Log Analysis Tool User Guide (ENG)



ILITEK
ILI TECHNOLOGY CORP.
奕力科技股份有限公司

Enrich visual experience

2024/03/18

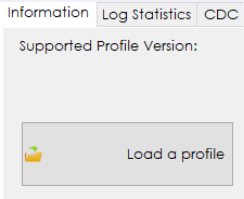
V1.0.11.0

Outline

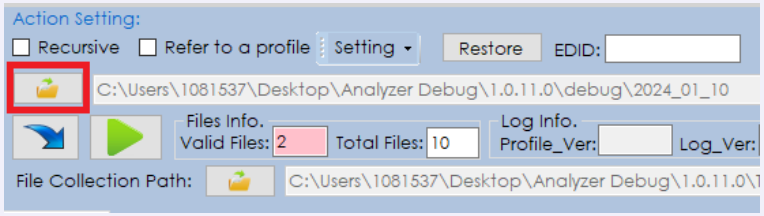
- ❖ Analyze the Logs P3-P7
- ❖ “Show Log” Page - Functional Description P7
- ❖ “Block Layout” Page - Functional Description P8-P15
- ❖ “Data Distribution” Page - Functional Description P16-P24
- ❖ “Detection of Outlier” Page - Functional Description P25-P26
- ❖ Upgrade the Profile P27-P28
- ❖ Sensor Test Setting in ITS Tool P29-P33

Analyze the Logs

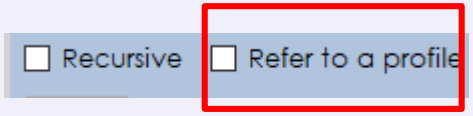
- Step1> Load a profile



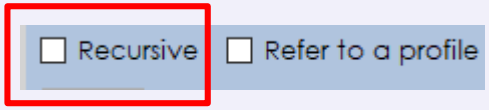
- Step2> Load the logs



- Step3> Refer to a profile
  - The threshold is set with reference to the profile loaded in step 1.

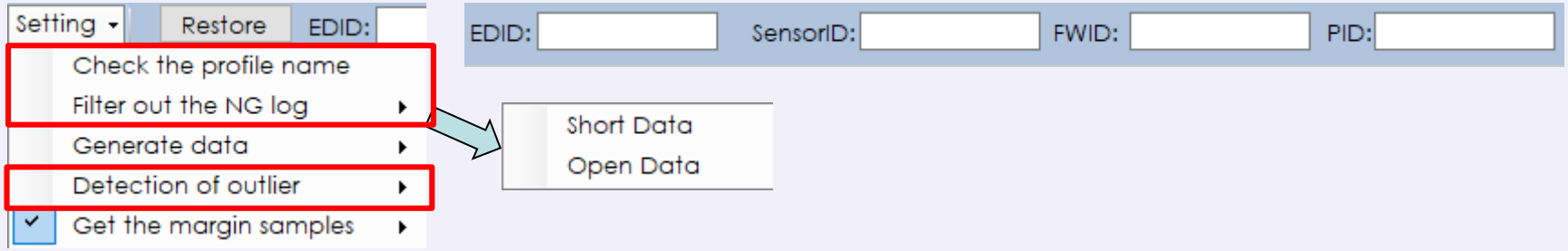


- Step4> Load all files in the specified folder and all files within its subfolders. (Option)



Analyze the Logs (Cont.)

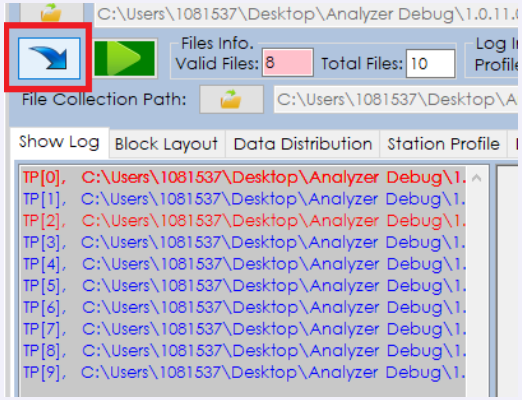
❖ Step5> Set the filter condition (Option)



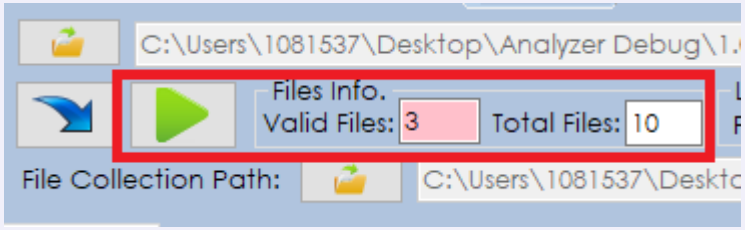
Condition	Description
Check the profile name	Parses the log's ProFile_Path and checks if the strings match. If matches, the log will be included in the analysis group
Filter out the NG log	Parses the result of [Short Test] and [Open Test], if it is pass, the log will be included in the analysis group.
EDID/SensorID/FWID/PID	Parses the log's EDID/SensorID/FWID/PID, if the strings match, the log will be included in the analysis group
Detection of outlier	To filter the abnormal Files using outlier detection.

Analyze the Logs (Cont.)

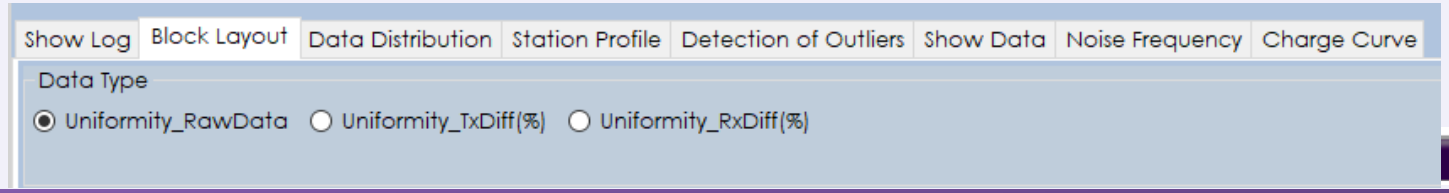
- Step6> Import the logs



- Step7> Start to analyze the logs
  - You will get the total files number



- Step8> Start to observe and analyze the results



Analyze the Logs (Cont.)

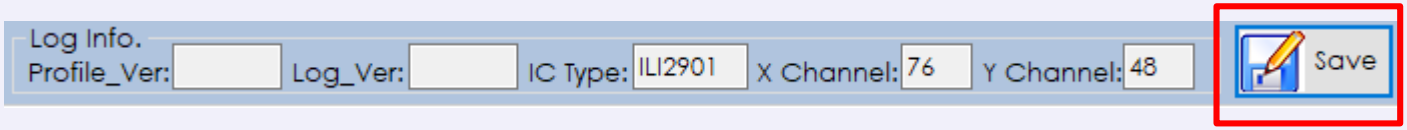
- Step9> Choose the average type
  - This selection determines how [Uniformity_Golden] of the profile are presented.



Type	Description	[Uniformity_Golden]
ByNode	Calculation of the average value is based on one node. Every node's value of [Uniformity_Golden] is difference	[Uniformity_Golden] 0,6,-1,1;0,4,-1,1;0,3,-1,1;0,4,-1,1;0,9,-1, 0,2,-1,1;0,2,-1,1;0,1,-1,1;0,1,-1,1;0,3,-1, 0,3,-1,1;0,2,-1,1;0,2,-1,1;0,2,-1,1;0,8,-1, 0,5,-1,1;0,3,-1,1;0,3,-1,1;0,6,-1,1;0,2826, 0,4,-1,1;0,3,-1,1;0,3,-1,1;0,5,-1,1;0,2470, 0,5,-1,1;0,3,-1,1;0,3,-1,1;0,5,-1,1;0,2418, 0,4,-1,1;0,2,-1,1;0,2,-1,1;0,5,-1,1;0,2392, 0,4,-1,1;0,3,-1,1;0,3,-1,1;0,5,-1,1;0,2376, 0,4,-1,1;0,3,-1,1;0,3,-1,1;0,5,-1,1;0,2366, 0,3,-1,1;0,2,-1,1;0,3,-1,1;0,5,-1,1;0,2354,
ByBlock	Calculation of the average value is based on one block.	[Uniformity_Golden] 0,6,-1,1;0,4,-1,1;0,4,-1,1;0,4,-1,1;0,4, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101, 0,4,-1,1;0,1101,-1,1;0,1101,-1,1;0,1101,
ByProfile	The average value takes the golden in the profile and sets it. Every node's value of [Uniformity_Golden] is as same as the profile loaded.	

