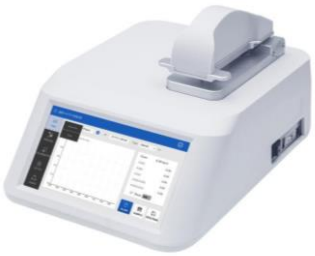
NeoDot 2.0

NB-12-5002

NeoDot 2.0

#Cat: NB-12-5002



Foreword

Thanks for purchasing our NeoDot 2.0, This Manual contains function and operation introductions. In order to use the instrument properly, please read this manual carefully before operation.

Please check the instrument and accessories with the packing list at the first time you open the instrument packing case.

Safety and Warnings

1 Operation Information

Users should know the working principle of the instrument before operation. Please read this manual carefully.

2 Safety

The operation, maintenance and repair of the instrument should comply with the basic guidelines and the remarked warning below. If you don't comply with them, it will have an effect on the instrument.

Indoor used instrument.

Read the Manual carefully before operation. Only trained personnel can operate the instrument.

Turn off the power in case of stop working, unplug the power connector from the socket in case of long-term nonuse and cover the instrument with a cloth to avoid the dust in.

Unplug the power connector, contact vendor or maintenance man who was trained in case as follows:

- There is some liquid flowing into the Instrument
- Instrument get wet through rain or water
- Can't work normally, especially with odd sound or smell.
- Instrument falls down or out shell damaged
- The function has obviously changed

3 The Maintenance

Clean the sample pedestal by soft and clean cloth with water, don’t with alcohol. Clean the instrument outside with mild cleansing cream.

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Chapter 1 Introduction

NB-12-5002 is a UV and Visible spectrophotometer, utilized to test micro volume purified nucleic acid and protein.

With pre-installed software and touch screen, it can measure sample volume of 0.5~2ul, which is precise and repeatable. Sample is shaped liquid column between the upper and lower pedestals due to surface tension, it allows high concentration sample can be measured without dilution. Benefit from the working principle (180~910nm) NB-12-5002, can measure high concentration samples.

The device is equipped with cuvette slot to enable measure diluted sample in cuvette.

Chapter 2 Features

1. Working condition

Ambient temperature: 5°C ~ 35°C

The relative humidity: ≤70%

Voltage: DC12V 4A

2. Basic features and parameters

Model		NB-12-5002
Sample volume		0.5ul~2ul (2ul recommended)
Path Length		0.05mm, 0.2mm or 1mm
Light source/Life		Xenon Lamp/flicker times>10^9
Detector type		2048 CMOS array
Wave Length		180~910nm
Wave length accuracy		±1 nm
Spectral resolution		≤1.5nm（FWHM@Hg 253.7nm）
Absorbance precision		0.002 Abs（1mm wavelength）
Absorbance accuracy		±1％（7.332Abs at 260nm）
Absorbance range		0.02~300（10mm wave length at 260nm）
Nucleic acid range		2ng/ul dsDNA ~ 15000ng/ul dsDNA
Detection time		<6S
OD_{600}	**Abs range**	0~4.000 Abs
	Abs stability	[0,3）≤0.3%, [3,4）≤1.5%
	Abs repeatability	[0,3）≤0.2%, [3,4）≤1.5%
	Abs accuracy	[0,2）≤0.005A, [2,3）≤1%, [3,4）≤2%
Voltage		DC12V 4A
Power		48W
Dimension		270×210×196 mm（W×D×H）
Weight		3.5 kg

Chapter 3 Basic Operation

1. Structure

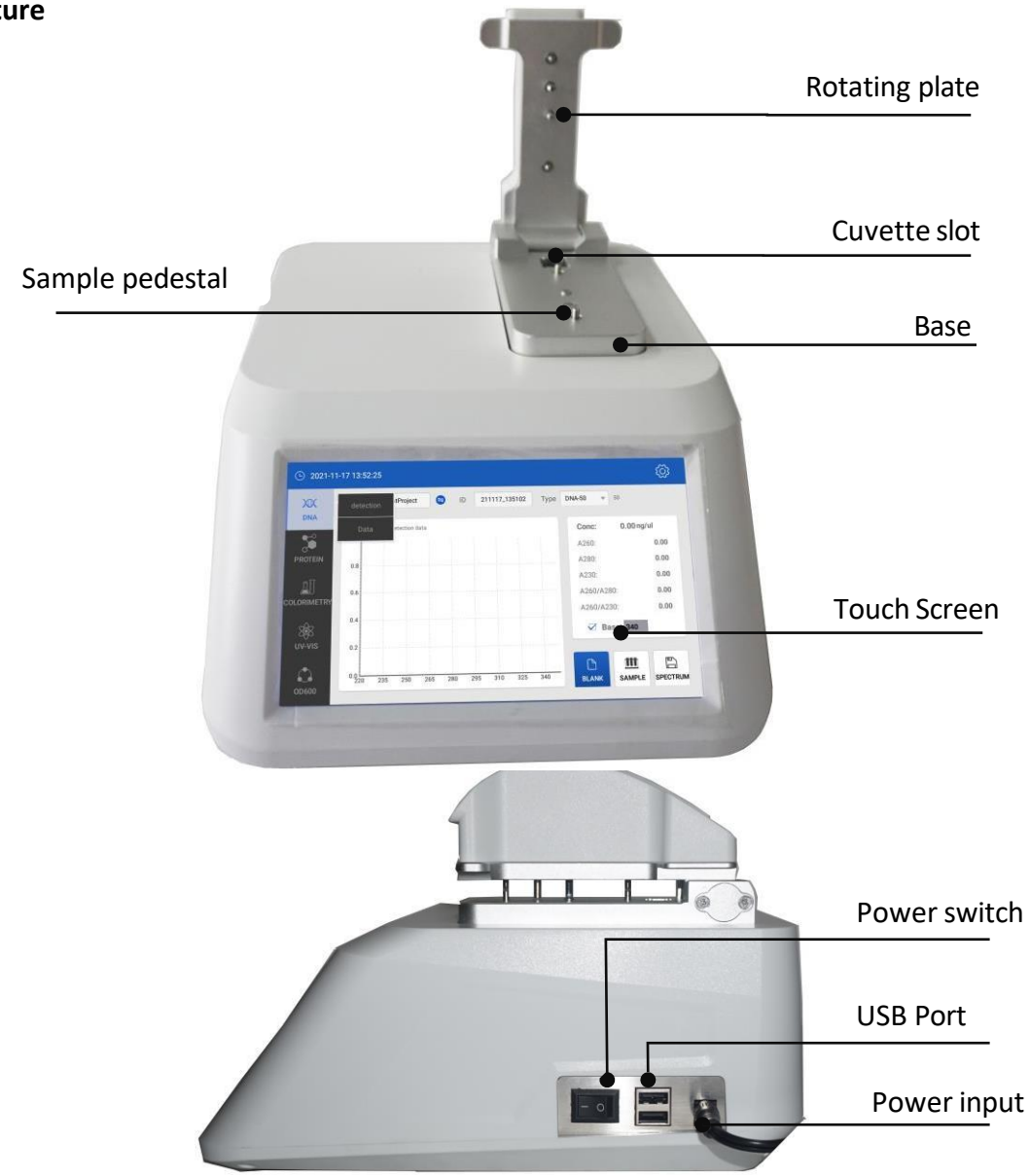


Fig 3.1 Structure

Note: Power supply requires valid grounding wire, or there will be jump-point on the screen.

2.Sample volume

Sample volume is a key factor affecting the measurement result, make sure to form the liquid column between the upper and lower pedestals. Precise pippet (0~2ul) is required for sampling, and volume 2ul is recommended.

3. Pedestal

3.1 Lift the upper pedestal, drop the sample(2µl) on to the lower pedestal.

Fig 3.2 sample drop

3.2 Lay down the upper pedestal to form the liquid column as Fig 3.3, to start measure.

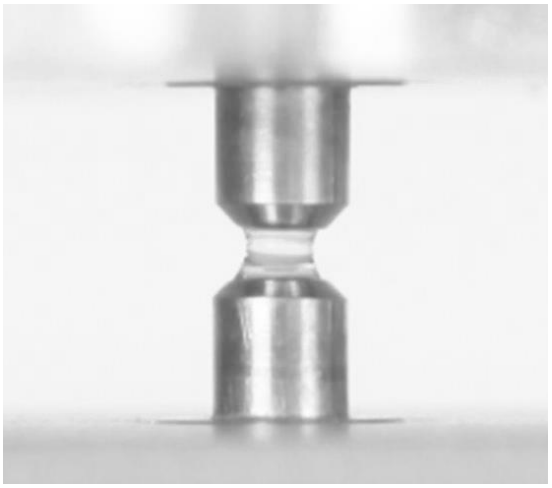


Fig 3.3 liquid column

3.3 Lift the upper pedestal after measurement, clean the two measurement heads with dust-free cloth, make sure the there is no residual sample which may affect next measurement.

Fig 3.4 Clean upper and lower pedestal

Note: Clean the detection pedestals three times with pure water after measurement.

