How to use test files to adjust SuperDriver Color Correction settings

Zenographics has tested your printer model with factory-provided ink (or toner) and paper to determine optimal settings for color correction and dot gain using the default SuperDriver halftoning pattern. (Halftoning refers to the pattern of dots that ink-jet, laser, and color thermal printers use to create shades of color or gray.) If you have changed ink, paper, or halftoning pattern, or if you are not happy with the color that you get with default settings, we have provided two tools in this directory to help you adjust your color.

The DOTGAIN.JPG file contains color gradients and a gray-on-gray box that will help you adjust for the spread of ink or toner on the paper or other media. ADJ_HUE.JPG gives you sample swatches that let you correct hue values quickly and easily for the pure additive and subtractive primary colors. (Corresponding files in Windows Write format have been provided for use in Windows 3.1x.) The first test you should run uses DOTGAIN.JPG.

Adjusting Dot Gain

First, you need to print the DOTGAIN.JPG file as follows:

1. Open SuperQueue.

2. Choose **Printer Setup** from the **Printer** menu.

3. Navigate to the **Image** tab (SuperPrint 4.0) or the **Color Correction** dialog (SuperPrint 3.1).

The next step overrides your current settings. If you have previous modified them, you may want to write them down so you can restore them later.

4. Set **Lightness**, **Contrast**, and **Saturation** to zero (0). Click **OK** to exit the dialog.

You are now ready to print the file. If you are using SuperPrint 4.0 under Windows 95 or Windows NT:

5a. With the target printer window highlighted in SuperQueue, choose **Printer / Add Documents**. Navigate to the UTILS directory on the SuperPrint CD-ROM and choose DOTGAIN.JPG. When the preferences dialog appears, make sure **Automatic Lightness** and **Automatic Contrast** on the **Enhancement** tab are *off.*

If you are using SuperPrint 3.13 under Windows 3.1x:

5b. Open Windows Write, load the file UTILS\DOTGAIN.WRI from the SuperPrint CD-ROM and print it to the target printer. Make sure you are set up for a landscape page.

When the printout is in hand, you are ready to evaluate the results.

Hold the page so the color bars are horizontal and the black & white test pattern is at the bottom of the page. Inside the black & white pattern, the small box on the right contains a 50% gray while the surrounding gray is a pre-halftoned monochrome pattern. Those two gray values should match. (Hint: Squinting or viewing the page at a distance helps in evaluating the difference between the two grays.) If they do not match:

6. Access the SuperDriver **Halftoning** options (**Printer / Printer Setup / Halftoning** in SuperQueue).

7. If the small box is darker than the surrounding gray, raise the **Dot Gain** value. If it's lighter,

lower the **Dot Gain** value. Try 5% increments to start.

Repeat this sequence until the grays match in intensity. If you have a color printer, there is one more thing to check to confirm that your dot gain setting is correct. Once the grays match in intensity, check the gradient color bars for the placement of the mid-point color intensity. Cyan, Yellow and Magenta (the colors of the inks in your printer) will probably be the best indicators. The color values near the center line should be close to pure, that is, with little or no white showing through a halftoning pattern, or little or no darker halftoning dots appearing. If colors around the center line are too light or too dark, some additional fine-tuning of the **Dot Gain** setting may be required.

Adjusting Hue Matching

If the solid color boxes on the DOTGAIN.JPG printout do not contain correct hues, the ADJ_HUE.JPG file can help you adjust the hues. There are two ways to begin this test: starting from existing settings or starting "from scratch." If there are only minor discrepancies in the hues, you should just modify existing settings. If this is the case, skip to step 3.

To start from scratch:

1. Access SuperDriver's color correction (the **Image** tab in SuperPrint 4.0 or the **Color Correction** dialog in Windows 3.13).

SuperPrint 4.0 has an **Adjust Hues...** button that lets you access all hues from a single dialog. SuperPrint 3.13 uses individual buttons to access a dialog for each hue. As with the **Lightness**, **Contrast**, and **Saturation** settings, if you have previously modified any of these settings, you may wish to write down the **Red**, **Green**, and **Blue** values in case you want to restore them later. If you have not modified them before, they can be restored to original settings with the **Restore Defaults** button.

2. Change the color values for each hue to the following:

	COMPONENTS		
HUES	Red	Green	Blue
Red	255	0	0
Yellow	255	255	0
Green	0	255	0
Cyan	0	255	255
Blue	0	0	255
Magenta	255	0	255

3. Make sure that **Lightness**, **Contrast**, and **Saturation** values are set to zero (0).

4. Print the file ADJ_HUE.JPG (or ADJ_HUE.WRI in Windows 3.1x) using the same method as you used to print the dot gain test file.

Holding the page so the numbers read correctly, the center column contains the pure hues as rendered with the current settings. To the left and right of the pure hues are hues that contain more or less of the related red, green, or blue (RGB) components. If one of these other boxes appears to be closer to the hue you want, note the value shown in that box. For example, if your pure red is too orange, the box containing "+20B" might contain a better red. The "+20B" indicates that 20 units of blue (out of a possible 255) have been added to that red. If you think the hue you want falls in between two suggested values, feel free to use an interpolated value.

Once you have determined which changes need to be made:

5. Access the SuperDriver's hue correction dialog and use your modification values to add to or subtract from the RGB values of the errant hue.

Using the previous example of "+20B", you would increase the blue component of the red hue by 20 units. If it was previously 0, you would make it 20. If it was previously 25, you would make it 45.

You may wish to print out another test page to confirm your results.

Having completed these tests, you have corrected for your printer's marking mechanism and ink colors. Further correction – especially of **Lightness**, **Contrast** and **Saturation** – may be needed depending on your document content.