Software

Color Quality Control System

User Manual

1. Introduction

1.1. Software description

SQCX Color quality controller system is the supporting software for spectrophotometer

SQCX software may connect the instrument to the PC through USB cable, Bluetooth (The instrument has Bluetooth function), control the instrument to measure, to modify the settings, and to operate the instrument data. At the same time it also makes a substantial expansion of the instrument's functions to support various color systems, illuminant, more complicated data management, color detection and report generation etc. It is an efficient assistant for color quality management.

1.2. System requirements

- Windows XP SP3、Windows 7、Windows 8、Windows 10. Windows 7 or above systems are recommended.
- Memory: >2G.
- Free disk space: >50MB for installation and operation.

2. Installing Software SQCX

2.1 Installing Software

Insert Color Management Control System (SQCSX) installation CD into CD-ROM drive. Copy the SQCSX folder from the CD to your computer.

The installer will choose the most appropriate language based on the current operating system environment, using the default installation language.
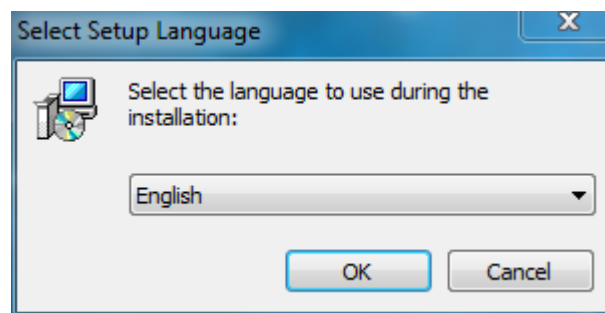

Figure 1 choose the language

After selecting the installation language, click 'ok'. Click setup.exe file in SQCX folder, then it will pop up a dialog box as shown in Figure2. Click Next then selecting the installation location based on the prompt.(Figure 3)
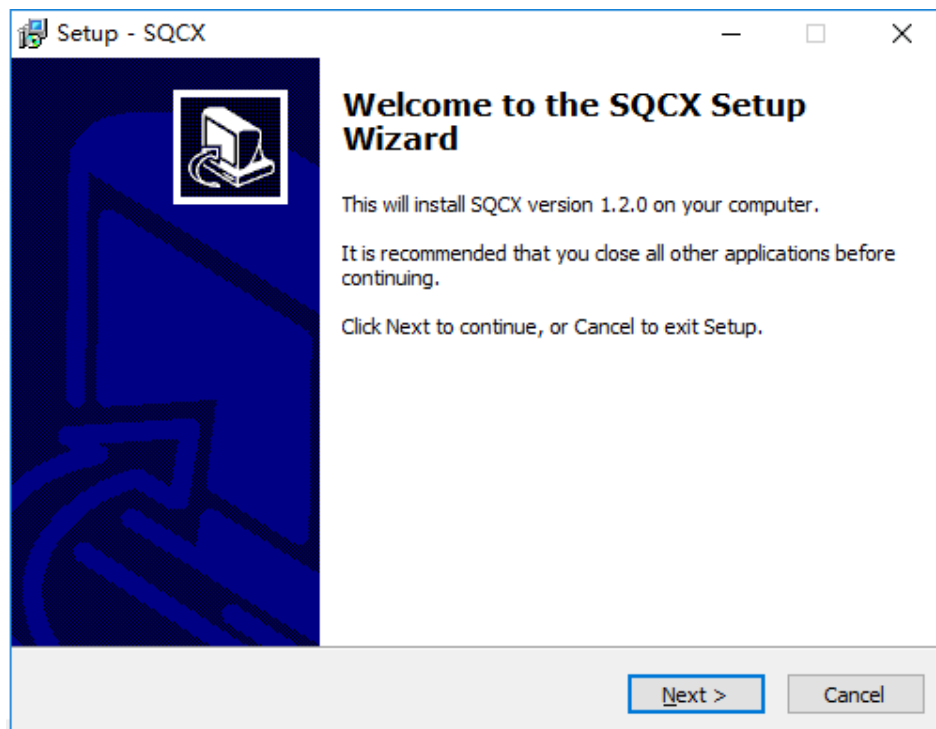
Figure 2 Setup Wizard

Generally use the default installation location, and also you can change the location. But if want to change the location and your computer system is Windows 7-10, you'd better to install it in the system tray, because the application will change the installation directory of the configuration file while it running. If you installed it in the system tray you must have administrator rights, otherwise it will lead to failed to change the configuration file.
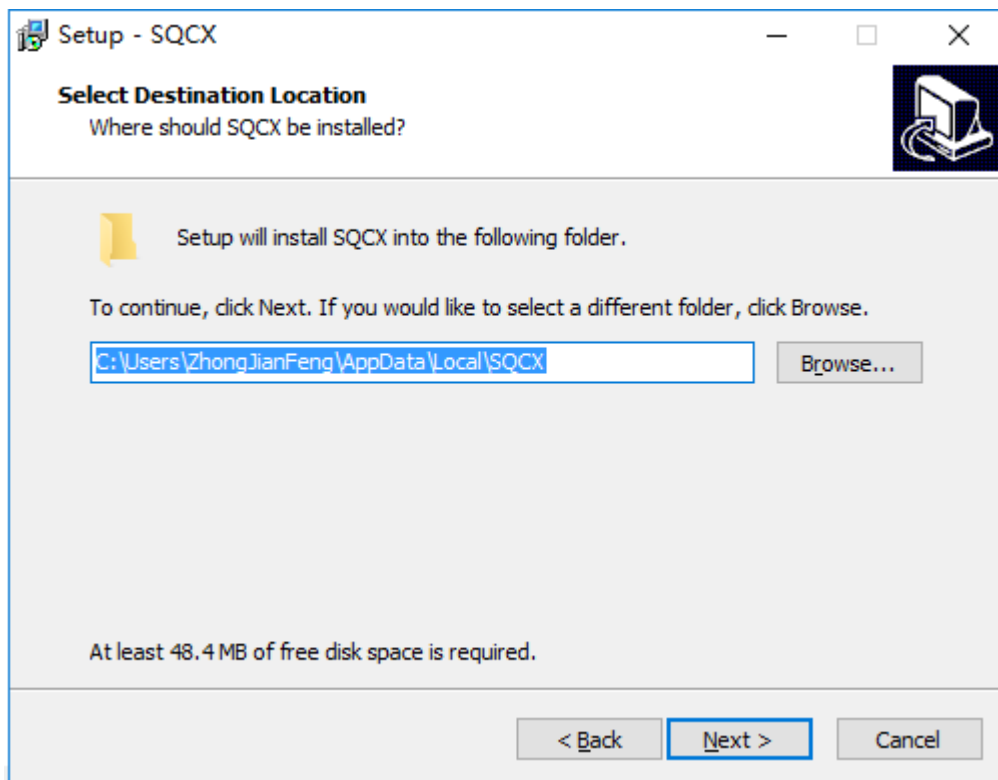
Figure 3 Select destination Location

After selecting the installation location, click next to choose whether to create a folder in the start menu (Figure 4) and whether to create a desktop shortcut (Figure 5).
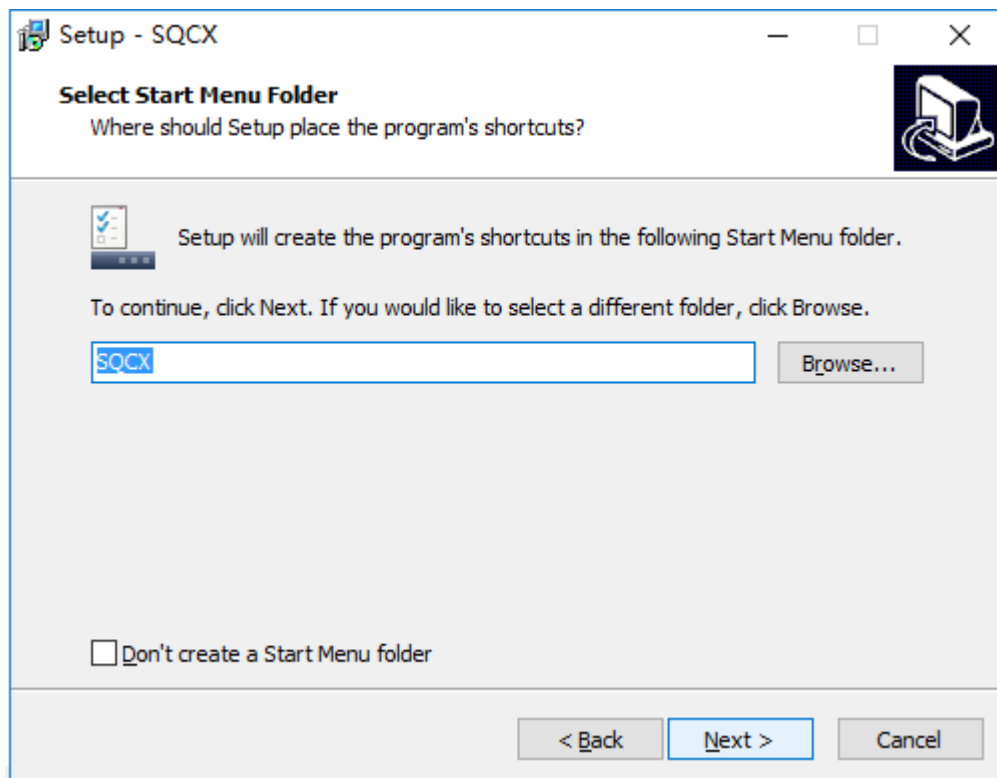
Figure 4 whether to create a folder in the start menu

Figure 5 Whether to create a desktop shortcut

After setting all the installation option, click next to pop up a windows as shown in figure 6. Confirm the installation settings and click "install" to start the installation.

