




Model UHF-R® Wireless Systems User Guide UR1M Micro bodyPack Transmitter

! IMPORTANT SAFETY INSTRUCTIONS !

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. DO NOT defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12.  USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

WARNING: Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Contents

| | |
|--|----|
| Important Safety Instructions | 2 |
| Feature Overview | 4 |
| System Components | 5 |
| Receiver Controls and Connectors | 6 |
| Receiver LCD Interface | 7 |
| Receiver Parameters | 7 |
| Connecting Multiple Receivers to the RF Distribution Ports | 8 |
| Automatic Frequency Selection | 9 |
| Networking Receivers | 10 |
| Handheld and Bodypack Transmitter Controls and Connectors | 11 |
| Transmitter LCD Interface | 12 |
| Transmitter Batteries | 12 |
| Transmitter Parameters | 13 |
| Setting Transmitter Gain | 13 |
| RF Safety Mode | 13 |
| Automatic Transmitter Sync | 14 |
| Troubleshooting | 15 |
| Specifications | 16 |
| Replacement Parts and Accessories | 19 |
| UHF-R Wireless System Compatibility Guide | 21 |

Feature Overview

The UHF-R® Wireless Microphone System uses the latest wireless technology, delivers outstanding audio clarity, and is rugged and reliable. It is easy to set up and operate with advanced features for professional installations requiring multiple wireless microphone systems.

Frequency Band Selection

Shure offers wireless systems in a selection of bands that conform to the different government regulations of specific nations or geographic regions. These regulations help limit radio frequency (RF) interference among different wireless devices and prevent interference with local public communications channels, such as television and emergency broadcasts.

The system's band and frequency range are identified on the face of the receiver and transmitter. For example, "H4 518–578 MHz." For information on bands available in your area, consult your local dealer or phone Shure. More information is also available at Shure's website (www.shure.com).

Groups and Channels

To transmit audio through a wireless system, the transmitter and receiver must be set to the same radio frequency, or channel. A wide selection of channels allows more microphones to be used at the same time, since each microphone must operate on a different channel. It also provides a greater choice of open channels—those that are free from interference from television broadcasts, electronic devices, or other wireless systems.

A *group* is a selection of compatible channels. Wireless microphones work better together when set to channels in the same group.

Automatic Frequency Selection

The following features scan the RF environment to find the best group and channel settings for a particular installation.

- **Group Scan**—finds the group with the most open channels, then sets all networked receivers to channels in that group.
- **Channel Scan**—finds the first open channel in the currently selected group and sets the receiver to that channel.

Follow the steps on page 9 for instructions on using these features.

Automatic Transmitter Sync

This feature automatically transfers the group and channel settings from a receiver to a transmitter. You can also program other transmitter settings on a receiver and transfer those settings too. See page 14.

Interface Lock

This feature locks the receiver and transmitters so that users cannot change settings. The transmitter power switch can also be disabled so that the transmitter remains on if the power switch is accidentally toggled during a performance.

Audio Gain Structure

The following settings allow you to adjust audio gain throughout the system:

- **Sensitivity** (bodypack only). A 25 dB range of gain adjustment at the bodypack transmitter input.
- **Transmitter Gain**. A 30dB range of audio gain adjustment within the transmitter (affects audio level at the receiver, as indicated by the **Audio LEDS**.)
- **Output Level**. 32 dB of attenuation at the receiver output, plus a mute setting.
- **Mic/Line switch**. –30 dB pad for matching audio levels at the receiver XLR output.

Networking

Each receiver has an RJ-45 port on the back for connecting to other receivers over an Ethernet network. Networking receivers allows you to automatically set channels for all the receivers with a single group scan command. You can also control and monitor all networked receivers through the Shure Wireless Workbench PC software.

RF Distribution Ports

Use the RF distribution ports to share the signal from a single pair of antennas with up to 10 single or dual receivers within the same frequency band. The RF ports eliminate the need for antenna splitters or distribution amplifiers. Active circuitry minimizes insertion losses, preserving signal quality. Input filtering keeps the signal free from out-of-band interference. Distribution circuitry is active only when additional receivers are connected to the RF distribution ports. When not used, the port circuitry is bypassed, allowing the receiver to be used as a stand-alone component.

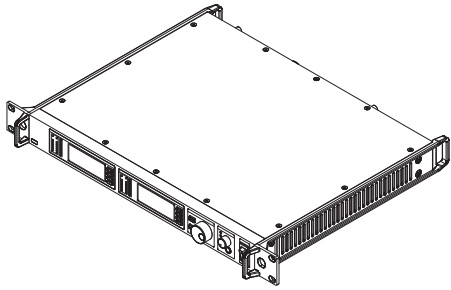
Shure Wireless Workbench Software

The Shure Wireless Workbench software on the supplied CD includes a variety of useful tools for installing and managing multiple wireless systems. Simply install the software on your computer and connect it to a network of receivers to monitor and control receivers and transmitters throughout the network. (See page 10 for more information on networking).

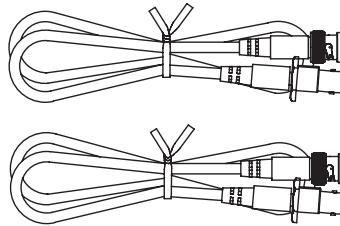
Instructions on using the Wireless Workbench software are available in the online help files after you install the software.

System Components

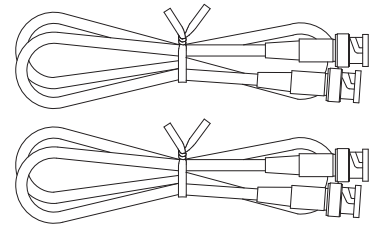
All systems include:



UR4S+ or UR4D+ Receiver
(UR4D+ pictured)



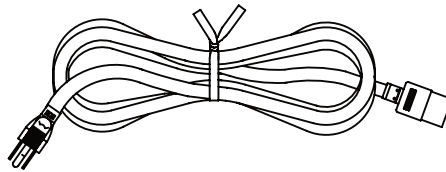
Two Antenna Cables



Two RF Distribution Cables



Two 1/2 Wave Antennas



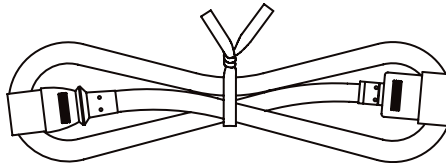
IEC Power Cable



Shure's Wireless Workbench Software



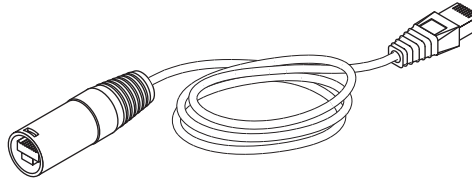
2 Antenna hole plugs
4 Rack Mount Screws with Washers



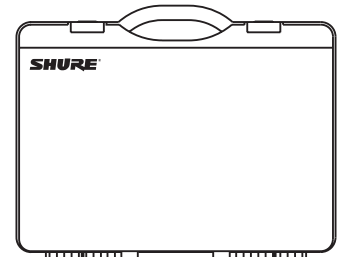
IEC Power Extension Cable



AA or AAA Batteries



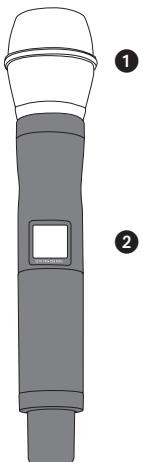
Ethernet Network Cable with "Ruggedized" plug



Transmitter Carrying Case

Handheld Systems Include:

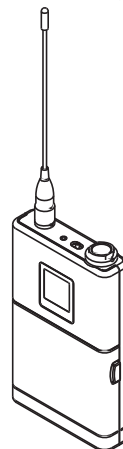
- 1 Microphone Head (choice of SM58®, Beta 58A®, Beta 87A™, Beta 87C™ or KSM9/BK, KSM9/SL)
- 2 UR2 handheld transmitter
- 3 Microphone clip



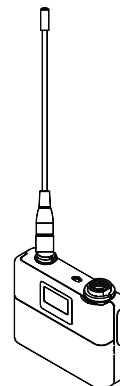
3

Bodypack Systems Include:

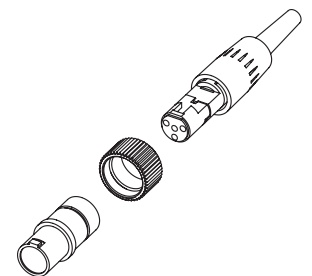
- UR1 Bodypack Transmitter
- UR1M Micro bodypack Transmitter
- Threaded TA4F Adapter



UR1

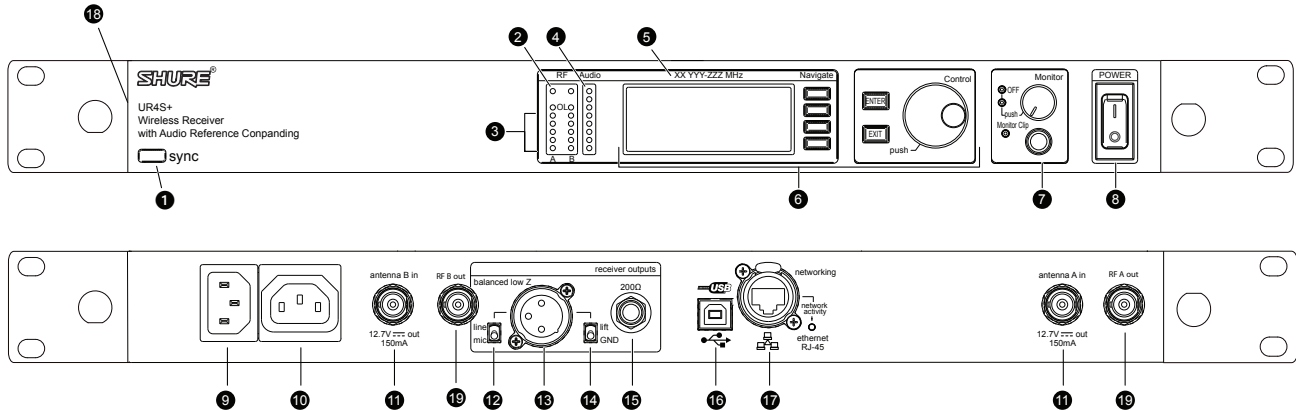


UR1M



Threaded TA4F Adapter

Receiver Controls and Connectors



1 **SYNC** Infrared (IR) port. Transmits group, channel, and other settings to a transmitter. See page 14.

- 2 **Squelch LEDs.**
- Blue (On) = Transmitter signal detected
 - Off = no signal or signal squelched because of poor reception or no tonekey

NOTE: The receiver will not output audio unless at least one blue LED is illuminated.

3 **RF LEDs.** Indicate RF signal strength from the transmitter at each antenna and diversity condition.

- Amber = normal
- Red = overload (greater than -25 dBm)

4 **Audio LEDs.** Indicate audio signal strength from transmitter.

- Green = signal present
- Yellow = normal peak
- Red = overload

To correct this level, adjust the transmitter gain.

5 Indicates the name and range of receiver frequency band.

6 **LCD Interface.** Provides a convenient way to program the receiver from the front panel (see detail on next page).

7 **Monitor.** 1/4" output jack and volume knob for headphones.

- **Monitor Clip** LED indicates headphone audio is clipping.
- Dual models: Push the knob to switch from receiver

one to receiver two.

8 **Power** switch. Powers the unit on and off.

9 **AC mains** power input, IEC connector. 100–240 Vac.

10 **AC mains power passthrough (unswitched). Use IEC extension cables to connect up to five UR4+ receivers to a single AC power source.**

11 **Diversity** antenna inputs A and B.

Note: Antenna inputs are DC biased. Use only antenna combiners and accessories listed in page 19. Some types of antenna splitters or other products may short the DC power and damage the receiver.

12 **Mic/Line** switch. Changes output level 30 dB (XLR output only).

13 Electrically balanced XLR output jack

14 **Lift/GND** switch. Lifts ground from Pin 1 of the XLR connector (default = **GND**).

15 Impedance balanced 1/4" output jack (200Ω)

16 **USB** jack for computer interface.

17 **RJ-45** jack for Ethernet network interface. Accepts both regular and "ruggedized" RJ-45 plugs.

18 **Temperature-activated fan** ensures top performance in high temperature environments. Clean fan screen as needed to remove dust.

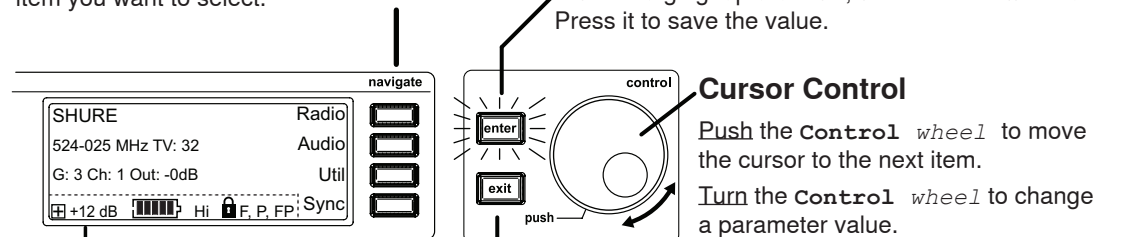
19 The RF distribution ports pass the RF signal from one receiver to the next, allowing a maximum of 10 receivers to share a single pair of antennas.

