

## LICENSING REQUIREMENTS

This equipment complies with Part 74 of the FCC Rules.

A license is required for operation subjective device will be issued only to the following:

- (1) A licensed of an AM, FM, TV or international broadcast station or low power TV station, Low power auxiliary stations will be licensed for used with a specific broadcast or low power TV station or combination of stations licensed to the same licensee with the same community.
- (2) A broadcast network entity.
- (3) A cable television system operator who operates a cable system that produces program material for origination or access cable casting as defined in 76.5(r)
- (4) Motion picture producers as defined in 74.801
- (5) Television program producers as defined in 74.801
- (6) Licensees an conditional licensee of stations in the multipoint distribution service as defined in 21.2 of this chapter, or entities that hold an executed lease agreement with an MDS or MMDS licensee or conditional licensee or with an Instructional Television Fixed service licensee or permitted.

### CAUTION:

Any changes of modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

The FCC requires that the following statement be included in this manual:

This device complied with FCC radiation exposure limits as set forth for an uncontrolled environment. This device should be installed and operated so that its antenna(s) are not co-located or operating in conjunction with any other antenna or transmitter

## FCC ID: WRAVHF-3300

The device are type accepted under FCC rules part 90, 74 and 15. 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.

# Safety Instructions



## CAUTION RISK OF SHOCK



**CAUTION:** To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Only refer servicing to qualified service personnel.

### Explanation of Graphical Symbols



The lightning flash & arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of danger.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and servicing instructions.

### WARNING

To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.

**1. Read Instructions** - All the safety and operating instructions should be read before the appliance is operated.

**2. Retain Instructions** - The safety and operating instructions should be retained for future reference.

**3. Heed Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.

**4. Follow Instructions** - All operating and use instructions should be followed.

**5. Attachments** - Do not use attachments not recommended by the product manufacturer as they may cause hazards.

**6. Water and Moisture** - Do not use this unit near water. For example, near a bathtub or in a wet basement and the like.

**7. Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

**7 A.** An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause an overturn.



**8. Ventilation** - The appliance should be situated so its location does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation slots.

**9. Heat** - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

**10. Power Sources** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**11. Grounding or Polarization** - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

**12. Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**13. Cleaning** - Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

**14. Power lines** - An outdoor antenna should be located away from power lines.

**15. Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

**16. Object and Liquid Entry** - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**17. Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:

- A. The power supply cord or plug has been damaged; or
- B. Objects have fallen into the appliance; or
- C. The appliance has been exposed to rain; or
- D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
- E. The appliance has been dropped, or the enclosure damaged.

**18. Servicing** - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

#### Note:

To CATV system installer's (U.S.A.): This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected as close to the point of cable entry as practical.



**Welcome...**



And Thank you for purchasing the **VHF-3300** from VocoPro, your ultimate choice in Karaoke entertainment! With years of experience in the music entertainment business, VocoPro is a leading manufacturer of Karaoke equipment, and has been providing patrons of bars, churches, schools, clubs and individual consumers the opportunity to sound like a star with full-scale club models, in-home systems and mobile units. All our products offer solid performance and sound reliability, and to further strengthen our commitment to customer satisfaction, we have customer service and technical support professionals ready to assist you with your needs. We have provided some contact information for you below.

**VocoPro**

1728 Curtiss Court  
La Verne, CA 91750  
**Toll Free: 800-678-5348**  
TEL: 909-593-8893  
FAX: 909-593-8890

**VocoPro Company Email Directory**

**Customer Service & General Information**  
info@vocopro.com

**Tech Support**  
techsupport@vocopro.com

**Remember Our Website**

Be sure to visit the VocoPro website **www.vocopro.com** for the latest information on new products, packages and promos. And while you're there don't forget to check out our Club VocoPro for Karaoke news and events, chat rooms, club directories and even a KJ Service directory!

We look forward to hearing you sound like a PRO, with VocoPro, your ultimate choice in Karaoke entertainment.

