

Introduction and acknowledgments

by Robert Chung, Gravure Research Professor

Welcome to *Test Targets 5.0*! If this is your first time encountering the publication, you'll be pleasantly surprised of its purpose and content. If you're already familiar with *Test Targets*, jump right into the contents and find out what we did in 2005.

What's *Test Targets*?

Test Targets is about scholarship that intimately involves faculty and students in the process of writing and publishing. Writing is a rigorous way of expressing one's mind by translating thoughts as words on to paper. Publishing demands the know-how of editing and arranging the written contents and graphics in the form of a bound volume according to a layout and finishing plan.

Test Targets is a collection of research papers that require collaborative effort over a time span of three academic quarters. Initially, students learned metrology, color management system, and the use of test targets for device optimization and process control. As time goes by, students are encouraged to identify research topics, formulate methodologies, and carry out experiments and data analyses in order to have specific findings. We're pleased to publish *Test Targets 5.0* as a part of the course content in the *Advanced Color Management* class. We distribute *Test Targets* free-of-charge to students in the classroom. We give it to RIT alumni and friends in the printing and publishing industries as a memento on special occasions. We also distribute it at the Gravure Education Foundation web site at www.gaa.org/GEF/publications.html for \$19.95 per copy to raise scholarship fund.

Test Targets is about experimenting with characteristics of print media and report our findings with the print media that we studied. *Test Targets 5.0* is the fifth edition of the *Test Targets* publication series. In this issue, a Heidelberg sheet-fed lithographic offset press was used to print the cover and a NexPress 2100 digital press was used to print the content.

What's in the publication?

Test Targets is a test bed for ideas about color management and workflow of print media. There are three sections in the publication, i.e., scholarly articles, *Gallery of Visual Interest*, and *Test Forms*.

Eight articles are published in *Test Targets 5.0*. Using first-person narrative, Franz Sigg tells a story of his family's printing business since 1930s where lithography was accomplished with the use of lime stones, and his professional life around film-based workflows since 1960s. Through his story telling, we learn printing as a

technology continuum and his passion for it. Edline Chun provides an account of her experiences in publishing technical manuals about color measurement instruments. It is also a story about teacher-student relationship in the learning continuum.


The bulk of the papers in *Test Targets 5.0* study some aspects of color management and its performance. Michael Riordan points out a weakness of digital pre-media workflow by assessing color errors induced from different color settings between software packages. Adam Dewitz investigates pre-media workflow by describing the PDF/X-1a workflow, used in the production of the *Test Targets 5.0*. He compares what we did against the best practices, and recommends what we should do in the future.

Fred Hsu raises a fundamental question regarding the role of device calibration on color matching performance of an ICC color management system. He discusses the importance of device optimization when deciding how an output device ought to be calibrated.

Color image rendering is a user-controllable feature. Jorge Uribe investigates the inner working of the black point compensation, as implemented by Adobe's color conversion engine. You will find his methodology, quantitative assessment, and answers to his research questions clear and informative. This is also true of the research by Dimitrios Ploumidis who shows how printability issues, such as scum dots, are addressed by a CMYK-to-CMYK link profile within a color-managed workflow.

Parallel with the theme of the changing nature of technology, I describe the role of soft proofing in printing and publishing. I reason why softproofing, not found in the dictionary today, will be recognized as a single word in the foreseeable future. By gazing through the crystal ball of the technology adoption curve, I envision fast adoption of softproofing by practitioners from ad agencies, to publishers, and printers.

Gallery of Visual Interest is the second component of the publication. Images are accompanied with minimum text and they are designed to strike a thought-provoking conversation amongst readers interested in color and print media technology. It contains pictorial reference images of high-key, low-key, and images with high chroma or with important neutrals. It showcases images with noticeable color difference, e.g., the effect of assigning a source profile. It also showcases images with no visual difference but with different pre-media treatments, e.g., the effect of monochrome image rendering in that it shows no visual difference among three black-and-white elements within a pictorial color image. Upon examining these



black-and-white elements with a magnifier, we'll discover microscopic differences among them.

Test Forms is the third component of the publication. Whether pictorial or synthetic, test forms represent known starting points in the print production process. Three new test forms, i.e., gray balance chart, IT8.7/4-2005 Visual, and IT8.7/4-2005 Random, are included in this edition. By incorporating test forms in a print production process, they provide us with a means to characterize color and to gauge process capabilities, variation, and the impact of user-definable settings in color matching or color image reproduction.

