

DotColorMatchingManual

C r e a t o r	Megatrade Co., Ltd.
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Inspection Settings

Within this tab, you set the inspection area for DotColorMatching.

Set the library to be automatically generated

The inspection area will be displayed.

Inspection Library

ライブラリ編集

Pressing this button opens the library editing and display dialog.

Viewing and selecting library

List of registered libraries

Select the type of library parameter

library parameter

operation button

Generation parameters

item	Setting Name	Description	standard value	When the value is changed
Luminance	extract luminance	There are brightness ranges for automatic extraction, R/G/B, and settings for dark and bright sides. 0~255	Dark side 0 Exposed Side 255	If the dark side is enlarged: the dark area will no longer generate during generation. If the bright side is reduced: the bright part is no longer generated during generation.
	Uniform Extraction Brightness Range Dark Side	Extract the uniform dark side of this range. 0~255	255	Extract only the uniform areas (the flat parts). If the value is lower, the dark side of the brightness variation is generated in areas below this value
	Uniform Extraction Brightness Range Exposed Side	Extract a uniform range on the bright side of this range. 0~255	255	Extract only the uniform areas (the flat parts). If reduced, the brighter side of the brightness variation is generated in the region where this value is below this value.
Size	Minimum block size	Lower Limit of Extraction Area Length	0	If you make it larger, it won't generate a small area.
	Maximum Block Size	Upper limit of extraction area length	1000000	If you make it smaller, it won't generate a large area.
	Minimum block area	Lower limit of extraction area	0	If you make it larger, it won't generate a small area.
	Block Maximum Area	Upper limit of extraction area	2000000000	If you make it smaller, it won't generate a large area.
	Maximum size	Divide the extraction area into block sizes up to this maximum	150	Reduce size: Variations within blocks (reduces overdetection when anything other than rotation or translational movement is derived, but increases processing time) Enlarge: This can shorten processing time, but overdetection occurs due to in-block deformation.
generate	spacing from the outline	The number of pixels that shrink the contour from the area extracted by luminance extraction	0	Enlarging it creates an inspection area even further inside the area set by the mask.
	Noise Size: Removal of isolated points	Size to remove isolated points when automatically generated from luminance	0	Enlarging removes isolated points and narrow linear areas.

	Noise Size: Pinhole Removal	The size to remove pinholes when automatically generated from luminance	0	If enlarged, pinholes or slit-like gaps become the inspection area.
	Generation Priority	Generation priority. Lower numbers have higher priority	20	If you enlarge it, the spawn order will be lower.
	Generate the previously generated area without avoiding it	Specifying whether to generate the area that has already been generated by avoiding or not avoiding it	TheFF	If you turn ON, duplicate generation occurs.
	Generated separately by contour and interior	Blocks are generated by dividing the extracted area into areas near the outline and inside	TheFF	When ON, blocks are generated along the contours of the area and blocks inside the area.
	Width generated only at the contour part	Specify the width to generate only for the contour. Invalidating by specifying 0	0	If you set a value greater than 0, a block with the width of the set value will be generated inside the contour. Used when you want to generate blocks only near the outline.
	The contour width generated around the previously generated area	The contour width generated around the previously generated area	0	If you set a value greater than 0, a block with the width of the set value will be generated outside the contour. Used when you want to generate blocks only near the outline.
	Half-offset to create duplicates	By offsetting half a block to generate it, the distance from the outline is reduced to half a pixel	TheFF	When ON, only the right and lower sides are generated by a gap of 1 from the contour, effectively reducing the spacing from the contour by 0.5 pixels.
Attributes	Collection range when generating OK luminance range			
	Grouping Scope for Text, etc.			
	Variation Deviation Threshold for Extracting Regions with Large Intra-Block Changes			
	Standard deviation threshold for flat surface judgment			

Description of examination parameters

item	Setting Name	Description	standard value	When the value is changed
Detection	R - OK Brightness Range (%)	Luminance % range in R inspection judgment	15	Please refer to the section on threshold settings.
	G - OK luminance range (%)	Brightness % range in G inspection judgment	15	
	B - OK Brightness Range (%)	Brightness % range in the judgment during B inspection	15	
	Inspection Layer	Select Inspection Layer Color or Layer Number	Csmell	If you make changes, only the specified layer will be checked. Layer 0: Red Layer 1: Green Layer 2: Blue
	OK dot count	Threshold for determining the number of pixels or area outside the luminance range	50	Please refer to the section on threshold settings.
	OK length	Threshold for determining the number of pixels or the length of the area outside the luminance range	9999	
	Sigma coefficient of pixel deviation			
	M->T	Assess inspection images based on master image standards.	ON	If you turn it off, it will not check whether the pixel color present on the master is present in the inspection image.
	T->M	Judge master images based on inspection image standards. Advantageous for determining bright points and small areas	ON	If OFF, it will not check whether pixels present in the inspection image are present in the master image.
	R Judgment Offset (-100~100)	Brightness Offset Range in R Inspection Judgment	15	Please refer to the section on threshold settings.
	G Judgment Offset (-100~100)	Brightness Offset Range in Assessment of G	15	
	B judgment offset (-100~100)	Brightness Offset Range in Inspection Judgment of B	15	
correction	Dark side Maximum corrected brightness measurement	Maximum value for correcting average brightness to the darker side	0	Enlarging reduces overdetection when the whole area becomes dark. However, setting it when only certain colors or parts change

				can actually increase over-detection.
	Exposed side Maximum Corrected Brightness Measurement	Maximum value for correcting average brightness to the bright side	0	Enlarging reduces over-detection when the whole area brightens. However, setting it when only certain colors or parts change can actually increase over-detection.
Explore	Area Search Dots	Exploration Range by Block	8	If you increase it, the search area for the misalignment will be larger, but processing time will take longer.
	Number of search dots per pixel	Pixel-based search range	2 (about 2~4)	If you enlarge it, if the color is similar to the area you set it up, it's OK.
	High-brightness area search (Invalid 255)			
	Search areas with low brightness values (Invalid 255)			
Attributes	block determination	block judgment. Normally, ON	ON	If you set it OFF, the block will be judged by the total number of NG pixels distributed within the block.
	Master Number Used	Normally, not set	0	
	Using Master2 images	Normally, it is not set. Specify when using the second master image	TheFF	
multi-point	Minimum area during multi-point judgment	Minimum area during multi-point judgment	0	When you increase the number, multi-point inspection will detect only major NG points.
	Minimum number of NGs during multi-point judgment	Minimum number of blocks to be NG when multi-point judgment is set	0	If you increase the number of NG judgments in multi-point inspection, NG will be output.
suji	inspection process	Thread Inspection ON	OFF	Turn it on when performing a streak inspection.
	Start angle of the stitch (horizontal 0 degrees, clockwise)	Start angle for thread inspection judgment: 0~360 degrees	0	
	Angle of tendon rotation (clockwise)	The angle range for the streak inspection judgment. When large, processing time is long. 0~180	0	By enlarging it, you can detect streaks at different angles.

				Processing time increases.
	Brightness of the Bright Side Suddenness	The brightness threshold on the bright side of the thread. Since the luminance value is determined by internal processing, it is different from the direct luminance value	150	The larger the size, the clearer and brighter lines will be detected.
	Dark Side String Brightness	The dark side brightness threshold for the threads. Since the luminance value is determined by internal processing, it is different from the direct luminance value	150	If you increase the size, it will detect only clearer dark lines.
	Filter variation value	As a variation threshold, increasing this value in areas with high variability can reduce over detection	3	Enlarging reduces over detection, but it becomes harder to detect streak defects when there is significant color variation on solid surfaces due to printed dots.
	Maximum String Width	Maximum strand width detected	5	If you increase the size, it detects wider streaks.
	Using Master Images	If you want to use the master image, turn ON. Normally, OFF	OFF	If ON, the difference from the master image will be used to determine the results.
	Degree of sensitivity reduction in uniform regions	In uniform areas, reduce the sensitivity by setting the ratio.	0	Increasing the size increases detection sensitivity at uniform brightness (flat surface).
	Detected luminance difference value	Minimum value of the average brightness difference between the streak and the surrounding streaks when determining	10	By increasing the size, only the areas with large brightness changes in the stitches are detected, reducing over detection.
red	inspection process	Red Processing ON	TheFF	
	Percentage increase in R's luminance value compared to G and B (%)	Red upper limit. When the value is high, the redness judged as red increases.	150	When the value is high, the redness that is judged as red increases.
	Minimum R brightness	Minimum red brightness value	70	If you increase the size, dark reds will no longer be detected.
	Variation ratio of G and B (%)	Ratio of G to B	20	If the value is high, it falls within the detection range of yellow and purple
	Offsets of G and B variation	Offset values for the ratio of G and B	15	When the value is high, it falls within the detection range ranging from dark yellow to purple

	Red reduction amount (edge false detection countermeasures)	When reddish appears on the pattern edges, set about 1~2	0	Enlarging reduces overdetection in red at pattern edges, but takes longer to process.
	OK dot count	Determined Size	100	If you increase it, small defects will not be detected.