4. OD_{600} detection

NB-12-5002 is able to do OD_{600} detection. Lift the upper pedestal, enter into OD_{600} interface. First, make blank measurement, which is various depending on experiments requires, such as air, empty cuvette or cuvette with blank solution. Add 2~3ml sample to cuvette, and insert the cuvette to the slot to start OD_{600} detection

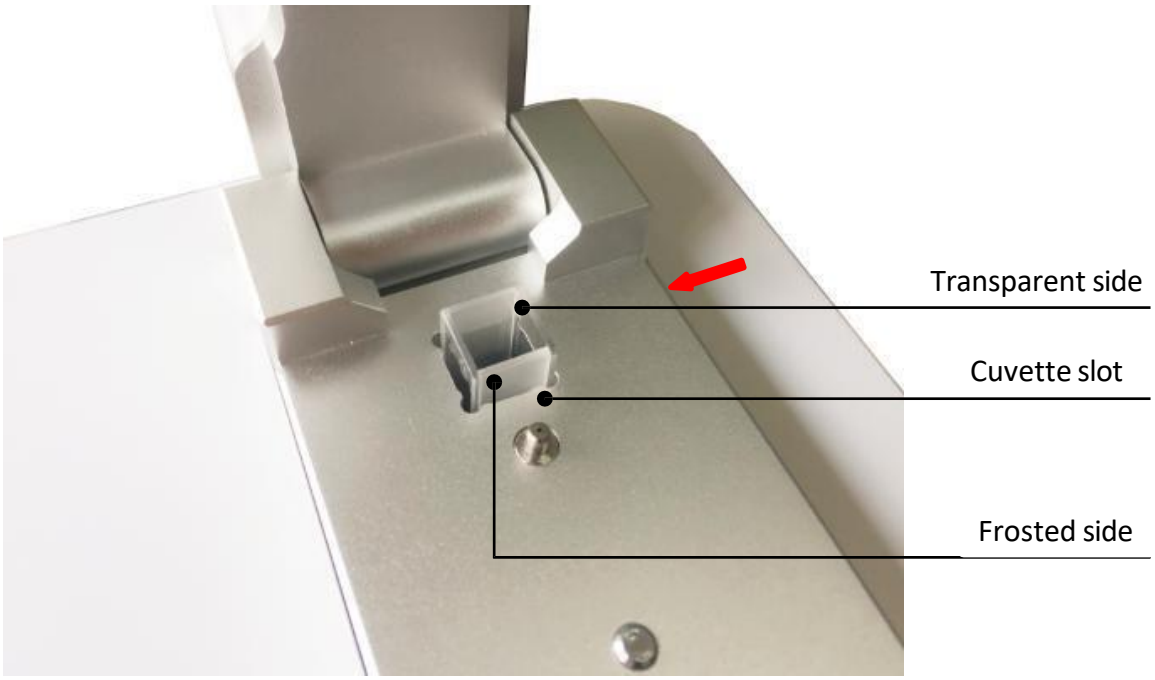


Fig 3.5 Cuvette slot and light path

Note: The arrow direction is the detection (light) direction, the transparent side should be vertical with the arrow.

Chapter 4 Software Operation

This chapter introduces NB-12-5002 software operation.

1. Instrument self-checking

Connect it to power supply, lay down the pedestal, instrument starts to self-checking after it is turned on.

Fig 4.1 Self-checking

2. Main interface

Instrument enters into the main Menu after self-checking. Here are some different application interfaces. Introductions are as below:

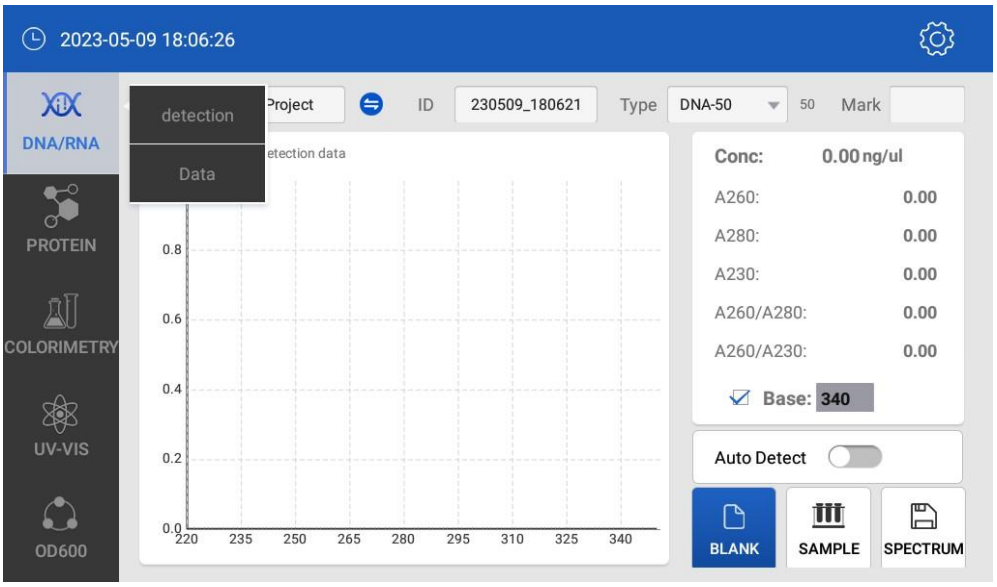


Fig 4.2 Main Menu

3. Nucleic acid detection

3.1 Summary

NB-12-5002 can easily detect the concentration of nucleic acid , choose " nucleic acid" on the main interface.

Utilize Beer—Lambert principle to calculate nucleic acid concentration:

$$c = (A * \varepsilon)/b$$

C＝nucleic acid concentration, unit is ng/ul
A＝AU Abs
ε＝extinction coefficient, unit is ng-cm/ul
b＝path length, unit is cm
Commonly, the nucleic acid extinction coefficient:
Double stranded DNA：50ng-cm/ul
Single stranded DNA：33ng-cm/ul
RNA：40ng-cm/ul
Under pedestal mode, high concentration samples can be detected by wave length of 1.0mm or 0.2mm or 0.05mm without dilution.
The nucleic acid Abs is the value of standard under 1cm wave length.
NB-12-5002 can detect the double stranded DNA sample concentration ≤15000ng/ul, software can choose a suitable wave length for different samples.

3.2 Nucleic acid interface

Click " DNA/RNA ":

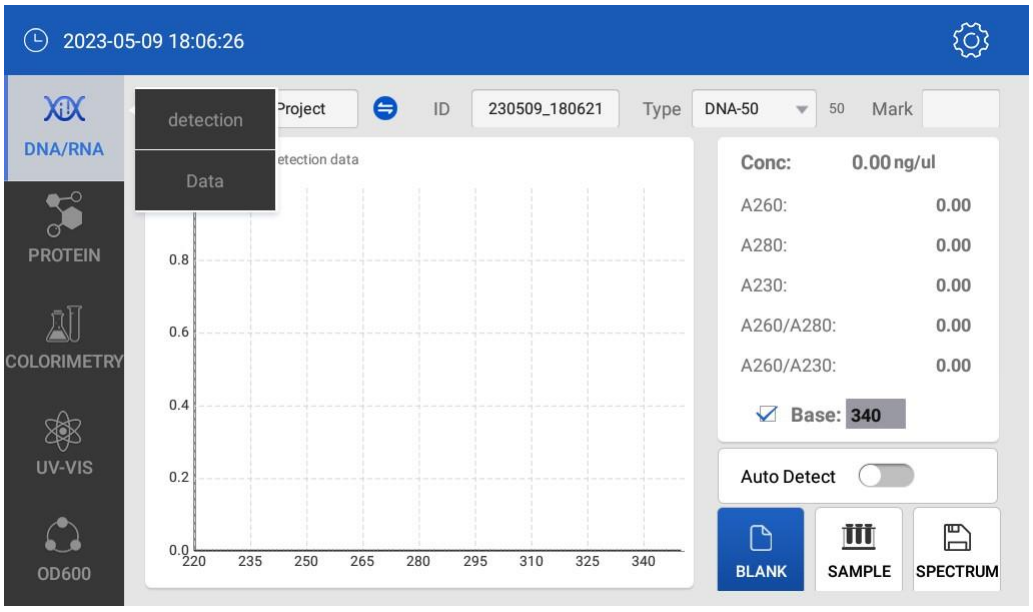
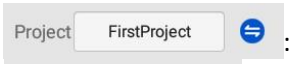


Fig 4.3 Initial interface of Nucleic acid detection

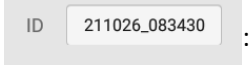
Fig 4.3 shows nucleic acid **detection and data**, enter into anyone by click.

(1) Button function introduce

Fig 4.3 shows, buttons with blue back ground and white characters are workable, with white back ground are unworkable.

① 

: Users can rename the project according to needs.

② 

: Sample batch No., default is current time, which also can be reset according to need. One ID can save more than 1000 detection results.

③ 

: Choose nucleic acid type, DNA-50 for dsDNA, RNA-40 for RNA Detection, ssDNA-33 for ssDNA detection. Choose "other", input nucleic acid factor, instrument can calculate according to factors

④ 

: Before measurement sample, make bland with buffer solutions, buffers absorbance is usually at -0.02~0.02 Abs. Usually, blank is valid within 30min, if no samples detection exceeding 30 min after blank.

⑤ 

click this button after blank, to detect samples.

⑥ 

After sample detection, click this button to save spectrum.

⑦ 
detect under this project.

⑧ 

: can choose or cancel baseline calibration. Nucleic acid detection Baseline default is 340nm, users can input a wavelength according to experiment with different wave length. Commonly, users can input other wave length for baseline. Usually, the baseline wavelength is not sensitive to the target sample. All the wavelength Abs should minus the baseline wavelength Abs.

Note: Baseline calibration should be done before detection, it will be invalid set after detection. Spectral value would be deviated, concentration detection would be changed in case of without baseline calibration.

⑨ 

： user can input charactors to mark different samples.

⑩ 

： Under condition of this function on, instrument can detect automatically once upper pedestal put down.

