



**Application Software
for the M209T & M509T**

User Manual

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INTRODUCTION

The SPECTRONIC CAMSPEC® K3 Analyst Software has been designed to operate with SPECTRONIC CAMSPEC® M209T and M509T Spectrophotometer.

SPECTRONIC CAMSPEC® Application package includes:

- Software USB
- Software User's Manual on USB
- USB cable.

K3 Analyst Software performs the following methods for analysis:

- Absorbance/%Transmittance/Concentration at single or multi wavelengths:
- Standard Curve: create a calibration curve with up to 8 standard solutions to determine concentrations of unknown samples.
- Kinetics: measure absorbance change over a selected period of time
- Scanning: scan any wavelength range featuring zoom and peak/valley pick.

Minimum PC Requirements

- Win XP or Win 7 operating system
- .Net 3.5 Framework
- 1GB RAM
- 500 MB of free space on memory

INSTALLATION

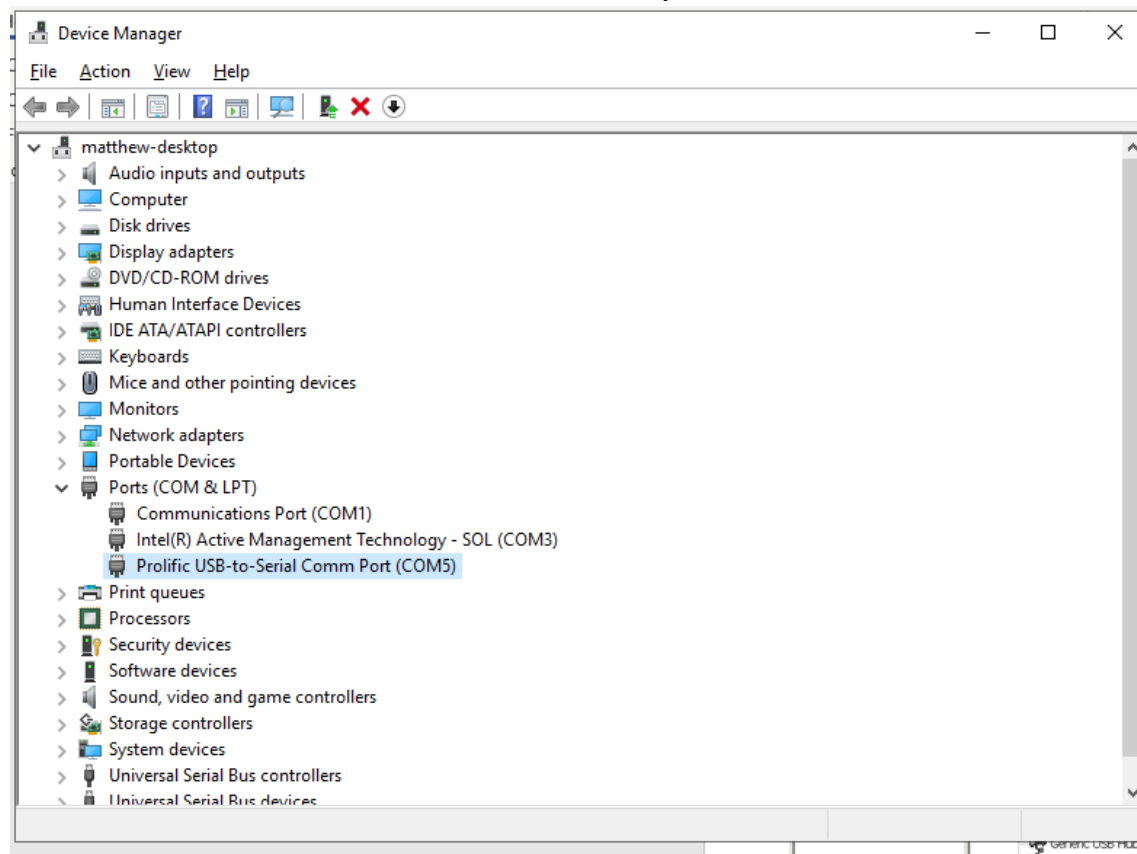
Insert USB into the and double click setup.exe. Follow installation wizard to complete the setup. The short cut will be place on the desktop to start the application.

USB driver is required and is not automatically installed. Windows will attempt to locate the driver via Windows Update function or you can select the drivers included on the software USB. The driver will be installed on the COM port selected by Windows.

PORT CHECK

- From the desktop select "My Computer".
- Right click and select "Manage" to open Computer Management Window.
- Select "Device Management" and expand Ports section.
- COM4 is assigned in example below. Select the same port (COM4) when connecting software to the spectrophotometer.
- Default Setting for Baud Rate is 9600.

K3 Analyst Software



ESTABLISHING CONNECTION

Connect spectrophotometer to PC using USB cord included with the software package.

On the spectrophotometer select PC Online on the main menu.

Screen will display Connecting to PC.

Double click K3 Analyst icon on the desktop. If the application does not connect to the spectrophotometer automatically check the port setting of the application by selecting UV-Photometer – Com Hub Setup menu option. Make sure it matches Windows COM port settings.

When Connected the display will read Controlled by PC and the information bar of the application will read 'Connected.'

UV-

ICONS AND FUNCTION

Function	ICON	Action
Open		Open file
Save		Save current data
Print		Print report
Connect		Connect to PC
Port Setup		Setup Port for PC connection

