Agfa Calibrator 4.0

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Contents

Chapter 1 — Introduction

This chapter introduces you to Agfa's™ new Calibrator 4.0™ software and its documentation.

Preface

Agfa Calibrator 4.0 is a professional calibration package that linearizes your PostScript® printing devices. Agfa Calibrator 4.0 compensates output from imagesetters, laser printers and other printing devices against dot gain. You can also control tone rendering on imagesetters, color printers and black-and-white printers.

The development of new technologies, the standardization of existing technologies and the new way to use these technologies, have encouraged Agfa to create a new version of Agfa Calibrator.

- The appearance of PostScript Level 2 allowed for the use of PostScript "resources" such as fonts, halftone screens, transfer functions, color rendering dictionaries, etc. This new technology also opened the way for some major improvements in the PostScript calibration process.
- Thanks to the standardization and enhancement of PPD files (PostScript Printer Description files), and the availability of PostScript Level 2 drivers that use these PPD files, it became worthwhile to build applications that handle PostScript resources.
- The availability of AgfaSet 3.1 PostScript Administrator's Tool makes it possible to handle PostScript Level 2 resources in an easy way.
  AgfaSet 3.1, a resource-handling application, forms the core of Agfa's "satellite" approach to PostScript Level 2 resources.
  Agfa Calibrator 4.0, a resource-creating application, is one of the "satellites".
- With the use of more sophisticated software and hardware, the demand for several calibrations (screening-dependent calibrations, resolution-dependent calibrations, separation-dependent calibration, etc.) increased.
- Professionals also want to do more than just calibrate; they want to compensate for the difference between two processes by calibrating to a goal curve to obtain equal results for the two processes.

Although the new Agfa Calibrator 4.0 offers you many new possibilities, you will find that the application is even easier to use than it was before.

What's New?

When comparing the new Agfa Calibrator 4.0 with older versions, you will note several innovative changes:

- the use of PostScript Level 2 resources (Transfer Resources and Halftone Linked Transfer Resources),
- the use of standard Macintosh® printer drivers (Apple® LaserWriter 8.x and Adobe™ PSPrinter 8.x),
- the use of the new PPD file specifications (version 4.x),
- the use of Engine Description Files (EDF), compatible with the AgfaSet 3.1 PostScript Administrator's Tool,
- the use of dot percentages and densities,
- the use of goal curves for calibration and linearization,
- the use of TIFF files and text files to enter measurement data,
- an easy-to-use interface.

About This User's Guide

- Chapter 2 "The Essence of Calibration", helps you to decide how to use Agfa Calibrator 4.0 with different devices.
- Chapter 3, "Installation", describes how to install Agfa Calibrator 4.0.
- Chapter 4, "Using Agfa Calibrator 4.0", guides you through the application.
- Chapter 5, "Command Reference", is an alphabetical reference to all the elements that appear in the menu's and in the dialog boxes.
- Appendix A, "Text File", describes the file format for importing the measurements of the test page by way of a text file.
- Appendix B, "Scanning a Test Page", describes how to scan a test page for importing the measurements of the test page by way of a scanned TIFF file.
- Appendix C, "How Agfa Calibrator 4.0 Determines The Correct Calibration Curve", gives you detailed information on the calculation of the calibration curve. This can be useful if you want to do complex calibrations with different output devices in a chain.
- Appendix D, "Calibrate.EDF", describes how to use the adapted Calibrate.EDF files within AgfaSet 3.1.
- The Glossary explains a number of terms that are used in this user's guide.

Chapter 2 — The Essence of Calibration

This chapter provides general information that will allow you to decide how to use Agfa Calibrator 4.0 in the most efficient way.

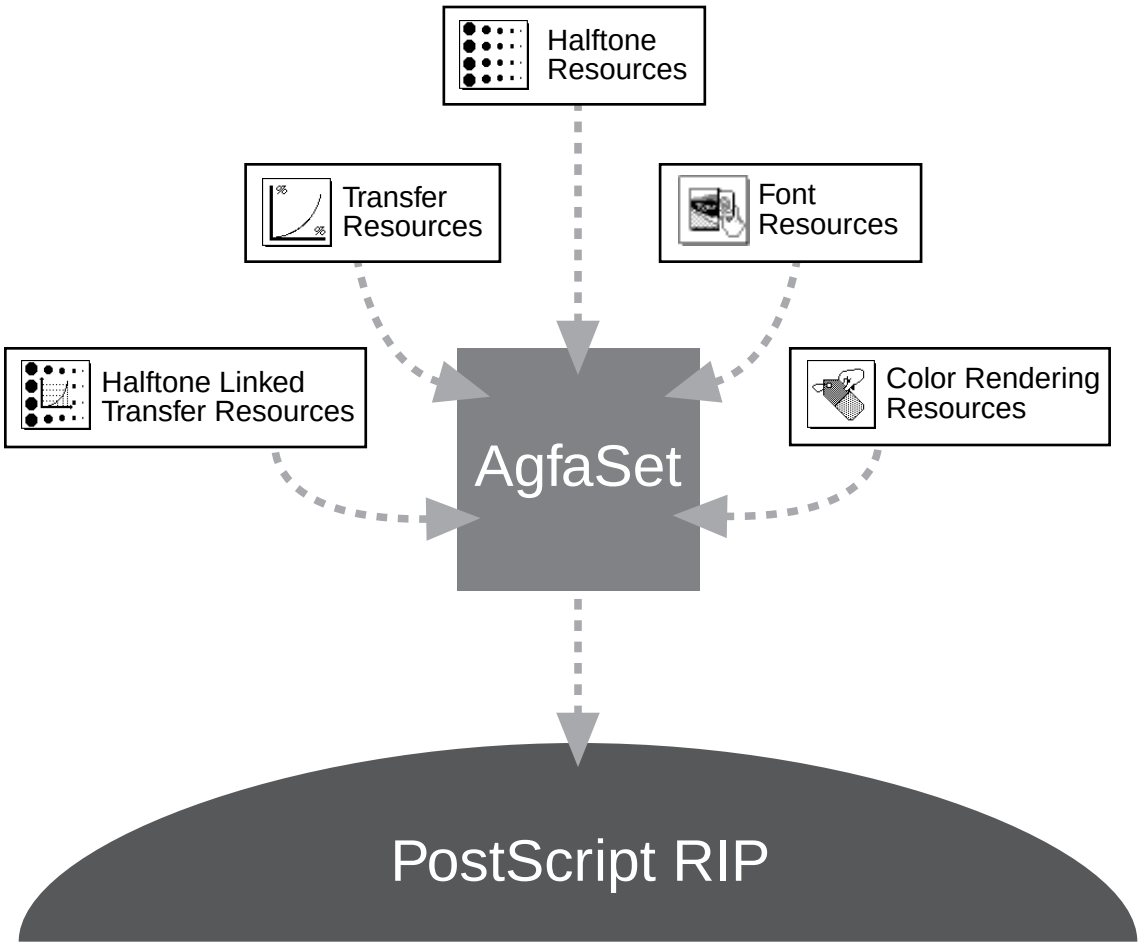
Agfa's Satellite Approach

Agfa's "satellite" approach consists of the development of one core application for the management of PostScript Level 2 resources and a series of "satellite"-applications for creation and editing of specific types of PostScript Level 2 resources. Agfa also provides ready-made sets of resources.

AgfaSet 3.1 PostScript Administrator's Tool, the core of this "satellite" approach, is a resource **management** application that allows the administrator to install and control the output environment from one workstation.
A PostScript RIP (Raster Image Processor) connects the output devices to the workstation. Both the settings of the PostScript RIP and of the output device engine can be modified by downloading PostScript Level 2 resources with AgfaSet 3.1.
AgfaSet 3.1 can download standard PostScript Level 2 resources like Font Resources or Form Resources, and custom Agfa PostScript Level 2 resources like Transfer Resources and Halftone Linked Transfer Resources.

Applications that let you **create** your own resources include Calibrator 4.0 (Transfer Resources and Halftone Linked Transfer Resources), FotoTune 2.0 (Color Rendering Dictionaries) and several third-party applications creating fonts, forms, etc.

Ready-made sets of resources include AgfaType (Font Resources), Agfa Balanced Screening (Halftone Resources) and Agfa CristalRaster (Halftone Resources).

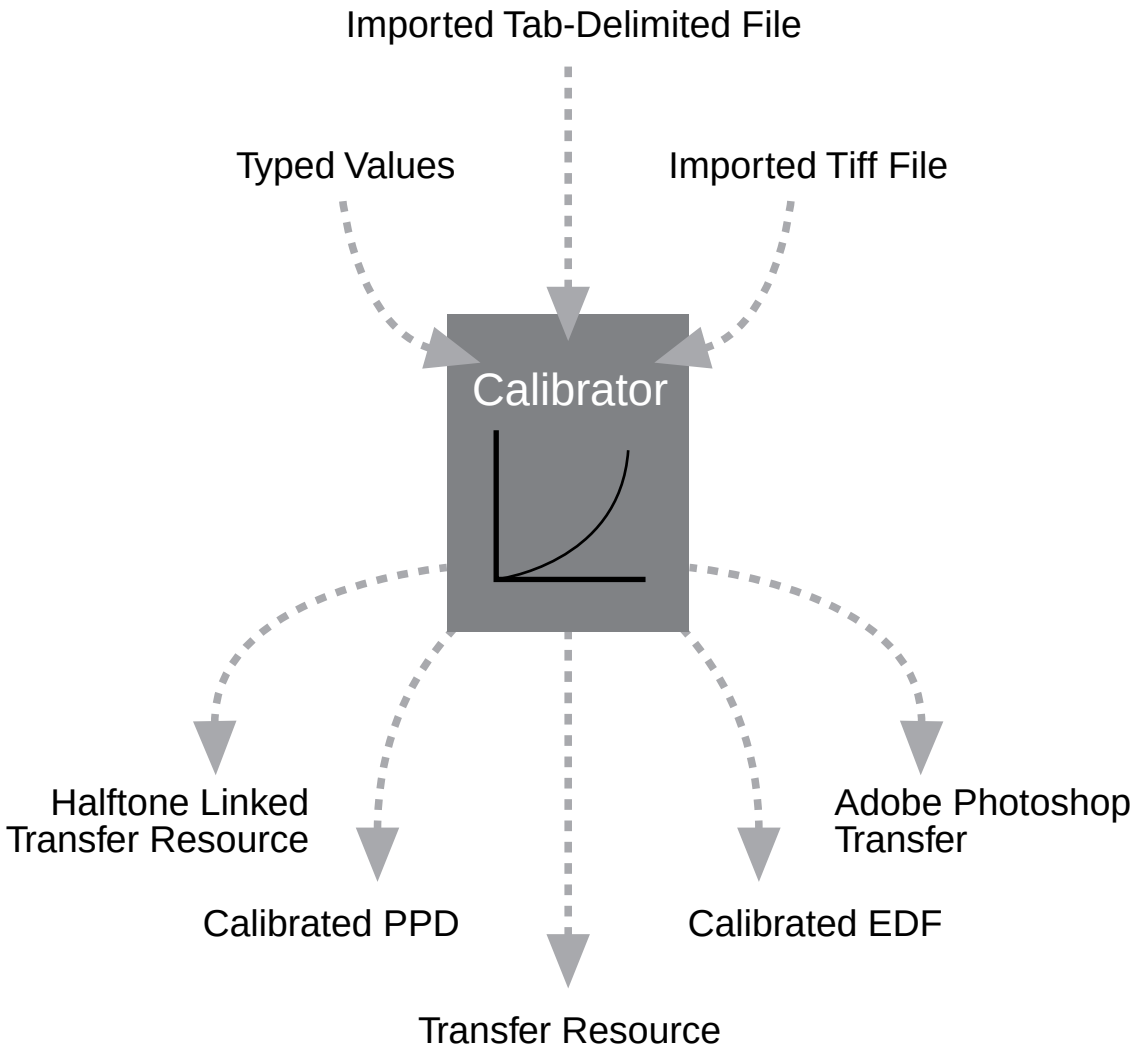


Calibrating Output Devices

Agfa Calibrator 4.0 supports a wide variety of work flows and equipment. This chapter will help you decide what is the best way to calibrate your output device.

Before you can start, you print the test page. The test page consists of a range of printed blocks with increasing tonal values.

You enter the measured density values or dot percentages of the printed test page by typing the values, importing a text file or importing a TIFF file.
Then you define the wanted density values or dot percentages. Normally, your goal will be to linearize the output device.
Agfa Calibrator 4.0 automatically calculates the curve that has to be applied to obtain these wanted values. The resulting calibration curve can be saved in different formats and applied to future printing jobs.



Input

Agfa Calibrator 4.0 offers you different options to enter the measured density values or dot percentages of a test page. Choose the one that corresponds best to the level of accuracy that you require.

- Typed Values
  If you use a traditional densitometer, measure each strip of printed blocks on the test page and type the density value or dot percentage in the corresponding box.
- Text File
  If you use an electronic densitometer that saves the values in a text file, measure each strip of printed blocks on the test page and import the text file. For more information, refer to Appendix A, “Text file”.
- Scanned Test Page
  If you use a scanner, scan the test page, save it as a TIFF file, and import the TIFF file. For more information, refer to Appendix B “Scanning a test page”.

Calibrating

Normally, your goal will be to linearize an output device. In some situations, you may want to obtain a different result, e.g. if you want to compensate for the difference between two printing processes. Agfa Calibrator 4.0 offers you different predefined goal curves for both situations. You can also type the values or import a text file or a TIFF file.

On the basis of your input values and your desired values, Agfa Calibrator 4.0 calculates a calibration curve that will assure you that you will always obtain the wanted density range.

Output

The resulting calibration curve can be applied to different file formats. Choose the one that corresponds best to your situation and your work flow. The most preferred possibility is presented first. If this is not possible in your situation or you have a special need, use one of the others.

- If you have a PostScript Level 2 RIP with Agfa’s PostScript Environment (PSE) 11.0 or higher and AgfaSet 3.1, you can use the Halftone Linked Transfer Resource, the most advanced solution.
- If you have a PostScript Level 2 printer with AgfaSet 3.1 and LaserWriter 8.2 or higher, you can use the Transfer Resource. It allows you to select a calibration curve for each job.
- If you use applications that utilize the transfer curve information in a PPD file, you can apply the calibration curve to the PPD file for your printer.
- If you want to load the transfer curve into Adobe Photoshop™, save the calibration curve as a Photoshop Transfer File.
- If you want to create a new default curve for your PostScript Level 1 or Level 2 printer, add the calibration curve to a list of transfer curves available in the Calibrate.EDF file and download it with AgfaSet 3.1.

Halftone Linked Transfer Resource

Halftone Linked Transfer Resources are used with the Agfa Screenfilter of the Agfa PostScript Environment on Agfa PostScript Level 2 RIPs. Creating a Halftone Linked Transfer Resource enables you to calibrate for each Screening Mode, Resolution, Line Ruling, Spot Function, and Angle combination. The mechanism allows you to calibrate with the utmost precision.

With Agfa Calibrator 4.0 you will generate a calibration file called a “Halftone Linked Transfer Resource”. In the name of that file you will find a reference to the resolution, screen ruling, screen angle, etc. This file must be installed on the Agfa PostScript RIP using AgfaSet 3.1. At printing time, the RIP will automatically apply the correct transfer curve to the requested halftone screen and will supersede any other supplied transfer curve, e.g. in a PPD file selected by the user.

This method provides a consistent and safe calibration. It is not influenced by any other supplied transfer curve. It will also automatically apply the corresponding transfer curve if a different resolution or halftone screen is requested. You have full control to build a library of transfer curves that are automatically applied to their linked halftone screens. Periodical fine-tuning of transfer curves can easily be done by installing a new Halftone Linked Transfer Resource for the specified halftone screen.

Transfer Resource

The Transfer Resource category is not part of the default Adobe PostScript language definition. If your printer does not have a Transfer Resource category installed, use AgfaSet 3.1 to create this category. If you don’t use PSE 11.0 or higher with your PostScript Level 2 printer, you will have to recreate the category each time you reboot the RIP.

Transfer Resources can be used on any PostScript Level 2 printer in combination with AgfaSet 3.1. With Agfa Calibrator 4.0 you generate a calibration file called a “Transfer Resource”. This file is installed on the printer using AgfaSet 3.1. Once loaded at the RIP, this Transfer Resource can be set as the default, or can be used on a job-by-job basis.

To adapt the PPD files, download the TransferTools ProcSet Resource that you find in the Calibrator folder to the ProcSet Category with AgfaSet 3.1. Then add references to all installed Transfer Resources. These PPD files are installed on each computer that will print to the device.
Using a PostScript printer driver that supports PPD setup, the user can select a corrected transfer resource that is applied at print time (Print Options dialog box). Therefore it is recommended that the resource name reflects the type of calibration, e.g. MyTxFer.150lpi.glossy.neg.

PPD

PPD files, which are supplied by the printer manufacturer, can be “directly” calibrated by Agfa Calibrator 4.0. Agfa Calibrator 4.0 is able to adapt the transfer curves for each of the screen descriptions contained in the PPD file. Some applications like PageMaker 5.0, Separator 5.0.1 or FreeHand 4.0 apply the transfer curve information to the corresponding halftone screen.

Photoshop Transfer File

Adobe Photoshop allows you to save transfer curves and load them at the appropriate time. Agfa Calibrator 4.0 is able to save transfer curves that can be loaded into Adobe Photoshop. There are two ways to load a transfer curve in Photoshop:

Under File/Page Setup/Transfer…:	the transfer curve is used at printing time or saved within an EPS file. The image file data is not changed.
Under Image/Adjust/Curves…:	the transfer curve is applied to the image file data. This use is not recommended, because the image file data is changed. This implies that the effect is added eventually to the effect of other elements. NOTE: This method may be appropriate for use with non-PostScript printers.

Although it is not recommended to include a transfer file within an EPS file, in some cases the page layout will require you to do so (e.g. different halftone screens in a single job). If the advanced system of Halftone Linked Transfer Resources cannot be used (e.g. on non-Agfa and PostScript Level 1 printers), the use of Photoshop Transfer Files can be suggested.

EDF

An Engine Description File is a scriptable tool file for use with AgfaSet 3.1. Agfa Calibrator 4.0 can add a transfer curve to a list of transfer curves available in the Calibrate.EDF file. You open the Calibrate.EDF file in AgfaSet 3.1 and select one of the available transfer curves to be downloaded to the printer. This transfer curve is then used as the default transfer curve for all subsequent jobs until the RIP is rebooted. This method can be used on both PostScript Level 1 and Level 2 printers.

Conclusion

If you know what type of input you will use (typed values, text file, TIFF file), what goal curve you want and what type of output you want to generate (Halftone Linked Transfer Resource, Transfer Resource, PPD file, Photoshop Transfer File, EDF), you are ready to use Agfa Calibrator 4.0. Only consult the chapters that concern your type of device.

If you want to apply the calibration curve to different file formats, make sure to start from the same situation and calibrate toward the same result.

CAUTION: If you want to use a PPD file and EDF simultaneously, the calibration effects will add up if you use LaserWriter 7. With LaserWriter 8 the problem does not occur (the PPD file overrides the EDF).

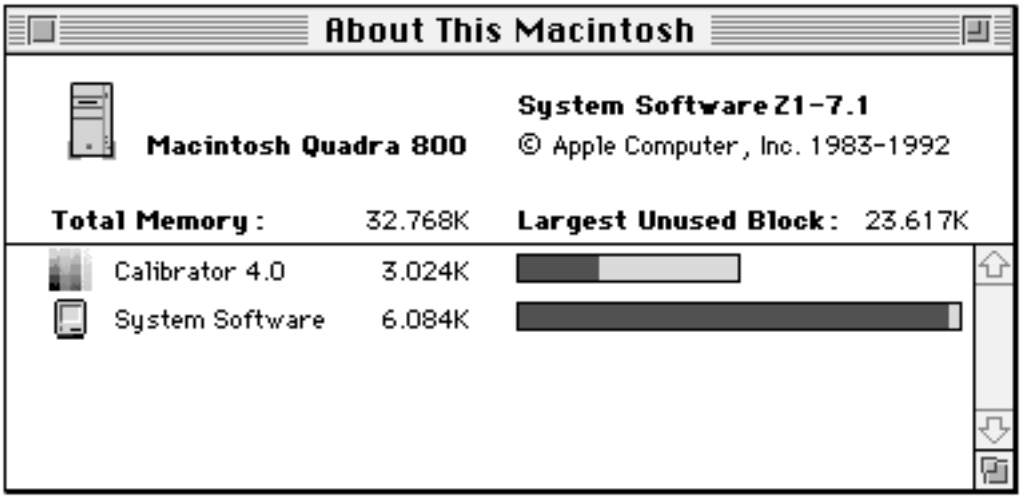
If you want to know more about how the calibration curve is calculated, refer to Appendix C “How Agfa Calibrator 4.0 Determines The Correct Calibration Curve”.

Chapter 3 — Installation

This chapter assists you in installing Agfa Calibrator 4.0.

Hardware Requirements

You need a Macintosh that supports System 7, 4 MB of RAM and 2 MB Largest Unused Block in About This Macintosh.



To measure the test page, you need a densitometer or a scanner (an Agfa scanner or any other scanner) that can scan the test page for your device and save it as a TIFF file:

- To measure a test page from a **black-and-white printer**, you need a black-and-white reflective densitometer or a scanner that can scan black-and-white reflective originals.
- To measure a test page from an **imagesetter** that produces **black-and-white film**, you need a black-and-white transmissive densitometer or a scanner that can scan black-and-white transparent originals.
- To measure a test page from an **imagesetter** that produces **black-and-white paper**, you need a black-and-white reflective densitometer or a scanner that can scan black-and-white reflective originals.
- To measure a test page from an **imagesetter** that produces **color separations**, you need a black-and-white transmissive densitometer or a scanner that can scan black-and-white transparent originals.
- To measure a test page from a **color printer**, you need a color reflective densitometer or a scanner that can scan color reflective originals.

Software Requirements

System 7.0 or higher is required to use Agfa Calibrator 4.0.

Installing Agfa Calibrator 4.0

The Agfa Calibrator 4.0 disk contains the Calibrator folder in which you will find the Calibrator 4.0 application and a Calibrate.EDF file.

1. Lock the disk. Slide the tab toward the outer edge of the disk (revealing a small hole).
2. Make a back-up copy of the disk.

   See the User's Guide of your system for information on how to make copies of disks. Keep the original disk in a safe place.
3. Insert the back-up disk in the disk drive of your Macintosh.
4. Copy the Calibrator Folder to your Macintosh.

   The Calibrator Folder contains the Agfa Calibrator 4.0 application, a Calibrate.EDF file, and TransferTools ProcSet Resource. The Calibrate.EDF file and the TransferTools ProcSet Resource are for use with AgfaSet 3.1 only.

Chapter 4 — Using Agfa Calibrator 4.0

This chapter guides you through Agfa Calibrator 4.0.

Calibration enables a printer or imagesetter to compensate against dot gain (excess density). This is also called “linearization”. It is important to linearize your printer to always obtain the same results. A stable system helps in better color reproductions.

Agfa Calibrator 4.0 allows you to linearize black-and-white printers, imagesetters in their different output modes, and color printers.

Before you begin the calibration process, you should verify that the DMax (Maximum Density) of your output device is properly set.

CAUTION: Make sure that the maximum density level of your output device is properly set.

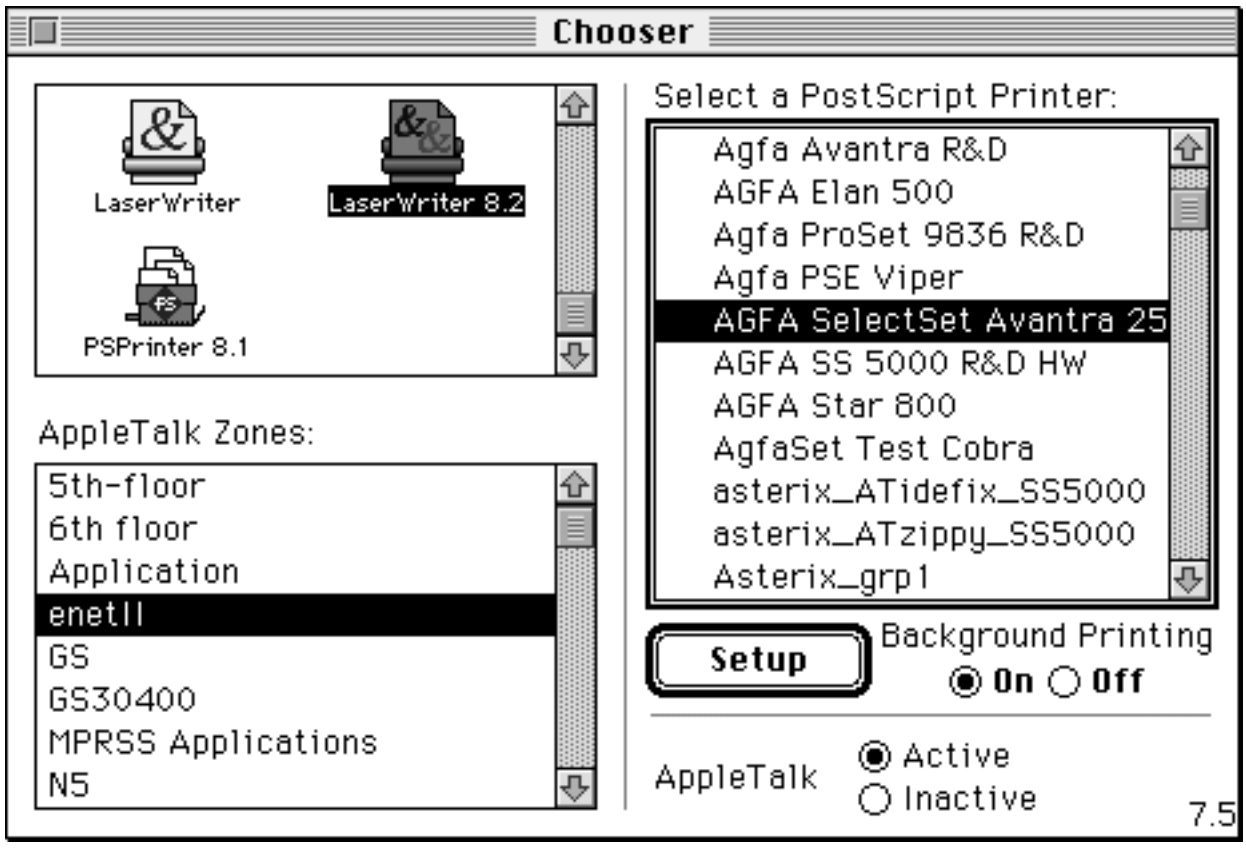
Maximum density settings that are too low will clear up the printed images, in those regions where calibration would be necessary. However, it will also prohibit dark areas from being reproduced dark enough.
Maximum density levels that are too high will blur the image in the very dark areas. Proper calibration will not be possible.
Apart from changes in environmental conditions like temperature and humidity, changes in the total density of your device often cause calibration curves to fail.
Refer to the user manuals of your printing devices to determine if the maximum density can be changed, and what the appropriate settings for your device are. In some cases the intervention of a service engineer may be necessary. Laser printers may or may not be adjustable with hardware changes or screw settings; imagesetters may be adjusted using control panel settings or tool files.

