



**SpectralVision Pro 2.5.x User Manual
Linearization and ICC Profiling Guide**

**ColorBurst RIP Queue Series
Mac OS X**



Profiling powered by
The logo for Munsell Color Services Company (Munsell Color Services Company), featuring a stylized 'X' and the word "x-rite".



© 2002-2011 CSE, Inc.

Compatible Systems Engineering, Inc. (CSE) reserves the right to change the information in this document without prior notice. The software described in this document is furnished under a license agreement. The software may be used or copied only in accordance with the terms of the agreement. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or information storage and retrieval systems, for any purpose other than the purchaser's personal use, without the express written permission of CSE.

© and ™ 2004-2011 Compatible Systems Engineering, Inc. All rights reserved.

ColorBurst is a registered trademark of CSE, Inc.

SpectralVision is a copyright of X-Rite, Inc.

Profiling technology is licensed from X-Rite. For the complete X-Rite Profiling Technology License, please refer to the SpectralVision help files.

All other trademarks are the property of their respective owners and are hereby acknowledged.

Table of Contents

SpectralVision Operation Manual

1	Introduction to SpectralVision Pro	4
2	The Measure Target Tab	6
3	Profile Build Options	12
4	The Create Target Tab	17

Linearization and Profiling

5	Linearization and Profiling Guide	22
6	Linearization and Profiling Guide for HM Printers	30

1

Introduction to SpectralVision Pro

SpectralVision Pro is provided with ColorBurst to measure and save linearization, profiling, and PrintCertification targets.

A linearization file is a curve that corrects for non-linear output throughout the tonal scale. Over time (and on every different media) a printer will drift from its original state. By relinearizing you are updating an environment's existing linearization and putting the printer back into its original state, reproducing all the conditions under which the ICC Profile was made. When you relinearize, you have made the ICC profile as accurate as the day it was made.

SpectralVision Pro also creates custom ICC profiles for use with ColorBurst. Profiles can be made for any ink and media combination and provides the ultimate in end user control over the printing process. ICC profiles created with SpectralVision Pro are standard ICC profiles and can be used in any ICC compatible application.

PrintCertification is integrated into ColorBurst and SpectralVision Pro to certify your system and individual prints. PrintCertification targets can be printed from ColorBurst and measured using your spectrophotometer and SpectralVision Pro to certify that your printer is performing within an acceptable range. If you print a PrintCertification target with a print job, the individual print can also be measured and certified. A PrintCertification label can be printed to affix to each certified print. For more information, please refer to the PrintCertification Tutorial, available as a PDF document in the ColorBurst folder.

SpectralVision Pro Installation

SpectralVision Pro is installed as part of the ColorBurst installation. The SpectralVision Pro program can be launched directly from ColorBurst through the Linearization tab of the Ink & Color Settings dialog. It can also be found on your hard drive in your Applications/ColorBurst/Utilities folder.

SpectralVision Pro is available for both the Mac OS X and Windows platforms. The SpectralVision Pro interface and profiling technology are identical on both platforms.

A ColorBurst dongle is required to build an ICC Profile. SpectralVision Pro will create a linearization file without a dongle, but the Profile Build window is disabled when a ColorBurst dongle is not plugged in to a USB port. This means that SpectralVision Pro can not be used with the ColorBurst demo to create an ICC profile—a full license of ColorBurst with the dongle is required.

Spectrophotometer Support

The following X-Rite spectrophotometers can be used with SpectralVision Pro to perform linearization, ICC profiling, and PrintCertification:

X-Rite	DTP20 (PULSE)
	DTP41/DTP41T
	DTP45
	DTP70
	Eye-One
	Eye-One iO
	Eye-One iSis
	iCColor
	SpectroScan

Label Printer Support

The following label printers can be used to print PrintCertification labels:

DYMO	LabelWriter 400 series
	LabelWriter 300 series

2

The Measure Target Tab

SpectralVision Pro opens in the Measure Target tab, where you can select a target and device, connect to the device, and read your patches.

SpectralVision Pro targets must first be printed through ColorBurst before they can be read by SpectralVision Pro.

IMPORTANT All linearization and profiling targets must be formatted for SpectralVision Pro. Targets that were formatted for older versions of SpectralVision will not work with SpectralVision Pro.

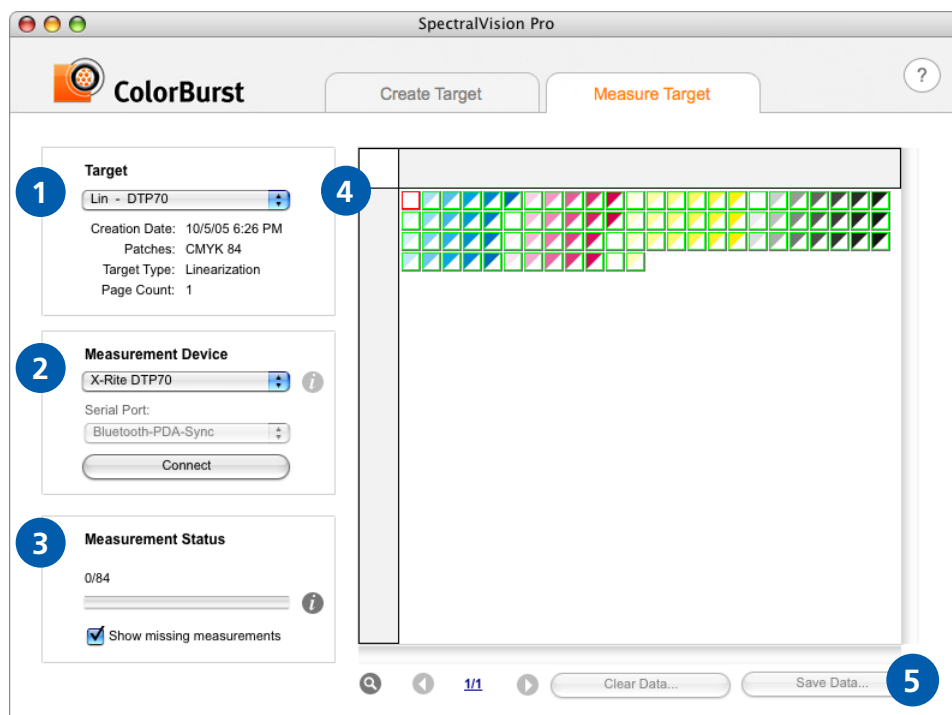


Figure 2.1. The SpectralVision Pro Measure Target tab.

1. Target

Choose the linearization, PrintCertification, or profiling target that you want to measure from the Target pop-up menu. Targets are pre-loaded for all supported spectrophotometers. Any custom targets that were created and saved in the Create Target tab will show up in this list as well.

The Creation Date, type and number of Patches, Target Type (Linearization or Profile), and Page Count will be listed for the selected target. The target patches will also be shown in the Target Display window.

Target Manager

The Target Manager is the last option in the Target pop-up menu. The Target Manager lets you import, export, or delete custom items in the Target pop-up menu.

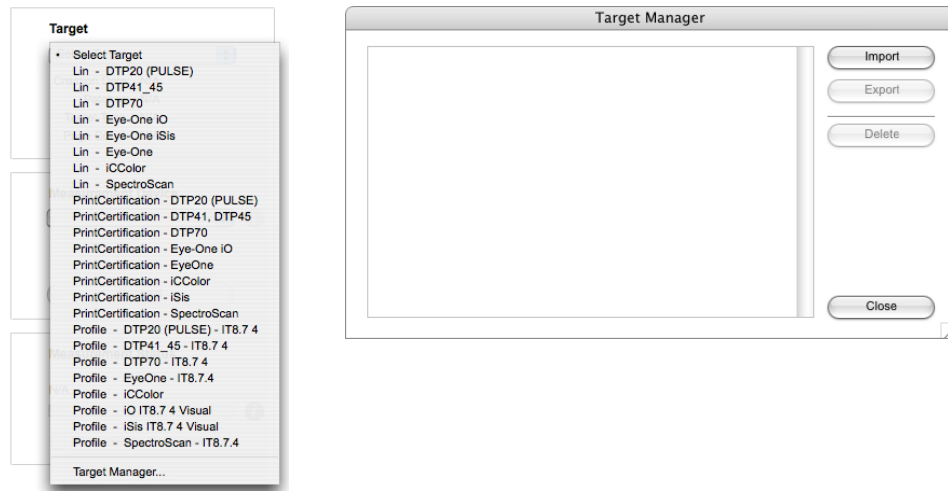


Figure 2.2. The Target Manager selection at the bottom of the Target pop-up menu opens the Target Manager window.

