

# User's Manual



## RapidScan Reader

## Rapid Test View Pro Software

Pacific Image Electronics

# Notice

This version of the RapidScan Reader and the RapidTestView analysis software will allow users to generate new standard curves and cutoff ranges for any existing test profiles. It also has the functions to establish new test profiles for new tests or existing tests of different lots.

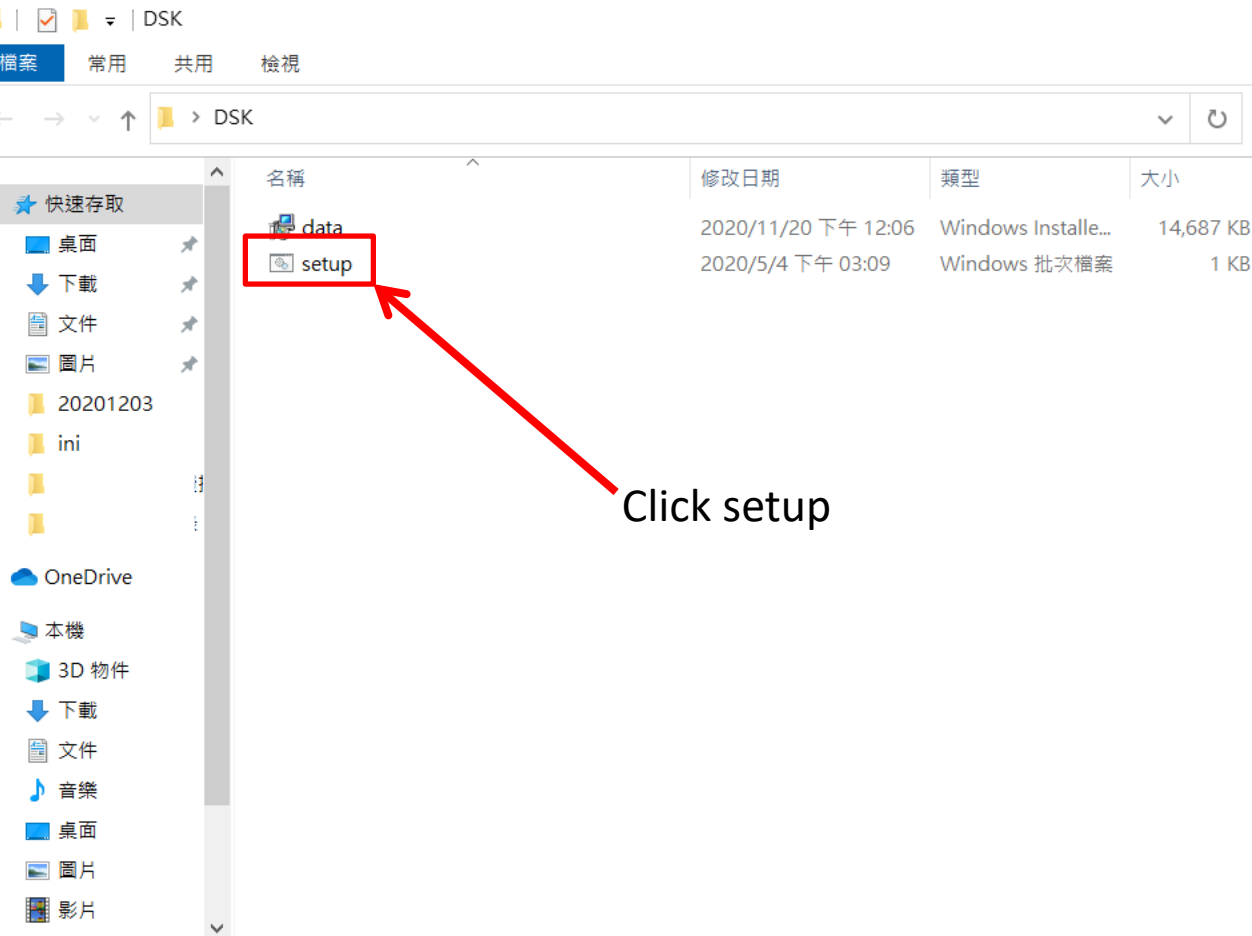
This is not the version of our RapidTestReader Basic which we provide for free to end-users. The RapidTestReader Pro is not a freeware and needs a license with a fee to use it.

## Product package contents:

1. Rapid Test Reader x 1
2. USB cord x 1

Reader Specifications	
Image Sensor	CMOS
Light Source	Single light model: White light Dual light model: White light + UV
Scanning Media	Rapid test, signal in colorimetric or fluorescent format
Interface	USB 2.0 ONLY (USB 1.1 not supported)
Application Software	Rapid Test View Pro w/ License Key
Supported System	Windows 7 or higher OS with minimum 4G RAM
Power	5V, 280 mA via host USB port

# Software Installation

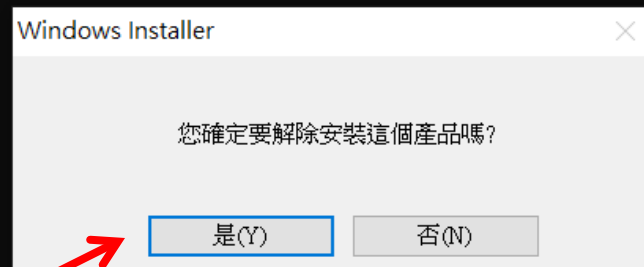


Find the “Setup” file on the provided CD or installation file from supplier. Double click to initiate the software installation.

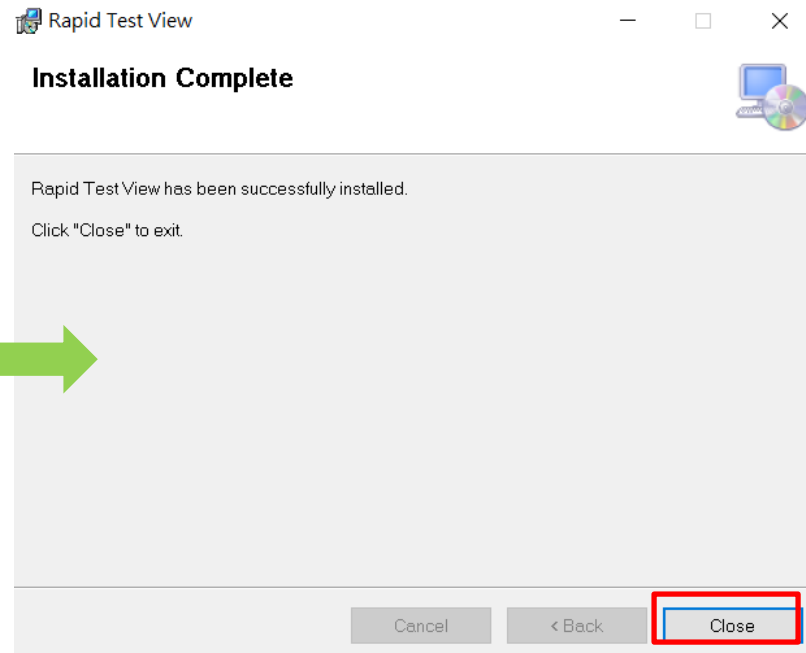
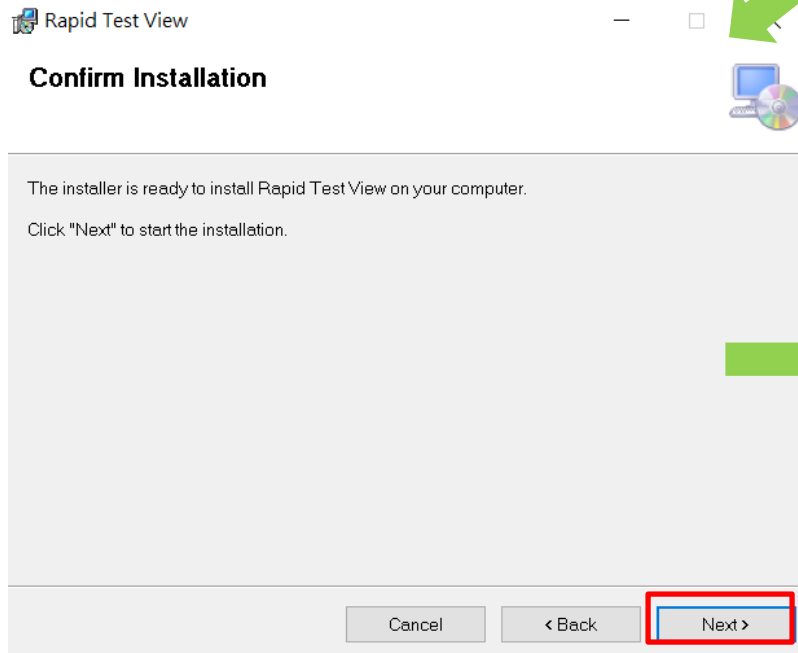
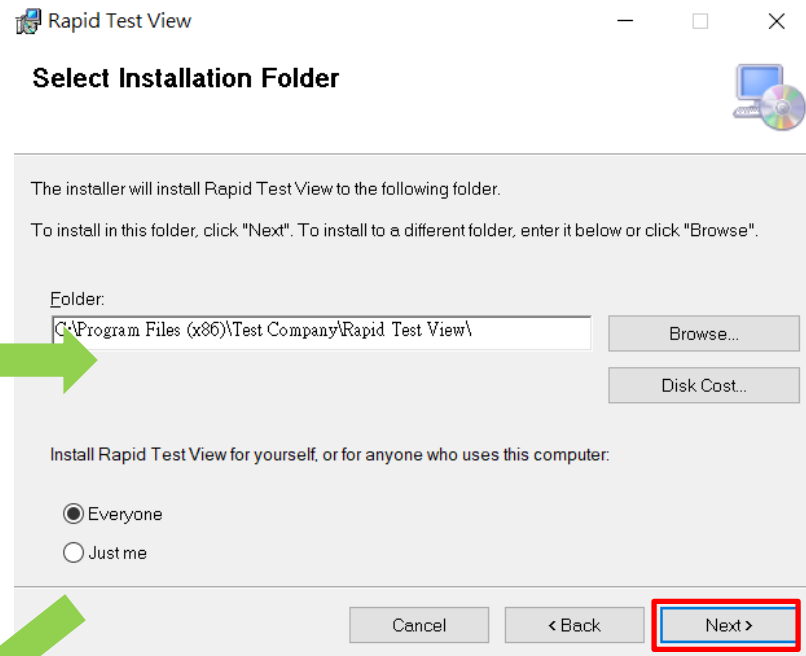
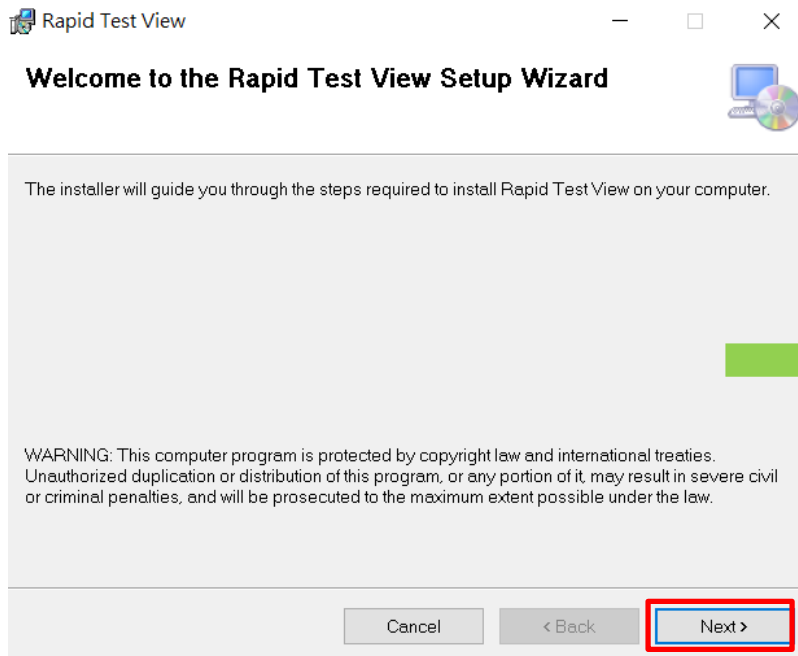
If the installation is successful, the App icon (see below) will appear on your computer desktop.



```
C:\Users\clhsu\Desktop\DSK>msiexec.exe /x {80998DA8-20B0-4A35-8652-BE3725987370}
```



After initiating the setup installer, you would see a dialog saying: Are you sure to uninstall this product? Just click “Yes” no matter what.



# Open Rapid Test View

- Connect reader to your computer running Windows (Windows 7 or above) via USB B to A cable provided in package.

- Double click the RTV icon on the desktop to initiate software. →



- The software will initiate device parameter settings and go through system diagnosis first. → System Diagnosis...(Set Default Settings)

- Once it passes the system diagnosis, the log in window will appear. Please contact supplier to obtain ID & Password. For user authority management please refer to p38 User Management

Login

ID:

Password:

- After successfully log in, UI default page will appear. →

Rapid Test View

Menu | Report | Database | User | Setting

## RAPID TEST VIEW BASIC

Print the testing information

Product Code:

Company/Sub Name:

Company/Sub Tel:

Company/Sub Address:

Testing Date:

User Name:

Sample No.:

Sample Type:

Testing Target:

Lot/Expiration Date:

Lot No:

Start to analysis

Ready to analysis

Testing Result

Result:

C Value:

T> Value:

Click the display button

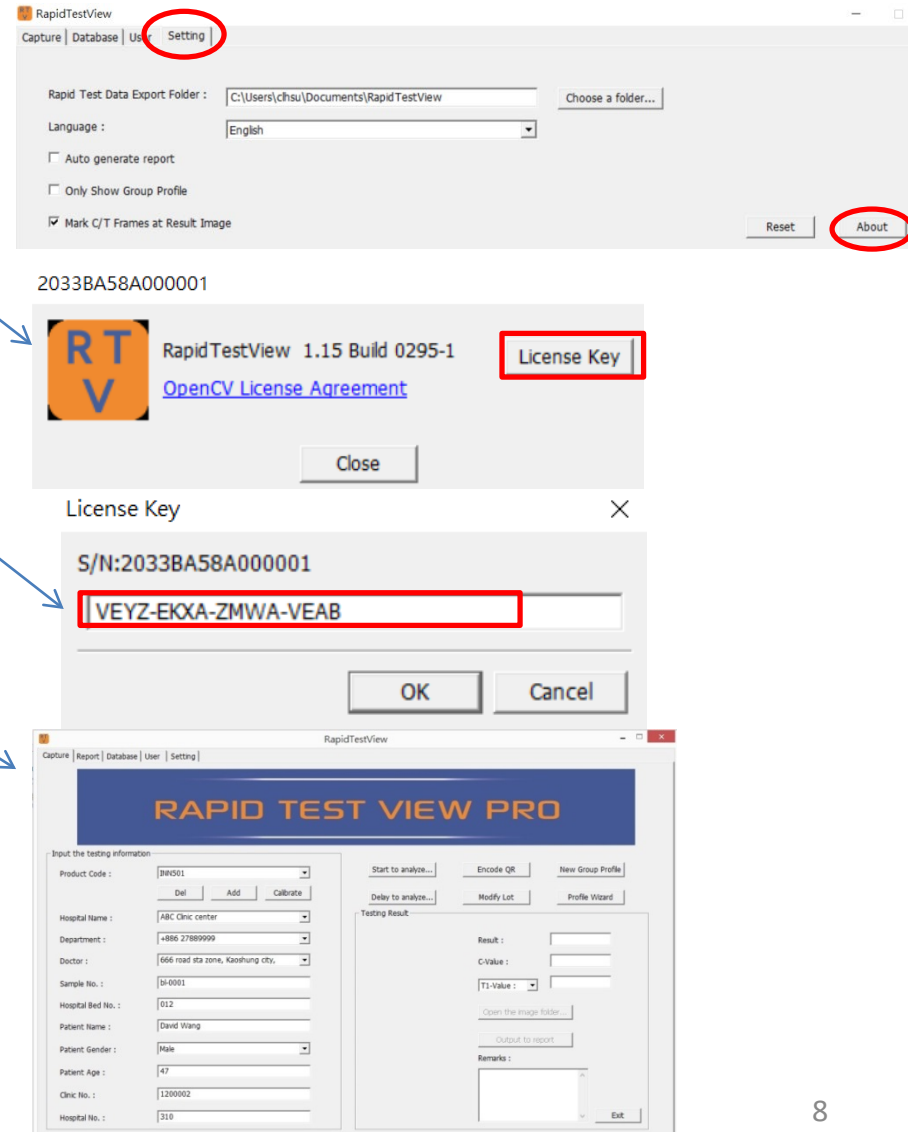
Click to print

Remarks:

Run

# Enable PRO version via license key

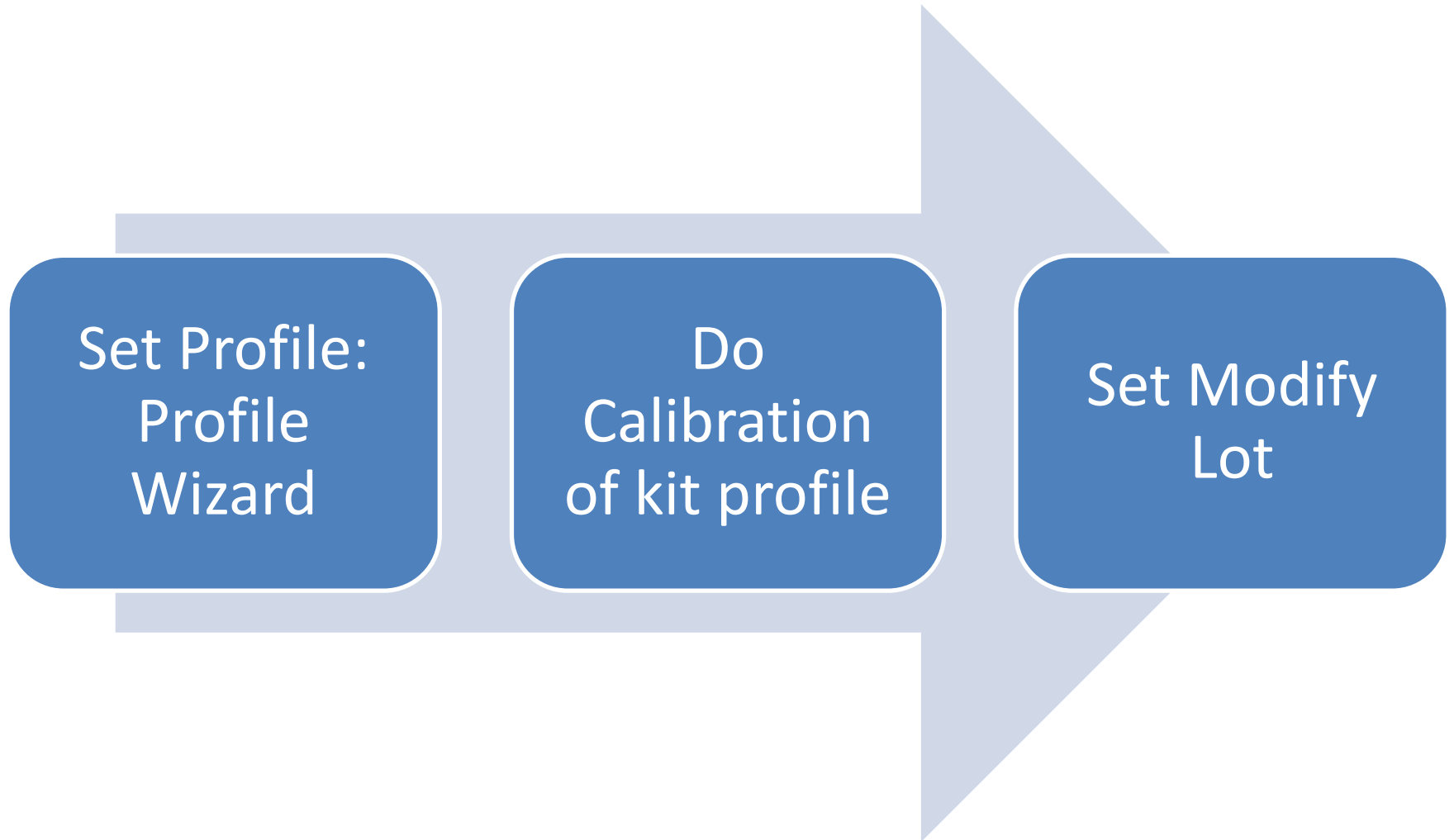
- Go to “Setting” and click “About” →
- You will see right message, click “License Key” icon
- Key in license key obtained from supplier and press OK
- Exit the software and open it again.
- You will see it becomes PRO version.





