PA144-432-34-6-2CBGP

Very High Gain Two Connectors DualBand Antenna

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.
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Tel. +381 37 3419 100, +381 69 3419 100

PA144-432-34-6-2CBGP

Electrical Specifications 2 m

Frequency Range:	**144 - 145 MHz**
Free Space Forward Gain:	**14.85 dBi**
Front to Back Ratio:	**27 dB**
3 dB Horizontal Beamwidth:	35.2°
Polarization:	**Horizontal**
Nominal Input Impedance:	50 Ohms
SWR Across Entire Band:	**< 1.2**
Maximum Power Input:	**1500W**
Matching Method:	Direct feed through common mode balun
Connector:	**"N"**
Coupling to 70cm:	**-40 dB**

Mechanical Specifications 2 m

Number of Elements:	**11**
Element Diameter:	**8 mm** Aluminum tube
Dipole Diameter:	**8 mm** Hard Copper tube
Longest Element:	1035 mm
Element Mounting Position:	Below the Boom
Balun and Connector:	**Included**

Electrical Specifications 70 cm

Frequency Range:	**432 - 434 MHz**
Free Space Forward Gain:	**17.5 dBi**
Front to Back Ratio:	**25 dB**
3 dB Horizontal Beamwidth:	22.7°
Polarization:	**Horizontal**
Nominal Input Impedance:	50 Ohms
SWR Across Entire Band:	**< 1.2**
Maximum Power Input:	**850W**
Matching Method:	Direct feed through common mode balun
Connector:	**"N"**
Coupling to 2m:	**-27 dB**

Mechanical Specifications 70 cm

Number of Elements:	**23**
Element Diameter:	**4 mm** Aluminum rod
Dipole Diameter:	**8 mm** Hard Copper tube
Longest Element:	340 mm
Element Mounting Position:	Above the Boom
Balun and Connector:	**Included**

Common Mechanical Specifications

Boom Length:	**5.72 m**
Boom Size:	**Tapered Boom 30x30mm, 40x40mm**
Number of Boom Pieces:	4
Guy Rope Support:	**Yes**, Included
Mounting Mast Diameter:	43 - 70 mm 1-1/4" - 2-3/4"
Survival Wind Speed:	**150 km/h**
Transportation Length:	**1.49 m**
Net Weight:	**8.6 kg**
Gross Weight:	10.4 kg

DUAL

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Maximum Power Input Option by order

"P" Input connector "N" and RG142 Teflon balun cable on 2m: **1500 W (PA144-432-34-6-2CBGP)**

Vertical Stacking Distance 2550 mm

Two Antennas Gain on 2 m **17.35 dBi** (+2.5 dB)
Two Antennas Gain on 70 cm **20.8 dBi** (+3.3 dB)

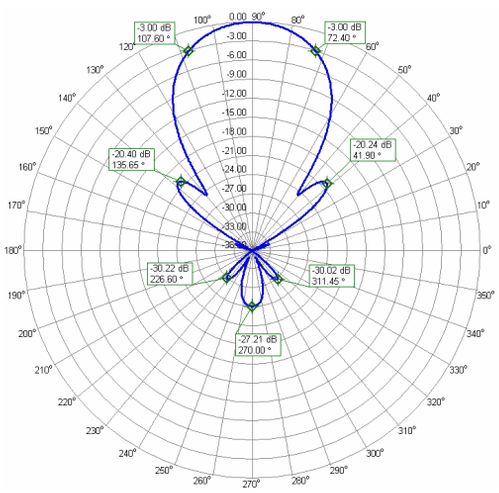
Horizontal Stacking Distance 2700 mm

Two Antennas Gain on 2 m **17.35 dBi** (+2.5 dB)
Two Antennas Gain on 70 cm **20.55 dBi** (+3.05 dB)

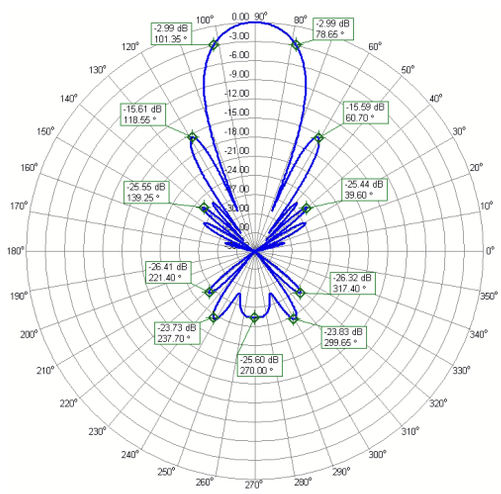
Four Antennas in "H" configuration 2550 x 2700 mm

