Introduction

This article is produced as part of an international graphic arts industry collaboration between Digital Dots, its publishing partners and its clients.

It is part of a special project to address business and technology issues crucial to digital print media production. The series of educational articles explains print media technologies, business issues and market drivers for print media production, in both existing and new markets. These articles will be published as a series of individual Technology Guides, due for print publication in April 2006.

The Guide to JDF

The Guide to Colour Management & Proofing

The Guide to Digital Printing & Direct Imaging Presses

The Guide to CTP

The Guide to Preproduction Data Management & Quality Control

Further information is available at:

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Colour Proofing Basics

Direct to plate workflows imaging digital plates is reality for well over 30% of the worldwide printing industry and growing rapidly. There has also been a huge rise in the use of digital presses, and although it is hard to quantify workflows, it is certain that direct digital workflows have changed proofing expectations and habits. Traditional analogue proofing, based on reprographic films, is declining and digital proofing based on hard copy and monitor proofing is rising steadily.

The very nature of what constitutes a proof makes it pretty impossible to come up with a definitive list of proofing systems. Proofing’s role in the workflow varies according to the proof’s function and there are lots of systems available more or less suitable to the various functions. Different proofing solutions can be split into several categories, however different front ends and raster image processing systems can drive the same colour printer, producing output at various quality levels. This is one reason why proofing technologies can often seem a little overwhelming. What at first glance appears to be the very same print engine, may provide varying functionality and quality depending on the technology controlling it.

Contract proofing

The perfect contract proof should ideally be a test print run on the actual printing press using the paper stock to be used for the final print. This type of wet proof is often far too expensive, unless the print run is very long or complex. However, many people still argue that it is the only real way to proof. On a modern press with automatic plate loading and presetting of the ink ducts, for example in a DI-press or on a digital press, sample sheets can be produced in around 15 minutes, so the cost is not as high for wet proofs as it used to be. Compared with the time and associated repro cost for high quality contract proofs of all the signatures, it may balance out. It all depends on the job, its content and run length, so for very long runs the economics can easily shift in favour of wet proofing on press. For most output, shorter runs and increased colour usage are undermining the economics of wet proofing and for many applications a digital proof is a better option.

Digital options

There are digital proofing systems available to suit a range of requirements. They can produce screen accurate dot for dot proofs, colour accurate proofs or both, according
to the application demands. There are three categories of digital proofing technologies available on the market: screen accurate dot proofs, colour accurate proofs and soft proofs viewed on the monitor.

Screen accurate proofs should of course also be colour accurate, but in order to be able to use an identical screen in the proof as the one to be used in the final print, the proofer has to use the same output resolution as is used in the platesetter. The proofer should use the same type of inks, or at least inks with the same characteristics as will be used on press. This may seem obvious, but in reality the characteristics of the inks used, say, in rotogravure are quite different from those of inks used in an inkjet printer. It is still worth the effort to produce screened dots and colour accurate digital proofs, because they can reveal moiré that could show up on press.

Moiré is the bane of printers. This visually disturbing pattern is primarily caused by incorrect screen angle settings. Moiré can also appear if the printed image contains repetitive patterns, for example in woven and checked fabrics such as tweed or taffeta, where the image pattern conflicts with the printing screen. Moiré appears more often in conventional AM screened images, while FM/stochastic and hybrid screens can help mitigate the risk. These technologies use random dot patterns rather than conventional screen angles and so reduce the risk of moiré.

Trying to use the same dot structure on an inkjet printer as that which will be used in print may be desirable, but it is not easy. Normally an inkjet printer places dots in a manner similar to that of FM screening, so forcing it to use a conventional AM screen instead takes clever algorithms and programming. This is the approach taken with solutions developed by companies such as Agfa (Dot4Dot), Compose (Starproof), EFI Best (Screenproof), and GMG (Dotproof).

