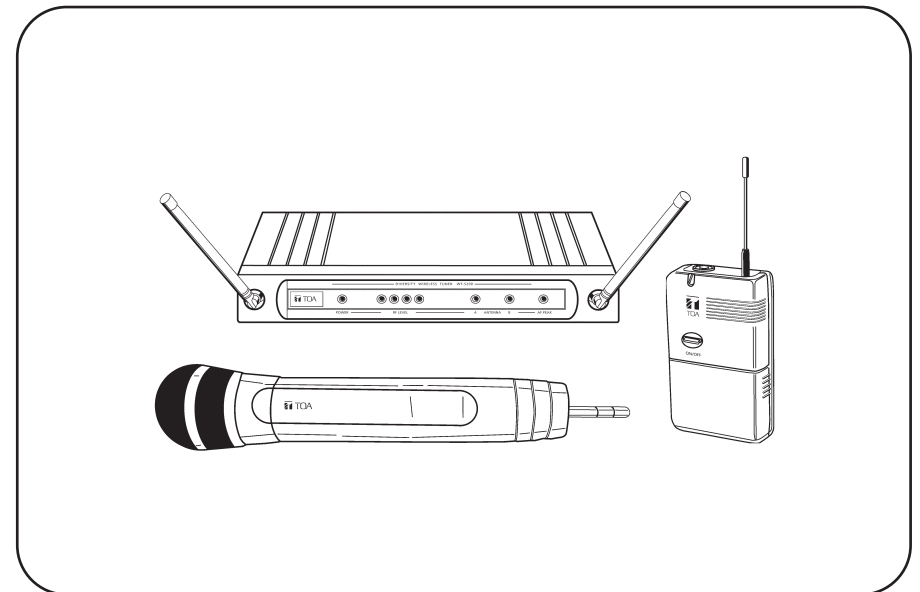




OPERATING INSTRUCTIONS

UHF WIRELESS SET

WS-200/300

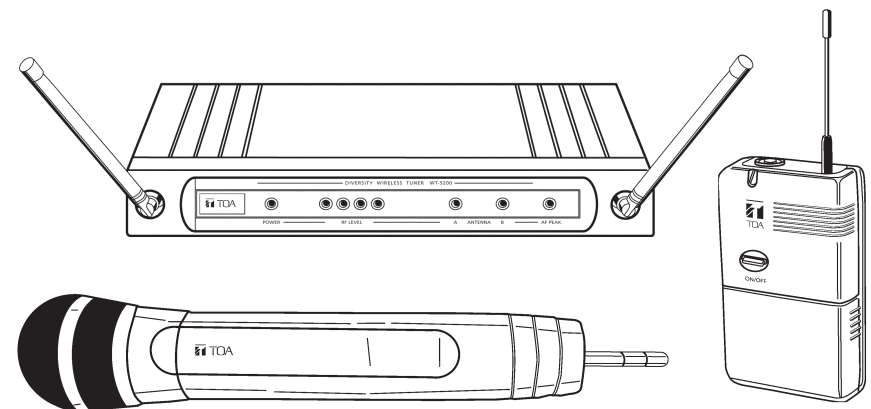


Thank you for purchasing TOA's UHF Wireless Set.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment/

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1. Introduction and Safety
2. TOA WS System Overview
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9. System Contents Description and System Part Numbers
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SAFETY PRECAUTIONS

- > 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.

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.



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

(Applicable to the Wireless Tuners)

- > 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.

When the Unit is in Use

(Applicable to the Wireless Tuners)

- > 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 objects get 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.

(Common to all WS series)

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



CAUTION

When Installing the Unit

(Applicable to the Wireless Tuners)

- > 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 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 cords 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 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

(Applicable to the Wireless Tuners)

- > Use the specified AC adaptor for the unit. Note that the use of other adaptors may cause a fire.
(Applicable to the Wireless Microphones)
- > When the unit is not in use for 10 days or more, be sure to take the batteries out of the unit because battery leakage may cause a fire, 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.
- > Avoid using both new and old batteries together.
- > Never charge batteries of the type which are not rechargeable.
- > Do not solder a battery directly.
- > Be sure to use the specified type of batteries.
- > 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.