Figure 6 Confirm the installation settings

Figure 7 Installation procedure

The instrument communication driver will be installed after the software installation. 32-bit system will automatically install as figure 8. For the 64-bit system For the 64-bit system, you need to click "next" to install the following menu as figure 9.
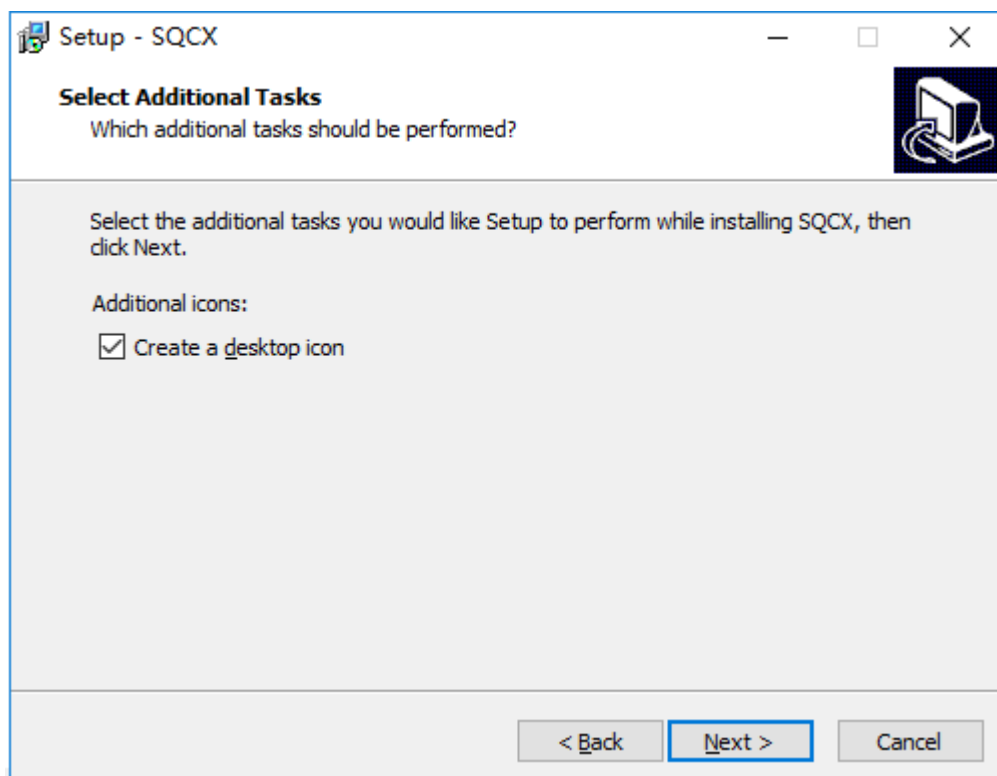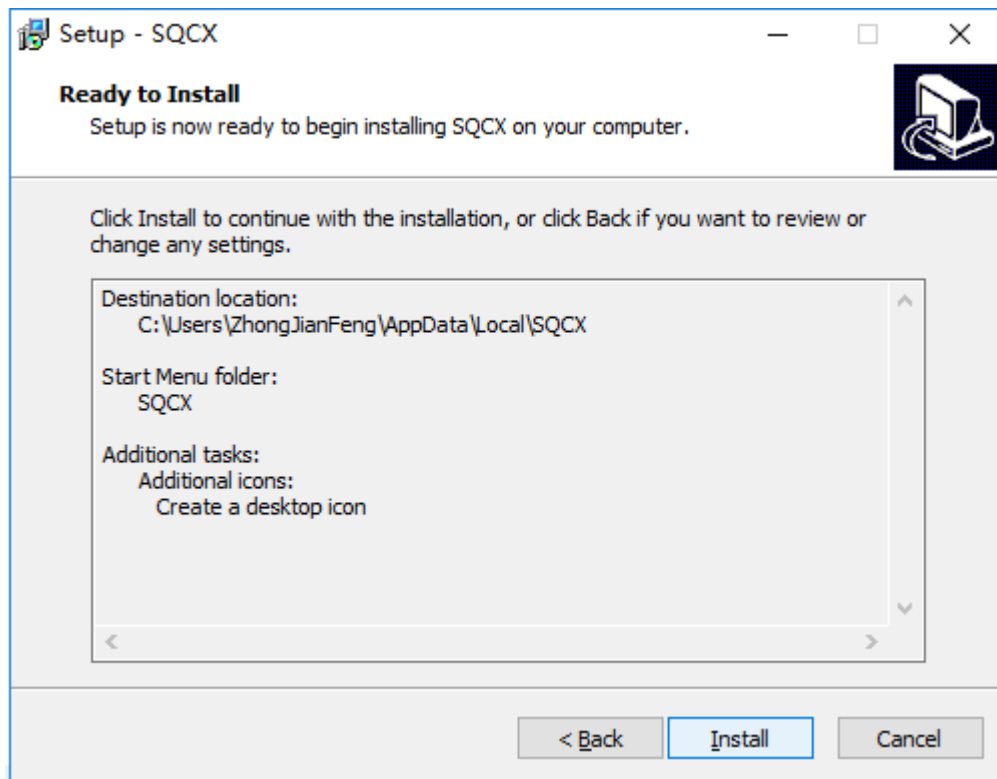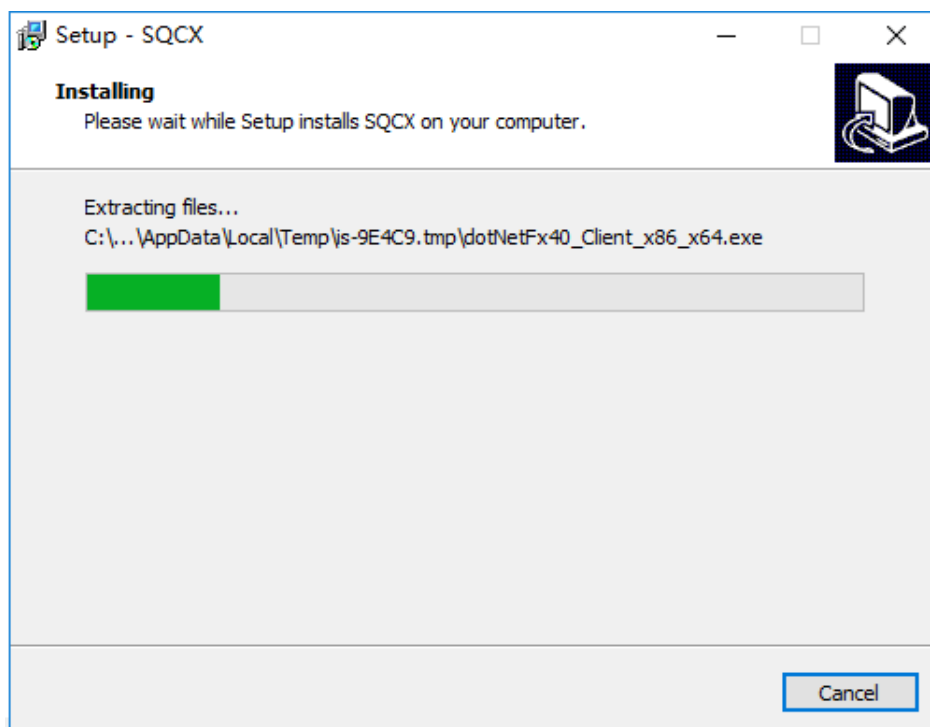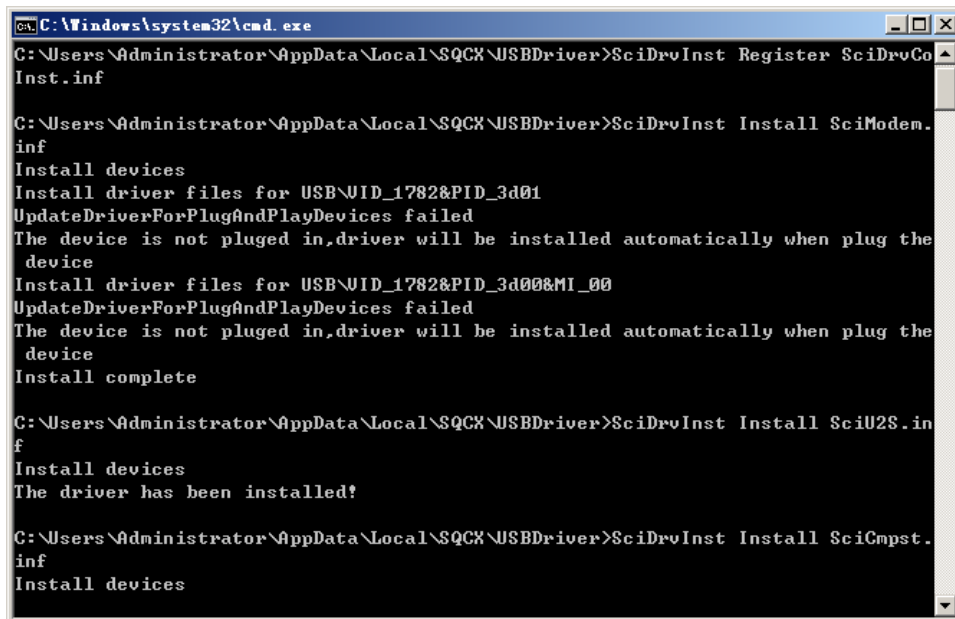


```
C:\Windows\system32\cmd.exe                                    _ |□| X|
C:\Users\Administrator\AppData\Local\SQCX\USBDriver>SciDrvInst Register SciDrvCo
Inst.inf

C:\Users\Administrator\AppData\Local\SQCX\USBDriver>SciDrvInst Install SciModem.
inf
Install devices
Install driver files for USB\VID_1782&PID_3d01
UpdateDriverForPlugAndPlayDevices failed
The device is not pluged in,driver will be installed automatically when plug the
 device
Install driver files for USB\VID_1782&PID_3d00&MI_00
UpdateDriverForPlugAndPlayDevices failed
The device is not pluged in,driver will be installed automatically when plug the
 device
Install complete

C:\Users\Administrator\AppData\Local\SQCX\USBDriver>SciDrvInst Install SciU2S.in
f
Install devices
The driver has been installed!

C:\Users\Administrator\AppData\Local\SQCX\USBDriver>SciDrvInst Install SciCmpst.
inf
Install devices
```

Figure 8, Install Driver (32-bit System)

Device Driver Installation Wizard

Welcome to the Device Driver Installation Wizard!

This wizard helps you install the software drivers that some computers devices need in order to work.

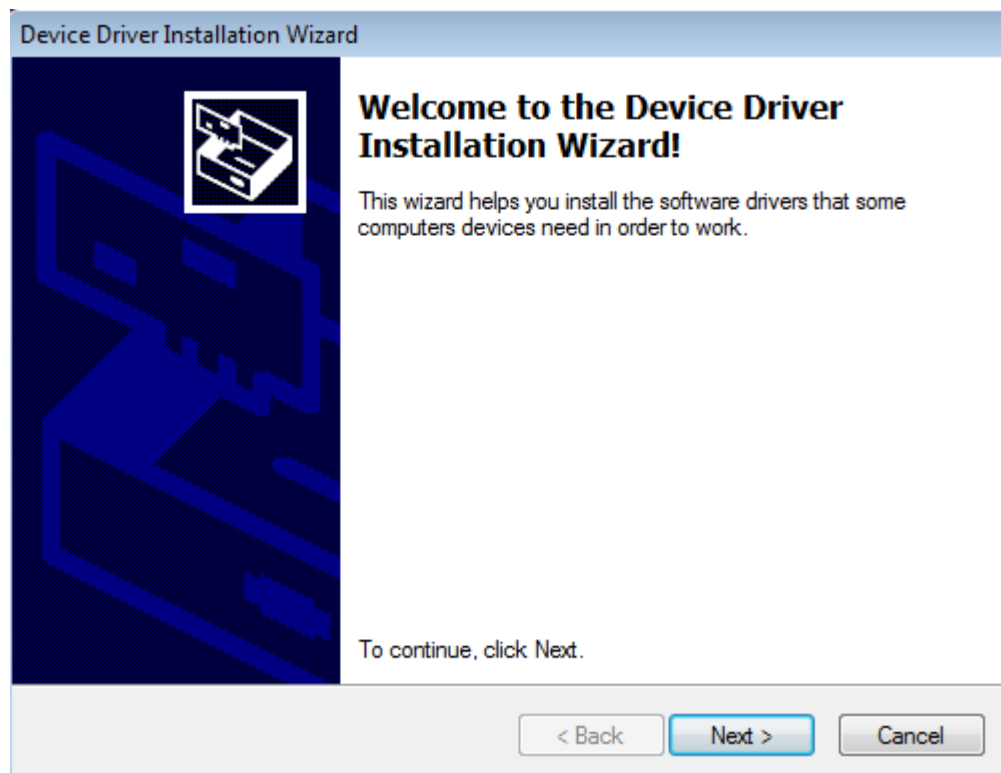To continue, click Next.

< Back   Next >   Cancel

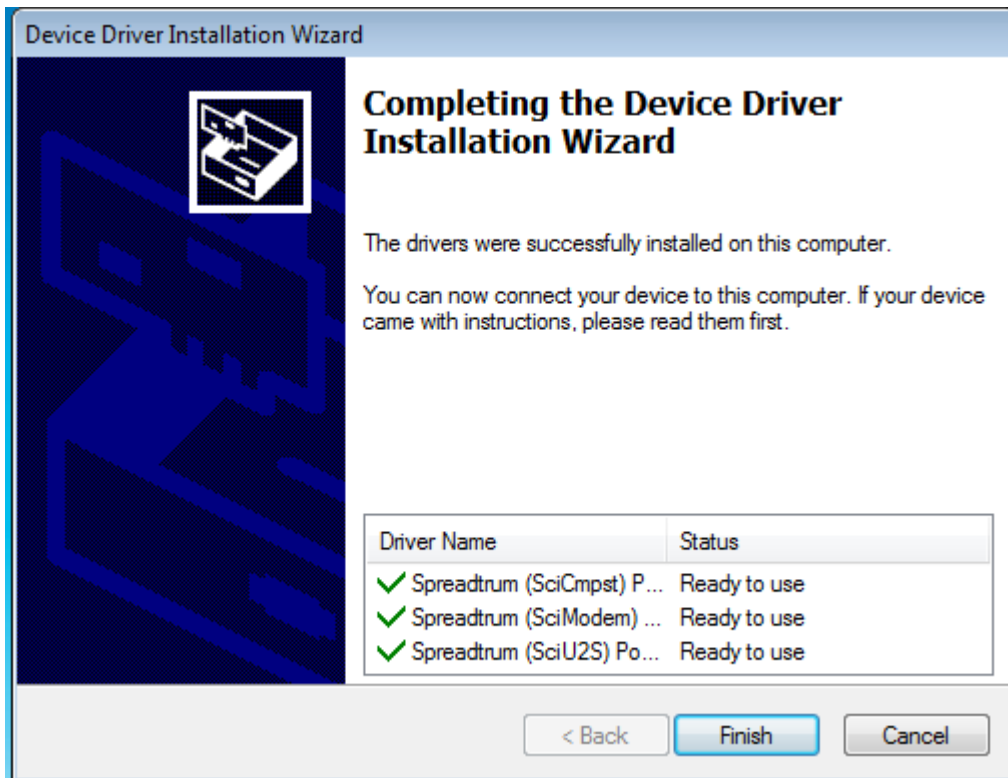Figure 9, Install Driver (64-bit System)

Figure 10, Driver installed (64-bit System).

