SOUND DEVICES

Sound Devices Astral TX

Digital Wireless Bodypack Transmitter
with **GainForward**, **SpectraBand, and NexLink**

User Guide v8.20

Contents

Contents 2
Chapter 1: Introduction 4
1.1 Key Features 4
1.2 SpectraBand 5
1.3 NexLink Wireless Transmitter Control 5
1.4 GainForward 5
1.5 Safety Information 6
Chapter 2: Interface Description 7
2.1 Front and Side Panels, Battery Door Closed 7
2.2 Front Panel, Battery Door Open 8
2.3 Top Panel 9
2.4 Bottom Panel 10
Chapter 3: Home Screen 11
Chapter 4: Power 13
Chapter 5: Identify (ID) 15
Chapter 6: Menus 16
6.1 RF 16
6.2 Pair 16
6.3 Audio 17
6.4 Record 18
6.5 Privacy 18
6.6 Settings 18
Chapter 7: Tuning the Astral TX and Receiver 21
Chapter 8: Audio Levels - GainForward 22
Chapter 9: Recording WAV Files 22
Chapter 10: Jamming Timecode 23
Chapter 11: File Transfer to a Computer 23
Chapter 12: Updating Firmware 24
12.1 To update Astral TX firmware using a Micro-SD Card: 24
12.2 To update Astral TX firmware wirelessly from an Astral Receiver: 24
Chapter 13: Astral Remote ..... **Error! Bookmark not defined.**
Chapter 14: SD-Utility 26
Chapter 15: Accessories 26
15.1 Included 26
15.2 Optional 26

Chapter 16: Installing the Optional Astral TX Switch 27
Chapter 17: Installing the Optional A-BOOM 2 28
Chapter 18: Frequency Authorization 29
Chapter 19: Astral TX Specifications 30
Chapter 20: Antenna Guide 33
Chapter 21: Servicing the Astral TX 34
Chapter 22: Warranty 34
Chapter 23: Patents 35
Chapter 24: Legal Notices 35
Chapter 25: Declaration of Conformity 39

Chapter 1: Introduction

Sound Devices Astral TX bodypack transmitter is compatible with more input sources than any other transmitter, adding incredible flexibility to any audio kit. Whether worn on the belt of talent, mounted on a boom pole on a film set, or used in many other applications, the combination of audio quality, battery life, and RF performance is second to none. Additionally, worldwide travel is possible with the Astral TX transmitter, because it can easily be set to transmit on the legal frequencies of any country.

The Astral TX incorporates state-of-the-art features, such as NexLink remote-control, Long-Range modulation, GainForward, SpectraBand, internal 32-bit float recording, and more, to produce the best sound quality possible. The Astral TX is compatible with Astral Receivers (Astral ARX32, Astral ARX16, Astral ARX8), Astral-RX2, and A10-RX digital receivers.

1.1 Key Features

- Worldwide VHF and UHF tuning range from 169 MHz-1525 MHz
- More than 10 hours of battery runtime.
- Eco-friendly operation from rechargeable Li-Ion batteries or from standard AA batteries.
- Built-in battery charger via USB-C.
- Full remote control of the Astral TX via Astral Remote companion app and from the Astral ARX32, Astral ARX16 and Astral ARX8 via long-range NexLink.
- State-of-the-art 100% digital long-range modulation delivers the longest transmission distance of any system on the market. Three modulation modes available: Standard, Long Range, and T&M (Test and Measurement).
- RF Power output from 2 mW to 40 mW.
- Lemo input supports 2-wire or 3-wire mono lav, balanced mic, switchable 12, 48V phantom, balanced line-level, AES3, AES42 (compatible with Schoeps SuperCMIT), and guitar (w/ optional Astral TX Smart Guitar Cable).
- GainForward Architecture – no gain control to worry about on the Astral TX.
- Full 10 Hz - 20 kHz audio bandwidth.
- 8-Series, fully balanced mic preamp built-in (140 dB dynamic range).
- Ultra-quiet lavalier mic preamp (134 dB dynamic range).
- Built-in 1 or 2-ch 32-bit float, 48 kHz recording to a removable micro-SD card (not included).
- Ultra-stable timecode built-in, auto jammed via wireless NexLink.
- Sunlight readable e-Paper screen for control and display. Display persists with no batteries.
- USB-C for pairing with the Astral Receivers, file offload, charging, and timecode jamming.
- Bluetooth for remote control from Astral Remote iOS/Android App and for wireless pairing.
- Optional Astral TX Switch, a user-programmable, magnetically sensed, physically removable, bayonet-style switch.

Note: Terminology used throughout this guide: Astral Receiver refers to the Astral ARX32, Astral ARX16, and Astral ARX8 multichannel receivers.

1.2 SpectraBand

The Astral TX features SpectraBand, a technology that enables the Astral TX to tune over a super wide range of 169-1525 MHz.
Tuning within this range varies by country. For instance:

In the USA, the available frequency ranges are:

- The VHF band (specific frequencies within the 169-216 MHz range)
- The entire UHF TV band (470-608 MHz)
- The 600 MHz guard band (614-616 MHz)
- The 600 MHz duplex gap (653-663 MHz)
- The 900 MHz ISM band (902-928MHz)
- The 950 MHz STL band (941.5-960 MHz)
- The 1.5 GHz AFTRCC band (1435-1525 MHz), with an appropriate license.

In the UK, the available frequency ranges are:

- The VHF band (specific frequencies within the 173-210 MHz range)
- The core UK UHF TV band (470-702 MHz)
- The 800 MHz duplex gap (823-832 MHz)
- The 800 MHz guard band (863-865 MHz)
- The DME bands (961-1015 MHz, 1045-1075 MHz, 1105-1154 MHz), with an appropriate license.
- The IMT band (1518-1525 MHz)

Please see https://www.sounddevices.com/available-frequencies/ for further detailed information on which frequency ranges are available for each country.

1.3 NexLink Wireless Transmitter Control

NexLink is a proprietary 2.4 GHz bidirectional wireless data link technology that allows multiple Astral TX transmitters to be controlled, monitored, and timecode synced from an Astral ARX32, Astral ARX16, or Astral ARX8 digital receiver over long distances. NexLink is designed to offer robust and reliable control over distances far exceeding that of the wireless audio transmission, even in the presence of Wi-Fi, Bluetooth, and other 2.4 GHz interference. The Astral ARX32, Astral ARX16 and Astral ARX8 can pair with up to 64 NexLinked transmitters at a time.

1.4 GainForward

The Astral TX transmitter supports GainForward, a technology that eliminates the need to adjust audio gain at the wireless transmitter. Audio levels from the transmitter are controlled either directly at the mixer's trim control or at the wireless receiver. If the source is too soft or too loud, adjust the transmitter's audio level with a downstream mixer's digital trim gain control. There is absolutely no noise penalty when the audio path remains 100% digital (i.e., Astral transmitter -> Astral receiver, Astral receiver digital audio output -> mixer digital audio input). Read more about GainForward at:
https://www.sounddevices.com/gainforward-explained/

1.5 Safety Information

Follow all safety and operating instructions in this guide.

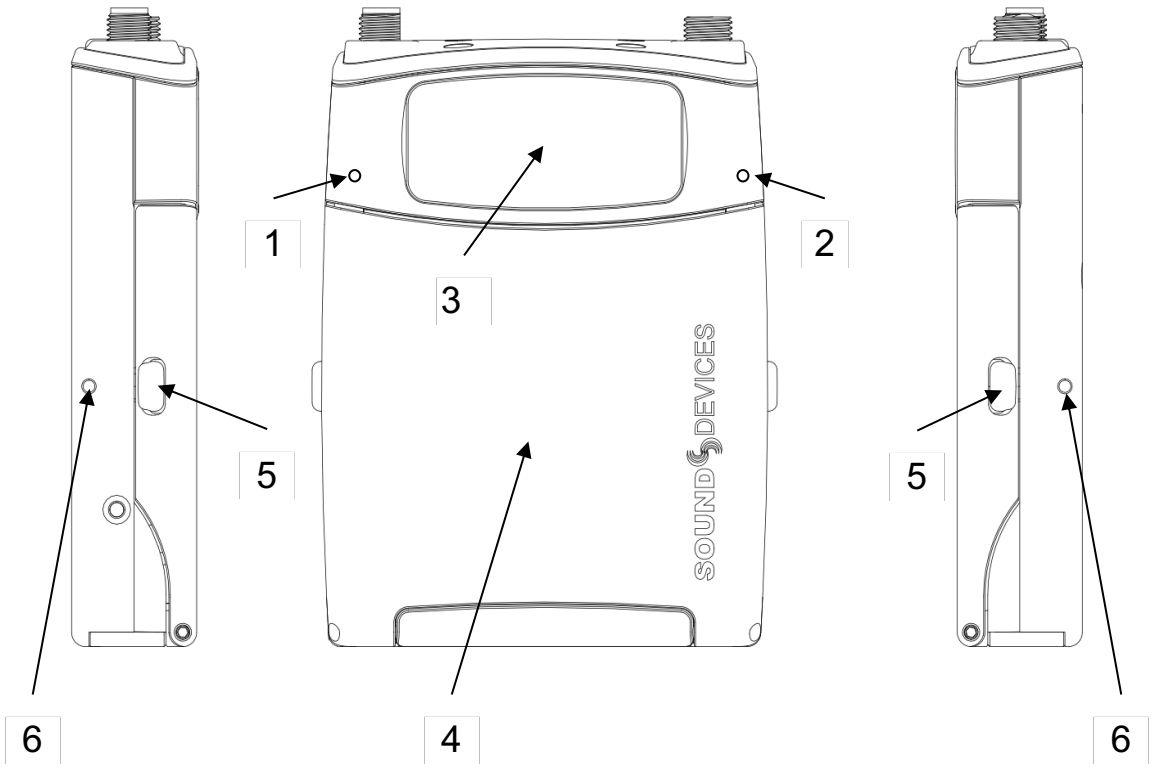
RETAIN INSTRUCTIONS: These safety and operating instructions should be retained for future reference.
HEED WARNINGS: All warnings on the product and in the operating instructions should be adhered to.
FLAME SOURCE: The product should be situated away from any naked flames such as candles, open fires or gas, oil or wood burning heaters.
BATTERY WARNINGS: The product should be used only of the type described in these operating instructions or as marked on the product.