How to calculate detection

1: Calculation of Color Range

The pixel color value of the master (Mr, Mg, Mb) Mr: Red Brightness Value Mg: Green luminance value Mb: Blue luminance value

The colors within the OK range are:

Red Brightness Range $Mr \cdot Mr \cdot L_r \cdot (1 + F \cdot 0.2) / 100 \cdot E_r \cdot 3 \cdot G \sim Mr + Mr \cdot H_r \cdot (1 + F \cdot 0.2) / 100 + E_r \cdot 3 \cdot G$

Green Brightness Range $Mg \cdot Mg \cdot L_g \cdot (1 + F \cdot 0.2) / 100 \cdot E_g \cdot 3 \cdot G \sim Mg + Mg \cdot H_g \cdot (1 + F \cdot 0.2) / 100 + E_g \cdot 3 \cdot G$

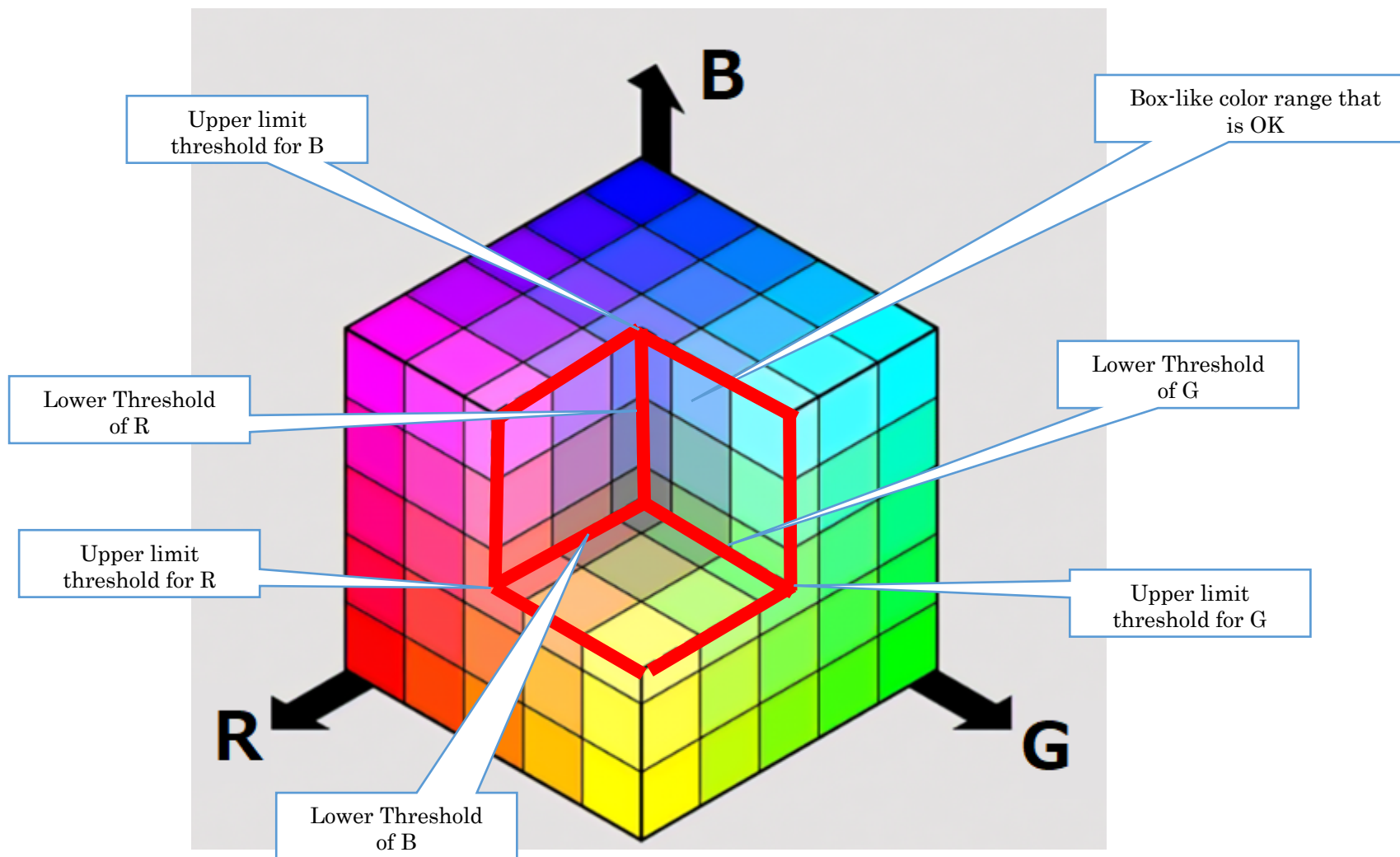
Blue Brightness Range $Mb \cdot Mb \cdot L_b \cdot (1 + F \cdot 0.2) / 100 \cdot E_b \cdot 3 \cdot G \sim Mb + Mb \cdot H_b \cdot (1 + F \cdot 0.2) / 100 + E_b \cdot 3 \cdot G$

However,

Lr, Lg, Lb	: OK Brightness Range (%) Dark side
Hr, Hg, Hb	: OK Brightness Range (%) Bright side
He, Eg, Eb	: R, G, B Judgment offset (-100~100)
F	: Exposed side settings for runtime fine-tuning
G	: Dark side settings for fine-tuning at runtime

■ Explanation of luminance range determination

In the OK color range determination shown below, the differences in R, G, and B colors are determined for each pixel by comparison with the master data, based on the diagram below.



- The upper limit threshold is set in % values, so colors with higher brightness values have a wider acceptable range.
The upper threshold is set in the "Threshold Settings Window" with "OK Brightness Range (%)."
- Since the lower threshold is set directly, the threshold is a large ratio for colors with low brightness, effectively working against colors with low brightness.
The lower limit threshold is set in the "Threshold Settings Window" under "Judgment Offset."

※Sensitivity adjustment value on the integrated screen (-10~+10) Details

	緩い		厳しい
暗い部分の濃淡	▼	0	▲
明るい部分の濃淡	▼	0	▲
ズレ許容	▼	0	▲

Shade values in dark areas: For the offset thresholds of R, G, and B, add the 'shading values of the dark areas' to -3Double the amount.

Example: The shading values in the dark areas are -2In cases (loose)

Offset thresholds for R, G, and B $-2 \times -3 = 6$ By adding these, the range of luminance value 6 becomes wider.

Shade values for bright areas: For the OK luminance range (%) values of R, G, B, minus 0 for the 'shade values of the bright areas'.

double It will be added.

Example The values of shading in the bright areas -2In cases (loose)

The luminance range (%) value of R is 1 on the dark side5, Exposed side 20

GThe luminance range (%) value of the dark side 10, Bright side15

BThe luminance range (%) value of the dark side 12, Bright side18In the case

The luminance range (%) value of R is 1 on the dark side $5 + (-0.2) \times (-2) \times 15 = 21$, Exposed side $20 + (-0.2) \times (-2) \times 20 = 28$

GThe luminance range (%) value of the dark side $10 + (-0.2) \times (-2) \times 10 = 14$, Bright side $15 + (-0.2) \times (-2) \times 15 = 21$

BThe luminance range (%) value of the dark side $12 + (-0.2) \times (-2) \times 12 = 16$, Bright side $18 + (-0.2) \times (-2) \times 18 = 25$

Inspection is conducted at a threshold set in

■ Details of Alignment and Exploration

At runtime, alignment and search are performed according to the following steps.

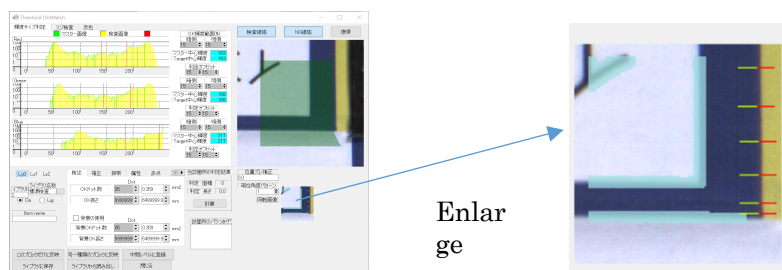
1: Align the alignment area from the captured image in the global area (the outline area on the integrated screen).

2: Alignment is performed in the order of priority (high→middle→low) of the region, using the previously aligned position correction as the reference.

3: For each inspection block, if the block is located near the pattern edge or contour, prioritize it as the alignment reference block, and after the alignment correction, set the "Area Search Dots Count"

Searches within a specified range to find the location with the highest match rate.

This alignment reference block generates the following red-green lines.



