

VDU 12 - 2D Spectral Imaging Colorimeters

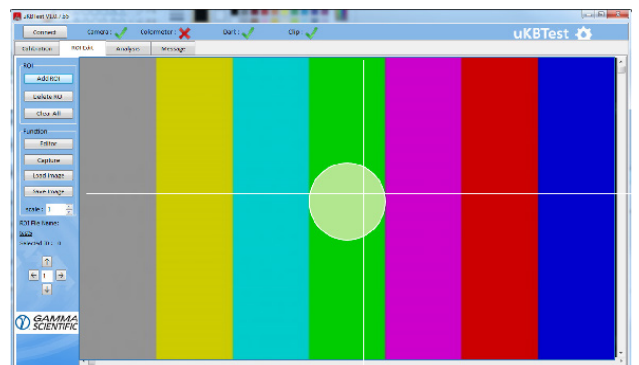
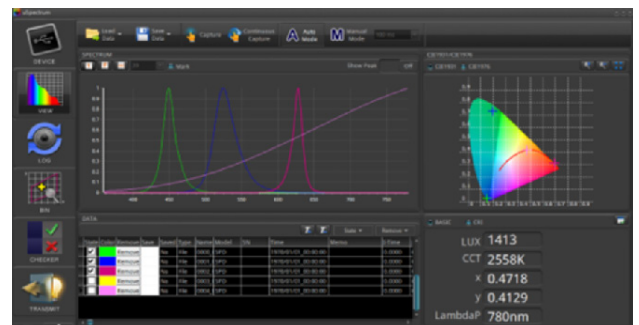


The VDU 12 is a next generation family of 2D spectral imaging colorimeters combining the strengths of a CCD image sensor and high performance spectroradiometer. This results in a rapid and highly accurate system for display measurements including luminance, correlated color temperature (CCT), CIE chromaticity, spectrum and uniformity. The system is particularly well suited for test and characterization of LCD, LED, OLED and quantum dot displays. Laboratory grade accuracy and flexibility are combined with high speed and durability for demanding production environments.

Rapid, Accurate and Repeatable Display Characterization

Features

- Integrated spectroradiometer, significantly improving accuracy, repeatability and unit-to-unit consistency
- 2D Luminance, CCT, CIE x, y, u', v', and uniformity
- User-programmable regions of interest
- Auto darkness and flat field correction
- Spectral measurement and data including spectrum power distribution, peak and dominant wavelength
- Lens options vary for screens of different sizes, from micro to large
- ISO 17025 certified and NIST traceable calibration



Camera Specifications	
Active Image (H x V)	4096 x 3000 (12.29 MP)
Pixel Size	3.45 μm
Sensor Size	1.1" Diagonal
Measurement Time Range	30 μs to 10 seconds
Measuring Parameters	Luminance (cd/m^2) Correlated color temperature (CCT) CIE chromaticity coordinates (1) CIE 1931 x,y coordinates (2) CIE 1931 XYZ value Delta uv (Duv)

Spectroradiometer Specifications		
Wavelength Range (nm)	380 to 780	
Wavelength Data Increment (nm)	1	
Wavelength Reproducibility	± 1 nm	
Stray Light	-25 dB max.*3	
Polarization	< 3%	
Integration Time Range	100 μs to 5 seconds	
Luminance *1*2*4	Measurement range (for Accuracy and Repeatability)	0.005 ~ 5,000 cd/m^2
	Accuracy	$\pm 1.5\%$ @ 0.1 to 5,000 cd/m^2 $\pm 4\%$ @ 0.005 to 0.1 cd/m^2
	Repeatability (2 σ)	0.5% @ 0.005 to 5,000 cd/m^2
Color *1*2*4	Measurement range (for Accuracy and Repeatability)	0.005 ~ 5,000 cd/m^2
	Accuracy	± 0.001 in CIE1931 x, y for white @ 0.1 to 5,000 cd/m^2 ± 0.002 in CIE1931 x, y for white @ 0.005 to 0.1 cd/m^2
	Repeatability (2 σ)	0.0005 in CIE1931 x, y for white @ 0.1 to 5,000 cd/m^2 0.0015 in CIE1931 x, y for white @ 0.005 to 0.1 cd/m^2

System Configuration	
Interface	Ethernet 100/1000, USB 2.0, RS232
Power	48V 2.5A via an external 110-240V power supply. Power supply is included with the VDU-1160.
Dimensions (mm) with 50 mm lens	214 W x 223 L x 170 H <4.4 kg
Environmental	15 to 35 $^{\circ}\text{C}$, relative humidity 70% or less without condensation

Spot Size and Field of View at Selected Working Distances for 35 mm f/1.4 Lens							
Working Distance (mm)	300	400	500	600	700	800	850
Spot Size (mm)	13	19	25	31	37	43	46
VDU 12							
Field of View, Horizontal (mm) ⁽⁶⁾	128	172	214	254	294	333	355
Field of View, Vertical (mm) ⁽⁶⁾	94	126	157	186	214	244	260
Field of View, Diagonal (inches) ⁽⁶⁾	6.3	8.4	10.4	12.4	14.3	16.3	17.3

*1. Luminance and color testing are based on white color with correlated color temperature @7200K.

Specifications are subject to change without notice.

*2. Measure in normal mode with temperature 23 $\pm 2^{\circ}\text{C}$ and relative humidity 50% or less.

*3. Repeatability test is based on the status of shutter opening.

*4. Under 0.1 nits luminance level, measurement is done by camera only.