K3 Analyst Software

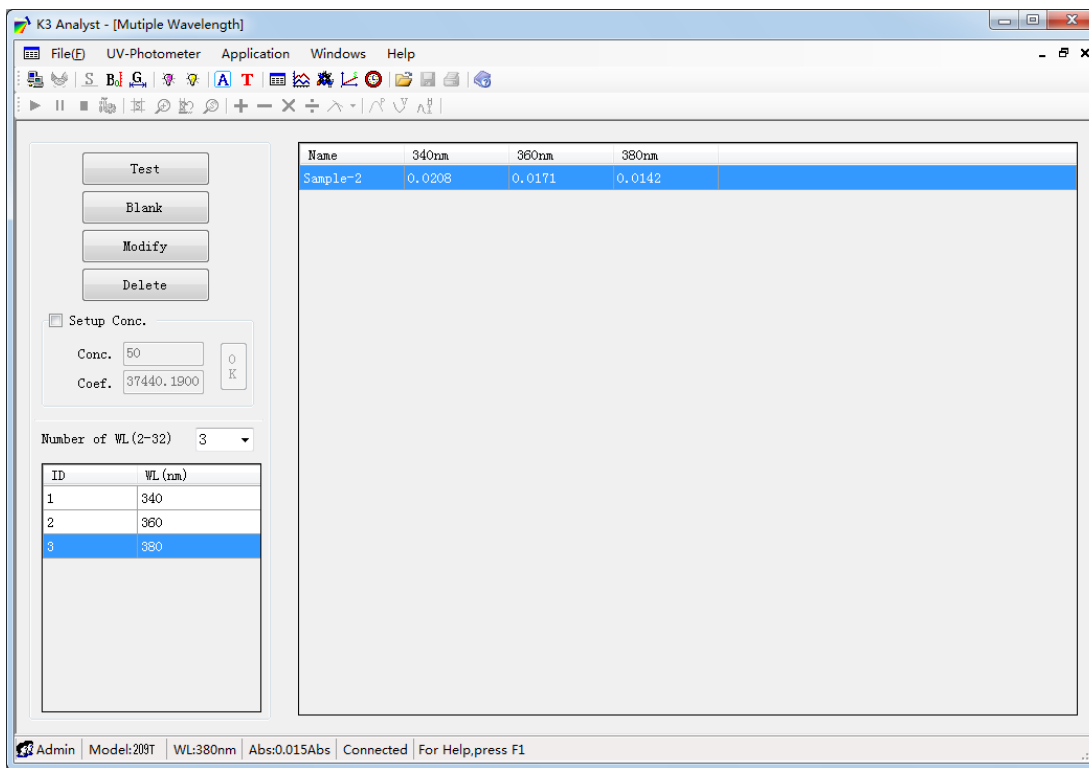
Halogen On		Turn on Halogen lamp
Deuterium On		Turn on Deuterium lamp
Multi-wavelength		Multiple wavelengths test
Scan		Wavelength scanning
Standard Curve		Standard curve test
DNA/Protein		DNA/Protein test
Kinetics(Time Scan)		Kinetics test(Time scan)
Start		Start (Scan)
Pause		Pause (Scan)
Stop		Stop (Scan)
0A/100%		Blanking
Scan Setup		Set Scan parameters
Display Settings		Change X-Y screen settings
Peak		Show peak(s)
Valley		Show valley(s)
Zoom		Zoom in
Back		Back to last screen
Manual Search		Search peak(s) manually
%T Mode		Display transmittance(%T)
Abs Mode		Display absorbance (A)
WL Setup		Setup wavelength
Threshold		Setup Peak/Valley threshold

OPERATION

SINGLE OR MULTIPLE WAVELENGTHS TEST

From Application menu select Multiple Wavelength Function or simple click  icon.

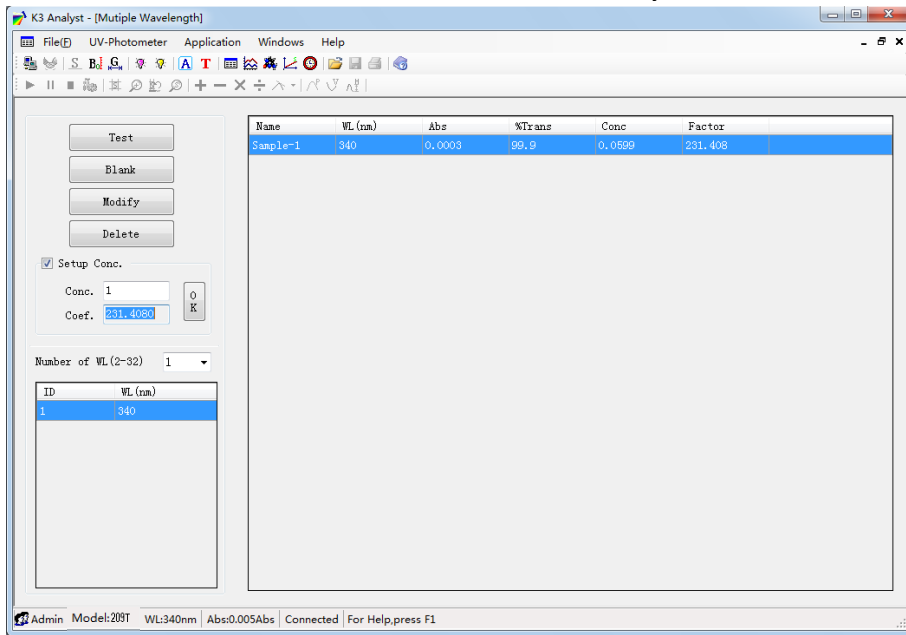
1. Select or enter the number of wavelengths (WL). Max number is 32.
2. Enter WL desired by clicking the WL Cell.
3. Select the test mode A for absorbance or %T for transmittance.
4. Insert the blank solution into the cell holder and click Blank button to set blank
5. Insert the first sample into the cell holder. Click Test button to run the test. The test results will be displayed as shown below. You can double click on the sample name to rename it.
6. Repeat step 4 for the next sample and continue on.
7. To delete any test highlight the test and click "Delete".



Concentration Measurement with One Standard

1. Check "Setup Conc." box.
2. Enter the value of the Standard into "Conc." cell.
3. Insert the blank solution and click "Blank" button to blank.
4. Click "OK" and follow the pop-up instruction to measure the Standard.
5. Insert unknown sample into the cell holder. Click "Test" to start measure the sample.
6. Repeat step 5 for the next sample as necessary.

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Re-measure Sample

To re-measure certain sample highlight that sample's test result data on the table and click "Modify" to re measure the sample.

Delete Sample Test Result

To delete certain sample test result highlight the sample's test result data on the table and click "Delete" to delete the test result.