For color printers, density settings may differ from color to color.

Selecting the Printer

1. Choose Chooser from the Apple (🍎) menu.

   The Chooser dialog box appears.



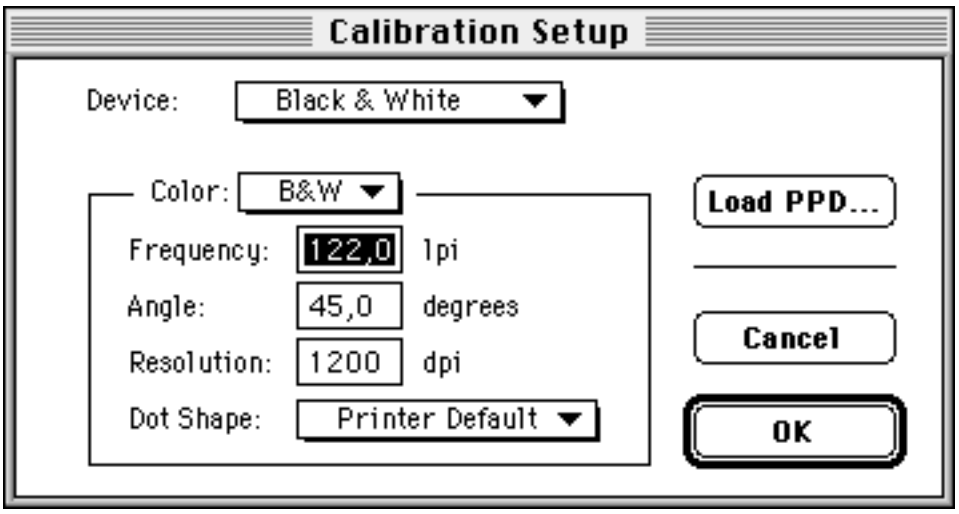
2. Select the printer driver that you want to use, the AppleTalk zone in which the printer is located and the printer that you want to calibrate.
3. Close the Chooser dialog box.

   The printer that you selected will be used to print a test page.

Starting Agfa Calibrator 4.0

1. Open Agfa Calibrator 4.0.

   The Calibration Setup dialog box appears.



Calibrating a Black-and-White Printer or Imagesetter

- To calibrate a black-and-white printer or imagesetter, choose Black & White from the Device pop-up menu.

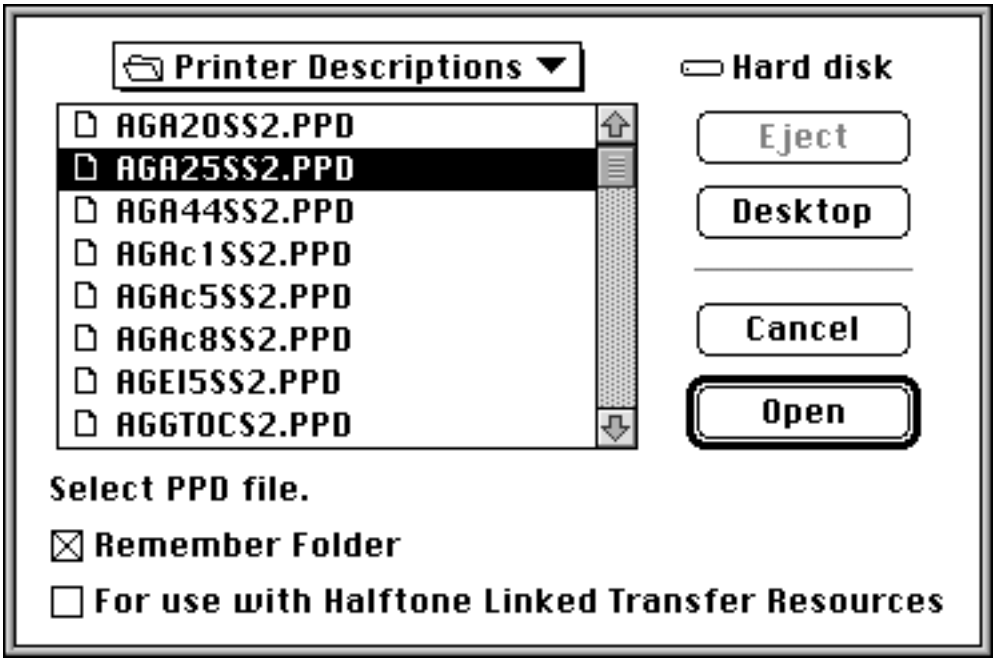
You can load the appropriate PPD file to use the settings suggested by the manufacturer. You can also type the settings for which you want to calibrate.

Loading a PPD file

You can use the settings that are suggested by the printer manufacturer as a starting point for your calibration.

1. Click Load PPD.

   An Open dialog box appears.



2. Select the appropriate PPD file.

   Normally, the PPD files are stored in the Printer Descriptions folder in the Extensions folder within the System Folder.

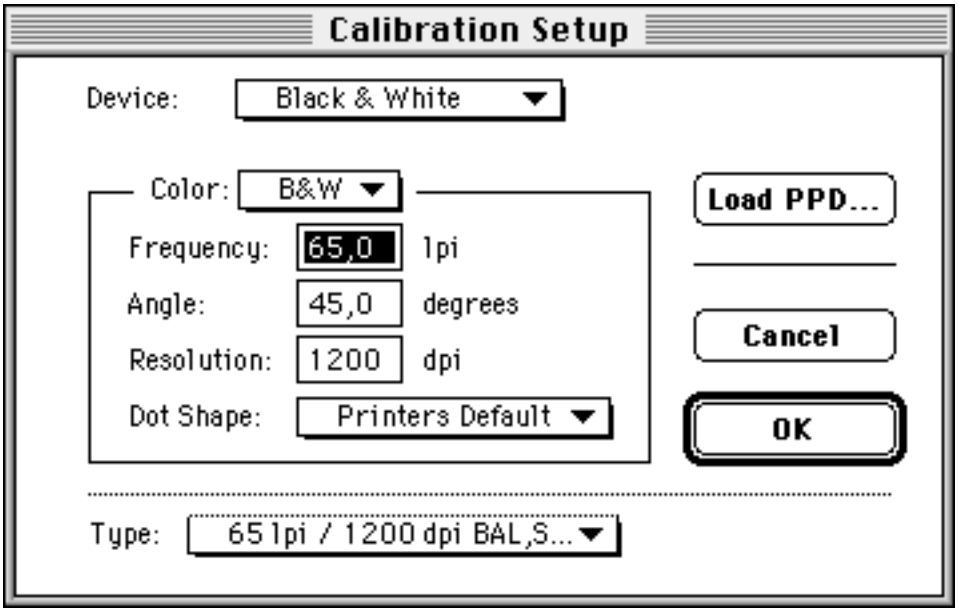
❖ Note: If you want to save the calibration curve as a Halftone Linked Transfer Resource, select “For use with Halftone Linked Transfer Resources”. This can only be used with Agfa’s PPD files delivered with PSE 11.0.

3. Click Open.

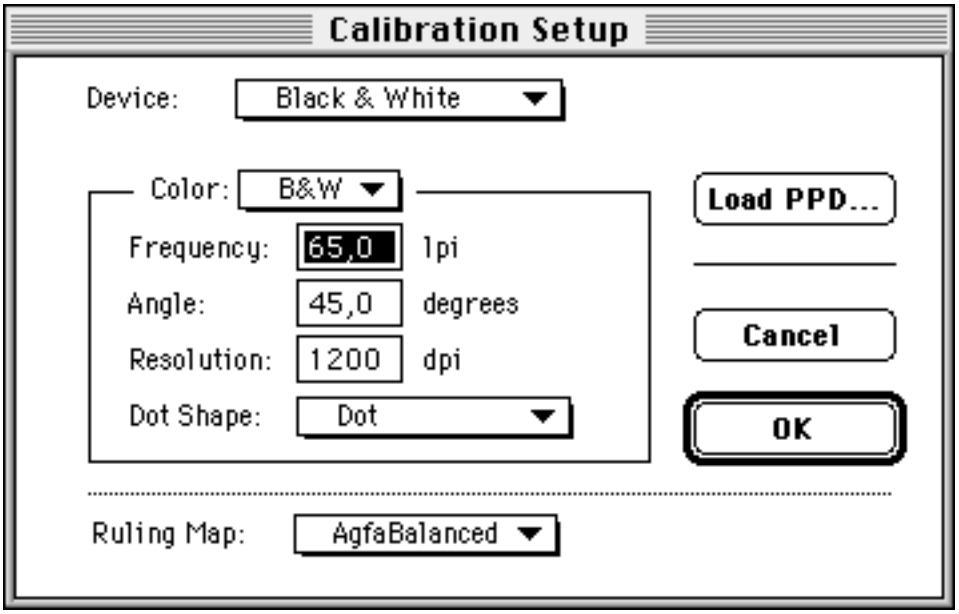
   The screening information of the selected PPD file appears in the Calibration Setup dialog box.

❖ Note: If more than one screen is available within the PPD, the first screen will be displayed.

If you did not select “For use with Halftone Linked Transfer Resources”, the Type pop-up menu appears in the Calibration Setup dialog box.



If you did select “For use with Halftone Linked Transfer Resources”, the Ruling Map pop-up menu appears in the Calibration Setup dialog box.



For more information about creating ruling maps, refer to the PSE documentation.

Defining the Calibration Settings

1. Select the combination of screen frequency and resolution for which you want to calibrate from the Type pop-up menu or the screening type from the Ruling Map menu.

   The Type pop-up menu gives you the suggested combinations as they are listed in the PPD file. For Black & White, select the combination that you use mostly. Because you can save only one transfer curve for Black & White, this will be the one that is used for all black-and-white output.

2. Choose the first element from the Color pop-up menu.

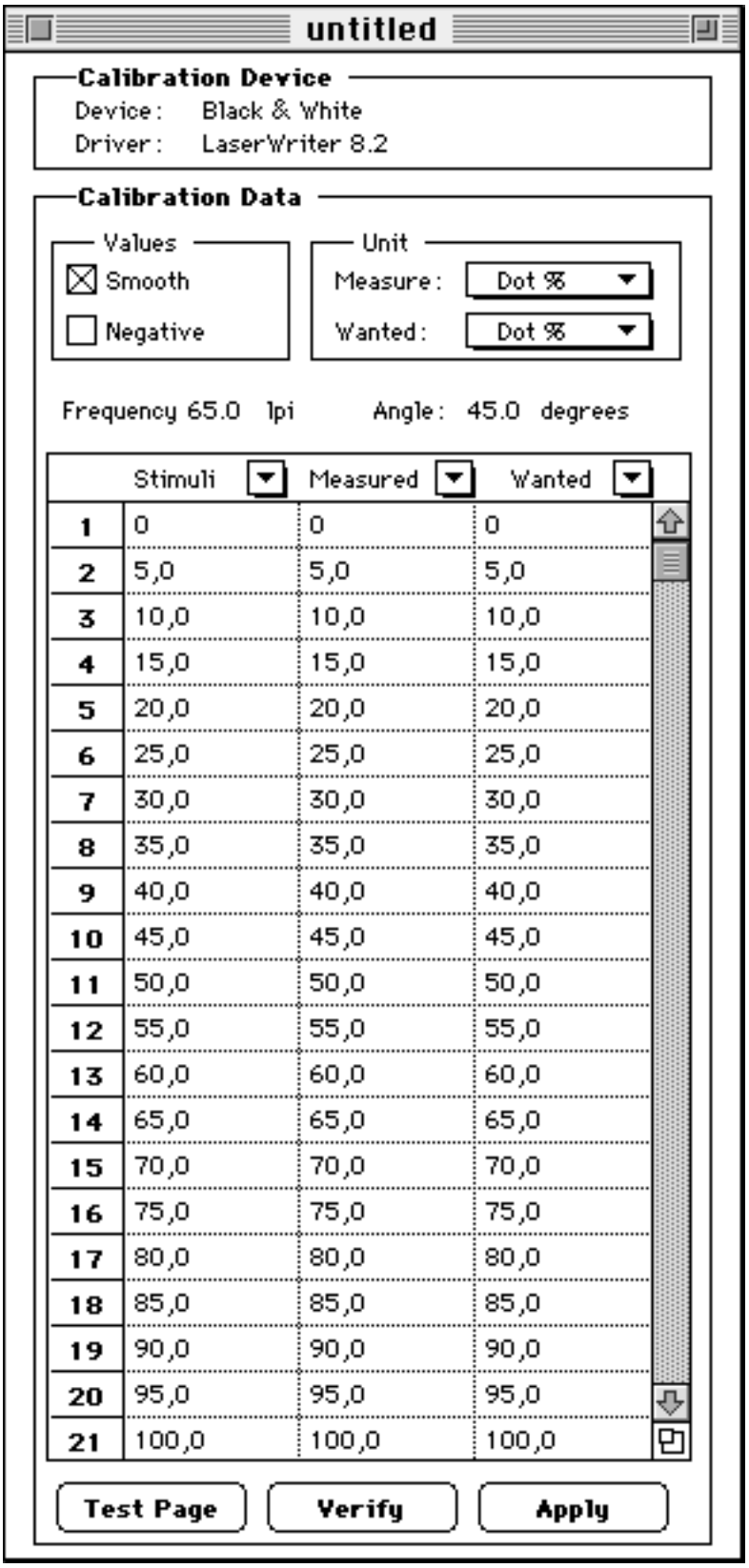
   If you loaded a PPD file, the suggested settings for the element you choose will appear.

   If you loaded a PPD file with “For use with Halftone Linked Transfer Resource” selected, the Color pop-up menu will contain only one item. You will have to repeat the calibration process for each angle.

   If you want to enter the settings manually, type the screen frequency, angle, resolution and choose the dot shape you wish to calibrate.

3. Click OK.

   A new document appears.


untitled
Calibration Device
Device: Black & White
Driver: LaserWriter 8.2
Calibration Data
Values
Smooth
Negative
Unit
Measure: Dot %
Wanted: Dot %
Frequency 65.0 lpi
Angle: 45.0 degrees
Stimuli
Measured
Wanted
1 0 0 0
2 5,0 5,0 5,0
3 10,0 10,0 10,0
4 15,0 15,0 15,0
5 20,0 20,0 20,0
6 25,0 25,0 25,0
7 30,0 30,0 30,0
8 35,0 35,0 35,0
9 40,0 40,0 40,0
10 45,0 45,0 45,0
11 50,0 50,0 50,0
12 55,0 55,0 55,0
13 60,0 60,0 60,0
14 65,0 65,0 65,0
15 70,0 70,0 70,0
16 75,0 75,0 75,0
17 80,0 80,0 80,0
18 85,0 85,0 85,0
19 90,0 90,0 90,0
20 95,0 95,0 95,0
21 100,0 100,0 100,0
Test Page
Verify
Apply

- To apply a smoothing algorithm to the final calibration curve, select Smooth.

  Smooth will transform the curve into a fluent line. If the resulting graph shows a steep curve, check the values that you entered and the settings of your output device. The steep curve can be the result of typing errors, values that are not monotonous rising, or measurement errors. If the problem persists, the steep curve is probably caused by the spline algorithm that is used to calculate the fluent line. Deselect Smooth to avoid the problem. We recommend that you fill in as many values as possible to make sure that you will still obtain the best possible result.

- To measure negative output, select Negative.

  If Negative is selected, the values in the column “Measured” have to be entered in reverse order (e.g. a low stimulus value corresponds to a high measured value). If you use a densitometer that reads negative values and converts the measurements to positive values, do not select Negative.

  - Note: The test page does not image as a negative. Negative should be set at the RIP or Engine prior to printing a test page.

- Choose the unit in which you want to enter the measured values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

- Choose the unit in which you want to enter the wanted values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

Printing a Test Page

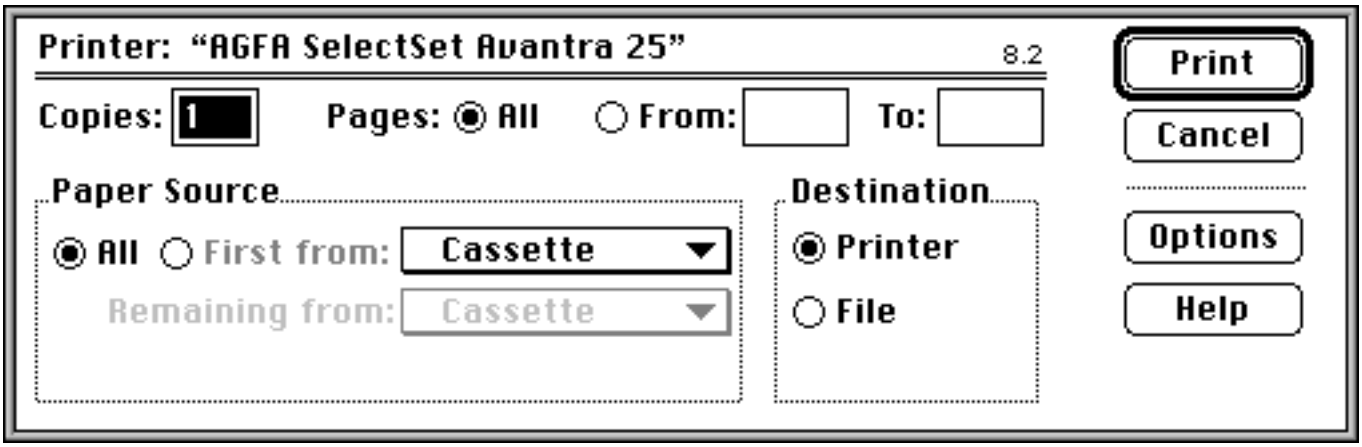
To calibrate a device, you first produce a test page. This test page allows you to define the difference between the stimuli values and the produced result.

1. Fill in the Stimuli values.

   The Stimuli values are printed on the test page. A normal linear distribution of the values appears automatically. If you want to calibrate a specific area more precisely, you can modify the values by typing new values or by using the pop-up menu. Make sure you always have 21 values.

2. Click Test Page.

   The Print dialog box appears.



3. Set all the options as you normally do and click Print.

   The test page will be printed on the printer that you selected in the Chooser. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a "standard" job (use the same developer, for the same developing time and temperature, etc.).

Measuring the Test Page

Once the test page is printed on paper or on film, there are different ways to enter the measured density values into Agfa Calibrator 4.0.

If you use a mechanical densitometer

- Measure each strip of printed blocks on the test page and type the value in the corresponding box in the Measured column.

If you use an automatic densitometer that creates a text file

1. Measure each strip of printed blocks on the test page and save the results in a text file.

   Make sure the file is in the appropriate format. Refer to Appendix A, "Text file", for more information.

2. Choose Import Text File from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.
4. Choose Densities or Dot % from the Import pop-up menu.
5. Click Open.

   The values appear in the Measured column.

If you use a scanner

1. Scan the test page and save it as a TIFF file.

   Make sure that the image is scanned correctly.
   Refer to Appendix B, “Scanning a Test Page”, for more information.

2. Choose Import Scanned Test Page from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.

4. Click Open.

   The values appear in the Measured column.

Creating the Calibration Curve

When linearizing a device, the stimuli values are reproduced exactly. Therefore, the predefined values for Stimuli and Wanted are set to “linear”.
Experienced users may want to go further and take into account the next steps in the printing process, e.g. the press gain of the printing press. If you want to produce the same result with different printing processes, you will also need a more complex calibration process. In either case it is best to linearize your device, before going any further. For more information about these advanced possibilities, consult Chapter 5, “Command Reference”, and Appendix C, “How Agfa Calibrator 4.0 Determines The Correct Calibration Curve”.

1. Choose Linear from the Wanted pop-up menu.

2. Choose Graph from the Calibrator Menu to see the graphical representation of the entered values.

   The graph gives you valuable feedback to track possible problems with the entered values or with the settings of your output device.

3. Click Verify.

   The Print dialog box appears. Set all the options as you would normally do. Make sure you use the same options as when printing the test page. Click Print to print the verification page. The verification page will be printed on the printer that you selected in the Chooser. The new calibration curve will be applied to the test page and the verification page will be printed. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a “standard” job (use the same developer, for the same developing time and temperature, etc.).

4. Measure the verification page.

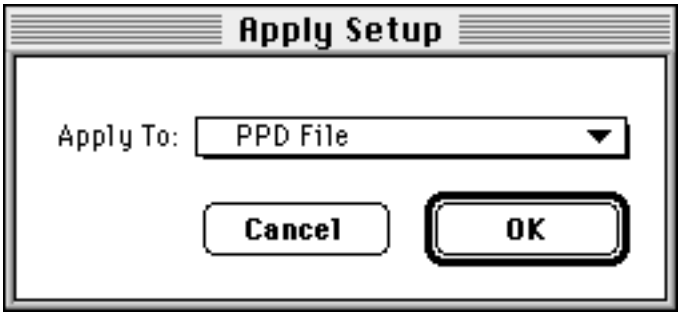
   This allows you to verify that the calibration curve based on the measured and wanted values, produces a linear result. If you are satisfied with the result, you can continue. If not, restart the procedure.

Saving the Calibration Curve

Once you are satisfied with the calibration curve, you can save it.

1. Click Apply.

   The Apply Setup dialog box appears.



2. Select the file format in which you want to save the calibration from the pop-up menu.

   - If you have a PostScript Level 2 RIP with Agfa's PostScript Environment (PSE) 11.0 or higher and AgfaSet 3.1, you can use the Halftone Linked Transfer Resource, the most advanced solution. You can only use this if you selected "For use with Halftone Linked Transfer resource" when you loaded the PPD.
   - If you have a PostScript Level 2 printer with AgfaSet 3.1 and LaserWriter 8.2 or higher, you can use the Transfer Resources. It allows you to select a calibration curve for each job.
   - If you use applications that utilize the transfer curve information in a PPD file, you can apply the calibration curve to the PPD file for your printer.
   - If you want to load the transfer curve into Adobe Photoshop, save the calibration curve as a Photoshop Transfer File.
   - If you want to create a new default curve for your PostScript Level 1 or Level 2 printer, add the calibration curve to a list of transfer curves available in the Calibrate.EDF file and download it with AgfaSet 3.1.

3. Click OK.

   The dialog that appears depends on the file format you selected.

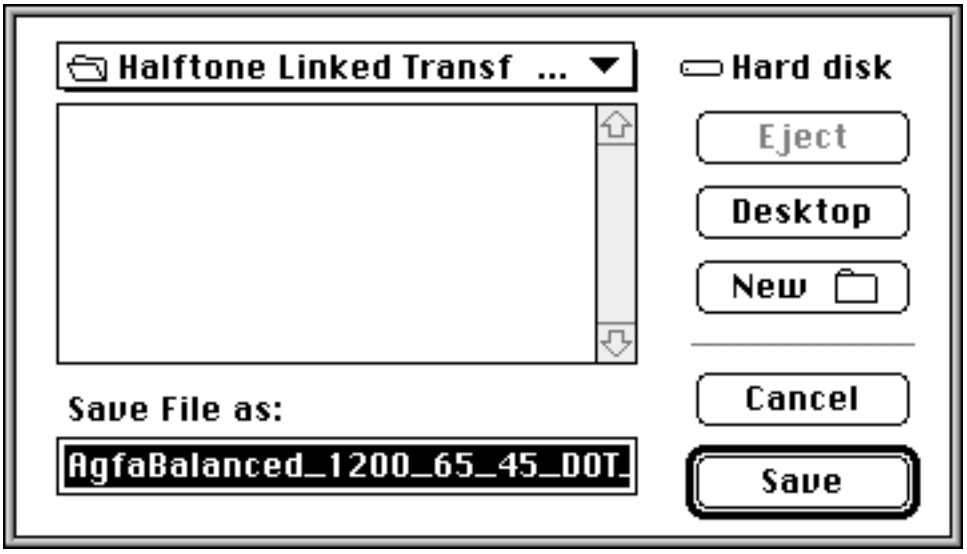
   Halftone Linked Transfer Resource

   Transfer Resource

   PPD File

   Photoshop Transfer File

   Calibrate.EDF



1. Type the name of the Halftone Linked Transfer Resource.

   This is the name of the Halftone Linked Transfer Resource as it will be saved on the Macintosh disk. This name is limited to 31 characters. The proposed name consists of the first 31 characters of the internal Halftone Linked Transfer Resource name. It is recommended to name the file with as much calibration information as possible. The internal name is the name as it will appear on the printer and is generated automatically.

2. Click Save.

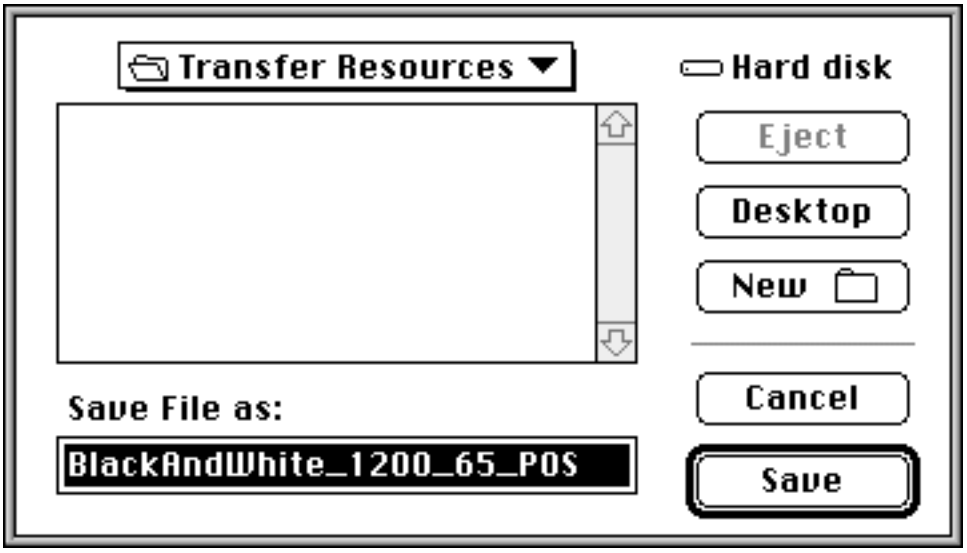
   The calibration curve is saved and the dialog box closes. Use AgfaSet 3.1 to download the Halftone Linked Transfer Resource to the RIP.