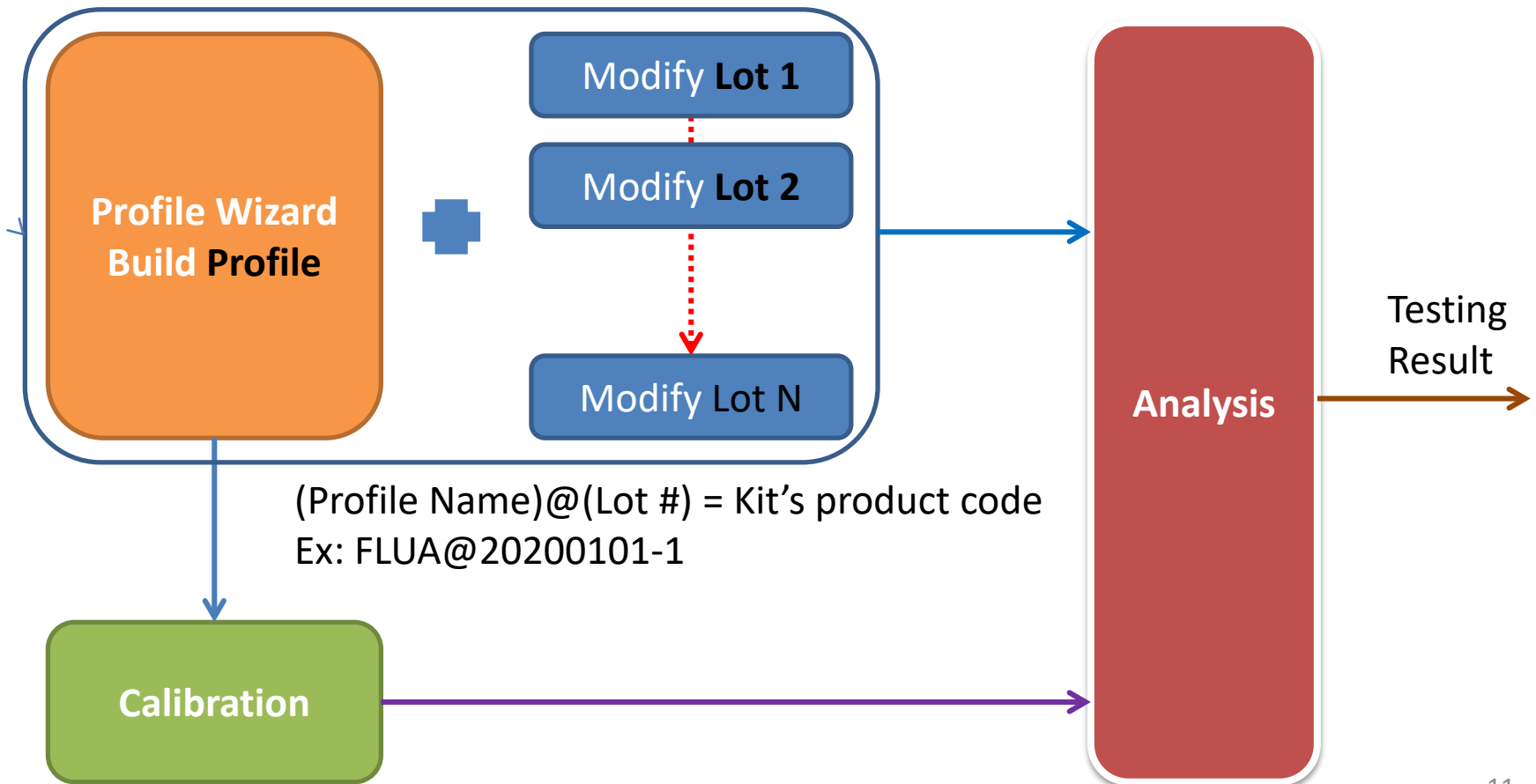
# **How to establish your 1<sup>st</sup> test Kit via software**

# 3 Procedures



# Profile + Lot Info. → Analysis

A Kit's complete parameters are composed by Profile with Calibration data + Lot information.



# A Completed Kit Building

- **Profile Wizard**

- Define colorimetric or fluorescent kit
- Define geometric position of detection lines
- Define group/sub profile
- ....
- Fixed for a type of test if strip case is keeping
- Calibration: Using image calibration to obtain optimized image

- **Modify Lot**

- Define the testing result & basic kit information
- Variable formula/statement setting for each kit

# Using Profile Wizard to create kit's profile

Insert a kit with clear C and T line signals to reader and click Profile Wizard icon to begin

# Step 1: Know those parameters on Profile Wizard

Profile Wizard

① Product Code

② Show Name  ③ T Count

④ Color Mode  ⑤ Light Source

Select ROI  Factor C  Factor T

X  Y  Width  Height

Reserved  Reserved

Cassette Type

For kit use same cassette, input a code so you can save calibration effort on same cassette type of kit

Please refer to Step 2 & 3.

- ① **Product code:** Kit's code
- ② **Show Name:** Set the name of diagnosis item
- ③ **T Count:** Set T line #
- ④ **Color Mode:** RGB mode is usually recommended. Please refer to P15-16 for advanced setting
- ⑤ **Light Source:**  
Epi White- colorimetric kit  
Epi UV-fluorescent kit

Image method & Integration method. Please refer to page 17-21.

# Color Mode setting

Profile Wizard

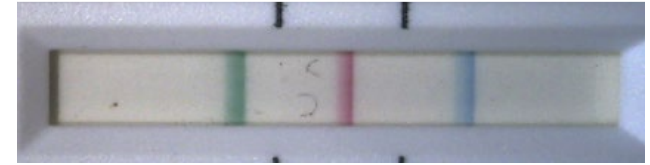
Product Code	Durg-Test	None	None				
		Show Name	hpmv	T Count	1		
Color Mode	RGB	Light Source	Epi White	Standard Mod			
Select ROI	View Area	Factor C	100	Factor T	100	1D	
X	1230	Y	744	Width	982	Height	372
				Reserved		Reserved	
Apply ROI Settings		Confirm Highlighted Area		Refine			
Cassette Type	cc			Save			
				Exit			

User can select  
RGB/RRR  
/GGG/BBB  
different mode  
to get optimized  
value

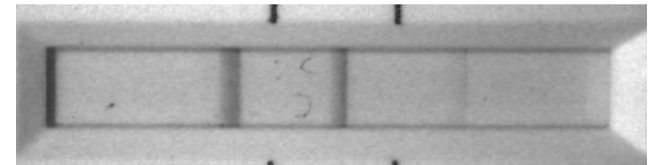
# R/G/B Band Selection

1. Besides colloidal gold, there are colored nano-bead available for lateral flow assay development as well. So C&T line can be presented by different colors.
2. RapidScan provides 4 types of image spectrum setting:  
 RGB: Color mode  
**RRR**: Red channel spectrum only  
**GGG**: Green channel spectrum only  
**BBB**: Blue channel spectrum only
3. Each color mode can bring different intensity value according to test line's color. So user can choose a spectrum setting generating the optimized CT line intensity value based on line color.

CH \ Bar	Green	Red	Blue
BBB	1401	1059	162
GGG	1192	1448	710
RRR	1930	545	1148
RGB	1352	1243	615
RGB/Max	70.1%	85.8%	53.6%



BBB



GGG



RRR





# Image Method: STD/Quality/Excellent

Profile Wizard

Product Code

Show Name  T Count

Color Mode  Light Source

Select ROI  Factor C  Factor T

X  Y  Width  Height

Reserved  Reserved

Cassette Type

Setting of  
image  
method

VIEW AREA

C1

C1T1

C1ROI

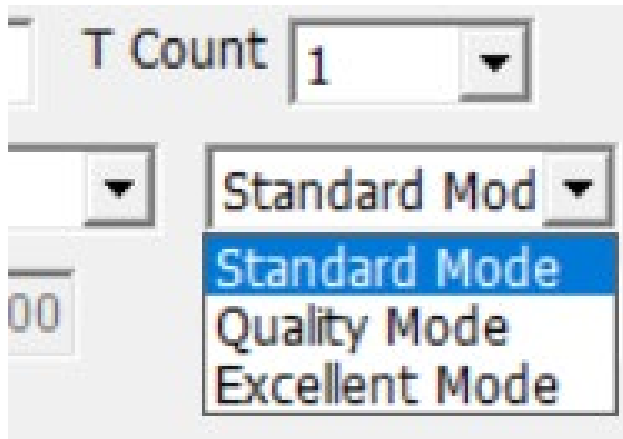
C1T1ROI

Exit

Standard Mode: **Fastest speed**, highest CV

Quality Mode: Medium speed & CV (Recommended)

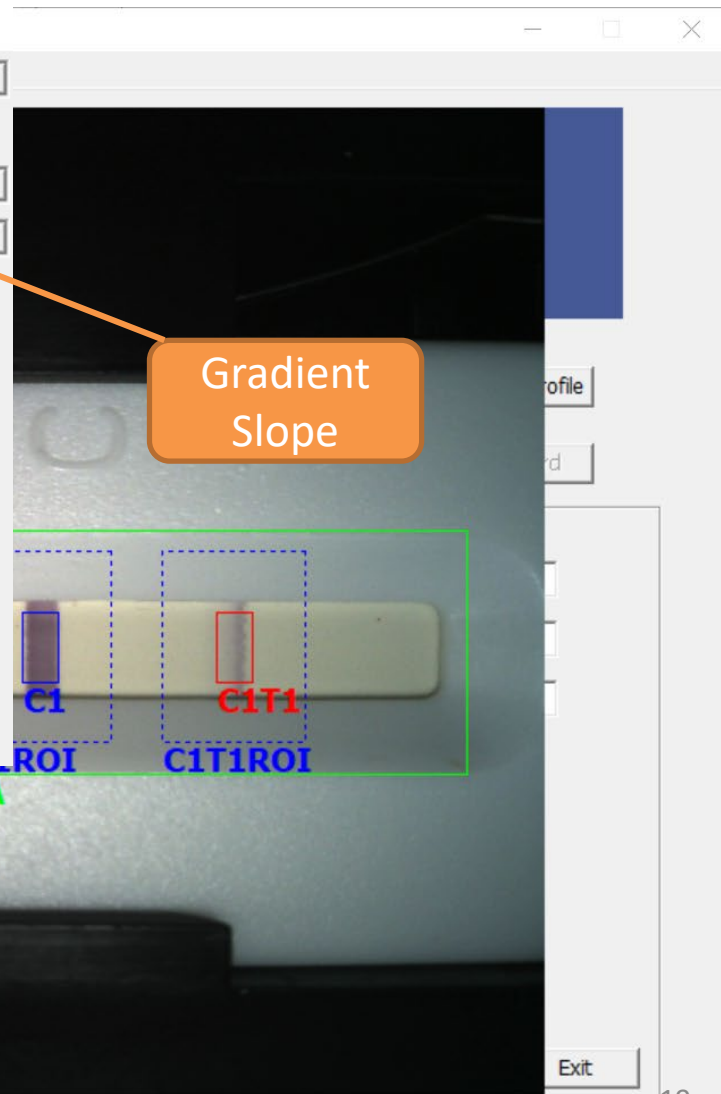
Excellent Mode: Slowest speed, **smallest CV**



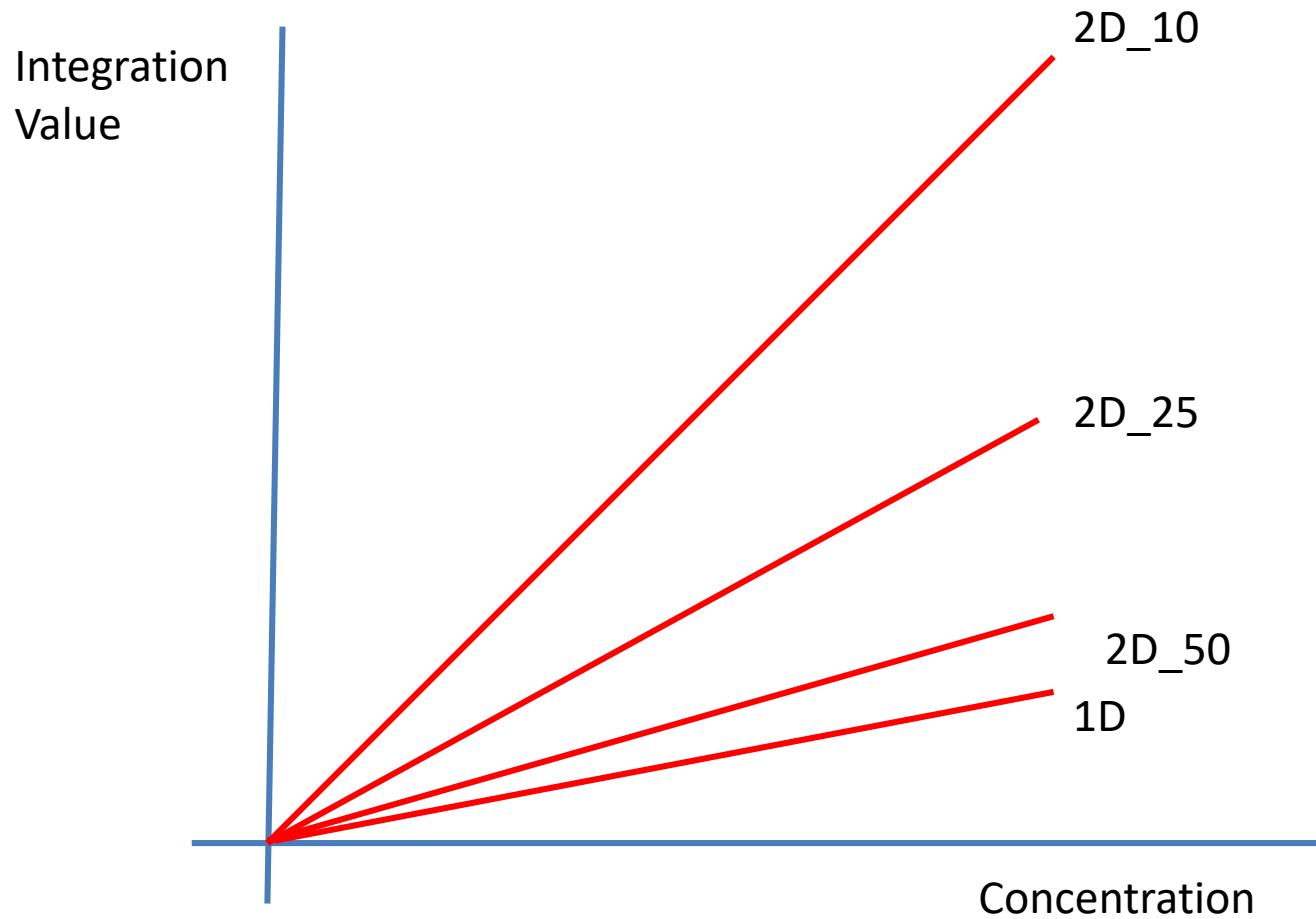
Quality Mode	C	T1	Item	C	T
Standard	1329	240	Ave	1329.6	245.4
Standard	1327	240	CV%	0.29%	2.67%
Standard	1325	256	Speed	9"	
Standard	1333	246			
Standard	1334	245			
Quality	1328	237	Ave	1332.4	243
Quality	1332	243	CV%	0.27%	1.45%
Quality	1338	246	Speed	12.5"	
Quality	1333	245			
Quality	1331	244			
Excellent	1334	244	Ave	1333.6	241.8
Excellent	1334	240	CV%	0.22%	0.68%
Excellent	1338	241	Speed	16.5"	
Excellent	1331	241			
Excellent	1331	243			

# Integration Method

Product Code	Flu AB-ch1	None	None
		Show Name	Flu A T Count 1
Color Mode	RGB	Light Source	Epi White Standard Mod
Select ROI	View Area	Factor C	Factor T 1D
X	Y	Width	Height
1478	693	521	187
		Reserved	Reserved
Apply ROI Settings	Confirm Highlighted Area	Refine	
Cassette Type	QC		Save

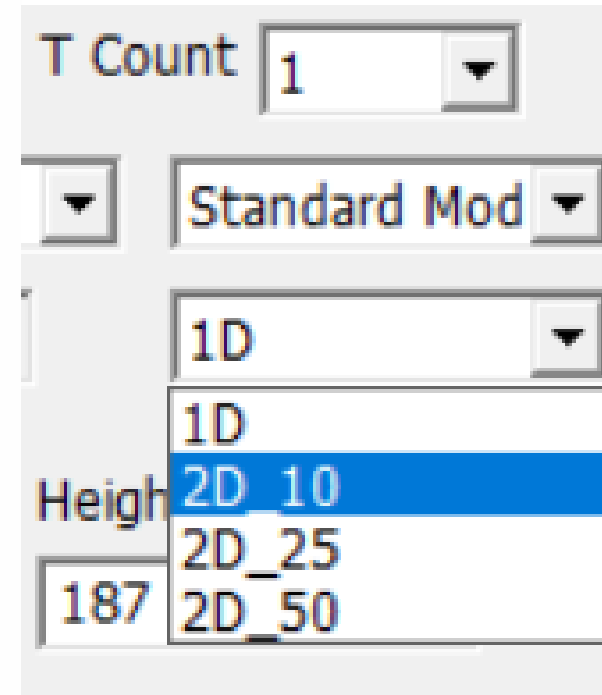
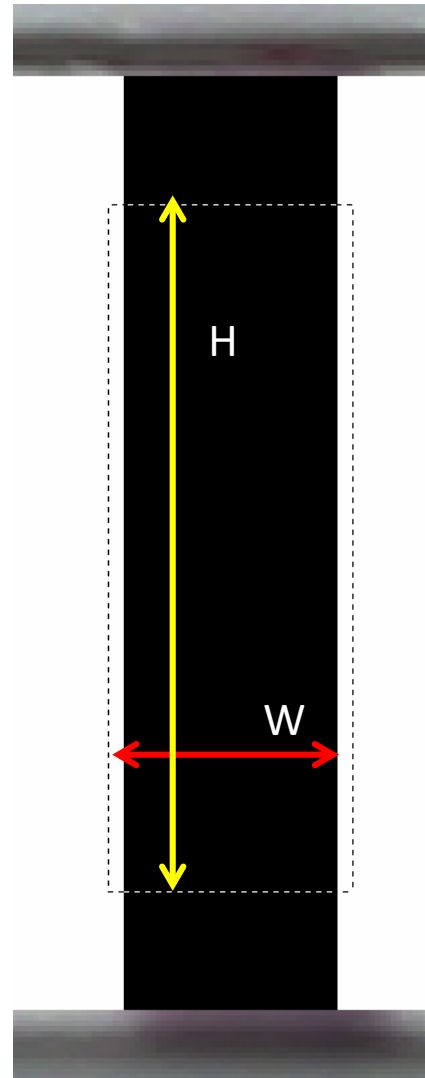


# 30 x 70 (WxH) Case



# Integration Method

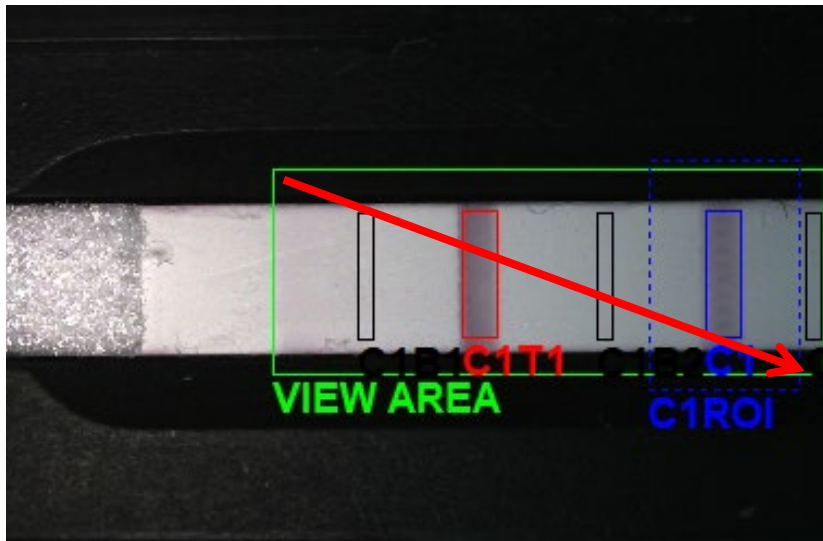
- **1D**: Average each H and sum all W
- **2D** : Sum all H x W pixels value =  $V_{2D}$ 
  - $2D\_10 = V_{2D}/10$
  - $2d\_25 = V_{2D}/25$
  - $2d\_50 = V_{2D}/50$
- Value big  $\rightarrow$  Slope higher  $\rightarrow$  Noise high



# Step 2: Select View Area Range (area) of Interest (ROI)

Profile Wizard

Product Code	Durg-Test	None	None
Color Mode	RGB	Show Name	hpmv
Select ROI	View Area	T Count	1
		Light Source	Epi White
		Factor C	10
			Epi White
			Epi UV
X	Y	Width	Height
1230	744	982	372
		Reserved	Reserved
②	①		
Apply ROI Settings	Confirm Highlighted Area	Refine	
Cassette Type	cc		
		Save	
		Exit	



In order to highlight the viewing area, drag mouse from the top of left to the bottom of right corner.

