

LabSolutions UV-Vis

Technical Research Center

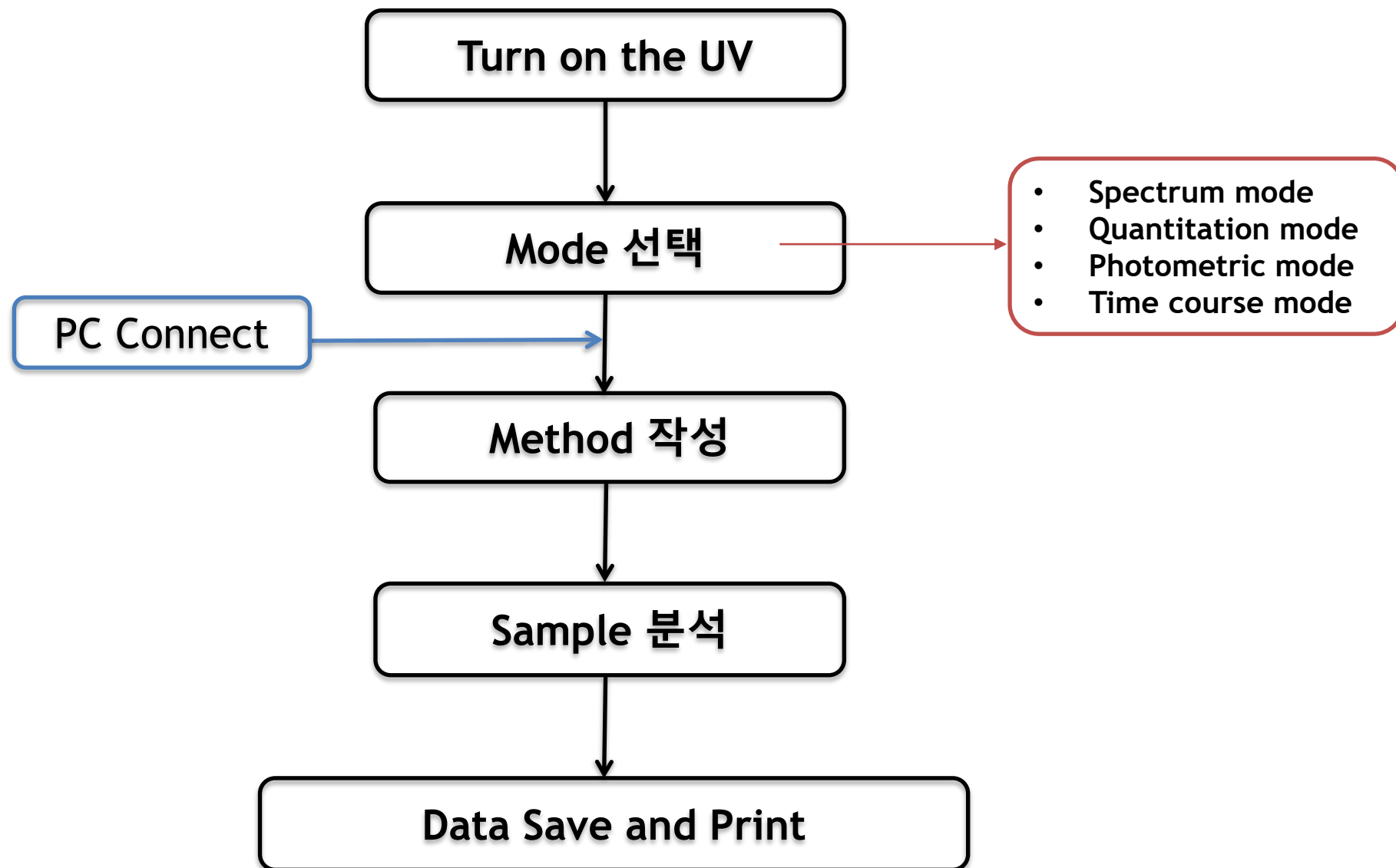


Contents

- Operation flow
- Basic operation
- Spectrum mode
- Quantitation mode
- Photometric mode
- Kinetics mode

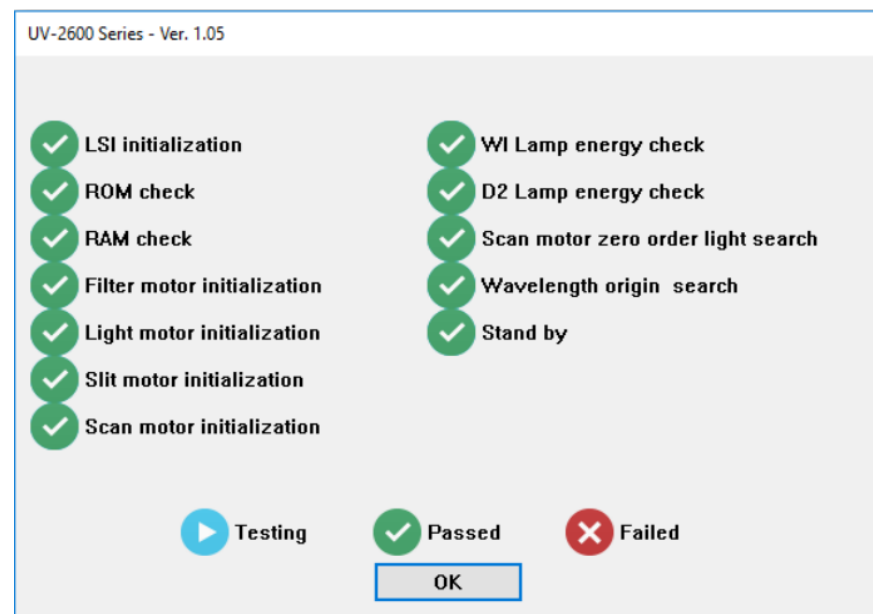
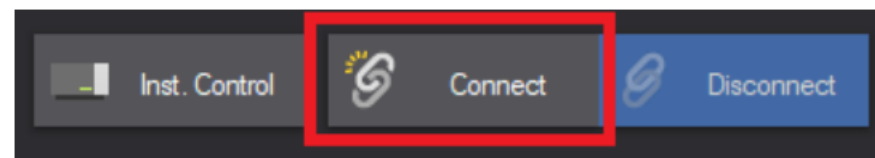


Operation Flow



Basic operation

Basic operation

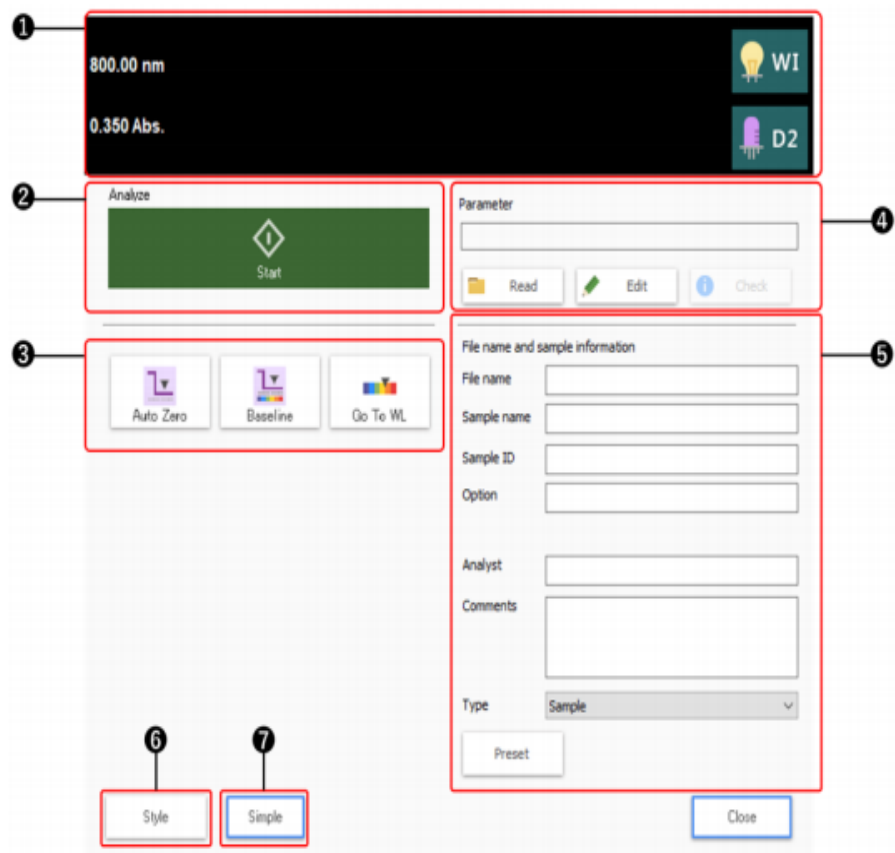


Window



- ① : Title bar
- ② : Menu bar
- ③ : Tool bar
- ④ : Tree view
- ⑤ : Log view
- ⑥ : Application area

Window



Instrument Control Window
(Spectrum, Time Course)

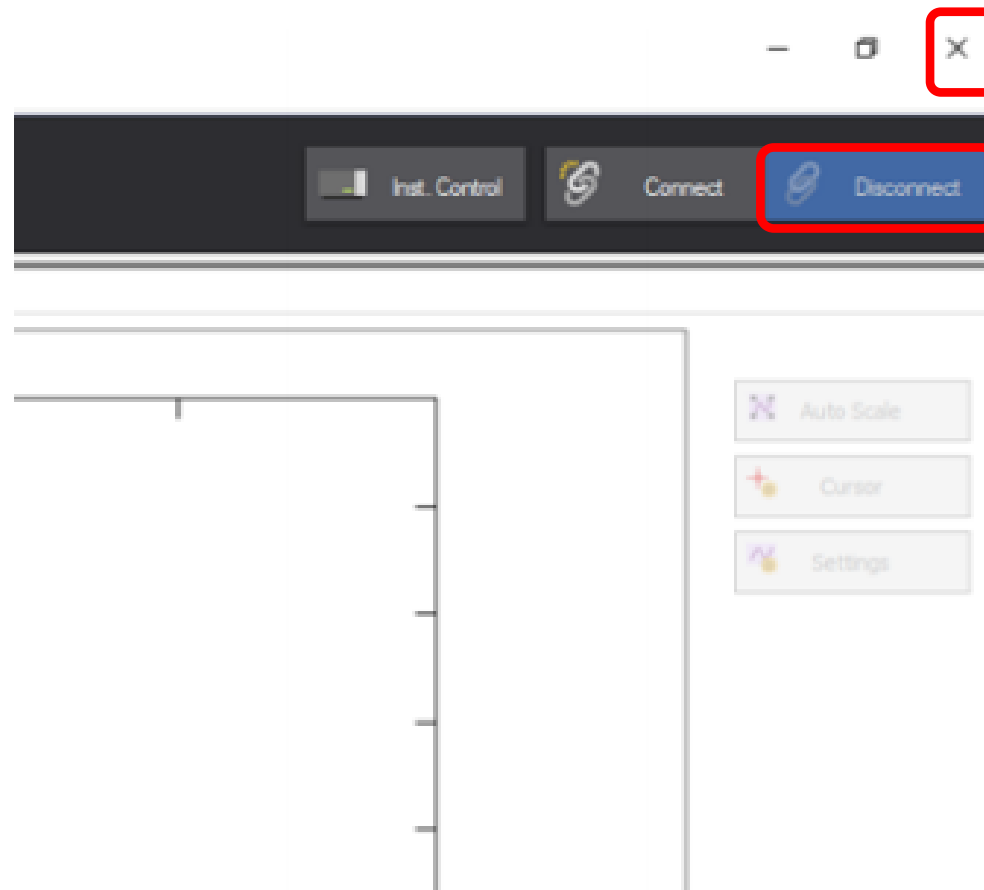


Instrument Control Window
(Quantitation, Photometric)

