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LED’S FLASH FOR FRAUNHOFER:
WAVELABS DELIVERS THE SINUS-220 SOLAR SIMULATOR TO FRAUNHOFER

Having acquired Fraunhofer Institute as its latest customer, WAVELABS now supplies one of the world’s leading research institutions for photovoltaics. The WAVELABS SINUS-220’s high precision and flexibility were the key factors that influenced Fraunhofer’s decision to purchase the solar simulator.

The Fraunhofer Center for Silicon Photovoltaics (CSP) uses state-of-the-art equipment to conduct analyses and applied research at the forefront of solar module technology. With its new SINUS-220 solar simulator from WAVELABS, the renowned German research institution now has access to the best simulation of the sun available.

Dr. Christian Hagendorf’s diagnostics team at Fraunhofer CSP uses solar simulators as a tool for testing and optimizing PV cells. Depending on the manufacturer and cell, different technologies and varying spectral sensitivities come into play. “For a proper analysis that ensures equivalency with other measurements, not only must we be able to simulate the sun with precision, we also need to be able to modify the spectrum emitted. This way, we can be sure we’re getting an accurate measurement,” said Hagendorf.

The full integration of infrared and electroluminescence cameras in the SINUS-220 also simplifies Dr. Marko Turek’s work at Fraunhofer CSP. His team evaluates the electrical characteristics of PV cells, which involves examining correlations between material quality and efficiency as well as hot spot resistance. The LED technology developed for the SINUS-220 also allows the operator to measure high-efficiency solar cells over very long exposures. “We can adjust the exposure time as required, which is a huge advantage over conventional flash-based measurement systems,” explained Turek. The LEDs also allow for a wide range of variable intensities. “The result is that we are able to perform with great speed and precision a number of complex measurements that allow us to generate our research findings here at Fraunhofer CSP.”

The SINUS-220 uses 21 different colors of LED. The combination of colors results in a nearly flawless simulation of sunlight. And it achieves this perfect simulation both throughout the duration of each efficiency measurement as well as across the entire life of the light source. This temporal stability of the spectrum eliminates the risk of inaccurate efficiency
measurements. The SINUS-220 only deviates a maximum of 2% from the standard. The SINUS-220 helps industrial buyers to lower operating costs and optimize solar cell pricing. The device also allows solar cell manufacturers to expand their margins and increase their competitiveness. A six-figure economic benefit can realistically be achieved — year in and year out — by replacing conventional solar simulators. Manufacturers thus see a very rapid return on investment with the SINUS-220, making it a smart investment in more ways than one in an industry marked by intense competition.

“Acquiring the Fraunhofer Institute, one of the most important research institutions in the world, as a customer is a major accolade for us,” remarked Dr. Torsten Brammer, CEO of WAVELABS. “Fraunhofer CSP is known for setting exceptionally high standards for precision. That’s why we see this deal as a reaffirmation of our ability to satisfy the ever increasing demands of the market with our product quality and innovations.”

WAVELABS Solar Metrology Systems GmbH was founded in October 2011 by Dr. Torsten Brammer, Jörn Suthues and Dr. Thankmar Wagner. Together, Brammer and Suthues have over 30 years of experience in photovoltaics at renowned institutions and private enterprises including the Fraunhofer Institute for Solar Energy Systems and Q-Cells AG. Dr. Thankmar Wagner has international experience in the fields of commercial and tax law, mergers & acquisitions, and finance.

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