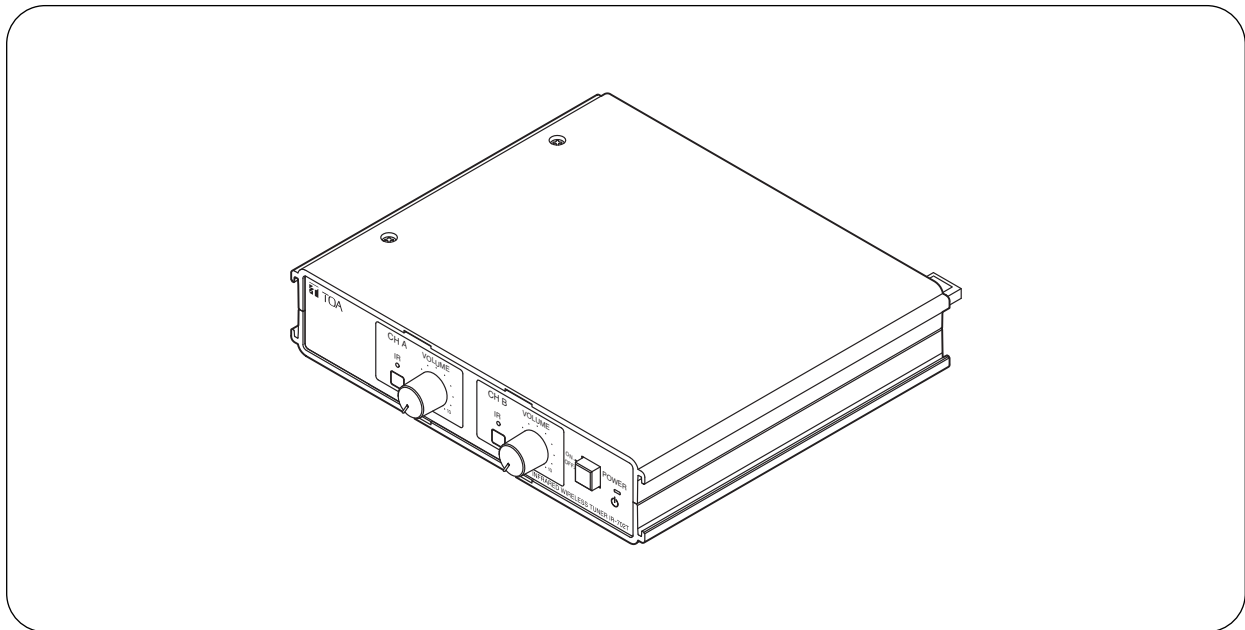


## INFRARED WIRELESS TUNER

## IR-702T



This manual describes the installation and usage of the entire system\* using the IR-702T Infrared Wireless Tuner as well as the IR-702T.

\* The system described in this manual is comprised of the following components:

- IR-702T Infrared Wireless Tuner
- IR-200M and IR-300M Infrared Wireless Microphones
- IR-500R, IR-510R, and IR-520R Infrared Wireless Receivers
- IR-200BC Battery Charger
- IR-200BT-2 Ni-MH Battery
- YW-1022 and YW-1024 Distributors

**Note**

For the installation and usage of the IR-702T when used in combination with the IR-700D Infrared Wireless Distributor, refer to the installation manual enclosed with the IR-700D.

Thank you for purchasing TOA's Infrared Wireless Tuner.

Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

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# 1. SAFETY PRECAUTIONS

**These precautions apply only to the IR-702T Infrared Wireless Tuner.  
For precautions regarding other infrared microphone system devices, please refer to the instruction manual included with each device.**

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

## **WARNING**

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

## **CAUTION**

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

## **WARNING**

### **When Installing the Unit**

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.

### **When the Unit is in Use**

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - If you detect smoke or a strange smell coming from the unit.
  - If water or any metallic object gets into the unit
  - If the unit falls, or the unit case breaks
  - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - If it is malfunctioning (no tone sounds.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.

- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not touch a power supply plug during thunder and lightning, as this may result in electric shock.

## **CAUTION**

### **When Installing the Unit**

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- Refer all installation work to the dealer from where the unit was purchased. Installation requires extensive technical knowledge and experience. Improper installation may result in personal injury or electric shock.

### When the Unit is in Use

- Use the AC adapter supplied with the unit. Note that the use of other adapter may cause a fire.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

## FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any modifications made to this device that are not approved by TOA Corporation may void the authority granted the user by the FCC to operate this equipment.

## 2. GENERAL DESCRIPTION

The IR-702T is a 2-channel infrared wireless tuner employing a fixed frequency system.

This tuner is combined with an infrared wireless microphone and an infrared wireless receiver to make up the infrared wireless microphone system.

The infrared microphone system eliminates problems with interference or eavesdropping, allowing simultaneous use in adjacent conference rooms or school classrooms.

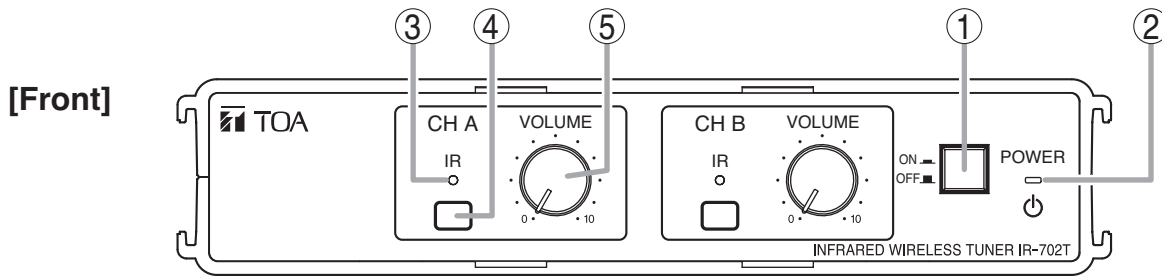
## 3. FEATURES

- The YW-1022 or YW-1024 Distributor allows up to 4 infrared wireless receivers to be installed.
- Up to 16 infrared wireless receivers can be installed with the use of the IR-700D Infrared Wireless Distributor.
- Since the IR-702T tuner uses a frequency band that does not interfere with that of the infrared conference system (TS-800 and TS-900 Series), both the infrared wireless microphone system and the conference system can be simultaneously installed in the same location.

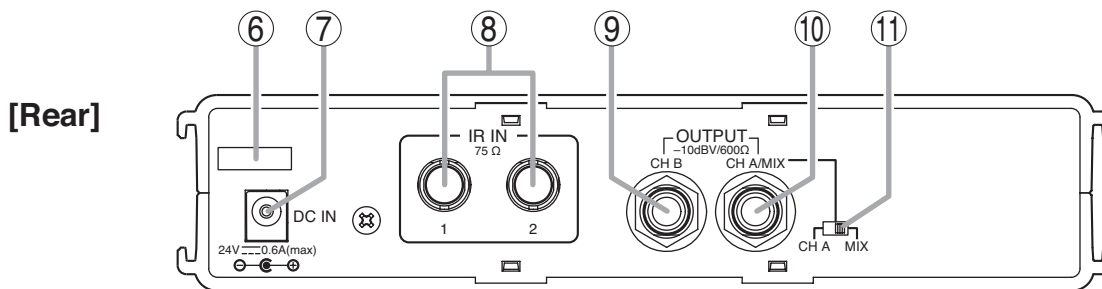
## 4. HANDLING PRECAUTIONS

- The supplied power supply cord is designed for exclusive use with the IR-702T. Never use it with other equipment.
- Install the IR-702T as far as possible from fluorescent lights, digital equipment, PCs and other devices that generate high-frequency noise.
- The IR-702T is an infrared wireless system which prevents transmitted contents from being revealed to people outside walls or other shields. However, since transmissions may be eavesdropped by malicious third parties, it is strongly suggested that the user take responsibility for carrying out measures to prevent eavesdropping. TOA assumes no responsibility for any damages that may be sustained without taking appropriate protective measures against eavesdropping.
- When cleaning, be sure to first switch off the tuner's power, then wipe with a dry cloth. If the tuner is extremely dirty, use a cloth moistened in a neutral detergent. Do not use benzene, thinner, alcohol and chemically-processed towels, as they can cause damage to the tuner's components and parts.

## 5. NOMENCLATURE AND FUNCTIONS



**Note:** Functions of the (3), (4), and (5) for the Channel A also apply to the Channel B (CH-B).



### 1. Power switch

Press this switch to turn on the power. To turn off the power, press this switch again.

### 2. Power indicator

Lights when the power is switched on.

### 3. Reception indicator [IR]

Lights during reception.

### 4. Color label attachment area

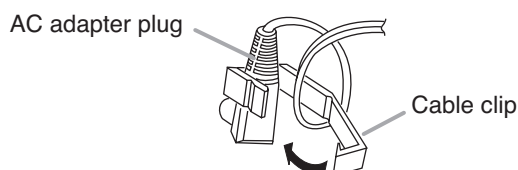
Attach a color label (accessory) of the same color as that of the infrared wireless microphone to be used in combination with the tuner.

### 5. Volume control knob

Adjusts the sound volume of the infrared wireless microphone.

### 6. Cable Clip

Run the AC adapter cable through this clip to prevent its plug from being removed.



### 7. DC inlet [DC IN]

Connect the supplied AC adapter.

### 8. Receiver input terminals [IR IN]

Connect the infrared wireless receiver or the distributor. Up to 4 infrared wireless receivers can be connected with the use of the YW-1022 (2-Branch Distributor) or the YW-1024 (4-Branch Distributor).

Note that only one YW-1022 or YW-1024 Distributor can be connected per input channel. Up to 16 infrared wireless receivers can be connected with the use of the IR-700D Infrared Wireless Distributor. For cable connections when using the IR-700D, refer to the installation manual enclosed with the IR-700D.

### 9. CH B output terminal [CH B]

Connect this terminal to the amplifier line input terminal for public address applications. This terminal outputs only the CH-B audio signal.

### 10. CH A/MIX output terminal [CH A/MIX]

Connect this terminal to the amplifier line input terminal for public address applications. This terminal outputs either the CH-A audio signal alone or a mixed CH-A and CH-B audio signal depending on the setting of the CH A/MIX output selector switch (11).

### 11. CH A/MIX output selector switch

#### • CH A

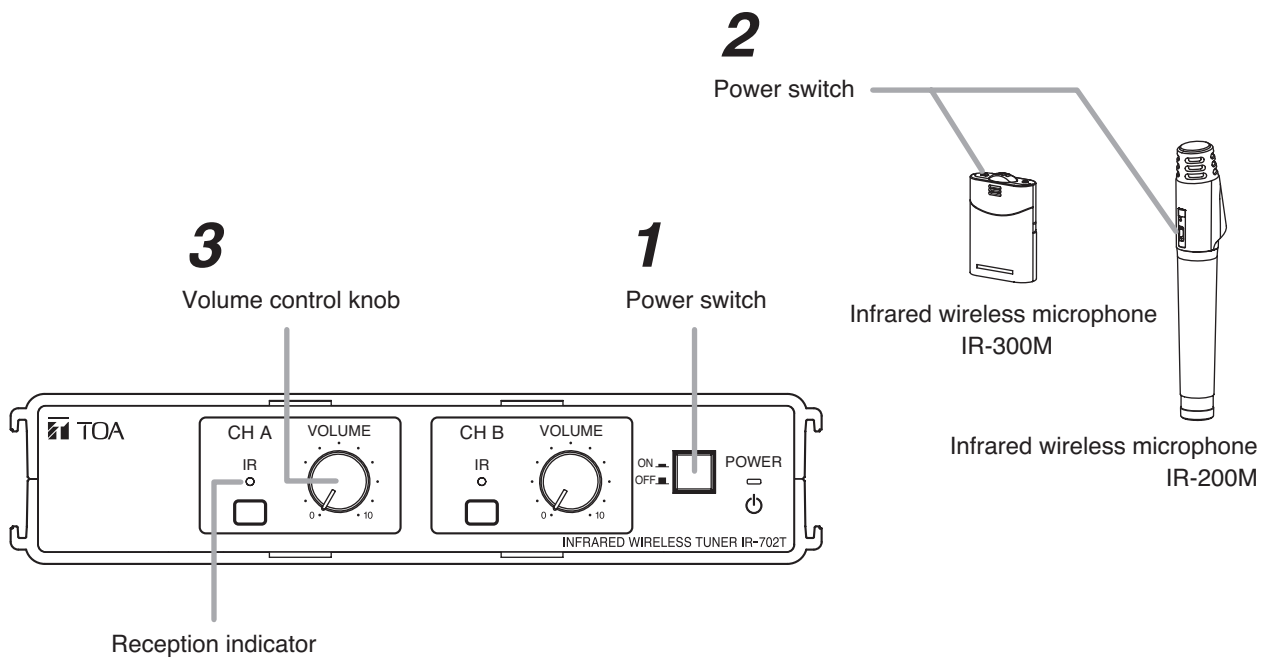
Only the CH-A signal is delivered at the CH A/MIX output terminal (10).

#### • MIX (default position)

Mixed CH-A and CH-B signals are delivered at the CH A/MIX output terminal (10).

## 6. OPERATIONS

**Note:** The example here shows the operation of the Channel A. This operation also applies to the Channel B.



**Step 1.** Turn on the unit's power switch.

**Step 2.** Turn on the infrared wireless microphone's power switch.  
The reception indicator lights for the channel receiving a signal.

**Note**

If the reception indicator does not light, the infrared wireless microphone is not set to the same channel as that of the infrared wireless tuner. For channel settings, please refer to the instruction manual enclosed with the infrared wireless microphone.

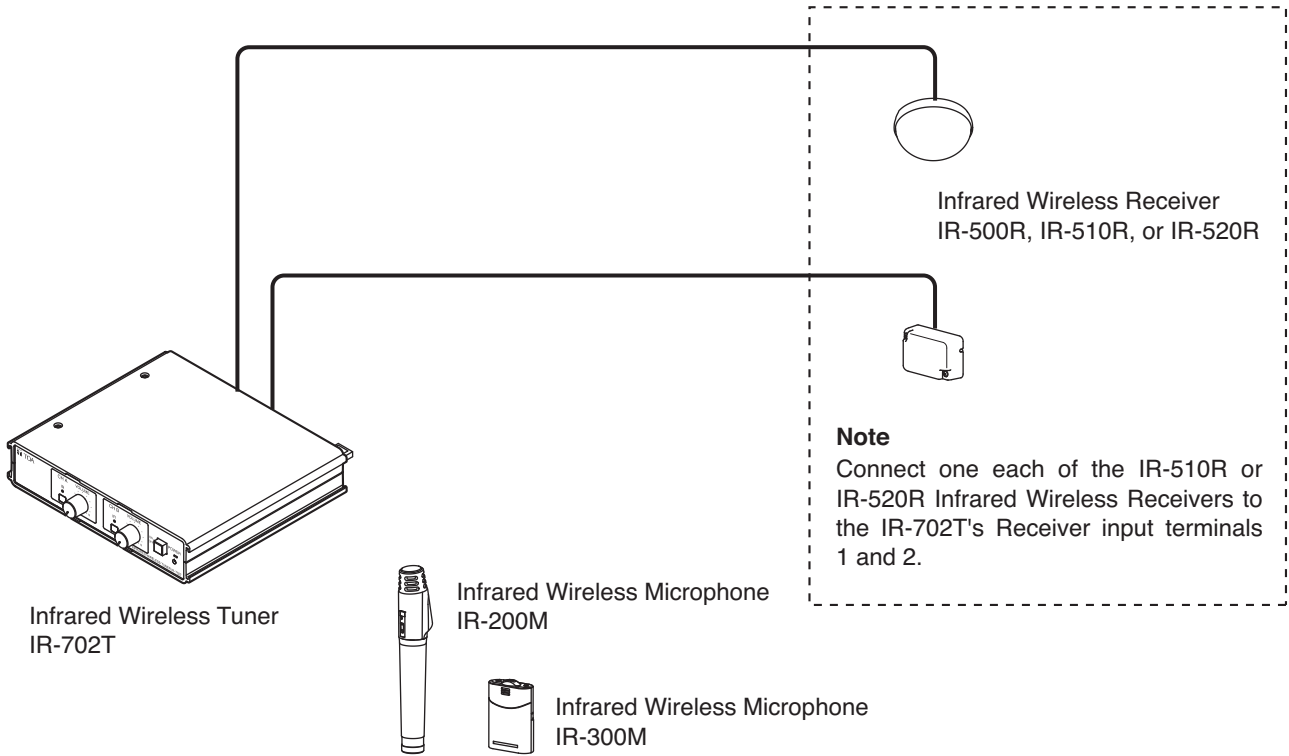
**Step 3.** Adjust the volume control knob for an appropriate output sound.

**Note**

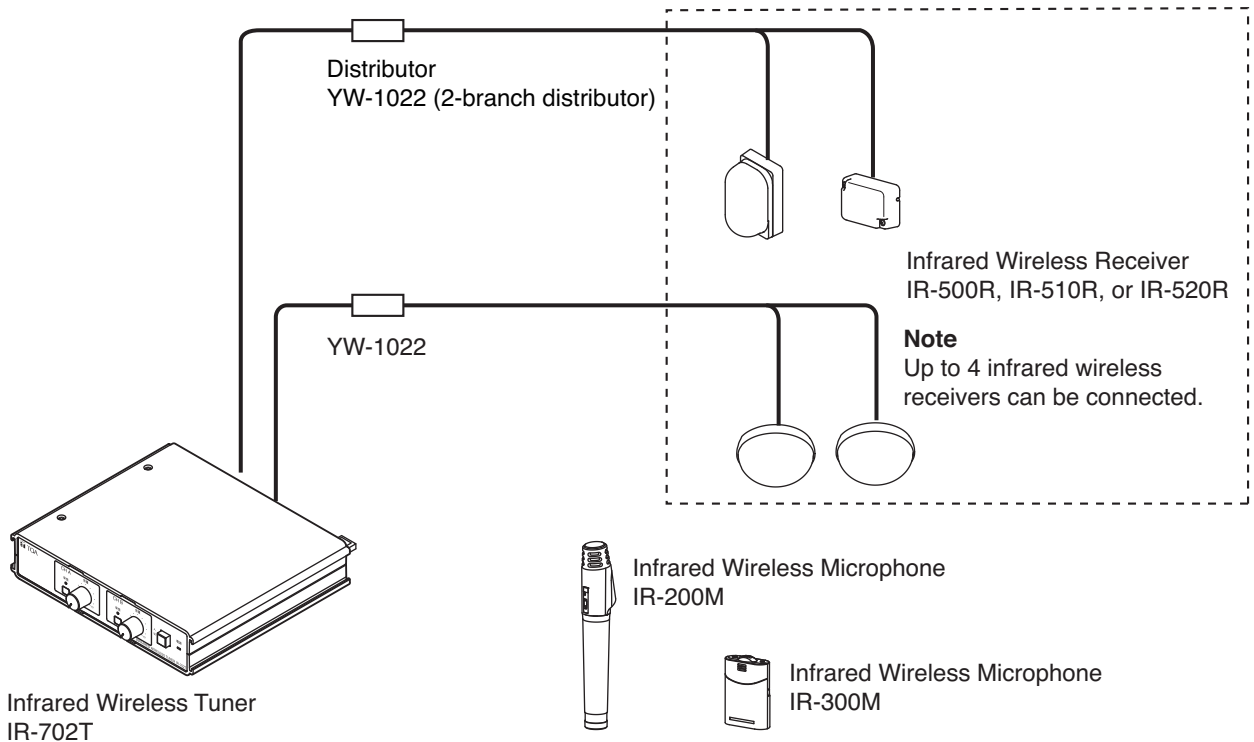
Output signal distortion is more likely to increase as the volume control knob is rotated beyond the "2-o'clock" position.

## 7. SYSTEM CONFIGURATION EXAMPLES

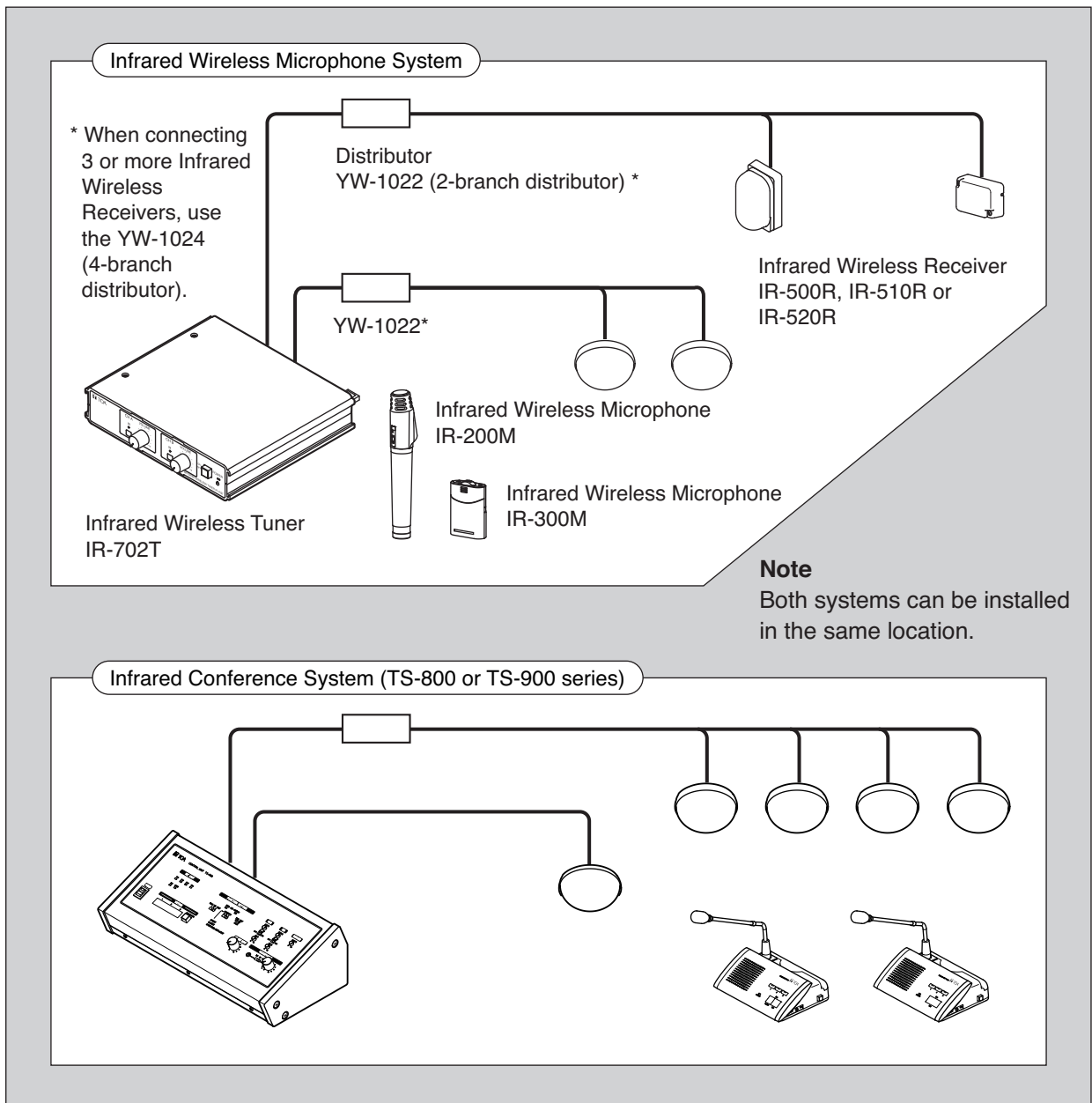
### 7.1. Using 2 Infrared Wireless Receivers



