

Application Note

[NOTE] Maximize Intensity Value by Selecting Test Images' Color in "Profile Wizard"

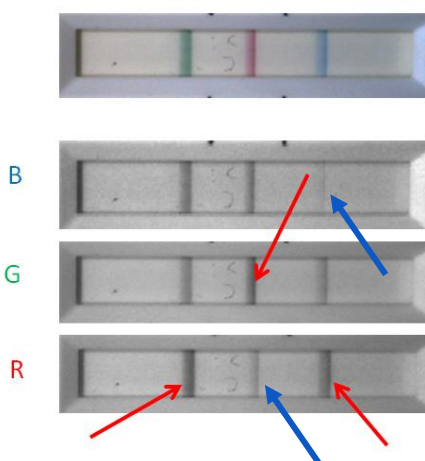
[AN] RTV-2023-0130-001



Application:

Colorimetric lateral flow test is one of a handful of diagnostic technologies that can be taken out of the laboratory for POCT without any equipment or technique. Despite its convenience, it's always a challenge to substantially enhance detection sensitivity.

One of the functions in the software of our lateral flow test(LFT) development tool is called "Color Mode". It allows users to set up the image's color to get the thickest C/T line images. This feature is a great help for people developing LFTs with higher sensitivity.



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%

1. As shown in the figure on the right, the strip has 3 different band colors.
2. By choosing the appropriate color mode the image of the band can be enhanced; hence stronger signal and higher value. (red arrow.) On the other hand, choosing the wrong color mode makes the band dull. (blue arrow).

3. Generally speaking, when the band color is green or blue, choosing RRR is recommended; when the band color is red, choosing GGG is recommended.

Product:

RapidScan_Lateral Flow Readers Pro, Rapid Test View(RTV), and Rapid Test View_Ethernet Software (ERTV)

Introduction:

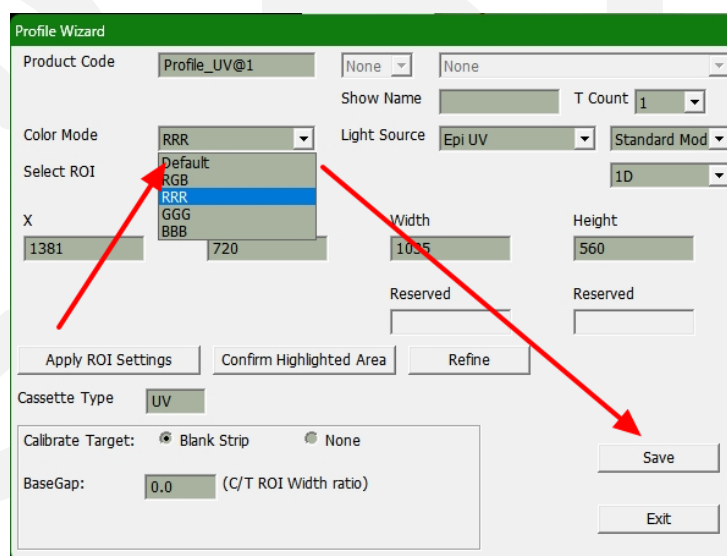
1. Choosing the most suitable color mode enhances the images.

2. The mean value measurement tool helps users find the most suitable color for the colorimetric lateral flow tests and also shortens the time for debugging the reader's parameters.

Steps:

1. Choose the color of the test images:

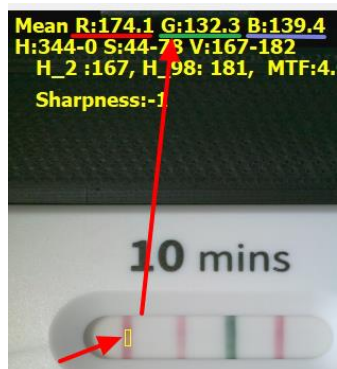
After the analysis is completed, go to **Profile Wizard** and then click on **Color Mode** to modify the color of the test images, then click "save". As shown below:



2. Check mean value:

A. User can check the mean value in the **Profile Wizard** to determine whether the right color mode has been chosen.

B. Crop an area in the middle of the band, then the mean value will appear above the image, as shown below:



Example:

1. Experimental content:

control variable	
Test sample	FluB(T1)
concentration	1000/4 ⁿ ng/ml (n=0~5)
manipulative variable	
Color Mode setting in Profile Wizard	Color Mode Test -RRR Color Mode Test -GGG Color Mode Test -BBB
Strain variable	
T value changes with Color Mode setting	

