

Transmissive Profiling with i1Profiler

Table of Contents

<i>Introduction.....</i>	<i>2</i>
<i>Printing the Template and First Test Chart.....</i>	<i>2</i>
<i>Measuring the Lightbox.....</i>	<i>4</i>
<i>Measuring the First Test Chart.....</i>	<i>6</i>
<i>Profile Settings</i>	<i>7</i>
<i>Creating the Second Test Chart.....</i>	<i>8</i>
<i>Measuring the Second Test Chart.....</i>	<i>8</i>
<i>Measuring the Viewing Lightbox (For Clear and Translucent Media).....</i>	<i>9</i>
<i>Measuring the Viewing Lightbox (For Fabric Media).....</i>	<i>11</i>
<i>Lighting</i>	<i>12</i>

Introduction

What you will need

Lightbox

Printer with transmissive media (Clear, Translucent or Fabric)

Scissors

Easy-Release Tape such as painter's tape

i1Pro 3 PLUS

Before you begin

Connect your i1Pro 3 PLUS to your computer

Turn on your Lightbox and let it warm up for 10 minutes

Transmissive profiling within i1Profiler introduces a brand-new workflow that allows you to use your own lightbox for measuring your media and to measure the final viewing lightbox for best color match. The new workflow introduces several new measurement steps as well as a new test chart scanning procedure that may seem counter-intuitive to experienced i1Pro and i1Profiler users. This guide will help you understand each step and give some background information on the differences between transmissive profiling and traditional reflective profiling.

Printing the Template and First Test Chart

i1Profiler uses an iterative profiling method that produces a high-quality profile with a smaller number of profiling patches. This technology has been proven in the marketplace with products such as ColorMunki Photo and i1Studio. The iterative method requires the printing and measuring two different test charts. The first chart is a fixed set of color patches and the second chart is varied based upon the measurement of the first chart.

The steps required to make a transmissive profile are slightly different based upon the material being profiled. Select the profiling material that best matches the media you are using.

The transmissive workflow has a fixed set of page sizes available due to the large patches required for scanning in transmissive mode. The supported page sizes are A2, A3, A4, Tabloid, Super B, B4, Legal and Letter. All charts are formatted in landscape mode.

The first test chart is a fixed set of 100 RGB or CMYK patches. Neither the number of patches nor the device values of the patches can be changed.

The template is used to ensure that the color patches in each test chart are aligned with the measurements from the lightbox. Each paper size selected will have a template to match. You can print the template only, can print the patches only or can print the template and the patches together (this is the default setting.)

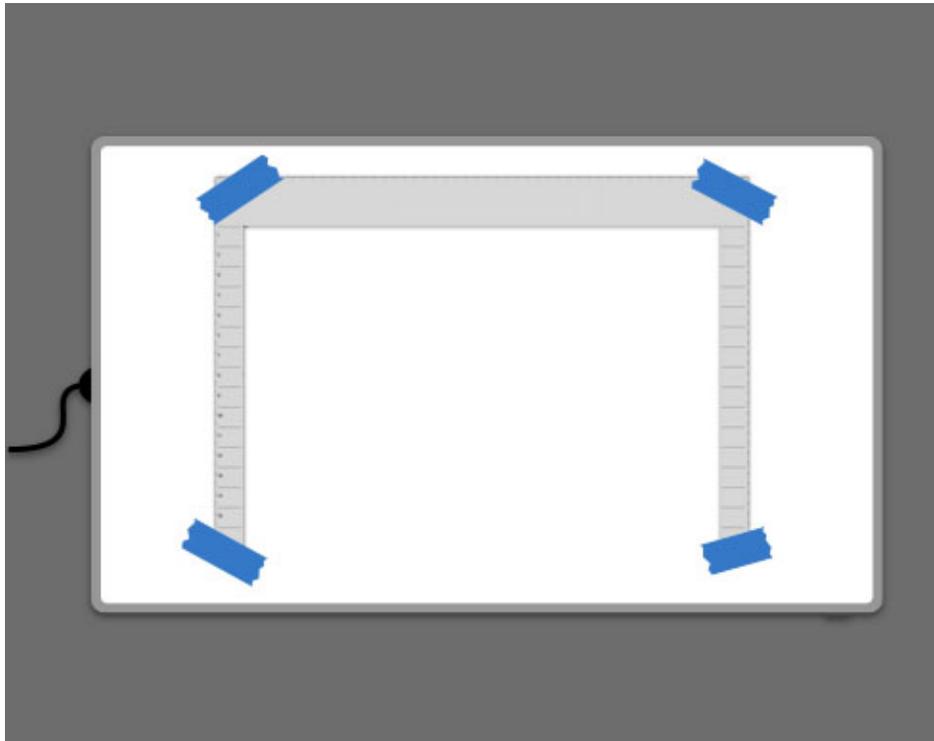
Print All – Prints the template and the matching test chart for the selected page size. Use this if this is the first profile being made for a given paper size. Make sure you have turned off all color management within your print driver and desktop application when printing profiling patches.

