



# **MANUAL AND USER GUIDE**

## **Personal FM™ System**

Wireless, Portable FM Listening System

Model PFM 863

Transmitter Model T863  
Receiver Model R863

## PERSONAL FM™ SYSTEM, MODEL PFM 863

### INSTALLATION GUIDE & USER MANUAL

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## SYSTEM OVERVIEW

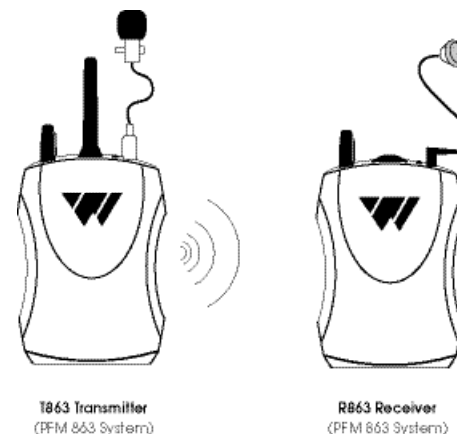
Thank you for purchasing the Personal FM Listening System, model PFM 863, from Williams Sound Corp. Anyone needing auditory assistance to overcome background noise, reverberation, or distance from the sound source can benefit from the Personal FM System.

Please read the enclosed transmitter and receiver instruction sheets carefully as you begin to use the system. If you have problems, don't hesitate to call Williams Sound at 1-800-328-6190 (U.S.A.) or +1 952-943-2252 (Outside the U.S.A.), or visit [www.williamssound.com](http://www.williamssound.com).

## SYSTEM COMPONENTS

- ▶ Body Pack Transmitter (T863) with lavalier microphone (MIC 090) and (2) AA batteries (BAT 001) and belt clip (CLP 015)
- ▶ Personal FM Receiver (R863) with mini earphone (EAR 013) and (2) AA batteries (BAT 001) and belt clip (CLP 015)
- ▶ Instruction Manual (MAN 134)
- ▶ System carry case (CCS 041)

**FIGURE 1: HOW THE SYSTEM WORKS**



Your PFM System has two principal parts: the Transmitter and the Receiver. Much like a miniature radio station, the Transmitter and microphone pick up the sounds you want to hear and broadcast them over an FM radio signal. The receiver and earphone are used to pick up the broadcast up to 30 meters (98.4 feet) away.

## SAFETY INFORMATION

### HEARING SAFETY:



**CAUTION!**

The receiver is designed to amplify sounds to a high volume level which could potentially cause hearing damage if used improperly.

#### To protect your hearing and the hearing of others:

1. Make sure the volume is turned down before putting on the earphone or headphone. Then adjust the volume to a comfortable level.
2. Set the volume level at the minimum setting that you need to hear.
3. If you experience feedback (a squealing or howling sound), reduce the volume setting and move the microphone away from the earphone or headphone.
4. Do not allow children **or other unauthorized persons** access to this product.

### BATTERY SAFETY AND DISPOSAL:



**CAUTION!**

The transmitter and receiver are supplied with disposable Alkaline batteries. Do not attempt to recharge disposable batteries, which may explode, release dangerous chemicals, cause burns, or other serious harm to the user or product.

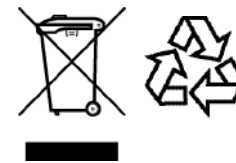
### PACEMAKER SAFETY:



**CAUTION!**

1. Before using this product with a pacemaker or other medical device, consult your physician or the manufacturer of your pacemaker or other medical device.
2. If you have a pacemaker or other medical device, make sure that you are using this product in accordance with safety guidelines established by your physician or the pacemaker manufacturer.

## RECYCLING INSTRUCTIONS



Help Williams Sound protect the environment! Please take the time to dispose of your equipment properly.

#### Product Recycling for Customers in the European Union:

Please do NOT dispose of your Williams Sound equipment in the household trash. Please take the equipment to an electronics recycling center; OR, return the product to the factory for proper disposal.

