AXT100

Bodypack Transmitter

Online user guide for AXT100 bodypack transmitter.
Version: 3.1 (2021-H)

Table of Contents

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WARNING

- Battery packs may explode or release toxic materials. Risk of fire or burns. Do not open, crush, modify, disassemble, heat above 140°F (60°C), or incinerate.
- Follow instructions from manufacturer
- Only use Shure charger to recharge Shure rechargeable batteries
- WARNING: Danger of explosion if battery incorrectly replaced. Replace only with same or equivalent type.
- Never put batteries in mouth. If swallowed, contact your physician or local poison control center
- Do not short circuit; may cause burns or catch fire
- Do not charge or use battery packs other than Shure rechargeable batteries
- Dispose of battery packs properly. Check with local vendor for proper disposal of used battery packs.
- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like
- Do not immerse the battery in liquid such as water, beverages, or other fluids.
- Do not attach or insert battery with polarity reversed.
- Keep away from small children.
- Do not use abnormal batteries.
- Pack the battery securely for transport.

AXT100 Bodypack Transmitter

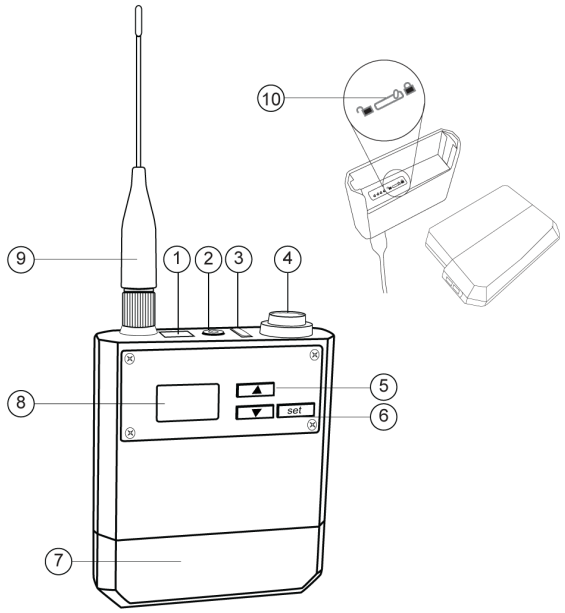
The AXT100 transmitter delivers superior audio performance in a compact, lightweight package. Efficient, ultra-linear RF performance maximizes the number of channels on-air in crowded RF environments. Advanced power management provides extended, rechargeable battery life and highly accurate status metering. ShowLink™ Remote Control enables comprehensive real-time remote control of all transmitter parameters, including real-time frequency adjustments.

Features

- Ultra-linear RF performance places more channels on-air
- IR Sync function automatically tunes transmitter to the receiver frequency
- Comprehensive real-time remote control of all transmitter parameters when a Linked transmitter is within range of a ShowLink Access Point
- Shure lithium-ion rechargeable battery delivers up to 8 hours of runtime from a single charge
- Advanced control menu to adjust frequency and audio settings from the transmitter
- 50 dB of adjustable gain for optimal audio quality
- Lockable user interface prevents accidental or inadvertent changes to controls once settings are made
- Talk Switch mode for remote push-button audio routing of AXT400 XLR and TRS outputs
- Compatible with all Shure wireless microphones that have a TA4F connector.
- LEMO connector version (AXT100LEMO3) available for use with LEMO connector microphones

AXT100 Bodypack Transmitter

① Infrared (IR) Port	Use for automated transmitter programming. Links transmitter to AXT400 Receiver.
② Power Button	Hold for 1 second to turn the transmitter on. To power off, press and hold for 2 seconds until the display reads Powering Off . • When editing, acts as an exit button to cancel changes and return to a previous parameter or to the main menu screen • In Talk Switch mode, the power button enables push-button audio routing of AXT400 XLR and TRS outputs
③ Power Indicator LED	Green = power on Red = audio input overload or low battery Pulsing = pulsing indicates that the transmitter is set to RF mute
④ Microphone Input	4-pin microphone input jack (LEMO version available)
⑤ Arrow Buttons	Use to scroll through menu screens and to change parameter values.
⑥ Set Button	Enables parameter editing. After editing is complete, press to save changes and return to the main menu screen.
⑦ Shure Rechargeable Lithium-ion Battery	Delivers up to 8 hours of runtime from a single charge.
⑧ LCD Display	View menu screens and settings. Momentarily press power button to activate backlight.
⑨ Dual-Band Flexible Antenna	Covers UHF tuning range and 2.4 GHz ShowLink signal.
⑩ Hardlock Switch	Enables or disables Auto Power Mode locking options.