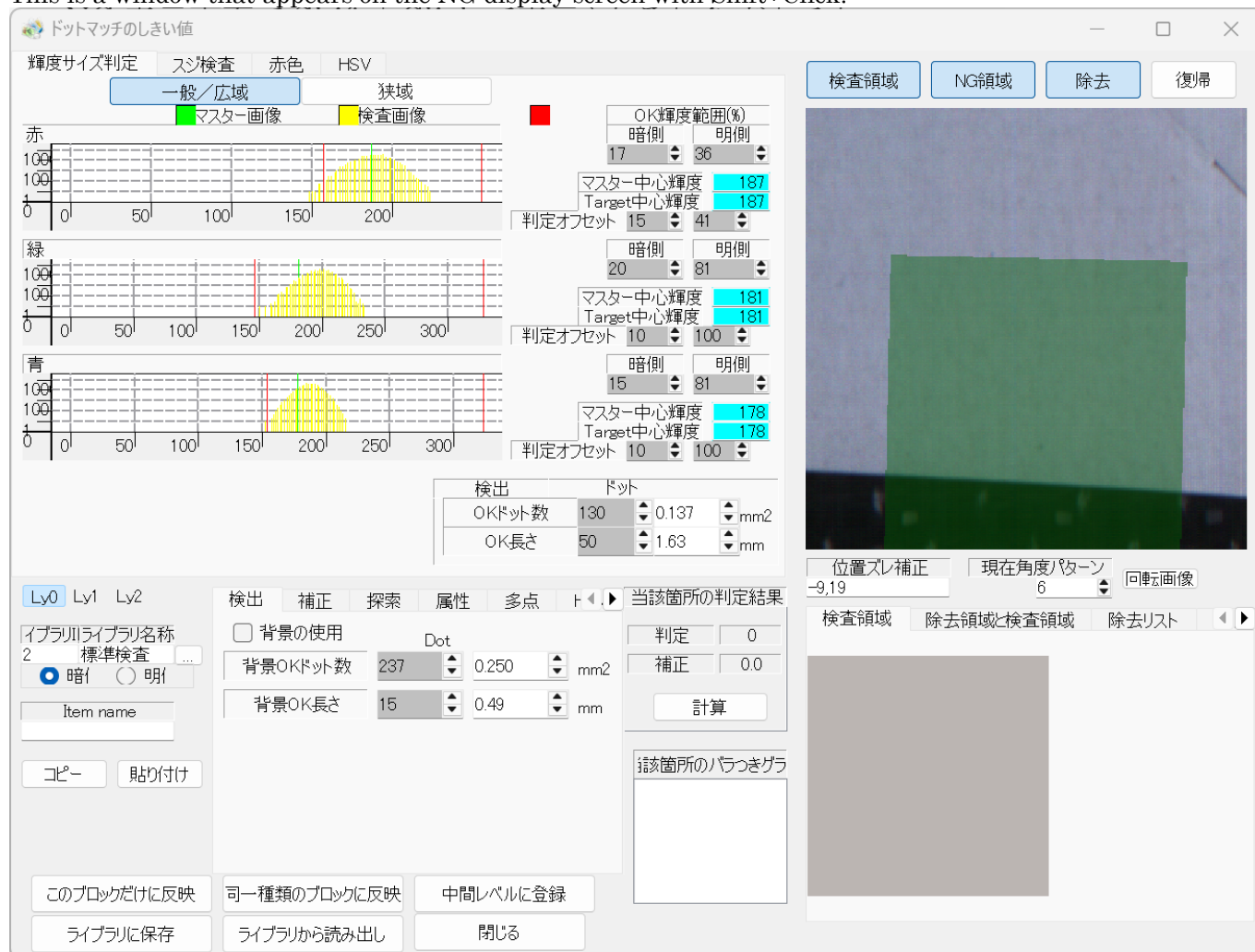
For other inspection blocks, search within the range specified by the 'area search dot count' based on the position correction of the reference block to find the location with the highest consistency rate.

4: After searching each inspection block, search for pixels within the brightness range where the number of search dots per pixel is considered acceptable.

If no pixels are found to be OK after searching, they are treated as NG pixels, and the area and length are judged using clusters of NG pixels.

Threshold Setting Window

This is a window that appears on the NG display screen with Shift+Click.



Each configuration item is the same as the library item.

When you edit and change the settings, the color changes from gray to white. Only the value for that part is reflected.

When you change the set value, the display is immediately reflected in the judgment test. This allows you to see how the value changes when you change it.

Calculate Pressing this button performs the judgment process.

Reflected only in this block Only the block selected by Shift+Click, or only the block selected within the range, The changes will be reflected.

Reflected in blocks of the same type Changes are reflected in blocks of the same library. Register at the intermediate level

Save to library Register and save it in the library at the current threshold level.

Reading from the library Load the contents set to the current threshold level library into this window
It will be done this way.

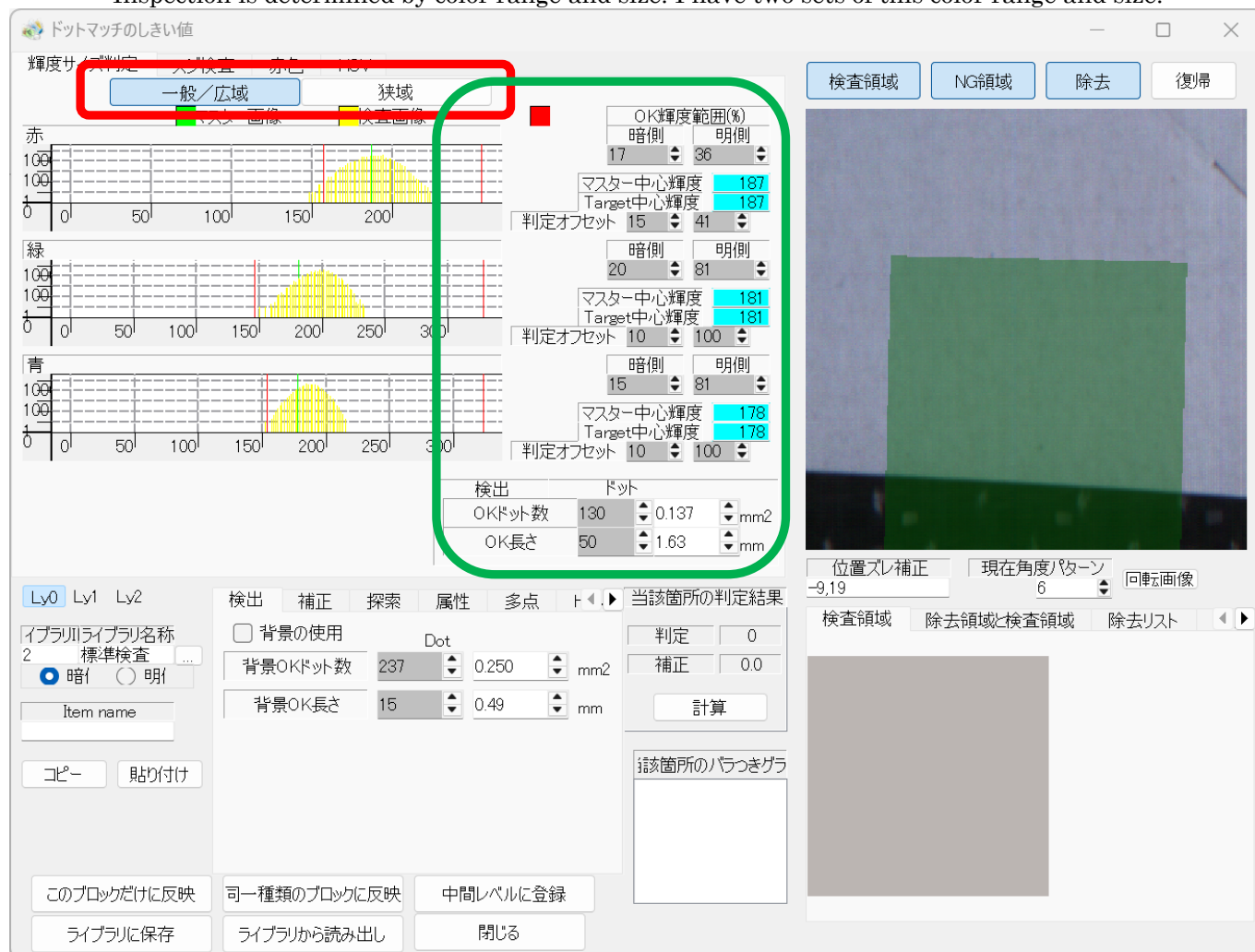
threshold adjustment

Thresholds mainly adjust the following settings.

- Adjusting color changes (also called brightness changes or sensitivity)
- Adjustment of detection size
- Adjustment of the amount of misalignment

■ 1: Wide/Narrow Adjustment

Inspection is determined by color range and size. I have two sets of this color range and size.



By switching between the "General/Wide" and "Narrow" settings in the red box, you can switch between two sets of thresholds (values within the green frame),
You can display it. If the OK dot count is 0, it will not be recognized. (Narrow-range criteria are not used)

Normally

"General/Wide-area" By setting the brightness range smaller and the number of OK dots larger, the colors are relatively pale and

Major defects can be detected

"Narrow Range" By setting the brightness range wide and the number of OK dots small, you can achieve a small and noticeable

You can detect good qualities.

Previously, we wanted to detect both noticeable small defects and minor large defects.

→ both the brightness range and dot count had to be set very small (strictly), so even the smallest defects could be detected. This led to overdetection.

■ 2: Color Change Adjustment

ドットマッチのしきい値

輝度サイズ判定 スジ検査 赤色 HSV

一般/広域 狭域

マスター画像 検査画像

赤

緑

青

OK輝度範囲(%)

暗側 明側

マスター中心輝度 Target中心輝度

判定オフセット

検出

OKドット数 OK長さ

背景の使用

背景OKドット数 背景OK長さ

このブロックだけに反映 同一種類のブロックに反映 中間レベルに登録

ライブラリに保存 ライブラリから読み出し 閉じる

検査領域 NG領域 除去 復帰

位置ズレ補正 現在角度パターン 回転画像

検査領域 除去領域と検査領域 除去リスト

判定 0

補正 0.0

計算

当該箇所のバラつきグラフ

The horizontal axis represents the luminance value (0~255), and the

Adjust the areas outlined in red

● The brightness range that is OK is

Dark side brightness threshold = [Master center luminance] - [Dark side OK luminance range (%)] × [Master center luminance] - [Dark side offset]

Brightness threshold = [Master center luminance] + [Light side OK luminance range (%)] × [Master center luminance] + [Bright side offset]

Example

The red in the diagram above (Red)

$$211 - 0.25 \times 211 - 10 \sim 211 + 0.2 \times 211 + 20$$

$$= 138 \sim 273 \text{ (Rounding down decimals to 0~255 (It can be rounded up within the range))}$$

When there is a significant color change

Example: metallic glossy parts or large warping parts of foil

For bright colors (white or near-white), OK to increase the brightness range values.

