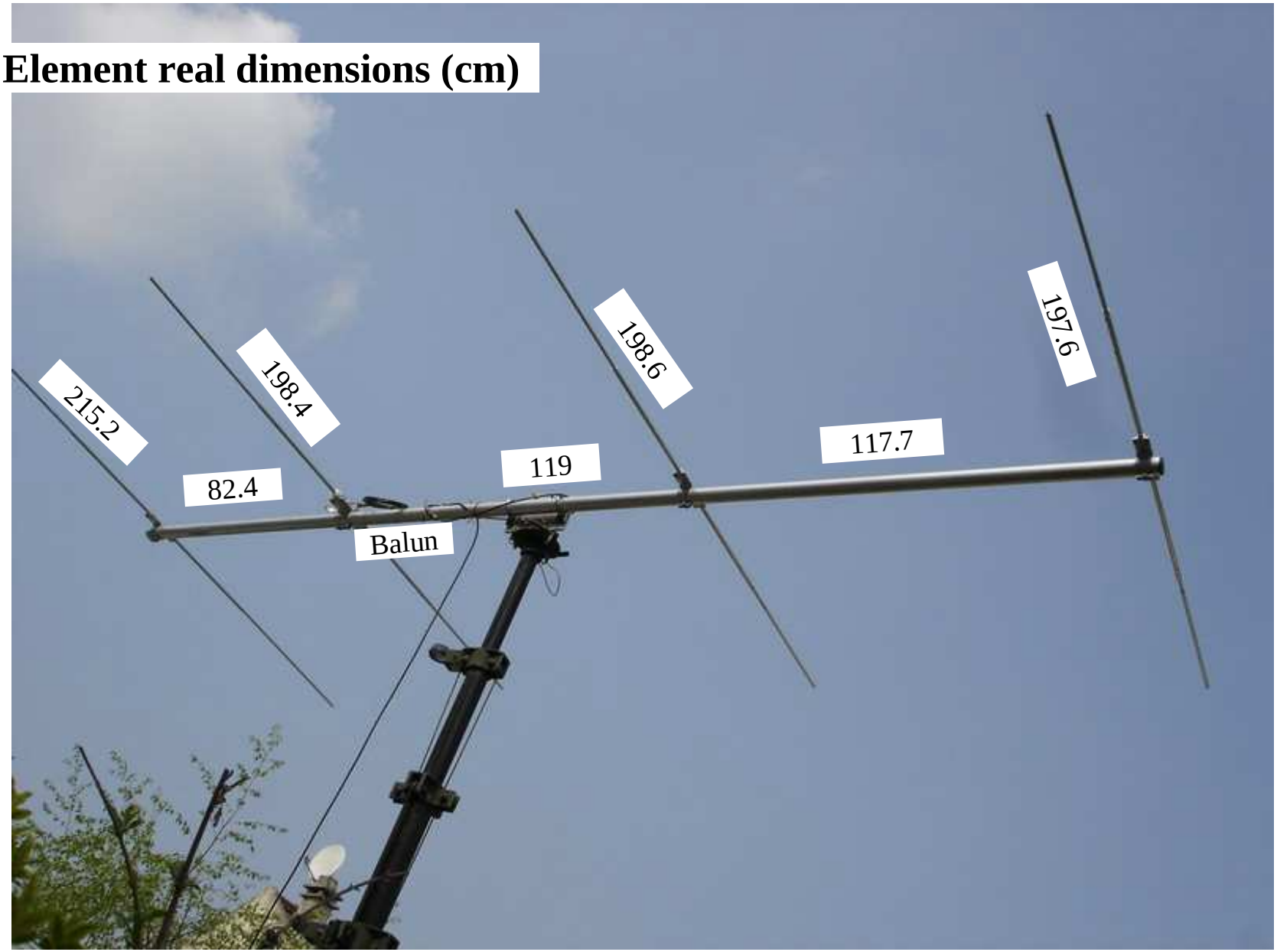
Element real dimensions (cm)



