



Color Proofing & Standards in 2012



Let's look at the various proofing specifications, standards and methodologies. What are we using this year?

“Color proofing” should carry the same meaning for everyone reading this article; unfortunately, the phrase has become a bit blurred as a result of today’s multi-technology print methods. The majority of proofs generated are for offset reproduction, where production runs are large enough to warrant the making of a verified facsimile before starting.

A proof is supposed to be the most accurate color representation of the final printed piece, without actually printing it. Proofing started as a way to pre-visualize the job if it was printed, without the associated costs of setting up and printing with a press or a digital output device. Let’s look at the various proofing specifications, standards and methodologies. What are we using this year.

Types of Proofs

Blueprint

A blueprint or blue-line is a copy printed in one color, and used for checking and correcting mistakes in content, imposition layout and completeness of data.

Imposition Proof

An imposition proof (or layout proof) is similar to a blueprint, but the copy is

printed in color. Imposition proofs are usually done with a large-format color inkjet printer.

Laminate Proof

Laminate proofs are one of the more expensive types, but are as accurate as Matchprint. Laminate proofs are created from the films generated for proofing, and give an authentic color representation for the project. A different set of films is used for the actual press run. Since the advent of computer-to-plate technology for offset printing, thermal laser imaging systems are used for proof production from digital files.

These systems have high resolution, automatic registration alignment, and, in some cases, are able to use orange, green, blue, specialty white and metallic colors to extend the range of typical CMYK proofs. For these proofing systems, the actual substrate to be used can substitute for the white proofing stock that has been the norm.

Electronic/PDF Proof

PDFs (portable document format) are written with Adobe Acrobat and other application solutions, and have become a standard electronic file format. Because the color of PDF files can be affected by

monitor calibration, the colors on a PDF proof may not represent the final printed piece in every case. PDFs do, however, provide the best file format for viewing and printing, with the PDF/X-1a format being the most widely accepted. PDF workflow and format is an article unto itself, as there is a multitude of resources on this topic.

Press Proof

For assignments where color and accuracy are critical to the piece, a press proof is the only proof that truthfully shows what the final print job will look like. Press proofs are the most expensive proof substitute, but accurately show how the paper affects the colors, the folding, trimming, etc.

Digital Color Proof

For digital, direct-to-screen or CTP printing (films are not used in these processes), digitally printed proofs are essential. Digital color proofs are extremely accurate, and less costly than film-based proofs. Due to the larger color gamut of inkjet printers on the market, this type of proof can easily reproduce all colors necessary for precise color adjustment.



Jeff Burton, Digital Printing Analyst, SGIA

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Contract Proof

Most vendors call the final color proof a contract proof, meaning that the sign-off on the color proof is a contract between the printer and the client for advancing along with production. The customer, based upon the approval of the color proof, will accept the final product.

Remote Proofing

Remote proofing requires that the host and the client subscribe to a remote proofing service that allows for verification of the color monitors in use. This verification is a software and hardware solution, with a service provider hosting the files to be viewed. Colorimeters are enabled at either end that verify the color shown on the monitor is within the prescribed specification. The images can then be viewed simultaneously (Ambient light conditions must also be similar.) by the printer and the clients, to obtain a verbal go-ahead to print.

Standard vs. Specification vs. Methodology

The International Organization for Standardization (ISO) defines a standard as a document established by consensus, and approved by a recognized body that provides for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. In other words, they are most often distinguished from specifications in that they apply generally, and have been through an official review and acceptance process, administered by a governing body.

Specifications, on the other hand, are not standards. These include SWOP 3, SWOP 5, SNAP and GRACoL 2007, and are detailed descriptions of design conditions for a manufacturing process. GRACoL7, SWOP3, SWOP5 and SNAP are all specifications for printing using a precise characterization data set for a specific print process and substrate combination.

A method is defined as “a way of doing something or carrying something out, especially according to a plan.” G7® is a method of attaining a desired gray scale and tonal curve, used for calibrating a proofing and/or printing system.

Printing Specifications You Hear Everyday

SWOP 3 & SWOP 5

SWOP stands for Specifications for Web Offset Publications. A SWOP 3 proof

is one that meets the SWOP press sheet characterization LAB data, including paper white, CMYK process ink densities and dot gain characteristics. A SWOP proof is also required to have an IDEAlliance color bar on the proof, so it can be measured with a device called a spectrophotometer, to verify that it meets SWOP specifications. The associated Adobe profile for this is WebCoatedSWOP2006Grade3.icc.

SWOP 5 is a proof specification for a not-so-bright paper stock, known in the print industry as “ground wood.” Depending upon the publication, proofs of either type (SWOP 3 or 5) might be required. The associated Adobe profile for this is called WebCoatedSWOP2006Grade5.icc.

GRACoL

GRACoL stands for General Requirements and Applications for Commercial Offset Lithography, and these guidelines have become the governing rule of the land in print shops everywhere, for producing high quality color prints. An IDEAlliance committee, going back to the mid-1990s, developed these guidelines. The term GRACoL, nowadays, essentially refers to the committee itself, while its published guidelines are GRACoL, followed by the version number — e.g., GRACoL 6, which came out in 2002, and the new GRACoL 7, in 2006.

