

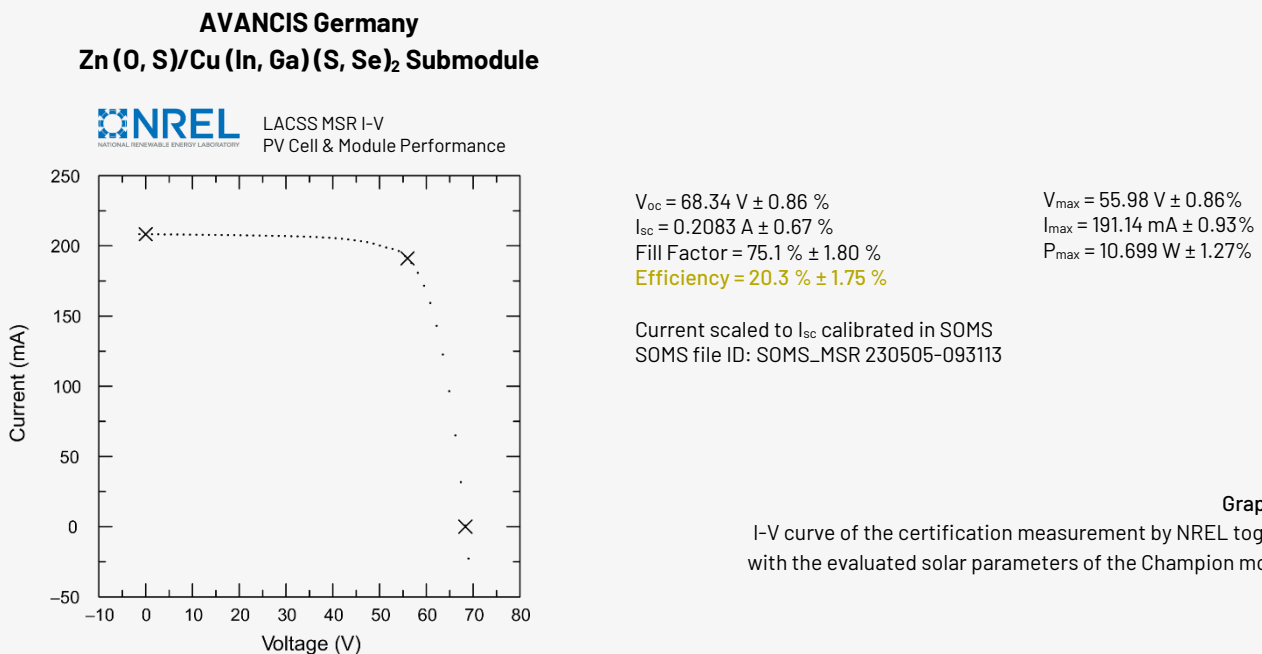
New world record for thin-film modules

CIGS technology from AVANCIS achieves certified efficiency of 20.3 % on the aperture area

Torgau/Munich, 2023, May 17: As the first manufacturer worldwide, AVANCIS has now breached the 20 % efficiency limit for CIGS thin-film modules of the size 30 cm x 30 cm and thus improved its own world record by a further 0.5 % points. The externally certified efficiency of 20.3 % represents another milestone for CIGS technology and opens up further perspectives for the use of building-integrated photovoltaic systems in modern architecture and sustainable construction.

Independently certified record value

With the new efficiency world record of 20.3 % related to an aperture area of 527 cm², AVANCIS sets a new international benchmark as a leading manufacturer of premium thin-film modules. The best value was achieved for an encapsulated CIGS-based thin-film module with integrated series interconnection of the size 30 cm x 30 cm and independently certified by the National Renewable Energy Lab (NREL). "Our CIGS technology is the first cost-efficient thin-film technology to break the 20 % efficiency barrier for this module size and advances into efficiency regions that were previously reserved for cSi-based wafer PV technologies or III-V PV technologies," emphasizes Dr Thomas Dalibor, Director CTO at AVANCIS.

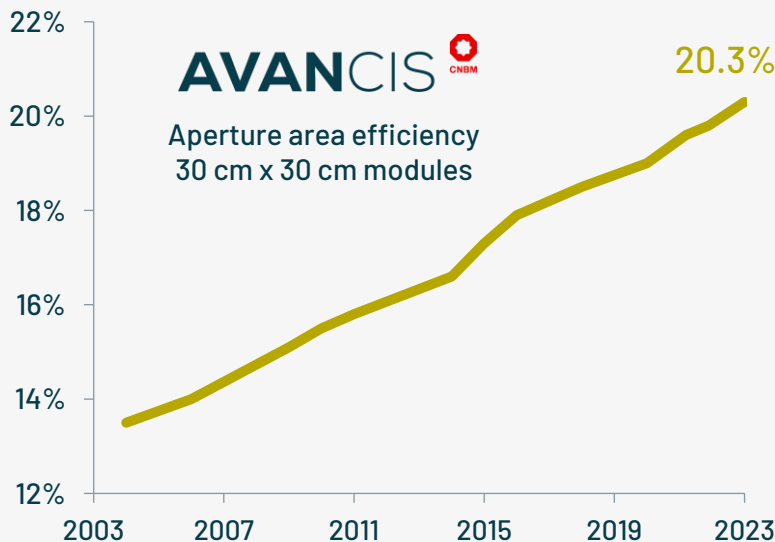


Graphic 1:
I-V curve of the certification measurement by NREL together with the evaluated solar parameters of the Champion module.

Successful thanks to intensive research and development work

This success was made possible by further optimizing the Ga-rich Cu(In, Ga)(S, Se)₂ absorber bandgap profile by adapting the AVANCIS SEL-RTP process (stacked elemental layer - rapid thermal processing) in combination with the Na-based post-deposition treatment of the absorber and the Cd-free, sputtered Zn(O, S) buffer.

Dr. Thomas Dalibor explains: "With the current performance increase of the modules, AVANCIS once again lives up to its role as a leading technology supplier. My thanks go above all to our research teams at the R&D center in Munich for their tireless and structured work."



Graphic 2:
In the past years, AVANCIS has repeatedly set new efficiency benchmarks of CIGS technology.

New potential for solar facades - economical and aesthetic

All essential processes used for the record module are transferable to the series production of the proven SKALA product series and will be introduced gradually, taking into account cost efficiency, and depending on production capacity utilization. These large-area thin-film solar modules open up almost limitless design freedom in the planning and realization of future oriented solar facades. The special AVANCIS color technology enables dynamic coloring and thus an interplay of light and color, and the matt, noble surface creates an architectural highlight. "With the continuous improvement of the efficiency of our modules, the use of building-integrated photovoltaics is becoming even more economical and attractive. And last but not least, our CIGS technology offers an environmentally friendly alternative to most established crystalline silicon technologies thanks to its lower carbon footprint and the absence of environmentally harmful substances such as cadmium and lead," emphasizes Augustin Rohr, Director of Sales & Marketing at AVANCIS.

About AVANCIS GmbH

AVANCIS GmbH develops and produces premium class solar modules based on the copper indium gallium diselenide compound (CIGS modules) - high quality products "Made in Germany". The innovative technology is developed in the company's own research and development centers in Munich and Torgau and manufactured in the production facility in Torgau. AVANCIS technology dates back to pioneering work in the 1980s at Arco Solar and has developed through many intermediate stages into today's thin-film technology. The main brand is the SKALA product portfolio as an energy-generating facade material for buildings and infrastructure facilities as well as for use in ground-mounted and rooftop systems. AVANCIS has been part of the CNBM Group since 2014.

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