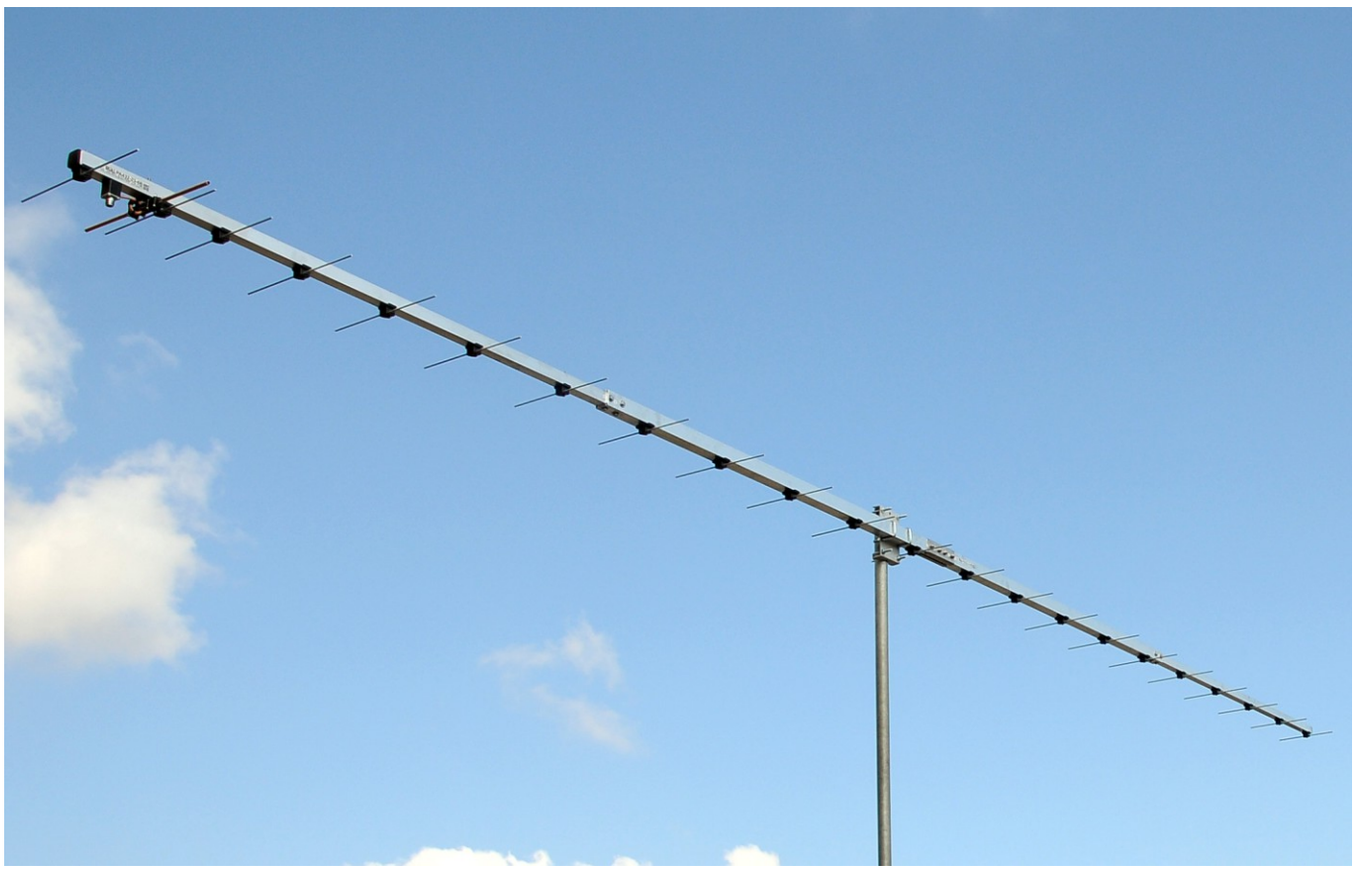
Antennas-Amplifiers
https://www.antennas-amplifiers.com

PA432-23-6B
70cm Portable - Contest Low Noise Yagi



The "Dual" company has been producing antennas for more than 30 years.
Our focus is on:
- wide bandwidth,
- designs that work equally well in all weather conditions,
- very low SWR and superior G/T, F/B and F/S ratios across the entire frequency band,
- excellent mechanical properties, and
- uncompromised durability.

