



Model UHF-R® Wireless Systems

UHF-R® 无线系统 型号用户指南

Panduan untuk Pengguna Wireless Model UHF-R®

! 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.

重要安全事项!

1. 必须阅读这些注意事项。
2. 必须保留这些注意事项。
3. 必须注意所有警告内容。
4. 必须遵循所有注意事项。
5. 不要在靠近水的地方使用本设备。
6. 只能用干布擦拭设备。
7. 不要堵塞任何通风口。遵循制造商的说明进行安装。
8. 不要将本设备安装在任何热源附近，如散热器、调温器、火炉或其它可能产生热量的装置（包括功率放大器）。
9. 不要破坏带极性或接地类型插头的安全功能。极性插头带有两个插片，其中一个较另一个宽。接地类型插头带有两个插片和第三个接地插脚。较宽的插片或第三个插脚是为安全目的设置的。如果提供的插头无法插入您的插座，请向电工咨询如何更换过时的插座。
10. 保护电源线防止被脚踏或被夹紧，尤其是在插头、方便插座和机身电源线引出处。
11. 只能使用制造商指定的连接件/附件。
12. 只能使用制造商指定的或随设备售出的手推车、支座、三角架、托架或支撑台。如果使用手推车，在移动装有设备的手推车时应注意安全，避免设备翻落。
13. 在雷电天气或长时间不使用时，应拔出设备的插头。
14. 所有维修应由合格的维修人员执行。在设备因以下情况被损坏时，应进行维修：电源线或插头损坏、液体泼溅到设备或异物进入设备，设备暴露在雨水或潮湿环境中而无法正常工作，或摔落到地上。
15. 不要将本设备暴露在可能滴水或溅水的地方。不要将装有液体的容器（如花瓶等）放在本设备上。
16. 电源插头或电器转接头应保持在随时可用状态。
17. 本装置的空气噪声低于 70dB (A)。
18. 应将符合 I 类标准的设备连接到带有接地保护装置的主电源插座。
19. 为降低起火或电击危险，不要将本设备暴露在雨中或潮湿环境下。
20. 不要尝试改装本产品。这样做会导致人身伤害和/或产品故障。



这个符号表示本设备中存在可能导致触电的危险电压。



这个符号表示本设备附带的说明书中具有重要的操作和维护说明。

警告：此设备中的电压具有致命危险。设备内部没有用户可维修的部件。所有维修应由合格的维修人员执行。如果改变了厂方设置的工作电压，则安全合格证书不再适用。

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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 11 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 15.

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.

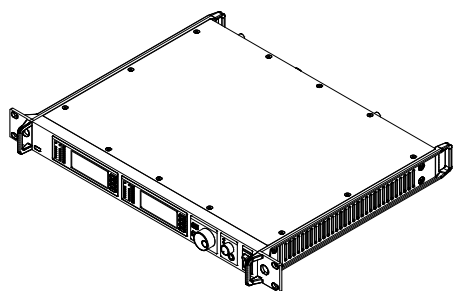
Shure Wireless Workbench Software

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 12 for more information on networking).

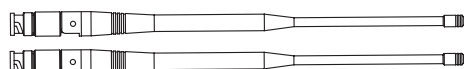
Instructions on using the Wireless Workbench software are available in the online help files after you install the software.

System Components

All systems include:



UR4S+ or UR4D+ Receiver
(UR4D+ pictured)



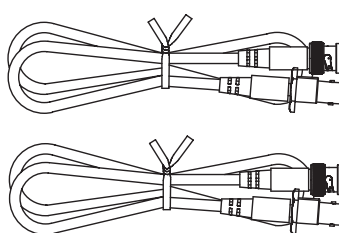
Two 1/2 Wave Antennas



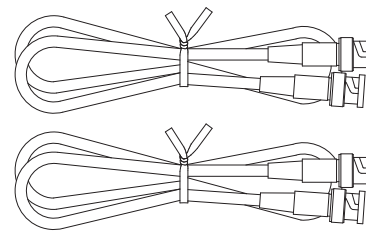
2 Antenna hole plugs
4 Rack Mount Screws with Washers



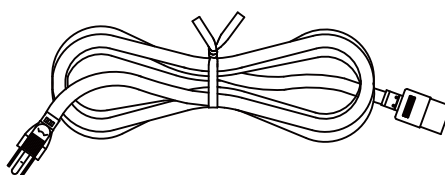
AA Batteries



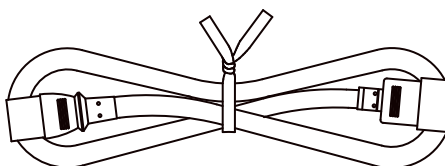
Two Antenna Cables



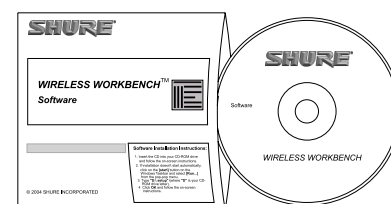
Two RF Distribution Cables



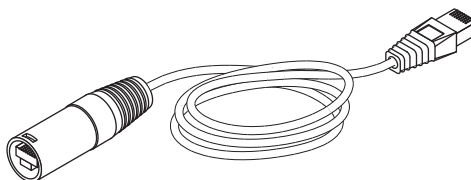
IEC Power Cable



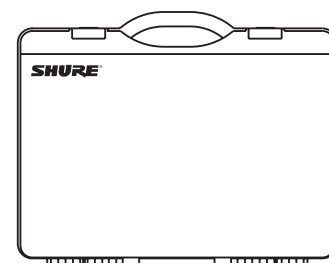
IEC Power Extension Cable



Shure's Wireless Workbench Software



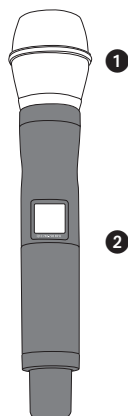
Ethernet Network Cable with "Ruggedized" plug



Transmitter Carrying Case

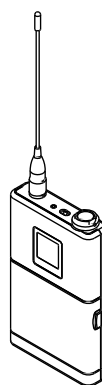
Handheld Systems Include:

- 1 Microphone Head (choice of SM58®, SM86, Beta 58A®, Beta 87A™, Beta 87C™ or KSM9/BK, KSM9/SL)
- 2 UR2 handheld transmitter
- 3 Microphone clip

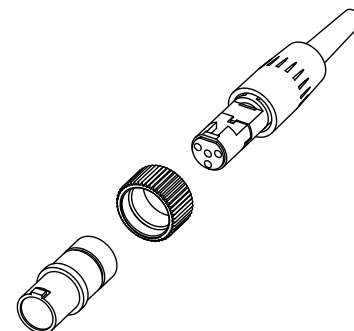


Bodypack Systems Include:

- UR1 Bodypack Transmitter
- Threaded TA4F Adapter

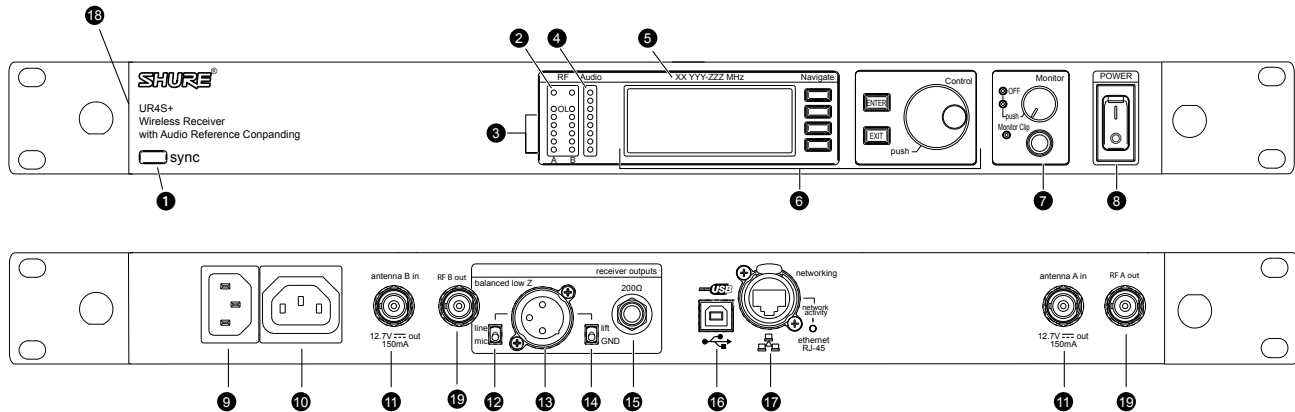


UR1



Threaded TA4F Adapter

Receiver Controls and Connectors



- 1 **SYNC** Infrared (IR) port. Transmits group, channel, and other settings to a transmitter. See page 15.
- 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.

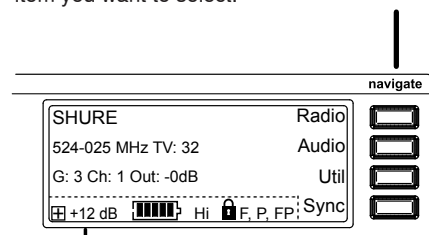
Note: Antenna inputs are DC biased. Use only antenna combiners and accessories listed in page 19. Some types of antenna splitters or other products may short the DC power and damage the receiver.
- 12 **Mic/Line switch.** Changes output level 30 dB (XLR output only).
- 13 Electrically balanced XLR output 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.

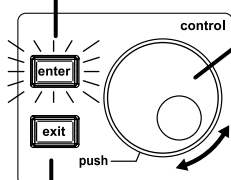


Transmitter Status Display

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

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.

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 15.

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**

- Push the **Control** wheel to move the cursor to the **Mode** parameter.
- 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**.

- Push the **Control** wheel to move the cursor to any of the following parameters:
 - IP** (IP address)
 - Sub** (Subnet mask)
- 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**

- Push the **Control** wheel to move the cursor to the **DeVID** parameter.
- 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**

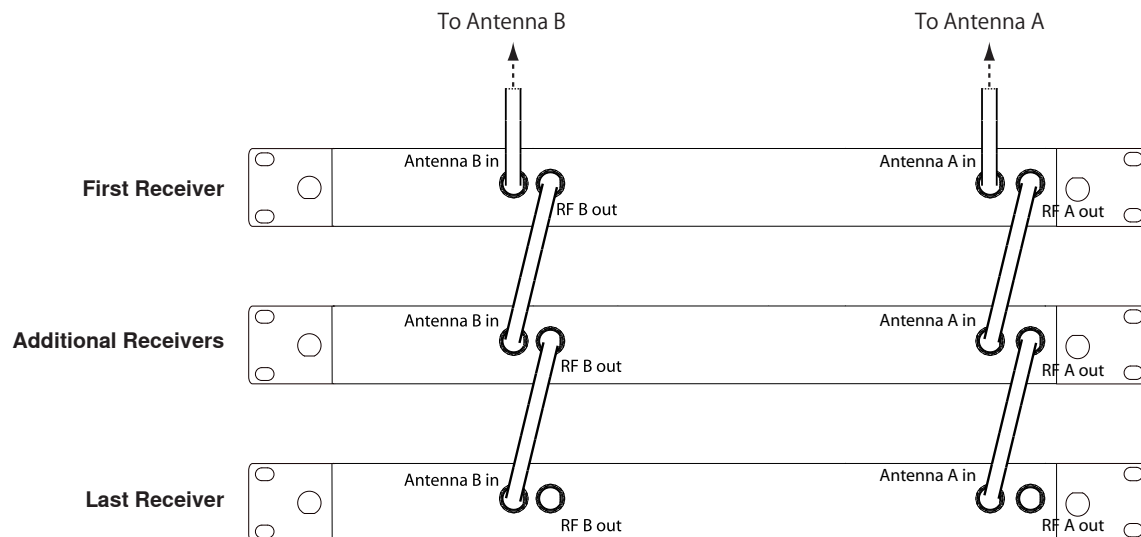
- Turn the **Control** wheel to select a custom group number (**U1**, **U2**, **U3**, etc.)
- Push the **Control** wheel to move to the **Channel** parameter and turn it to select a channel (**01**, **02**, **03**, etc.)
- Push the **Control** wheel to move to the **Freq** parameter and select a frequency for that channel.
- 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 15).

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 12 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).

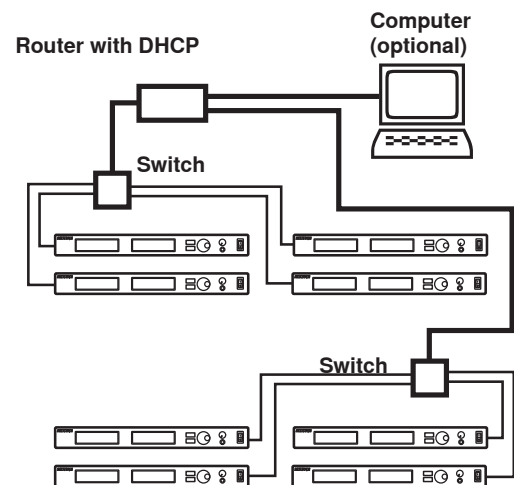
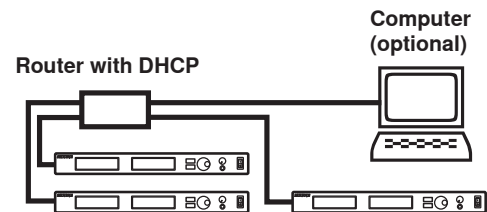
Accessing the Network with a Computer

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.



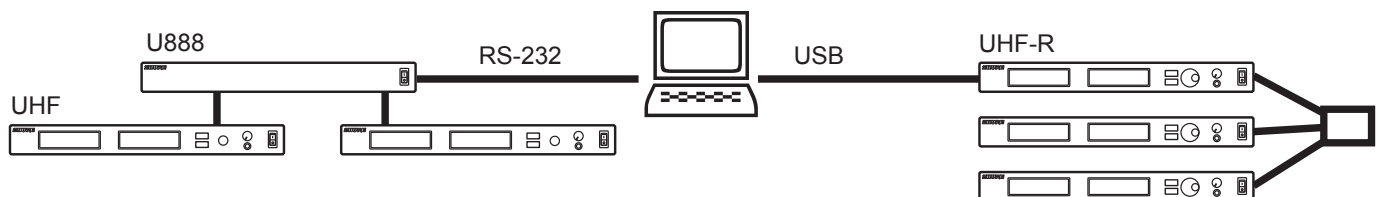
Static IP Addressing

The receiver also supports static IP addressing. Assign your own IP addresses (Util > Network > Mode = Manual). See "Network Parameters" on page 10.

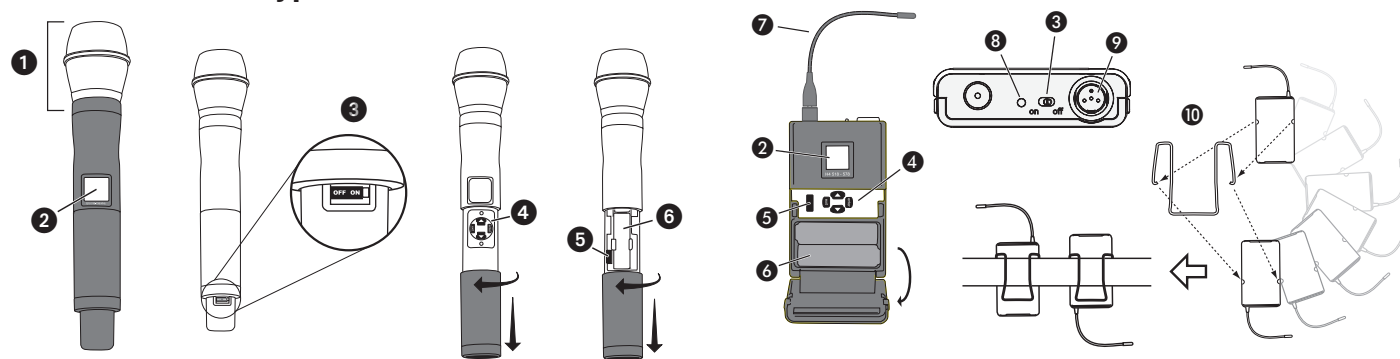
NOTE: Dual receivers use a single IP address, which may be set through either LCD interface.

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.



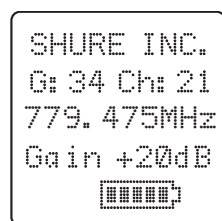
Handheld and Bodypack Transmitter Controls and Connectors



- ❶ Interchangeable microphone head (BETA 87A pictured).
- ❷ LCD Panel.
- ❸ Power Switch.
- ❹ Control buttons for LCD interface.
- ❺ Infrared (IR) port. See page 15.
- ❻ Battery compartment.

- ❷ Flexible Antenna.
- ❸ Power LED.
- ❹ 4-Pin Microphone Input Jack.
- ❺ Reversible Belt Clip.

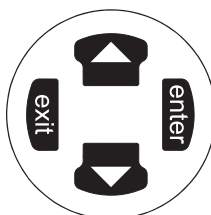
Transmitter LCD Interface



Main Menu

Up Arrow Key. Scroll up or increase a value.

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



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 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.

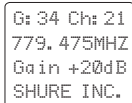
UR1, UR2:

Transmitter Display	Approximate Hours Remaining (alkaline batteries)	
	UR1/UR2 (Normal Power)	UR1/UR2 (High Power*)
	7.5 to 9.5	5 to 6
	5.75 to 7.5	4 to 5
	4 to 5.75	3 to 4
	2 to 4	1.5 to 3
	15 minutes to 2 hours	10 minutes to 1.5 hours

* High power setting not available with models sold in countries that prohibit its use.

Transmitter Parameters

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



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:

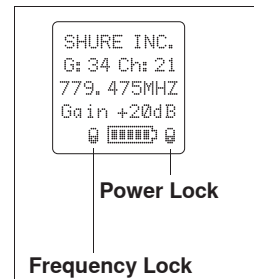
Hold  **Top**  **LCD Panel**
Changes LCD Panel

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

Hold  **Top**  **Power Lock**
Toggles power lock. When locked, power switch does not turn off transmitter.

Hold  **Top**  **RF power level setting***
Use the arrow keys to select normal (10 mW) or high power (50/100 mW**). Use the normal power setting to conserve batteries or prevent RF overload at the receiver.
* High power setting not available with models sold in countries that prohibit its use.
** High power value varies with model.

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

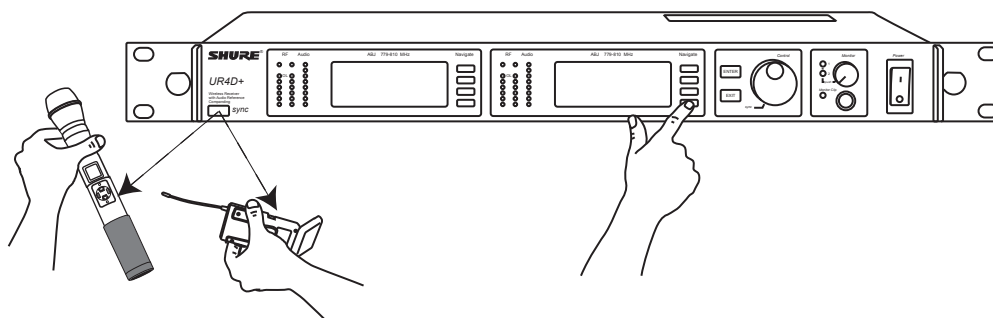
This feature automatically updates a bodypack or handheld transmitter's group and channel settings to match those of a selected receiver.

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**)
- 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 14) 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 14 to turn it off.

To turn off the receiver interface lock, see page 9.

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 14).
- 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, reduce the transmitter RF power level (see page 14) or 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 11).
- 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

Band	Range	Transmitter power (Nominal mW)	
		Handheld UR2	BodyPack UR1
G1	470-530 MHz	10 / 50	10 / 100
G1E	470-530 MHz	10 / 50	10 / 50
G7C	470.125–509.875 MHz	10 / 50	10 / 50
H4	518-578 MHz	10 / 50	10 / 100
H4E	518-578 MHz	10 / 50	10 / 50
J5	578-608, 614-638 MHz	10 / 50	10 / 100
J5E	578-638 MHz	10 / 50	10 / 50
K4E	606-666 MHz	10 / 50	10 / 50
L3	638-698 MHz	10 / 50	10 / 100
L3E	638-698 MHz	10 / 50	10 / 50
M5E	694-758 MHz	10 / 50	10 / 50
P8	710–790 MHz	10 / 50	10 / 50
P9	710–787 MHz	10 / 50	10 / 50
Q5	740-814 MHz	10 / 50	10 / 50
R9	790-865 MHz	10 / 50	10 / 50
Q6	740-752 MHz	10	10
A24	779-788 / 797-806 MHz	10	10
JBX	806-810 MHz	10	10
Q10A	740-787 MHz	10 / 50	10 / 50
R16	794-806 MHz	10 / 50	10 / 50
R18	794-806 MHz	10 only	10 only
X1	944-952 MHz	10 / 50	10 / 100

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

470-865, 944-952 MHz depending on region

Working Range

UR1, UR2

150 m (500 ft.), under typical conditions

500 m (1600 ft) **line-of-sight, outdoors for a single system.**

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: –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

See table above.

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

UR4+: 100 to 240 VAC, 50/60 Hz

Current Drain

UR1, UR2: 180 mA max. (normal RF power setting)

240 mA max. (high RF power setting)

UR4D+, UR4S+: 0.8 Amps max.

Battery Life (Typical)

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

6 hours (high RF power)

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.)

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

UR2/SM86: 261 mm L x 51 mm Dia. (10.27 x 2 in.)

UR2/SM87A: 254 mm x 51 mm Dia. (10 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

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

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

UR2/SM86: 317 g (11.2 oz.) without batteries

UR2/SM87A: 298 g (10.5 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)

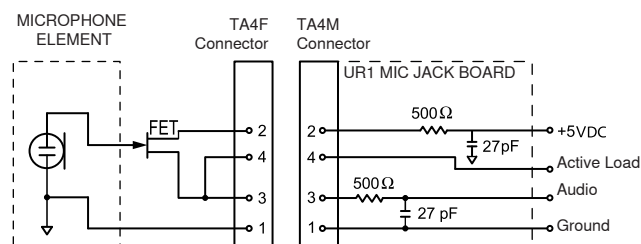
Housing:

UR1: Cast magnesium

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

UR4S+, UR4D+: Galvanized steel

Wiring for TA4F:



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 k Ω 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 M Ω
Maximum Input Level: 1 kHz, 1% THD	+4.8 dBu

UR1 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	N/A

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

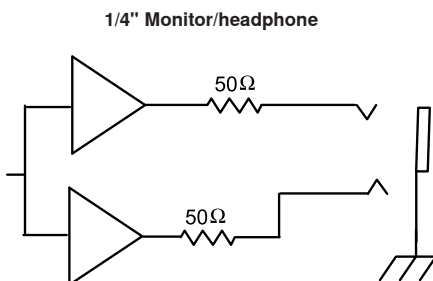
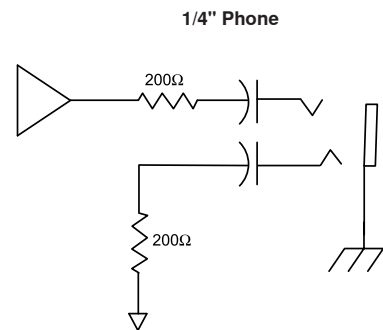
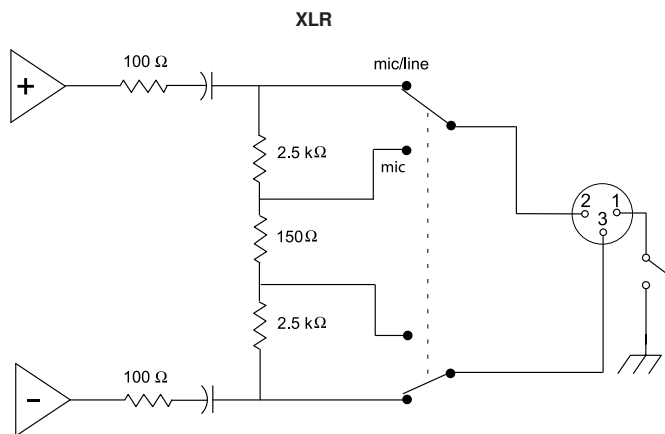
Receiver Audio Output

	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.



Replacement Parts and Accessories

Furnished Accessories

Microphone Stand Adapter (UR2)	WA371
Threaded locking Adapter (with TA4F), UR1	WA340
Zipper Bag (UR1)	26A13
Zipper Bag (UR2)	26A14
Antenna Extension Cables (2)	95B9023
RF Distribution Cables (2)	95N2035
Antenna (UR1) 518-578 MHz	UA710
Antenna (UR1) 578-698 MHz	UA720
Antenna (UR1) 740-865 MHz	UA730
Antenna (UR1) 944-952 MHz	UA740
Two Antennas (UR4+), Band Dependent (see table)	UA820
Transmitter Carrying Case	95C9053

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
Bodypack Pouch (Black), UR1	WA580B
Bodypack Pouch (White), UR1	WA580W

Architects' and Engineers' Specifications

The wireless system shall operate in the UHF band between 470-865 MHz and 944-952 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 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.

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)	UA845SWB
Europe	UA845E
UK	UA845UK
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)	PA805SWB
Passive Unidirectional Narrow band Antenna (944-952 MHz)	PA805X
1/2 wave antennas (2)	
G1 Band	UA820G
H4E, H4 Bands	UA820H4
J5E, J5 Bands	UA820J
L3E, L3 Bands	UA820L3
Q5, Q6, Q10A 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

CERTIFICATION

UR1, UR2, UR4S+, UR4D+

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.

Meets requirements of EMC standards EN 300 422 Parts 1 and 2 and EN 301 489 Parts 1 and 9.

Meets essential requirements of European R&TTE Directive 99/5/EC, eligible to bear the CE mark.

UR1, UR2

Certified under FCC Part 74. (**FCC ID:** DD4UR1, DD4UR2). Certified by IC in Canada under RSS-123 and RSS-102. (**IC:** 616A-UR1, 616A-UR1G 616A-UR2, 616A-UR2G).

Emission Designator: 120KF3E

UR4S+, UR4D+

Approved under the Declaration of Conformity (DoC) provision of FCC Part 15. Certified in Canada by IC to RSS-123. (**IC:** 616A-UR4P).

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 GS-Certified to EN60065.

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.

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

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

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Phone: +49 7131 72 14 0

Fax: +49 7131 72 14 14

Email: EMEAsupport@shure.de

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:

- 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.

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.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.



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功能概述

UHF-R® 无线麦克风系统使用最新的无线技术，具有非常出色的音频清晰度，结构坚固，性能可靠。在需要多个无线麦克风系统的专业安装场合，能够方便地设置和使用麦克风的高级功能。

频段选择

Shure 可以提供符合不同国家或地区政府法规的多波段选择无线系统。这些法规有助于限制无线电射频 (RF) 在不同无线设备之间的干扰，并且可以防止干扰当地的电视和紧急广播等公共通信频道。

接收机和发射机表面标注了系统的波段和频率范围。例如，“H4 518–578 MHz”。

有关您所在地区可以使用的波段，请向当地经销商咨询，或致电 Shure 查询。还可以通过访问 Shure 网站 (www.shure.com) 来查阅详细信息。

组和频道

要通过无线系统发射音频信号，必须将发射机和接收机设置为相同的无线电频率或频道。因为每个麦克风必须使用一个不同的频道，因此更大的频道选择范围能够让用户同时使用更多的麦克风。它还提供了更广泛的空闲可用频道选择 — 这些频道不会与电视广播、电子设备或其它无线系统发生干扰。

组是一系列相容频道的组合。将频道设置在相同组中，无线麦克风可以获得更好的工作效果。

自动频率选择

以下功能可以扫描无线电频率环境，为特定安装找到最佳的组和频道设置。

- **组扫描** — 可以找到具有最多可用频道的组，然后将所有连网的接收机设置为该组中的频道。
- **频道扫描** — 可以找到当前选择组中的第一个可用频道，并将接收机设置到该频道。

有关使用这些功能的说明，请按照第 27 页中的步骤执行。

自动发射机同步

此功能可以自动将组和频道的设置从接收机传送到发射机。还可以对接收机上的设置进行编程，然后传送这些设置。请参见第 31 页。

界面锁定

此功能可以将发射机和接收机锁定，从而让用户无法更改设置。还可以禁用发射机电源开关，这样即使在表演过程中意外按下了电源开关，发射机仍可保持打开状态。

音频增益结构

以下设置可以让用户调节整个系统的音频增益：

- **灵敏度 (仅用于腰包)**。腰包发射机输入中的 25 dB 范围的增益调节。
- **发射机增益**。可在发射机中实现 30dB 范围的音频增益调节 (如 Audio 指示灯所示影响接收机的音频电平)。
- **输出电平**。可以在接收机输出中实现 32 dB 的衰减，和一个静音设置。
- **麦克风/线路开关**。用于在接收机 XLR 输出中匹配音频电平的 –30 dB 衰减器。

连网

每个发射机在背部都有一个 RJ-45 端口，用于通过以太网连接到其它接收机。连网的接收机能够让用户使用一个组扫描命令来为所有接收机自动设置频道。还可以通过 Shure Wireless Workbench PC (无线工作台) PC 软件控制和监视所有连网的接收机。

射频分配端口

可以使用射频分配端口，让使用相同频段的最多十部接收机共用来自同一对天线的信号。射频分配端口无需使用天线分线器或天线分配放大器。有源电路可以在保持信号质量的前提下，将插入损失降低到最小。输入滤波功能可以让信号免受频带外干扰的影响。只有在额外的接收机连接到射频分配端口时，分配电路才使用有源工作方式。在不使用额外端口时，将旁通此端口电路，让接收机作为独立部件工作。

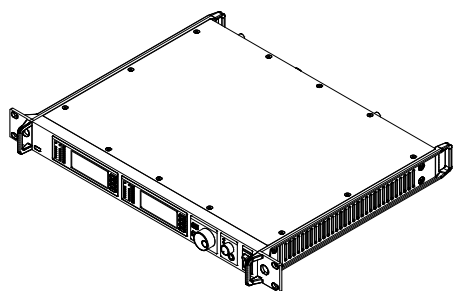
Shure 无线工作台软件

附送光盘中的 Shure 无线工作台软件包括了用于安装和管理多个无线系统的各种有用工具。只需在计算机上安装软件，并将其连接到接收机网络，就可以通过网络监控接收机和发射机。(有关连网的详细信息，请参见第 28 页。)

安装软件后，可以在联机帮助文件中找到使用“无线工作台”软件的说明。

系统组件

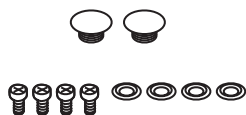
所有系统都包括：



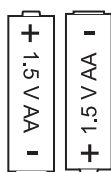
UR4S+ 或 UR4D+ 接收机
(图中为 UR4D+)



