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1 Overview

After loading the correction database, the cabinet database management software could analyze the brightness of individual cabinet according to the original measurement data stored in the database, and conduct analog simulation of the overall brightness distribution before the adjustment made according to the correction coefficients of one or more cabinets. If the simulation map is unreasonable, the software may be used to adjust the coefficients. In addition, the cabinet database management software can also be used to delete or export the database of a cabinet from the correction database and merger several correction databases.

2 Operation Instructions

Click "Load Database" → "Add Files" to load one or more correction databases, or click "Add Folders" to load more databases at one time. After loading the databases, the basic information in the selected database could be viewed.

Click "Export Gun Values" to save the light gun values to the computer. The light gun values include brightness and the coordinates of color of each cabinet measured with the light gun. Click "Export Report" to save the correction report to the computer, which includes the basic correction information and the brightness distribution diagram, maximum and minimum brightness values and uniformities of three random cabinets before the correction.

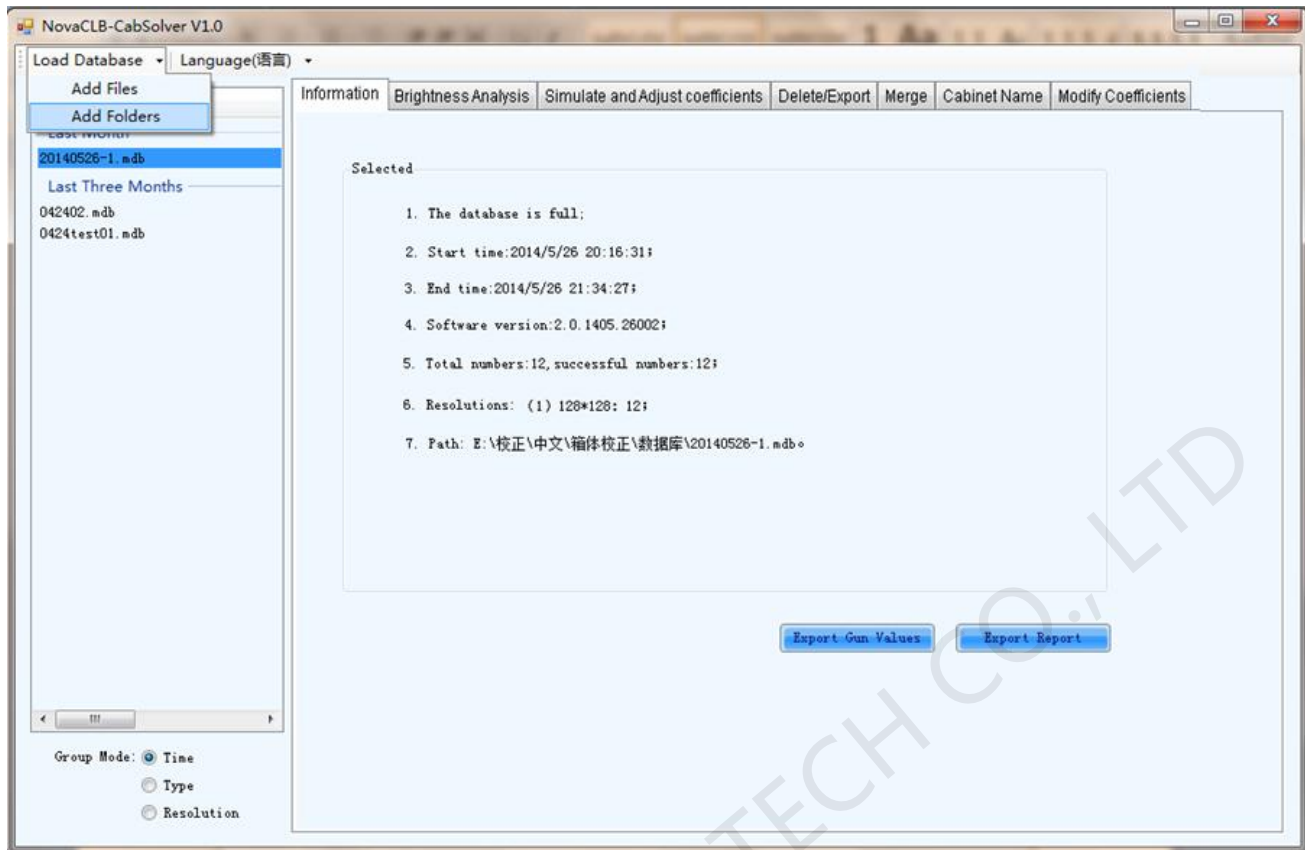


Fig 2-1 Basic information of correction database

2.1 Brightness Analysis before Correction

The brightness analysis before correction is conducted over individual cabinet according to the original measurement data in the database. Select the number of the cabinet to be viewed to see the red, green and blue maximum, minimum and average values, uniformity and brightness column diagram of the cabinet. The narrower the peak waveform in the column diagram is, the better the brightness uniformity will be.

Click "Export Brightness" to save the brightness value of each LED light of the cabinet to .xls file so as to draw 3D diagram in excel directly to view the brightness distribution.

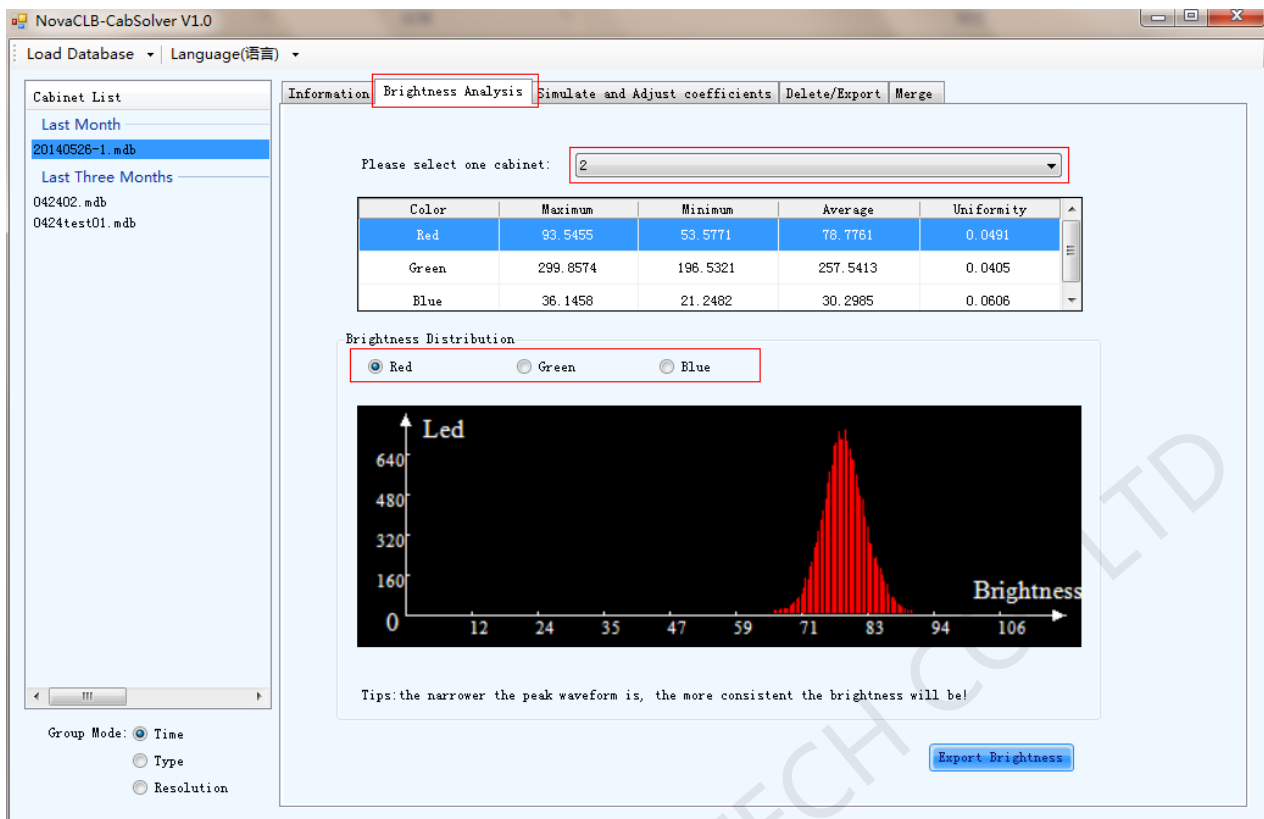


Fig. 2-1 Brightness analysis diagram before correction

2.2 Simulate and Adjust Coefficients

The simulate diagram is produced through certain calculation according to the correction coefficients of the cabinet. What the simulate diagram is simulating is the matching condition of the cabinet before the correction, and we could deem the simulate diagram as the simulate diagram for the brightness of the cabinet.

Observe the simulation diagram; if the luminance difference between cabinets is great or the luminance difference of the cabinet itself is great, i.e., the simulate diagram is unreasonable, the correction coefficients shall be adjusted using the software, including the adjustment of original/target values, adjustment of brightness distribution correction, adjustment of edge correction factor and the trimming of all coefficients.