The Import button allows you to import an ENS file, or saved session file, which will then show up in the Target list. When you successfully Build and Save a profile, a matching ENS file is automatically saved to your Documents/SpectralVision Pro_Resources/SessionFiles folder. This saved session can then be Imported into the Target Manager so that the profile can be rebuilt with different Profile Build Options without having to re-measure the profiling patches. The Imported session will be conveniently listed in the Target pop-up menu.

NOTE The Target Manager window does not display the standard targets that ship with SpectralVision Pro because these targets can not be exported or deleted. Only custom targets and imported sessions (ENS files) are shown.

The Export button allows you to export a custom target (created through the Create Target tab) as an XML file. This can be useful for sending custom targets to other users of SpectralVision Pro.

The Delete button will remove any highlighted targets or saved sessions in the Target Manager dialog.

About ENS files

An ENS file is a saved session of measurements for a particular target. There are three situations in which an ENS file will be saved:

1. If the measurements of a target are not complete (e.g. you are on page 2 of 8 of a multiple-page patch set), clicking the Save Data button in the Measure Target tab will save an ENS file. This file can be returned to later in order to complete the measurements.
2. If a ColorBurst dongle is not present, clicking Save Data will prompt you to save an ENS file (even if all measurements are complete). The options to Build and Save a profile are not available without a ColorBurst dongle.
3. When you successfully Build and Save a profile, a matching ENS file is automatically saved to your Documents/SpectralVision Pro_Resources/SessionFiles folder. This saved session can then be Imported into the Target Manager so that the profile could be saved with different Profile Build Options without having to measure the profiling patches again. The Imported session will be conveniently listed in the Target pop-up menu.

2. Measurement Device

The Measurement Device field will automatically select the spectrophotometer associated with the target you have chosen. Be sure that your Measurement Device matches your selected Target. Targets are formatted differently for various spectrophotometers and are not interchangeable.

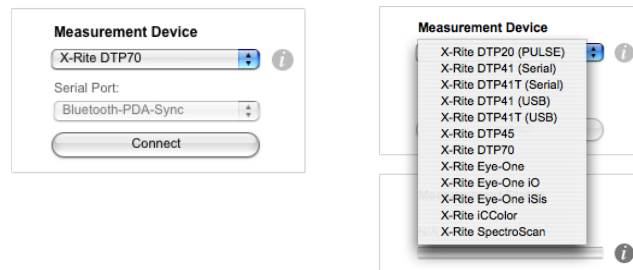


Figure 2.3. The Measurement Device pop-up menu indicates the spectrophotometer brand and model, which should match your target selection.

Serial Port

If you are connecting your device via serial port, the available serial ports will be listed here.

If you are using a serial device but your computer does not have a serial port, you may use a serial to USB adaptor, if you follow these steps:

1. Make sure you have the serial to USB adaptor driver installed.
2. Connect the serial to USB adaptor to your computer before launching SpectralVision Pro.

If you fail to do these two things, SpectralVision Pro will not recognize your serial to USB adaptor.

Connect/Disconnect

The Connect button is used to establish communication between SpectralVision Pro and your device. After a successful connection, a Device Info dialog will be shown with options

specific to your spectrophotometer (calibration, patch import from memory, etc.). This dialog can be accessed again later by clicking the Info button (“i”) next to your device.

After a successful device connection, the Connect button changes to Disconnect. This can be useful if you happen to be using more than one device in SpectralVision Pro—you will need to disconnect from one device before establishing a connection to another. When you are finished using SpectralVision Pro, click Disconnect to close communication with your device or simply Quit SpectralVision Pro.

NOTE If you have used any other software applications to connect to your spectrophotometer, you’ll need to disconnect your device in those applications before you’ll be able to connect successfully in SpectralVision Pro.

3. Measurement Status

This section displays how many patches have been measured against the total number of patches in the target (e.g. “84/84”), a progress bar, and a Show Missing Measurements checkbox that will highlight any patch that has not been measured in green.

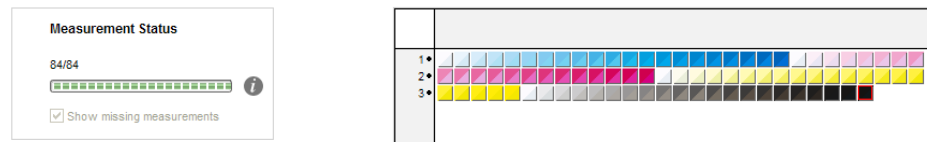


Figure 2.4. The Measurement Status bar displays the number of patches that have been measured.

As patch data is measured it is visually represented on the screen in the Target Display window. You can select specific patches by clicking on them. Clicking the Info (“i”) button next to the progress bar will bring up a dialog displaying Patch Info and Measurement Info for that patch.

Patch Info includes the location of the patch on the target (Page, Row, and Column) as well as the CMYK % values of the patch in the target file (these are the values sent to the printer—not the measured values). If the patch has been measured, a Lab value of the measurement is also displayed.

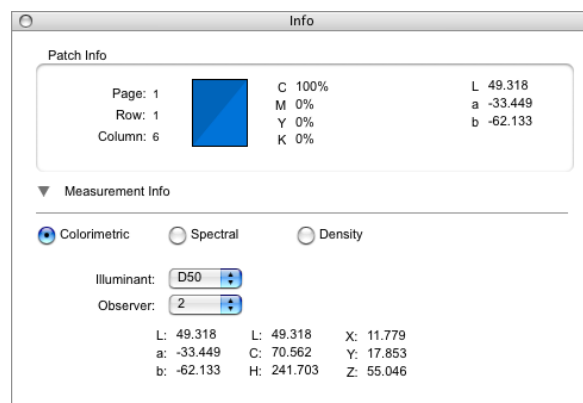


Figure 2.5. The Patch Info window can be used to get data about a specific patch.

The Measurement Info dialog (which expands when the arrow next to it is clicked) displays additional information about the actual measurement of the patch. Colorimetric data is displayed as Lab, LCH, and XYZ values. A spectral response curve is plotted against the visual

spectrum. Density values can be displayed as Status T, E, or A with a Minus Paper option, which discounts the affect of the paper on the density reading.

4. Target Display window

The Target Display window shows a representation of the currently selected target. If the patches have not been read, the patch squares are half-filled with the color of the patch. When the patches have been read, the other half of the patch is filled with the actual reading color.

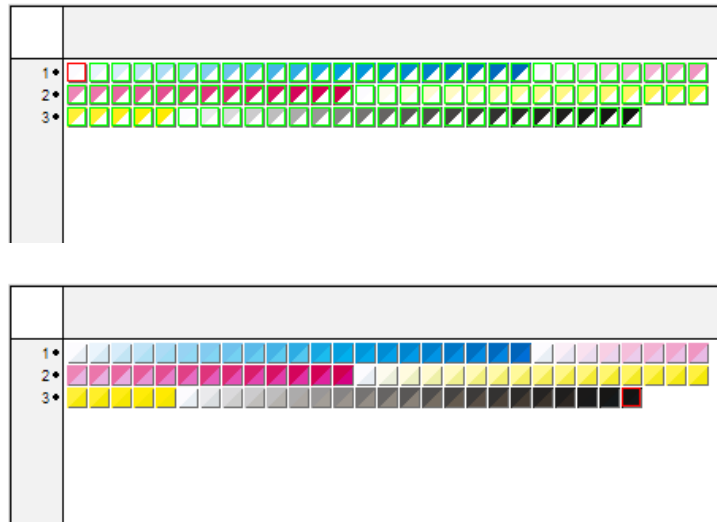


Figure 2.6. The patch display before measurement, with green highlights to show missing measurements (top), and the patch display after measurement, with a red highlight to indicate the selected patch (bottom).