INTRODUCTION

The TOA WS Series represents TOA's commitment to providing high-quality, affordable Wireless Audio Links using our considerable design expertise gained over many years as a leading edge manufacturer.

We would like to thank you for purchasing this product and would like you to spend a short time reading this *Operations Instructions* so as to familiarise yourself with the features of the TOA WS series.

SAFETY

Our aim is to supply you with a product that provides you with countless hours of trouble free use.

In order to achieve these goals, we recommend the following:-

Keep the system away from direct sources of heat e.g. Central heating radiators, heaters and direct sunlight.

Should the Transmitters not be used for extended periods of time we recommend that the batteries should be removed so as to avoid any potential battery leakage.

Keep the system clean by using a slightly damp cloth. Never use household cleaning agents or solvents.

Avoid using or storing the system in damp conditions.

Always use the AC power adaptor supplied with the Receiver and *never* remove the external covers of the equipment, so as to expose the electronics.

WS SYSTEM OVERVIEW

The TOA WS is a high-quality UHF Wireless Microphone System. The WS has many features including:-

- >> 4 User Selectable Channels - that can be operated simultaneously.
- >> Diversity Receiver Operation - to minimise drop-outs
- >> User Adjustable Audio Output Level - adjustable on both Jack and XLR outputs.
- >> User Adjustable RSSI/Squelch - enables the user to minimise external interference.
- >> Designed to operate license free in most EU countries. (EA Band 863-865 MHz)

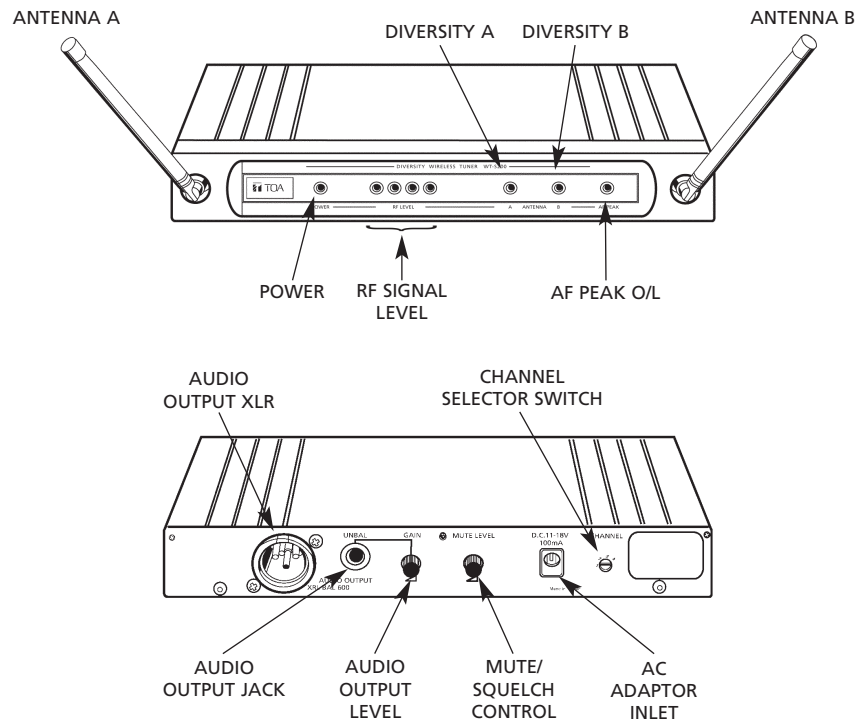
THE WS COMPRISES OF 2 BASIC DIFFERENT VARIATIONS:-

The Handheld System and the Lavalier Presenters System.

The Handheld System comprises of a fully integrated Handheld Microphone incorporating a Cardioid Dynamic Capsule and is most suited to General Vocal Applications.

The Lavalier System comprises of a Lavalier Transmitter which is supplied with a small Lapel style clip-on Microphone and is ideally suited for General Presentation/ Theatre applications.