⑵ **Operation steps：**

①Set the project name and sample No.:

②Blank with TE buffer: add 2ul TE buffer on the lower pedestal, lay down the upper pedestal and start to “Blank”.

③Clean the pedestals by a dust free cloth after blank.

④Add 2ul sample onto the lower pedestal, lay down the upper pedestal, and press the “sample” button

to measure. Fig 4.4 will show on the display after completing measurement,

Note： make sure the sample measured once dropping on the pedestal.

⑤ Clean the sample away from by dust free cloth, before next measurement.

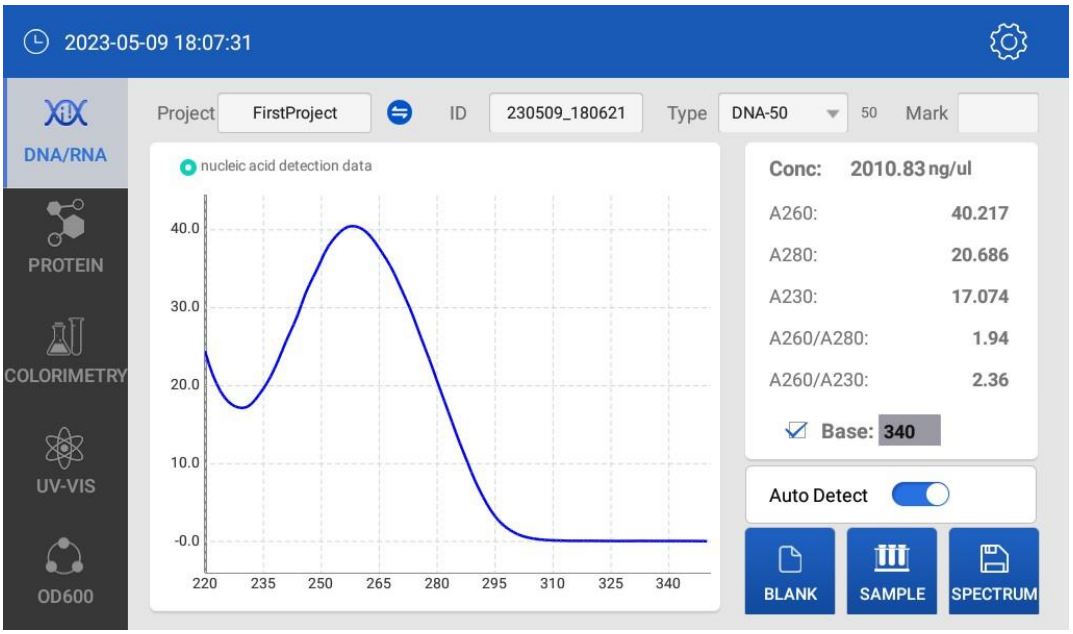


Fig 4.4 Measurement result

⑶ from Fig 4.4, we can see the detection result by data as Fig 4.5

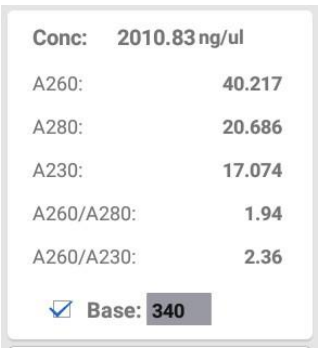


Fig 4.5 detection data Concconcentration of the sample

A260：shows Abs of 260nm under 10mm

A280：shows Abs of 280nm under 10mm

A230：shows Abs of 230nm under 10mm

A260/A280：Abs ratio of 260nm and 280nm, this value is for purity of DNA and RNA. Purified DNA should be about 1.8, Purified RNA should be 2.0

There might be contamination of protein, phenol or others in sample.

A260/A230： Abs ratio of 260nm and 230nm, which shows the concentration of nucleic Acid. This ratio is higher than 260/280, which is between 1.8-2.2, there might be contaminations in nucleic acid if the value is lower than the range.

(4) Fig 4.6 shows as below:

The screen is multipoint touch, you can zoom in or out of the curve to check the Abs at different wave length.

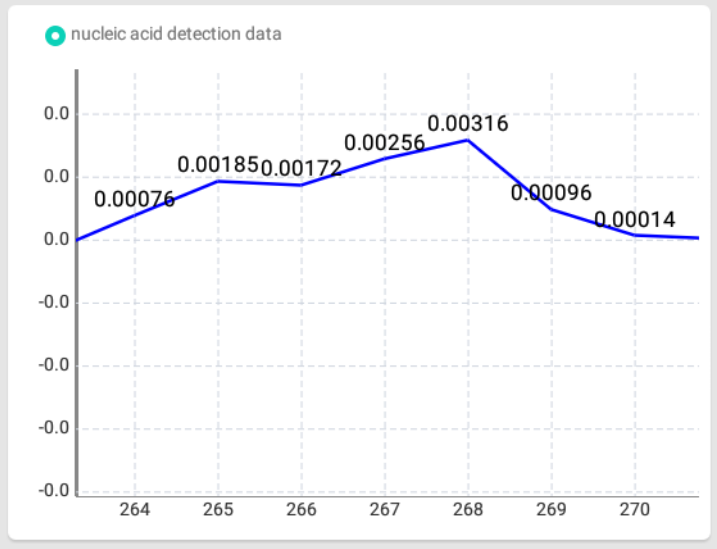


Fig 4.6 Nucleic acid detection curve

3.3 Nucleic acid detection data

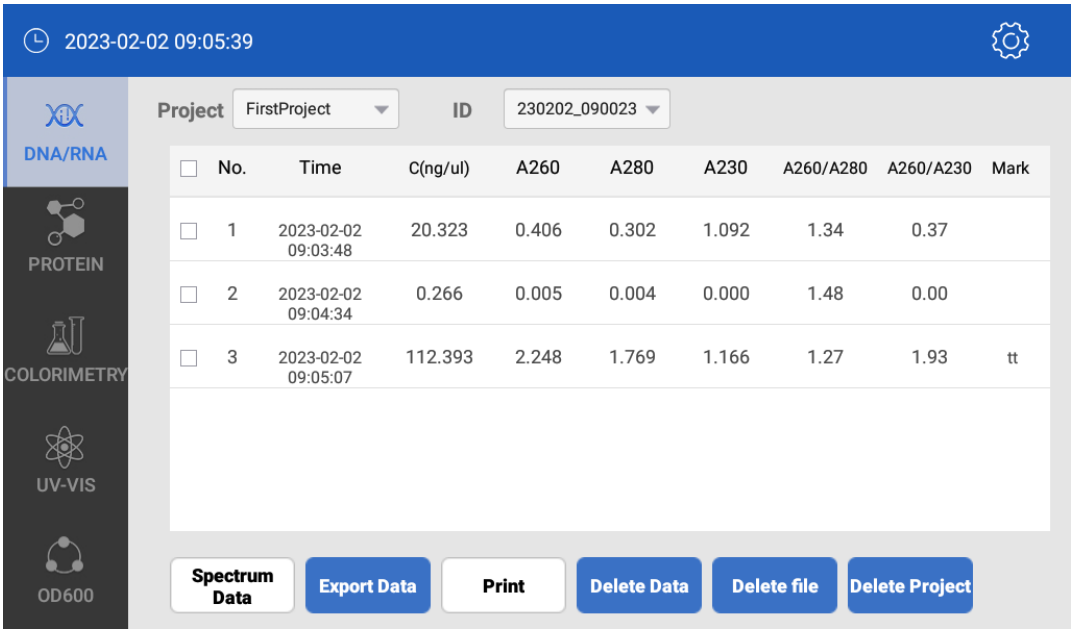


Fig 4.7 Nucleic acid detection data

Press “data” to enter into the details. At left side of the interface, ID shows the sample ID No., choose one ID, you will see the all the data under this ID No.

Button functions：

① Spectrum Data ： click this button, to check all the Abs under 180-910nm of this interface.

② Export Data : Data export, click this button to export data to U disc.

③ Delete Data : Delete data.

④ Delete file : Delete ID, a dialog will pop up, confirm it to delete.

⑤ Delete Project : Delete project, a dialog will pop up, confirm it to delete.

4. Protein A280

4.1 Summary

Protein is different from nucleic acid, which is various. Protein A280 is mainly used to detect the protein containing Trp, Tyr or Cys-Cys, which has a strong absorbance under wavelength of 280nm. This instrument does not require standard curve, it can calculate the result directly after detecting the absorbance.

Protein A280 display UV absorbance spectrum, detect the absorbance of 280nm and calculate the concentration (mg/ml). Same as nucleic acid, Protein A280 record and display the data under wavelength of 10mm.

NB-12-5002 can detect the BSA concentration 90mg/ml without dilute under pedestal mode. When the light intensity is less than 200 (10mm wave length) after detection, the system will reminder user to shift to a shorter wave length to ensure the accuracy. It will show as below Fig 4.9

The liquid surface tension depends on the hydrogen bond of H2O， usually, the stuffs in Water such as protein, saline ions, detergent which will destroy the hydrogen bond to reduce the surface tension. For most samples, 1 ul sample is enough for detection, 2 ul volume is recommended to form the liquid column due to the surface intension reduce.

4.2 Detection protein A280

On the main interface, click “PROTEIN” to enter into detection.

