

### TABLE OF CONTENTS

1. SAFETY PRECAUTIONS .....	2
2. GENERAL DESCRIPTION .....	3
3. FEATURES .....	3
4. HANDLING PRECAUTIONS .....	3
5. NOMENCLATURE AND FUNCTIONS .....	4
6. BATTERY INSERTION .....	5
7. CHANNEL NUMBER SETTING .....	6
8. OPERATION .....	6
9. A/B SWITCH FUNCTION AND USAGE METHOD .....	7
10. TALK SWITCH SETTING .....	8
11. CHIME SETTING .....	8
12. MICROPHONE SENSITIVITY SETTING .....	9
13. WHEN USING EXTERNAL MICROPHONE .....	9
14. USING POCKET CLIP .....	10
15. TROUBLESHOOTING .....	11
16. FREQUENCY TABLE .....	11
17. CERTIFICATIONS .....	12
18. SPECIFICATIONS .....	12
Accessories .....	12
Optional products .....	12

Thank you for purchasing TOA Press-to-Talk Wireless Microphone.

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

# 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.

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

To prevent the electromagnetic wave from badly influencing medical equipment, make sure to switch off the unit's power when placing it in close proximity to the medical equipment.



Prohibited

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

- When the unit is not in use for 10 days or more, be sure to take the battery out of the unit because battery leakage may cause personal injury or contamination of environment.
- Make sure to observe the following handling precautions so that a fire or personal injury does not result from leakage or explosion of the battery.
  - Do not short, disassemble heat nor put the battery into a fire.
  - Do not solder a battery directly.
  - Be sure to use the specified type of battery.
  - Note correct polarity (positive and negative orientation) when inserting a battery in the unit.
  - Avoid locations exposed to the direct sunlight, high temperature and high humidity when storing batteries.
- When the battery becomes inflated or leaks, discontinue use and replace with new one immediately.



Compulsory

**CAUTION TO USER:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## **2. GENERAL DESCRIPTION**

WM-5420 is a multifunctional press-to-talk wireless microphone, employing a unidirectional condenser microphone unit.

