

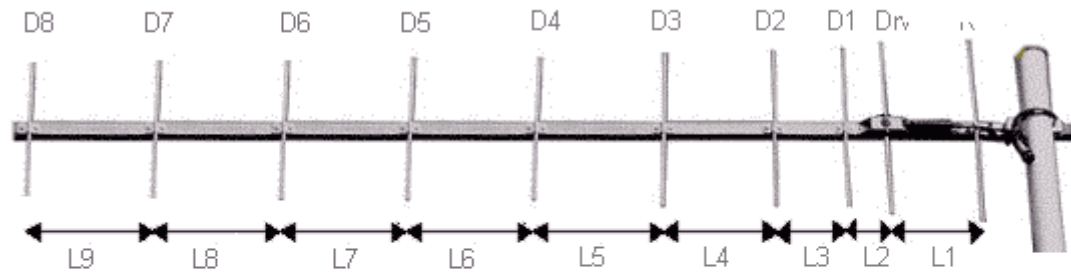
Home made UHF Yagi Antennas **RE-A430Y10**

By Guy, de ON6MU

Optimized 10-element UHF Yagi Antenna

10 element UHF antenna

de ON6MU



Technical specs

- Forward gain = 11,82 dBd
- Front/Back ratio = 22 dB
- SWR at 435 MHz = 1:1
- Frequency range = 430...440MHz
- Horizontal angle = 33°
- Vertical angle = 38°

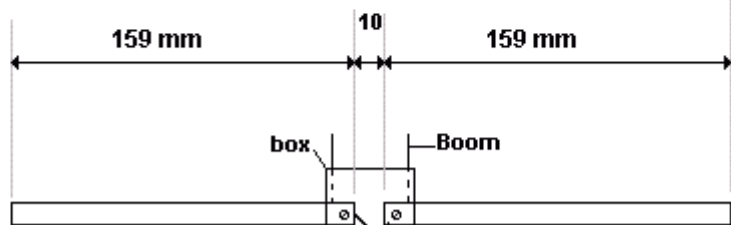
Length of the elements

- R = 348 mm
- Drv = 328 mm
- D1 = 302 mm
- D2 = 298 mm
- D3 = 292 mm
- D4 = 287 mm
- D5 = 285 mm
- D6 = 282 mm
- D7 = 280 mm
- D8 = 276 mm

Spacing

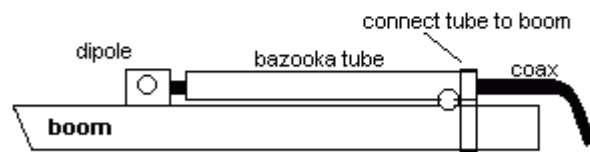
- L1 = 145 mm
- L2 = 50 mm
- L3 = 124 mm
- L4 = 149 mm
- L5 = 173 mm
- L6 = 194 mm
- L7 = 208 mm
- L8 = 217 mm
- L9 = 225 mm

1.5 meter boom needed



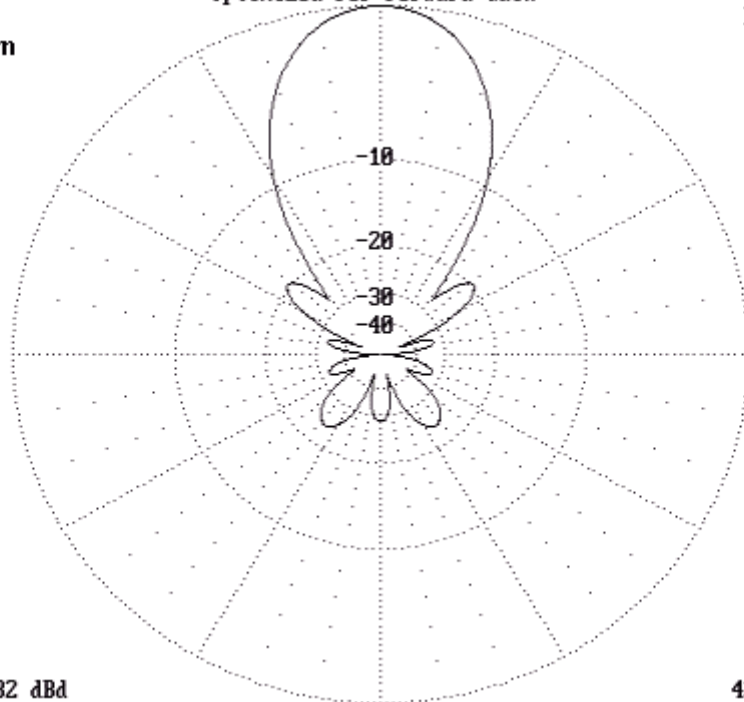
Note: adjust length of the dipole if needed
Important: the dipole is not connected to the boom. It must be mounted isolated from the boom.

