

WIRELESS TUNER

WT-4810

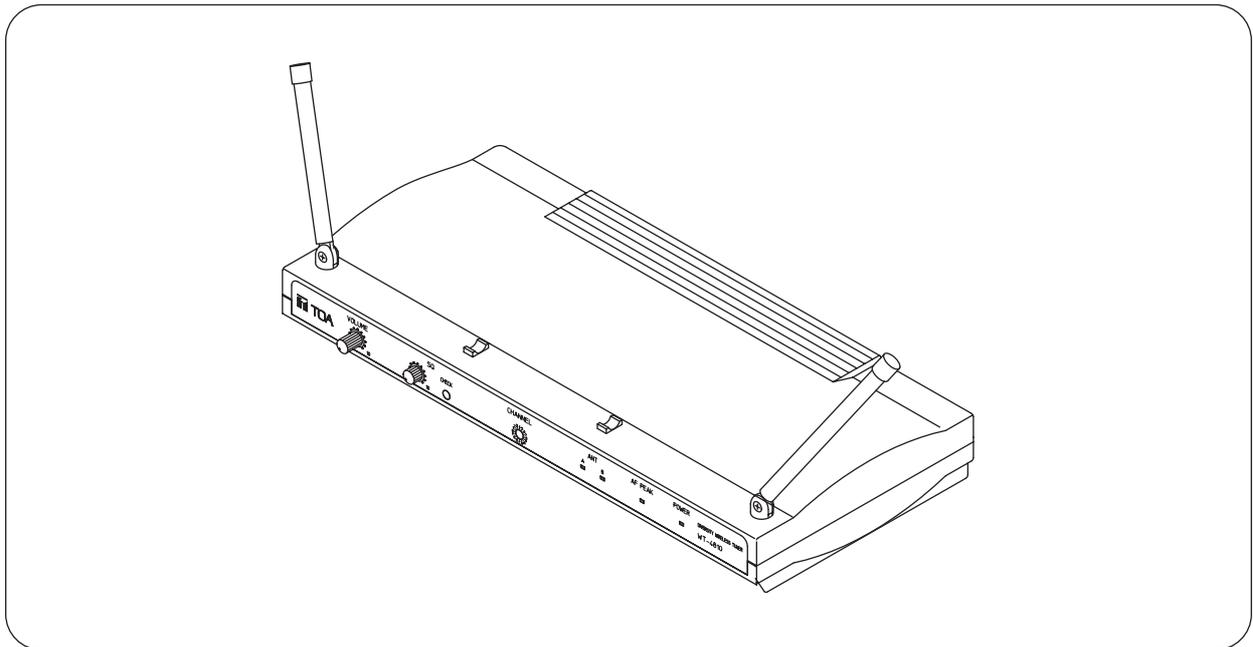


TABLE OF CONTENTS

|                               |   |   |   |
|-------------------------------|---|---|---|
| 1. SAFETY PRECAUTIONS .....   | 2 | 7. CHANNEL NUMBER SETTING .....                               | 5 |
| 2. GENERAL DESCRIPTION .....  | 3 | 8. HOW TO CHECK AND DEAL WITH INTERFERENCE                    |   |
| 3. FEATURES .....             | 3 | 8.1. Order of Actions (Action Flowchart) .....                | 6 |
| 4. HANDLING PRECAUTIONS ..... | 3 | 8.2. Checking Ambient Signal Condition .....                  | 6 |
| 5. NOMENCLATURE AND FUNCTIONS |   | 8.3. Reducing Radio Interference by the Squelch Control ..... | 7 |
| Front .....                   | 4 | 9. SPECIFICATIONS .....                                       | 7 |
| Rear .....                    | 4 | Accessory .....   | 7 |
| 6. OPERATION .....            | 5 |   |   |

Please follow the instructions in this manual to obtain the optimum results from this unit. We also recommend that you keep this manual handy for future reference.

# 1. SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction manual handy for future reference.

## Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.



### **WARNING**

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

#### **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.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down and causing personal injury and/or property damage.
- To prevent lightning strikes, install the unit at least five meters away from a lightning rod, and yet within the protective range (angle of 45°) of the lightning conductor. Lightning strikes may cause a fire, electric shock or personal injury.
- Since the unit is designed for in-door use, do not install it outdoors. If installed outdoors, the aging of parts causes the unit to fall off, resulting in personal injury. Also, when it gets wet with rain, there is a danger of 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.)
- 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 the unit's antennas during thunder and lightning, as this may result in electric shock.



### **CAUTION**

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

#### **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.



## CAUTION

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

### When Installing the Unit

- 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.

### When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.
- Never open the unit case as there are high temperature parts inside the unit, which may cause a burn if touched. Refer all servicing to your nearest TOA dealer.
- Use the dedicated AC – DC adapter for 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. A fire or electric shock may result.

