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NASA TECH BRIEF

Lewis Research Center

Solar Cell Power Scanner

An electro-optical system has been developed for scanning the power output of solar cells. Although applicable to a wide range of light-sensitive planar semiconductor devices, the system has mainly been used to locate high- and low-output regions in cadmium sulfide thin film photovoltaic cells.

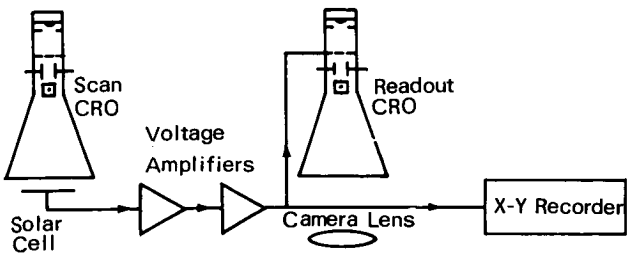

Figure 1. Schematic of Apparatus

The apparatus (Fig. 1) consists of two cathode ray oscilloscopes (CRO's), raster-scanned in synchronization. The moving light spot on one CRO scans over the active area of a solar cell attached to the CRO tube face. The microvolt output from the solar cell is amplified to modulate the intensity of the beam on the second CRO, which is used for readout.

In practice, a solar cell is scanned using a conventional TV raster scan. The spot size is held as small as possible consistent with the output of an adequate signal. During a complete solar cell scan, the shutter of the camera is left open. A high-resolution photograph showing the conversion efficiency of each scanned area is obtained.

A power contour map (Fig. 2) may also be produced by a X-Y recorder fed by the amplified signal from the solar cell. The photo and map reveal high- and low-conversion-efficiency regions, which may subsequently be analyzed.

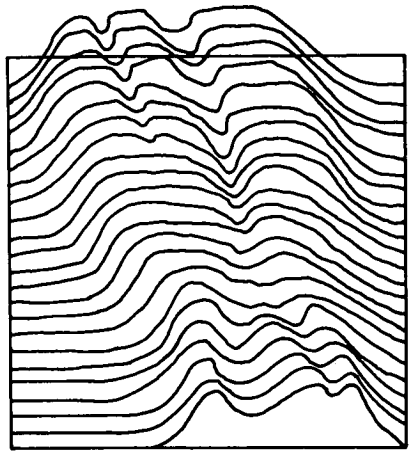

Figure 2. Power Contour Map of Solar Cell

Note:

No additional documentation is available. Specific questions, however, may be directed to:

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Reference: B71-10223

Patent status:

No patent action is contemplated by NASA.

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Category 02