PrintControlPro®

Print Standardization Report

User Manual

Imprint

© 2012 Tucanna S.L.

Tucanna
C/Ducat D'Atenes n. 10, Entlo.
12540 Villarreal (Castellón)
España

This documentation and described products are subject to change without notice.Tucanna makes no guaranty as to the accuracy of any and all information and procedures described in this documentation. To the maximum extent permitted by applicable law, in no event shallTucanna or the author be liable for any special, incidental, direct, indirect, or consequential damages whatsoever (including, without limitation, injuries, damages for data loss, loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the software or this documentation or the provision of or failure to provide Support Services, even ifTucanna has been advised of the possibility of such damages.

Reprinting and copying, as well as other duplication including excerpts of this document, are prohibited without the written permission ofTucanna. This also applies to electronic copies.

Tucanna, theTucanna Logo, and Tucanna product names and logos are either registered trademarks or trademarks owned byTucanna.

All brand names and trademarks are the property of the respective owner and are expressly recognized as such. If brand names, trademarks, or other material are used without the permission of the respective owners, we request appropriate notification. We will immediately stop use of said items.

PANTONE® colors displayed in the software application or in the user documentation may not match PANTONE identified standards. Consult current PANTONE color publications for accurate color. PANTONE®, PANTONE® Goe® and other Pantone, Inc. trademarks are the property of Pantone, Inc., Pantone, Inc., 2007.

Pantone, Inc. is the copyright owner of color data and/or software which are licensed toTucanna to distribute for use only in combination with,T

Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

X-Rite is a registered trademark of X-Rite, Incorporated. Techkon is a registered trademark of Techkon GmbH. Logo CMM is a registered trademark of X-Rite, Incorporated. HP, Hewlett-Packard, and Designjet are registered trademarks of Hewlett-Packard Company. Epson, Epson Stylus, and Epson Stylus Pro are registered trademarks of Seiko Epson Corporation. UltraChrome is a trademark of Epson America, Inc. Nexus is a trademark of EskoArtwork. Adobe and Photoshop are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries. Canon is a registered trademark of Canon Inc.

Table of Contents

Welcome to Tucanna PrintControl 2.5

PrintControl is a powerful, user-friendly program that takes you step by step through the standardization process for your printing machine.

Print Quality Optimization

Recent years have seen enormous progress in standards-based printing due to the resulting increase in quality, efficiency, and repeatability. Until now, however, achieving a standard-compliant printing process required weeks or months of dedication, as well as expensive consulting services. Tucanna PrintControl 2.0 puts the tools in your hands to take control of your production and optimize it in a simple, straightforward manner.

Documentation as well as detailed instructions are embedded into each window of PrintControl to help you obtain results without having to learn complex processes or color theory. The knowledge base provides background information regarding printing standards, specifications, the printing machine, plates, ink, as well as other important parameters which need to be taken into account. Pre-run checklists are also provided which can be printed and used to verify the press and other processes prior to starting an optimization job.

The standardization wizard will help you achieve optimum printing densities based upon a colorimetric match to the reference values defined in the standard for both primary as well as secondary colors. Subsequently you can choose from two methods, TVI or NPDC to compensate the plate curves. Once the primary colors are achieved and the tone values compensated, PrintControl will generate a report to document the entire process.

Other tools available in PrintControl to manage production are the paper database and platecheck. The paper database organizes all of your printing stocks and allows comparison to other papers as well as standards. Platecheck will help you assure that your CTP system is being calibrated correctly, in addition to providing a check of RIP compensation curves.

Thank you for using PrintControl and we hope that we have fulfilled our goal of providing you with the means to achieve repeatable print quality.

What's new in PrintControl 2.5

- Added Techkon Spectrodens support
- Added export of compensation in tFlow compatible format
- Improved the compensation calculation fixing the overcompensation issue in shadows and highlights
- New testforms
- Several fixings and code optimizations
- Fixed a bug in ANSI T densities calculation with Intellitrax/EasyTrax
- Updated the dictionaries for multi language support
- Updated manuals

1. First Use

1.1 Computer Configuration

1.1.1 Setting Up the Computer

Tucanna recommends the program to be run on a computer meeting the following requirements to ensure the maximum performance from Tucanna PrintControl.

Recommended system: Intel® Core™ Duo 1,6 Ghz or higher, 1 GB RAM, 20 GB hard disk drive.

Hardware components: Video card (DVI, supporting DirectX 9c), enabled Direct 3D acceleration, updated driver (not Windows default driver). Screen resolution 1024 x 768 or higher.

Connectivity - At least 1 USB ports. 1 COM port in the case of SpectroEye or 530.

Operating system:

- Windows 7
- Windows Vista Service Pack 1 or later
- Windows XP Service Pack 3 or later
- Windows Server 2008
- Windows Server 2003 Service Pack 2 or later with installed Hotfix Package **KB925336** (file name WindowsServer2003-KB925336-x86-xxx.exe; where xxx is a placeholder for the language version of your operating system). The hotfix is available on the Microsoft website.

Software components: Microsoft Internet Explorer 6.0 or higher, Direct X 9c or higher

User rights: Power User, under Windows Vista: Administrator (Full administrator rights are always required for installation.)

1.2 Program Installation

1.2.1 Installing Tucanna Programs

Note: Please make sure that you are logged on as a user with full administrator rights before installation.

Note: Please check the system requirements first before starting the installation. Please also make sure you are not runnung PrintControl in a virtual operating system.

How to uninstall the previous version

1 Windows Vista and Windows 2008 Server - Go to Control Panel > Programs and Features, select PrintControl Pro from the list of programs and click on Uninstall in the bar above. Make sure to also delete de program folder C:\Program Files\Tucanna\PrintControl before installing Version 2.

2 Windows XP and Windows 2003 Server - Go to Control Panel > Add and Remove Programs, select PrintControl Pro from the list of programs and click on Remove on the right. Make sure to delete de program folder C:\Program Files\Tucanna\PrintControl before installing Version 2.

How to install the new version

Note: Unplug all measuring devices connected to the computer before running the setup. Otherwise, the device drivers will not be properly installed.

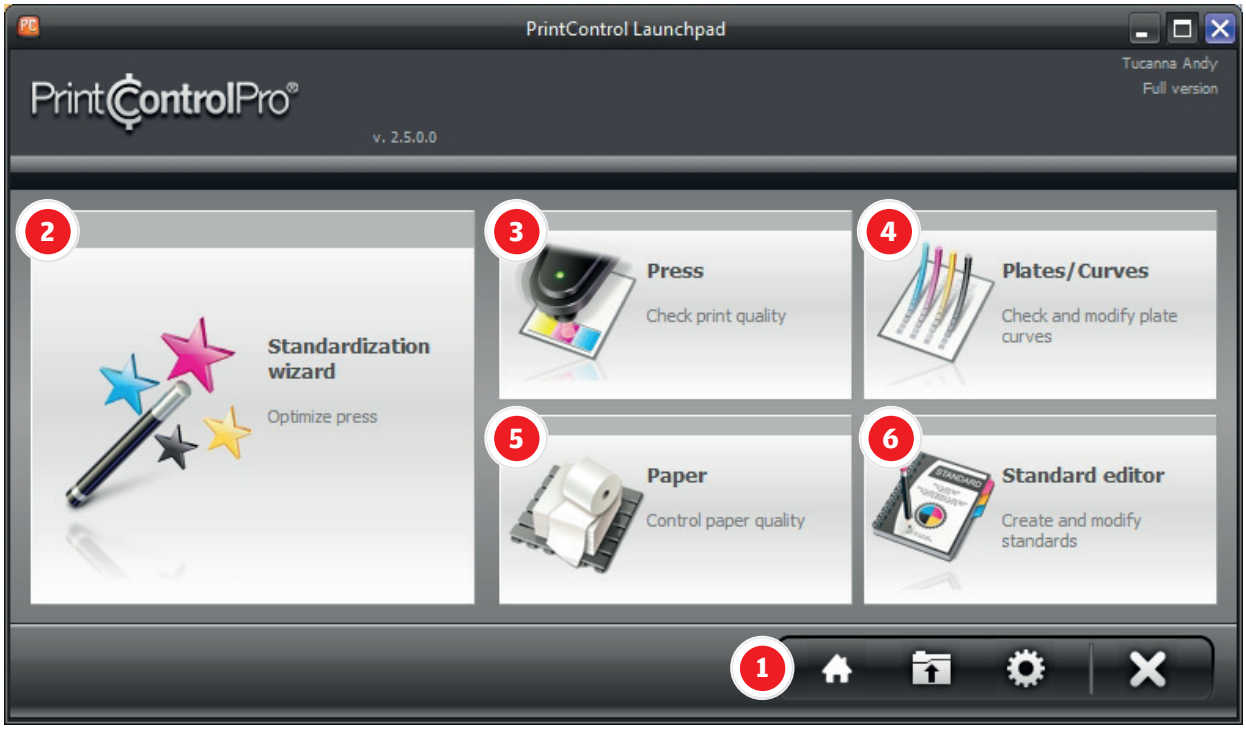
Note: Make sure no Microsoft system updates are running in the background before starting the setup. This could lead to an installation failure.

1 For a successful installation of device drivers, unplug all spectrophotometers connected to the computer.

2 You can install the program directly from the purchased DVD. If you have downloaded the program from the Tucanna website, copy all files to a storage medium or local directory.

3 Double-click the executable setup file (setup.exe) located on the installation volume. All files will be installed in the C:\Program Files\Tucanna\PrintControl v2 folder.

2. PrintControl LaunchPad



1 **Program function buttons** - Open file, Settings, Close application.

2 **Standardization Wizard** - launches the application to standardize and optimize the press.

3 **Press** - launches **RapidCheck** (integrated into PrintControl 2.0) See the RapidCheck manual for more information.

4 **Plates/Curves** - launches module to check plates or create compensation curves.

5 **Paper** - launches paper management module.

6 **Standard editor** - launches application to create, edit, and manage standards.

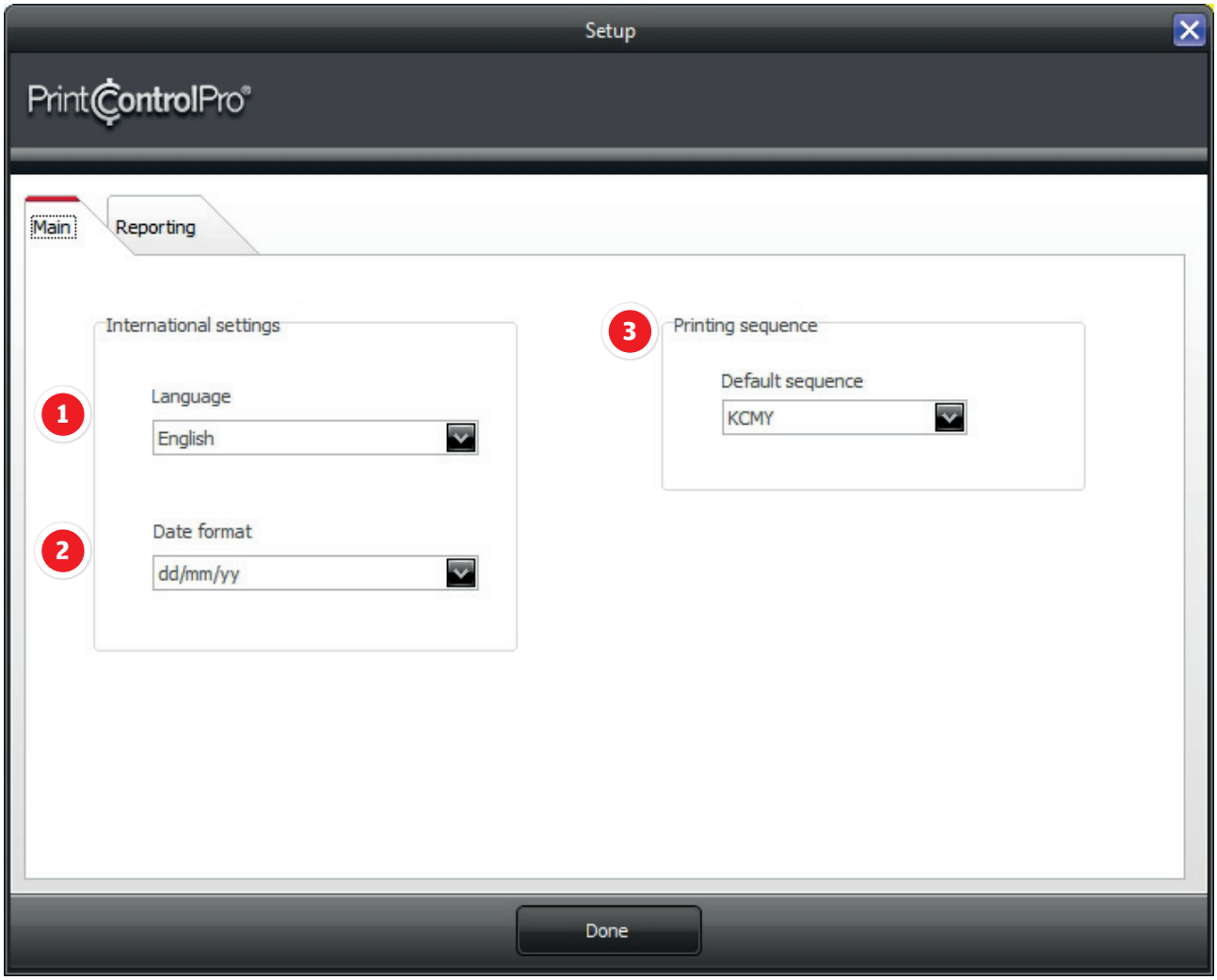
2.1 Program function buttons

Open PrintControl job. An "Open" dialog box will appear in order to select the previously saved PrintControl file that you wish to open

Close application. A dialog will appear asking if you wish to quit PrintControl.

Program settings. Opens dialog to configure general application settings such as language, regional date and time formats, and printing sequence. More information in the following section **2.1.1.**

2.1.1 Program Settings



1 **Language** - Select your language. Contact your dealer for more information if your language is not listed.

2 **Date format** - Choose the format that correponds to your region.

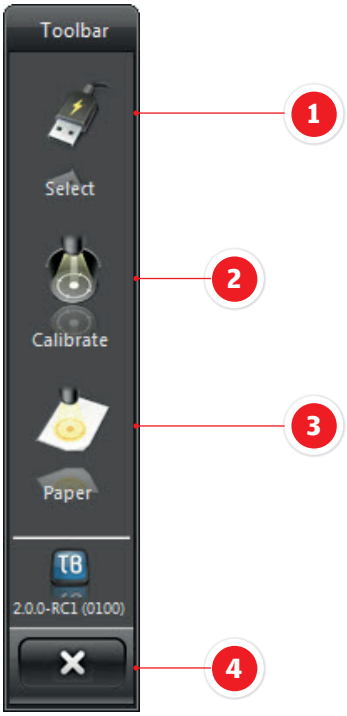
3 **Default printing sequence** - This can be changed independently in PrintControl print specifications, which is explained in the **Standar editor** section, but it is recommended that you set your most frequent printing color sequence here.

2.1.2 Reporting

1 **Logo** - A custom logo may be added to the report, and will be placed under the "Overview" bar on the top right. To add your logo, click on "Upload" and select your logo file. Supported formats are .jpg and .bmp. The logo will be resized automatically to fit into the logo area, so it is not necessary to create a version of the logo with a specific dimension, but you should make sure that it is at least 200 dpi at 250 x 70 pixels. "Clear" will erase the logo and leave the area in the report blank.

3. ToolBar

Before starting with the standardization wizard, you should connect your measurement device. A new feature of PrintControl 2.0 is the Toolbar. Unlike version 1.5, the current version uses an independent application to manage connected measurement devices. This allows for troublefree measurements when using both PrintControl 2.0 and RapidCheck 2.0 at the same time. Each application connects to Toolbar where device management is centralized - connection, calibration, paper zeroing, and measurement. PrintControl launches ToolBar automatically when it is necessary to take measurements, or you can start the program by using its application icon. Simply follow the steps below to connect and configure your measurement device.



1 **Measurement device selection**

2 **Device calibration step**

3 **Paper measurement step** (for densitometric functions)

4 **Close ToolBar**

3.1 Device Selection

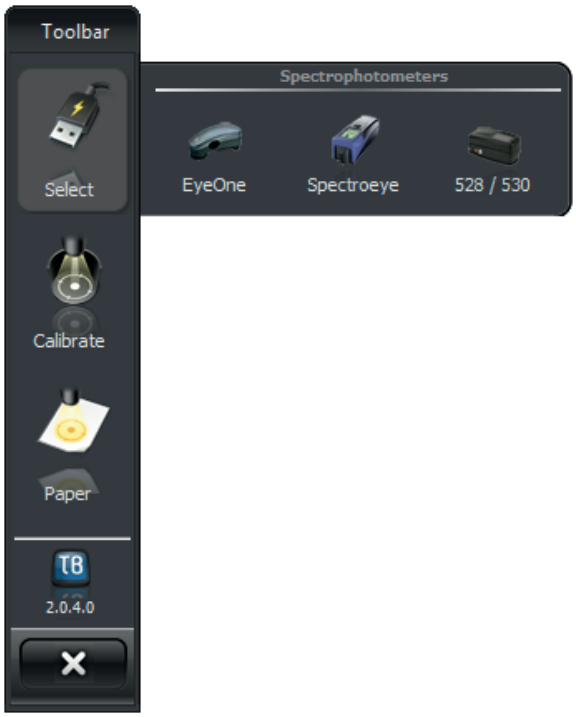
ToolBar supports the main X-Rite handheld measurement devices currently available. Support devices are:

1 EyeOne

2 SpectroEye

3 528/530

Click on the "Select" icon to choose your device from the list.



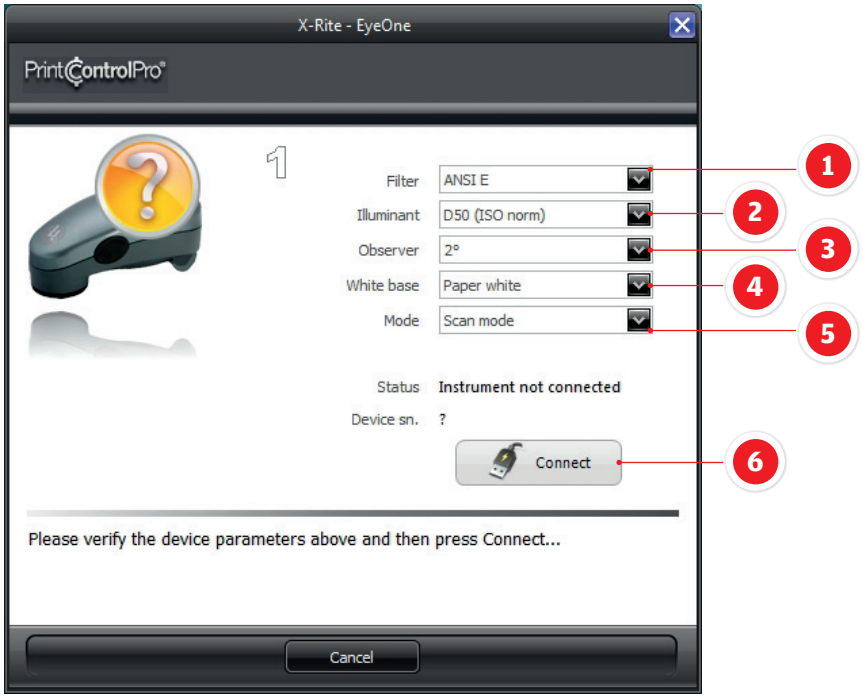
Click on Select to choose your device. Connection instructions for each device will be covered in the following sections, but the status indicators in Toolbar are the same for all. There are three possible states in Toolbar shown by the following badges:

Successful Not yet realized Error

As you proceed with each of the three steps for device configuration 1. Connection 2. Calibration 3. Paper measurement, a badge will be placed over the step. Each successfully completed step receives a green badge, while a step which has been missed or which has an error will have a yellow "?", or red "x" badge:

Successful Paper not measured Device not calibrated Device not found

3.2 Eye-One Connection



1 **Filter** - You may choose between two filter settings for density readings. ANSI E (Status E) is most commonly used in Europe while ANSI T (Status T) is most commonly used in North America. Yellow is the most affected by the choice of filter, and substantial differences for Yellow density values will be displayed depending upon your choice. Contact your local printer federation if you are unsure which is the right choice for your region.