- Do not open, crush, modify, disassemble, heat above 140°F (60°C), or incinerate.
- Danger of explosion if battery incorrectly replaced. Replace only with same or equivalent type.
- Do not short circuit; may cause burns or catch fire.
- Do not subject to extremely low air pressure.
- Battery misuse may result in explosion and/or the leakage of flammable liquid or gas.
- Dispose of batteries properly. Check with local vendor for proper disposal of used battery packs.
- Do not immerse the battery in liquid such as water, beverages, or other fluids.
- Do not insert batteries with polarity reversed.
- Never put batteries in mouth. If swallowed, contact your physician or local poison control center.
- Keep away from small children.
- Pack the battery securely for transport.

ATTACHMENTS / ACCESSORIES: Only use attachments and /or accessories specified and approved by the manufacturer.
CLEANING: The product should only be cleaned with a soft dry cloth.
SERVICING: The user should not attempt to service the product beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

Chapter 2: Interface Description

2.1 Front and Side Panels, Battery Door Closed



1: Power LED
Indicates power state. Can be turned off in the Settings>LEDs menu.

- Green = Good battery level
- Orange = Medium battery level
- Red = Low battery
- Fast Flashing Red = Critically low battery. RF, audio, and recording are disabled.
- White = Displayed momentarily during battery insertion
- Blue = Displayed momentarily when pressing the power button to power up.
- Rapidly alternating red, green, blue = Transmitter being ID'd from Astral ARX16 or the Astral Remote app.

2: Audio Signal and Timecode LED
Audio/Timecode LED indicates audio activity and timecode status.

- Green (variable intensity) = normal signal level.
- Solid Blue = muted
- Pulsing Blue = When the transmitter is powered on, timecode is syncing via NexLink. When powered off and timecode is synced, pulsing occurs on the 00 frame. Timecode is held for 4 hours.
- Rapidly alternating red, green, blue = Transmitter being ID'd from Astral ARX16 or the Astral Remote app.

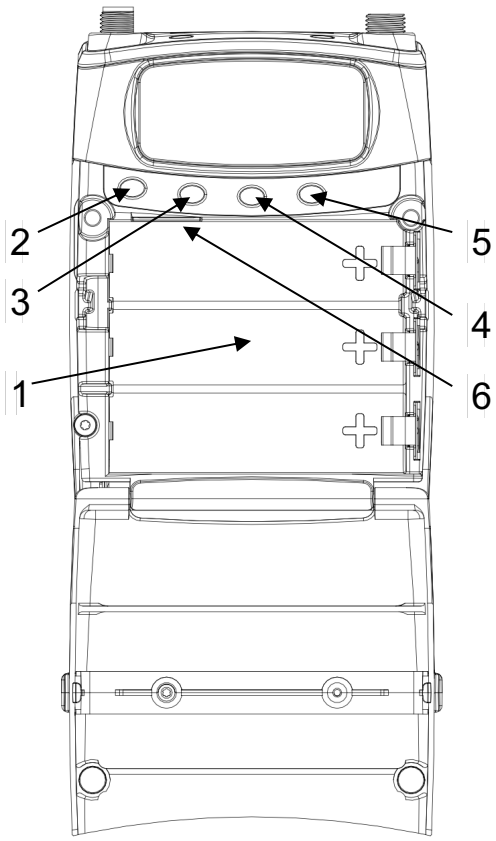
3: ePaper Screen with Backlight
For display of settings and menus. The screen displays Name and Frequency when powered down even with batteries removed. The screen's backlight comes on when the battery door is open to make it easy to navigate menus and change settings in the dark.

4: Battery Door
Lift to access the battery compartment, micro-SD card, power button, and navigation buttons. Closing the door returns to the Home screen.

5: Battery Door Release Catches
Squeeze to unlatch and open the battery door.

6: Belt Clip Mount Points
For attaching the Astral TX-CLIP belt clip. The belt clip can be attached either way, so the TX can be worn up or down.

2.2 Front Panel, Battery Door Open



1: Battery Compartment
Accepts up to three AA batteries. Ensure batteries are inserted with the positive terminal facing to the right. Insert negative side first for easiest insertion. See Power

2: Power Button
This button is used to power the Astral TX on/off or exit a menu.

- Power On = Press and release button.
- Power Off = Press and hold button until 'Off' is displayed.
- Press to exit from a menu.

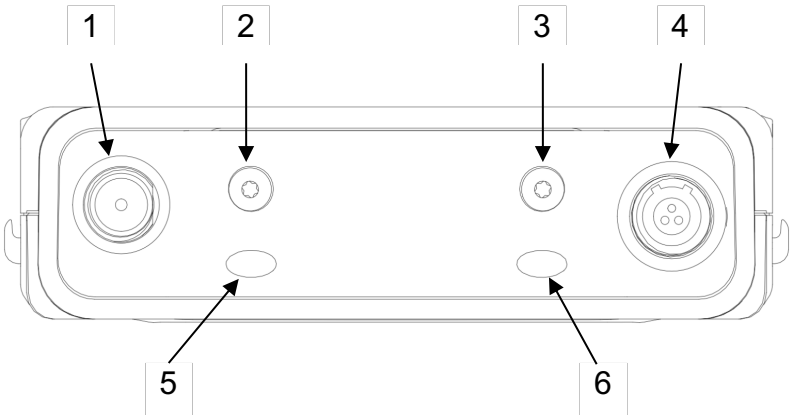
3: Left Button
Press to navigate up or increase values.
When in the Home screen and in the RF or RF+REC modes, press the left button to jump straight to the RF Power menu.
When in the Home screen and in Rec Only mode, press the left button to jump straight to the Record menu.

4: Menu/Select Button
Press to access Menu (only accessible when the door is open). Press to select menu items and store values.

5: Right Button
Press to navigate down or decrease values.
While in the Home screen, press the right button to jump straight to the Battery Type menu.

6: Micro SD Card Slot
Insert a micro-SD for recording purposes.

2.3 Top Panel



1: Antenna Connector
SMA connector. Attach an antenna with a length specific to the frequency in use. Using the wrong length of antenna reduces RF range. See Antenna Guide for more information.

2 & 3: Astral TX Switch Mounting Points
The optional user-programmable Astral TX Switch can be mounted here. The bayonet-style switch can be set to turn RF on/off, mute on/off, record on/off, Aux on/off, power on/off or action a Control (Ctrl) command.

4: Multipurpose Audio Input
3-Pin Lemo connector for connecting 2- or 3-wire lavalier microphones, balanced mic (phantom or dynamic) or line inputs, AES42, AES3, or Guitar sources. Can be set to power the transmitter on/off when a lav mic is connected/disconnected.

5: Power LED
Indicates power state. Can be turned off in the Settings>LEDs menu

- Green = Good battery level
- Orange = Medium battery level
- Red = Low battery
- Fast-Flashing Red = Critically low battery. RF, audio, and recording are disabled.
- Slow-Flashing Green = Charging from USB-C
- Solid Green = charged (when USB-C is plugged in)
- Blue = Displayed momentarily when pressing the power button to power up.
- Rapidly Alternating Red, Green, Blue = Transmitter being ID-ed from Astral ARX16 or the Astral Remote app.

6: Status LED
Indicates various current states. Can be turned off in the Settings>LEDs menu

- Solid Blue = muted
- Solid Red = recording
- Alternate Blue/Red = both record and mute are activated.
- Rapidly Alternating Red, Green, Blue = Transmitter being ID-ed from Astral ARX16 or the Astral Remote app.
- Flashing Blue = When pairing via Bluetooth to Astral Remote.
- Pulsing Blue = When the transmitter is powered on, timecode is syncing via NexLink.

2.4 Bottom Panel

1: USB-C Port
Multifunction port used for:

- Charging the Astral TX's rechargeable Li-ion AA batteries. Battery door must be closed to charge.
- Timecode I/O for jamming TC
- Transferring files to and from a computer
- Pairing with Astral Receivers

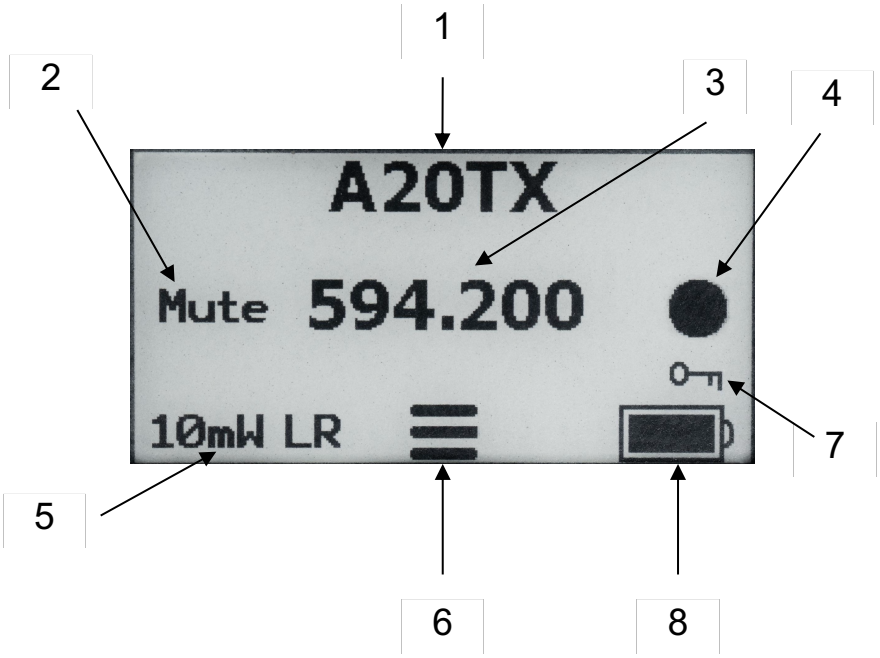
Chapter 3: Home Screen

The home screen is the default screen when the Astral TX is powered up.
It is also automatically displayed whenever the Astral TX battery door is closed.