Export – Exports the Template and the matching test chart as a TIFF, PDF or EPS files. Use this to print the template and test chart from an external application such as a RIP or desktop publishing software.

Print Template Only – Prints the template for the selected page size. Use this if you have already printed a test chart and need a template to match.

Print Chart Only – Prints the test chart for the selected page size without the template. Use this if you already have a template for the selected page size.

Once you have printed the template, cut it as described in the i1Profiler UI and tape it to the surface of the lightbox with easy release tape. Try to avoid areas of the lightbox with visible non-uniformity in brightness or color.



This will ensure consistent alignment of the lightbox and test chart measurements throughout the steps of the workflow.

Measuring the Lightbox

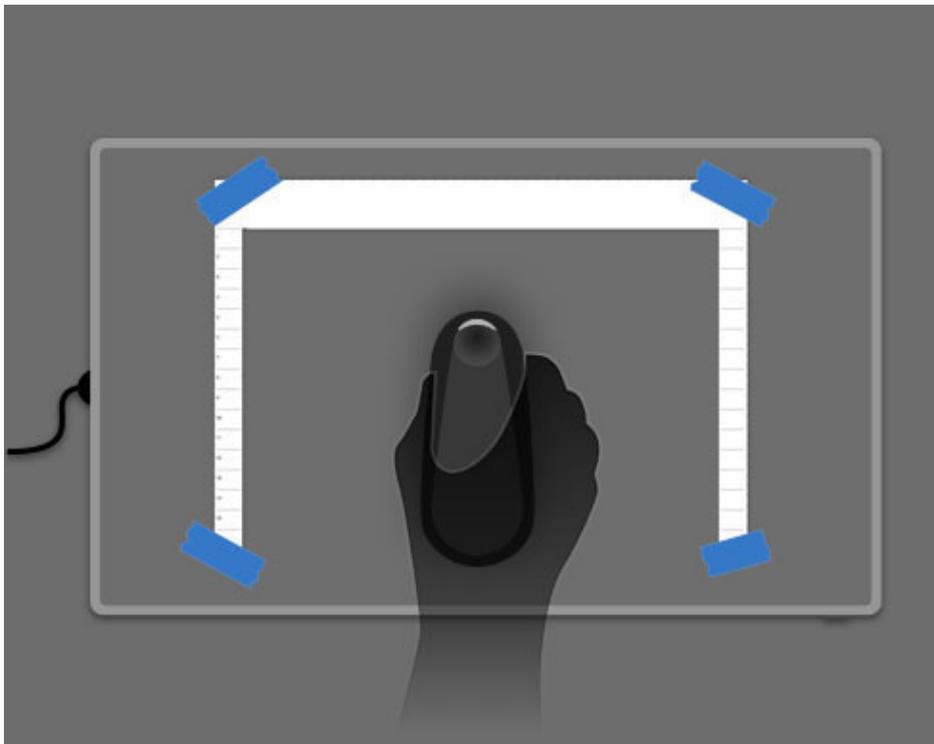
Lightbox measurement is a three-step process. In the first step, you will take a reflective measurement of the lightbox's surface with the box turned off. This provides information on the light scattering and reflectivity of the box's surface.

Next you will take an emissive measurement of the lightbox with the light turned on. This provides information on the brightness and spectral characteristics of the light source.

