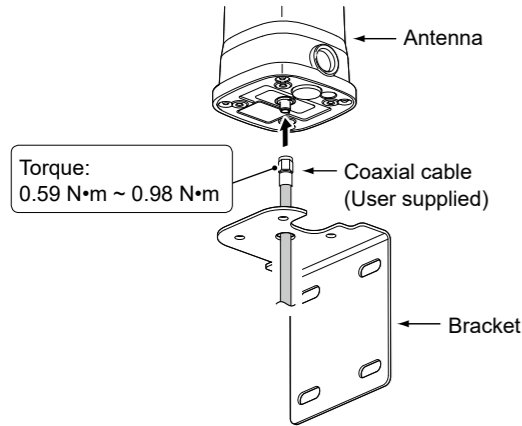


## Connecting a coaxial cable

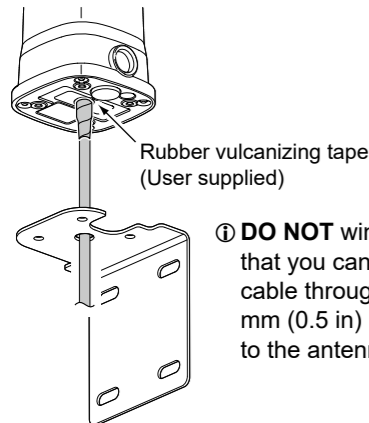
### NOTE:

- To cover the whole of the antenna connector with rubber vulcanizing tape, wind the tape before attaching the bracket to the antenna. Otherwise, you cannot cover the base of the connector.
- To prevent destruction by a lightning strike, ground the antenna. We recommend that you connect a grounding cable (user supplied) to the bracket.

- Thread the coaxial cable through the bracket hole, and then connect the cable.

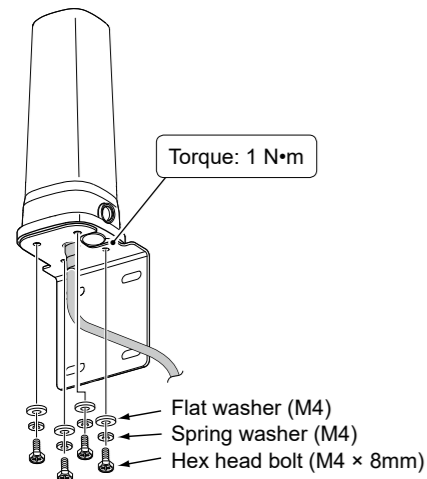


- Cover the connector with rubber vulcanizing tape.



- DO NOT wind the tape too thick so that you can later thread the coaxial cable through the bracket hole (12 mm (0.5 in) (d)) to attach the bracket to the antenna.

- Attach the bracket to the antenna.

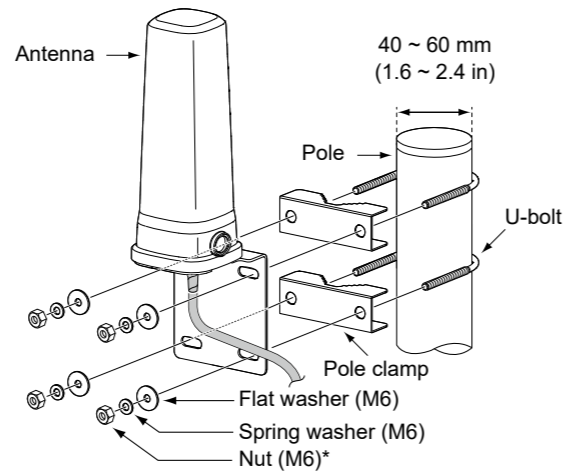


## Attaching the antenna to a pole

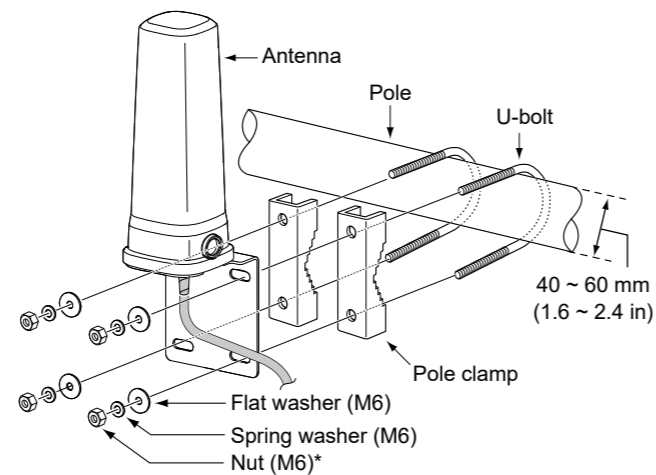
Attach the antenna to a pole, as shown below.