After the driver installed, a "Installation finished" interface (Figure 11) will be popped up. Click "Finish" to finish installation.
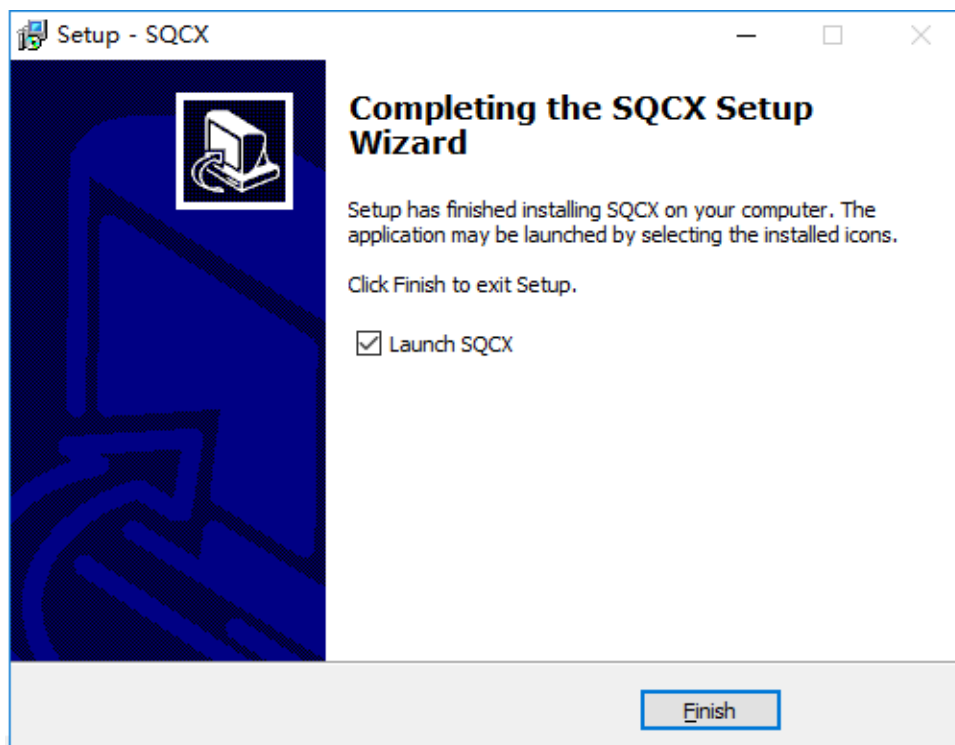

Figure 11, Installation finished.

3. Operation Instruction

3.1. Main Interface Introduction

Open the software, its main interface is as shown in Figure 12.
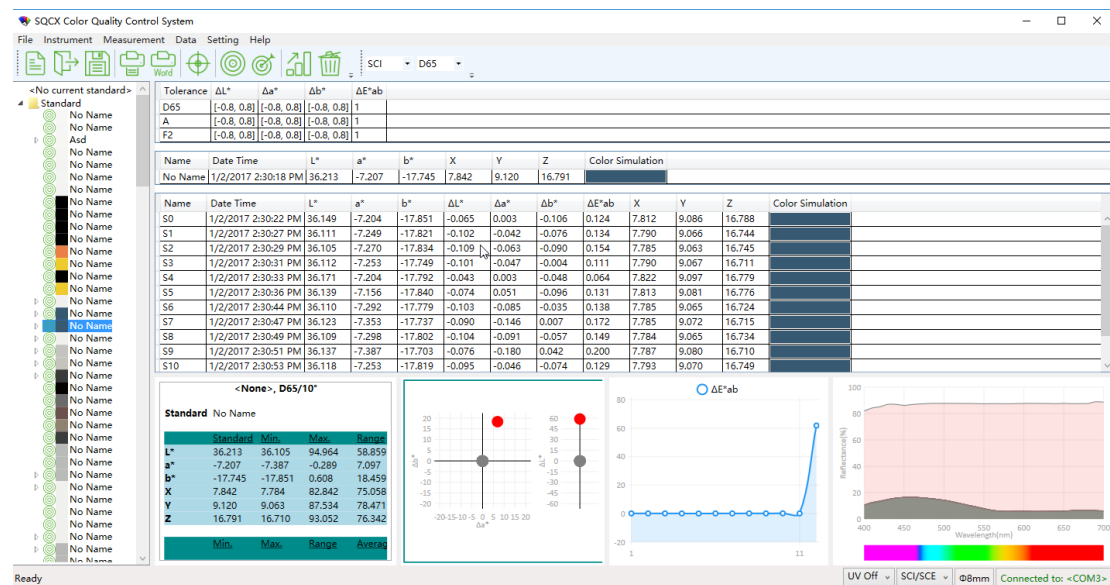
Figure 12 Main Interface

The main interface includes Primary Menu, Toolbar, Sample Tree, Data Sheet, Chart and Status Bar.

Brief Introduction of Interface

The main menu of software includes: "File", "Instrument", "Measurement", "Data", "Setting", "Database", and "Help". Following is a brief introduction of each menu function.

File: Mainly to realize functions of "New-built File", "Open File", "Storage File" and "Print" etc.

Instrument: Mainly to realize functions of "Instrument Status", "Connected or Disconnected Instrument", "Connected Way" and "Instrument Model", "White and Black Calibration", "White Board Index Setting", "White Board Index Setting", "Upload Standard Data to the Instrument" etc.

Measurement: Mainly to perform "Standard Measurement", "Sample Measurement" etc.

Data: Mainly to realize functions of "Rename", "Modify Part No.", "Delete Data", "Auto-name Switch" and "Naming Rule Setting". "Export Data" and "Input Standard", "Instrument Data Management" etc.

Setting: Mainly to realize functions of "Language Setting", "Standard Observe Angle Setting", "Light Sources Setting" and "Display Setting". "System Tolerance Setting", "Report Setting" etc.

Help: User Manual & Checking Software.

Tool bar introduction

Toolbar includes common functionalities such as New, Open, Save, Print, Standard Measurement, Sample Measurement, and Delete, as well as SCI / SCE display switching and light source display switching.

Samples list introduction

The samples list is a classification of all sample records. The top list is the current standard name, followed by the standard group, the standard group includes all standard records, each standard record is followed by the associated sample record; "Absolute Data" group is followed by the sample record which is not associated with standard; "All Samples" is all sample records, including both associated and unassociated standard.

Data sheet and chart

The top of the Data sheet is the Tolerance sheet, showing the current tolerance setting, Tolerance sheet is followed by Standard sheet, Standard sheet is followed by Sample sheet.

The bottom side, from left to right, includes Report, Color Difference Chart, Color Difference Trend Graph, and Reflectance Graph.

When clicking on the "Standard" group (in the sample tree on the left) , all samples will be displayed in the list of Standard sheet on the right, and the Sample sheet will be hidden. When clicking on a standard under the "Standard" group, the standard will be displayed on the right side of the Standard sheet and all associated sample records will be displayed in the Sample sheet. The report will show the statistics of all the samples recorded under the standard. The Color Difference Chart will show the difference of all the samples, the Color Difference Trend Graph will show the trend of the color difference of all the samples, the Reflectance Graph will show the reflectance of the standard and all the associated samples; When clicking on the "Absolute Data" or "All Samples" group in the Standard list, the Standard sheet on the right side will be hidden and the sample records under the group will be displayed in the Sample sheet.

Status bar

Status bar from right to left is the Instrument Connection Status, Instrument Measurement Aperture, Instrument Metering Mode, Instrument UV Switch. For instruments that support switching metering mode and UV , the metering mode can be selected using SCI, SCE, or both the SCI and SCE modes, the UV switch can be used to turn on or turn off during measurement.

3.2. Connect instrument to PC

Before using the SQCX measurement, you must connect the instrument first, then calibrate black and white plate, and then you can make standard or sample measurements.

SQCX supports USB data cable connection and Bluetooth connection, which Bluetooth connection only for the instruments with Bluetooth, and the PC side must have a Bluetooth transceiver.

Cable connection

First turn on the instrument, then use the matching cable to connect the instrument and the computer. If the software is already turned on, the instrument will be automatically detected and connected to the instrument; otherwise, it will automatically connect to the instrument when the software is turned on.

If you have turned on the instrument and connected to your computer with a cable, and SQCX still shows "Disconnected", you can manually click the "Connect" attempt under the "Instrument" menu. If the connection still fails, the problem can be detected by:

- Whether the connection method is selected "Connect by Bluetooth".
- Check that the drive is properly installed.

  You can open the Device Manager to see if there are "SCI USB2Serial (COM3)" under "Port (COM and LPT)" (where "COM3" may also be "COM" plus other digits). If it is present, it indicates that the instrument is properly connected to the computer. Re-start the SQCX or click the "Instrument Disconnected" menu, and then click "Instrument Connect" to try to connect the instrument again; If it is not present, unplug the cable and plug in again, if the system prompts the unknown device or device manager appears a question mark, indicating that the driver is not properly installed, you can reinstall the driver.

- Unplug the cable, restart the instrument, and then reinsert the cable.

- Change a computer.
- If the above methods have not been able to solve the problem, please check if the cable or instrument connection port has a problem.

Bluetooth connection

You can usually connect to Bluetooth by following these steps:

1. Make sure that the PC-side Bluetooth device is turned on before using Bluetooth connection;

2. Then turn on the Bluetooth in the System Setting of the instrument ;

3. In the SQCX "Instrument" menu, select "Connect by Bluetooth" (if "Connect by Bluetooth" has been selected, click "Connect" under "Instrument") directly;

4. In the pop-up "Select Bluetooth Device" window (shown in Figure 13), select the Bluetooth device of the instrument, and then click "OK". The Bluetooth device of the instrument is usually in the form of "3NH" plus the serial number of the instrument. If the serial number of the instrument is "960900", then the Bluetooth name will be "3NH-SN960900". Since the system takes time to discover the Bluetooth device, it may take a while.

Sometimes the Bluetooth connection might fail, you can wait for a while to try to connect, or re-start the SQCX, or turn off the instrument power switch and restart.

If in the fourth step "Select Bluetooth Device" does not find the instrument Bluetooth device, please check the bottom right corner of the desktop whether there is a Bluetooth icon, if not, you should need to install the Bluetooth driver. Especially in the XP system, it often can't correctly identify the external Bluetooth transceiver.