Finally, you will perform an emissive scan of the lightbox with the light on. This provides a lightbox measurement for each patch location of the printed profiling target.

Light Source Surface (LIGHT OFF)

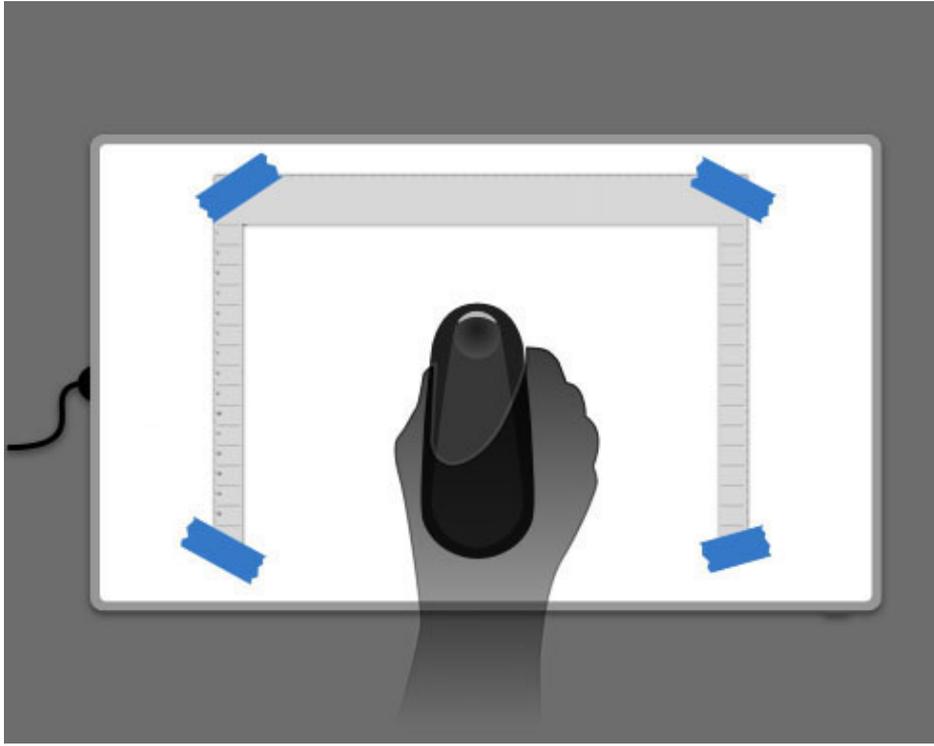
- 1.) Turn on your lightbox and leave it on for approximately 10 minutes to let it warm up and stabilize.
- 2.) Make sure your i1Pro 3 PLUS is connected and calibrated and your template is attached to the lightbox.
- 3.) Turn the lightbox off.
- 4.) Place the i1Pro 3 PLUS in the center of the template area and click the Measure button in the application or on the device.



Light Source Surface (LIGHT ON)

- 1.) Turn on your lightbox and leave it on for approximately 2-3 minutes to let it stabilize.

2.) Place the i1Pro 3 PLUS in the center of the template area and click the Measure button in the application or on the device.