We do not use amateurish programs like **EZNEC Pro/4, 4NEC2, EZNEC, MMANA AO or YO** We perform the design work using **the latest professional full-3D electromagnetic modelling software.** This enables us to accurately include the influence of the boom, insulators, baluns, feed point, connections, etc

Our designs are optimised using the Particle Swarm algorithm, which is considered one of the best global optimization algorithms. We also use the classic Nelder-Mead Simplex algorithm for fine-tuning. Our optimization runs frequently exceed 1 million evaluations.

We rely on solid physics, not on "clever" tinkering with antenna elements or spacings. By paying the greatest attention to all of the important details, we are able to consistently produce top performance designs.

Our antennas are precision physical instruments, they are real **"Precision Antennas" (PA).**

Company Dual. The largest antenna and ham radio equipment manufacturer in Serbia, established 1988.
Address: Trg puk. D. Gavrilovića 2, 37000 Kruševac, Serbia. **https://www.antennas-amplifiers.com, www.dual.rs**
Tel. +381 37 3419 100, +381 69 3419 100

PA432-23-6B

Electrical Specifications

Frequency Range:	**432 - 434 MHz**
Free Space Forward Gain:	**18.65 dBi**
Front to Back Ratio:	**31 dB**
3 dB Horizontal Beamwidth:	23.1°
3 dB Vertical Beamwidth:	24.05°
Polarization:	Horizontal
Nominal Input Impedance:	50 Ohms
SWR Across Entire Band:	**< 1.2**
Maximum Power Input:	**850 W**
Matching Method:	Direct feed through RG142 common mode choke (current balun)
Connector:	**"N"**

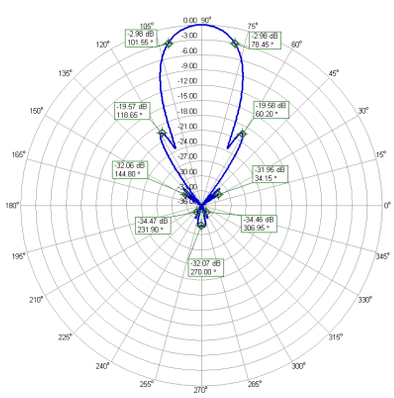
Maximum Power Input options (by order)

"E" "N" Input connector SM250 7mm Teflon balun cable:	**1200 W (PA432-23-6BE)**
"X" 7/16 DIN Input connector SM250 7mm Teflon balun cable:	**1500 W (PA432-23-6BX)**
"EX" 7/16 DIN Input connector RG115 10mm Teflon balun cable:	**2700 W (PA432-23-6BEX)**

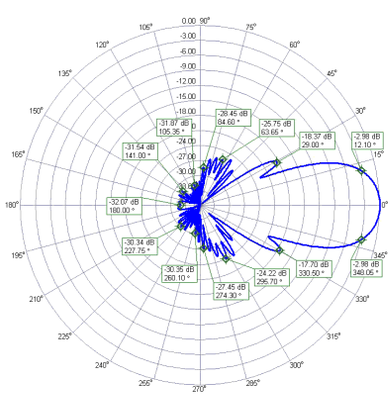
Mechanical Specifications

Number of Elements:	**23**
Element Diameter:	**4 mm** Aluminum rod
Dipole Diameter:	**8 mm** Hard Copper tube
Longest Element:	340 mm
Element Mounting Position:	Below the Boom
Balun and Connector:	**Included**
Boom Length:	**5.72 m**
Boom Size:	**Tapered Boom 40x40 mm, 30x30 mm,** different wall thickness.
Number of Boom Pieces:	4
Guy rope support:	**Not necessary.** Strong boom.
Mounting Mast Diameter:	43 - 70 mm 1-1/4" - 2-3/4"
Survival Wind Speed:	**160 km/h**
Net Weight:	**6.6 kg**
Gross Weight:	8.8 kg
Transportation Length:	**1.5 m**

Radiation Patterns for Single Antenna



Azimuth Radiation Pattern



Elevation Radiation Pattern

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Horizontal Stacking Distances.

2 Antennas	**1700 mm. Gain 21.5 dBi (+2.85 dB)**
4 Antennas	**1750 mm. Gain 24.5 dBi (+5.85 dB)**

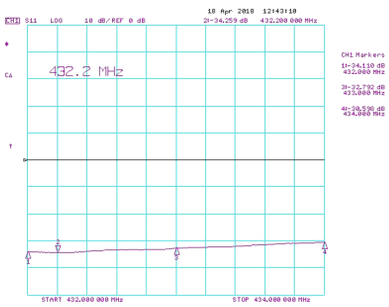
Vertical Stacking Distances.