1. Type the name of the Transfer Resource.

   This is the internal name of the Transfer Resource as it will appear on the printer. It is recommended to name the file with as much calibration information as possible. It is not allowed to include spaces in this name.

2. Click OK.

   A Save As dialog box appears.

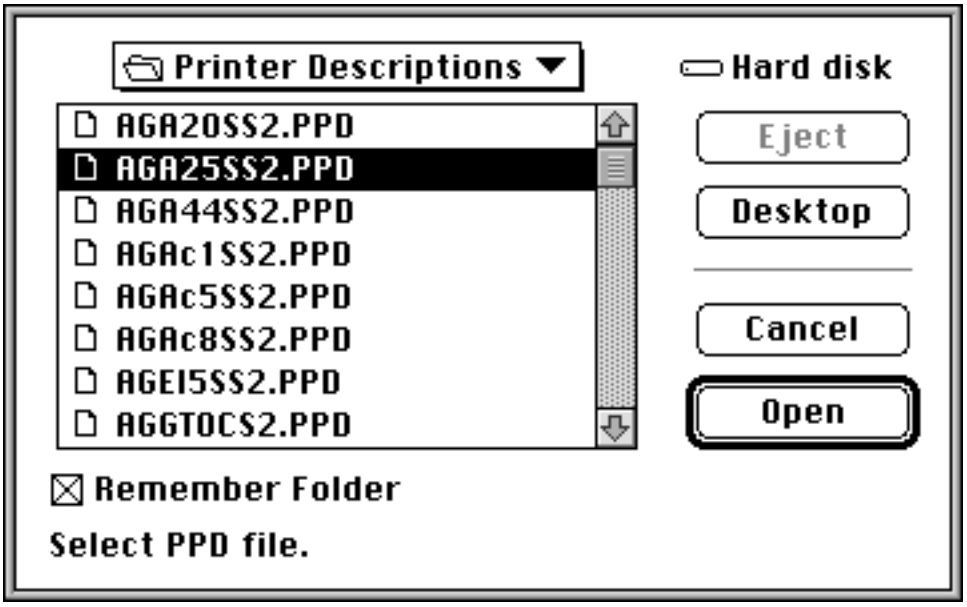


3. Type the name of the Transfer Resource.

   This is the name of the Transfer Resource as it will be saved on the Macintosh disk. This name is limited to 31 characters. The proposed name consists of the first 31 characters of the internal transfer resource name. It is recommended to name the file with as much calibration information as possible.

4. Click Save.

   The calibration curve is saved and the dialog box closes. Use AgfaSet 3.1 to download the Transfer Resource to the RIP.

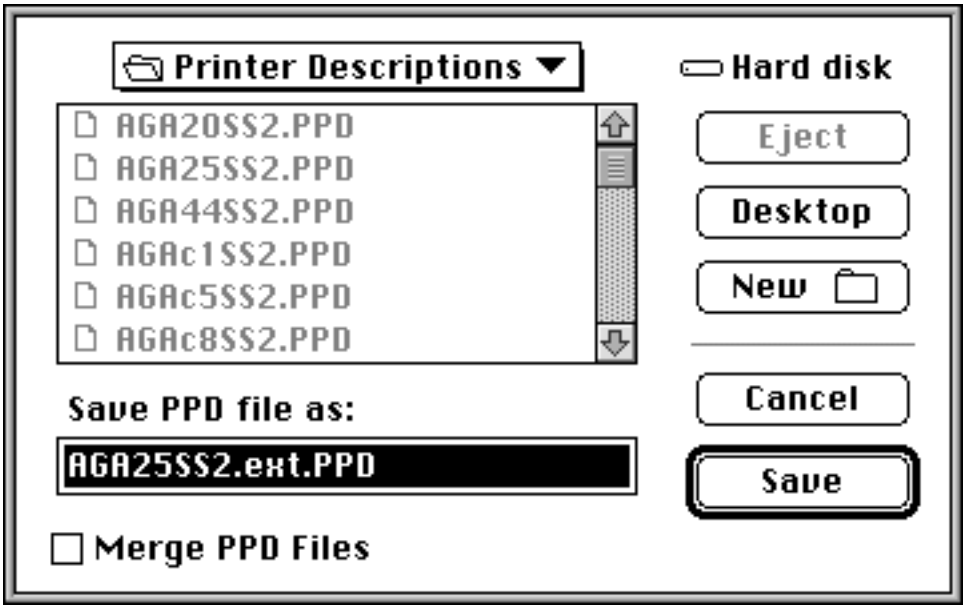


1. Select the PPD file in which you want to save the calibration curve.

   If you calibrated using an existing PPD file, you would normally select the same PPD file again.

2. Click Open.

   A Save As dialog box appears.



3. Type the name of the adapted PPD file.

   According to the PPD standards, a customized PPD file should be made by creating a new file, making the adaptations, and referencing the original PPD. This results in a 2-file PPD. However, this can generate some maintenance concerns, since 2 files must always be manipulated (e.g., when moving or copying the customized PPD file).

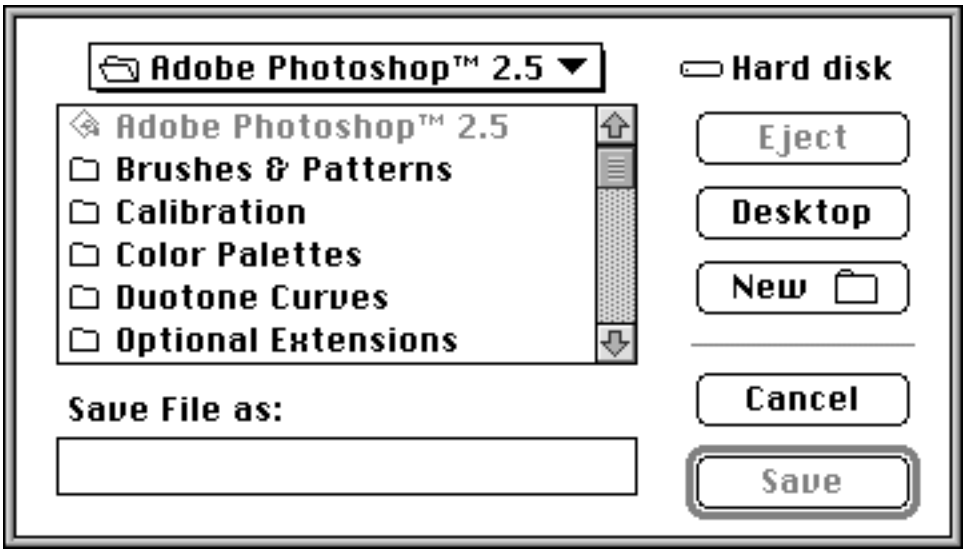
   The Merge PPD Files checkbox allows you to create 1-file customized PPD files. The original PPD is then included, instead of referenced, in the customized one. This always results in a single adapted PPD file which can be easily copied or moved.

   Note however, that when new original manufacturer's PPD files have to be installed, the 2-file approach has an advantage, since there is no need to repeat the adaptation process. With the single-file approach, the PPD customization must be redone.

4. Click Save.

   The calibration curve is saved and the dialog box closes. Copy the adapted PPD file to all Macintoshes that need it.

Photoshop Transfer File

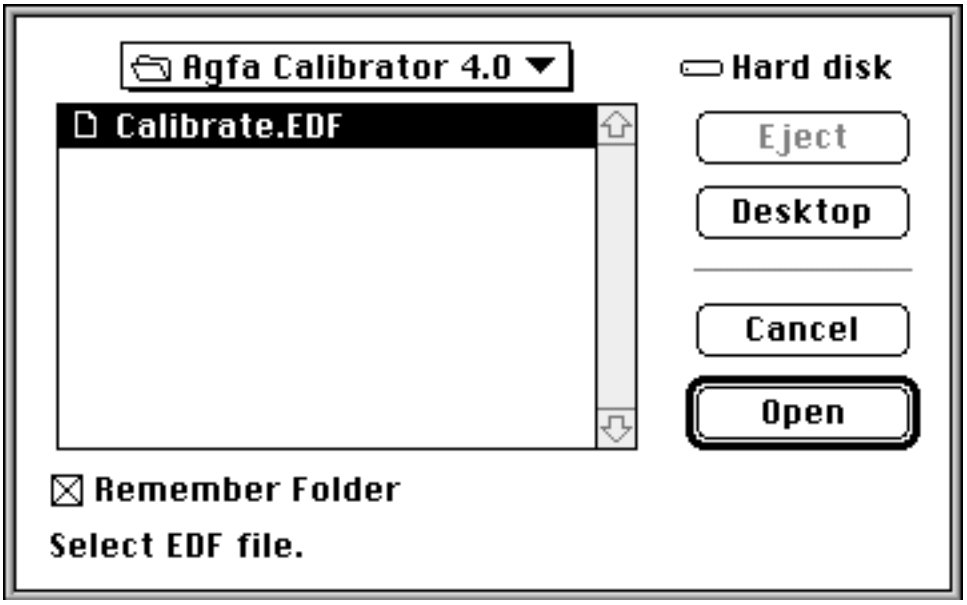


1. Type the name of the Photoshop transfer curve.

   It is recommended to name the file with as much calibration information as possible.

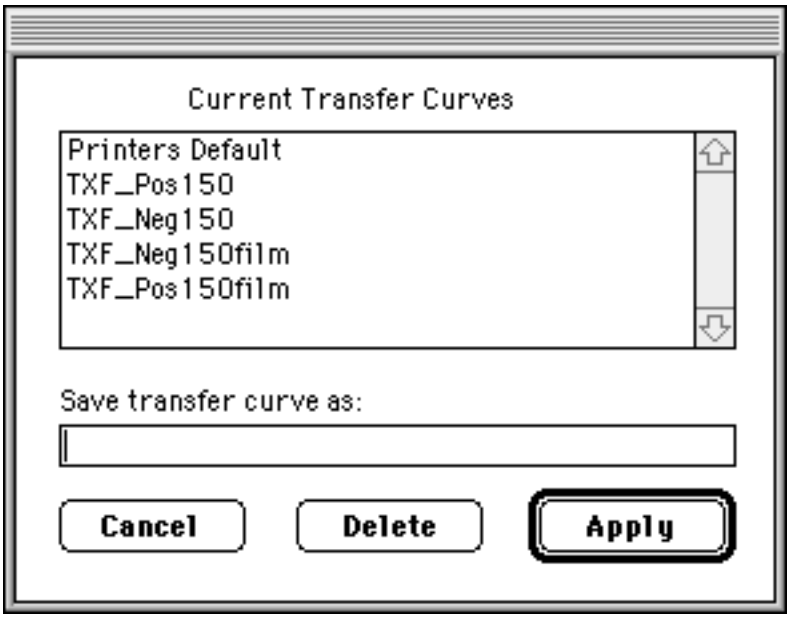
2. Click Save.

   The calibration curve is saved and the dialog box closes. Copy the transfer curve to all Macintoshes that need it.



1. Select the EDF file in which you want to save the calibration curve.
2. Click Open.

   The transfer curves already present in the EDF file are listed.



3. Type the name of the transfer curve.

   It is recommended to name the file with as much calibration information as possible. You can replace a transfer curve that is already present in the EDF file, by typing the same name as the existing one.

4. Click Apply.

   The transfer curve is included in the EDF file and the dialog box closes. Use AgfaSet 3.1 to download the Calibrate.EDF file to the RIP. Refer to Appendix D “Calibrate.EDF” for more information.

Calibrating an Imagesetter for Color Separations

- To calibrate an imagesetter for color separations, choose Color Separations from the Device pop-up menu.

❖ Note: Choose Composite Color for calibrating PostScript Level 2 devices that act like color printers, e.g. in-RIP separations.

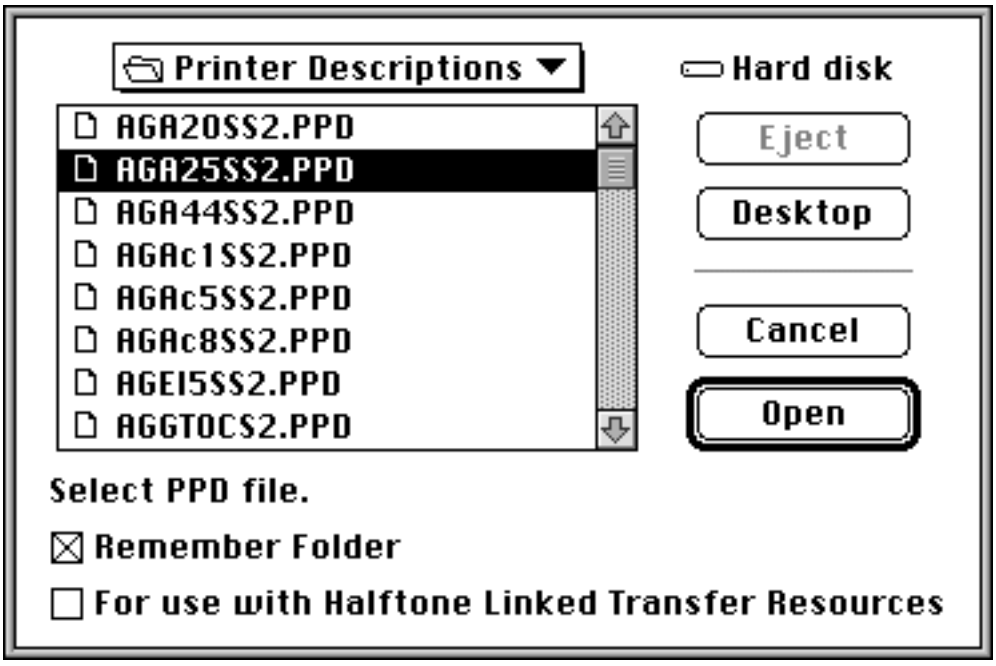
You can load the appropriate PPD file to use the settings suggested by the manufacturer. You can also type the settings for which you want to calibrate. You should go through the calibration procedure for each element in the Color pop-up menu, or for each angle if you selected “For use with Halftone Linked Transfer Resource”.

Loading a PPD File

You can use the settings that are suggested by the printer manufacturer as a starting point for your calibration.

1. Click Load PPD.

   An Open dialog box appears.



2. Select the appropriate PPD file.

   Normally, the PPD files are stored in the Printer Descriptions folder in the Extensions folder within the System Folder.

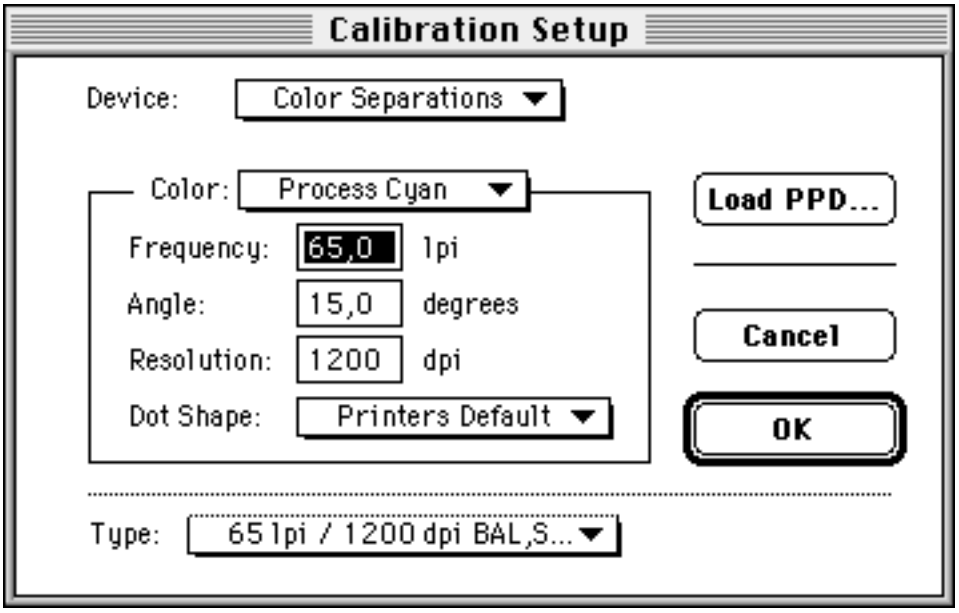
- Note: If you want to save the calibration curve as a Halftone Linked Transfer Resource, select “For use with Halftone Linked Transfer Resource”. This can only be used with Agfa’s PPD files.

3. Click Open.

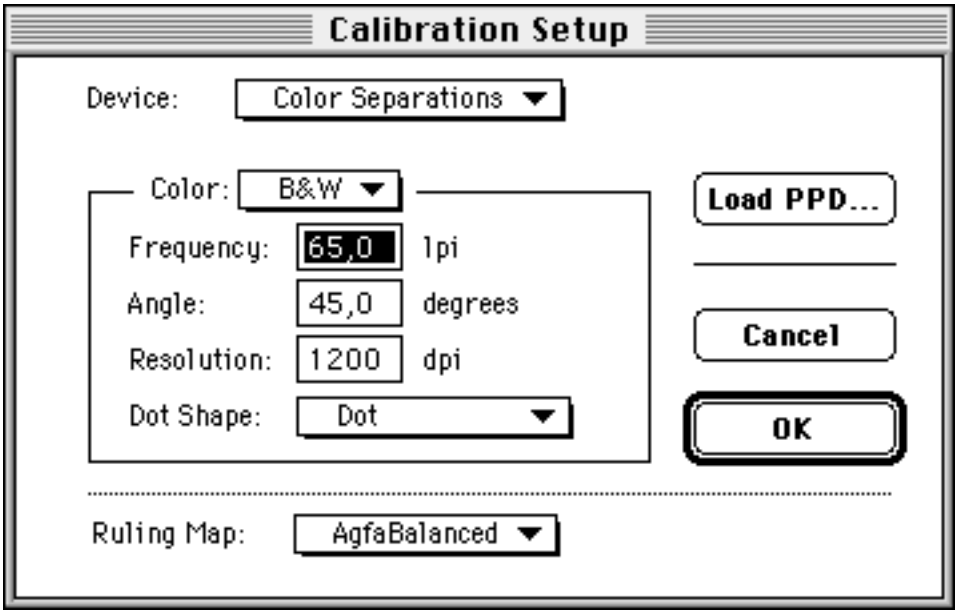
   The screening information of the selected PPD file appears in the Calibration Setup dialog box.

   - If more than one screen is available within the PPD, the first screen will be displayed.

If you did not select “For use with Halftone Linked Transfer Resources”, the Type pop-up menu appears in the Calibration Setup dialog box.



If you did select “For use with Halftone Linked Transfer Resources”, the Ruling Map pop-up menu appears in the Calibration Setup dialog box.



For more information about creating ruling maps, refer to the PSE documentation.

Defining the Calibration Settings

1. Select the combination of screen frequency and resolution for which you want to calibrate from the Type pop-up menu or the screening type from the Ruling Map menu.

   The Type pop-up menu gives you the suggested combinations as they are listed in the PPD file. For Color Separations, select the actual combination for which you want to calibrate.

2. Choose the first element from the Color pop-up menu.

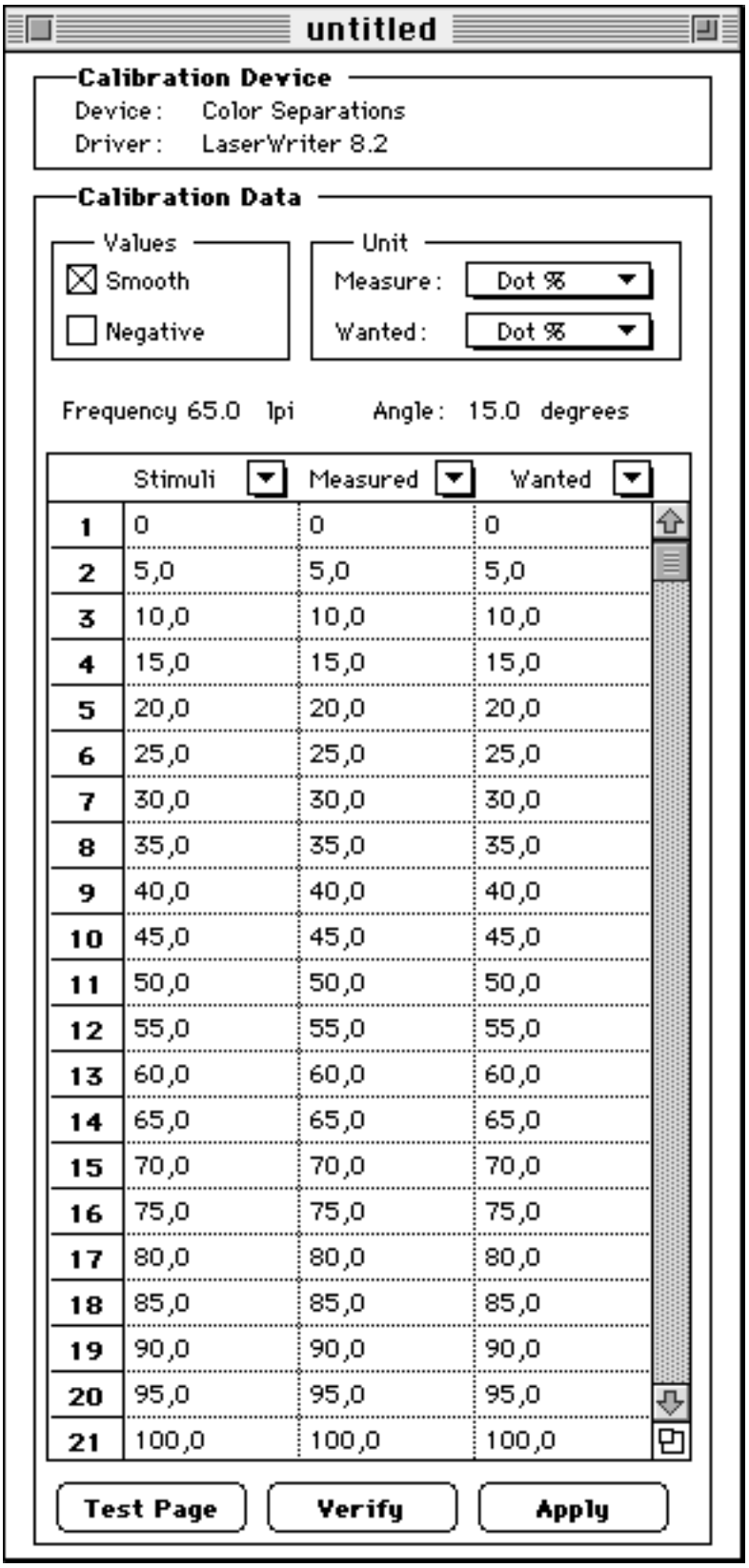
   If you loaded a PPD file, the suggested settings for the element you choose will appear.

   If you loaded a PPD file with “For use with Halftone Linked Transfer Resource” selected, the Color pop-up menu will contain only one item. You will have to repeat the calibration process for each item in the Color pop-up menu.

   If you want to enter the settings manually, type the screen frequency, angle, resolution and choose the dot shape you wish to calibrate.

3. Click OK.

   A new document appears.


untitled
Calibration Device
Device: Color Separations
Driver: LaserWriter 8.2
Calibration Data
Values
Smooth
Negative
Unit
Measure: Dot %
Wanted: Dot %
Frequency 65.0 lpi
Angle: 15.0 degrees
Stimuli
Measured
Wanted
1 0 0 0
2 5,0 5,0 5,0
3 10,0 10,0 10,0
4 15,0 15,0 15,0
5 20,0 20,0 20,0
6 25,0 25,0 25,0
7 30,0 30,0 30,0
8 35,0 35,0 35,0
9 40,0 40,0 40,0
10 45,0 45,0 45,0
11 50,0 50,0 50,0
12 55,0 55,0 55,0
13 60,0 60,0 60,0
14 65,0 65,0 65,0
15 70,0 70,0 70,0
16 75,0 75,0 75,0
17 80,0 80,0 80,0
18 85,0 85,0 85,0
19 90,0 90,0 90,0
20 95,0 95,0 95,0
21 100,0 100,0 100,0
Test Page
Verify
Apply

- To apply a smoothing algorithm to the final calibration curve, select Smooth.

  Smooth will transform the curve into a fluent line. If the resulting graph shows a steep curve, check the values that you entered and the settings of your output device. The steep curve can be the result of typing errors, values that are not monotonous rising, or measurement errors. If the problem persists, the steep curve is probably caused by the spline algorithm that is used to calculate the fluent line. Deselect Smooth to avoid the problem. We recommend that you fill in as many values as possible to make sure that you will still obtain the best possible result.

- To measure negative output, select Negative.

  If Negative is selected, the values in the column “Measured” have to be entered in reverse order (e.g. a low stimulus value corresponds to a high measured value). If you use a densitometer that reads negative values and converts the measurements to positive values, do not select Negative.

  - Note: The test page does not image as a negative. Negative should be set at the RIP or Engine prior to printing a test page.