The Zoom magnifying glass icon at the bottom of the Target Display window allows you to zoom in and out on the target if you wish. Page information for the target is also displayed (current page/total pages) with arrows to move back and forth through multiple-page targets.

If you make a mistake in your measurements or you just want to start over, click the Clear Data button to erase all measured data.



Figure 2.7. The Zoom button, page scroll, and Clear Data button appear at the bottom of the patch display window.

5. Save Data button

The Save Data button is used to either save measurement data in the appropriate file format or, for profile targets, to access the Build Profile Options dialog for profile build controls.



Figure 2.8. The Save Data button is used to build a profile when a profile target is selected in the Target pop-up menu.

The Save Data button is displayed when a Linearization or PrintCertification target is selected under Target and measurements have been completed. Clicking this button will prompt you to save a Linearization file (.lin) or a PrintCertification target file (.CTG) which

can then be used in ColorBurst. Files can be saved in any location, including the desktop. However, we recommended that files be saved in the same place for archival purposes (e.g. save all lin files in the ColorBurst/Linearization Files folder). A LIN or CTG file can be saved with or without a ColorBurst dongle present.

The Save Data button is displayed when a Profile target is selected under Target. If measurements have been completed, and a ColorBurst dongle is plugged in to a local USB port, clicking this button will bring up the Profile Build Options dialog, which includes controls for Black Generation, Ink Limiting, Table Resolution, and custom Profile Information tags.

If profile target measurements are not complete or a ColorBurst dongle is not present, clicking the Save Data button will prompt you to save an ENS file, which is a saved session (see page 8 for more info on ENS files). This file can be imported into the Target Manager later on for completing measurements and/or profile building (when a ColorBurst dongle is plugged in).

3

Profile Build Options

The Profile Build Options dialog consists of two tabs. The first tab, Ink Control, lets you set profile options including Black Generation and Ink Limiting. The second tab, Build Profile, lets you set the LUT (look-up table) resolution, add an info tag, and build the profile.

Accessing the Build Profile dialog

You must have completed the following steps to get to the Profile Build Options dialog:

1. The ColorBurst dongle must be plugged in to a USB port.
2. Select a profile target in the Target pop-up menu in SpectralVision Pro's Measure Target tab.
3. Select your measurement device and successfully connect to your device through SpectralVision Pro.
4. Measure the target in SpectralVision Pro. If there is more than one page in the target, all pages must be read. There cannot be any missing measurements.
5. Click the Save Data button to open the Profile Build Options dialog.

IMPORTANT If the ColorBurst dongle is not present, clicking the Save Data button will save an ENS file, which is a saved session. A session can be resumed when the dongle is plugged in by selecting File > Rebuild Profile and selecting your ENS file.

The demo version of ColorBurst can not be used to build a profile because a ColorBurst dongle is required.

The Ink Control Tab

The first tab in the Profile Build Options is the Ink Control tab.

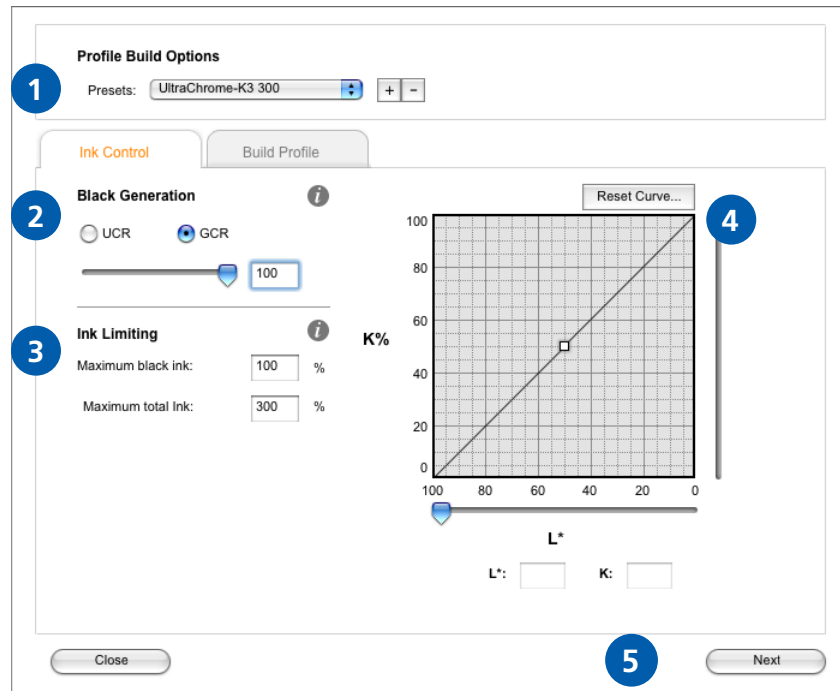


Figure 3.1. The SpectralVision Pro Profile Build Ink Control tab.

1. Presets

Presets are saved combinations of settings in the Profile Build Options dialog. A Preset includes all of the Black Generation and Ink Limiting settings under the Ink Control tab as well as the Table Resolution setting under the Build Profile tab. Presets are a convenient way to set your Profile Build Options quickly and consistently.

SpectralVision Pro comes with several presets. You can use these as-is or make changes and save them as a new Preset.

Click the plus sign next to the pop-up menu to add a new Preset. Type a name in the Preset field, and click the Save button that appears (or Cancel if you change your mind). The new setting will then show in the Preset pop-up menu. If you wish to delete a preset, select it from the pop-up and click the minus sign (this action cannot be undone, so be careful when deleting Presets).



Figure 3.2. The Presets plus sign button allows you to name and save a custom preset.

About Presets

Use the “CMYKLcLm 300” Preset for printers that do not have light black ink. Choose from the “Ultrachrome Color 300” or “Ultrachrome Gray 300” Presets for original Epson Ultrachrome ink printers. The “Ultrachrome K3 300” Preset is for Epson’s K3 printers (Stylus Pro 3800, 4800, 7800, 9800). The “300” in the Preset names stands for 300% Maximum Total Ink—this is our recommended setting for most profiles.

2. Black Generation (UCR/GCR)

Select either UCR or GCR for the method of Black Generation. If you select GCR, move the slider or type in a value to set the amount of GCR.

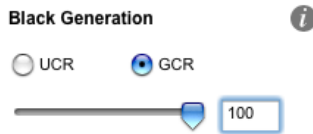


Figure 3.3. The Black Generation settings can be set to UCR or GCR.

NOTE GCR set to 100 is generally recommended for newer inkjet printers that have light black ink. However, for older printers (which do not have light black) 100 GCR may not be the best choice. This aggressive grey replacement method can result in a profile that produces “peppering” (visible black dots) in the highlights of prints. For these printers, use the “CMYKLcLm 300” Preset.

3. Ink Limiting

SpectralVision Pro allows you to limit both your black ink and the total ink. There are separate controls for each type of ink limiting.



Figure 3.4. The Ink Limiting settings are used to limit both black ink and total ink.

Maximum Black Ink

This controls the amount of black ink used in total ink builds, or “rich blacks.” In most cases the recommended setting is 100% Maximum black ink, but for some papers reducing this value slightly (10-20%) can produce better results.

Maximum Total Ink

This controls the maximum amount of combined inks a profile can use. In general, the recommended setting is 300% Maximum total ink, but some papers may produce better results within a working range of 260-340%.

NOTE Never use a Total Ink Limit below 250%—this can severely compromise the quality of a profile!

4. Black Curve

The black curve controls the shape and rate at which black is built into the highlights, midtones, and shadows. Add new anchor points by clicking on the curve. Adjust existing anchor points by clicking and dragging or by highlighting the point (in black) and typing coordinates in the L^* and $K\%$ axis fields below. Sliders on both the L^* and $K\%$ axis adjust the end points of the curve. Use the Reset Curve button to set the curve back to a diagonal line with a mid-point anchor.

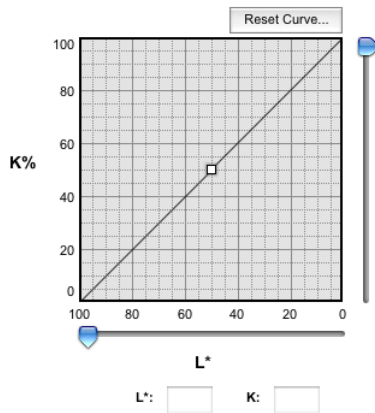


Figure 3.5. The black curve can be used to adjust the amount of black ink in highlights, midtones, and shadows.