**FOR YOUR RECORDS**

Please record the model number and serial number below, for easy reference, in case of loss or theft. These numbers are located on the rear panel of the unit. Space is also provided for other relevant information

**Model Number** \_\_\_\_\_

**Serial Number** \_\_\_\_\_

**Date of Purchase** \_\_\_\_\_

**Place of Purchase** \_\_\_\_\_



# VHF-3300

Dual Channel Wireless Microphone System

## Specifications

**Frequency Range:** 174-216 MHz

**Modulation Mode:** FM (frequency modulation system)

**Mute Control:** advanced noise locking and mute function

**RF Steadiness:**  $\pm 0.005\%$

**Frequency Deviation:**  $\pm 15\text{kHz}$

**Channels for Selection:** dual channels

**Total Harmonic Distortion:**  $< 0.5\%$  (at 1kHz)

**S/N Ratio:**  $> 70\text{dB}$

**Receiver Sensitivity:**  $-80\text{dBm}$

**Frequency Response:** 80Hz-15kHz

**Transmit Power:**  $< 10\text{mW}$

**Resonance Interfere Rate:**  $\geq 65\text{dB}$

**False Image Interfere Rate:**  $\geq 65\text{dB}$

**Receiver Power Supply:** DC 12V/300mA, External

**Transmitter Power Supply:** 9V Ni-MH battery

**Recharging Period:** 8-10 Hours

**Operating Temperature:**  $-25-55\text{ }^{\circ}\text{C}$

**Operating Humidity:**  $< 93\%$

**Operating Range:** Approx. 50m



**Karaoke King**

ULTIMATE CHOICE OF KARAOKE ENTERTAINMENT



## Listening For A Lifetime

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. VocoPro and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing 'comfort level' adapts to a higher volume of sound. So what sounds 'normal' can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

### To establish a safe level:

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

### Once you have established a comfortable sound level:

- Set the dial and leave it there.
- Pay attention to the different levels in various recordings.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

### Some common decibel ranges:

Level	Example
30	Quiet library, Soft whispers
40	Living room, Refrigerator, Bedroom away from traffic
50	Light traffic, Normal conversation
60	Air conditioner at 20 ft., Sewing machine
70	Vacuum cleaner, Hair dryer, Noisy restaurant
80	Average city traffic, Garbage disposals, Alarm clock at 2 ft.

### The following noises can be dangerous under constant exposure:

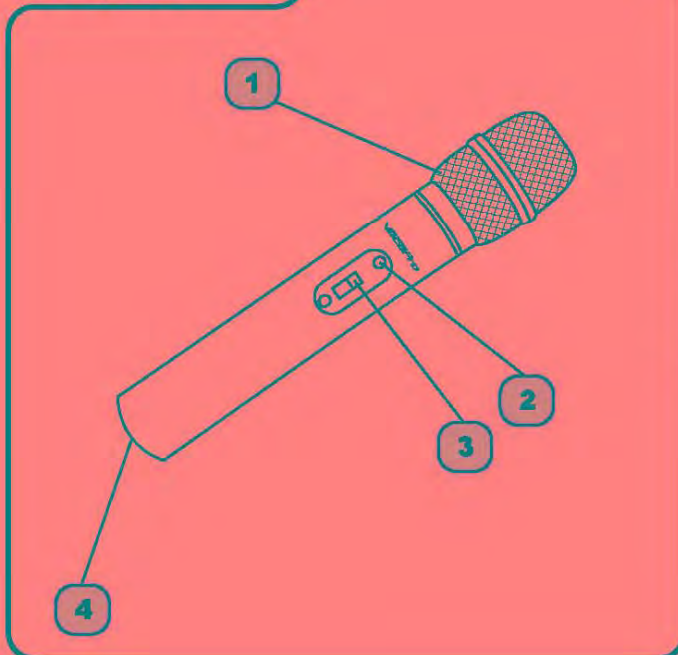
Level	Example
90	Subway, Motorcycle, Truck traffic, Lawn mower
100	Garbage truck, Chainsaw, Pneumatics drill
120	Rock band concert in front of speakers
140	Gunshot blast, Jet plane
180	Rocket launching pad

-Information courtesy of the Deafness Research Foundation



# Microphone Descriptions and Controls

## Microphone



- 1. GRILL:** Protects the microphone cartridge and helps reduce breath sounds and wind noise via enclosed foam windscreen.
- 2. MIC POWER LED:** Blinks once when mic is powered on. Remains lit if the battery charge is low and needs recharging.
- 3. POWER BUTTON:** Places the microphone in ON/OFF or STANDBY modes.
- 4. BATTERY COVER:** Removeable cover holds and protects the rechargeable microphone battery.