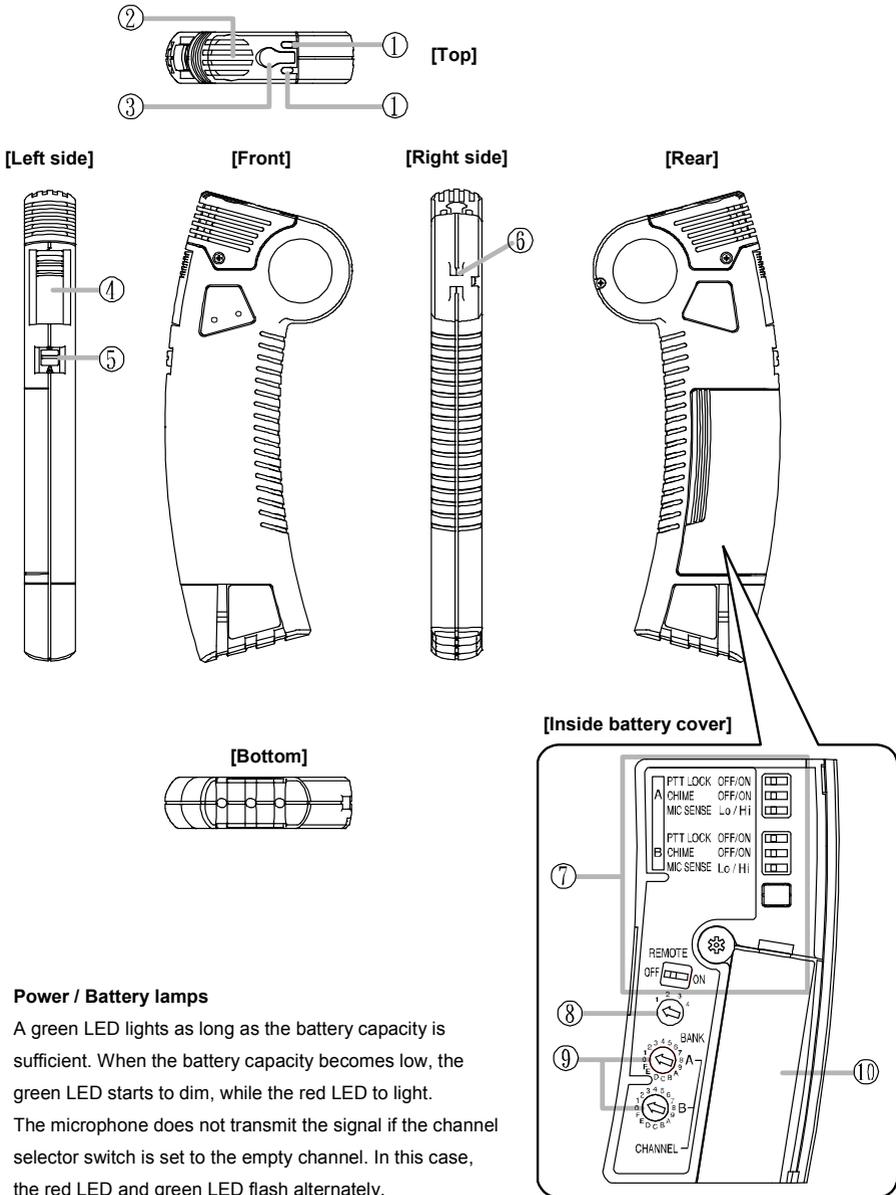
## **3. FEATURES**

- An optimized PLL-synthesizer minimizes the oscillation frequency drift resulting from the ambient temperature or voltage fluctuation.
- Locking the talk switch and switchable the microphone sensitivity allows the hands-free usage..
- Employs a chime function.
- Transmitter channels may be configured with various functions to be used for different purposes.
- Equipped with external microphone input. It is available to turn on/off using the switch on the external microphone.
- Curved shape fits into user's hand
- Power/Battery lamps indicate battery consumption to prevent the unit from malfunctioning when the battery level remarkably decreases.
- Operates on a single AA battery..
- Antimicrobial surface treatment.
- Employs a built-in antenna.

## **4. HANDLING PRECAUTIONS**

- 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 unit failure.
- Never open nor remove the unit case to modify the unit. Refer all servicing to your nearest TOA dealer.
- Take care not to drop the unit onto the floor nor bump it against a hard object as the unit could fail.
- Do not place the unit in locations of high temperature (ex. in an ill-ventilated car in summer) or high humidity as the unit could fail.
- Do not use the unit in locations where it is exposed to seawater.
- To clean, use a dry cloth. When the unit gets very dirty, wipe lightly with a cloth damped in a dilute neutral cleanser, then wipe with a dry cloth. Never use benzine, thinner, or chemically-treated cleaning towel.
- Avoid using a mobile telephone near the wireless microphone in use. Noise could be picked up.
- When using two or more wireless microphones, keep them at least 50 cm away from each other to avoid malfunctions or noise.
- Keep the wireless microphone at least 3 m away from the receiving antenna. Using the microphone in close proximity to the antenna could result in malfunctions or noise.

## 5. NOMENCLATURE AND FUNCTIONS



### 1. Power / Battery lamps

A green LED lights as long as the battery capacity is sufficient. When the battery capacity becomes low, the green LED starts to dim, while the red LED to light. The microphone does not transmit the signal if the channel selector switch is set to the empty channel. In this case, the red LED and green LED flash alternately.

### 2. Microphone

### 3. External microphone connector $\phi 3.5$ mini-jack

Remove cover before use.

#### 4. Talk switch

Use this switch to turn microphone on/off. Press the switch to talk. Settings may be changed.

#### 5. A/B switch

Modes A and B are settings for different combinations of channels and functions. Either mode A or B may be chosen. The default is mode A.

#### 6. Neck strap

Strap provided is to be fitted here.

#### 7. Settings for various functions

Including locking talk switch, chime and microphone sensitivity.

#### 8. Bank setting switch

#### 9. Channel setting switch

#### 10. Battery compartment

## BASIC USAGE

When the unit is purchased in its new condition (refer to table on the right), it may be used once battery is inserted, and the group number and channel number set.

Function	Default setting
A/B switch	A
Talk switch (lock)	OFF
Chime	OFF
Microphone sensitivity	Low

## 6. BATTERY INSERTION

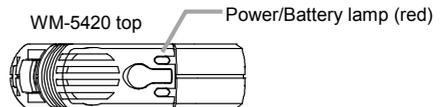
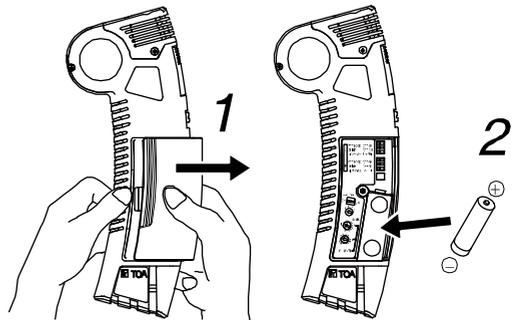
**Step1.** Press on the battery cover while sliding it in the direction of the arrow and remove the cover.