2 **Illuminant** - Although there are several choices, the standard for graphic arts is defined as D50.

3 **Observer** - 2” is defined as the standard for graphic arts.

4 **White Base** - Density measurements may be taken in two ways - Relative to paper (susbstrate value is subtracted from the measurement), and Absolute (susbtrate value is added to the measurement). Either method is correct, although it is recommended that once you have chosen between the two, that you stay with that method to assure consistency.

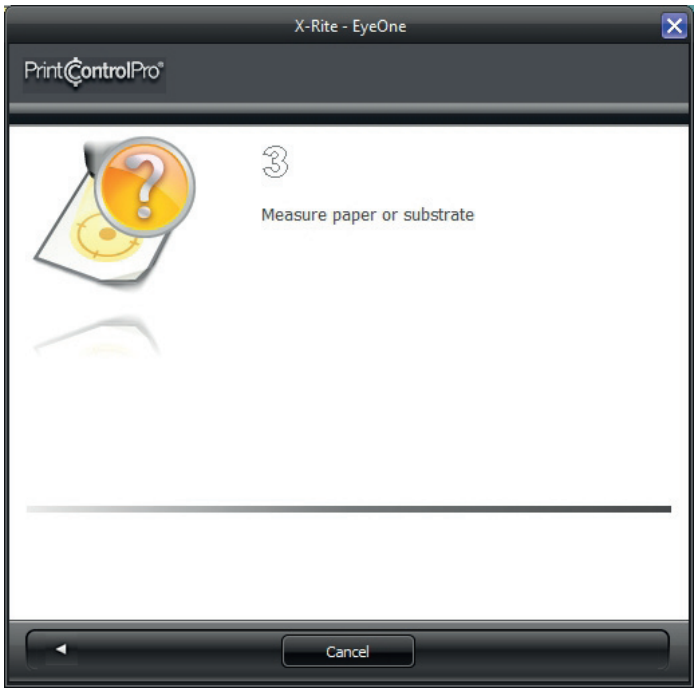
5 **Mode** - The Eye-One can work both in scan and patch mode. Scan allows you to measure by sliding the Eye-One over the strip while holding the meaurement button, greatly speeding up measurements. The Eye-One needs sufficient contrast between adjacent patches to define where a patch ends and where another begins within the wedge, however. If you do not have a wedge with enough contrast between patches, you will need to measure in patch mode.

6 **Connect** - Make sure the Eye-One is connected to the USB port and click on connect. If the device is installed correctly and Toolbar can establish a connection, it will appear in the Status area and the yellow badge over the Eye-One icon will change to a green checkmark.

Calibration

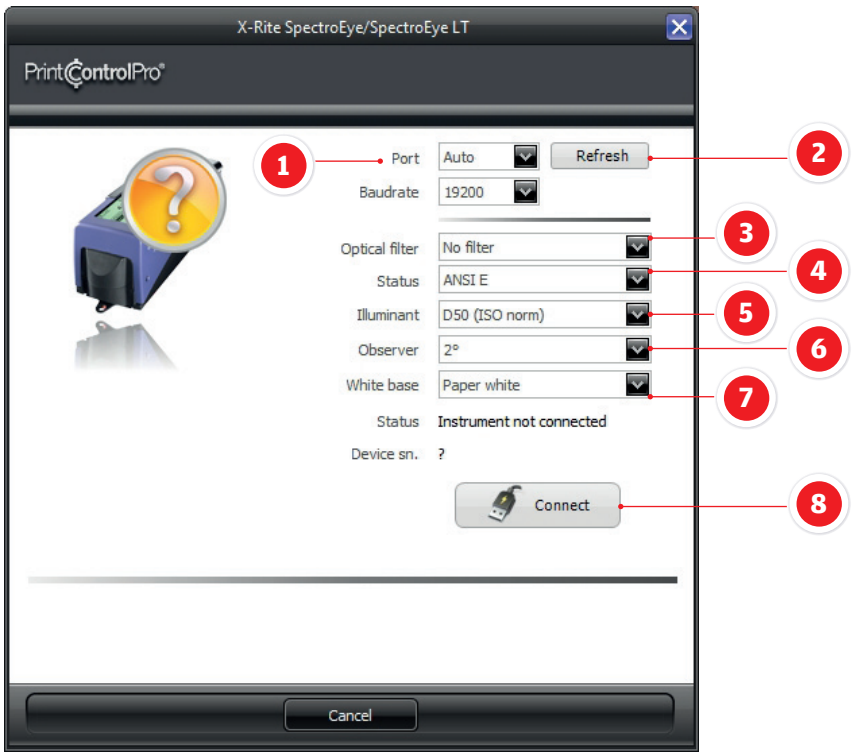
Click on **Calibrate**, or press the measurement button on the i1 to initiate device calibration. You may also set the parameters for an automatic calibration reminder.

Paper measurement



Place the i1 on a clean, unprinted area of the substrate you are going to measure. Be careful of the area you select. In some cases, due to printing problems, there may be a light covering of ink over what should be white areas, which will cause an incorrect paper measurement. Make sure you have two or three sheets of the same paper underneath to eliminate any possible effects of a colored table surface.

3.3 SpectroEye Connection



1 **Comunication Port** - Choose the communication port which the SpectroEye is connected to. Set the baud rate for serial communication with the SpectroEye. Rates of 9600, 19200, 38400, and 57600 are supported. Make sure that the SpectroEye is already configured with the same rate that you choose here. See the SpectroEye manual for serial configuration of the device internally. If you experience problems connecting the device at higher rates, you should try a lower one. If you are using a USB converter such as Keyspan to connect the SpectroEye, make sure all settings correspond to those that you set here.

2 **Refresh** - if the SpectroEye is not found, you have connected the device after opening this window, or have changed a setting such as the baud rate, click on the refresh button so that toolbar will scan the communication ports again.

3 **Optical Filter** - It is recommended to use the polarization filter for density measurements in order to assure a closer match between wet and dry ink. No filter should be used for colorimetric measurements.

4 **Status** - You may choose between two filter settings for density readings. ANSI E (Status E) is most commonly used in Europe while ANSI T (Status T) is most commonly used in North America. Yellow is the most affected by the choice of filter, and substantial differences for Yellow density values will be displayed depending upon your choice. Contact your local printer federation if you are unsure which is the right choice for your region.

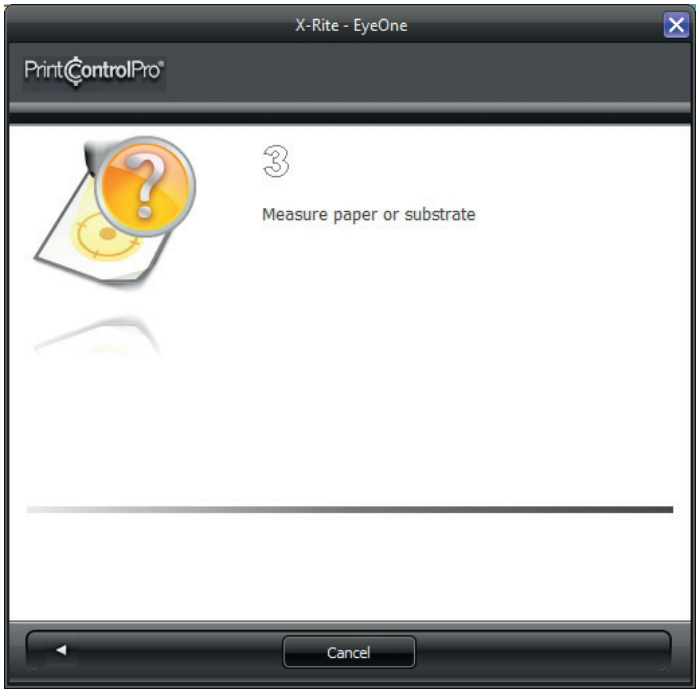
5 **Illuminant** - Although there are several choices, the standard for graphic arts is defined as D50.

6 **Observer** - 2” is defined as the standard for graphic arts.

7 **White Base** - Density measurements may be taken in two ways - Relative to paper (susbstrate value is subtracted from the measurement), and Absolute (susbtrate value is added to the measurement). Either method is correct, although it is recommended that once you have chosen between the two, that you stay with that method to assure consistency.

8 **Connect** - Make sure the SpectroEye is connected to the serial port and click on connect. If the device is installed correctly and Toolbar can establish a connection, it will appear in the Status area and the yellow badge over the SpectroEye icon will change to a green checkmark.

Paper measurement

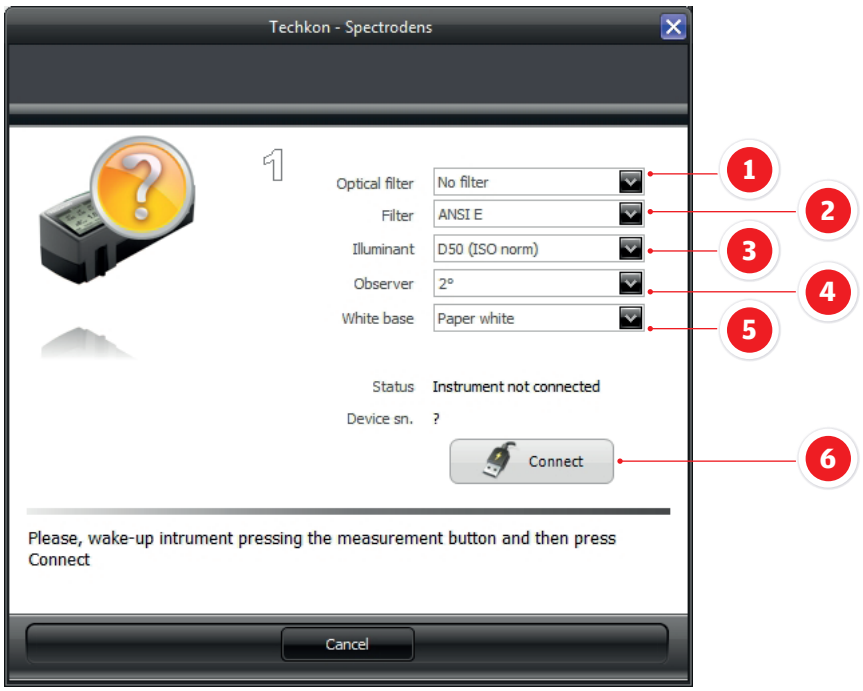


Note: PrintControl will receives spectral data from the SpectroEye and calculates the needed values, so it is not necessary to change the measurement mode of the device. To assure trouble-free operation, set the SpectroEye to measure colorimetry.

Note: For paper measurement, the SpectroEye needs an absolute measurement. If in colorimetry mode, this is automatic, but if the device is in one of the densitometric modes such as Density, Dot percent, etc. it will most likely measure in relative for paper. You will be prompted to resolve this by RapidCheck, and can do so by either changing the device to colorimetric, or changing to absolute in the current function.

The SpectroEye calibrates itself automatically, so you will not be prompted to make a calibration. For paper measurement however, place the SpectroEye on a clean, unprinted area of the substrate you are going to measure. Be careful of the area you select. In some cases, due to printing problems, there may be a light covering of ink over what should be white areas, which will cause an incorrect paper measurement. Make sure you have two or three sheets of the same paper underneath to eliminate any possible effects of a colored table surface.

3.4 SpectroDens Connection



1 Optical Filter - You may choose between Polarization filer, No Filter or automatic selection of optical filter.

2 Filter - You may choose between two filter settings for density readings. ANSI E (Status E) is most commonly used in Europe while ANSI T (Status T) is most commonly used in North America. Yellow is the most affected by the choice of filter, and substantial differences for Yellow density values will be displayed depending upon your choice. Contact your local printer federation if you are unsure which is the right choice for your region.

3 Illuminant - Although there are several choices, the standard for graphic arts is defined as D50.

4 Observer - 2” is defined as the standard for graphic arts.

5 White Base - Density measurements may be taken in two ways - Relative to paper (susbstrate value is subtracted from the measurement), and Absolute (susbtrate value is added to the measurement). Either method is correct, although it is recommended that once you have chosen between the two, that you stay with that method to assure consistency.

6 Connect - Make sure the SpectroDens is connected to the USB port and click on connect. If the device is installed correctly and Toolbar can establish a connection, it will appear in the Status area and the yellow badge over the SpectroDens icon will change to a green checkmark.

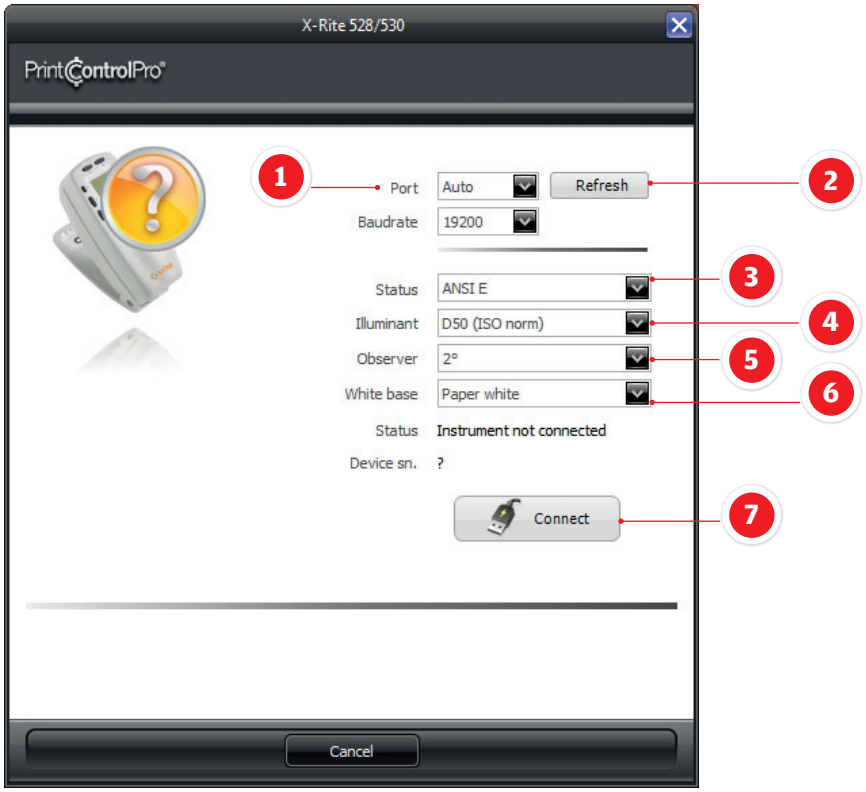
Calibration

Click on **Calibrate**, or press the measurement button on the SpectroDens to perform an absolute white device calibration.

Paper measurement

Place the Spectrodens on a clean, unprinted area of the substrate you are going to measure. Be careful of the area you select. In some cases, due to printing problems, there may be a light covering of ink over what should be white areas, which will cause an incorrect paper measurement. Make sure you have two or three sheets of the same paper underneath to eliminate any possible effects of a colored table surface.

3.5 528/530 Connection



1 **Comunication Port** - Choose the communication port which the 530 is connected to. Set the baud rate for serial communication with the SpectroEye. Rates of 9600, 19200, 38400, and 57600 are supported. Make sure that the 530 is already configured with the same rate that you choose here. See the 530 manual for serial configuration of the device internally. If you experience problems connecting the device at higher rates, you should try a lower one. If you are using a USB converter such as Keyspan to connect the 530, make sure all setting correspond to those that you set here.

2 **Refresh** - if the 530 is not found, you have connected the device after opening this window, or have changed a setting such as the baud rate, click on the refresh button so that toolbar will scan the communication ports again.

3 **Status** - You may choose between two filter settings for density readings. ANSI E (Status E) is most commonly used in Europe while ANSI T (Status T) is most commonly used in North America. Yellow is the most affected by the choice of filter, and substantial differences for Yellow density values will be displayed depending upon your choice. Contact your local printer federation if you are unsure which is the right choice for your region.

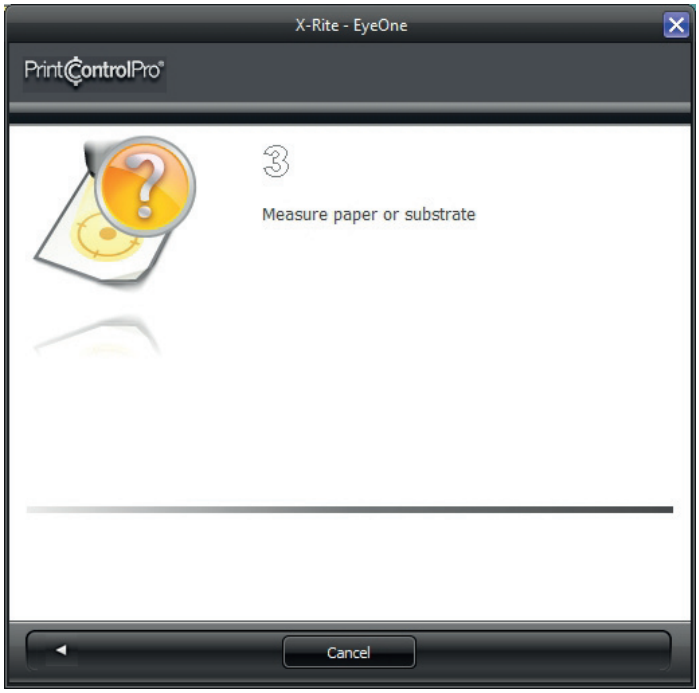
4 **Illuminant** - Although there are several choices, the standard for graphic arts is defined as D50.

5 **Observer** - 2” is defined as the standard for graphic arts.

6 **White Base** - Density measurements may be taken in two ways - Relative to paper (susbstrate value is subtracted from the measurement), and Absolute (susbtrate value is added to the measurement). Either method is correct, although it is recommended that once you have chosen between the two, that you stay with that method to assure consistency.

7 **Connect** - Make sure the 530 is connected to the serial port and click on connect. If the device is installed correctly and Toolbar can establish a connection, it will appear in the Status area and the yellow badge over the 530 icon will change to a green checkmark.

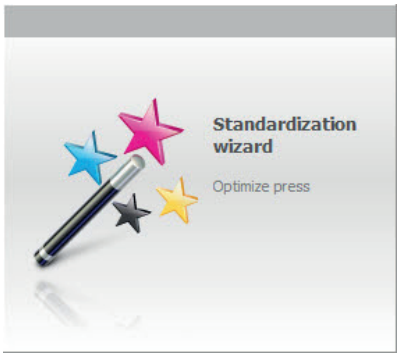
Paper measurement



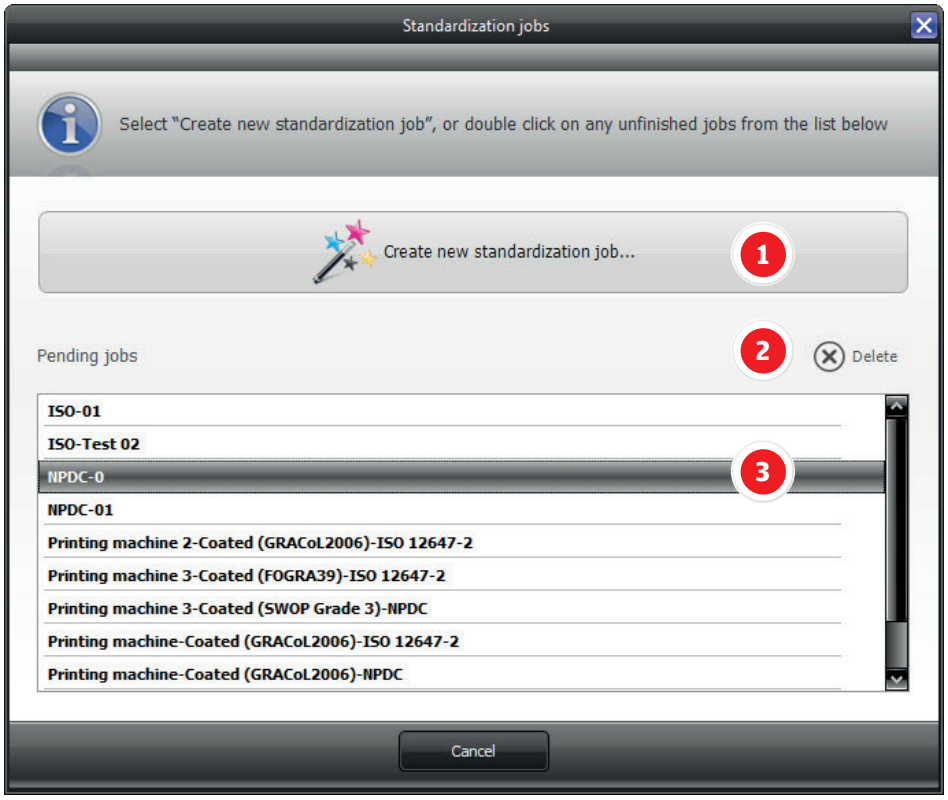
The 530 has its own calibration routine, so you will not be prompted here to make a calibration. For paper measurement however, place the 530 on a clean, unprinted area of the substrate you are going to measure. Be careful of the area you select. In some cases, due to printing problems, there may be a light covering of ink over what should be white areas, which will cause an incorrect paper measurement. Make sure you have two or three sheets of the same paper underneath to eliminate any possible effects of a colored table surface.

