COMET ANTENNA

HF (3.5, 7, 14, 18, 21, 28MHz)
50MHz ，144MHz ＆430MHz 9-Bands Antenna

MODEL UHV-9

Instruction Manual

Thank you for purchasing our products.

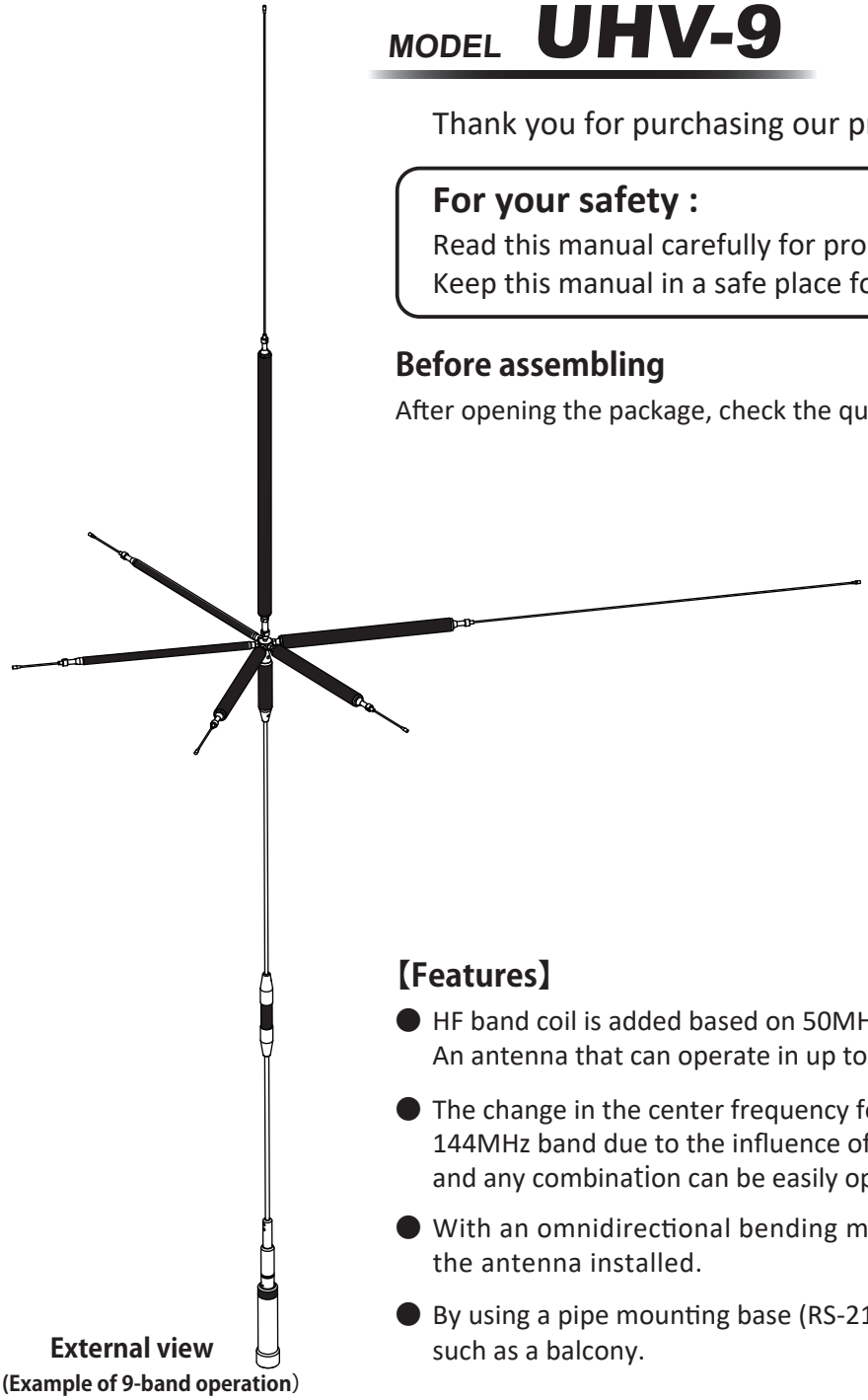
For your safety :
Read this manual carefully for proper handling and operation before using.
Keep this manual in a safe place for future reference.

Before assembling

After opening the package, check the quantity of each part according to the parts list.

Parts Name	Qty.
Main antenna（w/ extended element）	1 set
L-3.5 Coil Tip element included	1 set
L-7 Coil Tip element included	1 set
L-14 Coil Tip element included	1 set
L-18 Coil Tip element included	1 set
L-21 Coil Tip element included	1 set
L-28 Coil Tip element included	1 set
7MHz Spare element ϕ1.5×550mm	1
14～28MHz Spare element ϕ1.5×87mm	4
Hex. wrench Opposite side 2 mm	1
Hex. wrench Opposite side 2.5mm	1

Note1. Spare elements for 3.5 MHz are not included.
Note2. Spare elements are longer than standard.



External view
(Example of 9-band operation)

【Features】

- HF band coil is added based on 50MHz band, 144MHz band and 430MHz band. An antenna that can operate in up to 9 bands.
- The change in the center frequency fo shift between the 50MHz band and the 144MHz band due to the influence of the HF band coil installation is small, and any combination can be easily operated.
- With an omnidirectional bending mechanism, the element can be removed with the antenna installed.
- By using a pipe mounting base (RS-215 etc.), it can be easily installed on a fence such as a balcony.

【Standard specifications】

Frequency Band	3.5 MHz	7 MHz	14 MHz	18 MHz	21 MHz	28 MHz	50 MHz	144 MHz	430 MHz
Antenna Type	Loading 1/4λ						1/4 λ	1/2 λ	5/8λ × 2
Gain	0dBi						2.15dBi	2.15dBi	5.5dBi
Impedance	50Ω (Unbalanced)								
VSWR	Less than 1.5								
Max. Input Power	120W (SSB)								
Connector	PL-259 (M-Plug)								
Length	Approx. 2.1m (Install 3.5MHz coil)								
Weight	Min. 540 g , Max. 900g								

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Please note that appearance specifications are subject to change without notice for quality improvement.

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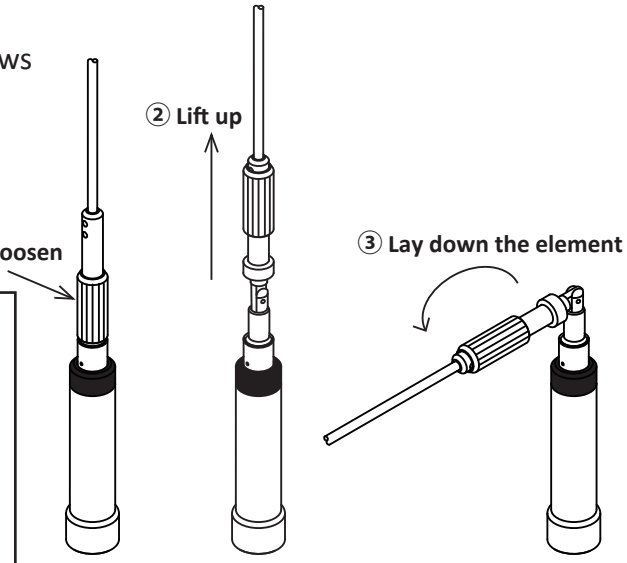
⚠ Precautions for handling and operation

- When removing the antenna or bending the element, be careful not to poke your eyes.
- Be careful not to touch the antenna when sending it, as it may generate heat, or you may get burned.
- Regularly check the antenna connector and fixing screws, and tighten them securely. If it comes loose, it may cause an accident or damage to property.
- Do not use with the bending mechanism loosened and the element folded. It will deteriorate the SWR and cause heat generation and damage to the antenna and radio.

【How to use】

1. Using the attached hexagon wrench, check that the fixing screws for each part are not loose.
2. Tighten the antenna firmly to the base.
3. For better communication, install the antenna as vertically as possible.
4. Check the SWR of the antenna and operate it.



How to fold down the omnidirectional folding mechanism

Frequently Asked Questions

"SWR cannot be matched"

Regarding this, except due to defects in the product itself,

Q1. The best point of SWR is out of band

Countermeasure :

Find the best point of SWR with an antenna analyzer such as CAA-500 and readjust it.

Q2. As SWR is bad or shifted due to lack of ground area

Countermeasure :

Review around the ground such as counterpoise.

⚠ Precautions

- This antenna is for amateur radio. Do not use it for any purpose other than as an antenna.
- This antenna is laterally overhanging and is not suitable for mobile applications. This product is mainly intended for use in balconies in homes.
- Do not use beyond the standards and specifications. This may cause overheating and damage.
- Repair or modification by yourself may cause a malfunction. (Product warranty is not applicable)
- We do not recommend installing it on a place much higher than the roof of your house or on the top of the tower, because it will shake significantly due to strong winds.
- If you want to suppress the swaying of the antenna or in areas with strong wind speeds exceeding 20 m/s, it is recommended to use staying nylon rope or other non-conductive stays.

[Inspection and maintenance]

☆ If a phenomenon that seems to be abnormal occurs, stop using it immediately and check the cause. If you cannot find the cause, please contact the dealer where you purchased the product.

- Please check VSWR of the antenna before use and confirm that it is working properly before use.
- Regularly check that the fixing screws for each part are not loose, and if they are loose, re-tighten them.

[After-sales service]

- Replacement parts are available for damage and replacement of parts due to an unexpected accident or deterioration and replacement due to long-term use. Please contact the store where you purchased the product.
- It is manufactured under strict quality control, but if it is damaged due to an accident during transportation, please contact the store where you purchased the product.
- For any assembly method or other technical questions, please contact your distributor.

⚠ Notes on installation

- When installing, check that the connector of the connecting cable is the same type as the connector of the antenna.

If they are different types, they may not be connected or may be damaged.

- Securely attach the antenna base to the fence. If it is used in a loosened state, it may be blown by the antenna or dropped by the strong wind.

Also, be sure to attach the radial or counterpoise to the antenna base securely. If the ground area is insufficient due to poor contact, VSWR often does not improve.

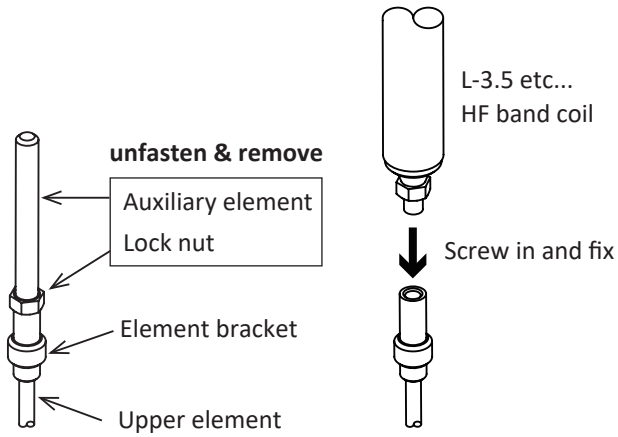
[HF band coil element mounting]

1) When using 4 bands

(1) Turn the lock nut of the auxiliary element to loosen it and remove the auxiliary element.
 * Please keep it in a safe place.

(2) Screw the desired HF band coil into the element seat and tighten the lock nut to fix it.

☆ The auxiliary element is screwed in at the time of shipment so that it does not fall off.



2) When using 5 to 9 bands

(1) Loosen the hollow set screw (M4 x 4) fixing the element bracket with the attached hex. wrench (opposite side 2mm) and remove it from the element.