**Step2.** Insert a AA dry-cell battery according to the (+) and (-) signs in the battery compartment.

**Step3.** Replace battery cover.

### Battery replacement

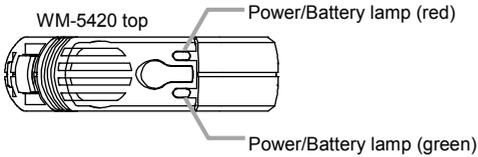
- A brand-new AA alkaline battery will continuously operate the unit for about 10 hours.
- When the battery capacity becomes low, the green LED of the Power/Battery lamps starts to dim, while the red LED to light. When only the red LED lights, replace the battery with a new one.



## 7. CHANNEL NUMBER SETTING

### Note

- Setting should be done when talk-switch is off.  
If you change setting when the power is on, the transmission frequency will not be changed.
- Refer to the frequency table when setting. If you configure a bank or channel that is not on the frequency table, signals will not be transmitted. When the setting is incorrect or done improperly, the red and green indicators of the power/Battery lamps will blink alternately, indicating an error. Check again and reconfigure your setting.



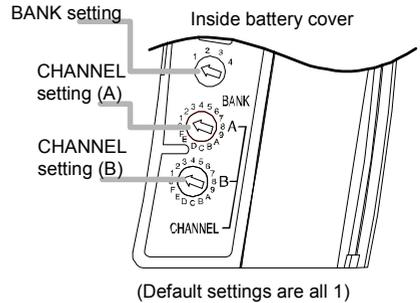
**Step1.** Turn off the talk-switch. Remove battery cover.

**Step2.** Using the supplied screwdriver, set the BANK setting switch to the desired bank number.

**Step3.** Using the supplied screwdriver, set the CHANNEL setting switch (A) and (B) to the desired channel number.

\* If not using the A/B switch function, set (A) and (B) to the same channel.

**Step4.** Replace the battery cover.



## 8. OPERATION

**Step1.** Confirm that the wireless microphone and the wireless tuner are identical in the channel number. If not identical, turn off the talk switch, then set the channel number to the same channel number as the tuner.

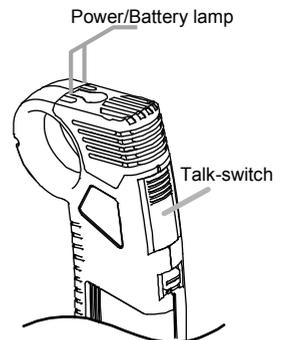
**Step2.** Press talk switch to turn on the wireless microphone.\*

Both green and red indicators on the Power/Battery lamps will flash and either green or red indicator will remain lit depending on battery power, microphone is then turned on.

**Step3.** After use, press talk switch to turn off microphone.\*

\*When talk switch is set as "unlocked" (default setting), it will only be on when it is pressed and off when released.

When it is set as "locked", press once for on and press again for off.



## CONVENIENT FUNCTIONS

Switches inside battery cover, accessories and optional purchase provide convenient functions.

### Note

Setting should be done when talk-switch is off.

After removing battery cover, use the supplied screwdriver or any screwdriver with a pointed tip to change settings.

## 9. A/B SWITCH FUNCTION AND USAGE METHOD

WM-5420 sets different combinations of channels and functions as mode A or mode B. By switching the A/B modes, one microphone can be used in two different ways. The following may be configured differently for mode A and mode B:

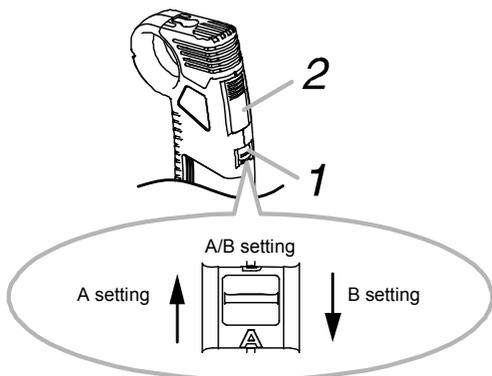
- Channel number
- Talk switch option
- Chime option
- Microphone sensitivity option

\* All other settings except those above are common for both modes.