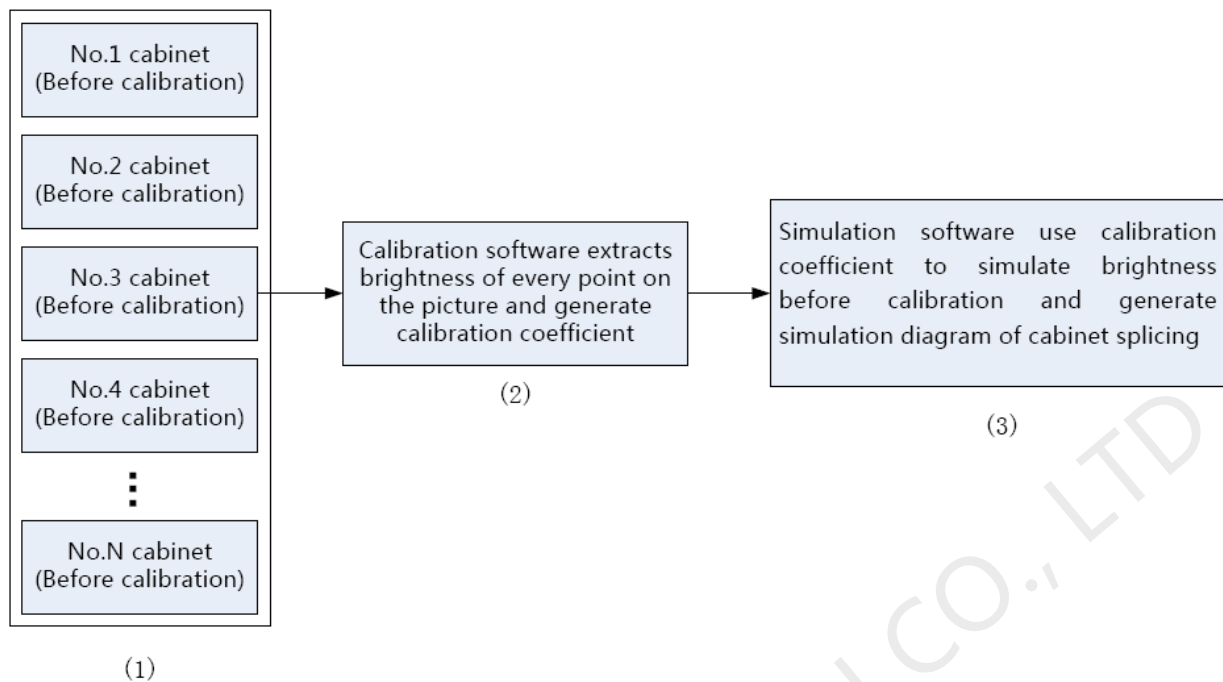


Fig. 2-2 Generation principle of simulate diagram

The generation principle of simulate diagram is indicated in the above figure. If the brightness distribution of the simulate diagram is non-uniform, such as the cabinet has obvious bright or dark portions, the reasons may be found in two aspects:

(1) The brightness distribution of the cabinet itself has large difference.

After the cabinet is lightened, if the portions with large brightness difference could match with the tendencies on the simulate diagram, it means that the cabinet has been successfully corrected; otherwise, it means that the cabinet has large brightness distribution difference itself, and shall be corrected again, or the target value or original value shall be adjusted through the management software to produce the new correction coefficients. If only one cabinet has non-uniform brightness distribution, it could be selected by clicking the right button to adjust its brightness distribution correction, the overall brightness and the edge correction factor and then produce the new correction coefficients.

(2) Issues encountered during correction.

In case of failure of the correction coefficient, the correction shall be conducted again with NovaCLB-Cabinet.

2.2.1 Simulation

Set the items in the following figure and then click "Simulation".

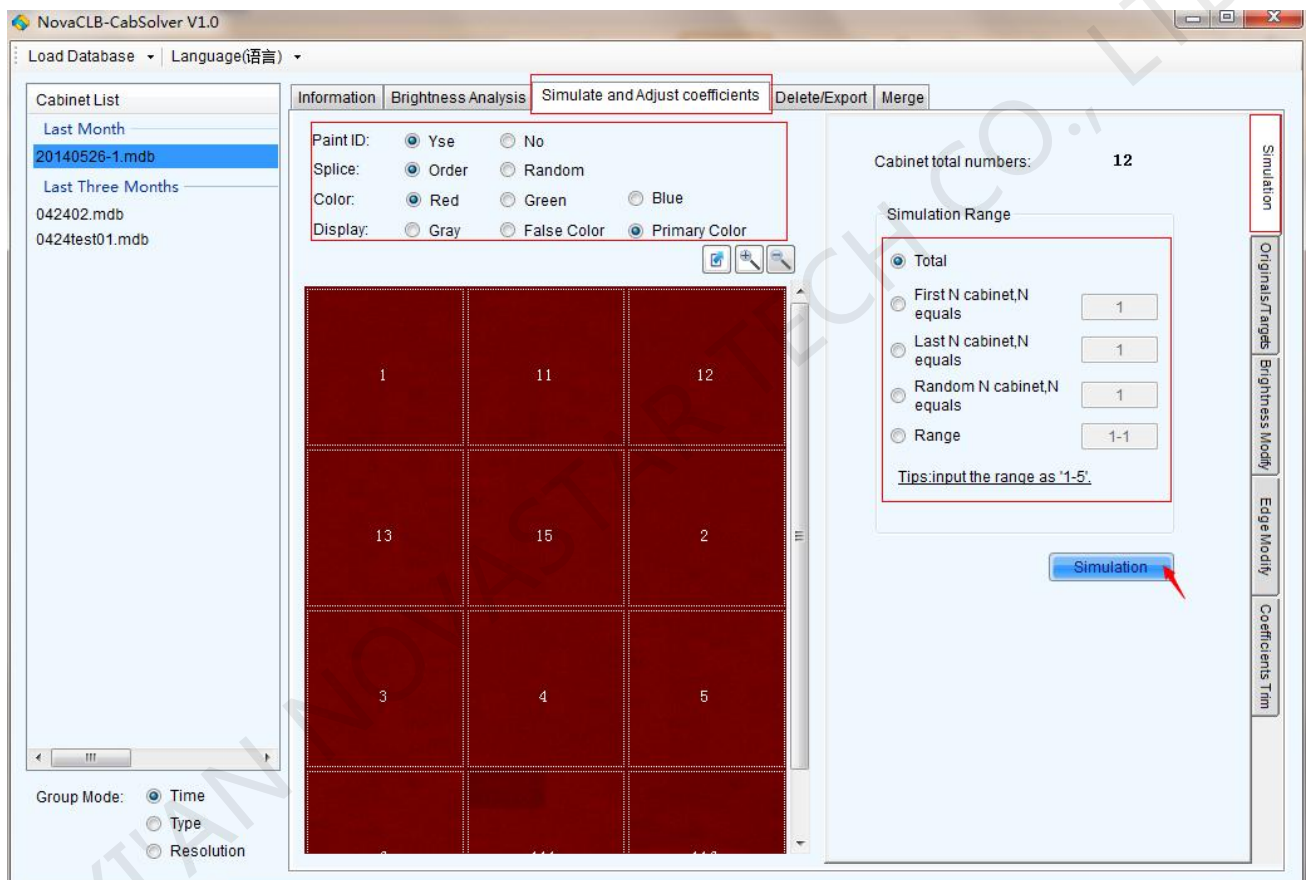


Fig. 2-3 Simulate

2.2.2 Adjustment of Original/Target Values

If the brightness distribution of the simulate diagram is obviously non-uniform, and the brightness distribution could not be corrected by adjusting the brightness distribution, edge

correction factor, and overall brightness and darkness of individual cabinet, it may be that the correction target could not be achieved, and the target value could be changed with the software. In another condition, if the correction effect of the original target is undesirable, the correction target value could also be changed.

If the original brightness value of each cabinet is measured with light gun, which means that the original value could not be changed during the calibration cabinet by cabinet. If all cabinets are using the same original value, the original value could be changed, and the target value could be changed manually, or with auxiliary tools and color gamut diagram. Tick "Color Temperature" to change white color.

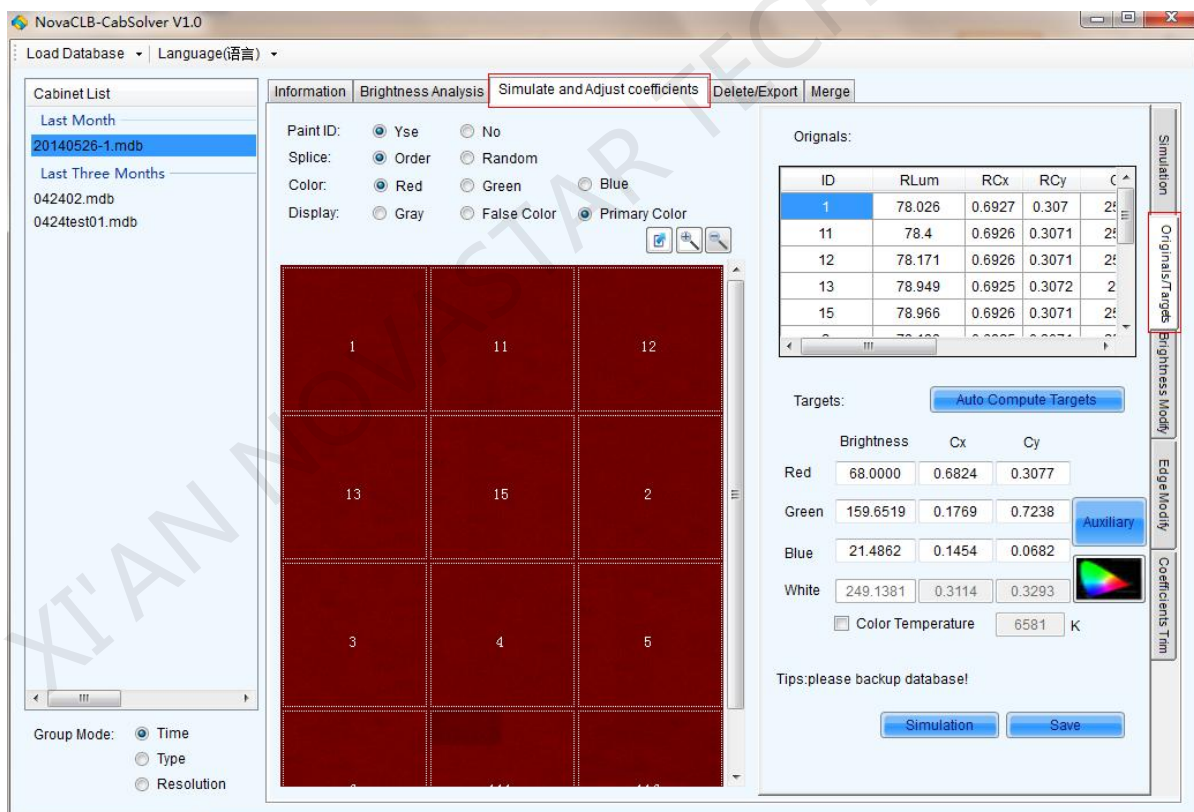


Fig. 2-4 Simulate and adjust coefficients

After the adjustment, click "Simulate". If the effect of the simulate diagram is good, click "Save" to produce the new correction coefficients to overwrite the original database. Therefore, the user

shall backup the original database in advance.

2.2.3 Brightness Modify

This function could be used to adjust the brightness distribution correction of individual cabinet through the replacement of its parameters and public parameters.

Right-click the cabinet to be corrected, select "Brightness modify" or click the "Brightness modify" tab on the right side, and then select the cabinet ID.

