



# BlueKeeper™ Wireless Audio Gateway



User Guide

JK Audio

# Welcome

## Thank You

Thank you for purchasing a JK Audio BlueKeeper Wireless Audio Gateway. Please read this guide for instructions on setting up and using your new product.

## Getting Assistance

If you have technical or application questions:

In the US & Canada, call us toll free at: **800-552-8346**

All other countries dial: **815-786-2929** (M-F 8:30-5:00pm Central Time Zone)

Email us at: **support@jkaudio.com**.

Or, check out our FAQ section for answers to common questions.

## Limited Warranty

The BlueKeeper is covered by a 2 year warranty to be free from defective workmanship and materials. To obtain service, contact JK Audio by phone or email for return authorization. Once authorized, you will carefully pack and ship the faulty product and all accessories to us. You will pay for shipping to us and we will pay for return back to you.

This warranty does not cover damages due to accident, weather, fire, flood, earthquake, misuse, unauthorized repairs or modifications, or damages occurred in shipping, only defective workmanship or materials.

**There are no expressed or implied warranties which extend beyond the warranty here made.**

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# Features

## Features

HD Voice (Wide-Band Speech)*	Caller XLR Line Output
Bluetooth Wireless Technology	3.5mm Stereo Line Output
Send XLR Line Input	3.5mm Mono Mic Level Output
Mic/Line Switch	3.5 mm Stereo Headphone Jack
3.5mm Stereo Line Input	Send and Caller Signal Level LEDs
3.5mm Mono Line Input	Send and Caller Volume Controls

## In the Box

Universal Power supply with detachable cord

\* **HD Voice.** While standard phone calls have a narrow bandwidth of 300 Hz to 3.4 kHz, HD Voice calls offer 50 Hz to 7 kHz bandwidth. The additional 1.5 octaves on the low end gives voice a more natural sound, while the additional upper octave dramatically improves speech clarity and intelligibility.

**Wireless HD Calls.** To take advantage of this extended bandwidth, both phones on the call must support HD Voice, and both phones must be on the same carrier, in coverage areas that support HD Voice.



### Introducing the BlueKeeper

JK Audio combines Bluetooth Wireless Technology with professional audio electronics in a convenient desktop design. BlueKeeper pairs to your cell phone like a Bluetooth wireless headset. Connect your favorite microphone and headphones for dramatically improved sound quality at both ends of the call. BlueKeeper also pairs to Bluetooth equipped sound cards and music players in full bandwidth stereo A2DP mode.

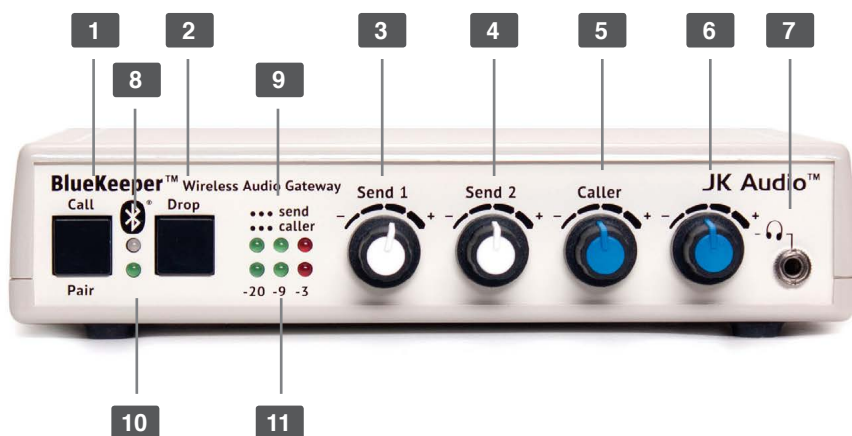
BlueKeeper allows you to send mic and line level signals into your wireless phone while maintaining excellent separation between your voice and the caller. The stereo output jack provides your voice on one channel and only the caller's voice on the other channel. The balanced XLR output jack contains only the caller's voice.

The 3.5 mm stereo line input jack allows recordings to be sent into the Bluetooth device. The 3.5 mm stereo line output jack provides your full bandwidth send mix on the left channel and Bluetooth caller audio on the right channel. The headphone output gives you a mix of the XLR input, 3.5 mm input, and Bluetooth audio.

### Ready to go?

The BlueKeeper controls and connectors are clearly marked and ready for operation. If this is your first exposure to a hybrid, we suggest that you read the entire manual to allow you to take advantage of all these features.