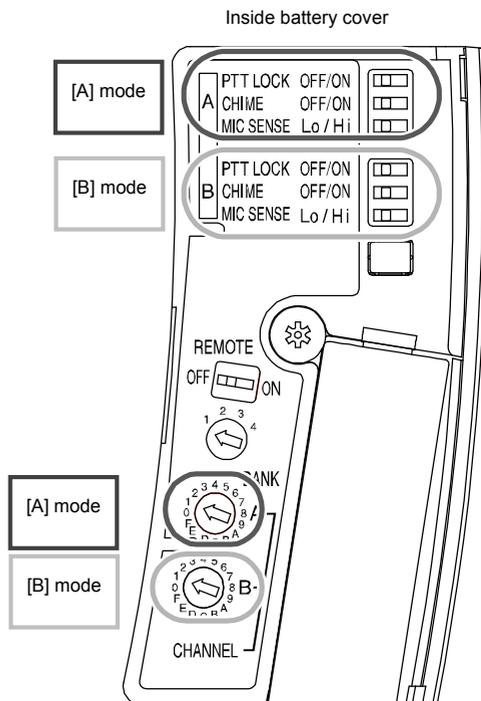
[Operation]

**Step1.** Slide the A/B switch to choose "A" or "B".

**Step2.** Press talk switch to turn on microphone.



(Default setting is A)



### Note

- Setting A/B mode should be done when talk-switch is off. If talk-switch is on, the mode will not change.
- If only one mode is required, it is recommended that both mode A and mode B are configured identically.

## 10. TALK SWITCH SETTING

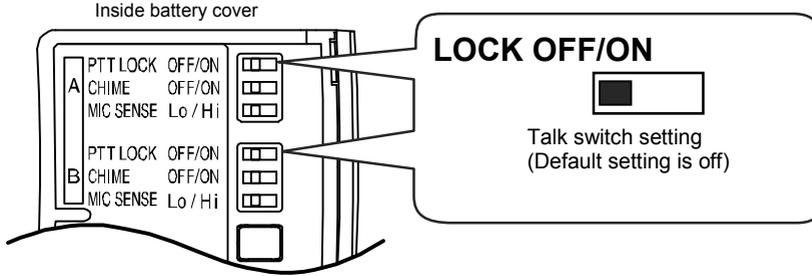
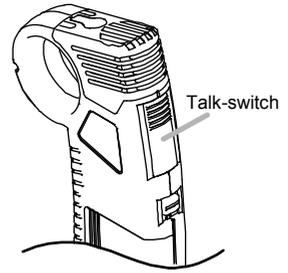
This function is the setting for the talk-switch ON/OFF.

Select lock option using talk-switch inside battery cover and set A/B mode.

### Note

Setting should be done when talk-switch is off.

If talk-switch is on, the setting will not change.



### LOCK OFF



Disable push lock function

Microphone is on when talk-switch is pressed and off when it is released.

### LOCK ON



Enable push lock function

Press talk-switch once to turn on microphone and press again to turn it off.

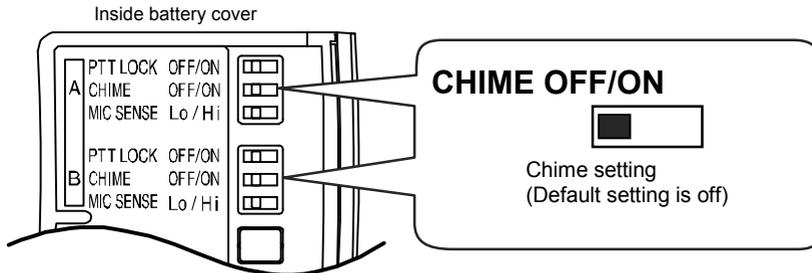
## 11. CHIME SETTING

Choose whether to enable chime when microphone is turn on.

Select chime option inside battery cover and set A/B mode.

### Note

Setting should be done when talk-switch is off. If talk-switch is on, the setting will not change.



### CHIME OFF



When talk-switch is on, chime is disabled.

### CHIME ON



When talk-switch is on, chime is enabled.

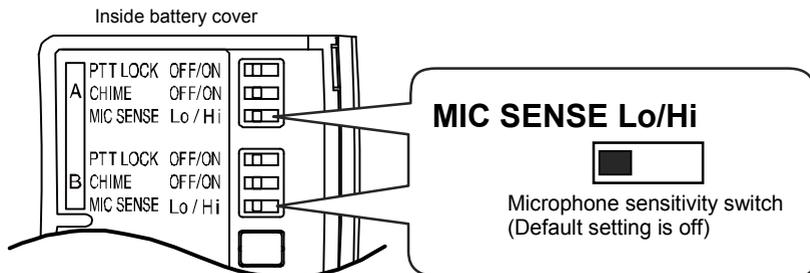
## 12. MICROPHONE SENSITIVITY SETTING

Select microphone input sensitivity (including external microphone) according to type of use.