STANDARD CURVE



Click  on the screen or select Standard Curve from Application menu

Enter desired WL and click Go To button

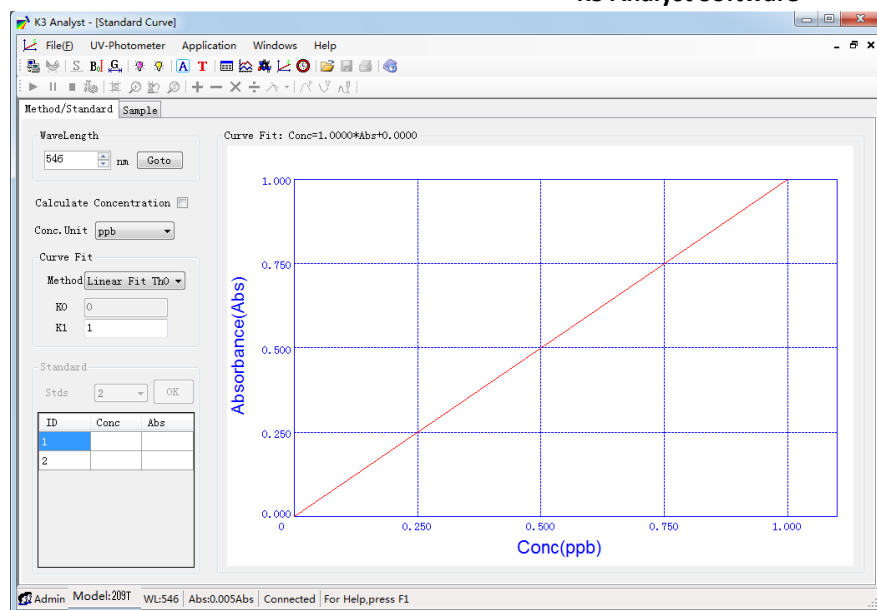
Select the concentration unit from the "Conc. Unit" drop down list.

Choose type of method: Linear Fit Th0 or Linear Fit

Establishis Standard Curve with Known Factors

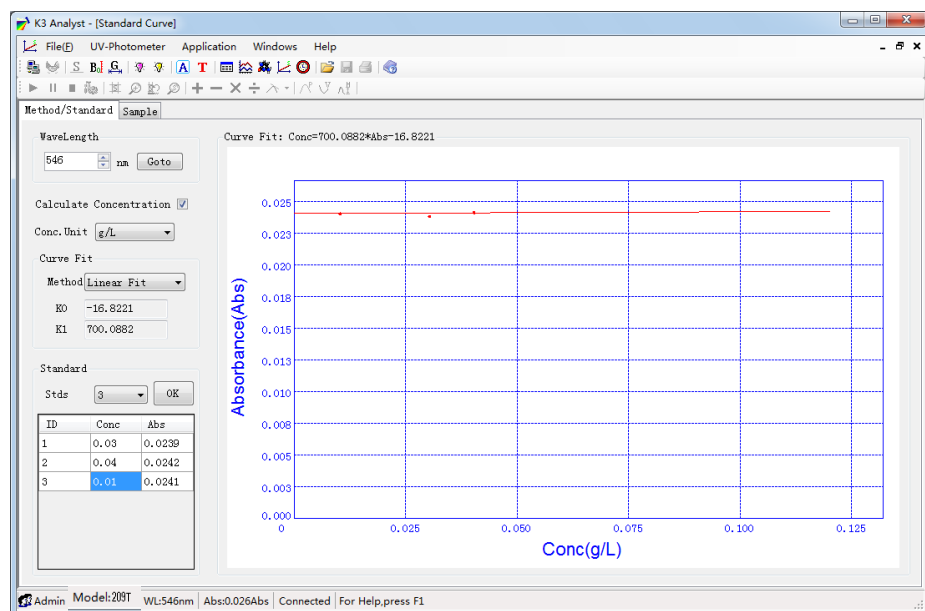
1. Enter the value K0 (intercept) and the slope value K1
2. Click OK to establish the curve $\text{Conc.} = K1 * \text{Abs} + K0$

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Establish Standard Curve with Standards

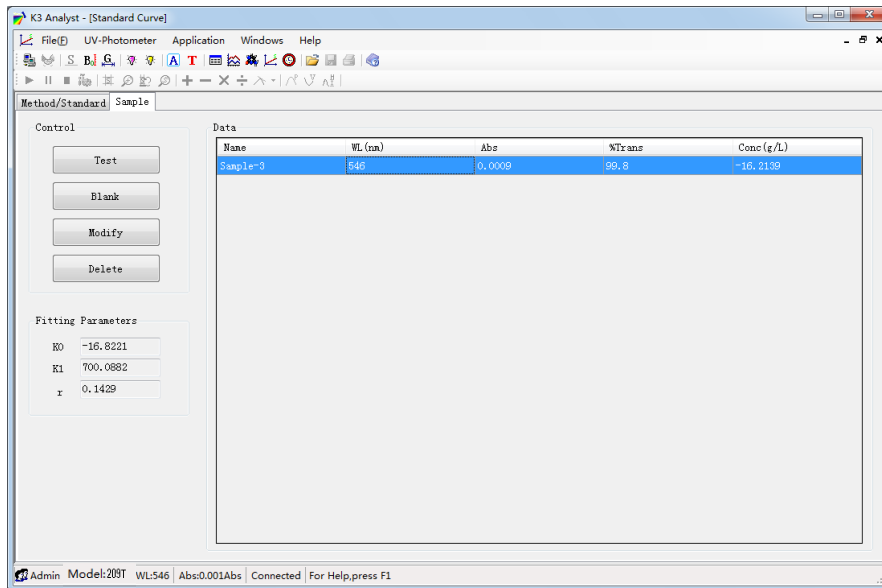
1. Check Calculate Concentration Box.
2. Select the number of standards from the “Stds” drop down list.
3. Enter the concentration of each standard in the “Conc” cell and Click OK.
4. Insert Blanking solution and blank the instrument.
5. Measure Abs of all standards as entered. The Abs value of each standard will be automatically entered into the Abs cell next to the standard.
6. The curve equation will be displayed on the screen.



Measure unknown samples with standard curves

After the standard curve is established click “sample” to start sample test:

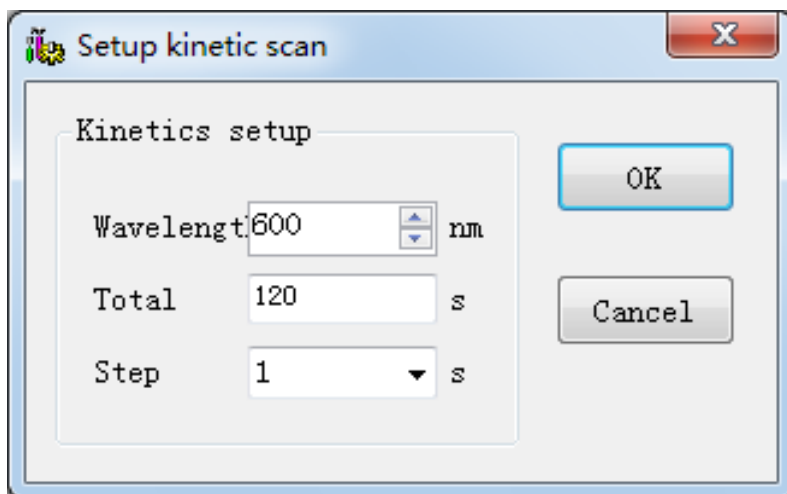
1. Insert blanking reagent into the cell holder. Click “Blank” to set blank.
2. Insert sample into the cell holder and click “TEST” to test the sample
3. You may name or rename the sample in the test data table.
4. Repeat the above to complete the next sample(s).



