70cm Beam Antenna
430MHz

A430S10R2 (10 elements)
A430S15R2 (15 elements)

User manual

Read the manual properly before using and use the antenna properly. Keep the manual for any future necessity.

DIAMOND ANTENNA

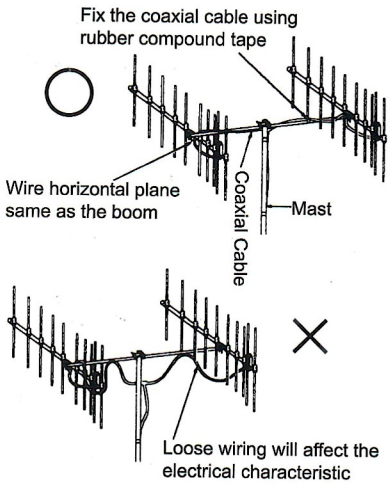
This is common manual of 430MHz band beam antenna for amateur radio communication. Assembly form is the same for any number of elements.

■Description

1. High gain and sharp radiational pattern equivalent to full-scaled fixed station beam antenna.
2. Light weight, compact, easy to assemble by frequency adjustment unnecessary.
3. Easy to mount in limited space like balcony rail.
4. Better radiational pattern is possible using stack option.

■Caution before assembling

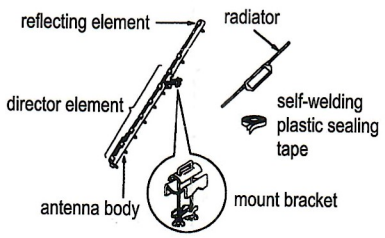
1. Feed point is completely sealed waterproof so do not open. Could affect the waterproof and electrical type. Coaxial cables tend to absorb moisture through connectors, so it is recommended that connectors to be sealed.
2. End mounting is a good option, as the coaxial cable may be run along the boom and down the vertical support. The idea is to minimize the effects of metal in the vertical plane.



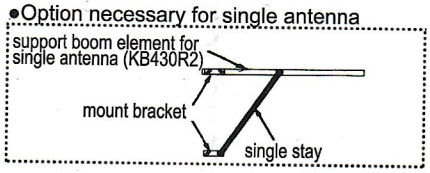
3. Do not attempt to install only by yourself alone on the roof or high location. Do not install on a rainy or windy day since it is dangerous.
4. When installing in apartment's balcony rail, choose a firm location.
5. Use KB430R2 support boom element for single antenna and SB430R2 support boom element with SS770R stack transformer for parallel stack.
6. Only use the option specified.
7. Do not install the antenna on a mast not grounded properly.

■Component parts and names

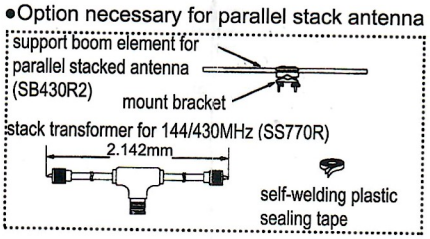
Antenna itself does not have optional part. To use the antenna single or parallel stock, purchase appropriate optional part.



●Option necessary for single antenna

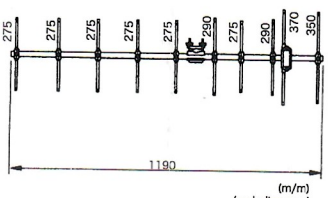


●Option necessary for parallel stack antenna

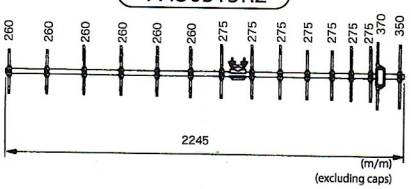


■External view of antenna

A430S10R2

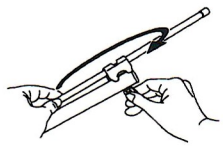


A430S15R2

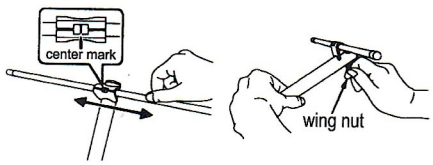


■How to assemble

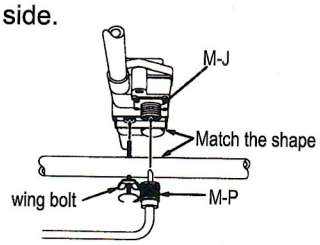
1. Turn director element and reflection element to adjust to the boom.