Important: *When the Astral TX is powered on for the first time, the screen displays the following message: "To start, pair the Astral TX with the Astral Remote iOS or Android app". Pairing enables full control of the Astral TX. Once paired, the message will not appear again. See Astral Remote for further details.*

The Home Screen displays the following information:

- Transmitter name
- RF Frequency
- RF Power, RF Modulation
- Battery level and Charging Status
- Mute Status
- Record Status
- Privacy Status
- Menu icon (when battery door is open)
- Firmware version (displayed for several seconds after power up)



1: Transmitter Name
Displays the transmitter name (max.12 alphanumeric characters), making it easy to identify the source feeding the transmitter (e.g. actor's name, boom, etc.) The transmitter name is used as the volume name when formatting the Micro SD card and is also embedded in metadata as the Track Name of recorded WAV files. By default, the serial number of the Astral TX is assigned as the transmitter's name. The name can be edited wirelessly using an Astral Receiver, or Astral Remote. The Astral TX name is also displayed on the Astral-RX2, A10-RX, and 8-Series when docked to an Astral ARX16, Astral ARX8, or SL-2. The Home Screen's transmitter name and frequency fields can be swapped. Select in the Settings>Display>Name menu.

2: Mute Status
Mute is displayed when the transmitter's audio is muted.

3: Frequency / MHz
Displays the current transmission frequency.

4: Record Status
The record circle is displayed when the transmitter is recording.

5: RF Power and Modulation Type
Displays the current RF power and modulation type, LR (Long Range), Std (Standard), and T&M (Test and Measurement).
When RF is enabled and the battery door is open, tap the left button to shortcut directly to the RF Power menu.
Displays 'OFF' when the RF Power Level is set to Off or when the optional Astral TX Switch (set to toggle RF on/off), is moved to the Off position.

6: Menu Icon
When the battery door is open, tap the middle button to access the Menu.

7: Privacy Status
The key icon is displayed when a privacy key is set.

8: Battery and Charging Status
Displays Battery Level.
Displays USB when powered from a USB power pack.
When charging, a lightning icon is displayed next to the Battery Status.

Chapter 4: Power

The Astral TX features a sophisticated battery system, allowing for powering from “1.5V” AA primary, NiMH batteries, “3.7V Li-Ion” 14500 batteries, or from a USB portable power pack, giving the user maximum choice and flexibility in powering the Astral TX. Unlike other systems which require expensive custom battery packs, all the batteries used by the Astral TX are very economical and can be purchased worldwide via Amazon or other outlets. Additionally, the Astral TX features a built-in charger to recharge Li-Ion batteries via USB-C. Finally, when using rechargeable 3.7V Li-Ion batteries, it is up to the user to run with either one, two, or three batteries if the additional runtime is not needed.

The choice of eco-friendly rechargeable batteries or convenient, ubiquitous primary cells is totally up to the user although for best performance, it is highly recommended to use Sound Devices XL-B14500 Li-ion batteries.

Sound Devices XL-B14500 Li-ion Batteries

- 1200mAh, 4.4Wh, 3.7V Lithium-Ion, rechargeable
- More than 10 hours battery runtime with lav input
- Rechargeable in the Astral TX transmitter or any charger that supports 3.7V Li-ion cells*
- Can power the Astral TX transmitter with 1, 2, or 3 batteries
- Hot-swappable to allow replacement of each battery without interrupting transmission
- Has built-in safety protection against excessive current draw
- Supported chargers:
    - Recommended charger: XTAR VC8S https://www.xtar.cc/product/xtar-vc8s-charger-215.html.
    - Another available charger: ISDT https://www.isdt.co/n8-n16-n24.html?lang=en. Note: ISDT chargers - there are reports of intermittent detection of batteries upon insertion. Please update charger to latest firmware.

Other Supported Batteries

The table below details operational characteristics for the other AA battery chemistry types compatible with the Astral TX:

Battery Chemistry	Recommended Model	Required No. of Batteries	Chargeable in the Astral TX
Lithium Primary	Energizer Ultimate Lithium	3	No
NiMH	Eneloop or Eneloop Pro	3	No
Alkaline	Energizer or Duracell	3	No

Note: Always use batteries of the same chemistry.

Note: Always use batteries that have the same approximate charge level. The battery remaining charge indicator will not be accurate when mixing batteries of different charge levels.

Note: All Astral TX’s LEDs will flash red if battery chemistries are mixed.

Note: It is recommended to only use the batteries listed in the table. Other models may not offer as much run time, may be less reliable, and may not report accurate battery remaining time.

About the different battery chemistries:

- **Li-ion** - We recommend using the Sound Devices XL-B14500 batteries detailed above. This is a 3.7-volt rechargeable battery. Li-ion is the same battery technology used in your cell phone. This battery features very good energy density, is lightweight, and can be recharged roughly 300 times before the capacity degrades.
- **Lithium Primary** - The only available of these is the "Energizer Ultimate Lithium" battery. This is the most energy-dense of any of these batteries. It is **not** rechargeable, is relatively expensive, but is lightweight, and gives the best run time of any of these batteries.
- **NiMH** - "1.5V" or "1.2V" rechargeable batteries are the old-school tried-and-true rechargeables. These are the least energy-dense of any of these battery types, are relatively heavy, but very available.
- **Alkaline -** "1.5V" batteries are the most ubiquitous batteries in the world, available anywhere. These are moderately energy-dense and give adequate performance.
- Batteries used in Astral TX must comply with the relevant IEC standards.

Opening/Closing the Battery Door

When the door is closed, the display automatically switches to the Home screen. Open the battery door by squeezing the side panel release catches and lifting. When the door is opened, the display backlight turns on.

Powering On for the First Time

When the Astral TX is powered on for the first time, the screen displays the following message: "To start, pair the Astral TX with the Astral Remote iOS or Android app". Pairing enables full control of the Astral TX. Once paired, the message will not appear again. See Astral Remote for further details.

Powering from AA

To power the Astral TX using AA batteries:

1. Open the Astral TX battery door.
2. Insert the correct number of AA batteries (see table above) into the battery compartment, taking care to place the batteries in the correct orientation, negative terminal first with the positive battery terminal facing to the right.

   Note: When inserting batteries, the Astral TX will remain powered off (or automatically power up) depending on what the power state was when the Astral TX was previously shut down.

3. Press the power button to power on the Astral TX.
4. Close the Astral TX battery door.
5. During power up, the Astral TX's firmware version is displayed for 3 seconds below the transmitter name.
6. To power off the Astral TX, press and hold the power button until the front left LED goes solid green. 'Off' is displayed when the Astral TX has fully powered down.
7. When powered off, the name and frequency are displayed, even without any batteries inserted.
8. To remove the batteries, open the battery door and remove the AA batteries, positive side first.

Charging from USB-C

Only Li-Ion batteries can be charged in the Astral TX. To charge Li-Ion batteries from USB-C:

1. Open the Battery Door and insert the batteries into the battery compartment.
2. Close the Battery Door; it must be closed to enable charging.
3. Connect a USB power source to the Astral TX USB-C port.
4. While the batteries are charging, the top panel Battery Power LED flashes green and if the unit is on, the charging icon appears in the ePaper display. The LED turns solid green when charging is complete. Note that RF transmission is disabled when charging except when the USB power source is a portable USB battery pack.

Auto Power with Lemo Connection
When the 'Auto power with Lemo connection' feature is enabled using Astral Remote, an Astral Receiver via NexLink, or from the Astral TX System > Misc menu, connecting a source to the Lemo connector automatically powers on the transmitter. Disconnecting the Lemo automatically powers the Astral TX off.

Astral Transmitter Battery Runtimes
The following chart lists battery runtimes for all Astral transmitters.

Transmitter Model	Battery Runtime	Battery Type	Audio Source
RF Power = 10 mW, Recording Off, LEDs Off			
Astral-Mini	~ 3.5 hours	Sony NP-BX1	Lav mic
Astral-Mini w/BatteryDoubler	~ 7 hours	Sony NP-BX1 (Qty 2)	Lav mic
Astral-TX	~ 9.5 hours	Sound Devices XL-B14500 (Qty 3)	Lav mic
Astral-HH	~ 10 hours	Sound Devices XL-B18650	Sound Devices CD1 capsule

Chapter 5: Identify (ID)

When the Astral TX receives an ID command from an Astral receiver or the Astral Remote app:

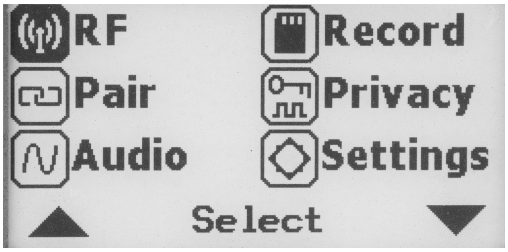
- LEDs flash red, green, and blue
- Unit vibrates

This helps to identify which Astral TX is which when many are being used.