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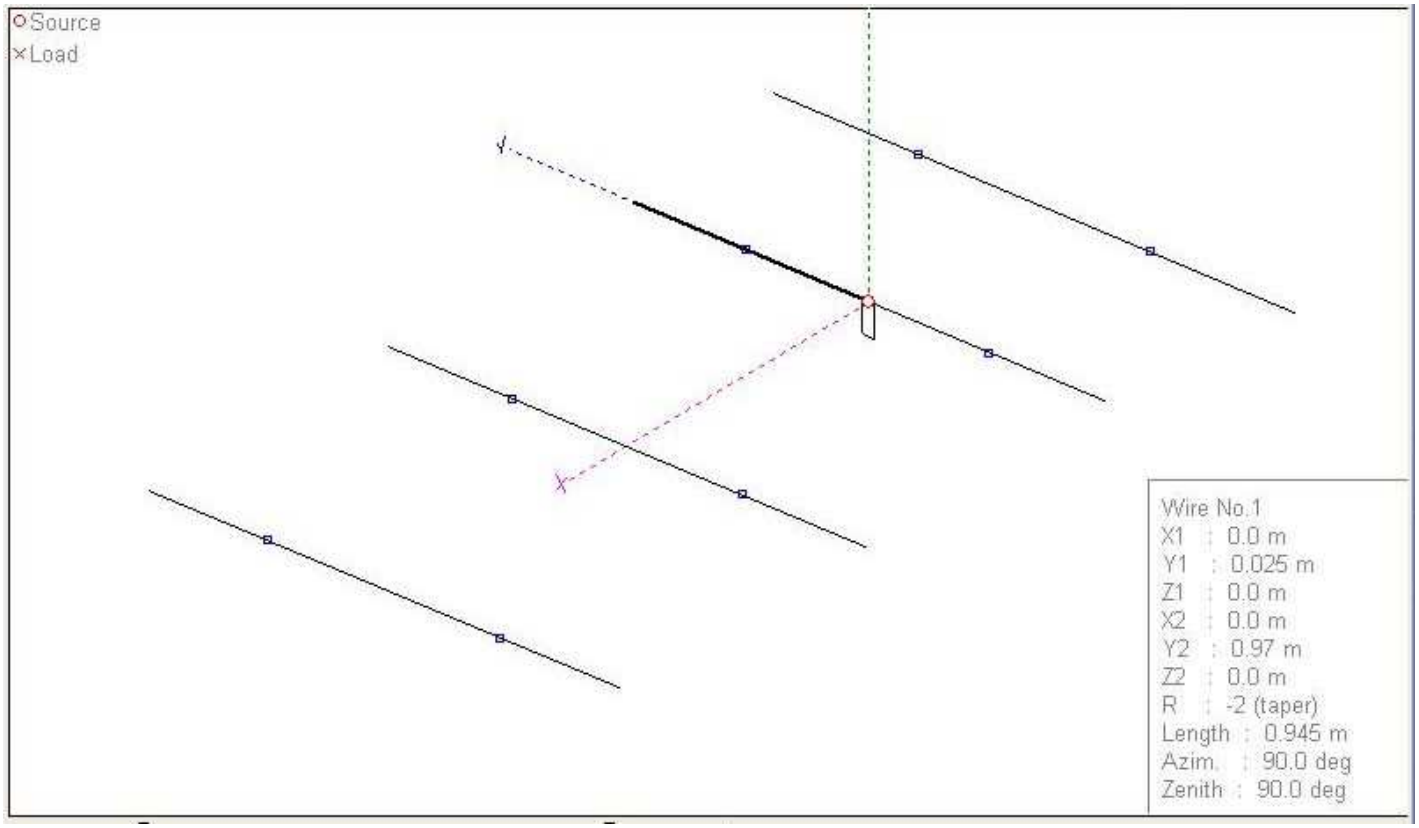
Mmana simulator: antenna aspect



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Mmana simulator: Trident antenna dimensions

