



WHITE PAPER: SOFT PROOFING

Explanation, Benefits, and Comparison
to Traditional Proofing Systems

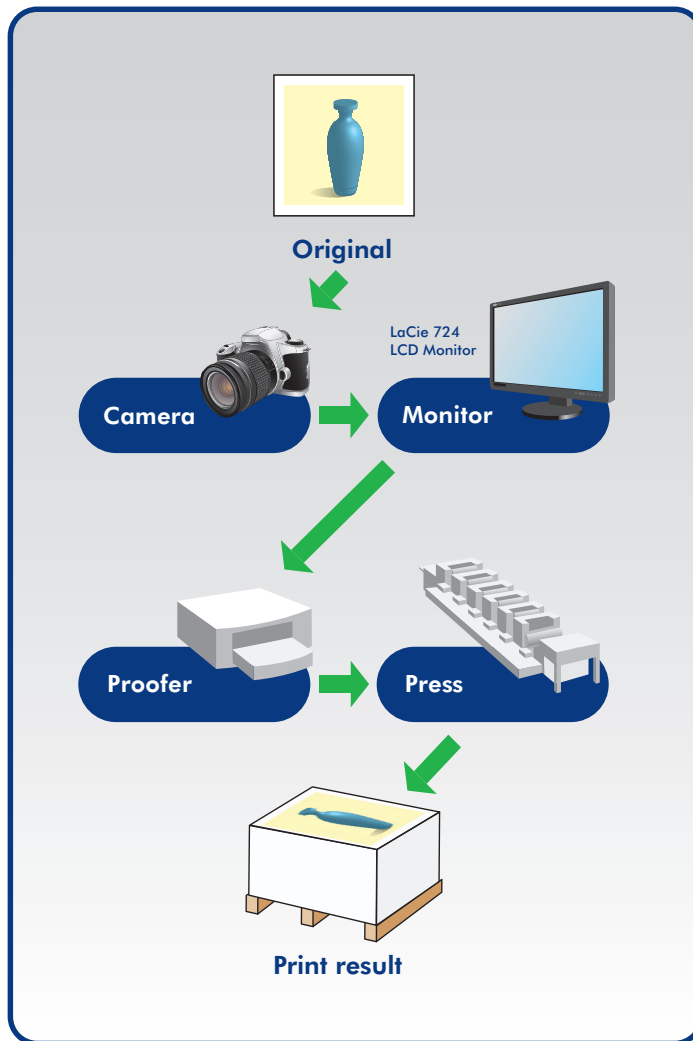
This white paper introduces soft proofing and enumerates its value in ensuring consistent color throughout the printing process. Additionally, this document explains the hardware and software requirements for soft proofing and discusses how it can improve workflow in different industries.

WHAT IS SOFT PROOFING?

In the digital imaging workflow, between capture and print, a document is commonly processed by a series of computer peripherals and operators. Because of differences in the way hardware displays, processes, and reproduces color, differences may also appear between original and reproduced documents. Furthermore, human factors also have an impact because small changes made by one operator may lead to large discrepancies by the end of the process.

As a result, in an environment that is not rigorously color-managed, there is little chance that the final print will match the initial document. All mistakes and discrepancies that took place earlier in the workflow are revealed in the last, critical phase: printing.

This can lead to time-consuming corrections, additional printouts, and is an ultimately inefficient process from a cost and time standpoint. In this process, the responsibility of printout quality rests in the hands, eyes, and skills of the printing company.



PROOFING: TO ENSURE CONSISTENCY THROUGHOUT THE PRINTING PROCESS

In general, *proofing* consists of an agreement between the customer and printer to go to press only once a shared document, called a proof, is created and approved. The proof is considered representative of the desired end result, and can be used as a reference to evaluate the printed output.

If the final product of the printing process is close enough to the proof, it is deemed contractually acceptable. On the other hand, if significant discrepancies exist between the prints and the proof, it is the printer's responsibility to resolve them.