- ① : Real-time monitor
- ② : Instrument control
- ③ : Auto zero/Baseline/Go to WL
- ④ : Parameter
- ⑤ : File name and sample info
- ⑥ : Style
- ⑦ : Simple

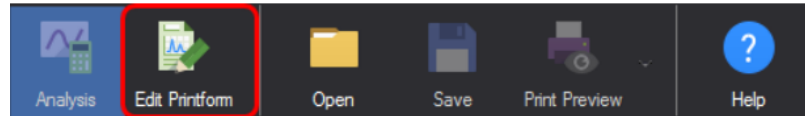
Shutting Down

- File 저장 → PC와 기기 Disconnet → Program OFF



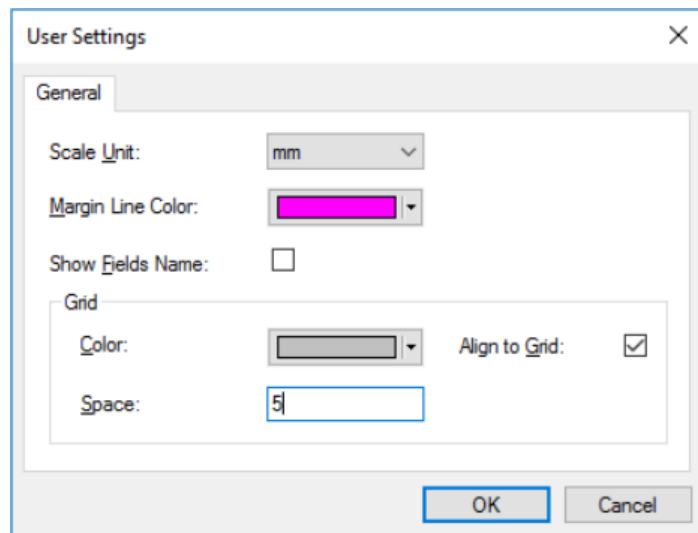
Print out

- Report generator

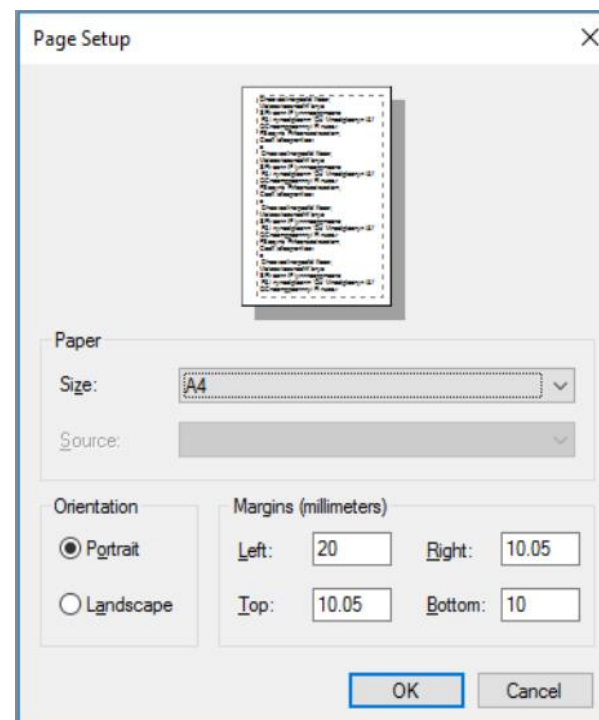


- 기본설정

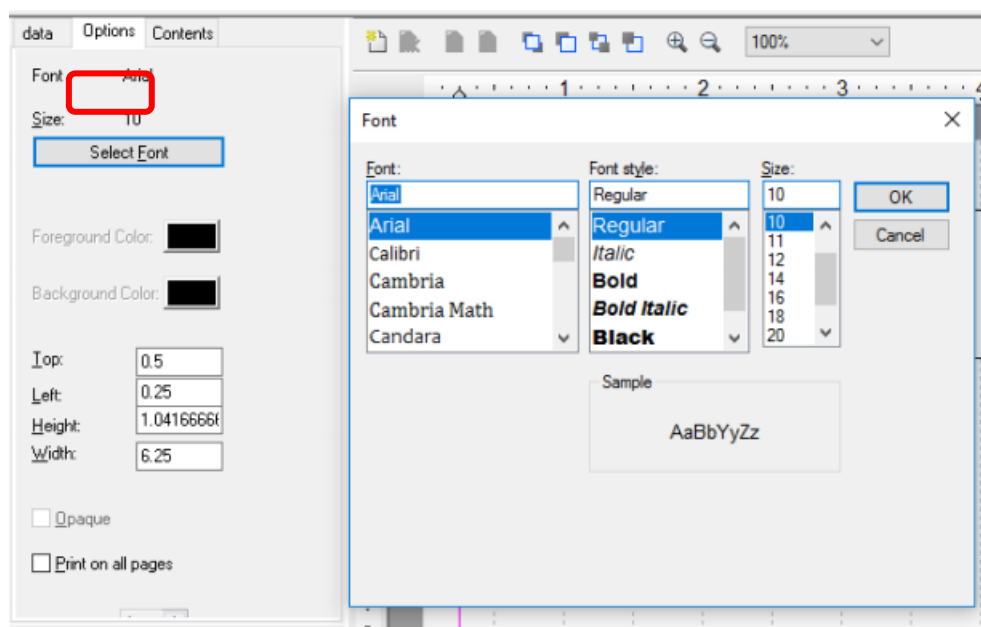
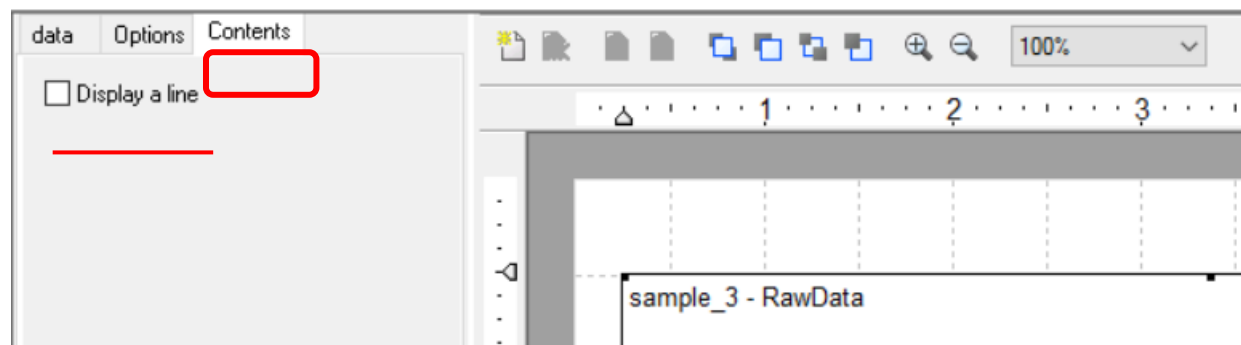
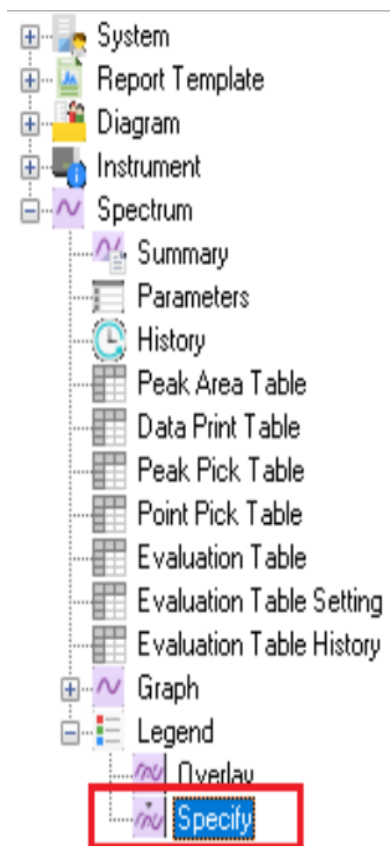
- [File] → [New] → [Tools] → [User Settings]



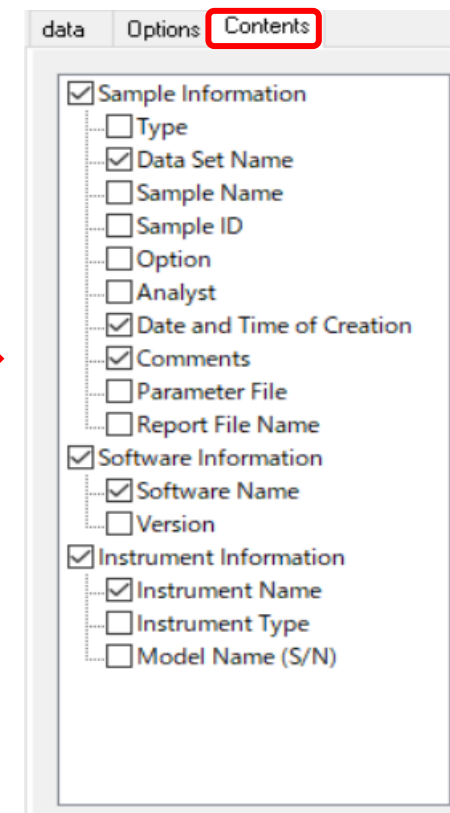
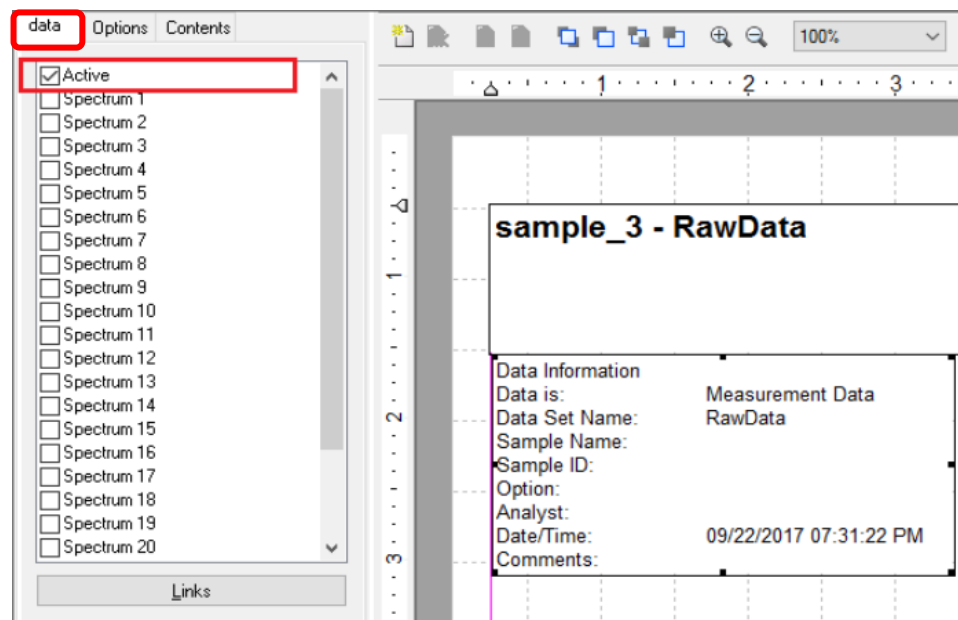
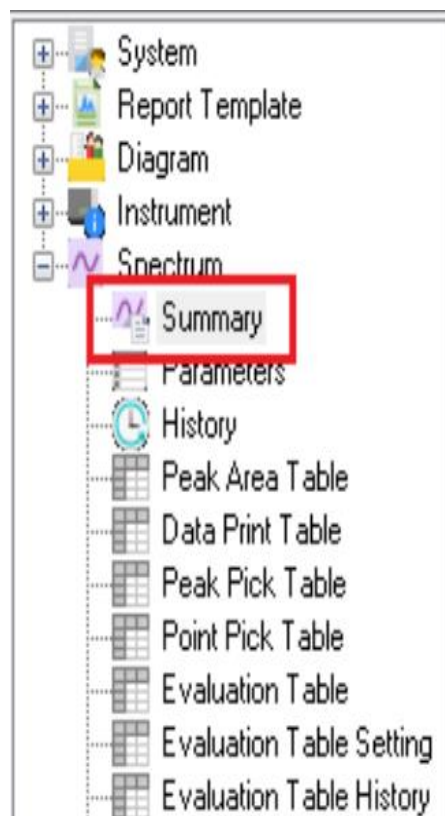
- [File] → [Page Setup]



