PERFORMANCE TESTING OF PV MODULES: MEASUREMENT ERRORS AND COUNTERMEASURES

Dr. Alessandro Virtuani from SUPSI

ABSTRACT

The strong growth of the PV market is accompanied by an increasing number of “new” PV technologies and concepts now mature for commercialization. A correct calibration of these devices is in some cases very difficult and often indoor and outdoor performance measurements lead to different results.

The major sources of error are identified, as follows:
(a) spectral mismatch errors, very significant for CdTe, and all a-Si TF technologies;
(b) measurement-related sweep-time effects, which seem to strongly influence the performance of high efficiency c-Si devices and to a lesser extend of all a-Si TF technologies;
(c) short-time light-soaking effects, which influence the performance of CIS and to a lesser extent CdTe.