70 MHz Trident TA4M4L, real boom 3.19m hairpin 4el F5DQK

Parameters | View | Change only end poins | Change all coordinates proportionaly

No.	Form	Int.(m)	Width(m)	Height(m)	Length(m)	R(mm)	Seg.	Wires
1	H line	0.0	2.138	0.0	0.0	-1.0	-1	1
2	H compl	0.81	1.94	0.125	0.0	Mixt	Mixt	6
3	H line	2.0	1.967	0.0	0.0	-1.0	-1	1
4	H line	3.177	1.93	0.0	0.0	-1.0	-1	1

∅ 12.7 mm on common length = 95 cm then ending ∅ 9.5 mm

Manufactory El position and width

Mmana simulator: simulated gain

No.	F (MHz)	R (Ohm)	jX (Ohm)	SWR 50.0	Gh dBd	Ga dBi	F/B dB	Elev.	Ground	Add H.	Polar.
1	70.2	49.95	0.291	1.01	8.83	10.98	18.66	0.1	Free	---	hori.

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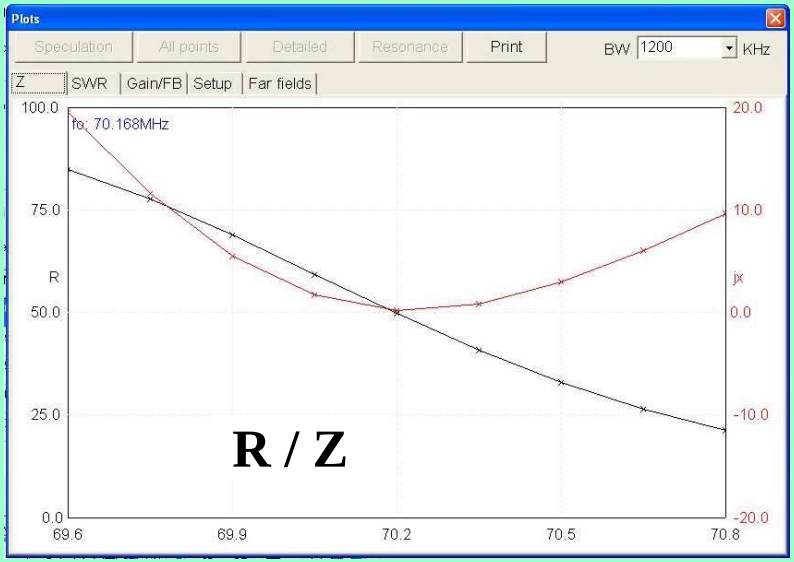
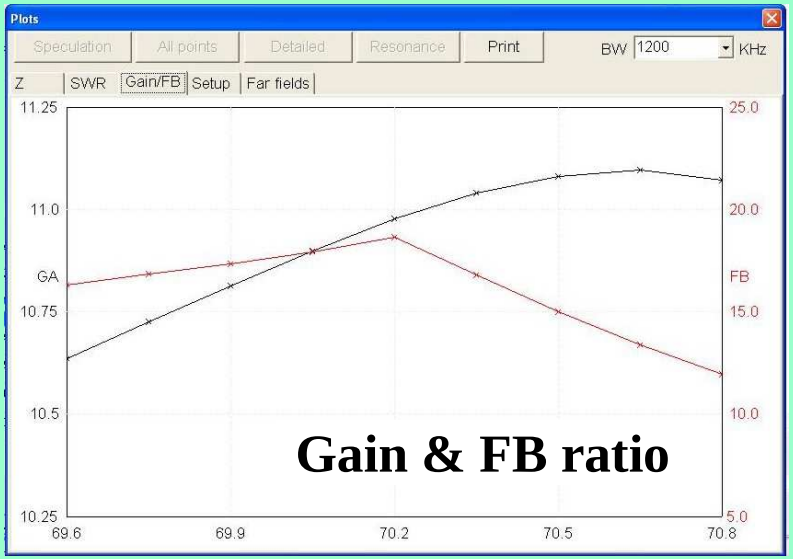
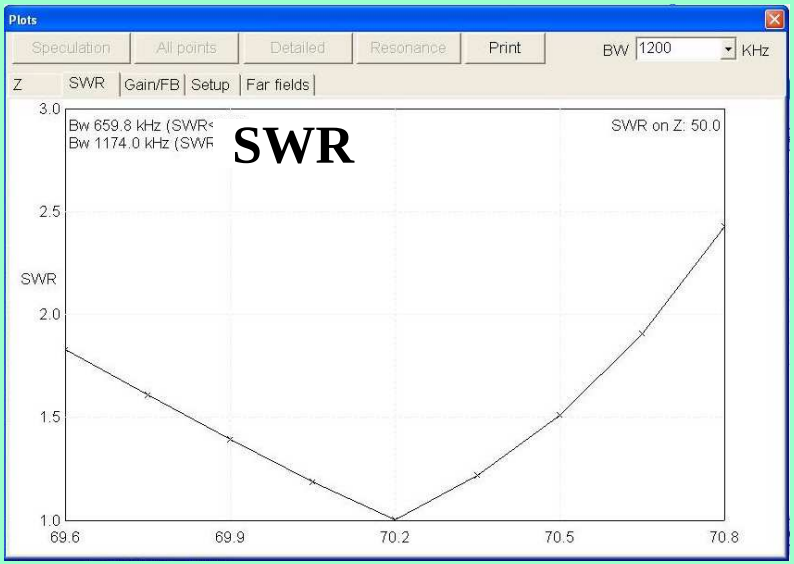
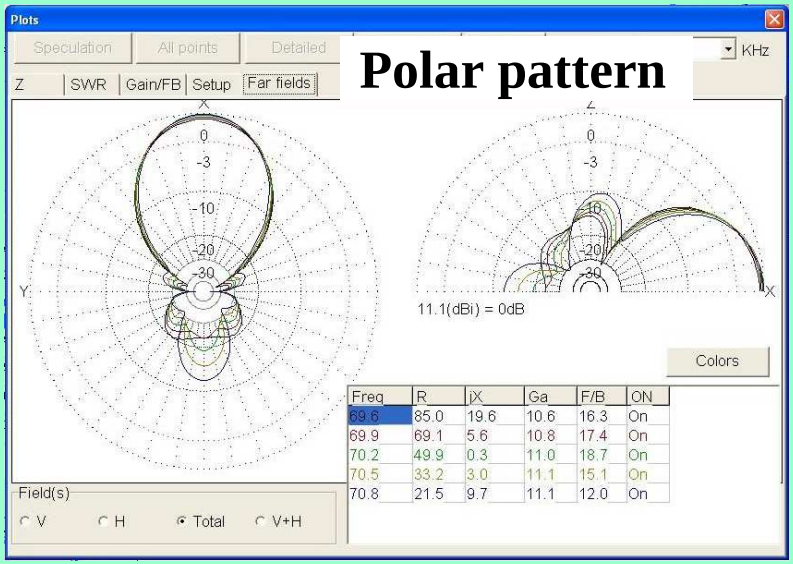
Measures at 70.2 MHz using Mmana simulator