## Microphone Basics

The VHF-3300's ability to pick-up extremely high and low frequencies makes it an excellent choice for use in the recording studio as well as on-stage. In either case, we have provided a few tips to help get the best performance out of your VHF-3300.

### Understanding the Proximity Effect and How It Is Used

The Proximity Effect is a resulting boost to the low-frequency range of sounds that occur with the close-up use of microphones designed with a uni-directional polar pattern as with the VHF-3300. Occurring when the sound source is less than a ¼" from the microphone capsule, the boost is generated mostly in the 100Hz range by 6dB to 10dB. Simply put, when a sound source is less than a ¼" from the microphone, the sound will be boosted with a stronger and richer bass tone than if the sound source was farther away from the microphone.

While the proximity effect can intentionally be used as an advantage to enhance one's voice, it can also unintentionally serve as a disadvantage by mudding up one's voice. To avoid a lessened sound quality when using the proximity effect, keep these tips in mind:

- Always try to use available EQ or tone controls on external equipment to enhance a sound first.
- If trying it for the first time, try it in a small room with moderately low volume and no tone or effects adjustments. If it doesn't sound good to you, it most likely won't to others as well.
- Do not try to enhance a sound source without performing a sound check at the location prior.
- Do not rely on the proximity effect to "change" a person's voice. Rather use it to enhance one's voice.
- Avoid the proximity effect in environments with excessive reverb, (cathedrals, school gymnasiums, large dancehalls etc).
- Try to avoid the proximity effect when connected to high-output amplifiers and loudspeakers.
- Remember that when speaking into a microphone, plosive words can generate loud pops which will also be boosted by the proximity effect leading to a possible threat to external sound equipment.



# Microphone Basics cont...

## Feedback

*Feedback* is the phenomenon that occurs when an amplified sound from any loudspeaker reenters the sound system through any open microphone and is amplified over and over again. The resulting sound is an annoying howl that (when loud enough) poses a serious threat to not only your speakers, but to your ears as well. Most commonly, feedback is caused by the following conditions:

- Placing loudspeakers too close to the microphones.
- Having too many open active microphones.
- Overemphasis/boosting high-frequency tone controls.
- Performing in environments with high ratios of hard and reflective room surfaces.
- Overemphasis of effects that generate multiple harmonic repetitions (reverb, echo, delay)

*What can you do if feedback occurs before the sound system is loud enough?*

- Request that the singer/speaker project their voice louder into the microphone allowing for a lower master volume.
- Reduce the distance from the talker to the microphone. Each time this distance is halved, the sound system output will increase by 6dB, mainly in the low-frequency range.
- Reduce the number of open microphones.
- Move the loudspeaker farther away from the microphone.
- Move the loudspeaker closer to the listener.
- Use an equalizer/feedback reducer to cut the frequency bands in which the feedback occurs.

## Microphone Placement and Tone Quality

The VHF-3300 is ideal for close-up vocals and the mic can be handheld or mounted in a mic stand. Keep in mind that microphone technique is largely a matter of personal taste—there is no one "correct" microphone position.

### *Lead and Backup Vocals*

The performer's mouth should be less than 3" from or even touching the windscreen on an axis to the microphone. Doing this creates a robust sound, emphasizes bass and provides maximum isolation from other sources

### *Speech*

For spoken segments in between songs or public speaking types of applications of the VHF-3300, place the mic 4" to 10" away from your mouth, just above nose height for a natural sound with reduced bass. You can also place the microphone 8" to 16" away from the mouth, slightly off to one side, for a more "ambient" sound with greatly reduced bass and minimal "S" or sibilance sounds.

## The VHF-3300 & Stage Monitor/P.A.. Loudspeakers

If you will be using the VHF-3300 with stage monitors and/or a P.A.. system, try the following:

- Place the stage monitor(s) directly behind the microphones.
- Locate the loudspeakers so that they point away from the rear of the microphone. (With the speakers located in these positions, the possibility of feedback is greatly reduced).
- Always check the stage setup before a performance to ensure optimum placement of microphone and monitors.