2 Antennas	**1640 mm. Gain 21.5 dBi (+2.85 dB)**
4 Antennas	**1700 mm. Gain 24.5 dBi (+5.85 dB)**

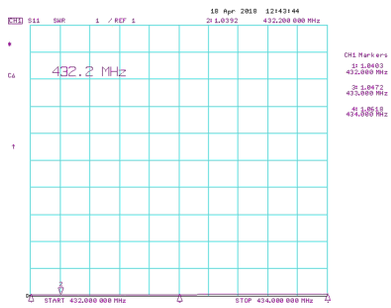
Stacking Distances 4 antennas in "H" configuration

1700 mm / 1660mm. Gain 24.45 dBi (+5.8 dB)

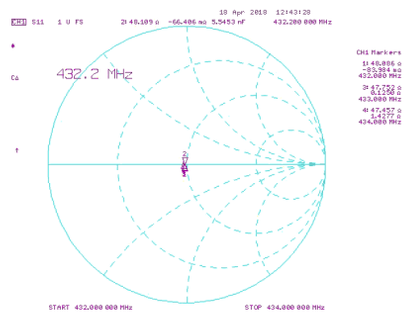
PA432-23-6B Measured characteristics with calibrated HP8753ES Network Analyzer



Measured Return Loss 432 - 434 MHz
at antenna connector



Measured SWR 432 - 434 MHz
at antenna connector



Smith Chart 432 - 434 MHz

Assembly instruction

Join the boom.

Put the boom on the flat surface. Because of length you should tighten screws lightly for the first moment. Then look along the boom to see if any distortion occurs. When you are satisfied tighten firmly.
Before tightening all screws, apply thread lock like Loctite 243 or Permatex Threadlocker BLUE.

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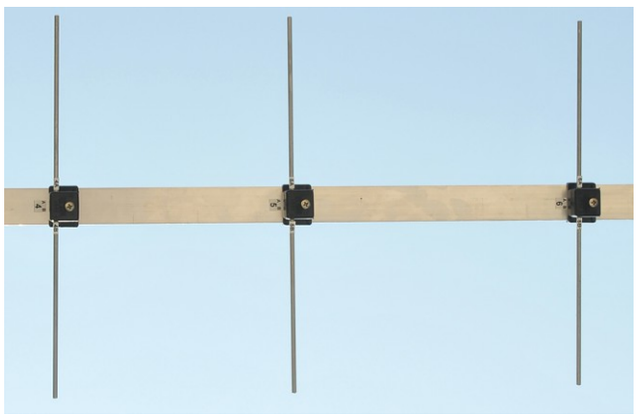
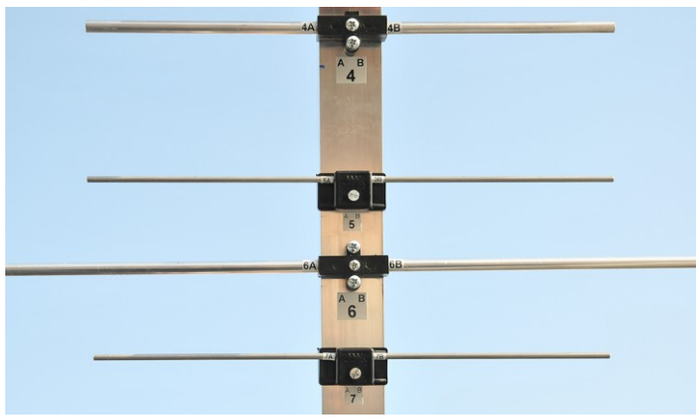
Attach the elements (number to number).

Starting with 1, paying special attention on orientation.





Not all pictures are related to the particular antenna.

Required torque 2.2 Nm for dipole and 1.4 Nm for 4 mm elements.
If needed align the elements and screw tightly. Elements must stand in one plane.
Before tightening all screws, apply thread lock.

Attach the dipole.

Screw connector to the connector holder.

Assemble and attach antenna mounting bracket.

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By order stacking possibilities.
Connector DOWN and UP FORWARD for easy stacking with reversed dipoles.

Not all pictures are related to the particular antenna.

Raise the antenna. Measure SWR. It must be as predicted or very close on all frequencies. Low SWR is a sign that you assembled everything correctly. Best DX - EME.

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