LEAD FREE NV

# NvCLPPP

Nevada Childhood Lead Poisoning Prevention Program

# SciAps X-550 User Guide for LIRAs



Updated June 2024

# Contents

## Funding Acknowledgement

This publication was supported by the Grant or Cooperative Agreement Number, 1 NUE2EH001366-01-00, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

## Suggested Citation

Nevada Childhood Lead Poisoning Prevention Program. (2024). *NvCLPPP SciAps X-550 XRF guide*. NvCLPPP. https://www.nvclppp.org/wp-content/uploads/2025/03/NvCLPPP-SciAps-X-550-XRF-Guide_Final.pdf

# Acronyms

| Acronym | Definition |
|---|---|
| **CLICS** | Centralized Licensing, Inspections and Certification System |
| **HUD** | Department of Housing and Urban Development |
| **LIRA** | Lead inspection and risk assessment |
| **LRA** | Lead risk assessor |
| **NvCLPPP** | Nevada Childhood Lead Poisoning Prevention Program |
| **NRC** | Nuclear Regulatory Commission |
| **Pb** | Lead |
| **PCS** | Performance Characteristic Sheet |
| **RCP** | Radiation Control Program |
| **RPM** | Radiation producing machine |
| **RSO** | Radiation safety officer |
| **XRF** | X-ray fluorescence |

# 1. Purpose Statement

This user guide outlines the basic features and functions of the SciAps X-550 for **lead risk assessors (LRAs)**. LRAs may opt to use the SciAps X-550 during a **lead inspection and risk assessment (LIRA)**. It is a useful screening tool that can help determine the prescence of lead and the need for additional lab testing.

# 2. About the SciAps X-550

The **SciAps X-550** is a lightweight handheld **X-ray fluorescence (XRF)** analyzer that can detect the elemental composition of materials. It is the first and only non-isotope XRF analyzer that is approved by the **Department of Housing and Urban Develoment (HUD)** for residential and commercial lead-based paint analysis. There are many benefits to using a SciAps X-550:

- It is fast: testing for lead paint only takes 2-6 seconds, and testing for lead in soil and consumer products takes a couple of minutes. The device never loses speed over time.
- It is accurate: the SciAps X-550 holds a **Performance Characteristic Sheet (PCS)** for action levels as low as 0.5 mg/cm$^2$. It does not produce false positives, negatives, or inconclusive tests.
- It is easy to maintain: The X-550 does not have a radioactive source, therefore users are spared the burden of owning and controlling radioactive materials and costly replacement.

Please note that, although the SciAps X-550 does not utilize a radioactive source, it does emit X-rays when analyzing materials. Proper safety precautions should be followed, see section 7. XRF Safety.

The types of materials that can be analyzed using a SciAps X-550 depends on the applications loaded into the device. Applications may be added at the time of purchase. For home-based lead investigations of children with blood lead levels above the reference value, NvCLPPP recommends including the following applications with your purchase of a SciAps X-550:

- Lead Paint
- RoHS (consumer products)
- Soil

# 3. Radiation Safety Training

Before using the SciAps X-550, all users of the XRF must complete a radiation safety training. Contact your organization's **radiation safety officer (RSO)** to coordinate a training date. During the training, trainees may receive their personal dosimeter badge.

The dosimeter badge will determine and monitor doses of radiation exposure during XRF procedures. Dosimeter badges must be worn every time the user handles the XRF and may not be shared among users.

For in-person or virtual training on how to use the SciAps X-550 from the manufacturer, operators may contact a SciAps representative and inquire about a training session. Here is the direct contact of a representative who has trained NvCLPPP staff in the past:

**Tim Johnson, Business Development Manager**

**tjohnson@sciaps.com**

**785-230-6910**

# 4. Licensing and State Registration

The main government agencies that regulate radioactive materials are the **Nuclear Regulatory Commission (NRC)** and, in Nevada, the State of Nevada **Radiation Control Program (RCP)**. Since the SciAps X-550 **does not** have a radioactive source, users won't have to apply to the NRC for a license to use the device. However, the SciAps X-550 emits x-rays when analyzing materials — making it a **radiation producing machine (RPM)**. Per Nevada laws (NRS 459 and NAC 459), RPMs must be registered with the state's RCP within 30 days of purchase.

The RCP has an online **Centralized Licensing, Inspections and Certification System (CLICS)** to access and complete the registration forms. Visit their website to create an account or login. Once the appropriate forms have been submitted, the state will review and provide a registration certificate, which usually takes about 30 days. The certificate must be displayed nearby, or carried with the device when transporting it. Registration must be renewed annually, and every 3-5 years the state's RPM program will inspect the XRF.

Your organization's RSO should facilitate the process of registering the device and managing regulatory compliance, as they serve as the primary point of contact to the state. If your organization does not have an RSO, contact the State of Nevada RCP for further guidance.

# 5. What's in the Briefcase

Each XRF machine should contain the following items in its storage briefcase:

- XRF Device
- Two Li-Ion batteries
- Battery charging port
- Power cable
- Metal calibration clip
- Lead paint calibration check block
- Screwdriver
- Spare Kapton windows
- USB cable
- Final inspection sheet
- Flashdrive
    - Calibration Certificate
    - SciAps X-500 QS Manual
    - SciAps X-550Pb QS Manual
    - Profile Builder Software


***Photo credits: Cartoli Instruments***

# 6. Anatomy of the SciAps X-550


1. Power button
2. Display screen
3. Wrist strap
4. Handle
5. Battery
6. Trigger
7. Macro camera
8. Analyzer window


1. Display screen
2. AC power port
3. Port for factory firmware updates and test stand use
4. Micro USB-B port

# 7. XRF Safety

When not in use, the XRF should be stored in a secure location to prevent unauthorized use, damage, or theft.

- Keep the XRF in its briefcase.
- Purchase locks for the briefcase and keep the briefcase locked. Share the lock code with authorized users only.
- Keep the briefcase in a location, such as a lab, that is secured against unauthorized entry.

When the X-550 is analyzing samples, it emits x-rays. X-rays are invisible to the human eye and can be harmful. You will know if your XRF is emitting x-rays if the lights surrounding the power button are red.


Below is a short list of best practices for safe operation of the XRF:

- Do NOT point the XRF at yourself or other living beings
- Do NOT place your hand or any other body part near the analyzer window while testing
- Do NOT hold samples in your hand
- Pay attention to where the analyzer window is pointed
- Maintain control of the analyzer: grasp firmly and use the wrist strap
- Only trained personnel should use the XRF

See Helpful Resources for more radiation safety education. Your RSO should be able to provide more comprehensive guidelines.

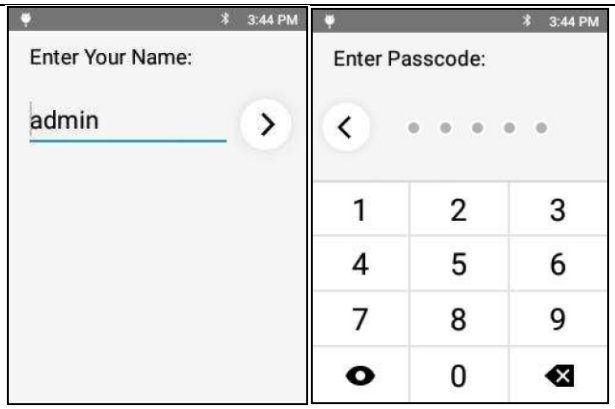
# 8. Traveling with the XRF

When traveling, lock the XRF analyzer, its accompanying accessories, the PCS, and state registration certificate inside its briefcase.

**Traveling by Car:** Secure the XRF in the trunk of the vehicle during transport. Never leave the XRF unattended in the vehicle to prevent theft.

**Traveling by Air:** The XRF, stored in its designated briefcase, may taken on board as a carry-on item. Be advised that TSA officials will likely request to inspect the briefcase and may ask questions regarding the device's purpose. Be prepared to provide the necessary information as required.