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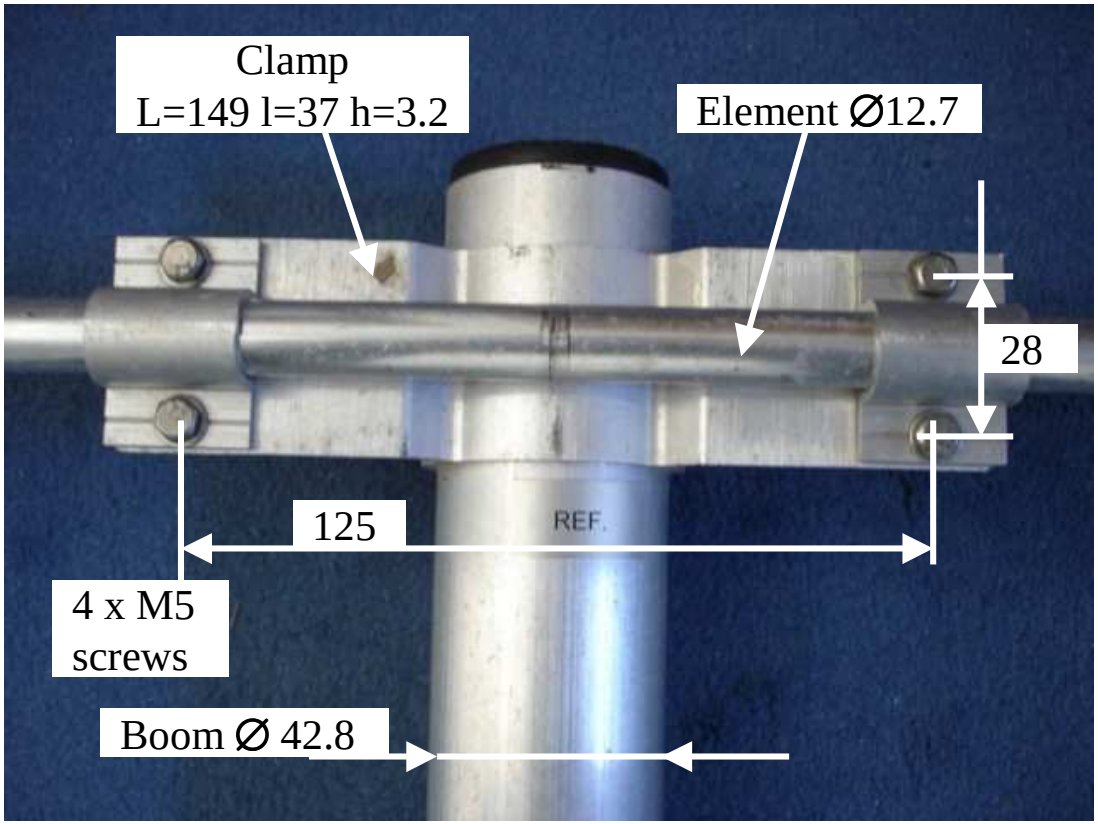
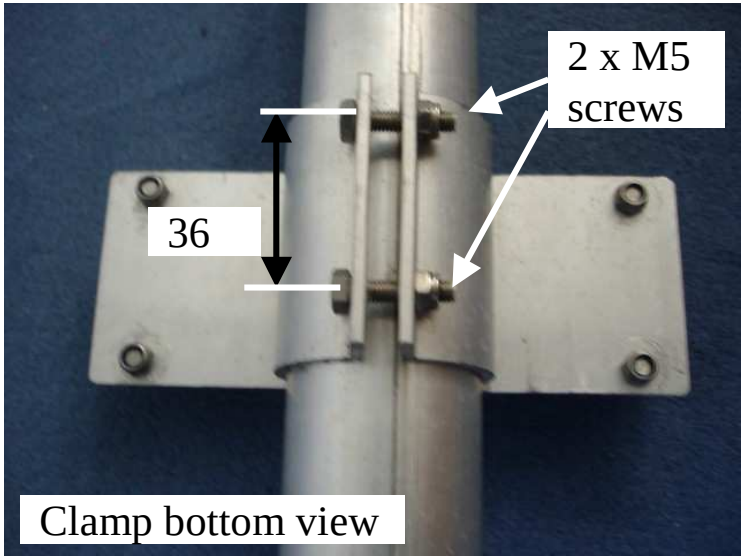
Directors or reflector clamp on boom (3 pieces