If you want → bright colors to be okay even when dark, increase the value for the dark side of the OK brightness range.

If you want to set OK when a bright area becomes even brighter, set the value on the bright side of the OK luminance range

Make it bigger.

For dark colors (such as black, navy, gray, or dark brown), if you want to set it to OK, set the judgment offset value to a large

It will be done this way.

If you want dark colors → to be allowed even if they become dark, increase the dark side of the offset value.

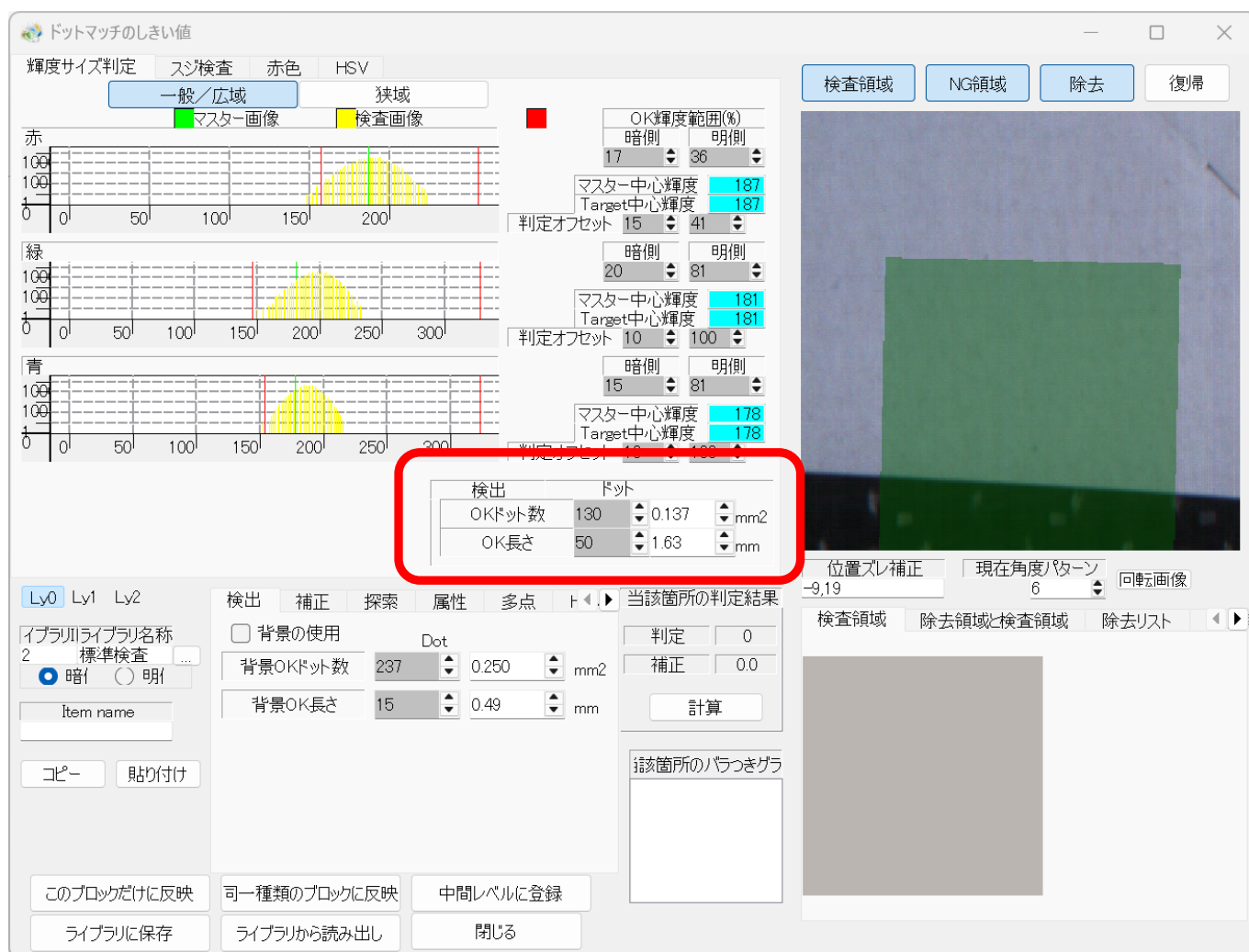
If you want → dark color to be okay even if it becomes brighter, increase the bright side of the determined offset value.

Conversely, if you want to set the part that has been judged as OK as NG, you will set it in the opposite way.

Master Center Luminance: Displays the average value (center luminance value) in the master image of the currently displayed block.

TargetCenter luminance: Displays the average value (center luminance value) from the inspection image of the currently displayed block.

■ 3: Adjustment of detection size



● General detection size

Adjust the number of OK dots and OK length in the "Detection" tab.

If the size exceeds the set value, it will be judged as NG.

OK length refers to the maximum lengths of the lump in the vertical, horizontal, and diagonal areas that were rejected by luminance determination.

● Background detection size

This function reduces over-detection caused by white spots near the workpiece when white spots appear in the background (such as belts).

"Background" refers to the area around the outside of the workpiece.

Using background: Check this box when using this feature. If you don't check this box, The workpiece area is inspected using the usual "OK dot count" and "OK length" mentioned above.

Background OK pixel count : This is the area that is judged OK/NG relative to the surrounding area outside the workpiece pass through. Usually, by setting a value greater than the "OK dot count," inspections are performed with a loose setting

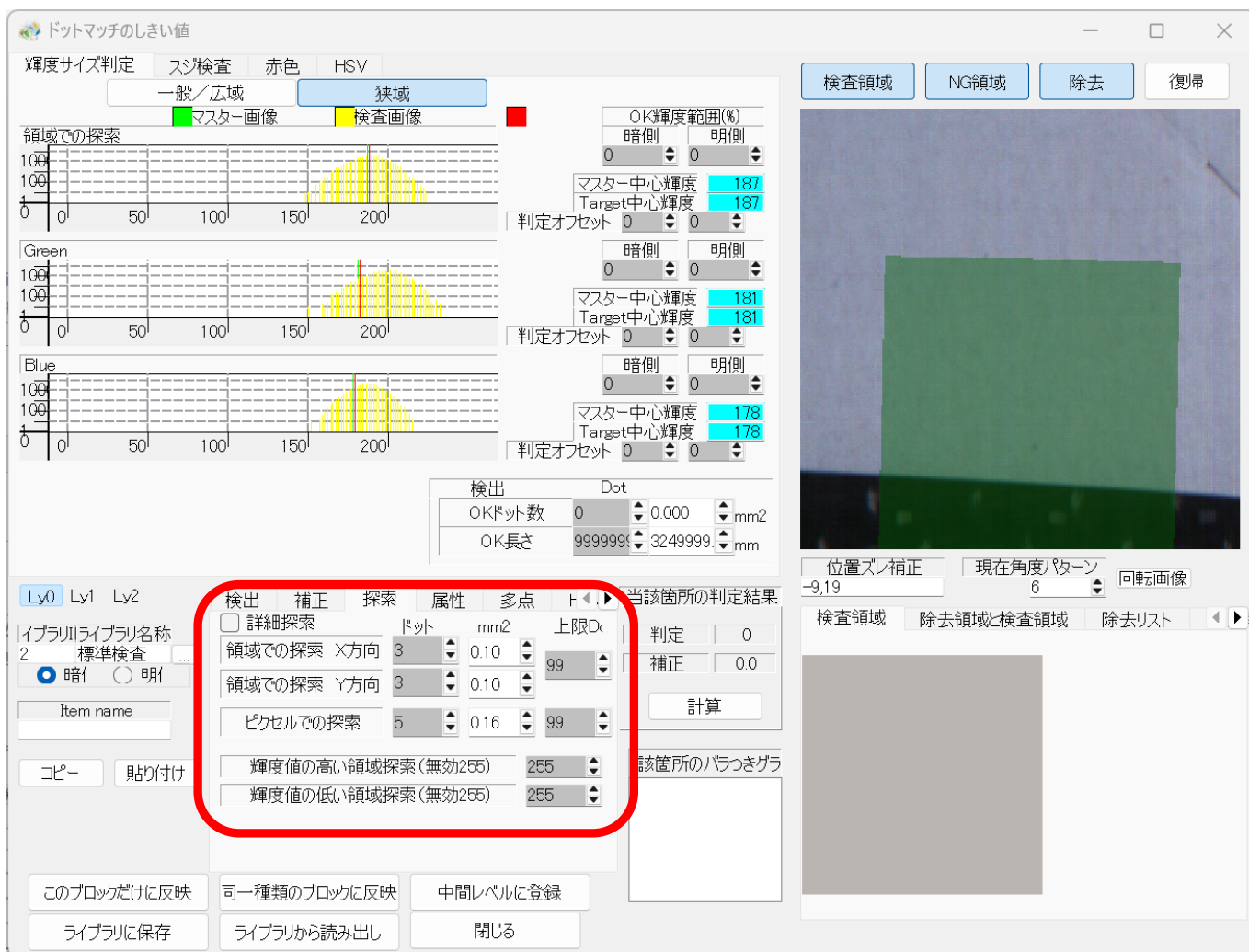
This helps suppress overdetection at white spots on belts and similar surfaces

Background Length OK : This is the length of the reference for OK/NG judgment against the surrounding area outside the workpiece. pass through

Usually, by setting a value greater than the "OK length," inspections are performed with a loose setting value.