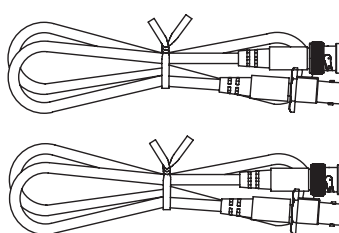
两个 1/2 波长天线



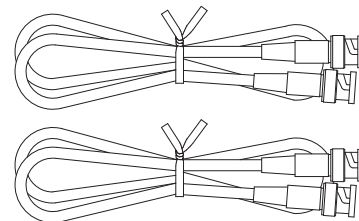
2 个天线孔插塞
4 个带垫片的机架安装螺丝



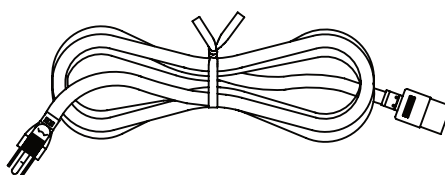
AA 电池



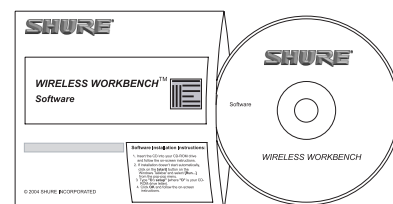
两根天线缆线



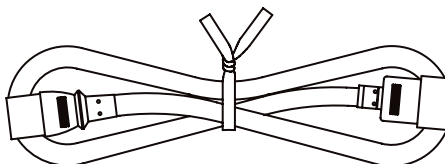
两条射频分配电线



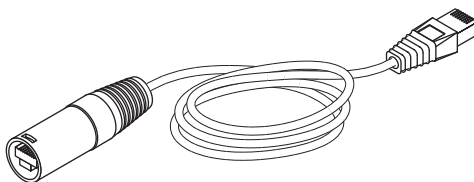
IEC 电缆



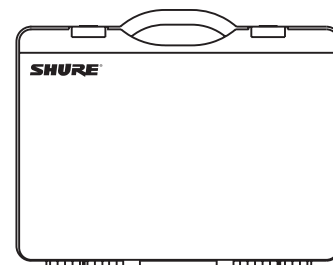
Shure 无线工作台软件



IEC 延长电缆



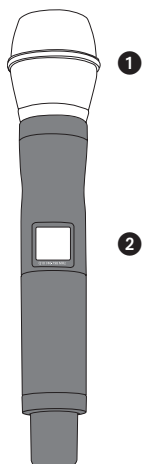
带有高强度插头的以太网缆线



发射机便携箱

手持系统包括：

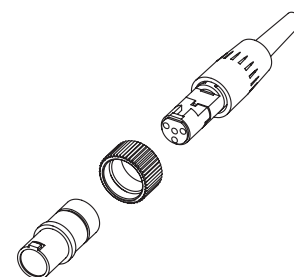
- ① 麦克风头 (SM58®、SM86、Beta 58A®、Beta 87A™、Beta 87C™ 或 KSM9/BK, KSM9/SL)
- ② UR2 手持发射机
- ③ 麦克风夹



腰包系统包括：

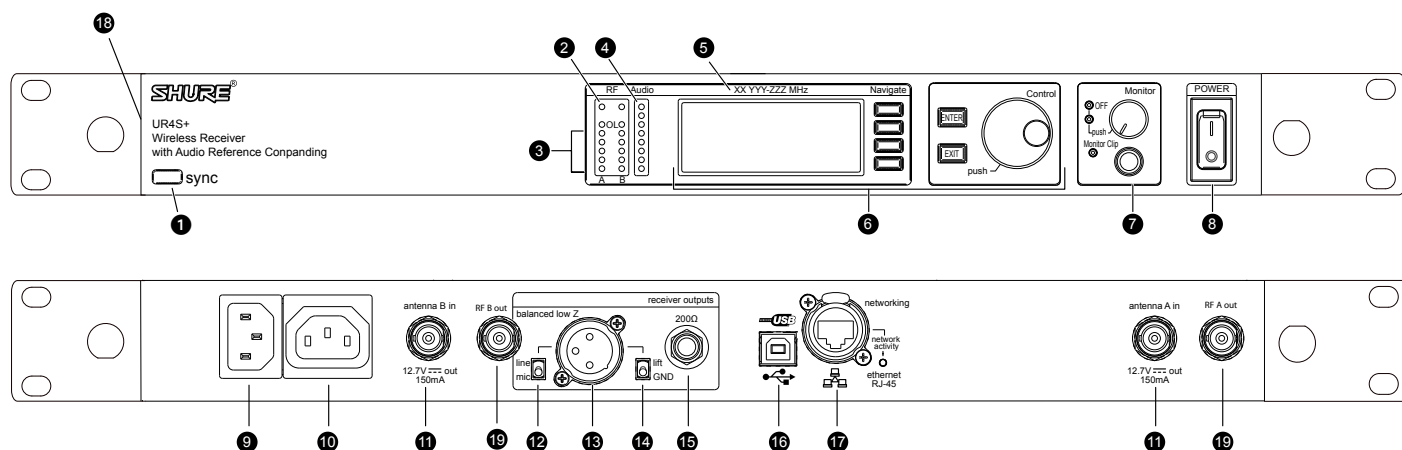


UR1 腰包发射机



带螺纹的 TA4F 适配器

接收机控制器和接头



① **SYNC** (同步) 红外 (IR) 端口。将组、频道和其它设置传送到发射机。请参见第 31 页。

② 静噪指示灯。

- 蓝色 (亮) = 检测到发射机信号
- 灭 = 由于接收效果不佳或无按钮音, 而无信号或无静噪信号。

注释: 只有在至少一个蓝色指示灯亮的情况下, 接收机才输出音频信号。

③ **RF** (射频) 指示灯。指示每种天线和分集条件下的射频信号强度。

- 黄色 = 正常
- 红色 = 过强 (大于 -25 dBm)

④ **Audio** (视频) 指示灯。用于显示发射机的音频信号强度。

- 绿色 = 有信号
- 黄色 = 正常峰值
- 红色 = 过强

要纠正此电平, 可以调节发射机增益。

⑤ 显示接收机频段的名称和范围。

⑥ 液晶显示屏界面。提供了一种可以从前面板对接收机进行编程的简便方法 (请参见下一页中的详细信息)。

⑦ **Monitor**。用于耳机的 1/4 英寸输出插孔和音量旋钮。

- **MONITOR CLIP LED** 表明输出到耳机的监听信号出现削波。
- 双模式: 按下旋钮从接收机一切切换到接收机二。

⑧ **Power** 开关。打开和关闭设备电源。

⑨ 交流电源输入, IEC 接头。100-240 伏交流。

⑩ 交流电源输出 (无开关控制)。使用 IEC 延长线, 最多可以将五台 UR4+ 接收器连接到同一个交流电源。

⑪ 分集式天线输入 A 和 B

注释: 天线输入为直流偏置。仅允许使用第 35 页中列出的天线合成器和附件。一些类型的天线分配器或其他产品可能会造成直流电源短路并损坏接收机。

⑫ **Mic/Line** 开关。更改输出电平 30 dB (仅 XLR 输出)

⑬ 电子平衡 XLR 输出插孔

⑭ **Lift/GND** 开关。可以从 XLR 接头的针脚 1 断开接地 (默认值 = GND)。

⑮ 平衡阻抗的 1/4 英寸输出插孔 (200Ω)

⑯ 用于计算机界面的 USB 插孔。

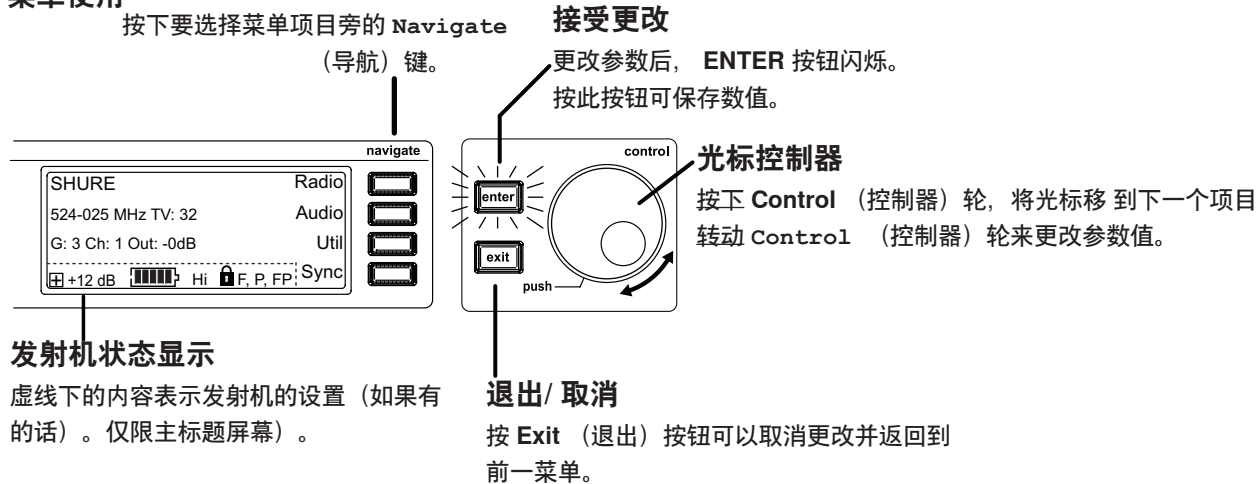
⑰ 用于以太网界面的 RJ-45 插孔。可插入正常的和“加固的”RJ-45 插头。

⑱ 温控风扇能够保证在高温环境下实现最佳性能。应根据需要清洁风扇滤网。

⑲ 射频分配端口可将射频信号从一部接收机传递到下一部接收机, 最多可以让 10 部接收机共用一对天线。

接收机液晶显示屏界面

菜单使用



接收机参数

使用以下说明来通过液晶屏幕设置参数。

注释: 在调整参数后, 必须按下闪烁的 **ENTER** 按钮以接受更改。

组和频道

菜单: Radio

- 按下 **Control** 轮, 将光标移动到组 (G) 或频道 (Ch) 参数。
- 转动 **Control** 轮来更改参数。

Frequency (频率)

菜单: Radio

- 按下 **Control** 轮, 将光标移动到整数值 (524.025 MHz) 或小数点 (524.025)。
- 转动 **Control** 轮来更改值。

自动发射机同步

菜单: Sync

- 请参见第 65 页。

Receiver Name

菜单: Util

- 转动 **Control** 轮来更改字母。
- 按下 **Control** 轮来移动到下一个字母。

输出电平

菜单: Audio

此设置可以调整 XLR 和 1/4 英寸音频输出插孔的信号电平。

- 转动 **Control** 轮, 以 dB 为单位更改相对电平。(0 dB 到 -32 dB)。
- 将滚轮向下旋转, 直到将输出静音。

静噪

菜单: Radio > Squelch

- 转动 **Control** 轮来更改参数

接收机锁定

位于锁定状态时, 无法从前面板更改接收机状态。但是, 仍可以滚动液晶显示屏菜单来查看设置 (并关闭锁定)。

菜单: Util > 工具 > Lock (锁定)

- 转动 **Control** 轮, 将锁定切换为打开或关闭 (ON 或 OFF)。

液晶屏视图

菜单: Util (工具) > Title (标题)

- 转动 **Control** 轮来标记一个要显示的项目。
- 按下 **Control** 轮来移动到下一个项目。

液晶屏对比度

菜单: Util (工具) > Contrast (对比度)

- 转动 **Control** 轮来提高或降低对比度。

音频键控

菜单: Radio (无线电) > Squelch (静噪) > Tonekey (音频键控)

音频键控静噪在接收机检测到发射机之前可以将输出静音。除非要进行特定故障排除操作, 否则音频键控应始终保持为打开 (On)。

网络参数

注释：

- 在按 **ENTER** 接受了更改的网络参数后，接收机将重新启动
- 在双模式 (UR4D+) 下，这些设置将影响两台接收机（两台接收机可以作为一个网络设备）。

将接收机设置为网络模式

菜单: Util (工具) > Network (网络)

- 按下 **Control** 轮，将光标移动到 Mode (模式) 参数。
- 转动 **Control** 轮，将接收机设置为以下一个值：
 - DHCP: 将接收机连接到 DHCP 服务器时，使用该设置。
 - Manual (手动)：可以让用户将接收机设置为使用特定的 IP 地址、

IP 地址、

- 菜单: Util (工具) > Network (网络)

注释：要更改这些设置，必须将网络模式设置为 Manual (手动)。

- 按下 **Control** 轮，将光标移动到以下任意一个参数：
 - IP (IP 地址)
 - Sub (子网掩码)
- 转动 **Control** 轮来更改值。

设备标识

通过“无线工作台软件”帮助识别接收机（不会影响网络标识）。

菜单: Util (工具) > Network (网络)

- 按下 **Control** 轮，将光标移动到 DevID (设备标识) 参数。
- 转动 **Control** 轮，将接收机设置为更改该值：

定制组

此功能可以让用户建立自己的频率组。

创建新组...

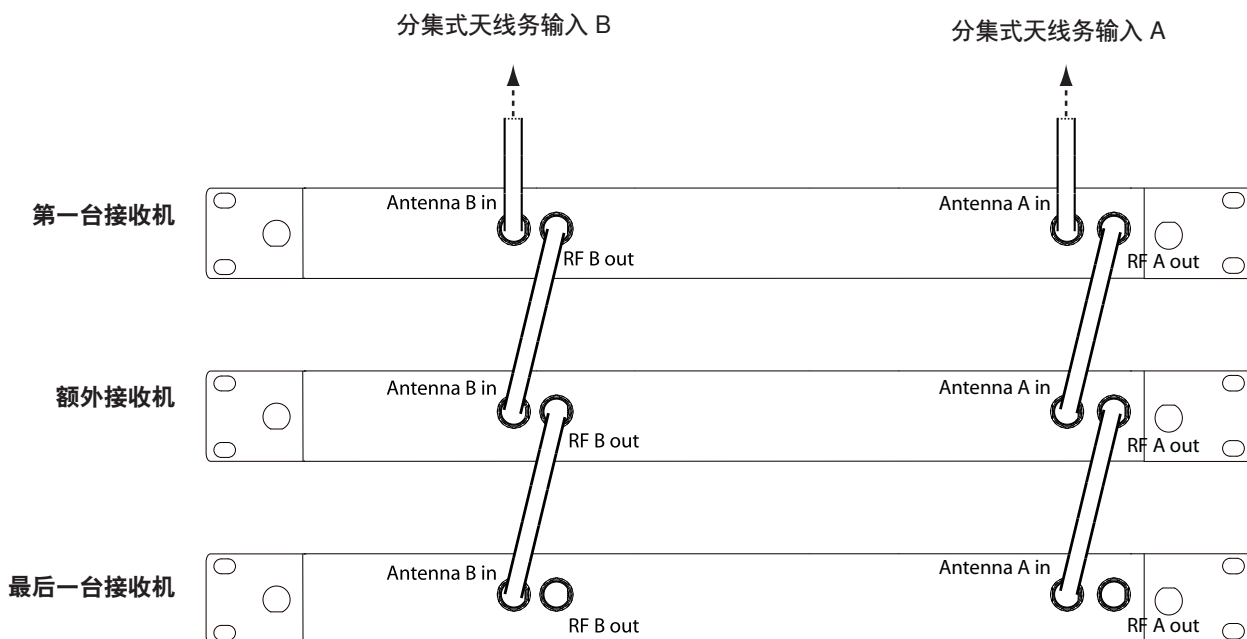
菜单: Radio (无线电) > Custom (定制)

- 转动 **Control** 轮来选择定制组 (U1, U2, U3, 等.)
- 按下 **Control** 轮来移动到 Channel 参数，并转动以选择一个频道 (01, 02, 03, 等.)
- 按下 **Control** 轮来移动到 Freq (频率) 参数，并为该频道选择频率。
- 按 **NEXT** (下一个) 菜单键，以为该组中的下一个频道选择频率。

将多个接收机连接到射频分配端口

射频分配端口可将射频信号从一部接收机传递到下一部接收机，最多可以让 10 部接收机共用一对天线。如图所示，使用提供的射频分配线缆连接每个接收机的端口。

注意：所有接收机必须工作在相同频段。



自动频率选择

执行这些步骤，以使用频道扫描和组扫描功能。

开始之前...

- 将接收机安装在将要使用的地点，并通电。
- 将连接到接收机的所有混音设备静音。
- 为要设置的系统关闭所有腰包或手持发射机。
- 打开潜在的干扰源，如其它无线系统或设备、计算机、CD 播放机、效果处理器和数字处理设备，让其处于与演示和表演时同样的状态。

单接收机

1. 选择 Radio (无线电) > Scan (扫描) > Chan Scan (频道扫描) (使用接收机液晶屏上的 **Navigate** (导航) 键)。
2. 转动 **Control** 轮来选择组。
3. 按 Chan Scan. (频道扫描)。显示屏指示接收机正在搜索。搜索完成后，它将显示出选择的频道。
4. 按下闪烁的 **ENTER** 按钮来接受推荐的频道。
5. 同步接收机 (参见第 31 页)。

连网的或配对的接收机

使用连网或配对接收机时，可以利用组扫描功能的优势同时为所有接收机设定组和频道设置。(有关连网的说明，请参见第 28 页。)

从任意接收机执行组扫描...

1. 选择 Radio (无线电) > Scan (扫描) > Group Scan (组扫描) (使用接收机液晶屏上的 **Navigate** (导航) 键。显示屏指示接收机正在搜索 (Scan In Progress [正在扫描])。完成后，将显示带有最多可用频道的组。
2. 如有必要，可以旋转 **Control** 轮来更改组。将显示每个组的打开频道数。
3. 按下闪烁的 **ENTER** 按钮来将所有接收机设置为该组中的可用频道。

注释：组扫描功能仅能用于相同频段中的接收机。

多个接收机 — 未连网

如果接收机没有连网 (或在不同的波段)，组扫描无法自动设定其组和频道设置值。但是，用户仍可以使用组扫描功能找到具有大多数空闲频道的组，并利用频道扫描功能找到该组中的可用频道。

找到带有大多数可用频道的组...

使用上述用于连网接收机的步骤来执行组扫描。但是，应记下选定的组，然后再按下闪烁的 **ENTER** 按钮来接受该组。

将接收机设置为在该组中打开频道...

使用上述用于单个接收机的步骤来对其余的接收机执行频道扫描。确保在执行频道扫描之前，已为每个接收机选择了相同的组。

重要提示：为第一台接收机设置频道后，应立即使该接收机与发射机同步，并让其保持打开，以便让下一台接收机在进行频道扫描过程中能够检测到该频道。否则，所有接收机都将设置到同一个可用的频道。

注释：不同波段 (H4、J5、L3 等) 中的接收机不需要设置为相同的组。

接收机连网

基本网络

使用 DHCP 服务将接收机连接到以太网路由器。使用以太网交换机在规模较大的安装情况下扩展网络范围。

可使用接收机的默认网络设置。

(Util (工具) > Network > (网络) Mode = DHCP).

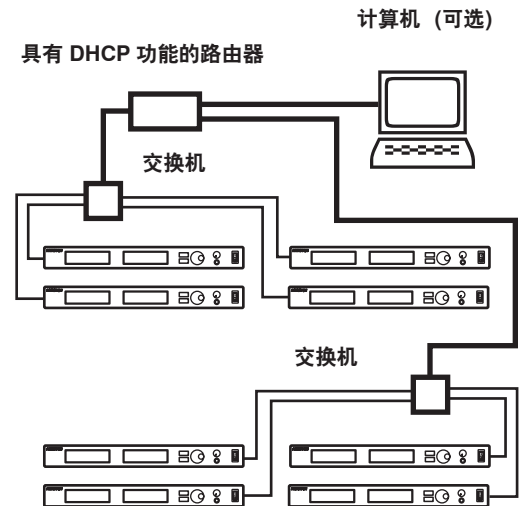
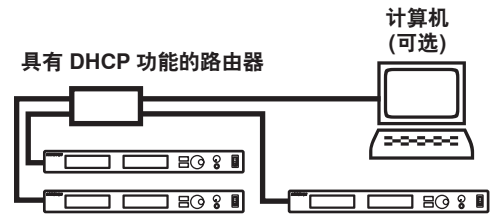
使用计算机访问网络

如果用户想要使用“无线工作台”软件，将计算机连接到网络，并安装接收机附带的软件。确保将计算机配置为 DHCP（从控制面板，单击网络连接。双击局域网络连接。选择 Internet 协议 TCP/IP) 并单击属性。选择自动获得 IP 地址和自动获得 DNS 服务器地址，然后单击“确定”）。

注释：计算机上的某些安全性软件或防火墙设置可能会妨碍连接到接收机。如果使用防火墙软件，应允许在端口 2201 上进行连接。

使用 USB...

将计算机连接到任何接收机上的 USB 端口即可访问整个网络。



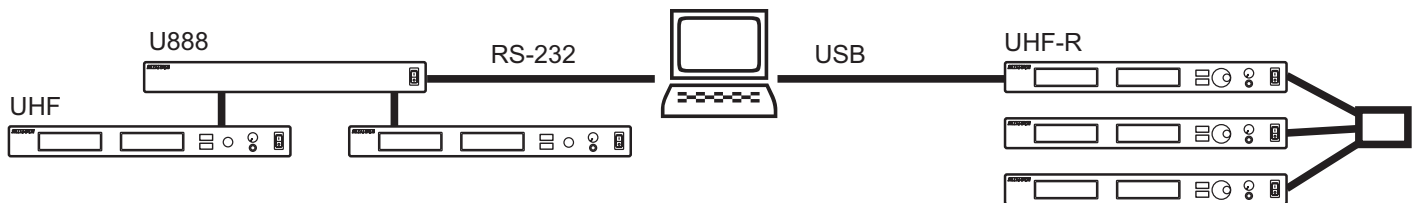
静态 IP 地址

接收机还支持静态 IP 地址。指定您自己的 IP 地址 (Util (工具) > Network (网络) > Mode = Manual). “网络参数”第 26 页。

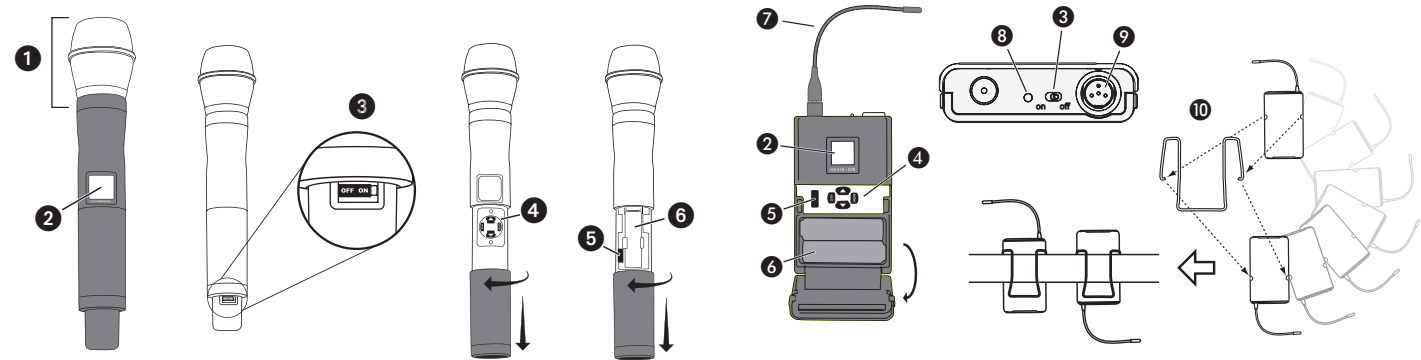
注释：可以通过其中一个液晶屏界面将双接收机设置为使用同一个 IP 地址。

现有的 UHF 网络安装

Shure 的 UHF-R 接收机和旧式的 UHF 接收机都可以连网到同一台 PC，并可用最新的“无线工作台”软件对其进行访问。

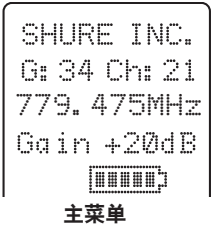


手持和腰包发射机控制器和连接器



- ① 可互换麦克风头（图中所示为 BETA 87A）。
- ② 液晶显示器面板。
- ③ 电源开关。
- ④ 液晶屏界面控制按钮。
- ⑤ 红外（IR）端口请参见第 31 页。
- ⑥ 电池仓。
- ⑦ 柔性天线。
- ⑧ 电源发光二极管指示灯。
- ⑨ 4 针脚麦克风输入插孔。
- ⑩ 可逆皮带夹。

发射机液晶屏界面。



上箭头键。
向上滚动或增大值。

exit （退出）键。移动到左侧，或退出而不保存更改。

enter 键。按下来选择参数并接受取值。

下箭头键。
向下滚动或减小值。

发射机电池

接收机使用标准 AA 电池工作。应在更换电池前关闭发射机。
如图所示，发射机液晶屏上显示的电池电量表显示了电池的剩余电量。

发射机显示屏	剩余的大约 小时数 (碱性电池)	
	一般功率	高功率*
	7.5 至 9.5	5 至 6
	5.75 至 7.5	4 至 5
	4 至 5.75	3 至 4
	2 至 4	1.5 至 3
	15 分钟至 2 小时	10 分钟至 1.5 小时

* 在一些禁止使用高功率的国家销售的型号没有高功率设置。

发射机参数

按下主菜单中的 **ENTER** 来调整以下参数：

G: 34 Ch: 21
779.475MHZ
Gain +20dB
SHURE INC.

组 (G)和**频道 Channel (Ch)**. 必须与接收机的设置匹配。

频率 (MHz). 以 0.025 兆赫为增量的手动频率选择。

增益 (Gain). 在 -10 dB 到 +20 dB 的范围内调节音频电平。

灵敏度 (Sens) (仅用于腰包)。

将音频输入设置为 +15 dB, 0 dB, 或 -10 dB。

名称显示. 12 位 ASCII 码。

使用以下键组合来访问附加功能和参数：



液晶显示器面板

更改液晶显示器 面板



频率锁定

切换设置。启用时，不能更改频率，发射机同步不会覆盖频率设置。



电源锁定

切换电源锁定。如果锁定，电源开关将关闭发射机。



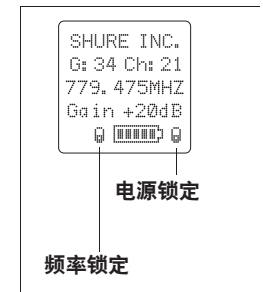
射频功率电平设置*

使用箭头键来选择正常(10 毫瓦) 或高功率 (50/100 毫瓦**)。使用正常功率设置可节省电池电量，也可防止接收机射频信号过强。

* 在一些禁止使用高功率的国家销售的型号没有高功率设置。

** 高功率值根据型号的不同而有所差别。

锁定指示符



发射机增益设置

调节发射机增益和输入灵敏度，以使接收机上的 **Audio** (音频) 发光二极管的峰值在使用过程中位于橙黄色范围内。在腰包发射机上，可以更改灵敏度设置，以便将不同乐器或麦克风连接到输入时补偿不同的音频电平。

要调节增益，应打开发射机并按 **enter** 按钮。向下滚动到 **Gain** (增益) 参数或 **Sens** (灵敏度) 参数 (仅腰包)，并再次按 **enter** 使用箭头键调节设置值，并按 **enter** 保存设置 (或按 **Exit** [退出] 取消而不保存)。

射频安全模式

这一特殊功能会将射频广播临时静音。这允许用户更改发射机上的频率设置，而不会意外“切入”另一个发射机使用的频道。

1. 关闭发射机。
2. 打开发射机电源时，按住 **exit** (退出) 键 (对于手持麦克风，需要拉下电池盖关闭把手)。设备处于射频安全模式时，液晶屏闪烁。
3. 如正常操作一样更改组和频道设置 — 发射机将停止广播。
4. 关闭发射机电源，然后再打开退出射频安全模式。

自动发射机同步

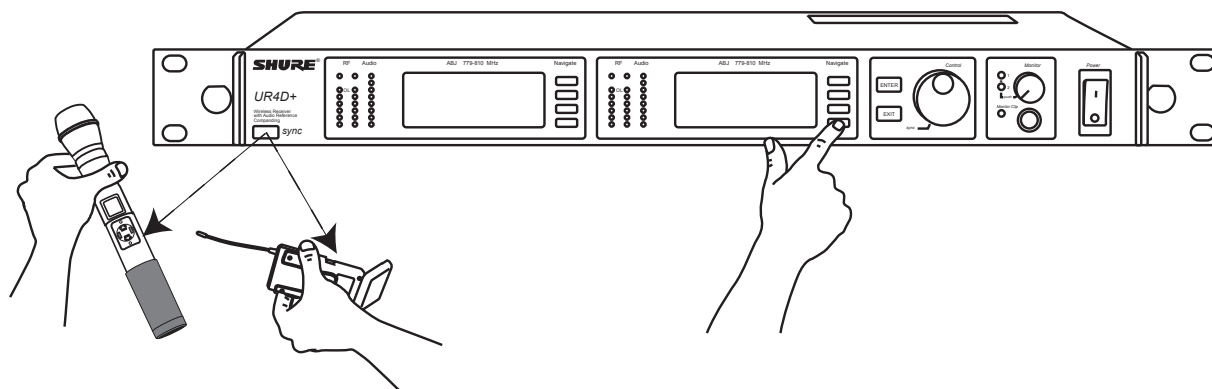
此功能将腰包或手持发射机设置自动更新为与选定的发射机同步。

要执行发射机同步...

1. 打开发射机电池盖，露出红外（IR）端口。
2. 将红外端口朝向接收机，然后从接收机液晶屏界面选择 **Sync**（同步）> **sync**（发送）。

接收机上的显示屏将显示是否同步成功。如果同步失败，请再次尝试操作，并确保已将发射机上的红外端口暴露在外，并直接对准接收机的红外端口。

注释： 在另一台接收机上执行同步之前，应关闭电池仓门。



要传送其它发射机设置...

还可以选择在执行同步时从接收机传送其它发射机设置。使用以下步骤：

1. 从接收机液晶屏界面选择 **Sync**（同步）> **Setup**（设置）。
2. 转动 **Control** 轮来更改参数设置。
3. 按下 **Control** 轮来移动到下一个参数。
4. 按下闪烁的 **ENTER** 按钮来保存设置。

在接收机上设置的发射机设置可以保留用于今后同步时使用。

注释： 如果不需要同步功能发送设置值，应将参数设置为 **No Change**（无更改）。

可用设置...