Another approach is to build a dedicated proofing engine and to supply special inks to simulate the characteristics of the ink used in the printing process. Often those inks are transferred to the paper using special transfer media, so one can proof on the actual paper stock.

This type of proofer is offered by Dupont (Digital Chromalin), Fujifilm (Finalproof) and Kodak (Digital Matchprint, Approval and Spectrum). These systems offer screen accurate dot proofs as well as colour accurate proofs, but as they are built specifically for proofing they tend to fall into a higher price bracket than systems based on generic colour printers.
If the workflow and proofing don’t require screen accurate proofs, there are a wide variety of systems available. This category is by far the largest, since it comprises systems based on general colour inkjet printers and laser printers. In this group almost any quality colour printer can be considered for proofing tasks, but the system must have a suitable RIP system driving the printer. Some of these systems can render dot structures in the proof and most RIP systems from platesetter vendors offer proofing and colour management modules. There are also many standalone solutions on the market.

Vendors of colour printers include Agfa, Canon, Encad, Epson, HP, Kodak, Mutoh, Roland, Mimaki and Xerox, and some of these offer front-end systems suitable for proofing. There are several standalone solutions on the market, including technologies from developers such as CGS (Oris Colortuner), Colorgate (Proofgate), EFI (Colorproof and Splash), Perfectproof (Proofmaster) and Xitron (proofing plugins).

For most users, an inkjet printer generally isn’t used to produce screen accurate proofs, since these printers use a screen that is more like an FM screen. Since the ink characteristics are often quite different from those used in printing presses, the colour management system will need to mix the colours that look a little strange, if one looks up close. For example, when viewed under a lupe, a pure yellow area in the final print may appear in the proof to have some elements of cyan or magenta. This is because the proofing engine has to somehow simulate the paper whiteness in the proofs, as well as compensate for differences in ink characteristics.

It’s not always possible to use actual printing stock when using inkjet printers or colour laser printers, although some devices sold for newsprint proofing have this capability. This means that in most cases the proofing system has to be able to simulate both the whiteness of the paper as well as its texture, including gloss, semi gloss and so on. It’s about accurate colour appearance: the proof’s colour rendering has to look like the final print, even if the dot shape of the screen and the screen pattern may be different.

**Remote proofing**

Many proofing systems can be extended to support remote proofing applications. For this they need dedicated tools to ensure the locally produced proof matches a proof produced at remote sites and of course that varies with the complexity of system. Some users consider the editorial site to be the hub while other contributors produce remote proofs to the production supply chain. This could be the printer, other content providers and advertisers, all of whom could be located across the world.
Proofs are typically measured with a spectrophotometer, with results compared for each location. It’s important that the data exchanged contains enough information to set up and control both the proofer and the measuring device accurately. Several of the vendors mentioned above offer this kind of solution, and some use the JDF data format to encode colour information.

**How to verify a proof?**

The most obvious and probably the most common way to evaluate a proof print is to compare it visually with the final print. However to verify a proof before the irretrievable stage when plates are already on press and the print run is almost completed, you need a defined reference and to have accurate colour values measured with a spectrophotometer.

One such widely recommended reference for graphics production is the FOGRA Media Wedge, used in several proofing systems. A useful test form for evaluating a proofing system is the Altona Test Suite, and the FOGRA Media Wedge is a key part of this test form.

**The Altona Test Suite**

ECI (European Color Initiative) has worked closely with FOGRA and the German Print Federation (bvdm) to design a series of test forms. Among other things these forms help to check a proofing system’s colour accuracy. The Altona test suite comprises three PDF/X-3 documents. The first page, called Visual, has a lot of different images to help evaluate different aspects of imaging quality (see figure 1). The second page, called Measure, contains lots of colour patches for extensive colour measurements, and the third page, called Technical, is dedicated to checking how a RIP handles a range of tricky Postscript and PDF interpretation situations. These are quite sophisticated, with checks for correct handling of transparency and overprinting.