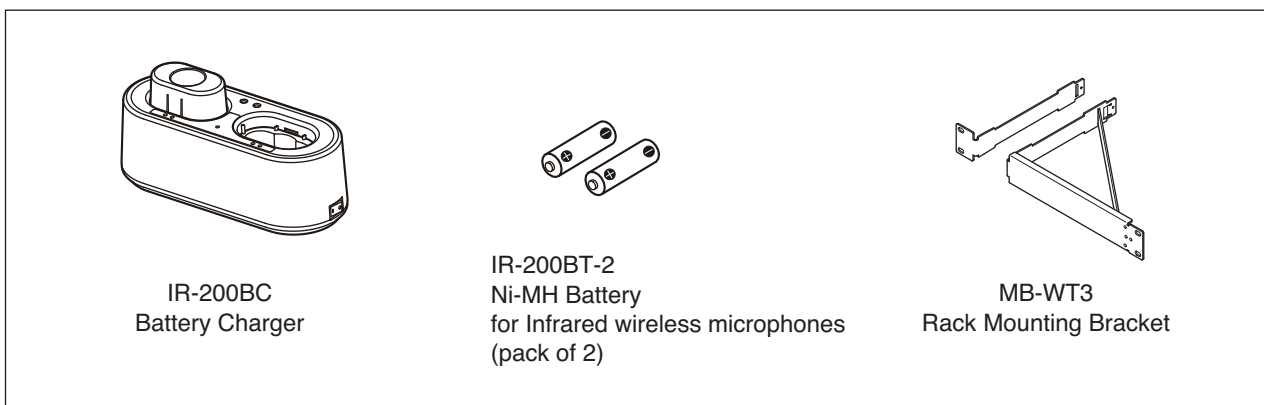
### 7.2. Using 4 Infrared Wireless Receivers



### 7.3. Simultaneous Use of the Infrared Wireless Microphone System and the Infrared Conference System

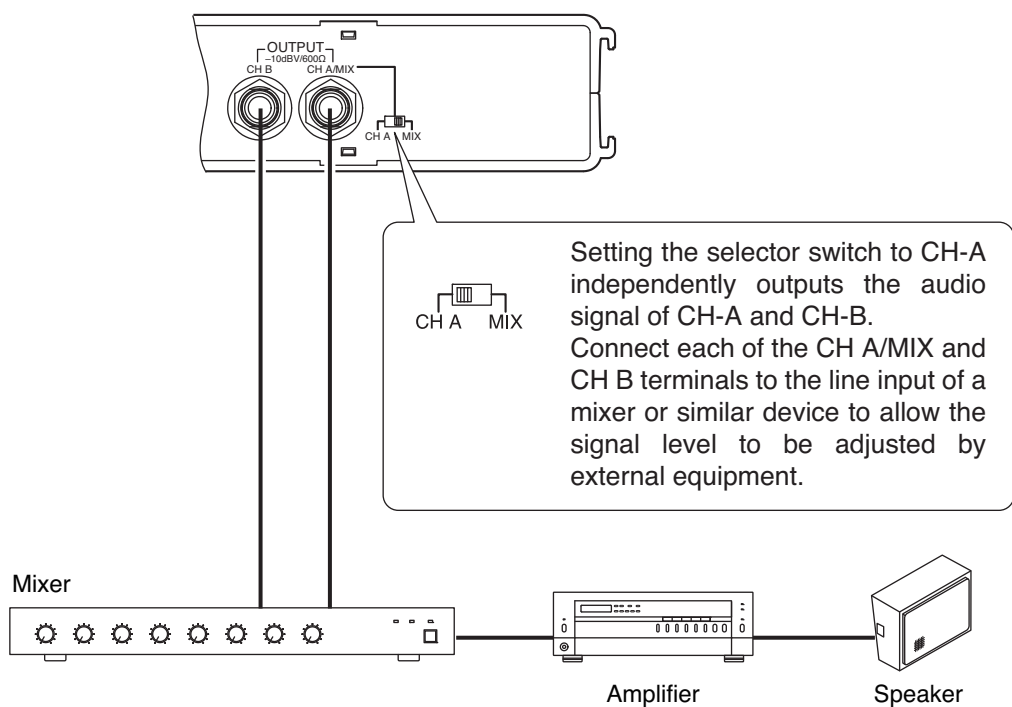
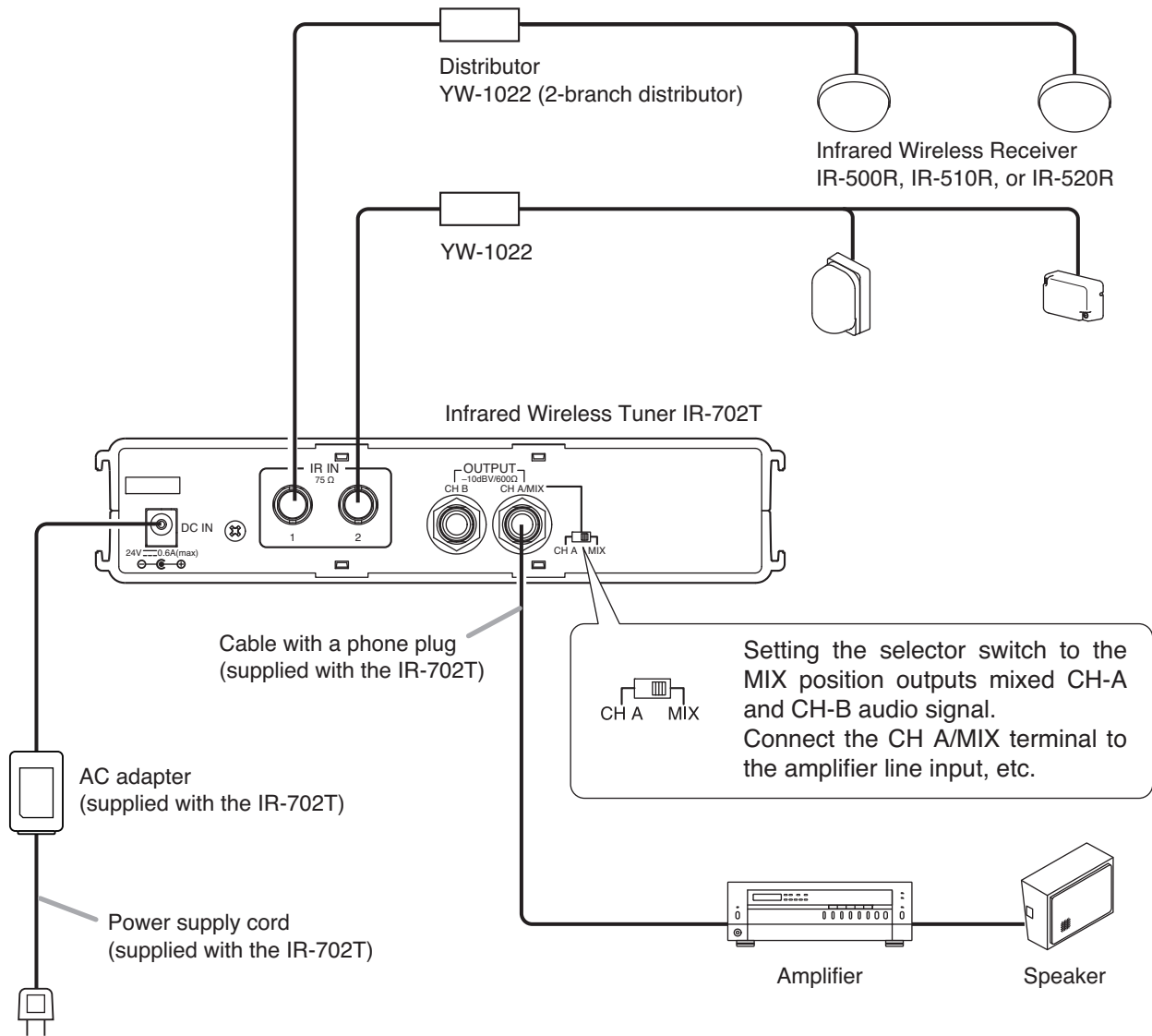


#### [Infrared Wireless Microphone System-related Equipment]





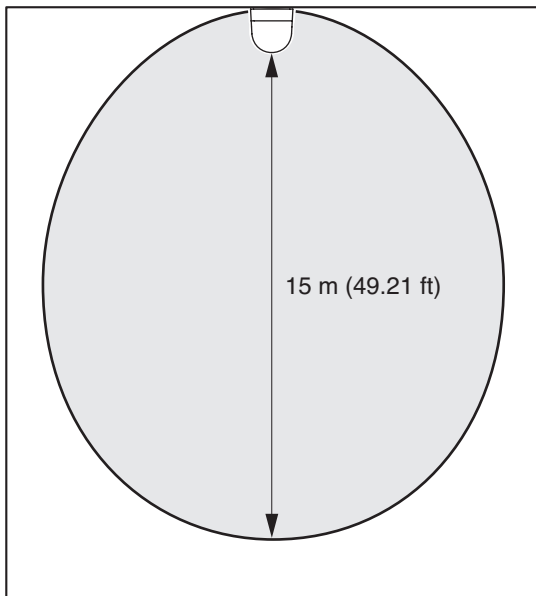
## 8. CONNECTION EXAMPLE



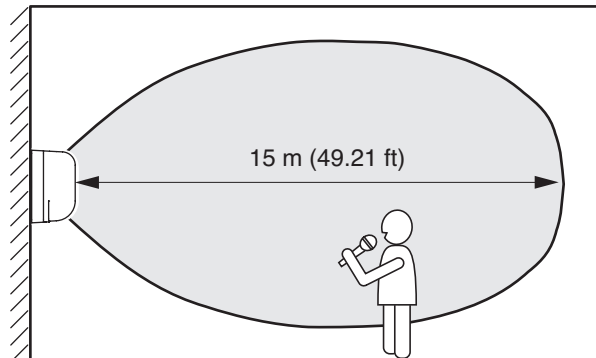
## 9. INFRARED WIRELESS RECEIVER COVERAGE AREA

### 9.1. IR-500R and IR-520R (Wall-mounted and microphone stand-mounted type)

[Horizontal direction]



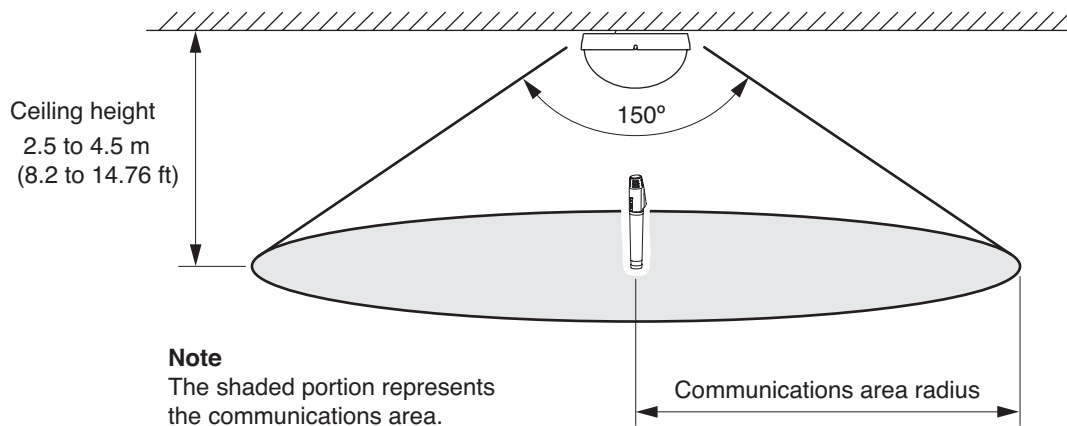
[Vertical direction]



**Note**

The shaded portion represents the communications area.

### 9.2. IR-510R (Ceiling-mounted type)



**Note**

The shaded portion represents the communications area.

Applicable model	Ceiling height	Communications area radius
IR-510R	2.5 m (8.20 ft)	About 7 m (23 ft)
	3.0 m (9.84 ft)	
	3.5 m (11.48 ft)	About 6.5 m (21.5 ft)
	4.0 m (13.12 ft)	
	4.5 m (14.76 ft)	About 6 m (20 ft)

## 10. INSTALLING THE INFRARED WIRELESS RECEIVER

### 10.1. Installation Precautions

Because the infrared wireless microphone and receiver have their own directivity for infrared transmission and reception, take care that they are installed and operated under stable communication conditions.

- **Number of infrared wireless receivers**

Use 2 or more receivers.

- **Installation Position**

- The infrared beam can be blocked by a human body or other objects. To avoid this, install multiple infrared wireless receivers that can be viewed from the infrared wireless microphone.
- Install multiple infrared wireless receivers so as to allow constant communications between the infrared microphone and at least one infrared wireless receiver in any specific situation. When installing the infrared wireless receivers, take care that they can sufficiently cover the communications area from different angles. If the infrared wireless microphone is used in the communications area where only one infrared wireless receiver is installed, communications may be interrupted when the infrared beam is blocked by a human body or other objects.
- Install the infrared receiver at a height of 2 – 3 m (6.56 – 9.84 ft) from the floor.
- Install the infrared wireless receivers at a height that protects them from damage that could result from being hit by an object.

- **Distance between the infrared wireless microphone and receiver**

Malfunctions or noise could result from the infrared wireless microphone and receiver being too close to each other. Keep the infrared wireless microphone at least 2 m (6.56 ft) away from the receiver.

- **Radio Noise**

Do not install the infrared wireless receiver and cables close to devices that can generate radio noise, such as: Inverter-powered equipment (fluorescent lights, air-conditioners, etc.), dimmers, digital equipment, PCs and other computer equipment.

- **Infrared Receiver Input Terminal**

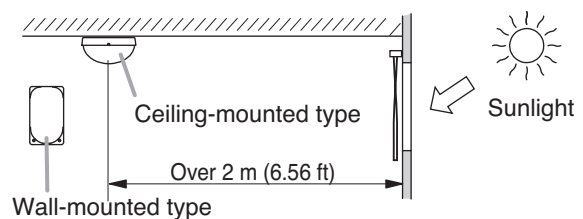
Take care not to short-circuit the infrared wireless receiver's input terminal and the infrared wireless tuner's receiver input terminal, as the power supply could be shorted, potentially resulting in equipment failures.

- **Sunlight and Fluorescent Lighting**

System malfunctions or noise could result from installing the infrared wireless receiver in locations exposed to sunlight, fluorescent lighting or other infrared generating sources. When installing the receiver, make the following arrangements so that it is not exposed to infrared sources:

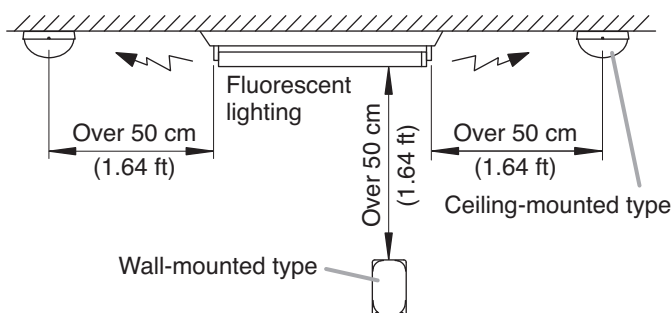
**[Avoid Sunlight]**

- To prevent equipment from being directly exposed to sunlight, block the sunlight using curtains or window shades.
- When mounting the receiver to a ceiling, keep it at least 2 m (6.56 ft) away from the window.



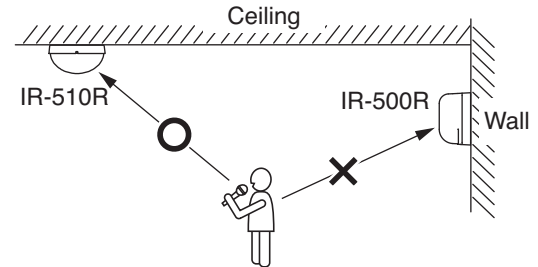
**[Install Away From Fluorescent Lighting]**

When installing the receiver, keep it at least 50 cm (1.64 ft) away from the fluorescent lighting.



**[Avoid installing close to other infrared sources shown below]**

- Lighting device
- Liquid crystal projectors, overhead projectors and incandescent lights
- Plasma displays
- Remote control units, infrared LAN and other infrared devices



**Note**

In this figure, the IR-510R receives a signal from the infrared wireless microphone because there is no shield between the two. However, communication to the IR-500R could be interrupted if the user's body blocks the beam like a shield.

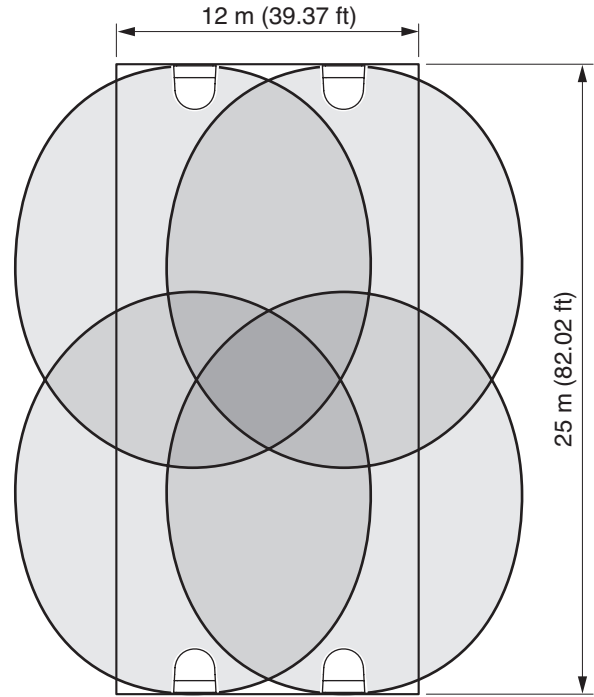
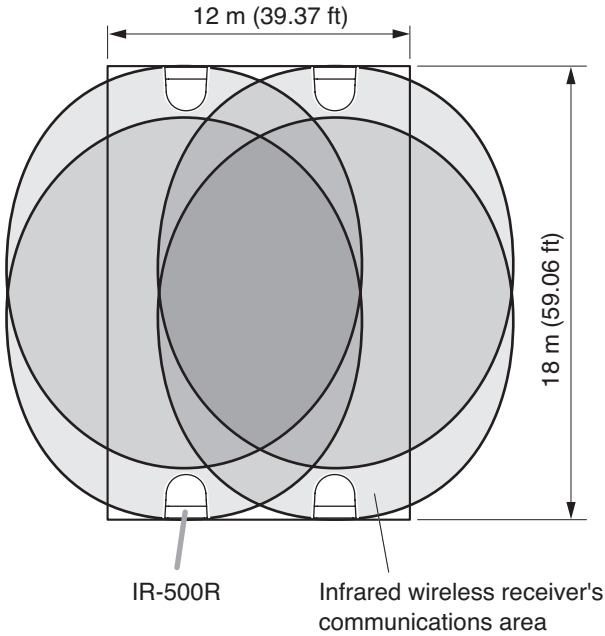
## 10.2. Infrared Wireless Receiver Installation Examples

The receiver's communications area differs depending on such environmental conditions as the ceiling height. (Refer to p. 10 "Infrared Wireless Receiver Coverage Area.")

### 10.2.1. Installing 4 IR-500Rs and IR-520Rs

**Note**

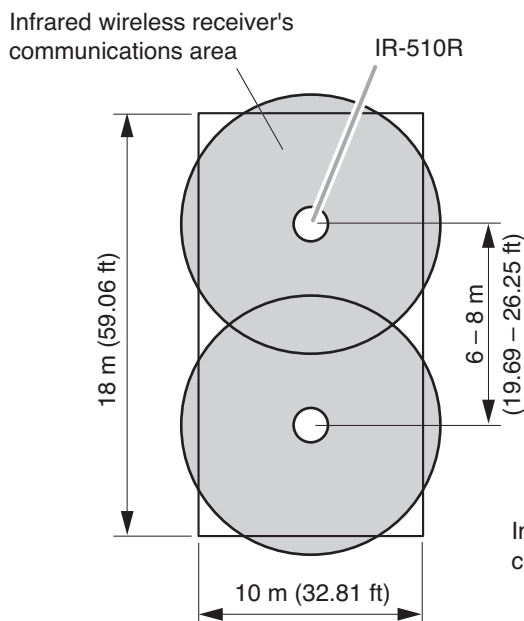
In a rectangular room where the usage area is wider than the infrared receiver's communication distance, install the receivers on the opposite side as well.



### 10.2.2. Installing 2 IR-510Rs

**Note**

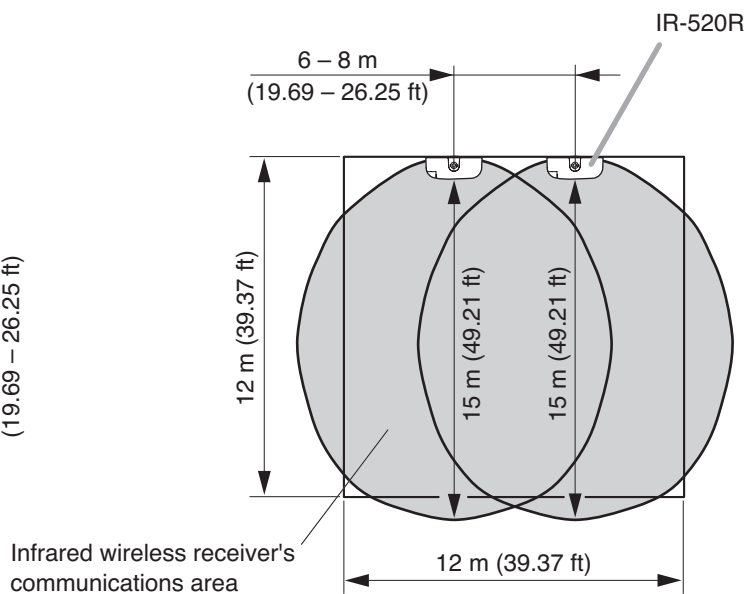
Install these 6 m (19.69 ft) to 8 m (26.25 ft) apart so that each receiver's communications area overlaps with each other.



### 10.2.3. Installing 2 IR-520Rs

**Note**

Install these 6 m (19.69 ft) to 8 m (26.25 ft) apart so that each receiver's communications area overlaps with each other.



### 10.3. When Simultaneously Using Both the Infrared Wireless Microphone System and the Infrared Conference System

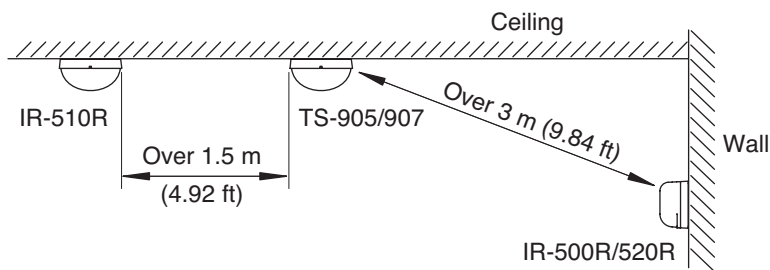
The appropriate distance between the infrared wireless receiver (IR-500R, IR-510R, and IR-520R) of the infrared wireless microphone system and the transmitter/receiver unit (TS-905 and TS-907) of the infrared conference system differs depending on the size and layout of the room. When simultaneously installing the two systems in the same location, use the following guidelines on distance:

**[Distance between the IR-500R/520R and the TS-905/TS-907]**

Keep both units at least 3 m (9.84 ft) away from each other.

**[Distance between the IR-510R and the TS-905/TS-907]**

Keep both units at least 1.5 m (4.92 ft) away from each other.



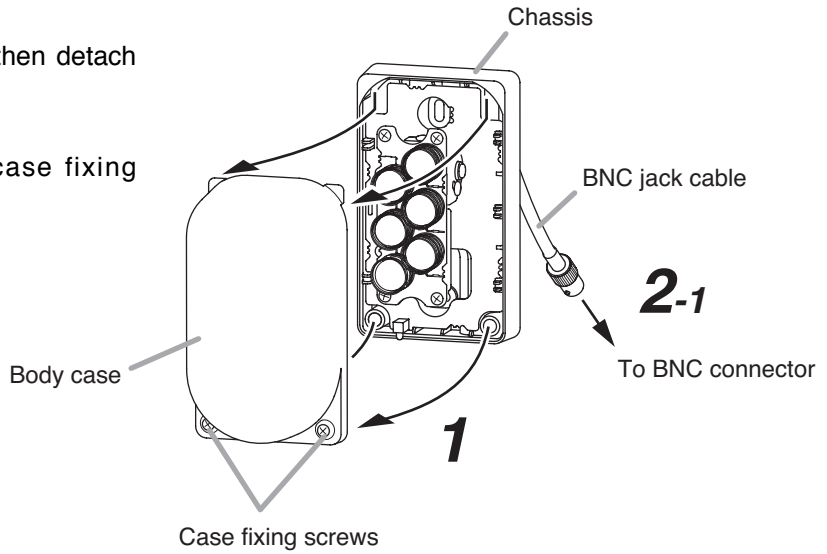
# 11. INSTALLING THE IR-500R INFRARED WIRELESS RECEIVER

## 11.1. Wall Mounting

**Step 1.** Loosen 2 case fixing screws, then detach the body case with screws.

**Note**

No need to remove these case fixing screws.