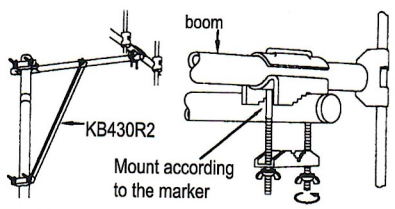
2. Slide the element to adjust so the center mark will be at the center of the boom. Tighten the wing nut firmly.



3. To mount the radiator, use the wing bolt on the boom. In case of single use, radiator need to be at outer side of the boom. Other elements also should be at the same side.



4. Use KB430R2 support boom element for single antenna and SB430R2 support boom element with SS770R stack transformer for parallel stack. These options are possible to purchase apart.

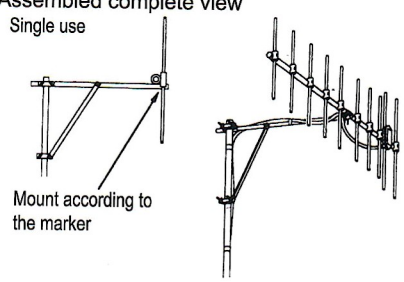


Prepare mast with appropriate size.

KB430R2 single use:
Φ25~47mm
SB430R2 parallel stack:
Φ25~56mm

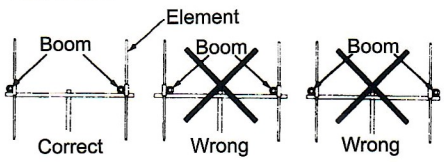
■Assembled complete view

Single use



■How to use support boom element (optional)

Booms of two antennas should be parallel. If the booms are out of position, electrical type will not work well. Booms should be on the same side of the element as the other antenna like below illustration. If the booms are placed the wrong side, it is reverse phase so the antenna will not work.



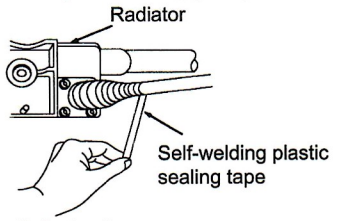
■How to use stack transformer SS770R (optional)

Coaxial cable of stack transformer SS770R is designed for parallel stack set at 50Ω impedance. Do not attempt to cut or extend the coaxial cable. Turing and removing screw used in the stack transformer can cause malfunction and defects so do not attempt.

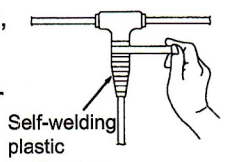
■Connecting coaxial cable

After connecting M-type connector coaxial cable to the feeding point of radiator, use associated self-welding plastic sealing tape to waterproof. Like below diagram, pull the self-welding plastic sealing tape while wrapping so the length will be 1.5 times the original length. This will have better waterproof if vinyl tape is wrapped on top.

(How to waterproof feeding point)

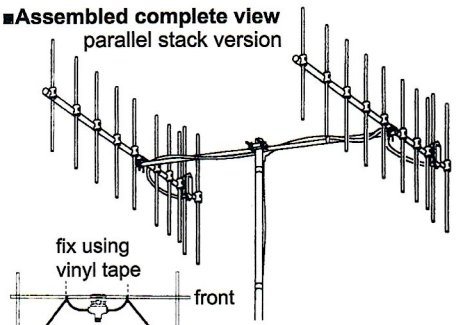


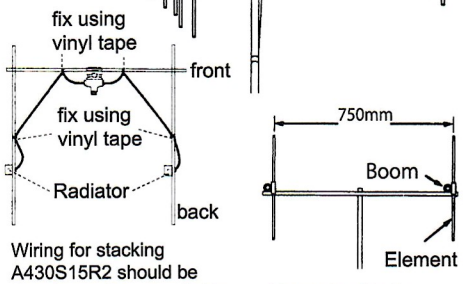
For parallel stack, also seal the feeding point of stack transformer with self-welding plastic sealing tape.