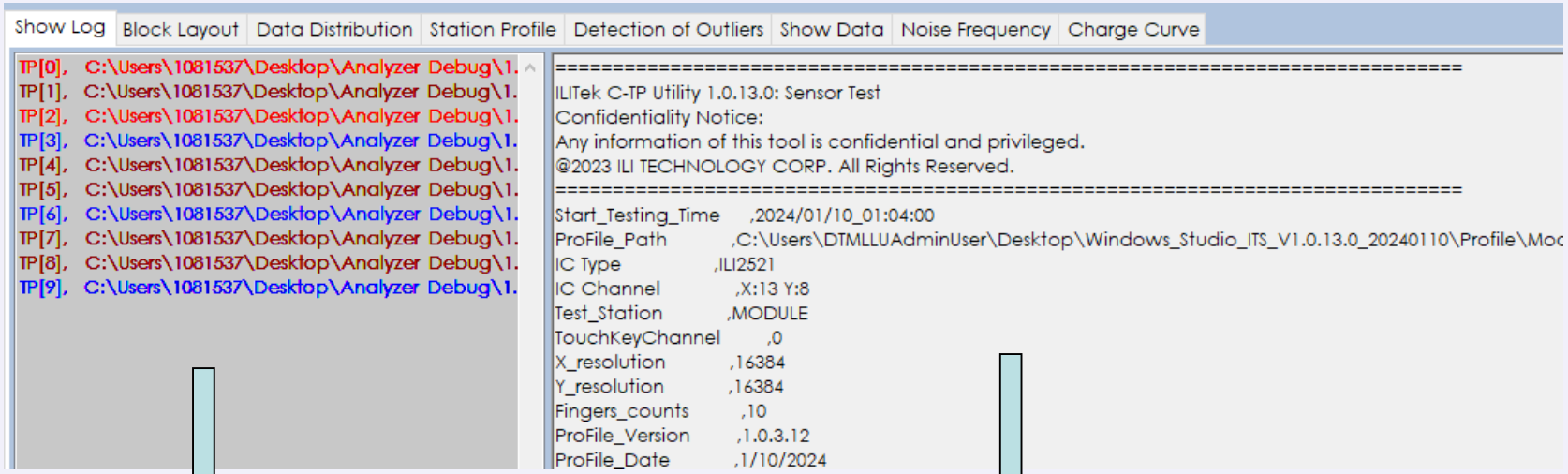
Analyze the Logs (Cont.)

❖ Step10> Generate a new profile



“Show Log” Page - Functional Description

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To List all file names

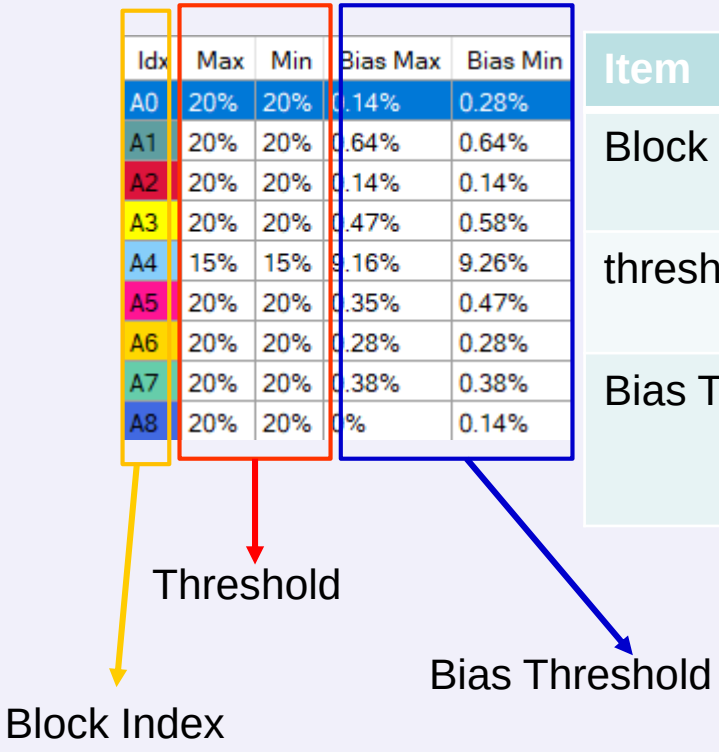
Red: The log’s format is not correct.

Dark Red: Files that do not meet the filtering criteria

Blue: Successful inclusion of analyzed files

Double-click on the file to display the file’s content

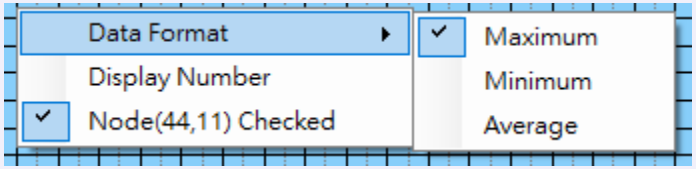
- Purpose
  - To edit the spec of each test item
  - Uses block area information to describe the area to which each point belongs.
  - Each area is described in terms of location and threshold.

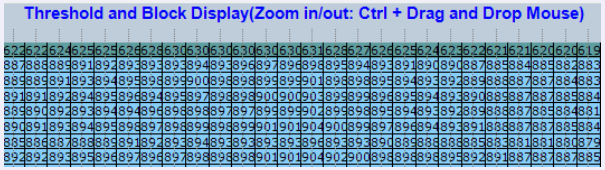


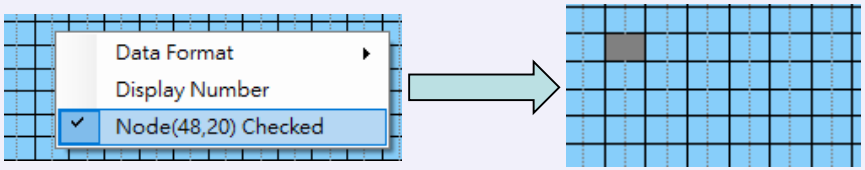
Item	Description
Block Index	Default is 9 blocks and edge size if 1, use color to identify which area a point belongs to.
threshold	Uniformity raw data is % to identify Others is constant to identify
Bias Threshold	Bias form the average Uniformity raw data is % to identify Others is constant to identify

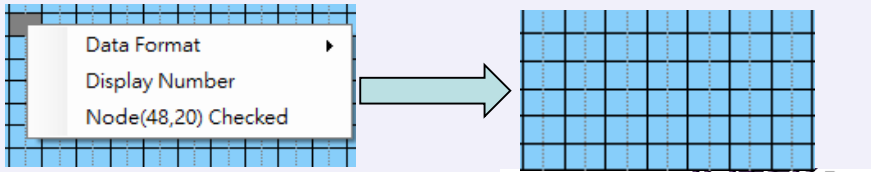
- Supported test item
  - Uniformity
    - Raw Data / TxDiff / RxDiff
  - MicroOpen
    - Win1 / Win2 /RX_Delta

- Right-Click on the frame
  - Data Format
    - Maximum / Minimum / Average
  - Display Number:
    - shows the value on the frame
  - Checked:
    - Click one node and Inclusion of judgmental or non-judgmental sensor testing