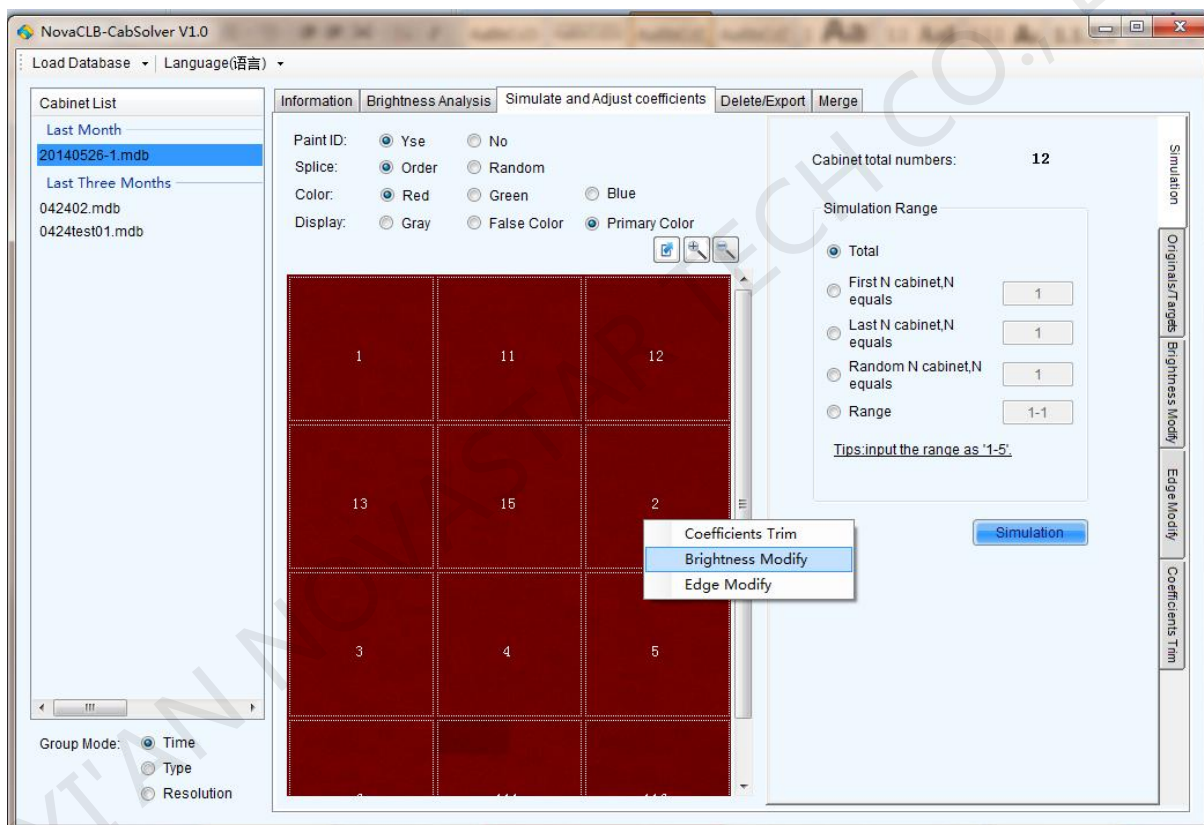


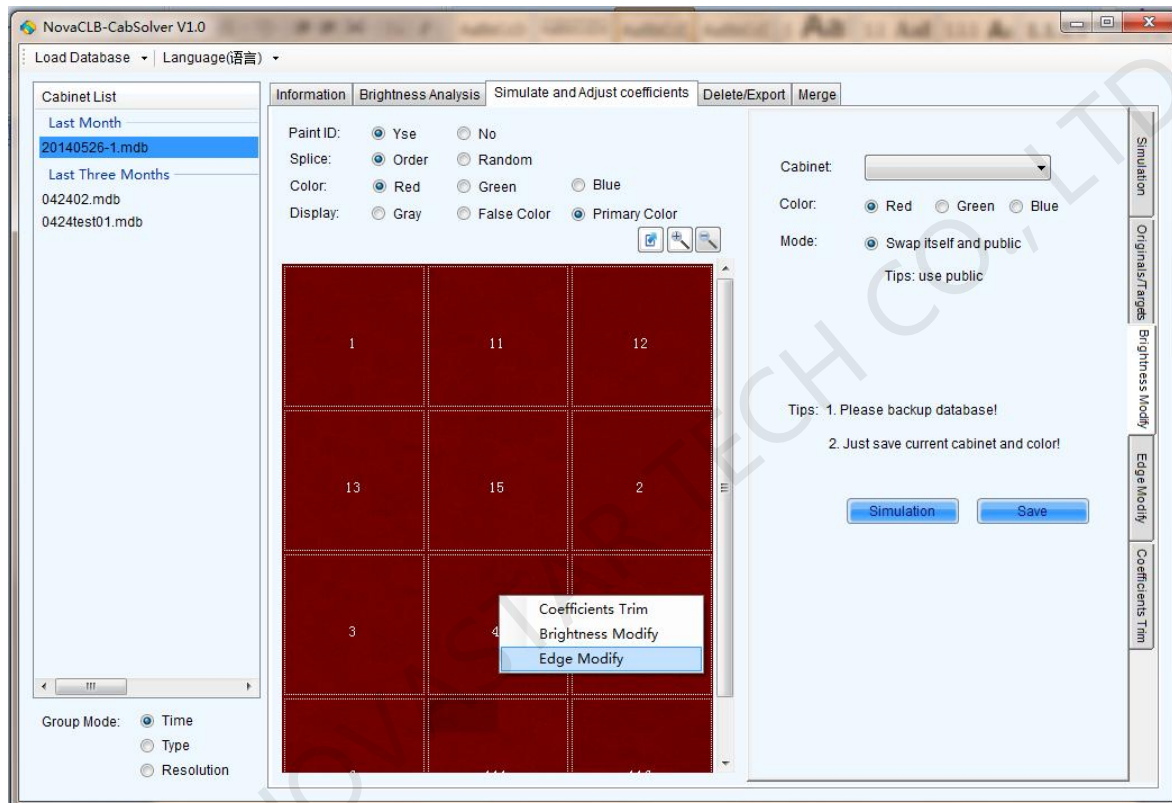
Fig. 2-5 Brightness modify

Set the items. The color of the screen shall be same as the adjustment color so as to show the correction effect of the color. Click "Simulate" to switch to the self-parameters and public parameters.

2.2.4 Edge Modify

Under this functional page, the public edge factor could be generated and the edge correction factor of individual cabinet could be adjusted.

Right-click the cabinet to be subject to the edge correction adjustment, and click "Edge modify".



