

Test Targets Showcase: The Effect of Device Profiling

by Ganesh Sivam

Objectives

This study focuses on the role of scanner and printer profiling and its impact on color image reproduction. To test the importance of device profiling, two scanners were profiled and two output device profiles were tested. We learned that there are noticeable color differences in color reproduction between two scanned images when scanner profiles and printer profiles were incorrectly applied. And color differences were reconciled when the correct profiles were applied.

Procedures

1. Scanning

The scanners used in the study were Nikon CoolScan and Scitex EverSmart. Two images, the IT8.7/1 and a nature photographic transparency, were scanned.

2. Scanner profiling

A 35 mm profiling target was used to characterize the two scanners with the use of Kodak ColorFlow ProfileEditor (v2.2.1).

3. Printer profiling

Monaco Profiler (v3.2) was used to characterize the Indigo UltraStream 2000. The software offered choices in Look-Up-Table (LUT) size and bit depth for profile creation. (figure. 1)

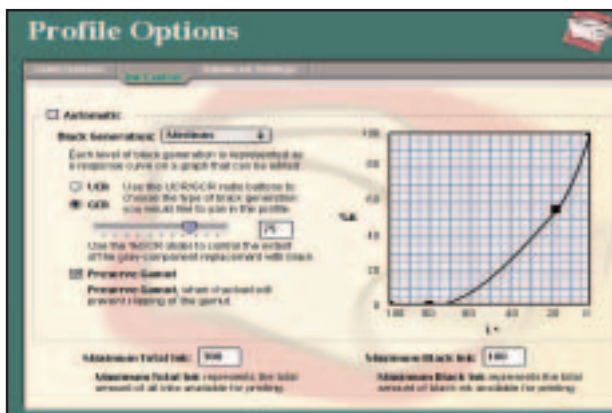


Figure 1. A TAC of 300, medium black, and 75% GCR was used in the CMYK settings.

4. Color conversion using correct ICC profiles

The image was assigned with the scanner profile, and then converted to the ColorMatch RGB working space. The image was, then, converted to the Indigo color space via “Convert to Profile” in Photoshop 6.0 using perceptual rendering intent.

5. Color conversion using incorrect profiles

The scanned image was converted from the ColorMatch RGB working space to the US Web coated v2(SWOP) profile in Photoshop.

5. Output

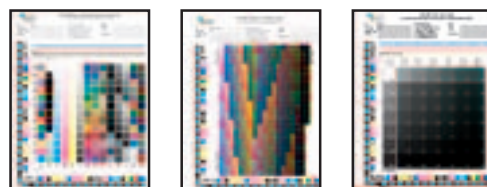
The pagination was implemented in Quark 4.0. The images with correct profiles applied are placed at left (Fig. 1a-4a). The images with incorrect profiles applied are placed at right (Fig. 1b-4b). The page was printed to the Indigo digital press under calibrated printing conditions.

Discussion

In the color conversion using ICC profiles, the images scanned by different scanners had similar (Figure 1a-4a) tone and color reproduction. The images also had good gray balance appearance indicated by the gray scale in the IT8.7/1 target (Figure 1a and 2a).

The images looked different in the conversion using incorrect profiles. Because differences in the scanners color sensitivity were not accounted for in the color conversion. By applying the correct ICC profiles, the quality of image reproduction was improved.

Print-RIT Test Forms used in this study:



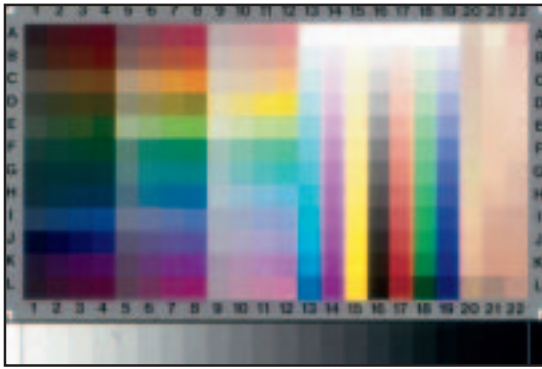


Figure 1a. Nikon ICC to Indigo ICC.

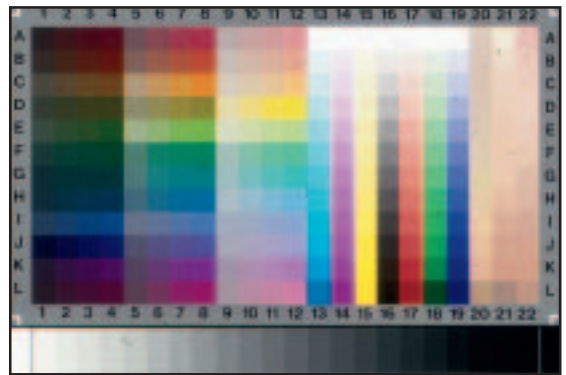


Figure 1b. ColorMatch RGB to SWOP.