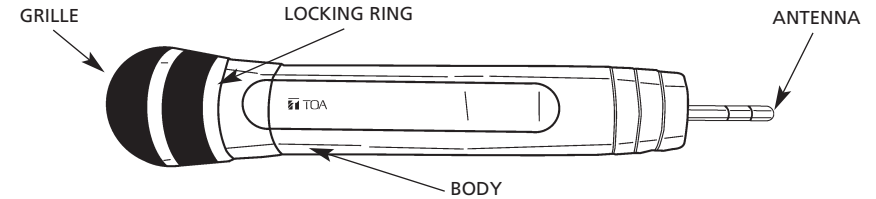
WS RECEIVER LAYOUT



RECEIVER OPERATION

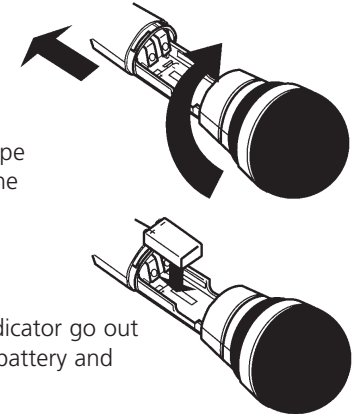
1. Connect the appropriate AC adaptor into the DC inlet as marked on the rear panel and observe the Supply indicator (green Led) lights up.
2. To provide best diversity operation, angle the antennas to form a "V" as per illustration and ensure that the antennas have a good line-of-sight view of the corresponding transmitter. i.e. Avoid placing large metallic objects in the transmission path.
3. Initially set the receiver AF gain control to its mid-position and connect the AF output from either the 1/4 inch Jack or XLR to your Mixing console or amplifier.
4. Select rear panel Channel Selector Switch (Small screw-driver adjust) to correspond to Transmitter setting. It is possible to select any of the 4 channels. (Factory set to position 1).

WS HANDHELD NOMENCLATURE



HANDHELD BATTERY INSERTION

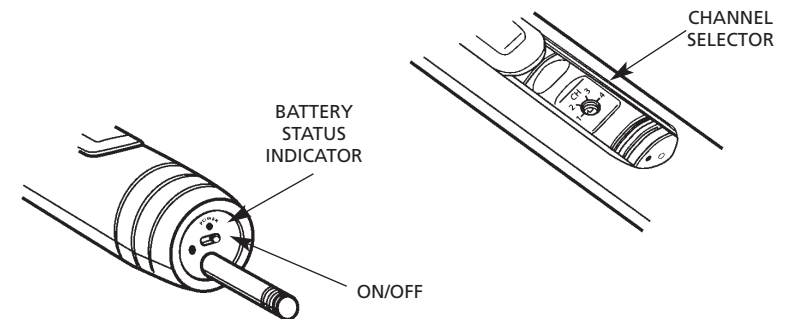
1. Rotate the top collar locking ring in the direction indicated in the illustration and gently pull the body downwards.
2. Insert a 9V MN1604 (IEC 6 LR61) PP3 type alkaline battery, being sure to observe the correct polarity as marked.
3. Gently slide the body upwards and lock.



Note: Should the Red battery status Led Indicator go out during operation, this indicates a flattened battery and should be changed .

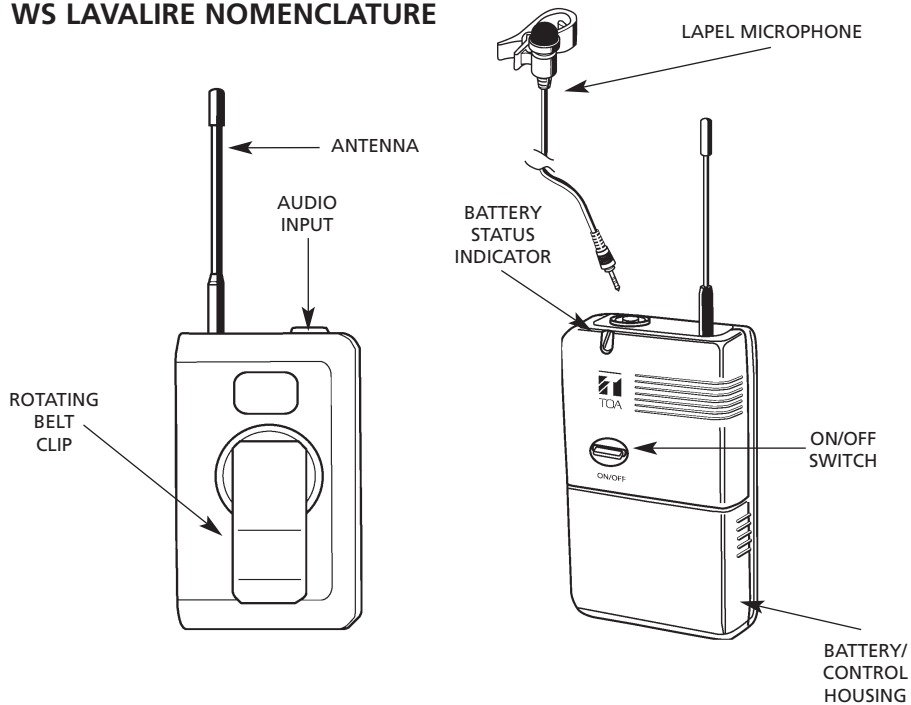
CHANNEL NUMBER SETTING (Small screw-driver adjust)