#### Battery Recycling for Customers in the European Union:

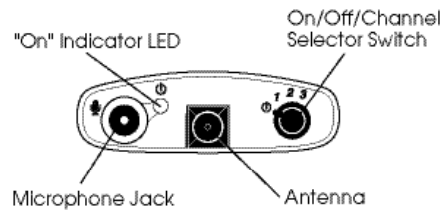
Please do NOT dispose of used batteries in the household trash. Please take the batteries to a retail or community collection point for recycling.

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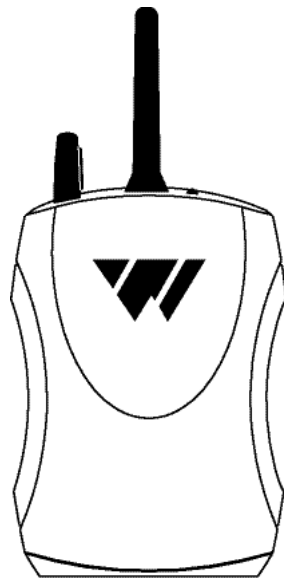
## OPERATING INSTRUCTIONS

### USING THE T863 TRANSMITTER

FIG. 2: T863 TRANSMITTER VIEWS



T863 Top



T863 Front

*Note:* Rechargeable batteries are shipped in a discharged state and must be charged overnight before using.

1. Make sure there are two charged AA batteries in the transmitter. If batteries are not installed, see *Battery Information* on page 13.
2. Plug the microphone cord into the "Microphone Jack" on top of the transmitter.
3. Turn the unit on: turn the On/Off/Channel switch to position "1" or "2" or "3." The Power "ON" LED indicator should illuminate Red.
4. Select a desired operating frequency. To operate on 863.25 MHz, turn the On/Off/Channel switch to position "1"; to operate on 863.75 MHz, turn to position "2"; to operate on 864.75 MHz, turn to position "3."

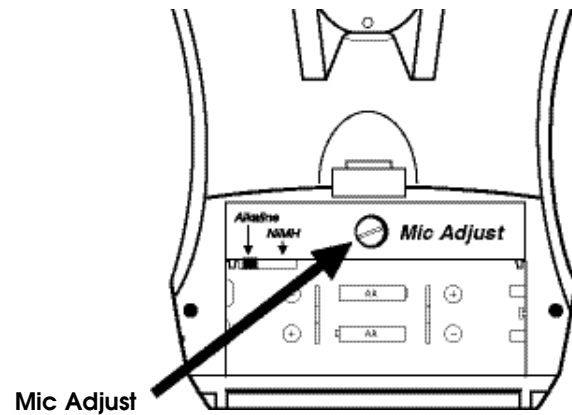
**Important:** The receiver will need to match the operating frequency on the transmitter for the tour guide system to work properly.

5. Attach the microphone to a collar or lapel. Position the microphone as close to the speaker's mouth as possible.

**IMPORTANT:** When the T863 transmitter is not being used, remember to turn the unit OFF by turning the On/Off/Channel switch to the "⓪" power icon position. The Power "ON" LED indicator should *not* be lit.

## USING THE T863 TRANSMITTER, CONT.

FIG. 3: MIC GAIN ADJUST ON T863 TRANSMITTER



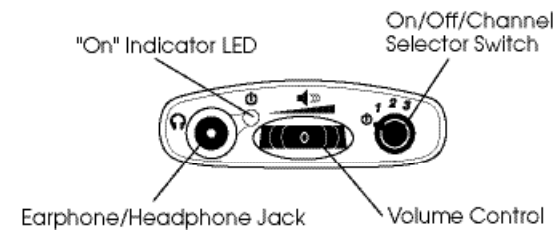
If necessary, the **microphone gain control** on the T863 transmitter can be increased or decreased to meet the demands of specific listening applications.

### Instructions:

1. Open the battery compartment by lifting the tab on the back of the transmitter with your finger.
2. Refer to FIG. 3 above to locate the microphone gain control.
3. Using a tuning wand or small screwdriver, turn the gain control fully counterclockwise to reduce the gain. Turn the gain control fully clockwise to increase the gain.
4. Close the battery compartment door.