Chapter 6: Menus

Access the Menu to make changes to the Astral TX's settings. To access the Main menu, open the battery door and press the middle button. Once in the Main Menu:

- Navigate the menu items using the up/down arrow (left/right) buttons.
- Select an item using the middle Select button.
- Back out of a submenu to the menu above by using the Power button (leftmost button).
- Exit the Main Menu back to the Home screen by closing the battery door.



6.1 RF

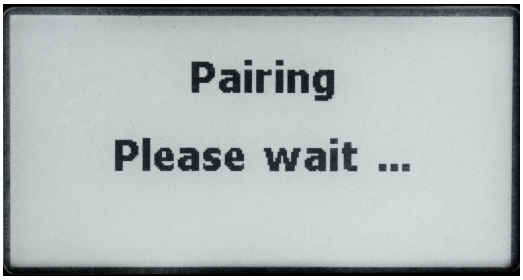
Select the RF Menu to change the following settings:

- **Frequency:** Manually enter RF frequency. Frequency can be set from 169 MHz to 1525 MHz in 25 kHz steps.
- **RF Power:** It is recommended to use the lowest RF power that gives the desired range. This reduces the possibility of intermodulation distortion affecting range. The lower the RF power the longer the battery run time.
    - 2mW Low Power
    - 10mW Normal Power
    - 20mW High Power
    - 40mW Extra High Power*

      * Only available when the 'Extra High RF Power' option is enabled in Astral Remote or an Astral Receiver and there are no restrictions due to the current country of operation.
- **Modulation:** Sets the modulation mode. Ensure the receiver is set to the same modulation as the transmitter. Select from:
    - Long Range Provides best range at the expense of a little extra latency (3.9 ms)
    - Standard Standard range with lowest latency (2 ms)
    - T&M Flattest frequency and phase response for test & measurement applications (7 ms latency)
- **RF On, RF Off:** Toggles RF On and Off.

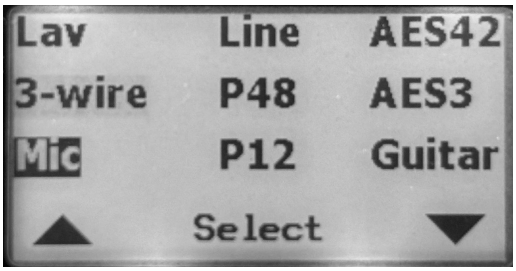
6.2 Pair

Select to wirelessly pair the Astral TX with the Astral Remote app or an Astral Receiver. Pairing is required to enable remote control of the Astral TX. During pairing, the display shows 'Pairing. Please wait …' and flashes blue. Once paired, the screen exits back to the Home screen. To cancel pairing, press the red button. See the Astral Remote and Astral Receiver User Guides for further information on how to pair. Pairing with an Astral Receiver can also be accomplished by connecting the USB-C port to the USB port on the receiver.



6.3 Audio

Input Type



The Astral TX is compatible with many types of input sources. It autosenses the type of input plugged in (except if input type is set to 3-Wire). Select which audio input type to transmit.

- **Lav (2-wire lavalier mic)**
  Select when using a 2-wire lav. The Astral TX autosenses if a 2-wire lav is plugged in except when set to 3-wire. It is not possible to select Lav unless a Lav is plugged in.
- **3-wire (3-wire lavalier mic)**
  Select when using a 3-wire lav. Astral TX autosensing is disabled in this mode. Set to Lav or any XLR input type to re-enable autosensing.
- **XLR Input Types**
  - Mic (dynamic)
  - Line
  - P48 (48V phantom-powered mic)
  - P12 (12V phantom-powered mic)
  - AES42 (Ideal for use with the Schoeps SuperCmit or CMD42 digital microphone).
    - AES42-1 (ch1), AES42-2 (ch2). Select which to transmit.
  - AES3
    - AES3-1 (ch1), AES3-2 (ch2). Select which to transmit.
- **Guitar**
  - When a guitar is plugged in using the Astral TX Smart Guitar Cable, the Astral TX automatically sets the input type to Guitar unless it was set to 3-Wire since that disables input type autosensing. It is not possible to select Guitar unless a guitar is detected, and it is not possible to select another input type when a guitar is detected.
  - When Guitar is detected, ‘Guitar Settings’ is shown above the middle button. Press to access the Guitar Setting sub-menu which allows cable capacitance and impedance to be set to emulate guitar cable length and impedance to personalize the guitar’s sound characteristics.
    - Cable Capacitance: Adjust from 0pF to 3000pF (0 - 60 feet of cable equivalent)
    - Input Impedance: 100K, 1M (default) or 10M.

6.4 Record

The Record menu provides the ability to start and stop recording. Select Record to start recording. ‘Record’ changes to ‘Stop’ during recording. Select Stop to end recording. When set to RF Only mode, recording is not permitted.
See Recording WAV Files for more information.

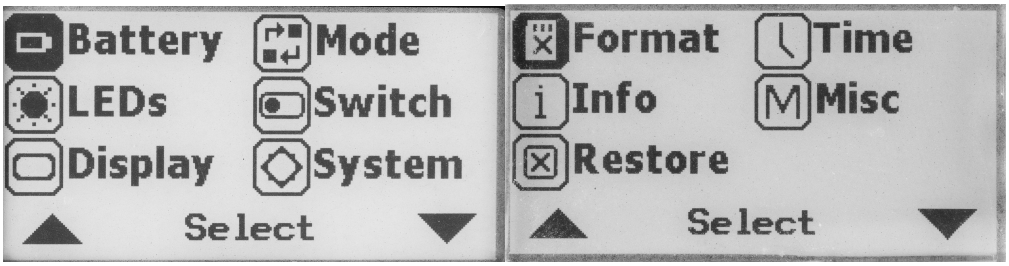
6.5 Privacy

Creates a randomly generated 4-digit privacy key to prevent unauthorized reception of the Astral TX’s transmitted signal. An Astral Receiver must be set to the same 4-digit key to decode and receive the RF audio.

- New Key: Select ‘New Key’ then press ‘Set’ to generate a random 4-digit key. When the key is set, the home screen displays the privacy key icon.
- Clear: Select ‘Clear’ then press ‘Set’ to clear the key to 0000.

6.6 Settings

The Astral TX Settings menu provides access to the following menus:



- **Battery:** Set the battery type to match the battery chemistry being used to ensure correct battery level monitoring.
  - When using 1.2 to 1.5V battery types, the following options are available:
    - Alkaline
    - NiMH
    - Lithium (primary)
  - When using Li-ion batteries, no options are available.
- **LEDs:** Turn LEDs off when you need the Astral TX to be discreet. Select from:
  - All Off
  - All On
  - Top Only
  - Front Only

- **Display:**
  - Orientation: Allows the display to be flipped so it can be read easily when the transmitter is upside down.
    - Normal
    - Flipped
  - Background: Selects between light and dark background colors.
  - Name: Selects whether the transmitter name is shown at the top or the center of the home screen.
- **Mode**
  Select the Mode menu to choose one of three modes of operation: RF Only mode, Rec Only Mode, or Rec + RF Mode (available to International, non-US models or US models not set to Lav or Guitar input). When set to RF Only mode, 'Can't record in RF Only mode' is displayed in the Record Menu.

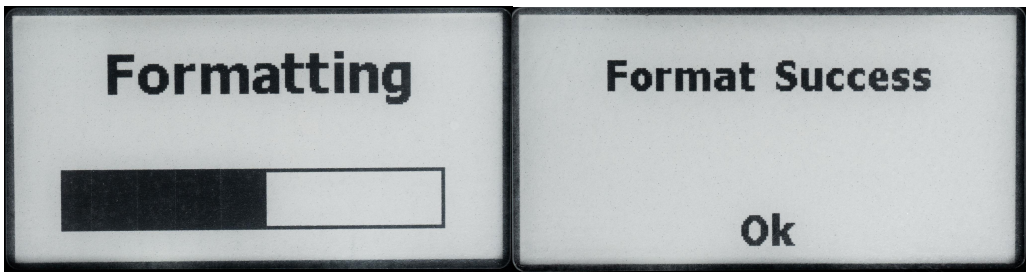
- **Switch:** Sets the function of the Astral TX's optional Switch. This switch can be programmed to toggle these functions:
  - **None:** No function. This is the default setting for all controls.
  - **Mute:** Toggles mute on and off
  - **Record:** Toggles record on and off (REC+RF and REC Only Modes)
  - **Power:** Turns the Astral TX on or off.
  - **RF:** Toggles RF power on and off.
  - **Aux:** Aux is typically used to activate a talkback audio path. The Aux command instructs the Astral Receiver to re-route the received Astral TX audio to a different output.
  - **Ctrl:** Use to trigger a Macro on a ARX32/ARX16, or a GPIO output on the Astral-Opto.

  Note: The switch setting is overridden by commands coming from the Astral TX interface, Astral ARX32, Astral ARX16 (via NexLink) or Astral Remote (via Bluetooth), which will leave the switch in the incorrect physical position. As such, it is necessary to move the switch first to the physical position that reflects the Astral TX's current state before it will perform its next command.

  See Installing the Optional Astral TX Switch.

- **System:** Select to access the System menu.

  - **Format:** Select to format the inserted Micro SD card. Select 'OK' to start the formatting process. Once formatting is complete, 'Format Success' is displayed.
    - Micro SD Cards 64 GB or more are formatted as ExFAT. Recommended for long duration recording.
    - Micro SD Cards 32 GB or less are formatted as FAT32 (4GB file size limit). Max recording time is approximately 6 hours for monophonic recording and 3 hours for 2-ch recording (AES42, AES3).