**Step 2.** Connect the coaxial cable.

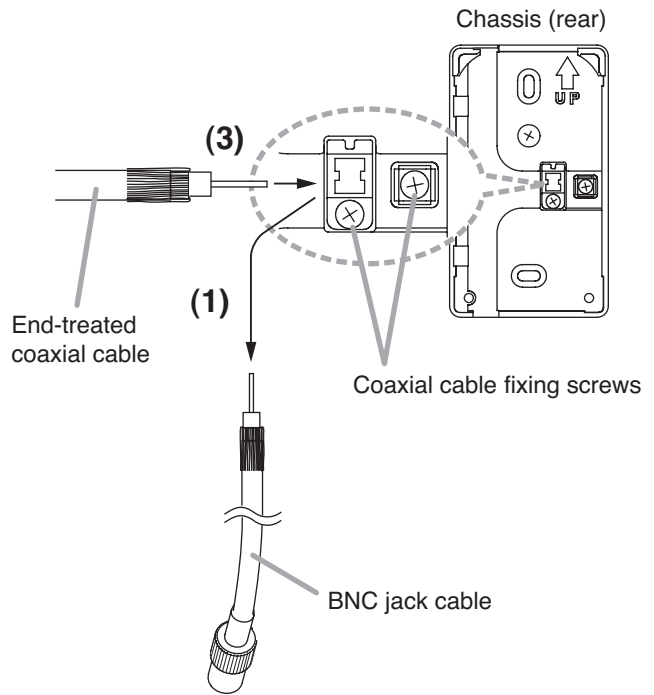
**2-1.** When using the BNC connector  
Connect the BNC cable to the BNC jack cable connected to the chassis.

**Note**

Applicable coaxial cable is RG-59/U or RG-6/U.

**2-2.** When connecting the coaxial cable directly

(1) Loosen 2 coaxial cable fixing screws on the chassis, then disconnect the BNC jack cable.

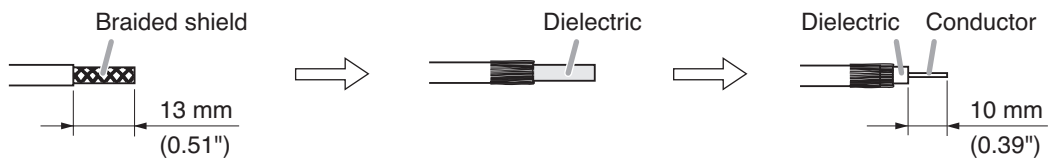


(2) Treat the coaxial cable end.

Strip the jacket 13 mm (0.51") from the end of the coaxial cable.

Unravel the braided shield and turn it back.

Strip the dielectric 10 mm (0.39") from the cable end.



(3) Insert the end-treated cable, then securely tighten the coaxial cable fixing screws.

**Step 3.** Install the chassis in an electrical box or on a wall.

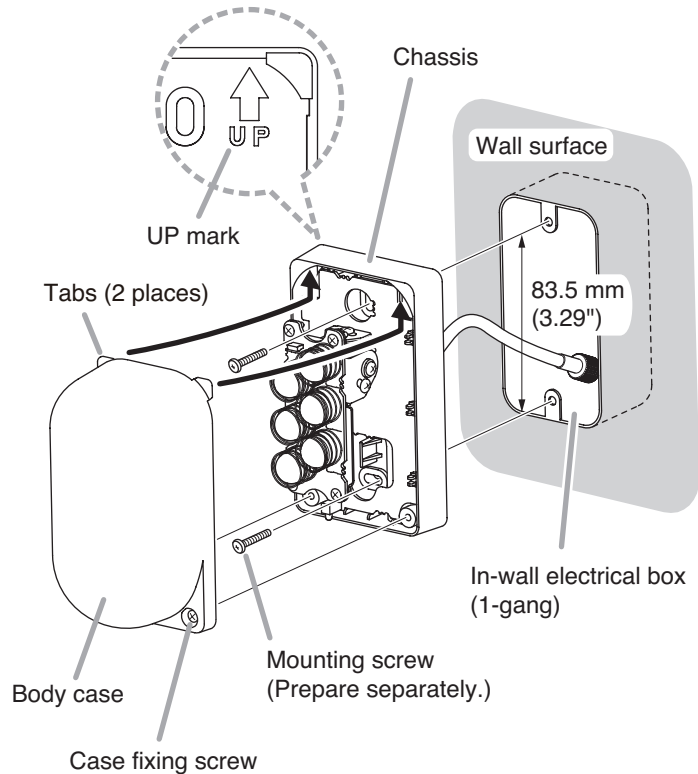
**3-1.** When installing in an electrical box

- (1) Install the chassis, with its UP mark facing upward, in an electrical box.

**Note**

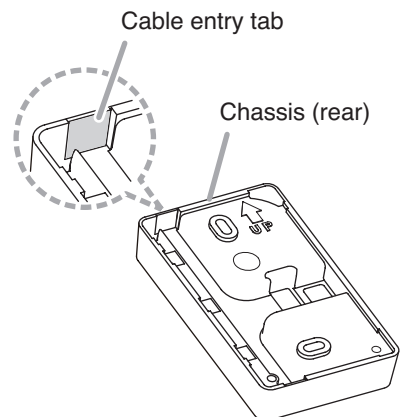
Since no mounting screws are supplied with the IR-500R, separately prepare screws that are appropriate for the electrical box used.

- (2) Adjust the reception angle referring to p. 16 – 17.
- (3) Replace the body case by inserting the tabs on its top into the upper inside of the chassis, then retighten the case fixing screws to secure the body case.



**3-2.** When directly installing on a wall

- (1) Cut out the cable entry tab in the chassis using nippers. One each of cable entry tabs, which are relatively thin, is provided in the top and bottom surface of the chassis. Cut out the entry tab as needed.

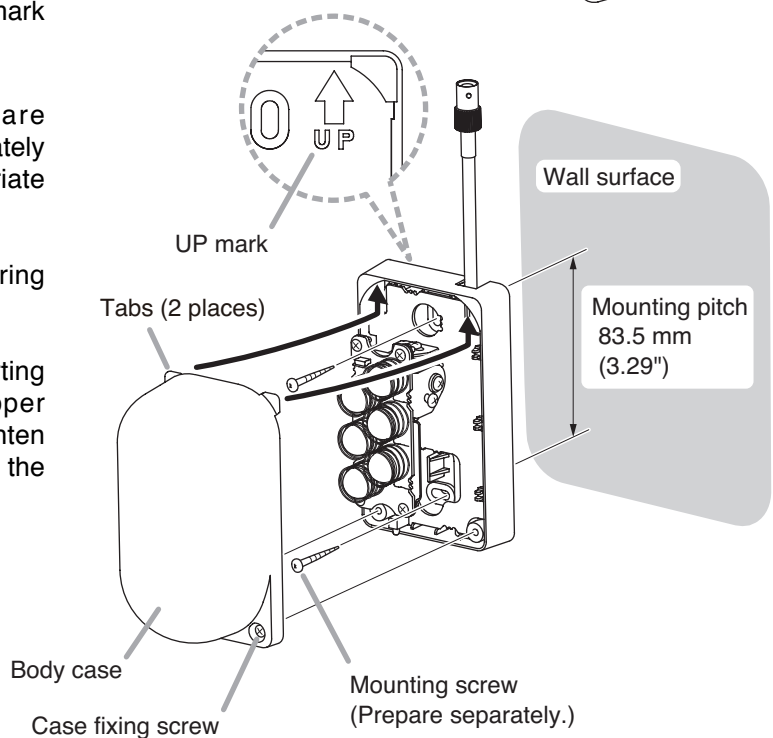


- (2) Install the chassis, with its UP mark facing upward, on a wall.

**Note**

Since no mounting screws are supplied with the IR-500R, separately prepare screws that are appropriate for the construction of wall.

- (3) Adjust the reception angle referring to p. 16 – 17.
- (4) Replace the body case by inserting the tabs on its top into the upper inside of the chassis, then retighten the case fixing screws to secure the body case.



## 11.2. Adjusting the Reception Angle

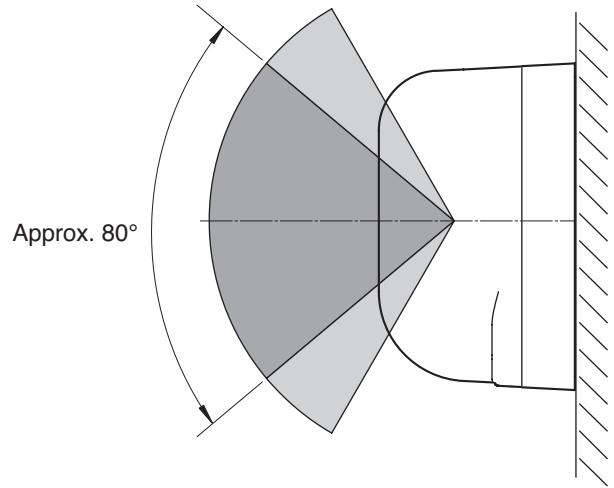
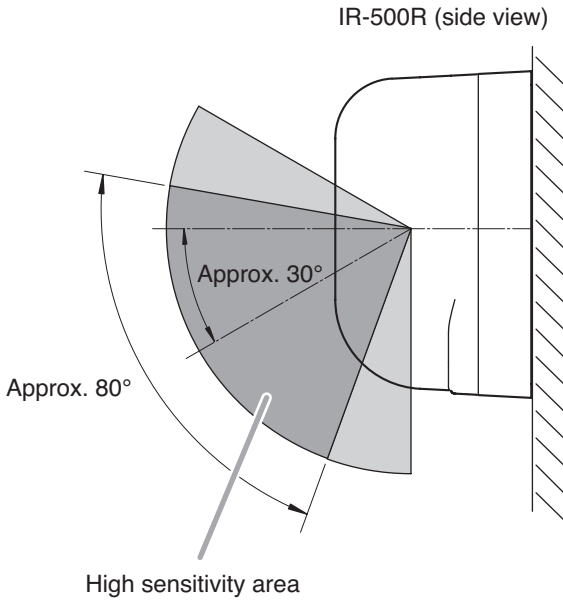
Communications area of the IR-500R can be adjusted both vertically (from 0° to approx. 30° downward) and horizontally (approx. 30° to the right or left) by moving its reception section. Adjust the angle depending on the installation location.

### 11.2.1. IR-500R's receiving angle image

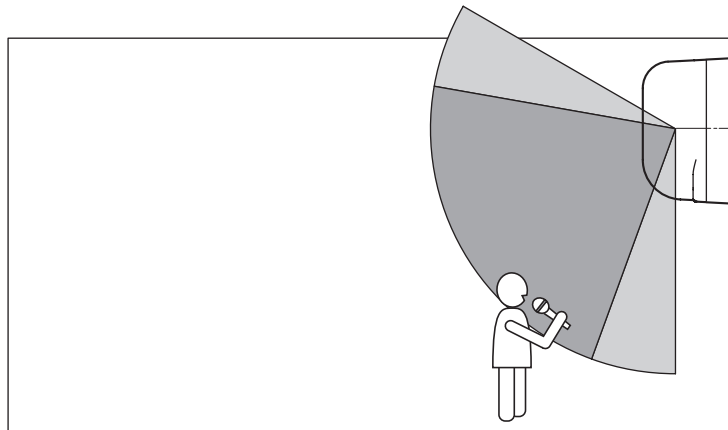
[Vertical direction]

(Factory-preset : approx. 30° downward)

(When moving the reception section to vertical 0° position)

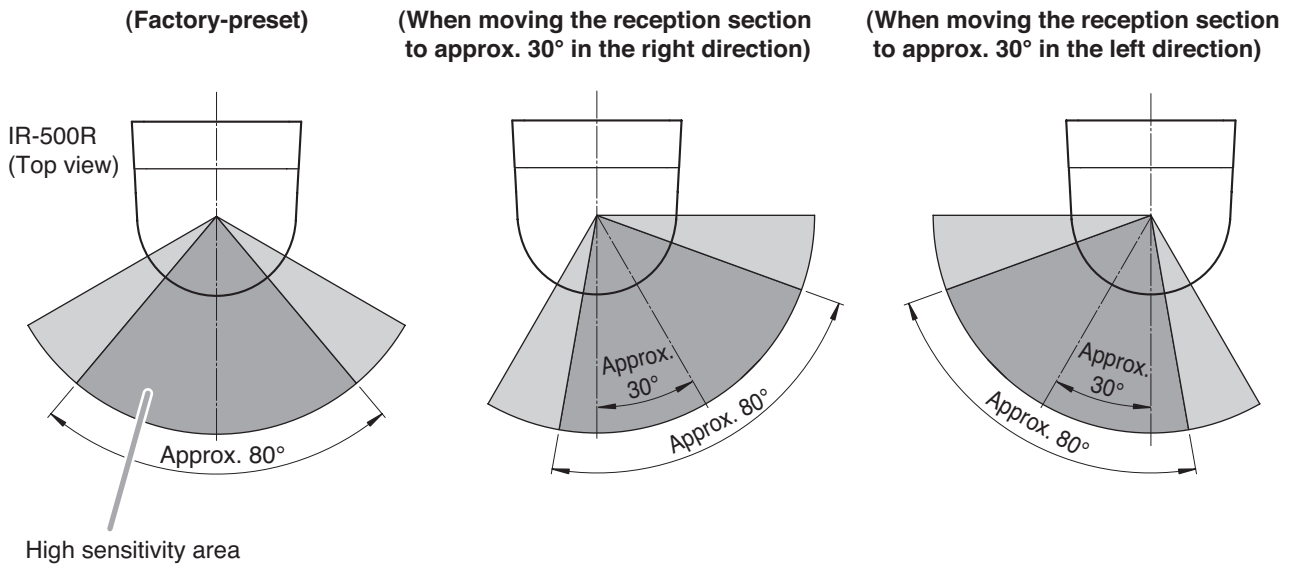


**Adjustment example in vertical direction  
(when installing the IR-500R at a higher position)**

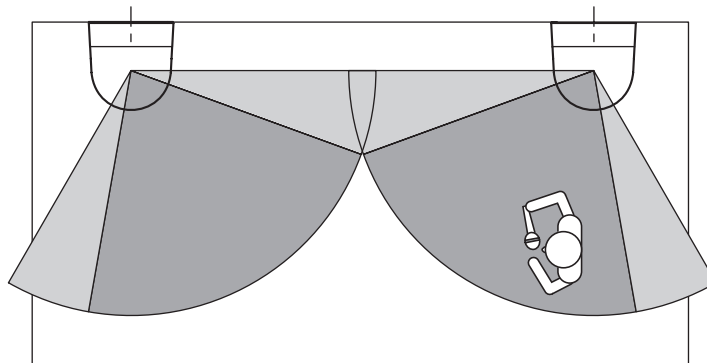




**[Horizontal direction]**



**Adjustment example in horizontal direction  
(when installing the IR-500Rs at the corners of the room)**



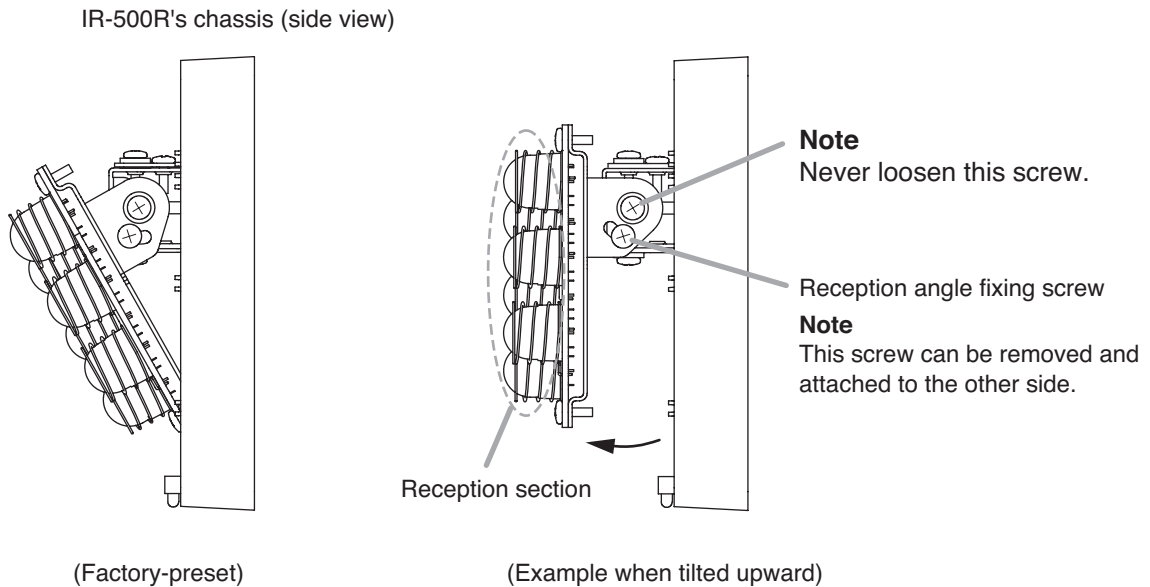
**Correct the reception section's vertical angle first, then the horizontal angle.**

**11.2.2. Correcting the vertical angle**

**Step 1.** Loosen the reception angle fixing screw (for vertical).

**Step 2.** Direct the reception section down or up towards the area, where the infrared wireless microphones are used, by hand.

**Step 3.** Retighten the loosened screw in Step 1.

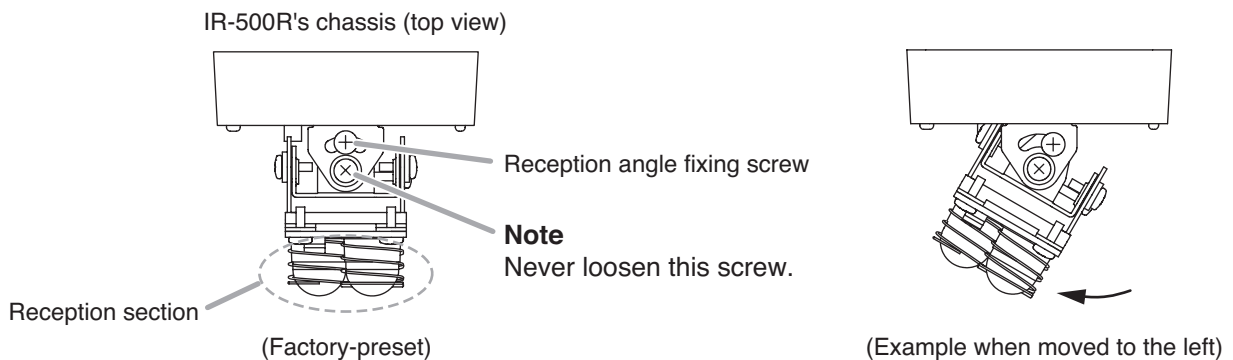


**11.2.3. Correcting the horizontal angle**

**Step 1.** Loosen the reception angle fixing screw (for horizontal).

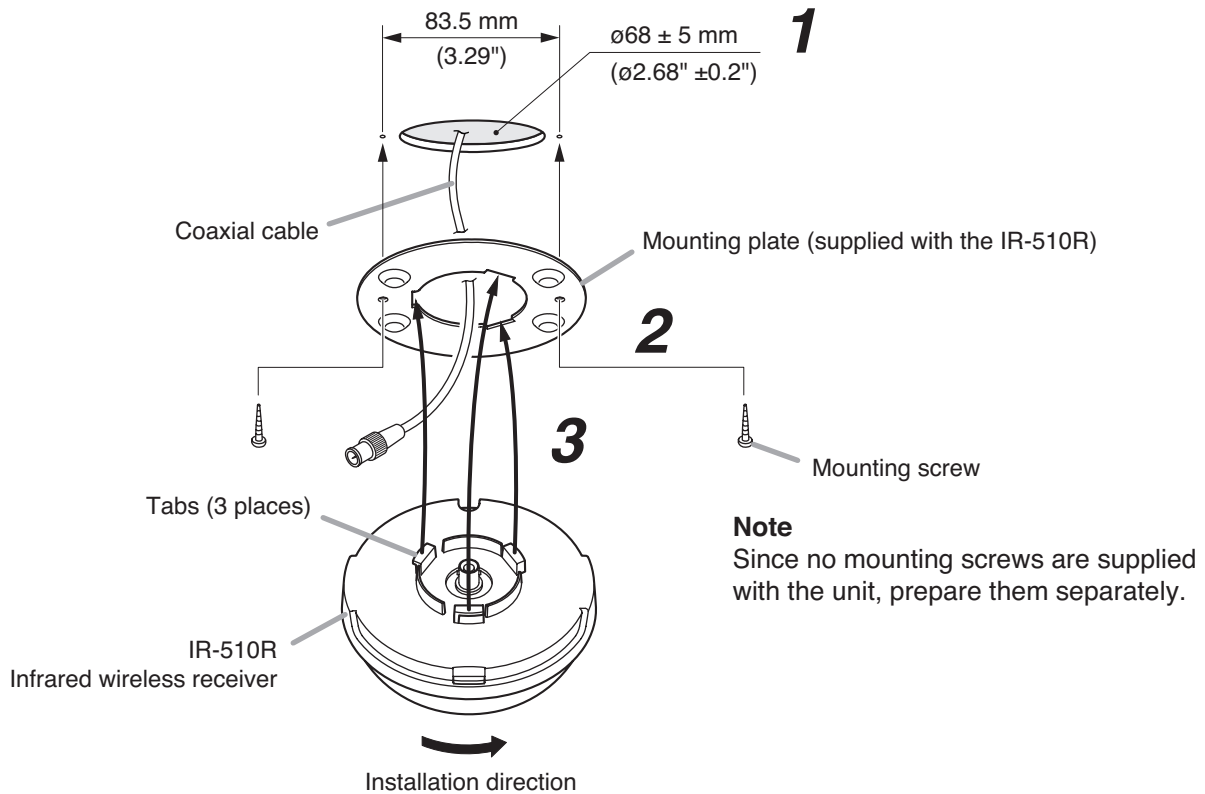
**Step 2.** Direct the reception section to the left or right towards the area, where the infrared wireless microphones are used, by hand.