## USING THE R863 RECEIVER

FIG. 4: R863 RECEIVER VIEWS



R863 Top



R863 Front

## USING THE R863 RECEIVER, CONT.

*Note:* Rechargeable batteries are shipped in a discharged state and must be charged overnight before using.

1. Make sure there are two alkaline or rechargeable AA batteries in the Receiver. If batteries are not installed, see *Battery Information* on page 13.
2. Plug the earphone or headphone into the “🎧” Jack on top of the Receiver.
3. Put on the earphone or place the headphones over your ears.
4. Turn the unit on: turn the On/Off/Channel switch to position “1” or “2” or “3.” The Power “ON” LED indicator should illuminate Red.
5. Select a desired operating frequency. To operate on 863.25 MHz, turn the On/Off/Channel switch to position “1”; to operate on 863.75 MHz, turn to position “2”; to operate on 864.75 MHz, turn to position “3.”

**Important: Make sure the receiver is operating on the same frequency as the transmitter! The receiver’s channel switch (1-2-3 position) should match the transmitter’s channel switch.**

6. Adjust the receiver volume control to a comfortable listening level. You should be able to hear someone speaking into the transmitter microphone.

The receiver can be placed in a pocket, or clipped onto a belt, harness, or waistband.

**IMPORTANT:** When the R863 receiver is not being used, remember to turn the unit OFF by turning the On/Off/Channel switch to the “🔌” power icon position. The Power “ON” LED indicator should *not* be lit.

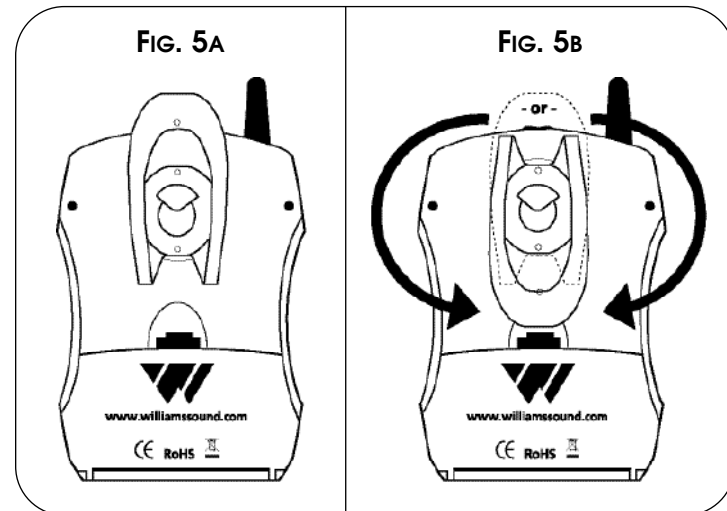
## BELT CLIP INSTALLATION FOR THE PFM 863 SYSTEM

### TO INSTALL:

Position the belt clip on the rear of the R863 receiver or T863 transmitter as shown in FIG. 5A. Turn the belt clip 180° left or right as shown in FIG. 5B. The belt clip is now installed and ready for use.

### TO REMOVE:

Turn the belt clip 180° so the open end of the clip points to the top of the unit as shown in FIG. 5A. Gently pull the belt clip away from the unit to remove.



## HINTS FOR USING THE SYSTEM

The maximum operating distance between the transmitter and receiver is about 30 meters (98.4 feet). The operating range will vary in different buildings and surroundings. In some locations, the signal may momentarily disappear. This is called a “drop-out” and is due to reflection and cancellation of the radio signal. Moving a few feet should restore the signal.

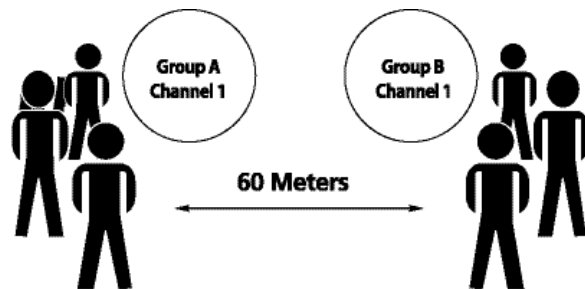
Keep the transmitter and receiver units at least 1 meter (3.2 feet) apart. If the transmitter gets too close to a receiver, it may overload the receiver, causing noisy reception or blocking of the signal.