  - **Info:** Displays the following information:
    - Serial number
    - Firmware version

- FPGA version
- Tuning bandwidth

- **Restore:** Select Restore to restore the Astral TX to factory default settings. Once default settings have been loaded, the Astral TX returns to the Home Screen.

- **Time:** Sets the Astral TX's date/time clock used for file creation time. Use the up/down arrows to set values for each field and the Set button to move to the next field. Pressing Set on the Minutes field saves the date/time setting.

Note: When connection is established with an Astral ARX16 via NexLink, the date/time setting is overwritten by the Astral ARX16's date/time.

Note: When connection is established with Astral Remote and the transmitter's NexLink is disabled, the date/time setting is overwritten by the mobile device's date/time.

- **Misc:** Various miscellaneous settings including:
  - Auto On w/Lemo: Automatically powers on with Lemo connection [On/Off]
  - Resume Record: Automatically resumes recording on power up [On/Off]
  - Extra RF Power: Allows access to the extra high 40 mW RF power [Allow/Off]

- **FreqAuth:** Displays Frequency Authorization information. Displayed only when a Frequency Authorization is loaded. See Frequency Authorization for further details.

Chapter 7: Tuning the Astral TX and Receiver

RF signals transmitted by the Astral TX transmitter are received by Astral Receivers, the Astral-RX2 and Audio Ltd A10-RX. Set the same modulation and frequency on the transmitter and receiver. See the Astral ARX32, Astral ARX16, Astral ARX8, Astral-RX2 and A10-RX User Guides for more details.

Frequency
The Astral TX transmits on frequencies ranging from 169 MHz – 1525 MHz. The frequencies available are determined by geographic location and whether you have entered a unique license code issued by Sound Devices to unlock the use of restricted frequencies.

Because the Astral digital RF transmission is inherently immune to intermodulation, multiple Astral Digital Wireless transmitters can be used simultaneously on nearby adjacent frequencies without worry of intermodulation interference. Systems can be used together when separated by at least 400 kHz. When operating in the 902-928 MHz Band, it is recommended to separate channel frequencies by at least 1 MHz.

Set the Astral TX's transmit frequency from the RF > Frequency menu or via the Astral Remote App or Astral Receiver via NexLink.

Ensure an antenna with a length specific to the frequency in use is attached to the SMA connector. Using the wrong length of antenna reduces RF range. See Antenna Guide for more information.

Modulation
The Astral TX offers three types of modulation, Long Range, Standard, and T&M. Long Range modulation has better sensitivity resulting in more robust performance in challenging RF environments. Standard modulation has lower latency (2ms versus the 3.9ms of Long Range). T&M modulation has been specifically optimized for the flattest frequency response and phase response possible for test and measurement applications. The Modulation setting must match between the Astral TX and Astral receivers, for the transmitted signal to be received.

RF Power
RF power is the strength of the transmitting signal. The Astral TX offers the following RF power settings:

- Low - 2 mW
- Normal - 10 mW
- High - 20 mW
- *Extra High - 40 mW. *This RF Power setting only appears when System > Misc > 'Extra RF Power' is set to 'Allow'.

Set the Astral TX's RF Power from the RF > RF Power menu or via the Astral Remote App or Astral Receiver.
RF Power settings are based on the selected Country of the device running Astral Remote as some legal restrictions may apply.

In situations where the transmitter is relatively close to the receiver, the Low - 2 mW setting offers good range and best battery life. For most common wireless microphone applications, the Normal - 10 mW setting provides excellent range. In situations where body absorption may be an issue or extended range is required, the High - 20 mW setting can be helpful. If significant body absorption is unavoidable or maximum range is required, the Extra High - 40 mW setting can be enabled via the Settings menu. Please be aware that the Extra High - 40 mW RF Power setting can reduce battery life by over 20%.

Tip: Use Long Range Modulation to increase RF range prior to increasing the RF Power setting.

Chapter 8: Audio Levels - GainForward

The Astral TX transmitter supports GainForward, a technology that eliminates the need to adjust microphone preamplifier gain at the wireless transmitter. Audio levels from the transmitter are controlled either directly at the mixer's digital trim control or at the wireless receiver. If the source is too soft or too loud, adjust the transmitter's audio level with a downstream mixer's digital trim gain control. There is absolutely no noise penalty when the audio path remains 100% digital, i.e. Astral transmitter -> Astral receiver, Astral receiver digital audio output -> mixer digital audio input. Read more about GainForward at:
https://www.sounddevices.com/gainforward-explained/

Adjusting Audio of the Astral TX Signal from the Astral-RX2 and A10-RX Receiver
From the Astral-RX2 or A10-RX home screen, press the channel's arrow button twice to enter the Input menu. From the Input menu, press the middle button to select a sub-menu to adjust gain, low cut, or limiter of the incoming Astral TX transmitted signal.

Gain is adjustable from 0 to 60 dB. Low cut can be set to Off, 40 Hz, 60 Hz, 80 Hz, 100 Hz, or 200 Hz. Limiter can be turned on or off. The information menu displays the status of the tuned Astral TX. See the Astral-RX2 or A10-RX User Guides for more details.

Adjusting Audio of the Astral TX Signal from the Astral ARX32, Astral ARX16 or Astral ARX8 Receiver
See the Astral ARX32, Astral ARX16 and Astral ARX8 User Guides for details.

Adjusting Audio of the Astral TX Signal from the 8-Series or 688
When the Astral-RX2 or A10-RX receiving Astral TX signal is slotted into the SL-2 or SL-6, the Astral-RX2 or A10-RX Input menu settings are bypassed and all gain, low cut, and limiter activity are performed and controlled by the 688, 833, 888, or Scorpio. This is also the case when using an Astral ARX16 or Astral ARX8 docked to an 8-Series. See the Mixer-Recorder User Guides for more information.

Chapter 9: Recording WAV Files

The Astral TX records 32-bit float Broadcast WAV (under 4 GB) or RF64 WAV (over 4 GB) files at 48 kHz sampling rates to a removable micro-SD card (not included). 32-bit float files are recorded such that gain decisions can be made after recording. Because of the high dynamic range of the Astral TX, audio levels are never too high or too low. Learn more about 32-bit float at:
https://www.sounddevices.com/astral-mini-32-bit-float-recording/

The Astral TX must be set to REC+RF or REC Only Mode.

Astral TX recording can be initiated in several ways including from the:
- Astral Remote App
- Astral Receivers via NexLink
- Astral TX Record menu or via the optional Astral TX Switch

The file name format of recorded files is 'transmitter name-YYMMDDHHMMSS.WAV'. For example, if the Astral TX name has been changed to "Barney" and a recording is created on July 10, 2021, at 09:30 (24-hour format), the resulting file is named Barney-210710093000.WAV. All files are recorded at the root of the media (no folders).

About recording formats:

- The Astral TX records 1-ch monophonic 32-Bit float / 48 kHz wav files for all input types except AES42 and AES3 which record 2-ch polyphonic 32-Bit float / 48 kHz wav files comprising of channels 1 and 2 of the AES signal.
- For long duration recording, use a minimum Micro SD card size of 64 GB. Micro SD cards 64 GB or more are formatted as ExFAT which can record files bigger than 4 GB. Recordings that exceed 4 GB are automatically converted from standard broadcast wav to RF64 wav format.
- Micro SD cards 32 GB or less are formatted as FAT32 which has a 4 GB file size limit. When the 4 GB limit is reached, recording stops.
- For optimal performance, it is recommended to only use Micro SD cards offering a minimum of Class 10 write speed.

Chapter 10: Jamming Timecode

The Astral TX can be jammed wirelessly via NexLink from the Astral ARX32, Astral ARX16, Astral ARX8, or from cabled external timecode sources. The timecode value and frame rate are taken from the incoming LTC source. If timecode has not been jammed, the Astral TX starts rolling timecode from 00:00:00:00 when it is powered on.

Jammed timecode values are held for up to four hours after powering off, and up to one hour after the battery has been removed. This allows for time to swap batteries without having to re-jam timecode.

When the Astral TX is powered off with a charged battery inserted, the Audio/Timecode LED flashes blue on the 00-frame crossing to indicate timecode is being held.

To jam timecode via cable, connect a valid LTC source using one of the optional accessories, Sound Devices XL-TC-USBC-LEMO or XL-TC-USBC-BNC, to the Astral TX USB-C port. Timecode is automatically jammed once a valid LTC source is connected. After a successful timecode jam, the Audio/Timecode LED flashes blue on the 00-frame crossing.

Timecode is output from the USB-C using the Sound Devices XL-TC-USBC-LEMO, so you can verify that the Astral TX timecode is in sync with the LTC source. The Audio/Timecode LED stops flashing blue when USB-C is disconnected.

For more information about the Astral TX timecode accessory cables visit:
https://www.sounddevices.com/product/xl-tc-usbc-bnc/
https://www.sounddevices.com/product/xl-tc-usbc-lemo/

Astral TX can also jam timecode from 8-Series Mixer-Recorders using a standard USB-C to USB-A cable. Connect the Astral TX to the 8-Series USB-A port. Enter the 8-Series Menu > Timecode/Sync > Jam Astral Transmitter then select Jam. The 8-Series Jam Astral Transmitter menu displays the current timecode frame rate and values for the 8-Series and Astral TX and displays the difference between the two units.

Chapter 11: File Transfer to a Computer

Transfer recorded files to a computer via USB-C or Micro SD card.
The Astral TX connects via USB-C to a computer as an ExFAT-formatted mass storage device. Copy WAV files from the
Astral TX to the computer. When file transfer is complete, eject the drive from the operating system and disconnect USB.

Recording must be stopped on the Astral TX before connecting to the computer. While connected to a computer, RF transmission, audio, and recording are disabled.