Measured values on the proof are compared to values for colour patches on the FOGRA Media Wedge, so there has to be some decision about the degree of deviation that is acceptable. FOGRA suggests maximum average deviation of Delta E 4 for all 46 patches. To achieve this, the proofer must be properly calibrated, and the RIP set up correctly.

**Softproofing**

Finally, the ideal proofing method, remote or local, may be a soft proof. As with any proofing device this requires accurate calibration and characterisation, if it is to work properly. If some printers and publishers hesitate to opt for screen accurate dot
proofing, they are generally even more anxious about using a monitor for high end proofing. With the wide range of softproofing solutions now available, this anxiety is misplaced. A correctly calibrated monitor, be it conventional or a flat screen LCD, can actually proof most colours satisfactorily. All digital retouching is done on screen, even the colour matching, so accurate evaluation and page proofing on screen are entirely possible. They depend of course on a proper setup and no ambient light pollution, but the advantages of soft proofing are self-evident: fast turnaround independent of location, easy collaboration, convenient output management and no costly materials involved.

Softproofing systems are often capable of preflight checking incoming files, colour management and include collaborative proofing tools. Some, but not all, support JDF for job tracking and automation support using electronic job tickets. Following is a brief description of the systems on the market.

**Agfa Delano**

Agfa originally developed its Delano project management software working with international printers, Quebecor. Agfa soon realised that Delano needed be fully JDF compatible, so the entire system was rewritten. Today’s Delano is a second generation management technology, with a proven and popular user interface, that ably reflects the structure and spirit of JDF.

Delano can work as a standalone or connected to an MIS system, although it is designed for connection to a RIP system, either Agfa’s Apogee X or another PDF based RIP. Delano uses a standard web browser, so colour accuracy for the pages isn’t automatically assured, however it has an option for viewing high resolution PDF files with embedded ICC profiles. When viewed in Acrobat the user can thus check files for colour accuracy.

**Colorbus Cyclone Visual Proofer**

The Cyclone Visual Proofer is based on the Cyclone RIP with added pixel streaming technologies from Cyan Soft. Visual Proofer supports preflight and colour management, plus collaborative internet based proofing. All annotations on proofs are viewed via the database and web browser. Java based client users access proofs via log-on onto a publisher’s or printer’s internet server. At the moment, the client software is integrated with Eizo’s calibration software with the assumption that operators will be using an Eizo monitor for proofing. Other monitors and monitor calibration software can also be used, but in this case the validation of monitor calibration can’t be done using the Colorbus client software.
One of Visual Proofer’s strongest features is the possibility to merge 1 bit screened and separated TIFF output files into a composite colour managed softproof.

**Cyan Soft eProof**

Cyan Soft has a Postscript interpreter called Advanced Sampler, which is used in the Opium OPI software, which works in the background of eProof. EProof is special because it can open several types of native documents, such as MS Word and Indesign documents, so that teams of people can work to proof collaboratively on pages, images or the actual copy. Another strong feature is eProof’s font support for previewing and proofing Cyrillic, Arabic and all Asian language sets. The eProof system can display colours accurately as long as the user makes sure the monitor profile is updated in the system and the proofing parameters are correctly set up. This has to be done manually and here there is some room for improvement. Rapid Image View (RIV) streaming technology ensures very fast rendering of high resolution images.

**Dalim Dialogue**

This proofing system works either as a standalone or with a RIP system, either a Dalim RIP such as Twist or Printempo, or any other modern RIP. Dialogue uses the same Postscript interpreter as Dalim’s Twist workflow management system, so it can preflight and RIP incoming documents.

As long as the ICC profiles involved are specified, Dialogue renders colour accurate documents and recently was SWOP certified. Dalim is a strong supporter of JDF, particularly for imposition, so Dialogue can also provide dynamic imposition proofs. Users can move pages in an imposition scheme until they are all in the right order. Once approved, flats are immediately ready for platemaking.

