

## Opto-electronic testing for VCSEL lasers on Wafer Level

**Optical and electrical qualification of VCSELs at the wafer level helps to differentiate well-working lasers from the ones with mediocre performance. In this way, unnecessary processing of low-quality devices is saved early and possible problems during wafer production will be determined.**

The NanoTest-VCSEL provides a powerful solution for this task. A temperature-controlled chuck accommodates wafers up to 6 in. diameter. Several vacuum zones simplify the fixation of smaller wafers, bars, single dies or chips on substrate.

An ultra-high precision motion system (XYZ and theta) shuttles the device into the measurement position. Electrical DC and/or RF probes supply the necessary electrical signals. An optical fiber above the device under test collects the optical signals for further processing and recording. Sophisticated machine vision algorithms secure the correct position and allow for automated device recognition.

The software package TestMaster controls not only the motion axes and machine vision, but all measurement instruments such as current sources, power meters, optical spectrum and network analyzers.

All data are recorded and processed. This includes the analysis of the LVI curve, the optical spectrum and noise ratios. The color mapping of the test results over the wafer position displays the performance of each VCSEL and the entire wafer at a glance.



### About nanosystec

nanosystec designs and builds high-precision assembly and test stations. These use accurate motion control and joining techniques such as precision laser welding, laser soldering and micro gluing with UV curing. The systems are used worldwide in opto-electronics, medical applications, the automotive industry and space technology.

Christiane Hummelt  
nanosystec Inc.  
47635 Lakeview Boulevard  
Fremont, CA 94538  
Phone +1 (844) 8118782  
[www.nanosystec.com](http://www.nanosystec.com)  
[sales@nanosystec.com](mailto:sales@nanosystec.com)

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