Application Note

[NOTE] Restore Previous Test Images to Offline Analyzing

- * Back Tracking the Un-expected Testing Result
- * Optimize the Profile Setting



[AN] RTV-2022-1229-001

Application:

The parameter built in the reader affects its interpretation. With proper tuning can:

- A. Reduce digital noise
- B. Find the accurate C/T position
- C. Increase the value difference between LoD and negative tests
- \rightarrow Improve sensitivity

Adjusting the parameter of the reader according to the analysis results can make the experiment less time-consuming and more accurate.

When the analysis was completed and the following conditions can be found:

A. The data of the sample is not good, because the optimal parameter of the reader has not been found yet.

B. The new version of the software has more suitable functions and algorithms. Updating the software will help improve the test results.

C. Raw data needs to be processed with third-party software.

 \rightarrow You can read this description to avoid repeated experiments.

Product:

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

(Software version: RTV 1.15 Build 0436/ERTV 1.30 or newer)

Introduction:

1. During the old debug data-saving process, only the debug data of the current sample is retained. When the next sample is analyzed, the previous debug data will be overwritten.

2. During the new Debug data-saving process, 35 pieces of analysis data can be saved. After the reorganization of the debug data, the whole data can be reanalyzed and restored through the "Batch Test", and then the entire report data can be output through the function of the Database.

3. Users can adjust the test profile and then analyze the original data to see if the problem is resolved.

Steps:

1. <u>Data backup:</u>

A. RTV/ERTV software:

After completing the analysis, go to

C:\Users\chnmo\OneDrive\Documents\RTV_Ethernet

(RTV→C:\Users\chnmo\OneDrive\Documents\ RapidTestView), then copy the three folders "debug", "Engineer_debug " and "ini".

-	C:\Users\chnmo\OneD	rive\文件\RapidTestView	
	Name	^	Date mo
	calibration_v2		12/29/20
	🛅 db		12/29/20
	🗖 debug		12/29/20
	device		11/9/202
	🚞 Engineer_debug		12/29/20
	Export_Data		7/27/202
	ini 📄		12/29/20
	ProfileInfo		11/9/202
	🚞 Report		12/29/20
	🚞 SP_CurveTable		11/9/202
	🚞 SP_GammaTable		11/9/202

B.ST5 UI:

After completing the analysis, go to Setting→Advanced. Insert the pen drive (must create a folder and name it to debug beforehand) and then press "Export Debug" and "Export Image".

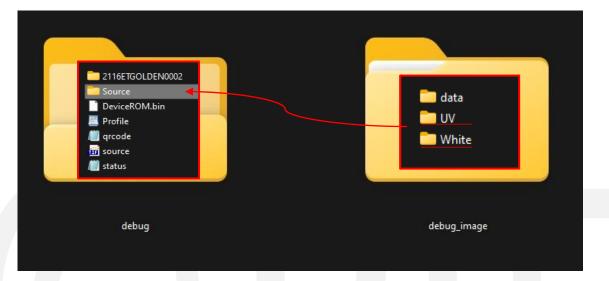


Back

2. Find the tests' data:

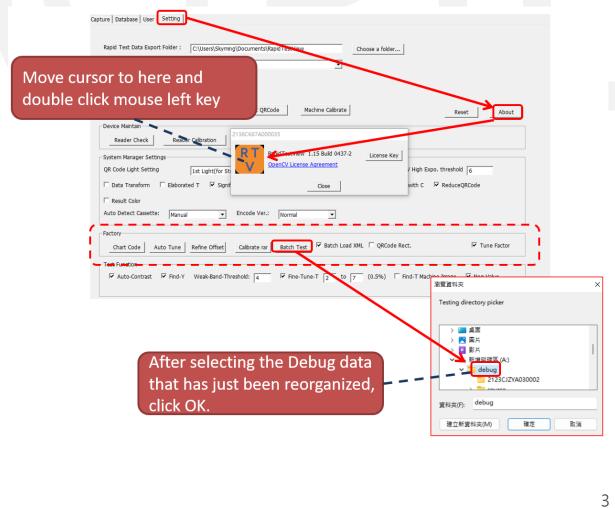
A. Single data: Use can use the debug folder directly.