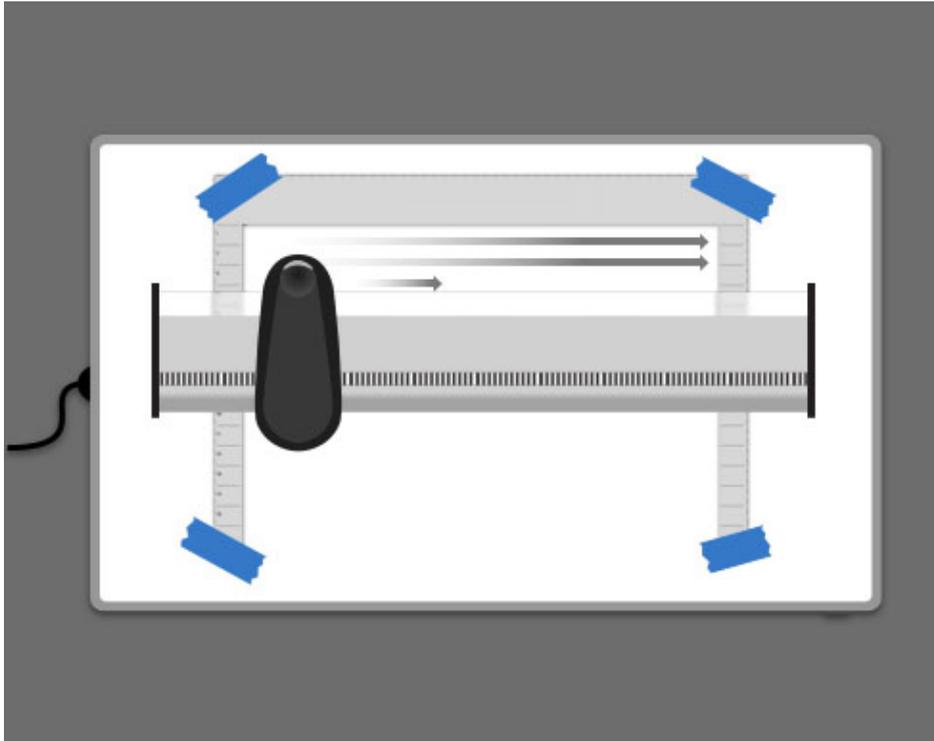
Scan Light Source in Rows

The method used for scanning a lightbox is significantly different than scanning reflective patches. Reflective scanning uses patch recognition to locate patches and requires the user to stop and start on the white paper before and after each row.

Transmissive scanning is position-based and uses the built-in sensor on the i1Pro3 PLUS along with the tick marks on the measurement ruler to locate the patch positions on the lightbox and the test charts.

Measurements begin and end within the template area and the scanning direction is left-to-right only.

- 1.) Align the top edge of the supplied measurement ruler with the first-row markers on the template.
- 2.) Place the i1Pro3 PLUS on the ruler and align it just inside the left edge of the template. Make sure that you do not start your scan on the template surface.
- 3.) Press and hold the measurement button on the i1Pro 3 PLUS and slowly scan left-to-right until you reach the right edge of the template.
- 4.) Move the ruler down to the second row, slide the i1Pro 3 PLUS to the left edge of the template and scan row 2.



Measuring the First Test Chart

For the translucent and fabric media types, the first test chart measurement is a two-step process that involves measuring the back of the media as well as the color patches.

This extra measurement (along with the reflective measurement of the surface of the lightbox done previously) is done to account for light emitted from the lightbox that reflects off the back of the media and back into the lightbox. This effect increases the perceived brightness of the transmissive media and can affect profile quality if not accounted for.

For clear media, this reflection phenomenon is minimal so only the color patches are measured.

Before you begin measurement, allow time for the ink to dry completely. This time will vary depending on the printer and media combination.

Reverse Side of Material (WITHOUT LIGHTBOX) (For Translucent and Fabric Media Only)

1.) Place an unprinted piece of the transmissive media (translucent or fabric) with the printable side down on a flat neutral surface. Do not use the surface of the lightbox. You can use the i1Pro 3 PLUS backer board as the backing, for example.