You can also use a folded dipole with a 1:4 balun (see my site for more info about building a balun) instead of a open dipole. To fine tune the SWR (in both cases) by in- or decreasing the dipole length or by moving the dipole between the first director and the reflector a bit. Sometimes it can help by changing the connection points on the dipole (connecting the coax a bit of the center).



Optimized for Forward Gain

Free Space



0 dB = 11.82 dBd

435.000 MHz

Horizontal stacking distance: 1075 mm
Vertical stacking distance: 933 mm

The elements diameter of the antenna may vary between 5...10mm and the dipole diameter may vary between 8...12mm (12mm recommended) without the need of changing anything to the length or spacing. All elements except the dipole are electrically connected to the boom and may be mounted on top or through it. The thickness/diameter of the boom may vary between 10...17mm.

Bazooka tube (RF choke to prevent rf wave currents): not critical, as long as it fits the coax snugly; examples: 15cm long 10mm diameter (for Aircel etc.), 15cm long 15mm diameter (for H100, Aircom+ etc.). Or you can use a few ferrite beads placed over the coax directly behind the driver instead.

Use a piece of isolator type boom (plastic tube, wood, fiberglass) of +/- 40cm if you mount the antenna vertical to prevent distortion of the radiation pattern.

The ideal SWR can vary a bit if the elements are isolated, raised from the boom or do to construction. A bit of experimentation with the driver length can solve this easily.

Note: the antenna can also be tuned between approx. 428...446MHz by adjusting the driver

Images of the 70cm Yagi antenna.

How [Greg SP5LGN](#) made it

Click to enlarge

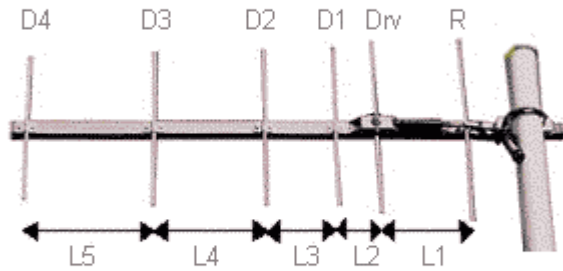


Thanks Greg for the photo's!

Optimized 6-element UHF Yagi Antenna RE-A430Y6

70cm UHF 6ELEMENT YAGI ANTENNA

de ON6MU



Technical specs

- Forward Gain = 9dBd
- Front-Back ratio = 13dB
- SWR at 435MHz = 1:1
- Bandwidth = 10MHz
- Frequency range = 430...440MHz

Length of the elements

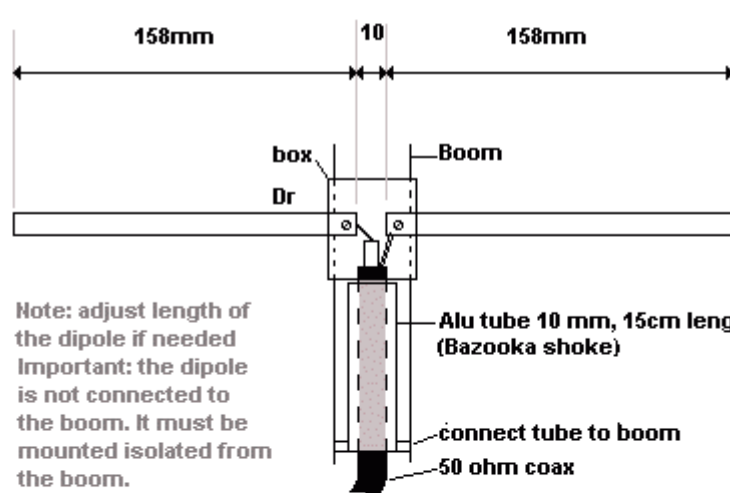
- R = 346 mm
- Dr = 326 mm
- D1 = 302 mm
- D2 = 298 mm
- D3 = 292 mm
- D4 = 288 mm