Note: The diagram above represents the UR4S single channel receiver. The UR4D dual channel receiver is functionally identical to the UR4S, adding a second LCD interface and set of output jacks for channel 2.

Receiver LCD Interface

Menu Access

Press the **Navigate** key next to the menu item you want to select.



Accept Changes

After changing a parameter, the **ENTER** button flashes. Press it to save the value.

Cursor Control

Push the **Control wheel** to move the cursor to the next item.

Turn the **Control wheel** to change a parameter value.

Transmitter Status Display

Everything under the dotted line reflects the settings for the transmitter, if present. (main title screen only).

Exit/Cancel

Press the **Exit** button to cancel changes and return to the previous menu.

Receiver Parameters

Use the following instructions to set parameters through the LCD interface.

NOTE: After adjusting a parameter, you must press the flashing ENTER button to accept the change.

Group and Channel

Menu: Radio

- Push the **Control wheel** to move the cursor to the Group (G) or Channel (Ch) parameter.
- Turn the **Control wheel** to change the parameter.

Frequency

Menu: Radio

- Push the **Control wheel** to move the cursor to the integer value (524.025 MHz) or fractional value (524.025).
- Turn the **Control wheel** to change the value.

Automatic Transmitter Sync

Menu: Sync

- See page 14.

Receiver Name

Menu: Util

- Turn the **Control wheel** to change the letter.
- Push the **Control wheel** to move to the next letter.

Output Level

Menu: Audio

This setting adjusts the signal level at the XLR and 1/4" audio output jacks.

- Turn the **Control wheel** to change the relative level in dB. (0 dB to -32 dB).
- Turn the wheel all the way down to mute the outputs.

Squelch

Menu: Radio > Squelch

- Turn the **Control wheel** to change the parameter

Receiver Lock

When locked, the receiver settings cannot be changed from the front panel. However, you can still navigate the LCD menu to view the settings (and turn the lock off).

Menu: Util > Lock

- Turn the **Control wheel** to toggle the lock on or off (ON or OFF).

LCD View

Menu: Util > Title

- Turn the **Control wheel** to mark an item for display.
- Push the **Control wheel** to move to the next item.

LCD Contrast

Menu: Util > Contrast

- Turn the **Control wheel** to increase or decrease contrast.

Tonekey

Menu: Radio > Squelch > Tonekey

Tonekey squelch mutes the outputs unless the receiver detects a transmitter. Tonekey should be left on (On) except for certain troubleshooting operations.

Network Parameters

NOTE:

- The receiver reboots after you press **ENTER** to accept network parameter changes
- In dual models (UR4D+), these settings affect both receivers (the dual receiver is treated as a single network device).

Set the Receiver Network Mode

Menu: Util > Network

1. Push the **Control** wheel to move the cursor to the **Mode** parameter.
2. Turn the **Control** wheel to set the receiver to one of the following values:
 - **DHCP**: use this setting when connecting the receiver to a DHCP server.
 - **Manual**: allows you to set the receiver to a specific IP address or subnet.

IP Address and Subnet

Menu: Util > Network

NOTE: To change these settings, the network mode must be set to **Manual**.

1. Push the **Control** wheel to move the cursor to any of the following parameters:
 - **IP** (IP address)
 - **Sub** (Subnet mask)
2. Turn the **Control** wheel to change the value.

Device ID

Assists in identifying receivers through the Wireless Workbench Software (has no effect on network identification).

Menu: Util > Network

1. Push the **Control** wheel to move the cursor to the **DeviceID** parameter.
2. Turn the **Control** wheel to set the receiver to change the value.

Custom Groups This feature allows you to create your own groups of frequencies.

Creating new groups...

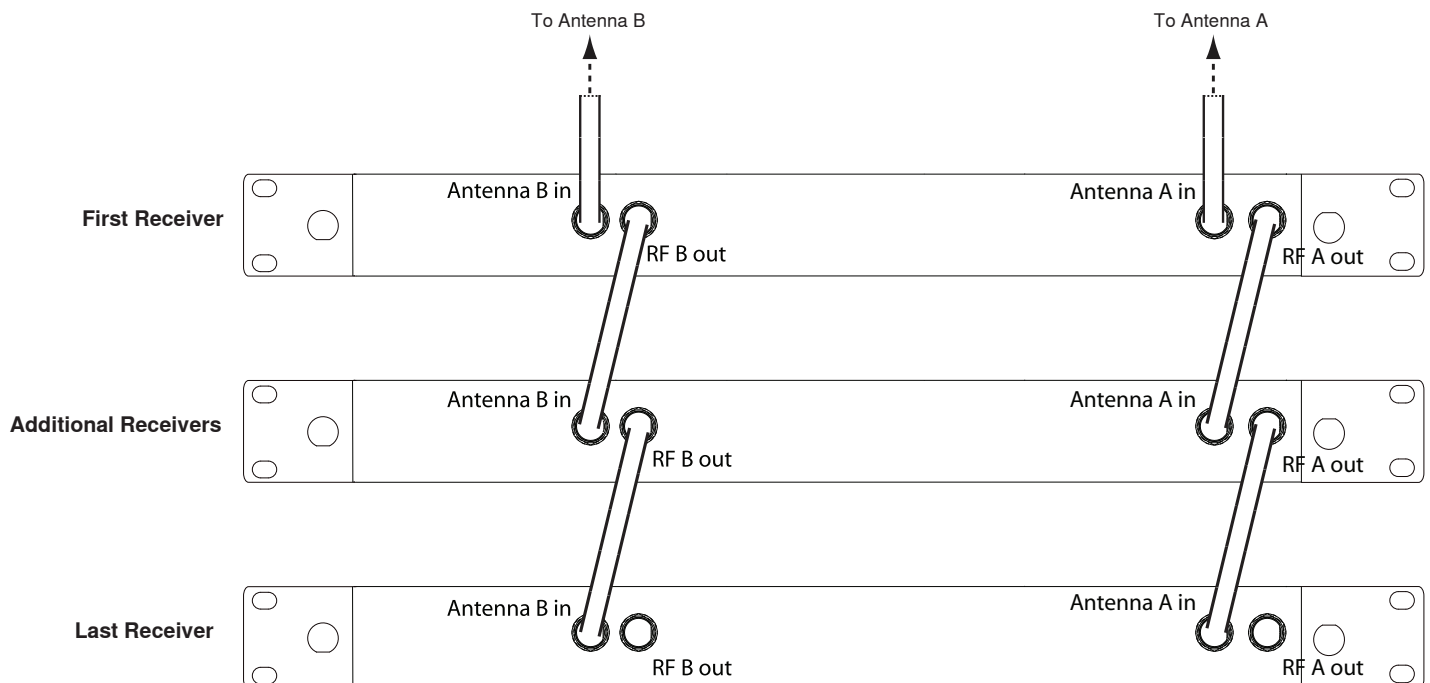
Menu: Radio > Custom

1. Turn the **Control** wheel to select a custom group number (U1, U2, U3, etc.)
2. Push the **Control** wheel to move to the **Channel** parameter and turn it to select a channel (01, 02, 03, etc.)
3. Push the **Control** wheel to move to the **Freq** parameter and select a frequency for that channel.
4. Push the **NEXT** menu key to select a frequency for the next channel in that group.

Connecting Multiple Receivers to the RF Distribution Ports

The RF distribution ports pass the RF signal from one receiver to the next, allowing a maximum of 10 single or dual receivers to share a single pair of antennas. Use the supplied RF distribution cables to connect the ports of each receiver as shown.

NOTE: All receivers must be operating in the same frequency band.



Automatic Frequency Selection

Follow these steps to use the channel scan and group scan features.

Before you begin...

- Install the receivers in the location where they will be used and power them on.
- Mute all inputs on mixing devices connected to receivers.
- Turn off all bodypack or handheld transmitters for the systems you are setting up.
- Turn on potential sources of interference such as other wireless systems or devices, computers, CD players, effects processors, and digital rack equipment so they are operating as they would be during the presentation or performance.

Single Receiver

1. Select **Radio > Scan > Chan Scan** using the **Navigate** keys on the receiver LCD interface.
2. Turn the **Control** wheel to select a group.
3. Press **Chan Scan**. The display indicates that the receiver is searching. Once it has finished, it displays the selected channel.
4. Press the flashing **ENTER** button to accept the suggested channel.
5. Sync the transmitter (see page 14).

Networked or Dual Receivers

With networked or dual receivers, you can take advantage of the group scan feature to set group and channel settings for all the receivers at the same time. (See page 10 for instructions on networking.)

Perform a group scan from any receiver...

1. Select **Radio > Scan > Group Scan** using the **Navigate** keys on the receiver LCD interface. The display indicates that the receiver is searching (Scan In Progress). Once it has finished, it displays the group with the most open channels.
2. If you wish, turn the **Control** wheel to change groups. The number of open channels for each group is displayed.
3. Press the flashing **ENTER** button to set all receivers to open channels in that group.

NOTE: The group scan feature only works for receivers in the same frequency band. For example, if you did a group scan on a "H4" band receiver, all "H4" band receivers would be set up, but not "J5" band receivers.

Multiple Receivers—Not Networked

If your receivers are not networked (or in different bands), the group scan cannot automatically set their group and channel settings. However, you can still take advantage of the group scan feature to find the group with the most open channels and the channel scan feature to find open channels in that group.

Find the group with the most open channels...

Perform a group scan using the steps for a networked receiver (above). However, make a note of the selected group before pressing the flashing **ENTER** button to accept it.

Set the receivers to open channels in that group...

Perform a channel scan on the remaining receivers using the steps for a single receiver (above). Make sure to select the same group for each receiver before performing the channel scan.

IMPORTANT: After setting the channel for the first receiver, immediately sync the transmitter for that receiver and leave it on so that the next receiver detects that channel during its channel scan. Otherwise, all the receivers will be set to the same open channel.

NOTE: Receivers in different bands (H4, J5, L3, etc.) do not need to be set to the same group.

Networking Receivers

Basic Network

Connect receivers to an Ethernet router with DHCP service. Use Ethernet switches to extend the network for larger installations.

Use the receiver's default network setting
(`Util > Network > Mode = DHCP`).

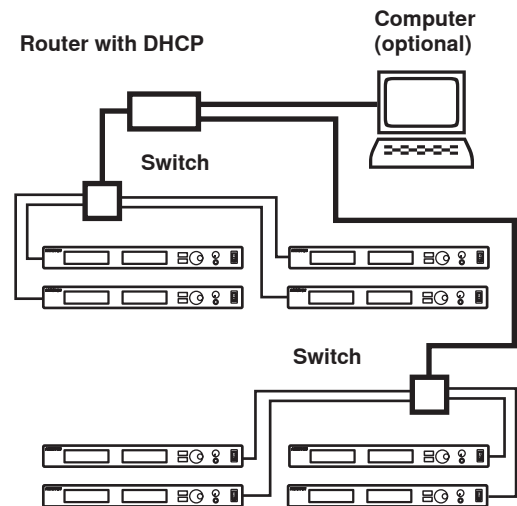
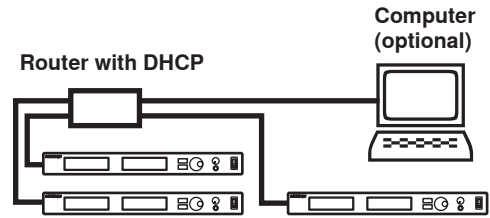
Accessing the Network with a Computer

If you want to use the Wireless Workbench software, connect your computer to the network and install the software from the CD that came with the receiver. Make sure your computer is configured for DHCP (from Control Panel, click Network Connections. Double-click on Local Area Connection. Select Internet Protocol (TCP/IP) and click Properties. Select Obtain IP address automatically and Obtain DNS server address automatically and click OK).

NOTE: Some security software or firewall settings on your computer can prevent you from connecting to the receivers. If using firewall software, allow connections on port 2201.

Using USB...

Connect the computer to the USB port on any of the receivers to access the whole network.