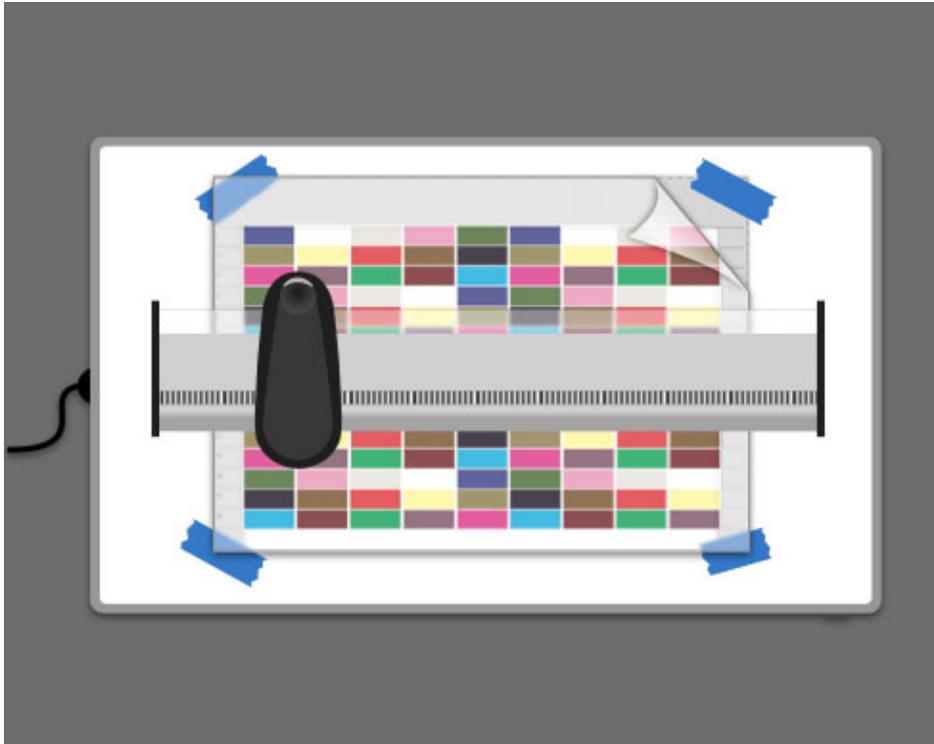
2.) Click the Measure button in i1Profiler or on the side of the i1Pro 3 PLUS.

Test Chart on Material (WITH LIGHTBOX)

The method used for scanning transmissive media is significantly different than scanning reflective patches. Measurements begin in the center of the first patch in a row and end in the center of the last patch in a row. The scanning direction is left-to-right only.

1.) Align the printed chart over the template and tape the chart to the lightbox (if necessary).

By lining up the test chart with the template, each patch measurement in the test chart will have a corresponding measurement of the lightbox at the same position. In this way, i1Profiler can compensate for any nonuniformity in luminance and color of the lightbox.



2.) Align the top edge of the supplied measurement ruler with the first-row markers on the template.

3.) Place the i1Pro3 PLUS on the ruler and align the center of the device to the center of the first patch in the row. You can use the USB connection as a guide to help center the i1Pro 3 PLUS.

4.) Press and hold the measurement button on the i1Pro 3 PLUS and slowly scan left-to-right until you reach the center of the last patch in the row. For partial rows, make sure you scan until you reach the center of the last patch in the row, even if it is blank.

5.) Move the ruler down to the second row, slide the i1Pro 3 PLUS to the center of the first patch in the next row and scan row 2.

6.) Repeat until all the rows are scanned. If you wish to rescan a row, click on the row you wish to measure and scan again.

Profile Settings

Profile Settings are the parameters used when constructing a printer profile from measured data. In the transmissive workflow, these settings are applied earlier in the workflow due to the iterative profiling method being used.

After the first test chart is measured, i1Profiler applies the selected profile settings to create a virtual printer profile. This virtual profile is then used to create the second set of color patches. Once the second set of color patches is measured and the rest of the profiling steps are completed, the same profile settings are used to create the final profile.

Make sure to use the Advanced smoothing method in Profile Settings. This is the default setting and should yield the best results when using the inherently noisier transmissive measurements.

Creating the Second Test Chart

The second test chart is a variable set of 100 patches. The device values for the second set of patches are determined by the measurement of the first set of patches.

The page size displayed on this page will always match the page size of the first test chart printed. This cannot be changed to ensure the lightbox measurements taken earlier remain aligned with the patches in the test chart.

Generate Patch Set – Creates a new 100 patch test chart based on the first test chart measurement data. Generation of the second test chart can take a few minutes, so please be patient.

Print Chart – Prints the second test chart directly from i1Profiler. It is imperative that all printer, paper and color management settings used to print the first test chart are used here as well.

Export – Saves the second test chart as a TIFF, PDF or EPS file for printing from an external application. It is imperative that all application, printer, paper and color management settings used to print the first test chart are used here as well.