- Choose the unit in which you want to enter the measured values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

- Choose the unit in which you want to enter the wanted values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

Printing a Test Page

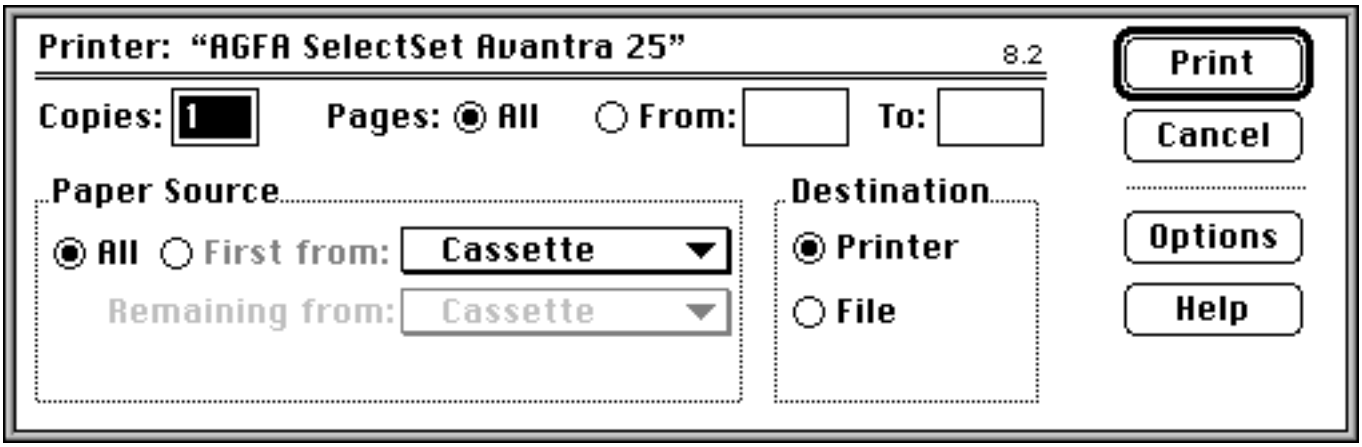
To calibrate a device, you first produce a test page. This test page allows you to define the difference between the stimuli values and the produced result.

1. Fill in the Stimuli values.

   The Stimuli values are the values that will be printed on the test page. A normal linear distribution of the values appears automatically. If you want to calibrate more precisely a specific area, you can modify the values by typing new values or by using the pop-up menu. Make sure you always have 21 values.

2. Click Test Page.

   The Print dialog box appears.



3. Set all the options as you normally do and click Print.

   The test page will be printed on the printer that you selected in the Chooser. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a "standard" job (use the same developer, for the same developing time and temperature, etc.).

Measuring the Test Page

Once the test page is printed on paper or on film, you have different possibilities to enter the measured density values into Agfa Calibrator 4.0.

If you use a mechanical densitometer

- Measure each strip of printed blocks on the test page and type the value in the corresponding box in the Measured column.

If you use an automatic densitometer that creates a text file

1. Measure each strip of printed blocks on the test page and save the results in a text file.

   Make sure the file is in the appropriate format. Refer to Appendix A, "Text file", for more information.

2. Choose Import Text File from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.
4. Choose Densities or Dot % from the Import pop-up menu.
5. Click Open.

   The values appear in the Measured column.

If you use a scanner

1. Scan the test page and save it as a TIFF file.

   Make sure that the image is scanned correctly.
   Refer to Appendix B, “Scanning a Test Page”, for more information.

2. Choose Import Scanned Test Page from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.

4. Click Open.

   The values appear in the Measured column.

Creating the Calibration Curve

When linearizing a device, the stimuli values are reproduced exactly. Therefore, the predefined values for Stimuli and Wanted are set to “linear”.Experienced users may want to go further and take into account the next steps in the printing process, e.g. the press gain of the printing press. If you want to produce the same result with different printing processes, you will also need a more complex calibration process. In either case it is best to linearize your device, before going any further. For more information about these advanced possibilities, consult Chapter 5, “Command Reference”, and
Appendix C, “How Agfa Calibrator Determines The Correct Calibration Curve”.

1. Choose Linear from the Wanted pop-up menu.

2. Choose Graph from the Calibrator Menu to see the graphical representation of the entered values.

   The graph gives you valuable feedback to track possible problems with the entered values or with the settings of your output device.

3. Click Verify.

   The Print dialog box appears. Set all the options as you would normally do. Make sure you use the same options as when printing the test page. Click Print to print the verification page. The verification page will be printed on the printer that you selected in the Chooser. The new calibration curve will be applied to the test page and the verification page will be printed. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a “standard” job (use the same developer, for the same developing time and temperature, etc.).

4. Measure the verification page.

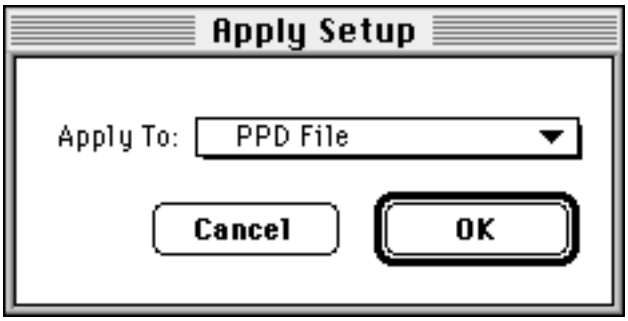
   This allows you to verify that the calibration curve based on the measured and wanted values, produces a linear result. If you are satisfied with the result, you can continue. If not, restart the procedure.

Saving the Calibration Curve

Once you are satisfied with the calibration curve, you can save it.

1. Click Apply.

   The Apply Setup dialog box appears.



2. Select the file format in which you want to save the calibration from the pop-up menu.
   - If you have a PostScript Level 2 RIP with Agfa's PostScript Environment (PSE) 11.0 or higher and AgfaSet 3.1, you can use the Halftone Linked Transfer Resource, the most advanced solution. You can only use this if you selected "For use with Halftone Linked Transfer resource" when you loaded the PPD.
   - If you have a PostScript Level 2 printer with AgfaSet 3.1 and LaserWriter 8.2 or higher, you can use the Transfer Resources. It allows you to select a calibration curve for each job.
   - If you use applications that utilize the transfer curve information in a PPD file, you can apply the calibration curve to the PPD file for your printer.
   - If you want to load the transfer curve into Adobe Photoshop, save the calibration curve as a Photoshop Transfer File.
   - If you are calibrating for color separations, you will not be able to save the calibration curve in an EDF file because the EDF can contain only one transfer curve for all colors.
3. Click OK.

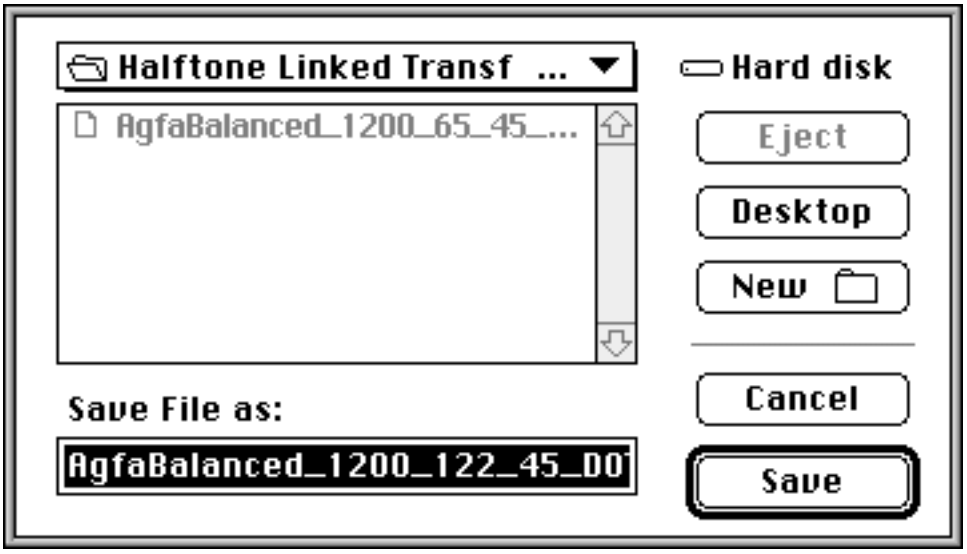
   The dialog that appears depends on the file format you selected.

   Halftone Linked Transfer Resource

   Transfer Resource

   PPD File

   Photoshop Transfer File



1. Type the name of the Halftone Linked Transfer Resource.

   This is the name of the Halftone Linked Transfer Resource as it will be saved on the Macintosh disk. This name is limited to 31 characters. The proposed name consists of the first 31 characters of the internal Halftone Linked Transfer Resource name. It is recommended to name the file with as much calibration information as possible. The internal name is the name as it will appear on the printer and is generated automatically.

2. Click Save.

   The calibration curve is saved and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing Setup from the Calibrator menu. Each calibration curve is saved in a separate Halftone Linked Transfer Resource. Use AgfaSet 3.1 to download the Halftone Linked Transfer Resource to the RIP.

Transfer Resource

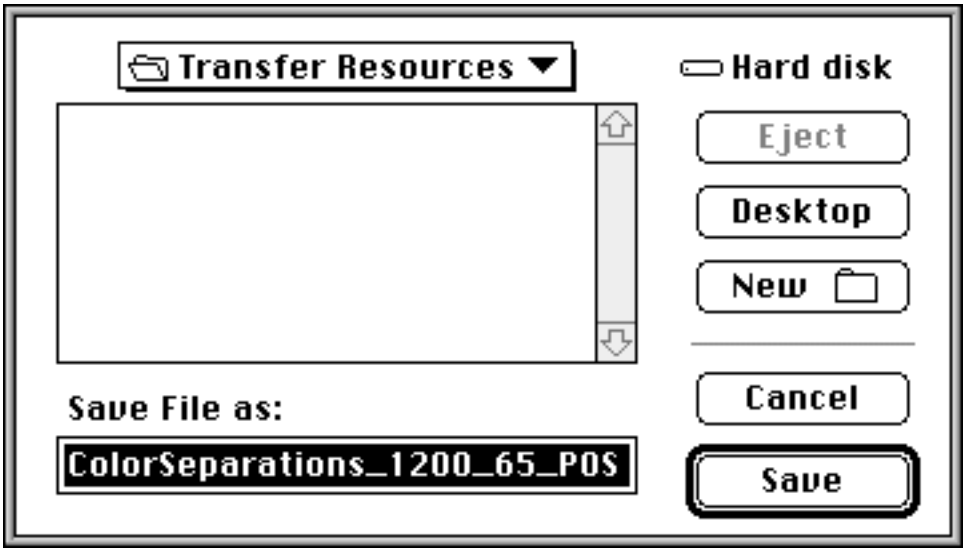
You can save the calibration curve in an existing Transfer Resource or create a new one. If you are calibrating for the first color, you will create a new Transfer Resource. Afterwards you will add the calibration curves for the other colors to an existing Transfer Resource.

Creating a new Transfer Resource

1. Select New Transfer Resource.
2. Type the name of the Transfer Resource.

   This is the internal name of the Transfer Resource as it will appear on the printer. It is recommended to name the file with as much calibration information as possible. It is not allowed to include spaces in this name.
3. Click OK.

   A Save As dialog box appears.



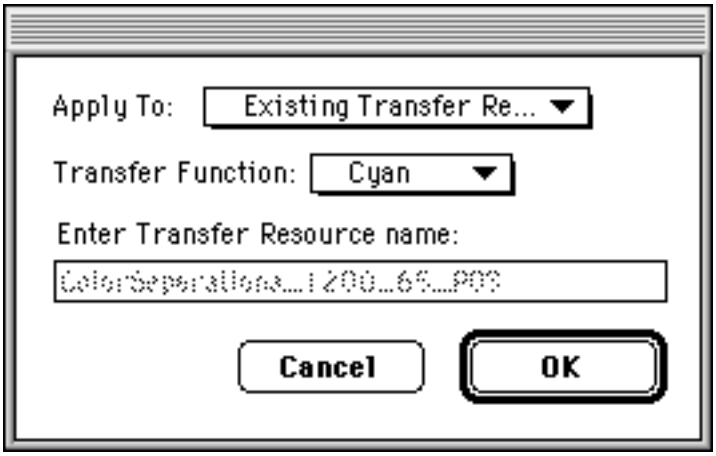
4. Type the name of the Transfer Resource.

   This is the name of the Transfer Resource as it will be saved on the Macintosh disk. This name is limited to 31 characters. The proposed name consists of the first 31 characters of the internal transfer resource name. It is recommended to name the file with as much calibration information as possible.

5. Click Save.

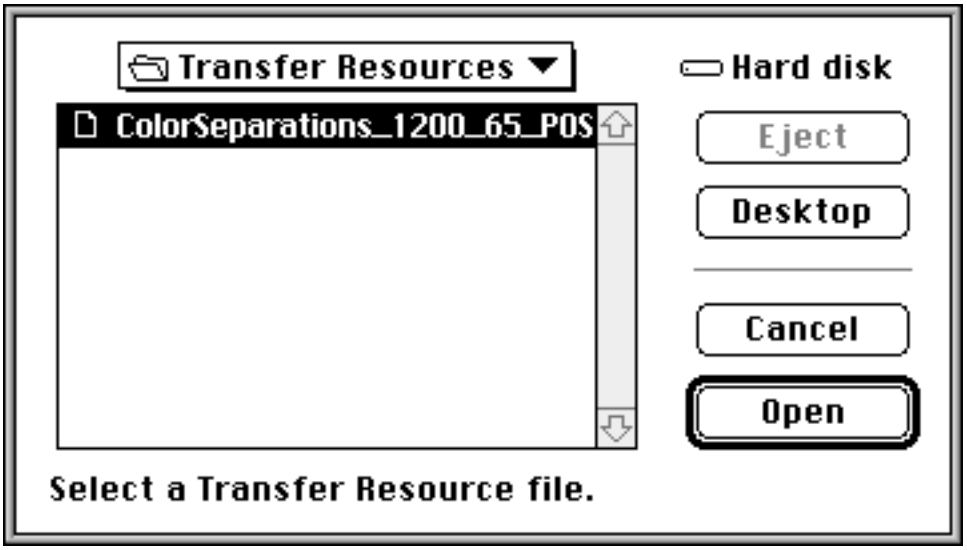
   The calibration curve is saved and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu. Use AgfaSet 3.1 to download the Transfer Resource to the RIP.

Modifying an existing Transfer Resource



1. Select Existing Transfer Resource.
2. Select the transfer function that you want to modify.
3. Click OK.

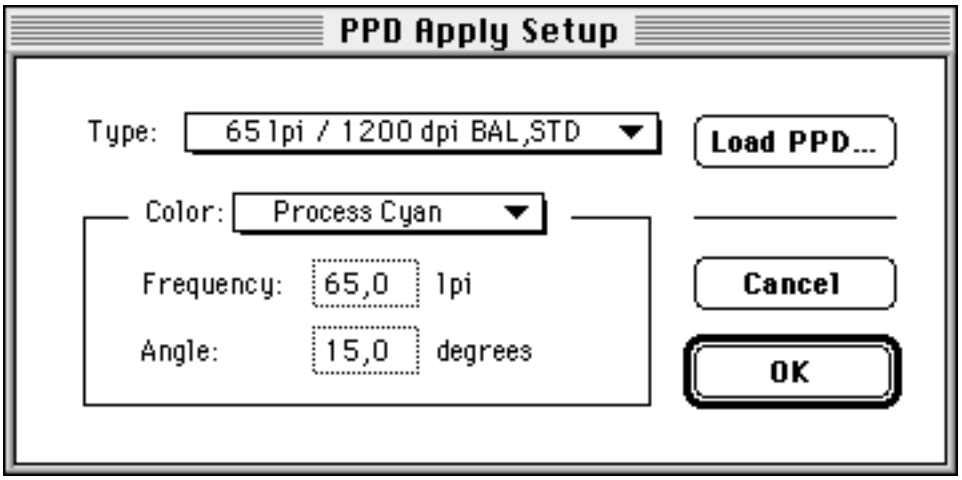
   An Open dialog box appears.



9. Select the Transfer Resource that you want to modify.
10. Click Open.

    The calibration curve is saved and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu. Use AgfaSet 3.1 to download the Transfer Resource to the RIP.

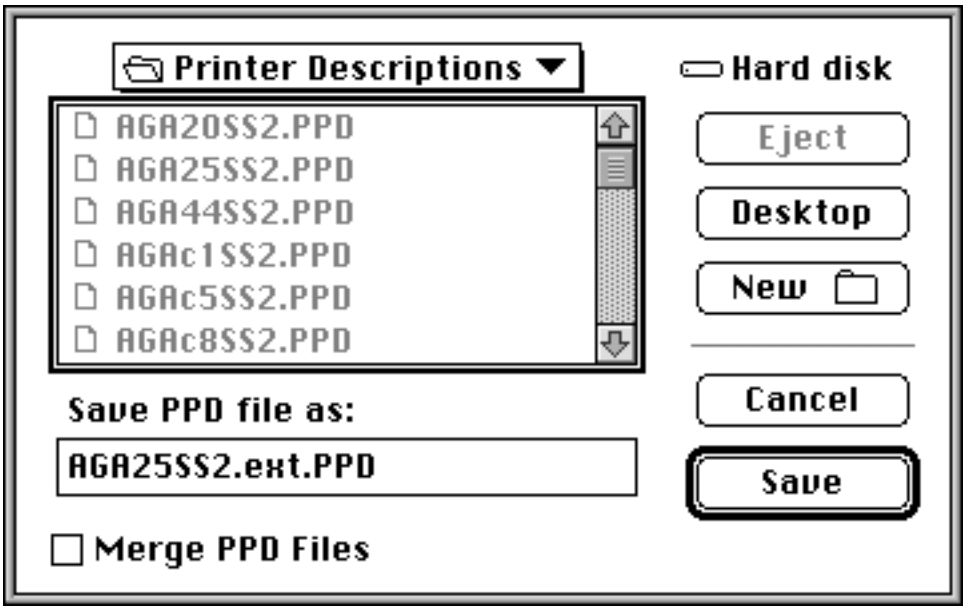
PPD File



1. If you want to change the settings, choose the desired item from the Type pop-up menu or the Color pop-up menu, or load a PPD.

   You can apply the calibration curve to different PPD files, or to the same PPD for different colors or different frequencies.
2. Click OK.

   A Save As dialog box appears.



3. Type the name of the adapted PPD file.

   According to the PPD standards, a customized PPD file should be made by creating a new file, making the adaptations, and referencing the original PPD. This results in a 2-file PPD. However, this can generate some maintenance concerns, since 2 files must always be manipulated (e.g., when moving or copying the customized PPD file).

   The Merge PPD Files checkbox allows you to create 1-file customized PPD files. The original PPD is then included, instead of referenced, in the customized one. This always results in a single adapted PPD file which can be easily copied or moved.

   Note however, that when new original manufacturer's PPD files have to be installed, the 2-file approach has an advantage, since there is no need to repeat the adaptation process. With the single-file approach, the PPD customization must be redone.

4. Click Save.

   The calibration curve is saved and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu. Copy the adapted PPD file to all Macintoshes that need it.

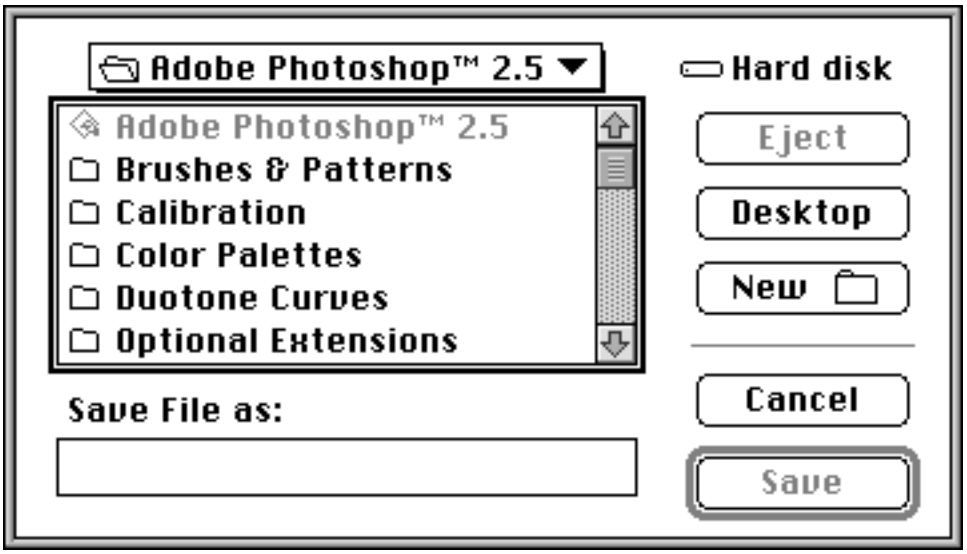
Photoshop Transfer File

You can save the calibration curve in an existing Photoshop Transfer File or create a new one. If you are calibrating for the first color, you will create a new Photoshop Transfer File. Afterwards you will add the calibration curves for the other colors to an existing Photoshop Transfer File.

Creating a new Photoshop Transfer File

1. Select New Photoshop Transfer File.
2. Click OK.

   A Save As dialog box appears.



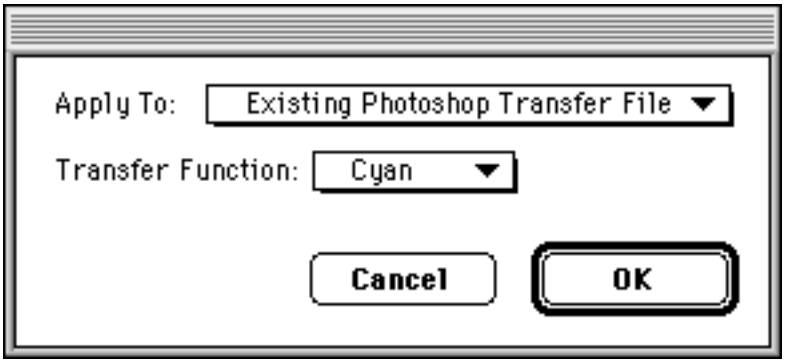
3. Type the name of the Photoshop Transfer File.

   It is recommended to name the file with as much calibration information as possible.

4. Click Save.

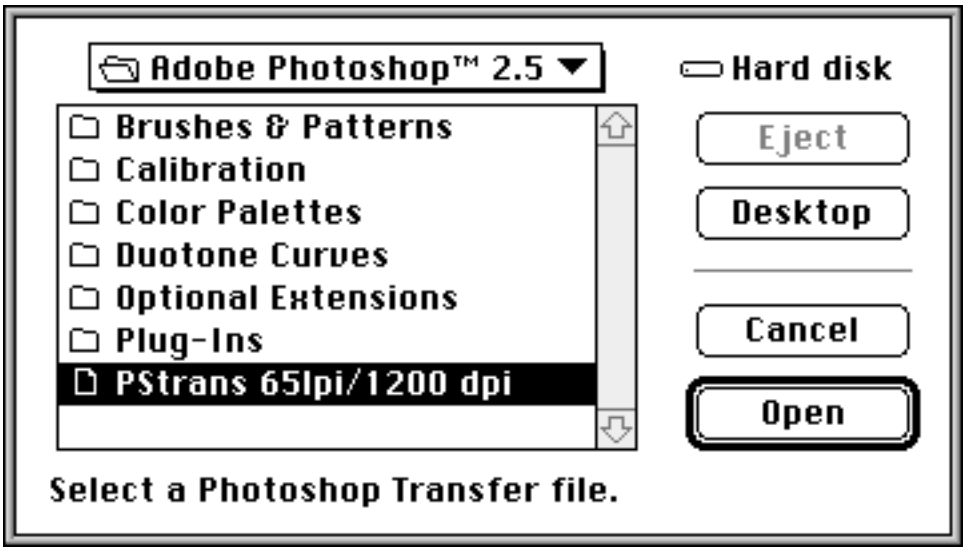
   The Photoshop Transfer File is saved and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu. Copy the transfer curve to all Macintoshes that need it.

Modifying an existing Photoshop Transfer File



1. Select Existing Photoshop Transfer File.
2. Select the transfer function that you want to modify.
3. Click OK.

   An Open dialog box appears.



4. Select the Photoshop Transfer File that you want to modify.
5. Click Open.

   The Photoshop Transfer File is modified and the dialog box closes. Repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu. Copy the transfer curve to all Macintoshes that need it.

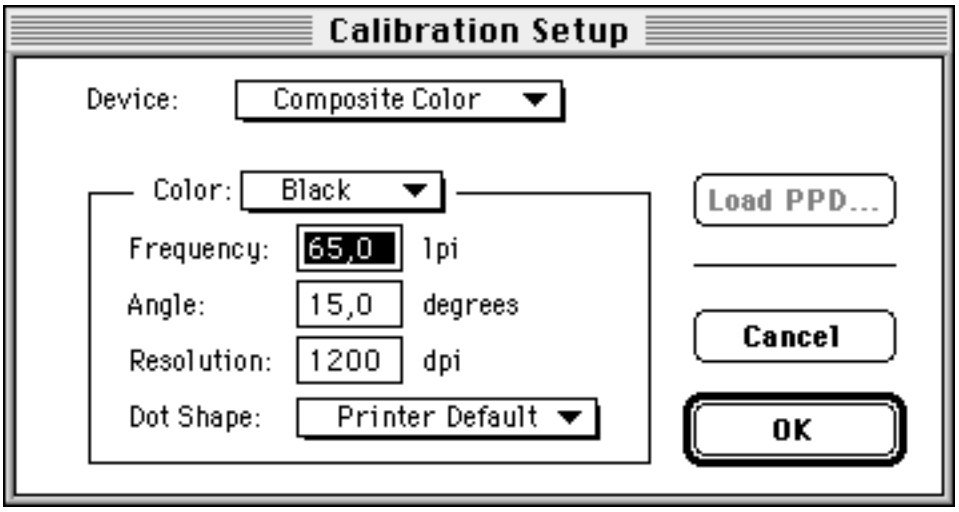
EDF

If you are calibrating for color separations, you will not be able to save the calibration curve in an EDF file because the EDF can contain only one transfer curve for all colors.

Calibrating a Color Printer

- To calibrate a CMYK color printer, choose Composite Color from the Device pop-up menu.

❖ Note: Choose Composite Color also for calibrating PostScript Level 2 devices that act like color printers, e.g. in-RIP separations.