If you have installed the Bluetooth device provided by the Bluetooth driver, but SQCX Bluetooth option window can't find any Bluetooth device, you can Mirror the Bluetooth device to a serial device, and then connect via the serial port. See the next section for the specific step.
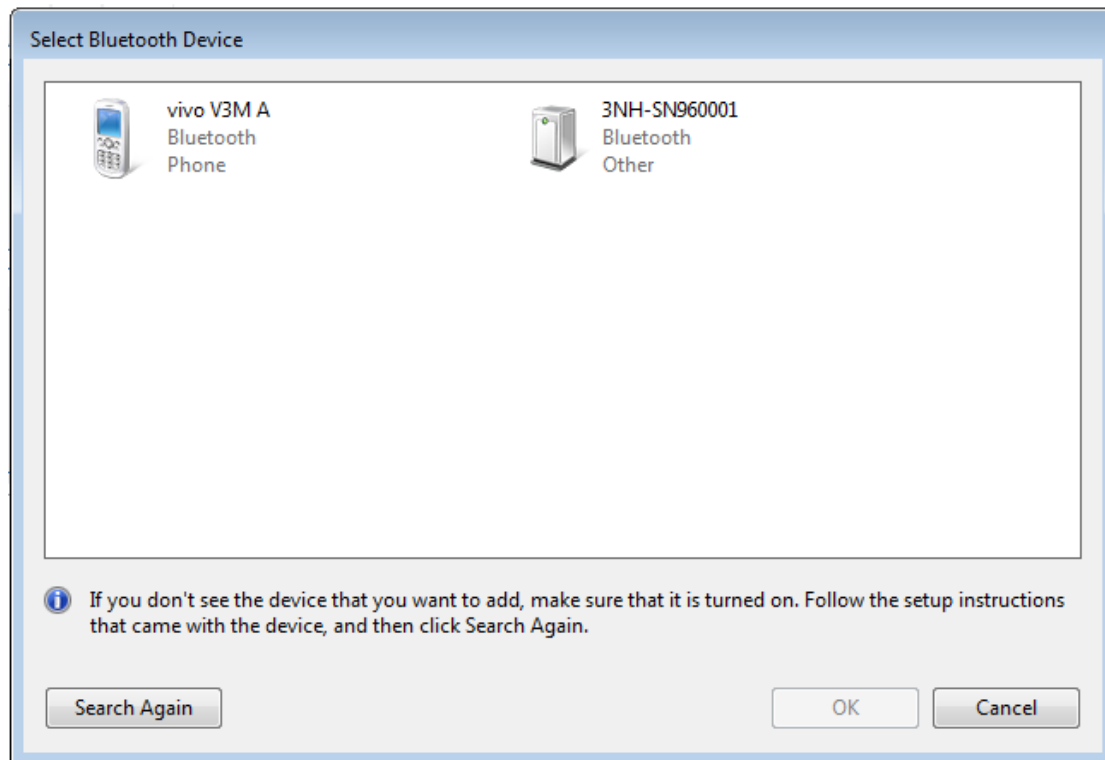
Figure 13 Select Bluetooth Device

Map the Bluetooth device to a serial device

For some users using the SQCX Bluetooth connection directly may not be able to find the instrument Bluetooth device, in this case you can consider mirroring the Bluetooth device to a serial device, and then connect. Specific steps as below:

1. Right-click the Bluetooth icon in the bottom right corner of the desktop, open the context menu, and click "Add Bluetooth Device" (Figure 14). If there are submenus under "Add Bluetooth Device", select "All Types" (or similar) .

2. In the "Add Device" window (similar to Figure 15), select the Bluetooth device for the instrument, and then click "Next".

3. In the "Pairing Options" window of Figure 16, select "Input Pairing Code for Device". Enter the pairing code in Figure 17, enter the pairing code. The pairing code is "1234" or "0000", and then click "Next" to complete the addition of the device.

4. After the addition is complete, the instrument's Bluetooth device will be mapped to a serial device, then in the SQCX "Instrument" menu under the "Connect to Serial Port" to select the corresponding serial port (Figure 18). The instrument's Bluetooth device is mapped to two or three serial ports, and only one can be connected, try to connect one by one.
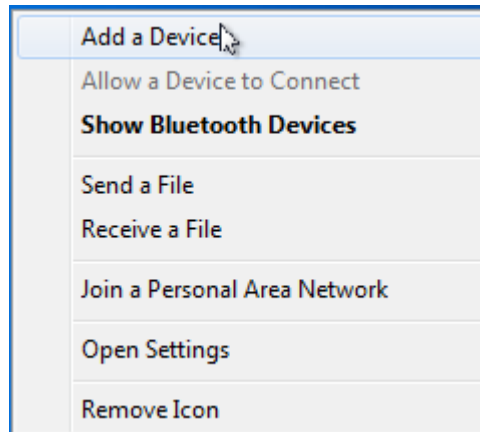
14

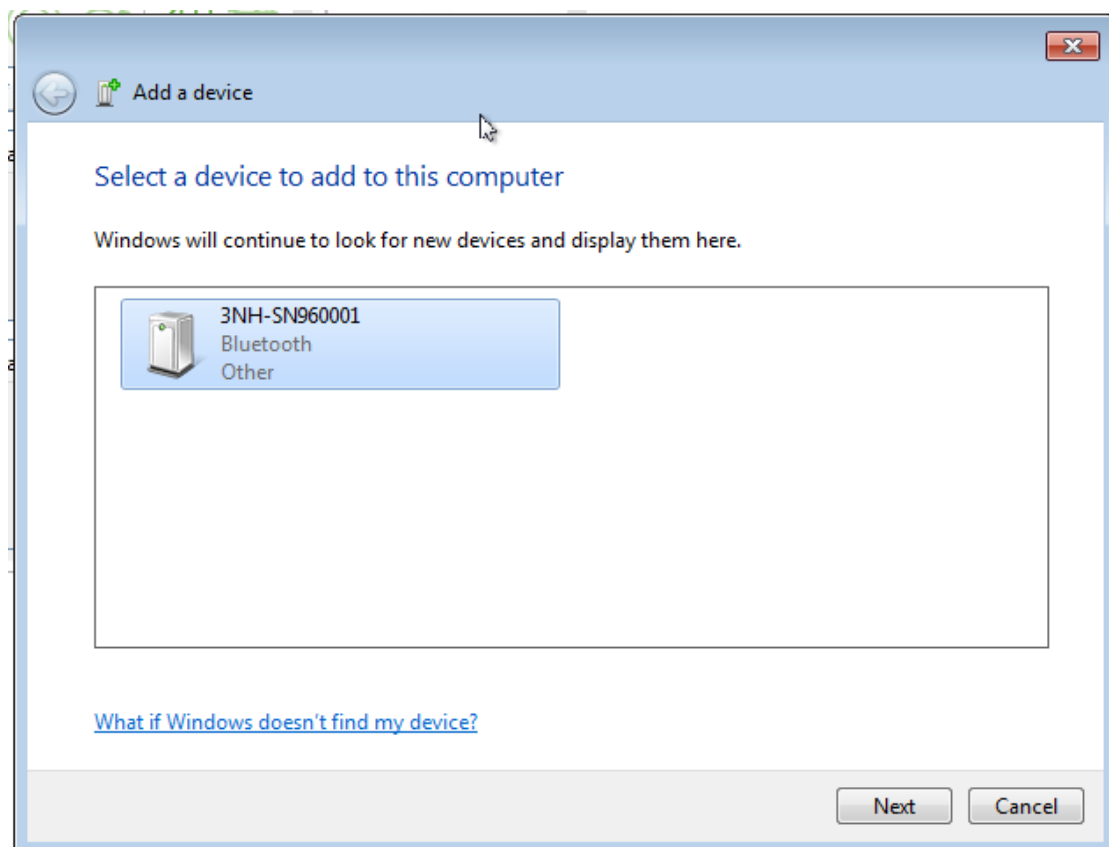Figure 1 Press "Adding Bluetooth device" in right-click menu.
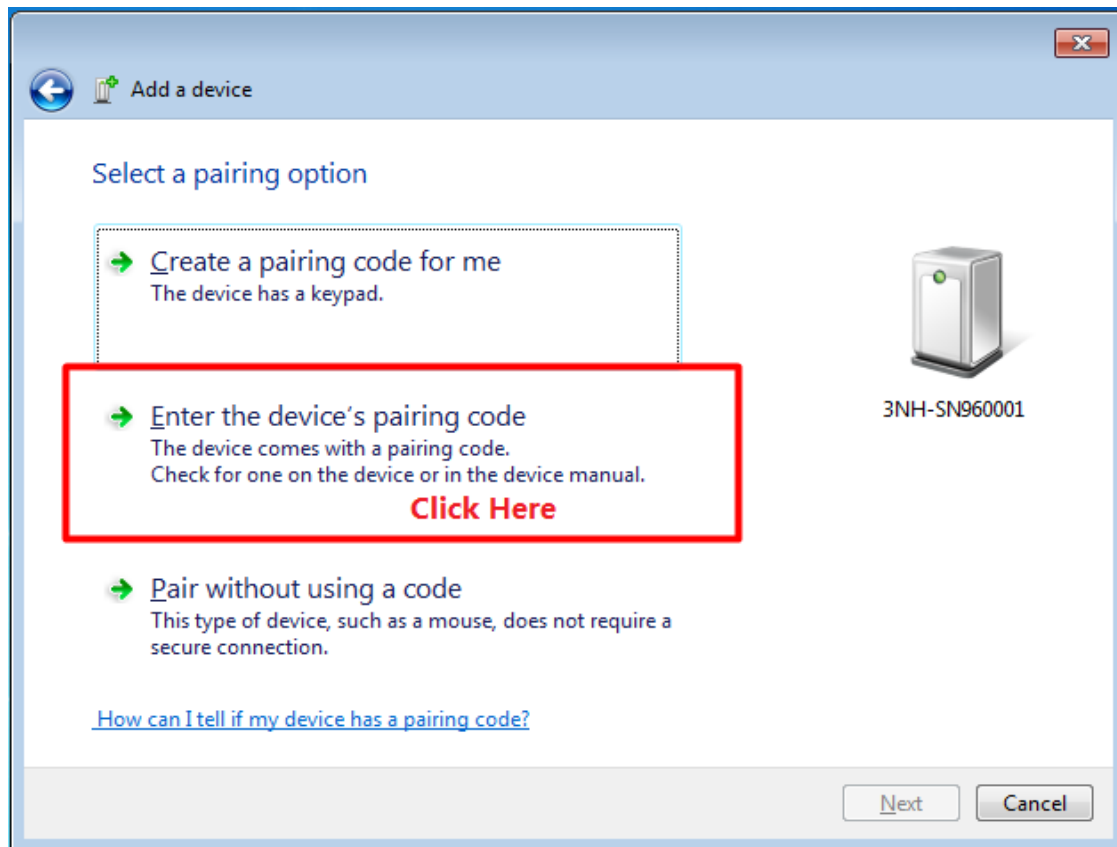

Figure 2 Adding Bluetooth device window
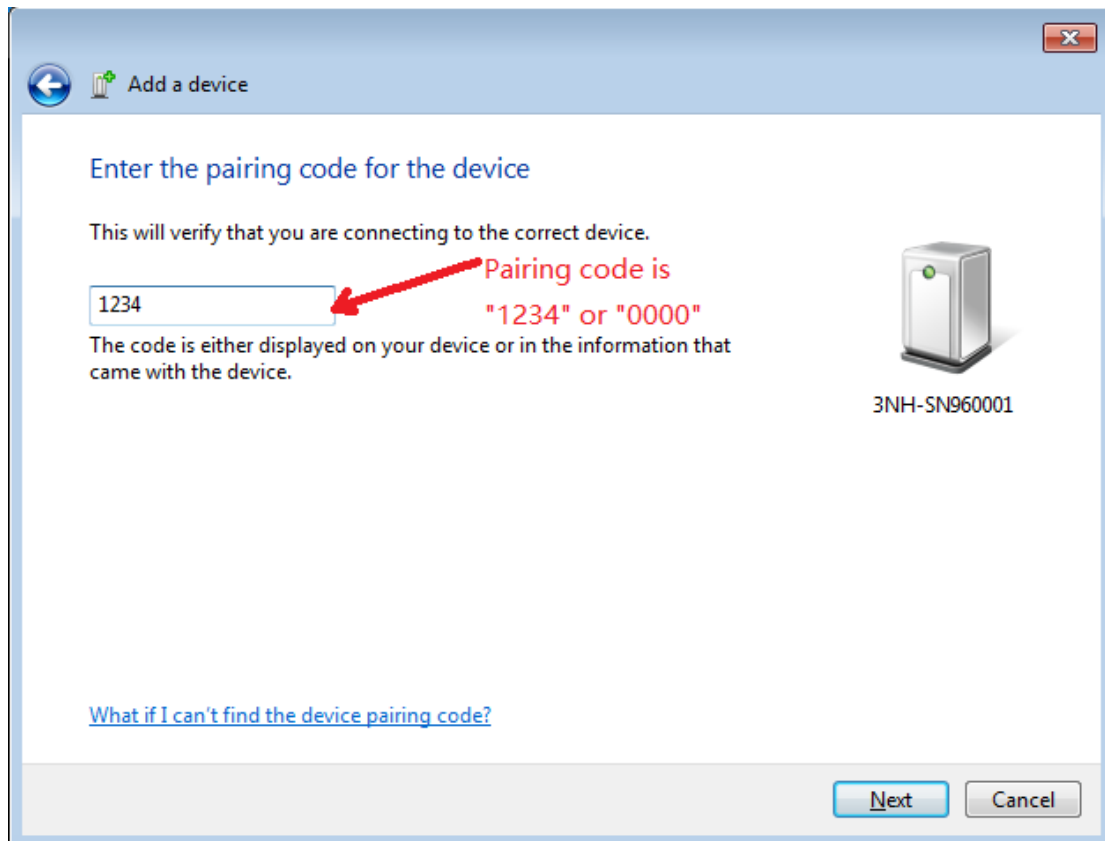
Figure 16 Pair Options Window