可以从 **Sync**（同步）> **Setup**（设置）菜单使用以下设置：

灵敏度 (Sens) 腰包发射机

- 增益 (Gain)
- 射频功率 (Pwr)
- 电源和频率锁定 (Lock), 它具有以下值：
 - 仅电源锁定：(Pwr Only)
 - 仅频率锁定：(Pwr Only)
 - 两者：(Freq and Pwr [频率和电源])
 - 均不锁定：(Unlocked [不锁定])
- 定制组：(CG):
 - 打开 (ON)：在同步过程中将定制组发送到发射机
 - 关闭 (OFF)：不发送定制组（减少同步时间）

故障排除

问题	参见解决方案...
无声音	电源、缆线或射频
声音微弱或失真	增益
工作距离过短，突发噪音或信号跌落	射频
无法关闭发射机或更改频率设置，或者无法为接收机编程	界面锁定
交流声或蜂鸣音过大	接地断开

电源

确保发射机和接收机接使用了足够的电压。接收机需要至少 90 伏直流电压。检查接收机的电池指示灯，如有必要应更换电池。

增益

调节发射机增益和灵敏度设置（参见第 30 页）或接收机输出电平（第 25 页），或切换接收机背面的 **mic/line**（麦克风/线路）开关。

缆线

检查所有缆线和接头是否工作正常。

接地断开

断开接收机 XLR 输出针脚 1 上的接地可能有时会去除音频信号中的交流声或蜂鸣音。如果使用 XLR 接头，应将接收机上的 **GND/LIFT**（接地转换）开关切换为 **LIFT**（接地断开）。

界面锁定

可以锁定发射机和接收机以防止意外更改。在发射机的液晶屏上找到锁定符号，并使用第 30 页中所示的按键组合将其关闭。要关闭接收机的界面锁定，请参见第 25 页。

增大范围

如果发射机距离接收机天线超过 6 到 60 米（20 到 200 英尺），您可以通过以下方法增大范围：

- 降低干扰（参见以下内容）
- 增大发射机射频功率电平（参见第 30 页）。
- 使用有源定向天线、天线分配系统或其它天线附件以增大射频范围（参见第 35 页）。

无线电射频 (RF)

使用射频发光二极管

如果蓝色的 **RF**（射频）发光二极管都没有点亮，表示接收机没有检测到发射机的存在。黄色的 **RF**（射频）发光二极管表示接收到的信号强度。信号可能是从接收机接收到的，也可能是从诸如电视广播等干扰源接收到的。关闭发射机。如果有多个黄色的 **RF**（射频）发光二极管仍点亮，则表示该频道具有太多干扰，应尝试使用不同频道。

红色的 **RF**（射频）发光二极管表示射频信号过强。通常情况下不会引起问题，但如果同时使用多个系统，就可能导致系统之间产生干扰。

消除射频过强

如果看到接收机上的红色 **RF**（射频）发光二极管点亮，应降低发射机射频功率电平（参见第 30 页）或移动发射机原理接收机 — 距离至少为 6 米（20 英尺）。如果使用有源天线，应降低天线或放大器增益。

功能

- 执行发射机同步，或确保发射机或接收机设置到相同的组和频道
- 查看发射机和接收机上的标签，以确保它们使用相同的波段（H4、J5、L3 等...）。

降低干扰

- 使用不同频道或执行自动组或频道扫描（参见第 27 页）。
- 对于多个系统，应检查是否所有的系统都设置为同一组中的频道（不同波段中的系统需要设置为相同组）。
- 发射机和接收机天线之间应在无障碍的情况下保持直线相对位置
- 让接收机天线远离金属物品或其它射频干扰源（诸如 CD 播放器、计算机、数字效果器、网络交换机、网线和个人立体声监控器 (PSM) 等无线系统）。
- 消除射频信号过强（参见以下内容）。

规格

频率范围和发射机输出功率

频段	范围	发射机功率 (标称 mW)	
		手持式	腰包
G1	470-530 兆赫	10 / 50	10 / 100
G1E	470-530 兆赫	10 / 50	10 / 100
G7C	470.125-509.875 MHz	10 / 50	10 / 50
H4	518-578 兆赫	10 / 50	10 / 100
H4E	518-578 兆赫	10 / 50	10 / 50
J5	578-608, 614-638 兆赫	10 / 50	10 / 100
J5E	578-638 兆赫	10 / 50	10 / 50
L3	638-698 兆赫	10 / 50	10 / 100
L3E	638-698 兆赫	10 / 50	10 / 50
M5E	694-758 MHz	10 / 50	10 / 50
P8	710-790 MHz	10 / 50	10 / 50
P9	710-787 MHz	10 / 50	10 / 50
Q5	740-814 兆赫	10 / 50	10 / 50
R9	790-865 兆赫	10 / 50	10 / 50
Q6	740-752 兆赫	10	10
A24	779-788 / 797-806 兆赫	10	10
JBX	806-810 兆赫	10	10
Q10A	740-787 兆赫	10 / 50	10 / 50
R16	794-806 兆赫	10 / 50	10 / 50
R18	794-806 兆赫	10 仅	10 仅
X1	944-952	10 / 50	10 / 100

注释

本无线电设备为专业音乐演出及其他类似场合而设计。

本无线电设备可能具有使用您所在地区未经授权的频率的能力。请与您所在国的相关机构联系，以获得有关您所在地区无线麦克风授权使用频率的信息。

射频载波频率范围

518-865 兆赫，根据地区而定

工作范围

UR1, UR2:

在一般情况下为 152.4 米 (500 英尺)

500 米(1600 英尺) 无障碍直线相对距离，户外型，单系统

注释：实际工作范围与射频信号的吸收、反射和干扰有关

音频频率响应

40-18,000 Hz, (+1 dB, -3 dB)。

注释：整个系统的频率响应取决于麦克风元件

增益调整范围

UR1：-20 到 +35 dB

推荐为吉他使用 -10 dB 设置

UR2：-10 到 +20 dB

调制

FM (最大偏移 45 千赫)，带有预突出和消除突出功能

射频功率输出

参见上表。

动态范围

>A 加权 105 dB

镜频抑制

态范围

>110 dB 典型

射频灵敏度

UR4S+	UR4D+
-110 dBm 典型 12 dB SINAD	-107 dBm 典型 12 dB SINAD
-105 dBm 典型 30 dB SINAD	-102 dBm 典型 30 dB SINAD

杂散抑制

态范围

>90 dB 典型

最终静音 (参考 45 千赫偏移)

>A 加权 100 分贝

信号极性

话筒隔膜的正压 (或对 WA302 耳机插头尖的正电压) 在 XLR 输出针脚 2 (相对于 XLR 针脚 3) 和 1/4 英寸输出插孔尖上产生正电压。

系统失真 (参考 ±45 千赫偏移, 1 千赫调制)

<0.3% 典型总谐波失真

功率要求

UR1、UR2：两节 1.5V AA 电池

UR4：100 到 240 伏交流，50/60 赫兹

电流漏极

UR1、UR2：最大 180 毫安 (常规射频功率设置)

最大 240 毫安 (常规射频功率设置)

UR4D+：最大 0.8 安培

UR4S+：最大 0.8 安培

电池寿命 (典型)

UR1、UR2：9.5 小时 (低功率)

6 小时 (高功率)

工作温度范围

-18° 至 +57° C (0° 至 +135° F)

注释：电池特性可能影响该变化范围的限度

注释：电气安全认可的最高室温是 35°C (95° F)。

整体尺寸

UR1：98 毫米 (长) x 60 毫米 (宽) x 17 毫米 (厚)

(3.84 x 2.38 x 0.66 英寸)

UR2/SM58：261 毫米 (长) x 51 毫米直径 (10.27 x 2 英寸)

UR2/SM86：261 毫米长 x 51 毫米直径 (10.27 x 2 英寸)

UR2/SM87A：254 毫米 x 51 毫米直径 (10 x 2 英寸)

UR2/KSM9/BK, UR2/KSM9/SL：250 毫米 x 49 毫米直径 (9 7/8 x 1 15/16 英寸)

UR2/BETA 58：258 毫米长 x 51 毫米直径 (10.15 x 2 英寸)

UR2/BETA 87A、UR2/BETA 87C：254 毫米 x 50 毫米直径 (10 x 2 英寸)

UR4S+/UR4D+：44 毫米高 x 483 毫米宽 x 366 毫米厚
(1.72 x 19.000 x 14.39 英寸)

净重

UR1：无电池 97 克 (3.4 盎司)

UR2/SM58：无电池 356 克 (12.6 盎司)

UR2/BETA 58：无电池 314 克 (11.1 盎司)

UR2/SM86：无电池 317 克 (11.2 盎司)

UR2/SM87A：无电池 298 克 (10.5 盎司)

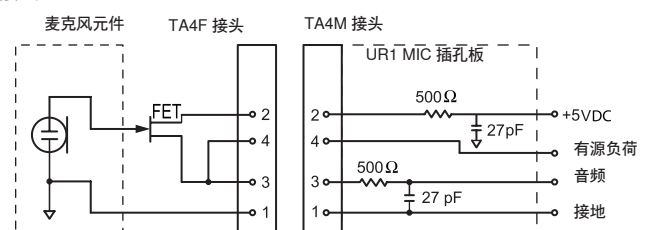
UR2/BETA 87A、UR2/BETA 87C：无电池 325 克 (11.5 盎司)

UR2/KSM9/BK, UR2/KSM9/SL：无电池 410 克 (14.5 盎司)

UR4S+：5.0 公斤 (10.9 磅)

UR4D+：5.1 公斤 (11.2 磅)

接线



注释：领夹麦克风将针脚 3 和 4 短接，吉他线缆则不短接。

输入和输出

UR1 发射机音频输入

接头：	4 针插头迷你接头 (TA4M)
输入配置：	非平衡式，有源
实际阻抗：	>1 毫 Ω (有源负荷)
最大输入电平： 1 KhZ, 1% THD	+10 dBu, (灵敏度 0 dB) +20 dBu, (灵敏度 -10 dB)
TA4M 接头 针脚分配：	针脚 1：接地 针脚 2：+5 伏直流偏压 针脚 3：音频 针脚 4：通过有源负荷 (在主板上) 接地 (在乐器适配器线缆上，针脚 4 悬空)

UR1 发射机射频输出

接头：	SMA
实际阻抗：	50 Ω
针脚分配：	外壳 = 接地 中间 = 信号

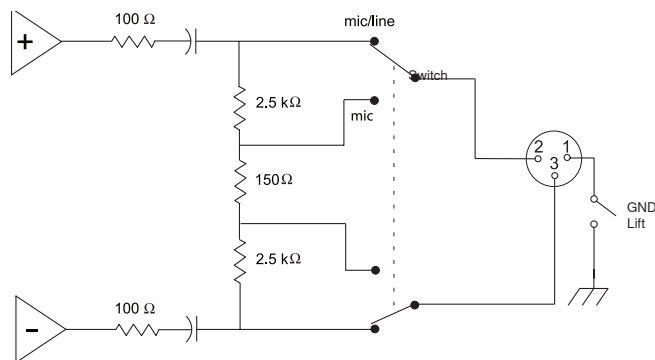
UR2 发射机音频输入

输入配置：	非平衡式，有源
实际阻抗：	>1 毫 Ω (有源负荷)
最大输入电平：1 KhZ, 1% THD	+4.8 dBu

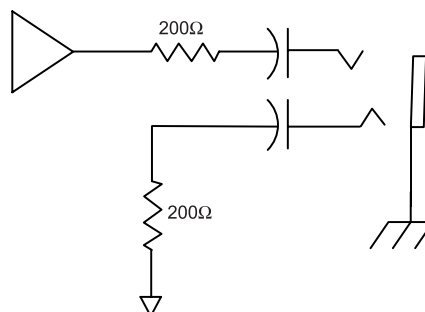
射频分配端口

	RF IN	RF OUT
接头类型	BNC	BNC
偏压电压	12 伏直流， 150 毫安 最大值	不适用

XLR



1/4 英寸耳机



接收机输入

	天线	电源
接头类型：	BNC	IEC
实际阻抗：	50 Ω	-
标称输入电平：	-95 至 -30 dBm	100-240 伏交流， 50/60 赫兹
最大输入 电平：	推荐值 -20 dBm	240 伏交流， + 10%， 50/60 赫兹
针脚分配：	外壳 = 接地 中间 = 信号	IEC 标准
偏压电压*	12 伏直流， 150 毫安 最大值	不适用

* 用于远程天线放大器

接收机音频输出

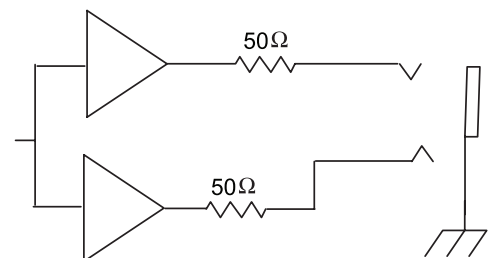
	监听 (1/4 英寸 耳机)	1/4 英寸耳机	XLR
输出配置：	非平衡单声道， 1/4 英寸	平衡阻抗	电子平衡
实际阻抗：	50 Ω	200 Ω	200 Ω (子平衡 有源) (150 Ω 麦克风)
最大输出电平	1 瓦，63 Ω	+18 dBu	+24 dBu (-6 dBu 麦 克风) 100 赫 兹调制音频 (XLR)
针脚分配：	点 = 带电 Ring = Hot Sleeve = Gnd	点 = 带电 圈 = 无信号 套管 = 接地	1 = 接地 2 = 音频 + 3 = 音频 -
幻象电源保护？	否	是	是

计算机/网络接口

以太网	USB*
RJ45	USB B 系列插座

* USB-IF 徽标是 Universal Serial Bus Implementers Forum, Inc 的商标。

1/4 英寸监听/耳机



更换部件和附件

提供的附件

话筒座适配器 (UR2)	WA371
硬件套件, 锁定接头	WA340
拉锁包 (UR1)	26A13
拉锁包 (UR2)	26A14
天线延长电缆 (2)	95B9023
天线 (UR1), 518-578 兆赫	UA710
天线 (UR1), 578-698 兆赫	UA720
天线 (UR1), 740-865 兆赫	UA730
天线 (UR1), 944-952 兆赫	UA740
两条天线 (UR4+), 取决于波段 (参看下表)	UA820
发射机便携箱	95C9053
两条射频分配电线	95N2035

可选配附件

带网罩的 SM58 头	RPW112
带网罩的 SM86 头	RPW114
带网罩的 BETA 58 头	RPW118
带网罩的 BETA 87A 头	RPW120
带网罩的 BETA 87C 头	RPW122
带网罩的 SM87A 头	RPW116
带网罩的 KSM9/SL 头	RPW180
带网罩的 KSM9/BK 头	RPW184
镱银网罩 (SM58)	RK143G
镱银网罩 (SM86)	RPM266
镱银网罩 (BETA 58)	RK265G
黑网罩 (SM87)	RK214G
镱银网罩 (BETA 87A)	RK312
镱银网罩 (BETA 87C)	RK312
黑网罩 (BETA 58)	RK323G
黑网罩 (BETA 87A/BETA 87C)	RK324G
香宾颜色格栅 (KSM9/SL)	RPM260
黑网罩 (KSM9/BK)	RPM264
风屏幕 Popper Stopper™	A85WS
腰包袋 (黑色), UR1	WA580B
腰包袋 (白色), UR1	WA580W
皮带夹 (UR1)	44A8031

天线合并器及附件

- 天线和接收机必须使用同一频段。
- 远程安装或直接安装到 UA845 时可使用提供的 1/2 行波天线。
- UA845 使用的天线和电缆还可用于独立 UHF-R 接收机。

无源天线/分配器合成器套件 (建议配装两部接收机时使用)	UA221
UHF 天线功率分配放大器	UA845:
美国	UA845SWB
欧洲	UA845E
英国	UA845UK
1/2 行波, 全向, 宽带天线 (470-952 MHz)	UA860SWB
有源定向宽带天线 (470-698 MHz)	UA870USTV
I有源定向宽带天线 (944-952 MHz)	UA870X
宽带在线射频放大器 (925-932 MHz)	UA870X2
宽带在线射频放大器 (470-698 MHz)	UA830USTV
宽带在线射频放大器 800-830 MHz	UA830C
宽带在线射频放大器 (925-932 MHz)	UA830X2
宽带在线射频放大器 (944-952 MHz)	UA830X

无源单向宽频带天线 (470-952 MHz)	PA805WB
无源单向宽频带天线 (470-952 MHz)	PA805X
1/2 行波天线 (2)	
X1 Band	UA820X
G1 波段	UA820G
H4E, H4 波段	UA820H4
J5E, J5 波段	UA820J
L3E, L3 波段	UA820L3
Q5, Q6 、 Q10A 波段	UA820Q
R9, ABJ 波段	UA820A
10 英尺天线缆线	PA725
25 英尺天线缆线 (RG-8/X)	UA825
50 英尺天线缆线 (RG-8/X)	UA850
100 英尺天线缆线	UA8100

设计师和工程师规范

无线系统应在频率范围为 518 兆赫至 865, 944-952 兆赫 兆赫的 UHF 波段中工作，具体范围取决于用户所在地区的规定。系统中应包括用于更改工作频率的选项以避免射频干扰，使多达 160 个系统可以在同一位置同时工作。预先配置组、频道和频率设置能够确保多个系统在使用中不会相互干扰。

所有发射机均由两节 AA 电池供电，并应带有电源开关。腰包应具有指示电源是否打开的发光二极管指示灯。可用发射机应包括：一个用于电吉它、电贝司和其它电子乐器的腰包，以及一个用于演唱的手持麦克风。发射机应配备一个直流稳压器，以在电池电压发生变化时能确保稳定的性能。

接收机带有一个用户可编程的菜单操作液晶屏，其中可显示组、频道、频率、名称、静噪水平和锁定/解锁状态。系统应使用诸如 MARCAD 信号组合电路等技术，以提高接收质量，降低信号丢失，以获得可能的最佳信噪比。应在系统中配备均衡器、音频键控静噪和静噪电路，以提供最佳的音响质量，将噪声降低到最低水平。接收机应包括双射频表（每条天线一个）、音频电平表和用于计算机控制和监控的网络接口连接器。接收机应具有音量控制和可调节静噪控制。

系统应是 Shure UHF-R 无线系统。

认证

UR1、UR2：在 FCC 第 74 章（FCC 标识“DD4UR1”和“DD4UR2”）下接受的类型。在加拿大根据 RSS-123 和 RSS-102 经 IC 认证（“IC 616A-UR1, 616A-UR1G ” 和“IC：616A-UR2, 616A-UR2G”）。符合欧洲 R&TTE 指导原则 99/5/EC 的基本要求，并可以带有 CE 标志。

UR4S+、UR4D+：符合 FCC 第 15 章声明的要求。根据 RSS-123（“IC：616A-UR4P”）获加拿大工业部认证。符合欧洲 R&TTE 指导原则 99/5/EC（EN 301 489 第 1 和第 9 章，EN 300 422 第 1 和第 2 章）的基本要求。可以带有 CE 标志。

符合澳大利亚 EMC 要求并且可以带有 C-Tick 标志。

已经获得以下国家的安全许可：

适用于美国和加拿大的 cULus 标志：符合 CSA/CAN E60065。经 UL GS 验证符合 EN60065。

放射指定符

120KF3E

许可信息：

许可：在一些特定地区使用可能需要获得主管部门许可证。请您向所在国家的主管部门咨询相关要求。

未经 Shure Incorporated 明确许可的修改或改进会使您的操作授权失效。获得 Shure 无线麦克风设备的授权是用户的责任，许可情况取决于用户的设备修改和应用情况以及选择的频率。Shure 强烈建议您在选择和订购产品时，与相关的电信部门联系以确定许可情况。

用户相关信息

本设备已经过测试符合 FCC 法规第 15 章有关 B 类数字设备的限制。这些限制专门用于为在住宅内安装此设备提供防止有害干扰的保护。本设备产生、使用并可能发射生品能量，如果没有按照要求安装和使用，可能会对无线电通讯产生有害干扰。但是，并不保证本设备在特定安装情况下不会产生干扰。如果本设备确实对收音机或电视机的接收产生了有害干扰，可以通过打开本设备然后再关闭的方法确定，建议用户通过以下一种或多种方法自行排除此干扰。

- 调整或重新定向接收天线。
- 增大本设备与接收机之间的间隔距离。
- 将设备连接到与接收机使用的不同电路。
- 向经销商或有经验的收音机/电视技师咨询寻求帮助。

本 B 类数字设备符合加拿大 ICES-003 标准。

必须满足以下两个条件才能够操作本设备：(1) 本设备不产生干扰，并且 (2) 本设备必须能够接受包括可能导致设备意外操作的任何干扰。

注释：EMC 符合性测试是在使用提供的和推荐的缆线类型情况下完成的。使用其它缆线类型可能会降低 EMC 性能



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Gambaran Fitur

Sistem Mikrofon Wireless UHF-R® menggunakan teknologi wireless terkini, mengirimkan audio yang luar biasa dan, kuat serta handal. Mudah diatur dan dioperasikan dengan fitur-fitur terkini untuk instalasi profesional yang membutuhkan beberapa sistem mikrofon wireless.

Frequency Band Selection (Pilihan Gelombang Frekuensi)

Shure menawarkan sistem wireless dengan pilihan gelombang yang sesuai dengan berbagai ketentuan pemerintah dari negara-negara tertentu atau wilayah geografi. Ketentuan ini membantu membatasi gangguan frekuensi radio (FR) di antara berbagai macam peralatan wireless dan mencegah gangguan dengan saluran komunikasi umum setempat, seperti televisi dan siaran-siaran darurat.

Jarak gelombang dan frekuensi sistem dapat diidentifikasi pada bagian luar receiver dan pemancar. Sebagai contoh, "H4 518-578 MHz."

Untuk mengetahui informasi gelombang yang tersedia di wilayah Anda, mintalah saran dari agen setempat Anda atau hubungi Shure. Informasi lebih lanjut juga tersedia pada website Shure (www.shure.com).

Kelompok dan Saluran

Untuk mengirimkan audio melalui sistem wireless, pemancar dan receiver harus diatur dalam frekuensi atau saluran radio yang sama. Pemilihan saluran yang luas memungkinkan lebih banyak mikrofon digunakan pada waktu yang sama, karena setiap mikrofon harus dioperasikan pada saluran yang berbeda. Juga tersedia pilihan saluran terbuka yang luas dan bebas dari gangguan siaran televisi, alat-alat elektronik atau sistem wireless lainnya.

Kelompok adalah pilihan dari saluran yang sesuai. Mikrofon wireless dapat bekerja dengan baik ketika diatur pada saluran-saluran dalam kelompok yang sama.

Pilihan Frekuensi Otomatis

Fitur-Fitur berikut ini dapat memindai lingkungan frekuensi radio (FR) untuk menemukan pengaturan kelompok dan saluran yang paling baik untuk instalasi tertentu.

- **Pemindaian Kelompok**-menemukan kelompok dengan saluran terbuka yang paling banyak, kemudian mengatur semua receiver jaringan pada saluran dalam kelompok tersebut.
- **Pemindaian Saluran**-menemukan saluran terbuka pertama dalam kelompok yang dipilih saat itu dan mengatur receiver pada saluran tersebut.

Ikuti langkah-langkah pada halaman 11 sebagai petunjuk penggunaan fitur-fitur ini.

Sync Pemancar Otomatis

Fitur ini memindah pengaturan saluran dan kelompok secara otomatis dari receiver ke pemancar. Anda juga dapat memprogram pengaturan pemancar lain pada receiver dan juga memindahkan pengaturan-pengaturan tersebut. Lihat halaman 15.

Mengunci Antarmuka

Fitur ini mengunci receiver dan pemancar sehingga pengguna tidak dapat melakukan penggantian pada pengaturan. Sakelar daya pada pemancar juga bisa tidak aktif sehingga pemancar tetap hidup jika sakelar daya secara tidak sengaja mati hidup selama penampilan.

Struktur Penguatan Audio

Pengaturan berikut ini memungkinkan anda untuk mengatur hasil audio melalui sistem:

- **Kepekaan** (hanya bodypack). Jarak pengaturan penguatan 25 dB pada input pemancar bodypack.
- **Penguatan Pemancar** Jarak pengaturan penguatan audio 30 dB di dalam pemancar (mempengaruhi tingkat audio pada receiver, sebagaimana diindikasikan oleh LEDS **Audio**.)
- **Tingkat Output**. Atenuasi 32 dB pada output receiver, ditambah pengaturan mute (nonaktif).
- **Sakelar Mic/Line** Bantalan -30 dB untuk menyeimbangkan tingkat audio pada receiver output XLR.

Jaringan

Setiap Receiver memiliki porta RJ-45 pada bagian belakang untuk menghubungkan dengan receiver lain melalui jaringan Ethernet. Receiver jaringan memungkinkan Anda untuk mengatur saluran secara otomatis untuk semua receiver melalui perintah pemindaian kelompok tunggal. Anda juga dapat mengontrol dan mengawasi semua receiver jaringan melalui perangkat lunak Shure Wireless Workbench PC.

Porta Distribusi FR

Gunakan porta distribusi FR untuk membagi sinyal dari perangkat antena tunggal yang mencapai 10 receiver di dalam gelombang frekuensi yang sama. Porta FR tidak membutuhkan pembagi antena atau amplifier distribusi. Sirkuit aktif dapat meminimalkan kehilangan sisipan, menjaga kualitas sinyal. Penyaringan input menjaga sinyal bebas dari gangguan gelombang luar. Sirkuit distribusi dapat aktif hanya ketika receiver tambahan dihubungkan ke porta distribusi FR. Ketika tidak digunakan, sirkuit porta dibypass, memungkinkan receiver digunakan sebagai komponen yang berdiri-sendiri.

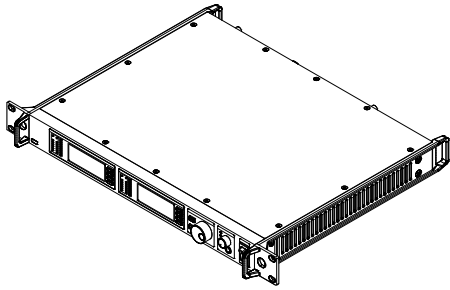
Perangkat Lunak Shure Wireless Workbench

Perangkat Lunak Shure Wireless Workbench tersedia dalam bentuk CD termasuk berbagai macam alat-alat yang berguna untuk menginstal dan mengatur sistem wireless ganda. Mudah menginstal perangkat lunak pada komputer Anda dan menghubungkannya ke jaringan receiver untuk memantau dan mengontrol pemancar melalui jaringan. (Lihat halaman 12 untuk informasi mengenai jaringan lebih lanjut)

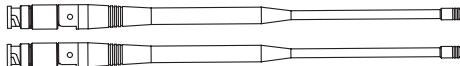
Petunjuk penggunaan perangkat lunak Wireless Workbench tersedia dalam file bantuan online setelah Anda menginstal perangkat lunak.

Komponen Sistem

Semua sistem termasuk:



Receiver UR4S+ atau UR4D+
(Gambar UR4D+)



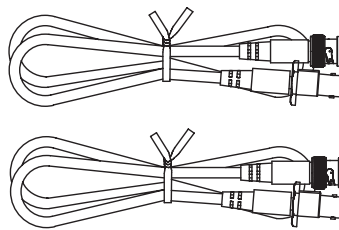
2 buah Antena Gelombang 1/2



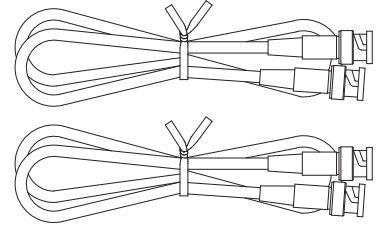
2 tutup lubang antena
4 Sekrup Pemasangan Rak dengan Cincin Penutup



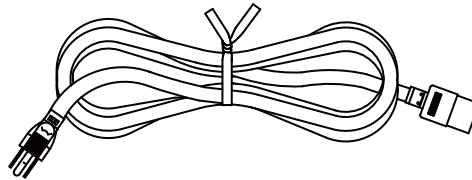
Baterai AA



Dua Kabel Antena



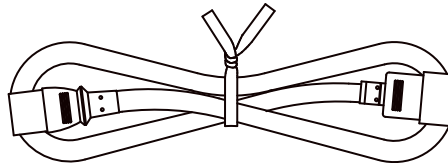
Dua buah Kabel Distribusi FR



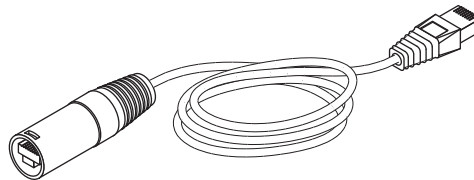
Kabel Daya IEC



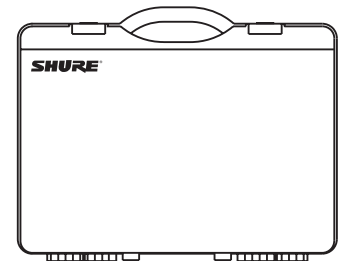
Perangkat Lunak Shure Wireless Workbench



Kabel Tambahan Daya IEC



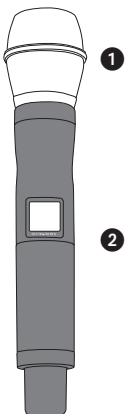
Kabel Jaringan Ethernet dengan tutup "Kokoh"



Kotak Pembawa Pemancar

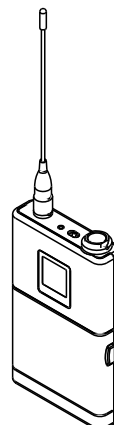
Sistem Genggam Termasuk:

- 1 Kepala Mikrofon (pilihan SM58®, SM86, Beta 58A®, Beta 87A™, Beta 87C™ atau KSM9/BK, KSM9/SL)
- 2 Pemancar genggam UR2
- 3 Penjepit mikrofon

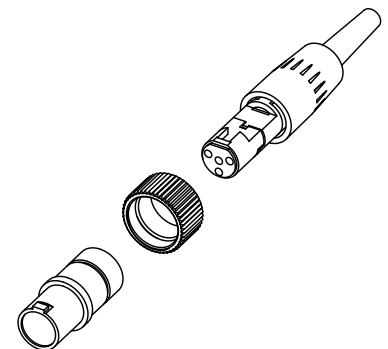


Sistem Bodypack Termasuk:

- Pemancar Bodypack UR1
- Adaptor Ulir TA4F

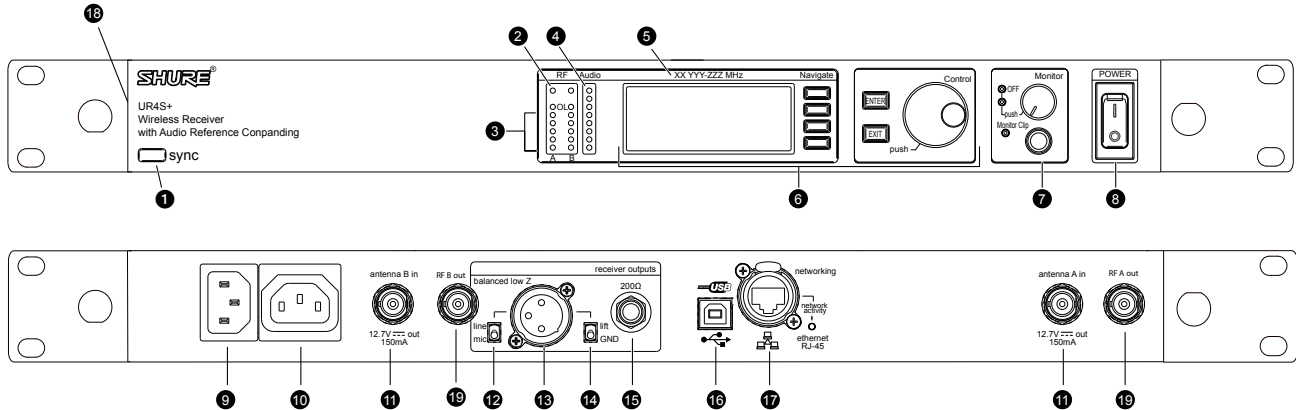


UR1



Adaptor Ulir TA4F

Kontrol dan Konektor Receiver



- ❶ Lubang inframerah (IM) **SYNC**. Mengirimkan kelompok, saluran dan pengaturan lain pada pemancar. Lihat halaman 15.
- ❷ LEDs Penindas.
 - Biru (On) = Sinyal pemancar terdeteksi
 - Off = tidak ada sinyal atau penindas sinyal karena penerimaan yang jelek atau tidak ada kunci nada

CATATAN: Receiver tidak akan menghasilkan output audio kecuali setidaknya satu LED biru menyala.
- ❸ LEDs **FR**. Mengindikasikan kekuatan sinyal FR dari pemancar pada setiap antenna dan kondisi yang berbeda.
 - Ambar = normal
 - Merah = kelebihan beban (lebih besar dari -25 dBm)
- ❹ LEDs **Audio**. Mengindikasikan kekuatan sinyal audio dari pemancar.
 - Hijau = sinyal sekarang
 - Kuning = ketinggian normal
 - Merah = kelebihan beban

Untuk memperbaiki tingkat ini, sesuaikan penguatan pemancar.
- ❺ Mengindikasikan nama dan jarak gelombang frekuensi receiver.
- ❻ Antarmuka LCD. Memberikan kemudahan untuk memprogram receiver dari panel depan (lihat rincian pada halaman berikutnya).
- ❼ **Monitor** Jack output 1/4 inci dan tombol volume untuk headphone.
 - LED **Penjepit Monitor** mengindikasikan audio headphone sedang menjepit.
 - Model Ganda: Dorong tombol untuk mengganti receiver satu ke receiver dua.

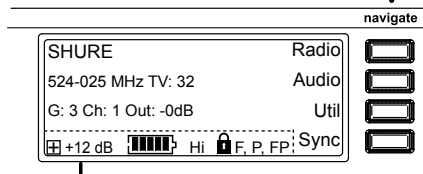
- ❽ Sakelar **daya**. Daya unit on dan off.
- ❾ Input daya utama AC, konektor IEC. 100–240 Vac.
- ❿ **Lewatan daya utama AC (tak teralih)**. Gunakan kabel sambungan IEC untuk menghubungkan hingga lima receiver UR4+ ke sumber daya AC tunggal.
- ⓫ Berbagai input antenna A dan B.