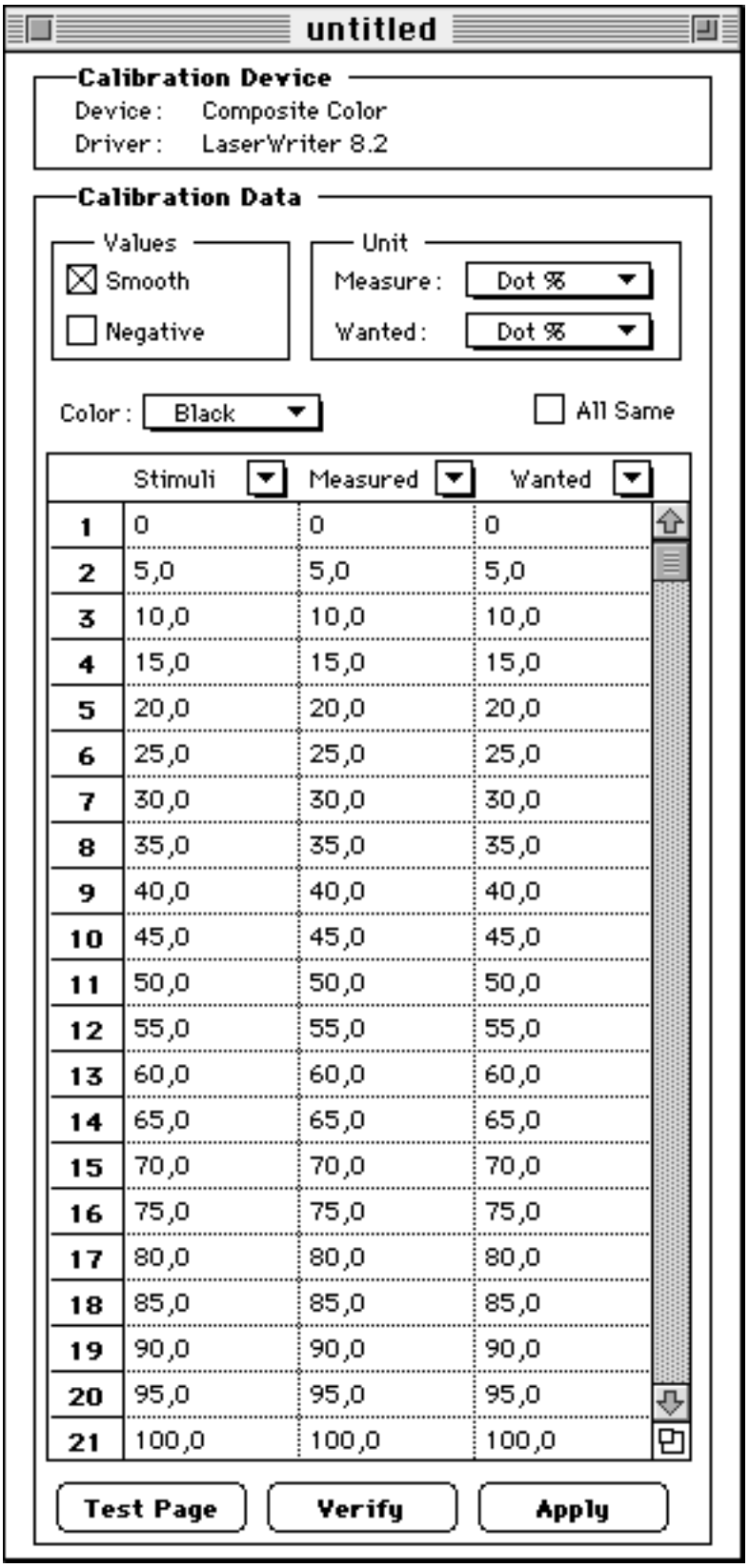


Defining the Calibration Settings

You have to type the settings for which you want to calibrate for each color.

1. Choose the first element from the Color pop-up menu.
2. Type the Frequency, the Angle and the Resolution for which you want to calibrate.
3. Choose the Dot Shape for which you want to calibrate.
4. Repeat instruction 1 to 3 for each element in the Color pop-up menu.
5. Click OK.

   A new document appears.


untitled
Calibration Device
Device : Composite Color
Driver : LaserWriter 8.2
Calibration Data
Values
Smooth
Negative
Unit
Measure : Dot %
Wanted : Dot %
Color : Black
All Same
Stimuli
Measured
Wanted
1 0 0 0
2 5,0 5,0 5,0
3 10,0 10,0 10,0
4 15,0 15,0 15,0
5 20,0 20,0 20,0
6 25,0 25,0 25,0
7 30,0 30,0 30,0
8 35,0 35,0 35,0
9 40,0 40,0 40,0
10 45,0 45,0 45,0
11 50,0 50,0 50,0
12 55,0 55,0 55,0
13 60,0 60,0 60,0
14 65,0 65,0 65,0
15 70,0 70,0 70,0
16 75,0 75,0 75,0
17 80,0 80,0 80,0
18 85,0 85,0 85,0
19 90,0 90,0 90,0
20 95,0 95,0 95,0
21 100,0 100,0 100,0
Test Page
Verify
Apply

- To apply a smoothing algorithm to the final calibration curve, select Smooth.

  Smooth will transform the curve into a fluent line. If the resulting graph shows a steep curve, check the values that you entered and the settings of your output device. The steep curve can be the result of typing errors, values that are not monotonous rising, or measurement errors. If the problem persists, the steep curve is probably caused by the spline algorithm that is used to calculate the fluent line. Deselect Smooth to avoid the problem. We recommend that you fill in as many values as possible to make sure that you will still obtain the best possible result.

- To measure negative output, select Negative.

  If Negative is selected, the values in the column “Measured” have to be entered in reverse order (e.g. a low stimulus value corresponds to a high measured value). If you use a densitometer that reads negative values and converts the measurements to positive values, do not select Negative.

  - Note: The test page does not image as a negative. Negative should be set at the RIP or Engine prior to printing a test page.

- Choose the unit in which you want to enter the measured values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

- Choose the unit in which you want to enter the wanted values.

  To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used.

Printing a Test Page

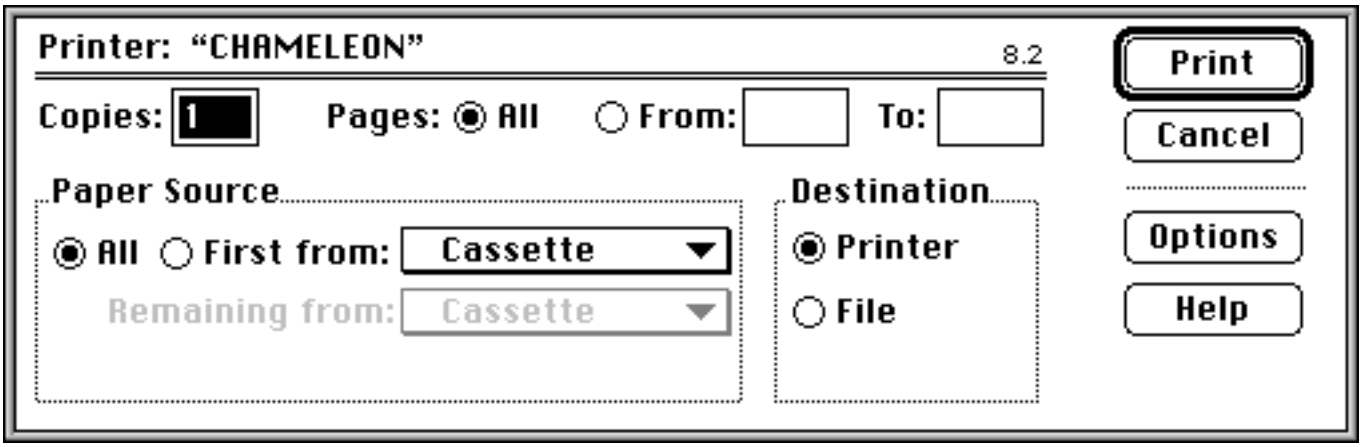
To calibrate a device, you first produce a test page. This test page allows you to define the difference between the stimuli values and the produced result.

1. Fill in the Stimuli values.

   The Stimuli values are the values that will be printed on the test page. A normal linear distribution of the values appears automatically. If you want to calibrate more precisely a specific area, you can modify the values by typing new values or by using the pop-up menu. Make sure you always have 21 values. The same values will be used for each color.

2. Click Test Page.

   The Print dialog box appears.



3. Set all the options as you normally do and click Print.

   The test page will be printed on the printer that you selected in the Chooser.

Measuring the Test Page

Once the test page is printed, you have different possibilities to enter the measured density values into Agfa Calibrator 4.0.

If you use a mechanical densitometer

- Measure each strip of printed blocks on the test page and type the value in the corresponding box in the Measured column.

  Fill in the values for each color. You choose the next color from the Color pop-up menu.

If you use an automatic densitometer that creates a text file

1. Measure each strip of printed blocks on the test page and save the results in a text file.

   Make sure the file is in the appropriate format. Refer to Appendix A, "Text file", for more information.

2. Choose Import Text File from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.

4. Choose Densities or Dot % from the Import pop-up menu.

5. Click Open.

   The values appear in the Measured column.

If you use a scanner

1. Scan the test page and save it as a TIFF file.

   Make sure that the image is scanned correctly.
   Refer to Appendix B, “Scanning a Test Page”, for more information.

2. Choose Import Scanned Test Page from the Measured pop-up menu.

   An Open dialog box appears.

3. Select the file.

4. Click Open.

   The values appear in the Measured column.

Creating the Calibration Curve

When linearizing a device, the stimuli values are reproduced exactly. Therefore, the predefined values for Stimuli and Wanted are set to “linear”.Experienced users may want to go further and take into account the next steps in the printing process, e.g. the press gain of the printing press. If you want to produce the same result with different printing processes, you will also need a more complex calibration process. In either case it is best to linearize your device, before going any further. For more information about these advanced possibilities, consult Chapter 5, “Command Reference”, and
Appendix C, “How Agfa Calibrator 4.0 Determines The Correct Calibration Curve”.

1. Choose Linear from the Wanted pop-up menu.

   Fill in the values for each color. You choose the next color from the Color pop-up menu.

2. Choose Graph from the Calibrator Menu to see the graphical representation of the entered values.

   The graph gives you valuable feedback to track possible problems with the entered values or with the settings of your output device.

3. Click Verify.

   The Print dialog box appears. Set all the options as you would normally do. Make sure you use the same options as when printing the test page. Click Print to print the verification page. The verification page will be printed on the printer that you selected in the Chooser. The new calibration curve will be applied to the test page and the verification page will be printed.

4. Measure the verification page.

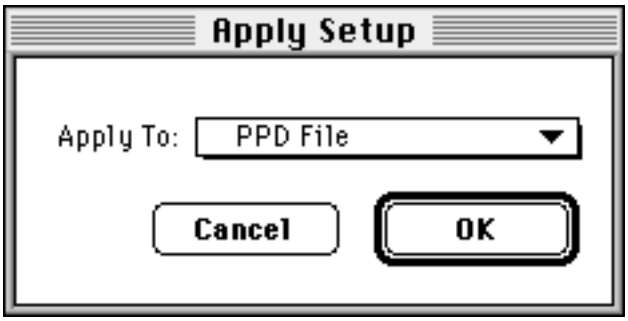
   This allows you to verify that the calibration curve based on the measured and wanted values, produces a linear result. If you are satisfied with the result, you can continue. If not, restart the procedure.

Saving the Calibration Curve

Once you are satisfied with the calibration curve, you can save it.

1. Click Apply.

   The Apply Setup dialog box appears.



2. Select the file format in which you want to save the calibration from the pop-up menu.
   - If you are calibrating a color printer, you will not be able to save the calibration curve in a Halftone Linked Transfer Resource because a Halftone Linked Transfer Resource can contain only one transfer curve for the four colors.
   - If you have a PostScript Level 2 printer with AgfaSet 3.1 and LaserWriter 8.2 or higher, you can use the Transfer Resources. It allows you to select a calibration curve for each job.
   - If you use applications that utilize the transfer curve information in a PPD file, you can apply the calibration curve to the PPD file for your printer.
   - If you want to load the transfer curve into Adobe Photoshop, save the calibration curve as a Photoshop Transfer File.
   - If you want to create a new default curve for your PostScript Level 1 or Level 2 printer, add the calibration curve to a list of transfer curves available in the Calibrate.EDF file and download it with AgfaSet 3.1.
3. Click OK.

   The dialog that appears depends on the file format you selected.

Transfer Resource

PPD File

Photoshop Transfer File

Calibrate.EDF

Halftone Linked Transfer Resource

If you are calibrating a color printer, you will not be able to save the calibration curve in a Halftone Linked Transfer Resource because a Halftone Linked Transfer Resource can contain only one transfer curve for the four colors.

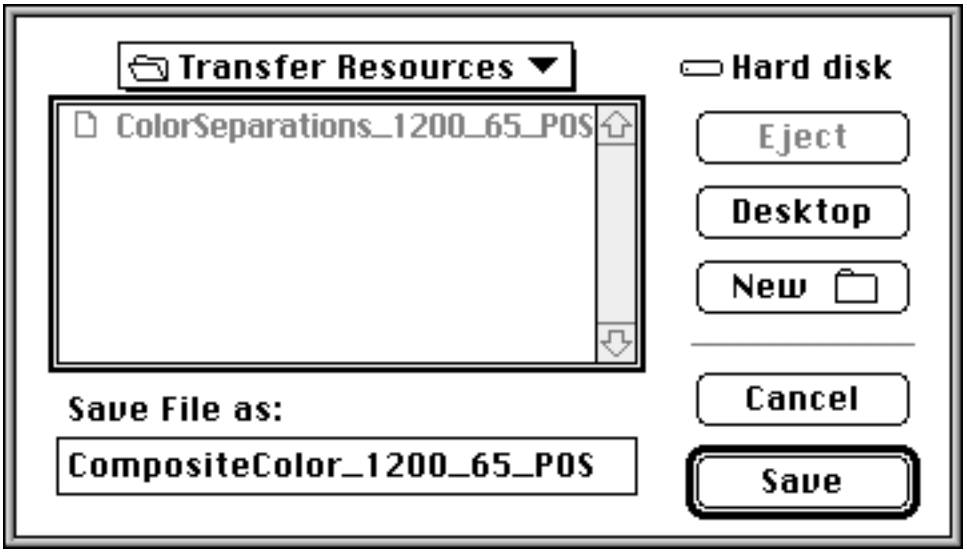
Transfer Resource

1. Type the name of the Transfer Resource.

   This is the internal name of the Transfer Resource as it will appear on the printer. It is recommended to name the file with as much calibration information as possible. It is not allowed to include spaces in this name.

2. Click OK.

   A Save As dialog box appears.



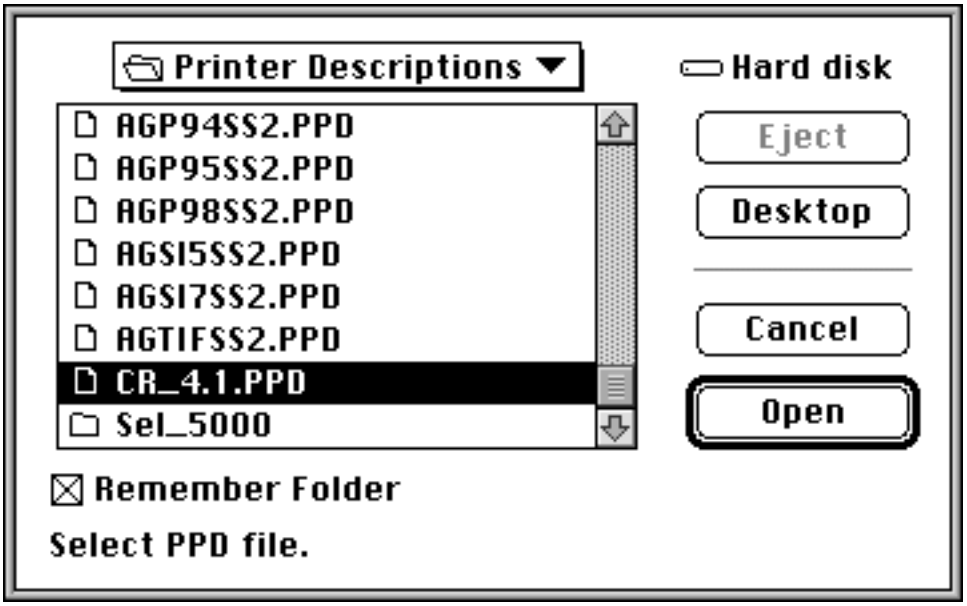
3. Type the name of the Transfer Resource.

   This is the name of the Transfer Resource as it will be saved on the Macintosh disk. This name is limited to 31 characters. The proposed name consists of the first 31 characters of the internal transfer resource name. It is recommended to name the file with as much calibration information as possible.

4. Click Save.

   The calibration curve is saved and the dialog box closes. Use AgfaSet 3.1 to download the Transfer Resource to the RIP.

PPD File

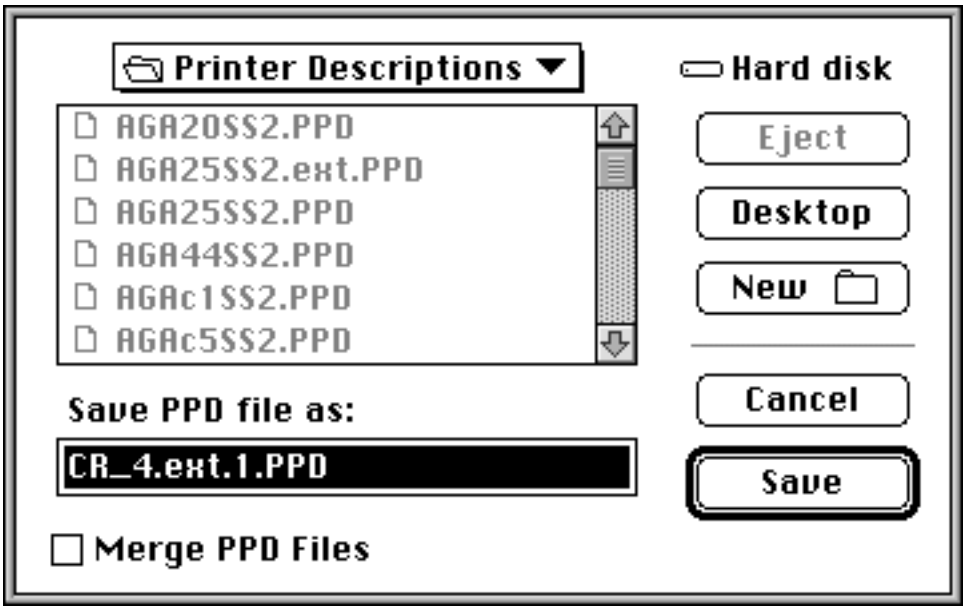


1. Select the PPD file in which you want to save the calibration curve.

   If you calibrated using an existing PPD file, you would normally select the same PPD file again.

2. Click Open.

   A Save As dialog box appears.



3. Type the name of the adapted PPD file.

   According to the PPD standards, a customized PPD file should be made by creating a new file, making the adaptations, and referencing the original PPD. This results in a 2-file PPD. However, this can generate some maintenance concerns, since 2 files must always be manipulated (e.g., when moving or copying the customized PPD file).

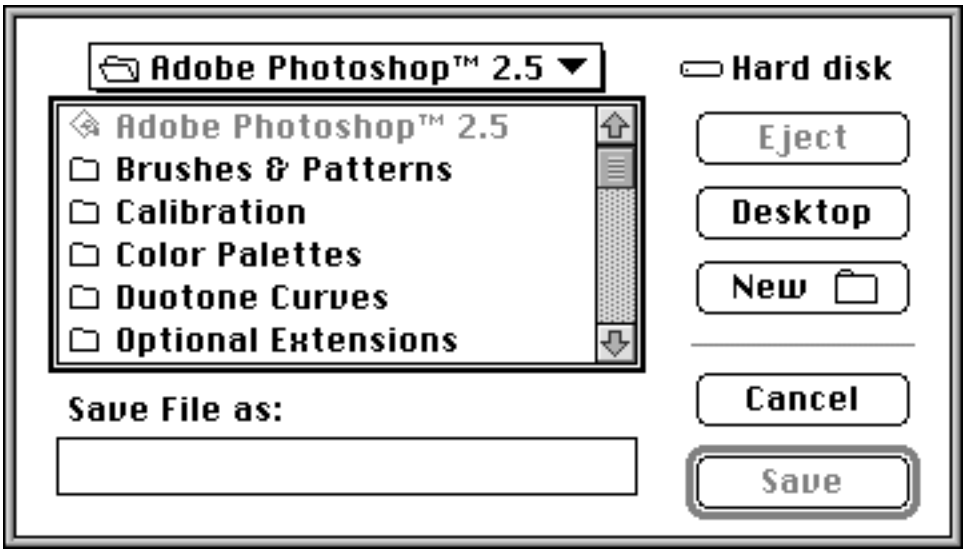
   The Merge PPD Files checkbox allows you to create 1-file customized PPD files. The original PPD is then included, instead of referenced, in the customized one. This always results in a single adapted PPD file which can be easily copied or moved.

   Note however, that when new original manufacturer's PPD files have to be installed, the 2-file approach has an advantage, since there is no need to repeat the adaptation process. With the single-file approach, the PPD customization must be redone.

4. Click Save.

   The calibration curve is saved and the dialog box closes. Copy the adapted PPD file to all Macintoshes that need it.

Photoshop Transfer File

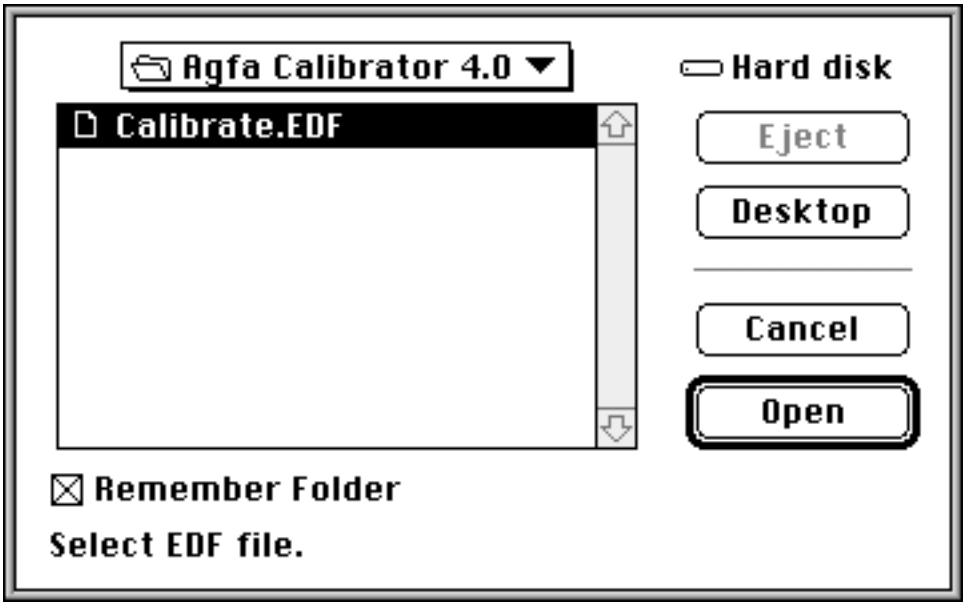


1. Type the name of the Photoshop transfer curve.

   It is recommended to name the file with as much calibration information as possible.

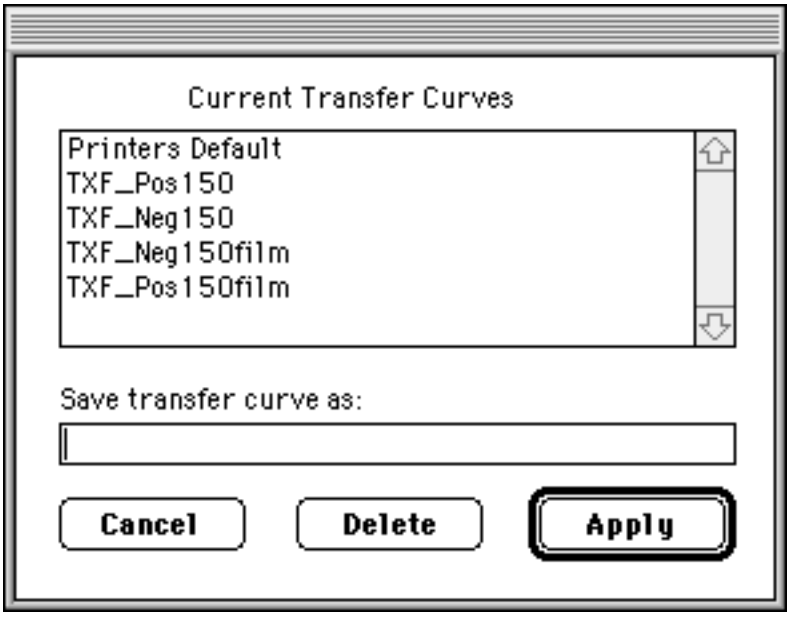
2. Click Save.

   The calibration curve is saved and the dialog box closes. Copy the transfer curve to all Macintoshes that need it.



1. Select the EDF in which you want to save the calibration curve.
2. Click Open.

   The transfer curves already present in the EDF file are listed.



3. Type the name of the transfer curve.

   It is recommended to name the file with as much calibration information as possible. You can replace a transfer curve that is already present in the EDF file, by typing the same name as the existing one.

4. Click Apply.

   The transfer curve is included in the EDF file and the dialog box closes. Use AgfaSet 3.1 to download the Calibrate.EDF file to the RIP. Refer to Appendix D “Calibrate.EDF” for more information.

Completing the Calibration Process

If you are calibrating a **black-and-white device**, the calibration is finished.

If you are calibrating a **color separation device**, and you did select “For use with Halftone Linked Transfer Resource”, repeat the calibration process for the other items in the Color pop-up menu by choosing Setup from the Calibrator menu. Each calibration curve is saved in a separate Halftone Linked Transfer Resource.
In all other cases, repeat the calibration process for the other items in the Color pop-up menu by choosing New from the File menu.

If you are calibrating a **composite color device**, you have entered the data for each item in the Color pop-up menu already in the calibration document, so the calibration is finished now.

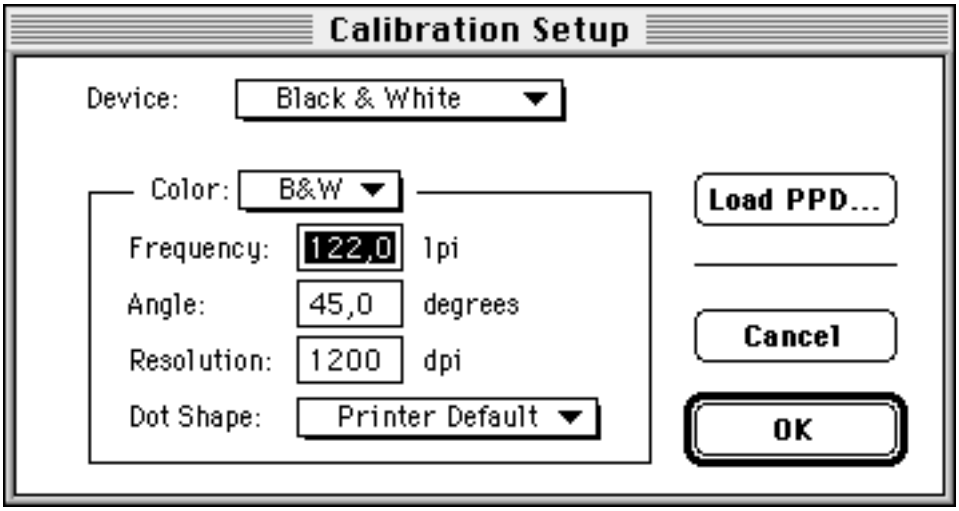
You can create a calibration curve for each resolution, screen frequency, dot shape, and paper type that you use most often.