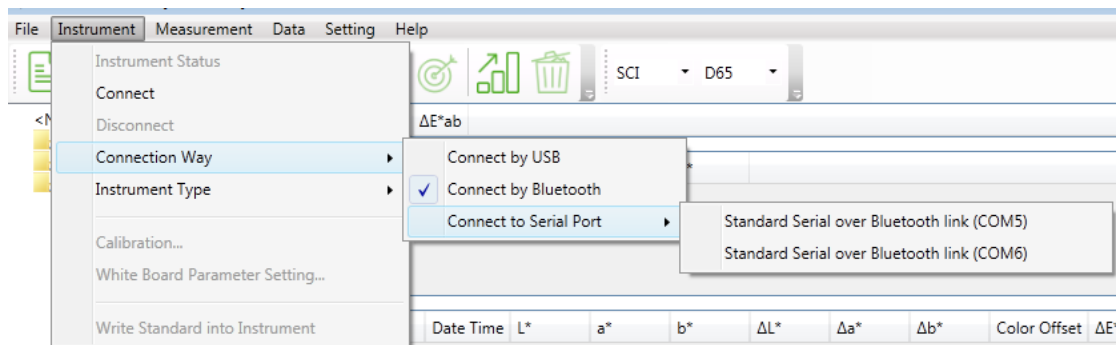Figure 17 Enter the pairing code "1234" or "0000"

Figure 18 Connect to the Bluetooth port on the serial port under "Connect to Serial Port "menu

Choose the instrument type

SQCX also supports NS series and YS series of spectrophotometer. By default, the YS Series Spectrophotometer is selected. If you want to connect the NS series, you can check the "NS Spectrophotometer Series" in the "Instrument Type" under the "Instrument" menu.

Note: For the NS series of spectrophotometer, if the "YS spectrophotometer series" is selected in the "instrument type", it will lead to errors in the related operations, the same if the instrument is YS series, the instrument type selected is "NS spectrophotometer series", will also be wrong.

Disconnection

Click "Disconnect" under the "Instrument" menu to close the connection.

4.3. Black/White calibration

In order to ensure the accuracy of the instrument, it is recommended that the instrument need to be re-calibrated from time to time or when the external environment (such as temperature and humidity) changes greatly; besides, it is also recommended that the instrument need to be re-calibrated when connecting to SQCX.

Before calibration, make sure that the aperture of the instrument and the whiteboard serial are the same as those of the instrument. Otherwise, the calibration result will be misaligned.

When calibrating via SQCX, first click "black and white calibration" under the "Instrument" menu. It will pop up the window shown in Figure 19, confirm the current measurement aperture and whiteboard number, and then click "OK" to enter the next step, whiteboard calibration.
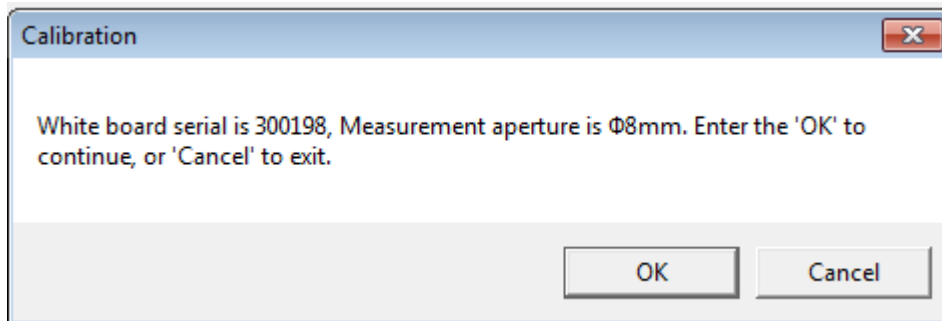

Figure 19 black and white calibration prompt window

According to the prompt of Fig.20, align the measuring aperture with the whiteboard of the calibrating box, and then click "OK" to start the white calibration. White calibration will be repeated three times, please be patient.
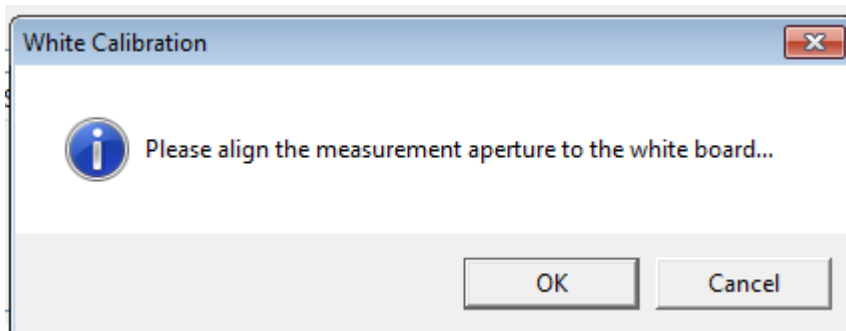

Figure 20 White calibration prompt window

After the white calibration is successful, it will pop up the dialog box shown in Figure 21. align the measuring aperture with the black barrel, and then click the "OK" button. The black calibration is repeated three times as well as the white calibration.

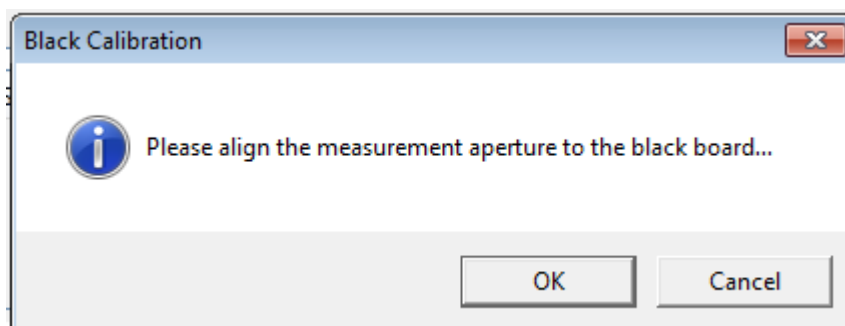After the black calibration is successful, black and white calibration is completed.

Figure 21 Black calibration prompt window

4.4. Measuring

After the black and white calibration is completed, the measurement can be made. Measurements are classified as standard and sample. Standard measurements are similar to sample measurements, except that the results of the standard measurements are stored in the standard group and the results of the sample measurements are stored under the current standard (it will be stored in the " Absolute data "group if no current standard).

The "standard measurement" and "sample measurement" under the "Measuring" menu can measure standards and samples respectively, and you can also use the standard measurement button （ ⊚ ） and the sample measurement button （ ⦿ ） in the toolbar, and finally you can use the shortcut key F5 to measure the standard, space bar to measure the sample.

Before measuring, align the measuring aperture with the sample to be measured, keep the instrument stable, and then measure.

For instruments that support UV and SCI/SCE switching, you can select to turn off UV in the status bar and use a different metering mode (shown in Figure 22).

Figure 22 UV switch and metering mode switch
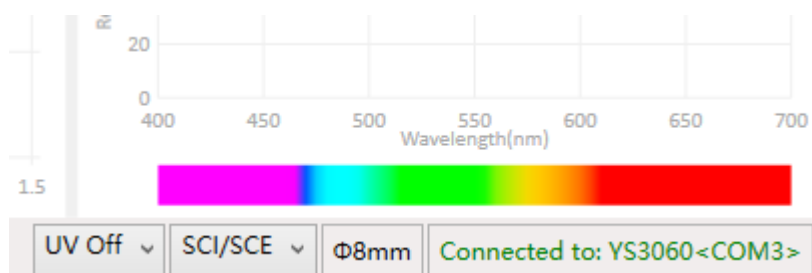
4.5. Input standard

If you have had some standard data, you can choose to enter these standards, and then set it as the current standard to measure.

To enter the standard, click "Enter the standard" under the "Data" menu to open the standard input window (shown in Figure 23).

First select the type of the data to be entered. You can input reflectivity, CIE Lab color coordinates, CIE XYZ and Hunter Lab data currently.

Then choose the SCI data, or SCE data, or both.

If you want to input the standard measured during UV open "UV" option can be selected open, otherwise choose "off".

If measuring aperture are listed in the standard measurement, can choose appropriate aperture, otherwise choose "other".

If the data of inputting is outside of the reflectivity data, you need to select that the data when measured using the standard light source and observer perspective (figure 24).If you don't know, usually choosing D65 light source, 10 degrees standard observer Angle is right.

When inputting reflectivity, if reflectivity data is separated by blank characters or commas, or stored in the Excel, can be directly copied, and then pasted, the reflectivity data will paste into the cursor location and subsequent grid.

All inputting data confirmed, click "ok", the inputting data will be added to the standard group.

Figure 23 standard inputting - input reflectivity data

Figure 24 standard input - Lab values

4.6. Sample and color difference measurement

Setting the standard firstly when the sample measurement.

In the standard group, choose to use the sample, and then open the right-click menu, click "set as the current standard" (figure 25), or measure the standard directly.

Then measured the sample. After the measurement, the new sample of measurement will be added to the current standard, and displayed in the sample list (figure 26).
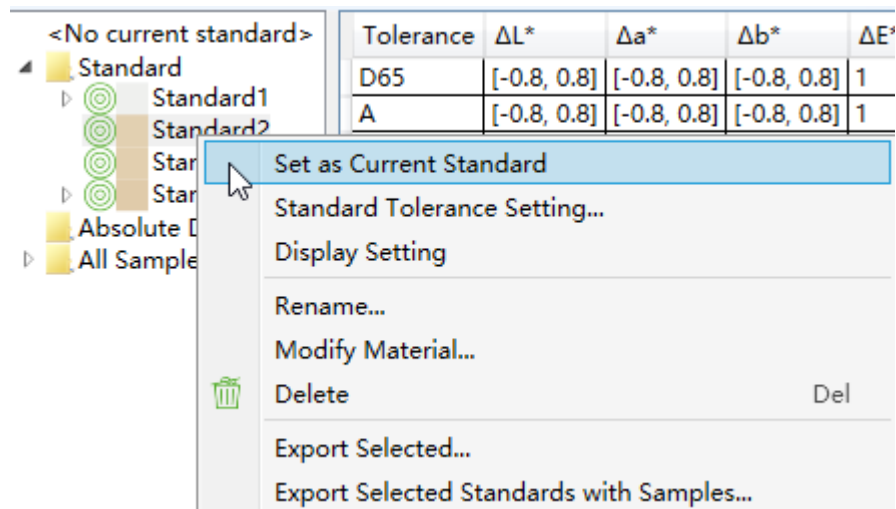
Figure 25 in the   right-click menu of standard, click on "set as the current standard"

In figure 26, the new sample of measurement   is shown at the end of the list , and shows the color difference of sample and standard, and color deviation relative to the standard, and conclusion getting from the tolerance settings. The information displayed in the report forms are the sample as the information in the sample list, but at the same time shows the value of the sample. The color difference and reflectivity of the sample will be showed highlighted in the chart.

The color difference and the color difference formula, can be modified "data setting" , detailed instructions will be showed as follows.

