

Instruction Manual

Luminance & Chromaticity Uniformity Analyzer

***UA-10* SERIES**

2D Luminance Colorimeter

***UA-200* SERIES**

Introduction

Thank you for your purchasing Topcon Technohouse Corporation Luminance & Chromaticity Uniformity Analyzer UA-10 series and 2D Luminance Colorimeter UA-200 series.

The instrument can measure and analyze luminance and chromaticity of smart phone, tablet, LCD/OLED in TV accurately. And it can measure interior panel, switch in Automotive and illumination of LED, OLED also.

And, it is possible to easily correct the measurement data as compared with the measurement value of our luminance meter (SR series, BM series, etc.).




This Manual describes the outline, basic operation, and the specifications of this device. Please keep this Manual near you for your operating this device.

This manual assume that you can know well operation of Windows PC.

Safety Precautions




The instruction panels on the device and this Instruction Manual describes important things to prevent the dangers to the operator or others and damages to your properties from being occurred, and to secure your operating this device.

Be sure to understand the following indications and symbols, read the precautions and the contents, and observe the written instructions fully.









Indication marks	Meaning of marks
 Danger	This “Danger” mark indicates that ignoring this indication and mishandling the system may cause dangerous accidents that may cause death or severe injury to you or others.
 Warning	This “Warning” mark indicates that ignoring this indication and mishandling the device may cause death or severe injury to you or others.
 Caution	This “Caution” mark indicates that ignoring this indication and mishandling the device may cause injury to you or others* ¹ or cause property damage* ² .

*1 Injury stated here indicates the injury, burn, or electric shock that does not require you hospitalization or visiting the hospital for a long time.





*2 Property damage stated here indicates the damages widely spread to the building, properties, domestic animals, or pets.

Symbols	Meaning of symbols
	This mark indicates the prohibited matter. Detailed content of the prohibited matter is stated or indicated by the symbol in or near the mark.
	This mark indicates the instruction to be obeyed. Detailed content of the prohibited matter is stated or indicated by the symbol in or near the mark.
	This mark indicates the caution (including the warning). Detailed content of the prohibited matter is stated or indicated by the symbol in or near the mark.

⚠ Warning

Symbols	Precautions
 Prohibited	<p>Never use the system in flammable or explosive vapor-floated (gasoline, etc.) place. This may cause the fire.</p>
 Prohibited	<p>Never put the device near the fluid bottle and tiny metal particle. Never put on the fluid bottle and tiny metal particle on the top of and near the device. When the fluid and tiny metal particle come into the device, it may be cause of fire and electric shock.</p>
 Prohibited	<p>Keep the instrument away from water and liquid. This may cause the fire and electric shock.</p>
 Prohibited	<p>Never disassemble or modify the device. This may cause the fire and electric shock.</p>
 Prohibited	<p>Never disassemble AC adapter</p>
 Prohibited	<p>Be sure to remove the dust or moisture around the outlet. This may cause the fire.</p>
 Forced	<p>Be sure to use dedicated AC adapter. This may cause the fire and electric shock.</p>
 Forced	<p>If abnormal sound, unusual smell, or smoke are found in the device, turn off the power quickly and pull out the AC adapter cable from the outlet. Continuing to use the device may cause the fire. Please contact the local retailer from which you purchased the device or TOPCON TECHNOHOUSE CORPORATION.</p>

 **Caution**

Symbols	Precautions
 Prohibited	Never put the device (or other objects) on the unstable places like wobbly table or inclined surface. Dropping or falling of the device (or other objects) may injure you.
 Prohibited	Never pull out or insert the plug by wet hand. This may cause you electric shock.
 Prohibited	Never block the ventilation slot. Ensure that the ventilation slot remain unobstructed, or it may be cause of fire.
 Forced	Use only specified screws when using the tripod screw and screw holes for jig attachment. Do not tighten the screws any more than necessary. Doing so might cause internal breakage.

Disclaimer

- We are not responsible for the damages caused by various problems such as, fire, earthquake, behaviors by other persons, other accidents, intentional or negligent or wrong use of the device by the operator, and the use of the device under abnormal conditions.
- We are not responsible for incidental damages arising from the use or unavailability of the device (loss of business income, business interruption, etc.).
- We are not responsible for the damages caused by the uses other than specified in the Instruction Manual.
- We are not responsible for the damages caused by the installation or execution of the software and the malfunction of other software and PC.
- We are not responsible for the damages caused by the malfunction due to the combination with the connecting devices.

Precautions for Use

- Use dedicated AC adapter, otherwise it may cause malfunction. For the power supply used for this device, the input voltage is 100 to 240 VAC and the frequency is 50 to 60 Hz.
- Never measure the light source exceeding the measurable range or the sunlight. Such behaviors may damage the photo detector and make it impossible to perform the stabilized measurement.
- Do not put the device on the place where it is difficult to operate the device.
- Never use the device in such places as is dusty, humid, or corrosive gas generating.
- Warm up the instrument for 5 minutes before measuring. When measuring luminance of 1cd/m² or less by using UA-200, warm up the instrument for 30 minutes. Otherwise the instrument might provide unreliable measured value.
- Never use this device in a place where the temperature tends to vary rapidly. Although this device is equipped with a temperature compensating circuit, it may not perform the stabilized measurement under the environment where the temperature tends to vary rapidly.
- Never use or store the device in such place as is subject to heavy shock like falling or as tends to vibrate at any time. Such places may damage this device equipped with delicate optical components. And, to carry the device, please use the carrying case not to directly vibrate or shock it.
- To store the device, be sure to put it in the carrying case and keep it under constant temperature and humidity. Never store the device under high temperature and high humid environment such as in a car.
- To maintain the measurement precision, be sure to perform the calibration at least once a year. For the calibration adjustment, consult the local retailer from which you purchased the device or TOPCON TECHNOHOUSE CORPORATION.
- To request the calibration adjustment, be sure to put the device in the carrying case and put the case in a carton box with cushioning materials packed to send it to the retailer or us.
- When the calibration is adjusted, the measurement data stored in the device are completely removed. Therefore, be sure to back up the necessary data in your PC before requesting the calibration.
- Using this software together with other software may interrupt the communication with this device. Therefore, it is better for you to execute this software as independently as possible.
- Never install software other than commercially available software on the PC onto which this software is installed. Such behavior may cause the malfunction.
- When you use LAN cable other than standard accessory, use straight through Category 5e cable (1000BASE-T/TX) or greater.
- Be sure to save the data at the interval between respective measurements.
- For energy saving, when the unit will not be used for an extended period of time, unplug the power plug from the socket.
- Keep the instrument away from water and liquid. This instrument is not water-resistant.
- This device consists of recyclable material. Please contact recycling agent if you dispose of this device.

- Please do not peel off the sticker stuck on the back of the main unit. If you peel it off, all warranty will be invalid.

User Maintenance

Maintenance works other than instructed in this Manual must not be carried out by anybody other than our servicing staff in order to keep the safety and performance. However, the following matters can be performed by the user for maintenance.

Cleaning Lens

For the dirt of lens, please remove it with a soft cloth with diluted mild detergent saturated and then wipe it away with a dried soft cloth.

Never use solvent medium such as thinner, benzene, and acetone. Such solvent medium may discolor the surface.

Dust which is larger than 100 μ m on the lens of the instrument may cause the measurement error.

Blow dust off the lens with the blower in standard package when dust settles on the lens.

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Notation in This Manual

Description in this Manual is in accordance with the following notation.

Notation	Description
[OK] [Correction Factor]	This represents the buttons, tab, and menus displayed on the screen, and the keys of a keyboard.
☞ 「 」	This shows the reference section within the Manual.
☞ 『 』	This shows the reference document.
 Note	This explains what you should know or consider before starting the operation.
 Memo	This explains the reference or convenient matters helpful for your operation.

※In this instruction manual, descriptions are common for the UA-10 and the UA-200 series other than individual description. Read the common description as your instrument.

1. Before Using the System

1.1 Checking of Photo Detector and Accessories

Please check whether the device and all of the accessories shown below are provided.
If any of them is not found, please call the local retailer from which you purchased the device or TOPCON TECHNOHOUSE CORPORATION.

■ UA-10 Series

1. Main body of UA-10 (with object lens cap) 1
2. AC Adapter 1
3. LAN cable(CAT7 3m) 1
4. Universal adapter (4 varieties of socket) 1

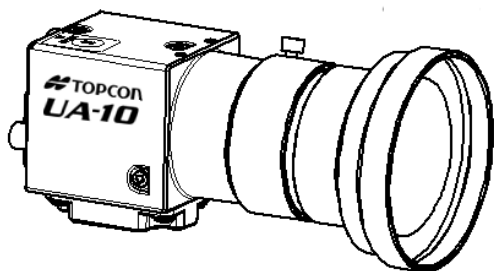
※Universal adapter may not be included in the package depending on the destination.

5. Adapter for tripod screw (with 4 screws) 1
6. Spacer (with 4 screws) 1
7. CD-ROM (Installation program) 1

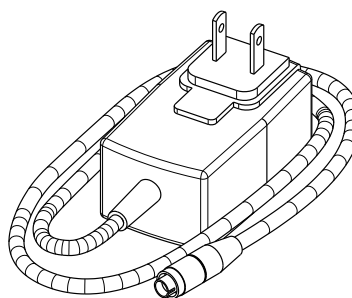
- Instruction manual (PDF) *This document
- Application program
- Software Development Kit (SDK)
- Parameter Files
- LAN configuration program

8. Carrying case 1
9. PL sheet 1
10. Inspection report 1

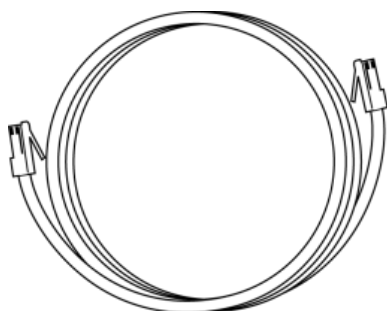
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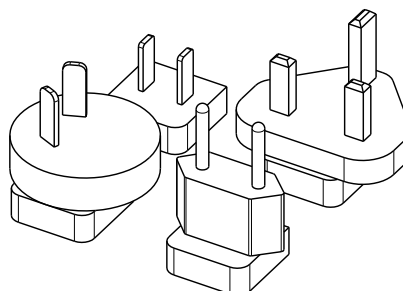
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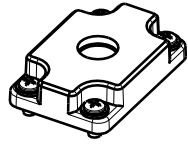
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4

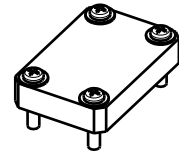


5



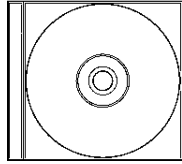
(Screw:2x5+FW x4)

6

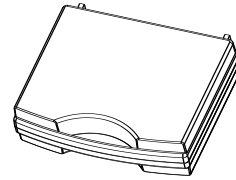


(Screw:2x10+FW x4)

7



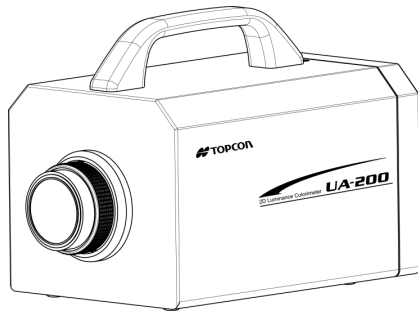
8



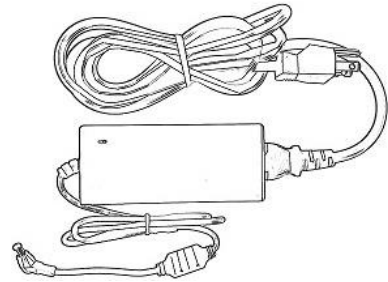
■ UA-200 Series

- | | | |
|---|---|----------------------|
| 1. Main body of UA-200 (with object lens cap) | 1 | |
| Attachment lens AL-UA3 | 1 | ※UA-200WS, UA-200AWS |
| Attachment lens AL-UA4 | 1 | ※UA-200AT only |
| 2. AC Adapter | 1 | |
| 3. LAN cable(CAT7 3m) | 1 | |
| 4. CD-ROM (Installation program) | 1 | |
| • Instruction manual (PDF) *This document | | |
| • Application program | | |
| • Software Development Kit (SDK) | | |
| • Parameter Files | | |
| • LAN configuration program | | |
| 5. Carrying case | 1 | |
| 6. PL sheet | 1 | |
| 7. Inspection report | 1 | |

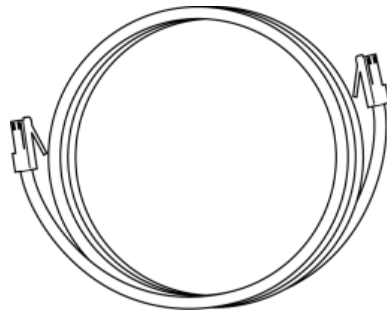
1



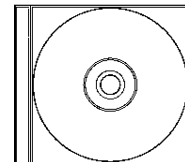
2



3



4

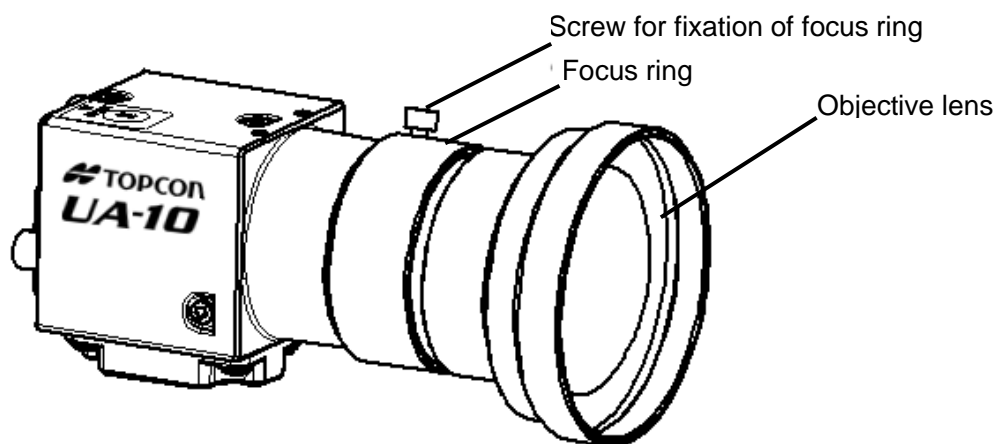


5

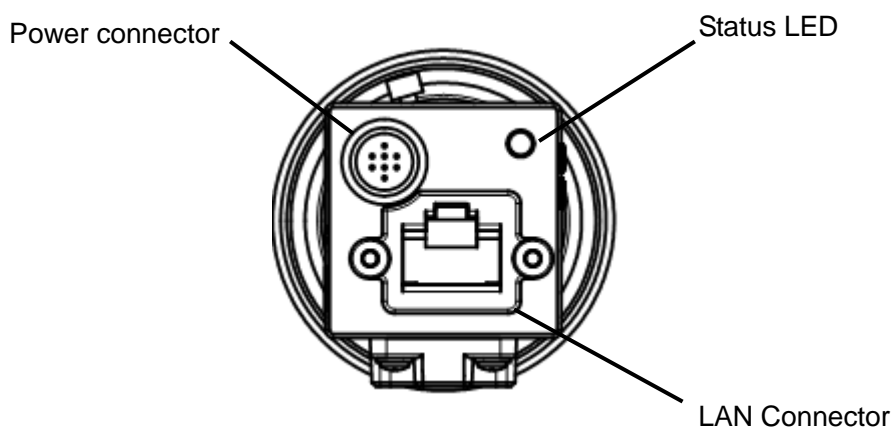


1.2 Names and Functions of Photo Detector

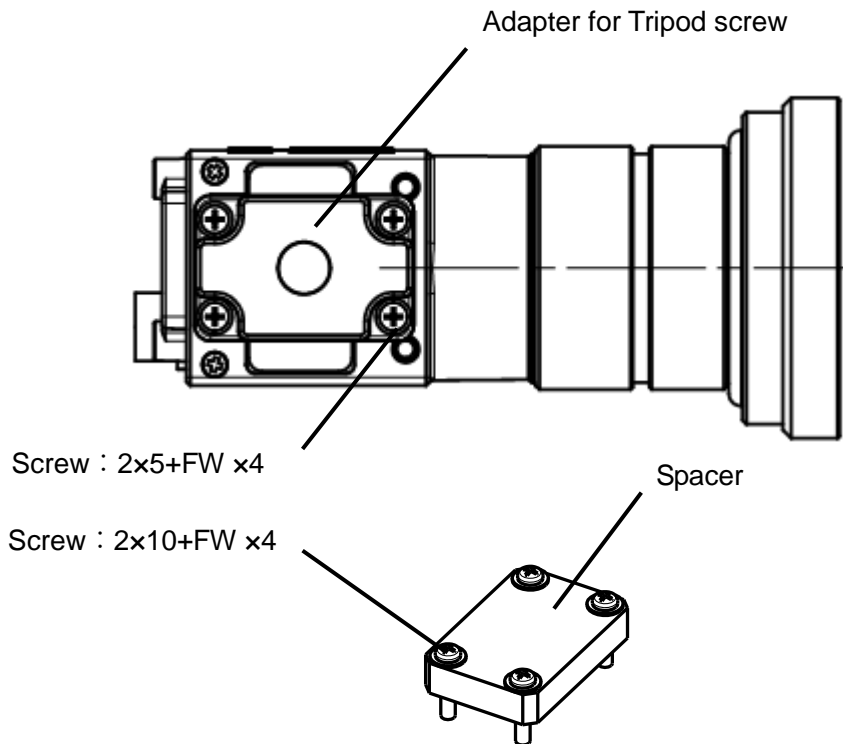
■ UA-10 Series




Name	Function
Focus ring	Adjusts focus on the measurement object.
Screw for fixation of focus ring	Fixes the focus ring after the position of focus ring



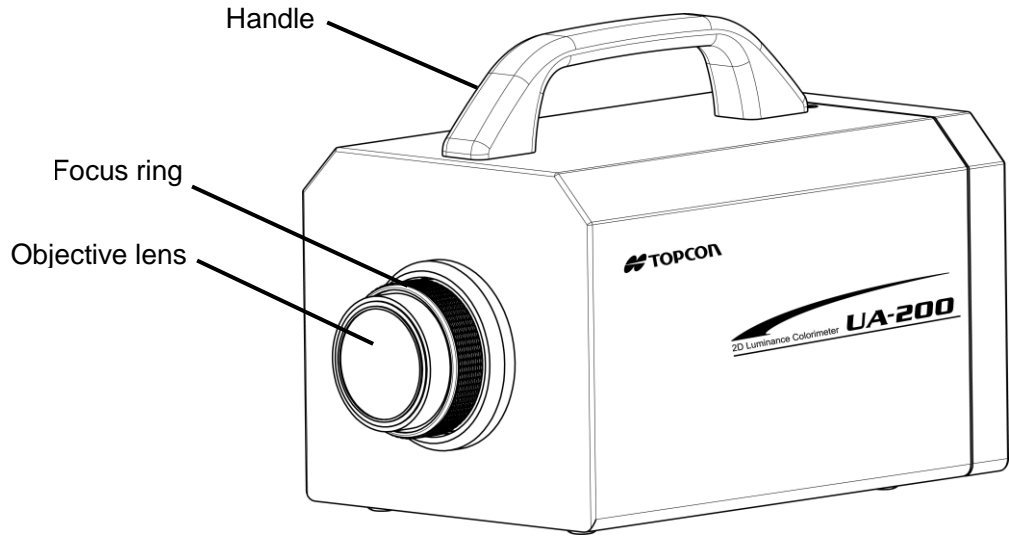
Name	Function
Power connector	Connects AC adapter DC12V
Status LED	Indicates status of the device Light off : No power or No signal Green light : Under communication or process Red blinking : Error
LAN Connector	Connects LAN cable Use Straight through LAN cable, Category 5e (1000BASE-T/TX) or grater



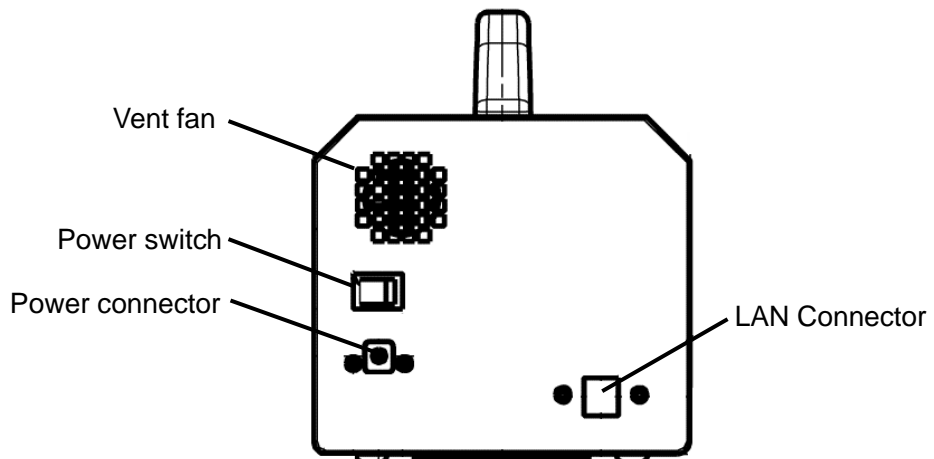
Name	Function
Adapter for Tripod screw	Attaches to the UA-10 main body when the UA-10 is mounted to a tripod. Tripod screw : 1/4-20 UNC NUT Depth 5mm
Spacer	Attaches to the UA-10 main body when the UA-10 is put on the flat surface. Always use the spacer when fixing to a tripod. Attach the spacer to the UA-10 and then, attach the adapter for tripod screw over the spacer. Fix together with the adapter and spacer by screws.
Tool screw	Used to mount the UA-10 to fixture or stand. M3x0.5(ϕ :3mm Pitch:0.5mm)

 Note	<p>Use the adapter for tripod screw with the spacer.</p> <p>In case of using only with the adapter for tripod screw, the UA-10 may come in contact with the screw. Doing so might cause internal breakage.</p>
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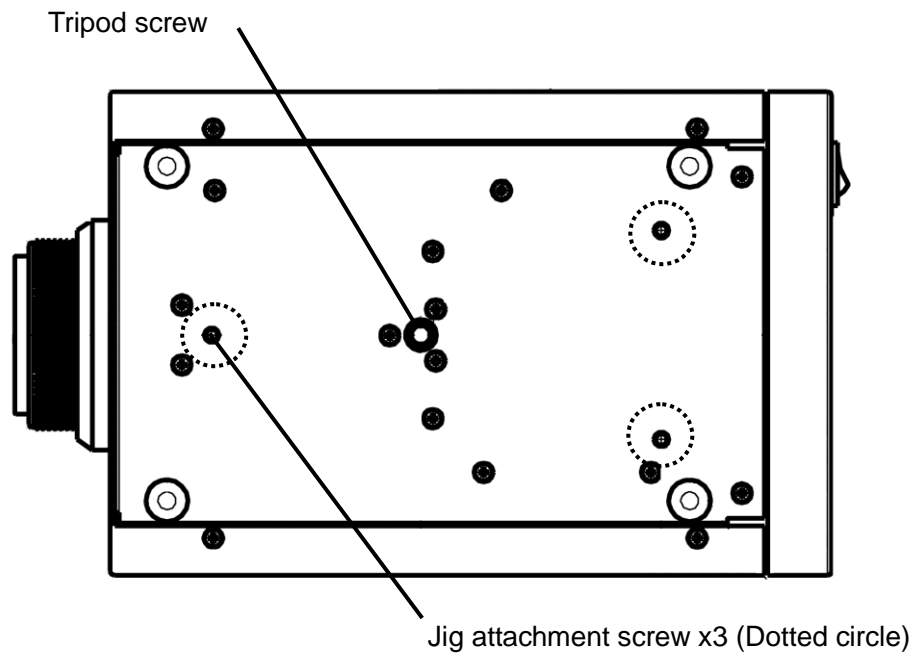
■ UA-200 Series



Name	Function
Focus ring	Adjusts focus on the measurement object.



Name	Function
Power connector	Connects AC adapter Output plug DC12V.
Power switch	Power ON/OFF.
LAN Connector	Connects LAN cable. Use Straight through LAN cable, Category 5e (1000BASE-T/TX) or grater



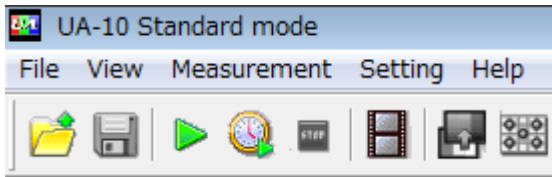
Name	Function
Tripod screw	Attaches to the UA-200 series main body when the UA-200 series is mounted to a tripod. Tripod screw : 1/4-20 UNC NUT Depth 6mm
Jig attachment screw	Used to mount the UA-10 to fixture or stand. M4x0.5(ϕ :4mm Pitch:0.5mm)

1.3 Software Functions and Features

For this device, two types of software shown below are prepared to meet the user requirements.

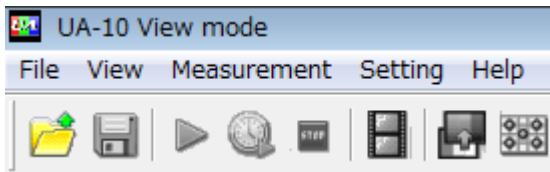
– Standard mode


This edition enables you to use all of the UA-10 and UA-200 series functions including the measurement. It flexibly copes with various types of measurement objects and measurement conditions. It is required to be connected to the photo detector.



– View mode

This edition is used as a viewer to browse and analyze the stored measurement images. This edition enables you to use only the functions to read/display/save the measurement images and display/save the measurement data. It is not required to be connected to the photo detector. It enables you to analyze and evaluate the data of the measurement image files at any place.



 Note	<p>The following matters cannot be performed by the View mode.</p> <p>Recipe Setting</p> <p>Measurement condition (1/4) → “3.3 Setting Measurement Conditions (1/4)”</p> <p>Measurement condition (1/4) → “3.4 Setting Measurement Conditions (1/4)”</p> <p>Measurement condition (2/4) → “3.5 Setting Measurement Conditions (2/4)”</p> <p>Measurement condition (2/4) → “3.6 Setting Measurement Conditions (2/4)”</p> <p>Measurement condition (2/4) → “3.7 Setting Measurement Conditions (2/4)”</p> <p>Measurement condition (3/4) → “3.8 Setting Measurement Conditions (3/4)”</p> <p>Measurement condition (4/4) → “3.9 Setting Measurement Conditions (4/4)”</p> <p>Spot Correction → “3.10 Other Recipe Settings”</p> <p>Color Correction Wizard → “3.11 Using Color Correction Wizard”</p> <p>Measurement → “4. Measurement”</p>
--	--

1.4 Operating Conditions

Operating conditions recommended for this software are as follows.

OS	Windows® 7 Ultimate (32/64bit) Windows® 7 Professional (32/64bit) Windows® 8.1 Pro or higher (32/64bit) Windows® 10 Pro or higher (32/64bit)
CPU	Intel® Core™ i5 (4 core 2.8GHz) or higher
Memory	4GB or higher
HDD	1GB or higher
LAN Port	1000BASE-T/TX (Gigabit Ethernet) 1 port *for color correction by using reference instrument RS-232C serial or USB 1.1 1 port
Display	1024*768 or higher, 1677million colors (32bit) or higher
Drive	CD-ROM Drive

※Windows® is a trademark and registered trademark of Microsoft Corporation.

※Intel® is a trademark and registered trademark of Intel Corporation.

1.5 Software Installation

The UA-10_200 Installer enables you to install the following software.

1 Measurement program (Application)

You can install the measurement program and the parameter files.

When the PC connect to the UA-10 series and UA-200 series, this program enables you to use all the functions. When the PC does not connect to the UA-10 series and UA-200 series, this program can be used as viewer program

2 Drivers

You can install the driver for UA-10 series and UA-200 series. In addition, UA-200 and UA-200A has a different driver.

Driver to be installed vary depending on OS (32/64 bit) in the PC. Select the suited driver for OS.

Installation of this driver is required when you use SDK.




Note

When you use SDK (Software Development Kit), Copy the SDK folder and the Parameter folder into your PC manually. About usage of the SDK, Please refer to the [Instruction manual for UA-CORE SDK].

1.5.1 Notice of Installation

Please notice following points when installing the program into the PC

 Note	<ul style="list-style-type: none">• Be sure to use the PC meeting the conditions specified in “1.4 Operating Conditions”.• To install the software, be sure to logon with the user name entered in one-byte character to proceed with the operation. Logging on with the user name entered in two-byte character may cause the error in the installation.• Be sure to use the administrative right-given account to log on the computer for installation. You cannot install the software without using the administrative right-given account.• To install this software, be sure to make the OS in the latest condition once using the Windows Update before installation even if the operating condition is met.
--	--



Memo

- When you conduct color correction by using the standard instrument, Either of RS-232C port or USB 1.1 port is required in the PC.
- A cable for the color correction is not provided. When you conduct the color correction, please purchase cablese separately.
- For the connection of the standard instrument for color correction, please refer to the instruction manual of the instrument separately.
- For the connection for the PC, please refer to the instruction manual of your PC.

1.5.2 Software (Application) Installation


This section describes the procedure to install the UA-10 series and UA-200 series Standard Edition.

This installer enables you to install, or uninstall the software.

1.5.2.1 Installation

To install the Standard Edition, go through the following steps.

- 1 Insert [UA-10_200 Installer] CD-ROM into the CD-ROM.

 Note	<ul style="list-style-type: none">• To uninstall the software, be sure to use the [UA-10_200 Install] CD-ROM. Using the procedure of [Control Panel] – [Add/Remove Applications] may not remove the software properly.• Transfer the contents of the CD-ROM to USB memory, please do never install. May not install correctly.
--	---

Although [Found New Hardware Wizard] may be enabled, click [Cancel] to close the window. The same window will appear twice. Therefore, click [Cancel] twice to close the respective windows.

- 2 Open the CD drives from the Explorer and double-click the [InstallLauncher.exe]. The following window appears. Click the [Application] button to start the application software to be installed.

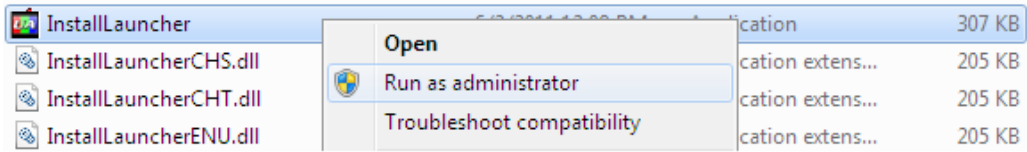
After installation, click [X] to close the window and completes all of the installation.



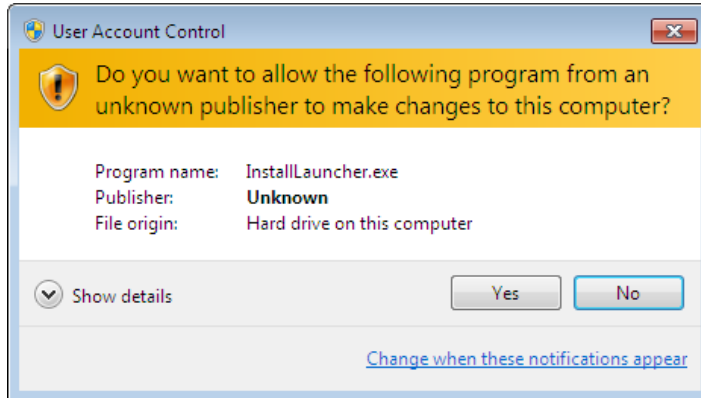
Dialog for Select Installation

Memo

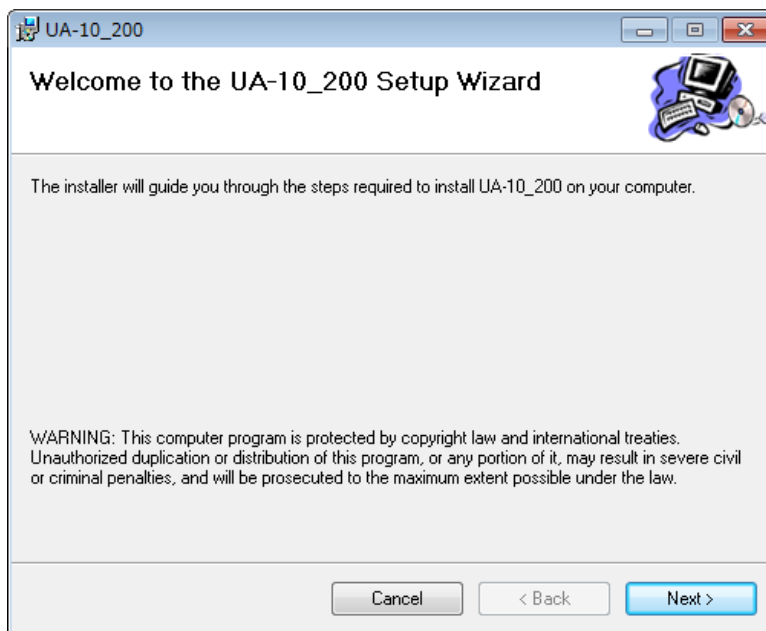
- When you install the application software to Windows 7 operating system, select [Install Launcher.exe] and right-click to open the popup-menu and then, select [Run



- When you install the application software to Windows7 operating system, the [User Account Control] dialog may appear. In that case, select [Allow] or [Yes].



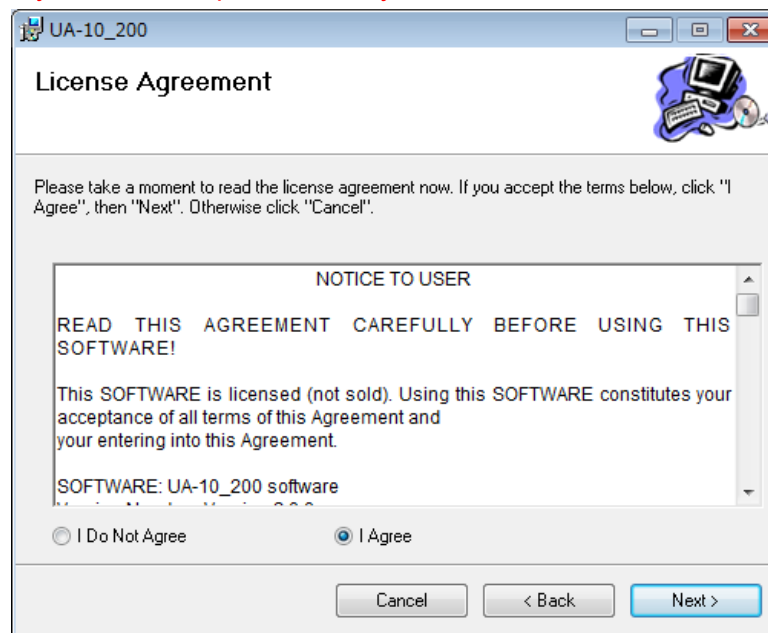
3 Following dialog will appear. Click [Next].



Dialog for installation start

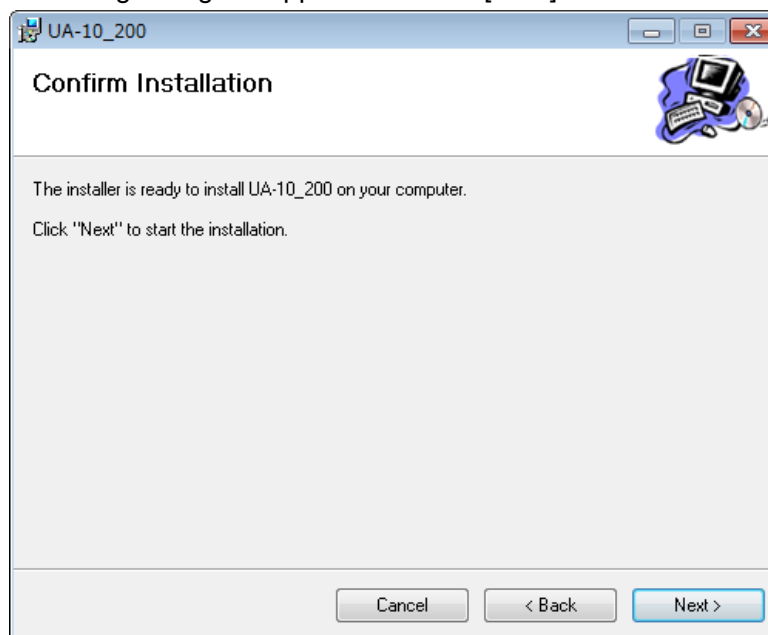
- 4 “Software license agreement for this product” window will appear. After reading the content, if you agree with the terms written here, select the [I accept the terms in the license agreement] and click the [Next].

If you don't accept the terms, you cannot continue the installation work.

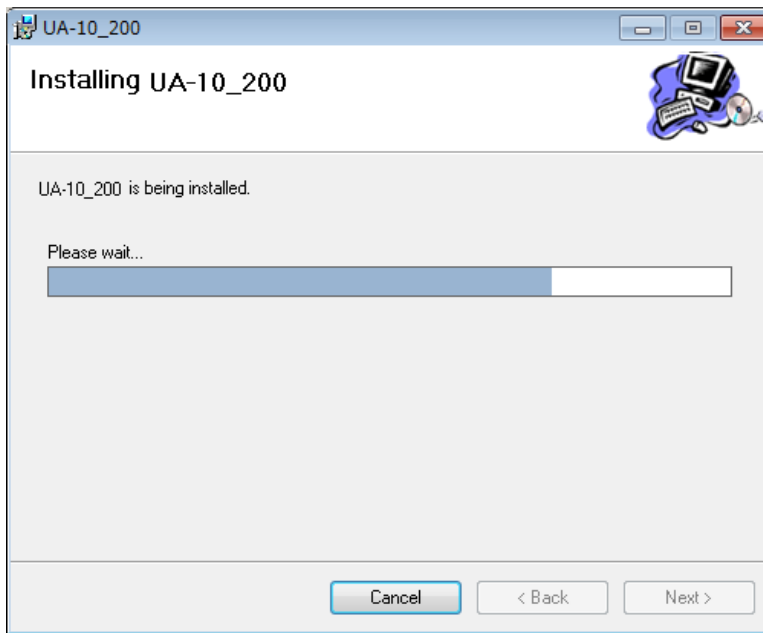


License Agreement Dialog

- 5 Following dialog will appear. Click the [Next] to start installation.

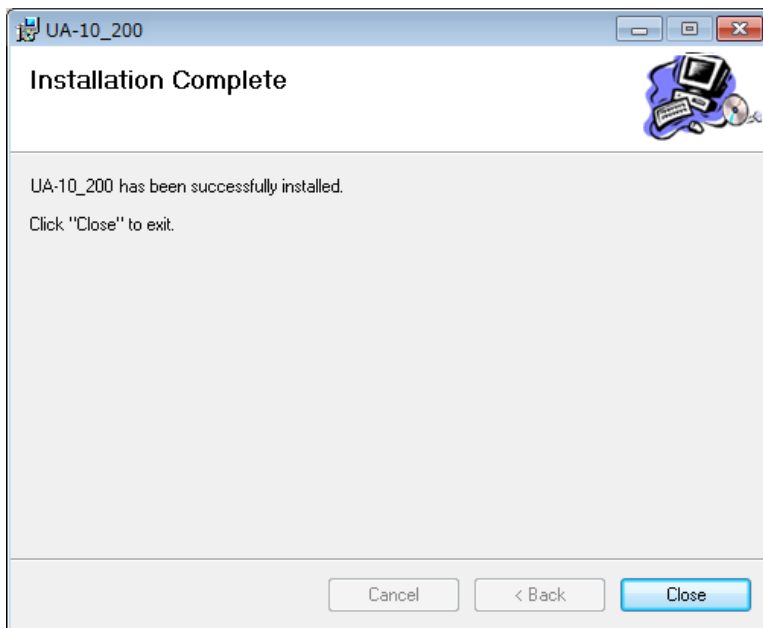


Dialog for installation confirmation



Dialog for installation running


- 6** Following dialog will appear.
Click [Close] to complete newly installation.



Dialog for complete installation

1.5.2.2 Uninstall

You can uninstall the Application software from your PC when it is installed.
The procedure for uninstall of the Application software is as follows:

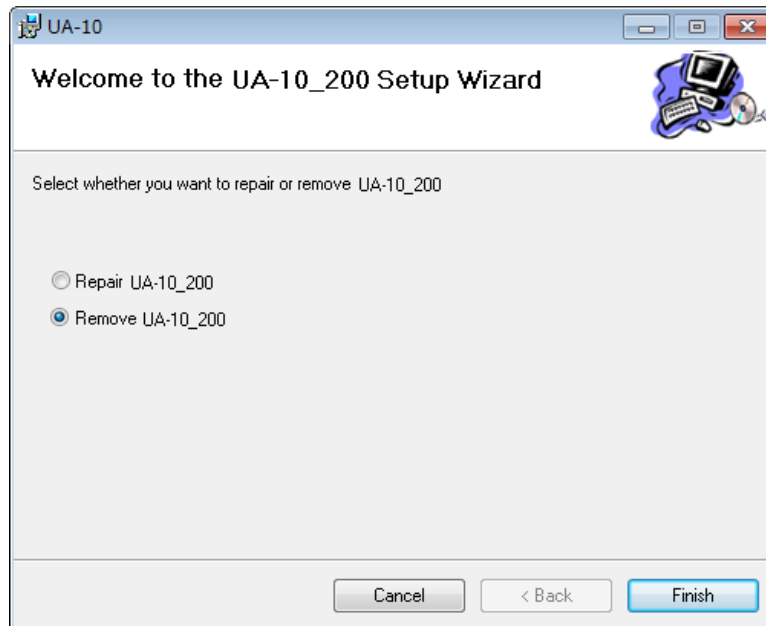
 Note	Be sure to close the application software before performing the uninstallation.
--	---

- 1 Click the [Application] and uninstall starts.

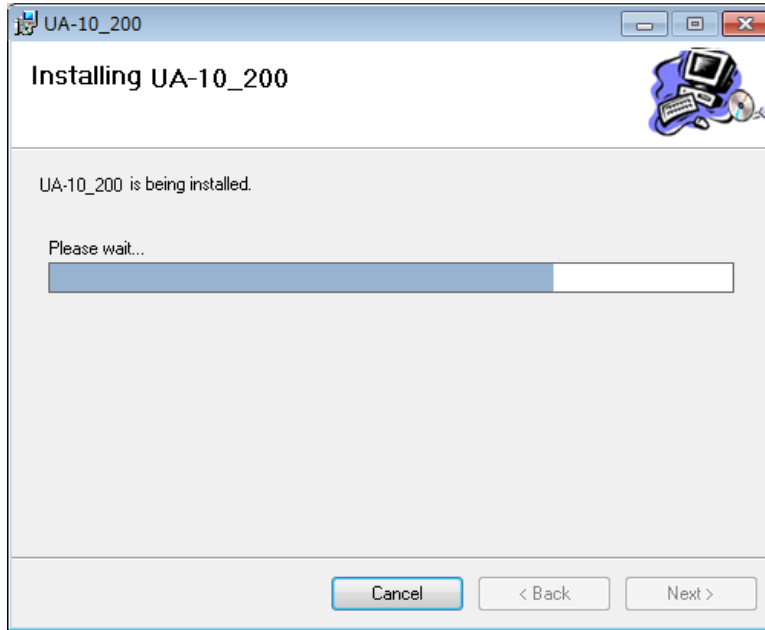


Dialog for select installation

- 2 Following dialog will appear. Click the [Remove] and the click [Next] to start uninstall.

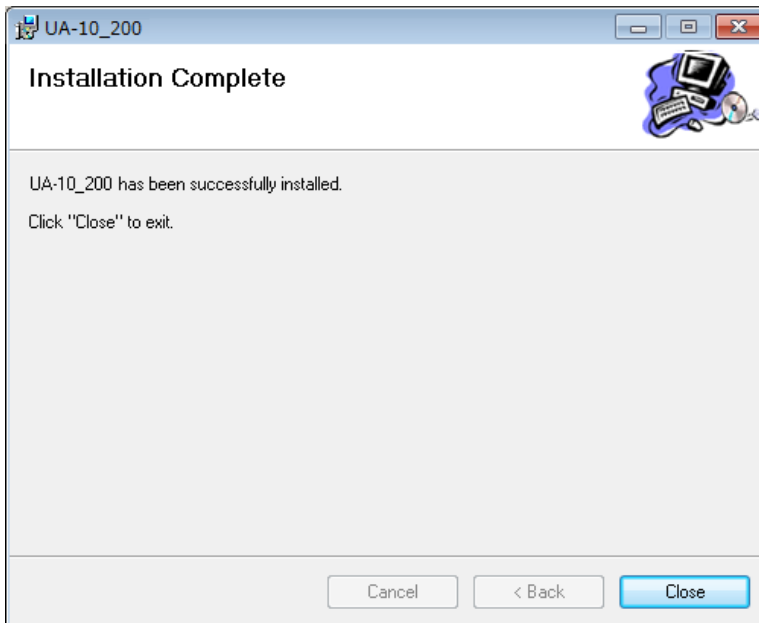


Dialog for select transaction



Dialog for uninstall process

- 3** Following dialog will appear.
Click the [Close] to complete uninstall.



Dialog for uninstall complete

1.5.3 Installing Driver

This section describes the procedure to install the drivers.

Install the device drivers for UA-10 series and UA-200 series. If the driver is already installed, you don't need to proceed with this operation.

Memo

If using the measurement program (Application) of version 4.0.0 or later and the driver is installed with CD-ROM version 4.0.0 or earlier, driver update is required. The measurement program may not operate properly. To uninstall the driver using CD-ROM version 4.0.0 or earlier and install with CD-ROM version 4.0.0 later.

1.5.3.1 Installation

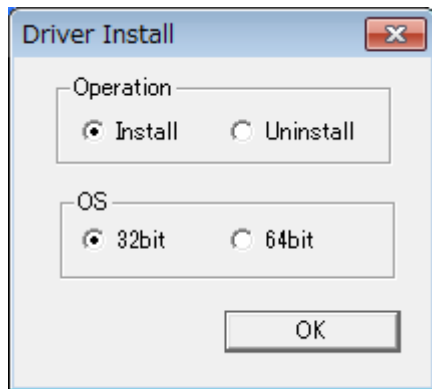
The procedure for installation of the drivers is as follows,

- 1 Insert the [UA-10_200 Installer] CD-ROM into CD drive.
Click the [Driver] button in following dialog.
Click the [x] to complete all installation.



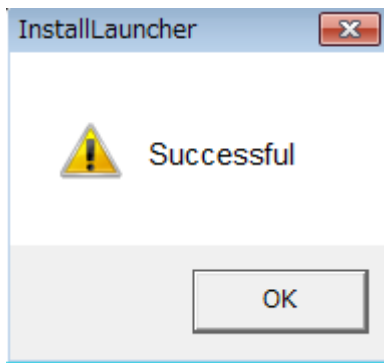
Dialog for select installation

- 2 Following dialog will appear.
Select the [Install] and then, select [32bit] or [64bit] in accordance with OS in the PC.
Click the [OK] to start installation.



Dialog for OS select

Following dialogue will appear after complete installation.




 Memo

It may take about ten seconds or longer to complete the installation. Wait for completing installation without any operation.

1.5.3.2 Uninstallation

The drivers can be uninstalled from your computer.

The procedure for uninstall of the drivers is as follows,

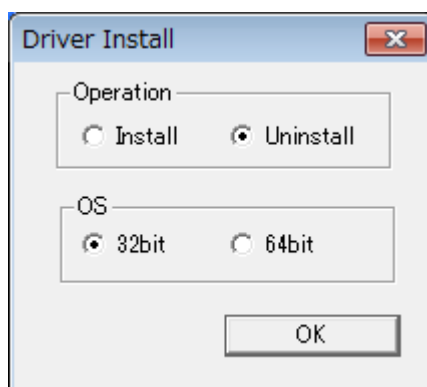
 Note	When uninstalling the drivers, disconnect to the UA-10 series and UA-200 series. If uninstallation is performed with the UA-10 series and UA-200 series connected, it will not be uninstalled normally.
--	---

- 1 Insert the [UA-10_200 Installation] CD-ROM into the CD drive.
Click the [Driver] button in following dialog.
Click the [x] to close the dialog and complete all installment.



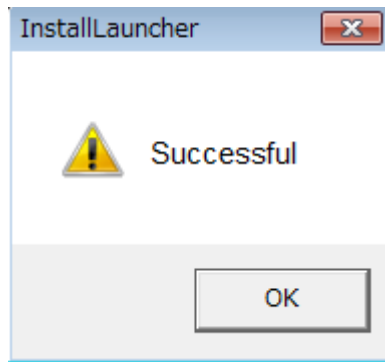
Dialog for select installation

- 2 Following dialog will appear.
Select the [Uninstall] and then, select the [32bit] or [64bit] in accordance with OS in the PC. Click the [OK] to start uninstall. .



Dialog for OS select




Following dialogue will appear after complete installation.



 Memo

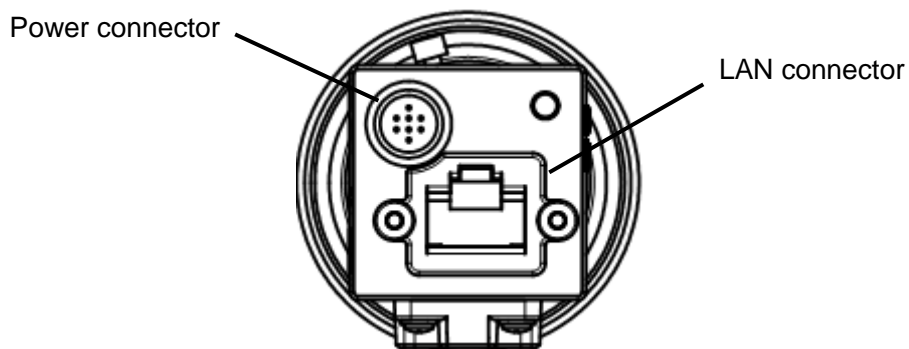
It may take about ten seconds or longer to complete the installation. Wait for completing installation without any operation.

1.5.4 Connection Device to PC

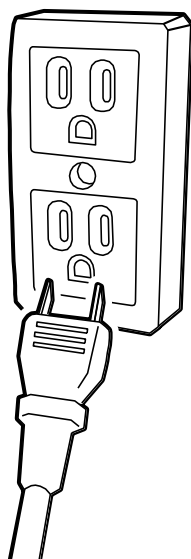
 Forced	Be sure to use dedicated AC adapter. It may cause the fire and electric shock.
 Forced	Be sure to remove the dust or moisture around the outlet. Such behavior may cause the fire.
 Prohibited	Never pull out or insert the plug by wet hand. This may cause you electric shock.

■ UA-10 Series

- 1 Make sure that the plug of AC adapter is not inserted into an outlet.
- 2 Connect the connector of AC adapter to power connector of the device.
- 3 Connect the LAN cable to LAN connector in the UA-10 and PC.

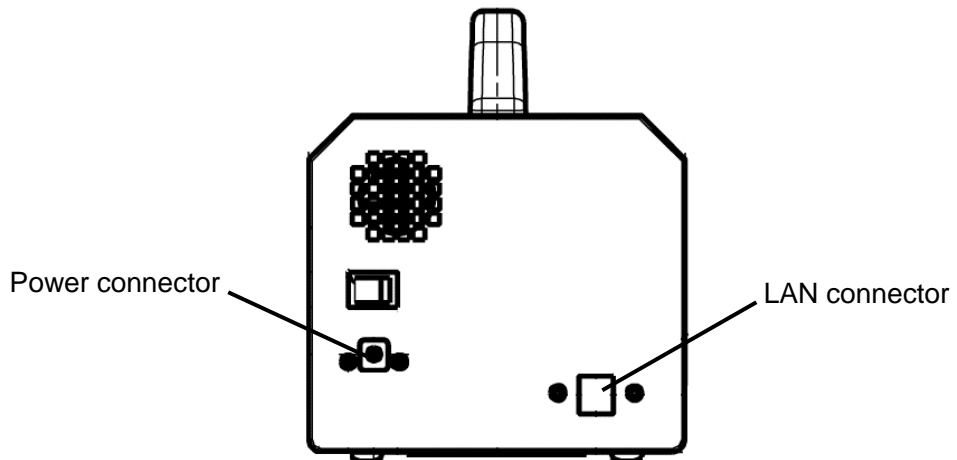


- 4 Insert the Plug of AC adapter into an outlet.

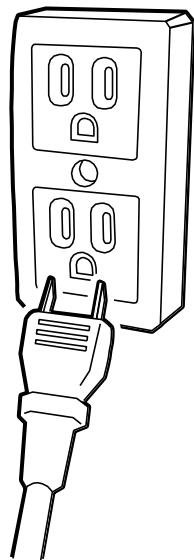


■ UA-200 Series

- 1 Make sure that the plug of AC adapter is not inserted into an outlet.
- 2 Connect the plug of AC adapter to power connector of the device.
- 3 Connect the LAN cable to LAN connector in the UA-200 and PC.



- 4 Insert the Plug of AC adapter into an outlet.



1.6 Configuration in Windows

1.6.1 Screen Settings

This software operates only under the screen environment of 1024 x 768 pixels, 32-bit color, 1677 million colors, and 96-dpi resolution. Since this doesn't operate under different settings, you need to change the settings. To perform the screen settings on Windows, go through the following steps.

- 1 Select [Control Panel] from the [Start] menu.
- 2 [Control Panel] window will open. Click to open the [Screen] property.
- 3 [Screen Properties] window will open.
- 4 Set the screen resolution .
Screen resolution: Select 1024 x 768 pixels or higher
- 5 Click [Settings] tab. Set the color as follows.
Color quality: Highest (32-bit)
- 6 Set the DPI.
DPI: Normal size (96 DPI).



How to select the control panel depends on the OS.

1.6.2 Jumbo Frame Settings

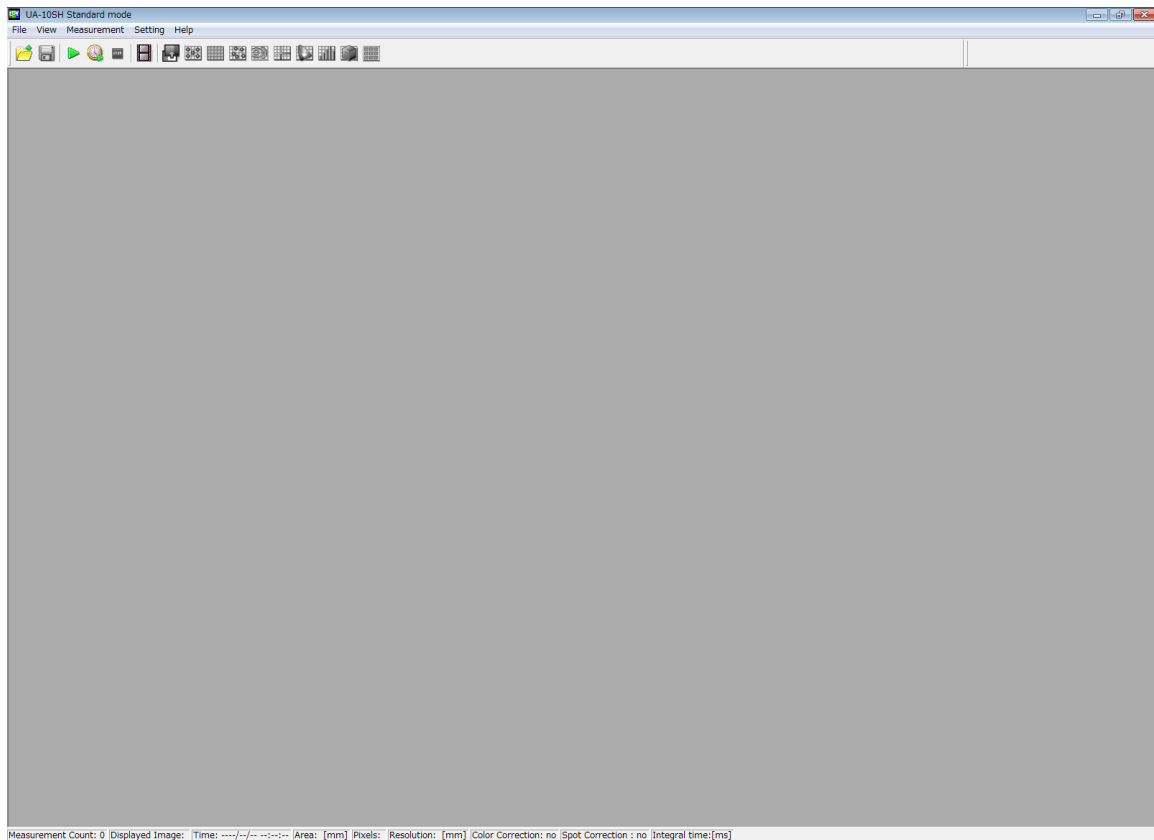
Jumbo frames can be set depends on the PC and Windows being used. If communication is easy to interrupt, please set jumbo frame to [Enable].

1.6.3 Power saving settings

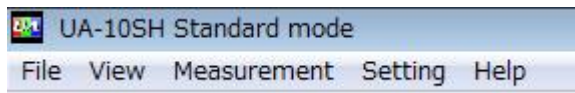
To acquire stabilized measurement data, you need to set the optimal integral time depending on the luminance of the measurement target. The integral time will affect the measurement accuracy and measurement time. Depending on the PC you are using, if the power saving setting on the network adapter is set to [Enable], it may not work properly with this software. Therefore, set the power saving setting to [Disable].

1.7 Part Names and Functions in Window

Names and functions of the parts displayed on the window are as follows.



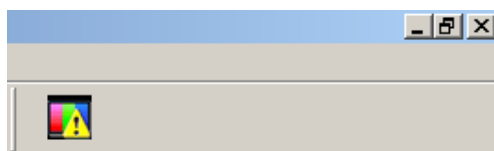
1) Menu bar



2) Toolbar



3) Rebar



4) Status bar

Measurement Count: 2 | Displayed Image: 2/2 | Time: 2014/12/01 22:29:25:883 | Area: 600.01 x 450.00 [mm]
Pixels: 1280 x 960 | Resolution: 0.469 x 0.469 [mm] | Correct: A | Measurement time:2870[ms]

1.7.1 Menu Bar

Menus and the functions displayed on the Menu bar are as follows.

The Menu bar consists of main functions used in this software.

[File] Menu

This menu is related to the measurement image file operation. Functions set on the File menu are as follows.

Open Measurement Image

This function reads the saved measurement image file to be displayed.

 "6.1 Open Measurement Image"

Close Measurement Image

This function closes the currently displayed measurement image. This closes the currently displayed measurement image and discards all of retained measurement image.

 "6.2 Close Measurement Image"

Save Measurement Image

This function saves the currently displayed measurement image.

 "6.3.1 Save Measurement Image"

Save All Measurement Images

This function saves all retained measurement images to be saved.

 "6.3.2 Save All Measurement Images"

Exit

This function stops all the proceedings to exit the software.

 "2.2.2 Exit the Software"

[View] Menu

This menu is related to all functions of displaying the measurement images performed on this software. This menu is used to display the measurement image(s) using various views, graphs, data sheets. You can select the displaying methods to meet various requirements such as measurement data analysis. Functions set on the View menu and the associated functions are as follows.

Live View

This function displays the measurement object in real time. This function is mainly used to align the measurement object and the photo detector.

 "5.1 Live View Operation"

Initial Layout

Initial Layout function displays the measurement image in a layout set by [Common Setting] - [Initial Layout Setting]. Changing the layout is performed in the [Setting] – [Common Setting] – [Initial Layout Setting].

 “6.4.1 Open Initial Layout”

Time-series Layout

This function displays the measurement image in a fixed time-series specific layout.

 “6.4.2 Open Time-series Layout”

Pseudo Color View

This function allots given colors to the measurement data to be displayed minutely in different colors.

 “5.2 Pseudo Color View Operation”

Standard Spot View

This function enables you to perform the surface measurement by formal standard.

 “5.3 Standard Spot View Operation”

Split Spot View

This function displays the measurement image by splitting it.

 “5.4 Split Spot View Operation”

Random Spot View

This function enables you to freely arrange and measure up to 25 measurement spots.

 “5.5 Random Spot View Operation”

Contour View

This function classifies the measurement data and connects the same classified values with a line to be displayed.

 “5.6 Contour View Operation”

Cross Section View

This function displays the measurement data for the cross section set on the measurement image in vertical/horizontal graph form.

 “5.7 Cross Section View Operation”

Chromaticity Diagram View

This function displays the measurement data color in xy plane coordinates. There are two types of chromaticity diagrams: CIE1931 and CIE1976.

 “5.8 Chromaticity Diagram View Operation”


Color system Pseudo Color View

This function calculates the L*a*b* color system by using the measurement data and displays each data with pseudo color.

 “5.15 Color system Pseudo Color View Operation”


L*a*b* View

This function displays the measurement data color with the L*a*b* color system chromaticity diagram.

 “5.13 L*a*b* View Operation”


Hue-Chroma Color View

This function displays the measurement data color with the Hue-Chroma color system.

 “5.14 Hue-Chroma Color system View Operation”

Histogram View

The Histogram function displays the statistical graphics which indicates the frequency of the measurement data in the longitudinal axis and the measurement data in the lateral axis.

 “5.9 Histogram View Operation”

3D View

This function converts two-dimensional measurement data into the three-dimensional value to be displayed.

 “5.10 3D View Operation”


Thumbnail View

This function displays the downsized pseudo color measurement images together with the number and measurement date & time in list form.

 “5.11 Thumbnail View Operation”


RGB Color View

This function arranges and displays RGB by using the measurement data.

 “5.12 RGB Color View Operation”


Judgment result View

This function displays the result of OK/NG about each judgment item for the spot or area set by [Standard Spot View], [Split Spot View], [Random Spot View], [Chromaticity Diagram View] and [Color system View].

 “5.16 Judgment result View Operation”


Measurement Image List

This function displays the number, measurement date & time, and comment of all measurement images retained on the software in list form.

 “6.5 Measurement Image List Operation”

Recipe of Currently Displayed Measurement Image


This function displays the setting status of [Recipe Setting] when measuring the currently displayed measurement image.

 “6.6 Display the Content of Currently Displayed Recipe”

[Measurement] Menu

Calculate optimal Value of measurement condition

This function calculates optimal integral time, ND filter, and gain automatically.

 “4.3 Calculate optimal Value of measurement condition”

 Memo

Parameter of ND filter and gain are available in UA-200 series only.

Normal Measurement

This function performs the measurement according to the settings of [Recipe Setting]. This displays the measurement image in the layout specified in [Initial Layout].

 “4.1 Normal Measurement”

Time-series Measurement

This function displays the setting status of [Recipe Setting] when measuring the currently displayed measurement image.

This displays the measurement image in a formal layout for Time-series measurement.

 “4.2 Time-series Measurement”

Cancel Measurement

This function forcibly interrupts the currently-performed [Normal Measurement] or [Time-series Measurement].

 “4.4 Cancel Measurement”

[Setting] Menu

Recipe Setting

This function performs all settings related to the measurement.

 “3 Recipe Setting”

Color Correction Wizard

This function calculates the color correction factor of the detector using the measurement data measured by our measurement device.

 “3.11 Use Color Correction Wizard”

White Board Data Setting

It is possible to set the white board data which will be the calibration standard required for the object color measurement.

 “3.14 White Board Data Setting”

Common Setting

This function allows you to perform various settings commonly used in this application software. The setting content does not depend on the recipe type or the measurement object.

 “3.12 Common Setting”

Area Correction

This function creates and edits a file for area correction. In recipe setting, select whether Area correction is ON or OFF.

 “3.13 Area Correction”

Diagonal Correction


This function performs setting in the diagonal correction. In recipe setting, select whether Diagonal correction is ON or OFF.

 “3.15 Diagonal Correction”

[Window] Menu


Tile

This function organizes the currently-displayed windows to be displayed by classifying them into four blocks: top-left, top-right, bottom-left, and bottom-right.

 “7.1 Tile”

Close All

This function closes all the currently-displayed windows.

 “7.2 Close All”

[Help] Menu

Topic Search

This function displays the Instruction Manual for all the functions.

 “8.1 Search Topic”

About...

















This function displays the version information dialog.






 “8.2 Check the Version Information”

1.7.2 Toolbar

In the Tool bar, the frequently-used icons are arranged so that they can be operated intuitively. The arranged icons and functions are as follows.



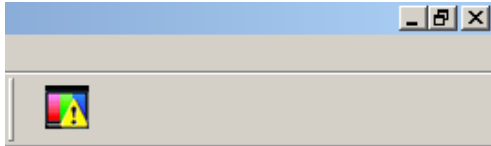
Icon	Menu	Function
	File	Open Measurement Image
		Save All Measurement Images
	Measurement	Normal Measurement
		Time-series Measurement
		Measurement Cancel
	View	Live View
		Pseudo Color View
		Standard Spot View
		Split Spot View
		Random Spot View
		Contour View
		Cross Section View
		Chromaticity Diagram View
		Histogram View
		3D View
		Thumbnail View

		RGB Color View
		L*a*b* View
		,Hue-Chroma View
		Color System Pseudo Color View
		Judgment result View

1.7.3 Rebar

If the saturation occur during measurement, the following icon is displayed on the Rebar.

Saturation icon



 Memo

When saturation occur, Saturation icon will appear. The procedure to check where saturation happen is as follows.

1. Select the [Tristimulus Value] in the [Pseudo Color View] Pop-up menu.
2. Check the place where the saturation occurred with the [Pseudo Color View].

Saturation-occurred place is displayed in the following color.

Pseudo color: White Gray scale: Yellow-green color.

1.7.4 Status Bar

The Status bar always display the information related to the Measurement Image.

The measurement image information displayed on the Status bar is as follows.

Measurement Count: 2 | Displayed Image: 2/2 | Time: 2014/12/01 22:29:25:883 | Area: 600.01 x 450.00 [mm]
Pixels: 1280 x 960 | Resolution: 0.469 x 0.469 [mm] | Correct: A | Measurement time:2870[ms]

Measurement Count

Total number of viewable measurement image is displayed. When saved measurement image is opened, the total number of the images including the number of the opened measurement images will be displayed.

Displayed Image

Displayed measurement image number is displayed.

The displayed image number corresponds to the number displayed by [Thumbnail View]. The display format is as follows.

Measurement image number / number of measurement images

Time

The measurement starting time for the displayed measurement image is displayed. The display format is as follows.

Year/Month/Date Hour/Minute/Second/millisecond

Area

Measurable maximum area for the displayed measurement image is displayed in units of [mm] in height and width. The measurement area is calculated based on measurement distance and lens field angle.

Pixels

The fineness of the displayed measurement image is displayed in units of [pixel] in height and width.

Resolution

Size per 1 [pixel] of the displayed measurement image is displayed in units of [mm] in height and width.

Correct

Character indicates the type of current correction factor status.


Each character means as follows

Color correction or Reference color correction	: "C"
Spot correction	: "S"
Area correction	: "A"
Diagonal correction	: "D"
Filter correction	: "F"

When all correction type are enabled, "CSADF" appears. When correction type aren't enable at all, "no" appears.

Measurement Time

The measurement time of the displayed measurement image is displayed in [ms].

 Note	[Common Setting] - [Status bar Setting], displays the measurement image information.
--	--

1.7.5 Shortcut Key

Highly frequently-used functions shortcut keys are allocated.

Allocated shortcut keys and functions are as follows.

Shortcut key	Menu	Function
F1	Help	Topic Search – Display corresponding help
F5	Measurement	Calculate optimal value of measurement condition
F6		Normal Measurement
F7		Time-series Measurement
F8	Setting	Recipe Setting
F9		Color Correction Wizard
F10		Common Setting
F12		Area Correction
F11	Window	Close All
Ctrl+O	File	Open Measurement Image
Ctrl+U		Save Measurement Image
Ctrl+S		Save All Measurement Images

2. Measurement Operation

2.1 Measurement Operation Flowchart

The procedure for measuring by using the UA-10 and UA-200 series is as follows,

Communication setting



Setting in the instrument and PC  "10 Communication setting"

Install the Device



Install the Detector  "2.3 Installation"


Start the Software



Start and Exit the Software  "2.2 Start and Exit the Software"

Setup of the Measurement Conditions



Recipe Setting  "3 Recipe Setting"

Measurement



Normal Measurement  "4.1 Normal Measurement"

Time-series Measurement  "4.2 Time-series Measurement"

Analyze and Save the Data


Various Views Operation  "5. Various Operations"

File Menu Operation  "6. File Menu Operation"

2.2 Start and Exit the Software

2.2.1 Start the Software


To start the UA-10, UA-200 software(hereafter software) ,go through the following steps.

 Note	When the PC in which this software has been installed and is connected to this device with a LAN cable and this device must be turned ON, the software will start as standard mode. Otherwise, the software will start as View mode.
--	--

- 1 Connect the device and the PC where the UA-10, UA-200 and UA-200A have been installed with LAN cables.
- 2 Insert the plug of the AC cable into the outlet, and turn ON the detector.
- 3 From the [Start] menu, select the [Program] - [TOPCON TECHNOHOUSE] - [UA-10_200] - [UA-10_200] sequentially.

Software starts, the following windows appears, and then the initialization is started.



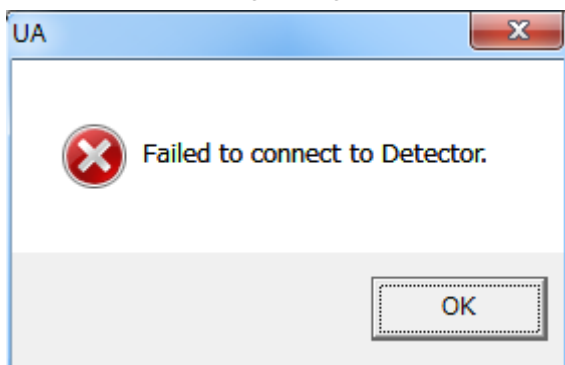
 Note	If any error occur during the initialization, clear the cause of the error, turn ON/OFF the power once, and then restart the software.
--	--

- 4 Once the initialization has been completed, the Main window will appear.

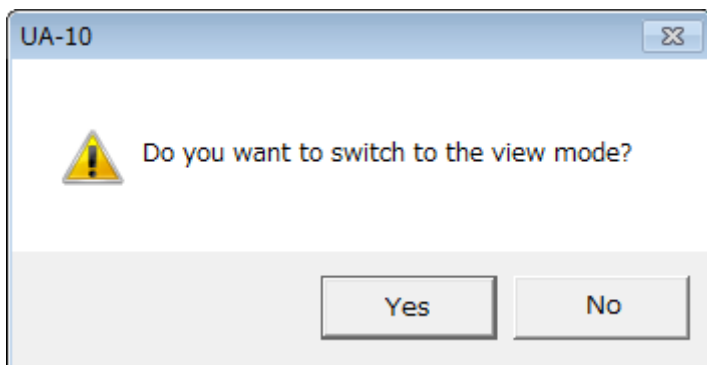
Using as View mode

The procedures to switch the Standard mode to View mode are as follows.

- 1 When you start the Standard mode without connection to the device or turning off of the device, the following dialog will appear. Click [OK].



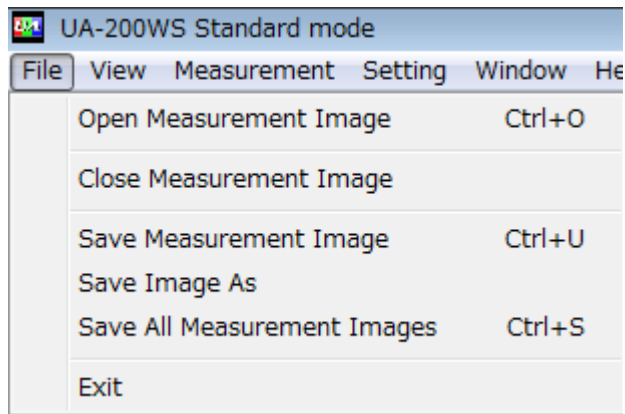
- 2 The following dialog appears.
Click the [Yes] to switch the software mode into View mode.
Click the [No] to finish the operation.



2.2.2 Exit the Software

This operation stops all the proceedings to exit the software. To exit the software, go through the following steps.

- 1 From the [File] menu, select the [Exit].



Memo

Clicking [X] on the Menu bar also enables you to exit the software.

- 2 If the measurement image to be saved is included in the saved measurement images, the following dialog will appear.

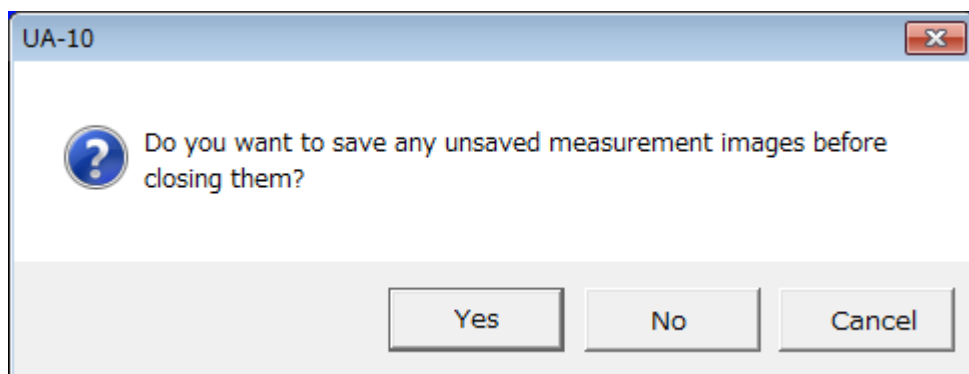
Selecting the [Yes] saves all the measurement images to be saved and exit the software.

Selecting the [No] forcibly discards the measurement image(s) to be saved and exit the software.

Selecting the [Cancel] will cancel the software-exiting operation.


☞ “6.3.1 Save Measurement Image”

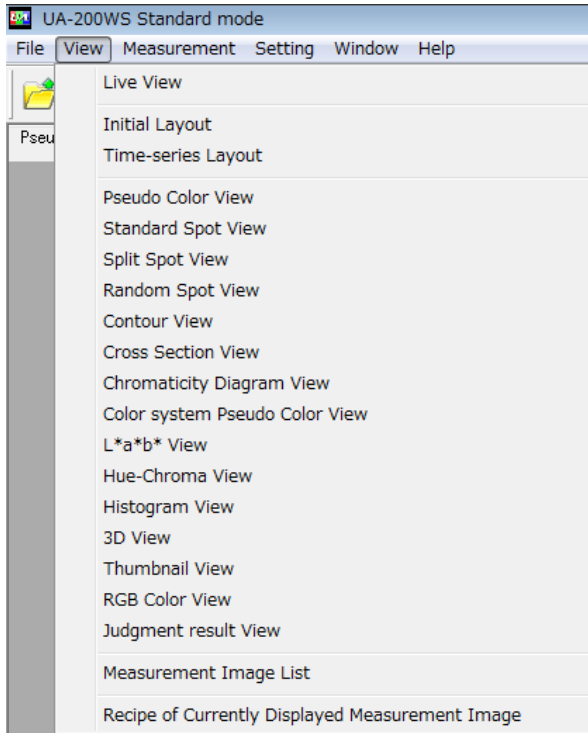
☞ “6.3.2 Save All Measurement Images”



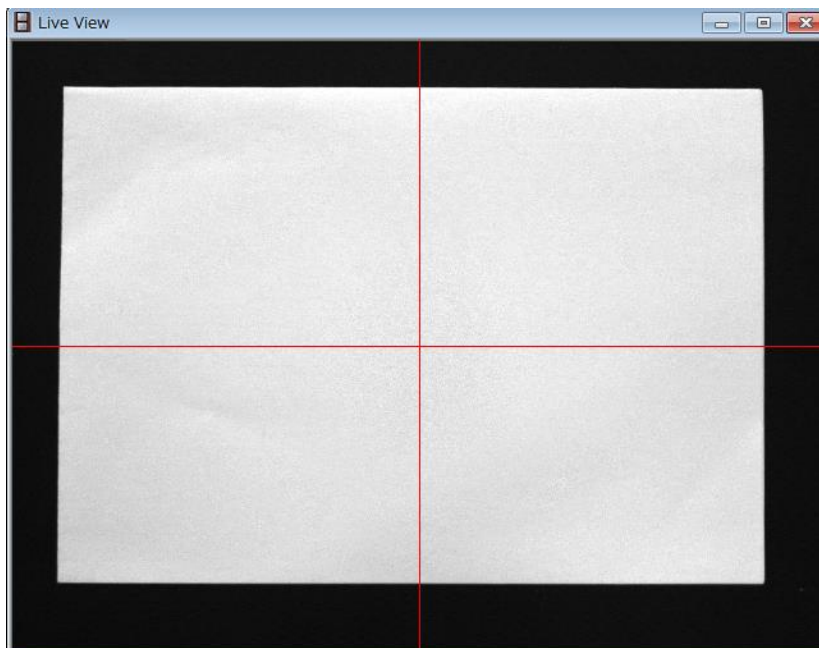
2.3 Installation

2.3.1 Live View

- 1 Launch the computer and start the application.
- 2 From the Menu bar, select the [View] – [Live View] sequentially.
Or, click  icon on the Menu bar.

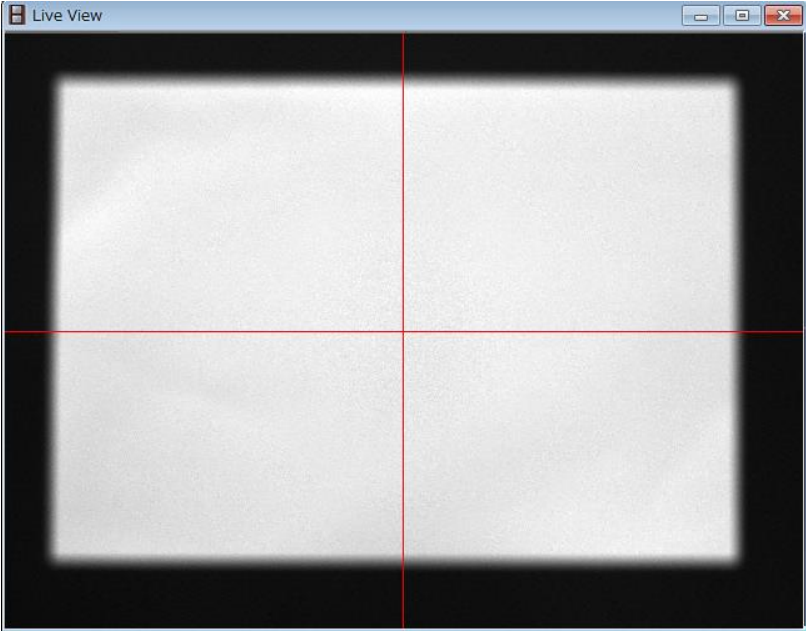


- 3 The Live View will appear.

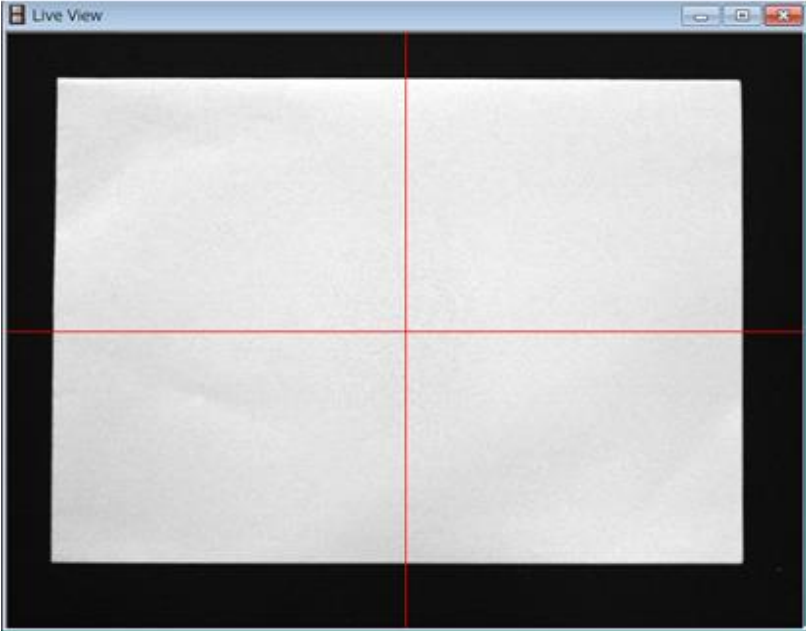



2.3.2 Collimation of Measurement Object

- 1 Adjust the position of the device or the measurement target so that the measurement target may fall within the Live View window.



- 2 While watching the Live View window, rotate the Focus ring to focus on the measurement target.



<p> Note</p>	<p>When you focus on the measurement target, Striped patterns (called moire) sometimes appear on the measurement image. The interference between the FPD pixels and the elements of CCD generate moire. For this reason, such striped pattern tends to be generated. If such moiré is found, adjusting the focus position slightly back and forth may clear the moire.</p>
--	--



Note

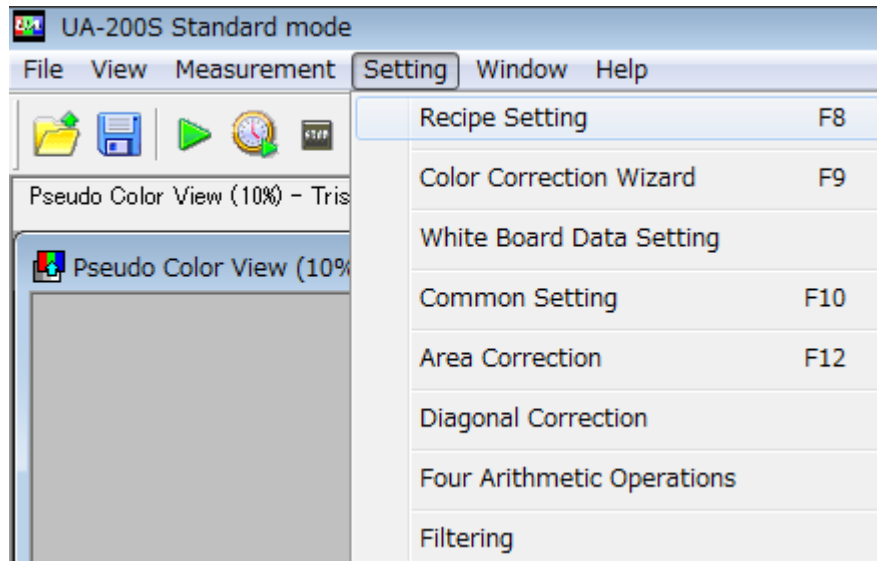
Use only specified screws when using the tripod screw and screw holes for jig attachment. Do not tighten the screws any more than necessary. Doing so might cause internal breakage.

3. Setting

3.1 Open the Recipe Setting

To open the Recipe Setting, go through the following steps.

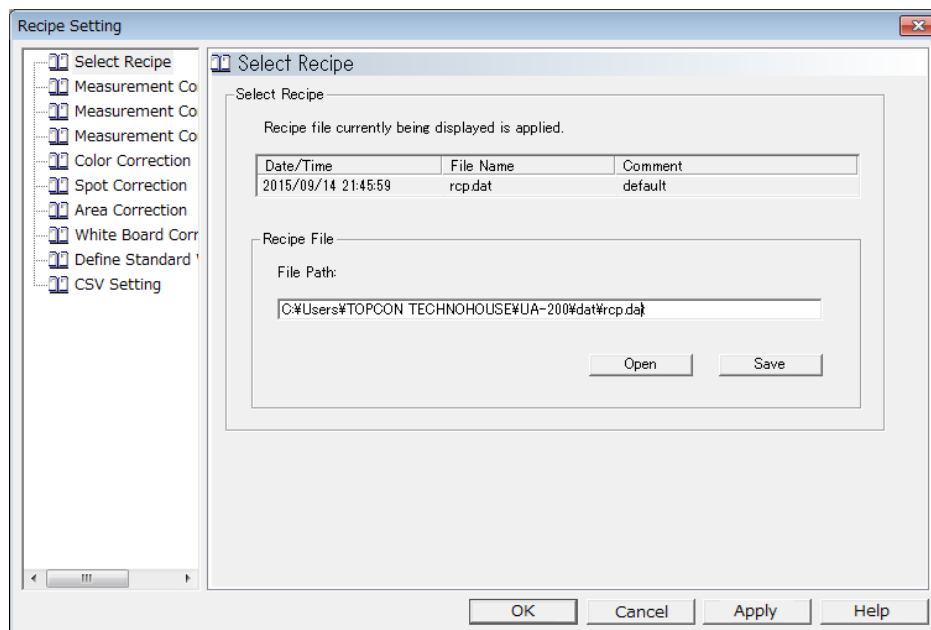
- 1 From the Menu bar, select [Setting] - [Recipe Setting] sequentially. Or, press the “F8” key.




2 [Recipe Setting] dialog will open.

All of the following buttons displayed on the [Recipe Setting Dialog] have the same functions.

- [OK] Enables the setting and closes this window.
- [Cancel] Disables the setting and closes this window.
- [Apply] Enables the setting. Enables you to continue the setting without closing the window.
- [Help] Displays the Instruction Manual for the appropriate window.



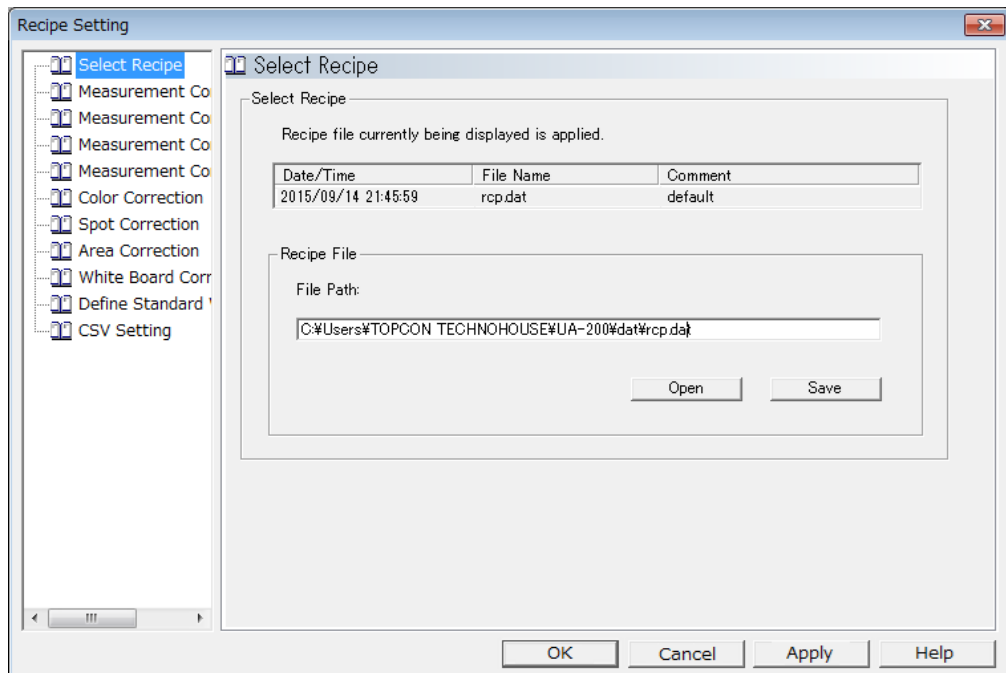
 Note	If the View mode is executed, the [Measurement Condition (1/4)], [Measurement Condition (2/4)], [Measurement Condition (3/4)], [Measurement Condition (4/4)] are not displayed.
--	---

3.2 Select Recipe

3.2.1 Select Recipe File

Select a recipe file. To select a recipe, go through the following steps. You can edit the active recipe file.

- 1 Open the [Recipe Setting] dialog, and click [Select Recipe].

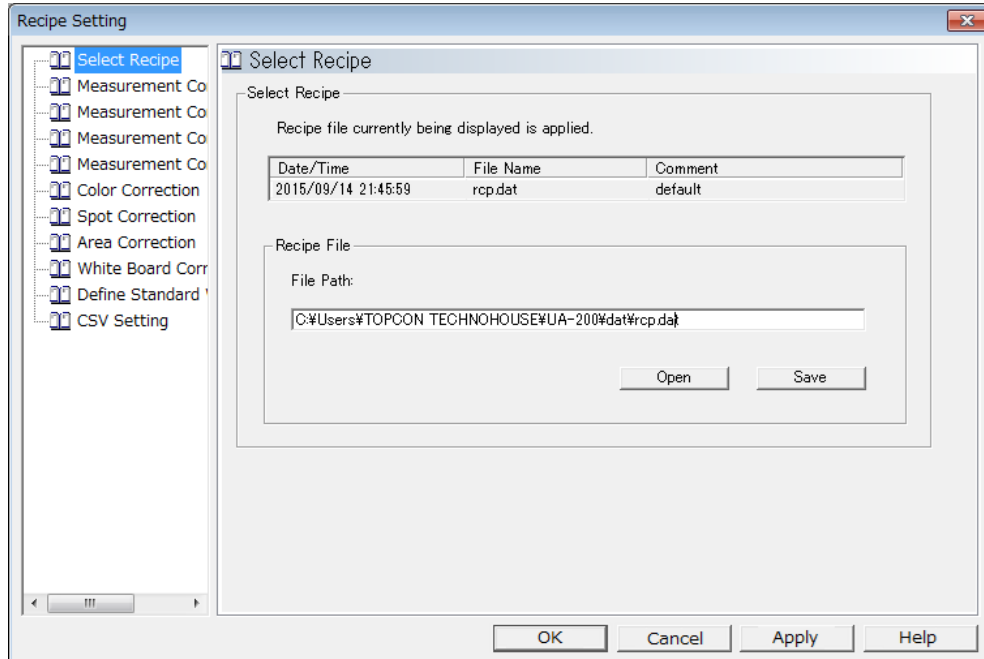


- 2 Click the [Open] button and the [Open File] dialog will appear. Select a recipe file to be loaded. The loaded recipe file become enabled. (Hereafter called enabled recipe)

3.2.2 Save Recipe File

Saves the Recipe File. To save the Recipe File, go through the following steps. The Recipe File can be used in SDK.

- 1 Open the [Recipe Setting] dialog.



- 2 Edit the [File name] and [Comment] under [Recipe file currently being displayed is applied] and click the [Save] button to save the recipe file.
Click the [OK] button to save the file in the place indicated in [File path :].
The path of current active recipe file is displayed in [File Path :]

3.3 Setting Measurement Condition (1/4) (UA-10 series, UA-200)

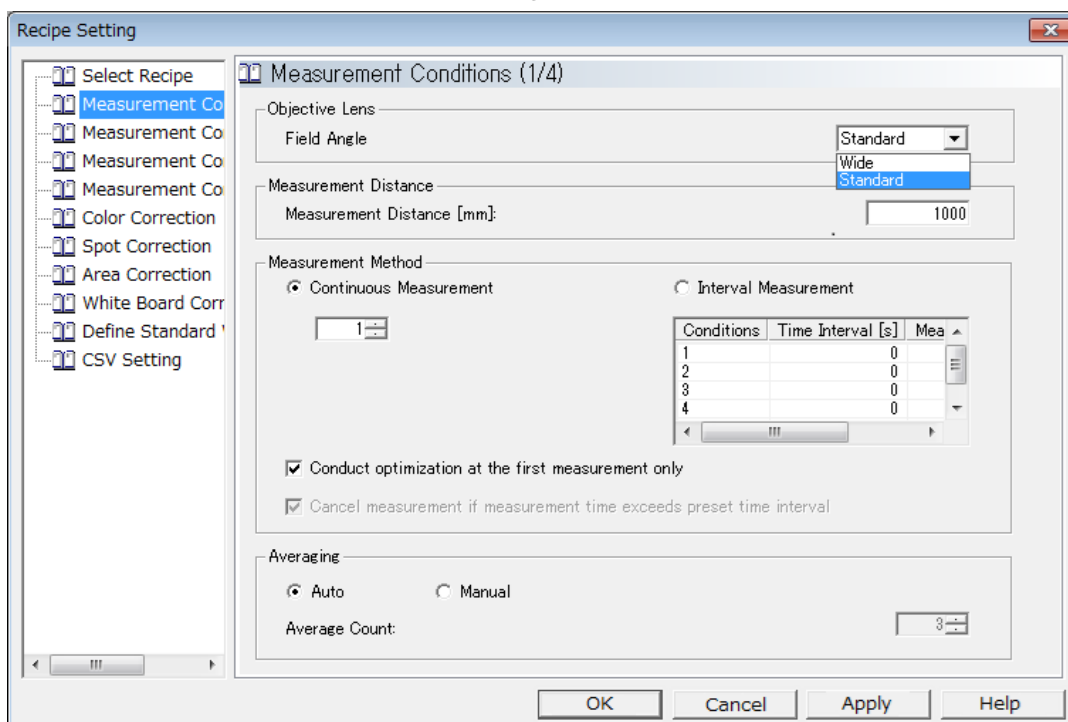
3.3.1 Field Angle

Sets field angle of objective lens.

The setting procedure is as follows;

Open [Recipe Setting] dialog, and select [Measurement Conditions (1/4)].

Select Wide or Standard from the [Field angle] pull down menu in the [Objective Lens].



Note

When one lens is attached, Field Angle cannot change.

3.3.2 Measurement Distance

This function is used to set the distance between the device and the measurement target. To set the measurement distance, go through the following steps.

Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)].

Enter the values of measurement distance in the [Measurement Distance] edit box.

The measurement distance is from tip of the objective lens unit of the device to the measurement target.

Valid range is 100[mm] – 100000 [mm].

The screenshot shows the 'Recipe Setting' dialog box with the 'Measurement Conditions (1/4)' tab selected. The left sidebar contains a tree view with the following items: Select Recipe, Measurement Co, Measurement Co, Measurement Co, Color Correction, Spot Correction, Area Correction, White Board Corr, Define Standard, and CSV Setting. The main area is divided into several sections:

- Objective Lens:** Field Angle is set to 'Standard'.
- Measurement Distance:** Measurement Distance [mm] is set to '1000'.
- Measurement Method:** 'Continuous Measurement' is selected. A small table below it shows '1' in a box.
- Interval Measurement:** 'Interval Measurement' is unselected. A table below it shows the following data:

Conditions	Time Interval [s]	Mea
1	0	
2	0	
3	0	
4	0	
- Checkboxes:** 'Conduct optimization at the first measurement only' and 'Cancel measurement if measurement time exceeds preset time interval' are both checked.
- Averaging:** 'Auto' is selected. 'Average Count' is set to '3'.

Buttons at the bottom include OK, Cancel, Apply, and Help.



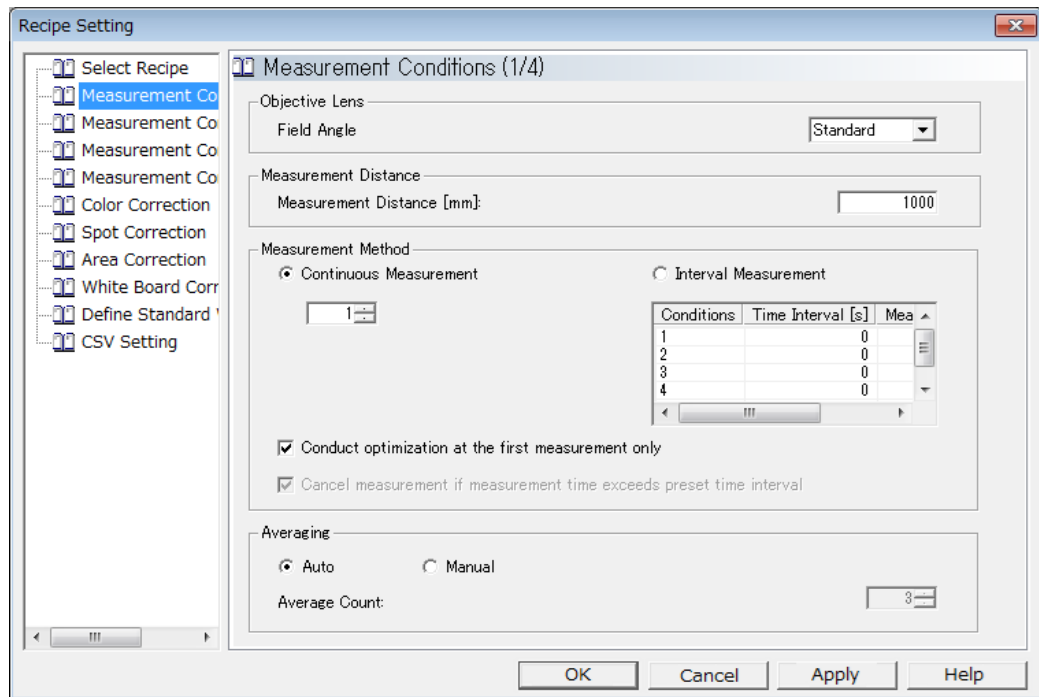
Note

If entered values of this measurement distance is not appropriate, it may cause some error in all the result of dimensions calculation and may affect the area calculation of the measurement spot.

3.3.3 Measurement Method

Sets the number of times of the measurement and interval time for the continuous measurement and the Interval measurement. To set the measurement method, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)]. Select the [Continuous measurement] or the [Interval measurement] in the Measurement method.



- 2 When you select the [Continuous measurement], the edit box will become active. Enter the number of times of the measurement by using the keyboard or using the Spin button ▲▼. Valid range of the number of times of the measurement is 1 - 999. When the [Conduct optimization at the first measurement only] check box is on, the software optimizes a measuring setting at only first measurement in continuous and interval measuring.

Memo


- When the [Conduct optimization at the first measurement only] check box is On, a measuring time for optimization from second measuring can be omitted.
- When the [Conduct optimization at the first measurement only] check box is On, accurate measured data cannot be obtained due to variation of luminance and color in the measurement target. When you measure a target, of which luminance and color vary large, remove the check and optimize measuring condition at each measuring.

- 3 When you select the [Interval measurement], you can specify the interval time and the number of times of the measurement. In condition 1 to 5, enter the [Interval Time] and the [Measurement Count] each conditions. Click each cell to activate cells.

Time Interval: 1 - 259200 [sec] (259200 seconds = 72 hours)

Measurement Count: 1 - 999 times

If the [Cancel Measurement if Measurement Time Exceeds Preset Time Interval] is checked, when it takes longer time to measure than the interval setting, next measurement is canceled.

 Note	<ul style="list-style-type: none"> • The value of the interval time x measurement count cannot exceed the time of 259200 seconds (= 72 hours). • Interval time may vary in several seconds from measuring conditions.
--	---

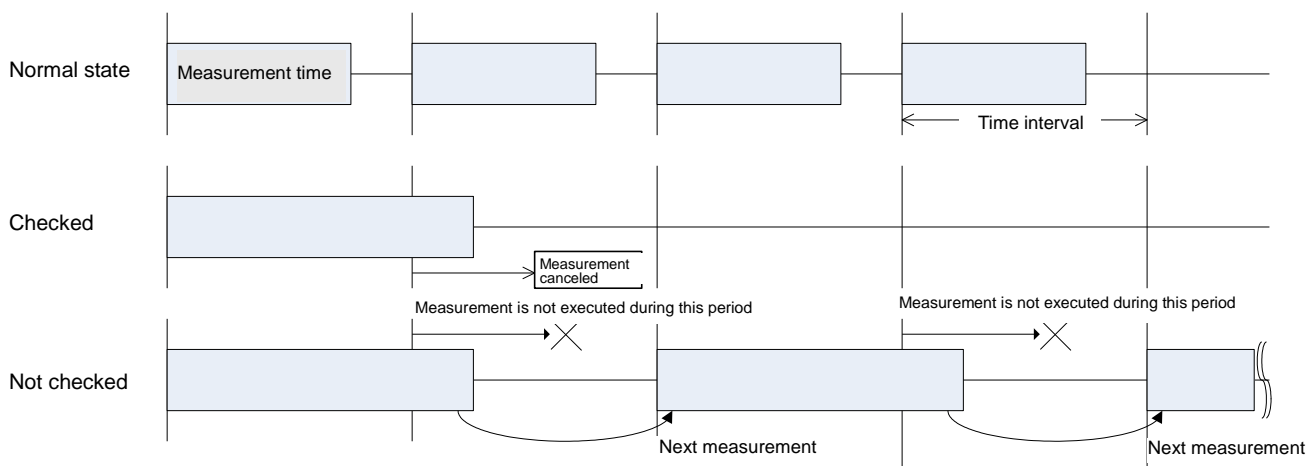
Operation when the measurement time in the interval measurement exceeds the interval time

- When this item is checked:

If the measurement time exceeds the next interval measurement starting time, the measurement is canceled at the next measurement starting time. The data obtained during the measurement are discarded.

- When this item is not checked:

If the measurement time exceeds the next interval measurement starting time, the measurement of the exceeded starting time is not executed and the operation goes to standby mode until the next measurement. This does not cause a misalignment in actual measurement time interval. The measurement count is limited to the actually-executed management and is lower than the preset count.



3.3.4 Averaging Count

This function is used to set the image acquisition count to be averaged at one-time measurement.

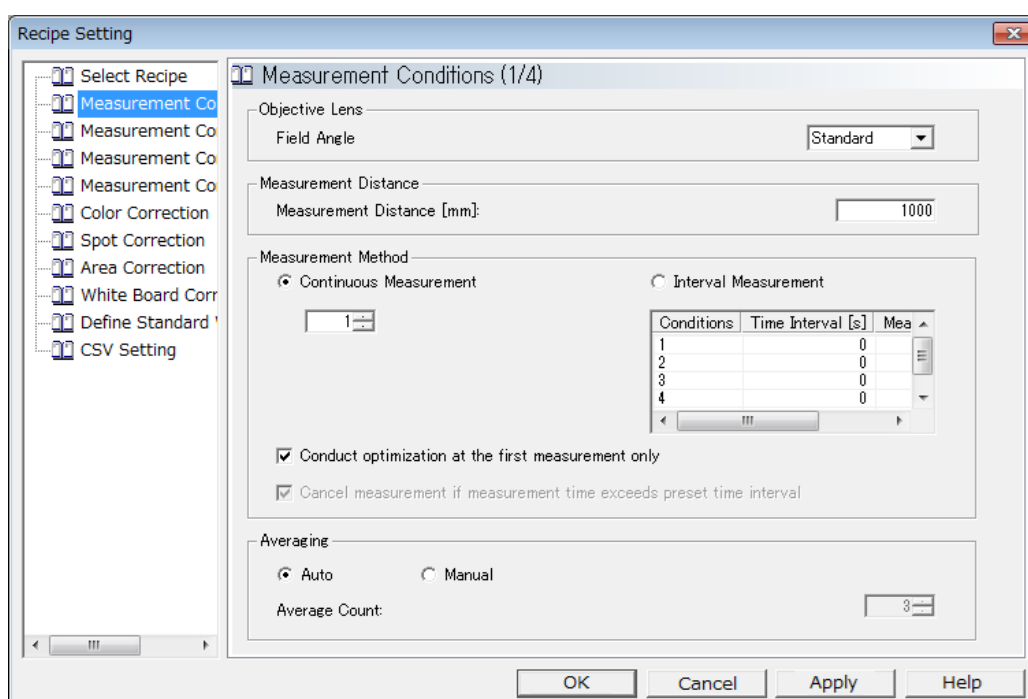
To set the average count, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)].
- 2 Select the [Auto] or the [Manual] in the [Averaging] group.

When you select the [Auto], the number of measurement count for the averaging is calculated automatically by integral time.

When you select the [Manual], the number of measurement count for the averaging can be specified. When the [Manual] is selected, the edit box become active, enter the value for averaging.

Valid range of averaging is 1 to 50



Memo

- You can enter values by using the Spin button ▲▼ in the edit box.
- Averaging vary depending on integral time.

The number of measurement count for averaging in [Auto].

■ UA-10 series

Integral time[ms]	Averaging
0.03 – 1499.99	4
1500 or more	5

■ UA-200

Integral time[ms]	Averaging
0.1 – 9999.9	3
10000 or more	2

3.4 Setting Measurement Condition (1/4) (UA-200A)

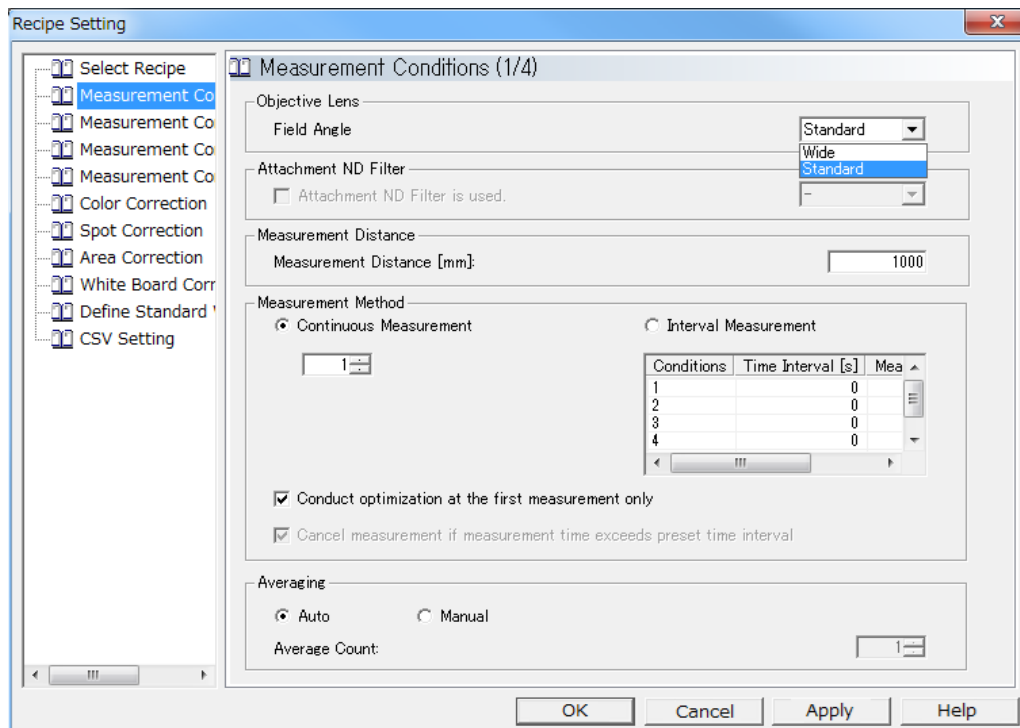
3.4.1 Field Angle

Sets field angle of objective lens.

The setting procedure is as follows;

Open [Recipe Setting] dialog, and select [Measurement Conditions (1/4)].

Select Wide or Standard from the [Field angle] pull down menu in the [Objective Lens].



Note

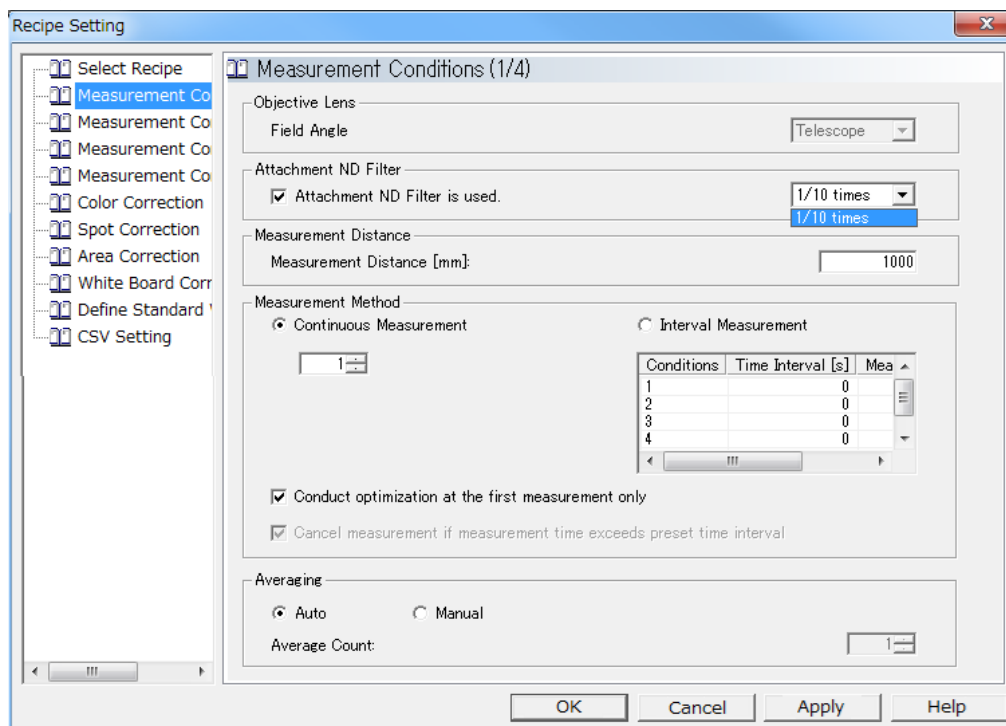
When one lens is attached, Field Angle cannot change.

3.4.2 Attachment ND Filter

This function is used to set the attachment ND filter. To set the attachment ND filter, go through the following steps.

Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)].

Set "ON" for the [Attachment ND Filter is used.] check box of [Attachment ND Filter]. Select the type of the attachment ND filter from the pull-down menu.



Note

For selection of attachment ND filter, only the type of the filter that you have purchased is displayed. In UA-200AS/UA-200AWS, it is not possible to set the attachment ND filter.

If you have not purchased the attachment ND filter, you cannot set its type.

3.4.3 Measurement Distance

This function is used to set the distance between the device and the measurement target. To set the measurement distance, go through the following steps.

Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)].

Enter the values of measurement distance in the [Measurement Distance] edit box.

The measurement distance is from tip of the objective lens unit of the device to the measurement target.

Valid range is 100[mm] – 100000 [mm].

Recipe Setting

Measurement Conditions (1/4)

Objective Lens
Field Angle: Standard

Attachment ND Filter
 Attachment ND Filter is used. 1/10 times

Measurement Distance
Measurement Distance [mm]: 1000

Measurement Method
 Continuous Measurement Interval Measurement

Conditions	Time Interval [s]	Mea
1	0	
2	0	
3	0	
4	0	

Conduct optimization at the first measurement only
 Cancel measurement if measurement time exceeds preset time interval

Averaging
 Auto Manual
Average Count: 1

OK Cancel Apply Help

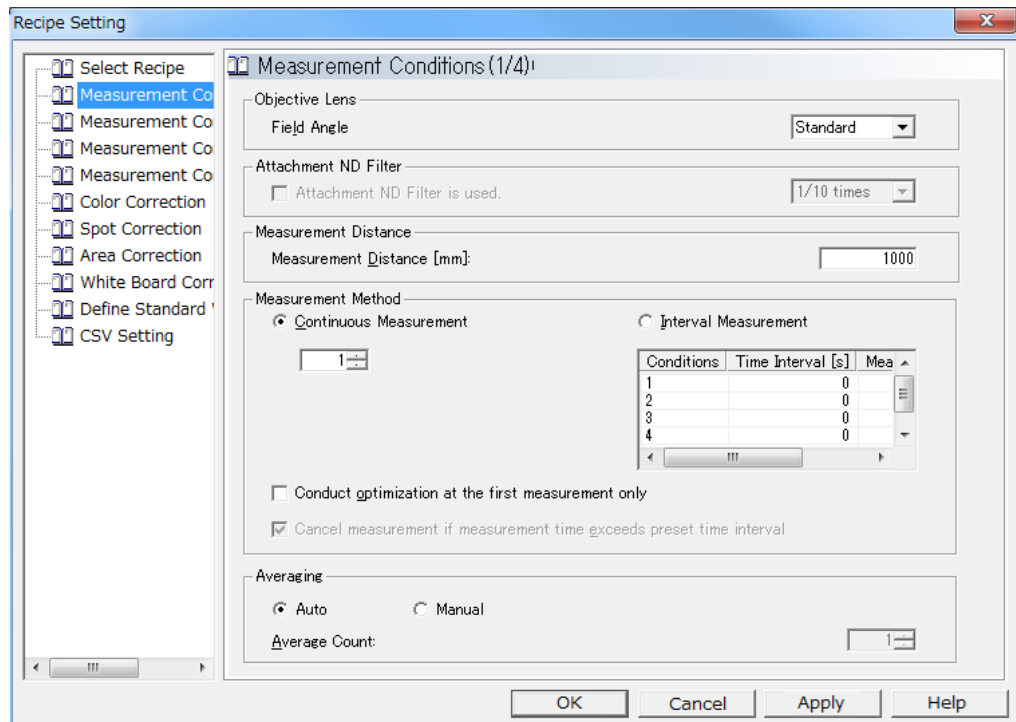


If entered values of this measurement distance is not appropriate, it may cause some error in all the result of dimensions calculation and may affect the area calculation of the measurement spot.

3.4.4 Measurement Method

Sets the number of times of the measurement and interval time for the continuous measurement and the Interval measurement. To set the measurement method, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)]. Select the [Continuous measurement] or the [Interval measurement] in the Measurement method.



- 2 When you select the [Continuous measurement], the edit box will become active. Enter the number of times of the measurement by using the keyboard or using the Spin button ▲▼. Valid range of the number of times of the measurement is 1 - 999. When the [Conduct optimization at the first measurement only] check box is on, the software optimizes a measuring setting at only first measurement in continuous and interval measuring.

Memo


- When the [Conduct optimization at the first measurement only] check box is On, a measuring time for optimization from second measuring can be omitted.
- When the [Conduct optimization at the first measurement only] check box is On, accurate measured data cannot be obtained due to variation of luminance and color in the measurement target. When you measure a target, of which luminance and color vary large, remove the check and optimize measuring condition at each measuring.

- 3 When you select the [Interval measurement], you can specify the interval time and the number of times of the measurement. In condition 1 to 5, enter the [Interval Time] and the [Measurement Count] each conditions. Click each cell to activate cells.

Time Interval: 1 - 259200 [sec] (259200 seconds = 72 hours)

Measurement Count: 1 - 999 times

If the [Cancel Measurement if Measurement Time Exceeds Preset Time Interval] is checked, when it takes longer time to measure than the interval setting, next measurement is canceled.

 Note	<ul style="list-style-type: none"> • The value of the interval time x measurement count cannot exceed the time of 259200 seconds (= 72 hours). • Interval time may vary in several seconds from measuring conditions.
--	---

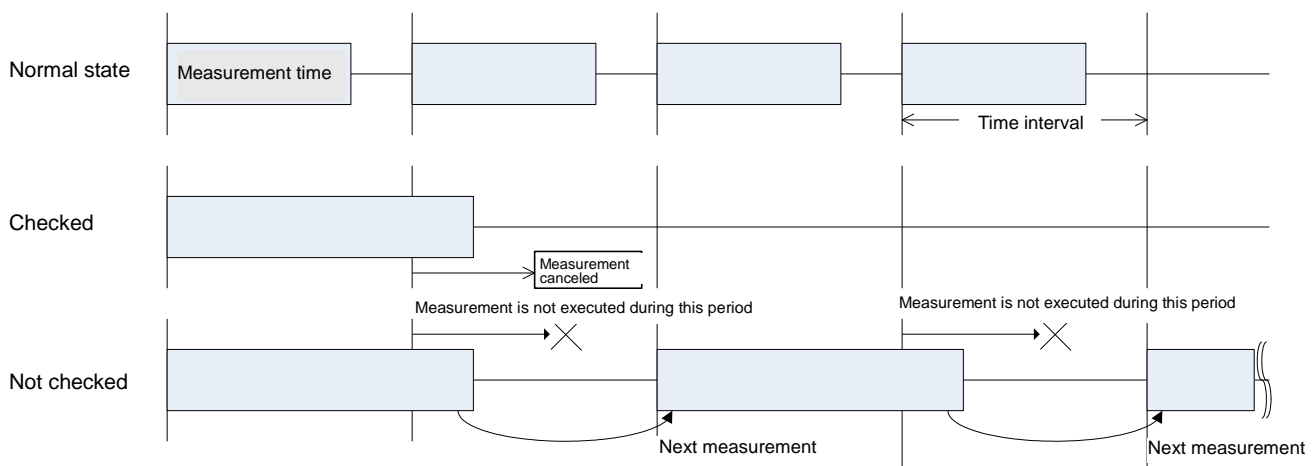
Operation when the measurement time in the interval measurement exceeds the interval time

- When this item is checked:

If the measurement time exceeds the next interval measurement starting time, the measurement is canceled at the next measurement starting time. The data obtained during the measurement are discarded.

- When this item is not checked:

If the measurement time exceeds the next interval measurement starting time, the measurement of the exceeded starting time is not executed and the operation goes to standby mode until the next measurement. This does not cause a misalignment in actual measurement time interval. The measurement count is limited to the actually-executed management and is lower than the preset count.



3.4.5 Averaging Count

This function is used to set the image acquisition count to be averaged at one-time measurement.

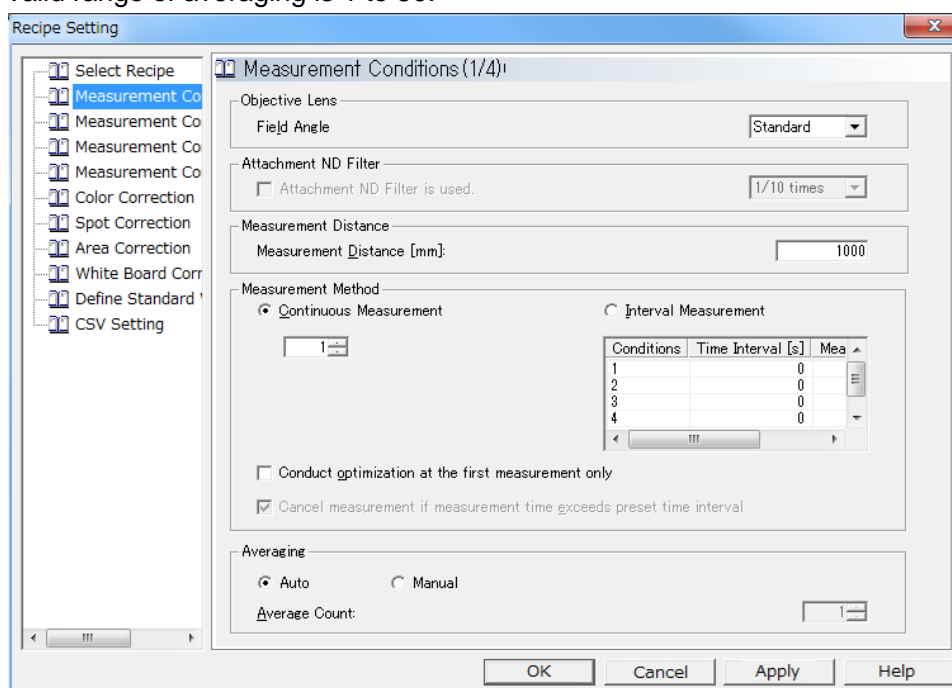
To set the average count, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (1/4)].
- 2 Select the [Auto] or the [Manual] in the [Averaging] group.

When you select the [Auto], the number of measurement count for the averaging is calculated automatically by integral time.

When you select the [Manual], the number of measurement count for the averaging can be specified. When the [Manual] is selected, the edit box become active, enter the value for averaging.

Valid range of averaging is 1 to 50.



Memo

- You can enter values by using the Spin button ▲ ▼ in the edit box.
- Averaging vary depending on integral time.

The number of measurement count for averaging in [Auto].

■ UA-200A

Integral time[ms]	Averaging
0.05 – 9999.99	3
10000 – 31999.99	5
32000	*15

*Average count of dark measurement : 4 times

3.5 Setting Measurement Condition (2/4) (UA-10 series)

3.5.1 Integral Time

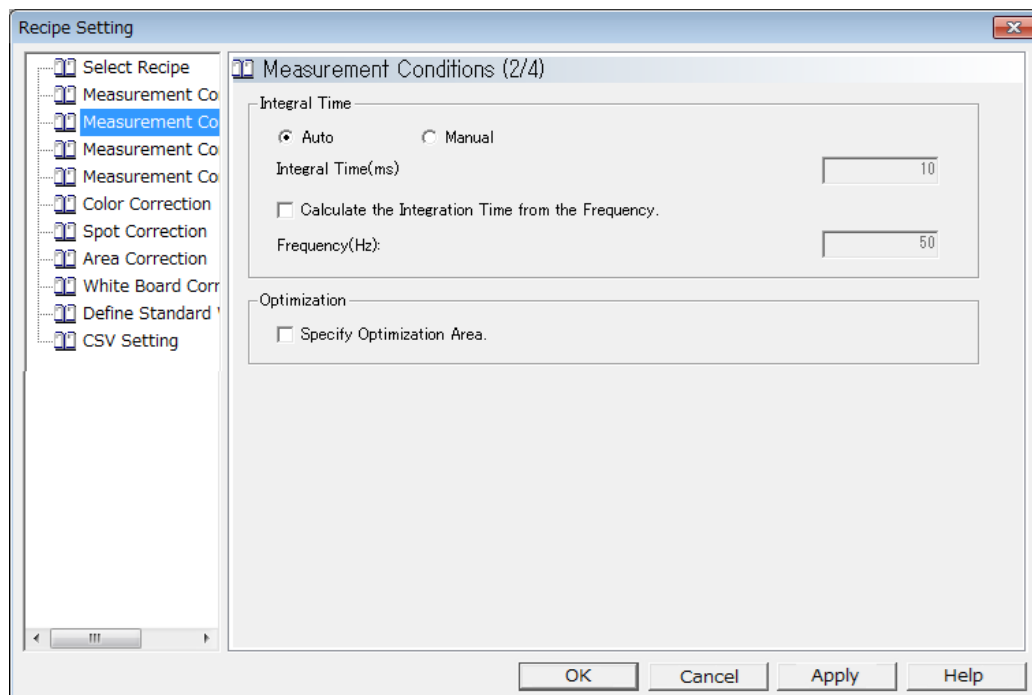
Specifies the methods for setting the Integral Time. Integral Time indicates for how long light should enter the CCD. The optimal amount of light should enter the CCD to obtain accurate results. Select the [Auto] usually to calculate optimum integral time automatically. Depending on the measurement target and conditions, select the [Manual] to specify the integral time manually. To set the integral time, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (2/4)].
- 2 Select the [Auto] or the [Manual] in the [Integral time]

When you select the [Auto], optimum integral times are determined before each measurement.

When you select the [Manual], integral time can be specified.

Valid range 0.03[ms] – 2000[ms]



Memo

The optimal integral time can be determined in advance. Execute [Measurement] – [Calculate optimal value of measurement condition] on the Menu bar, or press the “F5” key.

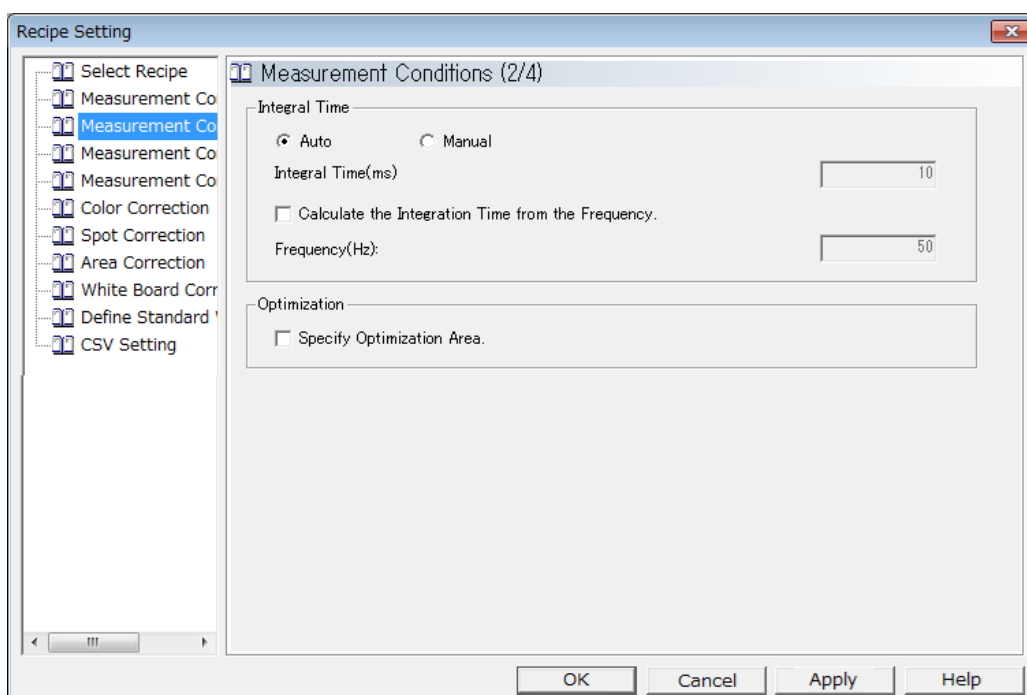
 “4.3 Calculate optimal value of measurement condition”

3.5.2 Frequency

Synchronizes the integral time to the multiple of the blinking frequency of the measurement target. When you measure the light source with blinking frequently, this function help obtain accurate results.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition (2/4)].
- 2 Check the check box of [Calculate the integration time from the frequency] and the [Frequency] edit box will become active. Specify the value of frequency of the light source.

Valid range of values of frequency 4[Hz] - 2000 [Hz]



Memo

When you select the "Calculate the integration time from the frequency", measurement time may take longer.

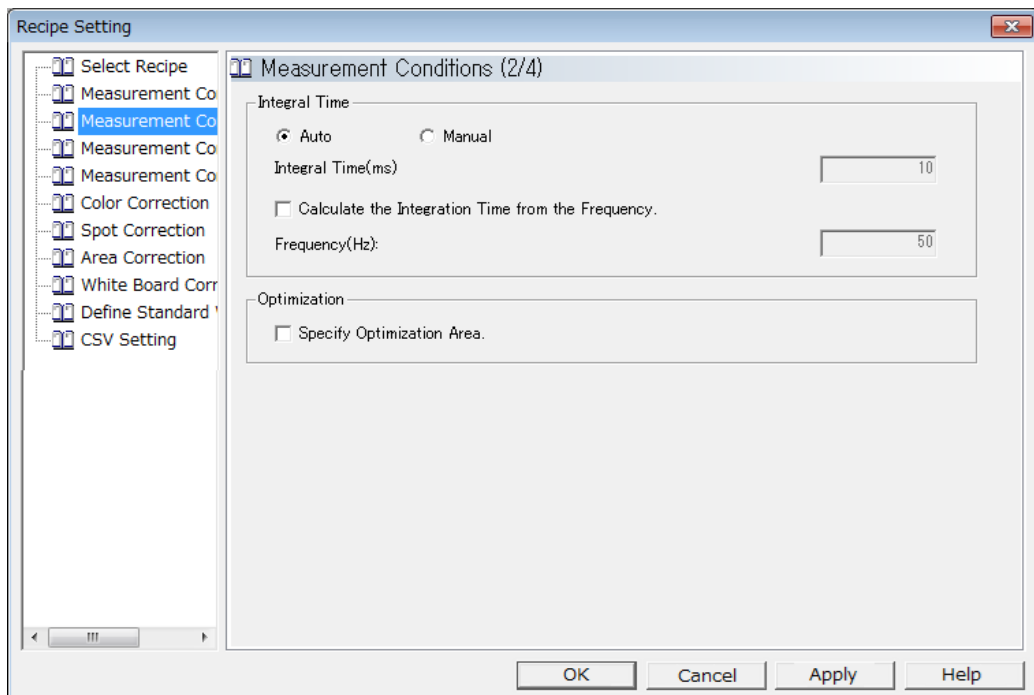
 4.3 Calculate optimum value of measurement condition

3.5.3 Specifying pick-up area for optimizing measurement condition

Calculates optimum measurement condition in specified area in the view. Use this function to observe certain area, not whole area. To calculate optimal measurement condition in certain area, go through the following steps.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition (2/4)].
- 2 When [Specify Optimization Area] check box is On, the setting in [Optimization area] in [Live View] is enabled. Optimum measuring setting is calculated by using measured data in the specified area.

When [Specify Optimization Area] check box is Off, Optimum measuring setting is calculated by using measured data in whole measuring field.



Memo

When saturation occur while the pick-up area is active, the saturation may influence on measured data in their surrounding pixels.

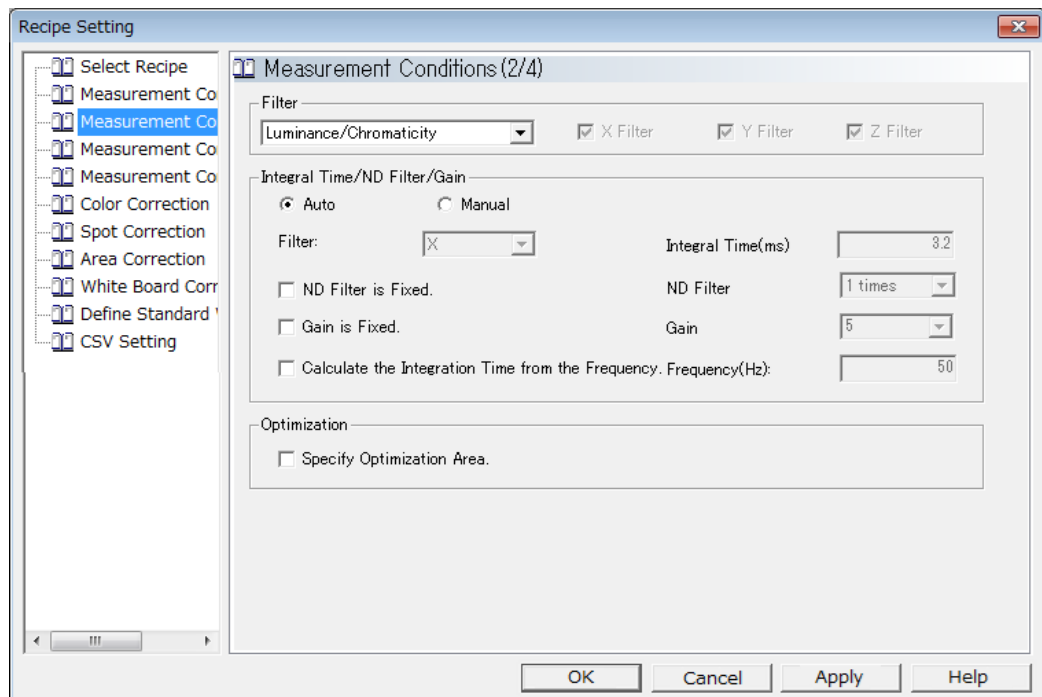
☞ "4.3 Calculate optimum value of measurement condition"

3.6 Setting Measurement Condition (2/4) (UA-200)

3.6.1 Filter

Selects a type of a combination of Tristimulus filter in order to measure Luminance or chromaticity. And you can select one filter from Tristimulus filter X, Y, Z. To set the filter, go through the following steps.

- 1 Open the [Recipe] dialog, and select [Measurement Conditions (2/4)].



- 2 Select one filter from [Filter] pull down menu.
Select one setting from [Luminance/Chromaticity], [Luminance], and [User specified].

 Memo

In [Luminance/Chromaticity] and [Luminance], Tristimulus filter X, Y, Z cannot change.

- 3 When you select the [User specified] from [Filter] pull down menu, check box of X, Y, Z filter become available. Only filter checked in the check box is enable.

 Memo

In [User specified], one or two filter are selectable. You cannot remove all check box.

3.6.2 Integral Time/ND Filter/Gain

Sets parameter of integral time, ND filter, and gain.

In order to obtain correct measured data, the instrument must let proper amount of light reach CCD sensor by combining integral time, ND filter, and gain setting. Integral time is the time for accumulating the light in CCD. ND filter is a filter that reduces the amount of light that passes through to the CCD. Gain is amplification factor in CCD.

Software can calculate proper combination of Integral time, ND filter, and Gain in [Auto]. In [Manual], setting of integral time, ND filter, Gain each can be specified manually.

The procedure of setting integral time, ND filter, and Gain is as follows;

- 1 Open the [Recipe setting] dialog, and select the [Measurement conditions (2/4)].
- 2 Select [Auto] or [Manual] in the [Integral time/ND filter/Gain].

In [Auto], Integral time, ND filter, and Gain are determined at each measuring.

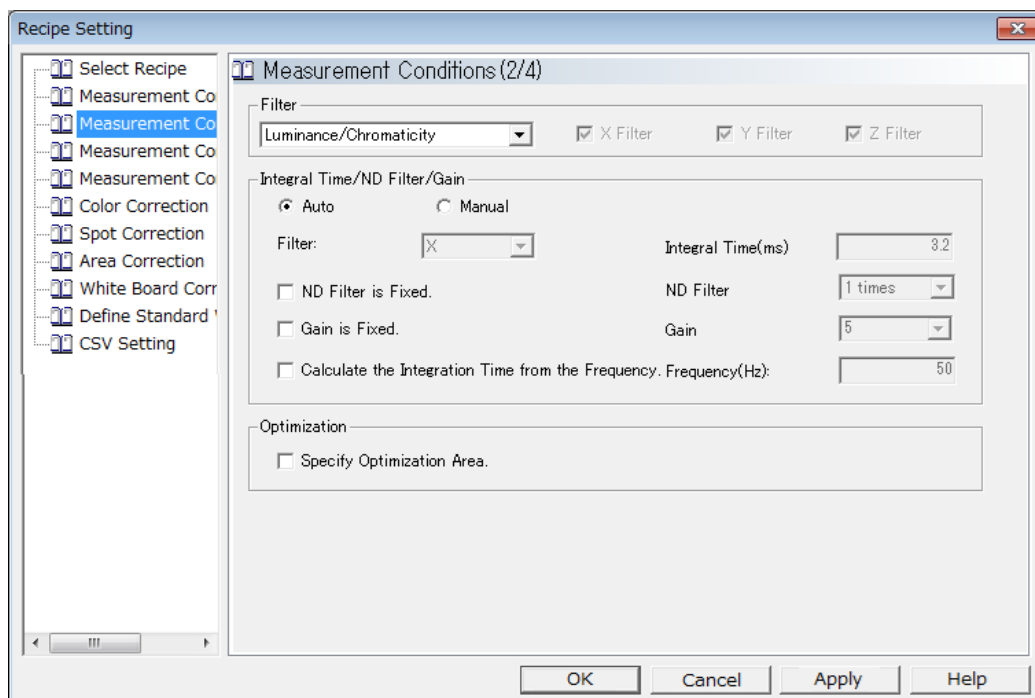
In [Manual], you can specify setting of Integral time, ND filter, and Gain. When you select [Manual] or check [ND filter] or [Gain] check box, edit box become available.

Setting range are as follows;

Integral time : 0.1[ms]-60000[ms]

ND filter : 1x or 1/10x


Gain : 1 or 5



- 3 When [ND filter is fixed] is checked, software determine an optimum integral time under specified ND filter.
- 4 When [Gain is fixed] is checked, software determine an optimum integral time under specified Gain.

 Memo

Optimum integral time, ND filter, and Gain can be determined in advance of measuring. Select [Measure]-[Calculate Optimal value of integral times] or push F5 key.

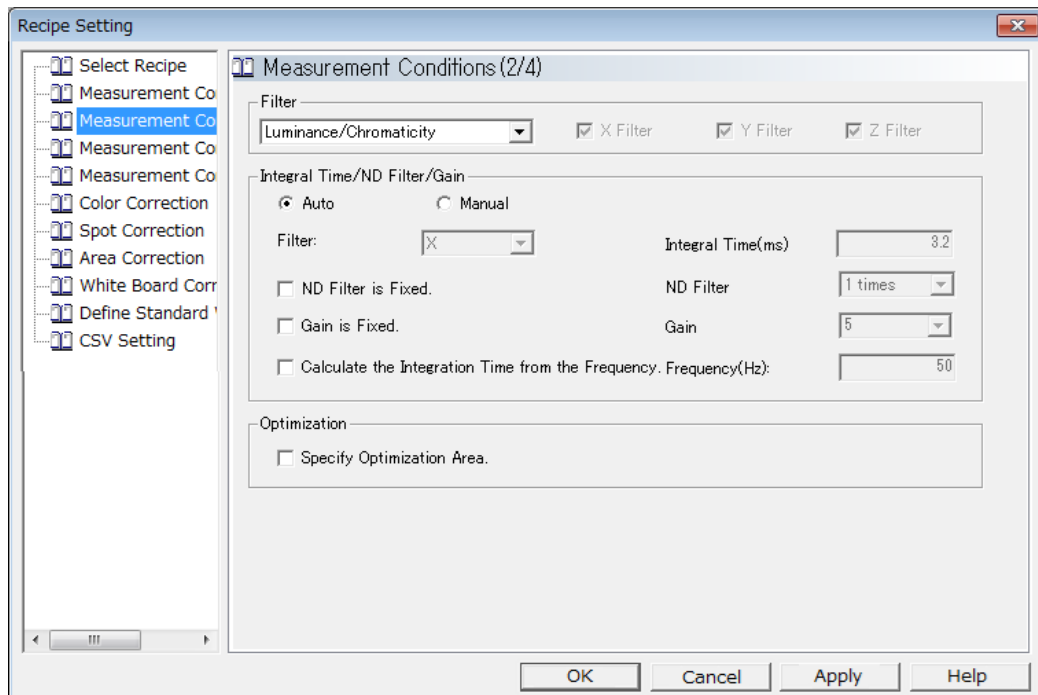
 "4.3 Calculate optimum value of measurement condition"

3.6.3 Frequency

Synchronizes the integral time to the multiple of the blinking frequency of the measurement target. When you measure the light source with blinking frequently, this function help obtain accurate results.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition 2/4].
- 2 Check the check box of [Calculate the integration time from the frequency] and the [Frequency] edit box will become active. Specify the value of frequency of the light source.

Valid range of values of frequency 4[Hz] - 2000 [Hz]



Memo

When you select the "Calculate the integration time from the frequency", measurement time may take longer.

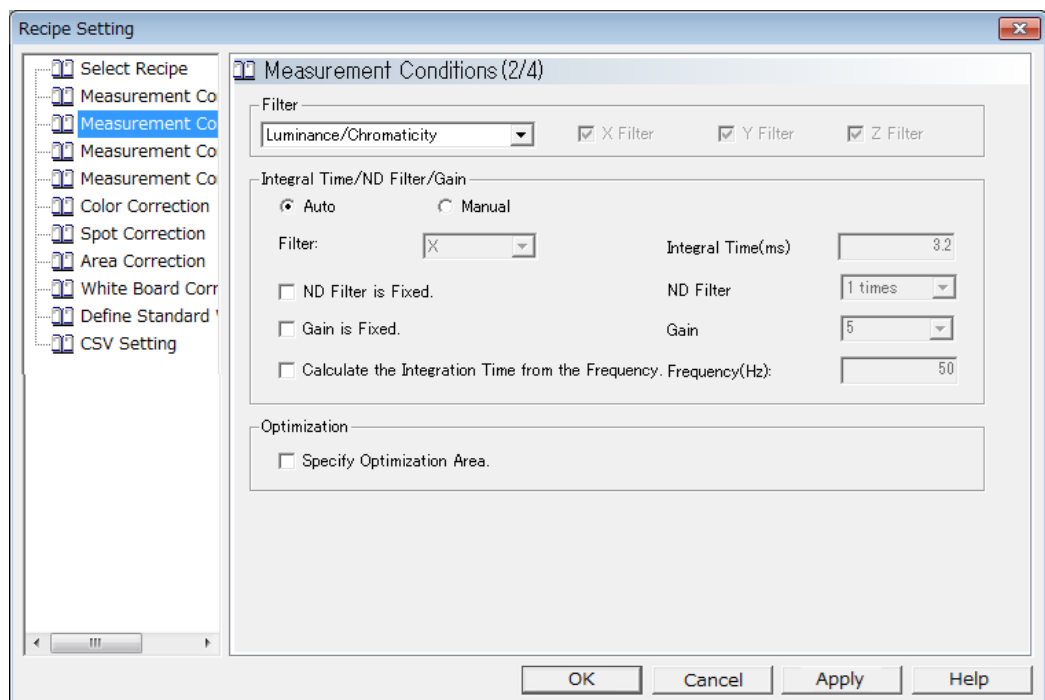
☞ "4.3 Calculate optimum value of measurement condition"

3.6.4 Specifying pick-up area for optimizing measurement condition

Calculates optimum measurement condition in specified area in the view. Use this function to observe certain area, not whole area. To calculate optimal measurement condition in certain area, go through the following steps.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition(2/4)].
- 2 When the [Specify Optimization Area] check box is On, the [Optimization area] setting in [Live View] is enabled. Software determines an optimum measuring setting at specified area.

When the [Specify Optimization Area] check box is Off, software determines an optimum measuring setting on whole measuring field.



Memo

When saturation occur while the pick-up area is active, the saturation may influence on measured data in their surrounding pixels.

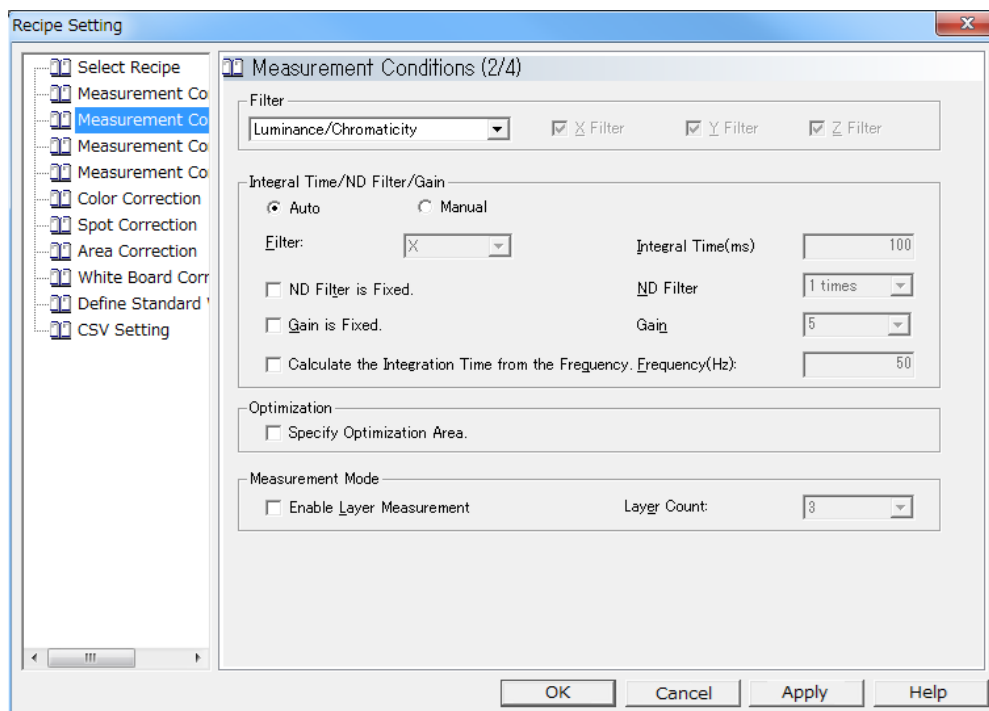
☞ "4.3 Calculate optimum value of measurement condition"

3.7 Setting Measurement Condition (2/4) (UA-200A)

3.7.1 Filter

Selects a type of a combination of Tristimulus filter in order to measure Luminance or chromaticity. And you can select one filter from Tristimulus filter X, Y, Z. To set the filter, go through the following steps.

- 1 Open the [Recipe] dialog, and select [Measurement Conditions (2/4)].



- 2 Select one filter from [Filter] pull down menu.
Select one setting from [Luminance/Chromaticity], [Luminance], and [User specified].

 Memo

In [Luminance/Chromaticity] and [Luminance], Tristimulus filter X, Y, Z cannot change.

- 3 When you select the [User specified] from [Filter] pull down menu, check box of X, Y, Z filter become available. Only filter checked in the check box is enable.

 Memo

In [User specified], one or two filter are selectable. You cannot remove all check box.

3.7.2 Integral Time/ND Filter/Gain

Sets parameter of integral time, ND filter, and gain.

In order to obtain correct measured data, the instrument must let proper amount of light reach CCD sensor by combining integral time, ND filter, and gain setting. Integral time is the time for accumulating the light in CCD. ND filter is a filter that reduces the amount of light that passes through to the CCD. Gain is amplification factor in CCD.

Software can calculate proper combination of Integral time, ND filter, and Gain in [Auto]. In [Manual], setting of integral time, ND filter, Gain each can be specified manually.

The procedure of setting integral time, ND filter, and Gain is as follows;

- 1 Open the [Recipe setting] dialog, and select the [Measurement conditions (2/4)].
- 2 Select [Auto] or [Manual] in the [Integral time/ND filter/Gain].

In [Auto], Integral time, ND filter, and Gain are determined at each measuring.

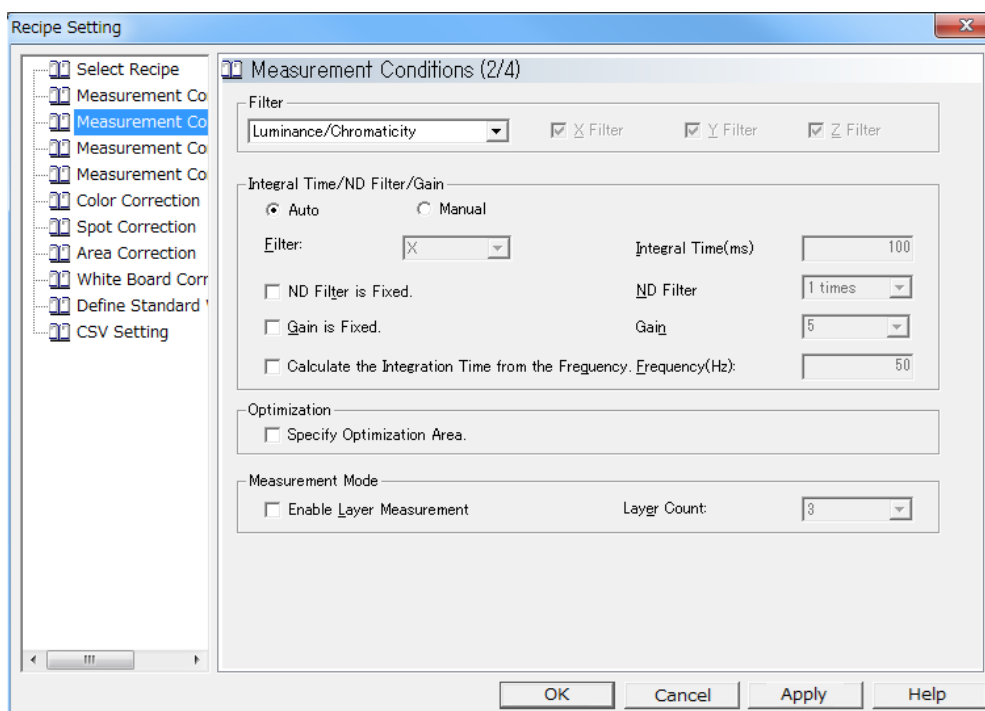
In [Manual], you can specify setting of Integral time, ND filter, and Gain. When you select [Manual] or check [ND filter] or [Gain] check box, edit box become available.

Setting range are as follows;

Integral time : 0.05[ms]-32000[ms]

ND filter : 1x or 1/10x


Gain : 1 , 5 , 10



- 3 When [ND filter is fixed] is checked, software determine an optimum integral time under specified ND filter.
- 4 When [Gain is fixed] is checked, software determine an optimum integral time under specified Gain.

 Memo

Optimum integral time, ND filter, and Gain can be determined in advance of measuring. Select [Measure]-[Calculate Optimal value of integral times] or push F5 key.

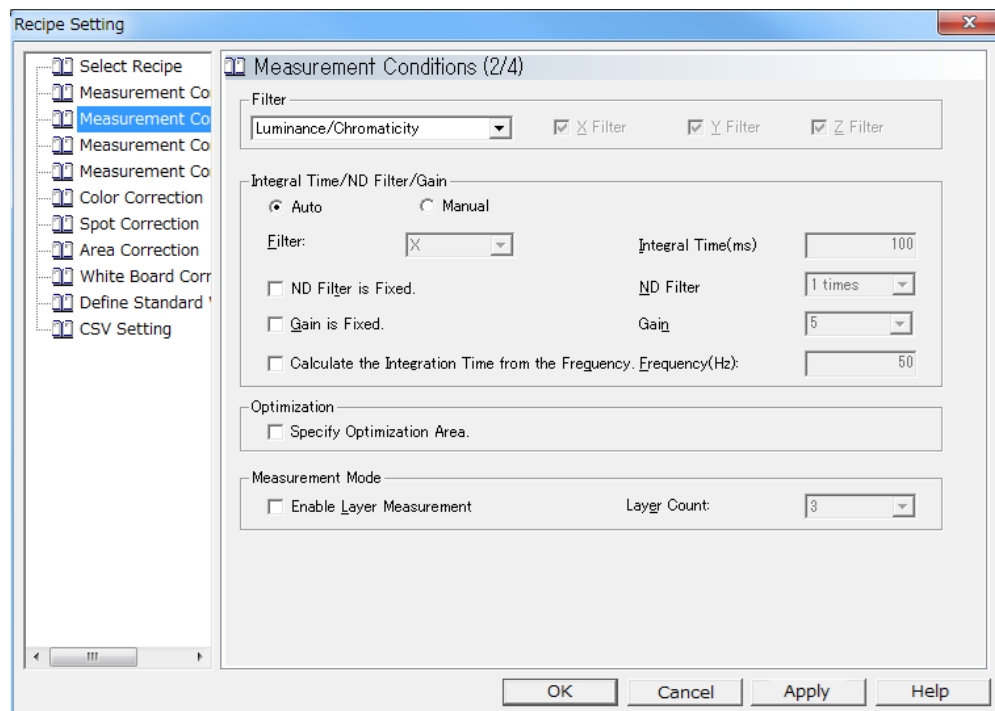
 "4.3 Calculate optimum value of measurement condition"

3.7.3 Frequency

Synchronizes the integral time to the multiple of the blinking frequency of the measurement target. When you measure the light source with blinking frequently, this function help obtain accurate results.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition (2/4)].
- 2 Check the check box of [Calculate the integration time from the frequency] and the [Frequency] edit box will become active. Specify the value of frequency of the light source.

Valid range of values of frequency 4[Hz] - 2000 [Hz]



Memo

When you select the “Calculate the integration time from the frequency”, measurement time may take longer.

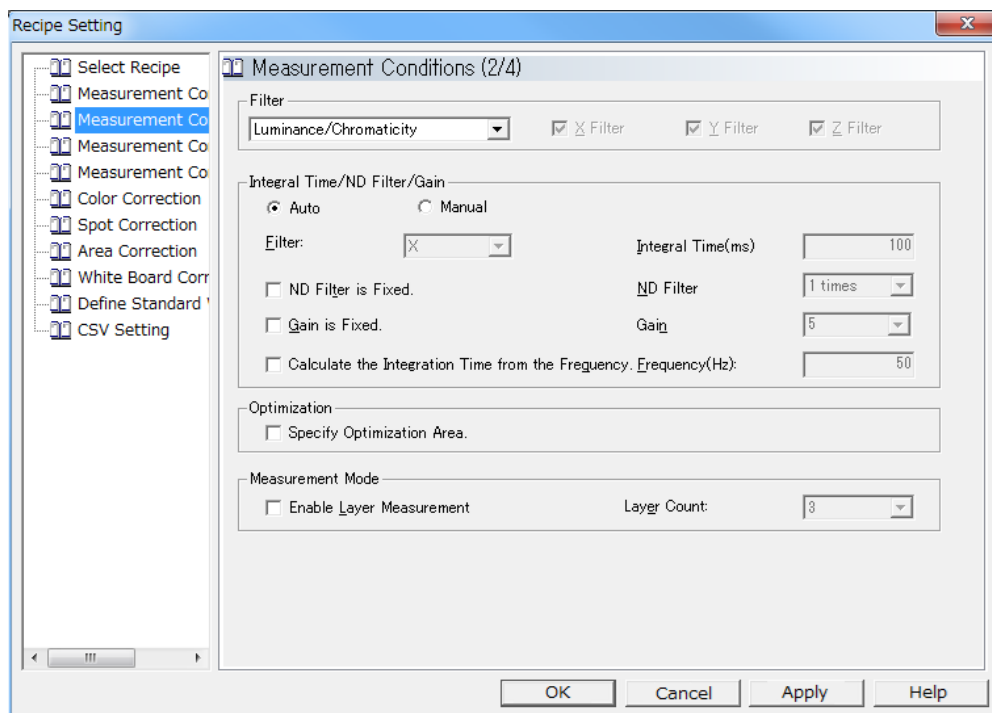
☞”4.3 Calculate optimum value of measurement condition”

3.7.4 Specifying pick-up area for optimizing measurement condition

Calculates optimum measurement condition in specified area in the view. Use this function to observe certain area, not whole area. To calculate optimal measurement condition in certain area, go through the following steps.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition(2/4)].
- 2 When the [Specify Optimization Area] check box is On, the [Optimization area] setting in [Live View] is enabled. Software determines an optimum measuring setting at specified area.

When the [Specify Optimization Area] check box is Off, software determines an optimum measuring setting on whole measuring field.



Memo

When saturation occur while the pick-up area is active, the saturation may influence on measured data in their surrounding pixels.

☞ "4.3 Calculate optimum value of measurement condition"

3.7.5 Measurement Mode

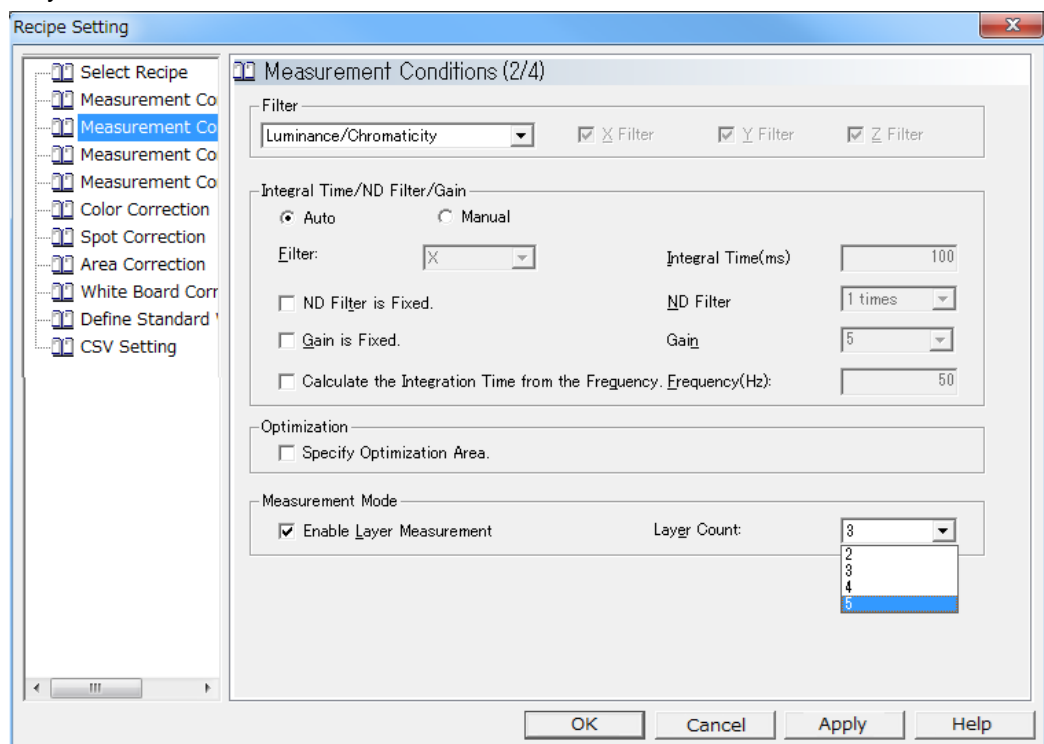
Sets the measurement mode when performing the layer measurement that is one of measurement conditions. This is effective when measuring in high dynamic range.

To set the layer measurement, go through the following steps.

- 1 Open the [Recipe setting] dialog, and select the [Measurement condition(2/4)].
- 2 When setting "ON" for the [Enable Layer Measurement] check box, layer is measured with the optimal integral time. When setting "ON" for the check box, the edit box is valid and you can set the layer number.

Setting range are as follows;

Layer Count : 2 - 5



Memo

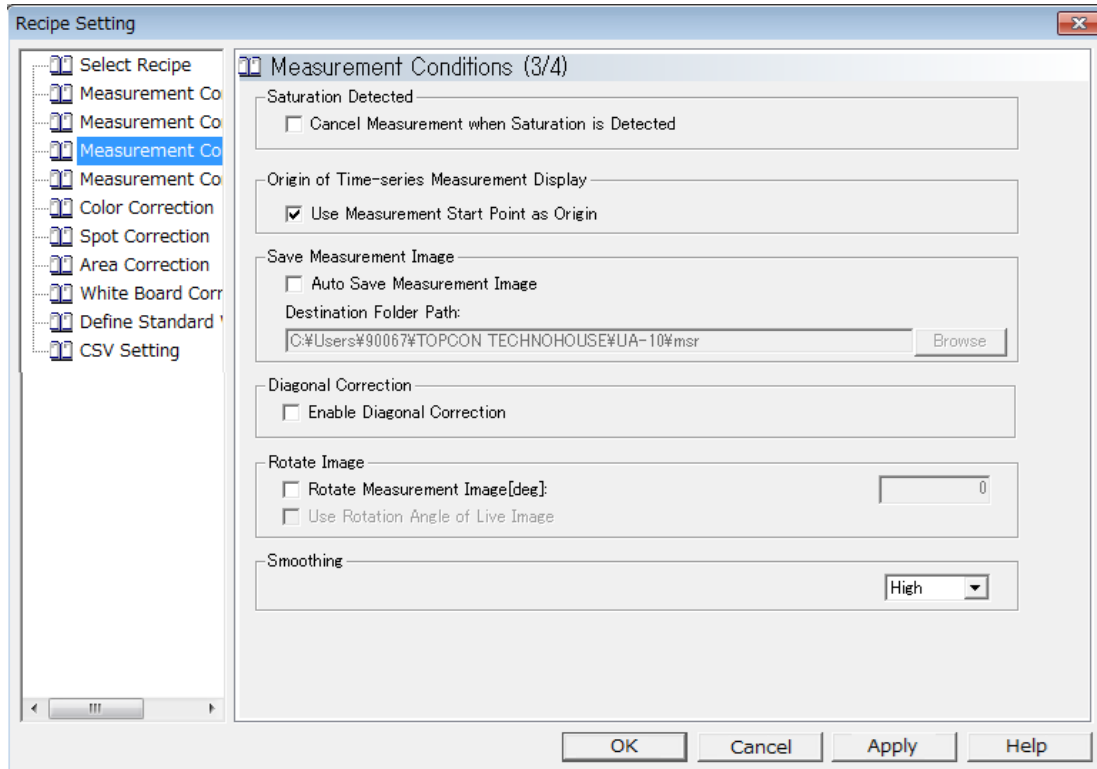
When setting "ON" for the [Enable Layer Measurement] check box, the setting for the integral time of each filter, ND filter, gain, frequency and optimization area is invalid and the measurement for all items is performed automatically.

3.8 Setting Measurement Condition (3/4)

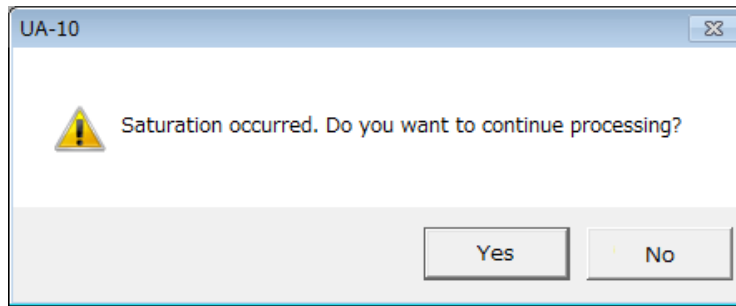
3.8.1 Saturation Detection

Sets the operation when saturation is detected during the measurement. To set the saturation detecting operation, go through the following steps.

Open the [Recipe Setting] dialog, and click [Measurement Condition (3/4)].



If you select the [Cancel Measurement when Saturation is Detected], the following dialog will appear when saturation is detected.




Click the [Yes] to continue the measurement.

Click the [No] to discontinue the measurement.

If you do not select the [Cancel Measurement when Saturation is Detected], even if saturation is detected, the measurement continues to be performed.

 Memo

When saturation occurs, the saturation icon  is displayed on the [Rebar]. The area where saturation occurs is displayed in white.

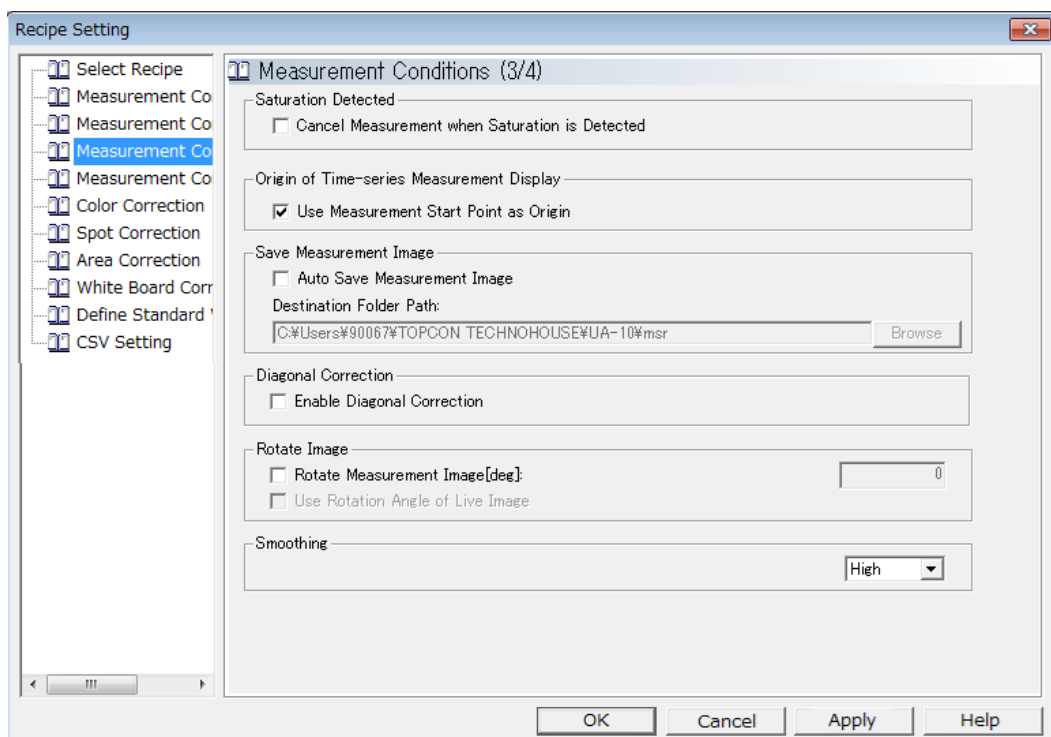
3.8.2 Origin of Time-series Measurement Display

Sets the starting point of the [Time-series Measurement]. To set the origin for displaying the time-series measurement, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (3/4)].
- 2 Check the check box to use the initial measurement data as the starting point of the Time-series Measurement Display.

When this check box is checked, the starting point is replaced by the initial measurement data for every time-series measurement.

When this check box is not checked, the starting point is fixed to the initial measurement data of the time-series measurement.



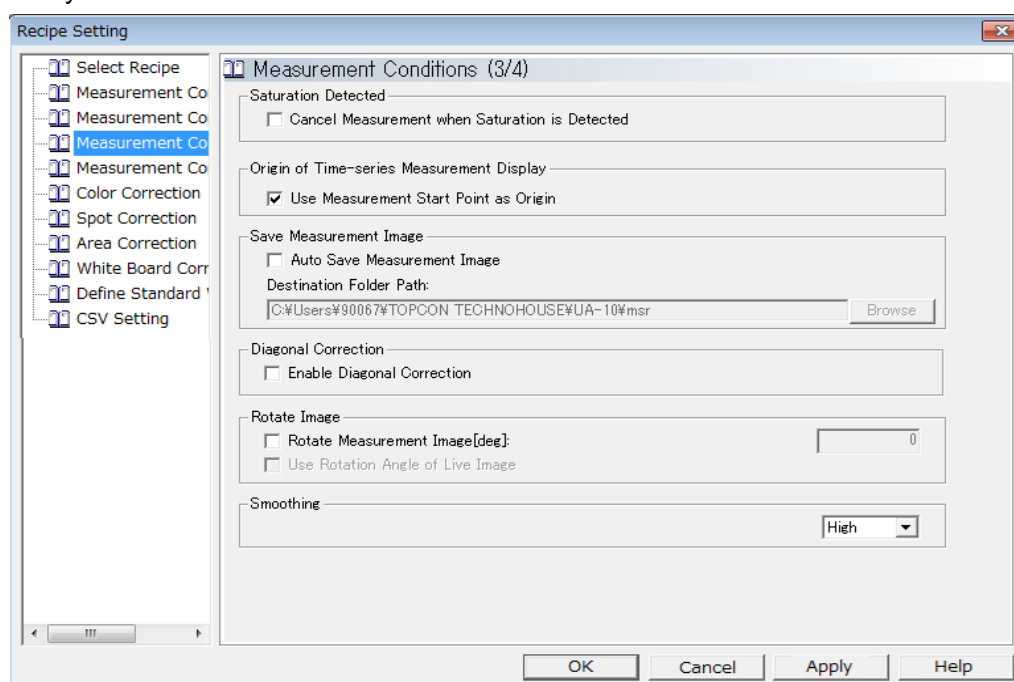
3.8.3 Save Measurement Image

Sets whether or not the measurement image is automatically saved for every measurement. When you want to save the measurement image automatically, create a time stamp folder immediately beneath the destination folder path and save the measurement image in the folder.

To automatically save the measurement image, go through the following steps.

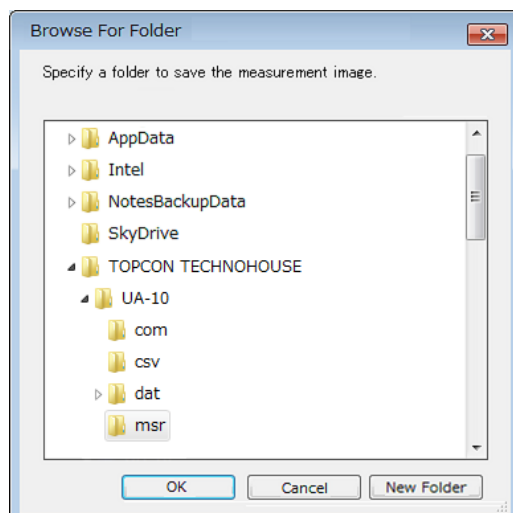
- 1 Open the [Recipe Setting] dialog, and click [Measurement Condition (3/4)].
- 2 Check [Save Measurement Image] - [Auto Save Measurement Image] to save the measurement image automatically.

When this checkbox is checked, the measurement image is automatically saved for every measurement.



When you want to change the folder path, click the [Browse] button, the folder path will be displayed in Explorer style.

Select the location where to save the image(s) and click the [OK] button.

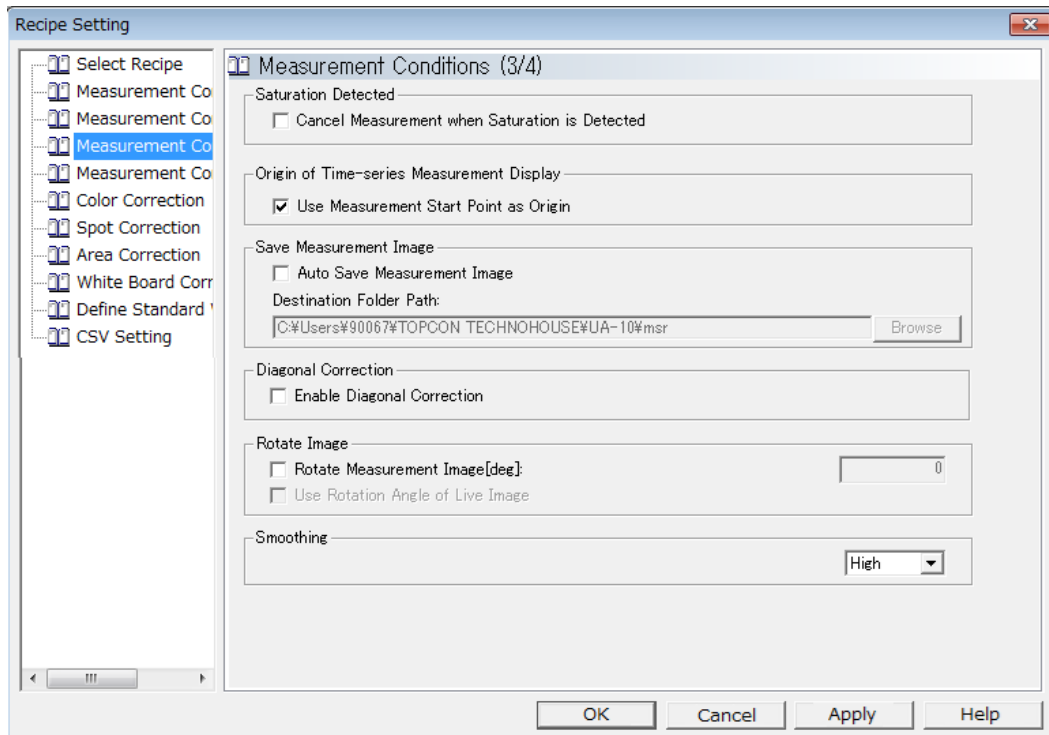


3.8.4 Diagonal Correction

Sets on and off of diagonal correction to measured image. Measured images at tilt angle are transformed to the rectangle.

To activate the diagonal correction, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and select the [Measurement Conditions (3/4)].
- 2 [Diagonal Correction] is On, the Diagonal correction is enabled to measured image at each measuring.



Memo

Factor of the Diagonal Correction is set in the [Setting]-[Diagonal Correction]. On or Off of the Diagonal Correction is set in the [Measurement Conditions(3/4)].

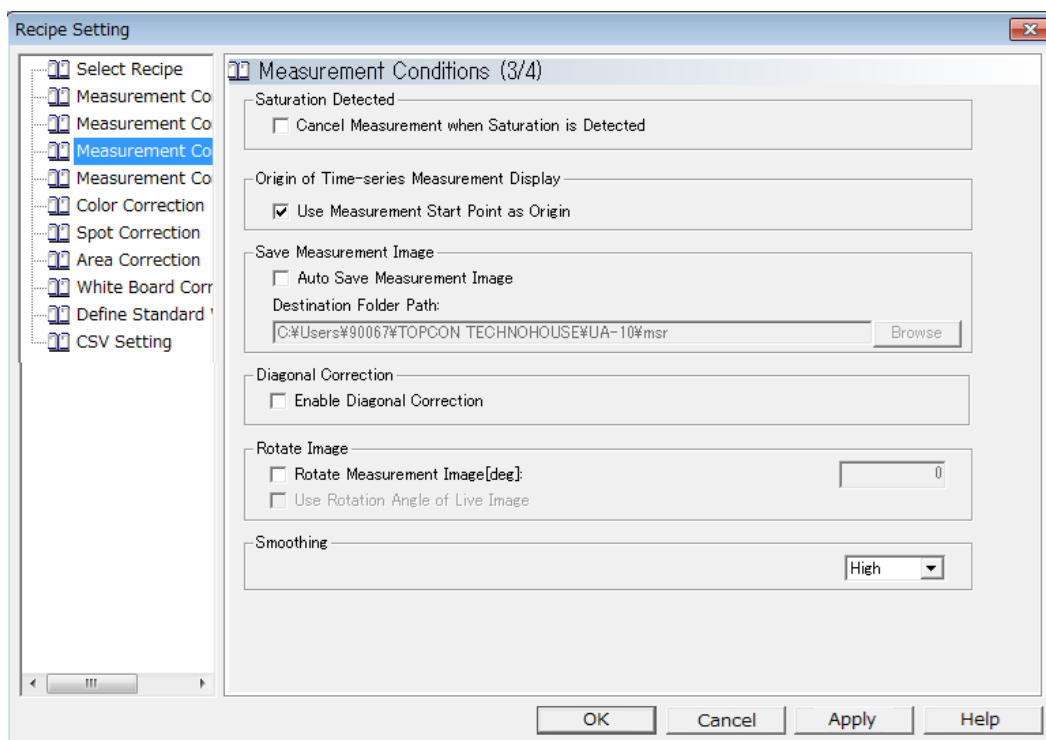
☞ "3.15 Diagonal correction"

3.8.5 Rotate Image

Sets ON and OFF of the rotation to the measurement image.

To validate/invalidate the image rotation, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and select [Measurement Conditions (3/4)].
- 2 When setting ON for the [Rotate Measurement Image] check box and entering the rotating angle, rotation is applied to the measurement image at every measurement.



- 3 When setting ON for the [Use Rotation Angle of Live Image] check box, the rotation in the angle for the live image is applied to the measurement image at every measurement.

Memo

It is possible to set the rotating angle for the live image by setting [Common Setting] - [Live Setting] or by setting [Live View] - [Rotation]. In [Measurement Conditions (3/4)], set ON/OFF of image rotation at every measurement.

 "3.12.3 Live Setting"

 "5.1.15 Rotate Live Image"

3.8.6 Smoothing

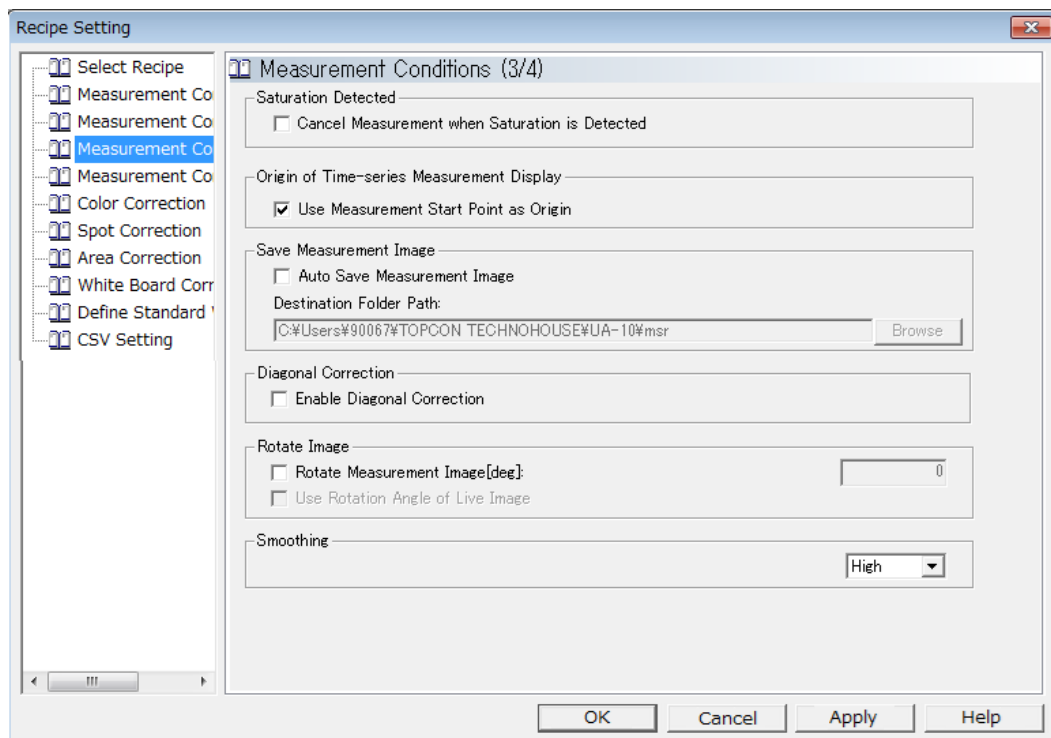
Sets the smoothing to the measurement image.

To set the smoothing, go through the following steps.

Memo

Smoothing reduces the noise elements contained in the measurement data.
This smoothing enables you to acquire stabilized measurement data.

- 1 Open the [Recipe Setting] dialog, and select [Measurement Conditions (3/4)].
- 2 Select one smoothing type from [Smoothing] pull down menu.



High : High noise reduction effect.

Low : Low noise reduction effect.

OFF : No noise reduction processing is performed.

Memo

The lower the noise reduction effect, the higher the resolution.

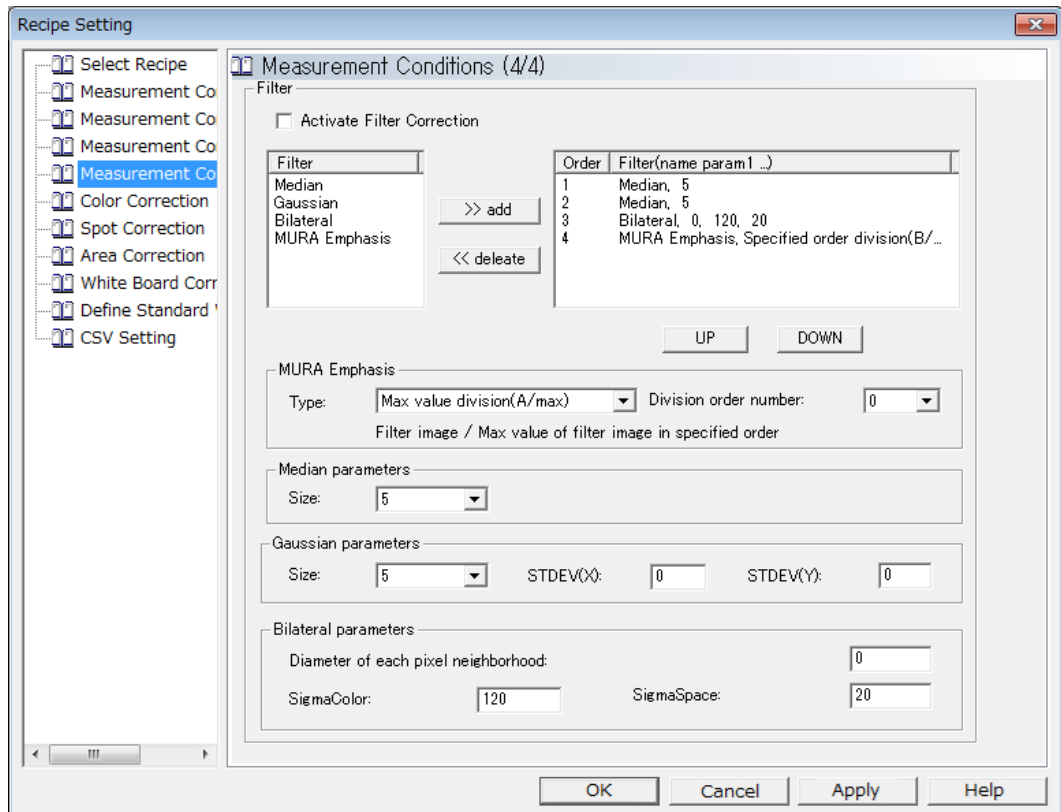
3.9 Setting Measurement Condition (4/4)

3.9.1 Setting “MURA Emphasis” Parameters

This function is used to set the parameters for “MURA Emphasis” (unevenness emphasis).

To set the parameters for “MURA Emphasis”, go through the following steps.