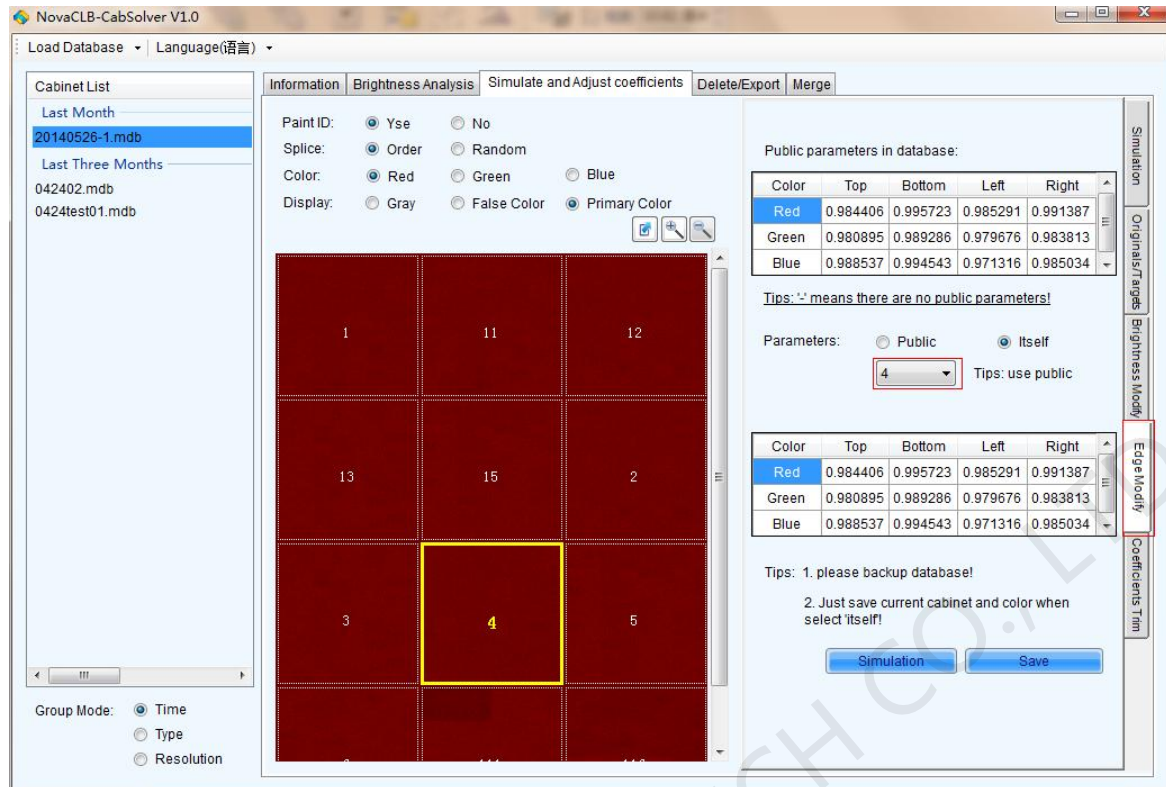
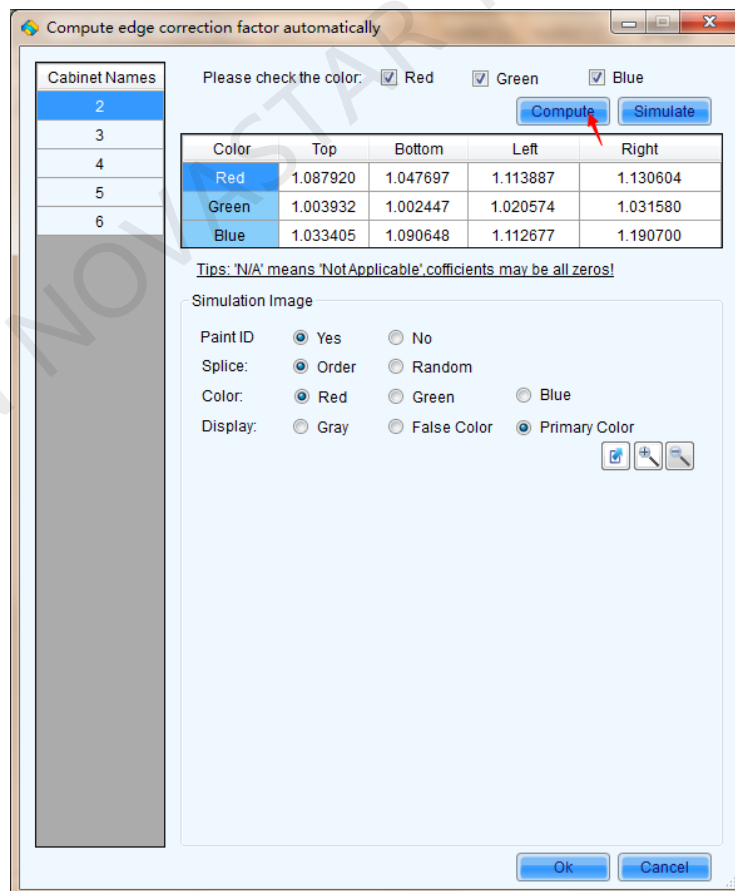
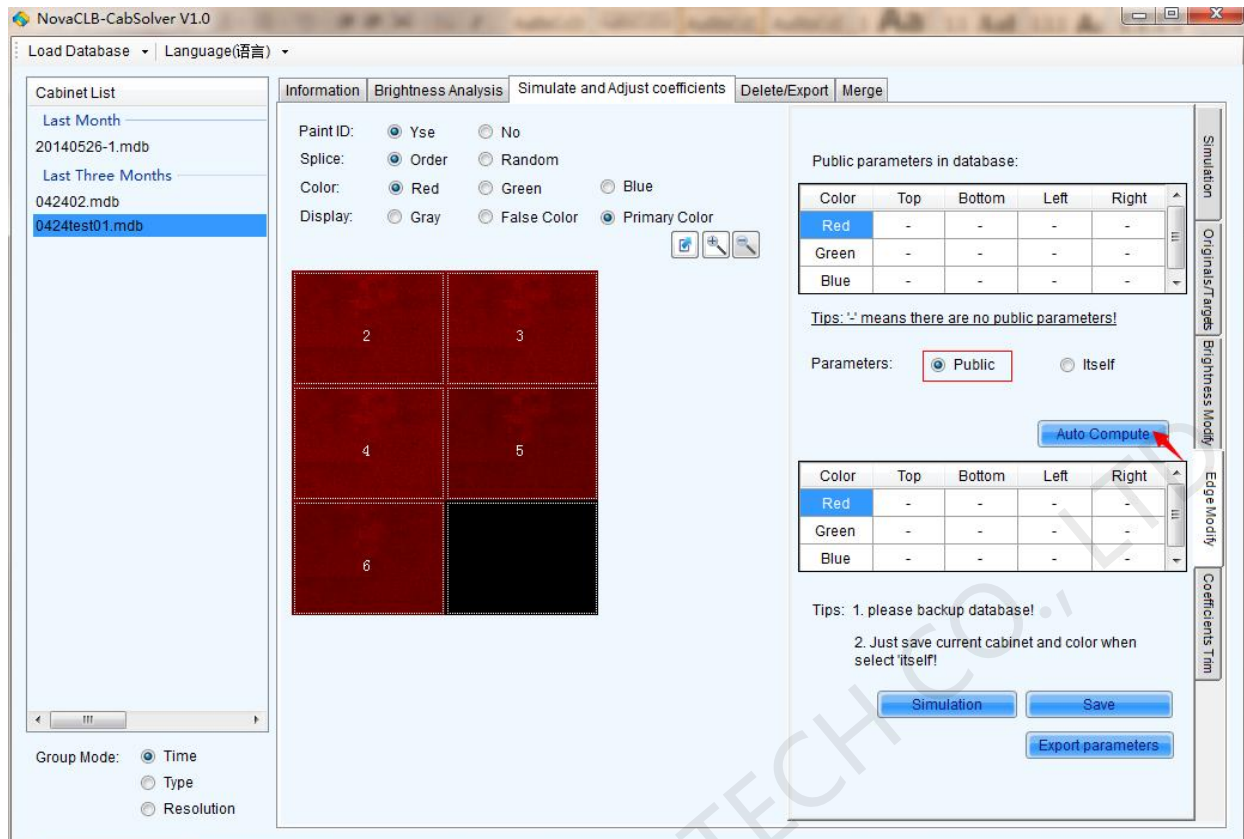


Fig. 2-6 Edge modify

1) Generate Public Edge Factors

If the public edge factors have not been generated, tick "Public" and then click "Auto Compute".



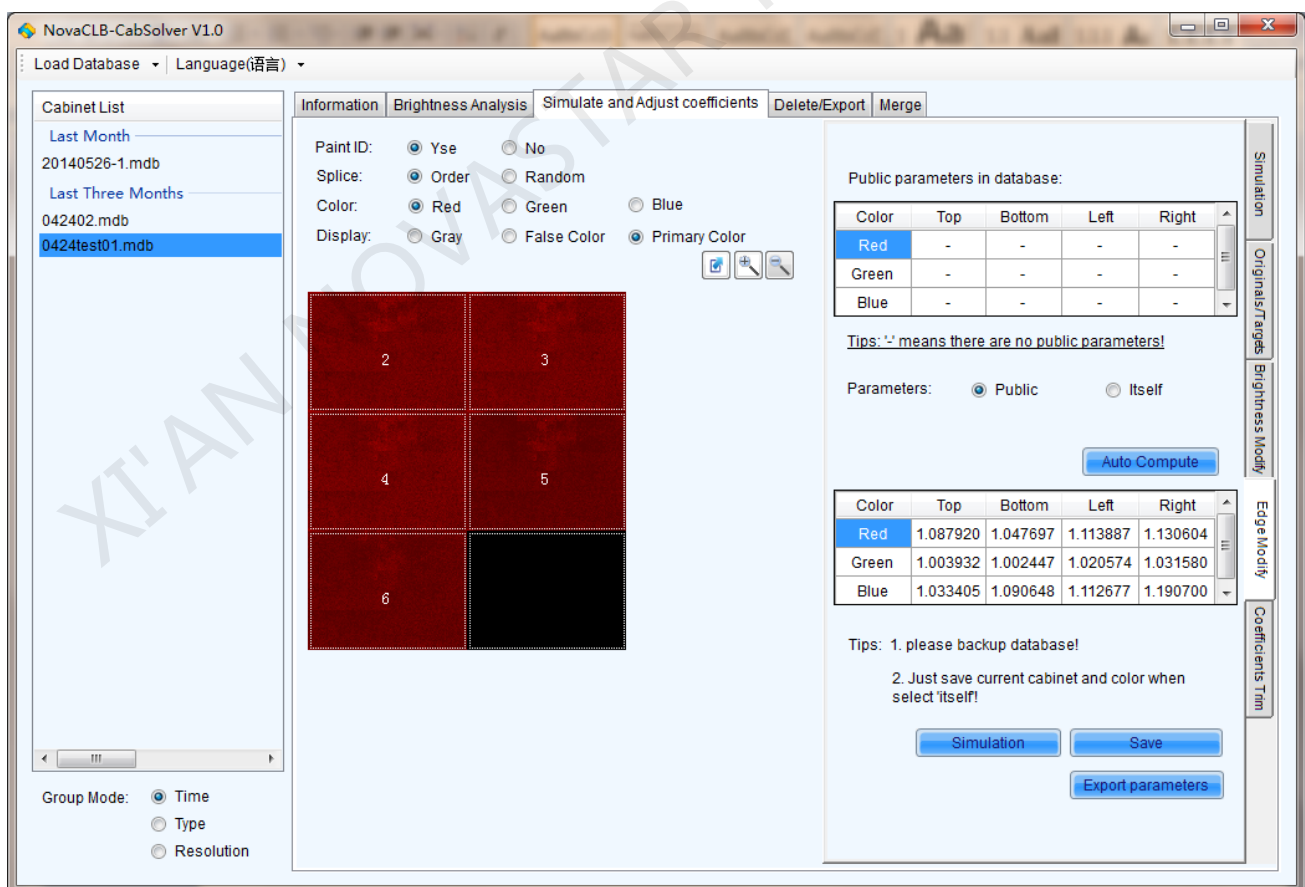
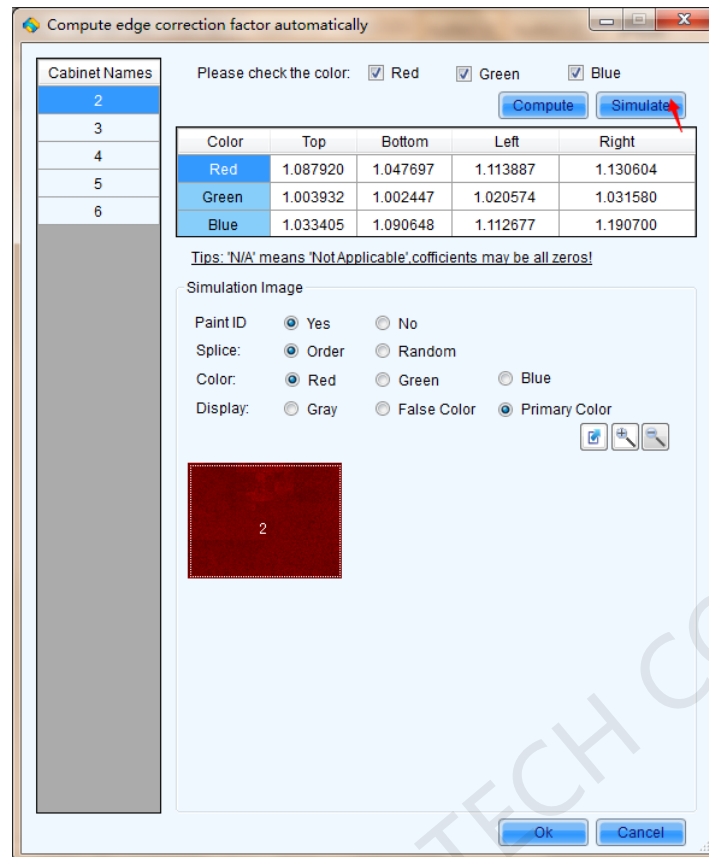


Fig. 2-7 Public edge correction factor generated automatically

The public edge correction factor generated automatically will be shown in the form on the lower right corner. Click "Export Parameters" to save the public edge correction factors to the computer, click "Save" to overwrite the edge correction factors in the original database, and all cabinets will use the new public edge correction factors.

The edge correction factor of individual cabinet could be changed manually, see 2) Adjust the Edge Correction Factor of Individual Cabinet for detailed operation.

