

# ANDRE™

Near-Field Detection Receiver

## User Manual



**Research Electronics International, LLC**

455 Security Drive, Cookeville, TN 38506 U.S.A.

(800) 824-3190 (US Only) • +1 931-537-6032

[www.reiusa.net](http://www.reiusa.net)

© Copyright Research Electronics International LLC

## CASE CONTENTS



1. **ANDRE<sup>ab</sup>** - unit, wall charger, int'l adapter, and USB
2. **Powered Connector Cable 60" (1.5 m) or Connector Cable 48" (1.2 m)**<sup>ab</sup>
3. **Concealed Antenna<sup>a</sup>**
4. **Down Converter Antenna or Log Periodic Antenna<sup>a</sup>**
5. **Directional Antenna**
6. **Acoustic Leakage Detector<sup>a</sup>**
7. **Modular Phone Adapter & Cable<sup>a</sup>**
8. **Ultrasonic Probe**
9. **VLF Loop<sup>ab</sup>**
10. **Locator Probe<sup>a</sup>**
11. **Whip/Dipole Antenna<sup>ab</sup>**
12. **Lithium-Ion Batteries and Charger<sup>ab</sup>**
13. **Carrier Current Probe<sup>ab</sup>** - unit, int'l adapter, and cables
14. **Audio Transformer<sup>a</sup>** - accessory cables
15. **Neck and Wrist Lanyards<sup>ab</sup>**
16. **Tripod with Mount**
17. **Acoustic Leakage Detector Mounting Kit<sup>a</sup>**
18. **Headphones<sup>ab</sup>**
19. **Connector Cables<sup>a</sup>**
20. **Extender Pole**

<sup>a</sup>Included in the ANDRE Advanced Kit, but case location may vary

<sup>b</sup>Included in the ANDRE Basic Kit, but case location may vary

# ANDRE™

## Advanced Near-field Detection Receiver



This document is intended to provide guidance and instruction on using the ANDRE Near-field Detection Receiver for finding hidden electronic devices.

This manual contains proprietary information intended solely for use with the ANDRE product.

The overall effectiveness of this product, and of any surveillance countermeasure, is dependent on the threat level and the user's ability to properly utilize the appropriate equipment.

REI offers the world's largest commercially available Technical Security training facility. Training courses include classroom instruction and hands-on exercises where students perform sweep exercises in "live" environments utilizing "target rich" project rooms. The progressive course curriculum is designed for the beginner or the seasoned Technical Security Technician.

Regularly scheduled courses are taught monthly; visit REI's website ([www.reiusa.net](http://www.reiusa.net)) or contact REI ([sales@reiusa.net](mailto:sales@reiusa.net)) for training dates.

## Revision 2.2

© COPYRIGHT RESEARCH ELECTRONICS INTERNATIONAL

REI products are designed and intended for legal commercial applications. However, because laws and regulations vary from state to state and country to country, it is the sole responsibility of the purchaser and user/operator to check and comply with all applicable laws and regulations for the possession and operation of this equipment before and after making a purchase.

Information contained in this manual including product operation and specifications is subject to change without notice.

Any product or brand names contained in this manual are used only for identification purposes and are trademarks or registered trademarks of their respective holders.

Warning: This is a CE class A product, pursuant to EN 55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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 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.

Patents Pending

### OWNER'S RECORD

The Serial Number of each ANDRE is located on the back of the unit. Please record this number and refer to it whenever you contact your dealer or Research Electronics International concerning this product. Note: Removal or alteration of the serial number automatically voids all warranties of this product.

SERIAL NUMBER: \_\_\_\_\_



### Research Electronics International, LLC

455 Security Drive, Cookeville, TN 38506 U.S.A.

(800) 824-3190 (US Only) • +1 931-537-6032

[www.reiusa.net](http://www.reiusa.net)

## Table of Contents

PRECAUTIONS .....	9
EQUIPMENT DESCRIPTION.....	10
ANDRE Unit .....	10
ANDRE Packages .....	11
Probes, Antennas, and Accessories .....	12
Whip / Dipole Antenna (30MHz - 6 GHz) .....	12
Concealed Antenna (750 MHz - 6 GHz).....	12
Locator Probe (20 MHz - 6 GHz).....	12
VLF Loop Antenna (10 kHz - 30 MHz).....	13
Acoustic Leakage Detector (ALD).....	13
Audio Transformer (300 Hz - 20 kHz).....	13
Carrier Current Probe (100 kHz to 60 MHz).....	14
Log Periodic Antenna (500 MHz - 6 GHz).....	14
Directional Antenna (70 MHz - 500 MHz).....	15
Down Converter Directional Antenna (500 MHz - 12 GHz) .....	15
Ultrasonic Probe (15 kHz - 80 kHz).....	16
Nitecore Dual Bay Battery Charger .....	16
OPERATION .....	17
Battery Usage.....	17
Audio Transformer Batteries .....	20
Display Screens .....	21
Display Screen Layout .....	21
Chart Screen (Search).....	23
Signal List Screen.....	25
Audio Screen .....	28
ADDITIONAL FEATURES.....	30
Connecting to a PC.....	30
Covert Mode .....	31
IR/VL Sensor .....	32
Connector Cable.....	32
Powered Connector Cable, only included with ANDRE Deluxe .....	33

Down Converter Directional Antenna Operation .....	34
Ultrasonic Probe Operation .....	34
Data Logging.....	35
SETUP .....	37
Atten/Gain .....	37
Input Source.....	38
Trigger .....	38
Frequency Gate.....	39
Brightness .....	39
Chart Audio .....	39
Audio Demodulation.....	40
Haptic Style .....	40
Covert Mode Options.....	41
Date/Time .....	41
ITU Region.....	41
Auto Restore .....	42
Max Signals .....	42
Merging.....	42
Data Logging.....	43
File Prefixes .....	44
Image Viewer .....	44
Software Update .....	44
Storage .....	45
Factory Reset .....	45
Screen Lock .....	45
USB Low Power .....	46
Contact.....	46
Version .....	46
SPECIFICATIONS .....	47
APPENDIX .....	48
Qt License.....	48
GNU Lesser General Public License.....	48



# PRECAUTIONS

---

## PRECAUTIONS

### ANDRE

- CAUTION: Any changes or modifications not expressly approved by REI could void the user's authority to operate the equipment.
- The ANDRE is for professional use only.
- For your own safety do not use the ANDRE if:
  - The ANDRE cables or its plugs become frayed or otherwise damaged.
  - The ANDRE housing is cracked or otherwise damaged.
  - You suspect that the unit requires servicing.
-  Only use REI approved power sources, batteries, chargers, and accessories. The supplied power supply is REI #R-00013 (Group West #10FA3-05200U). The supplied battery is REI #R-00012 (Nitecore #NL189), a rechargeable Lithium Ion 18650 Cell, rated 3.7V, 3400mAh, 12.6Wh.
- The slots in the housing of the unit are vents and are part of the ventilation system. Do not block these vents during the operation of the unit.
- The fan that is visible from the battery compartment is part of the ventilation system. The fan does not operate constantly but only as needed to reduce the internal temperature of the unit. Do not forcibly stop or disrupt the operation of the fan.
- There are no serviceable parts inside. Contact your dealer or Research Electronics International, LLC for repairs. Opening the unit will void the warranty.
- For your own safety do not use the AC power adapter or the included USB cable if:
  - The cable becomes frayed or otherwise damaged.
  - The power adapter plugs are damaged.
  - The power adapter housing is cracked or otherwise damaged.
  - The power adapter is exposed to rain, liquid or excessive moisture.

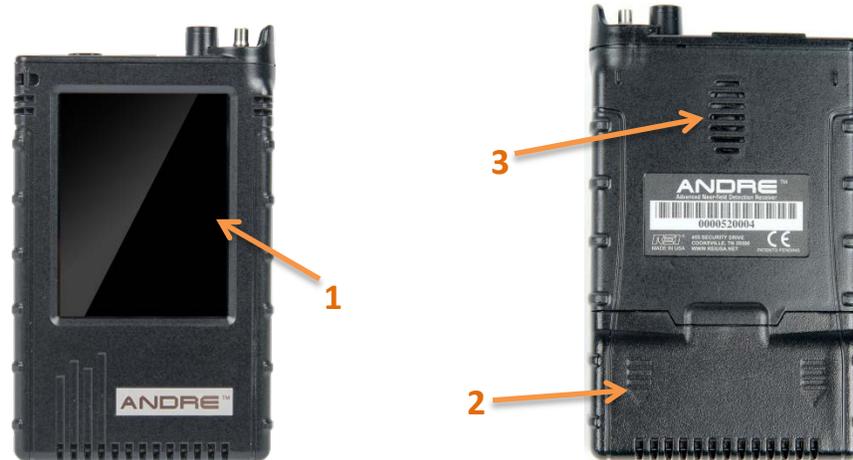
### Lithium-Ion Batteries

- CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- For your own safety do not use any ANDRE battery if:
  - The battery case is cracked or otherwise damaged.
  - The battery is excessively hot or warm for any reason.
- Avoid shorting the battery, immersing in water, or exposing to fire. Also, avoid excessive physical shock or vibration.
- Only use the specified REI battery chargers or products to charge REI batteries
- There are no serviceable parts inside the battery. Contact your dealer or Research Electronics International, LLC for repairs. Opening or puncturing the unit can be dangerous and may result in injury.
- Using the Lithium-Ion batteries in a manner not specified by this user's guide may override the equipment's built-in protection mechanisms.
- Keep out of the reach of children.
- Dispose of Lithium-Ion batteries in accordance with local regulations.

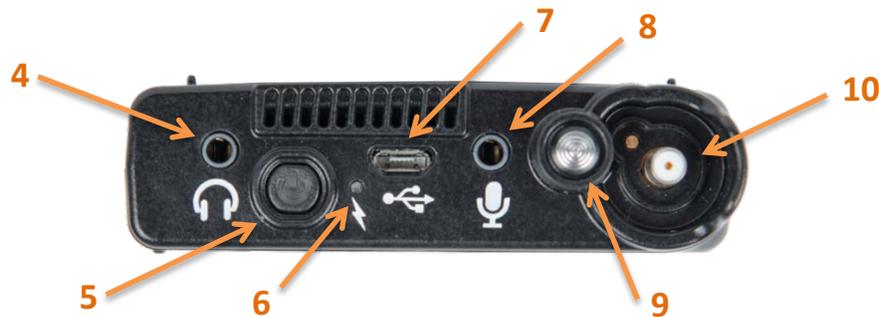
## EQUIPMENT DESCRIPTION

### EQUIPMENT DESCRIPTION

#### ANDRE Unit



1. **TOUCH SCREEN DISPLAY** - user interface for ANDRE
2. **BATTERY DOOR** (on the back of the unit) - conceals battery compartment
3. **SPEAKER** (on the back of the unit) - used to monitor audio from the unit



4. **HEADPHONE JACK** - for connection of headphones to monitor audio from the unit
5. **POWER BUTTON** - To power on, press and hold until POWER LED flashes. To power off, press and hold until the Touch Screen Display indicates that the unit is powering off.
6. **POWER LED** - the power led uses different colors and patterns (e.g. solid vs flashing) to indicate the status of the ANDRE unit.