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)]



- 2 From the [Type] pull-down menu of [MURA Emphasis], select the “MURA Emphasis” formula to be applied.

- Max value division (A/max):

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the maximum value of the image, which is the filtering result up to the order number specified by [Division order number].

- Avg value division (A/avg):

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the average value of the image, which is the filtering result up to the order number specified by [Division order number].

- Specified order division (A/B):

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the image, which is the filtering result up to the order number specified by [Division order number].

- Max value division (max/A):

Divides the maximum value of the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

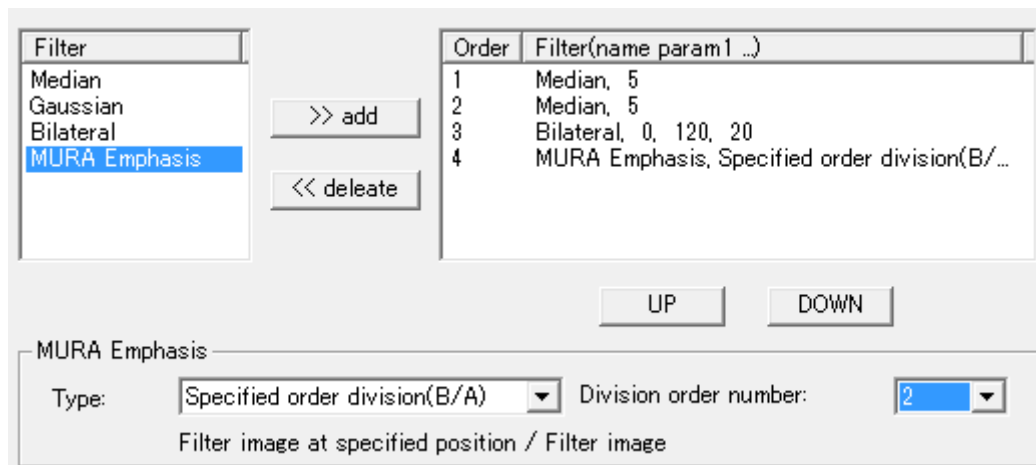
- Avg value division (avg/A):

Divides the average value of the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

- Specified order division (B/A):

Divides the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

Example] In the case of “Specified order division (B/A)



When the above is set, the formula is as follows:

1 – 2. Median image / 1 – 3. Bilateral image

- 3 From the [Division order number] pull-down menu of [MURA Emphasis], select the division order number for the denominator and numerator which will be applied to “MURA Emphasis” calculation.

Memo

- When any item is not set in the [Order/Filter] list, only “0” can be selected for [Division order number].
- When “0” is selected for [Division order number], [Standard data] is applied.

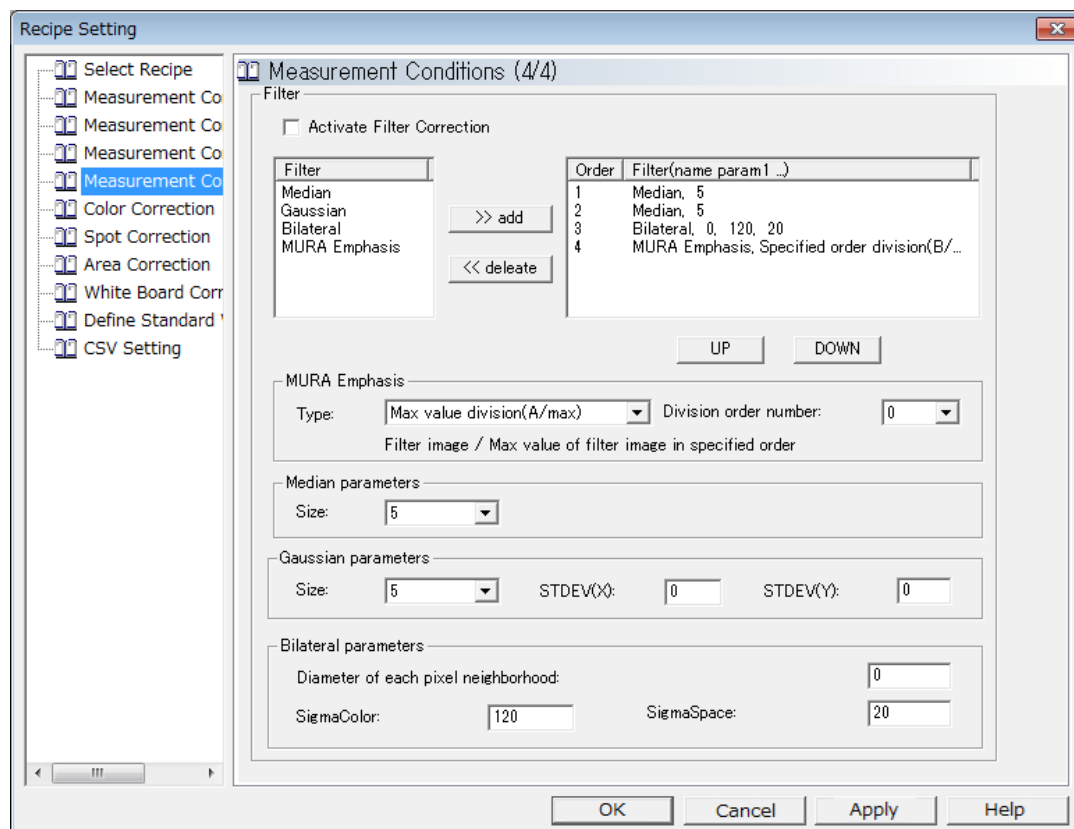
3.9.2 Setting Median Filter Parameters

This function is used to set the median filter parameters.

To set the median filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Median filter”

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)].



- 2 From the [Size] pull-down menu of [Median parameters], select the filter size to be applied.

☞ Memo

As [Size] is larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.

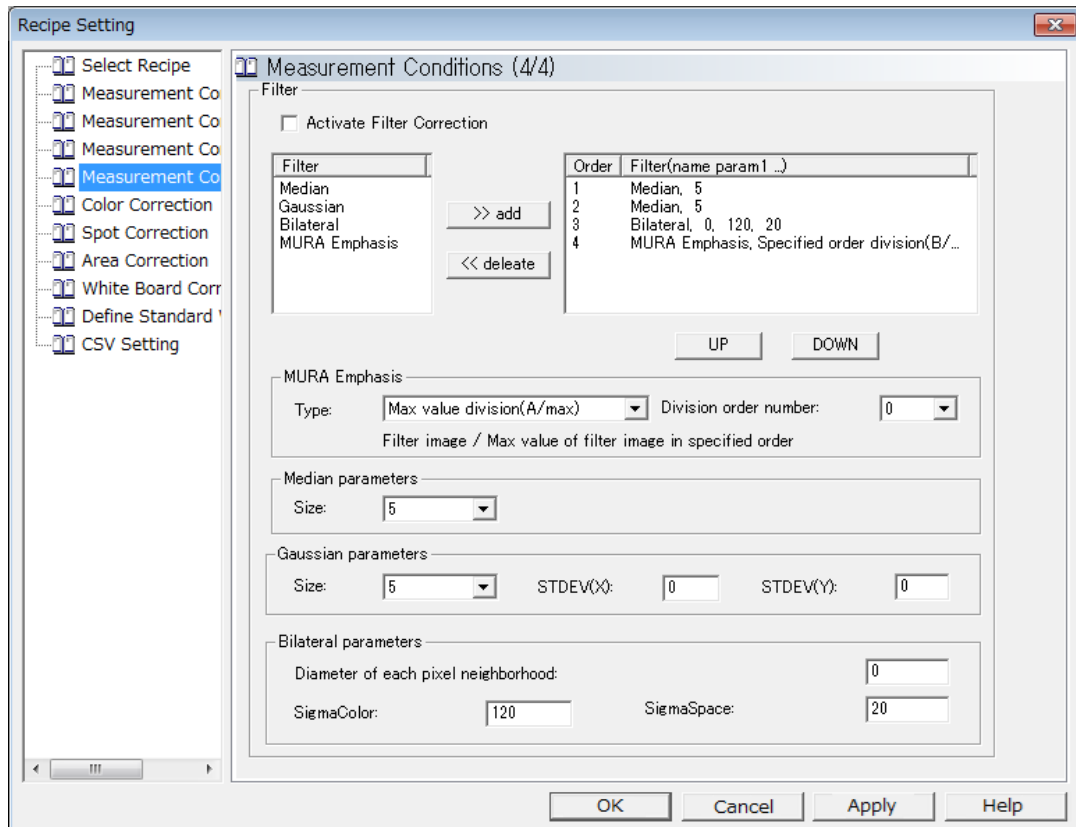
3.9.3 Setting Gaussian Filter Parameters

This function is used to set the Gaussian filter parameters.

To set the Gaussian filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Gaussian filter”

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)].



- 2 From the [Size] pull-down menu of [Gaussian parameters], select the filter size to be applied.
- 3 Set the values for [STDEV (X)] and [STDEV (Y)] of [Gaussian parameters].
The setting range is 0 to 999.99.

☞ Memo

As [Size], [STDEV (X)] and [STDEV (Y)] are larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.

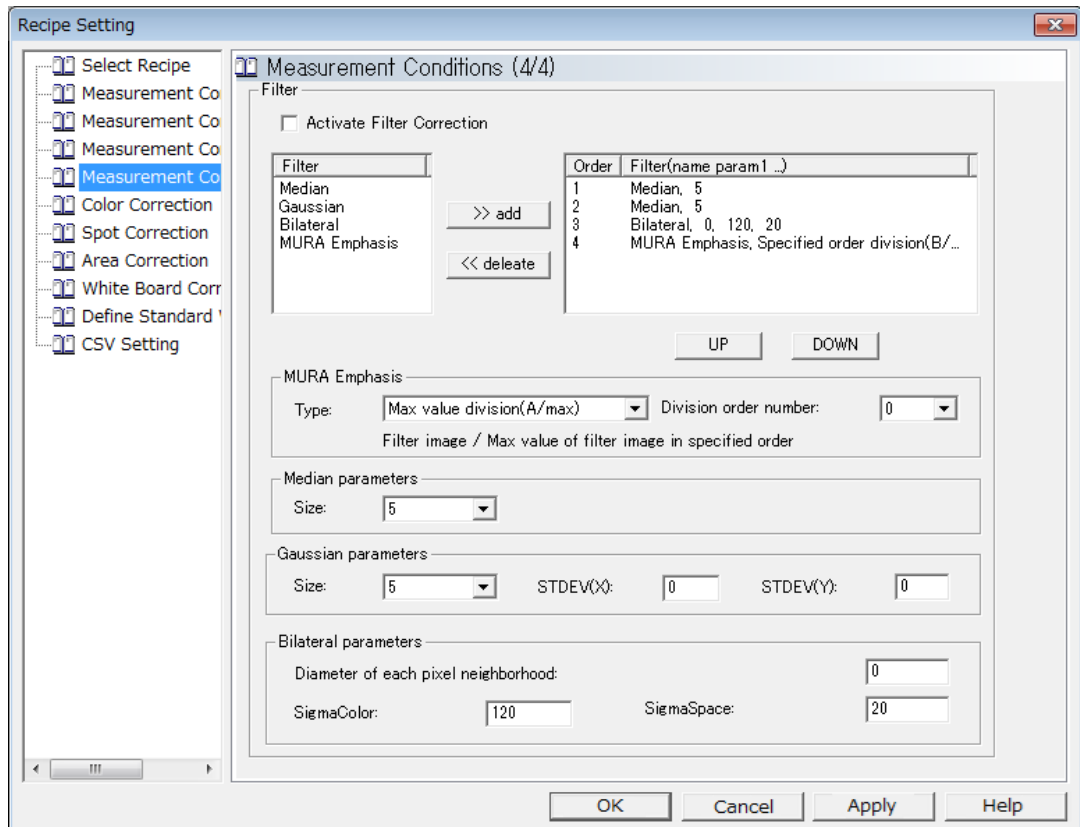
3.9.4 Setting Bilateral Filter Parameters

This function is used to set the bilateral filter parameters.

To set the bilateral filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Bilateral filter”

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)].



- 2 Set the values for [Diameter of each pixel neighborhood], [SigmaColor] and [SigmaSpace] of [Bilateral parameters].

The setting range is 0 to 999 for [Diameter of each pixel neighborhood] and 0 to 999.99 for [SigmaColor] and [SigmaSpace].

☞ Memo

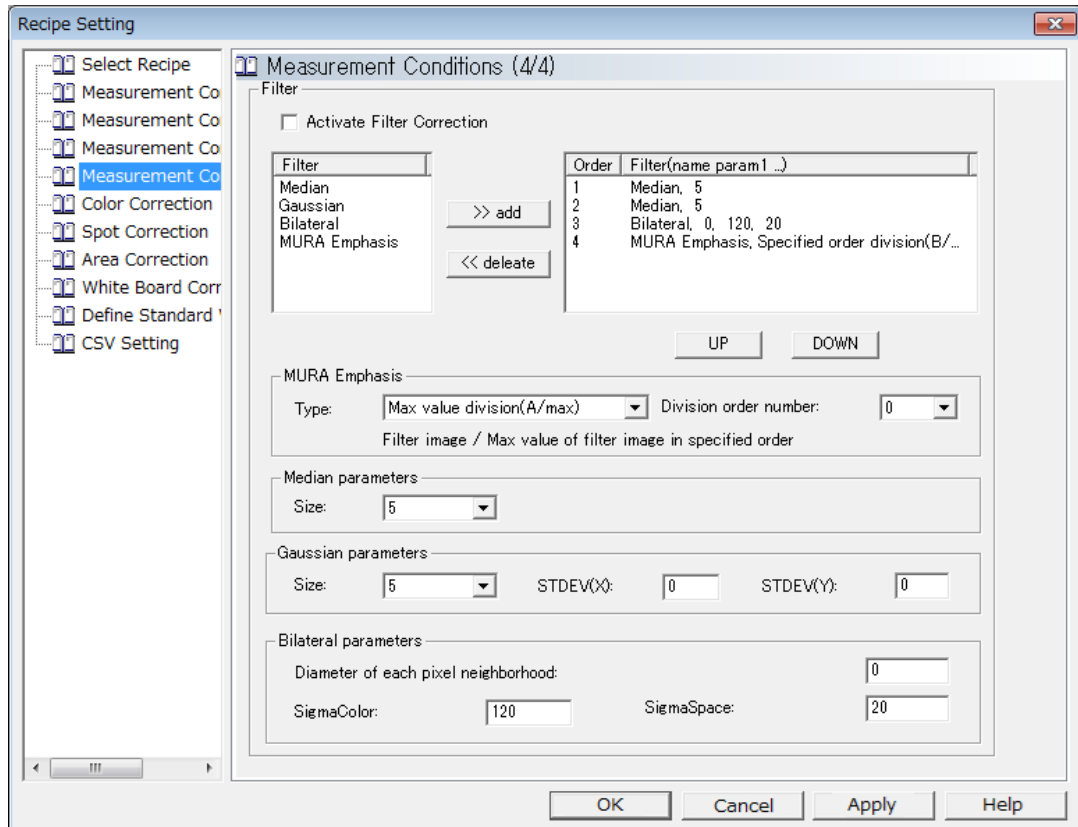
- As [Diameter of each pixel neighborhood], [SigmaColor] and [SigmaSpace] are larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.
- When “0” is set for [Diameter of each pixel neighborhood], the diameter of each pixel neighborhood is automatically calculated according to the set values of [SigmaColor] and [SigmaSpace] and is applied.

3.9.5 Setting Filtering Order

This function is used to set the filtering order.

To set the filtering order, go through the following steps.

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)].



- 2 Select items from the [Filter] list.
- 3 Press the [>> add] button, and the selected items are set in the [Order/Filter] list.
To change the filtering order, select the desired item from the [Order/Filter] list and change the order with the [UP]/[DOWN] buttons.
To delete the set item, select the desired item from the [Order/Filter] list. Press the [<< delete] button, and the selected item is deleted from the [Order/Filter] list.

Memo

- The set value when pressing the [>> add] button is applied to each filter parameter.
- It is possible to set the same item repeatedly.
- When you want to check the filtering conditions for the filter correction image, select [Setting] – [Filtering] under the condition that the filter correction image is displayed. In the [Order/Filter] list, the filtering order and conditions are displayed.

☞ “3.17 Filtering”

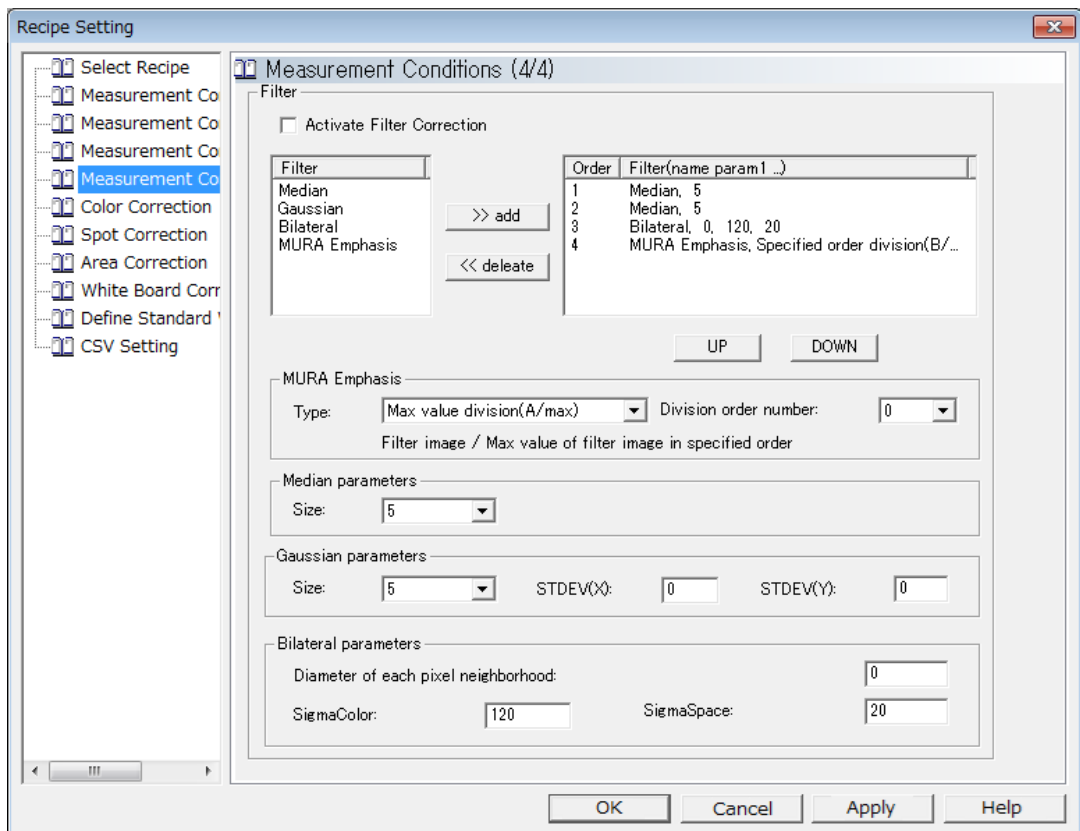
3.9.6 Applying Filter Correction

This function is used to validate/invalidate “Filter Correction” for the measurement image. To validate/invalidate “Filter Correction”, go through the following steps.

Memo

- The “MURA Emphasis” (unevenness emphasis) image can be created by adjusting the processing order and filter parameters.
- The processing time is changed according to the set conditions. Sometimes it takes several minutes to perform the one-item processing.

- 1 Open the [Recipe Setting] dialog and select [Measurement Condition (4/4)].




- 2 When the [Activate Filter Correction] check box is ON, “Filter Correction” is applied to the measurement image according to the set conditions and the filter correction image is created.

When the [Activate Filter Correction] check box is OFF, any processing is not done.

Memo

The measurement image before applying “Filter Correction” is not saved. When you want to save the measurement image before performing “Filter Correction”, create a separate filter correction image file by selecting [Setting] – [Filtering].

 “3.17 Filtering”

3.10 Other Recipe Settings

3.10.1 Select Reference Color Correction Factor

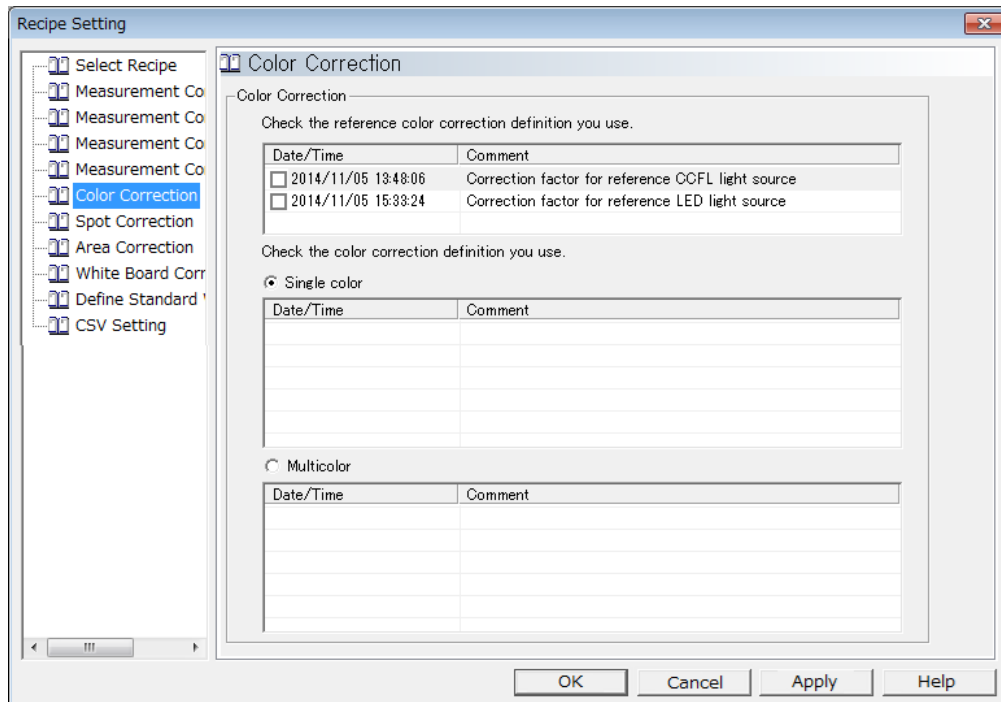
(UA-10 series)

Sets the Reference color correction factor, which is calculated by Topcon reference light source (CCFL, LED). To select the Reference color correction definition, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Color Correction].
- 2 Select whether or not the color correction factor to be enabled.

The checked color correction factor becomes enabled. Two or more color correction factor are not selected at the same time.

The reference color correction factor cannot be edited.



Memo

You are able to unused the reference color correction factor.

3.10.2 Select Color Correction Factor

Enable the color correction factor determined by the [Color Correction Wizard].

To select the color correction definition, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Color Correction].
- 2 Click the radio button of [Single color] or [Multicolor] to select the type of the color correction.
- 3 Select whether or not the color correction factor to be enabled from the list.

The checked color correction factors become enabled. You can select several color correction factors and multiply the selected color correction factors.

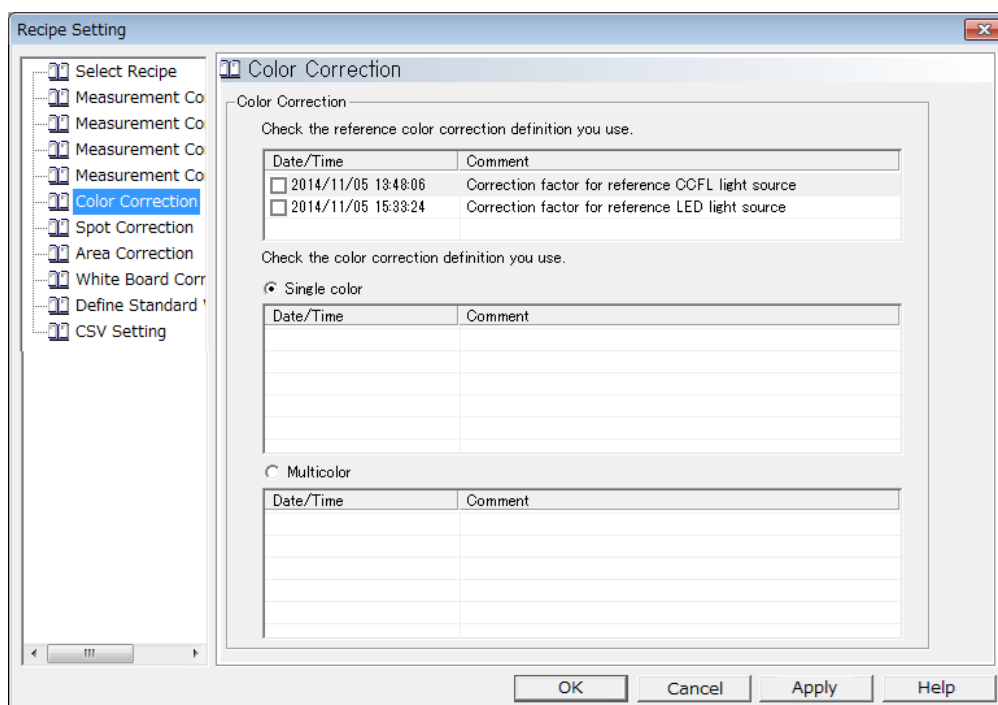
For example, when you select definition 1, definition 2, definition 3, the total value of color correction factor is calculated by “Tristimulus value x definition 1 x definition 2 x definition 3”.

You can select the color correction definitions but cannot edit the correction factors and comments.

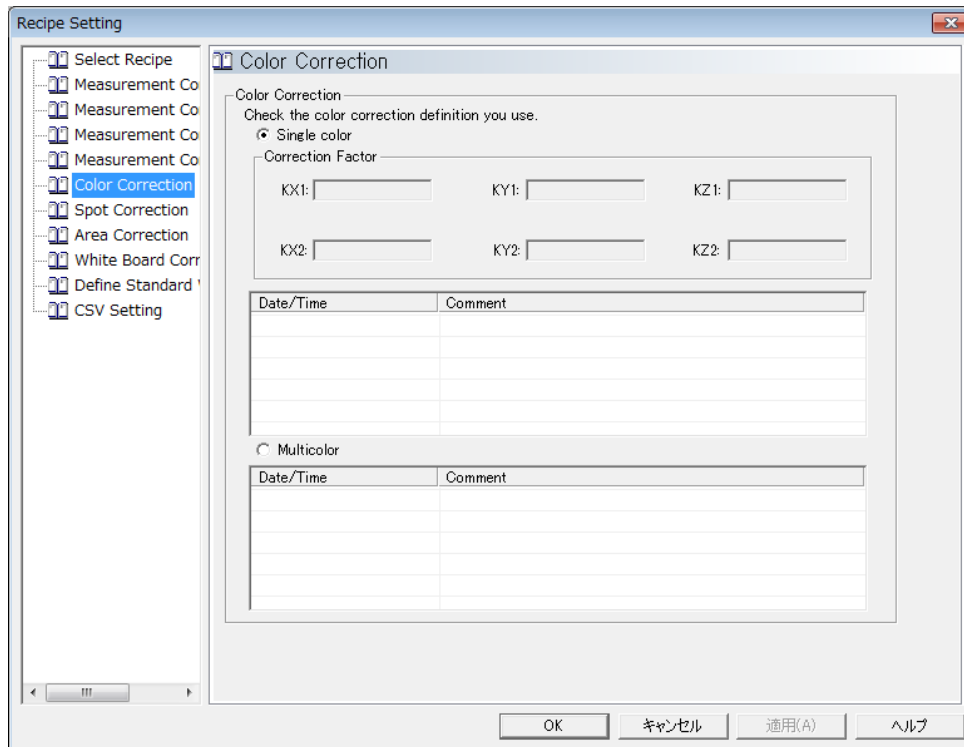
In the case of [Multicolor], only one color correction definition can be selected.

The reference color correction factor cannot be edited.

■ UA-10 series



■ UA-200 series



Memo

- You can select several single color correction factors or no one. When you select several color correction factors, the factors are multiplied. You can select up to 20 sets of color correction factors.
- In UA-200 series, 2 sets of correction factor for ND filter are required to be specified.

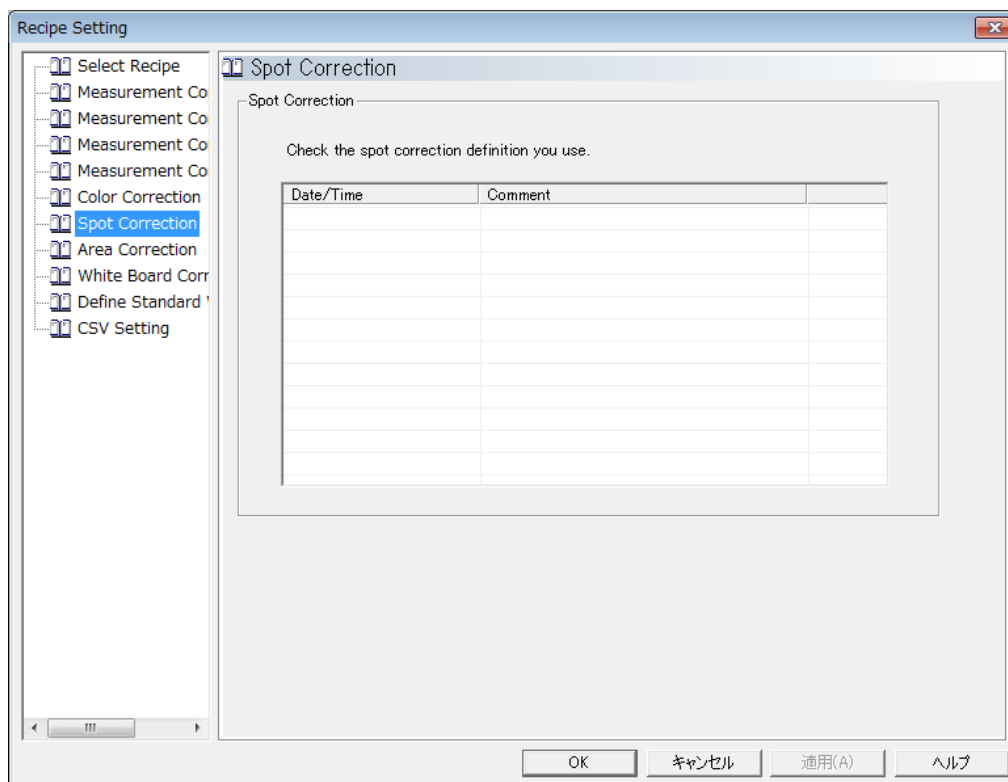
3.10.3 Select Spot Correction Definition

Using the [Color Correction Wizard] enables you to set the calculated spot correction definition. To select the spot correction definition, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [Spot Correction].
- 2 Select whether or not the spot correction factor become enabled.

The checked spot correction factor will becomes enabled. You cannot select two or more spot correction factor at the same time. The selected spot correction factor is multiplied to measured data.

The spot correction factor cannot be edited.



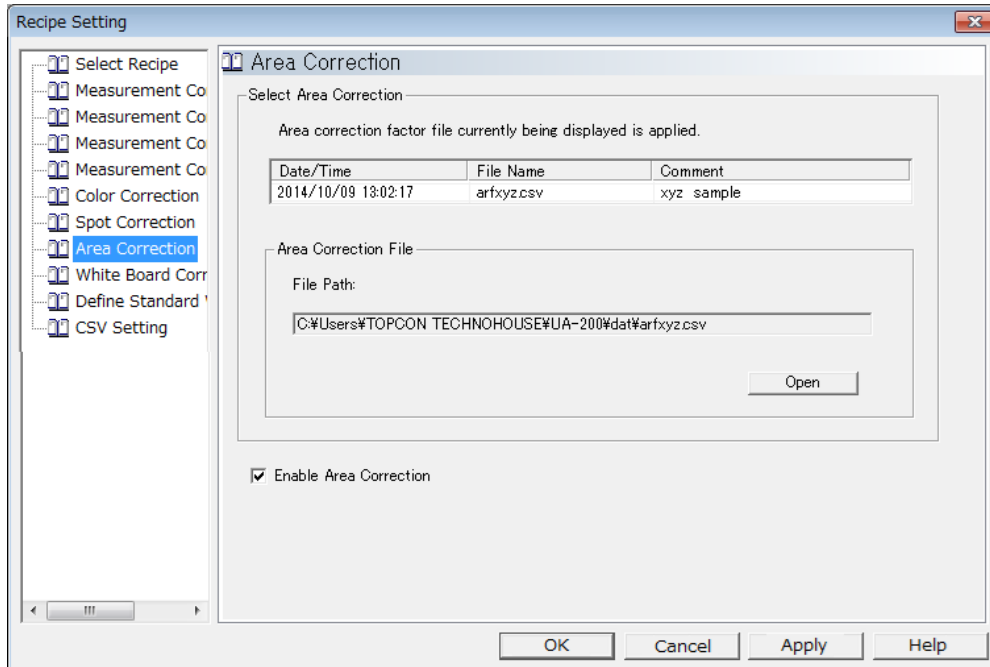
Memo

You can select no spot correction factor.

3.10.4 Set Area Correction

Sets On or Off of the Area correction file (CSV file) created in [Setting]- [Area Setting].
To select and set the Area correction, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and select [Area Correction].



- 2 Click the [Open] button to open [File open] dialogue. Select an area correction file to be loaded. Loaded File is enabled.
When [Enable Area Correction] is On, the Area correction in Tristimulus values XYZ are multiplied at each measurement.

Memo

Setting of an Area correction is edited in the [Setting]-[Area Correction] or the Area correction file (CSV file) directly. In the [Recipe]-[Area Correction], selecting an area correction file, Area correction On/Off only.

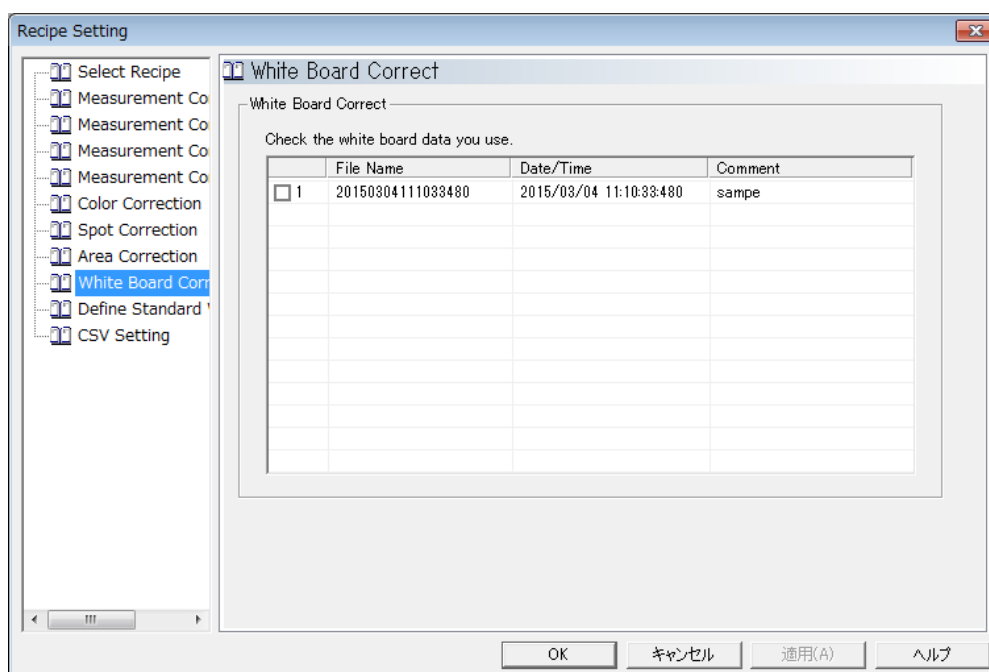
 "3.13 Area correction"

3.10.5 Set White Board Correction

Sets On or Off of the white board correction file created in [Setting] - [White Board Data Setting].

To select and set the white board correction, go through the following steps.

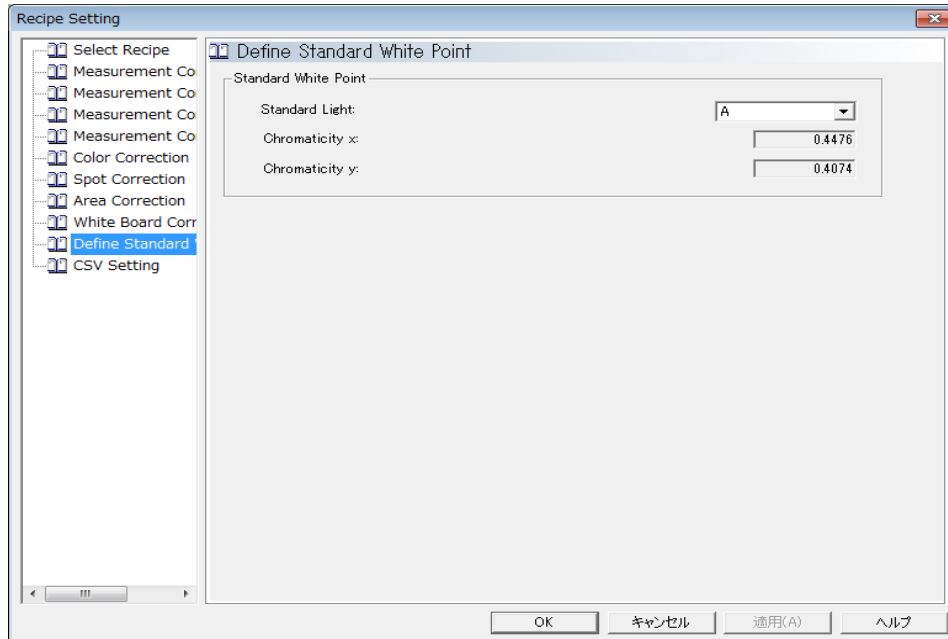
- 1 Open the [Recipe Setting] dialog, and select [White Board Correction].
- 2 Select whether or not the white board correction factor to be enabled from the list.
You can select the white board correction definitions but cannot edit the correction factors and comments.



3.10.6 Change Standard White Point

Sets the definition of the standard white point, which is used in calculating the dominant wavelength and excitation purity. To change the standard white point, go through the following steps.

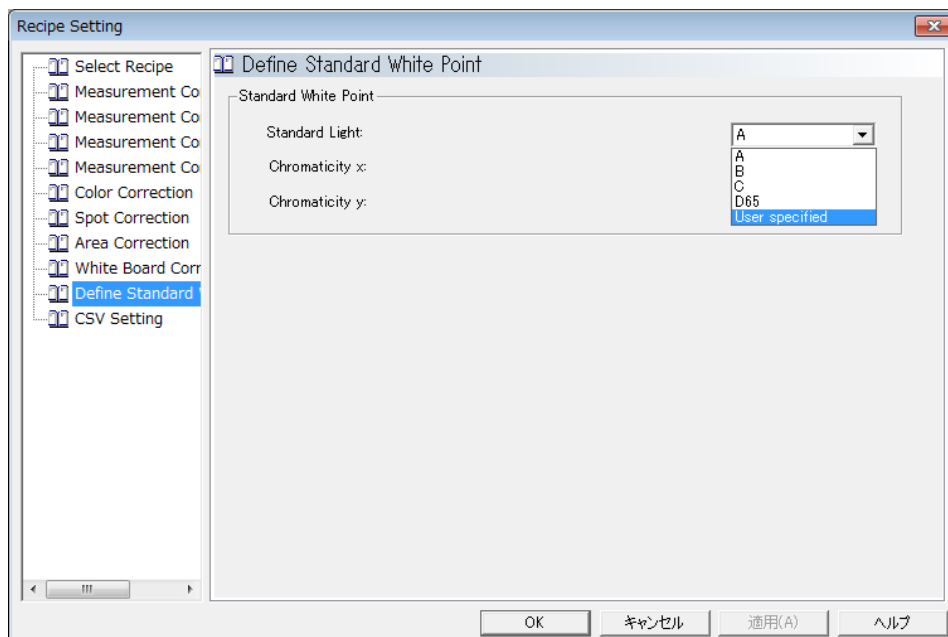
- 1 Open the [Recipe Setting] dialog, and click [Define Standard White Point].
Select the kind of standard light used as the standard white point from pull down menu in the [Standard light]



- 2 When other than the [User-specified] is selected in the [Standard Light], chromaticity xy value is displayed.

When the [User-Specified] is selected, you can enter x and y values in the box.

Valid range: x 0.0000 - 1.0000
 y 0.0000 - 1.0000



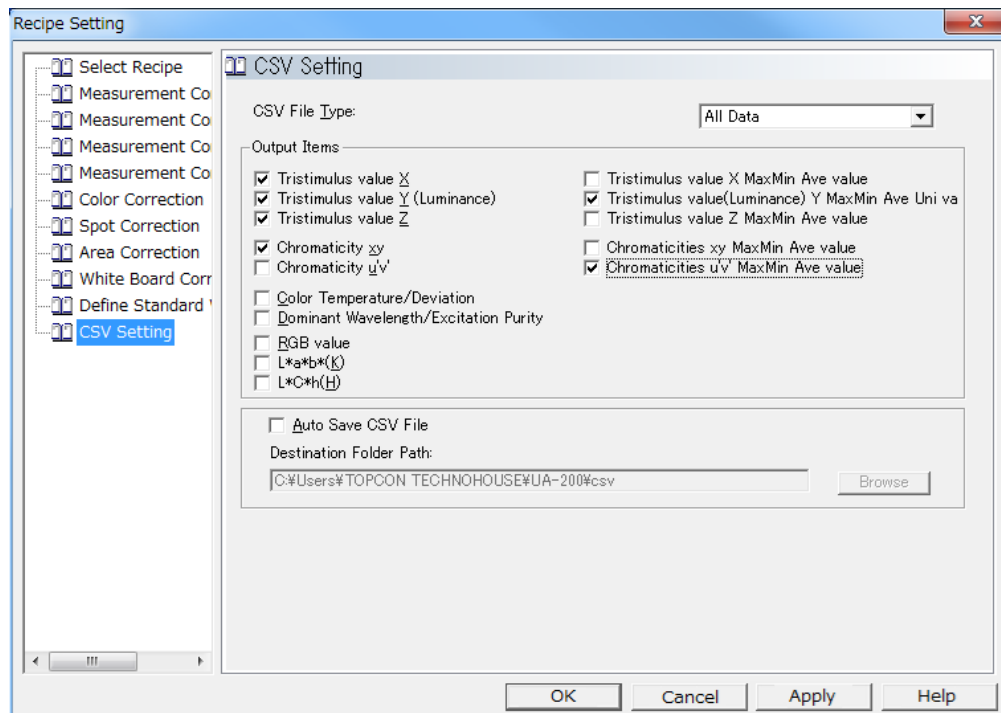
3.10.7 Setting the CSV Output for Each View

Sets items of the save data in the [Pop-up menu] – [Save CSV] for Pseudo Color View, Split Spot View, Standard Spot View, Random Spot View, Time-series View, Cross Section View, Color system Pseudo Color View, , RGB Color View, and Judgment result View.

To set the [Save CSV] output on the Pop-up menu for each View, go through the following steps.

- 1 Open the [Recipe Setting] dialog, and click [CSV Setting].

From the [CSV File Type] Pull-down menu, select the view for which to set the Save CSV function.



All Data

These data are saved on the [Pseudo Color View] and [RGB Color View]. The values of the measurement image in each pixel are output in the CSV file.

Time-series

These data are saved on the Time-series Measurement View.

In the Time-series measurement view, the display is different from that of Random Spot, Split Spot, and Standard Spot, but the data and format saved data are the same.

Random Spot

These data are saved on the Random Spot View.

Split Spot

This data is saved on the Split Spot View.

Standard Spot

This data is saved on the Standard Spot View.

Cross Section

This data is saved on the Cross section Spot View.

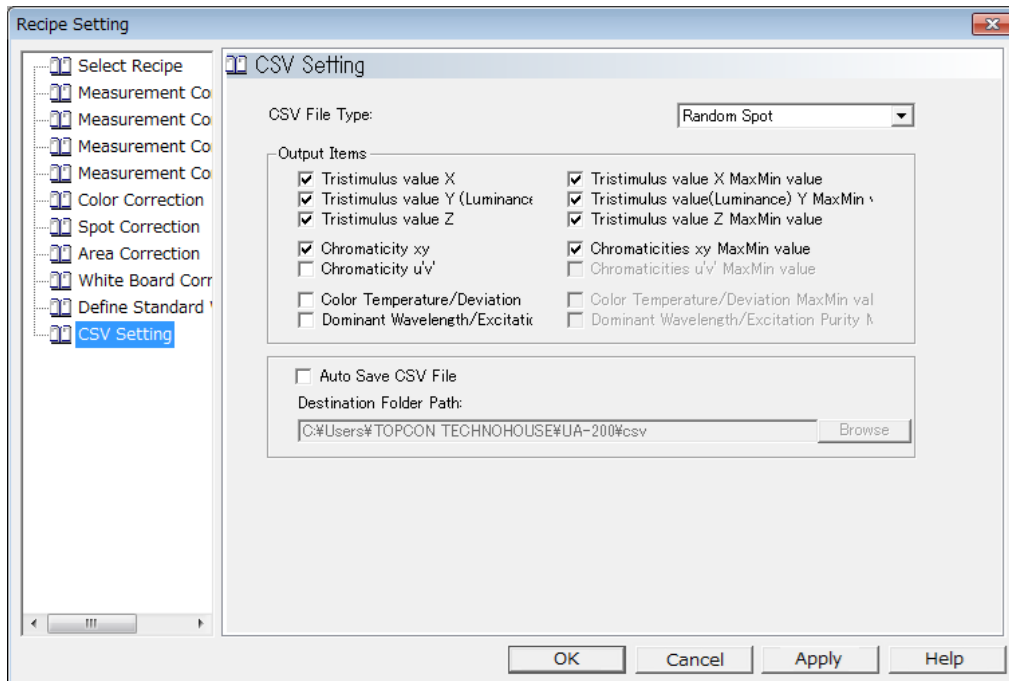
Color system Data

This data is saved on the Cross section Color system Data View.

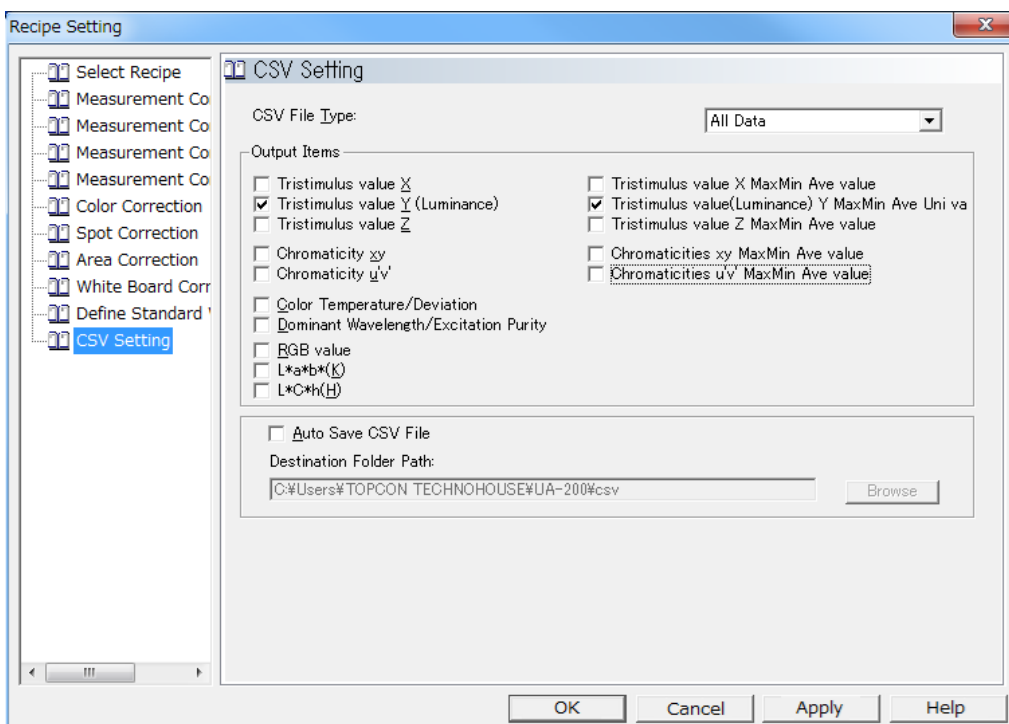
Judgment

This data is saved on the Cross section Judgment result View.

In the standard spot and the random spot, maximum and minimum values can be displayed.

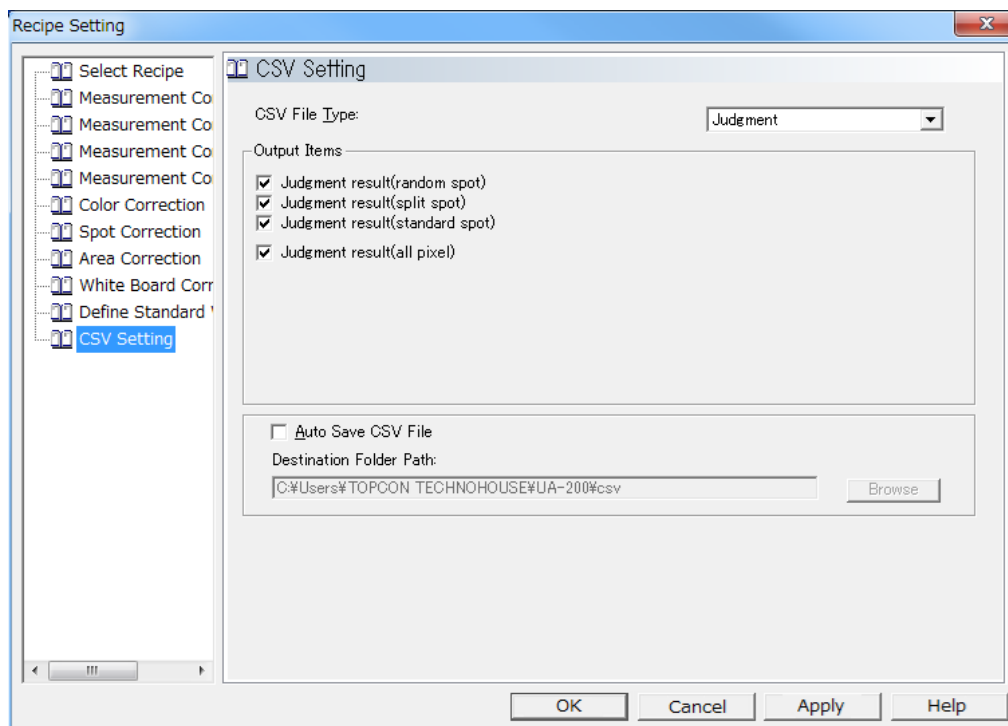


In the case of [All Data], it is possible to output the maximum, minimum and average values without depending upon the selection of output for all data of each item. "Uniformity" is added for only "Tristimulus value Y".



In the case of [Judgment], the data mentioned below are output:

- Result of OK/NG judgment at each spot.
- Result of OK/NG judgment at all pixels for the items that have been set in the [Judgment condition setting] dialog.



Memo

Increasing the number of outputs causes file size to increase and requires a longer time.

Note

- Selecting the [All Data] may delay the display temporarily.
- Outputting from the [View Pop-up menu] will cause the following restrictions:
When outputting [All Data], only [Pseudo Color View] and [RGB Color View] can be used.
When outputting the [Time-series], only [Time-series Measurement View] is used.
CSV files of the Standard Sport View, Split Spot View, and Random Spot View for [Time-series Measurement View] are not output.

3.10.8 Setting the Auto CSV Output for Each View

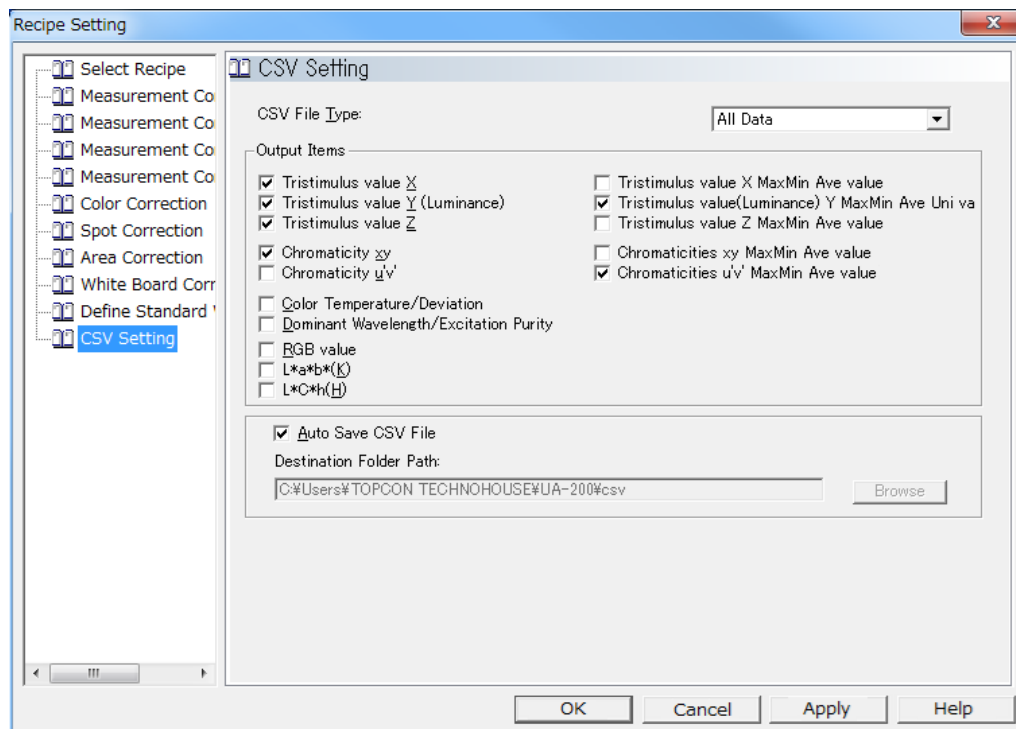
This function is used to set the destination folder path when automatically saving the CSV files during the measurement. A folder named with the time stamp is created immediately beneath the preset destination folder path, and the CSV file(s) are saved within the folder. To automatically output the CSV file(s) during the measurement, go through the following steps.



Note

- If there is no measurement data set in the selected output item, no file is output.
- If the software is executed in View mode, the [Auto Save CSV File] cannot be set.

- 1 Open the [Recipe Setting] dialog, and click [CSV Setting].
- 2 Check the [Auto Save CSV File] check box to automatically save the CSV file(s) during the measurement.



For the content to be saved, the [Output Items] set in the respective [CSV File Type] are displayed.

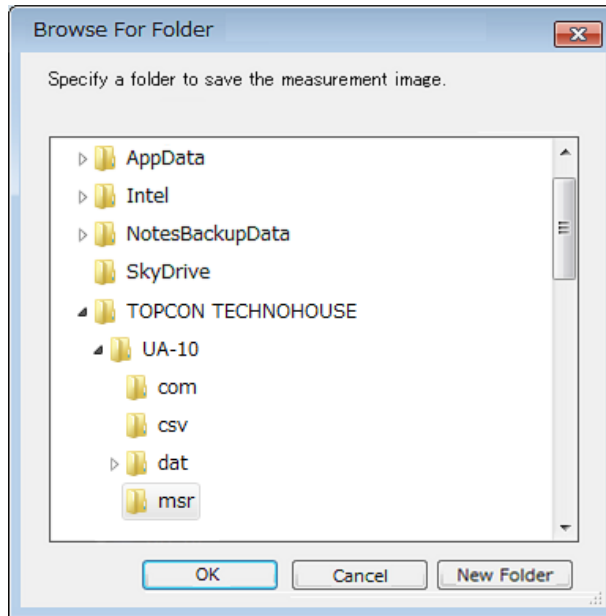


“3.10.7 Setting CSV Output Setting for Each View”

- 3** When the [Auto Save CSV File] checkbox is checked, the destination folder path is displayed.

To change the path, click [Browse] button.

The folder path is displayed in Explorer style. Select the location in which to save the file and click [OK] button. You are allowed to create a new folder.



3.11 Using the Color Correction Wizard

3.11.1 Outline

Calculates the color correction factor and the spot correction factors for the device from the measurement data by using a standard measuring device (hereafter called standard unit).

The correction factor is a factor used to correct the measurement value by multiplying the measurement value by the factor. This factor is used to match the measurement value of the measurement result of the device to the standard unit. To set the measurement data as close as possible to the absolute value, this function measures the same measurement target with the standard unit and the device, and automatically calculates the correction factor so that the measurement data obtained by the standard unit and by the device are the same value.


Specify the pattern and the size of spot to coincide with measurement area of the standard unit.

The Spot Correction is to calculate correction factors for specified each spot.

The Color Correction factor has effect on whole measurement are, the Spot Correction has effect on each spot.

The Color Correction Wizard help you easily calculate the correction factor. The correction factor calculated by the Color Correction Wizard is displayed on the [Color Correction] or [Spot Correction] screen as the correction factor definition by using [Recipe Setting].

When you want to activate the correction factor, you should set the correction factor in the recipe. To calculate the color or spot correction factor, go through the following steps.

 Note	<ul style="list-style-type: none">• If the color of the measurement object measured by [Color Correction Wizard] is different from the color of the measurement object actually measured, some errors may occur in the measurement data. In this case, set both colors mentioned above to the same color, and then execute the [Color Correction Wizard] again.• The photo detection sensitivity of the photo detector CCD may vary. If the CCD sensitivity should vary, using the existing correction factor causes a large error in the measurement data of the Standard Unit. To ensure the reliability of the measurement data, we recommend that you execute the [Color Correction Wizard] once a day. However, if you use the relative value evaluation which does not require the absolute value precision, the above is not applied.
--	---

 Memo

All of the following buttons displayed on the [Color Correction Wizard] are functionally the same. The respective button functions are as follows:

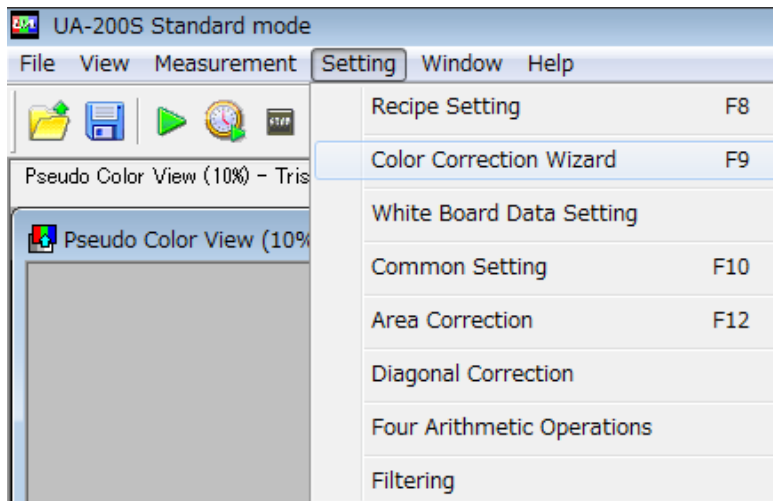
[Cancel] Disables the setting and closes this window.

[Help] Displays the Instruction Manual for the appropriate window.

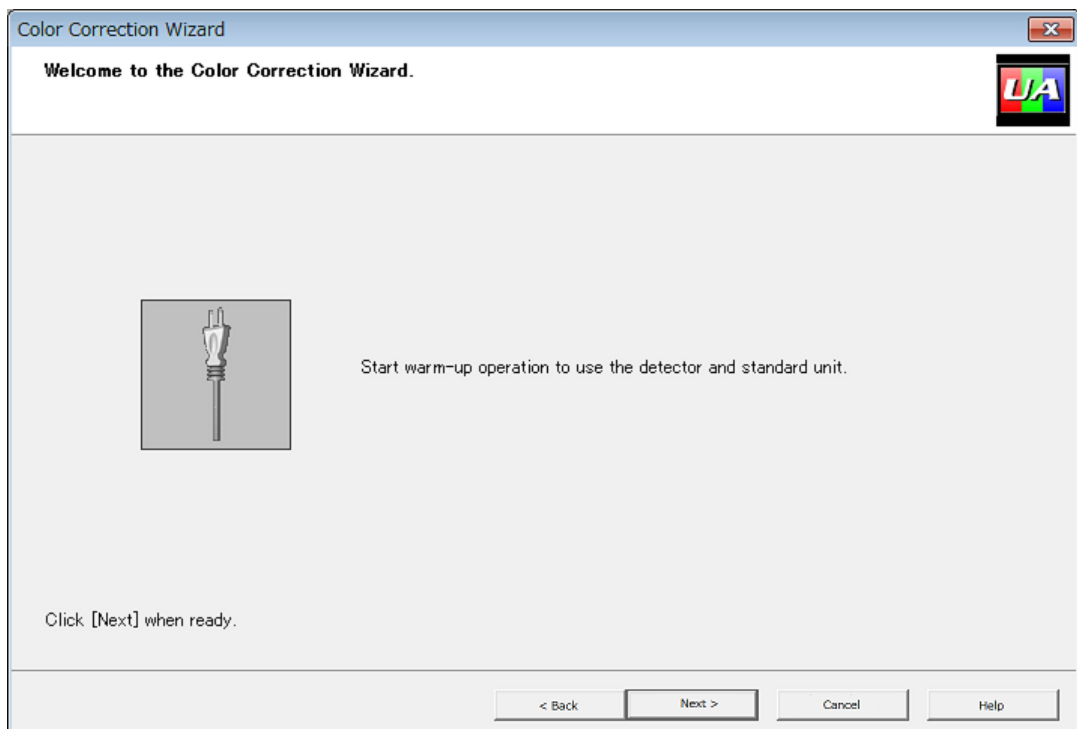
3.11.2 Create Color Correction Definition

Calculate the color correction factor by using the device and the Standard unit. To create the color correction factor definition using the device and the Standard Unit, go through the following steps.

- 1 From the Menu bar, click [Setting] – [Color Correction Wizard] sequentially.
Or, press the “F9” key.




- 2 The [Color Correction Wizard] appear. Warm up the instrument for 5 minute or more. (Warm up UA-200 series for 30 minutes for measuring luminance of 1cd/m² or less). Connect the Standard Unit to the PC and perform the warm-up operation. When the device get ready, click [Next].



 Memo

For the connection method for the Standard Unit and the warm-up operation, please refer to the instruction manual of the measuring device you are using.

 “Instruction manuals of respective measuring devices”



The standard unit is required to calculate the correction factor. Please prepare for the standard unit by your side.

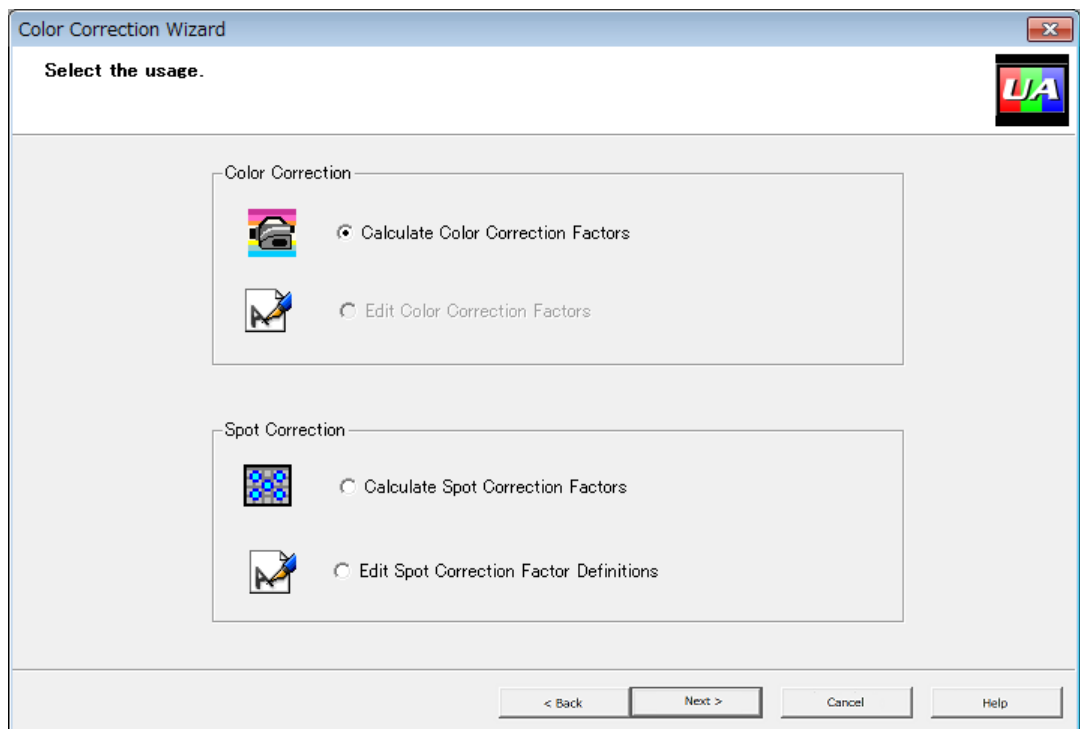
- 3** Select one from the [Calculate Color Correction Factor] or the [Edit Color Correction Factor] and click [Next].

The [Calculate Color Correction Factors]: Determining the color correction factor by using the device and the Standard Unit.

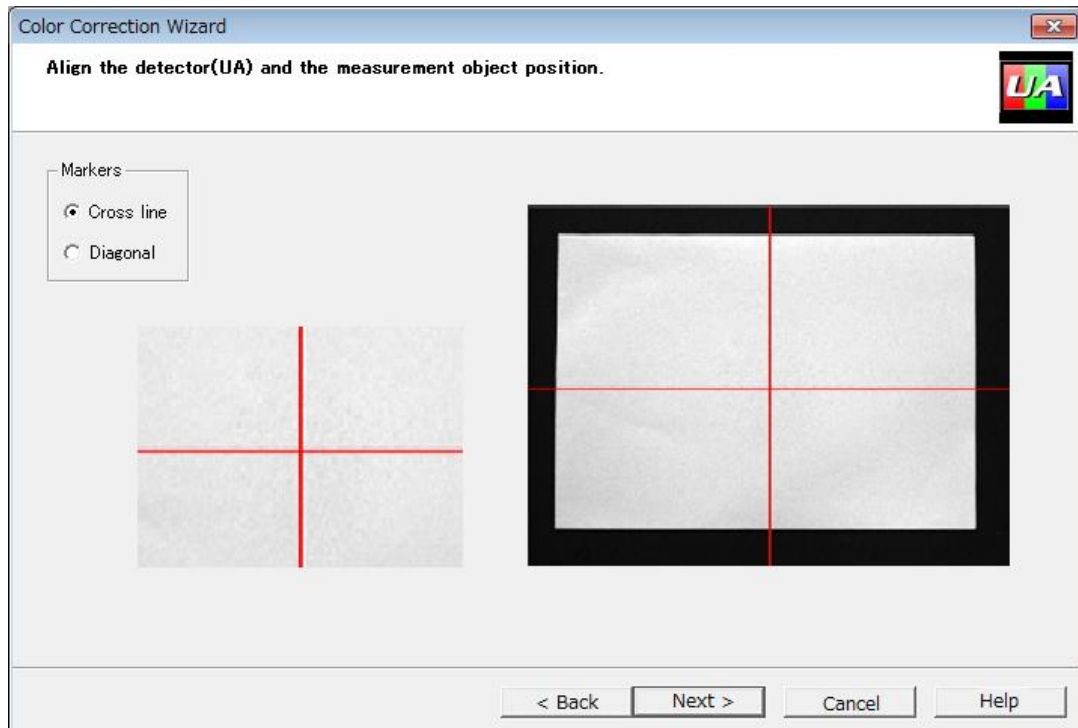
The [Edit Color Correction Definition]: Edit the color correction factor created before.

 “3.11.3 Edit Color Correction Definition”

 “3.11.4 Delete Color Correction Definition”



- 4 Live view and Enlarged image via the device will appear. Align the center of the measurement target and the center marker of the device. Click the [Next] after aligning them.



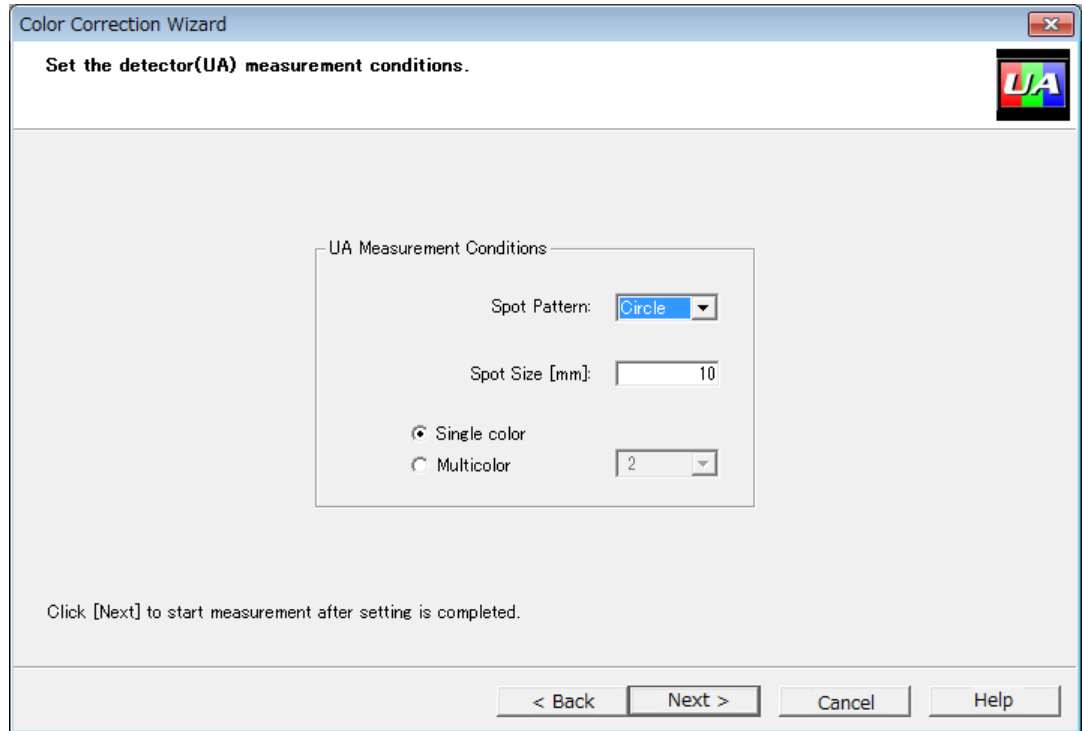
Markers

Select the cross marker or the diagonal marker as the center marker to be displayed.

Memo

With the mouse wheel, you can change the magnification.

5 Specify the measurement conditions for calculating color correction factor.



- Spot Pattern

Select the measurement spot pattern from the round or square.

- Spot Size

This function sets the length of the diameter or side line of the measurement spot.

Setting range: 0.01 - 500 [mm]

- Single color/Multicolor

Select the type of color correction from [Single color] and [Multicolor]

- Color number of Multicolor

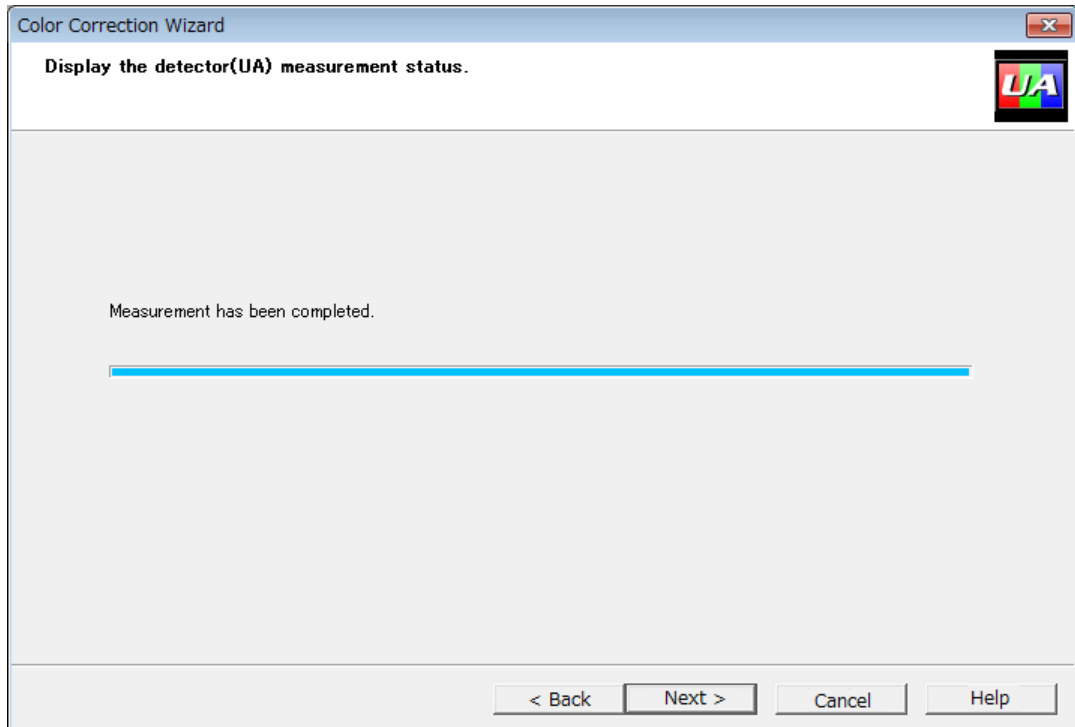
Set the color number for Multicolor.

Setting range: 2 - 10

- 6 Perform the measurement using the device. The progress bar indicates the progress of measurement.

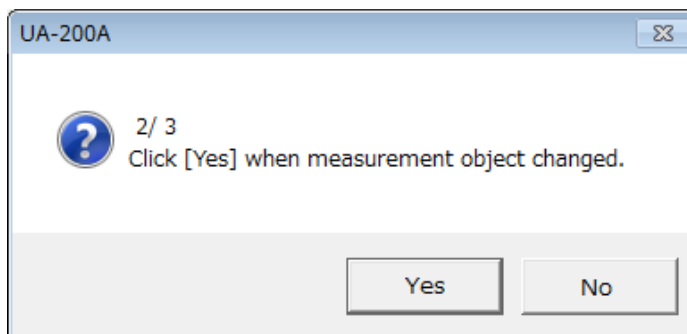
■ Single color

After completing the measurement, click [Next].



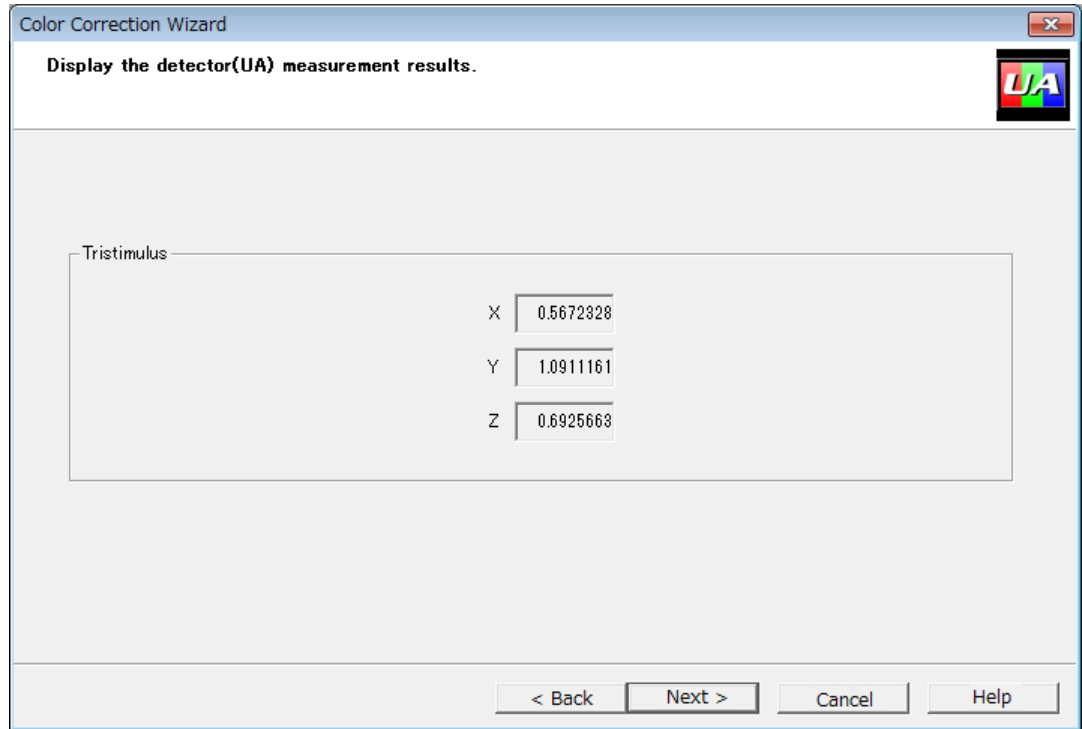
■ Multicolor

Performs measurement according to the number of colors. When the measurement is finished, the following message dialog box appears. Change the object to be measured and click [Yes]. After the measurements for all the set colors have been finished, click [Next].

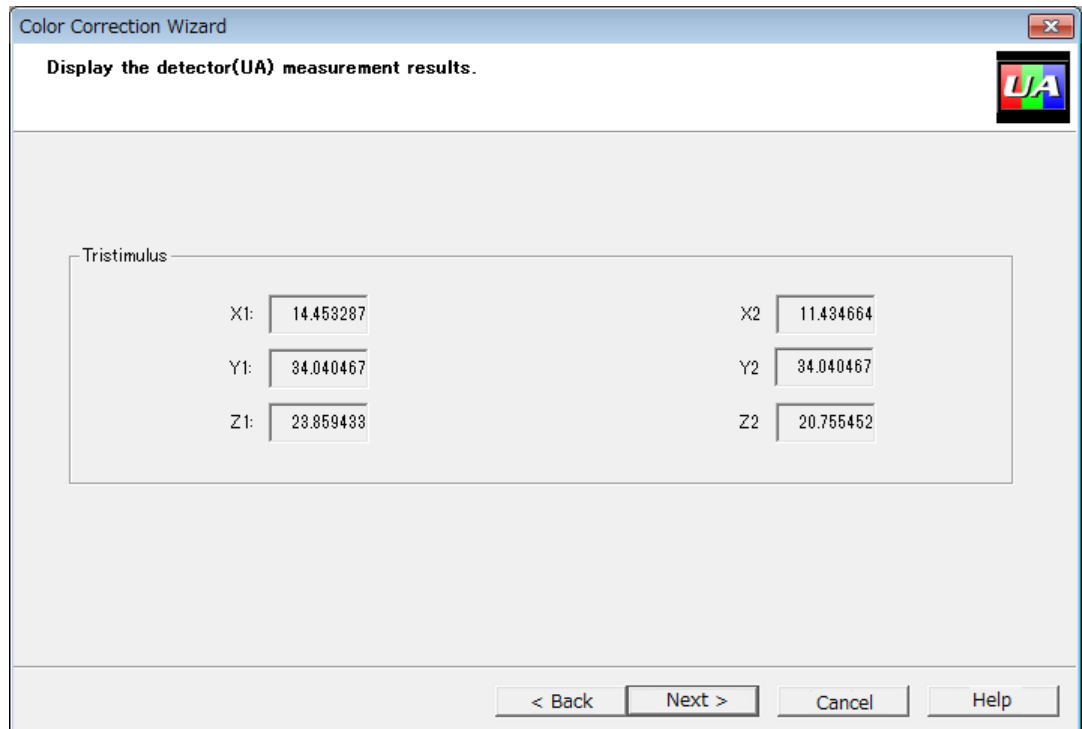


- 7 The result of measurement in Tristimulus values by using the device is displayed.
If no problem is found in the measurement result, click [Next].
The measurement result of a point which could not be measured is displayed as "-".
- In the case of two correction factors

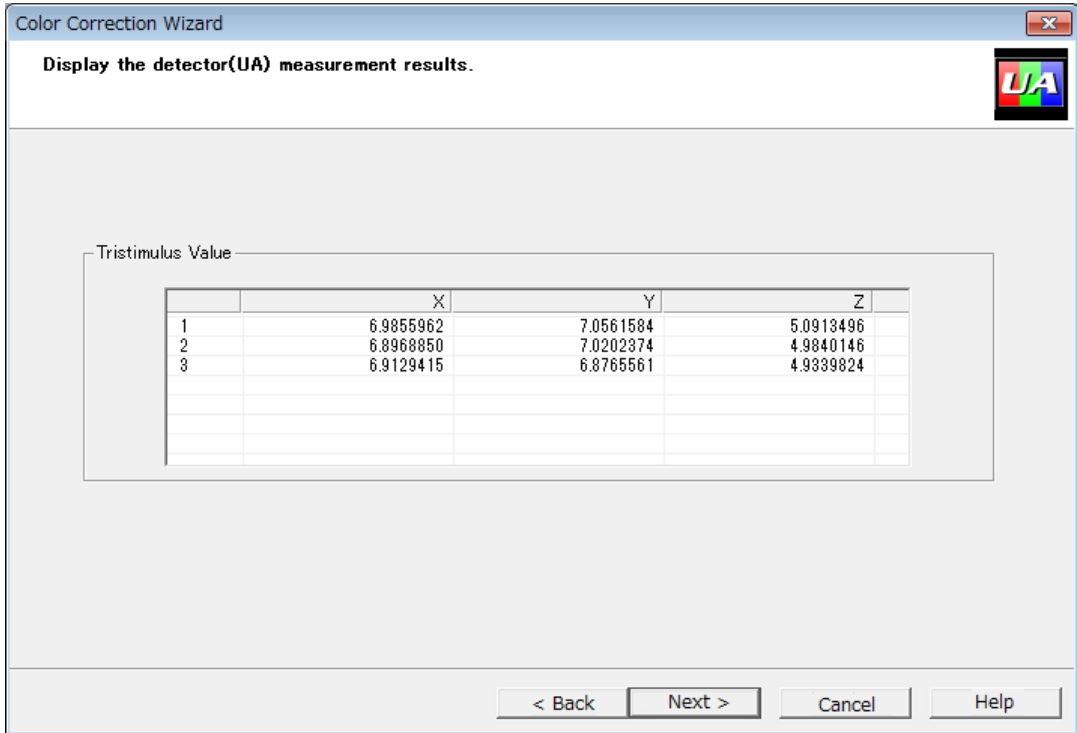
■ UA-10 series Single color



■ UA-200 series Single color



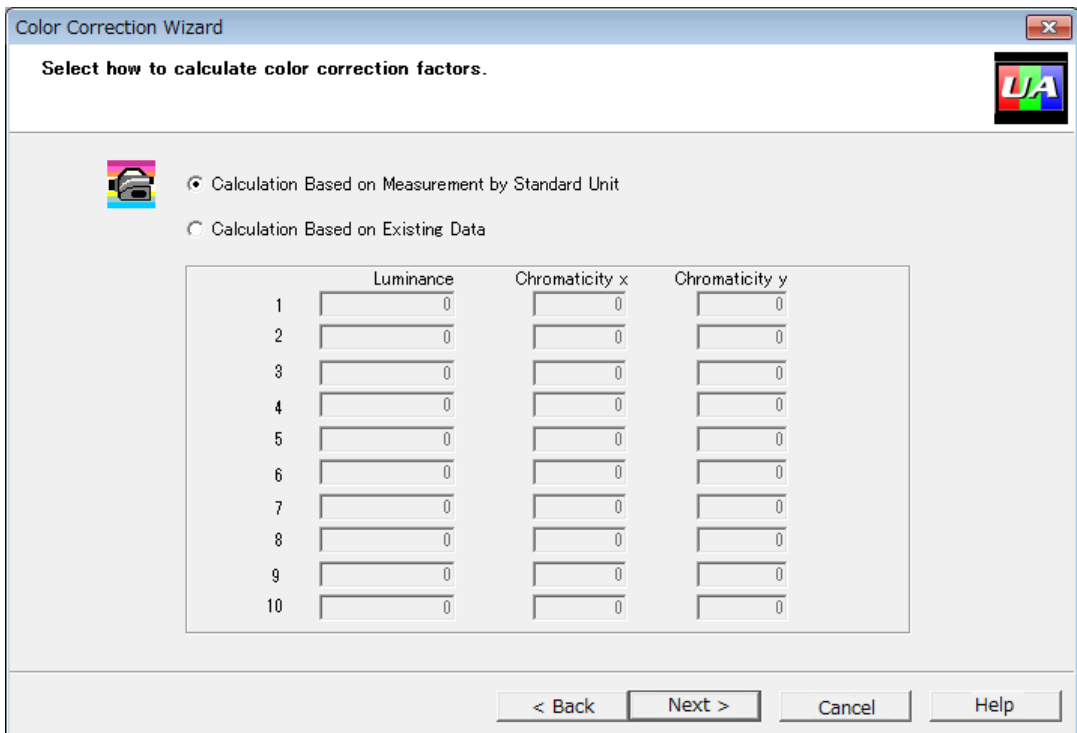
■ Multicolor



8 [Select How to Calculate] will appear. Select how to calculate color correction factors.

- **Calculation by Standard Unit**

Retrieves the measurement data from the Standard Unit directly and calculate the correction factor.



Pressing [Next] moves you to [Color Correction Factor Definition].

☞ “Step 9”

- Calculation Based on Existing Data

Calculates the correction factor from pre-measured standard data. When you select this, the dialog box for values of luminance and chromaticity will be active.

In the case of Multicolor, it is necessary to set the values for each of the selected colors.

	Luminance	Chromaticity x	Chromaticity y
1	100	0.3333	0.3333
2	150	0.1234	0.4321
3	500	0.1357	0.2466
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0

Luminance

Valid range: 0.005 - 9,999,999

Chromaticity x

Valid range: 0.0036 - 0.7347

Chromaticity y

Valid range: 0.0048 - 0.8341



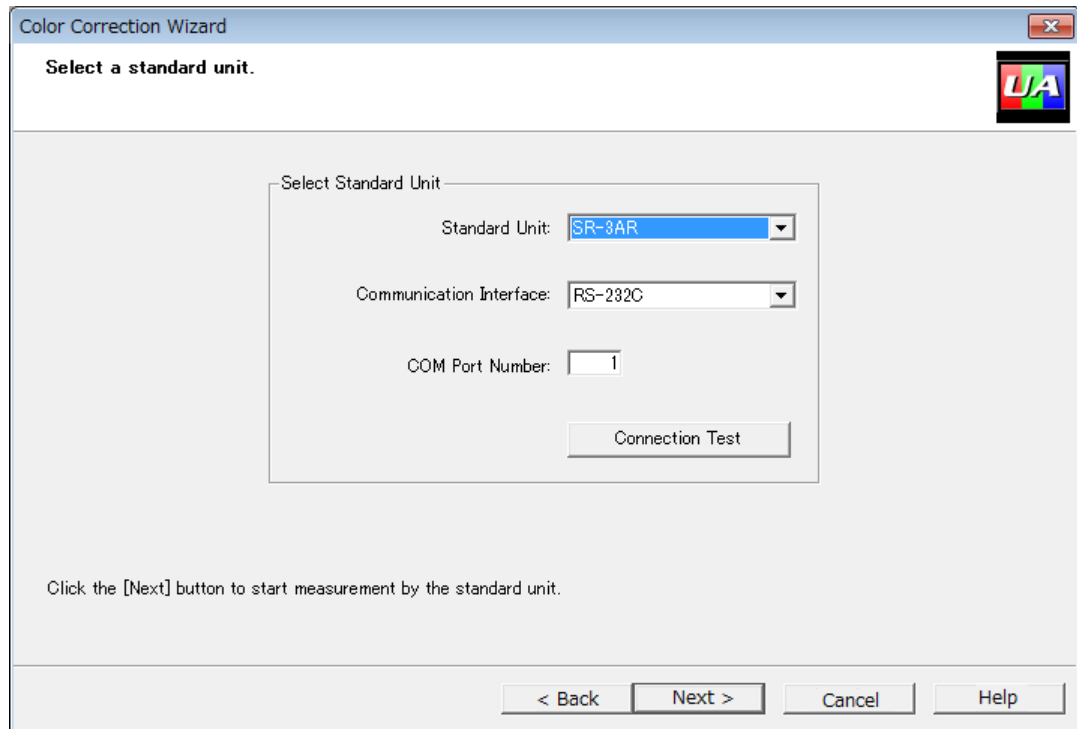
Note

Total of chromaticity x and y values cannot exceed 1.0.

- 9 [Select Standard Unit] will appear. Set the Standard Unit and the communication interface.

- Standard Unit

Select the Standard Unit model from the Pull-down menu.

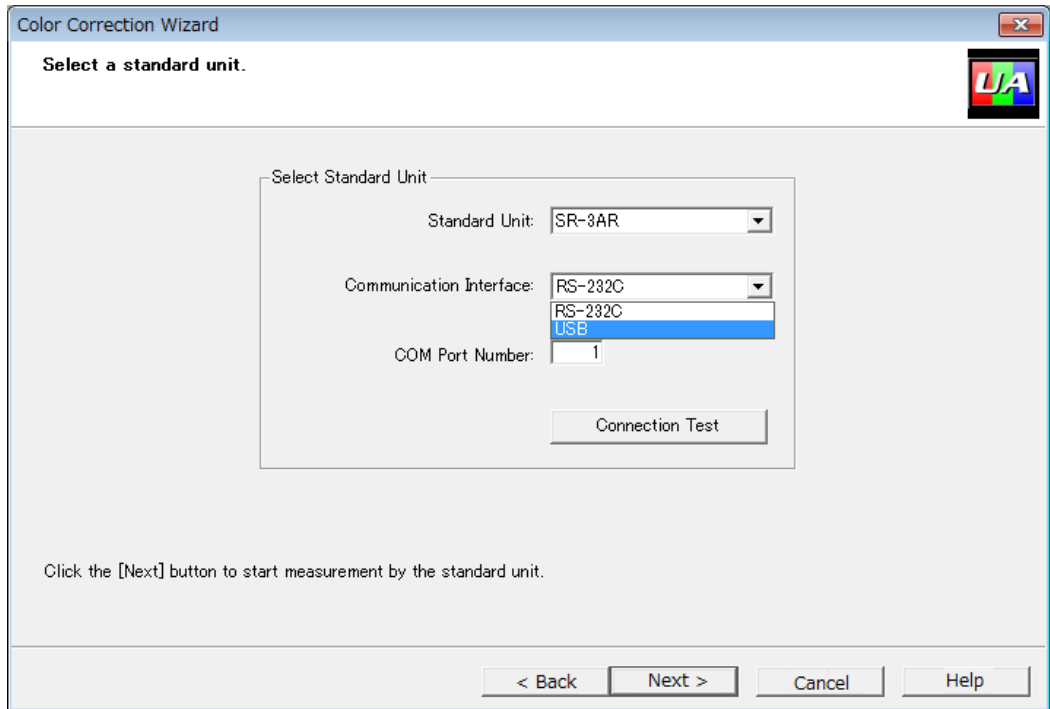


Note

Be sure to select the Standard Unit connected to the PC. Each Standard Unit has its own communication protocol. Therefore, if a different model is selected, a communication error occurs.

- Communication Interface

Select the communication interface. In the case of a model equipped with two interface types, USB and RS-232C, please select the interface actually connected.

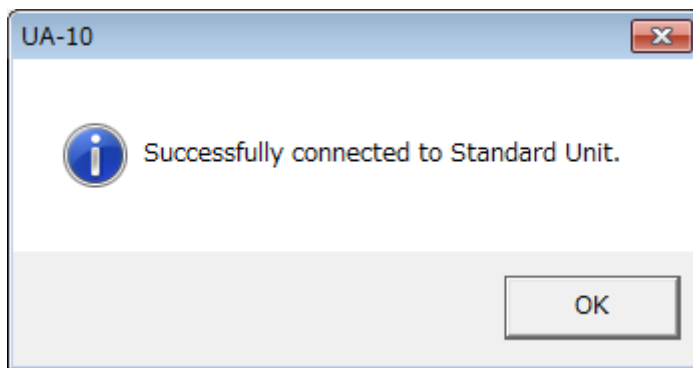


- Connection Test

Perform the connection test with the Standard Unit. If the connection test is successful, the following dialog will appear.

Click [Next] button to start the measurement operation in the Standard unit.

If the test is failed, please check the connected cable and the settings of [Standard Unit] and [Communication Interface].

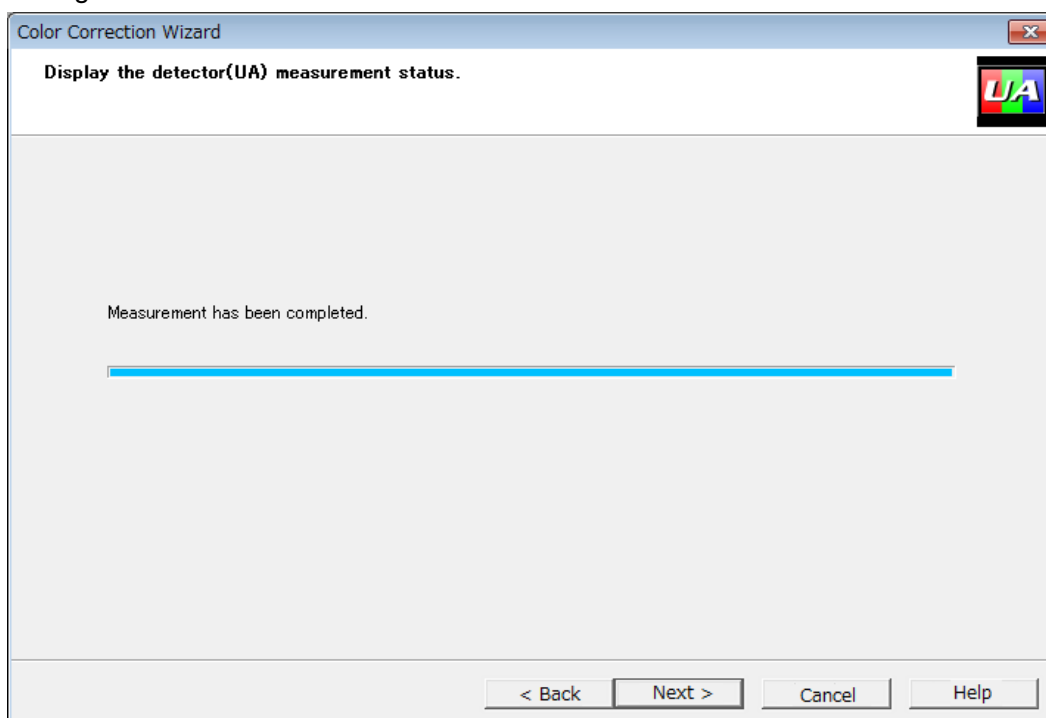


The setting of RS-232C communication between this software and the Standard Unit is fixed. The communication settings for each models are as follows:

Model	Communication speed	Data length	Parity	Stop bit	Communication method
SR-3/3A/3AR	38400	7	ODD	1	Normal Type
SR-UL1/UL1R	38400	7	ODD	1	Normal Type
SR-UL2/LEDW	38400	7	ODD	1	Normal Type
BM-7A	38400	7	ODD	1	BM-7A
BM-5A	1200	7	ODD	1	-
BM-5AS	38400	7	ODD	1	BM-5AS

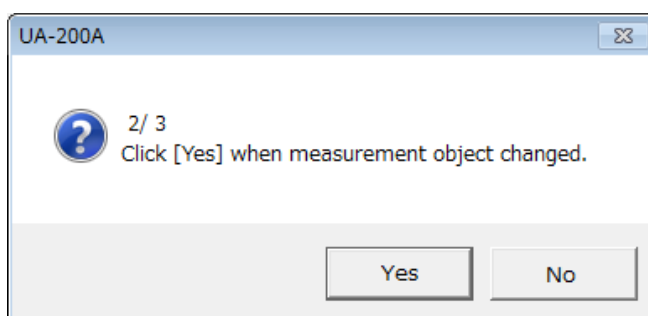
- 10** [Standard Unit Measurement Status] will appear. After completing the measurement, [Next] becomes active. Press [Next] button.

■ Single color



■ Multicolor

Performs measurement according to the number of colors. When the measurement is finished, the following message dialog box appears. Change the object to be measured and click [Yes]. After the measurements for all the set colors have been finished, click [Next].



- 11 The color correction factor is displayed. The color correction factor is calculated based on the measurement result of Standard Unit. After confirming it, press [Next].

■ UA-10 series Single color

Color Correction Wizard

Display color correction factors.

Color correction factor

KX:	21.9428
KY:	11.8197
KZ:	31.5445

< Back Next > Cancel Help

■ UA-200 series Single color

Color Correction Wizard

Display color correction factors.

Color correction factor

KX1:	10.3783	KX2:	13.1180
KY1:	0.6924	KY2:	0.6924
KZ1:	8.3843	KZ2:	9.6382

< Back Next > Cancel Help

■ Multicolor


The color correction factor is not displayed but the color correction factor definition is displayed.

- 12 [Display Color Correction Factors] will be displayed. The color correction factor is calculated based on the measurement result of Standard Unit. After confirming it, press [Next].

■ UA-10 series

Color Correction Wizard

Display color correction definition.



Single color

Date/Time	KX	KY	KZ	Comment
2014/01/31 19:35:55	10.3783	0.6924	8.3843	Spot Pattern = Circle,Spot Size = 10

Multicolor


Date/Time	Comment
2016/04/18 11:28:07	Multicolor = 3,Spot Pattern = Circle,Spot Size = 0.50 mm

< Back Next > Cancel Help

■ UA-200 series

Color Correction Wizard

Display color correction definition.



Single color

Date/Time	KX1	KY1	KZ1	KX2	KY2	KZ2	Comment
2014/01/31 19:35:55	10.3783	0.6924	8.3843	13.1180	0.6924	9.6382	Spot Pattern = Circle,Spot Size = 10

Multicolor

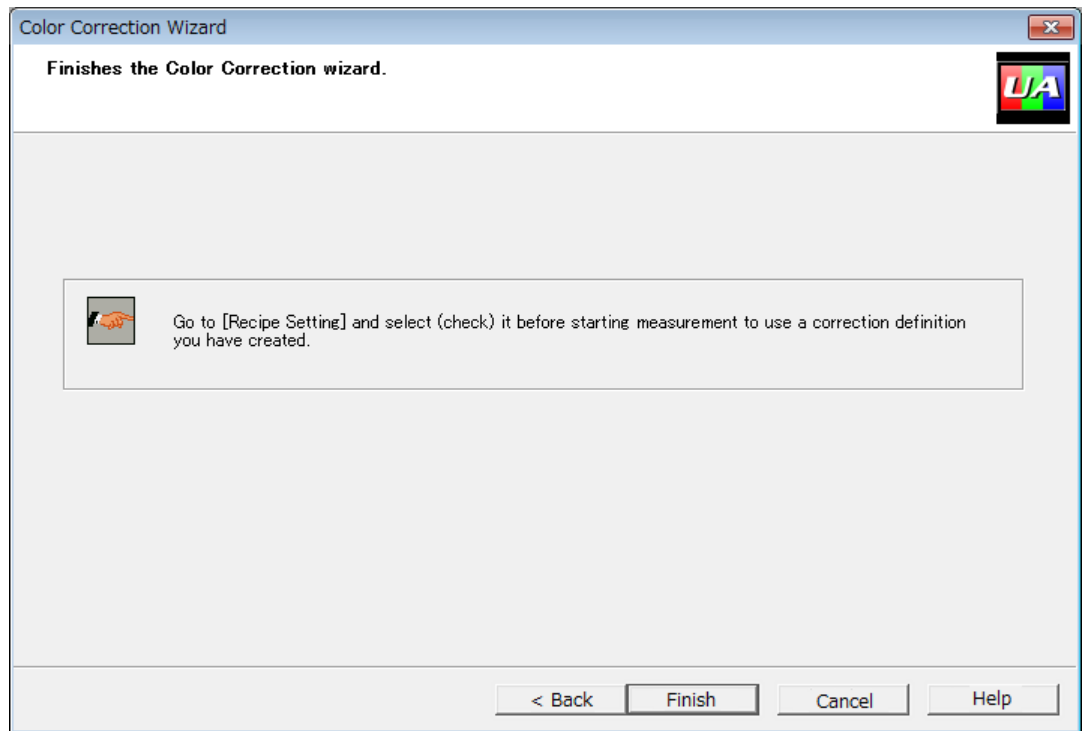
Date/Time	Comment
2016/04/18 11:28:07	Multicolor = 3,Spot Pattern = Circle,Spot Size = 0.50 mm

< Back Next > Cancel Help

13 Click the [Finish] button.

To use the created color correction factor, select it on the [Recipe Setting] – [Color Correction Page].

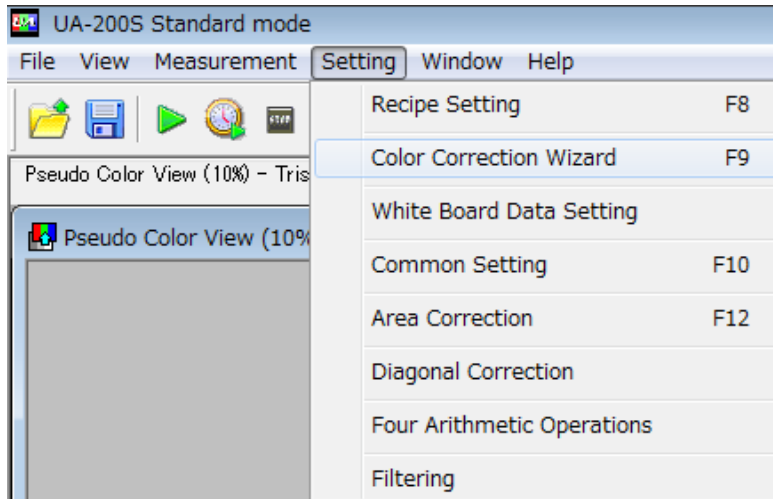
☞ “3.10.2 Select Color Correction Definition”



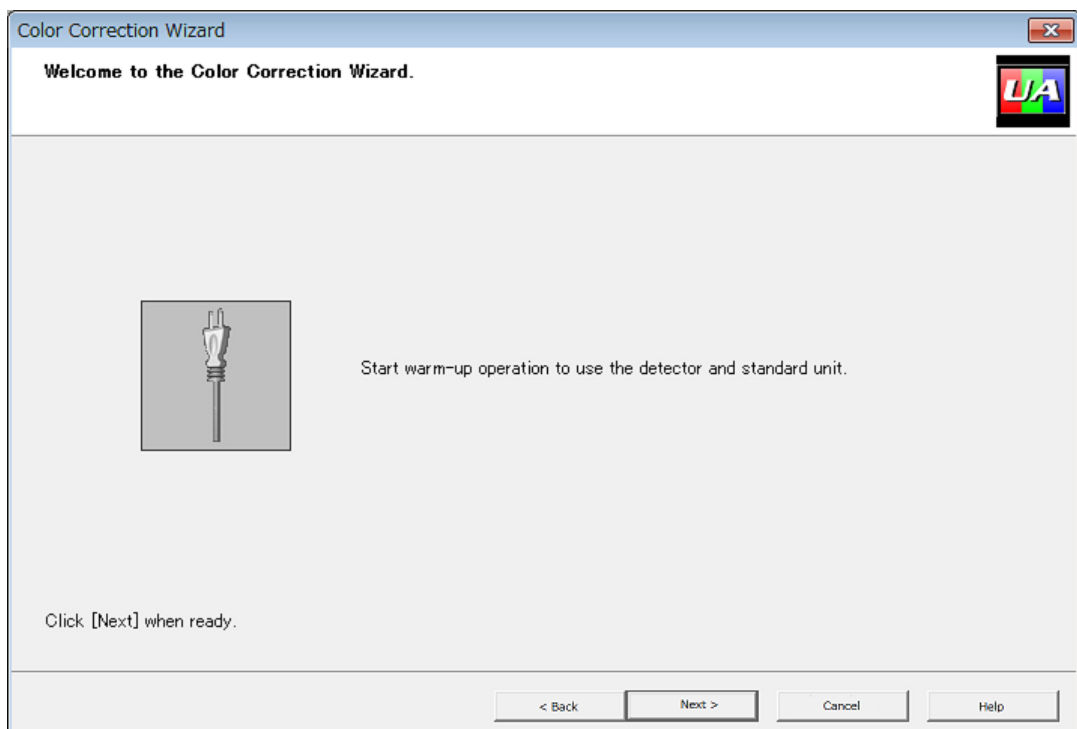
3.11.3 Edit Color Correction Definition

Edits the color correction factor created before. To change the color correction definition, go through the following steps.

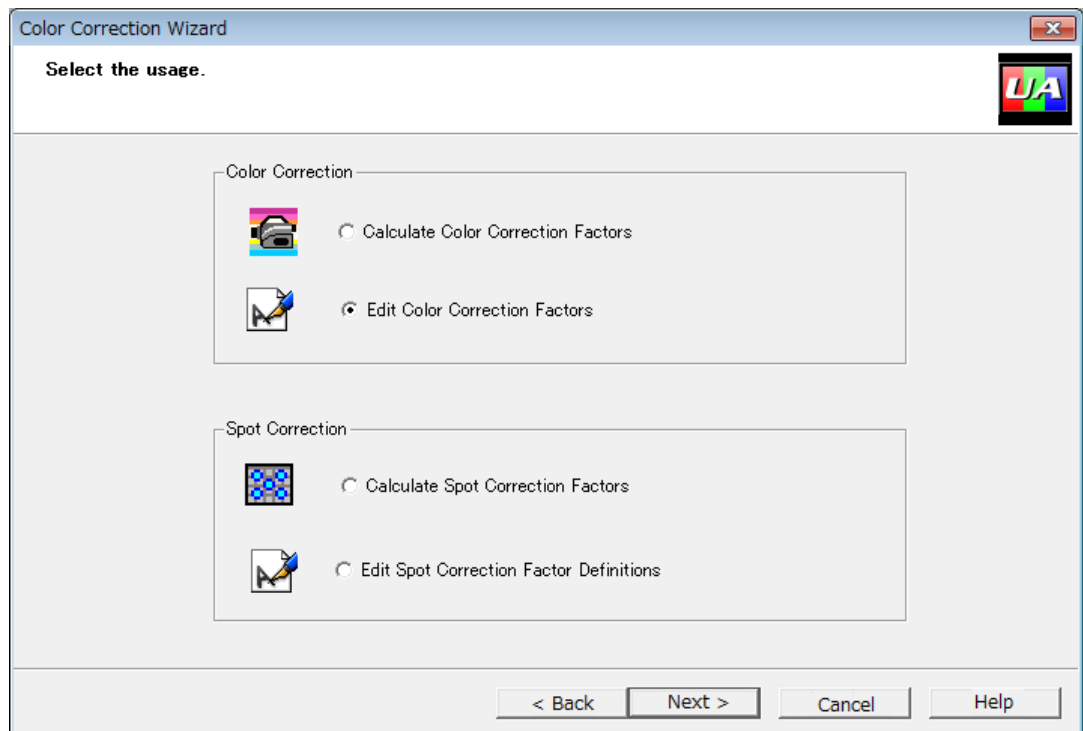
- 1 From the Menu bar, click [Setting] – [Color Correction Wizard] sequentially.
Or, press the “F9” key.



- 2 [Color Correction Wizard] will appear. Click the [Next].



- 3 [Select Definition Method] will appear. Select [Edit Color Correction Definition]. To edit the correction definition. After selecting it, click [Next].

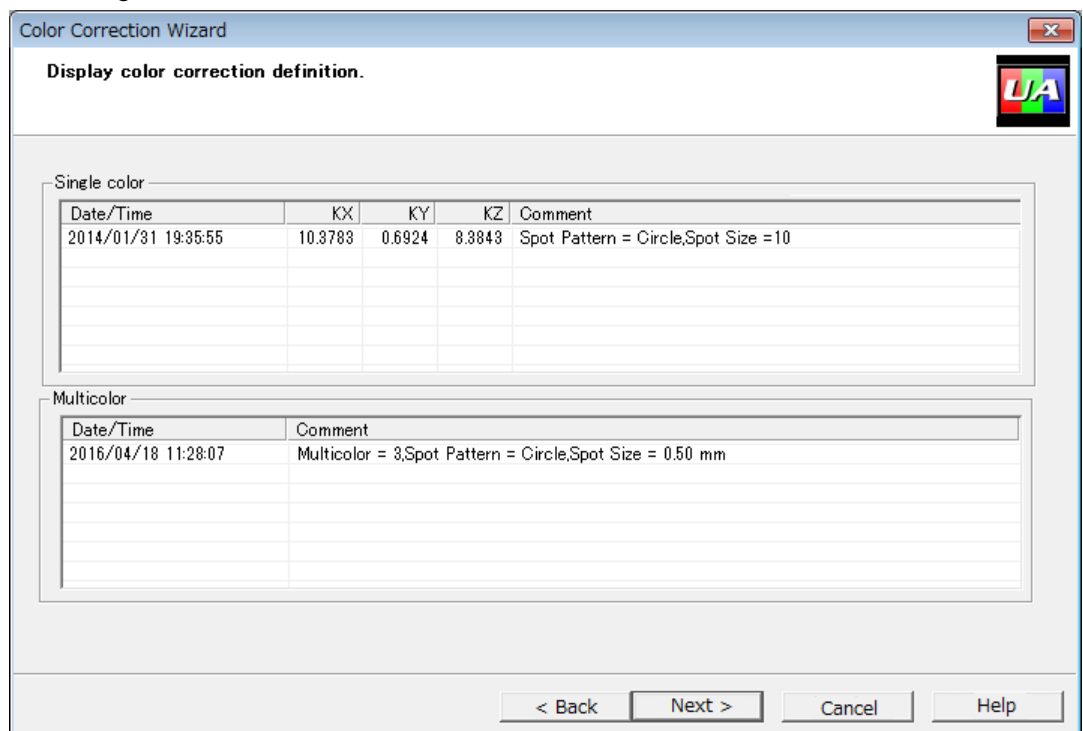


- 4 The color correction definition list will be displayed. On this list, you can edit the correction factor KX, KY, and KZ, and the comment. Click the cell to be edited and edit it. When you finish the editing, click [Next].

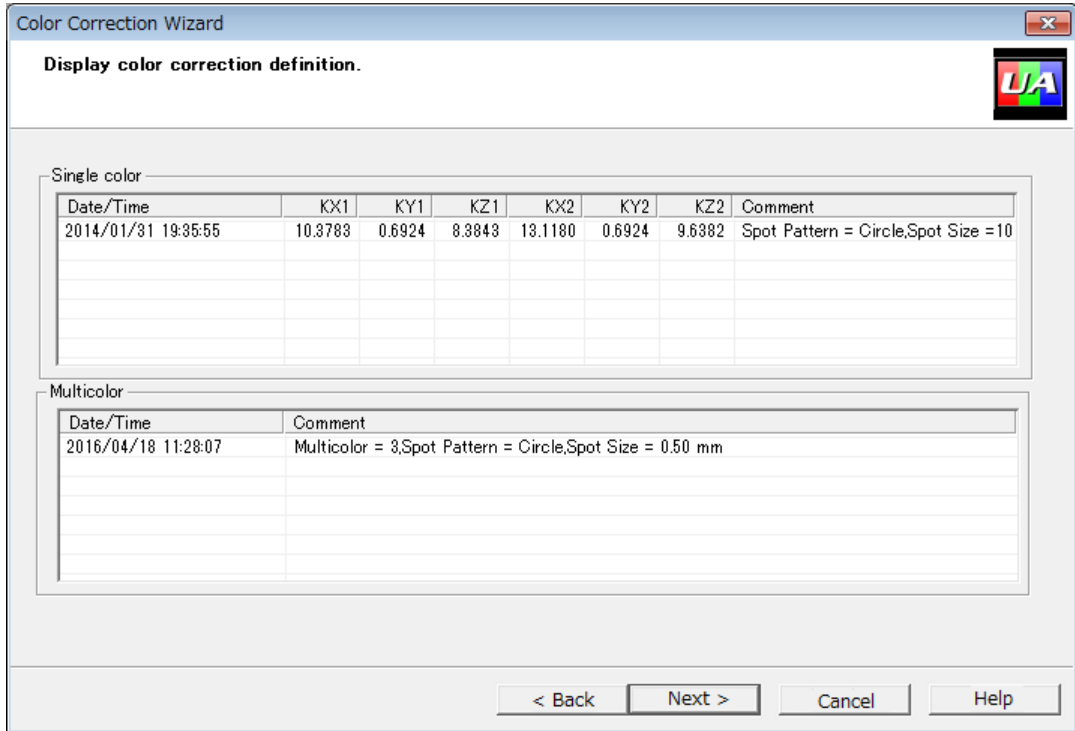
Valid range of correction factor is 0.0000-99.9999.

■ UA-10 series

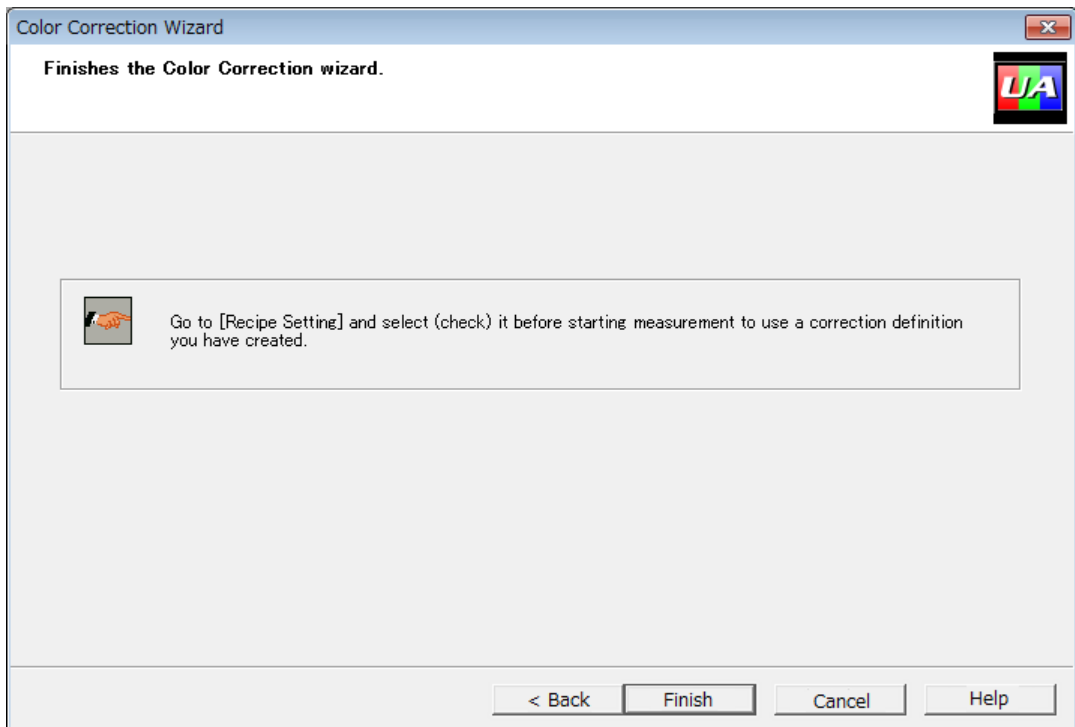
Valid range of the correction factors: 0.0000 – 99.9999



■ UA-200 series



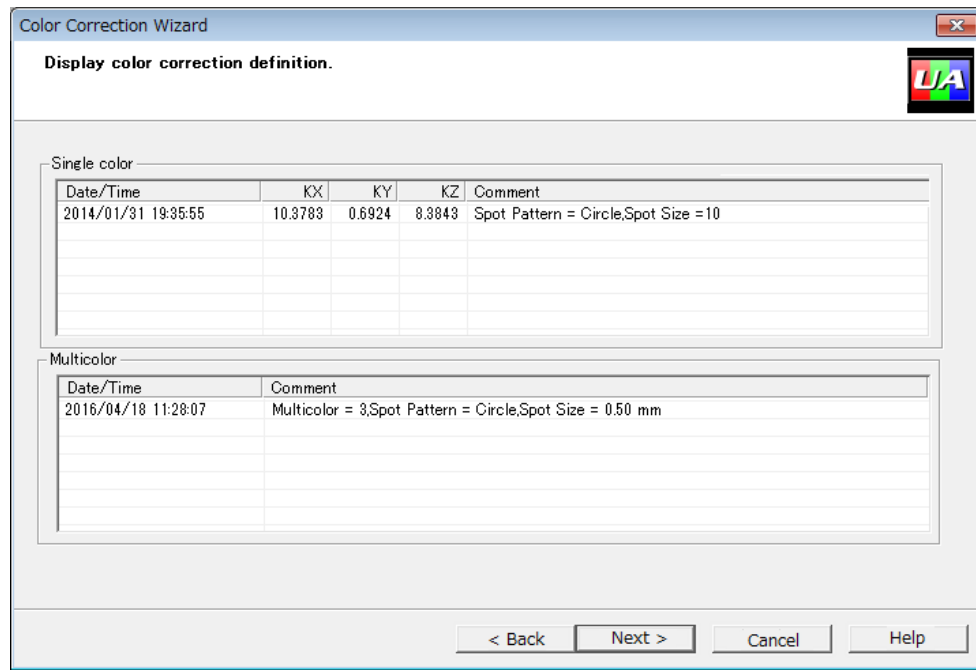
- 5 The [Finish] window is displayed. Click [Finish].



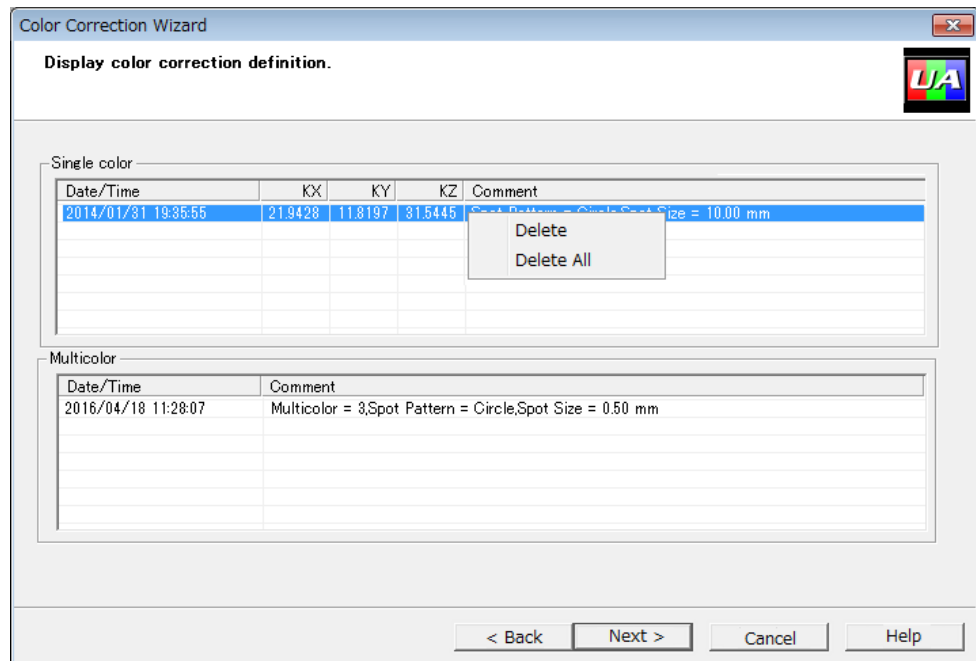
3.11.4 Delete Color Correction Definition

Deletes the color correction definition from the [Color Correction Definition List]. To delete any desired color correction factor definition, go through the following steps.

- 1 The Color Correction Definition List is displayed.



- 2 Click the definition to be deleted on the list to highlight the cursor line in blue and double-click.

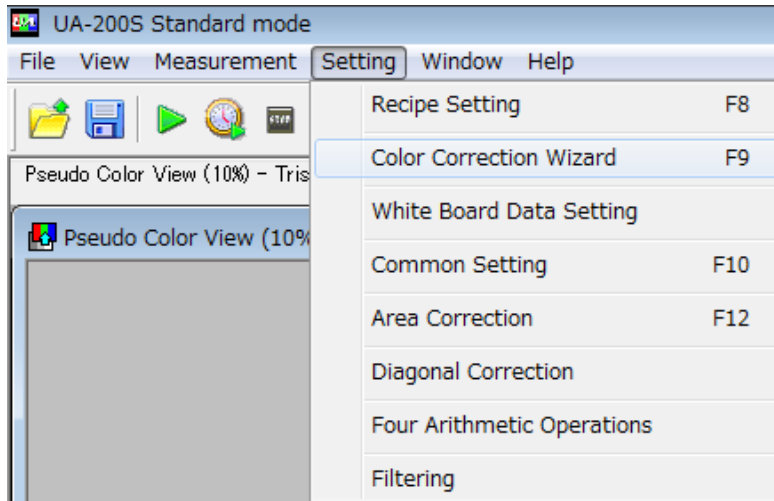


When [Delete] is selected, the highlighted line is deleted.
To delete all the lines, select [Delete All].

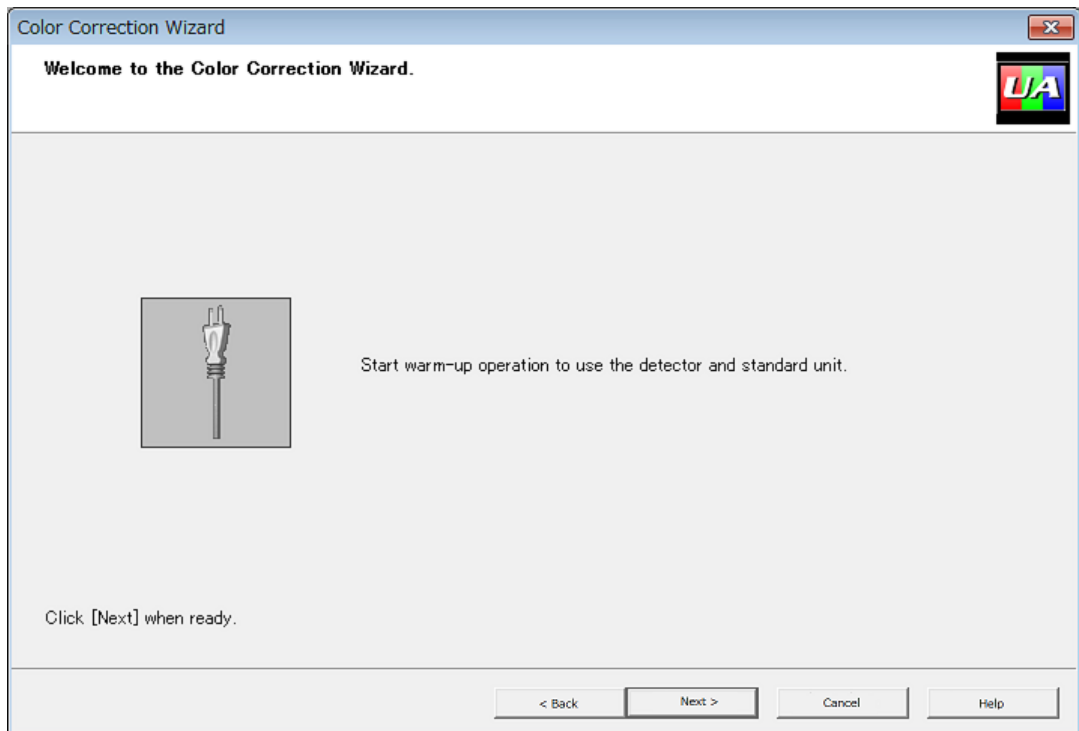
3.11.5 Create Spot Correction Definition

Calculates the spot correction factor by using the standard spot measurement data.
To create the spot correction factor definition, go through the following steps.

- 1 From the Menu bar, click [Setting] – [Color Correction Wizard] sequentially.
Or, press the “F9” key.



- 2 The [Color Correction Wizard] appear. Warm up the instrument for 5 minute or more.
(Warm up UA-200 series for 30 minutes for measuring luminance of 1cd/m2 or less).
After warming up, click the [Next] button.

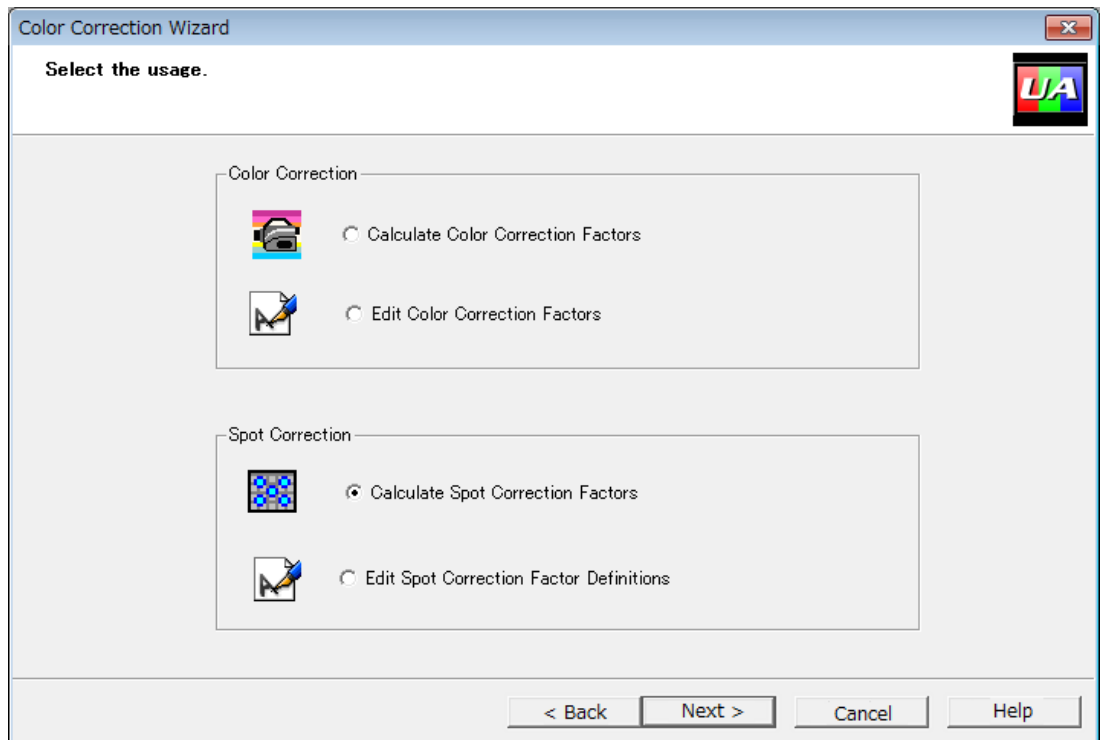


- 3 Select the Usage. After selecting it, click [Next].

The [Calculate Spot Correction Factor] is used to create the spot correction definition by using the detector and the standard spot data.

The [Edit Spot Correction Definition] is used to delete the spot correction definition created in the past.

☞ “3.11.6 Delete Spot Correction Definition”



- 4 Specify the options of the measurement spot conditions used for creating the spot correction definition. After setting them, click [Next].

The screenshot shows a window titled "Color Correction Wizard" with a close button in the top right corner. The main heading is "Set measurement spot conditions." Below this, there are two main sections:

- Measurement Spot**:
 - Spot Pattern: A dropdown menu set to "Circle".
 - Spot Size [mm]: A text input field containing "10".
- Center Standard Even Split**:
 - Horizontal Measurement Spot Count: A dropdown menu set to "11".
 - Vertical Measurement Spot Count: A dropdown menu set to "17".
 - Horizontal Dimension between Measurement Spots [mm]: A text input field containing "25".
 - Vertical Dimension between Measurement Spots [mm]: A text input field containing "25".

At the bottom of the dialog, there is a note: "Click [Next] after setting is completed." and four buttons: "< Back", "Next >", "Cancel", and "Help".

-Measurement Spot

- Spot Pattern

Select the measurement spot pattern to either circle or square.

- Spot Size

Specify the diameter or side-line length of the measurement spot.

Setting numerical input.

Valid range: 0.01 - 500 [mm]

- Center Standard Even Split

-Vertical Measurement Spot Count

Select the quantity of the measurement spots in the vertical direction to one of 3/5/7/9/11/13/15/17/19/21.

- Horizontal Measurement Spot Count

Select the quantity of the measurement spots in the horizontal direction to one of 3/5/7/9/11/13/15/17/19/21.

- Vertical Dimension between Measurement Spots

Specify the dimension between the measurement spots in the vertical direction.

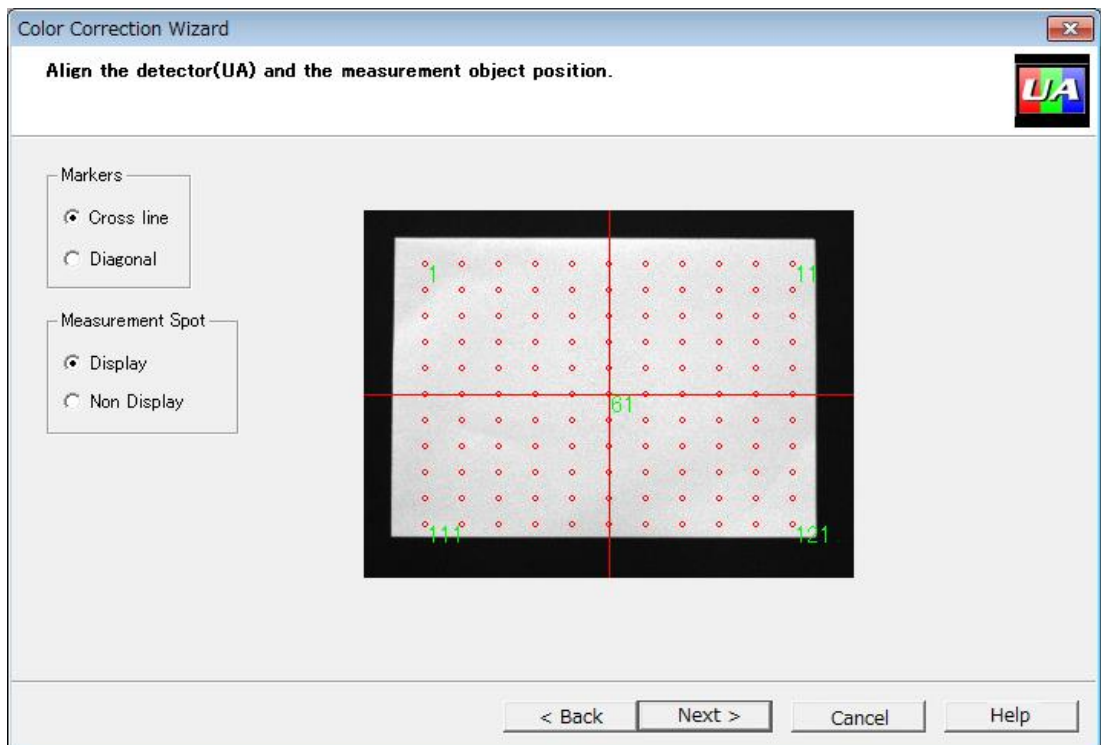
Valid range: 0.01 - 500 [mm]

- Horizontal Dimension between Measurement Spots

Specify the dimension between the measurement spots in the horizontal direction.

Valid range: 0.01 - 500 [mm]

- 5 Live view via the detector will appear. Align the center of the measurement target with the center marker of the device. After aligning them, click [Next].



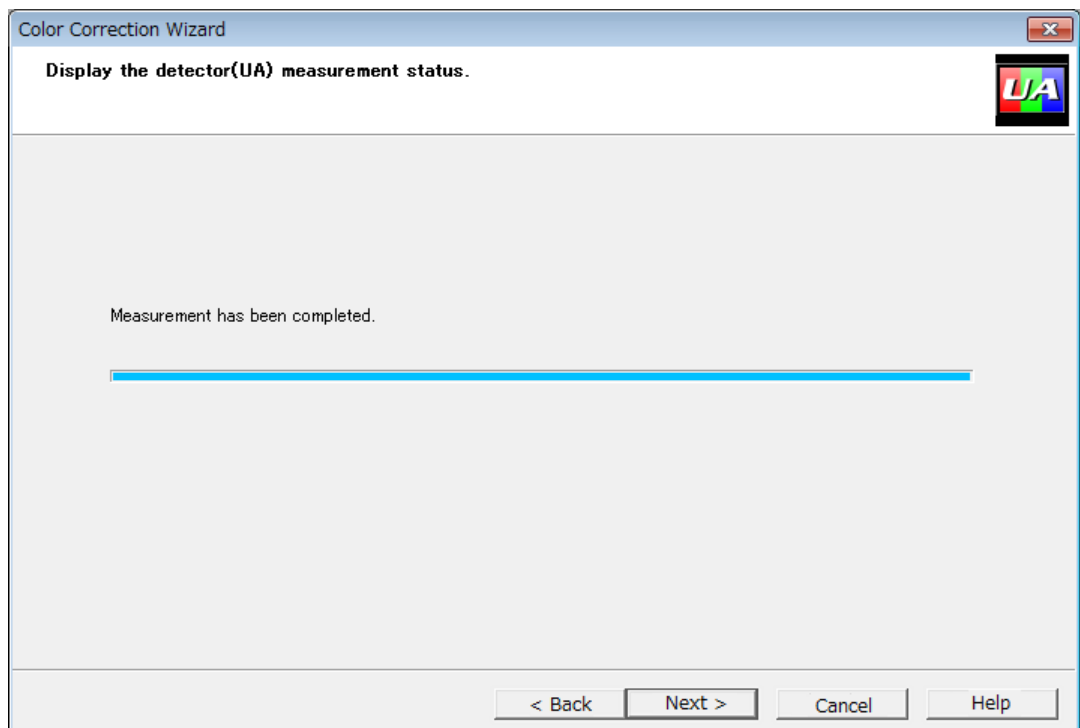
- Markers

Select the cross marker or the diagonal marker as the center marker to be displayed.

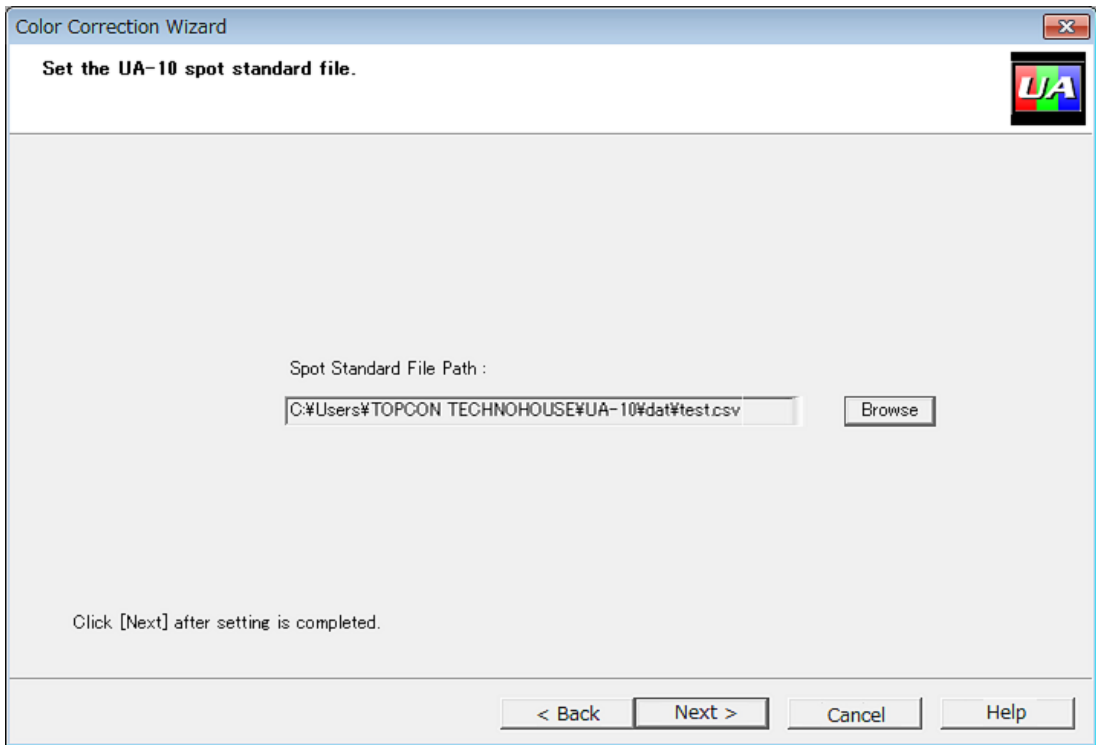
- Measurement Spot

Set whether the set measurement spot is displayed or not.

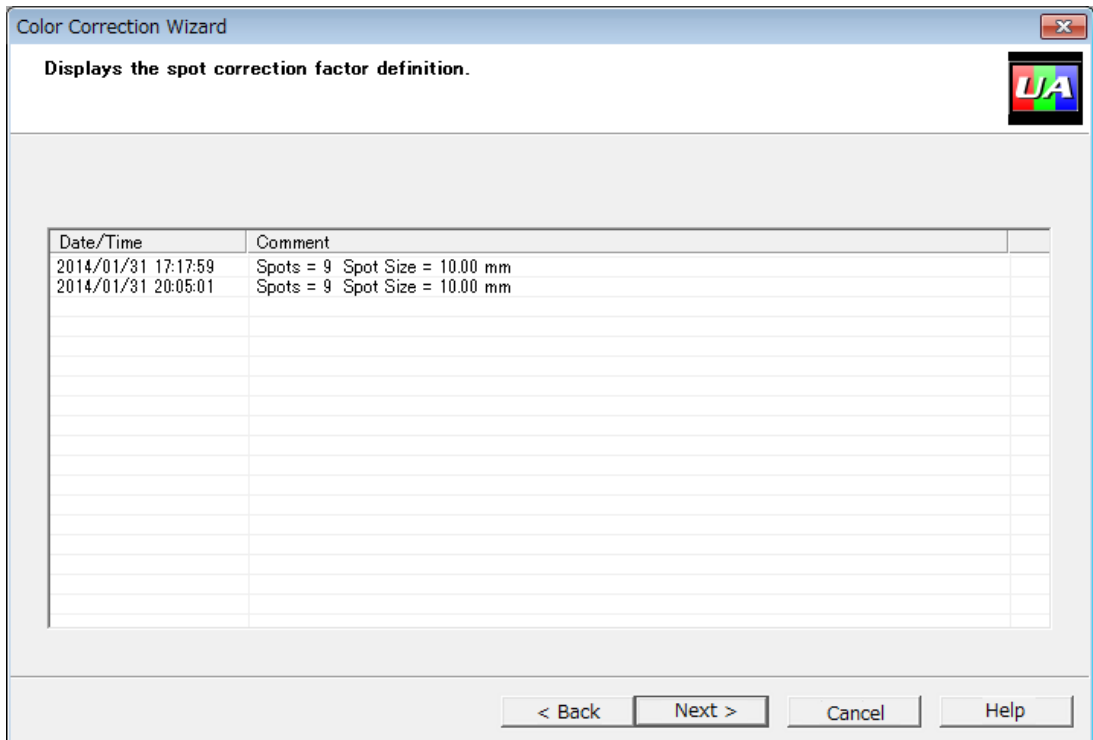
- 6 The measurement will start. Progress bar indicates the progress of the measurement. After the measurement, click [Next].



- 7 [Select Spot Standard File] is displayed.
Select the spot standard file. After selecting it, click [Next].



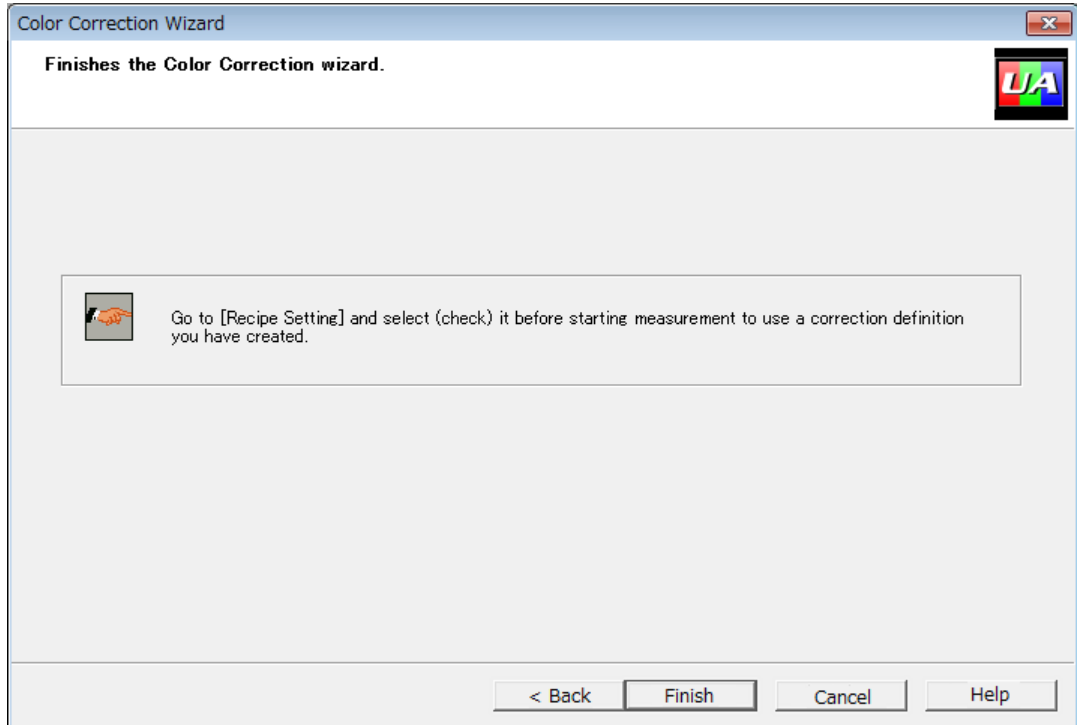
- 8 The spot correction factor definition is displayed. The result of the calculation of the correction factor based on the measurement data of the spot standard file is displayed. Click [Next].



9 Click [Finish].

To activate the created color correction, select it on the [Recipe Setting] - [Spot Correction Page].

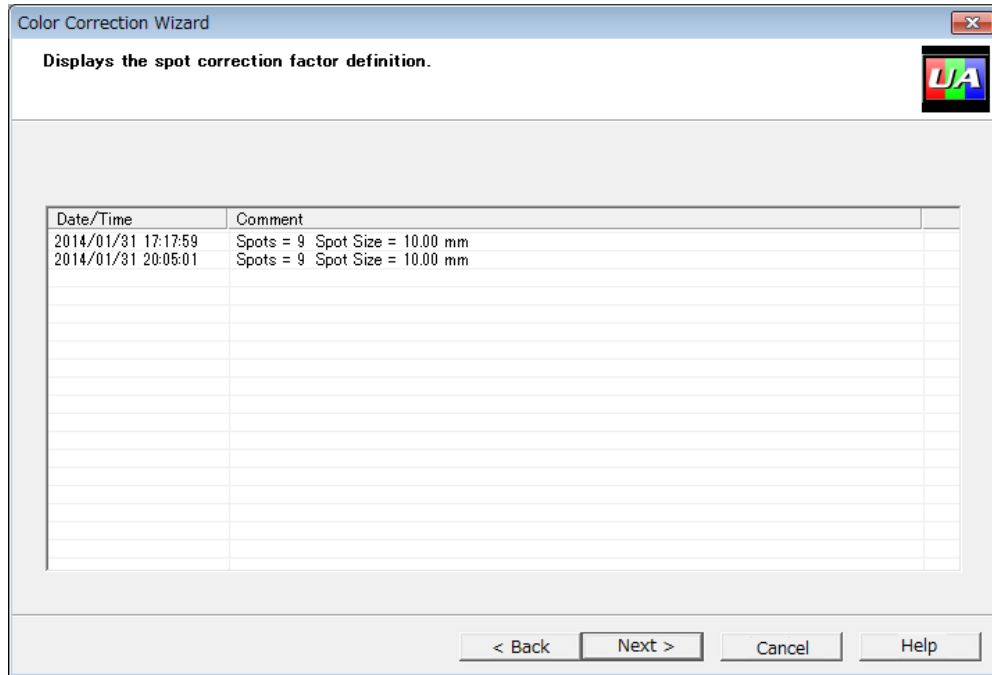
☞ “3.10.3 Select Spot Correction Definition”



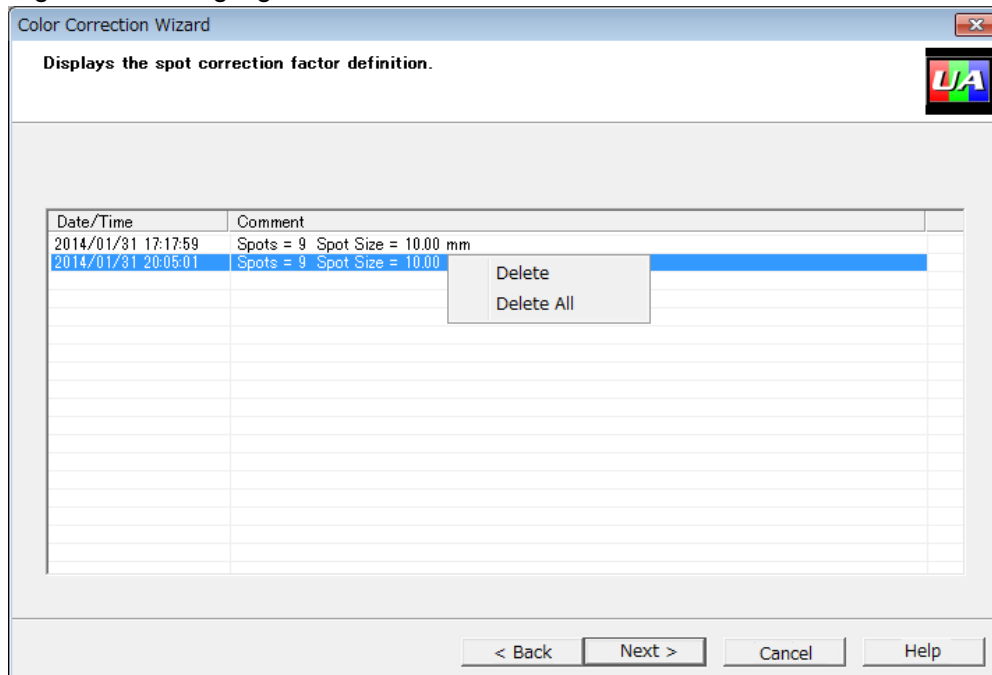
3.11.6 Delete Spot Correction Definition

Deletes the correction factor definition from the [Spot Correction Definition List]. To delete the spot correction factor definition, go through the following steps.

- 1 The Spot Correction Definition List is displayed.



- 2 Right-click the highlighted definition to be deleted on the list.



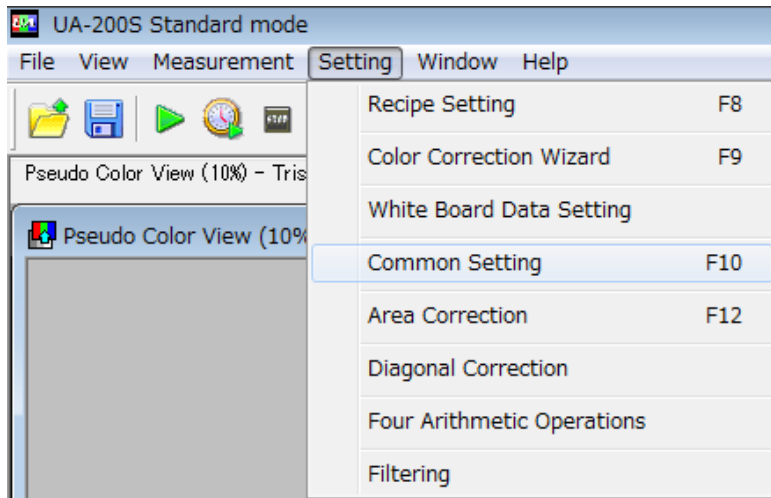
When [Delete] is selected, the highlighted line is deleted
To delete all the lines, select [Delete All].

3.12 Common Setting

3.12.1 Outline

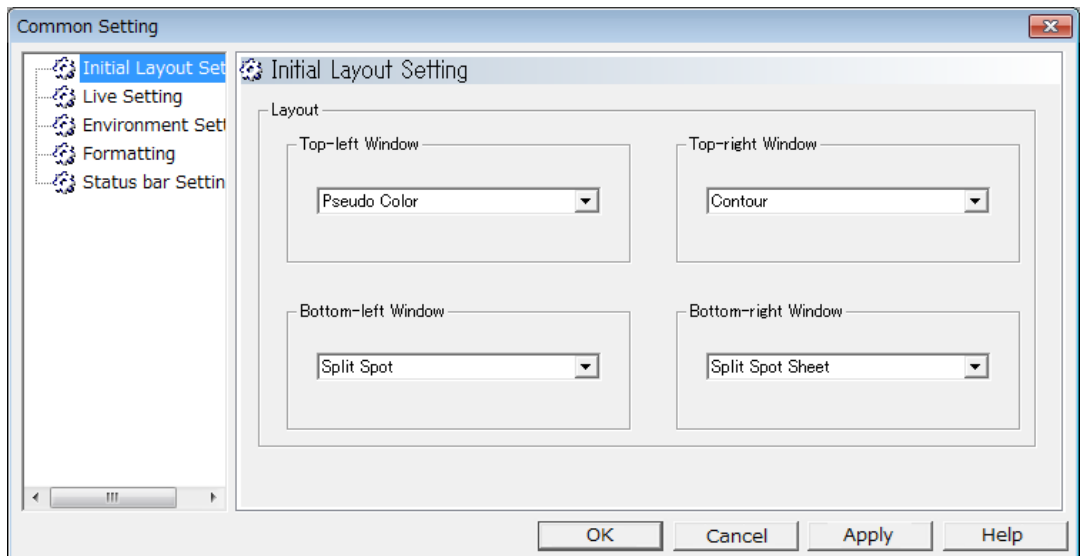
Sets various settings commonly used in this software. The setting content does not affect the recipe type or the measurement object. To perform the common setting, go through the following steps.

- 1 From the Menu bar, click [Setting] – [Common Setting] sequentially.
Or, press the “F10” key.



- 2 The [Common Setting] dialog will open.
All of the following buttons displayed on the [Recipe Setting Dialog] are the same function.

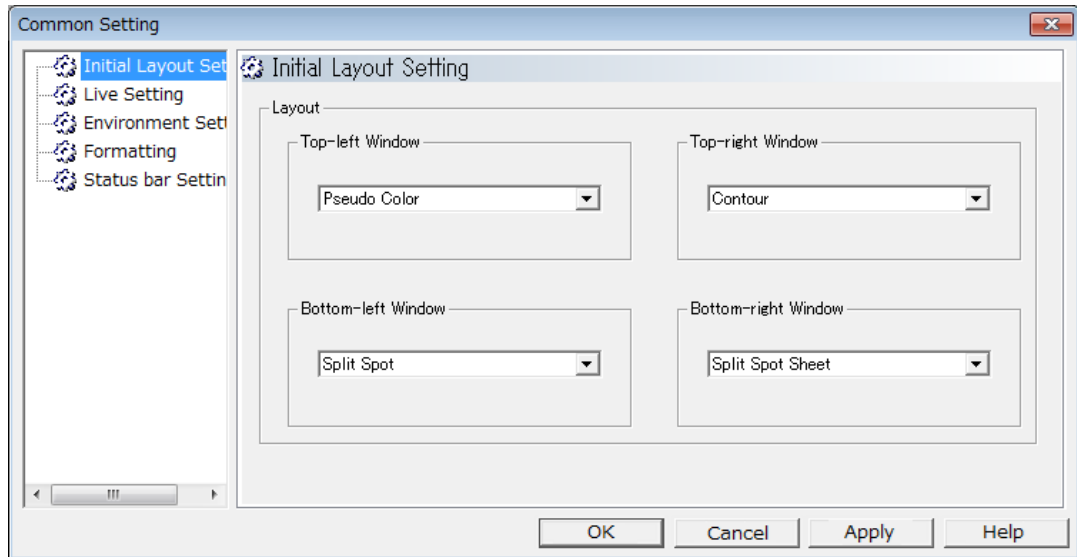
- [OK] Enables the setting and closes this window.
- [Cancel] Disables the setting and closes this window.
- [Apply] Enables the setting. Enables you to continue the setting without closing the window.
- [Help] Displays the Instruction Manual for the appropriate window.



3.12.2 Initial Layout Setting

If the Measurement Image is not displayed and [Initial Layout] is selected, this function allows you to set the View Display layout. To perform the initial layout setting, go through the following steps.

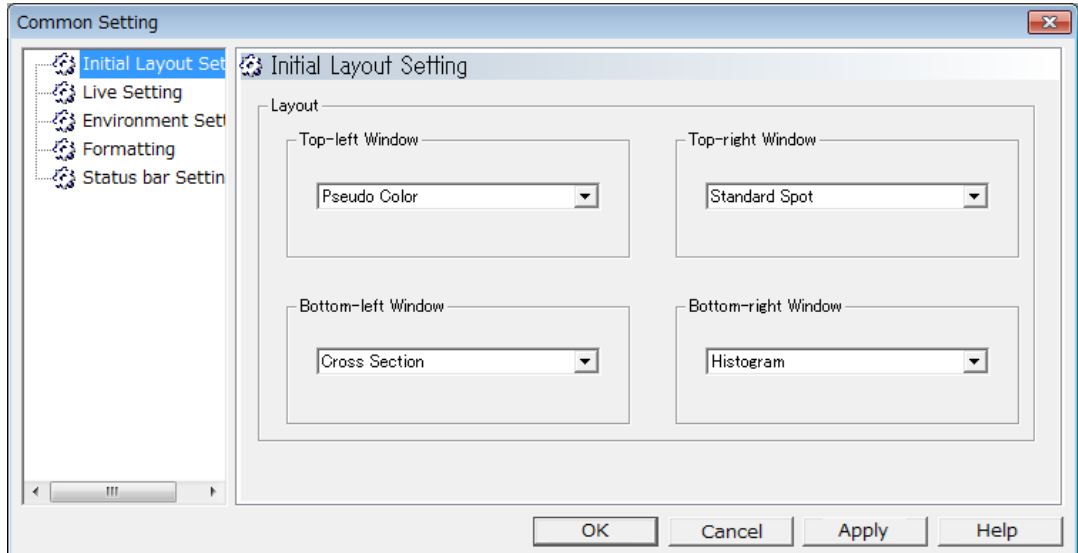
- 1 Open the [Common Setting] dialog. If the initial layout is not opened, click [Initial Layout Setting] from the list on the left.



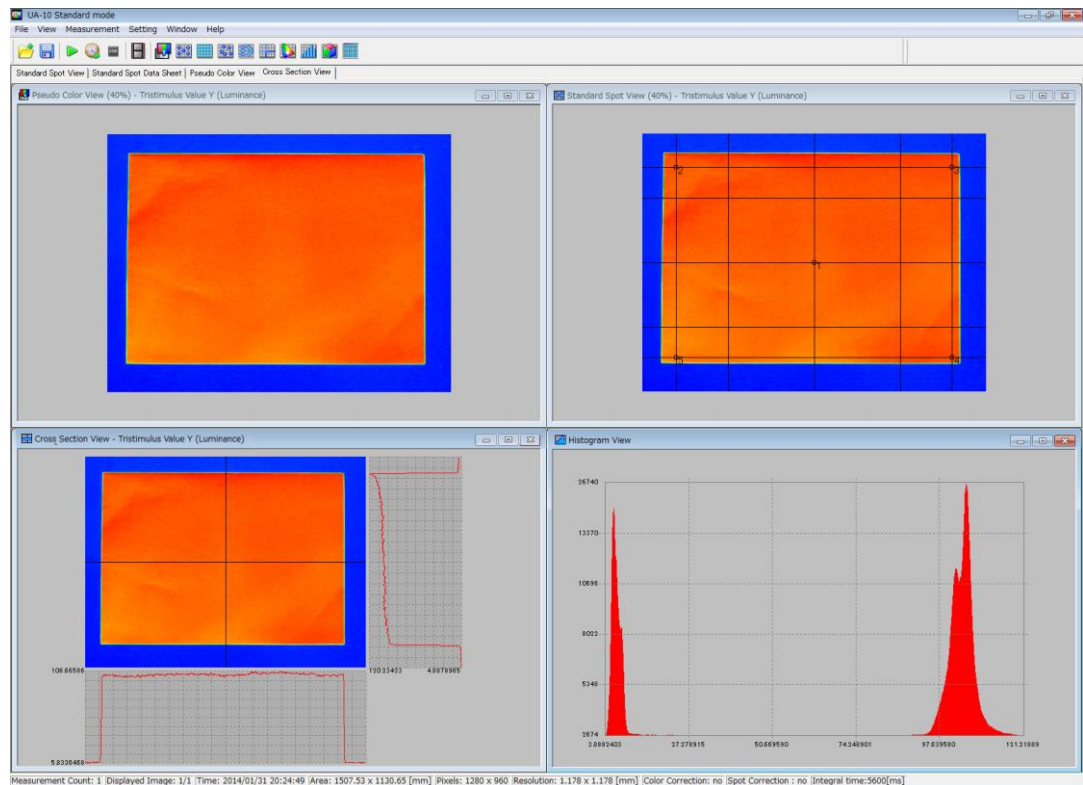
- 2 On the four separate windows (created by dividing the main window in 2 (lengthwise) x 2 (crosswise)), you can set the view or data sheet to be displayed. Select any of the windows and set the view or data sheet to be displayed from the Pull-down menu.


- 3 For example, when you set the Initial Layout Setting to as below, the four separate view in Displayed window are displayed as shown below after clicking [Display] – [Initial Layout] with the [Initial Layout].

Initial Layout Setting



Displayed Windows



 Note	<p>Selecting any of various data sheets does not allow you to change the object spot view. To change the view, be sure to change the object data sheet in advance.</p>
--	--

3.12.3 Live Setting

Set Integral time for Live View. The following steps are done for Live View setting:

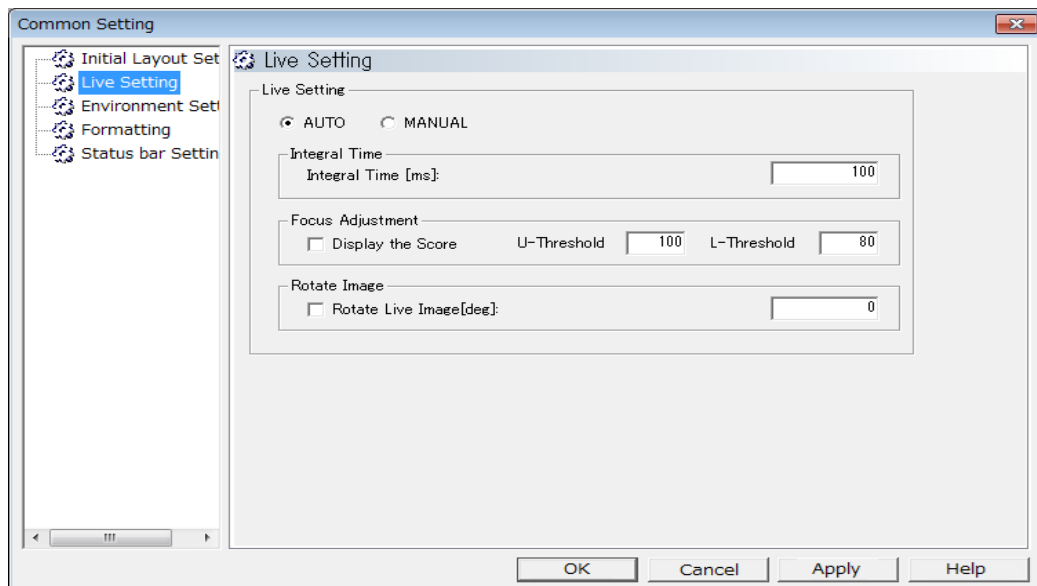
- 1 Open the [Common Setting] dialog. Click the [Live Setting] from the list on the left.
- 2 When you select the [AUTO], the integral time is calculated automatically from brightness in the view area.

When you select the [MANUAL], enter the integral time in the edit box in the [Integral time]. When you set longer integral time, Sensitivity increase, but responsibility decrease. Specify the appropriately integral time depending on the brightness of the measurement target.

Valid range 0.03 - 1000 [ms] (UA-10 series)

0.1 - 1000 [ms] (UA-200)

0.05 - 1000 [ms] (UA-200A)



- 3 Check the [Display the Score] check box, and then upper-threshold and lower-threshold values setting in [Live Setting] – [Focus Adjustment] are displayed in the Color bar.

Upper-threshold 5 - 100

Lower-threshold 0 - 95

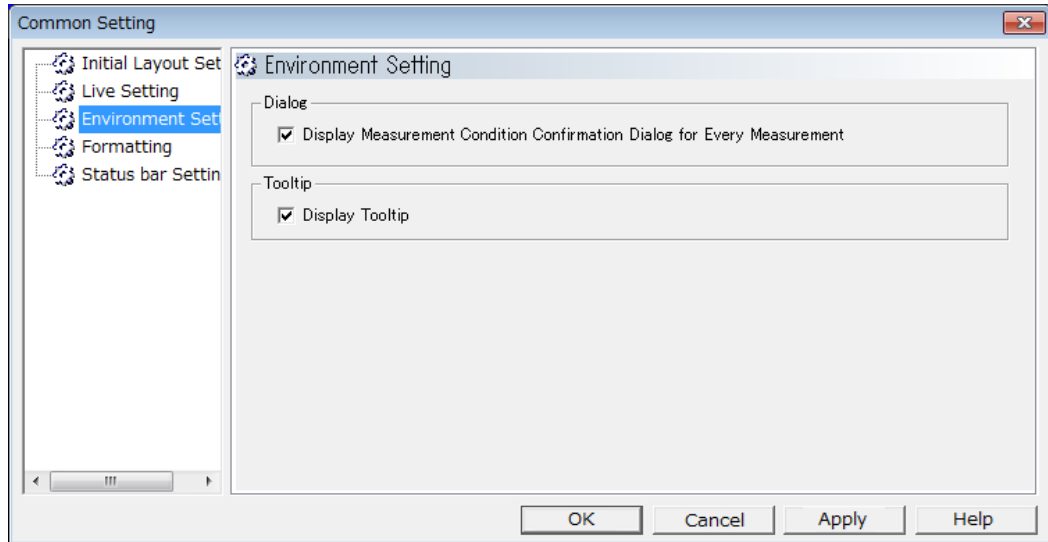
- 4 Set ON for the [Rotate Live Image] check box. When [Live View] is executed, the live image is rotated by the value set in the angle edit box.

Angle -180 - 180[deg]

3.12.4 Environment Setting

Selects whether the measurement conditions dialog and the Tool tip are displayed or not. To perform the environment setting, go through the following steps.

Open the [Common Setting] dialog. Click [Environment Setting] from the list on the left.



- Dialog

Sets whether or not the Check Measurement Conditions dialog is displayed.

When this function is checked, the [Check Measurement Conditions] dialog is displayed in every measurement.

When not checked, the [Check Measurement Conditions] dialog is not displayed.

The Check Measurement Conditions dialog is the list of the setting in the current recipe before starting the measurement in the [Normal Measurement] or [Time-series Measurement].

■ UA-10 series

Setting Items	Setting Content
Field Angle	Standard
Measurement Distance[mm]	1000
Area [mm]	600.01 x 450.00
Pixels	1280 x 960
Resolution [mm]	0.469 x 0.469
Measurement Method	Continuous
Measurement Count	1
Average Count	Auto
Integrator Setting	Manual
Integral Time(ms)	10.0
Optimization Area	Inactive
Saturation-detected Notification	Inactive
Auto Save Measurement Image	Inactive
Color Correction	Inactive
Spot Correction	Inactive
Area Correction	Active
Diagonal Correction	Inactive

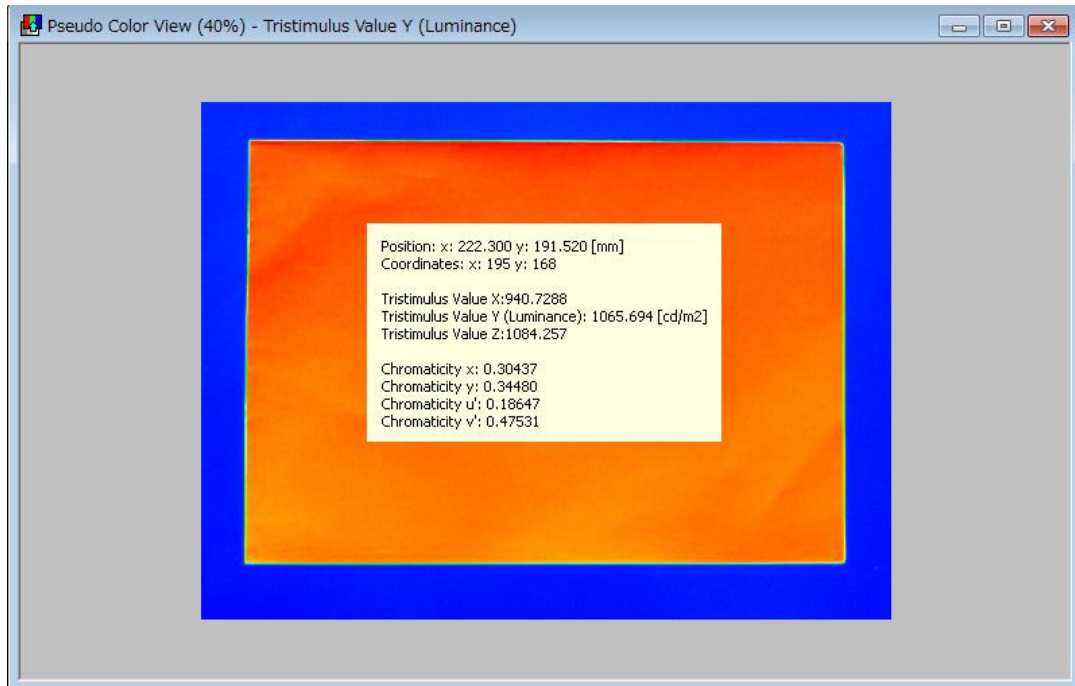
■ UA-200 series

Setting Items	Setting Content
Field Angle	Standard
Measurement Distance[mm]	1000
Area [mm]	612.53 x 459.40
Pixels	1280 x 960
Resolution [mm]	0.479 x 0.479
Measurement Method	Continuous
Measurement Count	1
Average Count	1
Integral Time/ND Filter Setting	Manual
X	Active
Integral Time(ms)	100.0
ND Filter	1 times
Gain	5
Y	Active
Integral Time(ms)	120.0
ND Filter	1 times
Gain	5
Z	Active
Integral Time(ms)	350.0
ND Filter	1 times
Gain	5
Optimization Area	Inactive
Saturation-detected Notification	Inactive
Auto Save Measurement Image	Inactive
Color Correction	Active
Spot Correction	Inactive
Area Correction	Active
Diagonal Correction	Active

Sets whether or not the Tooltip is displayed when a cursor is placed on the Pseudo Color View.

When this function is checked, Tooltip appear on the position where the mouse place on the Pseudo Color View. When the checkbox is not checked, the Tooltip is not displayed.

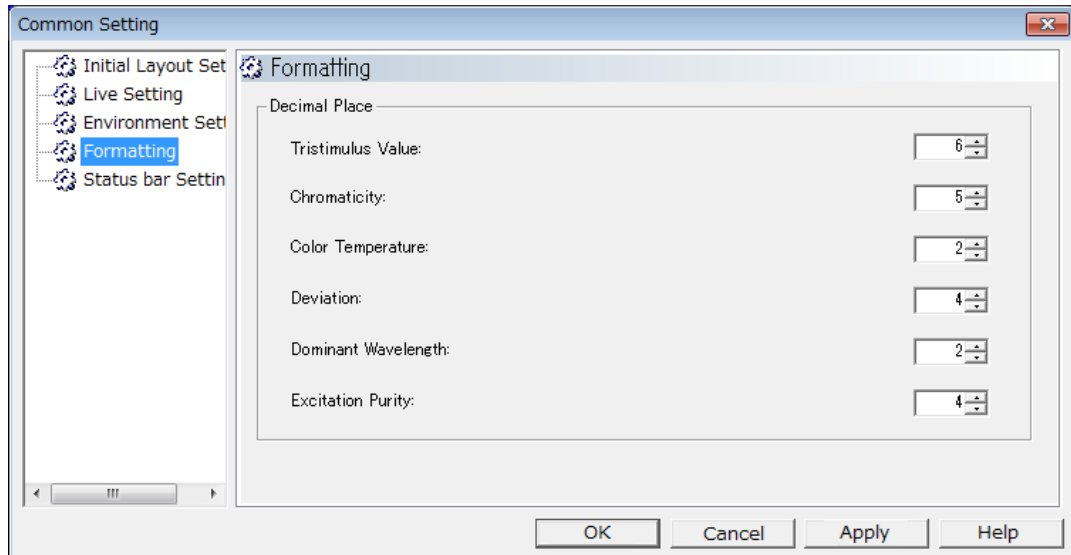
Tooltip is a small window to display various data such as the luminance values at each pixel in the measurement image.



3.12.5 Formatting

Sets the decimal place of the measurement data values displayed on the cells of each data sheet. This setting affected the data sheet and the output CSV file. Graphs and various property dialogs are not affected. To perform the formatting, go through the following steps.

Open the [Common Setting] dialog. Click [Formatting] from the list on the left.



Set the decimal place of the measurement data.

- Tristimulus value

Sets the decimal places of Tristimulus values X, Y, and Z.

- Numeric value entry is available.
- Valid range: 0 - 6

- Chromaticity

Sets the decimal places of chromaticity x_y and $u'v'$.

- Numeric value entry is available.
- Valid range: 1 - 5

- Color temperature

Sets the decimal place of color temperature.

- Numeric value entry is available.
- Valid range: 0 - 2

- Deviation

Sets the decimal place of the deviation.

- Numeric value entry is available.
- Valid range: 1 - 4

- Dominant Wavelength


Sets the decimal place of the dominant wavelength.

- Numeric value entry is available.
- Valid range: 0 - 2

- Excitation purity

Sets the decimal place of the excitation purity.

- Numeric value entry is available.
- Valid range: 1 - 4

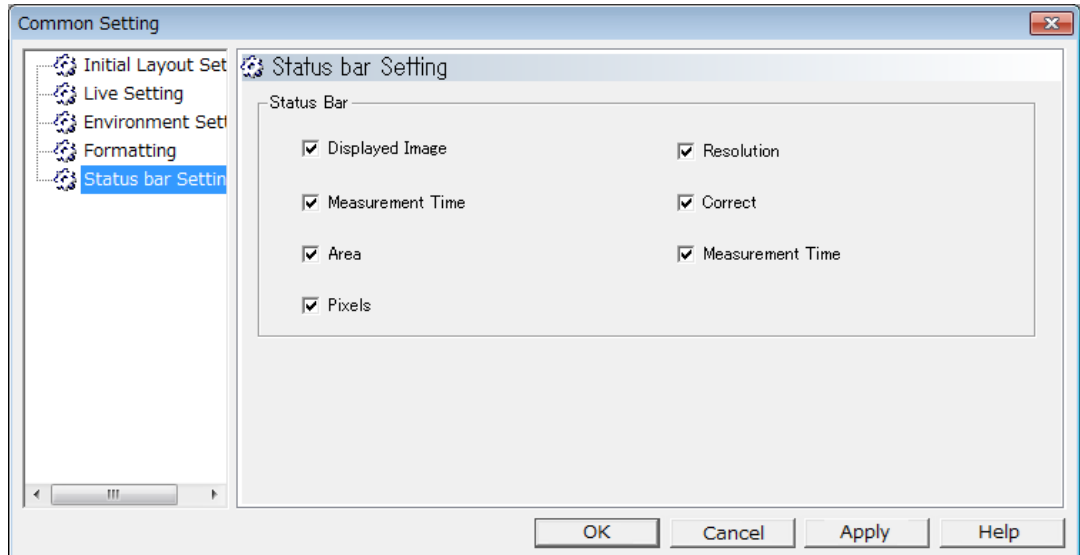
<p> Note</p>	<p>To ensure the reliability of the measurement data, the number of digits displayed in this software is up to 7 digits, including the digits after the decimal point. Therefore, the number of digits after the decimal point set by [Formatting] may not be displayed depending on the measurement data.</p> <p>Example: When 6 digits are set in the [Formatting]</p> <ul style="list-style-type: none">- When the measurement data is less than 10: 7 digits in total (1 integer digit and 6 decimal digits) are displayed. 1.234567- When the measurement data equals or is higher than 10: 7 digits in total (2 integer digits and 5 decimal digits) are displayed. 12.34567- When the measurement data equals or is higher than 100: 7 digits in total (3 integer digits and 4 decimal digits) are displayed. 123.4567 <p>When 3 digits are set in [Formatting]</p> <ul style="list-style-type: none">- When the measurement data is less than 10: 4 digits in total (1 integer digit and 3 decimal digits) are displayed. 1.234- When the measurement data equals or is higher than 10: 5 digits in total (2 integer digits and 3 decimal digits) are displayed. 12.345- When the measurement data equals or is higher than 100: 6 digits in total (3 integer digits and 3 decimal digits) are displayed. 123.456
--	---

3.12.6 Status bar Setting


Selects items on the status bar.

To set the status bar method, go through the following steps.

- 1 Open the [Common Setting] dialog.
Click the [Status Bar Setting] from the list on the left.



- 2 Select items to be displayed in the status bar.
Please refer to the "Status Bar" for details of each information.

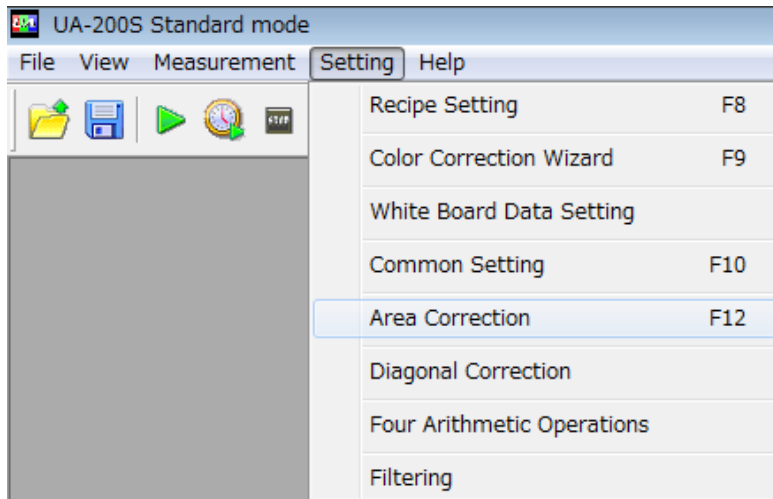
 "1.7.4 Status Bar"

3.13 Area Correction

3.13.1 Outline

This function can divide measure image in a grid shape and multiply correction factor of Tristimulus values to each grid. In this menu, you can create and edit an Area correction file.

Select the [Setting]-[Area correction]. Or press the [F12] key



3.13.2 Create new Correction factor file

Creates new Area correction file.

To create a new file, go through the following steps.

- 1 Select the [Setting]-[Area correction] to open the [Area correction] dialogue.

- 2 Select the [Create].
- 3 Displayed Area correction file are enabled. Edit the [File name] and [Comment] directly. Set [Tristimulus values], [Horizontal split count], and [Vertical split count] and then, edit each correction factor in grid.
- 4 Press [Save] button to save the Area correction file.



Memo

- An Area correction file is saved as CSV format. An Area correction file can be edited directly.
- When you apply an area correction factor to measured image, set them in [Recipe setting]-[Area correction].

☞ “3.10.4 Set Area Correction”



Note

When you edit values other than correction factor in an Area correction file, file data may not read correctly
When you edit a file, edit only correction factor data.

3.13.3 Edit existing file

Edits existing file for Area correction.

To edit an existing file, go through the following steps.

- 1 Select the [Setting]-[Area Correction] and [Specify are correction factor] dialog appear.

Specify area correction factor

New Existing file editing

Area Correction Factor File

Area correction factor file currently being displayed is applied.

Date/Time	File Name	Comment
2014/11/13 15:43:30	arf.csv	Samle

File Path:

Specify area correction factor.

Tristimulus value: Horizontal Split Count: Vertical Split Count:

	1	2	3	4	5	6	7	8	9	10	11
1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
6	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
7	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
8	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
9	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
10	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
11	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
12	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
13	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
14	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
15	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
16	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

- 2 Select the [Existing file editing] and the [Open] button become active. Then, open Area correction factor file.
- 3 [File name] and [Comment] under “Area correction factor file currently being displayed is applied” can be edited directly. Set [Tristimulus value], [Horizontal Split Count], and [Vertical Split Count]. And then, edit each correction factor in grid.
- 4 Click the [Save] button to save the Area correction file.

Memo

- Area Correction file is saved as CSV format. Area correction file data can be edited directly.
- Set [Recipe setting]-[Are Correction] to activate an area correction factor to mesured image.

“3.10.4 Set Area Correction”



Note

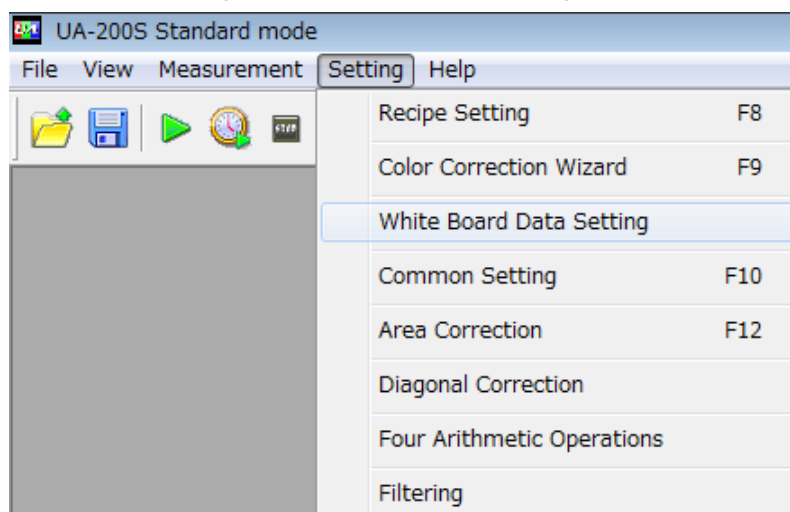
If you edit other than correction factor data, software may not read the file. When editing a file, edit only correction factor data.

3.14 White Board Data Setting

3.14.1 Outline

It is possible to set the white board data which will be the calibration standard required for the object color measurement.

Select the [Setting]-[White Board Data Setting].

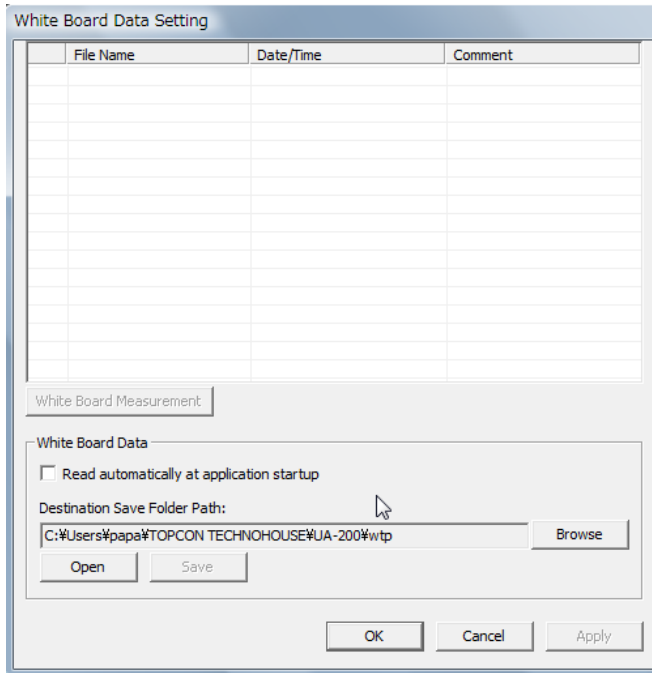


3.14.2 White Board Measurement

Measurement through the white board.