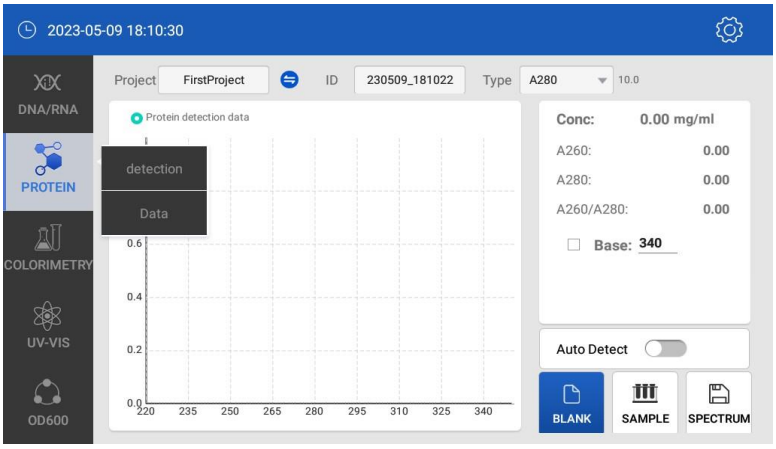
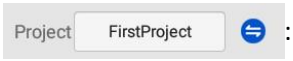


Fig 4.8 Protein interface

As Fig 4.8 , at the top, there are two interface of “A280”, “data”, click the button to enter into the corresponding area.
(1)As showed Fig 4.9, blue-ground-colored buttons are active, white-ground-colored buttons are inactive.

① 

: Project name, make a proper name according to users’ need.

② 

: ID No., default name is the current time, users also can make a new ID name according to need. Each ID can save 1000 data.

③ 

:Click to choose protein type, when users choose “other”, users can input the value according to need. Instrument will calculate the result.

④ 

: Blank before detection by TE buffer, the buffer Abs should be -0.02~0.02 Abs. In case that the user does not detect more than 30 min after blank, instrument requires another blank.

⑤ 

: users can choose or cancel baseline calibration. Protein detection Baseline default is 340nm, users can input a wavelength according to experiment with different wave length. Commonly, users can input other wave length for baseline. Usually, the baseline wavelength is not sensitive to the target sample. All the wavelength Abs should minus the baseline wavelength Abs.
Note: Baseline calibration should be done before detection, it will be invalid set after detection. Spectral value would be deviated, concentration detection would be changed in case of without baseline calibration.

⑥ 

: Under condition of this function on, instrument can detect automatically once upper pedestal put down.

(2) **Operation steps：**
①Set the project name and sample No.:
②Blank with TE buffer: add 2ul TE buffer on the lower pedestal, lay down the upper pedestal and start to “Blank”.
③Clean the pedestals by a dust free cloth after blank.
④ Add 2ul sample onto the lower pedestal, lay down the upper pedestal, and press the “sample” button to measure. See Fig 4.10
Note： make sure the sample measured once dropping on the pedestal.
⑤ Clean the sample away from by dust free cloth, before next measurement.

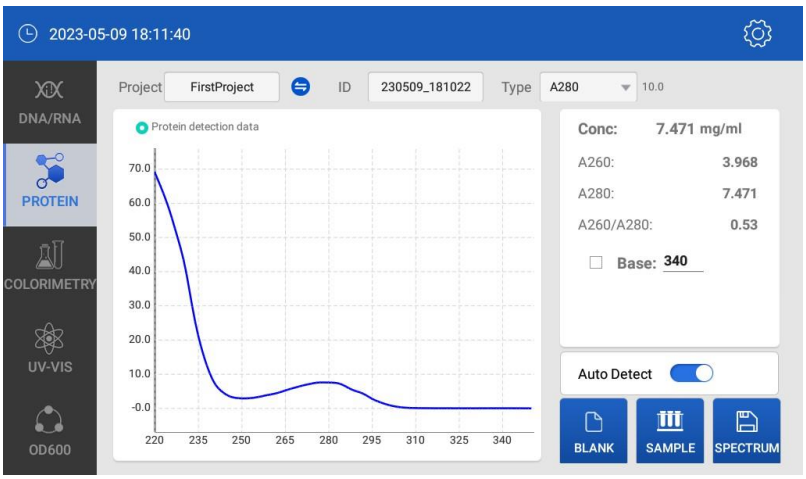


Fig 4.9 Protein detection result

⑶ As Fig 4.10 (From Fig 4.9), the data result as below

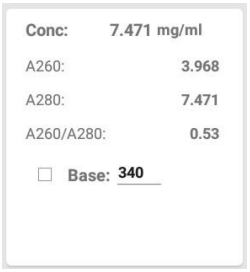


Fig 4.10 Protein result

Conc：Protein concentration

A260：shows Abs of 260nm under 10mm

A280：shows Abs of 280nm under 10mm

A230：shows Abs of 230nm under 10mm

As showed Fig 4.11:

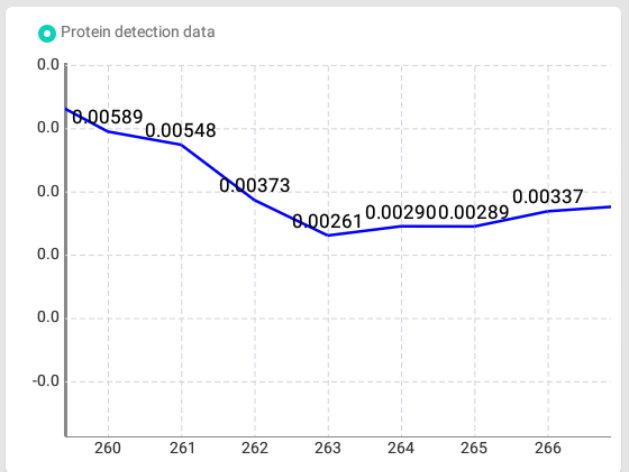


Fig 4.11 Protein detection curve

The screen is multipoint ouch, you can zoom in or out of the curve to check the Abs at different wave length.

(4) **Button function: Refer to the introduce of nucleic acid part.**

4.3 Protein A280 data

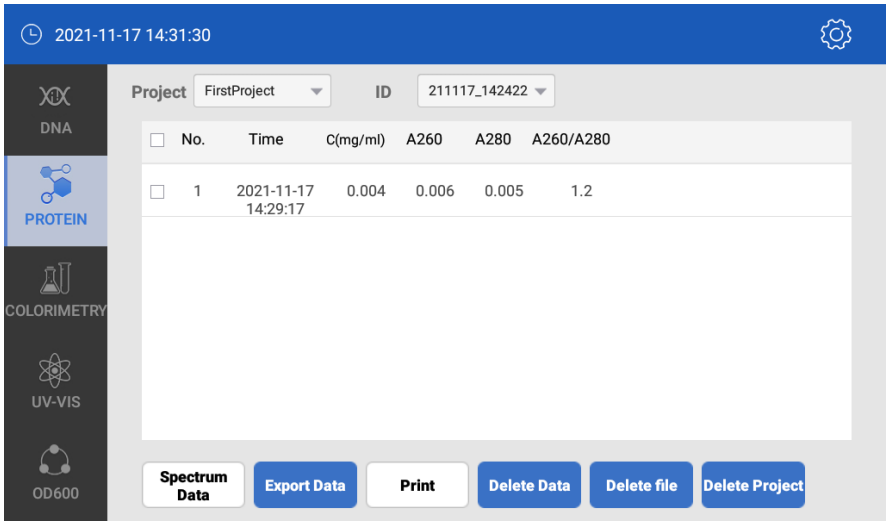


Fig 4.12 Protein detection interface

This interface layout is same as nucleic acid, refer to the nucleic acid part.

5. Colorimetry

5.1 Summary

BCA, Lowry, Bradford are all colorimetry to measure unpurified protein which requires a standard curve when measuring protein, so these three methods are set into colorimetry.

BCA is one of the colorimetry to measure diluted unpurified protein and protein containing impurities which has absorbance under UV light. BCA is a method to detect Cu^{+1} ion, under alkaline environment Cu^{+2} ion can be returned to Cu^{+1} by protein. Two Biquinoline dicarboxylic acid BCA molecules and one Cu^{+1} ion can form purple chelate.

Under this situation, Cu-BCA chelate has a high absorbance at wave length 562nm, standardized 750nm light coefficient.

Commercialized BCA kits offer two protein measurement range:

Normal detection use reagent/Protein sample volume ratio is 20:1, this kind kit measurement range is 0.20mg/ml to 8.0mg/ml (BSA). When use the pedestals to detect, 4ul sample and 80ul BCA reagent are required.

Micro volume detection use 1:1 reagent/sample, protein concentration 0.01mg/ml to 0.20mg/m. Abundant sample is need for pedestal detection, 10ul sample and 10ulBCA reagent (Use PCR tube).

Operate and build a standard curve, prepare sample according to reagent vendor's instruction. Ensure the detection is under the same time and temperature.

Note: If temperature required higher than 60℃， please use sample of double volume to avoid volatilization which may affect the result.