With the unit on:

Solid Green - Battery fully charged. Brightness is proportional to remaining charge.

Flashing Yellow - Battery below 30% remaining

Flashing Orange - Battery below 20% remaining

Flashing Red - Battery below 10% remaining

With the unit off or on and AC power connected:

Flashing Green - Battery is charging. Flash rate is proportional to charge level.

## EQUIPMENT DESCRIPTION

7. **USB PORT** - for connecting AC adapter for supplying power or for charging the batteries in the ANDRE. This is also used for connecting the ANDRE to a PC for software updates or for retrieving screenshots or signal list files saved on the ANDRE.
8. **AUDIO INPUT** - for connecting the Acoustic Leakage Detector or the Audio Transformer to test for the presence of audio. The Acoustic Leakage Detector and the Audio Transformer are included with the Advanced ANDRE package from REI.
9. **IR / VISIBLE LIGHT SENSOR** - for detecting the presence of IR or visible light. (See page 32)
10. **QMA CONNECTOR (RF Input)** - for connecting the included REI antennas or other RF antennas.

### ANDRE Packages

The ANDRE is available in three packages (Basic, Advanced, and Deluxe) with varying probes, antennas, and accessories. Below is a chart showing which probes, antennas, and accessories are included in each package (note that this is subject to change). Additional information can be found in the Probes, Antennas, and Accessories section on the following pages.

<b>ANDRE PACKAGES</b>				
		BSC	ADV	DLX
<b>PROBES / ACCESSORIES</b>	Whip Antenna (30 MHz – 6 GHz)	●	●	●
	VLF Antenna (10 kHz – 30 MHz)	●	●	●
	Carrier Current (100 kHz - 60 MHz)	●	●	●
	Built-in IR/Visible Light Sensor (1 kHz - 50 MHz)	●	●	●
	PC Data Viewer	●	●	●
	Log Periodic Antenna (500 MHz - 6 GHz)		●	
	Locator Probe (20 MHz – 6 GHz)		●	●
	Concealed Probe (750 MHz – 6 GHz)		●	●
	Audio Transformer (300 Hz - 20 kHz)		●	●
	Acoustic Leakage Detector (300 Hz - 20 kHz)		●	●
	Standalone Battery Charger		●	●
	Extra Batteries (2)		●	●
	Down Converter Antenna (500 MHz - 12 GHz)			●
	Ultrasonic Probe (15 kHz - 80 kHz)			●
	Directional Antenna (70 MHz - 500 MHz)			●
	Data Logging			●
	Boom Extender, Probe Tripod, IR Filter, powered connector cable			●

# EQUIPMENT DESCRIPTION

## Probes, Antennas, and Accessories



### Whip / Dipole Antenna (30MHz - 6 GHz)

The Whip / Dipole is a general purpose, omnidirectional, near-field probe used for locating RF transmitters up to 6 GHz.



### Concealed Antenna (750 MHz - 6 GHz)

The Concealed Antenna is omnidirectional and is used for covert detection of devices. When the concealed antenna is connected, the ANDRE will automatically switch to Covert Mode. This mode could be used to conduct a covert search by connecting the concealed antenna and then hiding the unit in, for example, a jacket pocket, walking around the room and relying on the haptic feedback for alerts. Covert mode automatically disables any alerting features. It turns the speaker off, enables haptic feedback mode, and shuts off the display and the power LED.



### Locator Probe (20 MHz - 6 GHz)

The Locator Probe is an omnidirectional probe and is attenuated for use in high RF environments and for locating an RF signal within a few inches.

## EQUIPMENT DESCRIPTION

---



### VLF Loop Antenna (10 kHz - 30 MHz)

The VLF Loop Antenna is an omnidirectional antenna used for locating low frequency signals below 30 MHz.



### Acoustic Leakage Detector (ALD)

With the Acoustic Leakage Detector, the operator can determine the vulnerability of acoustic leakage by placing the probe against structural objects such as walls or windows. The Acoustic Leakage Detector connects to the Audio Input on the ANDRE.



### Audio Transformer (300 Hz - 20 kHz)

The Audio Transformer is a balanced audio coupler to provide electrical isolation for audio testing. A 3.5 mm Stereo to 3.5 mm Stereo cable is included with the ANDRE to connect the audio transformer to the ANDRE. Two push buttons provide positive and negative bias voltage to the two banana jacks on the audio transformer. The control knob on the audio transformer adjusts the level of the applied bias voltage from 0 to 22 volts. An included set of banana jack test leads with bed-of-nail alligator clips allow the audio transformer to be used on 66 blocks or other wires.

## EQUIPMENT DESCRIPTION

---

### Carrier Current Probe (100 kHz to 60 MHz)



The Carrier Current Probe can be used to test for carrier current signals on any pair of conductors less than 250 volts. Before testing an unidentified pair of power conductors, a voltmeter should be used to measure the voltage across the conductors. If this voltage exceeds 250 volts, do not test with the Carrier Current Probe. Two power plugs are included for connection to US style or Euro style outlets. The included alligator clip cable assembly should only be used on 50V or less. Measurements can be made with three different pair configurations using the switch on the front of the carrier current probe: Hot/Neutral, Neutral/Ground, and Hot/Ground.

Due to power line noise and the broad frequency range that ANDRE searches, every outlet in an area should be inspected.

Note: the frequency counter is disabled when using the Carrier Current Probe and the operator should rely on the detected signal strength when using the carrier current probe. No frequency will be displayed while using the Carrier Current Probe, nor will any signals be added to the signal list.



### Log Periodic Antenna (500 MHz - 6 GHz)

The directional antenna is a log periodic antenna which can be used for improved detection in the 500 MHz to 6GHz range.

## EQUIPMENT DESCRIPTION

---



### Directional Antenna (70 MHz - 500 MHz)

This flag-shaped antenna provides directional coverage for lower frequency signal detection. **It is a powered probe and must be used with one of the powered connector cables (see page 33).**



### Down Converter Directional Antenna (500 MHz - 12 GHz)

The Down Converter Antenna is a directional antenna that operates in two user selectable bands (see page 34):

Band 1: 500 MHz – 6 GHz

Band 2: 6 GHz – 12 GHz

When using Band 2, the Down Converter Antenna converts signals occurring above the standard 6 GHz threshold so they can be detected and displayed on the ANDRE. For details on operation, see page 34.

## EQUIPMENT DESCRIPTION

The down converter antenna is a powered probe and must be used with one of the powered connector cables (see page 34).



### Ultrasonic Probe (15 kHz - 80 kHz)

The ultrasonic probe detects sound waves operating above the upper limit of human hearing capabilities. The ultrasonic probe connects to the ANDRE with the provided audio patch cable. For details on Ultrasonic probe operation see page 34.



### Nitecore Dual Bay Battery Charger

The Dual Bay Battery Charger allows the user to externally charge two of the ANDRE Lithium Ion batteries.

Note: The Dual Bay Battery Charger is available with the ANDRE Advanced and Deluxe models. It can also be purchased separately by contacting REI or an Authorized REI reseller.

## OPERATION

---

### OPERATION

The ANDRE has been designed for quick and easy deployment. Depending on your application some adjustments to the default setting may need to be made.

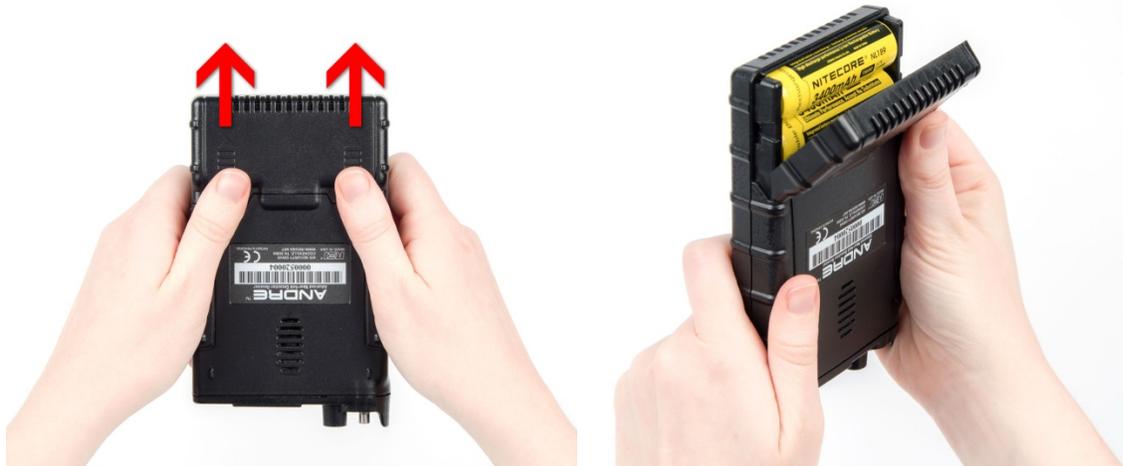
The ANDRE is a broadband RF detector and is used to locate transmitters by monitoring the RF signal strength. When searching for unknown transmitters, it is advised to remove or disable any known transmitters from the target sweep area (i.e. unplug, turn off, or remove any wireless transmitting devices including Wi-Fi and Bluetooth devices, laptops/PCs, mobile phones, wireless transmitting devices, etc.), as any transmitting devices can affect the RF noise floor and hinder detection of unknown transmitters.

Also, the process of connecting a probe or changing the settings on the ANDRE may cause inaccurate signal levels or other abnormal behavior and may result in the addition of unwanted, invalid signals to the signal list. REI recommends the following process for using the ANDRE in a sweep:

1. Configure the ANDRE for use (set attenuation/gain, adjust trigger level, set chart audio, set haptic style, etc...)
2. Connect a probe and confirm correct input source.
3. Clear the signal list (see page 25) and data log (if enabled) (see page 43).
4. Begin sweep.

### Battery Usage

Lithium-Ion rechargeable batteries have been included with your unit. The ANDRE will operate with just one charged battery inserted; however, use two batteries for the longest run time.



To insert or switch out a new battery:

1. Locate the battery door on the back of the unit.

## OPERATION

---

2. Using both thumbs, slide the battery door open in the directions of the arrows engraved in the plastic. The battery door will slide open just a couple of millimeters, but can then be flipped up.
3. Labels inside the battery compartment indicate the correct polarity of the batteries.
4. After inserting the batteries, close the battery door by flipping it back down and sliding the battery door back in the opposite direction of the arrows.



The ANDRE has a built-in battery charger. To charge the battery in the unit:

1. Locate the included AC adapter and USB cable. Connect the USB cable to the AC adapter.
2. With the battery already inserted in the unit, connect the AC adapter to an AC source and the USB cable end to the USB Port on the ANDRE. The battery will begin charging. Charging is automatic; it will stop when the battery is fully charged. While the battery is charging, the power LED will flash green; the flash rate will be proportional to the charge level.