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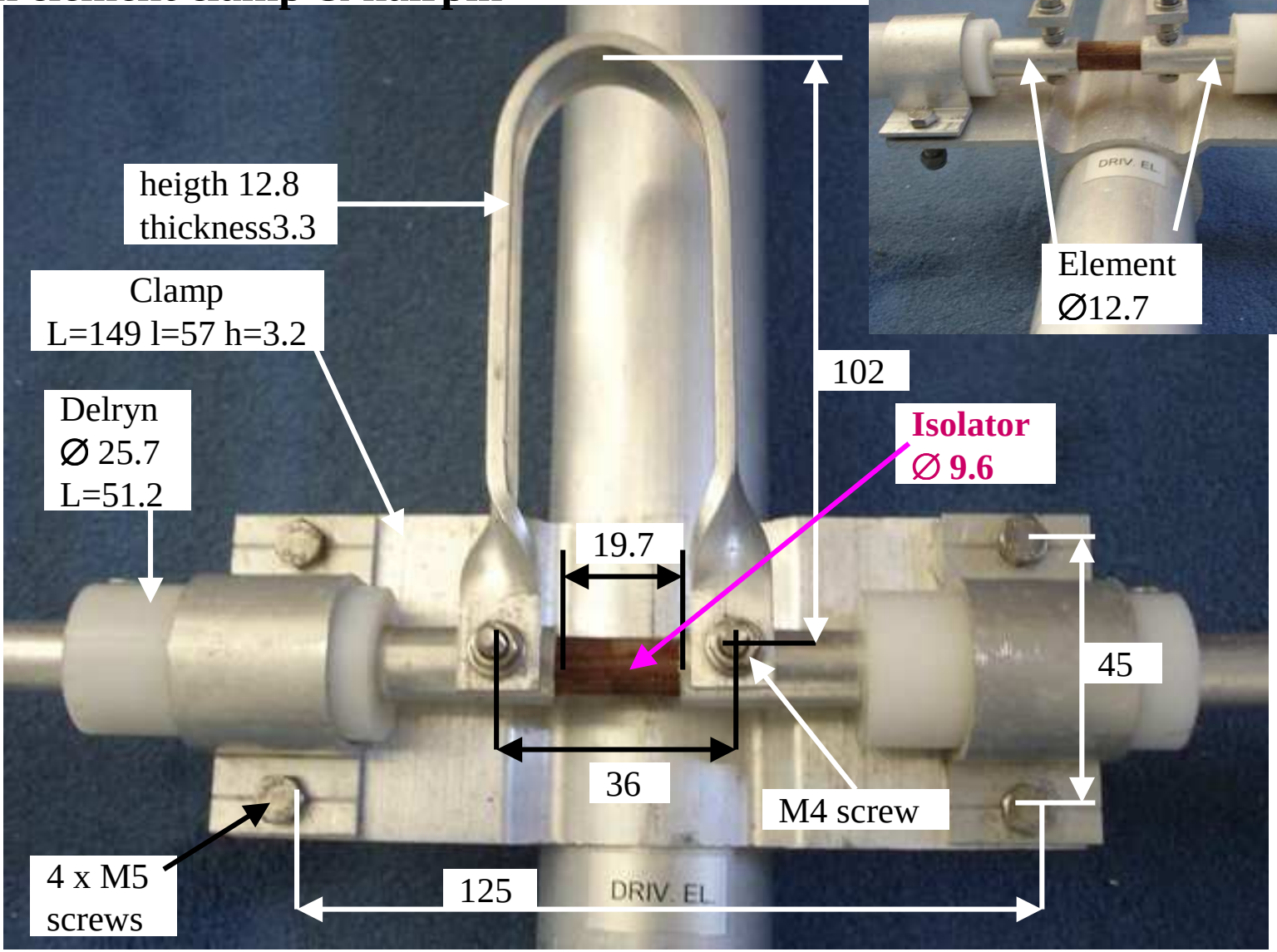
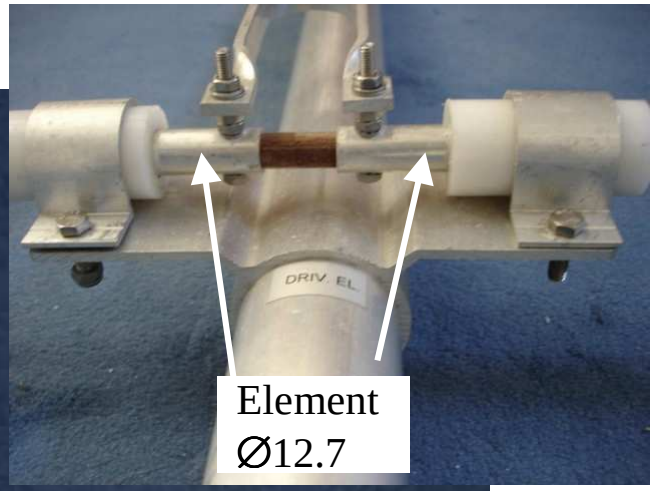
Driven element clamp & hairpin