Lowry protein quantification is a widely used method. Lowry forms protein and copper sulfate into compound under alkaline environment. Folin—Ciocalteu reagent can return the compound and produce blue outcome which equals protein quantity, and it can be detected under 650nm, calibrate under 405nm. Reagent can be bought from many manufacturers.
Prepare standard sample precisely,20ul protein sample and 100ul Lowry reagent are recommended. This instrument can measure concentration 0.20mg/ml to 4mg/ml. Operate and build a standard curve, prepare sample according to reagent vendor's instruction. Ensure the operation is under the same time and temperature. This instrument can measure wider range of concentration than normal device, so we suggest users to build a wider standard curve, and 2ul sample is recommended.
Bradford is a common protein quantification method which usually use to measure low concentration protein. Bradford detection method is according to protein can make CBB (Coomassie brilliant blue) absorb displacement, which is detect Abs under 595nm. Protein-dyestuff (CBB) can be detected under 595nm, standardized under 750nm. Reagent can be bought from many manufacturers.
Commercialized Bradford kits offer two protein measurement range:

Normal detection use reagent/Protein sample volume ratio is 50:1，this kind kit measurement range is 0.10mg/ml to 8.0mg/ml (BSA). Best linear range should be 0.01-1mg/ml. When use the pedestals to detect, 4ul sample and 200ul Bradford reagent are required.
Micro volume detection use 1:1 reagent/sample, protein concentration c15ug/ml to 125ug/ml.
Abundant sample is need for pedestal detection, 10ul sample and 10ulBCA reagent (Use PCR tube). Operate and build a standard curve, prepare sample according to reagent vendor's instruction.
Ensure the detection is under the same time and temperature.
Note: If temperature required higher than 60℃，please use sample of double volume to avoid volatilization which may affect the result.
In Bradford kit, there is standard sample for building up standard curve. This instrument can detect higher concentration sample than cuvette detection, users should use higher concentration sample than reagent vendor's advice.

5.2 Colorimetry detection

Note Build up standard curve before measurement.
Click "colorimetry" on the main interface to enter

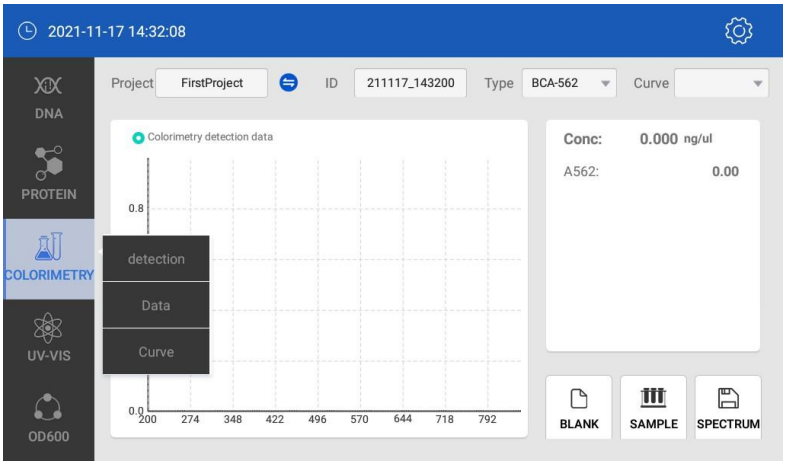


Fig 5.1 Initial interface of colorimetry

⑴ **The layout is same as nucleic acid, here introduce some other layouts.**

① 

: Click to choose one colorimetry

② 

: The present displayed curve is relative with the previous set.

This system can offer three types: first order polynomial, quadratic polynomial, cubic polynomial.

Operation steps:

①Set the project name and sample No., colorimetry type, and curve,

②Blank with TE buffer: add 2ul TE buffer on the lower pedestal, lay down the upper pedestal and start to “Blank”.

③Clean the pedestals by a dust free cloth after blank.

④ Add 2ul sample onto the lower pedestal, lay down the upper pedestal, and press the “sample” button to measure. See Fig 4.10

Note： make sure the sample measured once dropping on the pedestal.

5.3 Standard curve

Build up a standard curve before measurement, a simple curve is constituted by two points. In order to make sure measurement accuracy, we advise five points to build up curve. Standard sample concentration should cover the samples concentration, and equispaced.

Here introduce colorimetry standard curve interface, functions and operations.

Click “Curve”, as Fig 5.2, there is not standard curve displayed, which need users to build up.

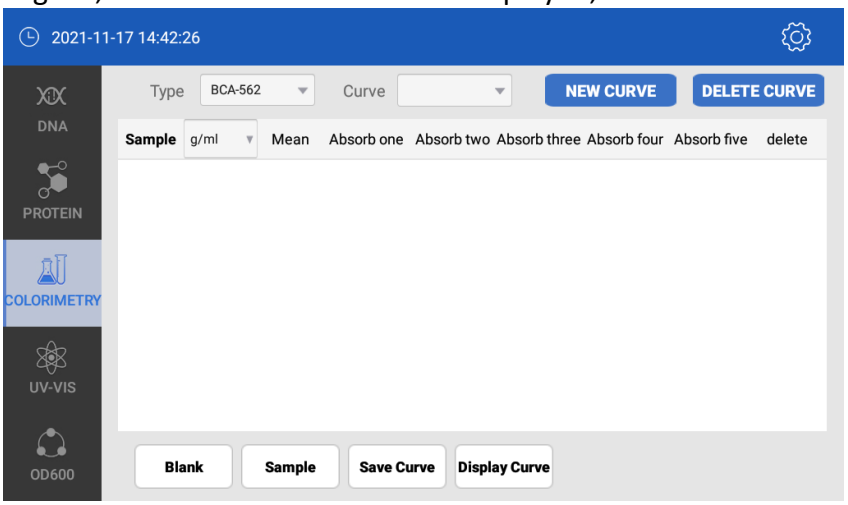


Fig 5.2 Standard curve interface of colorimetry

(1) Build up curve.

① Click 

, a dialog box displayed as below, input a name, and confirm.

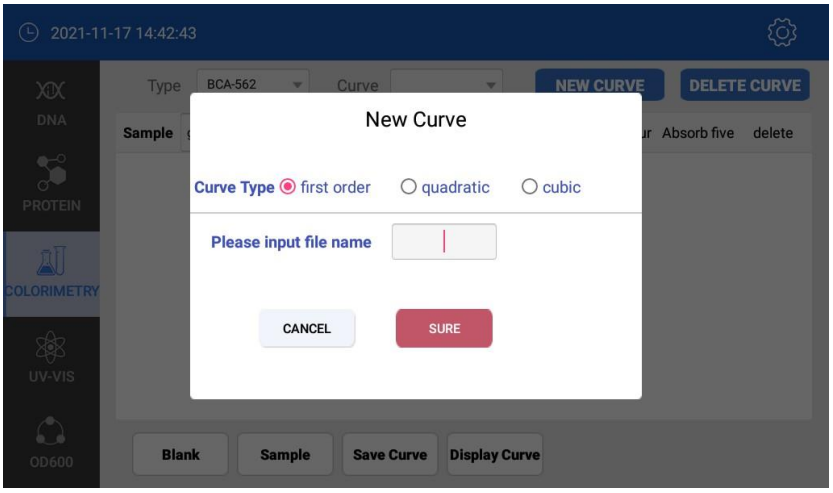


Fig. 5.3 New Curve of Colorimetry

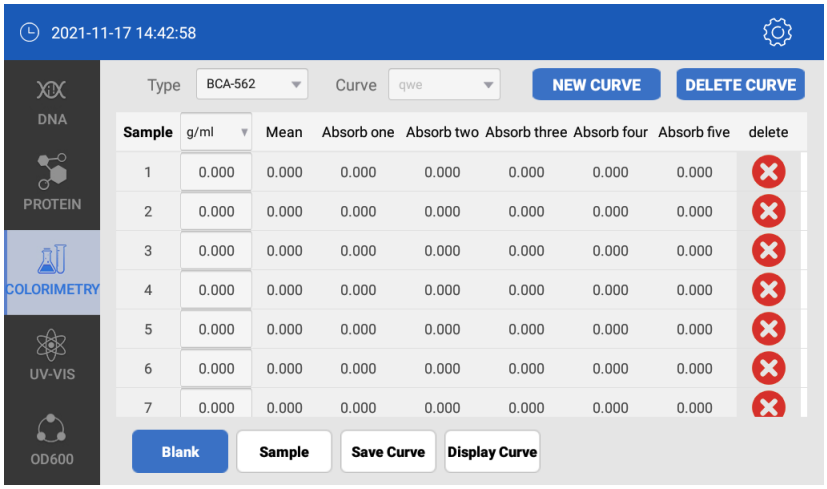


Fig 5.4 input the concentration to build up standard curve.

② Click 

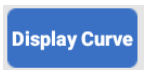
, Choose unit for standard sample, input standard sample concentration

③ Click the standard sample name (as Fig 5.3) to choose one standard sample, which will be back-ground-colored blue. According to blank, sample detection order to get the sample Abs.
Same method for other samples.
Each standard sample can be detected for five time, and get the average. Users can delete the standard sample by long click the standard sample name or other area of the line.

④ After all standard samples detected, click “save curve” 

Note: New curve must be saved before you choose from drop-down list.