Note: To keep the batteries in good working condition, they should be removed from the ANDRE for long term storage of 90 days or more. Even when powered off, the operating system of the ANDRE continues to use a low stand-by current that in some cases could cause a deep discharge and possible damage to the battery, preventing a normal recharge. To extend battery life it is recommended that the batteries are charged every three months when unused for long periods.

## OPERATION

---

Included with the ANDRE Advanced and Deluxe models is a Dual Bay Battery Charger. To use this external battery charger:

1. Unwind the connected USB cable from the charger base.
2. Flip the battery charger over and flip the base up. Remove the USB A connector from this port.
3. Connect the USB micro end of the cable into the port on the side of the charger. Connect the USB A end to the included AC power adapter, a PC, or other standard USB output port.
4. Insert the batteries to be charged being sure to observe the polarity markings on the charger.
5. After battery installation, the charger will run a quick battery test before charging. If a problem is detected (for example, the batteries are installed backwards), charging will stop and "EE" will be displayed on the LCD to notify the user.
6. When batteries are fully charged, 5 power level indicator bars and "100%" will illuminate steady on the LCD display.

Two or more external battery chargers can be serially-connected together to perform cascade charging; as one set of batteries finishes charging, the second set will automatically begin charging. To perform cascade charging:

1. Connect the first charger in the chain to a power source using the steps above.
2. Take a second USB A to USB micro cable and connect the USB A end to the charging port under the base of the first charger.
3. Connect the USB micro end of the 2<sup>nd</sup> cable to the USB micro port on the side of the 2<sup>nd</sup> battery charger.
4. The switch labeled "USB Battery" on the side of charger determines the charging priority. If the switch on the first charger is set to "Battery", the charger will first charge the inserted batteries. Once the inserted batteries are at full charge, the device will automatically begin charging the batteries inserted in the downstream charger. If the switch on the first charger is set to "USB", then the batteries in the downstream charger will charge first. Once these are at full charge, then charging will switch to the batteries inserted in the first charger.

## OPERATION

---

### Audio Transformer Batteries

The audio transformer, which is an accessory probe included with the ANDRE Advanced and Deluxe models, requires two A23C batteries, which are customer replaceable.

To replace the audio transformer batteries:

1. Using a Phillips head screwdriver, remove the two screws from the back of the audio transformer.



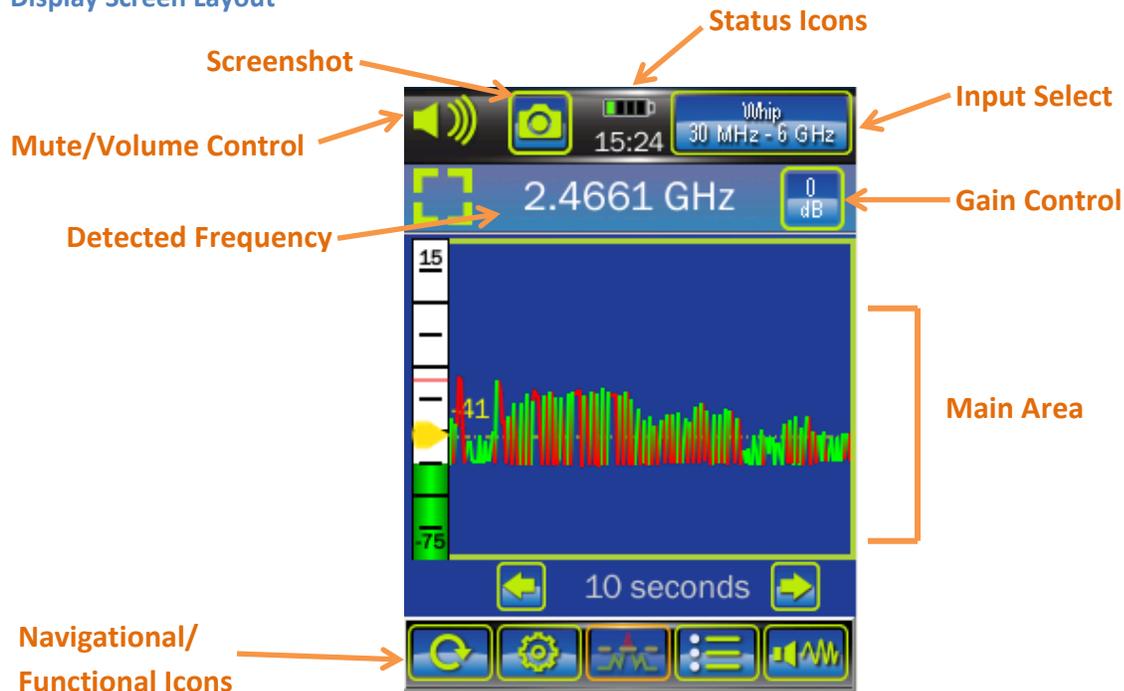
2. Locate the two A23C batteries and replace, being careful to observe the polarity marked on the unit.



# OPERATION

## Display Screens

### Display Screen Layout



Although several different screens are available for the ANDRE, they all utilize a common layout.

**Screenshot** - Tapping the camera icon in the status bar will take a screenshot and save it to the unit in .png format using an automatically generated file name based on a header specified by the user (see page 43). The captured screenshot can be viewed on the ANDRE using the Image Viewer (see page 44) or the file can be accessed directly by connecting the ANDRE to a PC (see page 30).

**Mute / Volume Control** - Tapping this icon will bring up the mute and volume controls. Tapping the mute control on the left will toggle the audio. Dragging the adjustment control on the right will increase or decrease the volume. The controls will disappear after a few seconds if there is no activity.

**Status Icons** - This area of each screen contains status icons indicating the current condition of the ANDRE unit. Battery status and current time are displayed here.

**Input Select** - The input select button allows the user to manually select the signal source - either RF Input (QMA connector), Audio Input, or IR/Visible Light Sensor. If an REI probe or antenna is connected to the currently selected input source, this button will also display the name of the probe and the frequency range.

**Detected Frequency** - The onboard frequency counter will try to detect the frequency of the strongest signal in an area. If an ambient signal is strong enough for the frequency counter to lock on it, the detected frequency will be displayed here. If no frequency is detected, dashes are shown. The frequency gate setting (see page 39) affects the operation of the frequency counter.

## OPERATION

---

Note: The frequency counter is not as accurate or reliable at lower frequencies (below 100 MHz), and may give false frequencies unless the target signal is very strong. Also, because the ANDRE is a broadband receiver, all RF energy is mixed (up to 6 GHz depending on antenna/probe), which can impact the accuracy and stability of the frequency counter. For detection purposes, the operator should rely on the detected signal strength to locate the source of the RF energy, and use the frequency counter information to evaluate the energy.

**Gain Control** - This button allows the user to change the attenuation or gain level of the ANDRE. Four levels are available: +15 dB, 0 dB, -10 dB, -20 dB. Gain control is not available when the selected input source is the IR/Visible Light sensor because gain is forced to -20 dB in this mode.

**Main Area** - The content of this area will vary depending on which screen is currently selected.

**Navigational/Function Icons** - The icons in this area are for navigating to the various available screens, accessing setup controls, or performing a reset.



**RESET** - The operation that occurs when the RESET Button is pressed will vary depending on what screen the user is on when the reset button is pressed. The dialog screen that appears when the RESET button is pressed will provide information on what items will be reset.



**SETUP MENU** - The ANDRE unit can be configured for multiple situations and use cases. The majority of settings changes are handled through the SETUP MENU.



**CHART SCREEN** - The chart screen provides a time-based history of the ambient RF Level and is the main operating mode of the ANDRE, where the ANDRE is used as a near field detector with the user in motion walking around the target area.



**SIGNAL LIST SCREEN** - The signal list screen provides an automatically generated list of signals that have crossed the trigger level established by the user on the chart screen.



**AUDIO SCREEN** - The audio screen allows the user to listen to audio from the audio input, listen to live demodulated signals from RF sources, record live audio input or demodulated audio, or playback previously recorded audio files.

## OPERATION

### Chart Screen (Search)

By default, the Chart Screen is the initial screen shown after the ANDRE is powered on. The chart screen can also be selected, if it is not the currently displayed screen, by pressing the "Chart" icon that appears at the bottom of each screen. The chart screen provides a time-based history of the ambient RF Level and is the main operating mode of the ANDRE, where the ANDRE is used as a near field detector with the user in motion walking around the target area.



**Zoom** - The chart is normally displayed with a vertical range of 90 dB. Pressing Zoom  displays a 30 dB segment of this full range. The 30 dB range displayed will be automatically selected based on the ambient signal level at the time that the zoom button is pressed. The reduced scale will enable the user to more easily see small changes in signal level. Press the Zoom button again to return to the full vertical scale chart.

**Trigger Level** - If the RF level goes above the adjustable trigger level the ANDRE will alert the user in various ways depending on the current settings. The user is visually alerted when the color of the RF Level History graph changes from green to red. Haptic alerts are available (see page 40) as well as audio alerts (see page 39). The trigger level can be adjusted manually by pressing on the trigger level marker and dragging up or down. It can be adjusted by tapping within the top two-thirds of the chart area, as described below. It can also be adjusted automatically (see pg. 38).

**Decaying Peak Level** - The red line on the bargraph is a decaying peak level indicator for the ambient RF level.

**Ambient RF Level** - the bargraph on the chart screen displays the current instantaneous ambient RF level.

**Trigger Level Set** - Tapping anywhere within the top two-thirds of the chart area will adjust the trigger level to the current ambient RF level

**RF Level History** - This area provides a visual history of recent RF levels. The graph is normally in green, but changes to red anytime that the RF level crosses the set trigger level.

