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caddon multispectral technology - **can:**scan

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can:scan

Functionality:

Multispectral color-measurement for:

1. **Pigment-formulation systems**
   - spectral readings even from complex patterned samples for dyeing and spot color formulation

2. **ICC-profiling for digital printers**
   - even complex substrates that cannot be measured with X/Y-spectrophotometer-tables

3. **Digitizing customer samples**

4. **Generating color accurate digital samples**
   - as digital color reference for online color-assessments
   - as digital color reference for color retouchment of studio shots
   - as digital color reference for CGI-aplications

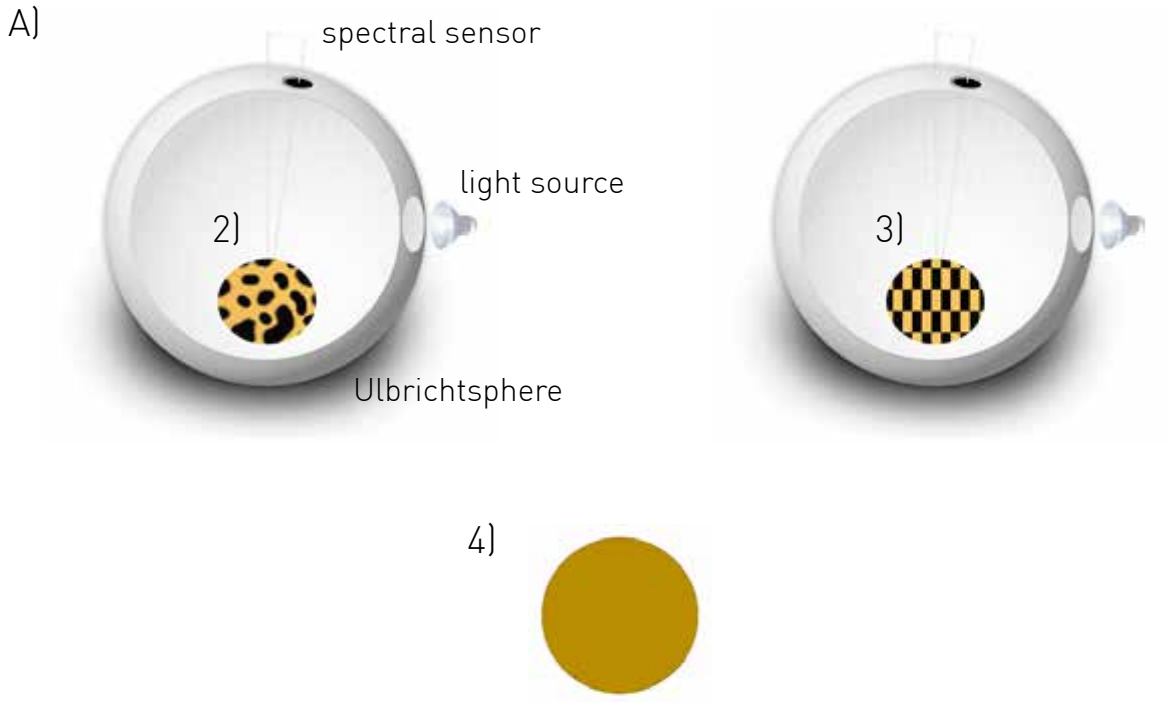
1.0 Introduction

This document explains the benefits of multispectral technology versus spectrophotometric technology.

2.0 Examples illustrating the problem of spectrophotometry

Example 1: complex colour-patterned surfaces

Spectrophotometers do not allow the measurement of complex, color-patterned surfaces (example 1), since their aperture inevitably record several spectra, while determining the average of them, i. e. „single-uni-color" spectral readings. For example, spectrophotometric measurements on different surfaces such as the 2) "leopards-pattern" and the 3) "yellow checkered pattern" may result in the same spectral value.