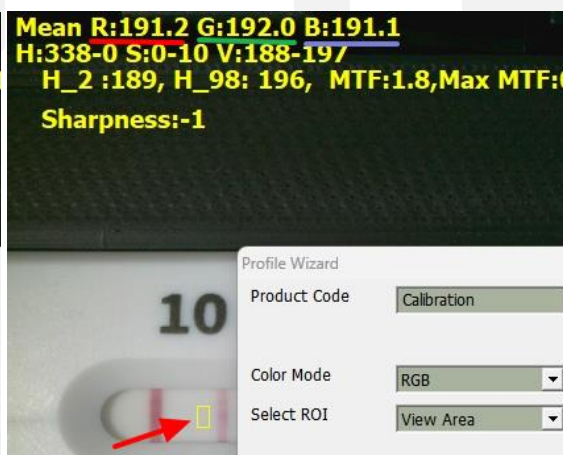
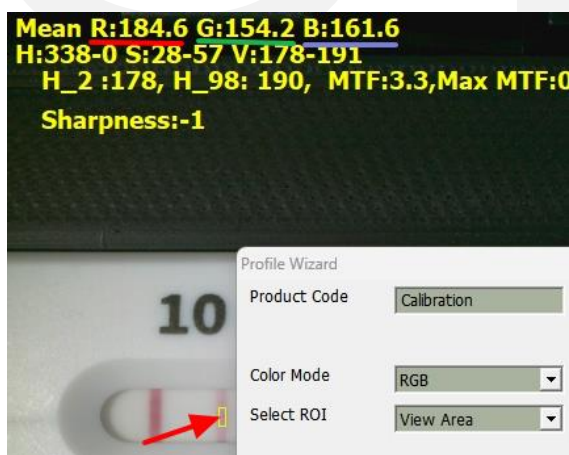
For the video of the whole experiment operation process, please refer to [5.Conclusion](#)

2. Measure band mean value & background mean value (RGB):

- A. Refer to **“Steps”** on page 2, then record each mean value.
- B. Crop an area of the membrane. Switch each color mode and record the mean value.
As shown in the figure below:

Mean value of the T Band

Mean value of the Background



3. Compare the mean value's difference between the band and the background. (RRR/GGG/BBB)

- A. Mean value data:

Color Mode Setting	T Band Mean Value	Back Ground Mean Value	Mean Value difference
RRR	184.6	190	6.6
GGG	154.2	192.5	37.8
BBB	161.6	191	29.5

B. As can be seen from the above figure, there is a large difference between GGG's band and background; hence setting the color mode to GGG is recommended.

4. Verify:

Use **Batch Test ([Application Note] Data backup, data recovery and adjustment after analysis (RTV-2022-1229-001))**, and set the color mode to RRR/GGG/BBB respectively, then do the analysis. GGG gets the best results in general.

FluB(T1) concentration (ng/ml)	RRR		GGG		BBB	
	T1	T1 value difference	T1	T1 value difference	T1	T1 value difference
0.977	17		11		10	
3.906	11		-6	35	24	15
*15.625	20		9	127	92	65
62.5	81		61	330	203	168
250	107		26	588	258	204
1000	248		141	1424	836	672

Choosing GGG makes the biggest mean value difference

5. Conclusion:

A. Check the mean value to determine which color mode is more suitable for the test kits. For the operation video, please refer to the link below:

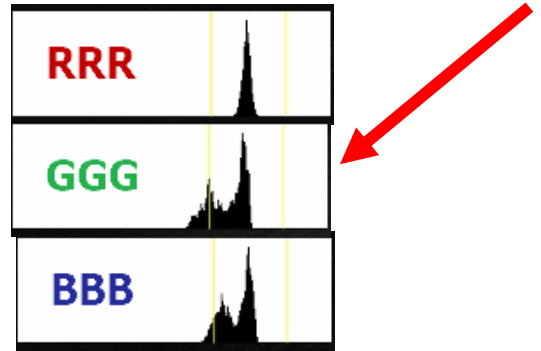
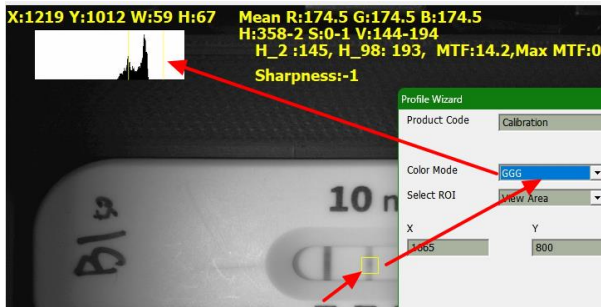
https://drive.google.com/file/d/1XGEX6yJjn7cCvmczCvWjmd3GpHRx8c8R/view?usp=share_link

B. Use the Batch Test function for insurance. For the operation video, please refer to the link below:

[https://drive.google.com/file/d/14l9ZpeLJ80R815jc9EmZoxOfQFOoVzJe/view?usp=share link](https://drive.google.com/file/d/14l9ZpeLJ80R815jc9EmZoxOfQFOoVzJe/view?usp=share_link)

Extended Application:

Users can also check the **histogram**. First, crop the area containing both band and background switching between each color mode. When the wave on the histogram is wider more suitable the color mode is.



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