- Excessive tightening may cause the pole to deform.

To attach to a pole vertical to the ground:



To attach to a pole horizontal to the ground:



\* You can also use the supplied butterfly nuts, depending on your need.

**TIP:** Use the supplied Self-tapping screws when attaching the antenna to a wooden stud, board, or panel.

# ICOM

## INSTRUCTIONS

2.4 GHz COLLINEAR ANTENNA

# AH-24

5.6 GHz COLLINEAR ANTENNA

# AH-56

10 GHz COLLINEAR ANTENNA

# AH-100

## Important

**SAVE THESE INSTRUCTIONS**— These instructions contain important safety and installation instructions for the AH-24, AH-56, and AH-100.

## Explicit definitions

WORD	DEFINITION
⚠ <b>WARNING!</b>	Personal injury, fire hazard or electric shock may occur.
<b>CAUTION</b>	Equipment damage may occur.
<b>NOTE</b>	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom antennas with any equipment that is not manufactured or approved by Icom.

## Disposal

The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.

## About CE

CE Versions of the AH-24, AH-56, and AH-100 which have the "CE" symbol on the product, comply with the restriction of the use of certain hazardous substances in electrical and electronic equipment Directive, 2011/65/EU.

**Below statement is for UKCA purpose only**

United Kingdom Authorised Importer: Icom (UK) Ltd.  
Address: Blacksole House, Altira Park, Herne Bay, Kent, CT6 6GZ, U.K.

To obtain the UKCA Declaration of Conformity, please contact Icom UK Limited by email at [info@icomuk.co.uk](mailto:info@icomuk.co.uk) or alternatively call +44(0) 1227 741741.

Thank you for choosing this Icom product.  
**READ ALL INSTRUCTIONS** carefully and completely before using this product.

## Precautions

**BE CAREFUL!** When you attach the antenna, wear gloves to avoid cutting your hand on the sharp edges of the antenna.

Icom is not responsible for any building breakage, any damage resulting from a drop of the mounting bracket from a high place or unstable site, or any personal injury or any accident in any other case. Be sure to consult an expert engineer for installation help.

⚠ **WARNING HIGH RF VOLTAGE! NEVER** touch an antenna or antenna connector while transmitting. This could cause an electrical shock or burn.

⚠ **WARNING HIGH RF VOLTAGE! NEVER** put the antenna in any place that person easily touch the antenna while transmitting. This could cause an electrical shock or burn.

⚠ **WARNING! NEVER** disassemble, modify or repair the antenna. This may result in an electrical shock, cause a fire or damage the antenna.

⚠ **WARNING! NEVER** touch the antenna with wet hands. This may result in an electrical shock or damage the antenna.

**CAUTION: DO NOT** put the antenna in any unstable place, such as on a slanted surface or a place that vibrates. This may cause an injury and/or damage the antenna.

**CAUTION: DO NOT** use the antenna in strong magnetic fields or in an area with high static electricity. This could damage the antenna.

**CAUTION: DO NOT** use harsh solvents such as benzene or alcohol to clean the antenna, as they can damage the antenna's surfaces. If the antenna becomes dusty or dirty, wipe it clean with a dry, soft cloth.

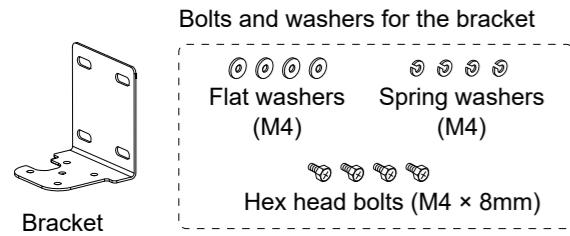
**CAUTION:** The antenna meets IP67\* requirements for dust-tight and waterproof protection. However, once the antenna has been dropped, dust-tight and waterproof protection cannot be guaranteed because of possible damage to the antenna's case or the waterproof seal.

\* Only when covering the connector with rubber vulcanizing tape.

