Abstract

This is the third and final installment in our article about managing customers’ expectations and managing technology change in the graphic arts industry. Part 3 describes a solution, based on recent ISO/TC130 printing standard developments, including (1) ISO 13655, that specifies the use of M1 measurement mode to assess the effect of OBA in printed color, and (2) ISO 15339, that specifies the use of the tristimulus linear correction method to reconcile color differences between the target dataset and that of the actual printing. Through research and testing at RIT, we are able to demonstrate proof-to-print match under the influence of OBA. RIT developed the PSA certification, based on new ISO standards, to address the needs of printers and print buyers. Printers should recognize PSA as a strategy for survival and competitiveness. Print buyers should also recognize the value of PSA and demand PSA certification when managing their global supply chains.

Introduction

OBA-brightened paper is a game-changer. Before OBA-brightened papers were widely adopted, printing paper, proofing paper, printing standards (ISO 12647-2) and proofing standards (ISO 12647-7) were aligned. Printing conformance was achieved by press calibration and color management achieved proof-to-print match. But this is not the case anymore. The ability of OBA papers to improve image appearance (coupled with the fact that these papers were economical to produce) led print buyers to demand OBA-brightened papers. This, in turn, led to a cascade of consequences.

OBA as a Game-changer

The first consequence of introducing OBA-brightened papers was that achieving printing conformance became limited because many OBA-brightened papers are out of specification. Figure 3.1 shows that the negative b* value of the OBA-brightened papers often exceeds the ISO 12647-2 paper tolerances (Chung, 2011).
The second consequence is that OBA-brightened papers influence printed solids and their conformance. This is because large ∆E resulted due to OBA paper and not due to inking (Figure 3.2). When ISO 12647-2 aim points are substrate corrected, cyan solid conformance is improved.

The third consequence, as illustrated in Figure 3.3, was that the ISO 12647-7 compliant inkjet proof (left) no longer matched printed color on the OBA-brightened paper (right) when viewed under the standard D50 lighting condition.

Figure 3.3 highlights the dilemma faced by the graphic arts industry. OBA papers result in prints that are cleaner and brighter (our color preference) but compromise our ability to predict the appearance of an image (by proofing it) before it is printed on press.

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What should the graphic arts industry do? Do we protest that print buyers should not change the rules in the middle of the game? Or we should realize that “old rules do not solve new problems,” and that finding new solutions is the way out?

ISO Standards Addressing OBA Quandary

ISO TC130 is responsible for printing standards development. Experts from around the world have been working diligently to solve the OBA quandary. The solution to achieve proof-to-print match under the influence of OBA requires:
• revision of the ISO 13655 (2009), which specifies the use of M1 measurement mode to assess the effect of OBA in printed color;
• a new printing standard, ISO/DIS2 15339-1 (2013), which specifies the use of the tristimulus linear correction to reconcile paper color differences between the target dataset and that of the actual printing paper; and
• the use of the substrate-corrected colorimetric aims (SCCA) as the source color space in color proofing workflows.

To verify the concept, an RIT graduate student implemented the methodology in his thesis (Carazo, 2012). RIT invited four proofing vendors to further test the feasibility in 2013 (Chung, 2013). We are able to demonstrate (by simulation), as shown in Figure 3.4, that the substrate-corrected proof (right) removes colorcast in the proof (left) and aligns closely with the OBA-brightened print (center).

Figure 3.4 Proof without SCCA (left), OBA brightened print (center), and SCCA proof (right).

Figure 3.5 shows the comparison (by photographing hardcopies) with a different vendor’s proofing technology. The study validates the value of implementing a standards-compliant workflow to address proof-to-print match under the influence of OBA.
PSA Addressing Printer’s and Print Buyer’s Needs

This brings us to the last point of the presentation: What is PSA and how does PSA address the needs of both printers and print buyers?

RIT Printing Standards Audit (PSA) is a rigorous, objective process for assessing a printer’s ability to operate a dataset-compliant workflow. The PSA schema for offset printing includes conformance to dataset assessments in data reception, proofing, CTP, color viewing, soft proofing and printing.

PSA is designed for printers who embrace new standards and technologies in order to create an efficient printing workflow with an emphasis on color reproduction accuracy, within-sheet uniformity and within-run variation of a press run. By attaining PSA Certification, printers can objectively demonstrate that they have mastered a standards-compliant workflow to ensure color conformance to reference printing conditions.

PSA is also designed for print buyers who prefer OBA-brightened paper and demand proof-to-print match under the influence of OBA, and for print buyers who must manage supply chains that are becoming more complex and international in character.

RIT developed the PSA certification, based on new ISO standards, to address the needs of printers and print buyers. Printers should recognize PSA as a strategy for survival and competitiveness. Print buyers should also recognize the value of PSA and demand PSA certification when managing their global supply chains.

Acknowledgments

The author wishes to express his appreciation to the following individuals and organizations for their participation in and support for this project: bvdm, CGS, Epson America, Just Normlicht, Global Graphics, GMG, GTI, IDEAlliance, Konica-Minolta, and X-Rite. He also wishes to thank the following individuals from the RIT School of Media Sciences: Professor Robert Eller for his encouragement and technical advice; Professor Li Wu, Changlong Yu, and Kelsey Seibt for making the visuals to support the story.
References

Carazo, Carlos (2012), Print-to-Proof Visual Match Using Papers with Optical Brightening Agents, an RIT School of Print Media thesis


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