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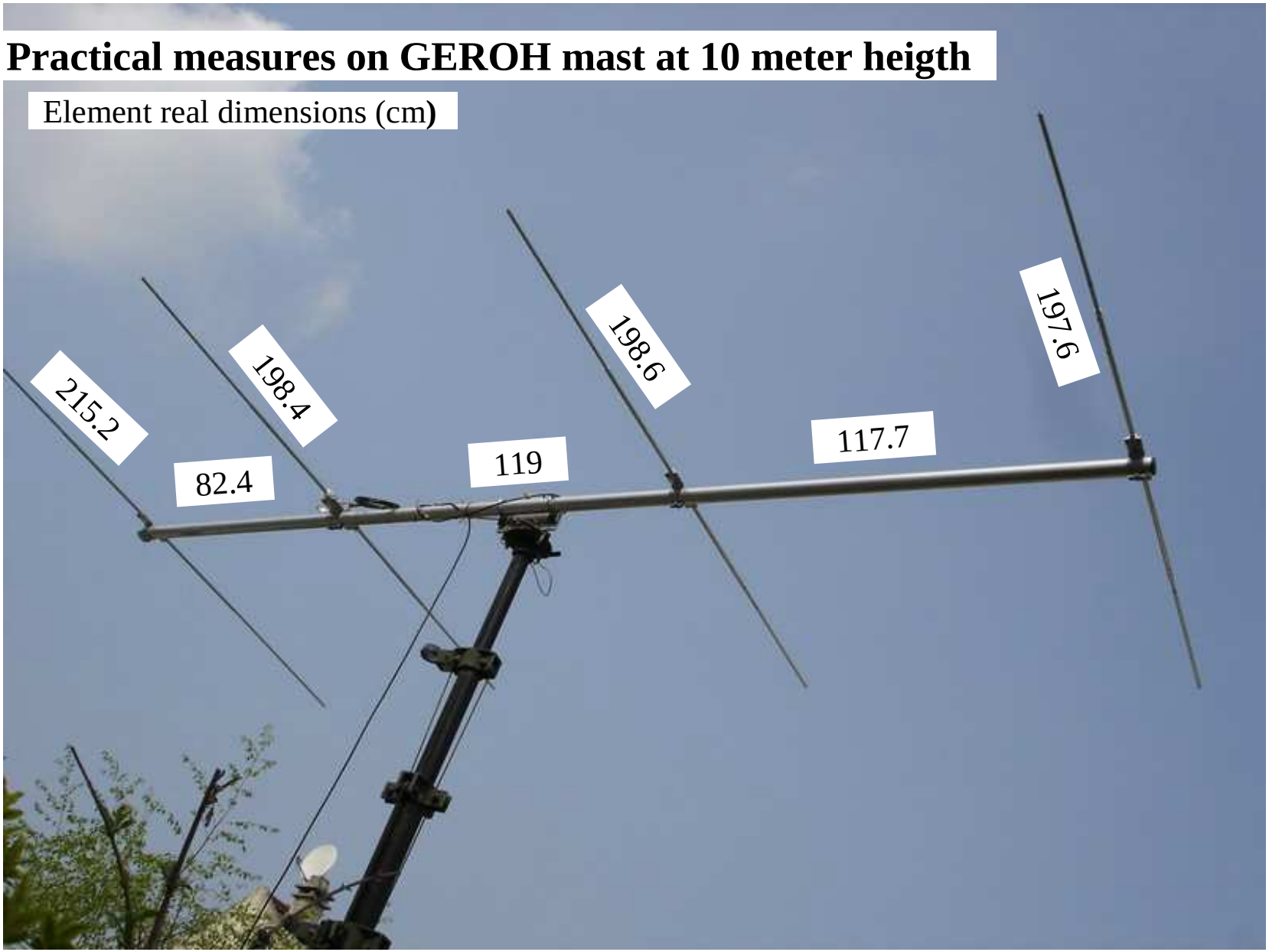
Practical measures on GEROH mast at 10 meter heigth