B. Multiple data: When the light source to be analyzed is white light (Chromogenic *detection*), debug_image/White folder ((if the light source is <u>UV light (Fluorescent</u>)) *detection*), debug_image/UV folder))should be dropped into the Debug folder, and the file name should be changed to source, as follows picture:



3. Data reanalysis:

Start the ERTV or RTV on *demo mode* (refer to Note 1), and then click "Batch Test". Select the debug file to do batch analysis



4. Confirm analysis results:

After the analysis is completed, the BatchProcessImage.csv file will be generated in the original Debug folder, and you can see all the values of this analysis.

2123CJZYA030002			
🚞 source			
a 92002-V4			
BA_White_BaseCheck			
🔊 BatchProcessImage			
C-Band-binary			
DeviceROM.bin			
📄 RTV_Ethernet 1.28 Build 0000			
setup_v1			
👹 source	Profile	С	TO
W Calibratio	Adeno	4790	
ADENO\NEGATIVE\2022-06-14\2216CR65X020001-15-46-25-000-ADENO.TIF	Adeno	4639	
SystemSetting ADENO/NEGATIVE/2022-06-14/2216CR65X020001-16-01-38-000-ADENO.TIF	Adeno	4953	
	Adeno	4328	
T1_BaseROI ADENO/NEGATIVE/2022-06-14/2216CR65X020001-16-20-05-000-ADENO.TIF	Adeno	5386	
ADENO\NEGATIVE\2022-06-14\2216CR65X020001-16-29-16-000-ADENO.TIF	Adeno	4909	
ADENO\NEGATIVE\2022-06-14\2216CR65X020001-16-38-29-000-ADENO.TIF	Adeno	5301	
ADENO/NEGATIVE/2022-06-14/2216CR65X020001-16-47-43-000-ADENO.TIF	Adeno	5136	
ADENO/NEGATIVE/2022-06-14/2216CR65X020001-16-57-01-000-ADENO.TIF	Adeno	4787	
ADENO\NEGATIVE\2022-06-14\2216CR65X020001-17-06-29-000-ADENO.TIF	Adeno	5079	
Mean		4930.8	3
SD		315.93	1.
CV		0.06	0.
Mean-3SD		3983.01	-2.
Mean+3SD		5878.59	8.

C0V2-2\LOD\2022-07-08\2216CR65X020001-11-00-34-000-C0V2.TIF	Cov2	6160	1
COV2-2\LOD\2022-07-08\2216CR65X020001-11-38-32-000-COV2.TIF	Cov2	6142	1
COV2-2\LOD\2022-07-08\2216CR65X020001-13-18-13-000-COV2.TIF	Cov2	6222	1
COV2-2\LOD\2022-07-08\2216CR65X020001-13-36-19-000-COV2.TIF	Cov2	6168	
COV2-2\LOD\2022-07-08\2216CR65X020001-14-51-13-000-COV2.TIF	Cov2	6221	1
C0V2-2\LOD\2022-07-08\2216CR65X020001-15-15-38-000-C0V2.TIF	Cov2	6145	-
COV2-2\LOD\2022-07-08\2216CR65X020001-15-35-06-000-COV2.TIF	Cov2	6270	-
COV2-2\LOD\2022-07-08\2216CR65X020001-16-30-26-000-COV2.TIF	Cov2	6147	-
C0V2-2\LOD\2022-07-08\2216CR65X020001-17-06-04-000-C0V2.TIF	Cov2	6181	1
Mean		6184	
SD		44.31	9.
CV		0.01	0.
Mean-3SD		6051.08 6316.92	
Mean+3SD			

Example:

<u>1. Experimental content:</u>

control variable				
Test sample	FluB(T1)			
concontration	1000/4 ⁿ ng/ml			
concentration	(n=0~5)			
manipulative variable				
Color Mode setting in ABC3-RGB ABC3 Profile Wizard GGG				
				Strain variable T value changes with the Color Mode setting

For the video of the whole experiment operation, refer to the following link:

https://drive.google.com/file/d/1kIm0 RjUIN23LVSqzDkjPwl qHry23VxN/view ?usp=share_link

2. Collect the test results data:

Select profile "ABC3-RGB" analyzing samples with the concentration of " $1000/4^{n}$ ng/ml (n=0~5)" one by one. After the analysis, go to the "Database" to export the test results data.