**Heidelberg Remote Access**

Heidelberg workflow systems are all part of the Prinect family. In Heidelberg’s current Printready RIP system, when it is coupled with Heidelberg’s Prinance MIS, users are automatically notified via email when preflighted proofs are ready. Heidelberg recently launched Remote Access, an add-on module to Printready, for remote proofing support.

The user interface is through a standard web browser and Adobe Acrobat. With Remote Access, instead of sending PDF proof documents as email attachments, the files reside on a server. Through a license agreement with Kodak, high resolution documents are displayed fast on screen via streaming technology. Pages are first rendered into pixel data through the Metadimension RIP, using the PDF files created
by Printready. Heidelberg calls this post-RIP approval and the user interface allows for further annotations, correction instructions and finally approval.

**ICS Remote Director**

Although still best known in the US, ICS is planning to distribute its system in Europe as well. Remote Director accepts any ICC profiles as the basis for colour accurate rendering on screen. It has a built-in monitor profiling tool that works with any CRT or LCD monitor. But if any member of the proofing team who tries to work with an uncalibrated monitor, they get a red dot beside their user name in the team list as a warning that everyone can see.

ICS Remote Director is SWOP certified when used with selected monitors and includes a Jaws Postscript interpreter for basic preflight checking. The user interface has various annotation tools, including a freehand writing tool for those using a pen tablet instead of an ordinary mouse. All colour settings are shared, based on what the administrator sets up for individual jobs, so this application is easy to use, even for people without in-depth knowledge of colour management.

**Kodak Synapse Insite**

Kodak’s (formerly Creo’s) collaborative proofing solution can be integrated into any RIP system. However Insite is generally paired with a Prinergy workflow system or, less commonly, Brisque.

All incoming jobs are preflight checked, so if the customer has already done an early preflight through Synapse Prepare, this second check quickly verifies that the correct preflight profile was used. Synapse Insite uses a standard web browser interface, so here too, perfect colour accuracy on screen isn’t guaranteed. Displayed pages are processed in the same RIP as is used for platemaking, but for more accurate softproofing the high resolution PDF files are opened in Acrobat. This function, called InSite Color, is now SWOP certified and using streaming technology the user can zoom into the pages and add annotations and comments. A built-in densitometer shows the CMYK colour values.

**Kodak Matchprint Virtual Proofing**

Using Realtime Proof technology from former Realtime Image, plus some special plug-ins, Kodak has added a calibration module to its Matchprint Virtual Proofing system. Monitor calibration is done with Kodak software, which only works with the latest Apple Cinema Displays and the Eizo CG monitor series. In this configuration the Matchprint Virtual Proofing is SWOP certified and if the monitor calibration is
wrong or out of date, this is indicated in the lower corner of the user interface. Users can annotate pages or images, and zoom in to have a closer look at the high resolution images, even at low bandwidth. There is no preflight check for incoming files and they are uploaded as is.

**Rampage Remote**

Rampage Remote is a Java based addition to the Rampage RIP for remote and collaborative proofing via the Internet. Rampage Remote has annotation and approval tools and logs all user activity on the server. The Rampage Remote system has built in streaming technology similar to that of Kodak. Incoming files are prelighted and prepared for impositioning, and clients are notified by email that there are proofs ready for approval. Rampage Remote doesn’t check whether the monitor is calibrated or not, but shows colour accurate pages wherever possible. In many parts of Europe, including the UK, Fujifilm distributes the Rampage technology as an alternative to Fujifilm’s own Celebrant RIP system.

**Screen Riteapprove**

Screen’s RIP system is called Trueflow, and Riteapprove is an add-on module for it. The user interface is based on a standard web browser coupled with Java plugins. Incoming files are preflighted and colour managed and saved in the Trueflow internal format, which is similar to a Postscript Display List. Clients are notified via email that there are proofs to approve and all members in the proofing team can view the annotations made and print out low resolution versions of the pages, including annotations. Although pages are colour managed, the browser plug-in doesn’t support colour accurate display at the moment. Screen has its own pixel streaming technology for fast zooming on pages.

