Presse Release

Efficient testing of advanced headlamps

AMS screen imaging system allows ultra-fast determination of light distributions for HD / ADB / matrix / pixel vehicle headlamps.

Munich, January 2021 – *Instrument Systems presents a newly developed system for ultra-fast testing a wide range of lighting scenarios for advanced headlamps, e.g. HD / ADB / matrix / pixel headlamps. The AMS screen imaging system consists of a far field goniometer, a screen photometer and an illuminance meter and allows synchronized measurements for luminance and far field on a high level of accuracy. Supported by the extended LightCon software, compliance checks according to ECE / SAE / ICAO / FAA regulations as well as extensive graphical analysis are efficient to perform.*

The future of car light lies in dazzle-free main beams in HD quality and in a tight interaction between vehicle and innumerable sensors. The board computer receives detailed information about the environment from sensors that calculate in real time the brightness values for each of over two million pixels. Further functions such as symbol and video projection onto the road add to the complexity of the lighting devices. Traditional methods of measuring light distribution with a far-field goniophotometer and illuminance meter have become inefficient and inadequate, as they are not fast enough for measuring every possible lighting scenario in an R&D environment.

Instrument Systems offers with the Optronik Line AMS Screen Imaging System a highly efficient solution for testing all kinds and lighting scenarios of advanced headlamps, e.g. HD / ADB / matrix / pixel headlamps. The newly developed system represents a fast method of combining camera-based luminance measurements on a projection screen (screen photometry) with goniometric far-field measurements in the light lab. The objective is to save time while maintaining a high level of accuracy. The system setup includes a classic AMS 3000 or 5000 far-field goniophotometer with a DSP 200 fast illuminance meter positioned beyond the photometric limiting distance. The camera used for screen photometry is the recent LumiCam 2400B camera with five mega pixels, allowing an excellent resolution for the measurement of all common, but also state-of-the-art HD headlamps. For quick and easy operation, the test results of both measurements can be simultaneously analyzed with the LightCon software.

The AMS screen imaging system must be set up in a light channel of at least 25 m length. In order to record the complete light distribution of the headlamp, the goniometer rotates the sample while the camera is taking a series of images that are later stitched in one image or

test report. The AMS screen imaging system is supported by an extension module of the advanced LightCon software that allows compliance check according to ECE / SAE / ICAO / FAA regulations as well as extensive graphical visualization for isocandela diagrams.

Photo 1: Standard light laboratory set-up with AMS goniophotometer, LumiCam screen photometer, and DSP 200 illuminance meter as well as projection screen and baffles.
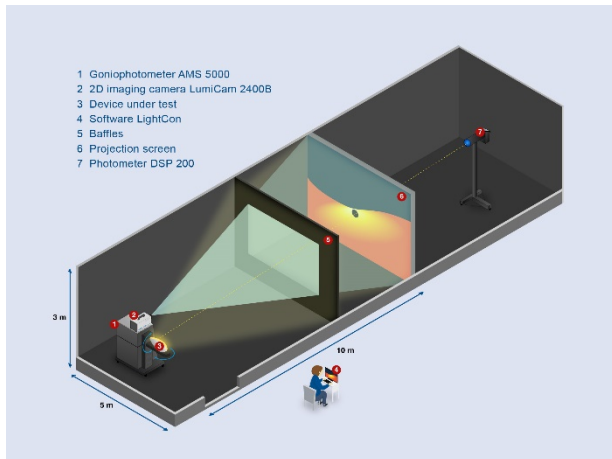
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Company portrait of Instrument Systems GmbH
Instrument Systems GmbH, founded in Munich in 1986, develops, manufactures and markets all-in-one solutions for light measurement applications. Its core products are array spectrometers and imaging colorimeters. 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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