2) Adjust the Edge Correction Factor of Individual Cabinet

After adjusting the edge correction factor of the corresponding cabinet manually, click "Simulate" to check the simulate effect. If the effect is desired, then click "Save" and click the "Switch Itself to Public" to switch to the public edge correction factors.

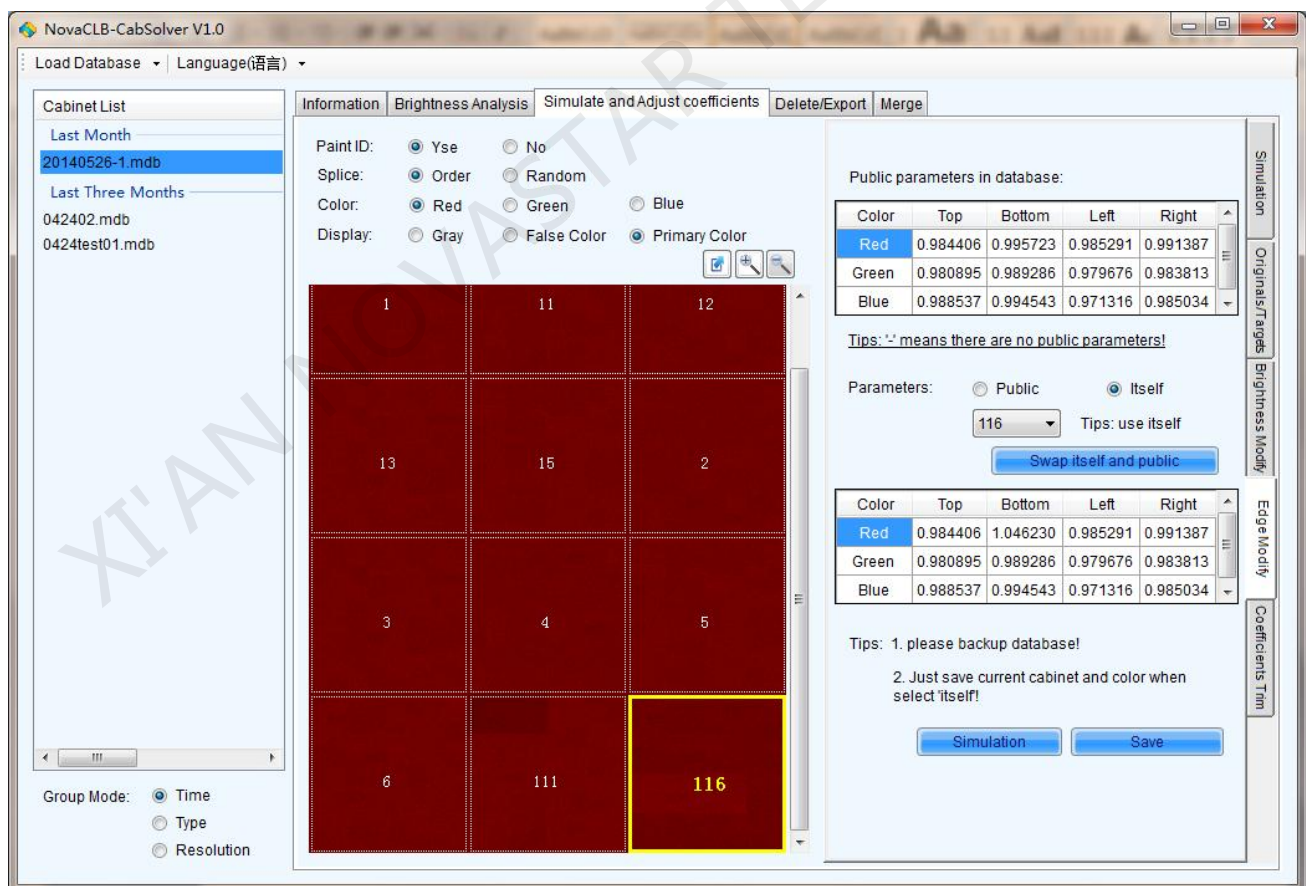


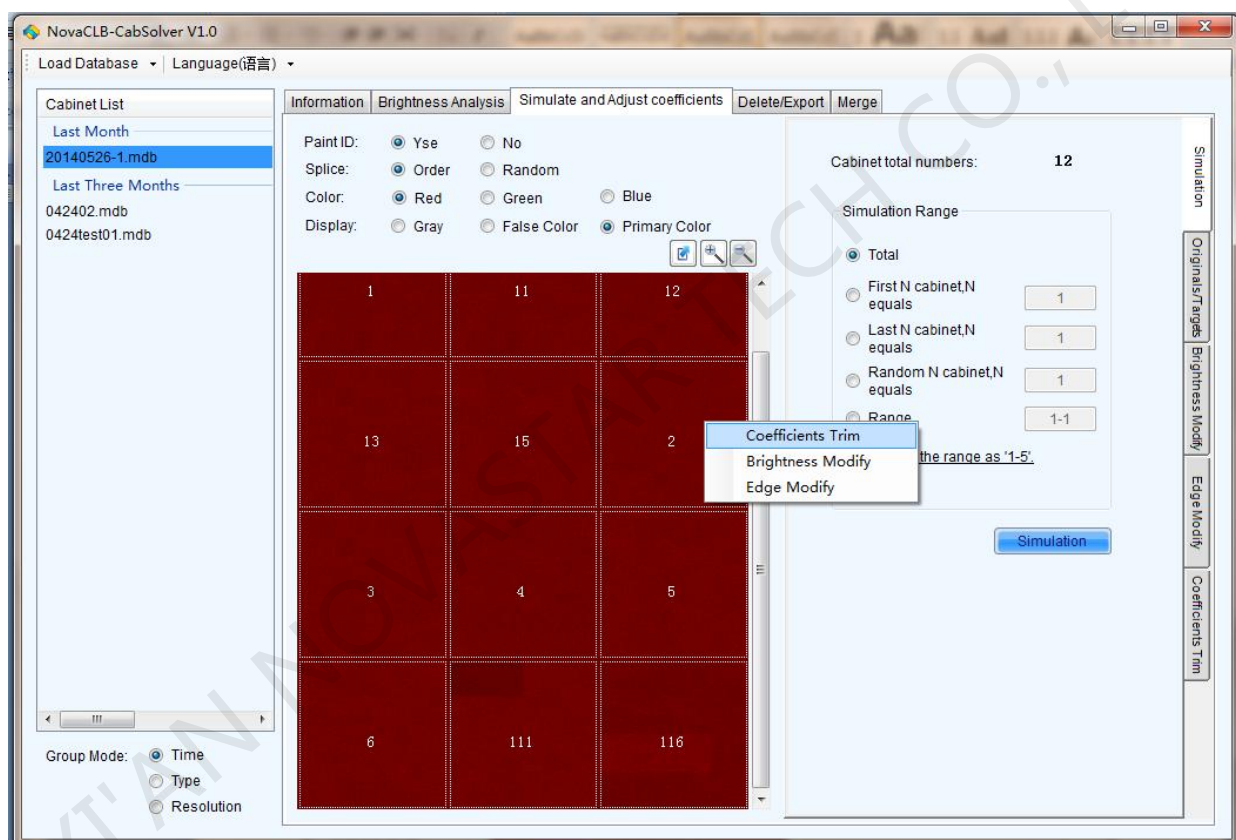
Fig. 2-8 Adjust the edge correction factor of individual cabinet

2.2.5 Coefficients Trim

Adjust the whole cabinet to uniform the brightness of all cabinets.

Right-click the cabinet to be subject to brightness adjustment, click "Coefficients trim" or the "Coefficients trim" tab on the right side, and then select the number of the cabinet to be adjusted.

After setting the adjustment ratio, click "Save" to generate new correction coefficients and overwrite the original coefficients.



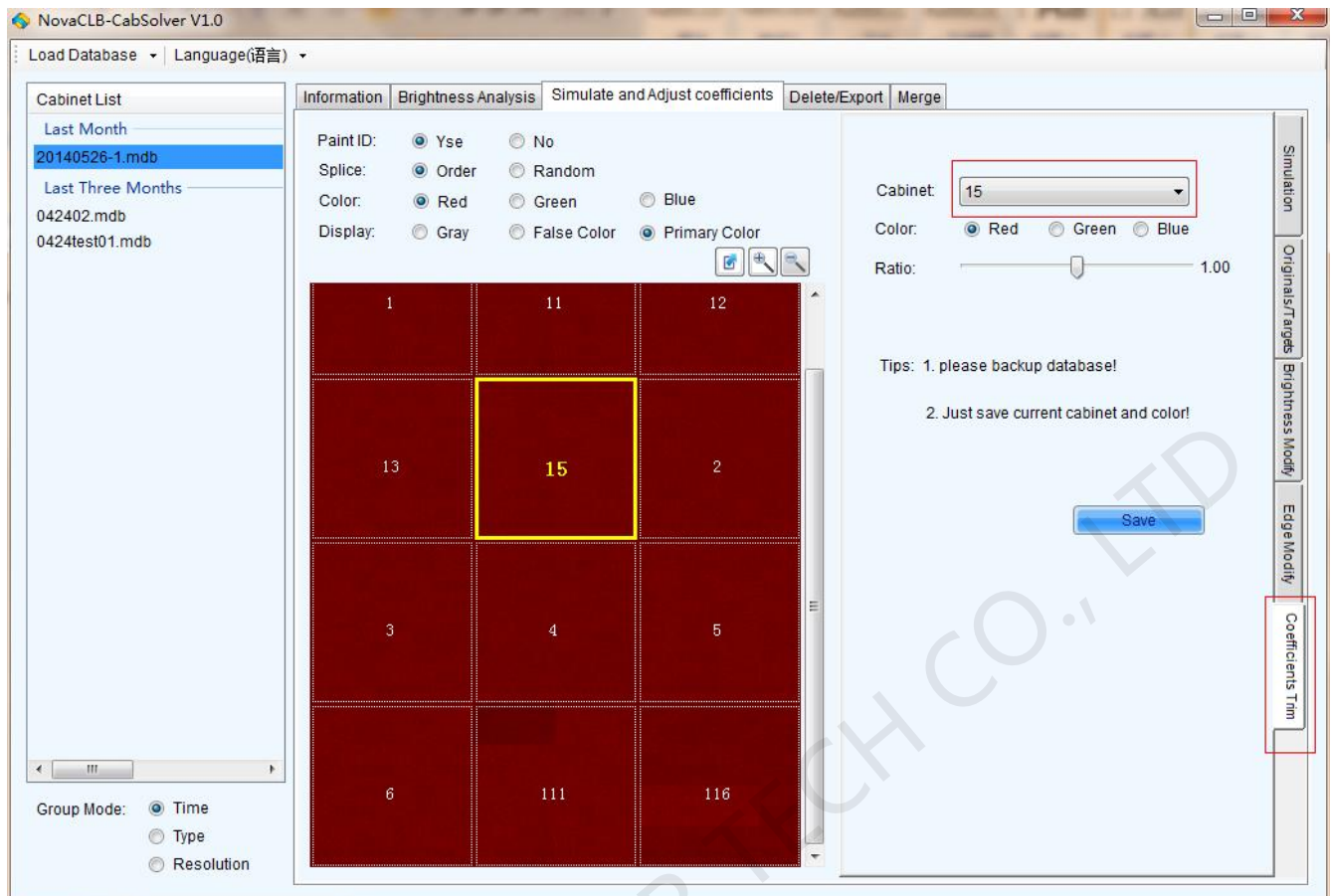


Fig. 2-9 Adjustment of individual whole cabinet

2.3 Delete/Export

Search a cabinet database from the database, and then delete or export it according to the need.