4. Standardization wizard

The wizard will guide you through each step of the press calibration process. To initiate the wizard, click on the main program button:



The Jobs window will open with a listing of all pending jobs, or the option to create a new standardization job.



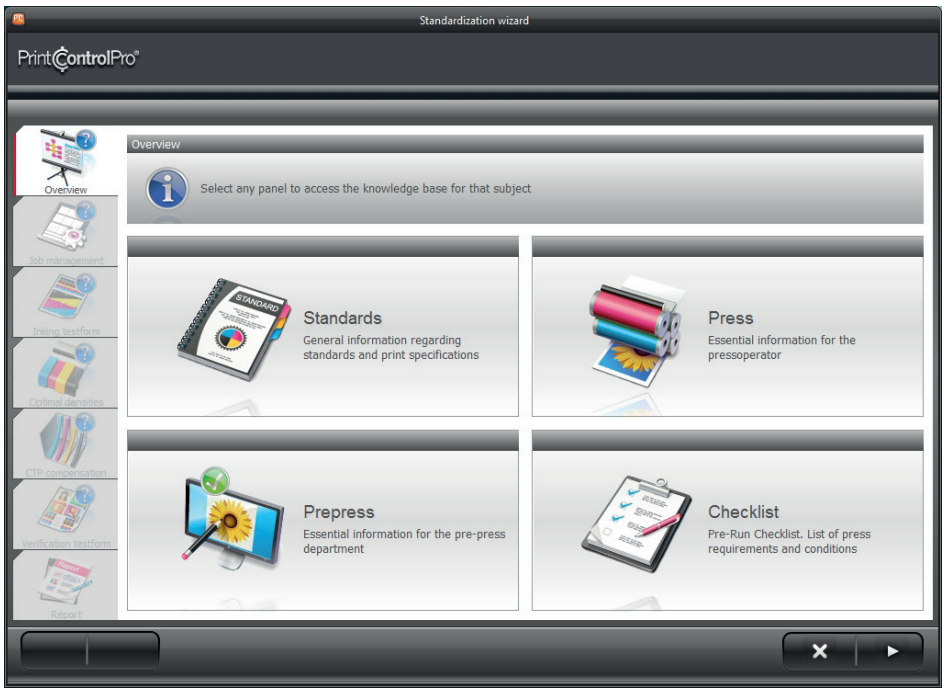
1 **Create new standardization job...** - creates a new job and starts the wizard.

2 **Delete** - erases selected jobs from the Pending jobs list. Caution: this erases the job from the computer, not only from the pending list.

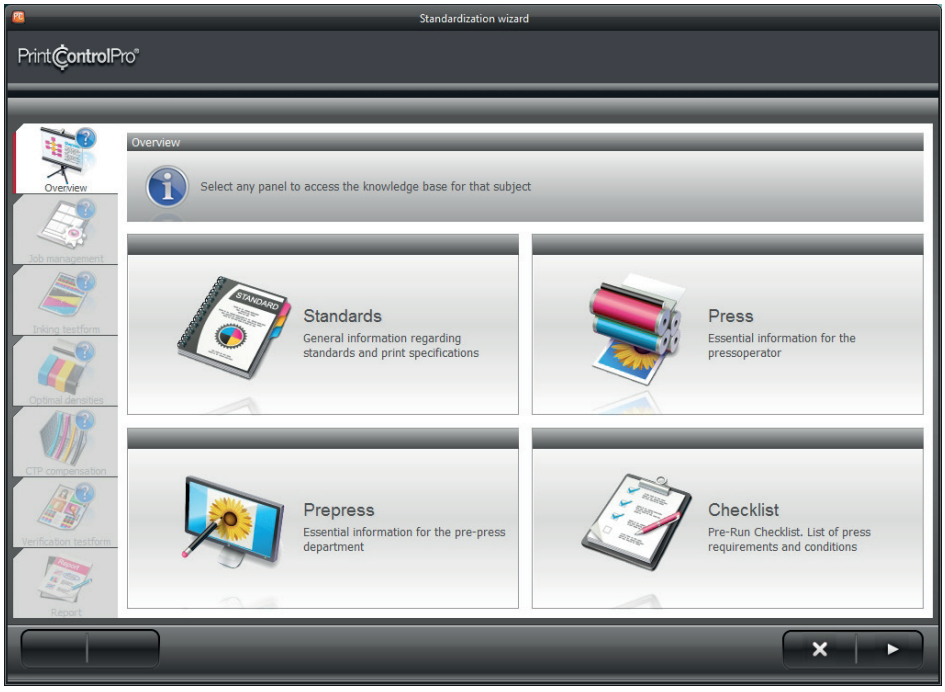
3 **Pending jobs** - lists all jobs that are in progress. As you complete steps in the wizard, jobs are saved in the each step automatically. If you leave the application, or start another job and come back later to the previous job by selecting it from the list, you will return directly to the pending step. You may remove unwanted jobs by clicking on the delete button. Completed jobs are also automatically removed from the list although they remain on the computer.

4.1 Overview window

Click on the **Create new standardization job...** button go to the Overview window. This window provides information regarding printing standards in general, infromation for the machine operator, and information for the prepress department. Click on any one of the panels to access the information.



The **Checklist** button provides access to the pre-run checklists. The checklists may be read, as well as printed, in order to configure the components of the production process correctly prior to starting the standardization press run.



Click on any panel to access the checklist. Click **Close** to return to the overview window.

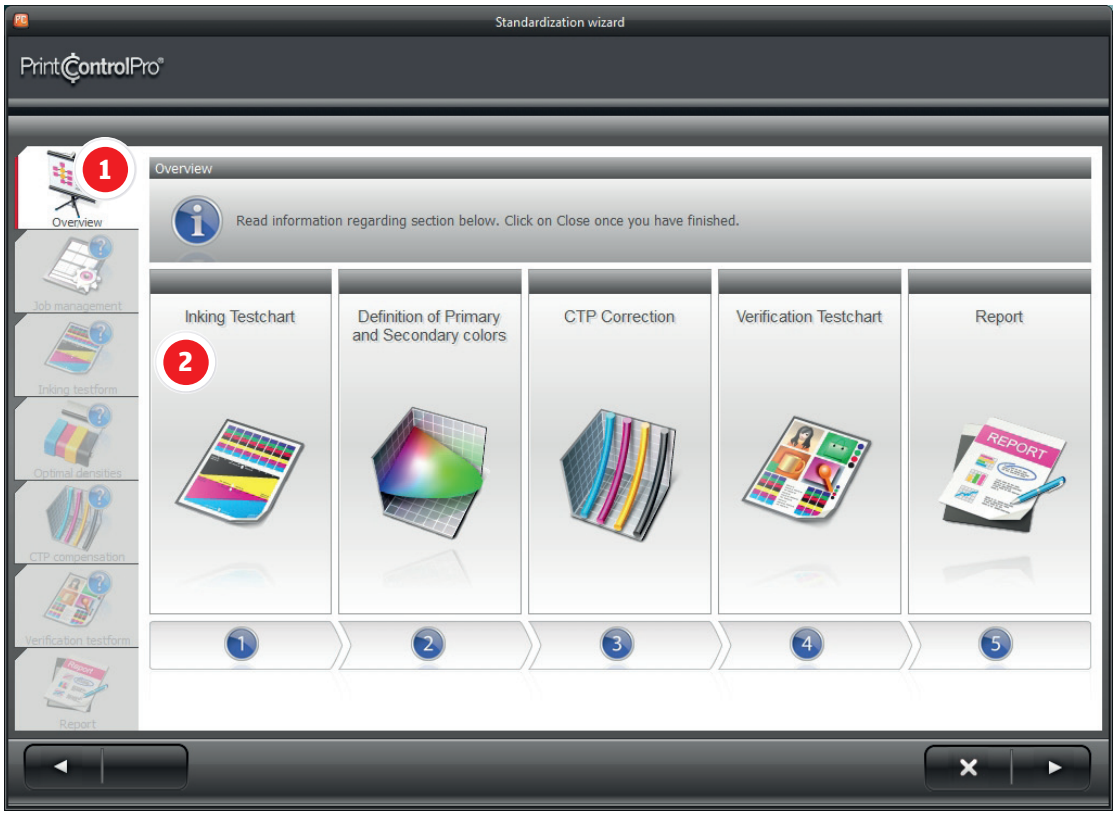
Wizard navigation is controlled through the buttons at the bottom:

Closes wizard. Current job will be saved and closed, and you will return to PrintControl Launchpad. The job may be selected again from the pending jobs list on next wizard start.

Goes to next step in the wizard. If this button is not visible at some time, it is because information or a procedure is lacking in the current window. Make sure you have completed all necessary items in the actual step, and the arrow will appear.

Once you have read the information, click on the **Next** arrow at the bottom right to go to the next step.

4.2 Steps overview



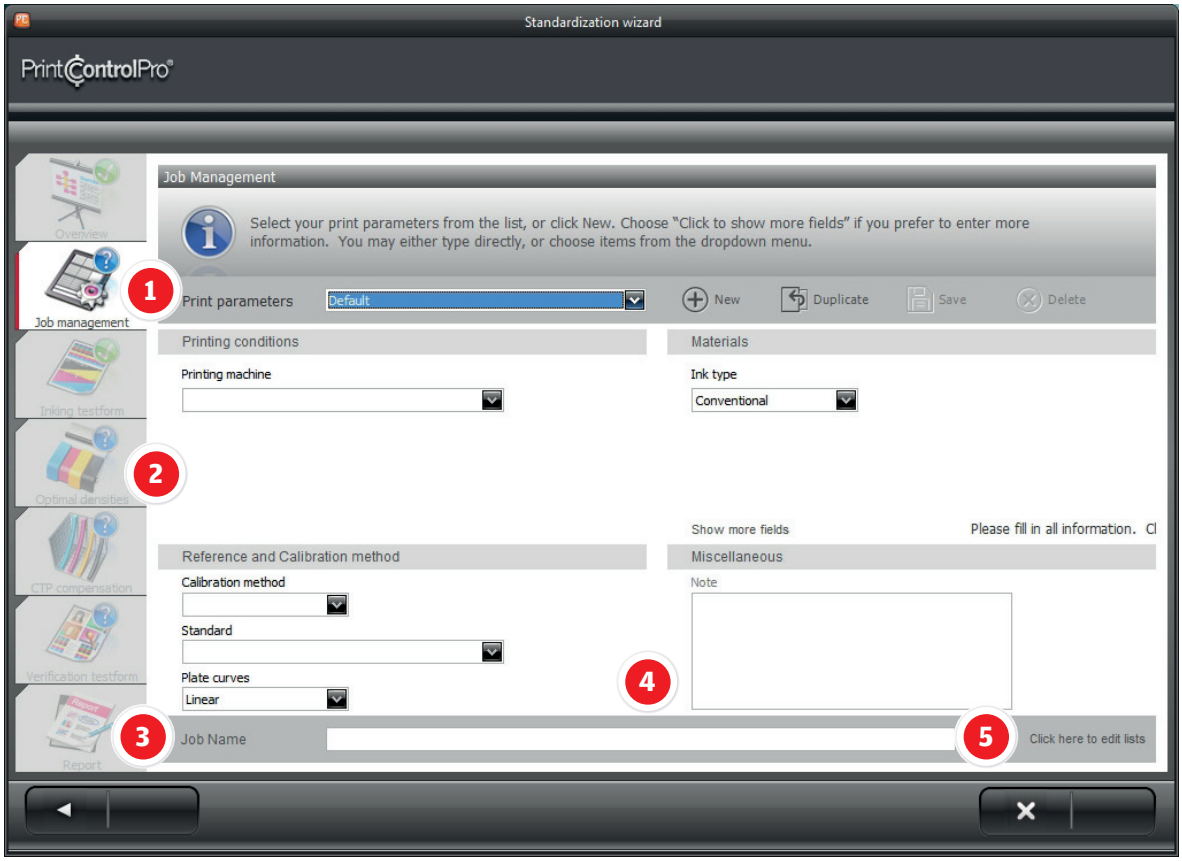
1 **Breadcrumb** - as you progress through the wizard, the current step will be activated to show you where you are in the process, and all completed steps will have a green badge.

2 **Steps** - each panel refers to a step that you will realize in the wizard. Click on any panel to access more information regarding how to complete the step. By reading here first, you can make sure that you understand what will be needed for each step and how to complete them before spending more time than is necessary on the press.

Click on the arrow at the bottom right to continue to **Job management**.

4.3 Job management

There are two possible windows for job management, the difference residing in the number of fields in which to enter descriptive data. By default, the short version is visible when entering the step.



1 **Print parameters** - all print condition settings can be grouped together and saved as part of a set. Either create a new set by clicking on the **New** button, or if many of the settings for the new set are the same as a current set, you may select **Duplicate** which will create a new set with all of the same settings already entered and use this as a starting point. Be sure to to click on **Save** once you have finished to save your set.

2 **Printing Conditions** - lists the settings for print:

- **Printing Machine** - enter printing machine name.
- **Calibration method** - select either ISO 12647-2 for Tone Value Increase (TVI) calibration, or NPDC for G7 calibration.
- **Standard** - select the characterization data which will provide the reference values.
- **Ink type** - choose between conventional and heatset. The choice will affect the measurement procedure in the inking test, as conventional inks need a drydown time.

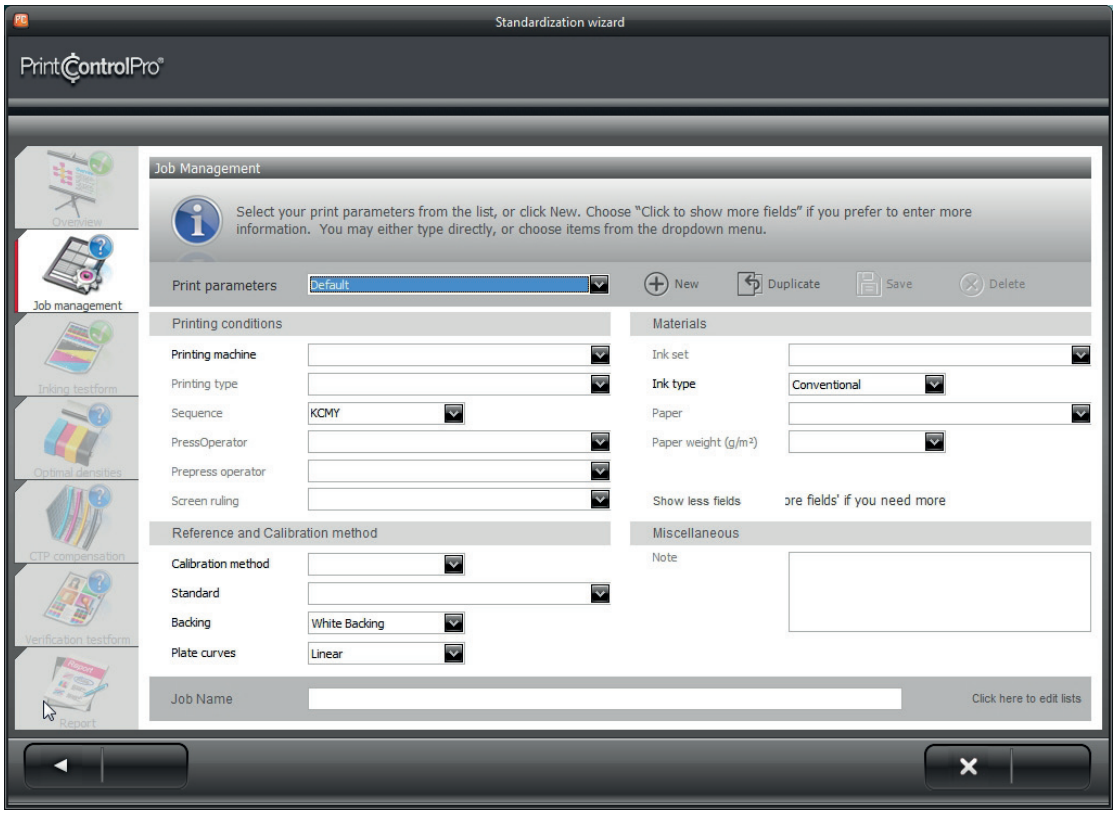
3 **Job name** - displays the current job name which is created automatically from the printing condition settings. You may also edit or add to the default job name.

4 **Show more fields** - activates hidden data fields for entering more complete information. See section **4.3.1 Job Management extended** below.

5 **Click here to edit lists** - opens list editor to add and delete default settings from printing condition lists. See section **4.3.2 Edit lists** below.

4.3.1 Job management extended

Clicking on the **Show more fields** button in the Job management window, brings further print condition settings.

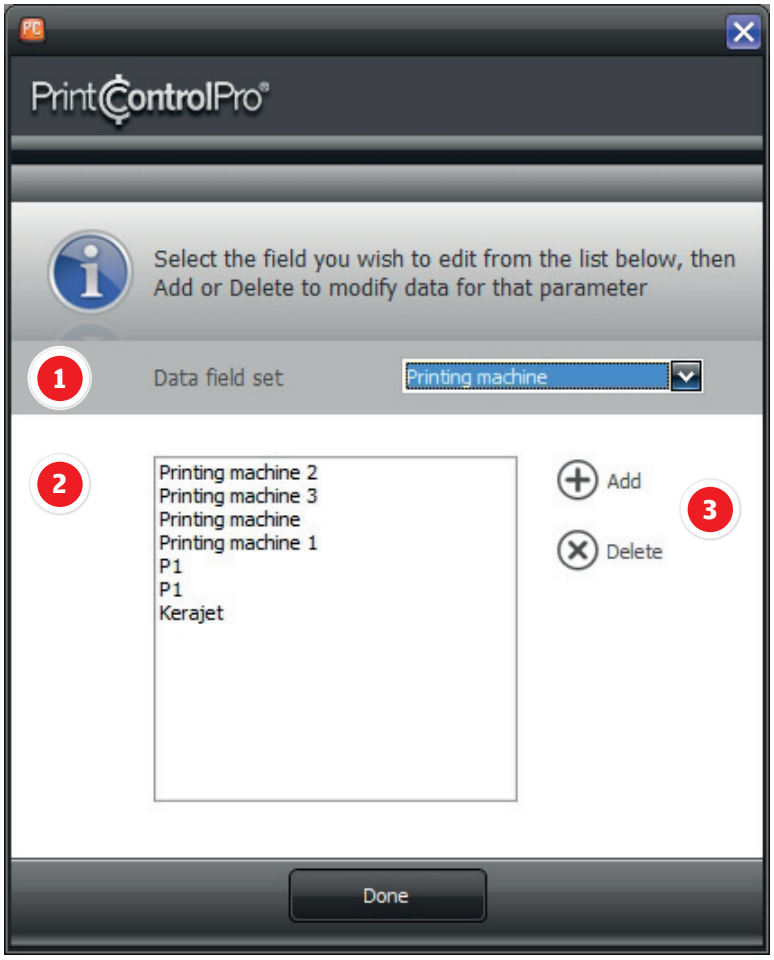


Additional Printing Conditions:

- **Printing Type** - default types are Offset, Weboffset, Newspaper.
- **Sequence** - default print sequences are CMYK and KCMY.
- **PressOperator** - enter the name of the person who will be doing the press runs.
- **Prepress operator** - enter the name of the person who will be doing the plates.
- **Screen ruling** - enter the line screen in inches or centimeters.
- **Note** - free text field to add any additional comments.
- **Ink set** - enter the manufacturer name and gama of inks
- **Paper** - enter the manufacturer name and paper model
- **Paper weight (g/m2)** - enter paper weight

Click on the **Show less fields** button to return to the condensed printing condition list.