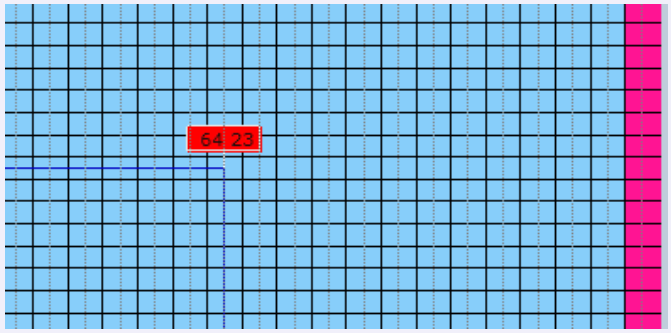


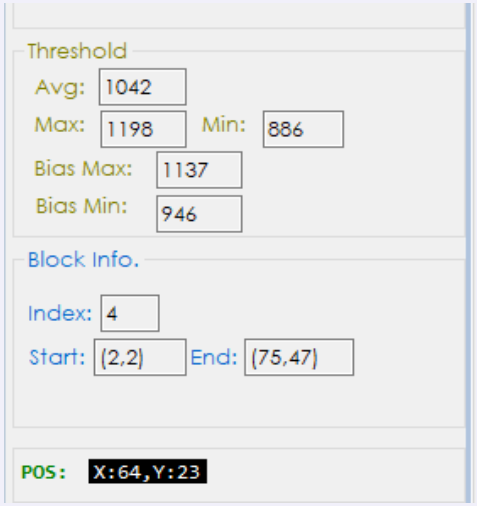




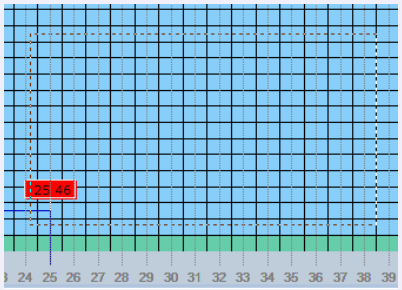
“Block Layout” Page - Functional Description (Cont.)

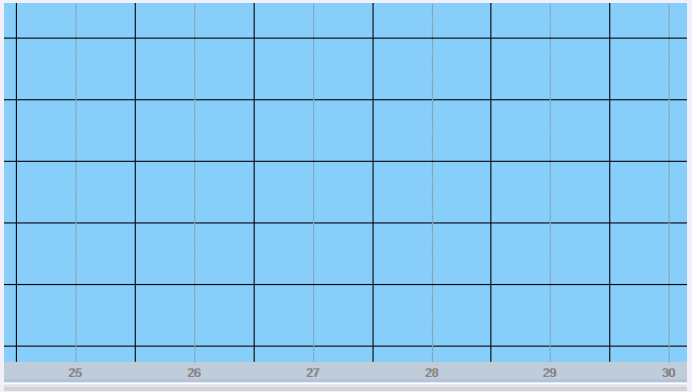
- When you click on any node, you will see a red label appear and display information about that point.



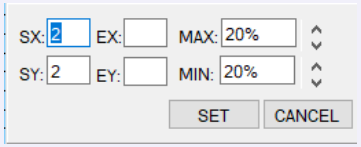


- You can drag and drop mouse + ctrl key to zoom in or out frame.

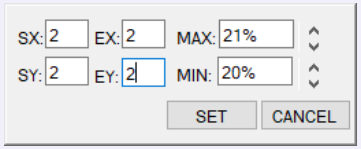




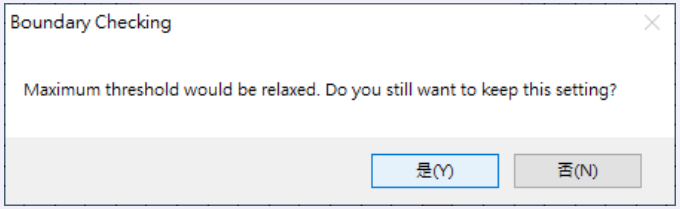
- If you want to modify one node, you can add a block to describe it.
  - Step1> Click one node
  - Step2> Press the "Add"



  - Step3> Set the start and end location and max/min threshold

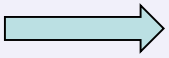


  - Step4> Press "Yes"



  - Step5> You will see a block 9.

Idx	Max	Min	Bias Max	Bias Min
A0	20%	20%	0.14%	0.28%
A1	20%	20%	0.64%	0.64%
A2	20%	20%	0.14%	0.14%
A3	20%	20%	0.47%	0.58%
A4	15%	15%	9.16%	9.26%
A5	20%	20%	0.35%	0.47%
A6	20%	20%	0.28%	0.28%
A7	20%	20%	0.38%	0.38%
A8	20%	20%	0%	0.14%

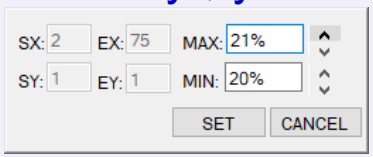


Idx	Max	Min	Bias Max	Bias Min
A0	20%	20%	0.14%	0.28%
A1	20%	20%	0.64%	0.64%
A2	20%	20%	0.14%	0.14%
A3	20%	20%	0.47%	0.58%
A4	15%	15%	9.16%	9.26%
A5	20%	20%	0.35%	0.47%
A6	20%	20%	0.28%	0.28%
A7	20%	20%	0.38%	0.38%
A8	20%	20%	0%	0.14%
A9	21%	20%	0.1%	0.1%

- If you want to modify one of the blocks.
  - Step1> Click the block you want to modify it.(the block will be highlight)

Idx	Max	Min	Bias Max	Bias Min
A0	20%	20%	0.14%	0.28%
A1	20%	20%	0.64%	0.64%
A2	20%	20%	0.14%	0.14%
A3	20%	20%	0.47%	0.58%
A4	15%	15%	9.16%	9.26%
A5	20%	20%	0.35%	0.47%
A6	20%	20%	0.28%	0.28%
A7	20%	20%	0.38%	0.38%
A8	20%	20%	0%	0.14%

  - Step2> Press "Modify", you will see the setting window.

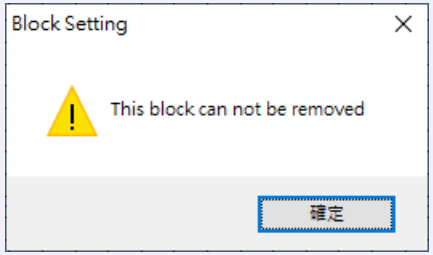


  - Step3> Press "SET"
  - Step4> You will see the value of block 1 change

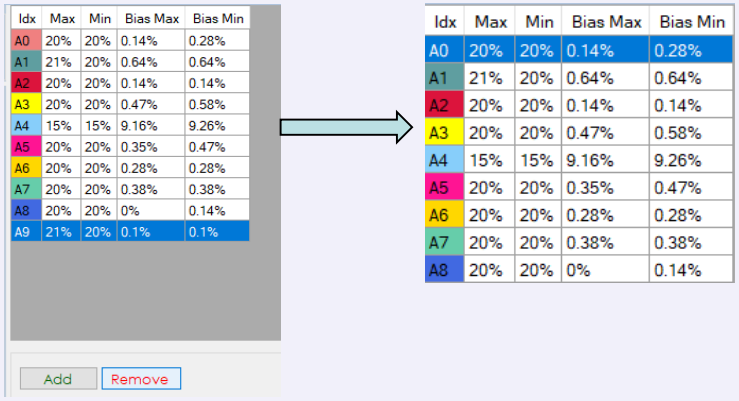
Idx	Max	Min	Bias Max	Bias Min
A0	20%	20%	0.14%	0.28%
A1	20%	20%	0.64%	0.64%
A2	20%	20%	0.14%	0.14%
A3	20%	20%	0.47%	0.58%
A4	15%	15%	9.16%	9.26%
A5	20%	20%	0.35%	0.47%
A6	20%	20%	0.28%	0.28%
A7	20%	20%	0.38%	0.38%
A8	20%	20%	0%	0.14%

Idx	Max	Min	Bias Max	Bias Min
A0	20%	20%	0.14%	0.28%
A1	21%	20%	0.64%	0.64%
A2	20%	20%	0.14%	0.14%
A3	20%	20%	0.47%	0.58%
A4	15%	15%	9.16%	9.26%
A5	20%	20%	0.35%	0.47%
A6	20%	20%	0.28%	0.28%
A7	20%	20%	0.38%	0.38%
A8	20%	20%	0%	0.14%

- If you want to remove one of the blocks.
  - Step1> Click the block you want to modify it.(the block will be highlight)
  - Step2> If the block is default, You will see below information.