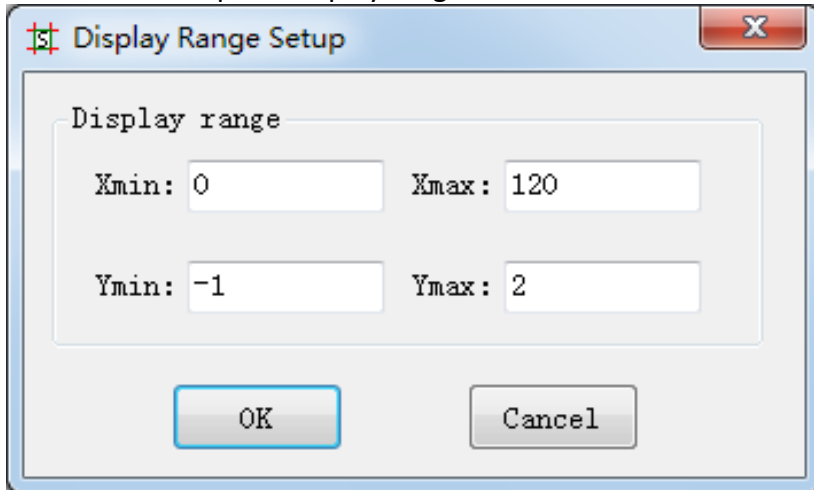
KINETICS

Click  or choose Kinetics Application menu.

Click  Setup kinetics Test Parameters. Select Wavelengths, enter Time (sec) and Step (sec)

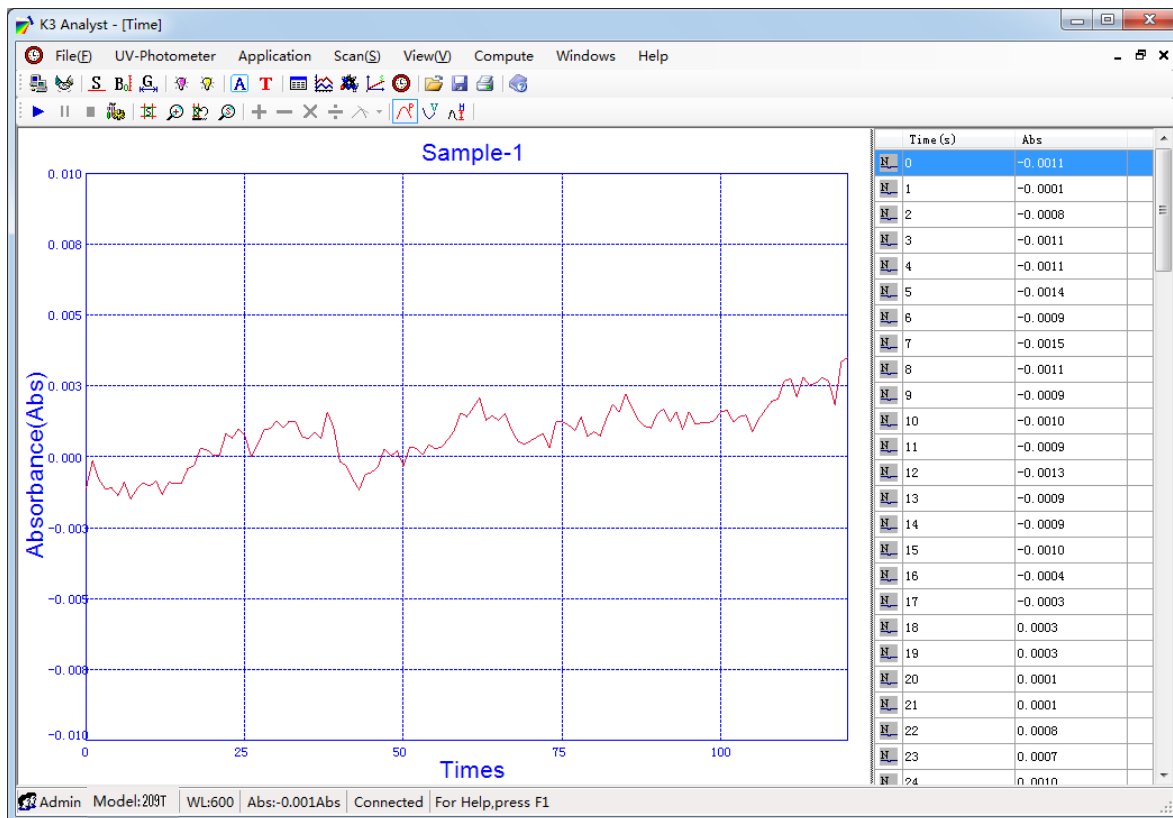


Click  to setup the display range. Click OK to confirm.



