

PRESS RELEASE

Leipzig, July 16, 2013

HANWHA Q CELLS AGREES: LED'S DO IT RIGHT WAVELABS DELIVERS ITS FIRST SINUS-220 TO LEADING PHOTOVOLTAICS COMPANY

WAVELABS Solar Metrology Systems GmbH announced the launch of its new SINUS-220 solar simulator in May of 2013. Now, the Leipzig-based start-up is celebrating its first customer. Hanwha Q CELLS, one of the world's leading photovoltaics companies, has placed the first order for what may be the best simulator of solar rays under the sun.

Hanwha Q CELLS chose WAVELAB's SINUS-220 because of its innovative LED technology, which provides nearly perfect measurements of solar cell efficiency. High-efficiency solar cells — such as those produced by Hanwha Q CELLS — require longer exposure times than standard solar cells for efficiency measurements. Unlike conventional xenon solar simulators, the SINUS-220 allows you to choose any desired exposure time from just a few milliseconds to continuous illumination. The SINUS-220's near-perfect and fully repeatable simulation of the sun's spectrum minimizes the risk of classifying solar cells with an incorrect efficiency rating. The SINUS-220's accuracy makes it easier to determine the exact performance of solar cells and price them accordingly.

Hanwha Q CELLS plans to have the SINUS-220 operating on a pilot line of its solar cell production operations as early as August of this year. Thorough testing of the simulator's quality, stability, and readiness for production line use will be completed by the end of the year with the global rollout slated to follow. The tests will be carried out with financial support from the German Federal Ministry of Education and Research as part of the Solarvalley initiative, an award-winning cluster of solar companies in Germany.

Jörn Suthues, Managing Partner at WAVELABS, commented: "We're delighted to have acquired our new customer Hanwha Q CELLS, a renowned name in the photovoltaics industry. We're also proud to deliver the first SINUS-220 to one of the world's leading solar companies. Since Hanwha Q CELLS and WAVELABS are both known for their high quality standards, I think this may be the beginning of a long-lasting and successful business relationship."

Dr. Jörg Müller, head of cell development at Hanwha Q CELLS, remarked: "From the silicon wafer's receiving inspection through to final testing, the production of Hanwha Q CELLS solar cells is fully automated. As a result of this automation, we are already able to manufacture solar cells with efficiencies greater than 19%. The SINUS-220 can accurately detect and provide early warning of process instabilities during production. This capability lets us deploy new processes from the lab to the production line with greater speed and efficiency. WAVELABS is enabling us to achieve the efficiency milestones on our roadmap faster and more reliably."

The SINUS-220 uses 18 different colour LEDs, each with a unique spectral output. This combination results in a nearly flawless simulation of sunlight. And it does so consistently during each and every efficiency measurement throughout the lifecycle of the light source. This temporal stability of the spectrum practically eliminates the risk of inaccurate efficiency measurements. For improved process analysis, the SINUS-220 can optionally provide full integration with infrared and electroluminescence cameras that have been optimized for rapid quality analysis on solar cell production lines.

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.

Media contact:

WBN: Büro für Kommunikation GmbH
David Hoffmann
Phone: +49 (0) 40 38 99 11-20
Email: dhoffmann@wbn-hamburg.de