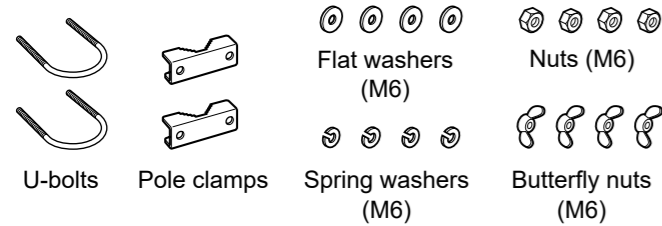
**DO NOT** place or leave the antenna in excessively dusty environments.

**BE SURE** to check your local regulations or laws to select the appropriate operating frequency.

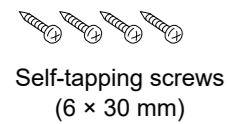
## Supplied accessories



### For attaching to a pole



### For attaching to a wooden stud, board, or panel



## Selecting a location

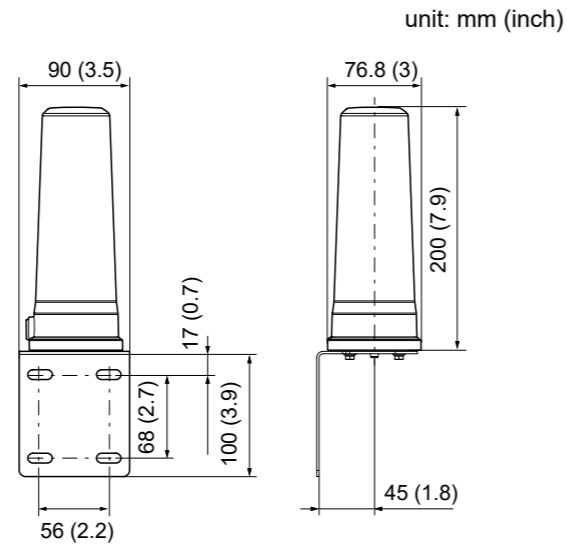
**NEVER** place the antenna in areas such as:

- An unstable place that slopes or vibrates.
- Too close to each other or other devices, such as TV antennas.
- Near a radio tower emitting strong radio waves.
- Near a metal structure, such as warehouses.
  - ① If there is a metal wall, handrail, or pillar where the radio wave from the antenna travels, the radio wave may be reflected irregularly.
- A place without direct lightning protection, such as lightning rods.
- A place where the antenna is affected by wind, and interferes with the wall or the other device around the antenna.

### NOTE:

- Use a coaxial cable (user supplied) type that is suitable for SMA connectors, and is as low loss as possible.
- Make the connection as short as possible.
- **DO NOT** bend the coaxial cable more than the allowable bending radius. This may cause more losses.
- **DO NOT** paint the antenna and connected equipment surfaces. The metal composition contained in the paint may attenuate the radio signals.

## Dimensions



## Specifications

- Frequency range:
  - AH-24 2300 ~ 2450 MHz
  - AH-56 5650 ~ 5925 MHz
  - AH-100 10.0 ~ 10.5 GHz
- Gain:
  - AH-24 4 dBi (typical)
  - AH-56 5 dBi (typical)
  - AH-100 5 dBi (typical)
- Operating temperature range:
  - 25°C ~ +55°C, -13°F ~ +131°F
- VSWR: 1.5 or less
- Dimensions: 76.8 (W) × 200 (H) × 76.8 (D) mm, 3 (W) × 7.9 (H) × 3 (D) inches (Bracket not included)
- Weight (approximate): 228 g, 8 oz (Supplied accessories not included)
- Connector: SMA-R

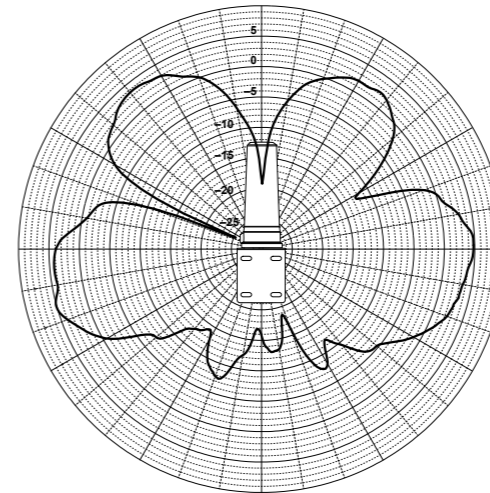
① All stated specifications and design are subject to change without notice or obligation.

