

Press Release

Characterization of laser diodes, VCSELs, and displays for time-of-flight and AR/VR applications

At Photonics West 2020 Instrument Systems will be exhibiting fast, high-resolution spectrometers and new systems for the measurement of VCSELs and AR/VR displays.

Munich, November 2019 – *As a participant at the German Pavilion at Photonics West / USA, Instrument Systems will be presenting its premium-class spectroradiometers and combined measurement solutions, complemented by absolutely calibrated cameras. Since a clearly defined error budget of the measurement system is required, in particular for eye safety assessment in the measurement of lasers, e.g. VCSELs, Instrument Systems offers absolutely calibrated measuring instruments with traceability to the PTB. Systems consisting of integrating spheres, connected photodiodes and spectroradiometers can perform spectral and performance-related measurements of laser diodes and VCSELs at 940 nm. Particularly fast photodiodes and suitably developed control electronics enable the time-resolved characterization of laser pulses in the nanosecond range. In addition, the single emitters of VCSEL arrays can be analyzed and conclusions drawn on the spatial radiation properties in the near and far field. All systems are available for laboratories, as well as for production applications with a focus on faster cycle times and an attractive price structure.*

Camera systems for the visible and IR range

In conjunction with the time-of-flight application of VCSELs in the infrared spectral range, eyeglasses and displays of AR/VR applications can also be measured with the aid of the production-proven DTS system. The latter is based on the new, particularly fast CAS 125 spectrometer with a minimum integration time of 11 μ s that is connected by an optical fiber to a calibrated LumiTop camera. Specially developed lenses guarantee the best imaging properties and customized measuring systems. These systems are available for the visible and infrared spectral range.

Time-of-flight application von VCSEL arrays

If laser diodes and VCSEL arrays are to be used for time-of-flight applications, they must be measured in terms of performance and spectral intensity, and their emissions and generated pulses characterized. For this purpose, Instrument Systems offers absolutely calibrated spectroradiometers for different wavelength ranges together with a wide range of accessories. Widely used in the production environment is a system that couples the emitter

into an integrating sphere and measures it instantaneously with the aid of photo diodes and a spectrometer of the CAS series. A fast photodiode and the emitter's specially developed control electronics guarantee characterization of pulses in the single-digit nanosecond range and recording of the LIV curve. In addition, the single emitters of the VCSEL array can be analyzed with the aid of an absolutely calibrated camera from the LumiTop series, enabling conclusions regarding the spatial radiation properties in the near and far field.

Absolute calibration ensures exact error budget

These measurement solutions are based on an absolute calibration that is traceable to the PTB. This results in a clearly defined error budget that has enormous significance particularly for the eye safety assessment of VCSELs. All systems are available both as lab systems and as production systems with a focus on faster cycle times and attractive price structure.

www.instrumentsystems.com

Photonics West 2020, Booth 4545
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Photo:

LumiTop system for the measurement of AR/VR displays.



Further text material and photos:

<https://services.instrumentsystems.com/owncloud/index.php/s/aFe7t67RAVWq681>

Company portrait of Instrument Systems GmbH

Instrument Systems GmbH, founded in Munich in 1986, develops, manufactures and markets all-in-one solutions for light measurement applications. Its core products are array spectrometers and imaging colorimeters. The company's main fields of activity are LED/SSL and display metrology, spectral radiometry and photometry, where today Instrument Systems is one of the world's leading manufacturers. The Optronik line of products for the automotive industry and traffic technology is developed and marketed at its Berlin facility. Instrument Systems has been a wholly-owned subsidiary of the Konica Minolta Group since 2012.

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