(2) Turn the lock nut of the auxiliary element to loosen it, and remove the auxiliary element and lock nut in the same way as 1). (Please keep it in a safe place as it will not be used)

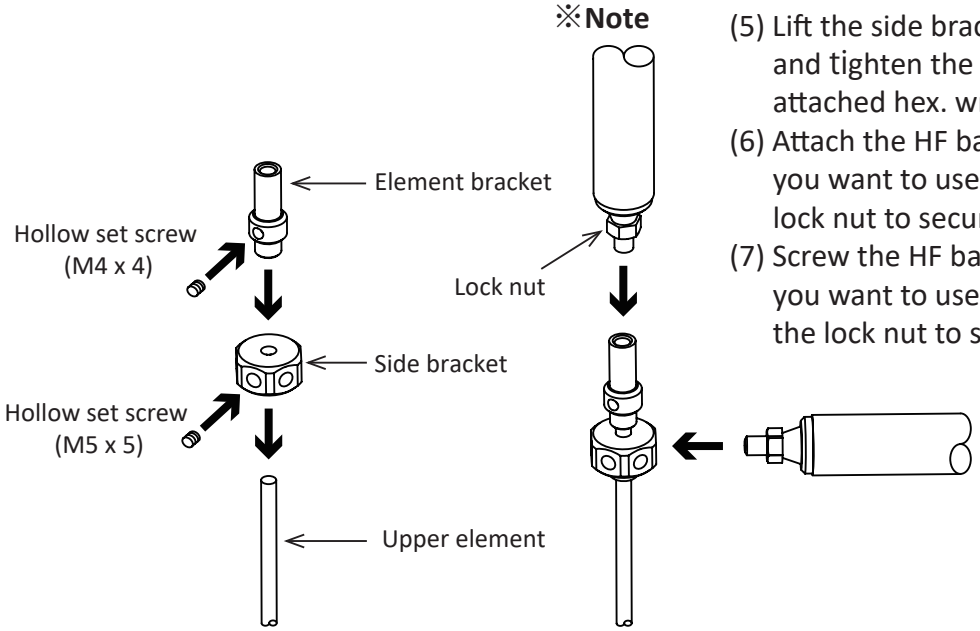
(3) Insert the attached side bracket into the element.
 * May have been inserted at the time of shipment.

(4) Insert the element seat into the element and tighten the hollow set screw (M4 x 4) on the element seat to fix.

(5) Lift the side bracket until it hits the element bracket, and tighten the hollow set screw (M5 x 5) with the attached hex. wrench (opposite side 2.5mm) to fix it.

(6) Attach the HF band coil of the higher frequency band you want to use to the side bracket, and tighten the lock nut to secure it.

(7) Screw the HF band coil of the lower frequency band you want to use into the element bracket, and tighten the lock nut to secure it.



※**Note :** Attaching a low frequency HF band coil (3.5MHz or 7MHz) to the element bracket will reduce the vibration.

It is not necessary to connect all the HF band coils.
Attaching only the coil of the frequency band you want to operate has the advantages of easier adjustment and less vibration of the antenna.

⚠ Notes on adjustment

● If there is another antenna or a conductor such as metal near the antenna element, the characteristics may be affected and SWR may not be improved. In this case, try changing the installation location.

● To operate HF, it is necessary to install a radial or counterpoise. Depending on the installation method, the frequency characteristics may change, and VSWR may not be 1.5 or less even if adjustment is performed by element cutting. In this case, you may be able to adjust it by using our antenna tuner (CAT-10, CAT-300, CAT-283).

* This antenna is adjusted by attaching a pipe mounting base (RS-215) and a radial to the balcony fence. The ϕ16 mm lug terminal is adjusted by attaching a counterpoise with a length of 5 m and 6 electric wires.

【UHV-9 adjustment method】

1) You can use the 50MHz band, 144MHz band, and 430MHz band without adjustment. If you need to adjust the frequency, follow the procedure below.

・When adjusting 50MHz band・144MHz band・430MHz band

Loosen the element fixing screw with the attached hex. wrench (opposite side 2) and adjust by lowering and lowering the lower element.

Note: Be careful of VSWR fluctuations of each band, because adjustments on the lower element affect each other.

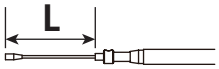
2) In the HF band, the total length is shortened by the loading coil, so the usable bandwidth is narrow. Adjustment is required with reference to the "Element default length L correspondence table" for each band. See pages 5 to 16 for coil mounting examples and SWR characteristics of each band.

The fo setting frequency is an example. Set according to the operating mode.

・Adjust it by adjusting the tip element length (element cut) of the coil element (L-3.5, L-7, L-14, L-18, L-21, L-28).

Adjust the element cut by cutting it by about 1 cm, but if you cut too much, use a spare element.

Element default length L correspondence table



Element	L (mm)	fo Set frequency	Frequency shift width per cm (reference value)
L-3.5	470	3.53 MHz	11 kHz
L-7	480	7.05 MHz	42 kHz
L-14	82	14.10 MHz	250 kHz
L-18	57(70)※	18.10 MHz	470 kHz
L-21	75(58)※	21.15 MHz	350 kHz
L-28	74	29.00 MHz	500 kHz

※：The value in parentheses is the element length when operating in 4 bands and 5 bands.

⚠ Caution

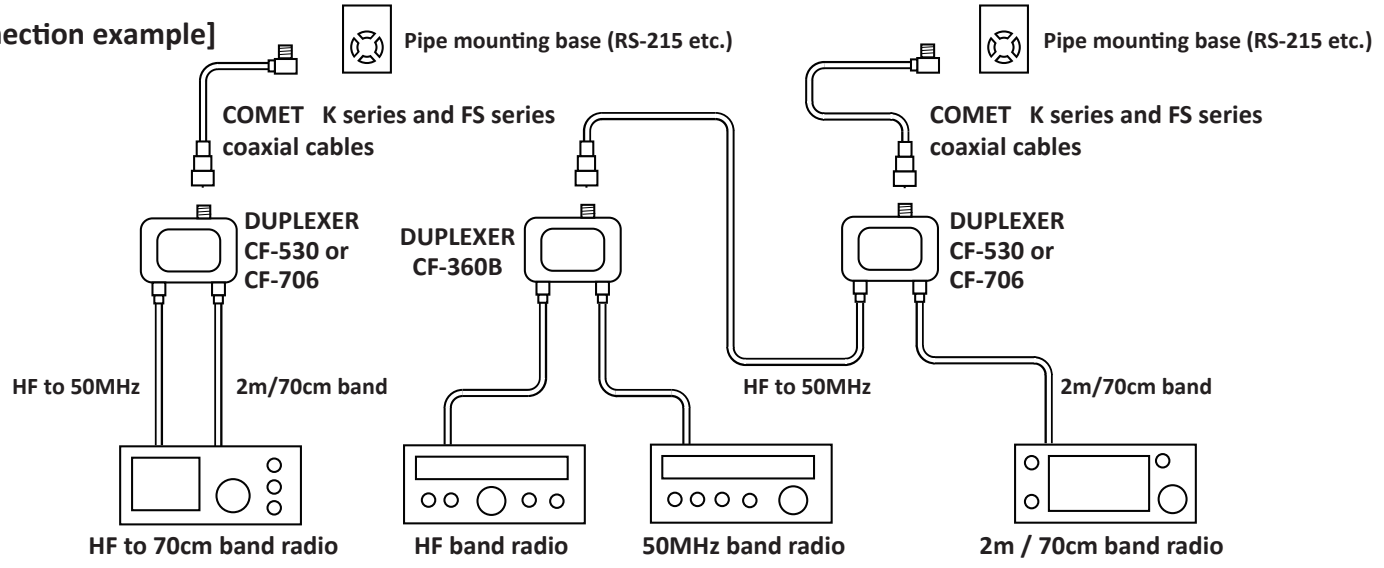
● Correct the VSWR of the antenna.
If VSWR is bad, it may cause overheading, malfunction or deterioration of function.

● The values in this table are based on our experiments. Please be aware that fo may not match even if this value is adjusted due to manufacturing variations.

● VSWR may change due to the installation environment, so make a fine adjustment to the length L of each element.

For the L3.5 to L-28, you can use a small amount of the same element at the low end or from the low end of each amateur band with the tip element thrust in.
The SWR is set to shift. Basically, the procedure is to cut and adjust the length little by little while checking the SWR.

[Connection example]



Example 1
When the HF and 50MHz band connectors are shared

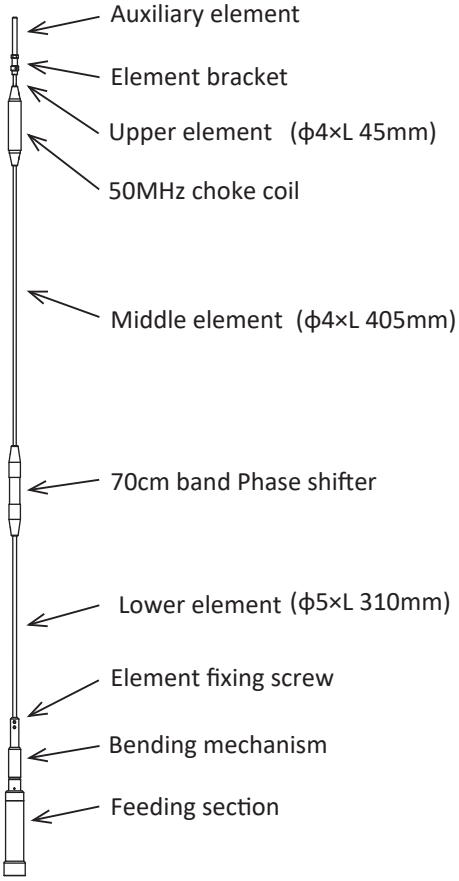
Example 2
When the HF band and 50MHz band connectors are separated
Or when the HF band and 50MHz band radios are separated

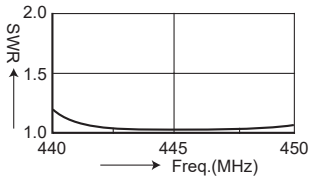
☆ Coil installation image and SWR characteristics example when using in 3 bands or 4 bands

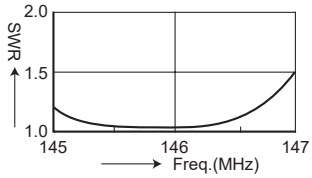
It is possible to operate up to 9 bands by adding each HF band coil to the side bracket.
SWR characteristics are based on the following 4 to 9 bands characteristic examples.

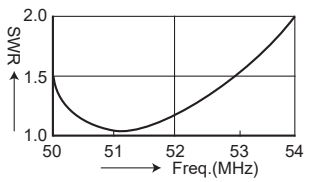
See the table on page 4 for the tip element length L of each HF band coil.

50,144,430MHz



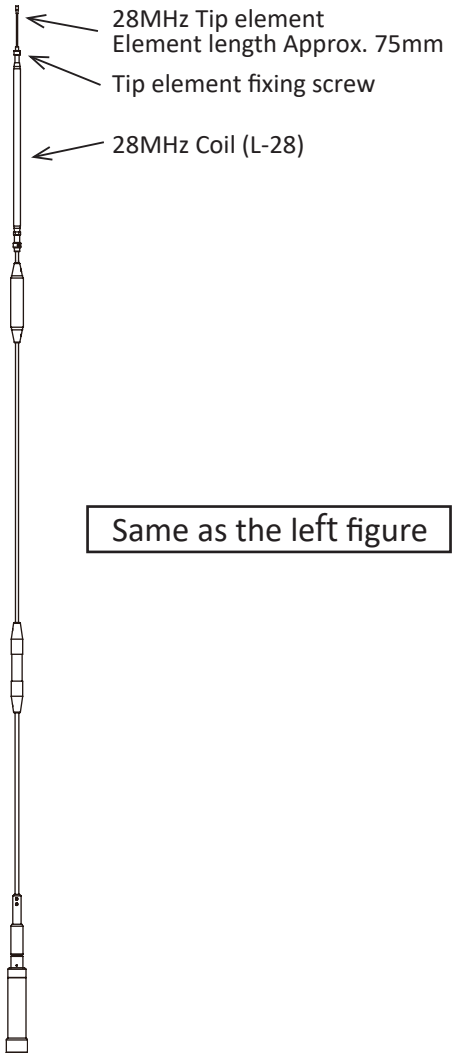






Please note that depending on the combination of each band coil, there are bands that are difficult to improve SWR.