# Getting to Know Your BlueKeeper



## Controls & Indicators

### 1. Call Button

Press this button to answer an incoming call or to connect your call through the hybrid or redial the last number.

### 2. Drop Button

Press this button to drop (hang up) a call.

### 3. Send 1 Level

Adjusts the signal level that you are sending down the telephone line, through the female XLR input.

### 4. Send 2 Level

Adjusts the signal level that you are sending down the telephone line, through the 3.5mm mini jack input.

### 5. Caller Level

Adjusts the level of the incoming caller's audio as it is going out the output jacks.

### 6. Headphone Level

Adjusts the signal level coming from the 3.5mm front panel headphone jack.

### 7. Headphones

The 3.5mm stereo headphone jack contains a mix of both the Send input audio and the Caller audio.

## Indicators Cont'd

### 8. Blue LED

Indicates Bluetooth Status: lit steady when you are on line with a call or flashes to show pairing status.

### 9. Send LEDs

Displays the signal level sent to the caller. The goal is to drive the phone line audio at levels high enough to avoid phone line noise, but not so loud as to cause excessive clipping. Adjust the **<Send>** level controls so that you rarely see flashes of the red -3 dB peak Send LED. These flashes should occur only during loud speech bursts. If the red LED stays lit for extended periods you can assume that much of your speech is being clipped or distorted. In this case you should lower the **<Send>** volume control for the input that is causing the clipping.

The **<Send 1>** volume control will set the level of any audio connected to the **<Send 1>** XLR jack on the back of the BlueKeeper. The **<Send 2>** control will set the level of the **<Send 2>** mini jack on the back of the BlueKeeper. These two inputs will be combined on the LED meter and on the Left channel of the stereo output mini jack.

### 10. Power LED

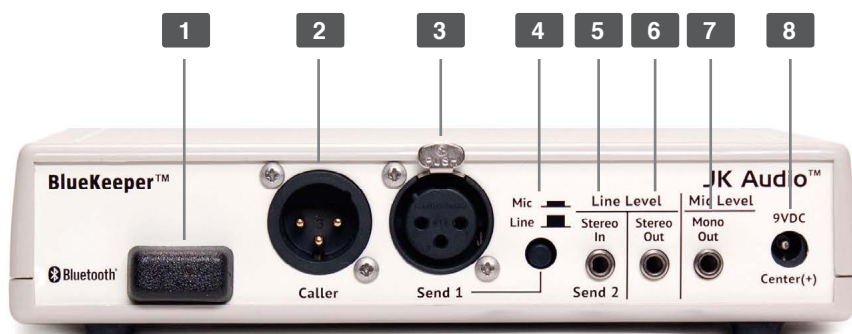
Lit when unit is plugged in and receiving power.

### 11. Caller LEDs

Displays the signal level coming in from the cell phone, after the DSP. This signal level will not change when you adjust the **<Caller>** knob. The **<Caller>** level control knob does not change what you see on these LEDs. Adjust the **<Caller>** level control to give you the best signal level at the **<Caller>** XLR output or the right channel of the stereo output mini jack.

You can listen to the combined audio level in your headphones. After setting the Send levels for the highest level you can send without distortion as indicated by the LED meter, listen to the audio in your headphones and set the **<Caller>** level to match the Send level. Or if your recording device has a meter, you can use that to match the **<Caller>** level to the Send level.

# Getting to Know Your BlueKeeper



## Inputs & Outputs

- 1. Bluetooth Antenna**  
Do not obstruct.
- 2. Caller Output**  
Male balanced XLR output contains only the caller's voice.
- 3. Send 1 Input**  
Female balanced XLR input for signals going out to the cell phone.  
Mic or line level input.
- 4. Mic / Line switch**  
Sets the front end sensitivity of the Send 1 XLR jack. Set to <Mic> if you intend to connect a dynamic microphone directly to the Send 1 jack. Set to <Line> if you are connecting to the output of a mic mixer.
- 5. Send 2 Stereo Input**  
3.5 mm <Stereo In> mini jack for signals going into the cell phone.  
Line level.



### Inputs & Outputs Cont'd

#### 6. Stereo Output

3.5 mm **<Stereo Out>** mini jack contains both Send and Caller audio channels with levels determined by the **<Send 1>** and **<Send 2>** level controls and the **<Caller>** level control. Left channel contains your local Send audio and right channel contains the Caller's audio from the cell phone.