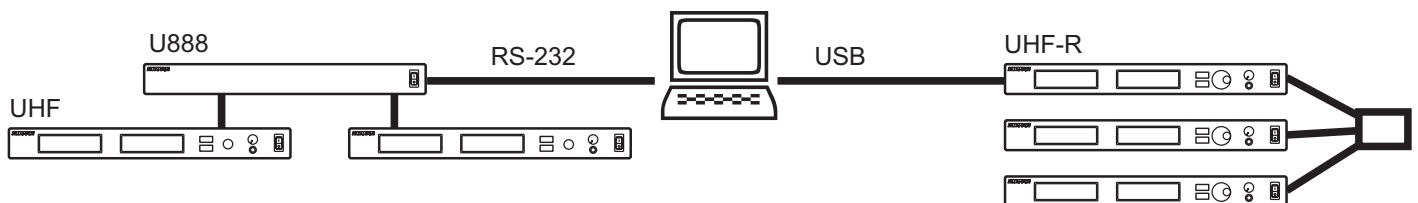
Static IP Addressing

The receiver also supports static IP addressing. Assign your own IP addresses (`Util > Network > Mode = Manual`). See "Network Parameters" on page 8.

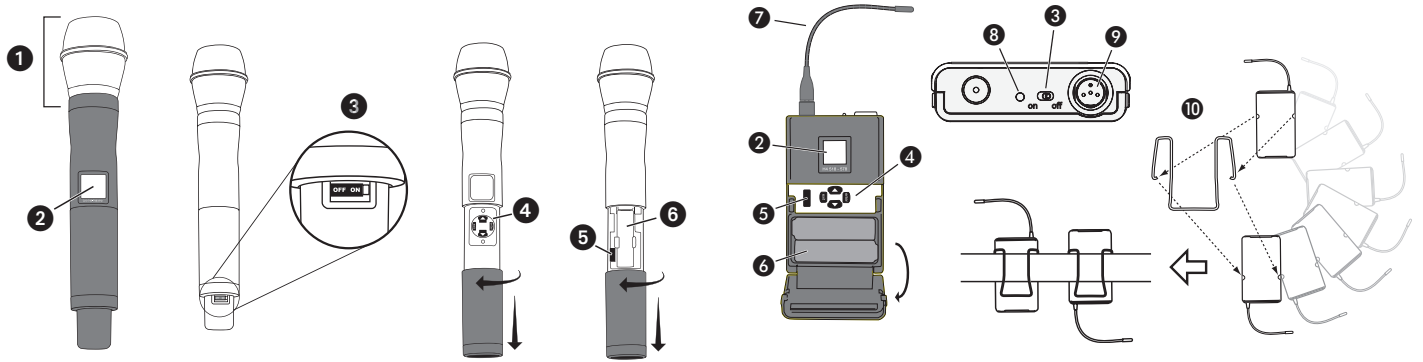
NOTE: Dual receivers use a single IP address, which may be set through either LCD interface.

Existing UHF Network Installations

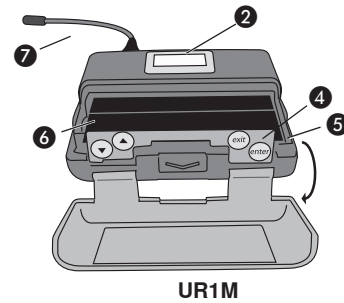
Both Shure's UHF-R receivers and legacy UHF receivers can be networked to the same PC and accessed using the latest Wireless Workbench software.



Handheld and Bodypack Transmitter Controls and Connectors



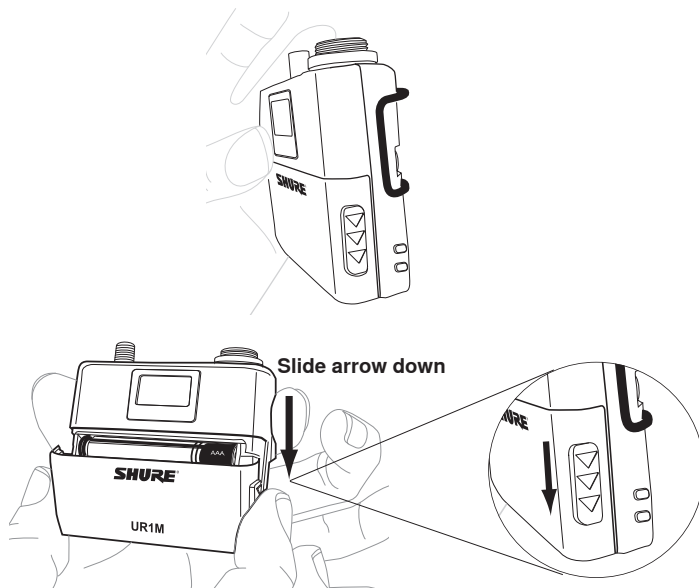
- 1 Interchangeable microphone head (BETA 87A pictured).
- 2 LCD Panel.
- 3 Power Switch.
- 4 Control buttons for LCD interface.
- 5 Infrared (IR) port. See page 14.
- 6 Battery compartment.
- 7 Flexible Antenna.
- 8 Power LED.
- 9 4-Pin Microphone Input Jack.
- 10 Reversible Belt Clip.



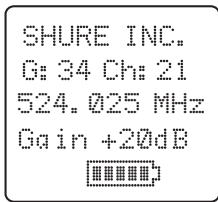
UR1M Features

- Same audio performance as UR1
- Rapid two-way infrared (IR) data transmission
- RF output level (10 mW)
- Operates with three types of primary batteries: alkaline, lithium or NiMH
- Audio signal is input through a TA4F connector (UR1M)
- Selectable battery metering by battery type
- Audio metering on UR1M transmitter

To open the micro bodypack transmitter, see illustrations below:



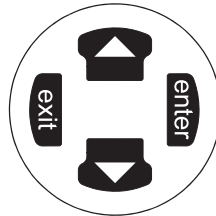
Transmitter LCD Interface



Main Menu

exit Key. Move to the left, or exit without saving changes.

Up Arrow Key. Scroll up or increase a value.



enter Key. Press to select parameters and accept the selected value.

Down Arrow Key. Scroll down or decrease a value.

Transmitter Batteries

Transmitters operate on standard AA and AAA batteries. Turn off the transmitter before changing the batteries.

The battery fuel gauge displayed on the transmitter LCD gives an indication of remaining battery life, as shown below.

| Transmitter Display | Approximate Hours Remaining (alkaline batteries) |
|---------------------|--|
| | UR1, UR2 |
| | 7.5 to 9.5 |
| | 5.75 to 7.5 |
| | 4 to 5.75 |
| | 2 to 4 |
| | 15 minutes to 2 hours |

UR1M

| Transmitter Display | Approximate Hours Remaining | | |
|---------------------|-----------------------------|-------------------------|-------------------------|
| | (alkaline batteries) | (lithium primary) | NiMH 1000 mAH |
| | 4 to 5 | 10 to 8.5 | 4.5 to 6 |
| | 3 to 4 | 6.5 to 8.5 | 3.5 to 4.5 |
| | 2 to 3 | 4.5 to 6.5 | 2.5 to 3.5 |
| | 1 to 2 | 2.5 to 4.5 | 1.5 to 2.5 |
| | 15 minutes to 1 hour | 30 minutes to 2.5 hours | 15 minutes to 1.5 hours |

Select Battery Type:

Set the micro bodypack transmitter switch to **on**. Press **enter** key, then scroll using button to select battery type. Press **enter** key to confirm.

Note: For the most accurate battery metering and performance, make sure to select the correct battery type.

Transmitter Parameters

Press **ENTER** from the main menu to access the following parameters:

```
G: 34 Ch: 21
524.025MHZ
Gain +20dB
SHURE INC.
```

Group (G) and **Channel (Ch)**. Must match the receiver's settings.

Frequency (MHz). Manual frequency selection in 0.025 MHz increments.

Gain (Gain). Adjusts audio level from -10 dB to +20 dB



Sensitivity (Sens) (bodypack only).



Sets audio input to +15 dB, 0 dB, or -10 dB recommended for guitars.



Name Display. 12-digit ASCII.

Use the following key combinations to access additional features and parameters:

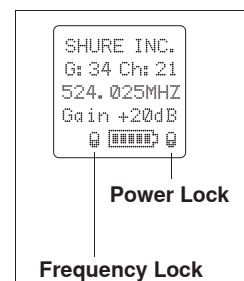
hold  + tap  **LCD Panel**
Changes LCD Panel

hold  + tap  **Frequency Lock**
Toggles setting. When enabled, frequency cannot be changed, and a transmitter sync will not overwrite the frequency setting.

hold  + tap  **Power Lock**
Toggles power lock. When locked, power switch does not turn off transmitter.

hold  + tap  **RF power level setting***
*Power level cannot be changed for Hong Kong models. Power setting is locked to 10 mW.

Lock Indicators



Setting Transmitter Gain

Adjust the transmitter gain and input sensitivity so that the **Audio** LEDs on the receiver peak within the yellow range during use. On the bodypack transmitter, you can change the sensitivity setting to compensate for different audio levels when connecting different instruments or microphones to the input.

To adjust gain, turn on the transmitter and press the **enter** button. Scroll down to the **Gain** parameter or the **Sens** parameter (bodypack only) and press enter again. Use the arrow keys to adjust the setting and press **enter** to save it (**Exit** cancels without saving).

RF Safety Mode

This special feature temporarily mutes RF broadcast. This allows you to change frequency settings on a transmitter without accidentally “cutting in” on a channel being used by another transmitter.

1. Turn the transmitter off.
2. Hold down **exit** key while turning on the transmitter power (for handheld microphones, you need to pull the battery cover off the handle). The LCD flashes while the unit is in RF safety mode.
3. Change group and channel settings as you normally would—the transmitter will not broadcast.
4. Power the transmitter off and on to exit RF safety mode.

Automatic Transmitter Sync

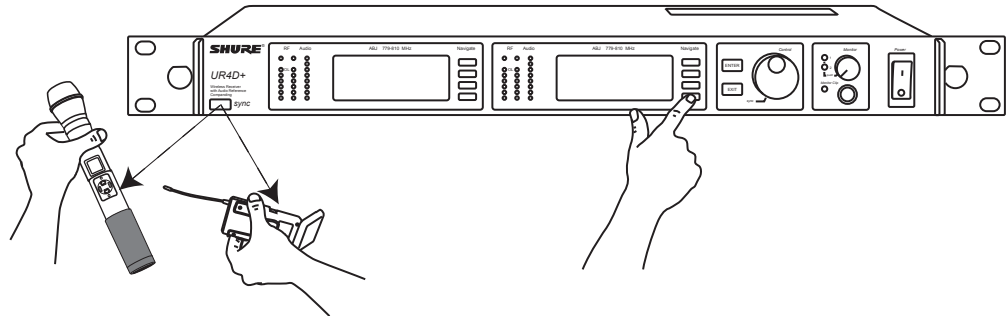
This feature automatically updates a bodypack or handheld transmitter's group and channel settings to match those of a selected receiver.

To perform a transmitter sync...

1. Open the transmitter battery cover to display the infrared (IR) port.
2. With the IR port exposed to the receiver, select **Sync** > **sync** from the receiver LCD interface.

The display on the receiver indicates whether the sync was successful. If the sync fails, try again, making sure that the IR port on the transmitter is exposed and directly faces the IR port on the receiver.

NOTE: Close the battery door before performing a sync on other transmitters.



To transfer other transmitter settings...

Optionally, you can transfer other transmitter settings from a receiver when you perform a sync. Use the following steps:

1. Select **Sync** > **Setup** from the receiver LCD interface.
2. Turn the **Control** wheel to change parameter settings.
3. Push the **Control** wheel to move to the next parameter.
4. Push the flashing **ENTER** button to save the settings.

The transmitter settings you set on the receiver remain for future syncs.

NOTE: If you don't want the sync to send a setting, set the parameter to **No Change**.

Available Settings...

The following settings are available from the **Sync** > **Setup** menu:

- Sensitivity (**Sens**) bodypack only
- Gain (**Gain**)
- RF Power (**Pwr**)
 - NOTE:** Power cannot be changed for the Hong Kong models
- Power and Frequency Lock (**Lock**), which has the following values:
 - Power lock only: (**Pwr Only**)
 - Frequency lock only: (**Freq only**)
 - Both: (**Freq and Pwr**)
 - Neither: (**Unlocked**)
- Custom Groups (**CG**):
 - On (**ON**): Send custom groups to transmitters during sync
 - Off (**OFF**): Do not send custom groups (reduces sync time)

Troubleshooting

| Issue | See Solution... |
|---|----------------------|
| No sound | Power, Cables, or RF |
| Faint Sound or Distortion | Gain |
| Lack of range, unwanted noise bursts, or drop outs | RF |
| Cannot turn transmitter off or change frequency settings, or can't program receiver | Interface Locks |
| Excessive hum or buzzing | Ground lift |

Power

Make sure that the transmitter and receiver are receiving sufficient voltage. The receiver requires at least 90 Vac. Check the battery indicator on the transmitter and replace battery if necessary.

Gain

Adjust the transmitter gain and sensitivity settings (see page 13) or the receiver output level (page 9), or toggle the **mic/line** switch on the back of the receiver.