**Step 3.** Retighten the loosened screw in Step 1.



## 12. INSTALLING THE IR-510R INFRARED WIRELESS RECEIVER

### 12.1. Ceiling Mounting



**Step 1.** Make a mounting hole of 68 mm (2.68") in the ceiling board.

**Step 2.** Install the mounting plate (supplied with the IR-510R) to the ceiling board.

**Notes**

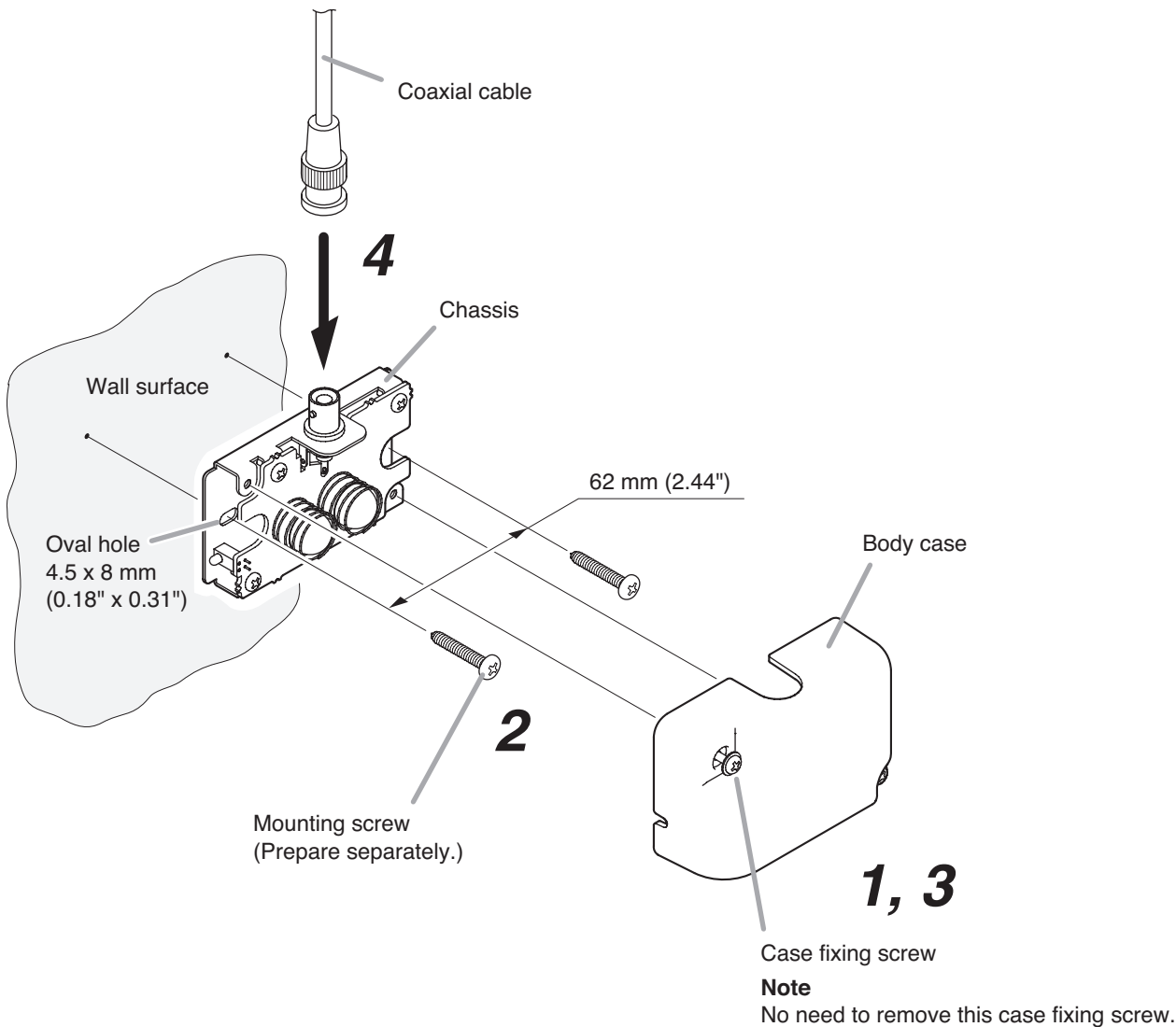
- The IR-510R offers a mounting pitch of 83.5 mm (3.29") and can be mounted in an electrical box as well.
- Use an electrical box in the case of open wiring.
- Use a BNC L connector or an L-shaped adapter connector when mounting the receiver in an electrical box.

**Step 3.** After wiring completion, attach the receiver to the mounting plate.

Align the receiver tabs (3 places) with the notches in the plate, then rotate the receiver clockwise to full stop.

# 13. INSTALLING THE IR-520R INFRARED WIRELESS RECEIVER

## 13.1. Wall Mounting



**Step 1.** Loosen 2 case fixing screws, then detach the body case.

**Step 2.** Install the chassis to a wall.

**Note**

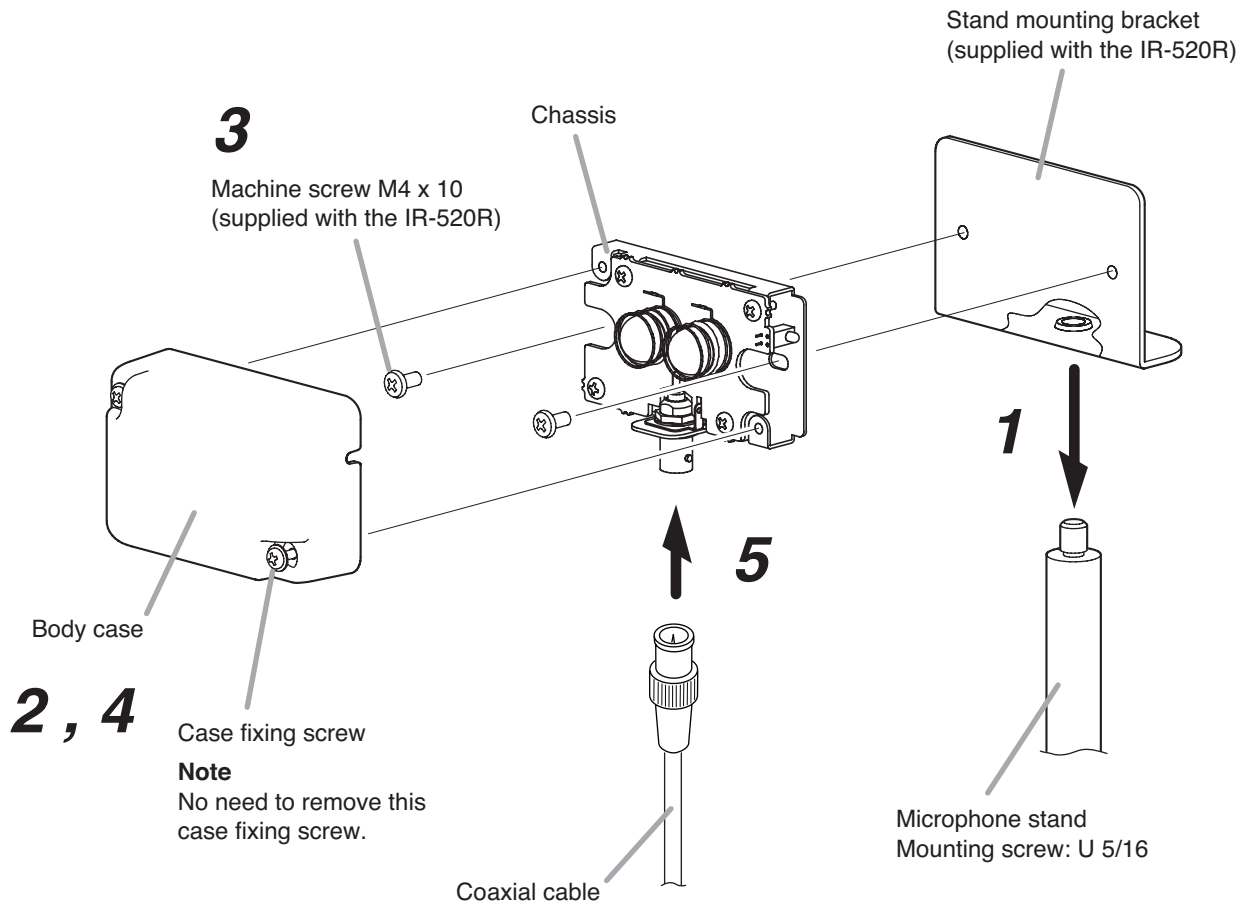
Since no mounting screws are supplied with the unit, prepare them separately.

**Step 3.** Attach the body case to the chassis.

Retighten 2 loosened screws in **step 1**.

**Step 4.** Connect the coaxial cable.

## 13.2. Mounting on a Microphone Stand



**Step 1.** Attach the stand mounting bracket (supplied with the IR-520R) to a microphone stand.  
Applicable screw size: U 5/16

**Step 2.** Loosen 2 case fixing screws, then detach the body case.

**Step 3.** Secure the chassis to the stand mounting bracket using 2 machine screws M4 x 10 (supplied with the IR-520R).

**Step 4.** Attach the body case to the chassis.

**Step 5.** Connect the coaxial cable.

### **Note**

For the microphone stand installation, refer to the instruction manual attached to the microphone stand.

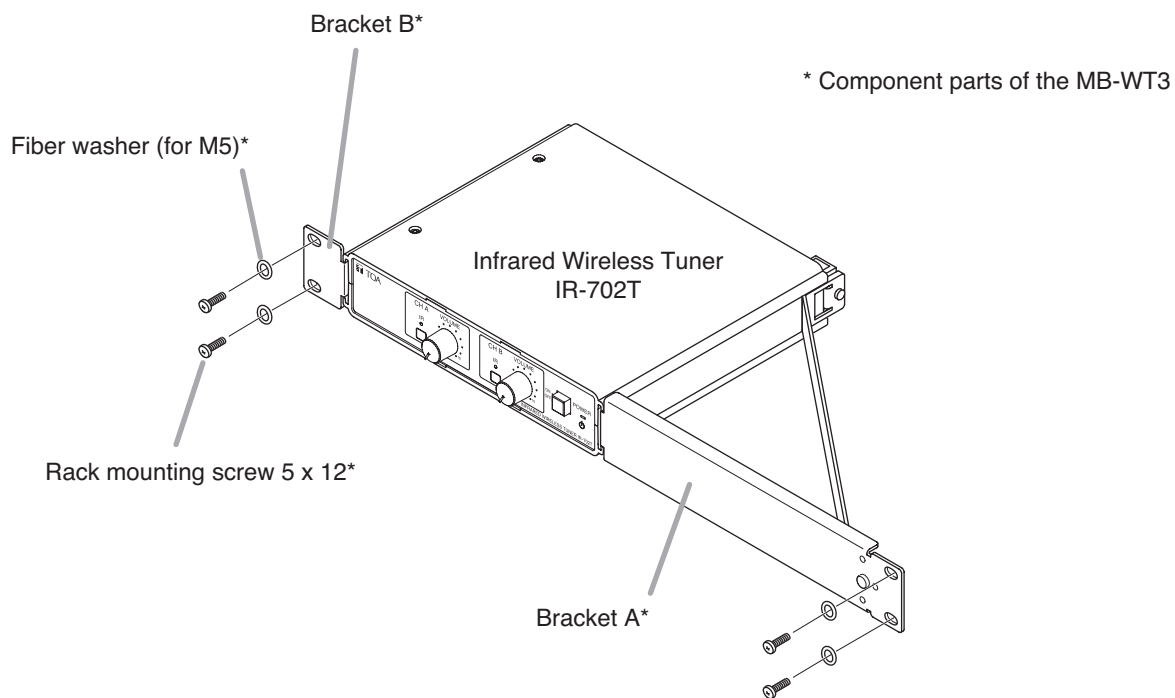
## 14. INSTALLING THE INFRARED WIRELESS TUNER

### 14.1. Mounting in a Rack

Use the optional MB-WT3 Mounting Bracket when installing the unit in a rack.

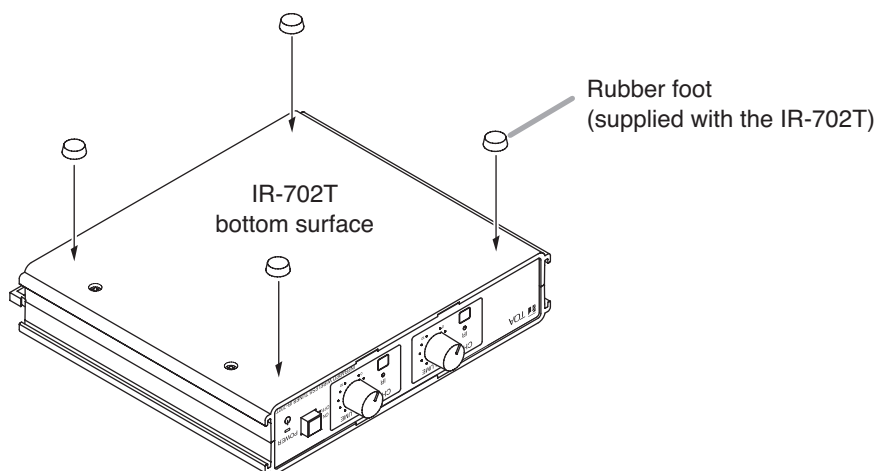
#### Note

For the mounting bracket installation, refer to the instruction manual attached to the MB-WT3.



### 14.2. Mounting on a Desk

When installing the unit on a desk, secure 4 supplied rubber feet to the unit's bottom.



## 15. INFRARED WIRELESS RECEIVER TO TUNER WIRING

### 15.1. Wiring Precautions

When multiple infrared wireless receivers have received an infrared signal from the infrared wireless microphone, the reception level increases if the signals input to each receiver are in phase with each other. However, the reception level could decrease if the signals are out of phase.

- To match signal phases, make each corresponding cable the following length:

Cable length from each infrared wireless receiver to the tuner:  $M1 + N1 = M2 + N2$

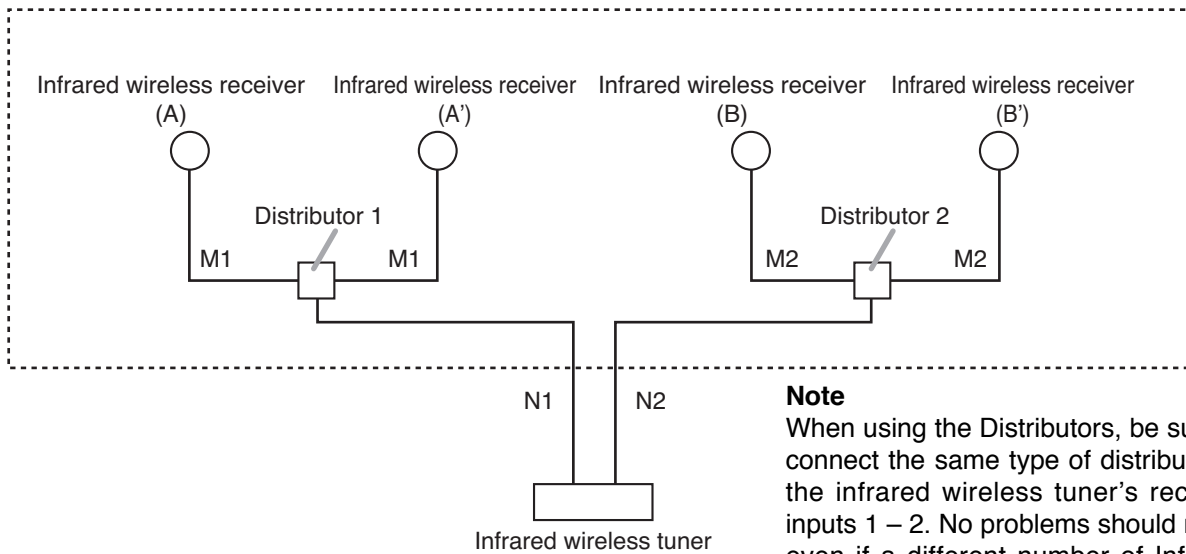
where M1, N1, M2, and N2 are:

M1: Cable length between the receiver (A or A') and distributor 1

N1: Cable length between the distributor 1 and tuner

M2: Cable length between the receiver (B or B') and distributor 2

N2: Cable length between the distributor 2 and tuner



#### Note

When using the Distributors, be sure to connect the same type of distributor to the infrared wireless tuner's receiver inputs 1 – 2. No problems should result even if a different number of Infrared Wireless Receivers are connected to each Distributor.

- The maximum cable length between each Infrared Wireless Receiver and tuner differs depending on the type of coaxial cable to be used.  
Take care not to exceed the maximum cable length. (Refer to p. 10 "Supplementary Remarks.")

### 15.2. When Using the Distributor YW-1022/1024

- The YW-1022 is a 2-branch distributor and the YW-1024 is a 4-branch distributor.
- Some idle YW-1024 distribution terminals may result, depending on wiring, however this presents no problem.
- Avoid connecting 2 or more distributors in series. Connecting them in series increases high-frequency signal loss, potentially resulting in system malfunctions.
- Assure that all infrared wireless receivers within the same system are connected through the same type of Distributor. If different types of Distributors are mixed together, or if there are connections both through and around the Distributor, this can narrow the coverage area.

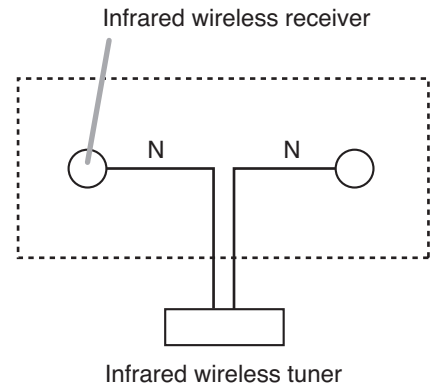
### 15.3. When Using the Infrared Wireless Distributor IR-700D

Wiring method for the IR-700D Infrared Wireless Distributor differs from that for the YW-1022 and YW-1024 Distributors. For the wiring method of the system using the IR-700D, refer to the instruction manual enclosed with the IR-700D.

## 15.4. Wiring Examples

### [Example 1]

When installing multiple infrared wireless receivers in the same location, make all "N" distances (cable length between receiver and tuner) equal.

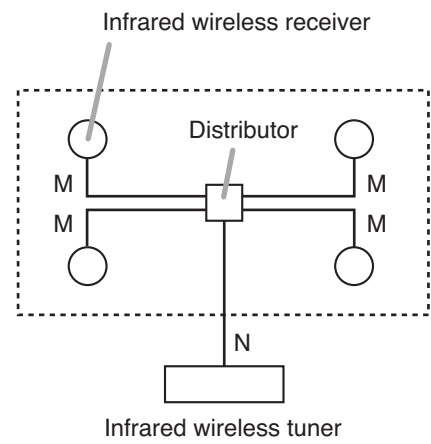


### [Example 2]

When installing both the infrared wireless receiver and distributor in the same location, make all "M" distances (cable length between receiver and distributor) equal.

#### Notes

- To facilitate unification of coaxial cable lengths, it is recommended that wiring from the tuner to the ceiling-mounted distributor should be performed using a single cable.
- The use of coaxial cables cut to an even length that is slightly longer than required easily makes all "M" distances of wiring in the ceiling identical.





## 16. SUPPLEMENTARY REMARKS

### (How to find a maximum cable length from infrared wireless tuner to receiver)

Cable distance values here are provided merely as a guide, since such values differ depending on the structure of buildings and environmental conditions of the infrared wireless receiver.

#### 16.1. Wiring Design Confirmation

Maximum permissible loss on cable routing must be taken into consideration when calculating wiring between infrared wireless receivers and the tuner. The cable routing loss is caused by distribution loss and cable attenuation, and the sum of both must not exceed 12 dB.

The loss value for each is as follows:

- (1) Loss of the YW-1022 (2-branch distributor): 4.5 dB
- (2) Loss of the YW-1024 (4-branch distributor): 8.5 dB
- (3) Attenuation for 100 m (109.36 yd) of coaxial cable: As shown in the table below.

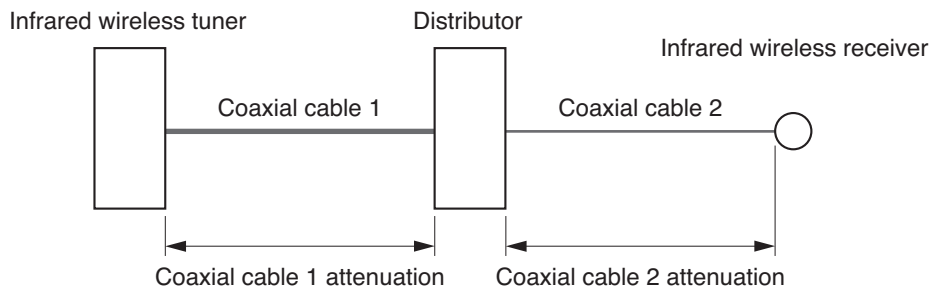
RG-59/U	3.3 dB
RG-6/U	2.7 dB
RG-11/U	2.0 dB

Total attenuation for the connection example illustrated below is as follows:

Cable attenuation = (length/100) x attenuation per 100 m

Total attenuation = Cable 1 attenuation + Cable 2 attenuation + Distributor's attenuation

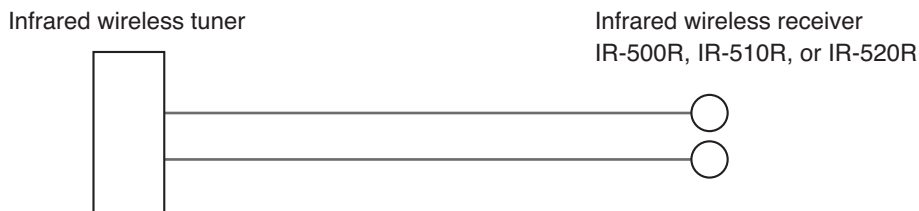
If this total attenuation does not exceed 12 dB, then there should be no problem.



#### 16.2. Design Examples

##### [Example 1]

When connecting 2 infrared wireless receivers to a single tuner using 2 coaxial cables



Because there is no distributor, only the coaxial cable loss determines the maximum cable distance.

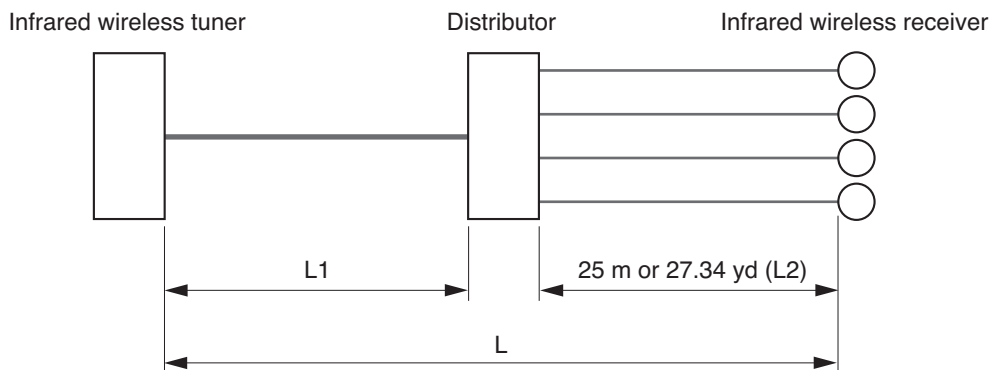
The table at right shows the relationship of coaxial cable type to maximum cable distance.

RG-59/U	606 m (662.73 yd)
RG-6/U	740 m (809.27 yd)
RG-11/U	1000 m (1093.61 yd)

**[Example 2]**

**When connecting 4 infrared wireless receivers to a single tuner using a single coaxial cable**

Precondition: Cable distance (L2) from the distributor to the receiver is assumed to be 25 m (27.34 yd).



Assuming that the RG-59/U coaxial cable is used in wiring between the distributor and the receiver, the attenuation of this distance is:

$$\text{Attenuation} = 3.3 \text{ dB} \times (25 \text{ m} / 100 \text{ m}) = 0.825 \text{ dB.}$$

Since loss of 8.5 dB results from the distributor, the maximum permissible loss from the infrared wireless tuner to the distributor stands at 2.675 dB (12 dB – 0.825 dB – 8.5 dB).