Note: The RF Level history is red if the RF level is above the trigger level or if it is increasing above the trigger level. It is green if the RF level is below the trigger level or decreasing below the trigger level. So there will be portions of the RF level history that are red, but shown below the trigger level and portions that are green, but shown above the trigger level. Also, if the trigger level is changed, the portions of the RF Level History that were already

## OPERATION

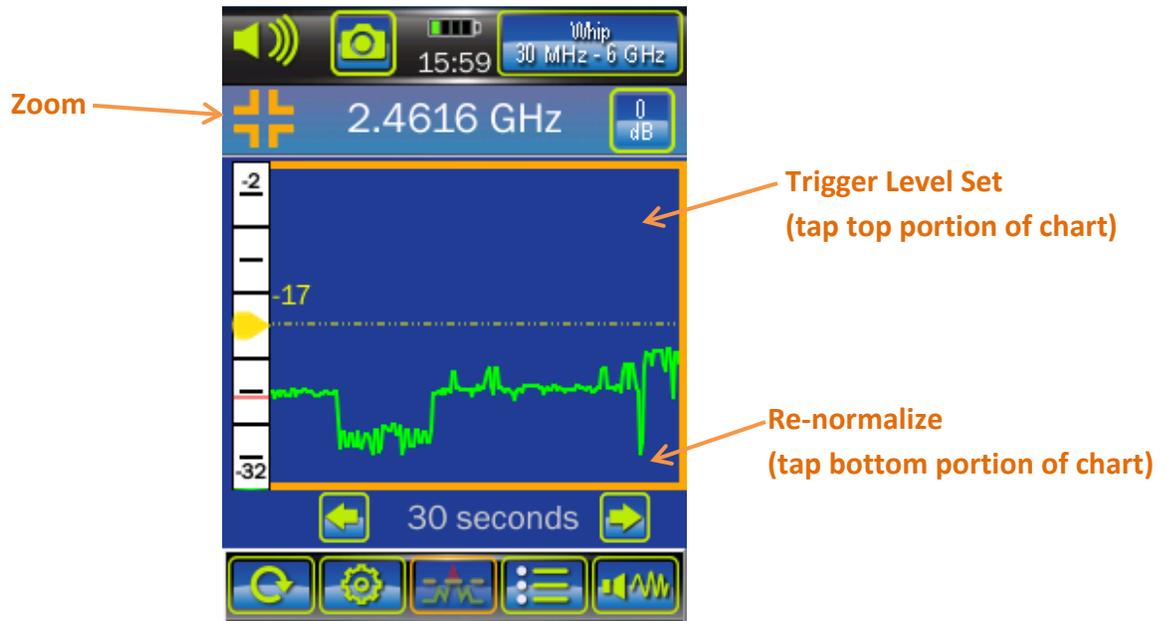
displayed on the screen before the trigger adjustment will remain the same color, they will not change to reflect their new relationship to the trigger level.

**Gain/Atten Change** - If the attenuation or the gain changes (see page 37), an indication showing the new value will appear on the chart.

**Time Interval** - The time interval is the amount of time represented by the horizontal span of the graph. To select a different time interval, tap on the left or right arrow on either side of the displayed time. Selecting a larger time increment will allow more data to be shown on the graph at one time. The range of available values for the time interval is 5 seconds, 10 seconds, 1 minute, 10 minutes, 1 hour, 12 hours, and 24 hours.

### Zoom Mode

Pressing Zoom on the chart screen puts the ANDRE in Zoom Mode. The zoom icon  changes to indicate that the ANDRE is operating in zoom mode and the frame around the chart changes color to orange. In zoom mode, only a 30 dB segment of the full vertical range is displayed. This reduced scale will enable the user to more easily see small changes in signal level. Press the Zoom button again to return to the full vertical scale chart.



**Zoom** - Pressing zoom  returns the ANDRE chart to the full 90 dB vertical scale.

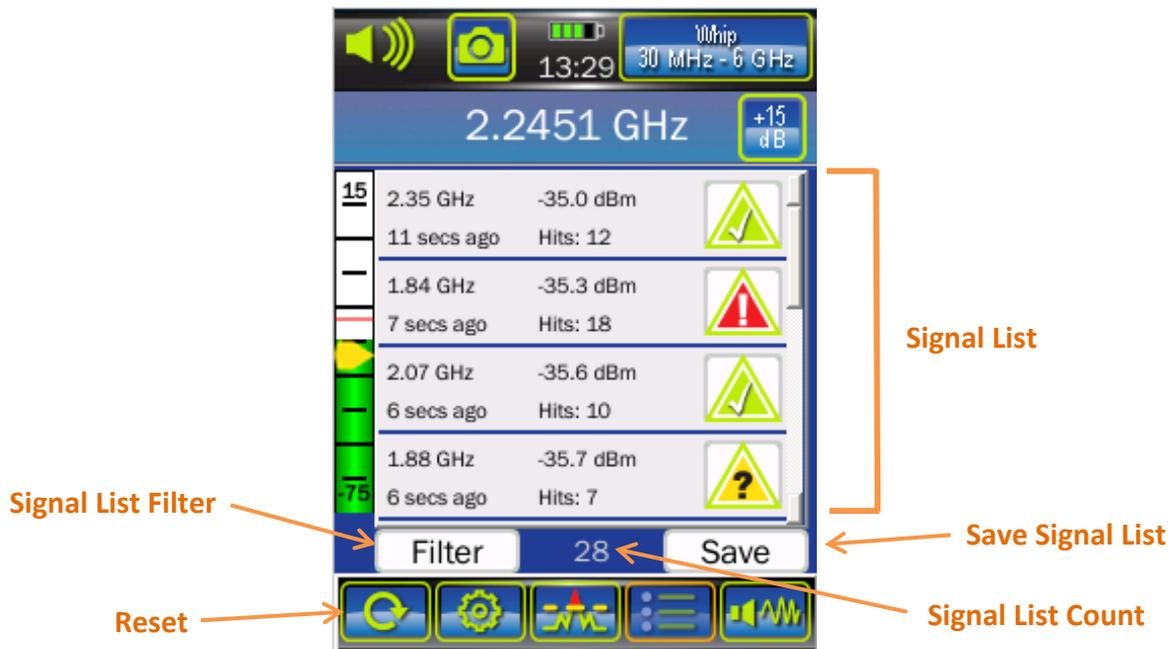
**Trigger Level Set** - Just as in Full Mode, tapping anywhere within the top two-thirds of the chart area will adjust the trigger level to the current ambient RF level

**Re-normalize** - In Zoom Mode, tapping anywhere within the bottom third of the chart area will re-normalize the zoom display. This will reconfigure the vertical scale. The scale will still show a 30 dB range, but new upper and lower limits will be determined based on the current signal level. While in zoom mode, if you change antennas or add gain or attenuation, you should re-normalize the zoom display.

## OPERATION

### Signal List Screen

The signal list screen provides an automatically generated list of signals that have crossed the trigger level established by the user on the chart screen. A user setting determines the max number of signals to log with the strongest signals rising on the list and the weaker signals falling off after the max number of signals is reached. The signal list continues saving signals even if the signal may no longer be shown on the chart screen (due to scrolling off the screen). The trigger level, decaying peak level, and ambient RF level bargraph all behave exactly as they do on the chart screen. In order for a signal to be added to the signal list, the detected RF level must cross the trigger level *and* the frequency counter must have locked on it.



**Signal List** - This signal list is displayed here. If there are more than four signals, it will be necessary to scroll up or down to view all of the signals. The scroll bar on the right will indicate what portion of the list is currently displayed.

**Reset** - To clear the signal list, while on the signal list screen, press the Reset button. A dialog box will appear asking if you want to reset the "Signal List". Press "OK".

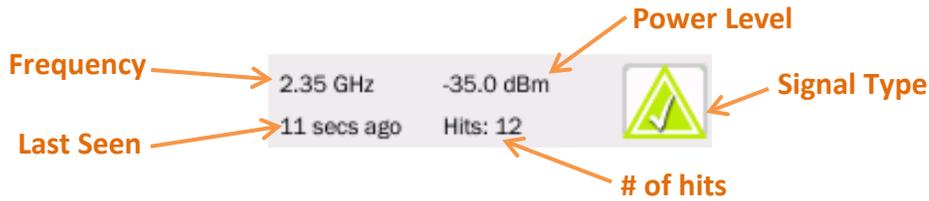
**Save Signal List** - Select this button to save the signal list to a CSV (comma separated values) formatted file. The file is saved to the unit using an automatically generated file name from a header specified by the user (see page 43). The text "Save Complete" will be displayed briefly at the top of the screen to confirm that the file was saved. To retrieve the file, connect the ANDRE to a PC (see page 30).

**Signal List Count** - This count indicates the number of signals in the signal list.

**Signal List Filter** - Use this to filter specific signals from the signal list view without deleting them.

Signals can be designated as "Friendly" , "Threat" , or "Unknown"  and any of these categories can be filtered from the signal list view.

# OPERATION



Each entry in the signal list contains several pieces of information.

**Frequency** - This value represents the frequency of the signal.

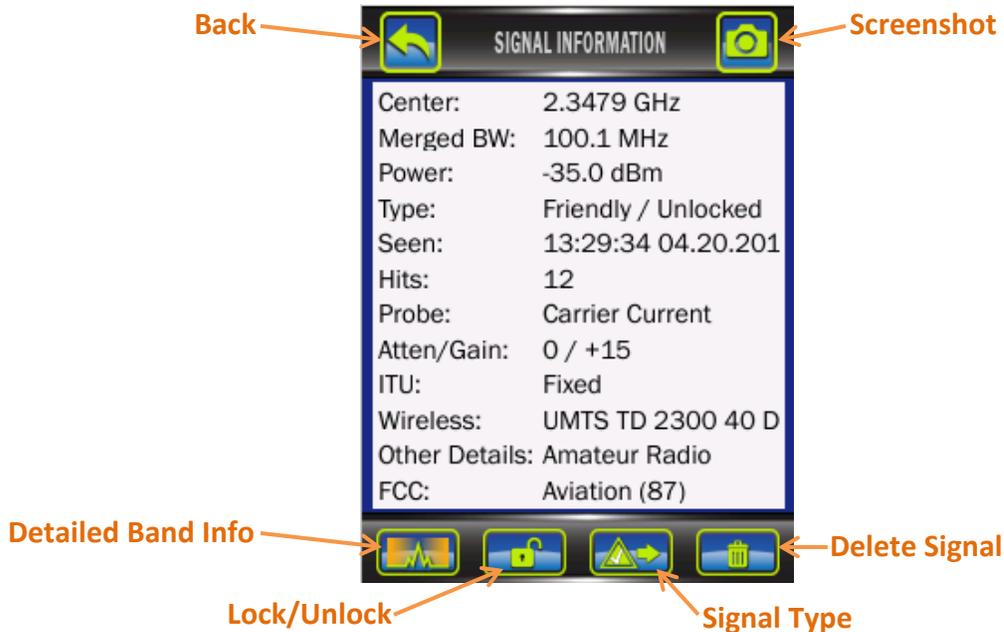
**Last Seen** - This value represents the elapsed time since the signal was last seen.

**Power Level** - This value represents the total ambient power at the time that the detected signal was last seen.

**Signal Type** – Signals can be tagged with 3 different designations: "Unknown" , "Friendly" , and "Threat" . Select the signal type to change the designation. With each tap, the designation will cycle through the three available types.

**# of hits** - This value represents the number of times the signal has been detected

Double tap any signal in the list to bring up more detailed signal information:



**Back** - Use this button to return to the Signal List Screen.

## OPERATION

---

**Screenshot** - Use this button to save a screenshot of the Detailed Signal Information. Screenshots are saved to the unit in .png format using an automatically generated file name based on a header specified by the user (see page 43). The captured screenshot can be viewed on the ANDRE using the Image Viewer (see page 44) or the file can be accessed directly by connecting the ANDRE to a PC (see page 30).

**Detailed Band Info**  - The ANDRE is able to provide information about the frequency band that a signal might be a part of. This information contains known regulatory or other uses of given frequency bands. To ensure accuracy for your given location, be sure to set the ITU region (see page 41). This information also appears as part of the detailed signal information window (the lines "ITU", "Wireless", "Other Details", and "FCC"), but due to space constraints the complete description may fail to display. Hit the Detailed Band Info button, to open up an additional dialog with complete descriptions of the band information.