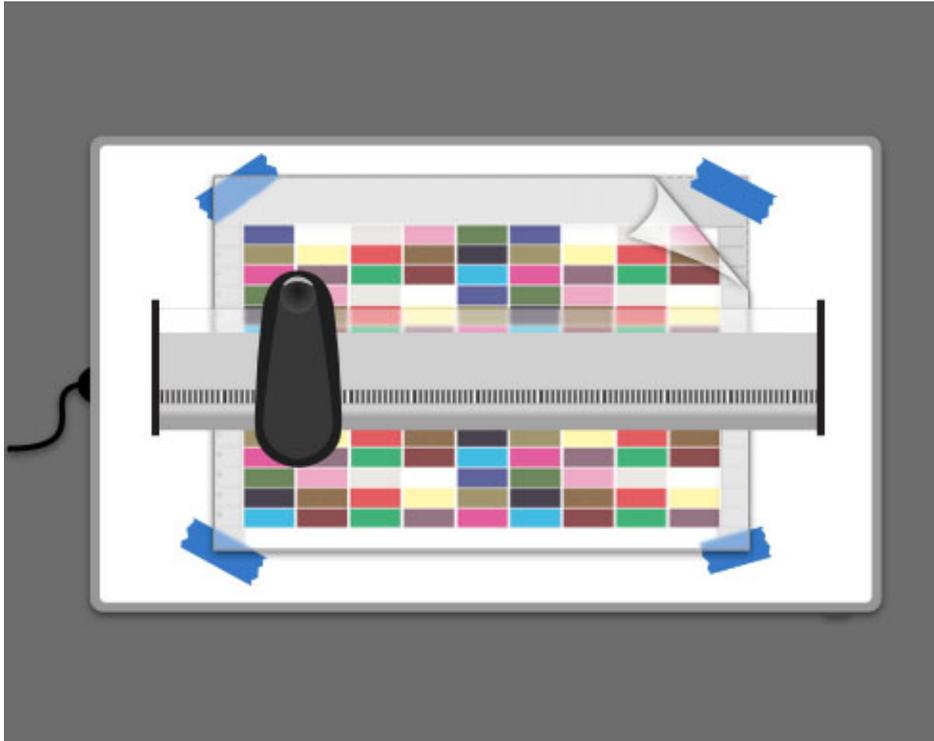
Measuring the Second Test Chart

Test Chart on Material (WITH LIGHTBOX)

The method used for scanning transmissive media is significantly different than scanning reflective patches. Measurements begin in the center of the first patch in a row and end in the center of the last patch in a row. The scanning direction is left-to-right only.

1.) Align the printed chart over the template and tape the chart to the lightbox (if necessary).

By lining up the test chart with the template, each patch in the test chart will have a corresponding measurement of the lightbox at the same position. In this way, i1Profiler can compensate for any nonuniformity in luminance and color of the lightbox.



- 2.) Align the top edge of the supplied measurement ruler with the first-row markers on the template.
- 3.) Place the i1Pro3 PLUS on the ruler and align the center of the device to the center of the first patch in the row. You can use the USB connection as a guide to help center the i1Pro 3 PLUS.
- 4.) Press and hold the measurement button on the i1Pro 3 PLUS and slowly scan left-to-right until you reach the center of the last patch in the row. For partial rows, make sure you scan until you reach the center of the last patch in the row, even if it is blank.
- 5.) Move the ruler down to the second row, slide the i1Pro 3 PLUS to the center of the first patch in the next row and scan row 2.
- 6.) Repeat until all the rows are scanned. If you wish to rescan a row, click on the row you wish to measure and scan again.

Measuring the Viewing Lightbox (For Clear and Translucent Media)