**IMPORTANT:** *Every wireless microphone installation is a unique situation, and can present a variety of problems. Never attempt a live performance without first conducting a test of the system in the performing area. If major changes (additional wireless systems or intercoms, relocation of set up, etc.) have been made since the last test, check the wireless system again—as close to performance time as possible.*



# Operations

## Operating the System

1. Press the receiver POWER switch with the VOLUME CONTROLS turned down. The LED next to the POWER button on the receiver will glow RED.
2. Switch the microphone's power button to ON. During normal operation, the RF signal LED for each mic will light GREEN.
3. Talk or sing into the microphones while gradually adjusting the receiver VOLUME controls until you reach the desired output level.

## Tips for Achieving Optimum Performance

- It can be difficult to adjust VOLUME on the VHF-3300 and your sound system without creating feedback while standing so close to the receiver. It is recommended to have one person test the mics from a distance while another increases the VOLUME levels for a better monitoring of your sound.
- Place the receiver at least 3 feet (or 1 meter) above the ground and away from concrete walls or metal surfaces to prevent any reflections. The microphone should also be at least 3 feet away from the receiver's antenna.
- If using multiple wireless systems, maintain a distance of at least 10 feet (3 meters) between each.
- Maintain a line-of-sight between the microphone and receiver antennas, if possible.
- Avoid placing the receiver near computers or other RF generating equipment.
- Avoid placing the receiver at the bottom of an equipment rack.
- Extend telescopic antennas completely and as far apart from each other as possible. They can rotate in opposing directions to facilitate this.
- Position the microphone 1" to 1.5" from the mouth or as close as practical to the desired sound source.
- Move the mic closer to your mouth for extra bass response.
- Use only one microphone per person or sound source.
- Place microphones far from sound-reflecting surfaces.
- Add a windscreen when using the microphone outdoors, for close-up speech, or vocals.
- Avoid excessive handling to minimize mechanical noise.

## Auto-Noise Squelch Feature

Squelch circuits analyze Radio Frequency (RF) signal strength. When a wireless system is used in a noisy RF environment, conventional circuits may "open" unexpectedly, sending loud bursts of noise through the receiver when the transmitter's signal is weak or turned off. The VHF-3300 uses a noise squelch circuit that analyzes signal quality with the signal strength. When the transmitter signal is strong, the system's noise level is low and the receiver sends audio through. When the transmitter signal is weak or absent, the system's noise level is high and squelch circuit will mute the receiver. This virtually eliminates the possibility of annoying bursts of noise coming through your receiver.

## Receiver Volume Adjustment

The volume controls on the front panel of the VHF-3300 receiver can be adjusted to set the wireless system output levels as you desire. After making any musical balancing adjustments, adjust the receiver volume control until the output reaches the desired level. Rotate the volume control clockwise to increase output. Rotate it counterclockwise to decrease output.





# Troubleshooting

PROBLEMS	SOLUTIONS
No sound; receiver RF light(s) and mic(s) not lit.	<p>Make sure POWER switches on transmitters and receiver are set to ON positions.</p> <p>Check microphone batteries to ensure they are providing power.</p> <p>Replace or charge batteries if necessary.</p> <p>Check receiver's AC power connection.</p> <p>Make sure antennas are in the microphones' line of sight.</p> <p>If necessary, reduce the distance between the microphones and receiver.</p>
No receiver sound but the RF and Audio Level meter lights are glowing.	<p>Turn up the receiver's VOLUME level controls.</p> <p>Check for proper connection between receiver and external amplifier/mixer.</p> <p>Talk into the mic and observe the receiver's RF signal LEDs. If they glow, the problem is elsewhere in the sound system.</p>
Received signal is noisy or contains interference with transmitter on.	<p>Check microphone batteries and charge or replace if power is low.</p> <p>Remove local sources of RF interference, such as lighting equipment. Two transmitters may be operating at the same frequencies or frequencies which are too close in proximity. Turn one off or exchange for one with a different frequency. Signal may be too weak. If so, reposition antenna (If possible, move them close to the transmitter).</p>
Noise coming from the receiver with the mics turned OFF.	<p>Remove local sources of RF interference, such as lighting equipment.</p> <p>Reposition the receiver or antennas.</p>
Momentary loss of sound as transmitter is moved around performing area.	<p>Reposition receiver and perform a "walkthrough" test and observe the signal strengths. If audio dropouts persist, mark these "dead spots" in the performing areas and avoid them during the performance.</p>
Battery running low even after recharging.	<p>Replace rechargeable batteries (rechargeable batteries have a life of 500 hours of charging and recharging).</p>