Cables

Check that all cables and connectors are in working order.

Ground Lift

Lifting the ground on pin 1 of the XLR output on the receiver can sometimes remove hum or buzz in the audio signal. Set the **GND/LIFT** switch on the receiver to **LIFT** if you are using the XLR connector.

Interface Locks

Both the transmitter and receiver can be locked to prevent accidental changes. On transmitters, look for a lock symbol on the LCD and use the key combinations illustrated on page 13 to turn it off.

To turn off the receiver interface lock, see page 7.

Increasing Range

If the transmitter is more than 6 to 60 m (20 to 200 ft) from the receiver antenna, you may be able to increase range by doing one of the following:

- Reduce interference (see above)
- Increase transmitter RF power level (see page 13).
- Use an active directional antenna, antenna distribution system, or other antenna accessory to increase RF range (see page 19).

Radio Frequency (RF)

Using the RF LEDs

If neither blue **RF** LED is illuminated, then the receiver is not detecting the presence of a transmitter.

The amber **RF** LEDs indicate the amount of signal being received. This signal could be from the transmitter, or it could be from an interfering source, such as a television broadcast. Turn the transmitter off. If more than one or two of the amber **RF** LEDs are still illuminated, then that channel has too much interference, and you should try a different channel.

The red **RF** LED indicates RF overload. This will usually not cause a problem unless you are using more than one system at the same time, in which case, it can cause interference between systems.

Eliminating RF Overload

If you see the red **RF** LED on a receiver, move the transmitter further away from the receiver—at least 6 m (20 ft). If you are using active antennas, reduce antenna or amplifier gain.

Compatibility

- Perform a transmitter sync, or make sure the transmitter and receiver are set to the same group and channel.
- Look at the label on the transmitter and receiver to make sure they are in the same band (H4, J5, L3, etc...).

Reducing Interference

- Use a different channel or perform an automatic group or channel scan (see page 9).
- For multiple systems, check that all systems are set to channels in the same group (systems in different bands do not need to be set to the same group).
- Maintain a line of sight between transmitter and receiver antennas
- Move receiver antennas away from metal objects or other sources of RF interference (such as CD players, computers, digital effects, network switches, network cables and Personal Stereo Monitor (PSM) wireless systems).
- Eliminate RF overload.

Specifications

Frequency Range and Transmitter Output Power

| Band | Range | Transmitter Power (mW) | |
|------|-------------|------------------------|----------------------|
| | | Handheld | Bodypack (UR1, UR1M) |
| G1HK | 470-530 MHz | 10 | 10 |
| H4HK | 518-578 MHz | 10 | 10 |
| J5HK | 578-638 MHz | 10 | 10 |
| L3HK | 638-698 MHz | 10 | 10 |
| Q5HK | 740-806 MHz | 10 | 10 |

NOTE

This Radio equipment is intended for use in musical professional entertainment and similar applications. This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies and RF power levels for wireless microphone products.

RF Carrier Frequency Range

470-806 MHz

Working Range

UR1, UR1M, UR2

100m (300 ft.), under typical conditions

NOTE: Actual working range depends on RF signal absorption, reflection and interference.

Audio Frequency Response

40 – 18,000 Hz, (+1 dB, –3 dB).

NOTE: Overall system frequency response depends on the microphone element

Gain Adjustment Range

UR1, UR1M: –20 to +35 dB

–10 dB recommended for guitar

UR2: –10 to +20 dB

Modulation

FM (45 kHz max. deviation), compander system with pre- and de-emphasis

RF Power Output

10 mW maximum, non-adjustable

Dynamic Range

>105 dB, A-weighted

Image Rejection

>110 dB typical

RF Sensitivity

| UR4S+ | UR4D+ |
|---------------------------------|---------------------------------|
| –110 dBm Typical 12 dB SINAD | –107 dBm Typical 12 dB SINAD |
| –105 dBm Typical 30 dB SINAD | –102 dBm Typical 30 dB SINAD |

Spurious Rejection

>90 dB typical

Ultimate Quieting (ref. 45 kHz deviation)

>100 dB, A-weighted

Signal Polarity

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on XLR output pin 2 with respect to XLR pin 3 and on the tip of the 1/4-inch output jack.

System Distortion (ref. ± 45 kHz deviation, 1 kHz modulation)

<0.3% Total Harmonic Distortion typical

Power Requirements

UR1, UR2: Two 1.5V AA batteries

UR1M: Two 1.5V AAA alkaline, lithium primary, and NiMH batteries

UR4: 100 to 240 VAC, 50/60 Hz

Current Drain

UR1, UR2: 180 mA max.

240 mA max.

UR1M: 130 mA max. at 3V

UR4D+, UR4S+: 0.8 Amps max.

Battery Life (Typical)

UR1, UR2: 9.5 hours (normal RF power),

UR1M:

Alkaline: 6 hours

Lithium primary: 9 hours

NiMH 1000 mAh: 6 hours

Operating Temperature Range

–18° to +57° C (0° to +135° F)

NOTE: Battery characteristics may limit this range

NOTE: Electrical safety approval is based on a maximum ambient temperature of 35° C (95° F).

Overall Dimensions

UR1: 98 mm L x 60 mm W x 17 mm D (3.84 x 2.38 x 0.66 in.)

UR1M: 49 mm L x 60 mm W x 17 mm D (1.9 x 2.38 x 0.66 in.)

UR2/SM58: 261 mm L x 51 mm Dia. (10.27 x 2 in.)

UR2/KSM9/BK, UR2/KSM9/SL: 250 mm x 49 mm Dia. (9 7/8 x 1 15/16 in.)

UR2/BETA 58: 258 mm L x 51 mm Dia. (10.15 x 2 in.)

UR2/BETA 87A, UR2/BETA 87C: 254 mm x 51 mm Dia. (10 x 2 in.)

UR4S+/UR4D+: 44 mm H x 483 mm W x 366 mm D

(1.72 x 19.00 x 14.39 in.)

Net Weight

UR1: 97 g (3.4 oz.) without batteries

UR1M: 62 g (2.2 oz.) without batteries

UR2/SM58: 356 g (12.6 oz.) without batteries

UR2/BETA 58: 314 g (11.1 oz.) without batteries

UR2/KSM9/BK, UR2/KSM9/SL: 410 g (14.5 oz.) without batteries

UR2/BETA 87A, UR2/BETA 87C: 325 g (11.5 oz.) without batteries

UR4S+: 5.0 kg (10.9 lbs)

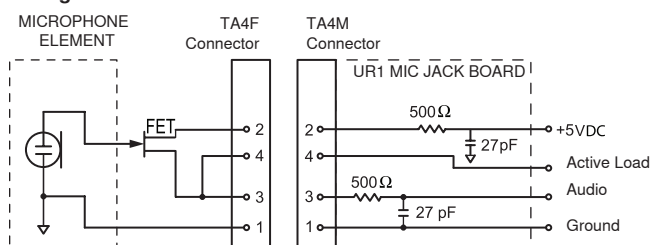
UR4D+: 5.1 kg (11.2 lbs)

Housing:

UR1, UR1M: Cast magnesium

UR2: Aluminum die-cast handle and aluminum machined battery cup

UR4S+, UR4D+: Galvanized steel

Wiring for TA4F:

NOTE: LAVALIER MIC TIES PINS 3 AND 4 TOGETHER—GUITAR CABLE DOES NOT.

Inputs and Outputs**UR1 Transmitter Audio Input**

| | |
|--|--|
| Connector: | 4-Pin male mini connector (TA4M) |
| Input Configuration: | Unbalanced, active |
| Maximum Input Level: (1 kHz, 1% THD) | +10 dBu (sensitivity 0 dB) +20 dBu (sensitivity -10 dB) |
| TA4M Connector Pin Assignments: | Pin 1: Ground Pin 2: +5 Vdc bias Pin 3: Audio, 200 kΩ Pin 4: Tied through active load (on main board) to Ground. (On instrument adapter cable, Pin 4 floats) |

UR1M Transmitter Audio Input

| | |
|--|--|
| Connector: | 4-Pin male mini connector (TA4M) 3-Pin female mini connector (LEMO XRB.00.303) |
| Input Configuration: | Unbalanced, active |
| Maximum Input Level: (1 kHz, 1% THD) | +5 dBu (sensitivity 0 dB) +15 dBu (sensitivity -10 dB) |
| TA4M Connector Pin Assignments: | Pin 1: Ground Pin 2: +5 VDC bias Pin 3: Audio, 200 kΩ Pin 4: Tied through active load (on main board) to ground. (On instrument adapter cable, Pin 4 floats) |

UR2 Transmitter Audio Input

| | |
|--|--------------------|
| Input Configuration: | Unbalanced, active |
| Actual Impedance: | >1 MΩ |
| Maximum Input Level: 1 kHz, 1% THD | +4.8 dBu |

UR1, UR1M Transmitter RF Output

| | |
|--------------------------|-----------------------------------|
| Connector: | SMA |
| Actual Impedance: | 50 Ω |
| Pin Assignments: | Shell = Ground Center = Signal |

RF Distribution Ports

| | RF IN | RF OUT |
|----------------|-----------------|--------|
| Connector Type | BNC | BNC |
| Vdc Bias | 12 Vdc @ 150 mA | - |

Receiver Input

| | Antenna | Power |
|-----------------------------|-----------------------------------|-----------------------------|
| Connector Type: | BNC | IEC |
| Actual Impedance: | 50 Ω | - |
| Nominal Input Level: | -95 to -30 dBm | 100-240 VAC, 50/60 Hz |
| Maximum Input Level: | -20 dBm | 240 VAC, + 10%, 50/60 Hz |
| Pin Assignments: | Shell = Ground Center = Signal | IEC Standard |
| Bias Voltage* | 12 Vdc @ 150 mA maximum | N/A |

* For remote antenna amplifiers

Receiver Audio Output

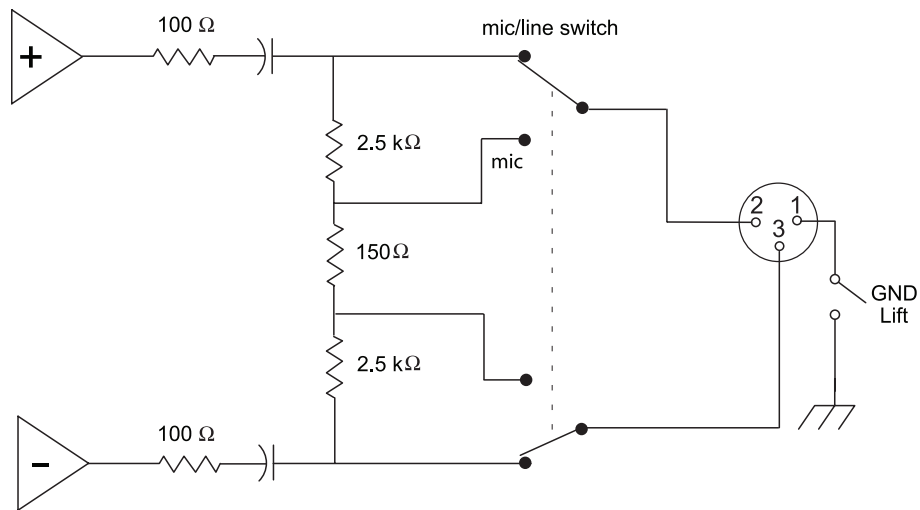
| | Monitor (1/4" Headphone) | 1/4" Phone | XLR |
|----------------------------------|---|---|--|
| Output Configuration: | Unbalanced mono, 1/4 inch | Impedance Balanced | Electrically Balanced |
| Actual Impedance: | 50 Ω | 200 Ω | 200 Ω (active balanced) (150 Ω mic) |
| Maximum Output Level: | 1 Watt @ 63 Ω | +18 dBu | +24 dBu (-6 dBu mic) with 100 Hz modulating tone |
| Pin Assignments: | Tip = Hot Ring = Hot Sleeve = Gnd | Tip = Hot Ring = no signal Sleeve = Gnd | 1 = Ground 2 = Audio + 3 = Audio - |
| Phantom Power Protection: | No | Yes | Yes |

Computer/Network Interface

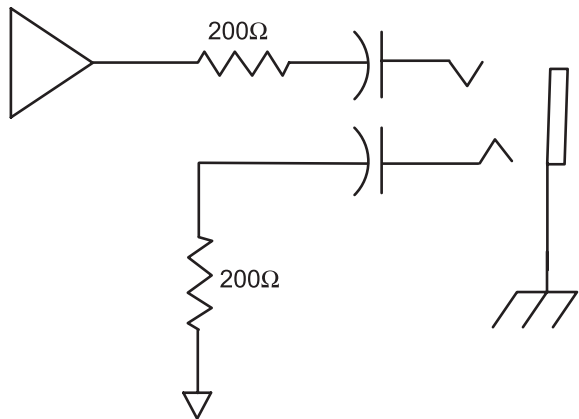
| Ethernet | USB* |
|----------|-------------------------|
| RJ45 | USB Series B Receptacle |

* USB-IF logo is a trademark of Universal Serial Bus Implementers Forum, Inc.