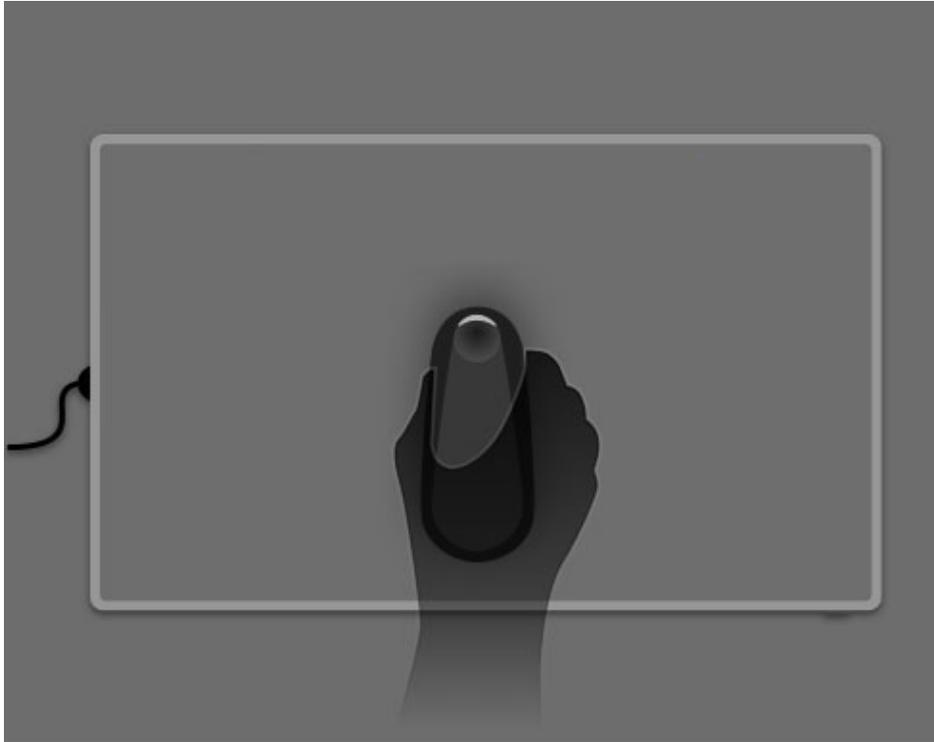
The viewing lightbox is the lightbox on which the finished product will be displayed.

The viewing lightbox may or may not have the same spectral characteristics as the lightbox on which the color patches were measured. This may produce an unwanted color shift when the color-managed work is displayed on the viewing lightbox.

If you do not have access to the viewing lightbox, or do not know what the viewing lightbox will be, use the "Same as Measurement Backlight" check box. This will use the lightbox measurements taken earlier.

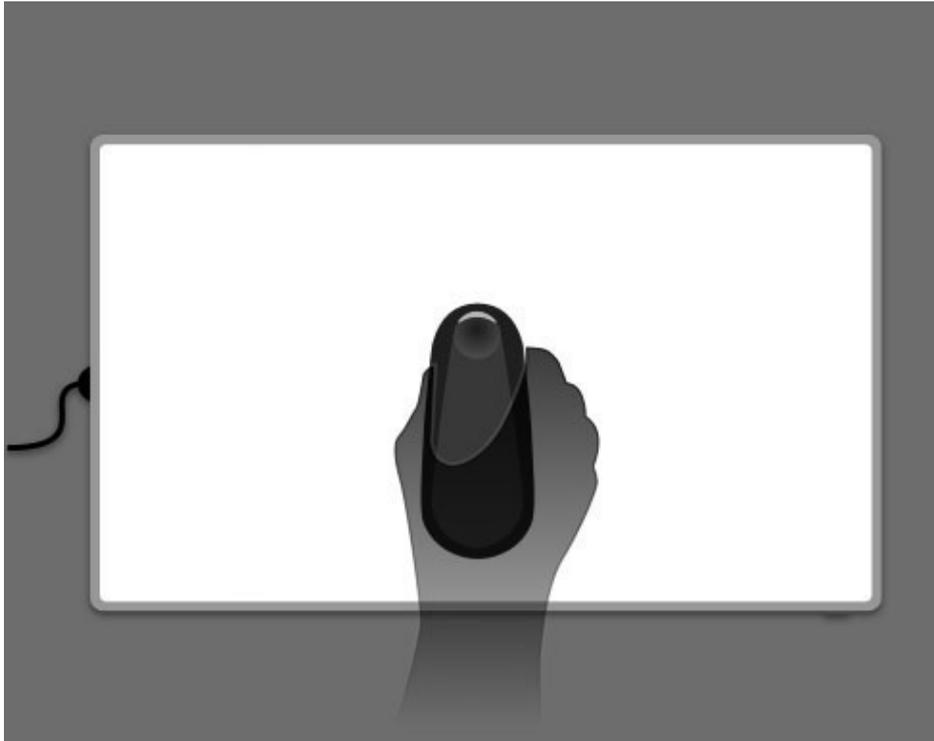
Light Source Surface (LIGHT OFF)

- 1.) Turn on your lightbox and leave it on for approximately 10 minutes to let it warm up and stabilize.
- 2.) Turn the lightbox off.
- 3.) Place the i1Pro 3 PLUS in the center of the lightbox and click the Measure button in the application or on the device.