SO Coated v2 or FOGRA 39

This proof is very similar to that of GRACoL, but is used in the international arena. If you are located in North America, and get your printing from elsewhere around the globe, this should be your proofing preference. Some international printers might ascribe to other standards, and the translation from this to another standard is straightforward. The associated Adobe profile for this is CoatedFOGRA39.icc.

SNAP

The Specifications for Newsprint Advertising Production (SNAP) are designed to improve reproduction quality in newsprint production, and provide guidelines for the exchange of information. SNAP is intended for advertisers, advertising agencies, publishers, pre-press managers, material suppliers, and commercial and newspaper printers. The specifications pertain to proofing and printing by offset lithography on webs of newsprint grade paper. SNAP is not intended for magazine, catalog, packaging or direct mail printing, nor is it intended for sheet-fed, gravure or heat-set web offset

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processes. The associated Adobe profile for this is USNewsprintSNAP2007.icc.

Inkjet Proofing

One proofing method uses the high resolution setting on an inkjet printer, with the RIP sending the information to the inkjet printer. Since the gamut of inkjet inks is larger than SWOP or GRACoL, this task is now a common proofing method. Almost any inkjet printer can produce a GRACoL 7 proof, and there are proof papers available for purchase that have the specific white aim points delineated for the standard you are using.

Lighting Standards Update

Color proofing booths provide a shared color-viewing environment for the evaluation of color. I say shared because many people can use it and “share” the same critical environment. Additionally, because this environment is designed to a standard, global, everyone can share. There has been an update to the ISO standards governing the illuminants (lamps) used in these environs.

This upgraded standard is the ISO 3664:2009, revised to reflect tighter quality control guidelines in order to reduce communication issues between what we see and how a color is measured. The new standards tighten the amount of UV energy emitted from the lamp source. The new bulb standards have already gone into effect (January 1, 2012), so you should change over as soon as possible.

Here is a summary of what is different. An increase in UV light will increase the visible effects of optical brightening agents in both papers and inks. You will see improved consistency between an instrument calculation of a color and the actual visual color appearance. The differences will be most visible in the paper or media and the highlights within an image. If you are comparing a press run, which uses optically brightened, recycled paper with a previous run that did not, you should see a greater distinction between the products.

Proofing Out of the Box

Certified proofing systems are printer and software bundles that, when purchased together, guarantee to drive the packaged

inkjet printer to a standard proofing solution (GRACoL, SWOP, etc.). You must use certified proofing substrates for these systems to function as purchased. The software also has the capability to generate verification bars on the proof. These bars are then read back into the software, to verify that the proof conditions meet the aim points for the specific proof standard in use. There are many such bundles available from companies like EFI, Fujifilm, GMG, Agfa, CGS and more. Proofing specific software could also be purchased for this function, if the inkjet model is so supported.

Real Life vs. the Proof

If you are running a large or grand format inkjet printer, and someone walks in with a GRACoL proof asking if you can match it, what do you say?

Case in point for the G7 method used in conjunction with inkjet. G7 is a method for a media-independent, universal gray scale appearance that is applicable to all color imaging processes. G7 manages gray balance and tonality using simple CMYK calibration curves, and provides a basis for “shared appearance” that aligns multiple printing platforms as closely as possible to each other, without additional color management.

There is no such thing as a G7 proof. G7 is not the same as the GRACoL 7 print specification. G7 is a calibration method; the ‘G’ refers to calibrating gray values, while the ‘7’ refers to the seven primary color values defined in the ISO 12647-2 printing standard: Cyan, magenta, yellow, black (K), red (M+Y), green (C+Y) and blue (C+M). Although originally intended for commercial offset printing, the G7 method is applicable to virtually any CMYK imaging process, and has been implemented on a wide range of processes, including screen, offset, gravure, flexography, dye sublimation, inkjet and electro photography, as well as a wide range of AM and FM screening methods.

G7 fulfills the need for a non-subjective specification of standardized process color output. Standardizing to a common neutral gray produces a file with no cast; this means the print truly represents the file, because no colorcast is added to it. This allows printers to have confidence that the print is correct, repeatable and non-subjective, saving them

the cost and time of reprinting. To be a G7 qualified printer, a business must become a master printer facility.

What do you say when the proof is brought in? Can we match it? The simple answer is no, but we can produce a print that is visually quite similar in appearance. The gray values will all be aligned and neutral as in the proof, and only some of the outlying colors may change perceptually.

Standards and methods are constantly evolving, as technology evolves. To learn more, visit SGIA.org. Keyword: G7.

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Jeff Burton, digital printing analyst for SGIA, has been with the Association since 1998. He provides solutions to digital printing production, computer and workflow issues, as well as digital equipment and vendor recommendations. His extensive background in digital inkjet printing, graphics applications, professional photography and production serves members by supplying individualized solutions to their daily business problems.

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