With the Transmitter in the OFF position select a channel to correspond with the Receiver. It is possible to select any of the 4 channels. (Factory set to position 1).



Note: The Transmitter only changes Active Channel when turned **off** and then **on**.

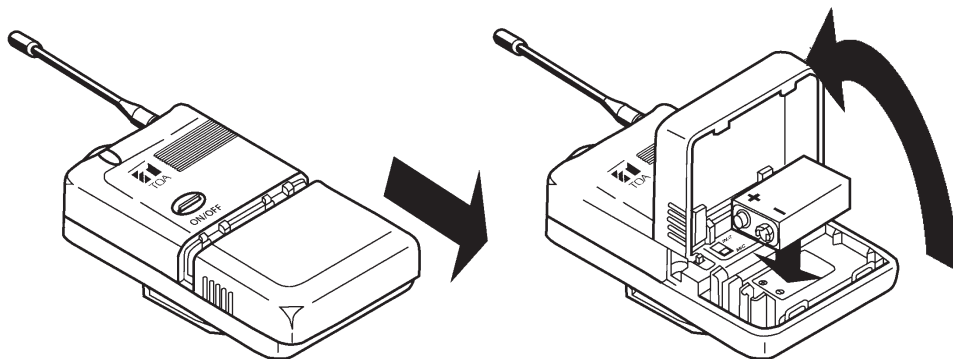
WS LAVALIRE NOMENCLATURE



LAVALIER BATTERY INSERTION

1. Slide the battery compartment to the rear and hinge up-wards to expose the battery.
2. Insert a 9V MN1604 (IEC 6 LR61) PP3 type alkaline battery, being sure to observe the correct polarity as marked.

Note: Should the Red battery status Led Indicator go out during operation, this indicates a flattened battery and should be changed .



MICROPHONE CONNECTION

1. Connect small lapel-type microphone into the corresponding 3.5mm Top Panel Socket.
2. Ensure that the Battery Compartment **MIC/INST** switch is set to **Mic** position.
3. Clip the microphone to your clothing (normally Tie or Jacket Lapel). Route the mic cable so as to avoid undue strain or friction. Try and keep the mic cable away from the **ANTENNA**

The microphone supplied with the WS as a Omni-directional response, which means it will pick up sounds from all directions. In view of this we recommend that the microphone is placed as close as possible to the required sound source.

LAVALIER GAIN CONTROL ADJUSTMENT. (Small screw-driver adjust)