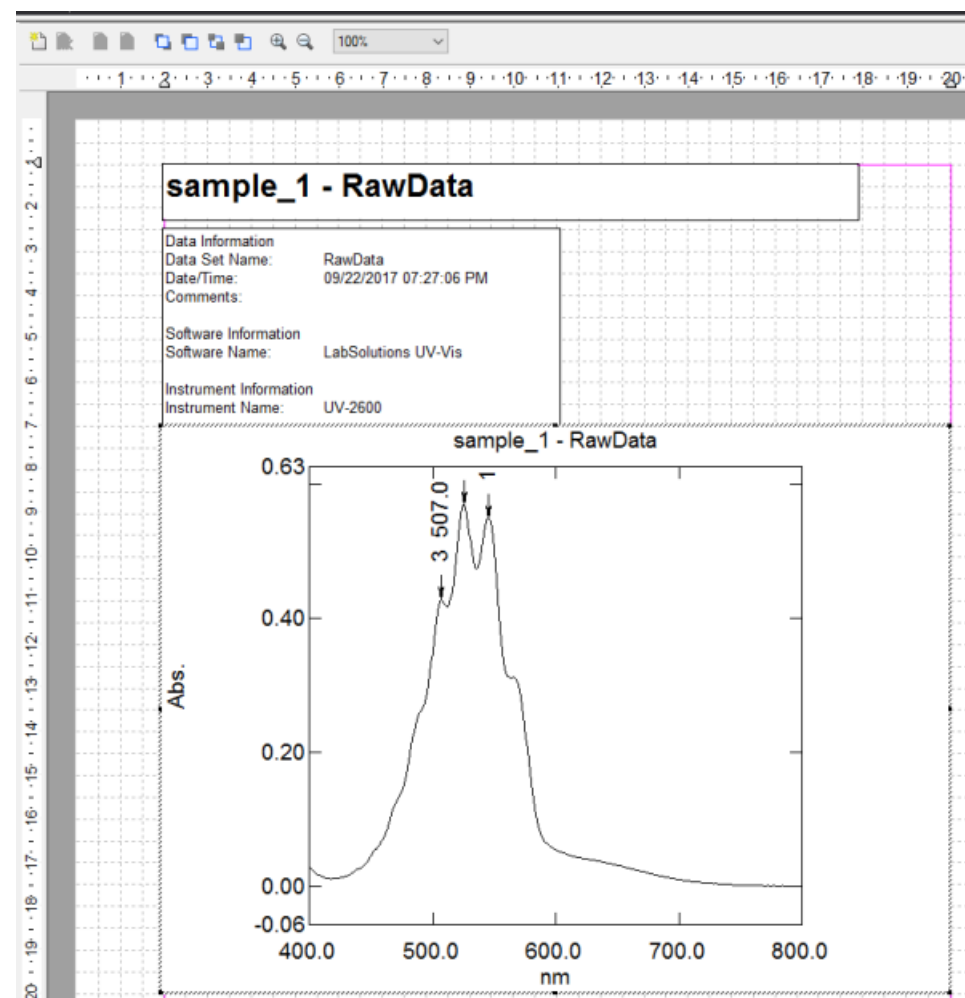
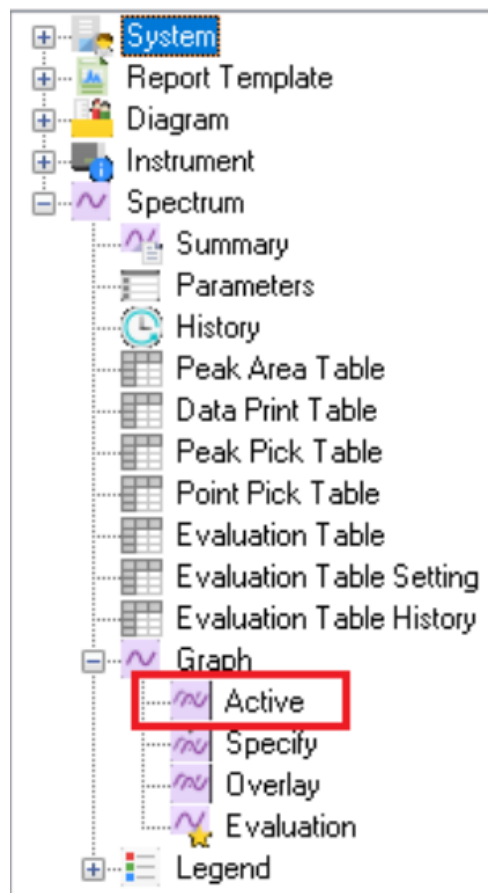
Print out



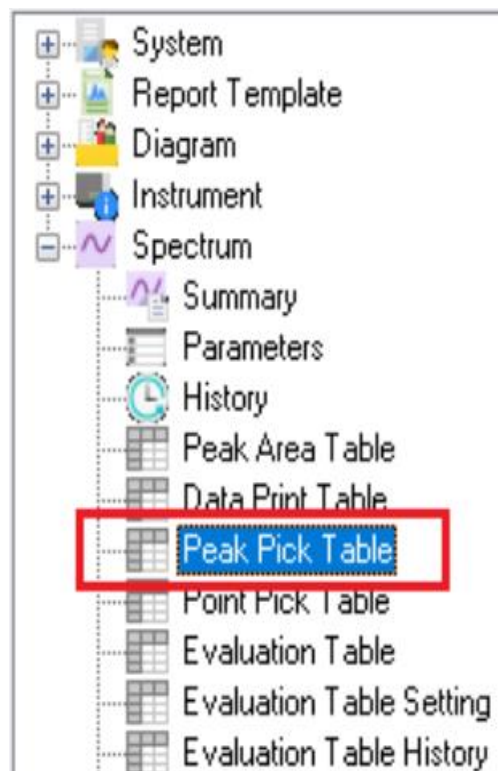
Print out



Print out



Print out

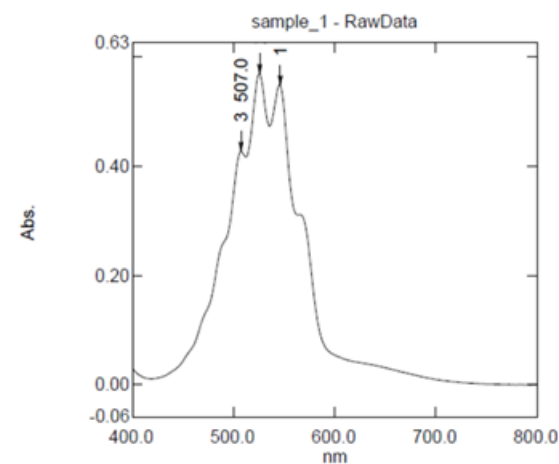


sample_1 - RawData

Data Information
Data Set Name: RawData
Date/Time: 09/22/2017 07:27:06 PM
Comments:

Software Information
Software Name: LabSolutions UV-Vis

Instrument Information
Instrument Name: UV-2600

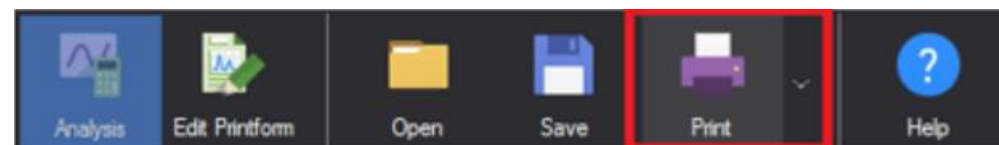
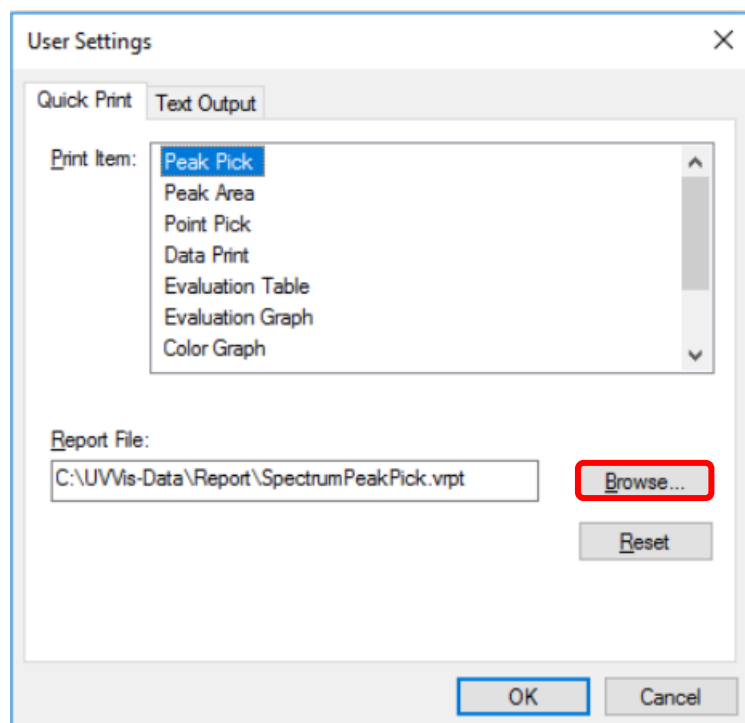


Threshold: 0.001
Number of Points: 4

No.	P/V	Wavelength n	Abs.	Description
1	●	546.0	0.55	
2	●	526.0	0.57	
3	●	507.0	0.43	

Quick Print

[Tools] → [User Settings] → [Quick Print]

