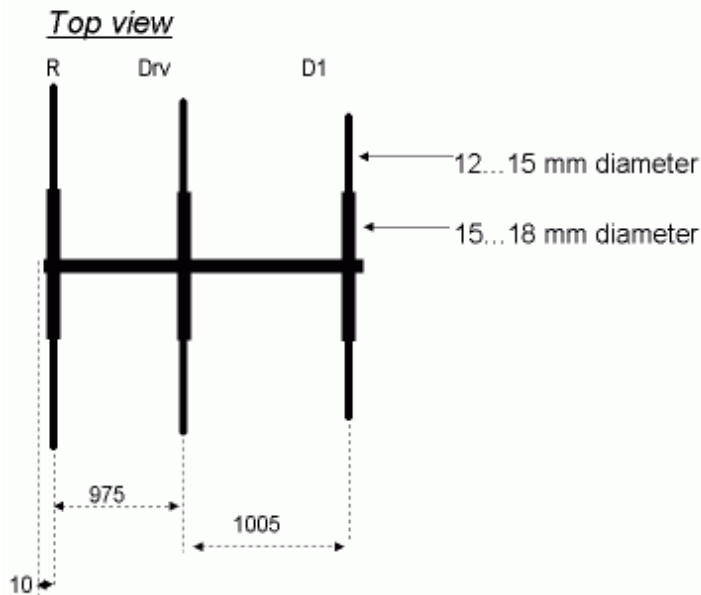
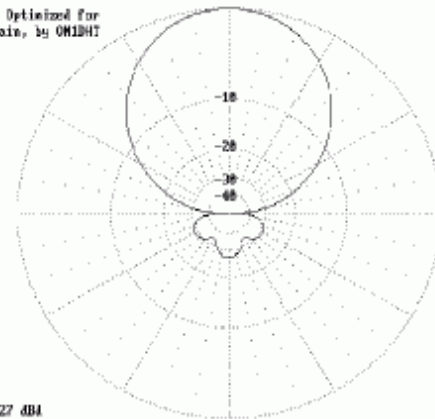


ON6MUVHF Optimized Yagi Antenna for the 6-meterband (50 Mhz)RE-A50Y3

By Guy, de ON6MU

Schematic fig1**3 ELEMENT 50MHZ LONG YAGI de ON6MU**Antenna radiation patternLong Yagi Optimized for
Forward Gain, by ON1DHT

Free Space



Element	Length	Prog. Spacing
Reflector	2940	10
Driver	2870	985
Director 1	2660	1990

Boomlength = 2000 mm., thickness +/- 20 mm.
 Aluminum tube diameters 12mm and 15mm.
 Used material: 3 alu tubes of 2 meter (15mm),
 3 alu tubes of 2 meter (12mm)