Included Components

Bodypack rechargeable lithium-ion battery (2)	AXT910
Dual-band flexible antenna	AXT642
Threaded TAF4 adapter	WA340
Transmitter carrying case	WA610
Zipper bag	26A13
Belt clip	44A12547

Optional Accessories

Bodypack rechargeable lithium-ion battery	AXT910
Y-Cable for bodypack transmitters	AXT652
LEMO Y-cable for bodypack transmitters	AXT652LEMO3
Dual-band flexible antenna	AXT642
Portable bodypack charging station	AXT903
3-AA Battery Sled for AXT100 bodypack transmitter	AXT913

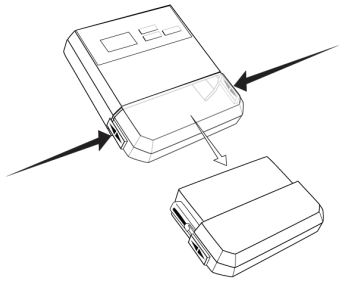
Instrument cable	WA302
Replacement belt clip	44A12547
Instrument cable with right angle 1/4" connector	WA304
Mute Switch for Bodypack	WA661
Mute Switch for 2 Bodypacks	WA662

Batteries

The transmitter is powered by a Shure lithium-ion rechargeable battery.

Caution: Turn off the transmitter before changing batteries.

Note: Refer to your battery charger manual for charging instructions.



Press the release buttons to remove the battery

Battery Runtime

Battery runtime varies according to the transmitter's operating mode. High power settings will reduce battery runtime.

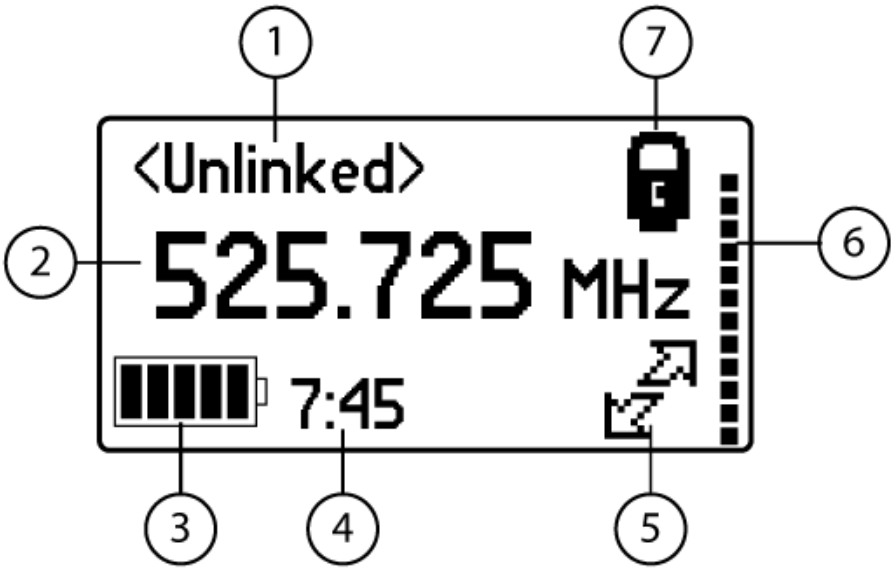
Remaining battery runtime is shown on the display in hours and minutes (accurate to within 15 minutes).

The times shown in the table represent a battery with a minimum of 5 charge cycles, fully charged, at 100% health.