This helps suppress overdetection at white spots on belts and similar surfaces

■ 4: Adjustment of the amount of misalignment



Explore in detail : If you check the box, it will take processing time to find locations that match the details.
By using it in specific areas with significant misalignment, it is possible to effectively reduce over-detection of misalignment.

Exploration in Areas: Expands the search area for blocks. Increasing the value allows the search to cover a wide area, and partial

This will help you address misalignment. However, processing time increases.

We recommend increasing the set value only for areas like warping or misalignment.

Exploring with Pixels: Addresses tiny misalignments and print inconsistencies. Usually, it's about 1~3, but near the exterior,

By increasing the size of areas with large misalignments or shape changes to about 10, you can reduce over-detection.

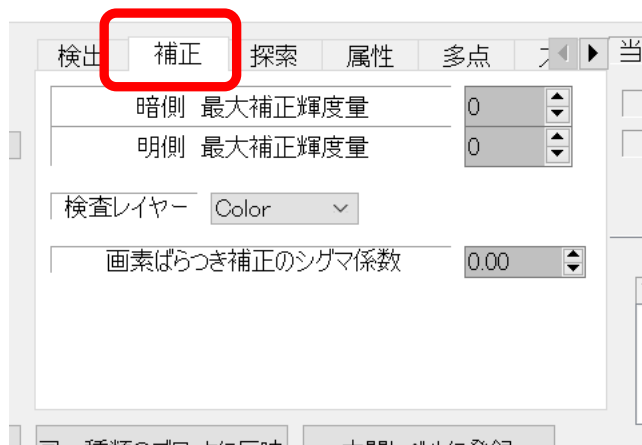
Area Exploration with High Brightness Value: Searches for the location with the highest brightness value by the layer number you set. Vapor-deposited coatings, used to ensure the search for areas with large local misalignment but very bright light . Normally, I will not use it and set it to 255 (not used).

Areas with Low Brightness Value: Search for the area with the lowest luminance value in the layer number you set. Black coats and more, Used to ensure the search for areas with large local misalignment but very dark areas. Normally, I will not use it and set it to 255 (not used).

■ 5: Response to overall brightness changes

Due to changes in the color of the workpiece or deterioration of lighting due to changes in lot size, the overall appearance may become slightly darker or brighter.

Yes, there is. In this case, changing the luminance threshold to match the overall brightness can prevent over-detection.



The difference in average luminance values across the entire block between the master image and the inspection image is added to the threshold values for each RGB brightness level for inspection.

However, there are upper and lower limits for the added value.

When using

Usually, gold leaf, metallic, hologram and so on, resulting in a large overall brightness variation

This correction function is used for certain areas.

***Mainly used for single colors or areas with small color changes within a block. When used**

Dark side Maximum corrected brightness measurement

This is the maximum correction value in the direction darkened by the average brightness difference between the master image and the inspection image.

Normally, it is used at 0 and this correction function is not used.

Exposed side Maximum Corrected Brightness Measurement

This is the maximum correction value in the direction of brightness, based on the average brightness difference between the master image and the inspection image.

Normally, it is used at 0 and this correction function is not used.

Inspection Layer

Specify the layer to be judged. Normally, for color cameras, select Color.

This allows inspection processes to be performed at every layer.

Strong characteristics in specific layers specify a layer to prevent overdetection caused by disturbances from other layers.

Stopping and improving processing speed.

Sigma factor for pixel variation correction

Used when the brightness variability in the image is large (such as rough images).

The value obtained by multiplying the standard brightness of pixels within a block by this set value is added to the threshold of the luminance range. Normally, use at 0. It will be done this way.

■ 6: Judgment Attributes

Set the attribute for the judgment.

block determination

We use the NG parts as lumps to determine the size and length. Usually, I check the box. When detecting sesame salt-like NG, unchecking the box can reduce NG at a single pixel.

It can detect scattered defects.

M⇒T Inspection images are evaluated based on the master image. It is effective for detecting small dots in the master image.

T⇒M Compare the inspection images with the master images as a reference. If you notice small spots on the test image, this test

It is effective.

If both checks are unchecked, the inspection process will not be executed.

■ 7: Multi-point Inspection

If there are multiple small abnormalities within a block, you can make it a NG (no-take) check.

When a defect is smaller than the NG size set in the detection settings and multiple defects are detected,

We will use it.

There are two types of multi-point inspections.

1: Regular multi-point inspection

If there are more NG (NG) than the specified size within a block, it will be determined as NG.

Minimum area during multi-point judgment Defective parts exceeding this area are counted.

Minimum number of NGs during multi-point judgment

If the number of detected items exceeds this threshold, the block is considered NG.

If both settings are zero, multi-point inspection is not used.

2: Intensive Multi-Point Inspection

If there are more NGs within the block than the specified size or more within the specified distance range, I will make it a no-go.

Minimum area for dense multi-point detection

Defective parts exceeding this area are counted.

Minimum number of NGs during dense multi-point detection

When the number of detections exceeds this threshold, the block is rejected and We will make a judgment.

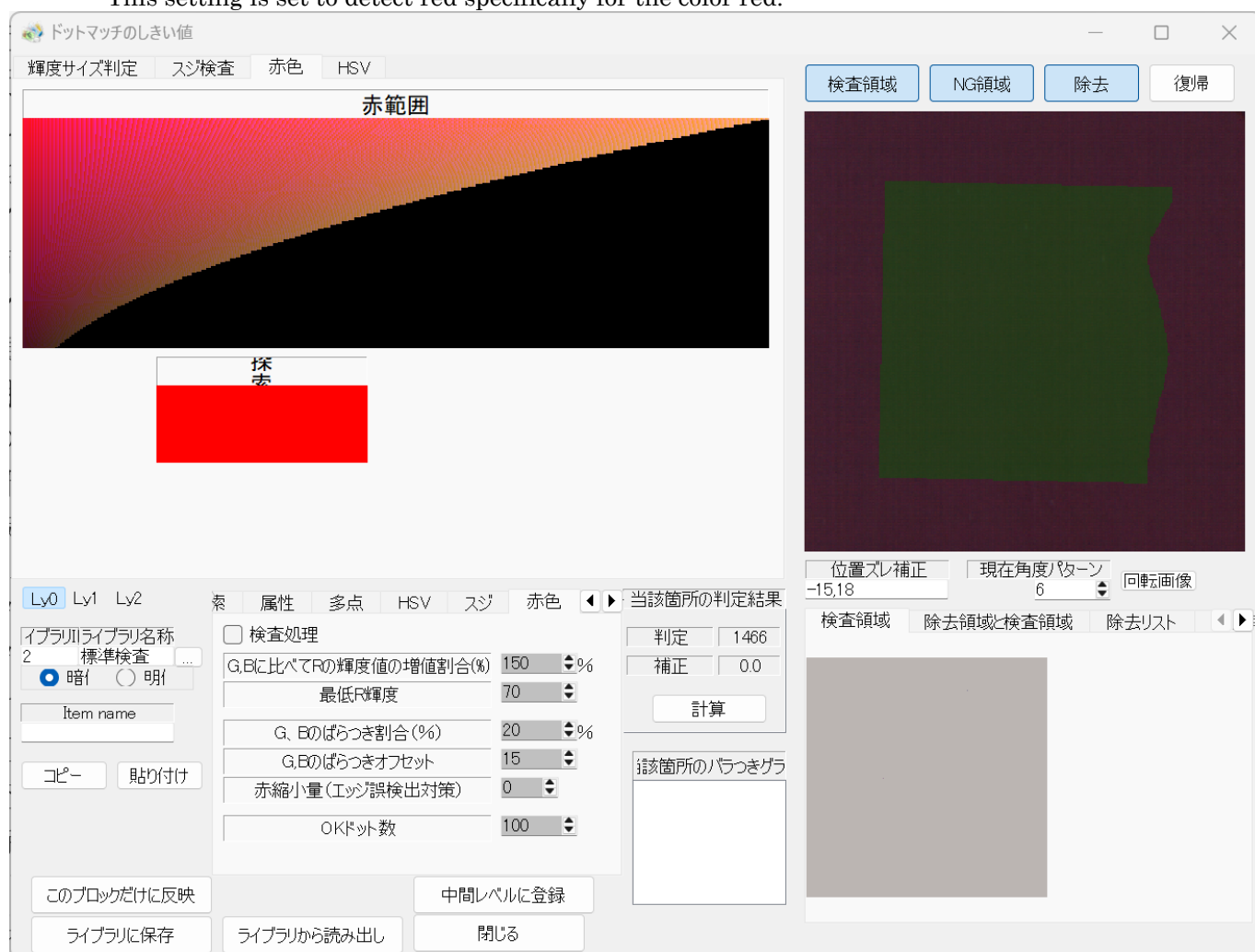
Range (distance) during dense multi-point determination

Set the range where NG exists.