Do not use more than one transmitter on the same channel (frequency) at the same time unless they are physically separated by more than 60 meters (196.8 feet). Operating more than one transmitter on the same channel at the same time in the same place will result in interference.

### USING MULTIPLE PERSONAL FM SYSTEMS FOR MULTIPLE GROUPS:

For multiple groups using the Personal FM system within the same facility, multiple Personal FM systems may be operated on the same channel at the same time by maintaining physical separation of more than 60 meters (196.8 feet) between groups. The physical separation of groups takes advantage of the FM capture effect which causes receivers to lock onto the closest transmitter.

FIG. 6: PERSONAL FM GROUP SEPARATION



## BATTERY INFORMATION

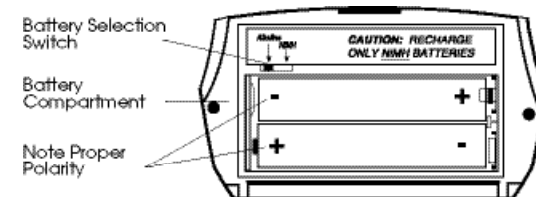
### INSTALLATION

Open the battery compartment by lifting the tab on the back of the transmitter or receiver with your finger. To remove depleted batteries, pull up on the fabric strip.

**IMPORTANT: If Alkaline (non-rechargeable) batteries are being installed, slide the battery selection switch in the battery compartment to the “Alkaline” position. See FIG. 7 below. If installing NiMH (or rechargeable) batteries, slide the battery selection switch to the “NiMH” position.**

Press the batteries into place over the fabric strip. Be sure to observe proper polarity (+/-). Damage due to improper battery installation may void the warranty on the product. Close the battery door. LED will flash when the batteries are getting low; continue to use until the sound becomes weak or distorted, or the unit quits operating, then replace or recharge batteries.

FIG. 7: BATTERY INSTALLATION



### NON-RECHARGEABLE BATTERIES

In normal use, two AA 1.5 V alkaline batteries (BAT 001) will last about 20 hours in the T863 transmitter. The batteries will last approximately 40 hours in the R863 receiver. If the sound becomes weak or distorted, replace the batteries. Do not leave dead batteries in the receiver. Battery corrosion is not covered by the Williams Sound warranty.

### RECHARGEABLE BATTERIES

The T863 transmitter and R863 receiver can use rechargeable AA batteries (BAT 026). On an overnight charge, these NiMH batteries are designed to operate for 15 hours in the T863 transmitter and 30 hours in the R863 receiver.

Note: The battery installed in the receiver may be recharged in the receiver *only* if it is a NiMH battery, and only if a Williams Sound **CHG 3512** Multi-Charger is used. Damage from improper charging is not covered by the Williams Sound warranty.

### !! IMPORTANT WARNINGS !!

**DO NOT ATTEMPT TO RECHARGE ZINC CARBON ("HEAVY DUTY"), ALKALINE, OR LITHIUM BATTERIES!**

**DO NOT ATTEMPT TO RECHARGE DISPOSABLE BATTERIES!**

These batteries may heat up and explode, causing possible injury and damage to the equipment.

Avoid shorting the plus and minus battery terminals together with metal objects. Battery damage and burns can result!

### Important Rechargeable Battery Information

Rechargeable batteries are shipped in a discharged condition. They must be charged for a complete charge cycle before the first use. Rechargeable batteries will need to be replaced after 1-2 years of use. Do not dispose of batteries in fire. Do not open batteries - toxic chemicals inside.