Chapter 12: Updating Firmware

Register your Astral TX to stay informed of firmware updates. https://my.sounddevices.com/

Firmware can be updated via micro-SD card or wirelessly from an Astral receiver (ARX 32, ARX 16, ARX 8).

12.1 To update Astral TX firmware using a Micro-SD Card:

1. Insert a micro-SD card in the Astral TX. Micro SD card is not included.
2. Format the micro-SD card. See Settings > System > Format.
3. Connect the Astral TX to the computer for file transfer using a USB-C cable.
4. Download the Astral TX firmware PRG file from: https://www.sounddevices.com/download/?prod=Astral TX
5. Copy the PRG file to the root of the Astral TX micro-SD card
6. Eject the Astral TX from the computer.

At this point, 'Updating firmware. Please wait …' is displayed and all the LEDs "dance" to indicate the firmware update is in progress. Once the update is completed, "Update successful. Rebooting …' is displayed and the Astral TX reboots. The firmware update can take a few minutes to complete.

When the firmware update completes, the Astral TX automatically deletes the PRG file from the media. The firmware version is displayed for a few seconds in the Home Screen after powering up. It is also displayed in the Astral Remote App's Manage Devices view, the Astral TX's Settings>System>Info menu, and in the Astral Receiver's TX List >TX View.

12.2 To update Astral TX firmware wirelessly from an Astral Receiver:

It is not necessary to have a micro-SD card installed in the transmitter when updating firmware wirelessly.

1. Download the transmitter firmware PRG file from: https://www.sounddevices.com/download/?prod=Astral TX
2. Copy the PRG file to the root of a USB thumbdrive.
3. Insert the USB thumbdrive in the Astral receiver's USB-A or C port.
4. Install charged batteries in the transmitter and ensure the transmitter is paired to the Astral receiver.
5. Select Firmware Update in the Astral receiver's System menu to display a list of all paired transmitters
6. Select the transmitter to be updated from the list.
7. Tap the Start Update button in the Astral Receiver's OLED 4.
8. Select the Astral TX firmware update file from the drop-down list, then tap OK at the confirmation popup.
9. Ensure the transmitter is kept nearby the Astral receiver during the update.

At this point, the Astral receiver starts sending the firmware update file to the transmitter wirelessly. OLED 3 displays the sending progress in %. The Astral TX's ePaper display shows "Receiving Update. Please wait …'.

Note that it can take a few minutes to send the file and another minute or so for the transmitter to update.

Once the complete file has been successfully received by the Astral TX, 'Updating firmware. Please wait …' is displayed and all the LEDs "dance" to indicate the firmware update is in progress. The Astral receiver's OLED 3

displays ‘Updating’. Once the update is completed, “Update successful. Rebooting …’ is displayed on the ePaper display and the Astral TX reboots.

The firmware version is displayed for a few seconds in the Home Screen after powering up. It is also displayed in the Astral Remote App’s Manage Devices view, the Astral TX’s Settings>System>Info menu, and in the Astral Receiver’s TX List >TX View.

Chapter 13: Astral Remote

Astral Remote is an application for Android/iOS phones and tablets designed to pair with Astral transmitters (Astral HH, Astral TX, Astral Mini). All transmitter settings are conveniently controlled using Astral Remote.

Please refer to the Astral Remote User Guide for complete operational details
http://guides.sounddevices.com/astral-remote/

When connected via Bluetooth LE to the Astral TX, Astral Remote offers control and display of all Astral TX parameters, including:

- Power on and off the Astral TX
- Monitor battery status
- Frequency, Modulation, and RF power setup
- Monitor audio signal presence
- Microphone mute
- Transport controls (Record, Stop)
- Timecode display
- Media formatting and monitoring of remaining space
- Astral TX settings (Mode, XLR Input Type, Lav Mic Type, Display, LEDs, Power options, and more)
- Group control of powering, recording, and more

Download and install the Astral Remote app from the Google Play Store or Apple App Store.
http://guides.sounddevices.com/astral-remote/

Astral Remote has the following minimum operating requirements: Android tablets and phones running Android 8+, or iPad and iOS devices running iOS 13+. The device must have Bluetooth and Location Services on in order to connect with an Astral Transmitter.

IMPORTANT: The mobile device’s location is used to determine available frequencies, RF power levels, and TV channel mapping of the Astral transmitter. The Country setting is automatically set using the mobile device’s Location Services.

The mobile device’s system date and time are used in the metadata of recorded files.

Chapter 14: SD-Utility

Sound Devices SD-Utility is a companion application for MacOS and Windows that supports Sound Devices wireless products. This application can be used to process files recorded by Astral transmitters to be more suited to the given workflow. Astral transmitter 32-bit float, 48 kHz, monophonic WAV, 2ch polyphonic WAV, and RF64 WAV files can be imported, renamed, snipped by timecode values, converted to 24 bit, conformed to a CSV Sound Report, exported as monophonic or polyphonic WAV, and more.

Please refer to the SD-Utility User Guide for complete install and operational details
https://sounddevices.com/guides/sd-utility

Chapter 15: Accessories

15.1 Included

- Antenna set
  - 1 straight 470-548 MHz to SMA
  - 1 straight 548-638 MHz to SMA
  - 1 straight 17” uncut Astral VHF Whip Antenna (SMA)
  - 3 antenna caps
- Astral TX Belt Clip

15.2 Optional

- Astral Sleeve
- Astral TX Belt Clip
- Astral TX Switch
- A-BOOM 2 Boom Pole Mount
- 1 straight 17” uncut Astral VHF Whip Antenna (SMA)
- Astral TX Smart Guitar Cable
- Astral TX Smart Guitar Cable (right-angled)
- Astral TX Guitar Strap Clip

Chapter 16: Installing the Optional Astral TX Switch

The optional Astral TX Switch is a physical latching on/off bayonet-style switch that mounts to the top of the Astral TX. It can be assigned to the following functions:

- None
- Power
- Record
- Mute
- RF
- Aux

Instructions to mount the Astral TX Switch:

1.

Using the included T5 torx screwdriver, remove, the M2.5 x 0.45 Hex screws on the top of the Astral TX transmitter

2.

After removal, store the hex screws in a safe location, such as your bag.

3.

Align the switch on top of the unit.

4.

Thread in the attached screws with the included T5 Torx driver, only finger tight.

Chapter 17: Installing the Optional A-BOOM 2

The A-BOOM 2 is a boom pole mount designed specifically for the Astral TX transmitter. It mounts to the top of a cabled or cableless boom pole. It can be positioned facing up or down the boom pole, and the onscreen text of the Astral TX screen will conveniently rotate to allow you to read it at the right orientation.

Instructions to mount the A-BOOM 2 to the Astral TX:

1.

Using one included L-hex key, remove the set screws on the back of the Astral TX, if present.

2.

Place the A-BOOM 2 in the desired orientation ensuring the Astral TX's screw holes line up properly with the A-BOOM 2 accessory holes.

3.

Using the other included L-hex key, install the 2 screws.

4.

You have four choices to affix the A-BOOM 2 to the Astral TX. Refer to the image to see the options.

Chapter 18: Frequency Authorization

The wireless system operator needs to be aware of local regulations and comply with all applicable laws regarding operation of wireless devices.

Frequency Authorizations allow the unlocking of restricted frequencies that require proof of a valid license before they can be used. Once a license has been granted, please contact Sound Devices (RF_Request@SoundDevices.com) to obtain the necessary authorization. An Authorization ID and License Code will be generated by Sound Devices based on the license provided. The Authorization ID or License Code can be entered into the Astral Remote App and then synchronized with an Astral ARX8, Astral ARX16, or Astral ARX32 receiver and its paired Astral transmitters.

An example of a frequency band requiring an unlock code in the United States is 1435-1525 MHz. Program Making and Special Events (PMSE) wireless operators typically call 1435-1525 MHz the "AFTRCC band". AFTRCC stands for Aerospace and Flight Test Band Coordinating Council. This organization coordinates a number of frequency bands for use by air and spacecraft in the United States. This includes 1435-1525 MHz.

Per the United States Federal Communications Commission (FCC) rules, wireless microphones are allowed as secondary users in the 1435-1525 MHz AFTRCC band. This is detailed in the FCC Part 74 rules:

https://www.ecfr.gov/current/title-47/chapter-I/subchapter-C/part-74

One section of the Part 74 rules that's of particular interest to operators seeking an AFTRCC band license is 74.803(d):

https://www.ecfr.gov/current/title-47/chapter-I/subchapter-C/part-74#p-74.803(d)

Generally speaking, a wireless operator needs to show they've used all other available spectrum before the AFTRCC will consider a license request in the 1435-1525 MHz range. If granted, the license is normally assigned for a specific location and a specific time range.

Sound Devices encourages all wireless operators to obtain a Part 74 license, and specifically to make sure applicable parts of the 600 MHz and 950 MHz range are included with their license application. This can help show an operator is aware of the available spectrum and is utilizing it responsibly.

More information on Part 74 licensing can be found here: https://www.local695.com/fcc-licensing/

Chapter 19: Astral TX Specifications

Specifications are subject to change without prior notice. For the latest information available on all Sound Devices products, visit our website: www.sounddevices.com.