#### 7. Mono Output

3.5 mm **<Mono Out>** mini jack contains a mix of **<Send 1>**, **<Send 2>** and **<Caller>** audio with levels controlled by each of the input control knobs on the front of the unit. This output is at Mic level and is suitable for connecting to the Mic input on a computer or other recording device.

#### 8. Power Jack

For connection only to the supplied 9VDC regulated power supply.

## Getting Connected

Figure 6a



### Setting Up

1. Connect a pair of headphones to the front of the BlueKeeper or mixer.
2. There are 2 ways to set up the audio equipment for your BlueKeeper:
  - A. One Mic/Headphone (No Mixer):** See Figure 6a.
    1. Connect a dynamic microphone cable to the **<Send 1>** jack on the BlueKeeper. Be sure to set the BlueKeeper **<Mic/Line>** switch to the **<Mic>** position.
    2. Connect a stereo cable from the mini-jack **<Stereo Out>** on the BlueKeeper to the **<Line In>** on your computer sound card or other recording equipment that has a stereo input.
  - B. Two or more Inputs/Outputs (Mix-Minus Caller):** See Figure 7a.

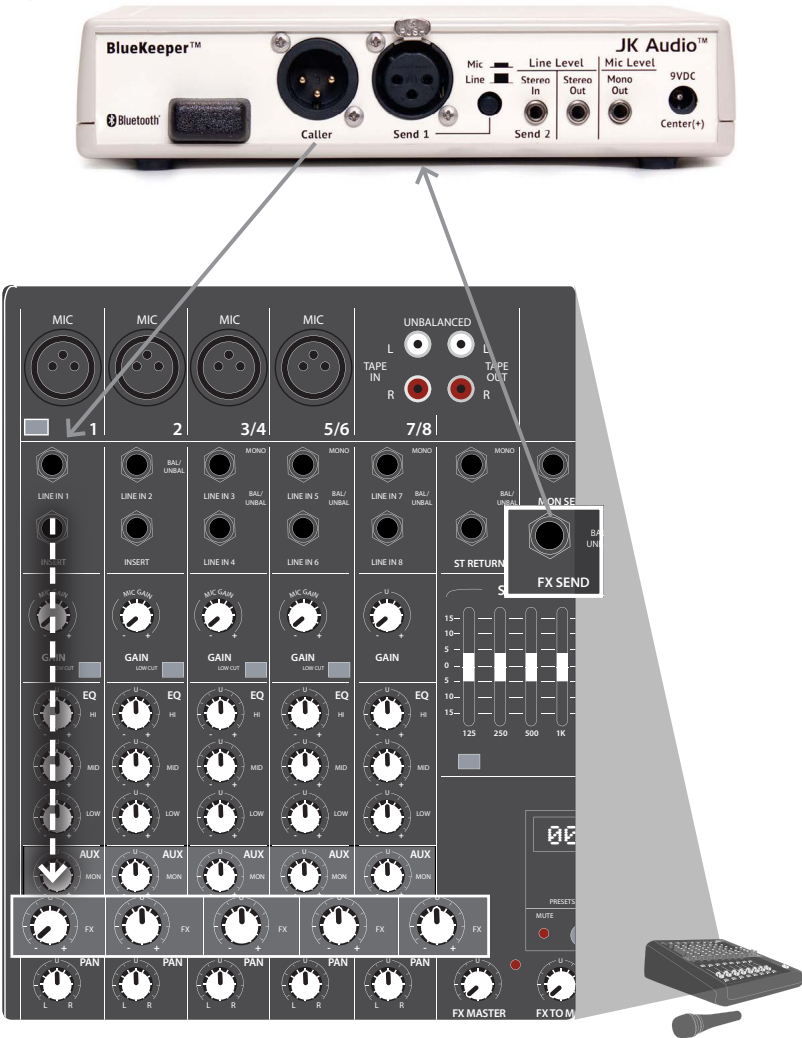
*A mix-minus signal is an audio signal that contains a mix of your local microphones plus any other audio, minus the Caller's own voice. Sending the Caller's audio back to the BlueKeeper will cause an echo, or feedback.*

    1. Connect **<Caller>** to any Line Level input on mixer.
    2. Connect Aux (or FX) Send on mixer to **<Send 1>** on BlueKeeper. Set the BlueKeeper **<Mic/Line>** switch to the **<Line>** position.
3. Connect the supplied DC power supply to the back of the BlueKeeper and then to an AC power outlet.

Your BlueKeeper is now ready to take calls. You can establish a connection to your mobile device with Bluetooth Wireless Technology (see **pages 8-9**) and place or receive a call.