Gain on 2 m **19.85 dBi** (+5 dB)
Gain on 70 cm **23.85 dBi** (+6.35 dB)

Radiation Patterns:

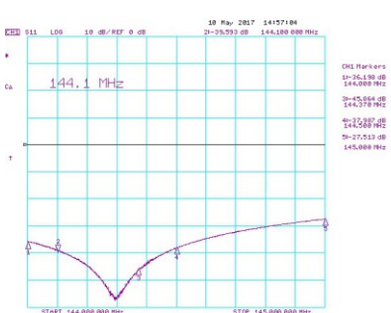


2 m Azimuth Radiation Pattern



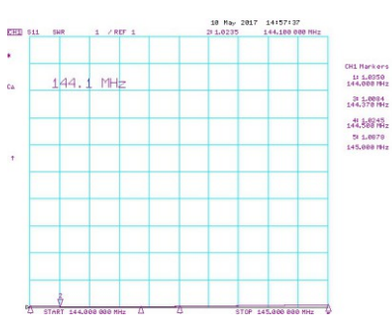
70 cm Azimuth Radiation Pattern

PA144-432-34-6-2CBG Measured characteristics with calibrated HP8753ES Network Analyzer



Measured Return Loss 144 - 145 MHz
at antenna connector

Measured Return Loss 432 - 434 MHz
at antenna connector



Measured SWR 144 - 145 MHz
at antenna connector

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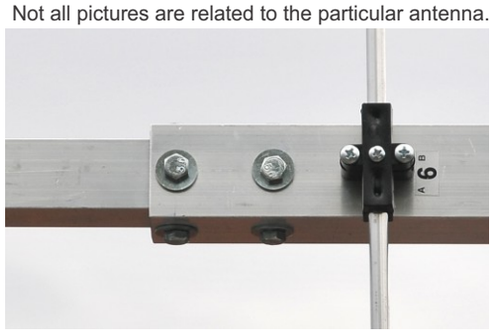
Assembly instruction

Join the boom.

Not all pictures are related to the particular antenna.

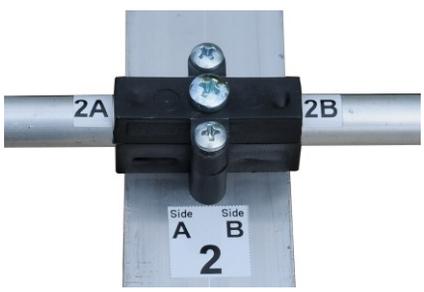


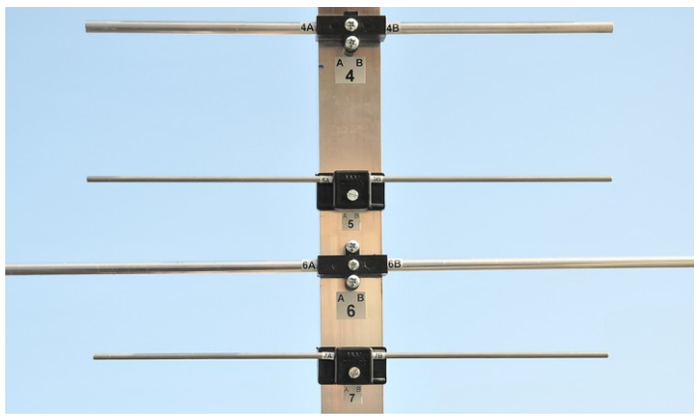
Put the boom on the flat surface. Because of length you should tighten screws lightly for the first moment. Then look along the boom to see if any distortion occurs. When you are satisfied tighten firmly.
Before tightening all screws, apply thread lock like Loctite 243 or Permatex Threadlocker BLUE.

Attach the elements (number to number).

Starting with 1, paying special attention on orientation.

Not all pictures are related to the particular antenna.

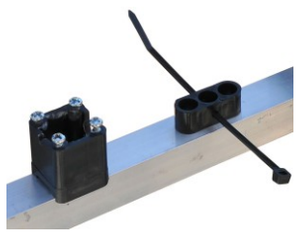




Required torque 2.2 Nm for 8 mm elements and 1.4 Nm for 4 mm elements.
If needed align elements and screw tightly. Elements must stand in one plane.

Attach the dipoles.

Screw connector to connector holder.



Fasten balun with plastic zip tie to balun holder.

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Assemble and attach antenna mounting bracket.

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Put the boom on temporary mast. Wait a couple of hours and re adjust turnbuckles. Apply thread lock.

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 and EME.