28,50,144,430MHz



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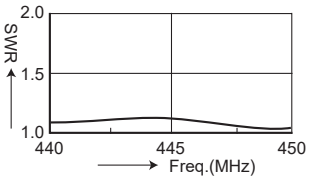
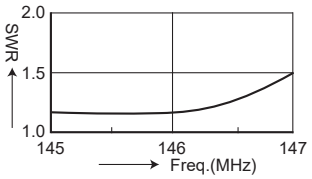
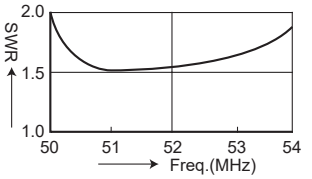
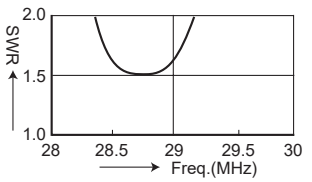
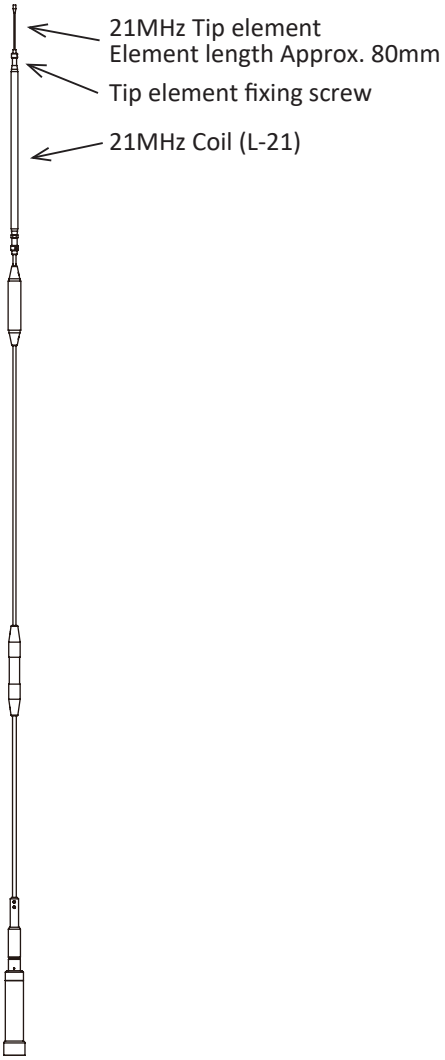


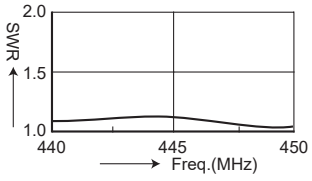


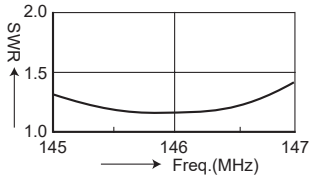


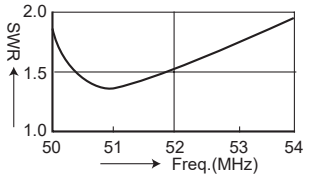


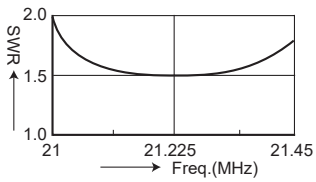
21,50,144,430MHz



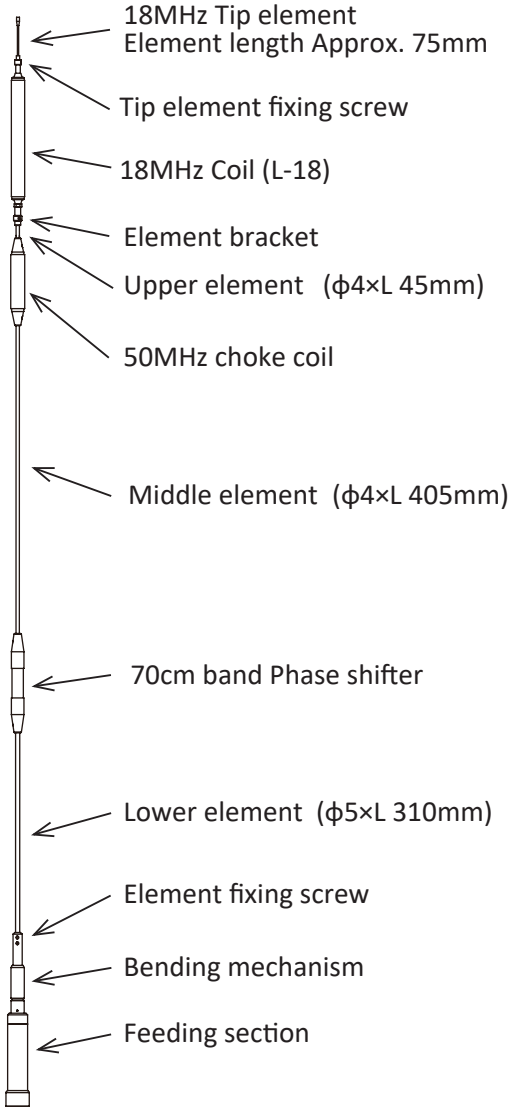


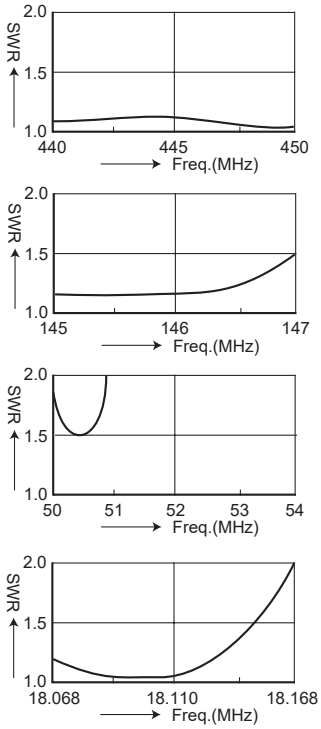




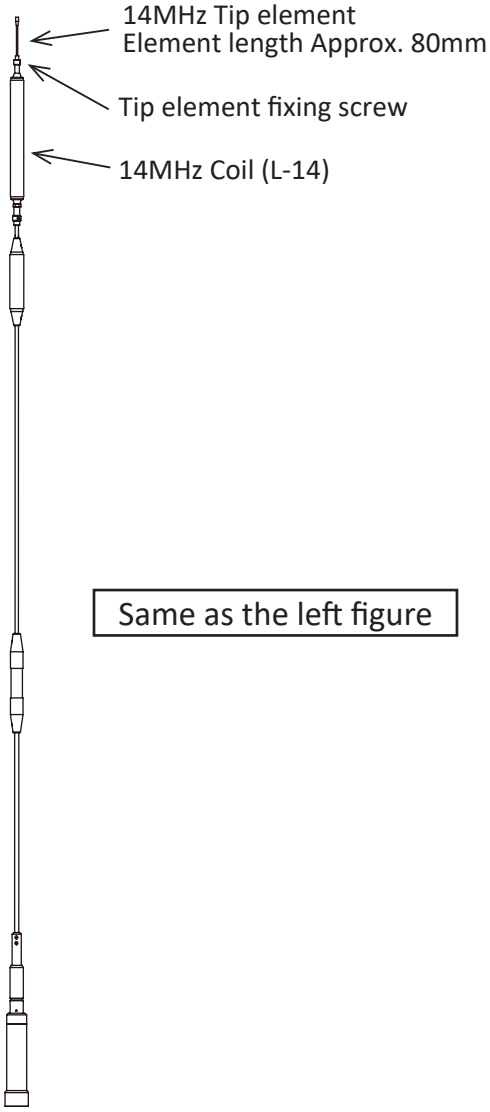


18, 50, 144, 430MHz





14, 50, 144, 430MHz



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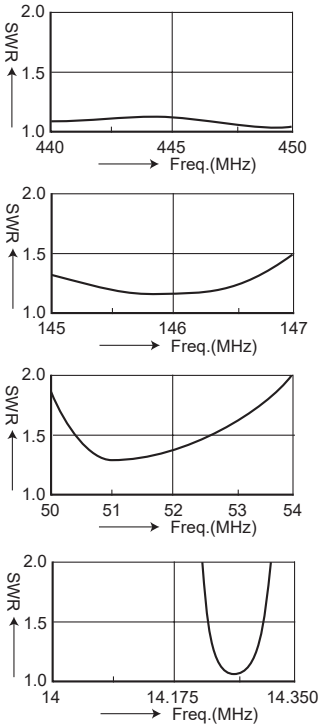
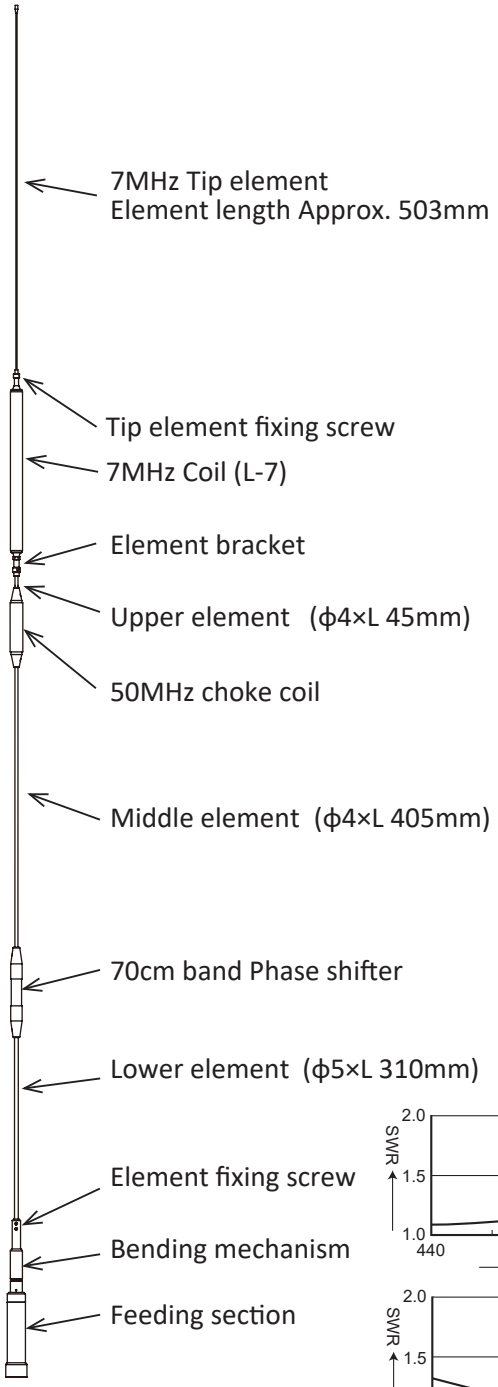
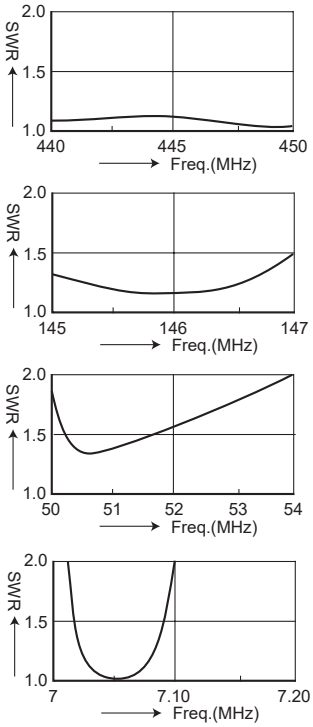
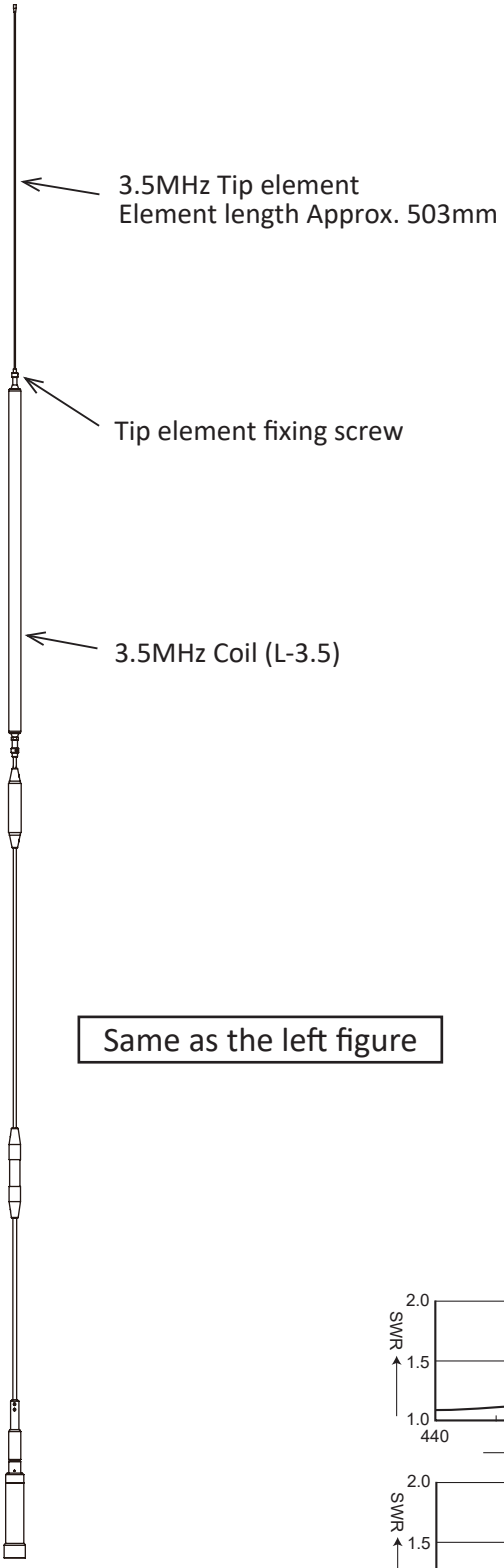