5. Next button

Click the Next button in the lower right to continue on to the Build Profile tab of the Profile Build Options dialog.



Figure 3.6. The Next button can be used to continue to the Build Profile tab.

The Build Profile Tab

The next tab in the Profile Build Options dialog is the Build Profile tab.

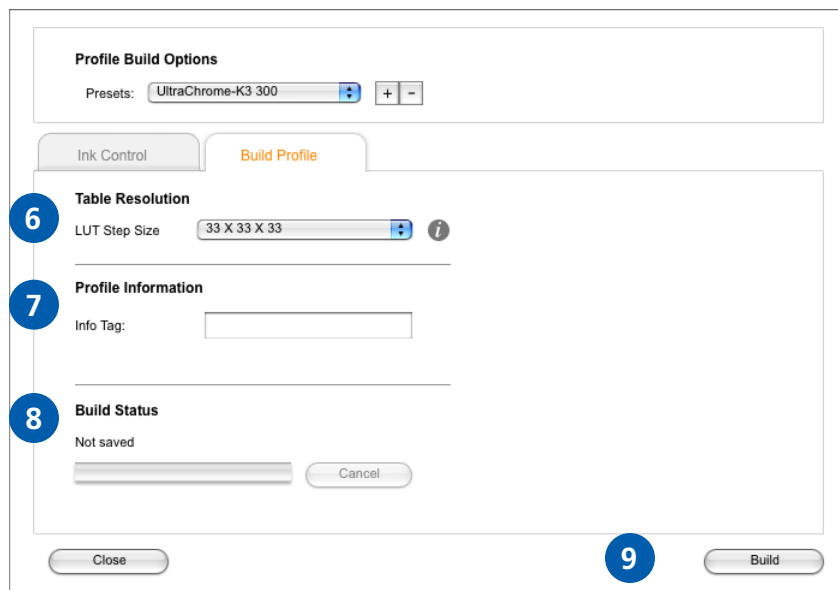


Figure 3.7. The Build Profile tab in the Profile Build Options.

6. Table Resolution

This sets the LUT Step Size for your profile (17x17x17, 21x21x21, or 33x33x33). LUT stands for Look Up Table and affects the quality and size of the profile being built. A larger table will always render better color. Smaller LUTs create profiles smaller in size but are lower in quality and accuracy.

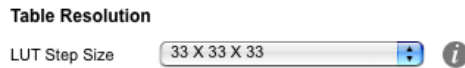


Figure 3.8. The LUT Step Size affects the quality of your profile.

NOTE Creating profiles is very processor-intensive. Slower machines can take up to 10 minutes to build a profile. Using a smaller LUT will speed up the process but will also diminish the quality and accuracy of the profile.

7. Profile Information

This field allows you to enter a custom Info Tag that will be written into your profile and will be displayed in ColorBurst below the profile name.



Figure 3.9. The Info Tag will be displayed in ColorBurst when the profile is loaded.

8. Build Status

This dialog displays a progress bar and status messages while the profile is being built, and is activated by clicking the Build button (lower right). If the Cancel button is clicked before the profile building process is complete, a "Cancelled: Profile not built!" message will appear.



Figure 3.10. The Build Status shows the progress while the profile is being built.

9. Build

Click the Build button to build and save your profile. You will be prompted to type in a name for your profile (the name is limited to 255 characters) and determine the location where the profile (.icc extension) will be saved.



Figure 3.11. The Build button is used to build and save a profile.

NOTE In order to use the profile in applications such as Photoshop, it will need to be copied to your system's ColorSync folder (HD/Library/ColorSync/Profiles).

4

The Create Target Tab

The Create Target tab is used to create custom targets for use in special circumstances, such as when printing on fabric or using custom paper sizes. In most cases, however, it is not necessary to build a custom target.

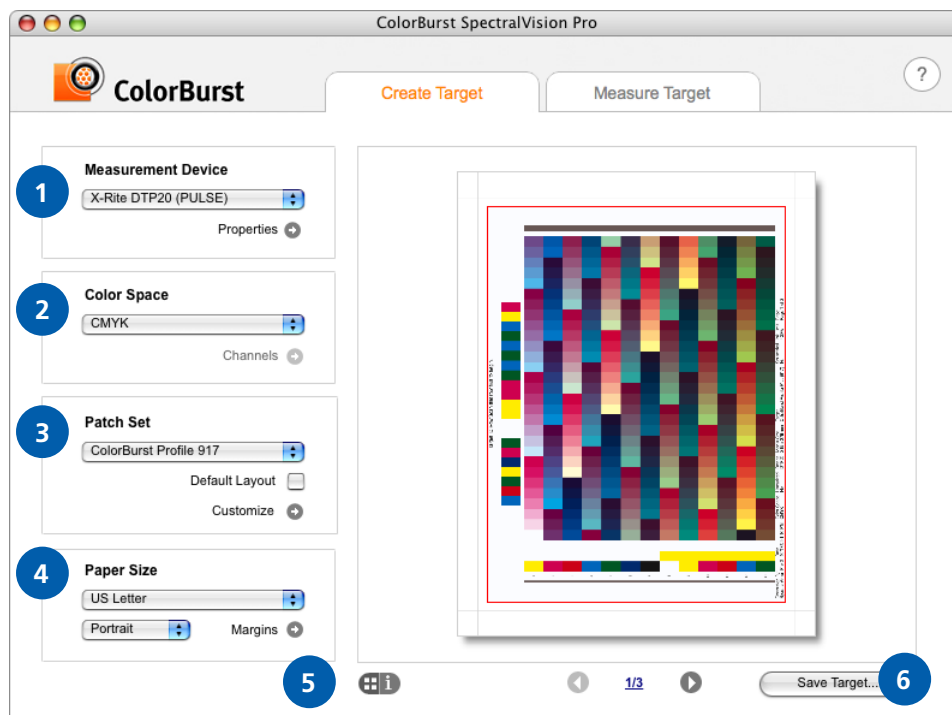


Figure 4.1. The SpectralVision Pro Create Target tab.

1. Measurement Device

Select the device you will be using to measure your custom target from the Measurement Device pop-up menu. This will automatically format the target patch set to work with your spectrophotometer.



Figure 4.2. The Measurement Device Properties window can be used to create custom patch sets for the selected spectrophotometer.

Measurement Device Properties

The Properties dialog provides fields for custom Patch Width and Height, along with other target parameters specific to your selected spectrophotometer. Units can be adjusted in millimeters (mm), centimeters (cm), or inches. Customizing these settings can be particularly useful for low resolution printers (less than 300dpi) or for printing on material that is susceptible to excessive bleeding (e.g. fabric).

NOTE The Measurement Device Properties dialog is only available when the Default/Standard Layout checkbox under Patch Set is not checked.

2. Color Space

Select the Color Space that corresponds to the inks installed in your printer.

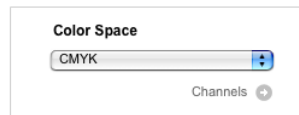


Figure 4.3. The Color Space should match the number of ink colors installed in your printer.

NOTE Light Inks do not constitute an extra color when it comes to linearization and profiling. CMYK printers with Light Cyan, Light Magenta, Light Black, etc. are still considered four color machines; the light inks simply create better tonal ranges of CMYK inks. A true 6 or 8 color printer would include other ink colors, such as orange or green ink.

Channels

The Channels dialog is only used when a Color Space other than CMYK is selected; it is not accessible in this version of SpectralVision Pro.

3. Patch Set

For Linearization, choose the Linearization 20 Step option. The Linearization target will then be formatted for your selected Measurement Device.

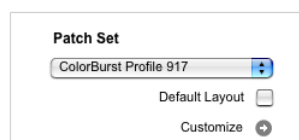


Figure 4.4. Use the Patch Set pop-up menu for a default layout, or deselect the Default Layout checkbox to set custom parameters in the Measurement Device Properties window.

For Profiling, you have a variety of options to choose from. Select your patch set based on the number of patches (ranging from 917 to almost 3000) or standard industry targets (ECI Visual, IT8.7 3 Extended, or IT8.7 4 Visual).