■Assembled complete view

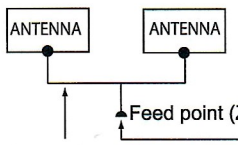
parallel stack version





Wiring for stacking A430S15R2 should be like above diagram. Cable should be wired tautly againt the antenna boom and stack boom element.

Elements of both antenna should be assembled same direction as the boom.



●Parallel stack block diagram

Stack transformer for parallel stack

■Specifications

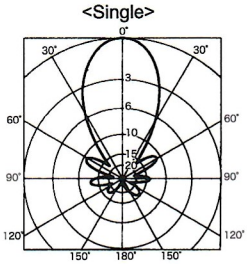
	Single		Parallel	
Model Name	A430S10R2	A430S15R2	A430S10R2(x2)	A430S15R(x2)
Frequency	430 ~ 440MHz		430 ~ 440MHz	
Gain	13.1dBi	14.8dBi	15.1dBi	16.8dBi
Max. power rating	50W		100W	
Impedance	50Ω		50Ω	
VSWR	Less than 1.4		Less than 1.5	
Size	1190 x 370 x 82mm	2245 x 370 x 82mm	1190 x 370 x 830mm	2245 x 370 x 830mm
Weight	0.68 kg	1.09 kg	2.2 kg	3.0 kg
Mast diameter accepted	Φ25~47mm(using support boom element for single antenna)		Φ25~56mm(using support boom element for parallel stacked antenna)	
Connector	M-J		M-J	
FB ratio	More than 15dB	More than 14dB	More than 15dB	More than 16dB
Wind surface area	0.07m²	0.11m²	0.14m²	0.22m²
Turning radius	approx. 820mm	approx. 1390mm	approx. 835mm	approx. 1410mm

●Wind surface and turning radius of single stack is when using support boom element

■Radiational pattern

A430S10R2

<Single>



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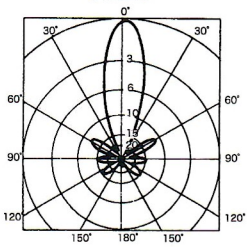

A430S15R2

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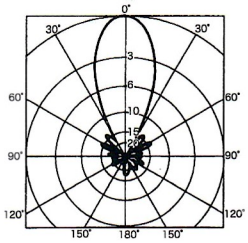

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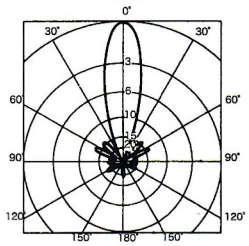

■VSWR

A430S10R2

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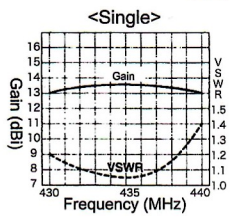

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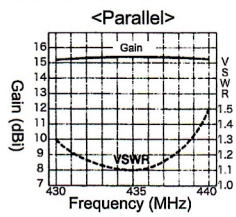

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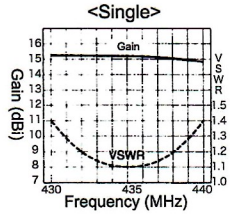

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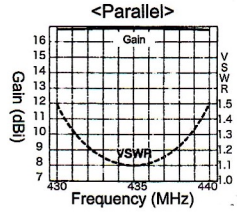

■Though the product being purchased is manufactured under strict quality control, if damage is caused by transporting, ask your dealer promptly.

■Design and specification of these products will be changed for future improvement without advance notice.

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