7, 50, 144, 430MHz





3.5, 50, 144, 430MHz



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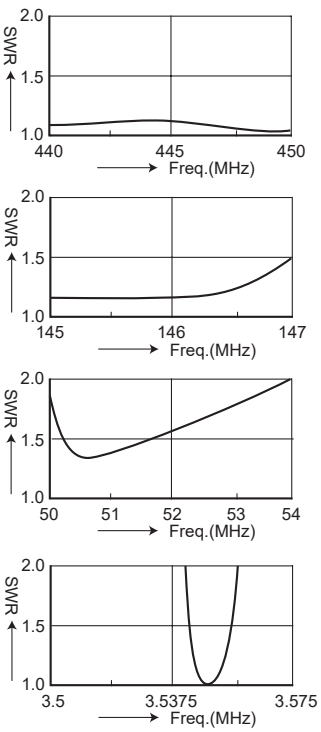
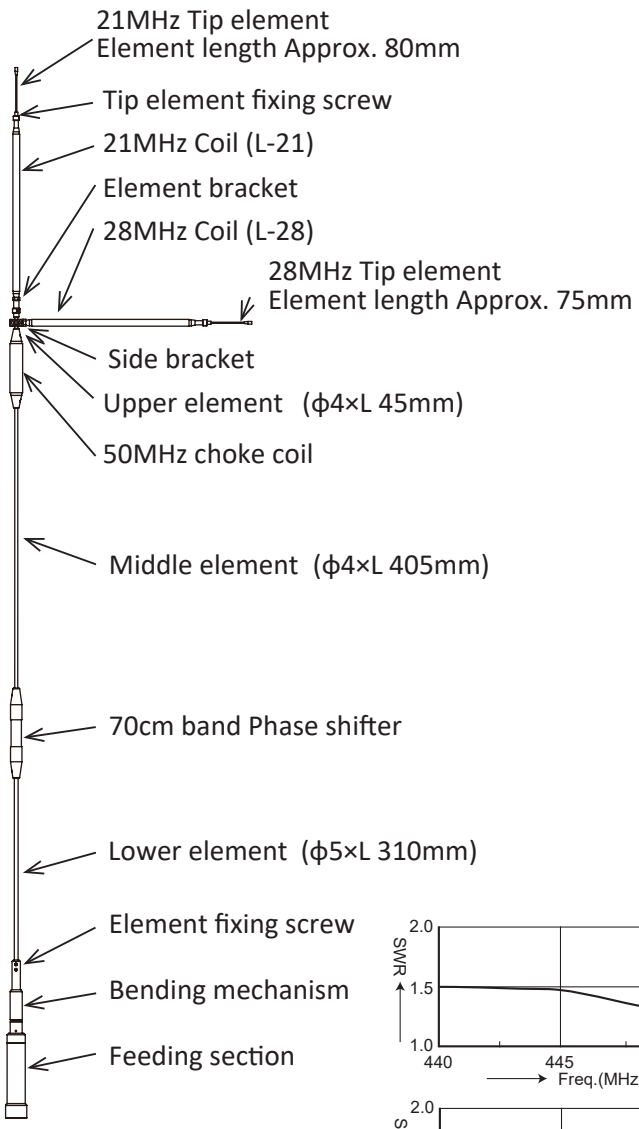
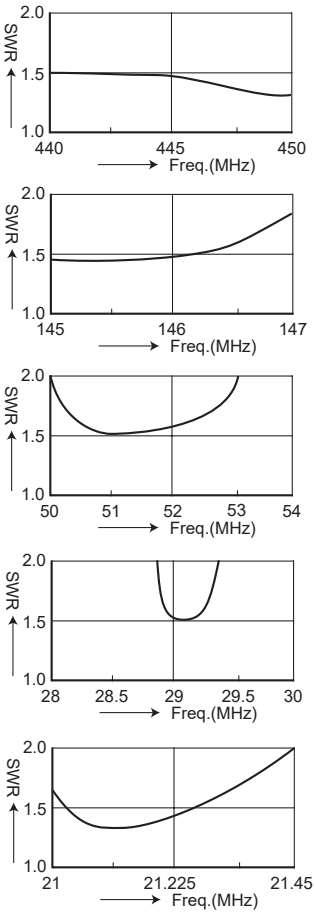


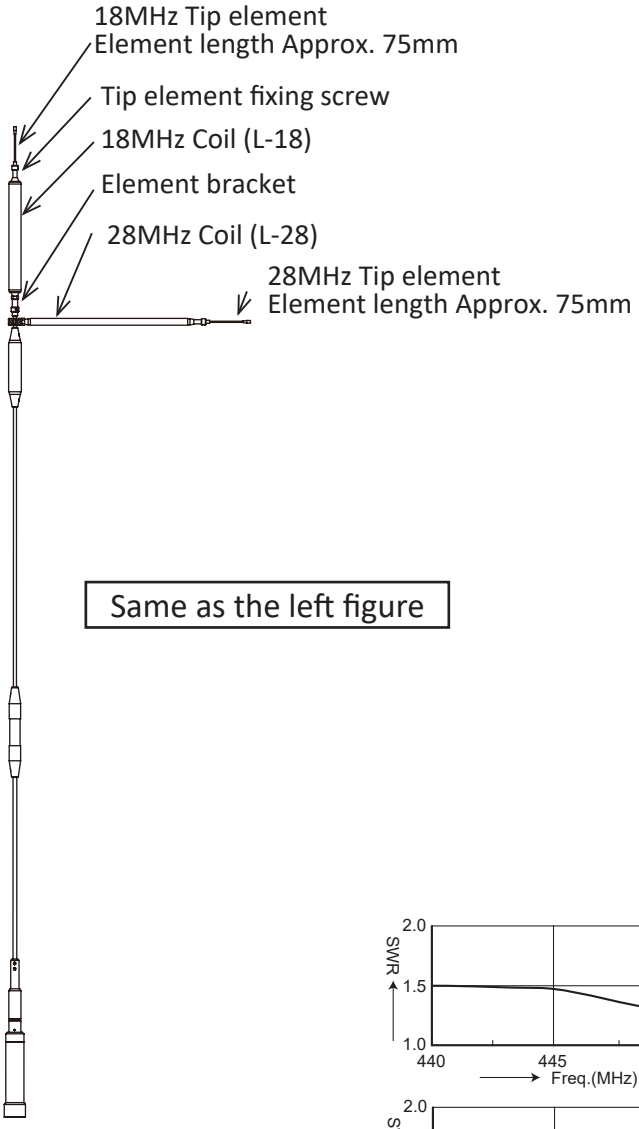
☆ Appearance diagram of coil installation and SWR characteristics example when using 5 bands ☆

21, 28, 50 144, 430MHz





18, 28, 50, 144, 430MHz



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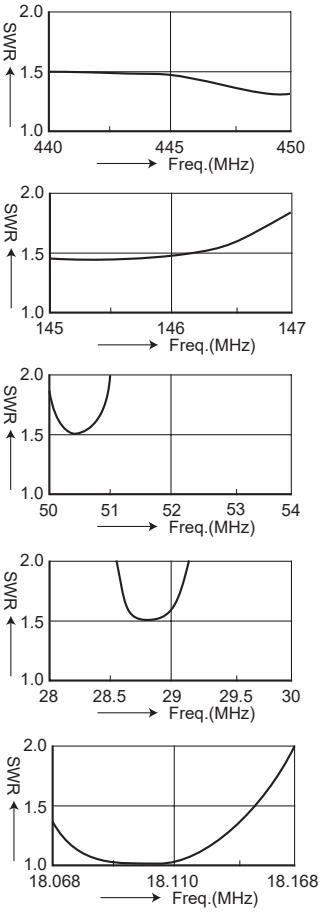
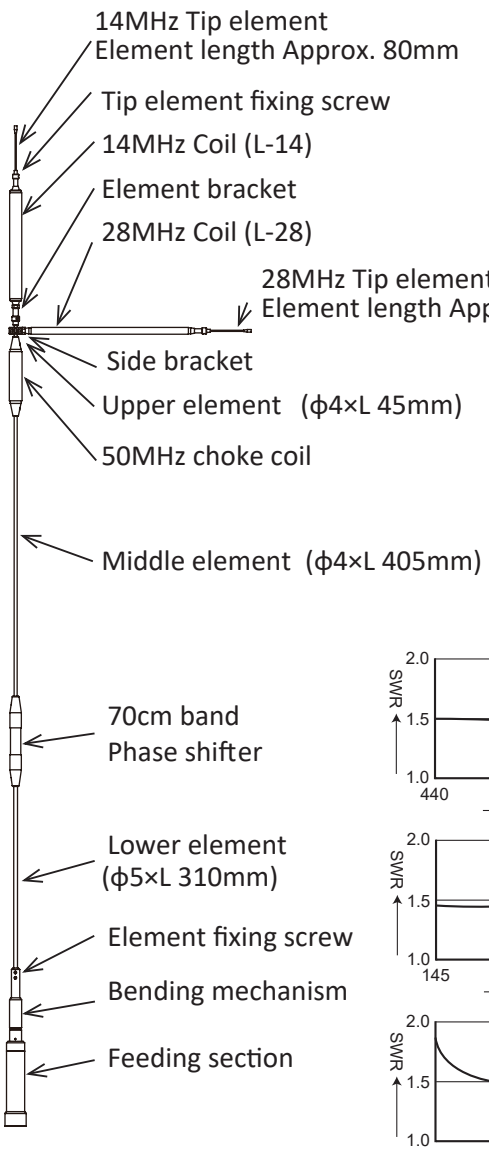
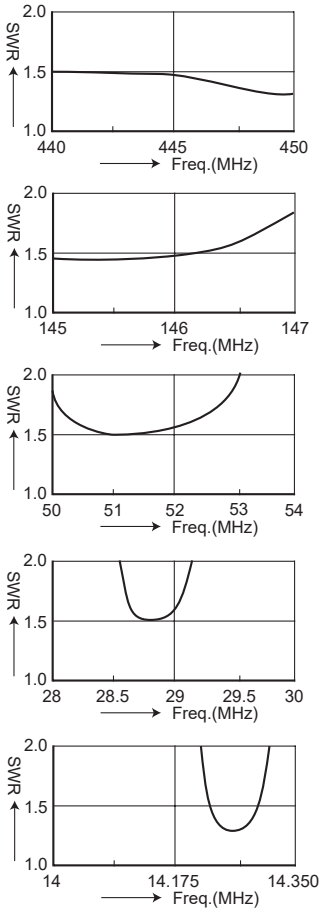
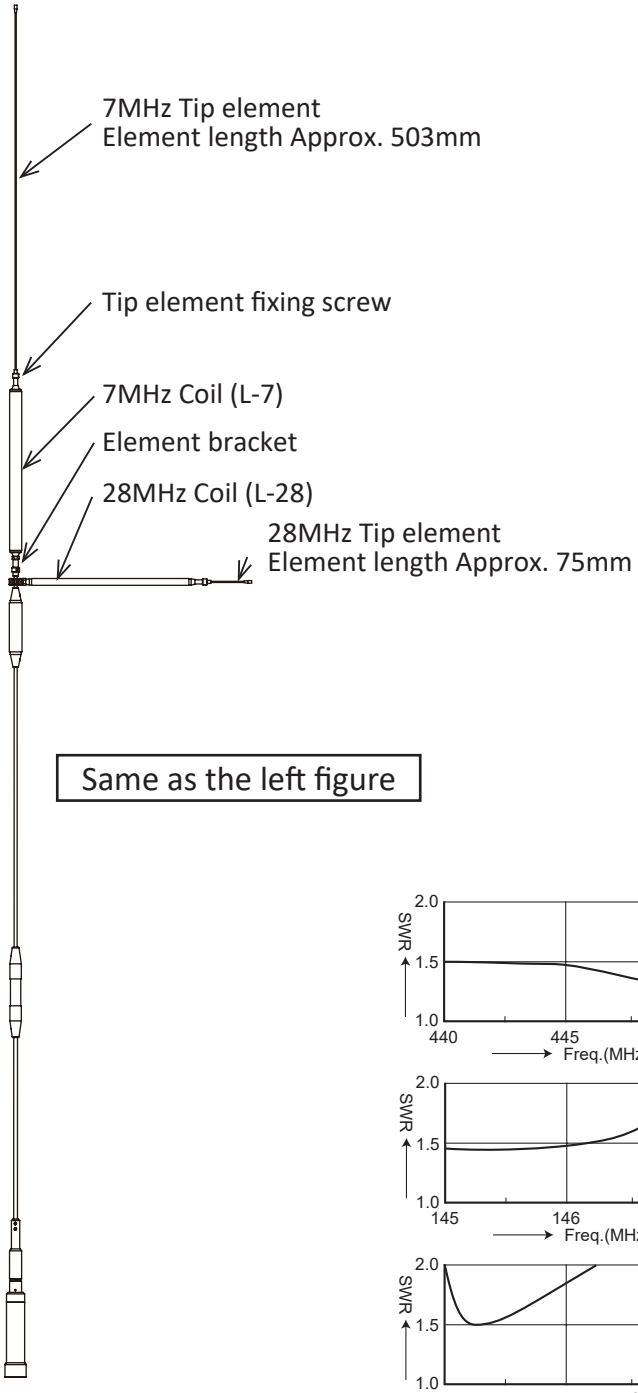