4.3.2 Edit lists



1 **Data field set** - all printing condition fields are listed in the dropdown menu. Select the printing condition field you wish to edit.

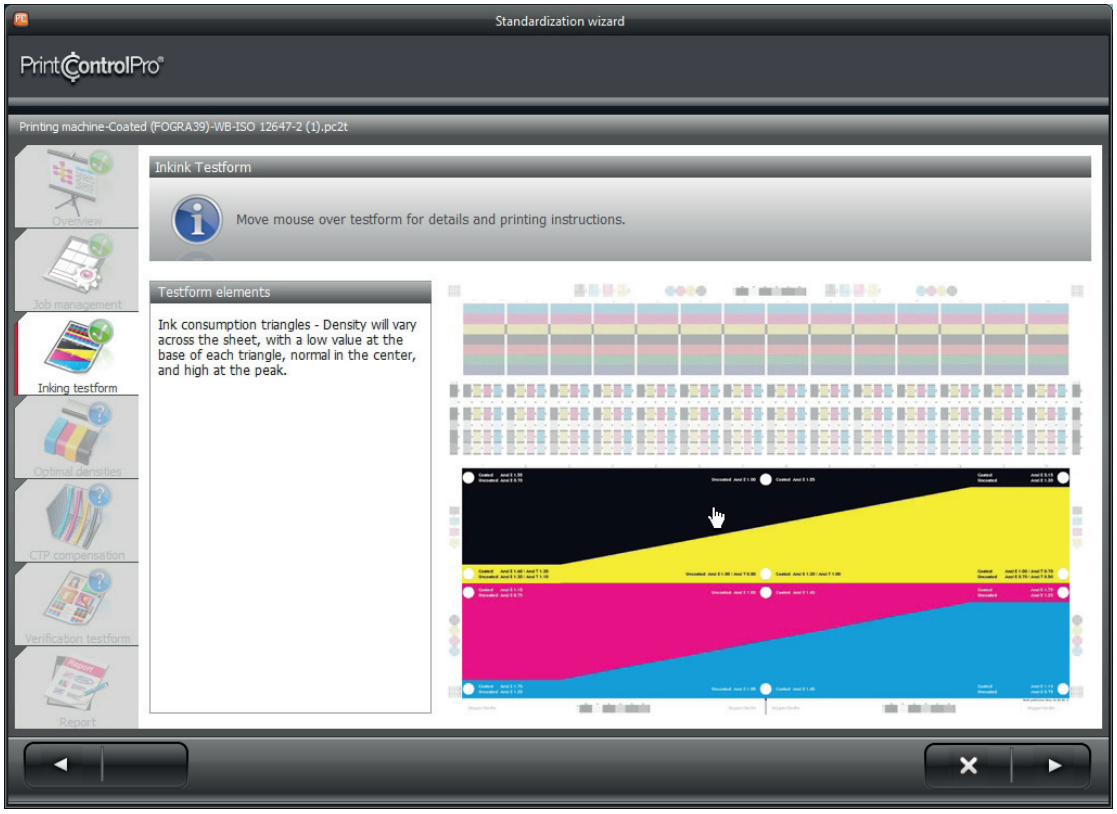
2 **Settings** - lists all values available for the currently selected data field. Values may be added and deleted.

3 **Add/Delete** - create and eliminate values from the settings box to the left.

Once you have filled in all mandatory fields, and any other fields you choose, the arrow will appear at bottom right allowing you to continue to the next step.

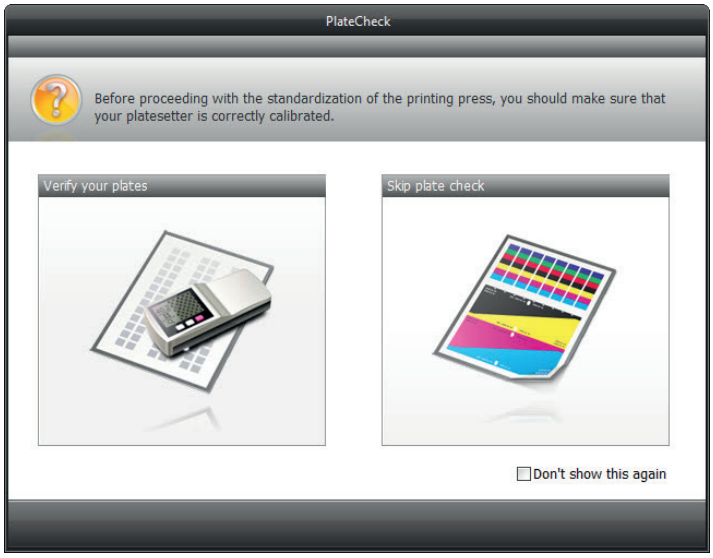
Note: If the arrow is not visible, one or more mandatory fields are missing data.

4.4 Inking Testform



This window provides information regarding the first form, the Inking testform, and how it should be printed. Place the mouse over any area of the testform on the right and information will appear in the white panel to the left.

Once you have read this information, you are ready to print the Inking Testform. Before proceeding to measurement, however, you will be prompted with the PlateCheck pop-up window.



If you choose **Verify your plates**, you will open the PlateCheck module. It is recommended that you select this option in order to guarantee that the printing plates have been created correctly.

Special care needs to be taken at this point else all subsequent measurement and compensations will need to be redone. In almost all cases, standardization jobs are created for uncalibrated printing machines with linear printing plates. This means that the CTP needs to be calibrated - recommended tolerances are 1.5% or less.

Example: 50% tone on the plate should be no less than 48.5% and no greater than 51.5%.

Note: Many CTP systems are able to maintain tighter tolerances than 1.5%.

Plates should also have no compensation applied to them as this will affect the tone value calculation of PrintControl. Before starting the standardization process, you should know how to correcly calibrate the CTP, as well as create and edit compensation curves. If you have questions regarding either of these two points, consult your manual or prepress equipment provider.

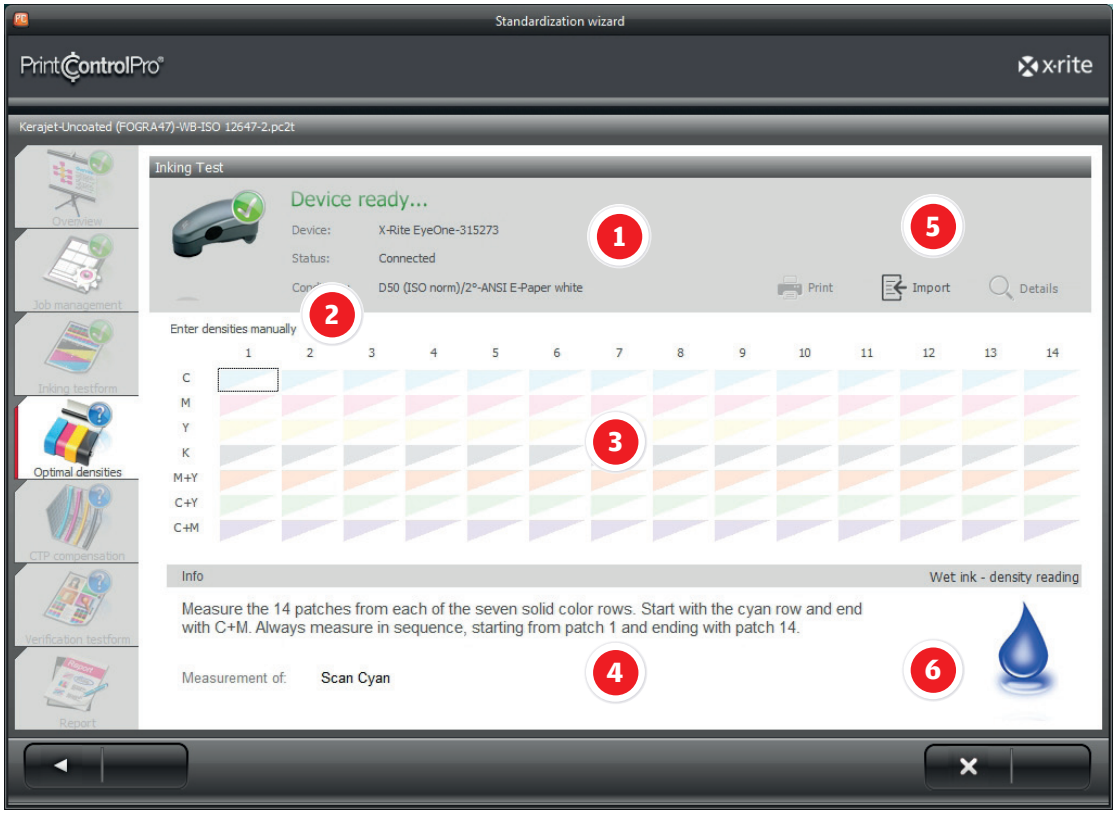
Instructions regarding how to use PlateCheck can be found in the **PlateCheck** section of this manual.

The other option is **Skip plate check** which will take you directly to the measurement step of the wizard. If you select **Don't show this again**, you will no longer receive the reminder to check the plates for the remainder of the standardization job.

4.5 Optimal densities

You should have already printed the Inking Testform according to the instructions provided in the previous steps of PrintControl. If you are using conventional offset, the form should be measured immediately while still wet. If heatset offset has been used, it is not important when the testform is measured.

Make sure your measuring device is connected in Toolbar (see section **3.0 Toolbar**).



1 **Device status bar** - displays device connection information and status. This area interacts directly with the Toolbar and updates automatically.

2 **Enter densities manually** - allows you to input density values via the keyboard in the event that you have a densitometer which is not compatible with PrintControl.

3 **Solid patches** - area to display measurements of the CMYK and RGB solids.

4 **Info** - provides instructions and information regarding measurements.

5 **Import** - Imports density and dE values from another PrintControl job.

6 **Wet/Dry ink** indicator - displays status for testform measurement. Heatset will always be Dry Ink, and conventional will be Wet Ink for the first measurement which is to record density values, and Dry Ink for the second measurement to record the dE values compared to the reference.

To continue, start measurements following the instructions at the bottom, or import a PrintControl file using the **Import** button.

Note: Measurement mode is device dependent. The i1 supports both scanning and patch mode and can be configured either way. The SpectroEye and 530 support patch mode only.

After Measurement

1 **Show densities** - button which rotates three options - **Show densities** displays the density value of each patch, **Show dE** displays the color deviation of the patch in reference to the standard, and **Hide Values** returns the display to the color only with no additional text on the patches. See section **4.5.1 Show Densities** for more information.

2 **Repeat measurements** - erases all values for the measured patches and returns to the measurement window. Use this option if you think you have made a mistake while measuring.

3 **Restore original values** - you may double click any in tolerance primary patch to set the optimum density to that patch. This option will then appear allowing you to return to default values.

4 **Solid patches** - displays a visual representation of the patches measured. Each patch may be in one of four states as explained in greater detail in section **4.5.2 Solid Patches**.

5 **Primaries** - lists the optimal density and dE values of each of the four primary colors. The optimal patches, whose values are displayed here, are marked by green triangles above. Red indicates that the color is out of tolerance, while green indicates that it is within tolerance.

6 **Secondaries** - lists the optimal dE values of each of the three overprinted (red, green, blue) colors. The optimal patches, whose values are displayed here, are marked by green triangles above. Red indicates that the color is out of tolerance, while green indicates that it is within tolerance.

7 **Trapping** - shows the trapping values (in percentage) of the optimal patches for the three overprinted colors. Red indicates that the color is out of tolerance, while green indicates that it is within tolerance.

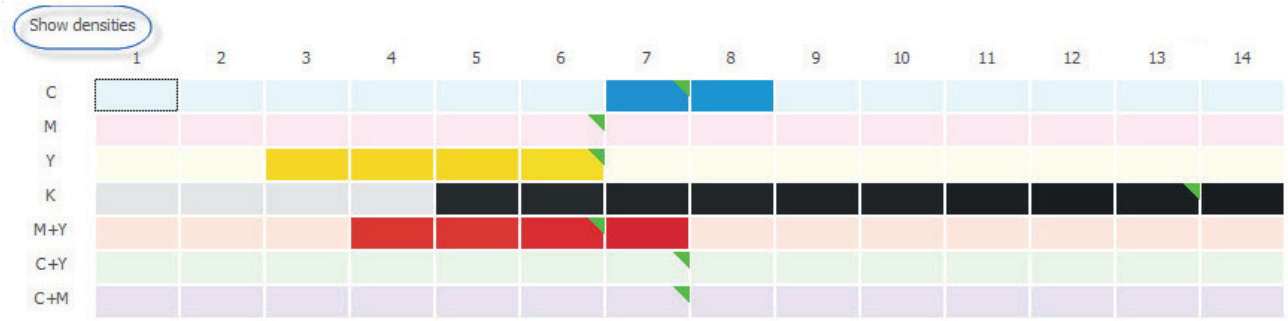
8 **Print** - prints a card listing the optimum density values for each color. You may place this at the machine operators' station as a reminder for subsequent jobs.

9 **Details** - opens the details window for further analysis of the behavior of each of the inks. More information in section **4.5.3 Details**.

To continue to the next step in the wizard, click on the arrow at the bottom right.

4.5.1 Show Densities

This button toggles between three options. The default state in PrintControl is to show only the patch colors:

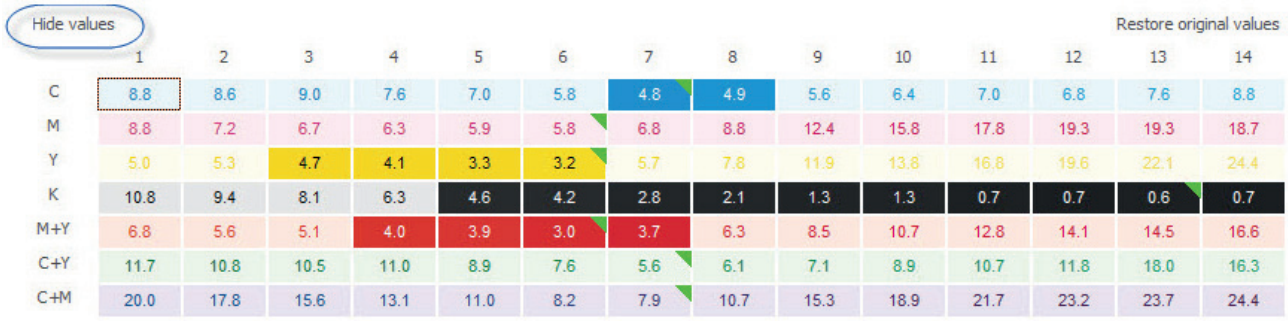


Default view. Only colors and optimal patches (green triangle) are shown

By clicking on **Show densities**, the values for each patch are displayed:

Show densities view. Only patches within colorimetric tolerance display values.

Click on Show dE to change the view to dE:



Show dE view. Values for all primary and secondary colors are displayed.

Click once more on the **Hide values** button to return to the default view of patches only with no numbers.

4.5.2 Solid patches

After measurement, the seven rows of solid patches display the results of the printed sheet in reference to the print standard. There are four possible states for a patch:

Patch is within tolerance

Patch is within tolerance and is optimal patch

Patch is out of tolerance

Patch is out of tolerance but is optimal patch

After measurement, all patches are compared colorimetrically to the standard and marked in one of the states above. Patches within the defined tolerance will be fully saturated, while all patches which have a higher dE than allowed by the tolerance will be lightened.

The patch with the lowest dE (closest match to the standard), is marked with a green triangle in the upper right corner. This optimal patch may or may not be within tolerance depending upon the inks used.

The optimal patch values for CMYK are displayed at the lower left of the window in the Primaries section, while the optimal patch values for RGB are displayed at the bottom in the center of the window.

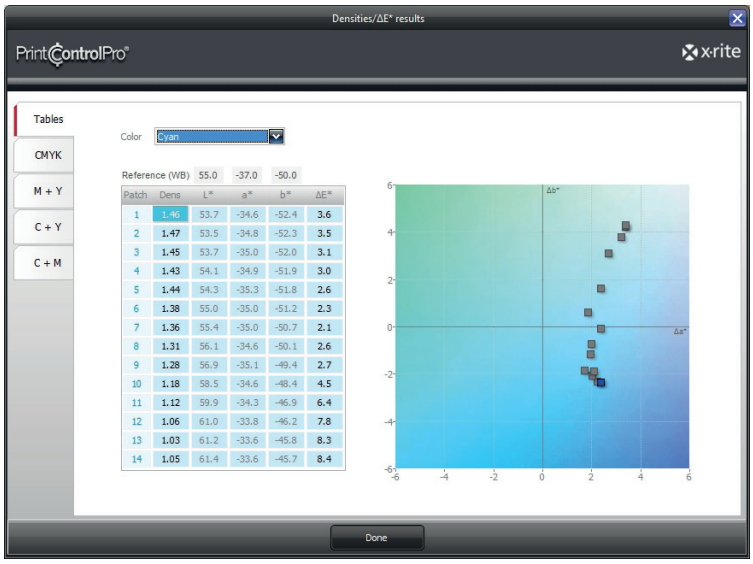
PrintControl chooses the optimal patches based upon lowest dE reading, but you may also select a different patch for any of the four primary (CMYK) colors, if you prefer, by double clicking on the patch. Values will be updated automatically in the Primaries table. You may only select patches which are within tolerance. Out of tolerance patches are deactivated.

Use the **Restore original values** button in the upper right of the patch area to bring the optimal patch selection back to default status. This button will become visible only if you have made changes to the original optimal patch selection.

4.5.3 Details

PrintControl performs all selections and operations automatically, but for those who wish to see more information regarding the ink behavior, the Details button provides access to technical charts and graphs.

Tables



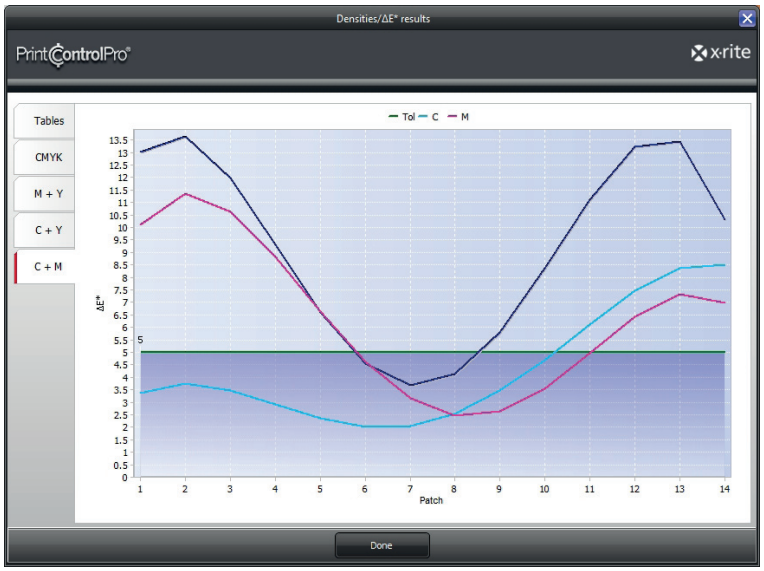
The tables view shows the Density, CIELAB values, and dE for each CMYK patch. In addition, all patches are plotted on a da*/db* graph. Click on any value in the table and the corresponding point will be highlighted in the graph, or conversely, click on a point in the graph and it will be highlighted in the table. Select the primary you wish to view from the **Color** dropdown menu.