To perform the Measurement, go through the following steps.

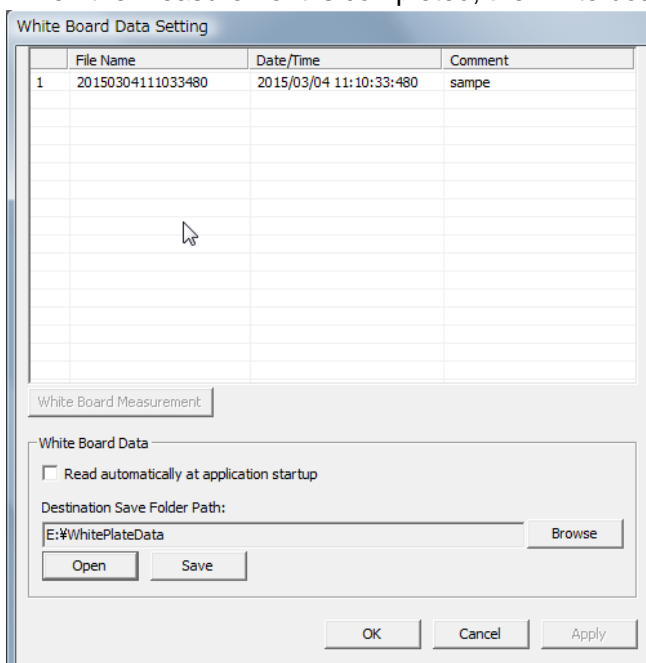
- 1 From the Menu bar, click [Setting] – [White Board Setting] sequentially. The [White Board Setting] dialog will open.



- 2 Select the [White Board Measurement].

 “3.12.4 Environment Setting”

- 3 When the measurement is completed, the white board data is added.

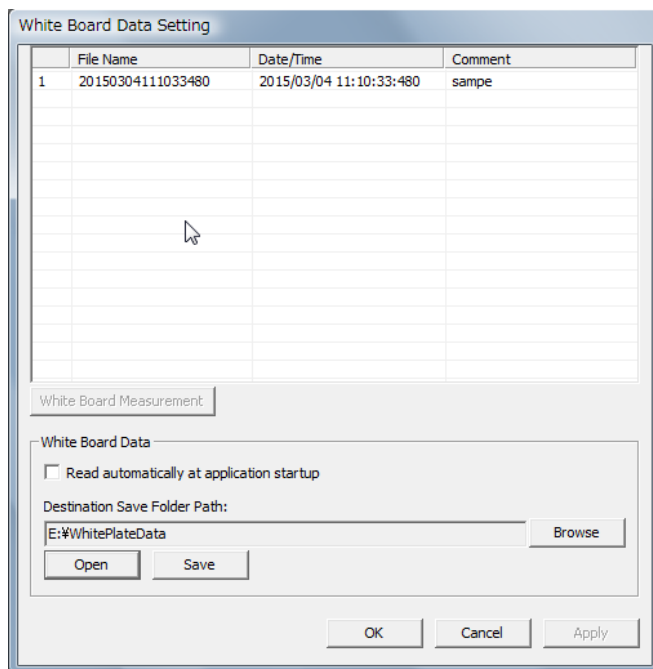


3.14.3 Save White Board Data File

Saves the white board data file. To save the white board data file, go through the following steps.

Open the [White Board Setting] dialog.

Edit the [Comment] and click the [Save] button to save the white board data file.



 Memo

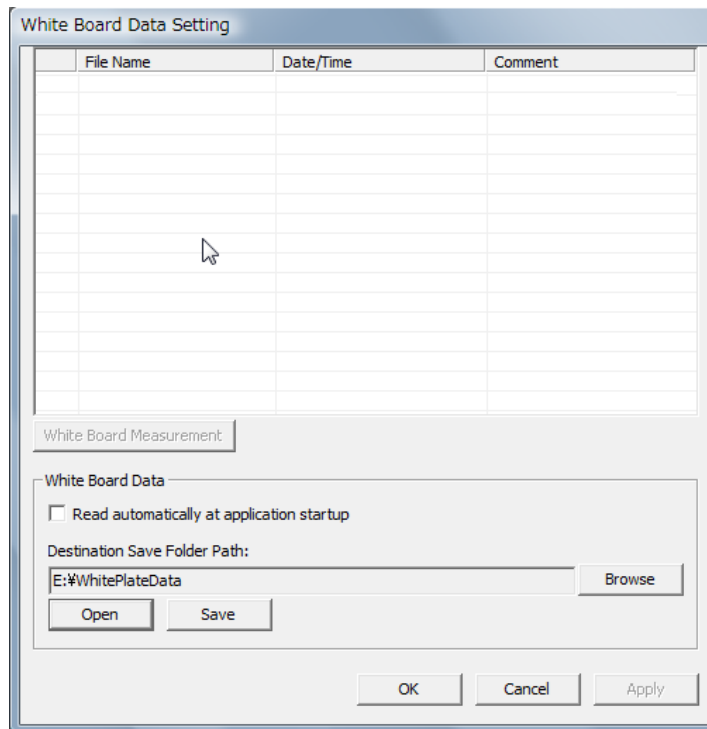
Select [Browse], and the [Browse Folder] dialog is displayed.

3.14.4 Open White Board Data File

Open the white board data file. To open the white board data file, go through the following steps.

- 1 Open the [White Board Setting] dialog.

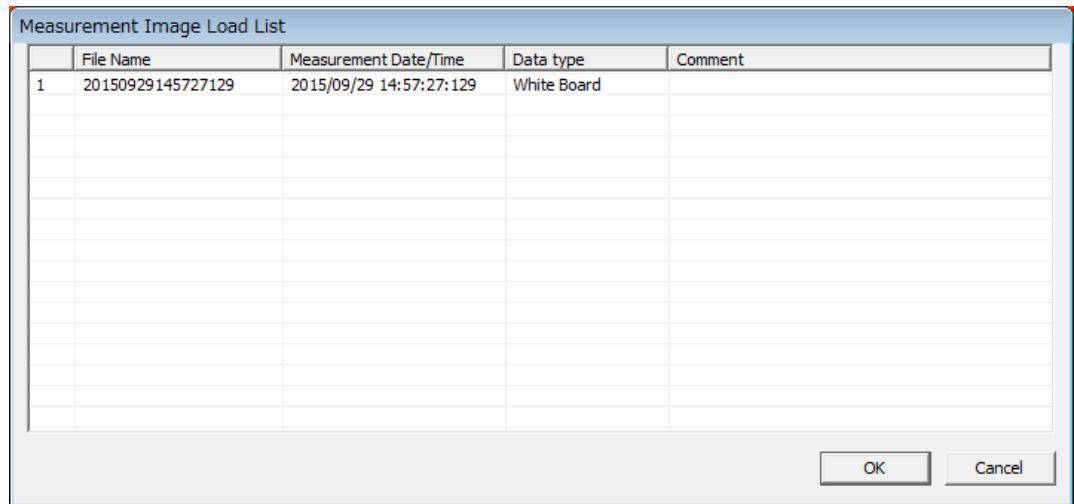
Click the [Open] button to open the white board data file.



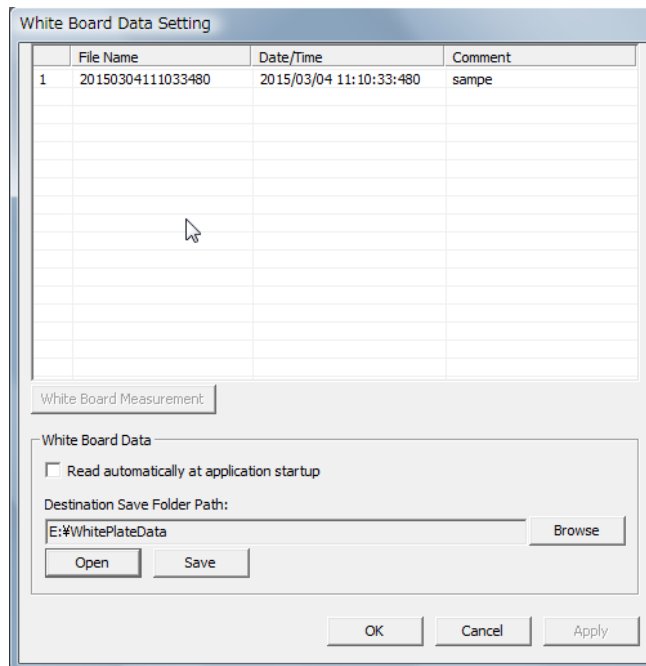
 Memo

Select [Browse], and the [Browse Folder] dialog is displayed.

- 2 [Measurement Image Load List] dialog will open. The measurement date & time and comment of the loaded measurement image are displayed. To open the file, click [OK].



- 3 The loaded white board data file is opened.

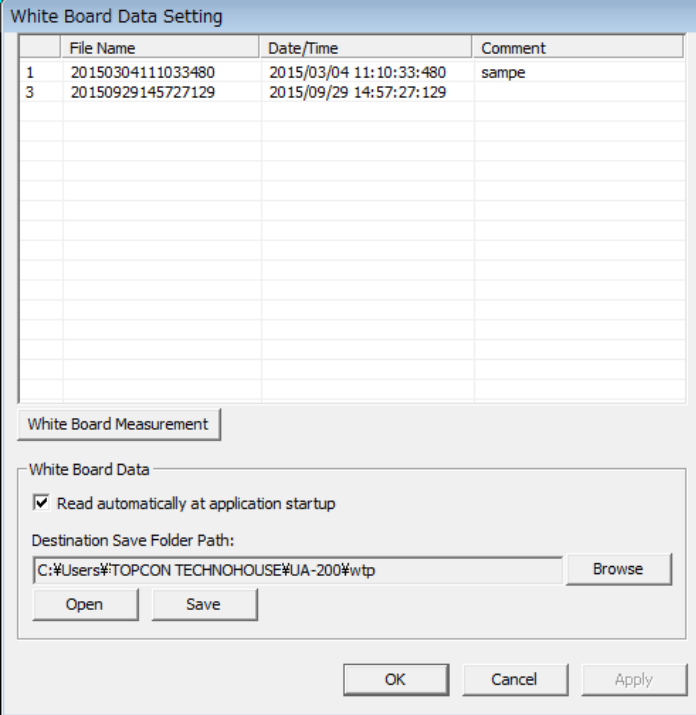


3.14.5 Read automatically at application startup

Read automatically at application startup the white board data file. To Read automatically at application startup the white board data file, go through the following steps.

Open the [White Board Setting] dialog.

Check the [Read automatically at application startup] to read the white board data file.



The dialog box titled "White Board Data Setting" contains a table with the following data:

	File Name	Date/Time	Comment
1	20150304111033480	2015/03/04 11:10:33:480	sampe
3	20150929145727129	2015/09/29 14:57:27:129	

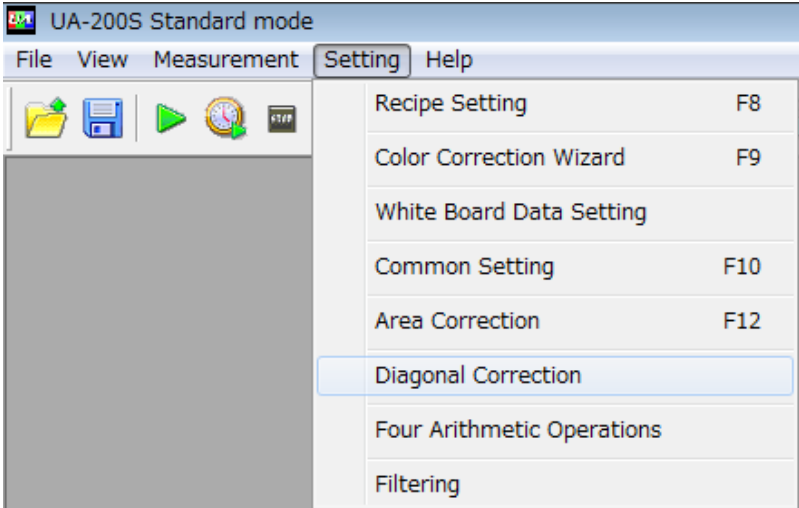
Below the table is a tab labeled "White Board Measurement". Underneath is a section titled "White Board Data" containing a checked checkbox "Read automatically at application startup". Below this is a "Destination Save Folder Path:" field with the text "C:\Users\TOPCON TECHNOHOUSE\UA-200\wtp" and a "Browse" button. At the bottom of this section are "Open" and "Save" buttons. At the very bottom of the dialog are "OK", "Cancel", and "Apply" buttons.

3.15 Diagonal Correction

3.15.1 Outline

Corrects a tilted image, which is measured at tilting angle to a rectangular.
Sets a correction setting, applies the setting to a measured image, saves the correction factor data in a correction factor list, and deletes the setting.

Select the [Setting]-[Diagonal Correction].



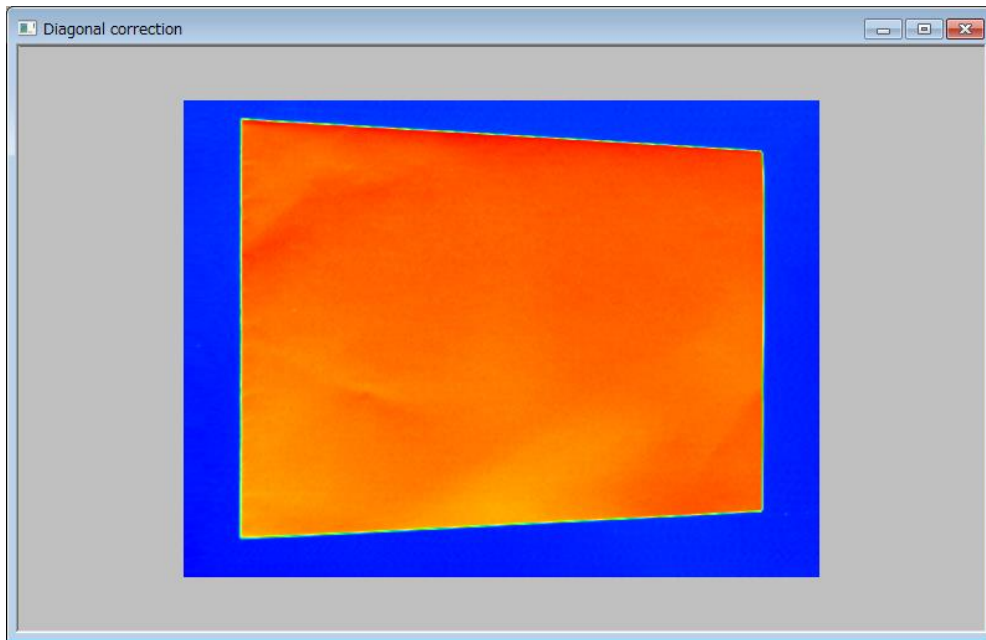
3.15.2 Setting Diagonal Correction

To correct a tilted image into rectangle, go through the following steps.

 Memo

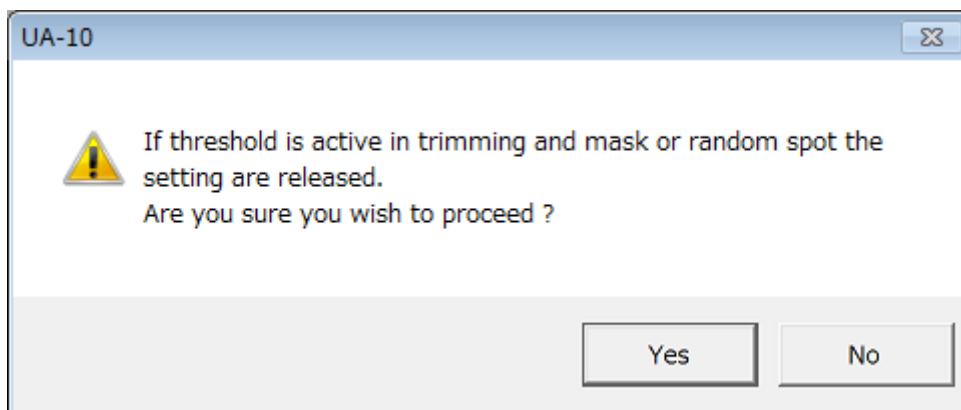
Press "Esc" key in keyboard to roll back to one previous operation.

- 1 Select the [Setting]-[Diagonal Correction] when a measured image is displayed. The [Diagonal Correction] view will appear.

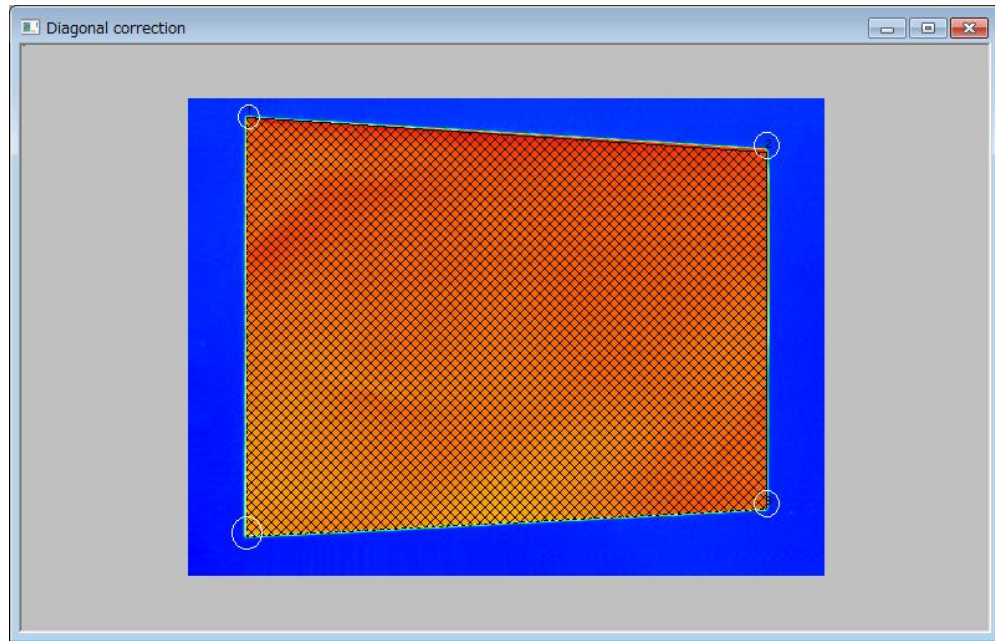


 Memo

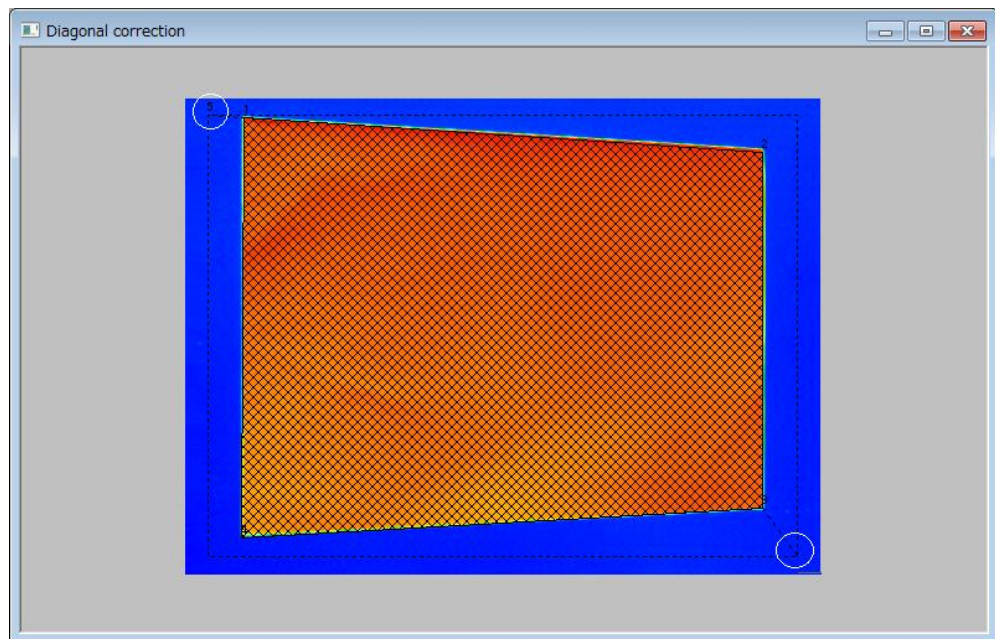
When you select the [Setting]-[Diagonal Correction], following dialog will appear. If you select [Yes], Trimming, Mask, threshold in random spot are canceled.



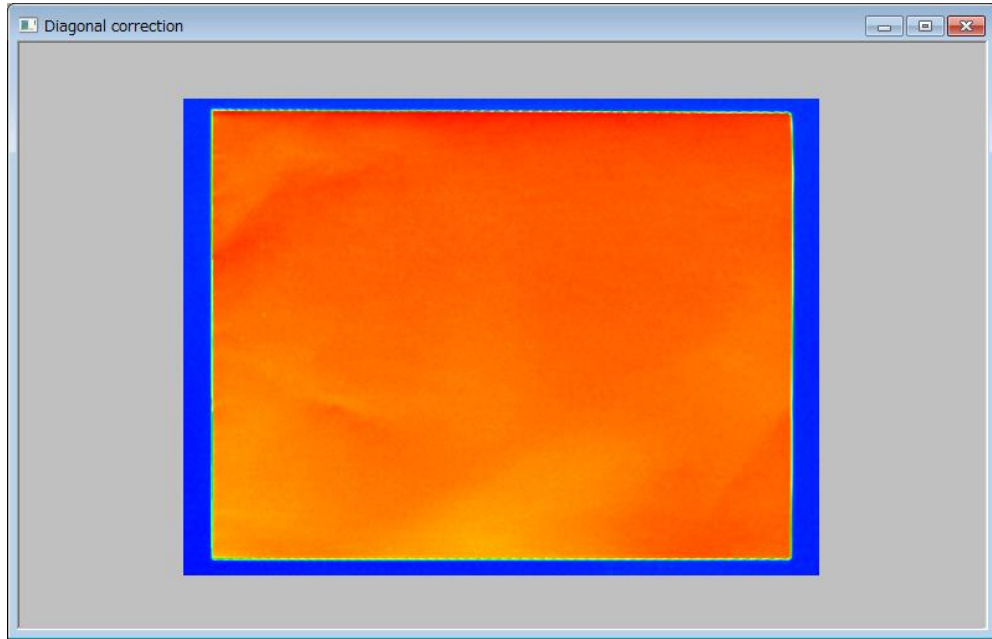
- 2 Select four points of an area to be corrected. Select points in a clockwise direction from first point.



- 3 Specify two opposite angle of rectangle to be corrected. An outline of a rectangle connecting two specified opposite angle will be displayed.



- 4 Measured image in corrected rectangle shape will be displayed.

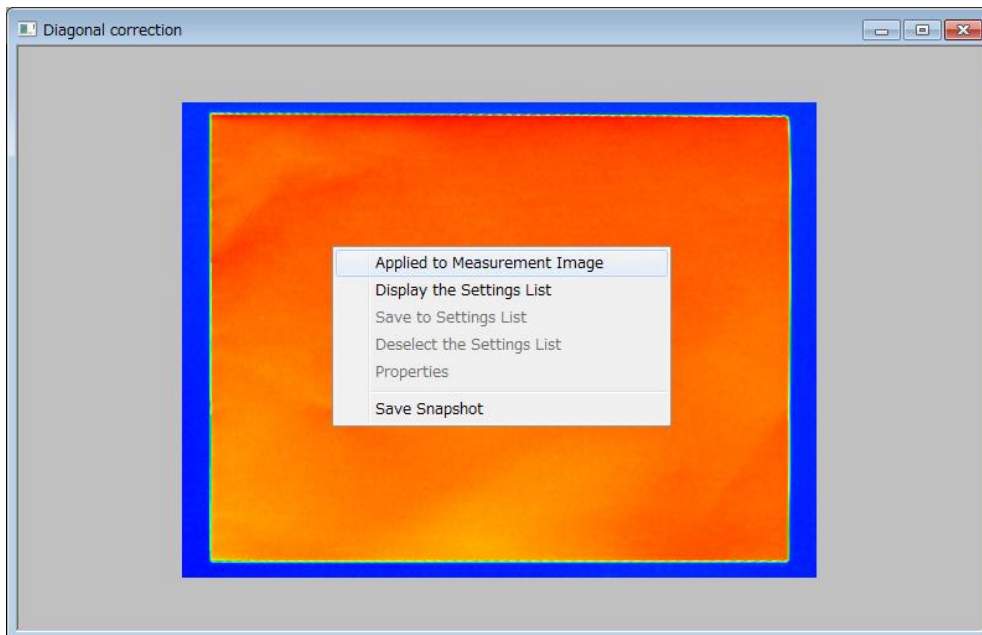


3.15.3 Apply to measured image

Applies a diagonal correction to a measured image.

To apply a diagonal correction into measured image, go through the following steps.

- 1 Right click on the [Diagonal correction] view and pop-up menu appear. Select the [Applied to Measurement Image].



- 2 Diagonal Correction is applied to measured image on the display.

Memo

• Once a diagonal correction is applied to a measured image, a parameter of a diagonal correction is saved.

 "3.15.5 Save /Delete Setting"

• A Diagonal correction takes effect on currently displayed measured image.

If you want to apply diagonal correction to every measured data afterward, set a diagonal correction in the [Recipe Setting]-[Measuring Conditions (3/4)].

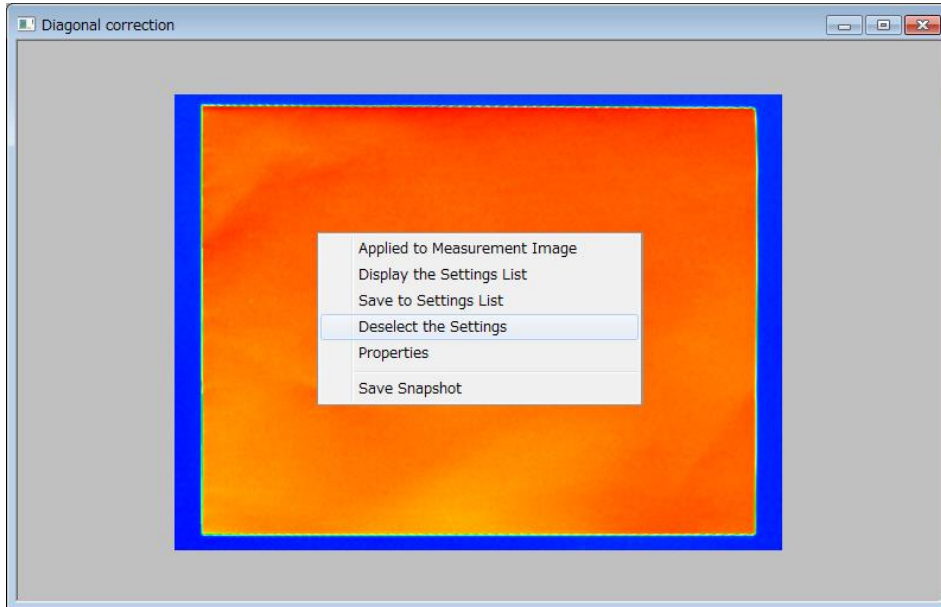
 "3.8.4 Diagonal Correction"

3.15.4 Cancel Diagonal correction

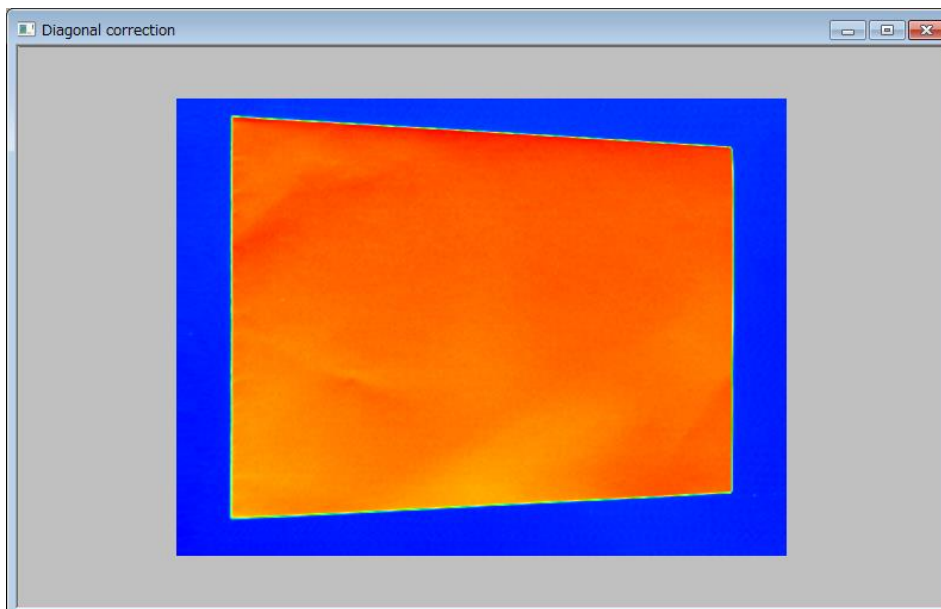
Cancels Diagonal correction.

To cancel a diagonal correction, go through the following steps

- 1 Right click on the [Diagonal correction] View and pop-up menus appear. Select the [Deselect the Setting].



- 2 The diagonal correction is canceled and the image return to original image.



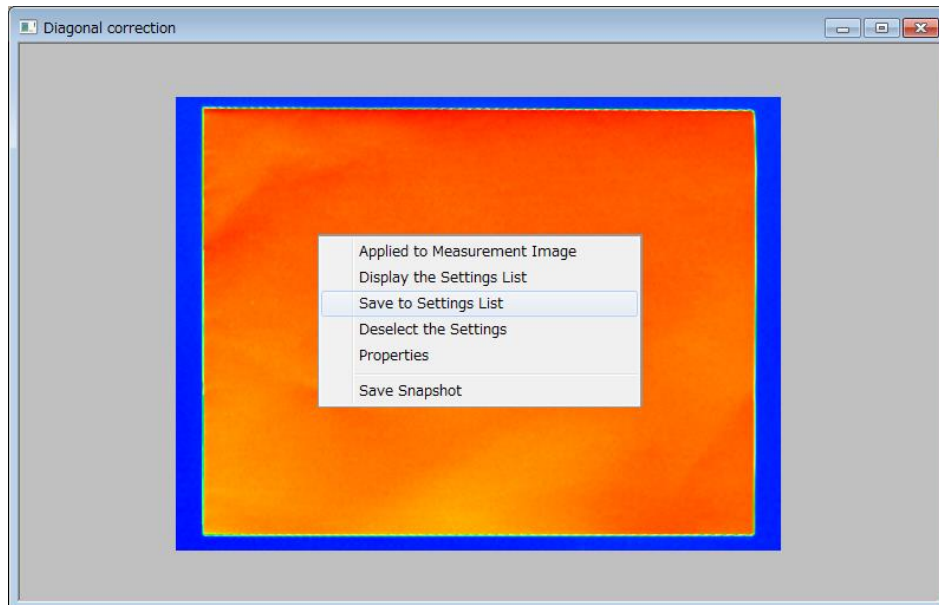
When a diagonal correction applied to a measured image, select the [Applied to Measurement image] in the pop-up menu.

3.15.5 Save / Delete Setting

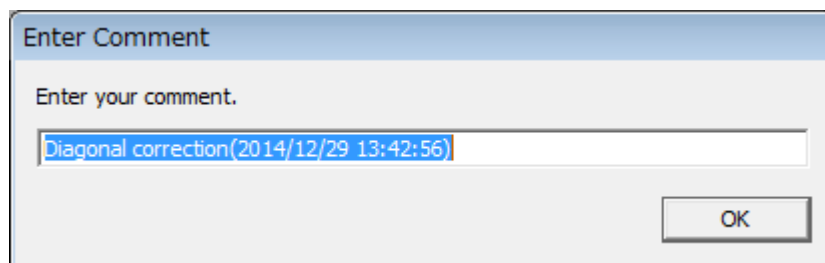
Save a parameter of a diagonal correction.

To save a parameter of a diagonal correction, go through the following steps

- 1 Right click on the [Diagonal correction] view and pop-up menu appear.
Select the [Save to Settings List]



- 2 Enter comments in the [Comments entry] dialogue box.



- 3 Click the [OK] button to save a parameter of the Diagonal correction and [Diagonal correction] List appear.

Date/Time	Comment			
<input type="checkbox"/> 2014/11/20 18:03:36	Diagonal correction(2014/11/20 18:03:36)			
<input type="checkbox"/> 2014/12/20 11:59:22	Diagonal correction(2014/12/20 11:59:22)			
<input checked="" type="checkbox"/> 2014/12/29 13:42:56	Diagonal correction(2014/12/29 13:42:56)			

Number	X Coordinate	Y Coordinate	Change th...	Change th...
1	158	163	85	80
2	1103	150	1198	80
3	1095	805	1198	895
4	168	805	85	895

Saved parameter is added on the last row in the list and check become ON.

- 4 When you delete a parameter of a diagonal correction, highlight a parameter to be deleted, and right click on the row. A pop-up menu appear and select the [Delete] to delete the parameter of the diagonal correction.

Date/Time	Comment			
<input type="checkbox"/> 2014/11/20 18:03:36	Diagonal correction(2014/11/20 18:03:36)			
<input checked="" type="checkbox"/> 2014/12/20 11:59:22	Diagonal correction(2014/12/20 11:59:22)			
<input type="checkbox"/> 2014/12/29 13:42:56	Diagonal correction(2014/12/29 13:42:56)			

Number	X Coordinate	Y Coordinate	Change th...	Change th...
1	158	163	85	80
2	1103	150	1198	80
3	1095	805	1198	895
4	168	805	85	895

Memo

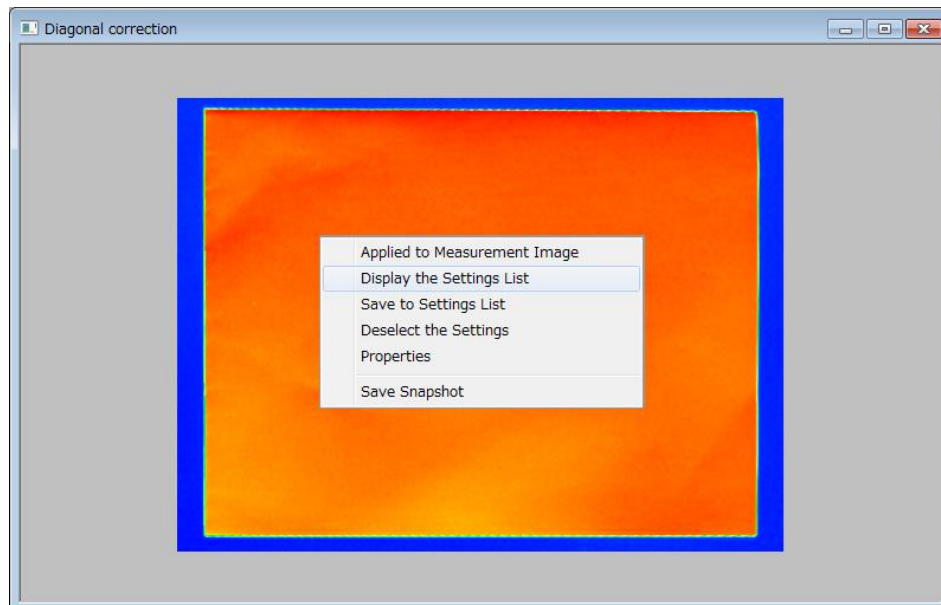
- Select one from check box for parameters.
- Diagonal correction is canceled when you remove all check box.
- A parameter is applied to image in the [Diagonal Correction] view immediately after closing the [Diagonal correction list].

3.15.6 Display Setting List

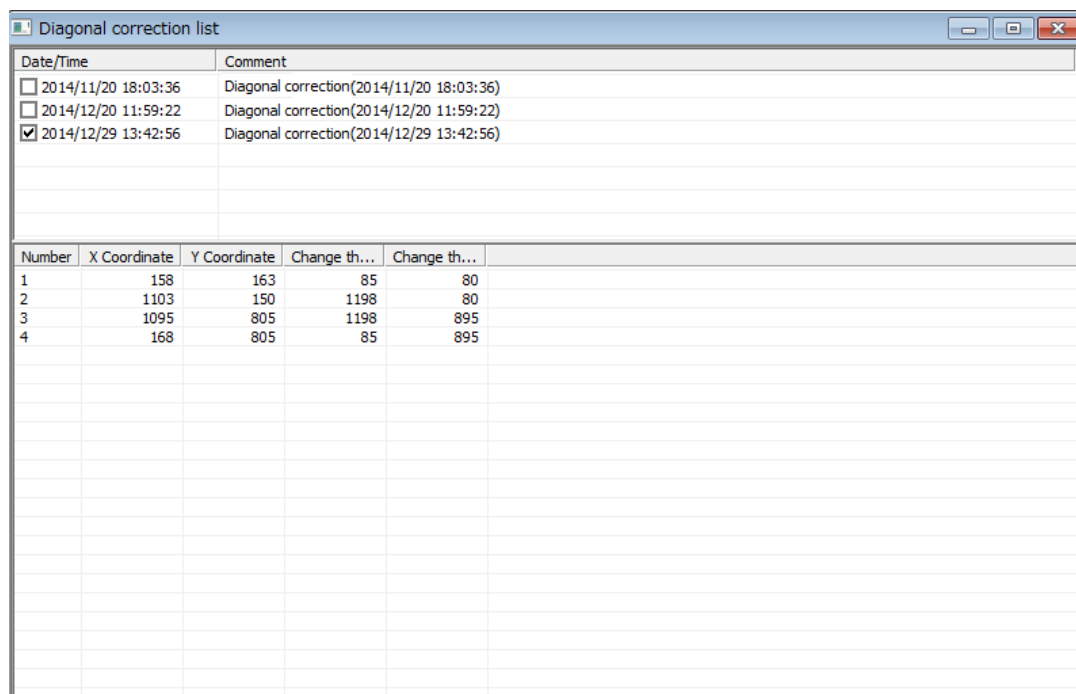
Displays [Display the Setting List].

To display Settings List, go through the following steps.

- 1 Right click on the [Diagonal Correction] view and pop-up menu appear.
Select the [Display the Settings List]



- 2 The [Diagonal Correction List] dialogue appear.



Date/Time	Comment
<input type="checkbox"/> 2014/11/20 18:03:36	Diagonal correction(2014/11/20 18:03:36)
<input type="checkbox"/> 2014/12/20 11:59:22	Diagonal correction(2014/12/20 11:59:22)
<input checked="" type="checkbox"/> 2014/12/29 13:42:56	Diagonal correction(2014/12/29 13:42:56)

Number	X Coordinate	Y Coordinate	Change th...	Change th...
1	158	163	85	80
2	1103	150	1198	80
3	1095	805	1198	895
4	168	805	85	895

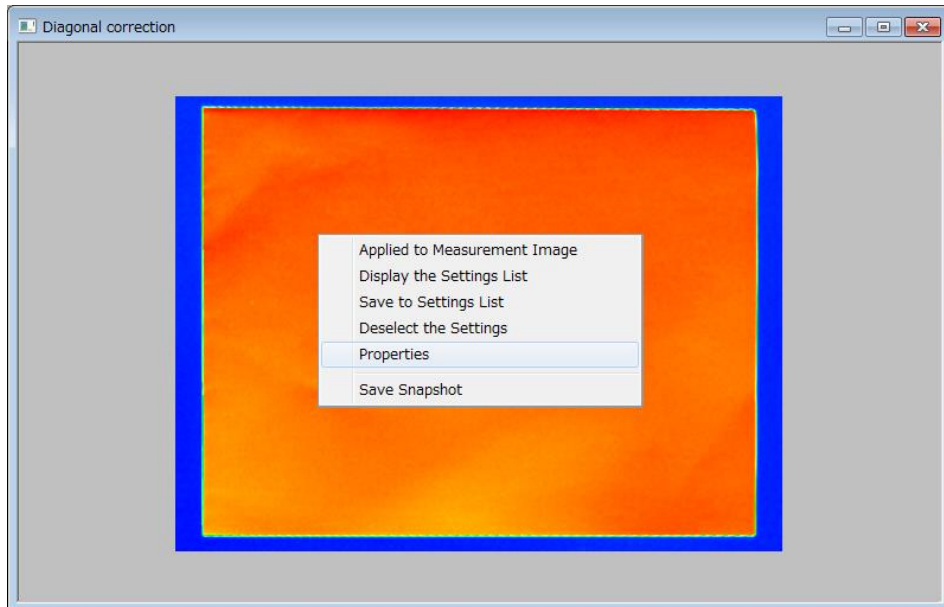
3.15.7 Open Properties

Opens [Properties].

To open [Properties], go through the following steps.

Right click the [Diagonal Correction] view and pop-up menu appear.

Select the [Properties]



	X	Y
Coordinate 1:	116	30
Coordinate 2:	1163	103
Coordinate 3:	1170	833
Coordinate 4:	118	883
Coordinate 5:	60	48
Coordinate 6:	1218	905

OK Cancel

You can edit a property directly if you want to conduct fine adjustment of property. Click the [OK] button to apply a property to an image in the [Diagonal Correction] view.

Coordinates 1 – 4 : Four points of original image
Coordinates 5 – 6 : Two points of opposite angle of rectangle after a diagonal correction.

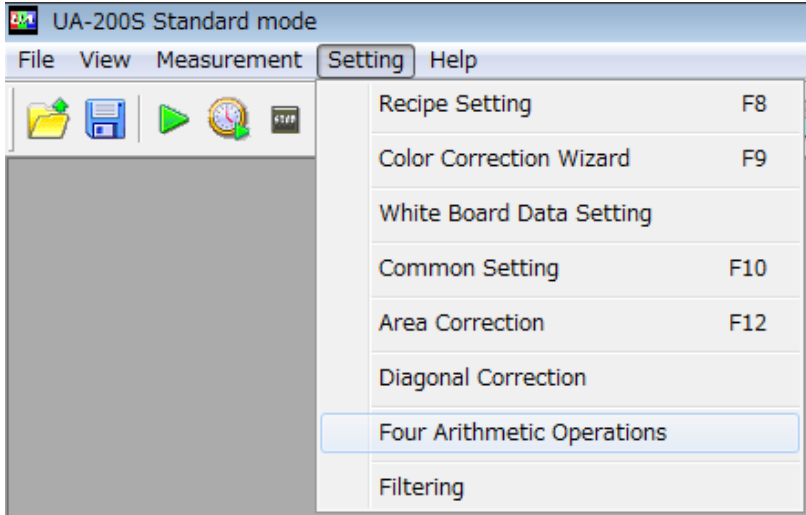
☞ "3.15.2 Setting Diagonal Correction"

3.16 Four Arithmetic Operations

3.16.1 Outline

Performs four arithmetic operations between the measurement images.

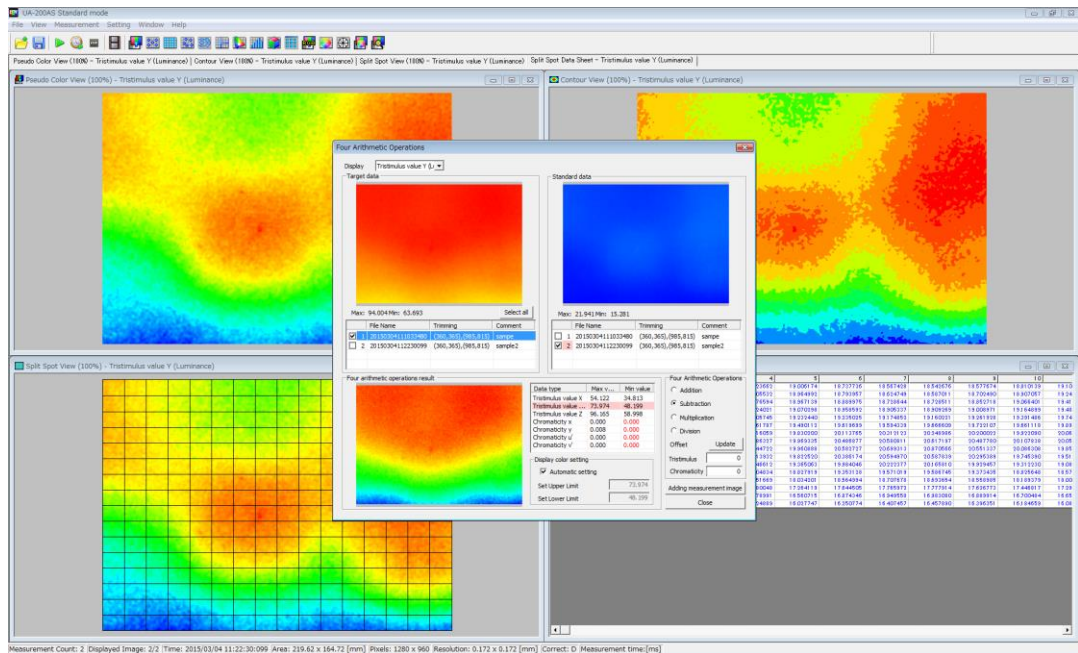
Select [Setting] - [Four Arithmetic Operations] under the condition that the measurement image is displayed.



3.16.2 Performing Four Arithmetic Operations

To perform four arithmetic operations between the measurement images, go through the following steps.

- 1 Select [Setting] - [Four Arithmetic Operations] under the condition that the following images are loaded.
 - The measurement image for which four arithmetic operations will be performed.
 - The measurement image which should be the standard.

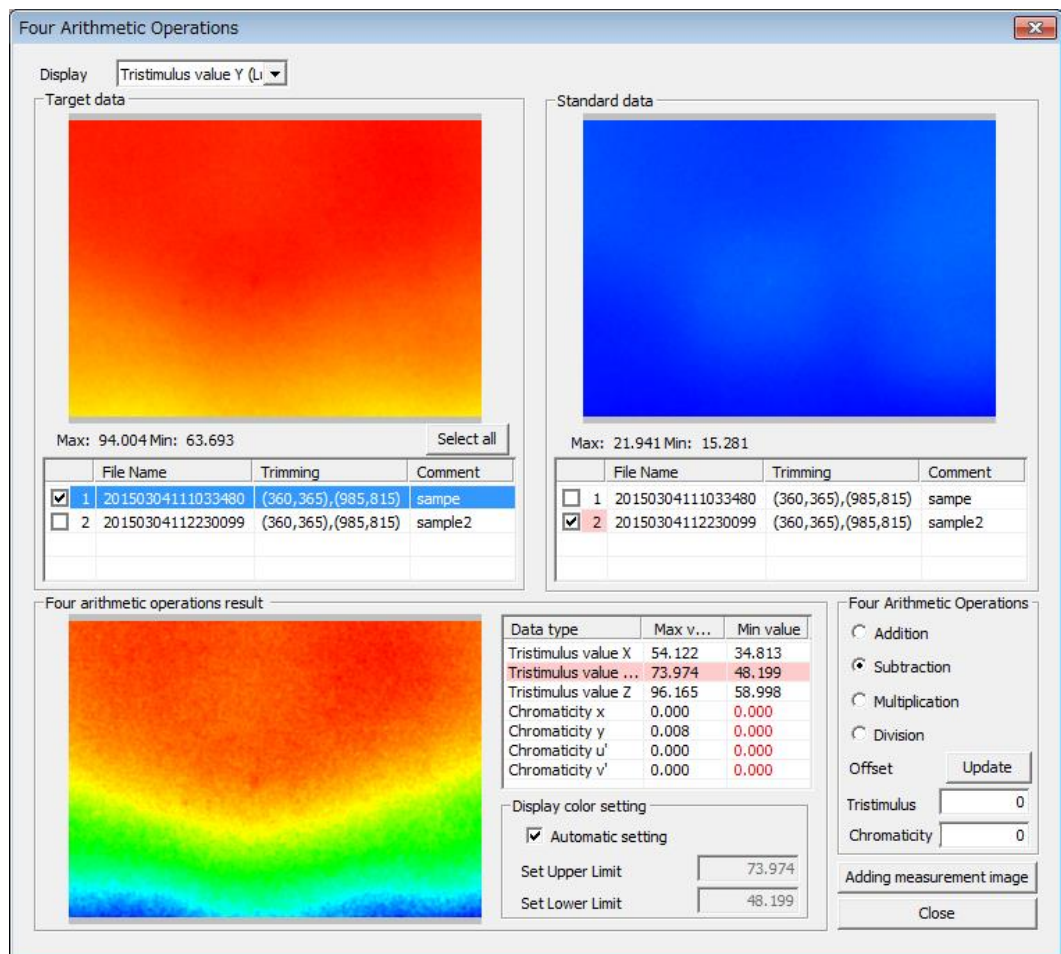


- 2 Specify the standard measurement image from the measurement image list of the standard data at the right side on the screen. The specified measurement image is displayed in pseudo color.

Memo

It is possible to change the displayed values by using the [Display] list box. Pseudo color setting is displayed by using the maximum and minimum values of the displayed target measurement image and the standard measurement image.

- 3 Specify a measurement image for which four arithmetic operations will be performed from the target measurement image list at the left side on the screen. You can select two or more images. When two or more images are selected, the image specified last is displayed in pseudo color.



Memo

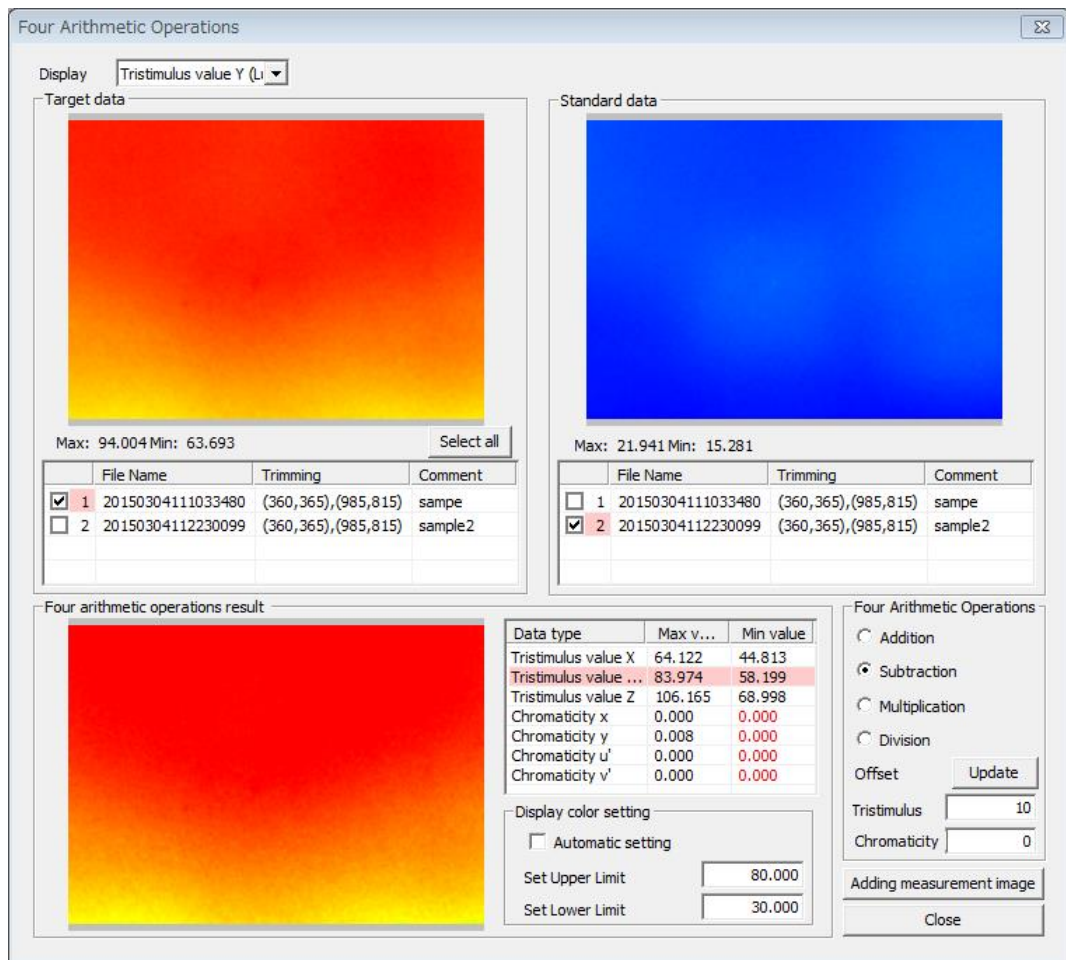
- It is possible to specify the measurement image whose trimming area and image size are the same as the standard measurement image.
- By using the [Select all] button, it is possible to select all of the measurement images to which four arithmetic operations can be applied from the measurement image list.

- 4 Enter the offset value on [Four Arithmetic Operations] and click the [Four Arithmetic Operations] radio buttons. (+: Addition, -: Subtraction, x: Multiplication, /: Division)

Memo

- The offset value is the value to be added after four arithmetic operations. It is possible to specify to tristimulus values and chromaticity.
- When a negative value is obtained after arithmetic operations, it is regarded as "0".
- The invalid values and the mask-set values are regarded as the mask-set values.

- 5 The results of four arithmetic operations are displayed in pseudo color at the bottom on the screen.



Upper/lower limit values

When the check boxes are ON:

Pseudo color setting of the arithmetic operations results are displayed by using the maximum and minimum values after the arithmetic operations.

When the check boxes are OFF:

Pseudo color setting of the arithmetic operations results are displayed by using the entered maximum and minimum values.

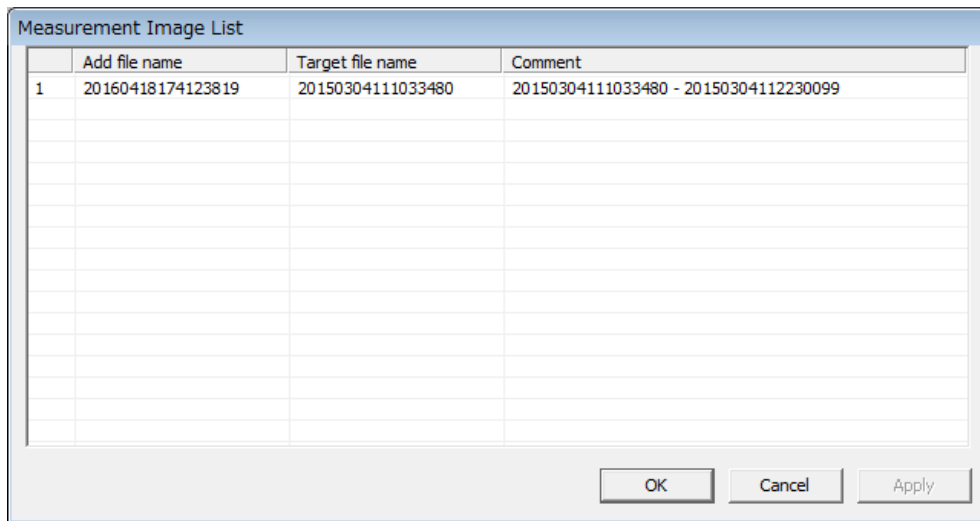
Memo

When [Max. value] and [Min. value] are displayed in red, there is a value that is beyond the maximum value or is below the minimum value. If the result of arithmetic operations is beyond the maximum value, the maximum value is set for the item. If the result of arithmetic operations is below the minimum value, the minimum value is set for the item.

Tristimulus value	Max.: 99999999	Min.: 0
Chromaticity	Max.: 1	Min.: 0

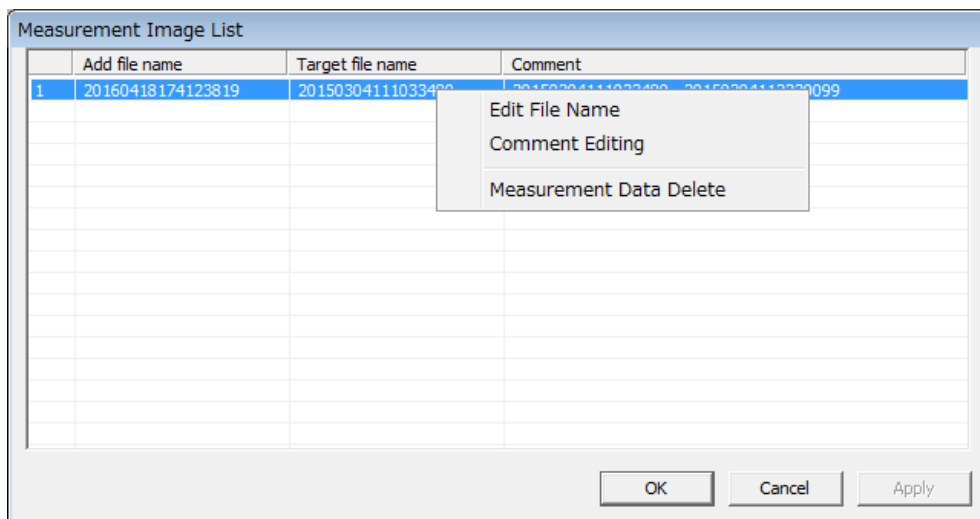
- 6 It is possible to save the results of four arithmetic operations as the measurement image.

Click the [Adding measurement image] button, and [Measurement Image List] is displayed.



	Add file name	Target file name	Comment
1	20160418174123819	20150304111033480	20150304111033480 - 20150304112230099

Select any of results of four arithmetic operations and right-click [Edit File Name] or [Comment Editing] to change the contents.

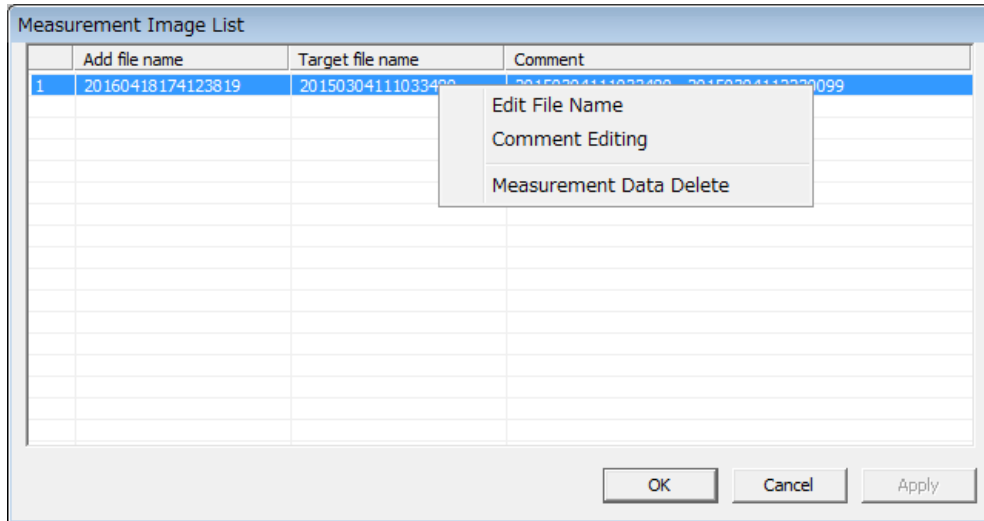


	Add file name	Target file name	Comment
1	20160418174123819	20150304111033480	20150304111033480 - 20150304112230099

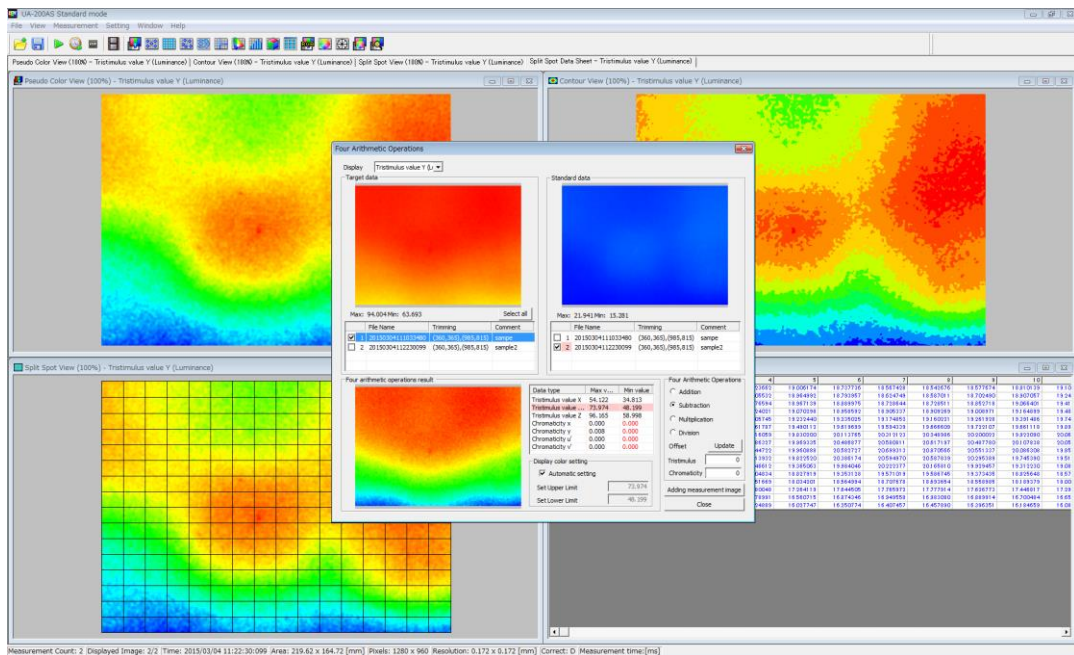
 Memo

It is also possible to edit the contents by directly clicking the [Comment] column.

- If there is a result of four arithmetic operations that should not be added as a measurement image, it is possible to delete it on [Measurement Image List]. Select the result to be deleted and select [Measurement Data Delete] by right-clicking.



- Click the [OK] button on [Measurement Image List]. The contents on the displayed list are added as a measurement image. If you do not want to add them, click the [Cancel] button. The system returns to the [Four Arithmetic Operations] dialog box.



Memo

The [Apply] button is used to save the file name and the contents of comment temporarily.

The file name and the contents of comment are not added to the measurement image list by using the [Apply] button. Save them according to the need.

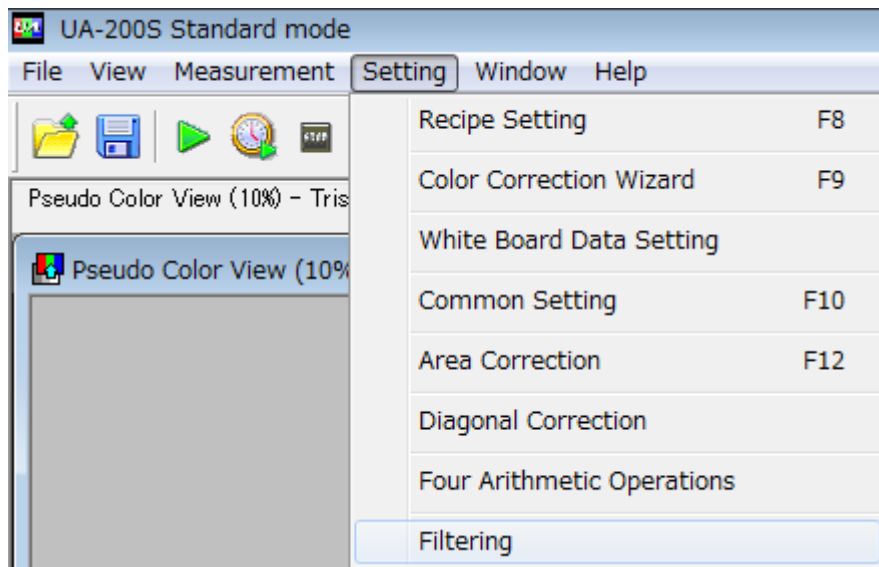
- Click the [Close] button. The [Four Arithmetic Operations] dialog box is closed.

3.17 Filtering

3.17.1 Outline

Filtering is performed for the measurement image.

Under the condition that the measurement image is displayed, select [Setting] – [Filtering].



Memo

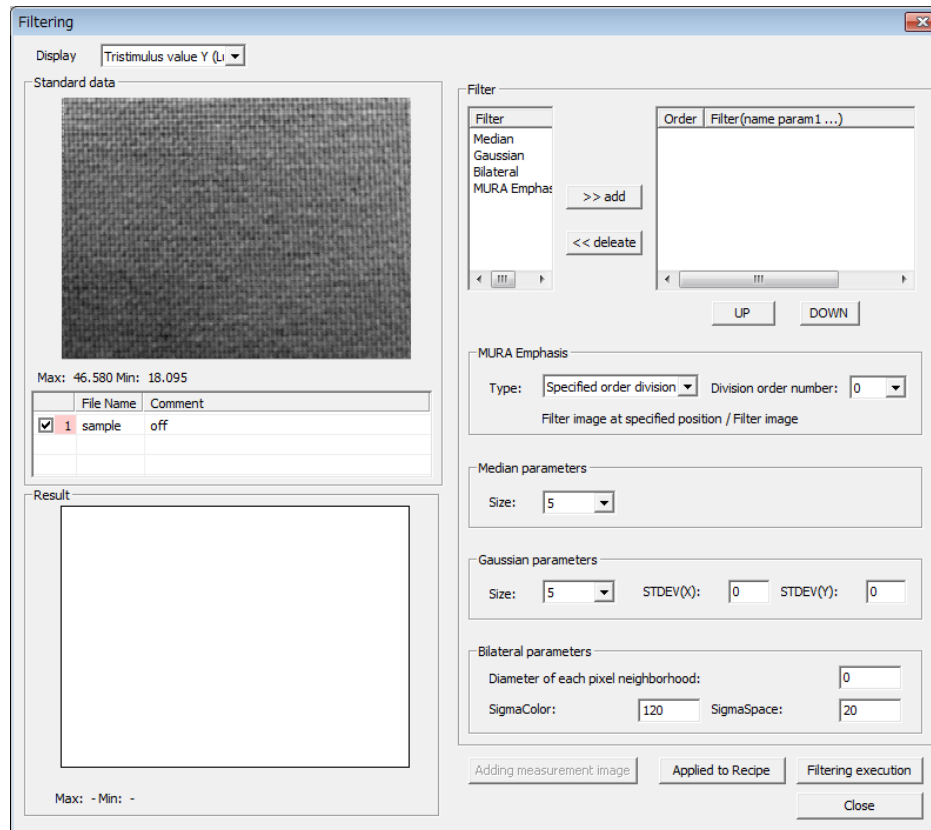
When the image is displayed with gray scale, the visibility of "MURA" (unevenness) is improved from time to time.

3.17.2 Setting “MURA Emphasis” Parameters

This function is used to set the parameters for “MURA Emphasis” (unevenness emphasis).

To set the parameters for “MURA Emphasis”, go through the following steps.

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 From the [Type] pull-down menu of [MURA Emphasis], select the “MURA Emphasis” formula to be applied.

- Max value division (A/\max):

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the maximum value of the image, which is the filtering result up to the order number specified by [Division order number].

- Avg value division (A/avg):

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the average value of the image, which is the filtering result up to the order number specified by [Division order number].

- Specified order division (A/B)

Divides the image, which is the filtering result before “MURA Emphasis” processing, by the image, which is the filtering result up to the order number specified by [Division order number].

- Max value division (max/A):

Divides the maximum value of the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

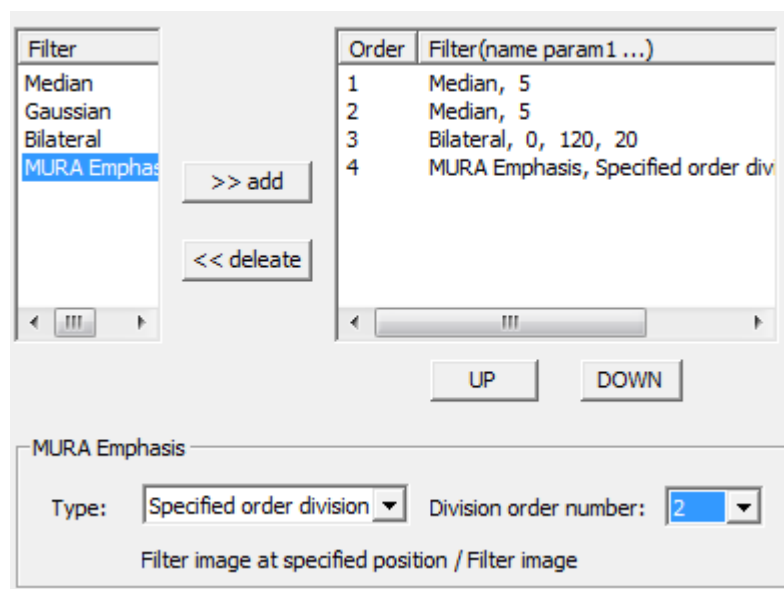
- Avg value division (avg/A):

Divides the average value of the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

- Specified order division (B/A):

Divides the image, which is the filtering result up to the order number specified by [Division order number], by the image, which is the filtering result before “MURA Emphasis” processing.

[Example] In the case of “Specified order division (B/A)



When the above is set, the formula is as follows:

2. Median image/3. Bilateral image

- 3 From the [Division order number] pull-down menu of [MURA Emphasis], select the division order number for the denominator and numerator which will be applied to “MURA Emphasis” calculation.

Memo

- When any item is not set in the [Order/Filter] list, only “0” can be selected for [Division order number].
- When “0” is selected for [Division order number], [Standard data] is applied.

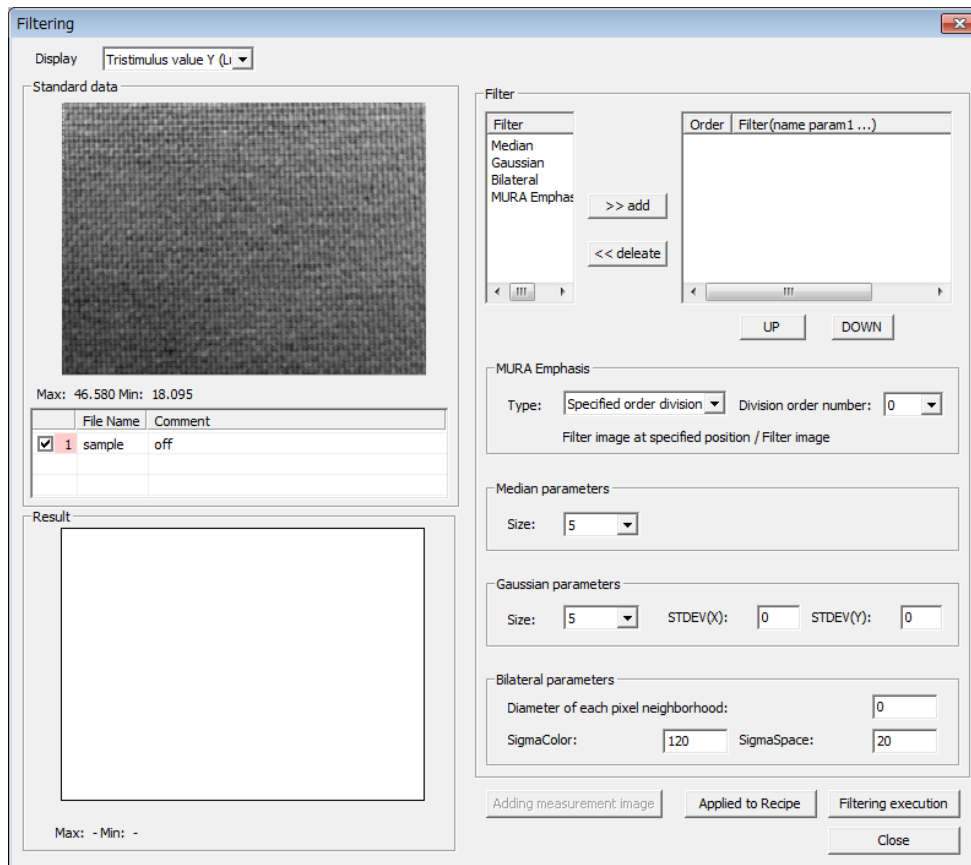
3.17.3 Setting Median Filter Parameters

This function is used to set the median filter parameters.

To set the median filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Median filter”

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 From the [Size] pull-down menu of [Median parameters], select the filter size to be applied.

☞ Memo

As [Size] is larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.

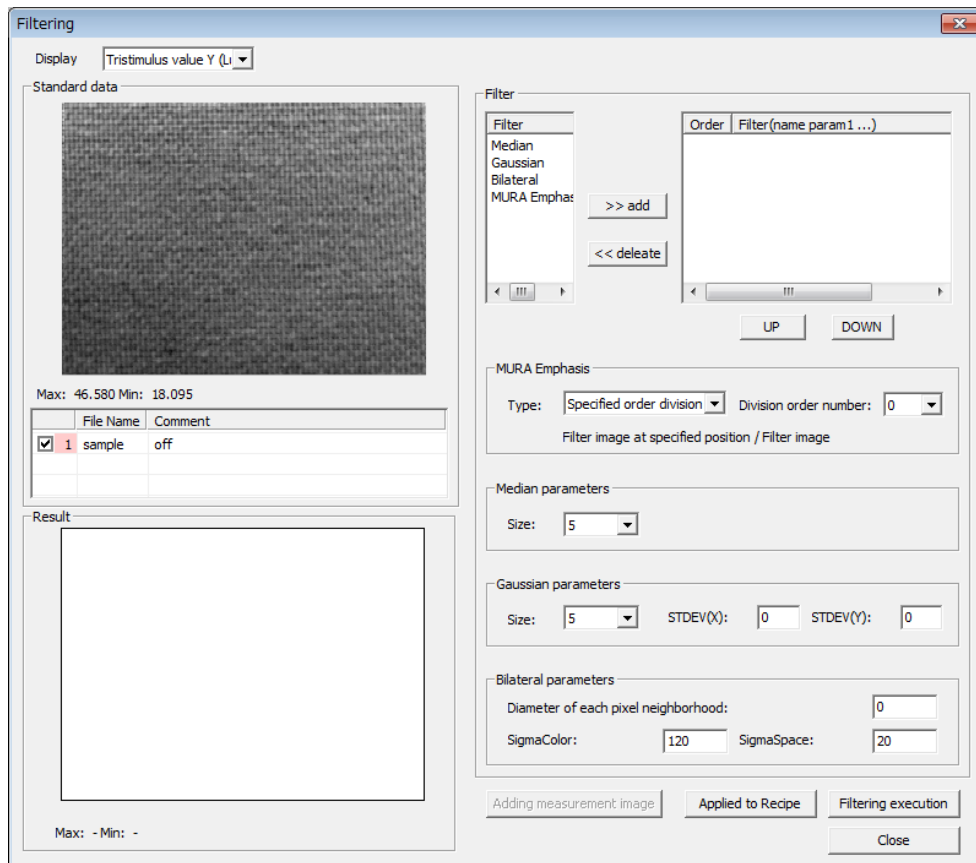
3.17.4 Setting Gaussian Filter Parameters

This function is used to set the Gaussian filter parameters.

To set the Gaussian filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Gaussian filter”

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 From the [Size] pull-down menu of [Gaussian parameters], select the filter size to be applied.
- 3 Set the values for [STDEV (X)] and [STDEV (Y)] of [Gaussian parameters]. The setting range is 0 to 999.99.

Memo

As [Size], [STDEV (X)] and [STDEV (Y)] are larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.

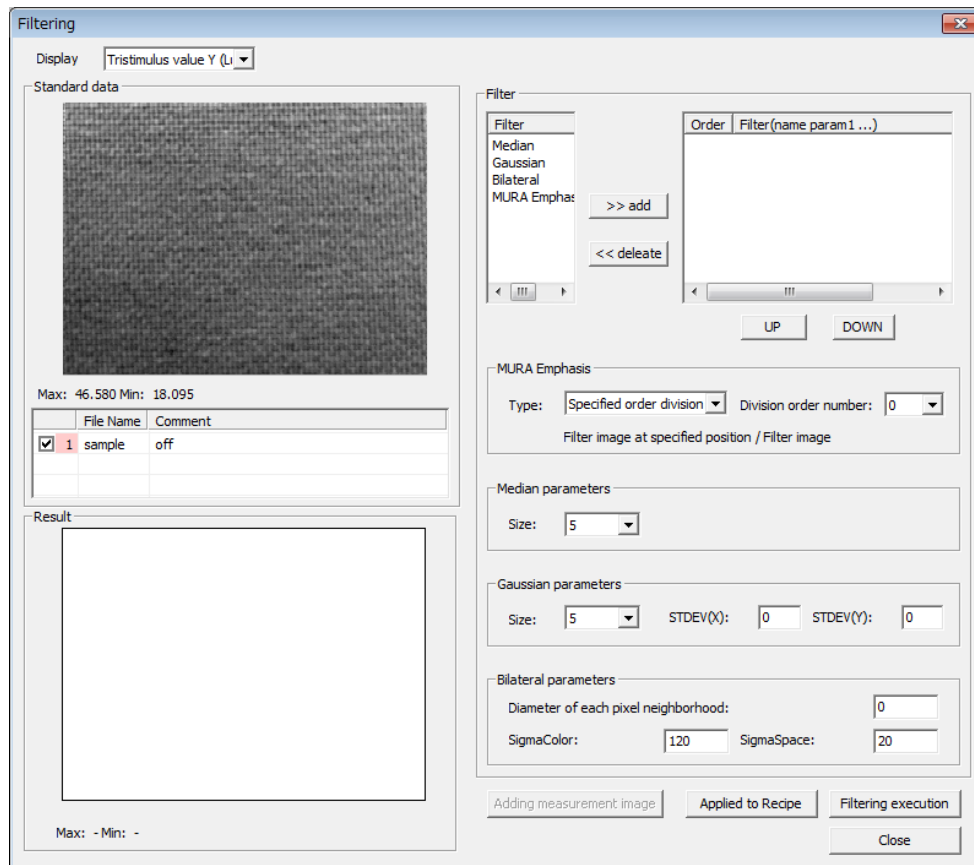
3.17.5 Setting Bilateral Filter Parameters

This function is used to set the bilateral filter parameters.

To set the bilateral filter parameters, go through the following steps.

☞ “11. Appendix” – “Terminology” – “Bilateral filter”

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 Set the values for [Diameter of each pixel neighborhood], [SigmaColor] and [SigmaSpace] of [Bilateral parameters].

The setting range is 0 to 999 for [Diameter of each pixel neighborhood] and 0 to 999.99 for [SigmaColor] and [SigmaSpace].

☞ Memo

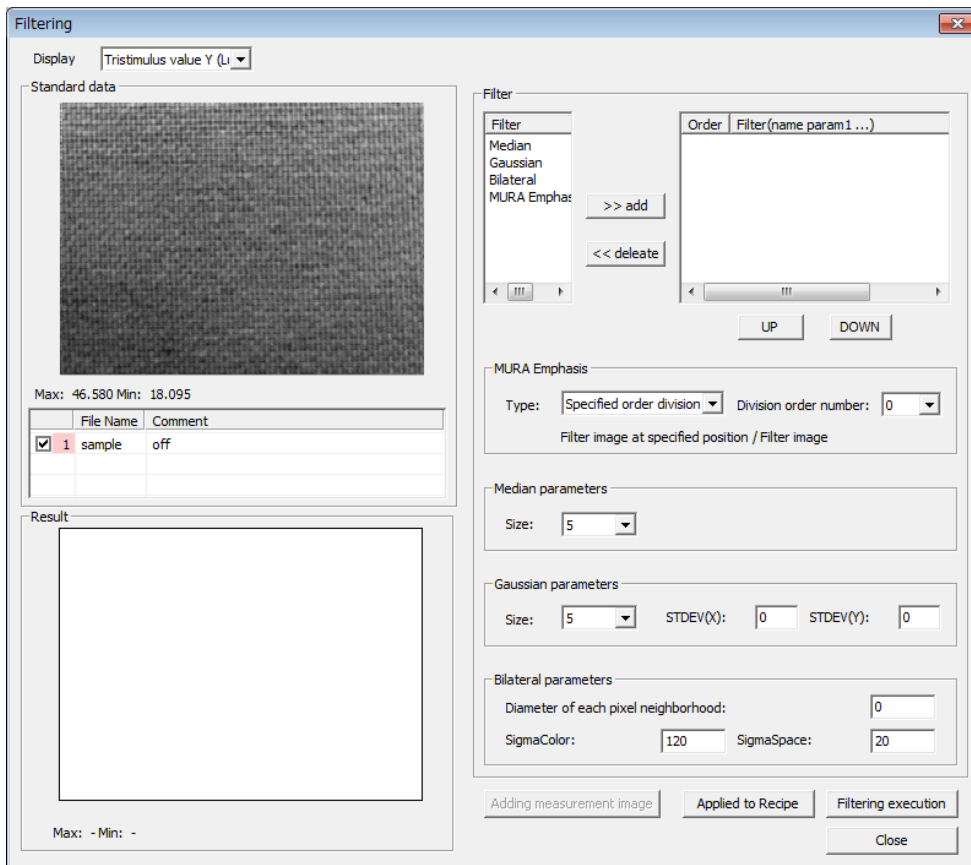
- As [Diameter of each pixel neighborhood], [SigmaColor] and [SigmaSpace] are larger, noise is reduced and the smoother filter correction image is obtained. However, the whole image is blurred.
- When “0” is set for [Diameter of each pixel neighborhood], the diameter of each pixel neighborhood is automatically calculated according to the set values of [SigmaColor] and [SigmaSpace] and is applied.

3.17.6 Setting Filtering Order

This function is used to set the filtering order.

To set the filtering order, go through the following steps.

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 Select items from the [Filter] list.
- 3 Press the [>> add] button, and the selected items are set in the [Order/Filter] list.
To change the filtering order, select the desired item from the [Order/Filter] list and change the order with the [UP]/[DOWN] buttons.
To delete the set item, select the desired item from the [Order/Filter] list. Press the [<< delete] button, and the selected item is deleted from the [Order/Filter] list.

Memo

- The set value when pressing the [>> add] button is applied to each filter parameter.
- It is possible to set the same item repeatedly.
- In the case of the [Standard data] to which “Filter Correction” is applied, the applied filtering conditions are displayed in the [Order/Filter] list.
- When “Filter Correction” is not applied to [Standard data] and the filtering order is set by selecting [Recipe Setting] – [Measurement Condition (4/4)], the filtering conditions set by “Recipe” are displayed in the [Order/Filter] list.

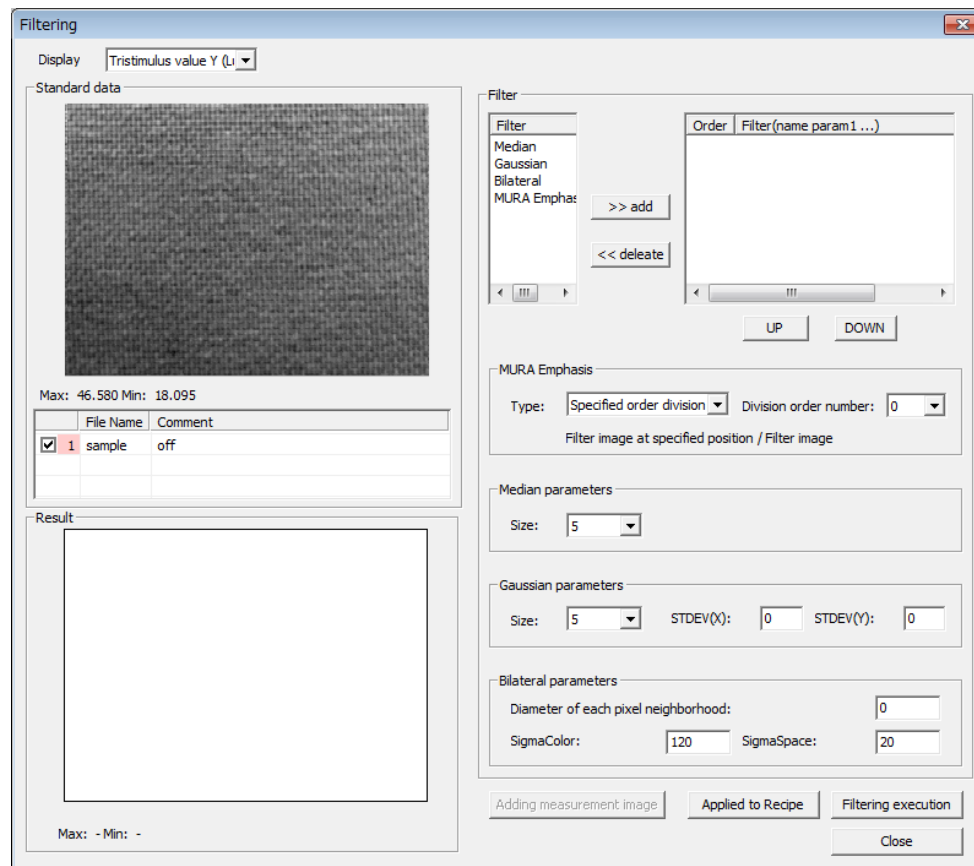
3.17.7 Executing Filter Correction

This function is used to execute “Filter Correction” and check the filter correction image. To execute “Filter Correction”, go through the following steps.

Memo

The “MURA Emphasis” (unevenness emphasis) image can be checked by adjusting the processing order and filter parameters.

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.

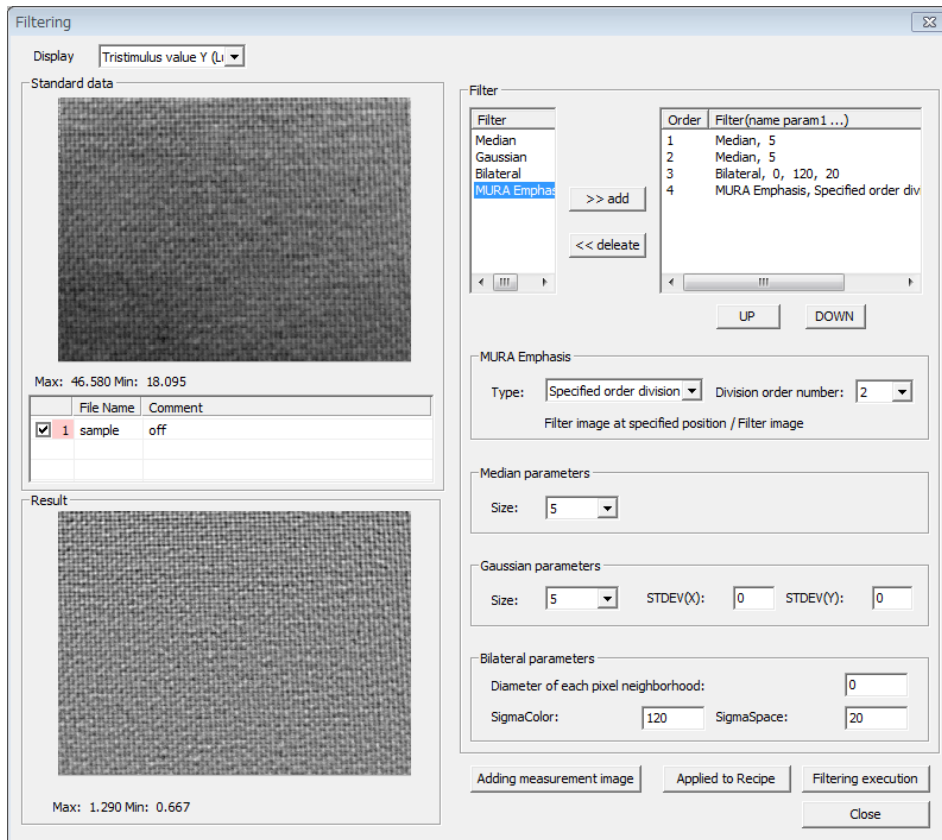


- 2 In the measurement image list of [Standard data], place a check mark on the check box of the measurement image to which “Filter Correction” will be applied.

Memo

- On [Standard image], the measurement image when “Filter Correction” is not applied is displayed.
- You can select two or more measurement images. “Filter Correction” is applied to only the measurement image being displayed on [Standard data].

- 3 Press the [Filtering execution] button. “Filter Correction” is executed under the conditions set in the [Order/Filter] list and the filter correction image is displayed on [Result].



 Memo

- The filter correction image file is not created. To create the filter correction image file, execute “3.17.8 Adding Filter Correction Image to Measurement Image”.
- The processing time is changed according to the set conditions. Sometimes it takes several minutes to perform the one-item processing.

3.17.8 Adding Filter Correction Image to Measurement Image

This function is used to execute “Filter Correction” and add the filter correction image to the measurement image.

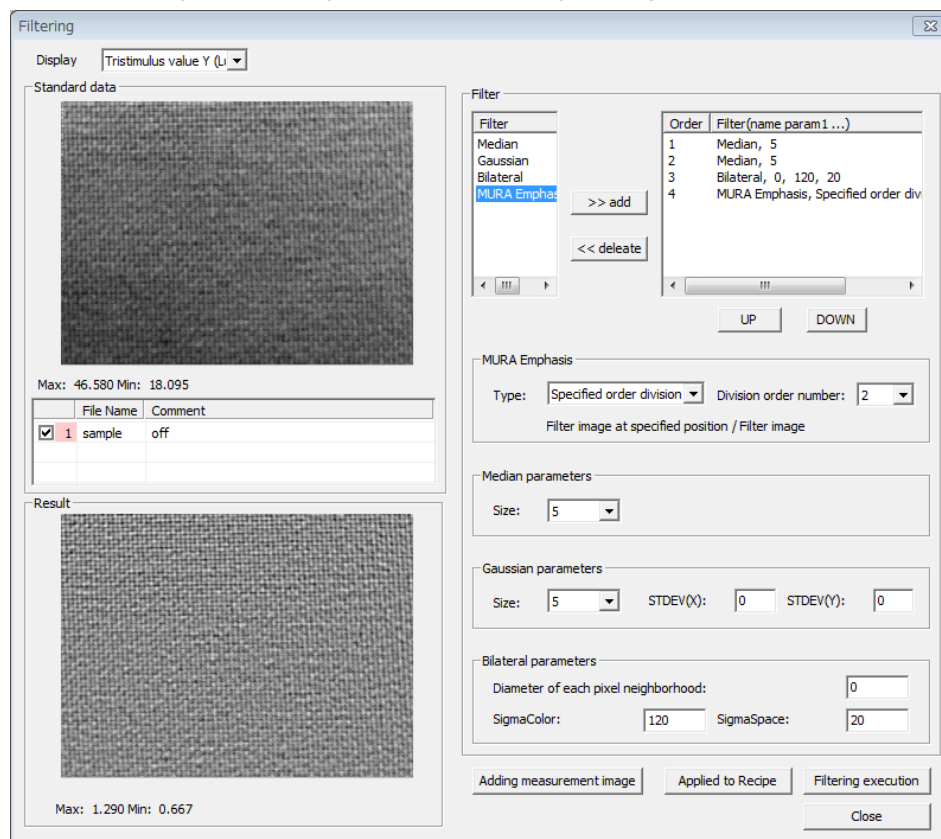
To add the filter correction image to the measurement image, go through the following steps.

Memo

- The “MURA Emphasis” (unevenness emphasis) image can be created by adjusting the processing order and filter parameters.
- When [Filtering execution] has already been performed, the [Adding measurement image] button is valid.

☞ “3.17.7 Executing Filter Correction”

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



- 2 In the measurement image list of [Standard data], place a check mark on the check box of the measurement image to which “Filter Correction” will be applied.

 Memo

- The measurement image when “Filter Correction” is not applied is displayed on [Standard data].
- You can select two or more measurement images and add the selected filter correction images at a time.
- When you select two or more measurement images, the processing time is prolonged according to the quantity of the selected measurement images.

- 3** Press the [Adding measurement image] button, and “Filter Correction” is executed under the conditions set in the [Order/Filter] list. On [Result], the filter correction image of the measurement image, which is being displayed on [Standard data], is displayed and this filter correction image is added to the measurement image.

	File Name	Comment
<input checked="" type="checkbox"/>	1 sample	off
<input type="checkbox"/>	2 2018090411054444	sample


Initial setting of filter correction image

File Name : Year/Month/Day/Hour/Minute/Second/Millisecond

Comment : The file name of the measurement image which is the target of correction

 Memo

- The processing time is changed according to the set conditions. Sometimes it takes several minutes to perform the one-item processing.
- For the added filter correction image, it is possible to use the same functions for normal measurement images by application program.
- To save the filter correction image, close the [Filtering] dialog and save it from the file menu.

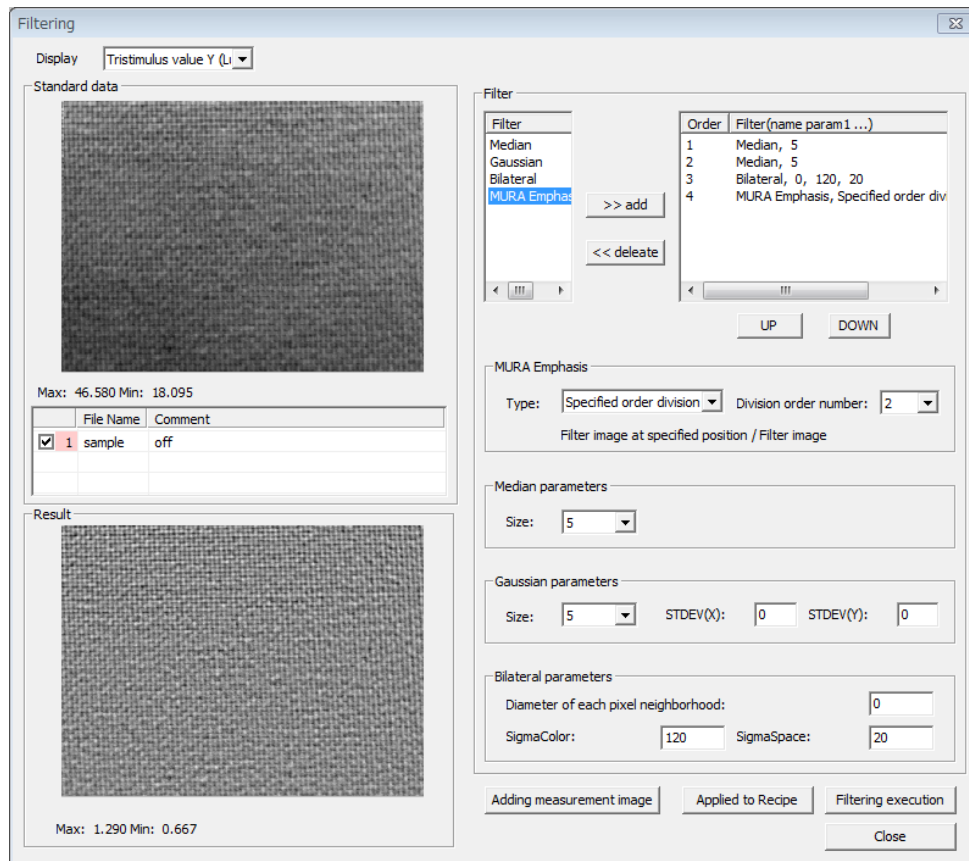
 “6.3 Save Measurement Image”

3.17.9 Reflecting Filter Correction Conditions in Recipe

This function is used to reflect the filter correction conditions in Recipe.

To reflect the filter correction conditions in Recipe, go through the following steps.

- 1 Select [Setting] – [Filtering], and the [Filtering] dialog will open.



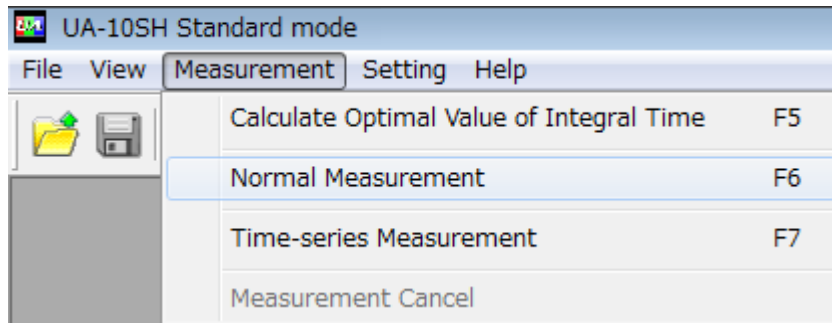
- 2 After setting the filter correction conditions, press the [Applied to Recipe] button. The filter correction conditions will be reflected in [Setting] – [Recipe Setting] – [Measurement Condition (4/4)].

4. Measurement

4.1 Normal Measurement

This is a basic measurement in the software. The device conducts the measurement according to the settings in the [Recipe Setting]. After the measurement, the measurement image is displayed, or based on the [Initial Layout] or currently displayed layout. To perform the Normal Measurement, go through the following steps.

- 1 From the Menu bar, click [Measurement] and select the [Normal Measurement]. Or, press [F6] key.



- 2 [Check Measurement Conditions] will appear. To check the content and start the measurement, click the [Start] button. To stop the measurement, click [Cancel].

☞ “4.4 Cancel Measurement”

■ UA-10 series

Setting Items	Setting Content
Field Angle	Standard
Measurement Distance[mm]	1000
Area [mm]	600.01 x 450.00
Pixels	1280 x 960
Resolution [mm]	0.469 x 0.469
Measurement Method	Continuous
Measurement Count	1
Average Count	Auto
Integrallter Setting	Manual
Integral Time(ms)	10.0
Optimization Area	Inactive
Saturation-detected Notification	Inactive
Auto Save Measurement Image	Inactive
Color Correction	Inactive
Spot Correction	Inactive
Area Correction	Active
Diagonal Correction	Inactive

Start Cancel

■ UA-200 series

Setting Items	Setting Content
Field Angle	Standard
Measurement Distance[mm]	1000
Area [mm]	612.53 x 459.40
Pixels	1280 x 960
Resolution [mm]	0.479 x 0.479
Measurement Method	Continuous
Measurement Count	1
Average Count	1
Integral Time/ND Filter Setting	Manual
X	Active
Integral Time(ms)	100.0
ND Filter	1 times
Gain	5
Y	Active
Integral Time(ms)	120.0
ND Filter	1 times
Gain	5
Z	Active
Integral Time(ms)	350.0
ND Filter	1 times
Gain	5
Optimization Area	Inactive
Saturation-detected Notification	Inactive
Auto Save Measurement Image	Inactive
Color Correction	Active
Spot Correction	Inactive
Area Correction	Active
Diagonal Correction	Active

Start Cancel

 Memo

When the checkbox of the [Common Setting] – [Environment Setting] – [Dialog] is turned OFF, the measurement will start without displaying the [Check Measurement Conditions] dialog.

Display Measurement Condition Confirmation Dialog for Every Measurement

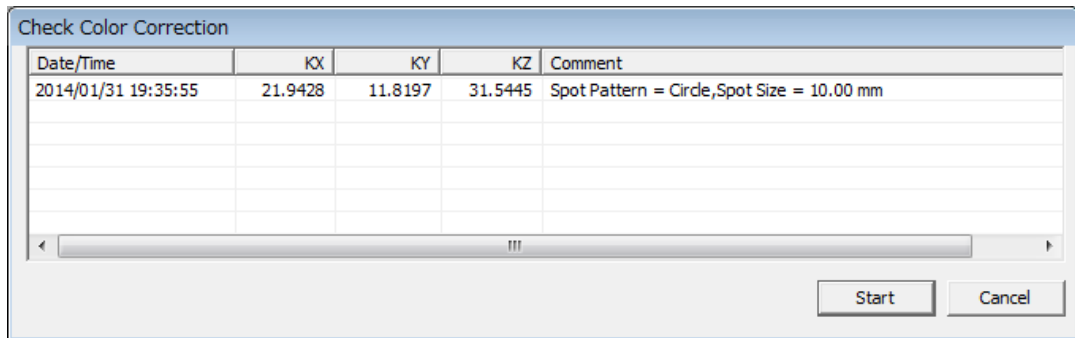
 “3.12.4 Environment Setting”

3 To start the measurement, click [Start].

When the color correction factor has been enabled, the color correction factor selected in the recipe is displayed after clicking [Start].

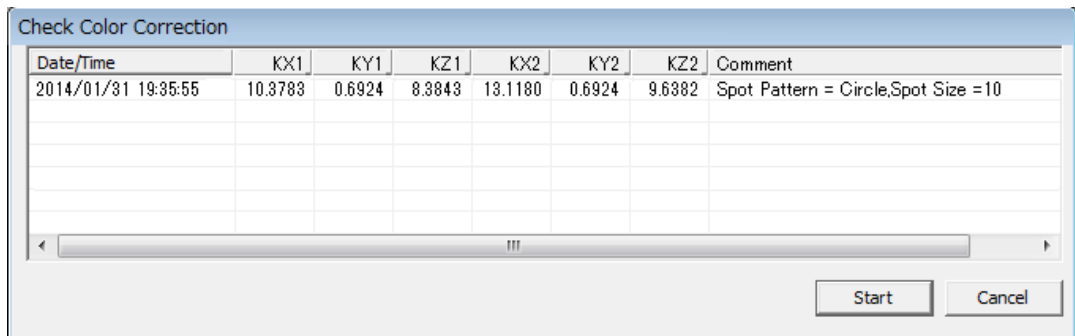
To cancel the measurement, click [Cancel].

■ UA-10 Single color



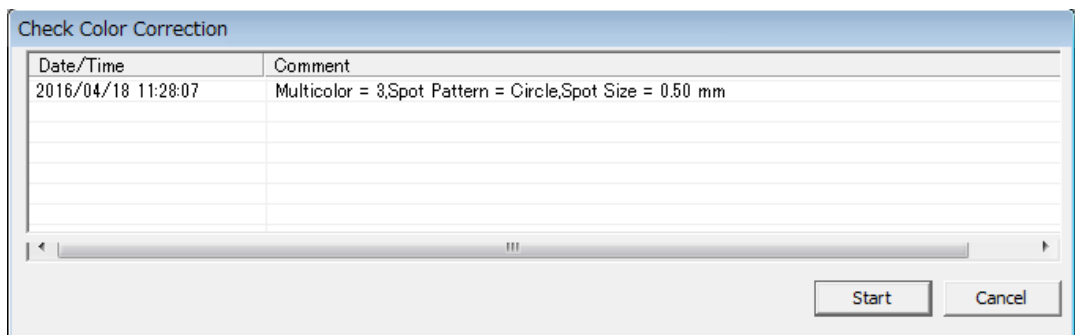
Date/Time	KX	KY	KZ	Comment
2014/01/31 19:35:55	21.9428	11.8197	31.5445	Spot Pattern = Circle, Spot Size = 10.00 mm

■ UA-200 Single color



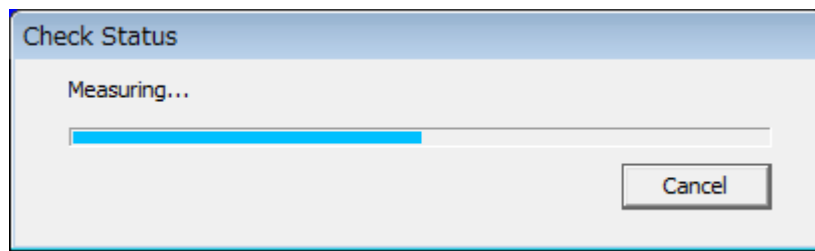
Date/Time	KX1	KY1	KZ1	KX2	KY2	KZ2	Comment
2014/01/31 19:35:55	10.3783	0.6924	8.8843	13.1180	0.6924	9.6382	Spot Pattern = Circle, Spot Size = 10

■ Multicolor



Date/Time	Comment
2016/04/18 11:28:07	Multicolor = 3, Spot Pattern = Circle, Spot Size = 0.50 mm

- 4 The Check Status dialog is displayed.
To cancel the measurement, click [Cancel].

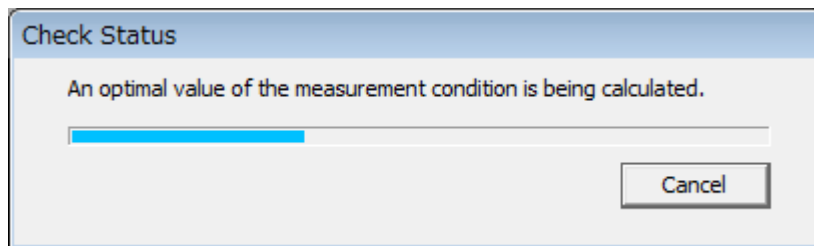


- Automatic calculation of measurement condition

Following dialogue appear during auto calculation of measuring conditions.

When the [AUTO] is selected in the [Integral time] or [Integral time/ ND filter / Gain] in the [Measurement Conditions (2/4)], the software calculate optimum measurement condition. When [Manual] is selected, the software conducts measurement under specified conditions of integral time, ND Filter, and Gain.

If [Auto] is selected in the Auto Calculation of the [Integral Time], the optimal values of integral time is determined in each measurements.

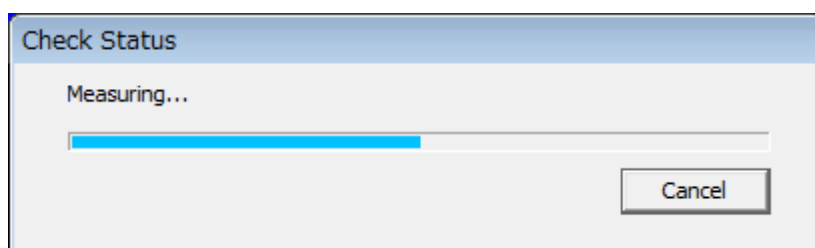


Memo

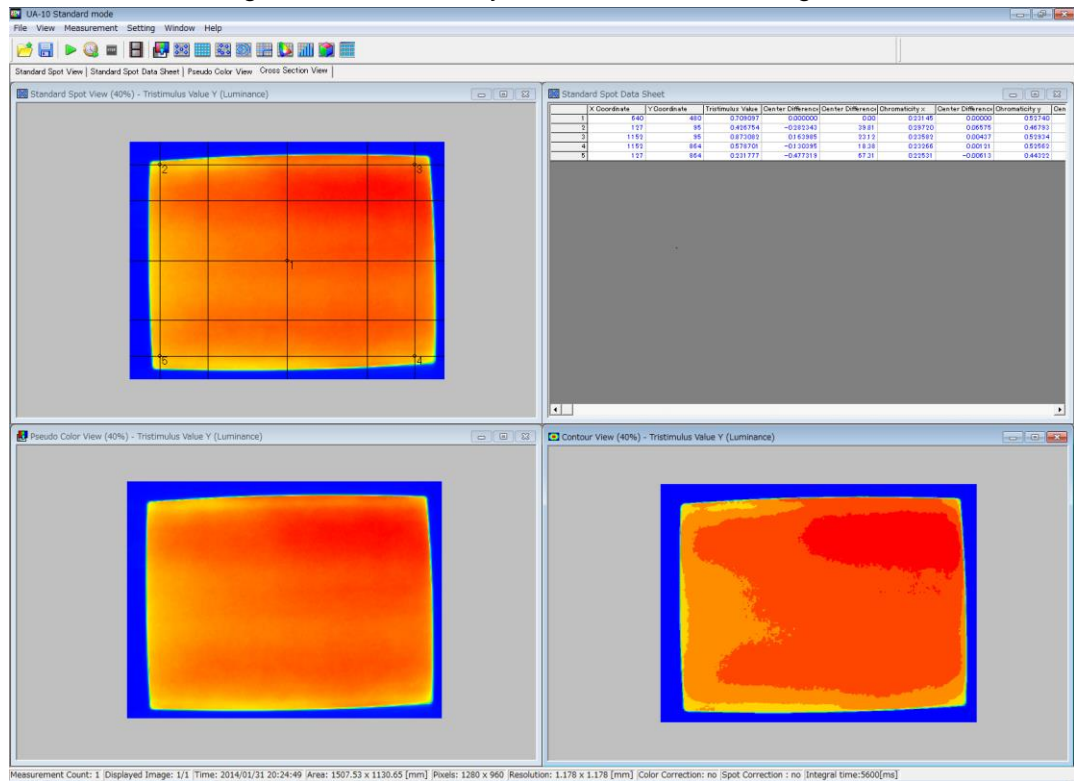
- When you continuously measure the same kind of targets, obtain optimum measurement condition by using the [Calculate optimal values of measurement condition] and set them to the [Manual] in the integral time setting in the recipe. The measurement time can be shortened.
- When you check the [Recipe setting]-[Measurement Conditions(1/4)]-[Conduct optimization at the first measurement only], You can omit measurements for optimum settings and shorten total measurement time in continuous measurements.
- ND filter and Gain are available in UA-200 series only.

- Measurement

The measurement start after auto calculating of the measurement condition. Measurement operation is performed in accordance with the recipe setting.



- 5 When the measurement is completed, the measurement image is displayed as specified in [Common Setting] – [Initial Layout Setting].
When continuous measurement or interval measurement is performed, the measurement image are overwritten by next measurement image.



Memo

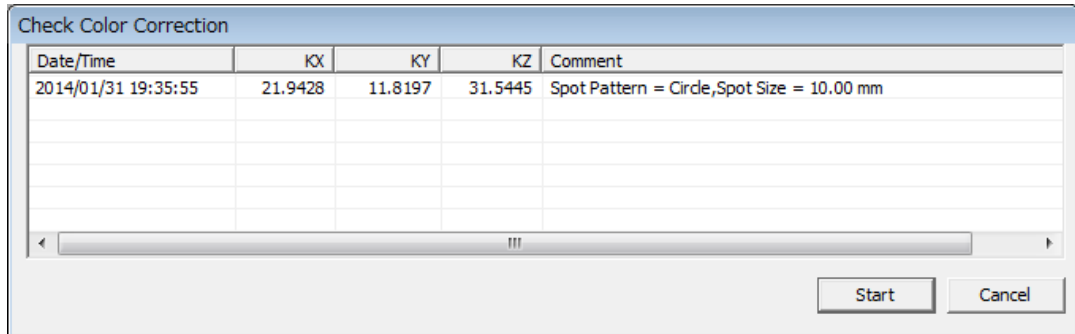
The above is a case where the layout is set as follows:
 Top-left: Standard Spot View Top-right: Standard Spot Data Sheet
 Bottom-left: Pseudo Color View Bottom-right: Contour View

- 3 When the color correction factor has been enabled, the [Check Color correction] dialog will be displayed after clicking [Start]. Click [Start] to display the following [Check Color Correction] dialog.

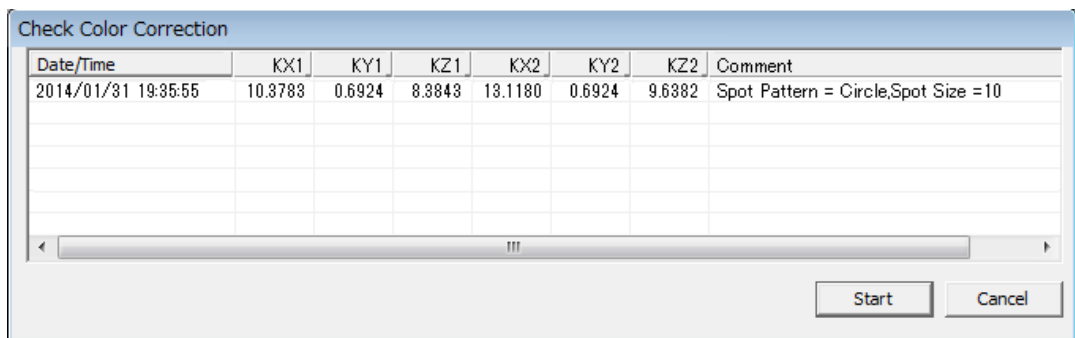
To start the measurement, click [Start].

To cancel the measurement, click [Cancel].

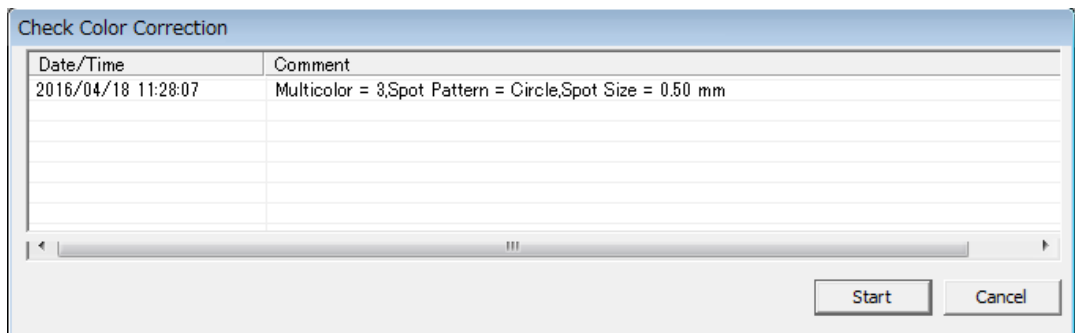
■ UA-10 Single color



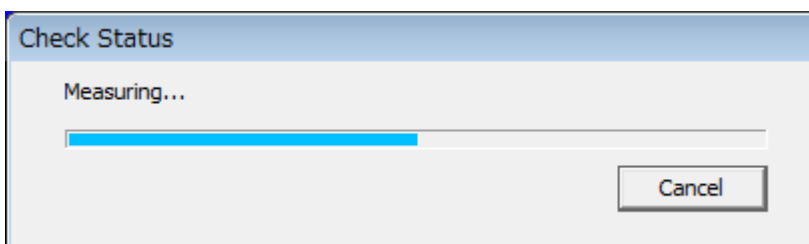
■ UA-200 Single color



■ Multicolor

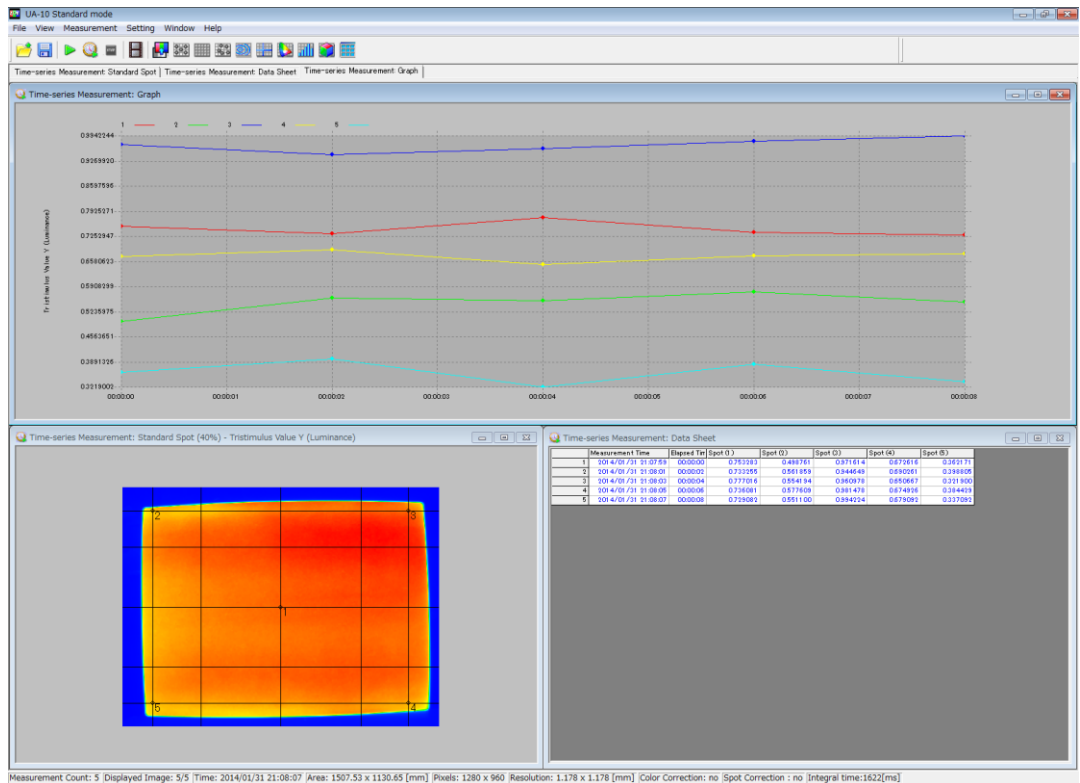


- 4 The Check Status dialog is displayed. To cancel the measurement, click [Cancel].



5 When the measurement is completed, measurement data are displayed in the fixed Time-series specific layout.

When continuous measurement is performed, the latest measurement data is displayed, and the Time-series measurement graph and data sheet are also updated at the same time.



Note

- The Time-series layout consist of [Time-series Measurement View], [Time-series Measurement Graph], and [Time-series Measurement Data Sheet]. The layout can be changed after measurement, but the default layout cannot be changed.
- In the following cases, a warning is displayed and the measurement cannot be started:
 The number of images after the measurement is less than 2.
 The number of measurement images after the measurement exceeds 100.

Memo

This screen is example of a case of [Split Spot] in the [Switch Time-series Displays] is set to [Split Spot].
 To switch the display, right-click the view and switch it to the [Switch Time-series Displays] on the Pop-up menu.

4.3 Calculate Optimal Values of Measurement Condition

Calculates automatically the optimal value of Integral Time and ND Filter, Gain for the measurement.

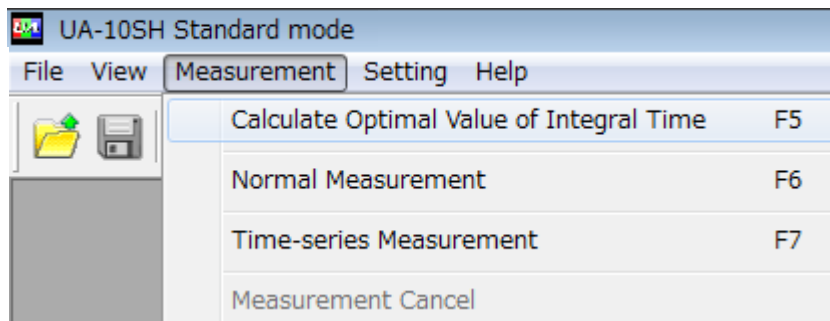
To acquire the stabilized measurement data, you need to set the optimal integral time and ND Filter, Gain depending on the luminance of the measurement target. The integral time mentioned here will affect the measurement accuracy and measurement time. Here, we will actually perform the automatic calculation of optimum measurement condition. When the measurement targets have relatively small luminance variation, this function enable you to shorten the measurement time.

To calculate the optimal values of measurement condition, go through the following steps.

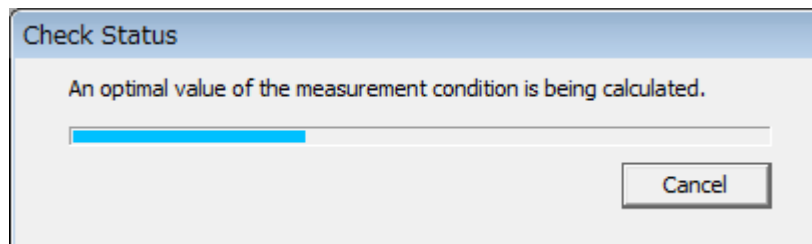
 Memo

ND filter and Gain are available for UA-200 series only.

- 1 From the Menu bar, click [Measurement] and select [Calculate optimal value of measurement condition]. Or, press the “F5” key.



- 2 The [Check Status] dialog will appear to calculate the optimal values of the measurement condition. To stop the operation, click [Cancel].

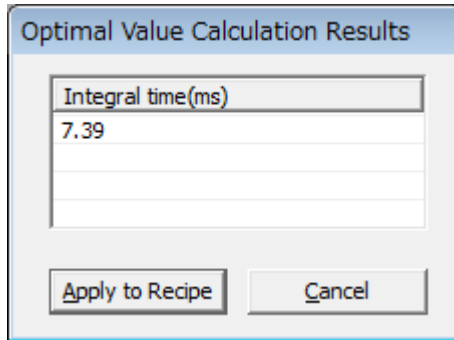


3 Once the calculation of optimal values is completed, the calculated results are displayed in the [Optimal Value Calculation Results] dialog.

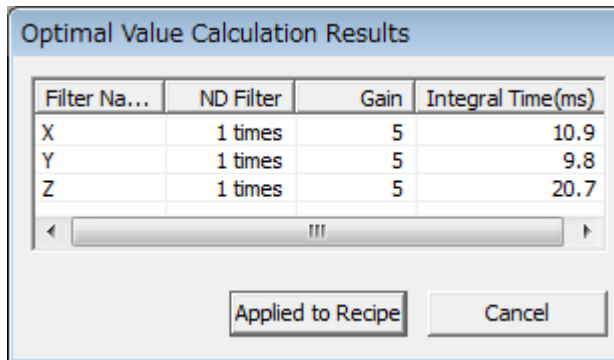
Click the [Apply to Recipe] to apply the calculated optimal values to the [Measurement Conditions (2/3)] - [Integral Time Setting] or [Integral Time/ND Filter/Gain].

Click the [Cancel] to discard the calculated optimal value and completes the optimal value calculation.

■ UA-10 series



■ UA-200 series

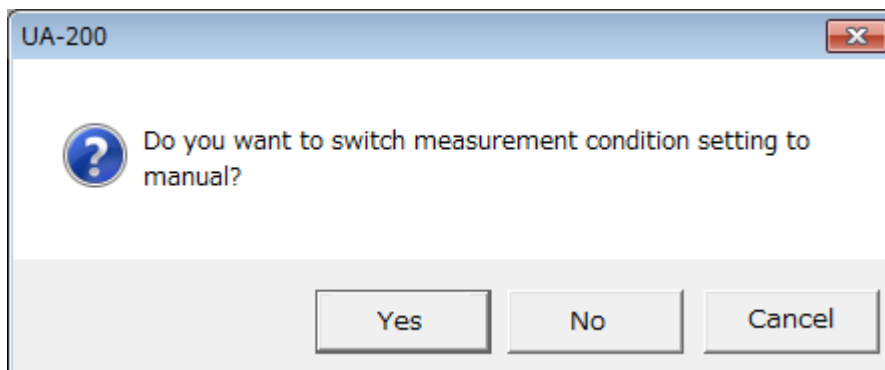


However, when the [AUTO] is selected in the [Integral Time Setting] in the Recipe, the following confirmation dialog will appear.

When you click [Yes], the [Integral Time Setting] is forcedly switched to [Manual] mode, and the calculated optimal values are applied to the [Integral Time Setting], and then the operation is completed.

When you click [No], applies the calculated optimal values to the [Integral Time Setting], and then the operation is completed.

Clicking [Cancel] brings you back to the [Optimal Value Calculation Results] dialog.

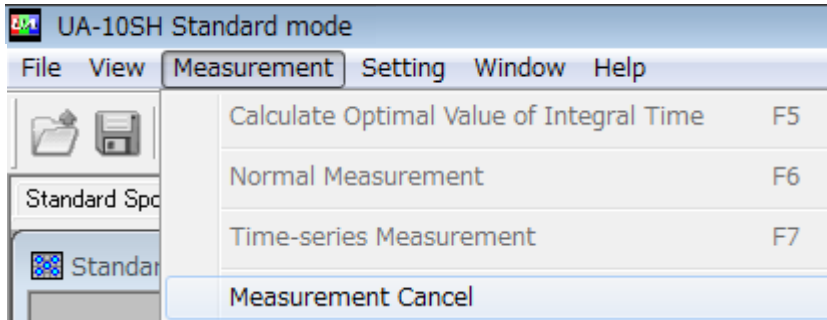


4.4 Cancel Measurement

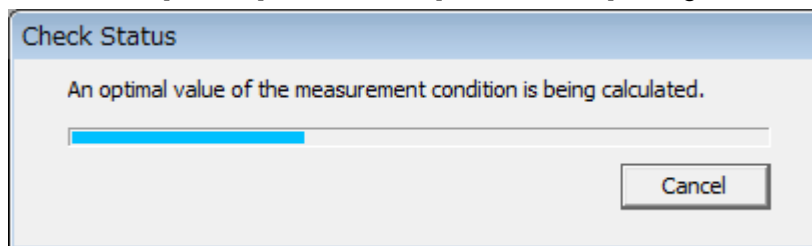
Interrupts forcibly the currently performed [Normal Measurement], [Time-series Measurement], or [Calculate optimal value of measurement condition].

If the measurement is canceled, the currently measured data is discarded. To cancel the measurement, go through the following steps.

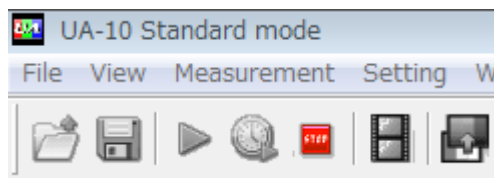
- 1 From the Menu bar, click [Measurement] – [Cancel] sequentially.



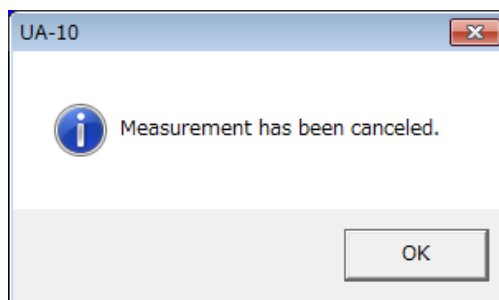
Or, click the [Cancel] button in the [Check Status] dialog.



Or, click the STOP button on the Menu bar.



- 2 The following dialog is displayed to stop the measurement. Click [OK] to finish the measurement.



Note

If [Cancel] is selected during the measurement, the operation is stopped after the integral time has elapsed. It may take longer to stop the operation after selecting [Cancel], depending on the integral time.

4.5 About Practical Measurements

Measurement examples are shown below. Please use these examples for your reference.

4.5.1 Performing More Stable Measurement

The device scans 4 or 5 images in UA-10 series, 2 or 3 images in UA-200, 3-15 images in UA-200A in each measurement as default, and gain an averaged measurement value. When you measure the target with low-luminance or conduct measurement with short integral time, the measurement value may not be stabilized even if the value is within the specification of the accuracy. Increasing the averaging count may makes it possible to stabilize the measurement value.

 "3.3.4 Averaging Count"

 "3.4.4 Averaging Count"



Increasing the averaging count requires you to take more time for the measurement.

4.5.2 Shorten Measurement Time

To acquire stabilized measurement data, you need to set the optimal integral time depending on the luminance of the measurement target. The integral time will affect the measurement accuracy and measurement time.

If [Auto] is selected in [Measurement Condition (2/4)] - [Integral Time], the optimum integral time is calculated automatically before each measurements.

In the continuous measurement or interval measurement, the optimum integral time are calculated in each measurements. When you measure many measurement target having relatively small luminance variation, selecting [Measurement] - [Calculate optimal value of measurement condition] and then [Apply Calculated Result to Recipe] will cut the time of the integral time calculation in each measurements, resulting in a shorter measurement time.

 "3.5.1 Integral Time"

 "3.6.2 Integral Time/ND Filter/Gain"

 "3.7.2 Integral Time/ND Filter/Gain"

4.5.3 Perform High-Precision Measurement Correlated with Standard Unit

The device can correct its difference in measurement results between the Standard unit and the device. Using the Color Correction Wizard, measure the same target by using the device and the Standard Unit, and then calculate the color correction factor so that the device provide the same measurement result with that of Standard Unit.

 "3.11 Use Color Correction Wizard"

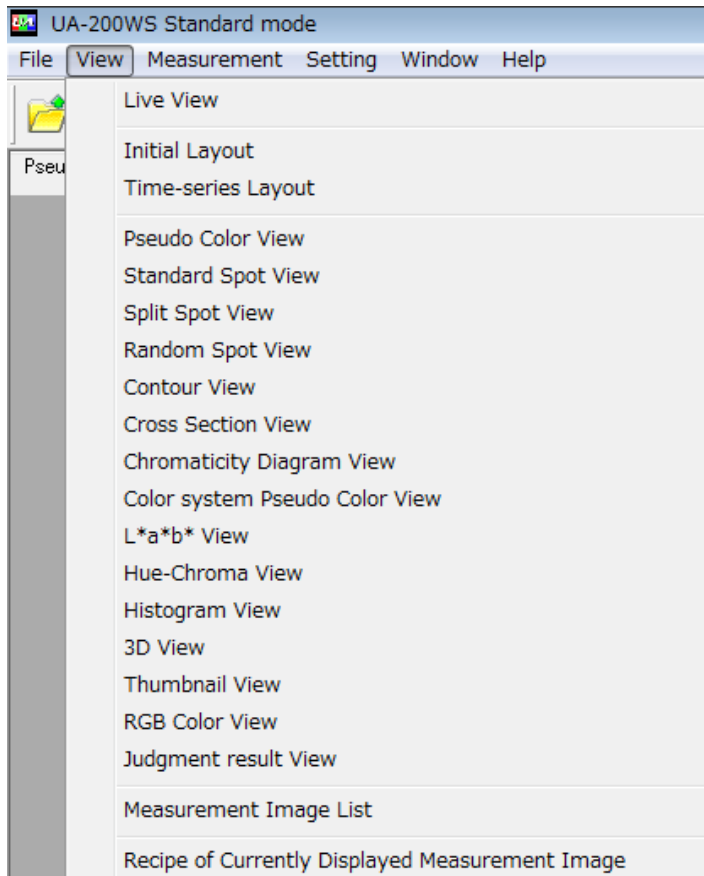
5. Various Operations

5.1 Live View Operation

5.1.1 Open Live View

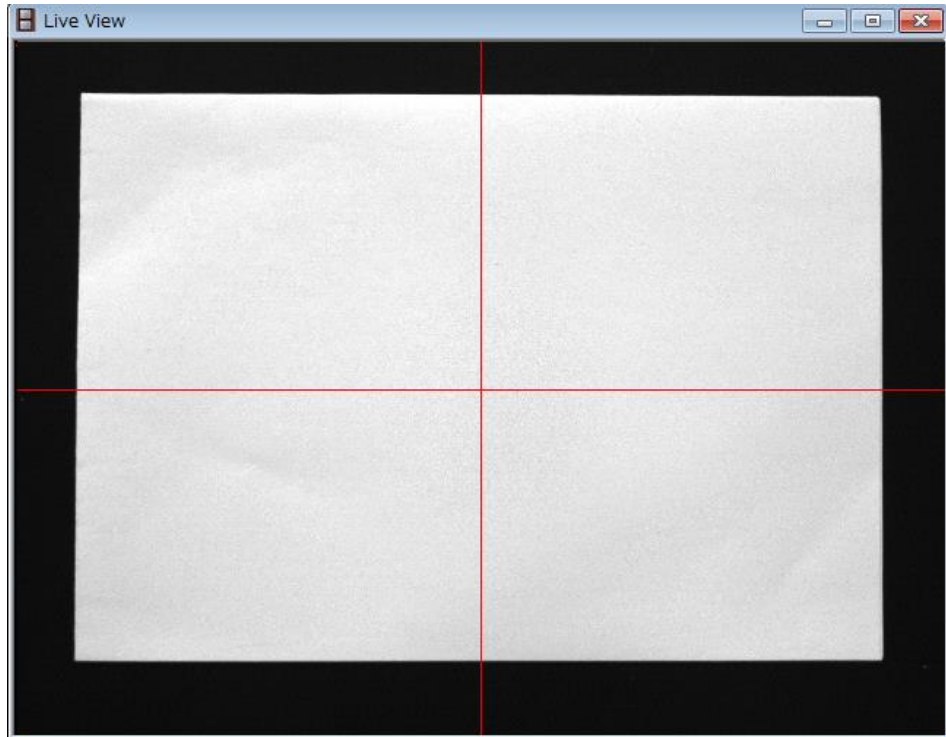
Displays the measurement object in real time. This function is used to confirm the position of the target and adjust the focus of the measurement object. To open the [Live View], go through the following steps.

- 1 From the Menu bar, select the [View] – [Live View] sequentially.



Or, click the  icon on the Menu bar.

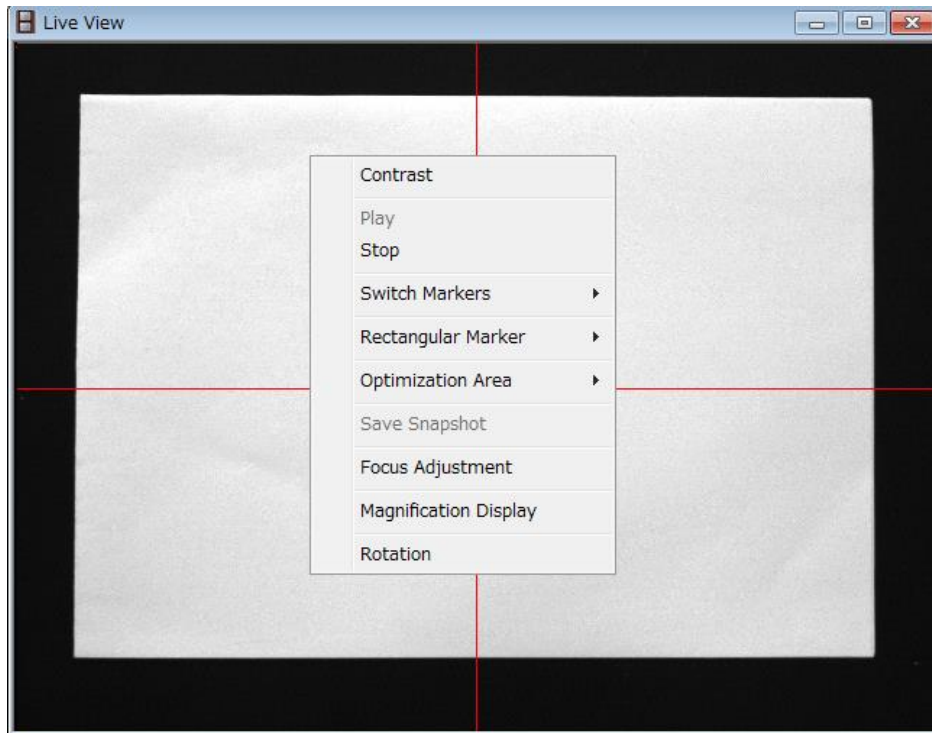
2 [Live View] is opened.



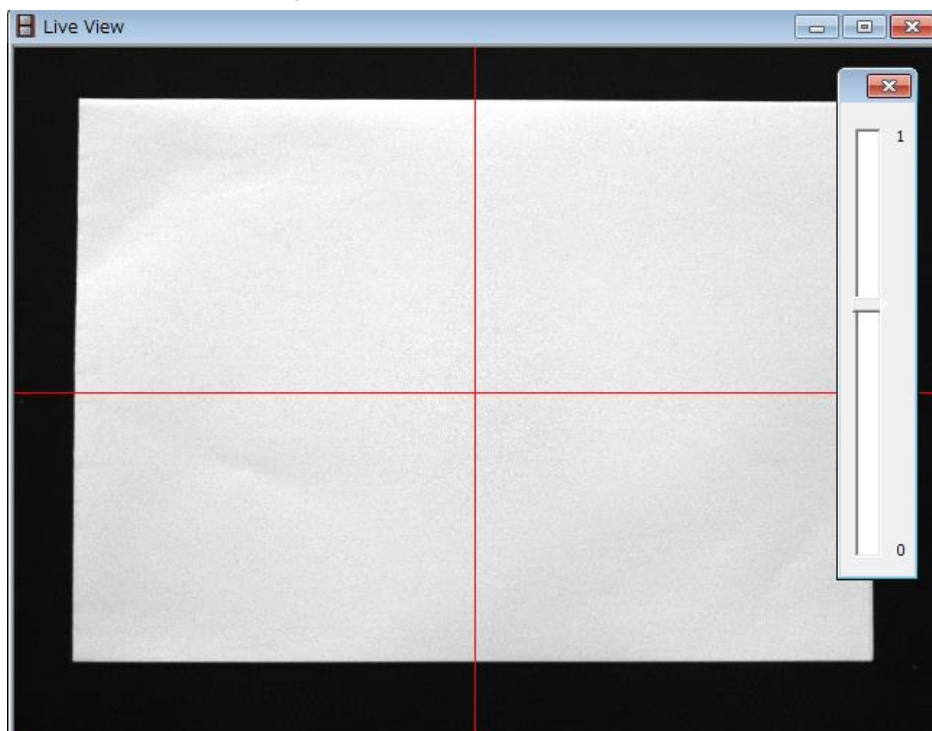
5.1.2 Adjusting contrast

Adjusts contrast in the Live view in real time. To adjust the contrast, go through the following steps.

- 1 Right click on the [Live view] and the pop-up menu will appear, then select the [Contrast].



- 2 The scroll bar for contrast will appear. Adjust contrast by using the scroll bar for contrast while observing contrast in the [Live view].



 Memo

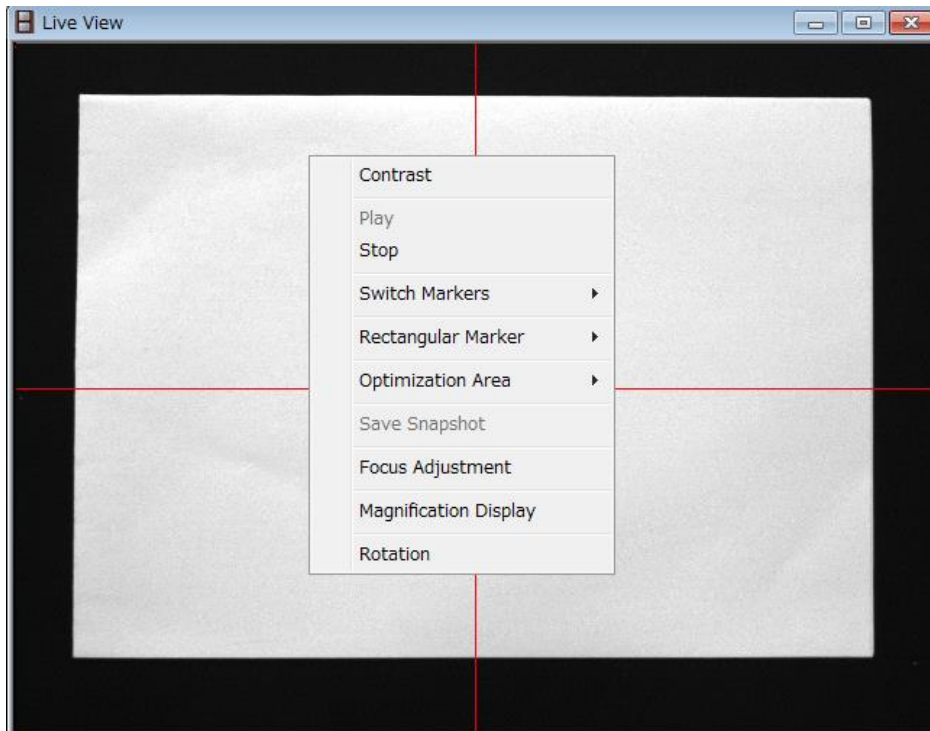
- This function is active only when [Common setting]-[Live setting] is set to [AUTO].
- Depending on memory usage in PC, an adjustment operation may not work on Live view immediately. In this case, Renew a Live view by selecting [Stop] and, then select [Play] in pop-up menu.

 「3.12.3 Live Setting」

5.1.3 Switch Display(UA-10 series)

Switches color or gray scale in the Live view. To switch color or gray scale in the Live view, go through the following steps.

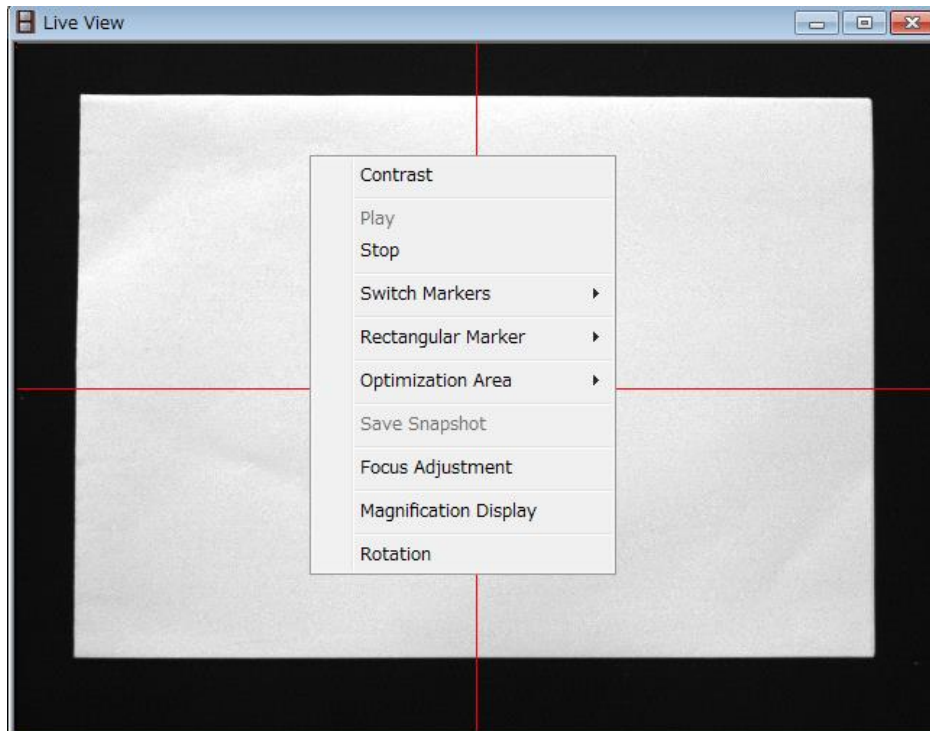
Right click on the [Live view] and the pop-up menu will appear.
Select the [Switch Display].



5.1.4 Play Live View

Restarts the Live View from the pause state. To play the Live View, go through the following steps.

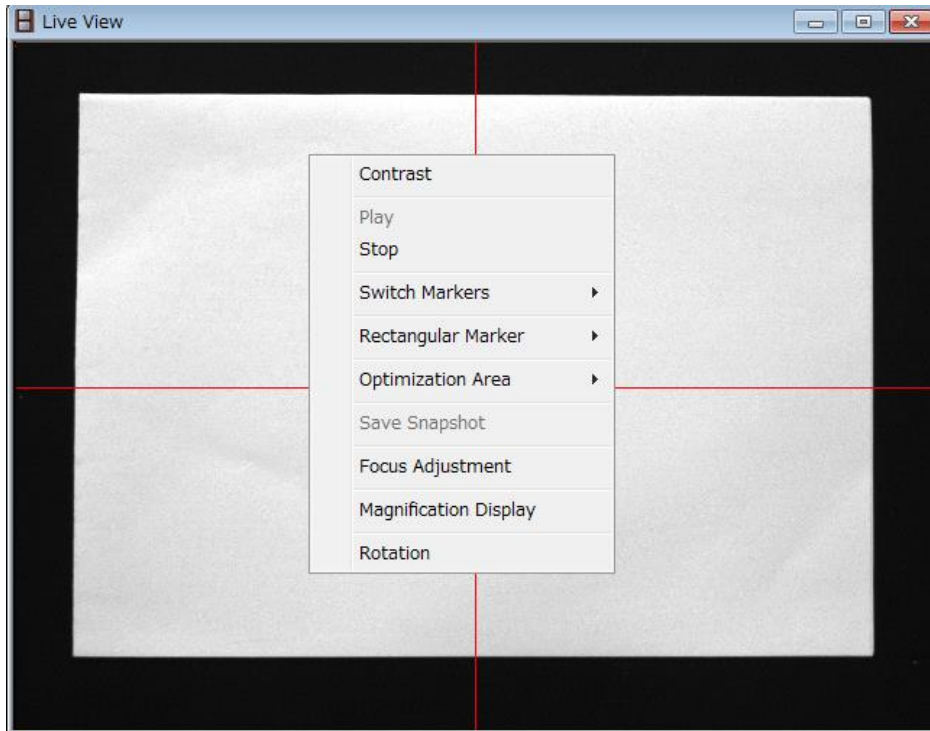
Right-click anywhere within [Live View] screen, pop-up menu will appear. Select [Play] to restart the Live view.



5.1.5 Stop Live View

Stops the Live View playing. Stopping the Live View enables you to retain the Live image or save the snapshot. To stop the Live View, go through the following steps.

- 1 Open the [Live View]. Right-click anywhere in Live View screen and Pop-up menu will appear. Select [Stop].



- 2 The [Live View] is stopped.

 Memo

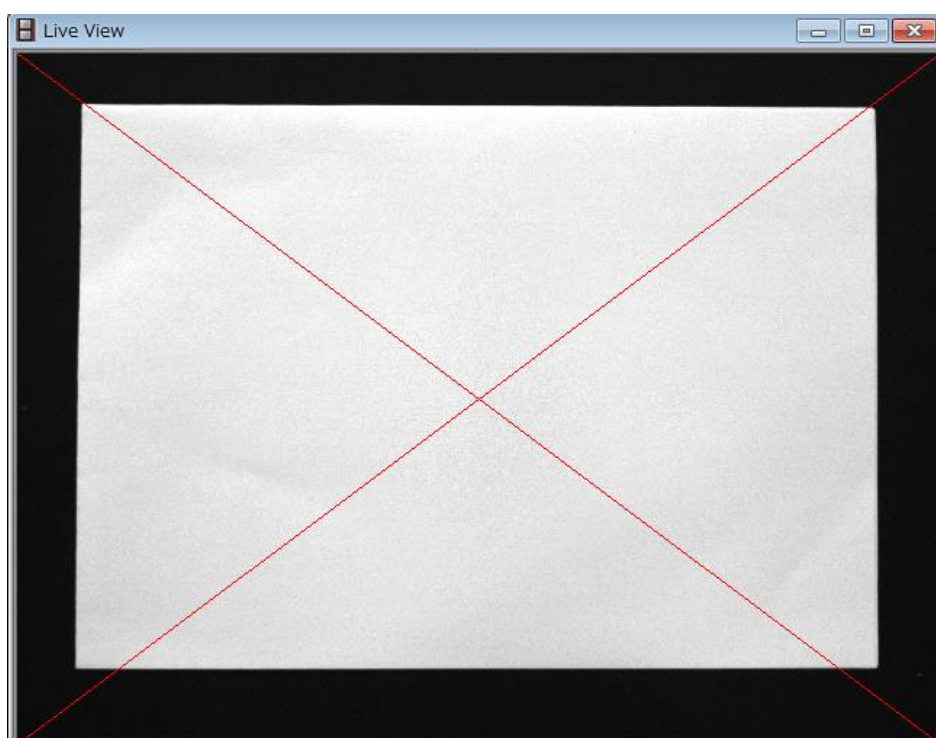
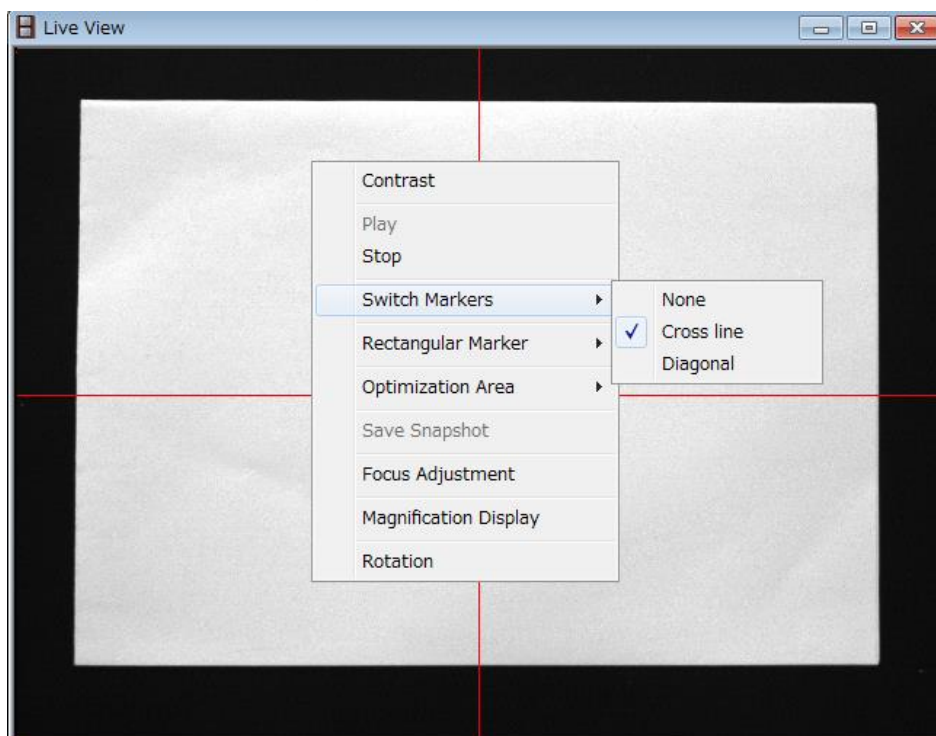
When the Live View is in the stop state, [Snapshot] becomes enabled.

 "5.2.11 Save Snapshot"

5.1.6 Switch Markers

Switches the marker at center of the Live View screen. A diagonal cross and cross are available. The markers can be switched while Live View is playing or is stopped. To switch the markers, go through the following steps.

Open the [Live View]. Right-click anywhere in the Live View screen, Pop-up menu will appear. Select [Switch Marker]. Select [Cross line] or [Diagonal] as the marker to be displayed. When [Cross line] is selected, the cross marker is displayed. When [Diagonal] is selected, the diagonal cross marker is displayed. When you want to hide the marker, select [None].

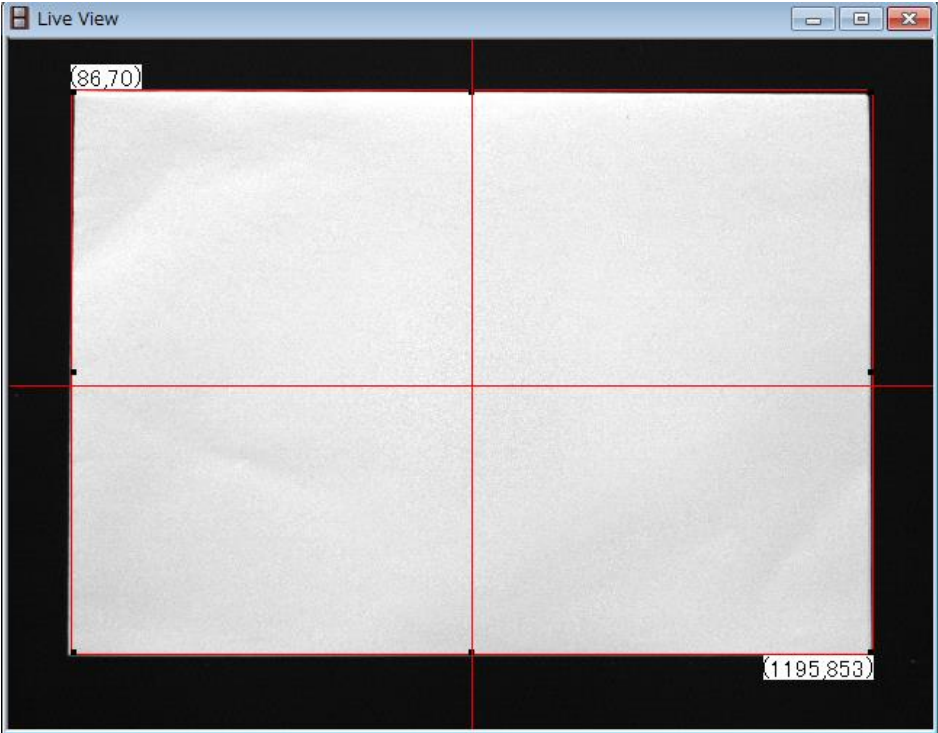




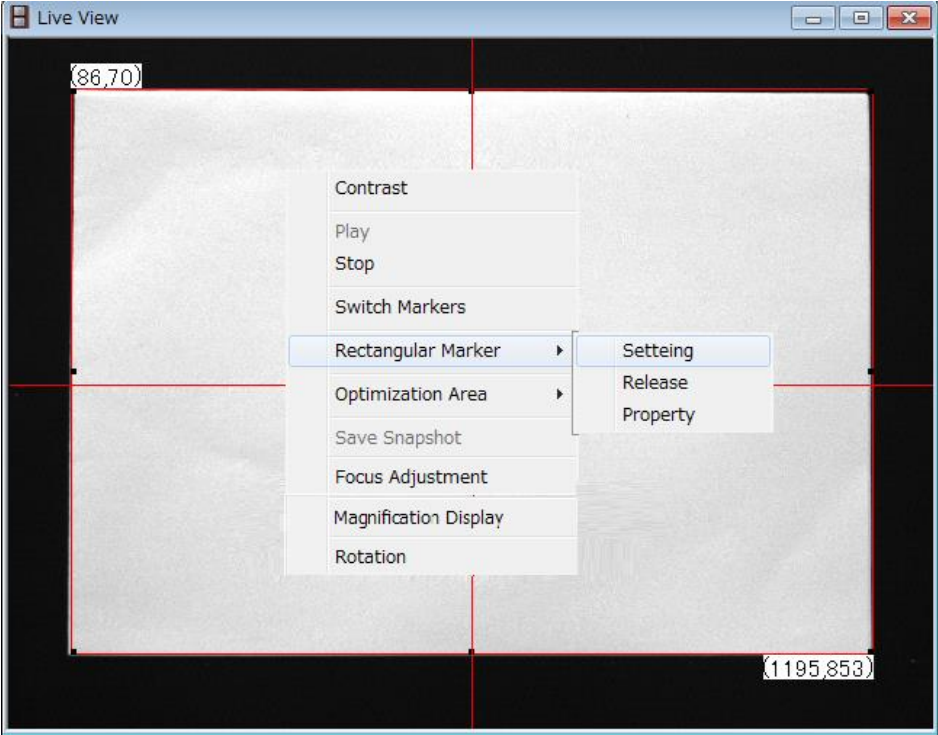
5.1.7 Set Rectangular Marker by Mouse

Uses the Rectangular marker as a guideline when you adjust the position of the measurement target. To set the Rectangular marker by using mouse in the Live View, the steps are as follows:

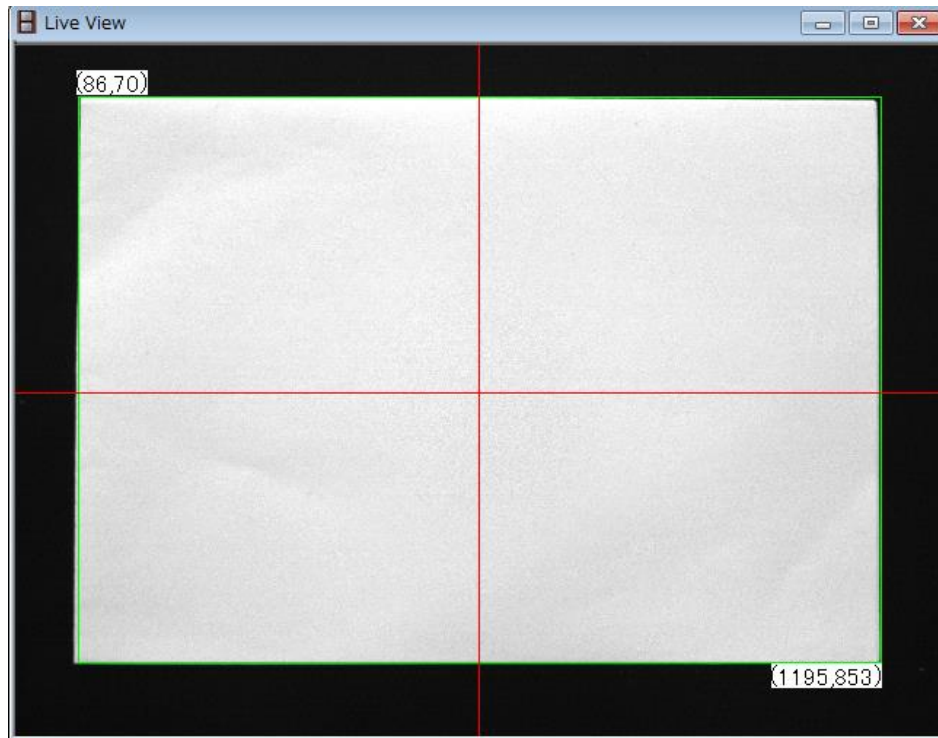
- 1 The Rectangular marker area is set by dragging mouse on the Live View image.



- 2 Right Click on the Live View Image, Pop-up menu will appear. Select [Rectangular marker set].



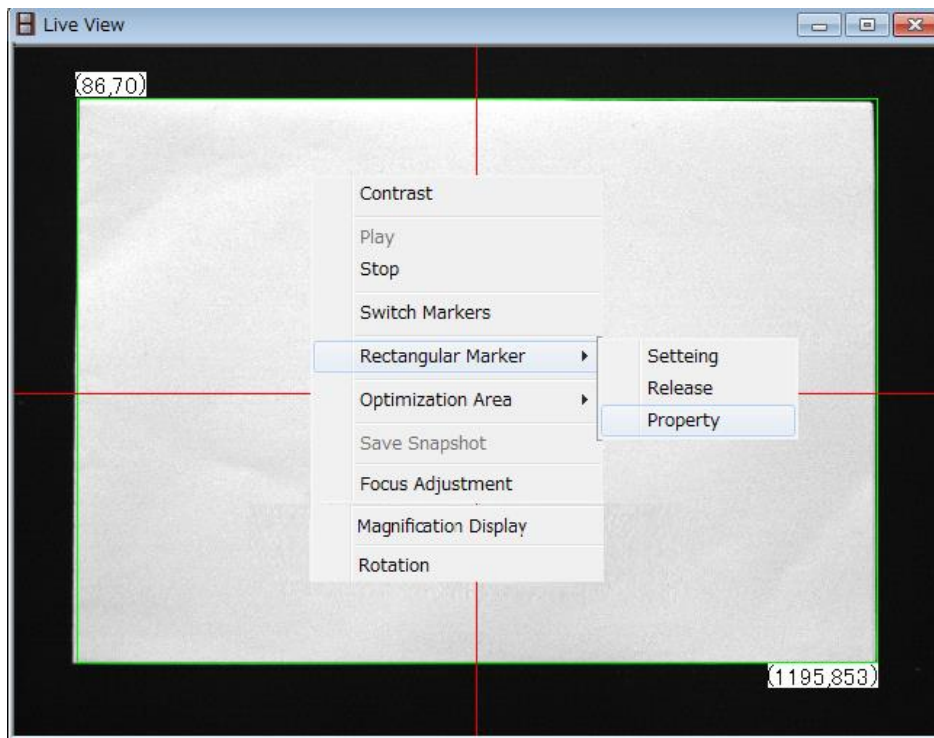
Rectangular marker area is displayed.



5.1.8 Set Rectangular Marker by direct input

Uses the Rectangular marker as a guideline when you adjust the position of the measurement target. To set the Rectangular marker by entering values in the Live View, the steps are as follows;

- 1 Right-Click on Live View Image and Pop-up menu will appear. Select [Property] in the Pop-up menu.

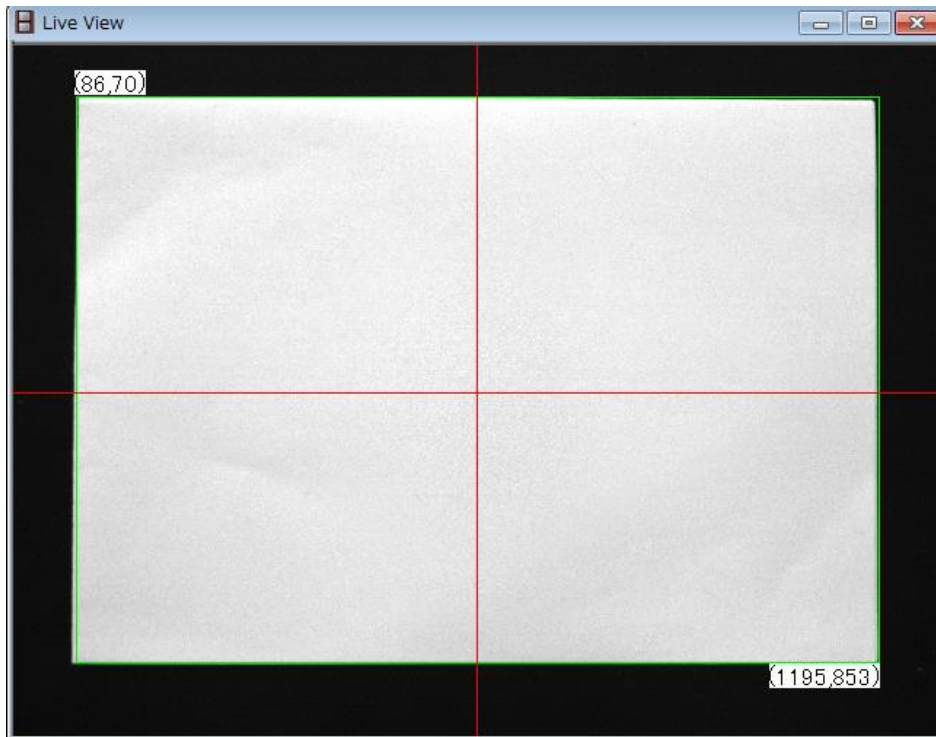


- 2 The [Rectangular Marker] Dialog will appear. Input Start and End Pixel coordinates and Click [OK].

	X	Y
Start pixel coordinates:	36	70
End pixel coordinates:	1195	853

OK Cancel

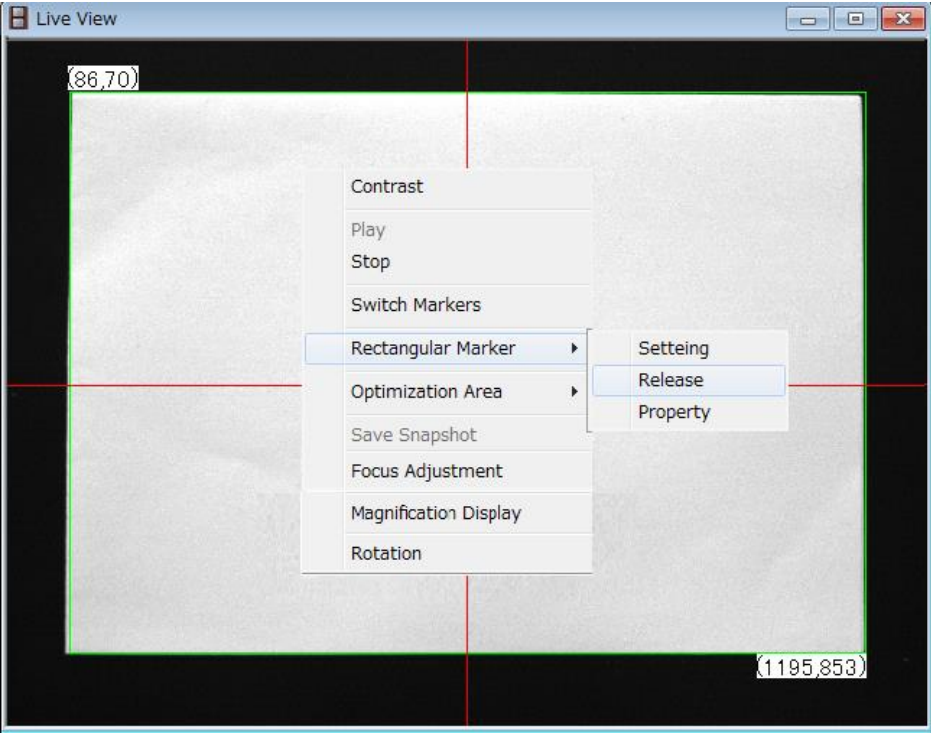
3 Rectangular marker will appear.



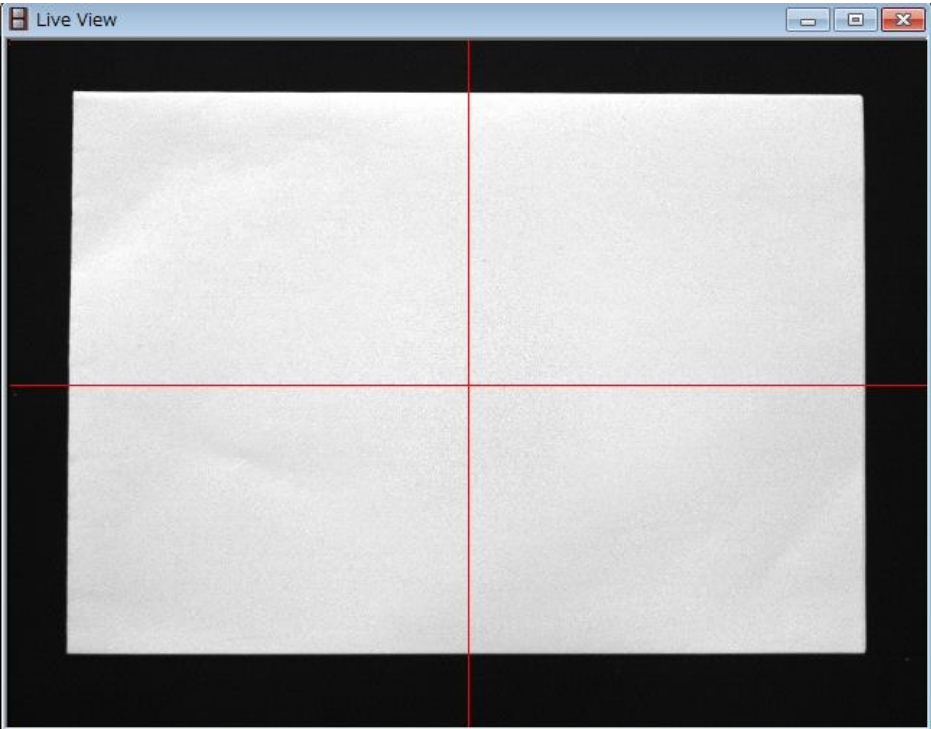
5.1.9 Release Rectangular Marker

Releases Rectangular marker. To release the displayed Rectangular marker displayed on the Live View, the steps are as follows:

- 1 Right Click on Live View Image and Pop-up menu will appear. Select [Rectangular Marker release] in the pop-up menu.



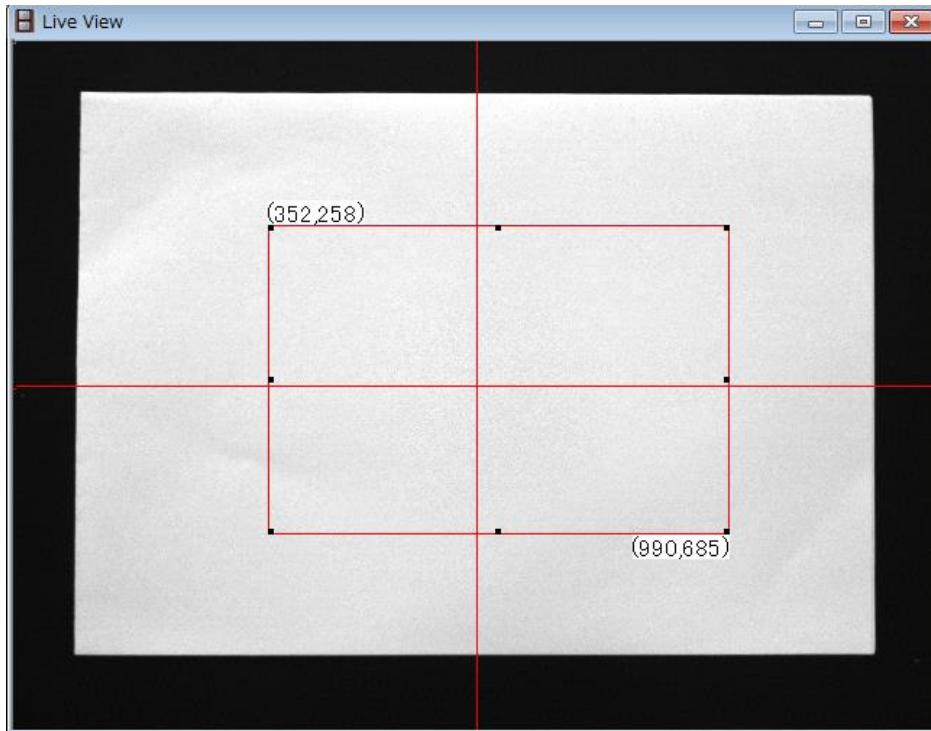
- 2 Rectangular marker is released.



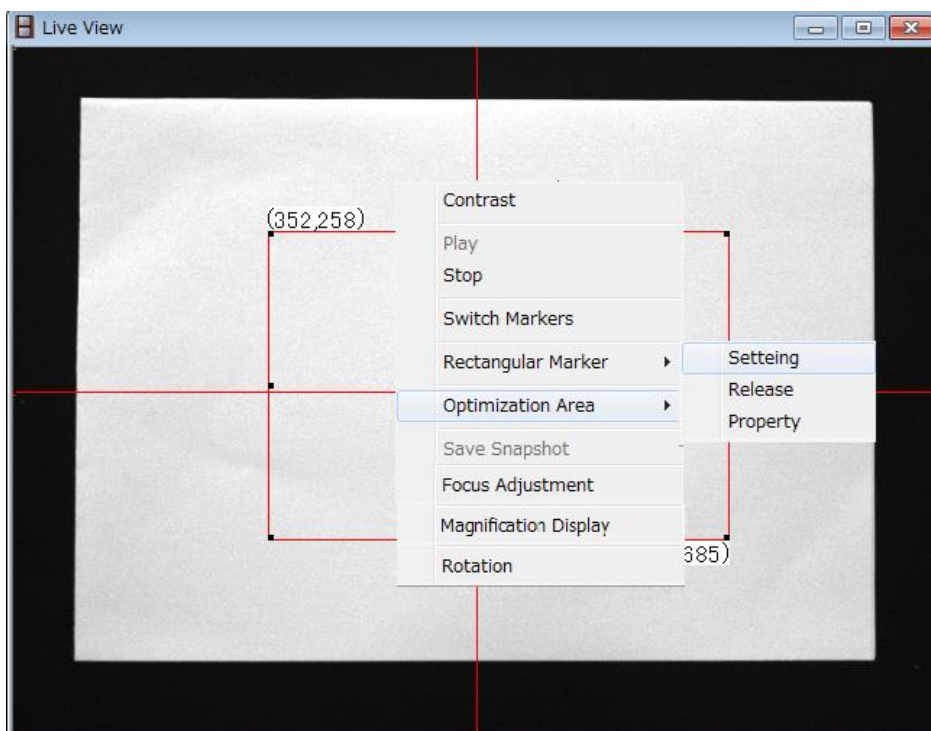
5.1.10 Specifying optimization area by Mouse

Specifies optimization area for calculating optimum integral time. To specify optimization area by using mouse, go through the following steps.

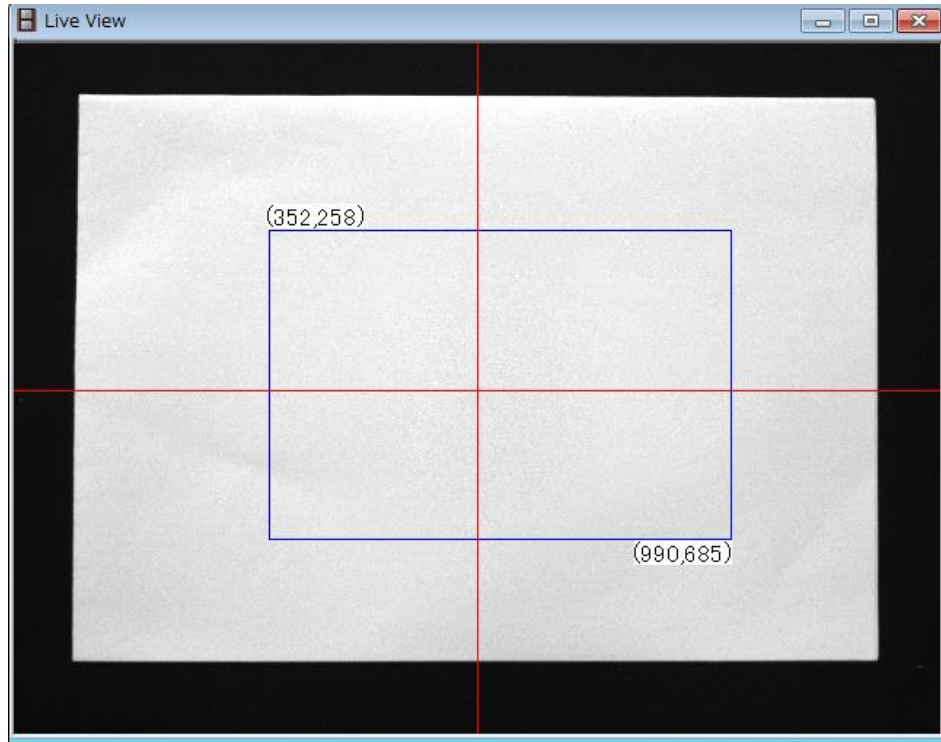
- 1 Click the start point of the optimization area in the [Live view] and drag the mouse over the area to end point to specify the optimization area.



- 2 Right click on the [Live view] and the pop-up menu will appear. And select the [optimization area]-[Setting].



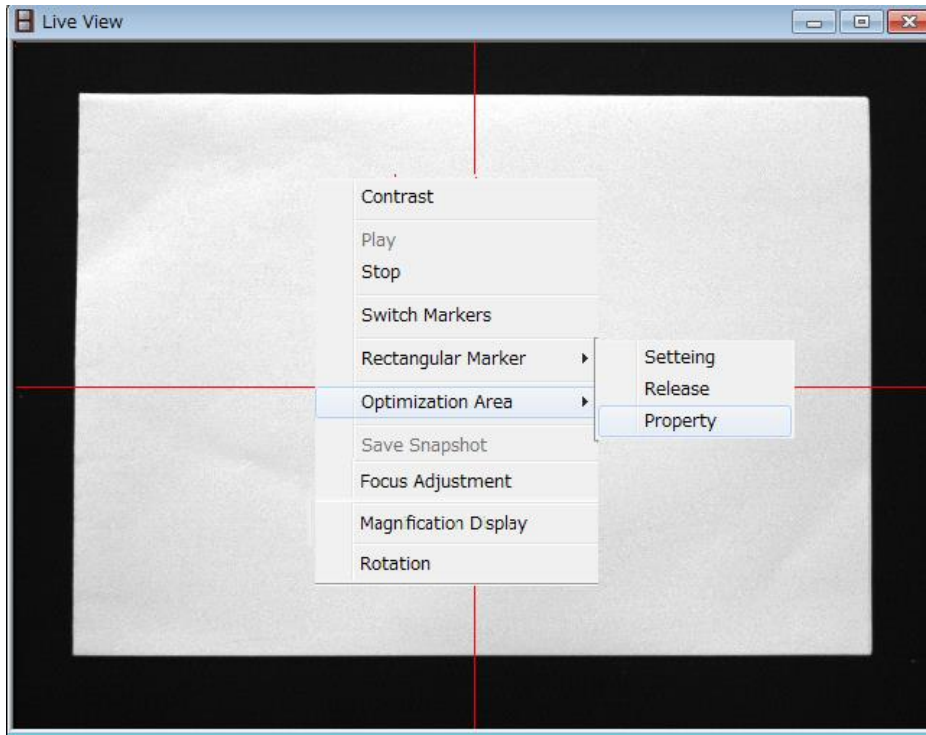
3 Optimization area is displayed.



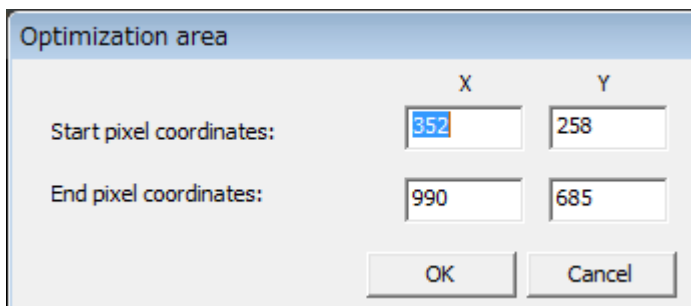
5.1.11 Specifying optimization area by direct input

Specifies optimization area by entering numerical value. To specify the optimization area by entering values, go through the following steps.

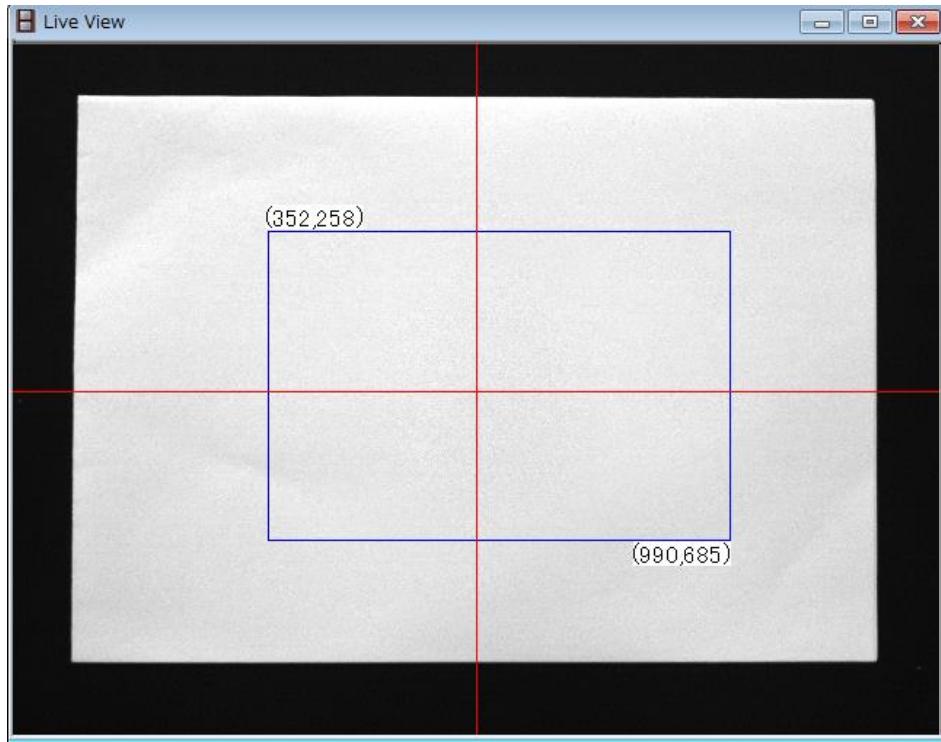
- 1 Right click the [Live view] and the pop-up menu will appear. And select the [optimization area]-[Property].



- 2 The [optimization area] dialogue will appear. Enter the start and end pixel points of the pick-up area and click the [OK] button.

A screenshot of a dialog box titled "Optimization area". The dialog box has a light gray background and a blue title bar. It contains two rows of input fields. The first row is labeled "Start pixel coordinates:" and has two input boxes: "X" with the value "352" and "Y" with the value "258". The second row is labeled "End pixel coordinates:" and has two input boxes: "X" with the value "990" and "Y" with the value "685". At the bottom of the dialog box, there are two buttons: "OK" and "Cancel".