A) schematic representation of a spectrophotometer

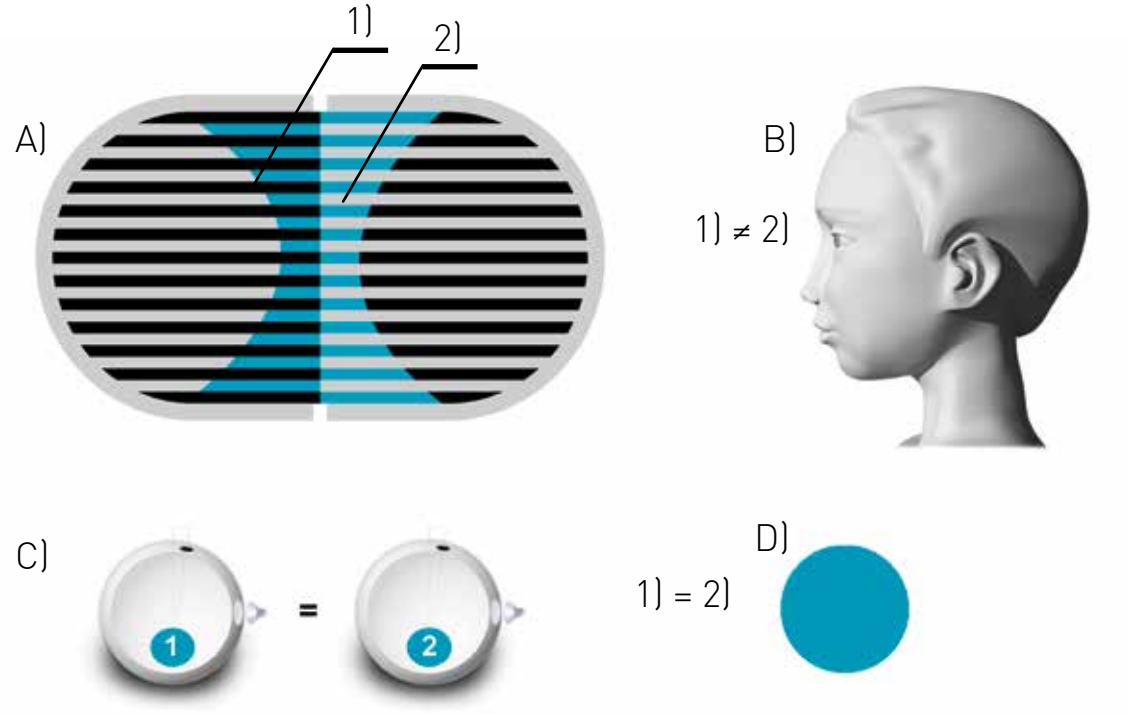
2) „leopards-pattern"

3) „yellow checkered pattern"

4) identical spectral value on both patterns (by coincidence)

In addition, the visual impressions that people perceive often cannot be verified through measurements with a spectrophotometer, since a person's subjective visual impression is greatly affected by influences such as contrasts in colour and brightness, which can't be recorded in a spectral measurement (examples 2 and 3).