If the RG-6/U coaxial cable is used in wiring from the tuner to the distributor, given the wiring distance between the two is L1,

$$\begin{aligned} L1 &= (\text{coaxial cable attenuation/coaxial cable attenuation per 100 m}) \\ &= (2.5 \text{ dB} / 2.7 \text{ dB}) \times 100 \text{ m} \\ &= 92 \text{ m (100.61 yd)} \end{aligned}$$

Maximum cable length (wiring distance from the infrared wireless tuner to the infrared wireless receiver) can be found from the following equation:

$$\begin{aligned} L &= L1 + 25 \text{ m} \\ &= 92 \text{ m} + 25 \text{ m} \\ &= 117 \text{ m (127.95 yd)} \end{aligned}$$

Similarly, the maximum cable length (wiring distance from the tuner to the receiver) calculated relative to the type of coaxial cable used between the tuner and the distributor is as shown in the table below:

RG-59/U	348 m (380.58 yd)
RG-6/U	414 m (452.76 yd)
RG-11/U	542 m (592.74 yd)

## 17. TROUBLESHOOTING

Symptom	Cause and Points to Check	Remedy
The unit fails to turn on when the power switch is pressed.	Power plug is unplugged from an AC wall outlet.	Plug the power plug into an AC wall outlet.
No signal received	Infrared wireless microphone's power switch not set to ON.	Set the microphone power switch to ON.
	Infrared wireless microphone's battery has become discharged.	Replace the battery with a new one. If a rechargeable battery is used, recharge it.
	The channel set for the infrared wireless microphone differs from the receiving channel.	Make both the infrared microphone and reception channels identical.
No sound outputs	Infrared wireless tuner not connected to an amplifier properly.	Connect correctly. (See p. 9 "Connection Example.")
	CH-A/MIX output selector switch not set correctly.	Set the switch correctly. (See p. 9 "Connection Example.")
Sound is too faint to hear	Infrared wireless tuner's volume control is set to too low a level.	Rotate the tuner's volume control to set it to an appropriate volume level.
	Amplifier volume control is set to too low a level.	Set the amplifier volume control to an appropriate volume level.
Noise or strange (i.e. muddy) sound is heard	Infrared wireless receiver is installed in close proximity to a device generating radio noise or infrared light.	Set the receiver properly, referring to p. 11 "Installation precautions" for the infrared wireless receiver.
Short transmission distance	Infrared wireless receiver cables not properly connected.	Connect the receiver cables properly.

## 18. SPECIFICATIONS

Power Source	AC mains, 50/60 Hz (supplied from the included AC adapter)
Power Consumption	15 W or less
Receiving Frequency	Channel A: 3.100 MHz Channel B: 3.350 MHz
Receiver Sensitivity	S/N ratio: over 50 dB (40 dB $\mu$ V input, 1 kHz modulation, $\pm$ 4.8 kHz deviation)
S/N ratio	61 dB or more (60 dB $\mu$ V input, $\pm$ 4.8 kHz deviation, A-weighted)
Tone squelch frequency	32.768 kHz
Infrared Receiver Input	75 $\Omega$ , BNC jack x 2 (Infrared wireless receiver's power source: 24 V DC, 220 mA max. in total of 2 terminals)
Output	Channel A and B: $-10$ dB* <sup>1</sup> ( $\pm$ 4.8 kHz deviation, at volume level max.), 600 $\Omega$ , electronically balanced, 3 pole phone jack <b>Note:</b> Channel A switchable to mixer output
Frequency Response	100 Hz – 12 kHz
Operating Temperature	$-10$ to $+50$ °C ( $+14$ to $+122$ °F)
Operating Humidity	30 to 85% RH
Finish	Case: ABS resin, black
Dimensions	210 (w) x 44 (h) x 210.9 (d) mm (8.27" x 1.73" x 8.3")
Weight	630 g or 1.39 lb (unit itself)

**Note:** The design and specifications are subject to change without notice for improvement.

### • Accessories

AC adapter* <sup>2</sup> .....	1
Power cord (2 m or 6.56 ft)* <sup>2</sup> .....	1
Cord with a phone plug (1 m or 3.28 ft) .....	1
Color label (6 colors) .....	1
Rubber foot .....	4

### • Optional product

Rack mounting bracket: MB-WT3

\*<sup>1</sup> 0 dB = 1 V

\*<sup>2</sup> Not supplied with the IR-702T KR. For the usable power supply cord and AC adapter, contact your nearest TOA dealer.

### Traceability Information for Europe (EMC directive 2004/108/EC)

Manufacturer:  
TOA Corporation  
7-2-1, Minatojima Nakamachi, Chuo-ku, Kobe, Hyogo,  
Japan

Authorized representative:  
TOA Electronics Europe GmbH  
Suederstrasse 282, 20537 Hamburg,  
Germany



TOA Corporation

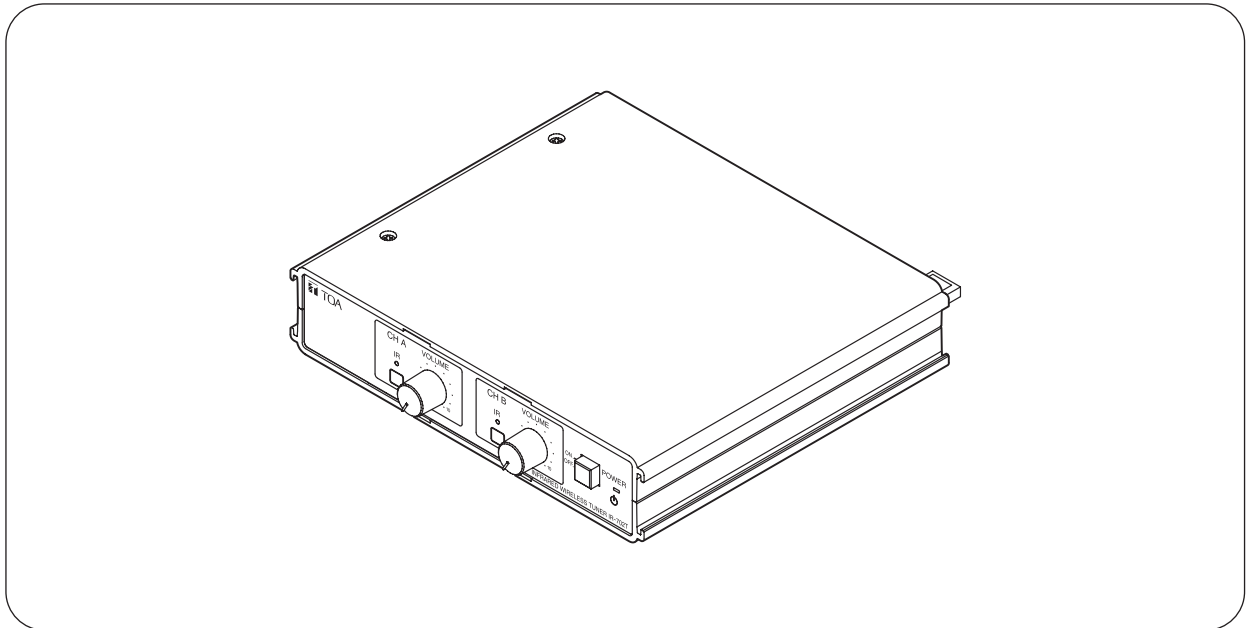
URL: <http://www.toa.jp/>



使用说明书

## 红外线调谐器

## IR-702T



本说明书描述了使用IR-702T红外线调谐器和IR-702T的整个系统\*的安装和使用。

\* 本说明书中描述的系统包含以下元件：

- IR-702T红外线调谐器
- IR-200M和IR-300M红外线话筒
- IR-500R, IR-510R和IR-520R红外线接收机
- IR-200BC电池充电器
- IR-200BT-2 Ni-MH电池
- YW-1022和YW-1024分配器

### 注

有关当与IR-700D红外线分配器一起使用时IR-702T的安装和使用信息，请参见IR-700D随附的安装手册。

承蒙您购买TOA红外线调谐器。  
请仔细根据本手册的指导使用，以确保设备长期、无故障的运行。

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## 1.安全预防措施

这些预防措施仅适用于IR-702T红外线调谐器。

有关其他红外线话筒系统设备的预防措施，请参见各设备随附的使用说明书。

- 安装或使用前，请务必仔细阅读本栏说明，确保正确安全操作。
- 以下所示的注意事项，记录了与安全有关的重要内容，请务必遵守。
- 阅读完毕后，请务必将其妥善保管，以便随时取阅。



**警告**

该标志表示，存在潜在的安全隐患，误操作时可能导致死亡或严重伤害。



**注意**

该标志表示操作不当时，有可能造成中度或轻微的人身伤害和/或财产损失。



**警告**

### 安装设备时

- 请勿将设备置于雨中或可能被水或其他液体浸湿的环境中，否则会引起火灾或触电。
- 仅可在设备指定的电源电压下使用。在超过标示的电源电压下使用可能会引起火灾或触电。
- 请勿剪切、扭绞、损坏或改装电源电缆。此外，请勿在加热器附近使用电源电缆，不得将重物（包括设备本身）放置在电源电缆上，否则会引起火灾或触电。

### 使用设备时

- 如果在使用中出现以下异常情况，请立即切断电源开关，从插座上拔出电源插头，并与离您最近的TOA经销商联系。在此类情况下，不得进一步使用设备，否则可能会引起火灾或触电。
  - 如果设备中产生烟雾或异味。
  - 如果水或任何金属物质进入设备
  - 如果设备摔落或设备外壳破损
  - 如果电源电缆受损（内核暴露，断开等）
  - 运行故障（无音调）
- 为防火灾或触电，请勿打开或拆除设备外壳进行改造。设备内部可能有高压部件。请将维修工作交由合格的维修人员来处理。

- 请勿将茶杯、碗碟或其他液体或金属物容器放置在设备顶部。如果此类物体意外进入设备，则可能引起火灾或触电。

- 请勿在雷电气候中接触插头或天线，否则可能会引起触电。



**注意**

### 安装设备时

- 请勿用湿手插拔电源插头，否则可能会引起触电。
- 当拔下电源电缆时，请确保握住电源插头；不得拉扯电缆本身。使用电源电缆受损的设备则可能引起火灾或触电。
- 当移动设备时，请确保从墙面输出口拆除其电源电缆。在电源电缆与输出口连接的情况下移动设备可能会引起电源电缆损坏，引起火灾或触电。当拆除电源电缆时，请确保握住插头，将其拔下。
- 请勿将设备安装在潮湿或积满灰尘、暴露在阳光直射、靠近灼热器或产生浓烟或蒸汽的位置，否则可能会引起火灾或触电。
- 安装工作寻求购买设备处的经销商来完成。安装需要广泛的技术知识和经验。如果安装有误，可能会导致人身伤害或触电。

## 使用设备时

- 使用设备专用的AC适配器。请注意，使用其他适配器可能会引起火灾。
- 如果在电源插头上或墙面插座中堆积了灰尘，则可能引起火灾。应定期清理。此外，请将插头牢固插入墙面输出口。
- 当设备闲置10天或更长时间不使用时，为确保安全，请关闭电源开关，将电源插头从插座上拔出。否则可能会引起火灾或触电。

## 2.一般说明

IR-702T是采用固定频率系统的2通道红外线调谐器。

此调谐器与红外线话筒以及红外线接收机一起组成了红外线话筒系统。

红外线话筒系统免除了干扰或窃听的烦恼，允许相邻的会议室或学校教室同时使用。

## 3.特性

- YW-1022或YW-1024分配器允许安装至多4个红外线接收机。
- 可安装至多16个红外线接收机与IR-700D红外线分配器一起使用。
- 由于IR-702T调谐器使用的频率段不会干扰红外线会议系统（TS-800和TS-900系列）的频率段，因此红外线话筒系统和会议系统可同时安装在同一位置。

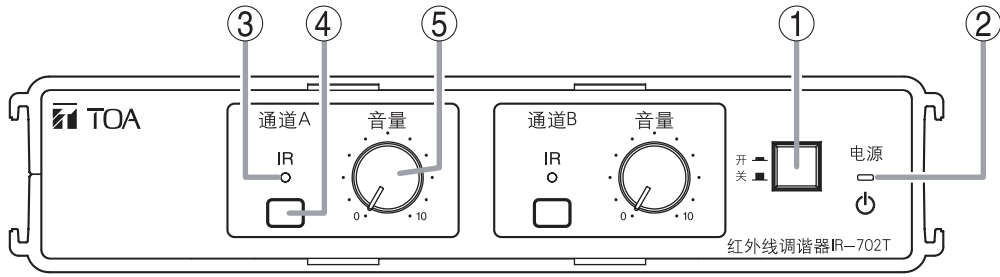
## 4.使用注意事项

- 随附的电源电缆专用于IR-702T。请勿用于其他设备。
- 将IR-702T安装在离荧光灯、数字设备、PC和其他产生高频率噪音设备尽可能远的位置。
- IR-702T是一款可防止发射内容泄露至墙外或其他领域内人们的红外线系统。但是，由于发射内容可能会被第三方恶意窃听，强烈建议用户采取措施防止窃听。TOA对于没有采取适当保护措施防止窃听而引起的任何损坏不承担责任。
- 对本设备进行清扫时，请务必切断电源，并用干布进行擦拭。对于顽固的污渍使用蘸有中性洗涤剂的布擦拭。绝对不能使用苯、稀释剂、酒精或经过化学处理的清洁布等。否则可能会损坏调谐器元件和零件。



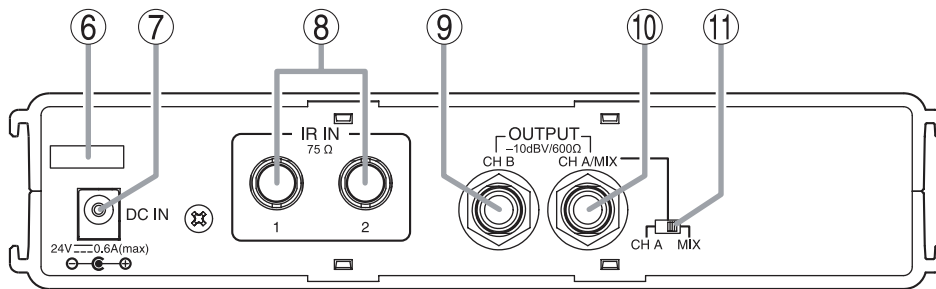
## 5.名称和功能

[正面]



注：通道A(3)、(4)和(5)的功能同样适用于通道B(CH-B)。

[背面]