Catatan: Input antenna sebagai DC yang bias Gunakan penggabung antenna dan aksesoris yang hanya tercantum dalam halaman 19. Beberapa tipe pembagi antenna atau produk lain dapat mengurangi daya DC dan membahayakan receiver.
- ⓬ **Sakelar Mic/Line**. Mengganti tingkat output -30dB (hanya output XLR).
- ⓭ Jack output XLR seimbang elektrik
- ⓮ Sakelar **Lift/GND**. Angkat pembumian dari konektor XLR Pin 1 (**GND** = gagal).
- ⓯ Jack output keseimbangan impedansi 1/4 inci (200Ω)
- ⓰ Jack USB untuk antarmuka komputer.
- ⓱ Jack RJ-45 untuk antarmuka jaringan Ethernet. Menerima steker RJ-45 yang berbentuk biasa maupun yang "kokoh".
- ⓲ Kipas Suhu yang diaktifkan menjamin penampilan terbaik dalam lingkungan suhu yang tinggi. Bersihkan layar kipas untuk menghilangkan debu.
- ⓳ Porta distribusi FR yang melewati sinyal FR dari satu receiver ke receiver berikutnya, memungkinkan penggunaan maksimal 10 receiver untuk membagi perangkat antenna tunggal

Receiver LCD Interface

Akses Menu

Tekan tombol **Navigate** pada item menu yang ingin Anda pilih.

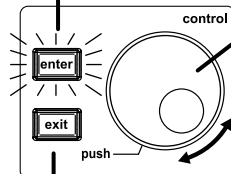


Tampilan Status Pemancar

Semua yang berada di bawah garis bertitik menunjukkan pengaturan pemancar, jika ada. (hanya pada layar judul utama).

Menerima Perubahan

Setelah mengubah parameter, tombol **ENTER** yang berkedip. Tekan tombol itu untuk menyimpan nilai.



Kontrol Kursor

Dorong roda **Control** untuk memindahkan kursor pada item berikutnya.

Putar roda **Control** untuk mengubah nilai parameter.

Keluar/Batal

Tekan tombol **Exit** untuk membatalkan perubahan dan kembali ke menu sebelumnya.

Receiver Parameters

Gunakan petunjuk dibawah ini untuk mengatur parameter melalui antarmuka LCD.

CATATAN: Setelah mengatur parameter, Anda harus menekan tombol ENTER berkedip untuk menerima perubahan.

Kelompok dan Saluran

Menu: **Radio**

- Dorong roda **Control** untuk memindahkan kursor ke parameter Grup (G) atau Saluran (Ch).
- Putar roda Kontrol untuk mengganti parameter.

Frekuensi

Menu: **Radio**

- Dorong roda **Control** untuk memindahkan kursor nilai integer (bilangan bulat) (524, 025 MHz) atau nilai terkecil (524, 025).
- Putar roda **Control** untuk mengubah nilai.

Sync Pemancar Otomatis

Menu: **Sync**

- Lihat halaman 15.

Nama Receiver

Menu: **Util**

- Putar roda **Control** untuk mengubah huruf.
- Dorong roda **Control** untuk memindahkan ke huruf berikutnya.

Tingkat Output.

Menu: **Audio**

Pengaturan ini menyesuaikan tingkat sinyal pada XLR dan Jack output audio 1/4 inci.

- Putar roda **Control** untuk mengubah tingkat nisbi pada dB. (0 dB - -32 dB).
- Putar semua roda ke bawah untuk menonaktifkan output.

Penindas

Menu: **Radio > Squelch**

- Putar roda **Control** untuk mengubah parameter

Mengunci Receiver

Ketika terkunci, pengaturan receiver tidak dapat diganti melalui panel depan. Bagaimanapun, Anda masih bisa menggunakan menu LCD untuk melihat pengaturan (dan matikan kunci).

Menu: **Util > Lock**

- Putar roda **Control** untuk mematikan atau menghidupkan kunci hidup atau mati (ON atau OFF).

Melihat LCD

Menu: **Util > Title**

- Putar roda **Control** untuk menandai item sebagai petunjuk.
- Dorong roda **Control** untuk pindah ke item berikutnya.

Kontras LCD

Menu: **Util > Contrast**

- Putar roda **Control** untuk menaikkan atau menurunkan kontras.

Nada kunci

Menu: **Radio > Squelch > Tonekey**

Penindas nada kunci menonaktifkan output kecuali receiver dapat mendeteksi pemancar. Kunci nada sebaiknya dibiarkan (On) kecuali adanya gangguan pada kegiatan tertentu.

Parameter Jaringan

CATATAN:

- Receiver hidup kembali setelah anda menekan **ENTER** untuk menerima penggantian parameter jaringan.
- Dalam model ganda (UR4D+), pengaturan ini mempengaruhi kedua receiver (receiver ganda diperlakukan sebagai alat jaringan tunggal).

Atur Mode Jaringan Receiver

Menu: **Util > Network**

1. Dorong roda **Control** untuk memindahkan kursor ke Parameter Mode mode.
2. Putar roda **Control** untuk mengatur receiver pada salah satu nilai berikut:
 - **DHCP**: gunakan pengaturan ini ketika menghubungkan receiver dengan server DHCP.
 - **Manual**: memungkinkan Anda untuk mengatur receiver pada alamat IP khusus atau subjaringan.

Alamat IP dan Subjaringan

Menu: **Util > Network**

CATATAN: Untuk mengubah pengaturan ini, mode jaringan harus diatur secara **Manual**.

1. Dorong roda **Control** untuk memindahkan kursor pada parameter berikut ini:
 - **IP** (alamat IP)
 - **Sub** (Subnet mask (pelindung Subjaringan))
2. Putar roda **Control** untuk mengganti nilai.

ID Peralatan

Membantu mengidentifikasi receiver melalui perangkat lunak Wireless Workbench (tidak mempengaruhi identifikasi jaringan).

Menu: **Util > Network**

1. Dorong roda **Control** untuk memindahkan kursor ke parameter **DevID**.
2. Putar roda **Control** untuk mengatur receiver untuk mengganti nilai.

Fitur Kelompok Suai ini memungkinkan anda untuk membuat frekuensi kelompok Anda sendiri.

Membuat kelompok baru...

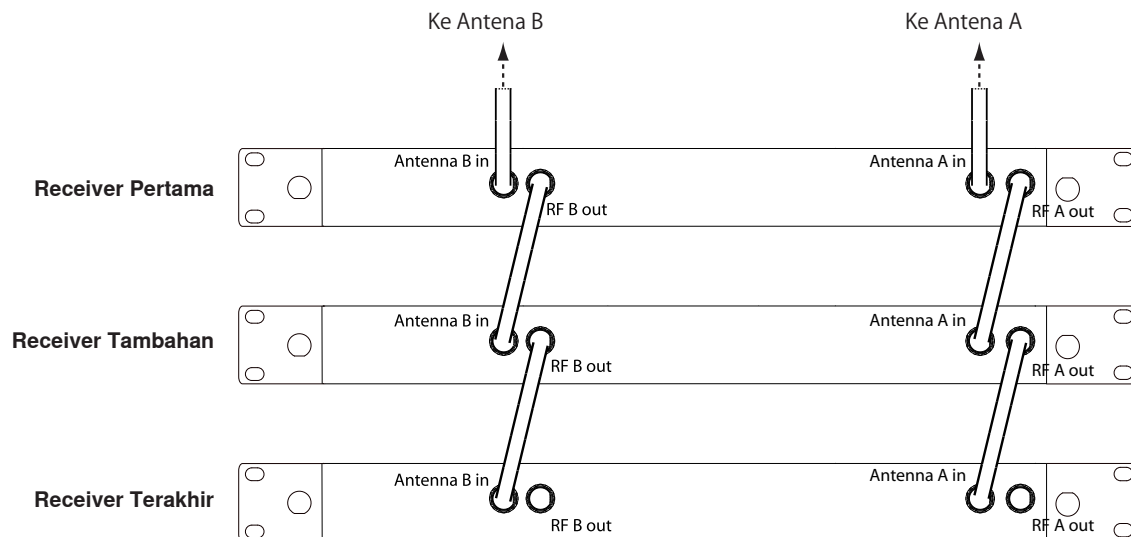
Menu: **Radio > Custom**

1. Putar roda **Control** untuk memilih anggota kelompok suai (U1, U2, U3, dll.)
2. Dorong roda **Control** untuk memindahkan ke parameter **Channel** dan putar untuk memilih saluran (01, 02, 03, dll.)
3. Dorong roda **Control** untuk memindahkan ke parameter **Freq** dan pilih frekuensi saluran tersebut.
4. Dorong kunci menu **NEXT** untuk memilih frekuensi saluran berikutnya dalam kelompok tersebut.

Menghubungkan Receiver Ganda pada Porta Distribusi FR.

Porta distribusi FR melewati sinyal FR dari satu receiver ke receiver berikutnya, memungkinkan penggunaan maksimal 10 receiver untuk membagi antenna perangkat tunggal. Gunakan kabel distribusi FR yang disediakan untuk menghubungkan porta setiap receiver sesuai petunjuk.

CATATAN: Semua receiver harus bekerja pada gelombang frekuensi yang sama.



Pilihan Frekuensi Otomatis

Ikuti langkah-langkah berikut dalam menggunakan fitur pemindaian saluran dan kelompok.

Sebelum Anda memulai...

- Instal receiver pada lokasi di mana akan digunakan dan hidupkan dayanya.
- Nonaktifkan semua input pada peralatan pencampuran yang terhubung ke receiver.
- Matikan semua pemancar bodypack atau genggam untuk sistem yang Anda atur.
- Menyalakan sumber gangguan potensial seperti peralatan atau sistem wireless lainnya, komputer, pemutar CD, mempengaruhi prosesor, dan peralatan rak digital sehingga mereka akan bekerja selama presentasi atau pertunjukan.

Receiver Tunggal

1. Pilih **Radio > Scan > Chan Scan** dengan menggunakan tombol **Navigate** pada antarmuka LCD receiver.
2. **Putar** roda **Control** untuk memilih kelompok.
3. Tekan **Chan Scan**. Tampilan menunjukkan bahwa receiver sedang mencari. Setelah selesai mencari, receiver tersebut menunjukkan saluran yang dipilih.
4. Tekan tombol **ENTER** berkedip untuk menerima saluran yang disarankan.
5. Sync pemancar (lihat halaman 15).

Receiver Jaringan atau Ganda

Dengan receiver jaringan atau ganda, Anda dapat mengambil manfaat dari fitur pemindaian kelompok untuk mengatur kelompok dan saluran untuk semua receiver pada waktu yang bersamaan. (Lihat halaman 12 untuk petunjuk lebih lanjut mengenai jaringan)

Jalankan pemindaian kelompok dari setiap receiver...

1. Pilih **Radio > Scan > Group Scan** dengan menggunakan tombol **Navigate** pada antarmuka LCD receiver. Tampilan menunjukkan bahwa receiver sedang mencari. (Pemindaian sedang dalam Proses) Setelah selesai, receiver tersebut menunjukkan tampilan kelompok melalui saluran yang paling banyak terbuka.
2. Jika Anda menginginkan, putar roda **Control** untuk mengubah kelompok. Sejumlah saluran terbuka untuk setiap kelompok sedang ditampilkan.
3. Tekan tombol **ENTER** berkedip untuk mengatur semua receiver pada saluran terbuka dalam kelompok tersebut.

CATATAN: Fitur pemindaian kelompok hanya berfungsi untuk receiver yang berada dalam gelombang frekuensi yang sama. Sebagai contoh, jika Anda melakukan pemindaian kelompok pada receiver gelombang "H4", maka semua receiver gelombang "H4" akan diatur, tetapi tidak pada receiver gelombang "J5".

Receiver Ganda - Tanpa Jaringan

Jika receiver Anda tanpa jaringan (atau dalam gelombang yang berbeda), maka pemindaian kelompok tidak dapat mengatur kelompok dan saluran mereka secara otomatis. Bagaimanapun, Anda masih bisa mengambil manfaat dari fitur pemindaian kelompok untuk menemukan kelompok dengan saluran yang paling banyak terbuka dan fitur pemindai saluran untuk menemukan saluran terbuka dalam kelompok tersebut.

Temukan kelompok dengan saluran yang paling banyak terbuka...

Jalankan pemindaian kelompok dengan menggunakan langkah-langkah untuk receiver jaringan (diatas). Bagaimanapun, buatlah sebuah catatan dari kelompok yang dipilih sebelum menekan tombol **ENTER** berkedip untuk menerimanya.

Atur receiver untuk saluran terbuka dalam kelompok tersebut...

Jalankan pemindaian saluran pada saluran tersisa dengan menggunakan langkah-langkah untuk receiver tunggal (di atas). Pastikan memilih kelompok yang sama untuk setiap receiver sebelum melakukan pemindaian saluran.

PENTING: Setelah mengatur saluran untuk receiver pertama, secepatnya sinkronisasikan pemancar untuk receiver tersebut dan biarkan sehingga receiver berikutnya mendeteksi saluran tersebut selama pemindaian saluran. Sebaliknya, semua receiver akan diatur pada saluran terbuka yang sama.

CATATAN: Receiver dalam gelombang yang berbeda (H4, J5, L3, dll.) tidak perlu diatur pada kelompok yang sama.

Networking Receivers (Penerima Jaringan)

Jaringan Dasar

Sambungkan receiver ke router (pengatur) Ethernet dengan layanan DHCP. Gunakan sakelar Ethernet untuk memperluas jaringan untuk instalasi yang lebih besar.

Gunakan pengaturan jaringan default (nilai awal) receiver

(Util > Network > Mode = DHCP).

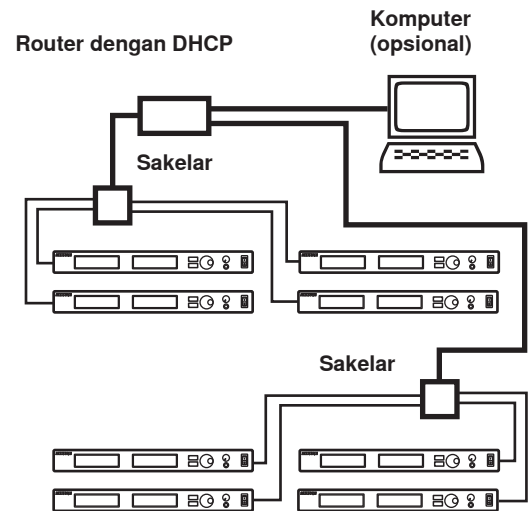
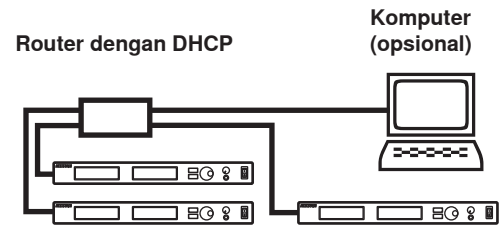
Mengakses Jaringan melalui Komputer

Jika Anda ingin menggunakan perangkat lunak Wireless Workbench, sambungkan komputer Anda pada jaringan dan instal perangkat lunak dari CD receiver. Pastikan komputer Anda telah dikonfigurasi untuk DHCP (dari Panel Kontrol, klik Sambungan Jaringan. Klik-dua kali pada Local Area Connection (Sambungan Area Lokal). Pilih Internet Protocol (TCP/IP) dan klik Properties. Pilih Obtain IP address automatically (alamat PI secara otomatis) dan Obtain DNS server address automatically (alamat server DNS secara otomatis) lalu klik OK).

CATATAN: Beberapa perangkat lunak pelindung atau pengaturan firewall dalam komputer Anda dapat menghalangi Anda terhubung ke receiver. Jika menggunakan perangkat lunak firewall, biarkan koneksi pada 2201.

Menggunakan USB...

Sambungkan komputer ke porta USB pada salah satu dari receiver untuk mengakses semua jaringan.



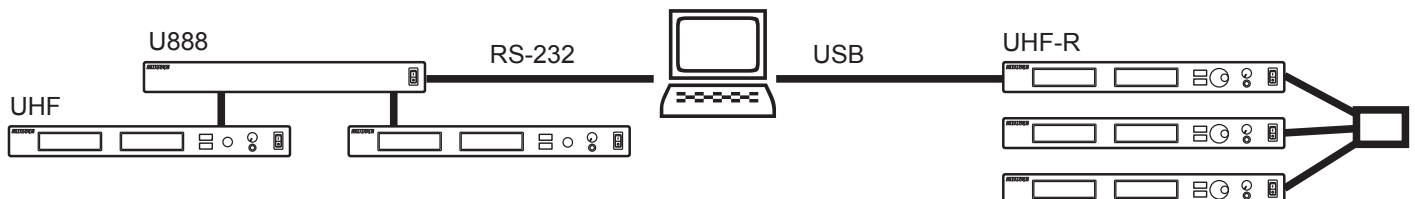
Static IP Addressing (Alamat PI Statis)

Receiver juga mendukung alamat IP statis Menetapkan alamat IP Anda (Util > Network > Mode = Manual). Lihat "Parameter Jaringan" pada halaman 10.

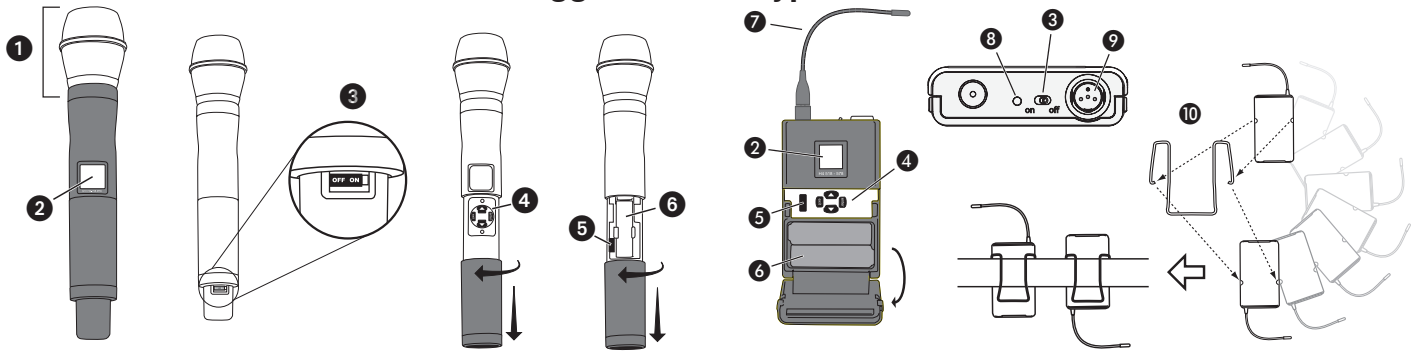
CATATAN: Receiver ganda menggunakan alamat IP tunggal, yang mana dapat diatur melalui salah satu antarmuka LCD.

Instalasi Jaringan UHF yang Ada

Kedua receiver UHF-R dan receiver UHF legasi dari Shure dapat menjadi jaringan untuk PC yang sama dan diakses menggunakan perangkat lunak Wireless Workbench terkini.

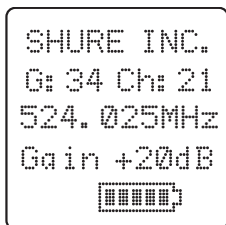


Kontrol dan Konektor Pemancar Genggam dan Bodypack



- ➊ Kepala mikrofon yang dapat ditukar (gambar BETA 87A).
- ➋ Panel LCD.
- ➌ Sakelar Daya.
- ➍ Tombol kontrol untuk antarmuka LCD.
- ➎ Porta Inframerah (IM). Lihat halaman 15.
- ➏ Kotak baterai.
- ➐ Antena Fleksibel.
- ➑ LED Daya.
- ➒ Jack input mikrofon 4-Pin.
- ➓ Jepit Sabuk yang dapat Dibalik.

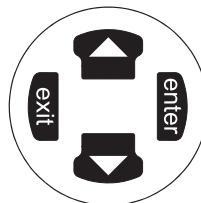
Transmitter LCD Interface (Antarmuka LCD Pemancar)



Menu Utama

Tombol Panah Atas Menggulung ke atas atau menambah nilai.

Tombol **exit** Pindah ke kiri, atau keluar tanpa menyimpan.



Tombol **enter**. Tekan untuk memilih parameter dan menerima nilai yang dipilih.

Tombol Panah Bawah Menggulung ke bawah atau mengurangi nilai.

Baterai Pemancar

Pemancar bekerja dengan baterai AA standar. Matikan pemancar sebelum mengganti baterai.

Alat ukur bahan bakar baterai muncul pada LCD pemancar memberikan indikasi sisa daya baterai, sebagaimana yang terlihat dibawah ini.

UR1, UR2:

Tampilan Pemancar	Perkiraan Sisa Waktu (baterai alkaline)	
	UR1/UR2 (Daya Normal)	UR1/UR2 (Daya Tinggi*)
	7.5 - 9.5	5 - 6
	5.75 - 7.5	4 - 5
	4 - 5.75	3 - 4
	2 - 4	1.5 - 3
	15 menit - 2 jam	10 menit - 1.5 jam

* Pengaturan daya tinggi tidak tersedia pada model-model yang dijual di negara-negara yang melarang penggunaan daya tersebut.

Parameter Pemancar

Tekan **ENTER** pada menu utama untuk mengakses parameter berikut:

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

Kelompok (G) dan **Saluran** (Ch). Harus cocok dengan pengaturan receiver.

Frekuensi (MHz). Pemilihan frekuensi manual pada ketinggian 0,025 MHz.

Penguatan (Gain). Mengatur tingkat audio dari -10 dB ke +20 dB

Kepekaan (Sens) (hanya bodypack).

Atur input audio ke +15 dB, 0 dB, atau -10 dB yang direkomendasikan untuk gitar.

Tampilan Nama. 12-digit ASCII.

Untuk mengakses fitur dan parameter tambahan gunakan gabungan kunci berikut:



Panel LCD.

Mengubah Panel LCD



Mengunci Frekuensi

Pengaturan Toggle (sakelar mati hidup) Ketika diaktifkan, frekuensi tidak dapat diganti, dan sync pemancar tidak akan menerima pengaturan frekuensi.



Pengunci Daya

Pengunci daya sakelar hidup mati. Ketika terkunci, sakelar daya tidak dapat mematikan pemancar.



Pengaturan tingkat daya FR*

Gunakan tombol panah untuk memilih daya normal (10 mW) atau daya tinggi (50/100 mW**). Gunakan pengaturan daya normal untuk menghemat baterai atau mencegah kelebihan beban FR pada receiver.

* Pengaturan daya tinggi tidak tersedia pada model-model yang dijual di negara-negara yang melarang penggunaan daya tersebut.

** Berbagai model nilai daya tinggi.

Mengunci Indikator

```
SHURE INC.
G: 34 Ch: 21
524.025MHz
Gain +20dB
[ ] [ ] [ ] [ ] [ ] [ ]
```

Pengunci
Daya

Pengunci Frekuensi

Pengaturan Penguatan Pemancar

Atur penguatan pemancar dan kepekaan input sehingga LEDs **Audio** pada receiver mencapai puncak pada tingkat kuning selama digunakan. Pada pemancar bodypack, Anda dapat mengganti pengaturan kepekaan untuk mengimbangi tingkat audio yang berbeda ketika menghubungkan instrumen atau mikrofon yang berbeda pada input.

Untuk mengatur penguatan, nyalakan pemancar dan tekan tombol **enter**. Gulung ke bawah menuju **Gain** Penguatan atau **Sens** (hanya bodypack) dan tekan **enter** lagi. Gunakan tombol panah untuk menyesuaikan pengaturan dan untuk menyimpannya tekan **enter** (**Exit** membatalkan tanpa menyimpan).

Mode Keamanan FR

Fitur khusus ini menonaktifkan siaran-siaran FR untuk sementara. Ini memungkinkan Anda mengganti pengaturan frekuensi pada pemancar tanpa tidak sengaja "memotong" saluran yang digunakan oleh pemancar lain.

1. Mematikan pemancar.
2. Tekan tombol **exit** selama menyalakan daya pemancar (untuk mikrofon genggam, Anda perlu menarik penutup baterai dari penggunaannya). LCD berkedip ketika unit sedang dalam mode aman FR.
3. Ganti pengaturan kelompok dan saluran sebagaimana yang Anda inginkan-pemancar tidak akan mengudara.
4. Matikan dan hidupkan pemancar daya untuk keluar dari mode aman FR.

Sync Pemancar Otomatis

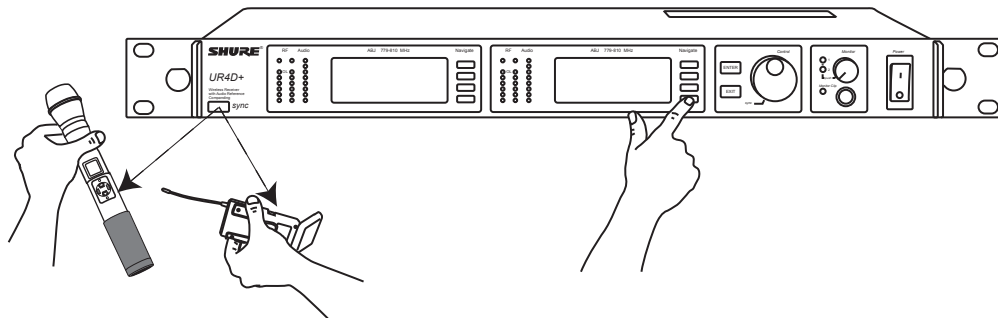
Fitur ini memperbarui secara otomatis pengaturan kelompok dan saluran pemancar genggam atau bodypack untuk mencocokkannya dengan receiver yang dipilih.

Menjalankan sinkronisasi pemancar...

1. Buka penutup baterai pemancar untuk menampilkan porta inframerah (IM)
2. Dengan porta IM yang terpapar ke receiver, pilih **Sync** > **sync** dari antarmuka LCD receiver.

Tampilan pada receiver mengindikasikan apakah sync (sinkronisasi) berhasil. Jika sync gagal, maka pastikan bahwa porta IM pada pemancar terpapar dan berhadapan langsung dengan porta IM pada receiver.

CATATAN: Tutup pintu baterai sebelum melakukan sinkronisasi pada pemancar lainnya.



Memindahkan pengaturan pemancar lain...

Secara opsional, Anda dapat memindahkan pengaturan pemancar dari receiver ketika anda melakukan sinkronisasi. Gunakan langkah berikut:

1. Pilih **Sync** > **Setup** dari antarmuka LCD receiver.
2. Putar roda **Control** untuk mengganti pengaturan parameter.
3. Dorong roda **Control** untuk memindahkan ke parameter berikutnya.
4. Dorong tombol **ENTER** berkedip untuk menyimpan pengaturan.

Pengaturan pemancar yang Anda atur pada receiver tetap untuk sinkronisasi berikutnya.

CATATAN: Jika Anda tidak menginginkan sinkronisasi mengirimkan pengaturan, atur parameter pada **No Change**

Pengaturan yang Tersedia...

Pengaturan berikut tersedia pada menu **Sync** > **Setup**:

- Kepekaan (**Sens**) hanya bodypack
- Penguatan (**Gain**)
- Daya FR (**Pwr**)
- Pengunci Daya dan Frekuensi (**Lock**), yang mana memiliki nilai-nilai berikut:
 - Hanya pengunci daya: (**Pwr Only**)
 - Hanya pengunci frekuensi: (**Freq only**)
 - Keduanya: (**Freq and Pwr**)
 - Tidak keduanya: (**Unlocked**)
- Kelompok sesuai (**CG**):
 - Hidup (**ON**): Mengirim kelompok yang sesuai ke pemancar selama sinkronisasi
 - Mati (**OFF**): Jangan mengirim kelompok sesuai (mengurangi waktu sinkronisasi)

Solusi dalam gangguan

Masalah	Lihat Solusi...
Tidak ada suara	Daya, Kabel atau FR
Suara Lemah atau Distorsi	Penguatan
Jarak yang kurang, dengungan bising yang tidak diinginkan, atau lemah	FR
Tidak bisa mematikan pemancar atau mengganti pengaturan frekuensi, atau tidak dapat memprogram receiver.	Pengunci Antarmuka
Dengungan atau deringan yang berlebihan	Daya angkat pembumian

Daya

Pastikan bahwa pemancar dan receiver menerima voltase/tegangan (voltage) yang cukup. Receiver memerlukan paling sedikit 90 Vac. Periksa indikator baterai pada pemancar dan jika perlu ganti baterai.

Penguatan

Sesuaikan pengaturan penguatan dan kepekaan pemancar (lihat halaman 14) atau tingkat output receiver (halaman 9) atau sakelar hidup mati **mic/line** pada bagian belakang receiver.

Kabel

Periksa agar semua kabel dan konektor telah bekerja secara teratur.

Pengangkatan Koneksi Ground

Dengan memutuskan koneksi ground pada pin 1 dari XLR output di receiver, kadang kala dapat menghilangkan dengungan atau desis pada signal audio.

Atur sakelar **GND/LIFT** pada receiver untuk **LIFT** jika Anda sedang menggunakan konektor XLR.

Pengunci Antarmuka

Kedua pemancar dan receiver dapat dikunci untuk menghindari perubahan yang tidak disengaja. Pada pemancar, cari simbol kunci pada LCD dan untuk mematikan gunakan gabungan tombol yang digambarkan dalam halaman 14.

Untuk mematikan pengunci antarmuka receiver. lihat halaman 9.

Menambah Jarak

Jika jarak pemancar lebih dari 6 - 60 m (20 - 200 kaki) dari antena receiver, maka Anda dapat menambah jarak dengan melakukan langkah berikut:

- Mengurangi gangguan (lihat di atas)
- Menambah tingkat daya FR pemancar (lihat halaman 14).
- Gunakan antena arah yang aktif, sistem distribusi antena atau aksesoris antena lain untuk menambah jarak FR (lihat halaman 19).

Frekuensi Radio (RF)

Menggunakan LEDs RF

Jika tidak ada LED **RF** biru menyala, berarti receiver tidak mendeteksi adanya pemancar.

LEDs **RF** ambar mengindikasikan sejumlah sinyal yang dapat diterima. Sinyal ini bisa dari pemancar atau bisa dari sumber gangguan seperti siaran-siaran televisi. Matikan Pemancar. Jika terdapat lebih dari satu atau dua LEDs **RF** ambar yang masih menyala, berarti saluran tersebut memiliki terlalu banyak gangguan, dan Anda harus mencoba saluran lainnya.

LED **RF** merah mengindikasikan kelebihan beban pada FR. Biasanya hal ini tidak akan menimbulkan masalah kecuali Anda menggunakan lebih dari satu sistem pada saat bersamaan, dalam hal ini, bisa disebabkan oleh gangguan antar sistem.

Menghilangkan Kelebihan Beban pada FR

Jika Anda melihat LED **RF** merah pada receiver, maka kurangi tingkat daya FR pemancar (lihat halaman 14) atau pindahkan pemancar jauh dari receiver-paling sedikit 6 m (20 kaki). Jika Anda menggunakan antena yang aktif, kurangi penguatan antena atau amplifier.

Kompatibilitas

- Jalankan sinkronisasi pemancar, atau pastikan pemancar dan receiver diatur pada kelompok atau saluran yang sama.
- Lihat pada label pemancar dan receiver untuk memastikan bahwa mereka berada dalam gelombang yang sama (H4, J5, L3 dll...)

Mengurangi Gangguan

- Gunakan saluran lainnya atau jalankan pemindaian kelompok atau saluran otomatis (lihat halaman 11)
- Untuk sistem ganda, periksa bahwa semua sistem diatur pada saluran dalam kelompok yang sama (sistem yang berada dalam gelombang yang berbeda tidak perlu diatur pada kelompok yang sama).
- Memelihara batas pandang antara pemancar dan antena receiver
- Tempatkan antena receiver jauh dari benda logam atau sumber gangguan FR lainnya (seperti pemutar CD, efek digital, sakelar jaringan, kabel jaringan dan sistem wireless Personal Stereo Monitor (PSM) (Monitor Stereo Pribadi).
- Menghilangkan Kelebihan Beban pada FR

SPESIFIKASI

Gelombang	Jarak	Daya pemancar (mW)	
		UR2 Genggam	UR1 Bodypack
G1	470-530 MHz	10 / 50	10 / 100
G1E	470-530 MHz	10 / 50	10 / 50
H4	518-578 MHz	10 / 50	10 / 100
H4E	518-578 MHz	10 / 50	10 / 50
J5	578-638, 614-638 MHz	10 / 50	10 / 100
J5E	578-638 MHz	10 / 50	10 / 50
K4E	606-666 MHz	10 / 50	10 / 50
L3 L3E	638-698 MHz	10 / 50	10 / 100
M5E	694-758 MHz	10 / 50	10 / 50
Q5	740-814 MHz	10 / 50	10 / 50
R9	790-865 MHz	10 / 50	10 / 50
Q6	740-752 MHz	10	10
A24	779-788 / 797-806 MHz	10	10
JBX	806-810 MHz	10	10
Q10A	740-787 MHz	10 / 50	10 / 50
R16	794-806 MHz	10 / 50	10 / 50
R18	794-806 MHz	Hanya 10	Hanya 10
X1	944-952 MHz	10 / 50	10 / 100

CATATAN

Perlengkapan Radio ini dirancang untuk digunakan dalam hiburan musik profesional dan pemakaian yang serupa.