# 9. Powering up the device

| | | |
|---|---|---|
| **1** | Insert one of the batteries into the handle of the analyzer until the connectors click into place. |  |
| **2** | Press the power button on the top of the device. The lights around the power button will turn green -- indicating that the XRF is powering on. It takes about 20 seconds for the device to power on. |  |
| **3** | Once the XRF is on, you will be prompted to enter your name and passcode. The factory-set name is *admin* and the factory-set passcode is *12345*. Users can change this later. |  |

| | | |
|---|---|---|
| **4** | After you enter the login credentials, an X-ray warning screen will appear. Read the warning and press “OK” to proceed. |  |
| **5** | After pressing OK, the main screen will appear. Sci-Aps representatives may reference this screen as the "circle analyze screen” |  |

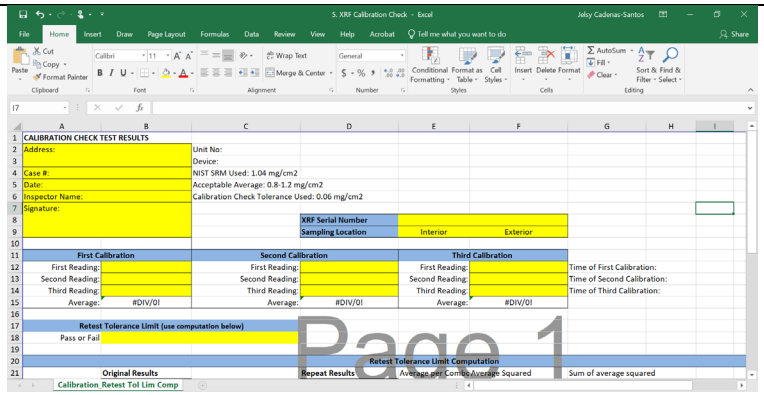
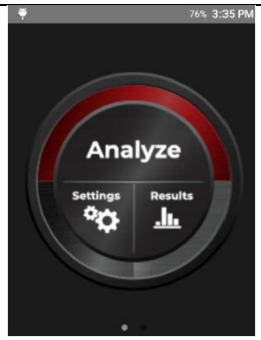
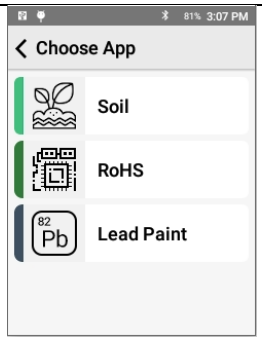
## 10. Calibrating the analyzer

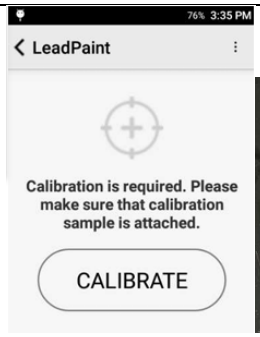
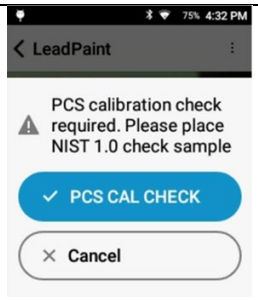
The XRF will automatically enforce calibration checks every 8 hours or every time the analyzer is powered on, but users may run the calibration checks more frequently.

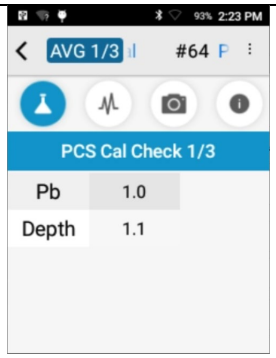
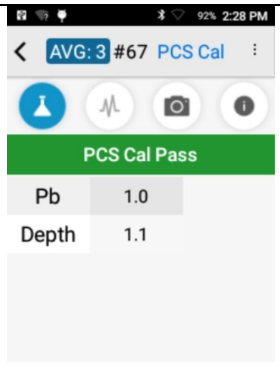
In addition to calibrating the device every time it is turned on, for LIRAs XRFs **must** be calibrated:

1. At the beginning of each new home inspection
2. At least every **four** hours during an inspection
3. At the end of each home inspection

There are two types of calibrations on the SciAps X-550: the metal clip calibration and the PCS calibration (the PCS calibration is for the lead paint app only).

| | | |
|---|---|---|
| **1** | Before starting the calibration process, set the machine down on a flat surface, pointed away from any living being.<br><br>Make sure to have the metal calibration clip and lead paint calibration check block handy. |  |
| **2** | LRAs will need to document the results of the calibration checks, so make sure to also have your XRF Calibration Sheet ready by prefilling the case information. |  |
| **3** | On the main screen, press Analyze. |  |
| **4** | The applications installed in your device will appear. For the purpose of this guide we will select Lead Paint to demonstrate both the metal clip calibration and the PCS calibration. |  |

| | | |
|---|---|---|
| **5** | The calibration window will appear and prompt you to attach the calibration sample, which is the metal clip that was included in your briefcase. |   |
| **6** | Place the clip over the window as shown. |  |
| **7** | Tap Calibrate on the screen or pull the trigger. Let the clip calibration run, it will take 15 seconds to complete. The screen will look as shown: |  |
| **8** | When the clip calibration is complete, the PCS Cal Check screen will appear. Remove the clip from the window before proceeding to the next step.<br>(Reminder: the PCS Cal Check is only necessary in the Lead Paint App, it will not appear in the RoHS or Soil app.) |  |

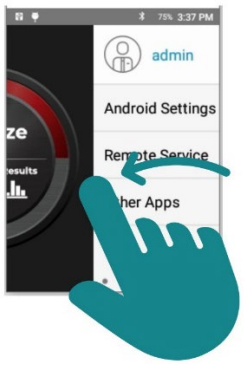
| | | |
|---|---|---|
| **9** | **Before** tapping PCS CAL CHECK, place the XRF analyzer window on the red square of your lead paint calibration check block. The red square must cover the window.<br><br>Press PCS CAL CHECK or pull the trigger to run the lead paint calibration test. |   |
| **10** | A results page will appear. Log the result of the test on the XRF Calibration Sheet. In total, you will be need to run three lead paint tests during the PCS calibration. Pull the trigger to run the next test. Log each result and include the time of calibration in the XRF Calibration Sheet. |  |
| **11** | At the end of the three tests, the device will calculate the average of the three tests and will indicate a Pass or Fail result. If the average of the three tests is not within 0.8 – 1.2 (PCS standards), the device will indicate the PCS calibration has failed. If the PCS calibration fails, confirm the red square is positioned |  |

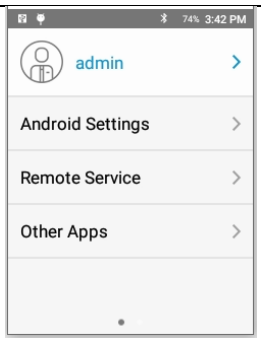
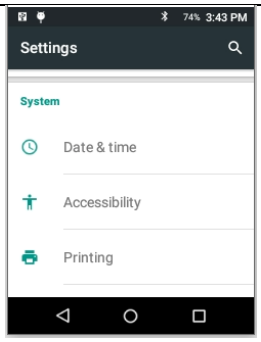
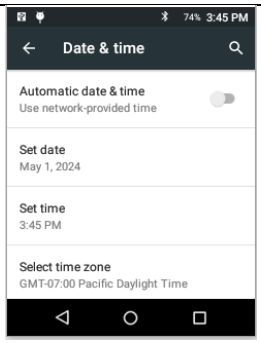
| | | |
|---|---|---|
| | correctly in front of the analyzer window and retry the calibration. If the calibration continues to fail, contact SciAps technical support at +1 339-927-9455.<br><br>PCS Cal Check **must** pass before you can take tests in the Lead Paint application, **DO NOT** use the XRF for the LIRA if it does not pass calibration checks. | |

# 11. Setting up the XRF

## 11a. Updating Date and Time

If the date and time on the  XRF are incorrect, adjust it before using the device for analyses. It is important to have the accurate date and time set on the device because this information is attached to sample data.