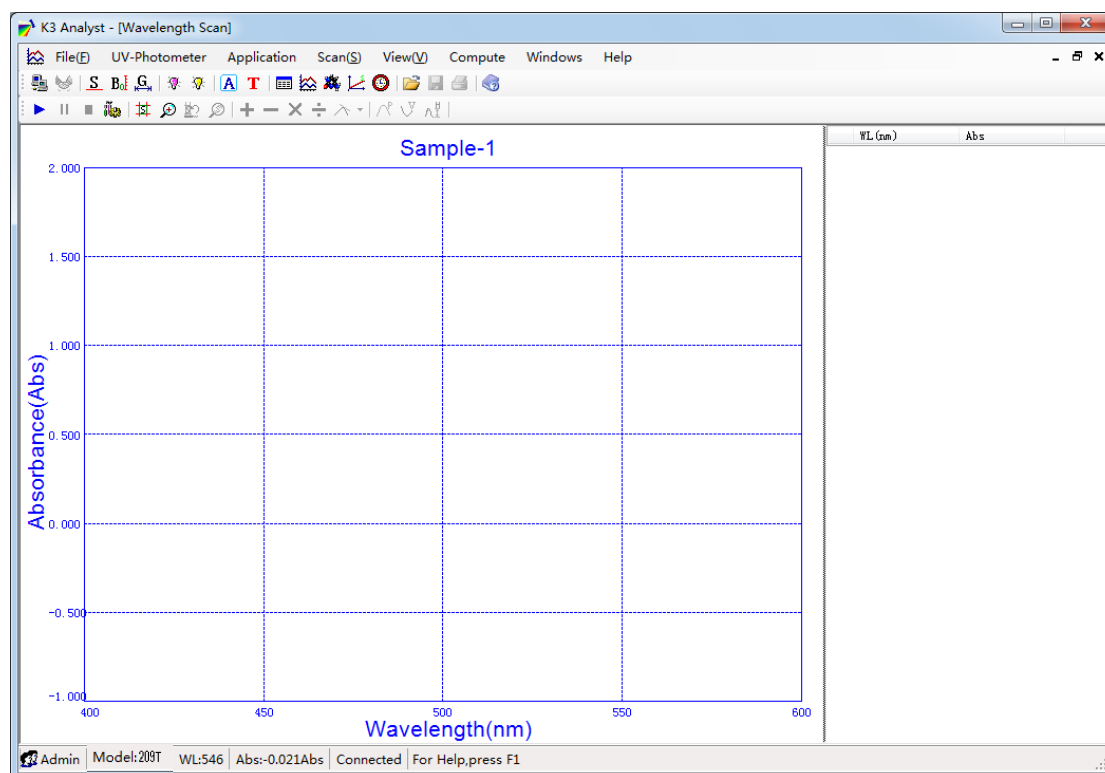
Run Kinetics test

1. Insert the blank into the cell holder and set blank.
2. Insert sample in the cell holder. Click  to start time scan measuring the Absorbance value at each time interval. Click  to pause the test. Click  will stop the test.
3. The test result (Abs vs Time) graph will display and the Abs vs Time data is shown on the right

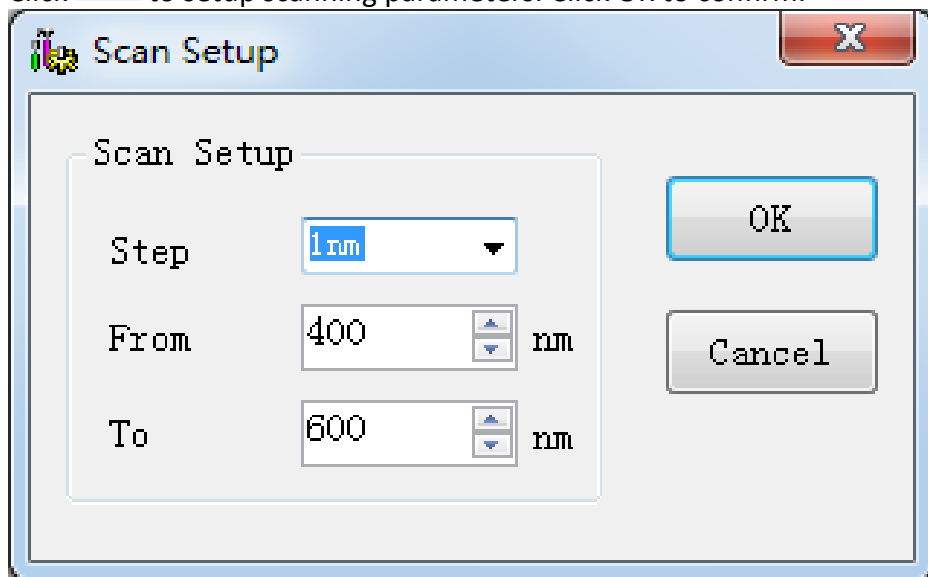


SCANNING

Click  or select wavelength scan from the Application menu

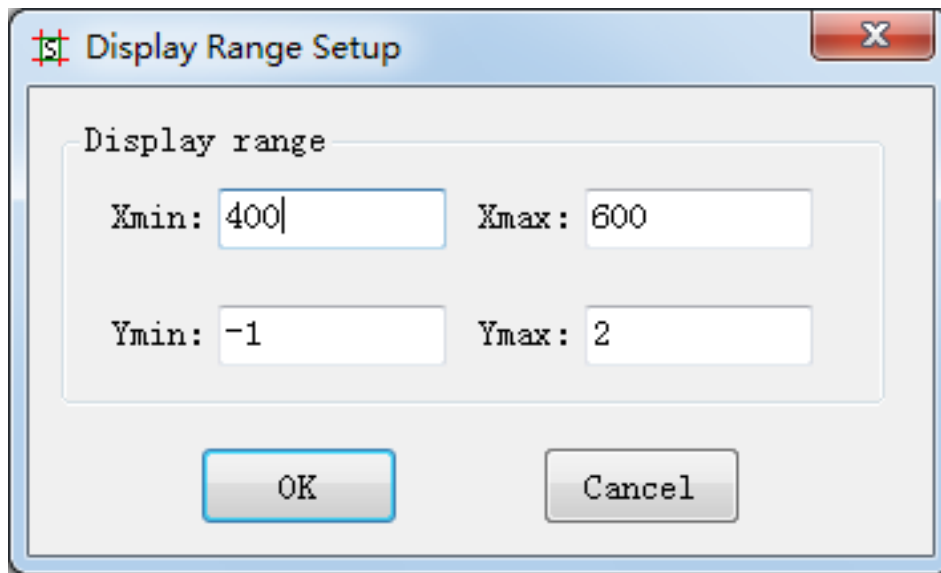


Click  to setup scanning parameters. Click OK to confirm.



The 'Scan Setup' dialog box is shown. It has a title bar with a close button (X). Inside, there is a section titled 'Scan Setup'. The 'Step' is set to '1nm' in a dropdown menu. The 'From' wavelength is '400' nm, and the 'To' wavelength is '600' nm, both with up/down arrow buttons. There are 'OK' and 'Cancel' buttons on the right side of the dialog.