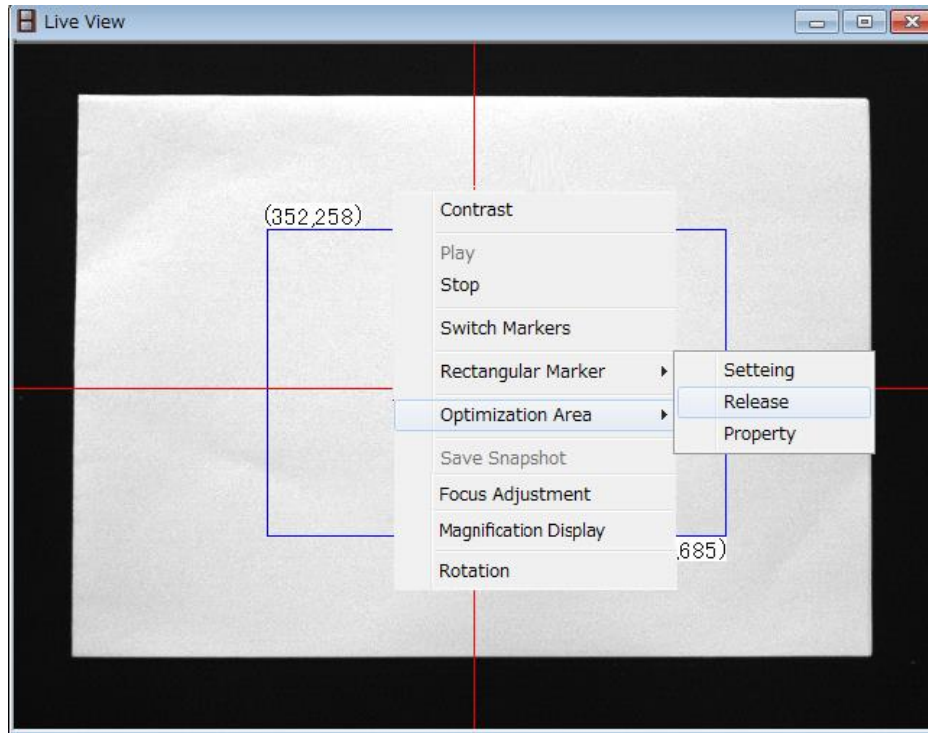
3 Optimization area is displayed.



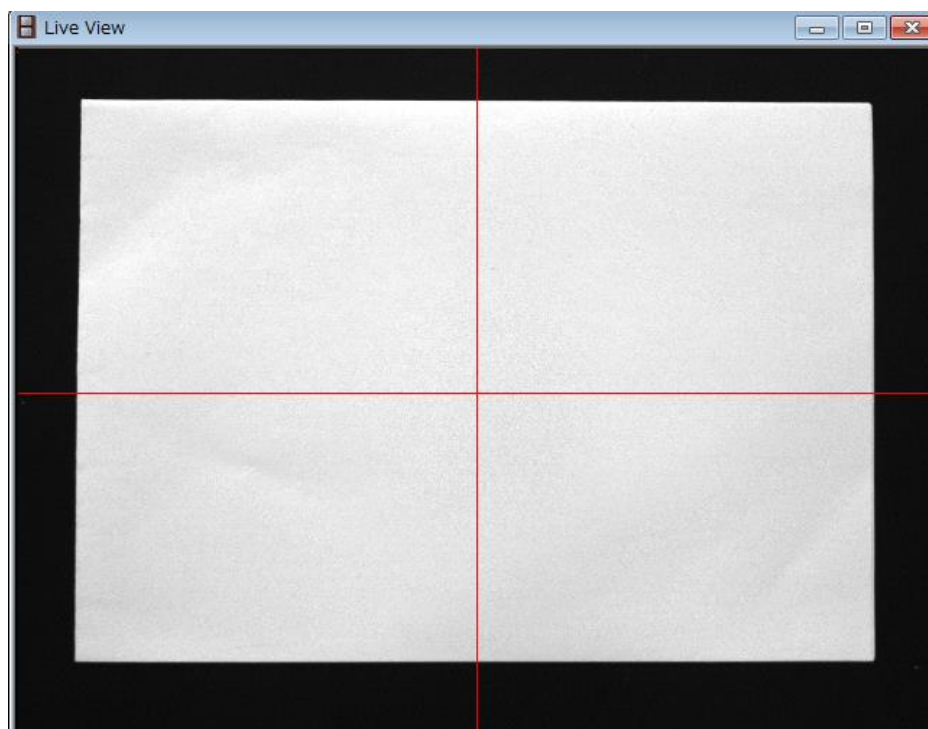
5.1.12 Release optimization area

Cancels the optimization area. To cancel the optimization area, go through the following steps.

- 1 Right click on the [Live view] and the pop-up menu will appear. And select the [optimization area]-[Release].



- 2 Optimization area is released.

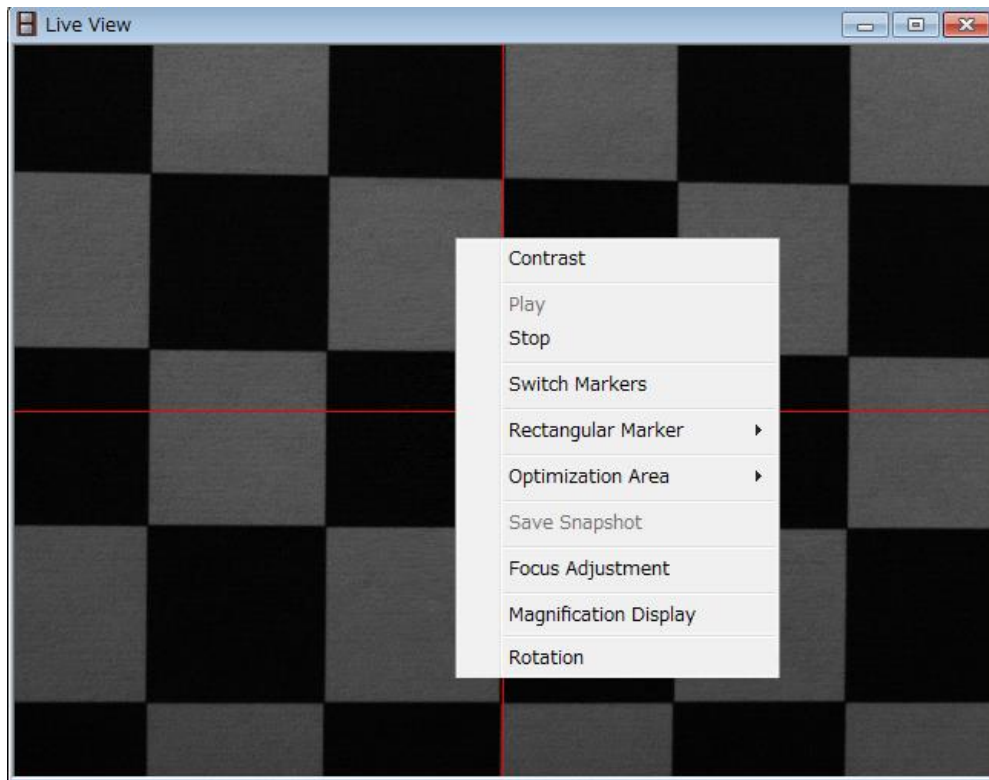


5.1.13 Focus Adjustment

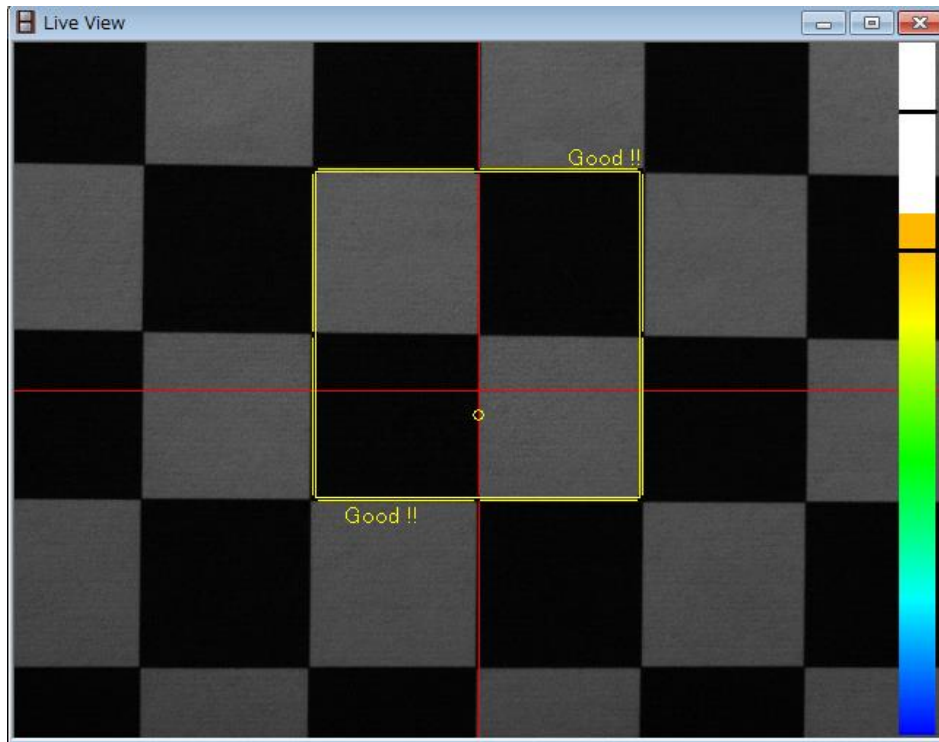
Adjusts focus in real time. You can easily adjust the focus by referring to the score displaying on the Live view.

To adjust the focus, go through the following steps.

- 1 Right click on the [Live View] and pop-up menu appear. Select the [Focus Adjustment].



- 2 Color bar for focus adjusting and Focus guide area (Yellow frame) appear on the Live view. Set a focus guide area on an area having large contrast. Adjust the focus by referring to the color bar and the image on the Live view.




When a score excess threshold, “Good !!” are displayed upper-right and lower-left of the focus area guide.

- mark means the check point of focusing.

Memo

- A score may not reach 100 depending on brightness and contrast of the target.
- We recommend that pattern for focusing is displayed when focusing in order to adjust the focus easily.
- Contrast in Live view is automatically adjusted during focusing. The brightness of Live view may brighten and darken extremely depending on setting of Focus guide area.
- When the check box is on in [Common setting]- [Live setting]-[Show Score], upper and lower threshold are displayed.
- “ready...” are displayed on the upper-right and the lower-left of guide area during focusing, and operations apause.

 "3.12.3 Live Setting"

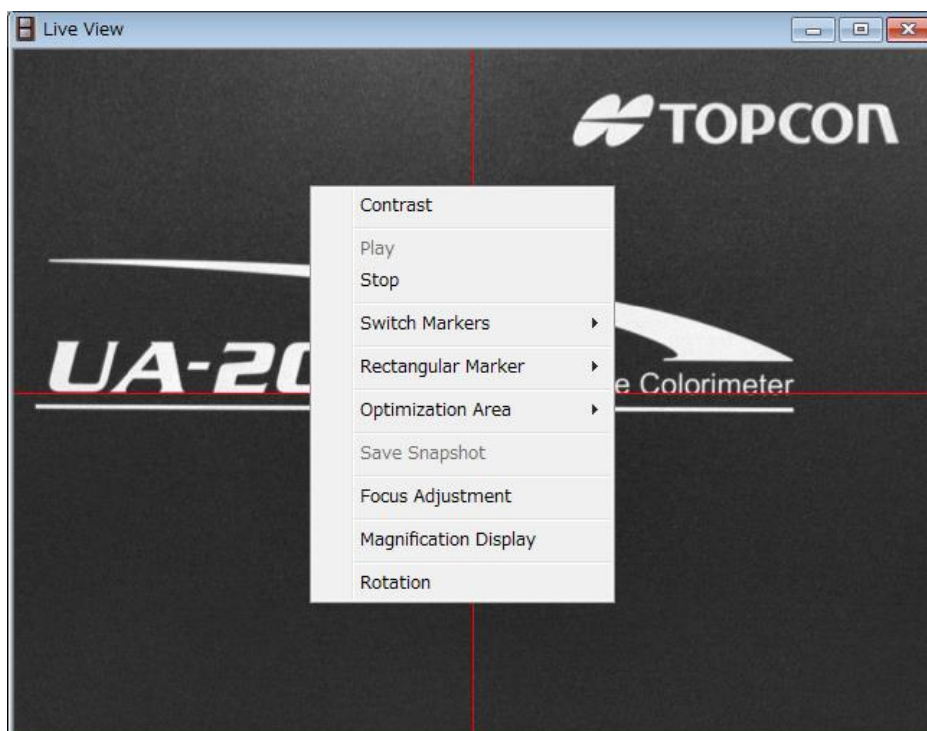
5.1.14 Magnification Display

It is used when you want to zoom in on a specific point of the live view.
To Magnification Display, go through the following steps.

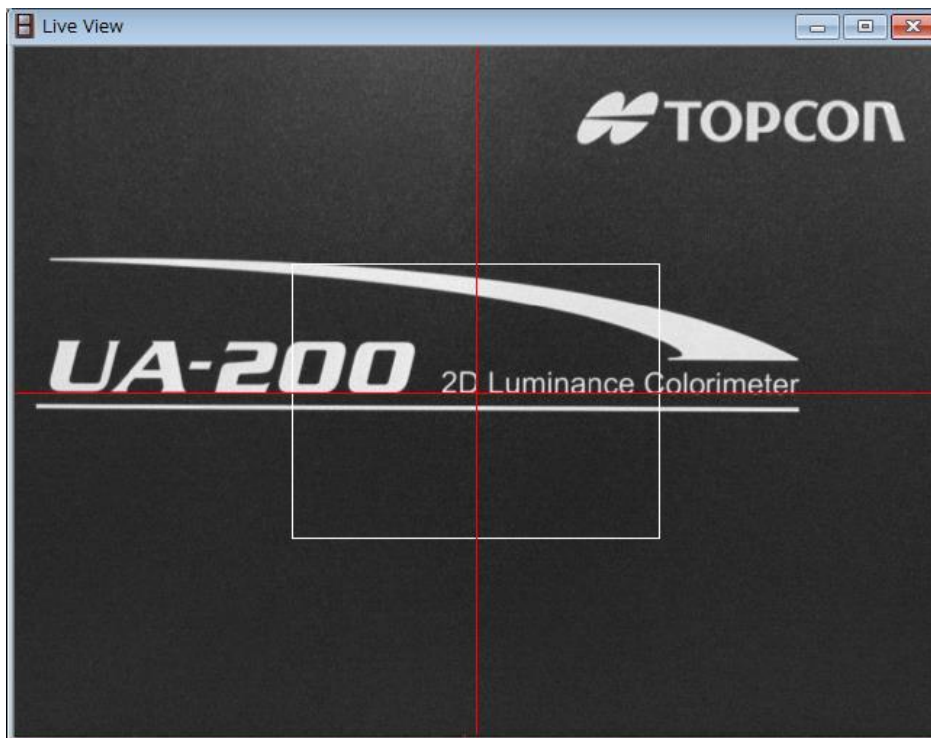
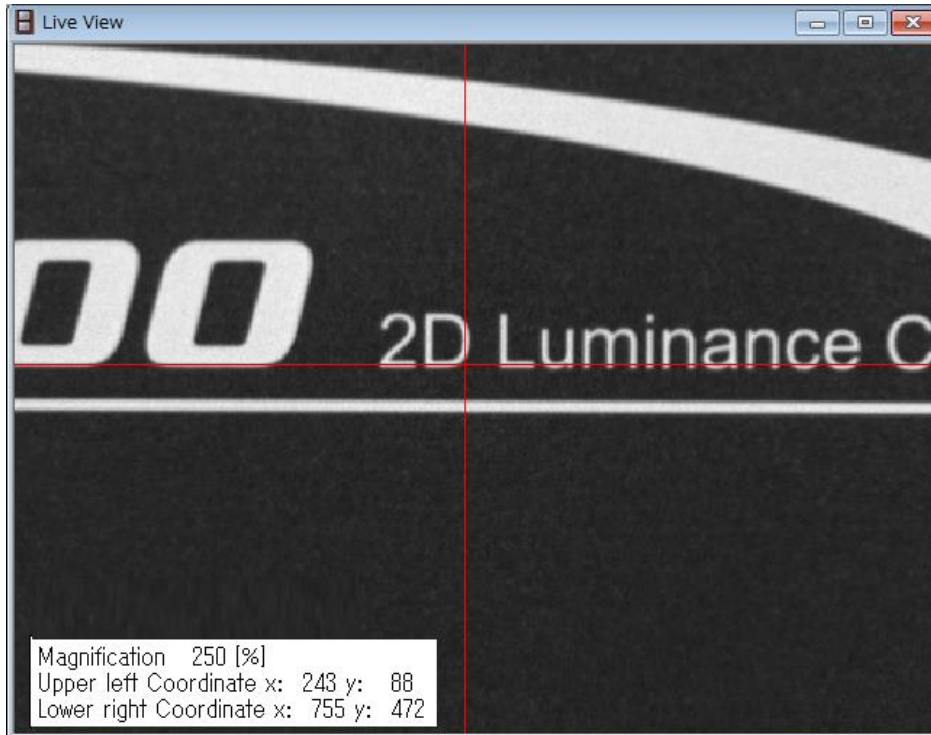
- 1 Place the mouse to enlarge display, on the [Live View].



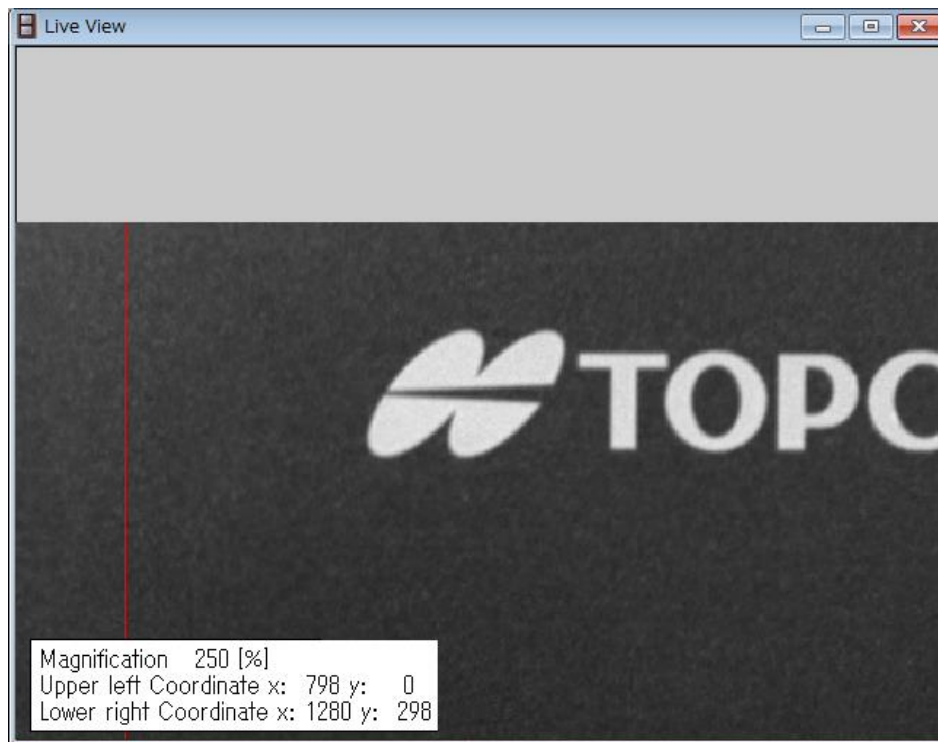
- 2 Right click on the [Live View] and pop-up menu appear.
Select the [Magnification Display].



3 Enlarged display window appears.



- 4 Change enlargement position by clicking the mouse.



 Memo

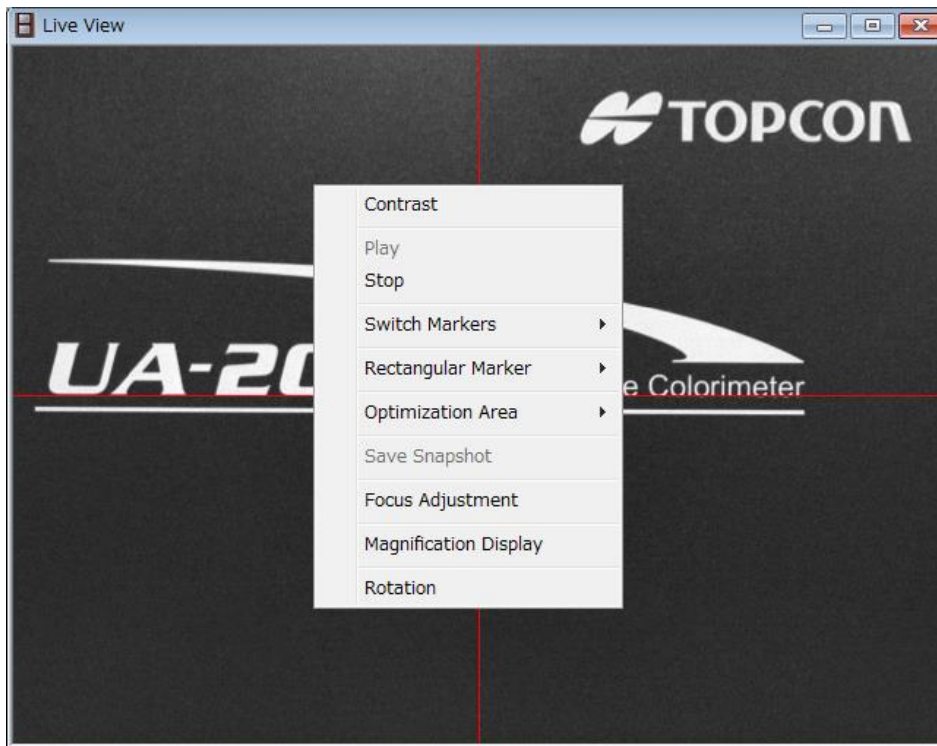
Rotating the mouse wheel while pressing the Ctrl key enables you to change the display magnification.

5.1.15 Rotate Live Image

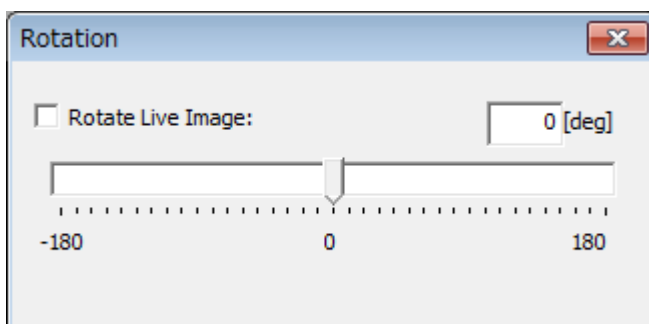
This function is used to rotate the live image on [Live View].

To rotate the live image, go through the following steps.

- 1 Right-click in [Live View], and the pop-up menu is displayed.
Select [Rotation].



- 2 The [Rotation] dialog box is displayed.
Set ON for the [Rotate Live Image] check box. Operate the scroll bar or enter a value to the angle edit box directly.
After changing the setting, click [x] to close the [Rotation] dialog box.



Memo

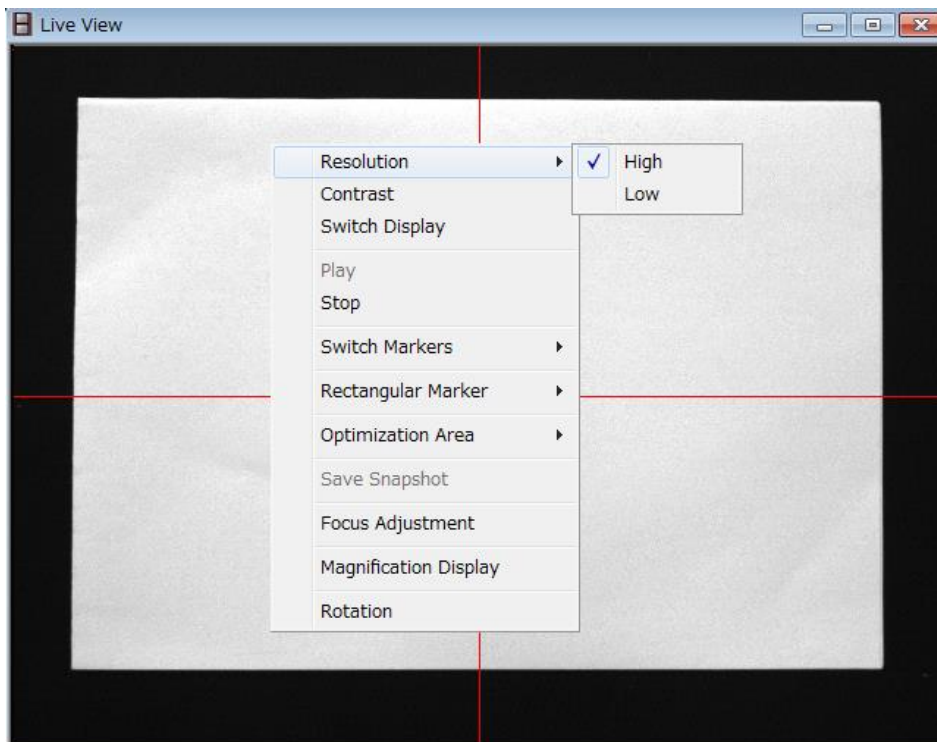
By setting OFF for the [Rotate Live Image] check box, you can return the live image to the normal one.

5.1.16 Switch Resolution(UA-10 series)

Switches the resolution of the Live View screen.

To switch the resolution, go through the following steps.

Open the [Live View]. Right-click anywhere in the Live View screen, Pop-up menu will appear. Select [Resolution]. Select [High] or [Low] as the resolution to be displayed. When [High] is selected, high resolution is displayed. When [Low] is selected, the low resolution is displayed.



Memo

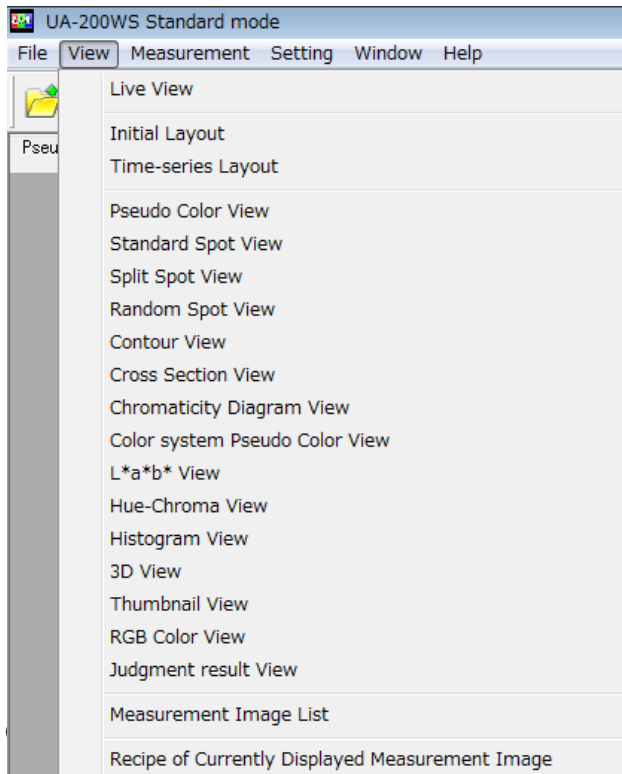
When high (high resolution) is selected, a grid pattern may be displayed on [Live View].
By changing the size of [Live View], you may be able to erase the grid pattern.

5.2 Pseudo Color View Operation

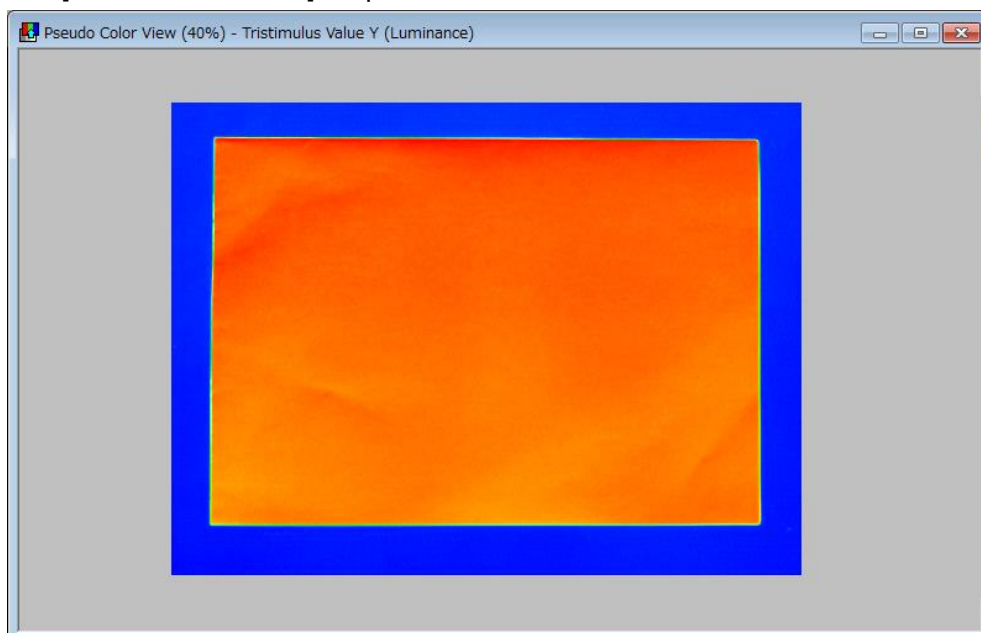
5.2.1 Open Pseudo Color View

Displays the [Pseudo Color View]. Arbitrary colors are rendered to measurement data. Slight difference in measurement data are color-coded for finding easily uniformity and Mura on the target. To open the [Pseudo Color View], go through the following steps.

- 1 From the Menu bar, select the [View] – [Pseudo Color View] sequentially.



- 2 The [Pseudo Color View] is opened.



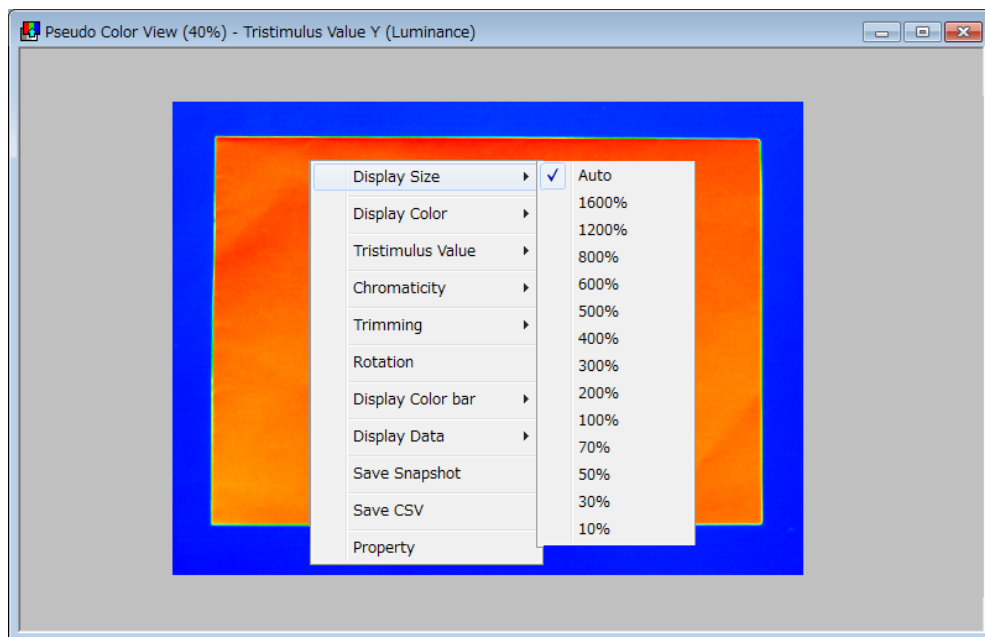
5.2.2 Change Display Size

Changes the view display size. The display size can be selected from fixed magnification values ranging from 10% to 1600%, or automatic magnification. To change the display size, go through the following steps.

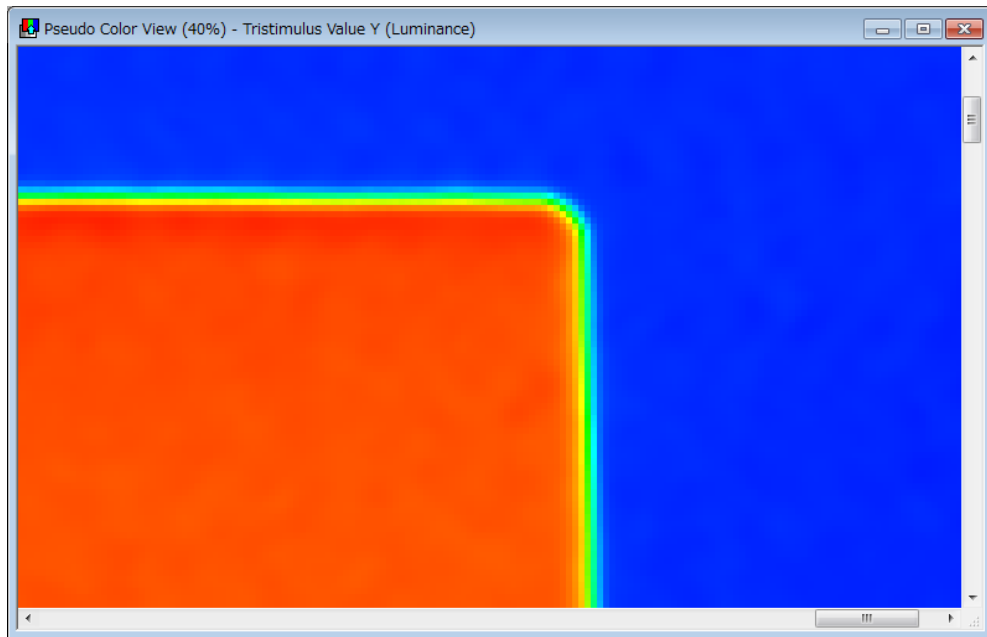
Memo

This operation is the same in [Standard Spot View], [Split Spot View], [Random Spot View], and [Contour View], [Color system Pseudo Color View], [Judgment result View].

- 1 Activate the [Pseudo Color View] and right-click on the view, Pop-up menu will appear. Select [Display Size] from the Pop-up menu to display the magnification list. Select a magnification from the list.
If [Auto] is selected, the view is magnified automatically to fit in the window size. Valid range of magnification is from 10% to 1600%.



- 2 The measurement image is magnified by specified size. When 100% or more is specified, the image can be displayed vertically and horizontally using the scroll bar since the entire measurement image cannot be displayed at a window. Move to the portion desired to be seen by using the scroll bar.



 Memo

Rotating the mouse wheel while pressing the Ctrl key enables you to change the display magnification.

5.2.3 Change Display Color

Changes the view display color. The display color can be selected from four types: pseudo color or gray scale, chromacities xy color, chromacities u'v' color.

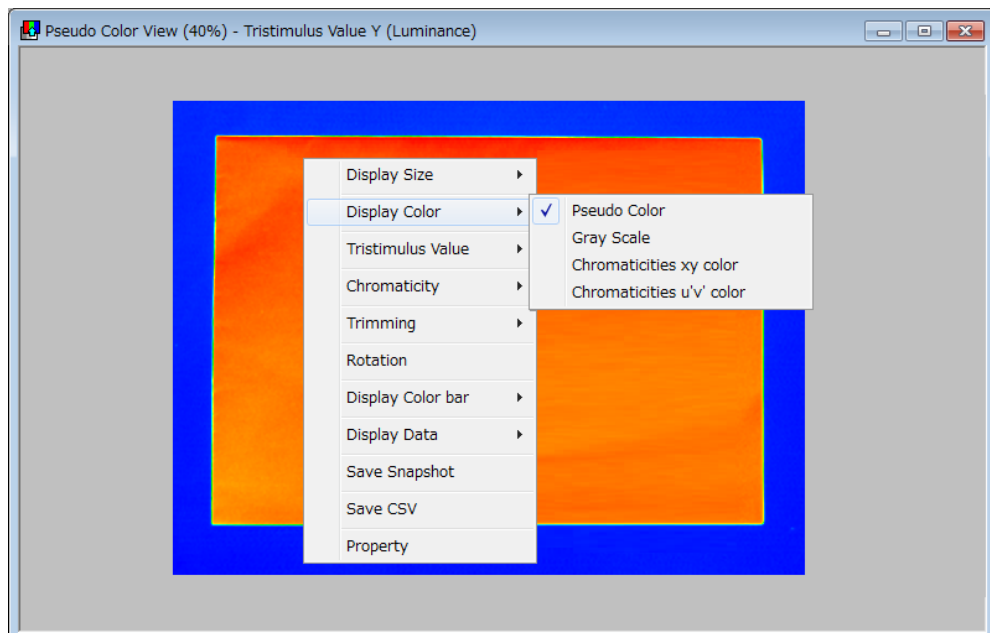
To change the display color, go through the following steps.

Memo

This operation is the same in [Standard Spot View], [Split Spot View], [Random Spot View], and [Contour View], [Color system Pseudo Color View], [Judgment result View].

- 1 Right click on the view and Pop-up menu will appear. Select the [Display Color] from the pop-up. Default is Pseudo color.

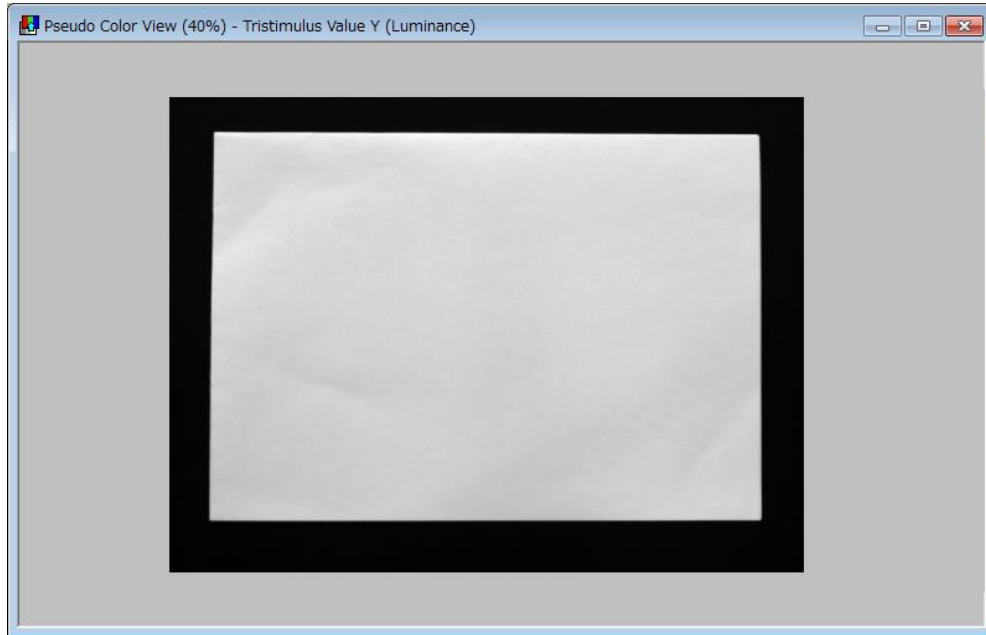
Select [Gray scale] from the pop-up to display in gray scale.



Memo

[Contour View], the [3D View], chromaticity xy, u'v' color will not be able to display. It remains of the last of the display color of the state.

The display is switched to Gray Scale.



 Memo

- The color can be displayed by a gray scale or pseudo color.
- In the Gray Scale display, the frame border color of the measurement spot is entirely switched to red in the [Random Spot View], [Standard Spot View], and [Split Spot View].

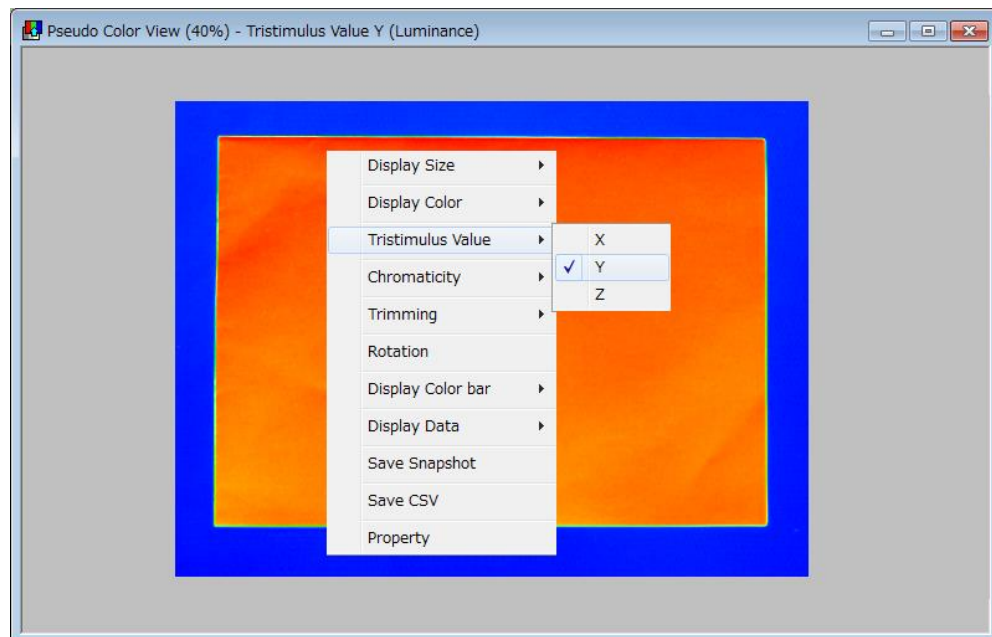
5.2.4 Select item in Tristimulus values

Select one from X, Y, Z in Tristimulus values. Selected the measurement image of the item are displayed on the Pseudo view. To change the item to be displayed, go through the following steps.

 Memo

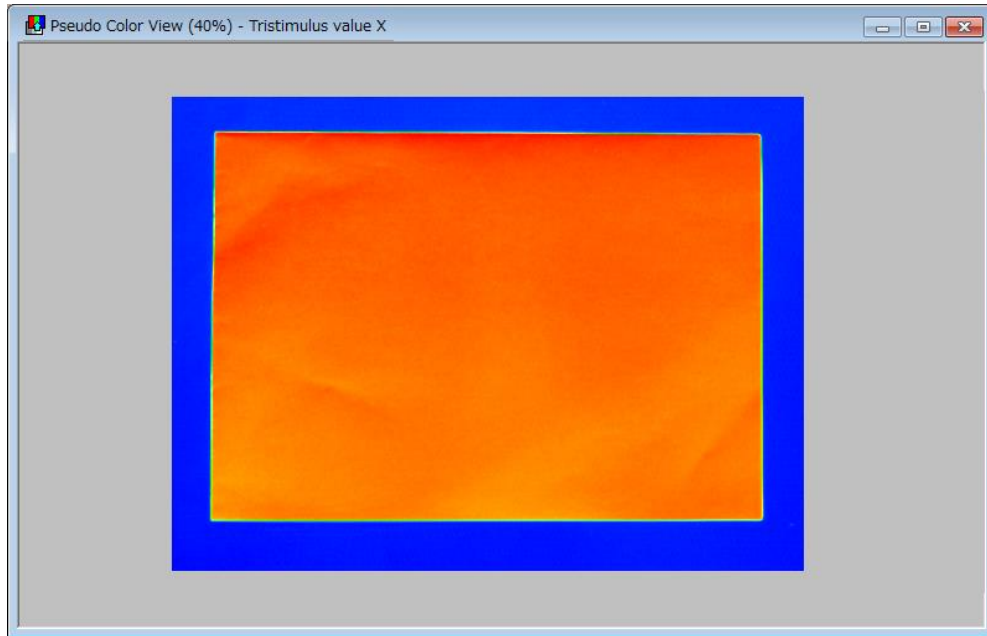
This operation is the same in [Standard Spot View], [Split Spot View], [Random Spot View], [Contour View], and [Cross Section View].

- 1 Right-click on the view screen and pop-up menu will appear. Select one from X, Y, Z in the Tristimulus values from pull down menu.



- 2** The measurement image of the Item is you selected is displayed. Selecting [Tristimulus Value] from the Pop-up menu displays the Tristimulus value list. Select the Tristimulus value to which the display is to be switched.

The measurement image on the view is switched to the selected item of the measurement image. The selected item is permanently retained, and if the software is restarted, the measurement image is displayed with the previously selected item.



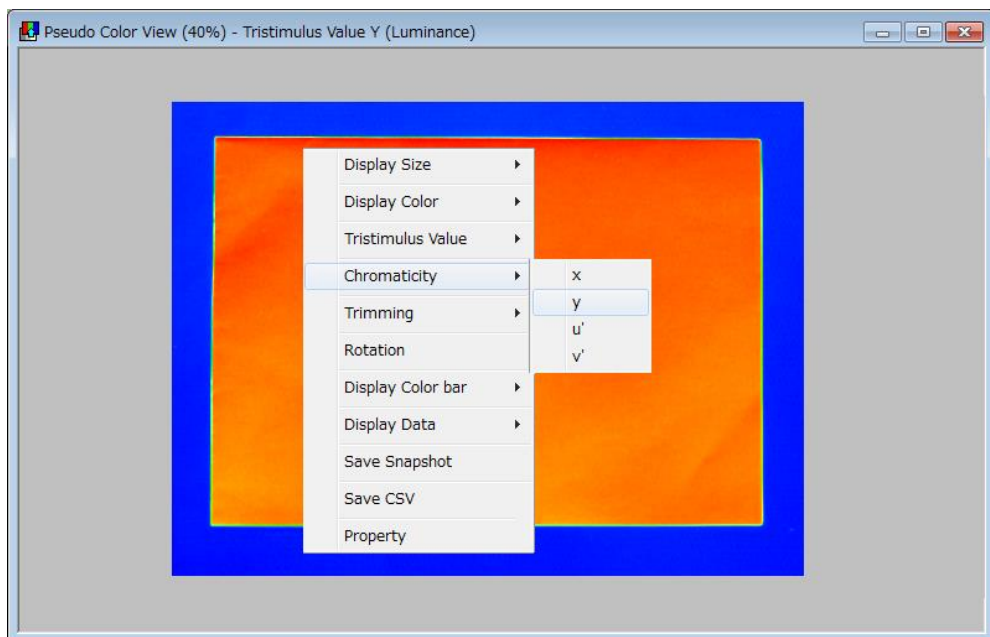
5.2.5 Change Chromaticity

Selects one chromaticity item from x , y , u' , v' . The measurement image of the selected chromaticity item is displayed. To change the item to be displayed, go through the following steps.

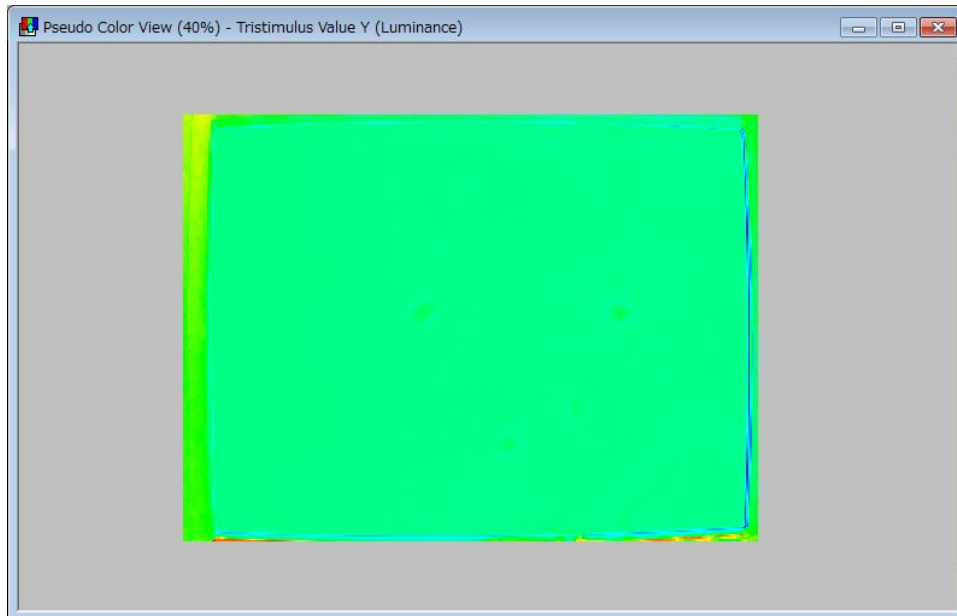
 Memo

This operation is the same in [Standard Spot View], [Split Spot View], [Random Spot View], [Contour View], and [Cross Section View].

- 1 Right click on the Pseudo view and pop-up menu will appear. Select one item from Chromaticity list x , y , u' , v' .



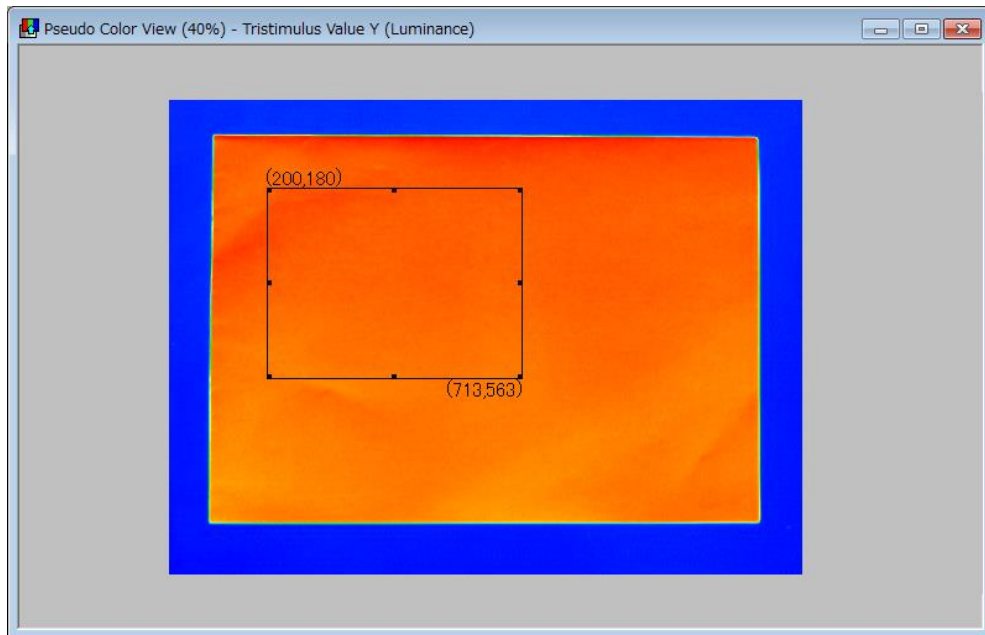
- 2 The measurement image on the view is switched to the measurement image of the selected chromaticity. The selected chromaticity is permanently retained, and if the software is restarted, the measurement image is displayed with the previously selected chromaticity.



5.2.6 Trimming of Measurement Image (Mouse)

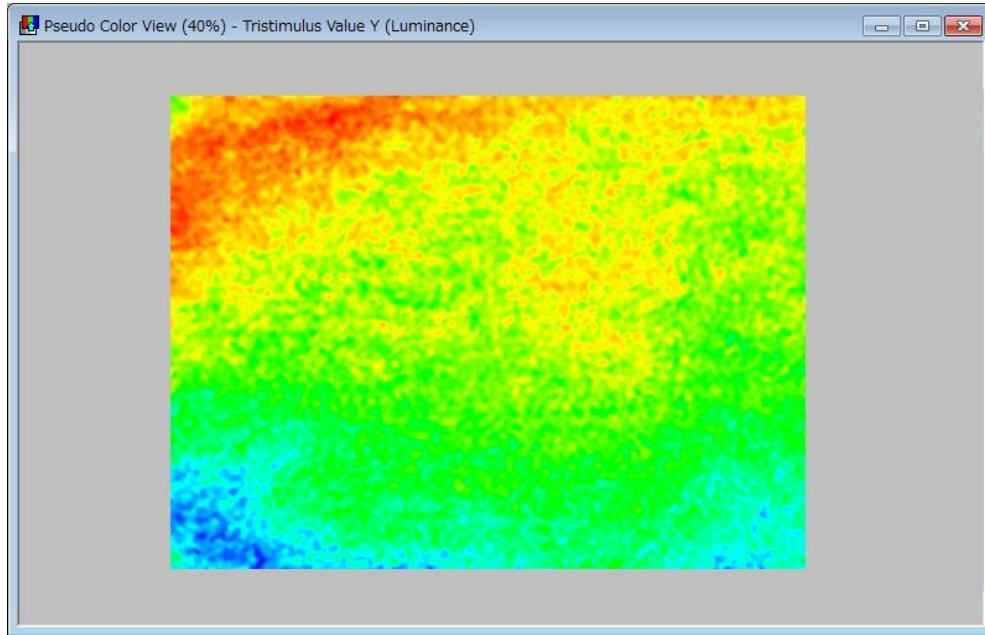
Trims image. If trimming is performed, the trimmed image is redrawn to be color-coded. The trimmed measurement image is affected to other views. To perform the trimming by using mouse, go through the following steps.

- 1 Open the [Pseudo Color View].
- 2 Click the start point of the trimming and drag the mouse over the area to end point to determine the trimming area.



3 Only the specified area is displayed.

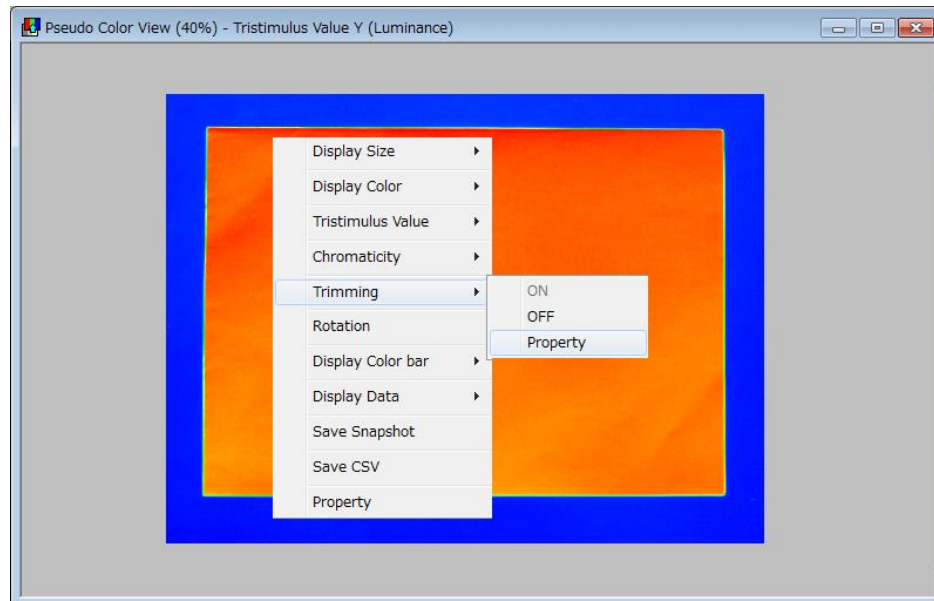
When you see the same point on the view, the color may be different from the whole-area image and the trimmed image. This is because the maximum values and minimum values for the whole area are different from those of the trimmed image. When the area is trimmed, the display colors are allotted in accordance with the measurement data within the trimmed area, allowing you to check the minute differences of local points.



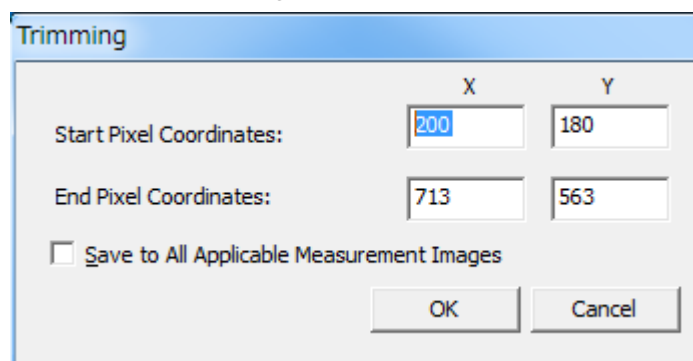
5.2.7 Trimming of Measurement Image (direct input)

Trims image. If trimming is performed, the trimmed image is redrawn to be color-coded. The trimmed measurement image is affected to other views. To perform the trimming by entering values, go through the following steps.

- 1 Open the [Pseudo Color View].
- 2 Open [Pseudo Color View] and Right Click to open Pop-up menu. Select [Trimming] - [Property] from the Pop-up menu.



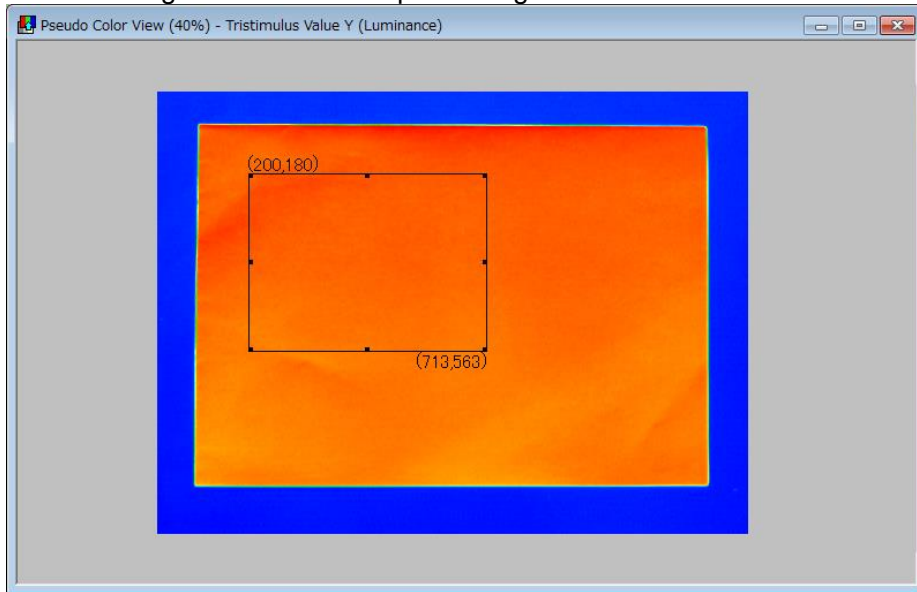
- 3 [Trimming] dialog is displayed. Click [OK] after setting the start and end points of the Trimming.



Memo

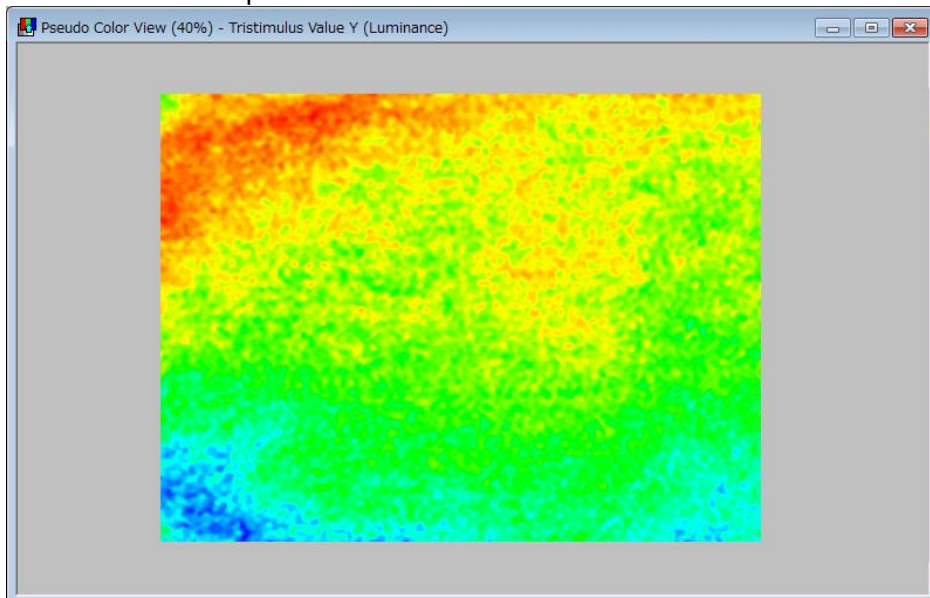
By setting "ON" for the [Save to All Applicable Measurement Images] check box, trimming is performed for all measurement images that are loaded now. In this case, the specification display of the trimming area in Step 4 is omitted. When a measurement image whose resolution is different from that of the measurement image displayed on the [Pseudo Color View] is loaded, this image is not the object of batch processing.

4 The Trimming area is drawn as per setting.



5 Select [Trimming]-[ON] from Pop-up menu of the [Pseudo Color View] and trimmed image is displayed.

When you see the same point on the view, the color may be different from the whole-area image and the trimmed image. This is because the maximum values and minimum values for the whole area are different from those of the trimmed image. When the area is trimmed, the display colors are allotted in accordance with the measurement data within the trimmed area, allowing you to check the minute differences of local points.



 Memo

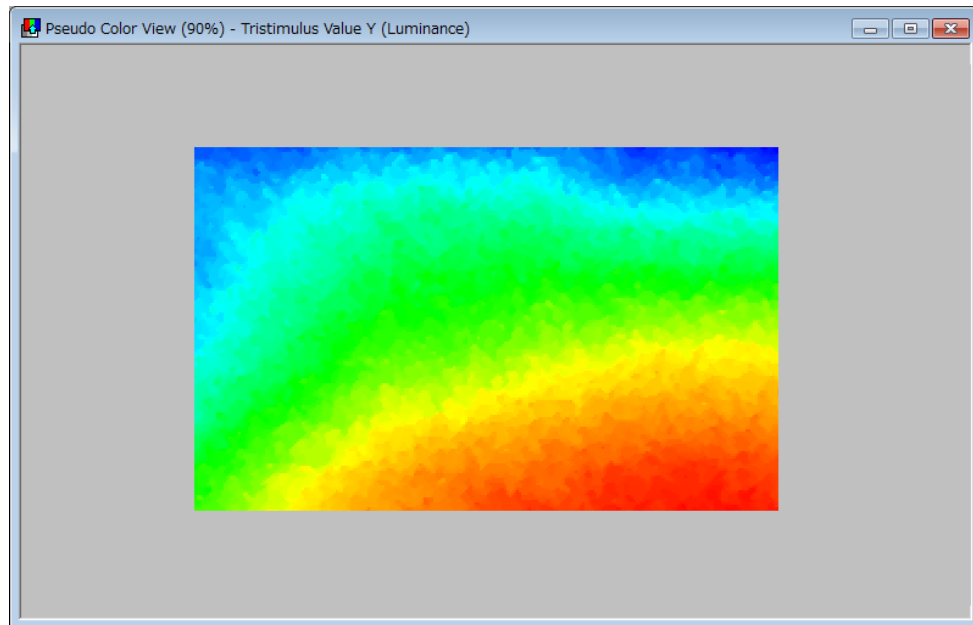
The Initial value of [Trimming] is displayed as per Trimming area set last time.
The present setting of Trimming area is displayed if [Trimming] dialog is displayed with Trimming ON condition. However, the setting or changing of trimming area cannot be done again.

5.2.8 Cancel Trimming

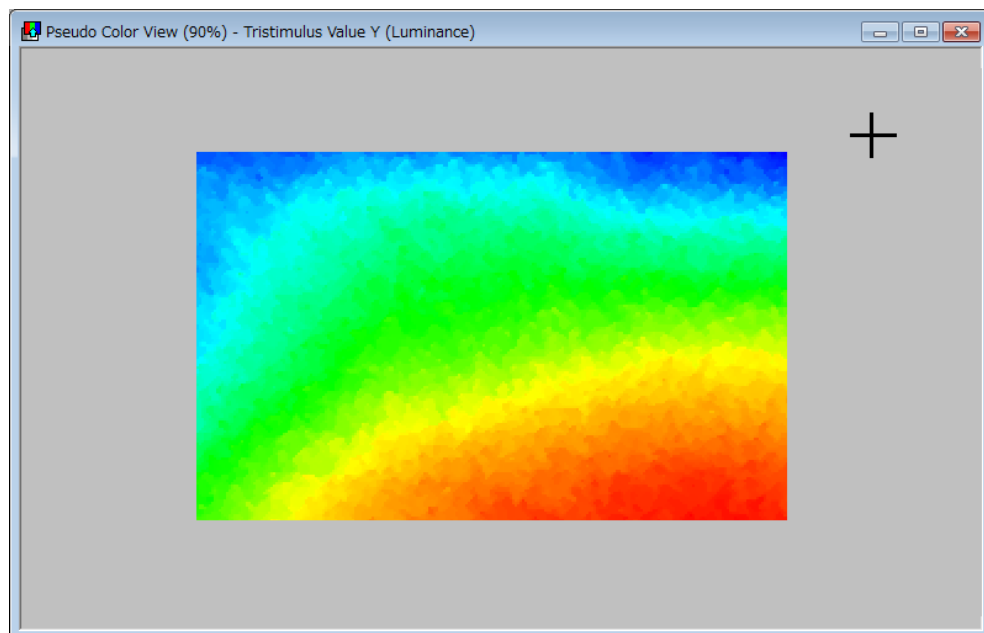
Restores the trimmed image to the original image. here are two way to cancel the trimmingTo cancel trimming, go through the following steps.

- Cancel Trimming on Pseudo color View

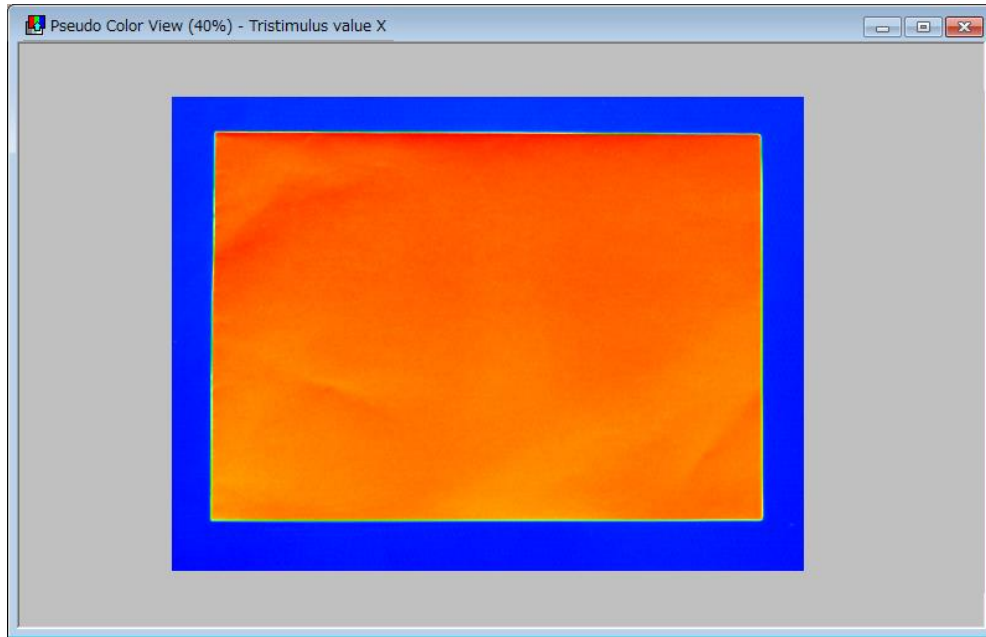
- 1 From the [Thumbnail View], select the measurement image for which trimming is to be canceled.



- 2 Click on an out of image on the [Pseudo Color] View.

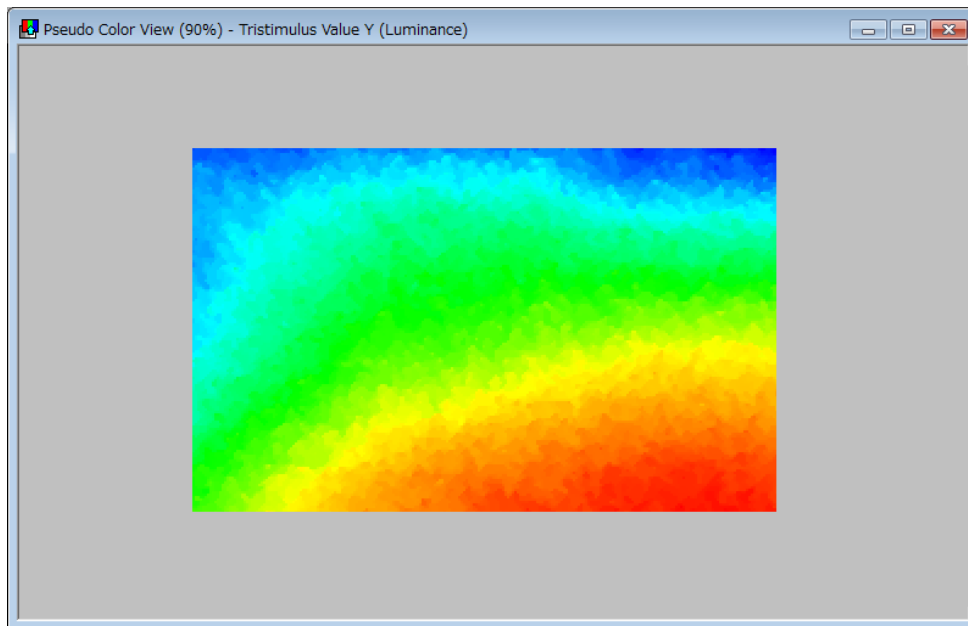


- 3 The trimming is canceled, and the original measurement image is displayed.

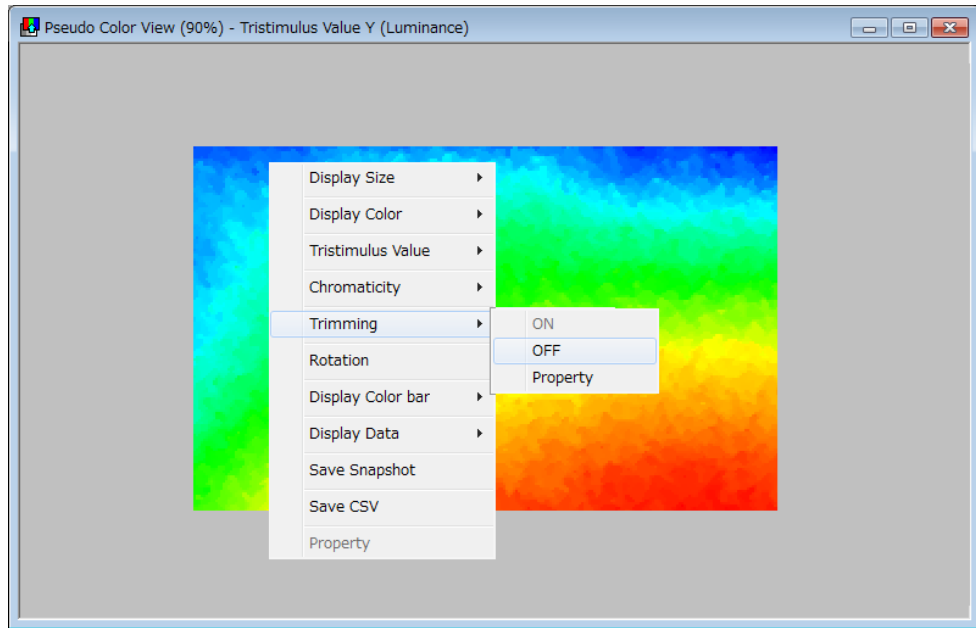


- Cancel Trimming via pop-up menu

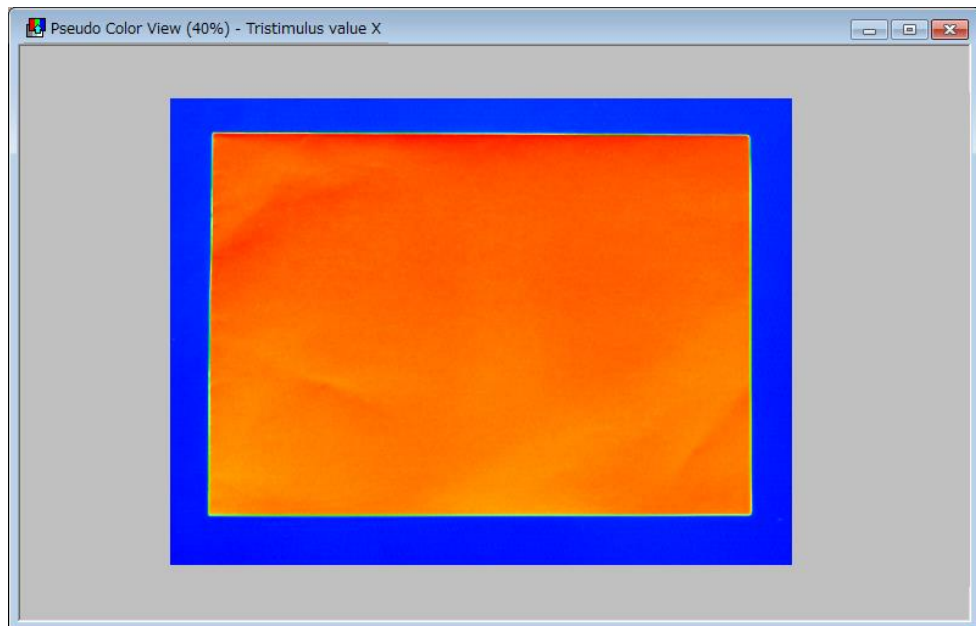
- 1 From the [Thumbnail View], select the measurement image for which trimming is to be canceled.



- 2 Right-click on the view and The [Pseudo Color View] Pop-up menu will appear. From the Menu, select [Trimming] – [OFF] sequentially.



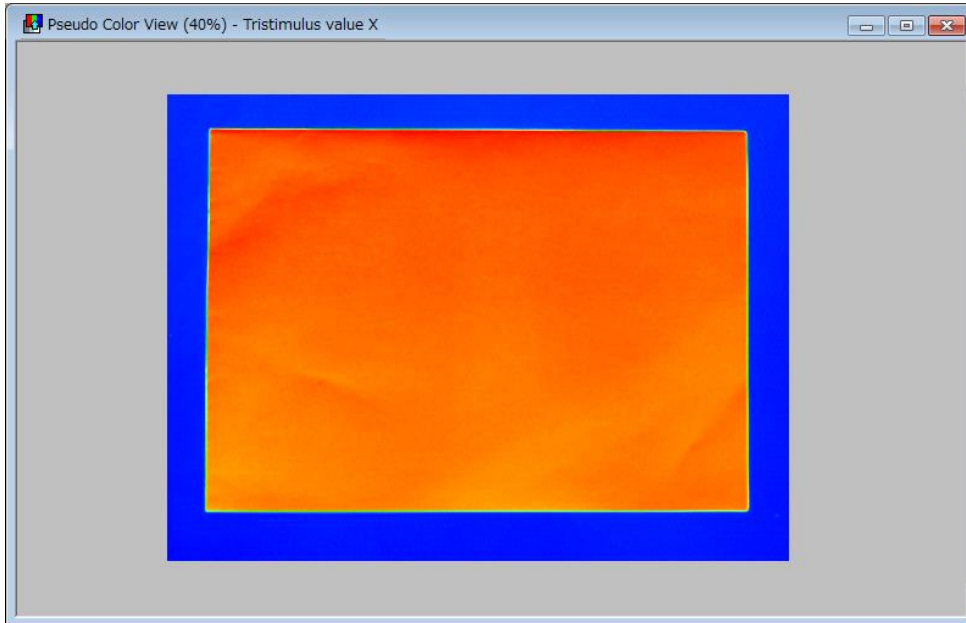
- 3 The trimming is canceled, and the original measurement image is displayed.



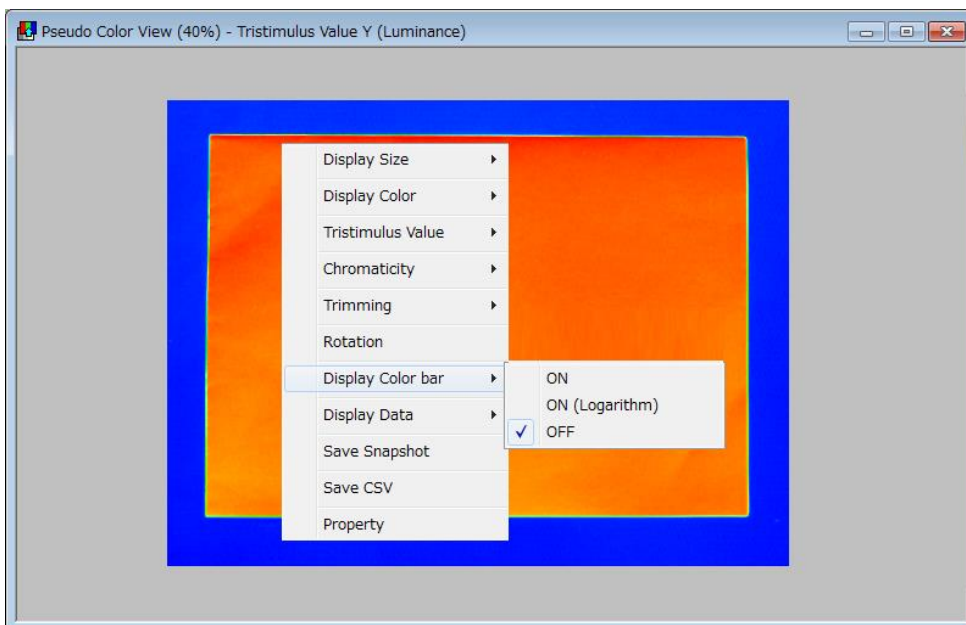
5.2.9 Setting of Show/Hide Color Bar

Displays the Color bar on Pseudo Color View. To set the Color bar, the steps are as follows:

- 1 Click on Pseudo Color View to activate Window.



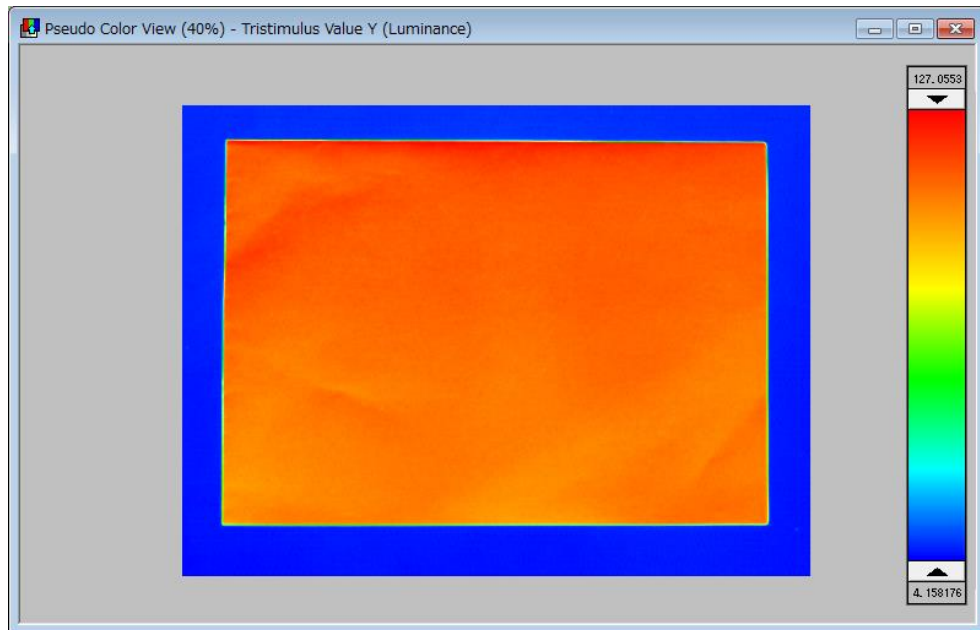
- 2 Right-click on the Pseudo Color view and the Pop-up menu will appear. Select [Display Color bar]-[ON] or [Display Color bar]-[ON (Logarithm)].



 Memo

In the case of logarithm display of color bar, the slide interval of color bar is not uniform. The color arrangement interval at the lower limit value side is wide and the interval at the upper limit value side is narrow.

3 The Color bar will appear on the Pseudo Color view.




 Memo

Color bar will not be displayed, chromaticity xy color / chromaticity u'v 'color display.

4 If [Display Color bar]-[OFF] is selected from the Pop-up menu, the Color-bar will be hidden.

 Memo

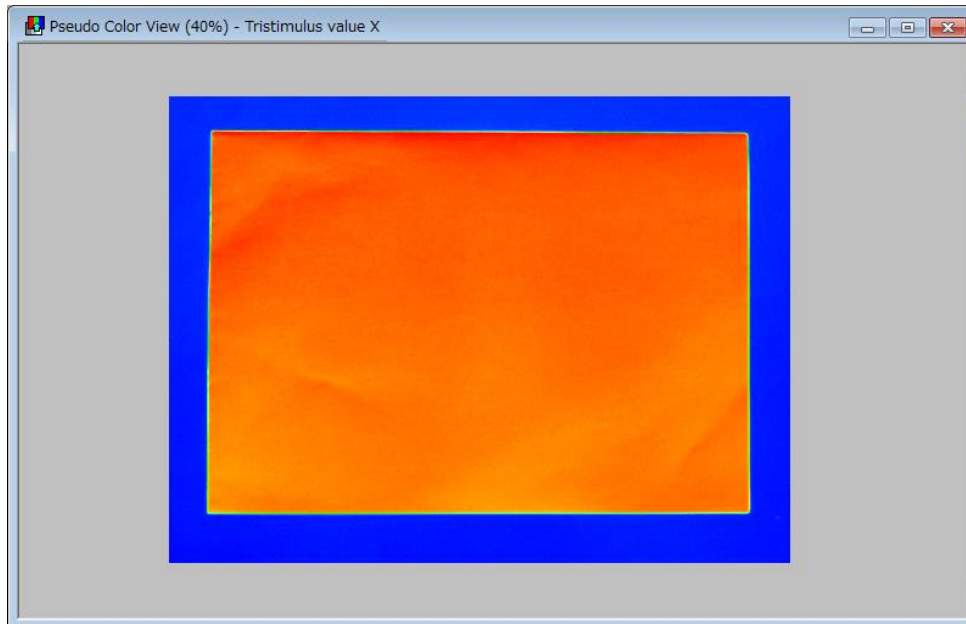
- Color bar are adjustable on the [Pseudo Color] View. Adjustment in the color bar take effect on the [Pseudo Color] View after slide bar operation.
- Once slide bar is moved from original position, the [Pseudo color] view keep slide bar setting. Move slide bar to the upper limit and lower limit position to show the data at largest resolution.

 "5.2.14 Set Upper Limit/Lower Limit Value of Pseudo Color Adjustment"

5.2.10 Setting of Show/Hide Minimum, Maximum, and Average values

The minimum, maximum, and average values can be displayed on Pseudo Color View. To view the minimum, maximum, and average values, the steps are as follows:

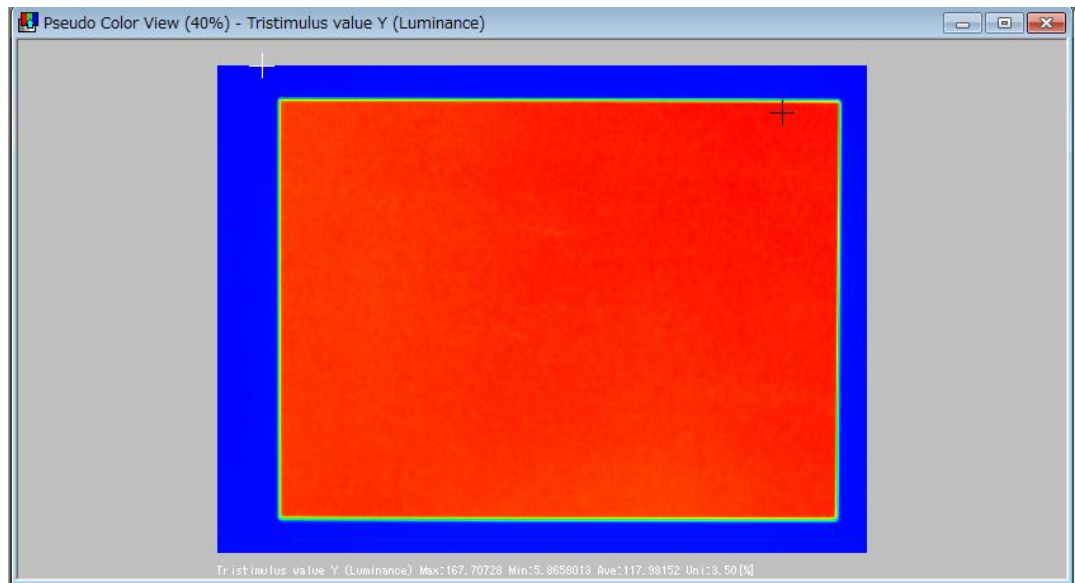
- 1 Click on Pseudo Color View to activate Window.



- 2 Right-click on the Pseudo Color view and the Pop-up menu will appear. Select [Display Data]-[ON].



- 3 Maximum, minimum, and average of measured view in the view are displayed below the view. The points where data is max and min in the measured view are displayed as cross-line in the view.



Memo

Color of cross-line for Max, Min points vary from the pseudo view and Gray scale.

Pseudo color	Min :White, Max:Black
Gray scale	Min :Red, Max:Green yellow
Chromaticities xy color	Min :White, Max:Black (“xy” display)
Chromaticities u’v’ color	Min :White, Max:Black (“u’v” display)

Memo

Only when “Tristimulus value Y” is selected, “Uniformity” is displayed below the view in addition to minimum, maximum and average values.

“Uniformity” is “(Minimum value/Maximum value) × 100 [%]”.

Memo

“Chromaticities xy / u’v’ color” is selected, below displayed minimum, maximum and between the range values.

- 4 If [Display Data]-[OFF] is selected from the Pop-up menu, the minimum, maximum, and average values will be hidden.

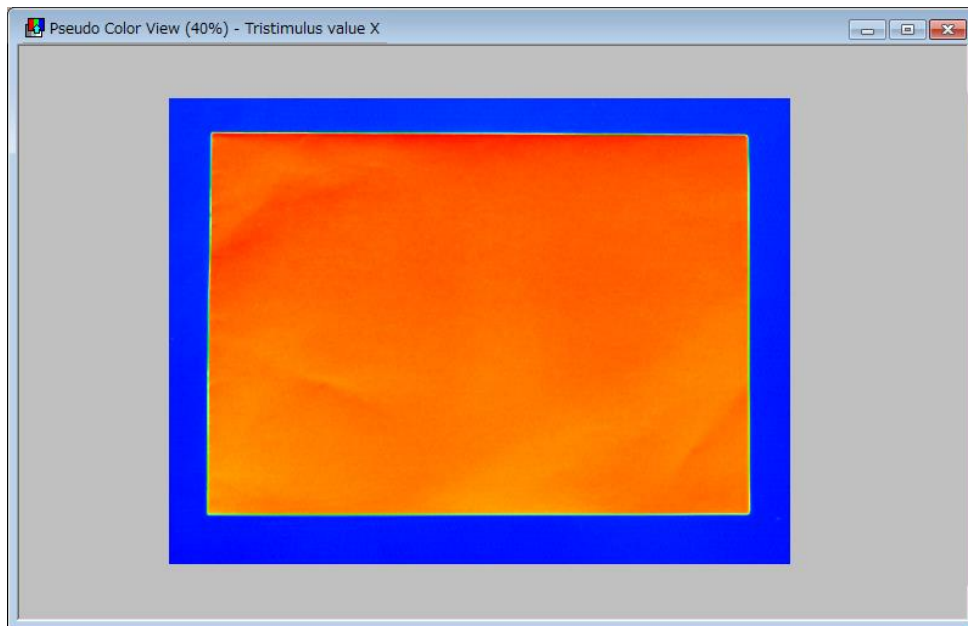
5.2.11 Save Snapshot

Saves the displayed view in a specific file format. For the file format, you can select [BMP], [JPG], or [PNG]. To save the Snapshot, go through the following steps.

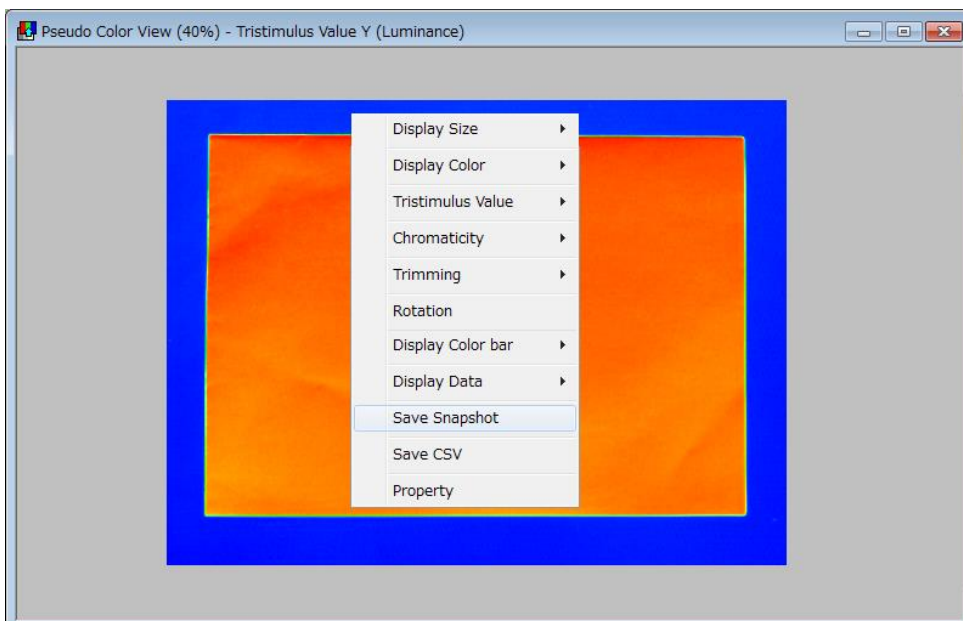
Memo

This operation is the same in [Live View], [Standard Spot View], [Split Spot View], [Random Spot View], [Contour View], [Cross Section View], [Chromaticity Diagram View], [Histogram View], and [3D View], [RGB Color View], [Color system Pseudo Color View], [Judgment result View].

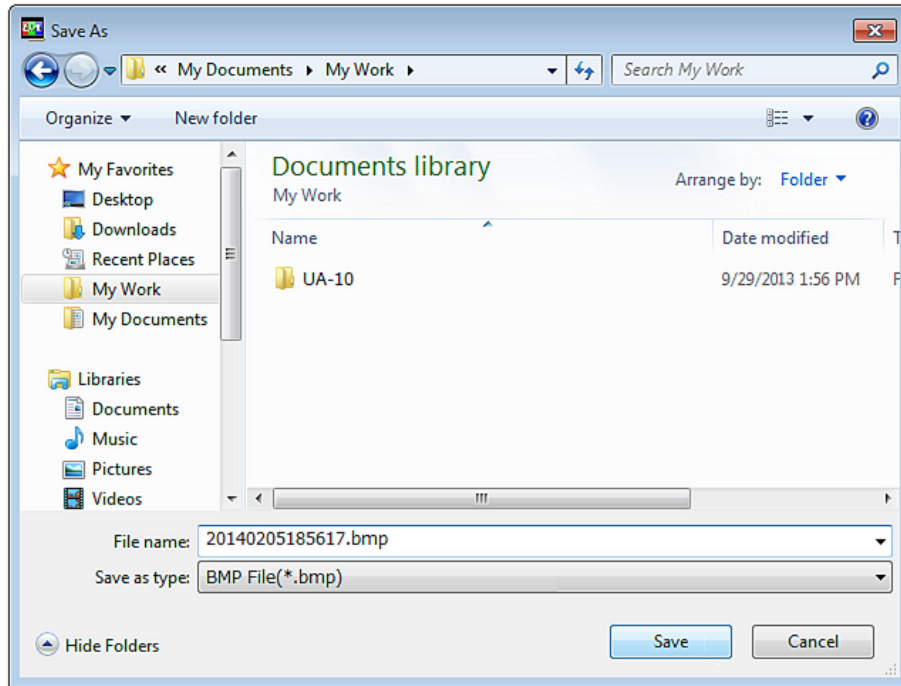
- 1 Activate the [View] to be Snapshot-saved.



- 2 Right-click the mouse within the view and the pop-up menu will appear. Select [Save Snapshot].



- 3 The Explorer window opens. Specify the path, file name, and file format to be saved. [BMP], [TIFF], or [PNG] format are available.



5.2.12 Save Measurement Data in CSV File Format

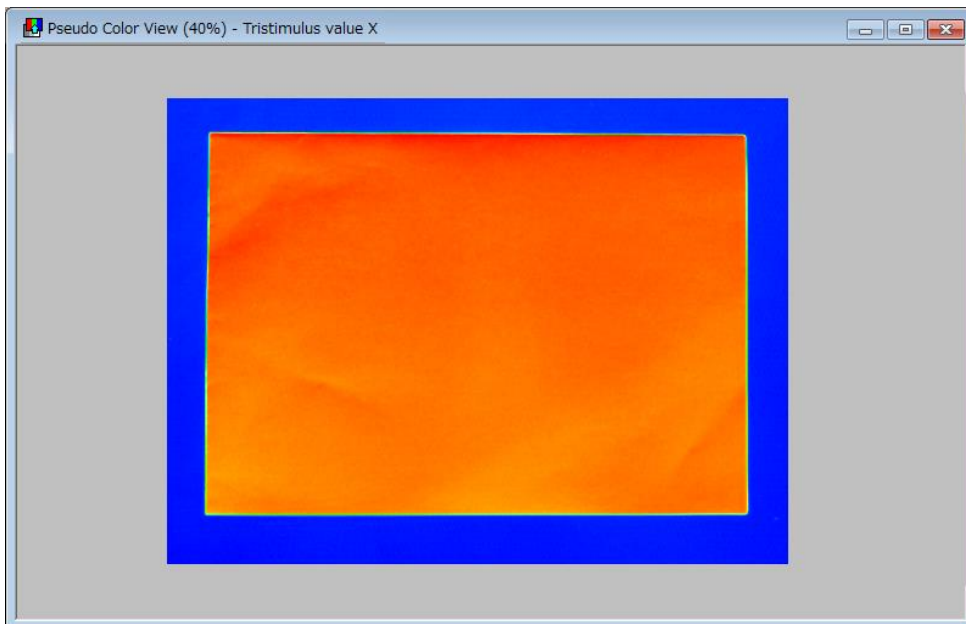
Saves the measurement data within the view in CSV file format. To save the measurement data within the view in CSV file format, go through the following steps.

Memo

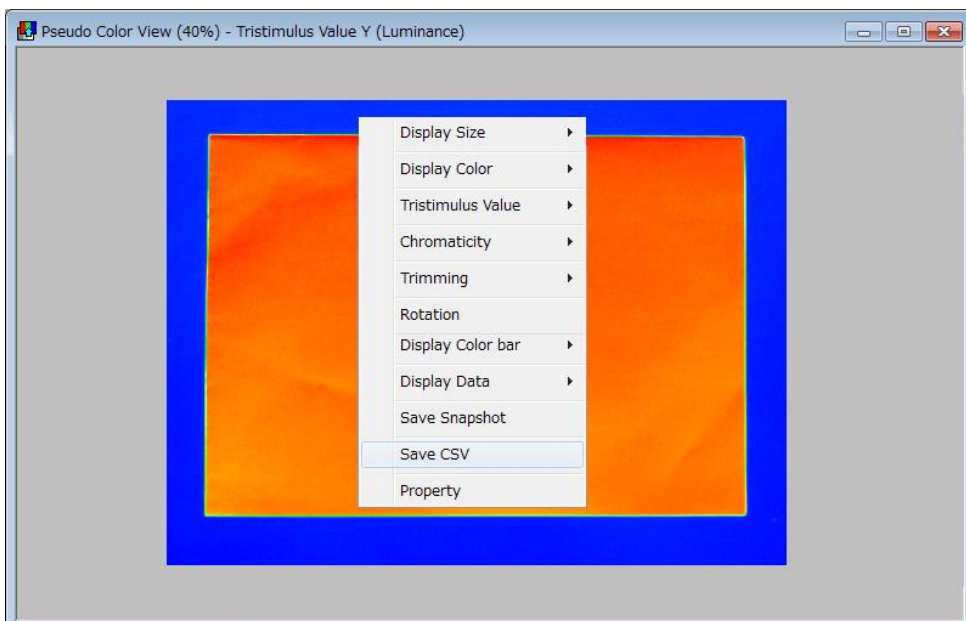
- This operation is the same in [Standard Spot View], [Split Spot View], [Random Spot View], [RGB Color View], [Color system Pseudo Color View], and [Judgment result View].
- Output items to be saved are specified on [Recipe Setting] - [CSV Setting].

☞ "3.10.7 Setting the CSV Output for Each View"

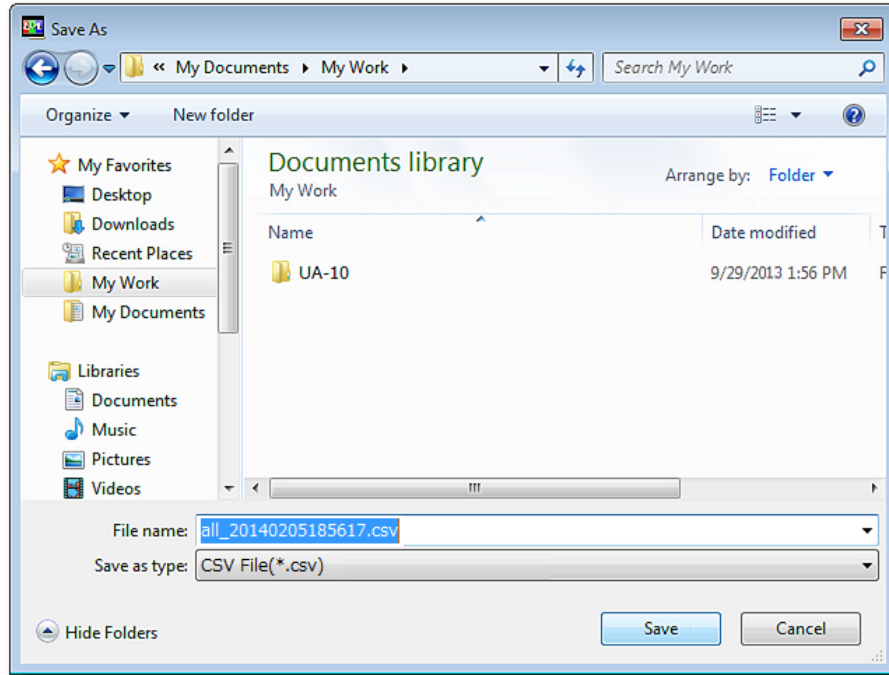
- 1 Activate the [View] window for the measurement data to be saved in CSV file format.



- 2 Right-click the mouse within the view to open the pop-up menu and select the [Save CSV].



- 3 The Explorer window opens. Specify the path, file name, and file format to be saved. [CSV] and [TEXT] file format are available.



 Memo

- The following character strings are placed on the top of the file name depending the Views to be saved.

Random spot	rdm_
Standard spot	std_
Split spot	mtx_
Pseudo color	all_
Cross-section	sct_
RGB color	all_
Color system Pseudo color	clr_
Judgment result (random spot)	rdmj_
Judgment result (standard spot)	stdj_
Judgment result (split spot)	mtxj_
Judgment result (all pixel)	allj_
- If the [Pseudo Color View] - [Save CSV] is selected, when the trimming area is specified, the measurement data in only the trimmed area are saved.
- The Tristimulus values data, in which saturation occur are saved as “over” and The Chromaticity values data, in which saturation occur are saved as “error”.
- When some item is checked in the [Recipe Setting] - [CSV Setting] process but data does not exist for the item, a blank is saved for the item.

Display Format of All Data CSV Files

From the top down, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [All Data], the unchecked items are not recorded.

The screenshot shows a Microsoft Excel spreadsheet with the following structure:

- Columns:** A through S. Column A is labeled 'Tristimulus Value X' and column B is labeled 'Value Y'. Columns C through S contain numerical data.
- Rows:** 1 through 50. Row 1 is the header row. Rows 2-50 contain numerical data.
- Formulas:** Some cells in the first few rows contain formulas like '=A1+B1'.
- Interface:** The Excel ribbon (File, Edit, View, Insert, Format, Tools, Data, Window, Help) and the status bar (Ready, CAPS NUM) are visible.

Memo

When maximum, minimum and average values are checked for some item in the [Recipe Setting] - [CSV Setting] process, minimum, maximum and average values are output for the item.

Display Format of Standard Spot View CSV Files

From the top down, the measurement data for the spot number displayed on the Standard Spot View are arranged in line.

From the left, Spot Coordinate X and Y, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially. On each measurement data, the difference in the measured value between each spot and the center (spot number 1) is recorded.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [Standard Spot], the unchecked items are not recorded, and the data are recorded with the next item moved ahead.

	A	B	C	D	E	F	G	H	I	J	K	
1		X Coordinate	Y Coordinate	Tristimulus X	Y Center D	Tristimulus Value Y	Luminanc	Center Difference	Center Diff	Tristimulus	Center Diff	Chromatici
2	1	340	256	936.8852	0	1067.839	0	0	1090.274	0	0	0.3027
3	2	170	256	866.6881	-70.197	989.9348	-77.9037	7.29	1000.641	-89.6331	0	0.30332
4	3	170	128	960.5469	23.6617	1085.098	17.25952	1.61	1102.753	12.47956	0	0.30509
5	4	340	128	1030.464	93.5784	1172.194	104.3554	9.77	1194.809	104.5352	0	0.3033
6	5	510	128	1055.028	118.143	1214.081	146.2425	13.69	1226.862	136.588	0	0.30178
7	6	510	256	957.8677	20.9826	1102.605	34.76633	3.25	1112.404	22.13048	0	0.30189
8	7	510	384	935.5179	-1.3673	1096.209	28.37066	2.65	1087.879	-2.39533	0	0.29988
9	8	340	384	936.0316	-0.8536	1074.289	6.450315	0.6	1087.259	-3.01505	0	0.30218
10	9	170	384	899.3723	-37.513	1032.252	-35.5868	3.33	1047.785	-42.4893	0	0.30186
11	10	67	256	791.2122	-145.67	898.5856	-169.253	15.85	897.6991	-192.574	0	0.30578
12	11	67	128	870.2716	-66.614	998.2088	-69.6298	6.52	994.3762	-95.8977	0	0.30398
13	12	67	51	747.1268	-189.76	858.5323	-209.306	19.6	861.251	-229.022	0	0.30285
14	13	170	51	759.2749	-177.61	870.8927	-196.945	18.44	867.879	-222.394	0	0.30394
15	14	340	51	907.9984	-28.887	1037.682	-30.157	2.82	1052.031	-38.2425	0	0.30269
16	15	510	51	926.2488	-10.636	1070.822	2.983471	0.27	1060.27	-30.0039	0	0.30295
17	16	612	51	905.0271	-31.858	1048.436	-19.403	1.81	1051.419	-38.8549	0	0.30118
18	17	612	128	1041.539	104.654	1206.075	138.2365	12.94	1195.679	105.4049	0	0.30248
19	18	612	256	935.3961	-1.4891	1086.445	18.60641	1.74	1082.655	-7.6193	0	0.3013
20	19	612	384	899.6597	-37.225	1071.238	3.399006	0.31	1034.82	-55.454	0	0.29931
21	20	612	460	790.1923	-146.69	921.8546	-145.984	13.67	892.3172	-197.956	0	0.30341
22	21	510	460	834.189	-102.7	974.4427	-93.3958	8.74	959.4909	-130.783	0	0.30135
23	22	340	460	833.0243	-103.86	966.7607	-101.077	9.46	964.3933	-125.88	0	0.30136
24	23	170	460	819.002	-117.88	933.6268	-134.211	12.56	945.5291	-144.744	0	0.30354
25	24	67	460	774.7833	-162.1	885.392	-182.446	17.08	882.914	-207.359	0	0.30466
26	25	67	384	817.1668	-119.72	935.3054	-132.533	12.41	936.192	-154.081	0	0.30393
27												
28												
29												
30												
31												
32												
33												
34												

Memo

Maximum and minimum values are displayed when Min and Max are checked in the [Recipe setting] - [CSV setting].

Display Format of Split Spot View CSV Files

From the top down, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially.

The data is recorded according to the split count set on [Property] of Split Spot View.

The spot number is recorded in the first column of the first row located on the external side of the data.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [Split Spot], the unchecked items are not recorded, and the data are recorded with the next item moved ahead.

The screenshot shows a Microsoft Excel spreadsheet with the following structure:

- Columns:** Labeled A through S. Column A is the first column of data, containing spot numbers 1 through 17.
- Row 1:** Labeled "Tristimulus Value X".
- Row 2:** Labeled "Tristimulus Value Y (Luminance)".
- Row 3:** Labeled "Tristimulus Value Z".
- Data:** Each row contains 17 columns of numerical data, representing the tristimulus values for each spot.

The data is organized into three main sections: Tristimulus Value X (rows 1-17), Tristimulus Value Y (Luminance) (rows 18-34), and Tristimulus Value Z (rows 35-51). Each section starts with a header row (A1, A18, A35) and contains 17 columns of numerical values.

Display Format of Random Spot View CSV Files

From the top down, the measurement data for the spot number displayed on the Random Spot View are arranged in line.

From the left, Spot Coordinate X and Y, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially. On each measurement data, the difference in the measured value between each spot and the center (spot number 1) is recorded.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [Random Spot], the unchecked items are not recorded, and the data are recorded with the next item moved ahead.

A	B	C	D	E	F	G	H	I	J	K	L	M
1												
2	1	340	256	936.8852	0	1067.839	0	0	1090.274	0	0.3027	0
3	2	57	71	763.82	-173.065	887.2415	-180.597	16.91	880.2627	-209.991	0.30174	-0.00096
4	3	68	460	776.6207	-160.264	887.3761	-180.462	16.89	884.8825	-205.391	0.30469	0.00198
5	4	65	144	864.2108	-72.6744	988.6524	-79.1862	7.41	985.5967	-104.677	0.30446	0.00175
6	5	75	284	795.7881	-141.097	908.0107	-159.827	14.96	903.0675	-187.206	0.30526	0.00255
7	6	75	372	824.6368	-112.248	943.0023	-124.836	11.69	947.461	-142.812	0.30372	0.00101
8	7	195	65	842.3773	-94.5079	966.9652	-100.873	9.44	972.0879	-118.186	0.30285	0.00014
9	8	190	137	955.5264	18.64125	1081.249	13.4105	1.25	1096.69	5.416048	0.30503	0.00233
10	9	191	258	876.7939	-60.0913	1000.034	-67.8051	6.34	1013.403	-76.8711	0.30336	0.00065
11	10	195	367	901.6532	-35.232	1030.631	-37.2075	3.48	1052.13	-38.1436	0.30212	-0.00058
12	11	204	441	850.7444	-86.1407	976.1316	-91.707	8.58	982.9563	-107.317	0.30277	0
13	12	337	458	838.494	-98.3912	973.9229	-93.9157	8.79	970.9475	-119.326	0.30125	-0.00145
14	13	335	348	904.1314	-32.7537	1037.994	-29.8442	2.79	1051.96	-38.3138	0.30197	-0.00073
15	14	337	165	978.0563	41.17109	1110.939	43.09992	4.03	1132.186	41.91177	0.30363	0.00092
16	15	351	61	956.9877	20.10248	1091.306	23.46703	2.19	1109.641	19.36734	0.30304	0.00033
17	16	478	57	957.9939	21.10875	1101.607	33.76832	3.16	1101.072	10.79853	0.30309	0.00038
18	17	478	161	1024.082	87.19683	1166.511	96.6719	9.24	1189.745	99.47112	0.30295	0.00024
19	18	481	252	964.6858	27.80065	1106.464	38.62506	3.61	1118.144	27.87043	0.30247	-0.00023
20	19	474	342	911.8608	-25.0244	1061.717	-6.12141	0.57	1062.534	-27.7395	0.30033	-0.00237
21	20	468	455	889.9646	-66.9205	1017.123	-50.7156	4.74	1005.533	-84.7404	0.30075	-0.00195
22	21	607	457	801.2775	-135.607	935.9976	-131.841	12.34	907.2513	-183.022	0.30299	0.00028
23	22	600	347	891.7418	-45.1434	1054.738	-13.1006	1.22	1027.947	-62.3272	0.2998	-0.0029
24	23	604	255	943.4912	6.606042	1095.023	27.18444	2.54	1091.755	1.480688	0.3014	-0.0013
25	24	610	164	1011.571	74.6854	1168.792	100.9537	9.45	1166.106	75.83246	0.30228	-0.00042
26	25	617	51	894.999	-41.8862	1036.222	-31.6169	2.96	1042.207	-48.0668	0.30099	-0.00171
27												
28												
29												
30												
31												
32												
33												
34												

Memo

Maximum and minimum values are displayed when Min and Max are checked in the [Recipe setting] - [CSV setting].

Display Format of Cross Section View CSV Files

Format name, Start point coordinate, End point coordinate of the coordinate display format (Cruciform Cross-section and Shaded Cross-section) are recorded sequentially. From the top down, Spot Coordinate X and Y, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially.

In each measurement data, the measurement value of the intersection point, the measurement value of the cross section line longitudinal axis, and the measurement value of the cross section line lateral axis are displayed sequentially.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [Cross Section View], the unchecked items are not recorded, and the data are recorded with the next item moved ahead.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Cruciform Cross Section												
2	Intersection	340	256										
3	Lateral Axis	0	256	679	256								
4	Longitudinal Axis	340	0	340	511								
5	Tristimulus Value X												
6	Intersection	939.8137											
7	Lateral Axis	3.79772	3.797635	3.683636	3.819466	3.819412	3.79658	3.796527	3.785142	3.921726	3.955673	3.966953	4.086235
8	Longitudinal Axis	5.752662	5.753479	5.653623	5.497146	5.560575	5.5614	5.652132	5.778341	5.9141	6.072369	6.410543	6.456451
9	Tristimulus Value Y (Luminance)												
10	Intersection	1070.807											
11	Lateral Axis	3.657648	3.656867	3.656087	3.793096	3.792286	3.929209	3.928371	3.927533	4.029928	4.063473	4.54415	4.543183
12	Longitudinal Axis	5.98848	5.988455	5.852416	5.750381	5.852367	5.852342	5.88632	6.022306	6.430311	6.430284	6.430256	6.566238
13	Tristimulus Value Z												
14	Intersection	1093.598											
15	Lateral Axis	4.577791	4.578544	4.579296	5.370207	5.37109	5.371974	5.372857	5.30785	5.306723	5.507331	5.57416	5.871777
16	Longitudinal Axis	7.309353	7.311747	7.512616	7.515078	7.861647	7.884233	7.886819	8.618336	8.621164	8.623998	8.626831	8.629665
17	Chromaticity x												
18	Intersection	0.30275											
19	Lateral Axis	0.3156	0.3156	0.30905	0.29419	0.29419	0.28986	0.28986	0.2907	0.29574	0.29243	0.28163	0.28178
20	Longitudinal Axis	0.30196	0.30196	0.29726	0.29298	0.28819	0.28818	0.29096	0.28298	0.28208	0.28742	0.29861	0.29818
21	Chromaticity y												
22	Intersection	0.34495											
23	Lateral Axis	0.30396	0.3039	0.30674	0.29216	0.2921	0.29999	0.29992	0.30164	0.3039	0.3004	0.32261	0.31329
24	Longitudinal Axis	0.31434	0.31429	0.30771	0.30648	0.30331	0.30326	0.30302	0.29493	0.3067	0.30436	0.29953	0.30325
25	Chromaticity u'												
26	Intersection	0.18534											
27	Lateral Axis	0.20983	0.20985	0.2039	0.19886	0.19888	0.19259	0.19261	0.19257	0.19536	0.19431	0.17858	0.18191
28	Longitudinal Axis	0.19582	0.19583	0.19499	0.19237	0.19011	0.19013	0.19223	0.1895	0.18448	0.18917	0.19917	0.19738
29	Chromaticity v'												
30	Intersection	0.47514											
31	Lateral Axis	0.4547	0.45466	0.45534	0.44434	0.44431	0.44847	0.44844	0.44959	0.45169	0.44911	0.46028	0.45508
32	Longitudinal Axis	0.45866	0.45862	0.45415	0.45279	0.45021	0.45018	0.45045	0.44438	0.45131	0.45072	0.44951	0.45167
33	Color Temperature												
34	Intersection	6889.07											

Display Format of Time-series View CSV Files

The Time-series CSV file is commonly available for Standard Spot, Split Spot, and Random Spot.

From the top down, Spot Coordinate X and Y, Tristimulus value X, Y, and Z, Chromaticity x and y, Chromaticity u' and v', Color Temperature, Deviation, Excitation Purity, and Dominant Wavelength are recorded sequentially.

The measured data are arranged sequentially from the top down in line for the image measurement count from the measurement start time, and the measurement date and time, the elapsed time, and the measurement value of the spot number displayed on the view are sequentially recorded in rows from left to right.

In the [Recipe Setting] - [CSV Setting] - [File Type] - [Cross Section View], the unchecked items are not recorded, and the data are recorded with the next item moved ahead.

The screenshot shows a Microsoft Excel spreadsheet with the following structure:

- Tristimulus Value X (Rows 1-12):**
 - Row 1: Headers for Measurement Time, Elapsed Time, and Spots 1-10.
 - Row 2: Data for Spot 1.
 - Row 3: Data for Spot 2.
 - Row 4: Data for Spot 3.
 - Row 5: Data for Spot 4.
 - Row 6: Data for Spot 5.
 - Row 7: Data for Spot 6.
 - Row 8: Data for Spot 7.
 - Row 9: Data for Spot 8.
 - Row 10: Data for Spot 9.
 - Row 11: Data for Spot 10.
 - Row 12: Summary row for Tristimulus Value X.
- Tristimulus Value Y (Luminance) (Rows 13-24):**
 - Row 13: Headers for Measurement Time, Elapsed Time, and Spots 1-10.
 - Row 14: Data for Spot 1.
 - Row 15: Data for Spot 2.
 - Row 16: Data for Spot 3.
 - Row 17: Data for Spot 4.
 - Row 18: Data for Spot 5.
 - Row 19: Data for Spot 6.
 - Row 20: Data for Spot 7.
 - Row 21: Data for Spot 8.
 - Row 22: Data for Spot 9.
 - Row 23: Data for Spot 10.
 - Row 24: Summary row for Tristimulus Value Y.
- Tristimulus Value Z (Rows 25-34):**
 - Row 25: Headers for Measurement Time, Elapsed Time, and Spots 1-10.
 - Row 26: Data for Spot 1.
 - Row 27: Data for Spot 2.
 - Row 28: Data for Spot 3.
 - Row 29: Data for Spot 4.
 - Row 30: Data for Spot 5.
 - Row 31: Data for Spot 6.
 - Row 32: Data for Spot 7.
 - Row 33: Data for Spot 8.
 - Row 34: Summary row for Tristimulus Value Z.

Display Format of Judgment result View CSV Files

In the case of “Judgment result (random spot, split spot, standard spot)”, data are displayed as follows:

On the upper column, the set values of the judgment items in [Judgment condition setting] are arranged sequentially from the top.

On the middle column, the measurement data of the spot numbers displayed in [Judgment result List] and the general OK/NG judgment results in the spots are arranged sequentially from the top.

On the lower column, the OK/NG judgment results of the spot numbers displayed in [Judgment result List] are arranged sequentially from the top.

From the left, Spot number, Spot Coordinates X and Y at the spot, OK/NG judgment, Tristimulus values X, Y and Z, Chromaticity x, Chromaticity y, Chromaticity u', Chromaticity v', L*, a*, b*, C*, h, Chromaticity xy, Chromaticity u'v' and C*h are recorded sequentially.

Memo

- For the selected judgment items, a blank is recorded for “OK” and “NG” is recorded for “NG”.
- When all the selected items are OK, the general OK/NG judgment result in the spot is OK. When one of the selected items is not OK, the general OK/NG judgment result is NG. When the result is OK, “OK” is recorded. When the result is NG, “NG” is recorded.

In the case of “Judgment result (all pixel)”, on the upper column, the set values of the judgment items in [Judgment condition setting] are arranged sequentially from the top. After these values, the judgment results for all of pixels are recorded as “0” or “1” about Tristimulus values X, Y and Z, Chromaticity x, Chromaticity y, Chromaticity u', Chromaticity v', L*, a*, b*, C*, h, Chromaticity xy, Chromaticity u'v' and C*h sequentially from the top.

When some item at [Judgment] of [CSV File type] in the [Recipe setting] - [CSV Setting] process is unchecked, the item is not recorded, and the data are recorded with the next item moved ahead.

Memo

“NG” is recorded for the judgment result [0] and “OK” is recorded for [1].

5.2.13 Open Property Window

Adjusts the display color of the view displayed on the Pseudo Color.

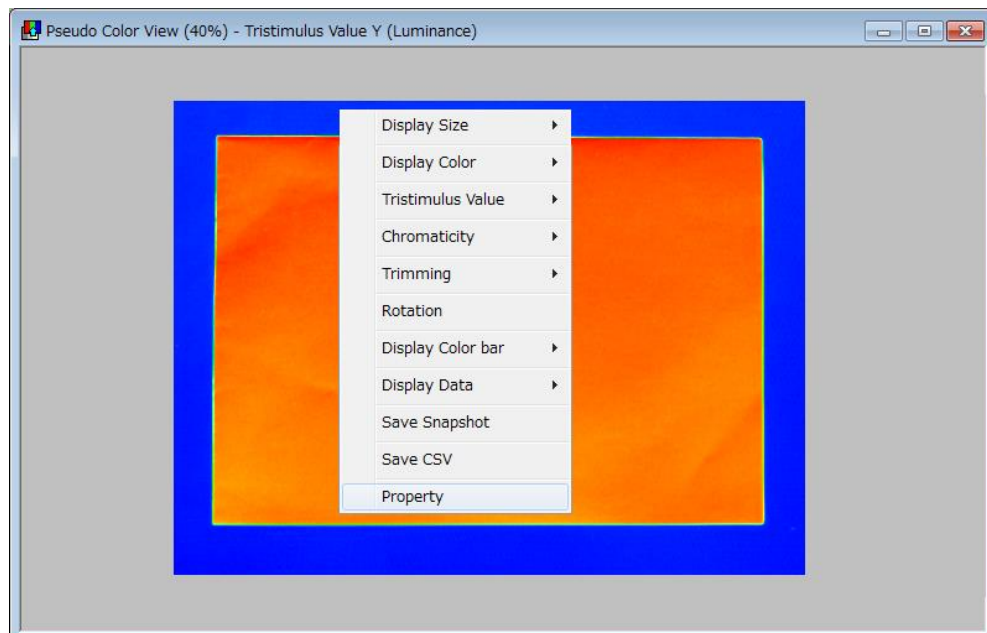
To open the Pseudo Color Property, go through the following steps.

Memo

When the display color of the Pseudo Color View is set, it is changed in real time. When the [Property] dialog is closed after setting the display color, the display color is immediately applied to the following views.

- Standard Spot View
- Split Spot View
- Random Spot View
- Contour View
- Cross Section View
- Thumbnail View
- Time-series Measurement View
- 3D View
- Judgment result View

- 1 Open the [Pseudo Color View].
- 2 Right-click anywhere within [Pseudo Color View] and pop-up menu will appear. Select the [Property] from the menu.



3 [Pseudo Color Property] will appear.

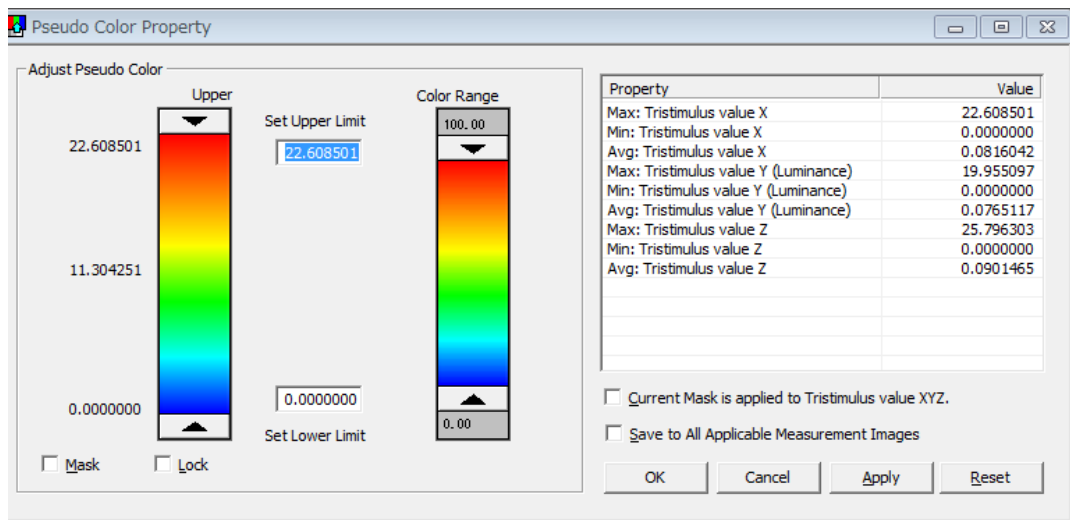
[Adjust Pseudo Color] set the upper limit value and lower limit value of the measurement data.

☞ “5.2.14 Set Upper Limit/Lower Limit Value of Pseudo Color Adjustment”

The maximum, minimum, and average value of the Tristimulus values X, Y, Z and the Chromaticity x, y, u', v' are displayed on the table on the right side dialog,

When the setting is completed, click any button.

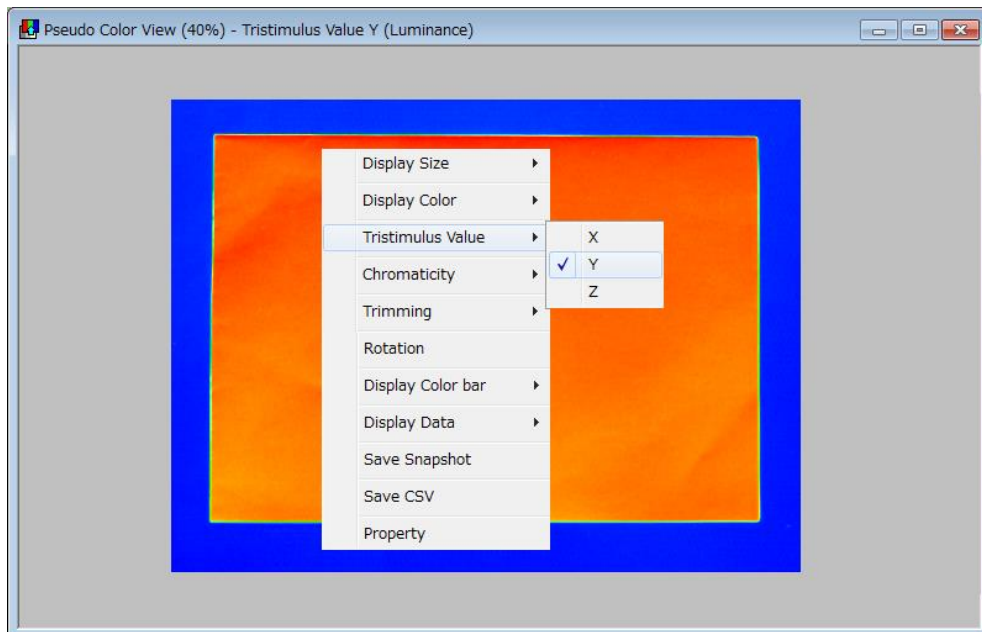
- [OK] Enables the setting and closes this window.
- [Cancel] Disables the setting and closes this window.
- [Apply] Enables the setting. Enables you to continue the setting without closing the window.
- [Reset] Resets the setting to the prior-to-change state. This operation does not close the window.



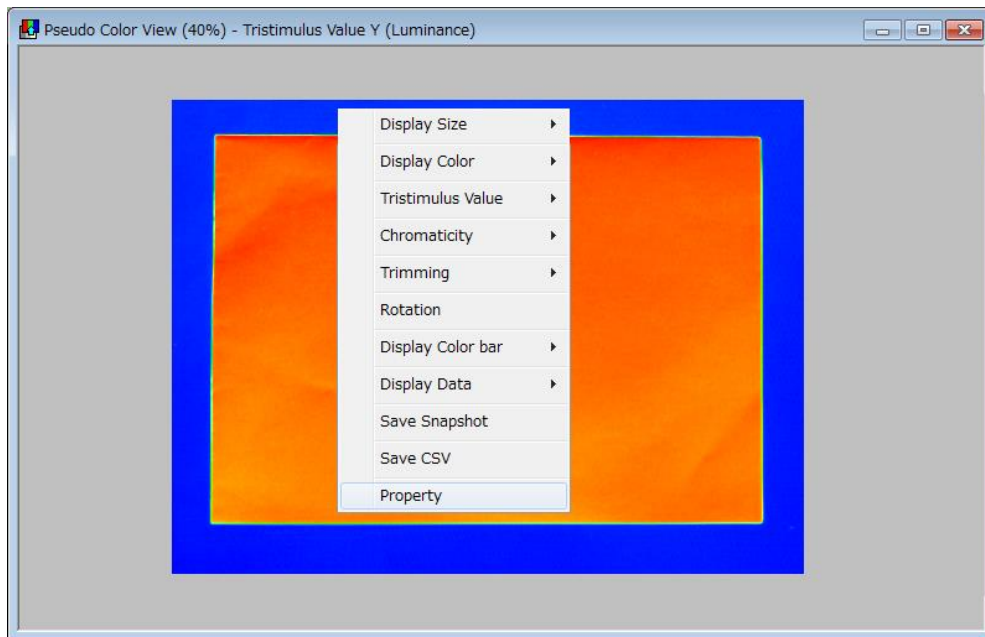
5.2.14 Set Upper Limit/Lower Limit Value of Pseudo Color Adjustment

Specifies the upper limit value rendered in red and the lower limit value rendered in blue. The measurement image within the upper and lower limit are rendered in colors. The upper limit or higher measurement values are rendered in red, the lower limit or lower measurement values are rendered in blue. Specifying the upper limit and lower limit values enables you to minutely render the colors in an arbitrary range so that slight differences in measurement image can be emphasized. The valid range is from the minimum to the maximum value of the measurement data. When changing measurement items of Tristimulus values and chromaticity, the upper limit value and the lower limit value are set to the maximum value and minimum value, respectively. By selecting the [Color scale synchronization] check box, it is possible to set an optional setting range inside and outside the minimum and maximum value range. To set the upper limit and lower limit values of the pseudo color, go through the following steps.

- 1 Open [Pseudo Color View] and click the right mouse button to open pop-up menu. Select
From [Tristimulus Values], select one from the Tristimulus values.

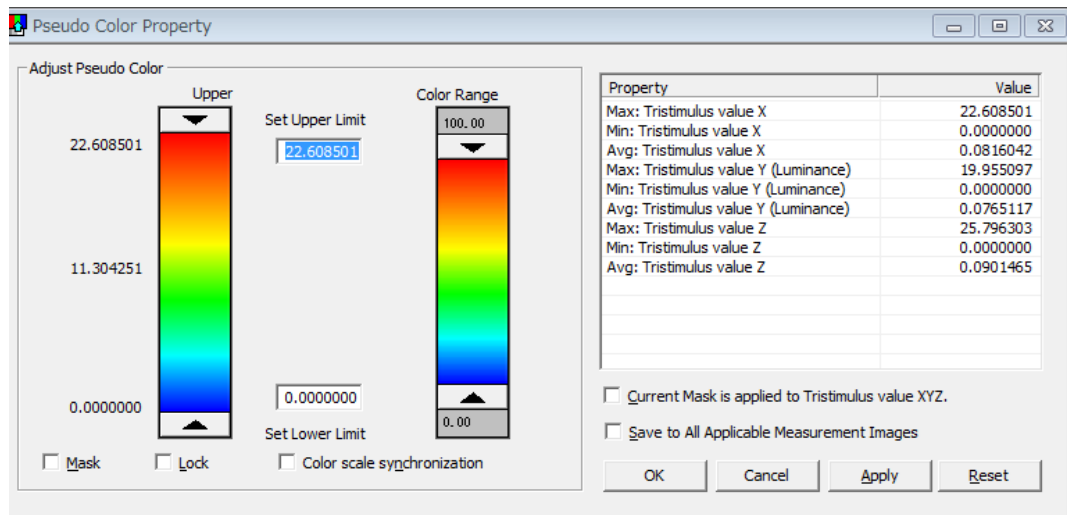


- 2 Right-click [Pseudo Color View] and open pop-up menu.
Select [Property] from the pop-up menu.



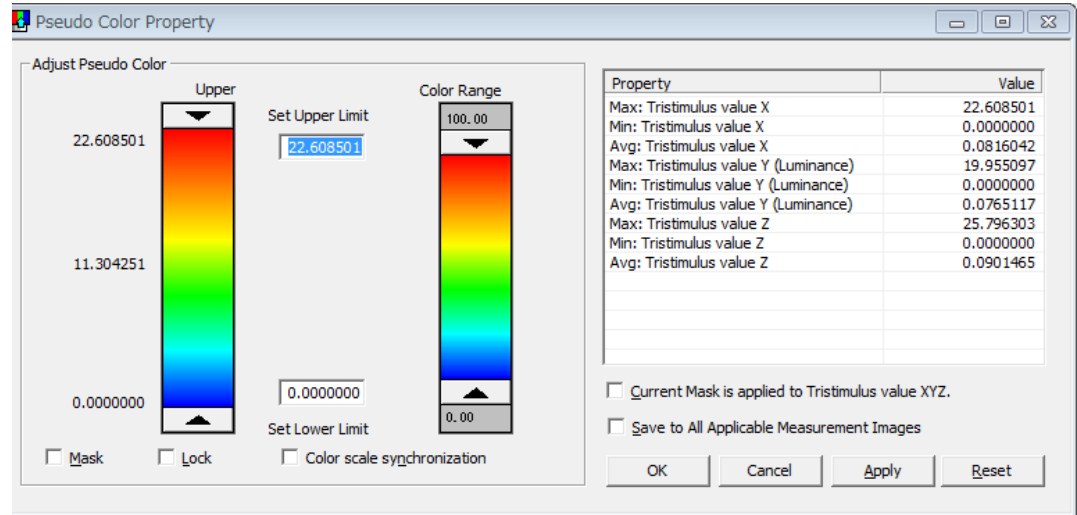
- When setting the upper and lower limit range inside the minimum and maximum value range of measurement data

- 3 [Pseudo Color Property] will appear. Set "OFF" for the [Color scale synchronization] check box. Set the upper and lower limit by using the [Set Upper Limit/Lower Limit] slide bar while observing the color variation of [Pseudo Color View]. Or, enter directly the value in the edit box beneath the [Set Upper Limit/Lower Limit] slide bar.



- When setting the upper and lower limit range outside the minimum and maximum value range of measurement data

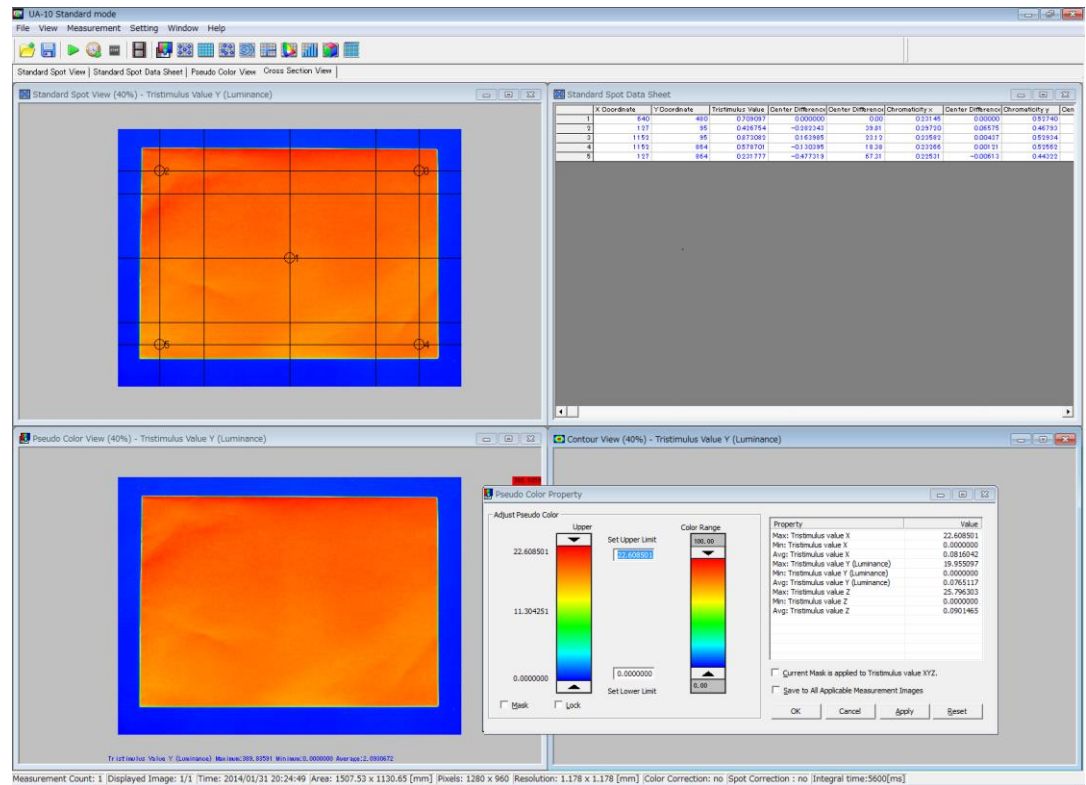
- [Pseudo Color Property] will appear. Set "ON" for the [Color scale synchronization] check box. Enter directly the value in the edit box beneath the [Set Upper Limit/Lower Limit] slide bar.



Memo

When selecting "ON" for the [Color scale synchronization] check box, the [Set Upper Limit/Lower Limit] slide bar is forcedly locked and cannot be operated.

- Setting the [Set Upper Limit/Lower Limit] also affect other views.

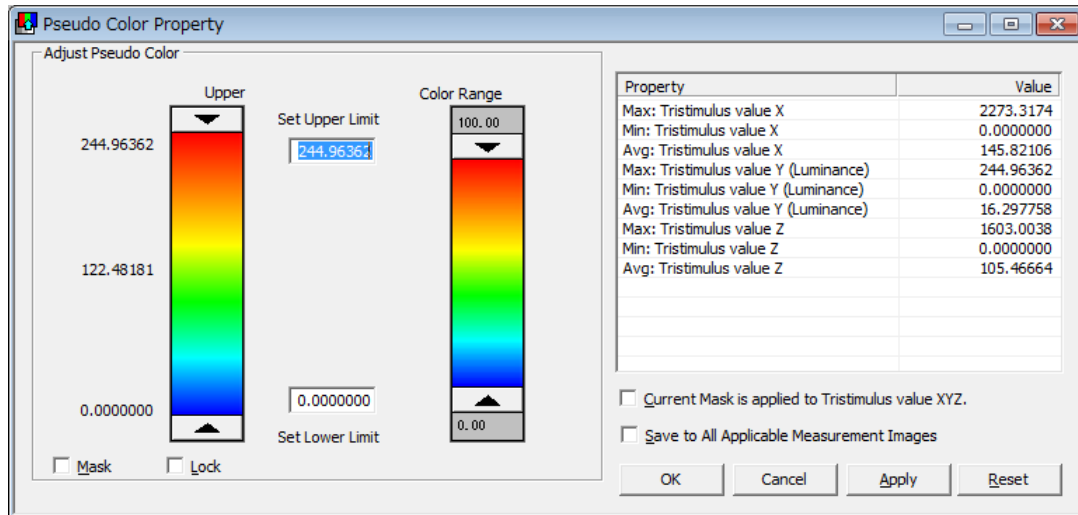


5.2.15 Adjust color range in pseudo color view

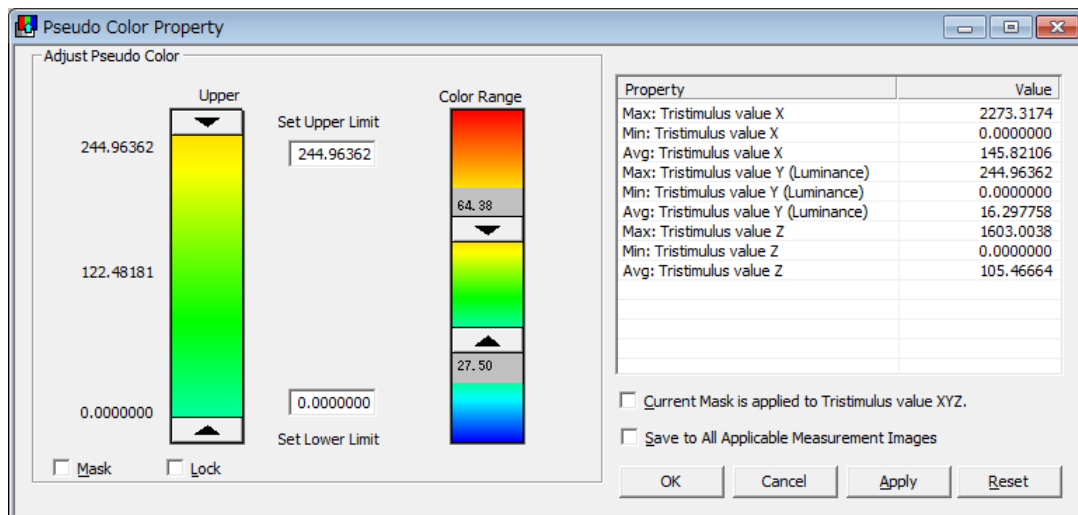
Specifies color range with keeping upper/lower limit of color bar.

To specify the Color range, go through the following steps.

- 1 Open the [Pseudo Color Property].
- 2 Slide the [Color Range] slide bar while watching a variation of color in the [Pseudo Color] View and Sled bar.



As you shift the [Color Range] slide bar, the [Upper/Lower limit] Slide bar move together.



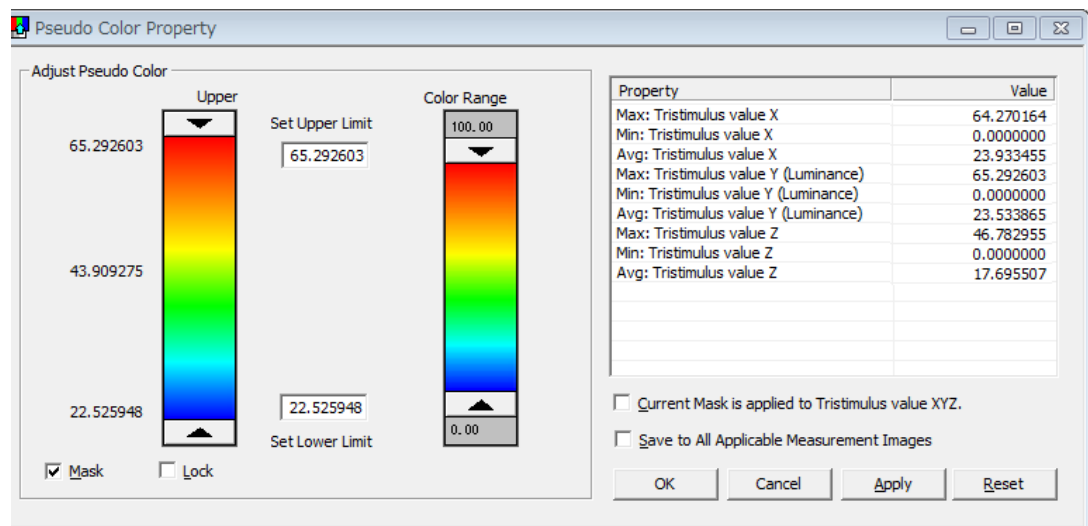
5.2.16 Masking to the Outside of the Pseudo Color

Masks the measurement image where measurement values are out of the upper or lower limit by setting the [Pseudo Color Property]. Masking the image where measurement values are outside of the upper and lower limit enables you to plot and display the arbitrary range. To mask the image, go through the following steps.

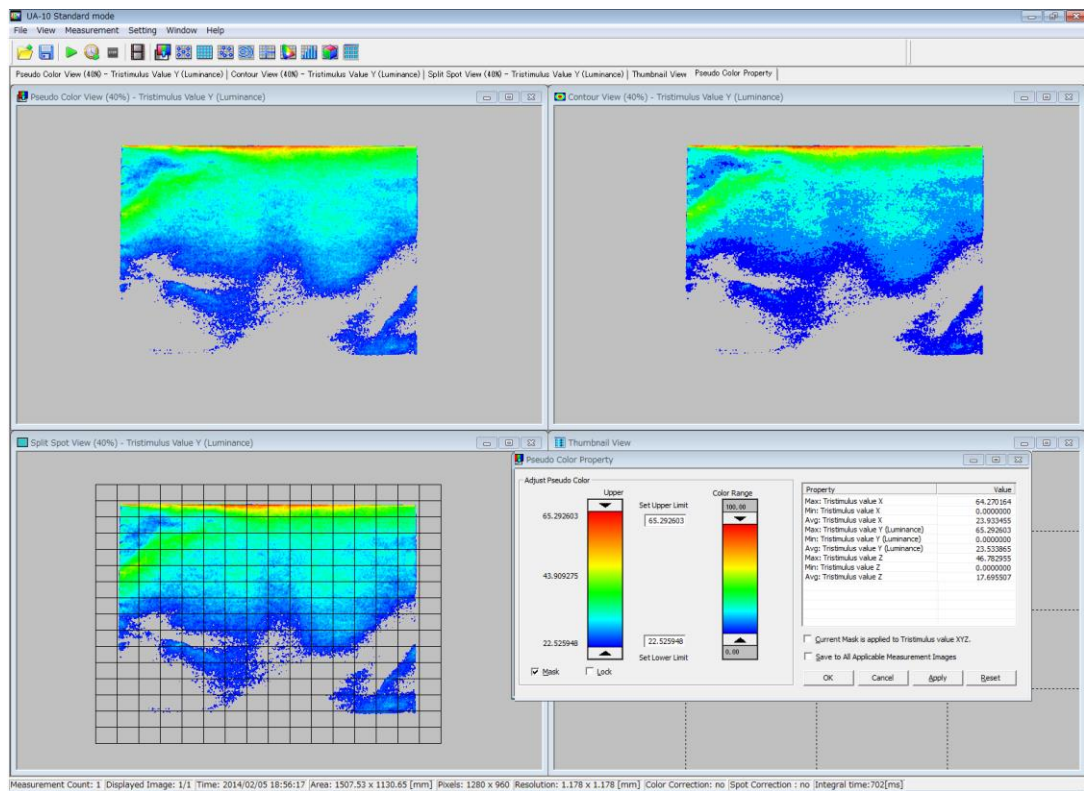


Masking is applied to the measurement image of the currently displayed.

- 1 Open the [Pseudo Color Property]. Adjust the [Set Upper Limit/Lower Limit] slide bar while observing the color variation of the [Pseudo Color View], or directly enter the value in the edit box beneath the [Set Upper Limit/Lower Limit] slide bar.
- 2 Check the [Mask] checkbox. Click the [OK] or [Apply] button to apply the masking the measurement image where measurement values are outside of the upper limit or lower limit.



- 3 The measurement image where measurement values are out of the upper limit or lower limit are masked and only the measurement image where measurement values are within the upper and lower limit are displayed. If you save the measured data in a CSV file with the masking On, the measurement data with image displaying only are saved.



Memo

You can set a mask to each measuring spot by specifying threshold in [Random spot List].

☞ “5.5.18 Display Random spot list”

5.2.17 Lock Pseudo Color Adjustment

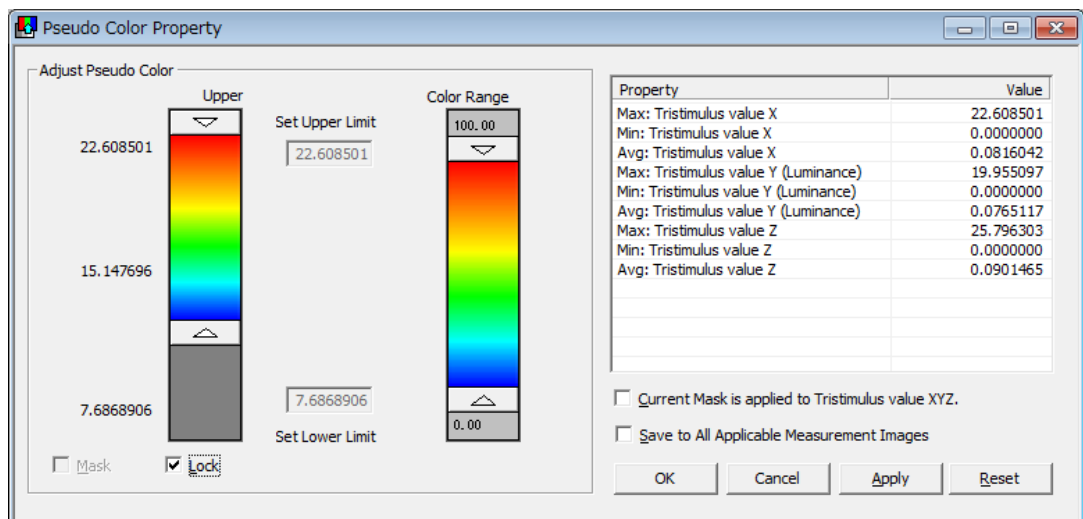
Locks the upper and lower limit values have been set on the [Pseudo Color Property]. The measurement image where measurement values are within the limit upper and lower limit are rendered in pseudo color by locking the upper limit and lower limit values.

To lock the setting of upper and lower limit, go through the following steps.



Locking the upper and lower limit is applied to the currently displayed measurement image.

- 1 Open [Pseudo Color Property]. Set the [Set Upper Limit/Lower Limit] slide bar while observing the color variation of the [Pseudo Color View], or enter directly the value in the edit box beneath the [Color Range] slide bar.
- 2 Check the [Lock] checkbox. Once you check the checkbox, the [Set Upper Limit/Lower Limit] slide bar and [Set Upper Limit/Lower Limit] edit box become disable, and the current setting values are fixed.

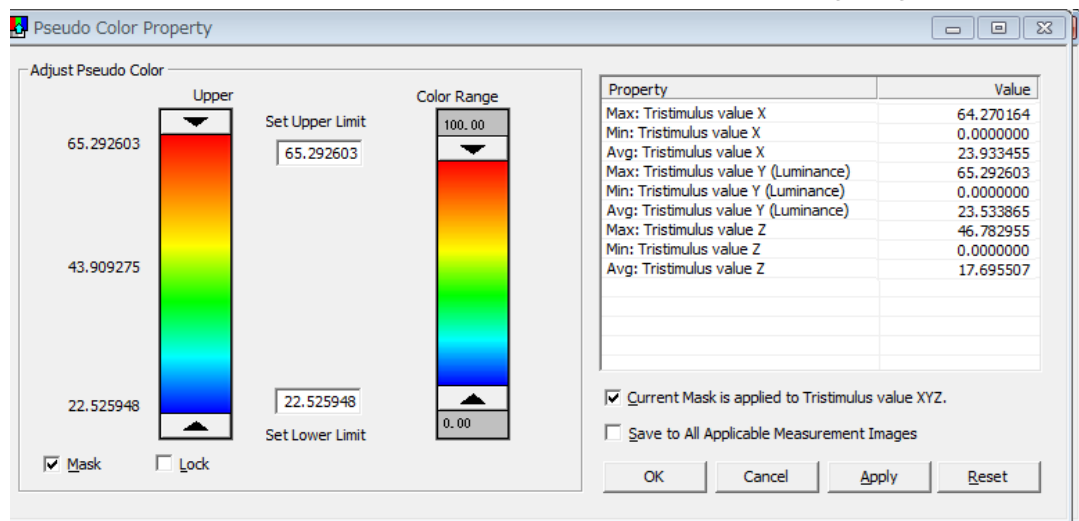


5.2.18 Apply Pseudo Color Mask Setting to measurement items in Tristimulus values

Masked area designated in [Pseudo color property] can affect all other unit of Tristimulus values XYZ and chromaticity data view. The mask takes effective on the same area of each Tristimulus values data and chromaticity data view without re-designation.

To apply the range to all the Tristimulus values, go through the following steps.

- 1 Check the [Mask] checkbox. Click [Apply] to check the mask setting range.



- 2 Check the [Current Mask is applied to All Tristimulus values] checkbox. Click the [OK] or the [Apply] to apply the masking setting to all the measurement images.

Memo

You can set a mask to each measuring spot by specifying threshold in [Random spot List].

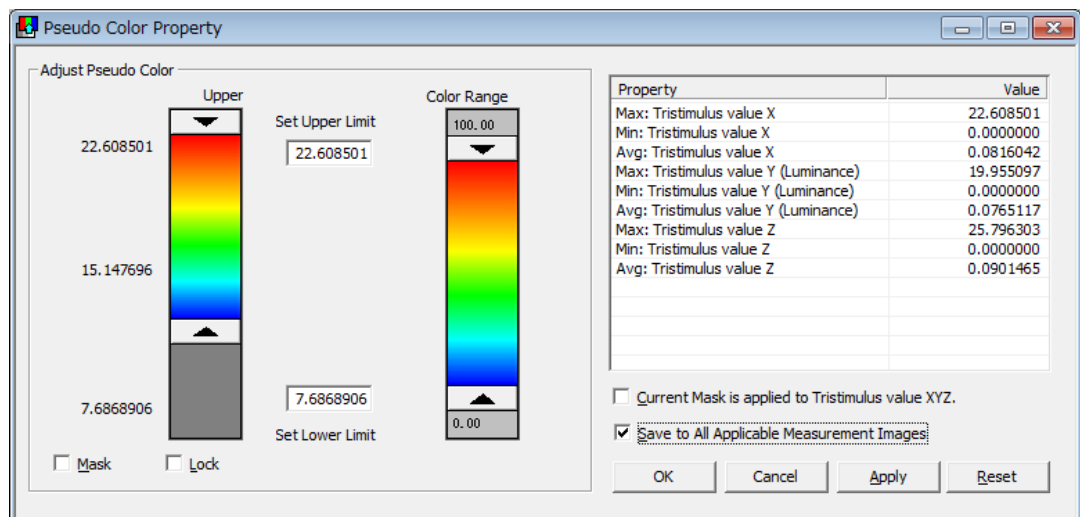
"5.5.18 Display Random spot list"

5.2.19 Apply Pseudo Color Adjustment to All

Measurement Images

Applies the setting in the [Pseudo Color Adjustment] on the [Pseudo Color Property] to all the currently loaded measurement images. To apply the setting in the [Pseudo Color Property] to all measurement images, go through the following steps.

- 1 Open the [Pseudo Color Property]. Perform the settings of [Set Upper Limit/Lower Limit], [Color Range], and [Lock Adjustment] for all the setting values of [Pseudo Color Adjustment] to be applied.
- 2 To apply the respective adjustment values of the pseudo color to all the loaded images, check the [Save to All Applicable Measurement Images] and click [Apply].



- 3 To cancel the Save to All operation, check [Save to All Applicable Measurement Images] and click [Reset].



Note

When the [Save to All Applicable Measurement Images] is performed with the [Lock Adjustment] ON, resetting can be performed only on a measurement image basis. Reset the respective values or open a new file.

Specification when Saving the Pseudo Color Adjustment to All Applicable Measurement Images

Even if the normal measurement is continued with [Save to All Applicable Measurement Images] ON, the pseudo color adjustment value continues to be applied.

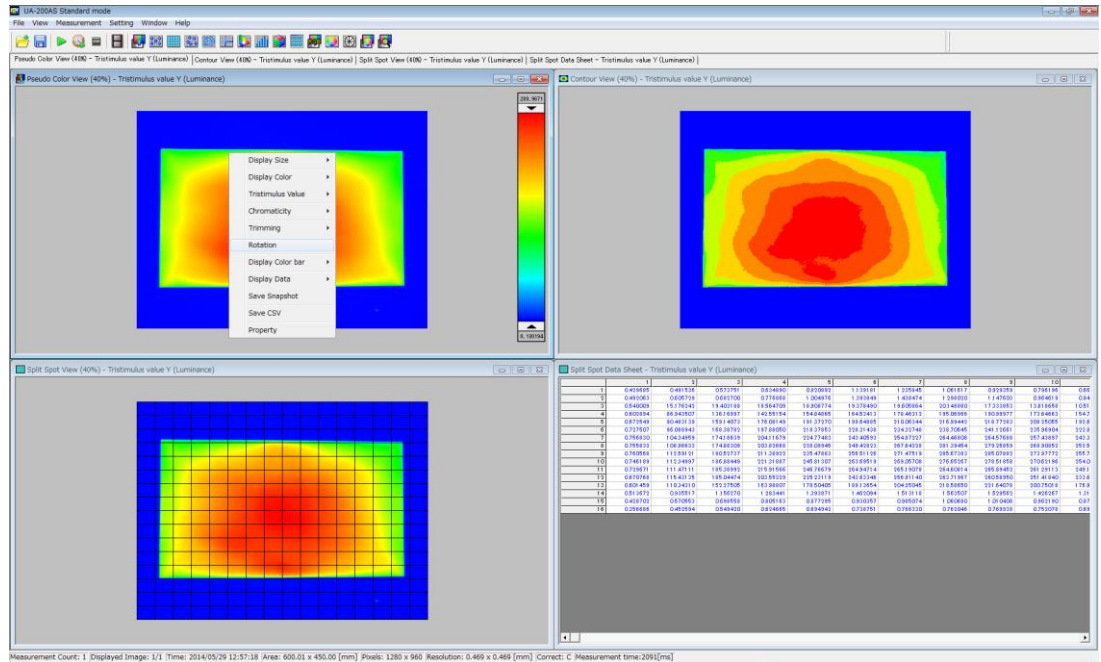
However, when the luminance and chromaticity of the measurement object are changed during the measurement, and then the range from upper limit to lower limit values of the pseudo color adjustment of the measurement data is changed, the settings are as follows:

- When the measurement data are below the upper limit value of the pseudo color adjustment:
The upper limit value of the pseudo color adjustment is automatically reset to the highest value of the measurement data.
The lower limit value of the pseudo color adjustment is not changed.
However, only the measurement data whose upper limit value is below the upper limit value of the pseudo color adjustment are applied.
- When the measurement data are above the lower limit value of the pseudo color adjustment:
The lower limit value of the pseudo color adjustment is automatically reset to the lowest value of the measurement data.
The upper limit value of the pseudo color adjustment is not changed.
However, only the measurement data whose upper limit value is below the upper limit value of the pseudo color adjustment are applied.
- When the measurement data are not within the range from the upper limit to lower limit value of the pseudo color adjustment:
The upper limit and lower limit values of the pseudo color adjustment are set to the maximum and minimum values of the measurement data.

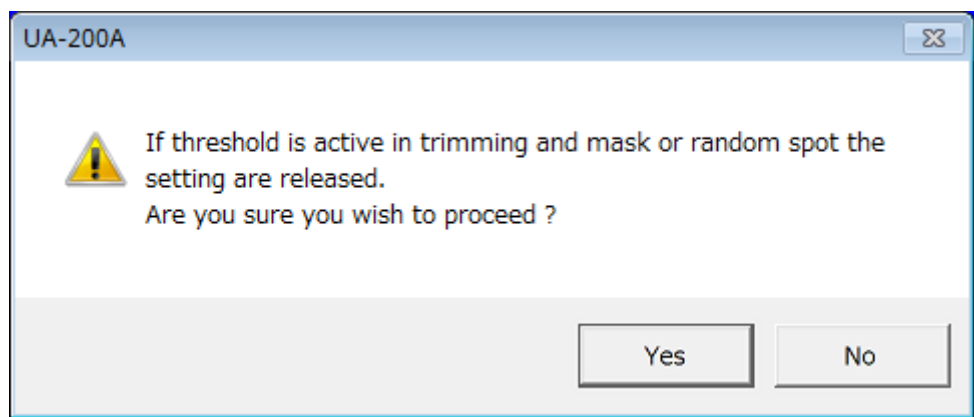
5.2.20 Rotate Measurement Image

Rotates the measurement image. The rotation of measurement image is reflected in other views. To rotate the measurement image, go through the following steps.

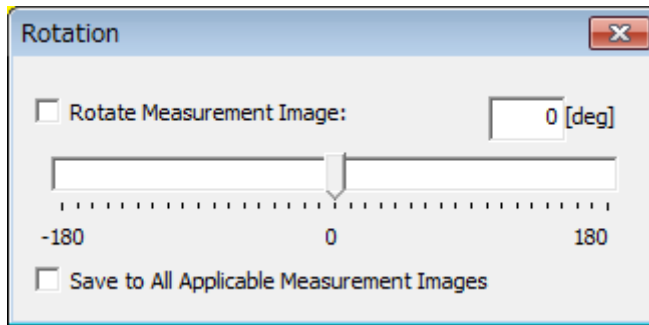
- 1 Open [Pseudo Color View].
- 2 [Pseudo Color View] is opened. Right-click to open the pop-up menu and select [Rotation] from the menu.



- 3 When [Rotation] is selected, the following dialog box is displayed. When selecting [Yes], the application of the threshold for trimming, mask and random spot is compulsorily canceled.



- The [Rotation] dialog box is displayed.
Set ON for the [Rotate Measurement Image] check box. Operate the scroll bar or enter a value to the angle edit box directly.
After changing the setting, click [x] to close the [Rotation] dialog box.



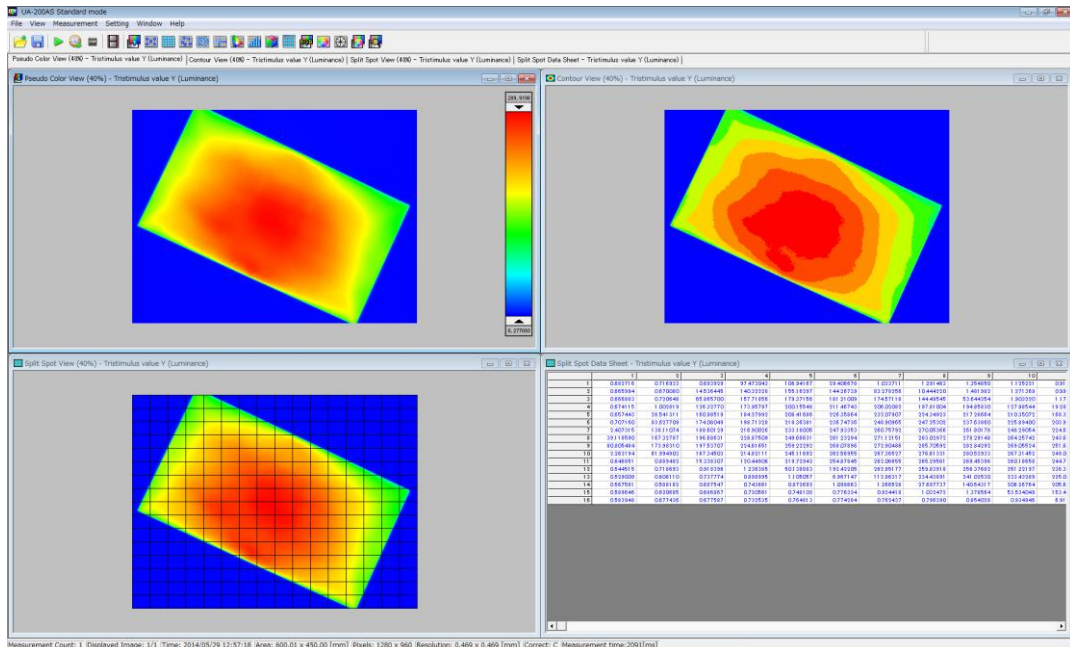
Memo

By setting OFF for the [Rotate Measurement Image] check box, you can return the measurement image to the status where it is not rotated.

Memo

By setting ON for the [Save to All Applicable Measurement Images] check box, all of the measurement images that are currently being loaded are rotated.

The measurement image is displayed in the rotating angle you have set.



5.3 Standard Spot View Operation

In the Standard Spot View, the device can measure the target at the preset positions in accordance with standards.

The preset standards comply with JEITA standard (EIAJ ED-2522/ED-2710) and other three standards are preset by Topcon Technohouse. And, you can specify the pattern and the number of the measurement spot.

The default standard is set to JEITA standard and the measurement spot size is set to 10 mm, therefore change these settings according to the number of pixels of the measurement target. (The JEITA standard requires you to measure an area of 500 or more pixels per the measurement spot.)

In the JEITA standard measurement method, the vertical direction-based measurement is specified. However, in the UA-10 measurement having an angle to the measurement spots, therefore the measurement data by using the UA-10 and UA-200 are affected directivity characteristics of the light emitted from the measurement target.

The following operations are performed according to the same steps. Refer to the respective chapters indicated below.


Change Display Size

 "5.2.2 Change Display Size"

Change Display Color

 "5.2.3 Change Display Color"

Change Display Tristimulus values

 "5.2.4 Selecting items in Tristimulus values"

Save Snapshot

 "5.2.11 Save Snapshot"

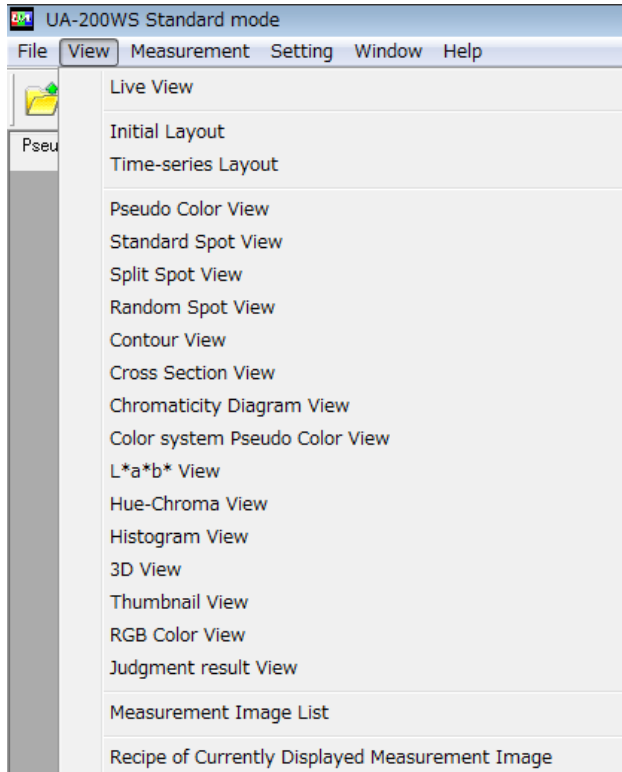
Save Measurement Data in CSV File Format

 "5.2.12 Save Measurement Data in CSV File Format"

5.3.1 Open Standard Spot View

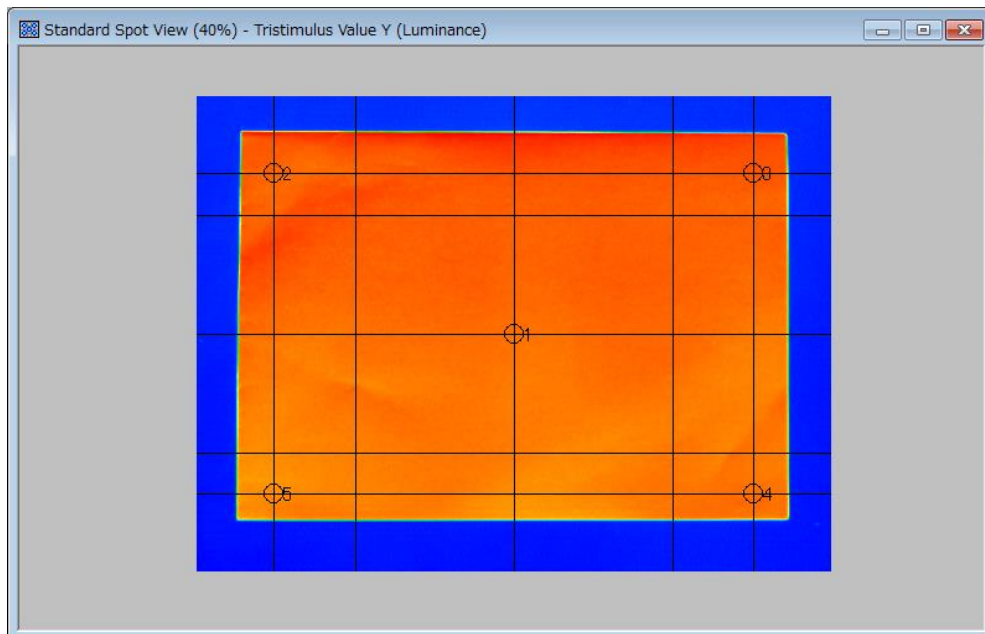
To open the [Standard Spot View], go through the following steps.

- 1 From the Menu bar, select [View] – [Standard Spot View] sequentially.



Or, click the  icon on the Menu bar.

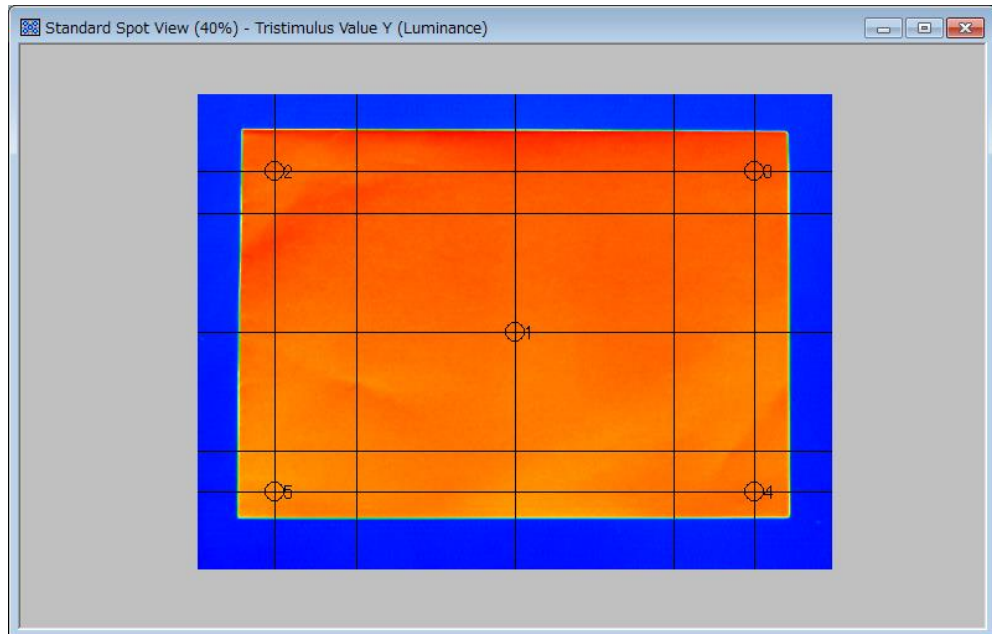
- 2 The [Standard Spot View] is opened.



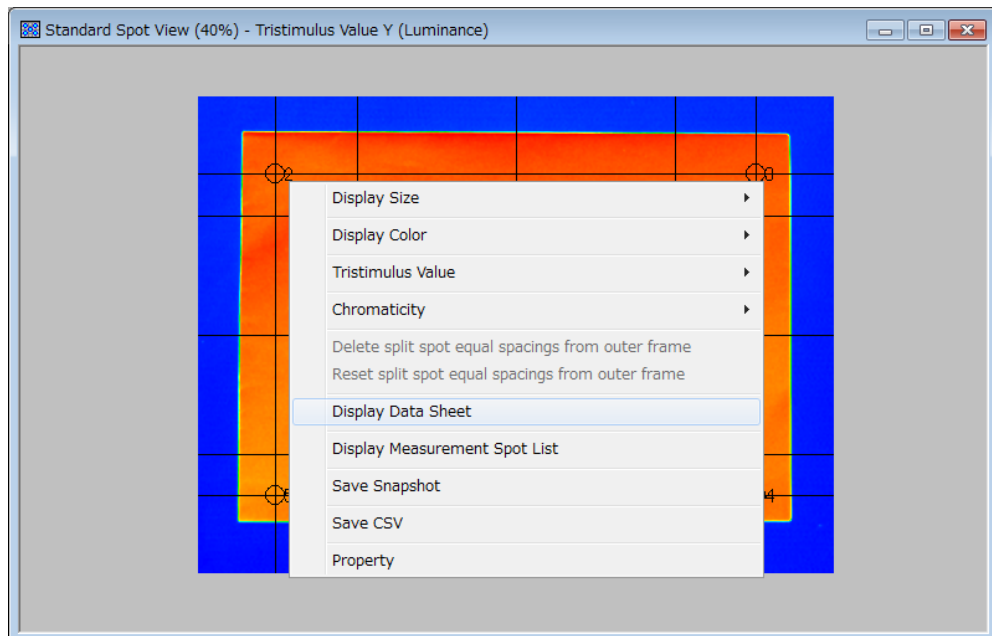
5.3.2 Display Data Sheet

Displays the standard spot measurement data in a spreadsheet style. To display the data sheet, go through the following steps.

- 1 Open the [Standard Spot View].

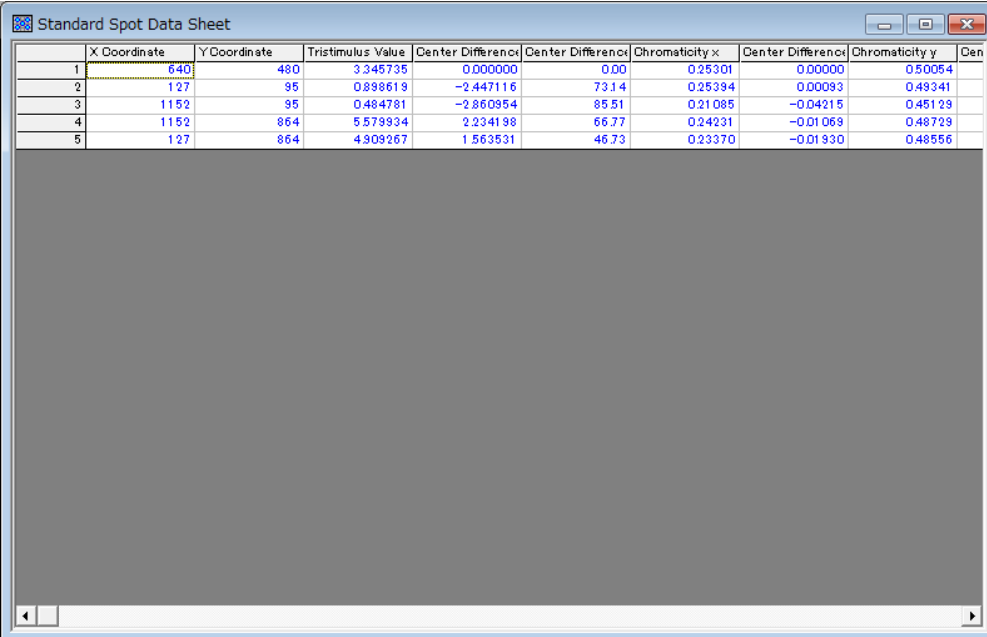


- 2 Right-click anywhere within the [Standard Spot View] to open pop-up menu. Select the [Display Data Sheet].



3 [Standard Spot Data Sheet] is displayed.

☞ “5.3.3 Switch Display Items of Standard Spot Data Sheet”



	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Center Difference
1	640	480	3.348735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860854	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

☞ Memo

The measurement values, which saturation occur in the Tristimulus value are displayed as “over” and the chromaticity is displayed as “error”.

5.3.3 Switch Display Items of Data Sheet

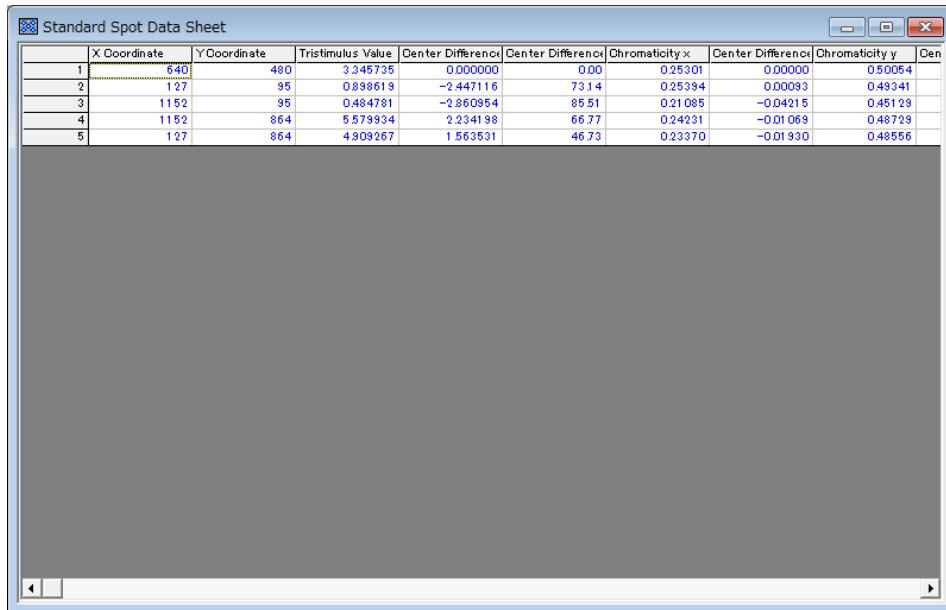
Select whether show or hide items of the data sheet in the standard spot view.

To switch the display items of the data sheet, go through the following steps.

 Memo

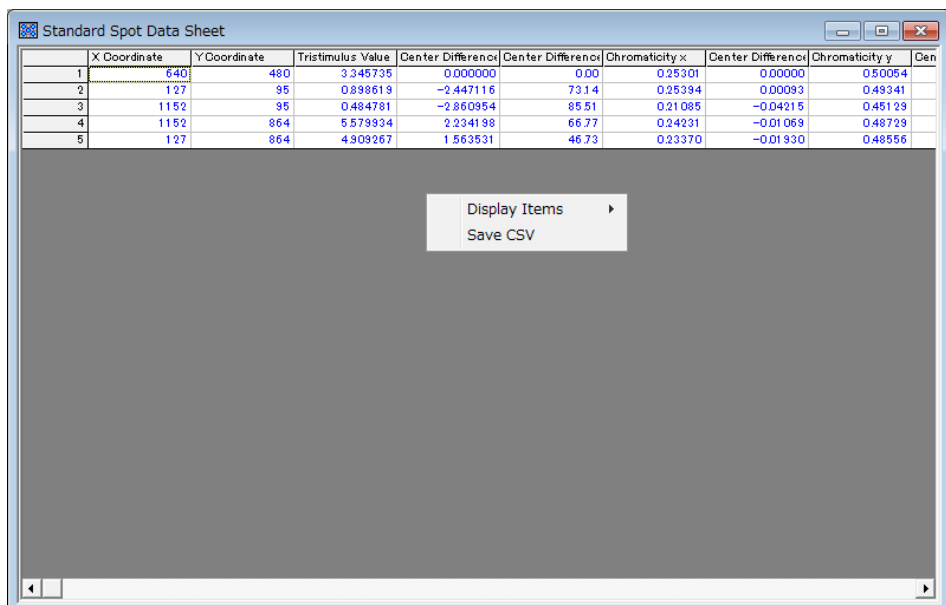
This operation is the same in the [Random Spot Data Sheet].

- 1 Open the [Standard Spot Data Sheet].



	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Gen
1	640	480	3.345735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860954	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

- 2 Right-click anywhere within the [Standard Spot Data Sheet].



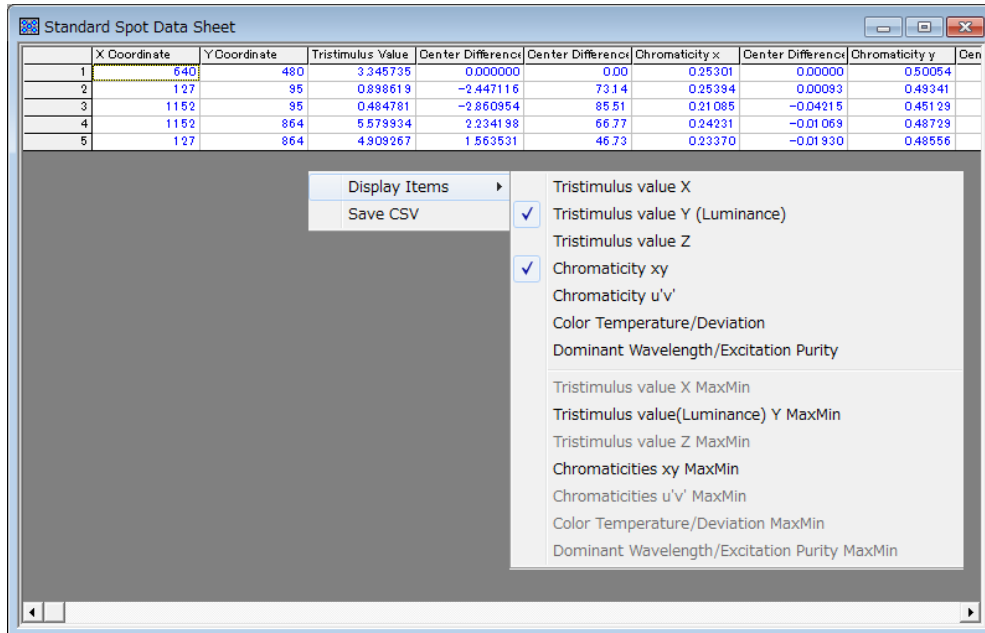
	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Gen
1	640	480	3.345735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860954	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

Display Items ▾
Save CSV

- 3 The Pop-up menu will appear. From the [Display Items] menu list, select the display items to be added or deleted. The checked items in the [Display Items] menu list are the items currently displayed.

If an item not checked in the [Display Items] menu list is selected, the item is newly added to the data sheet.

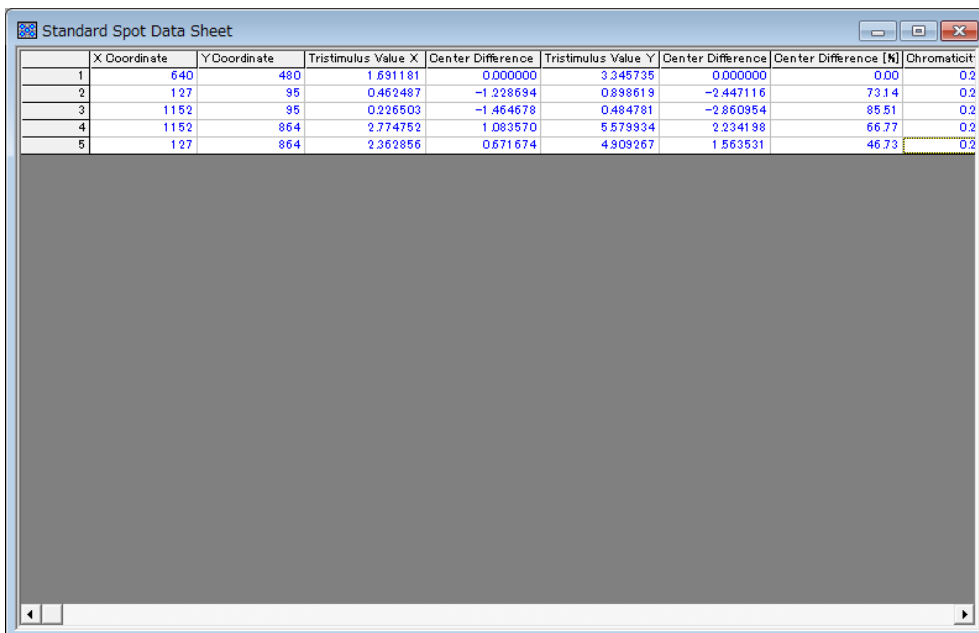
If the item checked in the [Display Items] menu list is selected, the item is deleted from the display items displayed on the data sheet.



