

# LumiSuite Software

Comprehensive analysis for all display  
measuring tasks in lab and production



We bring quality to light.



#### Software highlights

- ▲ Complete set of analysis tools for general characterization of 2D images
- ▲ BlackMura analyses in accordance with the German automotive standard
- ▲ User-friendly GUI for a comprehensive analysis in the lab
- ▲ Software development kit for easy and flexible integration in display production lines

Software platform LumiSuite for display characterizations with the imaging colorimeters LumiCol 1900 and LumiTop 2700 / 4000.

## // LumiSuite software – Comprehensive tool for display characterizations

The Instrument Systems imaging colorimeters LumiCol 1900 and LumiTop 2700 / 4000 come with a new software platform, the LumiSuite, which is optimized for the typical processes of automated production or quality control, as well as for R&D applications. The LumiSuite software supports various applications with specific functions that allow for a wide range of measuring tasks to be carried out fast.

#### Great flexibility with SDK or GUI

The software development kit (SDK) guarantees easy and flexible integration in typical display production lines. For laboratory

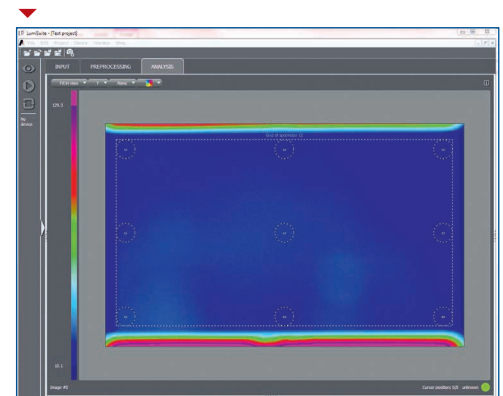
applications, the workflow from data acquisition via image processing to image analysis is organized in a user-friendly and modular graphical user interface (GUI). Two modules are available: The SmartAnalysis module and the BlackMura module.

#### Versatile analysis software for lab and production

The user-friendly GUI offers all that is needed for a comprehensive analysis in the laboratory. The operator can use the flexible tools to perform a variety of different evaluations. The data processing is always transparent, the necessary parameters are well organized and easily accessible. Therefore, the

LumiSuite enables the operator to perform his tasks very efficiently.

Screenshot of the LumiSuite GUI (SmartAnalysis), showing an image of a display in pseudo-color representation.



# SmartAnalysis

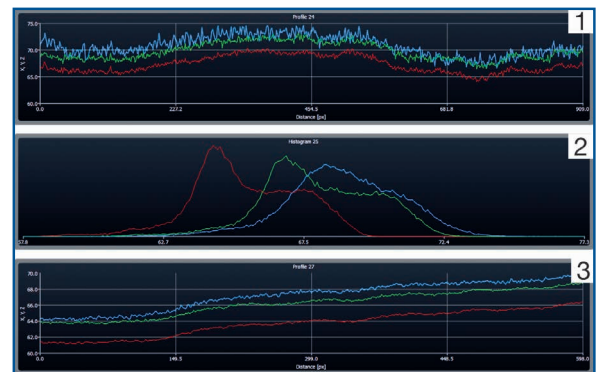
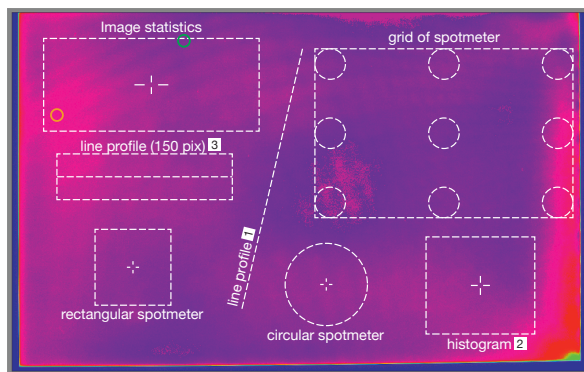
The SmartAnalysis module offers a complete set of analysis tools for the general analysis and characterization of 2D images:

- ▲ Spotmeter
- ▲ Grid of spotmeter
- ▲ Line profiles
- ▲ Histogram
- ▲ Luminance and color uniformity
- ▲ Focusing aid (slanted edge method)
- ▲ Image statistics

The screen below shows an image analysis with various tools of the SmartAnalysis module, applied in the XYZ color space (left). The rectangle for "Image statistics" includes the darkest and brightest spot in a certain region (green and red circle). "Line profile" is used for analysis of the XYZ values along a line placed on the image, the tool "histogram" to determine the color distribution in a specific region and the "line profile (150 pix)" shows a profile averaging

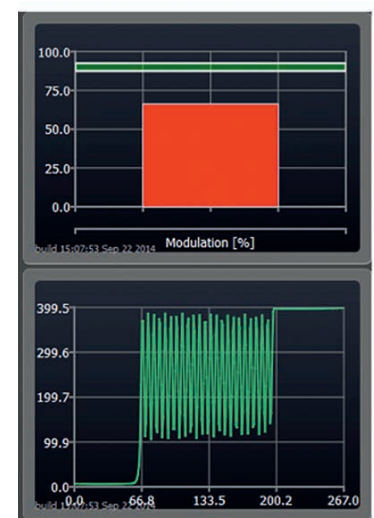
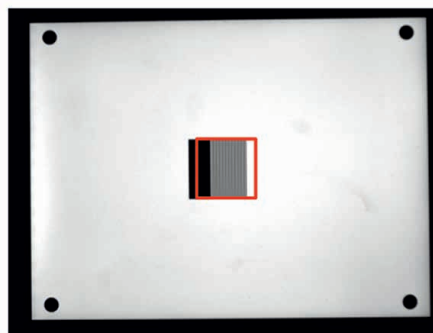
over 150 pixels (right). Other tools are rectangular and circular spotmeter and a grid of spotmeters to derive minimum, maximum, average values and more.

Left: Luminance of a display in pseudo color representation, analysed with various SmartAnalysis tools. Right: Graphical representation of (1) line profile, (2) histogram and (3) line profile (150 pix). Red, green and blue lines represent the color coordinates X, Y, and Z, respectively.



# BlackMura

The BlackMura module is designed for Black Mura analyses in accordance with the latest version of the official standard UMSfD (Uniformity Measurement Standard for Displays) used by the German automotive industry. With its user-friendly and transparent workflow, the module delivers easy and traceable Black Mura and uniformity analyses. Moreover, advanced users can modify the parameters for analyses beyond the standard.



Black Mura Analysis. Left: Test pattern used for adjustment of the focus of the imaging light measurement device. Top right: The actual modulation value (red bar), target modulation (green range). Bottom right: Luminance values (green line) according to the rectangular profile on the image (marked red).



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