Perangkat radio ini mampu mengendalikan beberapa frekuensi tanpa izin di wilayah Anda. Silakan hubungi instansi berwenang Anda untuk mendapatkan informasi frekuensi yang dikendalikan dan tingkat daya FR untuk produk mikrofon wireless.

Jarak Frekuensi Pembawa FR

470-865, 944-952 MHz tergantung pada wilayah

Jarak Kerja

UR1, UR2:

Sesuai kondisi khas 150 m (500 kaki)

Garis pandang **500 m (1600 ft), di luar tempat untuk sistem tunggal.**

CATATAN: Jarak aktual tergantung pada serapan sinyal RF, pantulan dan gangguan.

Respon Frekuensi Audio

40 – 18,000 Hz, (+1 dB, -3 dB).

CATATAN: Respon frekuensi sistem secara keseluruhan tergantung pada elemen mikrofon

Jarak Pengaturan Penguatan

UR1: -20 - +35 dB

- 10 dB direkomendasikan untuk gitar

UR2: -10 - +20 dB

Modulasi

FM (deviasi maks. 45 kHz), sistem proses sinyal dengan pra-penekanan dan pengurangan penekanan

Output Daya FR

Lihat tabel diatas.

Rentang Dinamik

>105 dB, Bobot

Tolakan Gambar

Khas >110 dB

Kepekaan FR

UR4S+	UR4D+
Khas -110 dBm SINAD 12 dB	Khas -107 dBm SINAD 12 dB
Khas -105 dBm SINAD 30 dB	Khas -102 dBm SINAD 30 dB

Tolakan Palsu

Khas >90 dB

Ultimate Quieting (Keheningan Berkualitas) (deviasi petunjuk 45 kHz)

>100 dB, Bobot

Polaritas Sinyal

Tekanan positif pada diafragma mikrofon (voltase positif yang digunakan pada ujung steker telepon WA302) menghasilkan voltase pada pin 2 (berhubungan dengan pin 3 output impedansi rendah) dan ujung output 1/4-inci impedansi tinggi.

Distorsi Sistem (deviasi petunjuk ± 45 kHz, modulasi 1 kHz)

Total khas Distorsi Harmonis <0,3 %

Persyaratan Daya

UR1, UR2: Dua baterai AA 1,5V

UR4+: 100 - 240 VAC, 50/60 Hz

Pengaliran Arus

UR1, UR2: Pengaturan daya FR normal (maksimal 180 mA)

Pengaturan daya FR tinggi (maksimal 240 mA)

UR4D+, UR4S+: Maksimal 0,8 Amps

Nyala Baterai (Khas)

UR1, UR2: Daya FR normal (9,5 jam)

Daya FR tinggi (6 jam)

Jarak Suhu Kerja

-18° - +57° C (0° to +135°F)

CATATAN: Ciri-ciri baterai bisa membatasi jarak ini

CATATAN: Persetujuan keamanan listrik didasarkan pada suhu maksimal 35°C (95°F) di daerah sekitarnya.

Dimensi Keseluruhan

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

UR2/SM58: Diameter 261 mm L x 51 mm (10.27 x 2 inci.)

UR2/SM58: Diameter 261 mm L x 51 mm (10.27 x 2 inci.)

UR2/SM87A: Diameter 254 mm L x 51 mm (10 x 2 inci.)

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

UR2/BETA 58: Diameter 258 mm L x 51 mm (10,15 x 2 inci.)

UR2/BETA 87A, UR2/BETA 87C: Diameter 254 mm L x 51 mm (10 x 2 inci.)

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

(1,72 x 19,00 x 14,39 inci.)

Berat Netto

UR1: 97 g (3,4 ons) tanpa baterai

UR2/SM58: 356 g (12,6 ons) tanpa baterai

UR2/BETA 58: 314 g (11,1 ons) tanpa baterai

UR2/SM58: 317 g (11,2 ons) tanpa baterai

UR2/SM87A: 298 g (10,5 ons) tanpa baterai

UR2/KSM9/BK, UR2/KSM9/SL: 410 g (14,5 ons) tanpa baterai

UR2/BETA 87A, U2/BETA 87C: 325 g (11,5 ons) tanpa baterai

UR4S+: 4,8 kg (10,6 pon)

UR4D+: 5,0 kg (10,6 pon)

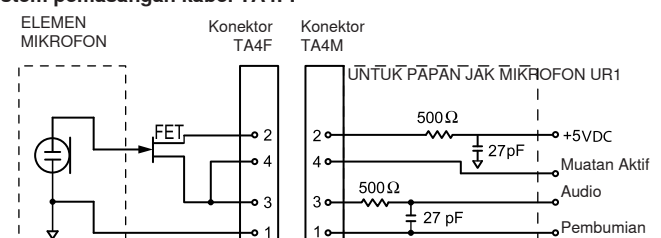
Rumah:

UR1: Magnesium tuangan

UR2: Pegangan terbuat dari tuangan aluminium dan wadah baterai diproses dari aluminium

UR4S+, UR4D+: Baja galvanis

Sistem pemasangan kabel TA4F:



CATATAN: SAMBUNGAN MIC LAVALIER DENGAN PIN 3 DAN 4—KABEL GITAR TIDAK.

Input dan Output

Pemancar Input Audio UR1

Konektor:	Konektor Mini 4-pin (TA4M)
Konfigurasi Input:	Tidak Seimbang, aktif
Tingkat Input Maksimum: (1 kHz, 1% THD)	Kepekaan 0 dB (+10 dBu) Kepekaan -10 dB (+20 dBu)
Pin Konektor TA4M Pemindahan:	Pin 1: Pembumian Pin 2: Bias +5 Vdc Pin 3: Audio, 200 k Ω Pin 4: Terikat melalui beban aktif (dalam papan utama) ke Bumi. (Pada kabel adaptor instrumen, pin 4 mengambang)

Pemancar Input Audio UR1

Konfigurasi Input:	Tidak Seimbang, aktif
Impedansi Aktual:	>1 M Ω
Tingkat Input Maksimum: 1 kHz, 1% THD	+4,8 dBu

Pemancar Output FR UR2, UR1

Konektor:	SMA
Impedansi Aktual:	50 Ω
Pemindahan pin:	Shell = Pembumian Pusat = Sinyal

Porta Distribusi FR

	FR Masuk (IN)	FR Keluar (OUT)
Jenis Konektor	BNC	BNC
Bias Vdc	12,2 Vdc @ 150 mA	N/A

Input Receiver

	Antena	Daya
Jenis Konektor:	BNC	IEC
Impedansi Aktual:	50 Ω	-
Tingkat Input Nominal:	-95 - -30 dBm	100-240 VAC, 50/60 Hz
Tingkat Input Maksimum:	-20 dBm	240 VAC, + 10%, 50/60 Hz
Pemindahan Pin:	Shell = Pembumian Pusat = Sinyal	Standar IEC
Voltase Bias*	Maksimum 12,2 Vdc @ 150 mA	N/A

* Untuk remote (pengendali jarak jauh) amplifier antena

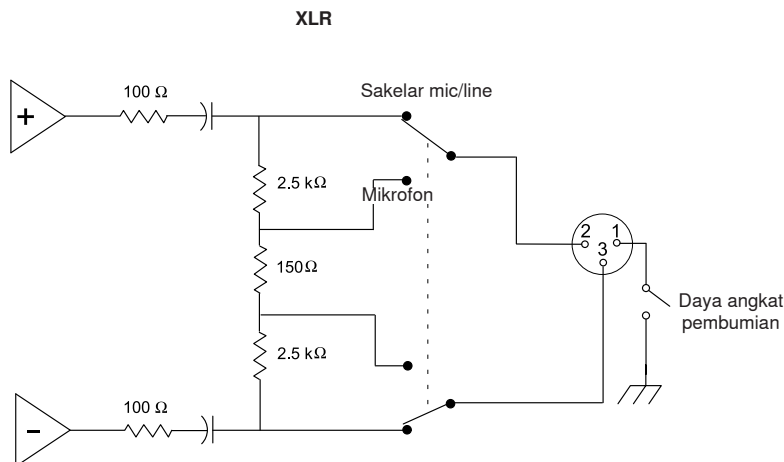
Output Audio Receiver

	Monitor (Headphone 1/4 inci)	Telepon 1/4 inci	XLR
Konfigurasi Output:	Mono tidak seimbang 1/4 inch	Impedansi Seimbang	Listrik Seimbang
Impedansi Aktual:	50 Ω	200 Ω	(keseimbangan aktif) 200 W (Mikrofon 150 W)
Maksimum Tingkat Output:	1 Watt @ 63 Ω	+18 dBu	+24 dBu (Mikrofon -6 dBu) dengan nada modulasi 100 Hz
Pemindahan Pin:	Tip = Panas Cincin = Panas Sleeve = Gnd	Tip = Panas Cincin = tidak ada sinyal Sleeve = Gnd	1 = Pembumian 2 = Audio + 3 = Audio -
Perlindungan Daya Semu:	Tidak	Ya	Ya

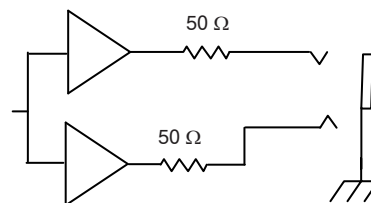
Antarmuka Komputer/Jaringan

Ethernet	USB*
RJ45	Wadah USB Seri B

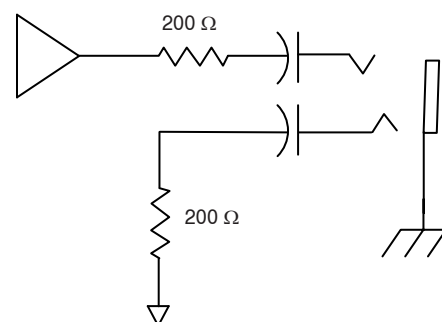
* Logo USB-IF adalah merek dagang Universal Serial Bus Implementers Forum, Inc.



Layar/headphone 1/4 inci



Headphone 1/4 inci



Penggantian Suku Cadang dan Aksesori

Aksesori yang Disediakan

Adaptor Penyangga Mikrofon (UR2)	WA371
Adaptor pengunci Ulir (dengan TA4F) UR1	WA340
Tas dengan Ritsleting (UR1)	26A13
Tas dengan Resleting (UR1)	26A14
Kabel Tambahan Antena (2)	95B9023
Kabel Distribusi FR (2)	95N2035
Antena (UR1) 518-578 MHz	UA710
Antena (UR1) 578-698 MHz	UA720
Antena (UR1) 740-865 MHz	UA730
Antena (UR1) 944-952 MHz	UA740
Dua Antena (UR4+), Tergantung Gelombang (lihat tabel)	UA820
Kotak Pembawa Pemancar	95C9053

Aksesori Opsional

Kepala SM58 dengan Kisi-Kisi	RPW112
Kepala SM86 dengan Kisi-Kisi	RPW114
Kepala BETA 58 dengan Kisi-Kisi	RPW118
Kepala BETA 87 A dengan Kisi-Kisi	RPW120
Kepala BETA 87C dengan Kisi-Kisi	RPW122
Kepala SM87A dengan Kisi-Kisi	RPW116
Kepala KSM9/SL dengan Kisi-Kisi	RPW180
Kepala KSM9/BK dengan Kisi-Kisi	RPW184
Kisi-kisi Berbahan Perak untuk (SM58)	RK143G
Kisi-kisi Berbahan Perak untuk (SM86)	RPM266
Kisi-kisi Berbahan Perak untuk (BETA 58)	RK265G
Kisi-Kisi Hitam (SM87)	RK214G
Kisi-kisi Berbahan Perak (BETA 87A)	RK312
Kisi-kisi Berbahan Perak (BETA 87C)	RK312
Kisi-Kisi Hitam (BETA 58)	RK323G
Kisi-kisi Hitam (BETA 87A/BETA 87C)	RK324G
Kisi-Kisi berwarna Sampanye (KSM9/SL)	RPM260
Kisi-Kisi Hitam (KSM9/BK)	RPM264
Tameng Angin Popper Stopper (Penyumbat Suara Gemuruh)	A85WS
Jepitan Sabuk (UR1)	44A8031
Kantong Kemasan Bodi (Hitam) UR1	WA580B
Kantong Bodypack (Putih) UR1	WA580W

Aksesori dan Penggabungan Antena

- Antena dan receiver harus berasal dari gelombang yang sama.
- Antena gelombang 1/2 yang disediakan dapat digunakan secara langsung untuk menaikkan hingga UA845.
- Antena dan kabel untuk digunakan dengan UA845, dan juga dapat digunakan pada receiver SLX yang berdiri-sendiri.

Kit Anta Pasif/Pemadu Pembagi (direkomendasikan untuk 2 receiver)	UA221
Amplifier Distribusi Daya Antena UHF	UA845-
470-952 MHz (U.S.A)	UA845SWB
Eropa	UA845E
Inggris	UA845UK
Antena 1/2 Gelombang, Segala Arah, Gelombang Lebar (470-952 MHz)	UA860SWB
Antena Gelombang Lebar dengan Arah Aktif (470-698 MHz)	UA870USTV
Antena Gelombang Sempit dengan Arah Aktif (944-952 MHz)	UA870X
Amplifier FR dengan Saluran Gelombang Lebar (470-698 MHz)	UA830USTV
Amplifier FR dengan Saluran Gelombang Sempit (470-698 MHz)	UA830X
Antena Gelombang Lebar Satu Arah Pasif (470-952 MHz)	PA805SWB
Antena gelombang Sempit Satu Arah Pasif (600-1100 MHz)	PA805X

1/2 antena gelombang (2)	
Gelombang G1	UA820G
H4E, Gelombang H4	UA820H4
J5E, Gelombang J5	UA820J
L3E, Gelombang L3	UA820L3
Gelombang Q5, Q6, Q10A	UA820Q
R9, Gelombang ABJ	UA820A
Gelombang X1	UA820X
Kabel Antena 25' (RG-8/X)	UA825
Kabel Antena 50' (RG-8/X)	UA850
Kabel Antena 100'	UA8100

Spesifikasi Kearsitekturan dan Kerekayaan

Sistem wireless harus beroperasi pada gelombang UHF antara 470-865 MHz dan 944-952 MHz, dengan spesifikasi jarak tergantung pada lokasi pengguna. Sistem tersebut akan termasuk pilihan untuk mengganti frekuensi yang beroperasi guna menghindari gangguan FR, memungkinkan mengoperasikan 160 sistem dalam lokasi yang sama secara serempak. Pengaturan pra-konfigurasi kelompok, saluran dan frekuensi harus tersedia untuk menjamin bahwa penggunaan sistem ganda tidak saling mengganggu.

Semua pemancar harus didayakan dengan 2 baterai AA dan harus memiliki sakelar daya on/off. Kemasan bodypack memiliki LED yang mengindikasikan bahwa daya sedang aktif. Pemancar yang tersedia harus termasuk: Sebuah bodypack untuk digunakan pada gitar elektrik, bas dan instrument elektrik, dan sebuah mikrofon genggam untuk vokal. Pemancar harus memiliki pengubah DC/DC untuk menjamin penampilan yang konsisten, bahkan jika voltase baterai berubah.

Receiver memiliki kelompok yang menunjukkan LCD yang dapat diprogramkan oleh pengguna, digerakkan oleh menu, saluran, frekuensi, nama, tingkat penindas dan status terkunci/tidak terkunci. Sistem menggunakan teknologi seperti MARCAD, sirkuit penggabungan sinyal untuk meningkatkan penerimaan, meminimalkan sinyal yang jelek, dan merealisasikan kemungkinan terbaik rasio kebisingan-sinyal. Equalizer (penyeimbang), penindas kunci nada, dan sirkuit penindas kebisingan akan dibuat kedalam sistem untuk memberikan kualitas suara yang optimal dan meminimalkan kebisingan yang tidak diinginkan. Receiver termasuk pengukur FR ganda (satu untuk setiap antena), pengukur tingkat audio dan konektor Antarmuka Jaringan untuk mengontrol dan memonitor komputer. Receiver memiliki kontrol volume dan kontrol penindas kebisingan yang dapat disesuaikan.

Sistem merupakan Wireless UHF-R Shure

Sertifikasi

UR1, UR2: Tipe yang Disetujui menurut Bagian FCC 74 (FCC ID: "DD4UR1" dan "DD4UR2"). disertifikasi oleh IC di Kanada sesuai RSS-123 dan RSS-102 ("IC: 616A-UR1, 616A-UR1G" dan "IC: 616A-UR2, 616A-UR2G."). Memenuhi persyaratan utama dari European R&TTE Directive 99/5/EC (ETSI EN 300-422 Bagian 1 dan 2, EN 301 489 Bagian 1 dan 9) dan memenuhi syarat penggunaan merk CE.

Emission Designator (Perancang Emisi)

120KF3E

UR4S+, UR4D+: Disahkan berdasarkan ketentuan Declaration of Conformity (Pernyataan Kesesuaian) FCC Bagian 15. Disertifikasi menurut Industri Kanada hingga RSS-123 ("IC: 616A-UR4+"). Memenuhi persyaratan utama Petunjuk 99/5/EC R&TTE Eropa (EN 301 489 Bagian 1 dan 9, EN 300 422 Bagian 1 dan 2). Memenuhi syarat untuk memakai tanda CE.

Sesuai persyaratan EMC Australia dan memenuhi syarat untuk pemakaian tanda C-Tick.  N108

Telah diakui melalui Persetujuan Keamanan Negara berikut:

cULus Mark untuk Amerika Serikat dan Kanada: Memenuhi UL6500 dan CSA/CAN E60065. Bersertifikasi UL GS sampai EN60065.

"EU Declaration of Conformity" dapat diperoleh dari Shure Inc. atau perwakilannya di Eropa. Untuk informasi kontak silahkan kunjungi www.shure.com

INFORMASI PERIZINAN:

Perizinan: Izin kementerian untuk mengoperasikan peralatan ini mungkin diperlukan di beberapa wilayah. Konsultasikan dengan instansi berwenang Anda untuk persyaratan yang mungkin diperlukan.

Perubahan atau modifikasi jelas tidak disetujui oleh Shure Incorporated yang dapat membatalkan hak Anda untuk mengoperasikan peralatan. Perizinan peralatan mikrofon wireless Shure adalah tanggung jawab pengguna, dan perizinan tergantung pada klasifikasi dan kegunaan pengguna, dan pada frekuensi yang dipilih. Shure sangat mendorong agar menghubungi kantor telkom yang berwenang tentang perizinan, sebelum Anda memilih dan memesan frekuensi.

Informasi untuk Pengguna

Peralatan ini telah diuji dan dibuat sesuai batas alat digital Kelas B, sesuai dengan bagian 15 dari Peraturan FCC. Batasan ini di design untuk memberikan perlindungan yang layak terhadap gangguan yang merugikan dalam instalasi tempat tinggal. Peralatan ini menghasilkan, menggunakan dan dapat memancarkan energi frekuensi radio dan, jika tidak diinstal dan digunakan sesuai dengan petunjuk, dapat menyebabkan gangguan yang merugikan komunikasi radio. Bagaimanapun, tidak ada jaminan bahwa gangguan tidak akan terjadi dalam instalasi tertentu. Jika peralatan ini menyebabkan gangguan yang merugikan penerimaan radio atau televisi, yang mana dapat dipastikan dengan alat off dan on, pengguna diharuskan untuk mencoba kebenaran gangguan dengan melakukan satu atau lebih perhitungan berikut:

- Reorientasi atau relokasi antena penerimaan.
- Menambah jarak pemisahan antara peralatan dan receiver.
- Sambungkan peralatan ke dalam saluran keluar dalam sirkuit berlainan dari mana receiver tersebut terhubung.
- Konsultasikan dengan agen atau teknisi radio/TV yang berpengalaman untuk bantuan.

Konsultasikan dengan agen atau teknisi radio/TV yang berpengalaman untuk bantuan.

Perangkat digital Kelas B ini memenuhi ICES-003 Kanada.

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

Pengoperasian alat ini sesuai dengan dua kondisi berikut: (1) Alat ini kemungkinan tidak menyebabkan gangguan, dan (2) alat ini harus menerima adanya gangguan, termasuk gangguan yang mungkin menyebabkan alat bekerja tidak sesuai yang diinginkan.

Catatan: Uji kesesuaian EMC didasarkan pada penggunaan tipe kabel yang disediakan dan direkomendasikan. Penggunaan tipe kabel lainnya dapat memperburuk penampilan EMC.

FREQUENCY BANDS G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, PS8, P9 Q5, R9, A24, JBX, Q6, Q10A, R16, AND R18

SYSTÈMES COMPATIBLES EN FRÉQUENCE DANS LA BANDES G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, P8, P9, Q5, R9, A24, JBX, Q6, Q10A, R16 ET R18

FREQUENZKOMPATIBLE SYSTEME IM FREQUENZBEREICH G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, P8, P9, Q5, R9, A24, JBX, Q6, Q10A, R16 UND R18

SISTEMAS CON FRECUENCIAS COMPATIBLES EN LAS BANDAS G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, P8, P9, Q5, R9, A24, JBX, Q6, Q10A, R16 Y R18

SISTEMI COMPATIBILI IN FREQUENZA NELLA BANDAS G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, P8, P9, Q5, R9, A24, JBX, Q6, Q10A, R16 E R18

SISTEMAS COM FREQUÊNCIAS COMPATÍVEIS DA NA FAIXA G1, G7C, H4, H4E, J5, J5E, K4E, L3, L3E, M5E, P8, P9, Q5, R9, A24, JBX, Q6, Q10A, R16 E R18

FREQUENCY BAND G1E (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
	Full Range max. # of compatible frequencies (option 1) 470 - 530 MHz	Full Range max. # of compatible frequencies (option 2) 470 - 530 MHz	France preferred User Group A (option 1) 470 - 530 MHz	France preferred User Group A (option 2) 470 - 530 MHz	France preferred User Group B (option 1) 470 - 530 MHz	France preferred User Group B (option 2) 470 - 530 MHz	France preferred User Group C (option 1) 470 - 530 MHz	France preferred User Group C (option 2) 470 - 530 MHz	Compatible with Group 9 of H4E, J5E and L3E (all these bands completely available)	Compatible with Group 10 of H4E, J5E and L3E (all these bands completely available)
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								

G1E FREQUENCY BAND (470.125–529.875 MHz) Continued

Group	11	12	13	14	15	16	17	18	19	20	21
Channel	European TV channel 21 optimized 470 - 478 MHz	European TV channel 22 optimized 478 - 486 MHz	European TV channel 23 optimized 486 - 494 MHz	European TV channel 24 optimized 494 - 502 MHz	European TV channel 25 optimized 502 - 510 MHz	European TV channel 26 optimized 510 - 518 MHz	European TV channel 27 optimized 518 - 526 MHz	European TV channel 27 optimized 518 - 526 MHz	Full Range (identical with UHF-R G1 / group 9) 470 - 530 MHz	Full Range (identical with UHF-R G1 / group 10) 470 - 530 MHz	Belgium preferred "PRO" 510 - 526 MHz
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	

H4 FREQUENCY BAND (518.000 - 578.000 MHz)

Channel	TV 22 & 27	TV 23 & 28	TV 24 & 29	TV 25 & 30	TV 26 & 31	All Bands	All Bands	Full Spectrum	Full Spectrum	Full Spectrum
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
1	518.350	524.350	530.350	536.350	542.350	519.000	519.250	518.100	518.900	518.050
2	518.850	524.850	530.850	536.850	542.850	519.425	521.625	518.825	519.625	518.550
3	519.575	525.575	531.575	537.575	543.575	522.100	525.800	519.350	520.150	519.500
4	520.500	526.500	532.500	538.500	544.500	524.525	526.375	520.375	521.175	519.900
5	521.625	527.625	533.625	539.625	545.625	525.525	528.075	521.725	522.525	520.750
6	522.450	528.450	534.450	540.450	546.450	526.075	533.950	522.350	523.150	523.750
7	523.075	529.075	535.075	541.075	547.075	527.325	535.500	525.150	525.950	530.500
8	523.475	529.475	535.475	541.475	547.475	528.100	538.350	530.250	531.050	532.600
9	548.125	554.125	560.125	566.125	572.125	537.475	542.400	530.675	531.475	534.150
10	548.650	554.650	560.650	566.650	572.650	540.450	543.475	532.750	533.550	538.925
11	549.675	555.675	561.675	567.675	573.675	541.600	547.350	534.625	535.425	541.750
12	551.025	557.025	563.025	569.025	575.025	544.925	553.625	543.475	544.275	545.500
13	551.750	557.750	563.750	569.750	575.750	551.625	561.075	544.700	545.500	546.425
14	552.150	558.150	564.150	570.150	576.150	553.300	565.700	547.325	548.125	547.875
15	552.975	558.975	564.975	570.975	576.975	555.300	569.050	548.775	549.575	550.500
16	553.600	559.600	565.600	571.600	577.600	557.075	570.775	549.700	550.500	551.725
17						561.100	571.550	553.450	554.250	560.575
18						566.000	572.800	556.275	557.075	562.450
19						567.550	573.425	561.050	561.850	564.525
20						574.475	573.825	562.600	563.400	564.950
21						518.350	519.875	564.700	565.500	570.050
22						544.325	520.275	571.450	572.250	572.850
23						548.550	522.425	574.450	575.250	573.475
24						554.050	546.925	575.300	576.100	574.825
25						559.900	555.750	575.700	576.500	575.850
26						520.125	521.050	576.650	577.450	576.375
27						535.025	536.475	577.150	577.950	577.100
28						550.450	537.250	523.850	524.650	522.450
29						573.625	539.250	548.300	549.100	546.900
30						575.850	544.000	572.750	573.550	571.350
31						522.650	548.950	529.350	530.150	524.425
32						531.375	552.050	533.950	534.750	528.625
33						538.475	561.975	537.925	538.725	529.675
34						539.100	566.200	561.950	562.750	533.250
35						554.450	567.125	565.525	566.325	557.275
36						564.775	575.050	566.575	567.375	561.250
37								570.775	571.575	565.850
38								535.750	536.550	525.775
39								551.700	552.500	543.500
40								569.425	570.225	559.450

J5 FREQUENCY BAND (578.000 - 607.975 - 614.025 - 638.000 MHz)

Channel	TV 32	TV 33 & 38	TV 34 & 39	TV 35 & 40	TV 36 & 41	All Bands	All Bands	Full Spectrum	Full Spectrum	Full Spectrum
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
1	578.350	584.350	590.350	596.350	602.350	578.625	581.650	578.375	578.125	578.100
2	578.850	584.850	590.850	596.850	602.850	579.125	586.625	579.400	578.550	579.125
3	579.575	585.575	591.575	597.575	603.575	584.825	588.025	581.750	579.200	581.475
4	580.500	586.500	592.500	598.500	604.500	586.475	592.275	582.625	580.600	582.350
5	581.625	587.625	593.625	599.625	605.625	587.750	595.225	584.675	581.150	584.400
6	582.450	588.450	594.450	600.450	606.450	588.500	597.675	587.350	584.500	587.075
7	583.075	589.075	595.075	601.075	607.075	592.950	601.750	588.825	585.375	588.550
8	583.475	589.475	595.475	601.475	607.475	598.975	602.175	589.225	588.950	588.950
9		614.125	620.125	626.125	632.125	599.875	604.300	594.200	591.175	593.925
10		614.650	620.650	626.650	632.650	615.900	607.675	594.725	593.925	594.450
11		615.675	621.675	627.675	633.675	617.600	614.425	596.975	595.225	596.700
12		617.025	623.025	629.025	635.025	618.400	620.650	603.475	604.150	603.200
13		617.750	623.750	629.750	635.750	621.350	622.025	606.050	604.875	605.775
14		618.150	624.150	630.150	636.150	621.750	623.800	607.725	606.275	607.450
15		618.975	624.975	630.975	636.975	627.925	625.000	616.200	618.025	615.925
16		619.600	625.600	631.600	637.600	629.975	630.175	619.250	620.825	618.975
17						631.025	632.250	620.600	621.975	620.325
18						633.175	633.750	622.525	625.325	622.250
19						635.050	636.275	628.650	627.250	628.375
20						636.650	637.075	630.200	630.500	629.925
21						585.400	587.450	631.175	632.325	630.900
22						587.300	598.975	632.375	633.100	632.100
23						602.025	627.775	632.875	635.275	632.600
24						616.425	632.825	635.825	636.175	635.550
25						619.975	637.575	636.900	636.700	636.625
26						591.225	583.175	637.625	637.700	637.350
27						603.075	588.950	581.200	582.425	580.925
28						605.650	590.825	586.450	587.650	586.175
29						628.625	596.900	592.725	588.050	592.450
30						631.700	599.425	597.900	598.350	597.625
31						580.225	600.700	598.600	599.575	598.325
32						592.500	614.975	604.000	600.600	603.725
33						601.575	616.700	605.350	603.700	605.075
34						606.075	619.525	614.450	607.075	614.175
35						607.575	623.050	615.600	614.925	615.325
36						633.650	635.775	617.150	615.600	616.875
37								620.175	617.025	619.900
38								621.725	619.900	621.450
39								623.850	622.500	623.575
40								634.225	631.150	633.950

L3 FREQUENCY BAND (638.000 - 697.875 MHz)

Channel	TV 42 & 47	TV 43 & 48	TV 44 & 49	TV 45 & 50	TV 46 & 51	All Bands	All Bands	Full Spectrum	Full Spectrum	Full Spectrum
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
1	638.350	644.350	650.350	656.350	662.350	643.775	649.800	638.100	638.900	638.050
2	638.850	644.850	650.850	656.850	662.850	644.375	650.800	638.825	639.625	638.550
3	639.575	645.575	651.575	657.575	663.575	651.900	653.000	639.350	640.150	639.500
4	640.500	646.500	652.500	658.500	664.500	654.150	659.550	640.375	641.175	639.900
5	641.625	647.625	653.625	659.625	665.625	660.375	660.775	641.725	642.525	640.750
6	642.450	648.450	654.450	660.450	666.450	661.125	661.350	642.350	643.150	643.750
7	643.075	649.075	655.075	661.075	667.075	662.875	665.425	645.150	645.950	650.500
8	643.475	649.475	655.475	661.475	667.475	664.300	668.050	650.250	651.050	652.600
9	668.125	674.125	680.125	686.125	692.125	667.125	675.575	650.675	651.475	654.150
10	668.650	674.650	680.650	686.650	692.650	669.500	679.750	652.750	653.550	658.925
11	669.675	675.675	681.675	687.675	693.675	679.000	683.450	654.625	655.425	661.750
12	671.025	677.025	683.025	689.025	695.025	683.525	684.875	663.475	664.275	665.500
13	671.750	677.750	683.750	689.750	695.750	688.825	686.800	664.700	665.500	666.425
14	672.150	678.150	684.150	690.150	696.150	689.750	691.750	667.325	668.125	667.875
15	672.975	678.975	684.975	690.975	696.975	690.425	692.300	668.775	669.575	670.500
16	673.600	679.600	685.600	691.600	697.600	691.500	693.050	669.700	670.500	671.725
17						693.525	693.500	673.450	674.250	680.575
18						694.725	695.550	676.275	677.075	682.450
19						697.075	696.200	681.050	681.850	684.525
20						697.575	697.100	682.600	683.400	684.950
21						649.125	645.875	684.700	685.500	690.050
22						658.825	658.800	691.450	692.250	692.850
23						662.200	663.675	694.450	695.250	693.475
24						677.025	664.800	695.300	696.100	694.825
25						682.675	678.400	695.700	696.500	695.850
26						650.050	646.825	696.650	697.450	696.375
27						651.450	648.050	697.150	697.950	697.100
28						671.075	651.275	643.850	644.650	642.450
29						677.600	657.075	668.300	669.100	666.900
30						695.200	662.350	692.750	693.550	691.350
31						647.450	674.950	649.350	650.150	644.425
32						648.400	679.350	653.950	654.750	648.625
33						666.000	680.750	657.925	658.725	649.675
34						675.900	682.500	681.950	682.750	653.250
35						679.525	685.450	685.525	686.325	677.275
36						696.250	689.700	686.575	687.375	681.250
37								690.775	691.575	685.850
38								655.750	656.550	645.775
39								671.700	672.500	663.500
40								689.425	690.225	679.450