Memo

Since the sequence of the displayed items is in accordance with the formal display method regardless of the displayed item selection sequence, the sequence of the displayed items cannot be changed.

- 4 The selected data item is added or deleted.



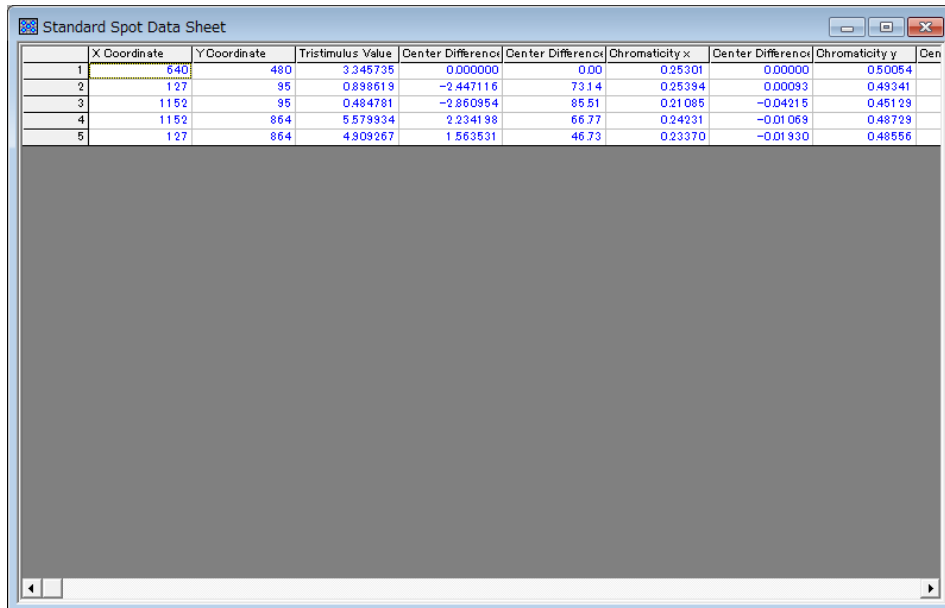
5.3.4 Save Data Sheet in CSV File Format

Saves the content displayed on the data sheet in CSV file format.

 Memo

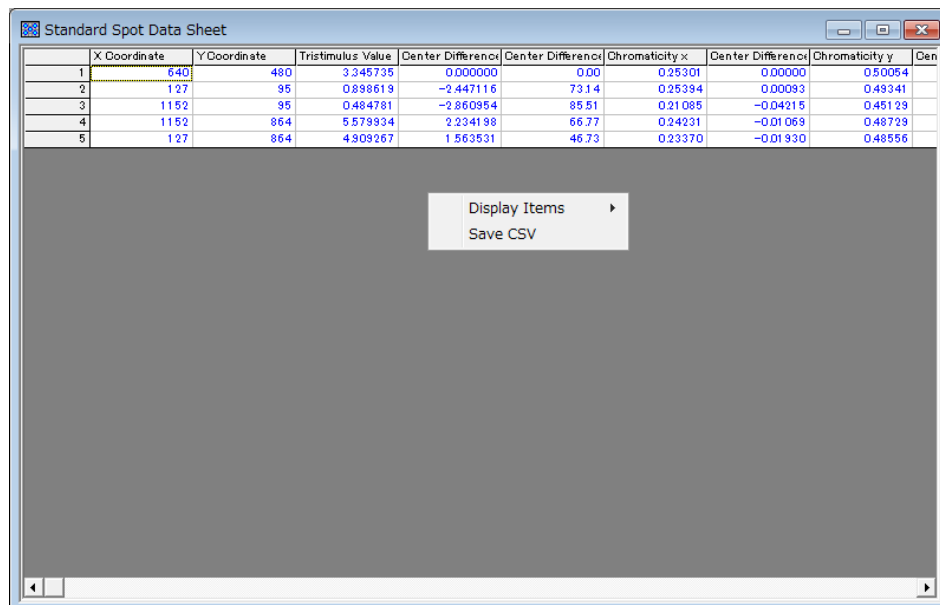
This operation is the same as in the [Random Spot Data Sheet].

- 1 Open the [Standard Spot Data Sheet].



	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Den
1	640	480	3.345735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860954	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

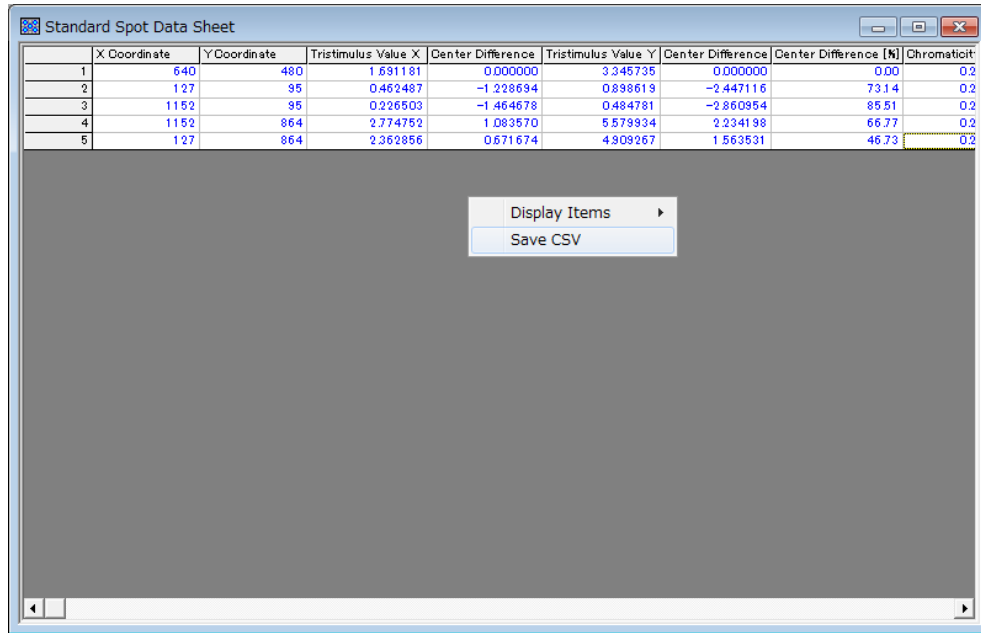
- 2 Right-click anywhere within the [Split Spot Data Sheet].



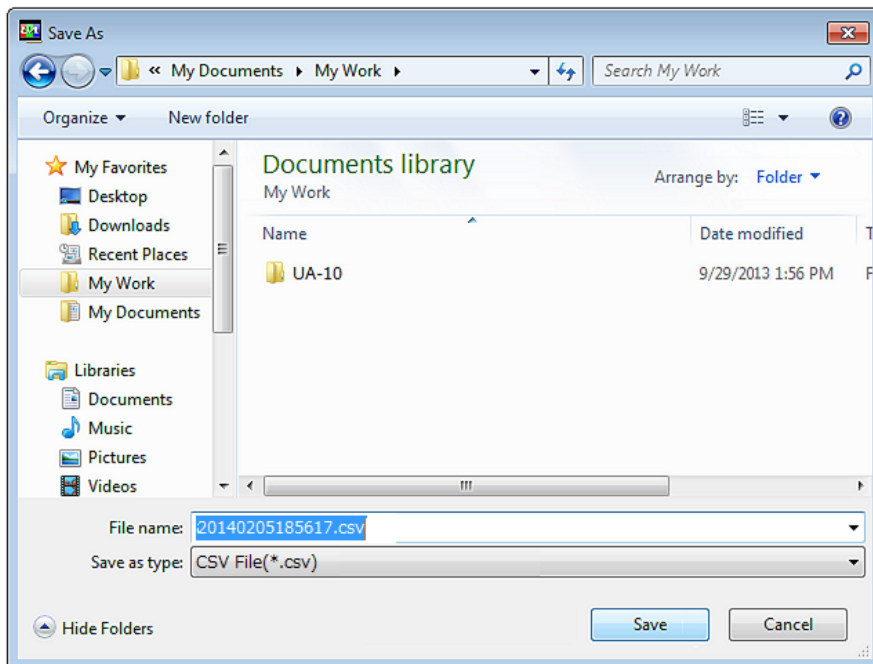
	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Den
1	640	480	3.345735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860954	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

Display Items
Save CSV

- 3 The Pop-up menu will appear. Select [Save CSV].



- 4 The explorer window will open. Select the save-destination path, and specify the file name and format for the file to be saved.
The default file name is in the style of date + time.
For the file format, you can select [CSV] or [TEXT]. You can select it from the Pull-down menu.



- This is an image opened by Excel. The content displayed on the data sheet is saved.

Standard Spot Data Sheet Window

	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Center Difference	Chromaticity y	Den
1	640	480	3.345735	0.000000	0.00	0.25301	0.00000	0.50054	
2	127	95	0.898619	-2.447116	73.14	0.25394	0.00093	0.49341	
3	1152	95	0.484781	-2.860954	85.51	0.21085	-0.04215	0.45129	
4	1152	864	5.579934	2.234198	66.77	0.24231	-0.01069	0.48729	
5	127	864	4.909267	1.563531	46.73	0.23370	-0.01930	0.48556	

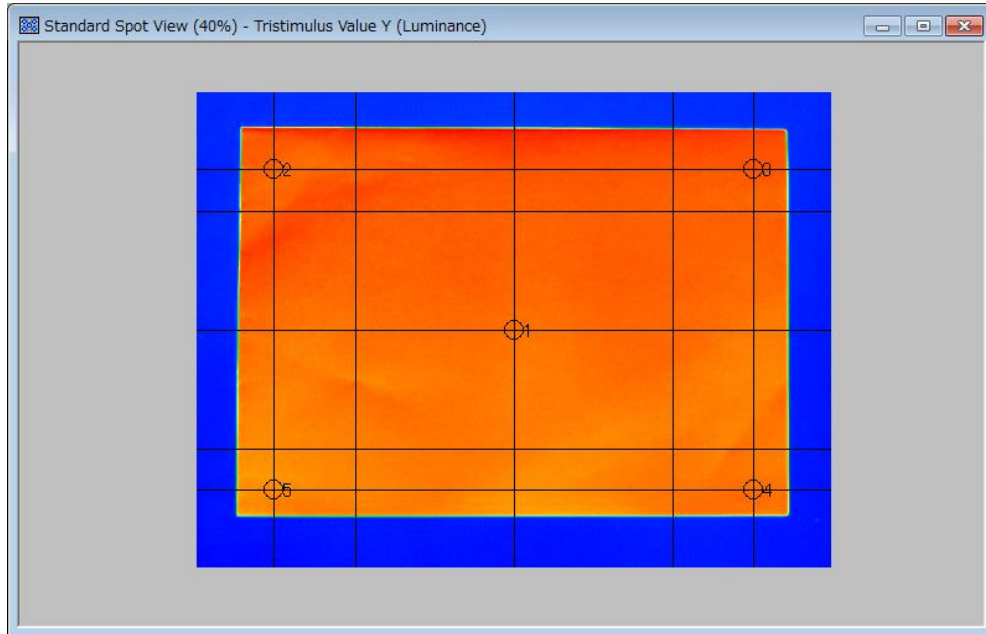
Standard Spot Data Sheet CSV File

	X Coordinate	Y Coordinate	Tristimulus Value Y	Center Difference [cd/m2]	Center Difference [%]	Chromaticit	
1				0	0	0.2530	
2	1	640	480	3.345735	-2.447116	73.14	0.2539
3	2	127	95	0.898619	-2.860954	85.51	0.2108
4	3	1152	95	0.484781	2.234198	66.77	0.2423
5	4	1152	864	5.579934	1.563531	46.73	0.2337
6	5	127	864	4.909267			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

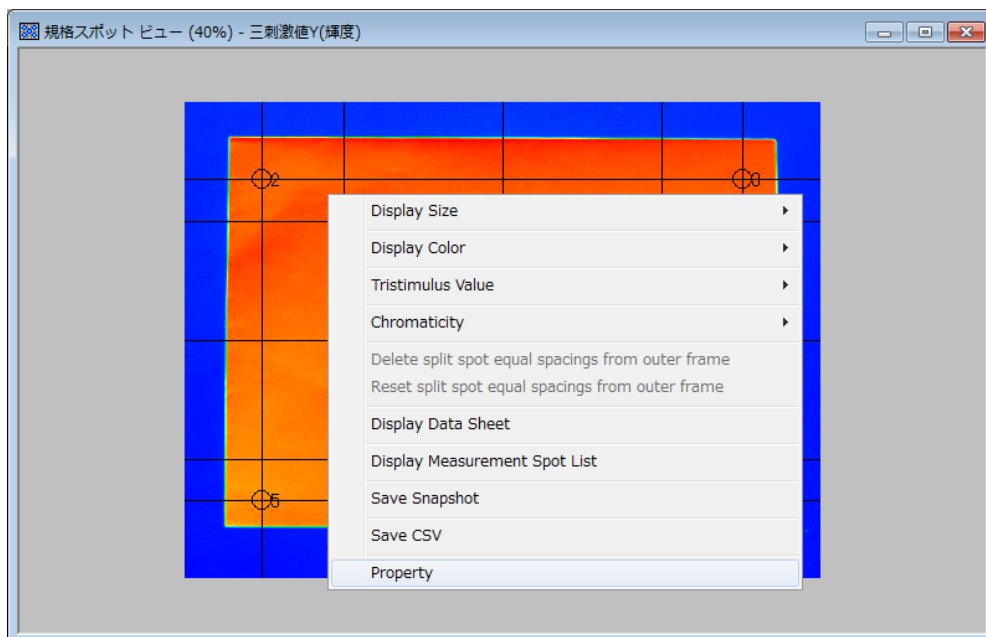
5.3.5 Open Standard Spot Property

Selects Formal standard, even split based on center, or even split based on outer frame. The setting is applied to the currently-displayed measurement image, and to all measurement images. To open the Standard Spot Property, go through the following steps.

- 1 Open the [Standard Spot View].



- 2 Right-click anywhere within the [Standard Spot View] to open pop-up menu. Select the [Property].



3 The [Standard Spot Property] window will appear.

When you want to terminate the setting operation, click one of the following buttons:

[OK] Enables the setting and closes this window.

[Cancel] Disables the setting and close this window.

[Apply] Enables the setting and enables you to continue the setting without closing the window.

Standard Spot Property

Standard Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2014/12/19 10:54:55	std.spt	Default

File Path:
C:\Users\TOPCON TECHNOHOUSE\UA-10\dat\std.spt

Open Save

Center Standard Even Split

Specify Measurement Spot with Center Standard Even Split

Vertical Measurement Spot Count: 3

Horizontal Measurement Spot Count: 3

Vertical Dimension between Measurement Spots [mm]: 300

Horizontal Dimension between Measurement Spots [mm]: 300

Initial Measurement Spot

Spot Pattern: Circle

Spot Size [mm]: 50

Formal Standard

Measurement Spot Count: Standard Split B

Split Method: 9

Vertical Measurement Spot Count: 15

Horizontal Measurement Spot Count: 15

Specify distance from outer frame to Measurement spot[mm]

Vertical distance from outer frame to Measurement spot[mm]: 10

Horizontal distance from outer frame to Measurement spot[mm]: 10

Specify distance from outer frame to Measurement spot[%]

Distance from outer frame to Measurement spot[%]: 10

Save to All Applicable Measurement Images

OK Cancel Apply

5.3.6 Set Initial Spot Pattern and Size

Specifies the initial measurement spot definition of the standard spot view.

Memo

Changes each pattern and size of measuring spot via standard spot list .

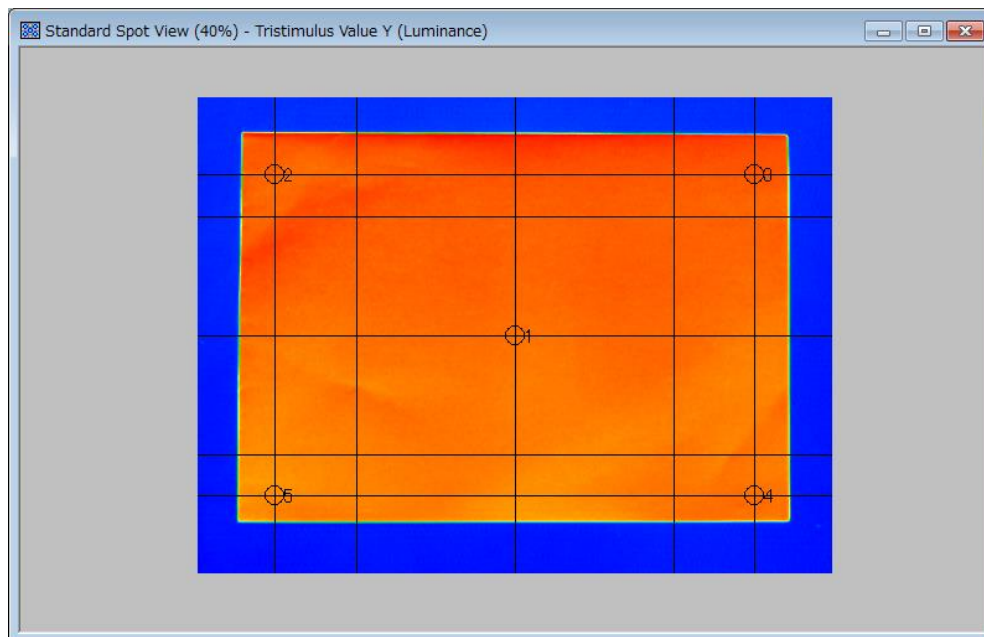
☞ "5.3.15 Display Standard Spot List"

- 1 Display the [Standard Spot Property] window.
- 2 Select the spot pattern of the [Initial Measurement Spot] from the Pull-down menu.
Round or square can be selected.
The [Spot size] edit box become active. Enter values in the [Spot size] edit box directly.
The setting range of the spot size is from 0.01 to 500 [mm].

Initial Measurement Spot

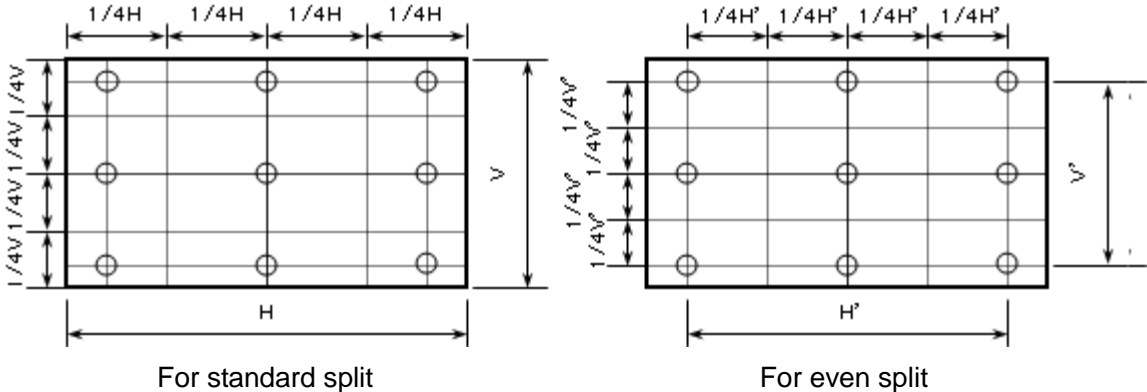
Spot Pattern:

Spot Size [mm]:

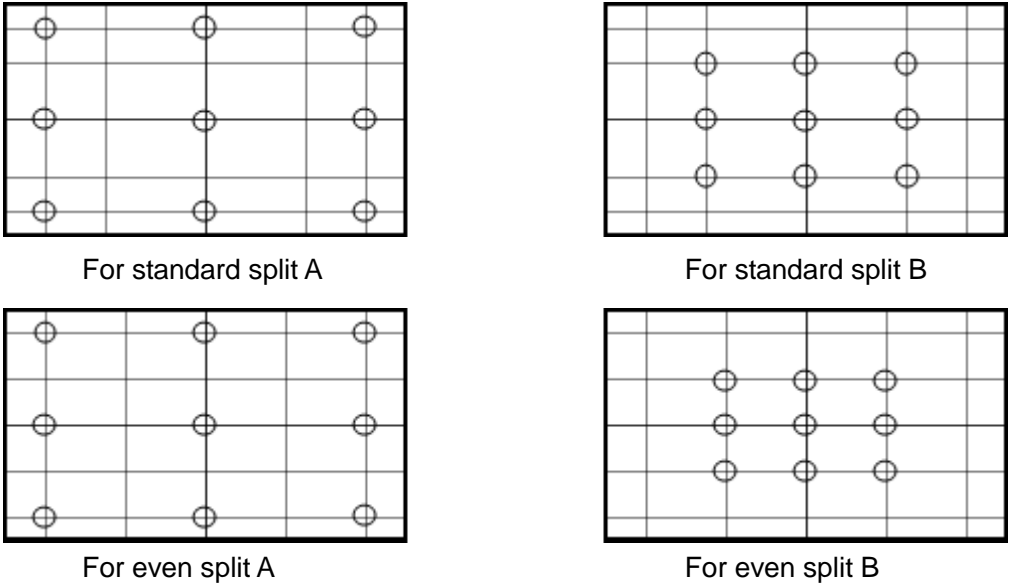


5.3.7 Change Formal Standard

Selects the split method of the standard spot. In this method, there are two types: the standard split and the even split. The difference between standard split and even split is as shown below. For JEITA standard, select [Standard Split A].



The measurement spot difference between split A and split B is as follows.



- 1 Open the [Standard Spot Property] window.
- 2 Select the split method for the [Formal Standard] from the Pull-down menu.

Formal Standard

Measurement Spot Count: Standard Split B

Split Method: 9

Vertical Measurement Spot Count: 15

Horizontal Measurement Spot Count: 15

Specify distance from outer frame to Measurement spot[mm]

Vertical distance from outer frame to Measurement spot[mm]: 10

Horizontal distance from outer frame to Measurement spot[mm]: 10

Specify distance from outer frame to Measurement spot[%]

Distance from outer frame to Measurement spot[%]: 10

- 3 Select [Measurement Spot Count] from the Pull-down menu. For the spot count, select one of four types: 5, 9, 13, or 25 points.

Formal Standard

Measurement Spot Count: Even Split A

Split Method: 5

Vertical Measurement Spot Count: 5

Horizontal Measurement Spot Count: 5

5
9
13
25


- 4 To specify the measurement from the outer frame of the view area, check the [Specify Dimensions from Outer Frame to Measurement Spot [mm]] checkbox.

Specify Dimensions from Outer Frame to Measurement Spot

Vertical Dimension from Outer Frame to Measurement Spot[mm]: 10

Horizontal Dimension from Outer Frame to Measurement Spot[mm]: 10

- 5 Checking the [Specify Dimensions from Outer Frame to Measurement Spot [mm]] enables you to enter the [Vertical Dimension from Outer Frame to Measurement Spot] and [Horizontal Dimension from Outer Frame to Measurement Spot].
Specify the dimension value with the edit box or using ▲▼ spin buttons.
The setting ranges for vertical and horizontal dimension are from 1 to 999 mm.
Click [OK] to end the operation.

 Note	In [Specify Dimensions from Outer Frame to Measurement Spot [mm]], when the adjacent lines intersect with each other, the following error message will appear. Confirm the vertical and horizontal dimensions of the measurement object, vertical and horizontal dimensions from the outer frame to the measurement spot, and split method, and then perform the resetting.
--	---

5.3.8 Set even split spot basing outer frame

Sets the even split basing outer frame. Set the number of measuring spots and the distance of space between each point from outer frame as base point.

To set the Even split basing outer frame, go through the following steps.

- 1 Open the [Standard Spot Property].
- 2 Select the [Even split basing outer frame] in pull-down menu in the Measurement spot.

The screenshot shows the 'Formal Standard' dialog box. The 'Measurement Spot Count' dropdown menu is set to 'Outer frame criteria'. The 'Split Method' is set to '9'. The 'Vertical Measurement Spot Count' and 'Horizontal Measurement Spot Count' are both set to '15'. There are two unchecked checkboxes: 'Specify distance from outer frame to Measurement spot[mm]' and 'Specify distance from outer frame to Measurement spot[%]'. The corresponding distance input fields are set to '10'.

- 3 The [Vertical Measurement Spot Count], the [Horizontal Measurement Spot Count] edit box become active, and enter the values in it directly.
Maximum number of measuring spot is 999(=horizontal x vertical)

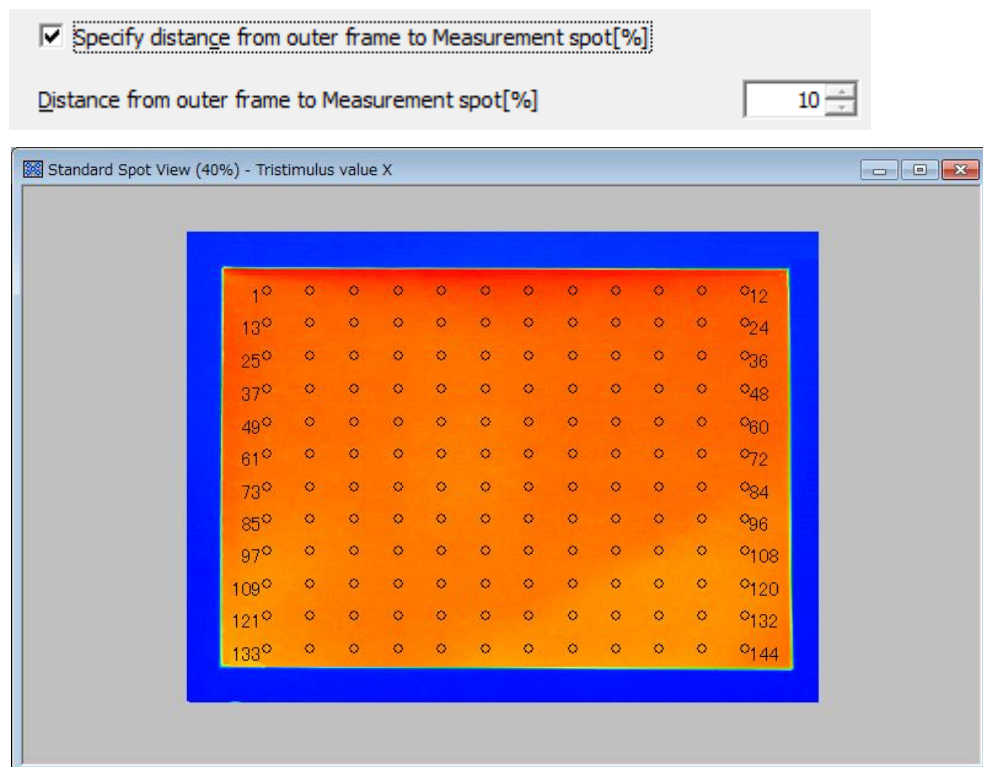
The screenshot shows the 'Formal Standard' dialog box with the 'Vertical Measurement Spot Count' and 'Horizontal Measurement Spot Count' input fields active and containing the value '15'.

- 4 When you specify the distance between the outer frame and measuring spot in [mm], check the [Specify distance from outer frame to Measurement spot [mm]]. The [Vertical distance from outer frame to Measurement spot] and the [Horizontal distance from outer frame to Measurement spot] become active. Enter values by using keyboard or by clicking ▲▼ button.

Valid range of vertical and horizontal is 1[mm]-999[mm].

The screenshot shows the 'Formal Standard' dialog box with the 'Specify distance from outer frame to Measurement spot[mm]' checkbox checked. The 'Vertical distance from outer frame to Measurement spot[mm]' and 'Horizontal distance from outer frame to Measurement spot[mm]' input fields are active and contain the value '10'.

- 5 When you specify the distance between the outer frame and measuring spot in[%], check the [Specify distance from outer frame to Measurement spot [%]]. The [Vertical distance from outer frame to Measurement spot] and the [Horizontal distance from outer frame to Measurement spot] become active. Enter values by using keyboard or by clicking ▲▼ button.
Valid range of vertical and horizontal is 1[%]-99[%].



 Memo

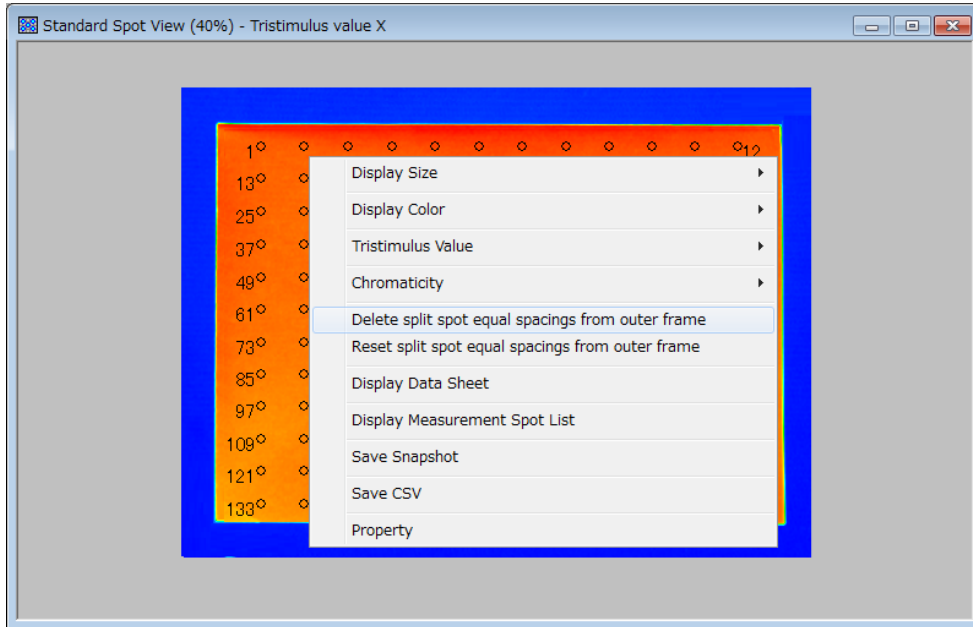
- the distance setting is based on spot no. 1.
- When both [mm], [%] are not selected, the distance from the outer frame to measurement spot is 10 % as default.

5.3.9 Delete split spot equal spacing from outer frame

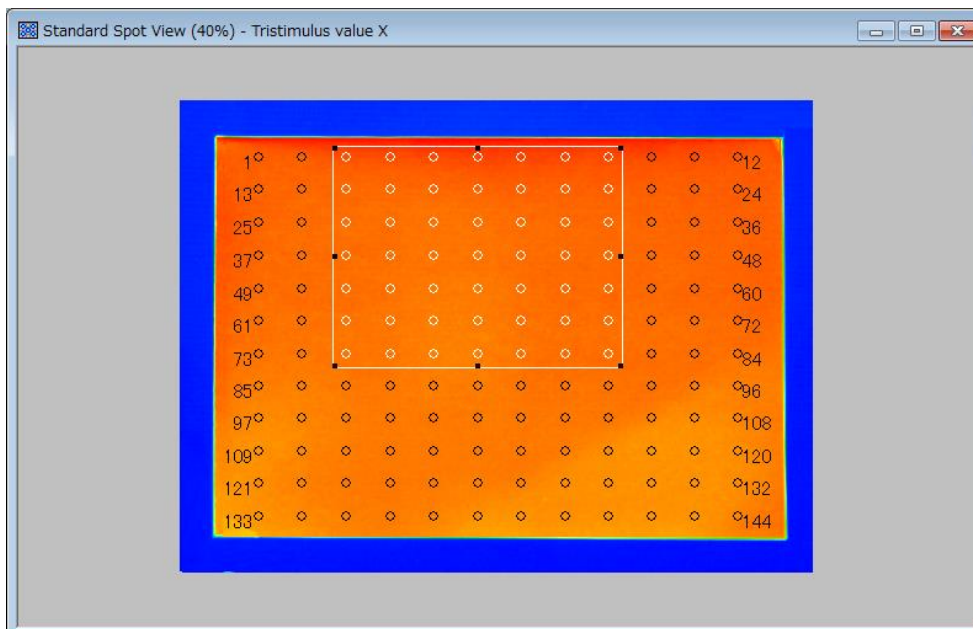
Deletes measurement spots with the Even split spot basing outer frame.

To delete the Even split spot basing outer frame, go through the following steps.

- 1 Right click on the [Standard Spot View] with the Even split basing outer frame to open pop-up menu. And then, select the [Delete split spot equal spacing form outer frame].



- 2 Specify the measurement spot to be deleted by dragging.

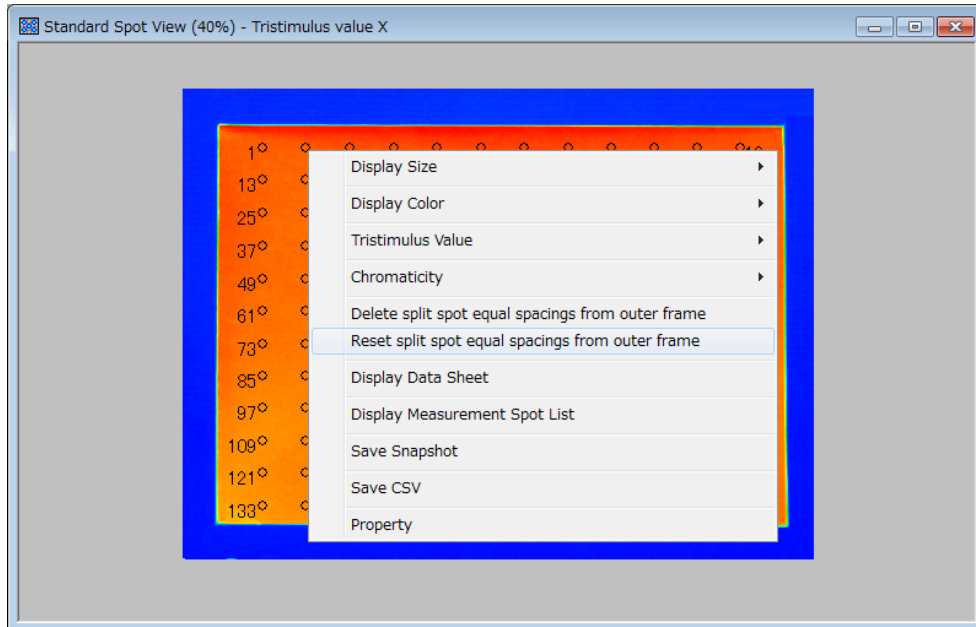


5.3.10 Reset split spot equal spacing from outer frame

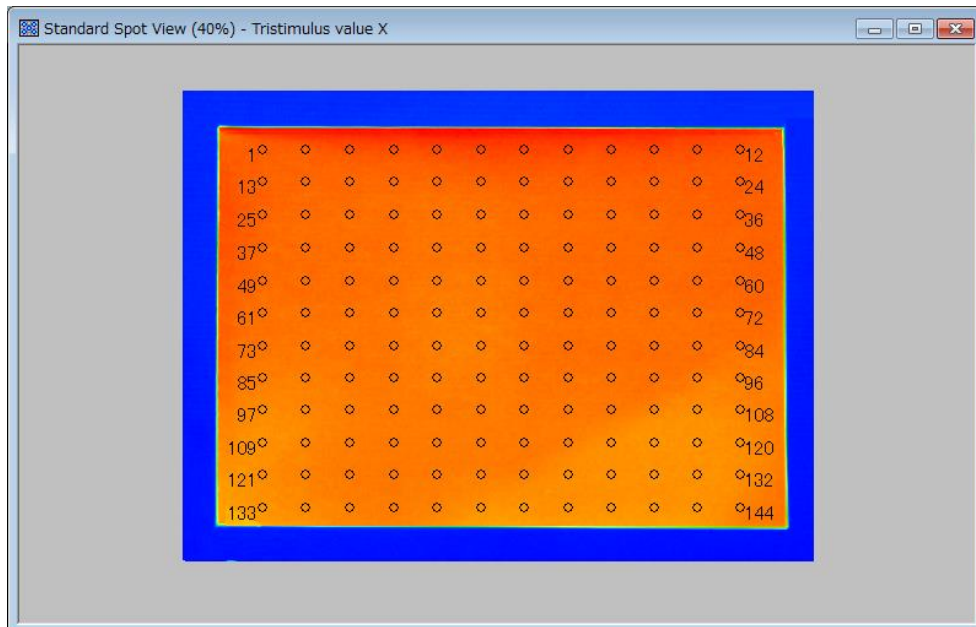
Returns deleted measurement spots with the Even split basing outer frame.

To return deleted measurement pots, go through the following steps.

- 1 Right click on the [Standard Spot View] to open pop-up menu. And then, select the [Reset split spot equal spacing from outer frame].



- 2 Deleted measurement spots are returned.



5.3.11 Set Center Standard Even Split

Sets the Center Standard Even Split. Measurement spots are placed based on center of measurement image by setting the number of measurement spots and the distance between each spot. To set the Center standard even spot, go through the following steps.

- 1 Open the [Standard Spot Property].
- 2 Check the [Specify Measurement Spots with Center Standard Even Split] check box and [Vertical Measurement Spot Count], the [Horizontal Measurement Spot Count], the [Vertical Dimension between Measurement Spots], and the [Horizontal Dimension between Measurement Spots] will become active
Select values in the [Vertical Measurement Spot Count] and the [Horizontal Measurement Spot Count] from pull down menu.
Select Measurement spot count in vertical and horizontal from 3/5/7/9/11/13/15/17/19/21.
Enter values in the [Vertical Dimension between Measurement Spots] and the [Horizontal Dimension between Measurement Spots] edit box.
Valid range in vertical and horizontal is 0.01[mm] - 500[mm].

Center Standard Even Split

Specify Measurement Spot with Center Standard Even Split

Horizontal Measurement Spot Count: 5

Vertical Measurement Spot Count: 5

Horizontal Dimension between Measurement Spots [mm]: 5

Vertical Dimension between Measurement Spots [mm]: 5

5.3.12 Save to All Applicable Measurement Images

Applies the settings of the measurement spot and the standard to all the currently loaded measurement images. To apply the settings to all applicable measurement images, go through the following steps.

- 1 Open [Standard Spot Property].
- 2 Check the [Save to All Applicable Measurement Image] check box and click the [Apply] button to apply current setting to all measured image. When not checked in the check box, the setting is applied to current measured image only.

Save to All Applicable Measurement Images

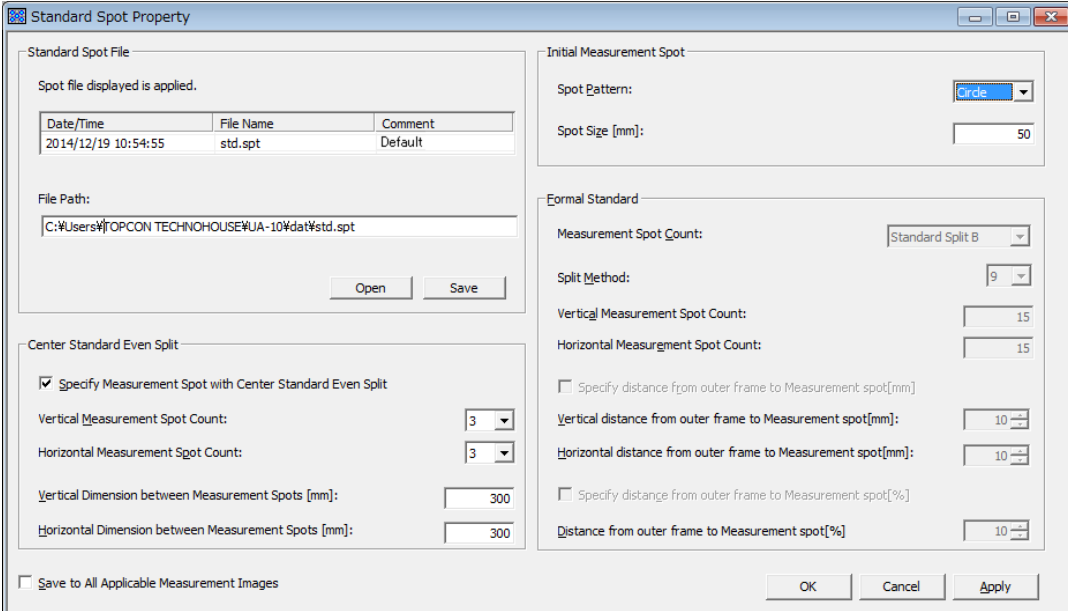
 Memo

In the [Save to All Applicable Measurement Images], only the measurement image coinciding with the Trimming area of the currently-displayed measurement image can be saved.

5.3.13 Select Standard Spot file

Selects the Standard Spot file to be used. The procedure for selecting the standard spot are as bellows. When you want to edit the standard spot property, select the file in this property.

- 1 Open the [Standard Spot Property].
- 2 Press the [Open] button to open dialogue. And then, select a standard spot file to be read. The contents of specified spot file is applied to the Standard spot property.



Date/Time	File Name	Comment
2014/12/19 10:54:55	std.spt	Default

File Path:
C:\Users\TOPCON TECHNOHOUSE\UA-10\data\std.spt

Open Save

Initial Measurement Spot
Spot Pattern: Circle
Spot Size [mm]: 50

Formal Standard
Measurement Spot Count: Standard Split B
Split Method: 9
Vertical Measurement Spot Count: 15
Horizontal Measurement Spot Count: 15
Vertical distance from outer frame to Measurement spot[mm]: 10
Horizontal distance from outer frame to Measurement spot[mm]: 10
Distance from outer frame to Measurement spot[%]: 10

Center Standard Even Split
 Specify Measurement Spot with Center Standard Even Split
Vertical Measurement Spot Count: 3
Horizontal Measurement Spot Count: 3
Vertical Dimension between Measurement Spots [mm]: 300
Horizontal Dimension between Measurement Spots [mm]: 300

Save to All Applicable Measurement Images

OK Cancel Apply

5.3.14 Save Standard Spot File

Saves the standard spot file. The procedures for the saving the standard spot file are as follows.

The standard spot file can be used in SDK also.

- 1 Open the [Standard Spot Property].
- 2 Edit the File name and Comment under the [Spot file displayed is applied] and click the [Save] button to save a spot file setting.
Click the [OK] button to save the file at the place described in [File Path :].

Standard Spot Property

Standard Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2014/12/19 10:54:55	std.spt	Default

File Path:
C:\Users\TOPCON TECHNOHOUSE\UA-10\dat\std.spt

Open Save

Initial Measurement Spot

Spot Pattern: Circle

Spot Size [mm]: 50

Center Standard Even Split

Specify Measurement Spot with Center Standard Even Split

Vertical Measurement Spot Count: 3

Horizontal Measurement Spot Count: 3

Vertical Dimension between Measurement Spots [mm]: 300

Horizontal Dimension between Measurement Spots [mm]: 300

Normal Standard

Measurement Spot Count: Standard Split B

Split Method: 9

Vertical Measurement Spot Count: 15

Horizontal Measurement Spot Count: 15

Specify distance from outer frame to Measurement spot[mm]

Vertical distance from outer frame to Measurement spot[mm]: 10

Horizontal distance from outer frame to Measurement spot[mm]: 10

Specify distance from outer frame to Measurement spot[%]

Distance from outer frame to Measurement spot[%]: 10

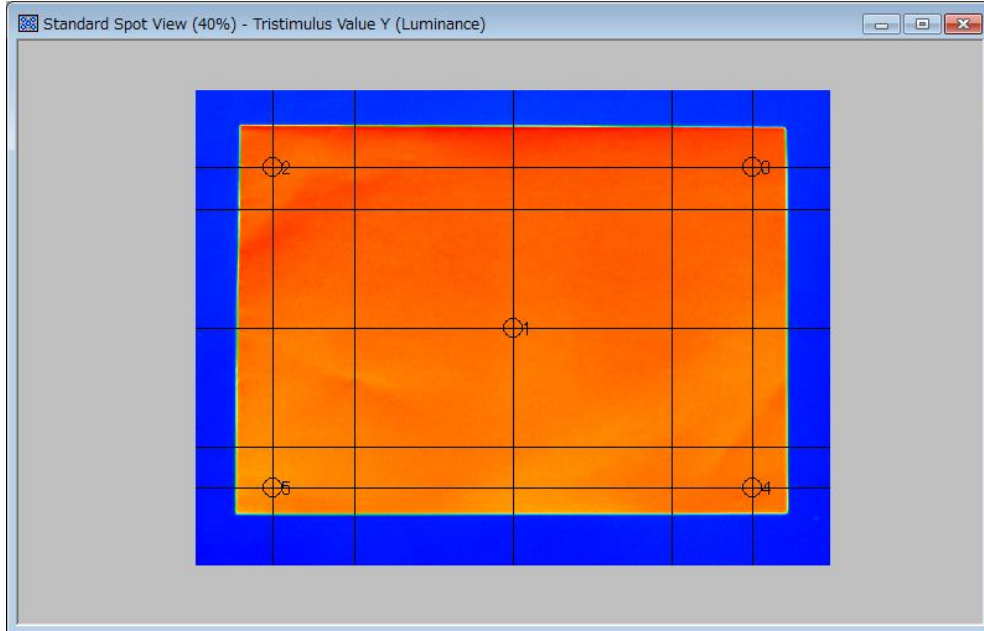
Save to All Applicable Measurement Images

OK Cancel Apply

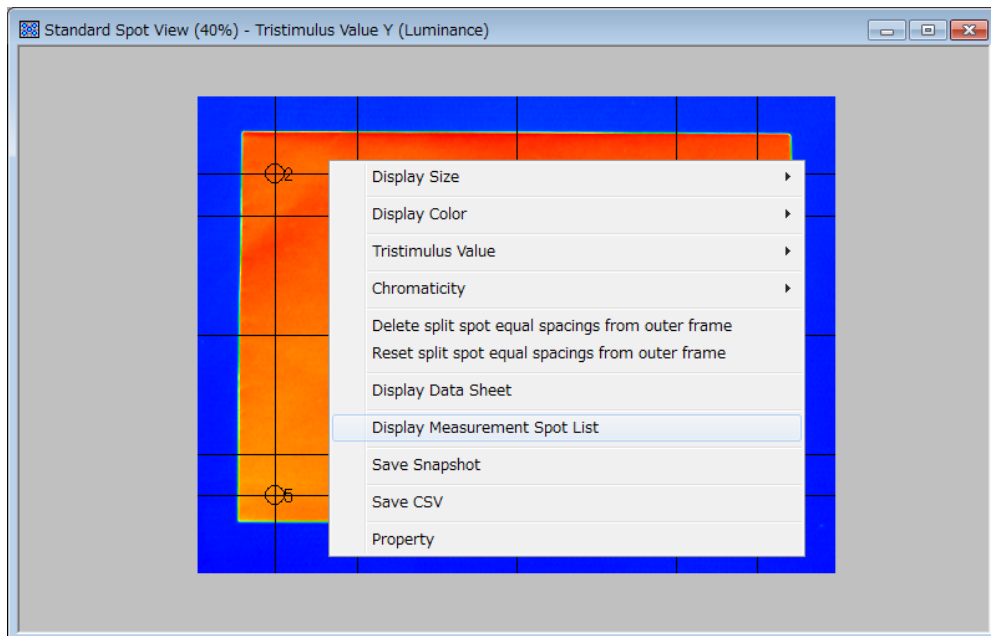
5.3.15 Display Standard Spot List

Displays Standard Spot List. To display the Standard Spot List, go through the following steps.

- 1 Open the [Standard Spot View].



- 2 Right click on the [Standard Spot View] to open pop-up menu. And then, select the [Display Measurement Spot List] from the menu.



3 The [Standard Spot List] appears.

Date/Time	Trimming	Comment
<input checked="" type="checkbox"/> 2015/09/14 21:46:00	(208,283) (1063,938)	default

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size	Standard S...	Chromaticit...	Chromaticit...	C*h correct...
1	427	327	Circle	10.00	FALSE	1	4	1
2	85	65	Circle	10.00	FALSE	2	2	2
3	769	65	Circle	10.00	FALSE	3	3	5
4	769	589	Circle	10.00	FALSE	2	1	2
5	85	589	Circle	10.00	FALSE	1	4	5

The [Spot Pattern] and the [Spot Size], [Standard Spot], [Correct area] can be changed in the [Standard Spot List].

Spot Pattern : Circle/Rectangle

Spot Size : Measurement spot size

Standard Spot : Judgment Center difference standard spot

Chromaticity x,y correct area : Judgment x,y Chromaticity diagram view correct area number

Chromaticity u',v' correct area: Judgment u',v' Chromaticity diagram view correct area number

C*h correct area : Judgment L*a*b* Color system view correct area number

4 Apply the setting to measured image or all applicable measured image.

Right click on the [Standard Spot List] to open pop up menu. When you select the [Applying to Measured Image], Standard spot setting is applied to currently displayed measured image. When you select the [Save to All Applicable Measurement Image], the setting is applied to all measured image.

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size
1	128			
2	202			
3	276			
4	349	96	Circle	50.00
5	422	96	Circle	50.00

Applying to Measured Image
Save to All Applicable Measurement Images

5.4 Split Spot View Operation


The Split Spot View function displays the measurement image by splitting it in a reticular pattern. The area split in a reticular pattern is handled as the measurement spot. For the Split Spot View measurement data, calculate the measurement value on the average within the split area.

The following operations are performed according to the same steps. Refer to the respective chapters shown below.


Change Display Size

 "5.2.2 Change Display Size"

Change Display Color

 "5.2.3 Change Display Color"

Change Tristimulus values

 "5.2.4 Select Items in Tristimulus values"

Save Snapshot

 "5.2.11 Save Snapshot"

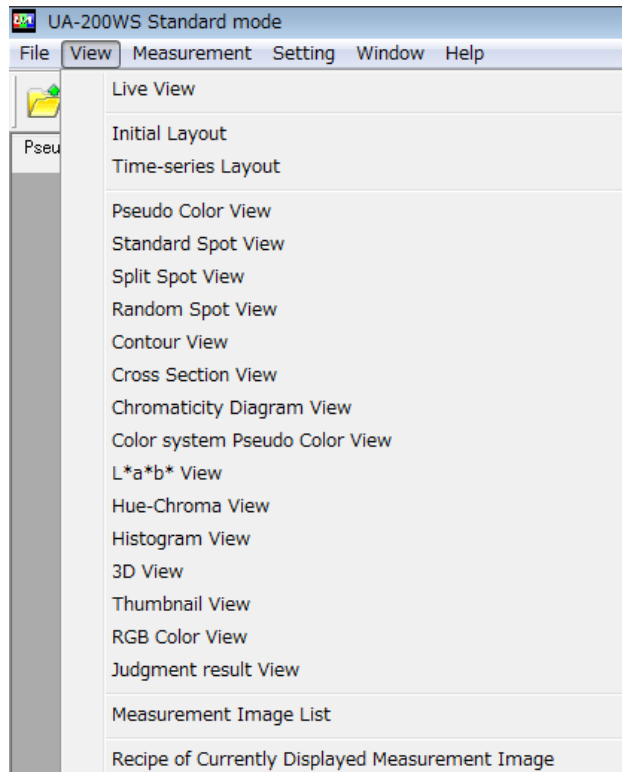
Save Measurement Data in CSV File Format

 "5.2.12 Save Measurement Data in CSV File Format"

5.4.1 Open Split Spot View

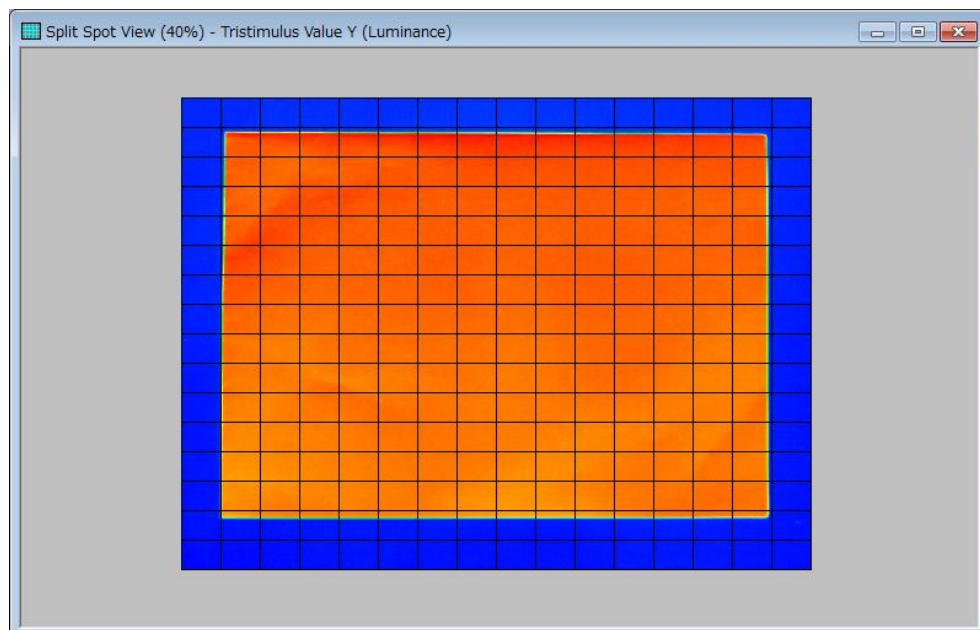
To open the [Split Spot View], go through the following steps.

- 1 From the Menu bar, select [View] – [Split Spot View] sequentially.



Or, click the  icon on the Menu bar.

- 2 The [Split Spot View] is opened.

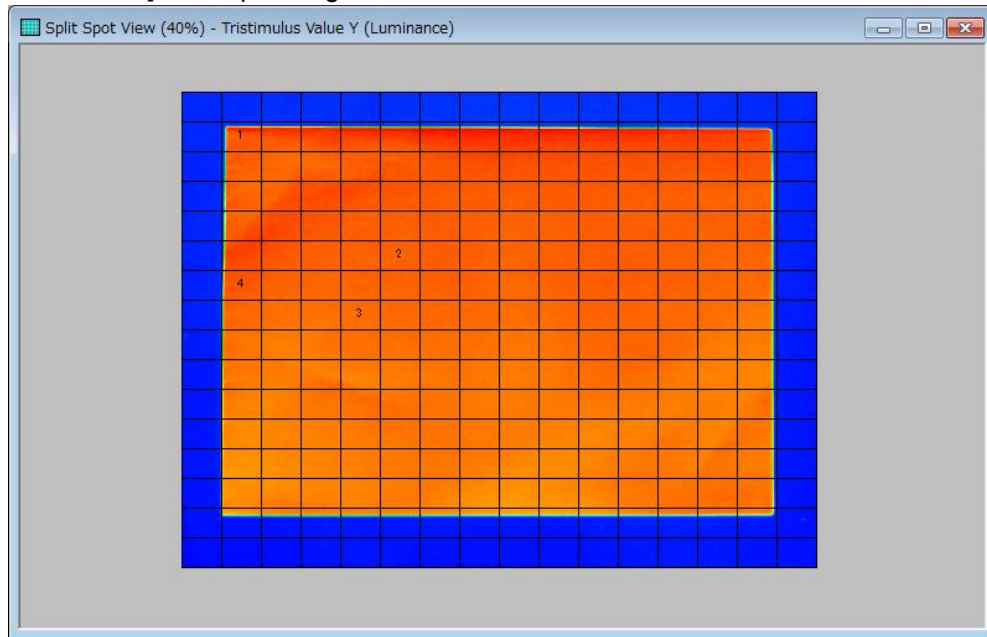


5.4.2 Select Measurement Spot

When the spot is selected, the cell on the [Split Spot Data Sheet] corresponding to the selected spot is reversed, which helps you discriminate the selected point of the selected spot. To select the measurement spot, go through the following steps.

- 1 Open the [Split Spot View].
- 2 Left-clicking the mouse on the view will allot the sequential numbers for the sequentially clicked lattices.

The numbered lattice is set as the measurement spot and the cell on the [Split Spot Data Sheet] corresponding to the selected lattice is reversed.



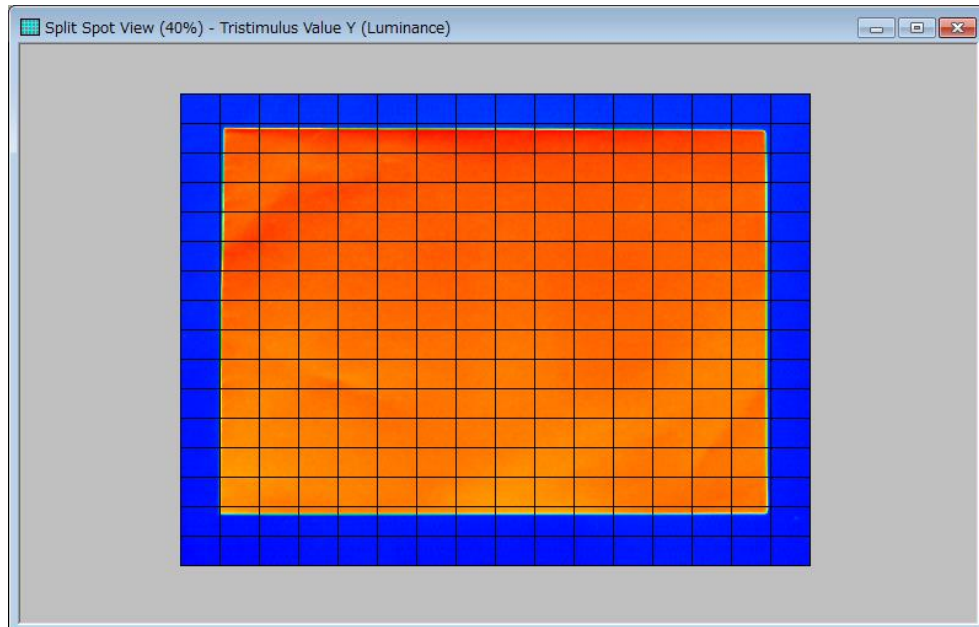
Split spot data sheet when selecting the desired measurement spot

	1	2	3	4	5	6	7	8	9
1	7.896674	8.218540	8.696212	8.712170	8.678122	8.769991	9.016530	9.216203	9.29
2	7.882416	8.212838	8.6924938	8.4308870	8.4370544	8.4171273	8.5922231	8.6011644	8.532
3	7.626419	8.7478648	1.0710908	1.0812411	1.0939714	1.0937489	1.1064826	1.1180877	1.117
4	7.647391	8.7818845	1.0965505	1.1180164	1.1141262	1.1024088	1.0938588	1.0934994	1.092
5	7.829913	1.0031900	1.1254087	1.1035109	1.0908651	1.0873593	1.0908950	1.0863455	1.080
6	7.588058	1.0487412	1.1055402	1.0866976	1.0824737	1.0831843	1.0914295	1.0855500	1.079
7	7.483820	1.0388853	1.0814813	1.0735211	1.0770892	1.0784066	1.0842034	1.0733545	1.070
8	7.253413	1.0193382	1.0556352	1.0525222	1.0511231	1.0667596	1.0706802	1.0661090	1.059
9	6.891609	1.0042262	1.0304304	1.0400828	1.0545242	1.0553904	1.0561818	1.0548138	1.043
10	6.455971	1.0022102	1.0316187	1.0344858	1.0287012	1.0361950	1.0440844	1.0426259	1.034
11	6.327072	98.119226	1.0228512	1.0430075	1.0514072	1.0481352	1.0466659	1.0373465	1.034
12	6.314332	98.037477	1.0161824	1.0253197	1.0352766	1.0465218	1.0463639	1.0390267	1.030
13	6.356189	96.741867	1.0010845	1.0163546	1.0262979	1.0374881	1.0411297	1.0305156	1.010
14	6.094888	97.344074	1.0108381	1.0180564	1.0207726	1.0329249	1.0281896	1.0001528	98.88
15	5.791673	30.001165	32.041081	32.526429	32.499948	32.200226	31.563234	30.418299	29.85
16	5.109004	5.167864	5.404392	5.819696	6.022971	5.804479	5.796209	5.712169	5.77

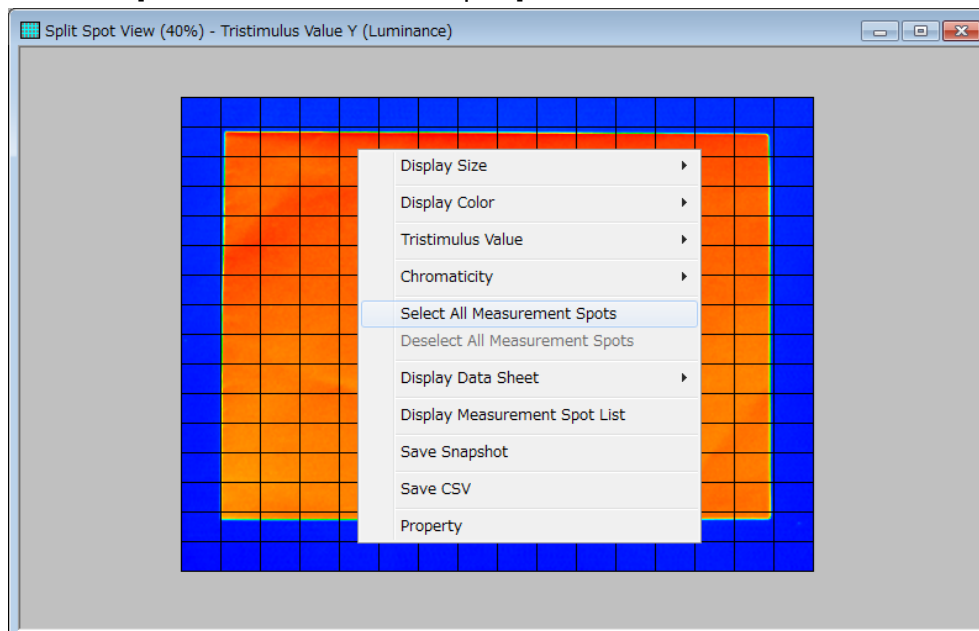
5.4.3 Select All Measurement Spots

On the [Split Spot View], this function selects all the spots as the measurement spot. To select all the measurement spots, go through the following steps.

- 1 Open the [Split Spot View].



- 2 Right-click on the [Split Spot View] to open pop-up menu. Select the [Select All Measurement Spots].



- 3** All the split spots are handled as the measurement spot.
 The numbers (1, 2, ...) are sequentially allotted from the top-left to bottom-right according to the specified rule.
 All cells of the data sheet are reversely displayed.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176
177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208
209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224
225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256

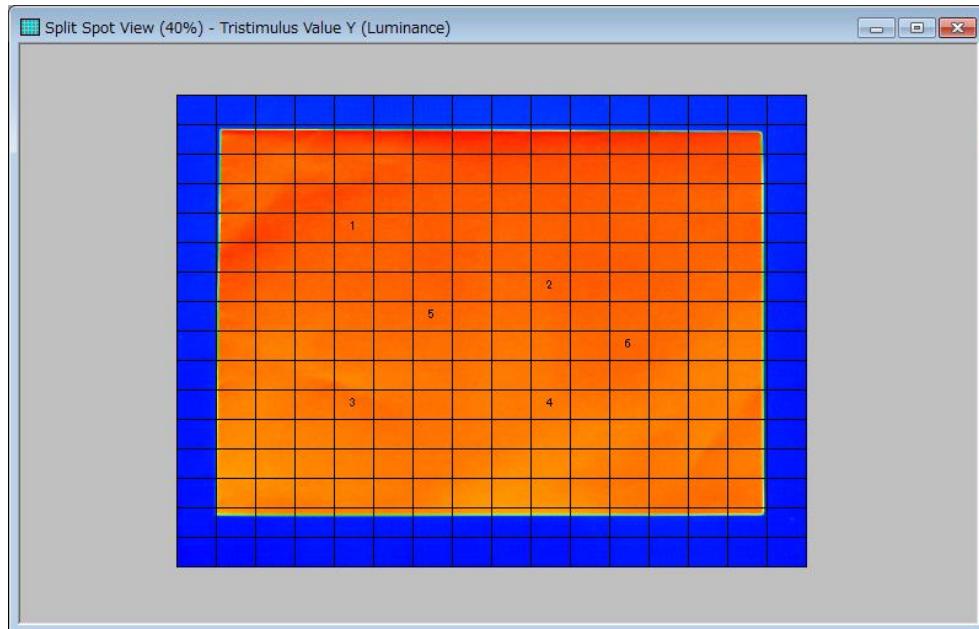
 Memo

If the measurement spot is arbitrarily set in advance before performing the [Select All Measurement Spots], the numbers are cleared.

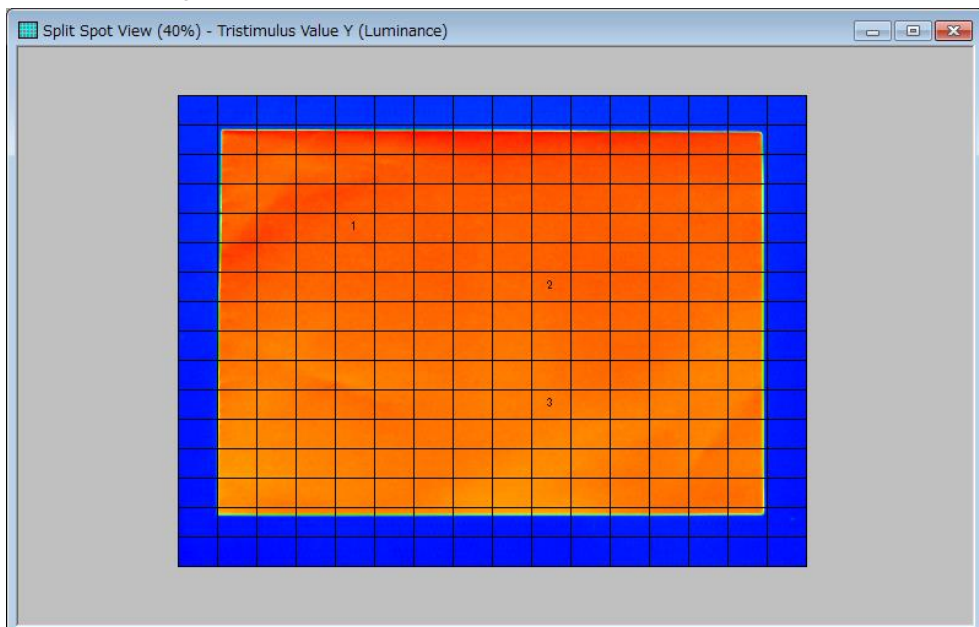
5.4.4 Deselect Measurement Spot

Deselects arbitrarily selected or all selected measurement spots. To deselect the measurement spot, go through the following steps.

- 1 Open the [Split Spot View] whose measurement spot is selected.



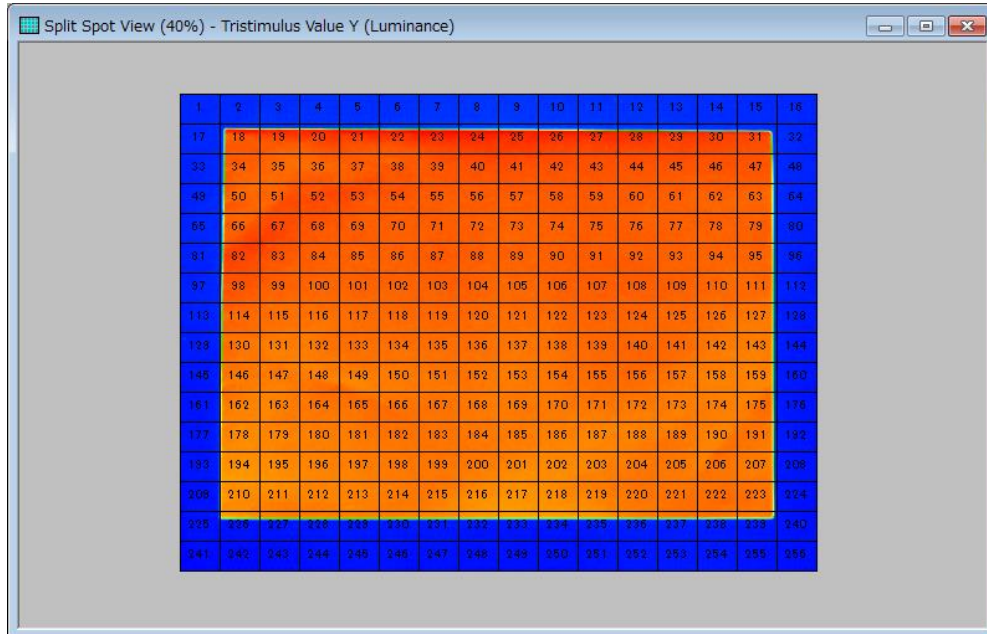
- 2 Left-clicking the mouse on the numbered lattices will remove the numbers and cancel the spot setting.



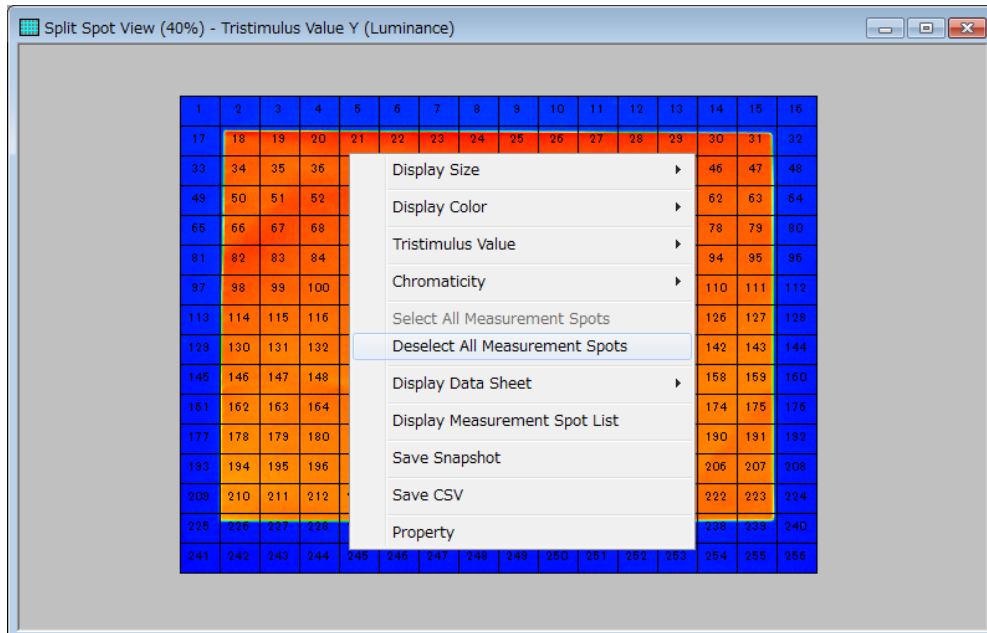
5.4.5 Deselect All Measurement Spots

Deselects arbitrarily selected or all selected measurement spots.
To deselect the measurement spot, go through the following steps.

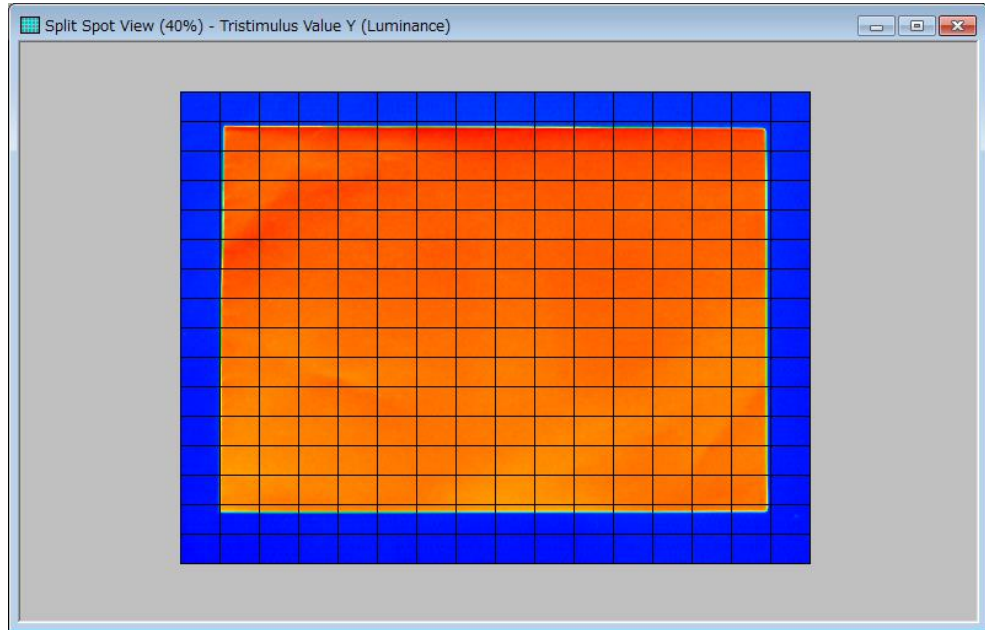
- 1 Open the [Split Spot View].



- 2 Right-click on the [Split Spot View] to open Pup-up menu.
Select the [Deselect All Measurement Spots].



3 All the split spots are deselected.

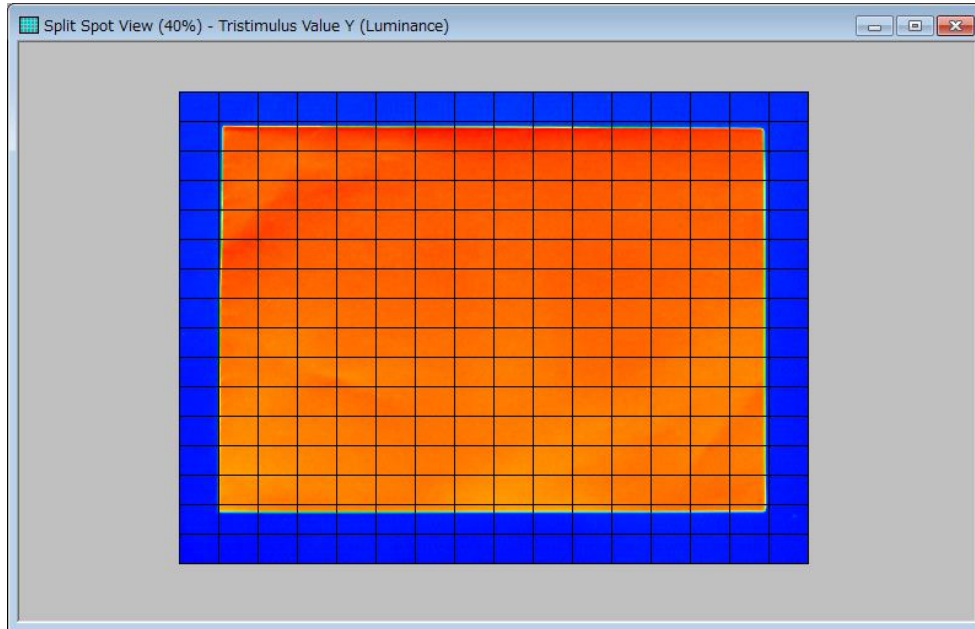


5.4.6 Display Data Sheet

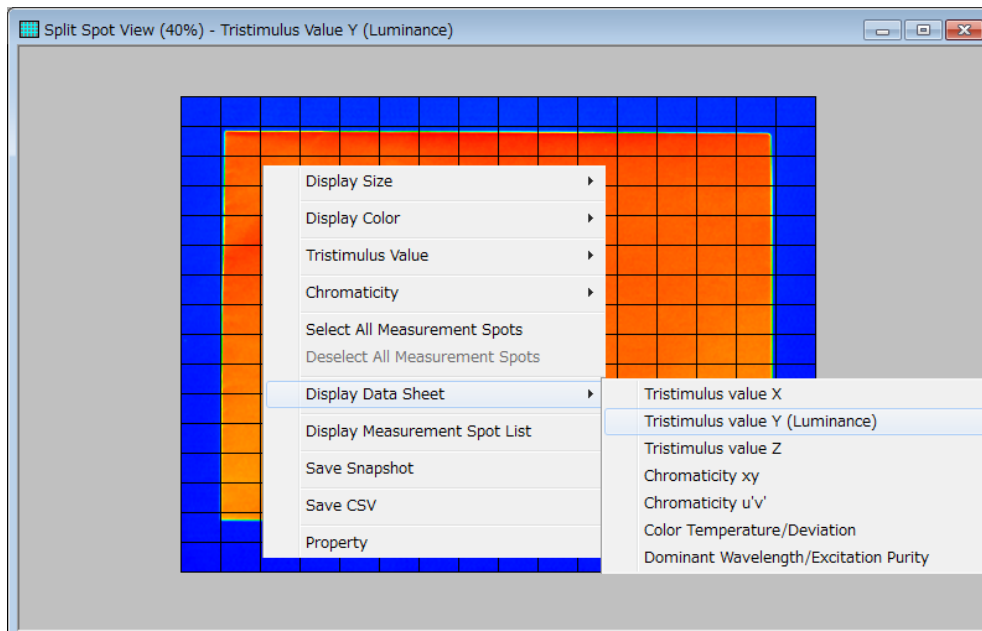
Displays the split spot measurement data in a spreadsheet style.

To open the [Split Spot Data Sheet], go through the following steps.

- 1 Open the [Split Spot View].



- 2 Right-click the [Split Spot View] to open Pop-up menu. Select the item of the data to be displayed such as [Display Data Sheet] – [Tristimulus Value Y (Luminance)].



3 The [Split Spot Data Sheet] is displayed.

	1	2	3	4	5	6	7	8	
1	363.00047	216.54260	6.109021	4.401329	4.859072	4.771398	4.713408	4.789776	5.01
2	9.261282	48.302486	6.675694	4.097113	4.386347	4.728767	4.898661	4.657975	4.74
3	6.220493	6.102991	5.362208	5.822584	5.247742	3.865327	4.190679	4.418423	4.29
4	11.211268	6.665628	6.060350	5.643553	5.460343	4.886918	4.041641	4.443208	4.55
5	152.88213	6.721842	6.182703	7.000029	7.136138	7.142977	6.040516	5.621515	5.48
6	9.180208	7.445198	8.649385	9.887838	11.078081	9.835890	4.214329	4.243716	1.90
7	8.381425	5.045177	9.821648	13.291934	12.248351	9.767398	6.828897	7.655172	1.98
8	2.940864	1.087660	2.205762	3.883716	4.463367	1.723060	3.609342	2.808527	2.10
9	2.766079	0.936178	0.998235	1.053770	1.636668	2.109396	1.223751	2.294078	5.17
10	4.772972	1.924129	1.142530	1.098220	1.111896	1.069826	1.001719	1.066511	2.25
11	3.504240	1.184301	0.908069	0.897355	0.960345	0.890875	0.805440	0.852807	1.99
12	4.052993	1.369250	0.778135	0.822052	0.790877	0.711118	0.646196	0.790711	2.02
13	4.268913	1.722619	0.744106	0.693839	0.685529	0.660750	1.510263	2.915329	2.30
14	3.936132	1.963762	0.651262	0.640641	0.662107	2.924963	6.495346	4.855384	2.56
15	3.673483	2.120739	0.605635	0.797937	4.631049	7.724173	7.276991	6.121645	5.62
16	2.692679	1.906702	1.421093	6.413236	8.064280	7.733058	6.778668	6.590399	6.35

 Memo

The measurement values, which saturation occur in the Tristimulus value are displayed as “over” and the chromaticity is displayed as “error”.

5.4.7 Switch Display Items of Data Sheet

On the [Split Spot Data Sheet], only one data item in the all measurement data can be displayed.

When you want to see data sheet of an item other than items displayed currently, you have to switch the item to other see other item of the measurement data.

To switch the display items of the [Split Spot Data Sheet], go through the following steps.

- 1 Open the [Split Spot Data Sheet].

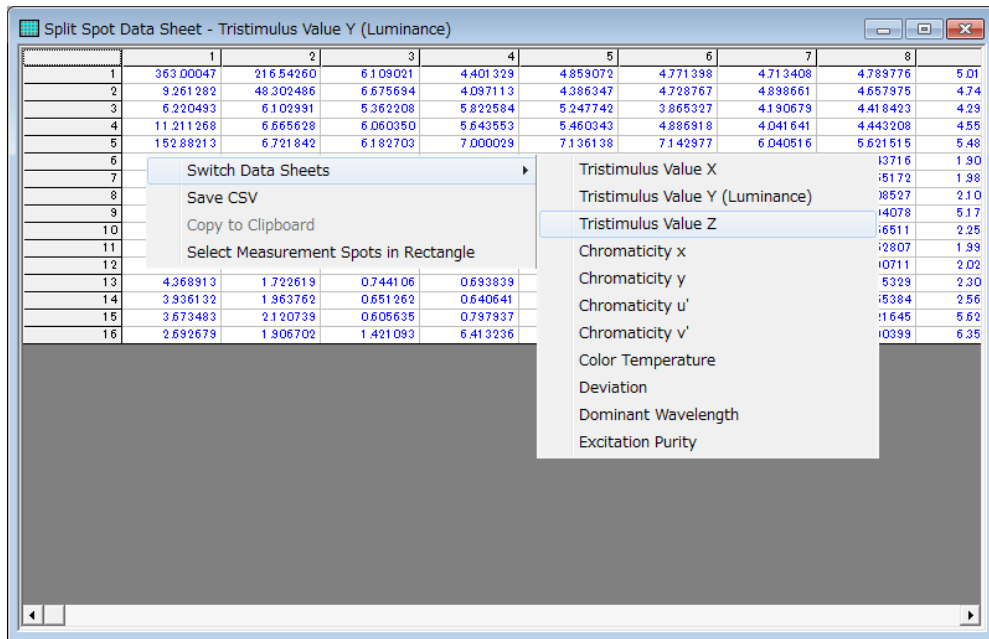
	1	2	3	4	5	6	7	8	9
1	363.00047	216.54260	6.109021	4.401329	4.859072	4.771398	4.713408	4.789776	5.01
2	9.261282	48.302486	6.675694	4.097113	4.386347	4.728767	4.898661	4.657975	4.74
3	6.220493	6.102991	5.262208	5.822584	5.247742	3.865327	4.190679	4.418423	4.29
4	11.211268	6.665628	6.060350	5.643553	5.460343	4.886918	4.041641	4.443208	4.55
5	152.88213	6.721842	6.182703	7.000029	7.136138	7.142977	6.040516	5.621515	5.48
6	9.180208	7.445198	8.649385	9.887838	11.078081	9.835890	4.314329	4.243716	1.90
7	8.381425	5.045177	9.821648	13.291934	12.248351	9.767398	6.828897	7.655172	1.98
8	2.940864	1.087660	2.205762	3.883716	4.463367	1.723060	3.609342	2.808527	2.10
9	2.766079	0.936178	0.988235	1.053770	1.636668	2.109396	1.223751	2.294078	5.17
10	4.772972	1.924129	1.142530	1.098220	1.111896	1.059826	1.001719	1.066511	2.25
11	3.504240	1.184301	0.908069	0.997355	0.960345	0.890875	0.805440	0.852807	1.99
12	4.052993	1.369250	0.778135	0.822052	0.790877	0.711118	0.646196	0.790711	2.02
13	4.368913	1.722619	0.744106	0.693839	0.685529	0.660750	1.510263	2.915329	2.30
14	3.936132	1.963762	0.651262	0.640641	0.662107	2.924963	6.495346	4.855384	2.56
15	3.673483	2.120739	0.605635	0.797937	4.631049	7.724173	7.276991	6.121645	5.62
16	2.692679	1.906702	1.421093	6.413236	8.064280	7.733058	6.777868	6.590399	6.35

- 2 Right-click anywhere within the [Split Spot Data Sheet].

	1	2	3	4	5	6	7	8	9
1	363.00047	216.54260	6.109021	4.401329	4.859072	4.771398	4.713408	4.789776	5.01
2	9.261282	48.302486	6.675694	4.097113	4.386347	4.728767	4.898661	4.657975	4.74
3	6.220493	6.102991	5.262208	5.822584	5.247742	3.865327	4.190679	4.418423	4.29
4	11.211268	6.665628	6.060350	5.643553	5.460343	4.886918	4.041641	4.443208	4.55
5	152.88213	6.721842					6.040516	5.621515	5.48
6	9.180208	7.445198					4.314329	4.243716	1.90
7	8.381425	5.045177					6.828897	7.655172	1.98
8	2.940864	1.087660					3.609342	2.808527	2.10
9	2.766079	0.936178					1.223751	2.294078	5.17
10	4.772972	1.924129					1.001719	1.066511	2.25
11	3.504240	1.184301					0.805440	0.852807	1.99
12	4.052993	1.369250	0.778135	0.822052	0.790877	0.711118	0.646196	0.790711	2.02
13	4.368913	1.722619	0.744106	0.693839	0.685529	0.660750	1.510263	2.915329	2.30
14	3.936132	1.963762	0.651262	0.640641	0.662107	2.924963	6.495346	4.855384	2.56
15	3.673483	2.120739	0.605635	0.797937	4.631049	7.724173	7.276991	6.121645	5.62
16	2.692679	1.906702	1.421093	6.413236	8.064280	7.733058	6.777868	6.590399	6.35

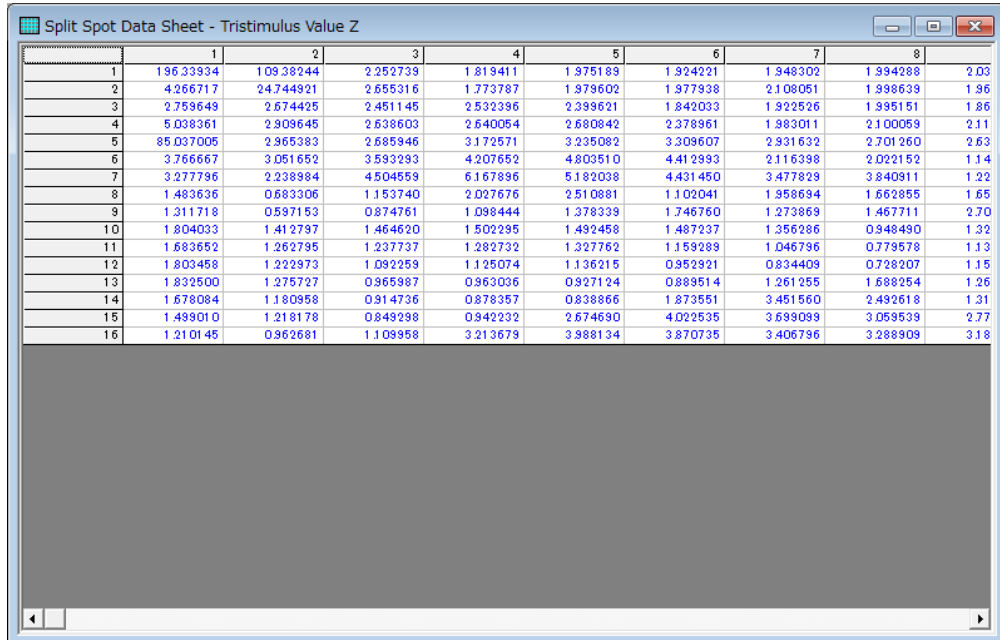
Switch Data Sheets
 Save CSV
 Copy to Clipboard
 Select Measurement Spots in Rectangle

- 3 The Pop-up menu will appear. Select the data item to be displayed from the [Switch Data Sheet].



Note On the [Split Spot Data Sheet], only one item can be displayed. Multiple items cannot be displayed.

- 4 The selected data item is alternatively displayed.



5.4.8 Save Display Items of Data Sheet in CSV File Format

Saves only the measured data displayed on the [Split Spot Data Sheet] with CSV file format. To perform the [Save CSV] of the [Split Spot Data Sheet], go through the following steps.



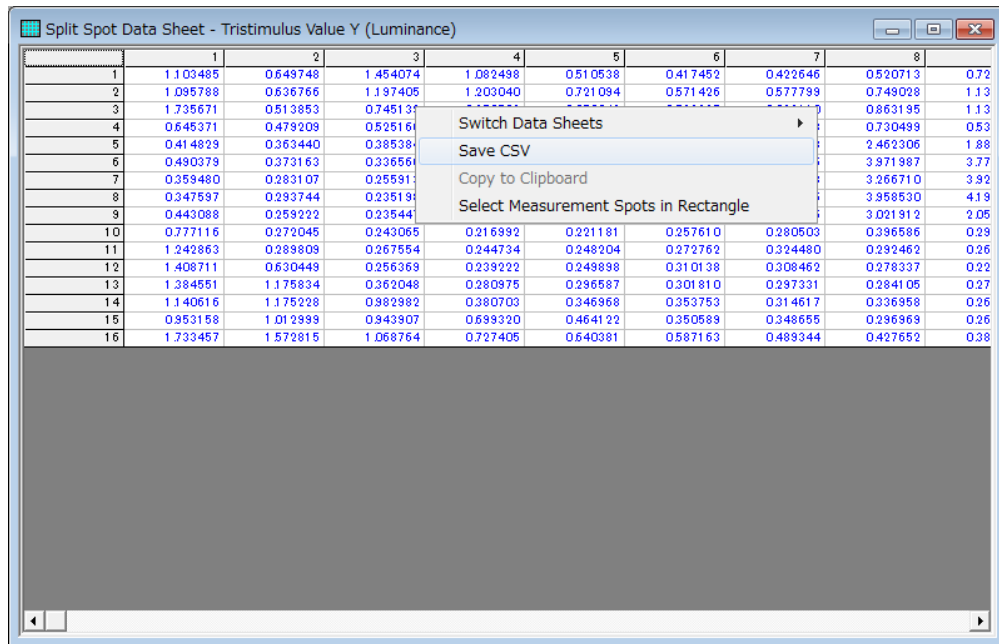
Performing the [Save CSV] of the [Split Spot Data Sheet] saves only the currently displayed item(s). To save multiple data, perform the [Save CSV] of the [Split Spot View].

☞ “5.2.12 Save Measurement Data Sheet in CSV File Format”

- 1 Open the [Split Spot Data Sheet].

	1	2	3	4	5	6	7	8	
1	196.33934	109.38244	2.252739	1.819411	1.975189	1.324221	1.348302	1.894288	2.03
2	4.266717	24.744921	2.655316	1.773787	1.979602	1.977938	2.108051	1.898639	1.86
3	2.759649	2.674425	2.451145	2.532396	2.399621	1.842033	1.922526	1.895151	1.86
4	5.038361	2.909645	2.638603	2.640064	2.680842	2.378961	1.883011	2.100059	2.11
5	85.037005	2.965383	2.685946	3.172571	3.235082	3.309607	2.931632	2.701260	2.63
6	3.766667	3.051652	3.593293	4.207652	4.803510	4.412993	2.116398	2.022152	1.14
7	3.277796	2.238984	4.504559	6.167896	5.182039	4.431450	3.477829	3.840911	1.22
8	1.493636	0.683306	1.153740	2.027676	2.510881	1.102041	1.358694	1.662955	1.65
9	1.311718	0.597153	0.874761	1.098444	1.378339	1.746760	1.273869	1.467711	2.70
10	1.804033	1.412797	1.464620	1.502295	1.492458	1.487237	1.356286	0.948490	1.32
11	1.683652	1.262795	1.237737	1.282732	1.327762	1.159289	1.046796	0.779578	1.13
12	1.803458	1.222973	1.092259	1.125074	1.136215	0.952921	0.834409	0.728207	1.15
13	1.832500	1.275727	0.965987	0.963036	0.927124	0.889514	1.261255	1.688254	1.26
14	1.678084	1.180958	0.914736	0.878357	0.838866	1.873551	3.451560	2.492618	1.31
15	1.499010	1.218178	0.849298	0.942232	2.674690	4.022535	3.699099	3.059539	2.77
16	1.210145	0.962681	1.109958	3.213679	3.888134	3.870735	3.406796	3.288909	3.18

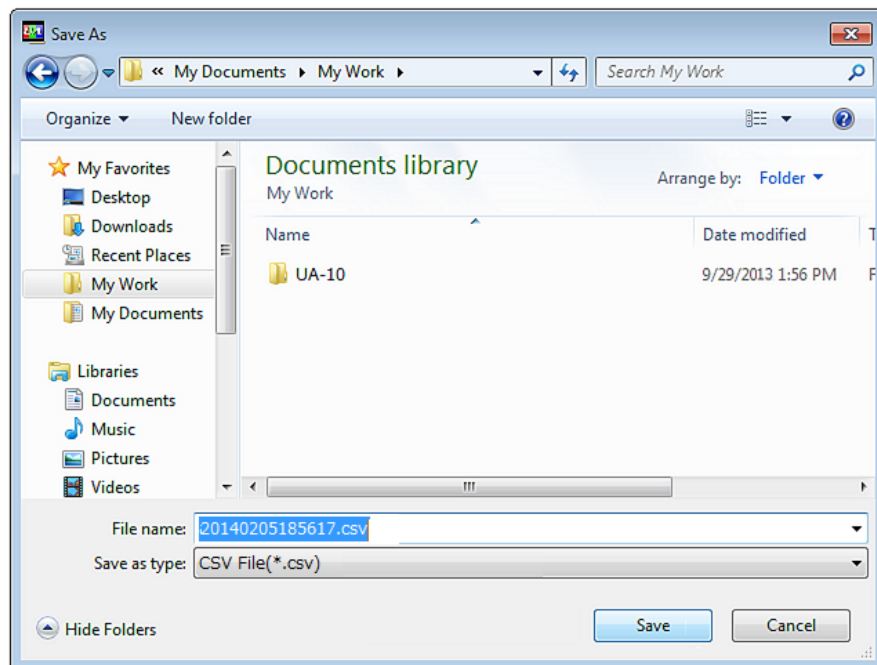
- 2 Right-click anywhere within the [Split Spot Data Sheet].
- 3 The Pop-up menu will appear. Select [Save CSV].



- 4 The Explorer window will open. Specify the file name with the save-destination path and the file format, and click [Save].

The default file name is in the style of date + time.

For the file format, you can select [CSV] or [TEXT]. Open the Pull-down menu to select the desired file format.



- 5 The measurement data only displayed on the data sheet is saved.

Split Spot Data Sheet

	1	2	3	4	5	6	7	8	
1	1.9633334	1.0938244	2.252739	1.819411	1.375189	1.924221	1.948302	1.994288	2.03
2	4.266717	2.4744921	2.655316	1.773787	1.379602	1.977938	2.108051	1.998639	1.96
3	2.759649	2.674425	2.451145	2.532396	2.399621	1.842033	1.922526	1.995151	1.86
4	5.038361	2.909645	2.638603	2.640054	2.680842	2.378961	1.983011	2.100059	2.11
5	85.037005	2.965383	2.685946	3.172571	3.235082	3.309607	2.931632	2.701260	2.63
6	3.766667	3.051652	3.593293	4.207652	4.803510	4.412993	2.116398	2.022152	1.14
7	3.277796	2.238984	4.504559	6.167896	5.182038	4.431450	3.477829	3.840911	1.22
8	1.483636	0.683306	1.153740	2.027676	2.510881	1.102041	1.958694	1.652855	1.65
9	1.311718	0.597153	0.874761	1.098444	1.378339	1.746760	1.273869	1.467711	2.70
10	1.804033	1.412797	1.464620	1.502995	1.492458	1.487237	1.356286	0.948490	1.32
11	1.683652	1.262795	1.237737	1.282732	1.327762	1.159289	1.046796	0.779578	1.13
12	1.803458	1.222973	1.092259	1.125074	1.136215	0.952921	0.834409	0.728207	1.15
13	1.832500	1.275727	0.965987	0.963036	0.927124	0.889514	1.261255	1.688254	1.26
14	1.678084	1.180958	0.914736	0.878357	0.838866	1.873551	3.451560	2.492618	1.31
15	1.499010	1.218178	0.849298	0.942232	2.674690	4.022535	3.699099	3.059539	2.77
16	1.210145	0.962681	1.109958	3.213679	3.988134	3.870735	3.406796	3.288909	3.18

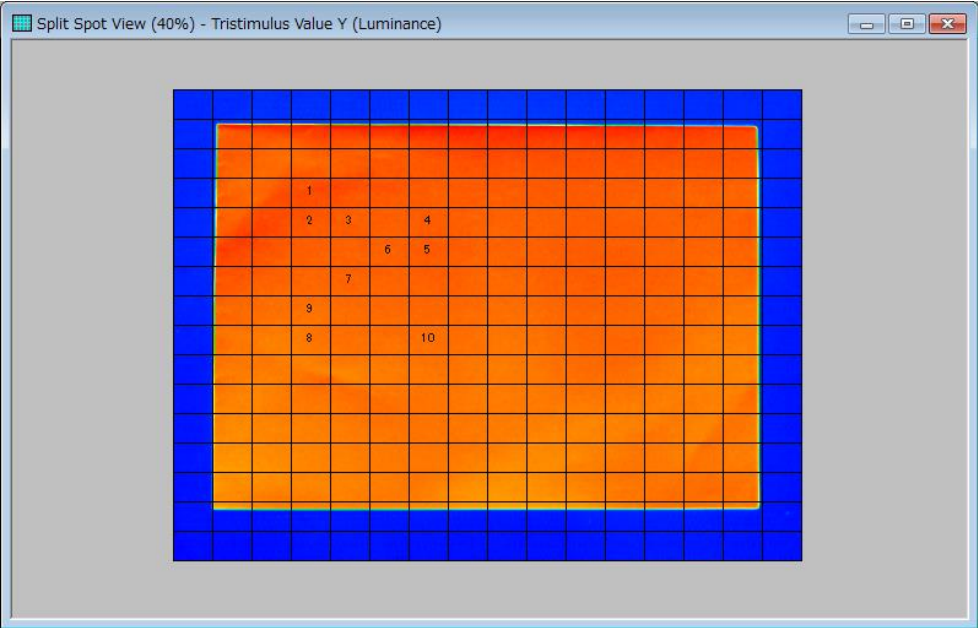
CSV data of Split Spot Data Sheet

	A	B	C	D	E	F	G	H	I
1		1	2	3	4	5	6	7	8
2	1	1.103485	0.649748	1.454074	1.082498	0.510538	0.417452	0.422646	0.520713
3	2	1.095788	0.636766	1.197405	1.20304	0.721094	0.571426	0.577799	0.749028
4	3	1.735671	0.513853	0.745139	0.950762	0.656042	0.583387	0.63911	0.863195
5	4	0.645371	0.479209	0.525166	0.488261	0.45964	0.450988	0.669893	0.730499
6	5	0.414829	0.36344	0.385384	0.334731	0.292017	0.552664	2.090393	2.462306
7	6	0.490379	0.373163	0.336566	0.293581	0.284648	0.856632	3.587795	3.971987
8	7	0.35948	0.283107	0.255913	0.235539	0.24385	0.81063	3.518343	3.26671
9	8	0.347597	0.293744	0.235198	0.224349	0.271414	0.497933	3.903165	3.95853
10	9	0.443088	0.259222	0.235447	0.215955	0.24311	0.262671	1.471506	3.021912
11	10	0.777116	0.272045	0.243065	0.216992	0.221181	0.25761	0.280503	0.396586
12	11	1.242863	0.289809	0.267554	0.244734	0.248204	0.272762	0.32448	0.292462
13	12	1.408711	0.630449	0.256369	0.239222	0.249898	0.310138	0.308462	0.278337
14	13	1.384551	1.175834	0.362048	0.280975	0.296587	0.30181	0.297331	0.284105
15	14	1.140616	1.175228	0.982982	0.380703	0.346968	0.353753	0.314617	0.336958
16	15	0.953158	1.012999	0.943907	0.69932	0.464122	0.350589	0.348655	0.296969
17	16	1.733457	1.572815	1.068764	0.727405	0.640381	0.587163	0.489344	0.427652
18									

5.4.9 Copy to Clipboard

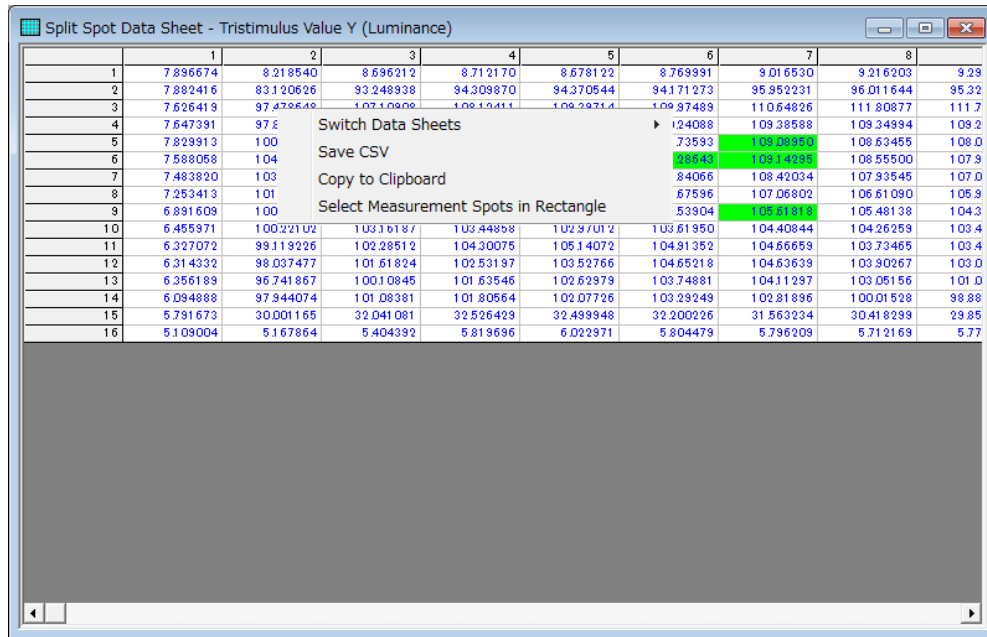
Copies only the selected measurement spot into the clipboard.
 To copy the selected measurement spot into the clipboard, go through the following steps.

- 1 Open the [Split Spot View].
- 2 Select the measurement spot on the [Split Spot View] or [Split Spot Data Sheet].

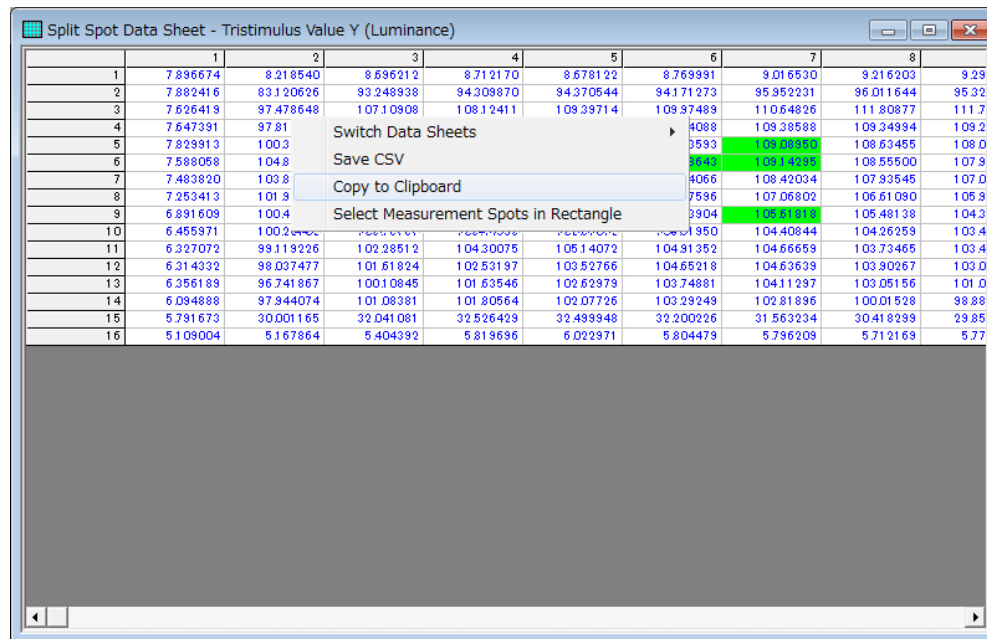


	1	2	3	4	5	6	7	8
1	7.896674	8.218540	8.596212	8.712170	8.678122	8.769991	9.016530	9.216203
2	7.882416	83.120626	93.248938	94.309870	94.370544	94.171273	95.952231	96.011644
3	7.626419	97.478648	107.10908	108.12411	109.33714	109.97489	110.64826	111.80877
4	7.647391	97.818845	109.65505	111.27028	111.41262	110.24088	109.38588	109.24934
5	7.823913	100.31900	112.54087	112.27128	109.31311	108.73593	109.28338	108.63455
6	7.588058	104.87412	110.55402	108.66976	108.24737	108.28841	109.24399	108.55500
7	7.483820	103.89853	108.14813	107.35211	107.70892	107.84066	108.42034	107.93545
8	7.253413	101.93382	105.56352	105.35322	106.17291	106.67596	107.06802	106.61090
9	6.891609	100.42262	103.04304	104.00828	105.46242	106.53904	108.01318	105.48138
10	6.455971	100.22102	103.16187	103.44858	102.97012	103.61950	104.40844	104.26259
11	6.227072	99.119226	102.28512	104.30075	105.14072	104.91352	104.66659	103.73465
12	6.214332	98.037477	101.61824	102.53197	103.52766	104.65218	104.63639	103.90267
13	6.256189	96.741867	100.10845	101.63546	102.62979	103.74881	104.11297	103.05156
14	6.094888	97.944074	101.08381	101.80564	102.07726	103.29249	102.81896	100.01528
15	5.791673	30.001165	32.041081	32.526429	32.499948	32.200226	31.563234	30.418299
16	5.109004	5.167864	5.404392	5.819696	6.022971	5.804479	5.796209	5.712169

3 Right-click anywhere within the [Split Spot Data Sheet].



4 The Pop-up menu is displayed. Select [Copy to Clipboard].
The selected measurement spot is copied into the clipboard.



Note The measurement spot cannot be copied just by dragging on the [Split Spot Data Sheet]. Be sure to select the measurement spot on the [Split Spot View] or [Split Spot Data Sheet].

- The selected portions on the data sheet are copied.

Save Split Spot Data Sheet in CSV File Format

	1	2	3	4	5	6	7	8
1	7.896674	8.218540	8.696212	8.712170	8.678122	8.769991	9.016530	9.216203
2	7.882416	83.120626	93.248938	94.309870	94.370544	94.171273	95.952231	96.011644
3	7.626419	97.478648	107.10908	108.12411	109.39714	109.97489	110.64826	111.80877
4	7.647391	97.818845	109.65505	111.80164	111.41262	110.24088	109.38588	109.34994
5	7.829913	100.31900	112.54087	110.35111	109.08651	108.73593	109.06955	108.63455
6	7.588058	104.87412	110.55402	108.66976	108.24737	108.25843	109.14235	108.55500
7	7.483820	103.89853	108.14813	107.35211	107.70533	107.84066	108.42034	107.93545
8	7.253413	101.93382	105.56352	105.25222	106.17291	106.67596	107.06802	106.61090
9	6.891609	100.42262	103.04304	104.26235	105.45242	105.53904	105.81315	105.48138
10	6.455971	100.22102	103.16187	103.44858	102.97012	103.61950	104.40844	104.26259
11	6.327072	99.119226	102.28512	104.30075	105.14072	104.91352	104.66659	103.73465
12	6.314332	98.037477	101.61824	102.53197	103.59766	104.65218	104.63639	103.90267
13	6.356189	96.741867	100.10845	101.63546	102.62979	103.74881	104.11297	103.05156
14	6.094888	97.944074	101.08381	101.80564	102.07726	103.29249	102.81896	100.01528
15	5.791673	30.001165	32.041081	32.526429	32.499948	32.200226	31.563234	30.418299
16	5.109004	5.167864	5.404392	5.819636	6.022971	5.804479	5.796209	5.712169

Paste Split Spot Data Sheet on Clipboard

	A	B	C	D	E	F	G	H
1								
2								
3								
4				111.8016				
5				110.3511	109.0865		109.0895	
6						108.2864	109.143	
7					107.7089			
8				105.2522				
9				104.0083			105.6182	
10								

5.4.10 Select Measurement Spots in Rectangle

Selects the measurement spot by dragging to specify area in the [Split Spot Data Sheet].
To select the measurement spot in rectangle, go through the following steps.

- 1 Open the [Split Spot Data Sheet].
- 2 The portion not to be selected within the area selected in rectangle, if any, can be arbitrarily selected.

Split Spot Data Sheet - Tristimulus Value Y (Luminance)

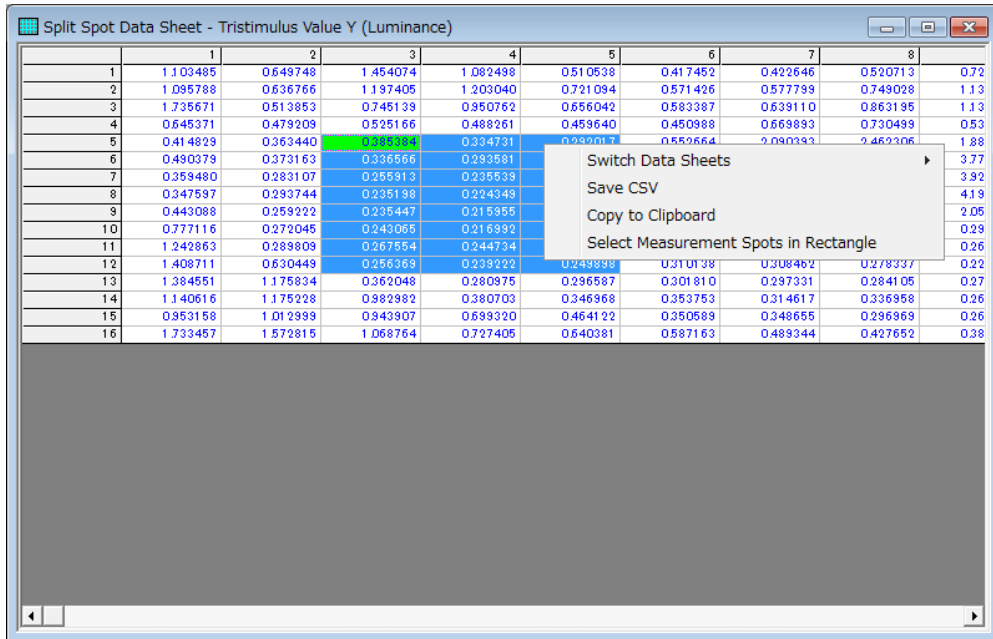
	1	2	3	4	5	6	7	8	
1	1.103485	0.649748	1.454074	1.082488	0.510538	0.417452	0.422646	0.520713	0.72
2	1.095788	0.636766	1.197405	1.203040	0.721094	0.571426	0.577799	0.749028	1.13
3	1.735671	0.513853	0.745139	0.950762	0.656042	0.583387	0.639110	0.863195	1.13
4	0.645371	0.479209	0.525166	0.488261	0.459640	0.450988	0.669893	0.730499	0.53
5	0.414829	0.363440	0.336566	0.334731	0.292017	0.552664	2.090393	2.462306	1.88
6	0.490379	0.373163	0.336566	0.293581	0.284648	0.856632	3.587795	3.871987	3.77
7	0.359480	0.283107	0.265913	0.235539	0.243850	0.810630	3.518343	3.266710	3.92
8	0.347597	0.293744	0.235198	0.224349	0.271414	0.497933	3.903165	3.958530	4.19
9	0.443088	0.259222	0.235447	0.215955	0.243110	0.262671	1.471506	3.021912	2.05
10	0.777116	0.272045	0.243065	0.216992	0.221181	0.257610	0.280503	0.396586	0.29
11	1.242863	0.289809	0.267554	0.244734	0.248204	0.272762	0.324480	0.292462	0.26
12	1.408711	0.630449	0.265369	0.239222	0.249898	0.310138	0.308462	0.278337	0.22
13	1.384551	1.175834	0.362048	0.280975	0.296587	0.301810	0.297331	0.284105	0.27
14	1.140616	1.175228	0.982982	0.380703	0.346968	0.353753	0.314617	0.336958	0.26
15	0.953158	1.012999	0.943907	0.699320	0.464122	0.350589	0.348655	0.296969	0.26
16	1.733457	1.572815	1.068764	0.727405	0.640381	0.587163	0.489344	0.427652	0.38

- 3 Drag to specify the area to be selected in rectangle on the data sheet.

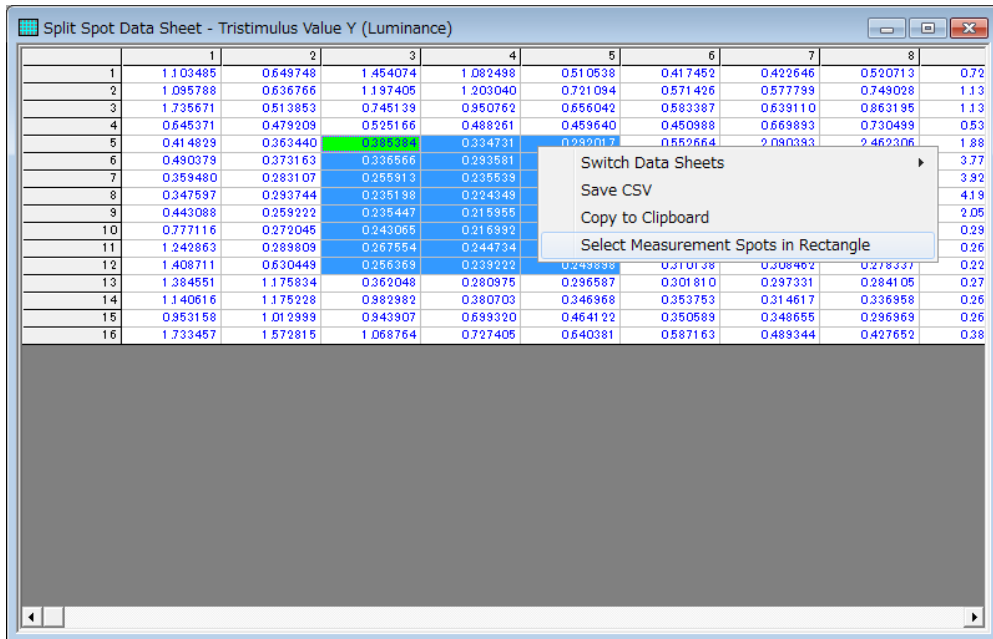
Split Spot Data Sheet - Tristimulus Value Y (Luminance)

	1	2	3	4	5	6	7	8	
1	1.103485	0.649748	1.454074	1.082488	0.510538	0.417452	0.422646	0.520713	0.72
2	1.095788	0.636766	1.197405	1.203040	0.721094	0.571426	0.577799	0.749028	1.13
3	1.735671	0.513853	0.745139	0.950762	0.656042	0.583387	0.639110	0.863195	1.13
4	0.645371	0.479209	0.525166	0.488261	0.459640	0.450988	0.669893	0.730499	0.53
5	0.414829	0.363440	0.336566	0.334731	0.292017	0.552664	2.090393	2.462306	1.88
6	0.490379	0.373163	0.336566	0.293581	0.284648	0.856632	3.587795	3.871987	3.77
7	0.359480	0.283107	0.265913	0.235539	0.243850	0.810630	3.518343	3.266710	3.92
8	0.347597	0.293744	0.235198	0.224349	0.271414	0.497933	3.903165	3.958530	4.19
9	0.443088	0.259222	0.235447	0.215955	0.243110	0.262671	1.471506	3.021912	2.05
10	0.777116	0.272045	0.243065	0.216992	0.221181	0.257610	0.280503	0.396586	0.29
11	1.242863	0.289809	0.267554	0.244734	0.248204	0.272762	0.324480	0.292462	0.26
12	1.408711	0.630449	0.265369	0.239222	0.249898	0.310138	0.308462	0.278337	0.22
13	1.384551	1.175834	0.362048	0.280975	0.296587	0.301810	0.297331	0.284105	0.27
14	1.140616	1.175228	0.982982	0.380703	0.346968	0.353753	0.314617	0.336958	0.26
15	0.953158	1.012999	0.943907	0.699320	0.464122	0.350589	0.348655	0.296969	0.26
16	1.733457	1.572815	1.068764	0.727405	0.640381	0.587163	0.489344	0.427652	0.38

4 Right-click anywhere within the [Split Spot Data Sheet].



5 The Pop-up menu will appear. Select [Select Measurement Spots in Rectangle].



- 6 The area selected in the rectangle is set as the measurement spot. If the preset measurement spot is already included, it is deselected.

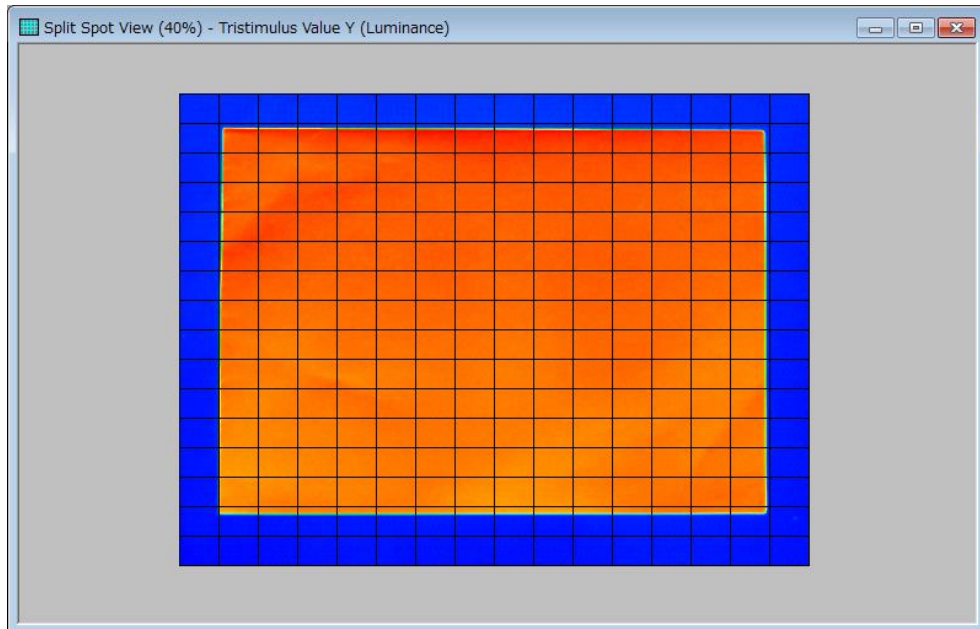
Split Spot Data Sheet - Tristimulus Value Y (Luminance)

	1	2	3	4	5	6	7	8	
1	1.103485	0.649748	1.454074	1.082498	0.510538	0.417452	0.422646	0.520713	0.72
2	1.095788	0.636766	1.197406	1.203040	0.721094	0.571426	0.577799	0.749028	1.13
3	1.735671	0.513853	0.745139	0.950762	0.656042	0.583387	0.639110	0.863195	1.13
4	0.645371	0.479209	0.525166	0.488261	0.459640	0.450988	0.669893	0.730499	0.53
5	0.414829	0.363440	0.385384	0.334731	0.259293	0.552664	2.080393	2.462306	1.88
6	0.490379	0.373163	0.278566	0.233531	0.254649	0.856632	3.587795	3.971987	3.77
7	0.359480	0.283107	0.255913	0.239539	0.247850	0.810630	3.518343	3.266710	3.92
8	0.347597	0.293744	0.275198	0.224049	0.271464	0.497933	3.903165	3.958530	4.19
9	0.443088	0.259222	0.254447	0.215959	0.243110	0.262671	1.471506	3.021912	2.05
10	0.777116	0.272045	0.243065	0.218999	0.221181	0.257610	0.280503	0.396586	0.29
11	1.242863	0.289809	0.267554	0.244734	0.248204	0.272762	0.224480	0.292462	0.26
12	1.408711	0.630449	0.256365	0.233229	0.248999	0.310138	0.308462	0.278337	0.22
13	1.384651	1.175834	0.262048	0.280975	0.296587	0.301810	0.297331	0.284105	0.27
14	1.140616	1.175228	0.982982	0.380703	0.346968	0.253753	0.314617	0.336958	0.26
15	0.953158	1.012999	0.943907	0.699320	0.464122	0.250589	0.348655	0.296969	0.26
16	1.733457	1.572815	1.068764	0.727405	0.640381	0.587163	0.489344	0.427652	0.38

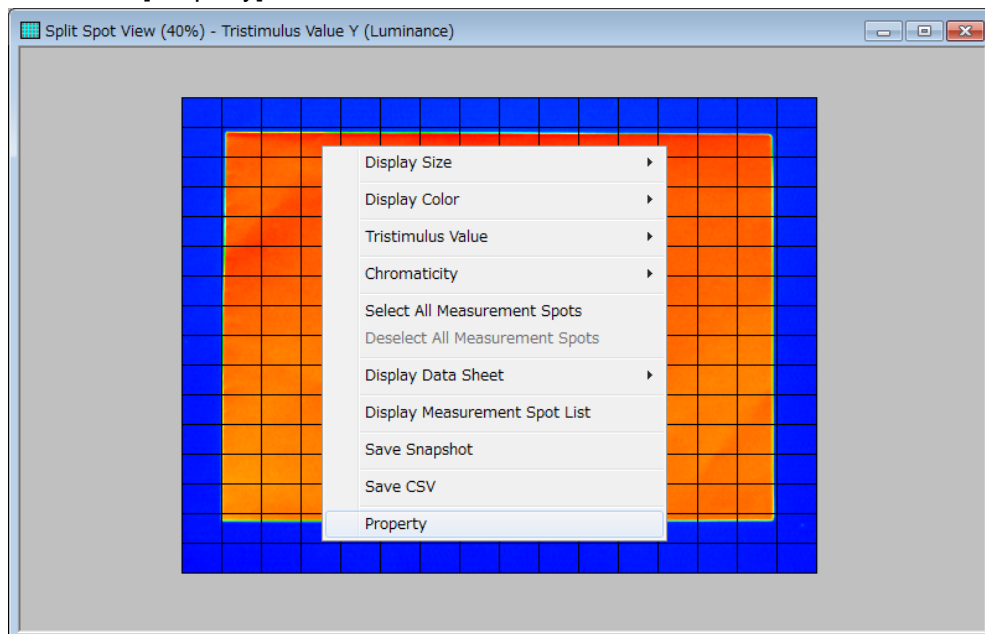
5.4.11 Open Split Spot Property

Opens the [Split Spot Property]. To open the [Split Spot Property], go through the following steps.

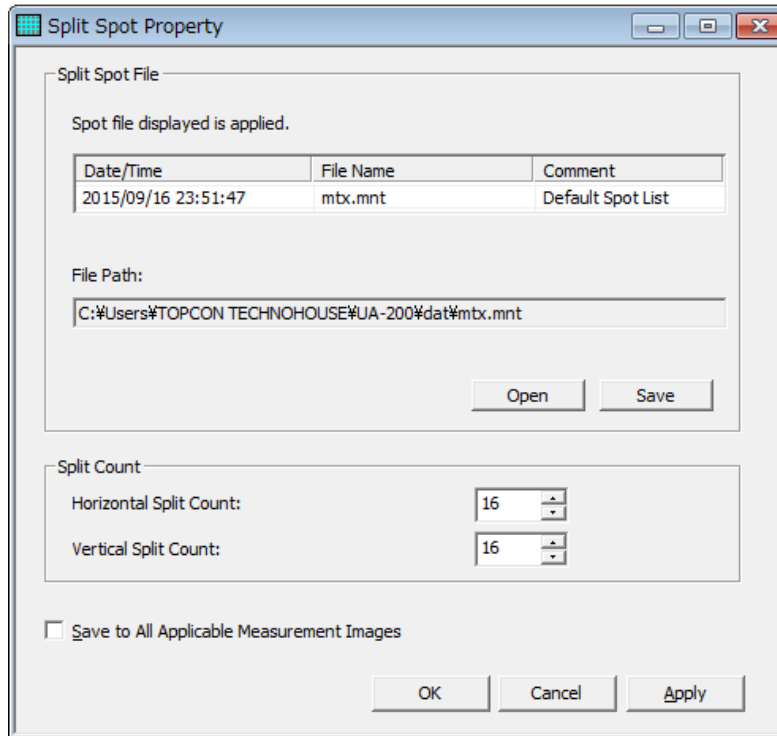
- 1 Open the [Split Spot View].



- 2 Right-click anywhere within [Split Spot View] to open pop-up menu. Select the [Property].




- 3** [Split Spot Property] dialog is displayed.
When the setting is completed, click any button.
- [OK] Enables the setting and closes this window.
 - [Cancel] Disables the setting and closes this window.
 - [Apply] Enables the setting, and enables you to continue the setting without closing the window.

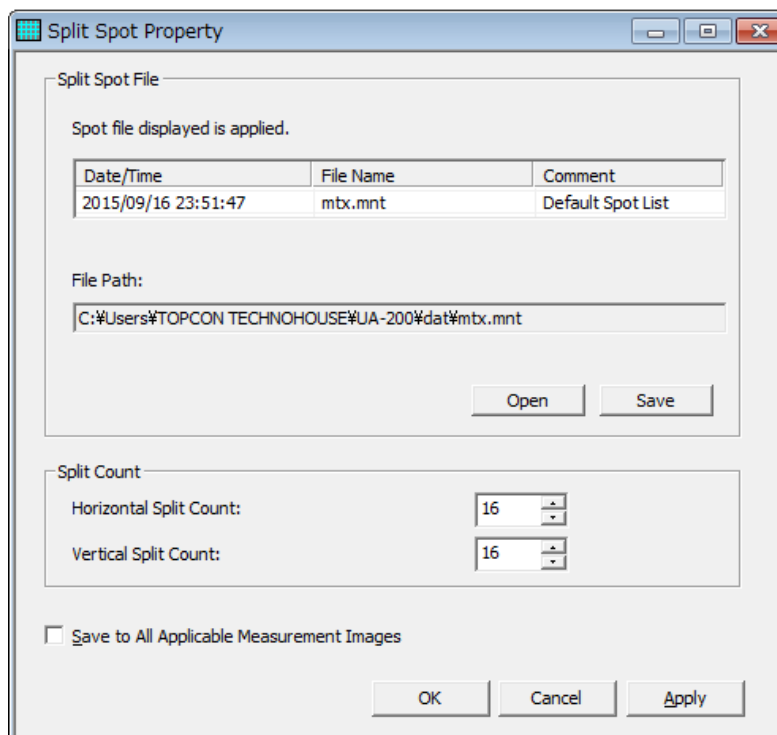


5.4.12 Set Split Count

Specifies the split count of the measurement spots of the Split Spot View. To set the split count of the split spots, go through the following steps.

 Note	When the number of horizontal or vertical pixels cannot be divisible, the number in edit box may be 1. In this case, enter the number in split count edit box or make trimming again to change trimming area.
--	---

- 1 Open [Split Spot Property].



Split Spot Property

Split Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/09/16 23:51:47	mtx.mnt	Default Spot List

File Path:

C:\Users\TOPCON TECHNOHOUSE\JA-200\dat\mtx.mnt

Open Save

Split Count

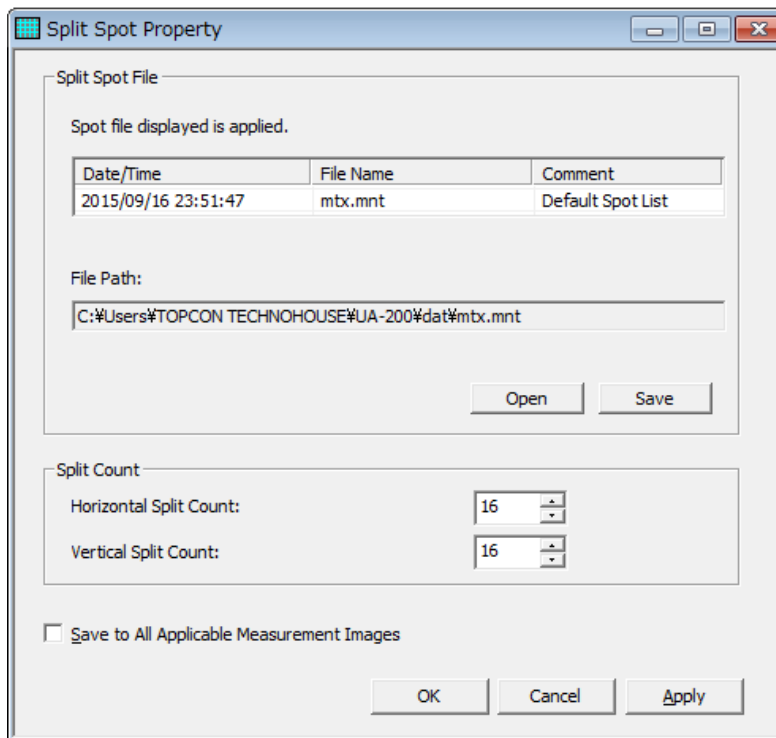
Horizontal Split Count: 16

Vertical Split Count: 16

Save to All Applicable Measurement Images

OK Cancel Apply

- 2 Set the [Vertical Split Count] and [Horizontal Split Count] of [Split Spot Property] by adjusting the spin buttons ▲▼ within the edit box. The value range varies depending on the trimming.



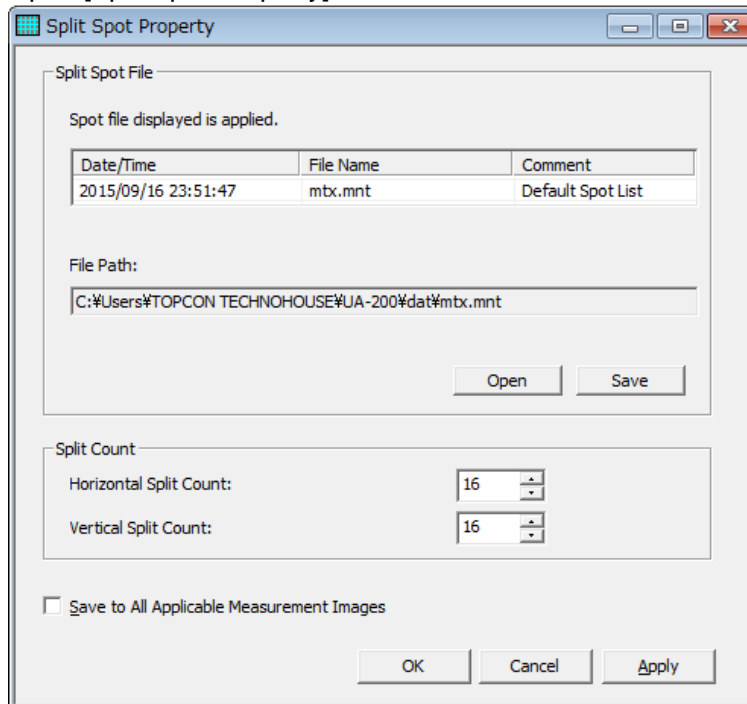
Memo

- Divisible number for horizontal and vertical pixel of trimmed image are displayed in edit box.
- Split count number can be entered directly in edit box.
Max split count Vertical : 144 Horizontal : 256
Example: When Vertical 50 pixel, Horizontal 30 pixel and there is remainder, one pixel is added to each grid from upper-left grid.
- Character corruption of spot number may happen dued to low resolution. In this case, expand the view window.

5.4.13 Save to All Applicable Measurement Images

Saves the result of changing the split count of the measurement spot on [Split Spot Property] to all the loaded measurement images. To save the split count-changed measurement spot to all measurement images, go through the following steps.

- 1 Open [Split Spot Property].

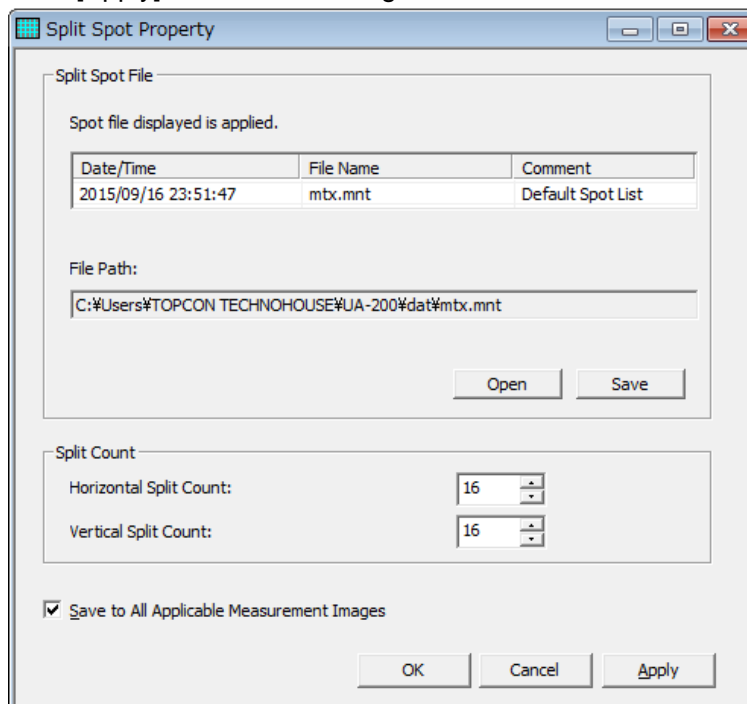


The screenshot shows the 'Split Spot Property' dialog box. It has a title bar with standard window controls. The main area is divided into two sections. The top section, 'Split Spot File', contains the text 'Spot file displayed is applied.' and a table with three columns: 'Date/Time', 'File Name', and 'Comment'. The table contains one row with values '2015/09/16 23:51:47', 'mtx.mnt', and 'Default Spot List'. Below the table is a 'File Path:' label and a text box containing 'C:\Users\TOPCON TECHNOHOUSE\JA-200\dat\mtx.mnt'. There are 'Open' and 'Save' buttons below the text box. The bottom section, 'Split Count', has 'Horizontal Split Count:' and 'Vertical Split Count:' labels, each followed by a spinner box set to '16'. At the bottom of the dialog, there is an unchecked checkbox labeled 'Save to All Applicable Measurement Images' and three buttons: 'OK', 'Cancel', and 'Apply'.

Date/Time	File Name	Comment
2015/09/16 23:51:47	mtx.mnt	Default Spot List

- 2 To save the settings to all retained measurement images, check [Save to All Applicable Measurement Images].

Click [Apply] to save the settings to the loaded measurement images.



This screenshot is identical to the previous one, but the 'Save to All Applicable Measurement Images' checkbox is now checked.

5.4.14 Select Split Spot File

Selects the Split Spot File to be used. To select the Split Spot File, go through the following steps. You can edit selected Split Spot File.

Click the [Open] to open the [File Open] dialog. Select the Split Spot File and load it. The loaded Split Spot definition become available in the [Split Spot Property].

Split Spot Property

Split Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/09/14 22:45:58	mtx.mnt	default

File Path:
C:\Users\90067\TOPCON TECHNOHOUSE\UA-200\dat\mtx.mnt

Open Save

Split Count

Horizontal Split Count: 16

Vertical Split Count: 16

Save to All Applicable Measurement Images

OK Cancel Apply

Split Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/09/14 22:45:58	mtx.mnt	default

File Path:
C:\Users\90067\TOPCON TECHNOHOUSE\UA-200\dat\mtx.mnt

Open Save

5.4.15 Save Split Spot File

Saves the Split Spot File.

To save the Split Spot File, go through the following steps.

Edit the [File name] and [Comment] under [Spot file displayed is applied] and click the [Save] button to save the random spot file.

Click the [OK] button to save the file in the place indicated in [File path :].

The path of current active random spot file is displayed in [File Path :]

Split Spot Property

Split Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/09/14 22:45:58	mtx.mnt	default

File Path:

C:\Users\90067\TOPCON TECHNOHOUSE\UA-200\dat\mtx.mnt

Open Save

Split Count

Horizontal Split Count: 16

Vertical Split Count: 16

Save to All Applicable Measurement Images

OK Cancel Apply

Split Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/09/14 22:45:58	mtx.mnt	default

File Path:

C:\Users\90067\TOPCON TECHNOHOUSE\UA-200\dat\mtx.mnt

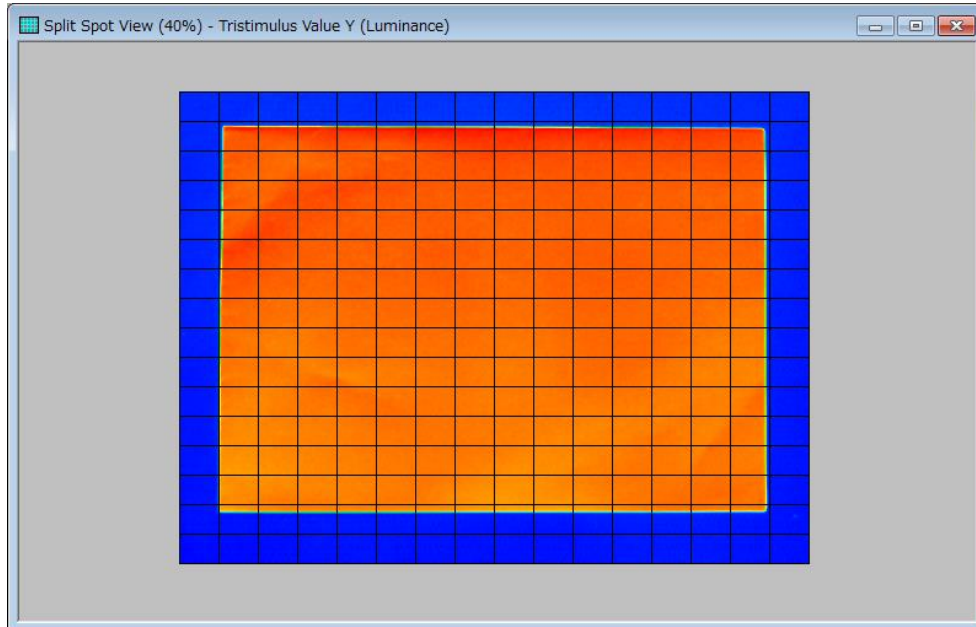
Open Save

5.4.16 Display Split Spot List

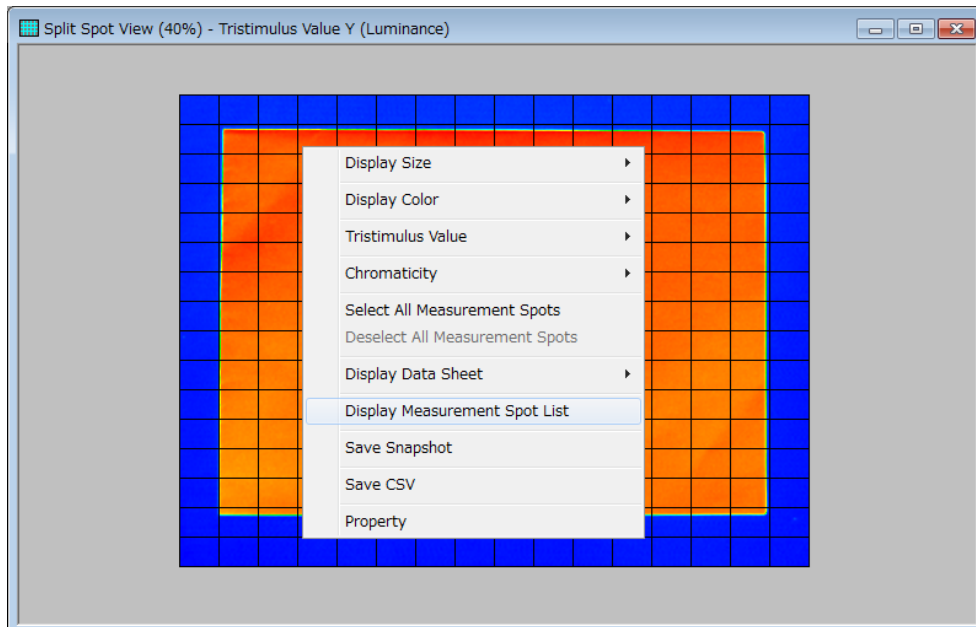
Displays the split spot list.

To display the split spot list, go through the following steps.

- 1 Open the [Split Spot View].



- 2 Right-click anywhere within the [Split Spot View] to open pop-up menu. Select the [Display Measurement Spot List]



3 [Split Spot List] is displayed.

Date/Time	Trimming	Split Co...	Comment
<input checked="" type="checkbox"/> 2015/09/18 16:06:30	(208,283) (1063,938)	(16,16)	default

Measurement Spot Number	X Frame Coordinate	Y Frame Coordinate	Standard S...	Chromaticit...	Chromaticit...	C*h correct...
1	6	8	FALSE	-	-	-
2	7	9	FALSE	1	-	-
3	8	8	FALSE	2	4	-
4	10	8	FALSE	3	2	-
5	10	7	FALSE	2	3	1
6	10	5	FALSE	1	1	2
7	9	5	FALSE	-	4	5
8	8	5	FALSE	-	-	2
9	7	5	FALSE	-	-	5
10	11	6	FALSE	-	-	-

The [Standard Spot] and the [Correct area] can be changed in the [Split Spot List].

Standard Spot : Judgment Center difference standard spot

Chromaticity x,y correct area : Judgment x,y Chromaticity diagram view correct area number

Chromaticity u',v' correct area: Judgment u',v' Chromaticity diagram view correct area number

C*h correct area : Judgment L*a*b* Color system view correct area number

4 Once the measurement spot is selected on the view, it is added into the measurement spot list.

5.5 Random Spot View Operation

The Random Spot function enables you to freely place measurement spots at up to 999 points, and enables you to flexibly customize the pattern and the size of the measurement spot. To change the measurement spot, select [Property] from the Pop-up menu.

Arranging the center of the measurement spot or deselecting all spots can be done by selecting the corresponding functions from the Pop-up menu at the flip of a switch. If there is no definition for the initial display and applicable measurement spot arrangement, the measurement spot is set only to the center.

The following operations are performed according to the same steps. Refer to the respective chapters shown below.


Change Display Size

 "5.2.2 Change Display Size"

Change Display Color

 "5.2.3 Change Display Color"

Change Items of Tristimulus values

 "5.2.4 Change items of Tristimulus values"

Switch Display Items of Data Sheet

 "5.3.3 Switch Display Items of Data Sheet"

Save Data Sheet in CSV File Format

 "5.3.4 Save Data Sheet in CSV File Format"

Save Snapshot

 "5.2.11 Save Snapshot"

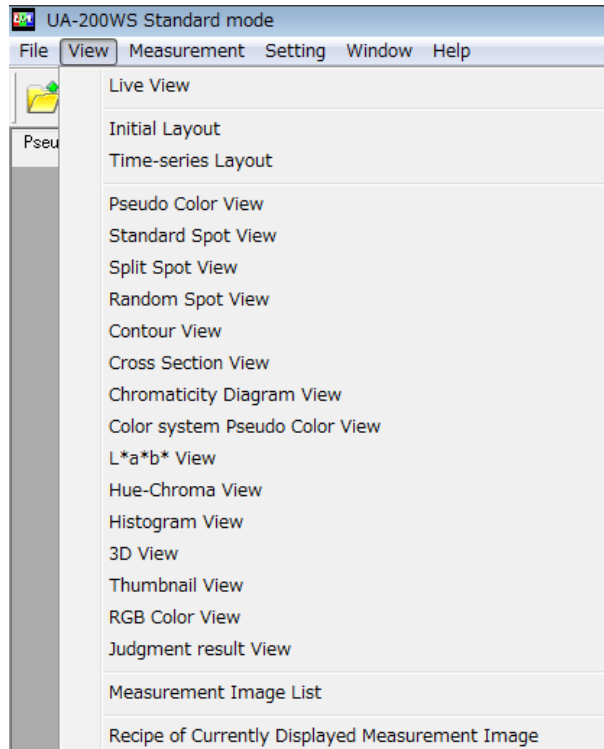
Save Measurement Data in CSV File Format

 "5.2.12 Save Measurement Data in CSV File Format"

5.5.1 Open Random Spot View

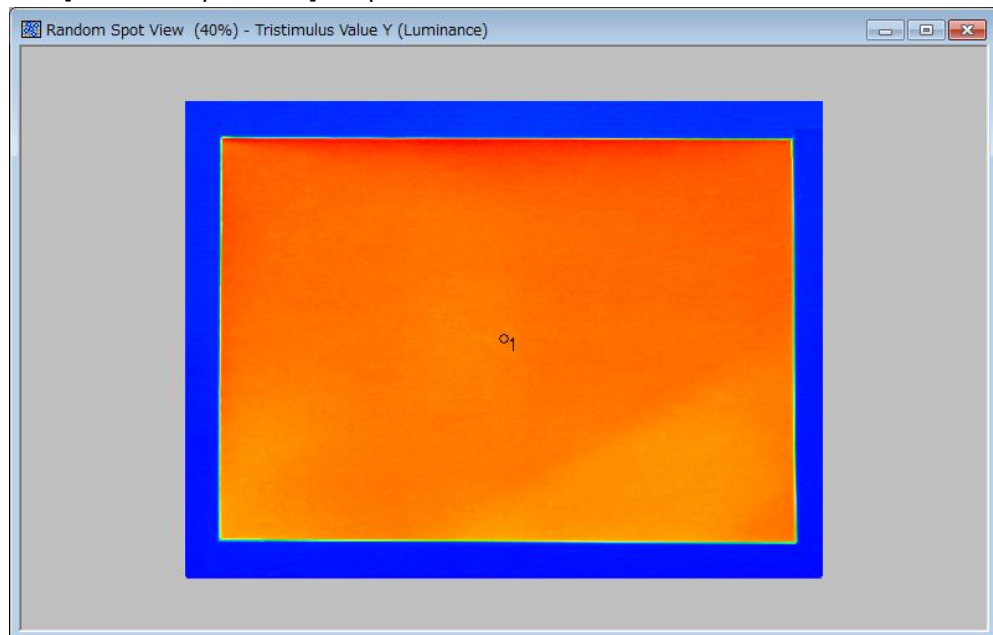
To open the [Random Spot View], go through the following steps.

- 1 From the Menu bar, select [View] - [Random Spot View] sequentially.



Or, click the  icon on the Menu bar.

- 2 The [Random Spot View] is opened.



 Memo

When you place a cursor on a view, Tool tip appear.

5.5.2 Set Measurement Spot (Circle/Square)

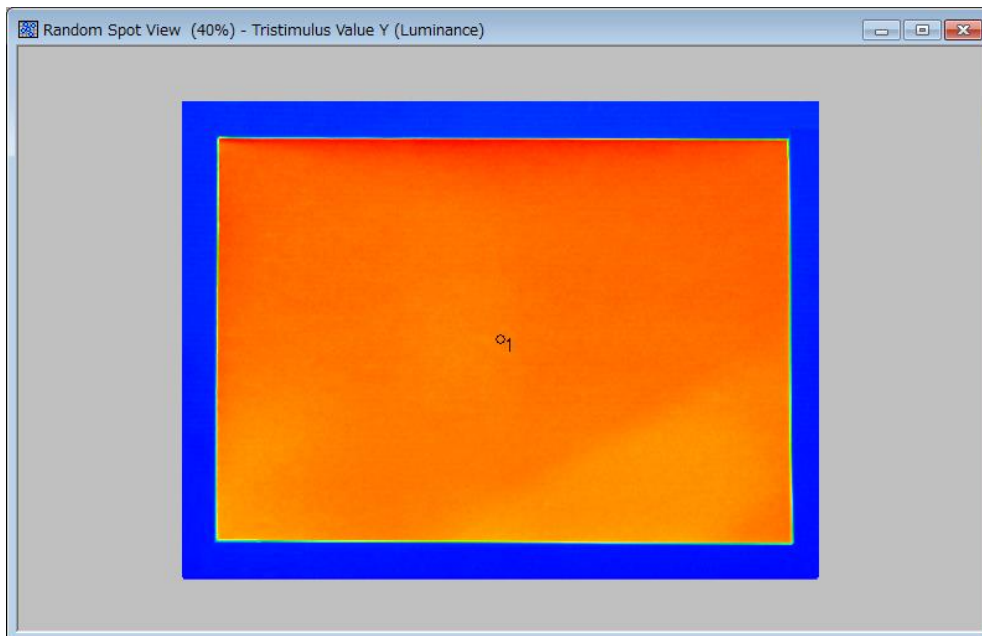
This function enables you to freely arrange and measure up to 999 measurement spots. To set circle and square measurement spots, go through the following steps.

Memo

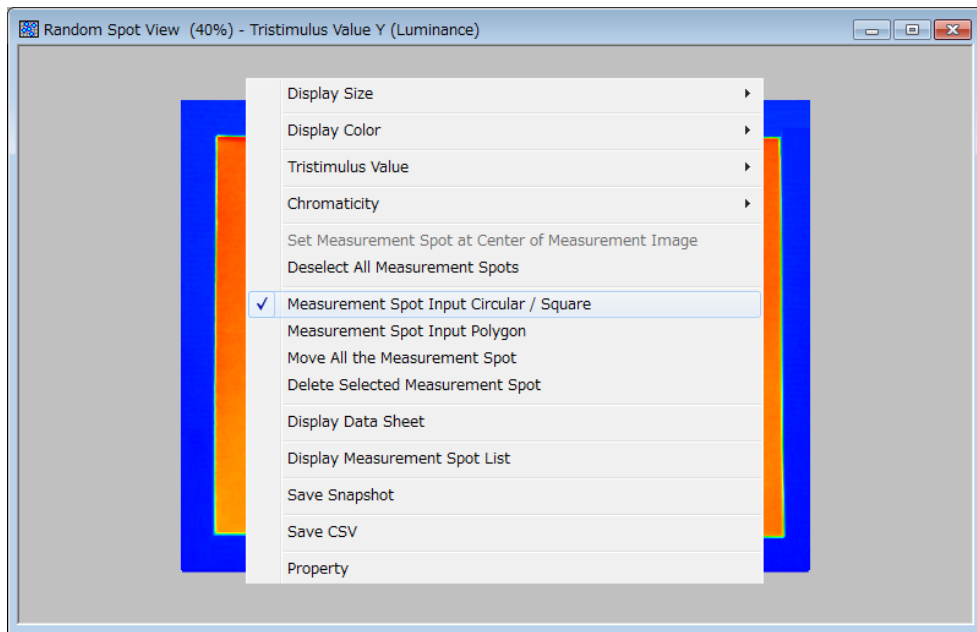
Measurement spot shape and size can be changed via random spot list also.

☞ "5.5.18 Display Random Spot List"

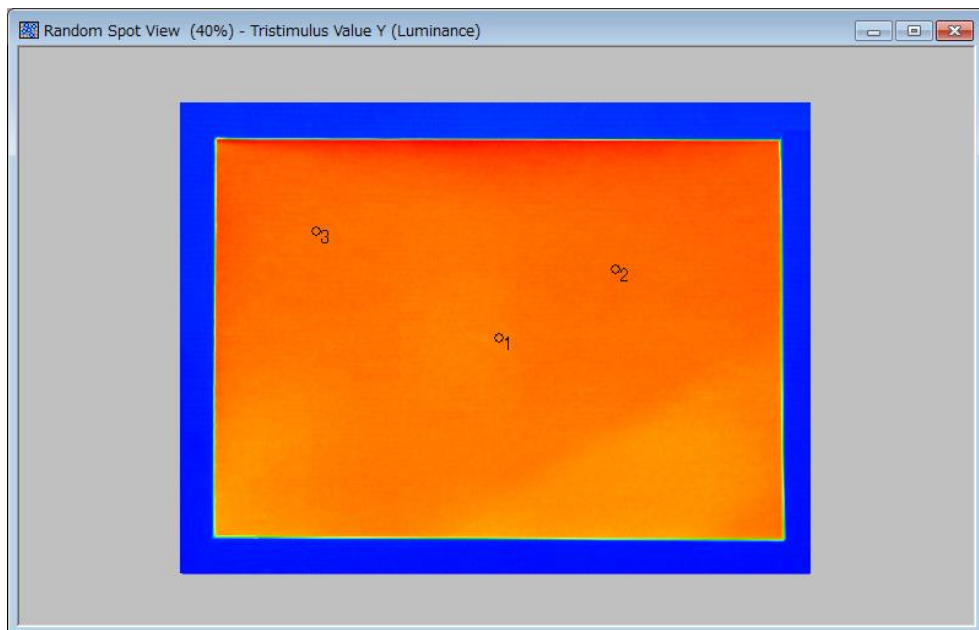
- 1 Open [Random Spot View].



- 2 Right click the [Random Spot View] to open pop up menu. And then, select [Measurement Spot Input Circular / Square].



- 3 Click on a place where you want to put on a measurement spot on the [Random Spot View].



 Memo

Initial spot shape and size are specified via the [Random Spot Property]

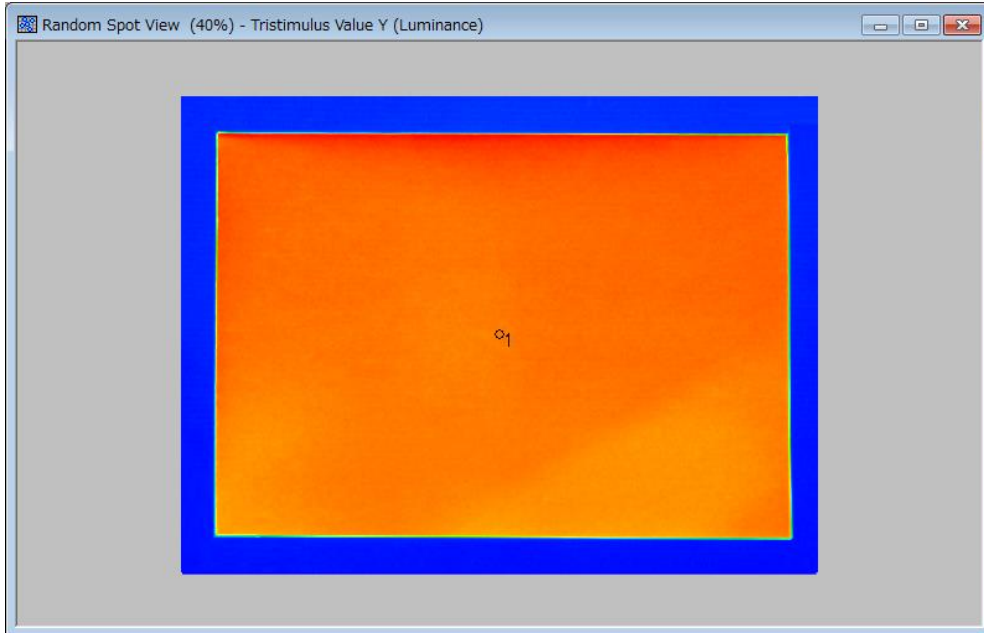
 "5.5.11 Open Random Spot Property"

5.5.3 Set Measurement Spot (Polygon)

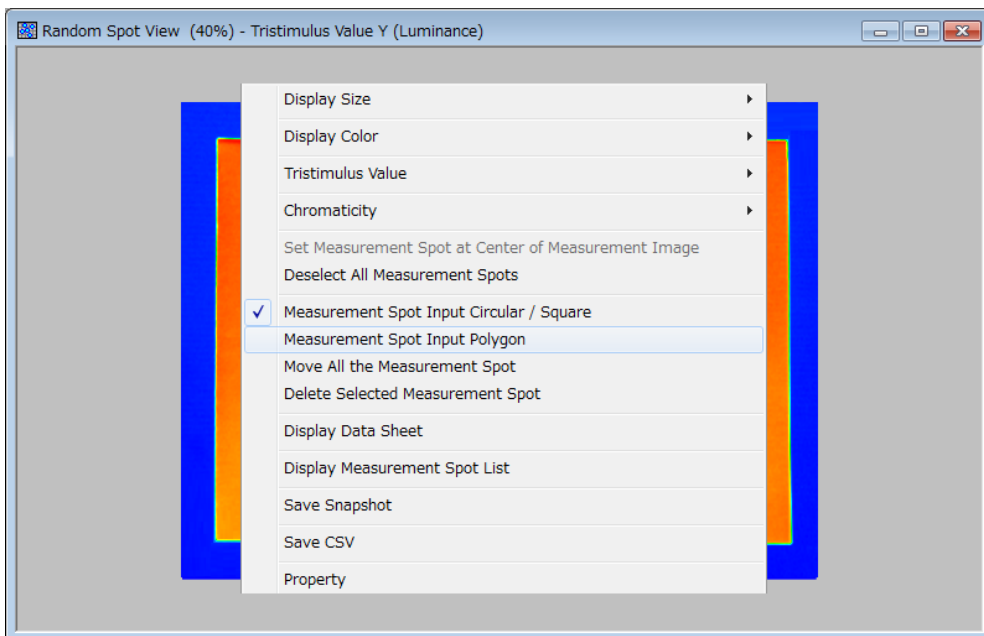
Sets up to polygon measurement spot.

To set polygon measurement spots, go through the following steps.

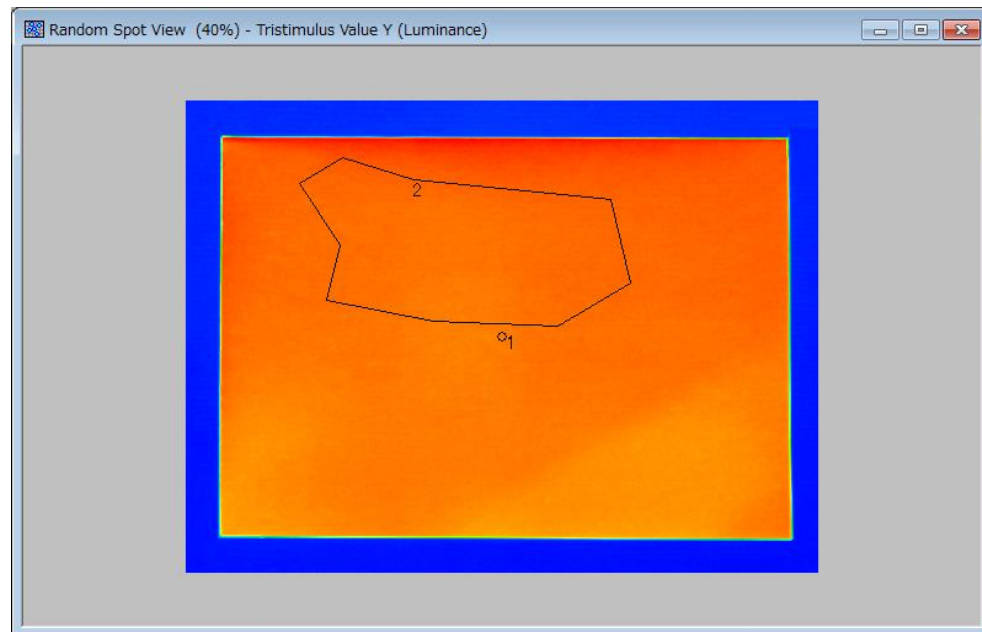
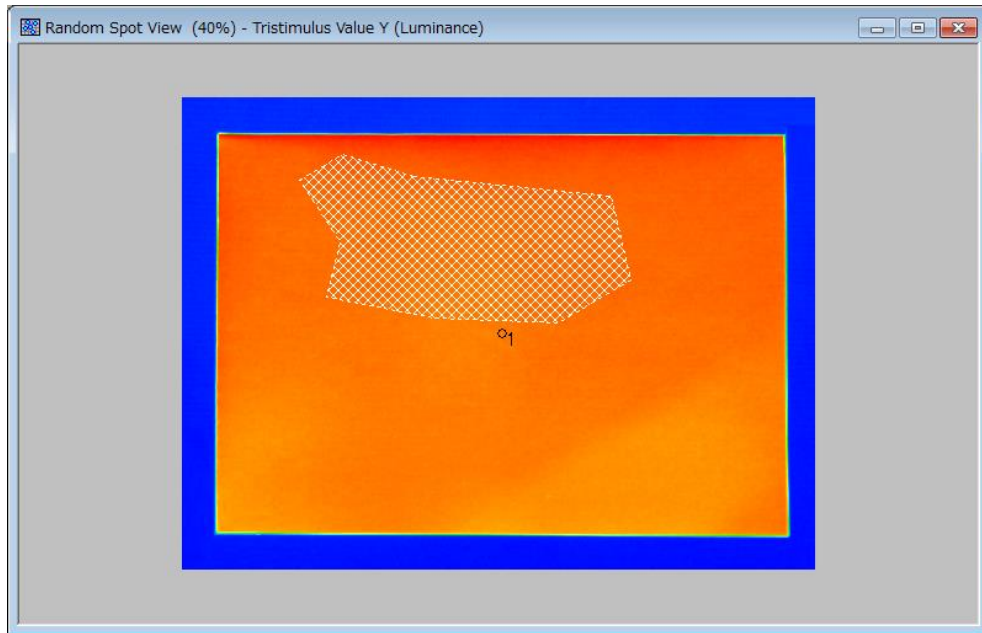
- 1 Open the [Random Spot View].



- 2 Right click on the [Random Spot View] to open pop up menu. And then, select the [Measurement Spot Input Polygon].



- 3 Place and click a mouse at where you put on vertex of a polygon measurement spot. Double click at last vertex point.



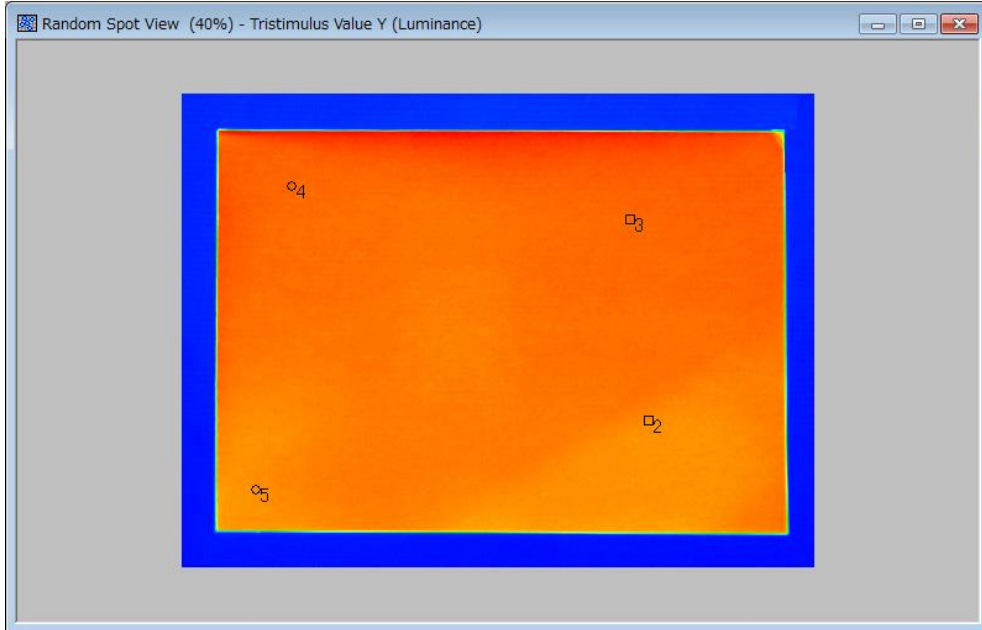
 Memo

- Up to 127 vertexes can be set.
- Measurement spot can be laid to overlap.
- Press "Esc" key in the keyboard to return to one operation.

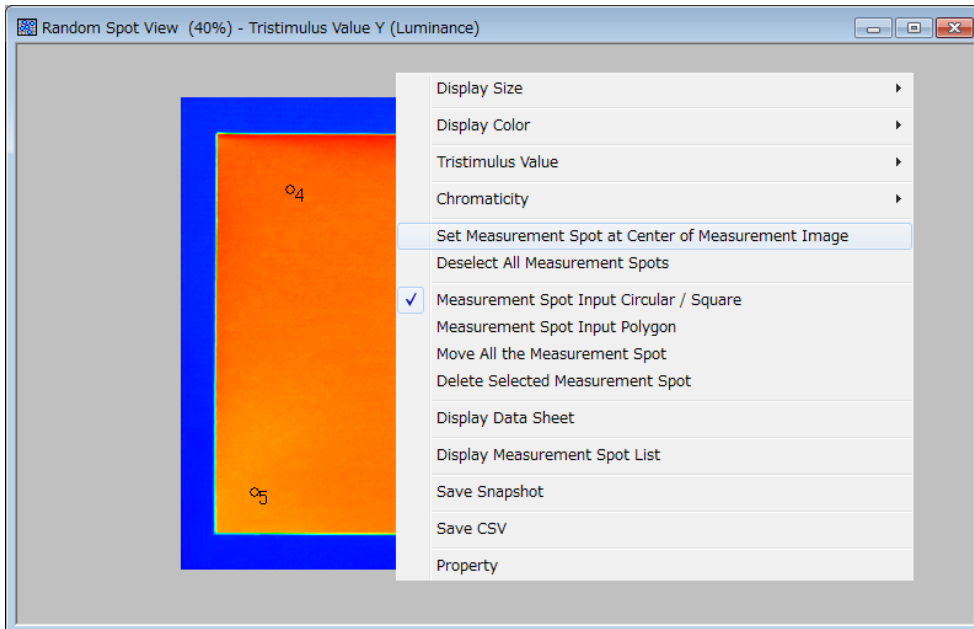
5.5.4 Set Measurement Spot on Center of Measurement Image

Sets the measurement spot on the center of the measurement image. This function is useful in deselecting the measurement spot on the center of the measurement image. To set the measurement spot on the center of the measurement image, go through the following steps.

- 1 Open [Random Spot View].



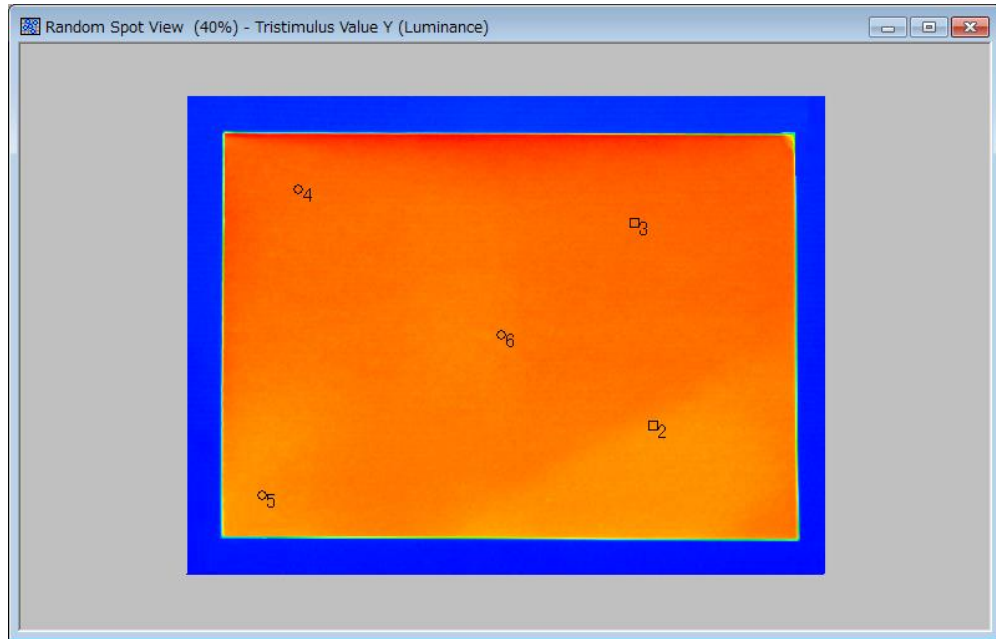
- 2 Right-click on [Random Spot View] to open pop-up menu. Select the [Set Measurement Spot at Center of Measurement Image].



 Memo

If the measurement spot is already set on the center, this menu cannot be selected.

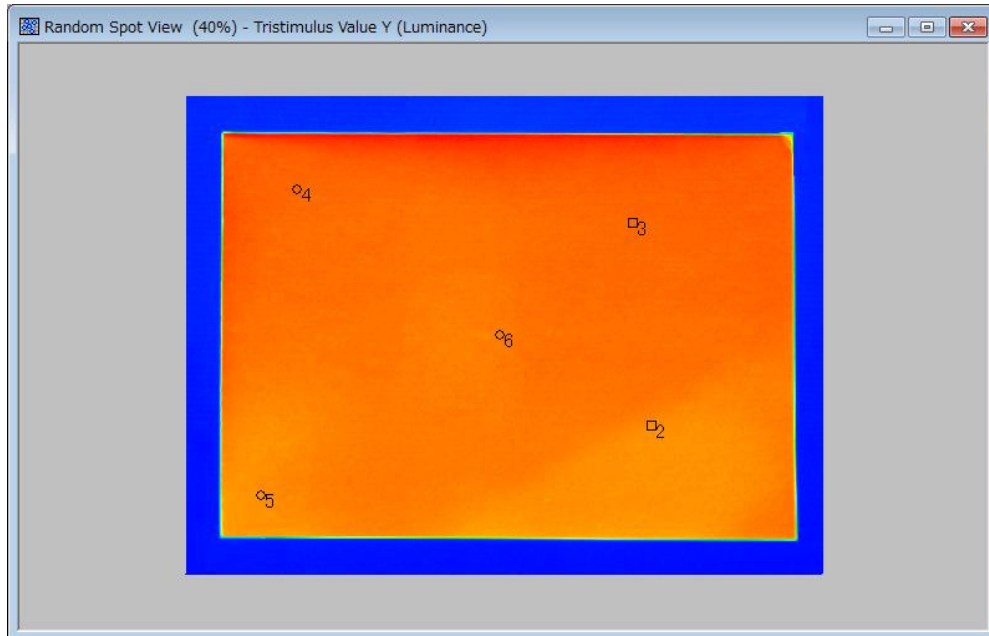
- 3** The measurement spot will be set on the center of the measurement image. If any measurement spots are already set, the number following the currently displayed number is allotted to the center measurement spot.



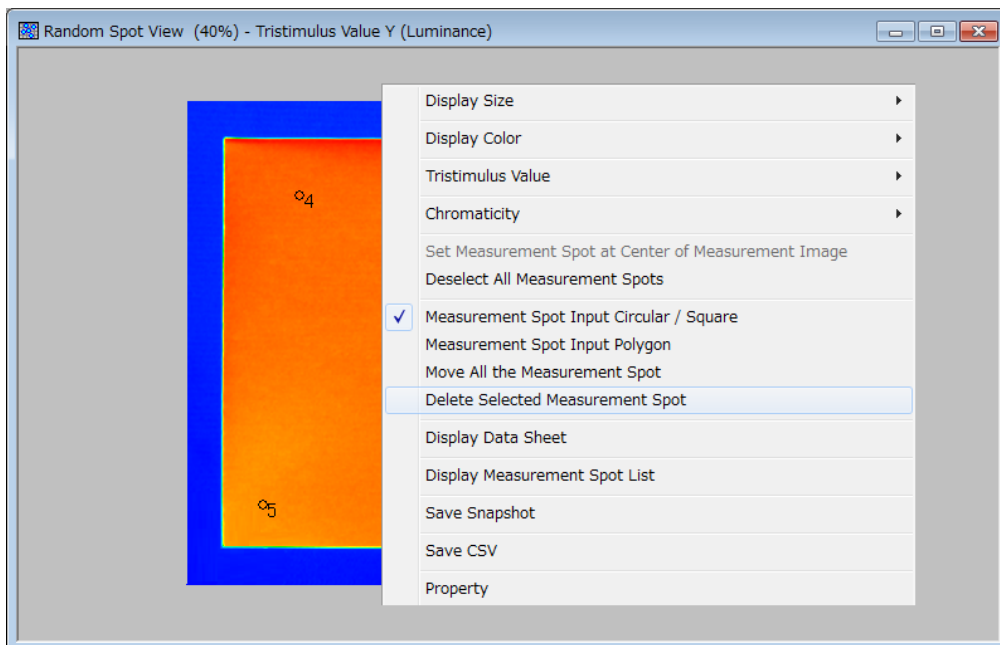
5.5.5 Move Measurement Spot

Moves measurement spots freely. To move measurement spots, go through the following steps.

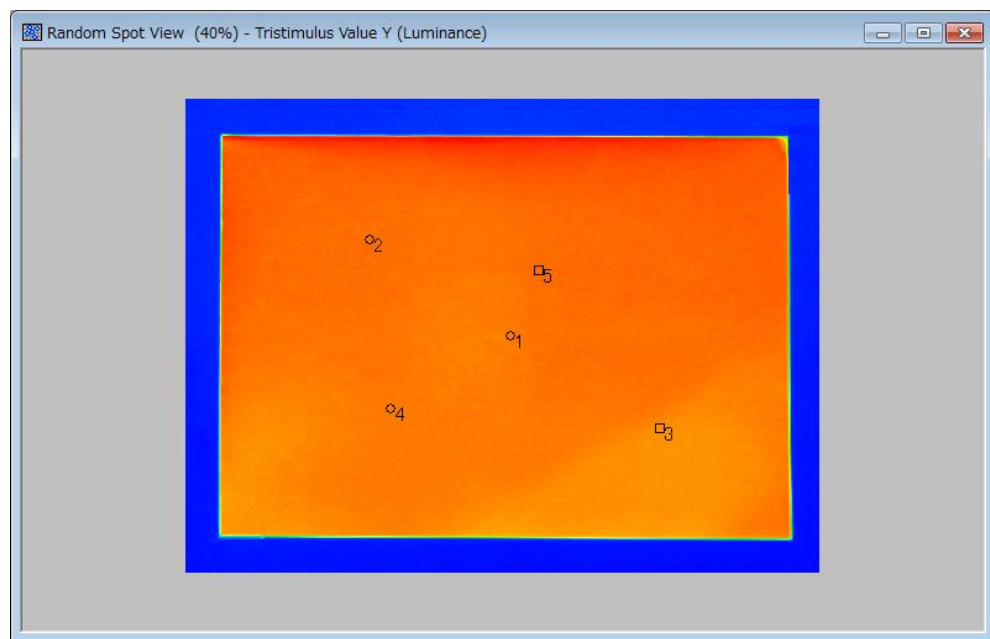
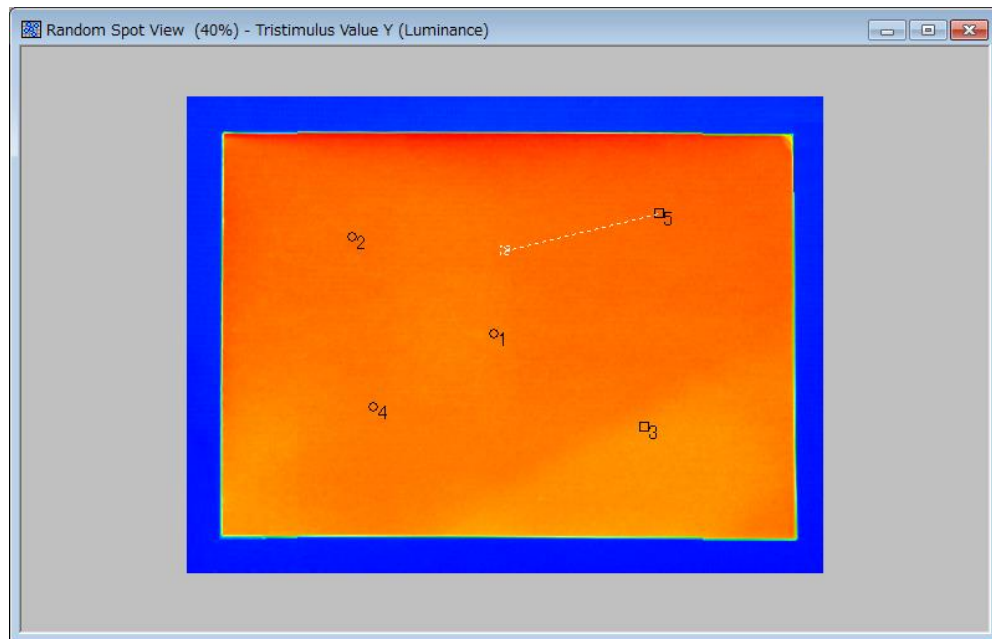
- 1 Open the [Random Spot View].



- 2 Right click on the [Random Spot View] to open pop up menu. And then, select the [Measurement Spot Input Circular /Square].



- 3 Click a measurement spot to be moved and click a place where you want to put on the measurement spot.



 Memo

- Press "Esc" key before confirming the moving to cancel the moving.
- Coordination of measurement spot can be specified via the [Random Spot Property]

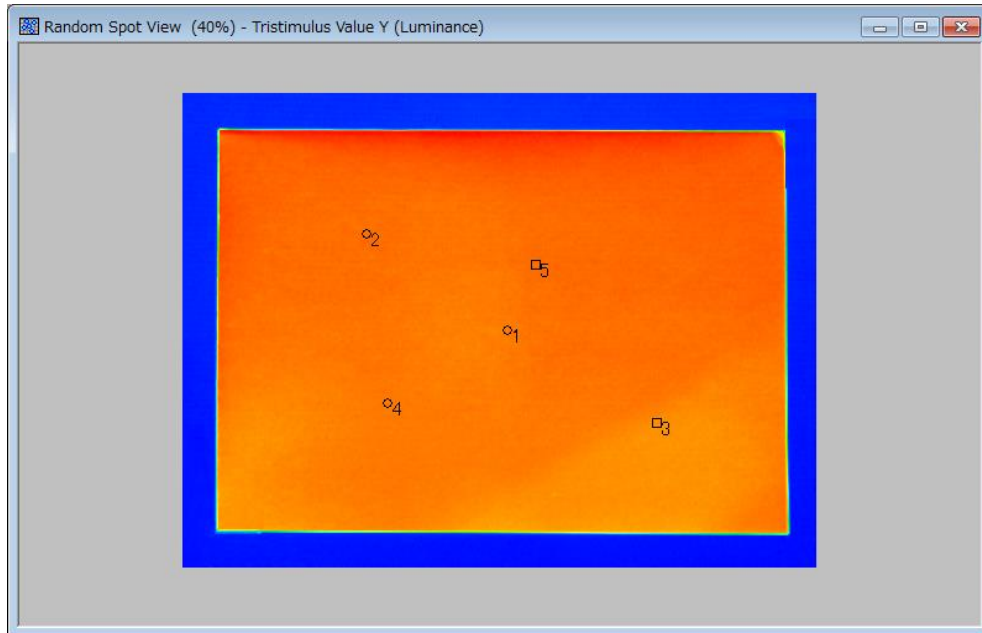
 "5.5.18 Display Random Spot List"

5.5.6 Move All the Measurement Spot

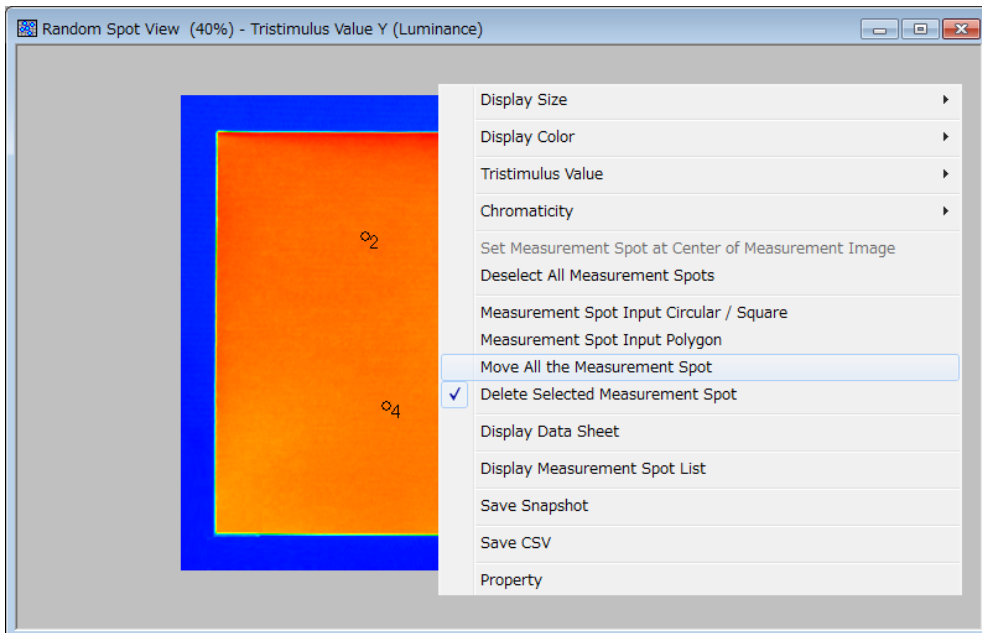
Moves all measurement spots on the view with the same configuration.