## 2. GENERAL DESCRIPTION

The WT-4810 Wireless Tuner is designed for use on the UHF band, and suitable for vocal or speech reinforcement applications. It features a compander circuit which minimizes the influence of ambient noise.

## 3. FEATURES

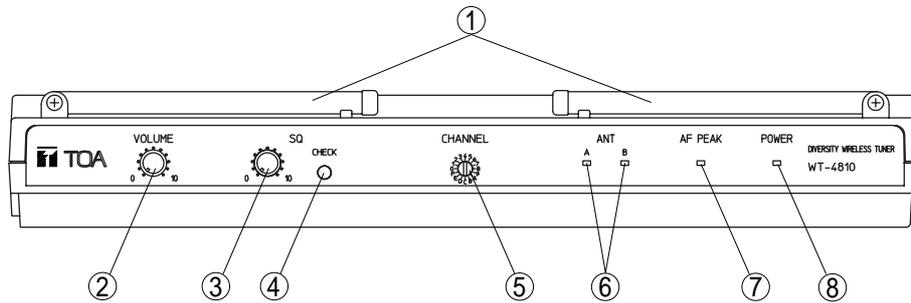
- 16 different operating frequencies ranging from 690 to 865 MHz.
- Optimized PLL-synthesizer minimizes the oscillation frequency drift resulting from the ambient temperature change.
- Compact size and high reliability

## 4. HANDLING PRECAUTIONS

- When installing, keep the unit as far away as possible from fluorescent lamps, digital equipment, personal computers, and other equipment that generate high frequency noise.
- When cleaning the case, use a dry cloth. Never use benzine, thinner or other volatile liquids.
- When using two or more wireless microphones, keep them at least 50 cm away from each other to avoid malfunctions or noise.

## 5. NOMENCLATURE AND FUNCTIONS

### [Front]



#### 1. Antenna

Raise the two antennas at a 45° angle outwards from a vertical line. Do not raise the antennas when carrying the tuner.

#### 2. Volume control

Controls the output level.

#### 3. Squelch control

Controls the squelch level.

#### 4. RF check key

Releases the squelch for monitoring the receiving frequency.

#### 5. Channel select switch

Used to select the frequency. (The tuner frequency must be identical to that of the microphone.)

#### 6. Reception lamps

Either lamp, A or B, lights yellow when the tuner receives a radio signal.

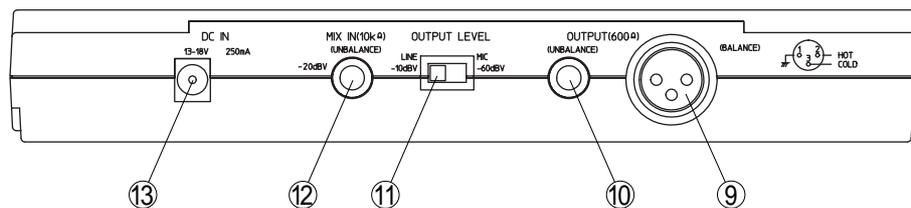
#### 7. AF peak lamp

Lights red when the tuner output level reaches the point about 3 dB below the clipping level.

#### 8. Power lamp

Lights green when the DC power is supplied from the DC power supply unit to the tuner.

### [Rear]



#### 9. AF output

Balanced XLR jack, male type (Pin #2: Hot)

#### 10. AF output

Unbalanced phone jack

#### 11. AF output level selector

Selects the output level of either -60 dB/600 Ω or -20 dB/600 Ω. (0 dB = 1 V)

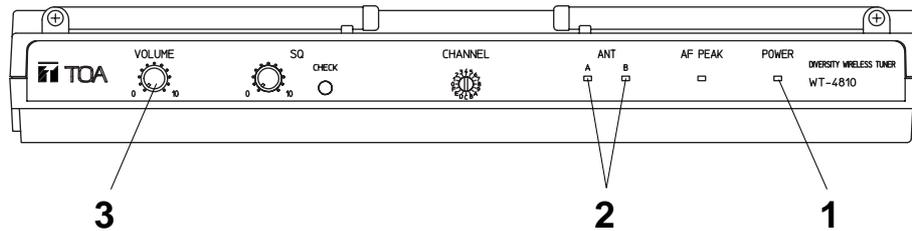
#### 12. AF mixing input (unbalanced)

Connects to other unit's AF output.  
Input level: -20 dB, 10 kΩ (0 dB = 1 V)

#### 13. DC input jack

Connects to the DC power supply unit. Because the tuner is equipped with no power switch, it automatically turns on when the DC power supply is connected to this jack and wall AC outlet. Disconnect the DC power supply unit from the AC outlet when the tuner is not in use.