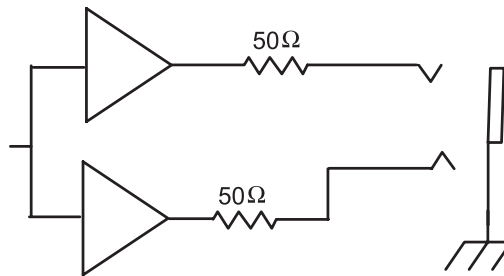
XLR



1/4" Phone



1/4" Monitor/headphone



Replacement Parts and Accessories

Furnished Accessories

| | |
|---|---------|
| Microphone Stand Adapter (UR2) | WA371 |
| Threaded locking Adapter (with TA4F), UR1, UR1M | WA340 |
| Zipper Bag (UR1, UR1M) | 26A13 |
| Zipper Bag (UR2) | 26A14 |
| Antenna Extension Cables (2) | 95A9023 |
| RF Distribution Cables (2) | 95N2035 |
| Antenna (UR1, UR1M), 470-530 MHz | UA700 |
| Antenna (UR1, UR1M) 518-578 MHz | UA710 |
| Antenna (UR1, UR1M), 578-698 MHz | UA720 |
| Antenna (UR1, UR1M), 740-865 MHz | UA730 |
| Antenna (UR1, UR1M), 944-952 MHz | UA740 |
| Two Antennas (UR4), Band Dependent (see table) | UA820 |
| Transmitter Carrying Case | 95A9053 |

Optional Accessories

| | |
|----------------------------------|---------|
| SM58 Head with Grille | RPW112 |
| SM86 Head with Grille | RPW114 |
| BETA 58 Head with Grille | RPW118 |
| BETA 87A Head with Grille | RPW120 |
| BETA 87C Head with Grille | RPW122 |
| SM87A Head with Grille | RPW116 |
| KSM9/SL Head with Grille | RPW180 |
| KSM9/BK Head with Grille | RPW184 |
| Matte Silver Grille (SM58) | RK143G |
| Matte Silver Grille (SM86) | RPM266 |
| Matte Silver Grille (BETA 58) | RK265G |
| Black Grille (SM87) | RK214G |
| Matte Silver Grille (BETA 87A) | RK312 |
| Matte Silver Grille (BETA 87C) | RK312 |
| Black Grille (BETA 58) | RK323G |
| Black Grille (BETA 87A/BETA 87C) | RK324G |
| Champagne Grille (KSM9/SL) | RPM260 |
| Black Grille (KSM9/BK) | RPM264 |
| Popper Stopper® Windscreen | A85WS |
| Belt Clip (UR1) | 44A8031 |
| Belt Clip (UR1M) | 44A8039 |
| Bodypack Pouch (Black), UR1 | WA580B |
| Bodypack Pouch (White), UR1 | WA580W |
| Bodypack Pouch (Black), UR1M | WA581B |
| Bodypack Pouch (White), UR1M | WA581W |
| 3-Pin mini Lemo conversion kit | WA335 |

Antenna Combiners and Accessories

- Antennas and receivers must be from the same frequency band.
- The supplied 1/2 wave antennas can be remotely mounted or mounted directly to the UA845.
- Antennas and cables for use with the UA845 can also be used with stand-alone UHF-R receivers.

| | |
|---|--------------|
| Passive Antenna/Splitter Combiner Kit (recommended for 2 receivers) | UA221 |
| UHF Antenna Power Distribution Amplifier | UA845- |
| U.S.A. (470-952 MHz) | UA845-SWB |
| Europe | UA845-SWB-E |
| UK | UA845-SWB-UK |
| 1/2 Wave, Omnidirectional, Wideband Antenna (470-952 MHz) | UA860SWB |
| Active Directional Wideband Antenna (470-698 MHz) | UA870USTV |
| Active Directional Narrowband Antenna (944-952 MHz) | UA870X |
| Wideband In-Line RF Amplifier (470-698 MHz) | UA830USTV |
| Narrowband In-Line RF Amplifier (944-952 MHz) | UA830X |

| | |
|---|---------|
| Passive Unidirectional Wideband Antenna (470-952 MHz) | PA805WB |
| Passive Unidirectional Narrow band Antenna (600-1100 MHz) | PA805X |
| 1/2 wave antennas (2) | |
| G1, G1HK Bands | UA820G |
| H4E, H4, H4HK Bands | UA820H4 |
| J5E, J5, J5HK Bands | UA820J |
| L3E, L3, L3HK Bands | UA820L3 |
| Q5, Q6, Q10, Q5HK Bands | UA820Q |
| R9, ABJ Bands | UA820A |
| X1 Band | UA820X |
| 10' Antenna Cable | PA725 |
| 25' Antenna Cable (RG-8/X) | UA825 |
| 50' Antenna Cable (RG-8/X) | UA850 |
| 100' Antenna Cable | UA8100 |

Architects' and Engineers' Specifications

The wireless system shall operate in the UHF band between 470-806 MHz, with the specific range being dependent on the user's locale. The system shall include the option of changing the operating frequency in order to avoid RF interference, enabling up to 160 systems to operate simultaneously in the same location. Preconfigured group, channel and frequency setups shall be available to ensure that multiple systems in use do not interfere with one another.

All transmitters shall be powered by 2 AA or 2 AAA batteries and shall have a power on/off switch. The bodypack will have an LED indicating that power is on. Available transmitters shall include: a body pack for use with electric guitars, basses, and other electric instruments, and a handheld microphone for vocals. The transmitters shall have a DC/DC converter to ensure consistent performance, even if battery voltages change.

The receiver shall have a user-programmable, menu-driven LCD showing group, channel, frequency, name, squelch level, and locked/unlocked status. The system shall use technology such as MARCAD, signal combining circuitry to improve reception, minimize signal dropouts, and achieve the best possible signal-to-noise ratio. An equalizer, tone key squelch, and noise squelch circuitry shall be built into the system to provide optimal sound quality and minimize unwanted noise. The receiver shall include dual RF meters (one for each antenna), an audio level meter, and a Networking Interface connector for computer control and monitoring. The receiver shall have a volume control and an adjustable noise squelch control.

The system shall be the Shure UHF-R Wireless.

Certification

UR1, UR1M, UR2, UR4S+, UR4D+: Type Accepted under OFTA HKTA 1008 (Issue 3).

Emission Designator

120KF3E

UR4S+, UR4D+: Authorized under the Declaration Of Conformity provision of FCC Part 15. Certified under Industry Canada to RSS-123 ("IC: 616A-UR4P"). Meets the essential requirements of the European R&TTE Directive 99/5/EC (EN 301 489 Parts 1 & 9, EN 300 422 Parts 1 and 2). Eligible to carry the CE marking.

Conforms to Australian EMC requirements and is eligible for C-Tick marking.

Have been granted the following Country Safety Approvals:

cULus Mark for US and Canada: Meets UL6500 and CSA/CAN E60065. UL Certified to EN60065.

The "EU Declaration of Conformity" can be obtained from Shure Inc. or any of its European representatives. For contact information please visit www.shure.com

Note:

To fully interact with the Receiver, it is recommended to upgrade the UR4 firmware to 1.50 or higher and Shure Wireless Workbench to 5.0.1 or higher.

LICENSING INFORMATION:

Licensing: A ministerial license to operate this equipment may be required in certain areas. Consult your national authority for possible requirements.

Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate the equipment. Licensing of Shure wireless microphone equipment is the user's responsibility, and licensability depends on the user's classification and application, and on the selected frequency. Shure strongly urges the user to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.

Information to User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Note: EMC conformance testing is based on the use of supplied and recommended cable types. The use of other cable types may degrade EMC performance.

SYSTEM COMPATIBILITY GUIDE FOR FREQUENCY BANDS G1HK, H4HK, J5HK, L3HK, Q5HK

G1HK FREQUENCY BAND (470.125 - 529.875 MHz)

| Channel | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 | Group 8 | Group 9 | Group 10 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1 | 470.525 | 529.500 | 471.250 | 470.750 | 474.225 | 470.500 | 470.300 | 470.300 | 471.150 | 528.600 |
| 2 | 470.975 | 529.050 | 471.750 | 472.500 | 474.975 | 472.775 | 471.000 | 471.000 | 472.550 | 527.200 |
| 3 | 472.000 | 528.025 | 472.500 | 473.250 | 476.900 | 474.225 | 474.775 | 472.975 | 472.925 | 526.825 |
| 4 | 473.725 | 526.300 | 479.500 | 475.250 | 477.300 | 476.900 | 476.700 | 477.100 | 474.225 | 525.525 |
| 5 | 476.725 | 523.300 | 481.250 | 476.250 | 478.500 | 482.225 | 477.100 | 484.700 | 477.775 | 521.975 |
| 6 | 477.550 | 522.475 | 483.250 | 479.500 | 482.975 | 485.300 | 477.900 | 485.500 | 482.825 | 516.925 |
| 7 | 478.875 | 521.150 | 484.250 | 486.750 | 488.025 | 486.100 | 485.100 | 488.975 | 485.475 | 514.275 |
| 8 | 480.850 | 519.175 | 492.250 | 487.250 | 489.500 | 486.500 | 490.025 | 492.000 | 487.575 | 512.175 |
| 9 | 481.200 | 518.825 | 496.500 | 495.750 | 492.900 | 490.975 | 494.300 | 493.500 | 488.350 | 511.400 |
| 10 | 481.775 | 518.250 | 499.750 | 507.500 | 508.900 | 505.500 | 504.225 | 504.975 | 490.825 | 508.925 |
| 11 | 485.200 | 514.825 | 513.250 | 508.250 | 509.700 | 510.500 | 508.700 | 510.300 | 491.800 | 507.950 |
| 12 | 494.275 | 505.750 | 513.750 | 511.500 | 512.025 | 512.775 | 509.900 | 514.025 | 494.775 | 504.975 |
| 13 | 503.650 | 496.375 | 515.250 | 512.500 | 516.500 | 516.500 | 516.700 | 516.700 | 503.225 | 496.525 |
| 14 | 506.075 | 493.950 | 519.750 | 513.750 | 520.025 | 522.225 | 519.000 | 519.000 | 505.575 | 494.175 |
| 15 | 512.300 | 487.725 | 520.500 | 519.750 | 522.225 | 522.975 | 522.025 | 524.700 | 470.500 | 529.250 |
| 16 | 513.500 | 486.525 | 523.500 | 522.500 | 524.900 | 524.900 | 522.775 | 525.100 | 476.550 | 523.200 |
| 17 | 514.875 | 485.150 | 527.500 | 527.250 | 526.100 | 526.100 | 525.500 | 525.900 | 478.700 | 521.050 |
| 18 | 518.075 | 481.950 | 528.500 | 527.750 | 526.500 | 526.500 | 525.900 | 528.975 | 502.200 | 497.550 |
| 19 | 522.475 | 477.550 | 529.750 | 529.250 | 529.500 | 472.025 | 472.225 | 472.225 | 509.950 | 489.800 |
| 20 | 523.075 | 476.950 | 474.500 | 471.500 | 470.500 | 477.300 | 478.300 | 474.775 | 511.025 | 488.725 |
| 21 | 525.400 | 474.625 | 475.500 | 474.500 | 472.025 | 482.975 | 482.775 | 487.000 | 473.675 | 526.075 |
| 22 | 525.775 | 474.250 | 478.750 | 480.500 | 490.225 | 488.025 | 487.000 | 488.225 | 475.025 | 524.725 |
| 23 | 526.475 | 473.550 | 480.500 | 483.250 | 493.300 | 492.900 | 488.225 | 490.025 | 484.650 | 515.100 |
| 24 | 527.350 | 472.675 | 482.500 | 484.250 | 494.100 | 497.500 | 492.700 | 490.775 | 487.150 | 512.600 |
| 25 | 529.500 | 470.525 | 487.500 | 489.750 | 494.500 | 500.900 | 493.900 | 494.300 | 490.275 | 509.475 |
| 26 | 487.475 | 512.550 | 498.500 | 490.500 | 496.775 | 501.300 | 501.100 | 506.025 | 493.650 | 506.100 |
| 27 | 496.375 | 503.650 | 499.250 | 491.750 | 506.225 | 506.225 | 506.025 | 506.775 | 499.475 | 500.275 |
| 28 | 502.825 | 497.200 | 503.500 | 494.750 | 508.500 | 509.300 | 506.775 | 511.000 | 501.600 | 498.150 |
| 29 | 507.000 | 493.025 | 504.500 | 498.500 | 510.100 | 512.025 | 510.300 | 518.300 | 505.100 | 494.650 |
| 30 | 472.775 | 527.250 | 505.250 | 499.500 | 525.300 | 516.900 | 517.500 | 520.225 | 505.875 | 493.875 |
| 31 | 483.300 | 516.725 | 505.750 | 503.750 | 528.775 | 525.300 | 520.225 | 528.225 | 506.425 | 493.325 |
| 32 | 483.725 | 516.300 | 511.500 | 504.500 | | 528.775 | 520.975 | | 513.150 | 486.600 |
| 33 | 486.425 | 513.600 | 515.750 | 510.750 | | | 527.000 | | 529.250 | 470.500 |
| 34 | 488.325 | 511.700 | 519.250 | 514.500 | | | | | | |
| 35 | 489.375 | 510.650 | 526.750 | 523.250 | | | | | | |
| 36 | 498.825 | 501.200 | 529.250 | 524.250 | | | | | | |
| 37 | 499.350 | 500.675 | | 529.750 | | | | | | |
| 38 | 500.725 | 499.300 | | | | | | | | |
| 39 | 505.725 | 494.300 | | | | | | | | |
| 40 | 509.100 | 490.925 | | | | | | | | |
| 41 | 509.500 | 490.525 | | | | | | | | |
| 42 | 514.000 | 486.025 | | | | | | | | |
| 43 | 516.975 | 483.050 | | | | | | | | |
| 44 | 524.650 | 475.375 | | | | | | | | |
| 45 | 528.675 | 471.350 | | | | | | | | |