### IN CASE OF DIFFICULTY

If your Personal FM System is not working, check the following:

1. First, read through this manual carefully to verify proper setup and installation of your system.
2. Make sure the batteries are fresh or completely charged and that the "plus" and "minus" terminals are installed correctly.
3. If the rechargeable batteries will only work for a short period of time (less than 1 hour) even after they are fully charged, they must be regenerated. Leave them in the receiver or transmitter with the unit turned on for 5 - 6 hours. Then turn receiver or transmitter off, place it in the charger, and fully charge the receiver and transmitter (refer to charger instruction manual). This should restore normal battery life. Rechargeable batteries will gradually lose their capacity over time and should be replaced every one to two years.
4. Make sure the *microphone* is plugged into the T863 transmitter and the *earphone or headphone* is plugged into the R863 receiver.
5. Move the transmitter and receiver closer together. You may be out of range. When using the system indoors, it's normal for the signal to momentarily disappear in certain locations. This is called a "drop-out." Moving a few feet will restore the signal.
6. Do not try to use more than one transmitter on the same channel in close proximity to each other. **MORE THAN ONE TRANSMITTER ON THE SAME CHANNEL WILL RESULT IN INTERFERENCE IF THEY ARE CLOSE TOGETHER.** Keep the transmitters at least 60 meters (196.8 feet) apart or use separate channels for each system used.
7. If you are still hearing interference on the receivers, turn the transmitter off and listen with a receiver. If you hear the interference with the transmitter off, you need to change to a clear channel. Call Williams Sound Customer Service Dept. at 1-800-843-3544 (U.S.A.) or +1 952 943 2252 (Outside the U.S.A.) for details.



## LIMITED WARRANTY

Williams Sound products are engineered, designed, and manufactured under carefully controlled conditions to provide you with many years of reliable service. Williams Sound warrants the Personal FM™ Listening System against defects in materials and workmanship for THREE (3) years. During the first three years from the purchase date, we will promptly repair or replace the Personal FM™ Listening System.

*Microphones, earphones, headphones, batteries, cables, carry cases, and all other accessory products carry a 90-day warranty. Chargers carry a 1 year warranty.*

WILLIAMS SOUND HAS NO CONTROL OVER THE CONDITIONS UNDER WHICH THIS PRODUCT IS USED. WILLIAMS SOUND, THEREFORE, DISCLAIMS ALL WARRANTIES NOT SET FORTH ABOVE, BOTH EXPRESS AND IMPLIED, WITH RESPECT TO THE PERSONAL FM™ LISTENING SYSTEM, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. WILLIAMS SOUND SHALL NOT BE LIABLE TO ANY PERSON OR ENTITY FOR ANY MEDICAL EXPENSES OR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY ANY USE, DEFECT, FAILURE OR MALFUNCTIONING OF THE PRODUCT, WHETHER A CLAIM FOR SUCH DAMAGES IS BASED UPON WARRANTY, CONTRACT, TORT OR OTHERWISE. THE SOLE REMEDY FOR ANY DEFECT, FAILURE OR MALFUNCTION OF THE PRODUCT IS REPLACEMENT OF THE PRODUCT. NO PERSON HAS ANY AUTHORITY TO BIND WILLIAMS SOUND TO ANY REPRESENTATION OR WARRANTY WITH RESPECT TO THE PERSONAL FM™ LISTENING SYSTEM. UNAUTHORIZED REPAIRS OR MODIFICATIONS WILL VOID THE WARRANTY.

The exclusions and limitations set out above are not intended to, and should not be construed so as to contravene mandatory provisions of applicable law. If any part or term of this Disclaimer of Warranty is held to be illegal, unenforceable, or in conflict with applicable law by a court of competent jurisdiction, the validity of the remaining portions of this Disclaimer of Warranty shall not be affected, and all rights and obligations shall be construed and enforced as if this Limited Warranty did not contain the particular part or term held to be invalid.

If you experience difficulty with your system, call Toll-Free for U.S. customer Assistance:

**1-800-843-3544 (U.S.A.) or**

**+1 952 943 2252 (Outside the U.S.A.)**

If it is necessary to return the system for service, your Customer Service Representative will give you a Return Authorization Number (RA) and shipping instructions.

Pack the system carefully and send it to:

**Williams Sound Corp.**

**Attn: Repair Dept.**

**10321 West 70th Street**

**Eden Prairie, MN 55344 USA**

Your warranty becomes effective the date you purchase your system. Your returned warranty card is our way of knowing when your warranty begins. It also gives us important information about your system including the serial number. This information will help us serve you better in the future. Please take a moment to complete and mail the attached card. Thank you.