(2) Other buttons introduce

① 

: click this button to display the current curve, as Fig 5.5

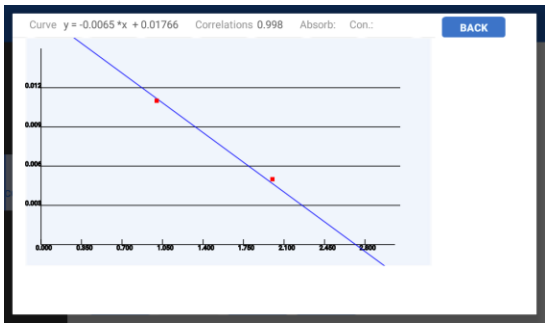


Fig 5.5 New curve

5.4 Colorimetry Data

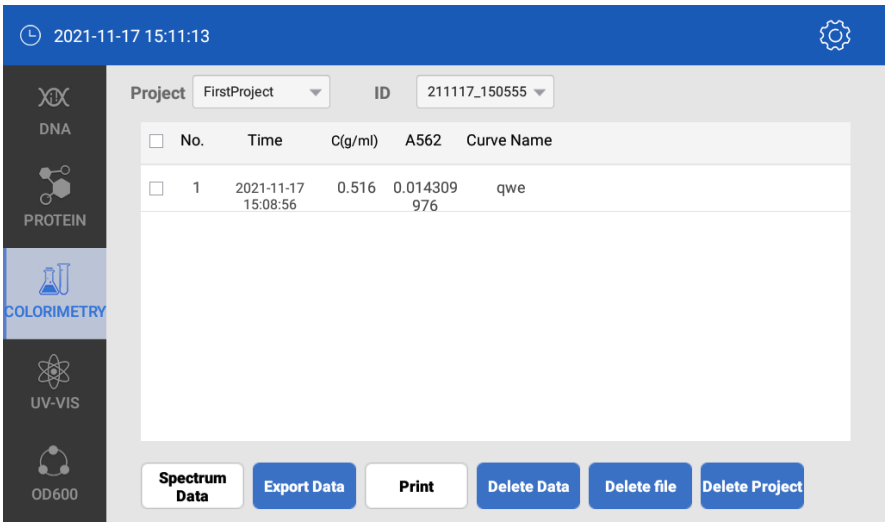


Fig 5.6 Data interface

6. Uv-Vis scan

6.1 Summary

Uv-Vis function can make the instrument detects samples with wavelength of 180-910nm.

Instrument can choose wavelength according to Abs, the max measurement can reach 300 Abs equals 10mm.

6.2 Uv-Vis Detection

Click “Uv-Vis” on the main interface.

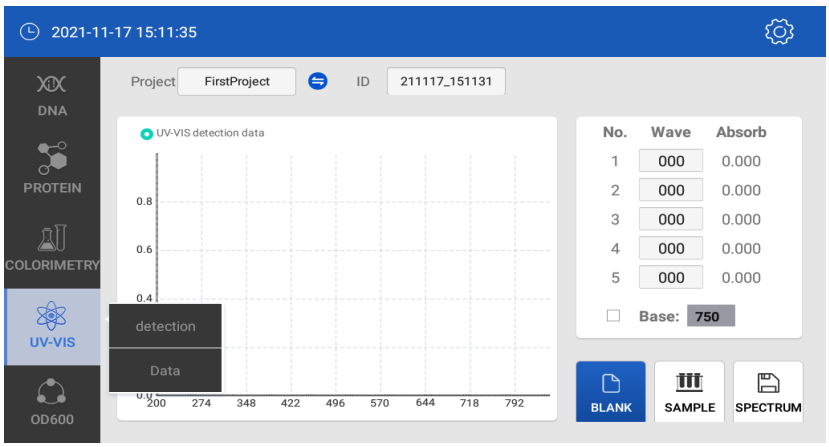


Fig 6.1 Uv-Vis measurement initial interface

(1) The layout is same as nucleic acid, here introduce some other layouts.

① Click 

, Fig 6.2 will displayed on screen after blank.

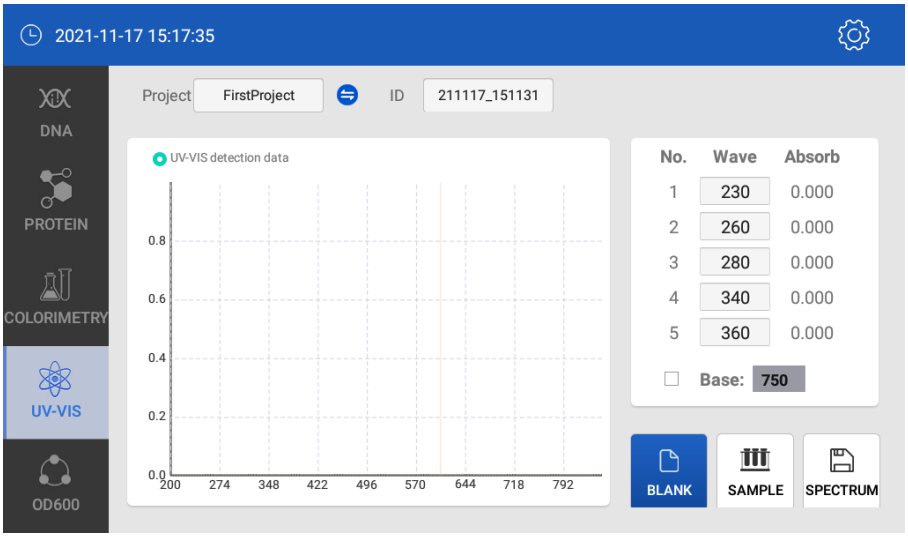


Fig 6.2 checks the characteristic absorbance

② On the interface Uv-Vis, Fig 6.3, input the characteristic wavelength before measurement, absorbance will display accordingly.

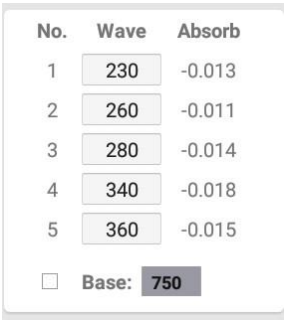
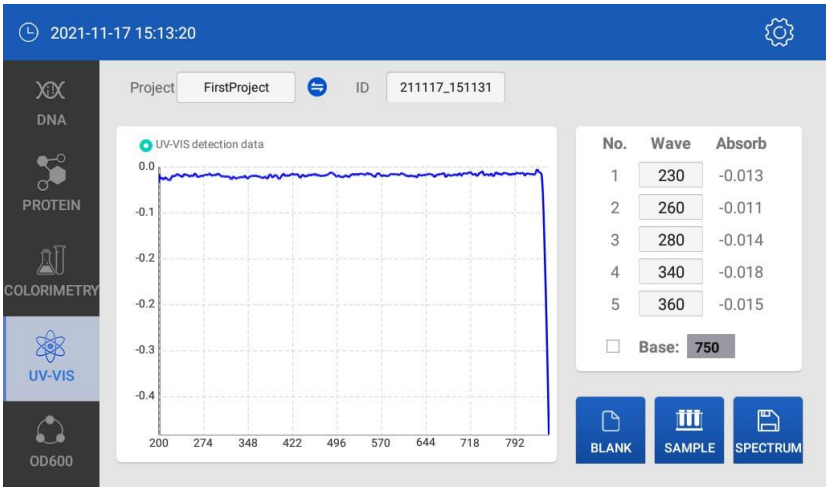


Fig 6.3 check characteristic wavelength

③ Click 

after blank, Fig 6.4 on screen which shows sample absorbance under wavelength 180-910nm.



⑵ Operation steps：

①Set the project name and sample No.:

②Blank with TE buffer: add 2ul TE buffer on the lower pedestal, lay down the upper pedestal and start to

"Blank".

③Clean the pedestals by a dust free cloth after blank.

④ Add 2ul sample onto the lower pedestal, lay down the upper pedestal, and press the "sample" button to measure. See Fig 4.10

Note: **make sure the sample measured once dropping on the pedestal.**

⑤ Clean the sample away from by dust free cloth, before next measurement.

6.3 Uv-Vis Data

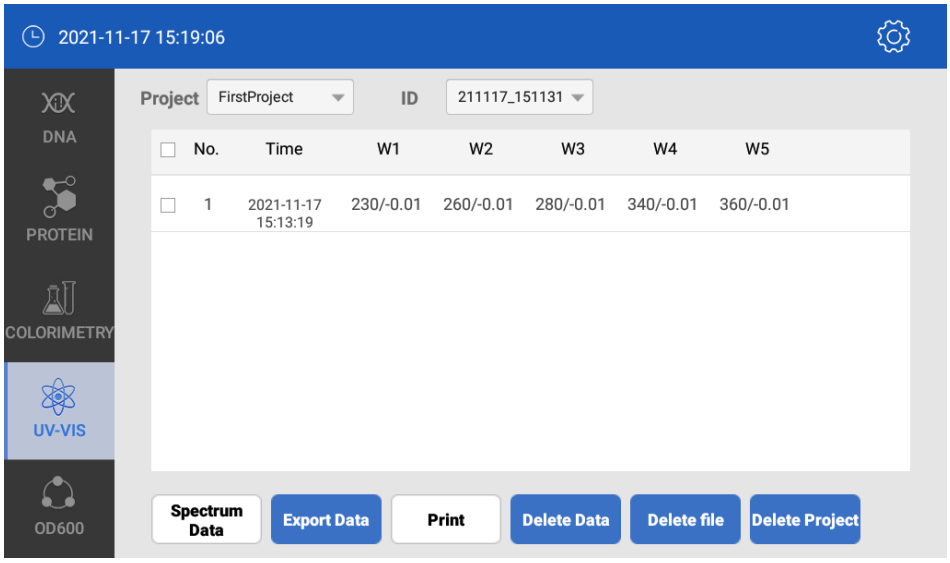


Fig 6.5 Uv-Vis Data

The layout of this part is similar to nucleic acid, please refer to nucleic acid part.

The screen is multipoint touch, you can zoom in or out of the curve to check the Abs at different wave length.