**Web Proof**

This Danish software vendor is a pioneer when it comes to online proofing and Web Proof is now in version 4.5. The user interface is well established and thought through and Web Proof focuses on collaborative PDF proofing. Functions for colour managed softproofing have to be accessed via Adobe Acrobat and there is no preflight as such in Web Proof. Incoming documents can be preflighted through third party solutions and the company offers off-the-shelf preflight packages within its workflow solutions products. The administrator sets up different levels of user rights, depending on peoples’ roles. Some can only read annotations, while others can write and edit annotations. It’s possible to set up rights for a sub contractor, for example the binder, so that they can see the status of the job and are notified when proofs or prints are approved. Changes are marked with a box around the area where there is a difference
between versions. All changes to documents are logged and can be compared one version to another.

**Hard copy proofers**

It is impossible to provide a definitive list of hard copy proofing systems on the market, however the list below should provide a reasonable start. The scope of proofing applications and the technologies sold for proofing is too large for a complete list to be useful. Instead we put together a selection of technologies we believe to be at the forefront for hard copy proofing, and invited leading developers to get involved in our testing work.

Digital Dots has tested several proofing systems using the Altona Test Suite, in particular the two first test documents, called “Visual” and “Measure”. ECI/FOGRA also provide reference prints to make it possible to compare the proofs according to the ISO 12647-2 standard.

We have tested the CGS Oris Color Tuner driving a Canon BJ W2200 colour printer, as well as the Dupont Digital Chromalin B3 proofer, connected to the Cromanet RIP server. Fujifilm used an Epson Stylus Pro 7600 with the Colormanager controller, based on technology from GMG, and can combine the same configuration within a Celebrant RIP. GMG participated independently with the Colorproof driving an Epson Stylus Pro 7600. Kodak (Creo) participated with the Veris proofer, coupled with a Prinergy RIP and Efi with the Colorproof XF, driving an Epson Stylus Pro 4000. Finally we tested the Perfectproof Proofmaster RIP driving an Epson Stylus Pro 4000 colour printer. As can be seen in the table below the same type of colour printer may yield a different result depending on what proofing system it’s connected to.

**CGS Oris Color Tuner 5.1**

CGS (Computer Graphic Systems) has a range of products related to colour management and colour editing, including several products in the Oris Digital Proofing Suite. Oris Color Tuner is a RIP server for various output devices.

The latest version, version 5.1, lets users create a reference master profile for all proof printers in the workflow. This makes it easier and faster to maintain the same output result on several proof printers. The printing devices need to be re-linearised now and then, but this is much faster than generating completely new ICC profiles.

The new version of Color Tuner features enhanced performance and speed, in part because it can build and save colour tables for commonly used colour transformations.
This makes conversion from, say, the colour space of web offset to rotogravure, fast and accurate.

The Oris Color Tuner RIP server runs under Windows, and supports both Mac and PC clients. CGS also has a simplified version of its software called Color Tuner Personal Edition running under Mac OS X. We haven’t tested that version, but it uses the same colour engine as the Windows version of Color Tuner, so it should be possible to achieve the same results.

One often overlooked factor in proof output accuracy is the paper. Many paper types contain optical brighteners, which may not be present in the actual paper stock used for final print production. To overcome this problem CGS has a range of proofing papers manufactured for its customers, and is about to launch a proofing paper without optical brighteners. CGS hopes that this will help their customers achieve even more accurate proofs, without the need to simulate the paper whiteness.

**Efi Colorproof XF**

When Efi bought Best, one of the first things they did was to improve the Best Color user interface to make it more user friendly and intuitive. Efi also replaced Artifex’s cloned Postscript interpreter with an Adobe Postscript CPSI RIP.