Frequency Range
- 169 to 1525 MHz
- Transmitter tunable in 25 kHz steps
- Available frequencies are dependent on region

RF Output Power
- Off, Low - 2 mW, Normal - 10 mW, High - 20 mW, Extra High - 40 mW

Modulation Mode
- Proprietary, 100% digital RF modulation
- Standard, Long Range, T&M (Test & Measurement), selectable

Latency - Lemo input to Receiver analog output
- Standard (2 ms)
- Long Range (3.9 ms)
- T&M (7 ms)

Antennas
- UHF RF: SMA connector, removable antenna
- 2.4 GHz built-in, bottom of unit

Audio Frequency Response
- 10 Hz - 20 kHz, +/- 1 dB re 1 kHz

Audio Input
- **Lavalier Microphone**
  - 2-wire- or 3-wire-type lavalier mics supported
  - Auto-selected when lavalier mic connected to Lemo input, except when set to '3-Wire'.
  - Dynamic range: 134 dB min, A-weighted
  - Input clip level: 5V p-p (limited by lavalier microphone)
  - 'Lav' setting: Lemo pin 1/Shell = ground; Lemo pin 2 = floating; Lemo pin 3 = audio/bias
  - '3-Wire' setting: Lemo pin 1/Shell = ground; Lemo pin 2 = bias; Lemo pin 3 = audio
  - Auto unit power on/off with connection/removal of lavalier microphone (menu selectable)
- **Balanced Mic**
  - True, fully balanced, 8-Series mic preamp
  - Dynamic range: 140 dB min, A-weighted
  - Menu selectable with connection of XL-BALXLR-4 cable to Lemo input
  - Phantom power: 12V or 48V, full 10mA available per IEC 61938
  - XLR pin 1 = ground; XLR pin 2 = +; XLR pin 3 = -
- **Line Input**
  - True, fully balanced line-level input (no external resistors required)
  - Input clip level: +26 dBu
  - Menu selectable with connection of XL-BALXLR-4 cable to Lemo input
  - XLR pin 1 = ground; XLR pin 2 = +; XLR pin 3 = -
- **AES42**
  - AES digital input with common mode power for Digital mics such as Schoeps SuperCMIT

  - 250mA current available
  - Selectable audio channel 1 or 2 via menu
  - Menu selectable with connection of XL-BALXLR-4 cable to Lemo input
  - XLR pin 1 = ground; XLR pin 2 = +; XLR pin 3 = -
- **AES3**
  - AES digital input without common mode power
  - Selectable audio channel 1 or 2 via menu
  - Menu selectable with connection of XL-BALXLR-4 cable to Lemo input
  - XLR pin 1 = ground; XLR pin 2 = +; XLR pin 3 = -
- **Guitar**
  - Auto-selected when connected with Astral TX Smart Guitar Cable
  - ¼" tip = + ¼" sleeve = ground
  - 18V p-p max input level
  - Input impedance: 100k, 1M, 10M (menu selectable)
  - Cable capacitance: 0 pF - 3000 pF in 50 pF steps (menu selectable)
  - Balanced connection from ¼" plug to Lemo for low noise susceptibility

Menu and Controls

- e-Paper screen highly visible in direct sunlight
- e-Paper screen keeps display even with no batteries
- Power/Pair button and three navigation buttons protected inside battery compartment
- Optional user-programmable bayonet switch for top of transmitter (Astral TX Switch)

Remote Control

- Astral Remote Android, iOS, and iPad app via Bluetooth 5.2 LE
- Astral ARX32, Astral ARX16, Astral ARX8 receivers via super-long-range NexLink

Recording Media

- Micro SD card. Minimum Class 10 write speed.
- Media format: ExFAT for Micro SD cards 64GB or more, FAT32 for Micro SD cards 32GB or less.

Recording File Format

- 32 Bit Float, 48 kHz, Monophonic (Lav, Mic, Line, P12, P48, Guitar)
- 32 Bit Float, 48 kHz, 2ch polyphonic (AES42, AES3)
- Broadcast WAV (<4 GB), RF64 WAV (>4 GB)

Simultaneous Record and Transmit mode when using lavalier mic or guitar input is not available on Astral TX units sold or operated in the United States of America.

Timecode

- Input via XL-TC-USBC-LEMO, XL-TC-USBC-BNC, USB-A to USB-C (from 8-Series) or wirelessly over NexLink (from Astral ARX32/Astral ARX16/Astral ARX8)
- LTC: 0.3 V - 3 V p-p (–17 dBu to +3 dBu), 20k-ohm impedance
- LTC Output via XL-TC-USBC-LEMO: 3 V p-p, 400-ohm impedance

Timecode Clock

- 0.2 ppm accuracy
- Holds accurate clock for four hours while powered down with batteries inserted, holds for one hour without batteries via internal supercapacitor
- Auto Jams timecode via USB-C connector or wirelessly via NexLink

Timecode Frame Rates

- 23.98, 24, 25, 29.97 DF, 29.97 ND, 30 DF, 30 ND
  Frame rates are auto detected from incoming source

USB-C

- Mass Storage (USB-C): USB 2.0 high speed for file transfer
- Charges Li-ion and LiFePO4 batteries inserted in Astral TX
- Pairing to Astral ARX16, Astral ARX8
- Timecode I/O

Powering

- “1.5V” Alkaline, Lithium primary, NiMH AA batteries; 3 for operation
- “3.7V” Rechargeable Lithium-Ion, 1, 2, of 3 for operation
- Energizer Ultimate AA primary cells recommended for longest runtime

Battery Charging

- Built-in charging of Lithium-Ion and LiFePO4 batteries via USB-C

Battery Runtime

- Up to 12 hours (depending on battery chemistry, number of batteries, RF power, input type, mode)
- Unit can be completely powered off remotely via app or via NexLink to extend battery runtime

Environmental

- Operating: -10° C to 40° C
- Storage: -40° C to 85° C
- 0 to 90% relative humidity (non-condensing)

Dimensions (H x W x D)

- 3.3 x 2.5 x 0.71 in
- 8.5 x 6.4 x 1.81 cm

Weight

- 0.2lbs (without batteries)
- 98g (without batteries)

Chapter 20: Antenna Guide

The Astral TX ships with an antenna set with three antennas (1 straight 470-548 MHz to SMA, 1 straight 548-638 MHz to SMA, 1 straight 17” uncut Astral VHF Whip Antenna to SMA), and a set of antenna caps.

Sound Devices offers additional pre-cut and uncut antennas as available options.

Attach antennas with a length specific to the frequency in use. Using the wrong length of antenna reduces RF range.

Cutting Antennas to Length

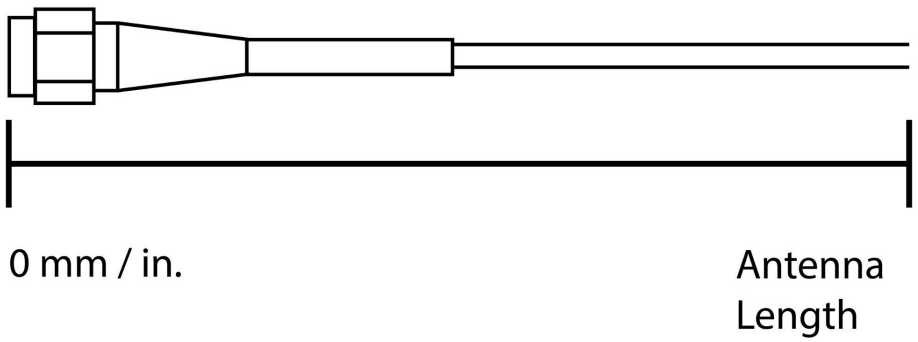
Uncut antennas need to be cut to the length specific to the frequency for intended use.

1. Determine the frequency range intended for the uncut antenna using the Antenna Length chart.
2. Measure the antenna for the cut point. Measurements should begin from the bottom of the SMA connector.
3. Using a pair of cutters, cut the quarter-wave antenna at the specified cut point.
4. Position the antenna cap onto the cut-end of the antenna and push the cap firmly onto the antenna.

Tip: Use an Astral ARX receiver’s built-in Antenna Length Tool to assist in cutting antennas to the correct length.

Antenna Length Chart

Frequency Range	Antenna Length in mm	Antenna Length in inches
169 - 216 MHz	388 mm	15.28”
470 - 548 MHz	140 mm	5.51”
548 - 663 MHz	120 mm	4.72”
638 - 738 MHz	104 mm	4.09”
738 - 865 MHz	89 mm	3.50”
902 - 1015 MHz	74 mm	2.92”
1045 - 1154 MHz	65 mm	2.55”
1240 - 1260 MHz	57 mm	2.24”
1350 - 1525 MHz	49 mm	1.93”



Chapter 21: Servicing the Astral TX

Do not attempt to service the Astral TX. The case is water-sealed and needs to have new gaskets installed if taken apart. The internal parts are microscopic and not user serviceable. Please send to Sound Devices for any service needs. https://service.sounddevices.com/contact-support/

Chapter 22: Warranty

Sound Devices, LLC warrants the items listed above against defects in materials and workmanship for a period of ONE (1) year from date of original retail purchase. Users who register their product directly with Sound Devices Technical Support using the online form or by phone, will receive an additional ONE (1) year of warranty coverage, extending the complete warranty period to TWO (2) years from the date of original retail purchase. In order to extend the warranty coverage period, registration must be completed within the initial ONE (1) year warranty period. Products must be purchased through authorized Sound Devices resellers to qualify for Warranty coverage. Damage resulting from the opening of a Sound Devices product or attempted repairs by a non-authorized Sound Devices repair technician will void warranty coverage.

This is a non-transferable warranty that extends only to the original purchaser. Sound Devices, LLC will repair or replace the product at its discretion at no charge. Warranty claims due to severe service conditions will be addressed on an individual basis.

THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE. SOUND DEVICES, LLC DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOUND DEVICES, LLC IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY OR UNDER ANY OTHER LEGAL THEORY. Because some jurisdictions do not permit the exclusion or limitations set forth above, they may not apply in all cases.