Recommend to highlight the area as close to the edges as possible. **Remember to click “① Confirm Highlighted Area” to confirm setting.**

If you input value in X/Y, Width/height column remember to click “② Apply ROI Settings” to save setting.

# Step 3: Define C (Control) & T (Test)Line area

1. To define new C or T line area, drag your mouse over an area. It's not necessarily to cover whole C or T line. Instead, you'll get better result when the defined area covers blank area slightly and the most area of C or T line.
2. For existing highlighted area, you may simply enter the X/Y or width/height values to adjust the area.
3. Continue to define T line with same approach. Ensure C, T highlighted area size is same. You can use "refine" to get same size.
4. After setting C & T, click "Refine" to get optimized result. SW would ask shrink % for shrink. **15-20 is recommended.**

Define C line ROI

Define searching range to find C line

Define highlighted area of C line

How many % will shrink for the sampling height?  
15  
OK

Searching range to find C line (blue dotted line)

C line ROI (blue solid line)

Profile Wizard

Product Code: Flu AB-ch1

Color Mode: RGB

Select ROI: C1

X: 1722 Y: 653

Width: 120 Height: 268

C1 Width: 54 C1 Height: 93

Factor C: 100 Factor T: 100 1D

Apply ROI Settings Confirm Highlighted Area Refine Save Exit

Cassette Type: QC

NEW AREA

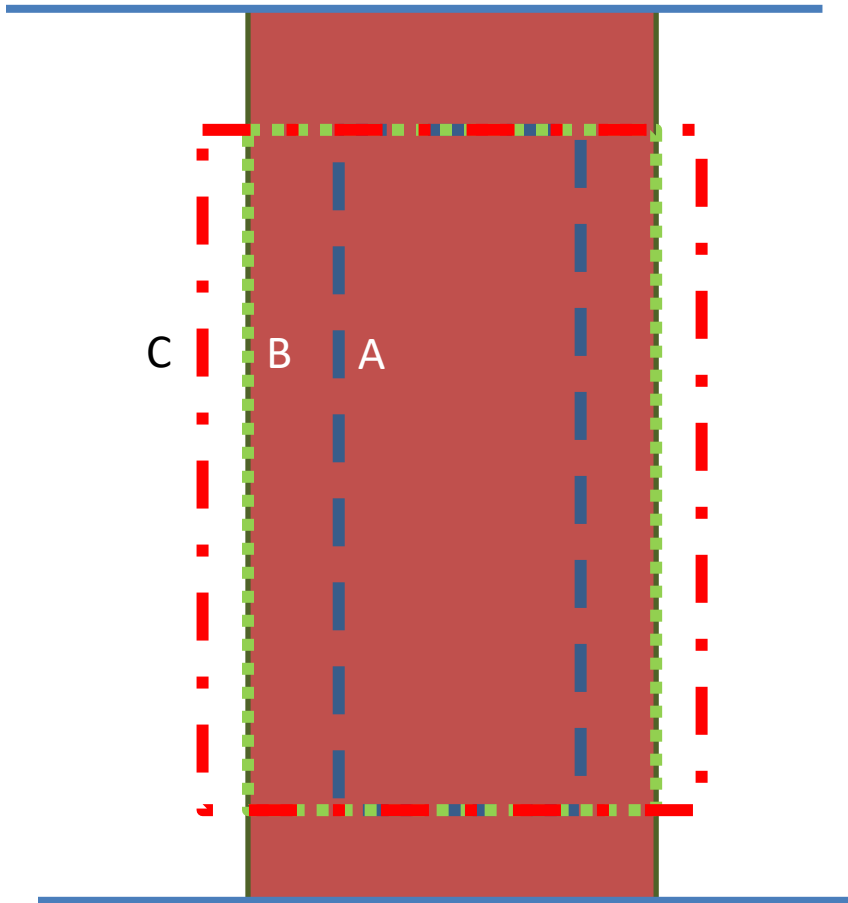
C1ROI C1T1ROI

# **Tips for optimized setting of**

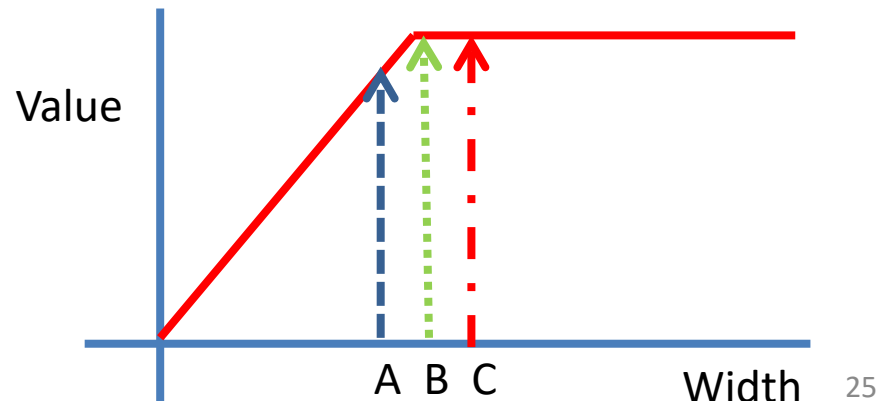
Search area  
C, T line area



# Tips for setting C, T Line area



- Width (according to your application's needs)
  - "A" doesn't cover all, may suitable for some line bar check, but it's not recommended.
  - "B" is ideal but not so easy to fit.
  - "C" is the most recommended.
- Height :
  - Shrink 15 ~20%
  - Near the edge of window has some abnormal shadow or reflection.



# Tips: Using “Refine” to set suitable CT Line area

Profile Wizard

Product Code

Show Name  T Count

Color Mode  Light Source

Select ROI  Factor C  Factor T

X  Y  Width  Height

Reserved  Reserved

Cassette Type

Tools for helping  
set the right area

VIEW AREA

C1

C1T1

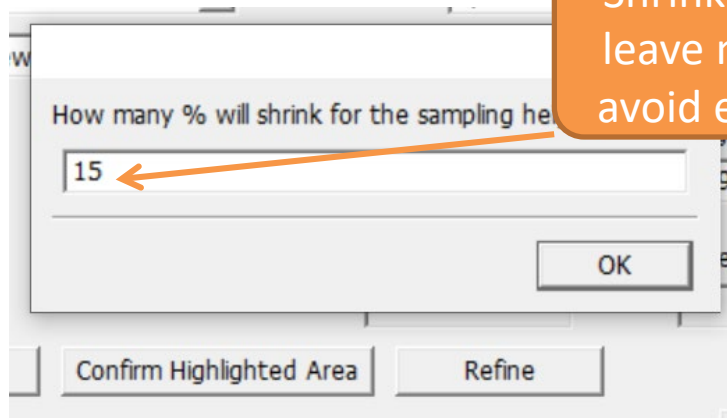
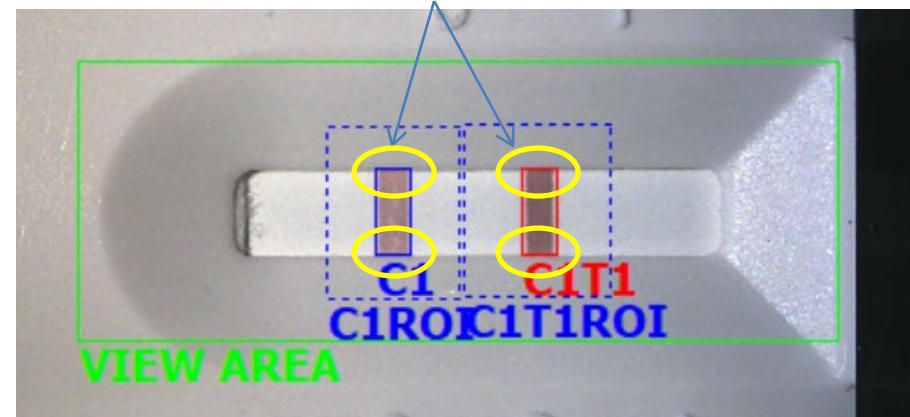
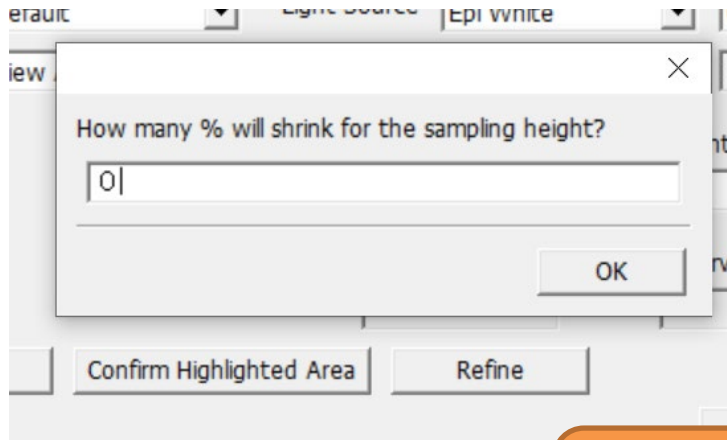
C1ROI

C1T1ROI

Exit

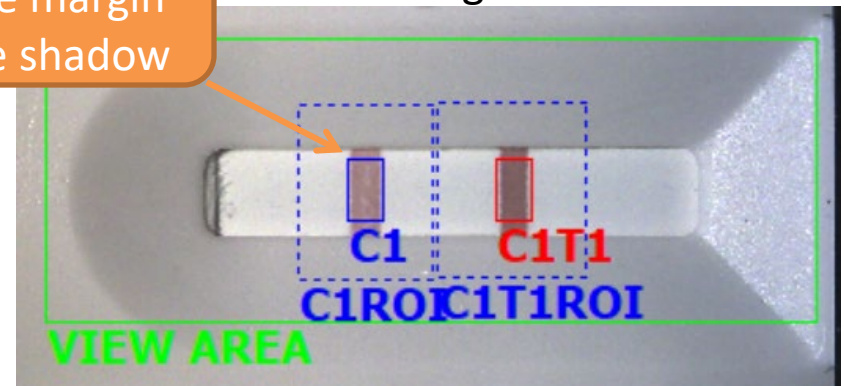
# “Refine” helps you to set equal-sized C, T line area & avoid edge shadow

The shadow of the edge of the strip might interfere the result.



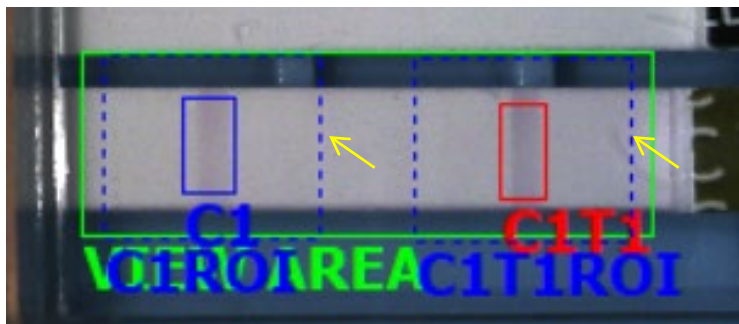
Shrink height 15%,  
leave more margin  
avoid edge shadow

Ideal settings

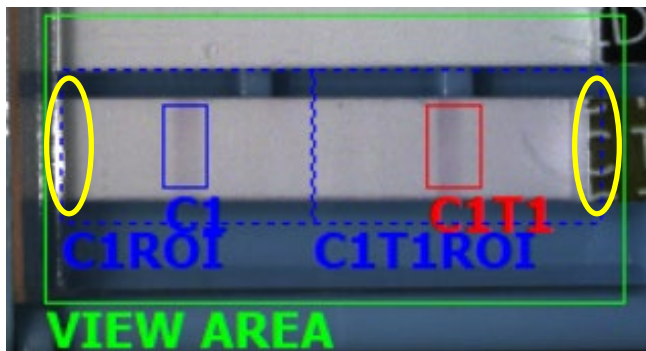


※ 15-20 shrink % is recommended.

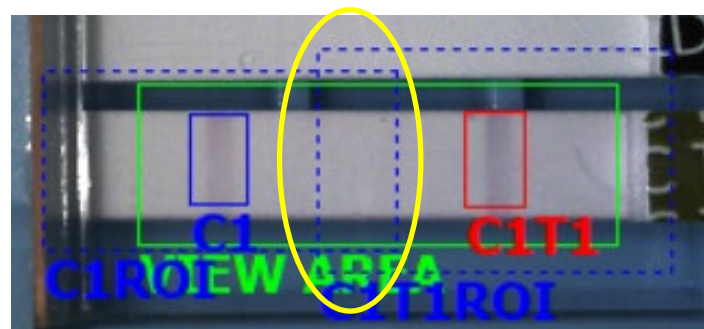
# Definitions about good & bad search areas



The search areas cover in a perfectly balanced range.



Reader might misread the image if you cover C & T search areas into the edge of the cassette/strip.



C & T search areas are not recommended to overlapping with each other.

# Guidance of setting

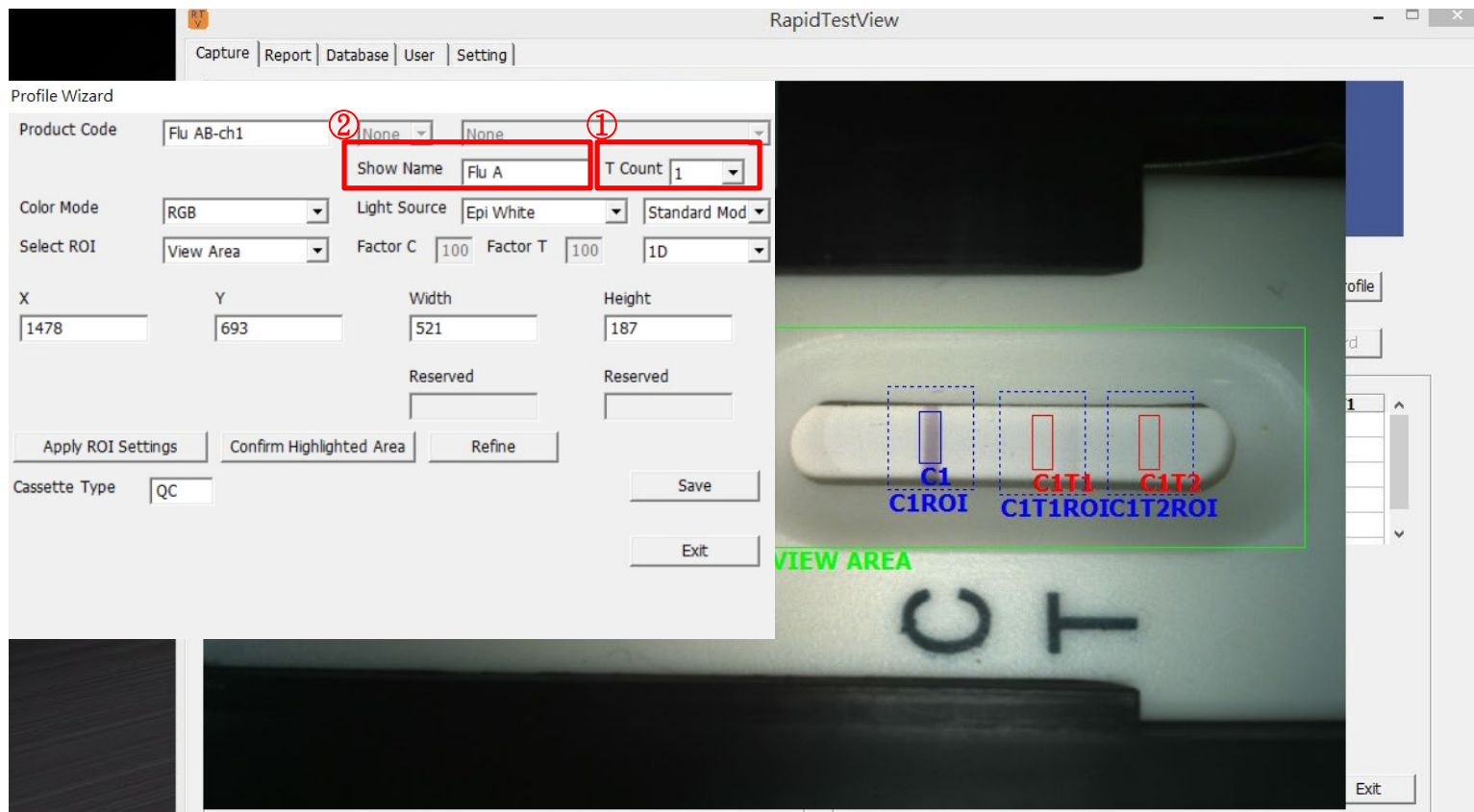
Kit with multiple T lines

Kit with multiple strips

Kit with multiple T lines & strips

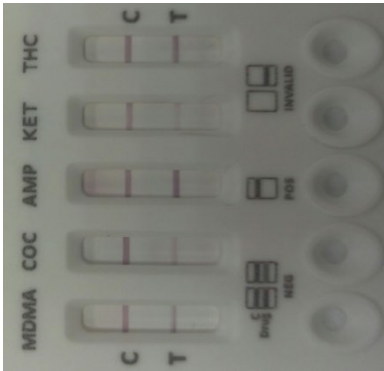
# To set kit with multiple T Lines

1. If there is more than 1 T line on test kit. Click “① T count” to select correct # of T line.
  2. Use the same approach to define T1, T2, ...as last page’s instruction
  3. You can set testing target name at “② Show Name” column for each T line.
  4. There are 3 analysis modes available: standard, quality, excellent. Quality mode is recommended.
- PS. Selecting “Quality” or” Excellent” takes longer time for analysis because more images will be captured.



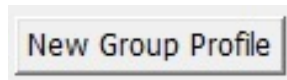
# To set C & T Line area for multiple channel cassette

## Scenario 1 : 5 channel test kit with 1 T line in each channel

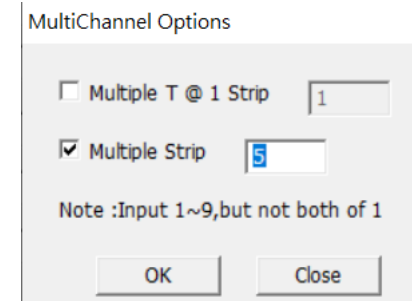


1. Using Profile Wizard to establish profile for each channel.
2. In this case, you can set THC, KET, AMP, COC, MOMA 5 independent product codes following previous instructions.
3. Then click “New Group Profile”. You will be asked how many strips/T lines per strip # are.
4. Then set a product code name for this group.
5. Follow the instructions below to add those 5 independent product code to this “Group Product Code”.