Chapter 5 — Command Reference

This chapter is an alphabetical reference to all the elements that appear in the menu's and in the dialog boxes.

Calibration Setup

When you open Agfa Calibrator 4.0 or you choose New from the File menu, the Calibration Setup dialog box appears.



You first specify the output mode of the device that you want to calibrate. Depending on the device type, certain options will be available.

Except for the device type, you can change these settings afterwards by choosing Setup from the Calibrator menu. The Calibration Setup dialog box that appears does not contain the Device pop-up menu.

For PostScript systems that support PPD files, a PPD file can be loaded. This allows you to calibrate for the different entries described in it.

Device

- Black & White
  Black & White is used for black-and-white printers or imagesetters that are used for black-and-white output on paper or on film.
- Color Separations
  Color Separations is used for imagesetters that produce separation films.
- Composite Color
  Composite Color is used for color printers that produce CMYK output on paper and for PostScript Level 2 devices that act like color printers, e.g. in-rip separations.

Color

Define the settings for each element used in the Color pop-up menu.

Color

For black & white devices, the only available option is B&W.

For color separation devices, the available options are the 4 process inks (cyan, magenta, yellow and black) and eventually a custom color.

For composite colors, the available options are the 4 process inks: cyan, magenta, yellow and black.

Angle

Screen angle is the angle at which lines in a halftone screen are printed. For gray-scale reproductions, an angle of 45° is common; for color reproductions, each CMY+K halftone has a carefully chosen angle to avoid moiré.

If you load a PPD file, the angles will already be defined. You can overwrite these values. Otherwise, you can type a value.

Frequency

Screen frequency is the spacing of the lines in a halftone image, usually measured in lines per inch (lpi). Each line is composed of a number of halftone dots.

If you load a PPD file, the frequency will already be defined. You can overwrite these values. Otherwise, you can type a value.

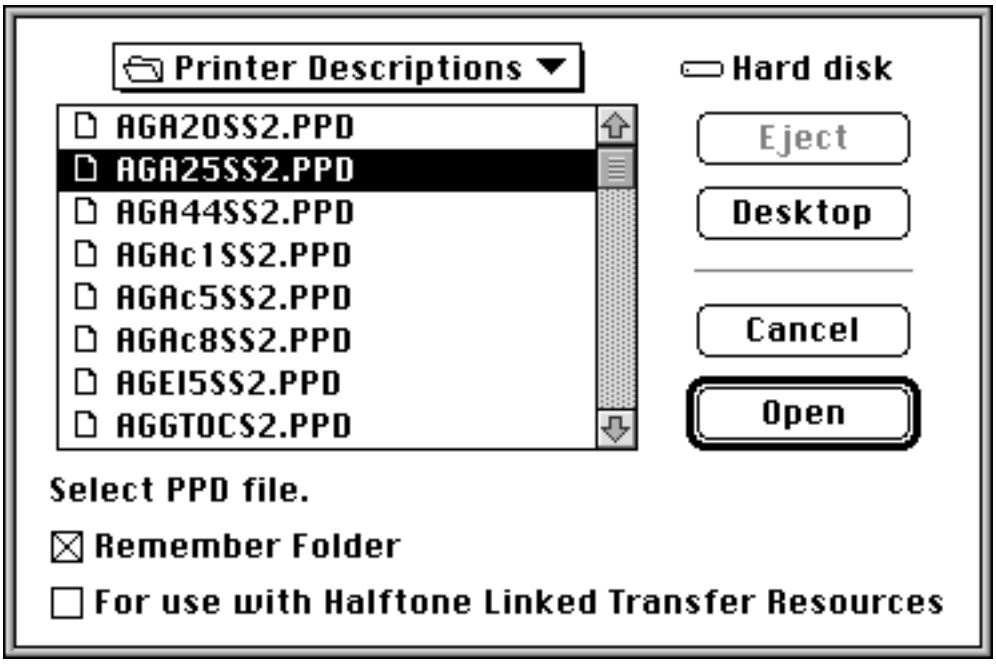
Resolution

Output resolution is a measure of fineness of spatial detail that a device can produce. The higher the resolution, the finer the detail. The common resolution for laser printers ranges from 300 to 600 dpi; the common resolution for imagesetters ranges from 1200 to 3600 dpi.

If you load a PPD file, the resolution will already be defined. Otherwise, you can type a value.

Load PPD

If you click Load PPD, an Open dialog box appears.



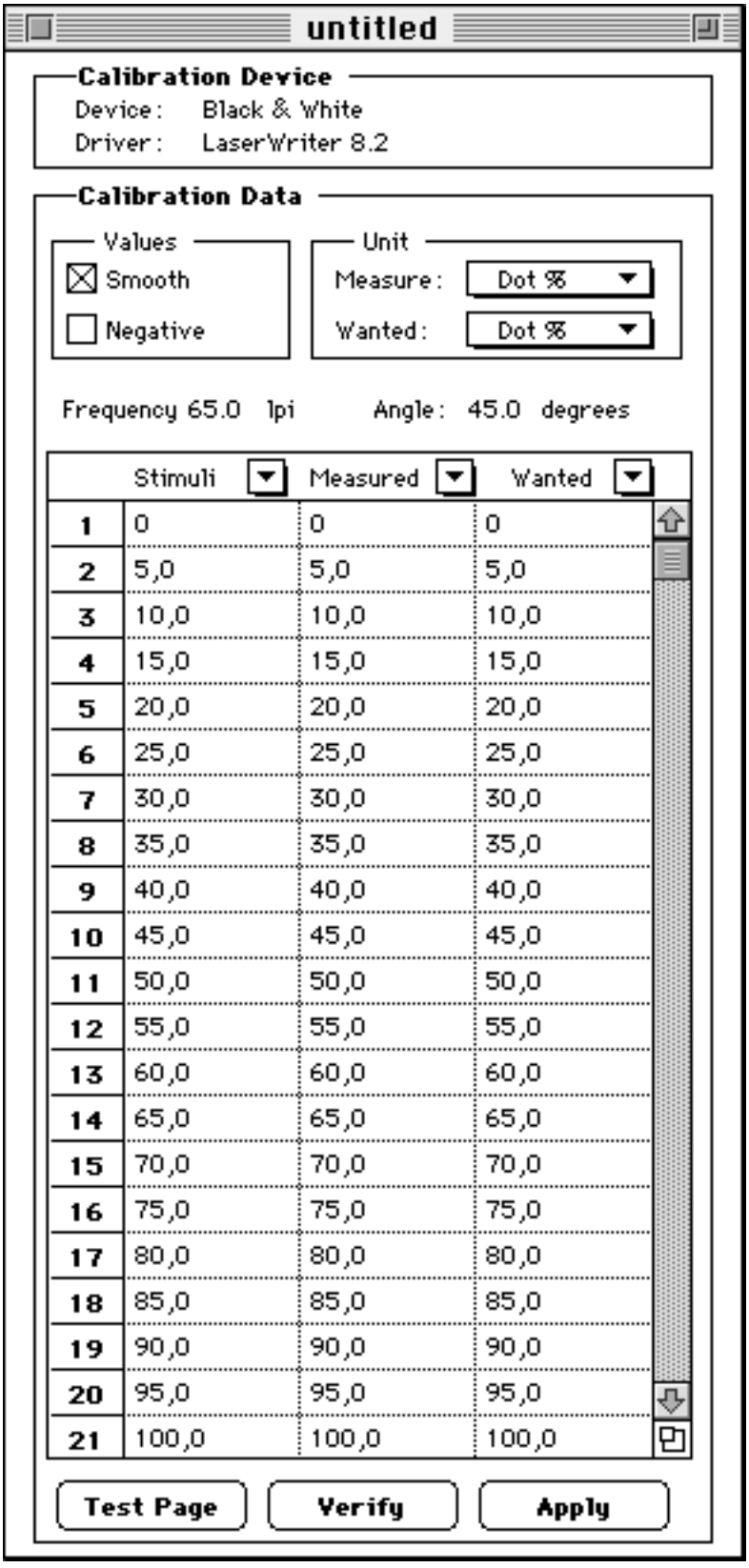
Select the PPD file for the device you are calibrating and click Open to load the information of the PPD file.

If you want to save the resulting calibration curve as a Halftone Linked Transfer Resource, select “For use with Halftone Linked Transfer Resource”.

“Remember Folder” allows the application to remember the folder that contains the PostScript Printer Description files. This folder can be located on your hard disk or on a disk in the network.

Document

If you click OK in the Calibration Setup dialog box, a new document appears.



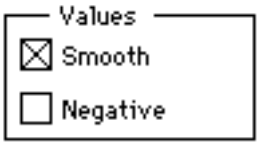
Depending on the device selection in the Calibration Setup dialog box, one (B&W device, Color Separations device) or four (Composite color device) calibration curves will be generated. A “mini” spreadsheet allows easy entering of calibration data. Data entry units can be “dot percentage” or “density values”.

Calibration Data

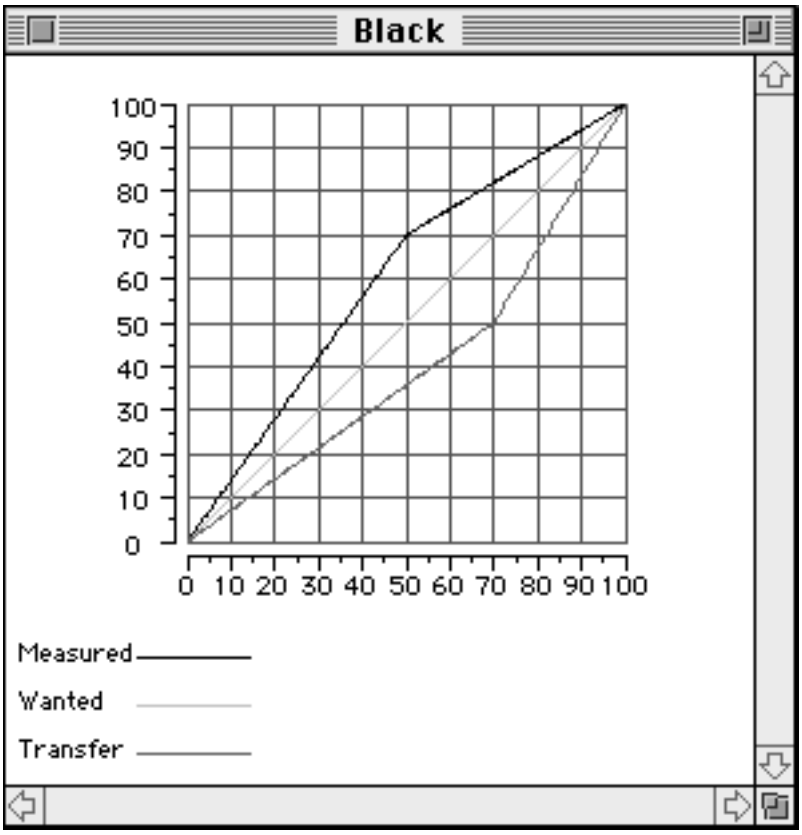
You can apply special operations to the values entered. You can choose the unit in which you want to enter the data. The frequency and angle that you choose in the Calibration Setup dialog box, appear above the actual values. To fill in the values, you can use the pop-up menus above each column. You can print a test page, verify the calculated calibration curve and, if you are satisfied with the result, apply the curve.

Values

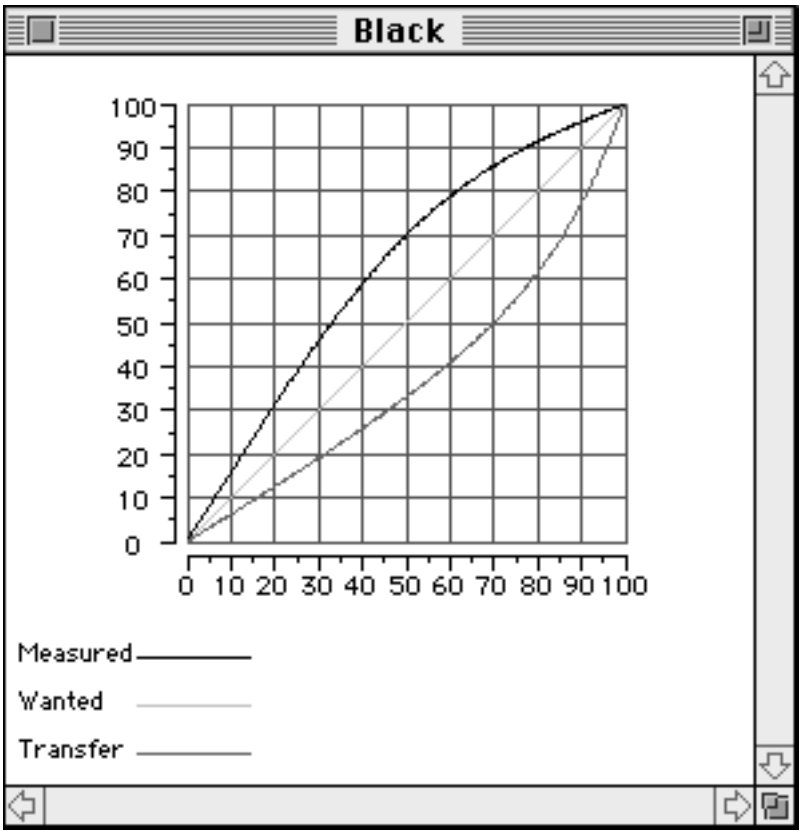
You can influence the overall appearance of the values.



Smooth will transform the curve into a fluent line. If the resulting graph shows a steep curve, check the values that you entered and the settings of your output device. The steep curve can be the result of typing errors, values that are not monotonous rising, or measurement errors. If the problem persists, the steep curve is probably caused by the spline algorithm that is used to calculate the fluent line. Deselect Smooth to avoid the problem. We recommend that you fill in as many values as possible to make sure that you will still obtain the best possible result.

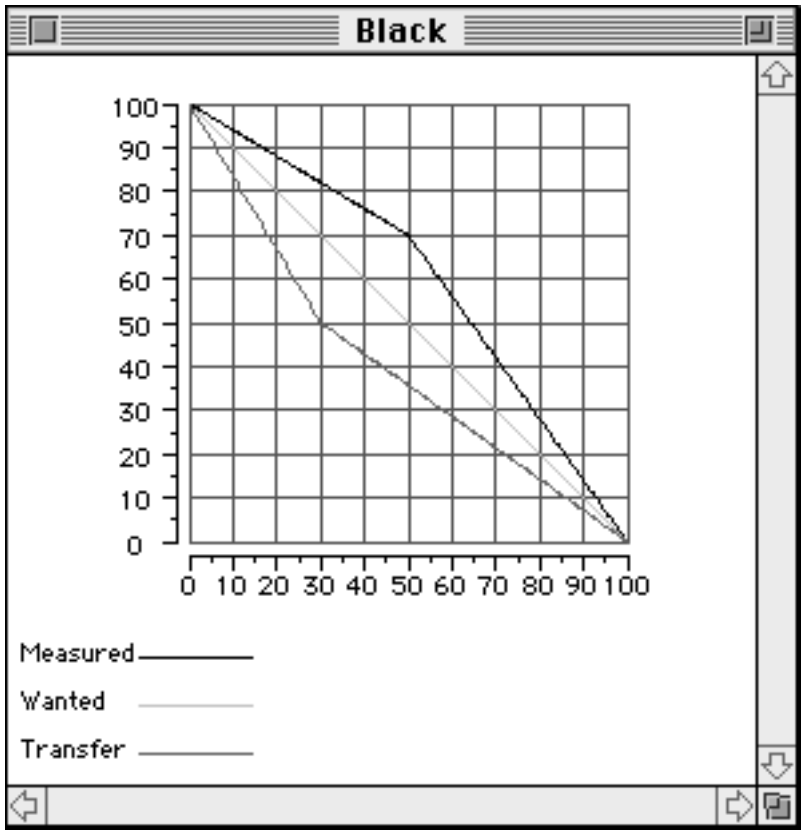


Curve without smoothing



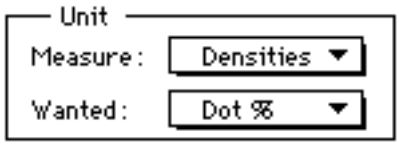
Curve with smoothing

Negative will invert the values. The values in the Measured and the Wanted columns should be entered in descending order.



Unit

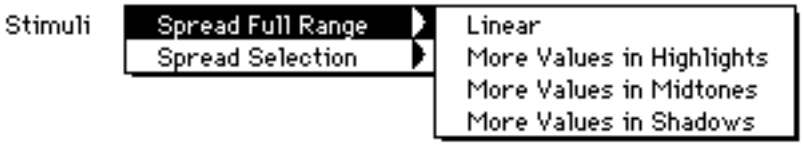
Select the units in which the measured and wanted values will be entered.



To change the units from densities to dot percentages, the highest density is mapped to 100%; the lowest density is mapped to 0%. To change the units from dot percentages to densities, the values are converted using the minimum and maximum density values located in the “Densities” dialog box are used. If you want to change the values, choose Density Settings from the Calibrator menu.

Stimuli

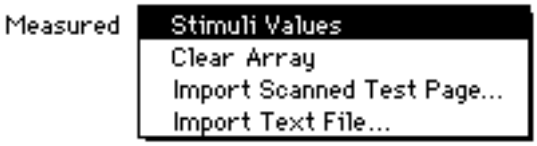
The stimuli values are the dot percentages that will be printed on the test page. Normally, the linear distribution of the default stimuli values will do. However, you can change the stimuli values. Some devices need more calibration points in the highlights while others have specific problems in the shadows. With the editable stimuli values you are free to use more entries in the device critical exposure area. You can type the 21 values or choose a predefined distribution from the pop-up menu. You can apply the predefined distribution to the full range of 21 values by choosing “Spread Full Range”. You can apply the predefined distribution only to specific values by first selecting those cells in the Stimuli column and than choosing “Spread Selection”.



Measured

You do not have to fill in all 21 values; only the values for 0 and 100 are required. In some cases, you will only fill in the relevant values. The more values are entered, the better the calculated calibration curve will reflect the measured deviation.

If you use a mechanical densitometer to measure the test page, you will have to type the values. You can also use the pop-up menu to import the values from a TIFF file or a text file.



- Stimuli Values
  If the measured values closely resemble the stimuli values, choose Stimuli Values and manually adapt the values that differ.
- Clear Array
  Clears the column of the measured values.
- Import Scanned Test Page
  An Open dialog box appears. Select the TIFF file that contains the scanned test page. For more information, refer to Appendix B, “Scanning a test page”.
- Import Text File
  An Open dialog box appears. Select the text file that contains the measured values from an electronic densitometer. You will find an example of a text file in Appendix A, “Text file”.

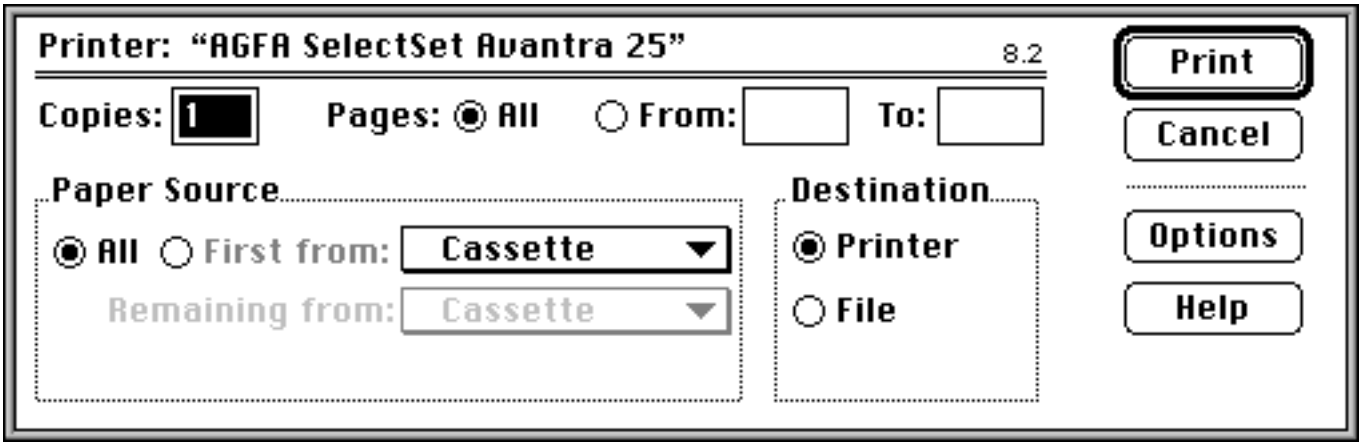
Wanted

You have to fill in the wanted values for the test page. You do not have to fill in all 21 values; only the values for 0 and 100 are required. In some cases, you will only fill in the relevant values. Normally, you will want to obtain a linear distribution of the wanted values. However, if you want to obtain a special distribution (e.g. adjust measured values for press gain), you can type the wanted values or use the pop-up menu.

- Import Scanned Test Page
  An Open dialog box appears. Select the TIFF file that contains the scanned test page. This will be most useful if you want to compensate for the difference between two processes and you have scanned a test page that has been printed on the device toward which you want to calibrate.
  For more information, refer to Appendix B, “Scanning a test page”.
- Import Text File
  An Open dialog box appears. Select the text file that contains the measured values from an electronic densitometer. You will find an example of a text file in Appendix A, “Text file”.
- Linear
  To linearize your printing device, choose Linear from the pop-up menu.
- Specify dot gain
  You can specify the dot gain, also known as press gain. This will be useful if you want to calibrate toward a printing process for which you know the dot gain.
- Flip
  In some cases it is impossible to measure the wanted curve or goal curve. Only the deviation from the desired result is measurable. These measured error values can still be used as input in the “Wanted” values column. In order to turn these values into real wanted values, flip the measured curve around the diagonal by selecting “Flip” from the pop-up menu. For more information, refer to
  Appendix C “How Agfa Calibrator 4.0 Determines The Correct Calibration Curve”.

Test Page

If you click Test Page, the Print dialog box appears.



Set all the options as you would normally do. Click Print to print the test page on the printer selected in the Chooser. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a "standard" job (use the same developer, for the same developing time and temperature, etc.).

Verify

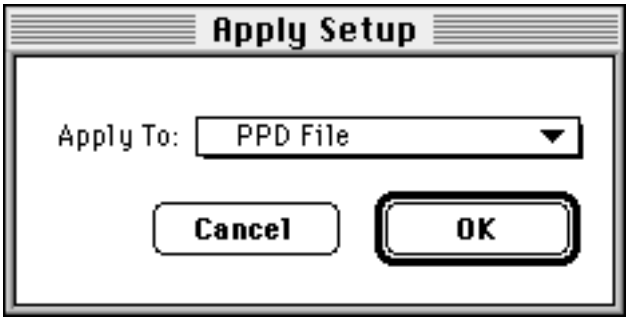
Verify prints the test page again while applying the calculated calibration curve. This allows you to verify that the calibration curve based on the measured and wanted values, produces a good result.

If you click Verify, the Print dialog box appears. Set all the options as you would normally do. Make sure you use the same options as when printing the test page. Click Print to print the verification page.

The verification page will be printed on the printer that you selected in the Chooser. If you are calibrating an imagesetter, develop the film as you would normally do. Try to imitate as much as possible a "standard" job (use the same developer, for the same developing time and temperature, etc.).

Apply

After entering all the values and verifying the result, you can use the Apply button to generate the selected output file containing the transfer information. The Apply Setup dialog box appears.



In the pop-up menu, you find different options:

Depending on the settings you chose in the Calibration Setup dialog box, all or only some of the options will be available.

- If you have a PostScript Level 2 RIP with Agfa's PostScript Environment (PSE) 11.0 or higher and AgfaSet 3.1, you can use the Halftone Linked Transfer Resource, the most advanced solution. You can only use this if you selected "For use with Halftone Linked Transfer resource" when you loaded the PPD.
- If you have a PostScript Level 2 printer with AgfaSet 3.1 and LaserWriter 8.2 or higher, you can use the Transfer Resources. It allows you to select a calibration curve for each job.
- If you use applications that utilize the transfer curve information in a PPD file, you can apply the calibration curve to the PPD file for your printer.
- If you want to load the transfer curve into Adobe Photoshop, save the calibration curve as a Photoshop Transfer File.
- If you want to create a new default curve for your PostScript Level 1 or Level 2 printer, add the calibration curve to a list of transfer curves available in the Calibrate.EDF file and download it with AgfaSet 3.1.

If you choose the option that you prefer and you click OK, the result will depend on the type of device you are calibrating and the options you set before. Refer to Chapter 4, "Using Agfa Calibrator 4.0", for more detailed information.

Calibration Device

You can see which device type you selected in the Calibration Setup dialog box and which printer driver you selected in the Chooser.

File Menu

The File menu contains the standard Macintosh options.

New

Starts a new calibration. Use this option the first time you calibrate a device.

Open

Opens an existing calibration document. Use this option for a device that has been calibrated before. You can re-apply an existing calibration or modify it.

Close

Closes the open calibration document.

Save

Saves the open calibration document.

Save As

Opens the Save As dialog box to save the open calibration document under a different name.

Revert

Reverts the open calibration document to the last saved version.

Page Setup

Opens the standard Page Setup dialog box.

Print

Prints the information that is displayed on your monitor. Use it to print the graph of the values and the resulting calibration curve.

Quit

Quits the application.

Edit Menu

The Edit menu contains the standard Macintosh options.

Can't Undo/Undo/Redo

If you want to return to the state of the text before you took the last action, you can Undo the action. If you change your mind again, you can Redo the action. In some cases the return is impossible.

Cut

Removes the selected text. The text will remain on the clipboard, available for other actions such as Paste.

Copy

Copies the selected text. The text will remain on the clipboard, available for other actions such as Paste.