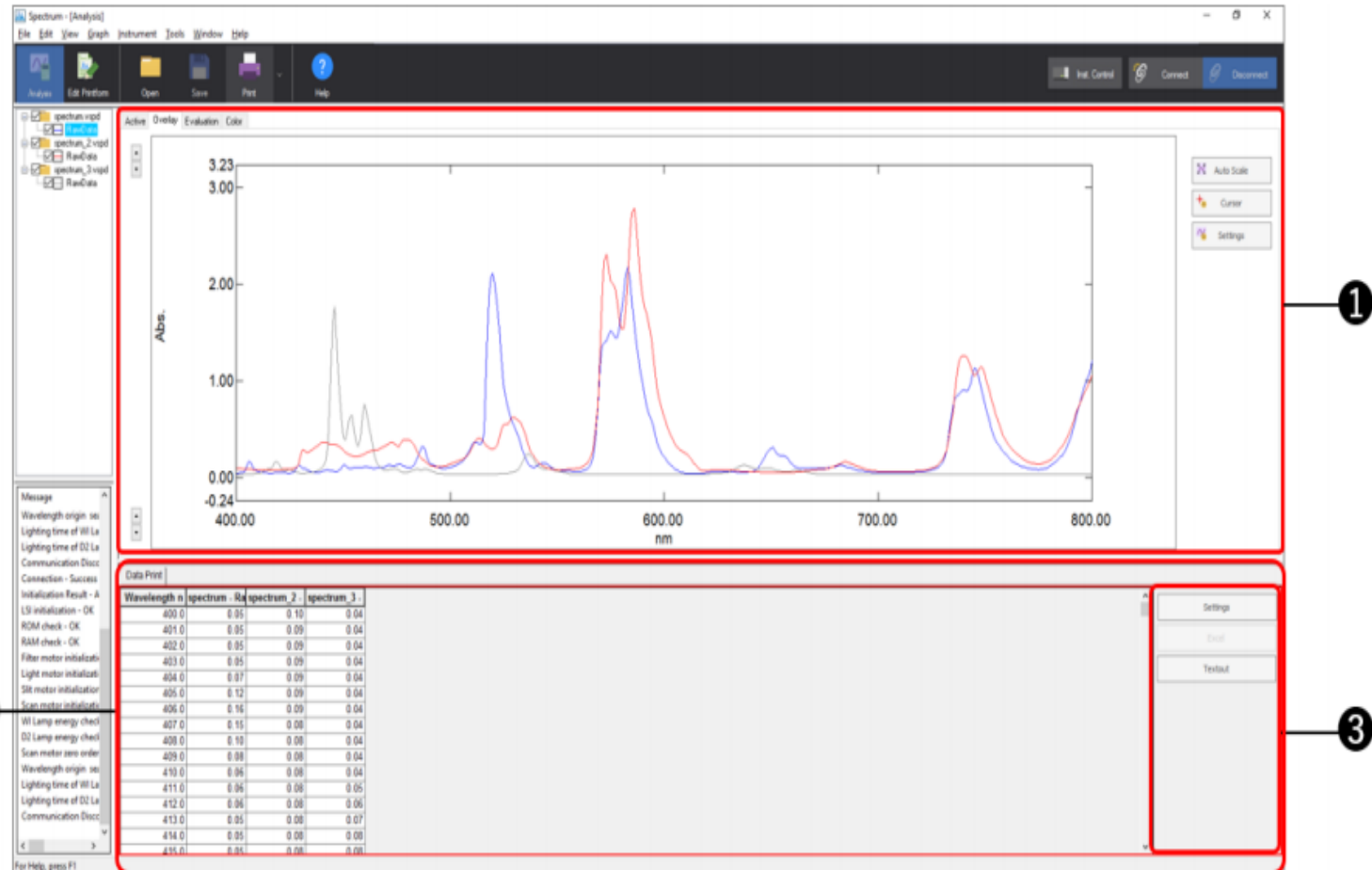


Spectrum mode

Spectrum mode

- 파장구간을 설정하여 그 구간의 흡광도와 투과율 등의 Spectrum을 측정하는 모드

- ① : Graph view
- ② : Data view
- ③ : Setting area



Method

● [Parameter] - [Edit]

Parameters - UV-2600 Series

① Start wavelength(nm) 800

② End wavelength(nm) 400

③ Data interval(nm) 1.0

④ Scan speed Medium speed

⑤ Value type/Measurement type Absorbance

Time required for one scan 50sec.

Accessories Advanced

Repeat Post-processing

Close after overwriting parameter file

Close after creating new parameter file

Cancel

- ① : 파장 시작점
- ② : 파장 끝점
- ③ : data 측정간격
- ④ : scan 속도
- ⑤ : Measurement type

Advanced

Slit Width (nm) 1.0

Detector Unit Direct Receiving of Light

Energy Measurement Parameters

Light Source D2

Detector PM

Detector Gain (PM) 0 (min)

Detector Gain (InGaAs) 0 (min)

Light Source Switch Wavelength (290-370nm) 323

광원의 파장전환 값
: D2램프와 W1램프가 중첩되는
구간에서 램프가 전환됨

Measurement

- Baseline → Go To WL → Auto Zero → Measurement



Baseline Correction Parameter

Wavelength Range

Start: 800 End: 400

OK Cancel

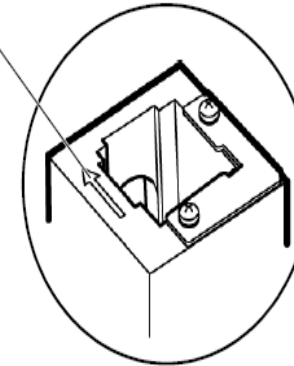
Go To WL

Wavelength (nm.): 500

OK Cancel

UV-VIS는 보통 500~600 nm에서 최대 파워를 가진다. 따라서 그 범위에 가까운 파장에서 Auto zero를 실행하여 안정적인 제로라인을 설정한다.

The arrow indicates the direction of the beam passing through the cell holder.



Sample compartment cover

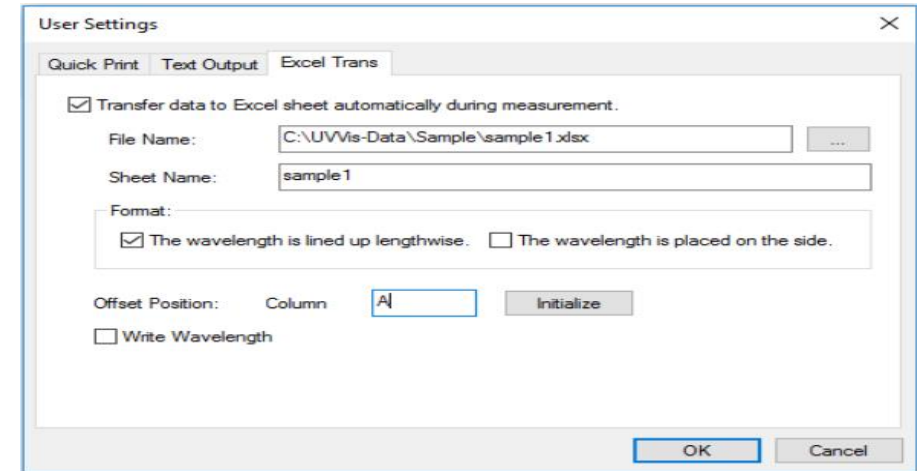
Sample side cell holder

Cell holder에 Sample 넣기
(앞쪽 : Sample, 뒤쪽 : Reference)

Data Text Output

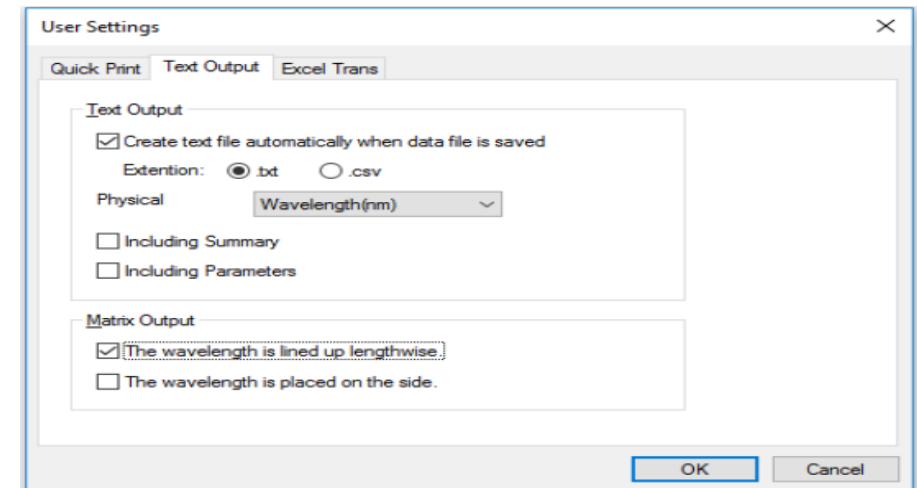
● Real-time Transfer of Spectrum to Excel

[Tools] → [User Settings] → [Excel Trans]
→ [Transfer data to Excel sheet automatically during measurement]
check

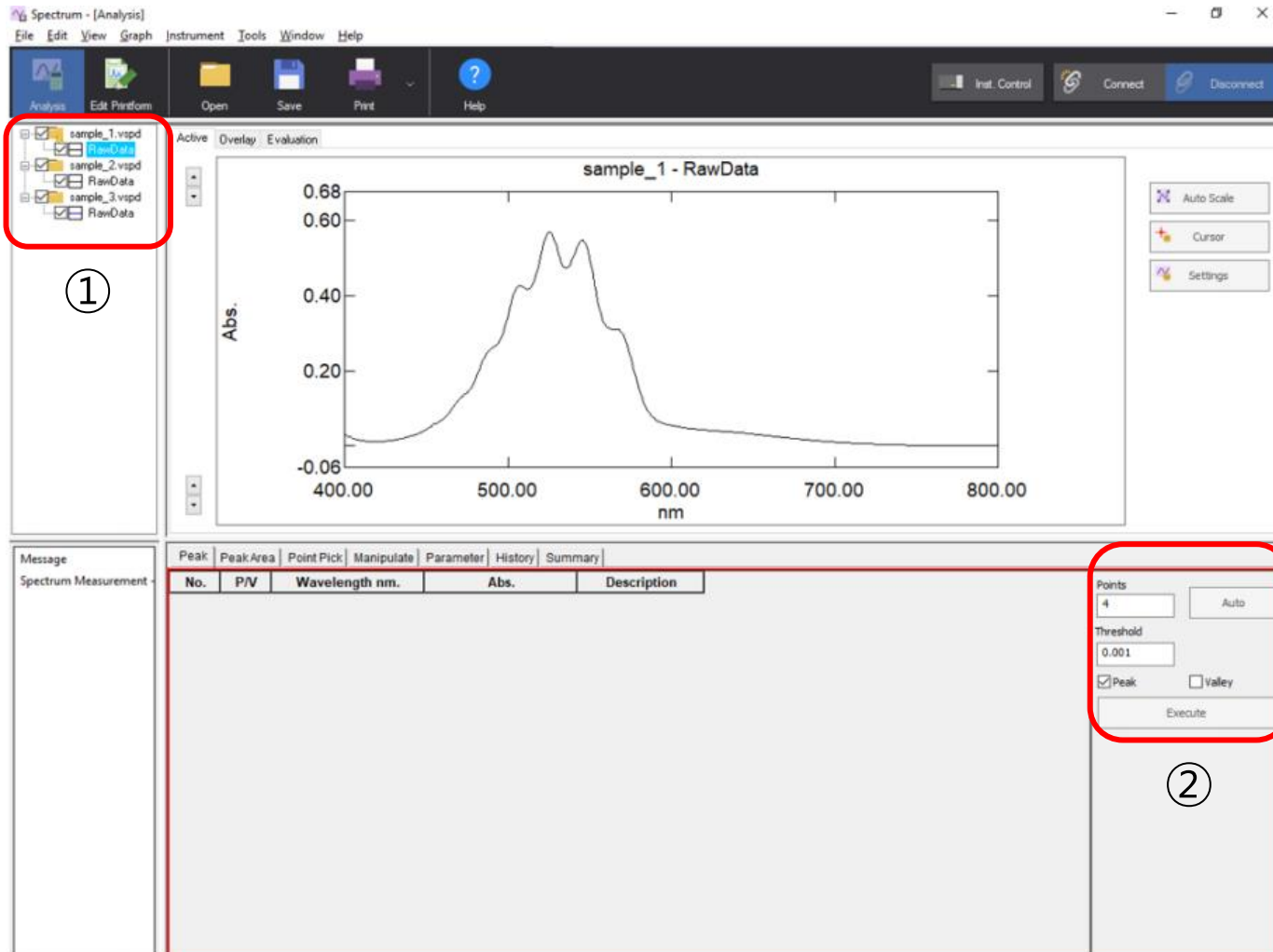


● Automatically Outputting Text When Saving Data Files

[Tools] → [User Settings] → [Text Output]
→ [Create text file automatically when data file is saved]
when data file is saved]check