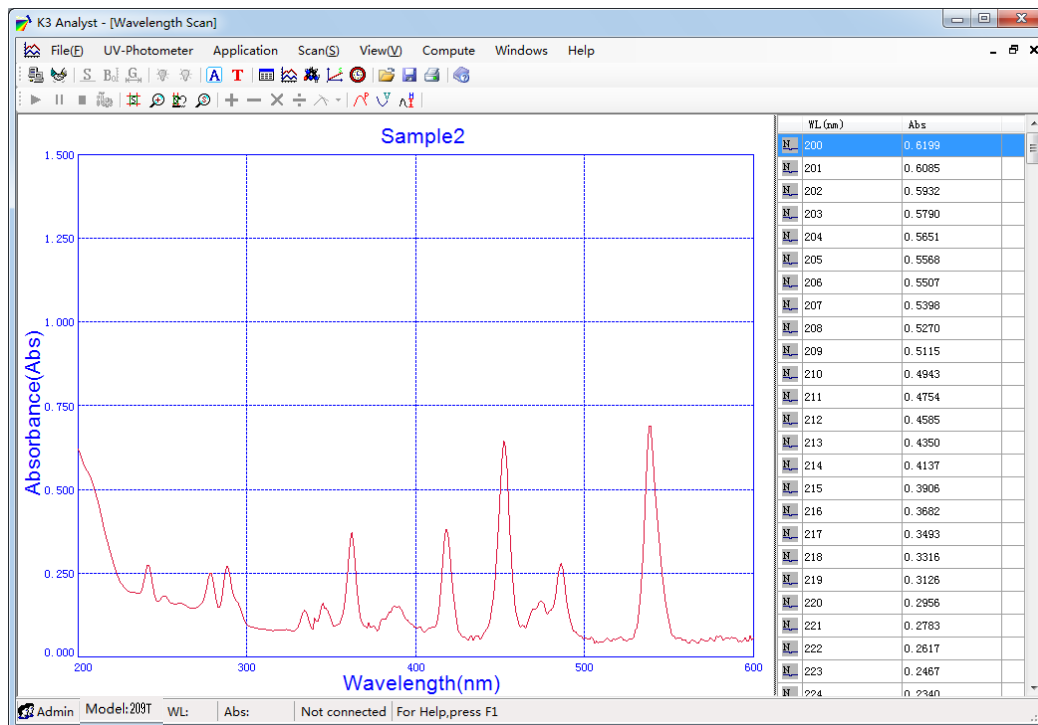
Click  to setup the display range on the screen. Click OK to confirm.



Insert blank reference into the cell holder and click  to blank at the entire wavelength range.

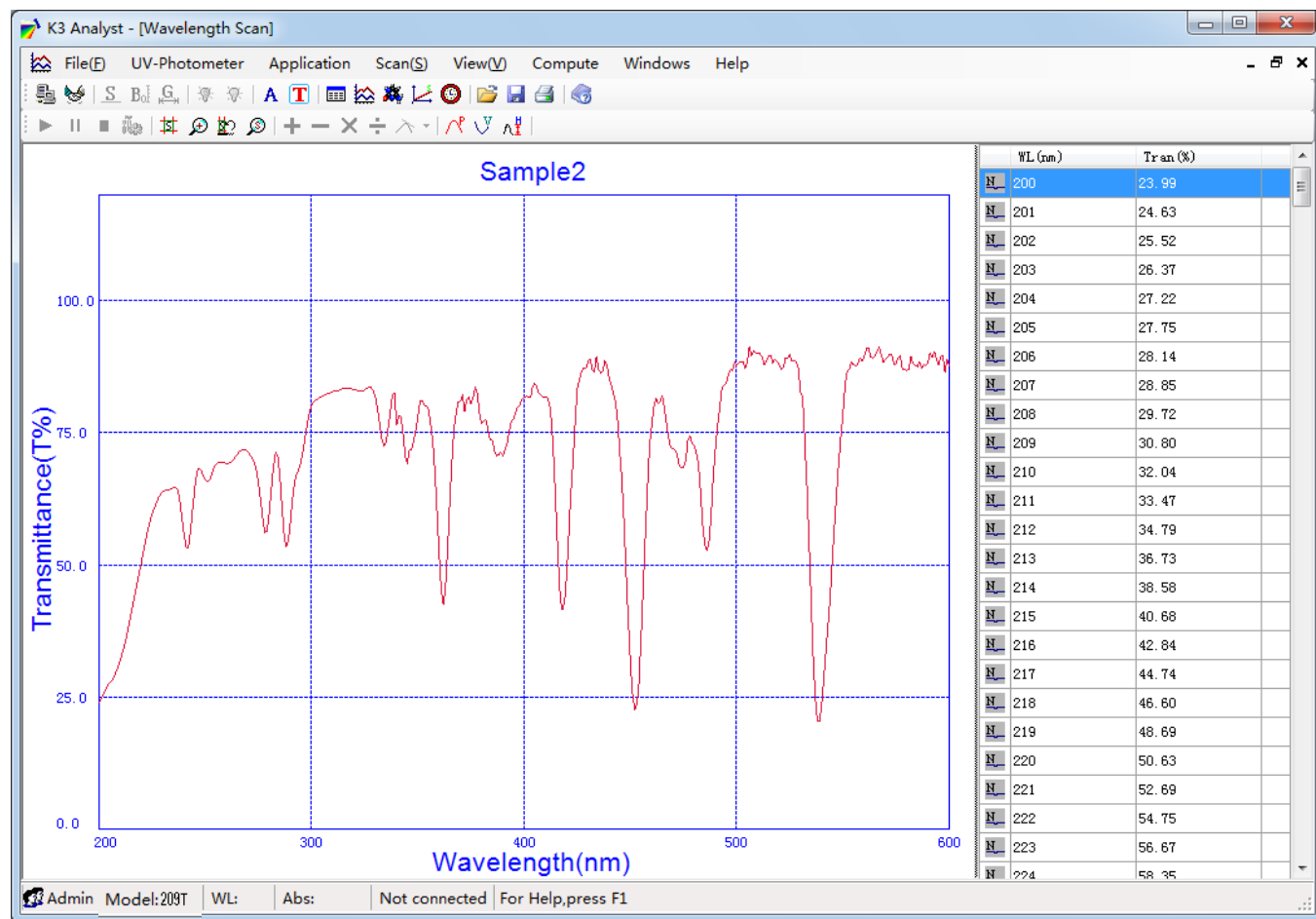
Click  to start scanning. Click  to pause the test. Click  to stop scanning.

The scanning result (scanning curve) display on the screen with scanning data table on the right.