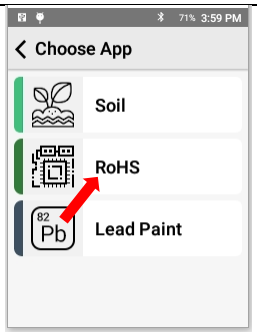
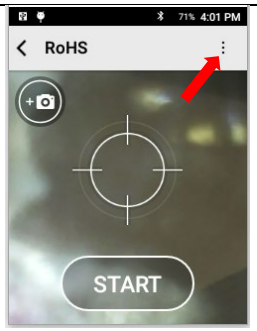
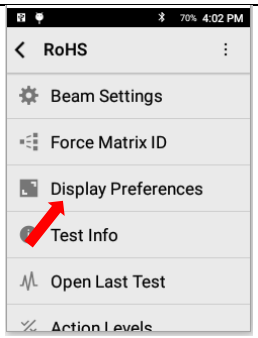
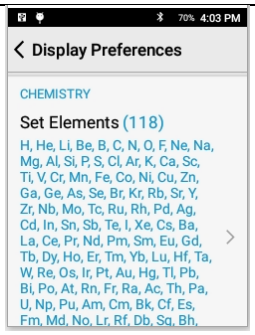
| | | |
|---|---|---|
| **1** | From the main screen, swipe to the left to reveal additional menus. |  |

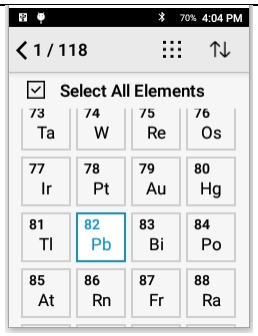
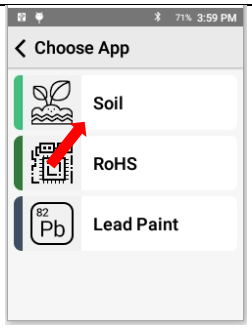
| | | | |
|---|---|---|---|
| **2** | Select Android Settings from the menu. |  | |
| **3** | Scroll down until you see Date & Time. Select Date & Time |  | |
| **4** | From this page, you can set the date, time, select a time zone, and choose a clock format. |  | |

## 11b. Displaying results for Pb only

SciAps X-550 has the ability to detect the presence of many elements in soil and consumer products, however, for LIRAs investigators are only interested in lead. To make the results more convenient to read, it is recommended to display results only for element(s) of interest. *Note: The XRF will still analyze the presence of all elements, but it will only display selected elements.*

These steps will need to be done in **BOTH** Soil and RoHS mode. Lets assume we are starting with RoHS:

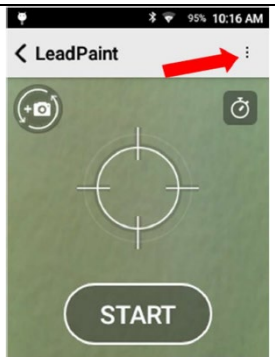
| | | |
|---|---|---|
| **1** | From the main screen, select Analyze. |  |
| **2** | From the applications menu, select RoHS. |  |
| **3** | Tap the three vertical dots in the upper right corner. |  |
| **4** | Select Display Preferences from the menu. |  |
| **5** | In Display preferences, scroll until you reach the CHEMISTRY section. Tap Set Elements. |  |

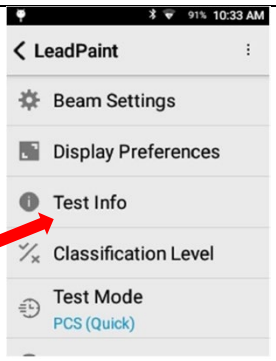
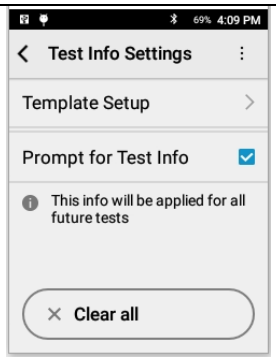
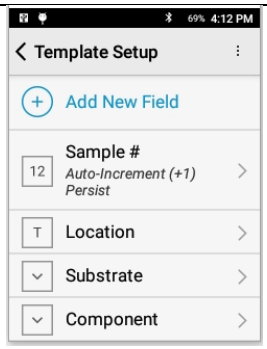
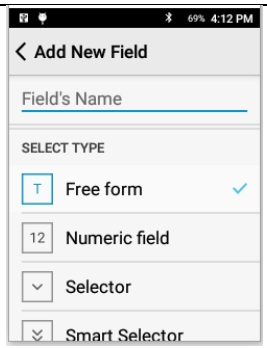
| | | |
|---|---|---|
| **6** | Deselect all elements, then tap the ones you want to see displayed. We are only selecting **Pb (lead)** for LIRA purposes. |  |
| **7** | Repeat steps 3-6, but this time in the Soil application. |  |

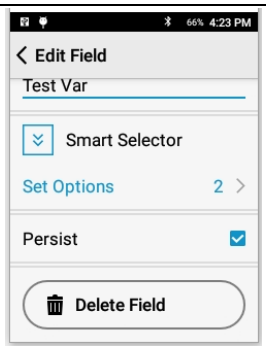
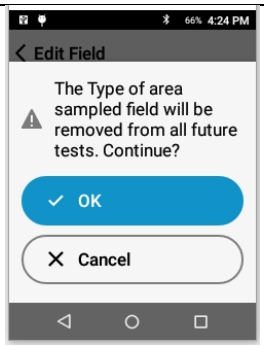
## 11c. Creating test fields

LRAs need to collect certain data when screening materials with an XRF (Refer to NvCLPPP's LIRA protocols for required data). Data collection may be documented on printed or digital forms, but it can also be collected and stored in the SciAps X-550. To collect relevant data on the SciAps X-550, you can fill out test fields for each required data point as you test different surfaces.

The SciAps X-550 does not automatically come loaded with the required test fields to collect during a LIRA, but new test fields can be created as needed.

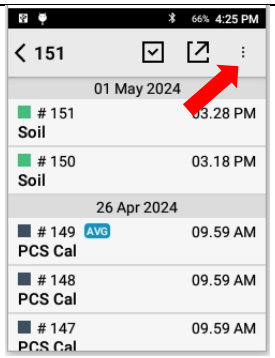
| | | |
|---|---|---|
| **1** | From the Test Screen in any application (Lead Paint, Soil, RoHS), tap the three buttons on the upper right corner |  |

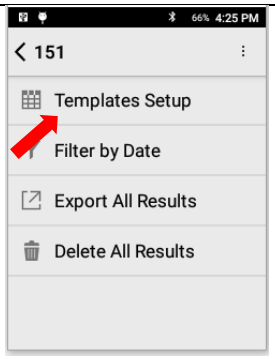
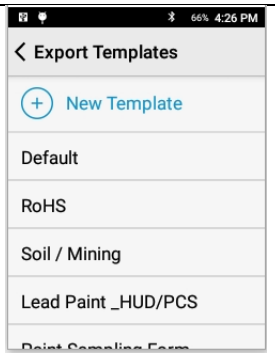
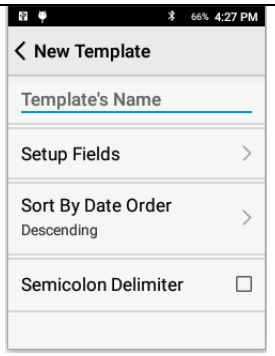
| | | |
|---|---|---|
| **2** | Select Test Info from the menu |  |
| **3** | Make sure Prompt for Test Info is checked. This will prompt the operator to enter information about the sample **before** the test runs. Next, select Template Setup. |  |
| **4** | Tap Add New Field. |  |
| **5** | Fill out the Field Name and select answer type.<br><br>Free form lets the user type in an answer with letters, numbers, and symbols. Numeric field lets the user type in responses with numbers only. Selector and Smart Selector will allow the user to select from pre made options created by the user. |  |

| | | |
|---|---|---|
| **6** | To delete a field, select it from the Template Setup menu and tap Delete Field and OK. |   |

## 11d. Creating templates

Users may have many test fields loaded on their device but may only be interested in exporting certain variables onto an excel sheet or PDF report. To facilitate the exportation of certain test fields, users can create templates. NvCLPPP recommends creating templates according to the sample data collection templates for Paint, Soil, and Consumer Products found in NvCLPPP's LIRA Protocol.