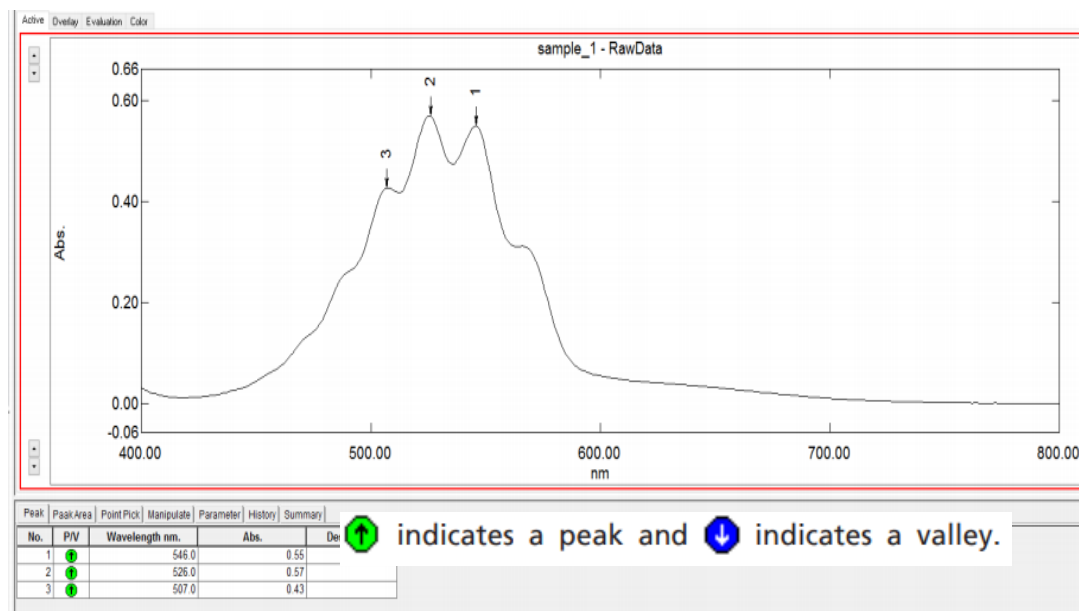


Data Processing



- ① : Sample 더블클릭으로 선택
② : Point 값 입력 → Execute

Data Processing



[Settings] → [Peak, Point Mark] click



Mark Settings

☒ Show Peak

Mark: DownArrow

Label: ☒ No., ☐ X Axis, ☐ Y Axis, ☐ Description

☐ Show Point

Mark: DownArrow

Label: ☒ No., ☐ X Axis, ☐ Y Axis, ☐ Description

☐ Show Valley

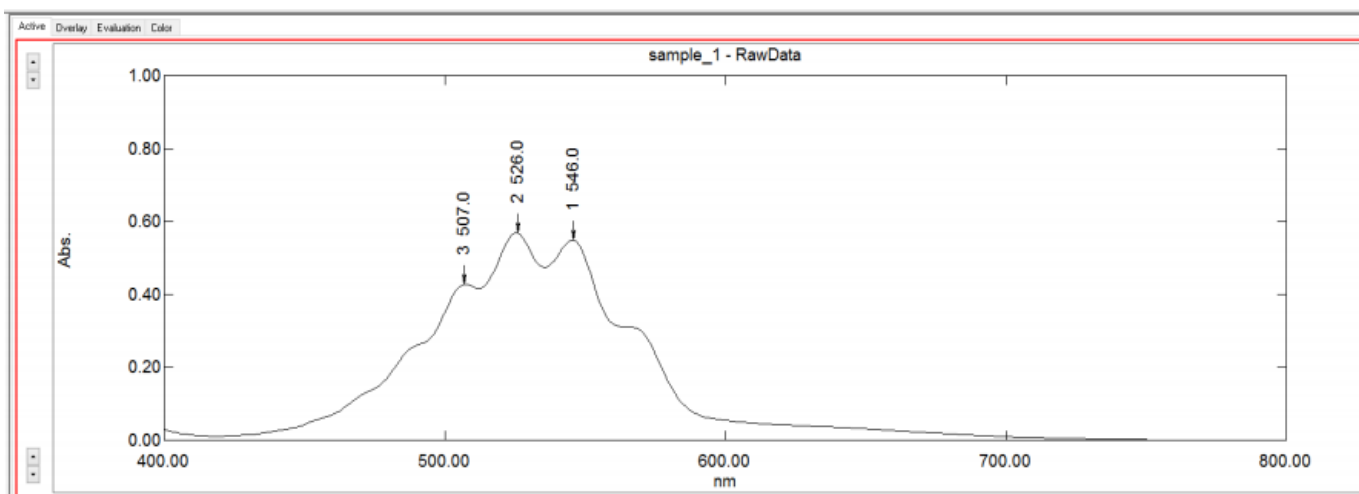
Mark: Up Arrow

Label: ☒ No., ☐ X Axis, ☐ Y Axis, ☐ Description

☒ Colored Area

☐ Apply the setting to all the data

OK Cancel

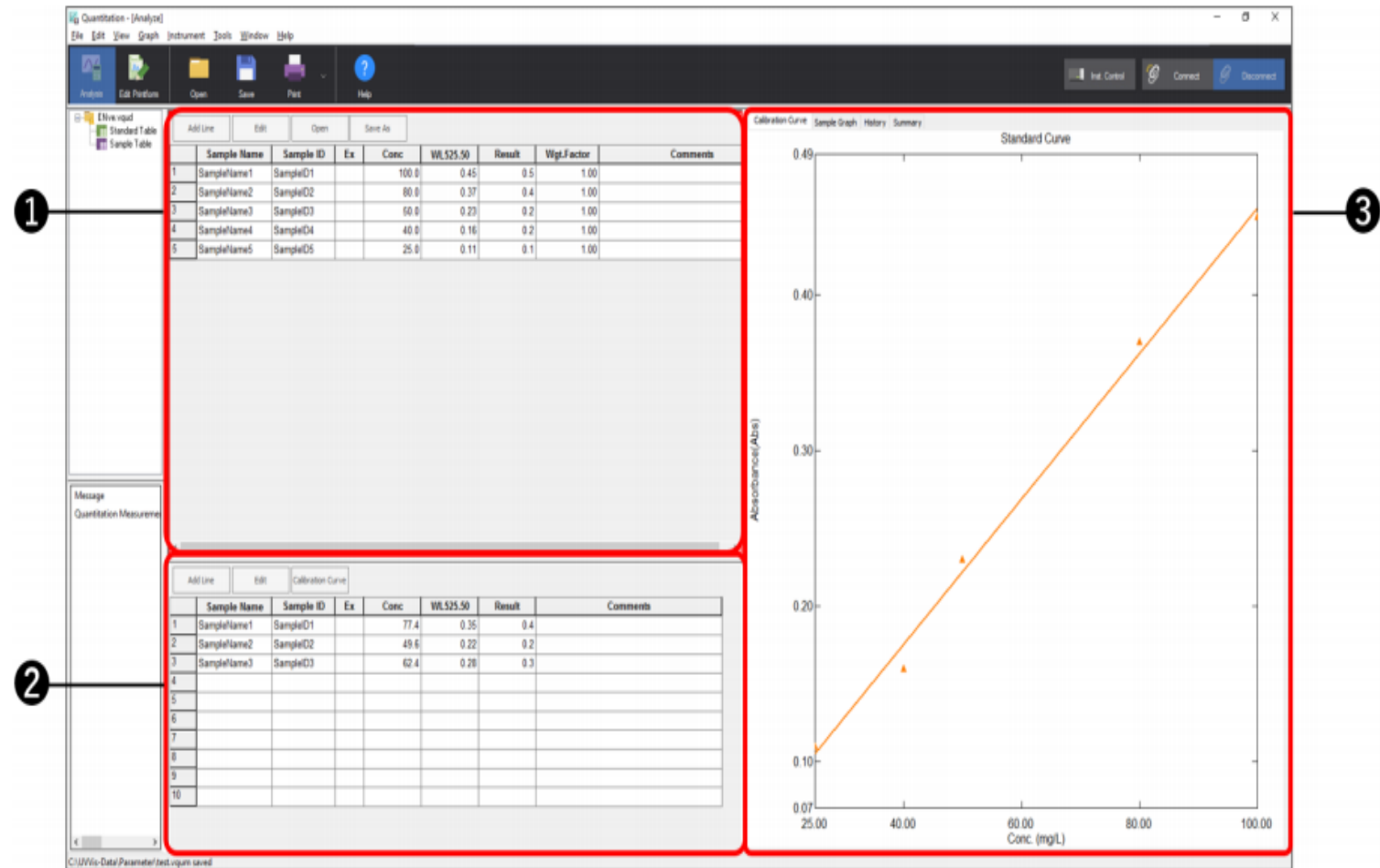


Quantitaion mode

Quantitation mode

- Standard로 검량선을 작성하여 미지시료의 농도를 구하는 정량모드

- ① : Standard table
② : Sample table
③ : Graph view



Method

①

Register Wavelengths

Measurement Value
Mode: Absorbance
☐ Use rounded measurement value for calculation
Decimal Place: 3

Registered Wavelength

Column Name	Measur...	Wavelength
WL525.50	Point	525.50

Measuring Method: Point
Wavelength 1 (nm): 525.50
Wavelength 2 (nm): 600.00
Column Name: WL525.50
Add Delete
OK Cancel

[Wavelength(nm)] 입력 후 Add 버튼 클릭하여 Entries에 분석 파장 삽입

②

Calibration Curve

How to create a calibration curve
☒ Measure a standard sample
☐ Specify a factor for a calibration curve

Column Name of Calculated Result: Result

Calculation Method: Fixed Wavelength

Calibration Curve Formula: Calculated Value = K1 * Concentration + K0

☐ Pass Origin

K0: 0.0000 K1: 1.0000
K2: 0.0000 K3: 0.0000

Units: mg/L

☐ Perform pass/fail judgment of concentration
Setting
OK Cancel

[Calculation method]선택, Unit지정, WL1에 ①에서 입력한 파장 선택

③

Standard Sample

Acquiring Method of Measuring Mode
☒ Acquire a measuring mode by measurement
☐ Manually input a measuring mode

☒ Perform repeated measurement to use an average value
Repeat Count: 5 Count
☐ Display message before repeating
OK Cancel

Sample 반복 측정 횟수 입력
(ex: 5입력 시, 5회 반복 측정 시 평균 값)

④

Advanced Settings of the Instrument

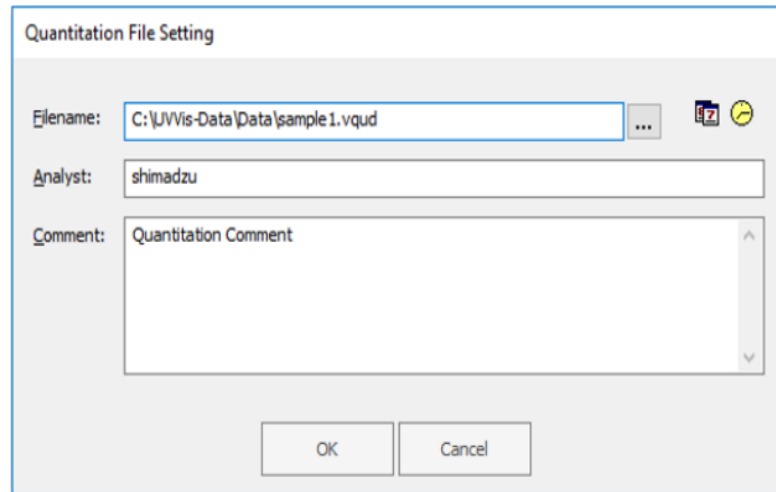
Slit Width (nm): 1.0
Accumulation Time(sec.): 0.2
Detector Unit: Direct Receiving of Light
Light Source Switch Wavelength (290-370 nm): 323
Detector Switch Wavelength (700-1100 nm): 830
S/R Switch: Standard
Stair Correction: ON
OK Cancel