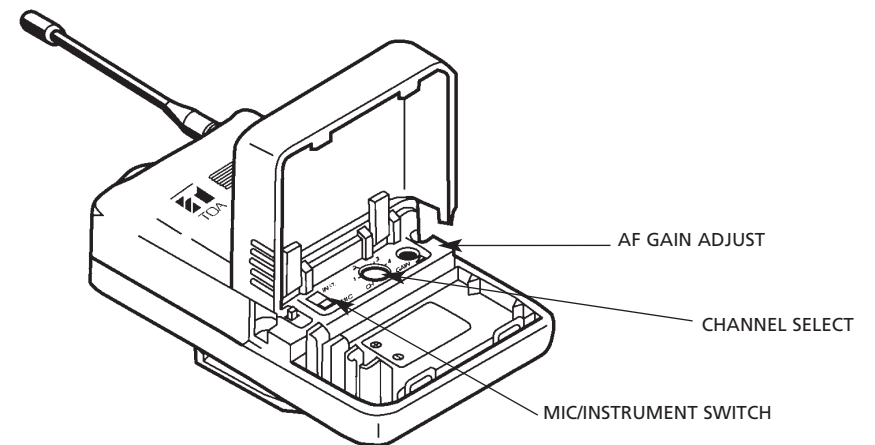
If required adjust the Transmitter AF gain control so as the signal only very occasionally allows the **Red AF O/L Peak Led** on the receiver to light.

CHANNEL NUMBER SETTING (Small screw-driver adjust)

With the Transmitter in the **OFF** position, select a channel to correspond with the Receiver. It is possible to select any of the 4 channels.

(Factory set to position 1).

Note: The Transmitter only changes Active Channel when turned **off** and then **on**.



GENERAL SETUP AND OPERATING HINTS

1. DISTANCE.

To maximise operating distance (approximately 100m). We recommend you follow the following guidelines.

- a. Ensure good line of sight between Transmitter and Receiver. Do not place large obstructions between receiver and transmitters e.g. Concrete walls, large metal obstructions. In addition keep the receiver away from metallic beams and obstructions as these can adversely affect the Antenna Pick-up Pattern and induce interference.
- b. Always ensure that the Transmitter is at least 3m (10 feet) away from the Transmitter.
- c. Conduct a "Walk test" which involves you moving the Transmitter in the area transmission is required and noting the received RF signal strength on the receiver bargraph. Reception is best with all 4 Leds lit.
- d. Never position the Transmitter Antenna directly against the body or hand. This will have the effect of reducing the operating range considerably.

2. MULTICHANNEL OPERATION OF THE WS.

The WS is designed for simultaneous use of four systems.

- a. Ensure each system is assigned a different operating channel. The channels are adjusted as per the illustrations. It is important that each Transmitter/Receiver combination has it's own unique channel numbered 1-4.

Note: The Transmitter only changes Active Channel when turned **off** and then **on**.

- b. We recommend that the Receivers are spaced slightly apart and not stacked directly on top of each other to avoid disturbance to the Receivers Antennae.
- c. Try to ensure that each Transmitter is separated by 0.5m (1.5 feet) during operation.

Note: TOA cannot guarantee multichannel compatibility with other brands/make of product.

3. SQUELCH/RSSI SET UP.

The WS incorporates a Fixed Noise Squelch and a variable "Received Signal strength" Mute Control on the rear panel of the Receiver. This function is to reduce or eliminate the effect of interference from outside sources.

To adjust follow these steps:

- a. Turn-off the Transmitter and note if any interference is present by monitoring the Receiver RF Bargraph or Audio Output.
- b. Turn the Squelch Control clockwise until the interference disappears. In extreme cases it may not be possible to remove the unwanted interference and in this case it is recommended you try an alternative channel.

Note: that the Squelch Control affects the operating range of the system and with the Squelch set to maximum, the range will be significantly reduced.

4. RECEIVER AF GAIN ADJUST.

The WS receiver gain is continuously adjustable between Mic and Line level.

Should the receiver signal be too high it will distort your mixer/amplifier. If the signal is too low the result will be an increase in general background noise.

Adjust this control to achieve the best signal quality.

5. BATTERY INFORMATION.

Please note that this product is designed to be used with a 9V Alkaline battery. Should you use a rechargeable cell, be sure not to force it into the battery compartment as some types can be considerably larger than standard types and note that the operation time will be much reduced.

6. LOW-BATTERY STATUS INDICATOR ON TRANSMITTERS.

In normal circumstances, with the use of an Alkaline 9V battery, the Transmitters should provide approximately 10hrs of continuous use. Should the Battery indicator go out, it is advisable to change the battery as soon as possible.

FAULT-FINDING.

In the event of a problem it is worth checking the following check list.