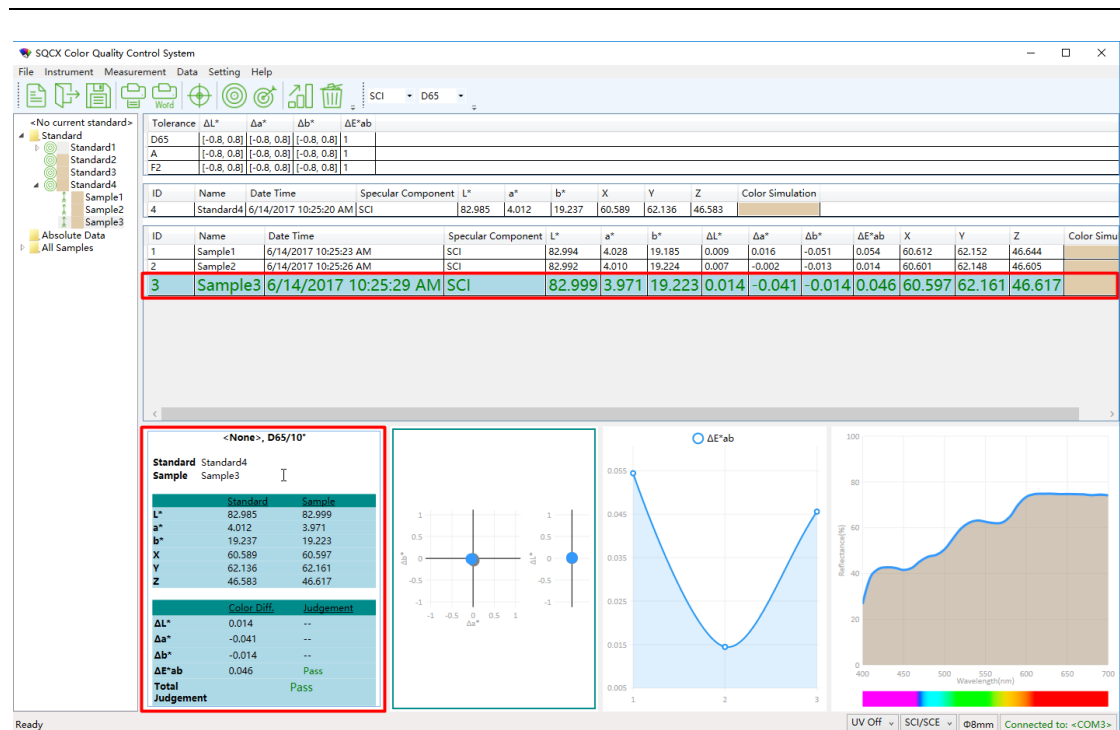Figure 26 the sample of new measurements

3.7. The display items setting

SQCX provides color space CIE XYZ, CIE Lab, CIE LCH, CIE RGB, Hunter Lab space and so on, such as a variety of yellowness, whiteness, color fastness, strength index, as well as the reflectivity data, all of these data, together with the samples name, material number, the measurement time can be showed freely.

Click on "Settings" menu "display items setting", open the display settings window (figure 27).

On the left of the "available data item" lists all of the available fields, on the right list of display data item show the current display data items. Selected item in the list on the left, then click "> >" button can be moved to the display data items, the selected item in the list on the right and then click "< <" button, it can be removed from the display data items.

Available data items of "all items" are listed all the available data items; Listed in the "sample properties" sample name, number, metering mode, measuring aperture, color deviation, conclusion nonnumeric data items; "Color attribute" lists the chromaticity coordinates under all available color space; In the "color difference" lists all the chromaticity coordinates of color difference and color difference formula available; "reflectivity" lists all available wavelengths of reflectance and difference value field; In the index lists the various whiteness, yellowness, color fastness, strength, cover degree color index .
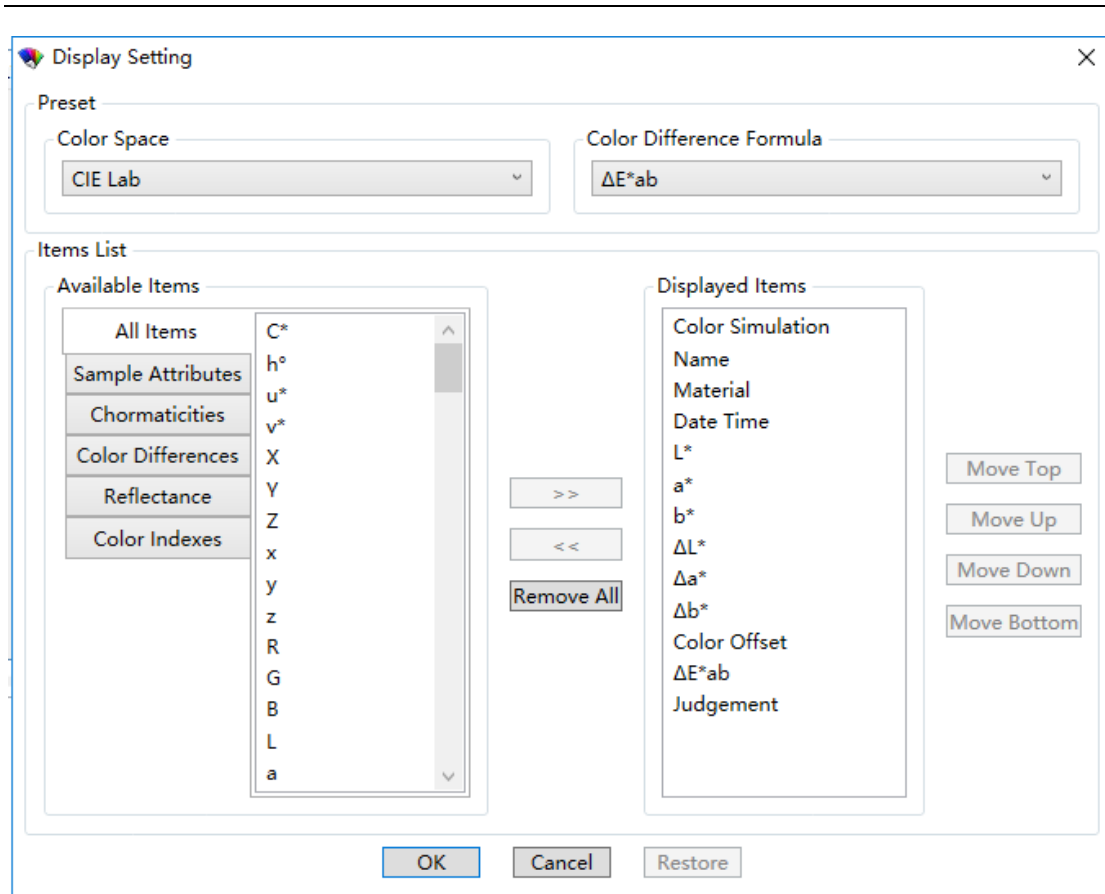
Figure 3 Display setting window

3.8 Standard illuminant and Observer setting

Press Standard illuminant and Observer setting in "Setting" menu to open the setting window (Figure 28)
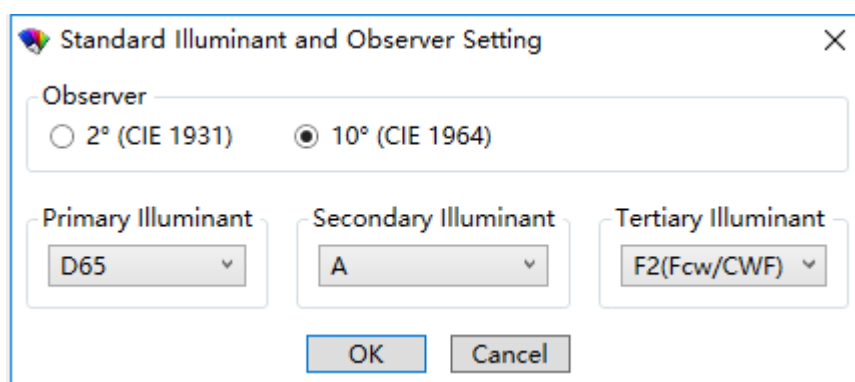

Figure 4 Standard illuminant and Observer setting window

Set the Observer angle and main illuminant. If the reference illuminant is set as blank, it mean no setting on illuminant.

If Metamerism is chosen in data display, the reference illuminant must be set. And only after set the reference illuminant, the related reference tolerance could be set. After set the reference illuminant, you may switch it in the tool bar of main menu.

3.9. Tolerance setting

Click "setting"-> "tolerance setting", open setting window (Figure 29)

Figure 29 Tolerance setting window

One main tolerance and two reference tolerance can be set up, reference tolerance is set for reference illumination.

All available tolerance is listed in " tolerance data", and effected by display data. Data contain all color difference items, color formulas and reflection difference value, all display as tolerance.

"use for judgment", if selected, relevant tolerance will apply to judge, that all selected items are qualified means qualified. If selected or cancelled, first choose relevant cell then click check box.

Click some cell in "lower limit" and "upper limit", click again, relevant data can be changed after clicking another cell.

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When using CMC color formula or CIE DE94 or CIE DE2000, you just input relevant data if you hope to change parameter factor.

" get tolerance from" means use system tolerance or standard tolerance setting. If "standard" selected, standard tolerance will cover system tolerance; if "system setting" selected, whether standard sets tolerance or not, it will use system setting.

Click "OK" or "ACCEPT" to apply tolerance setting, click "RESTORE" to recover default setting.

3.10. Printing forms

Printing color difference forms

Select some samples in sample tree or sample form, then click "FILE"->"PRINT"

If output Word forms, click "FILE"-> "WORD PRINT".

"FILE"->"PREVIEW" to preview printing document.

Print collected color difference forms

Select some or every standard in standard tree or various of samples in sample form, then click "FILE"->"PRINT", to print collected color difference forms.

If output Word forms, click "FILE"-> "WORD PRINT".

"FILE"->"PREVIEW" to preview printing document.

Report information setting

Click "setting"-> "report setting" to open setting window (Figure 30)

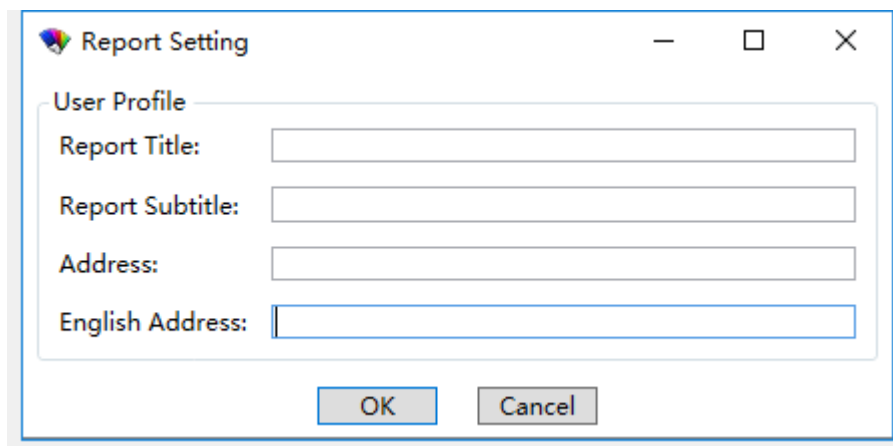Input relevant information, blank if no words, then click "OK"

Figure 30 Report setting window

3.11 Exporting data

Exporting all standard

Click "Data"->"exporting all", The window Figure 31 popup

Click "use system default setting", sample data exported as system data display setting

Click "use standard setting", sample data exported as every standard data display setting

Click "specified setting", data display setting window popup to specify exporting data.

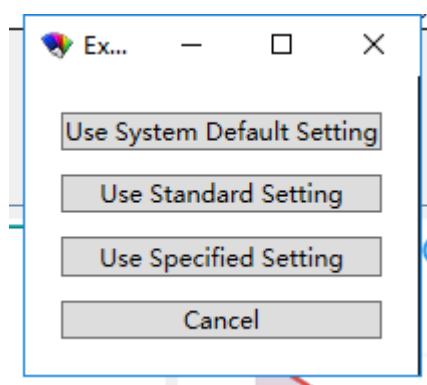Click "cancel" to cancel exporting.

Figure 31 Exporting windows

Exporting selected sample

Select some standards or samples in standard forms or sample forms, click "Data"->"exporting selected sample" or click "exporting selected sample" in menu to export selected sample to Excel or Txt.

Exporting selected standard and relevant sample

Select standard in standard form or sample tree, then click" data" or " export selected standard and relevant sample" in the menu, export selected standard and relevant sample to Excel or Txt in using every standard data display setting.

3.12 Instrument data management

Connecting with instrument, SQCX can import, export and cancel the data in instrument. In dealing with these operation, Click "data"->"instrument data management" to open this window (Figure 32).

Figure 32 Instrument data management window

It will upload all standard in the instrument automatically when opening instrument data management window, if there are more standards in the instrument, sometimes it's slow to open it.

When window open, it will display simulation color, No. and name of all standard in left standard form, all standard data in right form.

When clicking some standard in left form tree, it will upload all samples under this standard and display in right form, it displays nothing if there is no relevant sample; click" standard" in form tree, it displays all standard data in right form.

If upload all samples under standard in one time, right click left sample tree, open menu, click" upload all standards and samples ".

Click "display setting" below to set data items displayed in right form, illumination to change standard illumination, observation to change observation angle, metering mode to change SCI,SCE or both of them.