**Unlock / Lock**  - Use this button to lock the signal to the signal list or to unlock the signal. A user setting determines the max number of signals to track with only the strongest signals staying on the list and the weaker signals falling off after the max number of signals is reached. If a signal is locked, it will not drop off the signal list regardless of the signal level or the number of signals on the list. The text on this button indicates the current status of the signal, "locked"  or "unlocked" .

**Signal Type** - You can tag signals with 3 different designations: "Unknown" , "Friendly" , and "Threat" . Use this button to change the designation. With each tap, the designation will cycle through the three available types.

**Delete Signal**  - Use this button to delete the signal from the signal list.

The following information is provided in the Detailed Signal Information:

**Center** - The center frequency of the detected signal.

**Merged BW** - This value represents the assigned bandwidth of the signal for merging purposes. For additional detail see page 42.

**Power** - The total ambient power level at the time that the detected signal was last seen.

**Type** - This field contains the user designated signal type for the signal ("Unknown", "Friendly", or "Threat") and the lock status of the signal ("Locked" or "Unlocked").

**Seen** - The time and date that the signal was last detected.

**Hits** - The number of times the signal has been detected.

**Atten/Gain** - Attenuation and Gain settings for the last time this signal was detected.

## OPERATION

**ITU** - General Frequency Band Information for specific ITU regions. To ensure accuracy for your given location, be sure to set the ITU region (see page 41).

**Wireless** - Specific Band Information for known wireless protocols (GSM, CDMA, LTE, etc.) To ensure accuracy for your given location, be sure to set the ITU region (see page 41).

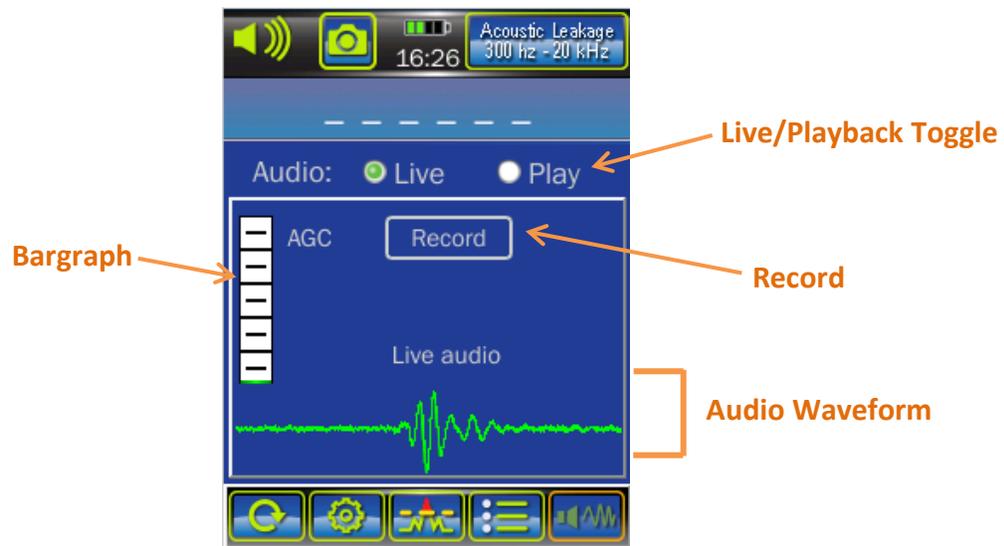
**Other Details** - More specific band information (e.g. Amateur Radio 60 meters, Instrument Landing System, VHF Television, etc.) This information is only available if the ANDRE is set to ITU region 2 (see page 41).

**FCC** - Contains information for the bands defined by the FCC rules. The FCC Rules Part Number is listed in the description (e.g. Maritime (80), Amateur Radio (97), etc.) This information is only available if the ANDRE is set to ITU region 2 (see page 41).

### Audio Screen

The audio screen allows the user to listen to audio from the audio input, listen to live demodulated signals from RF sources, record live audio input or demodulated audio, or playback previously recorded audio files. The demodulator on the ANDRE is an AM demodulator, but it will also demodulate some FM sources if they have an AM component to them.

### Live Audio



**Live / Playback Toggle** - To listen to Live Audio, select "Live" in the Live/Playback Toggle.

**Audio Waveform** - Displays a waveform of the live audio.

**Bargraph** - The source of the audio bargraph depends on the currently selected input source. If the selected input source is an audio probe connected to the audio input, the bargraph displays the AGC level for the audio probe. If an RF Probe or the built-in IR/VL sensor is the currently selected source, then the bargraph displays the RF power level.

## OPERATION

**Record** - Press this button to record the audio input or the demodulated audio.



The recording function allows the user to record 10 seconds of audio which is then saved to the ANDRE in .wav format using an automatically generated file name based on a header specified by the user (see page 43). The audio file can be listened to on the ANDRE by using the playback function on the Audio Screen. To retrieve the file, connect the ANDRE to a PC (see page 30). A countdown on the screen indicates the remaining time in the recording. The recording can be stopped at any time by pressing the STOP button.

### Audio Playback

The playback function allows the user to listen to audio files previously recorded and saved to the device.

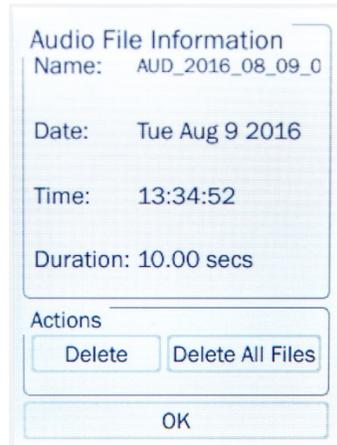


The playback function plays the audio files saved to the ANDRE in successive order. Use the **Prev Track**, **Next Track**, **First Track**, and **Last Track** buttons to navigate through the files. During playback, the scroll bar can be used to scrub through the audio file.

## OPERATION

---

The information button brings up an additional dialog screen about the file currently playing:



Press the "Delete" button to delete the current audio file. You will be asked to confirm the deletion.

Press the "Delete All Files" button to delete all of the audio files on the unit. You will be asked to confirm the deletion. Once the files are deleted, there is no way to retrieve the files. Be sure that this is what you want to do before you confirm the deletion.

Press "OK" to return to the Audio Screen.

## ADDITIONAL FEATURES

### Connecting to a PC

To access data files that you have saved to the ANDRE (screenshots, signal lists, or audio files) off of the device, it will be necessary to connect the device to a PC. Also, in order to apply a software update (see page 44), it will be necessary to connect the device to a PC in order to transfer the software update file to the device.

To connect the ANDRE to a PC for file transfer:

1. Locate the included USB A to USB Micro B cable.
2. Connect the Micro B end of the cable to the ANDRE device and the A end of the cable to a PC.
3. The computer will recognize the ANDRE and the ANDRE will be represented as a drive on the computer, similar to how a connected USB thumb drive would be represented. The ANDRE screen will also indicate that the device is connected to a PC and will not allow any other operations while the unit is connected. To copy or move files off of the ANDRE, move them from the ANDRE drive on the PC to another location. To copy or move files to the ANDRE, move them to the ANDRE.
4. Eject the ANDRE drive, just as you would a USB thumb drive, before physically disconnecting the device.

## ADDITIONAL FEATURES

---

Note: Some PCs have strict power consumption requirements for USB ports and these types of devices may not recognize the ANDRE when it is connected to them. Depending on the hardware version of your ANDRE, a Low Power Mode option may be available in the Setup Menu (see page 46) to assist in connecting to these types of devices.

### Covert Mode

Covert mode could be used to conduct a covert search by connecting the concealed antenna and then hiding the unit in, for example, a jacket pocket, walking around the room and relying on the haptic feedback for alerts.



To enable Covert Mode:

1. Connect the concealed antenna to the ANDRE.
2. The ANDRE will ask if you want to enter Covert Mode. Press Yes.

In Covert Mode, the following changes will occur automatically:

- Trigger Mode setting (see page 38) will be changed to Auto (if it is not already on Auto) with a slow decay
- Haptic feedback will be turned on
- The speaker will be turned off
- The screen will be dimmed
- Chart duration will be changed to 10 minutes

To exit Covert Mode:

1. Disconnect the concealed antenna from the ANDRE.
2. The screen will display a message indicating that it is exiting Covert Mode. Press "OK"

## ADDITIONAL FEATURES

---

3. Once you have pressed "OK", all settings will be restored to their previous state, except for the chart duration. This is to give the user the opportunity to review the data recorded during Covert Mode.

*or*

4. While in Covert Mode, press and hold the power button. The screen will display a message indicating that it is exiting Covert Mode. Press "OK".
5. Once you have pressed "OK", all settings will be restored to their previous state, except for the chart duration. This is to give the user the opportunity to review the data recorded during Covert Mode.

Note: There is no menu item for Covert Mode. If the concealed antenna is already attached and the unit is not in Covert Mode (e.g. if you selected "No" when asked if you wanted to enter Covert Mode), then you will need to disconnect and reconnect the antenna to initiate the process for entering Covert Mode.

### IR/VL Sensor

The built-in IR/VL sensor (see page 11) can be used for detecting infrared signals and visible light transmissions that are 10 kHz to 50 MHz with a wavelength range of 400 - 1100 nm.

For best results in locating infrared signals or visible light transmissions, point the IR/VL sensor in all directions while sweeping a room. Because visible light sources may interfere with infrared signals, it may be useful after sweeping a room for visible light to repeat the sweep with any known visible light sources, such as overhead lighting, shut off.

To use the IR/VL Sensor

1. Disconnect any connected probe, antenna, antenna cable, and audio cable from the ANDRE. The ANDRE will automatically switch to the IR/VL input.  
*Or*
2. Select the IR/VL input from Input Source in the Setup Menu (see page 38)

Notes:

- The frequency counter is disabled when using the Infrared and Visible Light sensor. No frequency will be displayed while using the IR/VL sensor, nor will any signals be added to the signal list.
- The attenuation is forced to -20 dB whenever the input source is set to IR/VL. This is not changeable by the user.

### Connector Cable

The ANDRE Basic and Advanced includes a connector cable for connecting probes and antennas.

## ADDITIONAL FEATURES

---

Note: When disconnecting the connector cable, pull from the connector collar to release (the collar will slide back slightly to release); do not pull from the cable. Doing so could damage or shorten the life of your cable. It is not necessary to power off the ANDRE when changing probes/antennas.

### Powered Connector Cable, only included with ANDRE Deluxe

If you have purchased an ANDRE Deluxe or an ANDRE Deluxe Upgrade, a powered connector cable will be included. The powered connector cable is required to operate the flag-shaped Directional Antenna (70 MHz - 500 MHz) and the Down Converter Antenna. The other, passive probes which are included with the ANDRE Deluxe or were included with the ANDRE Basic or ANDRE Advanced that you upgraded from will also work with the powered connector cable. If you upgraded an ANDRE Basic or ANDRE Advanced, you may want to keep the standard connector cable that came with those products as a back-up, but be aware that the flag-shaped Directional Antenna and the Down Converter Antenna will not work with the standard connector cable.