For all service, including warranty repair, please contact Sound Devices for an RMA (return merchandise authorization) before sending your unit in for repair. Product returned without an RMA number may experience delays in repair. When sending a unit for repair, please do not include accessories, including SSD drives, CF cards, batteries, power supplies, carry cases, cables, or adapters unless instructed by Sound Devices. Sound Devices repairs and replacements may be completed using refurbished, returned or used parts that have been factory certified as functionally equivalent to new parts.

Sound Devices, LLC

Services Repair RMA #XXXXX

E7556 State Road 23 and 33
Reedsburg, WI 53959 USA
Telephone: +1-608-524-0625

Chapter 23: Patents

This product is covered under patent number 9,654,134 and other patents pending.

Chapter 24: Legal Notices

Product specifications and features are subject to change without prior notification. Read and fully understand this manual before operation.

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LIMITATION ON SOUND DEVICES' LIABILITY. TO THE FULLEST EXTENT PERMITTED BY LAW, SOUND DEVICES SHALL HAVE NO LIABILITY TO THE END USER OR ANY OTHER PERSON FOR COSTS, EXPENSES, DIRECT DAMAGES, INCIDENTAL DAMAGES, PUNITIVE DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER ARISING OUT OF OR RELATING TO THE PRODUCTS, THESE TERMS AND CONDITIONS OR THE PARTIES' RELATIONSHIP, INCLUDING, WITHOUT LIMITATION, DAMAGES RESULTING FROM OR RELATED TO THE DELETION OR OTHER LOSS OF AUDIO RECORDINGS OR DATA, REDUCED OR DIMINISHED AUDIO QUALITY OR OTHER SIMILAR AUDIO DEFECTS ARISING FROM, RELATED TO OR OTHERWISE ATTRIBUTABLE TO THE PRODUCTS OR THE END USER'S USE OR OPERATION THEREOF, REGARDLESS OF WHETHER SUCH DAMAGES ARE CLAIMED UNDER CONTRACT, TORT OR ANY OTHER THEORY. "CONSEQUENTIAL DAMAGES" FOR WHICH SOUND DEVICES SHALL NOT BE LIABLE SHALL INCLUDE, WITHOUT LIMITATION, LOST PROFITS, PENALTIES, DELAY DAMAGES, LIQUIDATED DAMAGES AND OTHER DAMAGES AND LIABILITIES WHICH END USER SHALL BE OBLIGATED TO PAY OR WHICH END USER OR ANY OTHER PARTY MAY INCUR RELATED TO OR ARISING OUT OF ITS CONTRACTS WITH ITS CUSTOMERS OR OTHER THIRD PARTIES. NOTWITHSTANDING AND WITHOUT LIMITING THE FOREGOING, IN NO EVENT SHALL SOUND DEVICES BE LIABLE FOR ANY AMOUNT OF DAMAGES IN EXCESS OF AMOUNTS PAID BY THE END USER FOR THE PRODUCTS AS TO WHICH ANY LIABILITY HAS BEEN DETERMINED TO EXIST. SOUND DEVICES AND END USER EXPRESSLY AGREE THAT THE PRICE FOR THE PRODUCTS WAS DETERMINED IN CONSIDERATION OF THE LIMITATION ON LIABILITY AND DAMAGES SET FORTH HEREIN AND SUCH LIMITATION HAS BEEN SPECIFICALLY BARGAINED FOR AND CONSTITUTES AN AGREED ALLOCATION OF RISK WHICH SHALL SURVIVE THE DETERMINATION OF ANY COURT OF COMPETENT JURISDICTION THAT ANY REMEDY HEREIN FAILS OF ITS ESSENTIAL PURPOSE.

The "wave" logo is a registered trademark of Sound Devices, LLC. Windows is a registered trademark of Microsoft Corporation in the U.S. and other countries. Bluetooth LE is a registered trademark of Bluetooth SIG, Inc. Android is a registered trademark of Google. iPad, iPhone, and iOS are registered trademarks of Apple Inc. All other trademarks herein are the property of their respective owners.

FCC Conformity

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, and
(2) this device must accept any interference received, including interference that may cause undesired operation.
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Warning! Any modifications or changes made to this device, unless explicitly approved by Sound Devices may invalidate the authorization of this device. Operation of an unauthorized device is prohibited under Section 302 of the Communications act of
1934, as amended, and Subpart 1 of Part 2 of Chapter 47 of the Code of Federal Regulations.

This device must be installed by trained professionals.

FCC Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for portable conditions. In accordance with FCC requirements, this device has been tested and found to comply with radiation exposure limits for portable conditions..

ISED Radiation Exposure Statement
This equipment complies with ISED radiation exposure limits set forth for portable conditions. This device complies with the Specific Absorption Rate (SAR) requirements at a distance of 0mm.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour des conditions portables. Cet appareil est conforme aux exigences de débit d'absorption spécifique (SAR) à une distance de 0 mm.

This device has been approved to operate with the antenna types listed below:

Sound Devices Part #	Frequency Band	Maximum Gain	Impedance
29429.000	169-172 MHz, 174-216 MHz	+2.15 dBi	50 ohms
9162.001	470-548 MHz	+2.15 dBi	50 ohms
11225.000	548-608 MHz, 614-616 MHz, 653-657 MHz, 657-663 MHz	+2.66 dBi	50 ohms
28255.000	902-928 MHz, 941.5-952 MHz, 952.85-956.25 MHz, 956.45-959.85 MHz	+3.47 dBi	50 ohms
28257.000	1435-1525 MHz	+2.15 dBi	50 ohms

FCC Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference

to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Industry Canada Conformity

This device operates on a no-interference, no-protection basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio license is required. For further details, consult Innovation, Science and Economic Development Canada's Client Procedures Circular CPC-2-1-28, Voluntary Licensing of License-Exempt Wireless Microphones in the TV Bands.

This radio transmitter 22225-9808 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Sound Devices Part #	Frequency Band	Maximum Gain	Impedance
29429.000	169-172 MHz, 174-216 MHz	+2.15 dBi	50 ohms
9162.001	470-548 MHz	+2.15 dBi	50 ohms
11225.000	548-608 MHz, 614-616 MHz, 653-657 MHz, 657-663 MHz	+2.66 dBi	50 ohms
28255.000	902-928 MHz, 941.5-952 MHz, 952.85-956.25 MHz, 956.45-959.85 MHz	+3.47 dBi	50 ohms
28257.000	1435-1525 MHz	+2.15 dBi	50 ohms

The transmitter is supplied with the above unique antenna types; to replace a lost, damaged or faulty antenna, please contact Sound Devices, LLC.

This Device complies with Industry Canada Licence-exempt RSS standard(s). Operation 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.

Conformité à Industrie Canada

Cet appareil opère selon un régime de non-brouillage et de non-protection. Si l'utilisateur veut obtenir une protection par rapport aux autres services radio opérant sur les mêmes bandes TV, une licence radio est requise. Pour plus de détails, veuillez consulter le circulaire de procédures client CPC-2-1-28 Délivrance de licenses sur une base volontaire pour les microphones sans
fils exempts de licence exploités dans les bandes de télévision, publié par Innovation, Sciences et Développement économique Canada.

Ce transmetteur radio 22225-9808 a été approuvé par Innovation, Sciences et Développement économique Canada pour opérer avec les types d'antennes listés ci-dessous, avec gain maximum permissible indiqué. Les types d'antennes non inclus dans cette liste et dont le gain excède le gain maximum indiqué sur n'importe quel type listé ci-dessous sont strictement prohibés d'utilisation avec cet appareil.

Sound Devices Part #	Frequency Band	Maximum Gain	Impedance
29429.000	169-172 MHz, 174-216 MHz	+2.15 dBi	50 ohms
9162.001	470-548 MHz	+2.15 dBi	50 ohms
11225.000	548-608 MHz, 614-616 MHz, 653-657 MHz, 657-663 MHz	+2.66 dBi	50 ohms
28255.000	902-928 MHz, 941.5-952 MHz, 952.85-956.25 MHz, 956.45-959.85 MHz	+3.47 dBi	50 ohms
28257.000	1435-1525 MHz	+2.15 dBi	50 ohms

Ce transmetteur est fourni avec les types d'antenne unique ci-dessus; pour remplacer une antenne perdue, endommagée ou défectueuse, veuillez contacter Sound Devices, LLC.

Cet appareil est conforme aux normes CNR exemptes de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes:
1) ce dispositif ne peut pas causer d'interférences, et
2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

USA White-Space Operation
For USA operation in the 600 MHz guard band (614-616 MHz) and 600 MHz duplex gap (657 - 663 MHz) users are advised to register with and check a white-space database to determine available channels prior to operation at a given location.

Chapter 25: Declaration of Conformity

CE

Manufacturer's Name: Sound Devices, LLC
Manufacturer's Address: E7556 State Road 23 and 33 Reedsburg, WI 53959 USA

We, Sound Devices, LLC, declare under our sole responsibility that the product

Product Name:	Astral TX
Model Number:	9808
Description:	Digital Wireless Microphone Transmitter

is in conformity with the essential requirements of the following relevant Union harmonization legislation:

Radio Equipment Directive (RED)	2014/53/EU
Low Voltage Directive	2014/35/EU
RoHS Directive	2011/65/EU

The following harmonized standards and/or normative documents were applied:

Health & Safety (Article 3.1(a) of RED)	EN 62368-1:2014
	EN 50566:2017
EMC (Article 3.1(b) of RED)	EN 301-489-1 v2.2.3:2019
	EN 301-489-9 v2.1.1:2019
	EN 301-489-17 v3.2.4:2020
RF Spectrum (Article 3.2 of RED)	EN 300 422-1 v2.2.1:2021
	EN 300 328 v2.2.2:2019
	EN 300 440 v2.1.1:2017

Signed for and on behalf of Sound Devices LLC:

July 20th, 2023

Date

Matt Anderson - Sound Devices, LLC President