## SYSTEM SPECIFICATIONS

### FM TRANSMITTER, MODEL T863

Dimensions:	155 mm H x 72 mm W x 30 mm T (6.1" H x 2.85" W x 1.2" T)
Weight:	82 grams (2.89 oz.), no batteries
Color:	Black
Material:	ABS/Polycarbonate, shatter-resistant
Battery Type:	Two (2) AA 1.5 V Non-rechargeable Alkaline batteries (BAT 001), 100 mA nominal current drain, 20 hours approx. life (OR) Two (2) AA 1.2 V NiMH Rechargeable batteries (BAT 026), 100 mA nominal current drain, 15 hours per charge approx., recharges in 14–16 hours, uses CHG 3512 Multiple Battery Charger
Operating Frequencies:	CH 1 - 863.25 MHz; CH 2 - 863.75 MHz; CH 3 - 864.75 MHz ( $\pm$ 30 kHz)
Operating Range:	30 meters (98.4 feet) with R863 receiver
Stability:	$\pm$ .05 MHz, 0 - 50° Celsius
FM Deviation:	60 kHz $\pm$ 5 kHz, transmitter input at 1 kHz, 2.5 mV
Pre-Emphasis:	50 $\mu$ S
Sensitivity:	< - 90 dBm @ 60 kHz deviation
RF Output:	5 - 10 dBm
Freq Response:	500 Hz - 5 kHz, $\pm$ 3 dB
Distortion:	< 2.0% THD
Transmit Antenna:	External, 5cm
Microphone:	Head-worn, noise-cancelling, electret type, 39 in. cord, 3.5 mm mono phone plug (MIC 086)
Controls & Indicators:	Microphone gain adjust; Channel/Power selector (4 position rotary switch): "Power icon" is off; position 1 is CH1; position 2 is CH 2; position 3 is CH 3 Power on indicator: Red LED "on" indicates when receiver has power Low battery indicator: Power LED flashes when batteries are low Battery selector: Slide switch for alkaline or NiMH battery operation
Mic Connector:	3.5 mm jack
Charging Contacts:	Designed for use with CHG 3512 Battery Charger
Approvals:	CE, RoHS, WEEE, ETSI EN 301 357-1, ETSI EN 301 357-2
Warranty:	3 years parts and labor (90 days on accessories)