The Efi Colorproof XF RIP server only runs on a Windows machine, but the Job Monitor client software runs on both Mac and PC. Pre-configured hot folders make it easy to automate accurate colour output. If a user prefers not to use the drag and drop model, pre-configured output queues on a Mac or a PC work as well. Efi Colorproof XF is modular so customers can buy a very basic version and upgrade when more functionality is required. All modules are on the CD and accessed once the user has purchased the digital keys to unlock the required modules. Among the options is support for more output queues and printer types, extended spot colour handling, dot based proofing and calculation of CIP4/PPF data.

Efi Colorproof XF includes the FOGRA media wedge on output, for verifying the proof. In our test, printed on an Epson Stylus Pro 4000, we used the Efi Gravure Proofing paper because it has a paper whiteness close to that of the offset paper we wanted to simulate.

**Dupont Digital Chromalin B3 proofer**

Dupont markets the Digital Chromalin B series proofers as “the first and only drop on demand inkjet proofer that can automatically keep itself calibrated”. The colour printer
is equipped with a built in spectrophotometer from Gretag Macbeth and the ink in the nozzles is kept at a constant temperature of 17ºC. This ensures that the viscosity of the ink remains constant, despite the fact that nozzles increase in temperature during use. Constant viscosity is, according to Dupont, one of drivers towards consistency for accurate colour matching.

As a proof is printed, the calibration module verifies that the printer is operating at a specific level of performance, so that the ink and media profiles used to create the proof remain accurate.

The Digital Chromalin B3 proofer package includes a Windows based proof server, the proof engine, the ChromaNet RIP, and Dupont proofing inks and media. The Chromalin B3 proofing system uses eight dye-based inks for a wide colour gamut and correct grey balance ensuring accurate reproduction of CMYK as well as Pantone colours. The inks use an alcohol-based solvent to improve flow through the nozzles and to help penetrate the polymer coating of the paper.

**Fujifilm Colormanager**

Fujifilm Colormanager is typically coupled with the Celebrant RIP system, and supports a range of colour printers. Beside files from Celebrant, it accepts a wide variety of RIPPed, contone and screened raster file formats. With the help of Colormanager Profile Editor, custom profiles can be created and edited in order to simulate various analogue proofing systems, and printed results.

The Colormanager software, which in part is actually from GMG (see below), includes a separate database for the calibration of special colours. New colours can be added by the user and fine-tuned if necessary, using spectrophotometric data. Dot gain and overprint characteristics can also be specified.

A Profile checksum number can be printed onto the proof and any alterations to the profile will change the checksum number. Users can use this number to check that the proof was made with the correct profile.

The key element of the Fujifilm Colormanager is the so called 4D colour engine from GMG, which Fuji and GMG claims provides very accurate profiling because it works directly with CMYK values. The application is compatible with ICC profiles, and before outputting a proof the preview function can be used to check the result visually on the RIP Monitor.
Fujifilm Colormanager has a Dotproof option, which allows proofing of half tone images from 1 bit tiff files. The resulting proofs are supposed to both reproduce the actual dot characteristics and allow accurate colour simulation of the final printed copy. This option should typically be of interest for packaging and screen printers.

**GMG Colorproof**

The Colorproof RIP drives a wide range of output devices. There are four elements to GMG Colorproof: the software RIP itself, the Profile Editor, the Spotcolor Editor, and the RIP. GMG’s colour software is based on its 4-D colour transformation engine which, according to GMG, guarantees the best possible quality and colour accuracy when producing contract proofs on a variety of output devices. Using a spectrophotometer, the system can be calibrated against all standard colour charts. Device independent colour profiles are stored for specific printer families and, together with the linearisation tool, this system is suitable for remote proofing applications.

GMG Colorproof is compatible with standard ICC profiles. The Profile Editor supports selective correction functions and, in concert with Spotcolor Editor and the official Pantone library, most spot colours can be reproduced accurately.