CMYK

The CMYK view shows all patches as points on an x/y graph. The horizontal axis is density and the vertical axis is dE. Here you can visualize the overall behavior and deviation of each color from low density to high density. The three vertical lines show the optimum value, as well as the minimum and maximum tolerance for the density range. Select any of the seven colors from the **Color** dropdown menu.

If you select **Primaries** from the dropdown menu, you will see all four primaries at the same time.

M+Y, C+Y, C+M



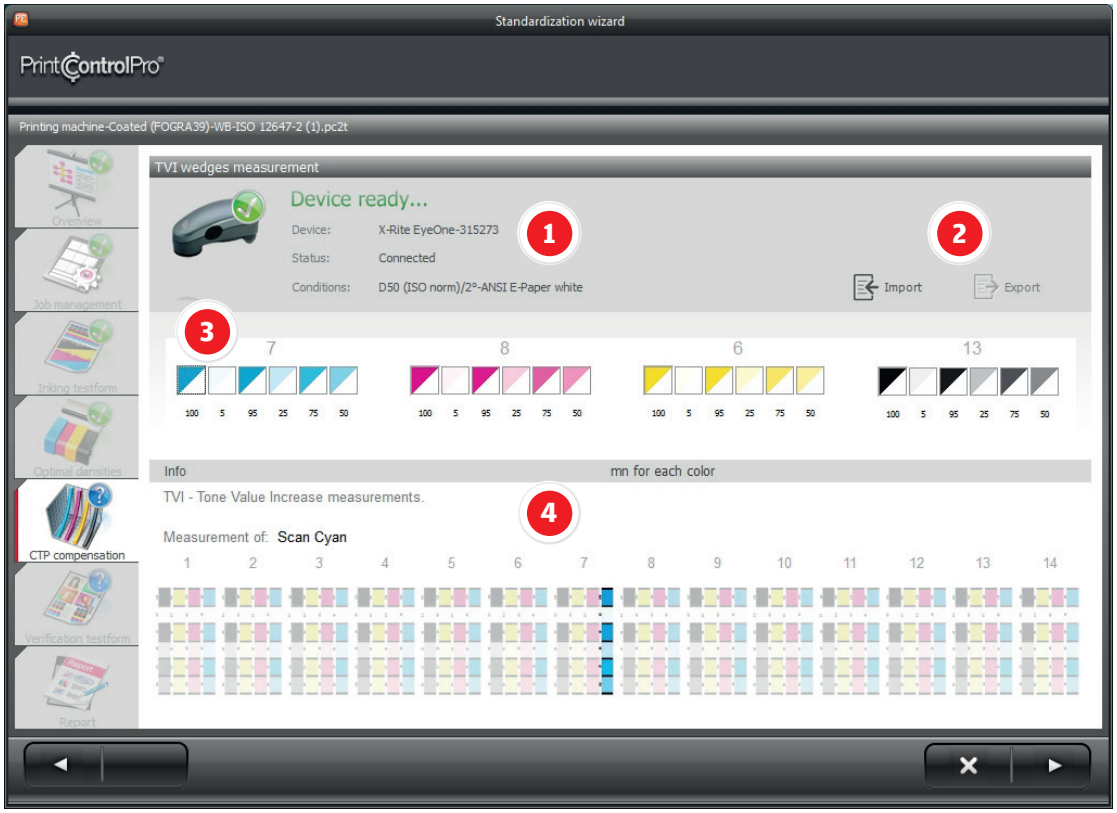
The X+Y graphs show the relation between the two primary colors and the overprinted color. Each point on the horizontal axis corresponds to a patch on the testchart, and the vertical axis is dE. In this way, it is simple to view the behavior and deviation of the overprinted color in relation to the density and devaiton of the two primary colors together.

Click **Done** at the bottom of the window to close the details view and return to the wizard.

To continue to the next step in the wizard, click on the arrow at the bottom right.

4.6 TVI measurement

After finding the optimum printing densities, the next step is to check the tone value increase of the printing machine with linear plates. This step is common for both calibration methods - ISO and G7, as it brings the four process colors together. PrintControl identifies for you which strip you should read for each color by placing a grey column number above each color strip. This column corresponds to a CMYK group on the testform.



1 **Device status bar** - displays device connection information and status. This area interacts directly with the Toolbar and updates automatically.

2 **Import/Export** - allows you to import and export .txt files with Tone Value Increase values.

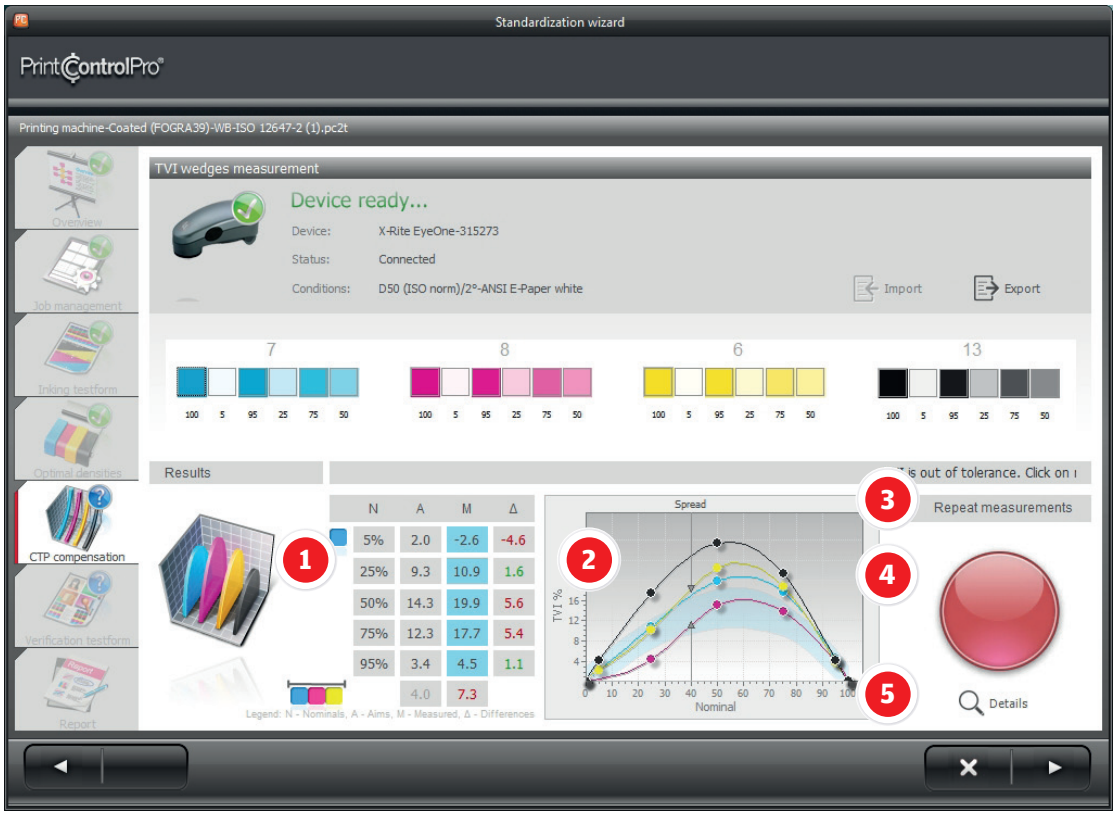
3 **Strip preview** - shows a visualization of the strips to be read. The number in grey above identifies which column on the testform should be used for measurement.

4 **Status** - displays information and instructions for measurement. Text on the left describes what needs to be done, while image below highlights the current strip to be measured.

As you measure each strip, PrintControl will advance to the next color automatically, but you can also select any color at any time by clicking on it in the **Strip preview** area.

After measurement

Once you have taken measurements of the strips for each of the four colors, the bottom of the window will change to show the results.



1 **TVI table** - displays the nominal value (N), the reference or aim value (A), the measured value (M), and the difference (triangle) Values in red are out of tolerance, and in green are within tolerance. Click on any of the four strips above to show the results for that color. Spread (the maximum difference between any two colors at 40%) is displayed at the bottom of the table by the three colored squares.

2 **TVI graph** - displays the tone values increase curves for all colors. The shaded curve shape behind the tone curves is the tolerance for the currently selected color.

3 **Repeat measurements** - click here to discard actual TVI values and return to the measurement window. Use this option if you think you have made a mistake while measuring.

4 **Standardization status indicator/button** - serves two purposes. The color of the button indicates if the tone values are within tolerance - green indicates that all values are OK, red that one or more values are out of tolerance. Clicking on the button creates a new compensation file and opens a file save dialog window. The text file created contains the values for inputting the first compensation curve into the CTP RIP.

5 **Details** - opens the details window for further analysis of the behavior of each of the tone curves. More information in section **4.6.1 Details**.

4.6.1 Details

1 **Channels** - click on any patch to switch to a different color channel

2 **Show curve** - clicking on the patches shows and hides the curves for each color on the graph. This does not affect the compensation, only the visualization in this window.

3 **Tone value table** - displays all values related to the tone curves and compensation. Double click on any nominal to activate or deactivate it as a fulcrom point.

4 **Curve graph** - displays the compensation curves on an x/y graph.

1 **Tone Value Increase (TVI) graph** - displays the tone value increase for each color. To change color, click on any patch under **Channel**. The shaded curve shape behind the tone curves is the tolerance for the currently selected color.

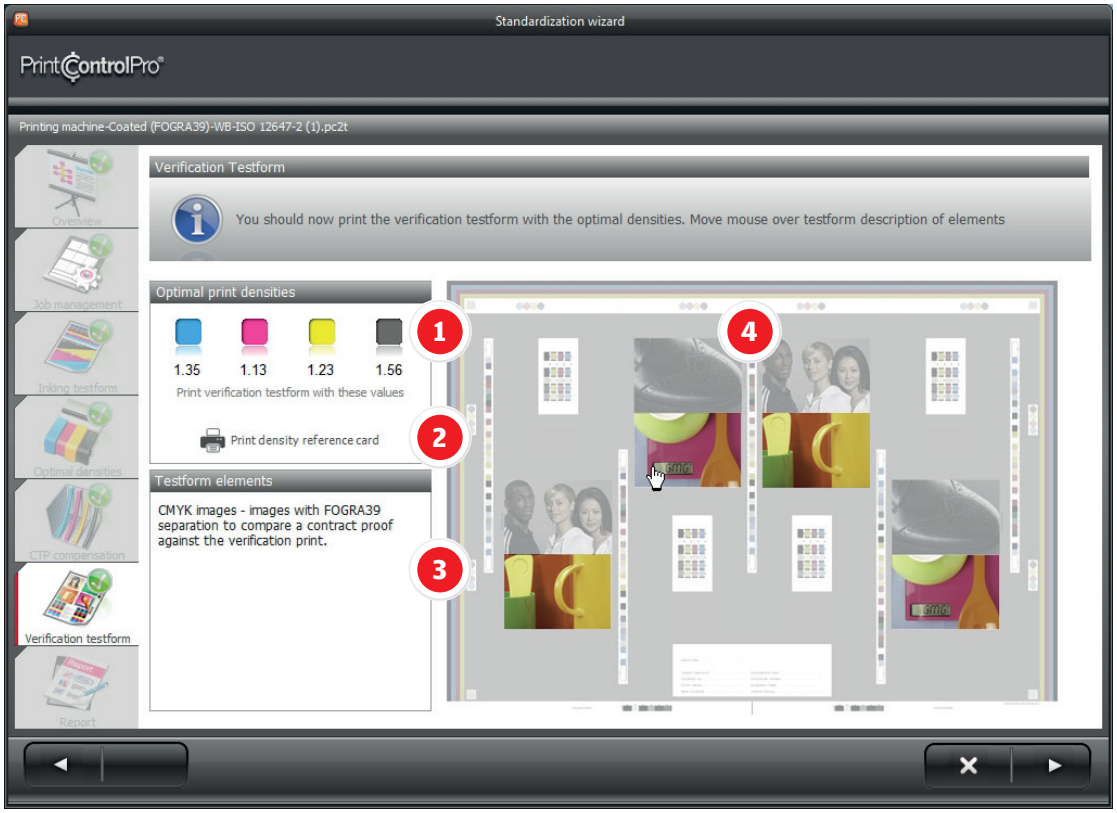
Click **Done** at the bottom to return to the wizard.

4.7 Verification Testform

Up to this point, the steps in the wizard have been common for both ISO and G7 calibration methods. The verification step, however, is where each method uses its own testform and tone compensation algorithm. Section 4.7.1 is for ISO users who will be calibrating using TVI, and section 4.7.2 is for G7 users who will be calibrating with the Neutral Print Density Curve (NPDC).

Testform information window

Although the testform itself is different for each calibration method, the functionality of the testform information window is the same. The only difference will be the image of the testform and the explanation of the testform elements.



1 **Optimal printing densities** - lists the densities that were found in the inking test. From this point on, all testforms need to be printed at these densities with the smallest deviation possible. Density across the sheet should also be as uniform as possible.

2 **Print density reference card** - prints a card listing the optimum density values for each color. You may place this at the machine operators' station as a reminder for subsequent jobs.

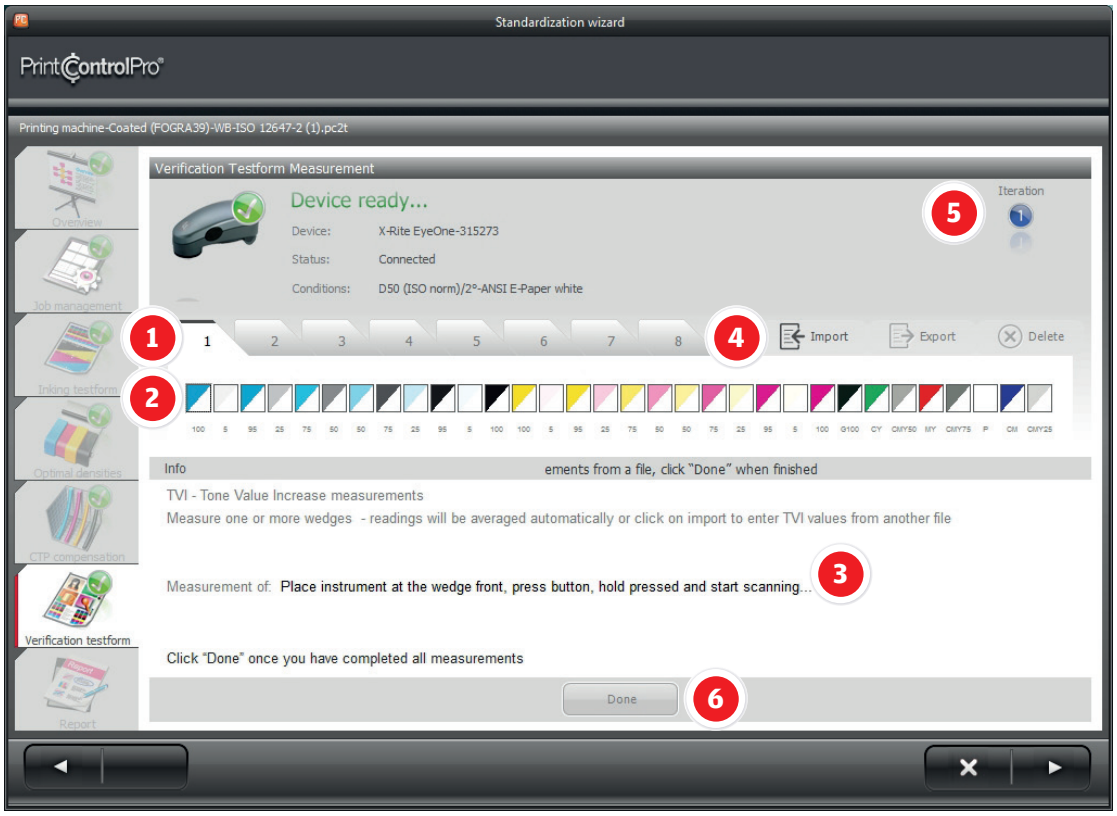
3 **Testform elements** - provides a description of each part of the testform. Pass the mouse over the testform on the right, and the information for each element will appear here.

4 **Testform** - visual representation of the testform to be used in the verification step. Image contains hotspots which allow you to move the mouse over the different elements and see information on the left.

Once you have read the information for the verification testform and have a clear idea of how it should be printed, click on the arrow at the bottom right to proceed to the measurement and compensation step.

4.7.1 TVI (ISO) calibration

The procedure for calibrating the press using the TVI method is explained here. G7 users may skip this section and proceed to **4.7.2 NPDC (G7)**.



1 **Measurement tabs** - every strip measured is stored on a separate tab. Up to 8 measurements may be taken, either for averaging across the sheet, or combining measurements of several sheets. Each measurement is placed on a new tab, and all results are averaged automatically.

2 **Control** strip - displays the strip to be measured from the testform

3 **Status** - displays information and instructions for measurement

4 **Import** - allows import of TVI measurements in CGATS 1.7 and .csv file formats.

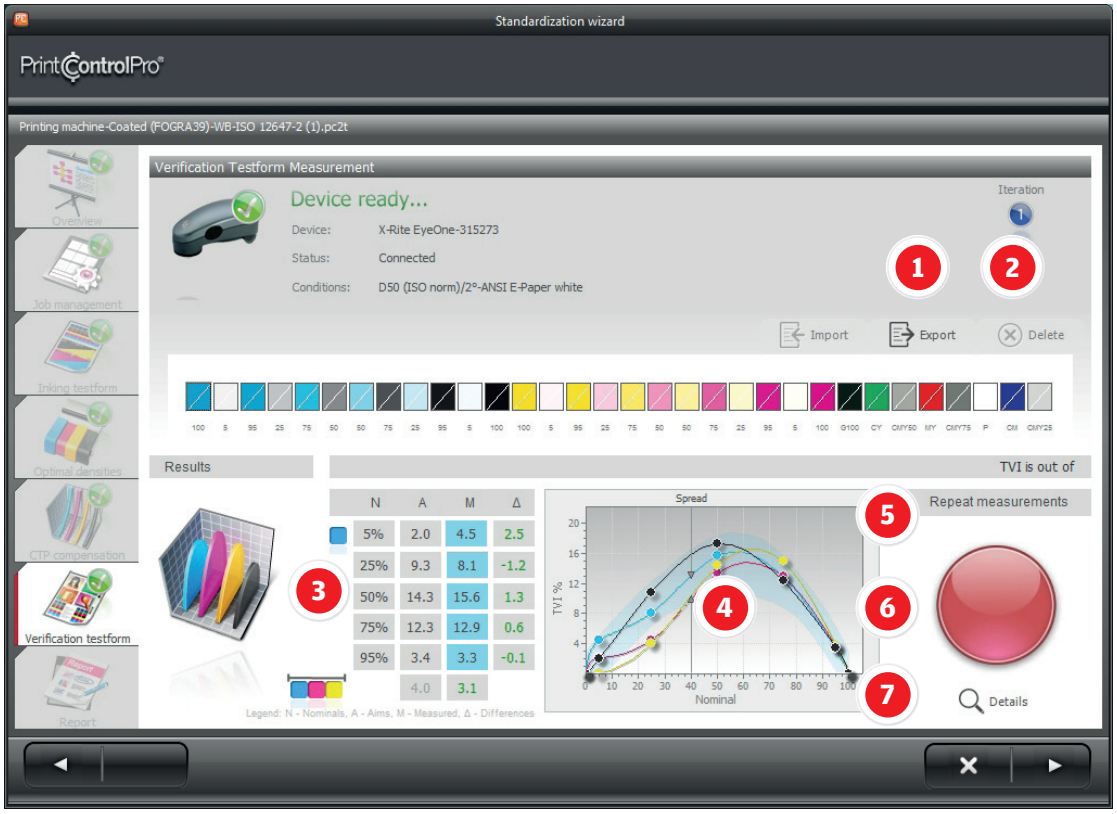
5 **Iteration** - marks the number of compensation iterations that have been realized. Explained further in the following section **After Measurement**.

6 **Done** - once all measurements have been taken, click done to proceed to the results view.

Measure strips from correctly printed verification testforms. Make sure that you select sheets that are uniformly printed with the correct densities. If you measure a strip that was printed with the wrong densities, you will receive a warning like the one above. You may accept the measurements, but discard is recommended.

After measurement

Once you have read the TVI strips, PrintControl will display the results in the bottom area of the window.