If the minimum area setting for dense multi-point determination is 0, dense multi-point inspection is not used.

7: Red Inspection

This setting is set to detect red specifically for the color red.



Rate of increase in R luminance value compared to G and B

If you reduce the value, it can detect colors close to white (colorless).

It will be Minimum R brightness

It will detect R values above this luminance value.

When the value is low, red-black NG (NG) is also detected

Variation ratio between G and B Detects colors that are not pure red.

When the value is large, the red Offsets of G and B variation

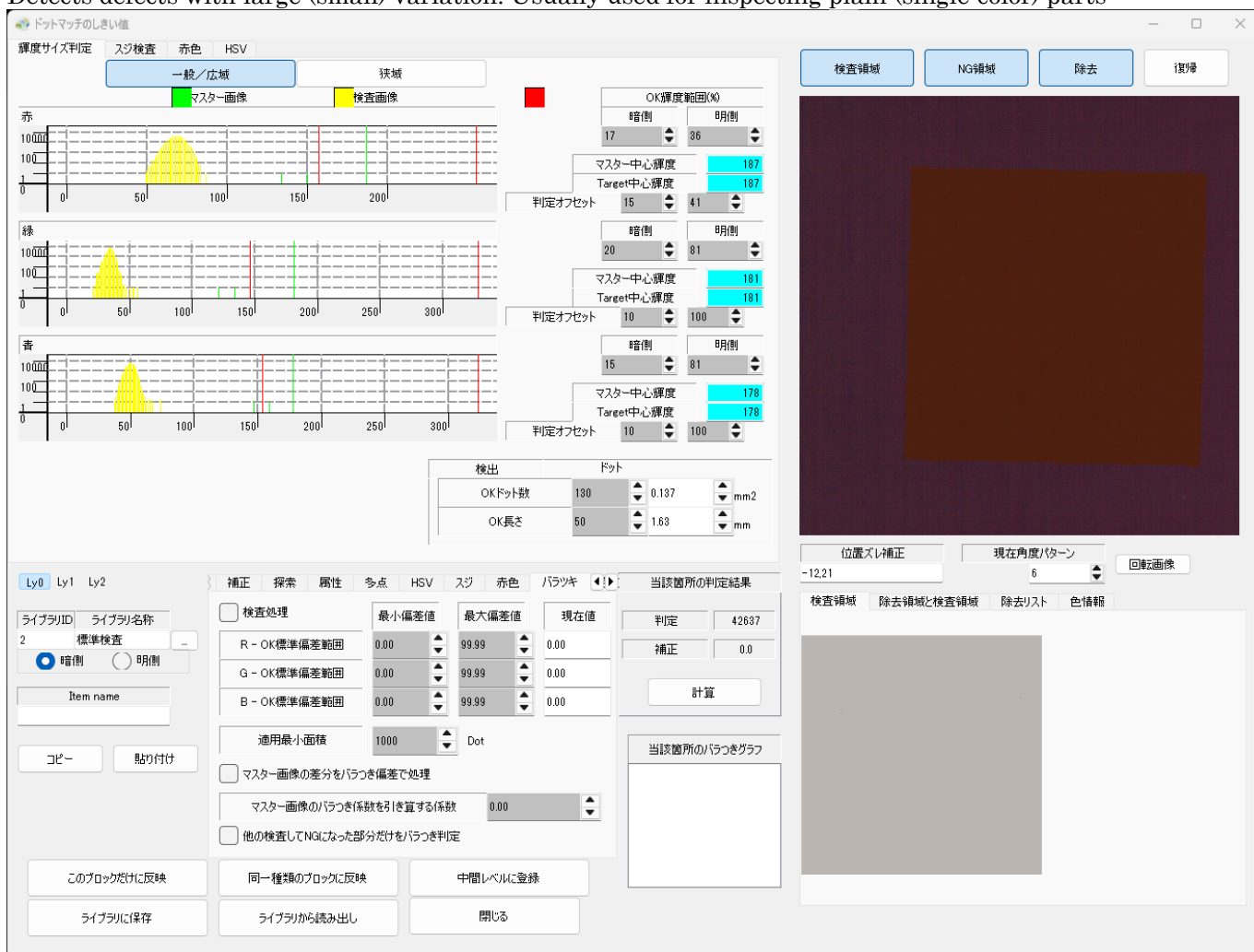
Detects colors that have deviated from the previous color

Red contraction volume (Edge false detection countermeasures) Ignore the thin red color. Mainly due to

color misalignment at the pattern edges, Prevents overdetection.
OK dot count Set the area to be detected as NG. Sizes even larger than this Detects

■8: Fluctuation Inspection

Detects defects with large (small) variation. Usually used for inspecting plain (single-color) parts



inspection process

R/G/B-OK 標準偏差範囲

good product

If you check the box, it will perform a variation judgment.

Set the standard deviation value for variation to detect.

I want to avoid it when the roughness becomes much larger than the image of a

→ Set the value to a wide range

Compared to the good product images, if the surface becomes smooth and lacks roughness, I want to avoid it.

→ set values within a small range

Applicable Minimum Area

Set the area of the area within the above standard deviation range.

Anything above this area is not allowed.

Processing Master Image Differences with Varying Deviations

If checked, the standard deviation of the master image difference will be used to determine the results.

Check the box when there is a pattern.

A coefficient to subtract the variation coefficient of the master image

A coefficient for considering the variation in the master's image. When the value is large,

Depending on the variation in the master's image, it will judge even greater

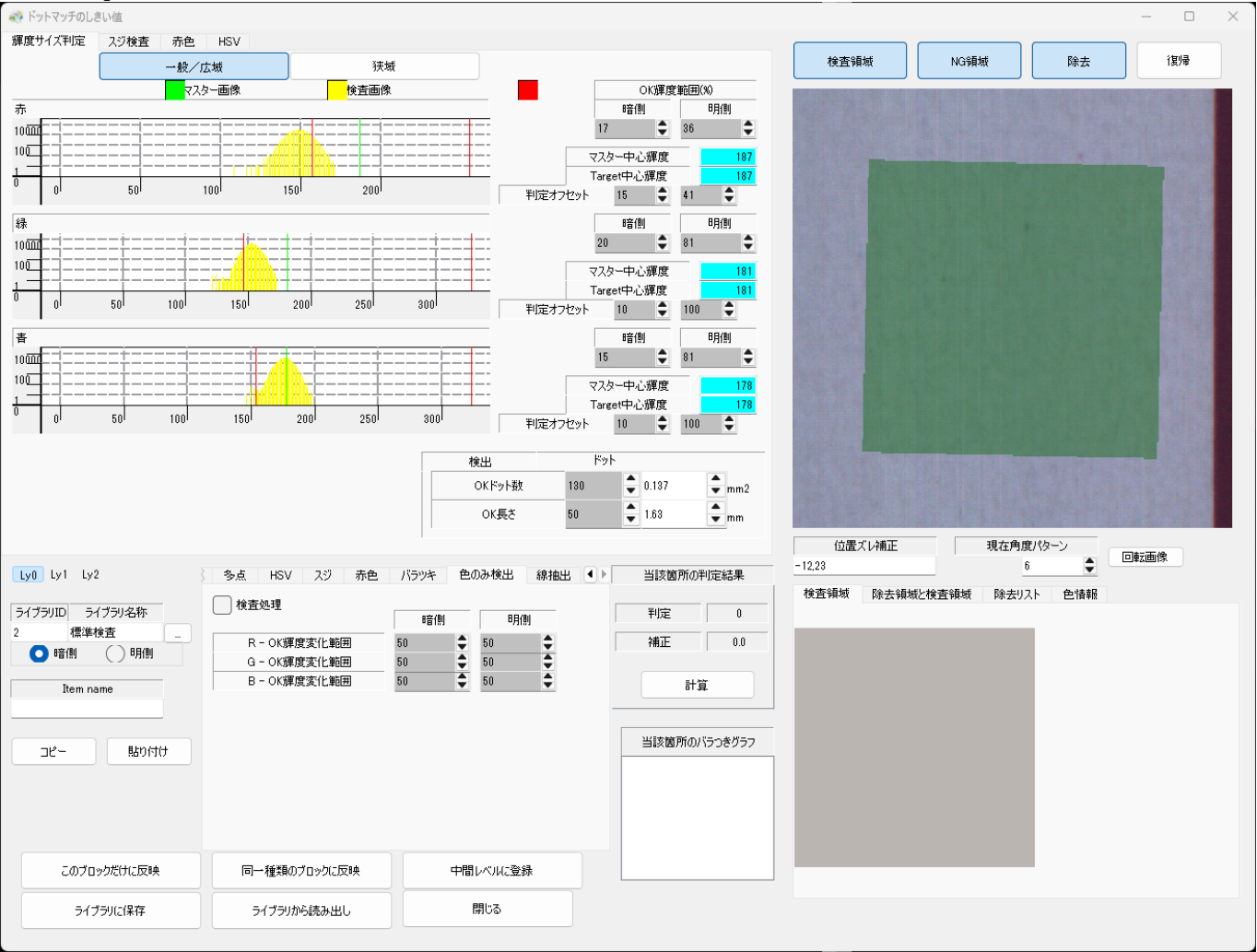
variation as OK.