Paste

Places the text on the clipboard at the selected destination.

Clear

Removes the selected text. The text will not be available for other actions, because Clear does not place the text on the clipboard.

Select All

Selects the whole text.

Show Clipboard

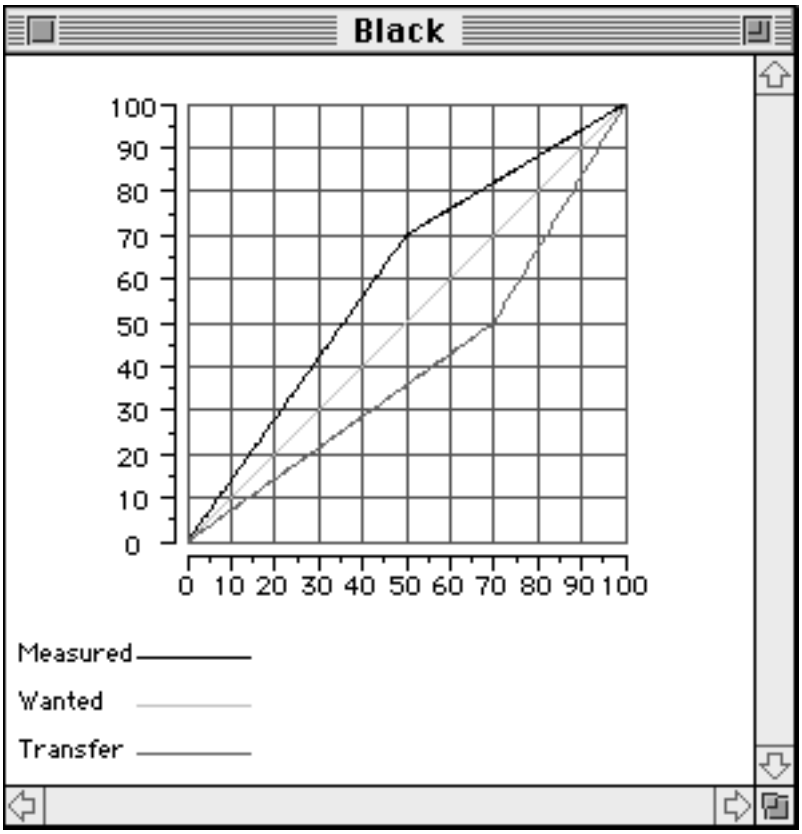
This function gives you a view of everything you did put on the Clipboard with the last edit action.

Calibrator Menu

The Calibrator Menu contains some very specific options that can help you to adapt or monitor the calibration process.

Graph

If you choose one of the Graph suboptions, a graphical representation of the entered values will appear.



The graph gives you valuable feedback in order to track specific interpolation algorithm deficiencies (spline oscillations) that might occur when exotic (non monotonously rising) calibration data is entered and Smooth is selected.

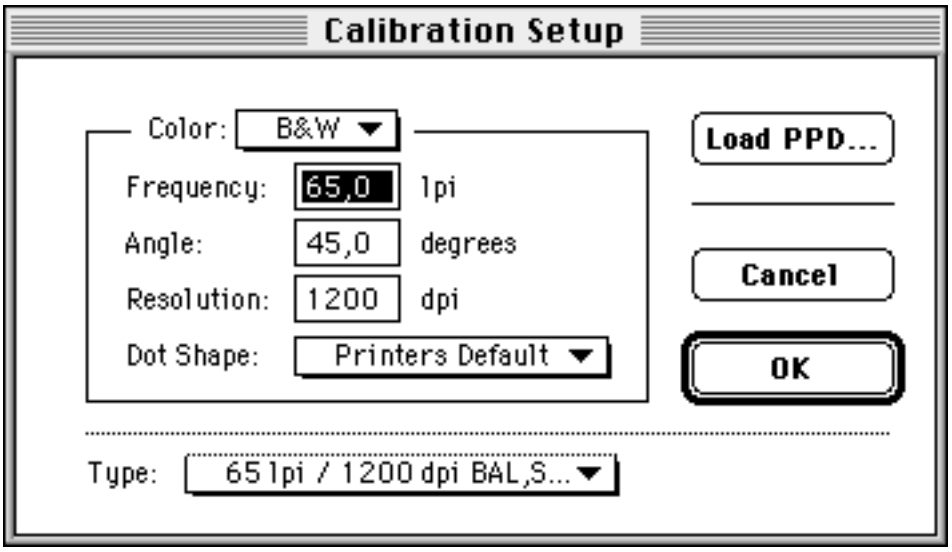
If the resulting graph shows a steep curve, check the values that you entered and the settings of your output device. The steep curve can be the result of typing errors, values that are not monotonous rising, or measurement errors. If the problem persists, the steep curve is probably caused by the spline algorithm that is used to calculate the fluent line. Deselect Smooth to avoid the problem. We recommend that you fill in as many values as possible to make sure that you will still obtain the best possible result.

If no curve is displayed, check the values that you entered.

Error messages displayed under the curve will help you to determine the cause of the problem.

Setup

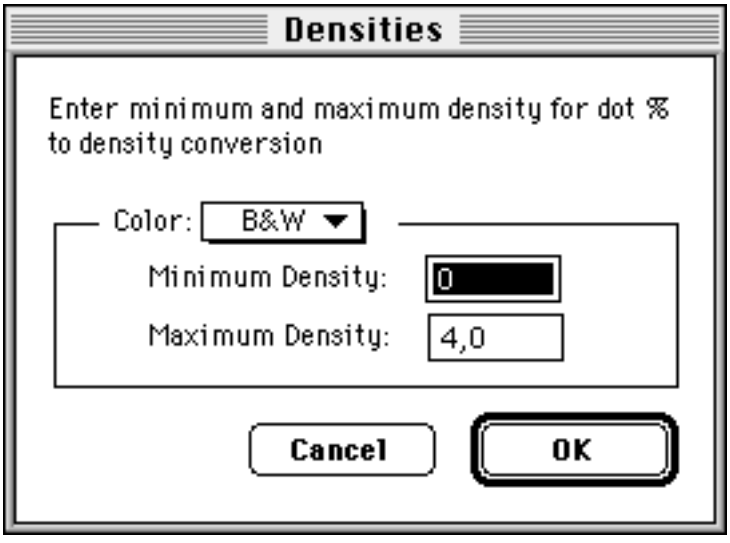
If you choose Setup from the Calibrator menu, the Calibration Setup dialog box appears. Use this option when calibrating a color separation device to calibrate the remaining angles. Notice that the Device pop-up menu is not available. You can also use the Calibration Setup dialog box to display the current settings.



For more information about the options in the dialog box, refer to the Calibration Setup dialog box earlier in this chapter (section 5.1).

Density Settings

If you choose Density Settings from the Calibrator menu, the Densities dialog box appears.



The values that you enter will be used when you select another density unit in the document.

To make the conversion from Dot% to Densities, the Maximum Density is used. The default value is 4.0D. If your maximum density differs from 4.0, an adapted value will result in more accurate results.

To make the conversion from Densities to Dot%, the highest density is mapped to 100%.

Appendix A — Text file

If your densitometer generates a text file, verify that the format corresponds to the example below for composite color:

Attention: The order in which the values have to be entered is K, C, M, and Y.

```
0→    0→    0→    0¶
5→    5→    5→    5¶
10→   10→   10→   10¶
15→   15→   15→   15¶
20→   20→   20→   20¶
25→   25→   25→   25¶
30→   30→   30→   30¶
35→   35→   35→   35¶
40→   40→   40→   40¶
45→   45→   45→   45¶
50→   50→   50→   50¶
55→   55→   55→   55¶
60→   60→   60→   60¶
65→   65→   65→   65¶
70→   70→   70→   70¶
75→   75→   75→   75¶
80→   80→   80→   80¶
85→   85→   85→   85¶
90→   90→   90→   90¶
95→   95→   95→   95¶
100→  100→  100→  100¶
```

If your densitometer generates a text file, verify that the format corresponds to the example below for black-and-white printers or imagesetter and for color separations:

```
0¶
5¶
10¶
15¶
20¶
25¶
30¶
35¶
40¶
45¶
50¶
55¶
60¶
70¶
75¶
80¶
85¶
90¶
95¶
100¶
```

Appendix B — Scanning a Test Page

Use the following procedure as a guideline for scanning the test page of Agfa Calibrator 4.0. Scanning the test page can be seen as a job separate from calibrating the printer. You can scan and process the test page with any scanner driver or image editing application. The scanned image is saved in TIFF format, which is used as input for Agfa Calibrator 4.0.

The scanning guidelines are general. Some of the entry points may not apply to your scanner/driver configuration. Please refer to your scanning documentation in order to achieve good results.

1. Print the test page from within the Agfa Calibrator application.
2. Position the test page on the scanner.

   It is recommended to position the original aligned with the axis of the scanner to avoid rotated results.
3. Preview the scanning area.
4. Select the area with the gray patches that is surrounded with a cropping area indication on the test page.

   The crossing vertical and horizontal lines define the reference area. You may want to select an area that is slightly bigger than the indicated cropping area. This probably allows more accurate cropping afterwards in your image editing application.
5. Set the scan settings.

   To scan the test page, use scanner settings that simulate a normal scanning job. Try to achieve results where the black patch results in 100% (or DMax) and the white patch results in 0% image data. If possible, use the automatic density control tool, or set to the black and white point before scanning.

   Never scan with curves or gamma corrections different from 1.0, neither make changes to the scanned image (like curves) in the image editing application.

   The recommended scanning resolution is 150 ppi. This results in file sizes of 5.5 MByte (Gray) or 16.5 MByte (RGB Color). Lower resolution drastically reduces the file size. Too low resolution may loose accuracy in the calibration results.

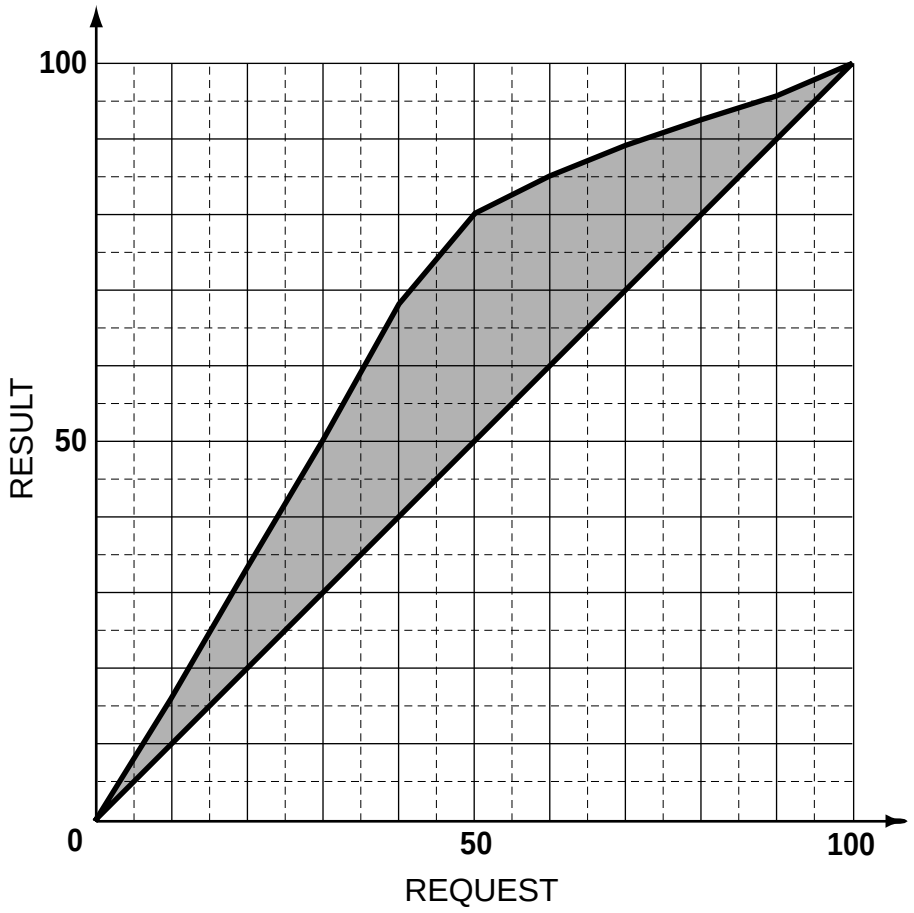
   If your scanner can automatically descreen the image while scanning, it is recommended to turn this feature on. Descreening the image in the image editing application will not improve the calibration results.
6. Scan the desired area.

Appendix C — How Agfa Calibrator 4.0 Determines the Correct Calibration Curve

The Calibrator 4.0 program will automatically calculate the correct calibration curve when you provide it with dot gain measurements, and the requested “wanted” curve. The printed results will then be mapped towards this “wanted” curve. First, we will explain how a linear calibration is determined. Then the calibration towards a wanted dot gain curve and the calibration of negative films is explained.

Normal Calibration or Linearization

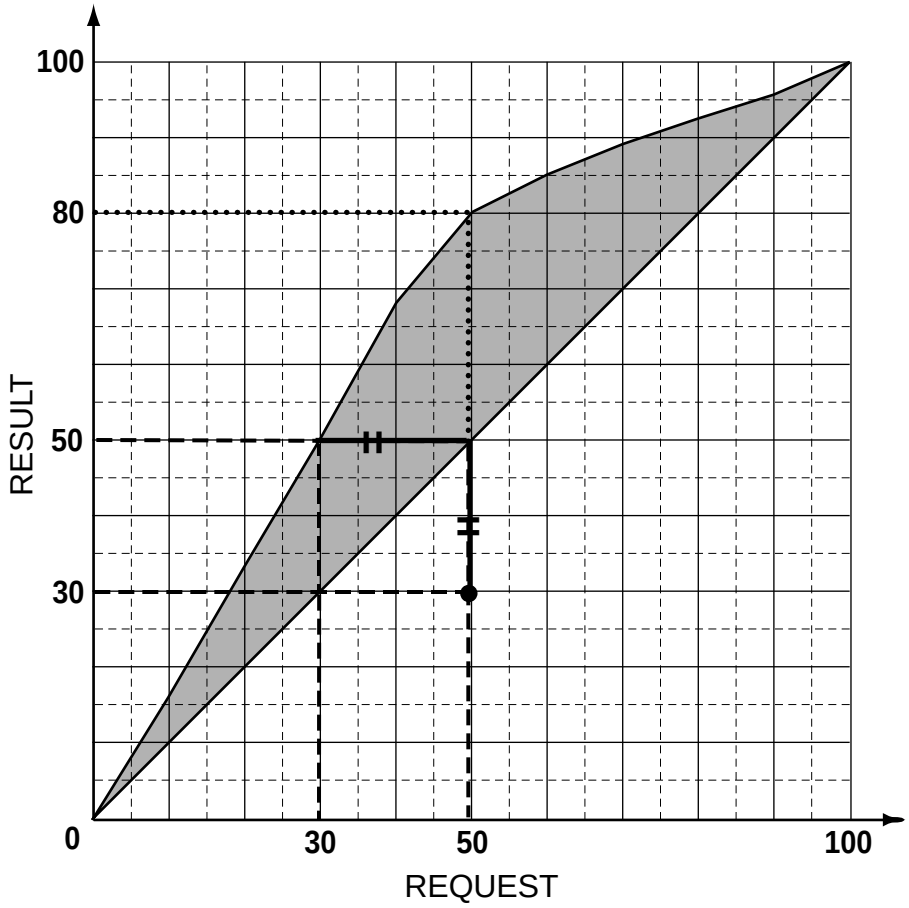
The curve below graphically represents a set of dot gain measurements for different dot percentages.



From this data Calibrator determines the normal calibration or linearization curve. This curve enables you to linearize your printed result. This means that the screened dot percentage you request from your printer will be the same dot percentage you obtain on the printed result.

- If you request e.g. a 50% screened dot, you will find that in this case you obtain a 80% screened dot because of dot gain effects.

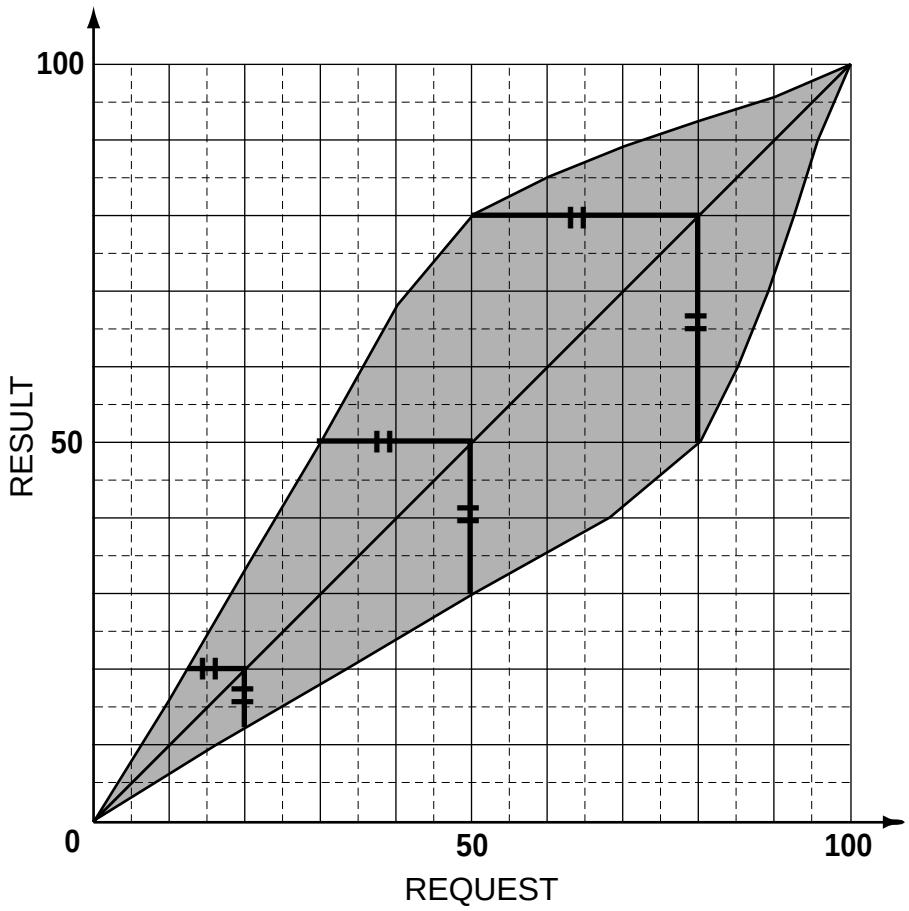
- If you want to obtain the 50% screened dot as the result, you have to find what requested dot percentage delivers you the 50% screened dot after the dot gain effect.
  In this case, the 50% screened dot is obtained when requesting a 30% screened dot!



- This means that you have to calibrate down to 30% in order to really obtain the 50% screened dot.

  - Note: A common mistake in the case of this example would be to calibrate down to a 20% dot to obtain a 50% dot, because a dot gain of 30% (the requested 50% resulted in 80%) was measured. This would cause an incorrect and too light result after calibration.

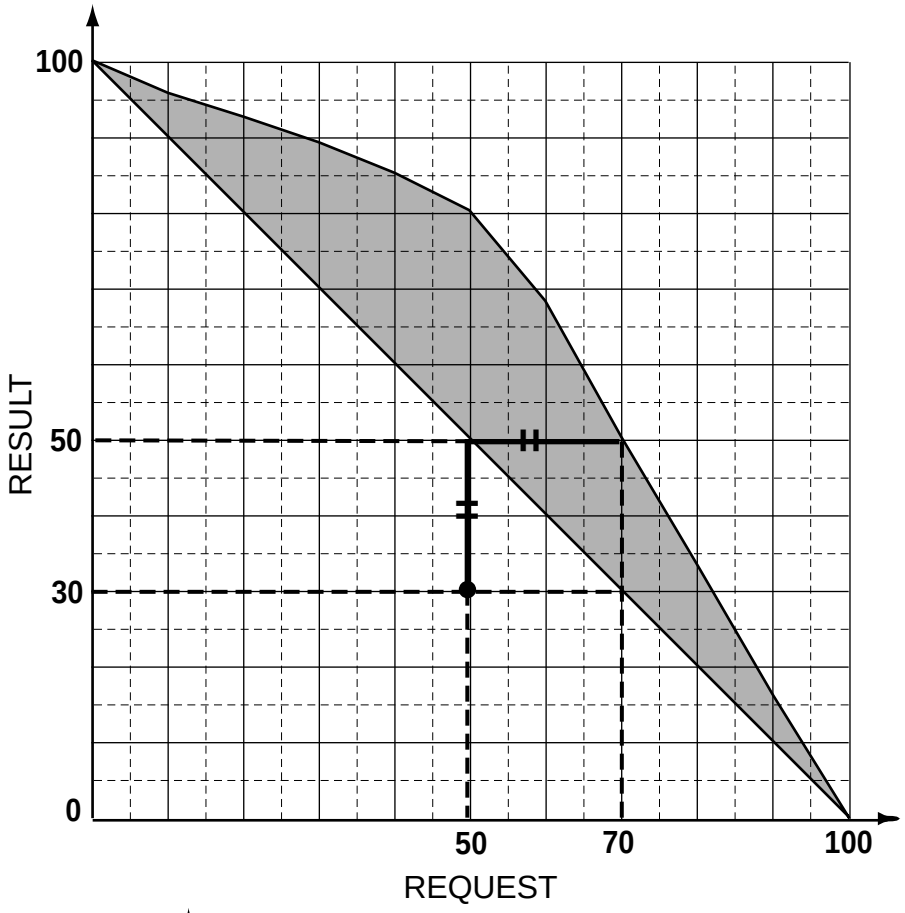
  If you repeat this procedure for all dot percentages from 0% to 100%, you will obtain the correct calibration curve as shown in the graph below.

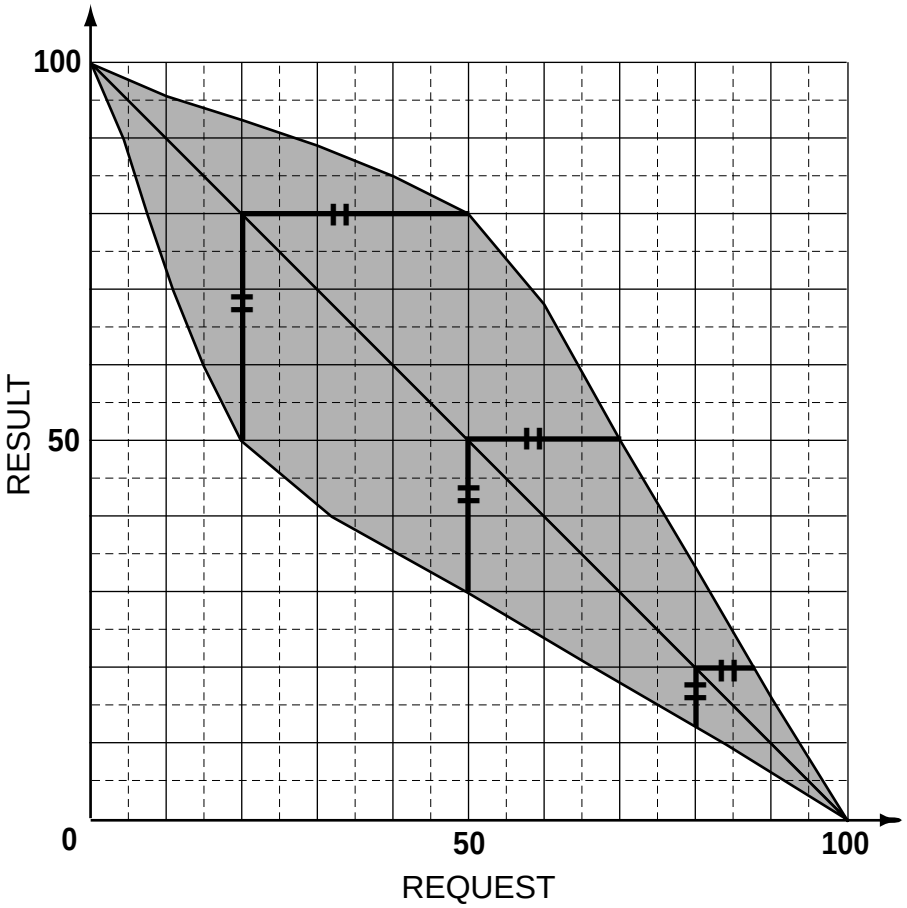


Calibration of Negative Films

When measuring dot percentages on negative films, check the “Negative” check box in the main dialog and make sure the densitometer is reading positive dots. So for the patch labelled “10%” you should read a dot percentage in the neighborhood of 90%.

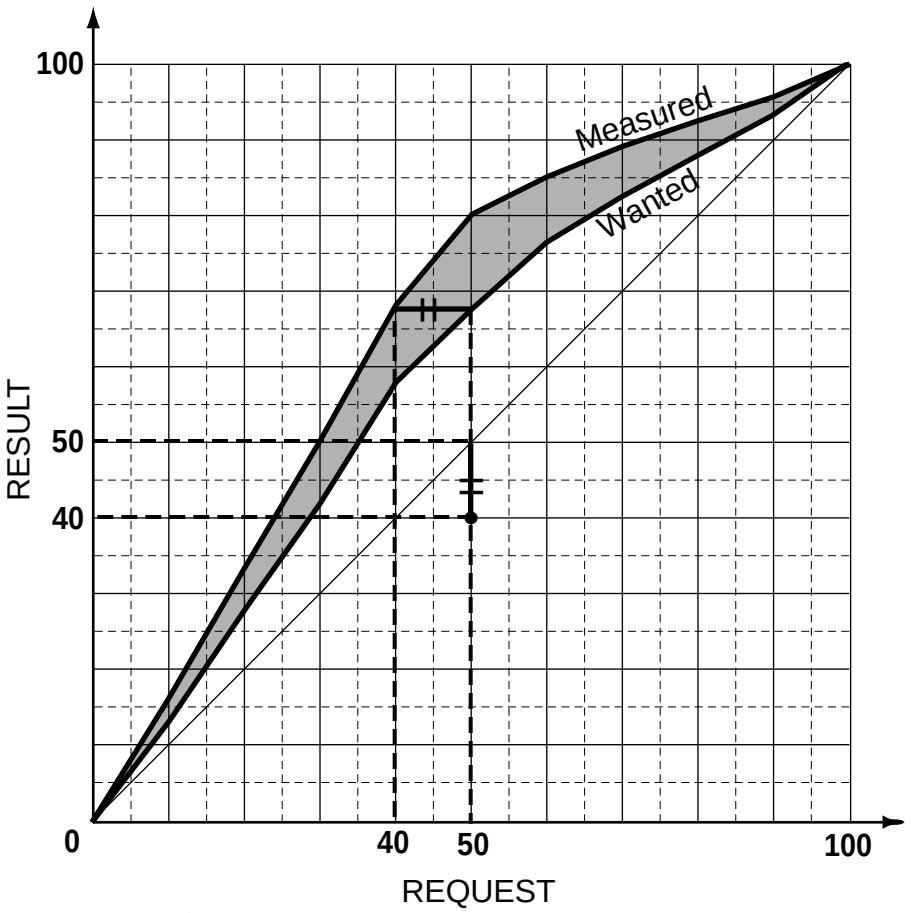
Calibrator 4.0 compensates for dot gain on negative films the same way as it does for dot gain on positive films. This means that the patch labelled “80%” on a positive film will have the same dot gain as the patch labelled “20%” on a negative film. Therefore the calibration curve for negative films will be the horizontally flipped calibration curve for positive films.

