

DIGIEYE IS MANUFACTURED
IN THE UK BY VERIVIDE LTD

MALCOLM BALL

Malcolm Ball, CText FTI CCol FSDC, (below) is an independent technical consultant on colour, training and technology related issues.



He is also Chairman / Technical Director of ASBCI - the forum for clothing & textiles.

THE ASBCI

The ASBCI is the only Association to bring together the clothing industry from fibre Manufacture through to garment manufacture, retail and aftercare.



The association is a centre of technical and commercial excellence where companies at the forefront of their specific sectors can discuss, share and develop practices, processes and initiatives that will benefit their organisations and the UK clothing supply-chain as a whole.

website: www.asbci.co.uk



in this article

Malcolm Ball considers factors to take into account when selecting a colour measurement device

31 – International Dyer - April 2006 "Made to Measure"

An excerpt of an article from International Dyer April 2006 - "Made to Measure" by Malcolm Ball, CText FTI CCol FSDC, Independent technical consultant on colour, training and technology related issues and Chairman / Technical Director of ASBCI - the forum for clothing & textiles.

Spectrophotometers are laboratory instruments, able to measure standard sample areas very accurately. The measured reflectance data is an average of the colour across the whole sample area. This is excellent for most solid colours, as it removes the influence of slight surface defects and texture - and if the sample area is big enough, it can even cope with difficult fabrics like denim.

However, what a spectrophotometer cannot deal with is multicolour patterns or design smaller than the measuring aperture. For example, a gingham fabric will only show a single averaged 'colour' between the white base and the coloured check - a spectrophotometer cannot differentiate the two.

This inability to cope with small samples, blends and patterns has meant that colour measurement has not been available for many multicolour substrates or single-colour samples below a certain size - until now.

Advances in digital camera technology have produced new solutions, which can be used to measure the colour not only of small designs, prints, yarns and fibres, but also of whole garments with a range of fabrics or trims of different materials and surface finishes.

The key to colour measurement by camera has been the development of technology and software to generate spectral data rather than just the RGB output of a camera. Although RGB systems mimic the human eye, they suffer from the same drawback in that each device....



continued on next page

.....may have a slightly different sensitivity across the spectrum and they are therefore susceptible to metameric effects. A complete standardised spectral curve avoids these potential errors.

As every dyer knows, perceived colours are a result of the illuminant, the coloured surface and the observer. With a spectrophotometer the illumination is fixed (typically a diffuse D65 filtered, pulsed Xenon tube), the observer is fixed (usually 8° in a sphere spectrophotometer) and the reflected light captured and measured.

With a digital camera, we have a very sensitive and extremely focused way of observing the colour but we do need an independent means of illumination and a standardised means of measuring the reflected light. If this can be achieved, it is possible to use common image-handling software to isolate areas for measuring - and these could be as small as a single pixel!

Standardised illumination conditions can be achieved by employing a fixed-configuration viewing chamber, equipped with accurately positioned lamps of known properties. Standardised viewing can be achieved by locating the camera at a fixed height and position over the sample being viewed.

An advantage of using camera-based technology is that an entire image can be captured, processed and displayed on a calibrated monitor, providing exactly similar images for synchronised or serialised viewing on similar equipment anywhere in the world. Such technology is excellent for viewing components in context and assessing whether colour variations in one product can be tolerated in the finished product, when viewed adjacent to other surfaces and colours - and for viewing colour gradations and gloss effects.

Obviously, none of these are possible with a spectrophotometer alone.

DigiEye, from VeriVide in Leicester, uses a characterised digital camera in which a reference colour chart, measured by a spectrophotometer, is mapped to the camera's RGB output.

The result is a 'synthetic' spectral curve, which can be used for colour comparison and reproduction on screens and printers. The system also allows for the export of the data as well as the import and use of 'real' spectral data, measured on remote spectrophotometers.

Because they include a sample-measuring chamber, both systems are larger than spectrophotometers. Also, as they are linked to computer imaging software, the monitors are calibrated to produce the closest colour rendition on screen.

Their current application is really focused on areas where multiple colour images or designs are required, or where traditional spectrophotometers are unsuitable.

However, it is not difficult to appreciate that these technologies will grow and provide more versatile and accurate systems for an increasing variety of uses in the future.

**Dr. Malcolm Ball CText FTI CCol FSDC
International Dyer
April 2006**

END OF ARTICLE



VeriVide Limited. Quartz Close
Warrens Business ark
Enderby, Leicester. LE19 4SG
United Kingdom

Tel: +44 (0) 116 284 7790
Fax: +44 (0) 116 284 7799

enquires@verivide.com

www.verivide.com
www.digieye.co.uk