The powered connector cable has a pin on each end that transfers power to the powered probes. When connecting the powered connector cable to the ANDRE, it is important to align the power pin on the cable with the power contact pad on the ANDRE in order for the connector to snap to the ANDRE.

Note: When disconnecting the powered connector cable, pull from the cable release for leverage. Do not pull from the cable. Doing so could damage or shorten the life of your cable. It is not necessary to power off the ANDRE when changing probes/antennas.

## ADDITIONAL FEATURES

---

### Down Converter Directional Antenna Operation

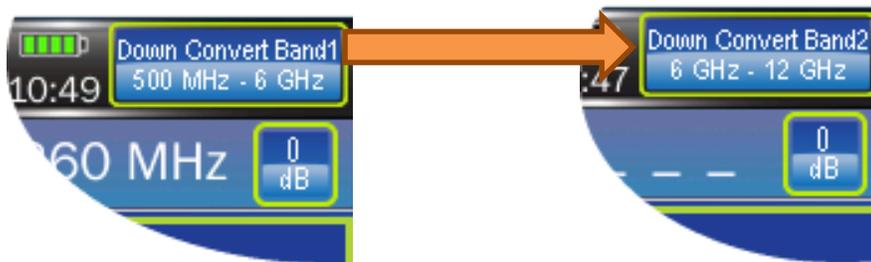
The Down Converter Antenna operates in two user selectable bands:

Band 1 (low): 500 MHz – 6 GHz

Band 2 (high): 6 GHz – 12 GHz

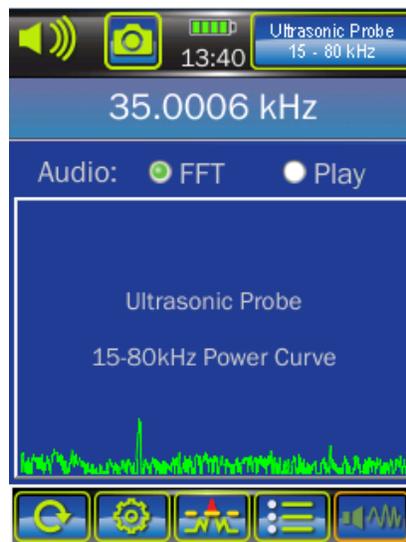
When using Band 2, the Down Converter Antenna converts signals occurring above the standard 6 GHz threshold so they can be detected and displayed on the ANDRE.

To switch between the high and low band, while the antenna is connected, press the input select button in the top right hand corner of the ANDRE display (see page 21). The input select button will change to indicate which band is currently displayed.



### Ultrasonic Probe Operation

The Ultrasonic Probe detects sound waves operating above the upper limit of human hearing capabilities. The ultrasonic probe connects to the ANDRE with the provided audio patch cable.



## ADDITIONAL FEATURES

When the ultrasonic probe is plugged in to the ANDRE, the ANDRE will automatically recognize it and switch to the audio screen. The waveform displayed is not a standard audio waveform but a frequency spectrum of the covered frequency range. Any sound waves operating in this frequency range will appear as spikes in the waveform. The ANDRE will lock on the strongest spike and will display the frequency on screen. The ANDRE also sounds a 1 kHz tone to indicate the presence of ultrasonic frequencies.

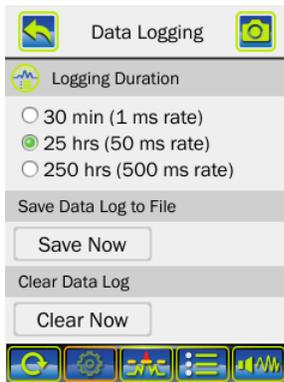
Note: It is recommended to use headphones while using the ultrasonic probe to reduce feedback.

### Data Logging

Note: Data Logging is a feature of the ANDRE Deluxe. To upgrade your ANDRE to an ANDRE Deluxe, e-mail [sales@reiusa.net](mailto:sales@reiusa.net).

When the ANDRE is turned on, it continuously logs RF level readings to internal volatile memory.

In the Data Logging function, this data can be exported to a .pwrlog file for review in the ANDRE Data Viewer PC application. At any time the user may save the current log data to a file by pressing the "Save Now" button or clear the log data in memory using the "Clear Now" button. When the ANDRE is turned off, any unsaved Data Logging information will be lost.



There are three different logging durations available. The duration describes the amount of time data will be kept. For example, if the 25 hours duration (default setting) is selected, the ANDRE will collect data for 25 hours and then write over the oldest data, keeping only the last 25 hours of data. The rate describes how often the RF level is recorded. For the 1ms rate, the RF level is recorded every millisecond, offering my better resolution of the RF level, but is limited to only 30 minutes of data.

Once a data log has been saved to a file, you can retrieve the .pwrlog file using a PC (see page 30). Use the ANDRE Data Viewer application, available for free download from [www.reiusa.net](http://www.reiusa.net) to evaluate the log data on a PC.

Pressing the Clear Now button, changing the logging duration, or turning off the unit will clear any unsaved Data logging information. Before doing any of these items, be sure to Save the Data Log to Storage, if you need to keep the current data. Data Logging will continue when probes are changed and the probe used will be recorded with each record in the data log.

The data logging feature only logs data from the RF input and the IR / Visible Light sensor - it does not log data from the audio input. If an antenna or probe is connected to the RF input while you are using the audio input, the ANDRE will log the data from the RF input. If nothing is connected to the RF input while you are using the audio input, the ANDRE will log the data from the IR / Visible Light sensor.

## ADDITIONAL FEATURES

---

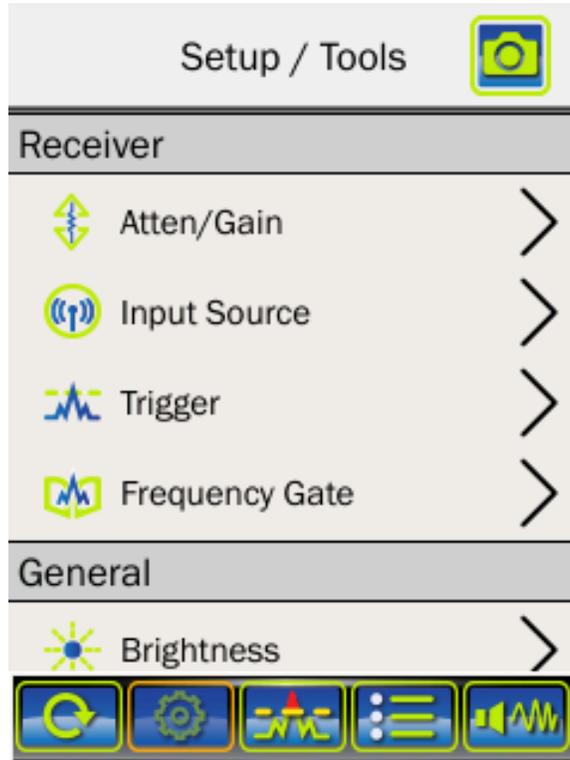
The following is a recommended work flow for using the Data Logging function to record a monitoring session with the ANDRE:

1. Before beginning monitoring session, determine desired log rate and configure in setup menu.
2. Use the ANDRE as you normally would,
3. Save Data Log to File (this step must be done before powering off the ANDRE.)

# SETUP

## SETUP

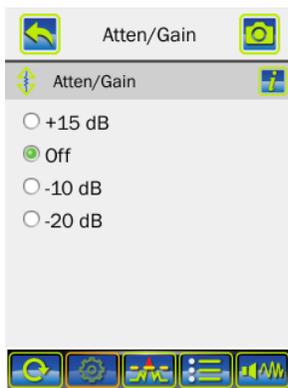
The ANDRE unit can be configured for multiple situations and use cases. The majority of settings changes are handled through the setup screen accessed by pressing "SETUP" button  at the bottom of the screen.



To scroll through all of the items in the setup menu, touch the bottom of the screen and drag your finger up or touch the top of the screen and drag your finger down.

To make adjustments to one of the setup items, tap on the name of the item.

## Atten/Gain

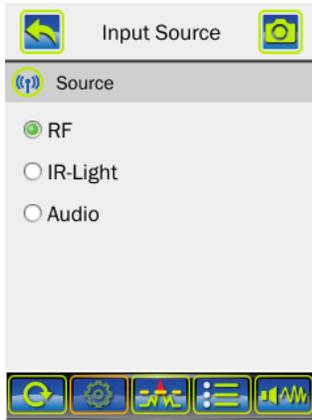


An Attenuation/Gain setting is provided to keep very strong signals from overloading the unit and to allow the user to control the sensitivity of the device. Four levels are available: +15 dB, Off, -10 dB, and -20 dB. The +15 dB gain setting will use more battery power.

Default Setting: Off

# SETUP

## Input Source



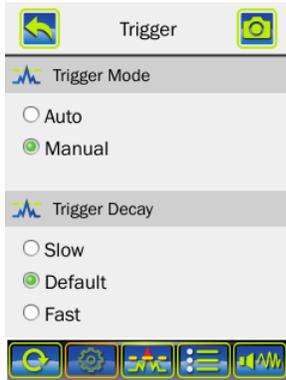
The input source setting allows the user to manually select the signal source - either the QMA Connector (RF Input), the Audio Input, or the IR/Visible Light Sensor.

For normal operation, it will not be necessary to manually select the source. If an antenna is connected to the QMA connector on the ANDRE, the unit will automatically switch to the RF Input Source. If an audio probe is plugged in to the audio input, the ANDRE will automatically switch to the Audio Input Source and will also automatically switch to the Audio Screen. If no audio probe or RF probe is connected, the ANDRE will automatically switch to the IR-Light Input Source.

Note: If selecting the audio input source, you will need to transition to the Audio Screen from the Setup Menu. If you proceed to either the Chart or Signal List screen, the unit will automatically switch to either the RF input (if an RF probe is plugged in) or the IR-Light Input Source, as the Chart screen does not display data from Audio Probes.

Default Setting: IR-Light

## Trigger



The trigger setting configures the trigger level seen on the Chart Screen and the Signal List Screen.

When the Trigger Mode is set to Auto, the trigger level will automatically increase if the ambient RF level increases. If the RF level then decreases, the trigger level will also eventually decrease, but with a little bit of a decay. The speed of this decay is determined by the Trigger Decay setting. There are three values: Slow, Default, and Fast.

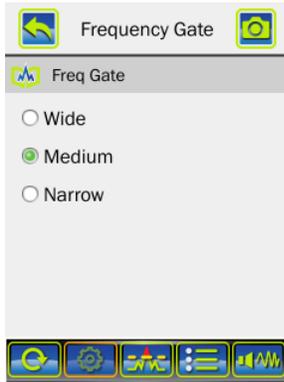
If the Trigger Mode is set to Manual, the trigger level will not automatically adjust, but will stay set until the user moves it. To change the trigger level manually, touch the trigger level control on the Chart Screen or the Signal Screen and drag it up or down.