Bracket for SO-239 plug on boom

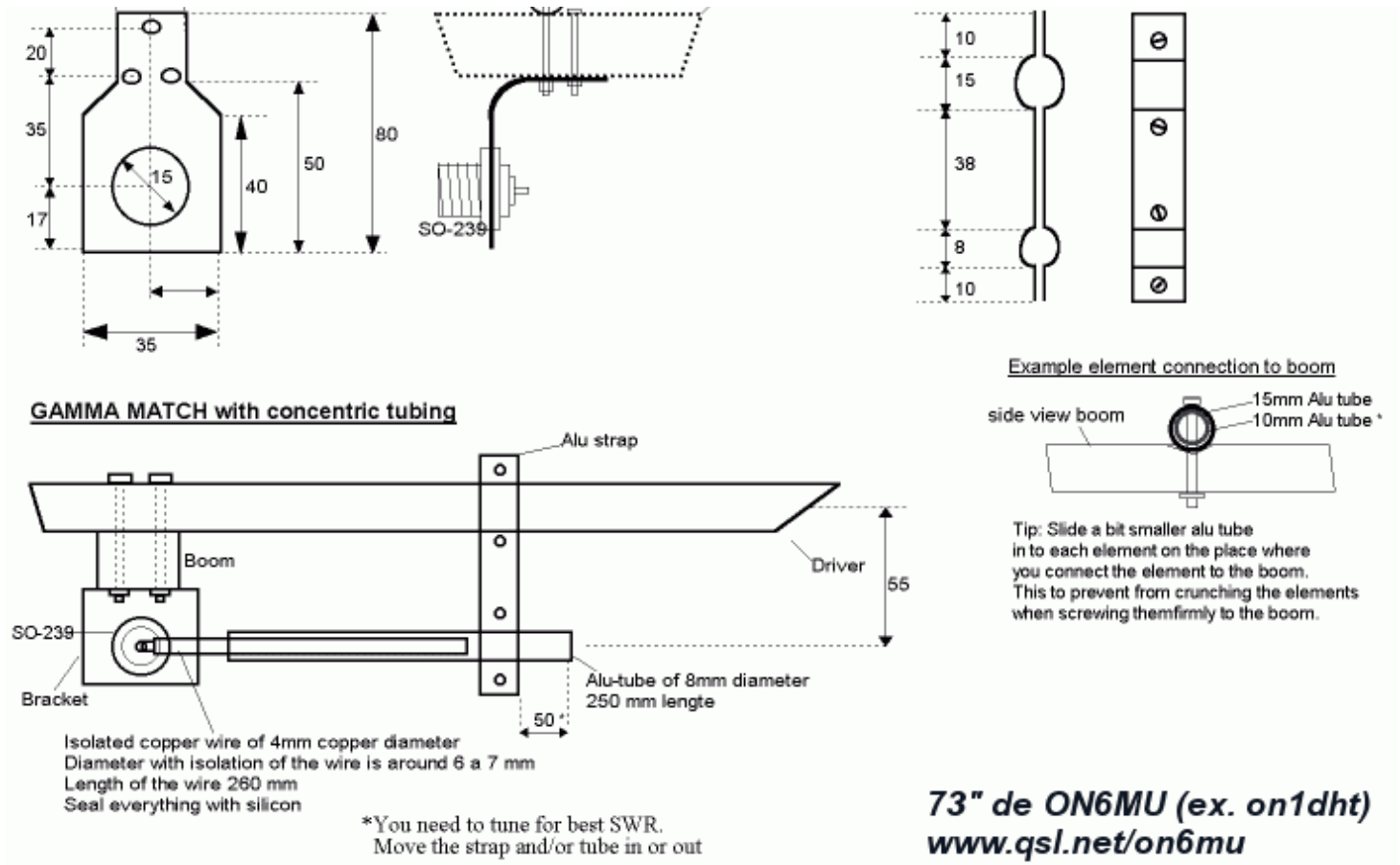
Driver

Boom

Aluminum Strap

side view

front view



Highlighted

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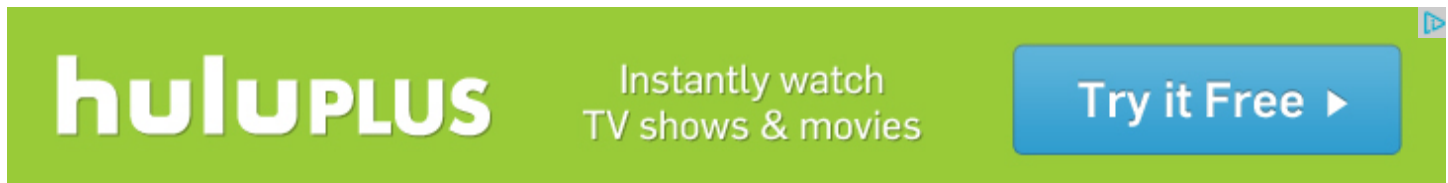
Parts list for the long yagi antenna RE-A50Y3

- 2 meter long alu/copper pipe/tube of +/- 20...28mm (square or round)
or if using portable, use 2 x 1 meter pipes/tubes fitted together in the middle of the boom with a larger piece that slides over.
Same goes for the centre of the elements.
- 6 pieces of 1 meter alu or copper tubing:
- 12...16 mm diameter

- 3 pieces of 2 meter long alu or copper tubing:
- 15...20 mm diameter
- Gamma match: alu or copper tube of 250 mm of 8mm diameter
- some cul wire (isolated wire, installation wire, etc.) of 4 mm copper diameter (+/- 6...7mm diameter with isolation)
- some alu/copper plates to construct the strap holder for the gamma-match
- 1 female PL 259 chassis
- some silicon, grease... to make the construction weather resistant.
- several lengths of inox bolts or other non oxidating bolts
- a bracket to mount the yagi to a boom
- and a few inox hose clamps

Note: there are many ways to build your antenna and I'm sure some can come up with better mechanical designs then described here although the design and material used here is cheap and easy to find. Also, the diameters of the tubing described here is not too critical.

Links of interest:



[Gamma-match](#)

When the dipole is the driven element of a Yagi parasitic array, the impedance that appears at the center of the driven element will usually be quite different from that of the isolated dipole. The reason for this is that the Yagi antenna is equivalent to a number of resonant circuits tuned to different frequencies and coupled together. The self-impedance of the parasitic elements and mutual impedance between parasitic elements and driven element cause resistance and reactance to be coupled into the driven element. A gamma-match tube act's like a capacitor. The "capacitor's" sole purpose, is to oppose unwanted inductive reactance. It is a series-tuned LC circuit between the coaxial cable's center conductor and the gamma's connection point at the driven element hence getting a pure Ohms resistance. So, a gamma match taps a point on one side of the center of the driven element and connects the feedline to that point through a capacitor. In this design a tube with a copper wire inside acts as air-spaced capacitor. Another advantage is to allow the center of the driven element to be directly grounded to the antenna's boom, making driven element assembly easier and no static build-up on the driver.

To tune the gamma-match to a desired frequency for best SWR you will need to experiment with the placement of the strap on the driver (feedpoint) and the position of the strap relative to the feedpoint.

If you build the yagi antenna according to above specs, then you should be pretty close (if not spot-on) to a ideal match.



[How Hernan, LW5DTZ did the Gamma-match](#)

[Specifications ON6MU 50 Mc wide-spaced yagi antenna RE-A50Y10](#)

- Total length 2 meters
- Max width 2,95 meter
- Peak centre frequency: 50,5 Mhz
- Maximum bandwidth: 2...2,5 Mhz
- Gain: 6,1 dBd
- F/B ration: 25dB
- Horizontal opening angle: 45°
- Vertical opening angle: 55°
- Maximum tunable frequency range: 49...54 MHz+-
- impedance: 50 Ohms
- Maximum power using the components described: 300 watt
- DC grounded (no static buildup do to all elements being electrical/mechanical connect at the center. Of course the boom/tower/mast itself needs to be grounded too)
- Solid air-spaced gamma-match design
- If needed, it can be disassembled into a very small bundle no longer than the longest element being 1 meter.

Be sure to seal everything up to avoid moisture, corrosion etc...

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Please take a look at my [50mc vertical](#) antenna

This is how Greg, SP5LGN made my 50mc long-yagi:



please click the images to enlarge

Take a visit to Greg, SP5LGN his website: <http://www.sp5lgn.ampus.pl>

Thanks Greg for the photo's!!

This is how Hernan,LW5TDZ made it:



Thanks Hernan for the pictures!

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