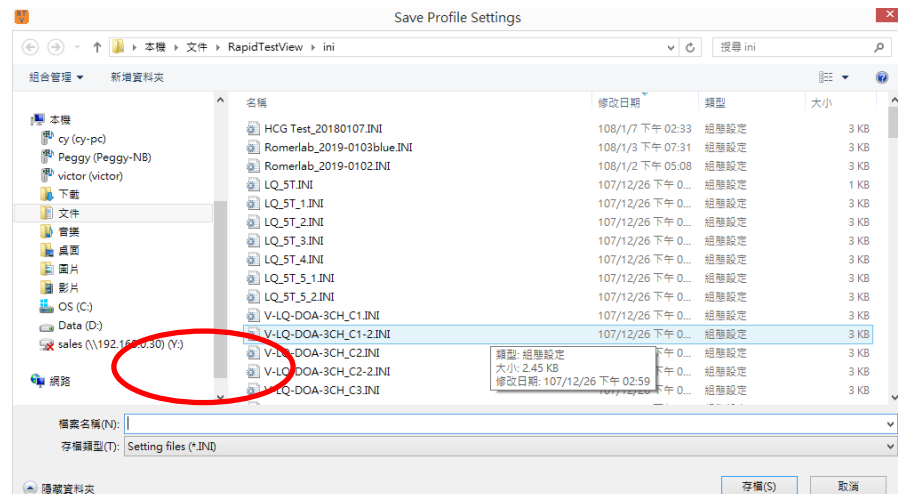
1. Click “New Group Profile” on UI default page after you set 5 product codes



2. Input strip count #. In this case, input 5 and press OK.



3. Then input a new product code for this 5 channel test kit and save . Let’s use “DOA 5 channel” as product code





# To set C & T Line area for multiple channel cassette

4. After saving, back to UI and find “① DOA 5 channel” product code, then click “② Profile Wizard”.

RapidTestView Pro

Input the testing information

Product Code : ① DOA 5 channel

Del Add Calibrate Dilution Factor: 1

Company/Lab Name :  
Company/Lab TEL :  
Company/Lab Address :  
Testing Date : 2020-12-14  
User Name :  
Sample-No. : 1  
Sample Type :  
Testing Target :  
Lot Expiration Date :  
Lot No. :

Start to analyze... Encode QR New Group Profile  
Delay to analyze... Modify Lot ② Profile Wizard

Testing Result

	Result	C	T1
CH1			
CH2			

Open the report folder...  
Generate report  
Remarks :  
Exit

5. You will see ③ CH1 –CH5 available. Go to select each product code correspondent to the channel #.

Profile Wizard

Product Code DOA 5 channel ③

Color Mode Default

Select ROI View Area

X 1518 Y 888 Width 740 Height 274

Reserved

Apply ROI Settings Confirm Highlighted Area Refine

Cassette Type QC

Save Exit

Profile Wizard

Product Code DOA 5 channel

CH1

Show Name Flu A T Count 1

Color Mode RGB

Light Source Epi White Standard Mod

Select ROI View Area

Factor C 100 Factor T 100 1D

X 1478 Y 693 Width 521 Height 187

Reserved

Reserved

Apply ROI Settings Confirm Highlighted Area Refine

Cassette Type QC

Save Exit

6. Follow the same procedure to finish all 5 channels' product code mapping one by one and then press "Save". The Profile Setting is done.

Then you can select "DOA 5 channel" product code to analyze this 5 channel test kit. Analysis result for all channels will be done in one click.



# To set C & T Line area for multiple channel cassette

Scenario 2 : multiple-channel test kit with 2 x T lines in each channel



1. Using Profile Wizard to establish profiles for 3 channels.
2. In each channel you set, set 2 T lines.
3. Then click “New Group Profile” and set strip & T line #.
4. Refer to the description on page 27~29 to finish setting.

## MultiChannel Options

☒ Multiple T @ 1 Strip

☒ Multiple Strip

Note :Input 1~9,but not both of 1

OK

Close

# Calibration

Calibration is a necessary setting when developing lateral flow assay kit's profile for each kit to obtain more accurate analysis result.

# When to do Calibration

- After you set Profile Wizard, **please do calibration before set Modify Lot.**
- You need to do calibration again if you change following settings in the profile wizard: (refer next page)
  - Change the “Cassette Type”
  - Color Mode
  - Light source
- You also need to calibrate again if you use software to another PC because calibration data is saved in PC’s storage.

# Remember to set cassette type in profile wizard

Profile Wizard

The screenshot shows the 'Profile Wizard' dialog box with various configuration fields. The 'Cassette Type' field, located at the bottom left, is highlighted with a red rectangle and contains the value 'QC'. Other fields include 'Product Code' (Flu AB-ch1), 'Show Name' (Flu A), 'Color Mode' (RGB), 'Light Source' (Epi White), 'Select ROI' (View Area), 'Factor C' (100), 'Factor T' (100), '1D' (1D), 'X' (1478), 'Y' (693), 'Width' (521), 'Height' (187), and 'Reserved' fields. Buttons for 'Apply ROI Settings', 'Confirm Highlighted Area', 'Refine', 'Save', and 'Exit' are also visible.

Product Code	Flu AB-ch1	None	None
Color Mode	RGB	Light Source	Epi White
Select ROI	View Area	Factor C	100
X	1478	Y	693
Width	521	Height	187
Cassette Type	QC	Reserved	Reserved

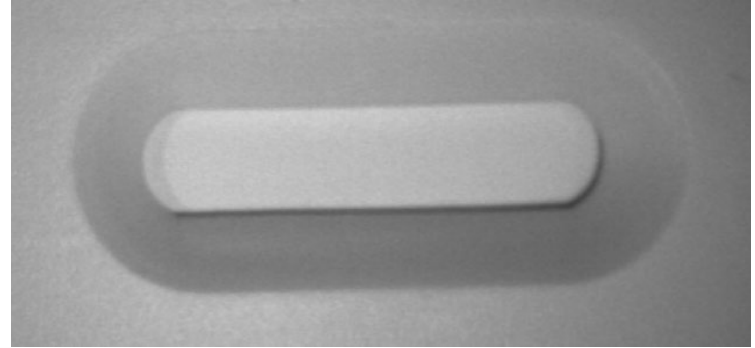
Buttons: Apply ROI Settings, Confirm Highlighted Area, Refine, Save, Exit

✂ You can put any code just for you to identify the cassette type easily.

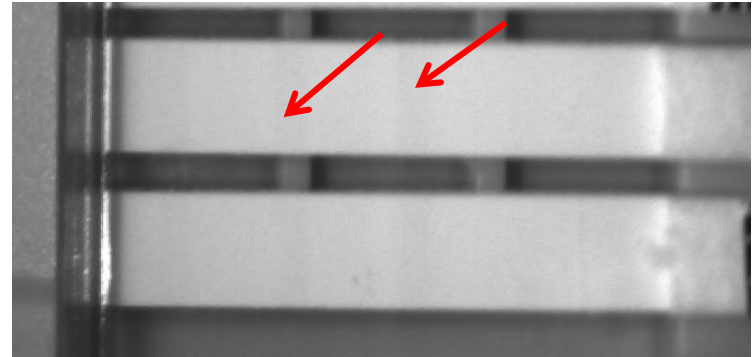
# How to do Calibration

Find a blank kit:  
Use the blank strip  
without any C & T  
lines appear as  
calibration chart.

Good



Not Good



# Calibration process

- Go to homepage
- Insert blank kit
- Press “Calibrate” icon
- Follow the instructions to finish calibration

RapidTestView  
Capture | Database | User | Setting

## RAPID TEST VIEW PRO

Input the testing information

Product Code :

Company/Lab Name :

Company/Lab TEL :

Company/Lab Address :

Testing Date :

User Name :

Sample-No. :

Sample Type :

Testing Target :

Lot Expiration Date :

Lot No :

Start to analyze...

Delay to analyze...

Testing Result

Result :

C-Value :

T1-Value :

Remarks :

Input the testing information

Product Code :

**Using Modify Lot  
to set analysis formula for  
obtaining result**

# Modify Lot → Testing Result

Modify Lot

The screenshot shows the 'Modify Lot' window with several sections. A green box highlights the 'Qualitative Statement' section, which includes a 'Statement' dropdown set to 'Strong Positive', a 'Formula' field containing 'T1\_RESULT>3', and a 'Result Text' field set to 'Strong Positive'. A red box highlights the 'Quantitative Mapping Curve' section, which includes a 'Result Formula' field containing 'T1/C1', a 'Concentration' field set to '0.00', and a '4PL Parameters' section with four input fields (a, b, c, d) all set to '0.000000'. Arrows point from external labels to these sections: a green arrow from 'Statement Setting' to the green box, a blue arrow from 'Formula Setting' to the 'Result Formula' field, and a red arrow from 'Mapping Curve Setting' to the red box. A bracket on the right groups the blue and red arrows under the label 'Quantitative'.

Product Code : Covid19 IGGIGM-ch2@Covid19 IGM

Lot : Covid19 IGM Expired Date : 2020-12-05 Calendar...

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

Dilution Statement

Dilution Menu(6 items) 1 Factor : 1.000 Inc. 1 Del

Qualitative Statement

Statement Strong Positive Clear

Formula T1\_RESULT>3

Result Text Strong Positive

Quantitative Mapping Curve

Bias 0 Result Significant Digits: 5

Result Formula T1/C1

Concentration 0.00 Read 0.00 Add

Curve Interval Linear Log Reset

4PL Parameters

Working Range : Concentration 0.000000 - 0.000000

a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

Statement  
Setting

Qualitative /  
Quantitative

Formula Setting

Quantitative

Mapping Curve  
Setting



Product Code : Covid19 IGGIGM-ch2@Covid19 IGM

Lot : Covid19 IGM Expired Date : 2020-12-05 Calendar...

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

Dilution Statement

Dilution Menu(6 items) 1 Factor : 1.000 Inc. 1 Del

Qualitative Statement

Statement Strong Positive Clear

Formula T1\_RESULT>3

Result Text Strong Positive

Quantitative Mapping Curve

Bias 0 Result Significant Digits: 5

Result Formula T1/C1 Single

Concentration 0.00 Read 0.00 Add

Curve Interval Linear Log Reset

4PL Parameters

Working Range : Concentration 0.000000 - 0.000000

a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

Product  
information  
editing

Cutoff range  
setup

Standard curve  
data input and  
curve fitting

4PL (input)

Generate curve graph

Test kit failure  
condition setting

Please refer P.82  
dilution statement  
setting

Clear cutoff range setup

Cutoff range logic  
statements

Report statement if a test  
value is within the range

Result value calculation  
formula

Input concentration  
value & unit  
Log: Log transformation  
of concentrations  
Read: To read strip value  
Add: Manually add test  
values

Select Curve fitting models

Actual reading of a standard strip

# Setting Up Lot information

- Product Code : Selected product code cannot be modified in this section
- Lot : Type Lot Number in Lot column
- Expired Date : Set expiration date in this column
- Analyte : The analyte that the test kit will be analyzing.
- Type : Testing sample type required by this test kit.
- Invalid Condition : Test kit failure condition setting.

Modify Lot

Product Code : Covid19 IGGIGM-ch2@Covid19 IGM

Lot : Covid19 IGM Expired Date : 2020-12-05 Calendar...

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

Dilution Statement  
Dilution Menu(6 items) 1 Factor : 1.000 Inc. 1 Del

Quantitative Statement  
Statement: Strong Positive Clear  
Formula: T1\_RESULT>3  
Result Text: Strong Positive

Quantitative Mapping Curve  
Bias: 0 Result Significant Digits: 5  
Result Formula: T1/C1 Single  
Concentration: 0.00 Read 0.00 Add

Curve: Interval Linear Log Reset

4PL Parameters  
Working Range : Concentration 0.000000 - 0.000000  
a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

Product Code : Covid19 IGGIGM-ch2@Covid19 IGM

Lot : Covid19 IGM Expired Date : 2020-12-05 Calendar...

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

# How to set Failure Condition

- Set Failure Condition to ensure the test kit's quality is qualified according to your company's standard.
- You can set C, T line's intensity value with "And" & "Or" condition
- In case the test kit's result fits the condition you set, "Failure" result is presented.

The screenshot shows a software interface for configuring test kit parameters. The 'Invalid Condition' section is highlighted with a red box. It contains the following fields:

- Product Code : Covid19 IGGIGM-ch2@Covid19 IGM
- Lot : Covid19 IGM
- Expired Date : 2020-12-05
- Analyte :
- Type :
- Invalid Condition : C < [ ] AND T < [ ]
- BackGround Setting: 0 (Range:0-255)

# How to set cut off value in Qualitative Statement

Go to Statement to set Positive and Negative statement.

※ “T1\_RESULT” & “T1\_CONCENTRATION” mean the figure calculated from Result Formula, so it's fixed and the letters must be capitalized. No need to change it into for example: T1/C1\_RESULT...etc.

In Quantitative Mapping Curve section, input your desired formula in Result Formula.

ex. T1 or T1/C1...

If you set T1 in Result Formula, it is the image intensity of T1 line calculated by algorithm. If you set T1/C1, it is figure of T1/C1 intensity ratio.

Then input the result description you would like to show for diagnosis result. Here we use “Negative” as an example. The text you type in Result Text also present in Statement

Set Formula for cut off value. For example: Input T1\_RESULT < 200 for Negative.

Then set T1\_RESULT >= 200 for Positive to include all possible calculation result.

Qualitative Statement

Statement

Formula ✖

Result Text

Quantitative Mapping Curve

Bias

Result Significant Digits:

Result Formula

Concentration

Qualitative Statement

Statement

Formula

Result Text

# Setting Up Cut-off Ranges

- Up to 12 cut-off statements can be set up.
- In the Result Text, enter the report result for a specific cut-off range. Say ~1 ppb. Then in the Formula, define the cut-off range with >, < and =. Say `T1_CONCENTRATON>=0.65 & T1_CONCENTRATON<1.75`. Step by step to finish all of your cut-off ranges and the report results.
- Please remember to save your settings by pressing the “Save” button. Please save in the correct file name as well.
- The final cut-off ranges should be adjusted based on your further validation using more standard strips or actual sample strips before its release.

# Statement setting

Modify Lot

Product Code : Covid19 IGGIGM-ch1@Covid19 IGG

Lot : Covid19 IGG Expired Date : 2020-12-05

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

Dilution Statement

Dilution Menu(6 items) 1 Factor : 1.000

Qualitative Statement

Statement Positive

Formula

Result Text

Quantitative Mapping

Bias 0

Result Formula 1

Concentration 0.00

Significant Digits: 5

0.00

Interval Linear

4PL Parameters

Working Range : Concentration 0.000000 - 0.000000

a 0.000000 b 0.000000 c 0.000000 d 0.000000

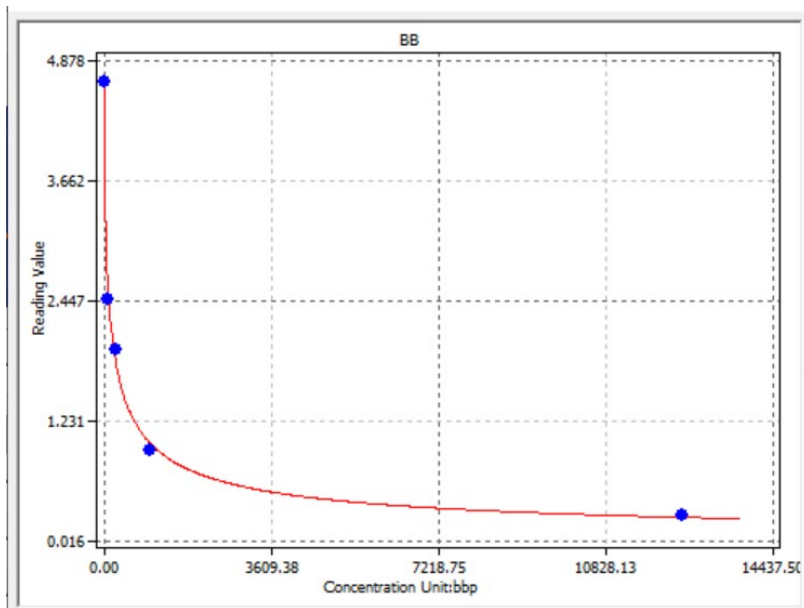
Up to 12 cut-off statements can be added!!

# Summary of Qualitative/Quantitative setting

Result Type	Formula	Mapping Curve	Statement	Note
Qualitative / Quantitative	Quantitative	Quantitative	Qualitative	
Assignment	T1_RESULT	T1_CONCENTRATION	Statement	
Priority	3	2	1	
Operation Type	Arithmetic	Data to Concentration Mapping	Arithmetic + Logic --> Logic	
	+	Interval Linear	+	Arithmetic PLUS
	-	Linear	-	Arithmetic MINUS
	*	Quadratic	*	Arithmetic MULTIPLY
	/	4PL	/	Arithmetic DIVIDE
	( )			Parenthesis (Formula only)
			&	Logic AND
				Logic OR
			>, =, <, <>	Logic COMPARE
			\$	Mark for Quantitative Data
Examples	T1/C1		T1/C1 >= 100	
	T1+100		T1<100   C1<50	
	T1/C1-100		T1 + T2 <= C1	
	T1 * T2 / C1		T1_RESULT> 1 & C1 > 50	refer Formula value
	(T1-T2)/(C1-T2)		\$ T1_CONCENTRATION	show Curve Mapping value
	T1+T2-C1		T1_CONCENTRATION < 0.5	refer Curve Mapping value

# How to set Mix of Qualitative/Quantitative statement

- Using “Statement” to show the quantitative value @ working range



Qualitative Statement

Statement:

Formula:

Result Text:

Qualitative Statement

Statement:

Formula:

Result Text:

Special Mark for the variation of T1,T2, ..., C, T1\_RESULT, T1\_CONCENTRATION, ....

Qualitative Statement

Statement:

Formula:

Result Text:



# Why & How to Use “Bias”

- If you believe the data exist some kind of deviation, use Bias to adjust it to perfect.
- First, set Bias=0
  - The signal you retrieve will be higher than expectation.
  - Get the “Standard Deviation”=Sd
  - 2 or 3 times of Sd = K
- Set Bias = K @ Modify Lot

Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <   T <

BackGround Setting:  (range:0-255)

Dilution Statement

Dilution Menu(6 items)  Factor :

Qualitative Statement

Statement

Formula

Result Text

Quantitative Mapping Curve

Bias    Result Significant Digits:

Result Formula

Concentration

4PL Parameters

Working Range : Concentration  -

a  b  c  d

Step 2: input the number at Bias

T VIEW PRO

Testing Result

20201224-2

Result :

C-Value :

T1-Value :

Remarks :

Step 1: press Modify Lot

Original test data (Bias=0)

RapidTestView

Capture | Database | User | Setting

# RAPID TEST VIEW PRO

Input the testing information

Product Code : Profile\_W@1

Del Add Calibrate Dilution Factor: 1

Company/Lab Name : ABC Clinic Center

Company/Lab TEL : +886 23881234

Company/Lab Address :

Testing Date : 2020-12-24 Calendar...

User Name : Kevin Wang

Sample-No. : 3

Sample Type : DSA

Testing Target : Test

Lot Expiration Date : 2020-12-25

Lot No : 1

Start to analyze... Encode QR New Gro

Delay to analyze... Modify Lot Profile Wizard

Testing Result

20201224-2

Result : Positive

C-Value : 450

T1-Value : 540

Open the report folder...

Generate report

Remarks :

Exit

Test data after setting Bias 200, C & T all subtract about 200.

# Capture & Analysis

# Default page: Capture

RapidTestView

Capture Database User Setting

## RAPID TEST VIEW PRO

Input the testing information

1 Product Code : Flu AB-ch1

Del Add Calibrate

2 Company/Lab Name : ABC Clinic center

Company/Lab TEL : +886 27889999

Company/Lab Address : 666road sta zone, Kaoshng City

Testing Date : 2020-12-15 Calendar...

User Name : Kevin Wang

Sample-No. : 86

Sample Type :

Testing Target :

Lot Expiration Date : 20181231

Lot No :

Start to analyze...

Delay to analyze...

Encode QR New Group Profile

Modify Lot Profile Wizard

Testing Result

3

20201215-1

Result : 2058.191

C-Value : 1158

T1-Value : 2058

Open the report folder...

Generate report

Remarks :

Exit

### 1.Product Code selection:

User can select different diagnosis product in this section.

User can delete , add product or do calibration for each product.

### 2.Testing information:

This section on UI is for user to input lab information, testing date, and patient/sample information.

### 3.Analyze:

Start to analyze: Click this icon to proceed analysis immediately.

Delay to analyze: Users can set a certain period of time to let system begin analysis after it reaches preset time

# Default page: Capture(Cont.)

## 4.Profile Wizard:

To set each kit's image, C, T line's detection position & area size here.

To set colorimetric/fluorescent kit detection light source.

To set algorithm here

## 5.Modify Lot:

To set Cut Off value.

To set Result Formula

To set Standard Curve for quantitative analysis

## 6.New Group Profile:

For multiple channel assay, users will need to use this function to integrate each channel's profile into 1 single group profile.

The screenshot shows the 'RapidTestView PRO' software window. The 'Capture' tab is selected in the top menu. The interface is divided into several sections:

- Input the testing information:** Contains dropdown menus for Product Code (Flu AB-ch1), Company/Lab Name (ABC Clinic center), Company/Lab TEL (+886 27889999), Company/Lab Address (666road sta zone, Kaoshng City), User Name (Kevin Wang), and Sample-No. (86). There are also buttons for 'Del', 'Add', 'Calibrate', 'Calendar...', and 'Open the report folder...'. A 'Generate report' button is at the bottom right.
- Testing Result:** Displays a grayscale image of a test strip with two red rectangular boxes highlighting specific areas. To the right of the image, the following data is shown:
  - 20201215-1
  - Result : 2058.191
  - C-Value : 1158
  - T1-Value : 2058
- Buttons:** 'Start to analyze...', 'Encode QR', 'New Group Profile', 'Modify Lot', 'Profile Wizard', and 'Exit'.

