Robin Myers Imaging

Chromaxion™

The Newsletter of Interesting Imaging Stuff

New i1Pro 2 Released!

Originally introduced in 2001, the i1Pro has become the most commonly encountered spectral measuring instrument. For several years everyone has wondered when X-Rite will replace it, and with what? The wait is now over.

Announced April 11, the i1Pro has been updated to the new i1Pro 2. Here is an image of the new i1Pro 2 and its accessories.

New Features

- **Dual light sources** which provide ISO 13655 M0 (tungsten), M1 (D50) and M2 (UV Cut) measurements, plus optical brightener correction, without extra filters or instruments.

- **Smaller scanning patch sizes** of 7 mm allow more patches per chart.

- **Improved positioning sensor** improves strip mode patch measurement.

- **Status LED** indicates calibration and device status.

- **Cleanable optics cover glass**.

- **White calibration tile protection cover**.

- **Luminance measurement range increased** from 0.2-300 cd/m^2 to 0.2-1200 cd/m^2.

- **Spot measurement foot changed** to a stapler-like operation.

- **Projector holder changed** to allow attachment of the ambient filter.

- **Tripod mounting** provided with projector holder.

- **Aluminum Guide rail fully floating** to provide more accurate measurements, especially on rough substrates.

- **Updated i1IO scanning table** with a new footplate which supports the i1Pro 2 and the older i1Pro.

- **New i1Profiler software**.

- **Much more...**

For years many of us have asked for these features and it appears that X-Rite has been listening. This new instrument has the capabilities to continue being popular for another 10 years.

For more information on the instrument and upgrades, visit the X-Rite website.

As soon as possible the new i1Pro 2 packages will be listed on the RM Imaging website and the online store.

Also, when it can be arranged, SpectraShop will support the new i1Pro 2, along with its ancestor the i1Pro.

X-Rite Being Acquired by Danaher

It seems the X-Rite news just keeps coming. Announced April 10, X-Rite has agreed to be purchased by Danaher, a conglomerate with dozens of companies in its fold. Although you might not recognize the Danaher name, some of its companies might be familiar; Tektronix, Fluke, Keithley, Esko and Kollmorgen are a few.

There are still some regulatory approvals pending, and some legal paperwork, but everything is projected to be concluded in the second quarter of 2012.

So the question to us is; what will happen with X-Rite, its products and services?

According to the press release, once the purchase is final, X-Rite will operate as a stand-alone company within Danaher's Product Identification Group, part of their Industrial Technology Section. The existing X-Rite management is expected to continue holding key senior leadership positions, so the X-Rite, Munsell and Pantone brands will continue as before.

Let's wish them well and hope all comes off as planned.

New Color Chart for Camera Profiling

QPcolor, the makers of the QPcard product family have recently released the QPcard 203, a new color chart for camera profiling.

The QPcard 203 is available in two versions; one which is the chart itself ($51.35), the other where the chart is combined with a gray card and packaged inside a notebook cover called the QPcard book ($64.35).

Both versions have 35 patches, including a 7 step gray scale. The book version is the same size as a passport, so we can surmise that it is designed to compete with the X-Rite Passport color chart. The QPcard book also has an elastic closure and a ribbon for attaching it to other items.

To create camera calibration profiles, the free QPcalibration application has been released for use with the QPcard 203.

Spectral measurements of the QPcard 203 are available for download in the Spectral Library.

RM Imaging Website Changes

Forums Removed

Under constant assault from spammers and other more malicious miscreants, the RMI Forums have been removed. Judging by the comments, they will be missed only by the spammers.

New Spectral Collections

The Spectral Library has some new additions. Including the QPcard 203, collections have been added for two editions of the Munsell Rock-Color Chart, two collections of Nyanza dyed wool, three collections of Kremer Pigments, one Winsor & Newton watercolor collection, and one collection of a Kodak IT8.7/2 photographic print. More will be soon be coming.

Direct Video Technical Support

To provide better technical support for all our products and services, we have added Internet video linking through Skype. This is a free service which allows for a one to one Internet video call with monitor screen sharing. The latter feature allows us to see exactly what is happening with our software in your environment, or to provide tutorial assistance by sharing our screen.

To get this support, simply sign up for a free Skype account, then contact us to arrange for a mutually beneficial time for the Internet call.

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A newsletter is only useful if it informs, aids or improves things for its readers. You, the reader can help by sending me your questions, comments, suggestions, even gripes. They will be gratefully received, even the gripes.

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<Opine>   by Robin D. Myers

Is the ICC Still Relevant?

Recent developments in the world of color management have me wondering if the case can be made that ICC is no longer relevant?

Let us look at some of these events.