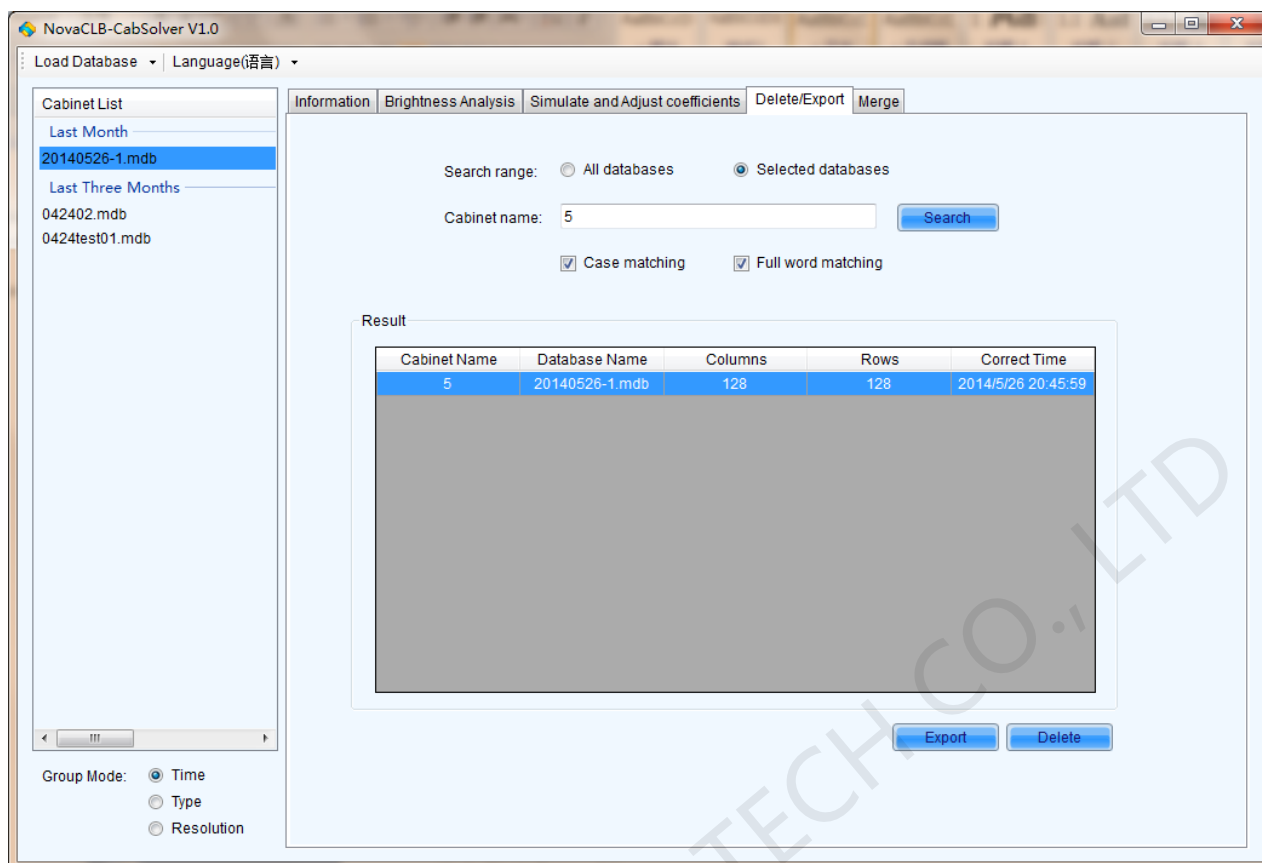


Fig. 2-10 Delete/export a cabinet

2.4 Database Merge

Press "Ctrl" or "Shift", select two or more databases with mouse, tick the merge mode, and click "Merge".

If the "Merge Coefficients Only" mode is selected, the merged database could be used for simulating, uploading and adjusting the brightness of individual cabinet. If the "Merge Coefficients and Measures" mode is selected, the merged database could not be used for brightness distribution correction, but the other coefficients could be adjusted.



Notes:

- 1) Several (more than 2) databases containing cabinets with same name could not be merged, and the software will warn in such case.

- 2) Two databases containing several (more than 2) cabinets with same name cannot be merged, and the software will warn in such case.
- 3) If only two databases contain only two cabinets with the same name, they could be merged, but the software will prompt the user to change the name of a cabinet or delete a cabinet.

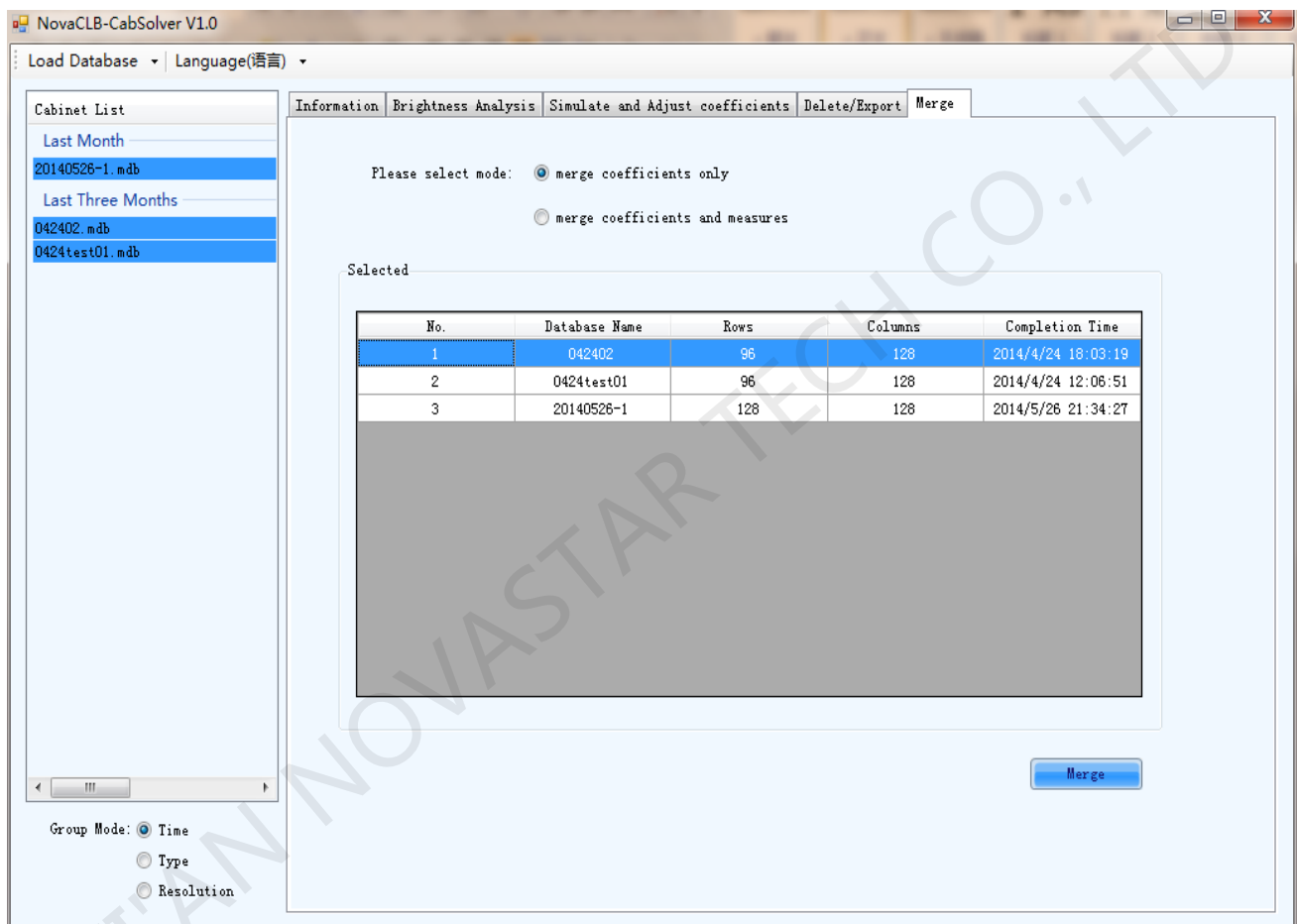


Fig. 2-11 Database merge

2.5 Cabinet Name

Modify name of the cabinet that been selected.