G1HK FREQUENCY BAND (470.125 - 529.875 MHz)

| Channel | Group 11 | Group 12 | Group 13 | Group 14 | Group 15 | Group 16 | Group 17 | Group 18 | Group 19 | Group 20 | Group 21 |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1 | | 478.100 | 486.100 | 494.100 | 502.100 | 510.100 | 518.100 | 470.250 | 470.125 | 470.375 | 510.375 |
| 2 | 471.350 | 479.350 | 487.350 | 495.350 | 503.350 | 511.350 | 519.350 | 470.875 | 470.750 | 471.000 | 511.200 |
| 3 | 471.975 | 479.975 | 487.975 | 495.975 | 503.975 | 511.975 | 519.975 | 471.775 | 471.650 | 471.900 | 512.325 |
| 4 | 472.800 | 480.800 | 488.800 | 496.800 | 504.800 | 512.800 | 520.800 | 473.075 | 472.950 | 473.200 | 513.650 |
| 5 | 473.325 | 481.325 | 489.325 | 497.325 | 505.325 | 513.325 | 521.325 | 474.025 | 473.900 | 474.150 | 514.675 |
| 6 | 475.775 | 483.775 | 491.775 | 499.775 | 507.775 | 515.775 | 523.775 | 475.700 | 475.575 | 475.825 | 515.175 |
| 7 | 476.200 | 484.200 | 492.200 | 500.200 | 508.200 | 516.200 | 524.200 | 476.525 | 476.400 | 476.650 | 515.900 |
| 8 | 476.925 | 484.925 | 492.925 | 500.925 | 508.925 | 516.925 | 524.925 | 476.975 | 476.850 | 477.100 | 517.325 |
| 9 | 477.850 | 485.850 | 493.850 | 501.850 | 509.850 | 517.850 | 525.850 | 478.600 | 478.475 | 478.725 | 521.900 |
| 10 | 477.275 | 485.275 | 493.275 | 501.275 | 509.275 | 517.275 | 525.275 | 479.425 | 479.300 | 479.550 | 522.525 |
| 11 | | | | | | | | 483.475 | 483.350 | 483.600 | 525.275 |
| 12 | | | | | | | | 483.900 | 483.775 | 484.025 | 525.675 |
| 13 | | | | | | | | 484.575 | 484.450 | 484.700 | 514.000 |
| 14 | | | | | | | | 485.050 | 484.925 | 485.175 | 522.975 |
| 15 | | | | | | | | 489.450 | 489.325 | 489.575 | 511.850 |
| 16 | | | | | | | | 491.875 | 491.750 | 492.000 | 523.675 |
| 17 | | | | | | | | 494.100 | 493.975 | 494.225 | 524.575 |
| 18 | | | | | | | | 495.650 | 495.525 | 495.775 | |
| 19 | | | | | | | | 496.575 | 496.450 | 496.700 | |
| 20 | | | | | | | | 497.725 | 497.600 | 497.850 | |
| 21 | | | | | | | | 498.450 | 498.325 | 498.575 | |
| 22 | | | | | | | | 500.550 | 500.425 | 500.675 | |
| 23 | | | | | | | | 500.950 | 500.825 | 501.075 | |
| 24 | | | | | | | | 501.625 | 501.500 | 501.750 | |
| 25 | | | | | | | | 503.900 | 503.775 | 504.025 | |
| 26 | | | | | | | | 508.325 | 508.200 | 508.450 | |
| 27 | | | | | | | | 510.275 | 510.150 | 510.400 | |
| 28 | | | | | | | | 510.900 | 510.775 | 511.025 | |
| 29 | | | | | | | | 511.850 | 511.725 | 511.975 | |
| 30 | | | | | | | | 513.075 | 512.950 | 513.200 | |
| 31 | | | | | | | | 514.100 | 513.975 | 514.225 | |
| 32 | | | | | | | | 514.600 | 514.475 | 514.725 | |
| 33 | | | | | | | | 518.675 | 518.550 | 518.800 | |
| 34 | | | | | | | | 519.350 | 519.225 | 519.475 | |
| 35 | | | | | | | | 520.425 | 520.300 | 520.550 | |
| 36 | | | | | | | | 521.800 | 521.675 | 521.925 | |
| 37 | | | | | | | | 522.550 | 522.425 | 522.675 | |
| 38 | | | | | | | | 523.525 | 523.400 | 523.650 | |
| 39 | | | | | | | | 526.050 | 525.925 | 526.175 | |
| 40 | | | | | | | | 527.375 | 527.250 | 527.500 | |
| 41 | | | | | | | | 528.025 | 527.900 | 528.150 | |
| 42 | | | | | | | | 529.300 | 529.175 | 529.425 | |
| 43 | | | | | | | | 529.750 | 529.625 | 529.875 | |
| 44 | | | | | | | | | | | |
| 45 | | | | | | | | | | | |

H4HK FREQUENCY BAND (518 - 578 MHz)

| Channel | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 | Group 8 | Group 9 | Group 10 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1 | 518.100 | 518.900 | 518.750 | 518.750 | 518.100 | 518.500 | 520.225 | 518.300 | 518.500 | 518.575 |
| 2 | 518.825 | 519.625 | 519.500 | 519.500 | 521.500 | 520.025 | 522.025 | 519.000 | 522.250 | 520.300 |
| 3 | 519.350 | 520.150 | 521.250 | 520.500 | 522.975 | 522.225 | 522.775 | 522.025 | 523.675 | 521.750 |
| 4 | 520.375 | 521.175 | 523.250 | 521.750 | 525.700 | 522.975 | 525.900 | 524.000 | 524.500 | 522.300 |
| 5 | 521.725 | 522.525 | 524.250 | 523.250 | 532.500 | 524.900 | 526.300 | 530.025 | 526.350 | 526.350 |
| 6 | 522.350 | 523.150 | 527.500 | 526.750 | 532.900 | 530.225 | 533.500 | 532.700 | 528.000 | 527.525 |
| 7 | 525.150 | 525.950 | 535.250 | 527.250 | 534.500 | 536.775 | 535.000 | 533.500 | 528.500 | 527.975 |
| 8 | 530.250 | 531.050 | 536.500 | 531.500 | 538.975 | 540.900 | 536.225 | 533.900 | 531.900 | 531.800 |
| 9 | 530.675 | 531.475 | 543.750 | 537.250 | 544.775 | 545.500 | 541.500 | 542.300 | 535.075 | 535.400 |
| 10 | 532.750 | 533.550 | 547.750 | 547.500 | 546.975 | 549.300 | 550.300 | 546.775 | 542.700 | 536.275 |
| 11 | 534.625 | 535.425 | 548.250 | 550.750 | 550.100 | 550.500 | 557.100 | 549.900 | 543.425 | 540.975 |
| 12 | 543.475 | 544.275 | 550.750 | 554.500 | 561.500 | 556.500 | 560.975 | 560.225 | 552.550 | 547.975 |
| 13 | 544.700 | 545.500 | 552.500 | 562.500 | 565.300 | 556.900 | 562.775 | 560.975 | 553.725 | 551.225 |
| 14 | 547.325 | 548.125 | 561.750 | 563.500 | 565.700 | 568.025 | 568.225 | 568.225 | 565.425 | 551.950 |
| 15 | 548.775 | 549.575 | 567.500 | 569.250 | 568.025 | 570.975 | 570.775 | 570.775 | 566.025 | 552.950 |
| 16 | 549.700 | 550.500 | 571.250 | 571.750 | 572.500 | 572.900 | 572.000 | 572.700 | 568.125 | 557.250 |
| 17 | 553.450 | 554.250 | 574.750 | 572.250 | 574.100 | 573.700 | 572.700 | 573.100 | 571.675 | 558.400 |
| 18 | 556.275 | 557.075 | 575.750 | 575.750 | 576.025 | 576.025 | 574.300 | 574.300 | 572.150 | 558.800 |
| 19 | 561.050 | 561.850 | 577.250 | 576.500 | 577.500 | 577.500 | 576.975 | 576.975 | 573.675 | 561.800 |
| 20 | 562.600 | 563.400 | 577.750 | 577.750 | 520.775 | 518.100 | 520.975 | 520.975 | 576.650 | 568.375 |
| 21 | 564.700 | 565.500 | 520.500 | 528.500 | 534.100 | 525.300 | 525.100 | 528.225 | 536.075 | 525.650 |
| 22 | 571.450 | 572.250 | 521.750 | 529.250 | 538.225 | 528.775 | 536.975 | 540.700 | 556.975 | 553.600 |
| 23 | 574.450 | 575.250 | 530.500 | 530.500 | 540.900 | 533.300 | 540.000 | 544.225 | 560.575 | 567.575 |
| 24 | 575.300 | 576.100 | 531.250 | 538.500 | 541.700 | 533.700 | 542.300 | 550.300 | 519.125 | 523.575 |
| 25 | 575.700 | 576.500 | 534.750 | 540.250 | 546.225 | 546.225 | 556.000 | 556.000 | 521.700 | 533.050 |
| 26 | 576.650 | 577.450 | 537.250 | 543.750 | 549.700 | 549.700 | 556.700 | 556.700 | 539.550 | 556.700 |
| 27 | 577.150 | 577.950 | 540.250 | 544.500 | 552.025 | 552.025 | 557.900 | 557.100 | 554.600 | 566.125 |
| 28 | 523.850 | 524.650 | 546.500 | 545.750 | 560.775 | 554.975 | 566.300 | 557.900 | 558.050 | 572.000 |
| 29 | 548.300 | 549.100 | 551.500 | 551.500 | 564.500 | 565.700 | 575.000 | 562.775 | 539.025 | 518.050 |
| 30 | 572.750 | 573.550 | 554.500 | 552.500 | 566.500 | 568.775 | 576.225 | 566.300 | 540.725 | 536.675 |
| 31 | 529.350 | 530.150 | 555.500 | 556.250 | 573.700 | 572.500 | | | 545.100 | 538.375 |
| 32 | 533.950 | 534.750 | 560.500 | 558.750 | | | | | 556.125 | 571.175 |
| 33 | 537.925 | 538.725 | 563.500 | 559.750 | | | | | 557.400 | 573.100 |
| 34 | 561.950 | 562.750 | 564.250 | 567.500 | | | | | 570.000 | 575.250 |
| 35 | 565.525 | 566.325 | 569.250 | 568.500 | | | | | | |
| 36 | 566.575 | 567.375 | 570.500 | 569.750 | | | | | | |
| 37 | 570.775 | 571.575 | | | | | | | | |
| 38 | 535.750 | 536.550 | | | | | | | | |
| 39 | 551.700 | 552.500 | | | | | | | | |
| 40 | 569.425 | 570.225 | | | | | | | | |