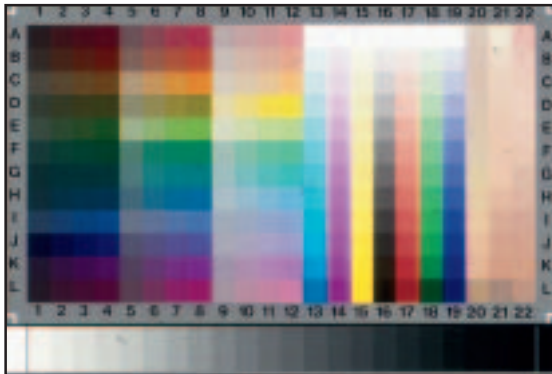


Figure 2a. Scitex ICC to Indigo ICC.

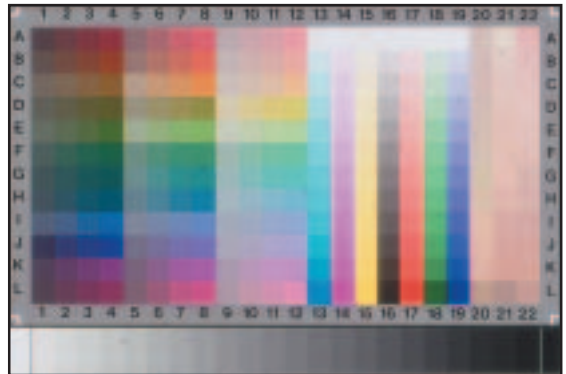


Figure 2b. ColorMatch RGB to SWOP.

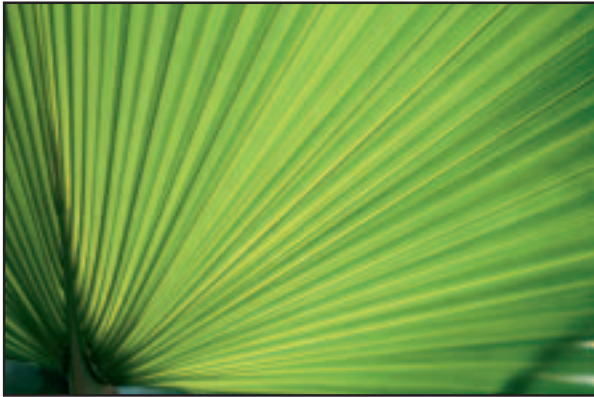


Figure 3a. Nikon ICC to Indigo ICC.

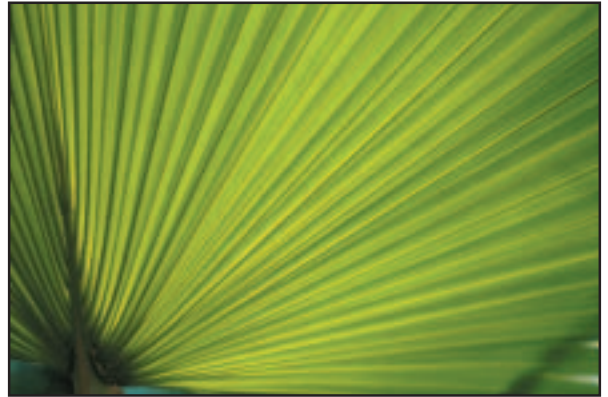


Figure 3b. ColorMatch RGB to SWOP.

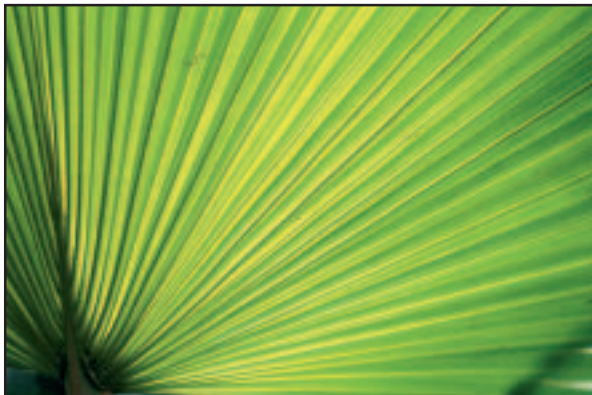


Figure 4a. Scitex ICC to Indigo ICC.



Figure 4b. ColorMatch RGB to SWOP.