Default Setting - Trigger Mode: Manual

Default Setting - Trigger Decay: Default

# SETUP

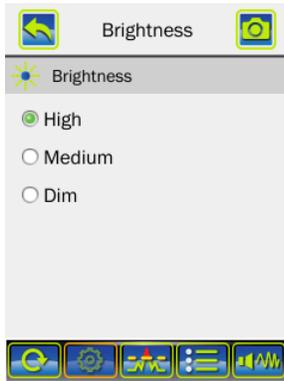
## Frequency Gate



The frequency gate setting configures the frequency counter on the ANDRE. There are three frequency gate settings: Wide, Medium, and Narrow. If the Frequency Gate is set to "Wide", the ANDRE will be able to detect frequencies using the onboard frequency counter at much lower signal strength levels, but the reported frequency value will have a wider tolerance for accuracy. With the "Narrow" setting, the frequency counter will be more accurate, but will require higher signal strength levels to establish the reported frequency value. The "Medium" setting is a compromise between the two extreme settings and is the default setting for the ANDRE.

Default Setting: Medium

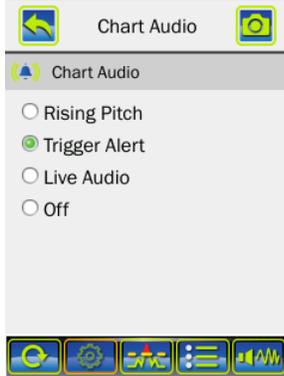
## Brightness



This setting adjusts the brightness of the Touch Screen Display. There are three available brightness settings: High, Medium, and Dim.

Default Setting: High

## Chart Audio

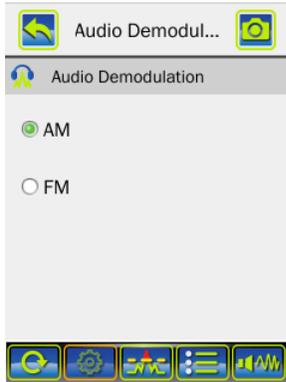


An audible alert is available whenever the ambient RF level crosses the set trigger level. Two alert types are available: Trigger Alert and Rising Pitch. When set to trigger alert, there will be a single solid tone whenever the ambient RF level is higher than the set trigger level. When set to Rising Pitch, the tone will also only be heard when the ambient RF level is higher than the set trigger level, but the pitch of the tone will increase as the ambient RF level increases. A third option, Live Audio, will change the audio to live demodulated signals from RF sources even when the ANDRE is on the Chart Screen or the Signal List Screen. The demodulator on the ANDRE is an AM demodulator, but it will also demodulate some FM sources if they have an AM component to them.

Default Setting: Trigger Alert

# SETUP

## Audio Demodulation



This setup option selects the demodulation type for the Live Audio on the Chart Screen (see 39).

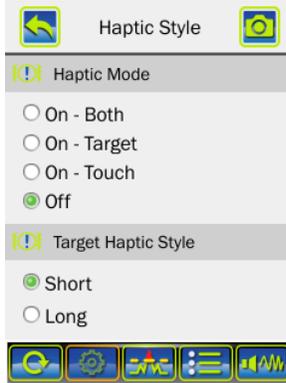
**AM** - demodulates signals that have been modulated using amplitude modulation. Even when set to AM the ANDRE will demodulate some FM sources if they have an AM component to them.

**FM** - demodulates signals that have been modulated using frequency modulation. When set to FM demodulation, the ANDRE demodulates at the frequency currently detected by the frequency counter. If the frequency counter is not locked on a frequency, the FM demodulator does not operate.

Because the ANDRE is a broadband receiver designed to evaluate RF amplitudes, frequency demodulation can be difficult, especially with weak signals and in high RF environments where there are many other signals.

Default Setting: AM

## Haptic Style



In addition to visual and audio cues, the ANDRE will also provide haptic (vibrator) cues whenever the ambient RF level exceeds the set trigger level.

### Haptic Mode

**On - Both** - with this setting, the unit will vibrate whenever the ambient RF level exceeds the set trigger level or whenever the user interacts with the touch screen.

**On - Target** - with this setting, the unit will only vibrate whenever the ambient RF Level exceeds the set trigger level.

**On - Touch** - with this setting, the unit will only vibrate whenever the user interacts with the touch screen.

**Off** - with this setting, the unit will not provide any haptic feedback.

### Target Haptic Style

**Short** - vibration feedback will be set to short pulses.

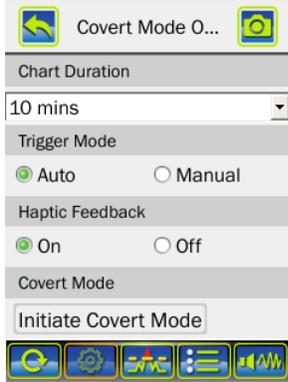
**Long** - vibration feedback will be set to longer pulses.

Default Setting - Haptic Mode: Off

Default Setting - Target Haptic Style: Short

# SETUP

## Covert Mode Options



The Covert Mode options allow you to configure the operation of Covert Mode (see page 31).

The ANDRE will automatically switch to the values set on this screen for chart duration, trigger mode, and haptic feedback whenever Covert Mode is initiated.

Covert Mode can be initiated by connecting the Concealed Antenna (see page 12) or by pressing "Initiate Covert Mode" on the Covert Mode Options Setup Screen.

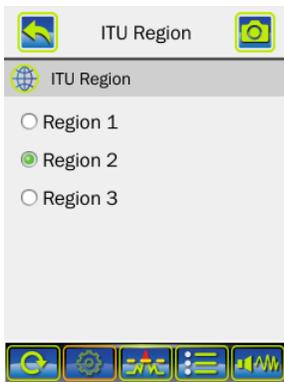
## Date/Time



To accurately record the time of last occurrence for signals in the signal list, you will need to set the Date, Time Zone, and Time on the ANDRE.

The date and time is also displayed on any screen captures that are saved with the ANDRE.

## ITU Region



To ensure accurate Band ID information you will need to confirm that the ITU Region is set correctly for your location.

ITU Region 1 comprises Europe, Africa, the Middle East west of the Persian Gulf including Iraq, the former Soviet Union and Mongolia.

ITU Region 2 covers the Americas, Greenland and some of the eastern Pacific Islands.

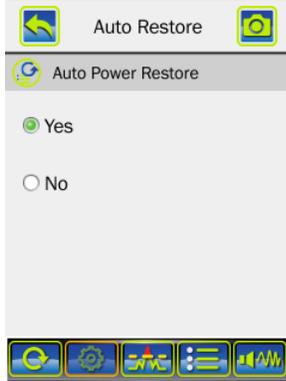
ITU Region 3 contains most of non-former-Soviet-Union Asia, east of and including Iran, and most of Oceania.

See [https://en.wikipedia.org/wiki/ITU\\_Region](https://en.wikipedia.org/wiki/ITU_Region) for more information.

# SETUP

Default Setting: Region 2

## Auto Restore

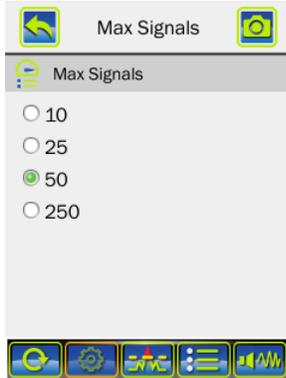


If Auto Restore is set to "Yes" in the Signal List settings, then any signals displayed in the signal list will be restored when the ANDRE is power cycled.

If Auto Restore is set to "No" in the Signal List settings, then any signals in the signal list will be discarded when the ANDRE is power cycled.

Default Setting: Yes

## Max Signals

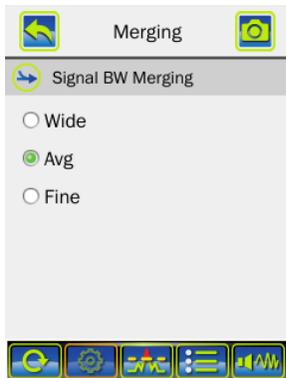


The Max Signals setting determines the maximum number of signals allowed in the signal list.

The signal list will keep track of the strongest signals with the weaker signals falling off the list after the max number of signals is reached.

Default Setting: 50

## Merging



The ANDRE will attempt to group closely spaced signals that may represent wide band signals (such as Wi-Fi) or frequency hoppers and identify them as a single, wide band signal. Each signal added to the signal list is assigned an initial bandwidth based on its frequency - the higher the frequency, the wider the bandwidth assigned. As signals are added to the signal list, if their bandwidths intersect or overlap, they are assumed to be the same signal and are merged. A new center frequency is determined based on the center frequencies of both merged signals and a new bandwidth is determined based on the union of the bandwidths of the merged signals.

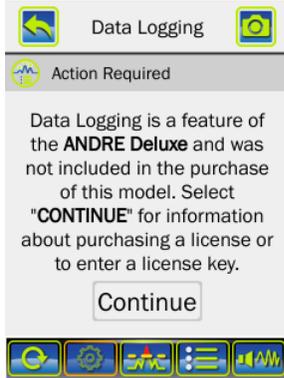
The Signal BW Merging setting affects the merging of signals. If Merging is set to "Wide", then signals will not need to be as close in order to be recognized as the same signal. If Merging is set to "Fine", the

## SETUP

signals will need to be closer together to be recognized as the same signal. The "Avg" setting represents a moderate required spacing for merging.

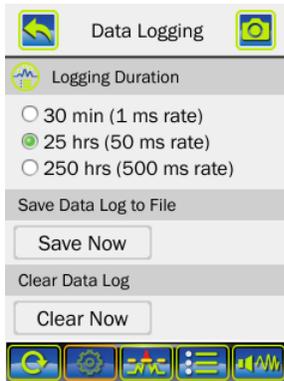
Default Setting: Avg

### Data Logging



The Data Logging feature is only available with ANDRE Deluxe; contact REI to upgrade your ANDRE to an ANDRE Deluxe.

If you purchased an ANDRE Deluxe Upgrade, you will need to enable Data Logging on your ANDRE by providing REI with a product ID that will be displayed in the Data Logging menu. Once this screen with the Product ID is accessed, a text file - "DataLoggingActivationCode.txt" - is saved to the device, with the Product ID written to it. This is an electronic copy of the Product ID that can be provided to REI if desired.



For ANDRE Deluxe units, when the ANDRE is turned on, it continuously logs RF level readings to internal volatile memory.

There are three different logging durations available. The duration describes how much data will be kept. For example, if the 25 hours duration (default setting) is selected, the ANDRE will collect data for 25 hours and then write over the oldest data, keeping only the last 25 hours of data. The rate describes how often the RF level is recorded. For the 1ms rate, the RF level is recorded every millisecond, offering better resolution of the RF level, but is limited to only 30 minutes of data.

The Save Now button saves any log data currently in internal volatile memory to a .pwrlog file which can be retrieved using a PC (see 30).