14, 28, 50, 144, 430MHz





7, 28, 50, 144,430MHz



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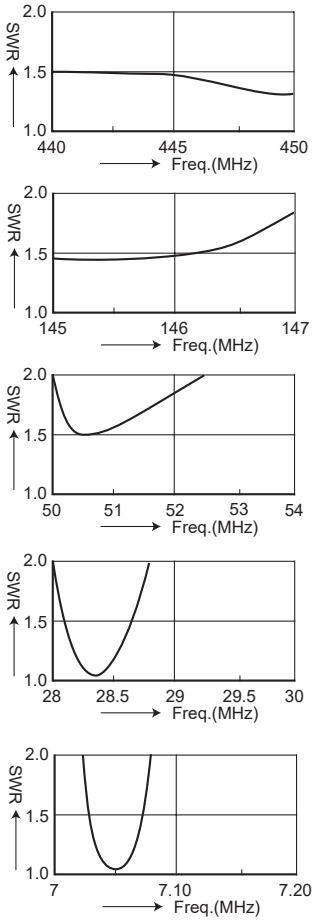
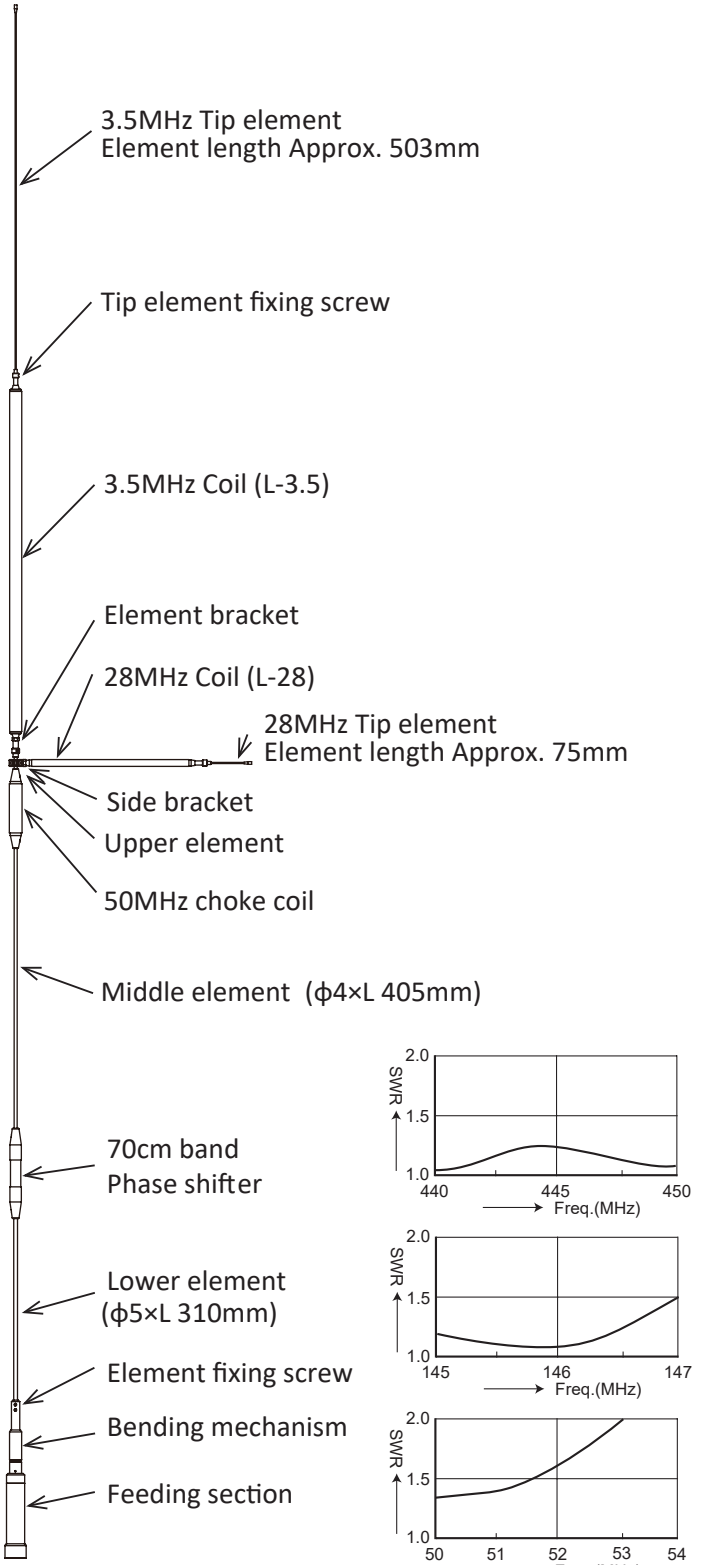
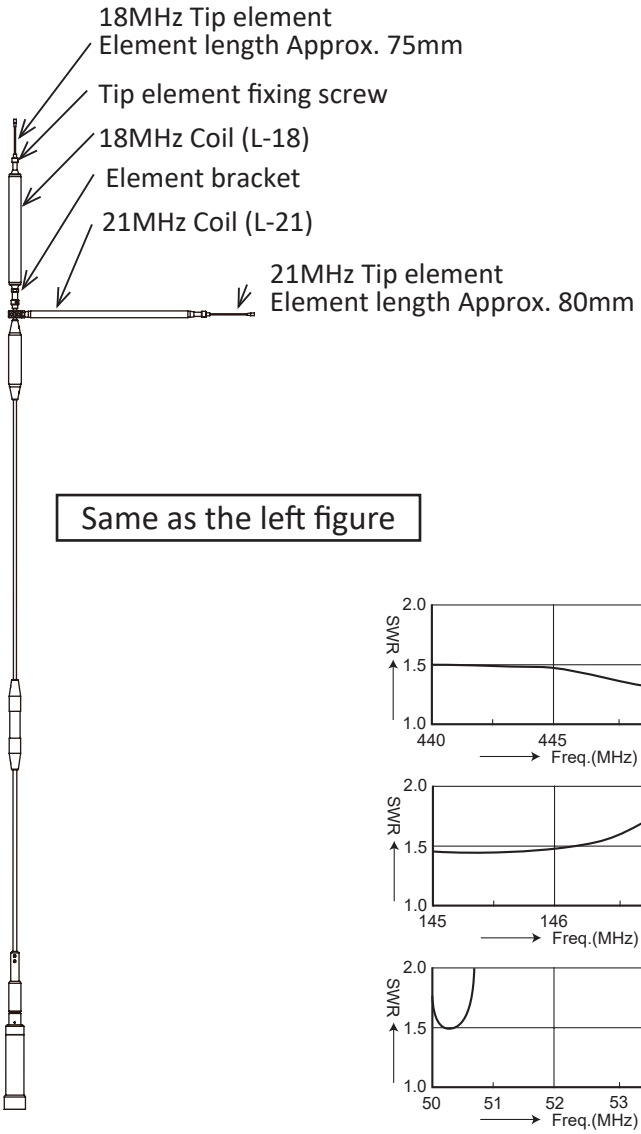