Select standard in tree form or right form, then right click to open standard menu (Figure 33); click or select sample, then right click to open sample menu. (Figure 34)
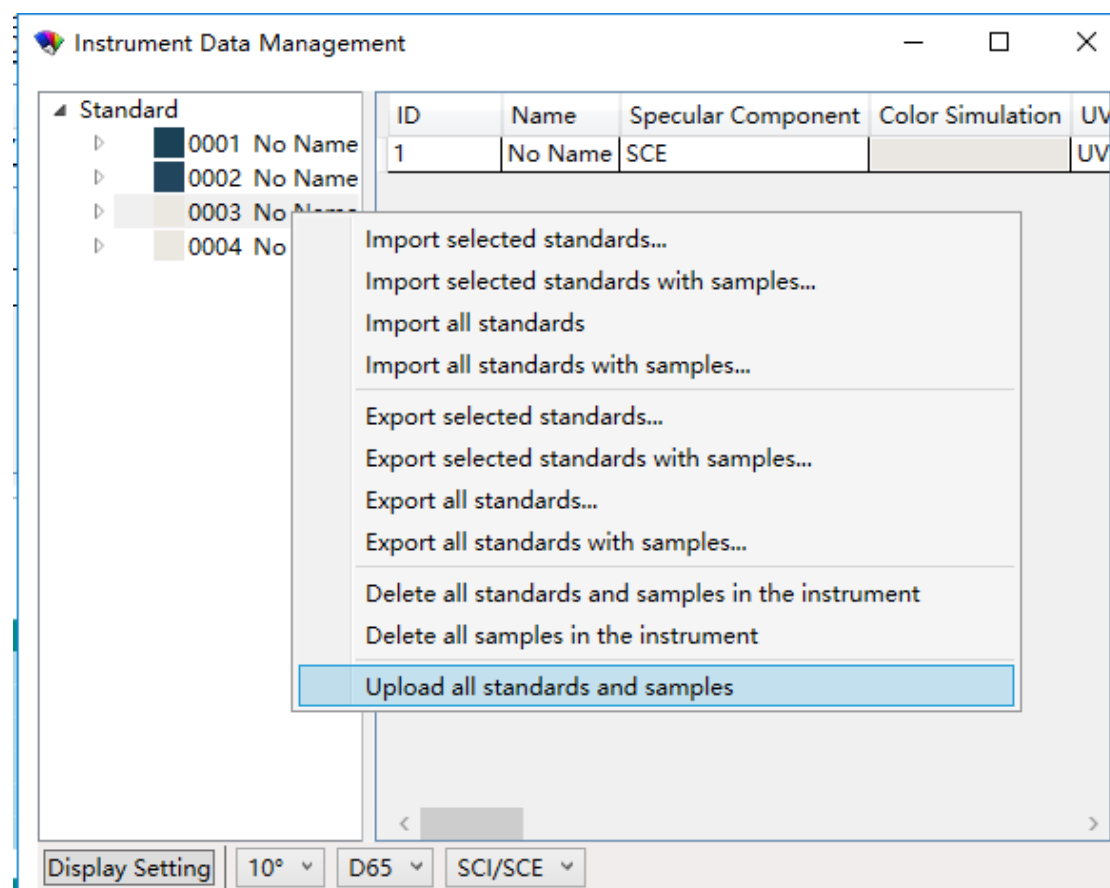
Figure 33 The prototype context menu

Table 1　　The prototype context menu

Menu Item	Operating instruction
Import the selected standard samples	Import the selected standard sample into the current working standard sample group
Import the selected standard samples and relevant testing samples	Import the standard samples and its associated testing samples into the current working mode and maintain the original relationship
Import all standard samples	Import all the standard samples in the instrument to the current working group
Import all standard samples and relevant testing sample	Import all the testing samples from the instrument into the current mode and keep the correlation between original standard sample and the testing sample

| Export the selected standard sample	Export the selected standard sample to Excel
Export all standard samples and relevant testing sample	Export the selected standard samples and the relevant testing samples to Excel
Export all the standard samples	Export all the standard samples to Excel
Export all standard samples and relevant testing sample	Export all the standard samples and testing samples to Excel
Delete all samples in the instrument	Empty the data in the instrument
Delete all testing samples in the instrument	Delete all testing sample data in the instrument
Upload all the samples	Upload all the testing samples associated with each sample
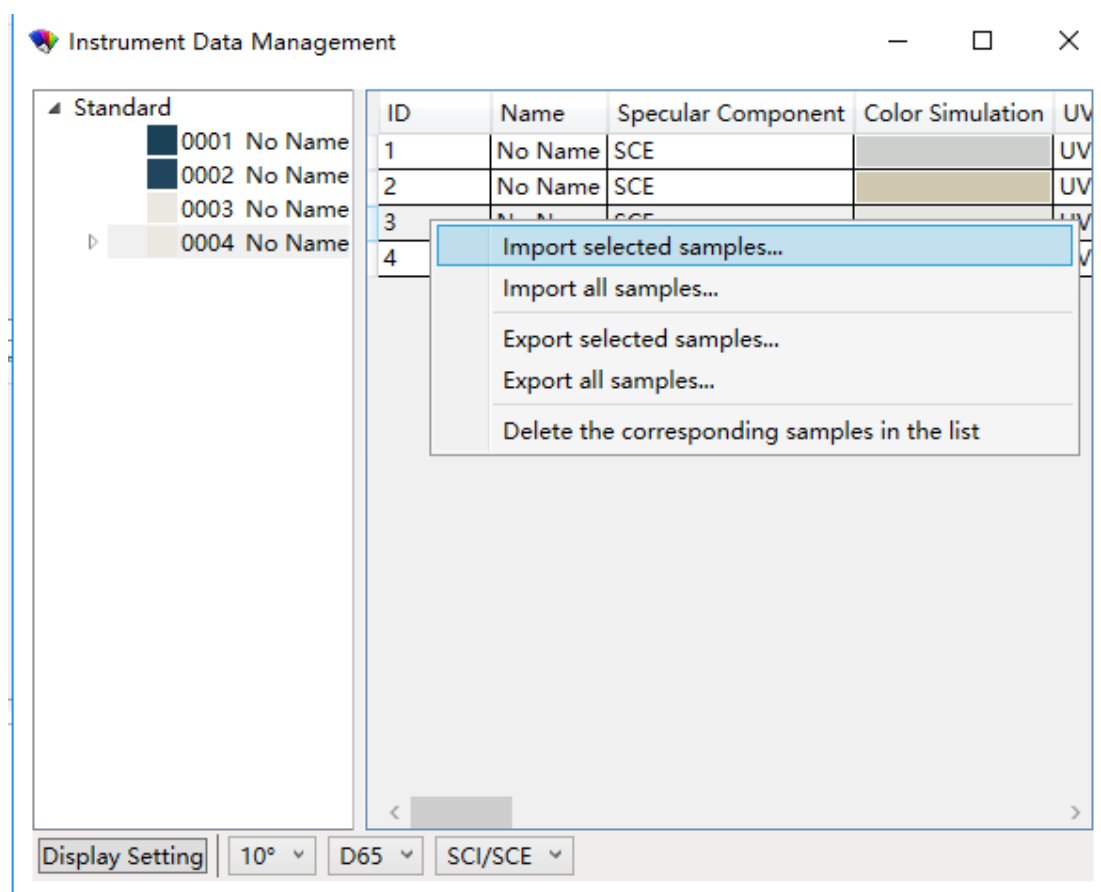
Figure 34 Testing sample context menu

Table 2　　Testing sample context menu

Import the selected testing samples	All the testing samples introduction to the main interface of the prototype sample group
Import all the testing samples	Import all the testing samples shown in the right list to the untested sample group in the main interface
Export the selected testing samples	Export the selected testing samples to Excel
Export all the testing samples	Export all the testing samples to Excel
Delete all the testing samples in the list	Delete all the testing samples listed in the list from the instrument

3.13 Input the standard samples into instrument

If you want to write a standard sample to the instrument, select the standard sample and then click the "write standard sample" under the "instrument" menu.

Note: Since the name length of the label is in the instrument, the name length of the label to be written is automatically truncated when it is longer than 8 English characters. In addition, the non‑English characters in the name are not guaranteed to display correctly.

4. Other operations

4.1 Document operation

SQCX can save the current job to the XML file. Click on the "save" under the "file" to save the current work, "open" to load the original saved work, "new" close the current job and open a new job.
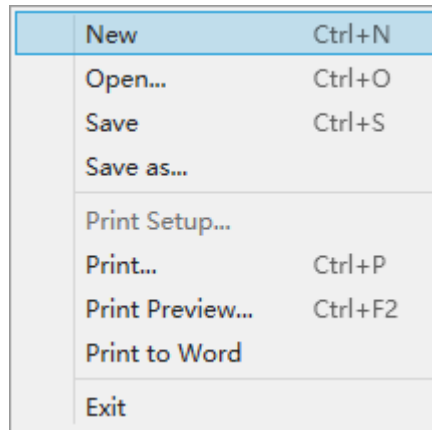
Figure35 File Menu

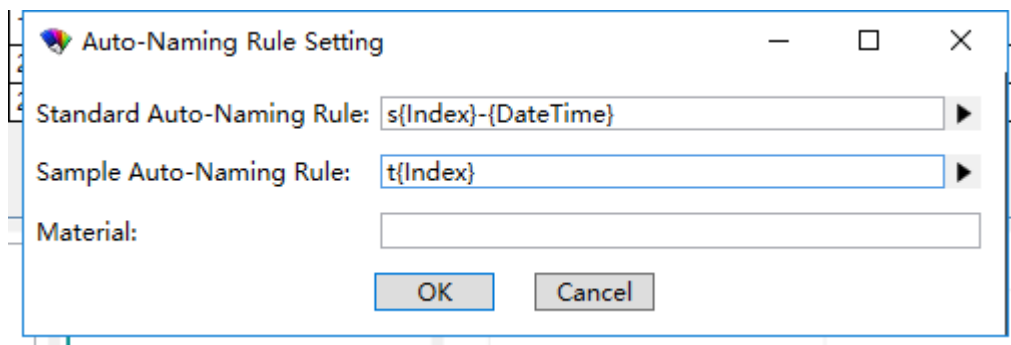## 4.2 Set rules of auto-naming and default part number

Figure36 Set the naming convention window

A name is automatically generated when the "automatic naming" under the menu is measured. Click the "set up automatic naming rules" under the "measure" menu to set the automatic naming rules for the standard samples and testing samples, and the default feed number.

The naming rules are composed of strings and variables, which are enclosed in parentheses.

Current available variables have sample Index, Instrument type, Material number, metering mode, UV identification, test time. These variables are representative by Index, Instrument, Material, Specular Component, UV and Date Time. (seeing table 3).

Table 3 Variables of the automatic naming convention

Variable	Meaning
Index	The index of the testing sample
Instrument	The instrument model of the measurement

Material	The setting of default material number
Specular Component	Metering mode: SCI、SCE or SCI/SCE
UV	The UV logo of the measurement
Date Time	Time of measurement

If the prototype of the naming rules is set to "the prototype - {Index} - {DateTime}".If the sixth standard sample was measured at 10:23:15 April 1, 2017. It will be automatically generated for its name "the prototype - 6-201704012315".