Numbered callouts are present:

- 1:** Points to the 'Capture' tab in the top menu.
- 2:** Points to the 'Modify Lot' button.
- 3:** Points to the 'New Group Profile' button.
- 4:** Points to the 'Profile Wizard' button.
- 5:** Points to the 'Testing Result' section, specifically the image of the test strip.
- 6:** Points to the 'New Group Profile' button.

# Default page: Capture(Cont.)

**7.Encode QR:** To create product profile's QR code image

**8.Testing Result:** present result information include image.  
Result: Can show negative / positive or any statement preset.

C Value: control line image intensity value

T-1 Value: Test line image intensity value

Open the image folder: To access the preset folder for image saving

Output to report: Generate PDF report

RapidTestView

Capture Database User Setting

## RAPID TEST VIEW PRO

Input the testing information

Product Code : Flu AB-ch1

Del Add Calibrate

Company/Lab Name : ABC Clinic center

Company/Lab TEL : +886 27889999

Company/Lab Address : 666road sta zone, Kaoshng City

Testing Date : 2020-12-15 Calendar...

User Name : Kevin Wang

Sample-No. : 86

Sample Type :

Testing Target :

Lot Expiration Date : 20181231

Lot No :

Start to analyze... 7

Encode QR

New Group Profile

Delay to analyze...

Modify Lot

Profile Wizard

Testing Result

20201215-1

Result : 2058.191

C-Value : 1158

T1-Value : 2058

Open the report folder...

Generate report

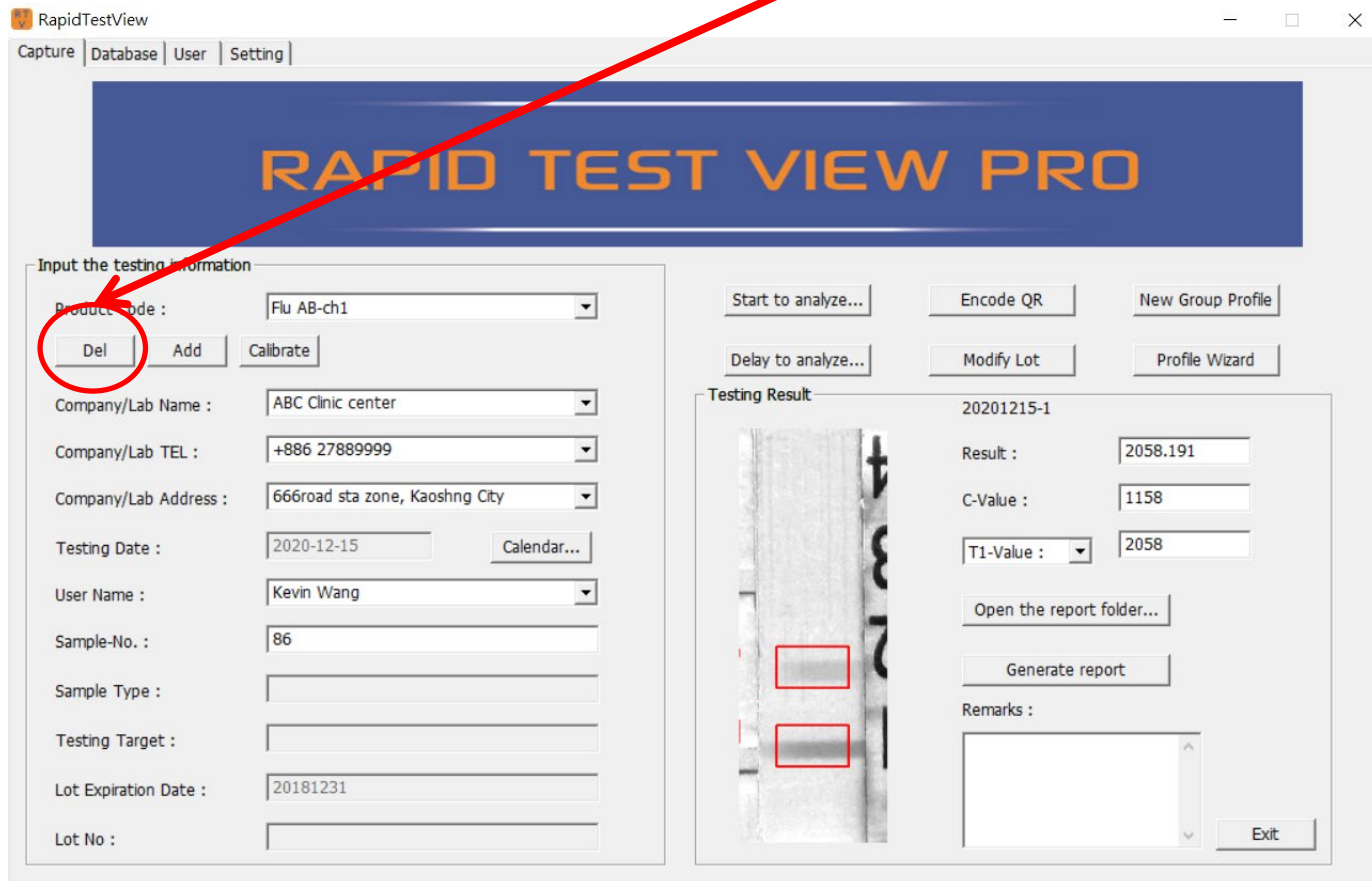
Remarks :

Exit



# Delete Profiles

How to delete useless or invalid product profiles in software?  
Select product code for deletion and then press “Del” to remove selected product profile.





# Add Profiles

Click “Add” to increase product profiles to software

Click “File” to select product profile saved in PC.

(Please contact supplier to know more about QR code function)

Added profiles will display in Product Code column if adding profile step is successfully done.

RapidTestView

Capture | Database | User | Setting

## RAPID TEST VIEW PRO

Input the testing information

Product Code : Flu AB-ch1

Del Add Calibrate

Company/Lab Name : ABC Clinic center

Company/Lab TEL : +886 27889999

Company/Lab Address : 666road sta zone, Kaoshng City

Testing Date : 2020-12-15 Calendar...

User Name : Kevin Wang

Sample-No. : 86

Sample Type :

Testing Target :

Lot Expiration Date : 20181231

Lot No :

Start to analyze... Encode QR New Group Profile

Delay to analyze... Modify Lot Profile Wizard

Testing Result

20201215-1

Result : 2058.191

C-Value : 1158

T1-Value : 2058

Open the report folder...

Generate report

Remarks :

Exit

Input the testing information

Product Code : Flu AB-ch1

Del Add Calibrate

Company/Lab

FILE

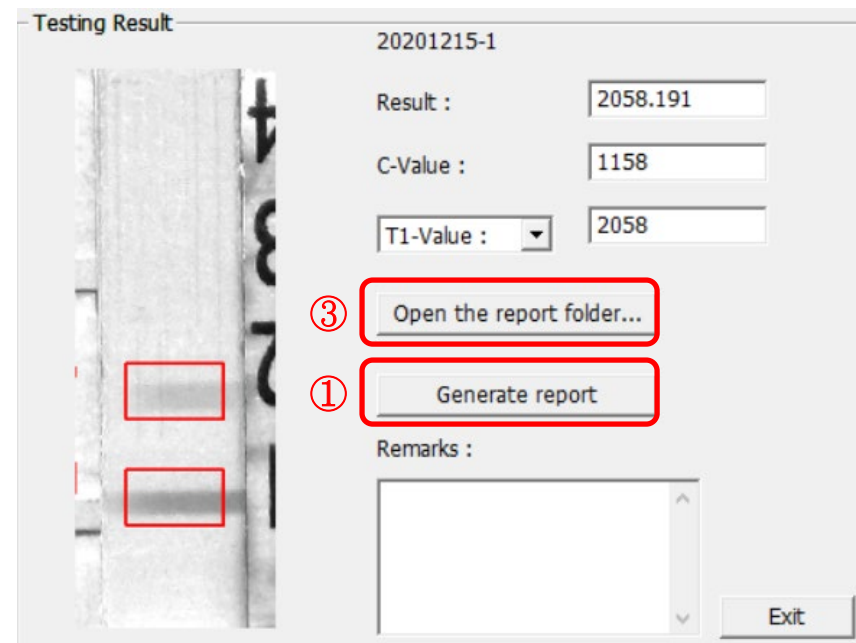
QR Code

# Report

# Report

The SW can generate a PDF report by clicking “① Generate report” on UI home page .

After showing “Detail report is complete”, click ② 確定 and then ③ open the report folder. You can see there’s ④ a PDF report in the folder.



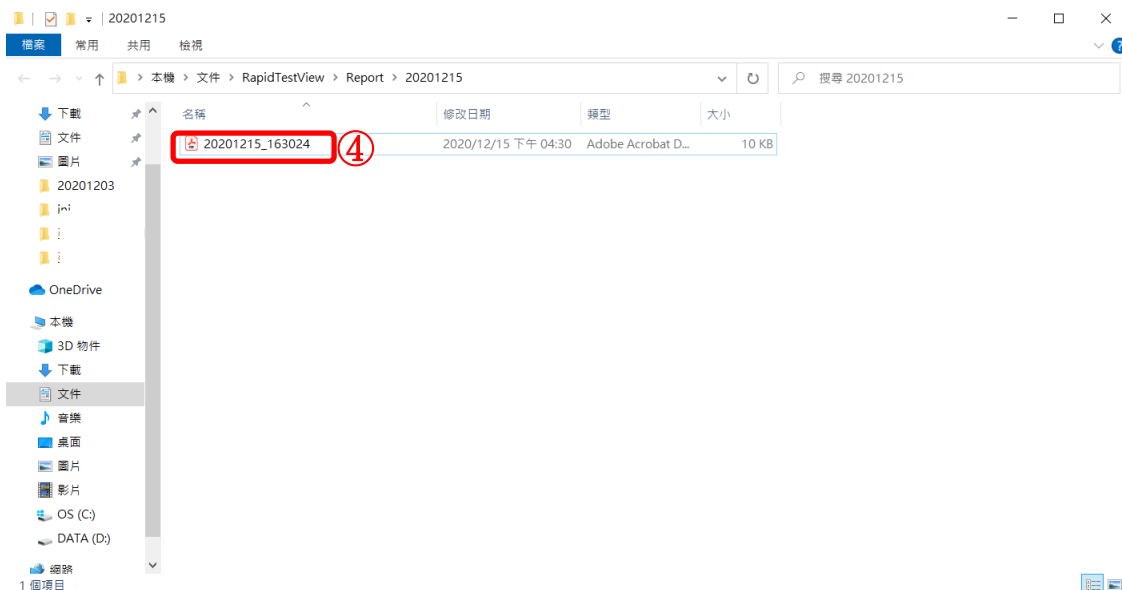
RapidTestView



Detail report is complete .

②

確定



# Report

## Example of PDF report

TEL :

### Inspection Report

Testing Time : 20201215 163024

Testing Target :

Lot Number :

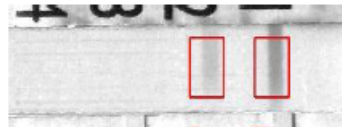
Sample Type :

Remarks :

Sample-No. : 2

Name	Result	Note
	2068.586	Fig.1

Fig 1.



Report Signed

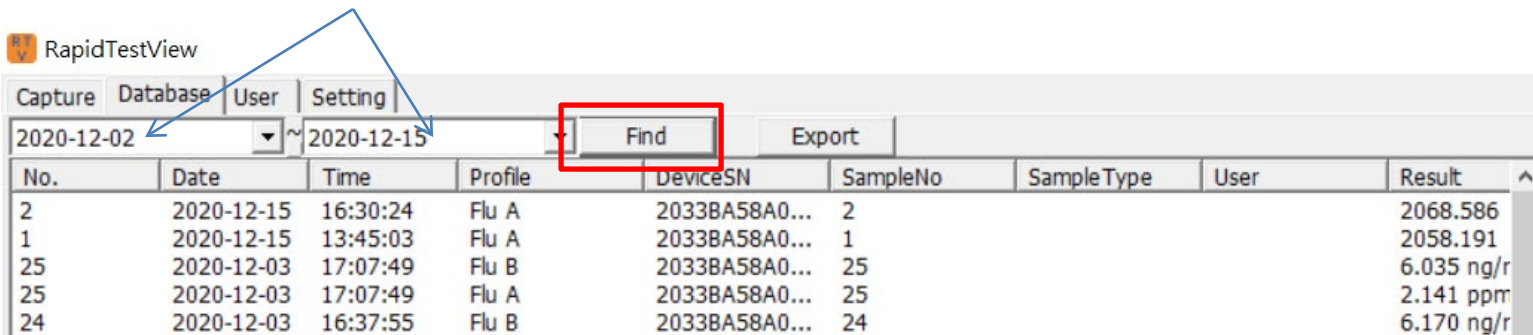
Tester : \_\_\_\_\_(MM/DD/YYYY)

Supervisor : \_\_\_\_\_(MM/DD/YYYY)

# Database

# Database

All level of users can obtain diagnosis history from this section  
Select testing date or a certain period to show diagnosis result, then click “Find”



Software then display all diagnosis results recorded within the time period you set

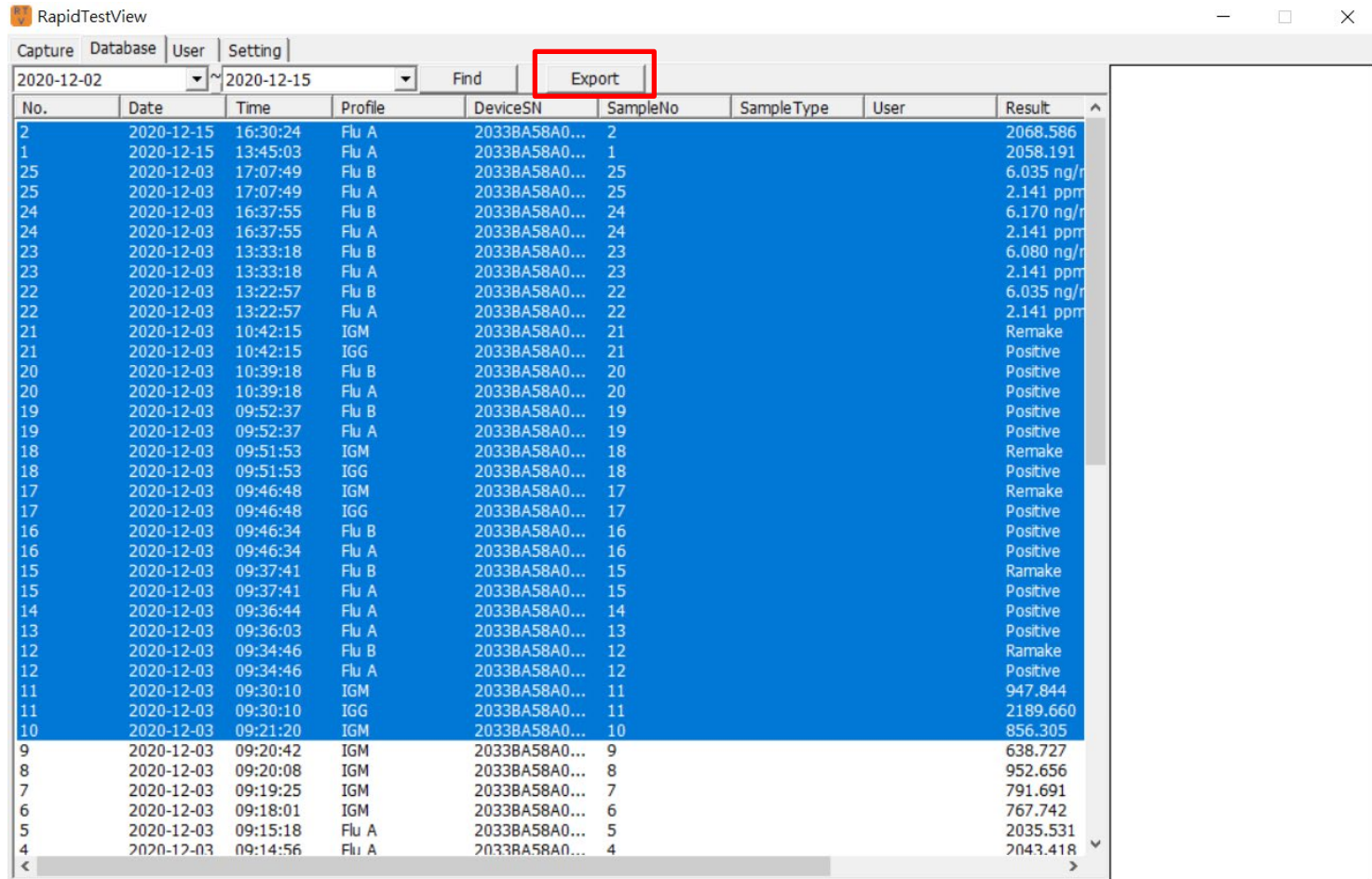
RapidTestView

Capture Database User Setting

2020-12-02 ~ 2020-12-15 Find Export

No.	Date	Time	Profile	DeviceSN	SampleNo	Sample Type	User	Result
2	2020-12-15	16:30:24	Flu A	2033BA58A0...	2			2068.586
1	2020-12-15	13:45:03	Flu A	2033BA58A0...	1			2058.191
25	2020-12-03	17:07:49	Flu B	2033BA58A0...	25			6.035 ng/r
25	2020-12-03	17:07:49	Flu A	2033BA58A0...	25			2.141 ppm
24	2020-12-03	16:37:55	Flu B	2033BA58A0...	24			6.170 ng/r
24	2020-12-03	16:37:55	Flu A	2033BA58A0...	24			2.141 ppm
23	2020-12-03	13:33:18	Flu B	2033BA58A0...	23			6.080 ng/r
23	2020-12-03	13:33:18	Flu A	2033BA58A0...	23			2.141 ppm
22	2020-12-03	13:22:57	Flu B	2033BA58A0...	22			6.035 ng/r
22	2020-12-03	13:22:57	Flu A	2033BA58A0...	22			2.141 ppm
21	2020-12-03	10:42:15	IGM	2033BA58A0...	21			Remake
21	2020-12-03	10:42:15	IGG	2033BA58A0...	21			Positive
20	2020-12-03	10:39:18	Flu B	2033BA58A0...	20			Positive
20	2020-12-03	10:39:18	Flu A	2033BA58A0...	20			Positive
19	2020-12-03	09:52:37	Flu B	2033BA58A0...	19			Positive
19	2020-12-03	09:52:37	Flu A	2033BA58A0...	19			Positive
18	2020-12-03	09:51:53	IGM	2033BA58A0...	18			Remake
18	2020-12-03	09:51:53	IGG	2033BA58A0...	18			Positive
17	2020-12-03	09:46:48	IGM	2033BA58A0...	17			Remake
17	2020-12-03	09:46:48	IGG	2033BA58A0...	17			Positive
16	2020-12-03	09:46:34	Flu B	2033BA58A0...	16			Positive
16	2020-12-03	09:46:34	Flu A	2033BA58A0...	16			Positive
15	2020-12-03	09:37:41	Flu B	2033BA58A0...	15			Remake
15	2020-12-03	09:37:41	Flu A	2033BA58A0...	15			Positive
14	2020-12-03	09:36:44	Flu A	2033BA58A0...	14			Positive
13	2020-12-03	09:36:03	Flu A	2033BA58A0...	13			Positive
12	2020-12-03	09:34:46	Flu B	2033BA58A0...	12			Remake
12	2020-12-03	09:34:46	Flu A	2033BA58A0...	12			Positive
11	2020-12-03	09:30:10	IGM	2033BA58A0...	11			947.844
11	2020-12-03	09:30:10	IGG	2033BA58A0...	11			2189.660
10	2020-12-03	09:21:20	IGM	2033BA58A0...	10			856.305
9	2020-12-03	09:20:42	IGM	2033BA58A0...	9			638.727
8	2020-12-03	09:20:08	IGM	2033BA58A0...	8			952.656
7	2020-12-03	09:19:25	IGM	2033BA58A0...	7			791.691
6	2020-12-03	09:18:01	IGM	2033BA58A0...	6			767.742
5	2020-12-03	09:15:18	Flu A	2033BA58A0...	5			2035.531
4	2020-12-03	09:14:56	Flu A	2033BA58A0...	4			2043.418