Element real dimensions (cm)



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Practical measures on GEROH mast at 10 meter heigth

SWR	2	1.5	1.2	min or 1.1	1.2	1.5	2
Direct coax feed	69.2	69.81	----	**70.025 / 1.25**	----	70.22	70.55
1/1 balun	68.9	69.71	69.94	**70.05**	70.24	70.42	70.71

Enormous min SWR without the 1/1 balun !!

1/1 balun = 5 turns coax RG-58U
or KX 15 giving a ⌀ 13 cm coil

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Practical measures on wood ladder

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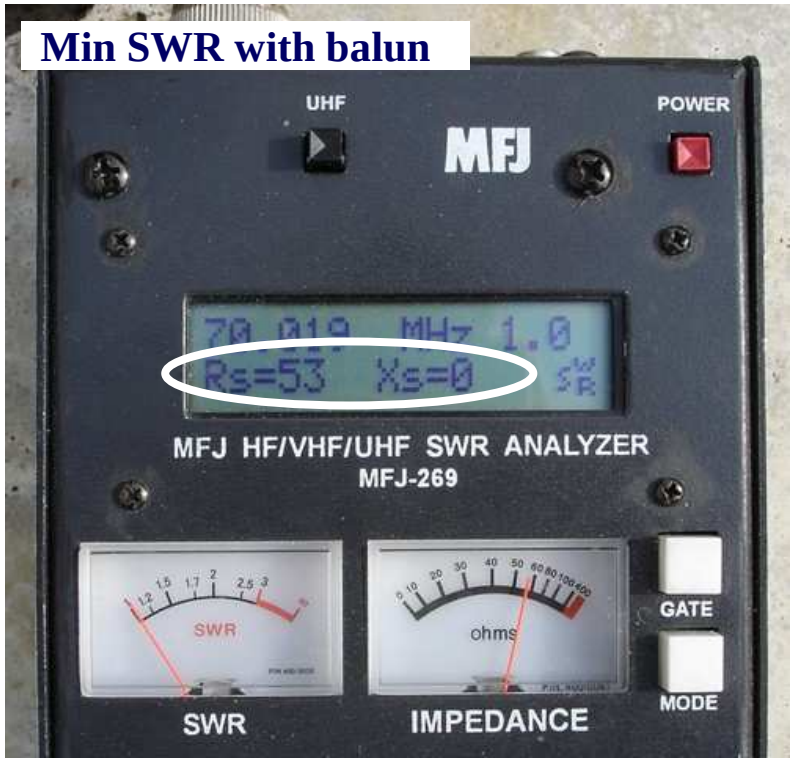
Practical measures on wood ladder

SWR	2	1.5	1.2	min or 1.1	1.2	1.5	2
Direct coax feed	69.39	69.85	70.02	**70.076 / 1.15**	70.18	70.31	70.54
1/1 balun	68.97	69.65	69.87	**70.033**	70.225	70.362	70.635



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Gain comparaison with other mono / dualband antennas versus boomlength

Four meter band	**Model**	**Boomlength (M)**	**Gain (dBd)**
Moonracker revued by YU7EF	5 el	2.6	7.86
Jaybeam double band	DBM4_4/6	3.0	6.27
Trident TA4M4L	**4 el**	**3.2**	**8.83**
YU7EF 10el	simulation	4.15 (electrically 3.79)	7.2
Vinecom 9 el double band	6n4_4236	4.236	7.21

Conclusion

It directly gives 1 dB more gain than the 5 el Moonracker using :
- one less driven element
- a boom only 60 cm longer