NOTE ECI Visual is also known as ECI2002.

Default/Standard Layout checkbox

When this box is checked, the patches will be formatted according to a predetermined Default or Standard Layout. When the box is unchecked, the patches will be formatted to best fit the selected Paper Size.

Customize

The Customize dialog gives options to scramble patches and/or apply Target Ink Limiting. Checking the Scramble Patches checkbox arranges color patches in random order, which can be useful for medias that are uneven or inconsistent (some photo papers, fabric, etc.)

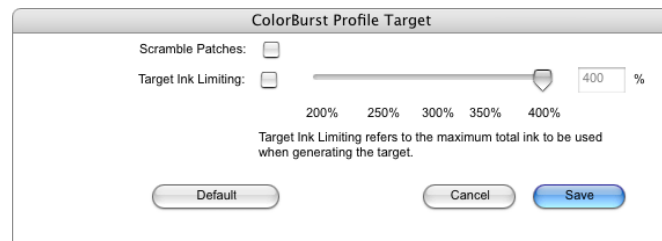


Figure 4.5. The Customize button opens the ColorBurst Profile Target window.

The Target Ink Limiting checkbox allows for an ink limit to be applied to a Patch Set. Although we strongly recommend setting ink limits in ColorBurst rather than in this dialog, we realize certain special cases may require such a control. Use it with extreme caution! Applying an ink limit to profiling patches can result in a severe and inefficient reduction in color gamut!

The Default button in the ColorBurst Profile Target window can be used to reset the Target Ink Limiting to its recommended setting (off).

NOTE The Customize options are only available when a ColorBurst profile patch set is selected.

4. Paper Size

The Paper Size option allows you to choose from standard paper sizes (US Letter, A4, Legal, A3, Tabloid) or create a New custom paper size (in mm, cm, or inches). Some Patch Sets may take up several standard sheets of paper, so it may be desirable to create a New Paper Size for printing on larger media in these cases.

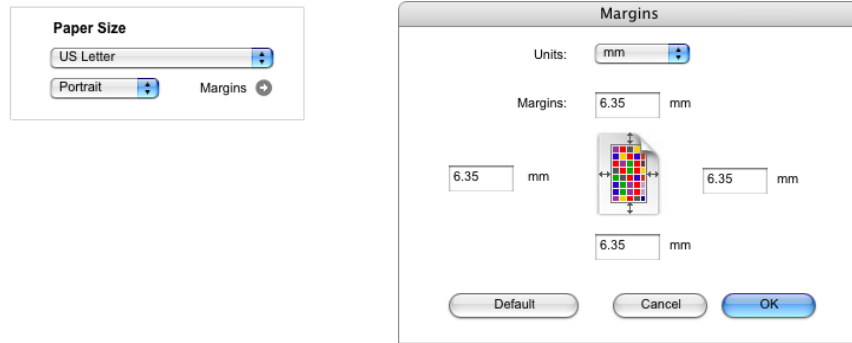


Figure 4.6. Click the Paper Size Margins button to set custom page margins for your target.

There are minimum and maximum limits for custom page sizes depending on the Measurement Device you have selected.

NOTE Both the Portrait/Landscape and Margins options are only available when the Default/Standard Layout checkbox under Patch Set is not checked.

Portrait or Landscape

You can set the orientation of your Paper Size with this pop-up menu.

Margins

The Margins dialog provides fields to set custom top, bottom, and side margins (in mm, cm, or inches) for your Paper Size.

5. Target Display and Info

The Target Display window shows either a representation of the current patch set or information about the patch set. The Patch and Info buttons below the display window are used to show either patches or patch information. If there is more than one page in the patch set, you can use the arrows below the display to scroll through the windows.

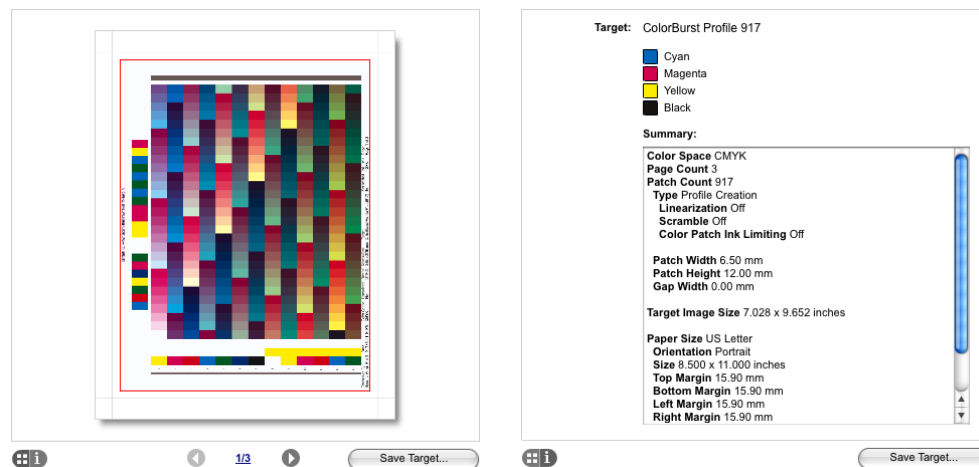


Figure 4.7. The Patch and Info buttons toggle the Target Display window between an image of the target and information about the target.

6. Save Target

When you have finished selecting your Measurement Device, Color Space, Patch Set, and Paper Size it is necessary to save your patch set for printing. Your new custom target will then be automatically placed in the Target pop-up menu in the Measure Target tab.

Linearization targets do not need to be saved unless they have been customized in some way. Standard Linearization targets for each measurement device have been pre-loaded into the Target Manager for SpectralVision Pro.

5

Linearization and Profiling Guide

Below you will find step by step instructions on how to relinearize an environment and then create a new custom profile for non-HM printers. Please keep in mind that for glossy papers, you will need to use Photo Black inks, while matte papers require Matte Black inks.

IMPORTANT If your printer model includes “HM” at the end of the model number, skip this section and go to section 6: Linearization and Profiling Guide for HM printers on page 30.

Setup

1. Perform a nozzle check on your printer.

Verify that there are no missing blocks in the nozzle check.

2. Select an environment.

If you are linearizing and building a new profile, select an similar environment to the new paper that you want to profile, based on resolution, ink type, and paper texture. If you are relinearizing an existing environment only, select the environment to relinearize.

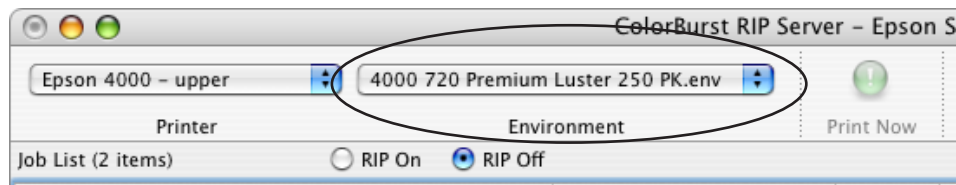


Figure 5.1. Load an Environment as a starting point for profiling or relinearization.

3. Do an environment “Save as” and rename your new environment.

Save the environment with a new name in the folder for your printer model in the ColorBurst/Environments/folder (this is the default location).

Linearization

1. If you are linearizing and building a new profile:

Click on Ink & Color and uncheck the following: Enable Ink Limiting, Enable ICC Color Management, and Use Autospot. Leave Enable Linearization checked.

If you are relinearizing only:

You do not need to change these settings.

2. Click on the Linearization tab and click the Print Linearization Target button.

You will be prompted to select your spectrophotometer device. Once you select the correct device, hit OK and your target will be sent to ColorBurst to print without color management.

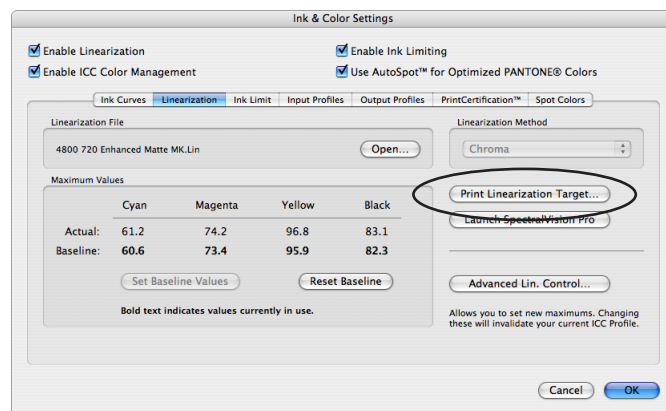


Figure 5.2. Click the Print Linearization Target button to print the target without color correction.