# Database



RapidTestView

Capture Database User Setting

2020-12-02 ~ 2020-12-15 Find Export

No.	Date	Time	Profile	DeviceSN	SampleNo	SampleType	User	Result
2	2020-12-15	16:30:24	Flu A	2033BA58A0...	2			2068.586
1	2020-12-15	13:45:03	Flu A	2033BA58A0...	1			2058.191
25	2020-12-03	17:07:49	Flu B	2033BA58A0...	25			6.035 ng/r
25	2020-12-03	17:07:49	Flu A	2033BA58A0...	25			2.141 ppm
24	2020-12-03	16:37:55	Flu B	2033BA58A0...	24			6.170 ng/r
24	2020-12-03	16:37:55	Flu A	2033BA58A0...	24			2.141 ppm
23	2020-12-03	13:33:18	Flu B	2033BA58A0...	23			6.080 ng/r
23	2020-12-03	13:33:18	Flu A	2033BA58A0...	23			2.141 ppm
22	2020-12-03	13:22:57	Flu B	2033BA58A0...	22			6.035 ng/r
22	2020-12-03	13:22:57	Flu A	2033BA58A0...	22			2.141 ppm
21	2020-12-03	10:42:15	IGM	2033BA58A0...	21			Remake
21	2020-12-03	10:42:15	IGG	2033BA58A0...	21			Positive
20	2020-12-03	10:39:18	Flu B	2033BA58A0...	20			Positive
20	2020-12-03	10:39:18	Flu A	2033BA58A0...	20			Positive
19	2020-12-03	09:52:37	Flu B	2033BA58A0...	19			Positive
19	2020-12-03	09:52:37	Flu A	2033BA58A0...	19			Positive
18	2020-12-03	09:51:53	IGM	2033BA58A0...	18			Remake
18	2020-12-03	09:51:53	IGG	2033BA58A0...	18			Positive
17	2020-12-03	09:46:48	IGM	2033BA58A0...	17			Remake
17	2020-12-03	09:46:48	IGG	2033BA58A0...	17			Positive
16	2020-12-03	09:46:34	Flu B	2033BA58A0...	16			Positive
16	2020-12-03	09:46:34	Flu A	2033BA58A0...	16			Positive
15	2020-12-03	09:37:41	Flu B	2033BA58A0...	15			Ramake
15	2020-12-03	09:37:41	Flu A	2033BA58A0...	15			Positive
14	2020-12-03	09:36:44	Flu A	2033BA58A0...	14			Positive
13	2020-12-03	09:36:03	Flu A	2033BA58A0...	13			Positive
12	2020-12-03	09:34:46	Flu B	2033BA58A0...	12			Ramake
12	2020-12-03	09:34:46	Flu A	2033BA58A0...	12			Positive
11	2020-12-03	09:30:10	IGM	2033BA58A0...	11			947.844
11	2020-12-03	09:30:10	IGG	2033BA58A0...	11			2189.660
10	2020-12-03	09:21:20	IGM	2033BA58A0...	10			856.305
9	2020-12-03	09:20:42	IGM	2033BA58A0...	9			638.727
8	2020-12-03	09:20:08	IGM	2033BA58A0...	8			952.656
7	2020-12-03	09:19:25	IGM	2033BA58A0...	7			791.691
6	2020-12-03	09:18:01	IGM	2033BA58A0...	6			767.742
5	2020-12-03	09:15:18	Flu A	2033BA58A0...	5			2035.531
4	2020-12-03	09:14:56	Flu A	2033BA58A0...	4			2043.418

To select multiple results, hold the “shift” key and select the first and the last results. Then press “Export” on the top of the windows. The SW will create “CSV” file immediately.

# Database

- ADMIN

RapidTestView

Capture Database User Setting

2020-12-02 ~ 2020-12-25 Find Export

Time	Profile	DeviceSN	SampleNo	SampleType	User	Result	C	T1
14:29:56	Profile_W@1	2033BA58A0...	2	DSA	Kevin Wang	Positive	417	550
14:26:26	Profile_W@1	2033BA58A0...	1	DSA	Kevin Wang	Positive	446	544
11:10:34	Profile_W@1	2033BA58A0...	2	DSA	Kevin Wang	Positive	450	540
11:08:28	Profile_W@1	2033BA58A0...	1	DSA	Kevin Wang	Positive	445	539

- USER & USER-ALL

ADMIN user sees diagnosis result and C, T value.  
USER & USER-ALL can see only results.

RapidTestView

Capture Database Setting

2020-12-02 ~ 2020-12-25 Find Export

No.	Date	Time	Profile	DeviceSN	SampleNo	SampleType	User	Result
2	2020-12-24	14:29:56	Profile_W@1	2033BA58A0...	2	DSA	Kevin Wang	Positive
1	2020-12-24	14:26:26	Profile_W@1	2033BA58A0...	1	DSA	Kevin Wang	Positive
2	2020-12-24	11:10:34	Profile_W@1	2033BA58A0...	2	DSA	Kevin Wang	Positive
1	2020-12-24	11:08:28	Profile_W@1	2033BA58A0...	1	DSA	Kevin Wang	Positive
2	2020-12-24	09:47:24	Profile_W@1	2033BA58A0...	2	DSA	Kevin Wang	Positive



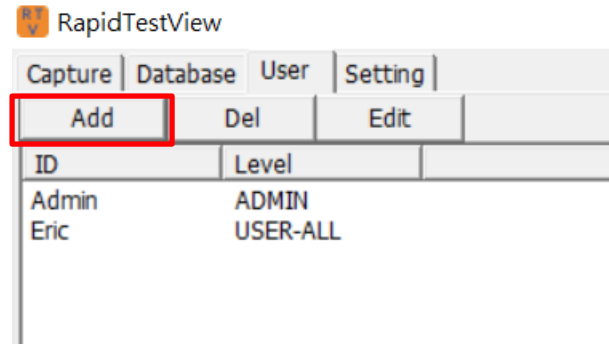
# User Management

# User Management

- Rapid Test View software has authority management function to let different level of users obtain different diagnosis result
- ADMIN
  - ADMIN is administration level of user. He/She can see all diagnosis results include image.
  - ADMIN can add/delete/edit USER-ALL & USER level of users
  - Only ADMIN can change ID/PW for USER-ALL & USER level of users
- USER-ALL
  - USER-ALL is the leader of his/her team. He/She can see all USERS' diagnosis result
- USER
  - USER can only see his/her own sample's diagnosis result

# ADMIN: Add new user

Go to User section, Click “Add”

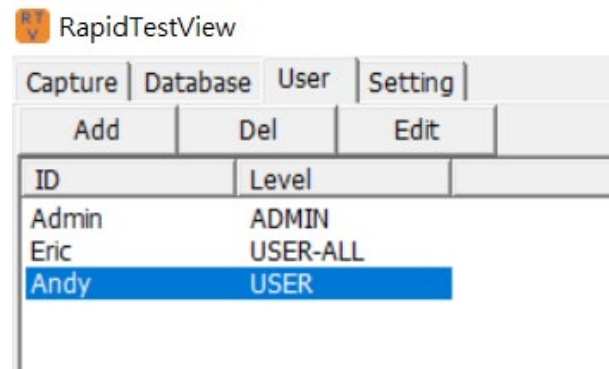


Login

Input ID & Password. Select level for user and press OK

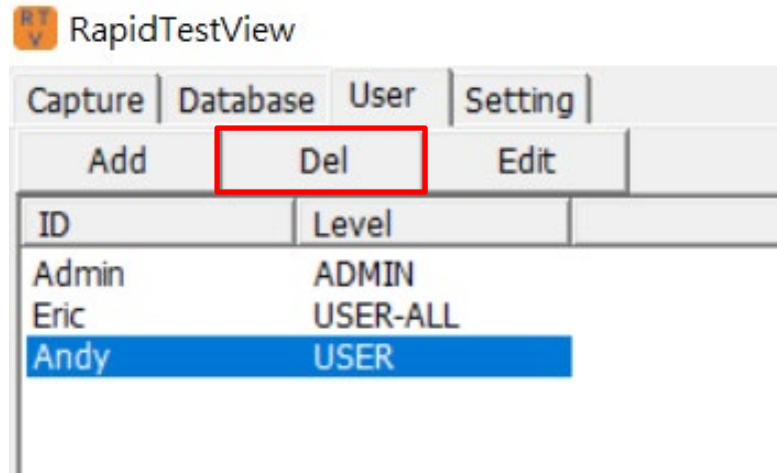
The screenshot shows a login form with three input fields: 'ID:', 'Password:', and 'Level:'. The 'ID' field contains the text 'Andy', the 'Password' field contains '1234', and the 'Level' field is a dropdown menu with 'USER' selected. Below the fields are two buttons: 'OK' and 'Cancel'.

New user is successfully added

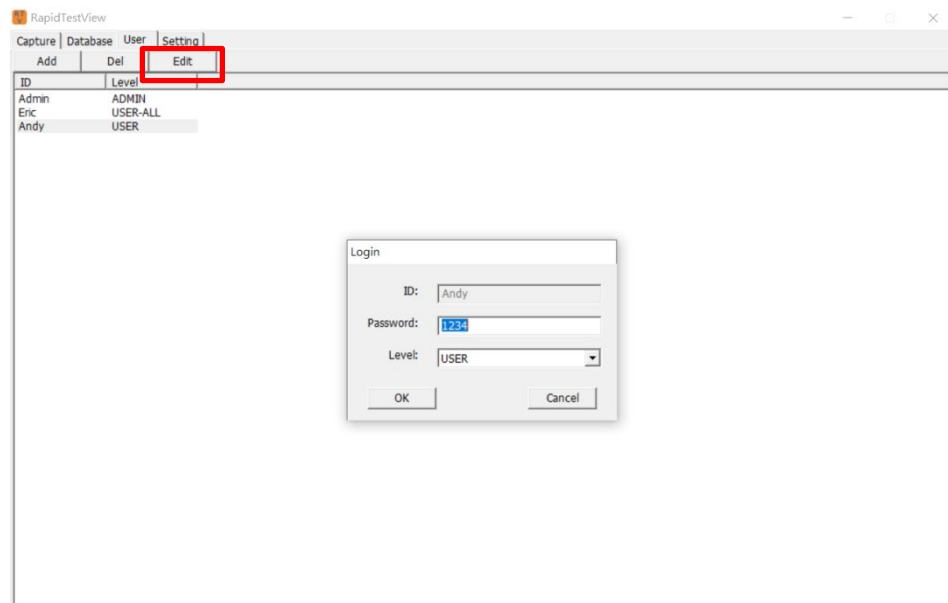


# ADMIN: Del/Edit user

How to delete: Simply select user you want to remove and click “Del”



How to edit: Select user you want to edit and click “Edit”. Then edit ID, PW, Level press OK to finish



**Note:** If user forget PW, he/she has to ask ADMIN to edit a new PW for his/her ID. There is no PW checking function.

# Setting

User can set data output folder, language & report auto generation

User can only show Group profile in homepage and choose whether to show C T frame in result image

RapidTestView

Capture Database User Setting

Rapid Test Data Export Folder : C:\Users\chsu\Documents\RapidTestView Choose a folder...

Language : English  
English  
繁體中文  
简体中文

☐ Auto generate report

☐ Only Show Group Profile

☒ Mark C/T Frames at Result Image

System Manager Settings

QRCode Light Setting: 1st Light(for Strip)

Calibrate Target: BaseGap: 0 (C/T ROI Width ratio)

☒ Blank Strip White Target: 240

☐ None NearBandGap: 0.05 (Between C/T ROI and Base , -1:Auto)

☐ Data Transform ☐ Elaborated T ☐ Significant Digits ☐ Background Setting ☐ LotNumber Mark (Select it is ' \_')

Reset About

“About” reveals SW version and license key information

# Encode QR

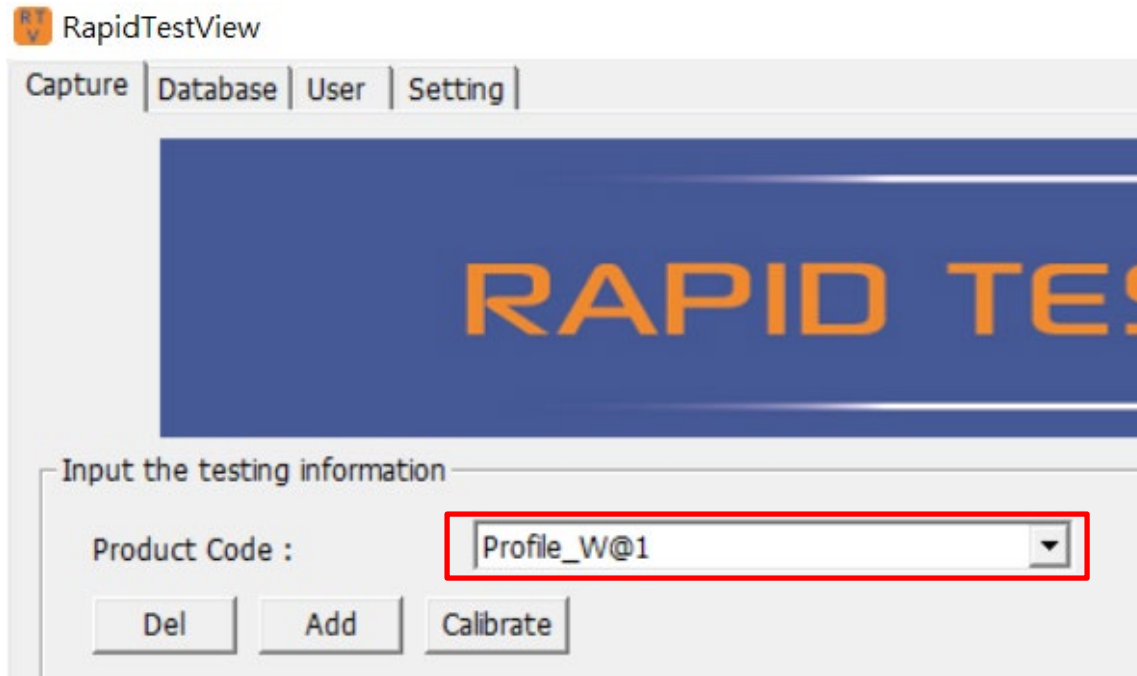
Guidance for diagnosis kit developer to create profile QR code image

Please contact supplier for QR code generation instruction .

# **Step by Step Tutorial: Creating Your First Test Profile**

# Basic settings of new test layout

Step. 1 Select an existing profile to modify



Choose the default profile template. Select any other preset profile in product code column.  
Please contact supplier if yours don't exist any profile in product code column.



## Step. 2 Enter “Profile Wizard” to modify profile

Click the “Profile Wizard” button on UI to initiate the Profile Wizard editor.  
The software will show a dialog as below.

Profile Wizard

Product Code	<input type="text" value="Profile_W@1"/>	<input type="text" value="None"/>	<input type="text" value="None"/>
		Show Name	<input type="text"/>
		T Count	<input type="text" value="1"/>
Color Mode	<input type="text" value="RGB"/>	Light Source	<input type="text" value="Epi White"/>
			<input type="text" value="Standard Mod"/>
Select ROI	<input type="text" value="View Area"/>	Factor C	<input type="text" value="100"/>
		Factor T	<input type="text" value="100"/>
			<input type="text" value="1D"/>
X	<input type="text" value="1478"/>	Width	<input type="text" value="988"/>
Y	<input type="text" value="834"/>	Height	<input type="text" value="465"/>
		Reserved	<input type="text"/>
		Reserved	<input type="text"/>
<input type="button" value="Apply ROI Settings"/>		<input type="button" value="Confirm Highlighted Area"/>	
		<input type="button" value="Refine"/>	
Cassette Type	<input type="text" value="W"/>	<input type="button" value="Save"/>	
		<input type="button" value="Exit"/>	

## Step. 3 Rename and set parameters

Profile Wizard

① Product Code

③ Show Name  T Count

② Color Mode  ④ Light Source  ⑤

Select ROI  Factor C  Factor T

X  Y  Width  Height

Reserved  Reserved

Cassette Type

① Rename Product Code. The suggested format is 3 segment connected by dash “-” symbol, and a day code but you can define the segments contents as you want to make a quick sorting.

Example: [Company Name]-[Part No.]-[Application]\_[Day Code or other code]

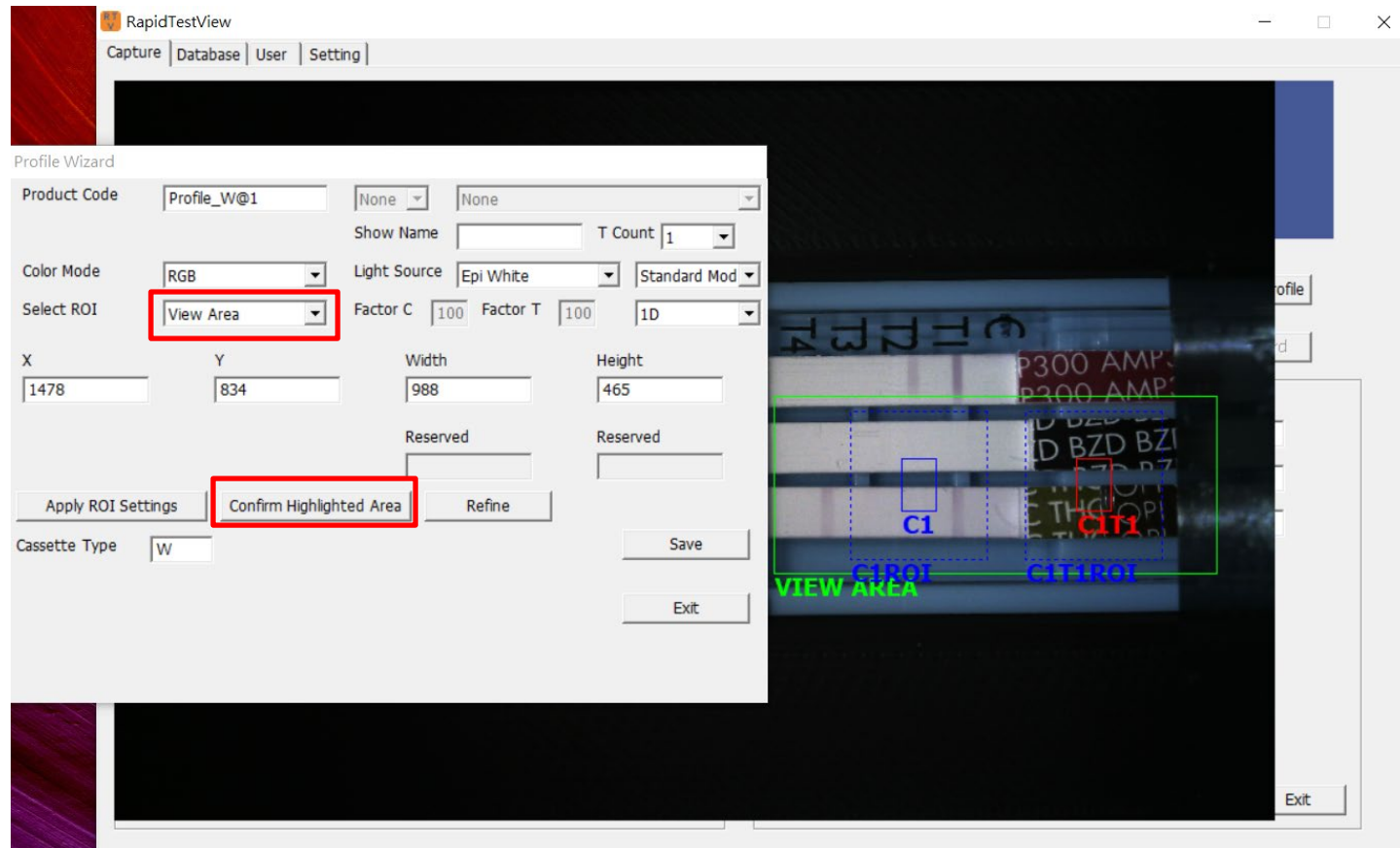
② Set Color Mode: “Default” is recommended. Please consult to supplier before change .