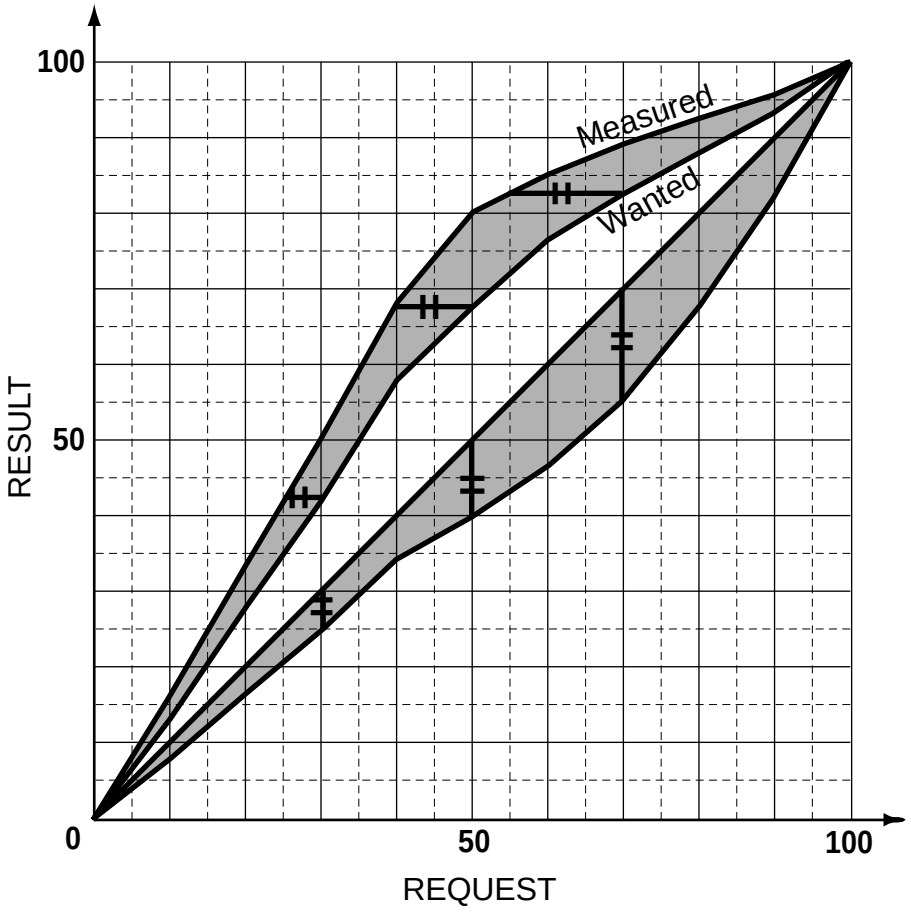

100
50
30
0
RESULT
50
70
100
REQUEST


100
50
0
RESULT
50
100
REQUEST

Calibration Towards a Wanted Dot Gain Curve

This is almost the same as for a normal calibration or linearization, but instead of calibrating towards a linear printed result (all requested dot percentages map exactly to the same resulting dot percentages) you are calibrating towards a non-linear printed result (i.e. the “Wanted” curve in the Calibrator main dialog). The graph below shows you the resulting calibration curve when calibrating towards a wanted dot gain curve.

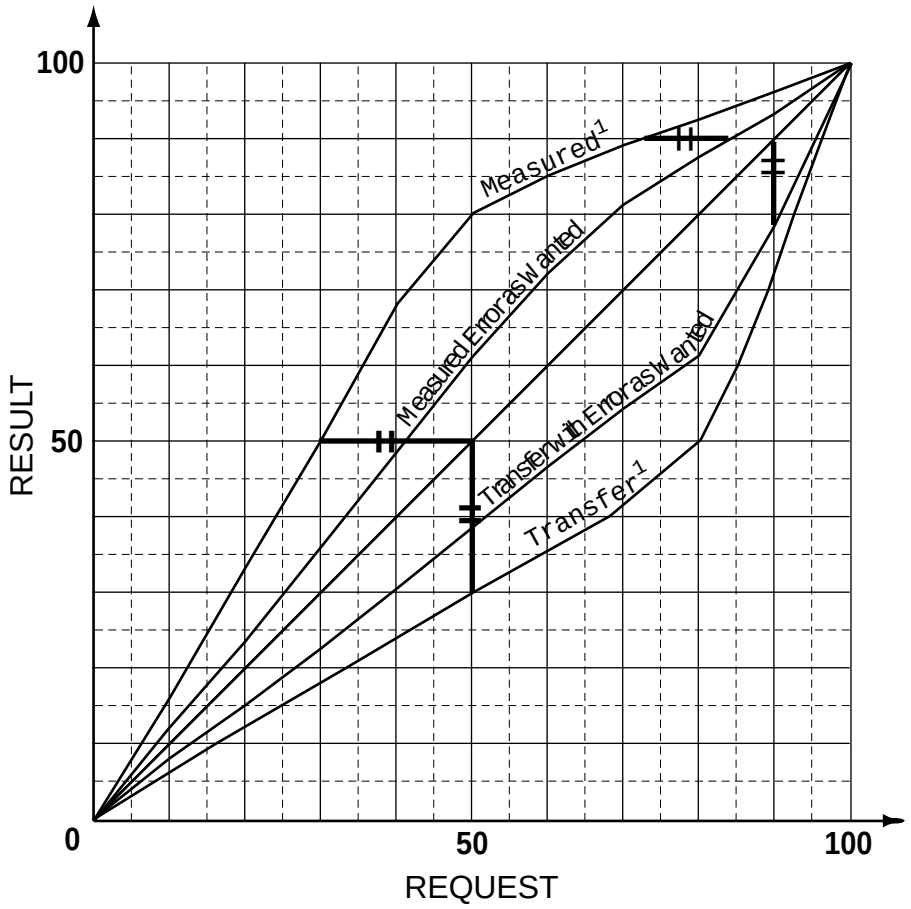

100
50
40
0
40
50
100
RESULT
REQUEST
Measured
Wanted


100
50
0
50
100
RESULT
REQUEST
Measured
Wanted

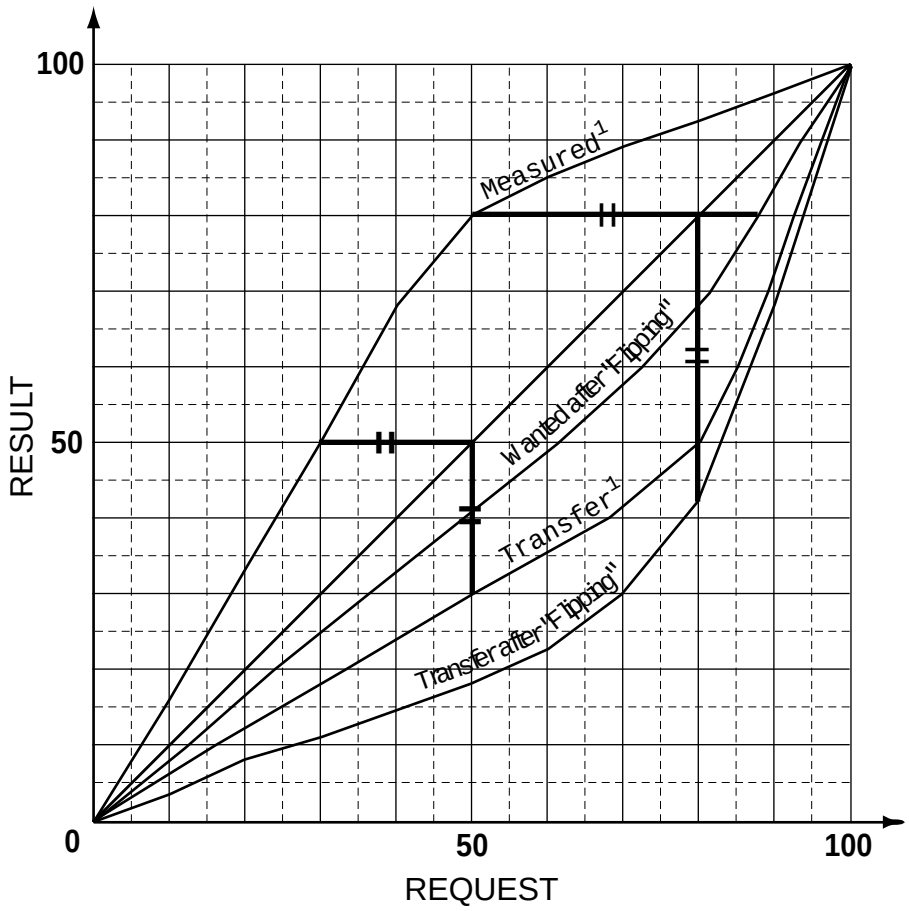
Flipping the “Wanted” Dot Gain Curve

In some cases it is impossible to measure the wanted curve or goal curve. Only the deviation or error to the desired result is measurable. These measured error values can still be used as input in the “Wanted” values column. In order to turn these values into real wanted values, flip the measured curve around the diagonal by selecting “Flip” from the pull-down menu. Otherwise, using the measured values as such would result in a calibration in the wrong direction (i.e. instead of making the output lighter it would become darker or vice versa).

The graph below represents the measured error values and the incorrect resulting transfer curve when no flipping is done.



This graph represents the wanted values after flipping the measured error values and the resulting transfer curve which will enable you to produce the correct output.


100
50
0
RESULT
50
100
REQUEST
Measured-1
Wanted after "Tipping"
Transfer-1
Transfer after "Tipping"

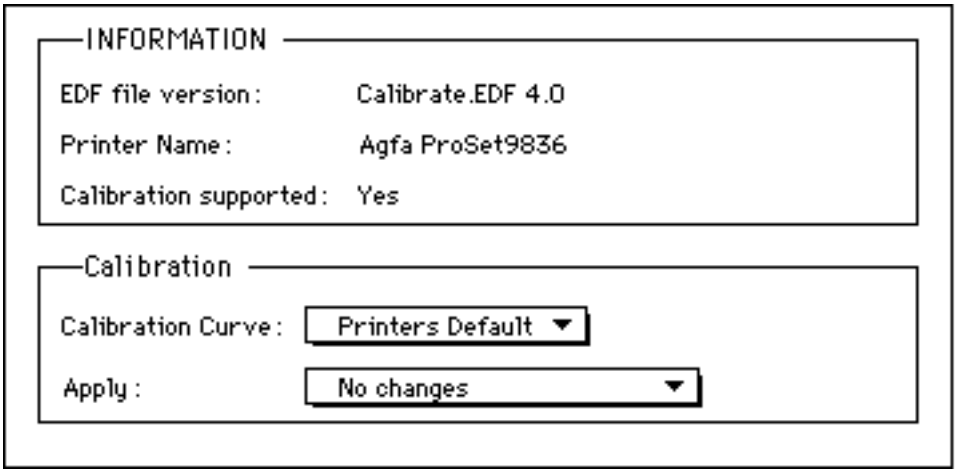
Appendix D — Calibrate.EDF

Calibrate.EDF files are adapted in Calibrator. To reset the RIP to generate linear output, you should apply a linear curve to the Calibrate.EDF file.
You can use these adapted Calibrate.EDF files in AgfaSet 3.1 to calibrate PostScript Level 1 RIPs.

In this appendix you will find the instructions for using the adapted Calibrate.EDF files in AgfaSet 3.1 For a detailed description of AgfaSet 3.1, refer to “Launching an Engine Script” in Part 2: Macintosh Users of the Agfa PostScript Environment User’s Guide.

1. Click the Engine... button.

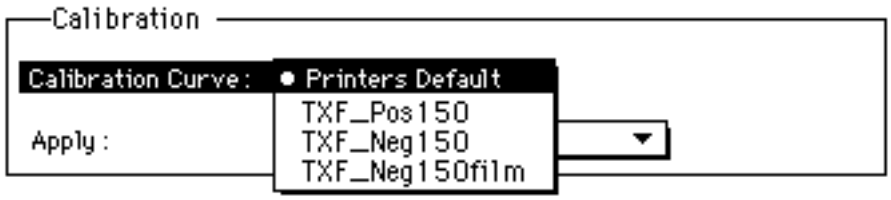
   After communication with the RIP, the EDF startup screen appears.



The EDF reflects the calibration possibilities of the connected RIP. It does not reflect the currently installed calibration curve. In the lower part of the screen, you find the pop-up menus Calibration Curve and Apply.

Selecting the Calibration Curve

The Calibration Curve menu contains the names of the calibration curves that were applied to the EDF using Calibrator 4.0. Depending on the connected RIP, some of the selections may be grayed-out. If the EDF file was new, and never adapted by Calibrator, only Printers Default will appear.

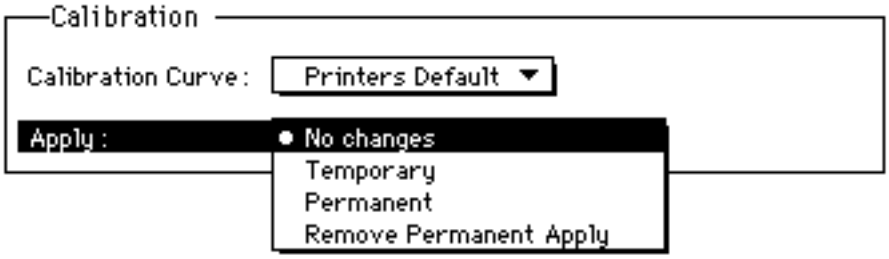


2. Select the calibration curve you want to install on your RIP.

Selecting the Apply Mode for the Calibration Curve

The apply menu contains 4 options:

- No changes
  The calibration curve will not be applied.
- Temporary
  The curve will take effect until the next boot cycle of the RIP (RIP reset or power off/on cycle).
- Permanent
  On Agfa RIPs you can install the calibration curve permanently. The EDF will adapt the user/boot file, if existing. The calibration will persist, even after a reboot of the RIP. If no user/boot file is found on the RIP the selection will be grayed.
  If a calibration is already permanently resident on the RIP, the permanent option will overwrite the former calibration by the one you select now.
- Remove Permanent Apply
  To delete a calibration curve which was permanently installed, choose the Remove Permanent Apply option . This is only necessary if you want to remove the permanent calibration. In case you would like to alter the calibration (overwrite by new curve), just use 'Permanent'.



3. Select the apply mode for the selected Calibration Curve.

Applying the Calibration Curve

4. Click the Apply button in the upper right corner of the EDF window to install the selected calibration curve on the RIP with the selected apply mode.

   After doing so, the EDF file will query the RIP again and show the startup screen (see 1.)

Appendix E — Glossary

calibration

The adjustment of a device by measuring its deviation from standard values and then, during operation of the device, applying values to compensate the deviation. In prepress, in particular, calibration is the fine-tuning of scanners, monitors, printers, and imagesetters in order to increase the accuracy of their output.

calibration curve

During the calibration, a curve established by measuring the degree in which the printed densities differ from the required densities. The curve is plotted by measuring this deviation on a number of density levels. See also transfer function.

color balance

The amount of cyan, magenta, and yellow printing that is needed to produce a good reproduction with gray balance and satisfactory overprint colors.

color cast

An original, an image, or a reproduction has a color cast when its overall color appearance inaccurately tends to one hue. Especially with transparent originals, a color cast can impede good reproduction.

color correction

The adjustment of color to obtain an accurate image. Color correction may be necessary because of the impurities of process inks, imperfections of color separations, or because of a color cast.

color proof

A printed or simulated printed image of each process color using inks, pigments, or dyes to give a visual impression of the final reproduction.

color separation

The separation of a color image into four layers corresponding to the four inks (CMY+K) used in process printing. Each layer is a halftone image in itself.

colorimeter

A device used for direct measurement of color.

densitometer

A device sensitive to the intensity of light passing through film or reflected by paper. A densitometer works in two modes: integral mode measures density on a logarithmic scale from 0 to about 4; dot-percent mode measures density on a linear scale from 0 to 100.

density

A measure of the darkness of an image on paper or film. In the case of paper, which is reflective, the less light reflected, the higher the density. In the case of film, which is transparent, the less light showing through, the higher the density. Paper has an integral density range from 0 to 2; film from 0.1 to 4.5.

density range

The difference in density between the brightest highlights and darkest shadows of an image.

dot gain

An imperfection of printing that causes halftone dots to print larger than they should. This imperfection is mainly caused by the spread of light on film (recorder gain) or by the absorption of ink by paper (press gain). The reproduction thus becomes darker than it should. Calibration can remedy this through a calibration curve. Dot gain is most noticeable and referred to in the midtones.

dpi

Dots per inch—a commonly used measure for the resolution of scanners, monitors, printers, and imagesetters. However, the term is slightly misleading because of the apparent, but non-existent relation with dots in a halftone. More accurate measures of resolution are ppi (pixels per inch) and rpi (rels per inch).

EDF

An Engine Description File is a script file that contains the description of a user interface. The file is used by AgfaSet 3.1 PostScript Administrator's Tool. The settings of the user result in a PostScript file to set defaults in the machine. Refer to the AgfaSet 3.1 PostScript Administrator's Tool manual for more information.

gray balance

In process printing, indicates the proportions of cyan, magenta, and yellow (in slide-making, the proportions of red, green, and blue) to obtain a neutral gray, that is, a gray with no apparent color cast.

gray scale

A range of grays with regular density intervals from white to black. A gray-scale image is an image that contains various levels (or shades) of gray.

imagesetter

A device used to output a computer image or page composition at high resolution onto photographic paper or film.

lpi

Lines per inch—the measure of frequency (the spacing) of the lines in a halftone screen, usually ranging from 55 to 200. The higher the frequency, the smaller the halftone dots will be.

neutral gray

An area of an image is neutral gray when it does not have any apparent color cast.

PostScript

A language for describing graphic and typographic elements. The elements described in Postscript can be displayed or printed regardless of the output resolution of the monitor, printer, or imagesetter. This independence from resolution is achieved by describing the elements as a collection of vectors with specific shapes.

PPD file

A PostScript Printer Description file is a file that provides a uniform approach to using the special features of devices that contain PostScript interpreters. They are provided by printer manufacturers or come with applications.

press gain

See dot gain

proof

A single reproduction of an image to verify its density or its color without actually having to print it on a printing press.

recorder gain

A defect of the writing engine of an imagesetter by which dots print larger than intended, causing darker tones.

screen angle

The angle at which lines in a halftone screen are printed. For gray-scale reproductions, an angle of 45° is common; for color reproductions, each CMY+K halftone has a carefully chosen angle to avoid moiré.

screen frequency

The spacing of the lines in a halftone image, usually measured in lines per inch (lpi). Each line is composed of a number of halftone dots.

transfer function

A mathematical function that can be represented by a curve and that transforms density levels on input to density levels on output. See also calibration curve.

transmissive density

The optical density of a transmission material as determined by a transmissive densitometer.

transmissive densitometer

A device used to measure the coverage of exposed film.

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Appendix F -

Agfa Calibrator 4.0 for Windows

With the outcome of Calibrator 4.0 for Windows, PC users can handle much the same as the Macintosh users. Here we point out the small differences.

Installing Calibrator on your PC

This section describes the system requirements and installation procedure for Agfa Calibrator 4.0 for Windows.

System Requirements

The minimum system requirements for running Agfa Calibrator for Windows are as follows:

- Personal computer with 386 or higher processor running Microsoft MS-DOS® operating system version 5.0 or later and Microsoft Windows operating system version 3.1 or later in 386 enhanced mode.
- 4MB of available memory.
- 1MB of available hard disk space.
- VGA or higher resolution monitor.
- Microsoft Mouse compatible pointing device is recommended.

Installation Procedure

To install Agfa Calibrator 4.0 for Windows on your PC, proceed as follows:

1. Insert the Agfa PS Companion CD in your CD drive.
2. Run ENGLISH\AGFACAL\SETUP.EXE.

The installation program will copy the files "agfacal.exe", "agfalogo.ps", "calibrat.edf", "agfacal.pdf" and "readme.txt" into your home directory and the file "grid.vbx" into your system directory. It also creates a new Program Group with 3 Program Items. To run the calibrator program, double-click the Agfa Calibrator 4.0 for Windows icon. To read the release notes, double-click the Readme icon. To uninstall Agfa Calibrator, double-click the UnInstall icon.

❖ *Note: The initialisation file "C:\windows\agfacali.ini" will be automatically created on first use of Calibrator.*

Using Calibrator 4.0

Agfa Calibrator 4.0 for Windows is the version of Calibrator 4.0 for MacOS that runs on computers with MS-Windows installed. The two programs look and behave alike. The only subtle differences can be found in some user interface aspects. Agfa Calibrator for Windows follows the specific behaviour and guidelines as they exist and are commonly applied for Windows applications. This way the experienced Windows user immediately will feel comfortable with Calibrator. The main window has a menu bar, a toolbar and a status bar. The latter two are not found in the MacOs version. The status bar is intuitive. The toolbar is briefly explained below:

1: Create new Calibrator document

2: Open existing Calibrator document

3: Save the active document

4: Cut

5: Copy

6: Paste

7: Print the active window

8: Show/Hide black graph

9: Show/Hide cyan graph

10: Show/Hide magenta graph

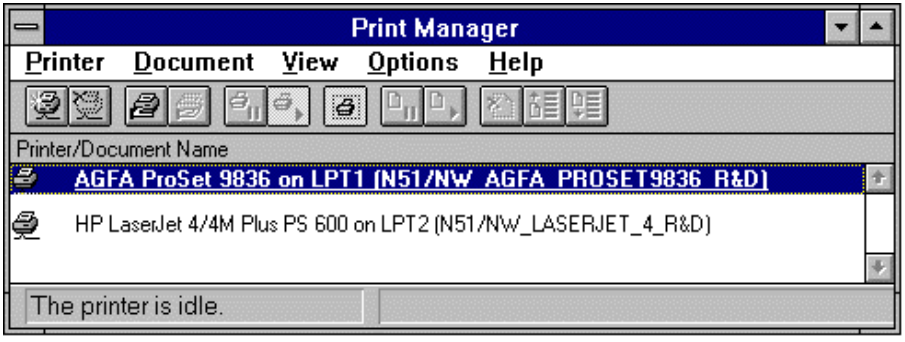
11: Show/Hide yellow graph

12: Show/Hide all graphs

13: About Agfa Calibrator 4.0 for Windows

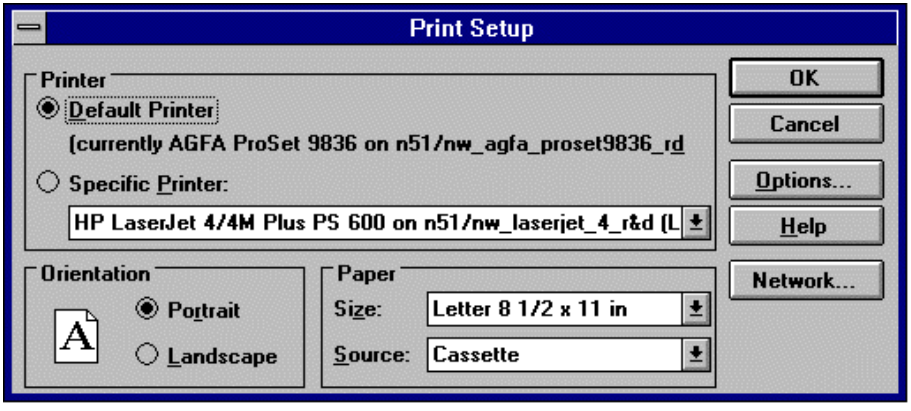
Selecting the Printer

Use the ‘Printers’ Control Panel or the ‘Print Manager’ application to select the PostScript driver and the printer that you want to calibrate.



Set this printer as the default printer. The default printer will be used to print the test page. The printer name will be saved in your calibrator document

❖ *Note: When you select a specific printer in Print Setup, e.g. to print the active window, never forget to select the default printer in Print Setup again.*



Notes on Using Calibrator 4.0

File names under MS-Windows

Due to the known filename restriction (8.3 characters) under MS-Windows, the Mac file Calibrate.EDF has been renamed for use with Calibrator for Windows as calibrat.edf.

For the same reason Agfa Calibrator for Windows proposes new descriptive names when saving Halftone-Linked Transfer Resources and Transfer Resources in resource files.

- Example of a Halftone-Linked Transfer Resource file name: 2415R133.agp

  Elements of the file name:

  - 24 is the imaging resolution /100
  - 15 is the integer part of the screen angle
  - R is the first character of the dot shape
  - 33 is the screen ruling
  - ag are the first 2 characters of the name of the Ruling Map
  - p is the photometric interpretation

    (p positive, n negative)

- Example of a Transfer Resource file name: BW12P122.ctr

  Elements of the file name:

  - BW is the device type

    (BW : BlackAndWhite, CC : Composite Color, CS : Color Separations)
  - 12 is the imaging resolution /100
  - P is the photometric interpretation

    (p positive, n negative)
  - 122 is the screen ruling
  - .ctr extension : Calibrator Transfer Resource - file

Saving the calibration curve

1. Click the Apply button and the Apply Setup dialog box appears:

2. Select the file format in which you want to save the calibration curve.

❖ *Note: When you apply the calibration curve to the PPD file for your printer, you will be asked for a filename for the customized PPD file. You can use the .ppd extension (PPD Files) or the .ext extension (Extended PPD Files). The saved customized PPD file is always merged. This means that the original PPD is included, instead of referenced, in the customized one.*

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