Place a test call to a quiet location. Set the **<Send>** level control so that while you are speaking into the microphone, the Send LEDs on the hybrid light the -20 dB green LED consistently and flash the -9 dB green LED. If you flash the -3 dB red LED, lower the level. Set the **<Caller>** control for good recording level of the caller audio at the output jack.

Figure 7a



## Mix-Minus Caller

For whichever input channel you have the **<Caller>** connected to, turn the corresponding **<Aux>** control to minimum. All other **<Aux>** controls should be set for audio sent to the phone line. Each **<Aux Send>** bus is completely separate from all other outputs, so these Aux controls will not affect what is heard on the Main outputs or on any other Aux buses. We recommend using an **<Aux Send>** bus that is pre-fader, so you can use the fader controls to set the levels of each channel to the main output without affecting what is sent to the phone line. If your mixer does not have an **<Aux Send>** bus, you can use **<Pan>** controls with the Left and Right outputs. Pan all the microphones, etc. to the Left output and pan the Caller to the Right output. Then connect only the **<Left>** output to the BlueKeeper **<Send 1>**. Or, you may use an external Mix-Minus box that will create this signal for you.

# Bluetooth Wireless Technology

## Bluetooth Status LED

The blue LED on the front of the unit flashes in different sequences to indicate the current connection status. **When attempting to put the unit into Idle or Pairing mode, you should power the unit off then back on (by disconnecting and reconnecting the power cord) before pressing the <Pair> button.** If you put the unit into the wrong state due to releasing the <Pair> button at the wrong time, holding the <Pair> button for "X" seconds will not put it into the desired mode.

### Pairing Mode

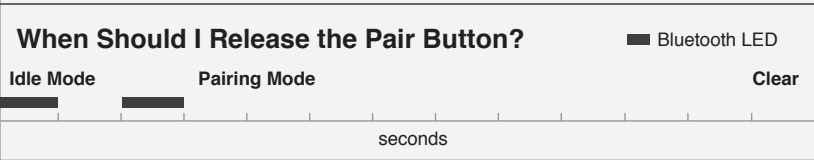
In *Pairing Mode*, any *Bluetooth* wireless technology enabled device within range can pair with your BlueKeeper. To put the unit in *Pairing Mode*, press the <Pair> button for **3 seconds** while the unit is on. The blue LED will flash rapidly at a rate of **100ms off, 100ms on**. Once the pairing process is complete the unique device ID is stored in Connection History. Subsequent connections can be made automatically from *Idle Mode*.

### Idle Mode

In *Idle Mode*, BlueKeeper searches for paired devices. To put the unit in *Idle Mode*, press the <Pair> button for less than **1 sec** when the unit is on. The blue LED will flash at a rate of **2 secs off, 200ms on**. After 5 minutes in *Idle Mode*, the Bluetooth module shuts down. The BlueKeeper can be put into *Idle mode* again by pressing the <Pair> button.

### Connected Mode

After bonding is complete, the blue LED will flash at a slower rate of **2 secs off, 1 sec on**. The connection to that device is secure.



## Bluetooth Profiles

In the Bluetooth world, a Master device, such as a wireless phone, computer, or music player, is connected to a Headset device. The Master device controls the connection, and also has the ability to stream stereo A2DP audio to the Headset device. A2DP music streaming is a one-way path from Master to Headset. BlueKeeper can act as either a Master or Headset. Please note that wireless phones typically cannot receive A2DP stereo music streaming.

BlueKeeper will first attempt to connect using the Hands-Free profile, allowing 3.4 kHz telecom bandwidth for a mono full-duplex connection. If the Hands-free profile is not available, BlueKeeper will attempt to connect in A2DP stereo streaming mode.

## Pairing to a Cell Phone with Bluetooth Wireless Technology

When you are first connecting to a new device, you should be in an environment with no other *Bluetooth* wireless technology enabled devices within range that might also be in *Pairing Mode*.

1. Connect BlueKeeper to power, then hold the **<Pair>** button for **3** full seconds. After you release the **<Pair>** button, the blue LED should flash rapidly if BlueKeeper is in *Pairing Mode*.
2. On your device, find and select the option to set up a connection. When the cell phone has found the new device, select from the list the device ID of "JKBKxxxx" where: **xxxx** = last four digits of the serial number.
3. If asked for a pin, enter "0000".
4. When bonding is complete, the blue LED will flash at a rate of **2** secs *off*, **1** sec *on*. Once BlueKeeper has been added to your cell phone, subsequent connections can be made more quickly from *Idle Mode*.