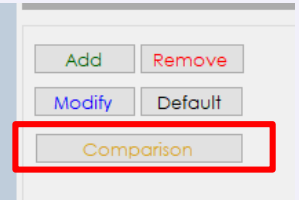


If the block is not default, you will remove if successful

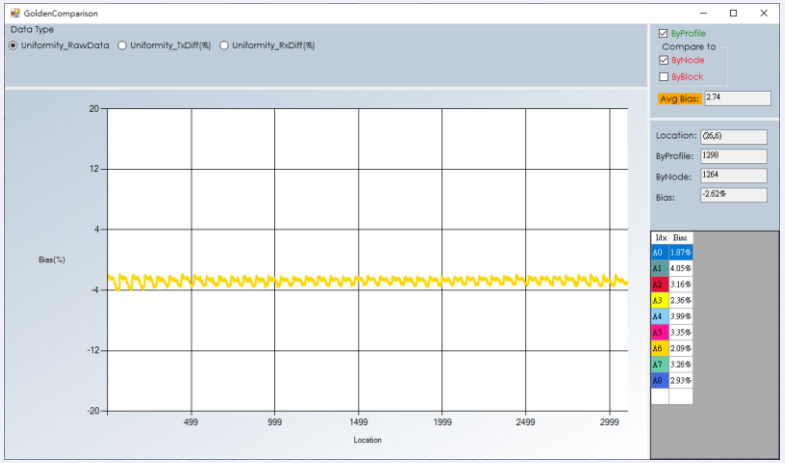


- If you want to restore to default setting, you can click "Default"

- Get the average bias between the log and the profile.
  - Item :
    - *Uniformity Raw Data / Tx Diff / Rxdiff*
  - Action:
    - *Refers to a profile ->Block Layout Page -> Comparison*



  - Formula:
    - *(Log_Node_Avg(x, y) – Golden_Node(x, y))/ Golden_Node(x, y)*



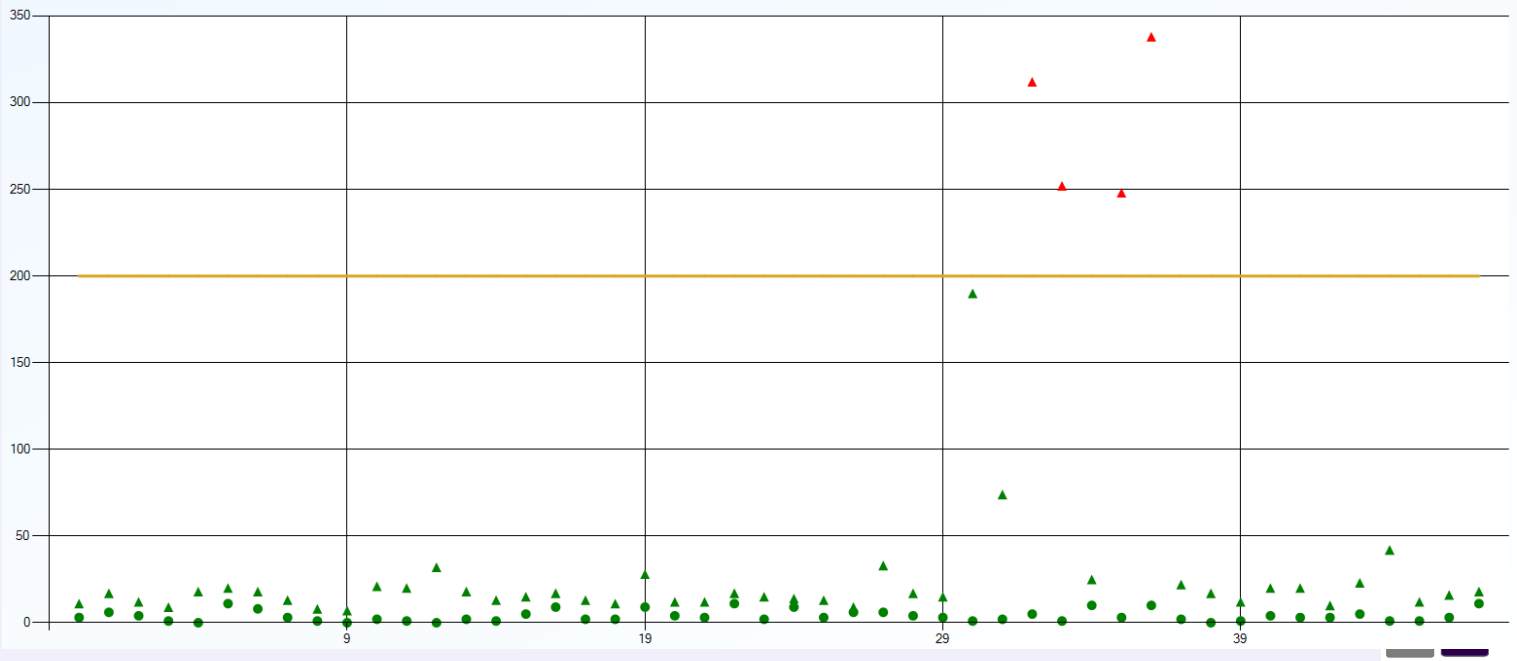
“Data Distribution” Page - Functional Description

- Purpose
  - Show the data distribution
  - Show thresholds(Avg / Max / Min /BiasMax / BiasMin)
  - Set the new threshold or new tolerance.
  - Display the contents of a test item in a log.
  - Collect the specified files.
  - Judge the tolerance in Tx / Rx Diff

“Data Distribution” Page - Functional Description (Cont.)

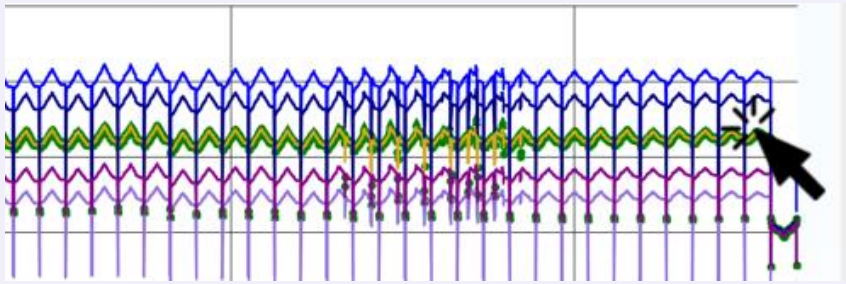
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- Show the data distribution
  - The screen only displays the maximum and minimum values at that node.
    - X axis: Coordinate position of the node.
    - Y axis: the value of the node
    - ▲: the maximum of the node
    - ● : the minimum of the node
    - Red pattern: the node is failure
    - Green pattern: the node is pass

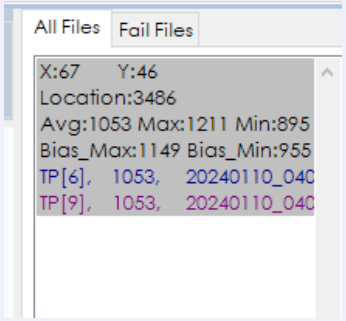


“Data Distribution” Page - Functional Description (Cont.)