Select microphone input sensitivity switch inside battery cover and set A/B mode.

### Note

Setting should be done when talk-switch is off. If talk-switch is on, the setting will not change.



**MIC SENSE Lo**



Decreasing microphone input sensitivity

Decrease microphone input sensitivity when microphone is used in close to the mouth (approximately 2~3cm).

**MIC SENSE Hi**



Increasing microphone input sensitivity

Increase microphone input sensitivity when microphone is placed inside the pocket or is held further away from the mouth (approximately 15~20cm).

### Note

Do not hold microphone too close to the mouth, otherwise the sound will be unclear, causing discomfort to the listeners.

## 13. WHEN USING EXTERNAL MICROPHONE

### CONNECTING TO EXTERNAL MICROPHONE

Compatible with other optional microphones (YP-M101, YP-M201, YP-M301).

Remove cover, insert  $\phi 3.5$  mini jack into the external microphone, built-in microphone will be turned off and the external microphone can be available.

\*Refer to the microphone sensitivity setting.

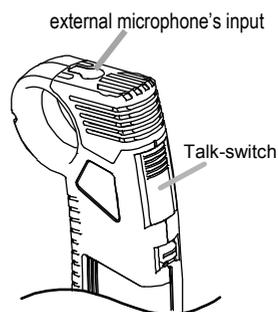
### SETTING EXTERNAL MICROPHONE

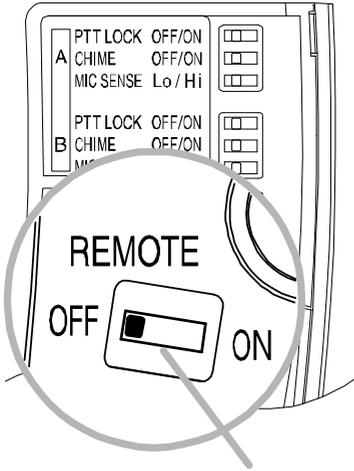
The optional microphone YP-M201 has the talk-switch. This can be available to turn on/off WM-5420. Select external microphone function using external microphone switch inside battery cover.

### Note

Setting should be done when internal and external talk-switch is off.

\*No setting is required if not using external microphone.





External microphone switch  
(Default setting is off)

#### External microphone Off



WM-5420 internal talk-switch is available.

Use this setting if the optional microphone without talk-switch is used.

The external talk-switch on the optional microphone is not available.

#### External microphone On



The external talk-switch on the optional microphone is available.

WM-5420 internal talk-switch is also available to turn on/off using talk switch. However, if either one of internal or external talk-switch is turned on, it is not available to turn off by the other talk-switch.

#### Note

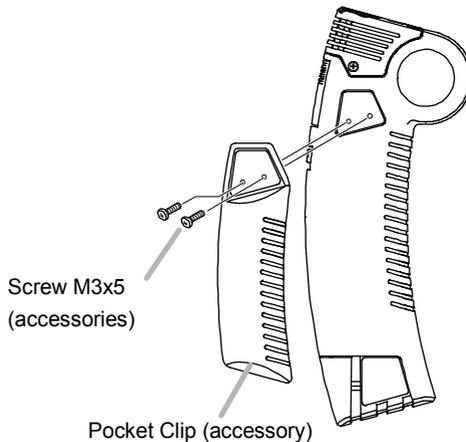
If the external microphone function is set to "on", WM-5420 will sometimes turn on when the external microphone is being plugged or unplugged.

Check if WM-5420 is on/off using Power/Battery lamps when plugging or unplugging external microphone. When WM-5420 is on, use the talk-switch on WM-5420 or the external microphone to turn "off".

## 14. USING POCKET CLIP

Attach the supplied clip and hold in the pocket, hands-free operation is available.

### ATTACH THE CLIP



#### Note

Select the microphone sensitivity "Hi", when WM-5420 is used holding in the pocket.