램프전환파장

[Slit width],[Accumulation time]입력 후 [OK]
→ Method 저장

Measurement

①



Quantitation File Setting

Filename: C:\UVVis-Data\Data\sample1.vqud

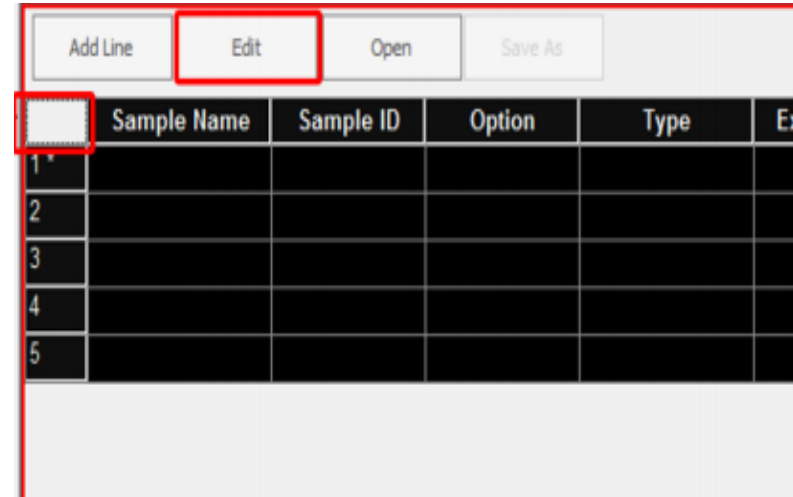
Analyst: shimadzu

Comment: Quantitation Comment

OK Cancel

[File name] → [Edit] → 입력 후 [OK]

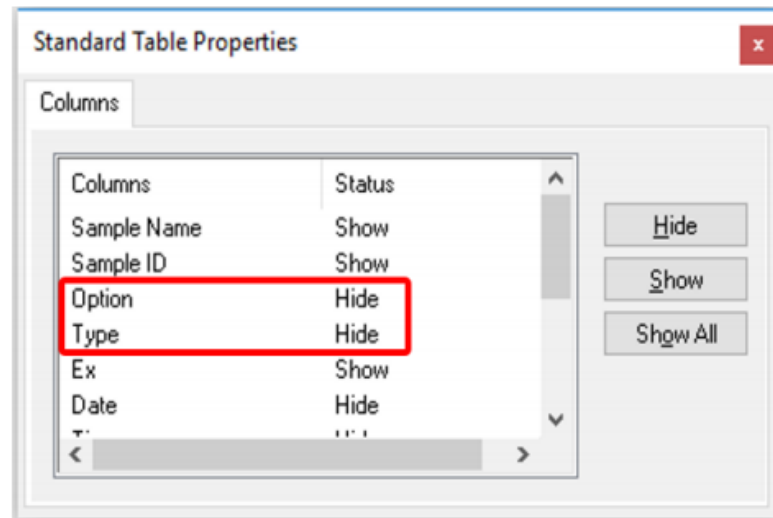
②



	Sample Name	Sample ID	Option	Type	Ex
1					
2					
3					
4					
5					

All cells select → [Edit] → Sample information 변경 → [OK]

③



Standard Table Properties

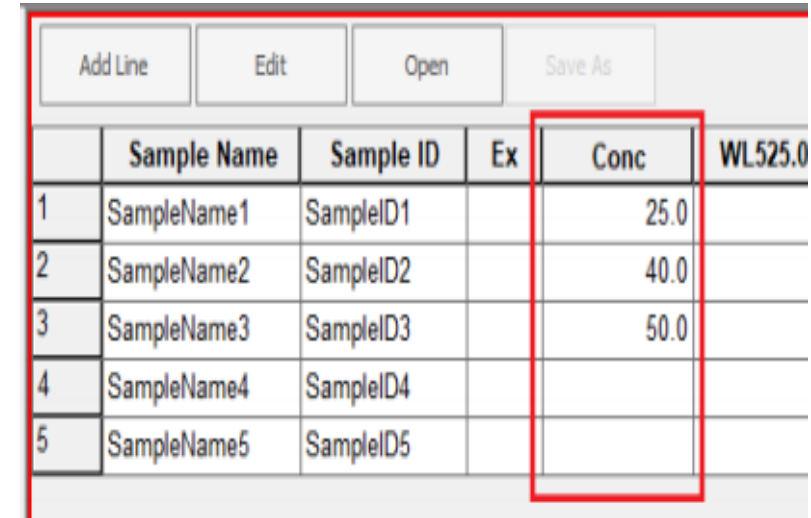
Columns

Columns	Status
Sample Name	Show
Sample ID	Show
Option	Hide
Type	Hide
Ex	Show
Date	Hide

Hide Show Show All

Sample table에서 R click → [Properties] → 불필요한 column 숨김가능

④




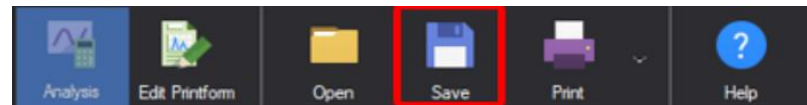
	Sample Name	Sample ID	Ex	Conc	WL525.0
1	SampleName1	SampleID1		25.0	
2	SampleName2	SampleID2		40.0	
3	SampleName3	SampleID3		50.0	
4	SampleName4	SampleID4			
5	SampleName5	SampleID5			

Conc 입력

Measurement

● Standard Measurement


1. Standard Table 활성화
2. [Auto Zero] 실행(해당파장에서)
3. Cell holder 앞 뒤에 모두 Blank넣기
4. [Cell Blank]실행
5. Cell holder에 Sample 넣기
(앞: Standard solution, 뒤:Blank)
6. Click 
7. 모든 standard 측정 후 [save]
8. Calibration curve files 저장

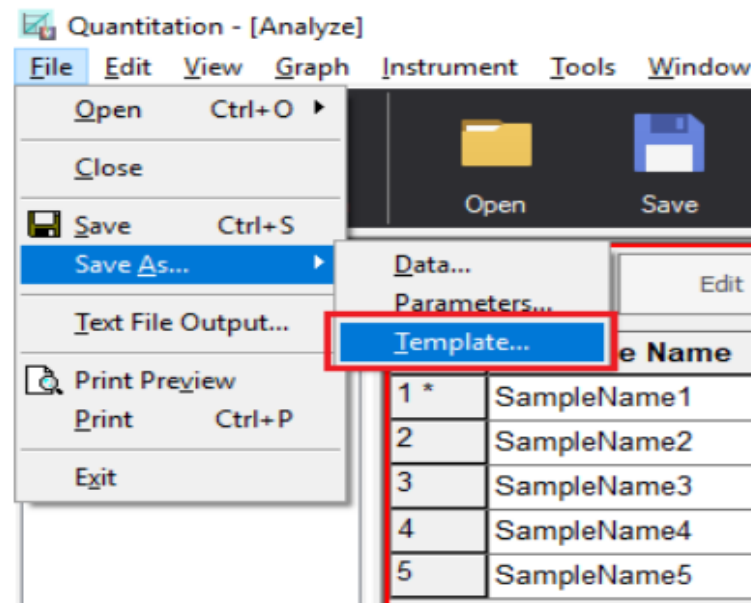
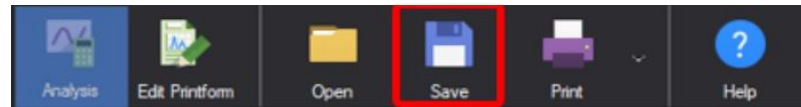


	Sample Name	Sample ID	Ex	Conc	WL525.00	Result	Wg
1	SampleName1	SampleID1		25.0	0.110	0.1	
2	SampleName2	SampleID2		40.0	0.160	0.2	
3	SampleName3	SampleID3		50.0	0.230	0.2	
4	SampleName4	SampleID4		80.0	0.370	0.4	
5	SampleName5	SampleID5		100.0	0.450	0.5	

Measurement

● Sample Measurement

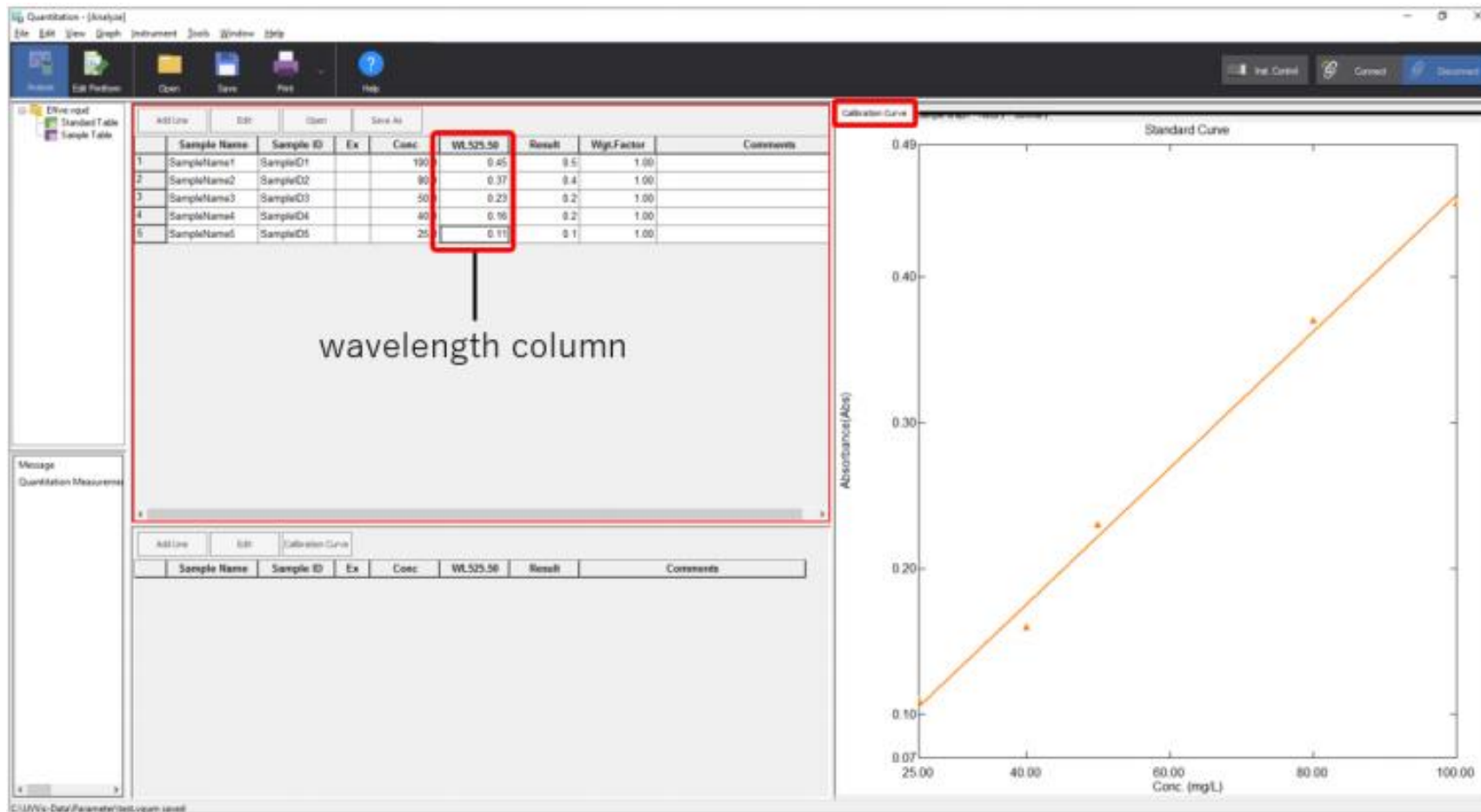
1. Unknown sample Table 활성화
2. Sample information 입력
3. Cell holder에 Sample 넣기
(앞: Sample, 뒤:Blank)
4. Click 
5. 모든 sample 측정 후 [save]
6. Template files 저장
: [File] → [Save As] → [Template]
→ filename 입력 → [save]