• iPhones have radically changed the phone market. Every smart phone has one or more cameras and a color display for viewing still and video images. There are even smart phone applications that use these cameras as colorimetric sensors.

• iPads are changing many things; computing, publishing, media consumption and classroom instruction, amongst others.

• Despite these events, **iOS does not offer any color management capabilities**. All the images and videos presented on iOS devices are not color managed. This is shocking considering that Apple was the first company to offer color management in the OS with its ColorSync technology.

• Most digital cameras, amateur and professional, usually produce their images in sRGB or Adobe 1998 RGB, both based on obsolete CRT technologies.

• Because the ICC profile format uses tables, which are created by sampling known colors under a given illumination, cameras must create an ICC profile for each lighting situation to produce the best color matching. This is only practical for studio shooting situations.

• Due to the unadaptability of ICC camera profiles to various shooting situations, most profile software vendors have abandoned the ICC format for the DNG profile format, where subjective adjustments are the norm.

• The ICC profile format allows for three rendering tables; colorimetric, perceptual and saturation; which control how colors will be mapped and clipped as they are converted. The colorimetric table is intended for reproducing colors as precisely as possible. The saturation table is intended for reproducing highly chromatic colors, with the possible sacrifice of lightness accuracy. The perceptual tables are for creating pleasing

images and are the place where most of a vendor's secret image sauce is used. However, some profile vendors produce only a single table in their profiles, which, from the appearance of the final image, appear to be perceptual only. Therefore color accuracy is not possible with these profiles.

• LCD panels are the dominant display monitor technology these days. The primary illumination used for these panels are fluorescent tubes and LEDs, both of which do not natively produce a D50 white point, which is the requirement for ICC profiles.

• Calibrating an LCD panel to D50 often results in a yellowish cast to the monitor's displayed image, which leads most users to use a bluer white point of D65, or the native white point, which can be much higher in CCT. Since the ICC demands a D50 white point for all profiles, all colors must be converted from the internal D50 representation to the monitor's calibrated white point before display.

• The method used to convert colors from D50 to the monitor's white point is a chromatic adaptation transform, which, with our current methods, does not perform a complete adaptation, often resulting in conversion errors of 12 to 15 difference units.

• Images on the Web are assumed by most browsers to be sRGB, which is D65 based, unless they have an attached profile, which some browsers simply ignore. So the ICC's D50 requirement is not in agreement with common usage.

• The ICC requires that source device colors be converted to a truncated Lab space before they are converted to the destination device's color space. This can result in colors being changed (clipped) prematurely, even though the destination device may be able to produce the original color.

• To avoid premature color clipping some printers use device link profiles which directly convert from the source to destination devices without the intermediate conversion and clipping.

• The ICC's table format allows it to adapt to a variety of nonlinear color production devices, but it is also bound to the conditions used to make the tables. When an ICC profile is used in a

situation for which it was not intended, the results are often unacceptable.

There have been some rumors that the ICC is considering a few changes to allow for more adaptability, but standards committees move abysmally slow, like glaciers before global warming. Meanwhile, markets are moving quickly and cannot afford to wait.

So in many ways the ICC format is either obsolete, too inflexible, or simply ignored. The only place where the rigidity of the ICC profile is still useful is in the printing industry. There the conditions can be more fixed, compatible with the profile's creation conditions. However, there are continuing issues with printer profiles relating to paper optical brightening and the print viewing illumination.

All of these items, when taken together paint a bleak picture of the ICC's color management solution.

The question can now be properly presented. Is the ICC relevant in today's imaging world?

This question can only be answered on an individual basis after each person has looked at their needs and whether the ICC has fulfilled them.

The Future?

Color management seems to be descending back into the device dependent tar pit it was more than two decades ago. Sales of smart phones and tablet devices are increasing daily. The rise of these devices, with the wide range of available applications (apps to the linguistically lazy), has made them suitable for computing anywhere, anytime. The idea Alan Kay expressed in the mid-1990s at Apple of "ubiquitous computing" has been realized. Without color management these devices are crippled for imaging. What is needed is ubiquitous, transparent color management for our ubiquitous computing devices.

We, the technologists, need to make color just work properly for everyone, on any color device, without requiring the user to get involved.

Within the limits of each device, the same color should be presented to the user as the other devices, without the user needing to be involved in deciding how to produce the color. This is the new model of user as consumer, not producer, of color.

To get this to happen we need better color presentation devices, better color measurement devices, new and improved color metric standards, better information from color device manufacturers, and most importantly, imaging consumption devices (phones, tablets, ...) that have abilities built-in to allow images and colors to be accurately presented.

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Hopefully this editorial will start some long needed discussions about where is color management and where it is going. If you would like to comment on this topic, please mark send your comments to robin@rmimaging.com . I will correlate your comments into the next Chromaxion issue.