3. Open SpectralVision Pro.

Verify the Measure Target tab is selected in SpectralVision Pro.

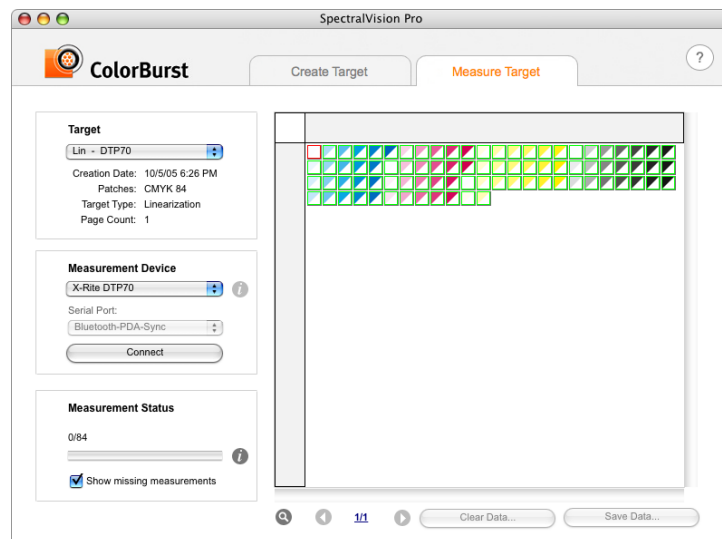


Figure 5.3. Launch SpectralVision Pro to measure the Lin target.

4. Select your device in SpectralVision Pro.

On the left there are 3 menus. Select the Lin target in the first menu that goes with your spectrophotometer. In the second menu, select your measuring device and then click the “Connect” button.

5. Set any spectrophotometer specific settings if a new menu appears.

6. Begin your measurements.

Refer to your device’s user manual for operating instructions.

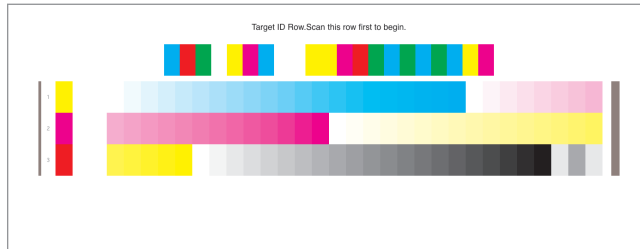


Figure 5.4. Measure a Lin target that has been formatted for your spectrophotometer. You may need to trim the target to fit your device.

7. If you are relinearizing only:

Please skip steps 8–10 and go to step 11.

8. Once you are done measuring, click on the “i” button next to the measurement status bar.

This will bring up a new window showing you the values of the target you just measured.

9. Evaluate your measurements. (profiling only)

Select the densities button and click on the 100% square for C, M, Y, and K respectively and take note of the associated value in the measurements window.

In cases of ink pooling or banding: If your 100% patches are not dry, pooling ink, or bleeding ink, or if you see any banding, the target density ranges below may help. Otherwise, you may disregard this chart—if your print looks acceptable, your density values do not need to fit these ranges.

	Glossy Media Target Density Range	Matte Media Target Density Range
Cyan	1.70 – 1.75	1.3 – 1.4
Magenta	1.70 – 1.75	1.3 – 1.4
Yellow	1.1 – 1.2	1.0 – 1.1
Black	1.65 – 1.75	1.3 – 1.4

NOTE K (black) values will be labeled as “VISUAL.”

10. Adjust your channel ink values.

Adjust the Channel Ink Reduction amounts to bring your measurements into an acceptable range. You will need to make a guess as to how much to decrease or increase each value. If you are close to the value, only change the number by a few steps. If you are far away from

the value, change the number in increments of 5. Repeat Steps 2-10 until your measured target values are in the ranges described above.

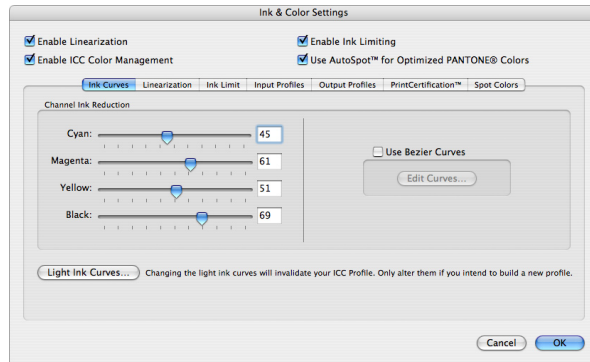


Figure 5.5. Adjust the Channel Ink Reduction slider(s) for each ink that fails.

11. Save your lin.

In the Measurements tab in SpectralVision Pro, click the Save Data button and save into the Lin folder.

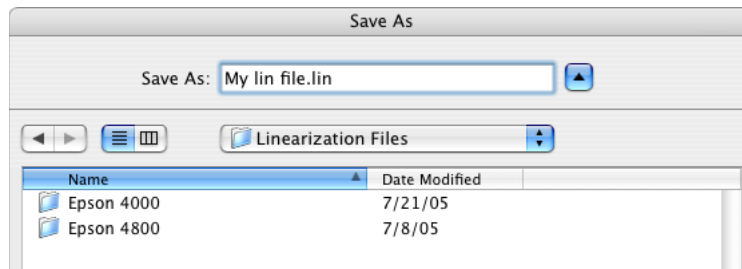


Figure 5.6. It is recommended to save your Lin file the ColorBurst/Linearization Files folder.

12. If you are building a profile:

In ColorBurst, go to the linearization tab and click the Reset baseline button.

If you are relinearizing only:

Do not click the reset baseline button. Baselines are only set when creating a new profile.

13. Load the lin file in ColorBurst.

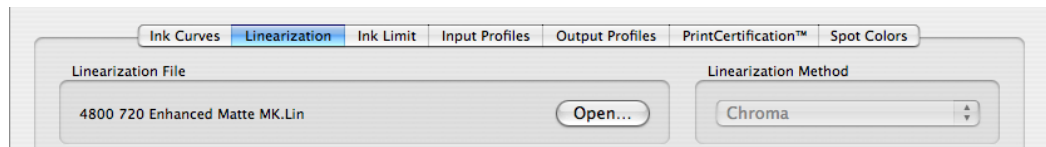


Figure 5.7. Use the Open button to select your new Lin file.

14. If you are relinearizing only:

If your new lin values are too low, you will get an error when loading the lin file. If they are too high, you will not receive an error. Look at the Actual values listed and make sure they are not more than 1.0 above the baseline values. If any of the values are too low or too high, please go to step 10 to adjust the channel ink limits. If your values are ok, click OK and then Save the environment.

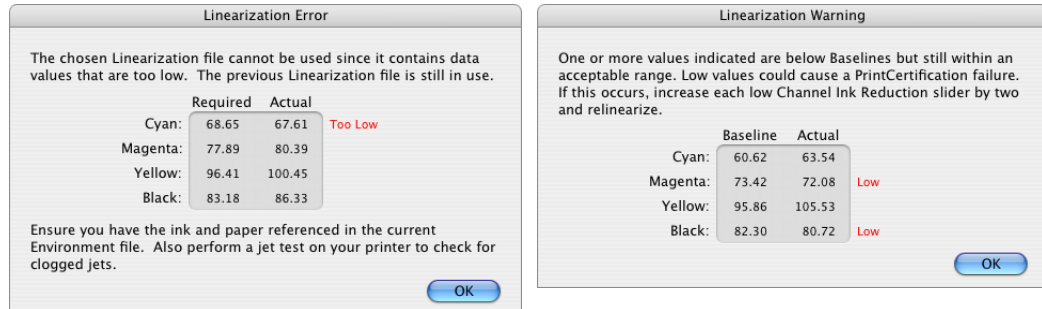


Figure 5.8. A Linearization Error dialog will appear when a lin file is opened if the measurements are lower than the established baselines in the original environment. A Linearization Warning indicates values are low but still within an acceptable range.