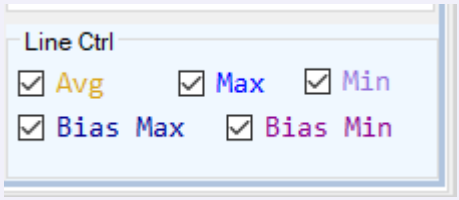
- Show thresholds(Avg / Max / Min /BiasMax / BiasMin)
  - Step1> Click one node



  - Step2> Show the information of the node

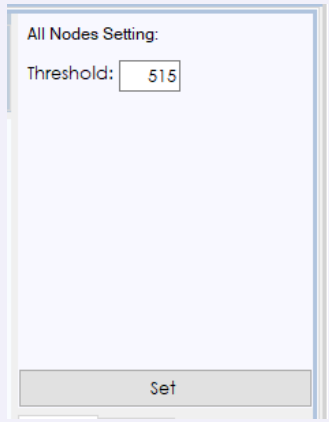


  - Step3> Determine whether the line is displayed on the graph.

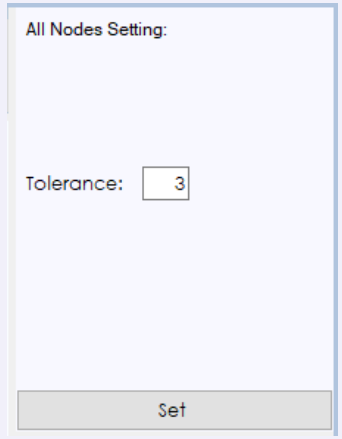


“Data Distribution” Page - Functional Description (Cont.)

- Set the new threshold
  - Short
    - It will modify [Short_Test]- Max_Threshold in the profile
  - Open
    - It will modify [Open_Test]- Min_Threshold in the profile

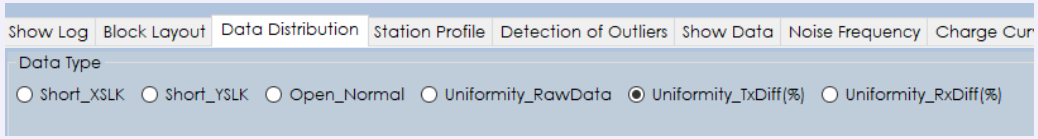


- Set the new tolerance.
  - Tx Diff
    - It will modify [Uniformity_Test]-Uniformity_TxDiff_Node_Tolerance in the profile
  - Rx Diff
    - It will modify [Uniformity_Test]-Uniformity_RxDiff_Node_Tolerance in the profile

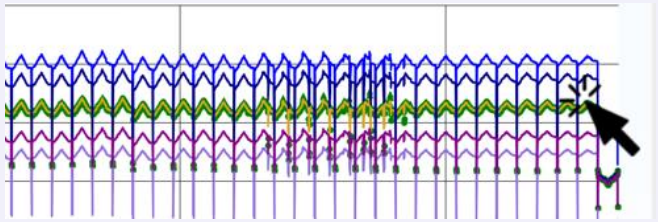


“Data Distribution” Page - Functional Description (Cont.)

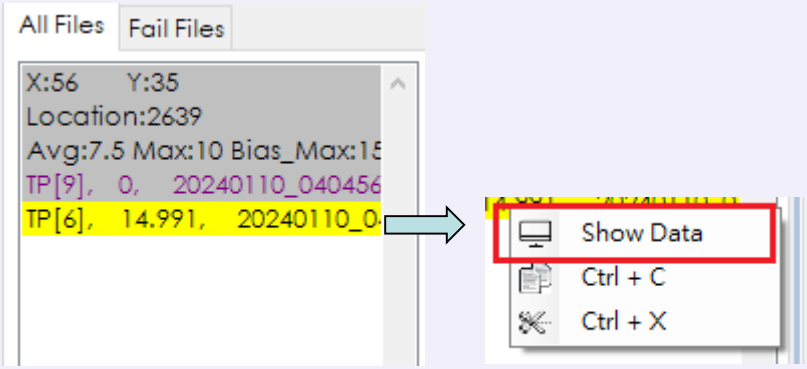
- Display the contents of a test item in a log.
  - Step1> Choose the data type



  - Step2> Click any node you want to get it’s information

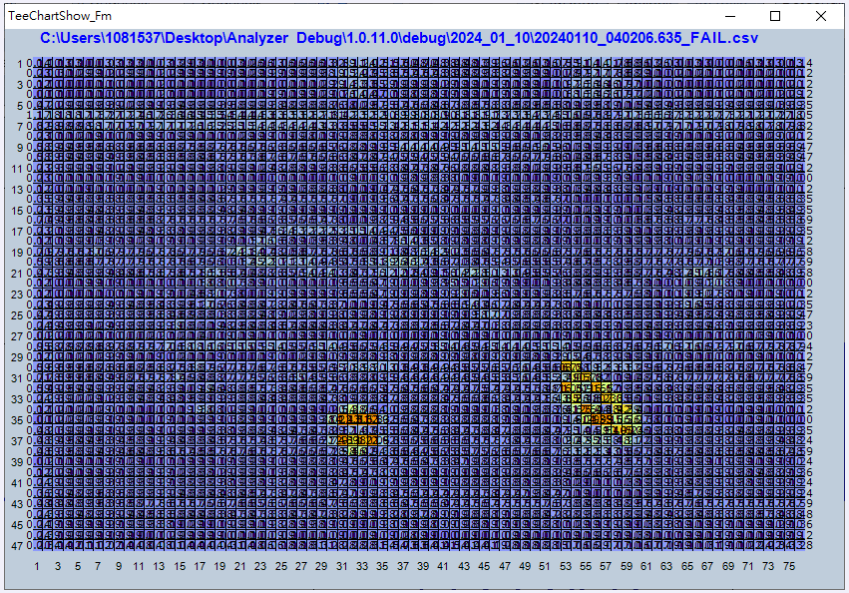


  - Step3> Click the file in the file list field and right-click to choose “Show Data”

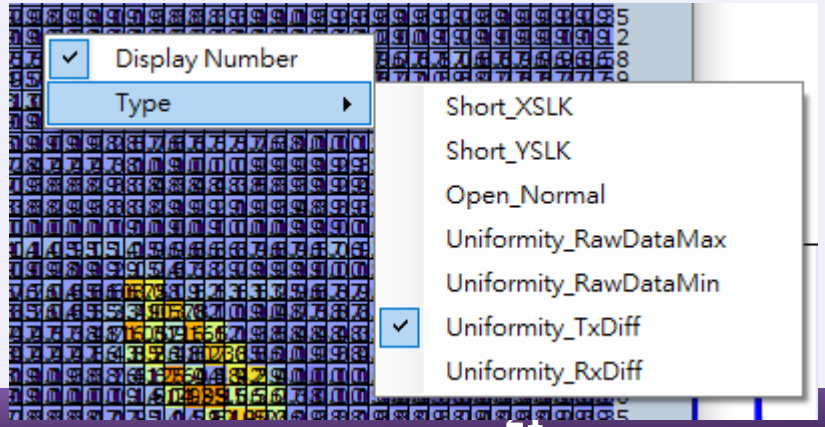


“Data Distribution” Page - Functional Description (Cont.)