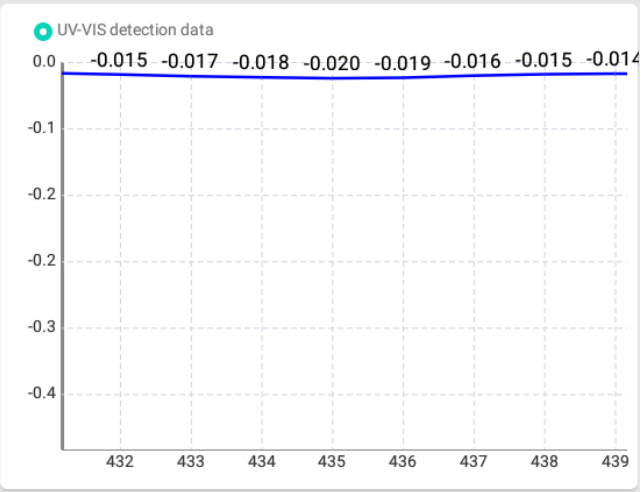


Fig 6.6 Uv-Vis data

7. OD_{600}

7.1 Summary

OD_{600} means a liquid absorbance under wavelength 600nm.

The application of OD600: The bacteria absorbance is used to measure the concentration of bacteria culture solution to estimate the bacteria growth.

7.2 OD_{600} detection

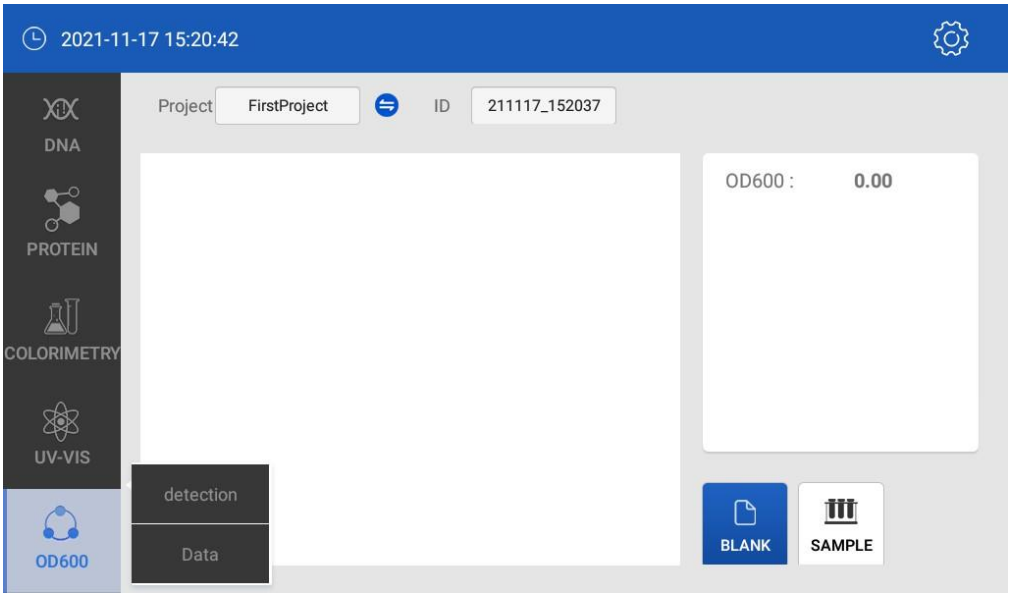


Fig 7.1 OD600 initial interface

Operation steps:

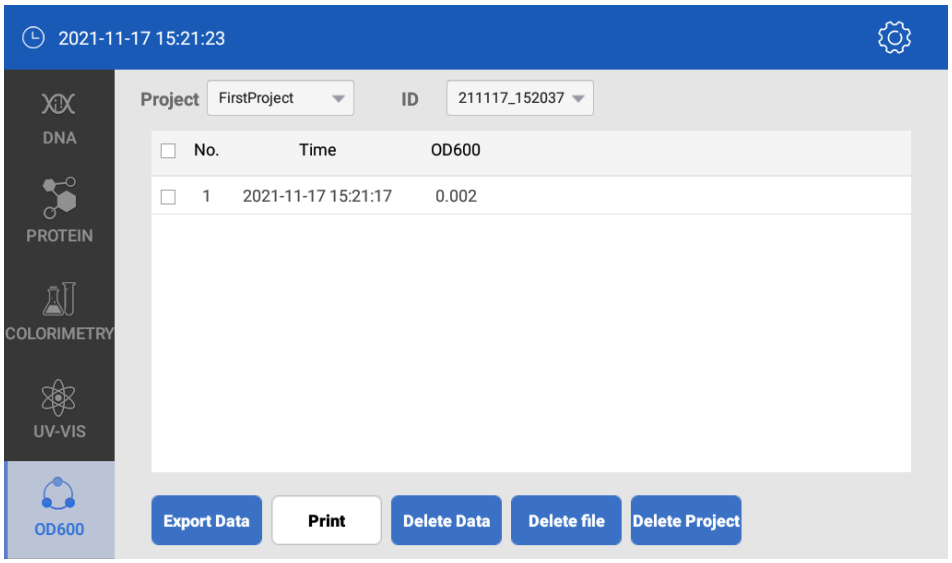
①set project name, sample ID (or system will make a default name)

②Blank: blank the air, or empty cuvette, or blank solution according to experiment.

③Add 2ml~3ml sample to the cuvette after blank.

④Click “sample” to detect, result show as below.

7.3 OD_{600} measurement result



8. Setting

Click “setting” on the main interface to start set.

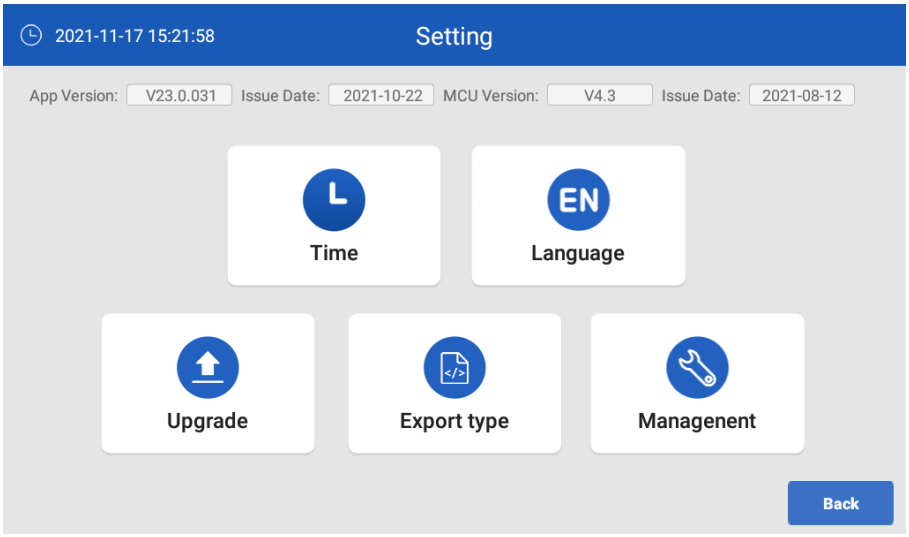


Fig 8.1 system setting

8.1 Time setting

Click “time” icon to set system time.

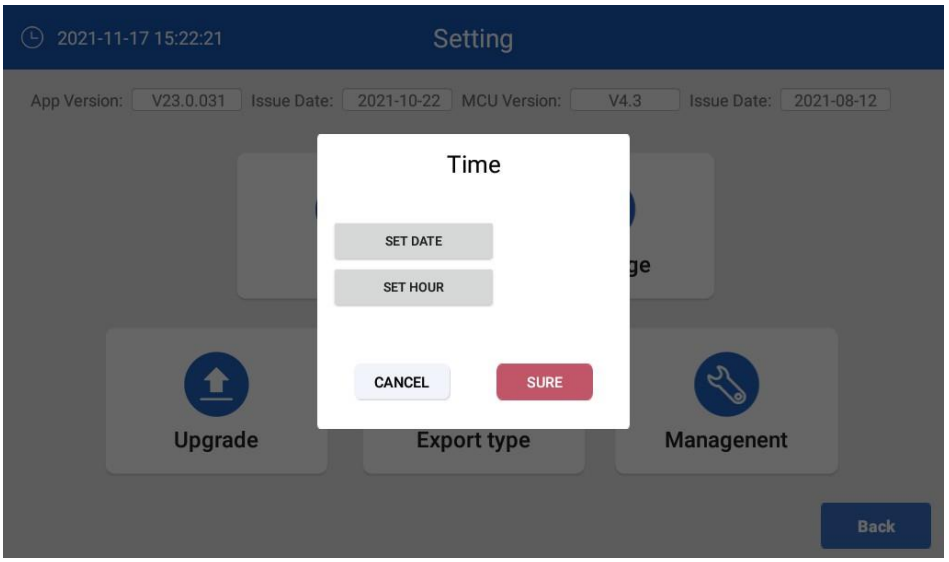


Fig 8.2 Time setting

8.2 Language Settting

Click" language" icon to choose one you need, as fig below.

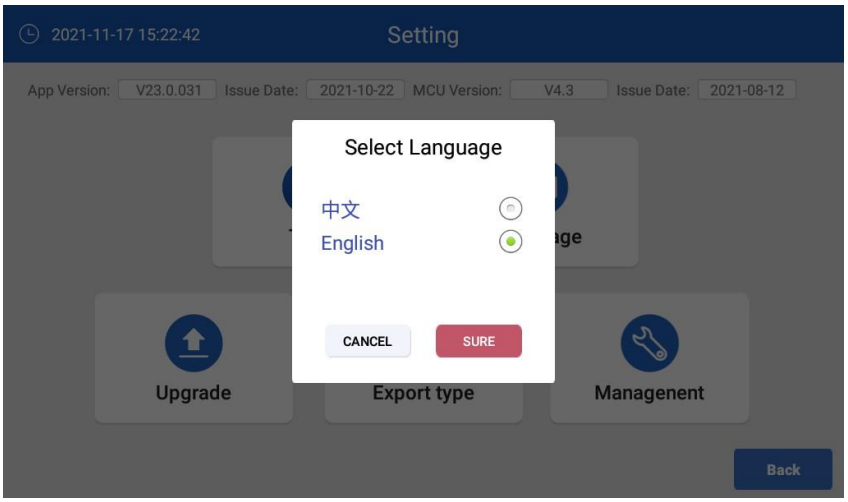


Fig 8.3 Language Selecting

8.3 Upgrade

Save the upgrade software in U disk root directory, insert the U disc to NB-12-5002, click"upgrade", as fig 8.4 click install if you need upgrade.