To move all measurement spots with the same configuration, go through the following steps.

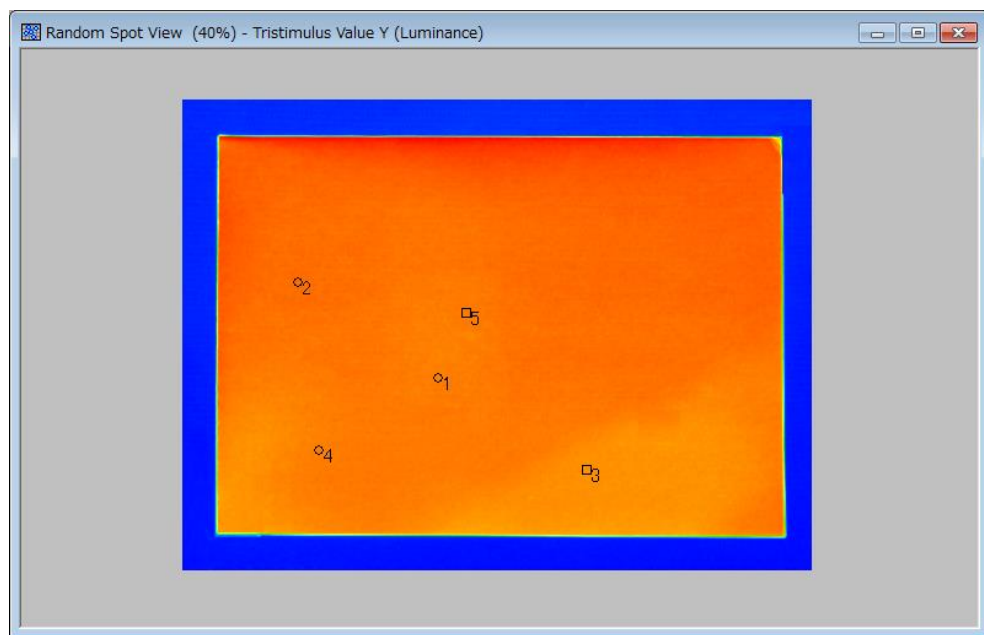
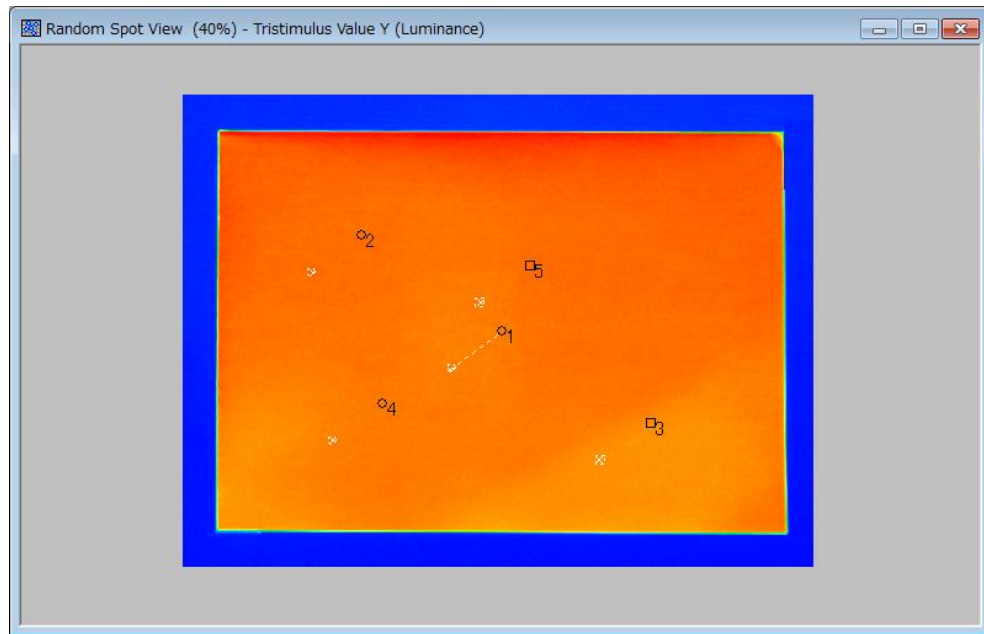
- 1 Open the [Random Spot View].



- 2 Right click on the [Random Spot View] to open pop up menu. Select the [Move All Measurement Spot].



- 3 Click one of measurement spots to move them and click the place where you want to put on measurement spots.



 Memo

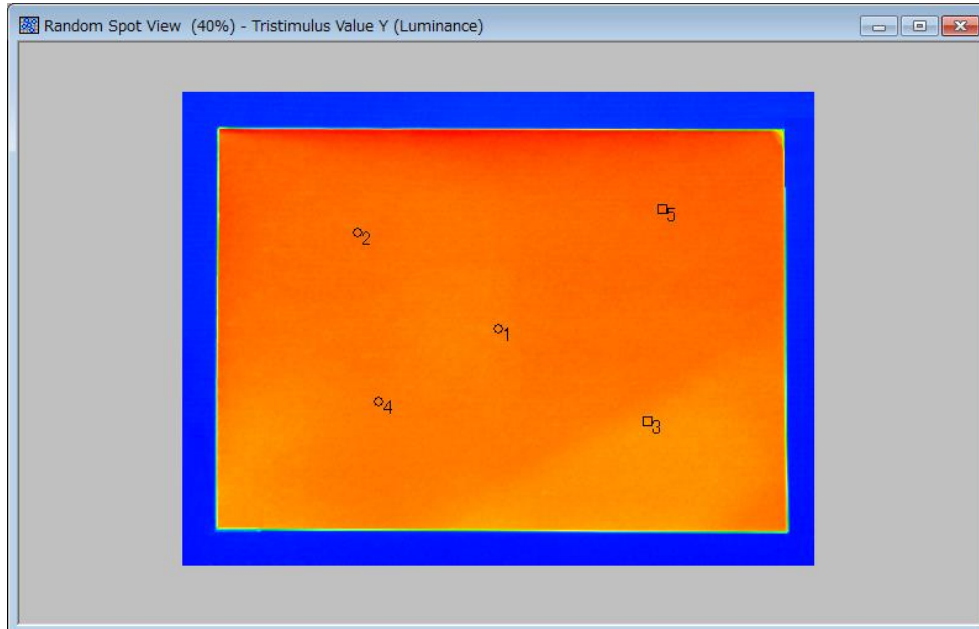
- Press "Esc" key before confirming the moving to cancel the moving.
- Coordination of measurement spot can be specified via the [Random Spot Property].

 "5.5.18 Display Random Spot List"

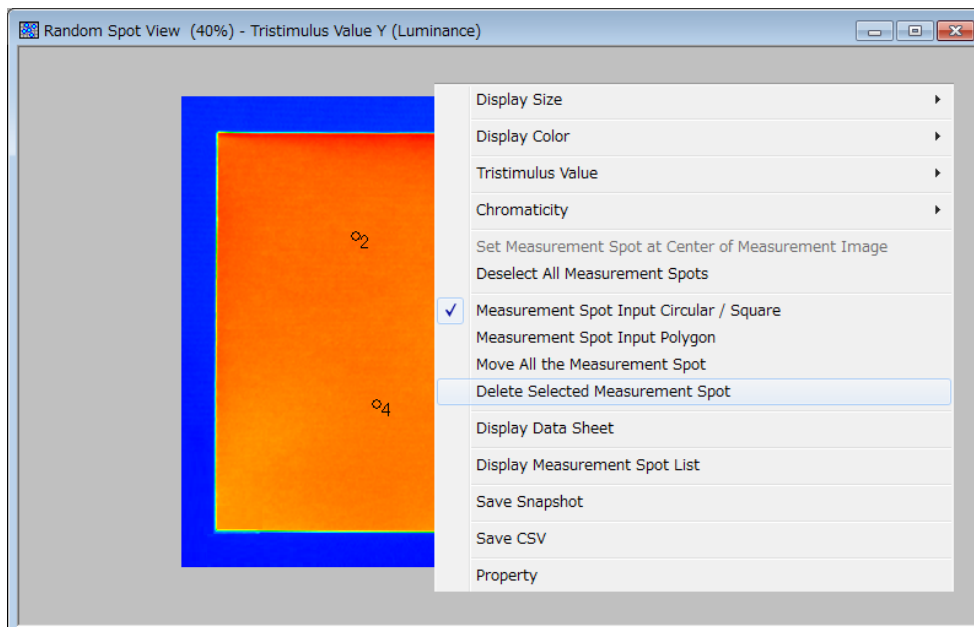
5.5.7 Delete Measurement Spot

Delete the set measurement spot. To deselect the measurement spot, go through the following steps.

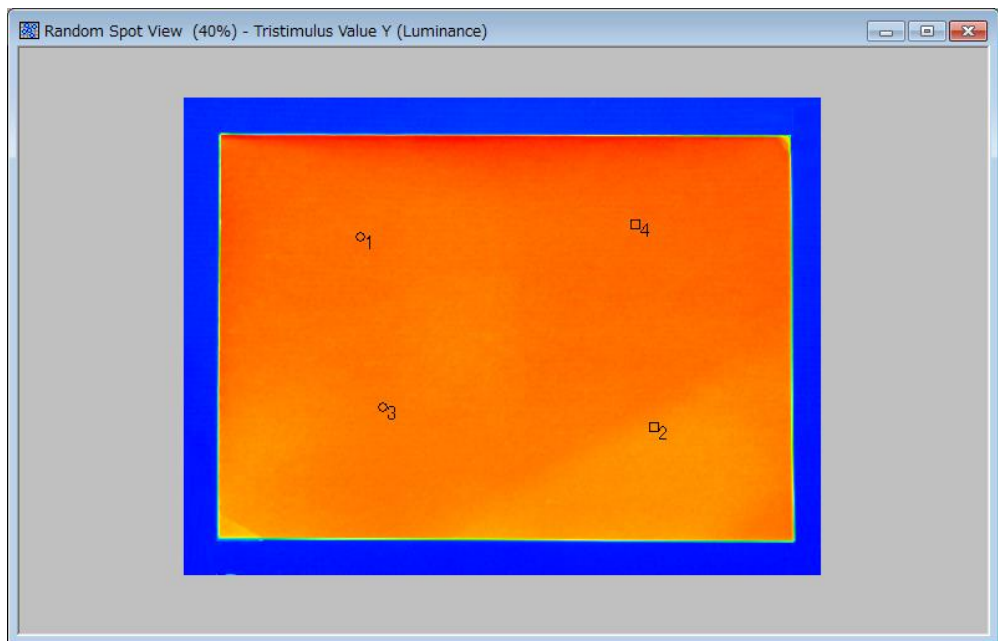
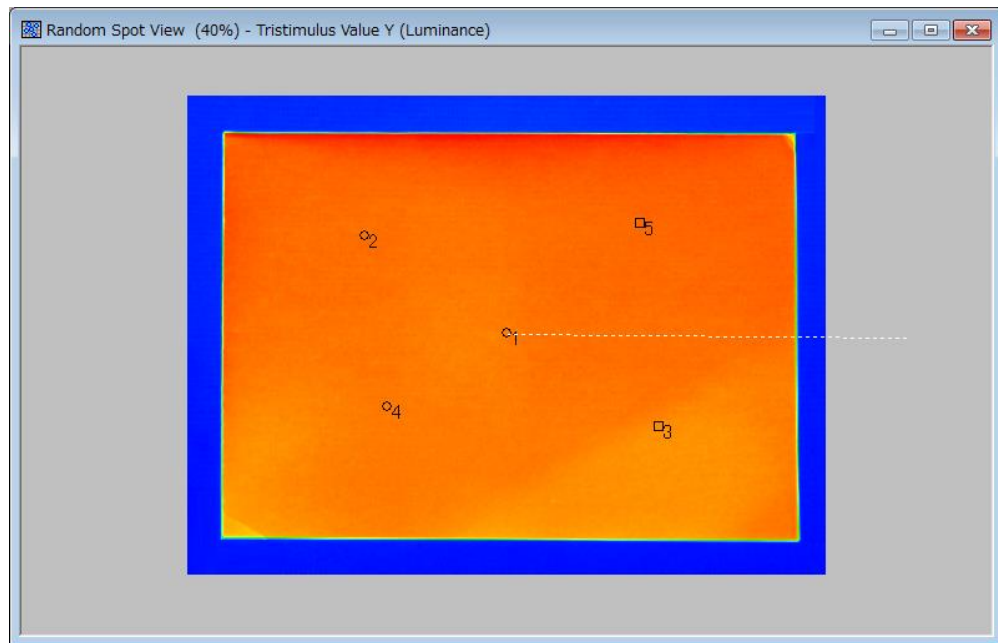
- 1 Open [Random Spot View].



- 2 Right click on the [Random spot] view to open pop up menu. And then, select the [Measurement Spot Input Circular /Square].



- 3 Click the mouse on the measurement spot in which you want to delete on the [Random Spot View]. Click a place outside the region.



 Memo

When you delete middle of sequence number, you can select whether you fill up a gap or not via the [Random Spot Property].

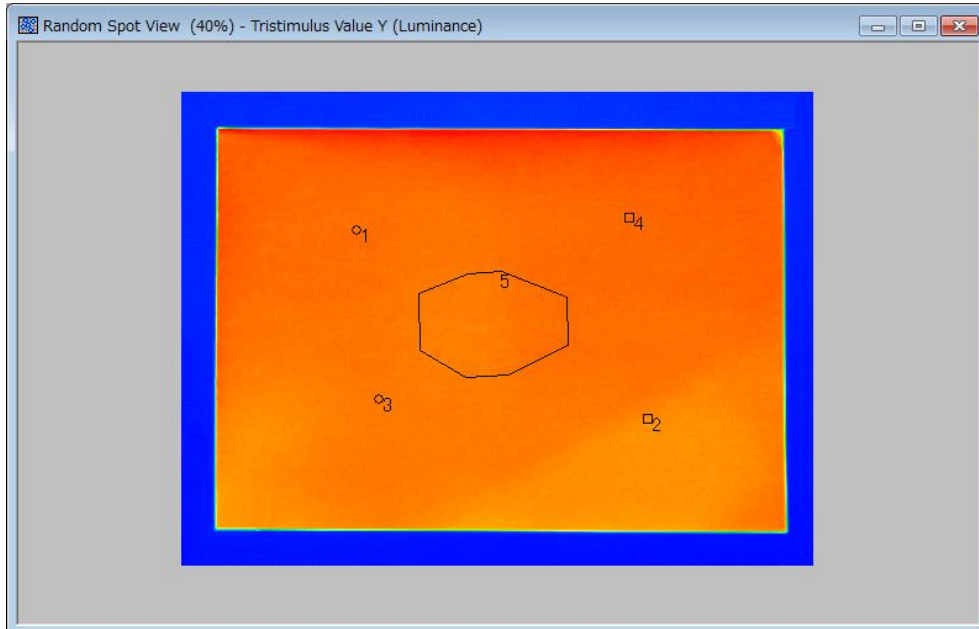
 "5.5.11 Open Random Spot Property"

5.5.8 Delete Selected Measurement Spot

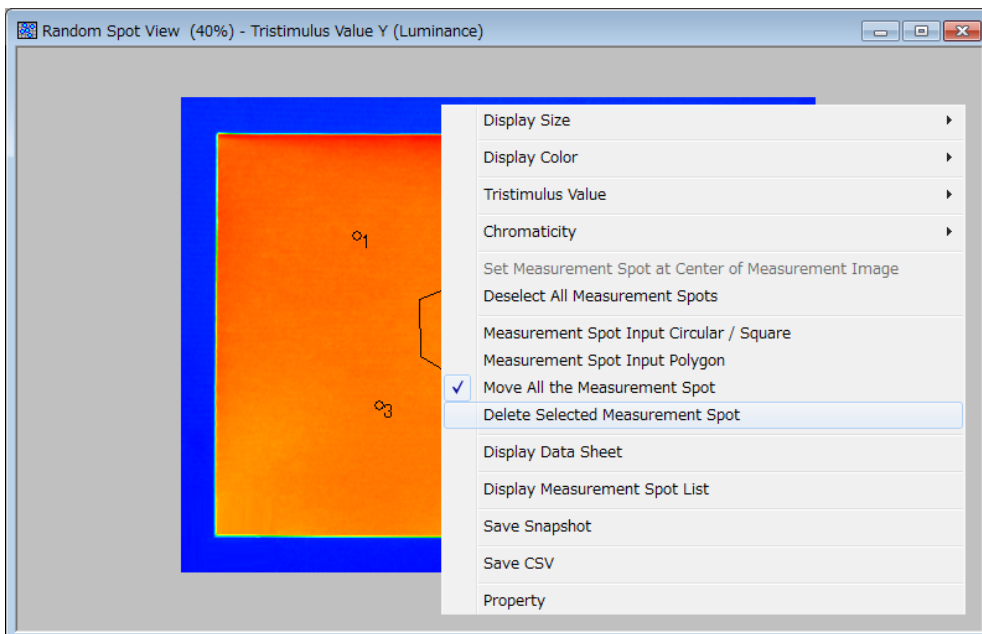
Delete selected measurement spots.

To delete selected measurement spot, go through the following steps.

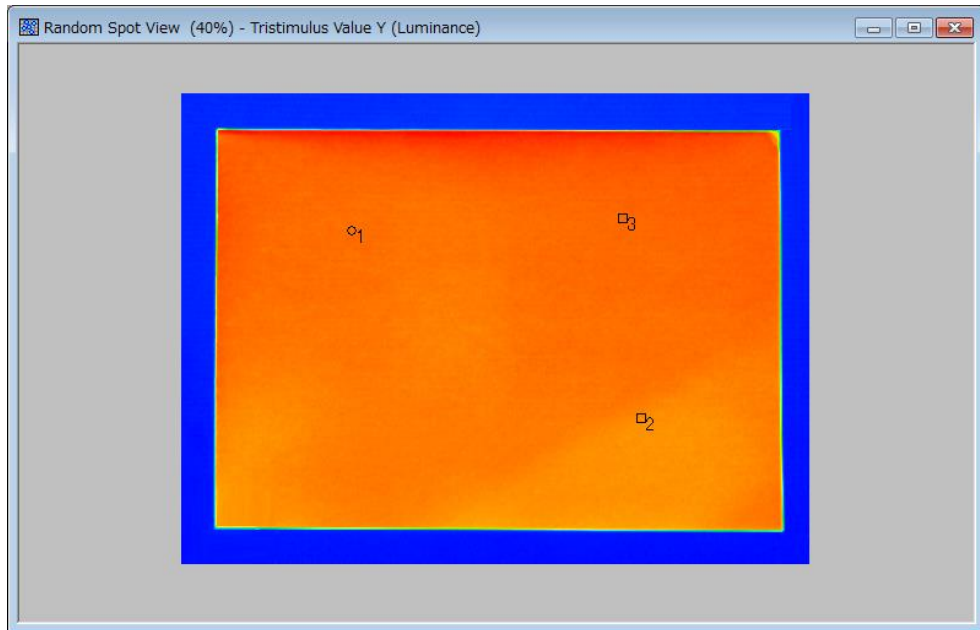
- 1 Open the [Random Spot View].



- 2 Right click on the [Random Spot View] to open pop up menu. And then, select the [Delete Selected Measurement Spot].



3 Click a measurement spot to be deleted.



 Memo

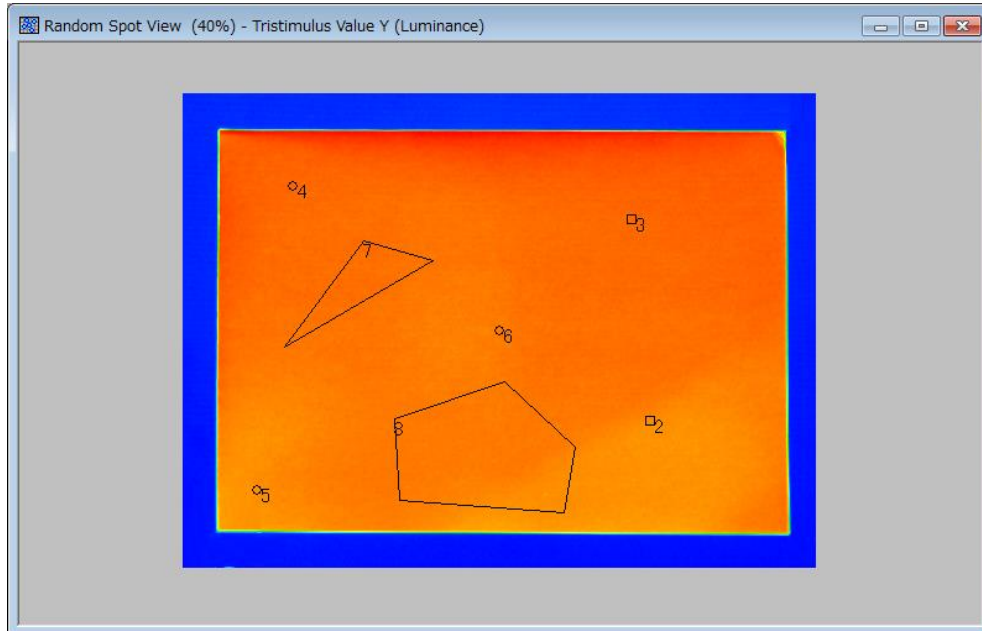
When you delete middle of sequence number, you can select whether you fill up a gap or not via the [Random Spot Property]

 "5.5.11 Open Random Spot Property"

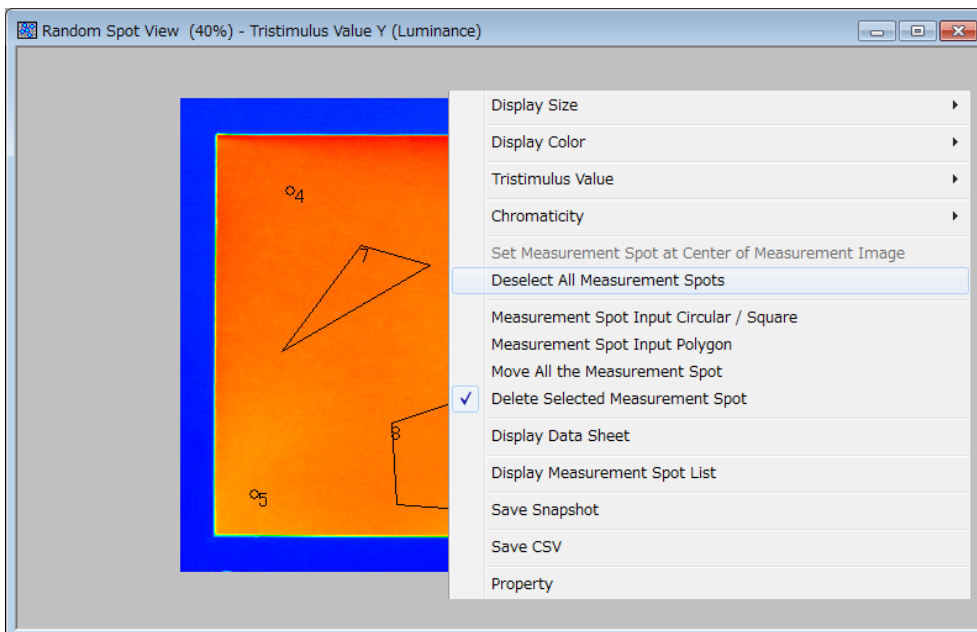
5.5.9 Deselect All Measurement Spots

Deselects the already set measurement spot. To deselect all measurement spots, go through the following steps.

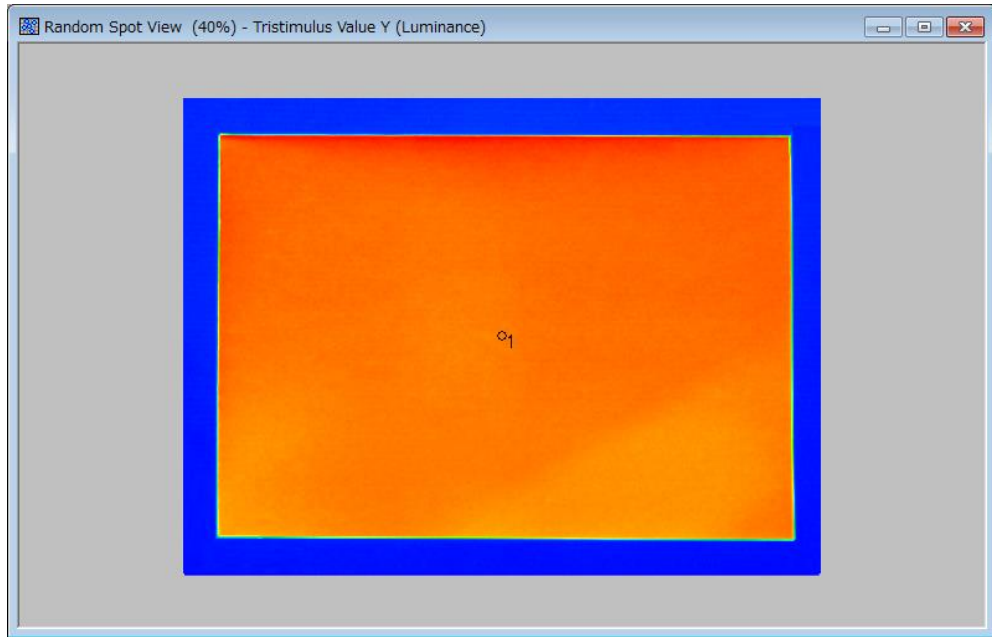
- 1 Open [Random Spot View].



- 2 Right-click on [Random Spot View] to open pop-up menu. Select the [Deselect All Measurement Spots].



- 3 Only the center measurement spot is set. All the other measurement spots are deselected.

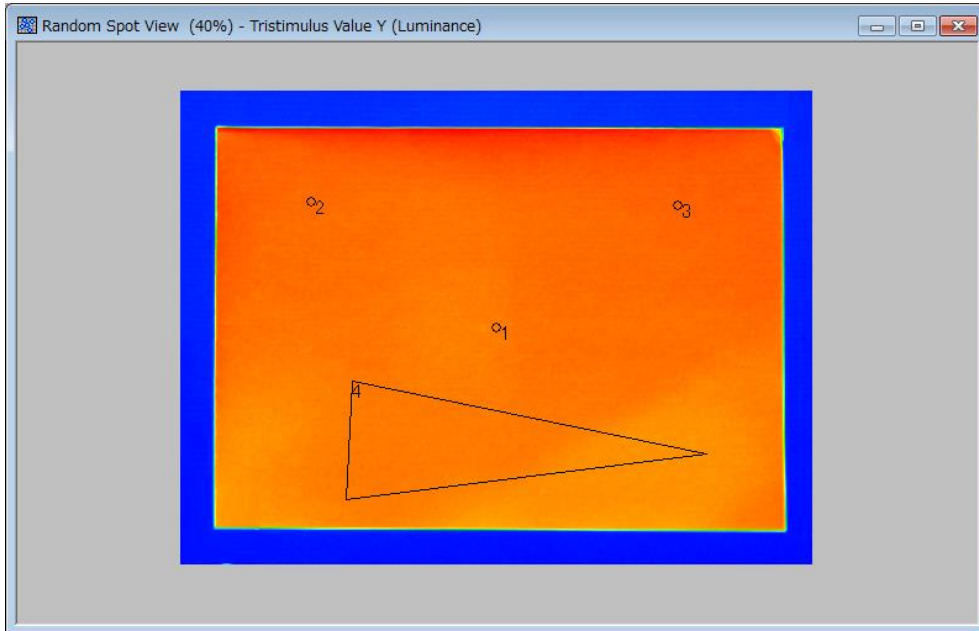


5.5.10 Display Data Sheet

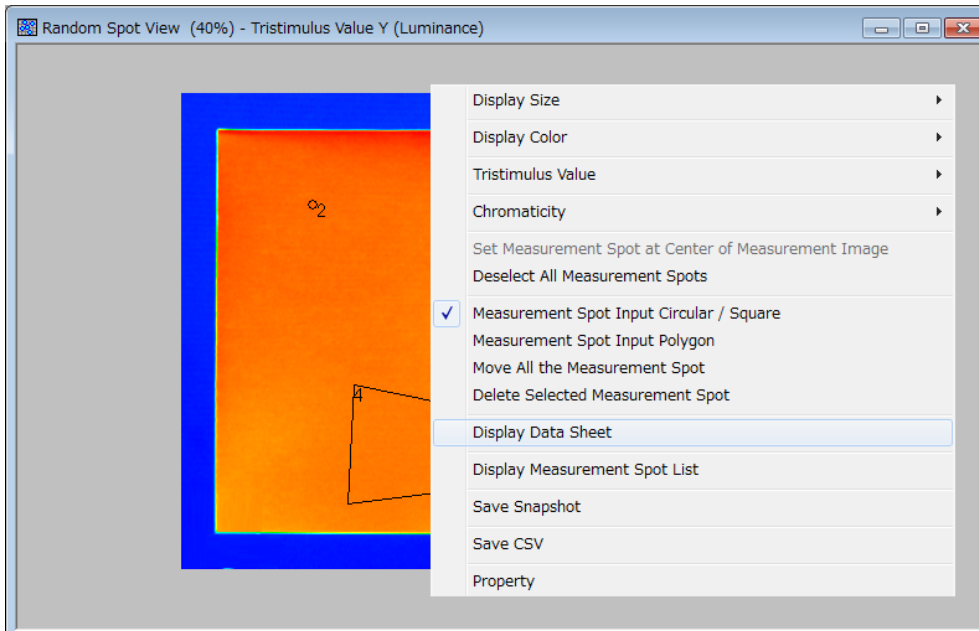
Displays the random spot measurement data in a tabular form.

To open the [Random Spot Data Sheet], go through the following steps.

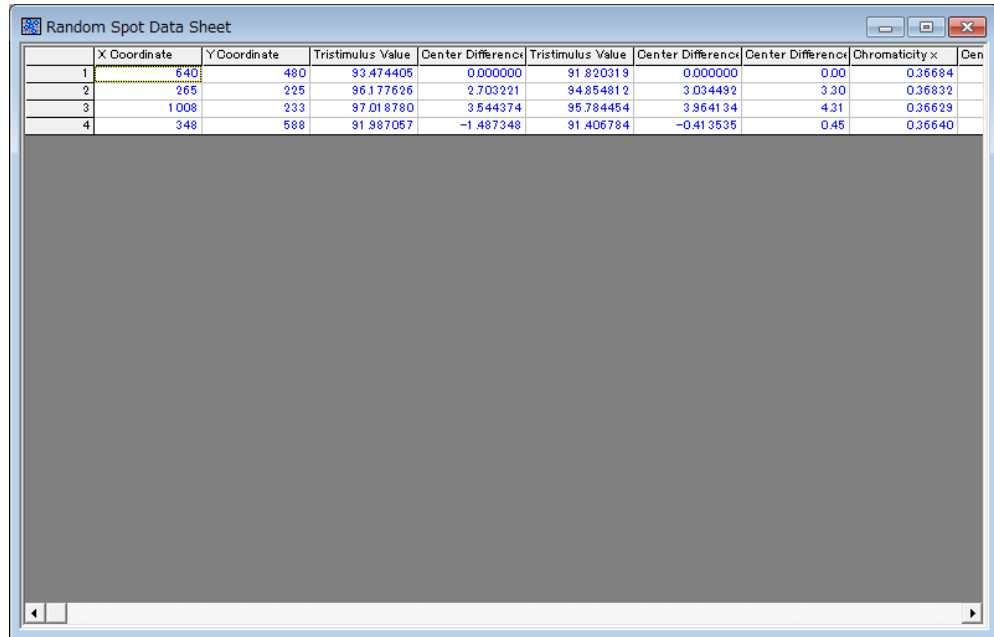
- 1 Open [Random Spot View].



- 2 Right-click anywhere within [Random Spot View] to open pop-up menu. Select the [Display Data Sheet].



3 [Random Spot Data Sheet] is displayed.



	X Coordinate	Y Coordinate	Tristimulus Value	Center Difference	Tristimulus Value	Center Difference	Center Difference	Chromaticity x	Gen
1	640	480	93.474405	0.000000	91.820319	0.000000	0.00	0.36684	
2	265	225	96.177626	2.703221	94.854812	3.034492	3.30	0.36832	
3	1008	233	97.018780	3.544374	95.784454	3.964134	4.31	0.36629	
4	348	588	91.987057	-1.487348	91.406784	-0.413535	0.45	0.36640	

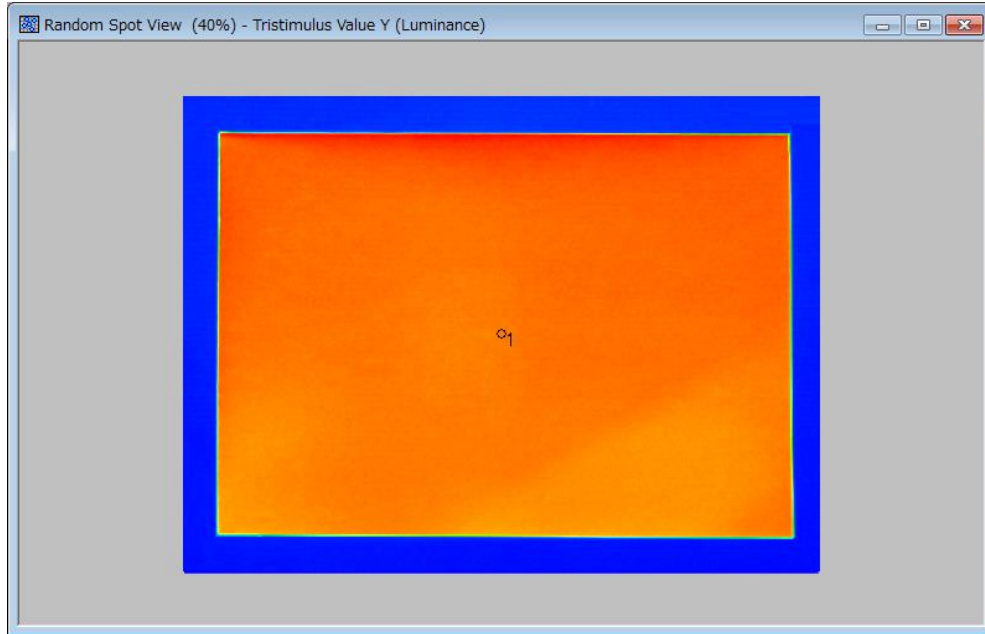
 Memo

The measurement values, which saturation occur in the Tristimulus value are displayed as “over” and the chromaticity is displayed as “error”.

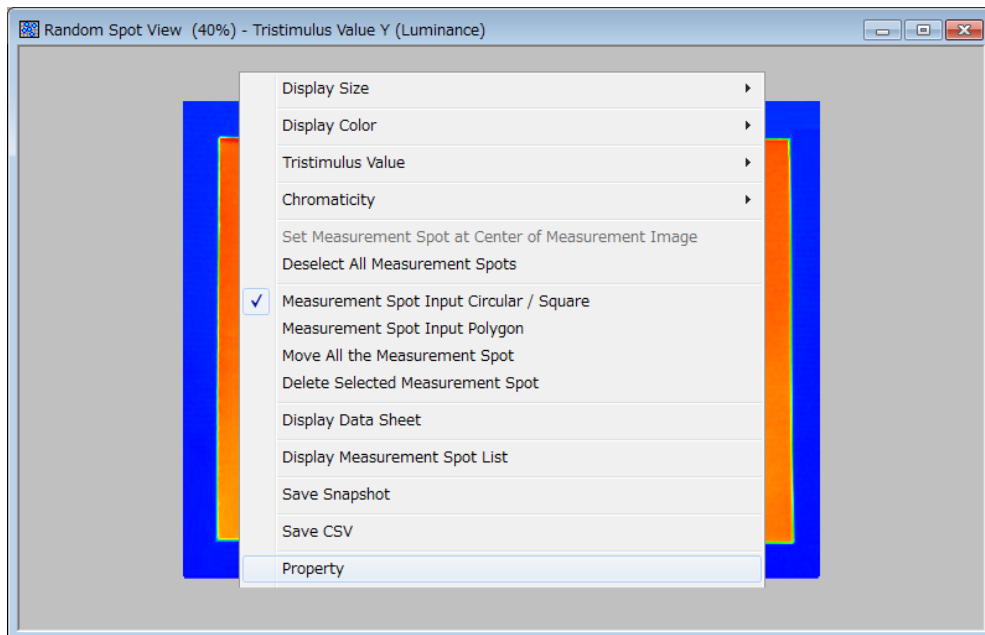
5.5.11 Open Random Spot Property

Opens the property of the Random Spot View, in which the spot pattern and spot size of the random spot are specified. To open the [Random Spot Property], go through the following steps.

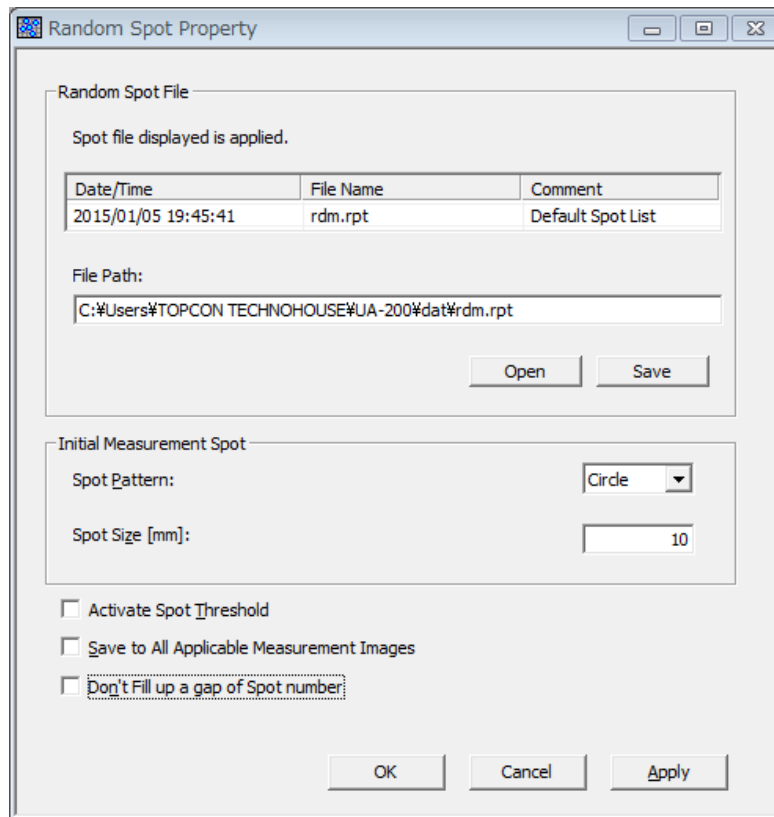
- 1 Open [Random Spot View].



- 2 Right-click anywhere within [Random Spot View] to open pop-up menu. Select the [Property].



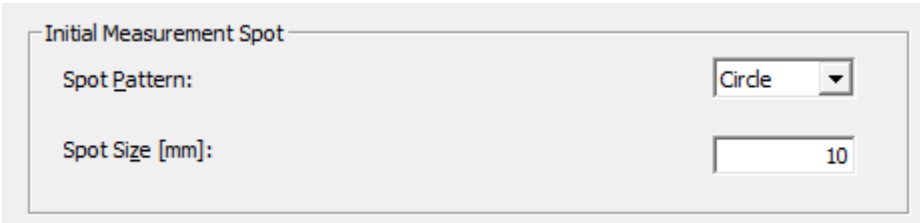
- 3** [Random Spot Property] is displayed.
When the setting is completed, click any button.
- [OK] Enables the setting and closes this window.
 - [Cancel] Disables the setting and closes this window.
 - [Apply] Enables the setting, and enables you to continue the setting without closing the window.



5.5.12 Set Initial Spot Pattern and Spot Size

Specifies the initial measurement spot definition of the random spot view.

- 1 Display [Random Spot Property].
- 2 Select Circle or Square from the pull-down menu in the [Initial Measurement Spot].



The screenshot shows a dialog box titled "Initial Measurement Spot". It has two rows of controls. The first row is labeled "Spot Pattern:" and has a dropdown menu with "Circle" selected. The second row is labeled "Spot Size [mm]:" and has a text input field containing the number "10".

- 3 Enter the [Spot Size]. Clicking the [Apply] or [OK] button will draw the image of the set pattern and size on the random spot view. The entry range is from 0.01 to 500 [mm].
- 4 To save the measurement spot definition set in the [Random Spot Property] to all applicable measurement images, check [Save to All Applicable Measurement Images]. Clicking [Apply] saves the setting to all targeted measurement images.

Momo

- The [Save to All Applicable Measurement Images] operation affects only the measurement image coinciding with the Trimming area of the currently-displayed measurement image.
- Changes each pattern and size of measuring spot via [Random Spot List].

 "5.5.18 Display Random Spot List"

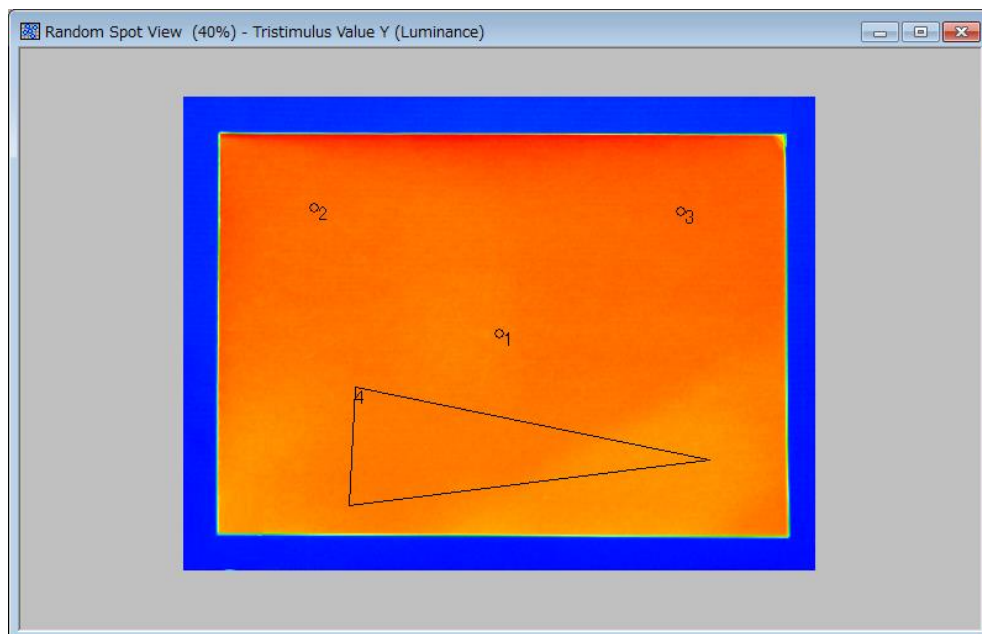
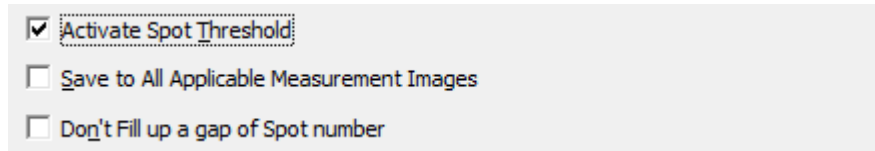
5.5.13 Set Threshold in Measurement Spot

Sets the spot threshold in Random spot.

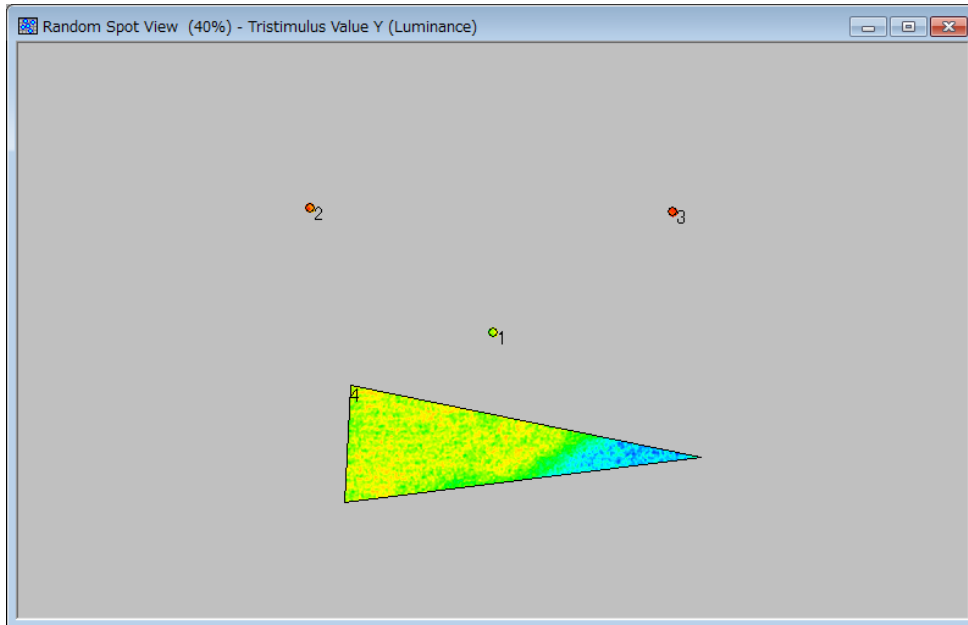
The spot threshold can help extract bright area on the random spot view.

To set the spot threshold in the Radom spot, go through the following step.

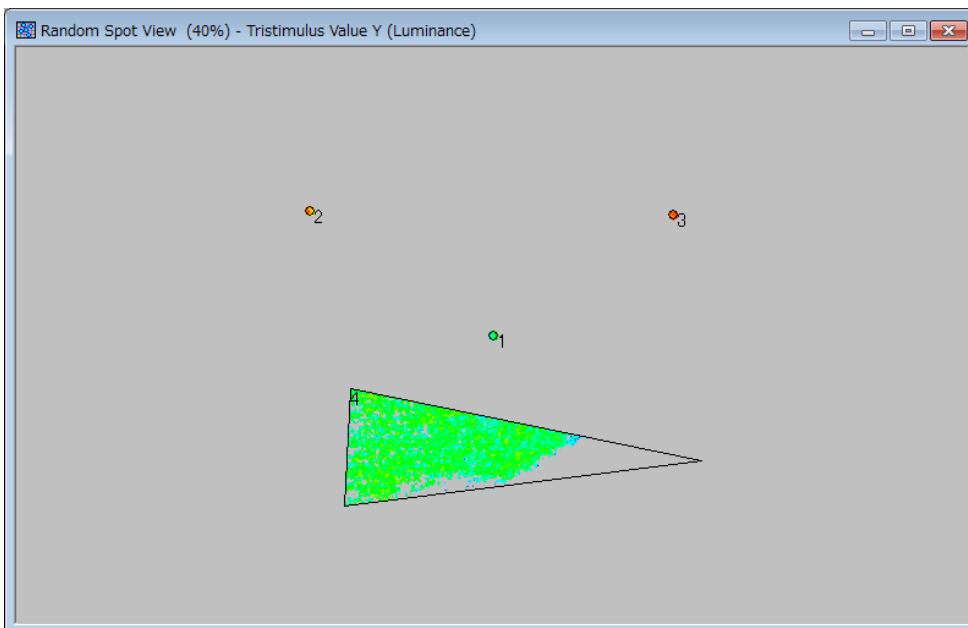
- 1 Open the [Random Spot Property].
- 2 Check the [Activate Spot Threshold] check box to activate a specified threshold value in the [Random Spot List].



When threshold is 0, All image other than measurement spot area are masked.



When threshold is specified, the area in which luminance is below the threshold are masked.



- 3** When you cancel the spot threshold, remove the [Activate Spot Threshold] check box in the [Random Spot Property] and then, click the [Apply] or the [OK] button.

5.5.14 Save to All Applicable Measurement image

Applies a setting of random spot to all measured image.

To apply a random spot setting to all measured image, go through following step.

Open the [Random Spot Property]. Check the [Save to All Applicable Measurement Image] check box and then, click the [Apply]. When the check box is OFF, a setting is applied to current displayed image only.

- Activate Spot Threshold
- Save to All Applicable Measurement Images
- Don't Fill up a gap of Spot number

 Memo

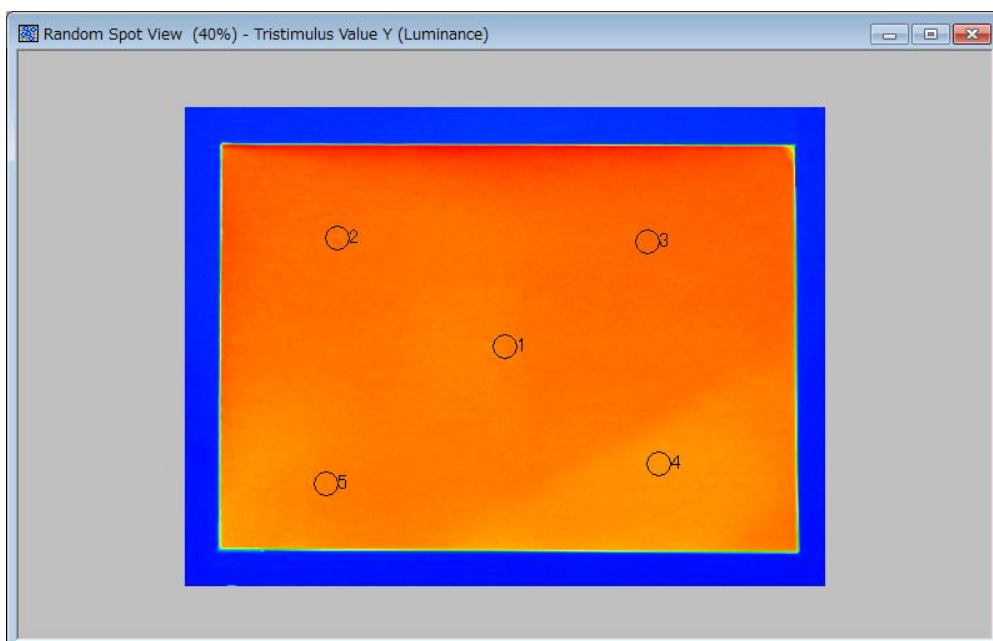
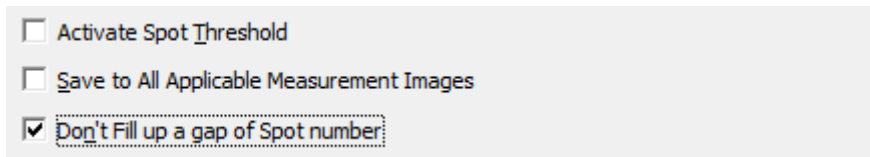
[Save to All Applicable Measurement Image] is applied to the same trimmed image only.

5.5.15 Don't Fill up a gap of spot number

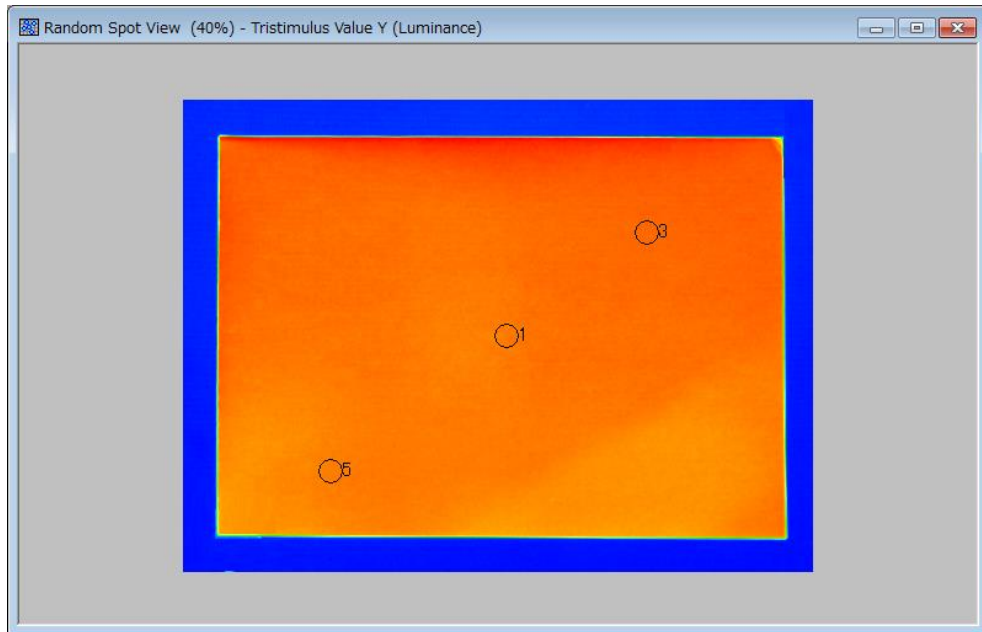
Fills up a gap of spot number or not after you delete measurement spots.

To fill up a gap of spot number, go through following step.

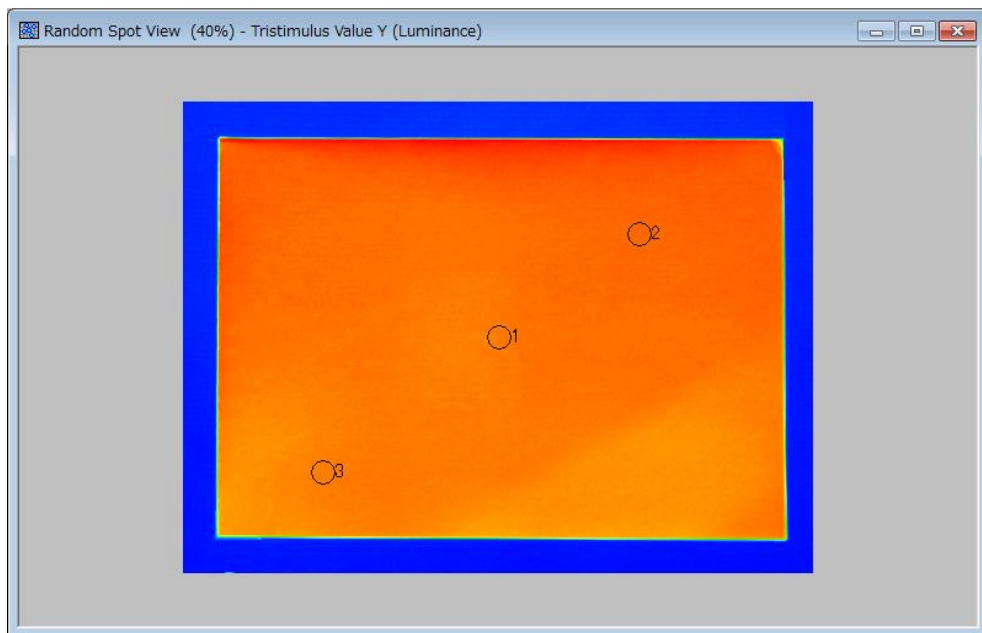
- 1 Open the [Random Spot Property].
- 2 Check the [Don't Fill up a gap of Spot number] check box so that the software do not fill up a gap of spot number after deleting measurement spots.



Example: When [Don't Fill up a gap of Spot number] is checked, spot number 3 and 5 remain and 2 and 4 are not used even after deleting spot number 2 and 4.



When [Don't Fill up gap of Spot number] is not checked, software fill up gaps of spot number; a spot number 3 turn to 2, 5 turn to 3.



 Memo

Even when [Don't Fill up gap of Spot number] is checked, new spot is numbered at last number.

5.5.16 Select Random Spot File

Selects the Random Spot File to be used. To select the Random Spot File, go through the following steps. You can edit selected Random Spot File.

Click the [Open] to open the [File Open] dialog. Select the Random Spot File and load it. The loaded Random Spot definition become available in the [Random Spot Property].

Random Spot Property

Random Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/01/05 19:45:41	rdm.rpt	Default Spot List

File Path:

C:\Users\TOPCON TECHNOHOUSE\UA-200\dat\rdm.rpt

Open Save

Initial Measurement Spot

Spot Pattern: Circle

Spot Size [mm]: 10

Activate Spot Threshold

Save to All Applicable Measurement Images

Don't Fill up a gap of Spot number

OK Cancel Apply

5.5.17 Save Random Spot File

Saves the Random Spot File. To save the Random Spot File, go through the following steps. The Random Spot File can be used in SDK.

Edit the [File name] and [Comment] under [Spot file displayed is applied] and click the [Save] button to save the random spot file.

Click the [OK] button to save the file in the place indicated in [File path :].

The path of current active random spot file is displayed in [File Path :]

Random Spot Property

Random Spot File

Spot file displayed is applied.

Date/Time	File Name	Comment
2015/01/05 19:45:41	rdm.rpt	Default Spot List

File Path:
C:\Users\TOPCON TECHNOHOUSE\UA-200\dat\rdm.rpt

Open Save

Initial Measurement Spot

Spot Pattern: Circle

Spot Size [mm]: 10

Activate Spot Threshold

Save to All Applicable Measurement Images

Don't Fill up a gap of Spot number

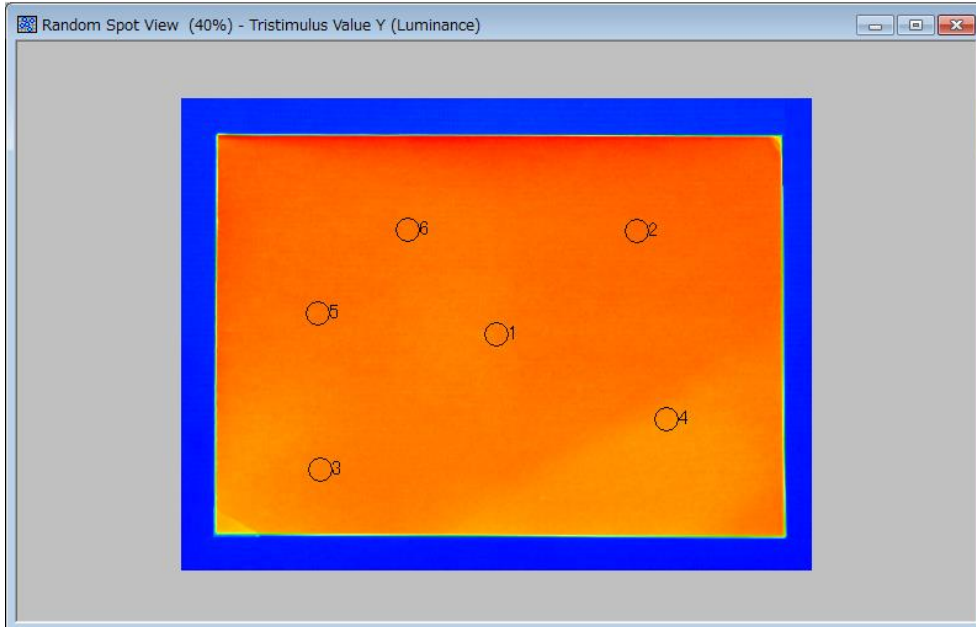
OK Cancel Apply

5.5.18 Display Random Spot List

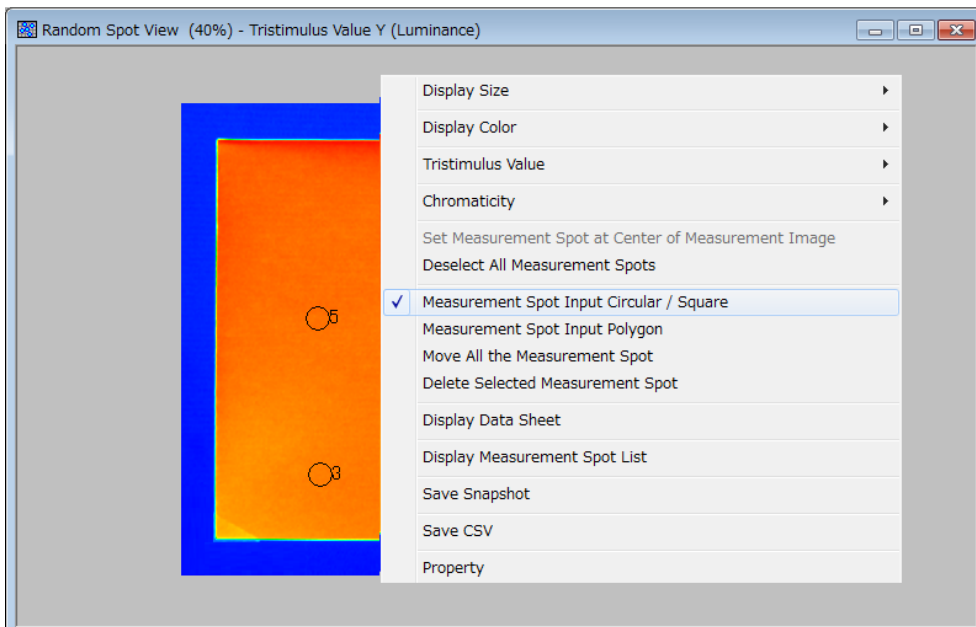
Displays the Random spot list.

To display the Random spot list, go through following step.

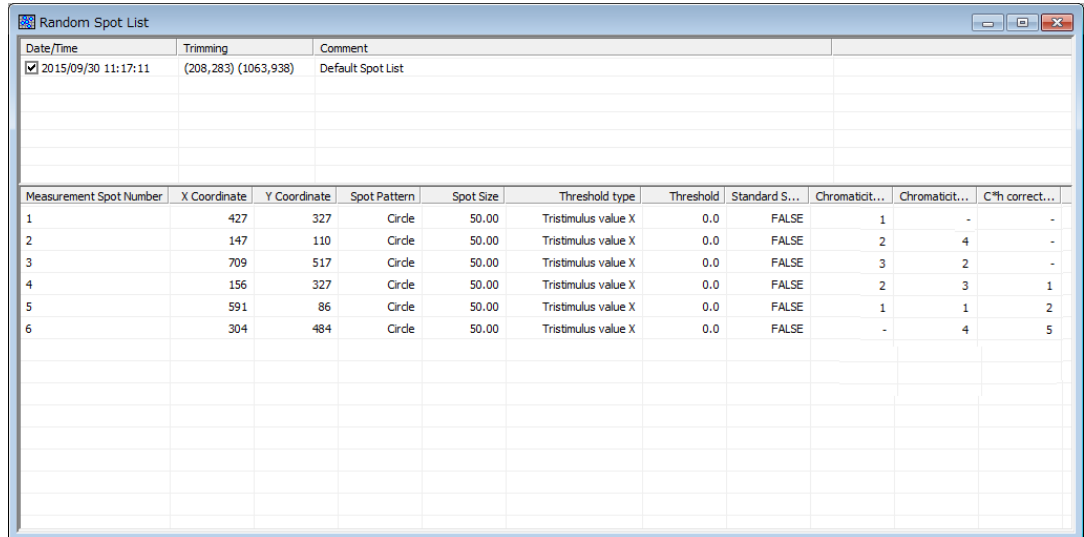
- 1 Open the [Random Spot View].



- 2 Right click on the [Random Spot View] to open pop up menu. And then, select the [Display Measurement Spot List].



3 The [Random Spot List] appear.



[X Coordinate], [Y Coordinate], [Spot Pattern], [Spot Size], [Threshold type], and [Threshold], [Standard Spot], [Correct area] can be specified in the [Random Spot List].

- Spot Pattern : Circle/Rectangle
- Spot Size : Measurement spot size
- Threshold type : Tristimulus values type
The Items for threshold is selected from X, Y, and Z in Tristimulus values. Only one item from X, Y, Z can be selected.
- Standard Spot : Judgment Center difference standard spot
- Chromaticity x,y correct area : Judgment x,y Chromaticity diagram view correct area number
- Chromaticity u',v' correct area: Judgment u',v' Chromaticity diagram view correct area number
- C^h correct area : Judgment L*a*b* Color system view correct area number

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size	Threshold type	Threshold
1	640	480	Circle	25.00	Tristimulus value X	0.0
2	925	270	Circle	25.00	Tristimulus value X	0.0
3	283	755	Circle	25.00	Tristimulus value X	0.0
4	985	653	Circle	25.00	Tristimulus value X	0.0
5	278	438	Circle	25.00	Tristimulus value X	0.0
6	460	268	Circle	25.00	Tristimulus value X	0.0

You can check the status of each setting on the [Random Spot List].

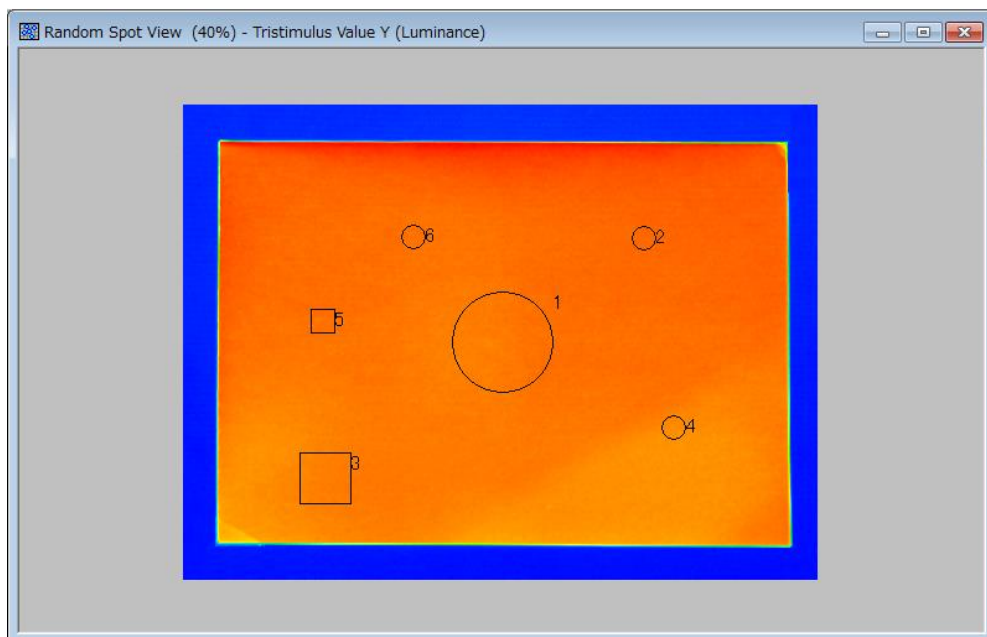
- 4 Right click on lower space of the [Random Spot List] to open pop up menu. When you select the [Applying to Measured Image], the spot settings are applied to current displayed measured image. When you select the [Save to All Applicable Measured Image], the spot settings are applied to all loaded measured image.

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size	Threshold type	Threshold
1	640	480	Circle	100.00	Tristimulus value X	0.0
2	925	270	Circle	25.00	Tristimulus value X	0.0
3	283	755	Square	50.00	Tristimulus value X	0.0
4	985	653	Circle	25.00	Tristimulus value X	0.0
5	278	438	Square	25.00	Tristimulus value X	0.0
6	460	268	Circle	25.00	Tristimulus value X	0.0

Applying to Measured Image

Activate Spot Threshold

Save to All Applicable Measurement Images



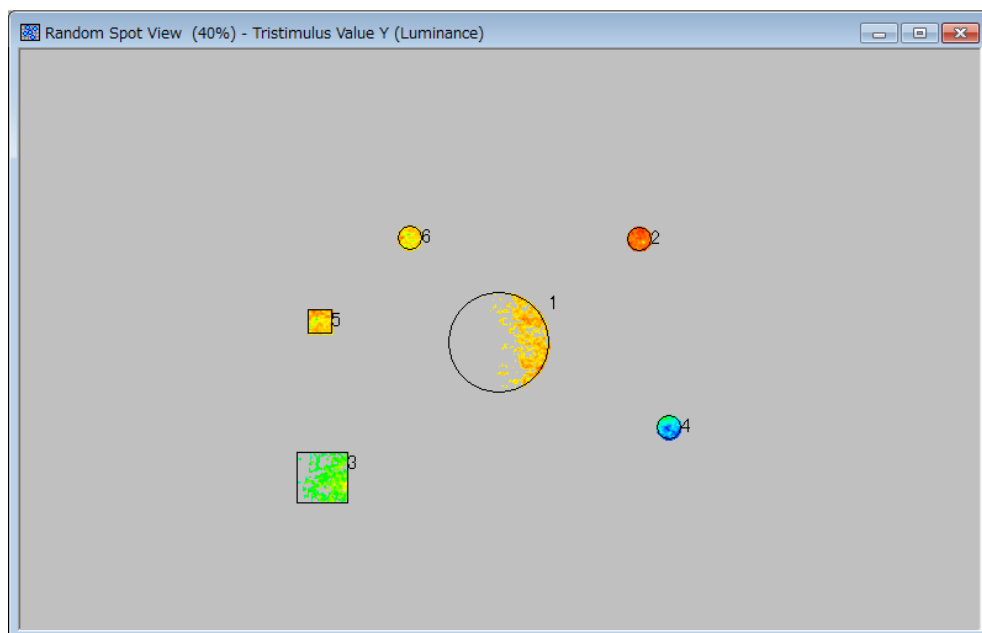
- 5 Right click on lower space of the [Random Spot List] to open pop up menu. When you select the [Activate Spot Threshold], the setting of [Threshold type] and the [Threshold] are applied to measured image. When you select the [Save to All Applicable Measurement Image], the setting of threshold are applied to all loaded measured image.

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size	Threshold type	Threshold
1	640	480	Circle	100.00	Tristimulus value X	93.0
2	925	270	Circle	25.00	Tristimulus value X	0.0
3	283	755	Square	50.00	Tristimulus value X	91.5
4	985	653	Circle	25.00	Tristimulus value X	0.0
5	278	438	Square	25.00	Tristimulus value X	0.0
6	460	268	Circle	25.00	Tristimulus value X	0.0

Applying to Measured Image

Activate Spot Threshold

Save to All Applicable Measurement Images



Memo

- When you select the polygon from the circular / square, the first upper-left vertex of a polygon is set at a center of the circular / square.
- When you select the circular / square from the Polygon, the center of a circular / square is set at a start point of the polygon.

 "5.5.12 Set Initial Spot Pattern and Spot Size"

- When you cancel the spot threshold, remove a check on the [Activate Spot Threshold] in the [Random Spot List].

 "5.5.13 Set Threshold in Measurement Spot"

5.6 Contour View Operation

This Contour View function classifies the Tristimulus value of the measurement image and connects the same classified values with a line to be displayed. Representing in contour allows you to intuitively know the Tristimulus value distribution.

The following operations are performed according to the same steps. Refer to the respective chapters shown below.

Change Display Size

☞ “5.2.2 Change Display Size”

Change Display Color

☞ “5.2.3 Change Display Color”

Change Items of Tristimulus Values

☞ “5.2.4 Change Items of Tristimulus values”

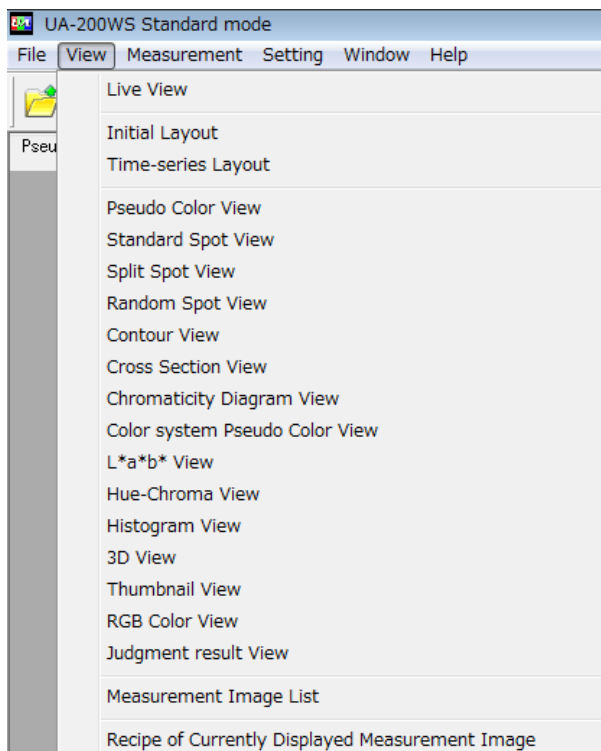
Save Snapshot

☞ “5.2.11 Save Snapshot”

5.6.1 Open Contour View

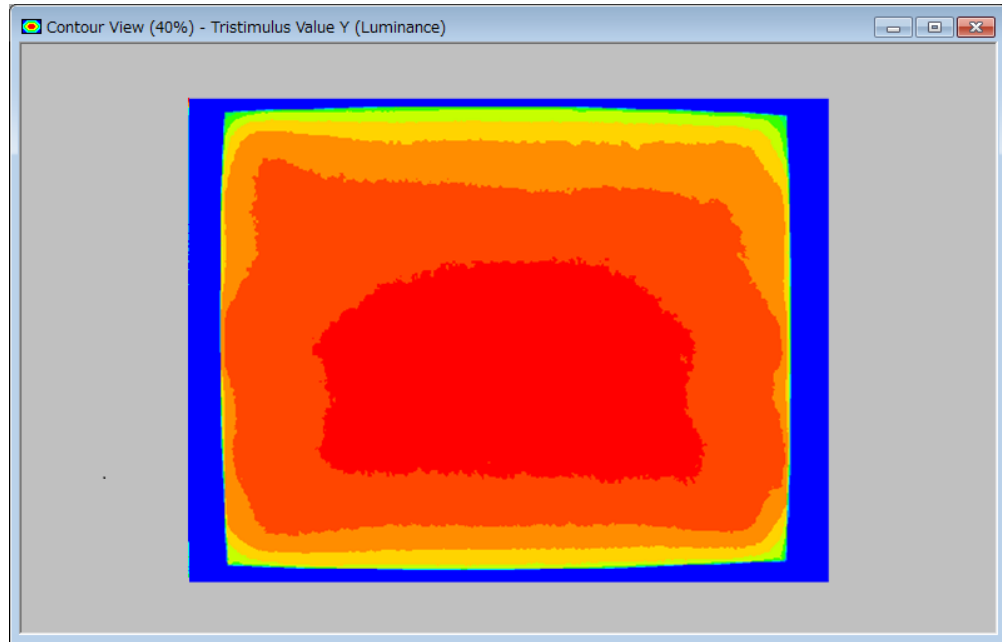
To open the [Contour View], go through the following steps.

- 1 From the Menu bar, select [View] – [Contour View] sequentially.



Or, click the  icon on the Menu bar.

2 The [Contour View] is opened.



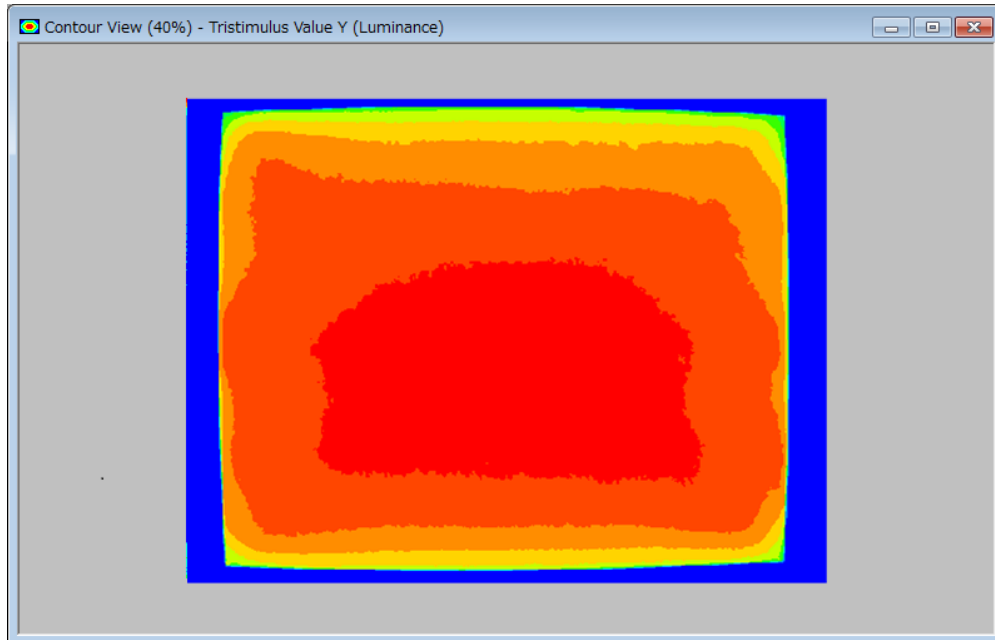
 Memo

While a mouse cursor is placed on the view, the Tooltip is available for display.

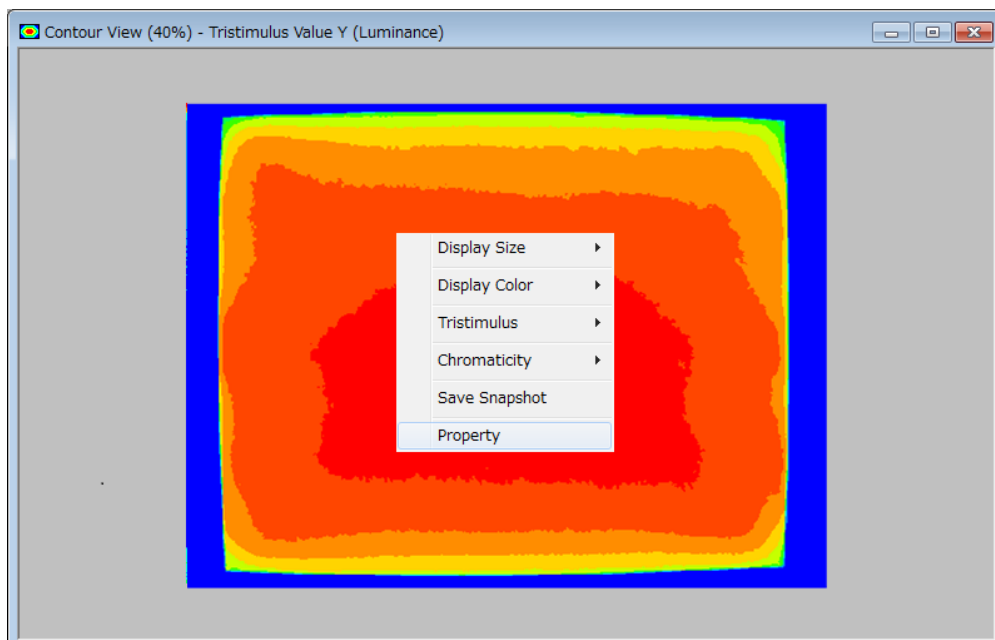
5.6.2 Open Contour Property

Opens the property window to change the number of the contour lines.
To open the [Contour Property], go through the following steps.

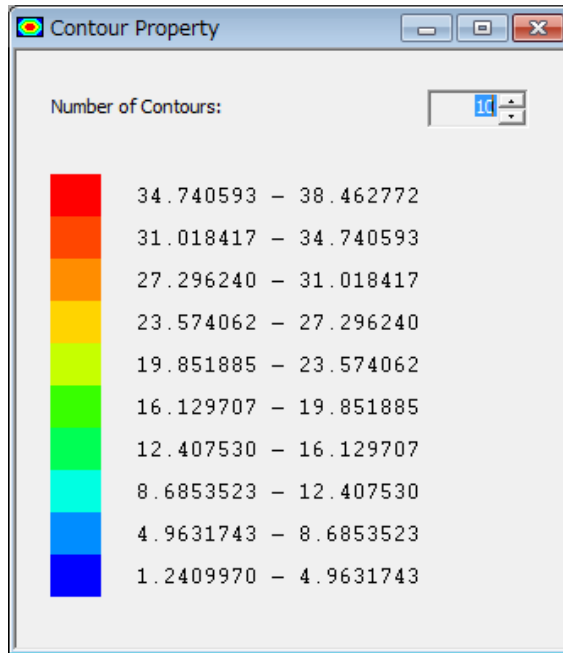
- 1 Open [Contour View].



- 2 Right-click anywhere within [Contour View] to open pop-up menu. Select the [Property].



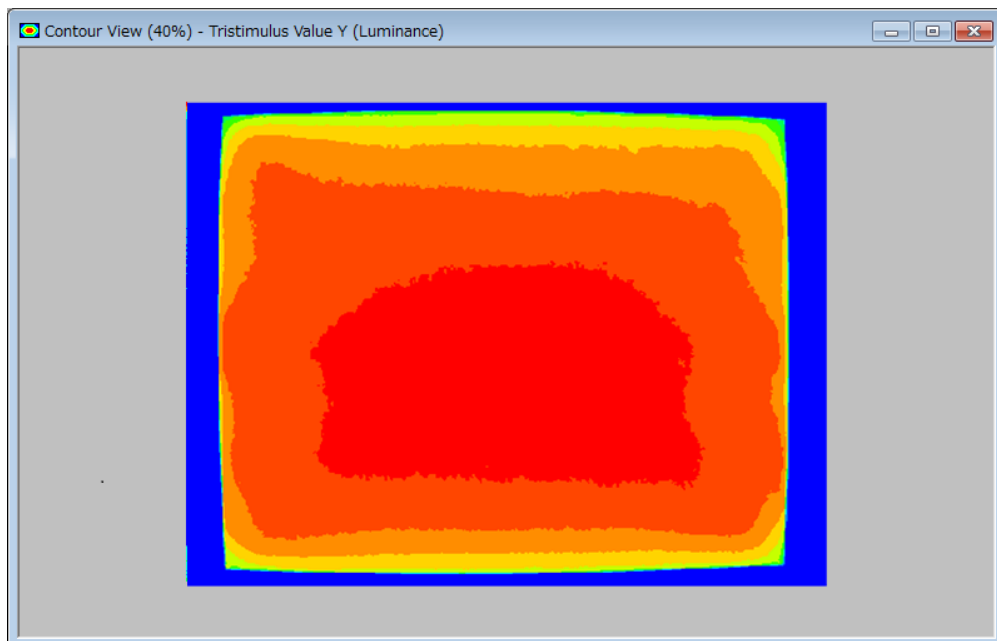
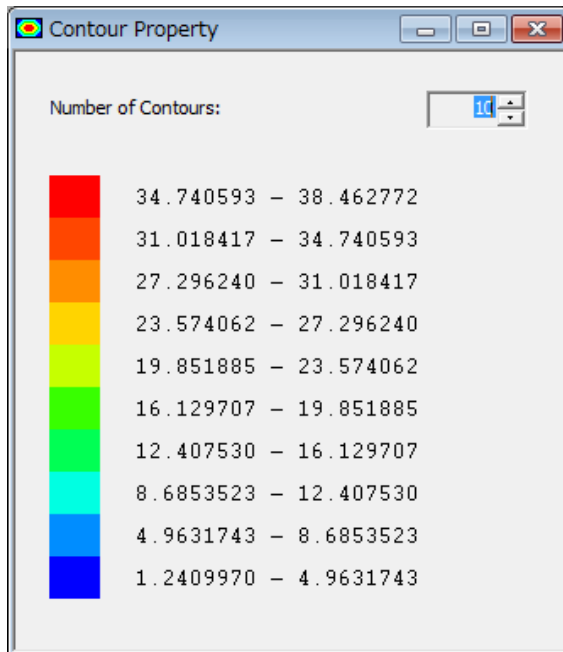
3 The [Contour Property] is displayed.



5.6.3 Change Number of Contour lines

Changes the number of contour lines. To change the number of contours, go through the following steps.

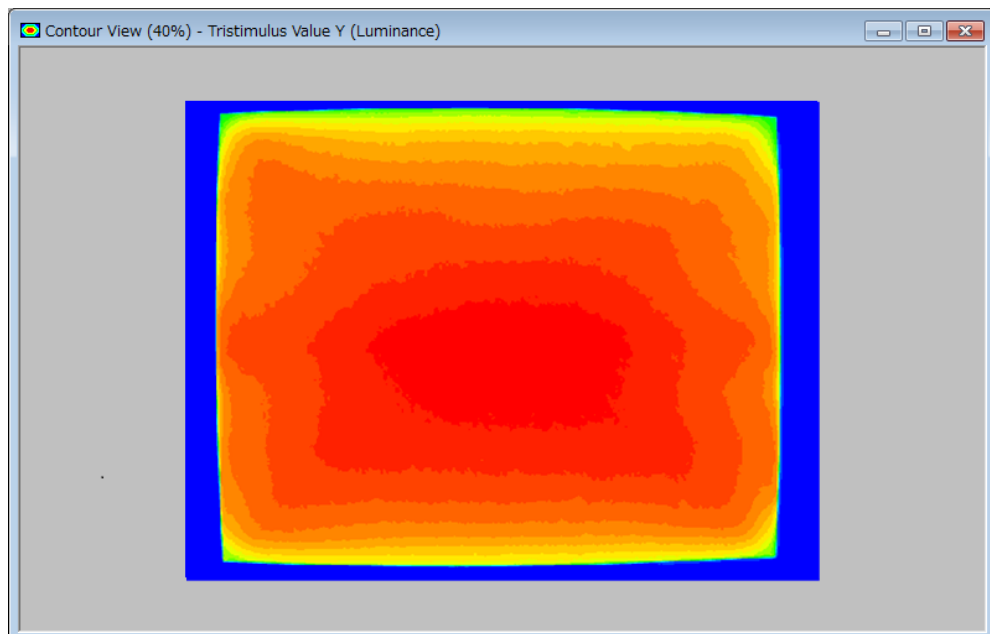
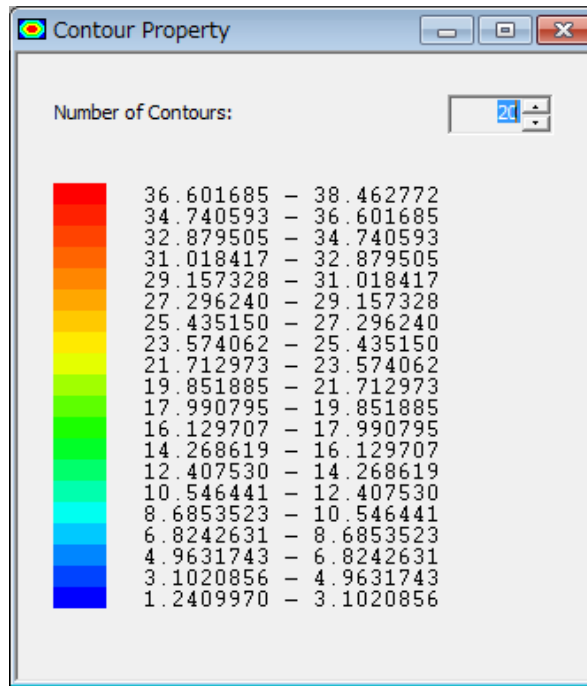
- 1 Display [Contour Property].



- 2 Set the number of contour lines by pressing the spin buttons ▲▼. The default number of contour lines are 10, and the setting range is from 2 to 20.

 Memo

The contour lines equally divide the max to minimum luminance data.




5.7 Cross Section View

This Cross-section function displays the cross-section profile of the measurement image in the Tristimulus values in vertical/horizontal graph form. The cruciform or shaded type as the cross-section line can be selected.


When you move the mouse while dragging on the view, the cross-section will follow and you will confirm the cross-section data of the arbitrary position in real time.

The following operations are performed according to the same steps. Refer to the respective chapters shown below.

Change Display Color

 “5.2.3 Change Display Color”

Change Items of Tristimulus value

 “5.2.4 Change Items of Tristimulus values”

Save Snapshot

 “5.2.11 Save Snapshot”

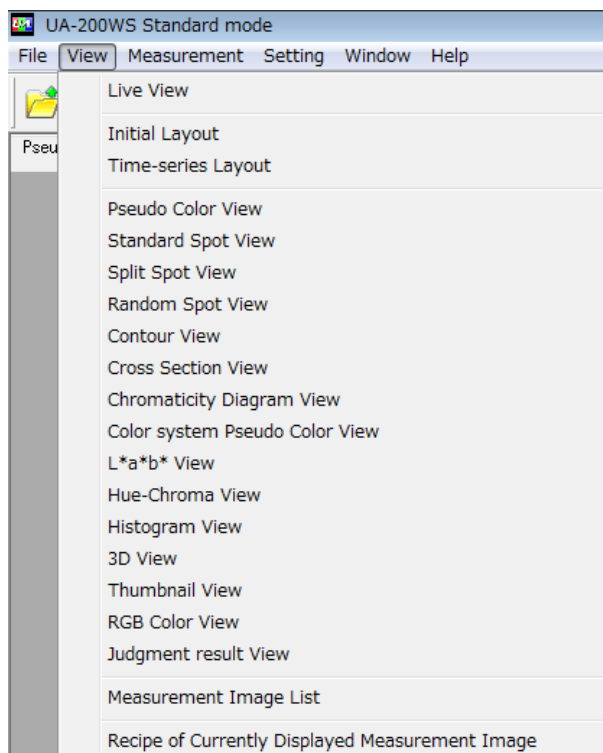
Save Measurement Data in CSV File Format

 “5.2.12 Save Measurement Data in CSV File Format”

5.7.1 Open Cross Section View

To open the [Cross Section Spot View], go through the following steps.

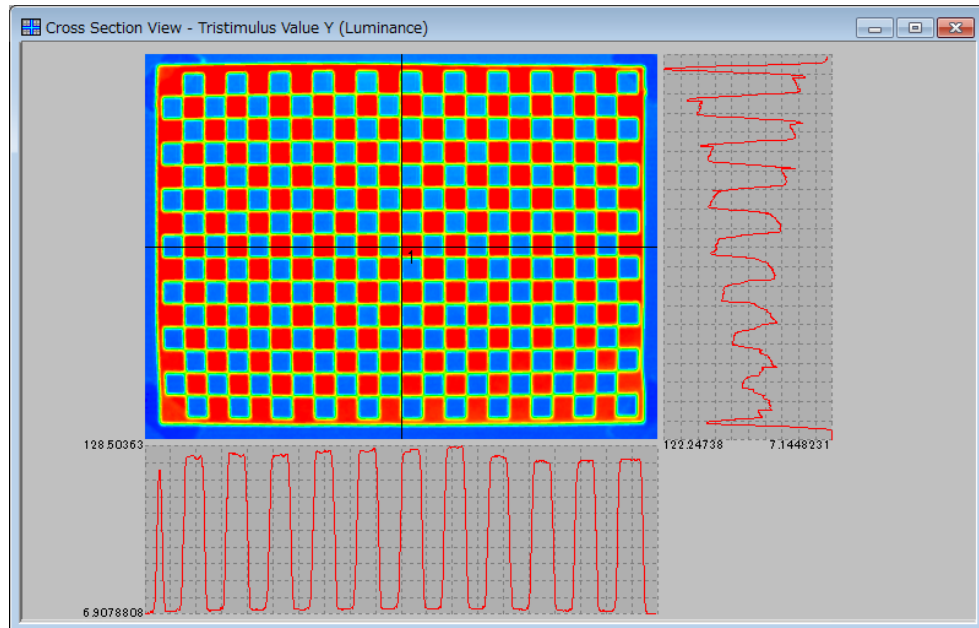
- 1 From the Menu bar, select the [View] – [Cross Section View] sequentially.



Or, click the  icon on the Menu bar.

2 The [Cross Section View] opens.

The default cross-section line is Cruciform Cross Section form and the cross section line is plotted on the central intersection point of the measurement image.



 Memo

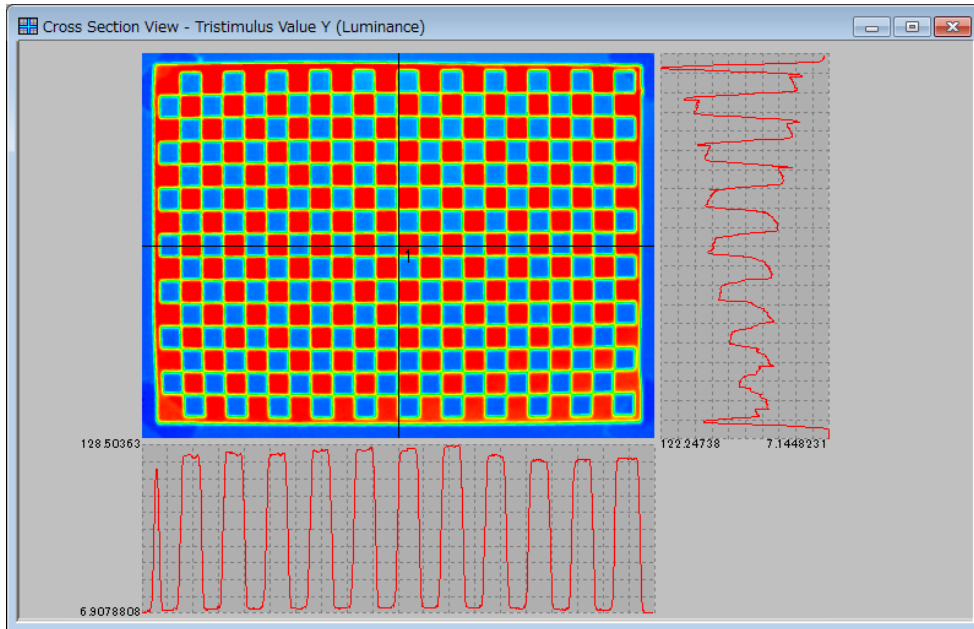
When you trim the measurement image, the definition of the cross-section view is reset.

In the Cruciform Cross Section form, the cross section line is plotted on the central intersection point of the image, the line is not displayed on the Shaded Cross Section display.

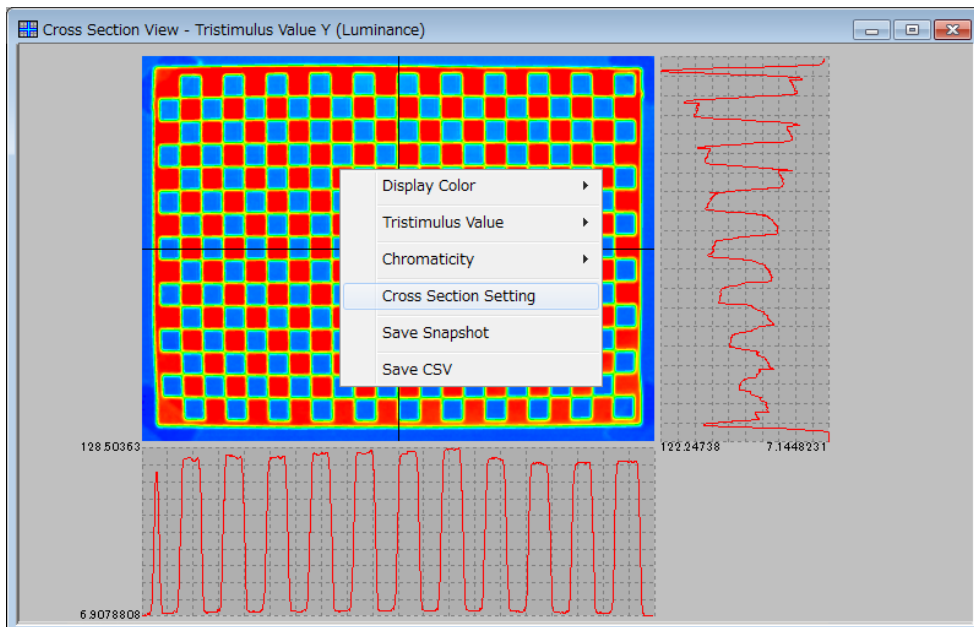
5.7.2 Display in Cruciform Cross Section Form

To display the [Cross Section View], go through following steps.

- 1 Open the [Cross Section View].

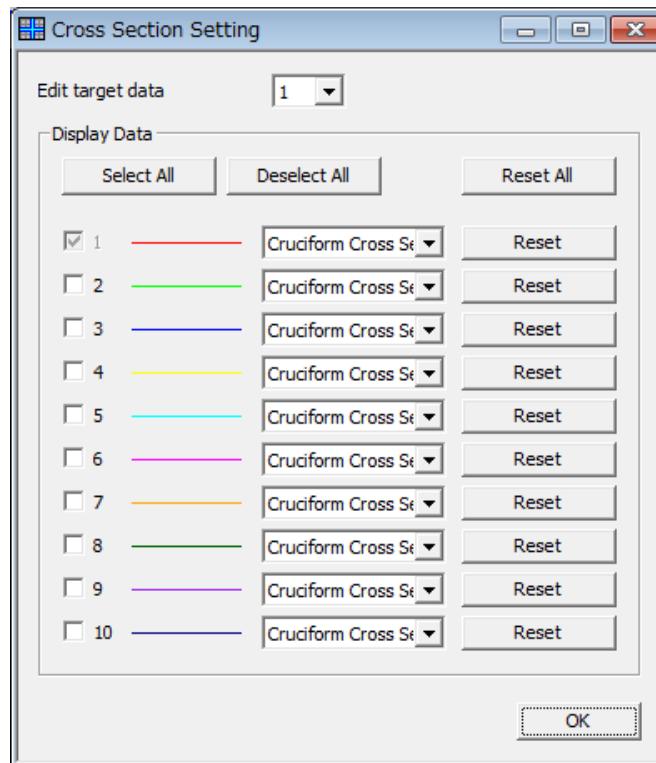


- 2 Right click on the [Cross Section View]. Pop-up menu will appear and select the [Cross Section Setting].



- 3 The [Cross Section Setting] will appear. Specify the edit number, Type of cross-section, display on or off.

Up to 10 of cross lines and diagonal lines can be displayed.



- Edit number

Select the number of cross-section line to be edited on the view. Once check box is on, The check cannot be removed.

- All select

Press this button to display all 10 cross-section lines. When pressing this button, checks are entered on all check boxes.

- All delete

All cross-section lines are deleted without current editing cross-section line.

- All reset

All cross-section lines are reset and back to default position. Cross line will be placed at center of view and diagonal line will dissapre.

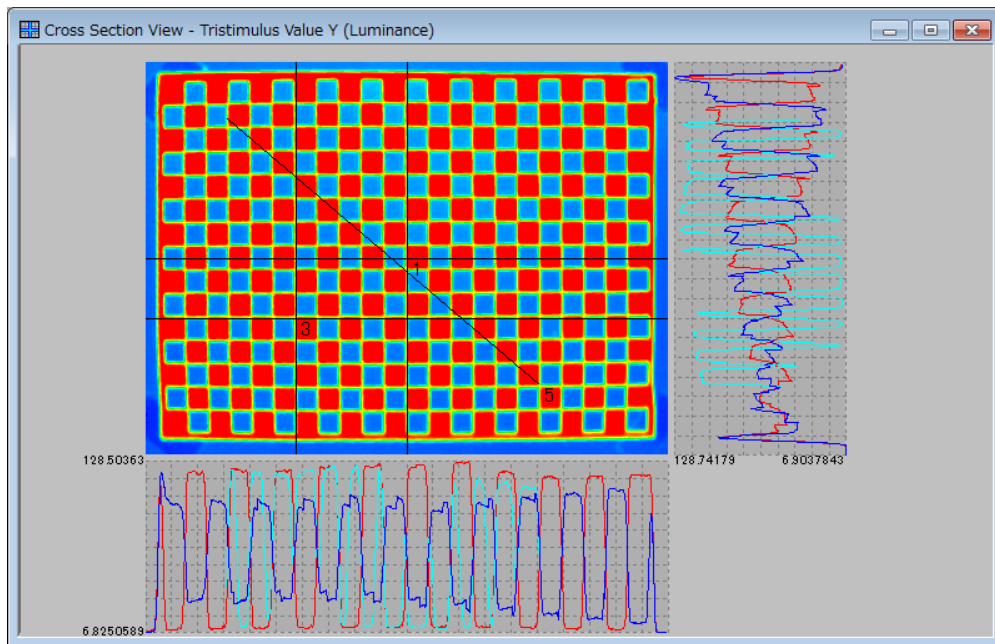
- Reset

Cross-section line are reset and back to default position. Cross line will be placed at center of view and diagonal line will dissapre.

 Memo

When multiple cross-section lines are displayed, drawing graph may be delayed.

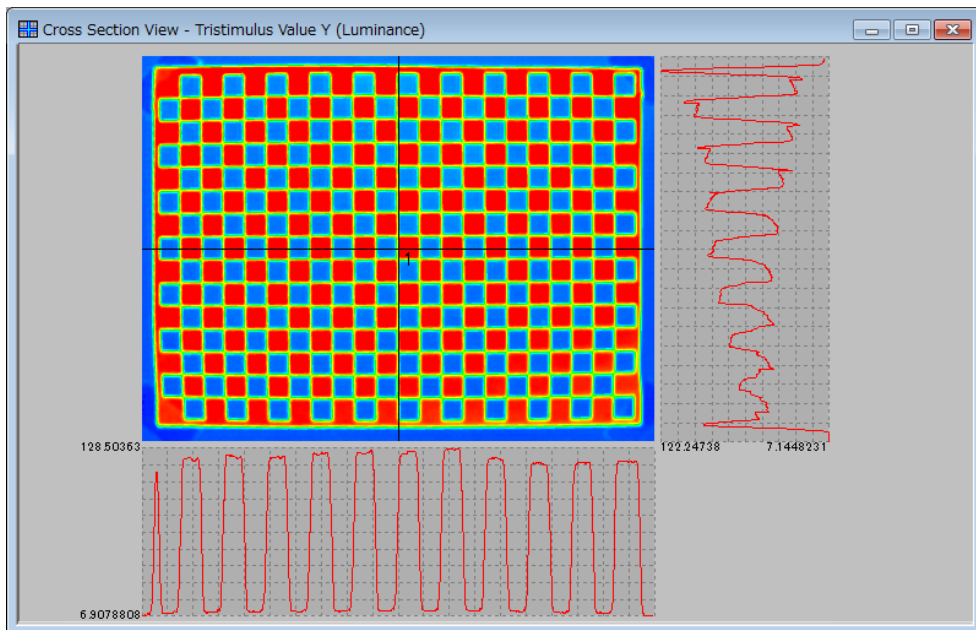
- 4 Drag a cross-section line specified by edit number to an arbitrary point in a view, and horizontal and vertical cross-section graph of Tristimulus value on that point will be displayed. The cross-section line keep in the same position until setting is reset.



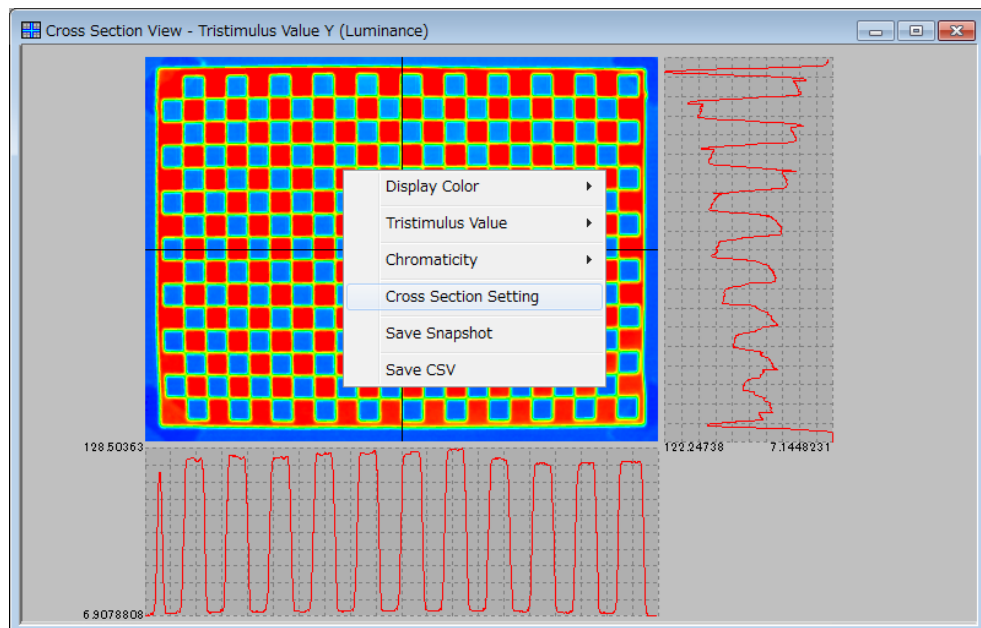
5.7.3 Display in Shaded Cross Section Form

To display the Shaded Cross-section line, go through following steps.

- 1 Open the [Cross Section View].

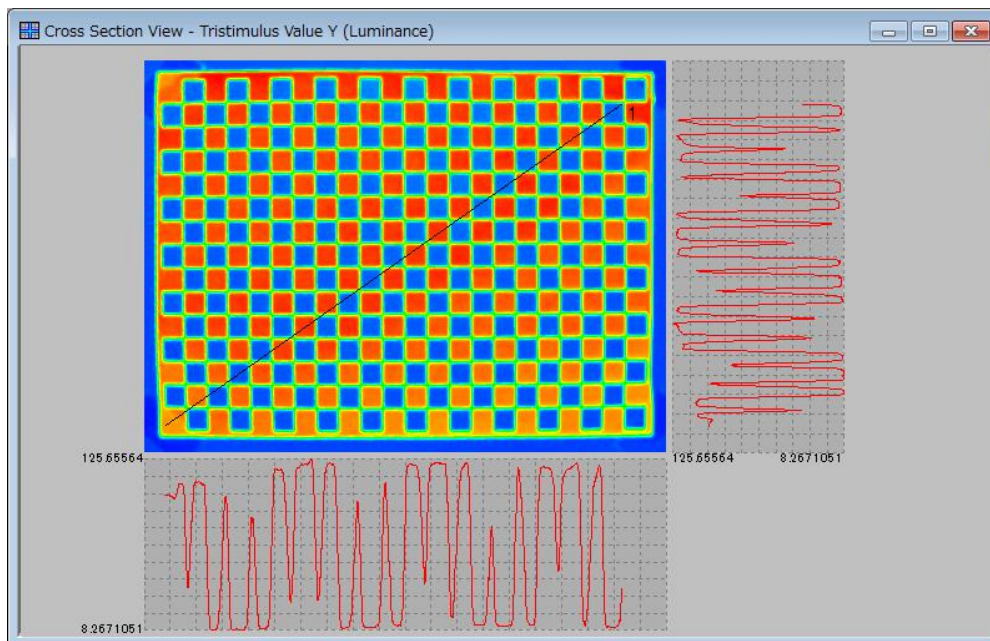
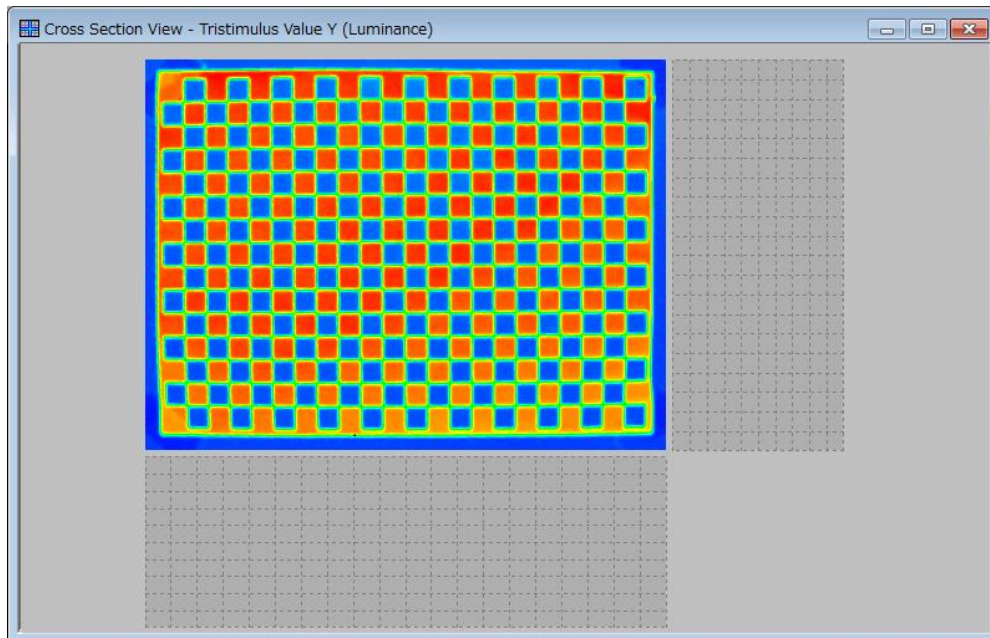


- 2 Right click on the [Cross Section View], and pop-up menu will appear. Select the [Cross Section Setting] in the pop-up menu, and the [Cross Section Setting] dialogue will appear. Select a shaded line among shaded and cross line.



- 3 The image is displayed in shaded cross section form. After the display is switched, the cross section line is not displayed.

Moving the mouse to any position while dragging on the view allows you to check the cross-section data of the position as the graph in real time. The last cross section line plotted with the mouse is recorded in the application, and the previous cross section line is displayed at the next starting time unless it is reset.



5.8 Chromaticity Diagram View Operation

The Chromaticity Diagram View function plots the measurement data specified in the [Standard Spot View], the [Split Spot View], and the [Random Spot View] on the CIE Chromaticity Diagram (hereafter Chromaticity Diagram).

Chromaticity xy or $u'v'$ coordinate value of the measurement data is plotted on the chromaticity diagram, enabling you to visually confirm the color distribution. It also enables you to zoom in the concentrated plotted zone, which helps you to know the distribution more accurately.

The following operations are performed according to the same steps. Refer to the chapter shown below.

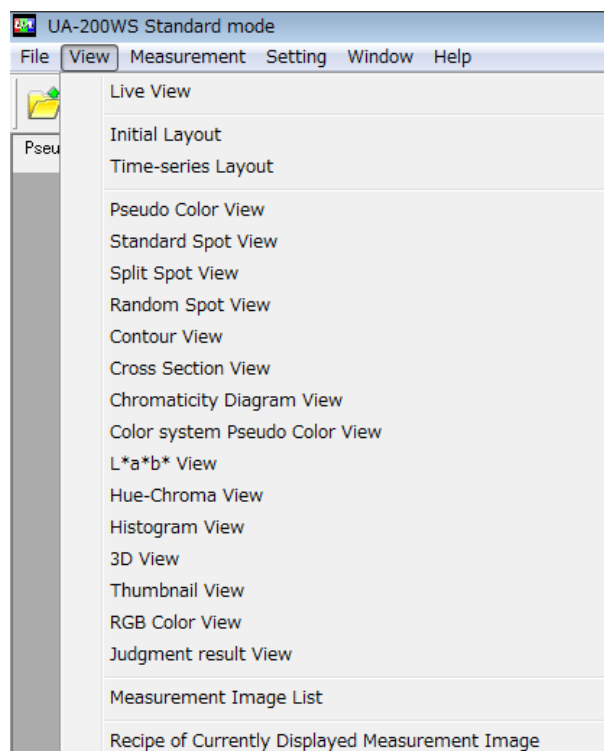
Save Snapshot

 “5.2.11 Save Snapshot”

5.8.1 Open Chromaticity Diagram View

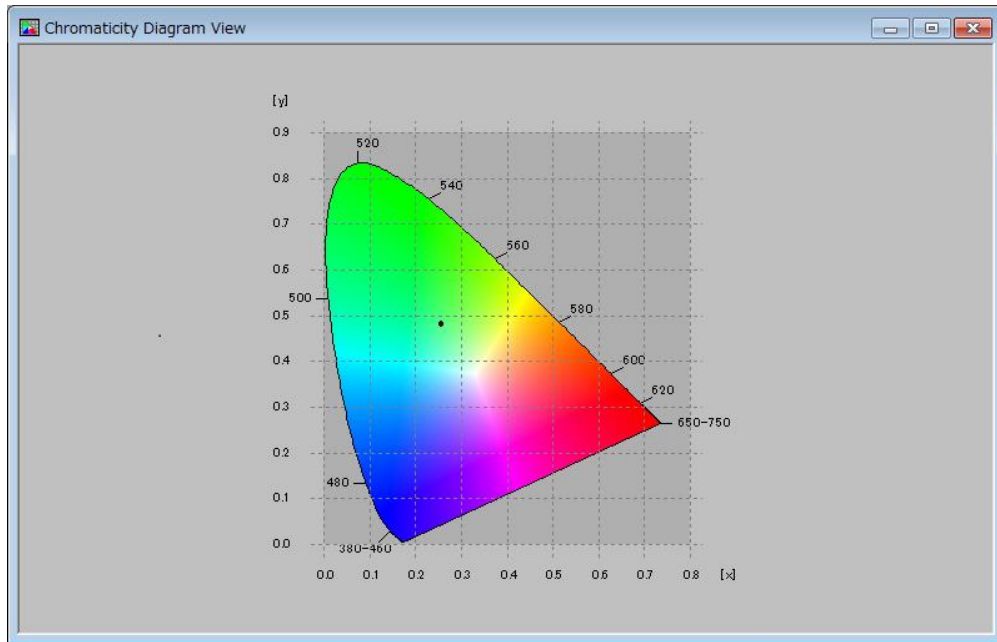
To open the [Chromaticity Diagram View], go through the following steps.

- 1 From the Menu bar, select [View] – [Chromaticity Diagram View] sequentially.



Or, click the  icon on the Menu bar.

2 The [Chromaticity Diagram View] is opened.

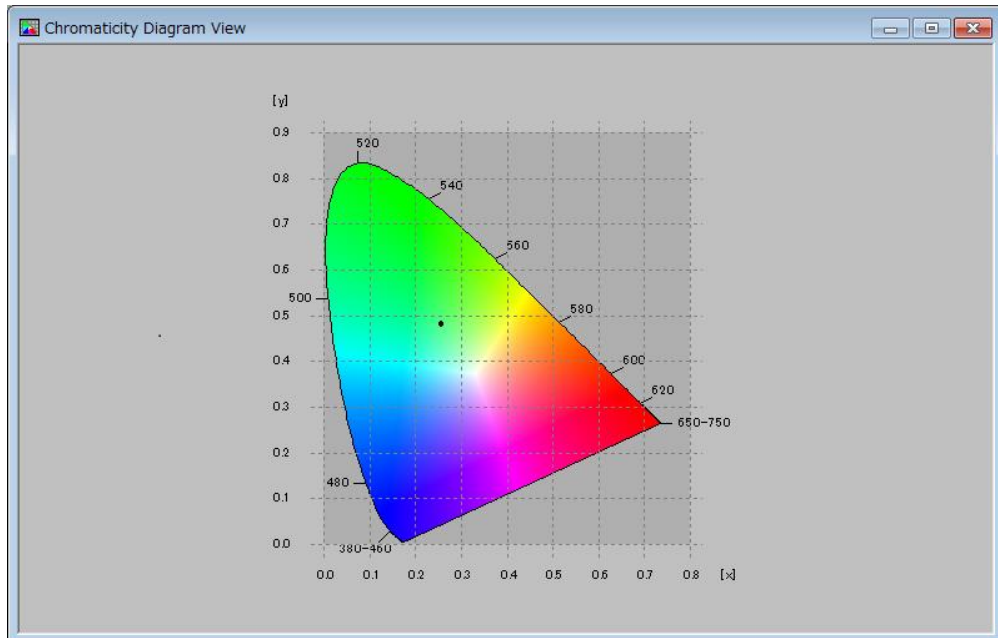


5.8.2 Switch Chromaticity Diagram

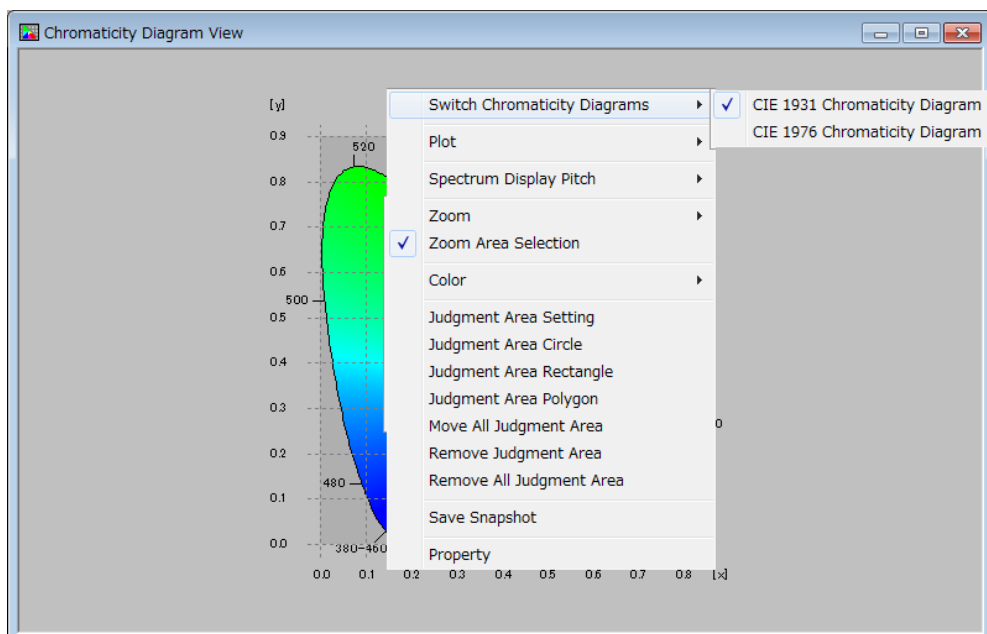
Switches the [CIE1931 Chromaticity Diagram] and [CIE1976 Chromaticity Diagram].

To switch the chromaticity diagram, go through the following steps.

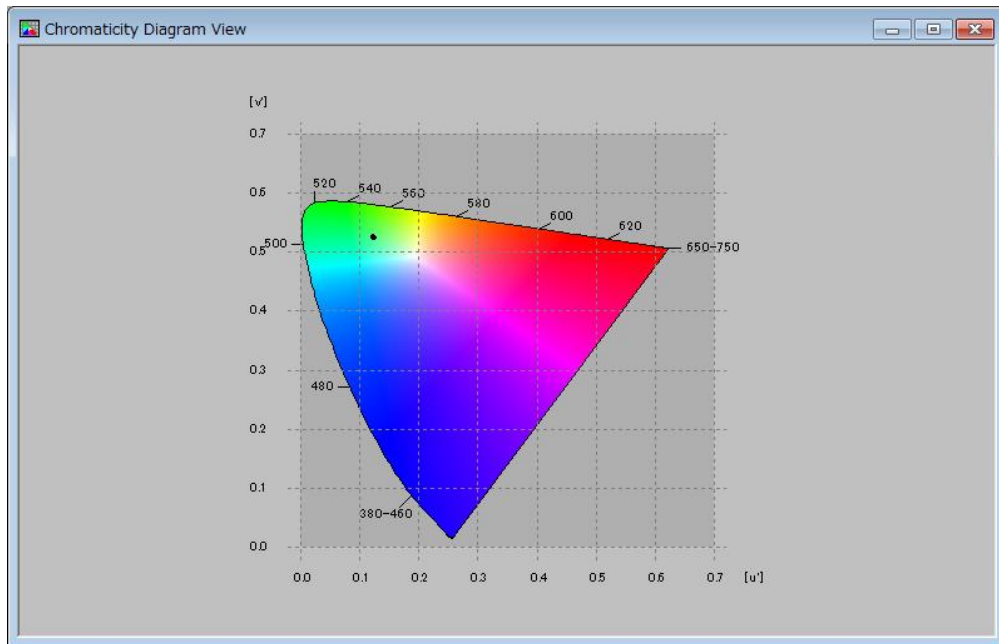
- 1 Open the [Chromaticity Diagram View].



- 2 Right-click on [Chromaticity Diagram View]. The Pop-up menu will open.
- 3 Selecting the [Switch Chromaticity Diagrams] from the Pop-up menu displays the chromaticity diagram list. Select [CIE1931 Chromaticity Diagram] or [CIE1976 Chromaticity Diagram] from the [Switch Chromaticity Diagrams].



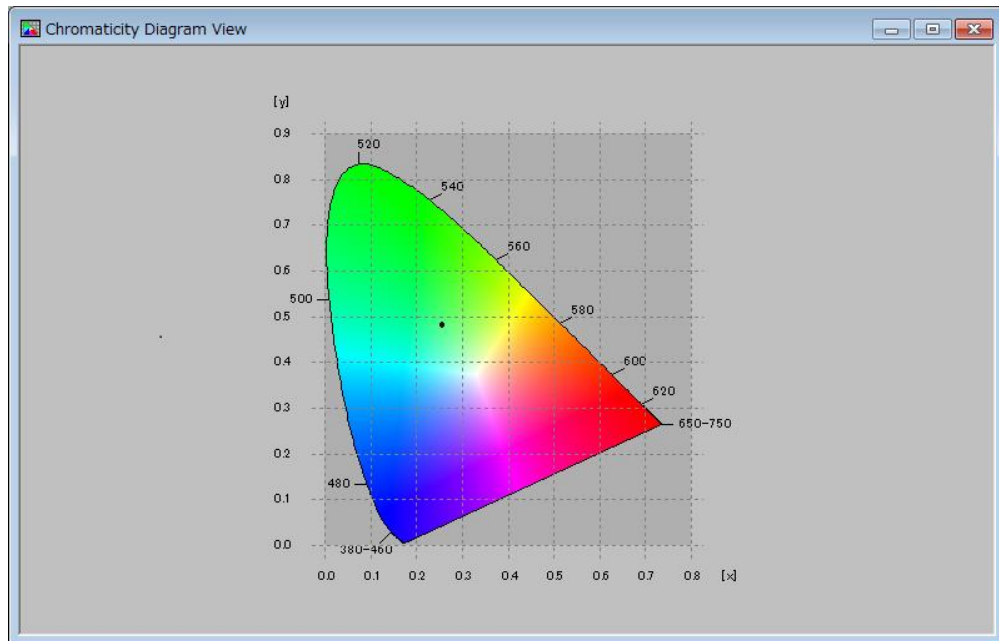
- 4 Selecting the [CIE1976 Chromaticity Diagram] displays the following view. The selected chromaticity diagram is permanently retained, and if the software is restarted, the measurement image is displayed on the previously selected chromaticity diagram.



5.8.3 Switch Plot Object

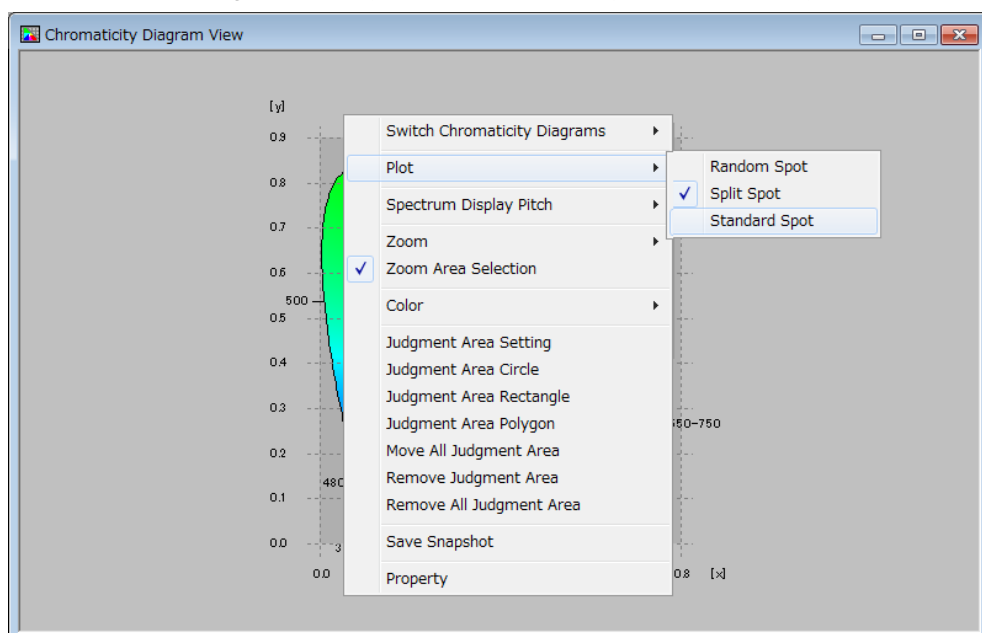
Switches the plot object on the [Chromaticity Diagram View]. The plot object can be selected from [Standard Spot View], [Split Spot View], or [Random Spot View]. To switch the plot object, go through the following steps.


- 1 Open the [Chromaticity Diagram View].



- 2 Right-click on [Chromaticity Diagram View]. The Pop-up menu will open.
- 3 Selecting the [Plot] from the Pop-up menu displays the plot type list. Select [Random Spot], [Split Spot], or [Standard Spot].

The selected plot type is permanently retained, and if the software is restarted, the measurement image is displayed in the previously selected plot type.



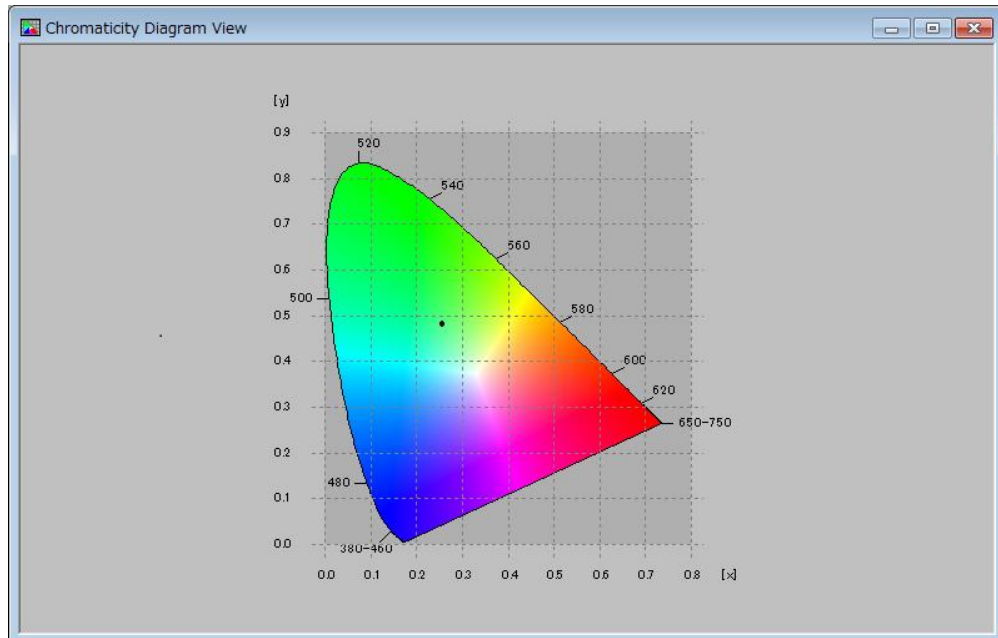
 Note	The switch plot function can be selected from the [Standard Spot View], [Split Spot View], or [Random Spot View], but requires you to set the measurement spot on each view. If the measurement spot is not set, no image is plotted on the [Chromaticity Diagram View].
--	--

- 4 For example, when the [Standard Spot] is selected, the measurement spot set on the Standard Spot View is displayed on the chromaticity diagram.

5.8.4 Switch Spectrum Display Pitch

Switches the pitch of the spectrum scale on the [Chromaticity Diagram View]. You can select 10 nm or 20 nm pitch.

- 1 Open the [Chromaticity Diagram View].



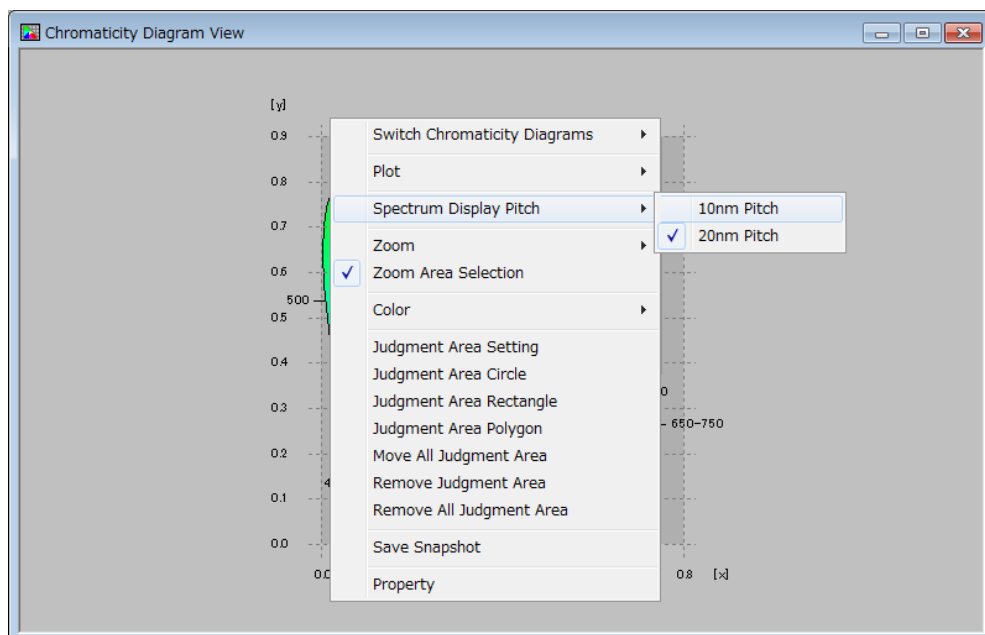
- 2 Right-click on [Chromaticity Diagram View]. The Pop-up menu will open.
- 3 The Pop-up menu will open. Select [10nm Pitch] or [20nm Pitch] from the [Spectrum Display Pitch].

10 nm Pitch

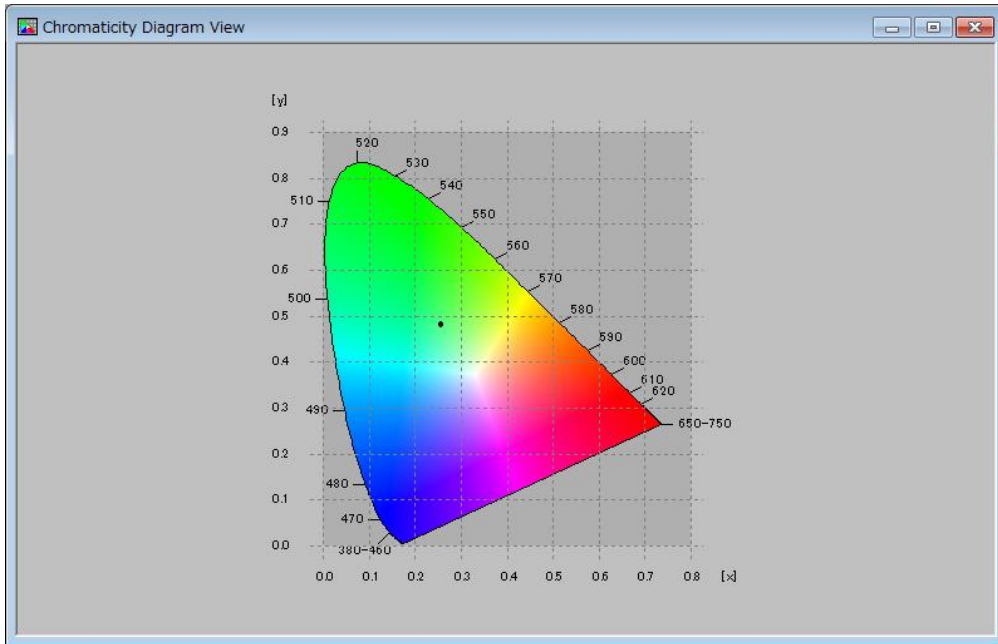
Displays the value of 380 to 780 nm in 10 nm pitch.

20 nm Pitch

Displays the value of 380 to 780 nm in 20 nm pitch.



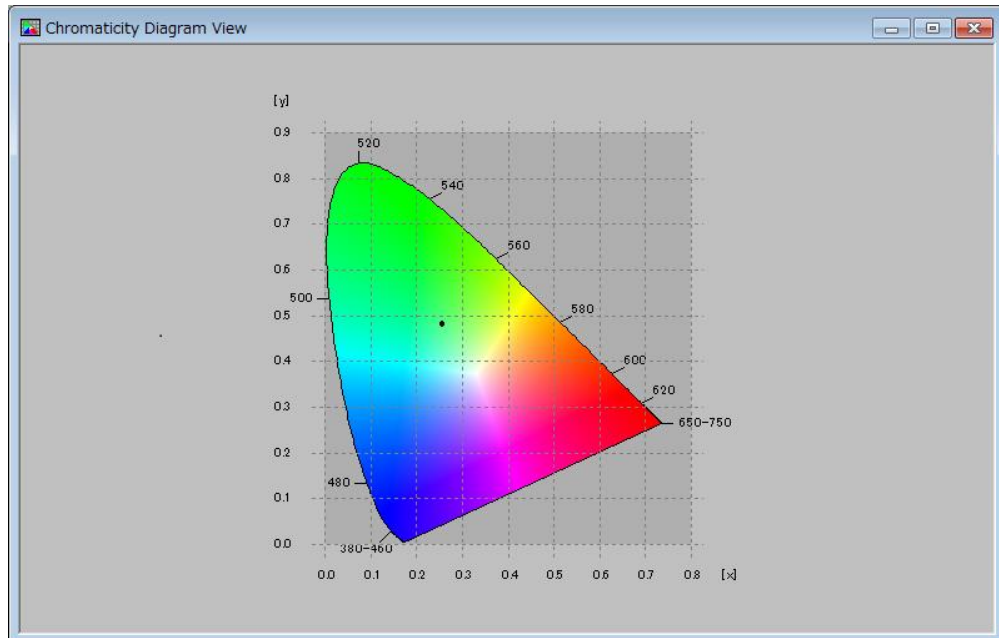
4 Selecting [10nm Pitch] displays the following view.



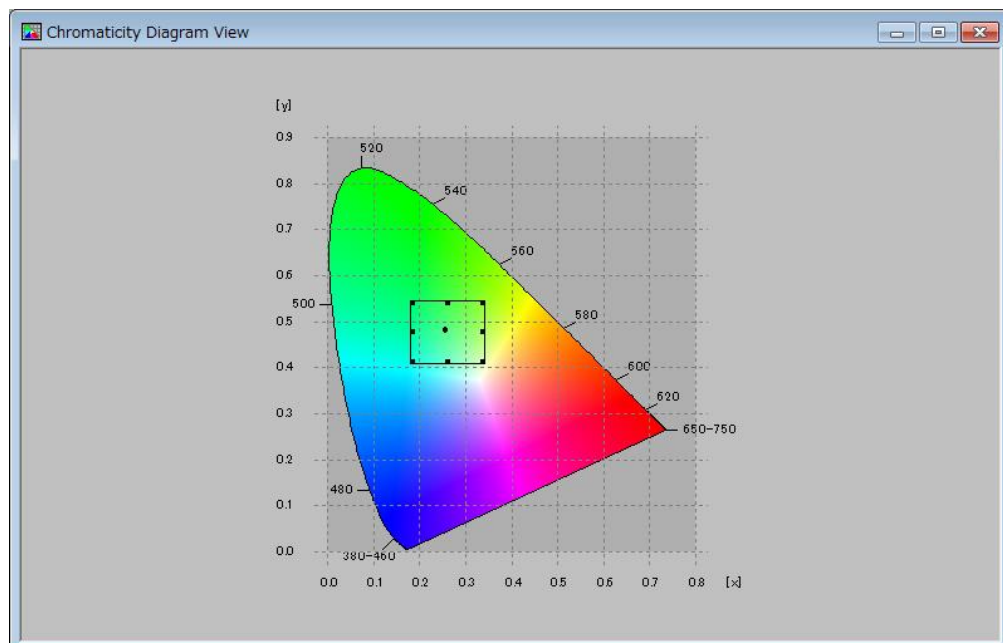
5.8.5 Zoom-in Chromaticity Diagram

Zooms in the arbitrary area within the chromaticity diagram. To zoom in the arbitrary area within the chromaticity diagram, go through the following steps.

- 1 Open the [Chromaticity Diagram View].



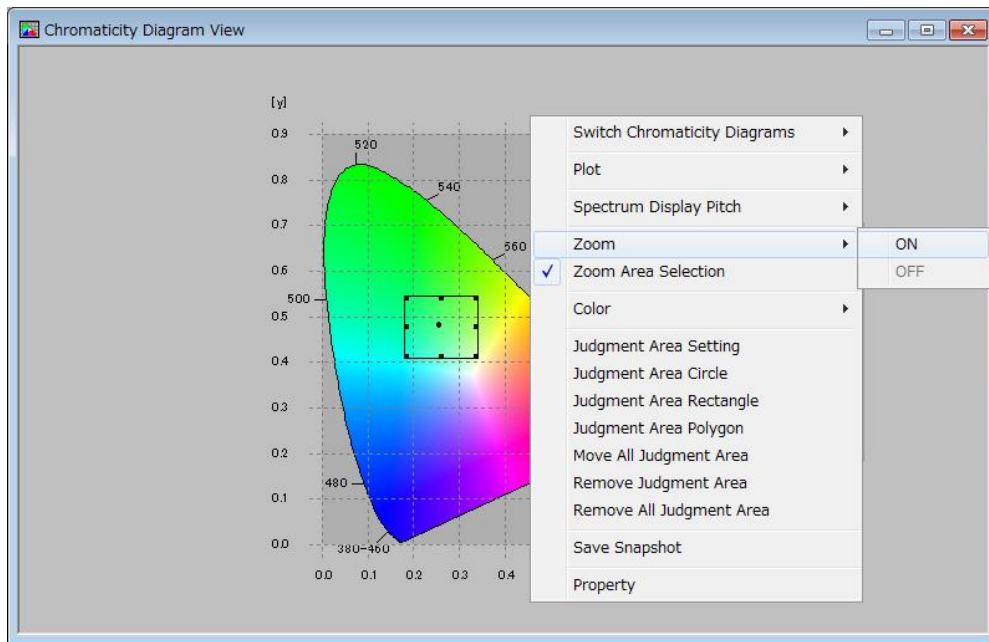
- 2 Determine the area to be zoomed-in within the chromaticity diagram. After clicking the starting point, drag the mouse and specify the area to be trimmed.



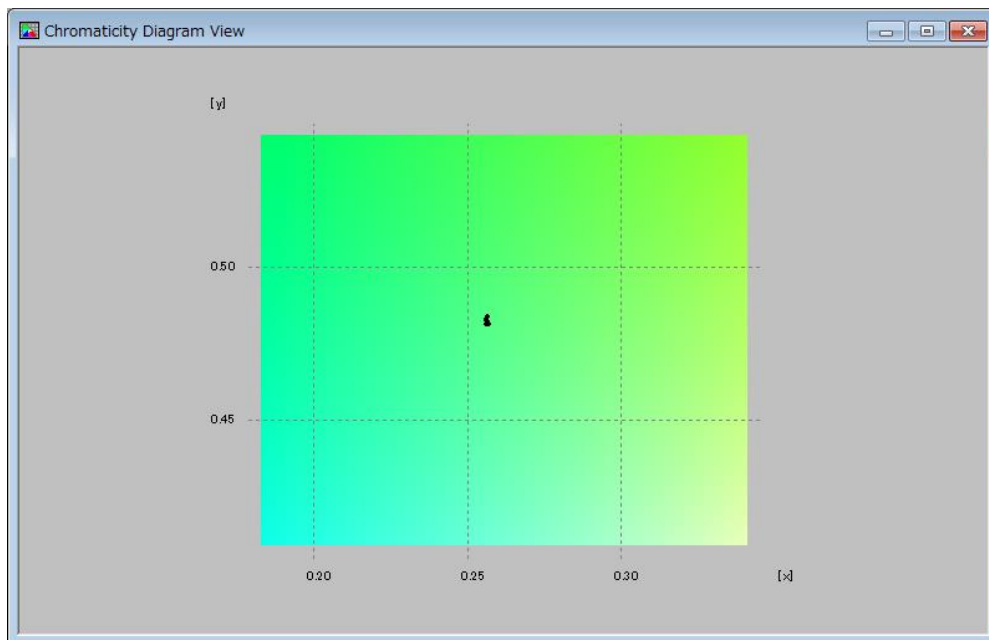
 Memo

Pressing the ESC key allows you to cancel the zoom frame.

- 3 Right-click anywhere within [Chromaticity Diagram View].
- 4 The Pop-up menu will open. Select the [Zoom] – [ON].



- 5 The zoomed-in area within the view is enlarged.



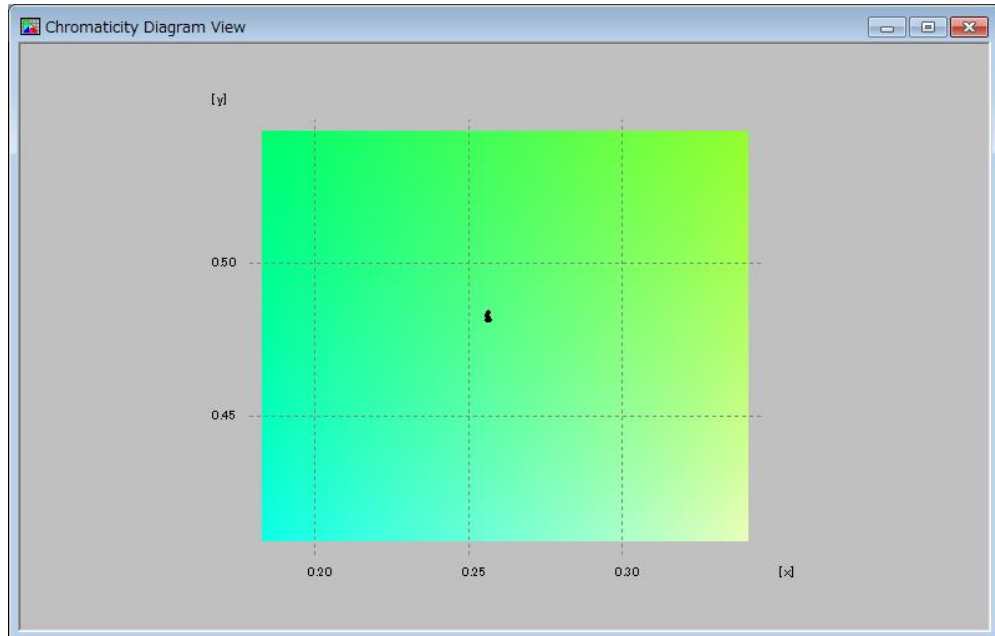
 Memo

Selecting the property of the Pop-up menu on the zoomed-in display allows you to zoom in the image further.

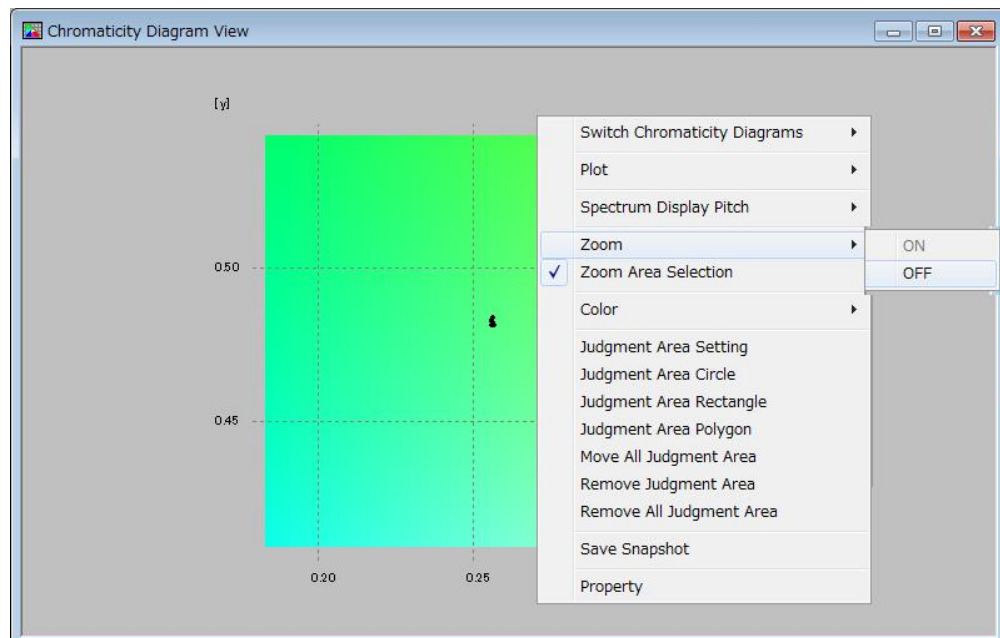
5.8.6 Cancel Zoom-in of Chromaticity Diagram

Cancels the operation of zooming in the chromaticity diagram. To cancel the operation, go through the following steps.

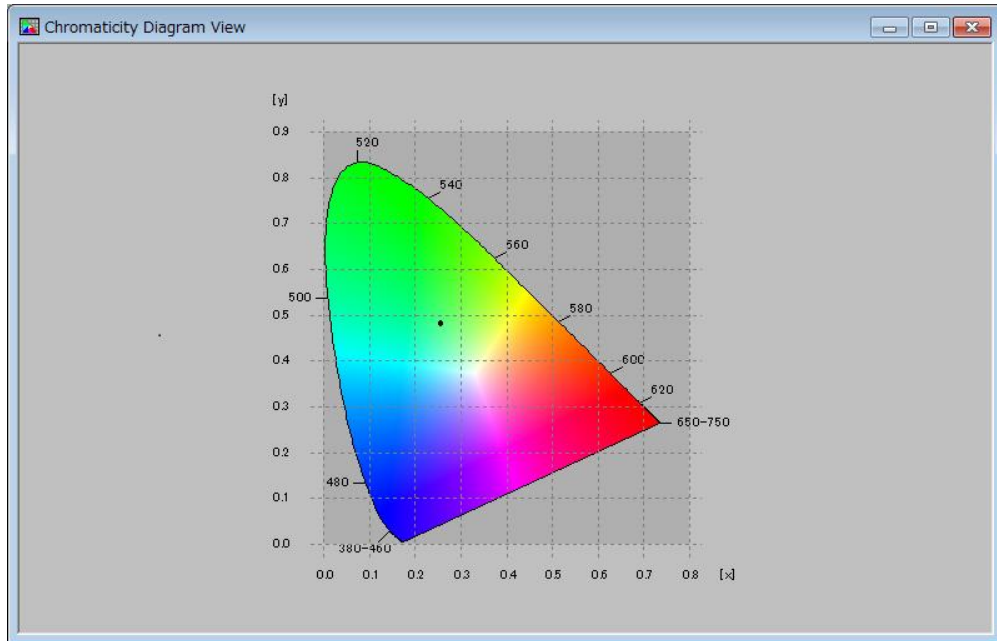
- 1 Open the zoomed-in [Chromaticity Diagram View].



- 2 Right-click anywhere within [Chromaticity Diagram View].
- 3 The Pop-up menu will open. Select the [Zoom] – [OFF].



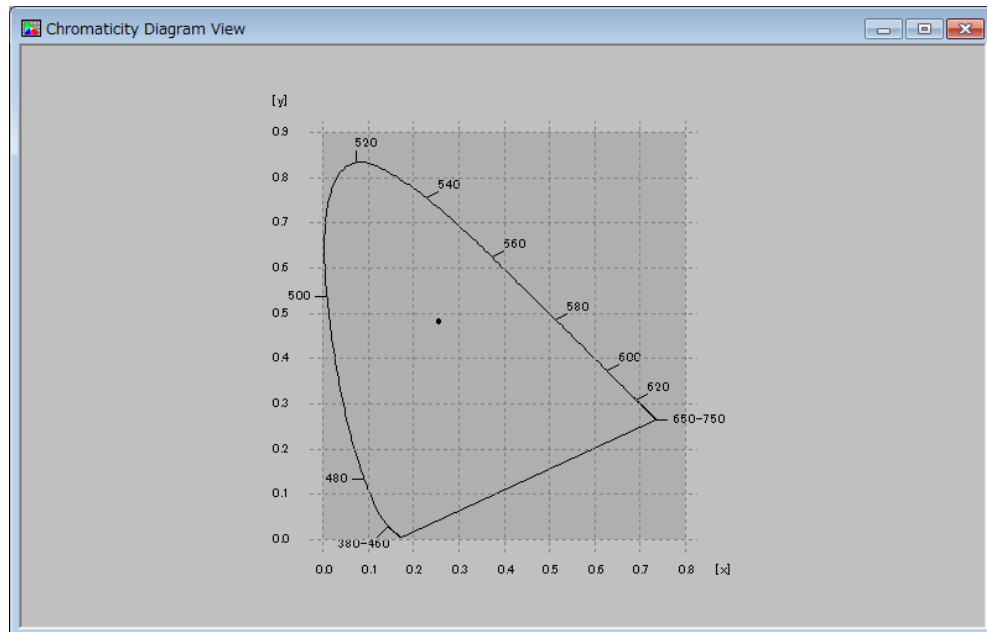
4 The view returns to the original display.



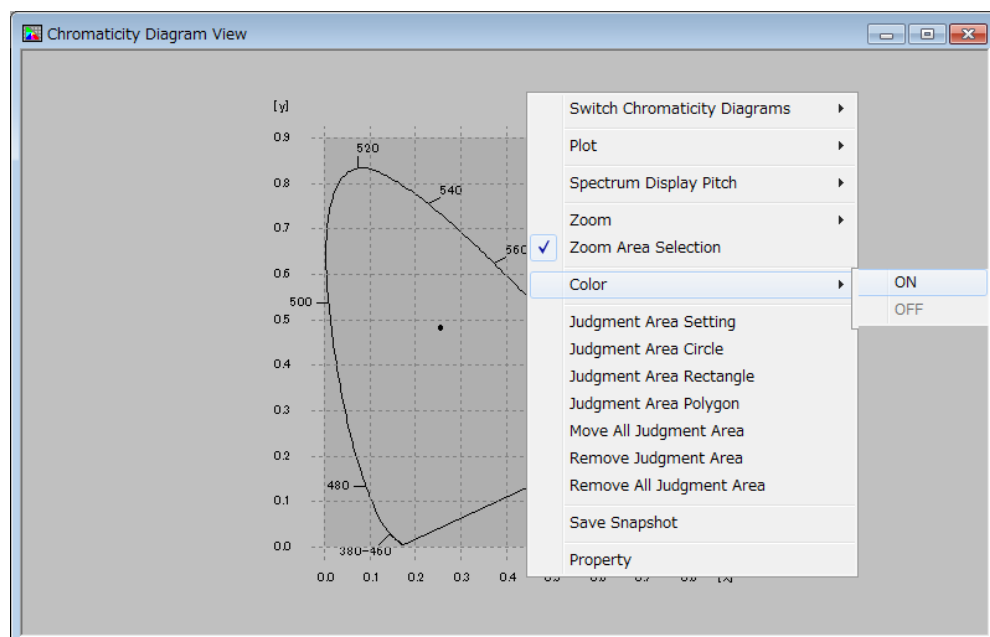
5.8.7 Turn ON Color Display Within Chromaticity Diagram

Switches the color of the [CIE1931 Chromaticity Diagram] and [CIE1976 Chromaticity Diagram] on the [Chromaticity Diagram View]. To turn ON the color display, go through the following steps.

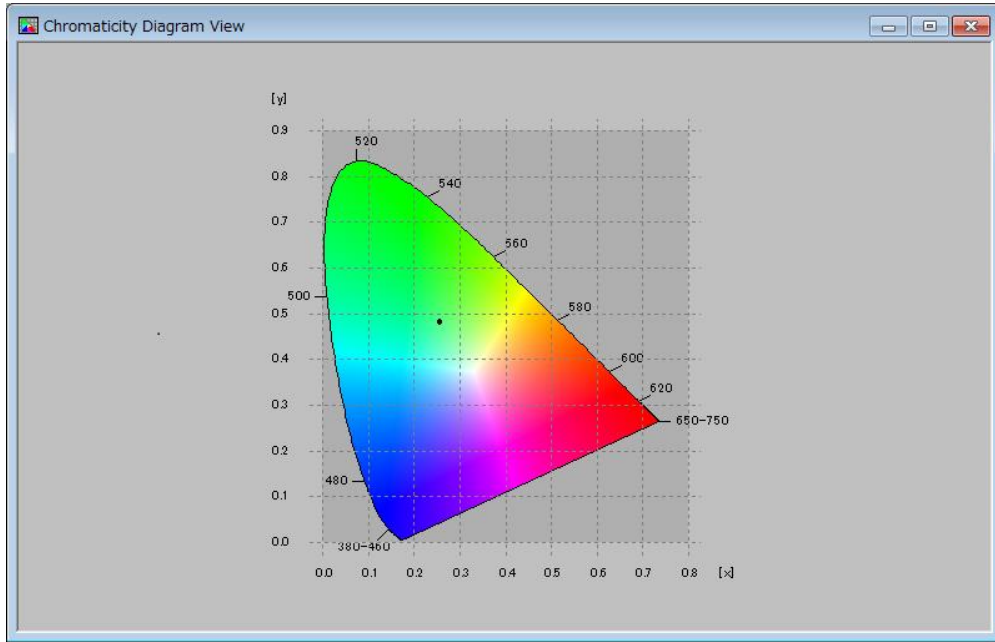
- 1 Open the [Chromaticity Diagram View].



- 2 Right-click anywhere within the [Chromaticity Diagram View].
- 3 The Pop-up menu will open. Select the [Color] – [ON].



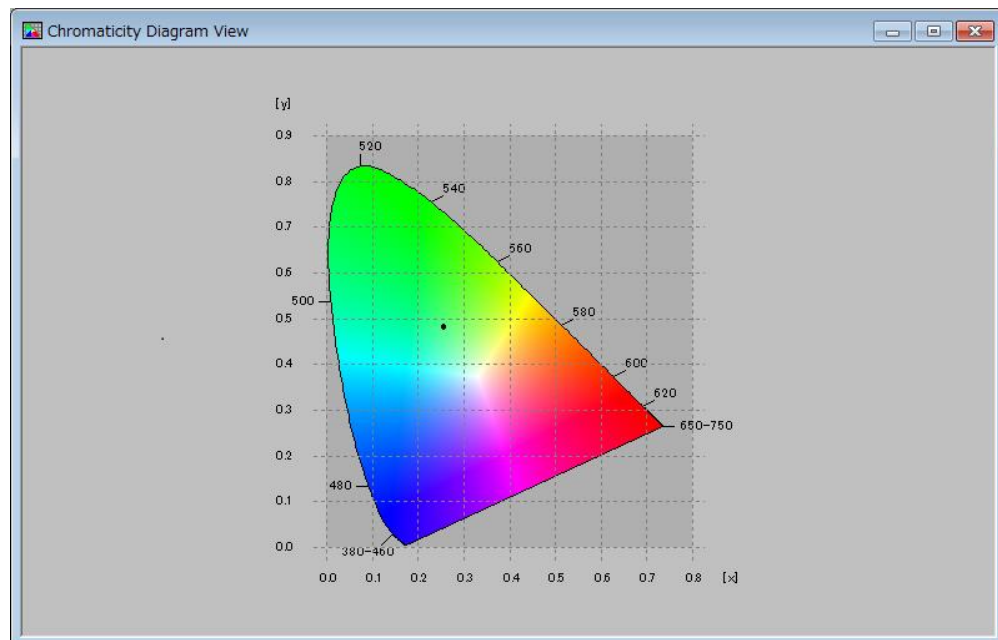
- 4 When [Color] – [ON] is selected, the Chromaticity diagram is colored.



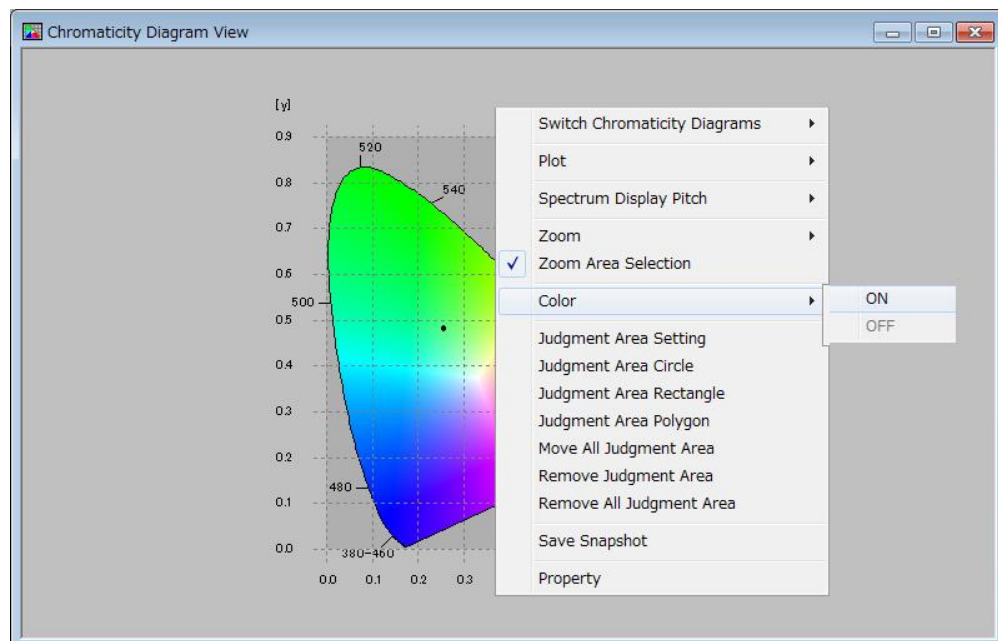
5.8.8 Turn OFF Color Display Within Chromaticity Diagram

Switches the color of the [CIE1931 Chromaticity Diagram] and [CIE1976 Chromaticity Diagram]. To turn OFF the color display, go through the following steps.

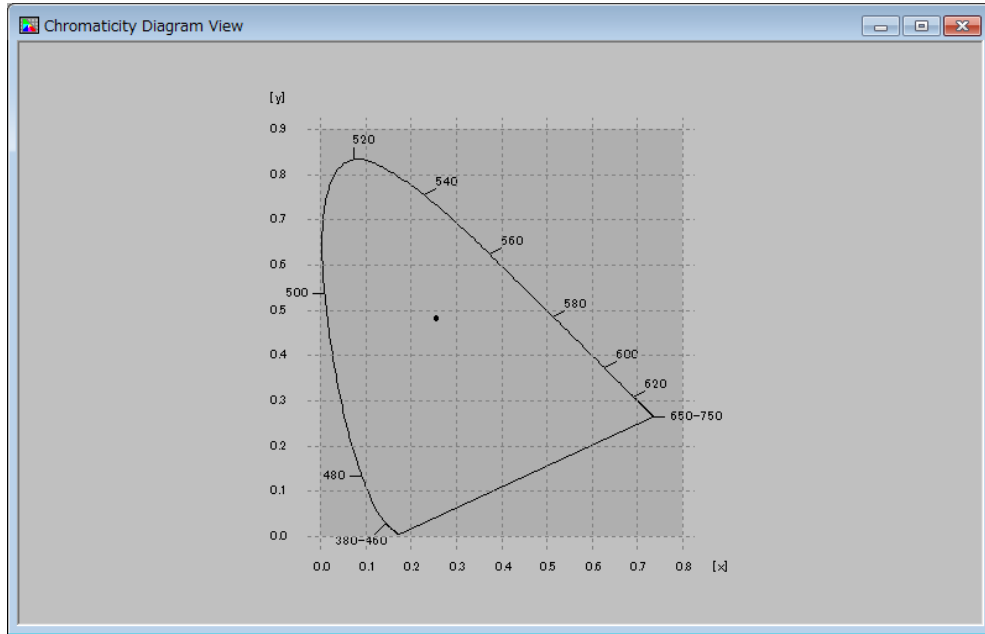
- 1 Open the [Chromaticity Diagram View].



- 2 Right-click anywhere within [Chromaticity Diagram View].
- 3 The Pop-up menu will open. Select the [Color] – [OFF].



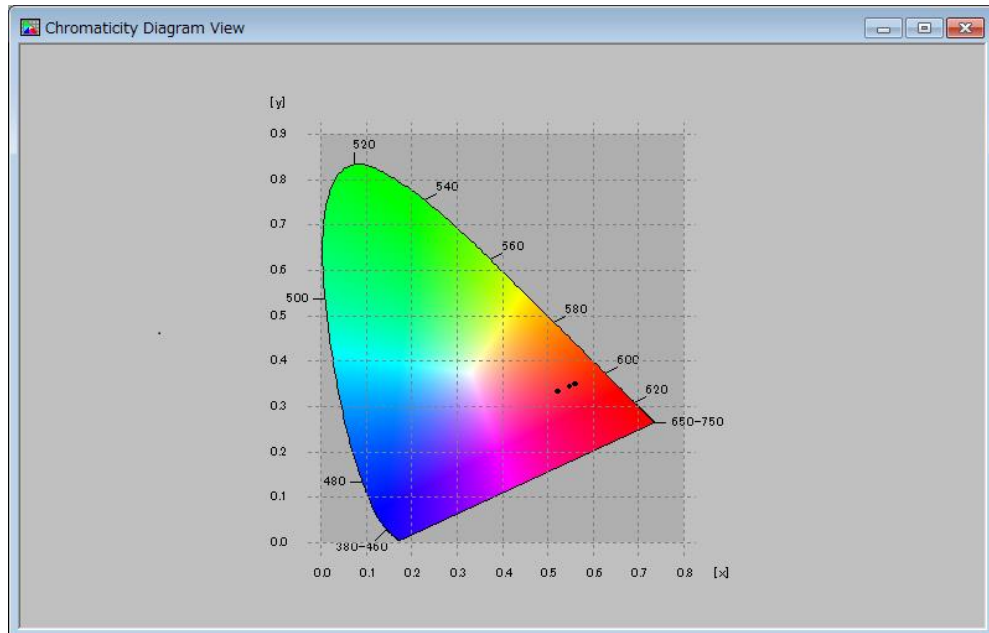
- 4 When [Color]–[OFF] is selected, the Chromaticity diagram is display with monotone.



5.8.9 Set Judgment Area(Dialog)

You can make chromaticity xy and /or $u'v'$ area to be applied for judgment result by setting coordinate values. To set judgment area, go through the following steps..

- 1 Open the [Chromaticity Diagram View]



- 2 Right Click on [Chromaticity Diagram View]. The pop up menu will open.
- 3 Select [Judgment Area] from the Pop-up menu. The [Chromaticity xy Judgment Area] dialog is open.

The figure shows a dialog box titled "Chromaticity xy Judgment area setting". It has two main sections:

- Judgment area setting file:** A section with a text box stating "File currently being displayed is applied." Below it is a table with columns "Date/Time", "File Name", and "Comment".

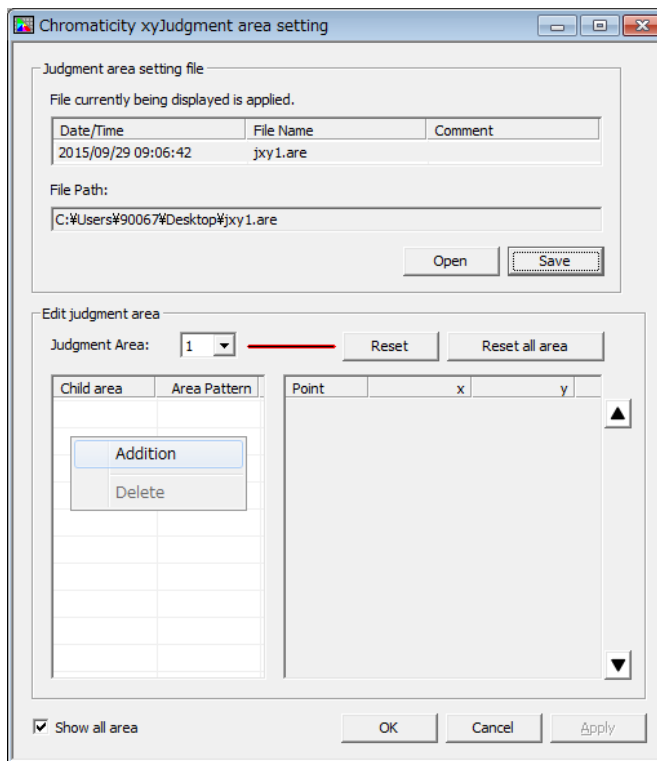
Date/Time	File Name	Comment
2015/09/29 09:06:42	jxy1.are	

Below the table is a "File Path:" label and a text box containing "C:\Users\90067\Desktop\jxy1.are". There are "Open" and "Save" buttons.
- Edit judgment area:** A section with a "Judgment Area:" dropdown menu set to "1". To its right are "Reset" and "Reset all area" buttons. Below this is a table with columns "Child area", "Area Pattern", and "Point". The "Point" column has sub-columns "x" and "y".

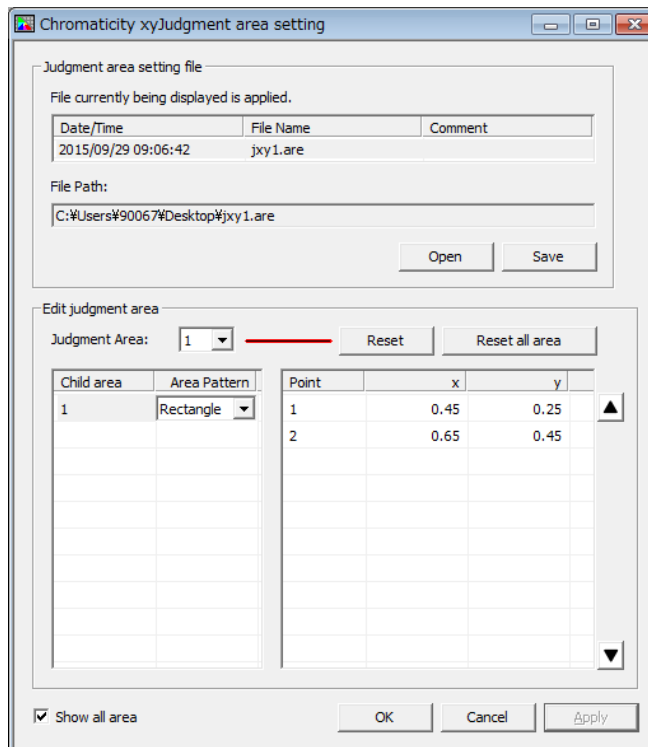
Child area	Area Pattern	Point	
		x	y

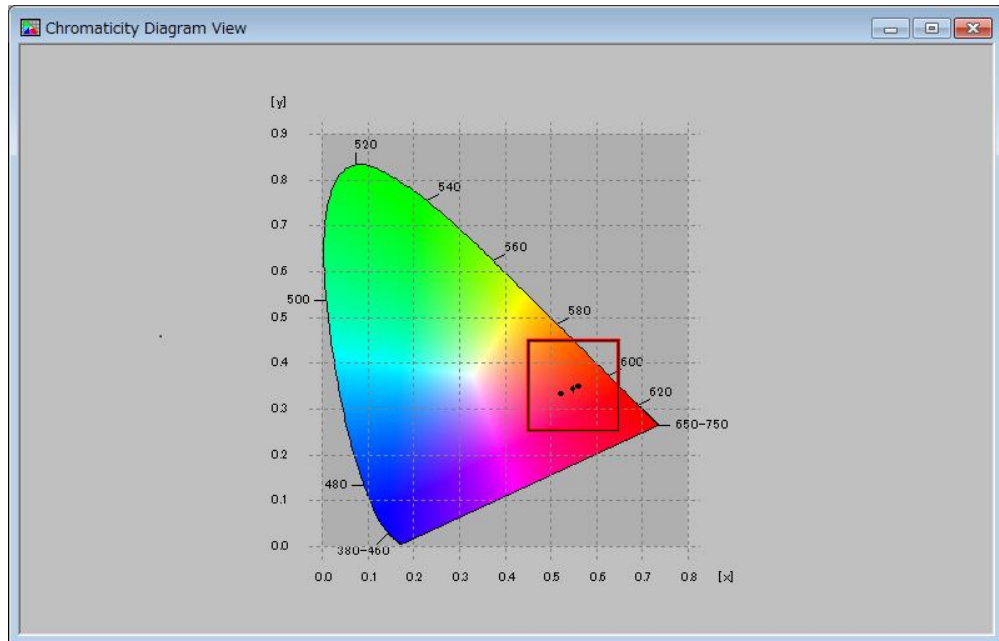
At the bottom of the dialog are a checked "Show all area" checkbox and "OK", "Cancel", and "Apply" buttons.

- 4 Right Click selecting [Judgment Area], Pop-up menu will open. Select [Add] to add judgment area to list on right.

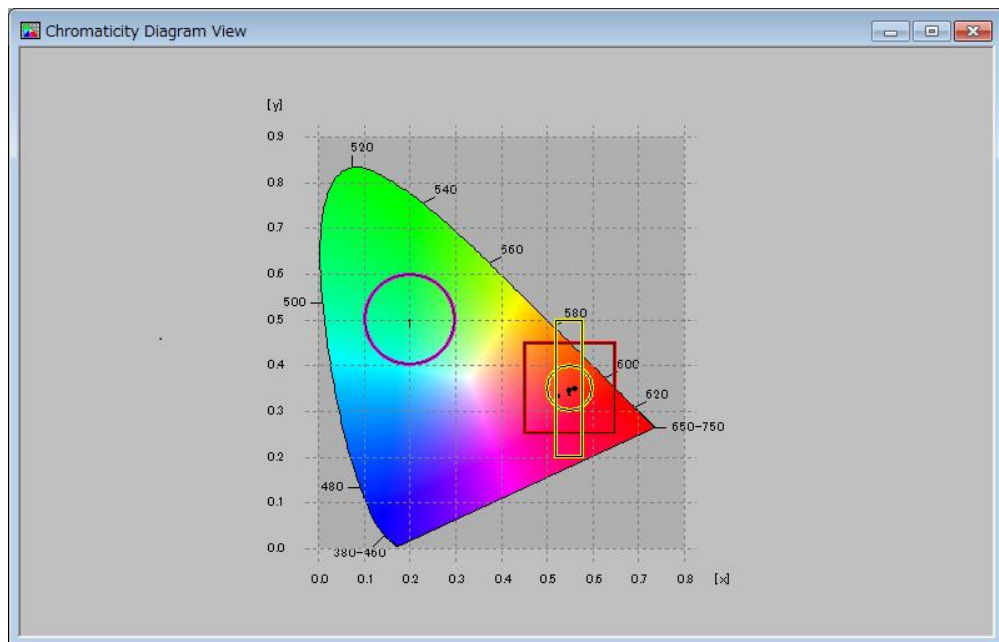


- 5 Select circle or rectangle for the shape, and input coordinate values by key. After that, click [Apply] or [OK].





By adding judgement area and/or child area cotinuouly, overlaid areas will be built

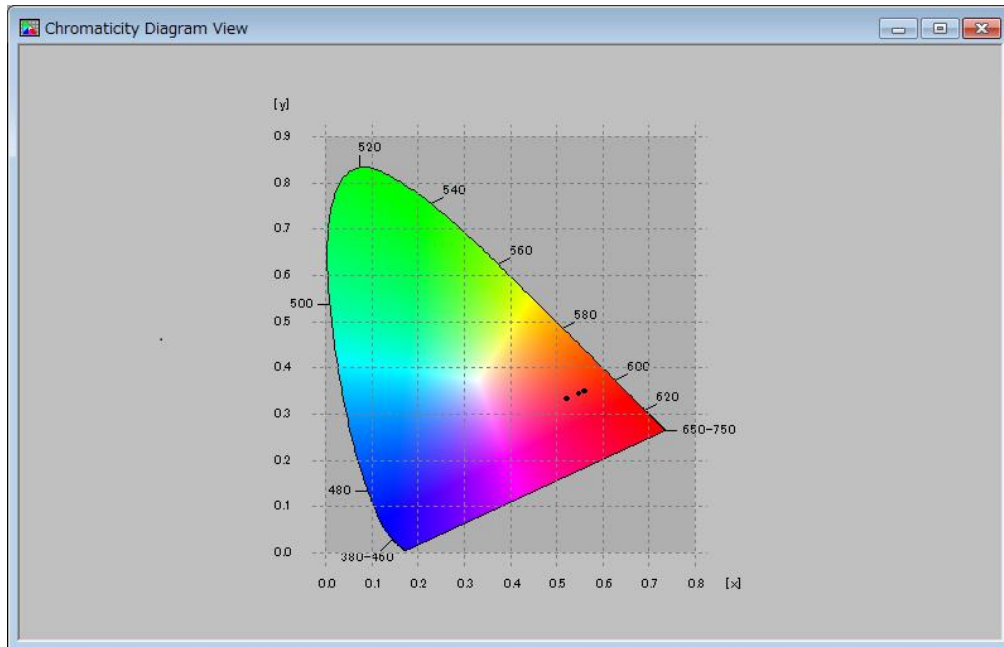


Showing judgment area:

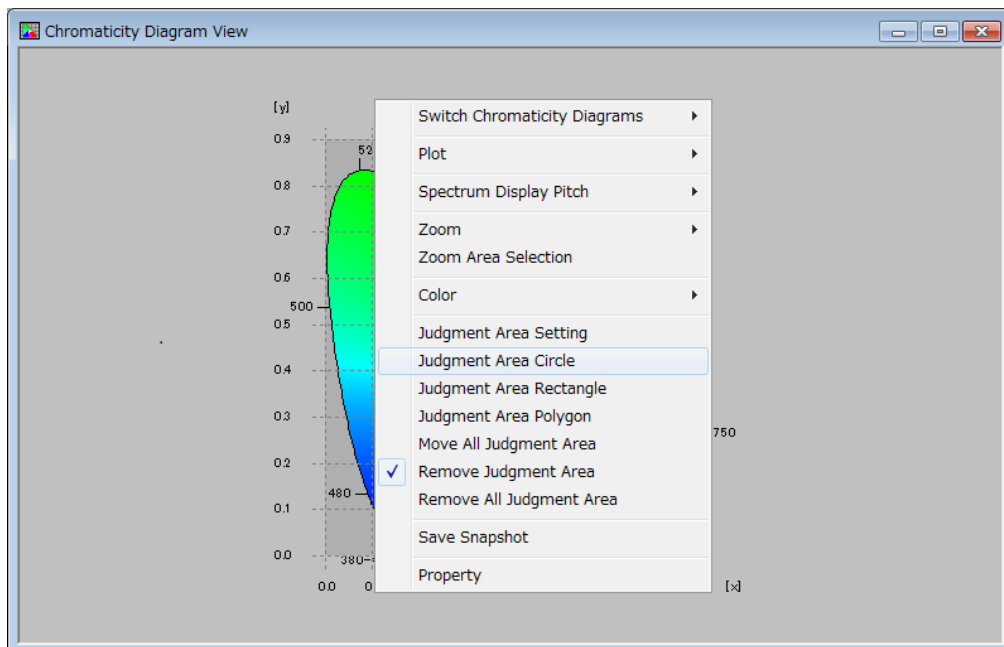
5.8.10 Set Judgment Area(View)

You can make chromaticity xy and /or $u'v'$ area to be applied for judgment result by mouse. To set judgment area, go through the following steps.

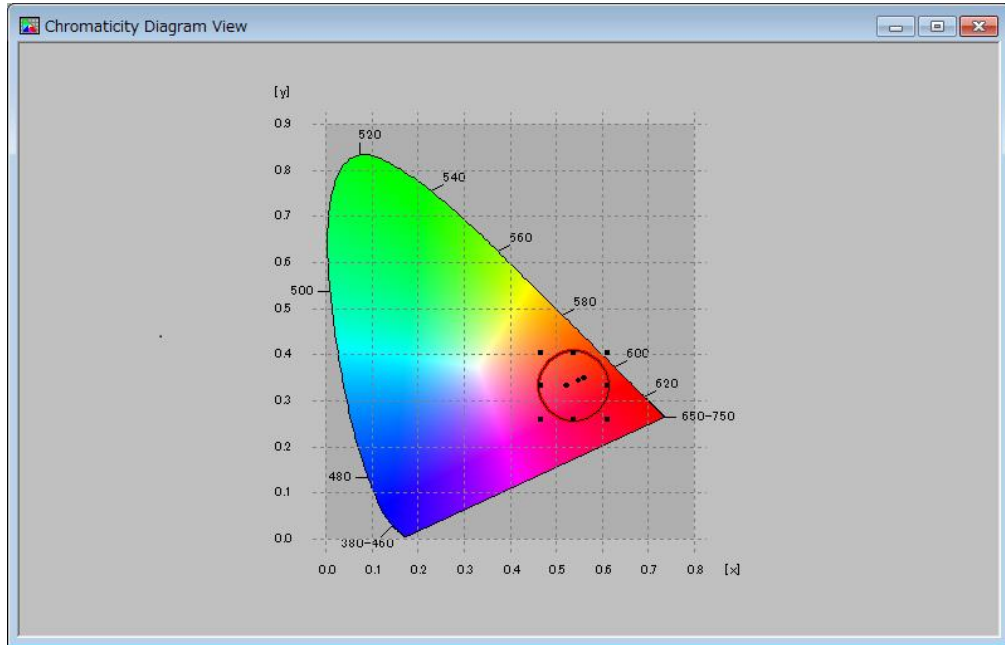
- 1 Open the [Chromaticity Diagram View]



- 2 Please right click and Pop-up menu will open. Select circle or rectangle or polygon to start editing.



3 Please draw shapes by dragging mouse and click mouse again to finish editing.



4 Information about about will be influenced on [Chromaticity Judgment Area] dialog.

The figure shows a 'Chromaticity xyJudgment area setting' dialog box. It has two main sections: 'Judgment area setting file' and 'Edit judgment area'.

Judgment area setting file

File currently being displayed is applied.