## 6. OPERATION



**Step 1.** Connect the DC power supply unit to the unit's DC input jack and wall AC outlet. The power is turned on and the power lamp lights.

**Step 2.** Set the wireless microphone switch to the ON position. The reception lamp lights when the tuner receives the same frequency signal.

**Step 3.** Adjust the volume control. The output level increases as the volume is turned clockwise, and decreases as turned counterclockwise.

### Microphone Sensitivity Adjustment

Although the audio level is preset by the factory, it can be adjusted depending on the user's voice level.

**Step 1.** Holding the microphone body, rotate the microphone grip counterclockwise to remove it.

**Step 2.** Turn on the power of the tuner and microphone.

**Step 3.** Adjust the microphone's audio level control using a screwdriver. The sensitivity increases as the control is rotated clockwise, and decreases as rotated counterclockwise.

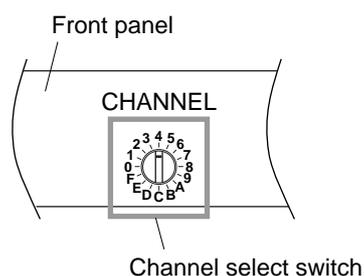
**Step 4.** Set the volume control so that its knob points to the 2 o'clock position. If the AF PEAK lamp remains lit, readjust the microphone's audio level control so that the lamp only flashes when the signal reaches its highest peak.

**Step 5.** Replace the microphone grip.

The tuner's AF PEAK lamp lights when the tuner output level reaches the point of about 3 dB below the clipping level. The PEAK lamp operates in response to the volume control position.