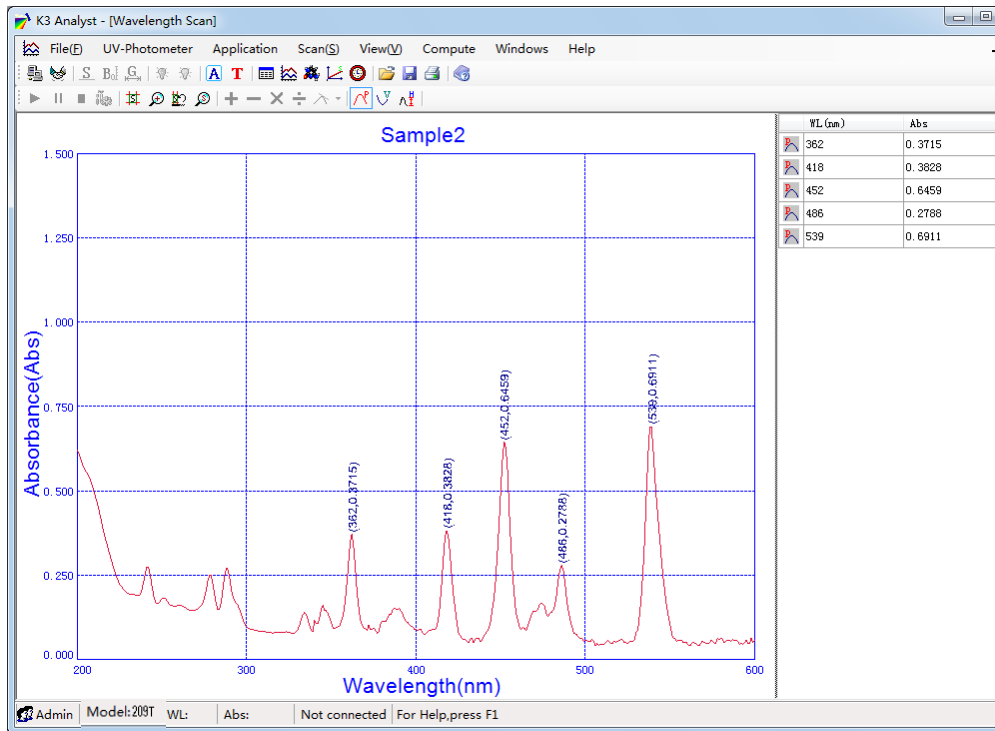
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Switch display mode by click on **A** or **T**

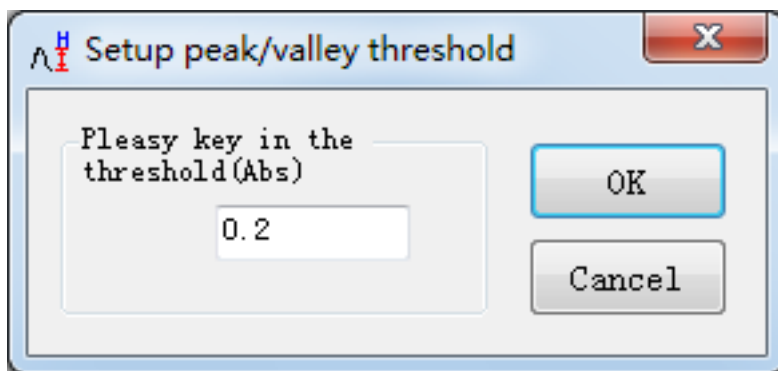


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Display peaks or valleys by clicking on  or . The peak or valley values will be marked on the curve and the data will display on the right table. Click  or  again to undo.



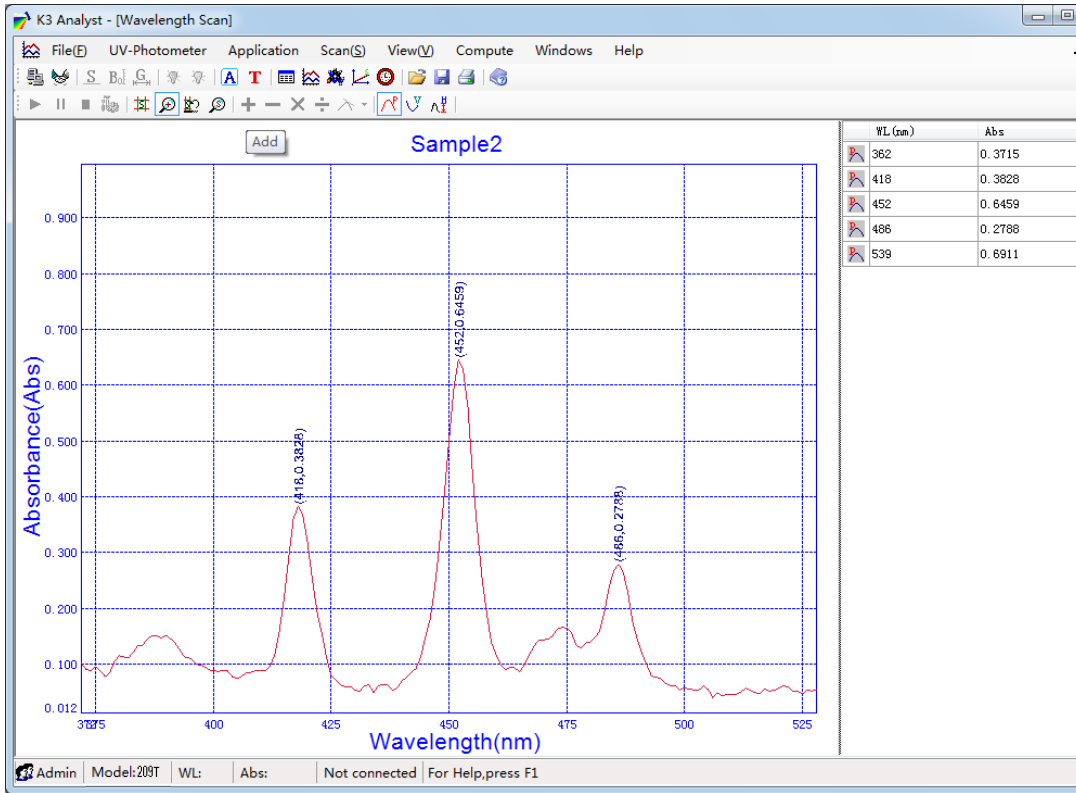
Set the peak height threshold by clicking . Only peaks equal or higher will be marked and data displayed.



Zoom

Click  to set the curve at zoom in status. Left click, hold and drag the mouse on the area of interest and the release. Click  to return to the original.