## 15. TROUBLESHOOTING

Problem	Possible Causes	Solution
Power/Battery lamps does not light (for both red and green indicators) even when the microphone is turned on.	Is the battery polarity correct? Is the battery capacity low?	Replace the battery correctly. Replace with new battery.
Interference from other wireless microphones used at the same time.	Is other wireless microphones set the same bank number and different channel number? Is the distance between wireless microphones too close? Is the wireless microphone too close to the antenna?	Refer to frequency table and reset Bank/Channel.  Keep a distance of at least 50cm between microphones when using. Keep a distance of at least 3m between wireless microphone and antenna when using. (*Depending on the antenna location and the coaxial cable length.)
Sometimes the chime is not activated.	Are the A/B switch and the chime switch set correctly? Have you turned on the microphone immediately (within one second) after turning it off?	Ensure correct setting.  This is normal. Do not turn on the microphone within one second of turning it off. Incorrect operation may cause the chime to repeat continuously.

## 16. FREQUENCY TABLE

Band	D4				C4				F1			
	BANK	BANK				BANK						
CH	1	1	2	3	4	1	2	3	4			
0	863.125	794.250	794.300	794.350	794.400	636.500	636.600	636.700	636.825			
1	863.475	794.600	794.650	794.700	794.750	636.850	636.950	637.050	637.175			
2	863.925	795.050	795.100	795.150	795.200	637.300	637.400	637.500	637.625			
3	864.475	795.600	795.650	795.700	795.750	637.850	637.950	638.050	638.175			
4	863.275	796.500	796.550	796.600	796.650	638.500	638.600	638.700	638.825			
5	863.625	797.700	797.750	797.800	797.850	639.400	639.500	639.600	639.725			
6	864.075	799.250	799.300	799.350	799.400	640.850	640.950	641.050	641.175			
7	864.625	800.900	800.950	801.000	801.050	642.600	642.700	642.800	642.925			
8	863.375	801.600	801.650	801.700	801.750	644.500	644.600	644.700	644.825			
9	863.725	803.350	803.400	803.450	803.500	647.150	647.250	647.350	647.475			
A	864.175	804.450	804.500	804.550	804.600	648.250	648.350	648.450	648.575			
B	864.725					651.000	651.100	651.200	651.325			
C	863.500					654.100	654.200	654.300	654.425			
D	863.850					658.300	658.400	658.500	658.625			
E	864.300					660.500	660.600	660.700	660.825			
F	864.850					665.350	665.450	665.550	665.675			

[MHz]

If you are using more than one system in the same area set the systems to different channels within the same color channels in the bank.

## 17. CERTIFICATIONS

Hereby, TOA Electronics Europe GmbH, declares that this wireless microphone is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

### In compliance with

EN 301 489-01:V1.9.2(2011-09)

EN 301 489-09:V1.4.1(2007-11)

EN 300 422-2 V1.4.1 (2015-06)

EN 62368-1:2014

### CE Declaration of Conformity

2014/53/EU RED

2011/65/EU RoHS

#### Traceability Information for Europe

Manufacturer:

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

Authorized representative:

TOA Electronics Europe GmbH  
Suederstrasse 282, 20537 Hamburg, Germany  
URL: [www.toa.de](http://www.toa.de)

## 18. SPECIFICATIONS

Modulation	Frequency modulation
Frequency Range	636 – 666 MHz, 794 - 865 MHz
Tone frequency	32.768kHz
Oscillation method	Crystal-controlled PLL synthesizer
RF Carrier power	10mW
Modulation sensitivity	±4.8 kHz (microphone sensitivity: low, 1kHz, 96dB SPL input)
Max input sound pressure level	132dB SPL (microphone sensitivity: low) 120dB SPL (microphone sensitivity: high) ±38kHz deviation
External microphone input level	-45dB *1 (1kHz, ±4.8kHz deviation)
Microphone type	Unidirectional electret condenser microphone
Frequency response	200Hz~12kHz
Antenna	Built-in
Battery type	AA dry-cell battery (single)
Battery life (continuous use)	Alkaline battery (LR6): Approx. 10 hours
Operating temperature range	-10~+50°C
Operating humidity range	30%~85%RH
Finishing	ABS resin, black coating
Dimensions	74 (W) x 184 (H) x 20 (D) mm
Weight	105g (excluding battery)

\*1.. 0dB= 0.775V

※ The design and specifications are subject to change without notice for improvement.

### • Accessories

Screwdriver .....	1	Pocket clip .....	1
Neck strap .....	1	Small screw M3x5 .....	2

### • Optional products

Head-set microphone	: YP-M301
Close-talking microphone	: YP-M201
Tie-pin microphone	: YP-M101