Results

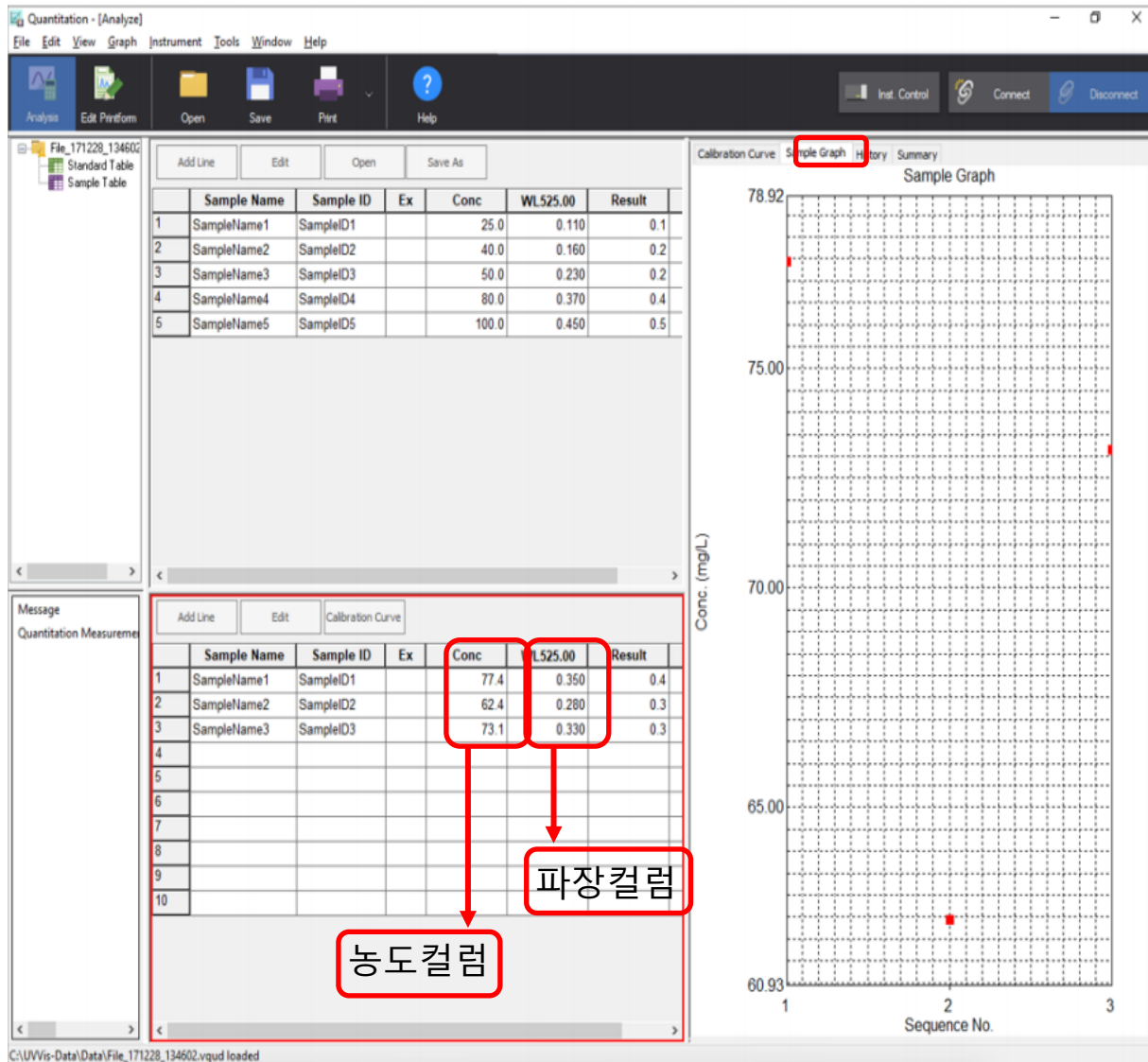
● Calibration Graph

[Standard Curve]에서 오른쪽 클릭 → [Calibration Curve Statistics] → [Graph] → Equation, Correlation Coefficient r^2 check



Results

● Sample Graph

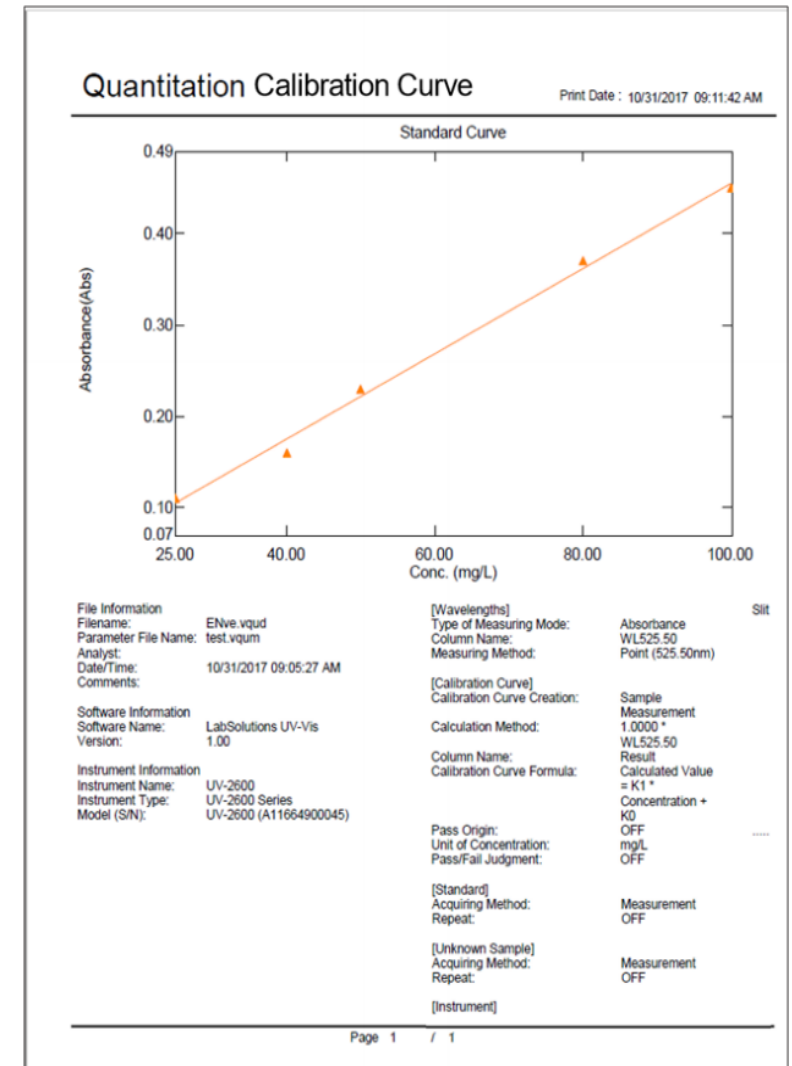
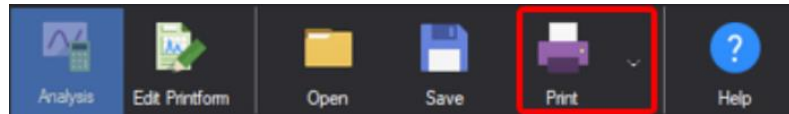


- WL column : 측정값 표시
- Conc column : 검정곡선에 대입하여 계산된 농도 표시
- Sample graph : sample의 농도가 그래프에 표시

Print

● Printing (Quick Print)

1. [Print] click
2. 설정된 template로 printform 생성

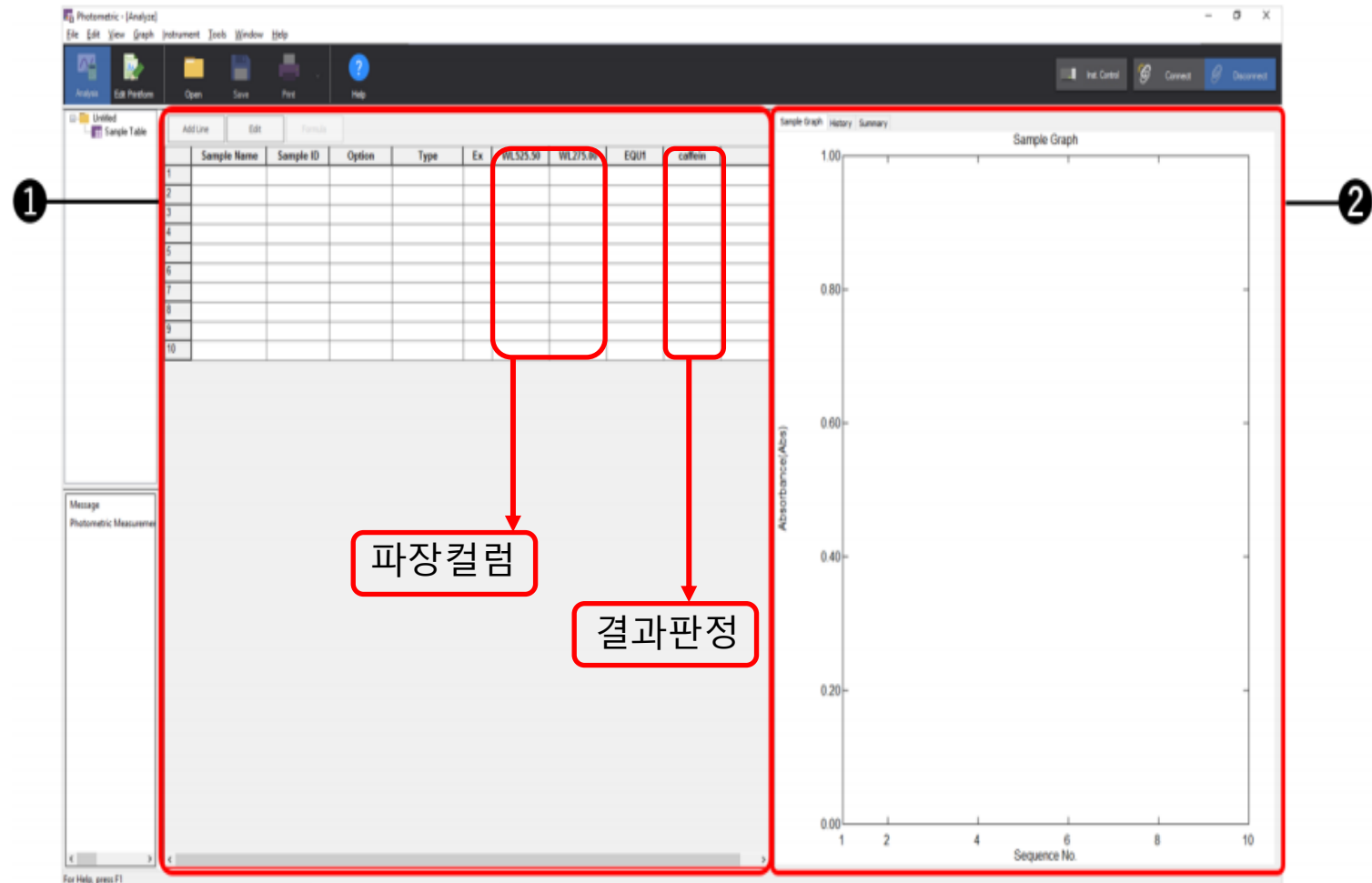


Print Example

Photometric mode

Photometric mode

- 단파장에서 흡광도 등을 측정하는데 사용(여러개의 파장 설정 가능)