15. If you are building a profile:

- Set the Linearization Method to Lab.
- Click the Set Baseline button.
- Click OK and then Save the environment.

NOTE Baselines are only set when creating a new profile.

Ink Limiting

NOTE The following steps are for creating a new profile only.

1. Turn on ink limiting.

Check the Enable Ink Limiting checkbox at the top of the Ink & Color Settings dialog. Leave Enable ICC Color Management off.

2. Set the ink limit.

Click on the Ink Limiting tab and click the Set Total Ink Limit button.

3. Print the ink limit test file.

From the ColorBurst menu, select open and navigate to the ColorBurst/Images and Targets folder. Select the ColorBurst Ink Limit 200-400.tif and print.

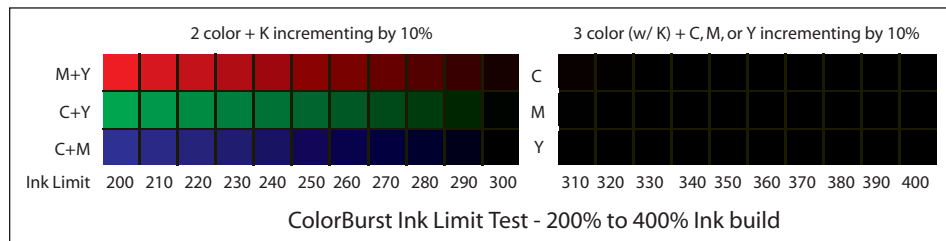


Figure 5.9. Use the ColorBurst Ink Limit Test to evaluate for ink limits.

4. Evaluate the print.

Review output for clear transitions at each step as well as consistent gloss. Make sure there is no bleeding and that the ink is dry. If your output shows any issues, decrease your ink limiting slider slightly and repeat steps 3-4 until you achieve optimum results.

NOTE Never reduce the ink limit slider more than 20 points. Reduce Preserve Black from that point on in steps of 25%.

5. Click OK and then Save the environment.

Profiling

NOTE A nozzle check test should be run prior to printing a profiling target to ensure that the heads are all firing properly.

1. **Print out your profile target.**

Targets are stored in the ColorBurst/Images and Targets folder. Make sure to open and print each page if you are using a target that is more than one page long.

NOTE The 2989 patch targets give the best results and are recommended for profiling.

2. **Open SpectralVision Pro.**

Verify the Measure Target tab is selected.

3. **Select your device in SpectralVision Pro.**

On the left there are 3 menus. Select the Profile target in the first menu that goes with your spectrophotometer. In the second menu, select your measuring device and then click the Connect button.

4. **Verify the correct UV filter option is selected in the pop-up window.**

Do not close this window.

5. **Begin your measurements.**

Refer to your device's user manual for operating instructions.

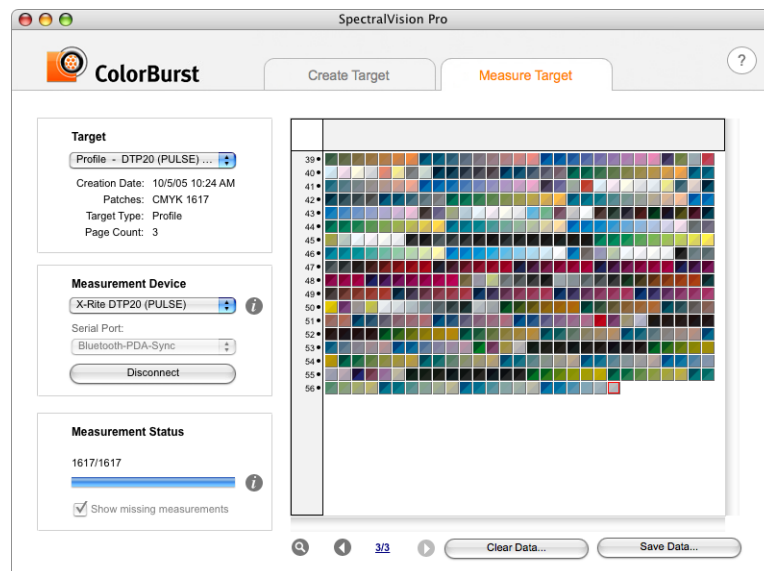


Figure 5.10. Read the profile target patches with your spectrophotometer to load the values into SpectralVision Pro.

6. Click on “Save data” and select ICC Profile in the drop down menu.

This opens a new screen.

7. Select a profile build preset.

In the presets drop down menu select the corresponding option for your printer.

8. Select the LUT.

Select the Build Profile tab. Under Table Resolution, select 33x33x33 in the LUT drop down menu.

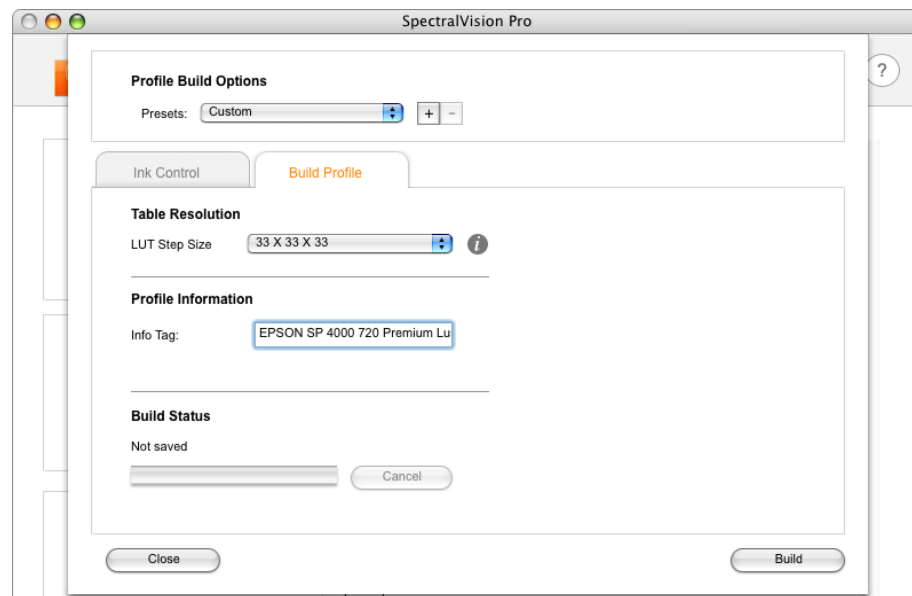


Figure 5.11. Set the LUT Step Size and enter an Info Tag in the Build Profile tab.

9. Click the Build button.

This will build the profile and prompt you to save it. Navigate to the ColorBurst/ICC Profiles folder and Save.

10. Turn ICC back on.

Once the profile is built, go back into ColorBurst and check the Enable ICC Color Management checkbox.

11. Add your new ICC profile to the list.

Go to the Output Profiles tab. Click the Rebuild Lists button.

12. Select your new profile in the Output profiles drop down menu.

Click OK.

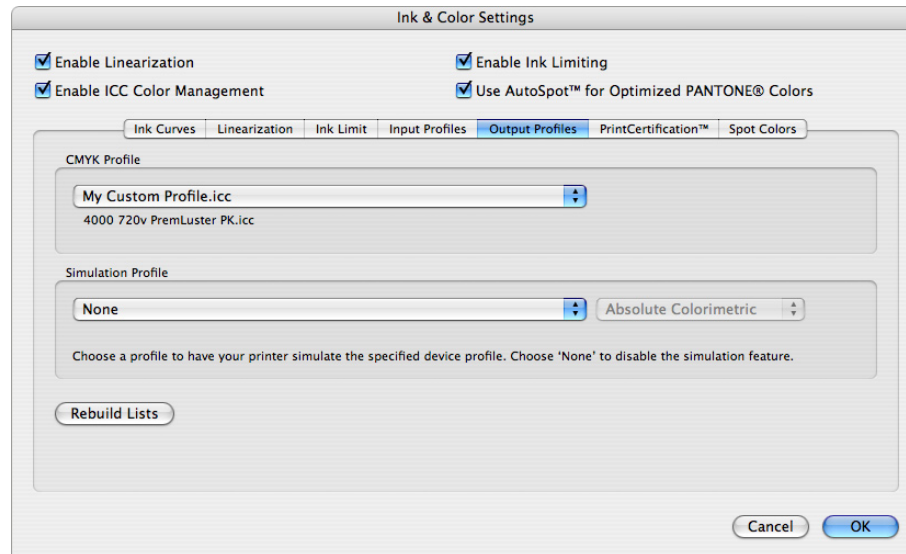


Figure 5.12. Select your new ICC profile in the Output Profiles tab of the ICC Profile Options dialog.