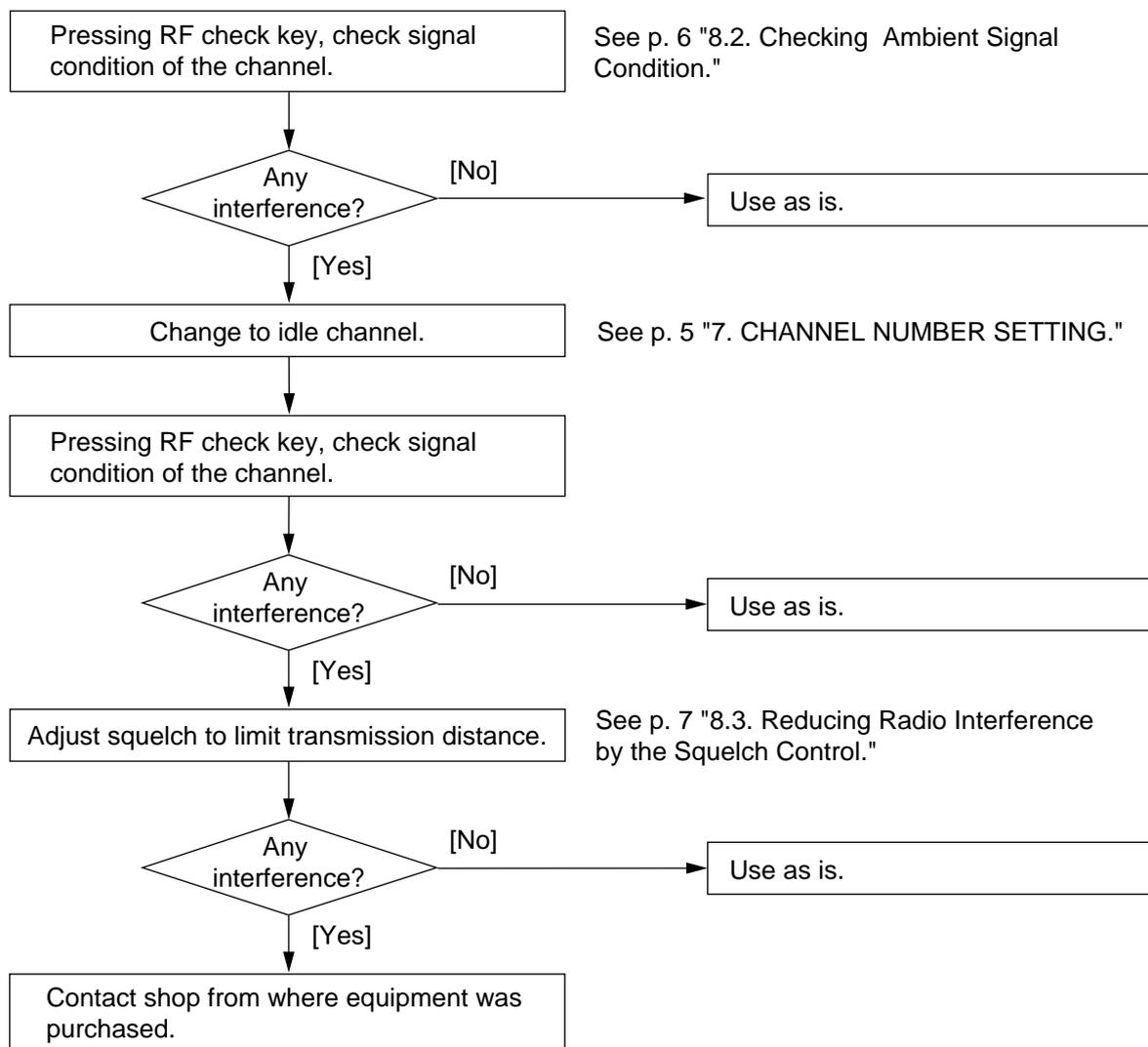
## 7. CHANNEL NUMBER SETTING

Turn the Channel Select switch to select the same channel number as that of the wireless microphone. A total of 16 different channel numbers are made available for selection from 0 – 9 and A – F.



## 8. HOW TO CHECK AND DEAL WITH INTERFERENCE

### 8.1. Order of Actions (Action Flowchart)



## 8.2. Checking Ambient Signal Condition

### 8.2.1. What is the "squelch"?

In FM receivers, such as a wireless tuner, big noise is produced at the output when incoming signals are weak or when no signal is present. When the signal received is lower than a certain level of signal strength, by silencing the output, the noise can be suppressed. It is a squelch circuit that achieves this. An RF check key is provided to permit check of a disturbing wave when the unit is interfered with during its use. The key also checks the presence of the disturbing wave in the channel of the new channel numbers when the unit is set for such numbers.

### 8.2.2. Operations

Hold down this key for a while. As long as this key is pressed, the wireless tuner outputs the condition received in the highest sensitivity, allowing an operator to hear radio interference.

#### Note

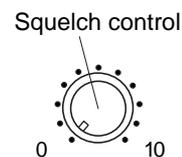
Take care about the volume level since noise or interfering sounds are heard while the key is pressed.

### 8.3. Reducing Radio Interference by the Squelch Control

#### 8.3.1. Squelch control

The WT-4810 tuner has the squelch function that silences its output in the condition that a radio signal to be received is under a certain level of signal strength.

This signal strength level can be varied by means of the squelch control graduated from "0" to "10." The sensitivity is the highest and radio signals can be received in wide areas when the control is in the "0" position, while the "10" position makes the sensitivity the lowest, permitting the radio signals to be only received in narrow areas.



It is possible to eliminate disturbing waves and only receive the radio signal transmitted from the required microphone by changing the squelch setting to make the radio signal reception area narrow. The wireless microphone's signal transmission distance varies largely depending on its ambient conditions, and the table below provides guidelines on the squelch control vs. transmission distance.

| Squelch Control Graduation | 0   | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
|----------------------------|-----|----|----|----|----|----|----|----|----|----|----|
| Transmission Distance (%)  | 100 | 85 | 70 | 60 | 50 | 40 | 35 | 30 | 25 | 20 | 15 |

**Note :** Transmission distance when in "0" position is 100%.

#### 8.3.2. Squelch control setting position

- Set the control to the "0" position in locations free from interference.
- Set the control to the position that does not cause any reception loss of wireless microphone signals.

## 9. SPECIFICATIONS

\* 0 dB = 1 V

|                       |  |
|-----------------------|--|
| Power Source          | AC mains (Supplied AC – DC adapter must be used.)  |
| Power Consumption     | 130 mA (12 V DC)   |
| Receiving Frequency   | 690 – 865 MHz, UHF   |
| Selectable Channel    | 16 channels  |
| Receiving System      | Double superheterodyne   |
| Diversity System      | Space diversity  |
| Mixing Output         | MIC: –60 dB*/LINE: –20 dB*, 600 Ω<br>Phone jack (unbalanced), XLR-3-31 type connector (balanced) |
| Mixing Input          | –20 dB*, 10 kΩ<br>Phone jack (unbalanced)  |
| Antenna               | Rod antenna  |
| Receiving Sensitivity | Better than 80 dB, S/N ratio (20 dBμV input, 40 kHz deviation)                                   |
| Squelch Sensitivity   | 18 – 40 dBμV variable  |
| Squelch System        | Using together of noise SQ and carrier SQ  |
| S/N Ratio             | Better than 104 dB (A-weight, balanced output)   |
| Harmonic Distortion   | Less than 1%   |
| Frequency Response    | 100 – 12,000 Hz, ±3 dB   |
| Operating Temperature | –10 to +50°C   |
| Finish                | Resin, dark gray   |
| Dimensions            | 240 (w) x 35 (h) x 110 (d) mm  |
| Weight                | 1.05 kg  |

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

#### • Accessory

AC – DC adapter ..... 1

## **License requirement**

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.