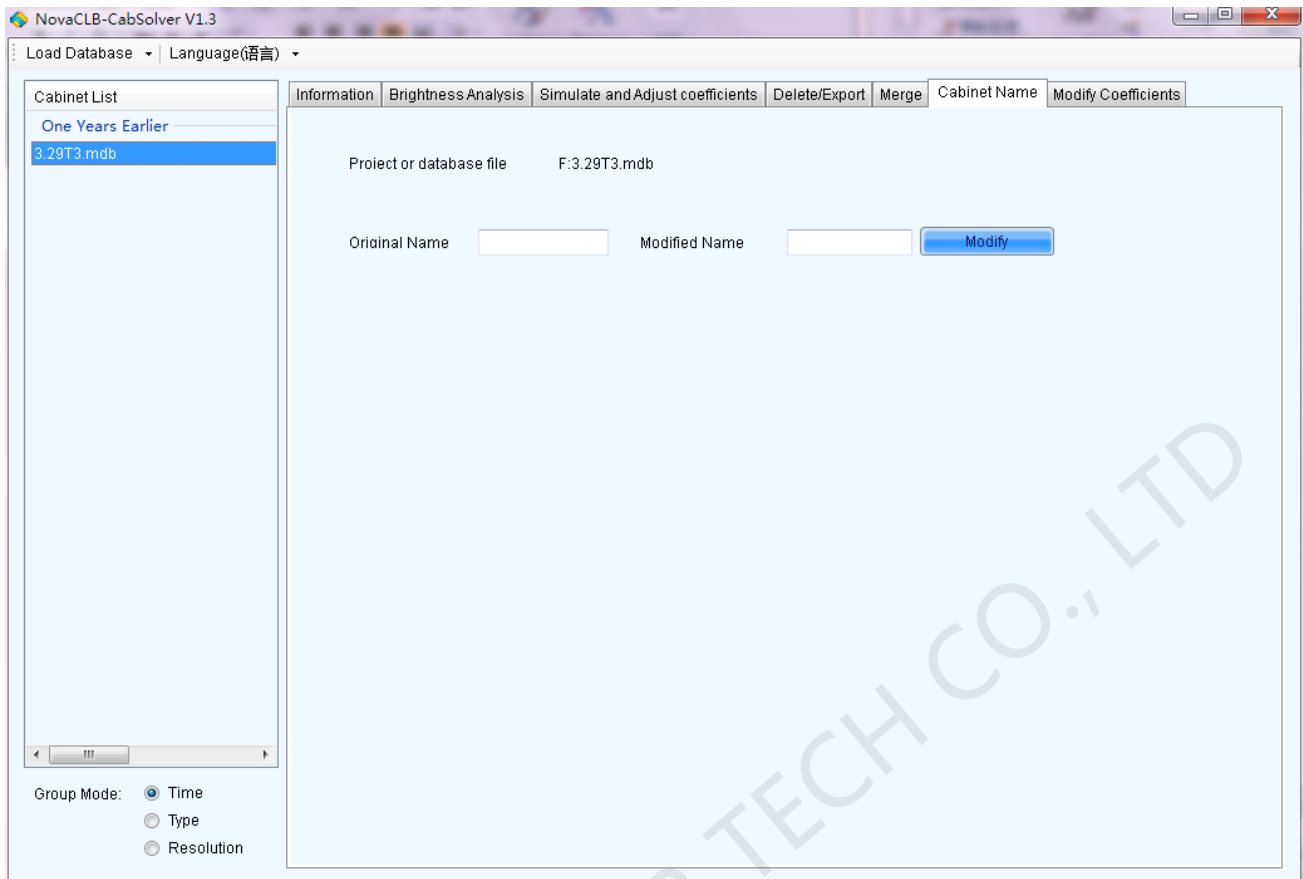


Fig. 2-12 Cabinet name

2.6 Modify Coefficients

After cabinet calibration, if there are obviously bright points found, adjust the light point coefficient.

Specific operation procedure is as follows:

- 1) Select cabinets with bright point and read the maximum value and minimum value of the average coefficient and main component coefficient.

You can select a single cabinet or select "All cabinets".

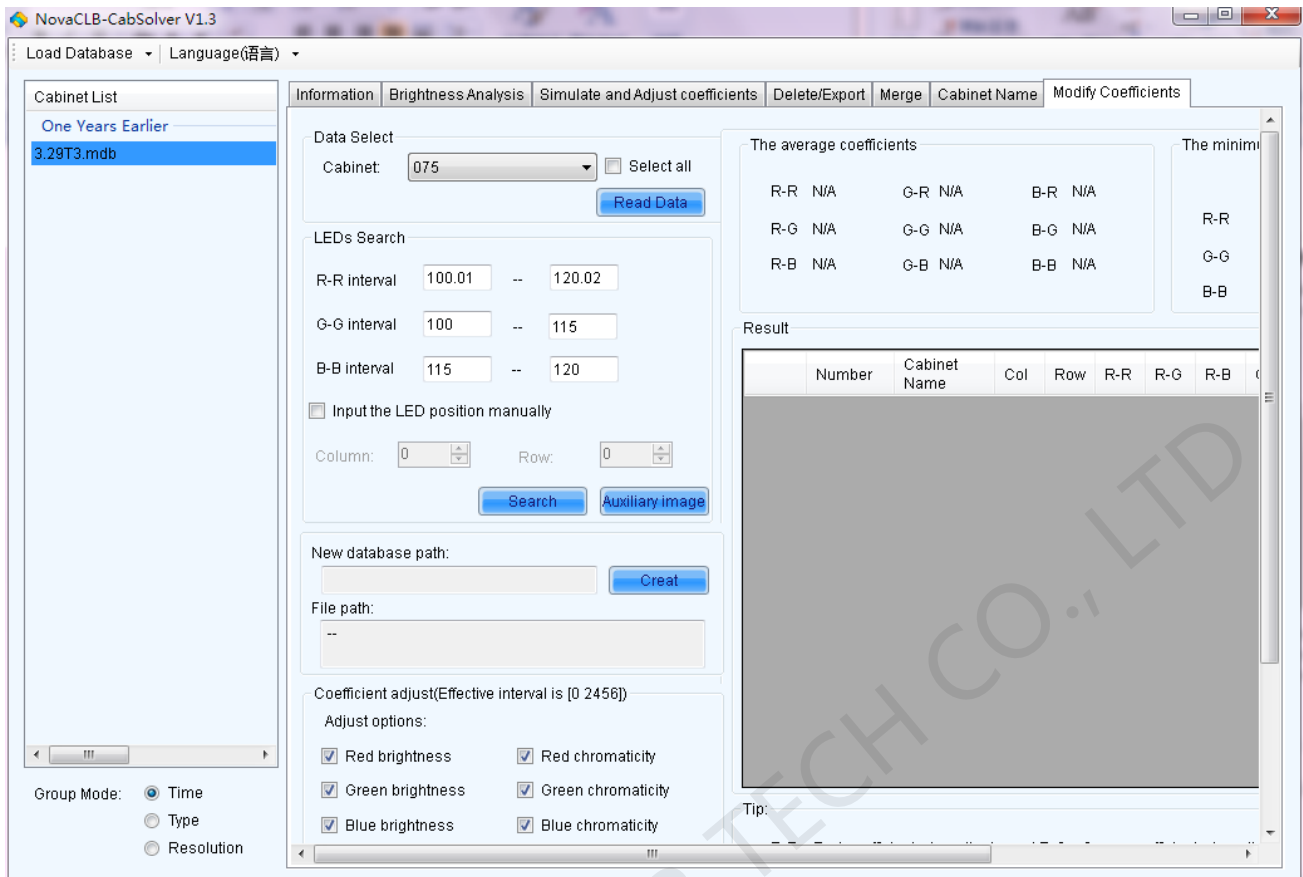


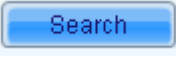
Fig. 2-13 Select cabinet

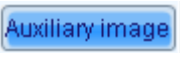
2) LEDS search

You can conduct area-based search according to the area where the bright point is located or manually enter the coordinates of the light point.

Area-based search: NovaiCare regards the 95%~100% area of the maximum calibration coefficient of brightness for each color. You can manually enter the brightness area of each color.

Manually enter the coordinates of the light point for search: manually enter the coordinates of the bright point.

After setting the area or coordinates, click  and NovaiCare will show search results.

Click  to open simulated image (only for single cabinet). You can view the position of the selected point on the cabinet.

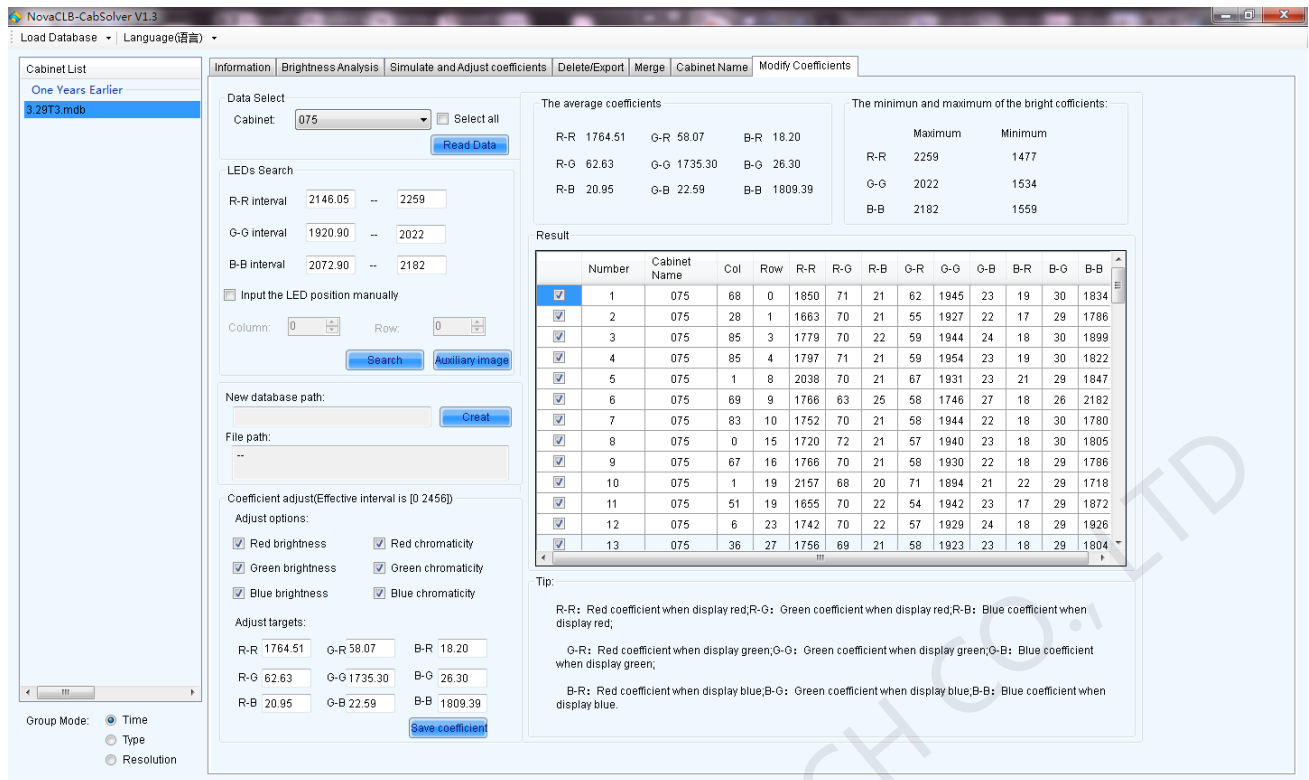


Fig. 2-14 Search LEDs

Click **Auxiliary image** to open auxiliary image (only for single cabinet). You can view the position of the selected Pixel points on the cabinet.