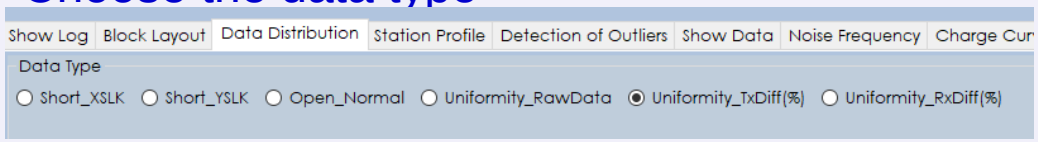
- Step4> Pop-up a new window



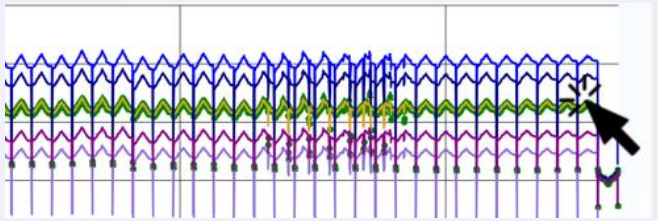
- Step5> Right-Click to switch the data type



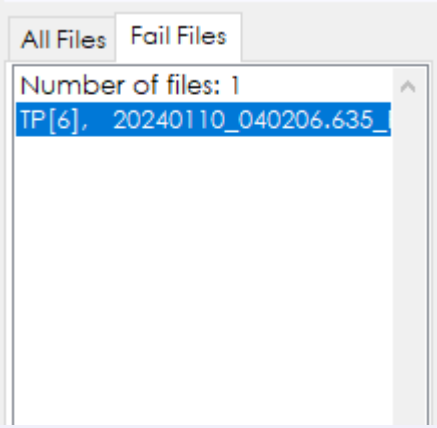
- List the failed files.
  - Step1> Choose the data type



  - Step2> Click any node you want to get it's information



  - Step3> Choose the "Fail Files" tab

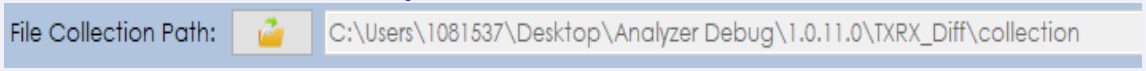


“Data Distribution” Page - Functional Description (Cont.)

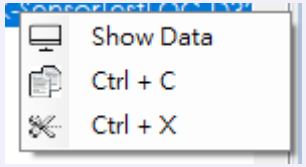
- List the failed files in each test item.



- Collect the failed files.
  - Set the collection path:

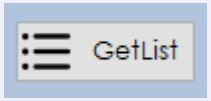


  - Right-click on failed file，you can do:



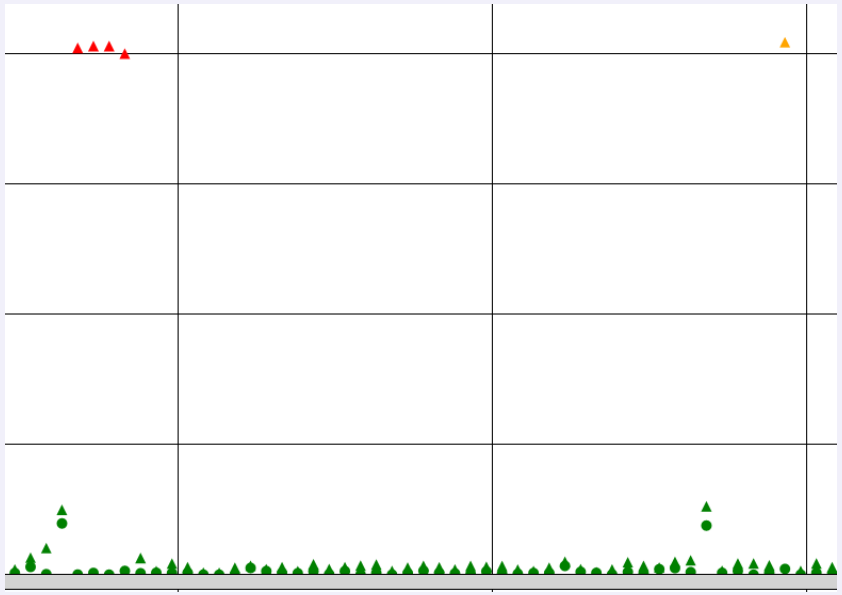
    - *Ctrl+C: copy the file to collection path*
    - *Ctrl+X: cut down the file to collection path*

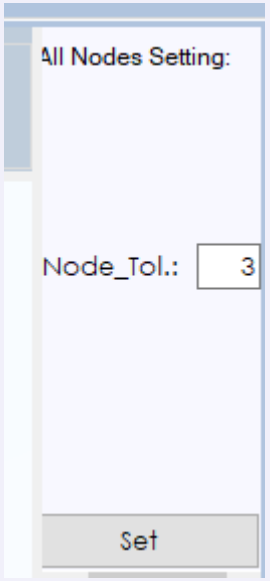
- Generate a file list.
  - Click “GetList”, then Output.txt is in the collection path



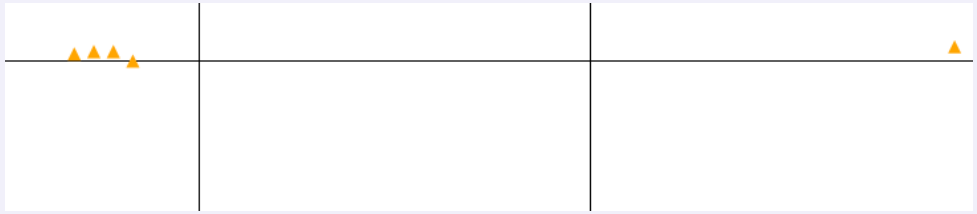
“Data Distribution” Page - Functional Description (Cont.)

- Judge the tolerance in Tx / Rx Diff
  - Tx : Continuous X-axis direction
  - Rx : Continuous Y-axis direction



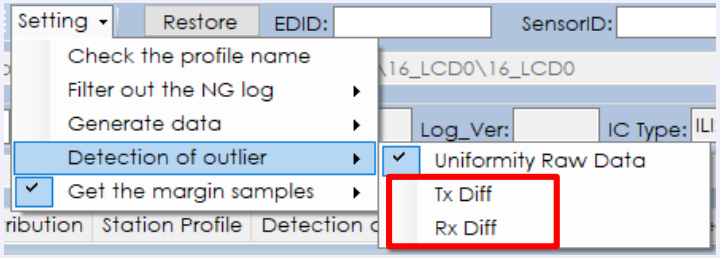


Tolerance:3➔5



Red Point: fail
Yellow Point: only value fail
Green Point: pass

- Add Tx / Rx Diff data to do outlier judgement
  - Enable

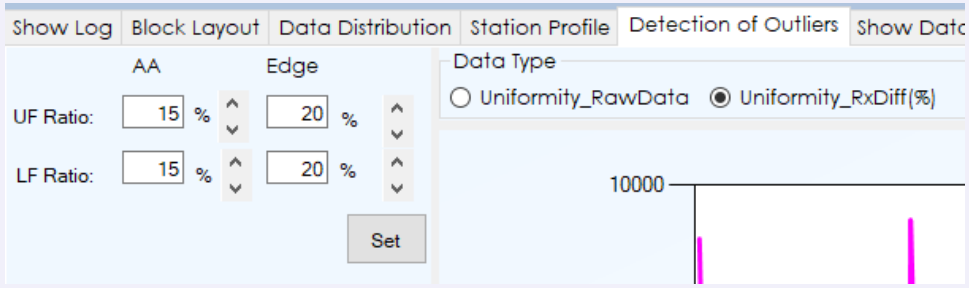


  - Setting

```
[Outlier_Detection_Setting]
Uniformity_Enable=True
TxDiff_Enable=False
RxDiff_Enable=False
UF_Ratio=15%;15%;15%;
UF_Edge_Ratio=20%;20%;20%;
LF_Ratio=15%;15%;15%;
LF_Edge_Ratio=20%;20%;20%;
```