Example 2: measure-points 1) and 2) on blue colored fields



A) testpattern simultaneous color contrast

1) measuring point 1

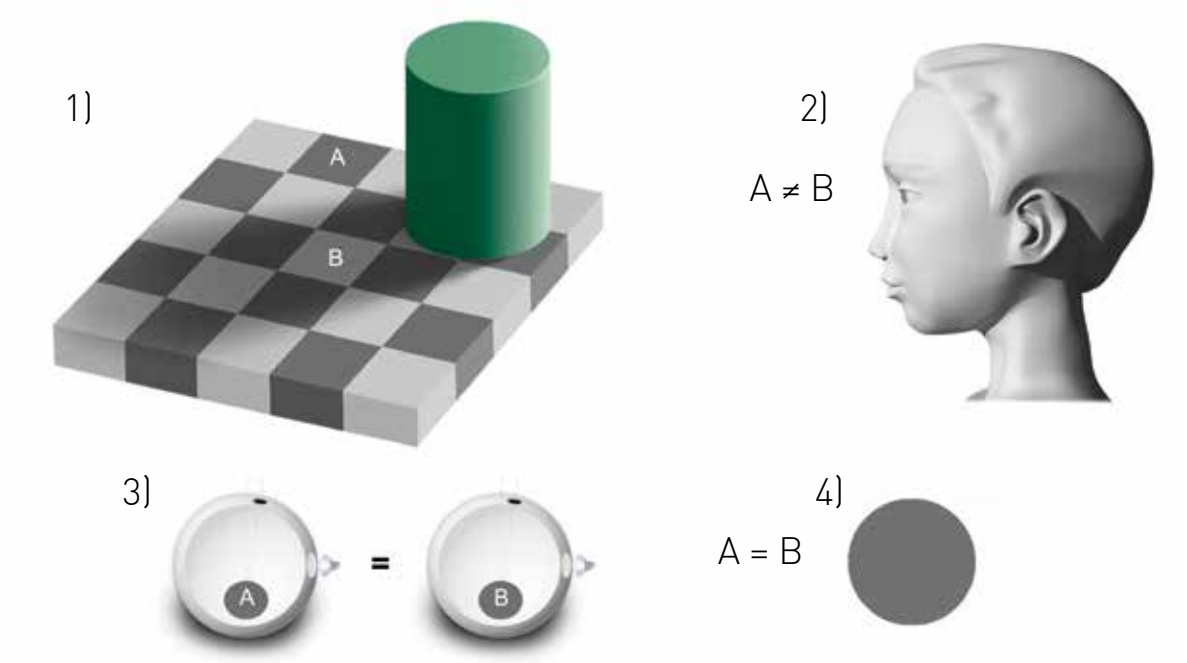
2) measuring point 2

B) observers impression A ≠ B

C) schematic representation of a spectrophotometer

D) spectral value of 1) and 2)

Example 3: „measurement" on grey fieldB



1) Adelson test-image

A) measurement on field A

B) measurement on field B

2) observers impression A ≠ B

3) schematic representation of a spectrophotometer

4) spectral value A is identical to value B

3.0 Solution through multi-spectral technology

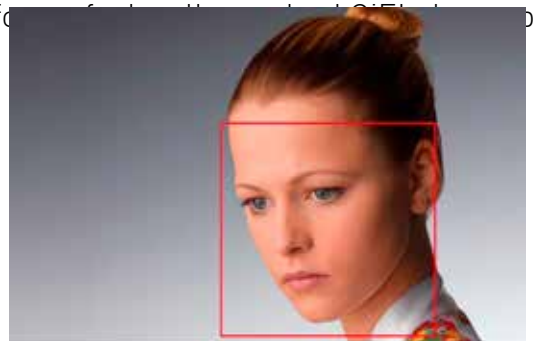
Multi-spectral technology combines the technology of a camera with the properties of a spectral photometer. The image conveys the actual visual impression and contains the spectrum of each individual pixel. Using a dataset, both pieces of information are thus inseparable, and reliably available at the same time in different places.

A multi-spectral dataset can be visually assessed and measured at any time at a different location than where the image was made. Image capture and measurement can be divided into two steps.

The example shows the comparison of proof and print versus the digital reference.

The comparison is made through a „motif measurement procedure", i.e., a locally resolved measurement made without the traditional colour control wedge. To allow this to happen, an area was selected on the „Lady" motif (red square) where analysis of the scanned data and the reference file was performed. The proof and printing of the motif were each captured with the can:scan system.

The colour quality was then assessed in the fo parison:

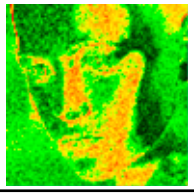


Black: 0.0 CIE ΔE2000

Green: 1.0 CIE ΔE2000

Yellow: 1.5 CIE ΔE2000

Red: >2.0 CIE ΔE2000

Data	Motiv	Colour difference to reference image
Proof		
Print