1. No RF Signal Indication on Receiver!

- a. Is the Receiver and Transmitter on the same channel?
- b. Is the battery fresh in the Transmitter and the battery indicator lit?

2. No Audio Signal!

- a. Is the AF Gain Control set correctly on the Receiver?
- b. Is the Squelch Control set correctly (Normally mid-position)?
- c. Is the MIC/INST switch in the correct position on the Beltpack?

WS SYSTEM PACKAGE CONTENTS

WS-300 SYSTEM:

Receiver
 Beltpack Transmitter
 Mains AC Adaptor
 Lapel type Microphone
 Operating Instructions

WS-200 SYSTEM:

Receiver
 Handheld Transmitter
 Mains AC adaptor
 Microphone stand mount/adaptor
 Operating Instructions

SYSTEM PART NUMBERS

BELTPACK	DESCRIPTION	HANDHELD	DESCRIPTION
WS-300 D21UK	863-865MHz BS Power Supply	WS-200 D21UK	863-865MHz BS Power Supply
WS-300 D21ER	863-865MHz ER Power supply	WS-200 D21ER	863-865MHz ER Power supply
WS-300 B21UK	742-744MHz BS Power Supply	WS-200 B21UK	742-744MHz BS Power Supply
WS-300 B21ER	742-744MHz ER Power supply	WS-200 B21ER	742-744MHz ER Power supply
WS-300 B21US	742-744MHz US Power supply	WS-200 B21US	742-744MHz US Power supply
WS-300 A21US	719-721MHz US Power supply	WS-200 A21US	719-721MHz US Power supply

TECHNICAL SPECIFICATIONS:-

OVERVIEW.

Fully synthesised 4 channel PLL Quartz Controlled FM Wireless Microphone System incorporating a Dual Conversion Diversity Receiver with Integral Audio Dynamics Processor.

OPERATING FREQUENCIES:

Band D21 863.150, 863.725, 864.150, 864.850MHz
 Band B21 742.075, 742.800, 743.300, 743.975MHz
 Band A21 719.025, 719.600, 720.450, 720.875MHz

AF S/N RATIO: > 96dBA

AF FREQUENCY RESPONSE: Handheld 80Hz – 16KHz +/- 3dB.
 Beltpack 60Hz - 16KHz +/- 3dB

AF THD: less than 1%

OPERATING TEMPERATURE RANGE:
 -10⁰ - +45⁰C / 95 relative humidity.

RECEIVER

POWER CONSUMPTION: 12V @ 100mA

FIRST IF FREQUENCY: 55.875MHz

SECOND IF FREQUENCY: 10.700MHz

AF OUTPUT: Variable to +10dBu unbalanced via 1/4 inch mono Jack socket.
 +16dBu Balanced via XLR 3F connector Pin 2 +.

INDICATORS: 4 position RF Bargraph, AF peak (overload), Power, Diversity A/B.

CONTROLS: Channel select, AF output, Squelch.

DIMENSIONS: 35 x 213 x 98mm.

WEIGHT: Approx 580g

HANDHELD TRANSMITTER

POWER CONSUMPTION:	9V @ <50mA.
OPERATING TIME:	approx 10 hours.
OUTPUT POWER:	10mW max.
CONTROLS:	Frequency select, On-off switch.
INDICATORS:	Battery status Led.
TRANSDUCER TYPE:	Dynamic with Cardioid pattern.
DIMENSIONS:	280 x 50mm max. (including grille)
WEIGHT:	Approx 210g

LAVALIER TRANSMITTER

POWER CONSUMPTION:	9V @ <50mA.
OPERATING TIME:	approx 10hours.
OUTPUT POWER:	10mW max.
CONTROLS:	Frequency select, On-off switch, Lapel/Instrument switch, Gain adjust.
INDICATORS:	Battery status Led.
CONNECTORS:	AF input via 3.5mm socket. Tip = Audio. Ring + sleeve = Gnd.

LP2 LAVALIER MICROPHONE:

	Back electret condenser microphone with omni-directional pattern.
DIMENSIONS:	60 x 100 x 30mm mm including belt clip.
WEIGHT:	Approx 90g
TYPE APPROVALS.	ETSI 300-422, FCC pt 74 h, IC

NOTES

NOTES