Spacing of the elements

- L1 = 128 mm
- L2 = 55 mm
- L3 = 124 mm
- L4 = 149 mm
- L5 = 174 mm

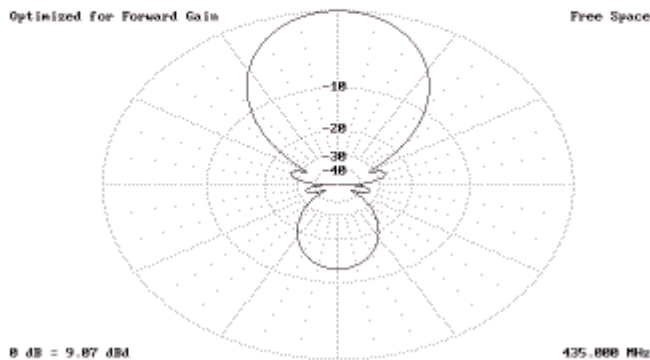
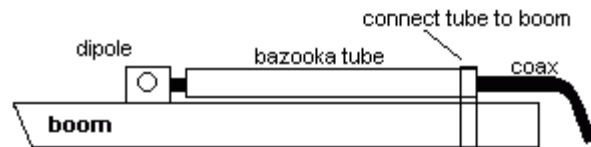
Used material

- Aluminum tubes of 8 mm Ø
- Boom = 15 x 10 mm
- 15 cm alu tube Ø 10 mm for aircel or RG-58 coax. Use Ø 15 mm for RG213, H-100, Aircor.



Note: adjust length of the dipole if needed
Important: the dipole is not connected to the boom. It must be mounted isolated from the boom.

You can also use a folded dipole with a 1:4 balun (see my site for more info about building a balun) instead of a open dipole. To fine tune the SWR (in both cases) by in- or decreasing the dipole length or by moving the dipole between the first director and the reflector a bit. Sometimes it can help by changing the connection points on the dipole (connecting the coax a bit of the center).



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Use an isolator type boom (plastic tube, wood, fiberglass) if you mount the antenna vertical to prevent distortion of the radiation pattern.

Pictures and details of the optimized UHF Yagi antenna 430 Mc to 440 Mhz (420 Mc to 450 Mc @ 1:2 SWR).

- Michel F1SRC and how he made it:
http://f1src.free.fr/antenne/yagi/yagi_6el_70cm.htm

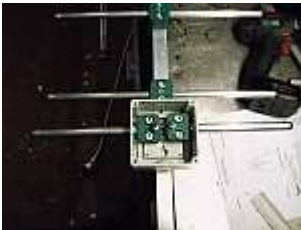
- How [Greg SP5LGN](#) made it



Click to enlarge

Thanks Greg.

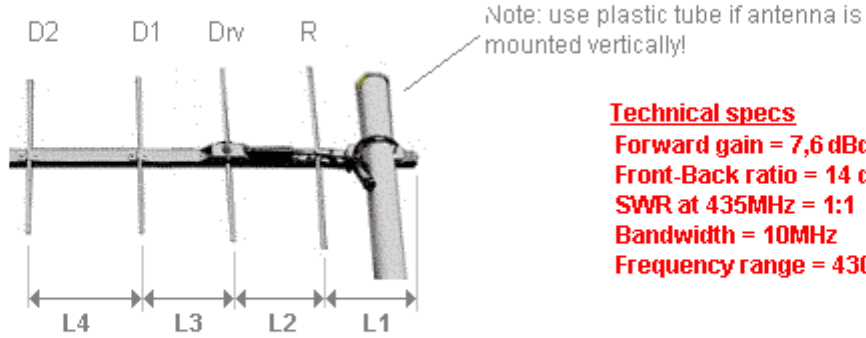
- How Geert ON3GVG made the antenna:



Note from Geert: he made the driver a few mm smaller to obtain an optimum SWR in the band segment.
Thanks Geert!

