Introduction & Acknowledgments

Robert Chung

Test Targets 6.0 was published in November, the time of autumn harvest. Like planting that involves planning, seeding, irrigating, growing, weeding, and harvesting, I like to take the opportunity to describe the publishing process where ideas, knowledge, people, resources, and supports all came together. In doing so, I want to acknowledge those who helped make the sixth edition of *Test Targets* a reality.

Planning & Distribution

When farmers contemplate what to plant, they think about factors such as what to grow, soil, weather, water, yield, etc. There is a small group of people who drive the *Test Targets* publication. When we contemplate what to publish, we know that content is focused on printing process control, color management, and quality assurance; we search for new ideas, listen to suggestions, and push the boundary farther out; we know the importance of peer review to demonstrate excellence in research and scholarship.

When farmers consider what it takes to plant, they think about factors such as manpower, tools, investment, etc. When we consider what it takes to publish, we know the manpower involves faculty, staff, students, and alumni as authors and print production personnel; we know the importance of administrative support and financial assistance; we know the importance of internal and external supports.

Farmers sell their produces to the public. We use *Test Targets* as course materials and give them away as mementos to visitors on campus. We also distribute them free-of-charge at a few selected printing and publishing industry events.

In This Edition

Test Targets is a collection of scholarly papers contributed by faculty, students, and alumni of Rochester Institute of Technology. We realize the importance of having faculty set examples as authors for students to follow. We have a three-course sequence over a time span of a year to prepare students to publish their first articles when completing Tone and Color Analysis, Printing Process Control, and Advanced Color Management. In this instance, *Test Targets 6.0* is a part of the course content in the Advanced Color Management course.

Process Control

There are three papers published under the heading of process control. My colleague, Franz Sigg, provides insight into the measurement of resolution and contrast. Through his writing, you will gain an understanding as to why AM screen ruling of 150 lpi has been a de facto standard; and how contrast and resolution are related to each other. Dimitrios Ploumidis, an alumnus of *Test Targets 5.0,* wrote the second paper. When Wandee Poolpol of Eckart America hosted the metallic pigments manufacturing plant tour at its Painesville, Ohio facilities in April 2006, Dimitrios was able to explore process control issues in metallic color printing using commonly available measurement methods. Doug Caruso, an alumnus of *Test Targets 4.0*, wrote the third paper. Knowing ink-and-water balance is key to temporal consistency of a sheet-fed offset press, he discusses his process improvement effort with the use of the continuous dampening system in his printing company.

Color Management

There are three papers published under the heading of color management. Being curious to learn if different profile target layouts and patch sizes would impact colorimetric accuracy of printer ICC profiles, I approached the problems by first finding out spatial uniformity of a device and then simulating color accuracy with the use of ColorThink 3.0 Pro. The second paper, entitled "Implementation of PDF/X-3 in Production," was co-authored by my colleagues Michael Riordan, Fred Hsu, and I. We performed a number of PDF/X-based workflow experiments using NexPress and its NexStation RIP as the testing bed. The findings are both documented and illustrated in this issue of *Test Targets*. The author of the third color management paper is Henry Freedman, an RIT graduate in the 1970s. It was his *Technology Watch* Newsletter that first demonstrated color match between digital color printing and offset. We invited him to share his experiences with the readers while we put together a test page to demonstrate the cross platform color match between the NexPress and the Heidelberg sheet-fed offset press. In this case, sRGB images were converted and printed by sheet-fed offset; we then convert color images from the offset color space to the NexPress color space with the use of an ICC device link profile.

Quality Assurance

Matthew Rees is a graduate student enrolled in the Advanced Color Management course. Matt and I co-authored the last paper in *Test Targets 6.0* on the need to bridge traditional standards and digital printing standards together. From a quality control and assurance point of view, traditional printing standards cover process control aims, but did not address visual defects as a measure of acceptable quality level. As digital printing standards are being developed, Matt and I are pleased to report the work of ISO 13660 and ISO 19751 where visual defects are defined, quantified, and specified as engineering requirements in the evaluation of digital printing system performance.

Gallery of Visual Interest

In addition to scholarly papers, *Test Targets* entertains its readers with a Gallery of Visual Interest. In this issue, we picked up a few favorites from past editions; we introduced a new research dimension, Pictorial Color Reference Images or PCRI (pronounced pee-cree). We added a bit-depth demonstration, courtesy of my colleague, Michael Riordan; we added visuals that illustrate the use of Highlight and Shadow Adjust tools in Photoshop CS2 to salvage problem digital images; we enlarged the ΔEab vs. ΔE00 demonstration at two color difference magnitudes, ΔE of 5 and 10.

Test Form

The last section of *Test Targets* is a collection of test forms. These test forms are printed by the Printing Application Laboratory's sheet-fed offset. These test forms, along with color measuring instruments and customized Excel spreadsheets, are instrumental in capturing color behaviors of CMYK printing devices. Three new test forms were added to this edition: a monochrome test page, GRACoL's P2P target, and a color sequence target, designed by Franz Sigg for Professor Gary Field who retired from Cal Poly. The color sequence target takes advantage of PAL's 6-color Heidelberg sheet-fed offset press to study the effect of KCMY ink-sequence vs. CMYK ink-sequence on gloss and on lower L* portion of the color gamut. We are seeking a graduate student who is interested in continuing the color sequence study as his/her thesis project.

Design, Premedia, Print Production

A book is often judged by its cover. Silver-ink plus an overall lacquer was used to print the cover. The design concept came from Michael Riordan. The concentric circles with varying widths originally from a resolution pattern developed by Mr. Zenon Elyjiw of RIT and coded in PostScript by Franz Sigg, became an elegant design feature.

There are three workflows used in producing this edition of *Test Targets*: PDF/X1-a, PDF/X3, and legacy workflow. PDF/X1-a is used to produce most of the papers. In the early device-binding workflow, text files were initially created in Microsoft Word files; figures and images were in RGB spaces and were converted to the press CMYK space; texts and CMYK images were paginated in Adobe InDesign CS2; they were distilled to PDF/X1-a prior to sending to PAL's Prinergy workflow via a campus network. PDF/X3 is used to produce a section of the paper involving PDF/X3 implementation as well as the two pages demonstrating cross-system color agreement. Legacy workflow is used to produce the *Test Form* section of the *Test Targets* that involves placing CMYK files without embedded profiles.

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