

Abstract Submitted
for the 4CF11 Meeting of
The American Physical Society

Electroluminescence Analysis of the Line Scribe Region in a CdTe Photovoltaic Module JOHN RAGUSE, Colorado State University — Photovoltaic (PV) devices are a promising technology for future energy supplies. The high production rate of PV devices requires an in-line quality technique which is fast and provides information regarding the spatial performance of each unit. Measuring the electroluminescence (EL) signal is a quick technique used to map the spatial performance of a PV device. Cadmium Telluride (CdTe) modules have an array of repeating line scribes (P1, P2 and P3) which provide an electrical path to connect the cells in series, thus, creating a monolithically connected PV module. The region between the 3 line scribes is known as the “inactive region” due to the lack of carrier generation or recombination. Variations of the EL signal near the inactive region of a CdTe module were investigated. The increase in EL signal along the cell caused by larger voltage drops was observed. In addition, an unexpected second EL peak adjacent to the P3 line scribe was measured. It has been found that a second EL peak (adjacent to the P3 line scribe) is caused by a high density transparent conductive oxide region.

John Raguse
Colorado State University

Date submitted: 19 Sep 2011

Electronic form version 1.4