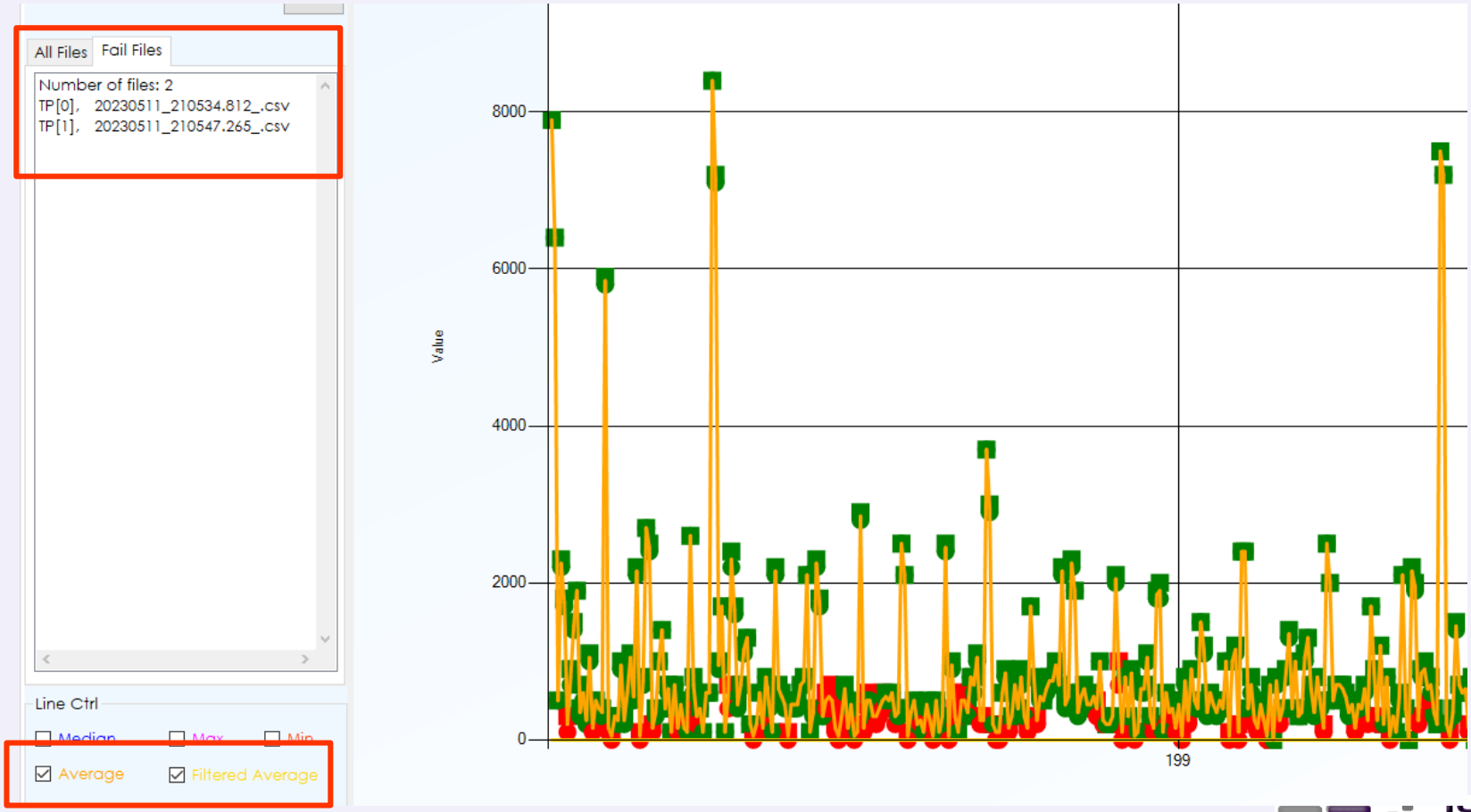
XX_Ratio = RawData;TxDiff;RxDiff

  - Display: Change the data type to set the ratio.



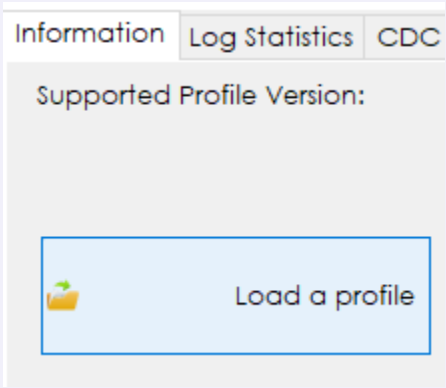
“Detection of Outlier” Page - Functional Description

- Show the average which is after outlier judgement.
- List the failed files.

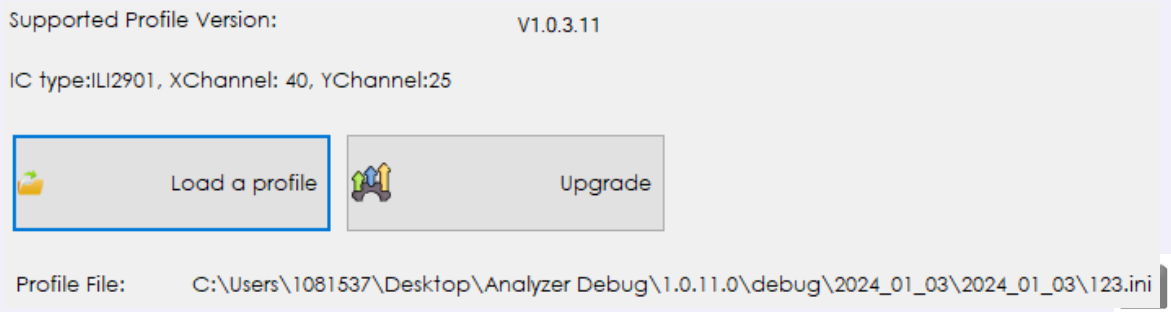


Upgrade the Profile

- Purpose
  - Upgrade the profile version to the latest version .
- Action
  - Step1> Go to “Information” page
  - Step2> Click “Load a profile” and assign the file you want to upgrade

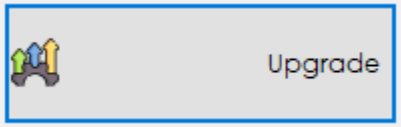


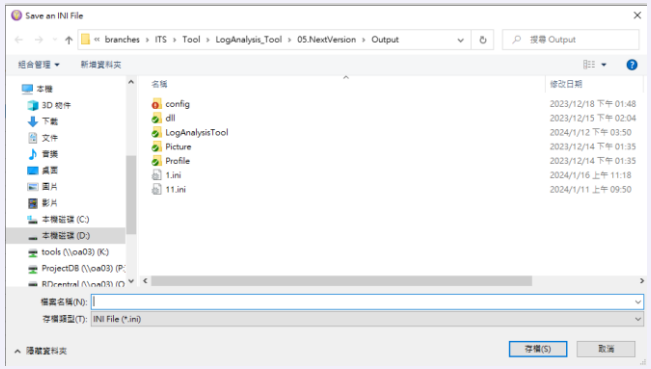
  - Step3> You will get the profile information



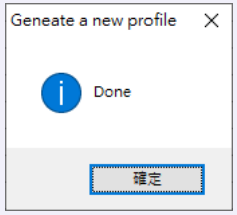
Upgrade the Profile (Cont.)

- Step4> Click “Upgrade” and assign the new file path.

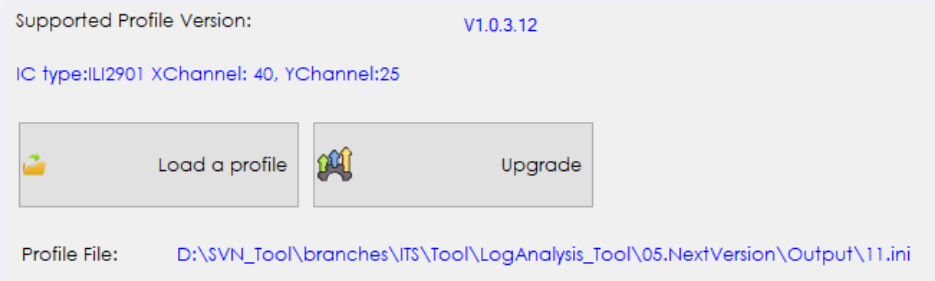




- Step5> If the action is successful, you will get the “done” window.