H4E FREQUENCY BAND (518.000 - 578.000 MHz)

Channel	Full Range max. # of comp. frequencies (option 1)	Full Range max. # of comp. frequencies (option 2)	France preferred: User Group A (option 1)	France preferred: User Group A (option 2)	France preferred: User Group B (option 1)	France preferred: User Group B (option 2)	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	All Bands	All Bands
	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								

J5E FREQUENCY BAND (578.000 - 638.000 MHz)

Channel	Full Range max. # of comp. frequencies (option 1)	Full Range max. # of comp. frequencies (option 2)	France preferred: User Group A (option 1)	France preferred: User Group A (option 2)	France preferred: User Group B (option 1)	France preferred: User Group B (option 2)	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	All Bands	All Bands
	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
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								

K4E FREQUENCY BAND (606–666 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11
	Full Range max. # of compatible frequencies 606 - 666 MHz (option 1)	Full Range max. # of compatible frequencies 606 - 666 MHz (option 2)	Full Range max. # of compatible frequencies 606 - 666 MHz (option 3)	Full Range excl. TV ch. 38, max. # of compatible frequencies, 614-666 MHz (option 1)	Full Range excl. TV ch. 38, max. # of compatible frequencies, 614-666 MHz (option 2)	U.K. preferred: TV ch. 38 606-614 MHz with 125 kHz guard band (option 1)	U.K. preferred: TV ch. 38 606-614 MHz with 125 kHz guard band (option 2)	U.K. preferred: TV ch. 38 606-614 MHz with 125 kHz guard band (option 3)	U.K. preferred: TV ch. 38 606-614 MHz with 500 kHz guard band (option 1)	U.K. preferred: TV ch. 38 606-614 MHz with 500 kHz guard band (option 2)	U.K. preferred: TV ch. 38 606-614 MHz with 500 kHz guard band (option 3)
1	606.825	606.375	606.675	615.600	614.475	606.175	607.000	606.275	606.825	607.000	606.625
2	607.375	606.750	607.225	616.125	614.925	608.050	607.350	606.875	607.250	607.625	607.675
3	608.300	607.550	609.500	617.325	615.550	609.125	608.400	607.800	607.975	608.975	608.525
4	610.125	609.500	609.950	617.725	617.475	609.525	608.850	608.200	608.900	609.500	610.175
5	612.525	610.475	611.100	620.050	619.675	611.775	610.875	610.925	610.350	610.750	610.625
6	613.900	611.825	612.875	620.775	622.075	612.600	611.625	611.725	611.175	612.250	611.575
7	616.200	614.850	614.250	622.075	622.425	613.100	612.175	613.350	612.525	612.975	612.175
8	620.125	616.675	619.600	625.725	631.700	613.825	613.825	613.850	613.150	613.400	613.375
9	622.975	620.525	620.550	631.225	632.425	606.775	613.175	610.475	611.550	611.775	607.275
10	623.625	621.175	623.175	633.050	633.750	607.550	606.475	612.050	608.350	606.550	611.275
11	624.700	627.200	628.700	634.550	638.125	611.200					
12	639.075	629.400	639.975	646.250	639.075						
13	641.600	633.025	641.450	650.825	647.500						
14	647.000	645.200	644.475	651.625	651.475						
15	647.450	648.700	645.725	652.150	653.675						
16	650.800	649.200	652.300	654.850	654.525						
17	652.200	650.050	653.025	655.750	656.475						
18	656.775	651.700	655.475	657.750	662.000						
19	658.575	655.475	659.125	661.225	662.525						
20	660.950	658.700	659.500	662.875	663.675						
21	661.725	660.725	661.375	664.975	664.350						
22	662.075	663.125	662.400	665.675	665.750						
23	663.000	664.600	662.975	614.200	621.300						
24	663.675	665.300	664.125	628.225	625.475						
25	610.950	608.025	607.575	633.500	635.625						
26	621.650	619.650	616.825	654.475	660.525						
27	622.000	637.075	618.350	659.175	661.000						
28	634.275	643.900	627.375	661.825	663.275						
29	648.325	651.150	643.400	622.600	615.875						
30	664.650	662.525	650.175	631.875	620.775						
31	665.825	663.450	664.975	632.225	626.400						
32	608.600	616.300	608.175	637.050	632.900						
33	611.425	617.525	616.425	637.475	634.775						
34	620.725	624.025	621.100	638.250	639.850						
35	626.175	627.825	624.500	638.550	648.250						
36	626.775	630.000	631.800	649.050	648.825						
37	628.050	630.800	633.175	652.950	652.225						
38	628.475	633.400	635.750	662.225	653.200						
39	629.100	634.125	637.425	664.100	657.200						
40	637.650	635.750	639.325								
41	640.250	646.075	646.325								
42	642.100	649.500	650.775								
43	644.650	655.775	656.425								
44	645.300	657.775	663.825								
45	657.850	664.125	665.475								

K4E FREQUENCY BAND (606–666 MHz) Continued

Channel	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19	Group 20
	France preferred: User Group A 614 - 666 MHz (option 1)	France preferred: User Group A 614 - 666 MHz (option 2)	France preferred: User Group A 614 - 666 MHz (option 3)	France preferred: User Group B 614 - 666 MHz (option 1)	France preferred: User Group B 614 - 666 MHz (option 2)	France preferred: User Group B 614 - 666 MHz (option 3)	France preferred: User Group C 614 - 666 MHz (option 1)	France preferred: User Group C 614 - 666 MHz (option 2)	France preferred: User Group C 614 - 666 MHz (option 3)
1	614.750	615.750	615.500	614.100	616.775	614.500	616.975	614.300	614.300
2	615.750	618.500	617.750	614.500	618.975	618.225	618.775	616.975	615.000
3	618.500	619.250	619.500	616.025	620.900	620.500	620.000	618.775	616.225
4	619.250	623.250	620.250	618.975	622.100	621.300	624.975	622.300	620.700
5	623.250	626.500	625.250	621.300	626.975	628.900	629.500	628.700	626.775
6	625.250	627.500	626.500	632.775	629.300	630.100	636.700	636.000	636.000
7	635.500	643.750	631.750	636.900	638.100	633.500	637.100	637.500	637.500
8	644.250	646.750	634.500	644.500	645.700	640.025	645.500	644.700	648.975
9	647.500	650.500	635.500	650.225	649.500	644.900	648.225	645.100	650.775
10	649.250	652.250	647.250	652.900	652.500	658.225	652.000	650.775	653.100
11	650.500	659.250	649.250	658.975	658.975	662.100	658.775	660.000	653.900
12	655.750	663.750	657.750	662.100	662.500	662.500	661.100	663.000	661.100
13	663.500	665.250	659.250	665.500	664.025	664.025	661.900	664.225	664.975
14	665.750	665.750	663.750	618.225	614.100	618.975	663.000	664.975	616.975
15	616.500	614.750	614.750	624.775	616.025	622.500	614.300	618.025	628.000
16	620.250	616.500	616.500	626.225	622.500	625.500	624.225	624.975	628.700
17	624.500	619.750	624.500	628.900	626.225	629.300	630.300	628.000	629.900
18	626.500	624.500	627.250	629.700	629.700	634.975	647.000	632.225	630.300
19	627.500	625.250	628.250	632.025	632.025	642.975	650.775	634.025	632.225
20	639.750	635.500	643.500	637.300	648.775	645.300	652.700	638.300	637.100
21	641.250	636.250	646.750	642.975	652.900	650.225	656.225	640.225	656.225
22	641.750	643.250	648.500	653.700	654.500	652.900	658.025	648.975	661.500
23	643.250	647.500	650.500	654.100	660.500	653.300	662.300	658.775	662.300
24	649.750	648.500	655.750	656.775	661.300	656.025			664.225
25	651.500	655.500	657.250	658.225	664.775	658.975			
26	654.750	656.500	660.250	660.900					
27	656.500	658.500	664.500	661.700					
28	658.500	659.750	665.750	664.025					
29	662.750								
30	664.500								

Channel	Group 21	Group 22	Group 23	Group 24	Group 25	Group 26
	European TV channel 39 optimized 614 - 622 MHz	European TV channel 40 optimized 622 - 630 MHz	European TV channel 41 optimized 630 - 638 MHz	European TV channel 42 optimized 638 - 646 MHz	European TV channel 43 optimized 646 - 654 MHz	European TV channel 44 optimized 654 - 660 MHz
1	614.125	622.125	630.125	638.125	646.125	654.125
2	614.725	622.725	630.725	638.725	646.725	654.725
3	615.900	623.900	631.900	639.900	647.900	655.900
4	617.400	625.400	633.400	641.400	649.400	657.400
5	618.400	626.400	634.400	642.400	650.400	658.400
6	619.775	627.775	635.775	643.775	651.775	659.775
7	620.500	628.500	636.500	644.500	652.500	660.500
8	621.400	629.400	637.400	645.400	653.400	661.400
9	621.775	629.775	637.775	645.775	653.775	661.775
10	615.575	623.575	631.575	639.575	647.575	655.575

L3E FREQUENCY BAND (638.000 - 698.000 MHz)

Channel	Full Range max. # of comp. frequen- cies (option 1)	Full Range max. # of comp. frequen- cies (option 2)	France preferred: User Group A (option 1)	France preferred: User Group A (option 2)	France preferred: User Group B (option 1)	France preferred: User Group B (option 2)	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	All Bands	All Bands
	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	697.150	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								

M5E FREQUENCY BAND (694–758 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
	Full Range max. # of compatible frequencies 694 - 758 MHz (option 1)	Full Range max. # of compatible frequencies 694 - 758 MHz (option 2)	Full Range max. # of compatible frequencies 694 - 758 MHz (option 3)	Full Range max. # of compatible frequencies 694 - 758 MHz (option 4)	France preferred: User Group A 694 - 758 MHz (option 1)	France preferred: User Group A 694 - 758 MHz (option 2)	France preferred: User Group A 694 - 758 MHz (option 3)	France preferred: User Group B 694 - 758 MHz (option 1)	France preferred: User Group B 694 - 758 MHz (option 2)	France preferred: User Group B 694 - 758 MHz (option 3)
1	694.400	694.950	698.025	694.350	694.750	697.250	695.500	696.025	697.500	696.025
2	695.175	696.000	699.375	695.075	699.250	698.500	702.750	696.775	701.700	698.225
3	696.400	698.625	701.125	695.550	704.500	699.500	704.500	698.225	702.500	700.900
4	696.925	700.825	702.225	696.575	707.250	708.250	707.750	705.500	706.975	705.500
5	699.025	702.775	703.075	700.275	715.500	713.250	716.250	720.025	722.975	708.500
6	700.550	703.575	705.450	701.675	716.250	719.500	721.750	722.975	724.500	708.900
7	703.425	707.375	707.575	703.800	722.500	727.500	722.500	725.300	734.500	714.225
8	704.500	708.825	714.625	707.025	728.500	735.250	723.750	732.900	738.225	718.100
9	708.225	710.900	718.650	708.700	735.750	737.750	739.500	738.975	740.900	729.500
10	711.375	717.350	720.500	709.600	737.250	739.250	743.750	740.900	746.975	734.500
11	715.625	719.200	721.175	711.625	747.750	739.750	746.500	742.100	748.900	736.025
12	717.050	720.400	722.150	715.050	750.750	744.500	747.500	745.500	749.300	740.500
13	727.050	720.750	729.925	729.275	751.250	745.250	753.250	750.500	752.775	754.975
14	730.500	722.050	735.550	733.100	753.250	748.250	755.750	757.300	698.225	757.300
15	731.125	734.725	735.925	734.425	754.500	751.750	756.250	701.300	700.500	697.500
16	740.875	739.825	740.700	734.900	755.500	694.750	694.750	702.500	701.300	709.700
17	741.750	740.875	744.850	741.675	695.500	695.500	696.500	704.775	704.025	716.500
18	746.675	745.375	747.850	744.600	696.500	696.500	699.500	710.500	708.900	728.775
19	748.725	748.525	751.700	746.075	698.500	697.750	711.500	712.025	709.300	734.100
20	749.150	751.875	752.425	747.025	700.250	700.250	713.750	716.500	710.100	738.975
21	750.375	752.650	753.375	748.225	702.750	706.500	714.500	716.900	712.025	741.300
22	753.550	753.900	753.950	750.950	703.500	707.750	715.500	718.100	730.225	741.700
23	755.400	754.250	754.800	751.575	711.250	711.250	720.500	726.100	733.300	744.025
24	755.925	755.650	755.275	753.475	719.500	713.750	727.750	730.225	733.700	749.700
25	756.900	757.850	757.425	755.100	720.500	715.500	732.250	733.300	740.500	754.225
26	699.625	695.325	694.275	697.000	721.750	722.500	740.250	736.025	742.500	756.900
27	714.775	699.975	695.300	697.825	730.500	728.500	743.250	746.975	750.100	
28	717.775	726.375	695.975	713.975	731.500	730.500	745.250	753.500	754.225	
29	721.050	735.600	706.025	722.450	739.500	732.250	745.750	754.225	754.975	
30	728.550	740.225	709.375	730.425	740.250	734.750	751.500	756.900		
31	743.650	743.475	730.825	737.900	742.750	742.750	752.500			
32	747.450	746.550	755.950	756.525	747.250	747.500	753.750			
33	698.175	697.800	697.100	699.250	756.250	752.500				
34	702.675	705.175	704.700	699.850						
35	705.300	706.525	715.375	707.975						
36	707.525	709.775	716.300	716.500						
37	713.275	713.375	723.450	717.300						
38	718.825	713.725	726.775	717.750						
39	720.300	718.425	727.425	720.200						
40	725.275	722.575	729.400	721.825						
41	727.525	725.250	733.275	727.950						
42	732.175	728.925	733.950	728.950						
43	734.550	734.075	736.900	732.225						
44	735.475	736.000	741.500	733.675						
45	736.625	737.625	742.650	749.200						
46	740.225	742.450	743.500	753.125						
47	754.325	743.825	746.775	754.475						
48	756.275	756.375	750.275	757.550						

M5E FREQUENCY BAND (694–758 MHz) Continued

	Group 11	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19
Channel	France preferred: User Group C 694 - 758 MHz (option 1)	France preferred: User Group C 694 - 758 MHz (option 2)	France preferred: User Group C 694 - 758 MHz (option 3)	European TV channel 49 optimized 694 - 702 MHz	European TV channel 50 optimized 702 - 710 MHz	European TV channel 51 optimized 710 - 718 MHz	European TV channel 52 optimized 718 - 726 MHz	European TV channel 53 optimized 726 - 734 MHz	European TV channel 54 optimized 734 - 742 MHz
1	694.300	698.025	694.300	694.350	702.350	710.350	718.350	726.350	734.350
2	695.000	700.700	701.900	694.700	702.700	710.700	718.700	726.700	734.700
3	712.975	703.000	706.025	695.375	703.375	711.375	719.375	727.375	735.375
4	714.775	704.975	708.000	696.700	704.700	712.700	720.700	728.700	736.700
5	719.000	709.500	711.000	697.175	705.175	713.175	721.175	729.175	737.175
6	722.775	710.300	712.225	698.400	706.400	714.400	722.400	730.400	738.400
7	724.700	728.225	727.000	699.825	707.825	715.825	723.825	731.825	739.825
8	725.900	732.000	732.700	700.600	708.600	716.600	724.600	732.600	740.600
9	736.225	733.100	733.500	701.725	709.725	717.725	725.725	733.725	741.725
10	741.100	740.700	738.025	701.050	709.050	717.050	725.050	733.050	741.050
11	744.975	742.300	746.775						
12	749.500	754.025	749.900						
13	750.300	757.100	750.300						
14	757.100	757.500	756.700						
15	698.025	695.000	696.225						
16	704.225	696.225	698.775						
17	706.025	698.775	700.000						
18	708.000	706.025	700.700						
19	708.700	714.775	702.300						
20	711.000	722.025	712.975						
21	717.500	732.700	714.775						
22	733.100	735.000	720.975						
23	742.300	736.225	724.700						
24	744.225	738.775	735.000						
25	746.775	740.000	736.225						
25	748.000	752.225	744.975						
27	752.975	752.975	751.000						
28	756.000	754.775							

	Group 20	Group 21	Group 22	Group 23	Group 24
Channel	European TV channel 55 optimized 742 - 750 MHz	European TV channel 56 optimized 750 - 758 MHz	Combined UHF-R M5E, -Q5 and -R9: max. # of compatible frequencies (option 1)	Combined UHF-R M5E, -Q5 and -R9: max. # of compatible frequencies (option 2)	Belgium preferred: "VRT" TV ch. 51+ 54 710 - 718 MHz + 734 - 742 MHz
1	742.350	750.350	694.400	694.675	710.825
2	742.700	750.700	695.450	695.775	711.525
3	743.375	751.375	695.875	696.300	712.675
4	744.700	752.700	697.150	697.225	715.650
5	745.175	753.175	697.550	698.975	716.125
6	746.400	754.400	698.600	699.350	717.025
7	747.825	755.825	699.425	700.900	717.400
8	748.600	756.600	701.500	701.225	735.175
9	749.725	757.725	702.025	701.950	737.175
10	749.050	757.050	702.350	703.700	737.775
11			703.775	704.225	738.825
12			704.800	706.875	740.950
13			706.300	708.700	741.650
14			711.500	710.900	713.100
15			713.450	713.475	734.850
16			714.700	713.950	735.700
17			716.425	715.200	711.850
18			718.700	715.750	716.425
19			719.000	716.750	738.150
20			719.750	717.275	740.075
21			720.050	721.475	
22			722.275	722.225	
23			724.275	723.900	
24			725.125	727.450	
25			726.875	730.700	
26			727.250	731.375	
27			728.300	731.800	
28			729.050	734.650	
29			732.525	735.525	
30			733.275	736.600	
31			737.150	737.225	
32			738.750		

P8 FREQUENCY BAND (710–790 MHz)

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	Group 13
Channel	"Full Range max. # of compatible frequencies 710 - 790 MHz (option 1)"	"Full Range max. # of compatible frequencies 710 - 790 MHz (option 2)"	"Full Range max. # of compatible frequencies 710 - 790 MHz (option 3)"	"Full Range max. # of compatible frequencies 710 - 790 MHz (option 4)"	"France preferred: User Group A (option 1) 710 - 790 MHz"	"France preferred: User Group A (option 2) 710 - 790 MHz"	"France preferred: User Group A (option 3) 710 - 790 MHz"	"France preferred: User Group B (option 1) 710 - 790 MHz"	"France preferred: User Group B (option 2) 710 - 790 MHz"	"France preferred: User Group B (option 3) 710 - 790 MHz"	"France preferred: User Group C (option 1) 710 - 790 MHz"	"France preferred: User Group C (option 2) 710 - 790 MHz"	"France preferred: User Group C (option 3) 710 - 790 MHz"
1	710.450	710.425	710.800	710.125	710.750	710.750	710.750	712.025	710.500	712.025	710.300	711.000	710.300
2	710.950	711.025	711.475	710.800	711.500	711.250	711.750	712.775	712.775	714.225	711.000	712.225	712.225
3	711.825	712.100	711.975	711.925	712.500	713.250	713.250	714.975	713.500	714.975	712.225	712.975	712.975
4	712.150	712.975	712.950	712.300	713.750	714.500	713.750	716.500	716.900	716.900	712.975	714.025	714.775
5	713.025	713.450	714.250	713.550	714.500	715.500	714.500	716.900	718.100	717.300	716.700	714.775	716.000
6	714.825	714.325	715.975	714.150	715.500	716.250	715.500	717.700	720.025	718.100	720.225	717.900	717.900
7	715.775	716.200	716.800	714.975	716.250	718.750	716.250	720.025	722.225	720.025	722.025	718.300	718.300
8	716.375	716.925	717.225	715.600	719.250	719.500	719.500	725.700	722.975	720.775	722.775	720.225	720.225
9	717.250	717.425	717.950	716.575	719.750	720.500	721.250	726.100	724.900	722.225	725.100	725.100	724.000
10	718.300	719.150	719.750	717.275	721.250	722.500	722.500	728.775	725.300	724.900	725.900	725.900	724.700
11	719.975	719.725	723.175	720.225	726.750	723.250	724.250	730.225	726.100	725.300	726.300	727.000	725.100
12	720.400	721.100	724.175	720.675	729.250	723.750	726.750	730.975	728.025	728.775	727.000	730.775	725.900
13	721.275	725.725	725.525	721.450	729.750	727.500	727.750	732.900	728.775	730.975	730.775	732.700	728.975
14	721.975	726.750	726.075	721.925	730.500	728.500	729.750	734.100	730.225	734.100	734.300	733.100	730.775
15	722.900	727.600	727.350	722.850	731.500	729.250	731.500	736.025	738.975	734.500	736.225	734.300	736.225
16	723.375	728.150	729.750	723.425	734.750	732.250	735.500	736.775	740.900	736.025	736.975	735.000	738.025
17	726.525	729.800	731.900	725.200	735.750	735.750	736.500	738.225	741.300	738.225	740.000	738.025	738.775
18	734.150	730.925	732.850	725.950	736.500	737.250	737.750	741.300	742.100	740.900	740.700	738.775	740.700
19	735.150	732.600	734.700	734.075	737.750	737.750	738.500	748.900	744.025	741.700	741.100	740.000	741.100
20	737.050	733.225	737.175	734.375	738.500	738.500	739.750	749.300	744.775	744.775	741.900	740.700	741.900
21	737.650	733.525	739.125	735.600	739.500	742.750	742.750	750.100	746.225	746.975	749.900	742.300	742.300
22	738.025	734.900	741.300	735.900	743.500	743.500	743.750	752.025	746.975	752.025	750.300	746.025	749.500
23	738.600	735.725	741.725	737.925	745.250	744.500	744.500	752.775	748.900	752.775	752.225	748.000	751.000
24	739.375	736.850	742.700	738.850	748.250	746.500	747.500	754.225	749.700	754.225	754.775	751.000	752.225
25	739.775	741.950	745.050	739.600	750.750	747.250	750.750	754.975	750.100	756.900	757.100	752.225	754.025
26	740.350	744.425	746.050	740.675	751.750	750.750	753.250	756.900	754.225	757.300	758.300	754.775	754.775
27	742.850	746.425	747.225	741.100	752.500	751.500	754.500	758.100	757.700	758.100	760.225	756.700	756.000
28	743.350	747.400	747.650	744.075	753.750	752.500	755.500	762.225	760.775	760.025	760.975	759.000	759.000
29	752.850	749.175	749.025	748.775	754.500	753.750	756.250	762.975	762.975	764.900	762.775	760.225	762.775
30	753.200	749.900	750.000	749.725	759.500	755.500	760.500	765.300	766.100	765.300	765.100	760.975	768.225
31	753.975	751.650	751.325	750.450	760.500	756.250	761.250	765.700	768.025	766.100	765.900	764.000	768.975
32	755.900	752.675	752.175	750.975	761.250	759.250	762.500	768.025	768.775	766.500	767.000	764.700	770.025
33	756.375	754.525	753.325	751.700	762.500	759.750	763.250	768.775	770.225	768.775	772.700	766.300	772.000
34	757.125	755.000	754.175	752.750	763.500	761.250	764.250	772.900	770.975	778.225	774.300	770.775	772.700
35	757.500	756.625	755.700	754.250	764.250	762.500	766.750	774.100	772.900	778.975	775.000	772.000	774.300
36	759.275	757.675	757.900	754.800	766.750	763.500	768.500	776.025	780.500	780.900	776.225	773.900	778.025
37	760.100	758.525	758.525	755.575	767.750	766.750	769.750	778.225	780.900	781.300	778.775	775.000	778.775
38	760.500	759.575	760.375	756.125	769.750	769.250	771.250	778.975	781.700	782.100	780.000	778.775	780.000
39	761.975	761.825	761.825	757.275	775.750	769.750	774.750	780.900	782.100	782.500	780.700	781.100	780.700
40	763.250	762.250	764.650	757.700	776.500	770.500	775.500	781.700	784.025	786.225	781.900	781.900	782.300
41	764.075	763.175	766.050	767.325	778.500	774.750	777.750	782.100	786.975	786.975	782.300	784.225	783.000
42	768.425	768.450	768.750	767.750	779.500	775.250	778.500	784.775	788.500	788.500	786.025	788.000	784.225
43	769.725	770.450	769.150	768.850	780.250	777.750	779.500	785.500	789.300	788.900	788.000	789.100	786.775
44	770.300	771.525	770.575	769.775	782.750	779.500	780.250	786.975	789.700	789.700	789.100	789.500	789.100
45	771.575	773.100	771.125	771.100	783.500	783.500	783.250	789.700					
46	771.975	773.450	772.650	771.625	784.500	784.500	783.750						
47	773.950	774.400	774.375	772.650	785.750	785.250	784.500						
48	775.125	774.900	775.425	773.025	786.500	786.500	786.500						
49	775.750	776.050	776.950	773.975	787.750	787.250	787.500						
50	777.050	776.875	777.300	775.725	788.250	788.250	788.250						
51	778.000	777.500	781.075	780.950									
52	782.875	777.950	781.475	782.275									
53	783.275	784.200	782.450	782.900									
54	784.200	784.875	783.150	783.200									
55	784.850	785.925	783.650	783.875									
56	787.200	786.375	784.475	785.125									
57	787.975	787.250	786.975	785.950									
58	788.375	788.350	787.300	787.700									
59	788.975	788.925	788.175	788.225									
60	789.275	789.250	788.800	788.525									

P8 FREQUENCY BAND (710–790 MHz) Continued

Channel	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19	Group 20	Group 21	Group 22	Group 23	Group 24	Group 25	Group 26
	"Germany preferred: Full Range w/o TV Ch. 52 710 - 718 MHz + 726 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 53 710 - 726 MHz + 734 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 54 710 - 734 MHz + 742 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 55 710 - 742 MHz + 750 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 56 710 - 750 MHz + 758 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 57 710 - 758 MHz + 766 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 58 710 - 766 MHz + 774 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 59 710 - 774 MHz + 782 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 60 710 - 782 MHz"	"Germany preferred: Full Range w/o TV Ch. 53, 57 710 - 726 MHz + 734 - 758 MHz + 766 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 56, 59 710 - 750 MHz + 758 - 774 MHz + 782 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 52, 55, 57 710 - 718 MHz + 726 - 742 MHz + 750 - 758 MHz + 766 - 790 MHz"	"Germany preferred: Full Range w/o TV Ch. 52, 55, 60 710 - 718 MHz + 726 - 742 MHz + 750 - 782 MHz"
1	710.200	710.200	710.350	710.350	710.575	710.275	710.600	710.200	710.750	710.675	710.225	710.425	710.375
2	710.700	710.575	710.725	711.700	711.425	710.900	711.775	711.125	711.275	712.075	710.600	710.875	710.800
3	711.400	711.975	711.450	713.250	712.075	711.950	712.200	711.725	712.000	713.275	711.325	711.650	711.550
4	711.725	712.475	711.975	713.700	712.450	712.750	713.375	712.500	713.550	714.650	711.875	712.675	712.125
5	712.275	713.200	714.575	714.625	713.175	713.925	714.175	713.625	714.300	715.225	712.225	713.100	712.525
6	714.900	713.575	715.275	715.000	714.725	714.375	715.300	714.325	715.500	715.625	712.750	714.225	713.200
7	715.450	714.125	715.625	716.500	716.775	715.725	716.875	716.350	718.100	716.350	715.100	715.550	714.050
8	715.825	715.600	716.475	717.275	717.775	716.400	717.575	718.800	718.425	716.900	715.800	716.075	715.275
9	716.475	716.000	717.000	718.675	718.600	718.175	719.250	719.425	719.225	718.800	716.300	717.050	716.250
10	717.325	720.200	717.900	720.325	720.150	721.350	720.175	720.375	721.075	719.950	716.975	717.400	717.000
11	717.850	721.175	722.950	721.125	720.625	721.700	721.375	720.775	721.725	720.250	723.025	726.925	717.525
12	727.975	721.975	724.900	723.825	721.275	722.225	722.150	723.100	723.475	720.900	724.175	727.675	726.175
13	728.750	722.450	725.750	724.400	725.300	722.925	723.925	723.525	724.450	722.200	724.850	728.125	727.050
14	729.225	723.175	726.350	725.475	726.275	723.850	724.775	724.200	726.950	722.650	726.175	728.800	727.525
15	729.900	723.550	727.175	729.575	727.550	724.950	725.350	724.700	727.475	723.300	727.075	729.650	728.225
16	730.250	724.150	727.475	730.925	728.625	726.525	728.375	726.050	728.350	723.775	728.425	730.300	730.050
17	730.775	725.350	728.200	731.325	731.575	727.250	728.800	726.950	731.075	734.850	728.850	731.450	730.450
18	733.100	725.650	730.450	732.075	732.225	729.775	729.950	729.400	731.650	735.900	729.525	732.125	731.175
19	734.175	734.925	730.975	732.475	733.275	734.350	730.750	732.275	732.000	736.475	730.450	735.800	731.500
20	734.725	736.075	732.200	733.425	733.575	735.150	731.775	736.375	733.625	737.275	731.725	737.100	732.075
21	737.275	736.875	732.525	736.125	734.150	738.475	733.425	736.725	734.050	738.300	732.300	737.500	734.500
22	737.825	738.600	733.025	736.575	735.275	739.125	734.025	737.325	737.300	739.025	734.375	738.125	735.050
23	738.950	739.150	742.700	738.450	742.350	739.950	737.075	738.750	737.875	740.300	741.375	740.725	736.375
24	741.750	739.950	743.325	739.000	743.525	740.350	740.300	739.550	740.100	740.975	742.025	741.075	737.275
25	742.375	740.950	744.525	739.300	744.075	741.975	745.050	742.000	743.175	741.300	743.025	741.700	739.250
26	744.075	741.650	744.850	739.975	744.925	742.775	746.275	743.050	744.300	741.950	743.550	750.200	740.500
27	748.450	742.550	745.525	750.850	745.575	744.525	746.925	745.050	745.950	743.875	745.250	750.500	740.950
28	748.950	745.325	748.050	752.025	746.500	746.750	747.825	746.250	747.950	749.725	746.075	750.975	751.275
29	751.200	748.650	748.700	752.900	746.800	747.650	748.125	748.275	749.475	750.200	746.550	752.125	752.025
30	751.900	749.450	749.100	753.525	748.425	748.275	749.600	752.125	750.250	750.925	747.225	754.525	752.550
31	752.300	749.950	749.975	753.975	749.175	751.700	750.900	754.325	750.550	752.500	748.100	755.050	753.475
32	753.075	751.050	750.325	754.775	749.750	752.225	752.550	754.750	752.125	753.275	748.775	755.400	754.225
33	755.925	751.725	752.200	755.325	758.600	752.925	753.250	755.350	753.400	753.575	749.850	756.450	755.350
34	756.375	752.850	758.475	756.875	759.025	756.000	755.775	756.750	755.475	754.975	758.525	756.750	756.975
35	757.000	753.250	759.275	758.175	759.975	756.425	756.300	757.575	755.975	755.850	758.950	757.325	757.850
36	759.325	754.275	761.450	759.200	760.425	757.150	757.475	759.500	757.100	757.200	759.750	757.675	758.425
37	760.275	754.975	762.300	760.025	761.100	766.450	757.850	761.025	759.050	757.700	761.275	766.525	760.050
38	761.875	756.075	763.350	760.500	762.025	766.950	759.750	762.000	759.575	766.625	763.075	767.175	760.875
39	765.275	757.675	764.075	761.225	762.425	767.250	760.400	764.850	761.875	767.200	764.300	767.525	762.425
40	766.175	758.425	765.050	762.125	763.425	767.750	761.225	765.850	762.825	767.525	764.700	768.325	766.800
41	766.525	761.475	765.650	768.650	765.275	768.725	762.225	766.200	763.375	768.725	766.575	769.825	767.275
42	768.475	766.375	767.625	769.850	766.675	769.275	764.225	767.050	765.350	769.025	766.950	770.375	768.550
43	768.975	767.700	770.025	772.425	767.650	771.800	774.150	768.075	766.825	771.700	767.850	771.575	770.050
44	770.950	769.275	771.425	773.775	773.750	772.525	774.675	769.475	769.350	772.200	769.425	771.950	770.875
45	772.275	771.050	773.250	774.150	775.500	773.075	775.475	771.100	770.550	772.875	770.275	773.875	771.950
46	773.250	771.525	774.100	774.725	776.050	773.425	776.625	771.600	772.550	773.225	771.700	774.625	772.500
47	774.425	772.475	775.500	775.500	777.625	774.075	777.525	772.375	772.950	773.750	772.450	775.150	774.300
48	774.825	774.100	776.300	776.475	778.750	774.550	779.350	773.375	773.900	780.650	772.950	781.550	775.925
49	779.025	774.775	777.550	779.375	779.450	775.450	780.200	773.900	775.550	781.225	773.800	782.325	777.275
50	779.525	776.225	779.075	780.050	780.475	780.675	780.675	782.425	776.050	782.075	782.450	783.975	777.925
51	781.800	777.500	779.775	782.025	781.800	782.475	781.375	783.300	776.375	782.400	783.075	784.950	779.025
52	782.925	782.975	780.100	782.925	782.675	782.825	781.700	783.925	777.500	783.125	784.900	785.425	779.625
53	783.825	783.775	782.200	783.450	784.675	783.375	782.350	784.975	777.900	784.625	785.350	786.175	780.525
54	785.300	785.150	785.625	786.675	786.375	784.650	784.325	786.325	780.000	785.375	786.525	786.675	781.150
55	786.025	785.475	787.175	787.225	787.025	785.350	786.475	786.950	780.775	785.775	787.075	788.125	
56	786.500	786.975	787.925	788.075	787.375	785.700	787.450	787.350	781.300	786.350	787.900	788.700	
57	787.425	787.775	788.300	788.725	787.900	787.000	787.750	788.150		786.675	788.550	789.025	
58	789.375	788.150	789.250	789.100	789.075	787.650	788.250	788.550		788.900	789.025	789.750	
59	789.775	788.975	789.775	789.725	789.650	789.100	789.525	789.175		789.825	789.725		
60		789.500				789.775	789.825	789.525					