### 1. 电源开关

按此开关打开电源。要关闭电源，再次按此开关。

### 2. 电源指示器

当电源打开时亮。

### 3. 接收指示器 [IR]

接收期间亮。

### 4. 颜色标签附加区域

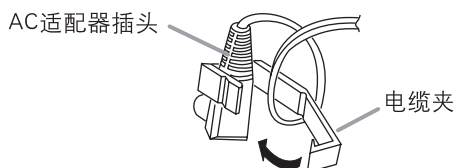
附加与调谐器一起使用的红外线话筒相同颜色的颜色标签（附件）。

### 5. 音量控制旋钮

调节红外线话筒的音量。

### 6. 电缆夹

将AC适配器电缆穿过此夹子以防止插头被拔出。



### 7. DC 插口 [DC IN]

连接随附的AC适配器。

### 8. 接收机输入端子[IR IN]

连接红外线接收机或分配器。使用YW-1022(2分配器)或YW-1024(4分配器)可连接至多4个红外线接收机。

请注意，每个输入通道只能连接一个YW-1022或YW-1024分配器。

可连接至多16个红外线接收机与IR-700D红外线分配器一起使用。有关使用IR-700D时电缆连接的信息，请参见IR-700D随附的安装说明书。

### 9. CH B 输出端子 [CH B]

连接此端子至用于公共广播应用的扩音器线路输入端子。

此端子仅输出CH-B音频信号。

### 10. CH A/MIX 输出端子 [CH A/MIX]

连接此端子至用于公共广播应用的扩音器线路输入端子。

根据CH A/MIX输出选择开关(11)的设置，此端子只可输出CH-A音频信号或混合CH-A和CH-B音频信号。

### 11. CH A/MIX 输出选择开关

#### • CH A

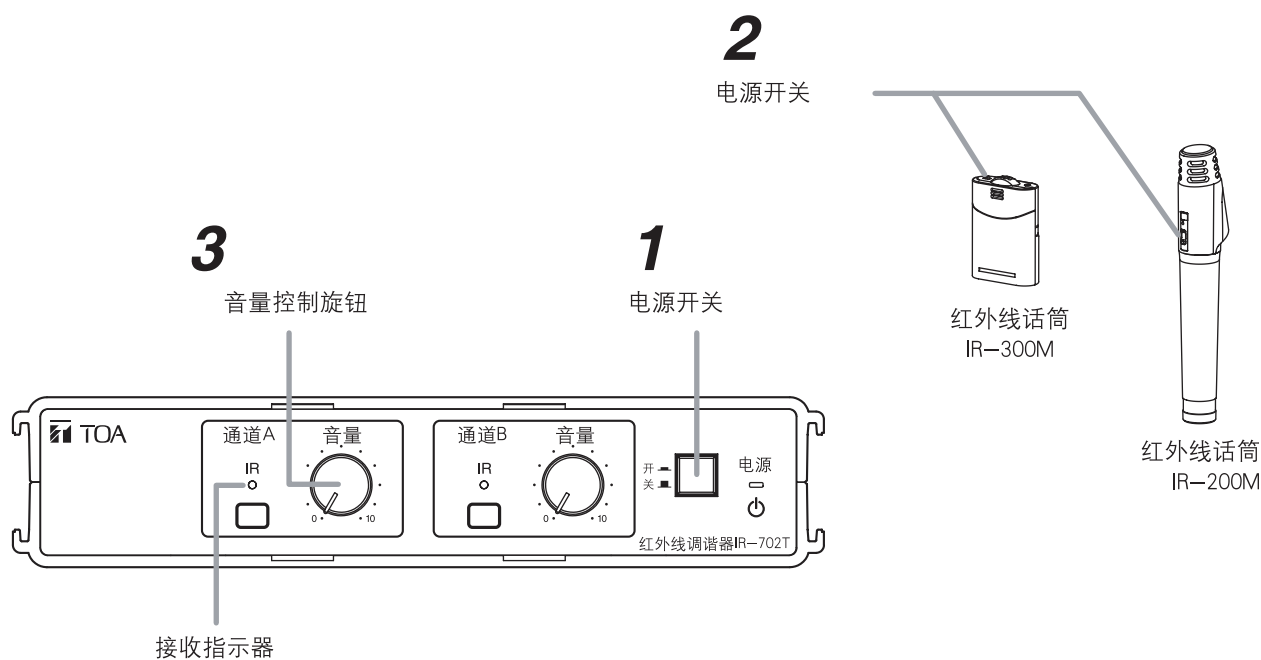
CH A/MIX输出端子(10)仅发送CH-A信号。

#### • MIX (默认位置)

混合CH-A和CH-B信号在CH A/MIX输出端子(10)发送。

## 6.操作

注：此处的示例显示通道A的操作。此操作同样适用于通道B。



步骤1. 打开设备的电源开关。

步骤2. 打开红外线话筒的电源开关。  
接收信号通道的接收指示器亮。

**注**

如果接收指示器不亮，则红外线话筒未设置与红外线调谐器相同的通道。有关通道设置的信息，请参见红外线话筒随附的使用说明书。

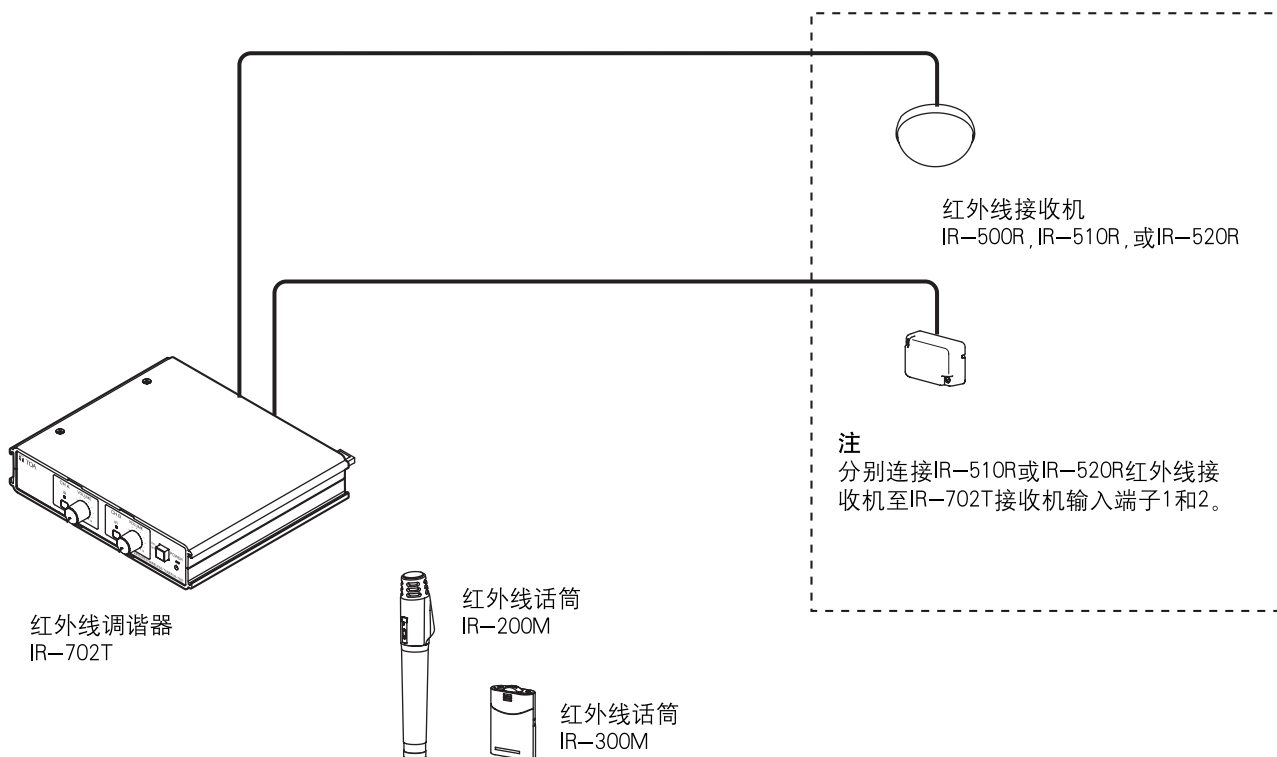
步骤3. 调节音量控制旋钮至适当的输出音量。

**注**

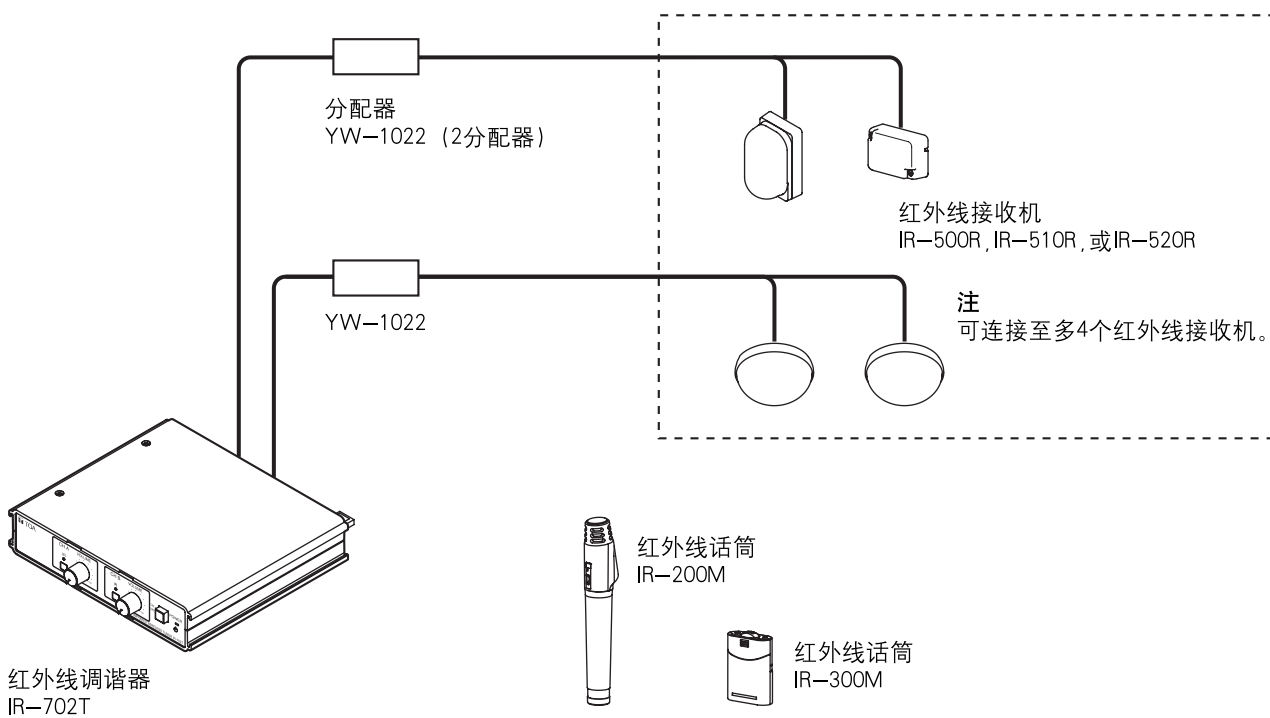
如果音量控制旋钮旋转至“2点”位置之外，很可能会增加输出信号失真的几率。

## 7. 系统配置示例

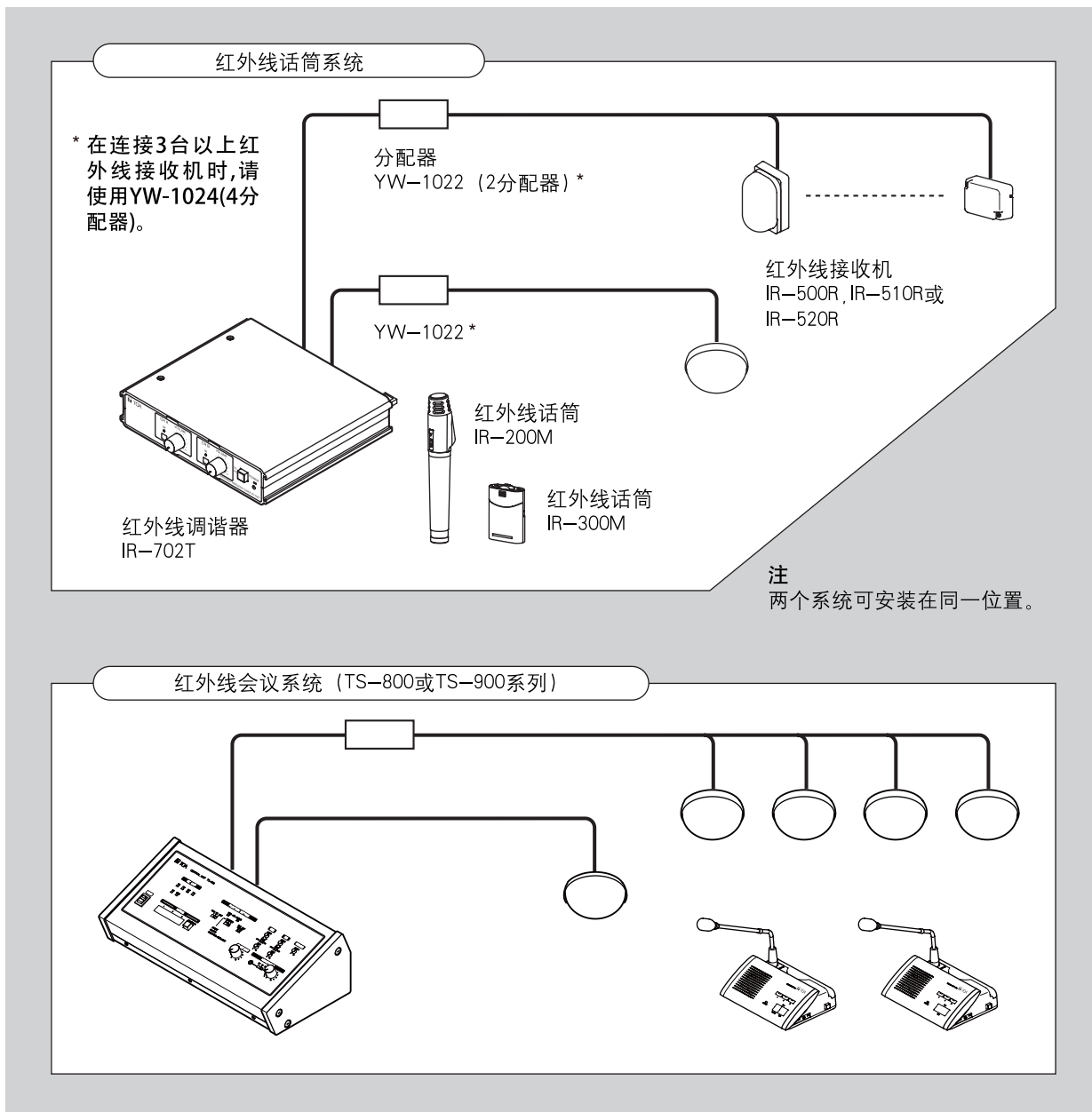
### 7.1. 使用2个红外线接收机



### 7.2. 使用4个红外线接收机



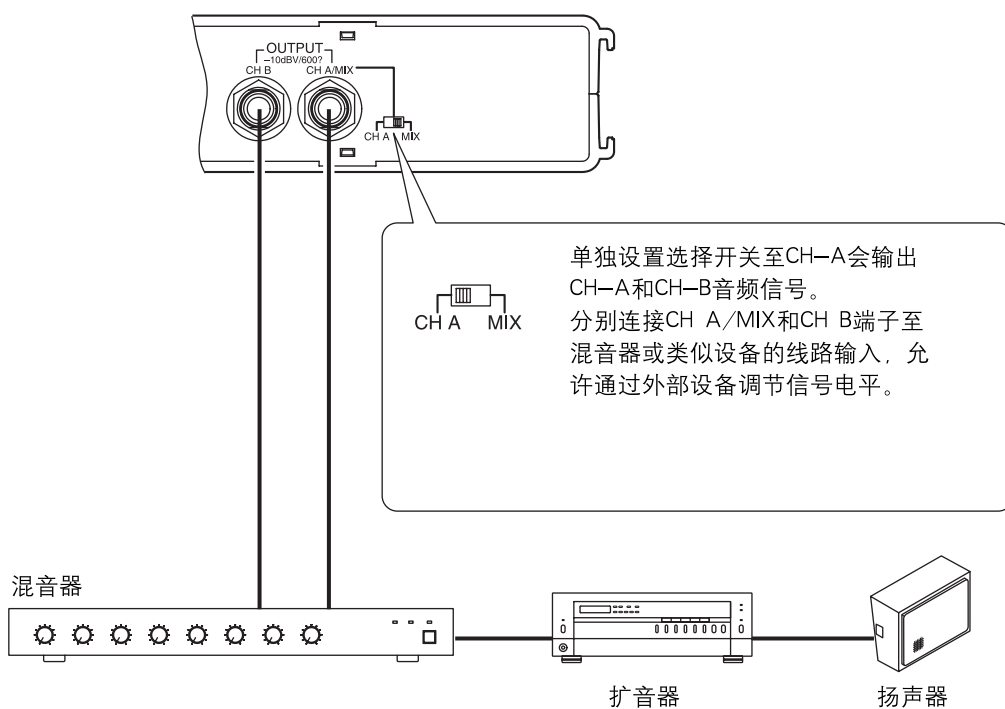
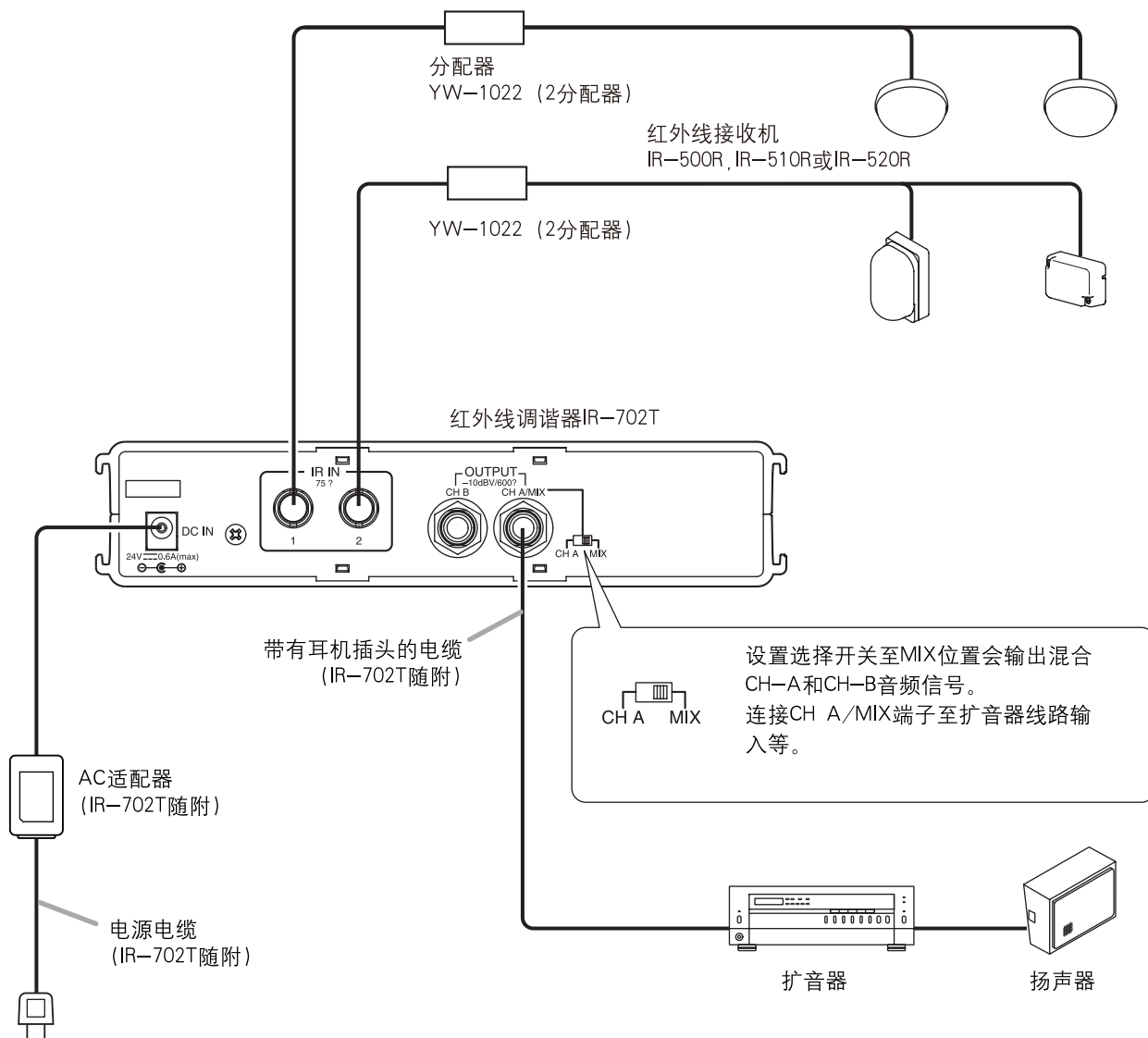
### 7.3.同时使用红外线话筒系统和红外线会议系统



#### [红外线话筒系统相关的设备]



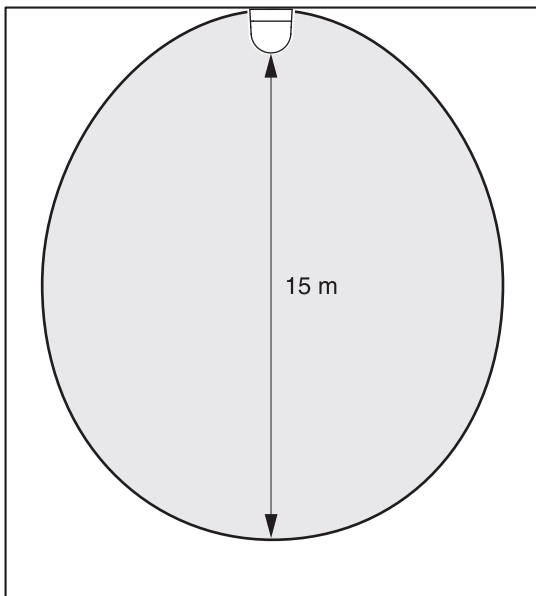
## 8. 连接示例



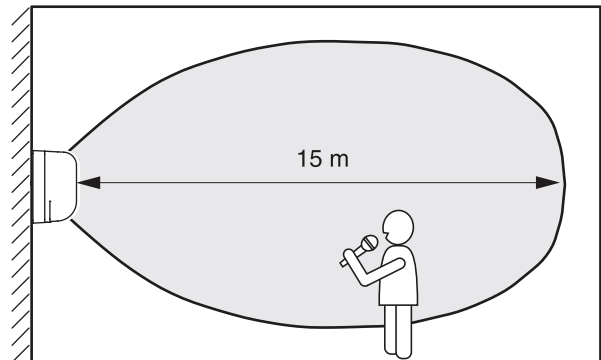
## 9.红外线接收机覆盖区域

### 9.1. IR-500R和IR-520R（壁挂式和话筒支架安装式）

[水平方向]

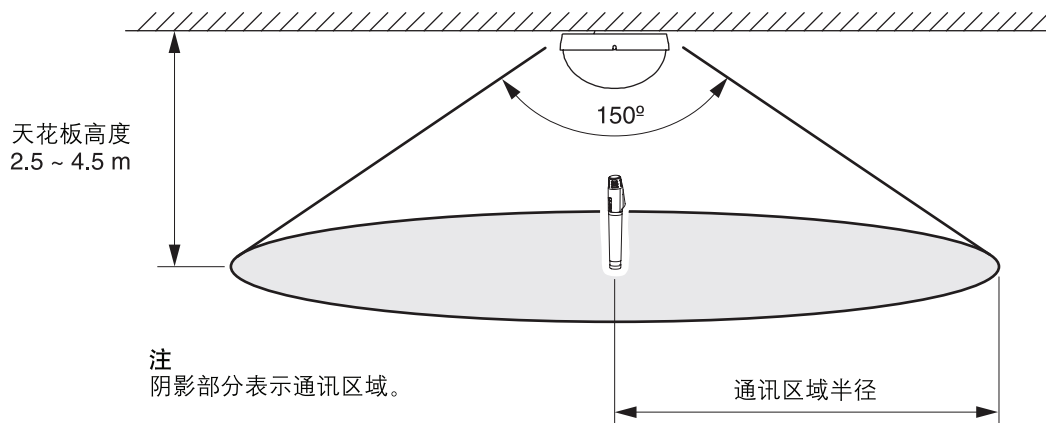


[垂直方向]



注  
阴影部分表示通讯区域。

### 9.2. IR-510R（天花板式）



注  
阴影部分表示通讯区域。

适用型号	天花板高度	通讯区域半径
IR-510R	2.5 m	约7 m
	3.0 m	
	3.5 m	约6.5 m
	4.0 m	
	4.5 m	约6 m

## 10. 安装红外线接收机

### 10.1. 安装注意事项

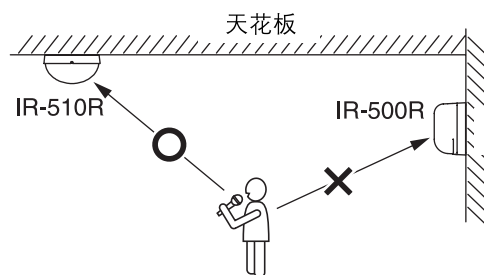
由于红外线话筒和接收机在红外线发射和接收上都拥有其各自的方向性，因此注意在稳定的通讯状况下进行安装和操作。

#### • 红外线接收机的数量

使用2个或多个接收机。

#### • 安装位置

- 红外线光束会被人体或其他物体遮挡。为了避免这种情况的发生，安装多个可从红外线话筒查看的红外线接收机。
- 安装多个红外线接收机，以便在任何特定状况下允许红外线话筒和至少一个红外线接收机之间进行持续通讯。当安装红外线接收机时，注意其可以完全覆盖不同角度的通讯区域。如果红外线话筒在只安装一个红外线接收机的通讯区域使用，当红外线光束被人体或其他物体遮挡时可能会出现通讯中断。
- 请将红外接收器安装在距离地面2至3米高度的地方。
- 将红外线接收机安装在可防护物体撞击导致损坏的高度。



#### 注

在此图中，因为两者之间无屏蔽，IR-510R从红外线话筒接收到了信号。但是，如果用户身体像屏蔽一样遮挡了光束，则至IR-500R的通讯会中断。

#### • 红外线话筒和接收机之间的距离

红外线话筒和接收机之间的距离太近会导致故障或噪音。将红外线话筒保持与接收机至少2 m的距离。

#### • 无线电噪音

请勿将红外线接收机和电缆安装在靠近会产生无线电噪音的设备附近，例如变频器供电设备（荧光灯、空调等）、调光器、数字设备、PC和其他计算机设备。

#### • 红外线接收机输入端子

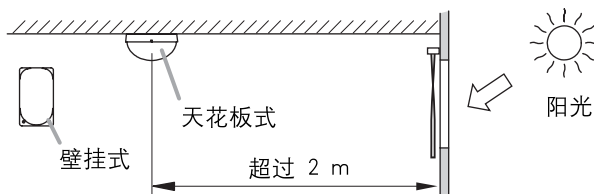
注意不要短路红外线接收机的输入端子和红外线调谐器的接收机输入端子，否则电源会短路，可能会导致设备故障。

#### • 日光和荧光

将红外线接收机安装在暴露于阳光、荧光或其他红外线发生源的位置会导致系统故障或噪音。当安装接收机时，执行以下操作以使其不会暴露于红外线源：

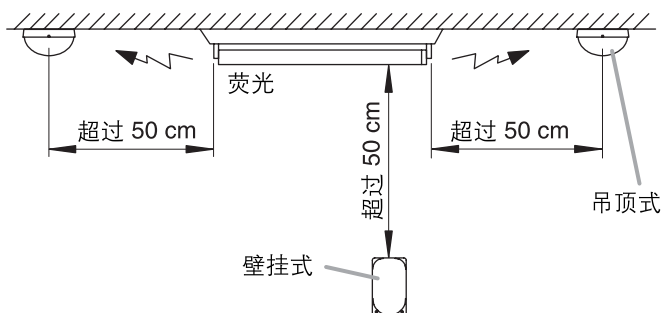
##### [避免阳光]

- 为了防止设备直接暴露于阳光直射，使用窗帘或窗户遮光板阻挡阳光。
- 当安装接收机至天花板时，使其远离窗户至少2 m。



##### [远离荧光安装]

当安装接收机时，远离荧光至少50 cm。



##### [避免靠近以下其他红外线源安装]

- 照明设备
- 液晶投影机、高射投影机和白炽灯
- 等离子显示器
- 遥控设备、红外线LAN和其他红外线设备

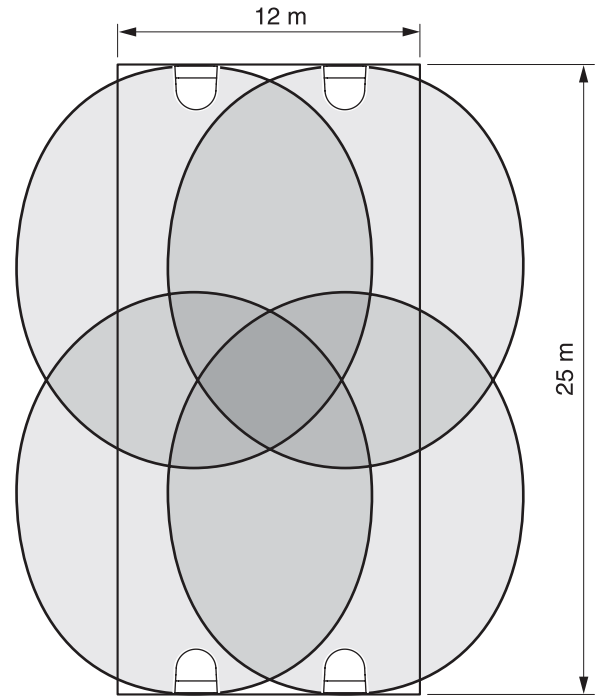
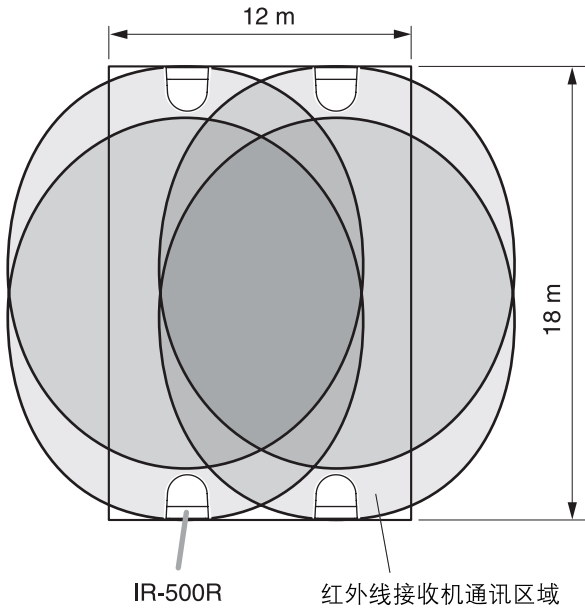
## 10.2.红外线接收机安装示例

根据环境状况（例如天花板高度）接收机的通讯区域也会不同。  
 （请参见第10页“红外线接收机覆盖区域”。）

### 10.2.1.安装4台IR-500R和IR-520R

注

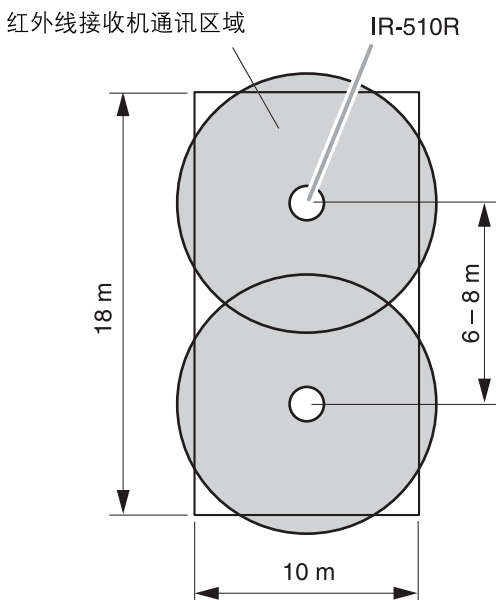
在使用区域比红外线接收机通讯距离宽的长方形房间里，将接收机反向安装。



### 10.2.2.安装2台IR-510R

注

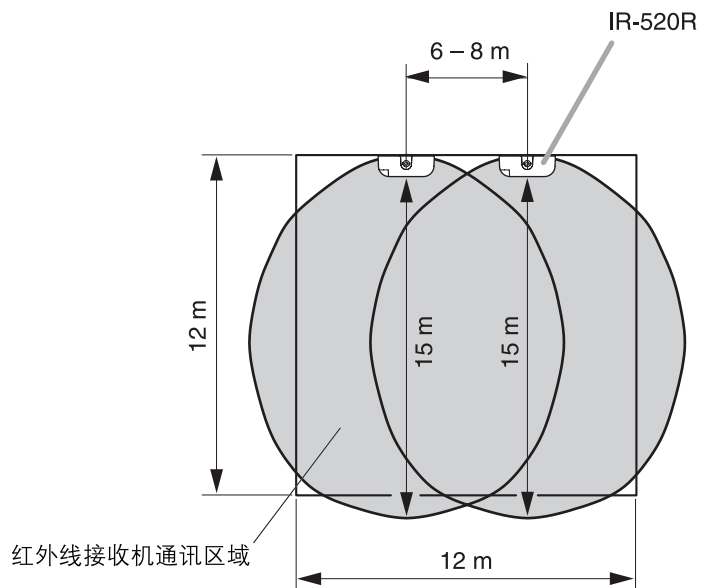
彼此间隔6 m ~ 8 m安装，以便各接收机的通讯区域彼此重叠。



### 10.2.3.安装2台IR-520R

注

彼此间隔6 m ~ 8 m安装，以便各接收机的通讯区域彼此重叠。





### 10.3.同时使用红外线话筒系统和红外线会议系统

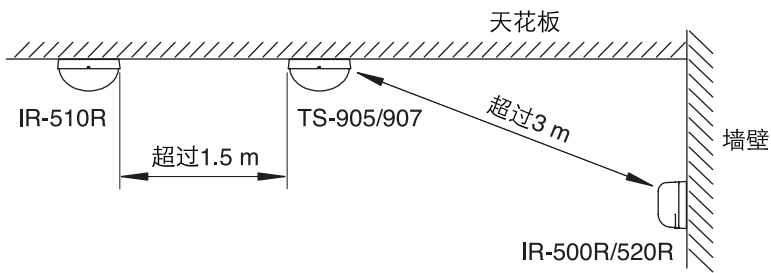
根据房间的大小和布局，红外线话筒系统的红外线接收机（IR-500R，IR-510R和IR-520R）和红外线会议系统的发射机/接收机单元（TS-905和TS-907）之间的适当距离会不同。当同时在同一位置安装两个系统时，使用以下关于距离的指示：