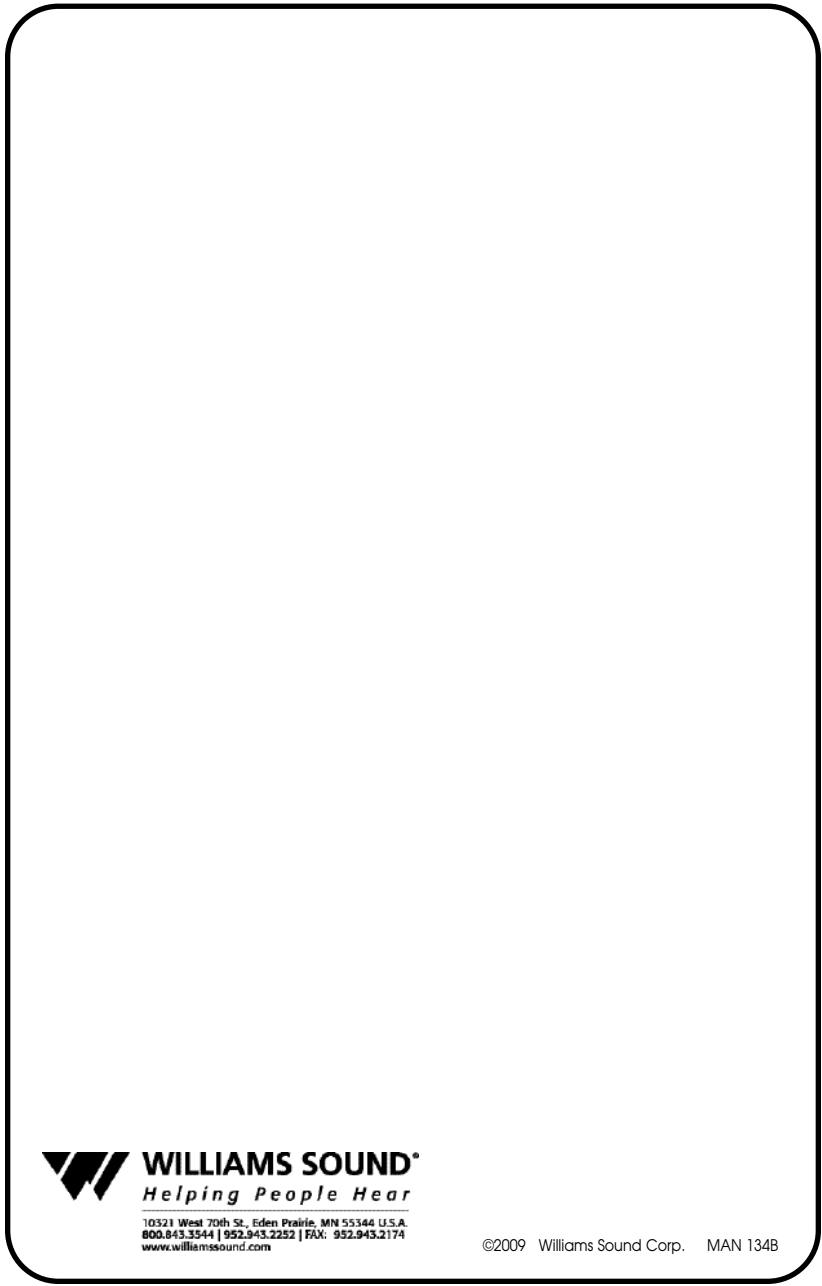
**NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.**

## SYSTEM SPECIFICATIONS

### FM RECEIVER, MODEL R863

Dimensions:	115 mm H x 72 mm W x 30 mm T (4.5" H x 2.85 W x 1.2" T)
Weight:	85 grams (3 oz.), no batteries
Color:	Black
Material:	ABS/Polycarbonate, shatter-resistant
Battery Type:	Two (2) AA 1.5 V Non-rechargeable Alkaline batteries (BAT 001), 50 mA nominal current drain, 40 hours approx. life (OR) Two (2) AA 1.2 V NiMH Rechargeable batteries (BAT 026), 50 mA nominal current drain, 30 hours per charge approx., recharges in 14–16 hours, uses CHG 3512 Multiple Battery Charger
Operating Frequencies:	CH 1 - 863.25 MHz; CH 2 - 863.75 MHz; CH 3 - 864.75 MHz ( $\pm$ 30 kHz)
Operating Range:	30 meters (98.4 feet) with T863 transmitter
Stability:	$\pm$ .05 MHz, 0 - 50° Celsius
FM Deviation:	60 kHz $\pm$ 5 kHz, transmitter input at 1 kHz, 2.5 mV
De-Emphasis:	50 $\mu$ S
Sensitivity:	< - 90 dBm @ 60 kHz deviation
Squelch:	-100 dB @ 6 kHz
Freq Response:	500 Hz - 5 kHz, $\pm$ 3 dB
Distortion:	< 2.0% THD
Signal–Noise Ratio:	>50 dB ( $\pm$ 5 dB) with transmitter input at 1 kHz, 2.5mV
Antenna:	Internal wire monopole
Controls & Indicators:	Volume control knob; Channel selector (four position rotary switch): Position 1 is off; position 2 is CH1; position 3 is CH 2; position 4 is CH 3 Power on indicator: Red LED "on" indicates when receiver has power Low battery indicator: Power LED flashes when batteries are low Battery selector: Slide switch for alkaline or NiMH battery operation
Headphone jack:	3.5 mm jack, mono output, 8-32 ohm impedance
Charging Contacts:	Designed for use with CHG 3512 Battery Charger
Approvals:	CE, RoHS, WEEE, ETSI EN 301 357-1, ETSI EN 301 357-2
Warranty:	3 years parts and labor (90 days on accessories)

**NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.**



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