③ Show Name: Input application name. T Count: Test line numbers

④ Light Source: Epi White - For Colloidal Gold . EPI UV for fluorescent applications. (The Device Must support UV function)

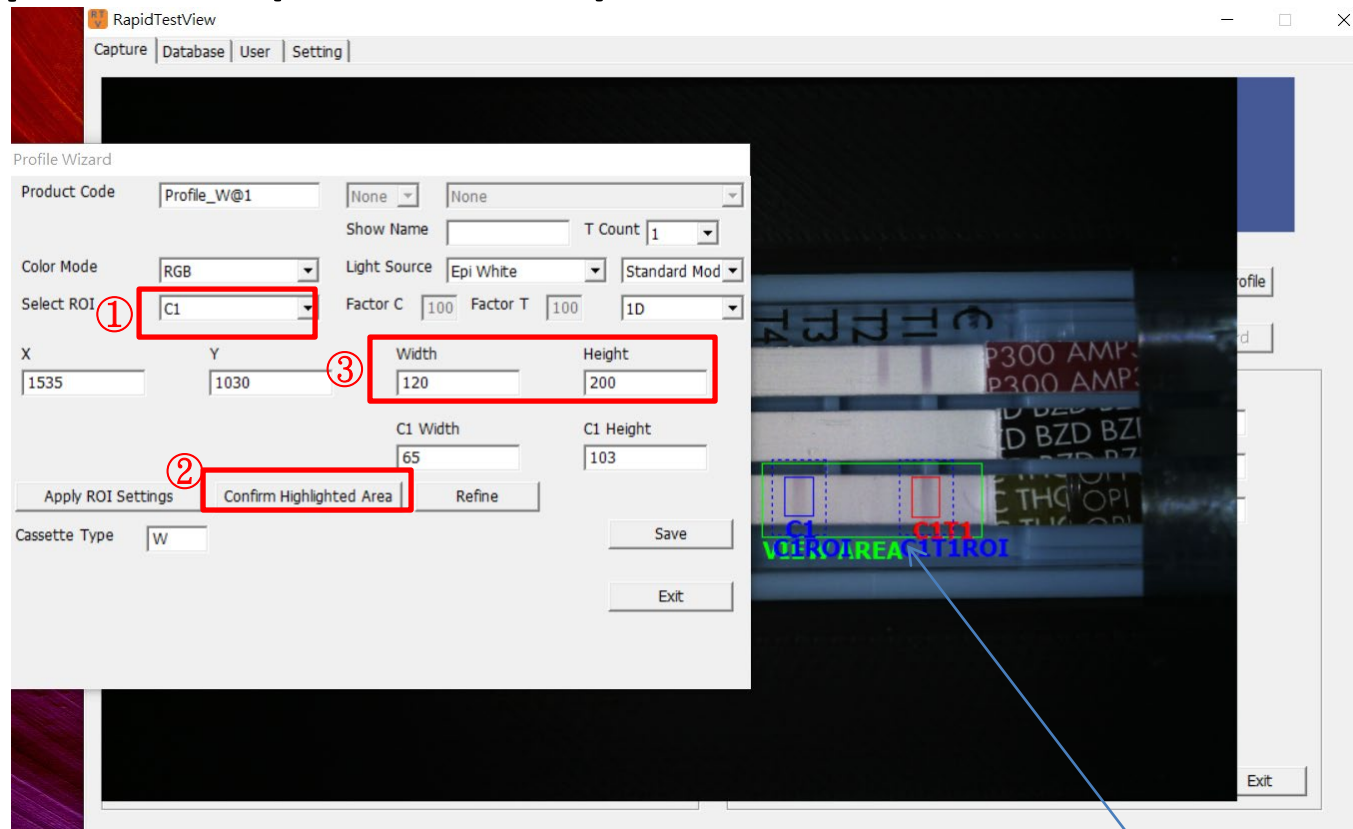
⑤ Set the sampling: Standard Mode - Sample 1 time for signal calculation. Quality Mode - Sample 8 times for signal calculation. Excellent Mode - Sample 16 times for signal calculation.[For Colloidal Gold applications]

## Step. 4 Set View Area ROI (View Area is image area)



1. Set the "Select ROI" to "View Area". Use mouse cursor drag a highlight area on the image viewer.
  2. Click "Confirm Highlighted Area" to apply the area as "View Area".
- The View Area will be displayed on Screen and Test Report as the result image.

## Step. 5 Set C (Control line) detection area



① Set the “Select ROI” to “C1”. Use mouse cursor drag a highlight area on the C line area.

② Click “Confirm Highlighted Area” to apply the area as “C1”

Tips : To fine adjust the Area Size and Position, simply input the number in X,Y, C1 Width,C1 Height then click “Apply ROI Settings”.

③ Width & Height: This is setting of signal search area. It is shown as above blue dotted line area. SW will search image signal within this area.

## Step. 6 Set T (Test line) detection area

Profile Wizard

Product Code

Show Name  T Count

Color Mode  Light Source

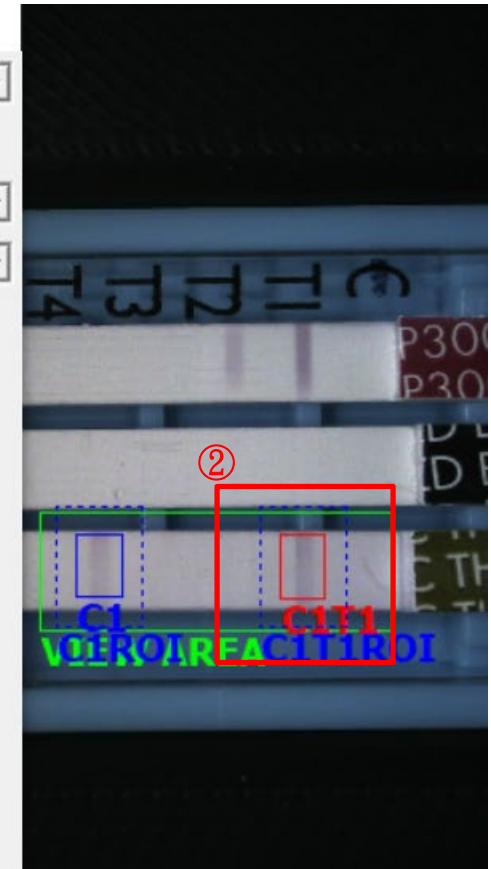
Select ROI ①  Factor C  Factor T

C1T1 Ofs X  C1T1 Ofs Y  Width  Height

C1T1 Width  C1T1 Height

③

Cassette Type



- ① Set the “Select ROI” to “C1T1”.
- ② Use mouse cursor drag a highlight area on the T line area.
- ③ Click “Confirm Highlighted Area” to apply the area as “C1T1”

Tips. To fine adjust the Area Size and Position, simply input the number in CT1T Ofs X, C1T1 OfsY, C1T1 Width,C1T1 Height, then click “Apply ROI Settings”.

## Step. 7 Refine settings

Profile Wizard

Product Code

Show Name  T Count

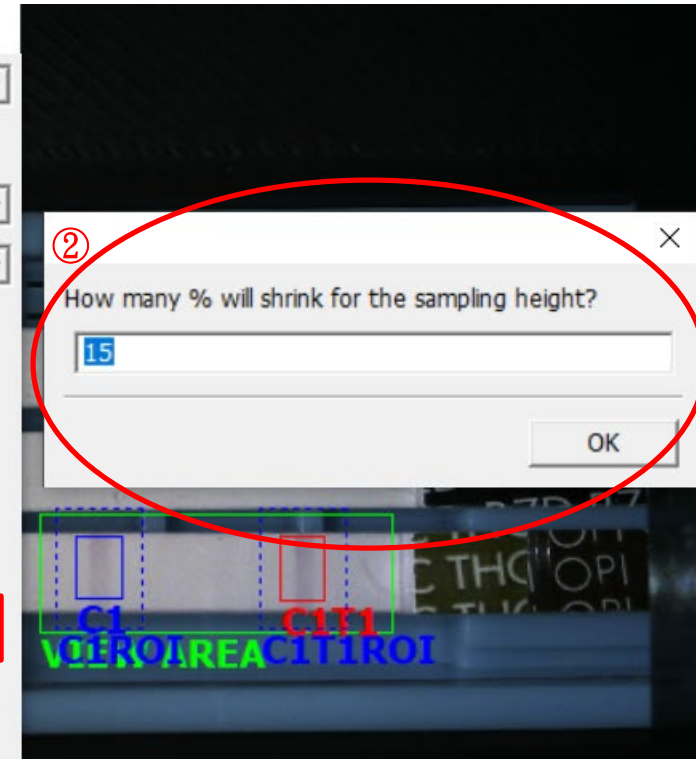
Color Mode  Light Source

Select ROI  Factor C  Factor T

C1T1 Ofs X  C1T1 Ofs Y  Width  Height

C1T1 Width  C1T1 Height

Cassette Type



- ① After finish View Area, C, T line setting. Click “Refine”
- ② SW will ask you how many % shrink for height. 15% is recommended. So input 15 and press OK.  
SW will automatically fine-tune your setting of C, T detection area.
- ③ If you are satisfied with refine result, click “Save” to save your profile setting.



## Step. 8 Check your profile setting

Input the testing information

Product Code : Profile\_W@1

Del Add Calibrate Dilution Factor: 1

Company/Lab Name : ABC Clinic Center

Company/Lab TEL : +886 23881234

Company/Lab Address :

Testing Date : 2020-12-24 Calendar...

User Name : Kevin Wang

Sample-No. : 3

Sample Type : DSA

Testing Target : Test

Lot Expiration Date : 2020-12-25

Lot No : 1

Start to analyze...

Encode QR New Group Profile

Delay to analyze... Modify Lot Profile Wizard

Testing Result

20201224-2

Result : Positive

C-Value : 417

T1-Value : 550

Open the report folder...

Generate report

Remarks :

Exit

Now, check if the newly created profile can be executed.

- ① Select the Product Code with the profile you saved.
- ② Click “Start to analyze” button to perform an analysis.
- ③ Check the strip image is created and the highlighted areas of C and T line are correct.

If the profile can be executed, you will see C-Value and T-Value are reported.

At the moment, don't worry about “Result” reported, because you need to set something in “Modify Lot” function to make it output correct data.

# Strip Lot information & Result calculation formula

## Step. 1

① Product Code : Profile\_W@1

② Modify Lot

Check the newly created profile if it can be executed and correctly analyze your test strips.

- ① Select the Product Code with the profile you saved in Phase-1.
- ② Click “Modify Lot” button to open Lot Information / Result setting dialog.



## Step. 2

Modify Lot

The screenshot shows the 'Modify Lot' window with the following fields and values:

- Product Code : Profile\_W@1
- Lot : [Empty]
- Expired Date : 20181231 [Calendar...]
- Analyte : Test
- Type : DSA
- Invalid Condition : C < 10 AND T < 10
- BackGround Setting: 0 (Range:0-255)

Below the highlighted section are three expandable panels:

- Dilution Statement**: Dilution Menu(6 items) [Empty], Factor : 1.000, Inc. 1, Del.
- Qualitative Statement**: Statement Empty, Clear, Formula [Empty], Result Text [Empty].
- Quantitative Mapping Curve**: Bias 0, Result Significant Digits: 5, Result Formula T1, Single, Concentration 0.00, Read, 0.00, Add, Curve Interval Linear, Log, Reset.

At the bottom is the **4PL Parameters** section with Working Range : Concentration 0.000000 - 0.000000 and parameters a, b, c, d all set to 0.000000.

Buttons at the bottom: Save, Cancel.

Fill the Basic lot information.

Lot - Test kit lot number.

Expired Date - The Expiration Date of the test kit. Software will give out warning when the test kit used is expired.

Analyte - The analyte that the test kit will be analyzing.

Type - Testing sample type required by this test kit.

Invalid Condition - Test kit failure condition setting.

BackGround Setting – It's a tool for users to notice if there's some unbalanced color in the background between C & T line. If the result is under the number you set, a note will show up.

✖Background “much dark 0 ↔ 255 much light”

## Step. 3

Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <  AND

BackGround Setting:  (Range:0-255)

**Dilution Statement**

Dilution Menu(6 items)  Factor :

**Qualitative Statement**

Statement

Formula

Result Text

**Quantitative Mapping Curve**

Bias  Result Significant Digits:

Result Formula

Concentration

**4PL Parameters**

Working Range : Concentration  -

a  b  c  d

Why dilute?

Various specimens may have different active concentrations with the same analyte.

It's a setting for users to set their dilution.

Dilution Menu(6 items)

↑Used by users to define the names of the specimens. (Up to 6 items)

Factor :

↑Used by users to define their dilution factor.

※One “Dilution Statement” only corresponds to one “Qualitative Statement”.

## Step. 4

Modify Lot

Product Code : Covid19 IGGIGM-ch2@Covid19 IGM

Lot : Covid19 IGM Expired Date : 2020-12-05 Calendar...

Analyte : Type :

Invalid Condition : C < AND T <

BackGround Setting: 0 (Range:0-255)

Dilution Statement  
Dilution Menu(6 items) 1 Factor : 1.000 Inc. 1 Del

Qualitative Statement  
Statement Strong Positive Clear  
Formula T1\_RESULT>3  
Result Text Strong Positive

Quantitative Mapping Curve  
Bias 0 Result Significant Digits: 5  
Result Formula T1/C1 Single  
Concentration 0.00 Read 0.00 Add

Curve Interval Linear Log Reset

4PL Parameters  
Working Range : Concentration 0.000000 - 0.000000  
a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel



Modify Lot

Product Code : Profile\_W@1

Lot : Expired Date : 20181231 Calendar...

Analyte : Test Type : DSA

Invalid Condition : C < 10 AND T < 10

BackGround Setting: 0 (Range:0-255)

Dilution Statement  
Dilution Menu(6 items) Factor : 1.000 Inc. 1 Del

Qualitative Statement  
Statement Empty Clear  
Formula  
Result Text

Quantitative Mapping Curve  
Bias 0 Result Significant Digits: 5  
Result Formula T1 Single  
Concentration 0.00 Read 0.00 Add

Curve Interval Linear Log Reset

4PL Parameters  
Working Range : Concentration 0.000000 - 0.000000  
a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

When your application requires a quantitative value, you will need to clear all Judgement Statements in “Result Statement Settings” area. Please select the Statement selection and click “Clear” to clear each Statement to “Empty”

## Step. 5

Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <  AND T <

BackGround Setting:  (Range:0-255)

Dilution Statement  
Dilution Menu(6 items)  Factor :

Qualitative Statement  
Statement    
Formula   
Result Text

Quantitative Mapping Curve  
Bias  Result Significant Digits:   
**Result Formula**    
Concentration

4PL Parameters  
Working Range : Concentration  -   
a  b  c  d



Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <  AND T <

BackGround Setting:  (Range:0-255)

Dilution Statement  
Dilution Menu(6 items)  Factor :

Qualitative Statement  
Statement    
Formula   
Result Text

Quantitative Mapping Curve  
Bias  Result Significant Digits:   
**Result Formula**    
Concentration

4PL Parameters  
Working Range : Concentration  -   
a  b  c  d

Input the Result Value calculation formula in the “Result Formula” field. And click Save to save current settings. Please see the next page for details.

## Additional instruction on how to use Result Formula

The available KEY WORDS are

C1 - The measured value of the C area.

T1 - The measured value of the T area.

For a competition assay, the recommended formula is “T1/C1”.

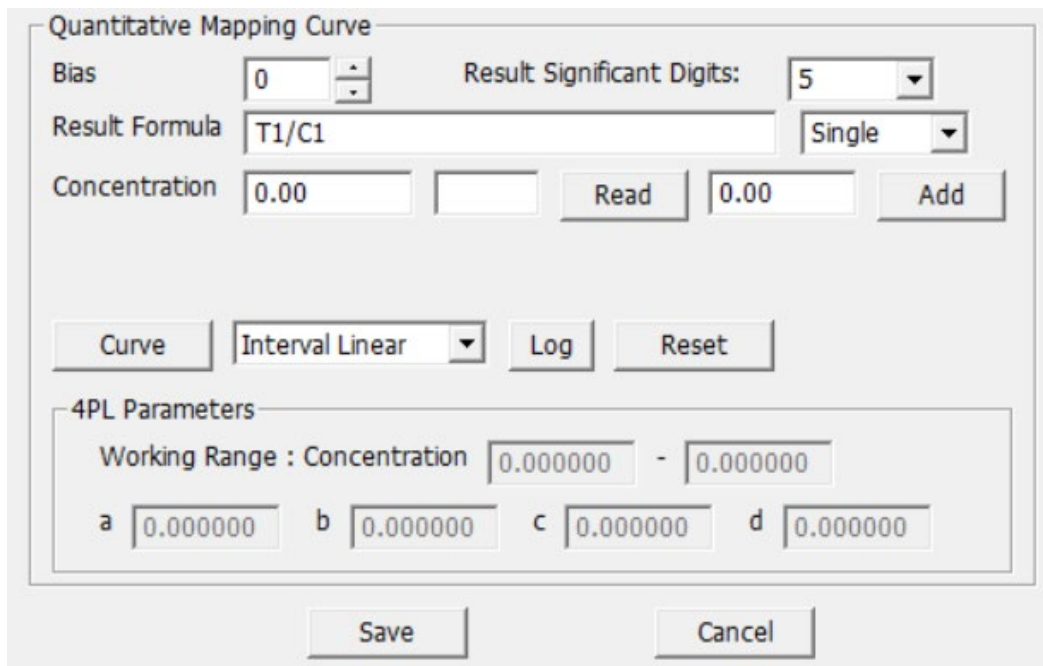
For a direct colorimetric assay, the recommended formula is “T1” or “T1/C1” if desire.

The Result Formula can be input with a simple mathematical equation.

The available calculation symbols are,

- + Add,
- Subtract,
- \* Multiply, e.g.  $T1 * 100$
- / Divide,
- () Priority Calculation.

# Create a standard curve



The image shows a software dialog box titled "Quantitative Mapping Curve". It contains several input fields and buttons. At the top, there is a "Bias" field with a value of 0 and a "Result Significant Digits" field with a value of 5. Below these is a "Result Formula" field containing "T1/C1" and a dropdown menu set to "Single". The "Concentration" section has two input fields, both with the value 0.00, and buttons labeled "Read" and "Add". In the middle, there are buttons for "Curve", a dropdown menu set to "Interval Linear", and buttons for "Log" and "Reset". At the bottom, there is a section titled "4PL Parameters" which includes a "Working Range : Concentration" field with two input boxes, both containing 0.000000, and four individual input boxes labeled a, b, c, and d, each also containing 0.000000. At the very bottom of the dialog are "Save" and "Cancel" buttons.

Quantitative Mapping Curve

Bias: 0 Result Significant Digits: 5

Result Formula: T1/C1 Single

Concentration: 0.00 Read 0.00 Add

Curve: Interval Linear Log Reset

4PL Parameters

Working Range : Concentration 0.000000 - 0.000000

a: 0.000000 b: 0.000000 c: 0.000000 d: 0.000000

Save Cancel

- For some applications you may need to create a standard curve to calculate the values of unknown samples to a specified unit. You can generate a standard curve by using the input functions shown above.
- These functions will use the signal values calculated by the “Result Formula” and plots a curve with their corresponding concentrations.
- Before you start this phase, we suggest you prepare the following test samples.
- Test samples of maximum/minimum concentrations for 3+ pcs (for quantitative measurement, at least 5 concentrations are recommended. Each concentration with at least three replicates.
- If you don't need this function, you can just skip this phase.



# 1<sup>st</sup> & the most recommended way to establish a standard curve

 RapidTestView(Demo Mode)

Capture Database User Setting

2020-12-02 ~ 2021-01-14
Find Export

No.	Date	Time	Profile	DeviceSN	SampleNo
5	2021-01-14	13:11:54	20201127卡...	1915BS50A0...	5
4	2021-01-14	10:54:13	20201127卡...	1915BS50A0...	4
3	2021-01-14	10:46:33	20201127卡...	1915BS50A0...	3
2	2021-01-14	10:44:01	20201127卡...	1915BS50A0...	2
1	2021-01-14	10:34:16	Profile_UV@1	1915BS50A0...	1
12	2021-01-08	15:56:40	Profile_UV@1	1915BS50A0...	12
11	2021-01-08	15:17:40	Profile_UV@1	1915BS50A0...	11
10	2021-01-08	14:54:15	Profile_UV@1	1915BS50A0...	10
9	2021-01-08	14:51:59	Profile_UV@1	1915BS50A0...	9
8	2021-01-08	14:27:41	Profile_UV@1	1915BS50A0...	8
7	2021-01-08	13:31:04	Profile_UV@1	1915BS50A0...	7
6	2021-01-08	13:28:11	Profile_UV@1	1915BS50A0...	6
5	2021-01-08	11:51:07	Profile_UV@1	1915BS50A0...	5
4	2021-01-08	11:50:46	Profile_UV@1	1915BS50A0...	4
3	2021-01-08	11:24:16	Profile_UV@1	1915BS50A0...	3
2	2021-01-08	11:00:33	Profile_UV@1	1915BS50A0...	2
1	2021-01-08	10:30:42	Profile_UV@1	1915BS50A0...	1
2	2020-12-24	14:29:56	Profile_W@1	2033BA58A0...	2
1	2020-12-24	14:26:26	Profile_W@1	2033BA58A0...	1
2	2020-12-24	11:10:34	Profile_W@1	2033BA58A0...	2
1	2020-12-24	11:08:28	Profile_W@1	2033BA58A0...	1
2	2020-12-24	09:47:24	Profile_W@1	2033BA58A0...	2
1	2020-12-24	09:47:01	Flu B	2033BA58A0...	1

Dilution Statement

Dilution Menu(6 items)
Factor : 1.000
Inc. 1 Del

Qualitative Statement

Statement Empty Clear

Formula

Result Text

Quantitative Mapping Curve

Bias 0 Result Significant Digits: 5

Result Formula T1 Single

Concentration 0.00 ng/ml Read 0.00 Add

Curve LinearReg. Log Reset

4PL Parameters

Working Range : Concentration 0.000000 - 109.900000

a 222.21005 b 0.952418 c 82539824. d 504951654

1. Go in Database, and export all the test data you need into CSV profile.
2. Use Excel to open the profile, and then you can calculate for example: the T/C value for each concentration.
3. Go to Modify Lot and ① fill in the value you just calculate & ② the unit (ppb, ng/ml...etc.) for your result.
4. ③ Press Add, and then finish all your concentration step by step like the description above.
5. Hereafter, you can choose any standard curve you'd like to establish.