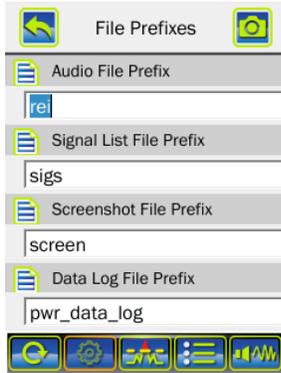
The Clear Now button clears any log data currently in internal volatile memory. After clearing the data log, the ANDRE immediately begins logging new data. When the ANDRE is turned off, any unsaved Data Logging information will be lost.

For additional details regarding the Data Logging feature see page 35.

Default Setting - 25 hrs (50 ms rate)

# SETUP

## File Prefixes



Automatic file naming is used for any of the files saved to internal storage (audio files, signal lists, and screenshots). The file name is based on a user configurable prefix followed by the date, then the time, then the time zone abbreviation.

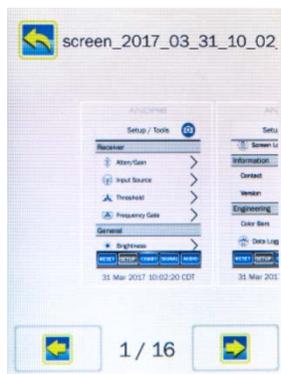
The file prefix menu setting configures the prefix for each of these file types.

Default Setting - Audio File Prefix: "rei"

Default Setting - Signal List File Prefix: "sigs"

Default Setting - Screenshot File Prefix: "screen"

## Image Viewer



The image viewer allows the user to view all of the saved screenshots on the device without the need to transfer them to a PC.

Use the left and right arrows at the bottom of the screen to scroll through the images (if there is more than one).

The file name for the currently selected image appears at the top of the screen.

Use the back arrow at the top of the screen to return to the Settings Menu.

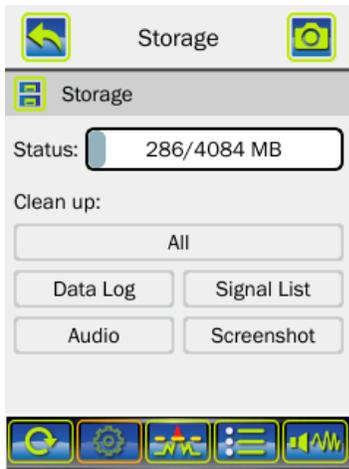
## Software Update

Software updates for the ANDRE will be available on the REI Website ([www.reiusa.net](http://www.reiusa.net)). Download the file, connect the ANDRE to a PC (see page 30), and transfer the update file to the root directory on the ANDRE. After transferring the update file to the ANDRE, disconnect the ANDRE from the computer. The ANDRE unit will recognize that there is a new update file and will ask the user if they want to update the device. Once the update is performed, the ANDRE will delete the update file.

If the user selects not to update the device, the update file will remain on the ANDRE. The user can perform the update at a later time, by accessing "Software Update" from the Tools Section of Setup.

# SETUP

## Storage



The storage option in Setup helps to manage the internal storage on the ANDRE.

Status shows the amount of used storage on the ANDRE. The first number ("286" in the example provided to the left) shows the amount of used storage on the ANDRE. The second number ("4084" in the example provided to the left) shows the total storage on the ANDRE.

The storage option also has selections for deleting all of the data logs stored on the unit, all of the signal lists stored on the unit, all of the audio files stored on the unit and all of the screenshots stored on the unit. The "All" option will delete all four types of files on the unit.

Note: Once used storage reaches 90% of capacity, the user will be warned that storage is nearly full and the device will recommend that the user clean up. Once used storage reaches 99% of capacity, all operations that save data (such as screenshot, signal list, audio recording, etc.) will be disabled until some available storage is freed up, either through deleting files or moving to another storage medium (see 30).

## Factory Reset

Original factory user settings can be restored to the unit using the Factory Reset in Setup.

## Screen Lock



When using the ANDRE to monitor an area for a long period of time, it may be necessary to lock the screen to keep others from tampering with the device or settings. This can be accomplished with the Screen Lock feature in the Setup Menu.

Access the Screen Lock, input a 4 digit number, and press "OK". The screen will lock and after 10 seconds the screen will go blank.

To unlock the screen, tap the screen in the area mark "Tap Here to Unlock". After inputting the correct PIN code, the screen will unlock. After unlocking the screen, the PIN code is not stored on the device. To lock the screen again, it will be necessary to input the PIN code again. A different code can be used if desired.

# SETUP

## USB Low Power

When connecting the ANDRE to a PC, it is recommended that you use a desktop PC. Some computers (typically tablets and some laptops) have strict power consumption requirements for USB ports. These computers may not recognize the ANDRE when it is connected to them.

If you have a computer that does not recognize the ANDRE when connected via USB, you may try the USB Low Power Mode in the Setup Menu.

Note: Not all ANDRE units will have the USB Low Power option in the Setup Menu. It will depend on the hardware version.

Enabling USB low power mode on the ANDRE will reduce current draw on the devices USB port and should allow it to connect and recognize the ANDRE.

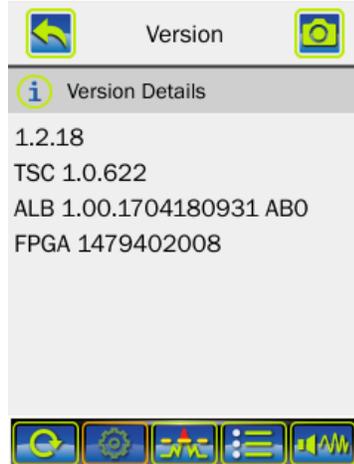
From the USB Low Power menu, select "START". The ANDRE will enter low power mode. This shuts down the RF receiver, battery charging, and other features, which may draw excessive current but aren't needed for connecting to a PC and transferring files. Connect the ANDRE to the PC. After transferring files to or from the ANDRE, disconnect the ANDRE from the PC, then select "Stop" to end low power mode. After the screen brightness returns to normal, select "Exit" to leave the Low Power Mode menu.

## Contact



Selecting "Contact" from the Setup Menu displays REI's contact information.

## Version



Selecting "Version" from the Setup Menu displays information about the software versions on the ANDRE.

# SPECIFICATIONS

---

## SPECIFICATIONS

### RF DETECTOR

**Sensitivity:** -75 dBm for 3 GHz frequency (typical at RF input)  
**Stepped attenuation/gain control:** -20 dB, -10 dB, Off, +15 dB

### AUDIO

**Built-in speaker with adjustable volume control**  
**Tone style options:** rising pitch, steady tone, off

### DISPLAY

**3.5 in (4 cm) capacitive touch screen**  
**Screen Brightness:** High, Med, Low

### INPUT/OUTPUT

**USB data port for software upgrades and file transfer**

### POWER

**Input:** USB internal charger  
**Run Time:** >5 hours per battery (typical)  
**Charge Time:** 1.5 hours per battery (typical, 80% charge), <3.5 hours per battery (typical, 95% charge)  
**Batteries:** 3400 mAh lithium-ion rechargeable battery (2 included with ANDRE Basic, 4 included with ANDRE Advanced and Deluxe), External USB Charger included with ANDRE Advanced and Deluxe  
The supplied battery: Nitecore 18650 Lithium Ion Rechargeable Battery Model #NL189, rated 3.7V, 3400mAh, 12.6Wh

### MECHANICAL

**Case Dimensions:** 6.25 in x 14.9 in x 18.5 in (15.9 cm x 37.8 cm x 47.0 cm)  
**ANDRE Dim:** 3.4 in x 5.7 in x 1.0 in (8.7 cm x 14.4 cm x 2.5 cm)  
**ANDRE Weight w/ 2 Batteries:** 0.65 lbs (0.3 kg)  
**Case Weight with ANDRE & Accessories for ANDRE:** 9 lbs (4.1 kg)  
**Case Weight with ANDRE & Accessories for ANDRE Advanced:** 11 lbs (5.0 kg)  
**Case Weight with ANDRE & Accessories for ANDRE Deluxe:** 12.7 lbs (5.8 kg)

### THERMAL

**Operating Temperature:** -10°C to 50°C  
**Battery Charging Temperature:** 0°C to 35°C  
**Storage Temperature:** -20°C to 50°C  
*Note: extended storage at temperatures above 40°C could degrade battery performance and life.*



*Product specifications and descriptions subject to change without notice*

### APPENDIX

The ANDRE software is © Research Electronics International. It is licensed under the LGPL license.

#### Qt License

The ANDRE software utilizes the Qt5.3.0 Library. The Qt5.3.0 Library is licensed under the GNU Lesser General Public License version 2.1.

Qt5.3.0 library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License, version 2.1, as published by the Free Software Foundation.

Qt5.3.0 library is provided "AS IS", without WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

As an additional permission to the GNU Lesser General Public License version 2.1, the object code form of a "work that uses the Library" may incorporate material from a header file that is part of the Library. You may distribute such object code under terms of your choice, provided that:

- (i) the header files of the Library have not been modified; and
- (ii) the incorporated material is limited to numerical parameters, data structure layouts, accessors, macros, inline functions and templates; and
- (iii) you comply with the terms of Section 6 of the GNU Lesser General Public License version 2.1.

Moreover, you may apply this exception to a modified version of the Library, provided that such modification does not involve copying material from the Library into the modified Library's header files unless such material is limited to (i) numerical parameters; (ii) data structure layouts; (iii) accessors; and (iv) small macros, templates and inline functions of five lines or less in length.

Furthermore, you are not required to apply this additional permission to a modified version of the Library.

You should have received a copy of the GNU Lesser General Public License along with this package; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

#### GNU Lesser General Public License

The Qt Toolkit is Copyright (C) 2013 Digia Plc and/or its subsidiary (-ies).

Contact: <http://www.qt-project.org/legal>

You may use, distribute and copy the Qt GUI Toolkit under the terms of GNU Lesser General Public License version 2.1, which is displayed below.

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc. 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

#### Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

## APPENDIX

---

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

### **GNU LESSER GENERAL PUBLIC LICENSE**

### **TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION**

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

## APPENDIX

---

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

## APPENDIX

---

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

## APPENDIX

---

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

## APPENDIX

---

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

### NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

### END OF TERMS AND CONDITIONS

# CE DECLARATION OF CONFORMITY

Manufacturer's Name: **Research Electronics International (REI)**  
Manufacturer's Address: 455 Security Drive, Cookeville, TN 38506 USA  
Equipment Description: ANDRE Advanced Near-field Detection Receiver  
Equipment Model Designation: ANDRE and related receive antennas

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:  
**LVD (Low Voltage) Directive 2014/35/EU**  
**EMC Directive 2014/30/EU**

Referenced Standards:  
**LVD Standards EN61010-1:2010**  
**EMC Standards EN55022:2010 Class A, EN61000-4-2:2009, EN61000-4-3:2006+A1:2010**

I, the undersigned, hereby declare that REI has reviewed the CE Mark directives and based on our understanding of these directives, product design and testing; the equipment specified above conforms to the above Directive(s). This declaration of conformity is issued under the sole responsibility of the manufacturer.

Signature: *Thomas H Jones*  
Printed Name: Thomas Jones  
Title: General Manager, Research Electronics International  
Date: April 3, 2017