GMG ColorProof includes a licence for the Fogra media wedge for verifying proofs, but a range of test charts can be used as well. The Dotproof option allows users to create halftone proofs by printing colour-accurate 1-bit TIFF data from the imagesetter or CTP RIP while retaining the original screened information. This allows for early detection of artefacts that are only visible with halftone proofs, such as moiré or trapping errors. The File Out module allows for CMYK colour space conversions, CMYK to CMYK, preserving black channel data. Data optimised for offset output can, for example, be converted automatically for output on a gravure press.

**Kodak (Creo) Veris**

The Veris proofer is typically connected to a Prinergy or Brisque RIP. It’s a 4-up contone proofing system based on Kodak’s Multi-drop Array inkjet imaging. The Veris produces a controlled stream of drops at 1500 x 1500 dpi, for high quality proofs. Each Multi-Drop Array nozzle produces one million, 3-picoliter ink droplets per second. An electromagnetic deflection field guides the flight of each charged droplet from the nozzle to the precise pixel location on the media.

Kodak has a certification process for proofs to ensure that colours, fine text, line work, vignettes, shadows and highlight details are reproduced true to the final output on press. Each time a proof is printed, the proofer checks that calibration is both correct...
and recent and confirms that the correct ICC colour profiles, inks and media have been used. If these conditions are met, the Kodak Certified Process stamp is printed on the proof as a visible indication of a quality-assured proofing process.

The Veris proofer is SWOP certified, PANTONE qualified, SICOGIF (France) certified, FOGRA (Germany) certified, and PPA (UK) accredited.

**Kodak Matchprint**

Matchprint inkjet proofers are available for 2-up, 4-up and 8-up formats, so they are suitable for a range of proofing applications. Like Veris proofing systems, Matchprint features the Kodak Certified Process module. The Matchprint ProofPro RIP is based on Kodak’s own colour technology with powerful colour management and production tools, for colour accuracy and spot colour control. This technology is ICC compliant and works with most file formats. Matchprint with output to the Epson Stylus Pro 4800, 7800 and 9800 printers was recently SWOP certified, but we have not yet had an opportunity to test it.

**Perfectproof Proofmaster**

Perfectproof’s Proofmaster system consists of a range of versions. The most comprehensive one, the bizarrely named Proofmaster Dalmatian, supports proofing of bitmap/screened data on top of conventional digital proofing and softproofing. The Proofmaster RIP server is available for both the Mac and Windows platforms. Perfectproof offers a range of its own proofing papers.

The user interface is quite simple and straightforward and the way linearisation and calibration are done gives, in our view, a very good rendition of smooth graduated tints especially. To ensure that proofs made at a remote site are accurate, Perfectproof has a Certified Proof utility whereby the user measures the FOGRA media wedge on the proof with a spectrophotometer, and checks the result against the tolerances defined for the proofs. This is an increasingly common procedure for developers of hard copy proofing systems.

We haven’t tested all systems on the market, and our tests have been conducted over a period of time. The results summarised below should therefore only serve as an indication of what results a validation procedure might produce. Several vendors of proofing systems have fine-tuned their systems since and might obtain a better result in a new test round.
Visual evaluation

When evaluating proofs the spectral readings, based on measured values captured with a spectrophotometer, should be complemented with visual evaluation using a viewing booth. We have found that different makes of viewing booths may indicate a slightly different appearance of the proof (or print for that matter). Differences in age or make of the light bulbs, or different materials in the reflectors, may explain this phenomenon. As of today some tolerances need to be allowed both when measuring a proof using a spectrophotometer or evaluating it visually in a viewing booth. By measuring and comparing data against a known reference, some of the uncertainty and subjectivity is reduced when it comes to approve a proof.

The more one looks into proofing technologies, the more complicated the task becomes. Production demands drive proofing performance expectations and so technologies. With so many different technologies available it is more than possible to find a proofing system appropriate to a particular application and budget.