✖ The value of standard curve can be set for T1, T1/C1, T1-C1...etc.

## 2<sup>nd</sup> way to establish a standard curve (5 steps)

### Step. 1 Set basic information

The screenshot shows the 'Quantitative Mapping Curve' dialog box. It contains the following fields and controls:

- Bias:** A numeric input field set to 0.
- Result Significant Digits:** A dropdown menu set to 5.
- Result Formula:** A text input field containing 'T1/C1'. This field is annotated with a red circle and the number 2.
- Concentration:** A numeric input field set to 0.00. This field is annotated with a red circle and the number 3.
- Read:** A button next to the Concentration field.
- Add:** A button next to the Read button.
- Curve:** A button.
- Interval Linear:** A dropdown menu.
- Log:** A button.
- Reset:** A button. This button is annotated with a red circle and the number 1.
- 4PL Parameters:** A section containing:
  - Working Range : Concentration:** Two numeric input fields, both set to 0.000000, separated by a minus sign.
  - a, b, c, d:** Four numeric input fields, each set to 0.000000.
- Save:** A button at the bottom left.
- Cancel:** A button at the bottom right.

Make sure the Product Code and each Lot information field are correct.

- ① Click "Reset" button to remove old curve data before you perform a new curve creation.
- ② Enter the desired "Result Formula".
- ③ Input the "unit" (for example, ppb or ng/ml...) of new values that will be calculated.



## Step. 2 Read the sample with same concentration value.

Product Code : Profile\_W@1

Lot : Expired Date : 20181231 Calendar...

Analyte : Test Type : DSA

Invalid Condition : C < 10 AND T < 10

BackGround Setting: 0 (Range:0-255)

Dilution Statement  
Dilution Menu(6 items) Factor : 1.000 Inc. 1 Del

Qualitative Statement  
Statement Empty Clear  
Formula  
Result Text

Quantitative Mapping Curve  
Bias 0 Result Significant Digits: 5  
Result Formula T1 Single  
① Concentration 0.00 ② Read 0.00 Add

Curve Interval Linear Log Reset

4PL Parameters  
Working Range : Concentration 0.000000 - 0.000000  
a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

VIEW PRO

Start to analyze... Encode QR New Group Profile

Delay to analyze... Modify Lot Profile Wizard

Testing Result  
20201218-2

③ Result : 712.145  
C-Value : 644  
T1-Value : 712

Open the report folder...  
Generate report

Remarks :  
Exit

Move the Modify Lot dialog to the left like the picture shown above.

- ① Input the concentration values. The concentration values should be corresponding to the samples you insert to Reader later.
- ② Insert the standard test sample of the same concentration to Reader and click “ Read” to read the value.
- ③ Check if the reading value and the result image are correct and confirm the Question Dialog.
- ④ Insert the next sample of the same concentration. Repeat the reading and check until all replicates are read and added to the plot.

## Step. 3 Read the sample with next concentration value.

Product Code : Profile\_W@1

Lot :  Expired Date : 20181231

Analyte : Test Type : DSA

Invalid Condition : C < 10 AND T < 10

BackGround Setting: 0 (Range:0-255)

Dilution Statement

Dilution Menu(6 items)

Qualitative Statement

Statement Empty

Formula

Result Text

Quantitative Mapping Curve

Bias 0 Result Significant Digits: 5

Result Formula T1 Single

① Concentration 0.00 ② Read 0.00

Curve Interval Linear Log Reset

4PL Parameters

Working Range : Concentration 0.000000 - 0.000000

a 0.000000 b 0.000000 c 0.000000 d 0.000000

Save Cancel

VIEW PRO

Start to analyze... Encode QR New Group Profile

Delay to analyze... Modify Lot Profile Wizard

Testing Result

20201218-2

③ Result : 712.145

C-Value : 644

T1-Value : 712

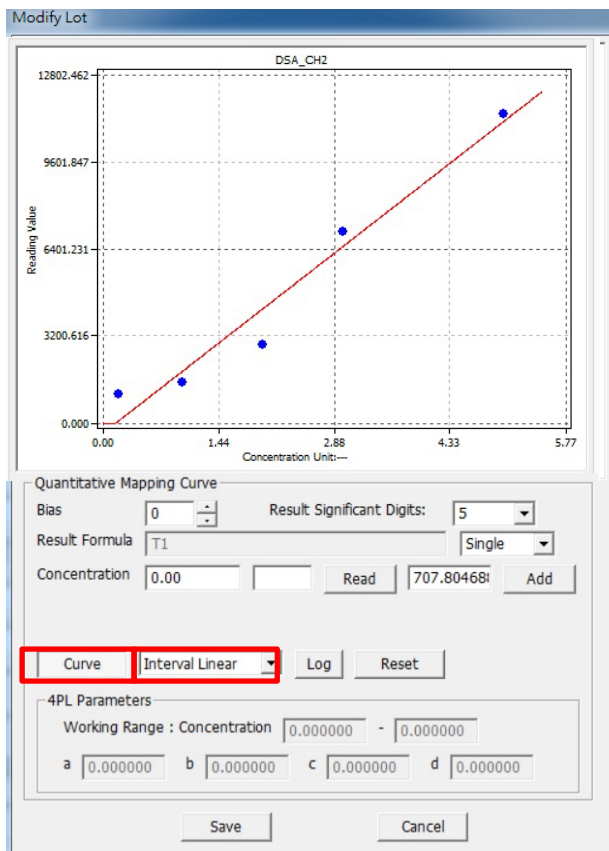
Open the report folder...

Generate report

Remarks :

Exit

- ① Input next concentration value
  - ② Insert the test sample of the same concentration to Reader and click “Read” to read the value.
  - ③ Check if the reading value and the result image are correct and confirm the Question Dialog.
  - ④ Insert next sample of the same concentration. Repeat the reading until all replicates are read and added.
- Repeat all these steps until standard strips of all concentrations are read and added to the plot.



4PL(input)

The '4PL Parameters' dialog box shows the 'Curve' button selected in the top left. The '4PL(input)' option is selected in the dropdown menu. The 'Log' and 'Reset' buttons are to the right. The '4PL Parameters' section is highlighted with a red box and contains the following fields: 'Working Range : Concentration' set to 0.000000 - 0.000000, and parameters a, b, c, and d, all set to 0.000000. The 'Save' and 'Cancel' buttons are at the bottom. A blue arrow points from the 'Save' button in the 'Interval Linear' dialog to the 'Save' button in this dialog.

Click the “Curve” button to show the standard curve you just created. You can select different curve fitting functions. There are 4 curve fitting functions.

1. Interval Linear – Using interpolation function for curve fitting.
2. LinearReg. – Using linear regression function for curve fitting.
3. 4PL – Using 4 Parameter Logistic for curve fitting.
4. Quadratic—Quadratic curve

Save your settings by click the “Save” button.

\*\* You can apply 4PL value calculated by other software. Select “4PL(input)” then input value in above column to create standard curve.

## Step. 5 Check

Check if the standard curve setting is OK.

1. Select the Product Code with the profile you saved.
2. Click “Start to analyze...” button to perform an analysis.
3. Check if the result image and the Selection Area of C and T are highlighted at right areas.
4. Check if the “Result” is corresponding to the test with a known concentration.

# Example to create standard curve (interval linear)

Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <  AND T <

BackGround Setting:  (Range:0-255)

Dilution Statement

Dilution Menu(6 items)  Factor :

Qualitative Statement

Statement

Formula

Result Text

Quantitative Mapping Curve

Bias  Result Significant Digits:

Result Formula

Concentration

4PL Parameters

Working Range : Concentration  -

a  b  c  d

① In “Modify Lot”, input the concentration of standard product including its unit. In this example, we took 5.00 mg/ml sample.

② Press “Read” next to the concentration column. The value for 5.00 mg/ml is approximately 728.41796.

③ Then press “YES” to add the value to the plot.

Qualitative Statement

Statement

Formula

Result Text

Quantitative Map

Bias

Result Formula

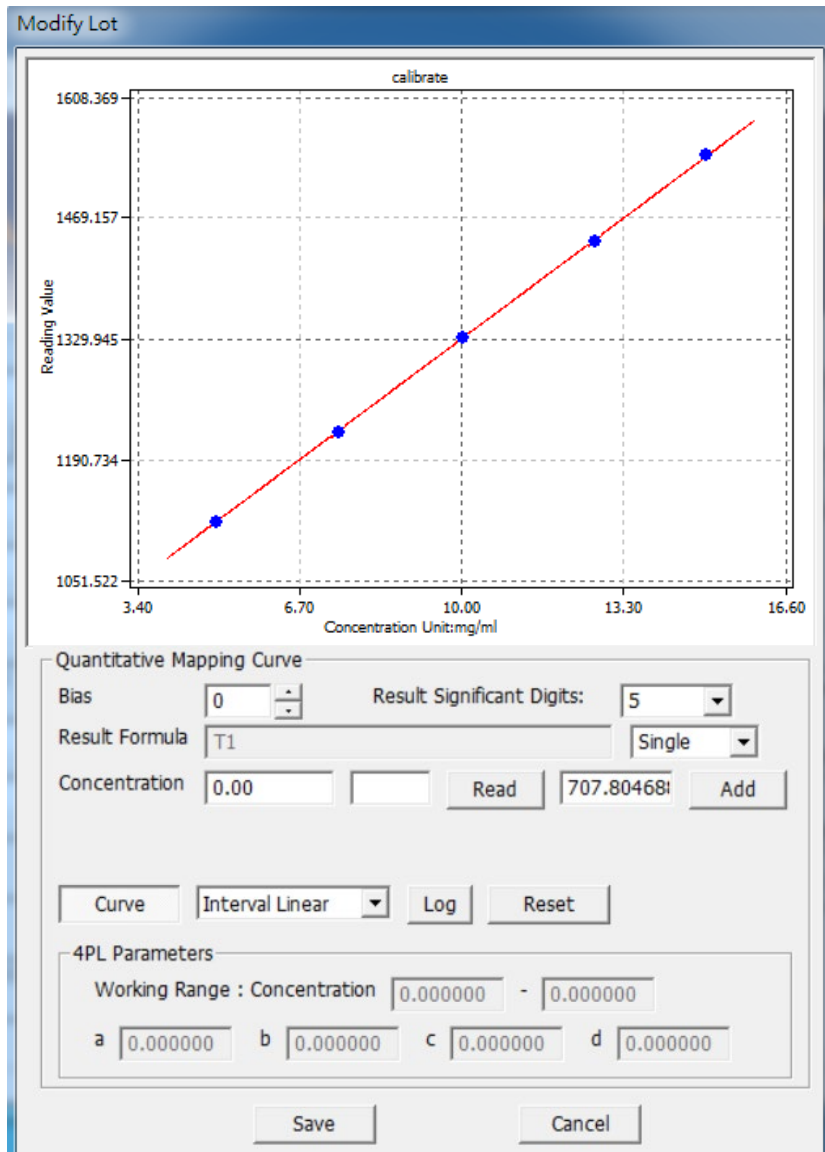
Concentration

4PL Parameters

Working Range : Concentration  -

a  b  c  d

# Example to create standard curve (Interval Linear)



1. Add as many values as you can to establish calibration curve, you will get higher precise curve for quantification purpose. In this example, we took 5.00, 7.50, 10.00, 12.50 and 15.00 mg/ml as standard samples.
2. Here “Interval Linear” is selected and press “Curve” that comes with a useful plot on this UI.
3. You can save it for quantification purpose for the next sample capture.

# **Advanced Tutorial: Creating Your First Test Profile**

# Set up cut-off ranges

Modify Lot

Product Code :

Lot :  Expired Date :

Analyte :  Type :

Invalid Condition : C <  AND T <

BackGround Setting:  (Range:0-255)

Dilution Statement

Dilution Menu(6 items)  Factor :

**Qualitative Statement**

Statement

Formula

Result Text

Quantitative Mapping Curve

Bias  Result Significant Digits:

Result Formula

Concentration

4PL Parameters

Working Range : Concentration  -

a  b  c  d

For qualitative and semi-quantitative measurements, you can use the “Result Statement Settings” to setup the cut-off range for each concentration threshold.

## Qualitative testing:

For Positive/Negative testing,

Formula: Value > 0.6, Result Test: “Positive”.

Formula: Value <= 0.6, Result Test: “Negative”.

## Semi-quantitative testing:

Formula: Value >0.6 -> Result Test: 0.6+”.

Formula: 0.5<Value<0.6 -> Result Test: ”0.5”.

Formula: 0.4<Value<0.5, -> Result Test: ”0.4”.



The available KEY WORD of formula is listed in below.

C1 – The C1 Reading Value

T1 – The T1 Reading Value

T1\_RESULT – The resulting value by “Result Formula”

T1\_CONCENTRATION –

The calculated T1 concentration value. [The value by interpolation against the standard curve]

Supported Operation Symbols

= Equal, e.g.  $T1=0.5$  means, if T1 equals 0.5 the statement return TRUE.

< Less, e.g.  $T1\_RESULT < 0.1$  means, if T1\_RESULT less than 0.1 the statement is TRUE.

> Above, e.g.  $T1 > 0.5$  means, if T1 above 0.5 the statement return TRUE.

<= Equal or Less

>= Equal or Above

& AND, e.g.  $C1 > 500 \ \& \ T1 > 1000$

&& Same as ‘&’

| OR, e.g.  $T1 > 10 \ | \ T1 = 10$  [Same as  $T1 \geq 10$ ]

|| Same as ‘|’

Quantitative Mapping Curve

Bias: 0 Result Significant Digits: 5

Result Formula: T1 Single

Concentration: 5.00 mg/ml Read 728.41796 Add

## A simple example

When we want

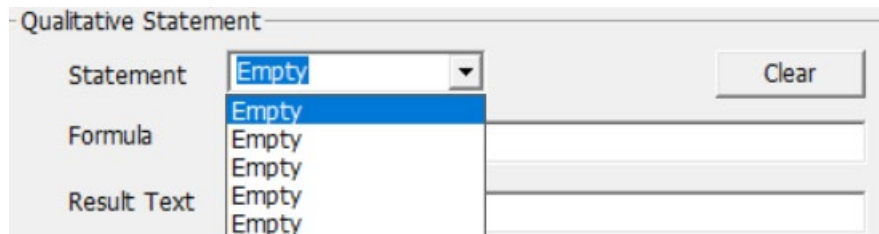
$T1 > 100$ , The result field shows “Positive”.

$T1 < 50$ , The result field shows “Negative”.

$T1$  between 100 and 50, The result field shows “Retest”.

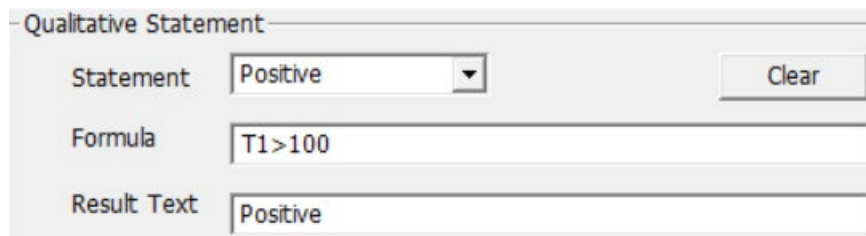
Please follow steps below to enter your statements.

1. Make sure all Statements are showing Empty like below.



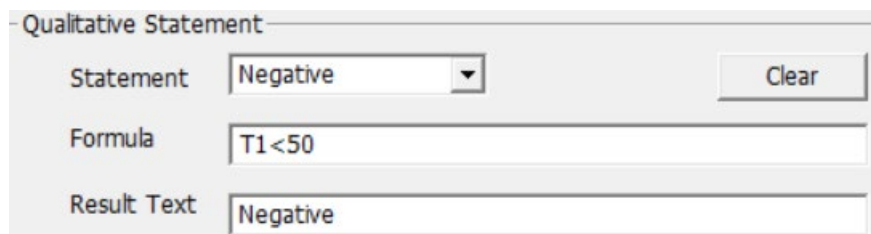
The screenshot shows a form titled "Qualitative Statement". It has three rows: "Statement", "Formula", and "Result Text". Each row has a dropdown menu and a text input field. The "Statement" dropdown is set to "Empty". The "Formula" and "Result Text" fields are also empty. There is a "Clear" button next to the "Statement" dropdown.

2. Choose first “Empty” statement, in Formula Field input “ $T1 > 100$ ”. And in Result Text Field input “Positive” like below. (The Text Statement will display exactly the same Text as the “Result Test”)



The screenshot shows the "Qualitative Statement" form. The "Statement" dropdown is now set to "Positive". The "Formula" field contains the text " $T1 > 100$ ". The "Result Text" field contains the text "Positive". The "Clear" button is still present.

3. Choose next “Empty” Statement and complete the input like below.



The screenshot shows the "Qualitative Statement" form. The "Statement" dropdown is now set to "Negative". The "Formula" field contains the text " $T1 < 50$ ". The "Result Text" field contains the text "Negative". The "Clear" button is still present.

4. Complete the last statement

Result Statement Settings

Statement	Retest	Clear
Formula	T1<=100 & T1>=50	
Result Text	Retest	

5. Click “Save” to save the settings. And back to main screen. Click the “Start to Analyze”  
Make sure the Result Field shows the correct result.

RapidTestView

Capture | Database | User | Setting

# RAPID TEST VIEW PRO

Input the testing information

Product Code :	Profile_W@1			
Del	Add	Calibrate	Dilution Factor:	1
Company/Lab Name :	ABC Clinic Center			
Company/Lab TEL :	+886 23881234			
Company/Lab Address :				
Testing Date :	2020-12-23	Calendar...		
User Name :	Kevin Wang			
Sample-No. :	2			
Sample Type :	DSA			
Testing Target :	Test			
Lot Expiration Date :	2020-12-25			
Lot No :	1			

Start to analyze... Encode QR New Group Profile

Delay to analyze... Modify Lot Profile Wizard

Testing Result

20201223-1

Result : Positive

C-Value : 650

T1-Value : 736

Open the report folder...

Generate report

Remarks :

Exit

# Important things when setting up cut-off statements

Please set the cut-off ranges to cover all ranges the test values would be in.

Bad example 1:

Statement 1:  $T1 > 50$ , Positive

Statement 2:  $T1 < 50$ , Negative

Problem: When T1 value is 50 exact, program will return ERROR. It is because software cannot find a suitable range to report this value.

Correction,

Statement 1:  $T1 \geq 50$ , Positive

Statement 2:  $T1 < 50$ , Negative

The final cut-off ranges should be adjusted based on your further validation using more standard strips or actual sample strips before its release. Different lots of a same test might be manufactured slightly differently. It's always a good practice to generate new standard curve and set up new cut-off ranges for the new lots of a test.

## **Contact Information**

**For more information or any question, please contact :**

**PACIFIC IMAGE ELECTRONICS CO., LTD  
7F, No. 239, SEC. 1, DATONG RD., XIZHI DIST.,  
NEW TAIPEI CITY 221,  
TAIWAN**

**TEL: +886 2 8692 1800  
FAX: +886 2 8692 1860  
sales@scanace.com.tw  
www.scanace.com**

## **RapidScan Rapid Test Reader**

### **Made in Taiwan**

**PACIFIC IMAGE ELECTRONICS CO., LTD**  
**7F, No. 239, SEC. 1, DATONG RD., XIZHI DIST., NEW TAIPEI CITY 221, TAIWAN**  
**TEL: +886 2 8692 1800 FAX: +886 2 8692 1860**  
**[www.scanace.com](http://www.scanace.com)**