## Radiation pattern (in the vertical plane)

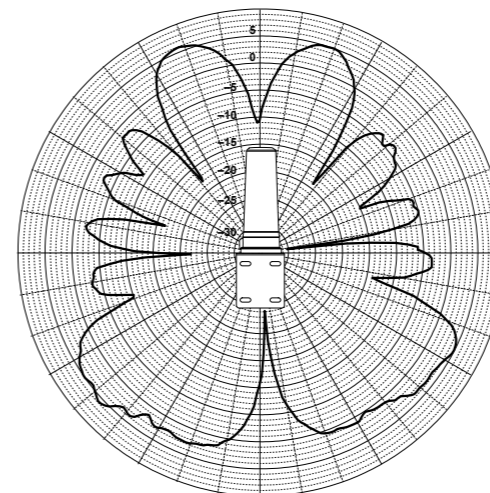
The AH-24, AH-56, and AH-100 are omnidirectional antennas, and have directional dependence, as shown below. If the distance between the transmit antenna and receive antenna is too short or the elevation difference is too large, the communication quality may deteriorate. When attaching the antenna, also consider the Fresnel zone.

① There is no directivity in the horizontal plane.

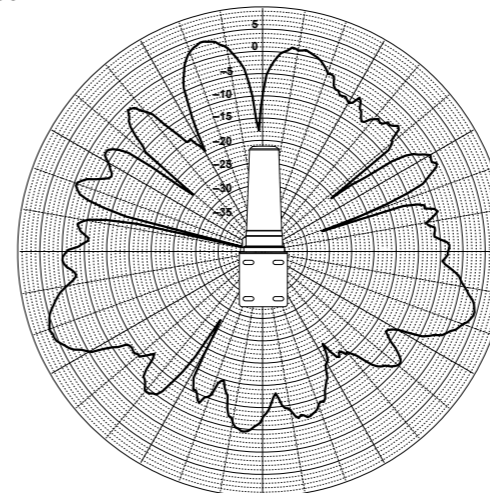
### AH-24



### AH-56



### AH-100

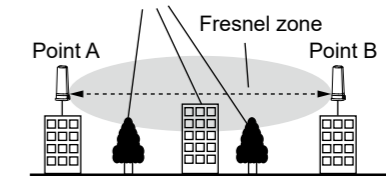


## Fresnel zone

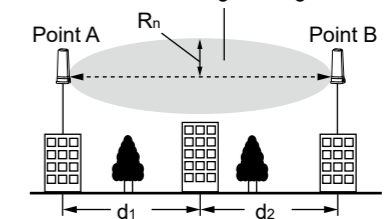
The radio waves from the antenna spread out in an elliptical shape. Therefore, it is important to free not only the straight line between the antennas, but also the surrounding area, which is called the Fresnel zone, from any obstruction. Any obstruction, such as buildings or trees, in the Fresnel zone causes deteriorated communication quality, such as poor signal transmission or reduced communication speed, even if you can see the destination antenna.

For stable long-distance communication, you need to place the antenna high enough to avoid blocking the Fresnel zone, as shown below.

There are obstructions in the Fresnel zone.



Place the antenna high enough to avoid blocking the Fresnel zone.



### Calculation example:

**AH-24**  $n = 1$ ,  $\lambda = 0.12$

Distance between the antennas (unit: km)	1	2.5	5	7.5	10
Fresnel zone radius (unit: m)	5.6	8.8	12.4	15.2	17.6

**AH-56**  $n = 1$ ,  $\lambda = 0.05$

Distance between the antennas (unit: km)	1	2.5	5	7.5	10
Fresnel zone radius (unit: m)	3.6	5.7	8.1	9.9	11.4

**AH-100**  $n = 1$ ,  $\lambda = 0.03$

Distance between the antennas (unit: km)	1	2.5	5	7.5	10
Fresnel zone radius (unit: m)	2.7	4.3	6.0	7.4	8.6

### Formula:

$$R_n = \left( \frac{n \times \lambda \times d_1 \times d_2}{d_1 + d_2} \right)^{\frac{1}{2}}$$

$R_n$  (m): Fresnel zone radius  
 $n$ : Fresnel zone number  
 $\lambda$  (m): Wavelength  
 $d_1$  (m): Distance from point A  
 $d_2$  (m): Distance from point B