RF Power (mW)	Runtime ShowLink Enabled (hours/minutes)	Runtime Without ShowLink (hours/minutes)
10	7:30	8:00
100	5:35	6:05

Main Menu Screen

The main menu screen displays the following transmitter parameters:

① Channel Name	Linked: Displays Linked receiver channel name Unlinked: Not Linked to a receiver, channel name reverts to
② Frequency	Tuned frequency of the transmitter
③ Battery Charge Indicator	5-segment icon indicates battery life
④ Remaining Battery Life	Displays remaining battery life in hours and minutes When Talk Switch mode is enabled, the word Talk is displayed when the power button is pushed Displays battery fault codes
⑤ ShowLink Icon	Indicates remote control of transmitter via ShowLink is possible
⑥ Audio Meter	Indicates the audio signal level
⑦ Control Lock Icon	Displayed when buttons are locked. **Note:** The lock color will appear inverted when Hardlock: power only is enabled. 

Locking the Buttons

Lock the buttons of the transmitter to prevent accidental or unauthorized parameter changes.

Press and hold the ▼ and ▲ buttons for 2 seconds to lock. Repeat to unlock.

Power-on RF Mute

Power-on RF mute prevents transmission of audio when powering on the transmitter.

With the transmitter turned off, press and hold both the ▼ button and the SET button, and then press and hold the Power button.

After power-on, an RF Muted message indicates that the transmitter is in RF Mute mode and the power indicator LED will pulse.

Note: RF Mute mode persists through power cycles of the transmitter.

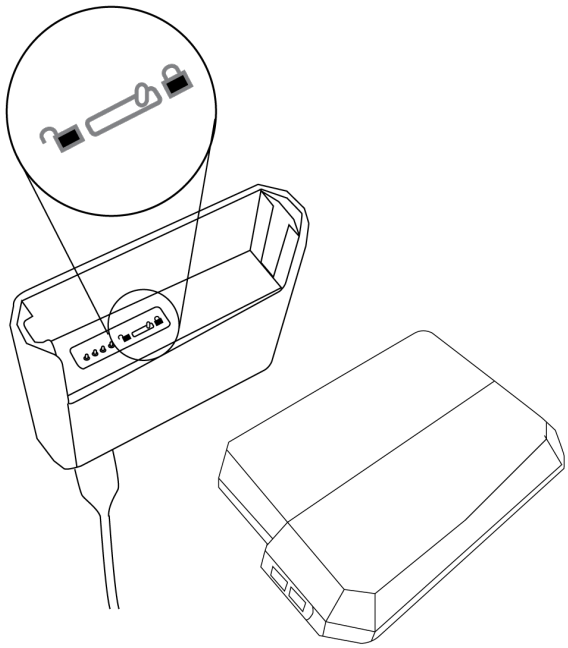
Hardlock Switch

The Hardlock switch, located inside the battery compartment, provides an extra level of security against accidental or unauthorized changes.

Two Hardlock functionality options are available:

- Hardlock: all buttons - transmitter powers on with power and control buttons locked
- Hardlock: power only - transmitter powers on with power button locked, allowing access to control buttons.

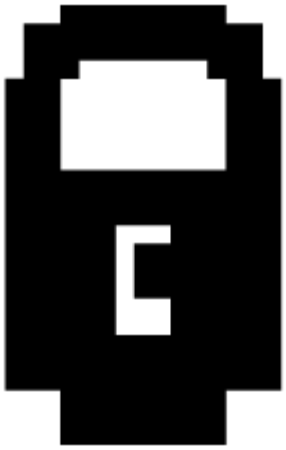
1. Turn on the transmitter.
2. Simultaneously press and hold the ▼ and set buttons, and then press ▼ to access the Hardlock options menu.
3. Select all buttons or power only.
4. Press set to save.
5. Remove the battery to access the Hardlock switch inside the battery compartment.
6. Set the Hardlock switch to the locked position.
7. Install the transmitter battery.



The transmitter will automatically power on (Auto Power Mode) with the selected lock option enabled.