1 **Export** - exports the TVI measurements to a CGATS 1.7 of .csv file.

2 **Delete** - eliminates the measured values from the currently selected tab. Results below will be recalculated without the eliminated tab as part of the average.

3 **TVI table** - displays the nominal value (N), the reference or aim value (A), the measured value (M), and the difference (triangle) Values in red are out of tolerance, and in green are within tolerance. Click on any of the four strips above to show the results for that color. Spread (the maximum difference between any two colors at 40%) is displayed at the bottom of the table by the three colored squares.

4 **TVI graph** - displays the tone values increase curves for all colors. The shaded curve shape behind the tone curves is the tolerance for the currently selected color.

5 **Repeat measurements** - click here to discard actual TVI values and return to the measurement window. Use this option if you think you have made a mistake while measuring.

6 **Standardization status indicator/button** - serves two purposes. The color of the button indicates if the tone values are within tolerance - green indicates that all values are OK, red that one or more values are out of tolerance. Clicking on the button creates a new compensation file and opens a file save dialog window. The text file created contains the values for inputting the compensation curve into the CTP RIP.

7 **Details** - opens the details window for further analysis of the behavior of each of the tone curves. More information in section **4.7.1.1 Details**.

The TVI compensation process is iterative. Once you have output plates with the new compensation curves applied and re-printed the testform, measure the control strips again. You should notice that with each step, the results improve. The standardization indicator will turn green when all values are within tolerance. Normally, after one or two iterations, you should have a green indicator. If you have done more than 4 iterations and still have values which are out of tolerance, however, check the Trouble Shooter guide which will provide information and recommendations as to what you can check and correct on the printing machine.

4.7.1.1 Details

1 **Channels** - click on any patch to switch to a different color channel

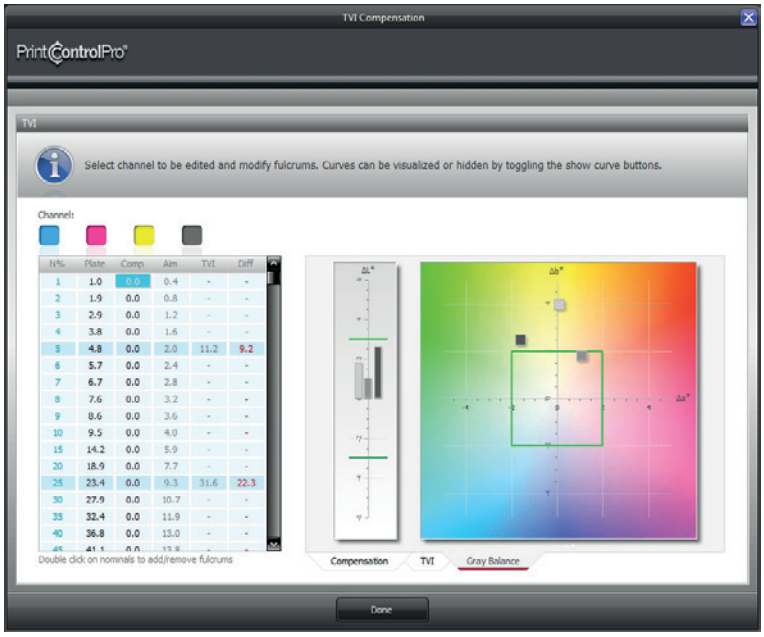
2 **Show curve** - clicking on the patches shows and hides the curves for each color on the graph. This does not affect the compensation, only the visualization in this window.

3 **Tone value table** - displays all values related to the tone curves and compensation. Double click on any nominal to activate or deactivate it as a fulcrom point.

4 **Curve graph** - displays the compensation curves on an x/y graph.

1 **Tone Value Increase (TVI) graph** - displays the tone value increase for each color. To change color, click on any patch under **Channel**. The shaded curve shape behind the tone curves is the tolerance for the currently selected color.

GreyBalance



1 **L* graph** - shows the lightness of each of the three grey patches - 1/4, 1/2, and 3/4 tones. The center is the correct lightness, while an ascending bar means the grey patch is too light, and a descending bar that it is too dark.

2 **a*/b* graph** - shows the color deviation of the grey. Each of the three patches should be as close as possible to the center which is the neutral area. Movement in any direction signifies a hue deviation towards that tone.

Click **Done** at the bottom to return to the wizard.

4.7.2 NPDC (G7) calibration

If you have already calibrated the press using the ISO (TVI) method, you may skip this section and proceed to **4.8 Report**.

1 **Gamut** - characterization data used to calculate the Neutral Print Density Curve and grey balance correction. By default PrintControl will use a gamut file which provides the closest match to your printing substrate, but you may also substitute with a custom gamut. To create a gamut, print an ECI2002 testchart and measure in an applicatation such as X-Rite Colorport.

- X-Rite Colorport - measure the ECI2002 chart and export in CGATS 1.7 format. See the Colorport manual for more information.

To substitute the default gamut with your custom gamut, click on the Gamut panel. An open file dialog will appear allowing you to select your file. Both .csc (Tucanna) and CCATS 1.7 are supported.

Note: CGATS 1.7 files are converted to .csc format automatically and saved in the PrintControl\CSC folder.

2 **P2P panels** - click on any panel to load your P2P measurements. You may load up to five measurements and all will be averaged automatically. P2P charts may be measured in X-Rite ColorPort or similar application and should be in CGATS 1.7 format.

3 **Iteration** - marks the number of compensation iterations that have been realized.

After P2P import

1 **NPDC table** - displays the Neutral Density (ND) for CMY, the ND for K, and the color shift in dE for grey balance. Values in red are out of tolerance, and in green are within tolerance. The light colored patch is HC (Highlight Contrast), the middle grey patch is HR (Highlight Range), and the dark grey patch is SC (Shadow Contrast).

2 **Graph** - displays Neutral Print Density Curve (CMY), Neutral Print Density Curve (K), grey deviation in a* and b*, and colorimetric TVI.

3 **Selection tabs** - change the graph being displayed. Click on any tab to view the graph shown in the label.

4 **Standardization status indicator/button** - serves two purposes. The color of the button indicates if the grey balance is within tolerance - green indicates that all values are OK, red that one or more values are out of tolerance. Clicking on the button creates a new compensation file and opens a file save dialog window. The text file created contains the values for inputting the compensation curve into the CTP RIP.

5 **Details** - opens the details window for further analysis of the behavior of each of the tone curves. More information in section **4.7.2.1 Details**.

The NPDC compensation process is iterative. Once you have output plates with the new compensation curves applied and re-printed the testform, measure the P2P charts and import again. You should notice that with each step, the results improve. The standardization indicator will turn green when all values are within tolerance. Normally, after one or two iterations, you should have a green indicator. If you have done more than 4 iterations and still have values which are out of tolerance, however, check the Trouble Shooter guide which will provide information and recommendations as to what you can check and correct on the printing machine.

Once you have achieved the correct Grey balance, click on the right arrow at the bottom to continue with the wizard.

4.7.2.1 Details

1 **Channels** - click on any patch to switch to a different color channel

2 **Tone value table** - displays all values related to the tone curves and compensation.

3 **Curve graph** - displays the compensation curves on an x/y graph.

4 **Selection tabs** - change the graph being displayed. Click on any tab to view the graph shown in the label. The different graphical views avialable in are:

- **Compensation** - displays the curves that have been calculated for grey balance correction and are to be input into the CTP RIP.
- **NPDC cmy** - shows the sum of the cyan, magenta and yellow tone values along the NPDC curve
- **NPDC k** - show the black tone values along the NPC curve
- **da*-db*** - displays the grey balance in the full tone range from 1 to 100%. da* graph shows divergence on red/green axis, and db* graph shows divergence on yellow/blue axis.
- **Values** - table which lists the numerical values for neutral desnities, Lightness, and grey balance.
- **TVI** - displays colorimetric TVI calculated from CIE XYZ values

Click **Done** at the bottom to return to the wizard.

4.8 Report

At the end of the wizard, a summary is shown allowing you to see the results of the standardization process at a glance. The summary and report for the ISO (TVI) and the G7 (NPDC) methods are slightly different, and both are described below.

4.8.1 Summary ISO (TVI)

If you have performed a G7 calibration, you may skip this section and proceed to **4.8.2 Summary G7 (NPDC)**

1 **Primaries** - lists the optimum densities and color deviation (dE) of cyan, magenta, yellow, and black.

2 **Secondaries** - lists the trapping values and color deviation (dE) of the two color overprints: red, green, and blue.

3 **Tone Value Increase (TVI)** - lists the values for each of the four primary colors at 5%, 25%, 50%, 75&, and 95%.

4 **Grey balance** - lists color deviation (dE) values for quarter tone, midtone, and three quarter tone greys.

5 **Paper** - lists the color deviation (dE) of the substrate.

6 **Status** - shows the result of the standardization job. If all mandatory values are within tolerance, a green Pass badge will be visible. If any mandatory value is outside of the tolerances, a yellow Check badge will be shown.

Note: Values in tables are color-coded. Green are within tolerance while red are out of tolerance. Red values in mandatory parameters will set Status to Check state.

7 **Details** - opens the details window for further analysis of the behavior of each of the tone curves. More information in section **4.8.3 Details**.

8 **Print report** - opens the report window. More information in section **4.9 Print report**.

4.8.2 Summary G7 (NPDC)

If you have performed an ISO (TVI) calibration, you may skip this section and proceed to **4.8.3 Details.**

1 **Primaries** - lists the optimum densities and color deviation (dE) of cyan, magenta, yellow, and black.

2 **Secondaries** - lists the trapping values and color deviation (dE) of the two color overprints: red, green, and blue.

3 **Tone Value Increase (TVI)** - lists the values for each of the four primary colors at 5%, 25%, 50%, 75&, and 95%. Values are calculated from CIE XYZ.

4 **NPDC/Grey balance** - lists color deviation (dE) values for Highlight Contrast (HC), Highlight Range (HR), and Shadow Contrast (SC).

5 **Paper** - lists the color deviation (dE) of the substrate.

6 **Status** - shows the result of the standardization job. If all mandatory values are within tolerance, a green Pass badge will be visible. If any mandatory value is outside of the tolerances, a yellow Check badge will be shown.

Note: Values in tables are color-coded. Green are within tolerance while red are out of tolerance. Red values in mandatory parameters will set Status to Check state.

7 **Details** - opens the details window for further analysis of the behavior of each of the tone curves. More information in section **4.8.3 Details**.

8 **Print report** - opens the report window. More information in section **4.9 Print report**.

4.8.3 Details

1 **Selection tabs** - lists all parameters that may be viewed. Included are:

- Solid Densities
- Trapping
- TVI (Tone Value Increase)
- Grey balance
- Primaries
- Paper
- Plate compensation

Click on any tab to view more information for that parameter.

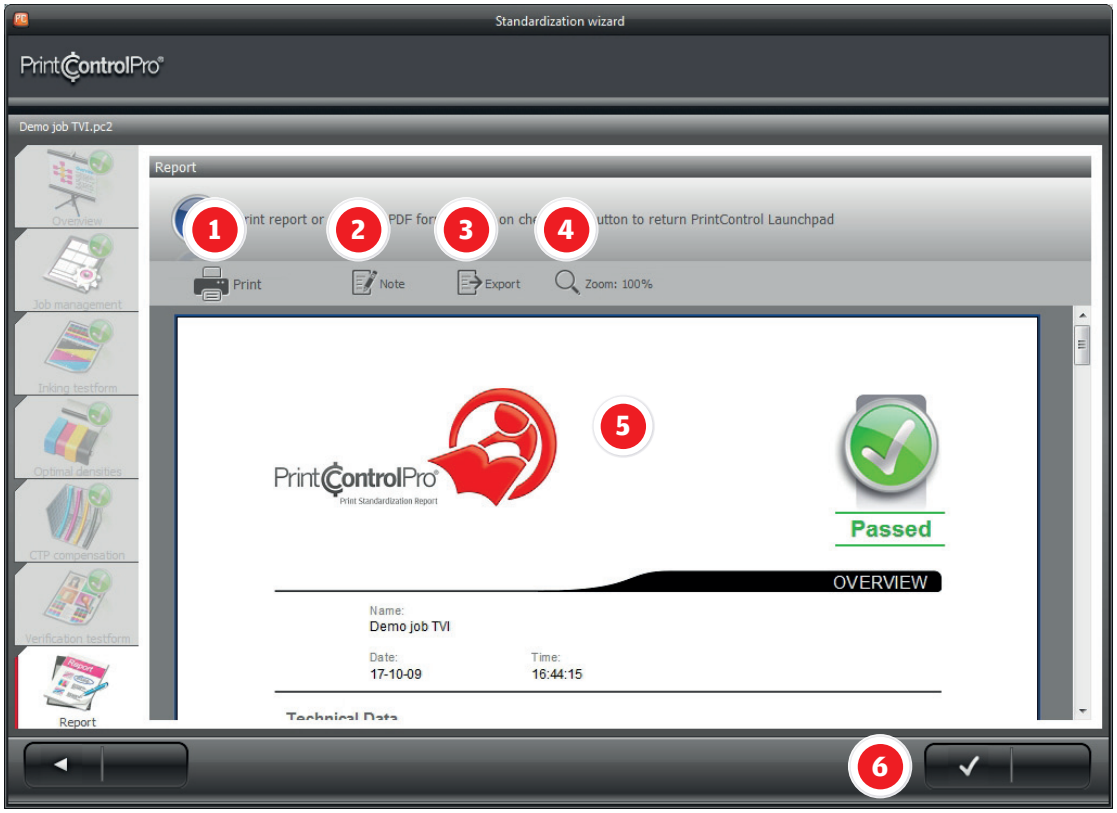
2 **Data tables** - display references, tolerances and measured values for each parameter. Values within tolerance are green while out of tolerance are red.

3 **Graphs** - show the measured values in graphical format.

Click **Done** at the bottom to return to the wizard.

4.9 Print report

Once you have completed the standardization process, you may generate a report in order to have all of the results documented for future reference. To reach the report window, click on the printer icon on the bottom right.



1 **Print** - opens the Windows printer dialog box for printing the report to any printer installed on the system.

2 **Note** - starts the Note editor for adding comments or more information to the report.

3 **Export** - creates a PDF file.

4 **Zoom** - cicular button which changes the view from 100%, 150%, 200%, Page width, Whole page, and 50%. Click on the button to cycle through all of the options.

5 **Preview** - displays the report as it will be printed.

6 **End job** - closes the standardization job and returns to the PrintControl Launchpad. If you choose this option, the job is saved as completed and no longer appears in the pending job list upon starting the standardization wizard.

5. Paper management

The Paper module allows you to check, manage, and list papers according to different criteria. To access, click on the **Paper** button:

The Paper management window will open with a list saved papers.

1 **Add/Delete/Edit** - **Add** opens the **Add paper** window (more information in section **5.1 Add/Edit paper**), **Delete** erases the paper stock from the database, and **Edit** opens the **Add/Edit paper** window.

2 **Paper list** - all papers are shown in the list and ordered according class, name, standard, weight, and cost. Click on any of the column titles to order the paper according to that parameter. Clicking on the same title again changes the order from top to bottom and bottom to top.

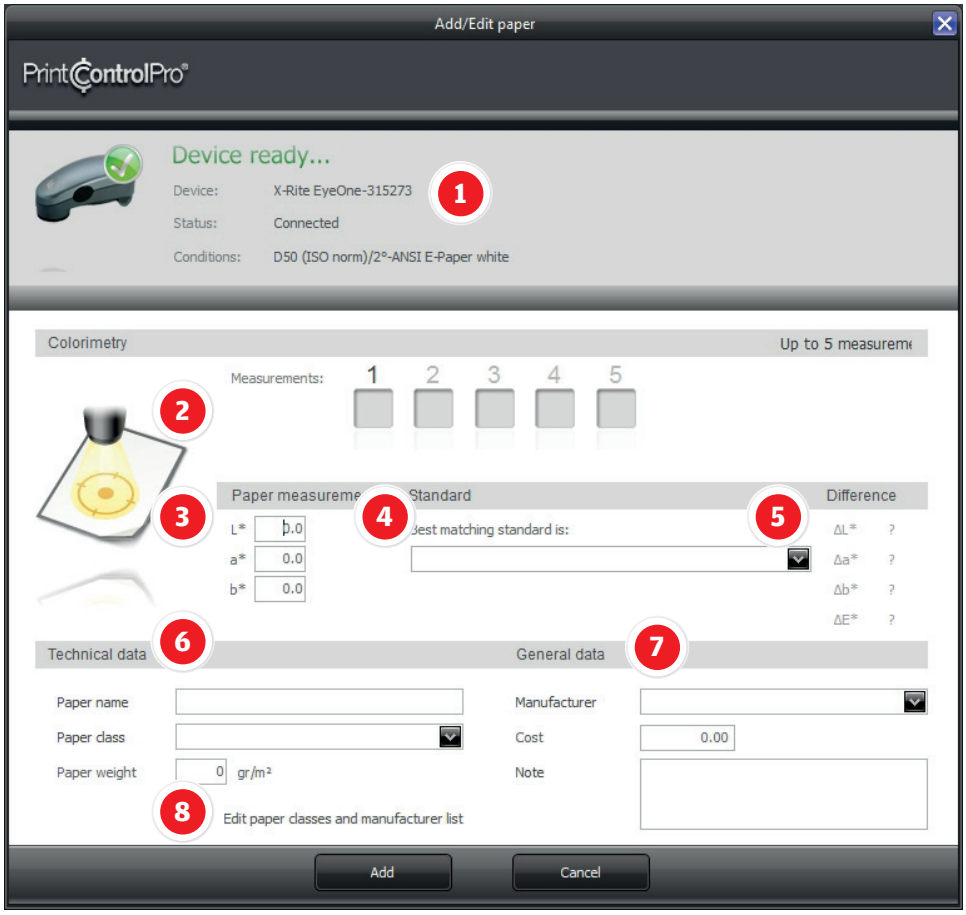
3 **Filtering** - type values in any field to sort papers according to desired criteria.

4 **Paper comparison** - stores reference and sample values. Differences are shown in the **Difference** panel. More information in section **5.2 Comparing papers**.

5 **Graph** - displays a*b* diagram or spectral curves- Click on the tab at the bottom to toggle between the two graphs.

5.1 Add/Edit paper

The Add/Edit paper window can be opened in three ways. To add a paper, click on **New** in the upper left of the Papers panel. To edit a paper, double click on it from the paper list, or click on the **Edit** button above the paper list.



1 **Device status bar** - displays device connection information and status. This area interacts directly with the Toolbar and updates automatically.

2 **Measurements** - stores each measurement in the corresponding fields. You may take up to five readings of your substrate and all will be averaged automatically.

3 **Paper measurement** - Lists the CIELAB values of the measured substrate. If you have taken more than one reading of the sample, the average is displayed here.

4 **Best matching standard** - searches for the standard with the closest matching CIELAB values to the measured sample. All are listed in ascending dE order. You may accept the standard that PrintControl assigns, or select a different one from the dropdown list.

5 **Difference** - displays the dE of the sample in reference to the best matching standard.

6 **Technical data** - allows input of Name, Class, and Weight. Data typed into Paper Class will be stored in the class list and available for selection the next time you enter this window.

7 **General data** - allows input of Manufacturer, Cost, and free text in the Note field. Data typed into Manufacturer will be stored in the manufacturer list and available for selection the next time you enter this window.

8 **Edit paper classes and manufacturer list** - opens the editor window to add and delete default entries which appear in the Paper Class and Manufacturer dropdown menus.

Once you have finished, click on **Update** or **Add** at the bottom to return to the main paper window.

5.2 Comparing papers

To compare two papers, one needs to be set as the **Reference** (**a**) and the other as the **Sample** (**b**). You may use one of two methods to do so.

1 Drag any paper from the Papers list to either the **Reference** or **Sample** panels on the right. CIELAB values and spectral values will be loaded and shown in the graph below and the dE will be calculated in the **Difference** panel.

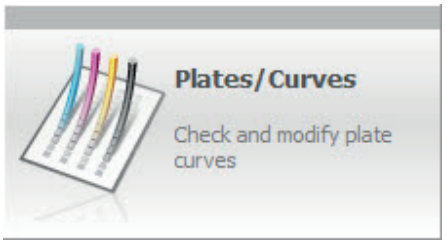
2 Click on either the Reference or Sample panels to open the measurement window shown below:

Measure the substrate with up to five readings and click **OK** when finished. Values will be averaged and loaded for comparison.