## Placing a call with BlueKeeper

1. To place an outgoing call, dial the number on your cell phone and the call will be active on BlueKeeper. To redial the last number or answer an incoming call, press the **<Call>** button.
2. When your call is completed, press the **<Drop>** button on BlueKeeper.

**Note:** If you do not hear your cell phone ring, you may need to check the Bluetooth headset settings on your phone. The phone may send a beep to your headphone instead of ringing to indicate an incoming call.

## Disconnecting from a device with Bluetooth Wireless Technology

To disconnect your cell phone, select the Drop function on your phone's Bluetooth menu, power off your phone or BlueKeeper, or take the cell phone out of range.

## Connection History

BlueKeeper retains a history of the 16 most recent devices. To clear the connection history and return to factory reset, hold the **<Drop>** button in for at least **12** seconds.

## FAQs

### 1. What is the range of the Bluetooth transmitter/receiver?

BlueKeeper will transmit and receive audio signals up to 33 feet (10 meters) from your Bluetooth device. The maximum range of this product is achieved when a clear line of sight is maintained between connected devices, but may also be limited by interference due to the environment. While this product offers extended range capabilities, maximum usable range is limited by the weaker of the two paired/connected devices.

### 2. Will the digital hybrid provide phantom power for a condenser mic?

No, this device will not provide phantom power. If you connect a microphone directly to the BlueKeeper, you should use a dynamic mic.

### 3. Why is there a Send 2 mini-jack on the back of my BlueKeeper?

This is a second line level input to the BlueKeeper. Here you can connect another device, such as a MP3 player or computer, to add audio to the conversation. This enables you to play background music or other sound bites during your discussion. Do not connect a microphone to this jack.

### 4. How do I record onto my computer and edit the files?

You will need to purchase or download any audio editing software of your choice. You may also need to edit the audio configuration files on your computer or in your software to allow recording in stereo. BlueKeeper just enables you to access the audio from your cell phone or other connected Bluetooth device.

### 5. Why does my laptop only record half of the conversation? I am using the Stereo output on the BlueKeeper and I have a stereo cable.

Most laptop computers only have a mic input, which is mono. If you want to record 2 track stereo audio, you will need to either get a sound card with a stereo line level input for your laptop or use a USB or FireWire interface product. However, the BlueKeeper has a mono, mic level output that can be connected directly to the mic input of your laptop. This will allow both sides of the conversation to be recorded onto one mono track in your software.

### 6. There is a loud hum on the output of my BlueKeeper, even when nothing else is connected. What else could it be?

Make certain you are using the regulated power supply that was shipped with this unit. Power supplies are not all the same.

**7. Can I still use my phone to take regular calls or do I have to disconnect the BlueKeeper when I am not using it?**

If you would like to use your phone normally while it is connected to the BlueKeeper, you will need to select “Handset” or “Speaker” from the phone’s call menu instead of “Bluetooth”. This will allow you to have a conversation on your phone without the audio being routed via Bluetooth to the BlueKeeper.

**8. Can I pair my BlueKeeper to two cell phones and send my audio to two locations simultaneously?**

No, a BlueKeeper can only be paired to one mobile device with Bluetooth Wireless Technology at a time.

**9. What is the difference between Mic Level and Line Level?**

Mic level is typically 20-30 dB lower than Line level and needs a pre-amp to bring it up to Line level. While many audio recording or playing devices will have an 1/8” input, it is important for you to know what type of input it is. Usually a mic input will be mono and will use a pre-amp circuit, and a line input will be stereo.

Check your cable also to be sure it is compatible with the type of input/output you are using. A stereo mini cable will have two black rings and a mono cable will have one black ring on the plug. On many mixing consoles, the XLR input will be mic level and the 1/4” TRS inputs will be line level.

**10. My Bluetooth device has the latest Bluetooth version (Bluetooth 4.0) but your product does not. Will there be a compatibility problem?**

No, the latest Bluetooth version is backwards compatible with older BT versions.

