

VTC 2400

Far-field emission analysis

Key features at a glance

- ▲ Single-shot VCSEL array / LED characterization
- ▲ Measure the radiance and numerical aperture of the whole emitter ensemble
- ▲ Uniformity control of the radiation pattern
- ▲ Identification of highest intensity spot for laser safety evaluations
- ▲ Radiometric calibration traceable to the PTB



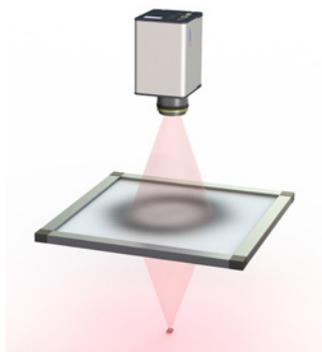
The VTC 2400 is a high-resolution 2D radiance measurement system specifically designed to accurately determine the radiant intensity distribution of VCSEL and LED devices in the far field. It consists of a light-permeable screen with a monochrome camera suitable for measurements in the near infrared wavelength region – fully integrated in a light-proof housing suitable for lab and production applications.

\\ SYSTEM SETUP

The core functionality of the VTC 2400 is provided by a combination of the screen and the 5 MP infrared camera. The device-under-test illuminates the screen from one side and creates a spatially resolved mapping of the radiant intensity. The camera captures this distribution from its transmission profile. Consequently, the setup allows the measurement of angular distribution of the far field distribution of the VCSEL array or LED.

The system is equipped with a robust housing to protect the test system against dust and environmental light. The distance from camera to screen is fixed to 400 mm by default. The DUT can be placed in variable distance in front of the screen. As always with Instrument Systems, the

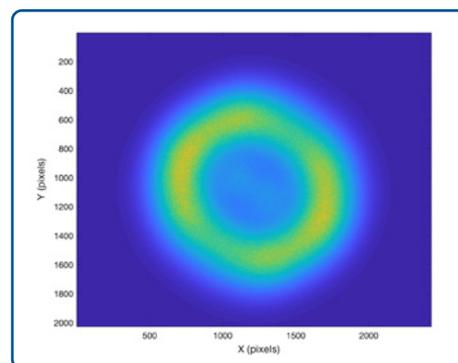
overall system comes with an absolute radiometric calibration traceable to national standards (PTB). To verify compliance of the DUT with IEC laser safety standards, the VTC 2400 enables identification of the maximum intensity spot of the emission pattern.



▲ The VTC 2400 comprises a monochrome camera and a light-permeable screen to measure the radiant intensity distribution of infrared VCSEL arrays / LEDs.

\\ KEY RESULTS

- » Absolute radiant flux
- » Angular and spatial distribution of the emitted light
- » Opening angle
- » Cross-section profile of the emission pattern
- » Height of middle and outer peaks
- » Identification of the highest intensity spot



▲ The VTC 2400 is made for measuring and analyzing the 2D radiant intensity distribution of IR emitters.

\\ TECHNICAL SPECIFICATIONS

VTC 2400	
General	
Max. opening angle ¹⁾ (typical)	±25° for 100 mm x 100 mm screen and 100 mm DUT-to-screen-distance ±60° for 100 mm x 100 mm screen and 30 mm DUT-to-screen-distance ±75° for 300 mm x 300 mm screen and 40 mm DUT-to-screen-distance
Camera-to-screen distance ¹⁾ (typical)	400 mm
Angle accuracy ¹⁾ (typical)	< 1°
Accuracy of radiant intensity measurement	< 10 %
Screen width x height (typical)	100 mm x 100 mm or 300 mm x 300 mm
Camera	
Sensor type	CMOS
Camera size	5 Megapixel
Lens	24 mm (other lenses available)
Wavelength range	400 – 1100 nm
Calibration range	800 – 1000 nm
Integration time	> 28 µs

¹⁾ Values for typical systems. Exact specifications depend on dimensions of the system and components.

¹⁾ Preliminary values. Exact specifications might change for the final product.

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