Important: Use the transmitter power switch to turn on the transmitter the first time Auto Power Mode is enabled to initialize the feature.

An icon indicating the selected Hardlock option is displayed on the screen of the transmitter and receiver:

Hardlock: all buttons	
Hardlock: power only	

Tip: When using the Hardlock: power only option, simultaneously pressing the ▲▼ buttons will lock or unlock the control buttons.

To unlock the Hardlock:

Remove the battery and set the Hardlock switch to the unlocked position.

Parameter Menus

Use the arrow buttons to access the following parameter menus.

Group and Channel

A group is a set of compatible frequencies. A single frequency within a group is a channel.

G:

Change the group

Ch:

Change the channel

Frequency

Manual frequency selection in 25 kHz increments.

Gain

Sets the input sensitivity level (gain). Gain range is -10 to +40 dB in 1 dB steps.

RF Mute

Disables the RF carrier signal, which mutes transmission of audio.

TX On:

RF signal enabled

TX Off:

RF signal disabled

When the transmitter is set to TX Off:, the brightness of the power indicator LED will pulse.

Unlink

Ends the Link relationship between transmitter and receiver.

YES:

Ends the Link between transmitter and receiver.

NO:

Preserves the Link between transmitter and receiver.

Note: When a transmitter is unlinked, the channel name reverts to Unlinked.

ShowLink Test

Activates the ShowLink test 5-bar display. Measures the remote control range of a ShowLink Access Point.

- 5 bars indicate the center of the coverage area
- 1 bar indicates the outer boundary of the coverage area
- If bars are not displayed, ShowLink control is not available

Firmware

Displays the installed firmware version.

Device ID

Identifies the transmitter on a linked receiver or in WWB software.

- ID length can be up to 8 characters
- Use arrow buttons to scroll through characters
- Use set button to save and move to the next character

AA Type

This setting ensures accurate battery metering when using the optional AA battery carrier. Set the battery type to Alkaline, NiMH, or Lithium.

Note: Menu not displayed unless an AA battery carrier is installed.

RF PWR

Sets RF power level. Access this menu by pressing and holding the set button and then pressing the ▼ button.

Use lower power settings to conserve battery life and to prevent RF overload at the receiver.

Note: A password is required in some regions.

Power Button Function

The Power Button Function provides two modes of operation:

- On/Off (default): Turns transmitter power on or off when pressed
- Talk Switch: Remotely routes audio to the XLR or TRS outputs of an AXT400 receiver when pressed

PCB Serial Number

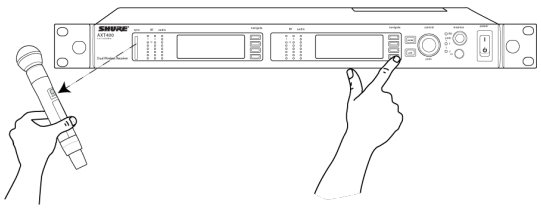
Displays the serial number of the printed circuit board (PCB) installed in the unit.

1. Enter the RF PWR menu by pressing and holding the set button, and then pressing the ▼ button.
2. Press the ▲ button to access the serial number.
3. Momentarily press the power button to return to the home menu screen.

Linking a Transmitter using IR Sync

The IR Sync function forms a Link and sets the frequency between the transmitter and an AXT400 Receiver.

1. Access the IR Sync function in the AXT400 receiver menu: Tx
2. Align the IR Sync ports of the transmitter and the receiver. The red IR Sync LED on the receiver IR port will illuminate to indicate correct alignment. Press Sync.
3. The receiver display indicates if the IR Sync is successful. Check the transmitter alignment and select Retry if a failure occurs.
4. The transmitter device ID will be shown in the receiver Tx menu and the receiver channel name and frequency will be shown on the transmitter display, indicating a successful IR sync.



Using Two AXT100 Transmitters for Frequency Diversity

Two AXT100 transmitters can be connected to 2 lavalier microphones using an AXT652 "Y" cable to operate in Frequency Diversity mode with an AXT400 Receiver.