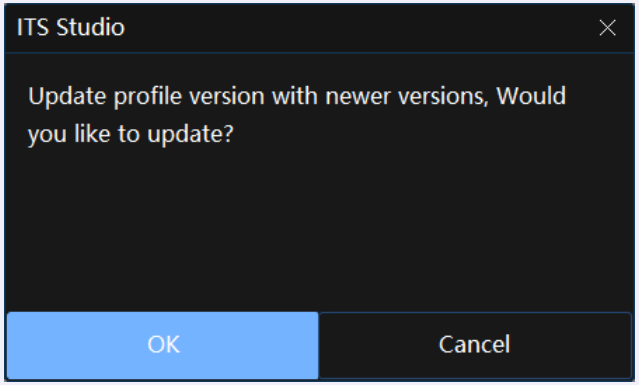


- Step6> you will get the newer profile information

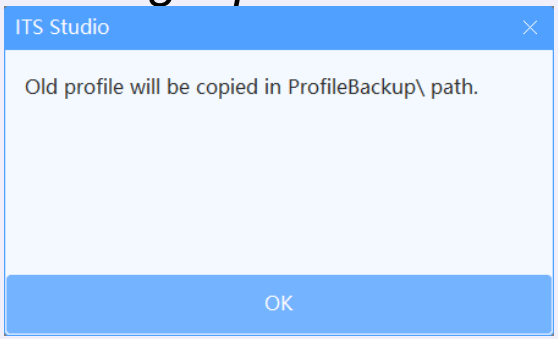


Sensor Test Setting in ITS Tool

- Update the older profile to V1.0.3.12
  - When
    - *Load a profile*
    - *Entry to setting page*



  - Backup
    - *The origin profile will backup to ProfileBackup*

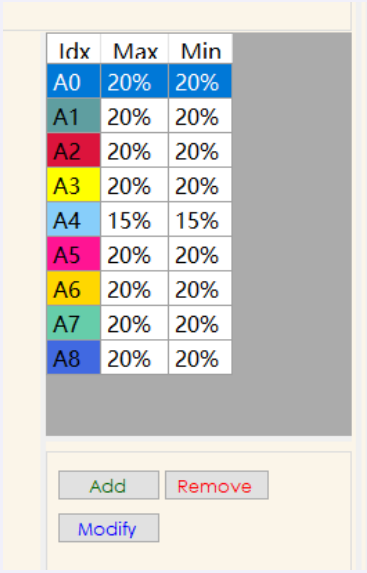


Sensor Test Setting in ITS Tool (Cont.)

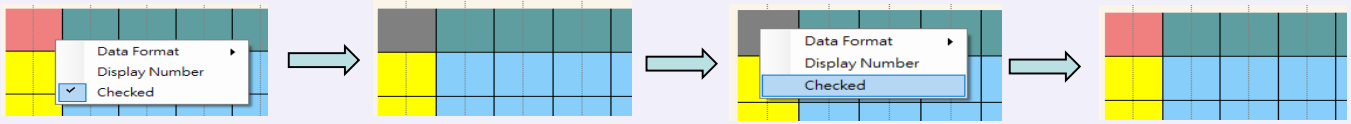
Innovation

- Action
  - Edit the block layout
    - *Add*
    - *Modify*
    - *Remove*

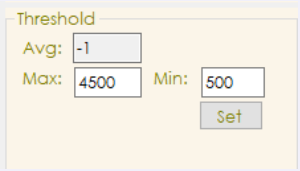




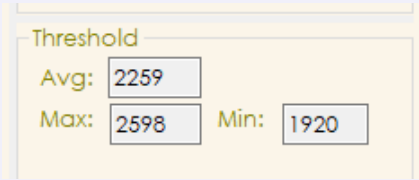
  - Unchecked/Checked a node



  - Modify the value
    - *Case1, profile didn't be generated form log analysis tool*

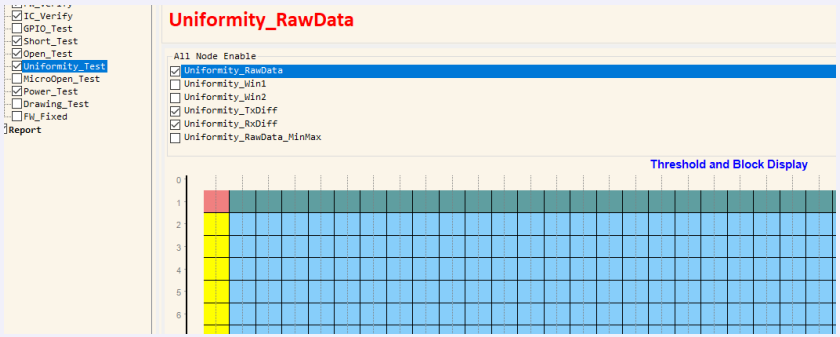


    - *Case2, profile was generated form log analysis tool, you must add or modify the block*

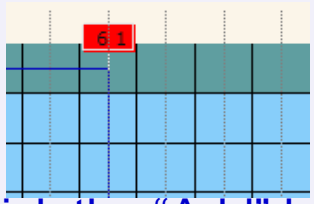


Sensor Test Setting in ITS Tool (Cont.) Innovation

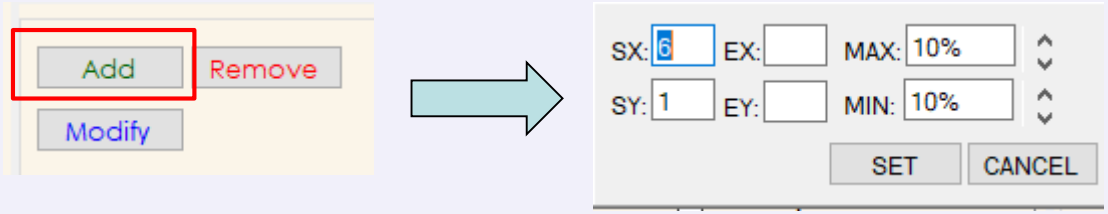
- How to add a block to modify the maximum value and the minimum value?
  - Step1> go to editing screen of spec.



  - Step2> Click the node you want to add a block until a red label appears.



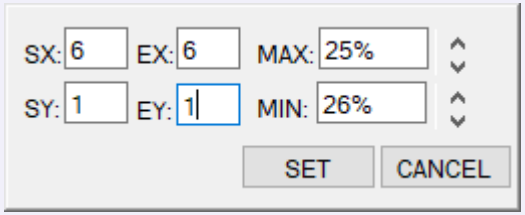
  - Step3> Click the “Add” button then pop-up a window



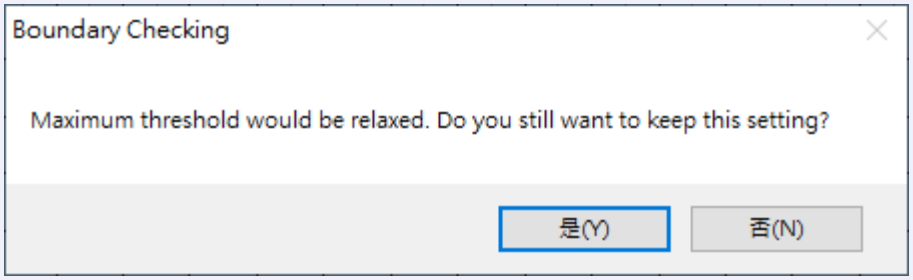
Sensor Test Setting in ITS Tool (Cont.)

Innovation

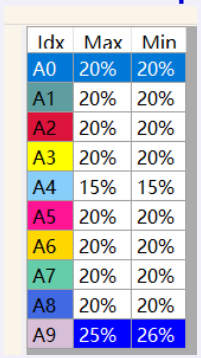
- Step4> Set the start and end positions and value then click “SET” button to finish this action



- Step5> pop-up a reminder window then click “Y”



- Step6> you will see a new block



Idx	Max	Min
A0	20%	20%
A1	20%	20%
A2	20%	20%
A3	20%	20%
A4	15%	15%
A5	20%	20%
A6	20%	20%
A7	20%	20%
A8	20%	20%
A9	25%	26%