| | | |
|---|---|---|
| **1** | From the Main Screen, tap Results. |  |
| **2** | Tap the three dots in the upper right corner. |  |

| | | |
|---|---|---|
| **3** | Select Templates Setup. |  |
| **4** | Select New Template. |  |
| **5** | Type in a name for your Template then tap on Setup Fields.<br><br>Select which variables to include in your template. Refer to NvCLPPP's LIRA guidelines for data collection templates for Paint, Soil, and Consumer Products. |  |

## 11e. Charging the battery

Your device will come with a wall charger cable and port.

| | | |
|---|---|---|
| **1** | The charger light on the port will light up red when it is plugged in and empty. |  |

| | | |
|---|---|---|
| **2** | Insert the battery into the port. The battery is directional and keyed to go in only one way, don't force it.<br><br>When the battery is inserted, the light blinks green as it charges. When it is done charging, the light will become solid green. |  |

# 12. Taking a Test

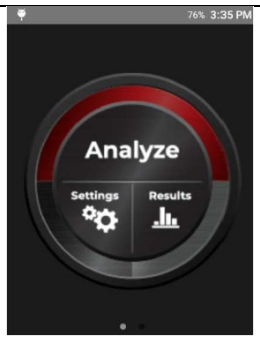
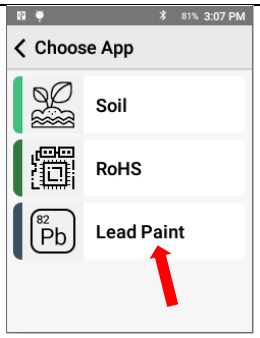
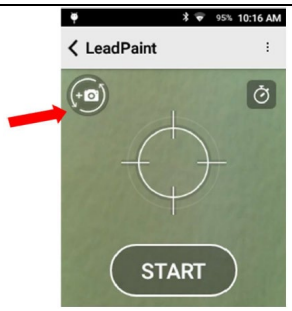
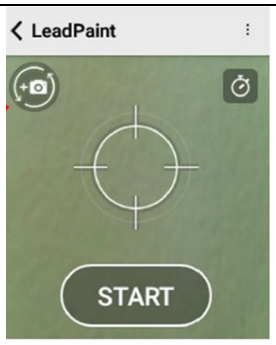
The application you use to analyze materials will depend on the type of material tested (matrix/substrate). Table 1 lists recommendations on which applications to use for different types of materials:

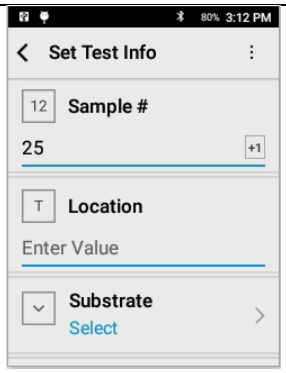
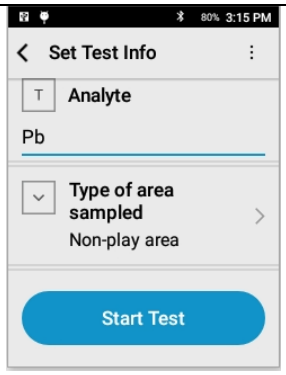
*Table 1. Recommended SciAps X-550 Applications based on Matrix/Substrate*

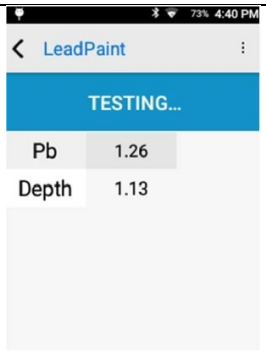
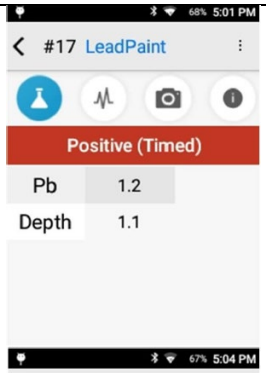
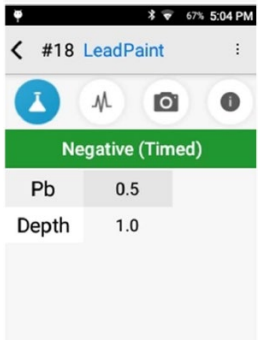
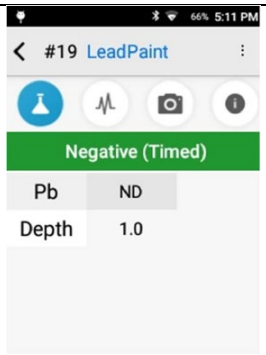
| Matrix/Substrate | Recommended Application |
|---|---|
| Painted surfaces (walls, windowsills, etc.) | Lead Paint |
| Plastics | RoHS |
| Metals | RoHS |
| Glass | Soil |
| Magnets | Soil for Ba, RoHS for others |
| Glazed Dishes/Ceramics | RoHS |
| Unglazed dishes/ceramics | Soil |
| Rubber | RoHS |
| Aluminum | RoHS |
| Varnished wood that is not painted | RoHS |

## 12a. Lead Paint

The Lead Paint application should be used when testing painted surfaces such as walls, windowsills, and furniture, for example.

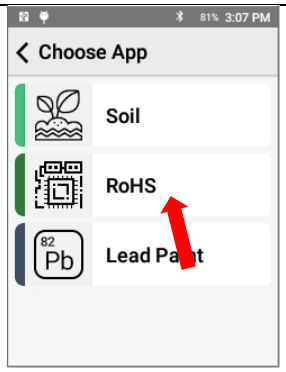
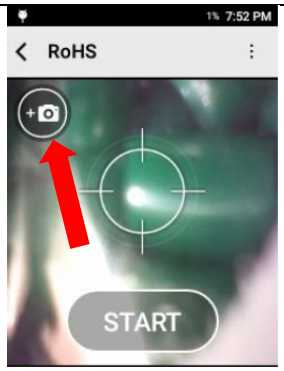
| | | |
|---|---|---|
| **1** | From the main screen, select Analyze |  |
| **2** | From the applications menu, select Lead Paint |  |
| **3** | The Test Screen and Camera View will appear.<br>Optional: To take a picture of the area you are sampling, tap the camera icon.<br>When you are done taking pictures, return to the test screen. |  |
| **4** | On the Test Screen, press START or pull the trigger. If you have configured your device to prompt you for test fields, you will be redirected to the fields to fill out. |  |

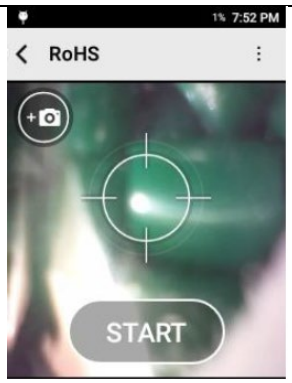
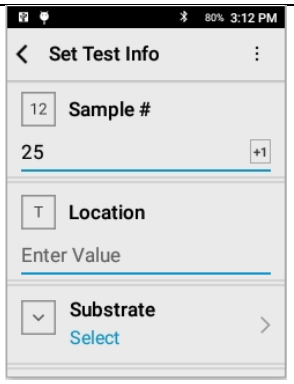
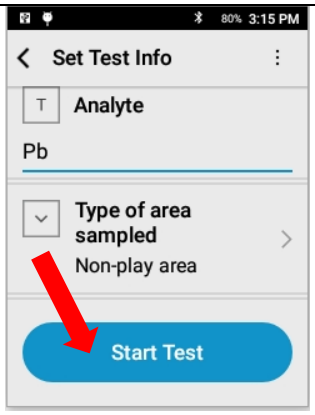
| | | |
|---|---|---|
| **5** | Fill in the Test Info fields for the sample you are analyzing.<br><br>**OR**<br><br>If you are not using the SciAps X-550 to record data, make sure to log test results and required variables on a printed or digital Paint Sampling Form. |  |
| **6** | When you are done filling out the desired fields, press the XRF analyzer window flush against the area you are screening. You may find it helpful to refer to the camera display to align the analyzer to your sampling area. |  |
| **7** | Press Start Test or squeeze and release the trigger on the handle. The test will start running. |  <br>OR<br>  |