Optimized 4-Element UHF Yagi antenna RE-A430Y4

UHF 70cm 4-element long Yagi
de ON6MU



Technical specs

- Forward gain = 7,6 dBd**
- Front-Back ratio = 14 dB**
- SWR at 435MHz = 1:1**
- Bandwidth = 10MHz**
- Frequency range = 430...440MHz**

Element length in mm

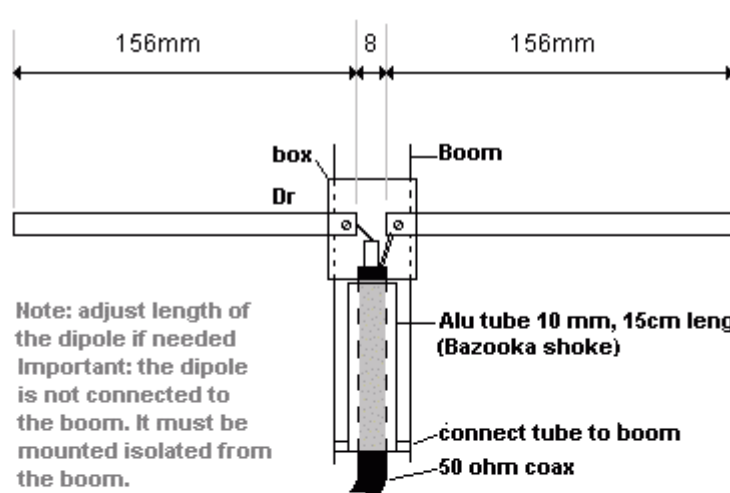
- R = 342**
- Drv = 320**
- D1 = 300**
- D2 = 284**

Element spacing in mm

- L1 = 100**
- L2 = 120**
- L3 = 115**
- L4 = 150**
- Total boomlength = 485 mm**

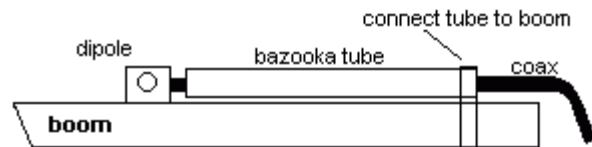
Used material

- Aluminum tubes of 8 mm**
- Boom = 15mm x 10mm**
- Bazooka tube = 15cm Ø10mm (for aircel)**
- 15cm Ø15mm (for H-100, RG-213, Aircom...)**

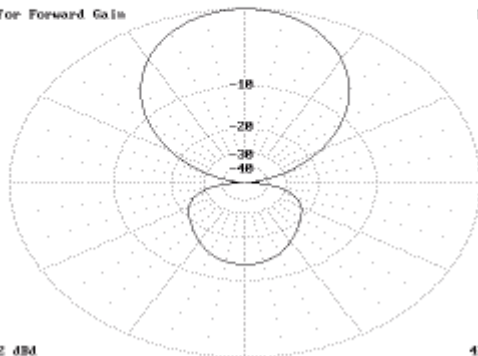


Note: adjust length of the dipole if needed
Important: the dipole is not connected to the boom. It must be mounted isolated from the boom.

You can also use a folded dipole with a 1:4 balun (see my site for more info about building a balun) instead of a open dipole. To fine tune the SWR (in both cases) by in- or decreasing the dipole length or by moving the dipole between the first director and the reflector a bit. Sometimes it can help by changing the connection points on the dipole (connecting the coax a bit of the center).



Optimized for Forward Gain



Free Space

435.888 MHz

Check this out:

The elements diameter of the antenna may vary between 5...10mm and the dipole diameter may vary between 8...14mm (12mm recommended) without the need of changing anything to the length or spacing. All elements except the dipole are electrically connected to the boom and may be mounted on top or through it. The thickness/diameter of the boom may vary between 10...17mm.

The ideal SWR can vary a bit if the elements are isolated, raised from the boom or do to construction. A bit of experimentation with the driver length can solve this easily.

Bazooka (RF choke): you can also use a few ferrite beads placed over the coax directly behind the driver instead.

[Image of the 70cm Yagi antenna,](#)
[How dr Sasa Vasiljevic made it](#)



[Thanks Sasa!](#)

[HIGHLIGHTED TODAY:](#)

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