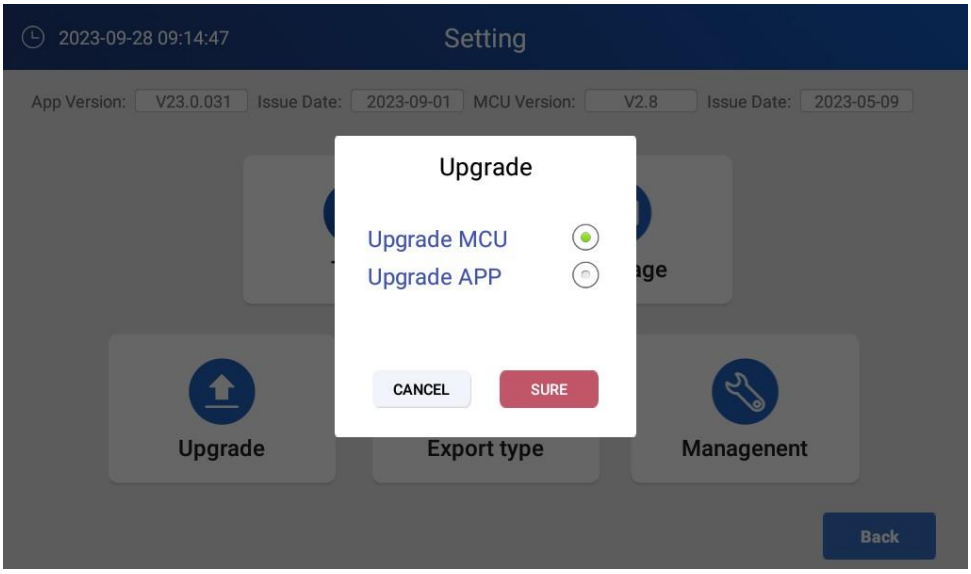


Fig 8.4 upgrade

8.4 Maintenance

Only professional technicians are allowed to enter the maintenance interface with password for instrument debugging and maintenance.

8.5 Format

File format are *.xls and *.txt.

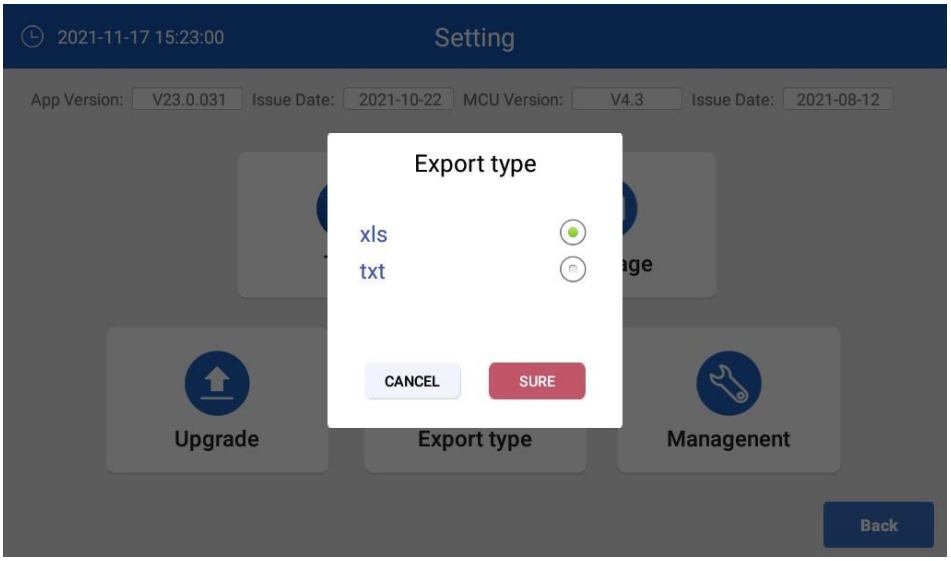


Fig 8.5 File format

9. Optional functions

9.1 Printer

Printer function is available for each sample type, here is DNA as sample.

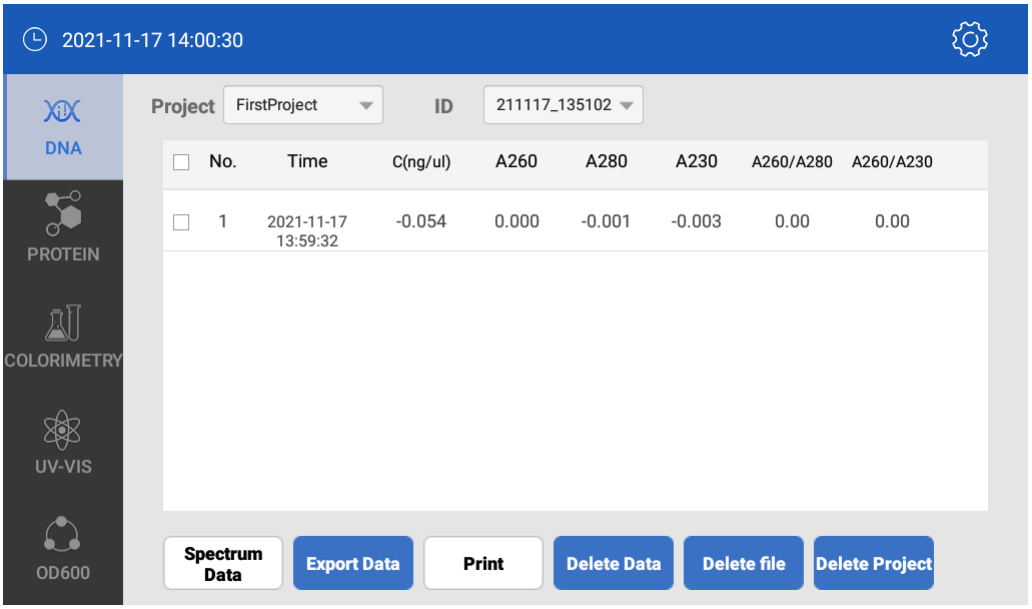


Fig 9.1 Printing

Connect printer to the NB-12-5002 by USB before switch on. The button “printing” is workable, press the button to print the measurement result.

Chapter 5 Troubles and Shootings

No.	Troubles	Causes	Shootings
1	Unable to turn on	No power; Broken switch; Broken power;	Check the connection of power Change the switch Change the power Contact the seller
2	Inaccurate detection results	Low volume sample; Pedestal pollution; Others;	Add the sample; Clean the pedestal times with pure water; Contact to the seller
3	OD_{600} not work	Poor contact between cable and main board	Contact the seller
4	Insufficient light	Analysis module defect; Optical filter broken	Contact the seller
5	Touch screen jump-point	The power not grounded	Provide effective grounded power
6	Over-time communication	No response from the analysis module	Restart instrument Contact the seller

Performance Test

Item	Micro-Spectrophotometer	Model	NB-12-5002
Date			

No.	Content	Methods	Standards	Result
1	Basic Function	Visual Check	Valid	□Qualified
2	Appearance	Visual Check	Pass	□Qualified
3	Label	Visual Check	Pass	□Qualified
4	Wave Length	Tested with dsDNA reagent	180-910nm	□Qualified
5	Wave length accuracy	Tested with dsDNA reagent	±1nm	□Qualified
6	Absorbance precision	Tested with dsDNA reagent	0.002Abs (1mm wave length)	□Qualified
7	Absorbance accuracy	Tested with dsDNA reagent	±1%	□Qualified
8	Absorbance range	Tested with dsDNA reagent	0.04~300Abs	□Qualified
9	Concentration range	Tested with dsDNA reagent	2~15000ng/uL	□Qualified
10	Detection time	Tested with dsDNA reagent	＜6s	□Qualified
11	OD_{600} Absorbance range	Tested by standard optical filter	0~4.000Abs	□Qualified
12	OD_{600} Absorbance stability	Tested by standard optical filter	[0,3] ≤0.3%, [3,4] ≤1.5%	□Qualified
13	OD_{600} Absorbance repeatability	Tested by standard optical filter	[0,3] ≤0.2%, [3,4] ≤1.5%	□Qualified
14	OD_{600} Absorbance Accuracy	Tested by standard optical filter	[0,2] ≤0.005A, [2,3] ≤1%, [3,4] ≤2%	□Qualified
15	Withstand voltage 1500V	Voltage tester	No breakdown, no flicker	□Qualified
16	Leakage current	Leakage current tester	≤0.75mA	□Qualified
17	Continuous operation test	Visual Check	36 hours without problem	□Qualified
Result				
Remarks:				
QC:		Confirmer:		

Packing List

No.	Item	Model/Type	Quantity	Confirm	Remarks
1	Main Device	NB-12-5002	1		
2	Power Adapter/Line	12V 4A	1		
3	Cuvette	45*12.5*12.5	2		
4	U disk		1		
5	QC Pass card		1		
6	Manual		1		

QC: Date:

Memo