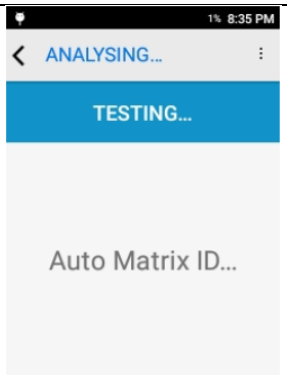
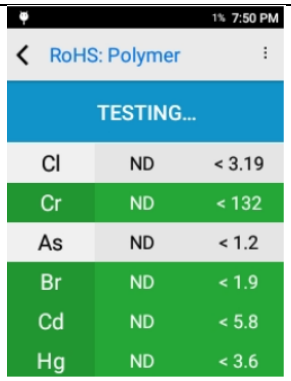
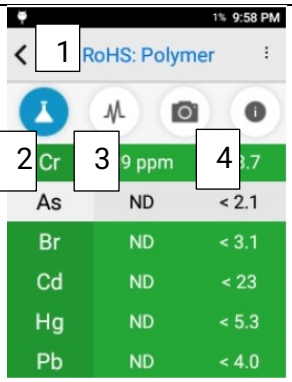
| | | |
|---|---|---|
| **8** | Live updates will appear as the test progresses. Depending on your settings, the test will end either when the max time is reached (Timed) or once a Positive or Negative determination can be made (Quick)<br><br>User may abort test at any time by pressing the trigger or clicking the back button (top left) from the live update. |  |
| **9** | Once the test is completed, a reading number and a *Positive* or *Negative* determination will show. A positive or negative determination will depend on the set Classification Level. By default, the Classication Level is set to be the same as the Federal Action level of 1.0 mg/cm$^2$ but you may change it if needed. |  <br>  |
| **10** | If lead is not detected, the result screen will show ND.<br><br>A result of “0” indicates that lead was found in low levels and the display result was rounded down based on the set number of significant digits (For example, if the analyzer is set to show X.X, a reading of 0.04 would round to 0). |  |
| On your results you will also get a Depth reading. The Depth calculation tells the operator whether the lead is on the surface or underneath unleaded paint. A Depth value of 1.0 means lead is on the surface. A depth value greater than 1.0 tells the operator it is underneath unleaded paint. A larger number (like 8, 10, 20) indicates a greater number of layers of unleaded paint are present on top of the leaded paint. | | |

## 12b. RoHS

The RoHS application should be used when testing consumer products such as toys, jewelry, cookware, and glazed ceramic, for example.

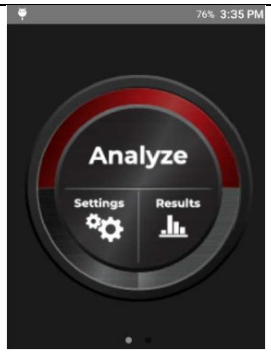
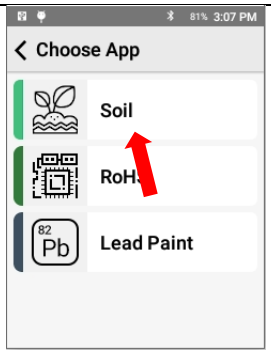
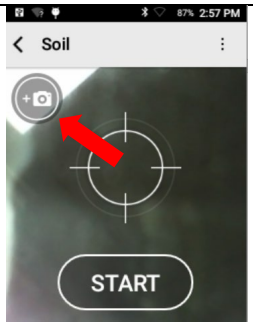
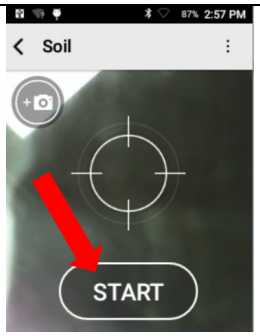
| | | |
|---|---|---|
| **1** | From the main screen, select Analyze. |  |
| **2** | From the applications menu, select RoHS. |  |
| **3** | The Test Screen and Camera View will appear.<br><br>Optional: To take a picture of the area you are sampling, tap the camera icon.<br><br>When you are done taking pictures, return to the test screen. |  |

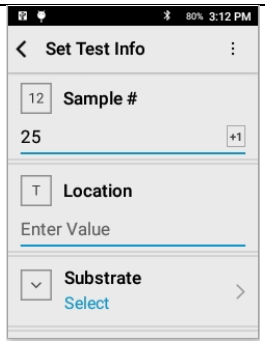
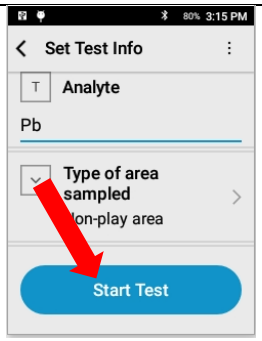
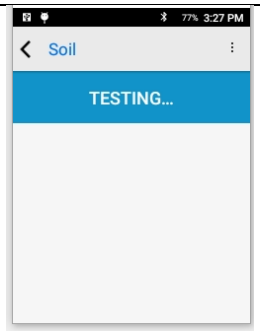
| | | |
|---|---|---|
| **4** | On the Test Screen, press START or squeeze and release the trigger on the handle. If you have configured your device to prompt you for test, you will be redirected to the fields to fill out. |  OR  |
| **5** | Fill in the Test Info fields for the sample you are analyzing.<br>**OR**<br>If you are not using the SciAps X-550 to record data, make sure to log test results and required variables on a printed or digital Miscellaneous Sampling Form. |  |
| **6** | When you are done filling out the desired fields, position the analyzer at the surface to be tested. The analyzer must make contact with the sample. Ideally, samples should be flush with the window and fully cover the window. |  |
| **7** | Once sample is aligned, press Start Test or squeeze and release the trigger on the handle. The test will start running. |  OR  |

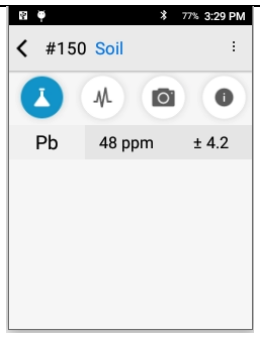
| | | |
|---|---|---|
| **8** | By default, RoHS mode will auto determine the sample matrix and select the calibration most appropriate. This step takes about three seconds. |  |
| **9** | Once the matrix is identified, the test proceeds with the matched calibration. Keep the analyzer positioned against the sample. Live updates will show as the test progresses.<br><br>Test will end when max test time is reached. This may take a couple of minutes, make sure to keep the analyzer in position.<br><br>User may abort test at any time by pressing the trigger or clicking the back button (top left) from the live update. |  |
| **10** | The results will appear at the end of the test. The result will indicate (1) matrix identification, (2) element, (3) quantitative results with units, and (4) uncertainty +/- OR limit of detection <.<br><br>If an element is not detected, the result will be indicated as ND and the number in the right column after < is the Limit of Detection for that test. |  |

## 12c. Soil

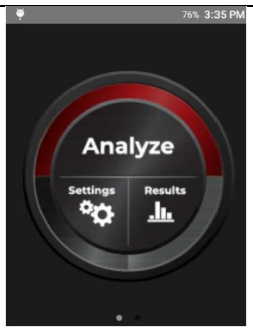
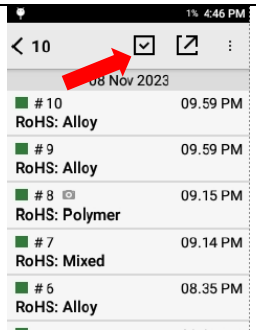
Soil may be screened by placing the analyzer window directly on the soil. For best results, however, prepare soil samples according to EPA Method 6200. In addition to testing soil, the Soil application may be used to screen unglazed ceramics and glass.