Only the areas that were rejected by other tests are judged to be inconsistent.

Only the areas that were rejected by other tests will be re-evaluated for variation.
As a result, even if other test results are rejected, a discrepancy assessment may
be acceptable.

■8: Color-Only Detection Inspection

If a specified color is found, we conduct an inspection to reject the test. Mainly judged on sticky surfaces (plain)

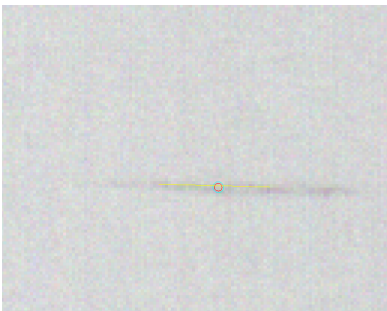
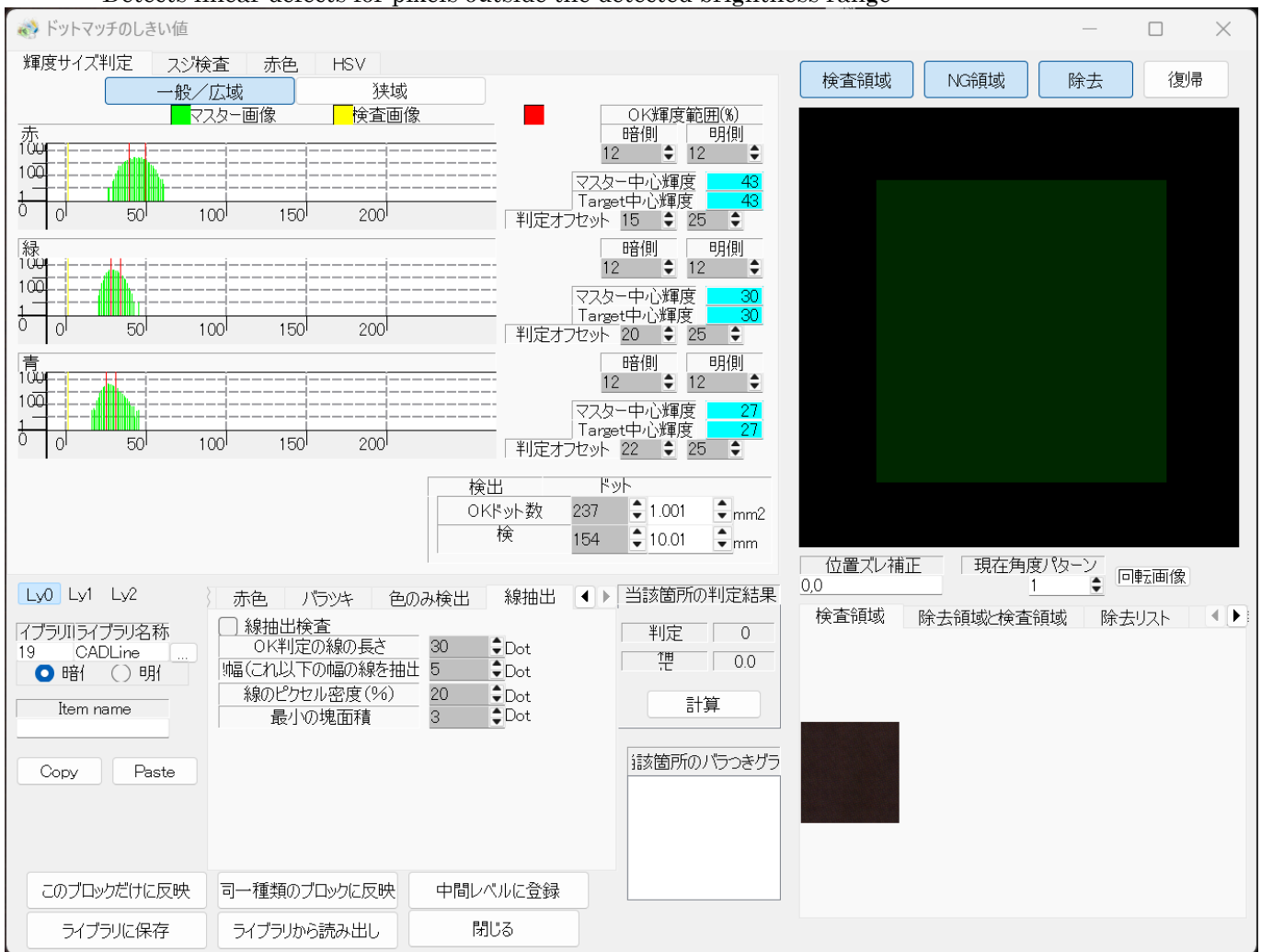


inspection process
R/G/B-OK 輝度変化範囲
master image, it is judged as NG.

Enable color-only detection
If there is a change in brightness value or greater than this in the

■9: Line Extraction Inspection

Detects linear defects for pixels outside the detected brightness range



Detected Examples

Line sampling test box

Length of the OK Judgment Line length are not allowed

Width (extract lines of width below this) line to extract.

are other NG points nearby,

Line pixel density

interrupted, it will be used at the specified density.

Minimum block area

Enable it if you check the

Lines longer than this

Specify the width of the

If the lines are too thick or there

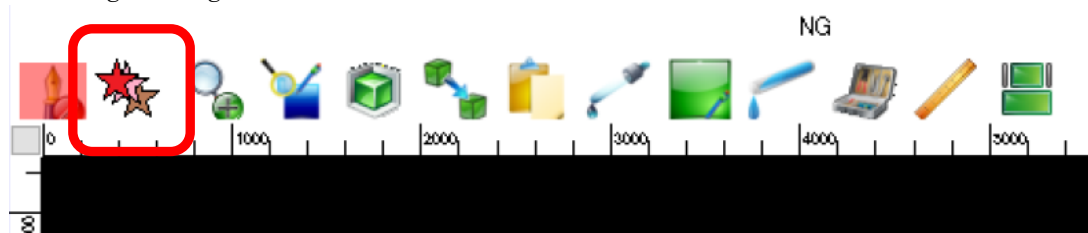
If it is detected, it will not be detected as a line

If the point is

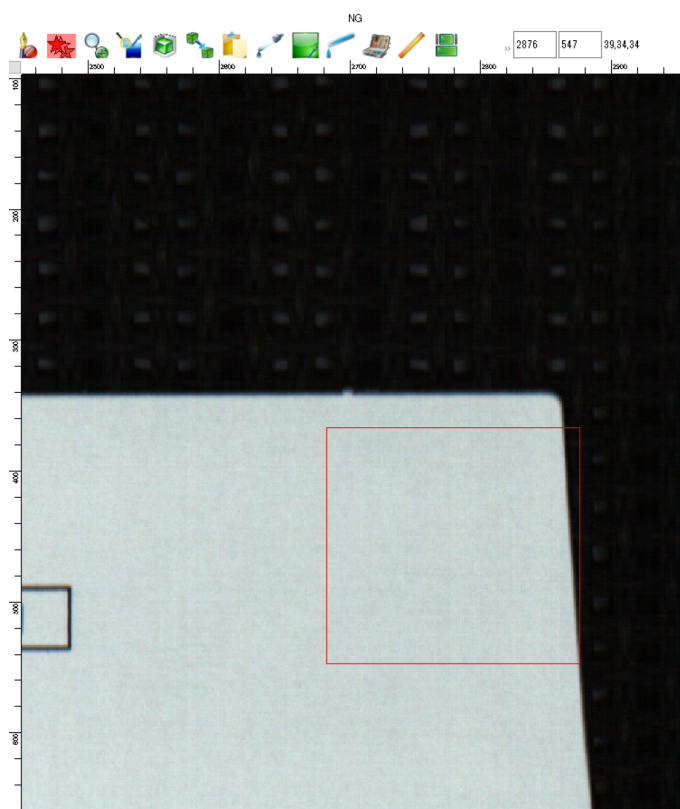
Extract the line above.

