Activity 4: Create a print calibration curve to align a press to an industry tonal match specification

Background

You can use print calibration curves to align a curve-controlled device to an industry specification. A print calibration curve can make the printed results of a halftone output device match either the tonal response or gray balance of a target device condition.

This activity creates a print calibration curve to align a press with an industry specification for tonal match. Tonal match refers to the Tone Value Increase (TVI), also known as dot gain, of the target specification and uses the calculated Effective Dot Area (EDA) for calibration. EDA calculations are based on the density measurements of each ink or colorant.

When using a ColorFlow curve for tonal calibration in Prinergy, you can make instant on-the-fly adjustments for dot gain directly in Prinergy Workshop at the time of output, without having to return to ColorFlow to make any adjustments.

Tasks

Goal

Create a print calibration curve with a defined industry tonal match specification. After the curve is created, use the print curve to output a job in Prinergy and make an on-the-fly tonal adjustment to compensate for an unexpected press fluctuation.

Task 1: Create a print calibration curve to match an industry specification

- 1. In ColorFlow, click the **Print Curves** tab.
- 2. In the Calibration Curves section at the top-left, click the

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- 3. In the **Devices** dialog box, add a new device :
 - a. In the **Device Name** box, enter XX Offset Press (where XX = your initials).
 - b. From the **Device Type** list, choose **Offset Press - Sheetfed**.

on the

c. Click Create.

Add button

- d. Drag the device you just created to the viewer window and close the **Devices** dialog.
- Click the **Properties** icon press icon.
- 5. From the **Plate Setup** list, select **None**. You can also select a plate setup defined in the **Plate Curves** tab.

Contents

- 6. From the **Screening** list, select 20u staccato or add the value to the list if it doesn't exist. Skip this step if you selected a plate setup above.
- From the Substrate list, choose Type 1 or 2 (coated art) 170 g/m2.
- 8. Leave Process Inks and Other with the default values.
- 9. Click **OK**.
- 10. Create a Tint Ramp chart:
 - a. Click the **Measurement** icon in the Offset Press panel.
 - b. In the Charts section, click the Add button

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A chart appears in the **Charts** list with a default name.

- c. From the Chart Type list, choose Tint Ramp.
- d. In the **Tint Set** section, click the **Edit** button

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e. Click the Add button ? Unknown Attachment

enter 0 10 25 50 75 90 100.

- f. Click OK.
- g. From the Process Ink Set list, choose CMYK.
- h. Click Save. You can change the default name of the chart to CMYK_Tint_Ramp

and

- 11. Enter the measurement values. In a real-life situation, you would print the chart and measure the chart using a measurement device. For the purpose of this training, you will enter the given EDA values:
 - a. Disconnect any measurement device and then click **Measure**.
 - **b.** In the **Characterization Print Curve** dialog, keep the default value Linear (None) and click **OK**.
 - c. In the Connection Error dialog, click Enter Manually.
 - d. Leave the Tonal Response Metric: as Murray-Davies Effective Dot Area
 - e. In the Channel Binding section at the bottom-left side, click C, M, Y, K Same
 - **f.** In the **Tonal Response** section at the to- left side, enter the following EDA values:

Tint in	EDA
10	12
25	29
50	57

75	82
90	93

- g. Click the **OK** button on the bottom-right side.
- 12. To review the measurement value:
 - a. Click the **Measurements** tab.
 - b. Select the chart and click **View**.
 - c. Select the **Show Measurements** check box. You will be able to view and edit measurement values in the **Tonal Response** section.
 - d. Hit Cancel at the bottom right to close the Tonal Response panel, then hit the x button at the top right to put away the Device Measurements panel.
- 13. Define the calibration target as an industry specification:
 - a. Click the **Calibration** icon *icon* in the link area between the **Calibration Target** and **Device Condition** panels.
 - b. Ensure the **Show curves in Prinergy** check box is selected under the Conversion Name.
 - c. Click the **Process Inks** tab and choose **GRACoL2006 Coated 1** from the **Target** list.
 - d. Do not change **Curves Method**: **Tonal Match**, which is automatically selected
- 14. Click **OK**.

A print calibration curve is generated to match the tonality of the chosen industry standard.

15. In the Calibration Curves table list at the top left, find the curve, double-click to select the default curve name and enter XX New print calibration curve for tonal match (where XX = your initials). Click anywhere in the blank area to set the curve name.

Task 2: Output a job using the newly created print calibration curve

- In Prinergy, create a new job, and name it as XX tonal match (where XX = your initials).
- 2. Refine CMYK_Tint_Ramp.pdf with 1stRef-Normz.
- 3. Output the PDF file using Virtual Proof.LoosePage with the print curve you just created:
 - a. In your **Virtual Proof.LoosePage** Process template dialog box, from the **Output To** list, choose **Virtual Proof**.
 - b. Leave **ColorFlow Color Relationship Management** unchecked.
 - c. Expand the Calibration & Screening panel.
 - d. Click the **ColorFlow Current State** radio button.

- e. Expand the Print Curve drop down list and select curve XX new print calibration curve for tonal match .
- Open the generated page in VPS and measure the 10%, 25%, 50%, 75%, and 90% Black patches.
 Confirm that the plate calibration curve has been applied: Black 10% measures 15.7; 25% measures 36.1; 50% measures 62.0; 75% measures 84.4; 90% measures 95.7.

Task 3: Make an on-the-fly tonal adjustment in Prinergy

- 1. In Prinergy, start a final output process using the same process template used in **Task 2**.
- 2. In the **Start Process** dialog box, click **Tonal Control...** The **Tonal Control** dialog box appears showing the information from the separations in the surfaces of the job selected for output.
- 3. From the **Separation** list, select **Black**.
- The Curve Channel list displays the ColorFlow curve channel that has been assigned for the selected separation. From the Curve Channel list, choose Black.
- 5. To make tonal adjustments, in the Tonal Adjustments section, drag the sliders or enter the desired values directly into the boxes under the sliders. The Midtone (50%) control affects the full tonal range. If you adjust the Midtone (50%), the Quartertone (25%), the 3/4 Tone (75%), the Highlight (10%), and the Shadow (90%) are adjusted according to the value of the Midtone (50%). For the purpose of this training, in the box under the Midtone (50%) slider, enter -5.
- 6. Click **OK**.
- **7.** After the output is done, open the generated page in VPS and measure the 10%, 25%, 50%, 75%, and 90% Black patches.

Confirm that the tonal adjustments you made are applied: Black 10% measures 14.2; 25% measures 32.7; 50% measures 57.0; 75% measures 80.9; 90% measures 94.2.

Outcome

You have created a print calibration curve for tonal match to an industry standard and made an on-the-fly tonal adjustment in Prinergy.