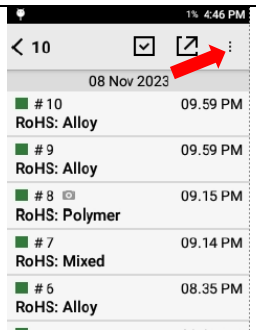
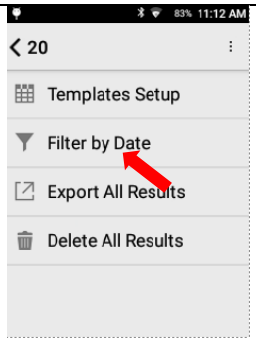
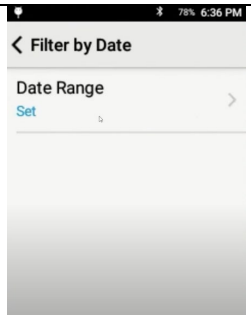
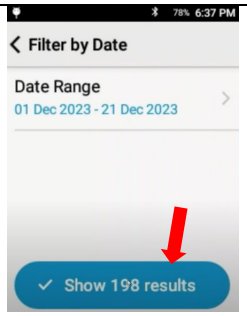
| | | |
|---|---|---|
| **1** | From the main screen, select Analyze. |  |
| **2** | From the applications menu, select Soil. |  |
| **3** | The Test Screen and Camera View will appear.<br><br>Optional: To take a picture of the area you are sampling, tap the camera icon.<br><br>When you are done taking picture, return to the test screen. |  |
| **4** | On the Test Screen, press START or pull the trigger on the handle. If you have configured your device to prompt you for test fields, you will be redirected to the fields to fill out. |  OR  |

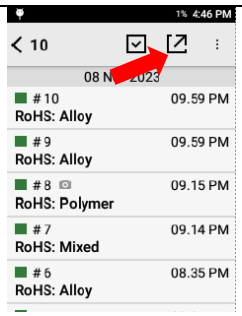
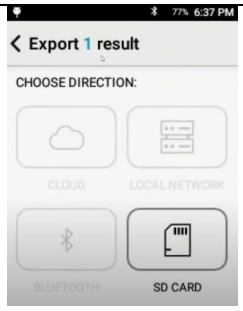
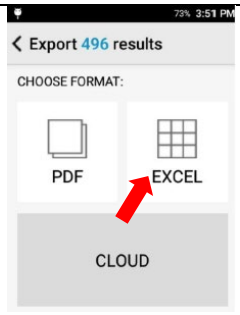
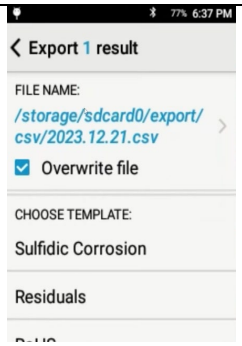
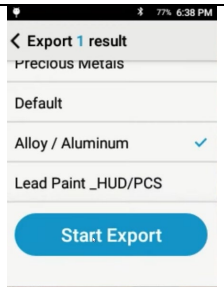
| | | |
|---|---|---|
| **5** | Fill in the Test Info fields for the sample you are analyzing.<br>OR<br>**If you are not using the SciAps X-550 to record data, make sure to log test results and required variables on a printed or digital Soil Sampling Form** |  |
| **6** | When you are done filling out the desired fields, position the analyzer at against your soil sample. The analyzer window must make contact with the sample. Ideally samples should be flush with the window and fully cover the window. |  |
| **7** | Once sample is aligned, press Start Test or squeeze and release the trigger on the handle. The test will start running. |  OR  |
| **8** | As the test runs, you will see live updates. Keep the machine pressed up against the sample as the test runs. This can take a few minutes. |  |

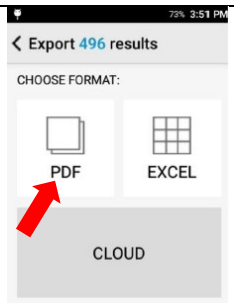
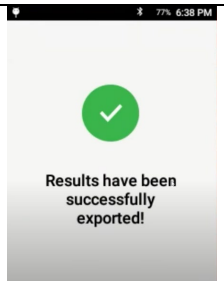
| | | |
|---|---|---|
| **9** | Once the XRF is done analyzing, you will see the results. The first column has the name of the element, the second column has the reading and units, and the third column has the uncertainty (same units as middle column) |  |

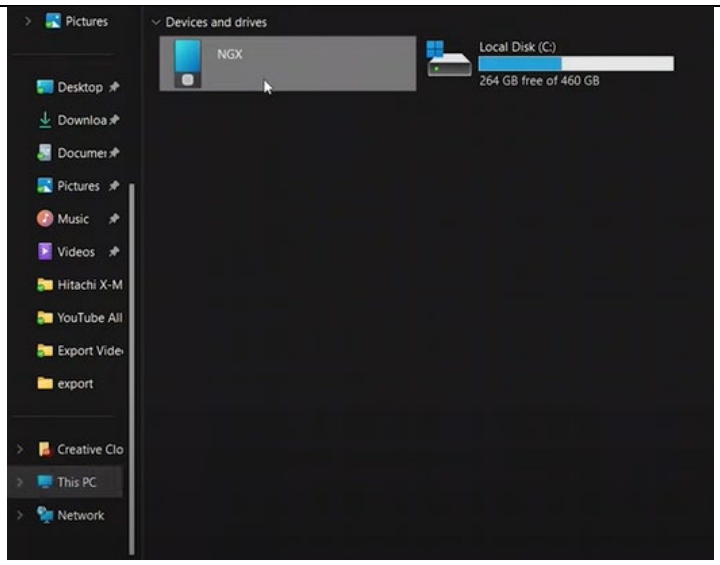
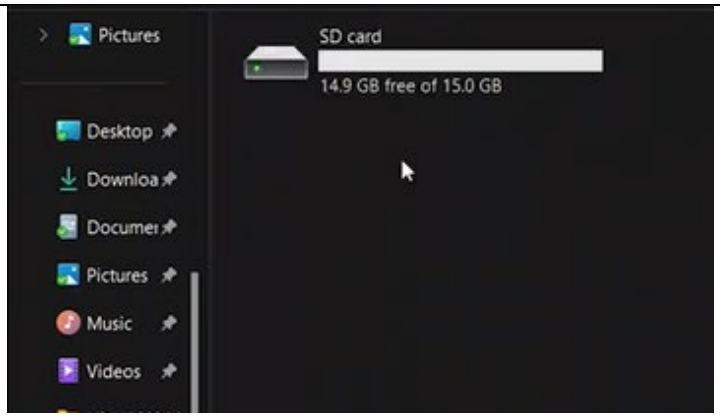
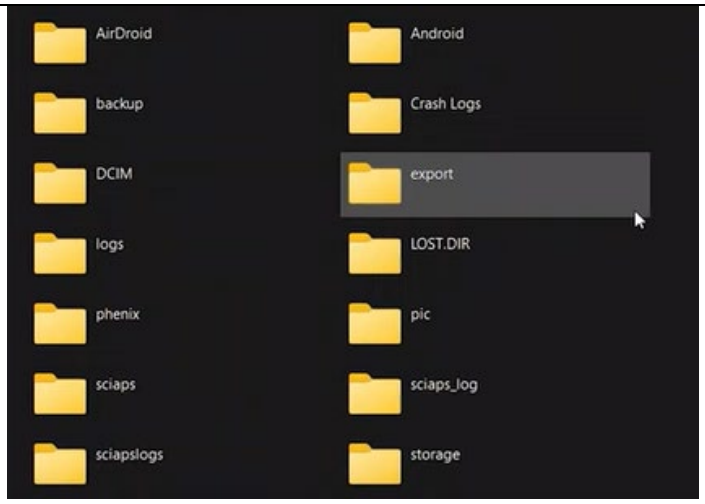
## 13. Exporting Data