P8 FREQUENCY BAND (710–790 MHz) Continued

Channel	Group 27	Group 28	Group 29	Group 30	Group 31	Group 32	Group 33	Group 34	Group 35	Group 36	Group 37
	"Netherlands preferred: TV Ch. 51, 53, 59 (option 1) 710 - 718 MHz + 726 - 734 MHz + 774 - 782 MHz"	"Netherlands preferred: TV Ch. 51, 53, 59 (option 2) 710 - 718 MHz + 726 - 734 MHz + 774 - 782 MHz"	"Belgium preferred: VRT TV Ch. 51, 54 (option 1) 710 - 718 MHz + 734 - 742 MHz"	"Belgium preferred: VRT TV Ch. 51, 54 (option 2) 710 - 718 MHz + 734 - 742 MHz"	"Belgium preferred: BRF TV Ch. 52, 53 (option 1) 718 - 734 MHz"	"Belgium preferred: BRF TV Ch. 52, 53 (option 2) 718 - 734 MHz"	"Belgium preferred: Licensed Use TV Ch. 59, 60 (option 1) 774 - 790 MHz"	"Belgium preferred: Licensed Use TV Ch. 59, 60 (option 2) 774 - 790 MHz"	"European TV channel 51 optimized 710 - 718 MHz"	"European TV channel 52 optimized 718 - 726 MHz"	"European TV channel 53 optimized 726 - 734 MHz"
1	710.450	710.450	710.125	710.325	718.300	718.225	774.400	775.025	710.150	718.150	726.150
2	710.975	711.100	711.200	710.675	719.700	718.800	774.700	775.400	710.525	718.525	726.525
3	711.275	711.500	711.975	711.375	720.150	719.575	775.400	776.275	711.100	719.100	727.100
4	712.400	712.300	712.475	711.725	720.875	719.950	775.875	776.700	711.475	719.475	727.475
5	712.750	712.875	713.200	712.250	721.400	720.725	776.600	777.800	712.225	720.225	728.225
6	713.300	713.800	713.550	712.950	722.225	721.325	777.600	778.550	714.100	722.100	730.100
7	714.725	714.950	714.125	713.300	722.850	722.375	777.975	779.125	714.850	722.850	730.850
8	715.800	715.725	715.525	715.750	723.750	723.625	779.000	779.950	715.225	723.225	731.225
9	716.350	716.325	716.100	716.450	724.125	724.200	779.525	781.175	715.800	723.800	731.800
10	717.275	716.675	716.500	716.900	725.075	725.475	783.825	783.450	716.175	724.175	732.175
11	717.800	717.375	717.300	717.525	725.750	727.850	784.875	784.075	716.925	724.925	732.925
12	726.275	717.875	717.675	717.850	727.100	728.175	785.375	785.100	717.300	725.300	733.300
13	727.075	726.125	734.250	734.275	729.550	729.400	785.675	785.400	717.875	725.875	733.875
14	727.675	726.675	734.650	734.875	730.275	729.800	786.175	785.900			
15	728.100	727.050	735.250	735.900	731.175	730.400	787.150	787.150			
16	728.875	727.700	735.650	736.675	731.600	731.175	787.925	787.975			
17	729.350	728.150	736.425	737.100	732.275	732.325	788.325	788.575			
18	730.250	730.575	736.825	737.800	732.625	733.150	789.175	789.375			
19	730.850	731.200	737.400	738.125	733.850	733.725	789.850	789.825			
20	731.800	732.050	738.775	738.725							
21	732.175	732.350	739.900	740.150							
22	733.125	733.250	740.325	740.525							
23	733.825	733.700	741.350	741.075							
24	774.150	774.125	741.700	741.800							
25	774.450	774.525									
26	775.175	775.225									
27	775.600	775.725									
28	776.575	776.550									
29	777.775	778.050									
30	778.225	778.800									
31	779.300	779.150									
32	780.125	779.975									
33	780.650	780.600									
34	781.625	781.400									

Channel	Group 38	Group 39	Group 40	Group 41	Group 42	Group 43	Group 44
	"European TV channel 54 optimized 734 - 742 MHz"	"European TV channel 55 optimized 742 - 750 MHz"	"European TV channel 56 optimized 750 - 758 MHz"	"European TV channel 57 optimized 758 - 766 MHz"	"European TV channel 58 optimized 766 - 774 MHz"	"European TV channel 59 optimized 774 - 782 MHz"	"European TV channel 60 optimized 782 - 790 MHz"
1	734.150	742.150	750.150	758.150	766.150	774.150	782.150
2	734.525	742.525	750.525	758.525	766.525	774.525	782.525
3	735.100	743.100	751.100	759.100	767.100	775.100	783.100
4	735.475	743.475	751.475	759.475	767.475	775.475	783.475
5	736.225	744.225	752.225	760.225	768.225	776.225	784.225
6	738.100	746.100	754.100	762.100	770.100	778.100	786.100
7	738.850	746.850	754.850	762.850	770.850	778.850	786.850
8	739.225	747.225	755.225	763.225	771.225	779.225	787.225
9	739.800	747.800	755.800	763.800	771.800	779.800	787.800
10	740.175	748.175	756.175	764.175	772.175	780.175	788.175
11	740.925	748.925	756.925	764.925	772.925	780.925	788.925
12	741.300	749.300	757.300	765.300	773.300	781.300	789.300
13	741.875	749.875	757.875	765.875	773.875	781.875	789.875

P9 FREQUENCY BAND (710–787 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
	"Full Range max. # of compatible frequencies 710 - 787 MHz (option 1)"	"Full Range max. # of compatible frequencies 710 - 787 MHz (option 2)"	"Full Range max. # of compatible frequencies 710 - 787 MHz (option 3)"	"Full Range max. # of compatible frequencies 710 - 787 MHz (option 4)"	"Full Range max. # of compatible frequencies Compatible with Group 1 of G7C 710 - 787 MHz"	"Full Range max. # of compatible frequencies Compatible with Group 2 of G7C 710 - 787 MHz"	"Full Range max. # of compatible frequencies Compatible with Group 1 of L3E 710 - 787 MHz"	"Full Range max. # of compatible frequencies Compatible with Group 2 of L3E 710 - 787 MHz"	"Full Range max. # of compatible frequencies Compatible with Group 3 of G7C and Group 3 of L3E 710 - 787 MHz "	"Full Range max. # of compatible frequencies Compatible with Group 4 of G7C and Group 4 of L3E 710 - 787 MHz "
1	710.450	710.425	710.800	710.125	710.225	710.825	710.200	710.750	710.500	710.375
2	710.950	711.025	711.475	710.800	710.700	711.550	711.325	711.700	712.400	710.775
3	711.825	712.100	711.975	711.925	711.350	712.575	712.800	712.375	712.750	711.350
4	712.150	712.975	712.950	712.300	713.150	713.175	713.525	713.425	713.700	712.650
5	713.025	713.450	714.250	713.550	713.825	714.525	713.950	714.175	716.300	713.075
6	714.825	714.325	715.975	714.150	715.850	716.125	714.700	715.450	717.275	713.775
7	715.775	716.200	716.800	714.975	717.250	717.125	716.300	718.075	717.750	714.200
8	716.375	716.925	717.225	715.600	717.675	718.550	717.150	719.675	718.625	719.125
9	717.250	717.425	717.950	716.575	718.325	718.875	717.450	720.975	720.525	719.625
10	718.300	719.150	719.750	717.275	719.900	720.300	718.325	722.500	721.225	721.300
11	719.975	719.725	723.175	720.225	721.750	722.875	718.900	724.650	721.550	722.375
12	720.400	721.100	724.175	720.675	727.125	723.675	726.175	724.950	722.925	722.700
13	721.275	725.725	725.525	721.450	727.875	724.175	727.100	725.650	727.725	723.225
14	721.975	726.750	726.075	721.925	729.375	724.900	727.775	727.175	729.100	724.275
15	722.900	727.600	727.350	722.850	730.550	726.450	728.650	728.050	729.875	724.850
16	723.375	728.150	729.750	723.425	731.150	727.825	730.625	729.125	730.900	727.650
17	726.525	729.800	731.900	725.200	731.950	731.700	730.925	732.050	731.725	728.150
18	734.150	730.925	732.850	725.950	733.550	733.425	732.375	735.525	732.325	729.175
19	735.150	732.600	734.700	734.075	734.775	734.550	732.800	736.725	733.275	729.775
20	737.050	733.225	737.175	734.375	735.525	736.000	734.425	739.850	735.100	737.450
21	737.650	733.525	739.125	735.600	738.675	738.200	739.675	740.575	736.475	737.875
22	738.025	734.900	741.300	735.900	739.575	738.850	741.325	741.125	737.200	738.975
23	738.600	735.725	741.725	737.925	742.950	740.125	742.125	742.225	741.500	739.650
24	739.375	736.850	742.700	738.850	744.175	740.900	743.550	742.600	744.325	740.675
25	739.775	741.950	745.050	739.600	744.675	742.325	743.850	745.025	744.725	742.050
26	740.350	744.425	746.050	740.675	745.800	747.450	745.225	747.275	746.250	742.875
27	742.850	746.425	747.225	741.100	746.600	748.025	747.250	749.900	746.900	743.250
28	743.350	747.400	747.650	744.075	747.700	748.975	747.775	750.375	748.725	744.250
29	752.850	749.175	749.025	748.775	748.350	749.350	749.450	751.175	749.300	744.725
30	753.200	749.900	750.000	749.725	751.575	750.275	753.950	753.750	750.325	752.600
31	753.975	751.650	751.325	750.450	753.400	751.000	754.550	755.400	754.575	753.900
32	755.900	752.675	752.175	750.975	754.325	752.050	755.625	756.150	754.875	754.575
33	756.375	754.525	753.325	751.700	758.650	753.375	756.450	756.650	755.575	755.900
34	757.125	755.000	754.175	752.750	759.350	754.275	757.075	758.325	756.825	756.350
35	757.500	756.625	755.700	754.250	761.875	754.950	758.125	758.850	757.900	757.050
36	759.275	757.675	757.900	754.800	762.300	755.350	760.400	763.100	758.350	758.625
37	760.100	758.525	758.525	755.575	763.150	756.875	760.875	764.225	763.925	759.000
38	760.500	759.575	760.375	756.125	764.750	766.525	768.125	764.525	764.600	759.850
39	761.975	761.825	761.825	757.275	766.625	767.125	769.275	769.175	765.675	766.875
40	763.250	762.250	764.650	757.700	768.150	768.000	769.725	769.800	766.200	769.875
41	764.075	763.175	766.050	767.325	768.775	768.375	771.100	771.075	767.600	770.950
42	768.425	768.450	768.750	767.750	769.200	769.275	771.550	772.050	770.250	771.850
43	769.725	770.450	769.150	768.850	773.475	769.975	772.675	774.475	771.750	772.400
44	770.300	771.525	770.575	769.775	776.275	770.875	773.575	775.650	772.050	773.225
45	771.575	773.100	771.125	771.100	777.250	772.225	774.675	776.275	772.600	774.400
46	771.975	773.450	772.650	771.625	780.050	772.650	775.150	777.150	778.725	775.850
47	773.950	774.400	774.375	772.650	780.650	774.000	776.425	778.350	780.925	776.175
48	775.125	774.900	775.425	773.025	781.525	774.850	776.900	778.850	781.950	778.200
49	775.750	776.050	776.950	773.975	782.625	775.525	780.825	783.800	782.375	780.925
50	777.050	776.875	777.300	775.725	783.175	776.650	782.425	784.100	783.325	782.650
51	778.000	777.500	781.075	780.950	784.225	783.550	782.875	784.900	783.650	784.200
52	782.875	777.950	781.475	782.275	785.525	784.250	783.750	785.325	784.450	785.075
53	783.275	784.200	782.450	782.900	786.100	785.950	785.875	786.200	786.700	786.800
54	784.200	784.875	783.150	783.200						
55	784.850	785.925	783.650	783.875						
56		786.375	784.475	785.125						
57				785.950						

P9 FREQUENCY BAND (710–787 MHz) Continued

Channel	Group 11 "Germany preferred: Full Range w/o TV Ch. 52 710 - 718 MHz + 726 - 787 MHz"	Group 12 "Germany preferred: Full Range w/o TV Ch. 53 710 - 726 MHz + 734 - 787 MHz"	Group 13 "Germany preferred: Full Range w/o TV Ch. 54 710 - 734 MHz + 742 - 787 MHz"	Group 14 "Germany preferred: Full Range w/o TV Ch. 55 710 - 742 MHz + 750 - 787 MHz"	Group 15 "Germany preferred: Full Range w/o TV Ch. 56 710 - 750 MHz + 758 - 787 MHz"	Group 16 "Germany preferred: Full Range w/o TV Ch. 57 710 - 758 MHz + 766 - 787 MHz"	Group 17 "Germany preferred: Full Range w/o TV Ch. 58 710 - 766 MHz + 774 - 787 MHz"	Group 18 "Germany preferred: Full Range w/o TV Ch. 59 710 - 774 MHz + 782 - 787 MHz"	Group 19 "Germany preferred: Full Range w/o TV Ch. 60 710 - 782 MHz"	Group 20 "Germany preferred: Full Range w/o TV Ch. 53, 57 710 - 726 MHz + 734 - 758 MHz + 766 - 787 MHz"	Group 21 "Germany preferred: Full Range w/o TV Ch. 56, 59 710 - 750 MHz + 758 - 774 MHz + 782 - 787 MHz"	Group 22 "Germany preferred: Full Range w/o TV Ch. 52, 55, 57 710 - 718 MHz + 726 - 742 MHz + 750 - 758 MHz + 766 - 787 MHz"	Group 23 "Germany preferred: Full Range w/o TV Ch. 52, 55, 60 710 - 718 MHz + 726 - 742 MHz + 750 - 782 MHz"
1	710.200	710.200	710.350	710.350	710.575	710.275	710.600	710.200	710.750	710.675	710.225	710.425	710.375
2	710.700	710.575	710.725	711.700	711.425	710.900	711.775	711.125	711.275	712.075	710.600	710.875	710.800
3	711.400	711.975	711.450	713.250	712.075	711.950	712.200	711.725	712.000	713.275	711.325	711.650	711.550
4	711.725	712.475	711.975	713.700	712.450	712.750	713.375	712.500	713.550	714.650	711.875	712.675	712.125
5	712.275	713.200	714.575	714.625	713.175	713.925	714.175	713.625	714.300	715.225	712.225	713.100	712.525
6	714.900	713.575	715.275	715.000	714.725	714.375	715.300	714.325	715.500	715.625	712.750	714.225	713.200
7	715.450	714.125	715.625	716.500	716.775	715.725	716.875	716.350	718.100	716.350	715.100	715.550	714.050
8	715.825	715.600	716.475	717.275	717.775	716.400	717.575	718.800	718.425	716.900	715.800	716.075	715.275
9	716.475	716.000	717.000	718.675	718.600	718.175	719.250	719.425	719.225	718.800	716.300	717.050	716.250
10	717.325	720.200	717.900	720.325	720.150	721.350	720.175	720.375	721.075	719.950	716.975	717.400	717.000
11	717.850	721.175	722.950	721.125	720.625	721.700	721.375	720.775	721.725	720.250	723.025	726.925	717.525
12	727.975	721.975	724.900	723.825	721.275	722.225	722.150	723.100	723.475	720.900	724.175	727.675	726.175
13	728.750	722.450	725.750	724.400	725.300	722.925	723.925	723.525	724.450	722.200	724.850	728.125	727.050
14	729.225	723.175	726.350	725.475	726.275	723.850	724.775	724.200	726.950	722.650	726.175	728.800	727.525
15	729.900	723.550	727.175	729.575	727.550	724.950	725.350	724.700	727.475	723.300	727.075	729.650	728.225
16	730.250	724.150	727.475	730.925	728.625	726.525	728.375	726.050	728.350	723.775	728.425	730.300	730.050
17	730.775	725.350	728.200	731.325	731.575	727.250	728.800	726.950	731.075	734.850	728.850	731.450	730.450
18	733.100	725.650	730.450	732.075	732.225	729.775	729.950	729.400	731.650	735.900	729.525	732.125	731.175
19	734.175	734.925	730.975	732.475	733.275	734.350	730.750	732.275	732.000	736.475	730.450	735.800	731.500
20	734.725	736.075	732.200	733.425	733.575	735.150	731.775	736.375	733.625	737.275	731.725	737.100	732.075
21	737.275	736.875	732.525	736.125	734.150	738.475	733.425	736.725	734.050	738.300	732.300	737.500	734.500
22	737.825	738.600	733.025	736.575	735.275	739.125	734.025	737.325	737.300	739.025	734.375	738.125	735.050
23	738.950	739.150	742.700	738.450	742.350	739.950	737.075	738.750	737.875	740.300	741.375	740.725	736.375
24	741.750	739.950	743.325	739.000	743.525	740.350	740.300	739.550	740.100	740.975	742.025	741.075	737.275
25	742.375	740.950	744.525	739.300	744.075	741.975	745.050	742.000	743.175	741.300	743.025	741.700	739.250
26	744.075	741.650	744.850	739.975	744.925	742.775	746.275	743.050	744.300	741.950	743.550	750.200	740.500
27	748.450	742.550	745.525	750.850	745.575	744.525	746.925	745.050	745.950	743.875	745.250	750.500	740.950
28	748.950	745.325	748.050	752.025	746.500	746.750	747.825	746.250	747.950	749.725	746.075	750.975	751.275
29	751.200	748.650	748.700	752.900	746.800	747.650	748.125	748.275	749.475	750.200	746.550	752.125	752.025
30	751.900	749.450	749.100	753.525	748.425	748.275	749.600	752.125	750.250	750.925	747.225	754.525	752.550
31	752.300	749.950	749.975	753.975	749.175	751.700	750.900	754.325	750.550	752.500	748.100	755.050	753.475
32	753.075	751.050	750.325	754.775	749.750	752.225	752.550	754.750	752.125	753.275	748.775	755.400	754.225
33	755.925	751.725	752.200	755.325	758.600	752.925	753.250	755.350	753.400	753.575	749.850	756.450	755.350
34	756.375	752.850	758.475	756.875	759.025	756.000	755.775	756.750	755.475	754.975	758.525	756.750	756.975
35	757.000	753.250	759.275	758.175	759.975	756.425	756.300	757.575	755.975	755.850	758.950	757.325	757.850
36	759.325	754.275	761.450	759.200	760.425	757.150	757.475	759.500	757.100	757.200	759.750	757.675	758.425
37	760.275	754.975	762.300	760.025	761.100	766.450	757.850	761.025	759.050	757.700	761.275	766.525	760.050
38	761.875	756.075	763.350	760.500	762.025	766.950	759.750	762.000	759.575	766.625	763.075	767.175	760.875
39	765.275	757.675	764.075	761.225	762.425	767.250	760.400	764.850	761.875	767.200	764.300	767.525	762.425
40	766.175	758.425	765.050	762.125	763.425	767.750	761.225	765.850	762.825	767.525	764.700	768.325	766.800
41	766.525	761.475	765.650	768.650	765.275	768.725	762.225	766.200	763.375	768.725	766.575	769.825	767.275
42	768.475	766.375	767.625	769.850	766.675	769.275	764.225	767.050	765.350	769.025	766.950	770.375	768.550
43	768.975	767.700	770.025	772.425	767.650	771.800	774.150	768.075	766.825	771.700	767.850	771.575	770.050
44	770.950	769.275	771.425	773.775	773.750	772.525	774.675	769.475	769.350	772.200	769.425	771.950	770.875
45	772.275	771.050	773.250	774.150	775.500	773.075	775.475	771.100	770.550	772.875	770.275	773.875	771.950
46	773.250	771.525	774.100	774.725	776.050	773.425	776.625	771.600	772.550	773.225	771.700	774.625	772.500
47	774.425	772.475	775.500	775.500	777.625	774.075	777.525	772.375	772.950	773.750	772.450	775.150	774.300
48	774.825	774.100	776.300	776.475	778.750	774.550	779.350	773.375	773.900	780.650	772.950	781.550	775.925
49	779.025	774.775	777.550	779.375	779.450	775.450	780.200	773.900	775.550	781.225	773.800	782.325	777.275
50	779.525	776.225	779.075	780.050	780.475	780.675	780.675	782.425	776.050	782.075	782.450	783.975	777.925
51	781.800	777.500	779.775	782.025	781.800	782.475	781.375	783.300	776.375	782.400	783.075	784.950	779.025
52	782.925	782.975	780.100	782.925	782.675	782.825	781.700	783.925	777.500	783.125	784.900	785.425	779.625
53	783.825	783.775	782.200	783.450	784.675	783.375	782.350	784.975	777.900	784.625	785.350	786.175	780.525
54	785.300	785.150	785.625	786.675	786.375	784.650	784.325	786.325	780.000	785.375	786.525	786.675	781.150
55	786.025	785.475				785.350	786.475		780.775	785.775			
56	786.500					785.700			781.300	786.350			
57										786.675			

P9 FREQUENCY BAND (710–787 MHz) Continued

Channel	Group 24 "Netherlands preferred: TV Ch. 51, 53, 59 (option 1) 710 - 718 MHz + 726 - 734 MHz + 774 - 782 MHz"	Group 25 "Netherlands preferred: TV Ch. 51, 53, 59 (option 2) 710 - 718 MHz + 726 - 734 MHz + 774 - 782 MHz"	Group 26 "Belgium preferred: VRT TV Ch. 51, 54 (option 1) 710 - 718 MHz + 734 - 742 MHz"	Group 27 "Belgium preferred: VRT TV Ch. 51, 54 (option 2) 710 - 718 MHz + 734 - 742 MHz"	Group 28 "Belgium preferred: BRF TV Ch. 52, 53 (option 1) 718 - 734 MHz"	Group 29 "Belgium preferred: BRF TV Ch. 52, 53 (option 2) 718 - 734 MHz"	Group 30 "Belgium preferred: Licensed Use TV Ch. 59, 60 (option 1) 774 - 787 MHz"	Group 31 "Belgium preferred: Licensed Use TV Ch. 59, 60 (option 2) 774 - 787 MHz"
1	710.450	710.450	710.125	710.325	718.300	718.225	774.400	775.025
2	710.975	711.100	711.200	710.675	719.700	718.800	774.700	775.400
3	711.275	711.500	711.975	711.375	720.150	719.575	775.400	776.275
4	712.400	712.300	712.475	711.725	720.875	719.950	775.875	776.700
5	712.750	712.875	713.200	712.250	721.400	720.725	776.600	777.800
6	713.300	713.800	713.550	712.950	722.225	721.325	777.600	778.550
7	714.725	714.950	714.125	713.300	722.850	722.375	777.975	779.125
8	715.800	715.725	715.525	715.750	723.750	723.625	779.000	779.950
9	716.350	716.325	716.100	716.450	724.125	724.200	779.525	781.175
10	717.275	716.675	716.500	716.900	725.075	725.475	783.825	783.450
11	717.800	717.375	717.300	717.525	725.750	727.850	784.875	784.075
12	726.275	717.875	717.675	717.850	727.100	728.175	785.375	785.100
13	727.075	726.125	734.250	734.275	729.550	729.400	785.675	785.400
14	727.675	726.675	734.650	734.875	730.275	729.800	786.175	785.900
15	728.100	727.050	735.250	735.900	731.175	730.400		
16	728.875	727.700	735.650	736.675	731.600	731.175		
17	729.350	728.150	736.425	737.100	732.275	732.325		
18	730.250	730.575	736.825	737.800	732.625	733.150		
19	730.850	731.200	737.400	738.125	733.850	733.725		
20	731.800	732.050	738.775	738.725				
21	732.175	732.350	739.900	740.150				
22	733.125	733.250	740.325	740.525				
23	733.825	733.700	741.350	741.075				
24	774.150	774.125	741.700	741.800				
25	774.450	774.525						
26	775.175	775.225						
27	775.600	775.725						
28	776.575	776.550						
29	777.775	778.050						
30	778.225	778.800						
31	779.300	779.150						
32	780.125	779.975						
33	780.650	780.600						
34	781.625	781.400						

Channel	Group 32 "European TV channel 51 optimized 710 - 718 MHz"	Group 33 "European TV channel 52 optimized 718 - 726 MHz"	Group 34 "European TV channel 53 optimized 726 - 734 MHz"	Group 35 "European TV channel 54 optimized 734 - 742 MHz"	Group 36 "European TV channel 55 optimized 742 - 750 MHz"	Group 37 "European TV channel 56 optimized 750 - 758 MHz"	Group 38 "European TV channel 57 optimized 758 - 766 MHz"	Group 39 "European TV channel 58 optimized 766 - 774 MHz"	Group 40 "European TV channel 59 optimized 774 - 782 MHz"	Group 41 "European TV channel 60 optimized 782 - 787 MHz"
1	710.150	718.150	726.150	734.150	742.150	750.150	758.150	766.150	774.150	782.150
2	710.525	718.525	726.525	734.525	742.525	750.525	758.525	766.525	774.525	782.525
3	711.100	719.100	727.100	735.100	743.100	751.100	759.100	767.100	775.100	783.100
4	711.475	719.475	727.475	735.475	743.475	751.475	759.475	767.475	775.475	783.475
5	712.225	720.225	728.225	736.225	744.225	752.225	760.225	768.225	776.225	784.225
6	714.100	722.100	730.100	738.100	746.100	754.100	762.100	770.100	778.100	786.100
7	714.850	722.850	730.850	738.850	746.850	754.850	762.850	770.850	778.850	786.850
8	715.225	723.225	731.225	739.225	747.225	755.225	763.225	771.225	779.225	
9	715.800	723.800	731.800	739.800	747.800	755.800	763.800	771.800	779.800	
10	716.175	724.175	732.175	740.175	748.175	756.175	764.175	772.175	780.175	
11	716.925	724.925	732.925	740.925	748.925	756.925	764.925	772.925	780.925	
12	717.300	725.300	733.300	741.300	749.300	757.300	765.300	773.300	781.300	
13	717.875	725.875	733.875	741.875	749.875	757.875	765.875	773.875	781.875	

Q5 FREQUENCY BAND (740.000 - 814.000 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10
	Full Range max. # of comp. frequencies (option 1)	Full Range max. # of comp. frequencies (option 2)	Full Range max. # of comp. frequencies (option 3)	Full Range max. # of comp. frequencies (option 4)	France preferred: User Group A (option 1)	France preferred: User Group A (option 2)	France preferred: User Group A (option 3)	France preferred: User Group B (option 1)	France preferred: User Group B (option 2)	France preferred: User Group B (option 3)
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	806.100	806.500	804.500
19	784.650	782.200	784.450	782.400	806.750	803.250	804.250	808.025	808.025	805.700
20	787.725	783.850	787.525	784.050	807.500	807.500	807.500	809.500	810.225	810.225
21	795.175	789.125	794.975	789.325	809.750	808.500	809.250	812.500	810.975	810.975
22	800.475	797.900	800.275	798.100	811.750	809.750	809.750	813.300	813.700	812.900
23	801.325	800.650	801.125	800.850	812.250	811.500	810.500	813.700	753.500	813.300
24	803.950	804.050	803.750	804.250	748.250	745.750	744.500	746.225	754.975	744.775
25	808.400	805.150	808.200	805.350	750.750	750.750	745.750	753.500	757.700	746.225
26	809.325	808.025	809.125	808.225	755.750	752.500	751.250	758.100	766.500	750.100
27	809.975	809.000	809.775	809.200	759.250	753.250	754.500	758.500	781.700	765.300
28	811.350	811.200	811.150	811.400	762.500	754.500	755.500	765.300	788.500	768.025
29	811.900	811.600	811.700	811.800	763.500	758.750	759.500	768.775	789.300	772.500
30	813.150	813.175	812.950	813.375	766.750	760.500	760.500	769.500	792.025	773.700
31	813.575	813.700	813.375	813.900	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	807.800	810.450	807.600	810.650	800.500	801.750	800.500			
43	767.400	754.825	767.200	755.025	808.500	810.500	808.500			
44	768.950	758.375	768.750	758.575	810.500	812.250	812.250			
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						

Channel	Group11	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19	Group 20
	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	France preferred: User Group C (option 3)	Germany preferred: User Group 1 790-814 MHz	Germany preferred: User Group 2 790-814 MHz	Germany preferred: User Group 3A 790-814 MHz	Germany preferred: User Group 3B 790-814 MHz	Germany preferred: User Group 3C 790-814 MHz	Germany preferred: User Group 3D 790-814 MHz	Germany preferred: User Group 4 790-814 MHz (option 1)
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	806.100	799.575	800.900	798.700	806.350	806.400	804.850
8	765.500	759.000	757.500	806.500	806.600	807.200	801.775	806.750	808.475	805.250
9	768.225	770.775	759.000	811.200	809.325	810.825	807.950	808.425	809.050	808.550
10	768.975	772.700	773.100	811.950	810.425	812.100	808.375	809.825	809.875	809.950
11	770.025	774.300	773.500	813.400	812.950	812.575	809.775	813.650	810.975	811.550
12	775.000	778.025	776.225	813.900	813.900	794.825	812.625	793.825	792.475	812.850

