

MAGMA Light Engine: Solid State Illumination for Solar Test Platforms



Artificial light sources are essential for performance validation in photovoltaic device manufacturing and for characterization of properties such as photoconductivity and quantum efficiency in the development of new photovoltaic materials. Traditionally, characterization of photovoltaic devices has employed xenon arc or halogen lamps to approximate the solar spectrum. However, their spectral output is not readily amenable to controlled adjustment, and long duration (weeks to months) tests are limited by their relatively short operating lifetimes. Lumencor’s MAGMA Light Engine employs modern solid state illumination technology to overcome these limitations. Within a compact 15 cm x 35 cm footprint, the [MAGMA Light Engine](#) incorporates 21 individually addressable LED light sources, ranging from 365 nm to 1050 nm, under the control of an onboard microprocessor. The LED outputs are merged into a common optical train directed to the light output port on the front panel. Adjustment of the relative output intensities of the 21 elements of the LED array enables synthesis of user-specified spectral distributions, such as the AM1.5G solar spectrum.

MAGMA Light Engine Spectral Output