Date/Time	File Name	Comment
2015/09/29 09:06:42	jxy1.are	

File Path:
C:\Users\90067\Desktop\jxy1.are

Buttons: Open, Save

Edit judgment area

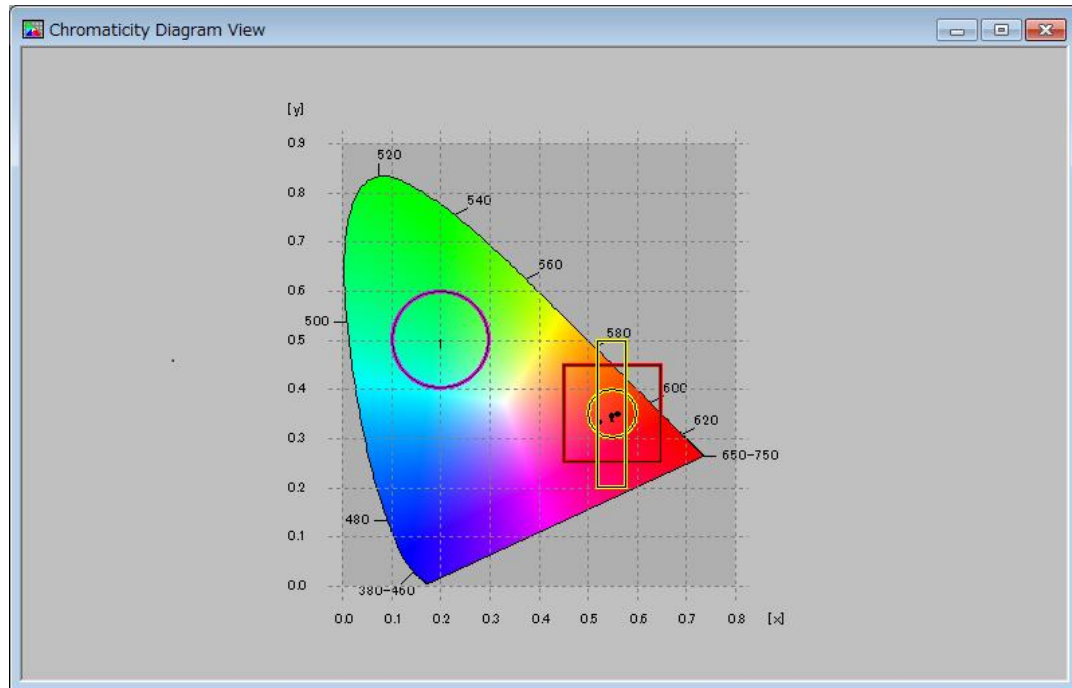
Judgment Area: 1 (dropdown) [Reset] [Reset all area]

Child area	Area Pattern	Point	x	y
1	Rectangle	1	0.45	0.25
		2	0.65	0.45

Show all area

Buttons: OK, Cancel, Apply

By drawing area and/or child area cotinuously, overlaid areas will be built.

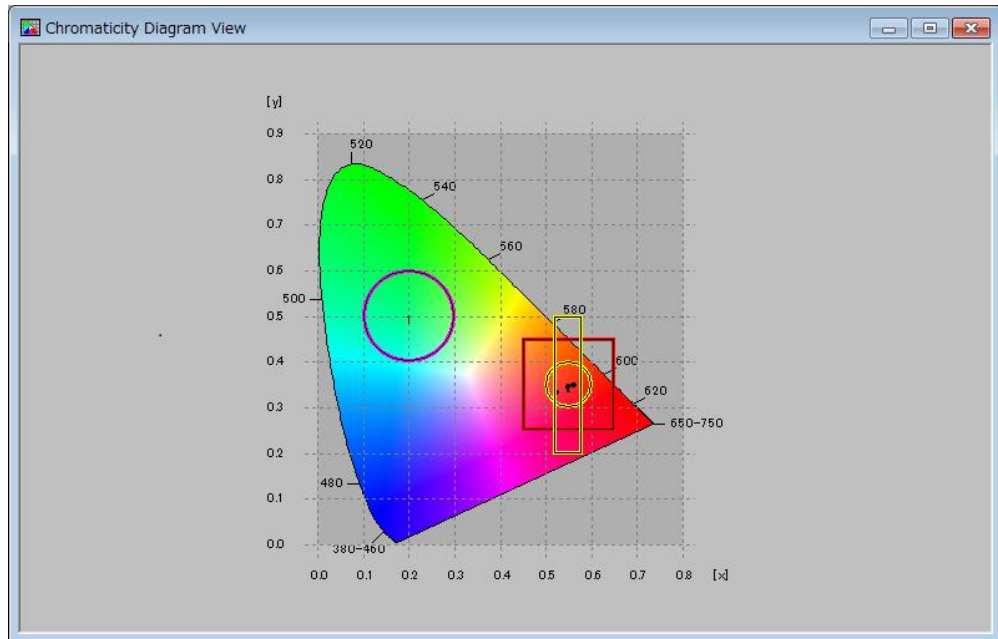


5.8.11 Remove Judgment Area(Dialog)

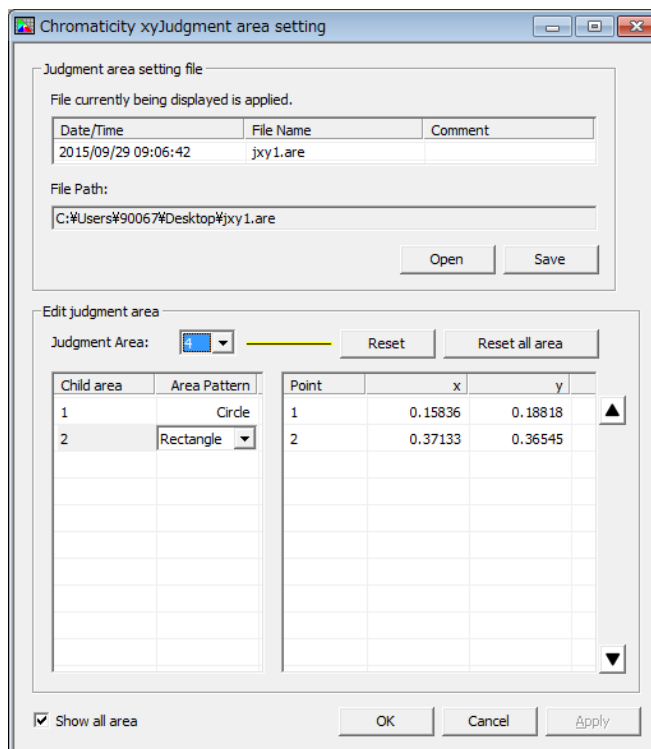
You can remove chromaticity xy and/or $u'v'$ judgment area.

To remove judgment area, go through the following steps.

- 1 Open [Chromaticity Diagram View]



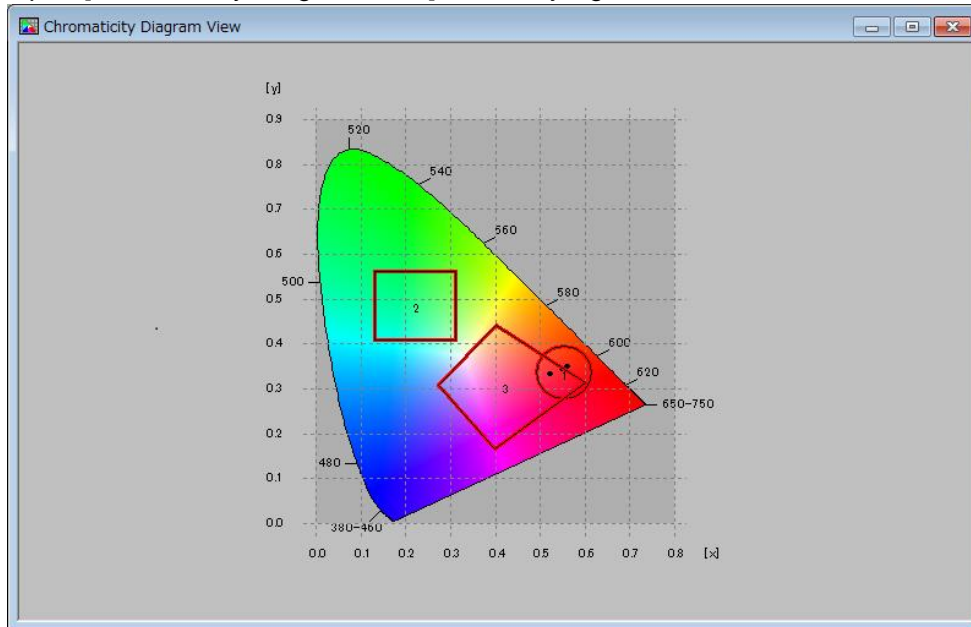
- 2 Please right click and Pop-up menu will open.
- 3 Please select [Judgment Area Setting] from the pop-up menu. [Chromaticity Judgment Area] dialog will open.



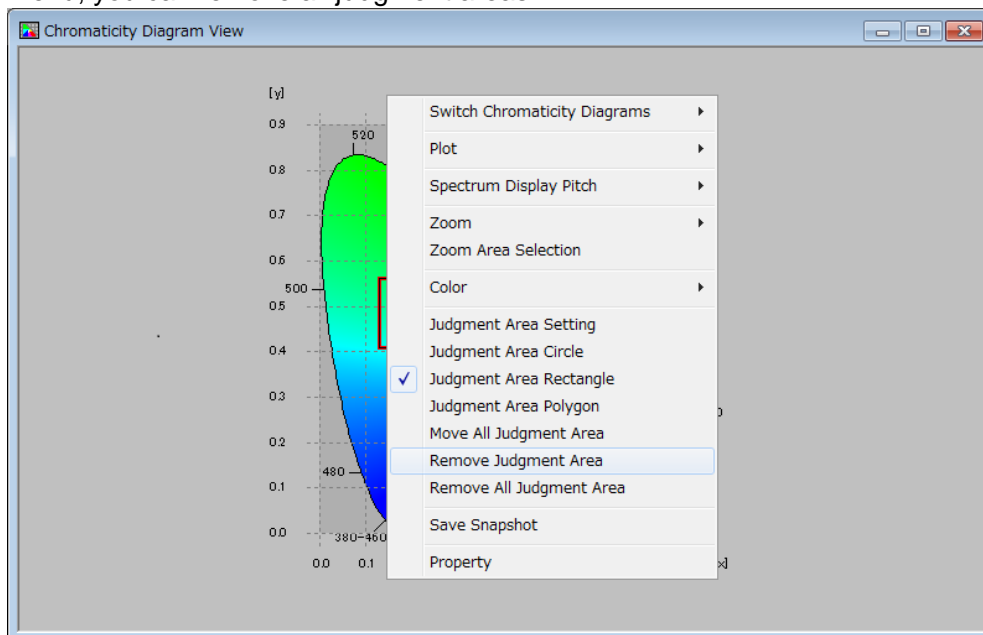
5.8.12 Remove Judgment Area(View)

You can remove chromaticity xy and/or $u'v'$ judgment area.
To remove judgment area, go through the following steps.

- 1 Open [Chromaticity Diagram View] that has judgment area.



- 2 Please right click on [Chromaticity Diagram View]. Pop-up menu will open
- 3 By selecting [Remove Judgment Area] and click shape in the view. You can remove judgment area you clicked. By selecting [Remove All Judgment Area] from pop up menu, you can remove all judgment areas.

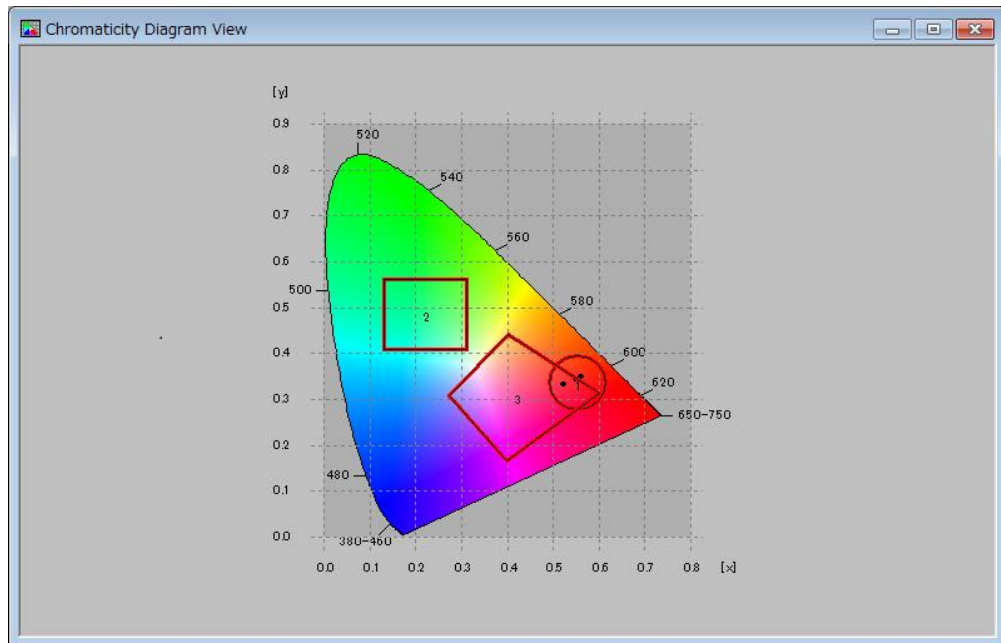


5.8.13 Move Judgment Area

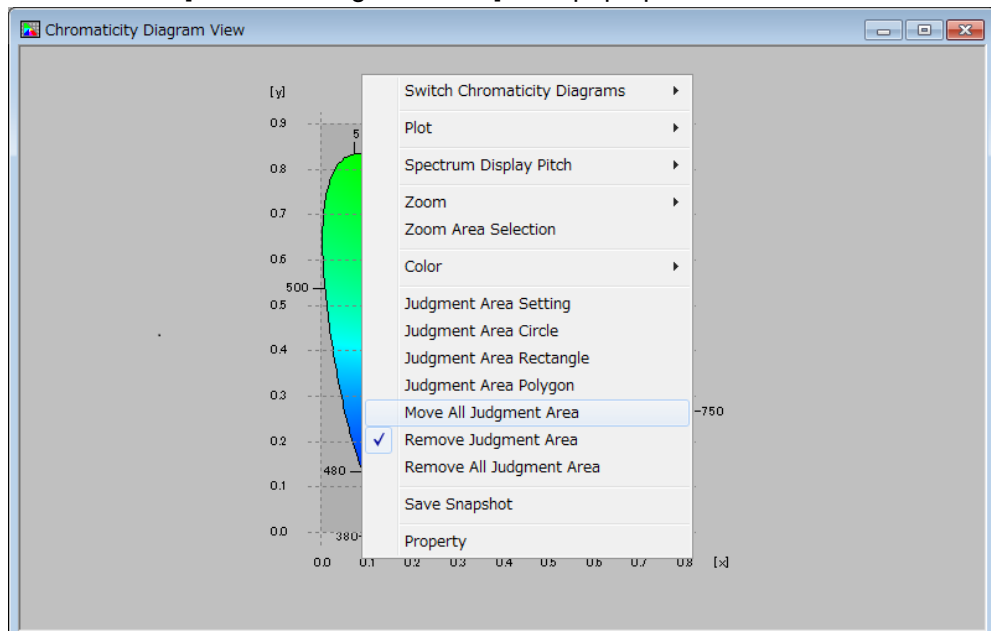
You can move chromaticity xy and/or $u'v'$ judgment area.

To move judgment area, go through the following steps.

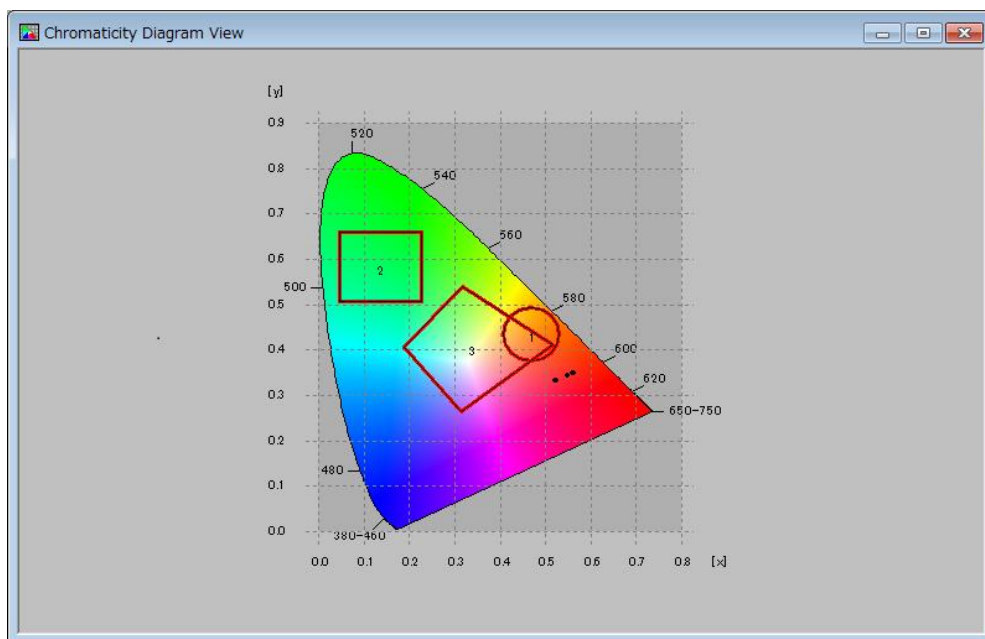
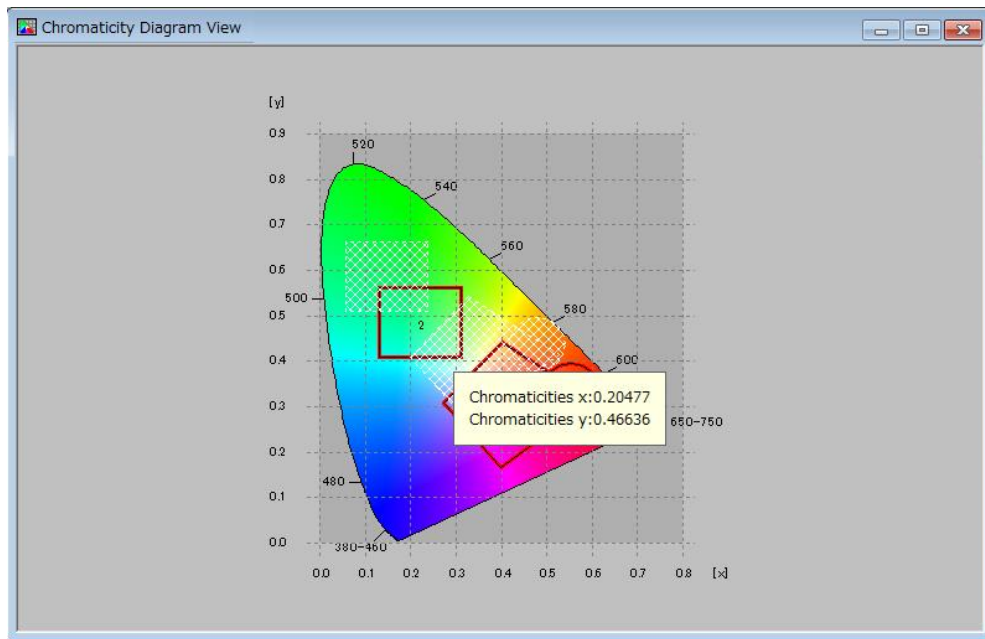
- 1 Open [Chromaticity Diagram View] that has judgment area.



- 2 Please right click on [Chromaticity Diagram View]. Pop-up menu will open
- 3 Please Select [Move All Judgment Area] from pop up menu.



- 4 Judgment area will turn active and movable.
By clicking destination in the view, you can finish moving.

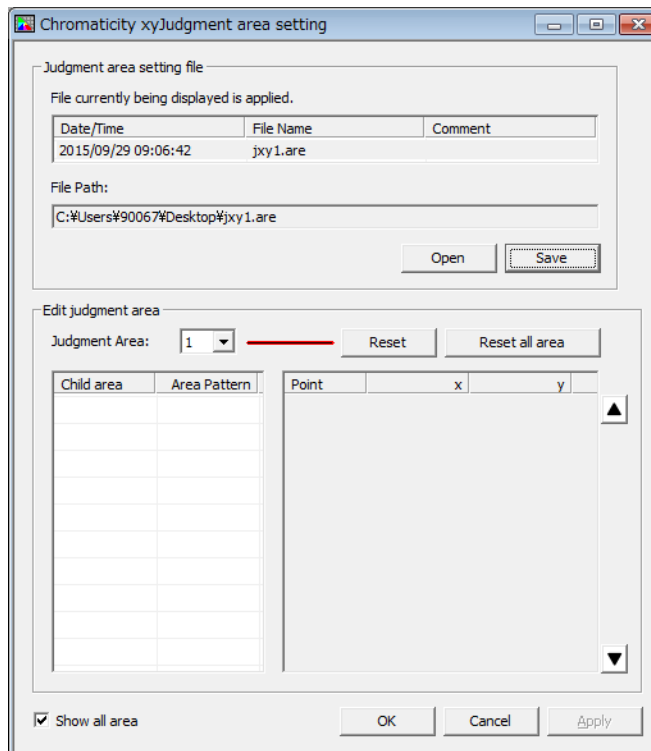


5.8.14 Select Setting File for Judgment

You can select and load setting file for chromaticity xy and/or u'v' judgment.

To select file for judgment area, go through the following steps.

- 1 Please show [Chromaticity Diagram View Property].
- 2 By clicking [Open] button, dialog will open. Please select setting file for judgment. Settings in selected file will be applied.



5.8.15 Save Setting File for Judgment

You can save setting file for chromaticity xy and/or u'v' judgment.

To save file for judgment area, go through the following steps.

- 1 Please show [Chromaticity Diagram View Property].
- 2 Current file is shown under the text of " File currently being displayed is applied."
Please edit [File Name] and [Comment] if necessary and click [Save] button.
By clicking [Save], settings for judgment will be saved to the file which is shown in [File Path:].

Chromaticity xyJudgment area setting

Judgment area setting file

File currently being displayed is applied.

Date/Time	File Name	Comment
2015/09/29 09:06:42	jxy1.are	

File Path:
C:\Users\90067\Desktop\jxy1.are

Open Save

Edit judgment area

Judgment Area: 1 Reset Reset all area

Child area	Area Pattern	Point	x	y

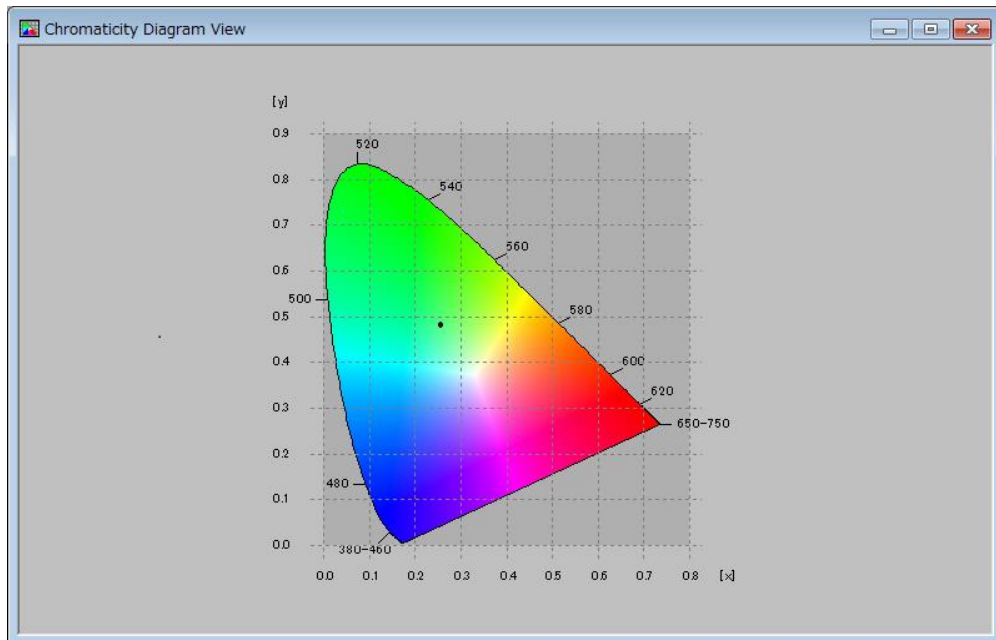
Show all area

OK Cancel Apply

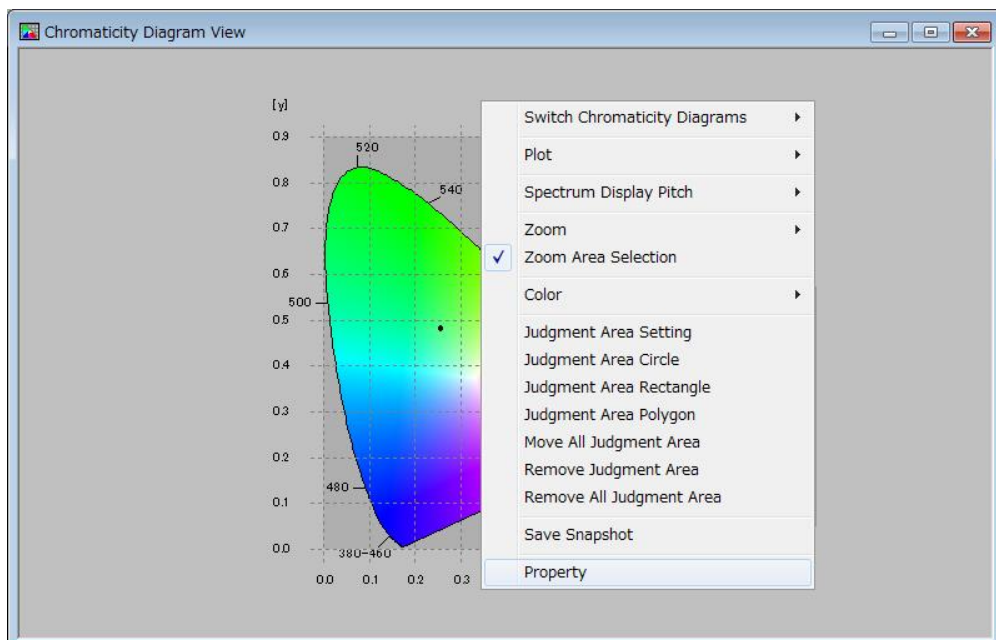
5.8.16 Display Chromaticity Diagram View Property

Opens the [Property] of Chromaticity diagram to set maximum value, minimum value, and display interval of Chromaticity Diagram Coordinates. Use this function to zoom in the arbitrary position of the chromaticity diagram or display the specific area. To open the [Chromaticity Diagram View Property], go through the following steps.

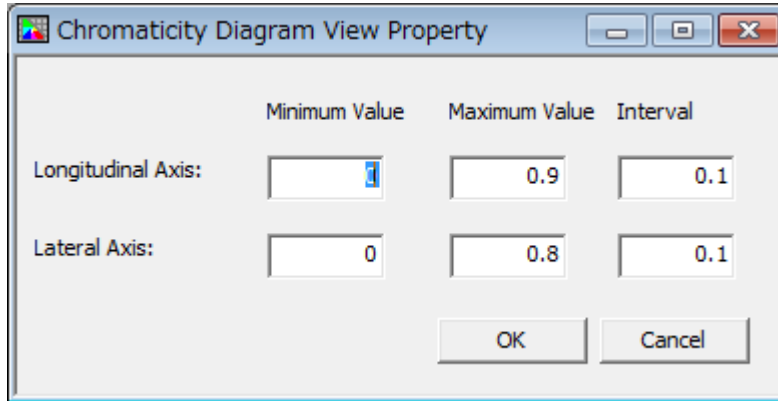
- 1 Open the [Chromaticity Diagram View].



- 2 Right-click anywhere within [Chromaticity Diagram View].
- 3 The Pop-up menu is displayed. Select [Property].



- 4 The [Chromaticity Diagram View Property] is displayed.



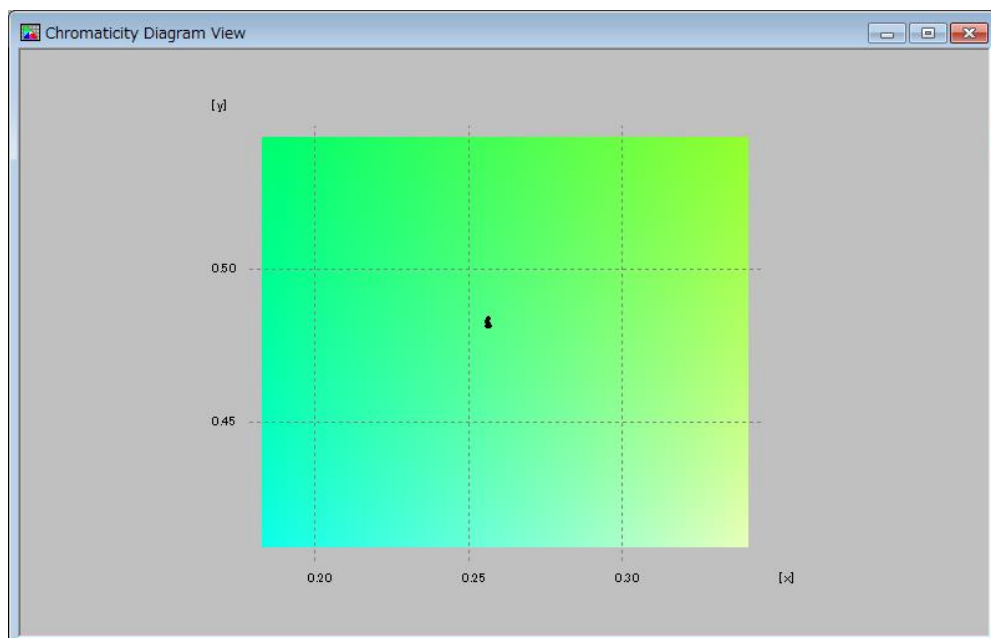
5.8.17 Set Maximum Value, Minimum Value, Display Interval of Chromaticity Diagram Coordinates

Sets maximum value, minimum value, and display interval of Chromaticity Diagram xy Coordinates. Use this function to zoom in the arbitrary position of the chromaticity diagram or display the specific area.

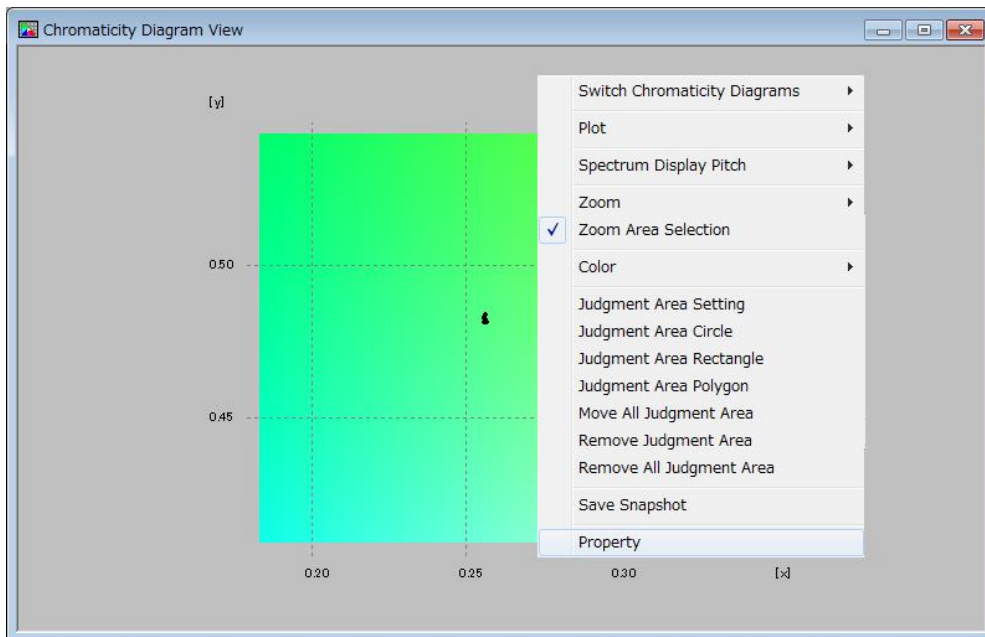
Memo

- If the Zoom function is enabled, the zoomed-in area range is displayed as the default.
- The procedure is based on the case when using the Zoom function on the Chromaticity Diagram View, but this procedure is the same when the Zoom function is not used.

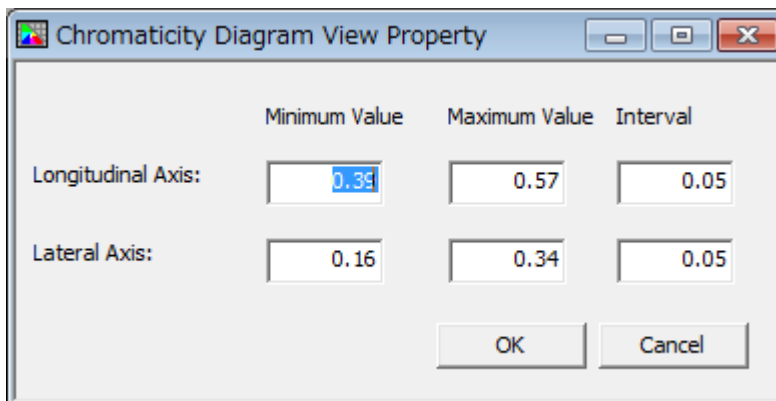
- 1 Open the [Chromaticity Diagram View].



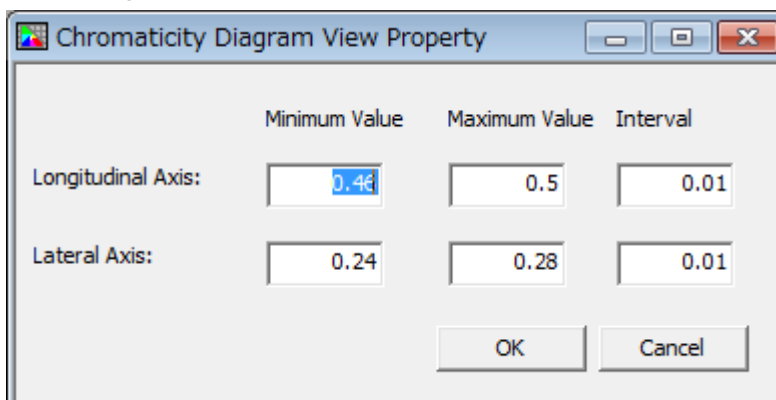
- 2 Right-click anywhere within [Chromaticity Diagram View].
- 3 The Pop-up menu is displayed. Select [Property].



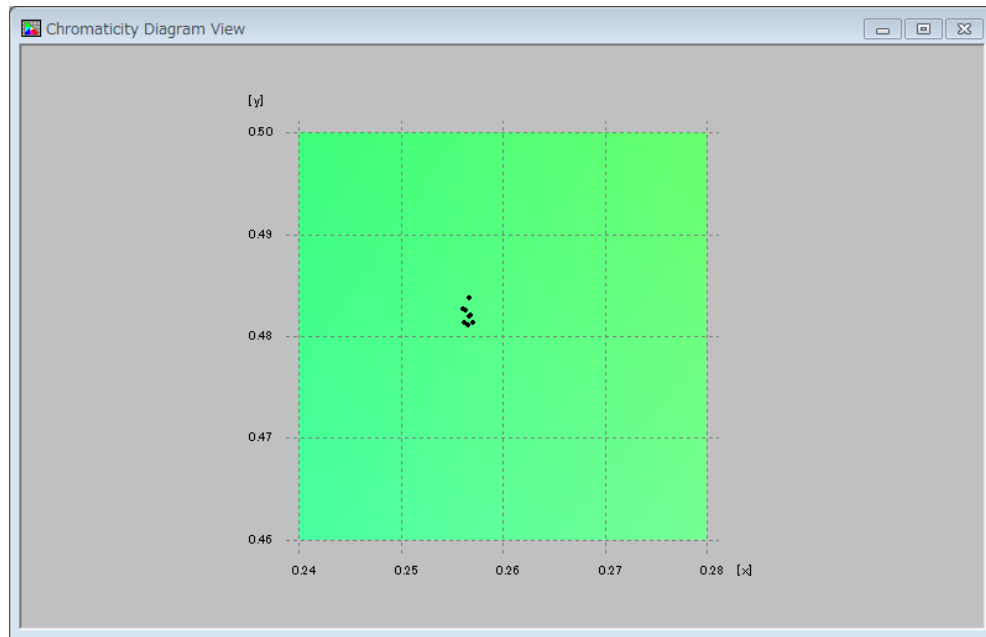
- 4 The [Chromaticity Diagram View Property] is displayed. For the minimum value, maximum value, and interval of the longitudinal axis and lateral axis, the data for the zoomed-in range are used as the initial values.



- 5 Change the minimum value or maximum value to zoom in or out the current view. To activate the change, press the OK button.
 Entry range of maximum value and minimum value for longitudinal axis: 0 to 0.9
 Entry range of maximum value and minimum value for lateral axis: 0 to 0.8



- 6 The entered maximum value and minimum value become enabled, and the Chromaticity diagram is redrawn based on the set maximum and minimum values.



- 7 To change the interval of the axis auxiliary line, enter the interval. To activate the change, press the OK button.

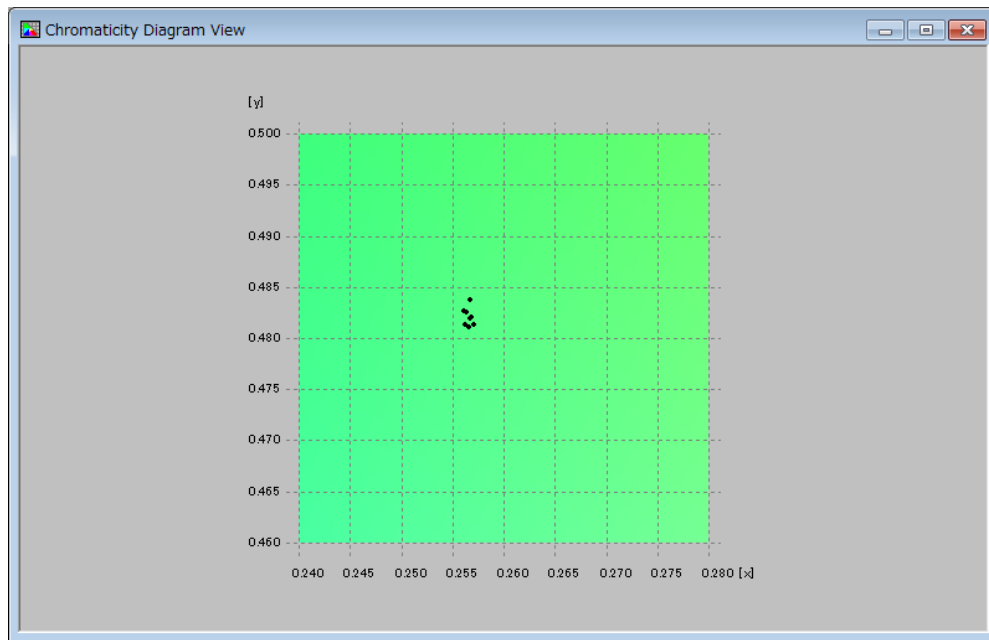
Entry range of maximum value and minimum value for longitudinal axis: 0.0001 to 0.9

Entry range of maximum value and minimum value for lateral axis: 0.0001 to 0.8

The figure shows a dialog box titled "Chromaticity Diagram View Property". It contains a table with three columns: "Minimum Value", "Maximum Value", and "Interval". There are two rows of input fields: "Longitudinal Axis" and "Lateral Axis". The "Longitudinal Axis" row has values 0.46, 0.5, and 0.005. The "Lateral Axis" row has values 0.24, 0.28, and 0.005. At the bottom of the dialog are "OK" and "Cancel" buttons.

	Minimum Value	Maximum Value	Interval
Longitudinal Axis:	0.46	0.5	0.005
Lateral Axis:	0.24	0.28	0.005

- 8 The changed interval becomes enabled, and the auxiliary line is redrawn at the set intervals.



 Memo

- Longitudinal axis
For the CIE1931 Chromaticity Diagram, enter chromaticity y value.
For the CIE1976 Chromaticity Diagram, enter chromaticity v' value.
- Lateral axis
For the CIE1931 Chromaticity Diagram, enter chromaticity x value.
For the CIE1976 Chromaticity Diagram, enter chromaticity u' value.

5.9 Histogram View Operation

The Histogram function displays the statistical graphics which indicates the frequency in the longitudinal axis and the Tristimulus value in the lateral axis. The Histogram View function enables you to visually understand the Tristimulus value distribution.

The following operations are performed according to the same steps. Refer to the chapter shown below.

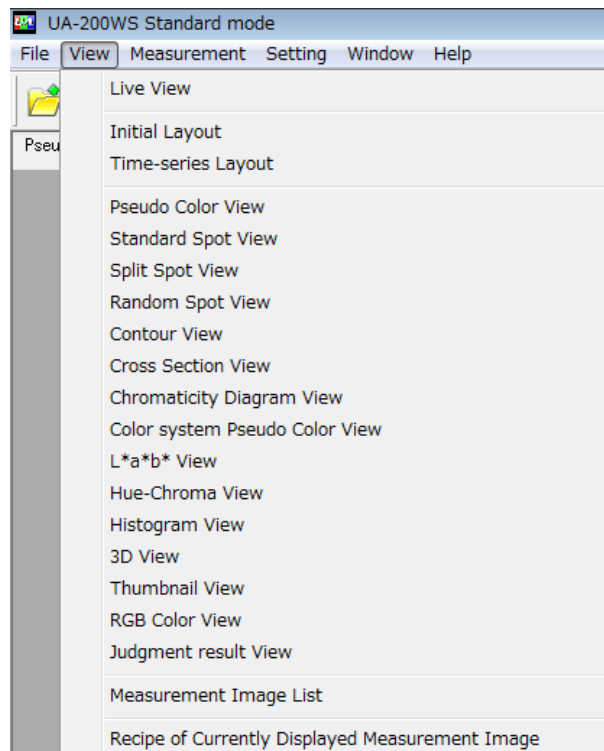
Save Snapshot

 “5.2.11 Save Snapshot”

5.9.1 Open Histogram View

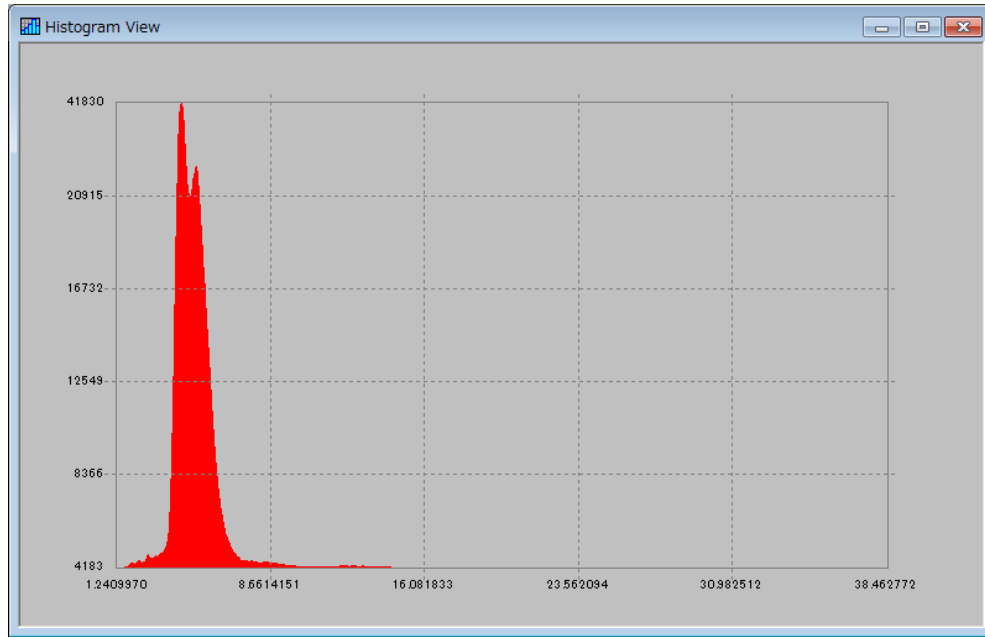
To open the [Chromaticity Diagram View], go through the following steps.

- 1 From the Menu bar, select [View] – [Histogram View] sequentially.



Or, click the  icon on the Menu bar.

2 The [Histogram View] is opened.



5.10 3D View Operation

The 3D function converts two-dimensional Tristimulus values into the three-dimensional values to be displayed.

The 3D View function enables you to confirm the Tristimulus value distribution three-dimensionally.

The following operations are performed according to the same steps. Refer to the chapter shown below.

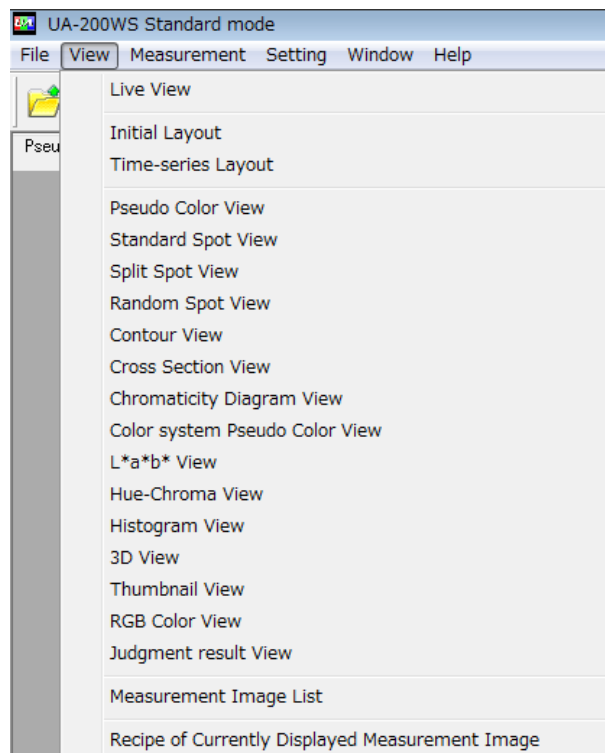
Save Snapshot


 “5.2.11 Save Snapshot”

5.10.1 Open 3D View

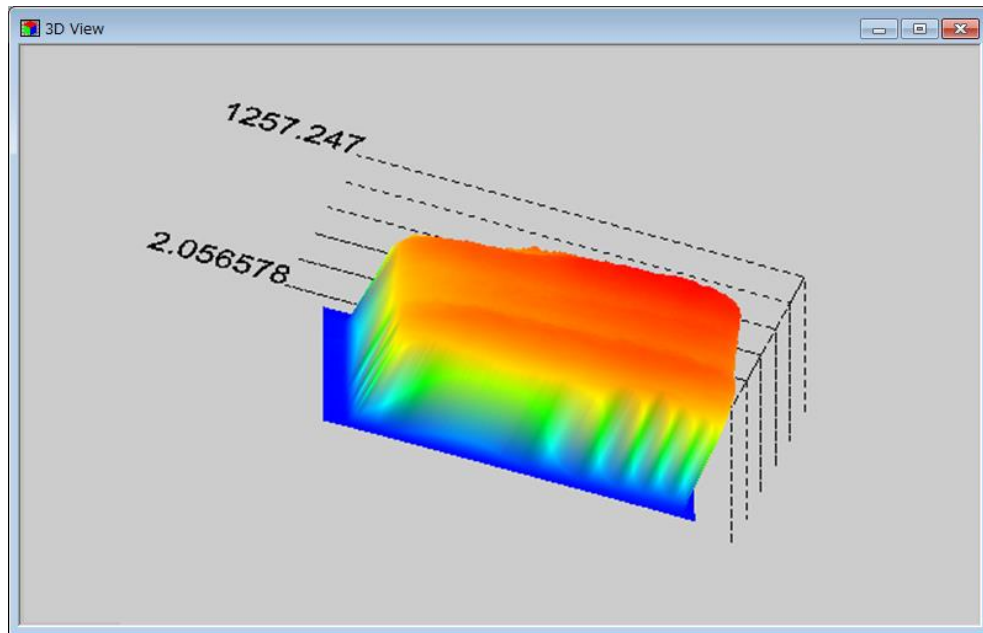
To open the [3D View], go through the following steps.

- 1 From the Menu bar, select [View] – [3D View] sequentially.



Or, click the  icon on the Menu bar.

- 2 The [3D View] is opened. Dragging on the view enables you to freely handle the 3D view at any angle, and operating the mouse wheel allows you to zoom in or out the view.



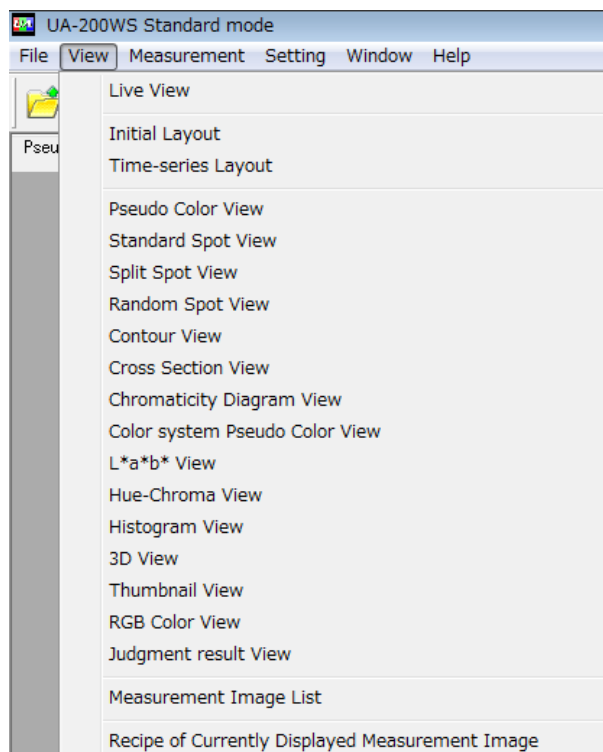
5.11 Thumbnail View Operation

The Thumbnail function displays all the measurement images in thumbnail form together with the number and measurement date & time. The Thumbnail View function facilitates the comparison of several measurement images. Selecting the downsized measurement image on the view enables you to switch the displayed measurement image. In the Thumbnail View, the images are displayed sequentially arranged from old to new according to the measurement date.

5.11.1 Open Thumbnail View

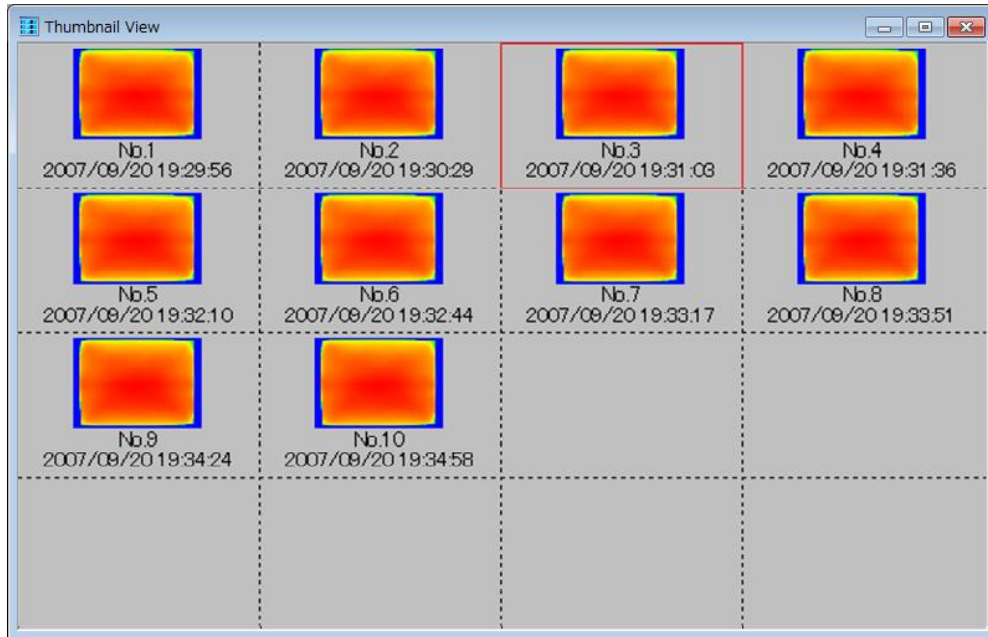
To open the [Thumbnail View], go through the following steps.

- 1 From the Menu bar, select [View] – [Thumbnail View] sequentially.



Or, click the  icon on the Menu bar.

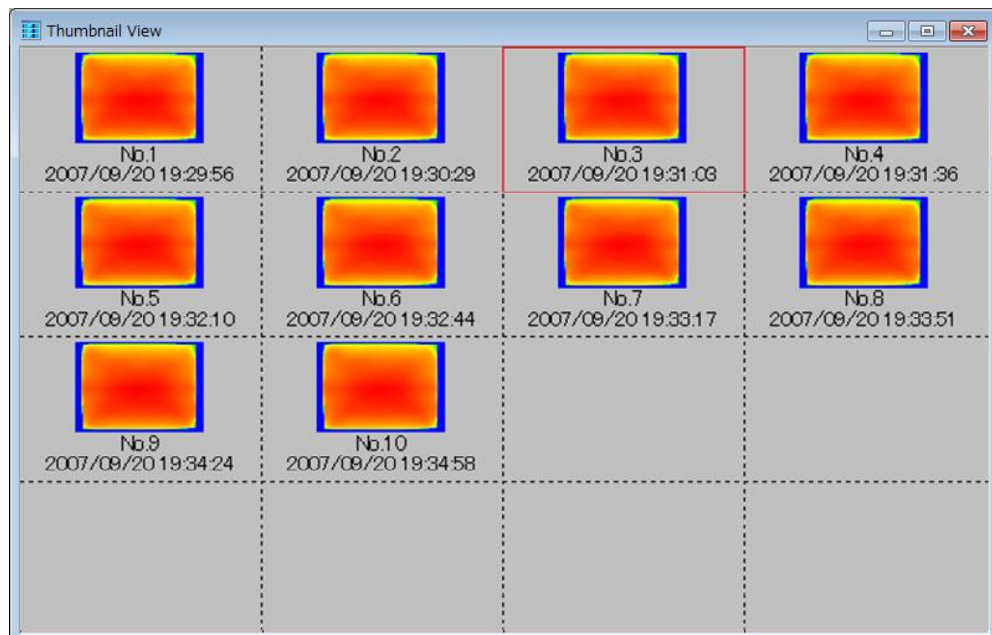
2 The [Thumbnail View] is opened.



5.11.2 Open Measurement Image from [Thumbnail View]

Opens the measurement image from [Thumbnail View]. To open a measurement image from the [Thumbnail View], go through the following steps.

- 1 Open the [Thumbnail View].
- 2 The red-framed image in the [Thumbnail View] represents the currently displayed measurement image. Left-click the mouse to select the measurement image. It is also possible for you to move the cursor using the keyboard arrow keys and set the image to be selected using the space key. Turning the mouse wheel enables you to switch the pages in a block of 4 x 4 (16 in total) measurement images. Moving the cursor using the keyboard arrow keys also enables you to switch the pages.

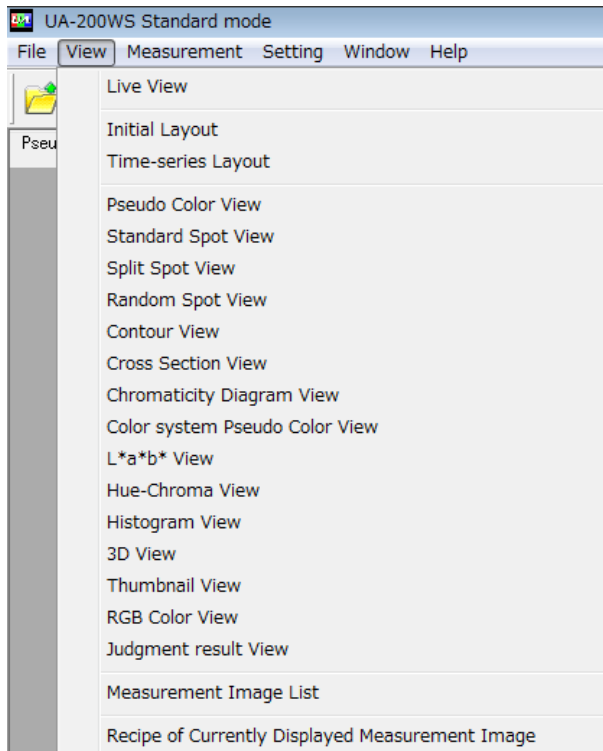



5.12 RGB Color View Operation

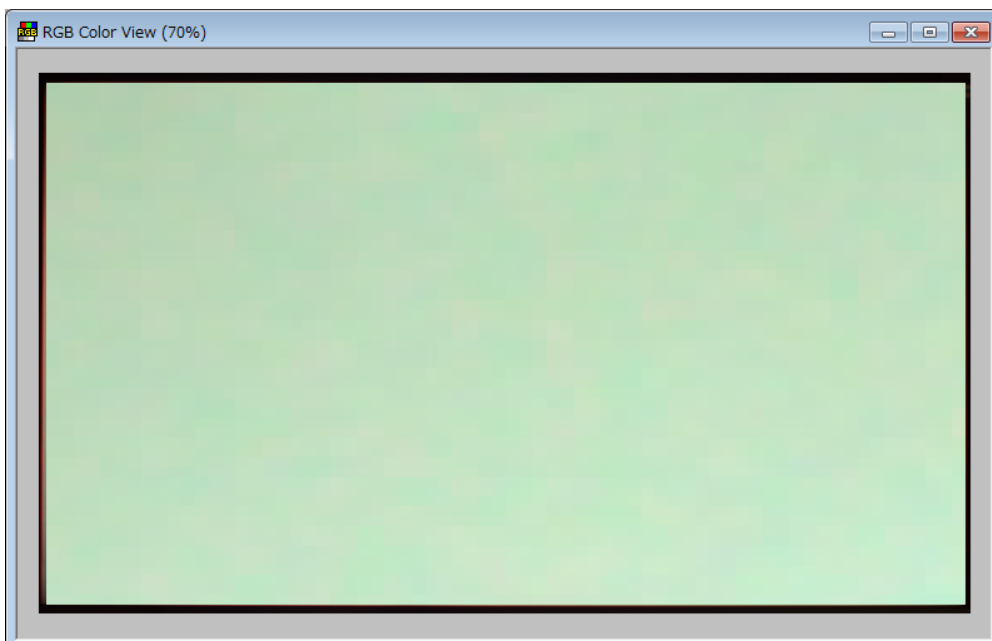
5.12.1 Open RGB Color View

Displays [RGB Color View]. It displays the measurement data in RGB color that is close to color of measurement object itself. To open [RGB View], go through the following steps.

- 1 From the menu bar, select the [View]-[RGB Color View] sequentially.



- 2 or, click the  icon on the menu bar [RGB Color View] is opened.

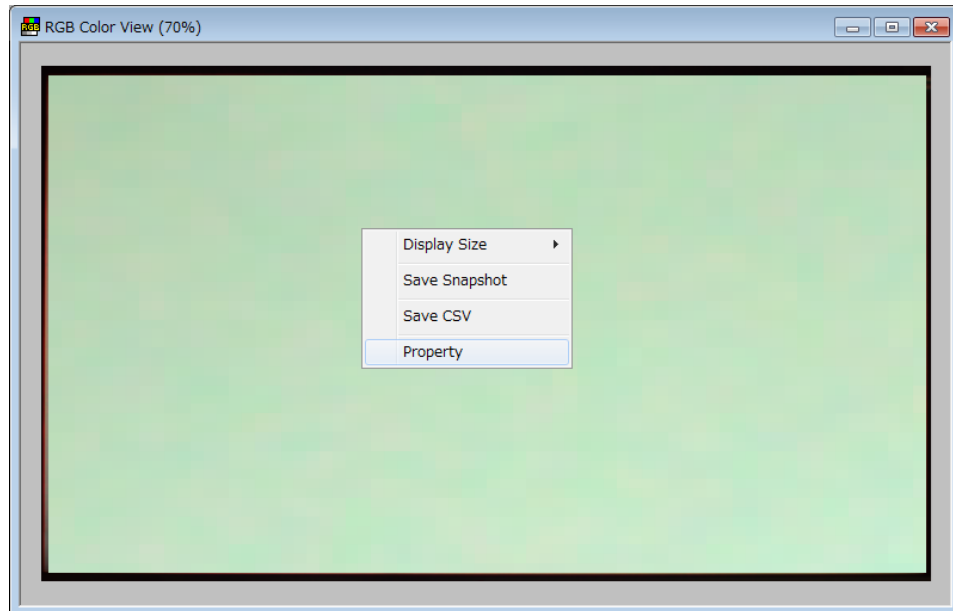


5.12.2 Open RGB Color Property

Adjusts color balance of RGB color view.

To open [RGB Color View Property], go through the following steps.

- 1 Open [RGB Color View]
- 2 Please right click, pop-up menu will open. Select [Property] from the pop-up menu.



- 3 [RGB Color View Property] will open.

- Set color tones.

- Set the gradation according to the specified maximum luminance.

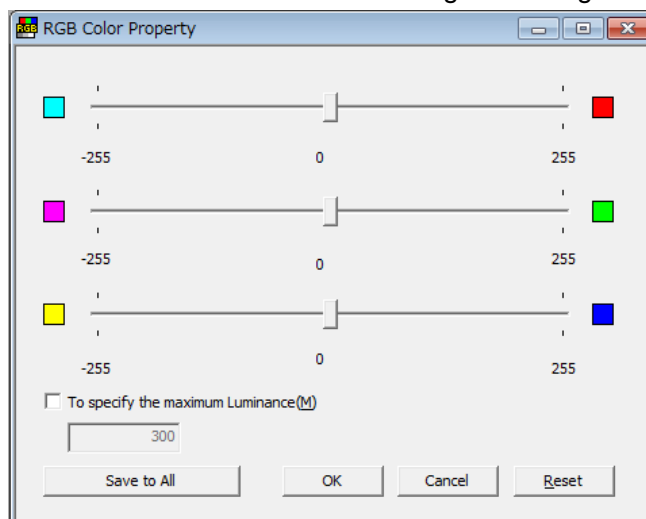
When you want to terminate the setting operation, click one of the following buttons:

[OK] Closes this dialog after applying changes.

[Cancel] Closes this dialog after ingoring changes.

[Reset] Resets changes without closing this dialog.

[Save to All] The setting values apply to all the loaded measurement images without closing this dialog.



5.12.3 Set Color Tones

Range of values is from “-255” to “255”.

Sliding it in the direction of the color at the end of the slider bar makes the color tones deep.

5.12.4 Specify the RGB Tone with Maximum Luminance

Normalize with the maximum luminance specified for the measurement images and determine the RGB gradation.

When grasping the maximum luminance value of the measuring object, RGB is displayed with a color tones that is closer to the actual color.

Go through the following steps.

- 1 Select the check box for [To specify the maximum Luminance].
- 2 Enter the maximum luminance value.

Memo

- If the maximum luminance value entered becomes red, it can not display RGB Color View because it is an invalid value.
- When the check box of [To specify the maximum Luminance] is unchecked, the display of RGB color view is applied based on the maximum value of the Tristimulus values X, Y, Z.

5.12.5 Apply to All Measurement Images

For all the loaded measurement images, the values set on this [RGB Color Property] dialog can be apply in batch.

Go through the following steps.

- 1 Adjust the setting value in the [RGB Color Property] dialog.
- 2 Click the [Save to All] button.

Memo

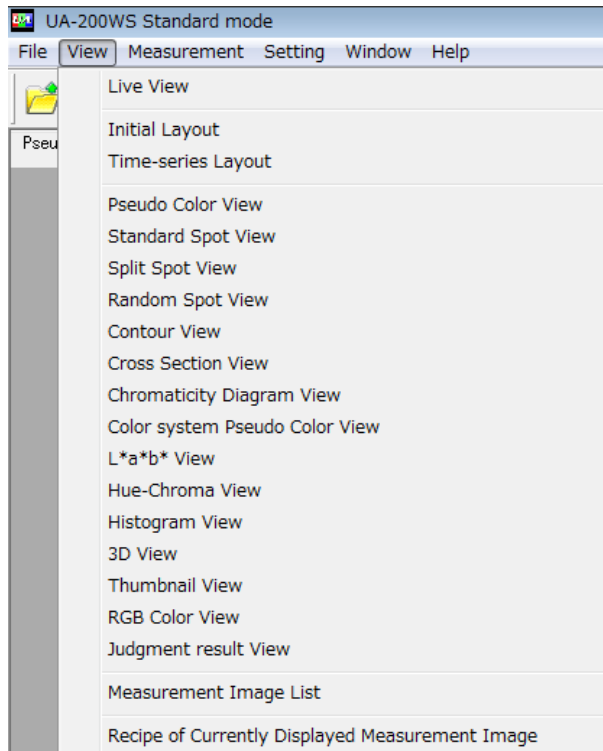
The setting status of the slider bar is also applied all together.

5.13 L*a*b* View Operation

5.13.1 Open L*a*b* View

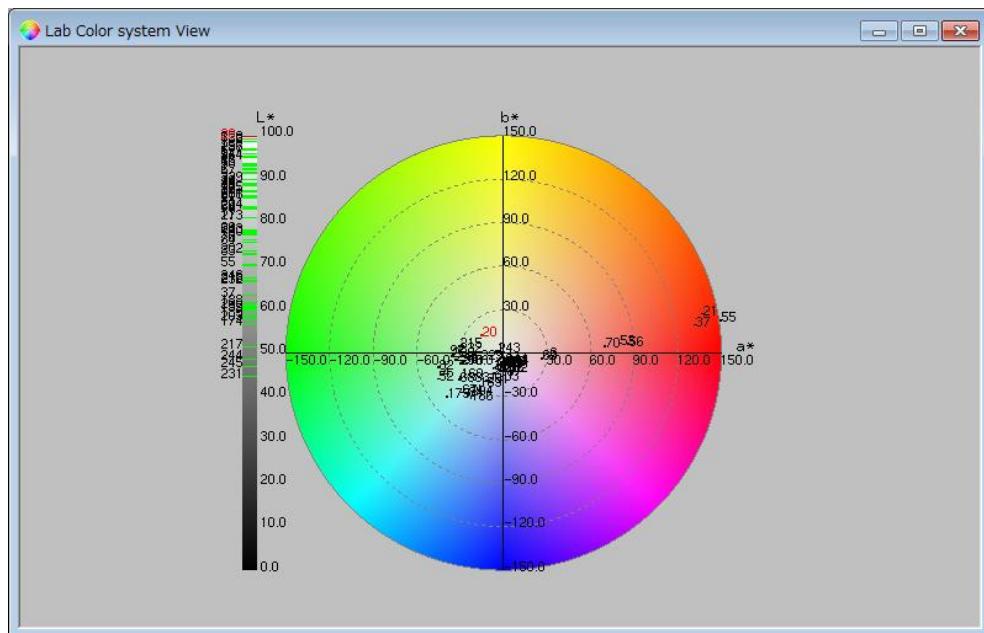
Displays [L*a*b* View]. It displays measurement data in CIE L*a*b* values. To open [L*a*b* View], go through the following steps

- 1 From the menu bar, select the [View]-[L*a*b* View] sequentially



or clicke the  icon on the menu bar.

- 2 [L*a*b* View] will open.



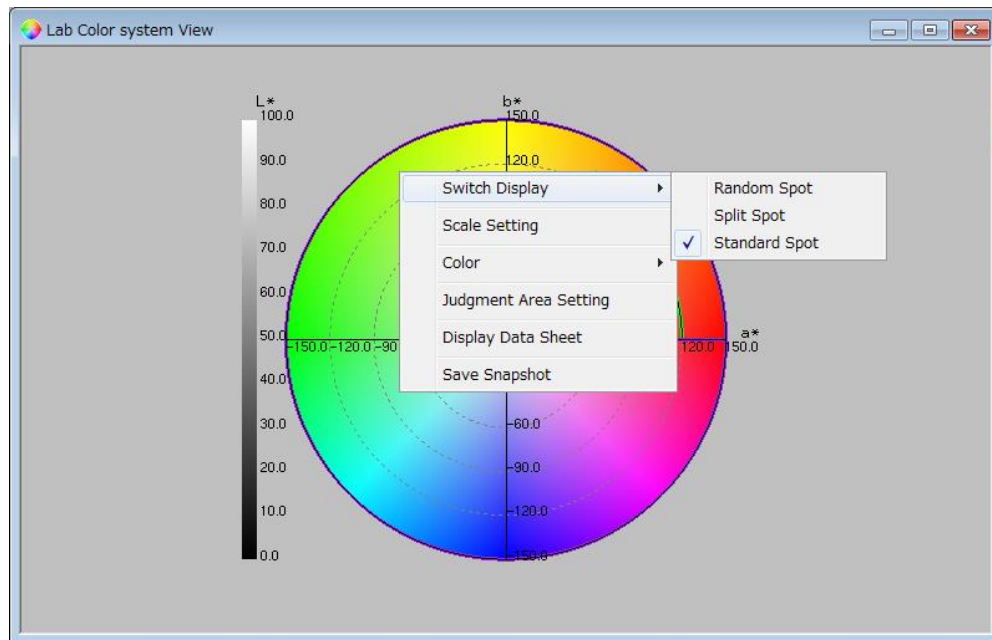
5.13.2 Switch Plot Object

Switches display values of [L*a*b* View]. You can select spot type from [Standard Spot], [Matrix Spot] and [Random Spot]. To switch display mode of [L*a*b* View], go through the following steps.

The following operations of spot are performed according to the same steps. Refer to the respective chapters indicated below.

Standard Spot View Operation	☞"5.3 Standard Spot View Operation"
Split Spot View Operation	☞"5.4 Split Spot View Operation"
Random Spot View Operation	☞"5.5 Random Spot View Operation"

- 1 From the menu bar, select the [View]-[L*a*b* View] sequentially.
- 2 Please right click in the [L*a*b* View], pop-up menu will open. Select menu like [Switch Display]-[Random Spot] from the pop-up menu.

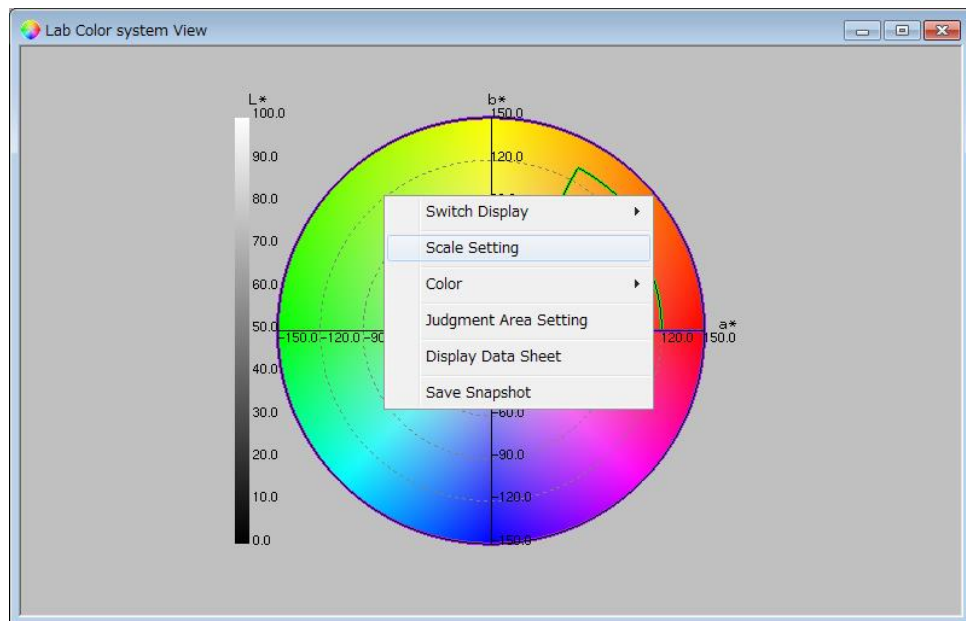


5.13.3 Change Scale

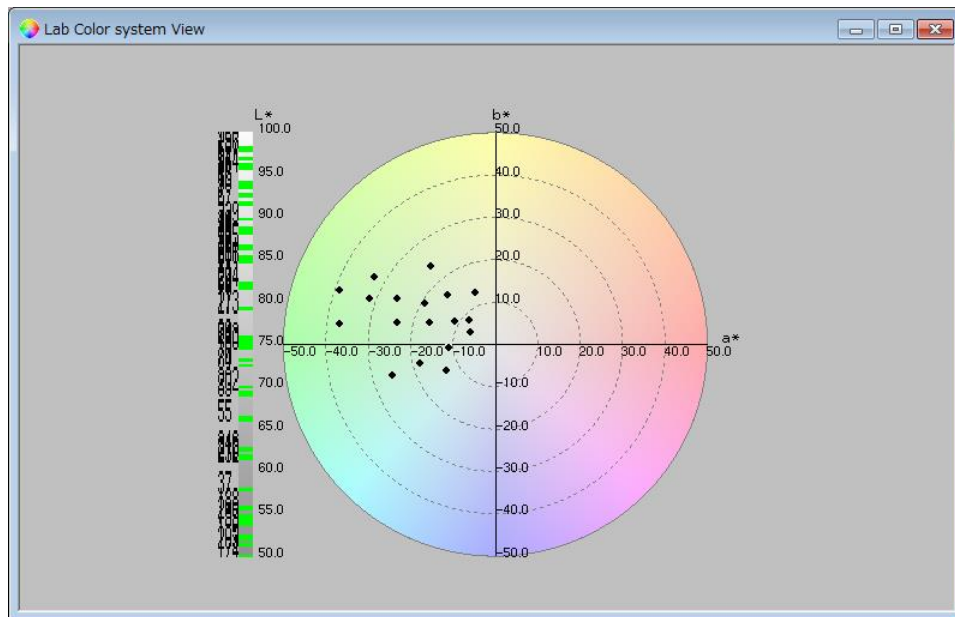
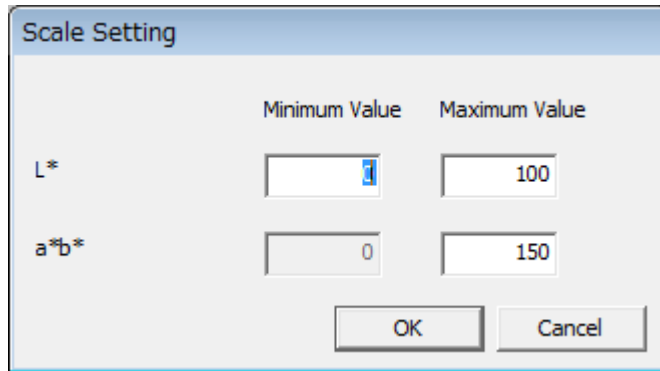
Changes scale of [L*a*b* View]

To change scale, go through the following steps.

- 1 From the menu bar, select the [View]-[L*a*b* View] sequentially.
- 2 Please right click in the [L*a*b* View], pop-up menu will open. Select menu like [Scale Setting] from the pop-up menu



3 [Scale Setting] dialog will open. You can change display scale of L*a*b* view.

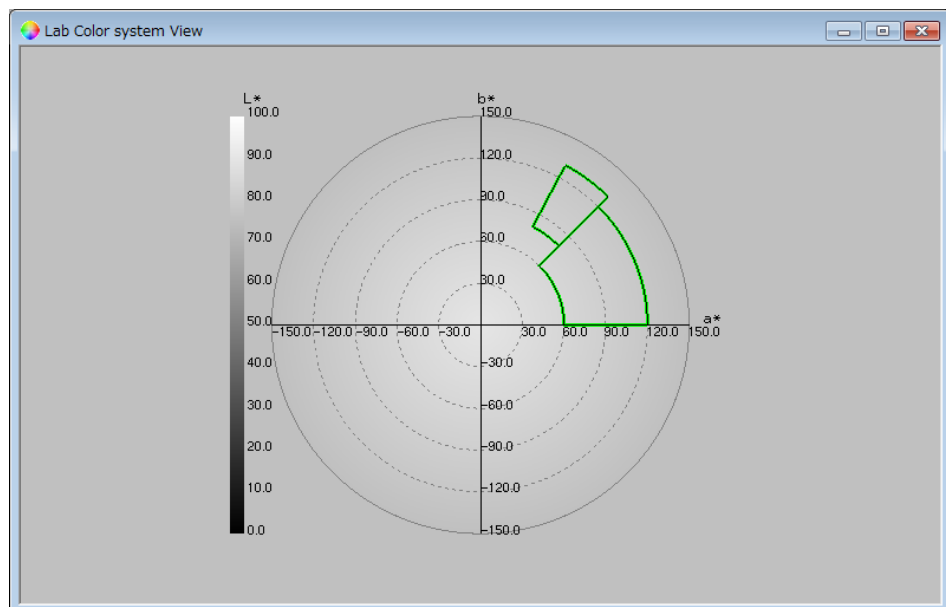
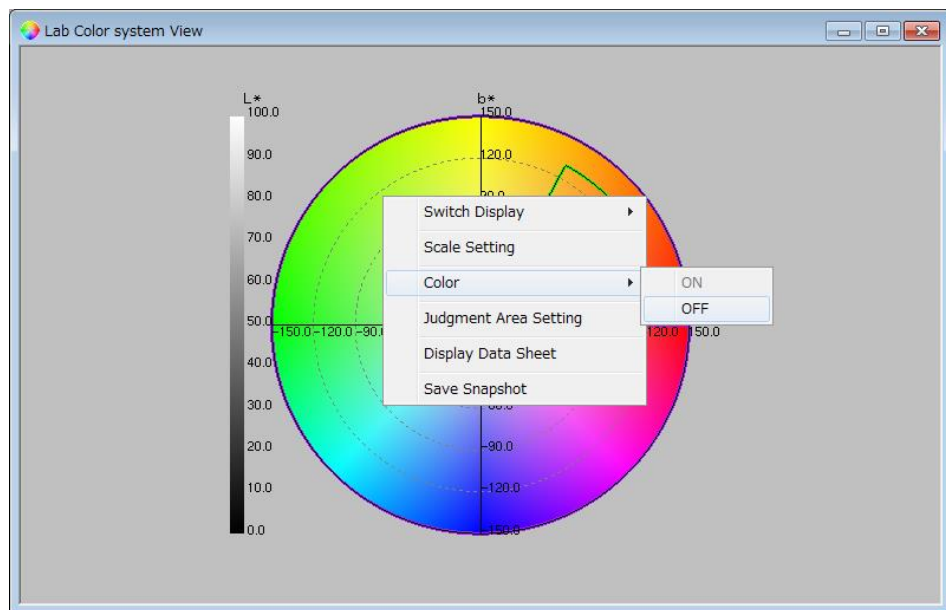


5.13.4 Change Color

Changes display color of [L*a*b* View].

To switch color, go through the following steps.

- 1 From the menu bar, select the [View]-[L*a*b* View] sequentially.
- 2 Please right click in the [L*a*b* View], pop-up menu will open. Select [Color] [ON]/[OFF] from the pop-up menu



5.13.5 Set Judgment Area

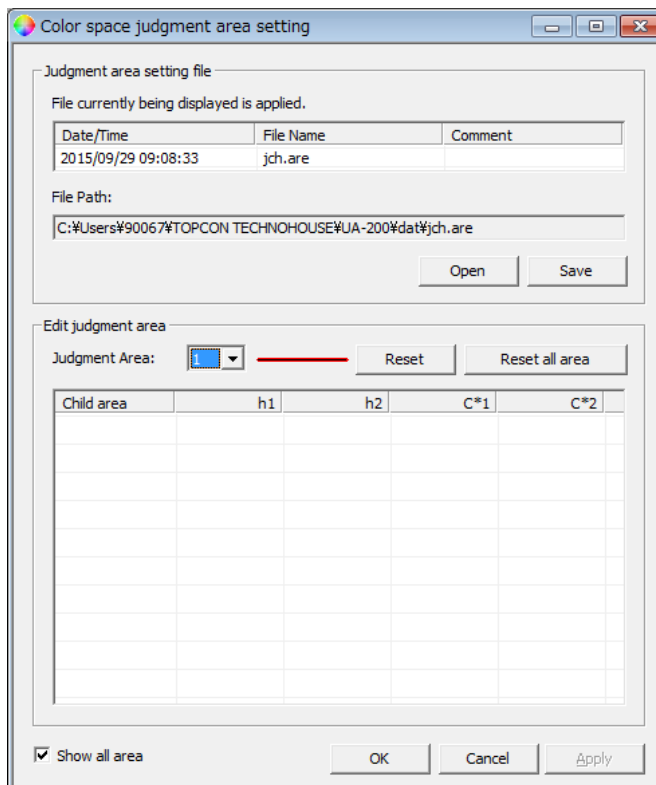
Makes judgment area for pass or fail judgment.

To set judgment area, go through the following steps.

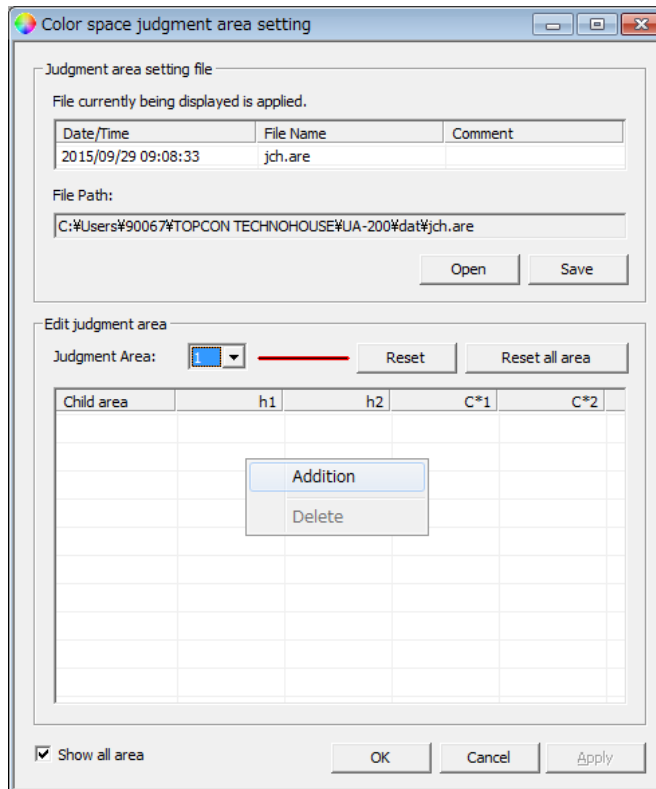
- 1 Open [L*a*b* View].
- 2 Please right click in the [L*a*b* View], pop-up menu will open.



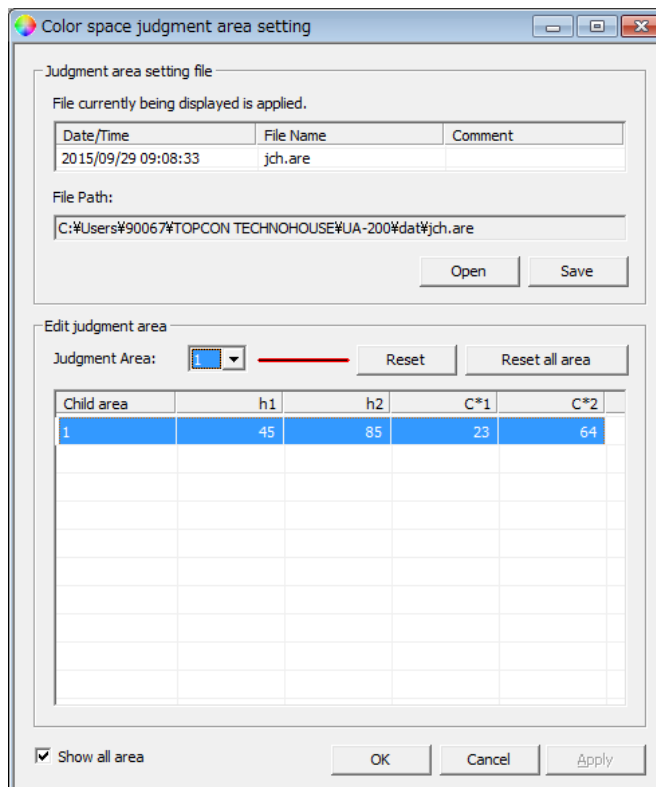
- 3 Please select [Judgment Area Setting] from pop-up menu. [Judgment Area Setting] dialog will open.



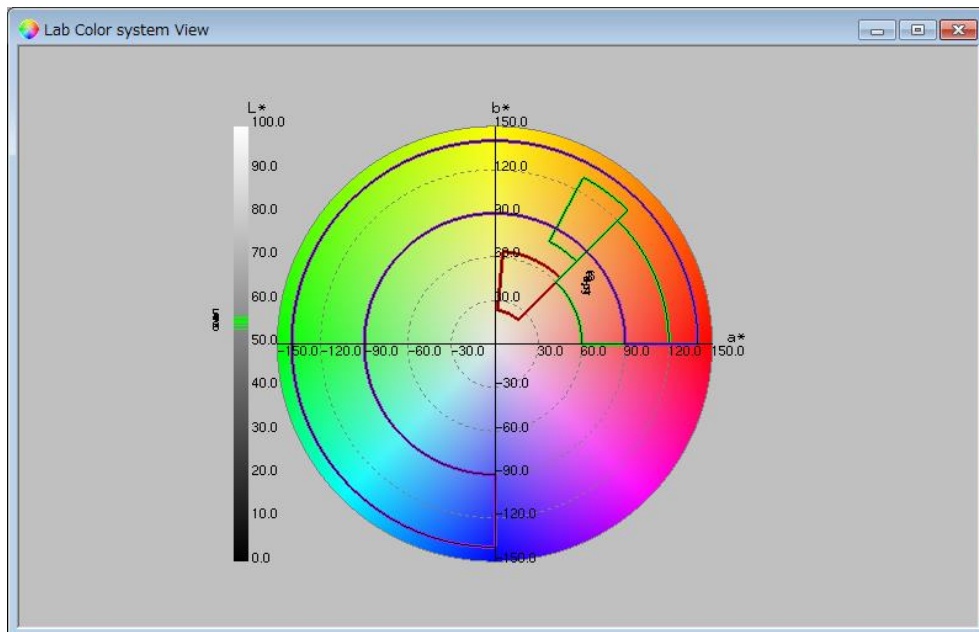
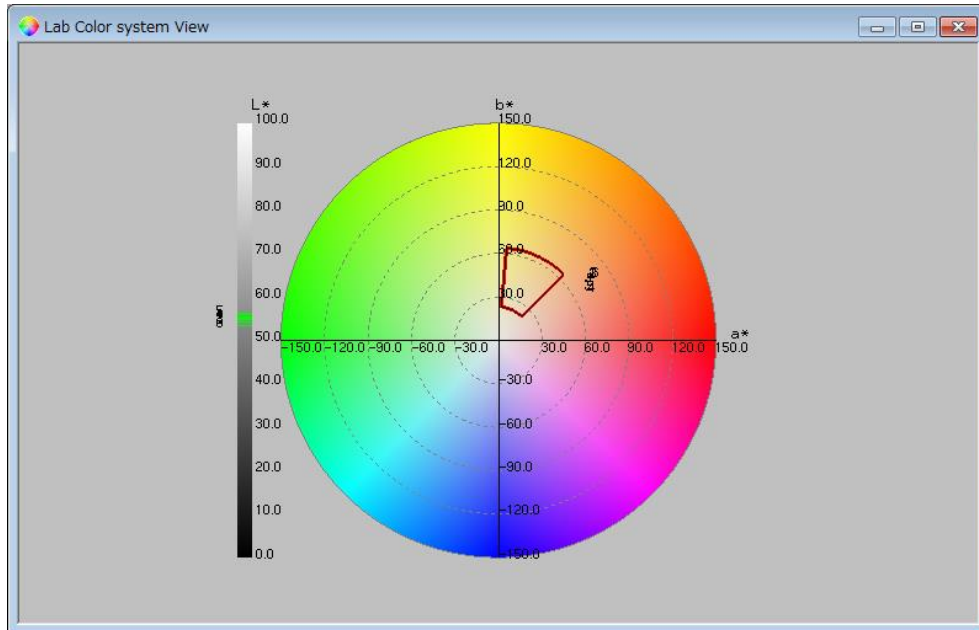
- Right Click selecting [Judgment Area], Pop-up menu will open. Select [Add] to add judgment area.



- Input values for h1, h2, C*1, C*2 by key. Click [OK] or [Apply] to finish complete changes.



h1 : Lower Hue Area [deg] 0 - 360
 h2 : Upper Hue Area [deg] 0 - 360
 C*1 : Lower Chroma Area 0 - 150
 C*2 : Upper Chroma Area 0 - 150

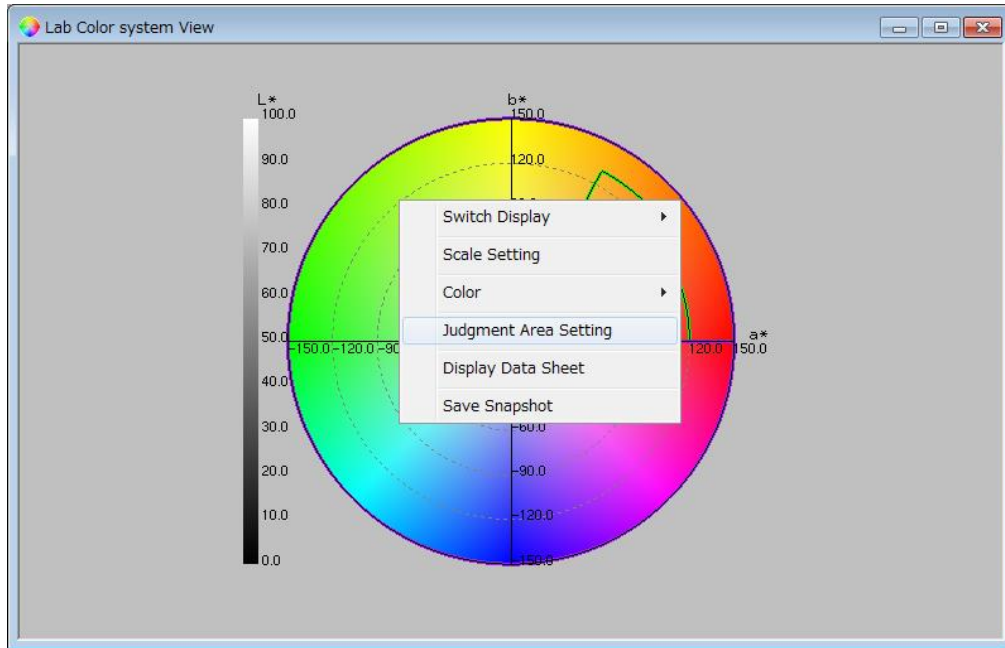


5.13.6 Remove Judgment Area

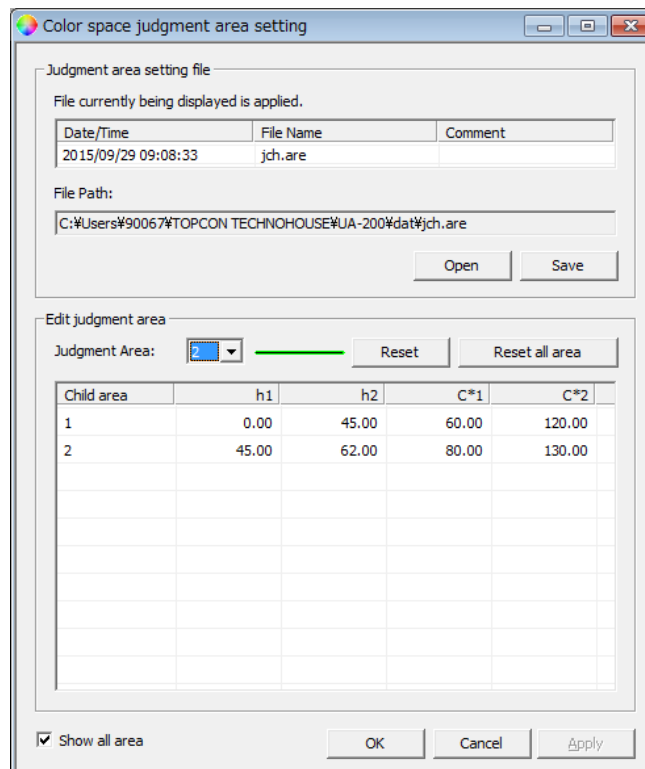
Removes L*a*b* judgment area.

To remove L*a*b* judgment area, go through the following steps.

- 1 Open [L*a*b* View].
- 2 Right click in [L*a*b* View]. Pop-up menu will open.



- 3 After selecting [Judgment Area Setting] from pop-up menu, [Judgment Area Setting] dialog will open.



- 4 By clicking [Reset], judgment area in selected area number will be removed. By clicking [Reset All], all of judgment areas will be removed.



Memo

Judgment areas can also be canceled by using [Delete] of the pop-up menu in the list.

5.13.7 Display Data Sheet

Displays measurement data of [L*a*b* View] in spread sheet.

To open [L*a*b* Data Sheet], go through following steps.

- 1 Open [L*a*b* View].
- 2 Right click in the [L*a*b* View]. Pop up menu will open. Select "Display Data Sheet".



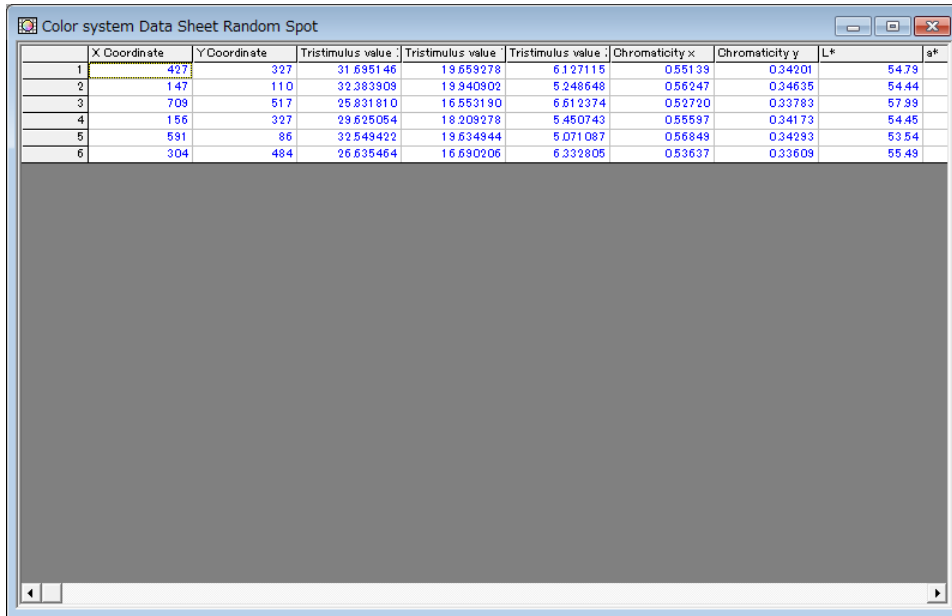
- 3 [L*a*b* Data Sheet] will open.

	X Coordinate	Y Coordinate	Tristimulus value	Tristimulus value	Tristimulus value	Chromaticity x	Chromaticity y	L*	a*	b*
1	427	327	31.695146	19.653278	6.127115	0.55139	0.34201	54.79	54.44	57.99
2	147	110	32.383909	19.940902	5.248648	0.56247	0.34635	54.44	57.99	54.46
3	709	517	25.831810	16.553190	6.612374	0.52720	0.33783	53.54	54.46	53.54
4	156	327	29.625054	18.209278	5.450743	0.55597	0.34173	53.54	54.46	53.54
5	591	86	32.549422	19.634944	5.071087	0.56849	0.34293	53.54	54.46	53.54
6	304	484	26.635464	16.690206	6.332805	0.53637	0.33609	55.49	54.46	53.54

5.13.8 Switch Display Items

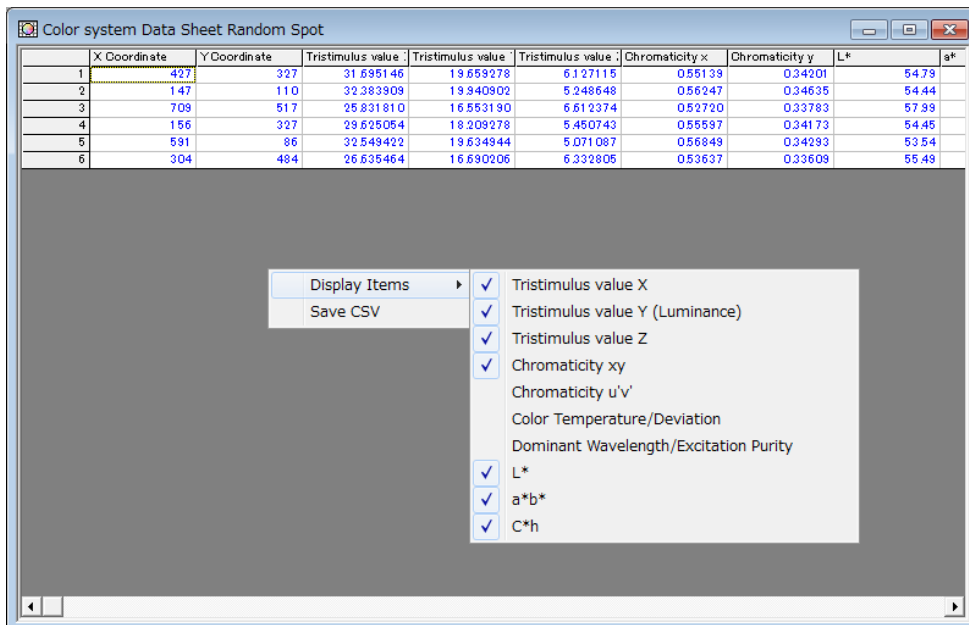
To switch display item of [L*a*b* Data Sheet], go through the following steps.

- 1 Open [L*a*b* Data Sheet].
- 2 Right click in the [L*a*b* Data Sheet].



	X Coordinate	Y Coordinate	Tristimulus value	Tristimulus value	Tristimulus value	Chromaticity x	Chromaticity y	L*	a*
1	427	327	31.695146	19.659278	6.127115	0.55139	0.34201	54.79	
2	147	110	32.383909	19.940902	5.248648	0.56247	0.34635	54.44	
3	709	517	25.831810	16.553190	6.612374	0.52720	0.33783	57.99	
4	156	327	29.625054	18.209278	5.450743	0.55597	0.34173	54.45	
5	591	86	32.549422	19.634944	5.071087	0.56849	0.34293	53.54	
6	304	484	26.635464	16.690206	6.332805	0.53637	0.33609	55.49	

- 3 Pop-up menu will open. Select data item to be displayed in the sheet.



	X Coordinate	Y Coordinate	Tristimulus value	Tristimulus value	Tristimulus value	Chromaticity x	Chromaticity y	L*	a*
1	427	327	31.695146	19.659278	6.127115	0.55139	0.34201	54.79	
2	147	110	32.383909	19.940902	5.248648	0.56247	0.34635	54.44	
3	709	517	25.831810	16.553190	6.612374	0.52720	0.33783	57.99	
4	156	327	29.625054	18.209278	5.450743	0.55597	0.34173	54.45	
5	591	86	32.549422	19.634944	5.071087	0.56849	0.34293	53.54	
6	304	484	26.635464	16.690206	6.332805	0.53637	0.33609	55.49	

Display Items ▸

Save CSV

- Tristimulus value X
- Tristimulus value Y (Luminance)
- Tristimulus value Z
- Chromaticity xy
- Chromaticity u'v'
- Color Temperature/Deviation
- Dominant Wavelength/Excitation Purity
- L*
- a*b*
- C*h

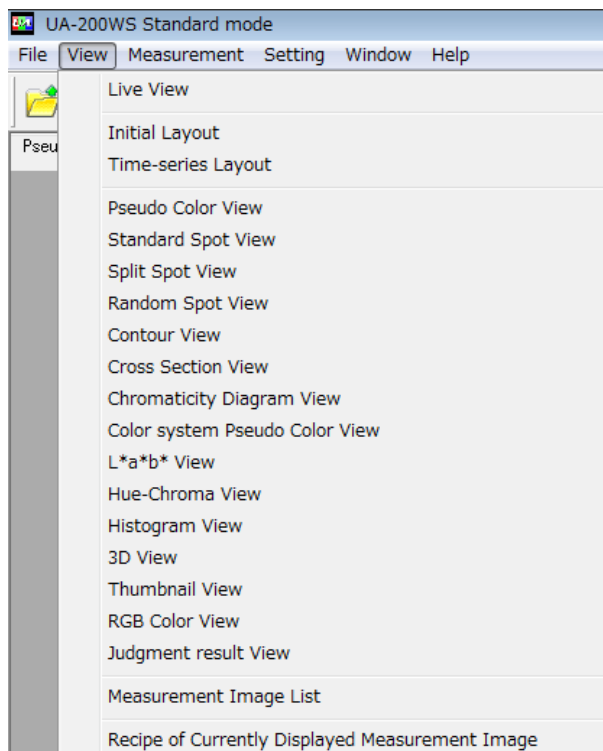
5.14 Hue-Chroma Color system View Operation

5.14.1 Open Hue-Chroma Color system View

Displays [Hue Chroma View].

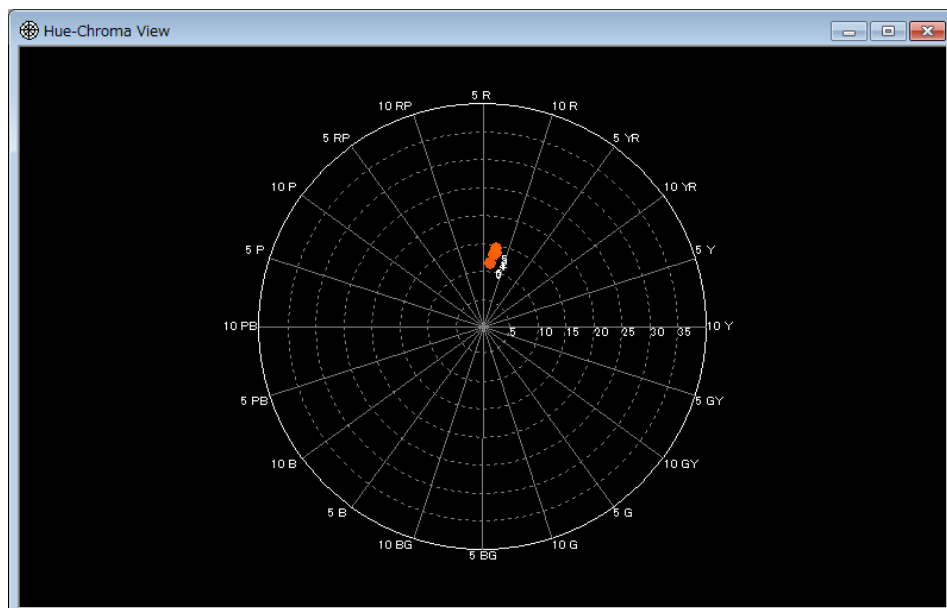
To open [Hue-Chroma View], go through the following steps.

- 1 From the menu bar, select the [View]-[Hue-Chroma View] sequentially



or click the  icon on the menu bar.

- 2 [Hue-Chroma] view will open.



5.14.2 Switch Plot Object

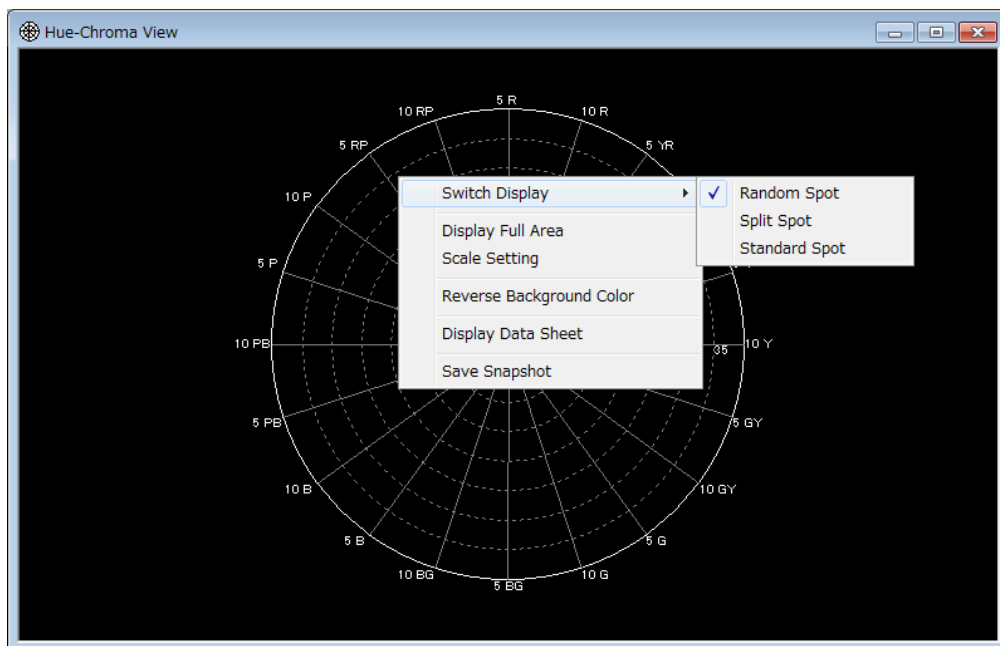
Switches display of [Hue-Chroma View]. You can select spot type from [Standard Spot], [Split Spot], and [Random Spot]

To switch display setting, go through the following steps.

The following operations of spot are performed according to the same steps. Refer to the respective chapters indicated below.

Standard Spot View Operation	☞ "5.3 Standard Spot View Operation"
Split Spot View Operation	☞ "5.4 Split Spot View Operation"
Random Spot View Operation	☞ "5.5 Random Spot View Operation"

- 1 Open [Hue-Chroma View]
- 2 Please right click in the [Hue-Chroma View], pop-up menu will open. Select menu like [Switch Display]-[Random Spot] from the pop-up menu

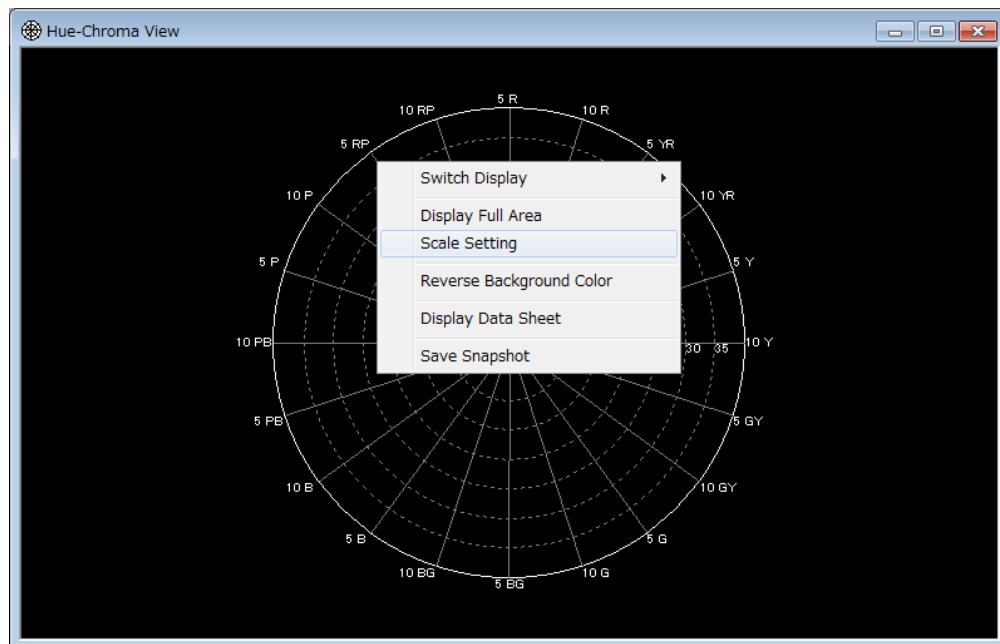


5.14.3 Change Scale

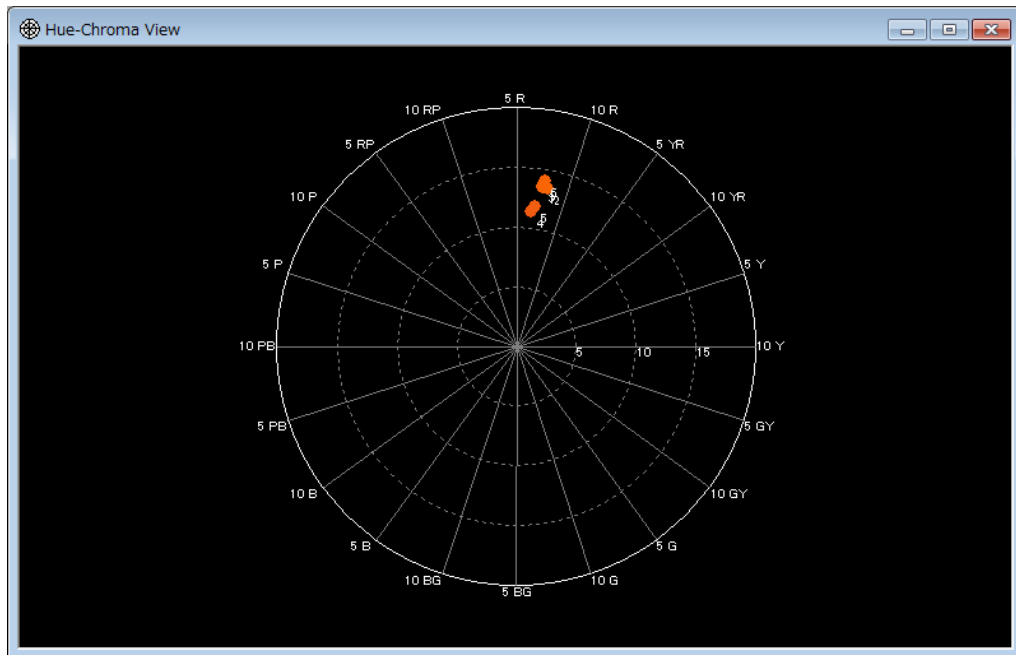
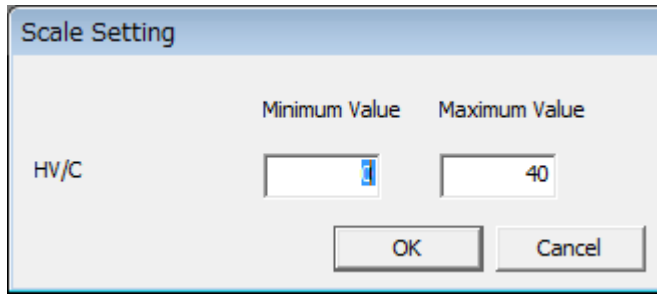
Changes display scale of [Hue-Chroma View].

To change scale, go through following steps.

- 1 Open [Hue-Chroma View].
- 2 Please right click in the [Hue-Chroma View], pop-up menu will open. Select menu like [Scale Setting] from the pop-up menu



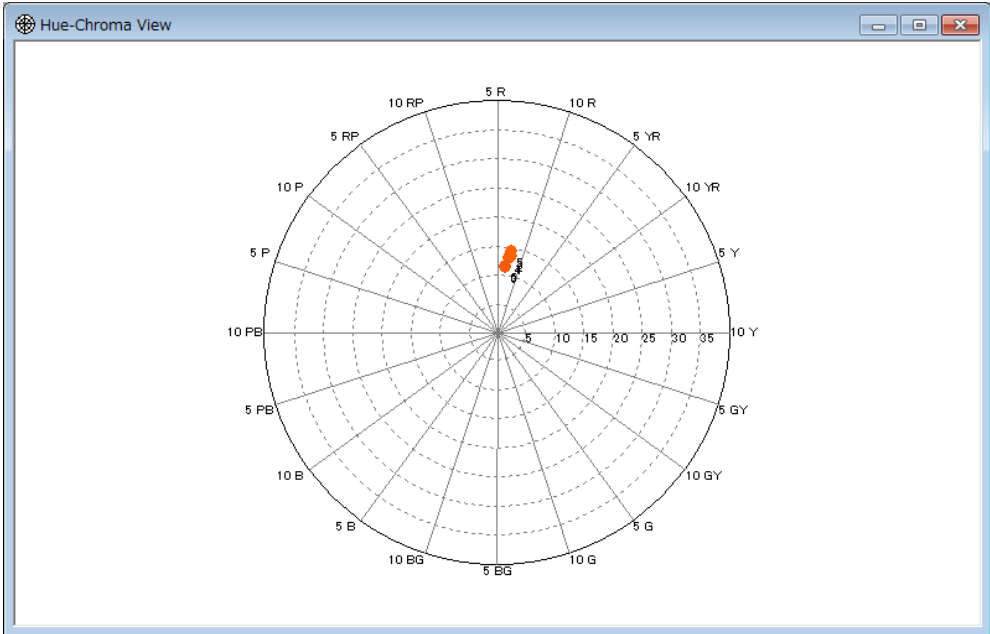
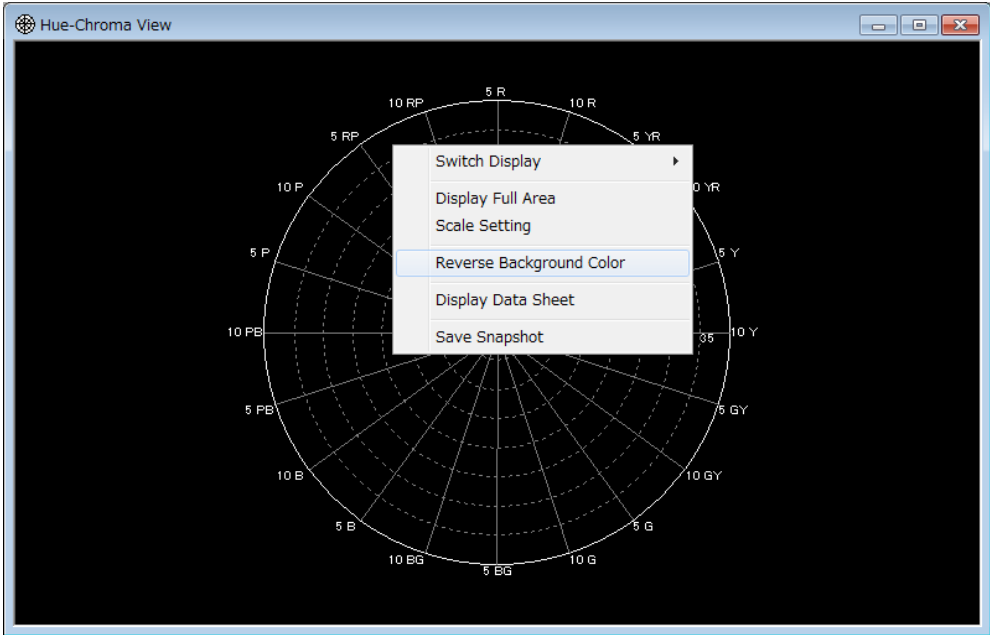
- 3 [Scale Setting] dialog will open. You can set scale values by key.



5.14.4 Change Background color

Changes background color of [Hue-Chroma View]
To change background color, go through the following steps.

- 1 Open [Hue-Chroma View]
- 2 Right click in the [Hue-Chroma View]. Pop-up menu will open. Select [Reverse Background Color].

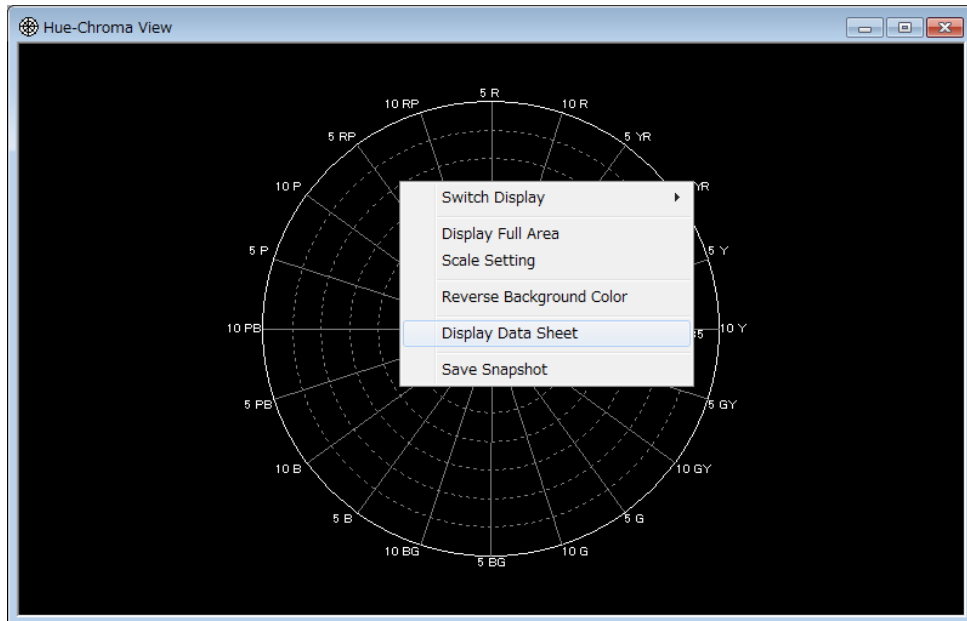


5.14.5 Display Data Sheet

Displays measurement of [Hue-Chroma View] in spread sheet.

To open [Hue-Chroma Data Sheet], go through following steps.

- 1 Open [Hue-Chroma Data Sheet].
- 2 Right click in the [Hue-Chroma Data Sheet]. Pop-up menu will open. Select [Display Data Sheet].



- 3 [Hue-Chroma Data Sheet] will open.

	X Coordinate	Y Coordinate	Tristimulus value	Tristimulus value	Tristimulus value	Chromaticity x	Chromaticity y	L*	a*
1	427	327	31.595146	19.659278	6.127115	0.55139	0.34201	54.79	
2	147	110	32.383909	19.940902	5.248648	0.56247	0.34635	54.44	
3	709	517	25.831810	16.553190	6.612374	0.52720	0.33783	57.99	
4	156	327	29.625054	18.209278	5.450743	0.55597	0.34173	54.45	
5	591	86	32.549422	19.634944	5.071087	0.56849	0.34293	53.54	
6	304	484	26.635464	16.690206	6.332805	0.53637	0.33609	55.49	

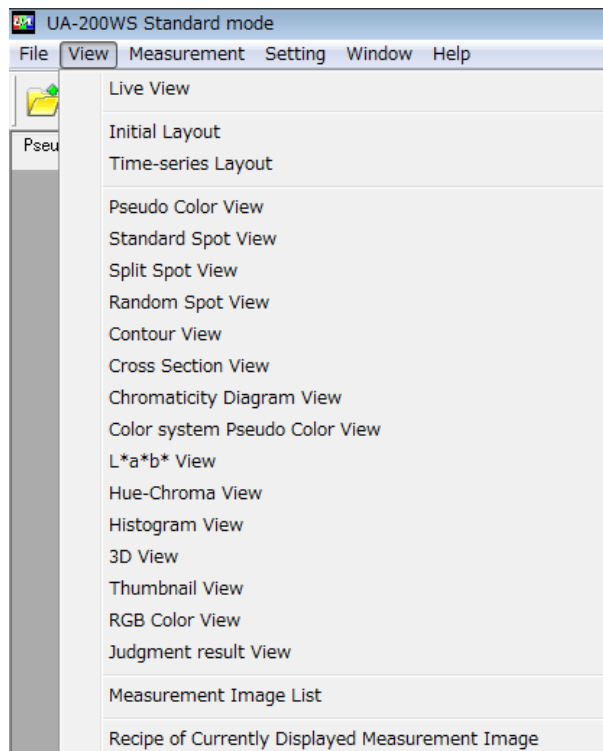
5.15 Color system Pseudo Color View Operation

5.15.1 Open Color system Pseudo Color View

Displays [Color System Pseudo Color View].

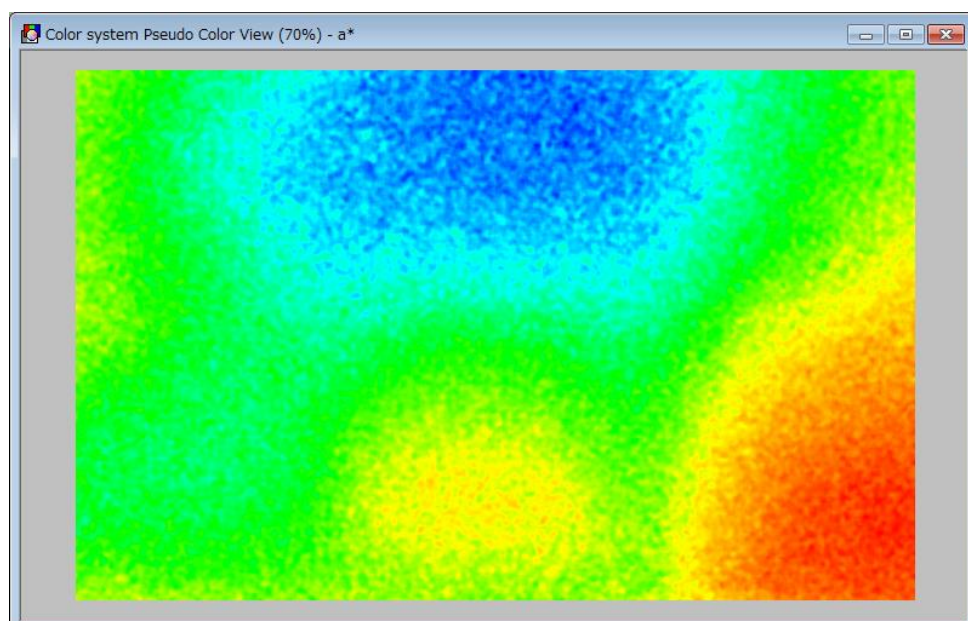
To open [Color System Pseudo Color View], go through the following steps.

- 1 From the menu bar, select the [View]-[Color System Pseudo Color View] sequentially



or click the  icon on the menu bar.

- 2 [Color System Pseudo Color View] will open.

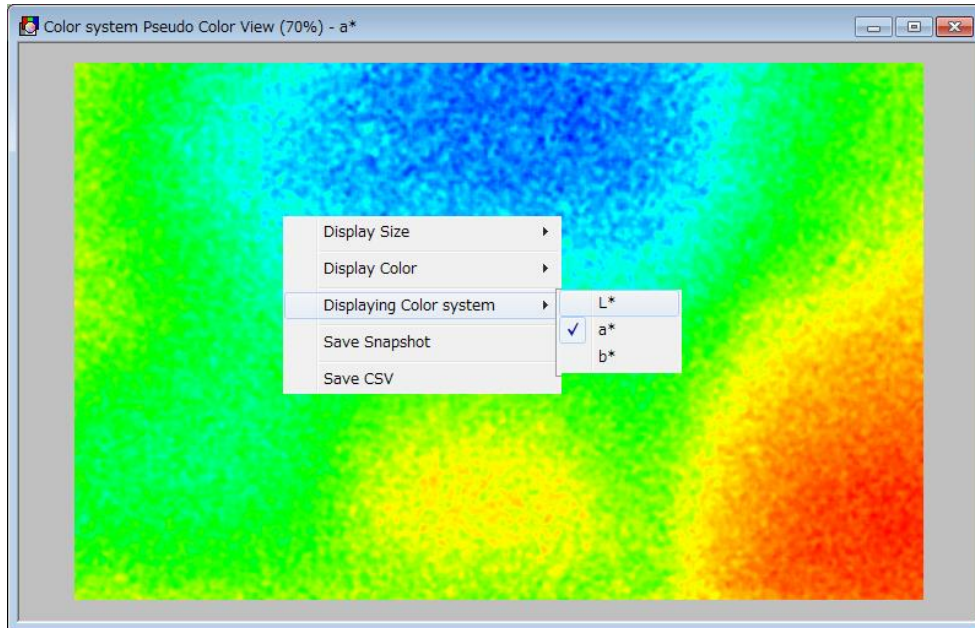


5.15.2 Switch Display Mode

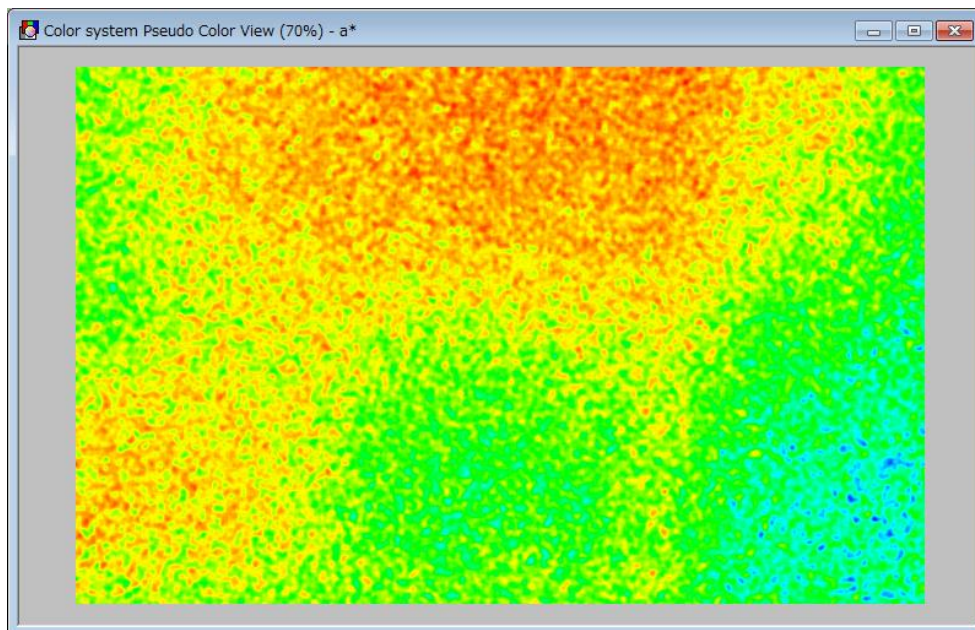
Switches display mode of color system that is displayed on current view.

To change display mode, go through the following steps.

- 1 Right click in the [Color System Pseudo Color View]. Pop-up menu will open. Select menu item like [Displaying Color System]-[L*].



- 2 Display mode will switch to the one selected by pop-up menu. This selected item will be saved. After restarting software, this setting will be kept.



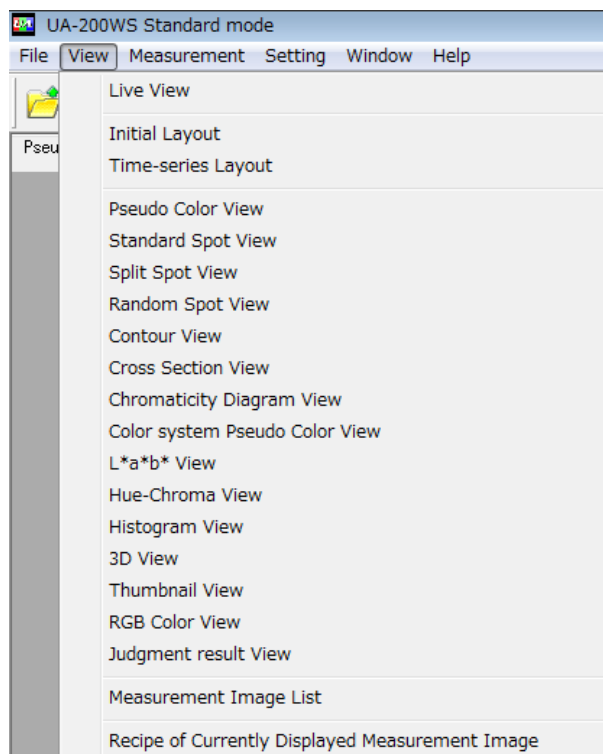
5.16 Judgment result View Operation


5.16.1 Open Judgment result View

Displays [Judgment Result View]

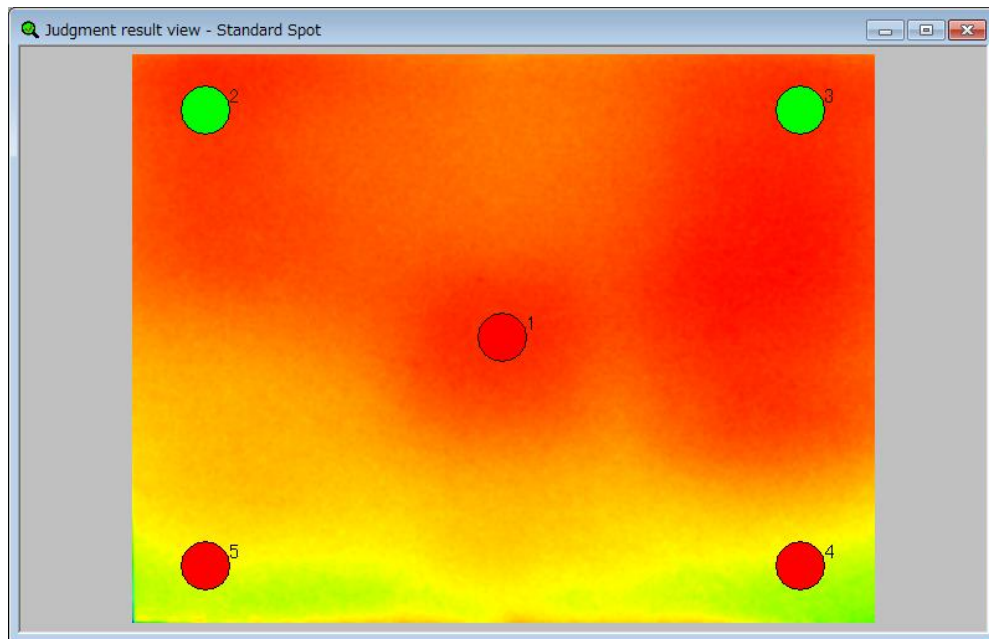
To open [Judgment Result View], go through the following steps.

- 1 From the menu bar, select the [View]-[Hue-Chroma View] sequentially.



or click the  icon on the menu bar.

- 2 [Judgment Result View] will open.
If Judgment was accepted, spots will be colored in green. If rejected, spots is colored in red.



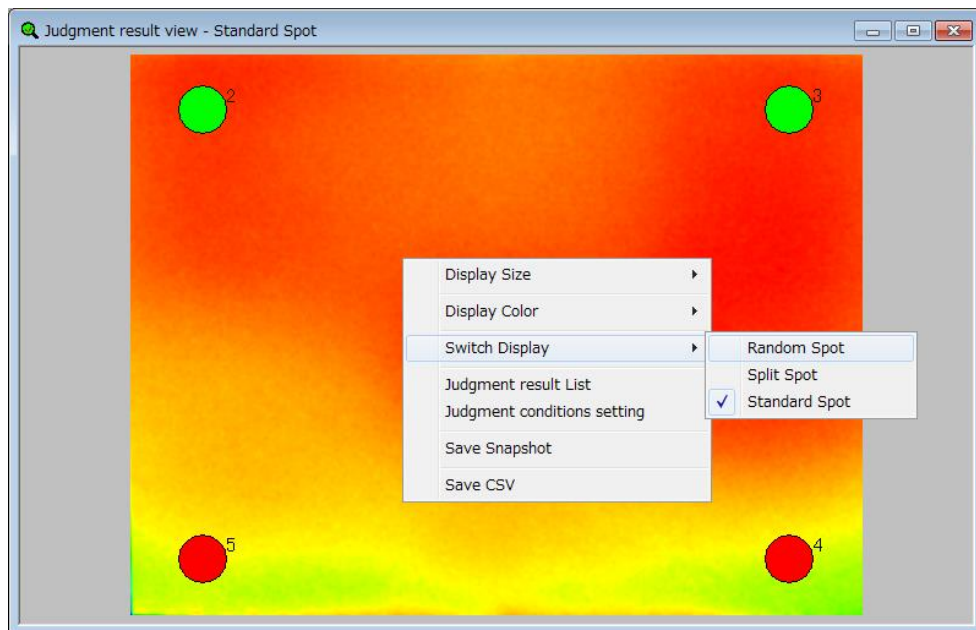
5.16.2 Switch Plot Object

Switches display values of [Judgment Result View]. You can select spot type from [Standard Spot], [Split Spot] and [Random Spot]. To switch display mode of [L*a*b* View], go through the following steps

The following operations of spot are performed according to the same steps. Refer to the respective chapters indicated below.

Standard Spot View Operation	☞ "5.3 Standard Spot View Operation"
Split Spot View Operation	☞ "5.4 Split Spot View Operation"
Random Spot View Operation	☞ "5.5 Random Spot View Operation"

- 1 From the menu bar, select the [View]-[Judgment Result View] sequentially
- 2 Right click in the [Judgment Result View]. Pop-up menu will open.
Select menu item like [Switch Display]-[Random Spot].

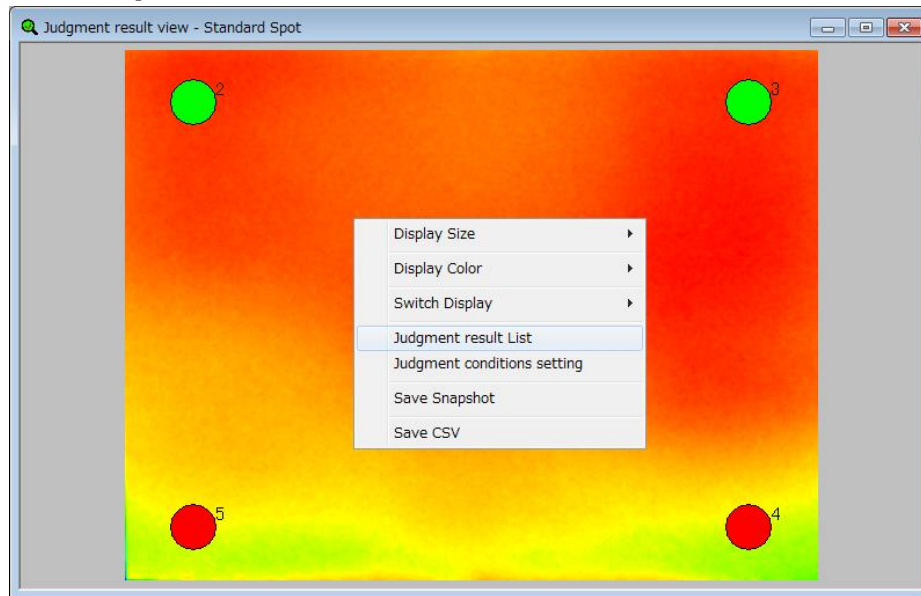


5.16.3 Display Judgment result List

Displays judgment result in [Judgment Result View] in spread sheet.

To open [Judgment Result Data Sheet], go through the following steps.

- 1 Open [Judgment Result View].
- 2 Right click in the [Judgment Result View]. Pop-up menu will open. Select [Judgment Result List]



- 3 [Judgment Result List] will open. Accepted spots in judgment are colored in green. Rejected spotw are colored in red.

	X Coordinate	Y Coordinate	Judgment	Tristimulus value	Tristimulus value	Tristimulus value	Chromaticity xy	Chromaticity u\
1	427	327	Fail	33.206045	20.785889	6.450273	1	none
2	85	65	Pass	33.000657	20.629151	5.362890	1	
3	769	65	Pass	33.422424	20.729046	5.394925	1	
4	769	589	Fail	21.571745	13.829392	6.079405	1	
5	85	589	Fail	22.435799	14.245837	6.111482	1	

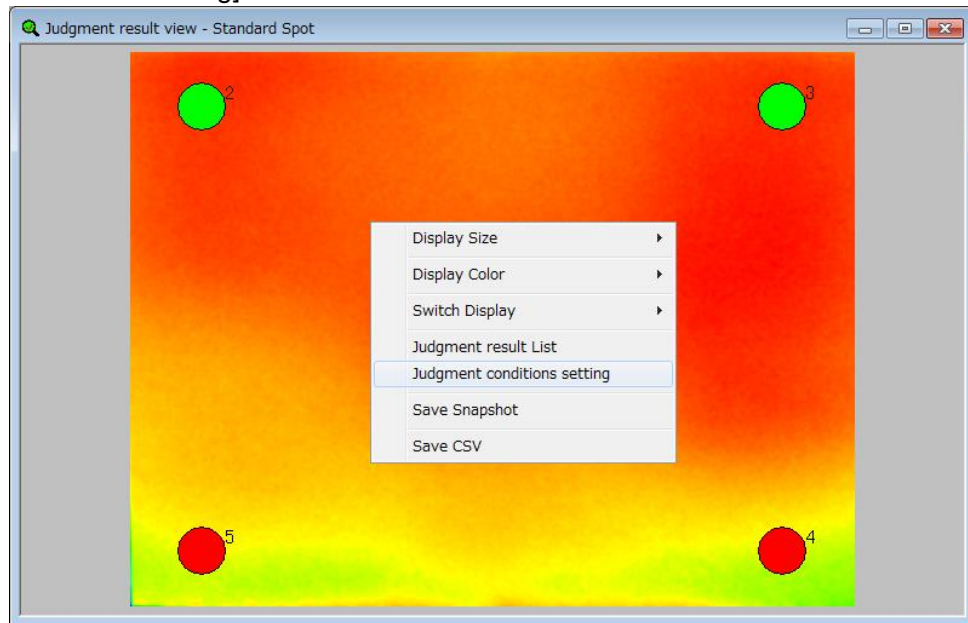
If spot is accepted in judgment by area, area number is displayed in the list column. If rejected, "none" text will be displayed to indicate this spot couldn't belong to any registered judgment area.

5.16.4 Set Judgment conditions

Sets judgment condition.

To set judgment condition, go through the following steps.

- 1 Open [Judgment Result View]
- 2 Right click in the [Judgment Result View]. Pop-up menu will open. Select [Judgment conditions setting].



3 [Judgment condition setting] dialog will open.

Checked items are valid items for accepted or rejected judgment.

- Judgment by light source and material

Upper Limit/Lower Limit : Make a judgment by upper and lower value. Value of spot should be within these values.

Ratio to max[%] : Make a judgment by ratio to maximum value in spot.

Center difference : Make a judgment by difference values to base spot.

- Judgment by area

Make a judgment by area number that is registered in each spot list and [Chromaticity Diagram View] and/or [L*a*b* View].

5.16.5 Select Judgment condition File

Selects and loads setting file for accepted or rejected judgment.

To select a setting file for judgment, go through the following steps.

- 1 Open [Judgment Result View] and right click. Pop up menu will open. Select [Judgment condition setting].
- 2 Click [Open] to show open file dialog. After selecting setting file for judgment, settings will be loaded.

Judgment conditions setting

Select judgment conditions file

Judgment conditions file currently being displayed is applied.

Date/Time	File Name	Comment
2015/09/29 14:54:23	jdg.cdt	

Judgment conditions file

File Path: C:\Users\900674\TOPCON TECHNOHOUSE\UA-200\data\jdg.cdt

Open Save

Judgment by light source color

	Upper Limit/Lower	lower limit value	Upper
<input checked="" type="checkbox"/> Tristimulus value X	Upper Limit/Lower	0.000	100.000
<input checked="" type="checkbox"/> Tristimulus value Y	Upper Limit/Lower	0.000	100.000
<input checked="" type="checkbox"/> Tristimulus value Z	Upper Limit/Lower	0.000	6.000
<input type="checkbox"/> Chromaticity x	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> Chromaticity y	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> Chromaticity u'	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> Chromaticity v'	Upper Limit/Lower	0.000	0.000

Judgment by material color

	Upper Limit/Lower	lower limit value	Upper
<input type="checkbox"/> L*	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> a*	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> b*	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> C*	Upper Limit/Lower	0.000	0.000
<input type="checkbox"/> h	Upper Limit/Lower	0.000	0.000

Judgment by area

<input checked="" type="checkbox"/> Chromaticity xy	<input checked="" type="checkbox"/> Chromaticity u'v'	<input checked="" type="checkbox"/> C*h
---	---	---

OK Cancel

5.16.6 Save Judgment condition File

Saves setting file for judgment.

To save a file for judgment, go through the following steps.

- 1 Open [Judgment Result View] and right click. Pop up menu will open. Select [Judgment condition setting].
- 2 Current file is shown under the text of " File currently being displayed is applied." Please edit [File Name] and [Comment] if necessary and click [Save] button.
By clicking [Save], settings for judgment will be saved to the file which is shown in [File Path:].

Judgment conditions setting

Select judgment conditions file

Judgment conditions file currently being displayed is applied.

Date/Time	File Name	Comment
2015/09/29 14:54:23	jdg.cdt	

Judgment conditions file

File Path: C:\Users\90067\TOPCON TECHNOHOUSE\JA-200\data\jdg.cdt

Open Save

Judgment by light source color

<input checked="" type="checkbox"/> Tristimulus value X	Upper Limit/Lower Limit	lower limit value	0.000	Upper	100.000
<input checked="" type="checkbox"/> Tristimulus value Y	Upper Limit/Lower Limit	lower limit value	0.000	Upper	100.000
<input checked="" type="checkbox"/> Tristimulus value Z	Upper Limit/Lower Limit	lower limit value	0.000	Upper	6.000
<input type="checkbox"/> Chromaticity x	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> Chromaticity y	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> Chromaticity u'	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> Chromaticity v'	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000

Judgment by material color

<input type="checkbox"/> L*	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> a*	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> b*	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> C*	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000
<input type="checkbox"/> h	Upper Limit/Lower Limit	lower limit value	0.000	Upper	0.000

Judgment by area

Chromaticity xy Chromaticity u'v' C*h

OK Cancel

5.17 Time-series Measurement View Operation

Displays the variations in measurement data as time advances.

In the [Time-series Measurement Graph] and [Time-series Measurement Data Sheet], the measurement data for the set measurement spot are displayed.

For the measurement spot type, select either [Standard Spot], [Split Spot], or [Random Spot].

5.17.1 Switch Time-series View Display

Switches the view display of [Time-series Measurement View]. To switch the view display, go through the following steps. For the measurement spot type of the Time-series Measurement View, select either [Standard Spot], [Split Spot], or [Random Spot]. For the measurement spot setting of each type, refer to the respective View operational explanations.

The following operations are performed according to the same steps. Refer to the respective chapters shown below.

Standard Spot View operation

☞ “5.3 Standard Spot View Operation”

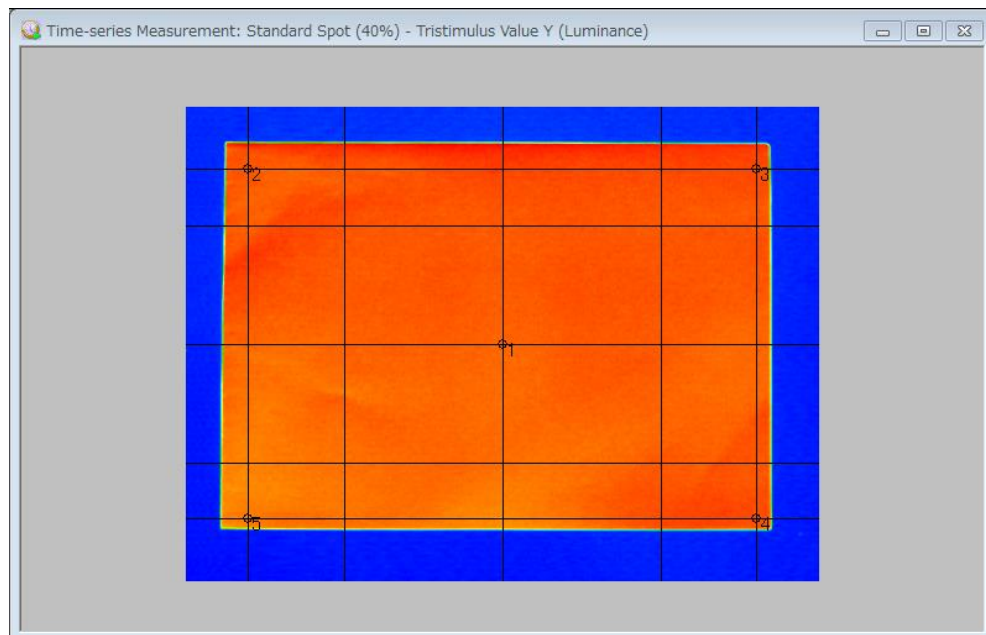
Split Spot View operation

☞ “5.4 Split Spot View Operation”

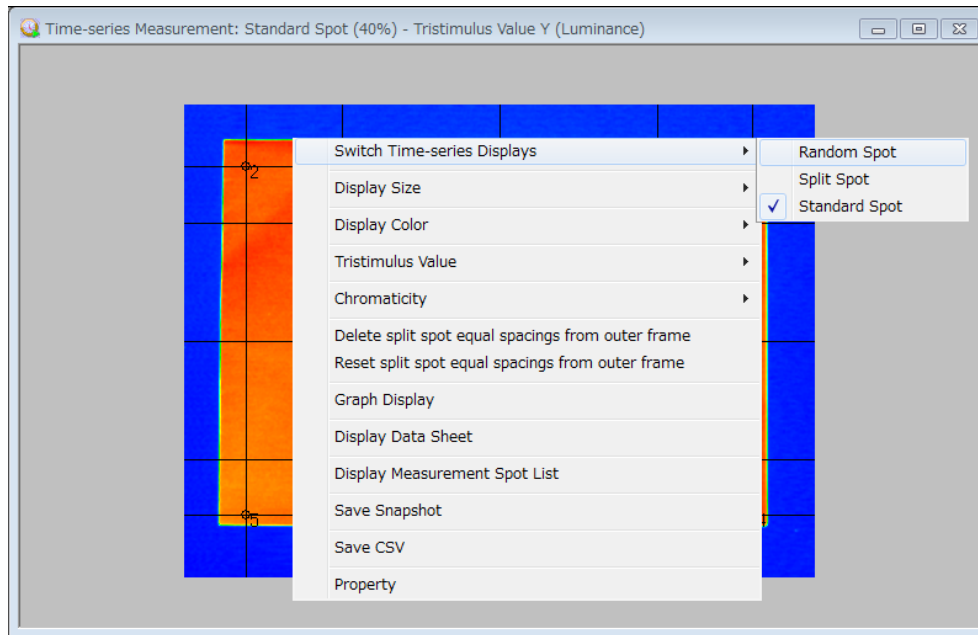
Random Spot View operation

☞ “5.5 Random Spot View Operation”

- 1 Perform the time-series measurement or select [View] – [Time-series Layout].
- 2 Activate the [Time-series Measurement View].



- 3 Right-click anywhere within [Time-series Measurement View] to open Pop-up menu. Select one from [Random Spot], [Split Spot], and [Standard Spot] via the [Switch Time-series Displays].



 Memo

About the operation of [Random Spot], [Split Spot], and [Standard Spot], refer to the respective View operational explanations.

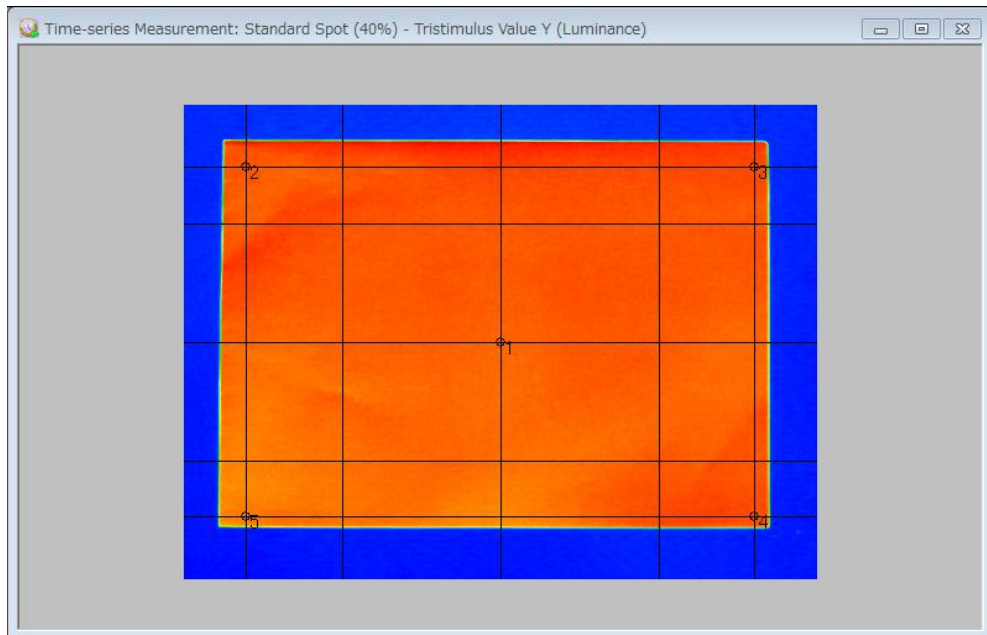
5.17.2 Display Time-series Graph

Displays the time-series graph. When the [Time-series Layout] is selected from the [View], the default layout is displayed. This function is used to open the time-series graph again after closing it. To open the time-series graph, go through the following steps.

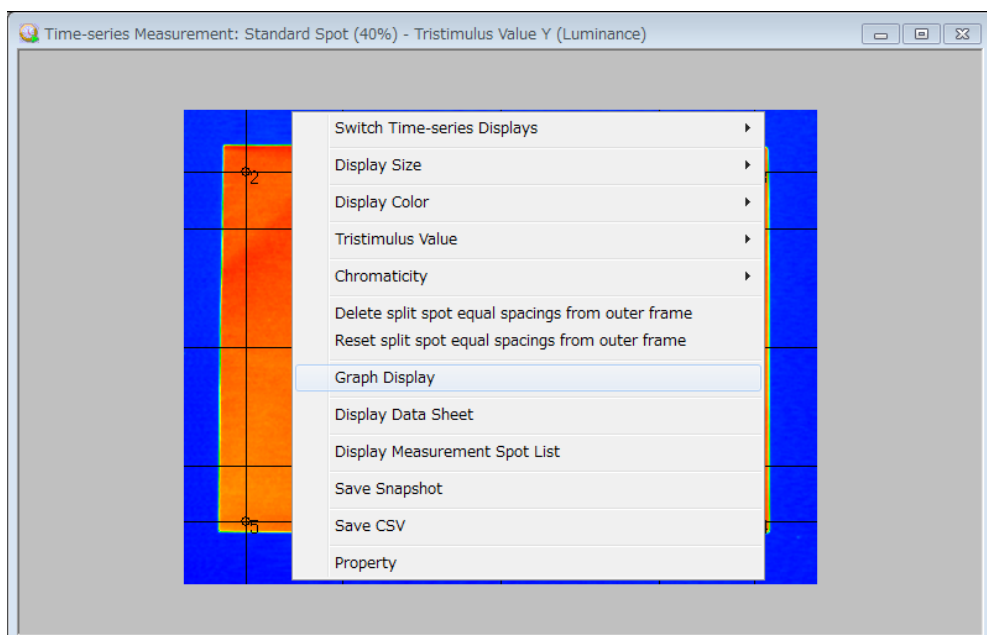
Open Time-series Layout

☞ “6.4.2 Open Time-series Layout”

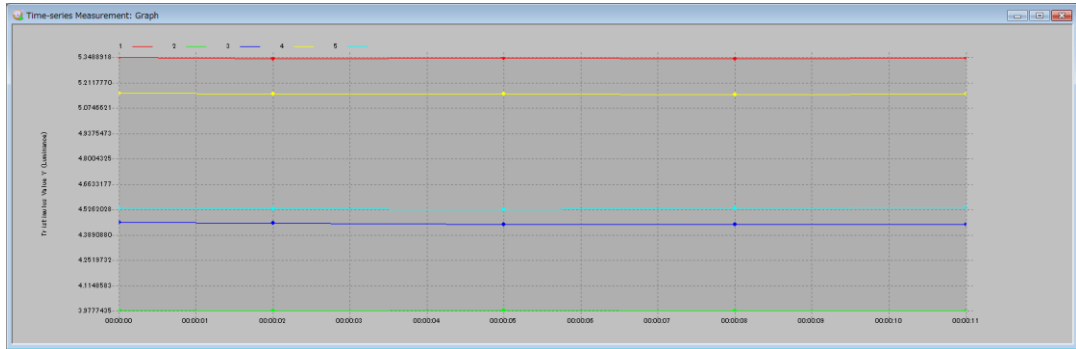
- 1 Activate the [Time-series Measurement View].



- 2 Right-click anywhere within [Time-series Measurement View] to open pop-up menu. Select the [Graph Display].



3 The [Time-series Graph] is displayed.



5.17.3 Display Time-series Measurement Spot List

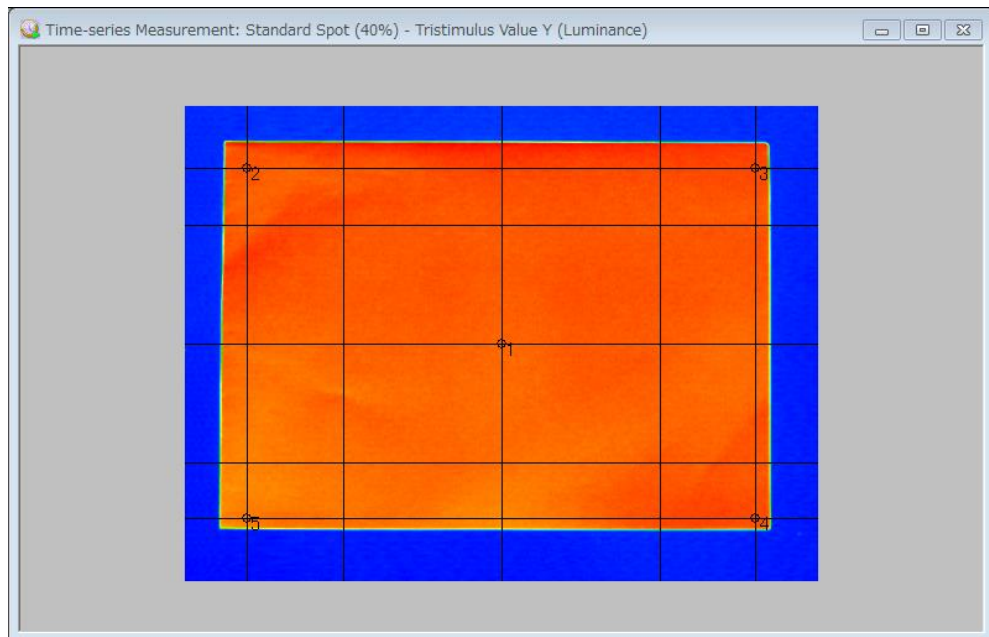
This function is used to display the time-series measurement spot list. To display the time-series measurement spot list, go through the following steps.



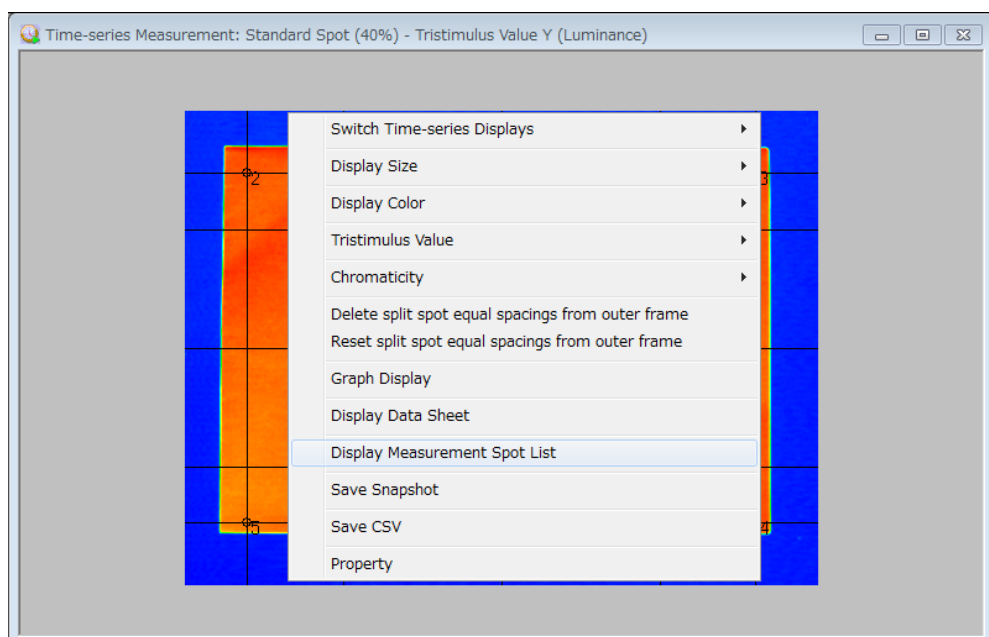
Memo

The operational procedures are the same in all [Standard Spot], [Split Spot], and [Random Spot] of the Time-series Measurement View.

- 1 Display the [Time-series Measurement View].



- 2 Right-click the mouse anywhere within [Time-series Measurement View] to open pop-up menu. Select the [Display Measurement Spot List].



- 3 When the spot list is displayed from the [Split Spot], the [Time-series Measurement Split Spot List] is displayed.

[Time-series Measurement Split Spot List]

Date/Time	Trimming	Split Co...	Comment
<input checked="" type="checkbox"/> 2014/02/07 11:14:57	(0,0) (0,0)	(16,16)	Default Spot List
<input type="checkbox"/> 2014/02/07 13:58:43	(260,160) (1080,810)	(20,25)	Default Spot List

Measurement Spot Number	X Frame Coordinate	Y Frame Coordinate
<input checked="" type="checkbox"/> 1	8	9
<input checked="" type="checkbox"/> 2	8	8
<input checked="" type="checkbox"/> 3	9	8
<input checked="" type="checkbox"/> 4	9	9
<input checked="" type="checkbox"/> 5	7	9
<input checked="" type="checkbox"/> 6	7	8
<input checked="" type="checkbox"/> 7	7	7
<input checked="" type="checkbox"/> 8	8	7
<input checked="" type="checkbox"/> 9	9	7

Memo

You can directly edit [Comment] for the measurement spot set. The layout of the [Time-Series Measurement Spot List] are different from Spot view.

[Time-series Measurement Standard Spot List]

Date/Time	Trimming	Comment
<input checked="" type="checkbox"/> 2015/01/17 13:41:03	(0,0) (0,0)	Default Spot List

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size
<input checked="" type="checkbox"/> 1	640	480	Circle	10.00
<input checked="" type="checkbox"/> 2	127	95	Circle	10.00
<input checked="" type="checkbox"/> 3	1152	95	Circle	10.00
<input checked="" type="checkbox"/> 4	1152	864	Circle	10.00
<input checked="" type="checkbox"/> 5	127	864	Circle	10.00

Memo

The measurement spot displayed on the [Time-series Measurement Graph] varies depending on the settings of the [Standard Spot Property].

5.17.4 Change Measurement Spot of Time-series

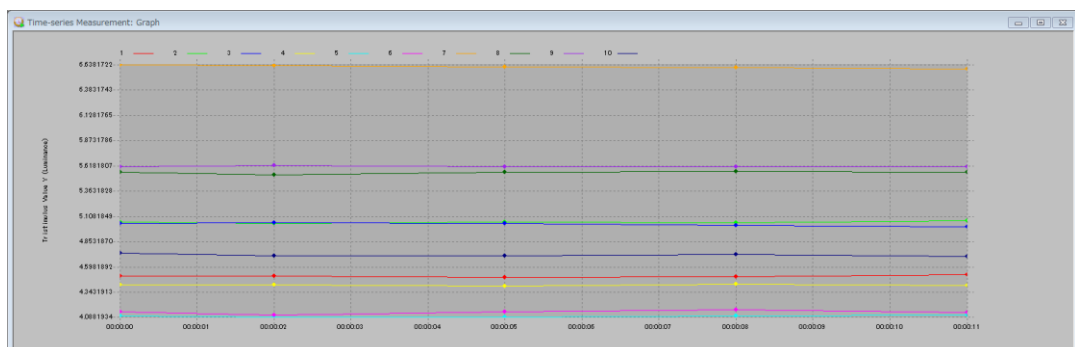
Measurement Graph Display

Select the spot list displayed on the time-series measurement graph. To select the spot list, go through the following steps.

- 1 Open the [Time-series Measurement Spot List]. The items with the number checkbox checked in the measurement spot number column of the Measurement Spot List are currently displayed on the graph.

Date/Time	Trimming	Comment
<input checked="" type="checkbox"/> 2015/01/17 13:33:55	(0,0) (0,0)	Default Spot List

Measurement Spot Number	X Coordinate	Y Coordinate	Spot Pattern	Spot Size	Threshold type	Threshold
<input type="checkbox"/> 1	640	480	Circle	100.00	Tristimulus value X	0.0
<input type="checkbox"/> 2	755	155	Square	50.00	Tristimulus value X	0.0
<input type="checkbox"/> 3	465	625	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 4	148	240	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 5	1198	145	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 6	530	120	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 7	160	535	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 8	1178	35	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 9	1185	918	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 10	738	915	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 11	640	763	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 12	438	875	Square	18.92	Tristimulus value X	0.0
<input checked="" type="checkbox"/> 13	100	73	Square	18.92	Tristimulus value X	0.0



5.18 Time-series Measurement Graph Operation

This function displays the measurement data variations in the measurement spots as time advances in a line plot.

In the Time-series Measurement Graph, the measurement elapsed time is displayed on the lateral axis and the measurement data is displayed on the longitudinal axis. The measurement data item displayed is the item selected on the [Time-series Measurement Data Sheet].

Paired measurement data (such as chromaticity xy , chromaticity $u'v'$, color temperature/deviation, and dominant wavelength/excitation purity) are displayed on the left and right longitudinal axes. The left longitudinal axis item is graph-displayed as a solid line, while the right longitudinal axis item is graph-displayed as a dashed line.

The measurement spot numbers are displayed as an explanatory note on the top of the corresponding graph lines, which enables you to quickly identify the graph lines corresponding to the measurement spots.

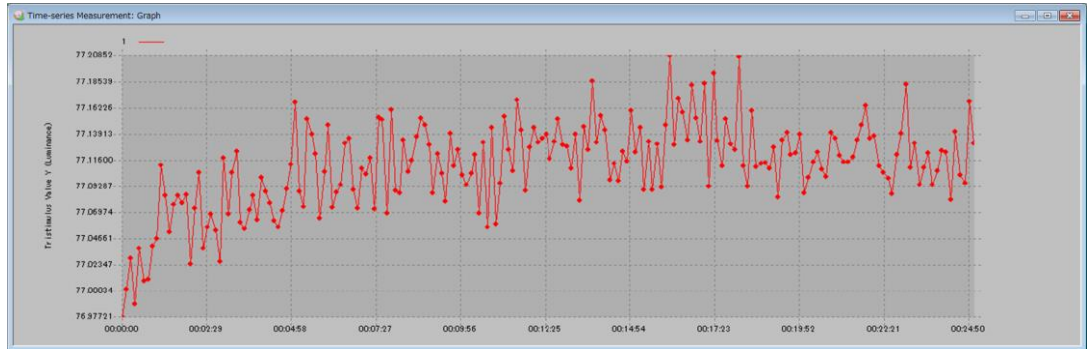
The number of measurement spots that can be set is up to 441, and the number of measurement spots that can be displayed is up to 10, and you can select 10 spots displayed on the [Time-series Measurement Spot List].

Both the longitudinal and lateral axes can be displayed in automatic/fixed scale. To set the scale, select the [Property] on the Pop-up menu.

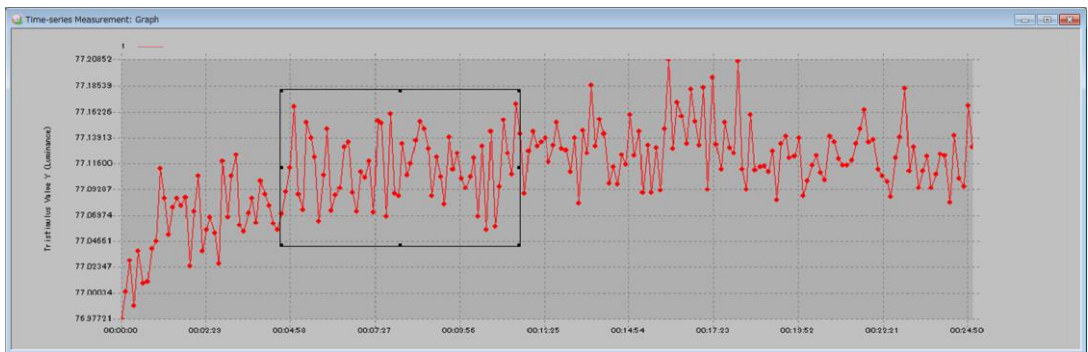
5.18.1 Zoom-in Arbitrary Area of Time-series Measurement Graph

Zooms in the arbitrary area of the [Time-series Measurement Graph]. To zoom in the arbitrary area within the graph, go through the following steps.

- 1 Activate the [Time-series Graph].



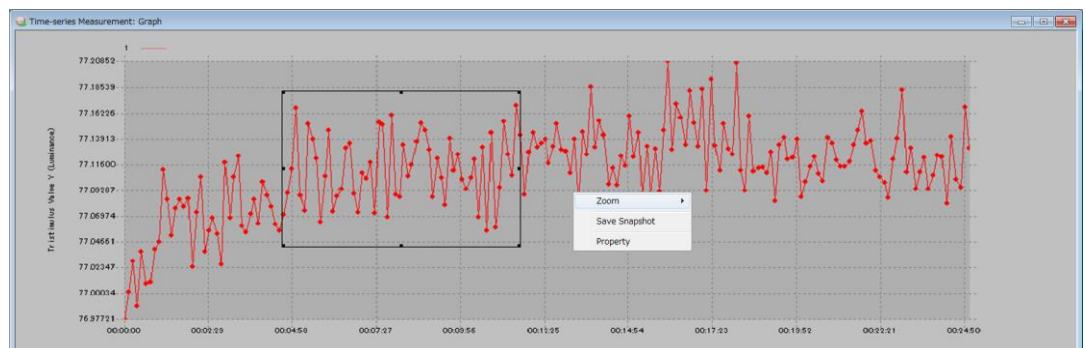
- 2 Determine the area to be zoomed-in within the [Time-series Graph]. After clicking the starting point, drag the mouse and specify the area to be zoomed in.



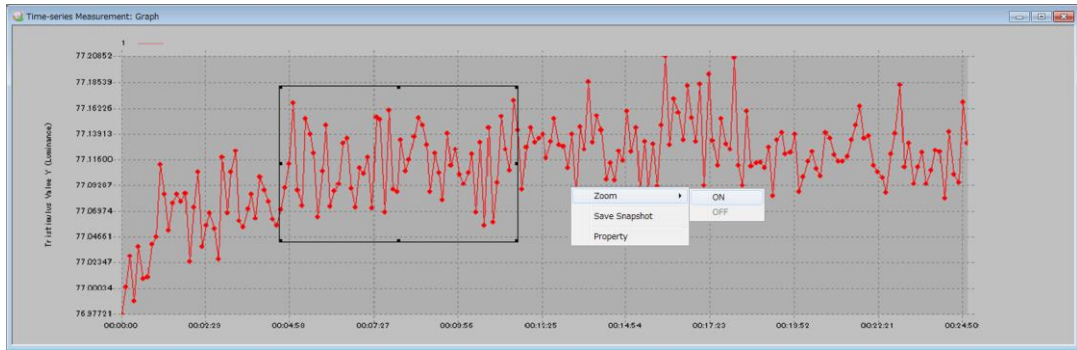
Memo

Pressing the ESC key allows you to cancel the zoom frame.

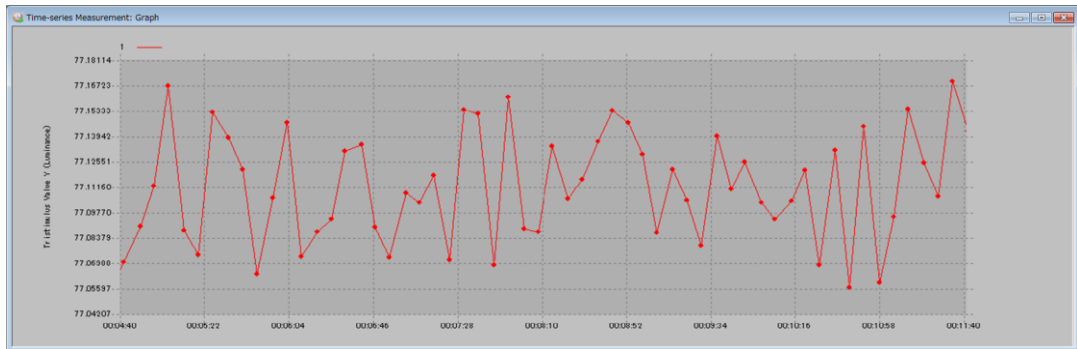
- 3 Right-click anywhere within the [Time-series Graph].



- 4 The Pop-up menu will open. Select the [Zoom] – [ON].



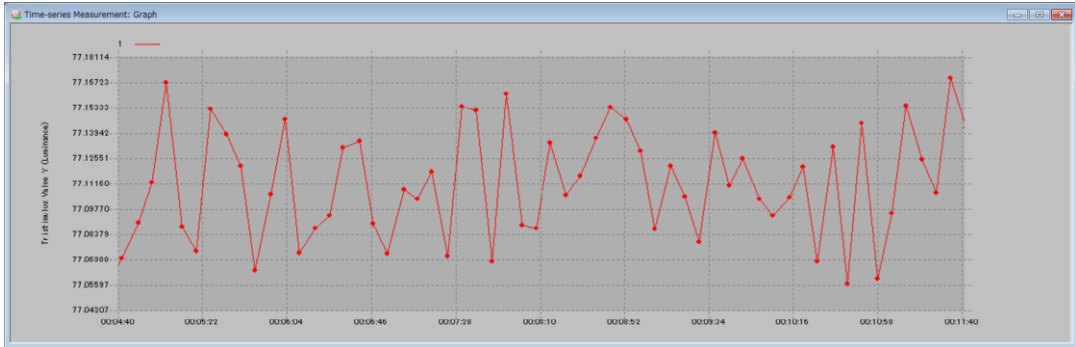
- 5 The specified area is enlarged.



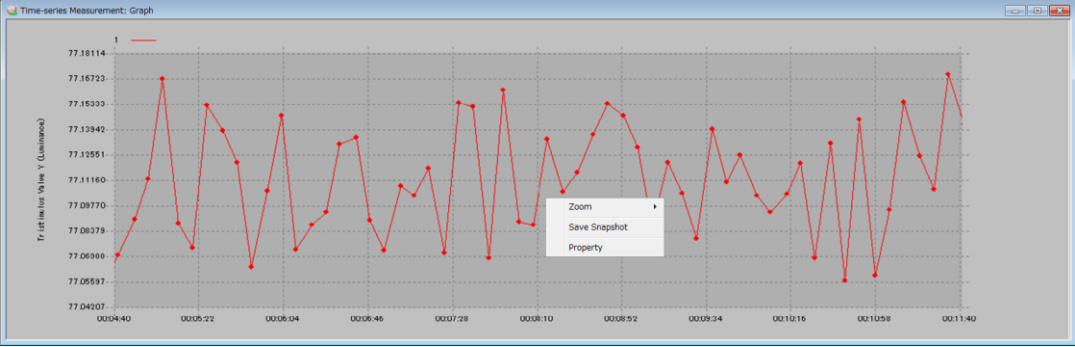
5.18.2 Cancel Zoom-in of Arbitrary Area of Time-series Measurement Graph

Cancels the zooming-in of the arbitrary area of the [Time-series Measurement Graph]. To cancel the zooming-in of the arbitrary area within the graph, go through the following steps.

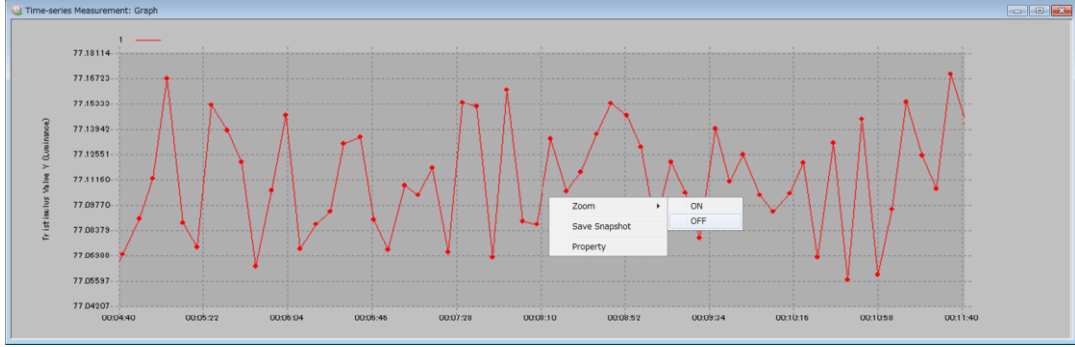
- 1 Open the zoomed-in [Time-series Graph].



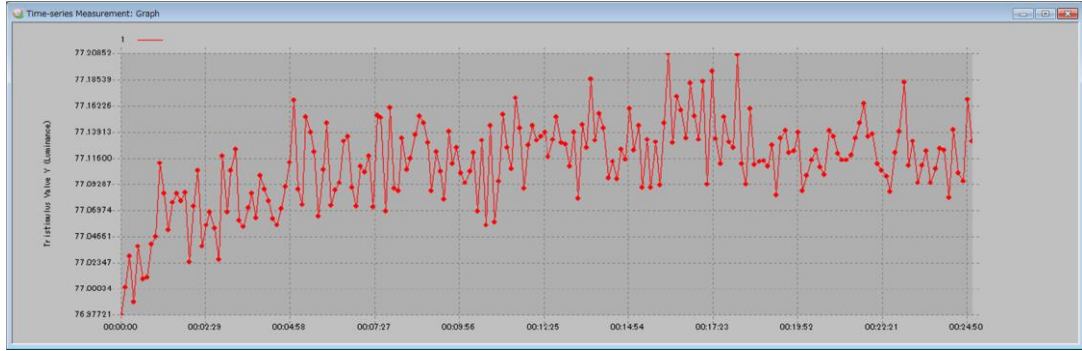
- 2 Right-click anywhere within [Chromaticity Diagram Graph].



- 3 The Pop-up menu will open. Select the [Zoom] – [OFF].



4 The zoomed-in area returns to the original display.

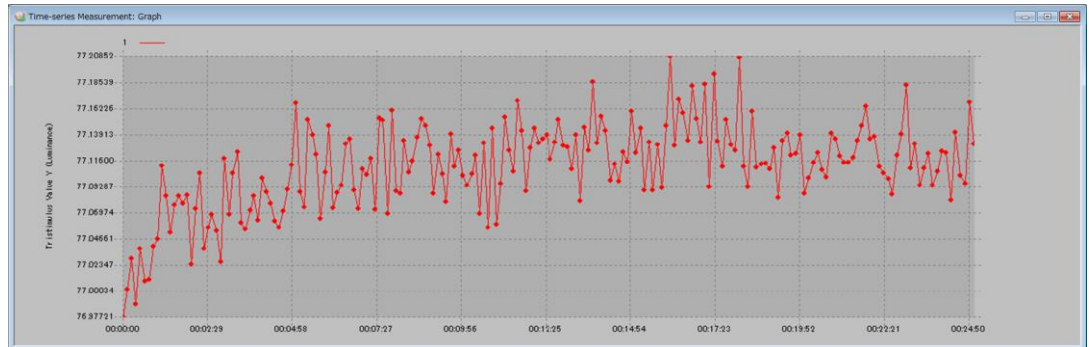


5.18.3 Display Time-series Measurement Graph

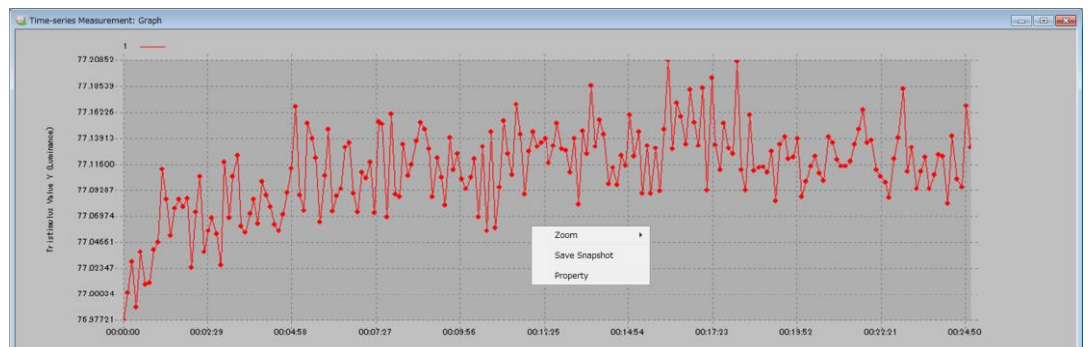
Property

Opens the Property window in order to change the axis scale for the time-series measurement graph. To open the time-series measurement graph property, go through the following steps.

- 1 Open the [Time-series Graph].



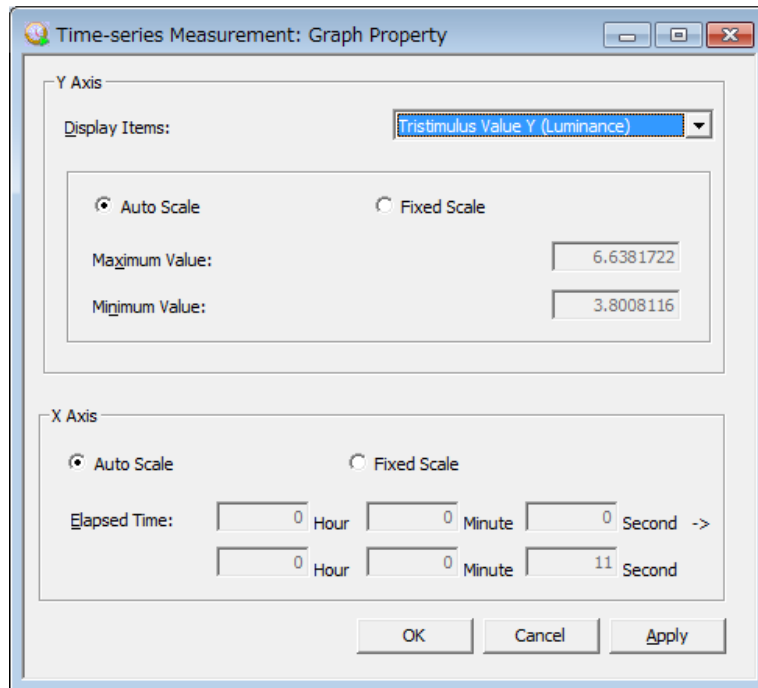
- 2 Right-click anywhere within [Chromaticity Diagram Graph].



- 3 The Pop-up menu is displayed. Select [Property].



- 4 The [Time-series Measurement Graph Property] is displayed.
When the setting is completed, click any button.
- [OK] Enables the setting and closes this window.
- [Cancel] Disables the setting and closes this window.
- [Apply] Enables the setting, and enables you to continue the setting without closing the window.



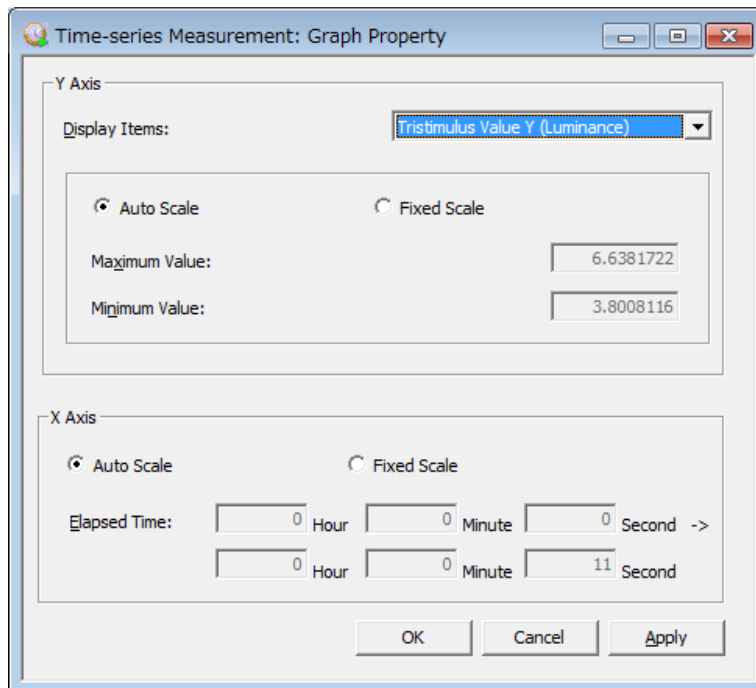
5.18.4 Change Scale of Time-series Graph

Sets the scale of the time-series measurement graph.