Q5 FREQUENCY BAND (740.000 - 814.000 MHz) Continued

Channel	Group11	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19	Group 20
	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	France preferred: User Group C (option 3)	Germany preferred: User Group 1 790-814 MHz	Germany preferred: User Group 2 790-814 MHz	Germany preferred: User Group 3A 790-814 MHz	Germany preferred: User Group 3B 790-814 MHz	Germany preferred: User Group 3C 790-814 MHz	Germany preferred: User Group 3D 790-814 MHz	Germany preferred: User Group 4 790-814 MHz (option 1)
13	778.775	781.100	776.975	796.425	790.600	808.325	806.700	796.675	793.875	813.775
14	780.700	782.300	780.000	797.400	805.500	811.350	810.875	797.650	794.975	799.400
15	783.000	784.975	781.900	797.900	805.900		811.400	809.000	795.500	810.525
16	797.500	786.775	784.225	800.750	808.800		813.600	810.925	796.725	
17	797.900	797.900	788.700							
18	799.000	800.225	802.025							
19	805.100	804.000	804.700							
20	806.300	805.100	805.100							
21	808.225	807.000	805.900							
22	808.975	808.225	810.025							
23	810.775	812.700	812.000							
24	813.100	813.500	813.500							
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	806.300							
36	813.900	794.775	810.775							

Channel	Group 21	Group 22	Group 23	Group 24	Group 25	Group 26	Group 27	Group 28	Group 29	Group 30	Group 31	Group 32	Group 33
	Germany preferred: User Group 4 790-814 MHz (option 2)	Germany preferred: Fixed Installations 742-790 MHz	Opti- mized: TV oh. 55 742-750 MHz	Opti- mized: TV oh. 56 750-758 MHz	Opti- mized: TV oh. 57 758-766 MHz	Opti- mized: TV oh. 58 766-774 MHz	Opti- mized: TV oh. 59 774-782 MHz	Broad- casters preferred: TV oh. 60 782-790 MHz	Opti- mized: TV oh. 61 790-798 MHz	Opti- mized: TV oh. 62 798-806 MHz	Nether- lands preferred: TV oh. 63 806-814 MHz	Combined UHF-R Q5 and R9: max. # of compatible	Combined UHF-R Q5 and R9: max. # of compatible
1	790.925	742.750	742.100	750.100	758.100	766.100	774.100	782.225	790.100	798.100	806.100	742.000	740.175
2	791.400	744.625	742.925	750.925	758.925	766.925	774.925	782.650	790.925	798.925	806.925	743.200	740.900
3	792.625	745.100	743.525	751.525	759.525	767.525	775.525	783.900	791.525	799.525	807.525	743.850	742.300
4	795.025	745.975	744.575	752.575	760.575	768.575	776.575	784.625	792.575	800.575	808.575	744.800	742.850
5	795.650	747.650	745.900	753.900	761.900	769.900	777.900	785.775	793.900	801.900	809.900	748.175	743.975
6	797.050	748.225	747.650	755.650	763.650	771.650	779.650	786.400	795.650	803.650	811.650	748.650	746.550
7	802.000	753.225	748.050	756.050	764.050	772.050	780.050	787.325	796.050	804.050	812.050	749.500	747.550
8	803.575	754.750	749.200	757.200	765.200	773.200	781.200	787.850	797.200	805.200	813.200	751.250	751.525
9	805.750	755.950	749.900	757.900	765.900	773.900	781.900	788.675	797.900	805.900	813.900	752.750	751.925
10	810.300	759.350	746.600	754.600	762.600	770.600	778.600		794.600	802.600	810.600	758.025	765.325
11	811.050	762.275										760.925	766.550
12	812.850	770.100										770.900	767.425
13	813.775	774.375										774.450	773.025
14	799.400	775.775										776.400	773.525
15	808.550	777.500										777.475	776.625
16		779.750										778.875	777.950
17		782.550										783.075	781.950
18		784.475										796.800	783.775
19		785.975										797.975	798.600
20		787.050										804.325	804.250
21		788.350										806.225	808.800
22		788.875										741.200	748.175
23		743.500										773.450	752.600
24		772.075										775.700	770.875
25		755.450										810.100	778.900
26		756.750										745.475	783.375
27		770.825										754.900	766.125
28		772.725										762.625	771.775
29		776.450										768.825	786.450
30		789.875										783.575	802.075
31		760.000										797.575	812.900
32		783.925										755.525	745.950
33												756.650	749.375
34												758.975	763.475
35												781.700	788.125
36												807.675	800.900

R9 FREQUENCY BAND (790.000-865.000 MHz)

Channel	Full Range max. # of compatible frequencies (option 1)	Full Range max. # of compatible frequencies (option 2)	Full Range max. # of compatible frequencies (option 3)	Full Range max. # of compatible frequencies (option 4)	Optimized: TV oh. 61-63 & TV oh. 67-69 & EU harmonized: 790-814 & 838-862 MHz & 863-865 MHz	Optimized: TV oh. 61-63 & TV oh. 69 & EU harmonized: 790-814 & 854-862 MHz & 863-865 MHz	Germany preferred: User Group 4 790-814 MHz & 838-865 MHz (only indoor)	Germany preferred: User Group 4 790-814 MHz & 854-865 MHz (indoor and outdoor)	Germany preferred: User Group 3A 790-814 MHz & 838-865 MHz	Germany preferred: User Group 3B 790-814 MHz & 838-865 MHz	Germany preferred: User Group 3C 790-814 MHz & 838-865 MHz
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11
1	790.650	791.300	790.725	790.525	790.175	790.525	792.550	792.625	790.250	791.950	790.350
2	791.900	792.050	791.825	791.125	793.025	791.775	794.000	793.175	792.325	793.775	791.300
3	794.200	793.225	792.500	791.925	793.425	792.400	794.525	794.025	792.900	794.875	794.925
4	795.275	793.875	794.950	794.025	798.225	793.550	797.200	795.625	793.725	798.300	796.675
5	795.975	795.375	795.375	795.850	799.100	796.150	799.400	797.750	794.825	800.950	800.425
6	797.425	798.050	796.900	798.125	799.600	797.100	801.200	801.225	799.200	806.300	805.650
7	797.975	798.475	801.725	801.725	800.675	803.025	802.175	805.100	799.900	806.700	806.350
8	802.175	800.925	802.675	802.750	801.325	804.500	805.750	807.425	804.100	808.375	808.425
9	803.725	805.425	803.975	803.225	805.975	805.000	809.125	810.100	810.825	811.400	809.000
10	804.650	806.700	804.750	809.975	809.900	807.225	811.575	810.525	812.100	812.150	809.825
11	808.600	809.050	809.275	816.025	810.875	810.525	812.825	811.600	812.575	813.600	811.450
12	814.550	812.050	817.225	818.000	813.450	812.100	813.250	813.300	839.200	838.300	839.300
13	817.550	823.825	820.550	818.575	838.175	813.450	840.625	854.950	839.900	840.375	840.425
14	823.625	825.000	823.175	819.375	838.975	854.325	841.425	856.625	840.325	840.950	841.825
15	828.275	826.550	827.825	821.500	840.125	854.975	843.725	857.475	842.825	841.775	843.450
16	829.100	829.700	829.375	822.400	841.875	855.900	845.100	857.950	844.100	843.400	849.000
17	830.625	831.500	829.875	828.575	843.225	857.700	845.800	859.050	846.250	846.700	852.675
18	831.625	832.550	830.625	829.250	847.975	858.850	848.525	859.725	847.200	847.950	853.650
19	833.275	842.775	834.825	830.275	850.975	860.750	849.125	861.175	856.900	855.950	858.925
20	833.875	844.100	842.650	835.075	851.475	863.175	853.800	861.750	857.725	856.950	859.450
21	841.575	846.575	844.050	843.050	853.125	864.000	855.400	791.450	860.100	860.150	860.675
22	846.050	851.125	845.900	851.975	855.625	864.475	857.950	801.950	795.350	860.625	793.825
23	851.950	853.475	853.025	852.800	857.475	792.825	859.650	805.775	807.200	791.250	801.000
24	855.900	857.750	855.000	855.125	861.475	795.750	861.150	863.525	807.900	795.400	806.750
25	856.825	858.525	855.600	856.475	863.775	805.750	795.700	864.200	811.350	797.600	813.650
26	858.425	858.950	856.725	856.975	864.175	806.300	800.625		856.325	808.950	854.350
27	859.050	860.725	859.050	858.025	864.825	807.875	810.100		859.350	854.700	857.825
28	860.550	863.350	859.450	861.575	790.800	810.975	810.550		860.575	859.400	861.650
29	863.400	863.900	863.625	863.625	794.350	811.700	839.475		863.100	863.125	863.250
30	863.825	864.875	864.350	864.325	794.775	857.225	849.925		863.675	863.750	
31	864.625	794.775	801.000	792.450	804.225	861.300	854.950		864.475	864.825	
32	799.275	799.800	822.000	827.450	805.400		857.200				
33	822.150	825.575	827.200	845.000	806.800		863.200				
34	830.225	827.075	860.975	845.600	808.600		863.675				
35	847.400	845.700	864.875	794.775	811.475						
36	807.375	855.450	791.425	795.175	840.800						
37	810.825	811.600	803.425	806.125	843.850						
38	815.825	813.825	808.825	809.225	844.275						
39	816.300	819.850	834.400	811.875	849.325						
40	820.250	841.075	840.050	813.275	860.725						
41	821.050	845.100	851.950	830.700							
42	839.850	847.800	861.800	831.725							
43	842.400	813.400	807.475	834.425							
44	843.925	816.725	822.425	843.750							
45	845.150	818.975	835.800	847.250							
46	846.625	840.675	840.500	848.375							
47	853.775	856.100	843.525	849.900							

R9 FREQUENCY BAND (790.000-865.000 MHz) Continued

Channel	Germany preferred: User Group 3D 790-814 MHz & 838-865 MHz	Germany preferred: User Group 2 790-814 MHz & 838-862 MHz	Germany preferred: User Group 1 790-814 MHz & 838-862 MHz	France preferred: User Group A (option 1)	France preferred: User Group A (option 2)	France preferred: User Group B (option 1)	France preferred: User Group B (option 2)	France preferred: User Group C (option 1)	France preferred: User Group C (option 2)	Optimized: TV oh. 61 790-798 MHz	Optimized: TV oh. 62 798-806 MHz
	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18	Group 19	Group 20	Group 21	Group 22
1	790.400	790.100	791.050	791.500	790.750	790.500	792.775	790.300	791.000	790.100	798.100
2	791.350	793.325	792.175	792.500	791.750	792.025	794.225	791.000	794.775	790.925	798.925
3	794.975	794.425	792.750	793.750	793.250	794.225	794.975	792.975	797.100	791.525	799.525
4	796.725	796.950	795.200	795.250	793.750	794.975	796.900	797.100	797.500	792.575	800.575
5	800.475	797.900	796.425	795.750	794.500	796.900	798.100	797.900	798.300	793.900	801.900
6	805.700	800.050	799.750	800.500	799.500	797.300	798.500	800.975	802.775	795.650	803.650
7	806.400	806.100	802.675	801.250	801.750	801.500	801.500	806.300	808.975	796.050	804.050
8	808.475	807.575	805.400	807.750	808.500	809.500	806.500	813.500	813.100	797.200	805.200
9	809.050	808.050	806.100	811.250	817.750	812.900	810.975	818.025	820.000	797.900	805.900
10	809.875	808.800	811.950	819.500	820.250	821.300	822.100	820.000	822.300	794.600	802.600
11	811.500	813.500	813.400	822.750	823.250	822.500	824.025	822.300	823.000		
12	839.350	838.100	838.100	824.500	823.750	826.225	826.225	824.975	824.225		
13	840.475	840.050	838.500	825.750	826.500	826.975	826.975	828.000	828.000		
14	841.875	840.800	843.950	827.250	827.500	828.500	829.300	828.700	829.100		
15	843.500	843.825	851.200	828.250	828.250	828.900	829.700	829.100	829.500		
16	849.050	844.250	852.425	790.750	795.500	798.500	805.300	792.225	790.300		
17	852.725	846.100	853.400	798.750	802.500	802.975	809.500	796.700	807.000		
18	853.700	849.325	854.100	799.500	803.750	810.225	812.900	800.225	812.700		
19	858.975	853.900	856.175	809.250	806.750	813.300	813.300	812.700	814.300		
20	859.500	859.825	856.750	810.500	811.500	814.500	814.100	816.975	816.225		
21	860.725	860.950	857.575	812.250	814.750	816.775	822.500	826.025	824.975		
22	793.875	861.500	858.675	815.750	815.500	863.150	863.125	863.150	863.125		
23	801.050	790.600	797.900	816.500	816.500	863.550	863.525	863.550	863.525		
24	806.800	791.575	807.050	817.750	818.500	864.175	864.175	864.175	864.175		
25	813.700	792.800	807.750	823.500	819.750	864.600	864.625	864.600	864.625		
26	854.400	811.250	859.200	863.150	825.250						
27	857.875	811.825	861.400	863.550	863.125						
28	861.700	812.950		864.175	863.525						
29	863.300	855.575		864.600	864.175						
30		856.050			864.625						
31		859.250									

Channel	Netherlands preferred: TV Ch. 63 806-814 MHz (option 1)	Netherlands preferred: TV Ch. 63 806-814 MHz (option 2)	Optimized: TV Ch. 61-63 790-814 MHz	FIN preferred: 790-822 MHz (option 1)	FIN preferred: 790-822 MHz (option 2)	Sweden preferred: 800-814 MHz (option 1)	Sweden preferred: 800-814 MHz (option 2)	NOR / DEN preferred: 800-820 MHz	Optimized TV channels: TV Ch. 67 838-846 MHz	Optimized TV channels: TV Ch. 68 846-854 MHz
	Group 23	Group 24	Group 25	Group 26	Group 27	Group 28	Group 29	Group 30	Group 31	Group 32
1	806.100	806.100	790.150	790.775	790.675	800.300	800.125	800.325	838.100	846.100
2	806.925	806.800	791.200	791.175	791.825	800.700	801.125	801.800	838.925	846.925
3	807.525	807.950	794.200	792.125	792.575	801.975	803.125	802.200	839.525	847.525
4	808.575	808.350	795.375	792.650	794.225	802.500	803.775	802.950	840.575	848.575
5	809.900	810.100	796.875	794.325	794.875	804.075	805.675	805.825	841.900	849.900
6	811.650	811.425	797.825	801.550	796.925	806.950	807.050	807.950	843.650	851.650
7	812.050	812.475	801.650	802.400	800.325	808.325	809.925	810.475	844.050	852.050
8	813.200	813.075	803.350	805.200	805.550	810.225	811.500	811.075	845.200	853.200
9	813.900	813.900	806.125	806.450	806.800	810.875	812.025	812.450	845.900	853.900
10	810.600	809.400	808.675	811.675	809.600	812.875	813.300	814.825	842.600	850.600
11			809.425	815.075	810.450	813.875	813.700	817.800		
12			811.550	817.125	817.675	803.450	804.925	818.300		
13			812.950	817.775	819.350	809.075	810.550	819.575		
14			813.350	819.425	819.875			800.850		
15			790.775	820.175	820.825			804.600		
16			794.900	821.325	821.225			813.250		
17			805.275	794.800	795.325			816.675		
18			806.750	799.400	797.425					
19			807.600	799.900	801.750					
20			810.375	804.200	802.775					
21				807.375	804.625					
22				809.225	807.800					
23				810.250	812.100					
24				814.575	812.600					
25				816.675	817.200					

R9 FREQUENCY BAND (790.000-865.000 MHz) Continued

Channel	BEL / TUR / UK preferred: TV Ch. 69 & EU harmonized 854-862 & 863- 865 MHz	Optimized: TV Ch. 67-69 & EU harmonized 838-862 & 863-865 MHz	U.K. preferred: "Ch. 69 Co-ordinate frequencies SET 1"	U.K. preferred: "Ch. 69 Co-ordinate frequencies SET 2"	U.K. preferred: "Ch. 69 Co- ordinated frequencies INDOORS"	U.K. preferred: "Ch. 69 Co-ordinated frequencies OUTDOORS"	U.K. pre- ferred: "Ch. 69 Shared frequencies" (option 1)	U.K. pre- ferred: "Ch. 69 Shared frequencies" (option 2)	EU harmonized band: opti- mized for 863 - 865 MHz	Combined UHF-R Q5 and R9: max. # of compatible (option 1)	Combined UHF-R Q5 and R9: max. # of compatible (option 2)
	Group 33	Group 34	Group 35	Group 36	Group 37	Group 38	Group 39	Group 40	Group 41	Group 42	Group 43
1	854.225	838.650	855.675	856.500	854.500	854.375	854.900	855.275	863.125	791.925	796.050
2	855.525	840.225	856.375	857.500	855.000	854.850	855.900	855.900	863.525	793.425	796.900
3	855.925	841.325	856.800	858.250	855.900	855.725	856.575	857.950	864.175	796.250	798.025
4	856.550	843.700	857.425	858.700	856.600	856.400	857.950	858.650	864.625	802.725	803.000
5	857.950	845.000	860.600	859.525	857.100	856.850	858.650	860.400		808.450	806.700
6	859.550	850.675			857.850	857.625	860.400	860.900		809.450	811.825
7	860.725	852.675			858.900	858.625	861.200	861.750		811.450	812.250
8	861.450	853.250			859.500	859.950	861.750			823.200	815.125
9	864.050	855.150			860.475	860.650				824.350	828.625
10	864.550	856.050			860.925	861.075				826.800	829.500
11	854.750	859.225			861.700	861.900				828.075	836.825
12		860.625								830.800	838.400
13		863.600								837.000	840.425
14		864.400								839.275	846.975
15		864.800								840.850	847.525
16		838.250								850.675	848.725
17		839.625								851.175	851.800
18		843.275								852.850	853.925
19		847.500								854.250	857.425
20		854.475								857.125	861.125
21		857.325								864.475	863.475
22										831.375	803.525
23										852.175	825.125
24										858.975	830.800
25										863.300	853.250
26										805.700	863.900
27										834.350	823.975
28										835.175	831.900
29										835.575	839.300
30										848.800	860.075
31										861.825	864.550
32										791.075	791.525
33										794.225	817.550
34										823.925	825.775
35										848.300	832.425
36										861.025	855.125

A24 FREQUENCY BAND (779-787 / 797-806)

Channel	L1	L2	L3	L4	L5	L6	L7	L8
A1	779.125	779.250	779.625	779.750	780.625	780.250	779.125	782.875
A2	779.375	779.500	779.875	780.500	781.125		779.375	783.000
A3	780.125	780.000	780.375	781.000	781.375		779.875	783.125
A4	780.750	780.875	781.250	782.125	781.750		780.500	783.250
A5	782.000	781.500	781.625	782.375	782.625		781.500	783.375
A6	782.500	781.875	782.250	782.750			782.375	783.500
A7							782.750	
1	797.125	797.250	797.625	797.750	798.625	798.250	797.125	800.875
2	797.375	797.500	797.875	798.500	799.125		797.375	801.000
3	798.125	798.000	798.375	799.000	799.375		797.875	801.125
4	798.750	798.875	799.250	800.125	799.750		798.500	801.250
5	800.000	799.500	799.625	800.375	800.625		799.500	801.375
6	800.500	799.875	800.250	800.750			800.375	801.500
7							800.750	

Channel	H1	H2	H3	H4	H5	H6	H7	H8
A1	783.625	783.750	784.125	784.250	785.125	784.750	783.625	787.375
A2	783.875	784.000	784.375	785.000	785.625		783.875	787.500
A3	784.625	784.500	784.875	785.500	785.875		784.375	787.625
A4	785.250	785.375	785.750	786.625	786.250		785.000	787.750
A5	786.500	786.000	786.125	786.875	787.125		786.000	787.875
A6		786.375	786.750	787.250			786.875	
A7							787.250	
1	801.625	801.750	802.125	802.250	803.125	802.750	801.625	805.375
2	801.875	802.000	802.375	803.000	803.625		801.875	805.500
3	802.625	802.500	802.875	803.500	803.875		802.375	805.625
4	803.250	803.375	803.750	804.625	804.250		803.000	805.750
5	804.500	804.000	804.125	804.875	805.125		804.000	805.875
6	805.000	804.375	804.750	805.250			804.875	
7							805.250	

Channel	C1	C2	C3	C4	C5	C6	C7	C8	C9
1	779.125	779.500	779.250	779.500	779.125	779.250	779.250	779.250	779.500
2	779.375	779.875	779.750	780.000	779.375	779.500	780.000	780.750	780.250
3	780.875	782.375	780.500	780.750	780.125	780.000	780.500	781.625	780.750
4	781.875	784.125	782.000	782.250	781.625	781.375	781.500	782.000	781.750
5	783.750	786.500	782.625	784.000	783.625	782.500	781.875	783.625	782.125
6	786.125	787.500	783.750	785.375	784.250	783.375	784.000	784.250	784.250
7	787.250	787.750	785.750	786.000	785.375	784.875	785.625	785.375	785.875
8			786.750	787.000	786.625	786.125	786.750	786.750	787.000
9					787.000	786.500	787.375	787.250	787.625
10					787.500	787.125	787.625	787.500	787.875

Channel	E1	E2	E3	E4	E5	E6	E7	E8	E9
1	797.125	797.500	797.250	797.500	797.125	797.250	797.250	797.250	797.500
2	797.375	797.875	797.750	798.000	797.375	797.500	798.000	798.750	798.250
3	798.875	800.375	798.500	798.750	798.125	798.000	798.500	799.625	798.750
4	799.875	802.125	800.000	800.250	799.625	799.375	799.500	800.000	799.750
5	801.750	804.500	800.625	802.000	801.625	800.500	799.875	801.625	800.125
6	804.125	805.500	801.750	803.375	802.250	801.375	802.000	802.250	802.250
7	805.250	805.750	803.750	804.000	803.375	802.875	803.625	803.375	803.875
8			804.750	805.000	804.625	804.125	804.750	804.750	805.000
9					805.000	804.500	805.375	805.250	805.625
10					805.500	805.125	805.625	805.500	805.875

Channel	F1	F2	F3	F4	F5	F6	F7	F8	F9
1	797.125	797.250	799.000	797.625	797.375	797.125	797.375	797.250	797.125
2	797.875	797.500	800.125	798.000	797.750	797.375	797.625	797.500	797.500
3	798.250	798.750	801.500	799.000	798.875	797.750	798.875	797.875	799.125
4	799.750	799.500	803.500	800.250	801.625	798.750	799.250	799.625	800.125
5	801.875	802.250	804.250	802.000	804.125	799.875	800.250	801.000	802.000
6	802.875	802.750	805.875	803.500		801.375	801.000	802.250	804.250
7	804.250	805.125				803.625	803.000	803.875	804.750
8						804.375	805.250	805.000	805.500
9						804.875		805.875	

JBX FREQUENCY BAND (806.125 - 809.750 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
1	806.125	806.250	806.625	806.750	807.625	807.250	806.125
2	806.375	806.500	806.875	807.500	808.125		806.375
3	807.125	807.000	807.375	808.000	808.375		806.875
4	807.750	807.875	808.250	809.125	808.750		807.500
5	809.000	808.500	808.625	809.375	809.625		808.500
6	809.500	808.875	809.250	809.750			809.375
7							809.750

Channel	F1	F2	F3	F4	F5	F6	F7	F8	F9
1									
2									
3									
4									
5									
6					806.125				
7			806.375	807.000	806.375				
8	806.250	807.625	808.125	807.250	807.125				
9	806.750	808.750	809.000	807.750	807.750		806.125		808.000
10	809.500	809.375	809.375	808.875	809.000	806.750	808.500	806.875	808.625
11	809.750	809.750	809.625	809.750	809.500	808.750	809.125	808.375	809.500
12						809.625	809.625	809.125	809.750

Q6 FREQUENCY BAND (740.125 - 751.875 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5
1	740.275	740.275	740.250	740.275	740.375
2	741.000	740.825	740.900	740.800	741.275
3	741.450	741.725	741.325	742.550	741.700
4	742.425	742.250	742.075	743.350	743.450
5	742.850	742.975	743.025	743.775	743.925
6	743.600	743.450	743.475	745.525	744.775
7	744.050	744.425	744.525	748.125	746.975
8	745.050	746.825	745.375	748.925	748.700
9	747.450	747.825	747.925	749.350	749.600
10	748.425	748.275	748.375	751.250	750.925
11	748.900	749.025	749.200	751.775	751.650
12	749.625	749.450	749.625		
13	750.150	750.425	750.250		
14	751.050	750.875	751.100		
15	751.600	751.600	751.600		

FREQUENCY BAND G7C (470.125–509.875 MHz)

Group	1	2	3	4	5	6	7	8	9	10	11	12	13
Channel	Full Range max. # of compatible frequencies (option 1) 470 - 510 MHz	Full Range max. # of compatible frequencies (option 2) 470 - 510 MHz	Compatible with Group 3 of L3E (band completely available)	Compatible with Group 4 of L3E (band completely available)	Compatible with Group 5 of L3E (band completely available)	Compatible with Group 6 of L3E (band completely available)	Compatible with Group 7 of L3E (band completely available)	Compatible with Group 8 of L3E (band completely available)	European TV channel 21 optimized 470 - 478 MHz	European TV channel 22 optimized 478 - 486 MHz	European TV channel 23 optimized 486 - 494 MHz	European TV channel 24 optimized 494 - 502 MHz	European TV channel 25 optimized 502 - 510 MHz
1	470.200	470.250	471.525	470.125	470.200	470.700	470.475	509.450	470.125	478.125	486.125	494.125	502.125
2	470.750	470.700	473.175	471.050	470.550	471.650	471.025	508.900	471.375	479.375	487.375	495.375	503.375
3	471.950	471.325	473.600	472.400	472.025	472.250	471.875	508.050	472.000	480.000	488.000	496.000	504.000
4	472.300	471.675	474.575	473.075	474.600	473.350	473.025	506.900	472.825	480.825	488.825	496.825	504.825
5	475.600	474.150	476.950	474.850	475.600	474.725	475.300	504.625	473.350	481.350	489.350	497.350	505.350
6	476.450	475.450	481.050	475.675	476.325	475.500	476.300	503.625	475.800	483.800	491.800	499.800	507.800
7	478.650	476.325	481.725	477.600	476.800	477.475	478.075	501.850	476.225	484.225	492.225	500.225	508.225
8	487.725	482.975	485.375	483.275	485.975	486.050	481.775	498.150	476.950	484.950	492.950	500.950	508.950
9	488.400	484.600	487.975	488.675	490.125	490.275	485.925	494.000	477.875	485.875	493.875	501.875	509.875
10	491.575	491.150	492.200	489.250	493.875	492.600	486.325	493.600	477.300	485.300	493.300	501.300	509.300
11	492.675	492.325	498.075	492.675	497.000	498.575	492.025	487.900					
12	496.625	498.050	501.000	497.975	502.175	501.950	498.325	481.600					
13	498.475	500.975	504.175	504.675	502.525	502.300	504.275	475.650					
14	501.000	502.900	505.425	505.150	505.125	503.525	505.025	474.900					
15	502.525	504.300	506.300	505.925	506.450	507.575	505.575	474.350					
16	505.825	506.525	507.700	507.600	507.050	508.050	506.675	473.250					
17	506.200	507.025	508.750	507.950	508.700	509.025	507.600	472.325					
18	507.125	508.325	509.325	509.800	509.150	509.800	509.450	470.475					
19	508.875	509.050	470.650	473.450	509.850	470.325	472.325	508.750					
20	475.200	477.825	476.375	479.175	477.475	476.975	497.125	483.950					
21	503.875	478.750	483.925	495.900	479.525	481.150	500.050	481.025					
22	509.600	505.300	499.800	509.100	481.300	501.375	502.700	478.375					
23	473.475	509.375	503.550	470.700	489.275	504.375	508.750	472.325					
24	477.900	475.775											
25	479.075	485.650											
26	479.925	486.400											
27	490.300	487.550											
28	493.600	488.900											
29	494.200	489.250											
30	495.250	491.600											
31	497.200	496.175											
32	507.450	501.850											

Q10A FREQUENCY BAND (740.125–786.875 MHz)

Channel	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12
1	740.450	740.600	740.550		741.350	740.550	740.300		741.075	740.200	740.175	740.300
2	741.425	742.500	740.975	740.500	742.150	744.350	741.400	740.625	743.000	740.825	740.875	741.000
3	743.075	743.000	742.750	742.025	745.725	744.975	741.925	742.450	743.600	742.650	741.875	742.000
4	745.350	744.050	747.875	747.550	747.000	745.800	742.825	742.975	745.225	743.175	744.750	744.875
5	746.050	744.700	748.750	748.800	748.050	749.100	745.800	743.800	749.100	744.000	745.900	746.025
6	747.350	746.700	753.225	749.650	749.525	755.175	747.950	746.625	756.175	746.825	746.775	746.900
7	748.150	749.000	754.225	753.650	750.700	756.250	749.475	748.825	759.850	749.025	748.375	748.500
8	751.875	752.125	755.550	756.800	753.550	756.725	752.575	749.225	761.000	749.425	750.275	750.400
9	753.625	754.650	756.325	760.550	755.325	758.725	755.925	755.750	762.800	755.950	752.850	752.975
10	756.050	756.100	758.200	761.500	756.700	759.450	756.550	759.075	763.825	759.275	759.150	759.275
11	757.150	757.900	758.825	762.200	758.300	761.650	758.325	761.025	767.325	761.225	761.900	762.025
12	763.525	760.925	762.550	763.350	758.700	766.225	761.525	769.125	768.175	769.325	771.700	771.825
13	764.950	768.675	767.425	765.850	768.800	771.450	766.775	769.725	768.775	769.925	773.125	773.250
14	749.725	741.700	741.750	767.850	745.000	741.675	746.625	770.575	776.875	770.775	777.125	777.250
15	752.350	746.150	743.475	741.150	751.425	753.425	747.150	774.075	778.825	774.275	778.875	779.000
16	754.650	747.950	746.650	744.200	757.375	754.425	750.750	775.100	782.150	775.300	780.425	780.550
17	756.750	756.850	751.350	746.100	759.650	760.425	753.775	776.900		777.100	781.725	781.850
18	761.400	758.700	751.925	752.525	760.325	772.225	757.775	778.050		778.250	782.325	782.450
19	762.675	759.250	753.625	754.400	764.400		759.825	781.725		781.925	784.850	784.975
20		761.975		755.775	779.675		776.575				785.350	785.475
21				766.975			779.600				786.500	786.625
22				784.550								
23												
24												
25								747.325	740.575	747.525		
26								750.000	754.950	750.200		
27								782.950		783.150		
28												
29								763.450	745.850	763.650		
30								763.925	754.200	764.125		
31								764.650	772.325	764.850		
32								765.575	773.250	765.775		
33								783.700	773.975	783.900		
34									774.450			
35								741.675	747.900	741.875		
36								761.750	751.825	761.950		
37								786.075	776.150	786.275		
38												
39								741.275	748.275	780.925		
40								747.825	781.200	785.200		
41								780.700	782.450			
42								784.975	782.925			
43									783.875			
44									785.800			
45									786.775			

R16, R18 FREQUENCY BANDS

TRANSMITTER POWER								
R16	10 mW				50 mW			
R18	10 mW							
Channel	Group 1	Group 2	Group 3	Group 4	GROUP 5	GROUP 6	GROUP 7	GROUP 8
1	794.300	794.125	794.250	794.425	794.325	794.200	794.350	794.475
2	794.600	794.425	794.625	794.800	794.725	794.600	795.925	796.050
3	795.250	795.075	795.750	795.925	795.525	795.400	796.775	796.900
4	795.725	795.550	797.425	797.600	796.050	795.925	798.225	798.350
5	796.400	796.225	798.325	798.500	796.925	796.800	801.025	801.150
6	797.350	797.175	801.800	801.975	797.550	797.425	801.750	801.875
7	797.850	797.675	802.600	802.775	797.975	797.850	803.075	803.200
8	798.750	798.575	803.425	803.600	798.575	798.450	803.575	803.700
9	800.800	800.625	803.825	804.000	801.875	801.750	804.775	804.900
10	801.975	801.800	805.600	805.775	802.650	802.525	805.750	805.875
11	802.475	802.300			803.100	802.975		
12	803.400	803.225			803.750	803.625		
13	803.925	803.750			804.100	803.975		
14	804.625	804.450			804.650	804.525		
15	805.025	804.850			805.375	805.250		
16	805.600	805.425						



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