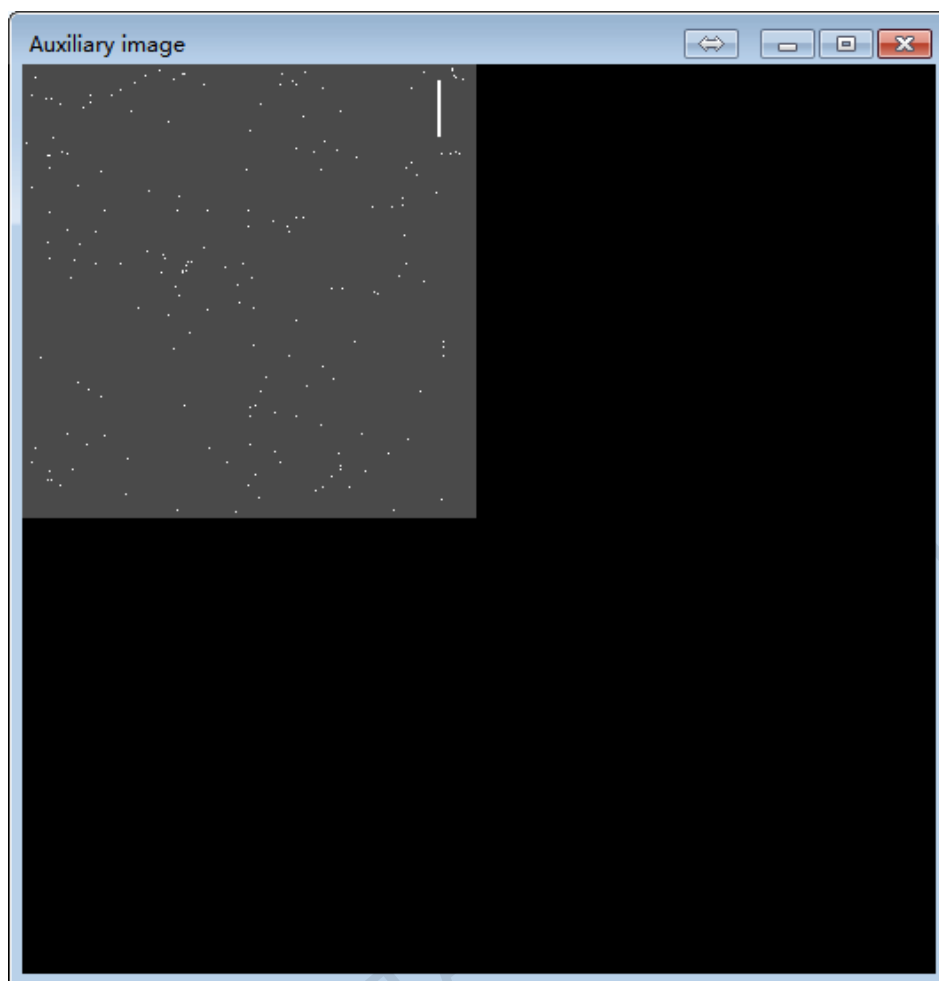


Fig. 2-15 Auxiliary image

Select the Pixel points that you want to exclude from the cabinet, then click the right mouse button and click to exclude the selected Pixel points.

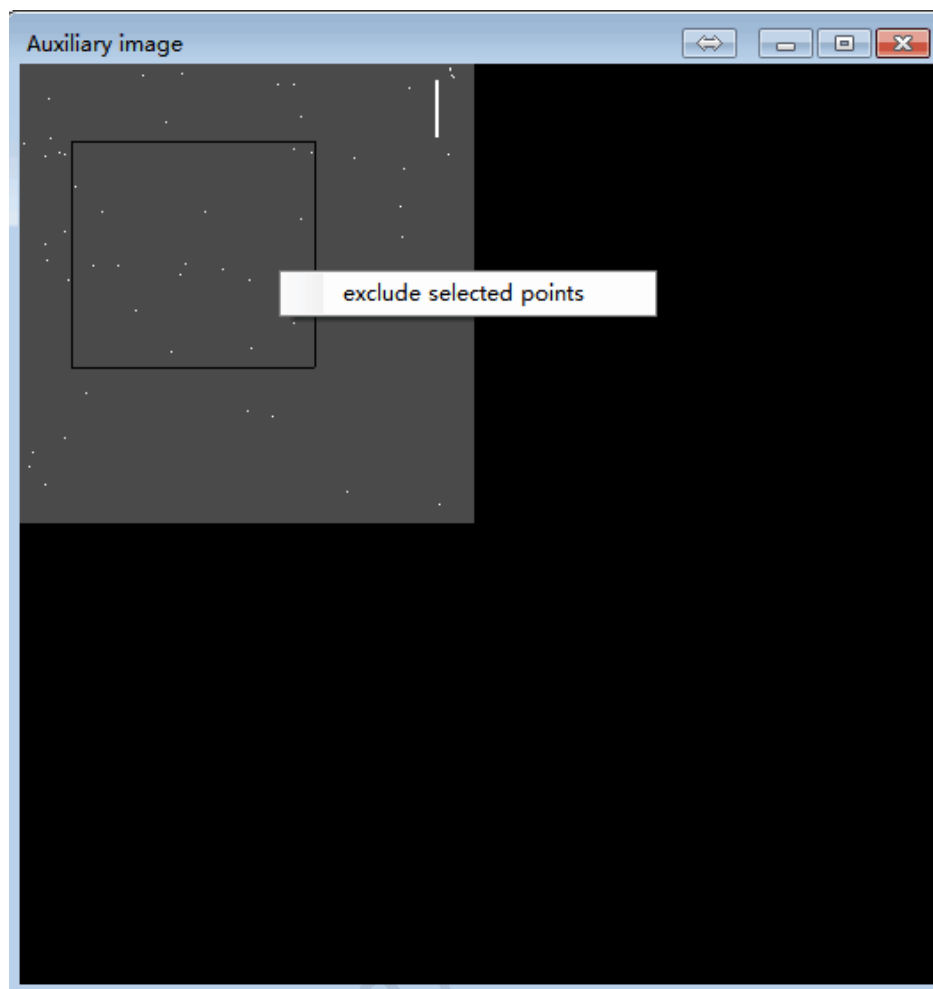


Fig. 2-16 Exclude selected points

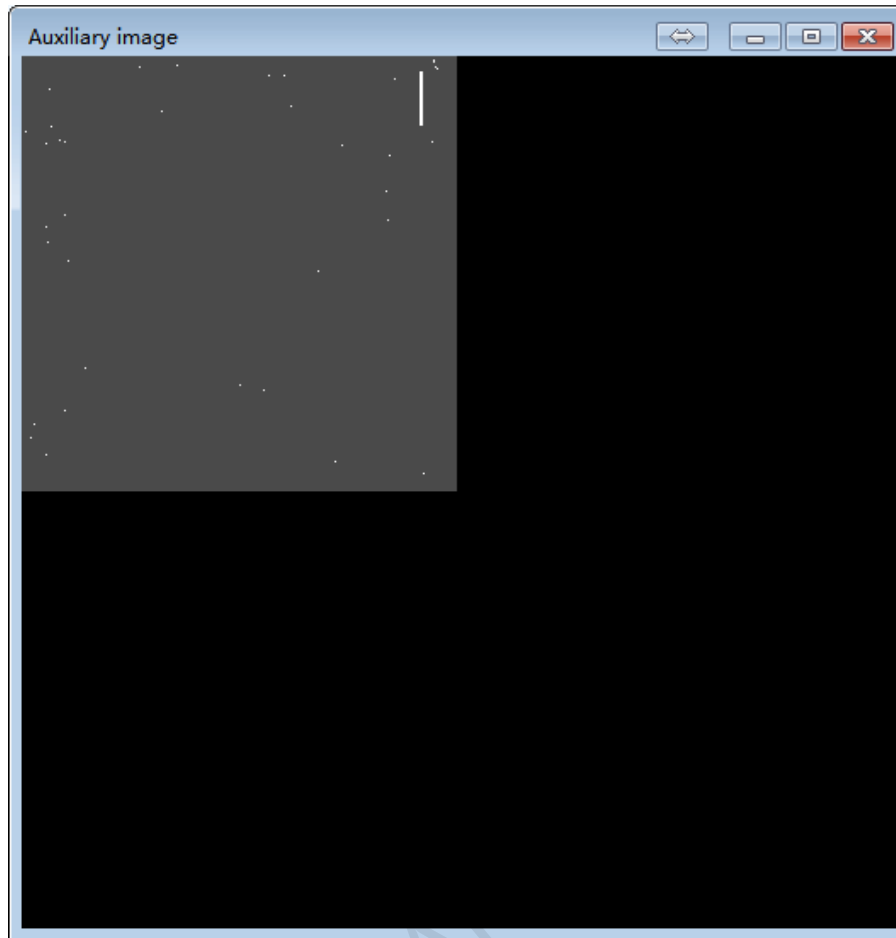


Fig. 2-17 After exclude selected points

- 3) Set a new directory to store database. The database adopts original name.

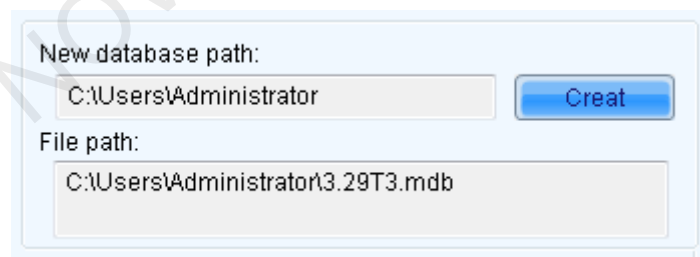


Fig. 2-18 Set new database path

- 4) Coefficient adjustment

Select an option to adjust. By default, all options are selected.

Manually adjust the selected options.

After the adjustment, click **Save coefficient**. The coefficient will be saved under the directory set in

step 3).

Coefficient adjust(Effective interval is [0 2456])

Adjust options:

☒ Red brightness	☒ Red chromaticity
☒ Green brightness	☒ Green chromaticity
☒ Blue brightness	☒ Blue chromaticity

Adjust targets:

R-R	1764.51	G-R	58.07	B-R	18.20
R-G	62.63	G-G	1735.30	B-G	26.30
R-B	20.95	G-B	22.59	B-B	1809.39

[Save coefficient](#)

Fig. 2-19 Coefficient adjust