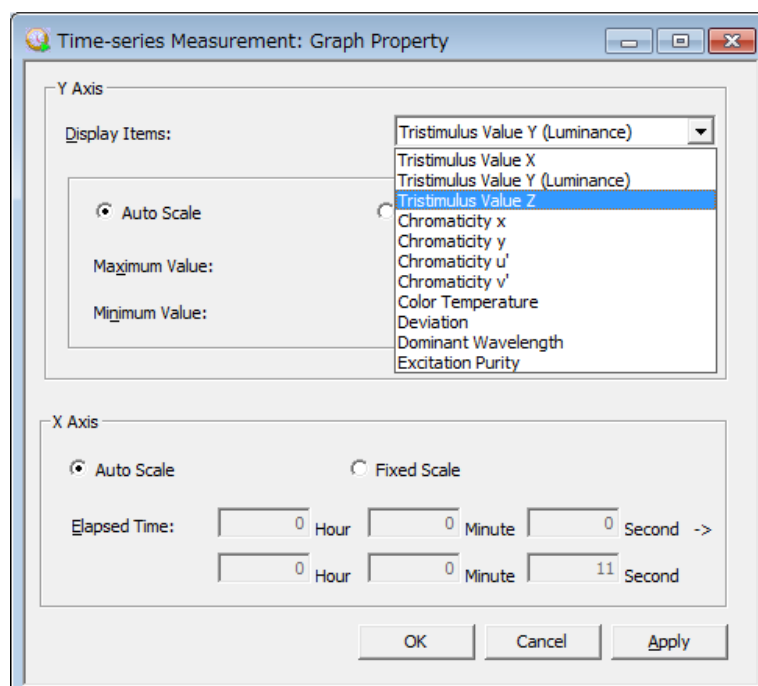
The setting content is permanently retained unless the zoom operation is executed.

- 1 Open the [Time-series Measurement Graph] and [Time-series Measurement Graph Property].

The example is based on the case when using the Zoom function on the Time-series Measurement Graph, but the procedure is the same when the Zoom function is not used.



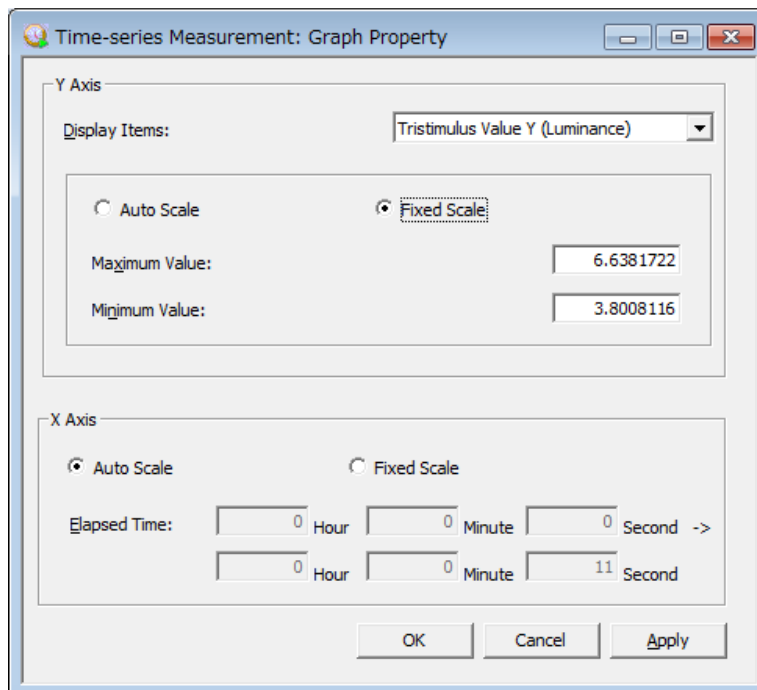
- 2 From [Display Items], select the item for which you wish to change the scale.



- 3 To set the [Y Axis] measurement value scale in arbitrary width, click the [Fixed Scale] radio button for [Y Axis].

Enter the maximum and minimum values of the displayed item in the edit box.

When the Auto Scale is selected, the zoom function is turned OFF.



When the Fixed Scale is selected, the setting ranges of the maximum and minimum values are as follows:

Tristimulus value

Maximum value: 1 to 9999999

Minimum value: 0 to 9999998

Chromaticity

Maximum value: 0.0001 to 0.999999

Minimum value: 0.0000 to 0.999998

Color temperature

Maximum value: 1564 to 100000

Minimum value: 1563 to 99999

Deviation

Maximum value: (-) 0.98 to 0.99

Minimum value: (-) 0.99 to 0.98

Dominant Wavelength

Maximum value: 361 to 830

Minimum value: 360 to 829

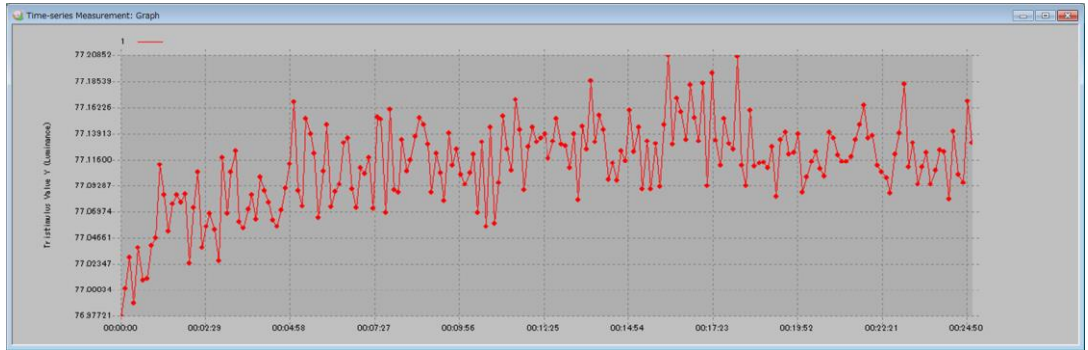
Excitation purity

Maximum value: 1 to 100

Minimum value: 0 to 99

For the above parameters, the maximum value is equal to or higher than the minimum setting value, and the minimum value is less than the maximum setting value.

When [Apply] is pressed after changing the property scale, the scale range is changed.



- 4 To set the [X Axis] measurement value scale in arbitrary width, click the [Fixed Scale] radio button for [X Axis]. Enter the maximum and minimum values of the elapsed time in the edit box. Since the entry range is not specified, the values can be entered even if they are out of the graph plot. Therefore, if the entry range is entered incorrectly, the plot is not displayed.

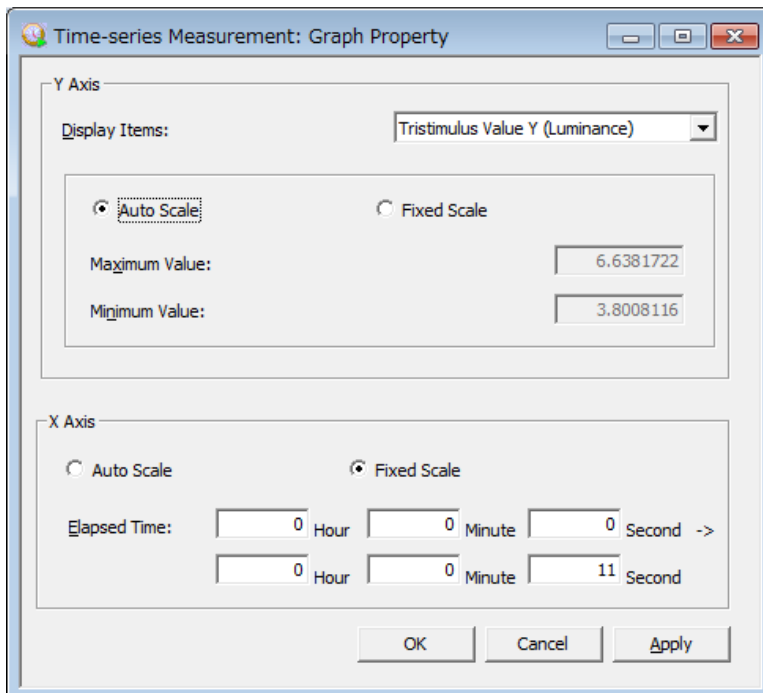
Selecting the Auto Scale displays the graph within the range of 0 second to the final elapsed time.

When the Fixed Scale is selected, the setting time ranges for hour, minute, and second are as follows. The ending time cannot exceed 87600 hours.

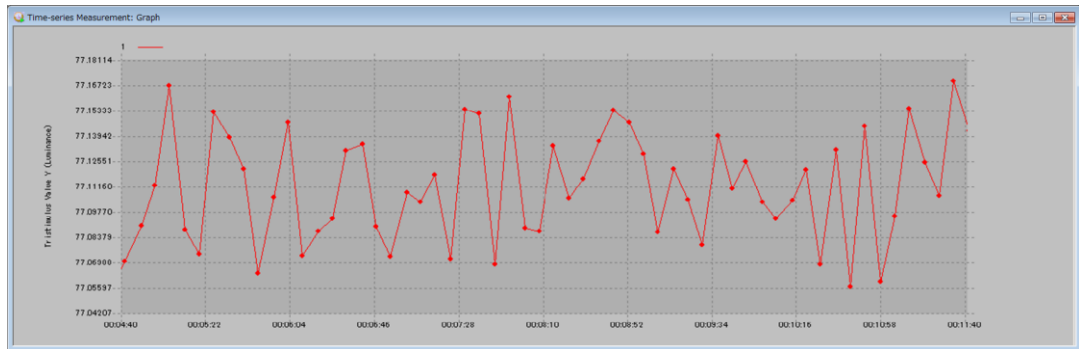
Hour: 0 to 87600

Minute: 0 to 59

Second: 0 to 59



When [Apply] is pressed after changing the property scale, the scale range is changed.



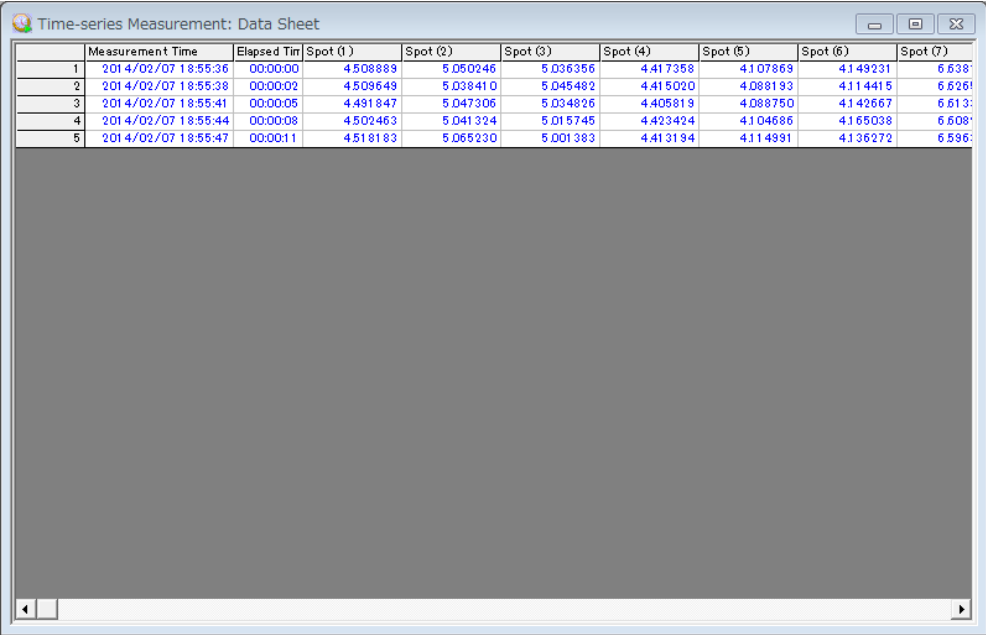
5.19 Time-series Measurement Data Sheet Operation

This function displays the measurement data varying in the measurement spot as time advances in a spreadsheet style.

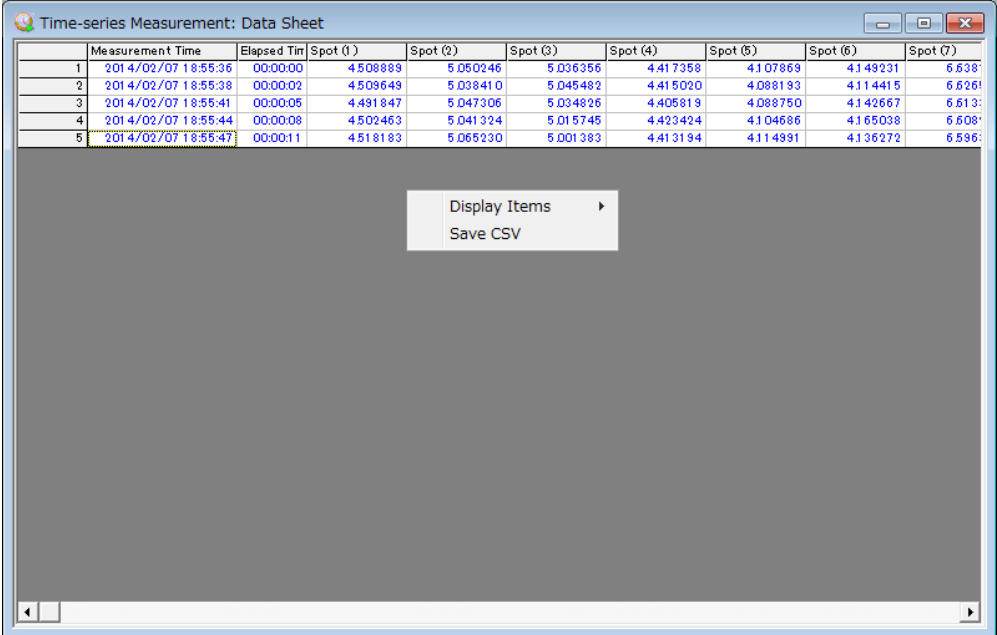
5.19.1 Switch Display Items of Data Sheet

On the [Time-series Measurement Data Sheet], one displayed item can be selected. To switch the displayed items, go through the following steps.

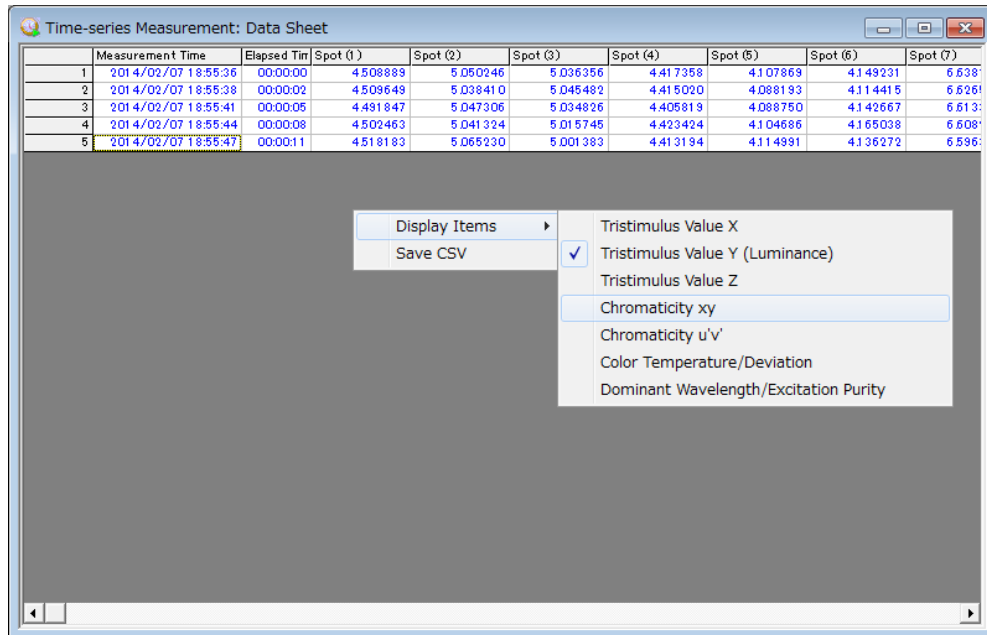
- 1 Activate the [Time-series Measurement Data Sheet].



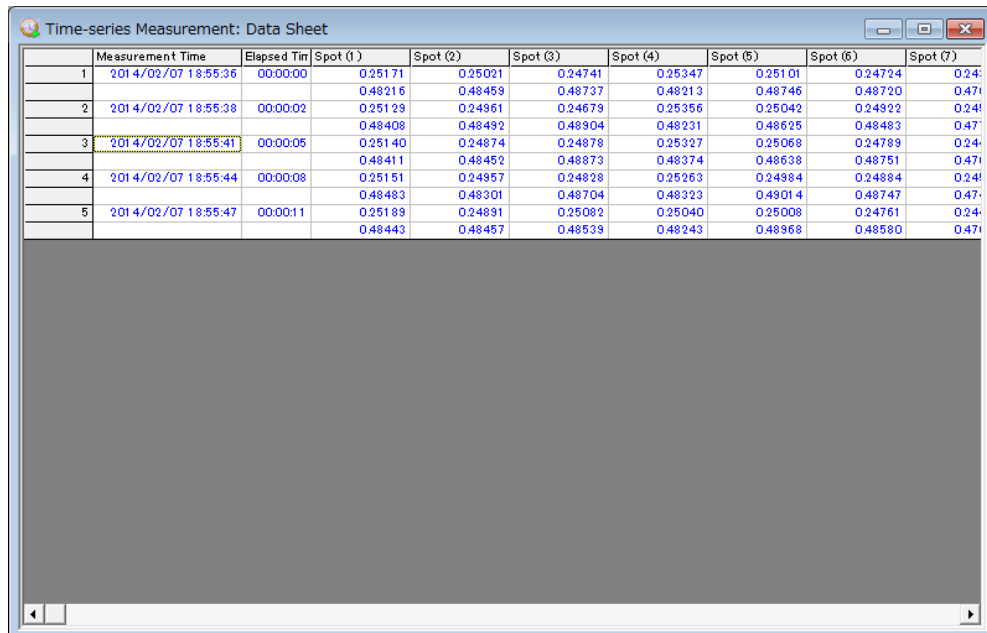
- 2 Right-click within [Time-series Measurement Data Sheet] to display the Pop-up menu.



- 3 Select the [Display Items] from the Pop-up menu and the display item list are displayed. Select the display item. Only one item can be displayed. When the item is set, the setting is applied to [Time-series Measurement Graph] to display the item on the graph.



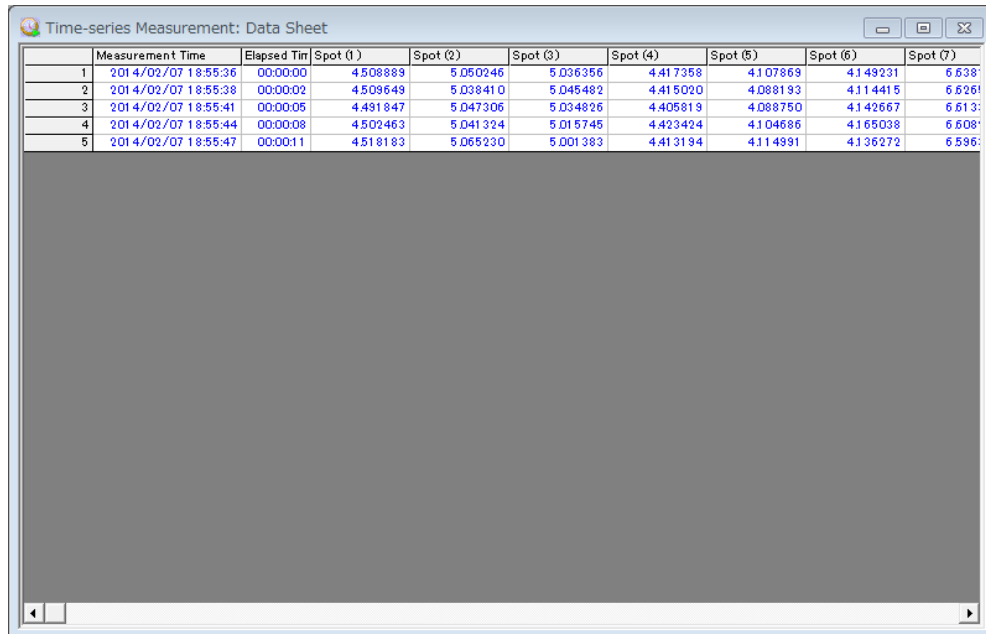
- 4 The selected data item is displayed.



5.19.2 Save Content of Data Sheet in CSV File Format

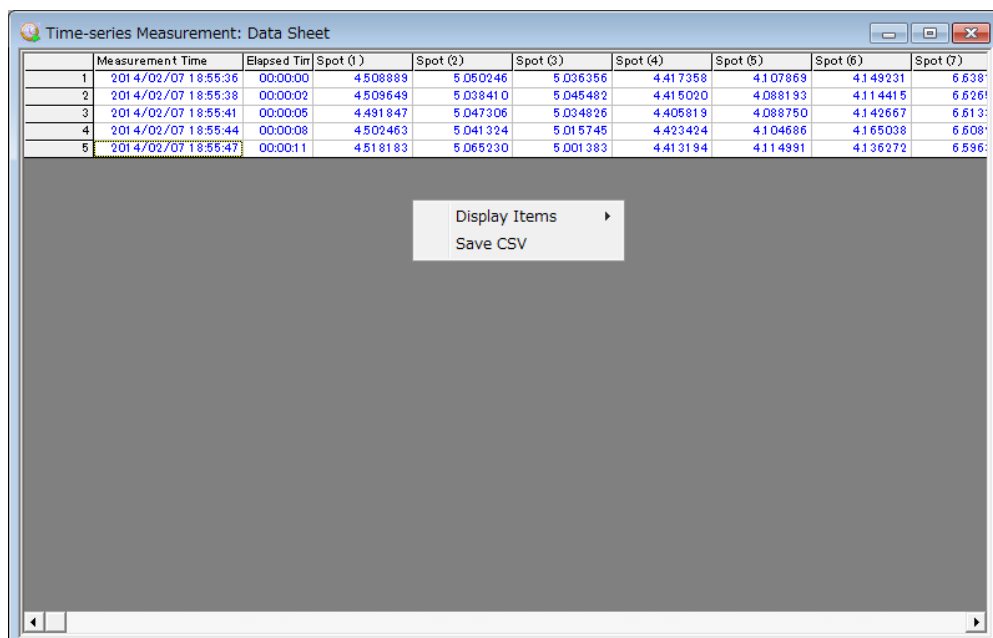
Saves the contents of the data sheet in CSV or TEXT file format. To save the data sheet, go through the following steps.

- 1 Open the [Time-series Measurement Data Sheet].



	Measurement Time	Elapsed Time	Spot (1)	Spot (2)	Spot (3)	Spot (4)	Spot (5)	Spot (6)	Spot (7)
1	2014/02/07 18:55:36	00:00:00	4.508889	5.050246	5.036356	4.417358	4.107869	4.149231	6.638
2	2014/02/07 18:55:38	00:00:02	4.509649	5.038410	5.045482	4.415020	4.088193	4.114415	6.626
3	2014/02/07 18:55:41	00:00:05	4.491847	5.047306	5.034826	4.405819	4.088750	4.142667	6.613
4	2014/02/07 18:55:44	00:00:08	4.502463	5.041324	5.015745	4.423424	4.104686	4.165038	6.608
5	2014/02/07 18:55:47	00:00:11	4.518183	5.065230	5.001383	4.413194	4.114991	4.136272	6.596

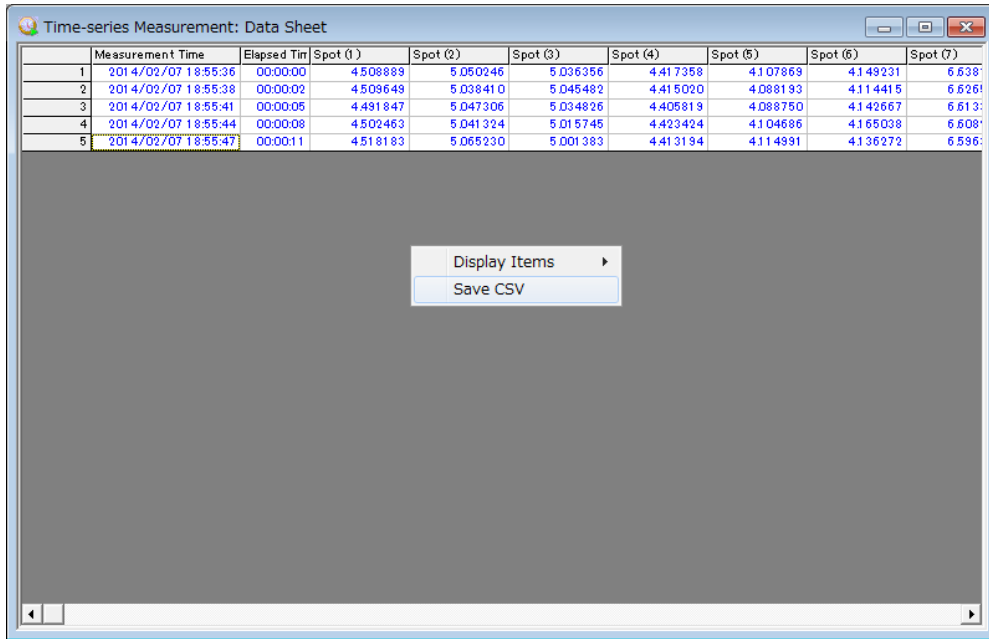
- 2 Right-click anywhere within [Time-series Measurement Data Sheet].



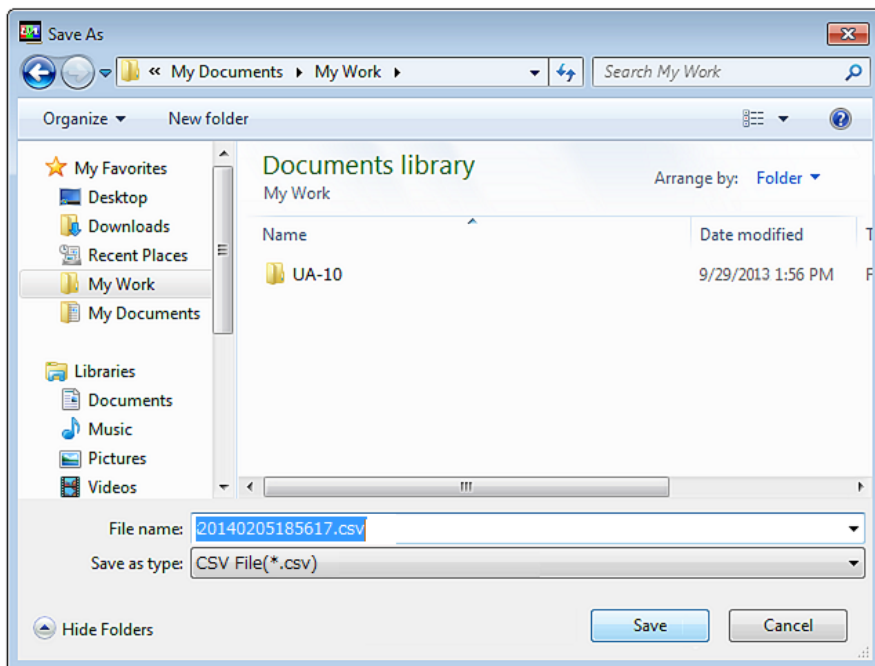
	Measurement Time	Elapsed Time	Spot (1)	Spot (2)	Spot (3)	Spot (4)	Spot (5)	Spot (6)	Spot (7)
1	2014/02/07 18:55:36	00:00:00	4.508889	5.050246	5.036356	4.417358	4.107869	4.149231	6.638
2	2014/02/07 18:55:38	00:00:02	4.509649	5.038410	5.045482	4.415020	4.088193	4.114415	6.626
3	2014/02/07 18:55:41	00:00:05	4.491847	5.047306	5.034826	4.405819	4.088750	4.142667	6.613
4	2014/02/07 18:55:44	00:00:08	4.502463	5.041324	5.015745	4.423424	4.104686	4.165038	6.608
5	2014/02/07 18:55:47	00:00:11	4.518183	5.065230	5.001383	4.413194	4.114991	4.136272	6.596

Display Items ▶
Save CSV

- 3 The Pop-up menu is displayed. Select [Save CSV].



- 4 The Explorer window will open. Specify the path, file name, and file format for the file to be saved.
The default file name is in the style of date + time.
For the file format, you can select the [CSV] or [TEXT]. Select the file format from the Pull-down menu.



- 5 The following is the status when a window is opened by Excel. The content displayed on the data sheet is saved.

Time-series Measurement Data Sheet

	Measurement Time	Elapsed Time	Spot (1)	Spot (2)	Spot (3)	Spot (4)	Spot (5)	Spot (6)	Spot (7)
1	2014/02/07 18:55:36	00:00:00	4.508889	5.060246	5.036356	4.417358	4.107869	4.149231	6.6381
2	2014/02/07 18:55:38	00:00:02	4.509649	5.038410	5.045482	4.415020	4.088193	4.114415	6.6261
3	2014/02/07 18:55:41	00:00:05	4.491847	5.047306	5.034826	4.405819	4.088750	4.142667	6.6131
4	2014/02/07 18:55:44	00:00:08	4.502463	5.041324	5.015745	4.423424	4.104686	4.165038	6.6081
5	2014/02/07 18:55:47	00:00:11	4.518183	5.065230	5.001383	4.413194	4.114991	4.136272	6.5961

	A	B	C	D	E	F	G	H
1		Measurement Time	Elapsed Time	Spot (1)	Spot (2)	Spot (3)	Spot (4)	Spot (5)
2	1	2014/2/7 18:55	0:00:00	4.508889	5.050246	5.036356	4.417358	4.107869
3	2	2014/2/7 18:55	0:00:02	4.509649	5.03841	5.045482	4.41502	4.088193
4	3	2014/2/7 18:55	0:00:05	4.491847	5.047306	5.034826	4.405819	4.08875
5	4	2014/2/7 18:55	0:00:08	4.502463	5.041324	5.015745	4.423424	4.104686
6	5	2014/2/7 18:55	0:00:11	4.518183	5.06523	5.001383	4.413194	4.114991
7								
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21								

6. File Menu Operation

6.1 Open Measurement Image

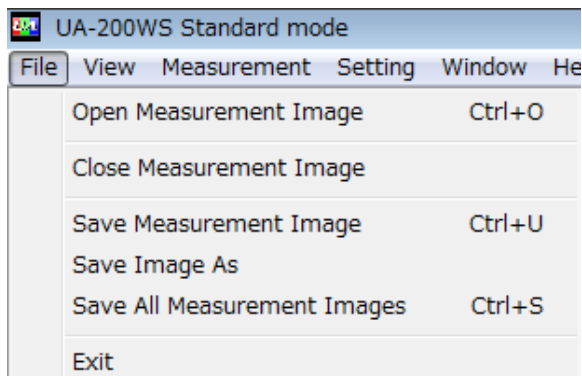
Loads the saved measurement image file to be displayed.

To open the measurement image file, go through the following steps.

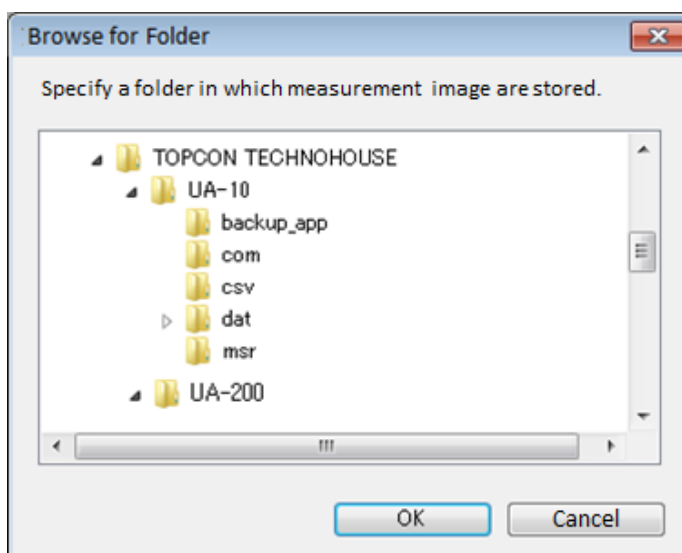
6.1.1 Open from File Menu

Opens the measurement image file from the File menu. To open the measurement image from the File menu, go through the following steps.

- 1 From the Menu bar, select [File] – [Open Measurement Image].



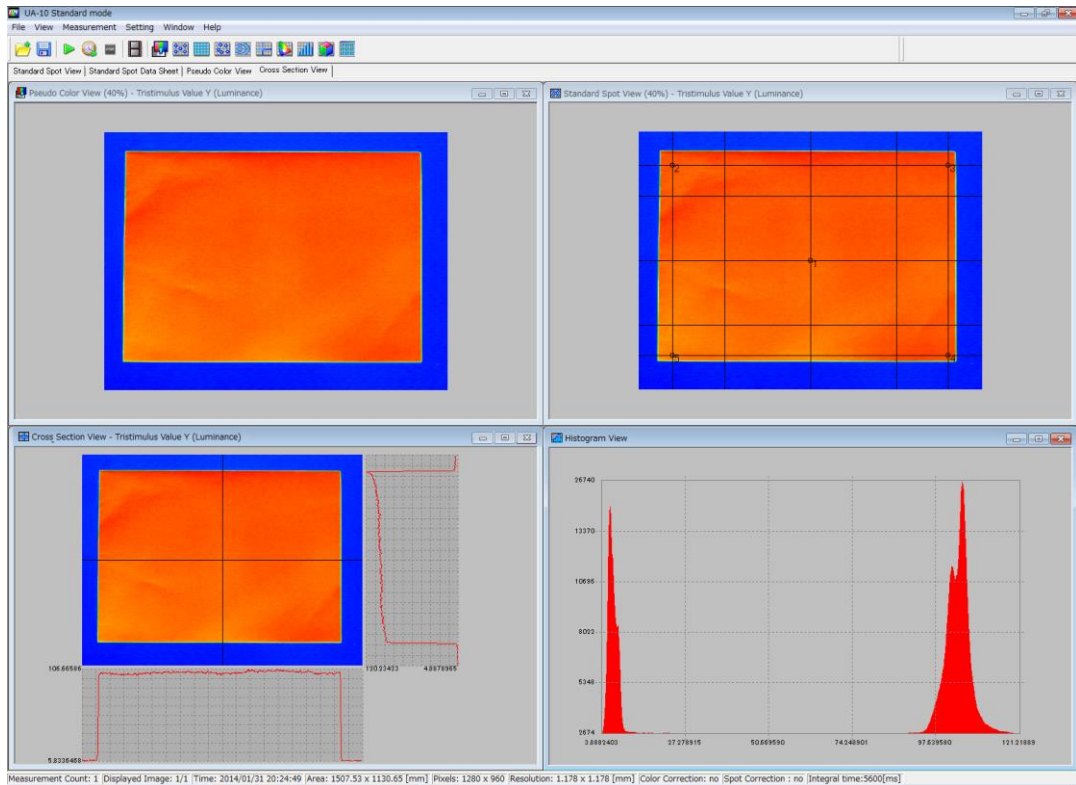
- 2 [Browse Folder] dialog will open. Specify the folder where the measurement image is to be saved. After selecting the folder, click [OK].



 Memo

Folders on the network can be selected.

5 The loaded measurement image is displayed.



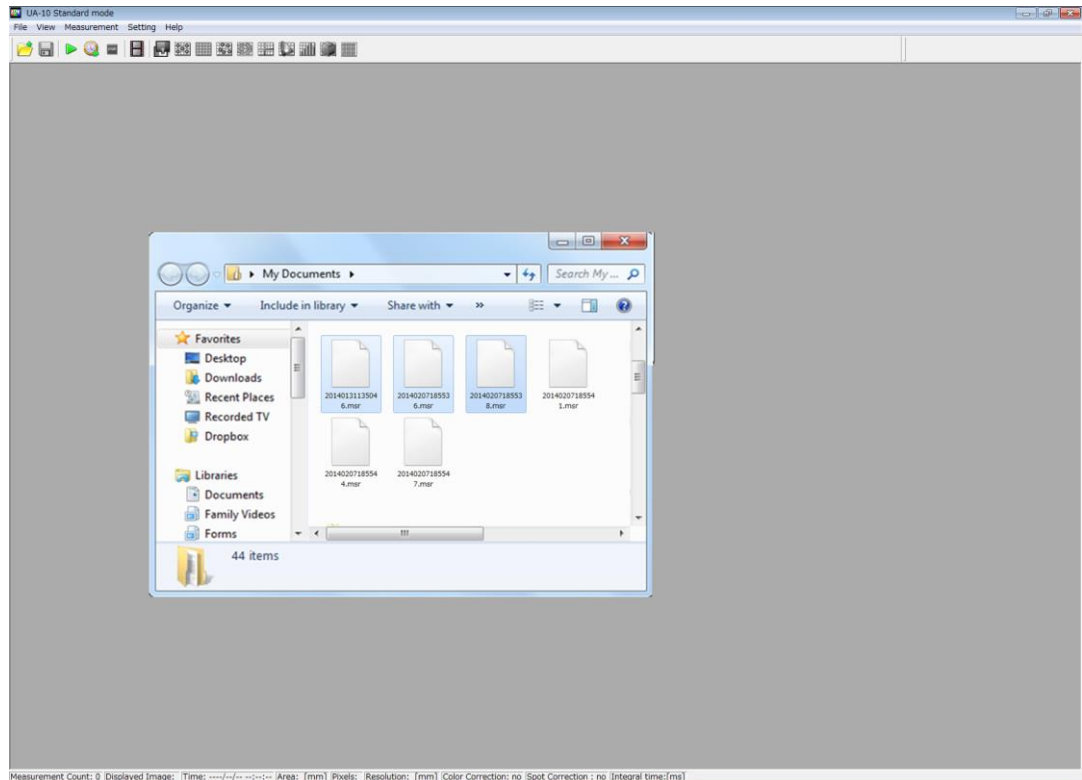
Note

- This software can retain up to 999 measurement images. You can open the measurement image files repeatedly with the maximum number limited to 999 including the number of currently retained files. However, if a large number of measurement image files are opened at once, it may take more time to completely open the files.
- If you try to open a measurement image file that is already open, the warning dialog will appear and the opening will stop.
- This software load only the image file saved by the UA-10.

6.1.2 Open Folder by Drag & Drop Operation

Opens the measurement image by drag & drop operation. To open the measurement image by drag & drop operation, go through the following steps.

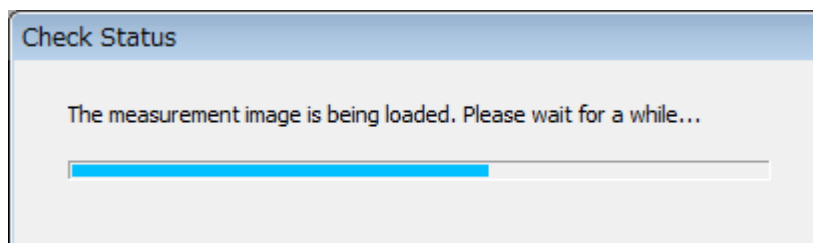
- 1 Open the UA-10 software.
- 2 Open the folder where the measurement image is saved. After opening the folder, select the measurement image to be loaded, and drag and drop the image on the main window.



Memo

When opening the measurement image by drag & drop operation, you can select several image files at a time.

- 3 The [Check Status] dialog will open.



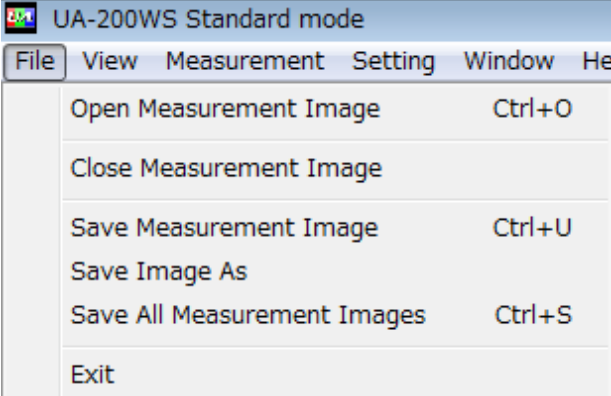
Memo

Increasing the number of measurement images will take more time.

6.2 Close Measurement Image

Closes the currently displayed measurement image.

- 1 From the Menu bar, select [File] – [Close Measurement Image].



- 2 If there is a measurement image to be saved such as a trimmed measurement image, the following dialog will appear.

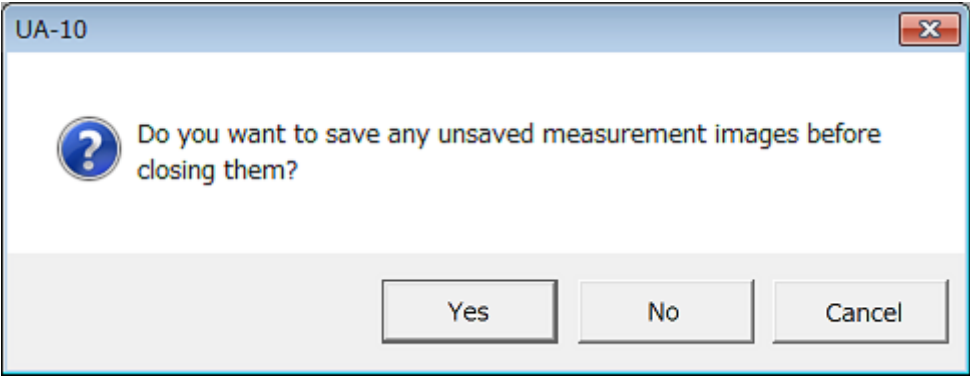
To save the file, select [Cancel] to save the measurement image.

Open Time-series Layout ☞ "6.3 Save Measurement Image"

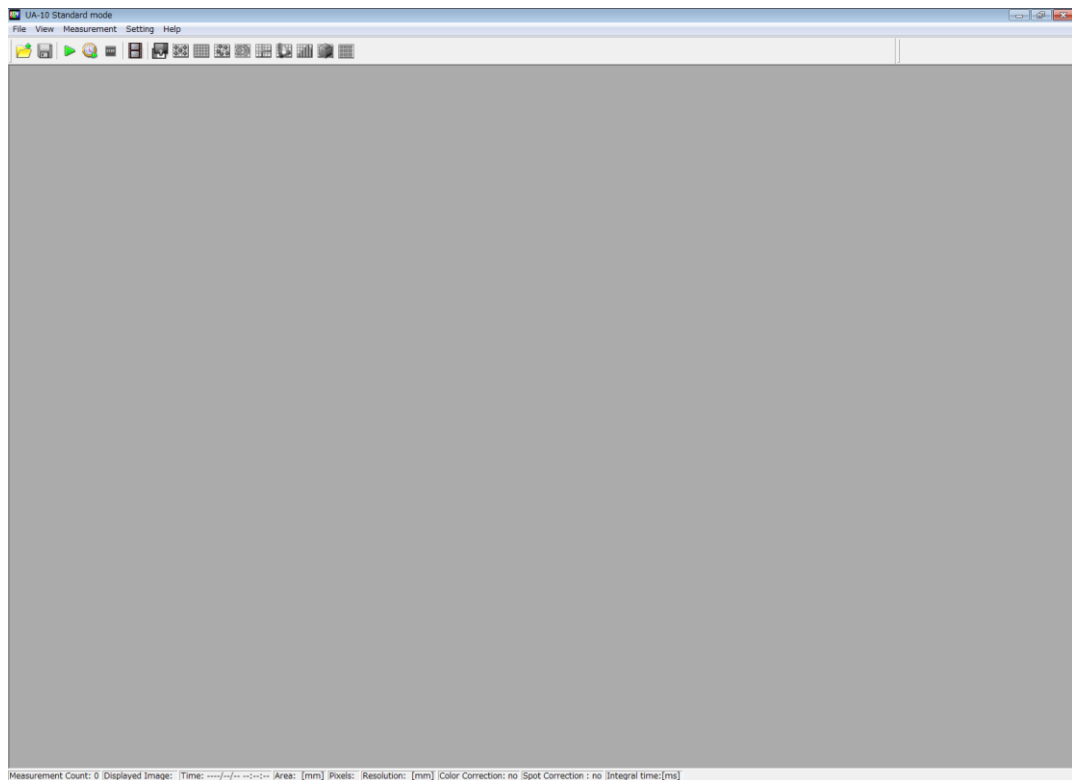
Selecting [Yes] saves all the measurement images to be saved.

Selecting [No] discards the measurement image to be saved.

Selecting [Cancel] will cancel this operation.



3 When [Yes] or [No] is selected, the measurement image is closed.



 Memo

“Measurement images to be saved” mean following condition:
The measurement image which was not yet saved after the measurement
When the saved measurement image is trimmed
When the standard spot of the saved measurement image is changed
When the random spot of the saved measurement image is changed
When the split spot of the saved measurement image is changed

6.3 Save Measurement Image

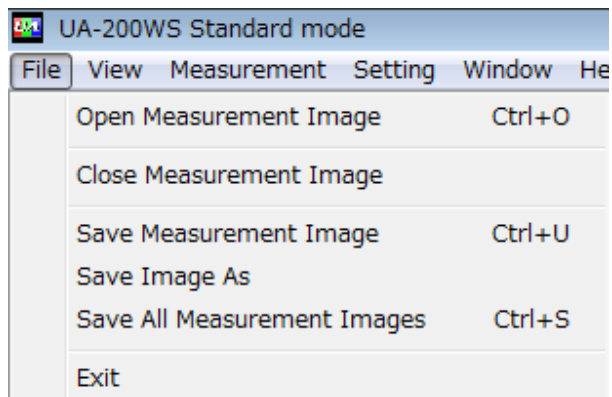
Saves the currently displayed measurement image.

Only when the displayed measurement image is a “Measurement image to be saved”, the menu becomes enabled.

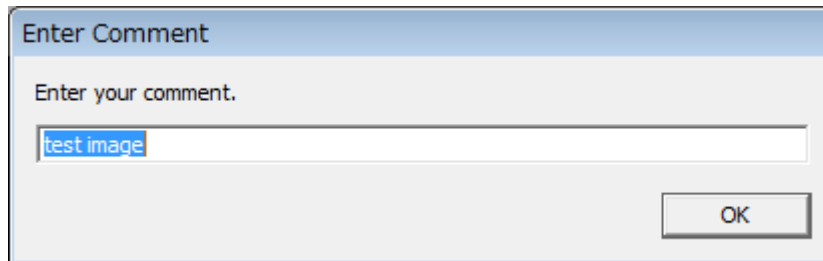
6.3.1 Save Measurement Image

Saves the measurement image. To save the measurement image, go through the following steps.

- 1 From the Menu bar, select [File] – [Save Measurement Image].



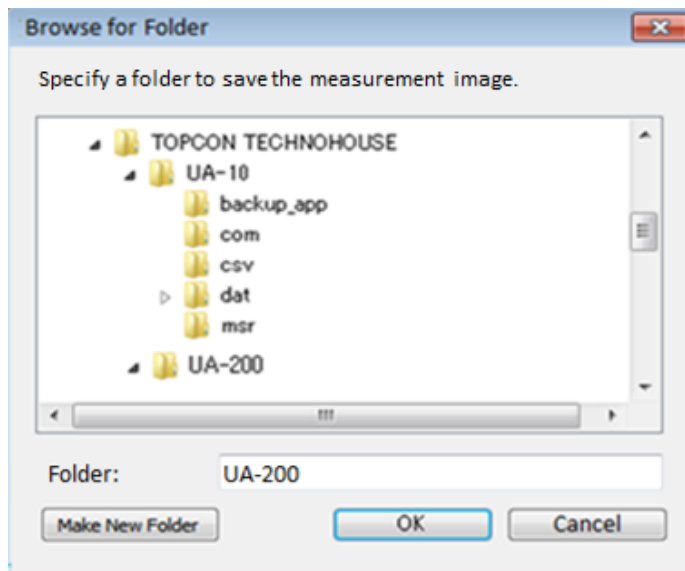
- 2 The [Enter Comment] dialog is displayed.
If you want, enter the comment. And then, click [OK] button. Leave the comment field blank if you don't need to enter any remarks.



Memo

- When resaving the image file, the previously entered comment is displayed.
- Up to 260 one-byte characters can be entered in the comment field.

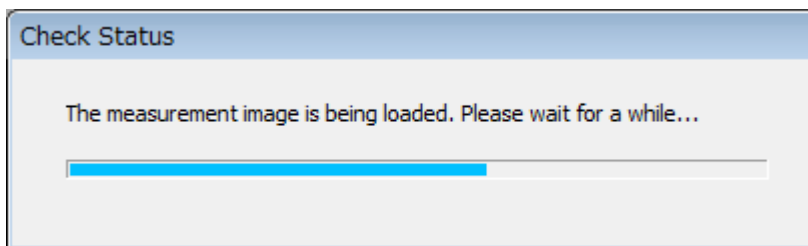
- 3 The [Browse Folder] dialog will open. Select the folder in which you want to save the file(s), and then click the [OK] button.
Folders on the network can be selected.
To create a new folder, click [Create New Folder]. A new folder is created. Enter the folder's name.
Specify the folder containing the measurement image(s).



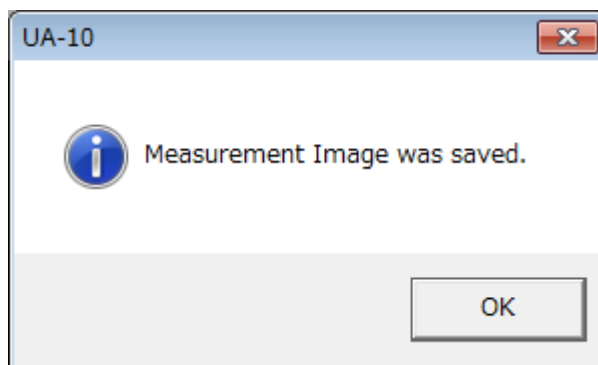
 Memo

Folders on the network can be selected.

- 4 If it will take a long time to save the measurement image(s), the [Check Status] dialog will open.



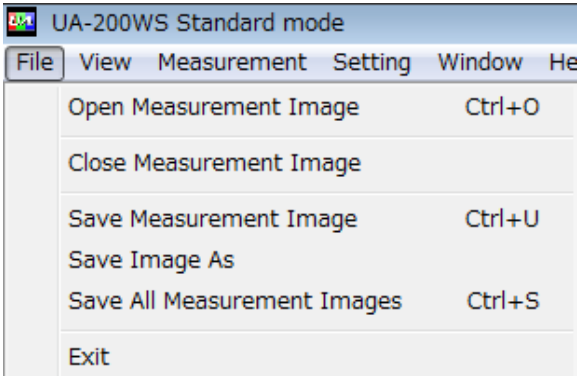
- 5 When the saving operation complete, the following dialog will appear. Click the [OK].



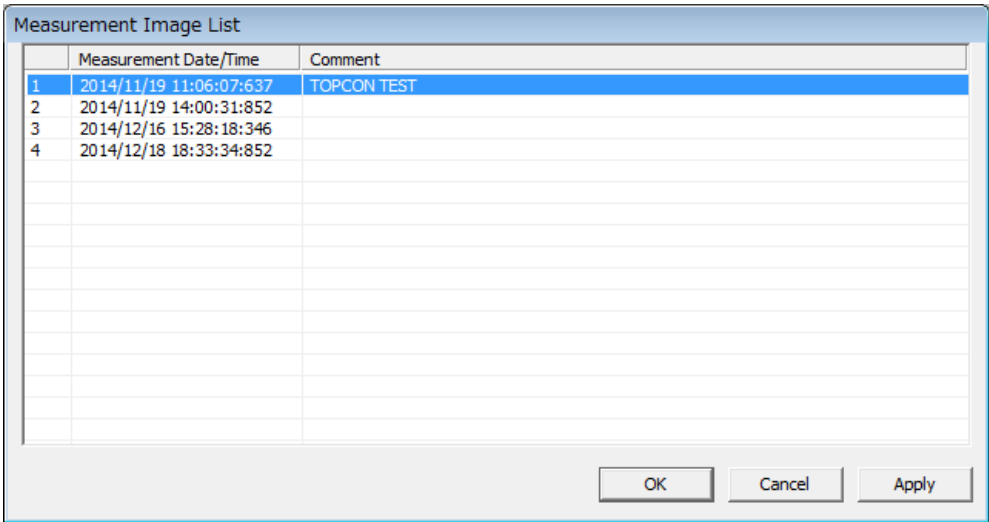
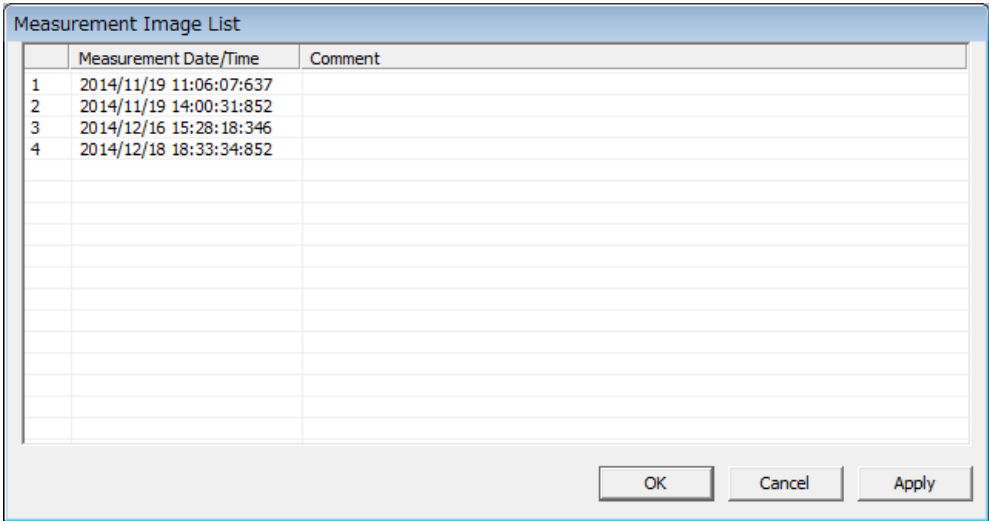
6.3.2 Save All Measurement Images

Saves the measurement images. To save the measurement images, go through the following steps.

- 1 From the Menu bar, select [File] – [Save All Measurement Images].

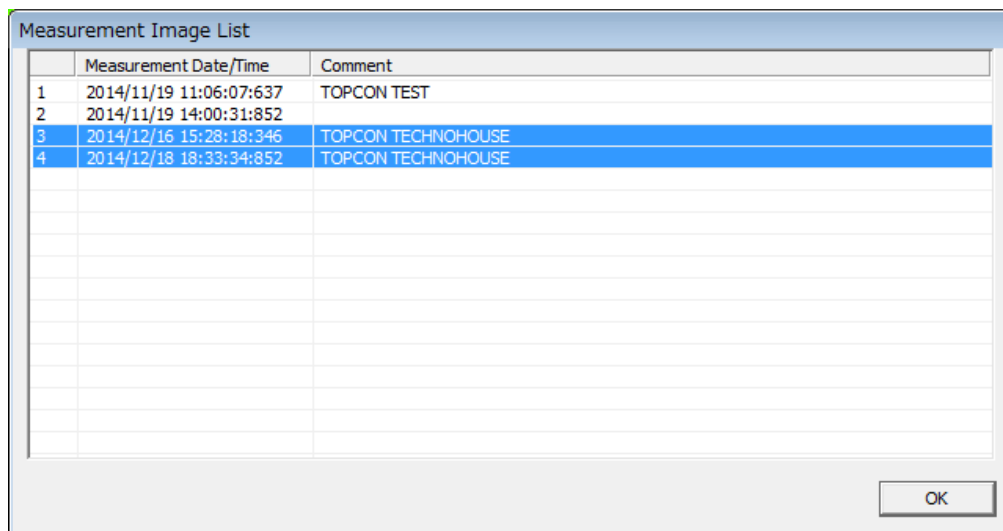
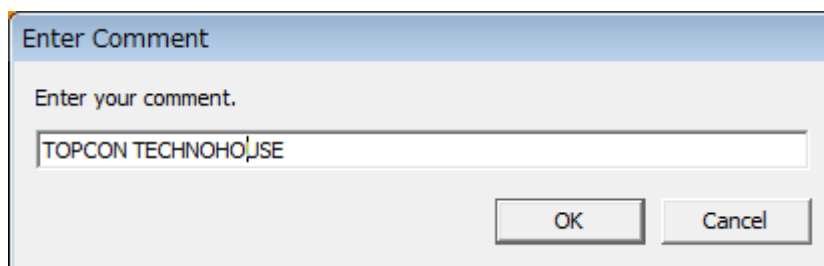
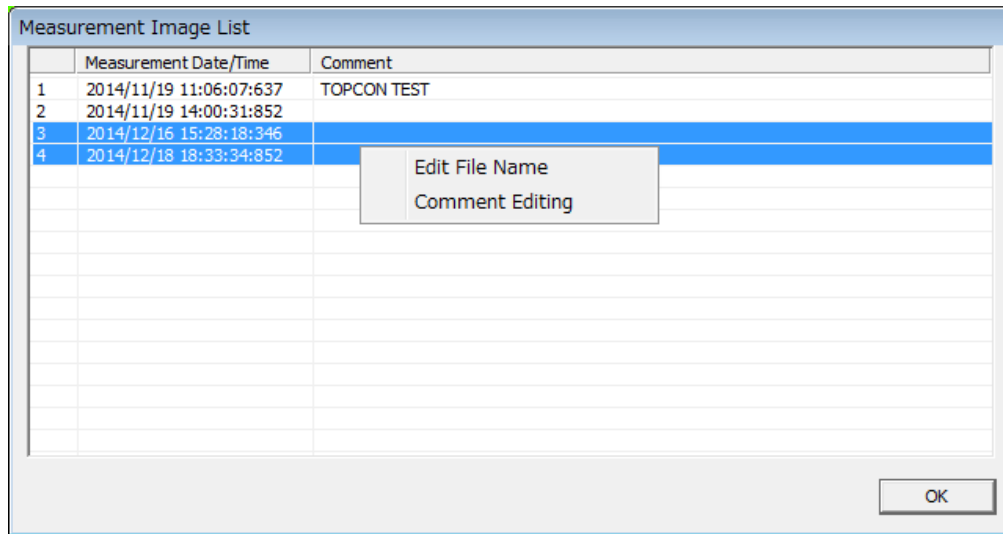


- 2 [Measurement Image List] dialog will appear. Edit and enter comments in the comment column.



- 3 When you want to enter the same comment in several column, select columns to be entered comment in the [Measurement Image List], and right click them and select the [Comment Editing].

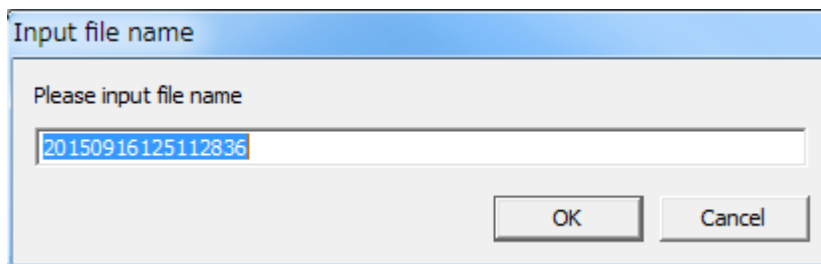
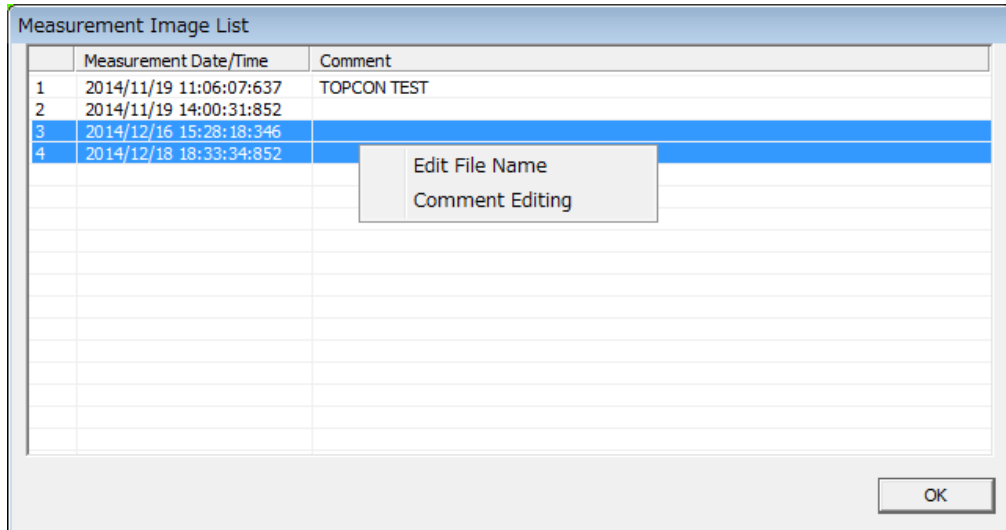
Comment entered in the [Enter Comment] dialog is entered to all selected columns.



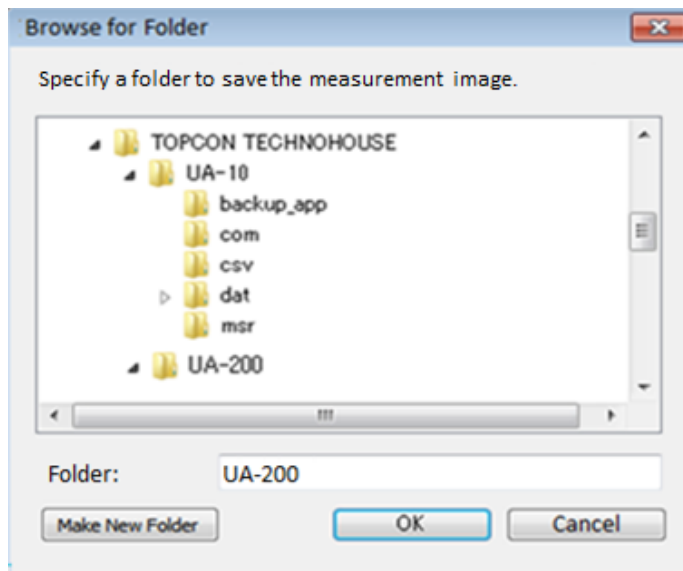
 Memo

- When resaving the image file, the previously entered comment is displayed.
- Up to 260 one-byte characters can be entered in the comment field.

- 4 When you want to enter the same comment in several column, select columns to be entered comment in the [Measurement Image List], and right click them and select the [Comment Editing]. Select the relevant image on the [Measurement Image List] and right-click to select [Edit File Name]. The file name of the selected measurement image is set in the [Input file name] dialog.



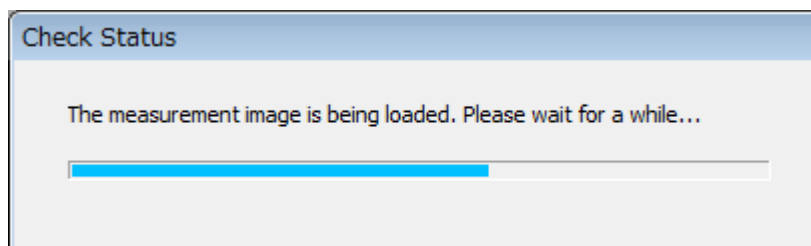
- 5 The [Browse Folder] dialog will open. Select the folder in which you want to save the file(s), and then click the [OK] button.
Folders on the network can be selected.
To create a new folder, click [Create New Folder]. A new folder is created. Enter the folder's name.
Specify the folder containing the measurement image(s).



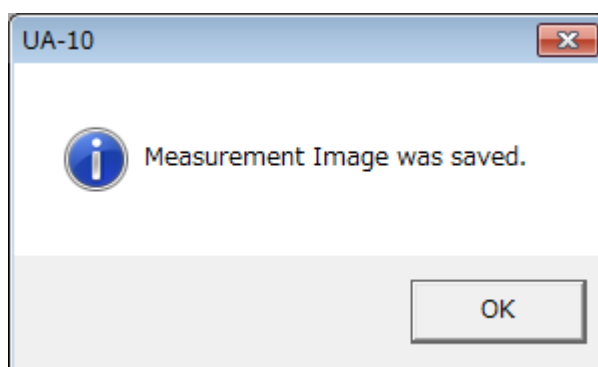
 Memo

Folders on the network can be selected.

- 6 If it will take a long time to save the measurement image(s), the [Check Status] dialog will open.



- 7 When the saving operation complete, the following dialog will appear. Click [OK].

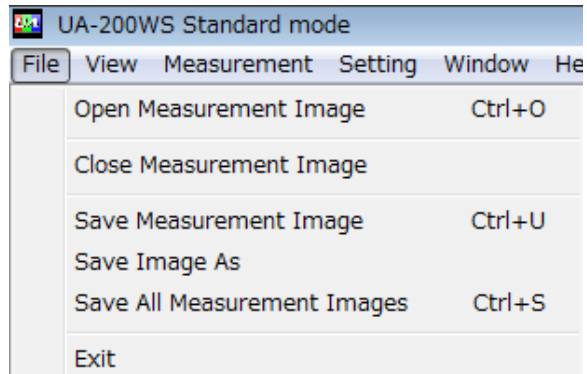


6.3.3 Save Measurement Image with Another Name

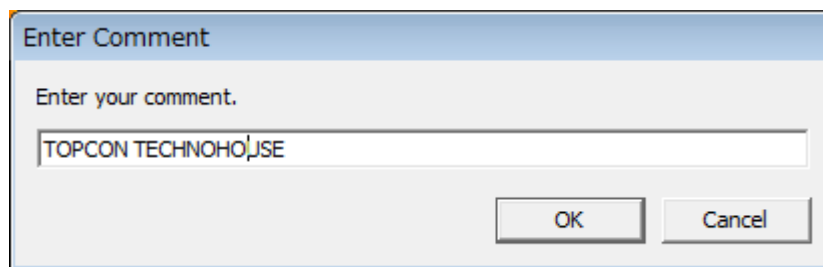
Saves the measurement image with another name.

To save the measurement image with another name, go through the following steps.

- 1 From the Menu bar, select [File] – [Save Image As].



- 2 The [Enter Comment] dialog is displayed. If you want, enter the comment. And then, click [OK]. Leave the comment field blank and click [OK] if you don't need to enter any remarks.



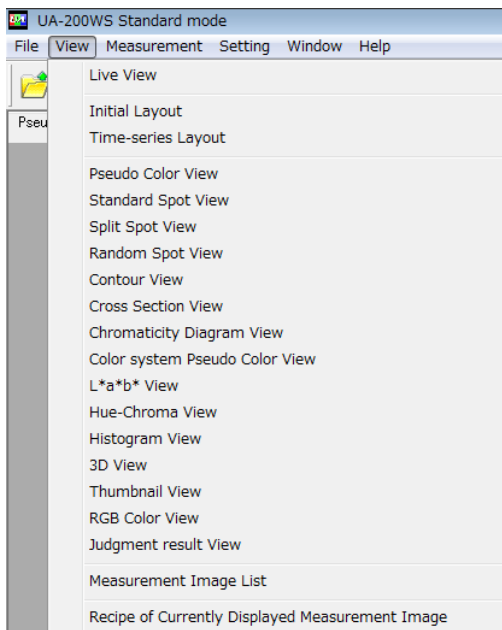
- 3 The [Save Image As] dialog is opened. Select the destination folder to save the image, set a file name and click [OK].
Folders on the network can be selected.

6.4 Switch View Layout

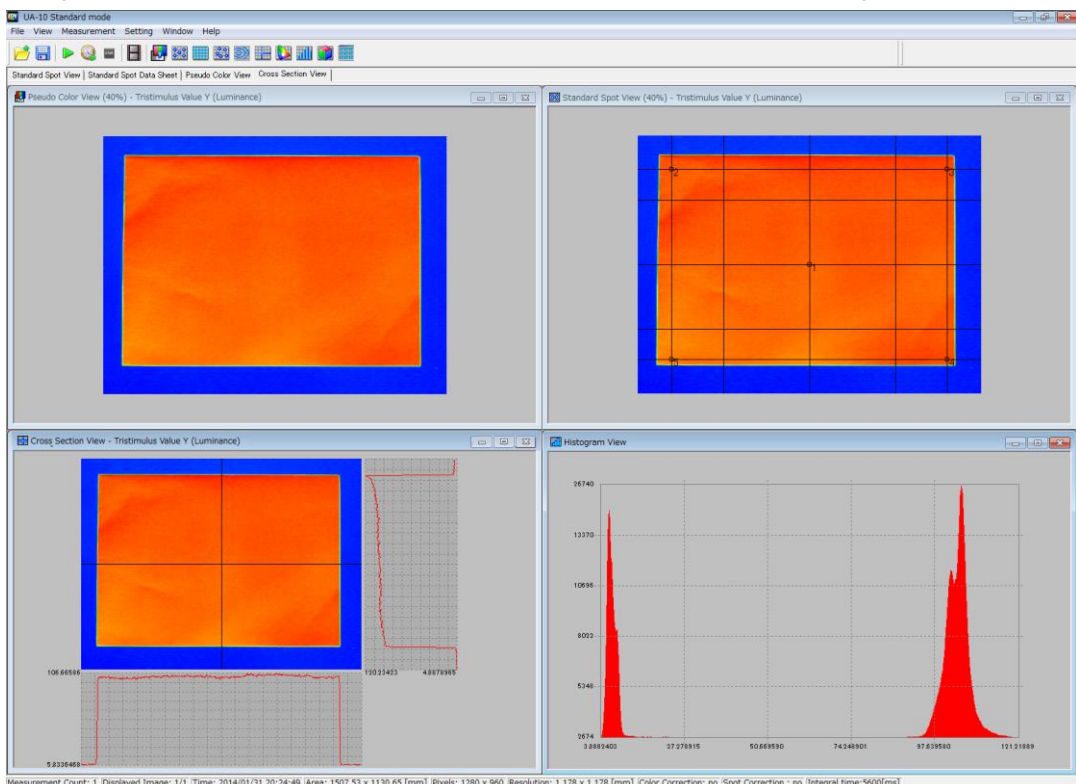
6.4.1 Open Initial Layout

Displays the measurement image in a layout set by means of the [Initial Layout Setting]. To display the initial layout, go through the following steps.

- 1 From the Menu bar, select [View] – [Initial Layout] sequentially.



- 2 The [Initial Layout] window is displayed. If you select the menu while the current measurement image is displayed, all the windows will close, and the measurement image will be redisplayed in the layout set in the [Initial Layout Setting].

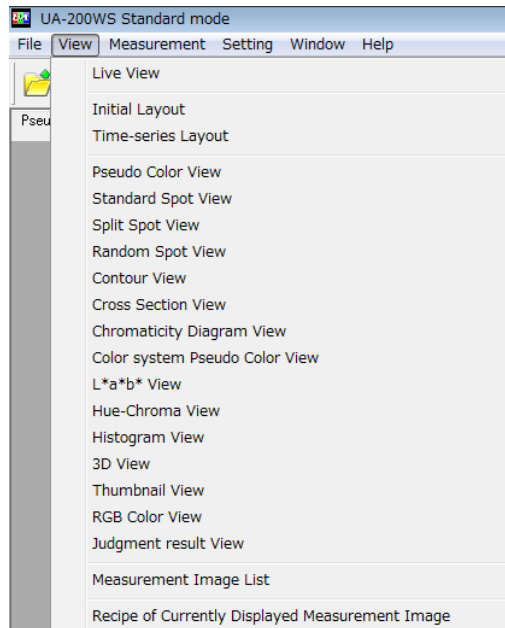


6.4.2 Open Time-series Layout

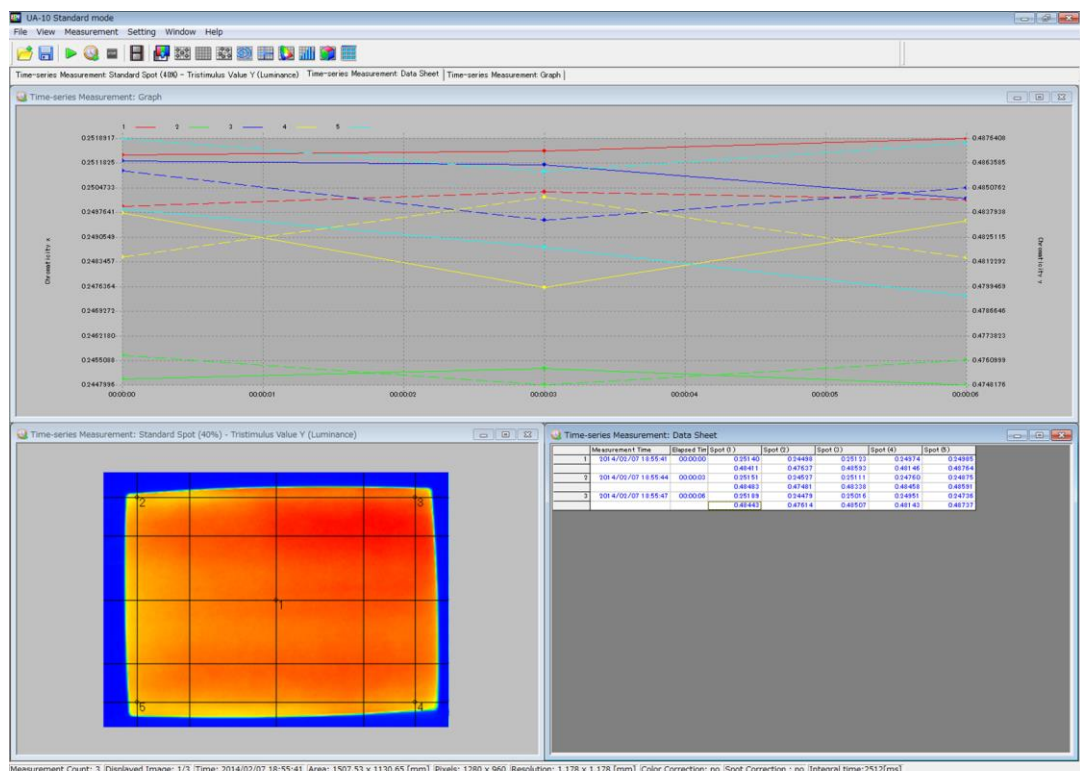
Displays the measurement image in dedicated layout for a time-series. If you select the menu while the current measurement image is displayed, all the windows will close, and the measurement image will be redisplayed in the [Time-series Layout].

Time-series layout is a fixed layout for [Time-series Measurement View], [Time-series Measurement Graph], and [Time-series Measurement Data Sheet].

- 1 From the Menu bar, click [View] – [Time-series Layout].



- 2 The [Time-series Layout] window is displayed.

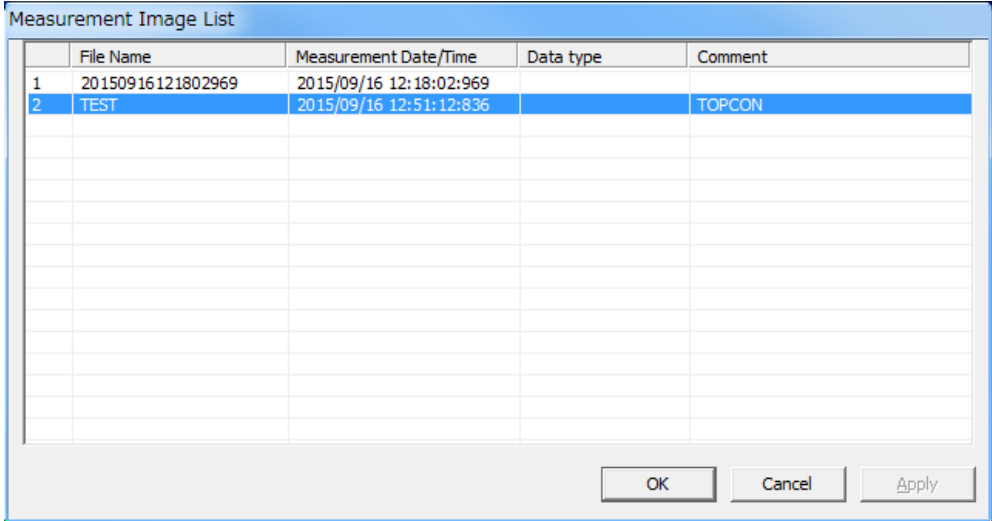
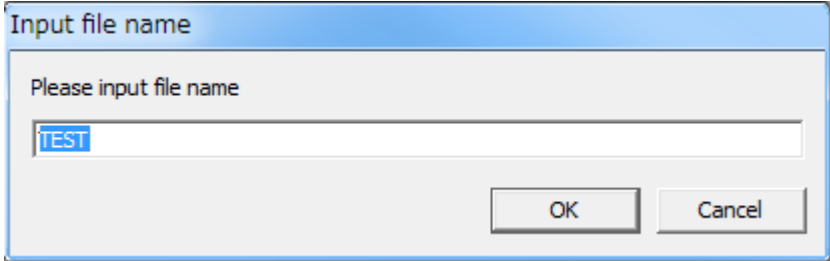
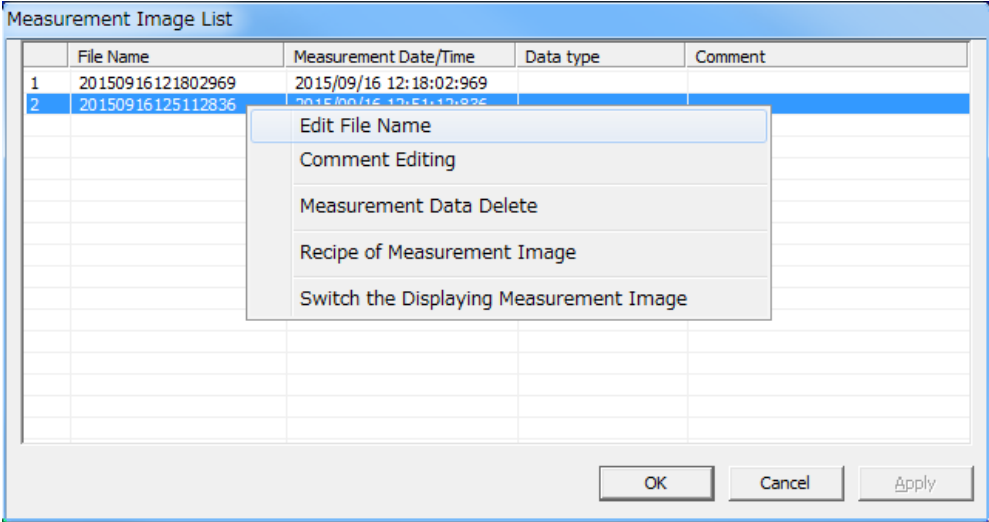


6.5.1 Change File Name

Edits the file name of the measurement image.

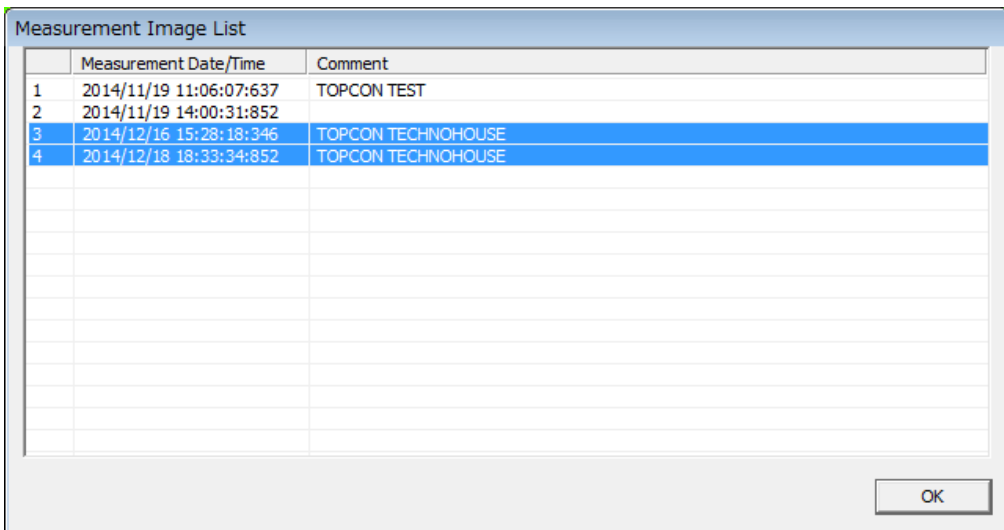
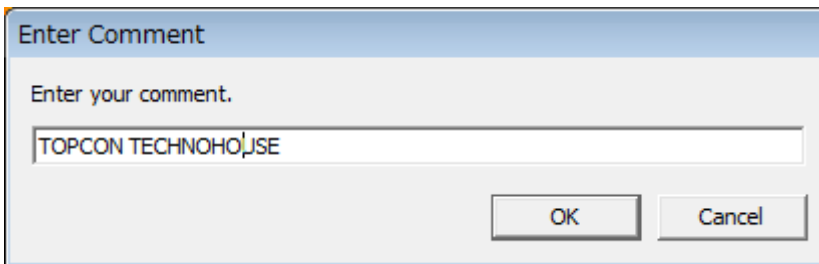
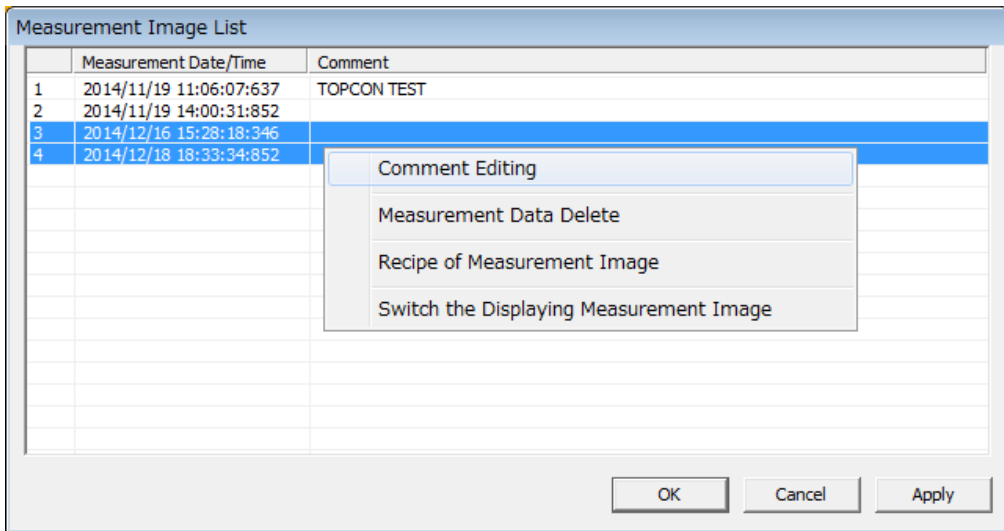
To edit the file name of the measurement image, go through the following steps.

Select the measurement data to be edited and select [Edit File Name] by right-clicking.



- 2 When you want to enter the same comment in several column, select columns to be entered comment in the [Measurement image List], and right click them and select the [Comment Editing].

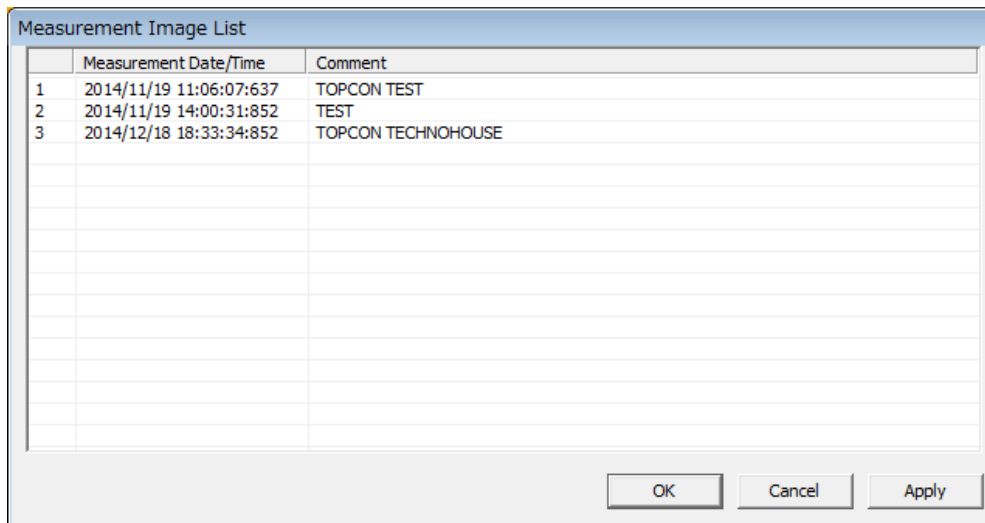
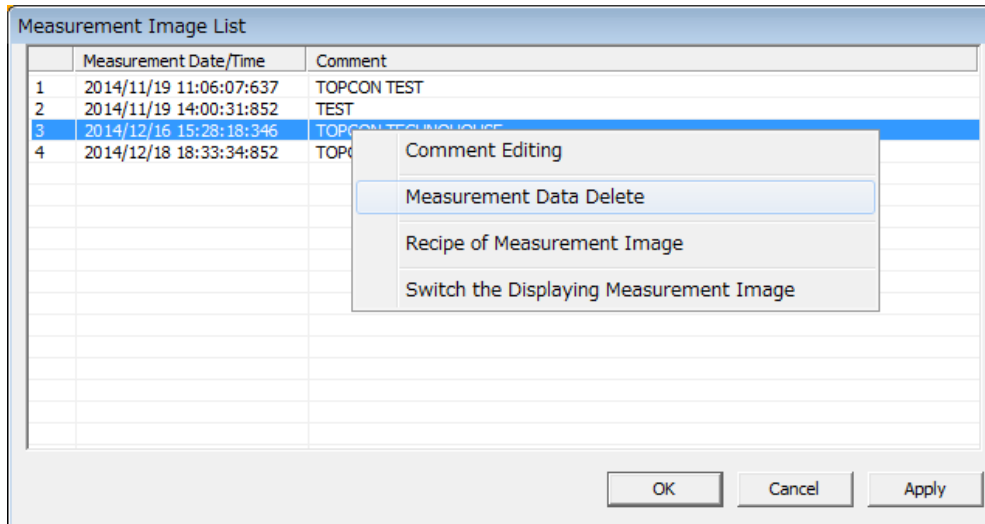
Comment entered in the [Enter Comment] dialogue is entered to all selected columns



6.5.3 Measurement Data Delete

Deleting measurement data in memory. To delete measurement data in memory, go through following steps.

Select measurement data to be deleted and select the [Measurement Data Delete] with right click.

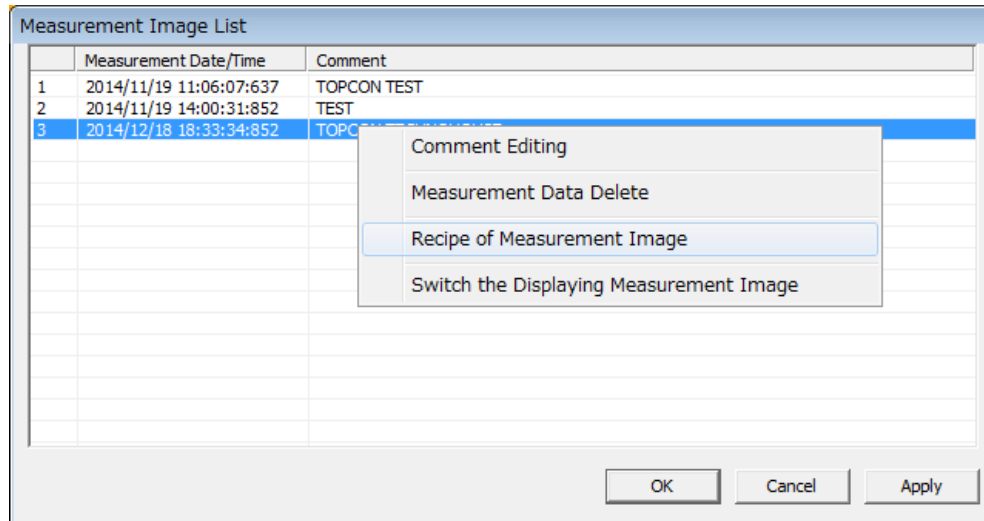


6.5.4 Recipe of Measurement Image

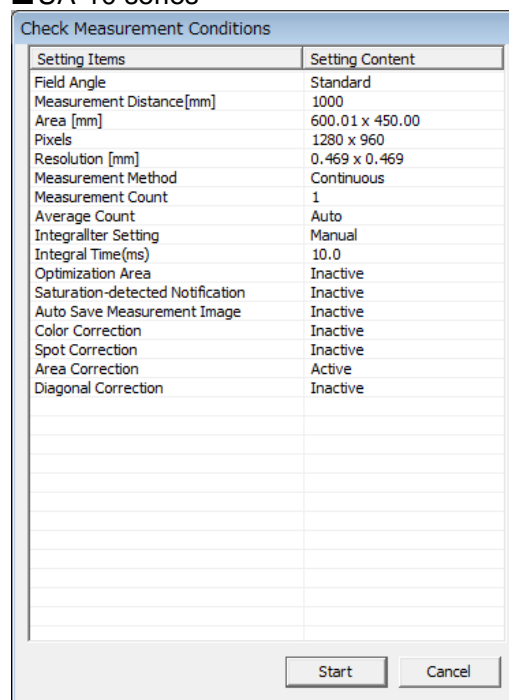
Displaying a measurement recipe.

To display a measurement recipe, go through following steps.

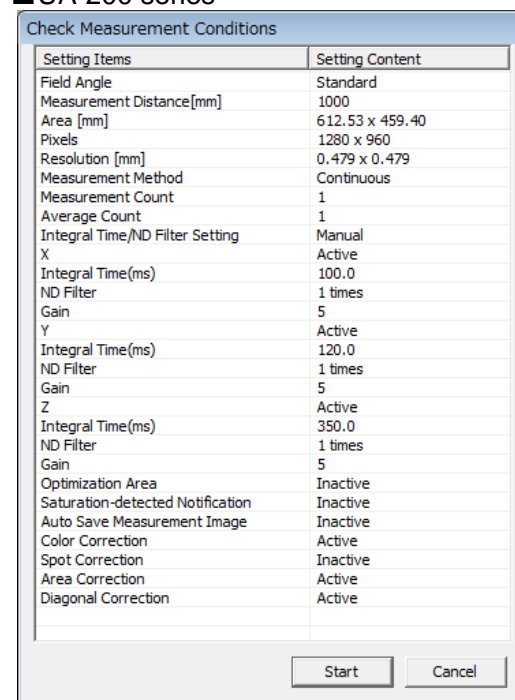
Select a measurement recipe to be displayed and then select the [Recipe of Measurement Image] with right click.



■ UA-10 series



■ UA-200 series



6.5.5 Switch the Displaying Measurement Image

Changing measurement image on the display.

To change measurement image, go through following steps.

Select a measurement image to be displayed, and then select the [Switch the Displaying Measurement Image] with right click.

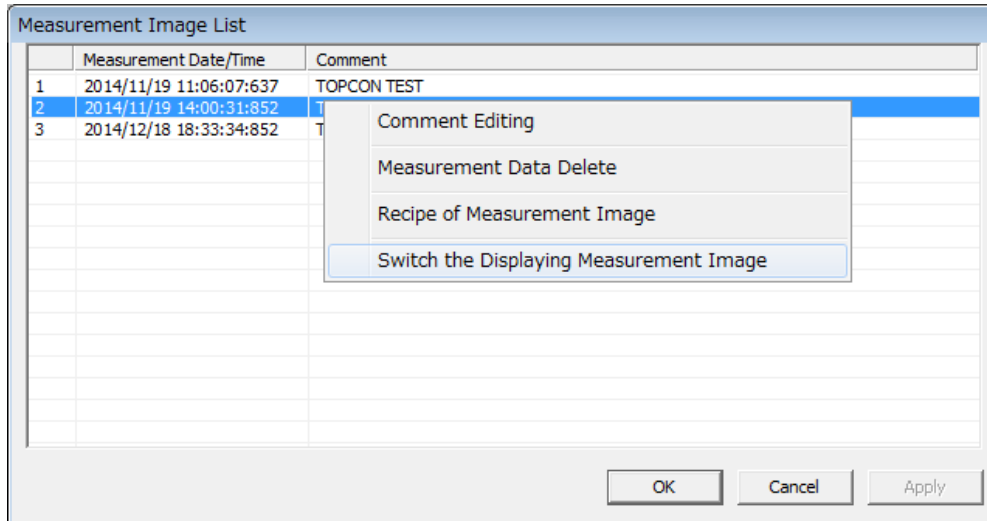


Image on the display is changed to selected measurement image.

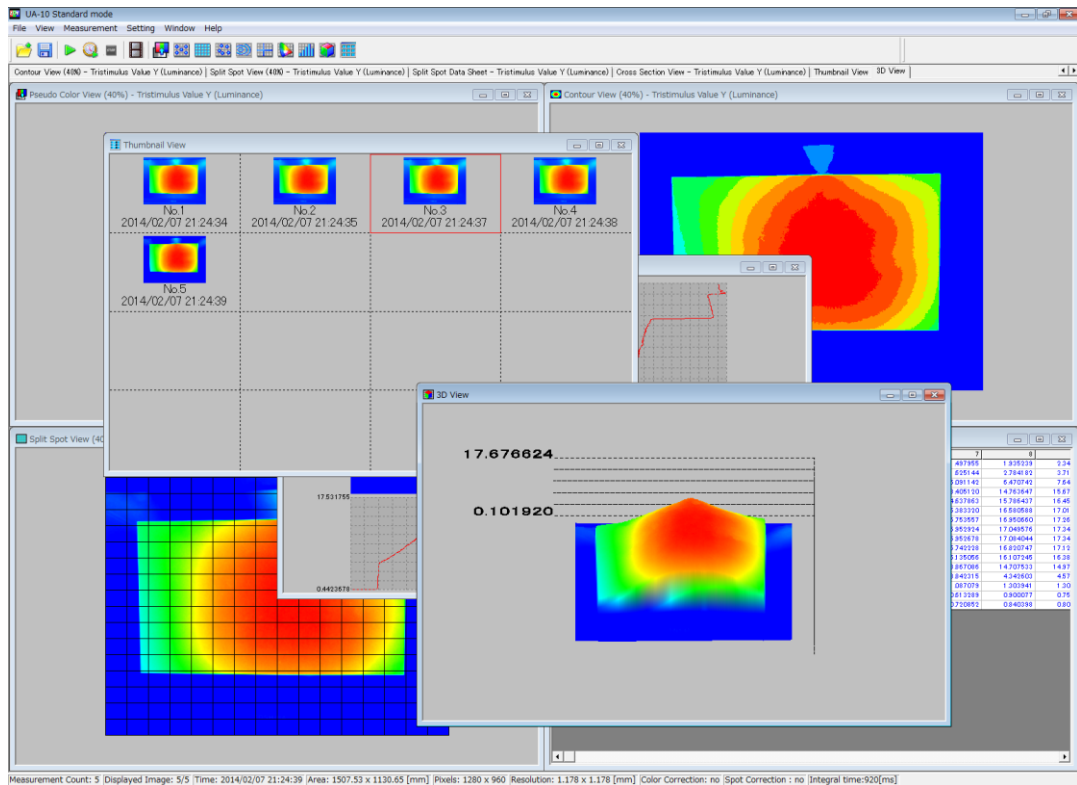
Measurement Count: 3 | Displayed Image: 2/3

7. Display Window Operation

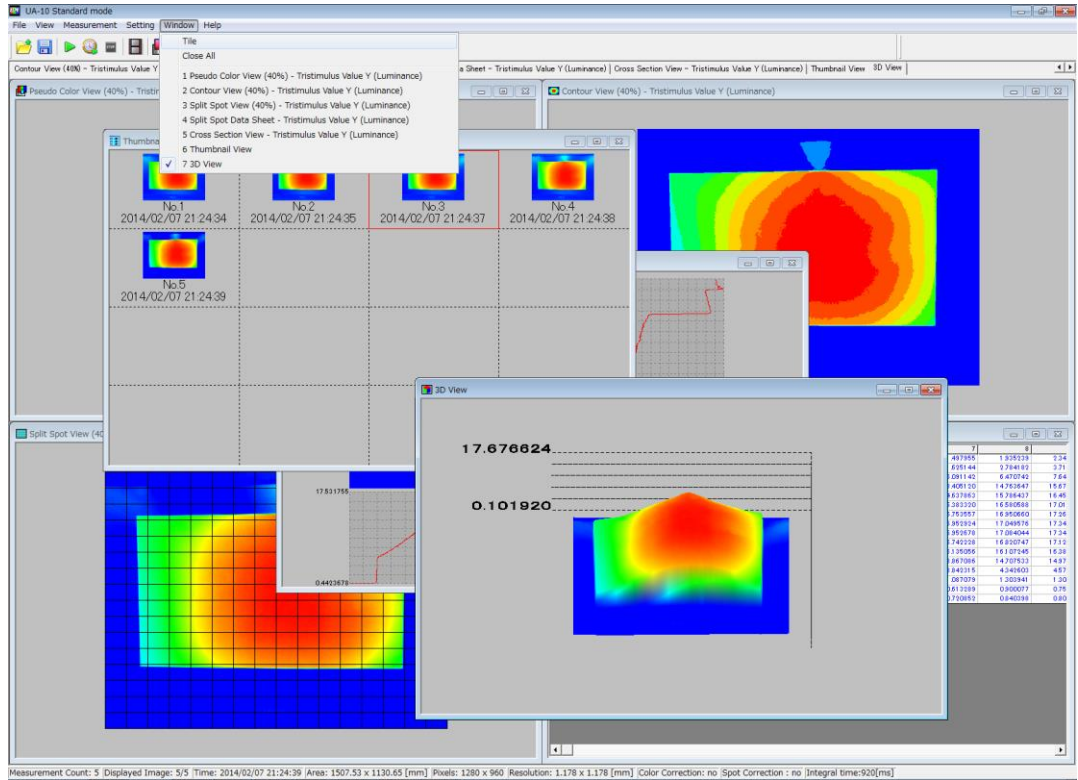
7.1 Tile

Places the currently-displayed views to be displayed by classifying them into four blocks: top-left, top-right, bottom-left, and bottom-right.. This menu is intended just for classifying arbitrary windows to be displayed and is functionally different from [Initial Layout]. To organize the scattered view windows, go through the following steps.

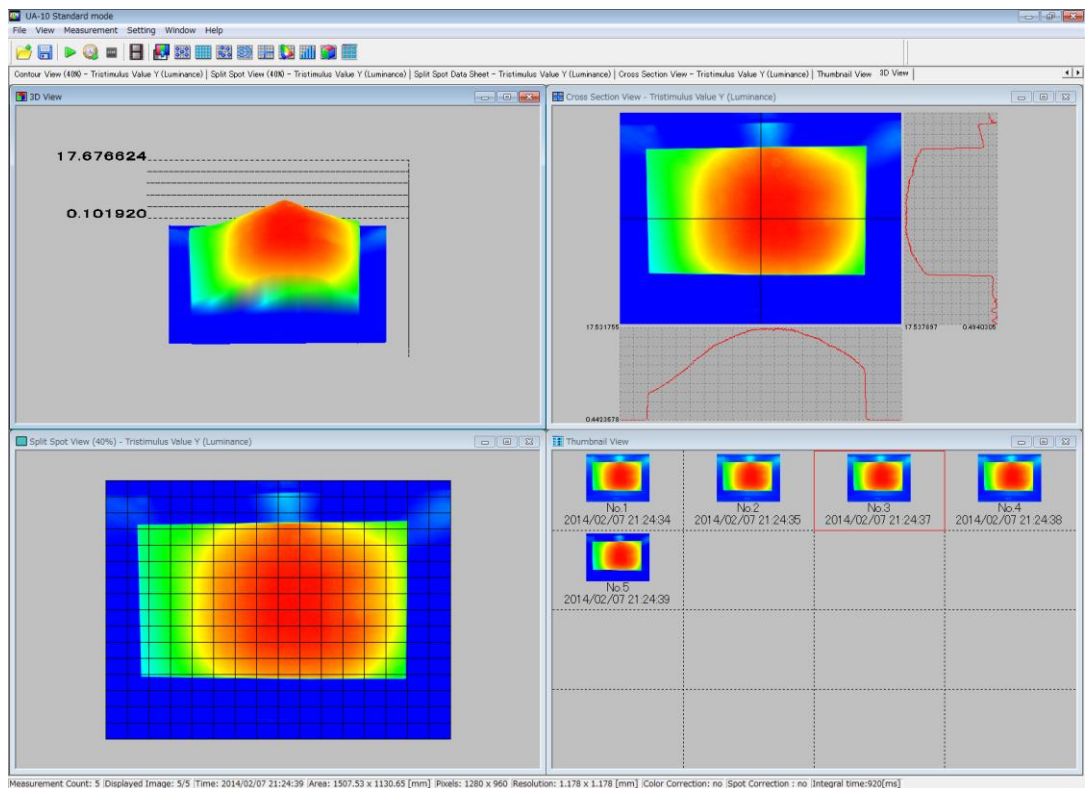
- 1 The following screen shows the status in which various views are randomly scattered.



2 From the Menu bar, select [Window] – [Tile] sequentially.



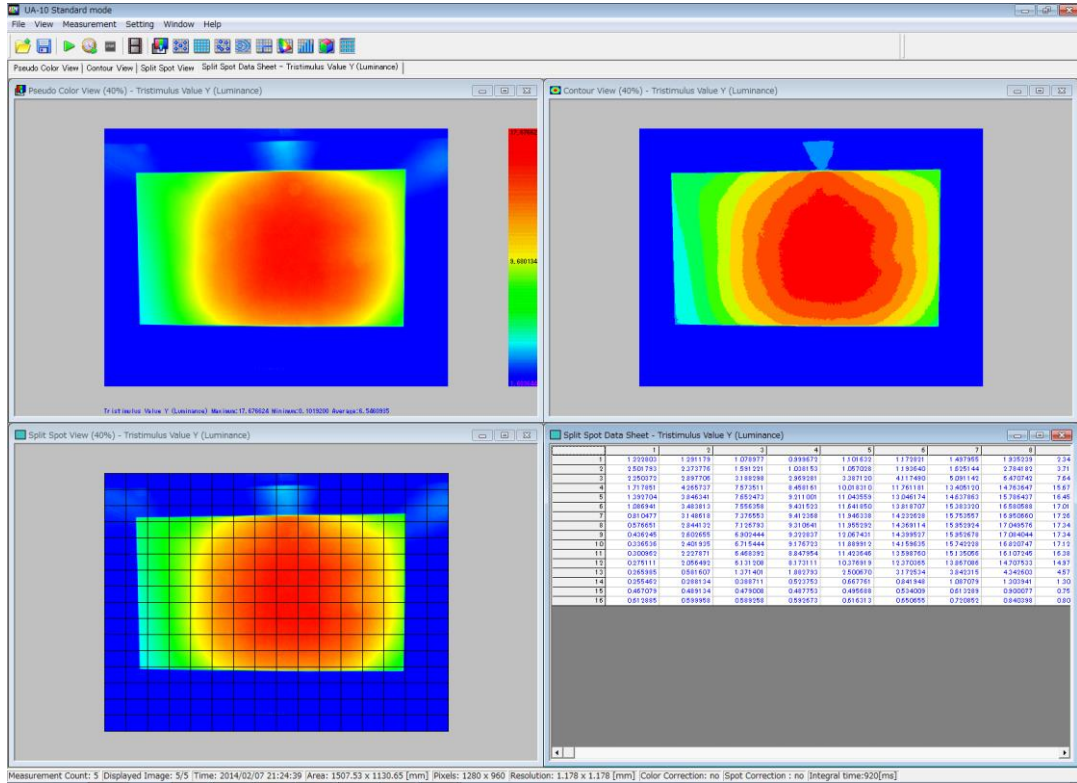
3 The displayed views are organized.



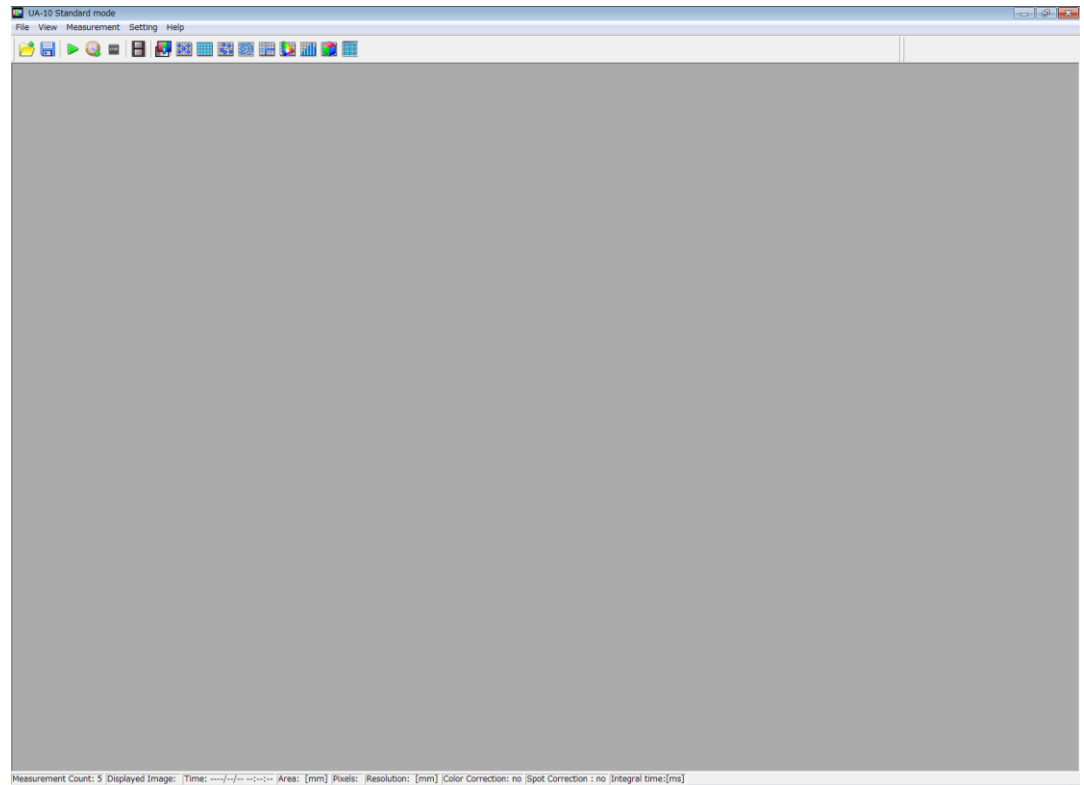
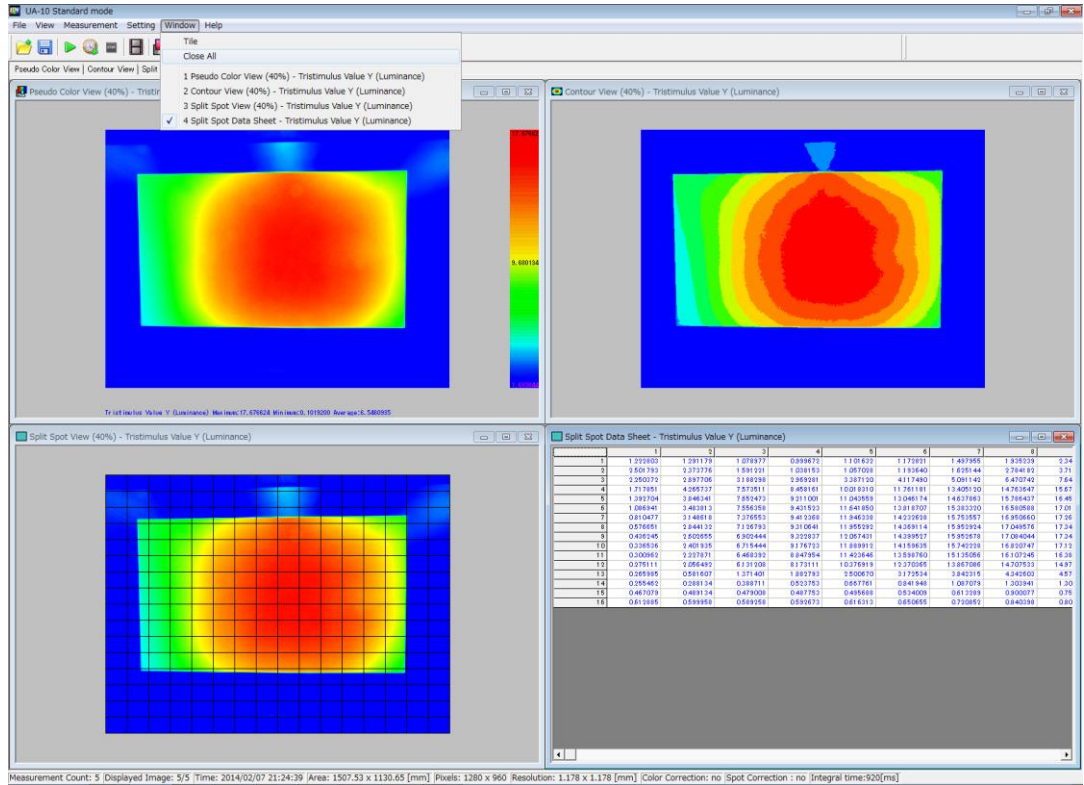
7.2 Close All

Closes all the currently displayed views. The measurement image is kept in the loaded condition and is not deleted. This menu is intended just for closing the window and is functionally different from [Close Measurement Image].

1 The following screen shows the status in which various views are displayed.



2 From the Menu bar, select [Window] – [Close All] sequentially.



8. Help Operation

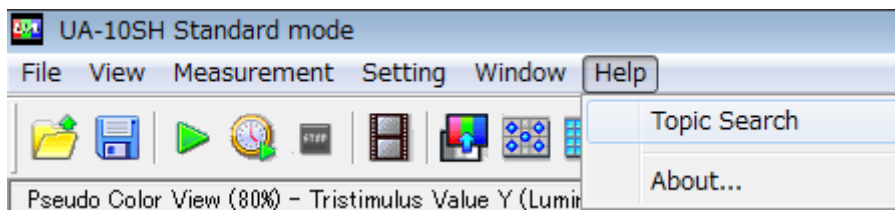
8.1 Topic Search

Displays the Help for all the functions.

8.1.1 Open the Instruction Manual from HELP Menu

To use the Help on the Menu bar, go through the following steps.

- 1 From the Menu bar, click [Help] – [Topic Search] sequentially.

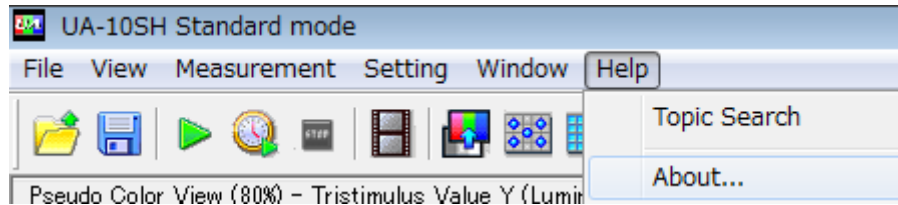


- 2 The Instruction Manual is opened.

8.2 Check Version Information

Opens the version information dialog. This information is required if you contact Topcon when you have any problem in the software. To open the version information, go through the following steps.

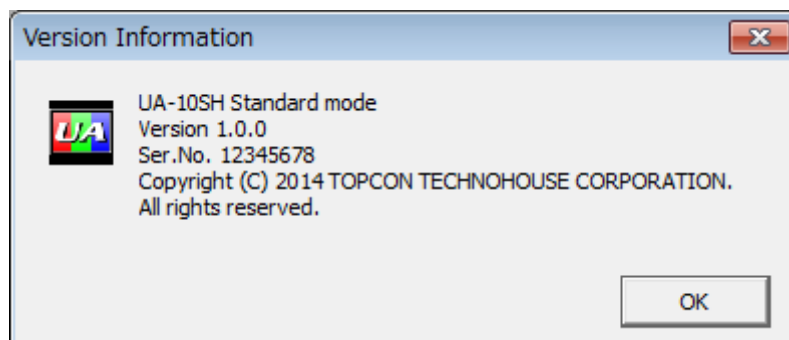
- 1 From the Menu bar, click [Help] – [Topic Search] sequentially.



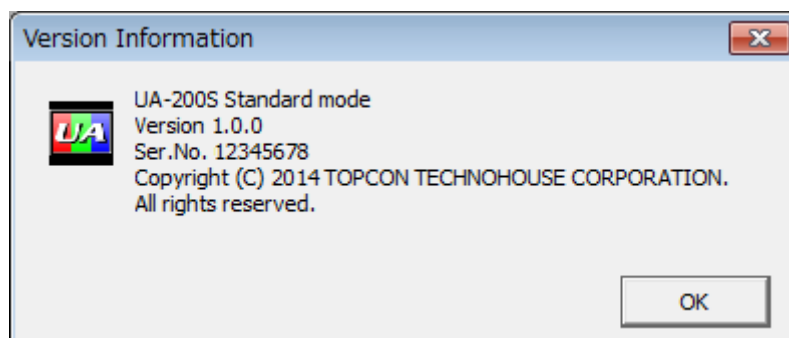
- 2 The [About...] dialog is opened.
In the Standard mode, the serial number is displayed.

Standard mode

UA-10 Series

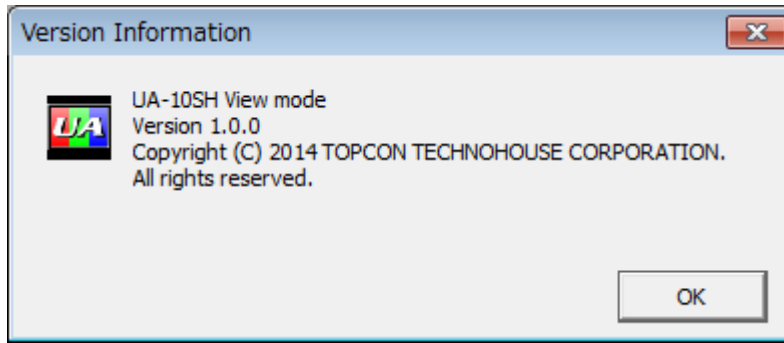


UA-200 Series

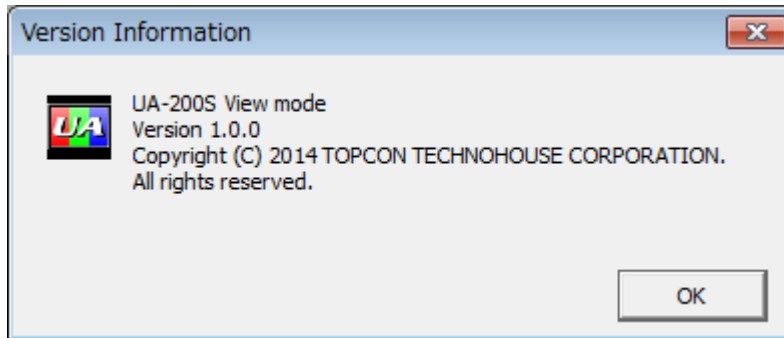


View mode

UA-10 Series



UA-200 Series



9. Error Message

Error Message List

An unexpected error occurred. Detail code: {Detail code}:

Details

Internal contradiction occurred.

Countermeasure

Please contact Topcon or your dealer.

When contacting us, please inform us of the detail code and the error-occurred situation.

Running out of memory:

Details

The memory run short for operating this software.

Countermeasure

Check whether the computer operating environment is adequate.

If other software is operated, be sure to exit the software and then restart this software.

Application is already running:

Details

This software is tried to be activated despite this is already activated.

Countermeasure

Since this software is already activated, it is not necessary to activate it.

Invalid file operation. {File path}:

Details

The following may be causes for error.

- There is no folder on the file path.
- The file is locked.
- You tried to write into an un-writable device.
- You don't have a right to access to the file.

Countermeasure

Check the following matters:

- The folder exists on the targeted file path.
- The file is being used by other software.
- You have a right to access to the target file.

Invalid file format. {File path}:

Details

The file is broken.

Countermeasure

Delete the file before restarting the software.

If you delete the file, be sure to back it up just in case.

Failed to connect to {Device name}.

Details

The following may be cause for error:

- The device driver is not installed.
- The device is not powered ON.
- A communication cable is not connected to the device.
- When RS-232C is utilized as the communication method, there may be something wrong in the communication setting and port number.

Countermeasure

Check for the following matters:

- The device driver is installed.
- The targeted device is powered ON.
- A communication cable is adequately connected to the targeted device.
- The communication setting and port number are adequate when RS-232C is utilized as the communication method.

Failed to communicate with {Device name}.

Details

Some communication protocol error has occurred for communication with the device.

Countermeasure

Check the communication setting of the device and restart the device.

If the errors cannot be cleared when restarting the device, turn on/off the device once and then restart the device.

No response from {Device name}.

Details

Time out occurs during the communication with the device.

Countermeasure

Turn on/off the device, and then retry the communication.

Failed to calculate an optimal value because the light source of the measurement object was too strong:

Details

Saturation occurred despite the integral time was set at the minimum.

Countermeasure

Check the following matters:

Check that the brightness of measurement target is within specification, and then re-execute the measurement.

Failed to calculate an optimal value because the light source of the measurement object was too weak.

Details

Even when the integral time is set at the maximum, the maximum value of the measurement data is too small.

Countermeasure

Check the following matters:

Check that the brightness of measurement target is within specification, and then re-execute the measurement.

Set the monitor resolution to 1024 x 768 or higher:

Details

The display resolution is not set to 1024 x 768 or higher.

Countermeasure

Set the [Display Resolution] in OS configuration to 1024 x 768 or higher, and then restart this software.

Set the monitor display color to full color (32 bits) or higher.:

Details

The display color is not set to 32 bits or higher.

Countermeasure

Set the [Display Color] in OS configuration to 32 bits or higher, and then restart this software.

Set the DPI to 96:

Details

The DPI is not set to 96.

Countermeasure

Select the [Display Property] – [Settings] tab – [Advanced Settings] – [General] tab in OS configuration sequentially, set the [DPI Setting] on the [General] tab to 96 DPI, and then restart the software.

Failed to authenticate {Device name}.:

Details

The serial numbers of the device and registered in the software are not the same.

Countermeasure

Connect the device having the same serial number with that of the registered in the software.

10. Communication setting

10.1 Device Communication setting

IP address, Subnet mask, Default gateway, Packet size, Packet delay, and memory channel can be set by using communication setting application [GgEcof.exe] (as standard accessory). You can select default values or specified values of IP address, Subnet mask, and Default gateway.

If your PC does not satisfy with recommended operating condition, the communication error may occur in PC or device. In this case, change the setting of packet size and packet delay.

Memo

- Packet size, Packet delay, and memory channel setting are available for UA-10 series only.
- UA-200 series occupies the four IP address.

Example:

Beginning address: [192.168.100.10] , End address: [192.168.100.13]

- UA side and PC side both are not set properly, the connection fails.



Note

UA-10 or UA-200, please connect only one.

Memo

Please PC setting

Example :

UA-10 Series

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 100 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Validate settings upon exit

Advanced...

OK Cancel

UA-200 Series

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 100 . 5

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Validate settings upon exit

Advanced...

OK Cancel

10.1.1 Starting up GigEConf.exe

[GigEConf.exe] is installed at the same time of installing application software.

The procedure for starting up [GigEConf.exe] is as follows;

- 1 Connect PC to the device, and then turn on the device.
- 2 Select the [GigEConf] via [Start] – [All Program] – [TOPCON TECHNOHOUSE] – [UA-10_200].

Then, [GigEConf.exe] start and the information of connected device will be displayed on the dialog.

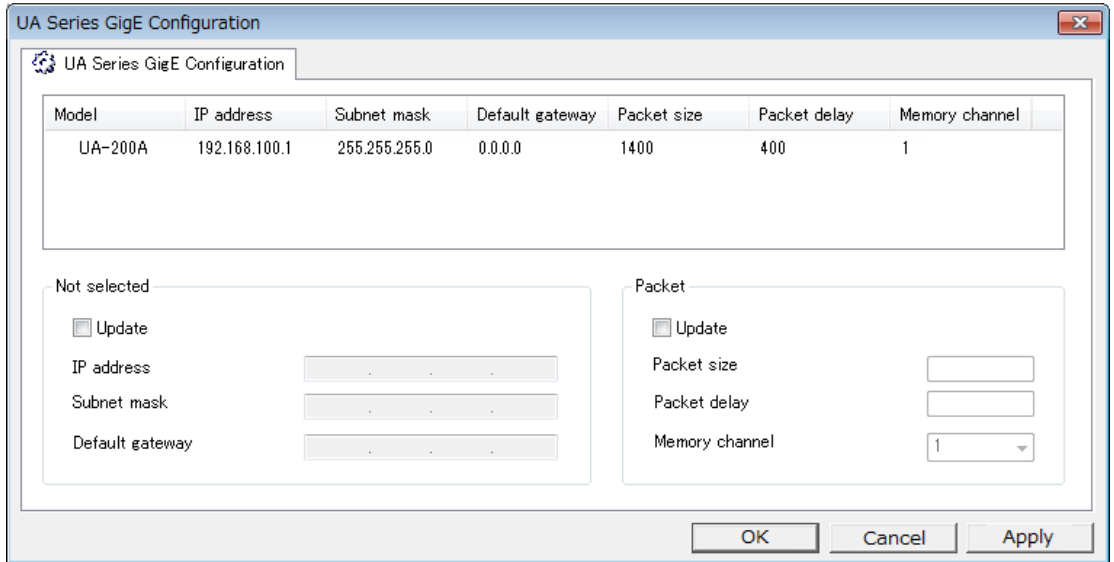
UA-10 Series

Model	IP address	Subnet mask	Default gateway	Packet size	Packet delay	Memory channel
UA-10	192.168.100.10	255.255.255.0	0.0.0.0	1400	400	1

UA-200

Model	IP address	Subnet mask	Default gateway	Packet size	Packet delay	Memory channel
UA-200	192.168.100.10	255.255.255.0	0.0.0.0	0	0	0

UA-200A



The image shows a software dialog box titled "UA Series GigE Configuration". At the top, there is a tab labeled "UA Series GigE Configuration". Below the tab is a table with the following data:

Model	IP address	Subnet mask	Default gateway	Packet size	Packet delay	Memory channel
UA-200A	192.168.100.1	255.255.255.0	0.0.0.0	1400	400	1

Below the table, there are two main sections: "Not selected" and "Packet".

Not selected: This section contains an "Update" checkbox (unchecked), followed by three input fields for "IP address", "Subnet mask", and "Default gateway". Each field has a small grid of dots for input.

Packet: This section contains an "Update" checkbox (unchecked), followed by three input fields: "Packet size", "Packet delay", and "Memory channel". The "Memory channel" field is a dropdown menu currently showing "1".

At the bottom of the dialog box, there are three buttons: "OK", "Cancel", and "Apply".

10.1.2 Setting IP address, Subnet Mask Default gateway

The procedure for setting of IP address, Subnet mask, and Default gateway is as follows;
These setting are available for UA-10 series only.

- 1 Select a device information displayed on the dialog.
- 2 Selected device's IP address, Subnet mask, and Default gateway are displayed on the each edit box and combo box.

Model	IP address	Subnet mask	Default gateway	Packet size	Packet delay	Memory channel
UA-10	192.168.100.10	255.255.255.0	0.0.0.0	1400	400	1

UA-10

Update

IP address: 192 . 168 . 100 . 10

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 0 . 0 . 0 . 0

Packet

Update

Packet size: 1400

Packet delay: 400

Memory channel: 1

OK Cancel Apply

Memo

When one or more devices use the same IP address, the IP address is not displayed.

【Initial value】

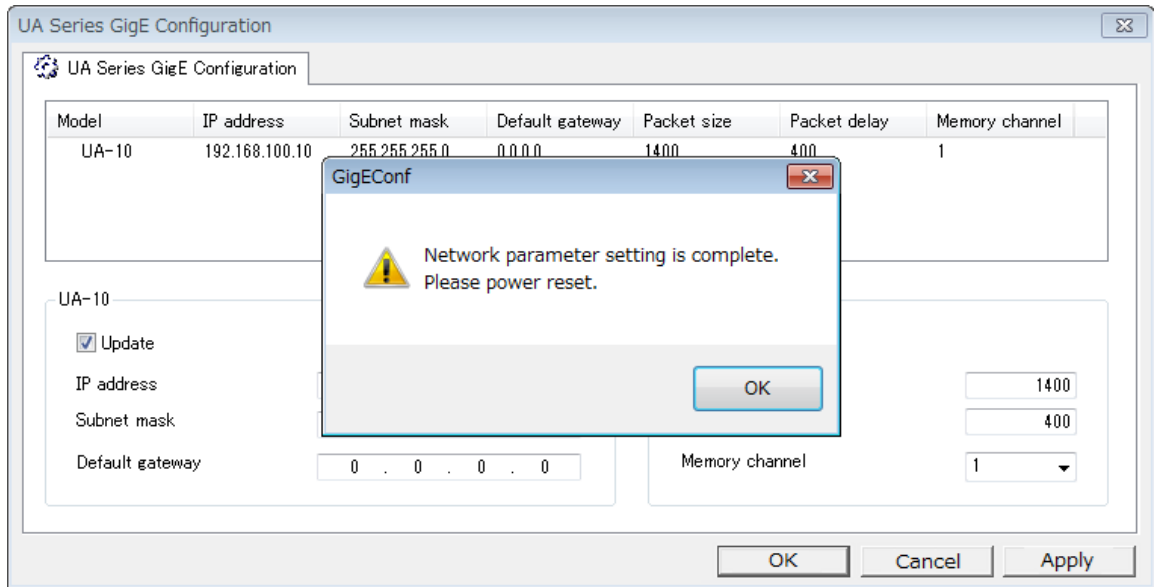
IP address : 192.168.100.1

Subnet mask : 255.255.255.0

Default gateway : 0.0.0.0

- 3 Enter the value in the edit box.

- 4 After entering values, check the [UA] – [Update], and then click the [Apply].
When setting is completed, following dialog will appear.
When setting is not completed, following dialog will not appear.

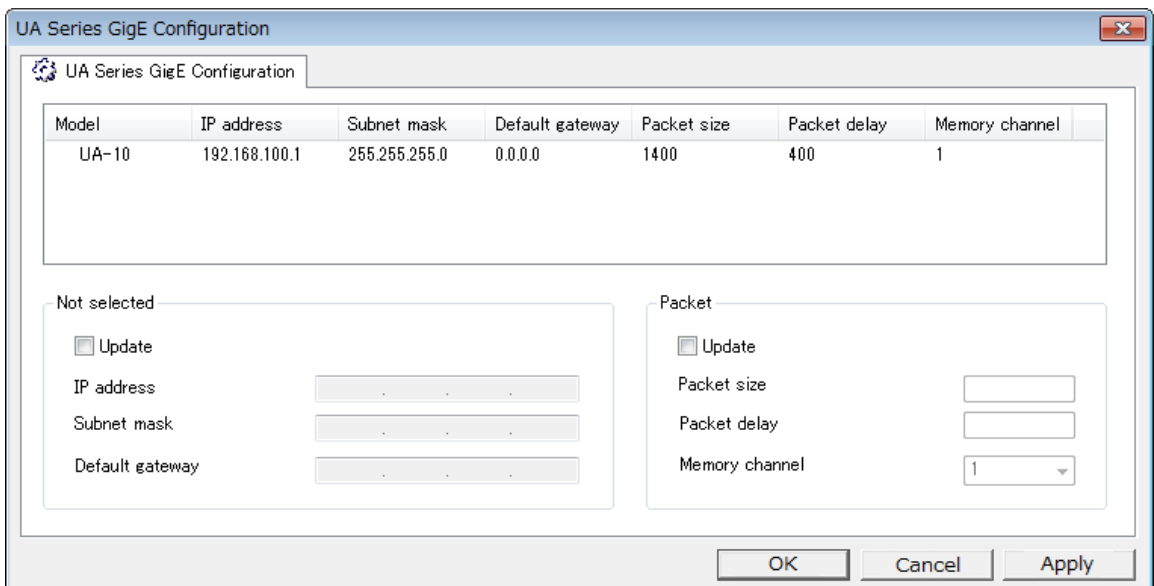


- 5 Turn off and on the power of the device.



Memo
Setting take effect after power off and on of the device.

- 6 Re start the [GigEConf.exe] and check if the setting are enabled.



10.1.3 Setting Packet size, Packet delay, and Memory channel

The procedure for setting Packet size, Packet delay, and Memory channel are as follows;

Memo

These setting are available for UA-10 series only.

- 1 Select a device information displayed on the dialog.
- 2 Selected device's Packet size, Packet delay, and Memory channel are displayed on the each edit box and combo box.

Model	IP address	Subnet mask	Default gateway	Packet size	Packet delay	Memory channel
UA-10	192.168.100.1	255.255.255.0	0.0.0.0	1400	400	1

UA-10

Update

IP address: 192 . 168 . 100 . 1

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 0 . 0 . 0 . 0

Packet

Update

Packet size: 1400

Packet delay: 400

Memory channel: 1

OK Cancel Apply

Memo

When one or more devices use the same IP address, the IP address is not displayed.

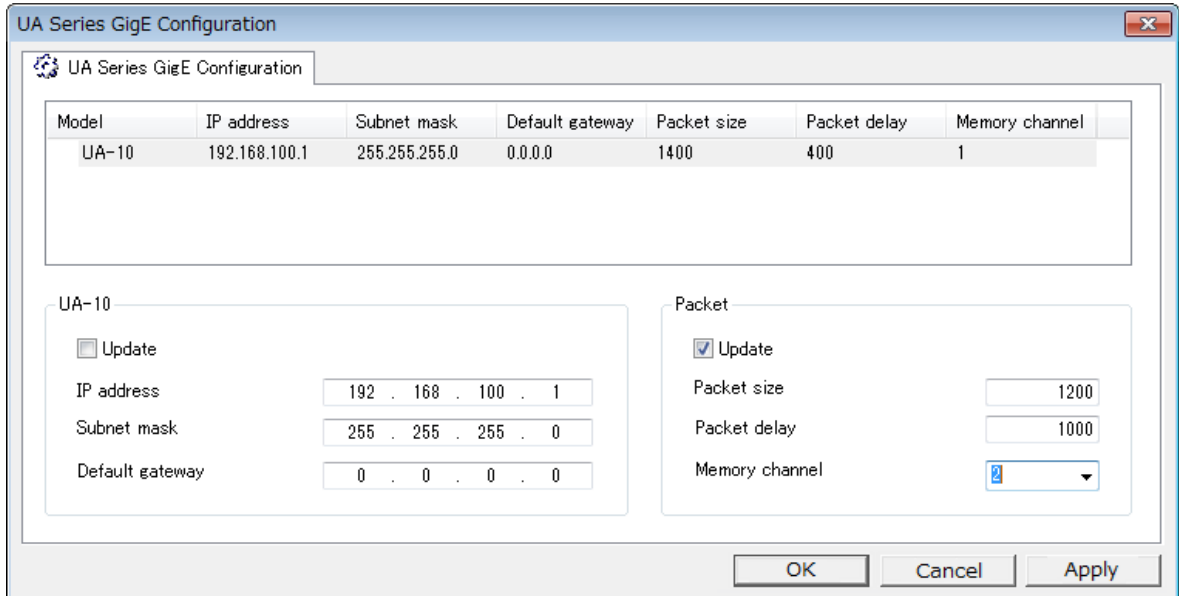
【Initial value】

Packet size : 1400

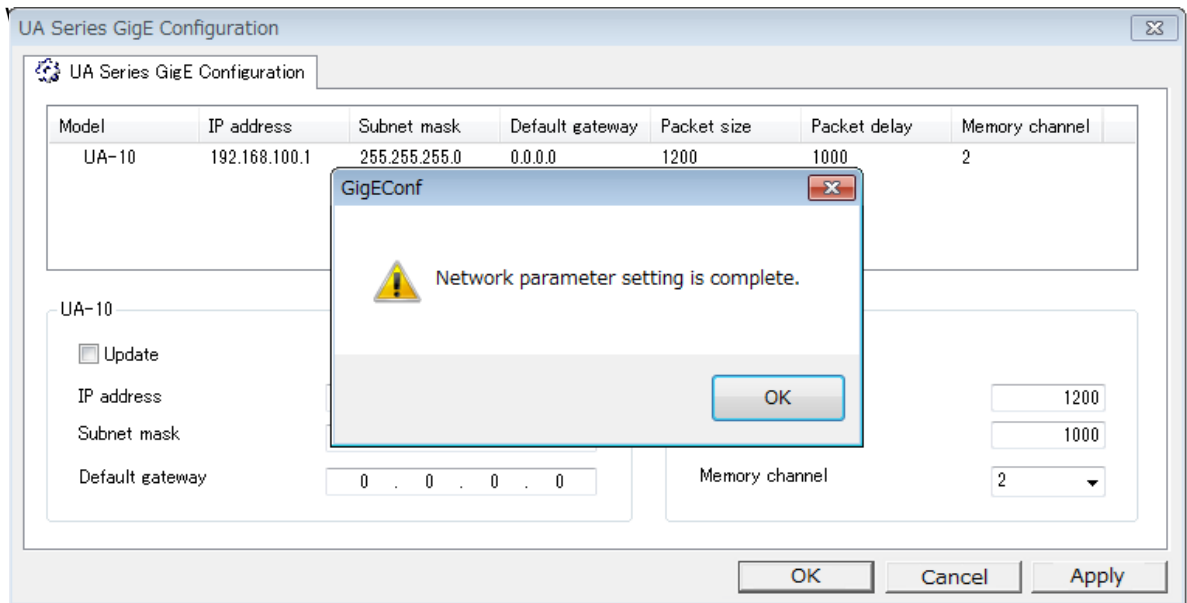
Packet delay : 400

Memory channel : 1

3 Enter the values in the edit box, and be sure to select 2 in the [Memory channel].



4 After entering values, check the [Packet] – [Update], and then click the [Apply].
When setting is completed, following dialog will appear.



Setting takes effect immediately, so there is no need to turn off and on.

Memo

- Memory channel 1 is manufacturer's default. When you want to set it to manufacturer's default, select 1 in the [Memory channel] and click the [Apply]
- Packet size and Packet delay vary depending on PC performance and environment.
Recommended range are as follows;
Packet size : 800 – 1400 (1200)
Packet delay : 400 – 1200 (1000)

11. Appendix

Specifications

■UA-10 series

Optical system

Objective lens Fixed focal lens Focal length 3.5mm (UA-10W *)
Focal length 8.0mm (UA-10S *)
Focal length 35.0mm (UA-10T *)

Photo detector

1.3 million-pixel CCD (Color)

Number of measurement points

1280 x 960

Measurement area

UA-10W * mm

Measurement distance(mm,metal front)	100	200	500	1000	1500	2000	2500
Horizontal(mm)	135.7	271.4	678.4	1356.8	2035.2	2713.6	3392.0
Vertical(mm)	101.8	203.5	508.8	1017.6	1526.4	2035.2	2544.0

UA-10S * mm

Measurement distance(mm,metal front)		200	500	1000	1500	2000	2500
Horizontal(mm)		110.8	270.0	540.0	810.0	1080.0	1350.0
Vertical(mm)		83.1	202.5	405.0	607.5	810.0	1012.5

UA-10T * mm

Measurement distance(mm,metal front)		200	500	1000	1500	2000	2500
Horizontal(mm)		23.5	58.7	117.4	176.1	234.8	293.5
Vertical(mm)		17.6	44.0	88.0	132.1	176.1	220.1

- ※ Above values are design specifications. Above values may be difference from the values in practice.
- ※ The measurement distance is from tip of objective lens to the measurement target.
- ※ Above mentioned measurement area is 90% of field of view.

Luminance measurement range

0.1~30000cd/m² (UA-10*L)

10~1000000cd/m² (UA-10*H)

Luminance linearity

±2% (Standard illuminant A, 1cd/m²< or 50cd/m²<, evaluated on the center of CCD)

±3% (Standard illuminant A, ≤1cd/m² or ≤50cd/m², evaluated on the center of CCD)

Chromaticity accuracy

±0.003 (Standard illuminant A, 1cd/m²< or 50cd/m²<, evaluated on the center of CCD)

±0.010 (Standard illuminant A, ≤1cd/m² or ≤50cd/m², evaluated on the center of CCD)

In-plane unevenness uniformity

Luminance: $\pm 2\%$ (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Chromaticity: ± 0.003 (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Repeat characteristic

Luminance: $0.5\%(2\sigma)$

Chromaticity: 0.002 (Max – Min value $0.5\text{cd/m}^2 <$ or $50\text{cd/m}^2 <$)

Chromaticity: 0.005 (Max – Min value $\leq 0.5\text{cd/m}^2$ or $\leq 50\text{cd/m}^2$)

Measurement Time

Fastest about 0.3sec

(Standard Illuminant A, 100cd/m^2 or 10000cd/m^2 , including transfer time)

Stability

Luminance: 1% (Standard illuminant A, evaluated on the center of the CCD)

Repeatability

Luminance: 2% (Standard illuminant A, evaluated on the center of the CCD)

Temperature characteristic

Luminance: $\pm 3\%$ (0 to 40°C (reference: 25°C))

Humidity characteristic

Luminance: $\pm 3\%$ (85%RH or lower)

Calibration standard

TOPCON TECHNOHOUSE calibration standard (Standard illuminant A, $23^\circ\text{C}\pm 3^\circ\text{C}$)

User calibration standard Switchable

Interface

LAN (Gigabit Ethernet)

Power supply

AC 100V to 240V (50/60Hz)

Power consumption

Detector: DC12V, 2.5W (Excluding the computer)

Operating conditions

Temperature: 0°C to 40°C

Humidity: 85%RH and below (No condensation)

Storage condition

Temperature: -5°C to 50°C

Humidity: 85%RH and below (No condensation)

Outer dimensions

86.5 mm(Length)×42.0 mm(Width)×42.0 mm(Height)	(UA-10W *)
90.0 mm(Length)×34.0 mm(Width)×34.0 mm(Height)	(UA-10SL)
90.0 mm(Length)×38.5 mm(Width)×38.5 mm(Height)	(UA-10SH)
85.1 mm(Length)×34.0 mm(Width)×34.4 mm(Height)	(UA-10T *)

Weight

About 0.170kg (UA-10W *)
About 0.185kg (UA-10SL)
About 0.200kg (UA-10SH)
About 0.155kg (UA-10T *)

※ The measurement condition of each performance is as follows.

Averaging : Auto

Integral Time : Auto

Smoothing : High

■UA-200

Optical system

Objective lens	Fixed focal lens	Focal length 8.0mm	(UA-200S)
		Focal length 5.0/8.0mm	(UA-200WS)
		Focal length 35.0mm	(UA-200T)

Photo detector

1.3 million-pixel CCD (Mono)

Number of measurement points

1280 x 960

Measurement area

UA-200S

mm

Measurement distance(mm,metal front)	300	400	500	1000	1500	2000	2500
Horizontal(mm)	181.5	235.3	289.4	561.0	830.8	1099.2	1371.4
Vertical(mm)	136.1	176.5	217.0	420.8	623.1	824.4	1028.6

UA-200W

mm

Measurement distance(mm,metal front)	300	400	500	1000	1500	2000	2500
Horizontal(mm)	293.9	380.6	466.4	898.7	1326.8	1759.0	2192.9
Vertical(mm)	220.4	285.5	349.8	674.0	995.1	1319.2	1644.7

UA-200T

mm

Measurement distance(mm,metal front)		400	500	1000	1500	2000	2500
Horizontal(mm)		95.8	108.2	168.2	228.1	289.9	351.6
Vertical(mm)		71.9	81.1	126.2	171.1	217.4	263.7

- ※ Above values are design specifications. Above values may be difference from the values in practice.
- ※ The measurement distance is from tip of objective lens to the measurement target.
- ※ Above mentioned measurement area is 90% of field of view.

Luminance measurement range

0.05~1000000cd/m²

Luminance linearity

- ±2% (Standard illuminant A, 1cd/m²<, evaluated on the center of CCD)
- ±3% (Standard illuminant A, ≤1cd/m², evaluated on the center of CCD)

Chromaticity accuracy

- ±0.003 (Standard illuminant A, 1cd/m²<, evaluated on the center of CCD)
 - ±0.005 (Standard illuminant A, ≤1cd/m², evaluated on the center of CCD)
 - ±0.008 (Standard illuminant A + Colored Glass Filters, evaluated on the center of CCD)
- O-55,Y-48,A-73B,IRA-05,T44,R-61,B-46,V-44,G-54

In-plane unevenness uniformity

Luminance: $\pm 2\%$ (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Chromaticity: ± 0.003 (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Repeat characteristic

Luminance: $0.3\%(2\sigma, 1\text{cd/m}^2 <)$

Luminance: $0.5\%(2\sigma, \leq 1\text{cd/m}^2)$

Chromaticity: 0.001 (Max – Min value $1\text{cd/m}^2 <)$

Chromaticity: 0.002 (Max – Min value $\leq 1\text{cd/m}^2)$

Measurement Time

Fastest about 1sec

(Standard Illuminant A, 100cd/m^2 , Luminance only, including transfer time)

Fastest about 3sec

(Standard Illuminant A, 100cd/m^2 , Luminance and Chromaticity, including transfer time)

Stability

Luminance: 1% (Standard illuminant A, evaluated on the center of the CCD)

Repeatability

Luminance: 2% (Standard illuminant A, evaluated on the center of the CCD)

Temperature characteristic

Luminance: $\pm 3\%$ (0 to 40°C (reference: 25°C))

Humidity characteristic

Luminance: $\pm 3\%$ (85%RH or lower)

Calibration standard

TOPCON TECHNOHOUSE calibration standard (Standard illuminant A, $23^\circ\text{C} \pm 3^\circ\text{C}$)

User calibration standard Switchable

Interface

LAN (Gigabit Ethernet)

Power supply

AC 100V to 240V (50/60Hz)

Power consumption

Detector: DC12 V, 24W (Excluding the computer)

Operating conditions

Temperature: 0°C to 40°C

Humidity: 85%RH and below (No condensation)

Storage condition

Temperature: -5°C to 50°C

Humidity: 85%RH and below (No condensation)

Outer dimensions

279.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200S)
311.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200WS)
307.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200T)

Weight

About 3.90kg	(UA-200S)
About 4.12kg	(UA-200WS)
About 4.45kg	(UA-200T)

※ The measurement condition of each performance is as follows.

Averaging	: Auto
Integral Time/ND Filter/Gain	: Auto
Smoothing	: High

■UA-200A

Optical system

Objective lens	Fixed focal lens	Focal length 8.0mm	(UA-200AS)
		Focal length 5.0/8.0mm	(UA-200AWS)
		Focal length 35.0mm	(UA-200AT)

Photo detector

1.4 million-pixel CCD (Mono)

Number of measurement points

1376 x 1024

Measurement area

UA-200AS

Measurement distance(mm, metal front)	300	400	500	1000	1500	2000	2500
Horizontal(mm)	195.1	252.9	311.1	603.1	893.1	1181.7	1474.3
Vertical(mm)	145.2	188.2	231.5	448.8	664.6	879.4	1097.1

UA-200AW

Measurement distance(mm, metal front)	300	400	500	1000	1500	2000	2500
Horizontal(mm)	315.9	409.2	501.4	966.1	1426.3	1890.9	2357.4
Vertical(mm)	235.1	304.5	373.1	719.0	1061.4	1407.2	1754.3

UA-200AT

Measurement distance(mm, metal front)		400	500	1000	1500	2000	2500
Horizontal(mm)		103.0	116.3	180.8	245.2	311.6	378.0
Vertical(mm)		76.6	86.6	134.6	182.5	231.9	281.3

- ※ Above values are design specifications. Above values may be difference from the values in practice.
- ※ The measurement distance is from tip of objective lens to the measurement target.
- ※ Above mentioned measurement area is 90% of field of view.

Luminance measurement range

0.005~1000000cd/m²

Luminance linearity

- ±2% (Standard illuminant A, 1cd/m²<, evaluated on the center of CCD)
- ±3% (Standard illuminant A, ≤1cd/m², evaluated on the center of CCD)

Chromaticity accuracy

- ±0.003 (Standard illuminant A, 1cd/m²<, evaluated on the center of CCD)
- ±0.005 (Standard illuminant A, ≤1cd/m², evaluated on the center of CCD)
- ±0.008 (Standard illuminant A + Colored Glass Filters, evaluated on the center of CCD)
O-55,Y-48,A-73B,IRA-05,T44,R-61,B-46,V-44,G-54
- ±0.005 (Our specification LED panel of RGBW)

In-plane unevenness uniformity

Luminance: $\pm 2\%$ (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Chromaticity: ± 0.003 (Reference: Center of the CCD, Standard illuminant A, within 90% of field of view)

Repeat characteristic

Luminance: $0.3\%(2\sigma, 1\text{cd/m}^2 <)$

Luminance: $0.5\%(2\sigma, \leq 1\text{cd/m}^2)$

Chromaticity: 0.001 (Max – Min value $1\text{cd/m}^2 <$)

Chromaticity: 0.002 (Max – Min value $0.05\text{--}1\text{cd/m}^2)$

Chromaticity: 0.0035 (Max – Min value $0.005\text{--}0.05\text{cd/m}^2)$

Measurement Time

Fastest about 1.5sec

(Standard Illuminant A, 100cd/m^2 , Luminance only, including transfer time)

Fastest about 3.5sec

(Standard Illuminant A, 100cd/m^2 , Luminance and Chromaticity, including transfer time)

Stability

Luminance: 1% (Standard illuminant A, evaluated on the center of the CCD)

Repeatability

Luminance: 2% (Standard illuminant A, evaluated on the center of the CCD)

Temperature characteristic

Luminance: $\pm 3\%$ (0 to 40°C (reference: 25°C))

Humidity characteristic

Luminance: $\pm 3\%$ (85%RH or lower)

Calibration standard

TOPCON TECHNOHOUSE calibration standard (Standard illuminant A, $23^\circ\text{C} \pm 3^\circ\text{C}$)

User calibration standard Switchable

Interface

LAN (Gigabit Ethernet)

Power supply

AC 100V to 240V (50/60Hz)

Power consumption

Detector: DC12 V, 24W (Excluding the computer)

Operating conditions

Temperature: 0°C to 40°C

Humidity: 85%RH and below (No condensation)

Storage condition

Temperature: -5°C to 50°C

Humidity: 85%RH and below (No condensation)

Outer dimensions

279.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200AS)
311.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200AWS)
307.1 mm(Length)×162.0 mm(Width)×194.0 mm(Height)	(UA-200AT)

Weight

About 3.90kg	(UA-200AS)
About 4.12kg	(UA-200AWS)
About 4.45kg	(UA-200AT)

※ The measurement condition of each performance is as follows.

Averaging	: Auto
Integral Time/ND Filter/Gain	: Auto
Smoothing	: High

KC·FCC

Republic of Korea	KC:Class A	<p>해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다</p> <p>A급 기기 (업무용 방송통신기자재)</p> <p>이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다</p>
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■UA-10WL • WH



MSIP-REM-TTH-
UA-10

■UA-10SL • SH • TL • TH



MSIP-REM-TTH-
UA-10SL

■UA-200S • WS



MSIP-REM-TTH-
UA-200WS

■UA-200T



MSIP-REM-TTH-
UA-200T

■UA-200 AS • AWS • AT



MSIP-REM-TTH-
UA-200AT

FCC Compliance Information

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- (1) the device may not cause interference, and
- (2) the device must accept any interference, including interference that may cause undesired operation of this device.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

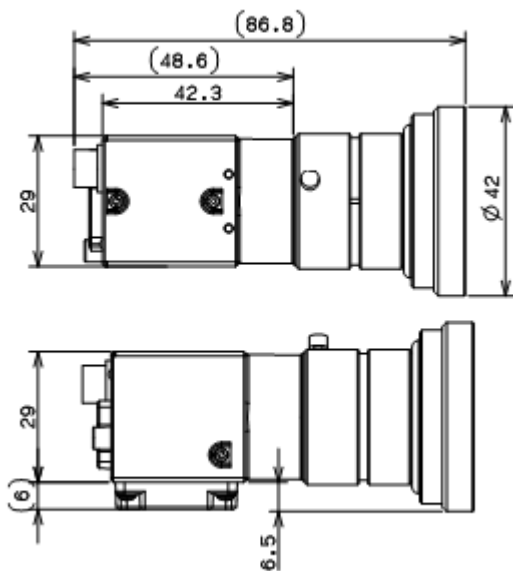
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

External Dimension Diagram

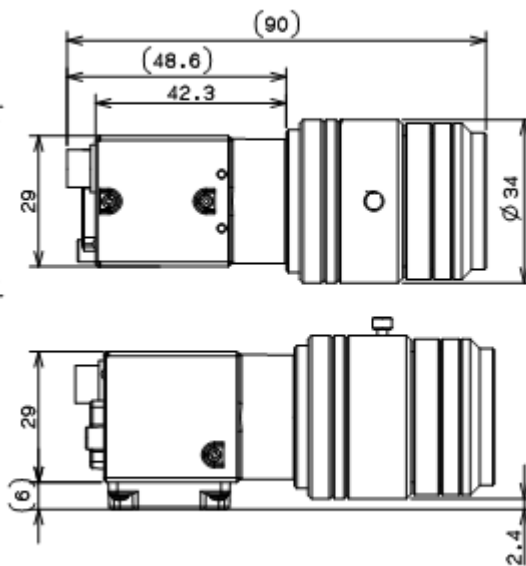
■UA-10 series

Main body with Tripod screw adapter

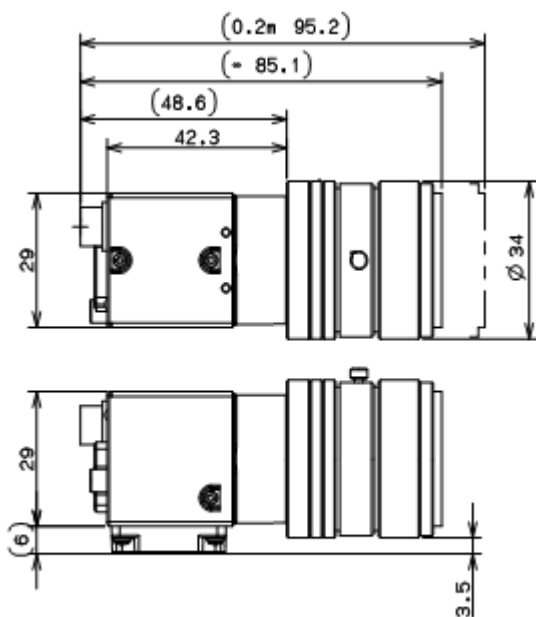
UA-10W *



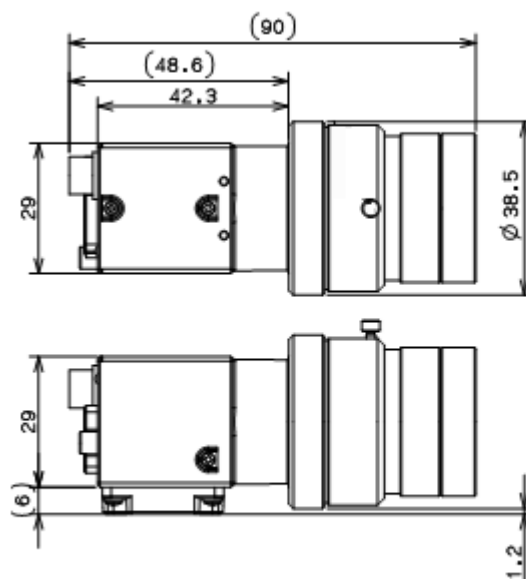
UA-10SL



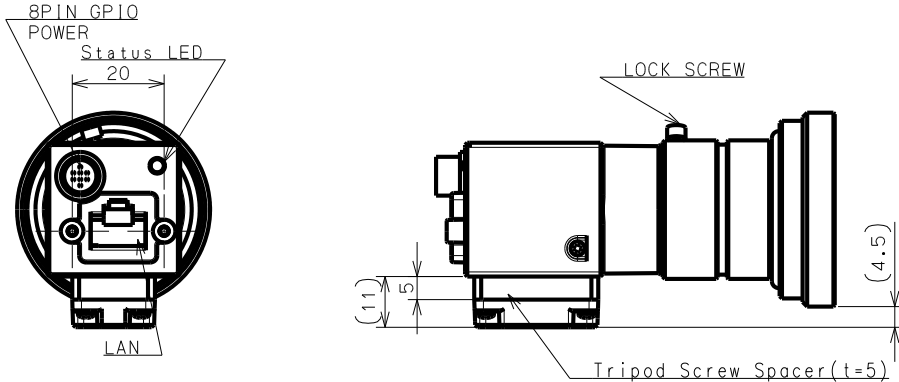
UA-10T *



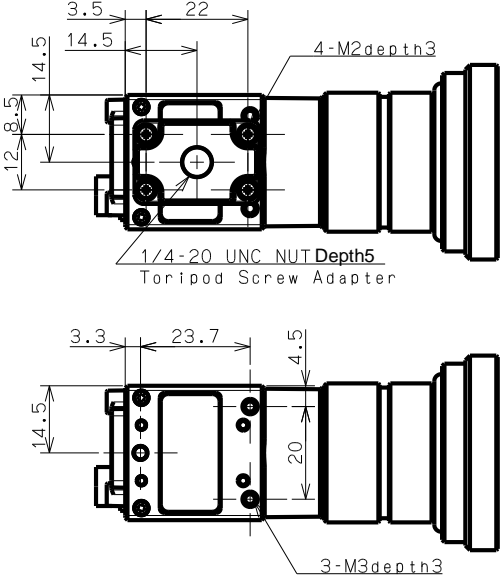
UA-10SH



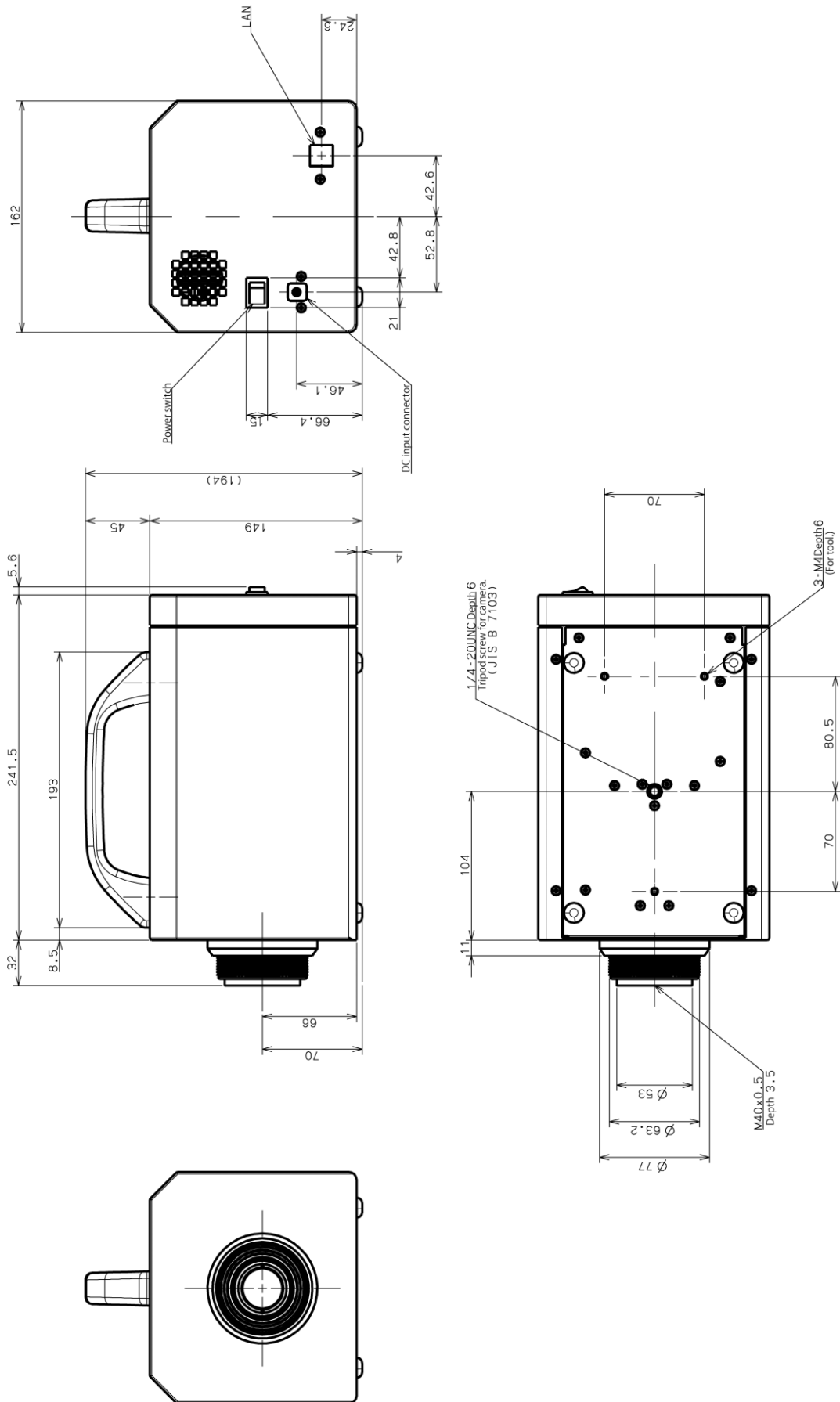
Main body with Tripod screw adapter and Spacer



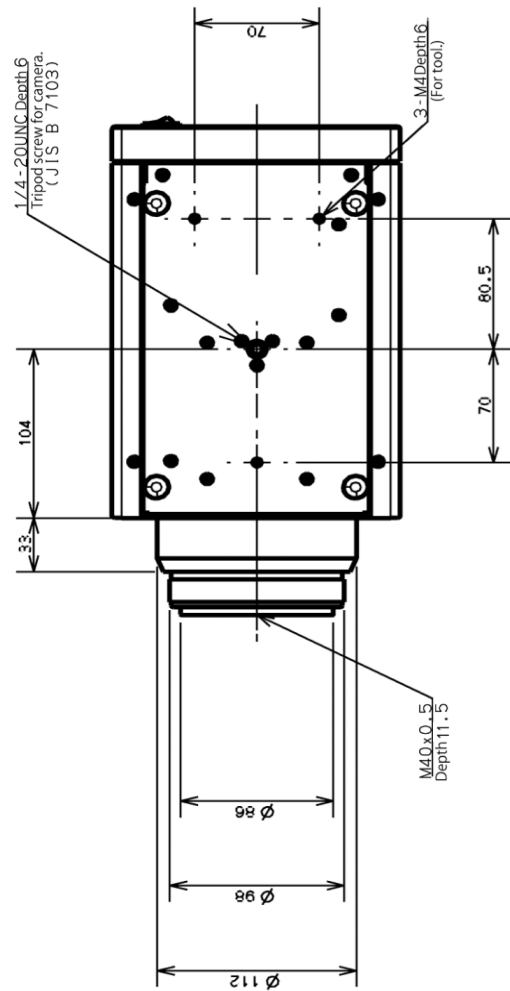
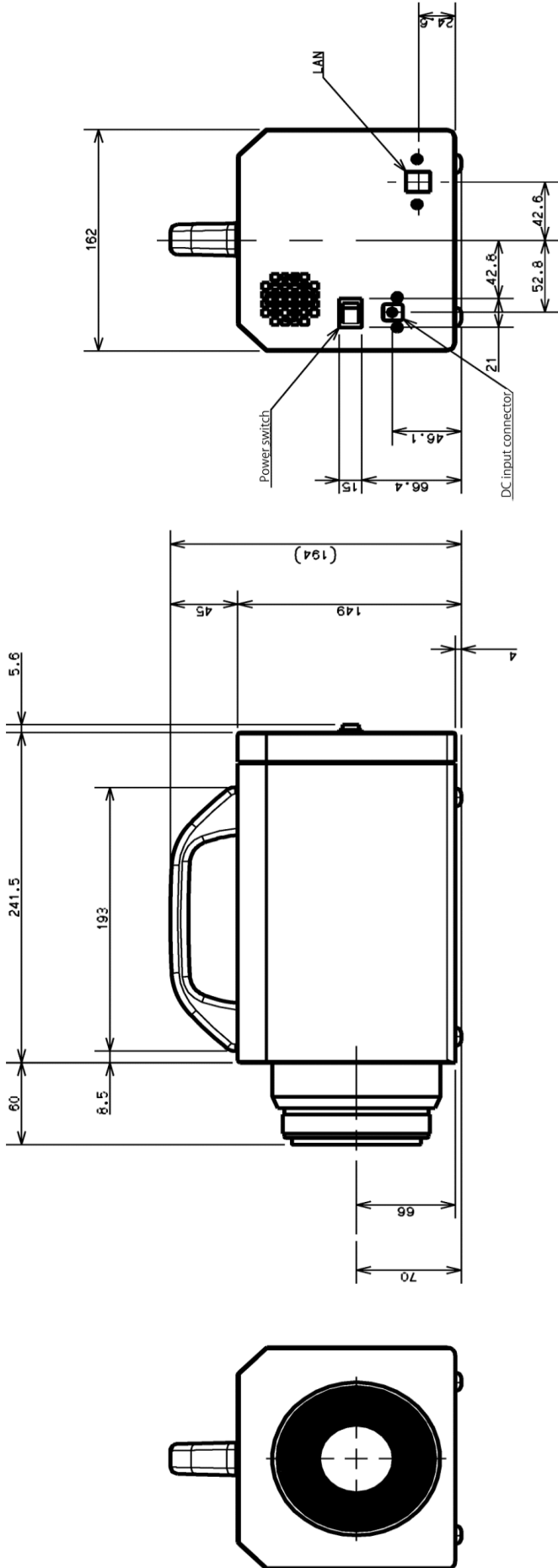
Mount



■UA-200 series
UA-200S/UA-200AS



UA-200T/UA-200AT



Terminology

This section describes the specific terms used in this software.

Measurement image:

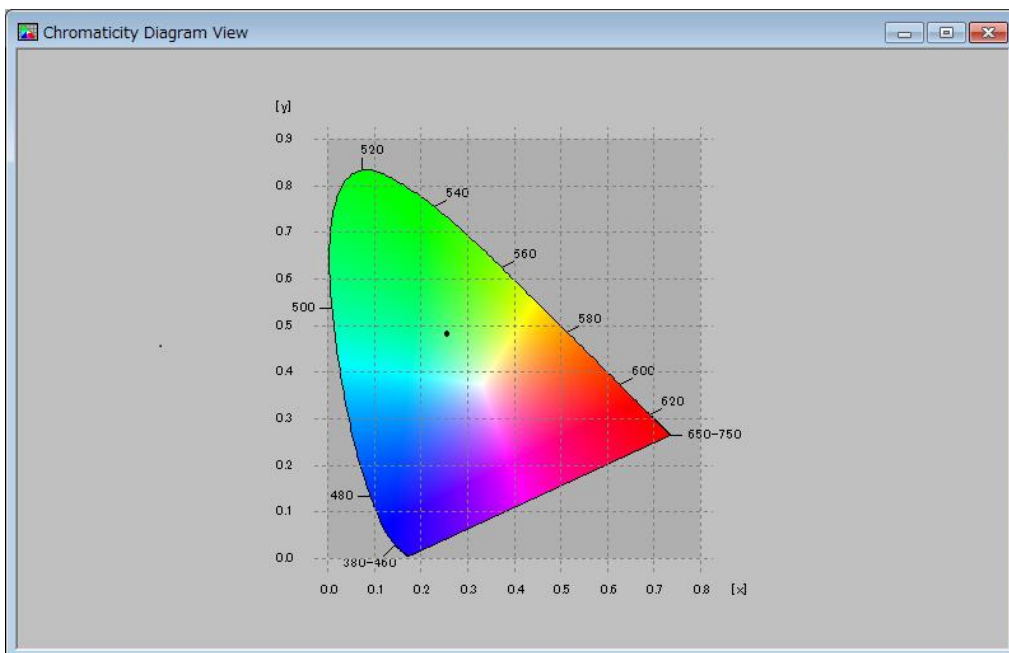
Measurement image is an image converted from measurement data by measuring the UA-10, UA-200 and UA-200A.

The measurement image contains all the information related to various views, data sheets, and graph displays. The measurement images can be saved or read as measurement image files, to be used at a later date in the data analysis, etc.

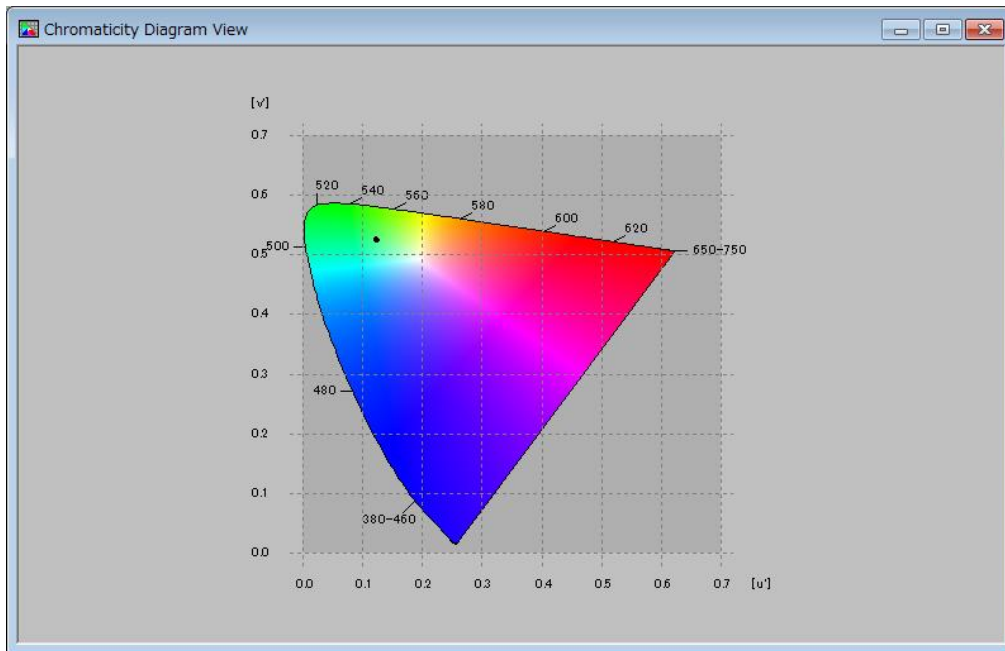
The measurement image files with the extension “*.msr” cannot be opened by any software other than this software. Opening the file forcibly may cause it to be damaged, so never try to open it forcibly.

CIE chromaticity diagram:

The CIE chromaticity diagram is color-displayed plane coordinates based on a color coordinate system developed by the International Commission on Illumination, CIE. This software allows you to switch CIE1931 XYZ color coordinate system (xy) chromaticity diagram, and CIE1976 USC coordinate system (u'v') chromaticity diagram.



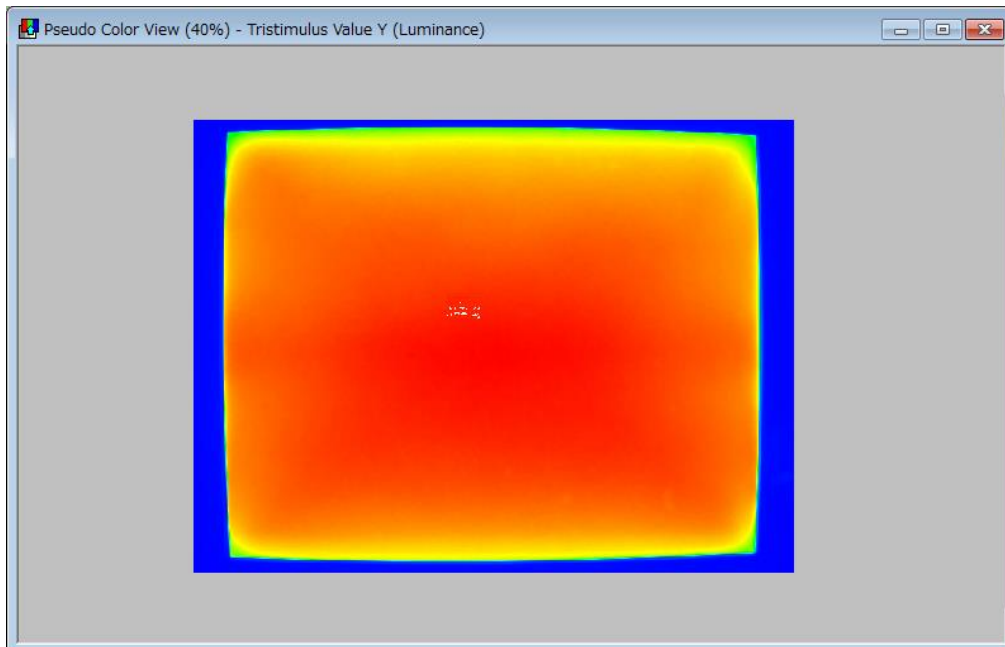
CIE 1931 chromaticity diagram



CIE 1976 chromaticity diagram

Saturation:

Saturation represents the condition in which if a very high luminous measurement target is measured, the luminance exceeds the measurable upper limit of the photo detector CCD. Even if the brightness exceeding this upper limit is measured, the CCD output value remains at the upper limit and therefore the data may not be reliable. To ensure data reliability, this software does not use the data where saturation occurs. The data where saturation occurs is displayed as “over”.



Interval measurement:

Interval Measurement represents the measurement combining the time interval between the measurement start and the following measurement start, and the number of measurements with the time interval specified. This software handles five pattern setting and it helps you to easily program measurements tailored to a specific purpose.

Setting range of time interval: 1 - 259200 sec (72 hours)

Setting range of measurement count: 1 - 999

Integral time:

Integral time represents the exposure time for photo detector of CCD.

The integral time varies depending on the brightness of the measurement target. Generally, bright conditions make the time shorter and dark conditions make the time longer.

ND Filter (Neutral density filter):

Optical filter to reduce the amount of light incoming CCD.

This filter protects happening saturation when UA-200 and UA-200A measure very high luminance target. You can set this filter to extend integral time forcefully.

Gain:

Gain is amplification factor in CCD.

Gain setting varies from the luminance of the target. Generally, application software automatically determines low gain for low luminance targets and high gain for high luminance target. You can set low gain to extend integral time forcefully.

Trimming:

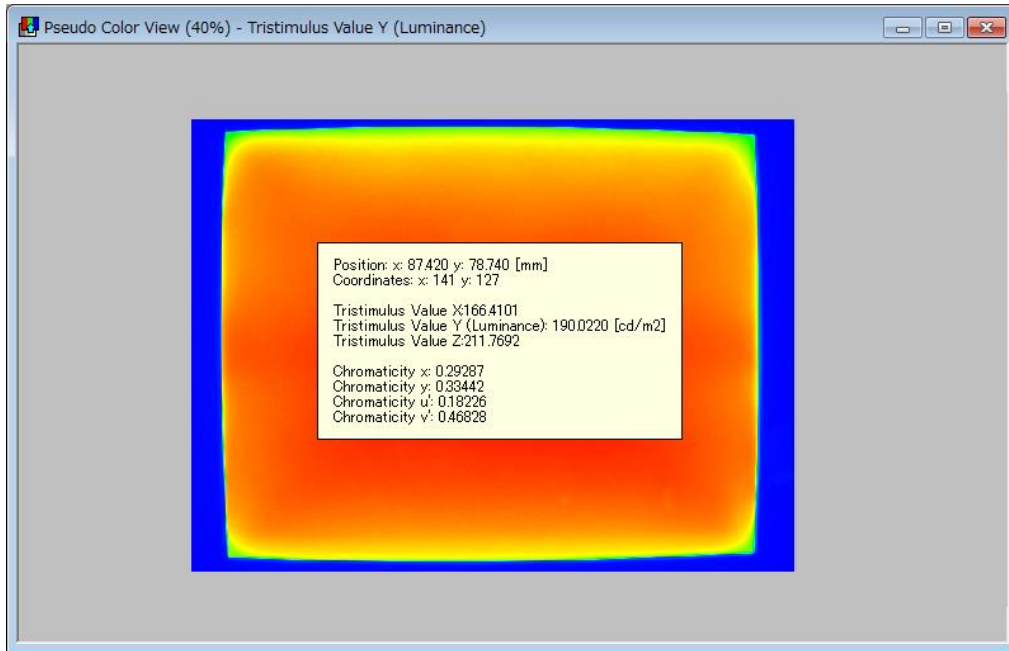
Trimming is an operation performed to remove unnecessary parts from the measurement image to display a specific area. When a specific area is trimmed, the display colors are allotted by the measurement data within the trimmed area, enabling you to minutely check the difference among the local points.

Tooltip:

Tooltip is an operation used to temporarily display the information about the mouse cursor position on the measurement image on the view. The displayed data is as follows.

- Position X, Y: Mouse cursor position for the measurement area
- Coordinate X, Y: Mouse cursor position for the resolution
- Tristimulus value X, Y, Z: Respective Tristimulus values at the pixel
- Chromaticity (x, y), (u',v'): Chromaticity at the pixel

If saturation occurs, "over" is displayed.



Pop-up menu:

The menu appear after right-click each views and sheets.

The menu vary from each views and sheets

Spot Standard File:

This is a CSV type file. The standard values of luminance and chromaticity for each spot, which is used to calculate the spot correction factors, are registered in this file.

The luminance should be registered in Column A, the chromaticity x in Column B, and the chromaticity y in Column C. The line quantity shows the spot quantity.

	A	B	C
1	101.01	0.45671	0.35671
2	102.02	0.45672	0.35672
3	103.03	0.45673	0.35673
4	104.04	0.45674	0.35674
5	105.05	0.45675	0.35675
6	106.06	0.45676	0.35676
7	107.07	0.45677	0.35677
8	108.08	0.45678	0.35678
9	109.09	0.45679	0.35679
10			

Smoothing:

Smoothing is a process for reduces the noise contained in the image.

Most images tend to contain random noise. If an image containing noise is processed, the noise is also treated as correct data, deteriorating the reliability of the measurement data finally calculated. However, if tone differences are found at the CCD 1 pixel level, the 1 pixel data may be eliminated by smoothing.

Median filter:

This is the processing method to reduce the noise included in an image.

When this method is used, the peripheral pixel values of the target pixel are obtained, the pixel values are arranged in order of size, and the middle pixel value is set instead of the target pixel value.

When you want to remove the spike noise, which is different in a great degree from the peripheral pixel values, this method is effective.

Example of "Size: 3"

50	20	70
60	1000	40
80	90	30



50	20	70
60	60	40
80	90	30

The peripheral pixel values of the target pixel value 1000 are obtained.

When these values are arranged from the lowest in order, they are arranged as shown below.

20, 30, 40, 50, 60, 70, 80, 90, 1000

The middle value is 60.

The middle value 60 is set instead of the target pixel value 1000.

As the [Size] parameter is larger, the peripheral pixels have larger influence and so the image is blurred.

Gaussian filter:

This is the processing method to reduce the noise included in an image.

When this method is used, the peripheral pixel values of the target pixel are obtained, these pixel values are weighted and the average of the weighted values is regarded as the target pixel value.

When one pixel is near the target pixel, the value is close to the target pixel value. When one pixel is far away from the target pixel, the value is different in a great degree from the target pixel value. When one pixel is near the target pixel, a weight value is large. When it is far away from the target pixel, a weight value is small.

This method is effective to remove noise in the image where similar strength noise is scattered.

Example of "Size: 5"

1/256	4/256	6/256	4/256	1/256
4/256	16/256	24/256	16/256	4/256
6/256	24/256	36/256	24/256	6/256
4/256	16/256	24/256	16/256	4/256
1/256	4/256	6/256	4/256	1/256

The target pixel weight is 36/256. The weight values of peripheral pixels are arranged as follows from the pixel closest to the target pixel; 24/256, 16/256, 6/256, 4/256, 1/256.

As one peripheral pixel is far away from the target pixel, the weight is smaller.

The weight is determined by using Gaussian distribution function according to the [Size], [STDEV (X)] and [STDEV (Y)] parameters.

As the [Size] parameter is larger, the peripheral pixels have larger influence. As [STDEV (X)] and [STDEV (Y)] parameters are larger, the weight of the peripheral pixel is larger and the image is blurred.

Bilateral filter:

This is the processing method to reduce the noise included in an image.

When this method is used, the peripheral pixel values of the target pixel are obtained and the Gaussian filter, which is determined by taking the distance and difference in values from each pixel into consideration, is applied.

This method is effective to remove noise without blurring profile (edge). Sometimes it takes long time to perform this processing method depending on the combination of parameters.

The size is determined according to [Diameter of each pixel neighborhood]. According to [SigmaColor] and [SigmaSpace], the target pixel value is calculated by using the following two types of Gaussian filters;

- Gaussian filter which is determined by taking the distance between pixels into consideration;
- Gaussian filter which is determined by taking the difference in values between pixels into consideration.

As the [Diameter of each pixel neighborhood] parameter is larger, the peripheral pixels have larger influence. As the [SigmaColor] and [SigmaSpace] parameters are larger, the difference in values between pixels has larger influence. Consequently the image is blurred.

Warranty

Warranty period

The warranty period is for one year after the purchase of the product.

Repair during the warranty period

If something goes wrong with this product even though it is used under normal conditions, we will repair the product when failure is our responsibility due to faults in design or manufacturing, without charge.

Repair after the warranty period

If the product can be repaired to keep it operating, we will repair the product according to the client request, and will charge for the repairs.

Maintenance period

The repair parts (*1) are retained by us for eight years (*2) after purchase.

The availability period of repair parts indicates the period during which the product is repairable.

Even if the parts availability period has elapsed, we will repair your product if it is repairable. Do not hesitate to call our local retailer where you purchased the product, or TOPCON TECHNOHOUSE CORPORATION.

(*1) The repair parts are the parts necessary to keep the product functions.

(*2) Although we continue to endeavor to retain the repair parts so as to be covered during the maintenance period, we may shorten the maintenance period due to unexpected events.

Disposal

When disposing of this product, be sure to obey the local regulations on product disposal or recycling.

When you contact us, please provide us the following information:

- Serial number: The serial number is written on the rating plate attached on the bottom of the product.
- Period of operation: Please inform us of the date of purchase of the product and the calibration date.
- Use conditions: Type of measuring light source, product settings, measurement value, measurement conditions, etc.
- Failure state: Please inform us of the failure state as accurately as possible.

Where to call: Please refer the rear cover of this Instruction Manual.

Luminance & Chromaticity Uniformity Analyzer

***UA-10* SERIES**

2D Luminance Colorimeter

***UA-200* SERIES**

Where to call:

TOPCON TECHNOHOUSE CORPORATION

Hasunuma-cho 75-1, Itabashi-ku, Tokyo 174-8580, Japan

◆ **For inquiries about the product:**

Sales section: Phone: +81-3-3558-2666 Fax: +81-3-3558-4661

◆ **For inquiries about the after-care service including repairs:**

Maintenance service section: Phone: +81-3-3558-2710 Fax: +81-3-3558-3011

Luminance and Chromaticity Uniformity Analyzer UA-10 series

2D Luminance Colorimeter

UA-200 series Instruction Manual

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