3.5, 28, 50, 144, 430MHz



18, 21, 50, 144, 430MHz



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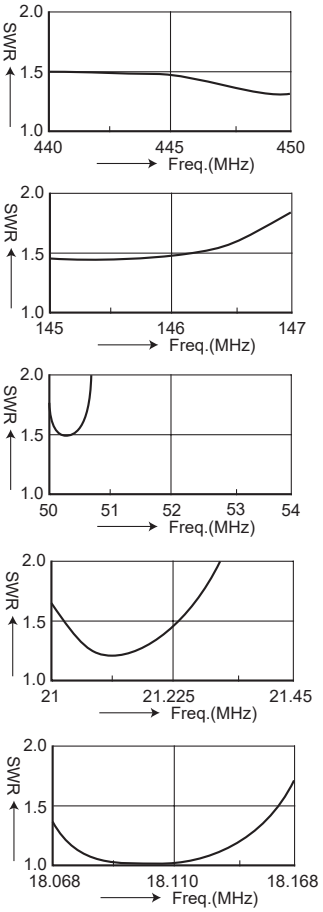
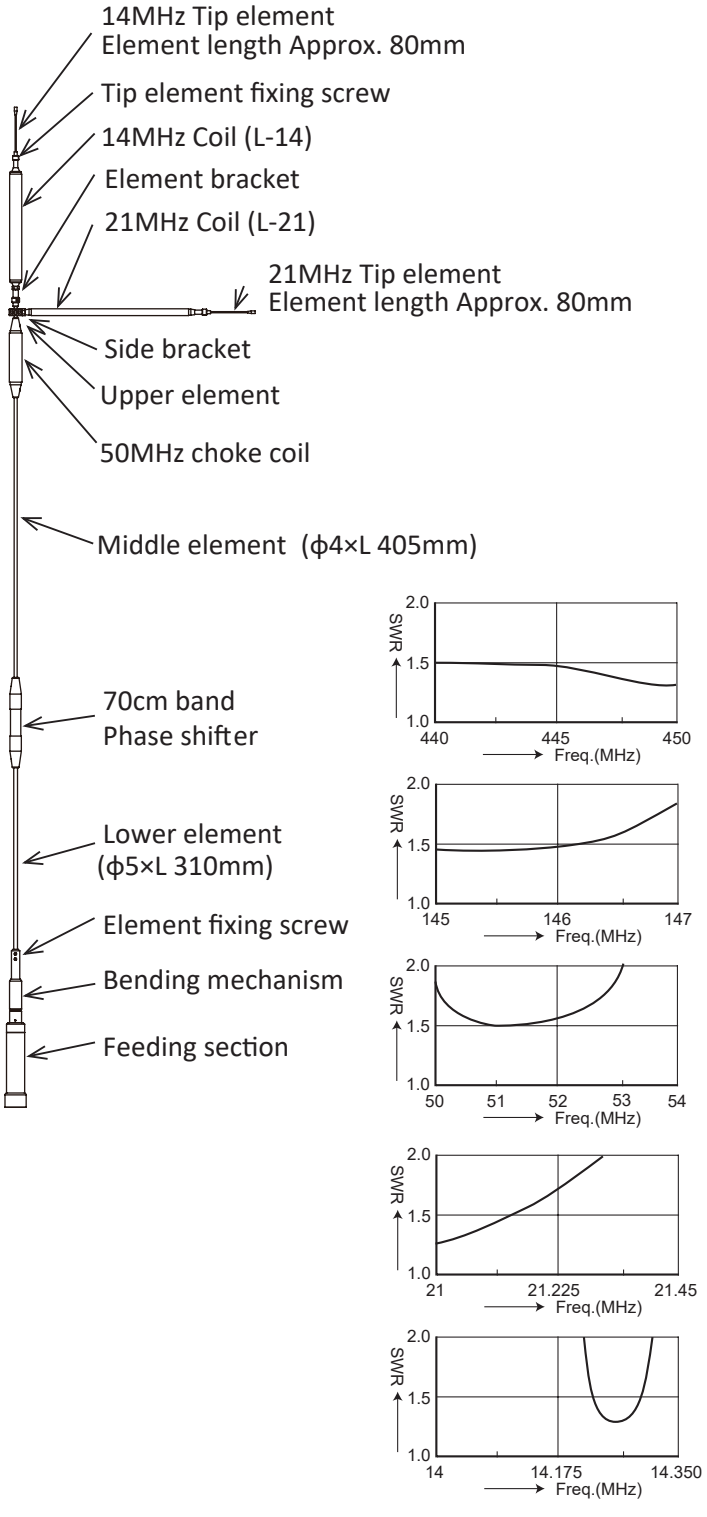
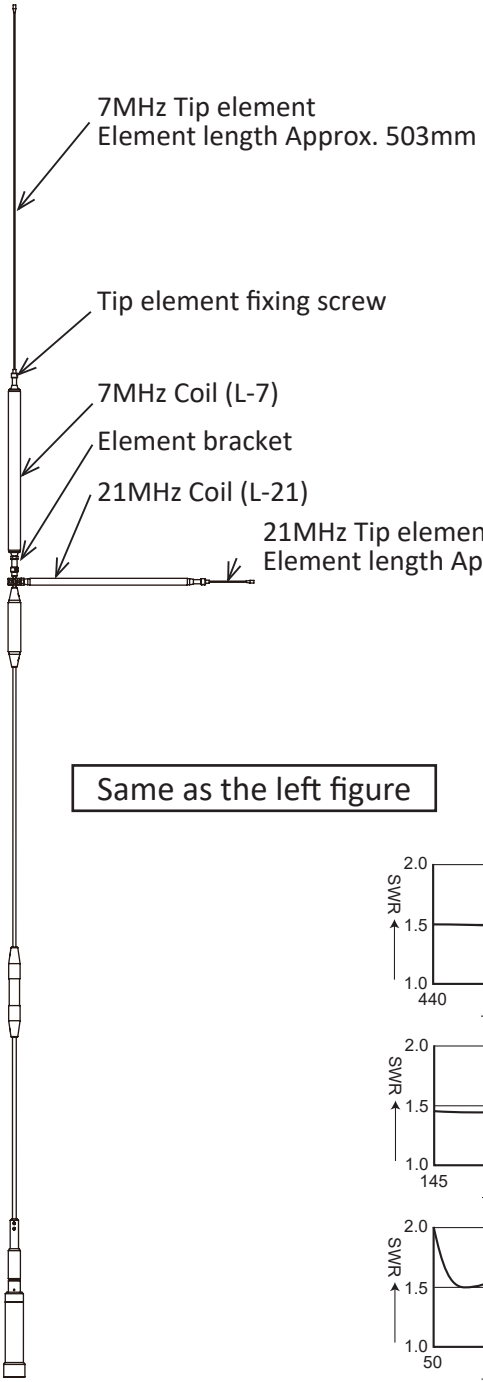