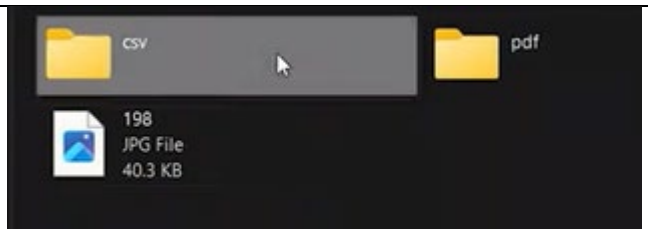
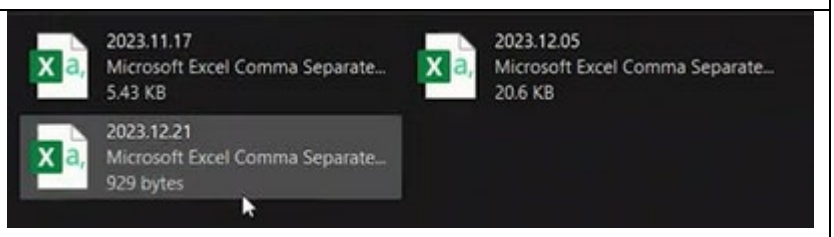
| | | |
|---|---|---|
| **1** | From the main screen, tap Results. |  |
| **2** | You will be taken to a screen with that lists all tests taken. Tap the Checkbox to individually select which tests to export.<br><br>If you wish to filter results by date, follow steps 3-7. If you do not wish to filter results by date, skip to step 8. |  |

| | | |
|---|---|---|
| **3** | Alternatively, you can filter results by date to quickly export a batch of results. To do this, click the three vertical dots in the right corner. |  |
| **4** | Select Filter by Date from the menu. |  |
| **5** | Tap on Date Range. |  |
| **6** | Select the date range you would like to see and then select OK. |  |
| **7** | Select Show Results. |  |

| | | |
|---|---|---|
| **8** | After the desired tests are selected for export, tap the Export button. |  |
| **9** | Select SD CARD. |  |
| **10** | To export multiple results into a single CSV, choose Excel. |  |
| **11** | The next page will show the filepath of the exported file in the SD card and a list of templates. |  |
| **12** | Next choose a template for your CSV file and tap Start Export. |  |

| | | |
|---|---|---|
| **13** | Alternatively, to export results into PDF files, select PDF.<br><br>Note: PDF export will produce one page per result. If a picture was captured with the sample, the PDF will include the image. |  |
| **14** | The analyzer will export the results into its embedded SD card. |  |
| **15** | To access the SD card, connect the XRF to a computer using the USB cable included in the briefcase. |  |

| | | |
|---|---|---|
| **16** | Once the XRF is connected to the computer, the XRF will appear as a new drive on your computer's file explorer. The name of the drive is NGX. Double click NGX. |  |
| **17** | Double click SD card. |  |
| **18** | Double click "export" folder. |  |

| | | |
|---|---|---|
| **19** | Select the csv folder or the pdf folder, depending on how data was exported. |  |
| **20** | The csv and pdf folders will contain the test data files. Double click to open the desired file. Make sure to save a copy to your local drive. |  |

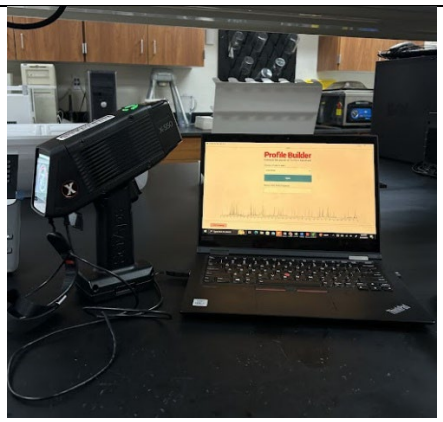
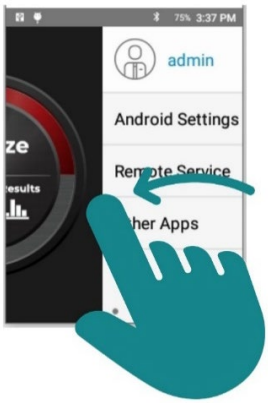
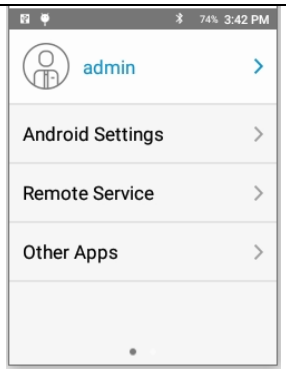
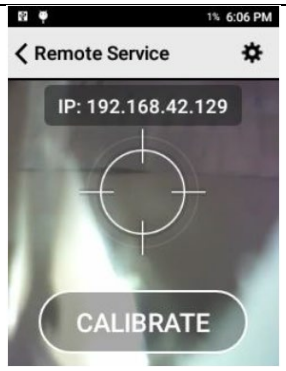
Tip: Save CSV files as Excel workbook files. CSV files will not save formulas, graphs, or images added to the sheet.

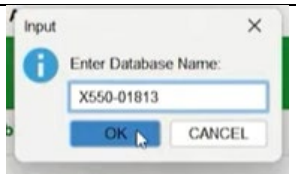
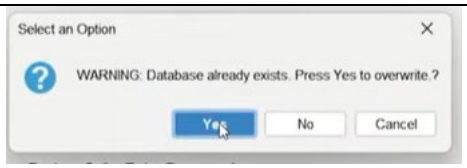
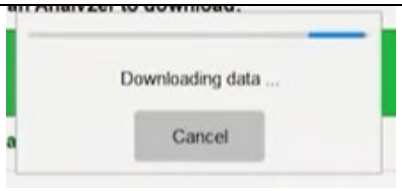
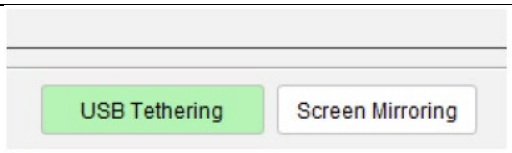
# 14. Profile Builder Software


The SciAps X-550 comes with a USB drive. From the USB drive, operators can install the SciAps XRF Profile Builder software. In profile builder, users can mirror the XRF screen onto their computer, export data, and create data reports.

## 14a. Screen mirroring

The XRF may be controlled through a computer using screen mirroring in Profile Builder. This feature allows users to broadcast the XRF onto a computer screen and control it with the mouse.

| | | |
|---|---|---|
| **1** | Turn on your XRF, connect the XRF to your computer using the USB cable, and open Profile Builder on your computer. |  |
| **2** | Next, on the XRF swipe right on the main screen. |  |
| **3** | Select Remote Service from the menu. |  |
| **4** | The screen will look something like this |  |

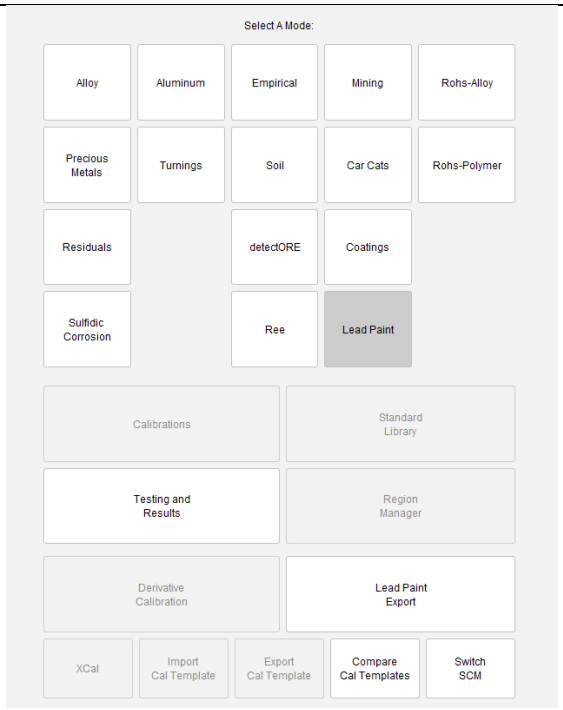
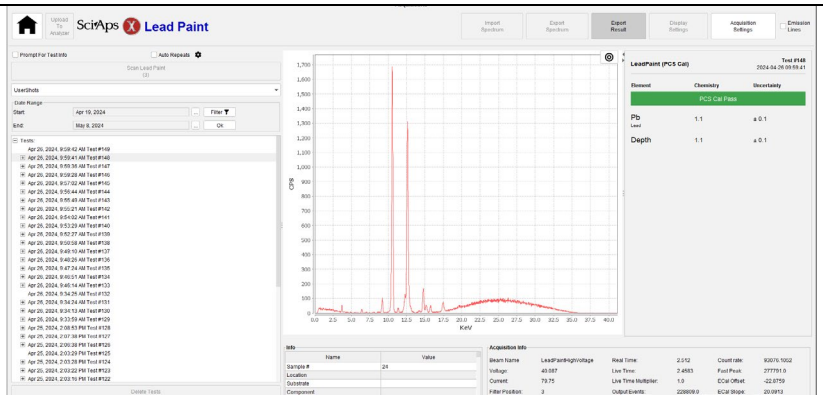
| | | |
|---|---|---|
| **5** | On Profile Builder, a green download button will appear. Click it. You will have to download XRF data everytime you take new tests and connect to a computer. |  |
| **6** | Click OK on the popup window. |  |
| **7** | Click Yes on the Warning. |  |
| **8** | Data will download. |  |
| **9** | On the lower left, USB Tethering should turn green, and the Screen Mirroring button should appear. Click on Screen Mirroring.<br><br>The user may now operate the XRF remotely from the computer. |  |