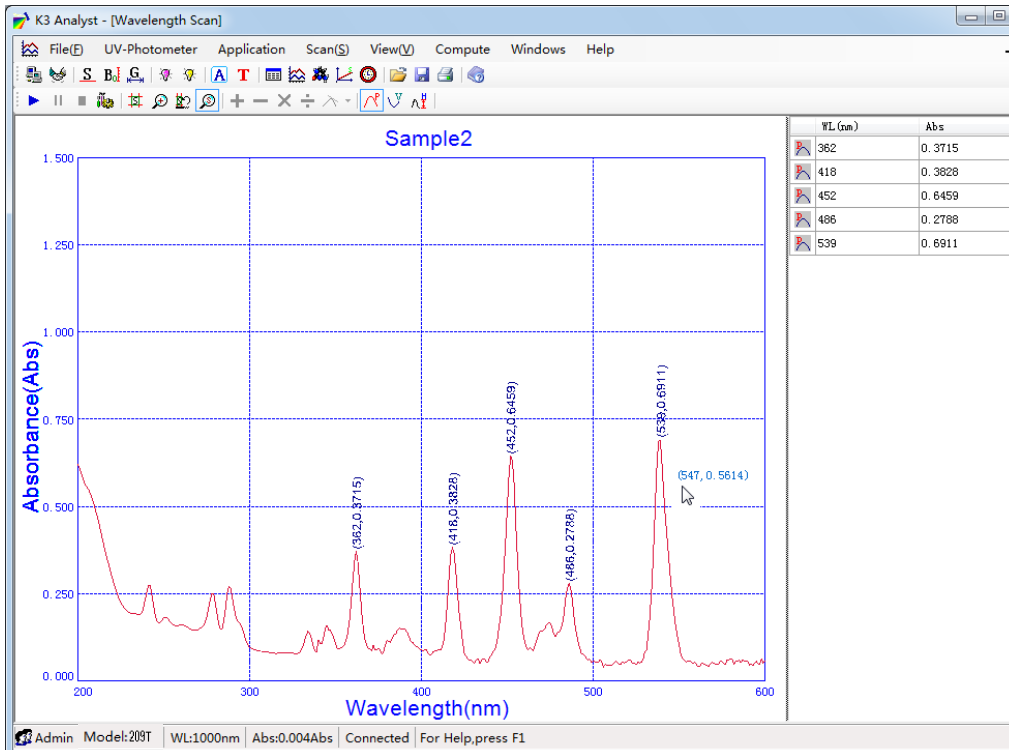
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Search peaks

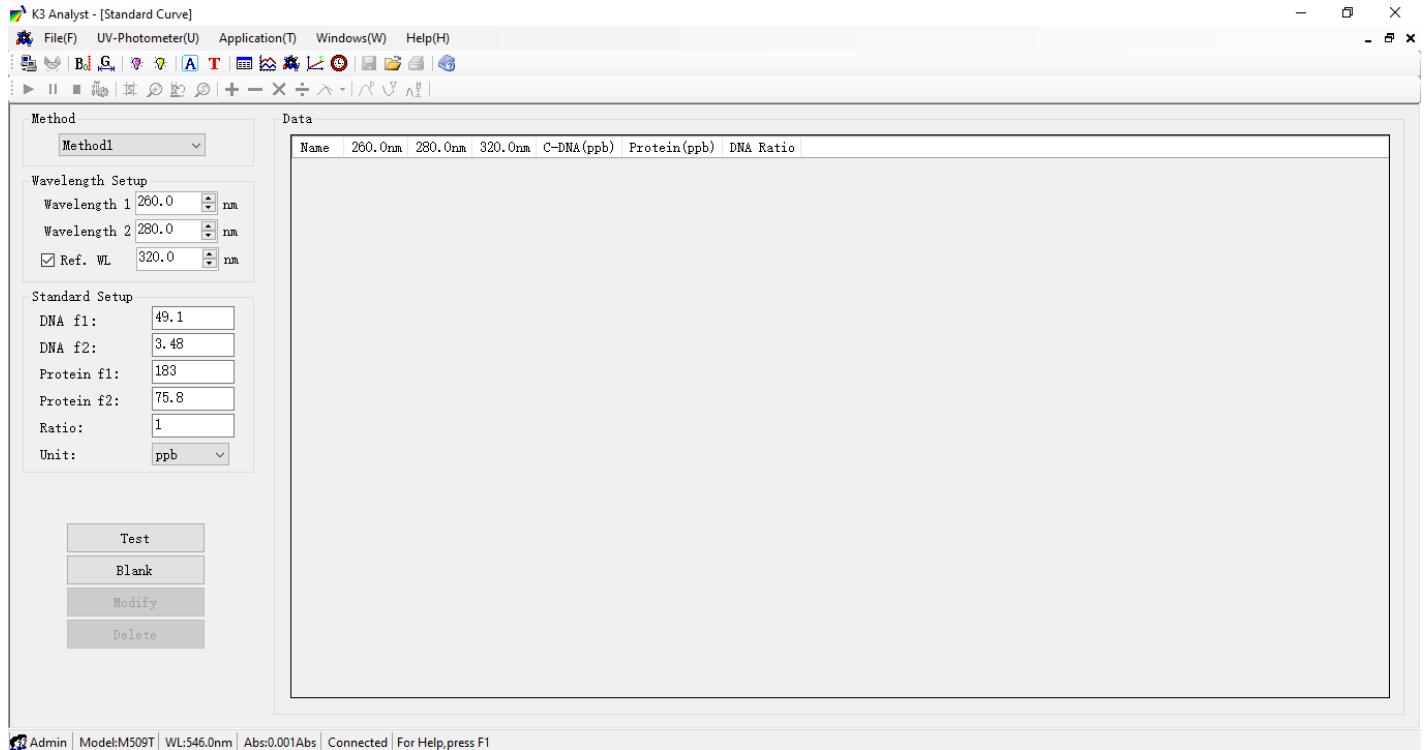


Click  then move the mouse to a peak to show the peak value. Click to mark the peak. Right click on the curve area to undo.



RNA/DNA/PROTEIN TEST (M509T Only)

Click  or select RNA/DNA/Protein test from the Application menu



Parameter Setup and Test

There are three preset method to choose. You may define your own test parameters.

After the parameters are set insert the reference into the cell holder and set blank.

Insert the sample and click Test to start testing. The data will display in the data table.