[IR-500R/520R和TS-905/TS-907之间的距离]

保持设备之间至少3 m的距离。

[IR-510R和TS-905/TS-907之间的距离]

保持设备之间至少1.5 m的距离。



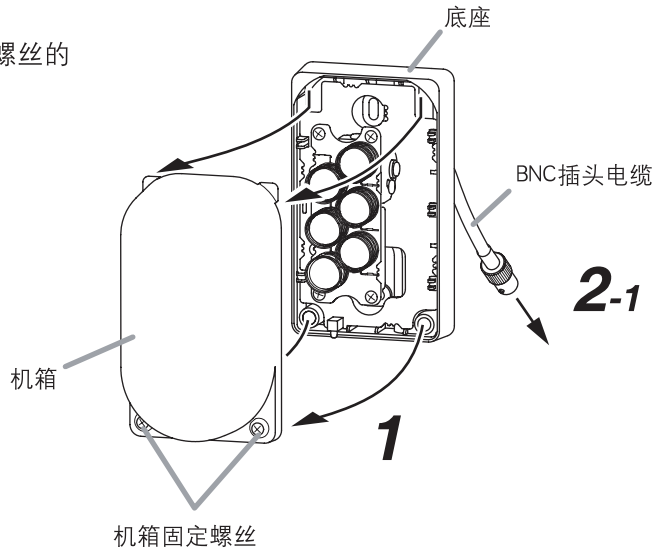
## 11. 安装IR-500R红外线接收机

### 11.1. 壁挂式

步骤1. 松开2个机箱固定螺丝，然后拆下带有螺丝的机箱。

注

无需拆下这些机箱固定螺丝。



步骤2. 连接同轴电缆。

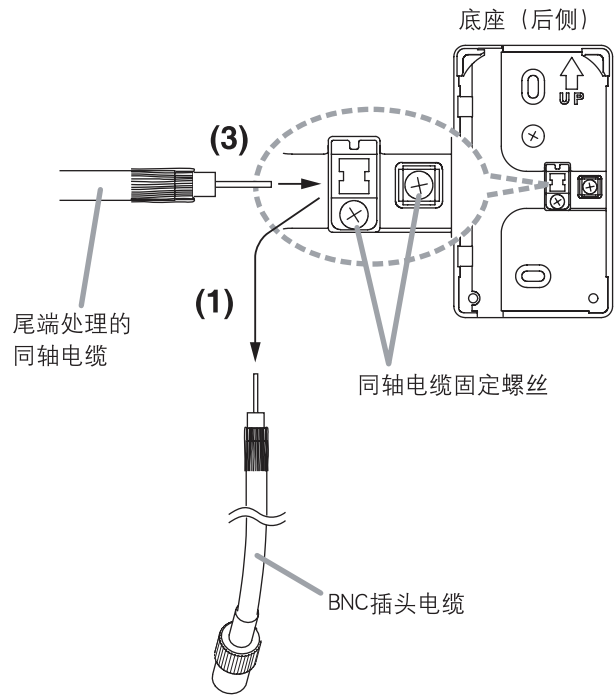
2-1. 使用BNC连接器时  
使BNC电缆与连接底座的BNC插头电缆连接。

注

可适用的同轴电缆是RG-59/U或RG-6/U。

2-2. 当直接连接同轴电缆时

(1) 松开底座上的2个同轴电缆固定螺丝，然后断开BNC插口电缆。

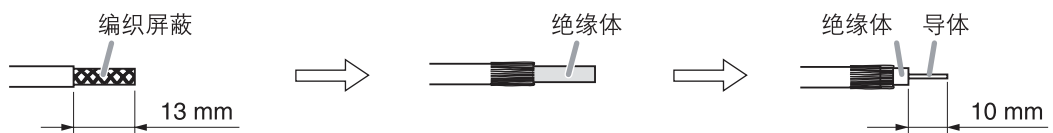


(2) 处理同轴电缆尾端。

从同轴电缆尾端削掉13 mm保护套。

拆开编织屏蔽，并拧回。

从电缆尾端削掉绝缘体10 mm。



(3) 插入尾端处理的电缆，然后紧紧拧紧同轴电缆固定螺丝。

步骤3. 将底座安装在电气箱或墙壁上。

### 3-1. 当安装在电气箱中时

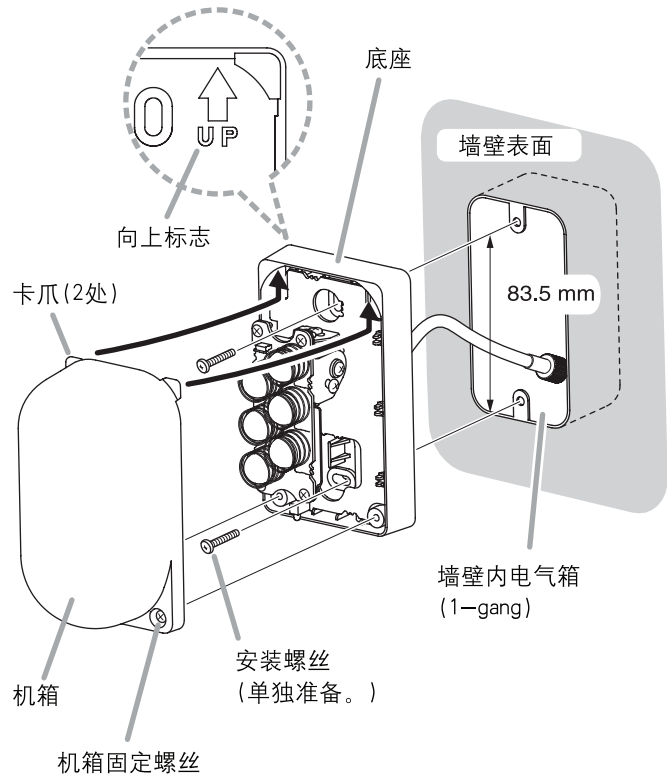
(1) 安装底座时，确保电气箱上的向上标志面向上。

**注**

由于IR-500R未配备安装螺丝，请单独准备适用于电气箱的螺丝。

(2) 请参见第16 – 17页调节接收角度。

(3) 将机箱上面的卡爪插入底座上侧，放回机箱，然后拧紧机箱固定螺丝以固定机箱。



### 3-2. 当直接安装在墙壁上时

(1) 使用镊子切断底座上的电缆输入卡爪。

相对薄的电缆输入卡爪位于底座上表面和下表面。按照需要切断输入卡爪。

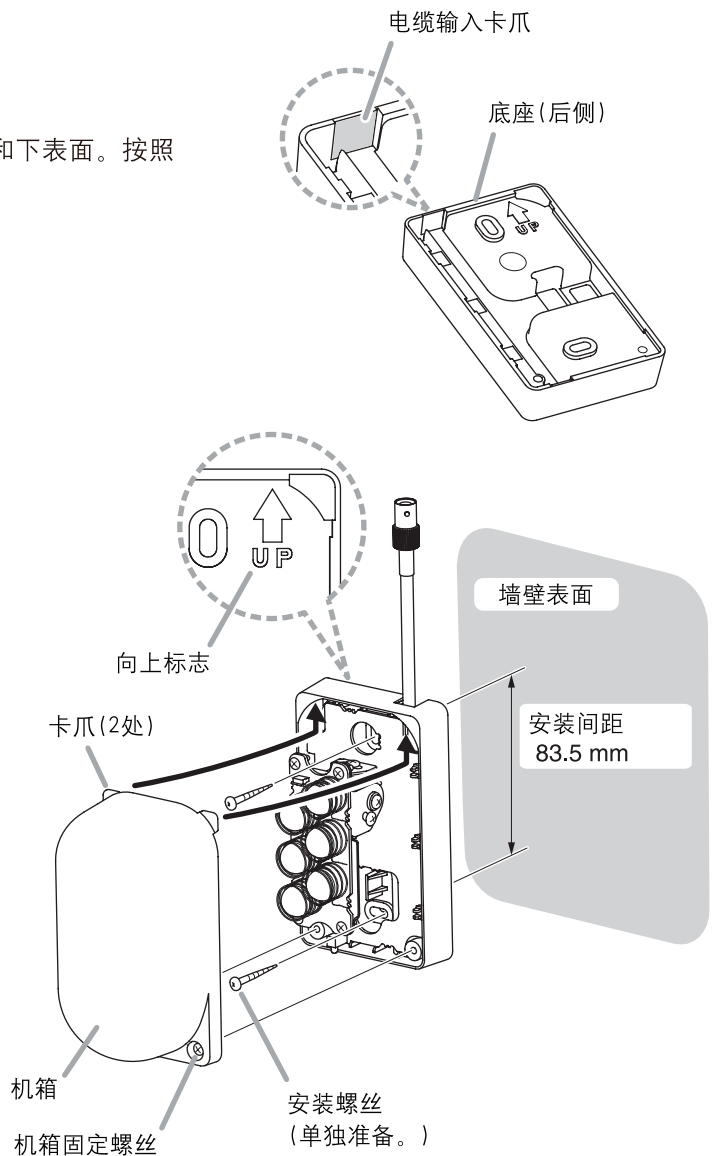
(2) 安装底座时，确保墙壁上的向上标志面向上。

**注**

由于IR-500R未配备安装螺丝，请单独准备适用于墙壁结构的螺丝。

(3) 请参见第16 – 17页调节接收角度。

(4) 将机箱上面的卡爪插入底座上侧，放回机箱，然后拧紧机箱固定螺丝以固定机箱。



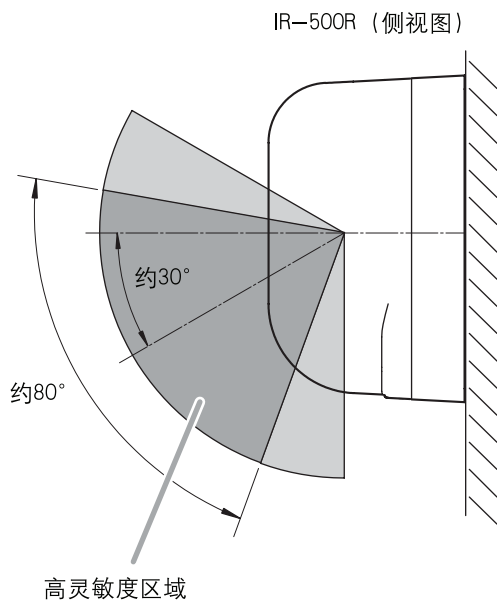
## 11.2.调节接收角度

通过移动接收部分可垂直（从0°向下至约30°）和水平（约30°至右或左）调节IR-500R的通讯区域。根据安装位置调节角度。

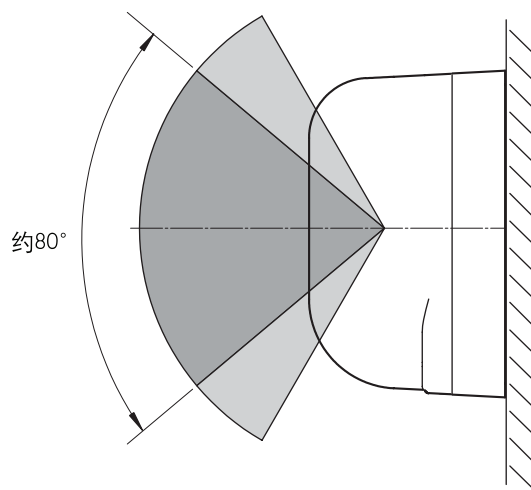
### 11.2.1.IR-500R接收角度图

[垂直方向]

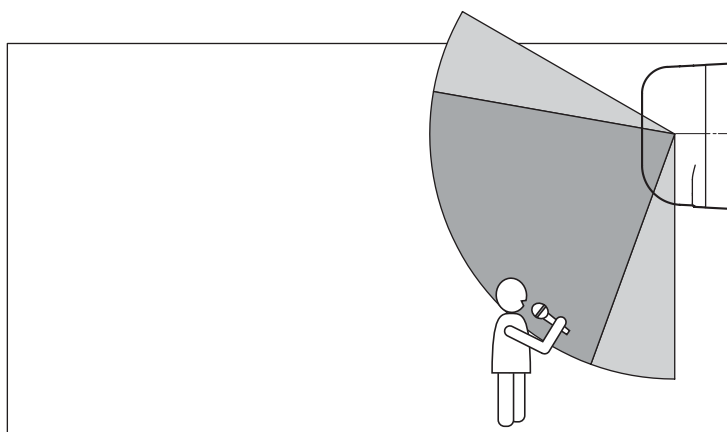
(出厂预设：向下约30° )



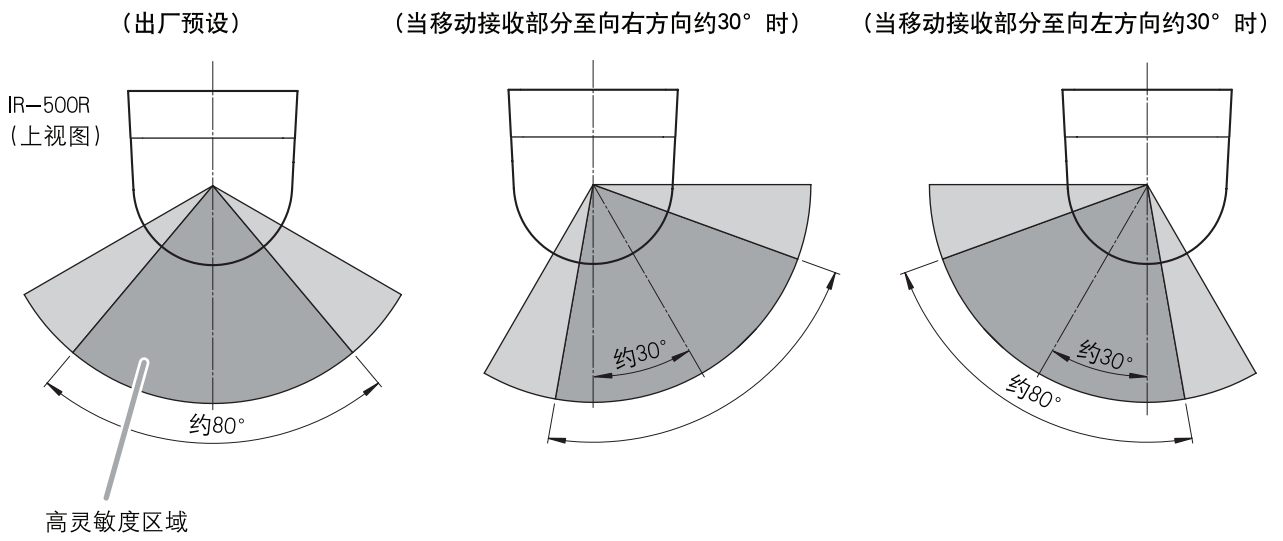
(当将接收部分移动至垂直0° 位置时)



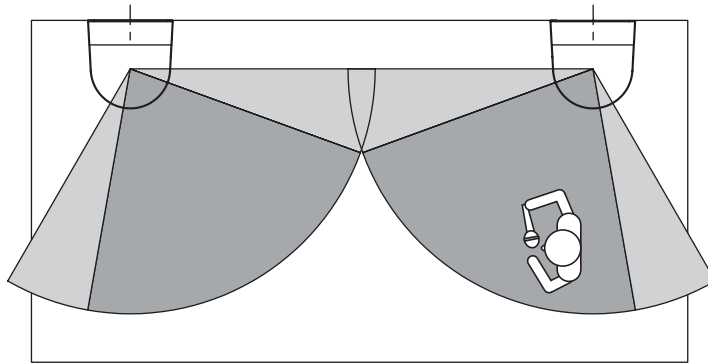
垂直方向调节示例  
(当在较高位置安装IR-500R时)



[水平方向]



水平方向调节示例  
(当在房间角落安装IR-500R时)



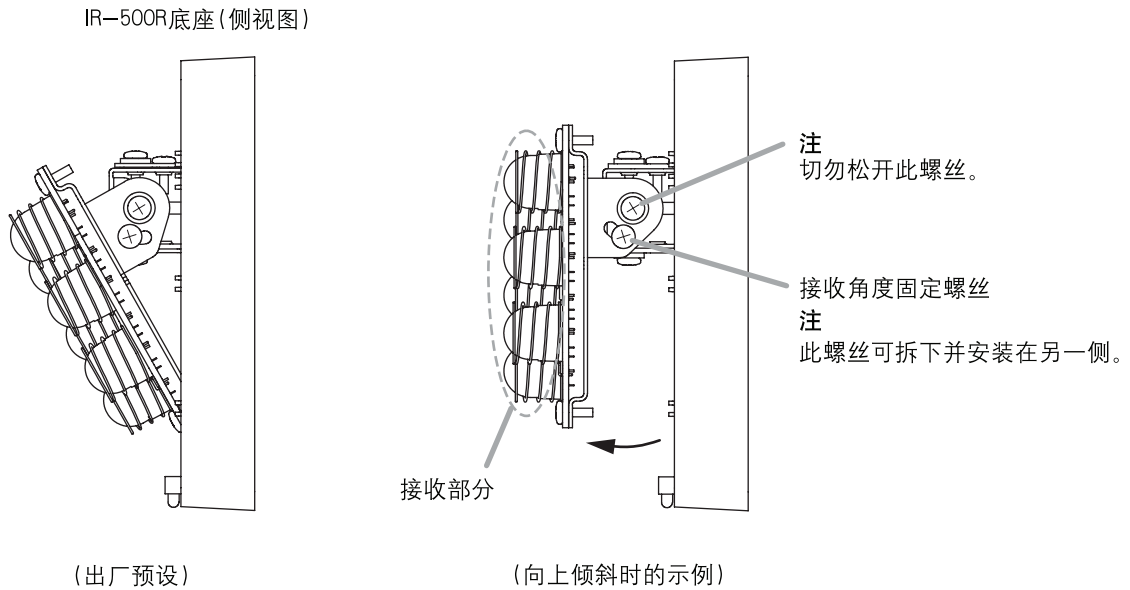
首先纠正接收部分的垂直角度，然后纠正水平角度。

### 11.2.2.纠正垂直角度

步骤1. 松开接收角度固定螺丝（用于垂直方向）。

步骤2. 用手将接收部分朝红外线话筒使用位置上下移动。

步骤3. 重新拧紧步骤1中松开的螺丝。

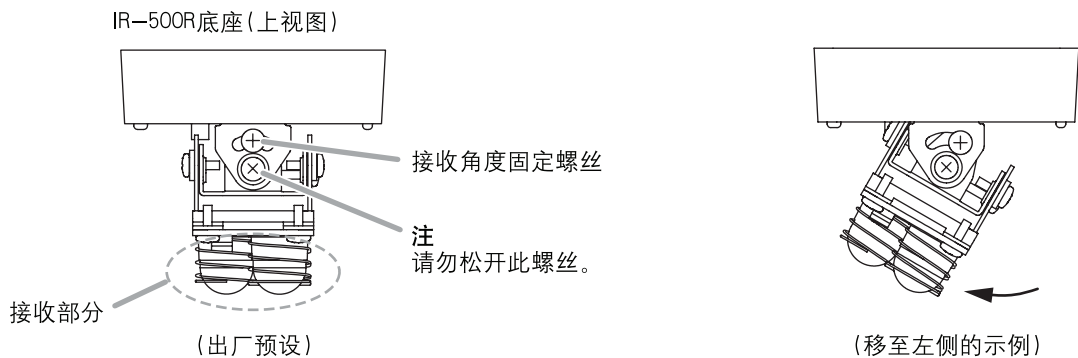


### 11.2.3.纠正水平角度

步骤1. 松开接收角度固定螺丝（用于水平方向）。

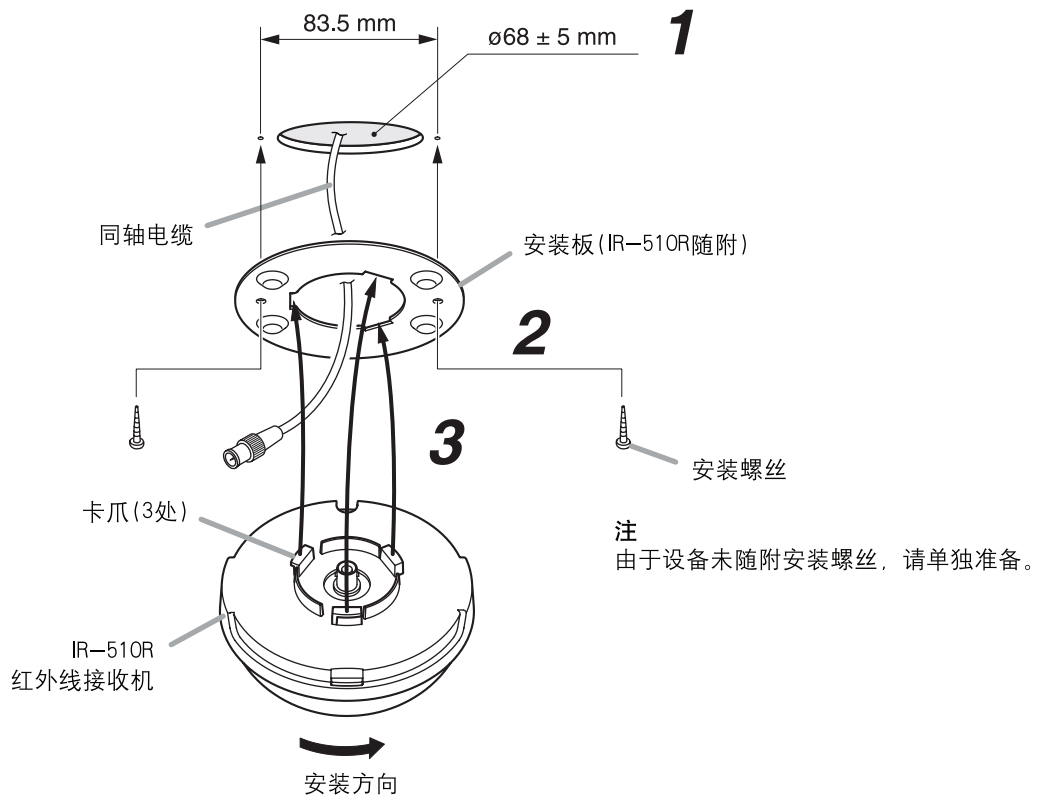
步骤2. 用手将接收部分朝红外线话筒使用位置左右移动。

步骤3. 重新拧紧步骤1中松开的螺丝。



## 12. 安装IR-510R红外线接收机

### 12.1. 天花板式



**步骤1.** 在天花板上打68 mm的安装孔。

**步骤2.** 将安装板 (IR-510R随附) 安装在天花板上。

**注**

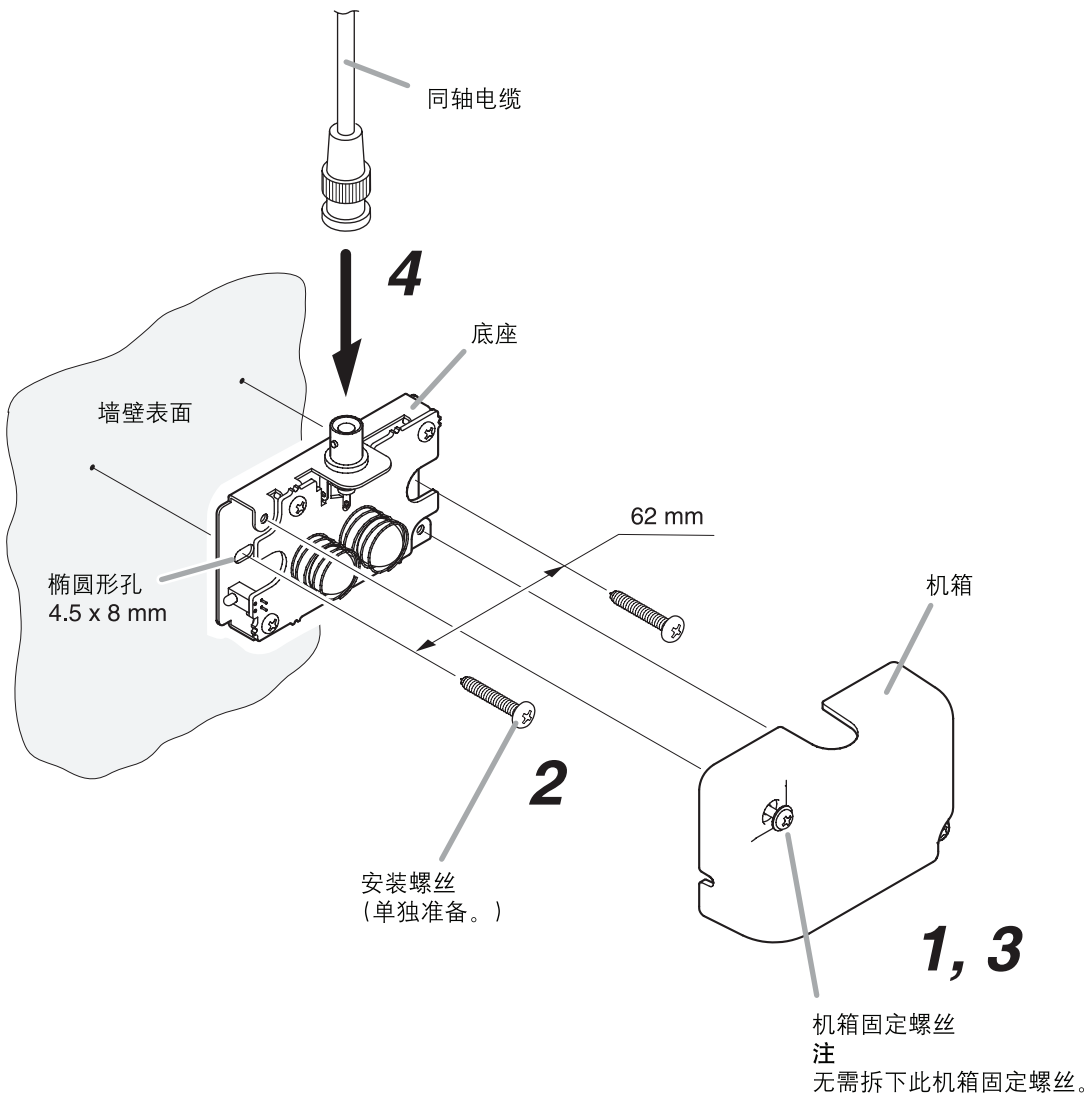
- IR-510R具备83.5 mm的安装间距，同样可安装在电气箱中。
- 当使用开放式配线时使用电气箱。
- 当将接收机安装在电气箱中时，使用BNC L连接器或L型适配器连接器。