3. Data reorganization

A. Put the ERTV or RTV on demo mode. Modify the test profile "ABC3-RGB" by changing the color mode to GGG then save the profile as "ABC3-GGG".

Profile Wizard					
Product Code	ABC3 GGG	None 🔻 None		<u>*</u>	
	↑ _ `	Show Name	T Count 3	•	
Color Mode	000	 Light Source Epi White 	▼ Exceller	nt Mod 👻	
Select ROI	Default RGB		1D	-	
x	RRR GGG	Width	Height		
962	918	743	244		
		Reserved	Reserved		
Apply ROI Set	ttings Confirm Hig	hlighted Area Refine			
Cassette Type	W				
Calibrate Target:	Blank Strip	None	Sav	ve	
BaseGap:	0.0 (C/T ROI W	/idth ratio)	<u>.</u>		
	Histogram Start: 0	End: 100	Ex	it l	

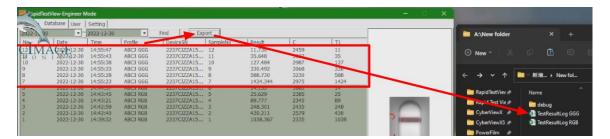
B. Follow the "<u>Steps</u>" on page 4 to reorganize the debug file data by replacing "ABC3-RGB" with "ABC3-GGG".

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4 Hen 84	2 Hon 44	a Hone Ard	Cyberl/icwX5 *	ABC3 GGG	12/29/2022 4:2
			PowerFilm *	AnalyzeLog	10/19/2022 12
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CJZZA150001-14-	CJZZA150001-14-	CJZZA150001-14-	🛅 PowerFilm 📌	BatchProcessImage	12/29/2022 4:3
39-32-ABC3 RGB	42-40-ABC3 RGB	42-59-ABC3 RGB	🖴 新増磁磁區 (A:)	BoothitLog	10/25/2022 6:1
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3. Data reanalysis:

Use the "*Data Reanalysis*" process of "**<u>Steps</u>**", use RTV or ERTV to reanalyze the debug file of the previous step, and then export the "TestResultLog GGG" data.



4. Comparison:

After sorting the "TestResultLog" data of "ABC3-RGB" and "ABC3-GGG", the following table can be obtained:

FluB(T1)	ABC-RGB			ABC-GGG		
concentration (ng/ml)	с	T1	T1 value difference	с	T1	T1 value difference
1000	2335	1038		2975	1424	
250	2579	430	608	3230	588	836
62.5	2435	248	182	3068	330	258
*15.625	2345	89	159	2987	127	203
3.906	2385	25	64	3027	35	92
0.977	1863	14	11	2459	11	24

5. <u>Conclusion:</u>

"GGG" color mode used in this experiment, the value difference of T1 is bigger than "RGB".

Extended Application:

1. The new ERTV and RTV can also batch-test the debug files generated by the older version of the software to produce better data results.

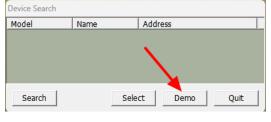
--> The new version of the software has a better algorithm, and new functions will be added to improve the analysis results.

2. For the description of each parameter setting, please refer to the latest version of the user manual

*Note 1.

When ERTV is not connected to Reader, you can use <u>Demo Mode</u> (as shown below) to enter ERTV software to re-analyze old data.

-->Only <u>Demo Mode</u> can use the <u>Batch Test</u> function.



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