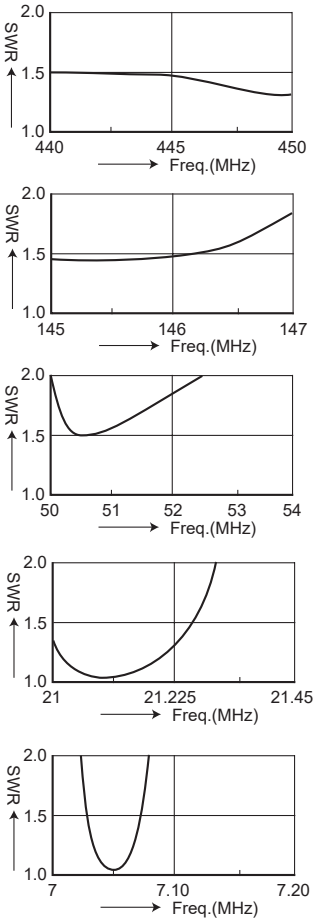
14, 21, 50, 144, 430MHz



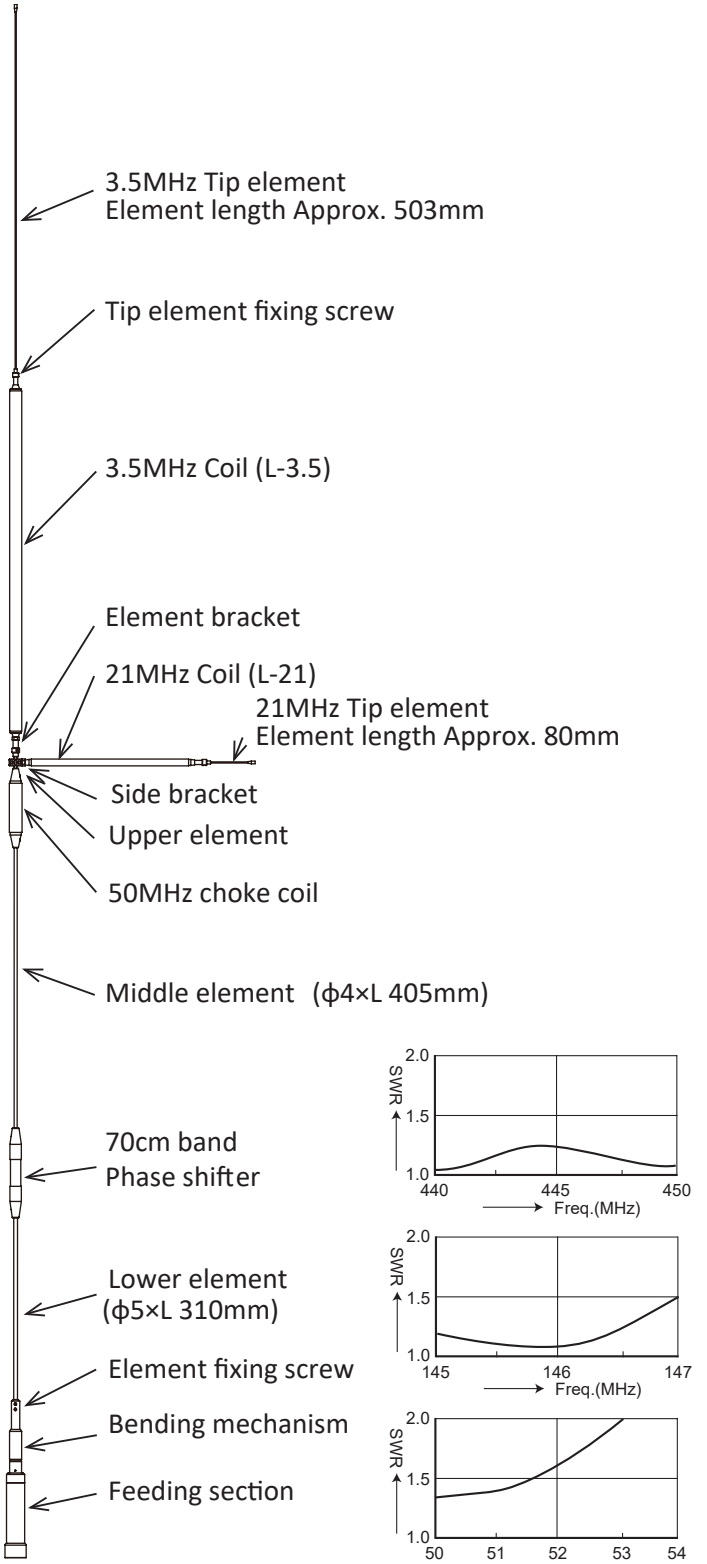
7, 21, 50, 144, 430MHz



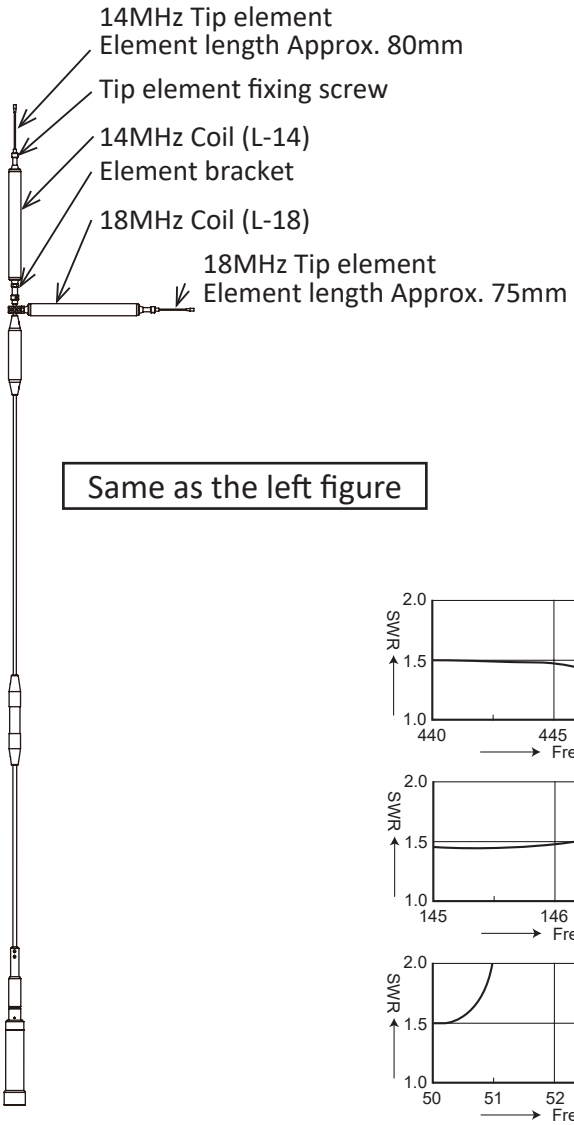
Same as the left figure



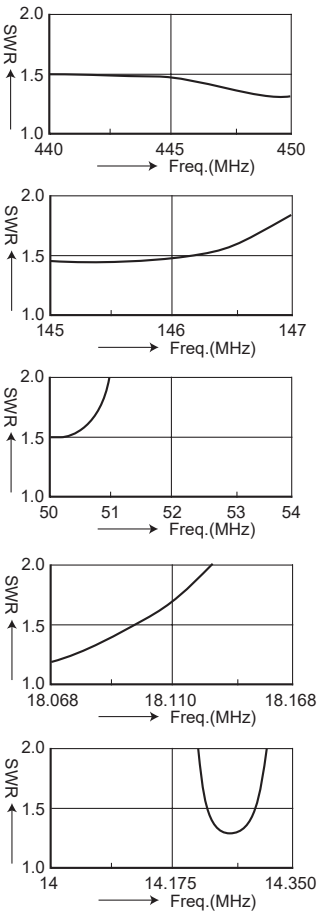
3.5, 21, 50, 144, 430MHz



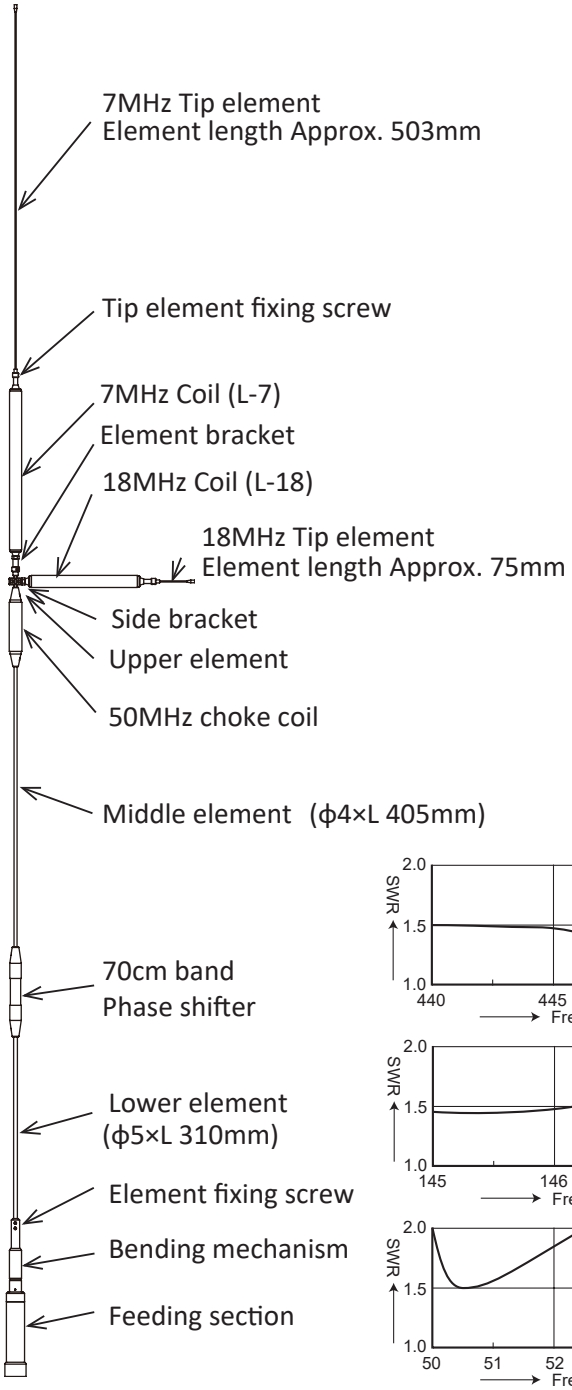
14, 18, 50, 144, 430MHz

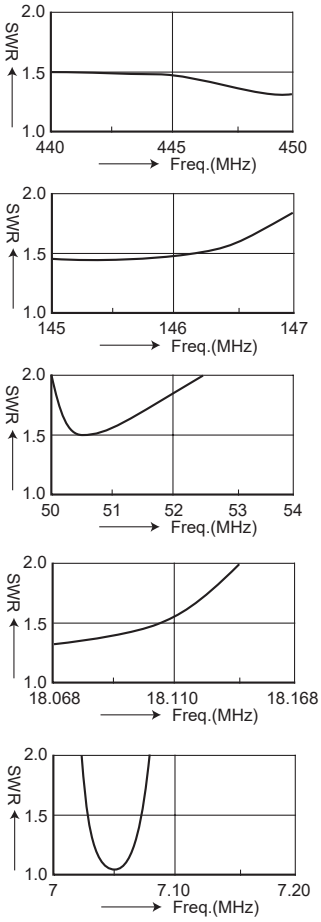


Same as the left figure

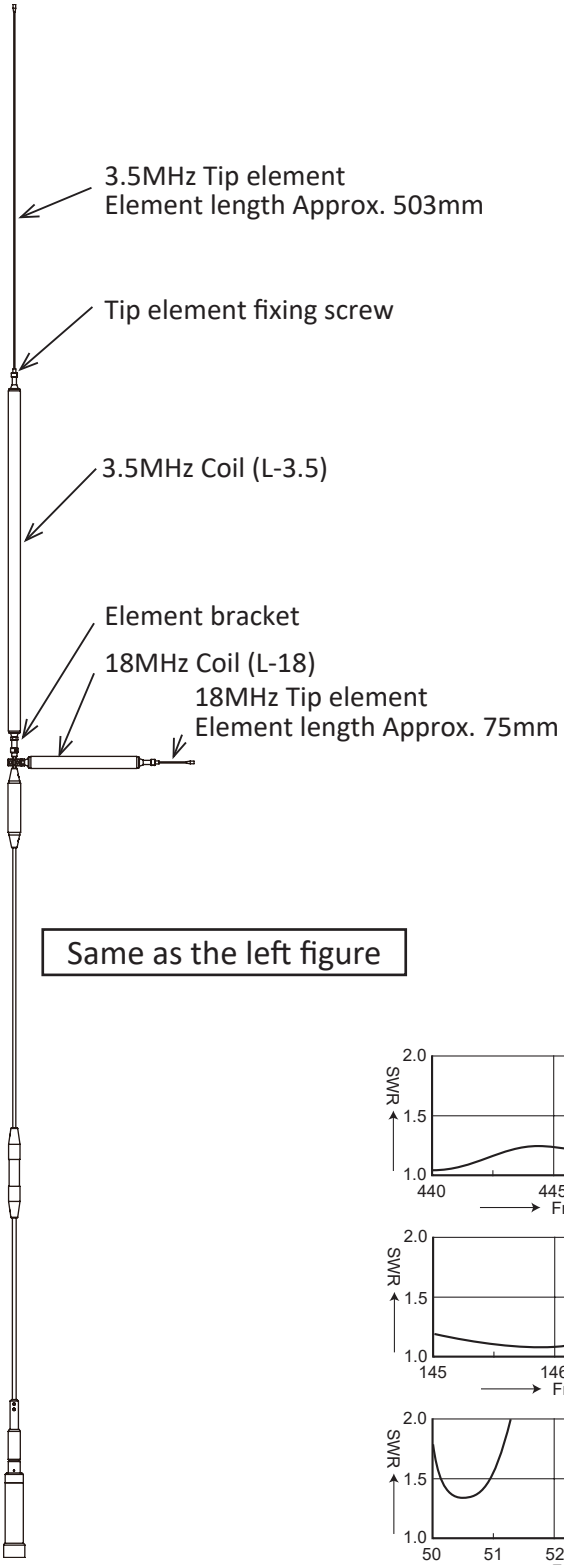


7, 18, 50, 144, 430MHz

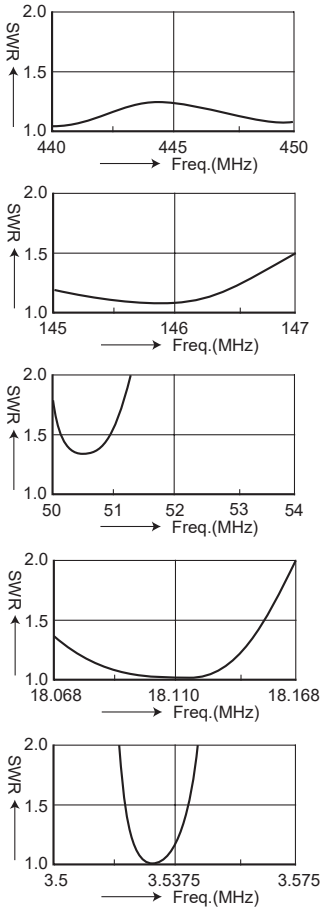




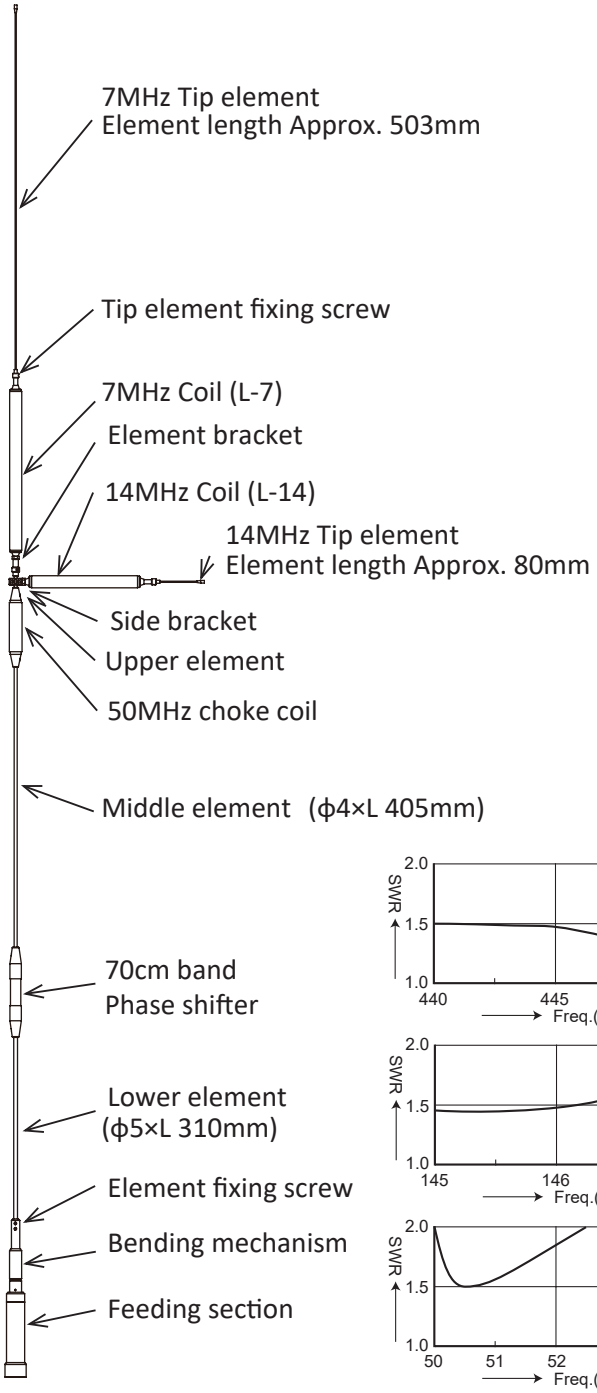
3.5, 18, 50, 144, 430MHz

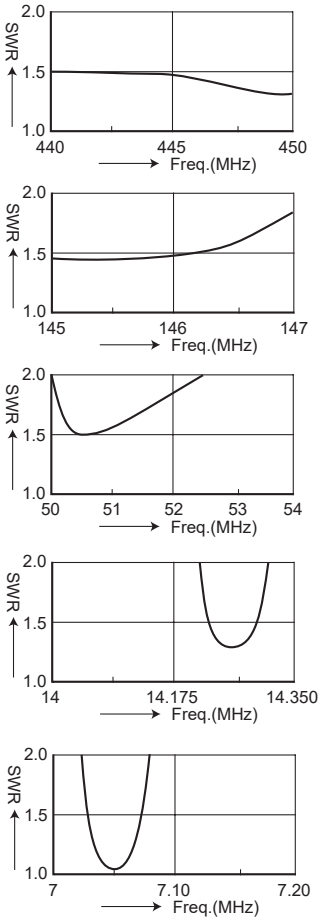


Same as the left figure

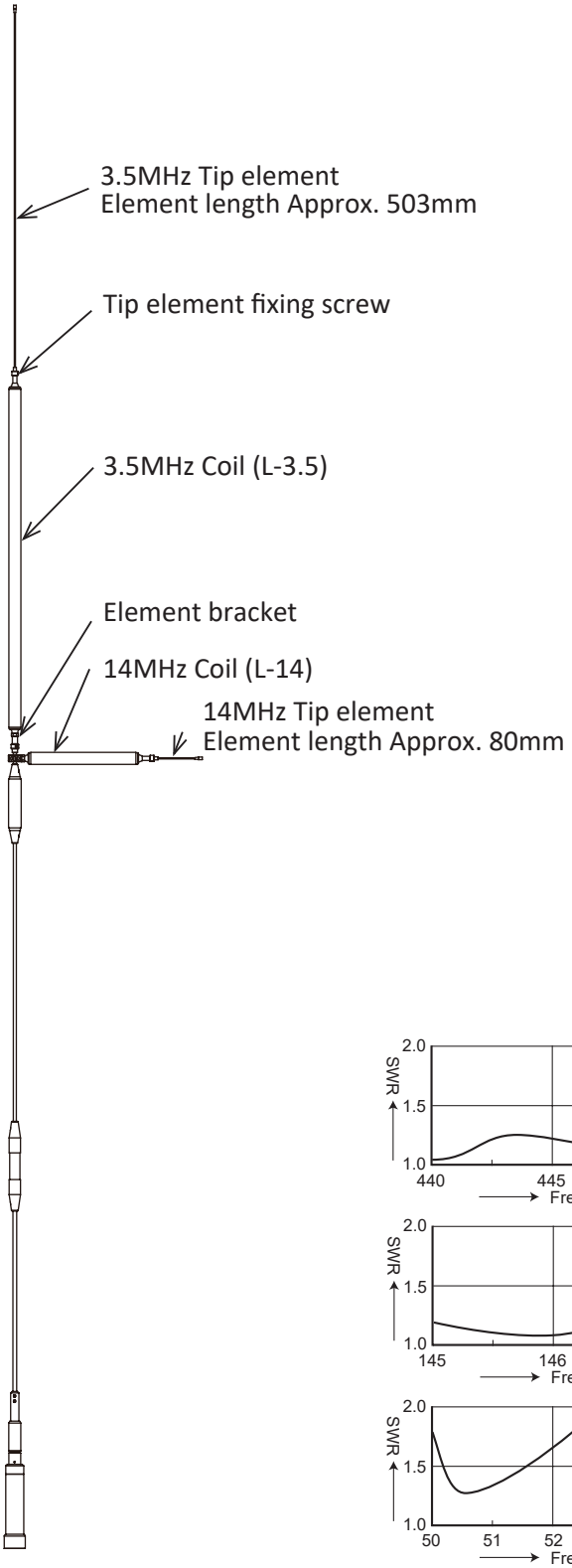


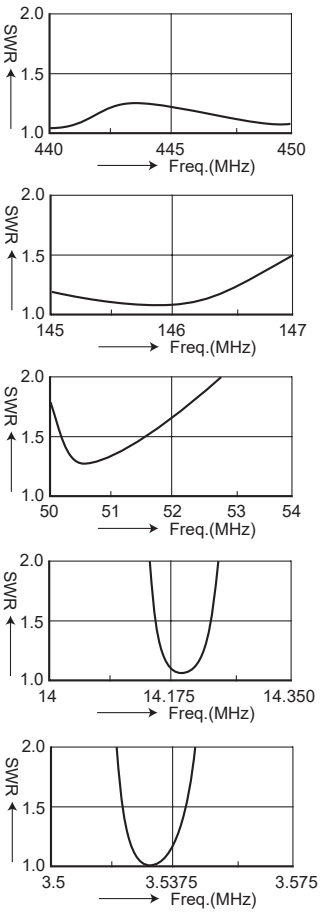
7, 14, 50, 144, 430MHz



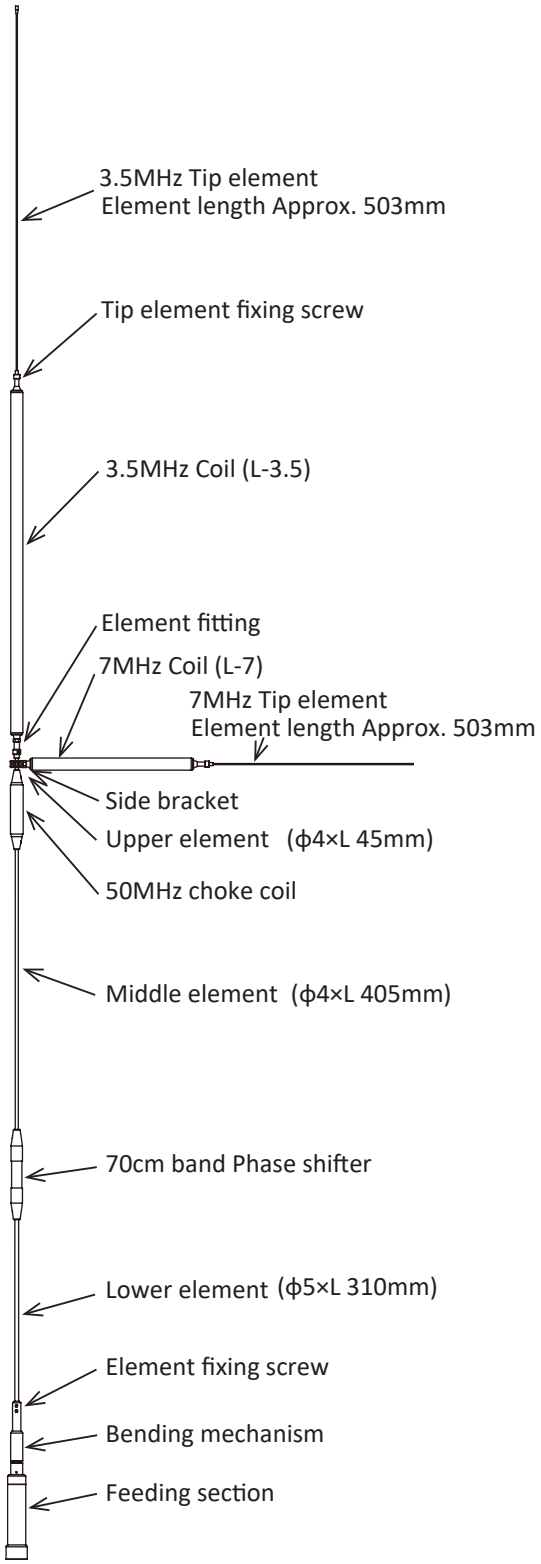


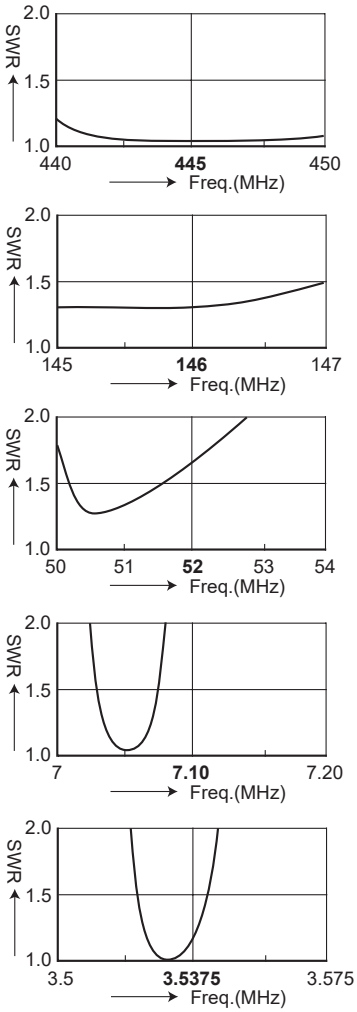
3.5, 14, 50, 144, 430MHz





3.5, 7, 50, 144, 430MHz - 5 Bands

