040b74797065647374726561d8103a2840163c48403737373810a0a810b0b815f5f84012584067f411b312d37

Curve Calculation

This tool isn't available as an icon like other links and tools, but is an extension to the *Printing* submenu of OneVision's main menu. It allows you to calibrate your system to various output devices.

Together with the *Rendering* (;TMSPrintParameterGenerator2.rtfd;;¬), the *Curve Calculation* panel tool offers functions for creating print parameters that may be used for documents or individual elements.

The result of the calculations are three characteristic curves that provide the data necessary for PostScript color separation in OneVision. These curves can be used both for Gray Calibration and Color Calibration for rendering functions, and in the *Separation and Print Parameters* panel (;../TMSSep/TMSSep.rtfd;;¬).

Input / Print Parameters

The panel is divided in two halves. In the left side, you enter your values; in the right side, you see the resulting curves based on your parameters.

Gray Calibration

The characteristic curves for gray calibration are calculated from the Gray Component Replacement (GCR) curve and the Undercolor Addition (UCA) curve. From these curves the Black Generation (BG ;../TMSSep/TMSSepBasics.rtfd;BG;¬) curve and the Undercolor Removal (UCR ;../TMSSep/TMSSepBasics.rtfd;UCR;¬) curve are calculated. These curves can be used for the gray calibration in the *Rendering* (;TMSPrintParameterGenerator2.rtfd;Unbuntabgleich;¬) panel.

The following section describes how to find correct characteristic curves for a production process and how to calibrate your system.

GCR;¬Gray Component Replacement (GCR)
605762_paste.tiff ¬
Gray Component Replacement (GCR) replaces those gray components represented by process colors (cyan, magenta, and yellow) with black. Fluctuations in the gray range caused by color impurities are also reduced. The GCR curve describes what percent of each gray component will be removed. The x-axis represents the initial value, the y-axis determines the share that is replaced. A diagonal from the bottom left to the top right results in achromatic colors, removing completely at least one of the process colors (cyan, magenta, or yellow). A horizontal line at 0 represents pure CMY colors, with no black used. The curve can be manipulated with the Curve Editor, so that any replacement of colors can be attained.

UCA;¬Undercolor Addition (UCA)
205137_paste.tiff ¬
Black that originates only from the black plate lacks depth and coverage, so additional black color is often added using the CMY plates. This addition of three-color black is called undercolor addition. With the Curve Editor, you can define how the pure black from the black plate is supported by three-color black.

Example: A line from 0/0 to 100/30 (x/y) says that 30% three-color black is added. If a color is composed of C:70, M:20, Y:90, the gray component is 20. Therefore 6 would be added to each of the process color plates printing the color with C:76, M:26, Y:96.

Transfer;¬Transfer Curve
Transfer curves are used for compensating the dot gain (;../TMSSep/TMSSepBasics.rtfd;Tonwertzuwachs;¬) in printing. Creating transfer curves is done in two steps. First you would expose film and determine a characteristic curve for a correct

exposure. After you've obtained a correctly exposed film, you would print a sample print, serving for determining a correction curve for the print. From these two curves, OneVision calculates an overall transfer curve that ensures correct prints.

Normally you need a transfer curve for each plate. Therefore, the panel provides a selection list in which you can create as many entries for curves as you like. You can create a new entry using the <*Duplicate*> command from the *Edit* menu of OneVision's main menu (or by using the keyboard alternative *Command-d*). You can remove an entry using *Command-r*. Clicking on a selected entry lets you edit its name.

paste.tiff ¬

Curves for Film and Print
828085_paste.tiff ¬

For each entry in the selection list you can specify two curves from which the final transfer curve is calculated. Both curves can be created independently. The left one is intended for films, the right one for prints. This enables you to involve both steps of the reproduction process into the generation of the print parameters. You can edit the curves using the Curve Editor (;../OneVision/WorkingIntro/TMSCurveWell.rtfd;;¬).

When measuring the tone values from sample print the results can be collected in a list. Clicking the <*List*> command opens an appropriate panel.

779056_paste.tiff ¬
Figure: The Dot Gain List panel.

Input
Enter the desired grayscale values on the left (<*Requested in Percent*>) and the measured values from the sample on the right (<*Measured in Percent/Density*>). Clicking <*Add*> or pressing the *Return* key adds the values to the list, which is sorted in ascending order. If you want to change a value, just enter it again; if a version of it exists already, the old version will be

replaced. For deleting a pair of values, enter them again or click on them with your mouse and use the <*Remove*> command.

The measured values can be entered either in percent or in the unit called ªDensityº, used by most densitometers.

The <*Cancel*> command discards all entered values.

Clicking <*OK*> translates the entered values into a curve and displays it in the corresponding curve well icon, either <*Print*> or <*Film*>. The curve consists only of segments of straight lines. For smoothening the jaggedness of the curve the Curve Editor should be used; interpolating can be very helpful.

Each time one of the curves for <*Print*> or <*Film*> is changed, the overall transfer curve is calculated from both curves and shown in the curve well icon in the right half of the *Curve Calculation* panel. This curve is intended to be used in the *Separation and Print Parameters* panel for documents or elements (;../TMSSep/TMSSep.rtfd;Transferkurve;¬).

Note: According to the mathematical definition of photographic density, values higher than 3 don't make sense. If you use higher values, you will get results that cannot be displayed correctly. Instead, they will be substituted for with the constant ªInfinityº. You'll get the same result if a grayscale value of 100% is transformed to photographic density, because in this case the density would be infinite.

Name
Here you can specify a name for the calculated print parameters.

Save
This command saves the current settings, making them available for further use.

Load
This command is used to load existing sets of parameters.

Next: ;TMSPrintParameterGenerator2.rtfd;;¬ Rendering