① : Sample table

② : Graph view

Method

500.00 nm
0.080 Abs

WI
 D2

Parameter

-

Read

Edit

Check

File name

sample1.vphd

Edit

Analyze

Unknown Sample

Remeasurement

Cell Blank

Check

Auto Zero

Baseline

Go To WL

③

	Sample Name	Sample ID	Ex	WL525.50	WL275.00	EQU1	caffeine
1	SampleName1	SampleID1					
2	SampleName2	SampleID2					
3	SampleName3	SampleID3					
4							
5							
6							
7							
8							
9							
10							

⑦

Analysis

Edit Printform

Open

Save

Print

Help

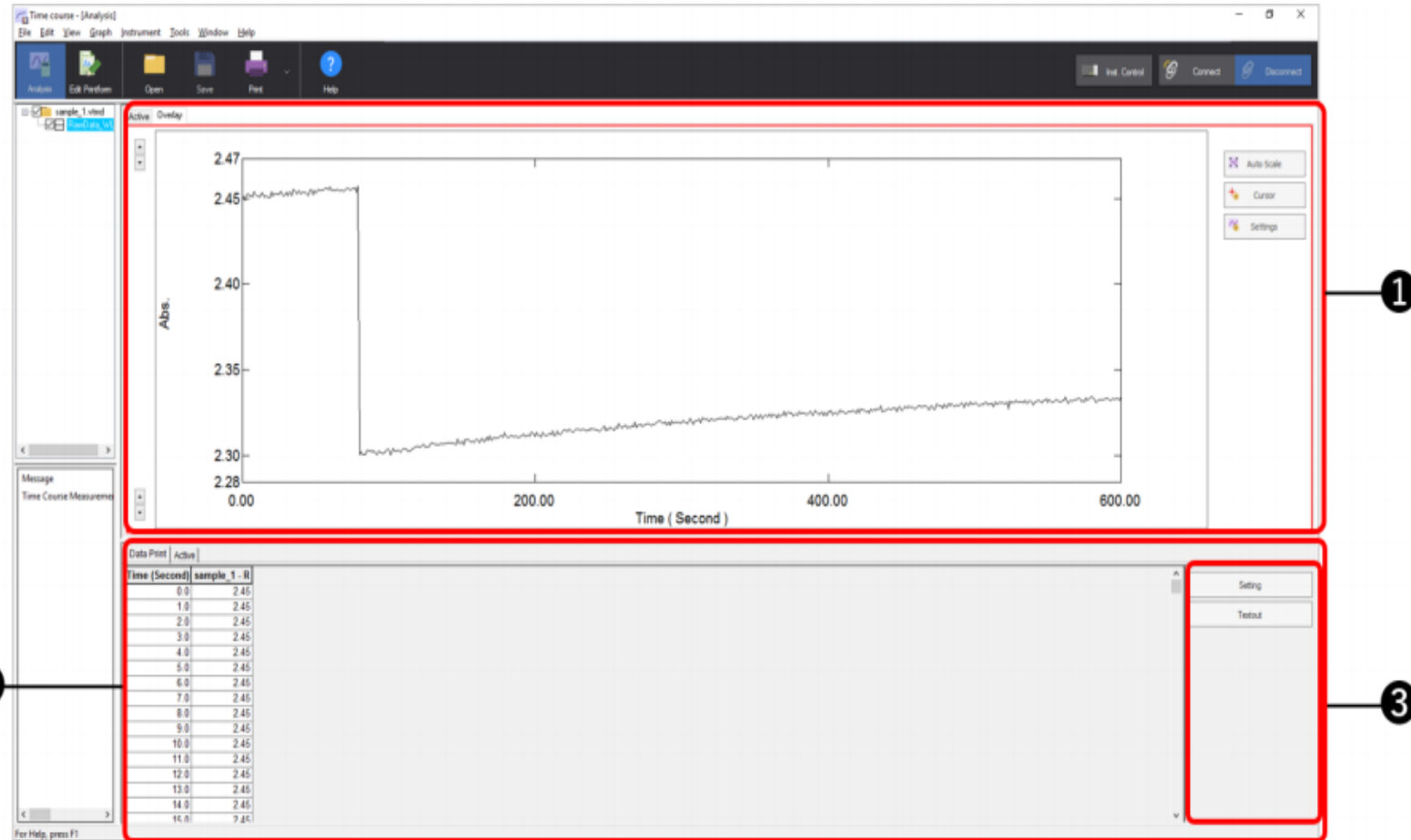
단일파장에서 측정시
AutoZero 실행

Time Course mode

Time Course mode

◆ 시간에 따라 변화
하는 흡광도나 투과율
등을 측정하는 모드

- ① : Graph view
- ② : Data view
- ③ : Setting area



Method

[Parameter] - [Edit] 설정값 setting

Measurement Parameters - UV-2600 Series

Accessories: None

Number of Cell to Use: 1

Wavelength: 1 Wavelength

Wavelength 1(nm): 410

Wavelength 2(nm): 600

Accumulation Time: 0.2 sec.

Data Interval: 1 sec.

Recommend: 1 sec. or more

Total Time: 600 sec.

Measuring Mode: Absorbance

Accessories: Advanced

Option: Post-processing

Close after overwriting parameter file

Close after creating new parameter file

Cancel

Advanced

Slit Width (nm): 1.0

Detector Unit: Direct Receiving of Light

Energy Measurement Parameters

Light Source: D2

Detector: PM

Detector Gain (PM): 0 (min)

Detector Gain (InGaAs): 0 (min)

Light Source Switch Wavelength (290-370nm): 323

Detector Switch Wavelength (700-1100nm): 830

S/R Switch: Standard

Stair Correction: ON

OK

Cancel

Option

☒ Pause(Event Record)

OK

Cancel

500.00 nm

0.646 Abs.

Analyze

Start

Parameter

C:\UVVis-Data\Parameters\sample_1.vtmm

Read

Edit

Check

File name and sample information

File name: sample_1

Sample name: sample_1

Sample ID: No. 1

Option:

Analyst: shimadzu

Comments: Time course comments

Type: Sample

Preset

Close

Style

Simple

Auto Zero

Baseline

Go To WL

①

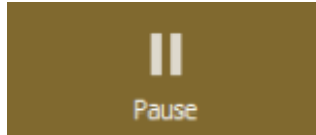
②

③

- ① : Auto Zero 실행
- ② : File name 입력
- ③ : Measurement Start

Function

- Pause 기능



: 필요에 따라 진행 중인 측정을 일시 중지 할 수 있다.(ex. 시약이 추가되는 경우)

⇒ 일시 중지된 data는 저장되며, 측정 후 시간 변경내용이 표시된다.

Event Record

Event 2

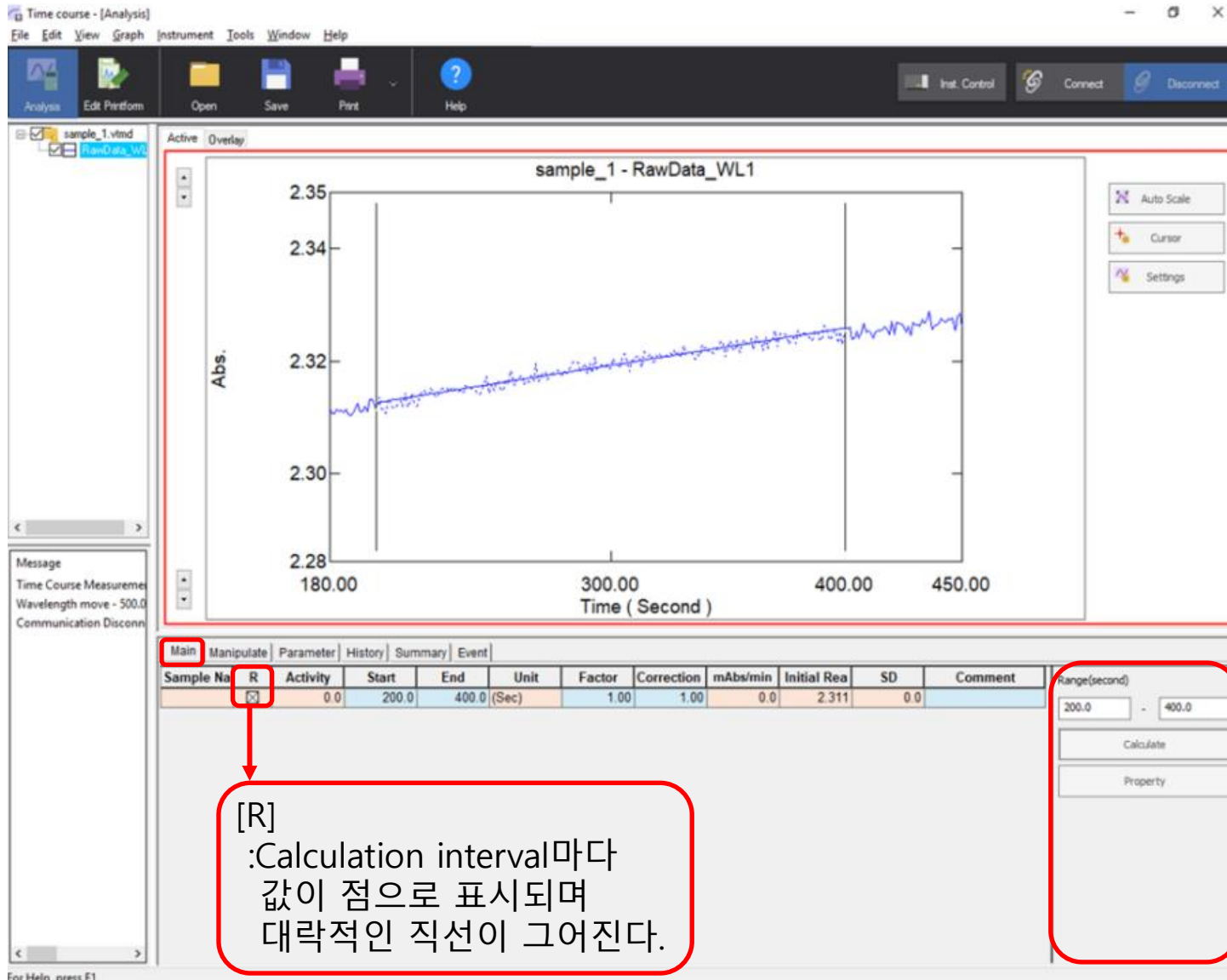
Event Description:

Event List:

No.	Date/Time	Length	Description
1	10/23/2017 11:4...	00:00:...	Start data acquisition.

OK Cancel

Results





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