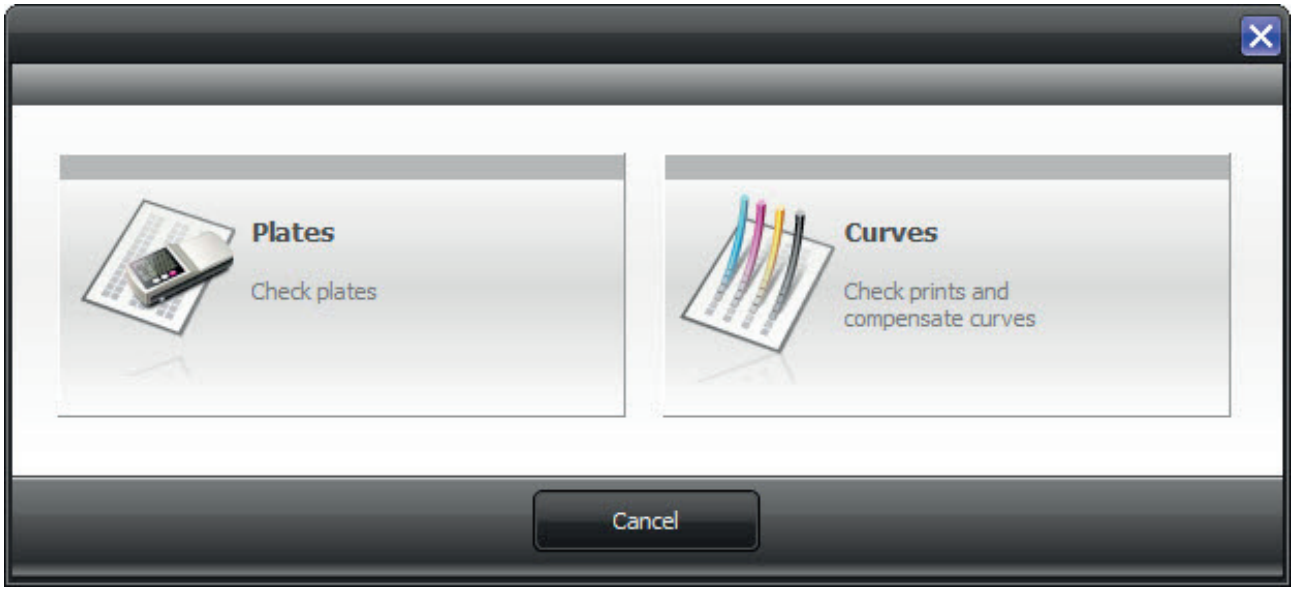
You may also combine methods and load a paper from the list while measuring the other in order to compare the two.

6. Plates/Curves

It is also possible to check the printing plates as well as generate compensation curves without using the wizard. For example, in daily production, you may open the Plate/Curves module to check if the platesetter remains calibrated, or use the curve compensation application to fine-tune a printing unit which has suffered a minor change. To start Plates/Curves, click on the button in the PrintControl Launchpad.



A pop-up window will ask which section you wish to enter. **Plates** is to check the printing plates, and **Curves** is to edit or create compensation curves.



The Plates module is described in detail in section **6.1 Plates**.

The Curves module is described in detail in section **6.2 Curves**.

6.1 Plates

1 **Device status bar** - displays device connection information and status. This area interacts directly with the Toolbar and updates automatically.

2 **Import** - imports CTP curves from PrinControl job files and plate export files. To make sure that the plates have been imaged with the correct compensation curve applied, use this option. If no file is imported, the plates will be checked against a linear curve.

3 **Channel** - click on any color patch to change to that channel.

4 Table - lists the plate values and measurements. Click the row to select that fulcrom point, and click the Meas cell to input values manually. Values within tolerance will be shown in green, and out of tolerance in red.

5 **Plate tolerance** - shows the currently selected tolerance (shown as the shaded area in the graph). To change the tolerance, click on the text - **Plate tolerance**, and a spin box will become active to allow selection of a different value. The percentage value is the total, so for a +/- 1.5%, the value would be 3% as in the example here.

6 **Auto zoom on/off** - changes grah view from zooming in on the selected point to viewing the entire curve. If zoom is on, the graph will automatically zoom to the point selected in the chart.

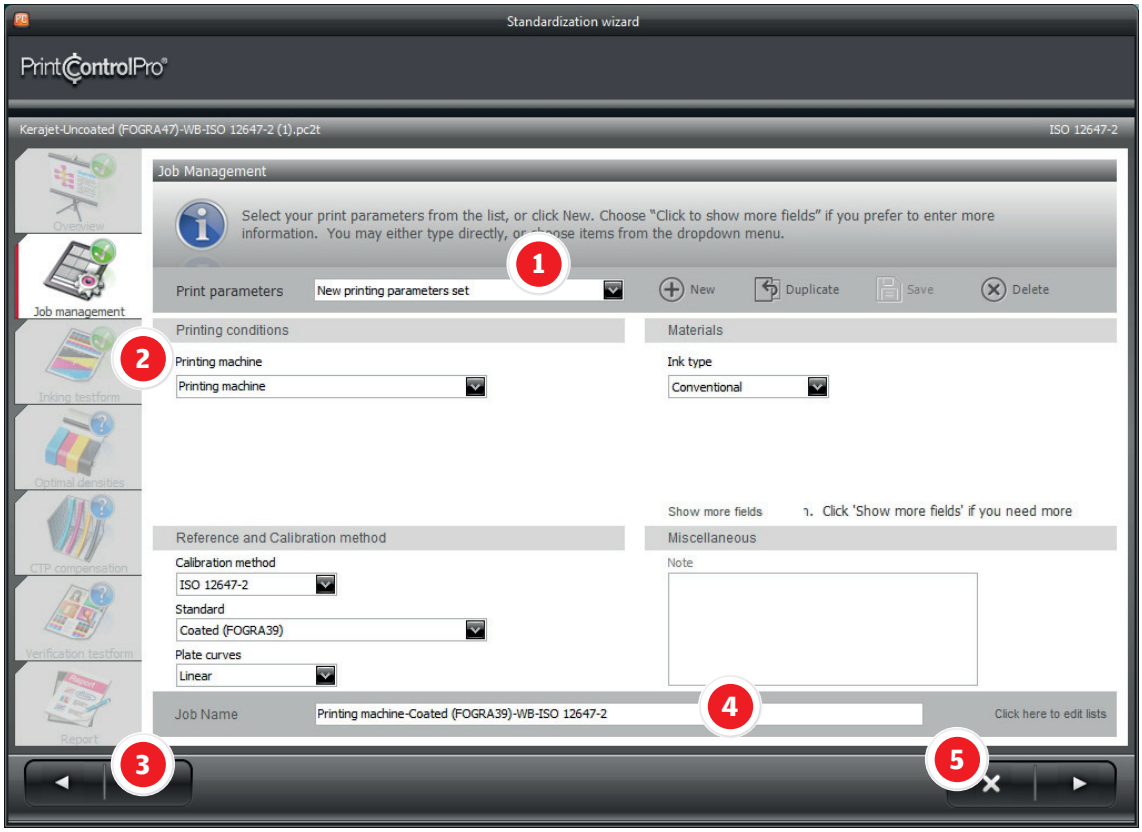
7 **Graph** - displays the measured curve (a dark line) as well as the tolerance (shaded area).

Plate measurement devices are not supported directly in PrintControl. You may either configure your spectral device to measure plates (see you device manual for more information), or build a conversion table between your plate reader and spectrophotometer to know the correct plate measurement values for the spectrophotometer. If you prefer to use your plate reader, you may also input the values manually in the table.

Click **Done** at the the bottom to leave PlateCheck and return to the LaunchPad or wizard.

6.2 Curves

When entering the curve module, a new job is created, and you will need to fill in the job description and data. There are two possible windows for job management, the difference residing in the number of fields in which to enter descriptive data. By default, the short version is visible.



1 **Print parameters** - all print condition settings can be grouped together and saved as part of a set. Either create a new set by clicking on the **New** button, or if many of the settings for the new set are the same as a current set, you may select **Duplicate** which will create a new set with all of the same settings already entered and use this as a starting point. Be sure to to click on **Save** once you have finished to save your set.

2 **Printing Conditions** - lists the settings for print:

- **Printing Machine** - enter printing machine name.
- **Calibration method** - select either ISO 12647-2 for Tone Value Increase (TVI) calibration or NPDC for G7 calibration.
- **Standard** - select the characterization data which will provide the reference values.
- **Wedge** - select the wedge you have printed and will be measuring (Not necessary for NPDC).
- **Ink type** - choose between conventional and heatset.

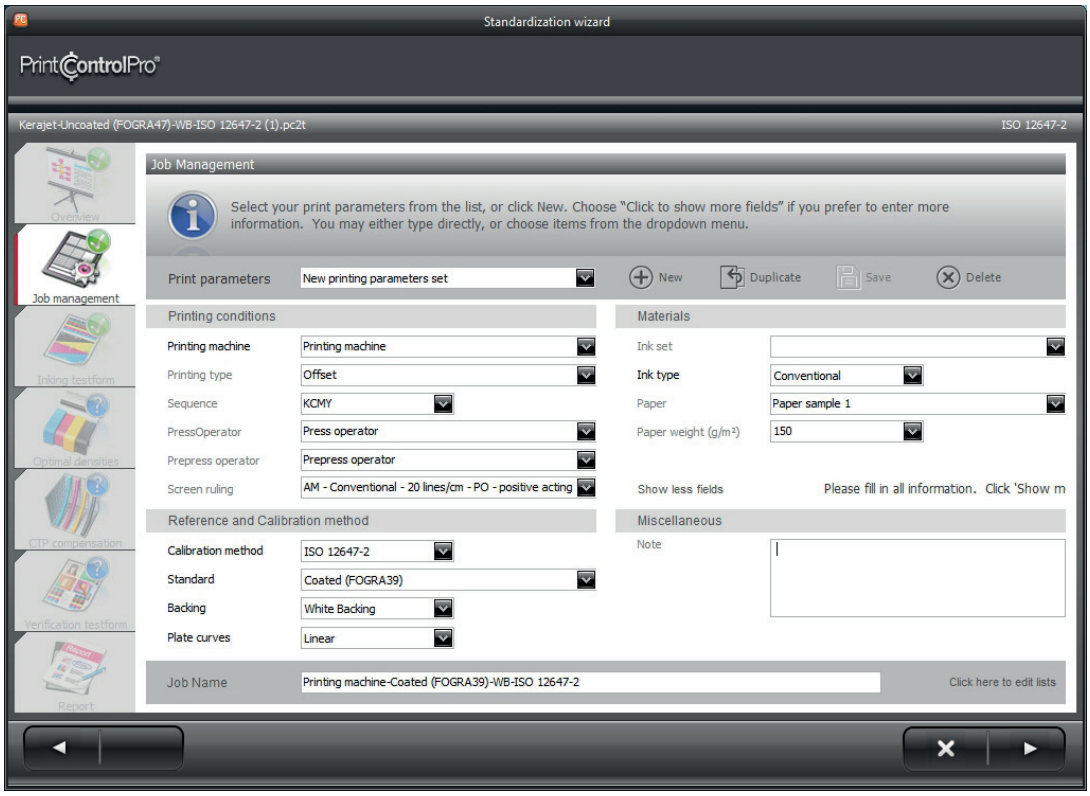
3 **Job name** - displays the current job name which is created automatically from the printing condition settings. You may also edit or add to the default job name.

4 **Show more fields** - activates hidden data fields for entering more complete information. See section **6.2.1 Job management extended** below.

5 **Click here to edit lists** - opens list editor to add and delete default settings from printing condition lists. See section **6.2.1 Edit lists** below.

6.2.1 Job management extended

Clicking on the **Show more fields** button in the Job management window, brings further print condition settings.

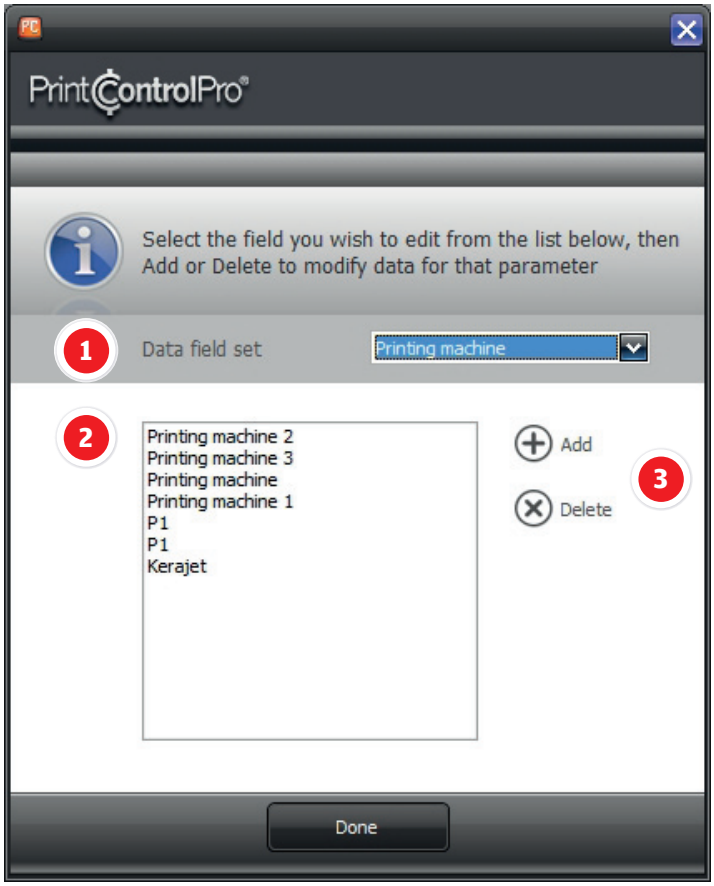


Additional Printing Conditions:

- **Printing Type** - default types are Offset, Weboffset, Newspaper.
- **Sequence** - default print sequences are CMYK and KCMY.
- **PressOperator** - enter the name of the person who will be doing the press runs.
- **Prepress operator** - enter the name of the person who will be doing the plates.
- **Screen ruling** - enter the line screen in inches or centimeters.
- **Note** - free text field to add any additional comments.
- **Ink set** - enter the manufacturer name and gama of inks
- **Paper** - enter the manufacturer name and paper model
- **Paper weight (g/m2)** - enter paper weight

Click on the **Show less fields** button to return to the condensed printing condition list.

6.2.2 Edit lists



1 **Data field set** - all printing condition fields are listed in the dropdown menu. Select the printing condition field you wish to edit.

2 **Settings** - lists all values available for the currently selected data field. Values may be added and deleted.

3 **Add/Delete** - create and eliminate values from the settings box to the left.

Once you have filled in all mandatory fields, and any other fields you choose, the arrow will appear at bottom right allowing you to continue to the compensation window.

Note: If the ▶ arrow is not visible, one or more mandatory fields are missing data.

Depending upon the calibration method selected, you will have one of two windows for bringing in measurement data and compensating the CTP curves.

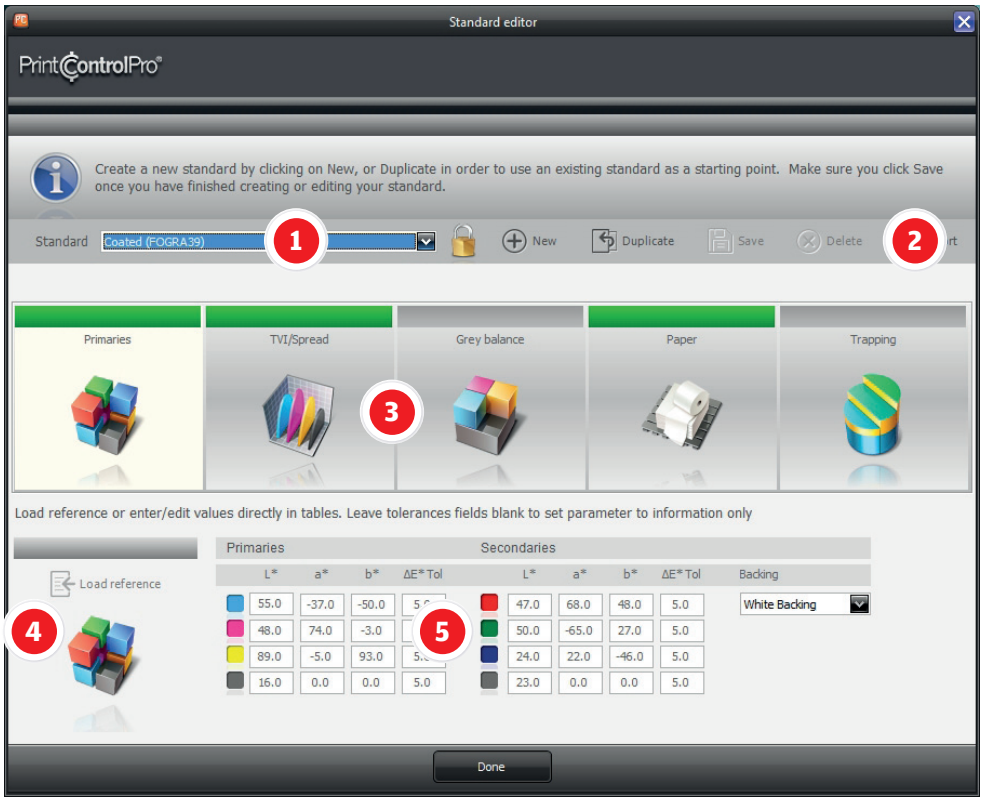
Section 4.7.1 explains the ISO (TVI) compensation window.

Section 4.7.2 explains the NPDC compensation window.

7. Standard editor

To create your own, as well as to edit currently used standards, click on the **Standard editor** button.

This will open the Standard editor window showing the print parameters for each standard.



1 **Standard** - lists all installed standards. PrintControl ships with the GRACoL 2006 specification, SWOP Grade 3 and 5, all PSO specifications for the different paper types as well as stochastic screening, and IFRA newspaper.

2 **Standard management buttons** - Click on **New** to create a new standard or **Duplicate** if you prefer to use the currently selected standard as a starting point. Default standards are locked (shown by padlock icon) and so they may not be modified. If you wish to make a small modification of a default standard, the best choice is to duplicate. In this case, all reference values and tolerances will be copied into the duplicated standard as well and you can edit from there.

Save will save changes, and **Delete** eliminates the standard. You may also **Export** a standard to be imported and used in RapidCheck.

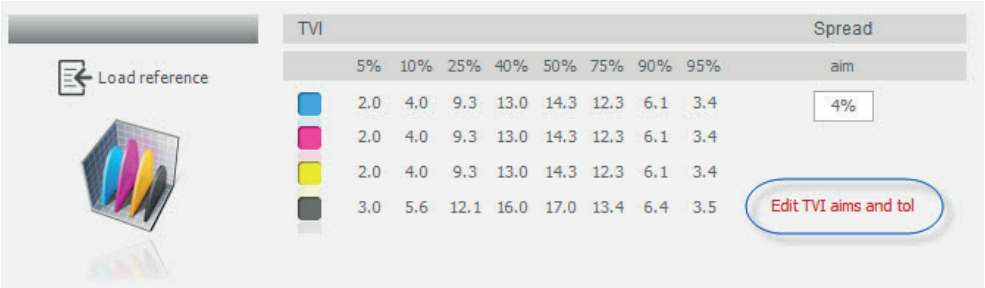
3 **Print parameters** - click on any panel to view or edit the values for that parameter. Display below will change with each parameter selected.

4 **Load reference** - opens dialog window to import reference values from a saved standard.