# Technical Information

## Specifications

Input	Impedance / Level
Balanced Female XLR:	1k ohms / 15 mV RMS; -34 dBu nom.; Mic/Line Pad Switch = +6 dBu max
1/8" (3.5mm) Stereo:	20k ohms / 250 mV RMS; -10 dBu nom.; +6 dBu max

### Output

Balanced Male XLR:	200 ohms / 500 mV RMS; -4 dBu nom.; +14 dBu max; Caller Only
1/8" (3.5mm) Mono:	50 ohms / 15 mV RMS; -34 dBu nom Mixed Send and Caller
1/8" (3.5mm) Stereo:	50 ohms / 250 mV RMS; -10 dBu nom; +6 dBu max Left = Send; Right = Caller
Headphone 1/8" Stereo:	8 ohms / ½ watt per channel Mixed Send and Caller

### Bluetooth Wireless Technology

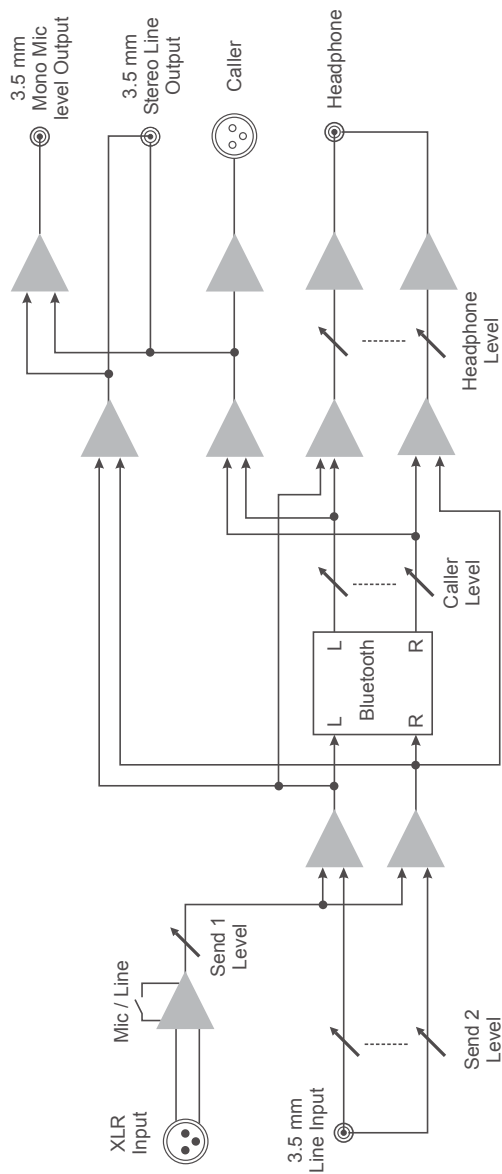
Standard:	Bluetooth 3.0
Range:	33 ft (10 meters)
Frequency Response:	Hands-Free = full duplex voice, 300 Hz– 3.4 kHz Hands-Free (HD Voice) = full duplex voice, 50 Hz– 7 kHz A2DP = 30 Hz– 17 kHz, master to slave

### Misc.

Isolation:	1500 VAC
Power:	120-240 VAC Power Supply
Size:	7" x 6" x 1.6" (18 x 15 x 4.2 cm)
Weight:	2.2 lbs. (1kg)



Block Diagram



## **FCC Compliance Notice**

### **FCC Part 15 Subpart A Compliance**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Changes or modifications not expressly approved by JK Audio can void the user's authority to operate the equipment.

## Declaration of Conformity

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Manufacturer's Name: JK Audio, Inc.  
Manufacturer's 1311 E 6<sup>th</sup> Street  
Address: Sandwich, Illinois 60548 USA

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Declares that the product:

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Product Name: BlueKeeper Wireless Audio Gateway  
Model Numbers: BlueKeeper

---

Conforms to the following Product Specifications:

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Safety: CAN/CSA-C22.2 No. 60950-01-03  
UL Standard 60950-01 1st edition

ESD: EN 61000-3-2, 3-3, 4-3, 4-4, 4-5, 4-6, 4-11  
EN 301 489-17 V1.2.1

Emissions: EN 55022:2006  
AS/NZS CISPR 22: 2006  
ETSI EN 300.328 V1.6.1: 2000  
FCC Part 15, Subpart B  
ICES-003

Bluetooth Radio: EN 300.328  
FCC Part 15.247  
FCC ID QOQWT32AE  
IC 5132A-BGTWT32AE

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The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

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R&TTE 1999/5/EC  
EMC 89/336/EEC, 92/31/EEC, 93/68/EEC  
RoHS Directive 2002/95/EC

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The Technical File containing supporting documentation is maintained at:

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JK Audio, Inc (Corporate Headquarters)  
Compliance Manager  
1311 E 6th Street  
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**BlueKeeper™**

Wireless Audio Gateway



User Guide Version 6/10/15

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