Extract any more chunks

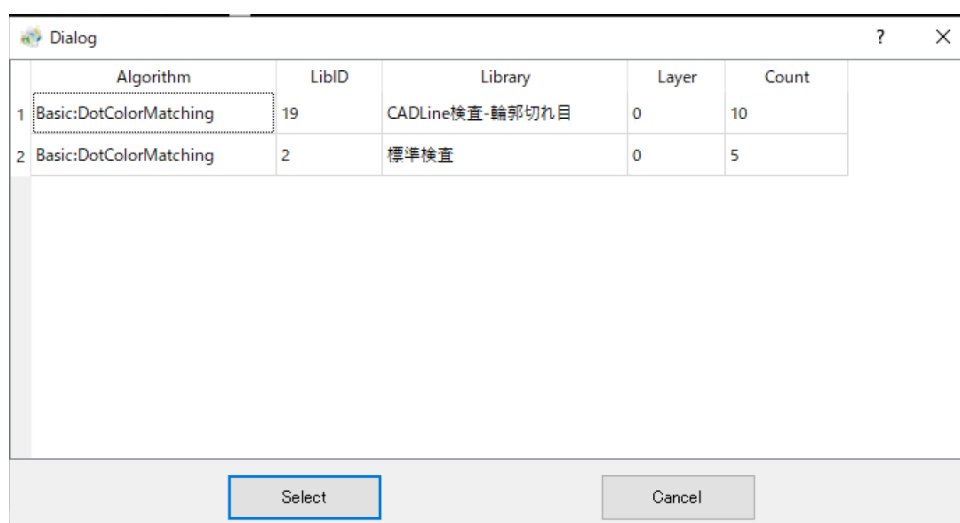
■ Partial Settings Changes



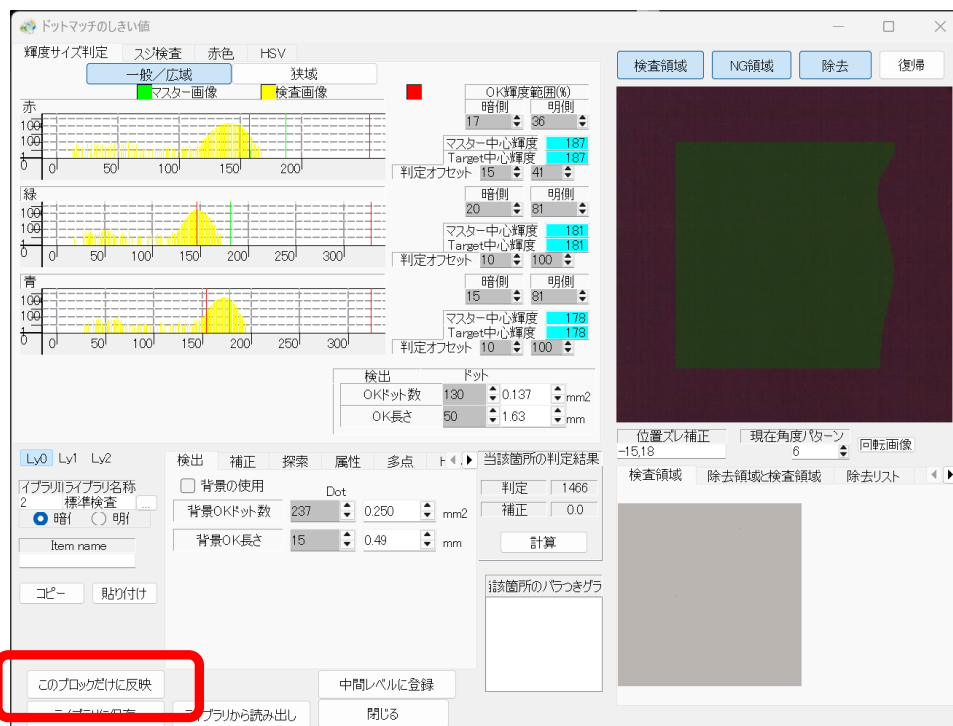
Press down this icon to enclose the area where you want to change the settings



By specifying an area like this, a list of block types spanning that rectangle will be displayed.



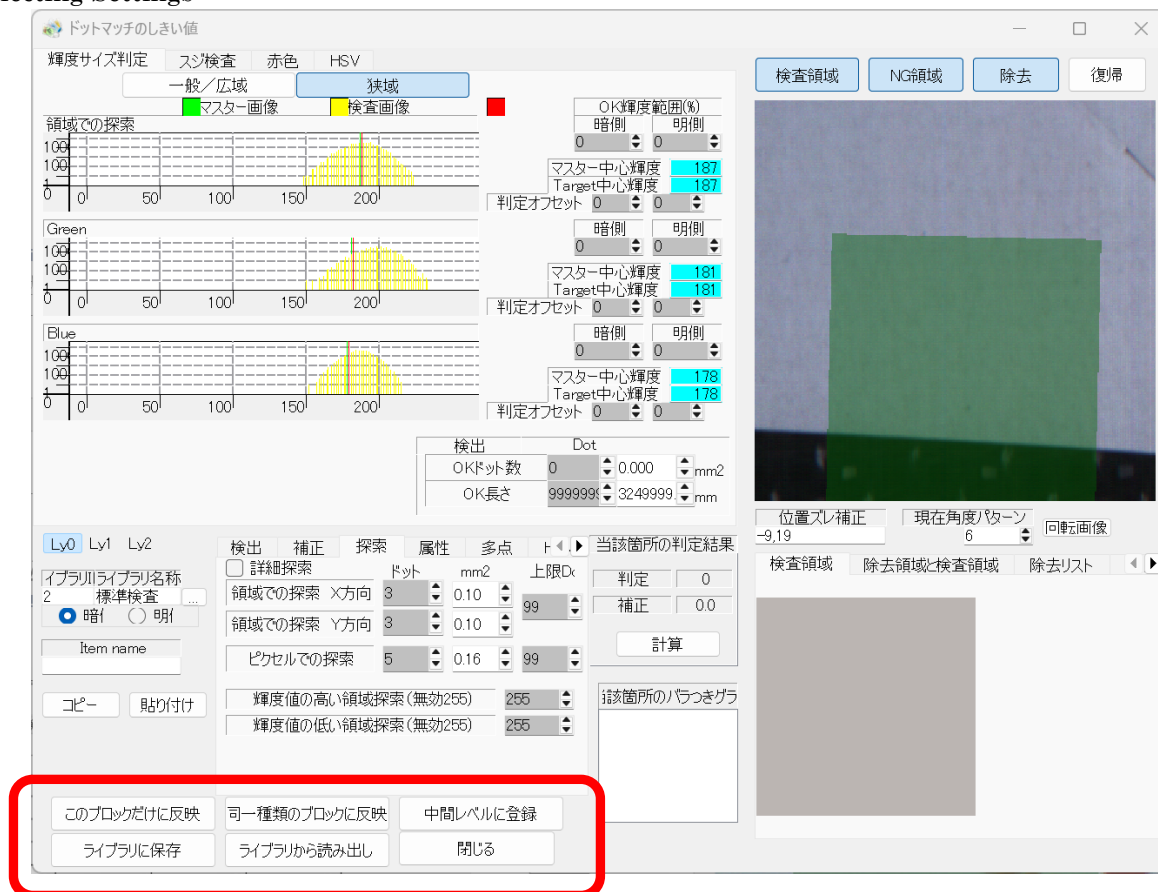
This dialog will appear, so select the type of block you want to partially change. Double-click a row in the list, select a row, and press the "Select" button.



By pressing the "Reflect on this block" button, you can select the type of block within the specified area.

Only the value of the edited part will be reflected in every block.
The changed value will turn the input box gray → white.

■ Reflecting Settings



When reflecting on single/selected area blocks
When applying to all blocks of the same library

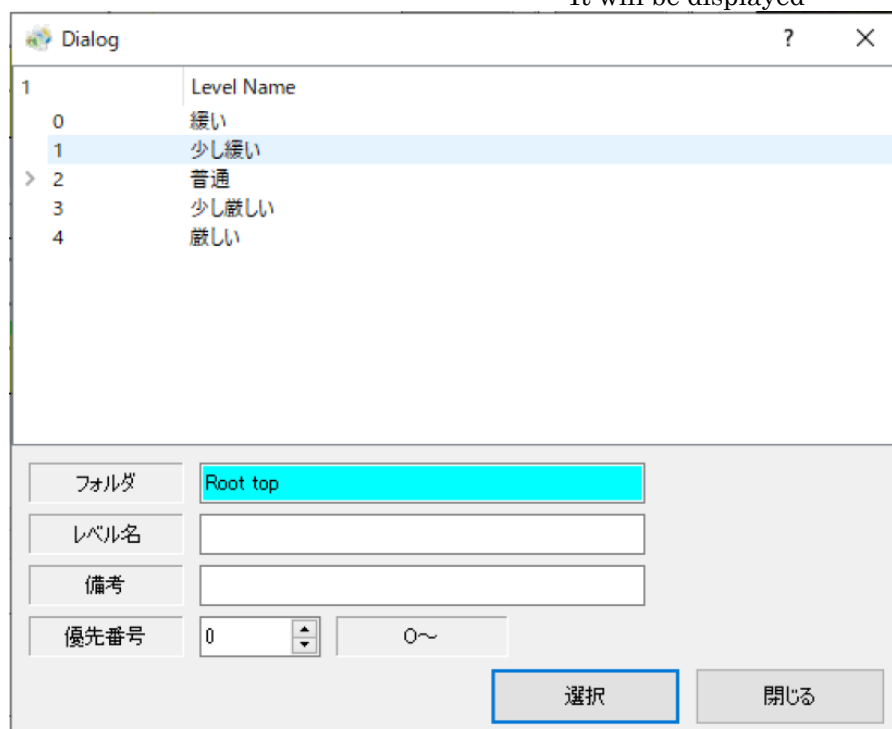
"Reflect on this block" button
"Reflected in blocks of the same

type"

When applying to libraries
bring up the next dialog

Pressing the 'Reflect in Library' button will

It will be displayed



Select the threshold level to save.

When loading library values
dialog

Pressing the 'Read from Library' button will bring up the next

It will be displayed

The screenshot shows a Windows-style dialog box titled "Dialog". It contains a list of threshold levels under the heading "Level Name". The list is as follows:

Level	Level Name
0	緩い
1	少し緩い
2	普通
3	少し厳しい
4	厳しい

Below the list, there are several input fields and buttons:

- フォルダ**: A text box containing "Root top".
- レベル名**: An empty text box.
- 備考**: An empty text box.
- 優先番号**: A numeric input field with "0" and a range indicator "0~".
- Buttons**: "選択" (Select) and "閉じる" (Close).

Select the threshold level to load.