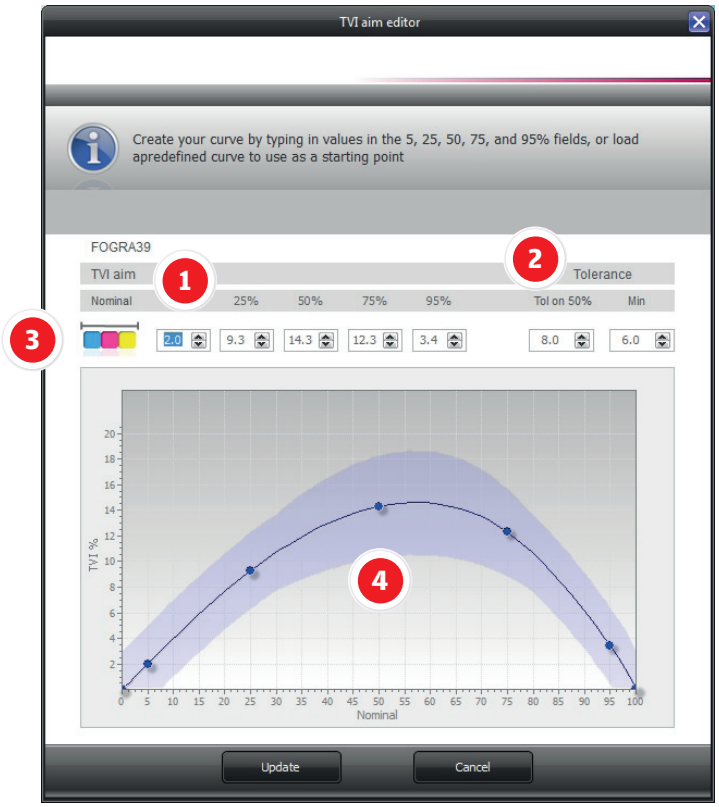
5 **Value tables** - lists the reference values and tolerance for the currently selected standard. Set these values with caution. Any tolerance left empty will set the parameter to information only status.

7.1 TVI Editor

When in the TVI/Spread panel, the values for reference and tolerance are listed in the table, but not in an editable format.



To edit the TVI values, click on **Edit TVI aims** button as shown above in the highlighted blue circle. This will open the TVI Editor.



1 **Nominal** - displays percentage values at 5%, 25%, 50%, 75%, and 95%. Set the desired tone value increase value in the spin boxes below each nominal. For example, if the total tone value at 5% should be 7% with dotgain included, enter 2% in the box. Changes will be updated in realtime in the graph below.

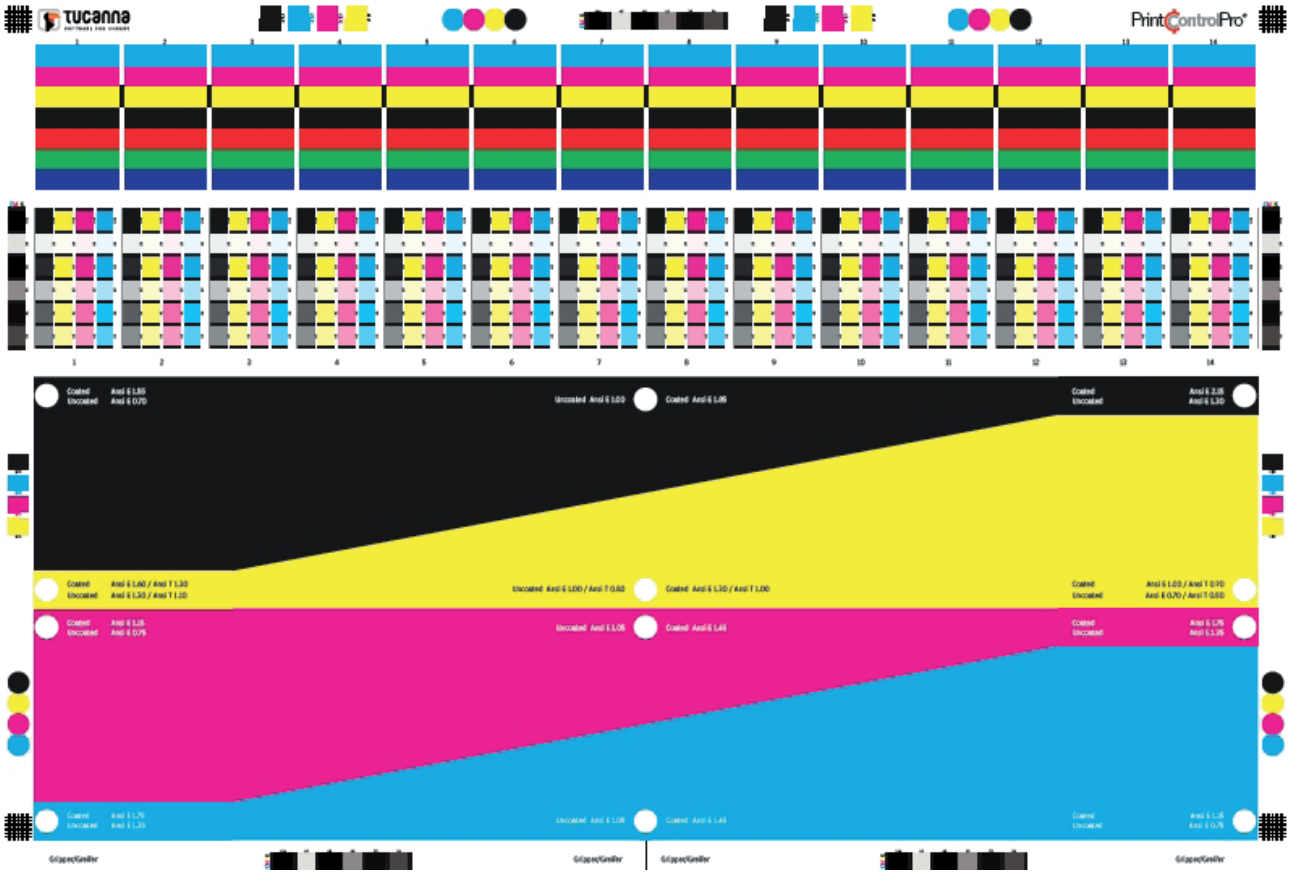
2 **Tolerance** - sets the tolerance for the midtone (50%), as well as highlights and shadows (Min). Include the total tolerance so that both negative and positive values are included. For example, a tolerance of +/- 3% is a total of 6% which is the value that should be added here.

3 **Color selector** - click to choose between CMY and K. CMY curves are always edited together.

4 **Graph** - displays the TVI curve (dark line) and the tolerance (shaded curve) for the selected color CMY or K.

Click **Update** once you have finished to return to the Standard editor.

8. Inking Testchart



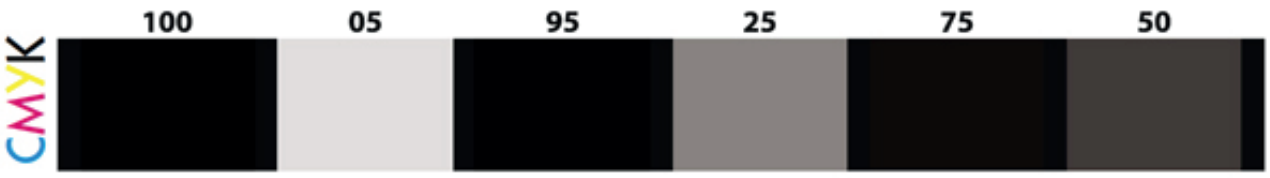
The Tucanna Inking Testchart has four main areas.

- Control elements
- Ink consumption triangles
- Solid patches
- TVI (Tone Value Increase) strips

8.1 Control elements

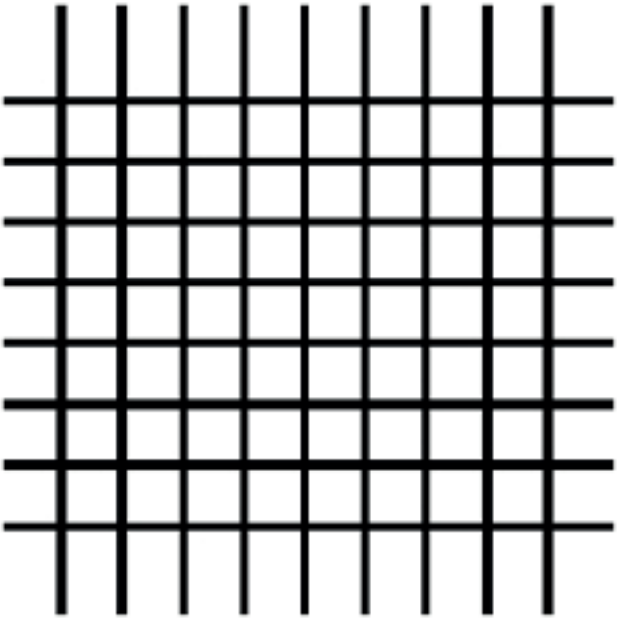
There are several different patches placed around the testform to ensure that it is printed correctly. Care should be taken to assess these patches visually as well as through measurement.

PlateCheck strips



You may use the Plates/Curves module to measure the printing plates, or they can be measured with your platemeter directly. The strip contains 55, 25%, 50%, 75%, and 95% patches. All values should be within 1.5% of the nominal value. If higher, it is recommended that you recalibrate the platesetter. There strip is also placed on different areas of the form in order to check the uniformity of the imaging and exposure systems. Make sure that patch measurements between strips located in different areas of the plates are within 1%.

Registration marks

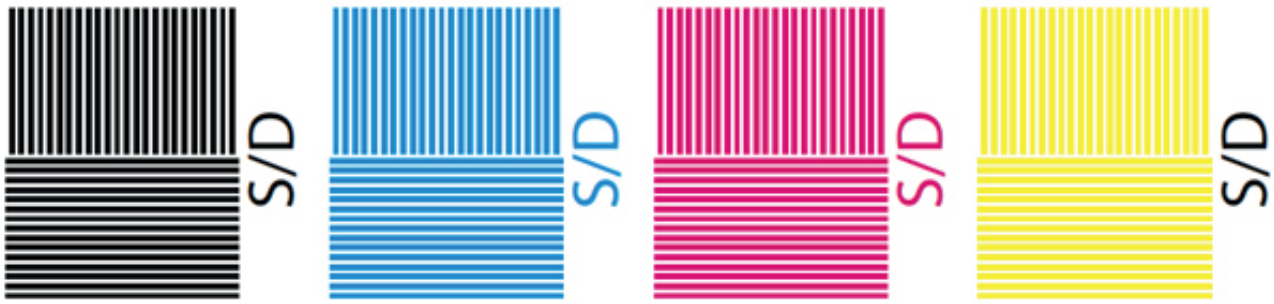


As you are printing the testform, check the registration on each of the four corners and adjust the printing machine if necessary.

Slur/Doubling visual

Check that the concentric circles are uniform and clearly defined. A wavy effect means slur and or doubling is present in the print, and should be resolved before proceeding.

Slur/Doubling measurement



You may use RapidCheck to measure the vertical and horizontal slur/doubling patches. If slur/doubling is present, make sure you adjust the press before proceeding with the print.

8.2 Ink consumption triangles

The inking testform must to be printed with a wide density range for each color, and the consumption triangles will help you to achieve it. The target densities for coated and uncoated papers are marked on the testform, but for any susbstrate, the procedure is the same. In the center of the sheet, print with the normal densities used until now for this particular paper. Towards the point of the triangle (direction changes for each color), increase density gradually so that at the peak, it is .3D higher than in the center. Conversely, towards the base of the triangle, decrease the density gradually so that at the base, it is .3D lower than in the center. Make sure the density across the sheet is increasing gradually, giving a well-balanced ink coverage, avoiding sharp and abrupt density changes.

8.3 Solid patches

Use the CMYK patches to take readings during the press run. Once you have achieved the full density range for each color, the sheet is ready to be measured in PrintControl. You will receive more information regarding how to read all CMYK and RGB patches in the Inking testform step of the wizard.

8.4 TVI strips

As the testform is printed with the full range of densities, you will have the tone value increase for each primary color at all possible printing densities. You will receive more information regarding which strip to measure, as well as how to measure it, in the CTP compensation step.

9. Verification testchart

Testcharts

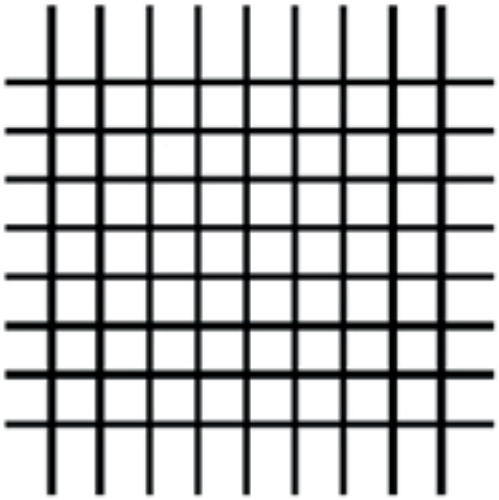
There are two testcharts which are used depending upon the calibration method selected in the Job management window. At this point, users of the TVI method will measure TVI strips from the TVI testform, while G7 NPDC users will be importing P2P measurements from the NPDC testform. In either case, the testform should be printed as uniformly as possible using the optimal densities indicated in PrintControl.

Both testforms have two parts in common:

- Control elements
- Reference images

9.1 Control elements

Registration marks



As you are printing the testform, check the registration on each of the four corners and adjust the printing machine if necessary.

Slur/Doubling visual

Check that the concentric circles are uniform and clearly defined. A wavy effect means slur and or doubling is present in the print, and should be resolved before proceeding.

Do not use this testform in PrintControl to compensate the printing plates or for visual analysis if either of these two parameters display any problems.

9.2 Images

Four images are repeated on each testform for visual assessment. Once your compensation curves are correct or nearly so, it is recommended that you print this testform on a calibrated proofing system in order to compare with the printed offset sheet. Be sure to use normalized lighting whenever doing a visual analysis.

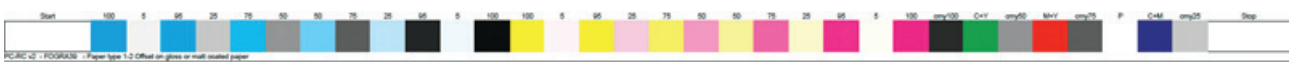
The difference between the TVI form and the NPDC form are the measurement elements.

TVI testform

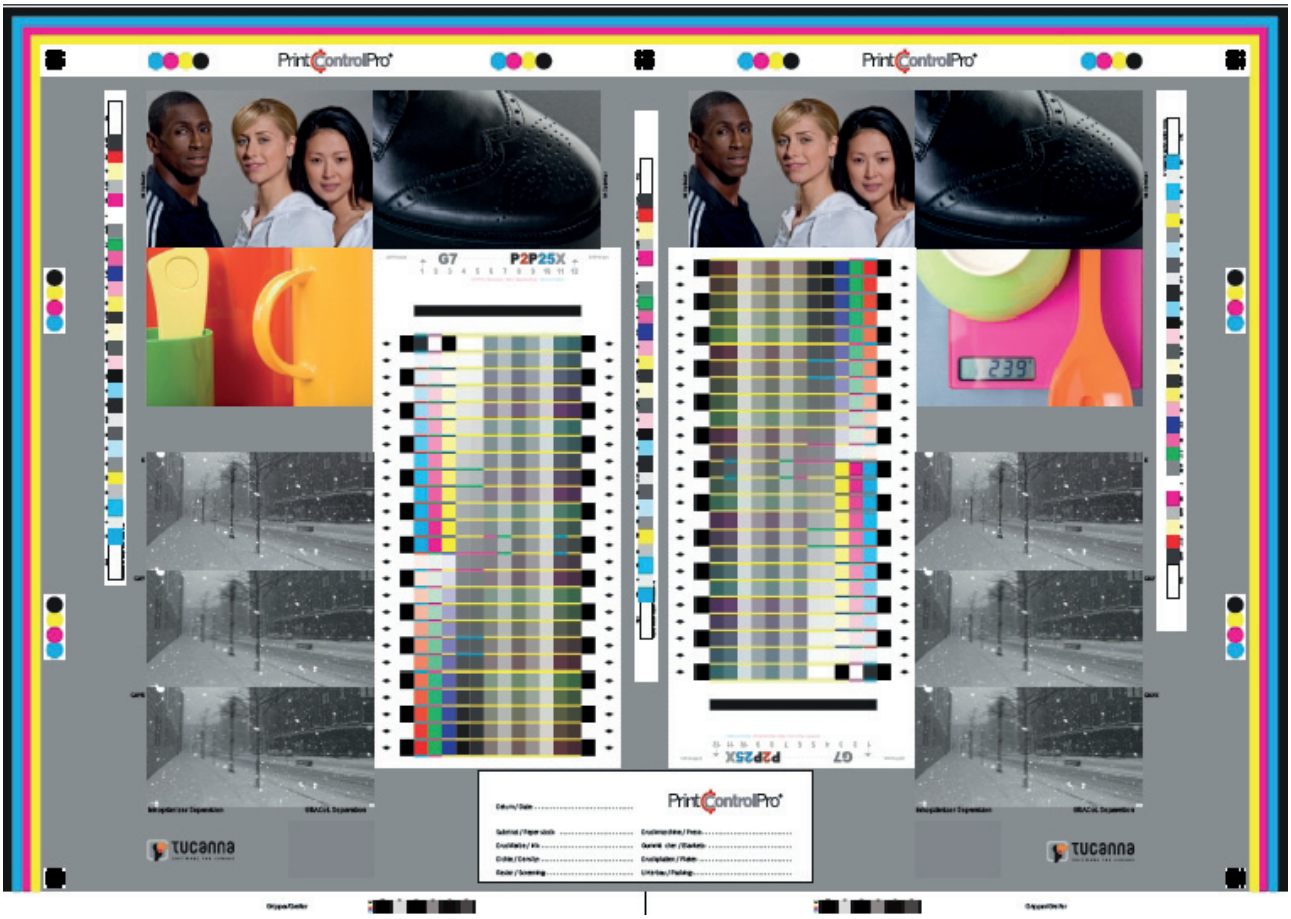
Control wedges

There are several wedges on the testform to enable averaging.

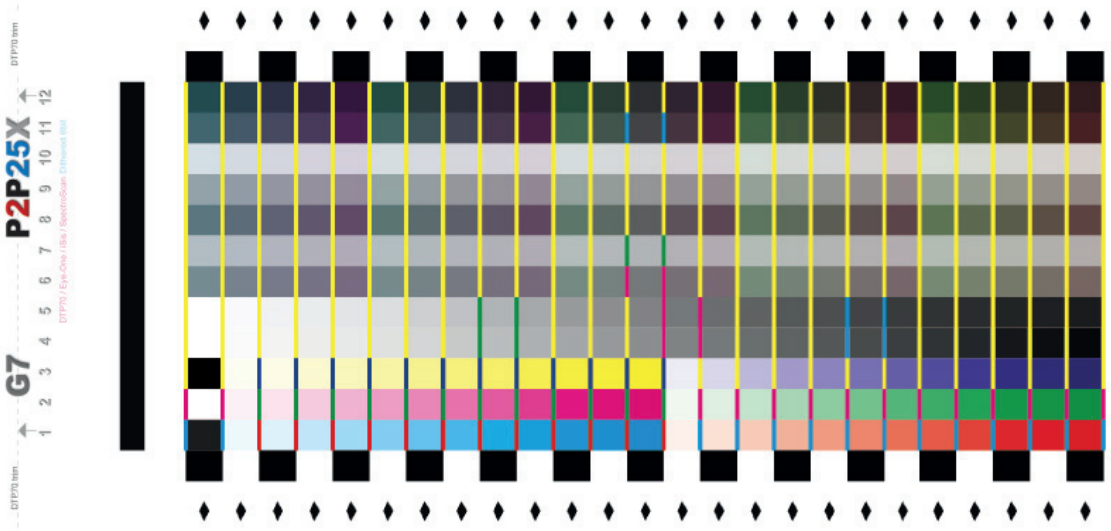
In PrintControl, you may take up to 8 measurements per job, either from the same sheet or from several sheets. Further information for measuring the strips will be displayed in the measurement window.



NPDC testform



P2P targets



There are two P2P targets on the testform to enable averaging. In PrintControl you may average up to 5 P2P measurements per job, either from the same sheet or from several sheets.

PrintControl imports CGATS 1.7 measurement files which have been exported from X-Rite Colorport or other similar measurement application.


TUCANNA
SOFTWARE FOR HUMANS