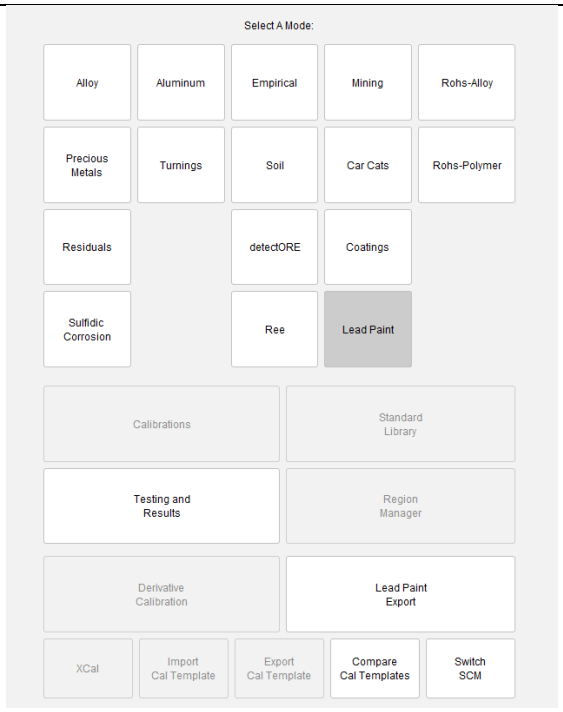
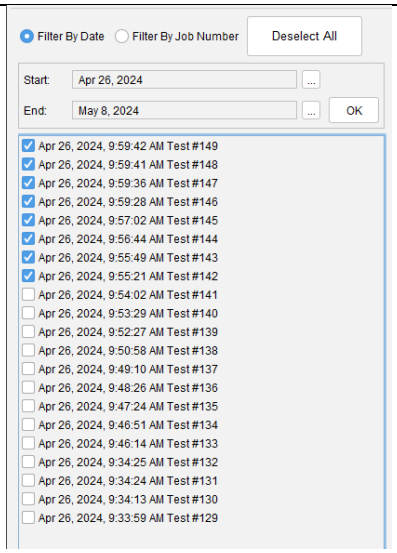
Screen Mirroring Tips:

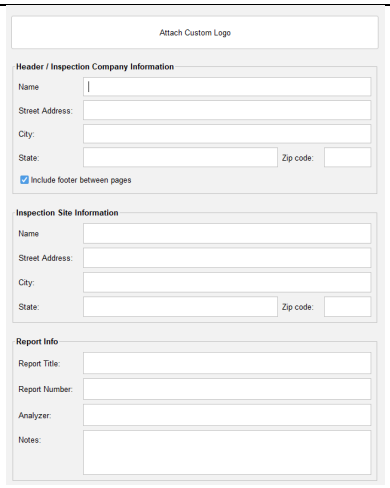
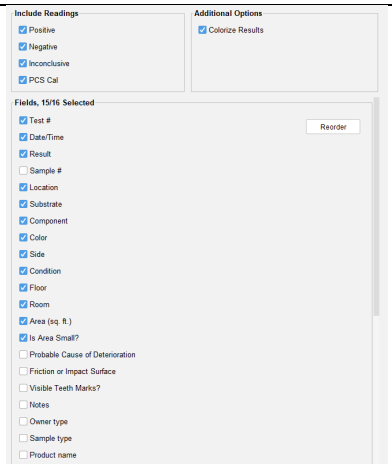
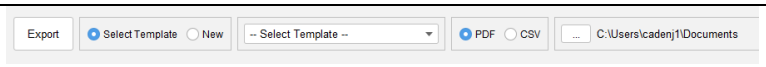
- You can type with the computer keyboard and use the mouse scroll wheel on XRF screen.
- A right click on the mouse registers as Back.
- Left/Right swipe with mouse cursor is possible but can be tricky. To swipe: click, hold down, and drag mouse in the desired direction.
- Be mindful of where you click, it is possible to fire the analyzer remotely using the mouse.

## 14b. Exporting Data and Creating Reports on Profile Builder

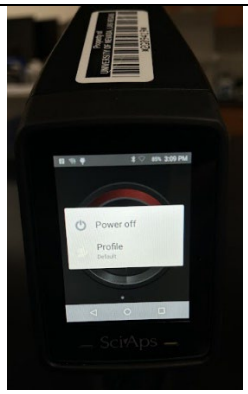
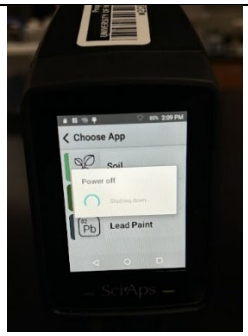
On the Profile Builder home screen, there are a variety of mode options available. Users will only see results for the mode chosen. For example, Lead Paint will only show results for tests that were run under the Lead Paint application.

| | | |
|---|---|---|
| **1** | Select the desired mode. |  |
| **2** | Testing and Results will display detailed views of each test taken. Select which test to view from the panel on the left. To export individual results, click the Export Result button on the top right. Exporting a single test as a PDF will include a picture of the item tested, if you took a picture. |  |

| | | |
|---|---|---|
| **3** | Under Lead Paint mode, multiple tests can be exported to a CSV or PDF file. Select Lead Paint Export from the Lead Paint submenu. |  |
| **4** | On the left panel, select the tests that you would like to export. |  |

| | | |
|---|---|---|
| **5** | The middle section has information fields related to the inspector, site, and report. This information will be included in the report if it is filled out. |  |
| **6** | On the right panel, select variables to be included in the report. |  |
| **7** | From the top bar, select the file location for storage, select PDF or CSV, Select template, and Export. |  |
| Navigate to the saved location to access your export. | | |

# 15. Powering off the Device

| | | |
|---|---|---|
| **1** | Press and hold the power button for 2 seconds. |  |
| **2** | From the pop-up menu, select Power off. |  |
| **3** | The device will power off. |  |

# 16. Routine Maintenance

SciAps X-550 XRF analyzers normally require little maintenance. They do not require annual recalibration, provided that energy calibration passes.

The analyzer should be kept clean. Never use solvents or other liquid cleaners on the analyzer. The touchscreen may be cleaned with a lint free cloth. Do not use compressed air, especially near the measurement window, as this could damage the detector.

The detector, x-ray tube, and electronics are protected by a thin plastic window of either Prolene or Kapton. The window should be visibly clean with no tears or punctures. As needed, the window can be replaced by the user by removing the wear plate by its four screws, peeling off the old window, and affixing a new one. The analyzer ships with several spare windows; more may be purchased from SciAps.

For a video tutorial on changing the Prolene or Kapton window, see: https://www.youtube.com/watch?v=DmqLpSEaOIw

# 17. Helpful Resources

Below are links to helpful videos for operating the XRF:

- Tutorial: How To Download Data From A Sciaps X550
- Sciaps X550 XRF - How To Set Up A Sampling Template
- Tutorial: Sciaps X-550 - Set Result Precision And Show Result Of Non-Detection
- How to use an XRF for sampling lead paint and more
- Use of an XRF for sampling lead paint and screening toxic metals in the environment
- How to export results to Profile Builder with Z-900 or X-5 Series
- Getting the Data from the Sciaps X550 Plus an Introduction to Profile Builder
- How to change prolene or kapton windows

For more information on radiological safety, visit:

- UNLV Risk Management and Safety
- State of Nevada Radiation Control Program

For more help on operating the SciAps X-550 or to request a training from the manufacturer, contact a SciAps representative.

**For additional lead-related questions or support, contact NvCLPPP at 702-895-5067 or** nvclppp@unlv.edu