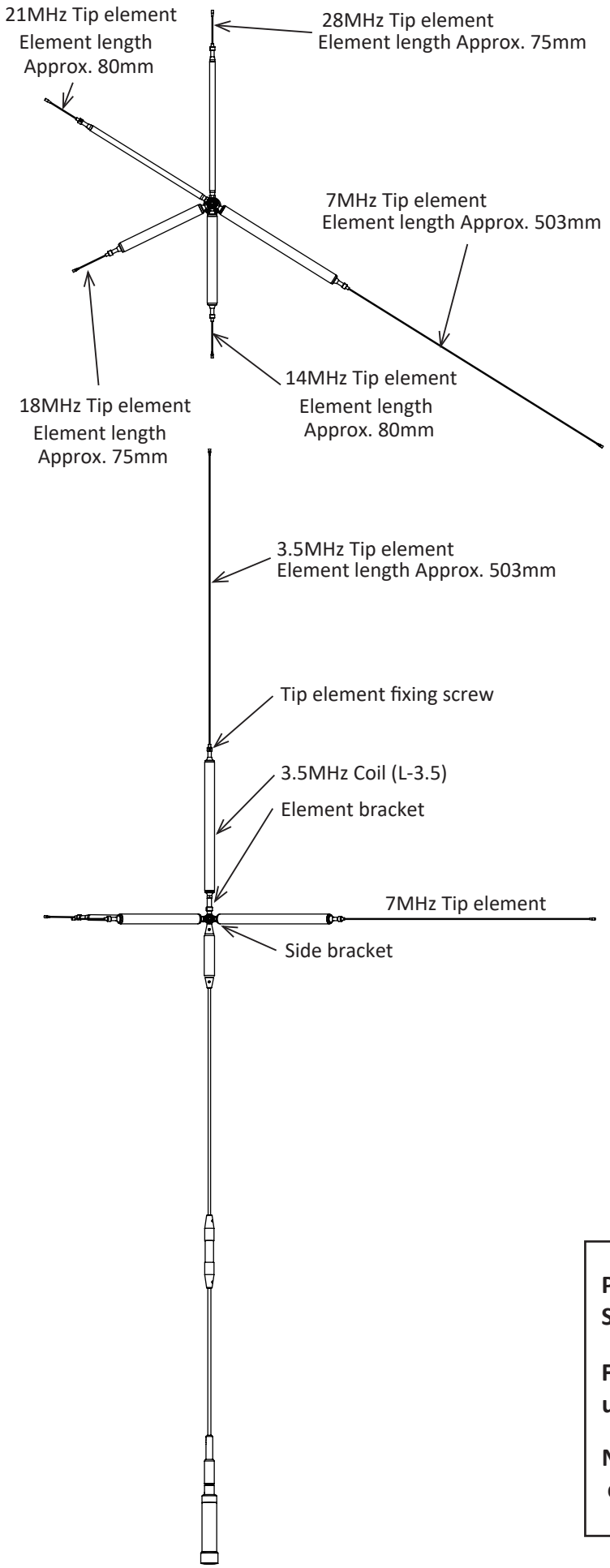




☆ External view of coil installation and example of SWR characteristics when used with 9 bands

3.5, 7, 14, 18, 21, 28, 50, 144, 430MHz - 9 Bands

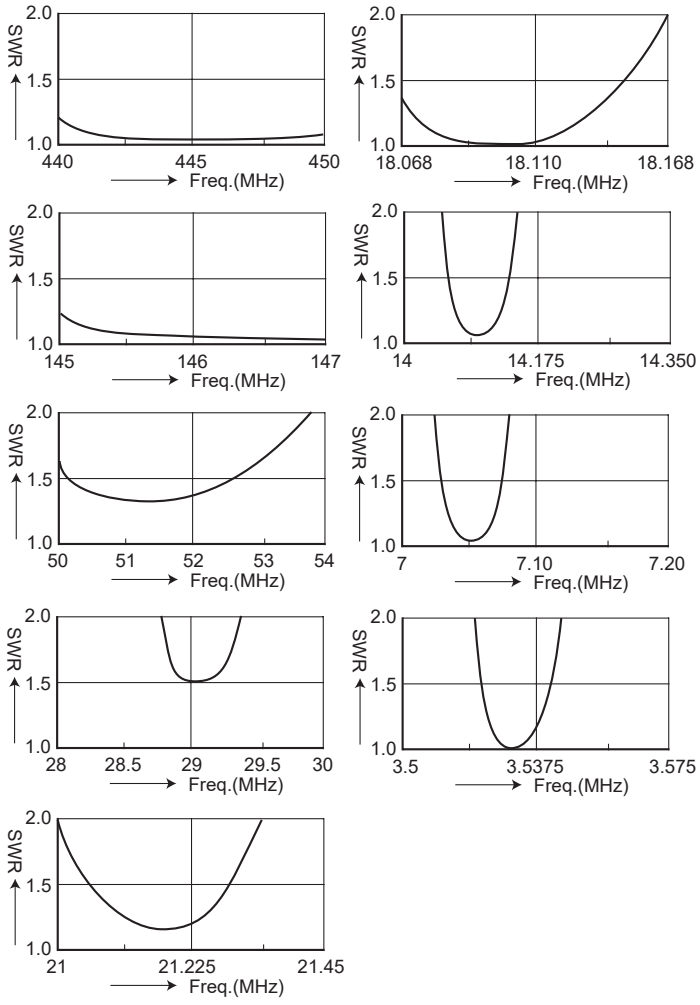
Example of mounting each element [View from above]



About mounting each element

If it is installed near the horizontally installed antenna element and parallel to the wall, VSWR may not be improved.
In that case, try changing the mounting position of each band coil.

When operating in 9 bands, the lateral extension of the 7 MHz band element becomes longer. Please be careful about contact accidents.



Please note that some bands have difficulty in reducing SWR due to mutual interference between the bands.

For bands where SWR is hard to improve, we recommend using an antenna tuner together.

Note : Adjust the SWR of each band to the best possible condition before using the antenna tuner.