Click on the triangle on the right side of the standard sample or testing sample naming rule to display the available variables, and click the appropriate variable to automatically enter it into the edit box.
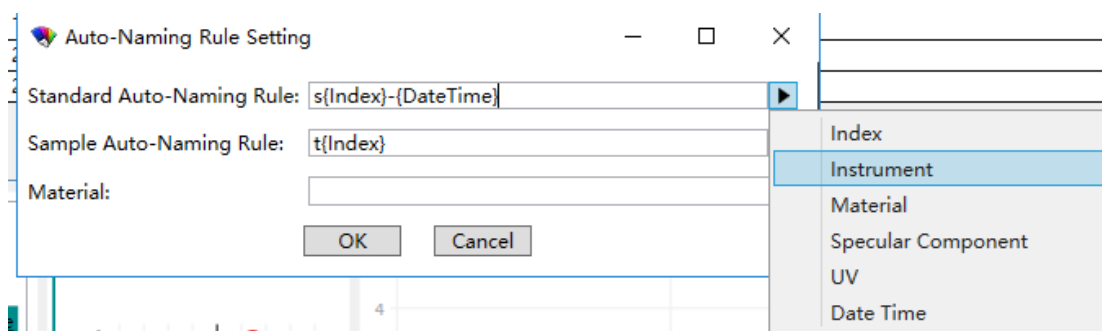

Figure 37 Click the triangle to display the available variables

4.3 Standard sample operation

Select one or more of the standard samples in the table in the tree or the standard samples , and then open the context menu. The context menu includes the operation of the standard samples (Figure 38).
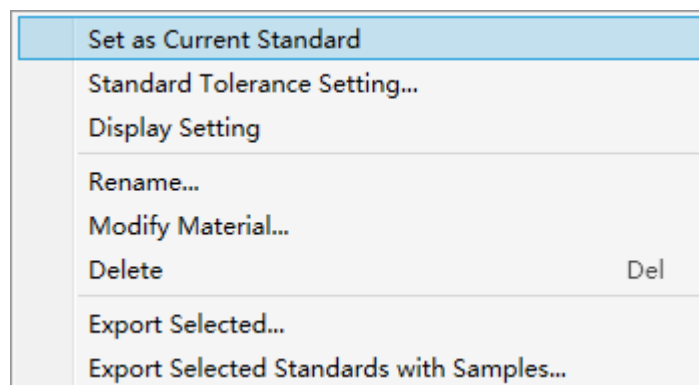

Figure 5   Standard context menu

Table 1   Standard context menu operation

Menu	Operation
Set a Current Standard	Set the selected standard to the current standard.
Standard Tolerance Setting	Set the tolerance of the selected standard, the detailed operation can refer to set the tolerance. When the standard tolerance is set, the system display settings are copied and a separate data display item is set for the standard.
Display Setting	Set a separate data display item for the standard. The exercise sets a separate tolerance for the standard。
Rename	Modify the sample name.
Modify Material	Modify the standard item number.
Delete	Remove selected samples.
Export Selected	Refer to export the selected sample.
Export Selected Standards with Samples	Refer to export the selected standard and its sample

4.4. Sample Operation

Select the sample and then click context menu button. The context menu contains actions that can be made to the sample. Specific operations are listed in Table 5.

Table 5 Sample context menu operation

Menu	Operation
Changing Related Standard Sample	Change the sample of the selected sample
Move to Standard Sample	Move the selected sample to the sample group
Rename	Modify the name of the sample
Modify Material	Modify the standard item number.

Delete	Remove selected sample.
Export Selected Samples	Export the selected sample to Excel or text file, refer to exporting the selected sample

Changing Related Standard Sample

After selecting one or more of the standard, click on the "Changing Related Standard Sample" in the context menu to open the standard setting window (Figure 39). In the "Associated standard setting" box to select a standard sample, and then click OK, you can move the selected sample under the standard sample. If you do not want to associate with any standard, check "Not Relate to Standard".
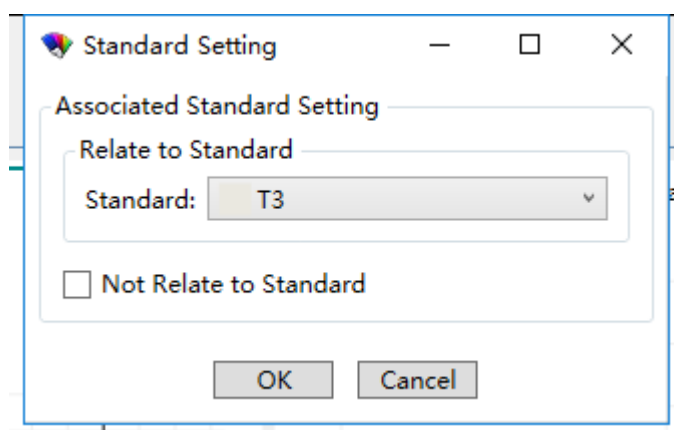

Figure 6 Standard Setting

4.5 Color Difference Figure

As shown, right click on the color difference figure, in the pop-up menu can be selected to display DeltaLab color chart, DeltaLCH color difference figure, DeltaYxy color difference figure, DeltaHunterLab color difference figure and DeltaLuv color difference figure.

Note that different color difference graphs can only be selected if the field of the corresponding color space is used in the field display option, otherwise it will not be displayed in the context menu. DeltaLc needs to use the CIE Lab color space. DeltaLCH needs to use CIE LCh color space. DeltaYxy need to use the CIE XYZ color space or CIE Yxy color space. DeltaHunterLab need to use Hunter Lab color space. DeltaLuv need CIE Luv color space.

In addition, if you select multiple color difference figure, you can also choose to use

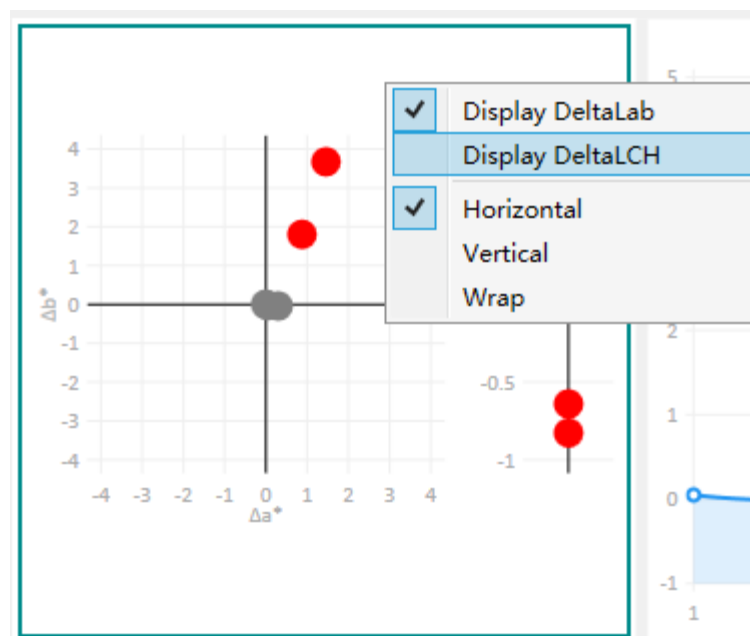horizontal arrangement, reorder, or auto line in the context menu

Figure 7 Color Difference Figure Context Menu

4.6 Color Difference Trend Figure

The color difference figure can display the trend of each color difference. By default, only $\Delta E *ab$ is displayed. You can select other color difference items by right-clicking the menu. The selectable color difference item will vary depending on the field selected
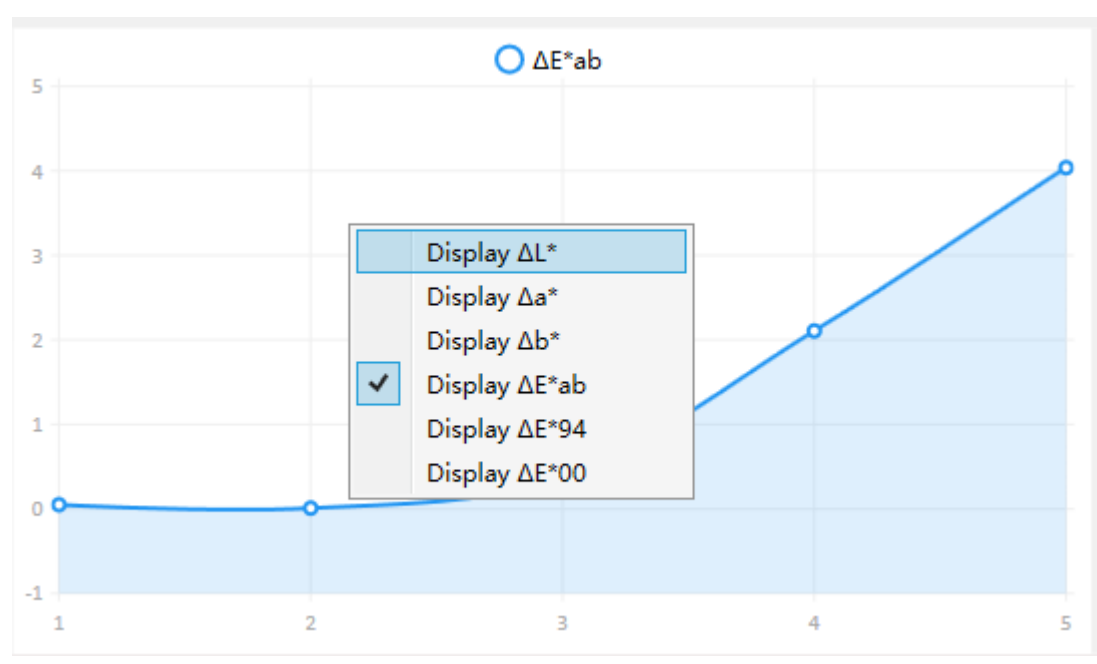
in the display settings.

Figure 8 Color Difference Trend Figure Context Menu
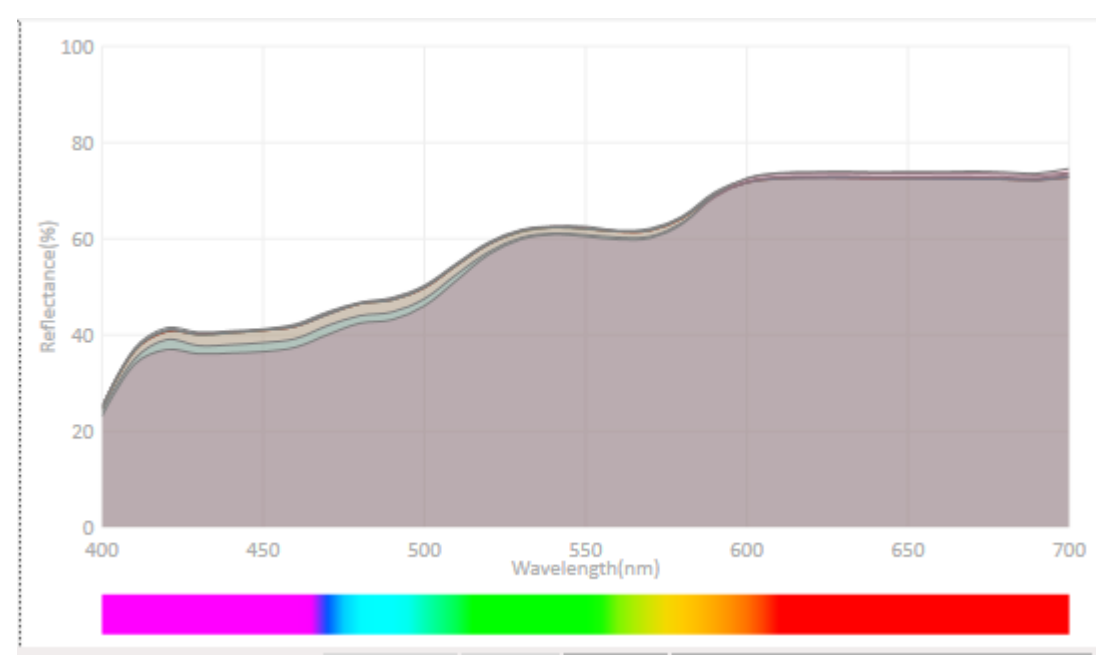
4.7 Reflectivity Figure

Figure 9   Reflectivity Figure Table

The reflectivity figure displays the reflectivity of all samples in the sample list or sample list.

4.8 Instrument Calibration and White Board Parameters Setting

In order to ensure the accuracy of measuring instruments, usually about a year need to re-calibration of the whiteboard. You can send the instrument to the manufacturer for re-calibration, but also to the authority of the measurement agencies to re-calibration. If it is the latter, you need to re-calibrate the whiteboard. The following is the specific steps to write the whiteboard reflectivity:

1. Connect the instrument to the SQCX, and then click "Whiteboard Parameter Settings" under the "Instrument" menu to open the Whiteboard Parameter Settings dialog box.

2. Click the "Read" button to read the original whiteboard parameters.

3. Keep the internal and external numbers of the whiteboard and enter the whiteboard reflectivity data after the recalibration.

Please note the accepted reflectivity data interval when entering. In addition, if it is the YS series, it will require you to enter the calibration data under the SCI and SCE at the same time, if it is NS series, it may only need to enter the SCI or SCE (depending on the instrument model) under the calibration data.

When you enter the reflectivity data, you can copy a set of reflectivity data at a time. These reflectivity data are separated by a blank character or a comma, and then pasted to the edit box corresponding to the first reflectivity data. The following values are automatically pasted The corresponding location.

4. Click the "Write" button to write the parameters.