This is the traditional method for proofing, also called hard proofing or contract proofing, because the proof serves as a contractual reference and because it most often takes the form of a tangible, laminate proof or a high-end digital proof good enough to accurately predict color from the press.



SOFT PROOFING VS. HARD PROOFING

Unfortunately, the method described above is frequently inconvenient: printers may be in one or several remote locations, hard proofing costs may be too high, or production time may be too tight to allow for a hard proof.

However, an alternative proofing method, called *soft proofing*, has recently appeared, which offers a financially superior alternative to the more expensive and time-consuming hard proofing.

The major difference between soft proofing and hard proofing is that in the former, the reference document is never printed; it is only displayed on a computer monitor. In this case, print accuracy is controlled by comparing it with the document displayed on the monitor. Since it is not a printed, tangible proof which is used as reference, but an electronic, virtual document, this method is commonly called *soft proofing* or *virtual proofing*.

SOFT PROOFING BENEFITS

These advantages deliver better client satisfaction, predictability and consistency.

Shorter turn-around times

The consistency, predictability, and reliability of high-end monitors combined with soft proofing systems reduce the number of required proofs and accelerate processes.

Higher return on investment

Monitor profiling can be implemented with relatively low costs, as recommended systems prices have dropped. Print costs, if necessary, are also drastically reduced.

Ease of use

Thanks to the increased popularity and ease of use of color management and calibration systems, it is no longer necessary to employ a color management specialist to implement them.

Remote proofing

With the ability of color-managed systems and monitors to be set up anywhere, remote proofing systems are becoming more popular. Dispersing locations can bring additional flexibility, since it is easier to work with several publishers or accounts, and can help to cut costs. Additionally, by eliminating the need to ship hard proofs, remote proofing saves time and shipping costs.

Other benefits.

Monitor-based proofing systems also capture clients' comments and approvals: they can be used for billing or audit trails. Additionally, because the job remains digital later in the production process, clients can collaborate simultaneously on the soft proof with other users, and apply changes even later in the production process.

WHO CAN BENEFIT FROM SOFT PROOFING?

Recent changes in digital workflows will affect everyone in the production chain who uses proofs, from advertisers, agencies, production suppliers, and publishers, to printers.

Creatives

Creative designers, photographers, and graphic designers create documents (photographs, drawings, documents, etc.) which have to be processed according to their target media. Creatives require comprehensive control over the documents they produce. They also need to be sure that their projects follow the guidelines of the workflow and that their original colors will be maintained through to the press stage. To achieve these ends, they require an easy-to-use and cost-effective system.

Agencies

Advertising and photographic agencies have been using color management for years. Every step of the workflow is color-controlled, guaranteeing a secure environment with high color predictability and accuracy. Replacing the use of inkjet printers or even hard proofs by soft proofing is a relatively easy step for agencies.

Printers

At the other end of the fully digital, hard copy-free environment, printing companies have started to equip presses with soft proofing monitors. Newspapers, for instance, have adopted soft proofing because it saves them money and time.

REQUIREMENTS: SOFTWARE, HARDWARE, AND VIEWING CONDITIONS

Soft proofing systems

Several systems are available for contract-color soft proofing: DALiM DiALOGUE, ICS Remote Director, Kodak MATCHPRINT Virtual Proofing System and others. Each is based on document certification.

For contract-color soft proofing system users, the software must be easy to use. Each system uses file streaming technology to deliver the soft proof and view it efficiently.

This reduces bandwidth requirements needed to “deliver” the soft proof. For the client, this means the network will provide enough bandwidth to view and navigate the soft proof efficiently.

Output profiles

A good profile is essential for contract-color soft proofing systems. It is used to render the color of the target device (typically the press) on the LCD display. A soft proofing profile can be created from a digital proofing device or from the press. The most accurate method is to profile the press, and because there are more variables in this process, more rigorous quality control procedures are required.

