PV Modules: Effect of Soiling on Quantum Efficiency, Spectral Reflectance and Incident Angle

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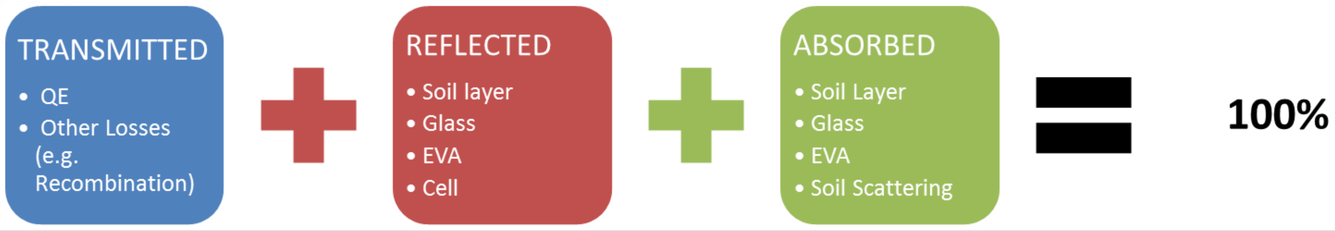
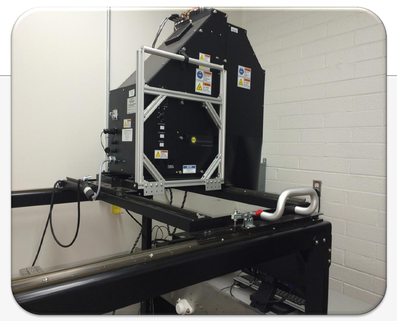
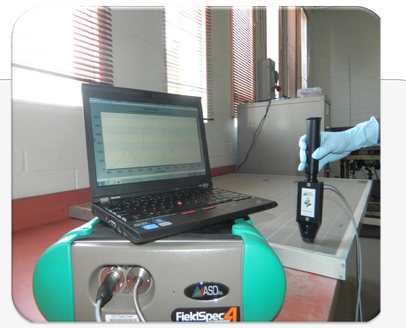
INTRODUCTION

- Soil layer changes not only the irradiance level but also changes the spectral distribution and angle of incidence of the incoming solar radiation.
- Three soiled modules of varying soil layer thickness were used to study the influence of soiling thickness on the AOI effect
- Three soiled solar cells of varying soil layer thickness within a module were used to study the spectral reflectance (SRef) and quantum efficiency (QE) changes at various wavelengths. The three soiled solar cells were then cleaned using three different cleaning techniques – 60psi compressed air clean, brush assisted 30psi compressed air clean and water cleaned. The SR and QE measurements were repeated.

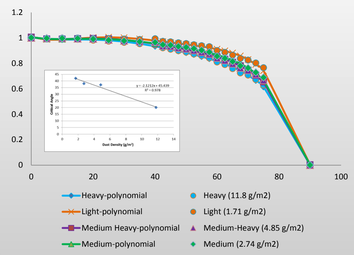


METHODOLOGY

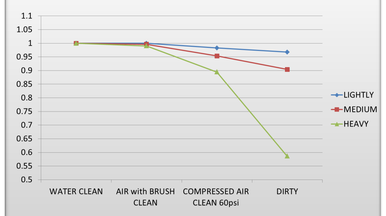




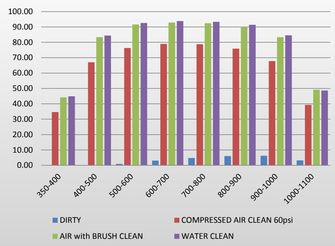
ANGLE OF INCIDENCE



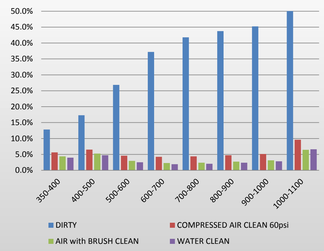
CURRENT VOLTAGE (I-V) MEASUREMENT



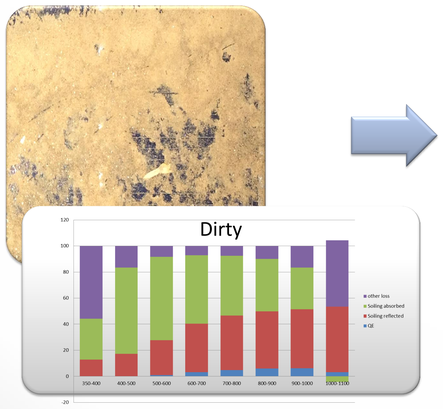
QUANTUM EFFICIENCY

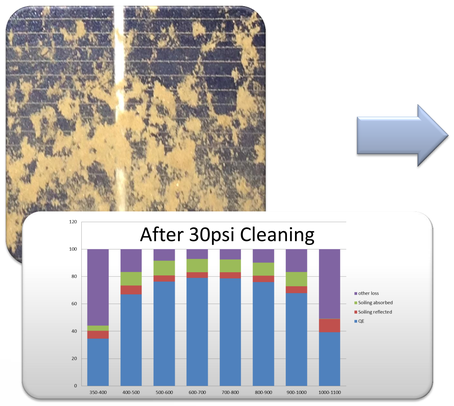


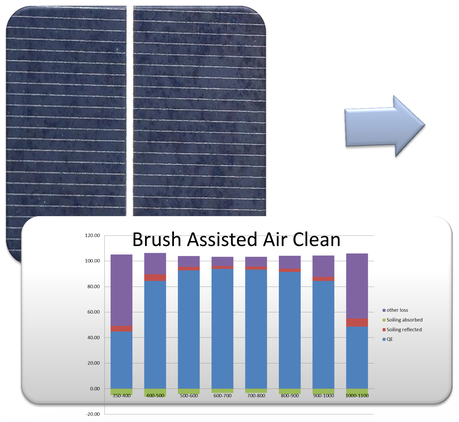
SPECTRAL REFLECTANCE



RESULTS







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