**步骤3.** 配线完成后，将接收机安装在安装板上。

将接收机卡爪 (3处) 与安装板上的凹槽对齐，然后顺时针旋转接收机至完全停止为止。

## 13. 安装IR-520R红外线接收机

### 13.1. 天花板式



**步骤1.** 松开2个机箱固定螺丝，然后拆下机箱。

**步骤2.** 将底座安装在墙壁上。

**注**

由于设备未随附安装螺丝，请单独准备。

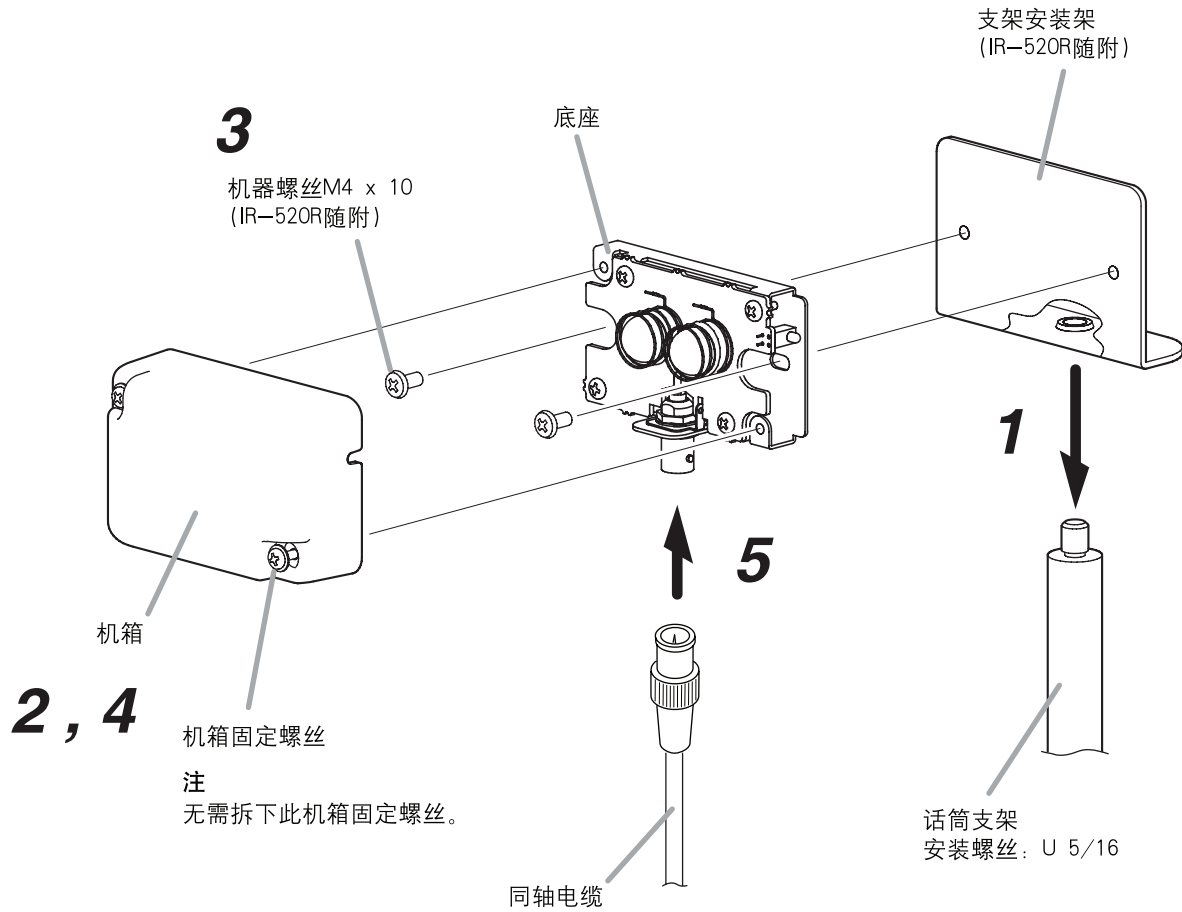
**步骤3.** 将机箱安装在底座上。

重新拧紧步骤1中松开的2个螺丝。

**步骤4.** 连接同轴电缆。



## 13.2.在话筒支架上安装



步骤1. 将支架安装架 (IR-520R随附) 安装至话筒支架。

可适用螺丝尺寸: U 5/16

步骤2. 松开2个机箱固定螺丝, 然后拆下机箱。

步骤3. 使用2个机器螺丝M4 x 10 (IR-520R随附) 将底座固定至支架安装架上。

步骤4. 将机箱安装在底座上。

步骤5. 连接同轴电缆。

注

有关话筒支架安装的信息, 请参见话筒支架随附的使用说明书。

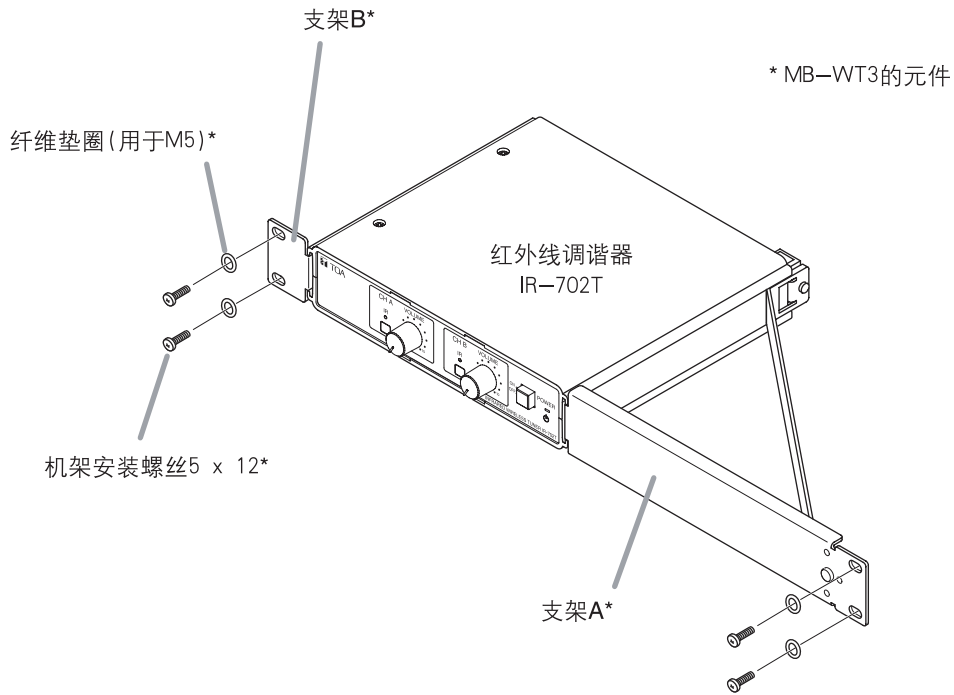
## 14. 安装红外线调谐器

### 14.1. 在机架上安装

当将设备安装在机架上时，使用选购的MB-WT3安装架。

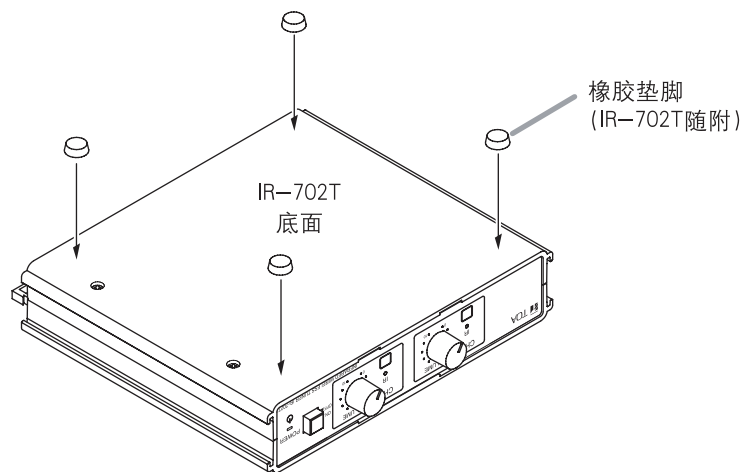
注

有关安装架安装的信息，请参见MB-WT3附带的使用说明书。



### 14.2. 在桌面上安装

当将设备安装在桌面上时，将4个随附的橡胶垫脚安装在设备的底部。



## 15.红外线接收机至调谐器配线

### 15.1.配线注意事项

当多个红外线接收器从红外线话筒接收到红外线信号时，如果输入到各接收机的信号彼此同步，则接收电平会增加。但是，如果信号不同步，则接收电平会降低。

- 为了匹配信号相位，使得各相应电缆至以下长度：

各红外线接收机至调谐器的电缆长度： $M1 + N1 = M2 + N2$

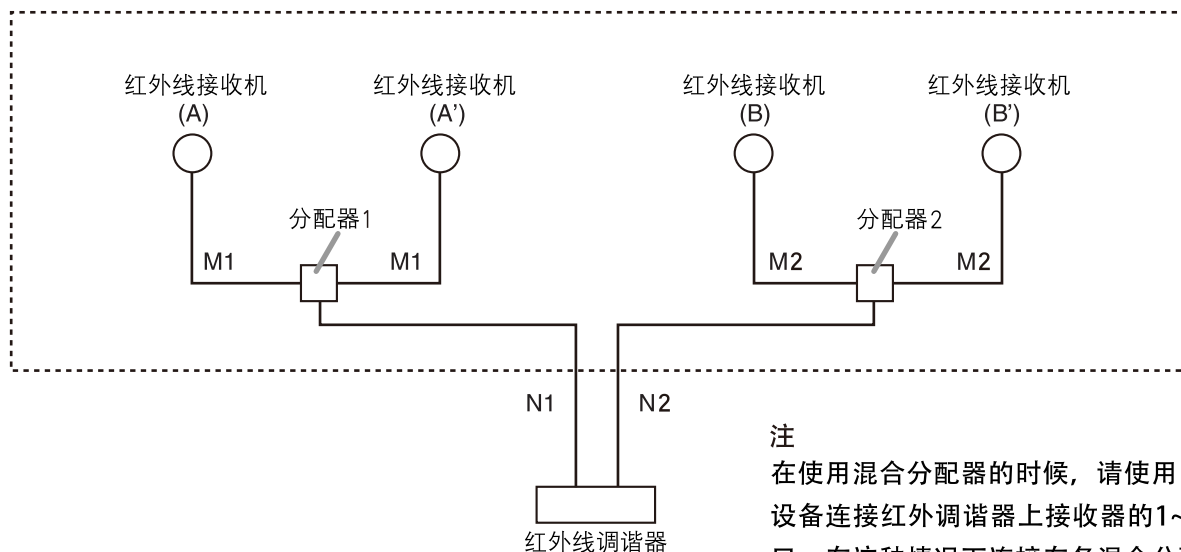
其中M1, N1, M2和N2是：

M1：接收机（A或A'）和分配器1之间的电缆长度

N1：分配器1和调谐器之间的电缆长度

M2：接收机（B或B'）和分配器2之间的电缆长度

N2：分配器2和调谐器之间的电缆长度



注  
在使用混合分配器的时候，请使用同一型号设备连接红外调谐器上接收器的1~2输入端口。在这种情况下连接在各混合分配器上的接收器的数量可以彼此各不相同。

- 根据所使用的同轴电缆的类型，各红外线接收机和调谐器之间的最大电缆长度会存在差异。注意不要超过最大电缆长度。（请参见第10页“补充注意事项。”）

### 15.2.当使用分配器YW-1022/1024时

- YW-1022是2分配器，而YW-1024是4分配器。
- 某些闲置的YW-1024分配端子根据配线不同可能会接触不良，但这并不是问题。
- 避免串联连接2个或多个分配器。串联连接会增加高频信号丢失，可能会导致系统故障。
- 同一系统内的红外接收器，请务必使用相同型号的混合分配器来连接。  
如果有不同型号的混合分配器混杂使用，或者将连接混合分配器的配线或不连接混合分配器的配线混杂使用的话，就会导致信号覆盖范围减小。

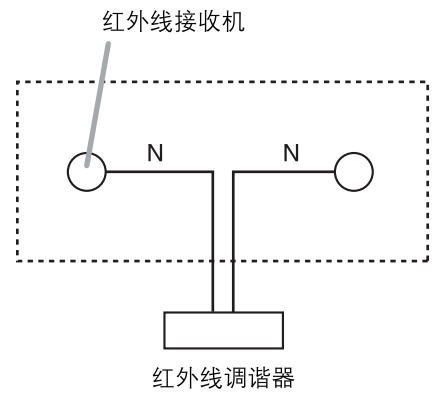
### 15.3.当使用红外线分配器IR-700D时

IR-700D红外线分配器的配线方式与YW-1022和YW-1024分配器的配线方式不同。有关使用IR-700D系统的配线方式，请参见IR-700D随附的使用说明书。

## 15.4. 配线示例

### [示例 1]

当在同一位置安装多个红外线接收机时，使得所有的“N”距离（接收机和调谐器之间的电缆长度）相同。

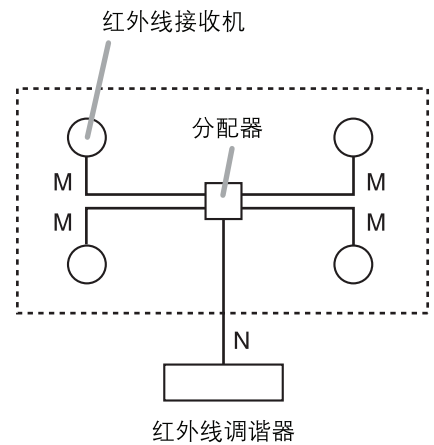


### [示例 2]

当在同一位置安装红外无线接收机和分配器时，使得所有的“M”距离（接收机和分配器之间的电缆长度）相同。

#### 注

- 为了便于保持同轴电缆长度的一致性，建议调谐器至天花板式分配器的配线使用单一电缆执行。
- 使用同轴电缆剪切至比所需长度稍长的同等长度会便于实现所有天花板上配线的“M”距离相同。



## 16.补充注意事项

### (如何获取红外线调谐器至接收机的最大电缆长度)

此处提供的电缆距离值仅作为参考，因为根据建筑物的结构和红外线接收机的环境状况不同，这些值会存在差异。

#### 16.1.配线设计确认

当计算红外线接收机和调谐器之间的配线时，必须考虑电缆路由上的最大允许损耗。电缆路由损耗是由于分配损耗和电缆衰减导致的，两者之和必须不超过12 dB。

各损耗值如下所示：

- (1) YW-1022 (2分配器) 损耗：4.5 dB
- (2) YW-1024 (4分配器) 损耗：8.5 dB
- (3) 同轴电缆100 m衰减：如下表所示。

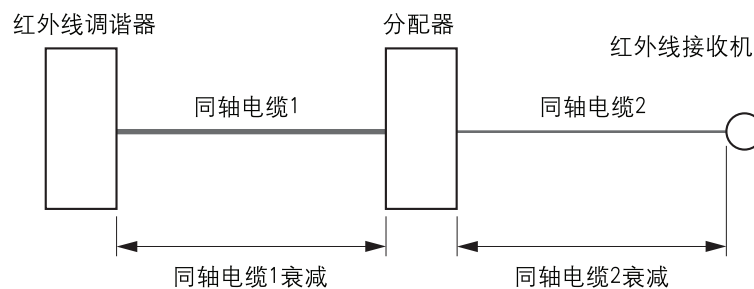
RG-59/U	3.3 dB
RG-6/U	2.7 dB
RG-11/U	2.0 dB

上图连接示例的总衰减如下所示：

电缆衰减 = (长度/100) × 每100 m衰减

总衰减 = 电缆1 衰减 + 电缆2 衰减 + 分配器衰减

如果总衰减不超过12 dB，则应该没有问题。



#### 16.2.设计示例

[示例 1]

当使用2根同轴电缆连接2个红外线接收机至单一调谐器时



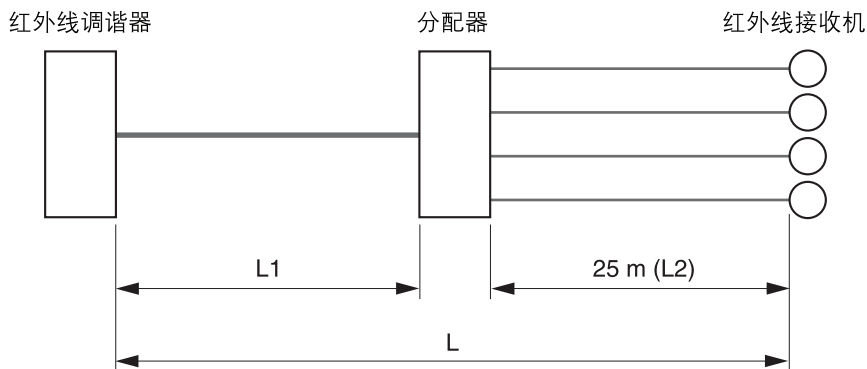
由于没有分配器，所以仅同轴电缆的损耗会决定最大电缆距离。右侧表格显示了同轴电缆类型和最大电缆距离之间的关系。

RG-59/U	606 m
RG-6/U	740 m
RG-11/U	1000 m

[示例 2]

当使用单一同轴电缆连接4个红外线接收机至单一调谐器时

预设条件：分配器至接收机的电缆距离(L2)假定为25 m。



假定RG-59/U同轴电缆应用在分配器和接收机之间的配线中，此距离的衰减是：

$$\text{衰减} = 3.3 \text{ dB} \times (25 \text{ m}/100 \text{ m}) = 0.825 \text{ dB}.$$

由于分配器产生 8.5 dB 的损耗，红外线调谐器至分配器的最大允许损耗保持在2.675 dB(12 dB-0.825 dB-8.5 dB)。

如果RG-6/U同轴电缆应用在调谐器至分配器的配线中，将两者之间的配线距离给定为L1，

$$\begin{aligned} L1 &= (\text{同轴电缆衰减}/\text{每100 m同轴电缆衰减}) \\ &= (2.5 \text{ dB}/2.7 \text{ dB}) \times 100 \text{ m} \\ &= 92 \text{ m} \end{aligned}$$

可从以下等式获取最大电缆长度（红外线调谐器至红外线接收机的配线距离）：

$$\begin{aligned} L &= L1 + 25 \text{ m} \\ &= 92 \text{ m} + 25 \text{ m} \\ &= 117 \text{ m} \end{aligned}$$

同样，调谐器和分配器之间使用的同轴电缆类型而计算的最大电缆长度（调谐器至接收机的配线距离）如下表所示：

RG-59/U	348 m
RG-6/U	414 m
RG-11/U	542 m

## 17.故障排除

症状	原因和检查点	解决方法
当按下电源开关时设备无法打开。	电源插头从AC壁式插座中拔出。	将电源插头插入AC壁式插座。
未接收到信号	红外线话筒的电源开关未设置为“开”。	将话筒的电源开关置于“开”位置。
	红外线话筒的电池耗尽。	更换新的电池。如果使用可充电电池，请充电。
	红外线话筒的通道设置与接收通道不同。	使得红外线话筒与接收通道相同。
未输出声音	红外线调谐器未正确连接至扩音器。	正确连接。 (请参见第9页“连接示例。”) )
	CH-A/MIX输出选择开关未正确设置。	正确设置开关。 (请参见第9页“连接示例。”) )
声音无法听清	红外线调谐器音量控制器设置至过低的电平。	旋转调谐器的音量控制器设置至适当的音量电平。
	扩音器音量控制器设置至过低的电平。	设置扩音器音量控制器至适当的音量电平。
听见噪音或奇怪的声音 (即，含糊不清的声音)	红外线接收机安装在产生无线电噪音或红外线光设备附近。	请参见第11页有关红外线接收机的“安装注意事项”正确设置接收机。
过短的发射距离	红外线接收机电缆未正确连接。	正确连接接收机电缆。

## 18.规格

电源	AC 电源, 50/60 Hz (由随附的AC 适配器供电)
消耗功耗	15 W或更少
接收频率	通道A: 3.100 MHz 通道B: 3.350 MHz
接收灵敏度	信噪比: 超过50 dB (40 dB $\mu$ V输入, 1 kHz调制, $\pm$ 4.8kHz偏移)
信噪比	61 dB或以上 (60 dB $\mu$ V输入, $\pm$ 4.8 kHz偏移, A-谐正器)
音频静噪频率	32.768kHz
红外线接收机输入	75 $\Omega$ , BNC插头 x 2 (红外线接收机电源: DC 24 V, 最大20 mA, 总共2个端子)
输出	通道A和B: -10 dB* ( $\pm$ 4.8 kHz偏移, 最大音量电平), 600 $\Omega$ , 电子平衡, 3极话筒插头 注: 通道A切换至混音器输出
频率响应	100 Hz - 12 kHz
运行温度	-10 ~ +50 $^{\circ}$ C
运行湿度	30~ 85% RH
材料	机箱: ABS树脂, 黑色
尺寸	210 (宽) x 44 (高) x 210.9 (深) mm
重量	630 g (仅主机)

\* 0 dB = 1 V

注: 设计和规格若有变更, 恕不另行通知。

### • 配件

AC适配器 .....	1
电源电缆 (2 m) .....	1
带有话筒插头的连接线 (1 m) .....	1
颜色标签 (6种颜色) .....	1
橡胶垫脚 .....	4

### • 选购产品

机架安装支架: MB-WT3