1. Connect the "Y" cable to each transmitter and to the microphones.
2. From the AXT400 menu: `Radio` > `Options` > `Diversity`

3. Use the control wheel to set the mode to FD-Bodypack.
4. Use the IR Sync function to Link a transmitter to each channel of the receiver.

Troubleshooting

Input Overload

The Input Overload message indicates an excessive signal level at the transmitter input. To prevent overload, reduce the gain setting.

No ShowLink Alert

This alert appears when frequency is edited on a linked transmitter that is beyond the range of an active ShowLink access point. Choose OK to unlink the transmitter and complete the frequency change, or Cancel to return to the home screen.

Deeply Discharged Batteries

Deep discharge occurs when a battery is discharged to less than 3.0 volts. The battery chargers have a recovery mode designed to restore charge to a deeply discharged battery.

When the charger detects a deeply discharged battery, it automatically enters recovery mode which supplies reduced current to the battery for up to 30 minutes.

If recovery is successful, the charger will exit recovery mode and charge the battery to capacity. If the battery cannot be recharged, charging stops and the battery must be replaced.

Specifications

AXT100 Bodypack Transmitter

RF Carrier Frequency Range

470–814 MHz

Working Range

Under typical conditions	150 m (500 ft)
Line of Sight, outdoors for a single system	500 m (1600 ft)

Audio Frequency Response

40 Hz – 18 kHz (+1, -3 dB)

RF Tuning Step Size

25 kHz

Modulation

45 kHz max. deviation

FM, Audio Reference Companding with pre- and de-emphasis

Signal-to-Noise Ratio
A-weighted, 1% THD, referenced at 0 dB setting on transmitter

>113 dB

Total Harmonic Distortion
45 kHz max. deviation

<0.3%, A-weighted, typical

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

Gain Adjustment Range
-10 to +40 dB (in 1 dB steps)

Battery Type
Shure AXT910 (Rechargeable Li-Ion)

Battery Life
Up to 8 hours (low power mode)

Dimensions
77 mm x 66 mm x 17 mm (3.0 in. x 2.6 in. x 0.7 in.) H x W x D, with AXT910 battery

Weight
146.6 g (5.2 oz.), with batteries

Housing
Cast aluminum

Operating Temperature Range
-18°C (0°F) to 63°C (145°F)

Storage Temperature Range
-29°C (-20°F) to 74°C (165°F)

Audio Input

Connector
4-Pin male mini connector (TA4M) / 3-Pin male mini connector (LEMO)

Configuration
Unbalanced

Impedance
1 MΩ

Maximum Input Level

1 kHz at 1% THD

Input Gain Setting	−10 to +9 dB	12.5 dBu
	+10 to +19 dB	−2.5 dBu
	+20 to +40 dB	−7.5 dBu

ShowLink

Network Type

IEEE 802.15.4

Frequency Range

2.40 to 2.4835 GHz (16 Channels)

RF Output Power

10 dBm (ERP)

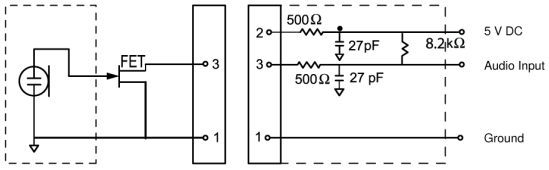
Frequency Bands and Transmitter RF Power

Band	Frequency Range (MHz)	RF Power (mW)
G1	470 to 530	10/100
G1E	470 to 530	10/50
G7C	470 to 510	10/50
G12	479 to 530	10/20
G19	470 to 530	2/10
H4	518 to 578	10/100
H4E	518 to 578	10/50
H12	518 to 565	10/20
H18	518 to 578	2/10
J5	578 to 638	10/100
J5E	578 to 638	10/50
J5HK	578 to 638	10
J12	578 to 638	2/10
K4E	606 to 666	10/50
L3	638 to 698	10/100
L3E	638 to 698	10/50
L20	638 to 698	2/10

