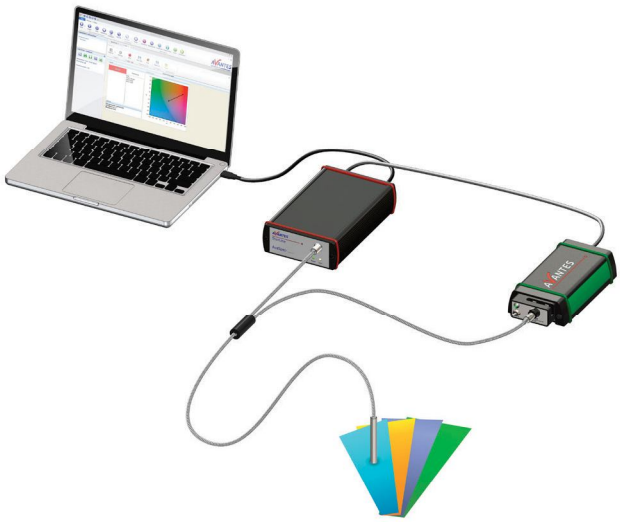
Color measurements

The human eye has a spectral sensitivity that peaks at around 555 nm, which means that the color green gives an impression of higher brightness than other colors. At 490 nm the sensitivity is only 20% compared to the sensitivity at 555 nm. Furthermore, the human eye can only distinguish about 10 million different colors which is actually quite limited relative to the needs of color measurement applications. Spectrometers are designed to measure exact wavelengths, and are therefore ideal for color measurements.



Visible light has a wavelength range of 390-750 nm, so generally color measurement systems are configured to cover the range from 380-780 nm with a spectral resolution of around 5 nm (FWHM).

To facilitate reflective color measurements a reflection probe or integrating sphere is typically required. In either case, a white continuous light source illuminates the surface to be measured and a white reflective standard tile is needed for calibration. Color measurements may be applied to a variety of industrial applications such as color of textile, paper, fruit, wine, and bird feathers. Avantes has developed a variety of custom probes to meet the specific demands of the color measurement application. Color measurements are manifested in the L*a*b* color model which includes parameters for brightness and hue.

Color measurement of small areas

Ideal for color measurements, this bundle features an AvaSpec-ULS2048 spectrometer, tuned for visible light. Furthermore a D65 halogen light source for illumination and a reflection probe together with a reflection probe holder. Typical applications:

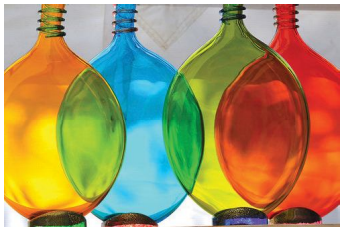
- In-line reproducibility
- Small spots & lines

... and many more

Order information: AvaSpec-Color-A

Spectrometer	AvaSpec-ULS2048-USB2	Grating BB (360-780nm) 200 µm slit AvaSoft-Full & AvaSoft-Color
Light source	AvaLight-HAL-Mini	PS-12V/2.08A
Fiber optics	FCR-7UV200-2 reflection probe RPH reflection probe holder	
Included	WS-2 white reflection tile	

Color measurement of surfaces (total diffuse light)



Wide angle diffuse light from the sample is used to measure color. This uses a hand held 50 mm integrating sphere and a compact spectrometer. Measurement is free of the gloss specular component. The measurement optics are placed under a 8° angle (D/8 SPIN). Typical applications:

- Rough surfaces
- Textile and printed paper
- Fruits

... and many more

Order information: AvaSpec-Color-B

Spectrometer	AvaSpec-ULS3648-USB2	Grating BB (360-780nm) 100 µm slit AvaSoft-Full & AvaSoft-Color
Light source	AvaSphere-50-LS-HAL	
Fiber optics	FC-UV200-2-ME	
Included	WS-2 white reflection tile	

AVANTES PHOTO TECHNICA
www.phototechnica.co.jp
フォトテクニカ株式会社
〒336-0017 埼玉県さいたま市南区南浦和 1-2-17
TEL:048-871-0067 FAX:048-871-0068
e-mail:voc@phototechnica.co.jp