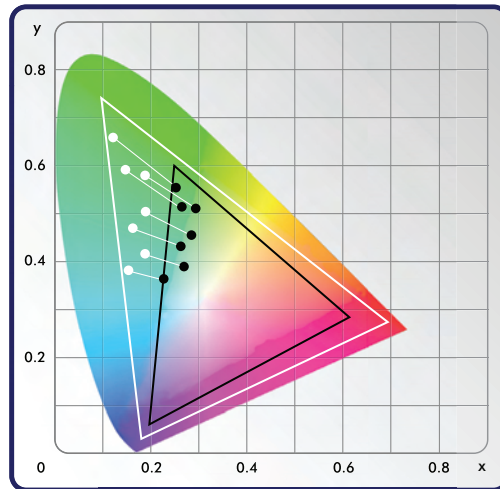
Using measurement and calibration to achieve a repeatable and consistent process ensures the accuracy of a profile created from a press run. This requires calibration of all elements. This requires measuring plates, using the same ink set and running to an established printing guideline (such as SWOP or GRACoL) in the pressroom.

A High end monitor

A good monitor is essential. The following features are key points to consider when selecting a suitable display.

GAMUT OR COLOR RANGE

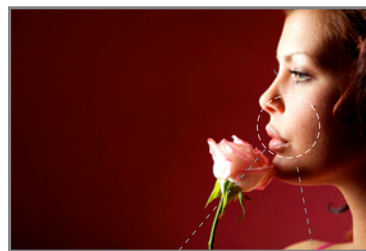
Most monitors can't actually reproduce all the colors that a good press can print. However, a large gamut monitor like the LaCie 500/700 Series will offer the gamut range required by most printer profiles, such as ISO Coated.



Gamut Compression

SHADOW DETAILS

The monitor's LUT (look-up table) determines how many levels of color are available per pixel. With 14-bit per channel, the LaCie 724 and 730 offer the highest range available.



Banding can be caused by large steps in monitor color response curves.



14-bit gamma correction virtually eliminates banding by finely adjusting color transitions.

VIEWING ANGLES

Color and contrast can appear to vary considerably as you move off-axis on some screens. These are side effects of the type of screen technology that is used in the LCD panel. LaCie monitors offer industry-leading 178°/178° viewing angles.

BRIGHTNESS

To be suitable for soft proofing, an LCD monitor should be capable to display relatively high luminance levels (120 cd/m² or more). All LaCie monitors provide these levels without limitation.

A MONITOR CALIBRATION SOLUTION (DEVICE + SOFTWARE)

In addition to a monitor, hardware requirements also include a colorimeter. To be suitable for soft proofing, a monitor must be calibrated. Professional displays such as LaCie monitors support hardware calibration. To provide accurate results, the display hardware is adjusted automatically by the calibration software and colorimeter according to desired settings. An ICC Profile is created to comply with any color management system.

LaCie blue eye pro PE software, combined with LaCie blue eye allows for high-quality profiling while integrating UGRA Soft Proofing Certification Test Tools.



NORMALIZED VIEWING CONDITIONS

The environment in which contract-color soft proofs are viewed must be controlled, just as a viewing booth is critical for evaluating hard proofs. Workstations should be installed in a room that offers stable and controlled lighting conditions according to ISO Standards.

CONCLUSION

In an environment of ever-shrinking budgets and deadlines, soft proofing evolved into the most effective proofing system in the fast-paced printing industry. It has become a superior alternative to hard proofing for color approval because it's fast, easy to implement, and accurate as long as the hardware, particularly the monitor, is reliable.

LaCie monitors are an excellent choice for challenging workflows, because they combine an excellent viewing experience based on high quality panels and back lighting with unbeatable color gamuts. LaCie monitors offer designers and advertising agencies increased flexibility and efficiency at an affordable price.