- 13. Go into the Printer General tab.**
Verify all information.
- 14. Save your environment.**
- 15. Select a known test print of your own and print using your new environment.**
- 16. Evaluate and make changes as necessary.**

6

Linearization and Profiling Guide for HM Printers

ColorBurst utilizes the Epson halftone module (HM) for several printer models, including the Epson Stylus Pro 4900, 7900, 9900, and 11880. The halftone module makes linearization and ink limiting unnecessary, so the profiling process for HM printers in ColorBurst is much simpler. Below you will find step by step instructions on how to build a new custom profile for HM printers.

Setup

1. Perform a nozzle check on your printer.

Verify that there are no missing blocks in the nozzle check.

2. Select an environment.

Select an environment similar to the new paper that you want to profile, based on printer resolution, ink type, and paper texture.

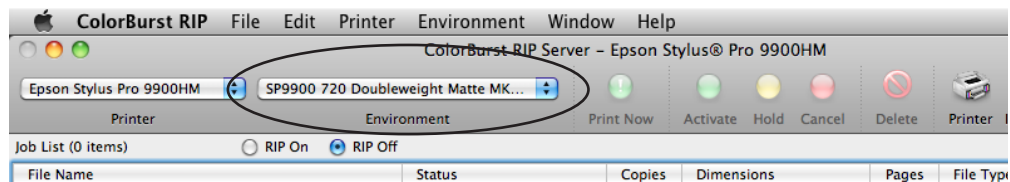


Figure 6.1. Load an Environment as a starting point for profiling.

3. Do an environment “Save as” and rename your new environment.

Save the environment with a new name in the folder for your printer model in the ColorBurst/Environments/folder (this is the default location).

Profiling

1. Disable ICC color management.

In ColorBurst, click the Ink & Color button in the toolbar and uncheck the Enable ICC Color Management checkbox.

2. Print out your profile target.

Targets are stored in the ColorBurst/Images and Targets folder. Make sure to open and print each page if you are using a target that is more than one page long.

NOTE The 2989 patch targets give the best results and are recommended for profiling.

3. Open SpectralVision Pro.

Make sure the Measure Target tab is selected.

4. Select your device in SpectralVision Pro.

On the left there are 3 menus. Select the Profile target in the first menu that goes with your spectrophotometer. In the second menu, select your measuring device and then click the Connect button.

5. Verify the correct UV filter option is selected in the pop-up window.

Do not close this window.

6. Begin your measurements.

Refer to your device's user manual for operating instructions.

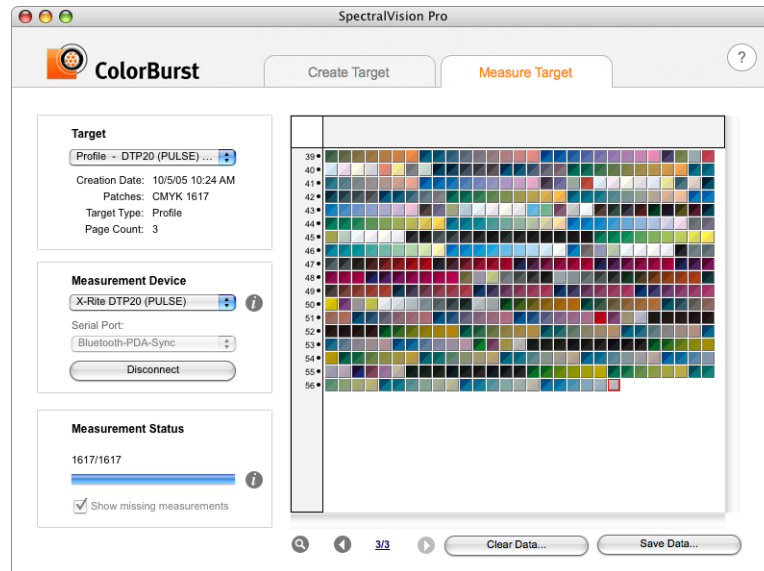


Figure 6.2. Read the profile target patches with your spectrophotometer to load the values into SpectralVision Pro.

7. Click on “Save data” and select ICC Profile in the drop down menu.

This opens a new screen.

8. Select a profile build preset.

In the presets drop down menu select the corresponding option for your printer.

9. Select the LUT.

Select the Build Profile tab. Under Table Resolution, select 33x33x33 in the LUT menu.

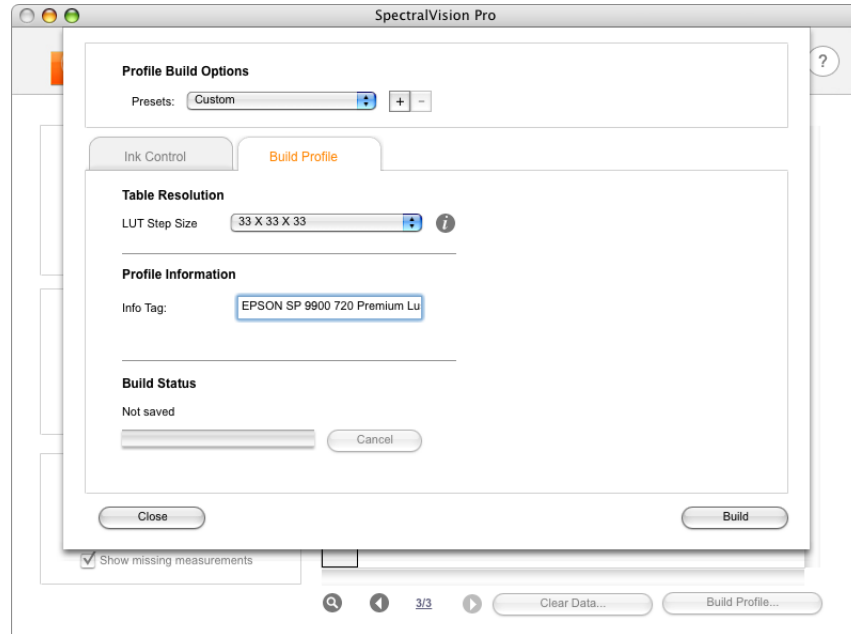


Figure 6.3. Set the LUT Step Size and enter an Info Tag in the Build Profile tab.

10. Click the Build button.

This will build the profile and prompt you to save it. Navigate to the ColorBurst/ICC Profiles folder and Save.

11. Turn ICC back on.

Once the profile is built, go back into ColorBurst and check the Enable ICC Color Management checkbox.

12. Add your new ICC profile to the list.

Go to the Output Profiles tab. Click the Rebuild Lists button.

13. Select your new profile in the Output profiles drop down menu.

Click OK.

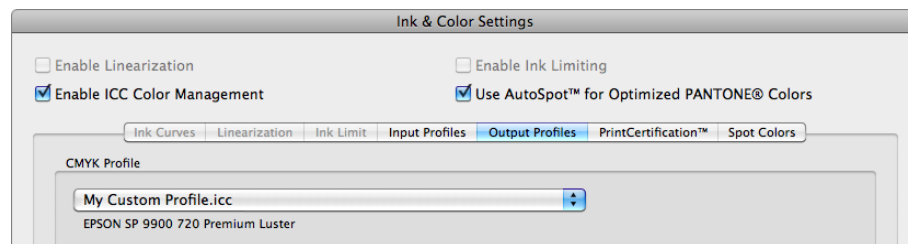


Figure 6.4. Select your new ICC profile in the Output Profiles tab of the ICC Profile Options dialog.

14. Verify printer settings and save your environment.

After checking your settings in the Printer General tab, select Environment > Save.

15. Test your new profile.

Select a known test print of your own and print using your new environment. Evaluate and make changes as necessary.