Band	Frequency Range (MHz)	RF Power (mW)
M8	666 to 730	10/50
MA24	779 to 806	10
MJBX	806 to 810	10
P8	710 to 790	10/50
P9	710 to 787	10/50
Q5	740 to 814	10/50
R16	794 to 806	10/50

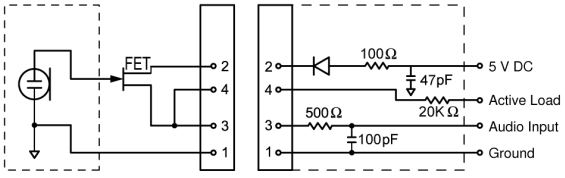
Input Connector Diagrams

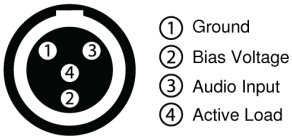
LEMO



Top view of bodypack

TA4M





Top view of bodypack

Firmware Updates

Firmware is embedded software used to control features and the user interface. Periodically, new versions of firmware are available for download from www.shure.com/wwb to incorporate additional features and enhancements. New versions of the firmware can be downloaded to AXT400 Receiver using the Firmware Update Manager tool available in WWB6 software and installed on the transmitter using the infrared ports on the transmitter and receiver.

To access the AXT400 receiver firmware update menu: `Tx` > `IR` `Presets` > `FW` `Update`

System Gain

In an audio system containing both AXT400 and UR4 receivers, the overall system audio gain at the XLR (line) output varies depending on the receiver model and the type of transmitter.

The table below offers a comparison of the output gain at the XLR output for AXT400 and UR4 receivers for each transmitter model. Use the information in the table to achieve consistent gain levels when using systems comprised of both Axient series and UR series components.

System gain from transmitter input to receiver XLR output (line) when transmitter gain = 0 dB

<table>
<tr><td colspan="2" rowspan="2">Transmitter</td><td>AXT100 Body-pack</td><td>AXT200 Hand-held</td><td>UR1 Body-pack</td><td>UR1M Body-pack</td><td>UR2 Handheld</td></tr>
<tr><td rowspan="2">gain = 0 dB</td><td rowspan="2">gain = 0 dB</td><td>gain = 0 dB</td><td>gain = 0 dB</td><td rowspan="2">gain = 0 dB</td></tr>
<tr><td>sens = 0 dB</td><td colspan="2">sens = 0 dB</td></tr>
<tr><td>Receiver</td><td>AXT400</td><td>+10 dB gain</td><td>+15 dB gain</td><td>+15 dB gain</td><td>+15 dB gain</td><td>+15 dB gain</td></tr>
<tr><td>gain setting = 0 dB</td><td>UR4</td><td>N/A</td><td>N/A</td><td>+18 dB gain</td><td>+18 dB gain</td><td>+18 dB gain</td></tr>
</table>

Certifications

Meets essential requirements of the following European Directives:

- R&TTE Directive 99/5/EC
- WEEE Directive 2012/19/EU, as amended by 2008/34/EC

- RoHS Directive EU 2015/863

  Note: *Please follow your regional recycling scheme for batteries and electronic waste*

Meets requirements of the following standards:

EN 300 328
EN 300 422 Parts 1 and 2
EN 301 489 Parts 1 and 9
EN60065

Certified under FCC Part 15 and FCC Part 74.

Certified by ISED in Canada under RSS-123 and RSS-210.

Industry Canada ICES-003 Compliance Label: CAN ICES-3 (B)/NMB-3(B)

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

FCC ID: DD4AXT100A, DD4AXT100B, DD4AXT100C, DD4AXT100D. **IC:** 616A-AXT100A, 616A-AXT100C, 616A-AXT100D.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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:
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Global Compliance
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Phone: +49-7262-92 49 0
Email: info@shure.de
www.shure.com

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 the user

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

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

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

Australia Warning for Wireless

This device operates under an ACMA class licence and must comply with all the conditions of that licence including operating frequencies. Before 31 December 2014, this device will comply if it is operated in the 520-820 MHz frequency band.
WARNING: After 31 December 2014, in order to comply, this device must not be operated in the 694-820 MHz band.