Light Source Surface (LIGHT ON)

- 1.) Turn on your lightbox and leave it on for approximately 2-3 minutes to let it stabilize.
- 2.) Place the i1Pro 3 PLUS in the center lightbox and click the Measure button in the application or on the device.



Measuring the Viewing Lightbox (For Fabric Media)

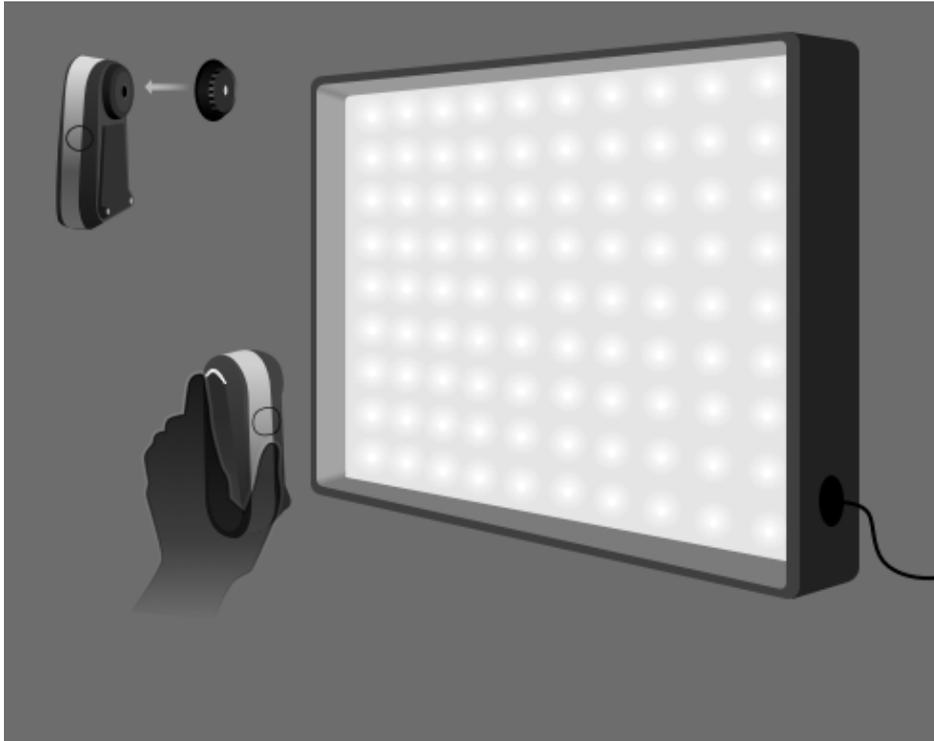
The viewing lightbox may or may not have the same spectral characteristics as the lightbox on which the color patches are measured. This may produce an unwanted color shift when the color managed work is displayed on the viewing lightbox.

If you are working with fabric material, the viewing lightbox may not have a diffuser surface on which to measure. In these cases, the fabric is stretched directly over the light source so the measurement must be taken using the ambient light head on the i1Pro 3 PLUS.

If you do not have access to the viewing lightbox, or do not know what the viewing lightbox will be, use the "Same as Measurement Backlight" check box. This will utilize the lightbox measurements taken earlier for the viewing lightbox.

Backlight Ambient Measure

- 1.) Attach the ambient light head to the i1Pro 3 PLUS. (You must attach the ambient light head. I1Profiler will sense if the light head is not attached and prompt you to attach it.)
- 2.) Turn the lightbox on and let it warm up for 10 minutes.
- 3.) Hold the i1Pro 3 PLUS near the lightbox and aim it at the target light source.



4.) Click the Measure button in the application or on the device.

Lighting

The lighting selection is based on the ambient lighting condition where the final work will be displayed. You can select from a set of standard illuminants, set a correlated color temperature or measure using the i1Pro 3 PLUS.

If you do not know what the ambient lighting will be, leave it at the default setting of D50.