J5HK FREQUENCY BAND (578 - 638 MHz)

| Channel | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 | Group 8 | Group 9 | Group 10 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1 | 578.375 | 578.375 | 578.500 | 578.500 | 578.225 | 578.225 | 578.775 | 580.000 | 589.375 | 581.050 |
| 2 | 579.400 | 579.100 | 579.250 | 579.250 | 578.975 | 578.975 | 580.000 | 580.700 | 590.525 | 582.400 |
| 3 | 581.750 | 580.175 | 579.750 | 582.750 | 580.900 | 580.900 | 582.300 | 581.100 | 591.175 | 583.950 |
| 4 | 582.625 | 583.125 | 583.250 | 583.250 | 582.500 | 581.300 | 583.000 | 581.900 | 595.300 | 584.950 |
| 5 | 584.675 | 583.625 | 585.750 | 585.750 | 585.500 | 582.500 | 584.975 | 584.975 | 596.350 | 585.700 |
| 6 | 587.350 | 584.825 | 587.500 | 591.750 | 593.500 | 586.975 | 589.100 | 591.000 | 600.375 | 589.250 |
| 7 | 588.825 | 585.800 | 593.250 | 593.250 | 594.975 | 592.025 | 592.225 | 594.775 | 601.875 | 589.900 |
| 8 | 589.225 | 587.350 | 595.500 | 595.500 | 597.300 | 598.500 | 597.100 | 597.500 | 602.825 | 591.125 |
| 9 | 594.200 | 593.475 | 598.750 | 604.250 | 604.900 | 606.100 | 597.900 | 605.900 | 604.925 | 593.350 |
| 10 | 594.725 | 595.400 | 610.500 | 607.500 | 605.700 | 608.775 | 605.500 | 606.300 | 605.700 | 599.100 |
| 11 | 596.975 | 596.750 | 611.250 | 608.500 | 606.100 | 609.500 | 608.975 | 608.225 | 616.900 | 610.300 |
| 12 | 603.475 | 599.800 | 615.500 | 609.250 | 610.975 | 610.975 | 610.775 | 610.775 | 622.650 | 611.075 |
| 13 | 606.050 | 608.275 | 623.250 | 617.750 | 624.775 | 620.900 | 621.500 | 621.100 | 624.875 | 613.175 |
| 14 | 607.725 | 609.950 | 623.750 | 623.250 | 626.975 | 624.775 | 623.000 | 624.975 | 626.100 | 614.125 |
| 15 | 616.200 | 612.525 | 625.750 | 623.750 | 628.900 | 628.900 | 628.000 | 626.775 | 626.750 | 615.625 |
| 16 | 619.250 | 619.025 | 631.750 | 625.750 | 630.500 | 630.500 | 628.700 | 631.000 | 630.300 | 619.650 |
| 17 | 620.600 | 621.275 | 633.250 | 633.250 | 636.500 | 634.225 | 634.775 | 634.025 | 631.050 | 620.700 |
| 18 | 622.525 | 621.800 | 634.500 | 634.500 | 636.900 | 634.975 | 636.700 | 634.775 | 632.050 | 624.825 |
| 19 | 628.650 | 626.775 | 635.500 | 635.500 | 637.700 | 637.300 | 637.100 | 636.000 | 633.600 | 625.475 |
| 20 | 630.200 | 627.175 | 636.250 | 636.250 | 580.500 | 637.700 | 637.900 | 637.500 | 634.950 | 626.625 |
| 21 | 631.175 | 628.650 | 583.750 | 580.250 | 584.775 | 586.225 | 578.025 | 584.225 | 594.000 | 586.250 |
| 22 | 632.375 | 631.325 | 585.250 | 587.750 | 596.900 | 588.500 | 594.025 | 596.000 | 620.625 | 595.375 |
| 23 | 632.875 | 633.375 | 599.500 | 590.750 | 598.100 | 589.300 | 594.775 | 598.300 | 629.750 | 622.000 |
| 24 | 635.825 | 634.250 | 600.500 | 594.500 | 598.500 | 600.025 | 596.700 | 605.100 | 579.850 | 593.850 |
| 25 | 636.900 | 636.600 | 601.750 | 599.750 | 600.775 | 604.500 | 606.300 | 608.975 | 580.950 | 607.800 |
| 26 | 637.625 | 637.625 | 602.500 | 601.750 | 610.225 | 605.700 | 610.025 | 620.700 | 586.800 | 629.200 |
| 27 | 581.200 | 581.775 | 603.750 | 602.500 | 616.775 | 614.100 | 621.900 | 621.900 | 608.200 | 635.050 |
| 28 | 586.450 | 592.150 | 606.750 | 603.500 | 621.700 | 621.700 | 626.775 | 622.300 | 622.150 | 636.150 |
| 29 | 592.725 | 594.275 | 608.500 | 611.250 | 626.225 | 626.225 | 630.300 | 624.225 | 598.250 | 581.900 |
| 30 | 597.900 | 595.825 | 609.250 | 615.500 | 630.100 | 626.975 | 631.000 | 630.300 | 606.250 | 598.100 |
| 31 | 598.600 | 598.850 | 612.250 | 619.250 | 634.225 | 630.100 | | | 611.900 | 603.050 |
| 32 | 604.000 | 600.400 | 619.500 | 620.250 | 634.975 | 636.500 | | | 612.950 | 604.100 |
| 33 | 605.350 | 601.550 | 620.250 | 625.250 | | | | | 617.900 | 609.750 |
| 34 | 614.450 | 610.650 | 625.250 | 626.500 | | | | | 634.100 | 617.750 |
| 35 | 615.600 | 612.000 | 626.500 | 631.500 | | | | | | |
| 36 | 617.150 | 617.400 | 633.750 | 632.500 | | | | | | |
| 37 | 620.175 | 618.100 | | | | | | | | |
| 38 | 621.725 | 623.275 | | | | | | | | |
| 39 | 623.850 | 629.550 | | | | | | | | |
| 40 | 634.225 | 634.800 | | | | | | | | |

L3HK FREQUENCY BAND (638 - 698 MHz)

| Channel | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 | Group 8 | Group 9 | Group 10 |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| 1 | 638.100 | 638.900 | 639.500 | 639.500 | 640.775 | 638.500 | 640.225 | 639.000 | 647.625 | 639.350 |
| 2 | 638.825 | 639.625 | 640.500 | 640.500 | 642.225 | 640.775 | 640.975 | 640.225 | 654.200 | 642.325 |
| 3 | 639.350 | 640.150 | 641.250 | 641.750 | 645.300 | 645.300 | 642.025 | 640.975 | 657.200 | 643.850 |
| 4 | 640.375 | 641.175 | 641.750 | 643.250 | 646.100 | 650.225 | 644.700 | 642.025 | 657.600 | 644.325 |
| 5 | 641.725 | 642.525 | 643.250 | 643.750 | 648.025 | 650.975 | 646.300 | 644.700 | 658.750 | 647.875 |
| 6 | 642.350 | 643.150 | 646.750 | 647.250 | 650.975 | 652.900 | 653.100 | 652.700 | 663.050 | 649.975 |
| 7 | 645.150 | 645.950 | 651.500 | 655.500 | 660.500 | 654.100 | 653.500 | 653.100 | 664.050 | 650.575 |
| 8 | 650.250 | 651.050 | 655.500 | 657.250 | 660.900 | 654.500 | 656.975 | 660.000 | 664.775 | 662.275 |
| 9 | 650.675 | 651.475 | 667.250 | 665.750 | 662.100 | 658.225 | 661.100 | 662.300 | 668.025 | 663.450 |
| 10 | 652.750 | 653.550 | 672.500 | 671.750 | 668.500 | 670.500 | 666.025 | 668.700 | 675.025 | 672.575 |
| 11 | 654.625 | 655.425 | 673.750 | 672.500 | 672.775 | 678.100 | 666.775 | 669.500 | 679.725 | 673.300 |
| 12 | 663.475 | 664.275 | 679.250 | 675.250 | 680.025 | 680.775 | 680.225 | 680.975 | 680.600 | 680.925 |
| 13 | 664.700 | 665.500 | 679.750 | 676.250 | 681.500 | 682.975 | 682.025 | 685.900 | 684.200 | 684.100 |
| 14 | 667.325 | 668.125 | 681.250 | 682.500 | 690.975 | 684.900 | 685.500 | 687.000 | 688.025 | 687.500 |
| 15 | 668.775 | 669.575 | 683.750 | 684.250 | 692.900 | 686.500 | 688.225 | 692.700 | 688.475 | 688.000 |
| 16 | 669.700 | 670.500 | 687.500 | 687.500 | 694.100 | 692.900 | 692.000 | 693.900 | 689.650 | 689.650 |
| 17 | 673.450 | 674.250 | 692.250 | 691.750 | 694.500 | 693.700 | 692.700 | 694.300 | 693.700 | 691.500 |
| 18 | 676.275 | 677.075 | 695.500 | 695.750 | 696.775 | 696.025 | 693.100 | 696.225 | 694.250 | 692.325 |
| 19 | 681.050 | 681.850 | 696.500 | 697.250 | 697.500 | 697.500 | 693.900 | 696.975 | 695.700 | 693.750 |
| 20 | 682.600 | 683.400 | 697.250 | 697.750 | 638.100 | 638.100 | 696.975 | 650.775 | 697.425 | 697.500 |
| 21 | 684.700 | 685.500 | 638.750 | 641.250 | 648.775 | 644.900 | 652.000 | 656.225 | 648.425 | 655.425 |
| 22 | 691.450 | 692.250 | 647.250 | 647.750 | 650.225 | 648.775 | 658.025 | 663.000 | 662.400 | 659.025 |
| 23 | 694.450 | 695.250 | 649.250 | 648.500 | 661.700 | 657.500 | 658.775 | 664.975 | 690.350 | 679.925 |
| 24 | 695.300 | 696.100 | 649.750 | 657.750 | 666.225 | 666.975 | 668.000 | 672.225 | 644.000 | 657.950 |
| 25 | 695.700 | 696.500 | 650.500 | 658.500 | 666.975 | 669.300 | 680.975 | 682.775 | 649.875 | 661.400 |
| 26 | 696.650 | 697.450 | 660.250 | 662.750 | 669.300 | 670.100 | 684.700 | 685.100 | 659.300 | 676.450 |
| 27 | 643.850 | 697.950 | 662.750 | 663.500 | 669.700 | 672.775 | 685.900 | 686.300 | 682.950 | 694.300 |
| 28 | 643.850 | 644.650 | 664.500 | 665.250 | 682.225 | 684.500 | | | 692.425 | 696.875 |
| 29 | 668.300 | 669.100 | 666.500 | 667.500 | 685.700 | 692.500 | | | 640.750 | 646.000 |
| 30 | 692.750 | 693.550 | 671.500 | 671.250 | 686.100 | 694.100 | | | 642.900 | 658.600 |
| 31 | 649.350 | 650.150 | 674.500 | 674.500 | | | | | 644.825 | 659.875 |
| 32 | 653.950 | 654.750 | 684.250 | 688.500 | | | | | 677.625 | 670.900 |
| 33 | 657.925 | 658.725 | 689.750 | 689.250 | | | | | 679.325 | 675.275 |
| 34 | 681.950 | 682.750 | 691.750 | 691.250 | | | | | 697.950 | 676.975 |
| 35 | 685.525 | 686.325 | 697.750 | 695.250 | | | | | | |
| 36 | 686.575 | 687.375 | | | | | | | | |
| 37 | 690.775 | 691.575 | | | | | | | | |
| 38 | 655.750 | 656.550 | | | | | | | | |
| 39 | 671.700 | 672.500 | | | | | | | | |
| 40 | 689.425 | 690.225 | | | | | | | | |

Q5HK FREQUENCY BAND (740 - 805.875 MHz)