Anecdotes of interest

Publishing is like traveling that involves planning, taking the trip, and reaching the destination. There are excitements and detours along the way. In the end, what we achieve reflects our ambition and the amount of efforts exerted.

We are aware of progress made in the PDF/X family of graphic arts technology standards. Implementing PDF/X in a color-managed workflow became an idea for us to pursue. We decide to learn to walk before running. This means that we will convert all RGB images as CMYK images in Photoshop and placed them in InDesign. In the next issue of *Test Targets*, we will test the PDF/X-3 workflow by placing embedded RGB images directly in the article section of the InDesign document. We will continue to use PDF/X-1a as the early device-binding workflow to handle images in the *Gallery of Visual Interest*.

Technologies provide options. Different printing technologies are used to print *Test Targets 4.0* and *Test Targets 5.0*. Specifically, a Goss (was Heidelberg) Sunday 2000 web offset is used to print *Test Targets 4.0*. Each signature is 16 pages. The top press speed is 2,000 ft/min or about 1,000 impressions/min. The production of a 76-page publication for a quantity of 2,000 copies is less than half day.

In contrast, a NexPress 2100 digital press is used to print *Test Targets 5.0*. Each signature is 4 pages and the top press speed is 100 impressions/min. The production of a 76-page publication for a quantity of 2,000 copies is five 8-hour days. So, there is a difference of 10x in printing speed and 4x in area coverage between the two printing technologies. This is why digital printing is meant for on-demand, short-run, and variable data printing.

Acknowledgments

Test Targets is where art, science, and technology of print media meet with a focus on color imaging. We want to thank the following industry partners for their continuing support of this project: GMB, X-Rite, Alwan, ColorThink, Global Graphics, NexPress, Xerox, GATF, GEF, IDEAlliance, and IPA. We also want to acknowledge the following units within RIT for their encouragement

and supports: College of Imaging Arts and Sciences, Sloan Printing Industry Center, Printing Applications Laboratory, and School of Print Media.

A good cover design accounts for half the success of the publication. We're pleased to use a collage, courtesy of Chromaticity, Inc., as the front cover. To compare the difference in output devices, the same image is printed in the *Gallery of Visual Interest*.

The back cover of *Test Targets 5.0* is a rose, courtesy of Greg Barnett. If you have a hardcopy of *Test Targets 4.0*, you will be able to compare the 6-color (CMYKRG) version of the rose with the four-color (CMYK) version in *Test Targets 5.0*.

We're grateful to two companies for their generous donation of paper in this project. Rich Martinez of Tembec donated the cover stock, and Joe Isaak of Sappi Fine Papers donated the body stock. The value of paper donation totaled \$3,500.

With paper donations, *Test Targets 5.0* is still an expensive publication. The cost of digital printing of the content, plus the cost of sheet-fed printing of the cover, and the cost of Smythe-sawn binding totaled about \$10,000. We thank Dr. Patricia Sorce, Administrative Chair of the School, for absorbing the direct printing and bindery costs.

As the project leader responsible for overseeing content creation and print production, I want to recognize my students: Dimitrios Ploumidis, Jorge Uribe, Adam Dewitz, and Fred Hsu, for their interests and efforts in studying color management and carrying out their research projects with School of Print Media faculty members. A special thank-you goes to Dimitrios Ploumidis for page design and layout of this publication. He also served as an expeditor and quality control person in the project.

I also want to acknowledge the following colleagues of mine: Franz Sigg for his article and time to review all articles; Edline Chun for her article and editing of all articles; and Michael Riordan for his article and pre-media execution of the cover and contribution in *Gallery of Visual Interest*.

Printing Applications Laboratory (PAL) has been an important ally that carries out *Test Targets* production since 2003. It has been my privilege working with Barb Giordano on job planning/scheduling, with John Dettmer on pre-media/proofing, with Dan Gramlich on the sheet-fed press, and with Jeremy Vanslette on the NexPress digital press. They are often the unsung heroes who provided invaluable services when we ran into unexpected problems.

Your voice matters

We are interested in your assessment of *Test Targets 5.0*. Tell us how we did, topics we should address in the next issue, and ways to finance the cost of the publication in the future. Please e-mail your comment to the attention of Professor Bob Chung at rycppr@rit.edu.