| Channel | Group 1 | Group 2 | Group 3 | Group 4 | Group 5 | Group 6 | Group 7 | Group 8 | Group 9 | Group 10 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 1 | 740.300 | 740.425 | 740.100 | 740.625 | 740.250 | 740.250 | 742.750 | 740.900 | 740.500 | 740.900 |
| 2 | 740.825 | 740.850 | 740.625 | 741.050 | 742.750 | 743.250 | 743.500 | 741.300 | 740.900 | 741.300 |
| 3 | 742.400 | 742.100 | 742.200 | 742.300 | 743.250 | 743.750 | 745.250 | 742.100 | 742.100 | 746.975 |
| 4 | 742.800 | 742.650 | 742.600 | 742.850 | 744.500 | 745.250 | 746.500 | 744.025 | 744.025 | 748.900 |
| 5 | 745.000 | 744.025 | 744.800 | 744.225 | 746.500 | 746.500 | 747.500 | 745.500 | 744.775 | 749.700 |
| 6 | 745.975 | 744.675 | 745.775 | 744.875 | 747.250 | 753.750 | 751.750 | 749.300 | 746.225 | 752.025 |
| 7 | 748.850 | 745.600 | 748.650 | 745.800 | 752.500 | 755.500 | 753.250 | 754.225 | 756.900 | 753.500 |
| 8 | 749.950 | 750.050 | 749.750 | 750.250 | 759.750 | 763.500 | 753.750 | 760.025 | 761.500 | 764.500 |
| 9 | 753.350 | 752.625 | 753.150 | 752.825 | 767.500 | 769.250 | 758.750 | 770.975 | 764.500 | 768.775 |
| 10 | 756.100 | 753.525 | 755.900 | 753.725 | 768.500 | 771.250 | 771.750 | 774.100 | 770.975 | 774.100 |
| 11 | 764.875 | 758.825 | 764.675 | 759.025 | 769.750 | 772.250 | 775.500 | 774.500 | 772.900 | 776.025 |
| 12 | 770.150 | 766.275 | 769.950 | 766.475 | 771.750 | 774.750 | 776.500 | 781.300 | 773.300 | 778.975 |
| 13 | 771.800 | 769.350 | 771.600 | 769.550 | 772.250 | 775.500 | 777.750 | 782.500 | 776.775 | 781.700 |
| 14 | 772.575 | 770.025 | 772.375 | 770.225 | 786.500 | 785.750 | 787.500 | 784.025 | 778.225 | 782.500 |
| 15 | 774.325 | 771.300 | 774.125 | 771.500 | 794.500 | 791.750 | 791.500 | 786.225 | 778.975 | 784.775 |
| 16 | 776.625 | 777.375 | 776.425 | 777.575 | 796.250 | 795.500 | 799.750 | 786.975 | 796.500 | 796.500 |
| 17 | 782.700 | 779.675 | 782.500 | 779.875 | 799.750 | 800.500 | 801.750 | 802.975 | 797.700 | 800.775 |
| 18 | 783.975 | 781.425 | 783.775 | 781.625 | 803.500 | 801.250 | 803.250 | | | 804.500 |
| 19 | 784.650 | 782.200 | 784.450 | 782.400 | | 803.250 | 804.250 | | | 805.700 |
| 20 | 787.725 | 783.850 | 787.525 | 784.050 | | | | | | |
| 21 | 795.175 | 789.125 | 794.975 | 789.325 | | | | | | |
| 22 | 800.475 | 797.900 | 800.275 | 798.100 | | | | | | |
| 23 | 801.325 | 800.650 | 801.125 | 800.850 | | | | | 753.500 | |
| 24 | 803.950 | 804.050 | 803.750 | 804.250 | 748.250 | 745.750 | 744.500 | 746.225 | 754.975 | 744.775 |
| 25 | | 805.150 | | 805.350 | 750.750 | 750.750 | 745.750 | 753.500 | 757.700 | 746.225 |
| 26 | | | | | 755.750 | 752.500 | 751.250 | 758.100 | 766.500 | 750.100 |
| 27 | | | | | 759.250 | 753.250 | 754.500 | 758.500 | 781.700 | 765.300 |
| 28 | | | | | 762.500 | 754.500 | 755.500 | 765.300 | 788.500 | 768.025 |
| 29 | | | | | 763.500 | 758.750 | 759.500 | 768.775 | 789.300 | 772.500 |
| 30 | | | | | 766.750 | 760.500 | 760.500 | 769.500 | 792.025 | 773.700 |
| 31 | | | | | 770.500 | 767.500 | 766.750 | 772.900 | 792.775 | 781.300 |
| 32 | 754.400 | 751.050 | 754.200 | 751.250 | 775.500 | 770.500 | 770.500 | 788.900 | 797.300 | 792.025 |
| 33 | 768.000 | 772.025 | 767.800 | 772.225 | 779.500 | 776.500 | 771.250 | 797.300 | 798.500 | 794.975 |
| 34 | 778.000 | 776.000 | 777.800 | 776.200 | 782.750 | 777.750 | 779.500 | 801.500 | 800.775 | 797.300 |
| 35 | 781.975 | 786.000 | 781.775 | 786.200 | 783.250 | 779.250 | 782.750 | | | |
| 36 | 802.950 | 799.600 | 802.750 | 799.800 | 784.500 | 782.750 | 784.500 | | | |
| 37 | 743.550 | 746.200 | 743.350 | 746.400 | 785.250 | 784.500 | 785.250 | | | |
| 38 | 750.400 | 755.625 | 750.200 | 755.825 | 788.250 | 785.250 | 785.750 | | | |
| 39 | 751.425 | 768.400 | 751.225 | 768.600 | 791.750 | 786.500 | 786.500 | | | |
| 40 | 785.600 | 802.575 | 785.400 | 802.775 | 795.500 | 788.250 | 790.750 | | | |
| 41 | 798.375 | 803.600 | 798.175 | 803.800 | 798.750 | 796.250 | 793.250 | | | |
| 42 | | | | | 800.500 | 801.750 | 800.500 | | | |
| 43 | 767.400 | 754.825 | 767.200 | 755.025 | | | | | | |
| 44 | 768.950 | 758.375 | 768.750 | 758.575 | | | | | | |
| 45 | 769.700 | 763.725 | 769.500 | 763.925 | | | | | | |
| 46 | 790.275 | 784.300 | 790.075 | 784.500 | | | | | | |
| 47 | 795.625 | 785.050 | 795.425 | 785.250 | | | | | | |
| 48 | 799.175 | 786.600 | 798.975 | 786.800 | | | | | | |

Q5HK FREQUENCY BAND (740 - 805.875 MHz)

| Channel | Group 11 | Group 12 | Group 13 | Group 14 | Group 15 | Group 16 | Group 17 | Group 18 | Group 19 | Group 20 |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1 | 741.100 | 740.700 | 741.100 | 790.100 | 790.100 | 790.250 | 790.300 | 790.350 | 790.400 | 791.475 |
| 2 | 741.900 | 741.100 | 741.500 | 791.050 | 791.575 | 792.325 | 791.250 | 791.300 | 790.800 | 792.525 |
| 3 | 742.300 | 742.300 | 742.300 | 793.575 | 792.050 | 792.900 | 792.950 | 794.925 | 798.800 | 793.200 |
| 4 | 743.000 | 743.000 | 744.975 | 794.675 | 794.425 | 793.725 | 794.875 | 795.450 | 803.500 | 795.625 |
| 5 | 748.700 | 750.300 | 746.025 | 803.200 | 796.250 | 795.350 | 795.400 | 801.000 | 804.725 | 797.125 |
| 6 | 751.000 | 752.975 | 748.000 | 804.425 | 797.500 | 799.900 | 796.150 | 803.450 | 805.700 | 802.525 |
| 7 | 754.025 | 757.900 | 752.225 | | 799.575 | 800.900 | 798.700 | | | 804.850 |
| 8 | 765.500 | 759.000 | 757.500 | | | | 801.775 | | | 805.250 |
| 9 | 768.225 | 770.775 | 759.000 | | | | | | | |
| 10 | 768.975 | 772.700 | 773.100 | | | | | | | |
| 11 | 770.025 | 774.300 | 773.500 | | | | | | | |
| 12 | 775.000 | 778.025 | 776.225 | | | 794.825 | | 793.825 | 792.475 | |
| 13 | 778.775 | 781.100 | 776.975 | 796.425 | 790.600 | | | 796.675 | 793.875 | |
| 14 | 780.700 | 782.300 | 780.000 | 797.400 | 805.500 | | | 797.650 | 794.975 | 799.400 |
| 15 | 783.000 | 784.975 | 781.900 | 797.900 | | | | | 795.500 | |
| 16 | 797.500 | 786.775 | 784.225 | 800.750 | | | | | 796.725 | |
| 17 | 797.900 | 797.900 | 788.700 | | | | | | | |
| 18 | 799.000 | 800.225 | 802.025 | | | | | | | |
| 19 | 805.100 | 804.000 | 804.700 | | | | | | | |
| 20 | | 805.100 | 805.100 | | | | | | | |
| 21 | | | | | | | | | | |
| 22 | | | | | | | | | | |
| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | |
| 25 | 746.775 | 744.225 | 752.975 | | | | | | | |
| 26 | 749.100 | 748.700 | 754.025 | | | | | | | |
| 27 | 752.225 | 749.100 | 756.700 | | | | | | | |
| 28 | 754.775 | 752.225 | 774.300 | | | | | | | |
| 29 | 756.700 | 754.775 | 782.300 | | | | | | | |
| 30 | 764.000 | 764.000 | 788.000 | | | | | | | |
| 31 | 782.300 | 768.225 | 789.100 | | | | | | | |
| 32 | 784.225 | 772.000 | 789.900 | | | | | | | |
| 33 | 784.975 | 780.700 | 792.975 | | | | | | | |
| 34 | 788.000 | 791.000 | 802.775 | | | | | | | |
| 35 | 792.225 | 794.025 | | | | | | | | |
| 36 | | 794.775 | | | | | | | | |
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Q5HK FREQUENCY BAND (740 - 805.875 MHz)

| Channel | Group 21 | Group 22 | Group 23 | Group 24 | Group 25 | Group 26 | Group 27 | Group 28 | Group 29 |
|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1 | 790.925 | 742.750 | 742.100 | 750.100 | 758.100 | 766.100 | 774.100 | 782.225 | 790.100 |
| 2 | 791.400 | 744.625 | 742.925 | 750.925 | 758.925 | 766.925 | 774.925 | 782.650 | 790.925 |
| 3 | 792.625 | 745.100 | 743.525 | 751.525 | 759.525 | 767.525 | 775.525 | 783.900 | 791.525 |
| 4 | 795.025 | 745.975 | 744.575 | 752.575 | 760.575 | 768.575 | 776.575 | 784.625 | 792.575 |
| 5 | 795.650 | 747.650 | 745.900 | 753.900 | 761.900 | 769.900 | 777.900 | 785.775 | 793.900 |
| 6 | 797.050 | 748.225 | 747.650 | 755.650 | 763.650 | 771.650 | 779.650 | 786.400 | 795.650 |
| 7 | 802.000 | 753.225 | 748.050 | 756.050 | 764.050 | 772.050 | 780.050 | 787.325 | 796.050 |
| 8 | 803.575 | 754.750 | 749.200 | 757.200 | 765.200 | 773.200 | 781.200 | 787.850 | 797.200 |
| 9 | 805.750 | 755.950 | 749.900 | 757.900 | 765.900 | 773.900 | 781.900 | 788.675 | 797.900 |
| 10 | | 759.350 | 746.600 | 754.600 | 762.600 | 770.600 | 778.600 | | 794.600 |
| 11 | | 762.275 | | | | | | | |
| 12 | | 770.100 | | | | | | | |
| 13 | | 774.375 | | | | | | | |
| 14 | 799.400 | 775.775 | | | | | | | |
| 15 | | 777.500 | | | | | | | |
| 16 | | 779.750 | | | | | | | |
| 17 | | 782.550 | | | | | | | |
| 18 | | 784.475 | | | | | | | |
| 19 | | 785.975 | | | | | | | |
| 20 | | 787.050 | | | | | | | |
| 21 | | 788.350 | | | | | | | |
| 22 | | 788.875 | | | | | | | |
| 23 | | 743.500 | | | | | | | |
| 24 | | 772.075 | | | | | | | |
| 25 | | 755.450 | | | | | | | |
| 26 | | 756.750 | | | | | | | |
| 27 | | 770.825 | | | | | | | |
| 28 | | 772.725 | | | | | | | |
| 29 | | 776.450 | | | | | | | |
| 30 | | 789.875 | | | | | | | |
| 31 | | 760.000 | | | | | | | |
| 32 | | 783.925 | | | | | | | |
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Q5HK FREQUENCY BAND (740 - 805.875 MHz)

| Channel | Group 30 | Group 31 | Group 32 | Group 33 |
|---------|----------|----------|----------|----------|
| 1 | 798.100 | | 742.000 | 740.175 |
| 2 | 798.925 | | 743.200 | 740.900 |
| 2 | 799.525 | | 743.850 | 742.300 |
| 4 | 800.575 | | 744.800 | 742.850 |
| 5 | 801.900 | | 748.175 | 743.975 |
| 6 | 803.650 | | 748.650 | 746.550 |
| 7 | 804.050 | | 749.500 | 747.550 |
| 8 | 805.200 | | 751.250 | 751.525 |
| 9 | | | 752.750 | 751.925 |
| 10 | 802.600 | | 758.025 | 765.325 |
| 11 | | | 760.925 | 766.550 |
| 12 | | | 770.900 | 767.425 |
| 13 | | | 774.450 | 773.025 |
| 14 | | | 776.400 | 773.525 |
| 15 | | | 777.475 | 776.625 |
| 16 | | | 778.875 | 777.950 |
| 17 | | | 783.075 | 781.950 |
| 18 | | | 796.800 | 783.775 |
| 19 | | | 797.975 | 798.600 |
| 20 | | | 804.325 | 804.250 |
| 21 | | | | |
| 22 | | | 741.200 | 748.175 |
| 23 | | | 773.450 | 752.600 |
| 24 | | | 775.700 | 770.875 |
| 25 | | | | 778.900 |
| 26 | | | 745.475 | 783.375 |
| 27 | | | 754.900 | 766.125 |
| 28 | | | 762.625 | 771.775 |
| 29 | | | 768.825 | 786.450 |
| 30 | | | 783.575 | 802.075 |
| 31 | | | 797.575 | |
| 32 | | | 755.525 | 745.950 |
| 32 | | | 756.650 | 749.375 |
| 33 | | | 758.975 | 763.475 |
| 34 | | | 781.700 | 788.125 |
| 35 | | | | 800.900 |
| 36 | | | | |
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