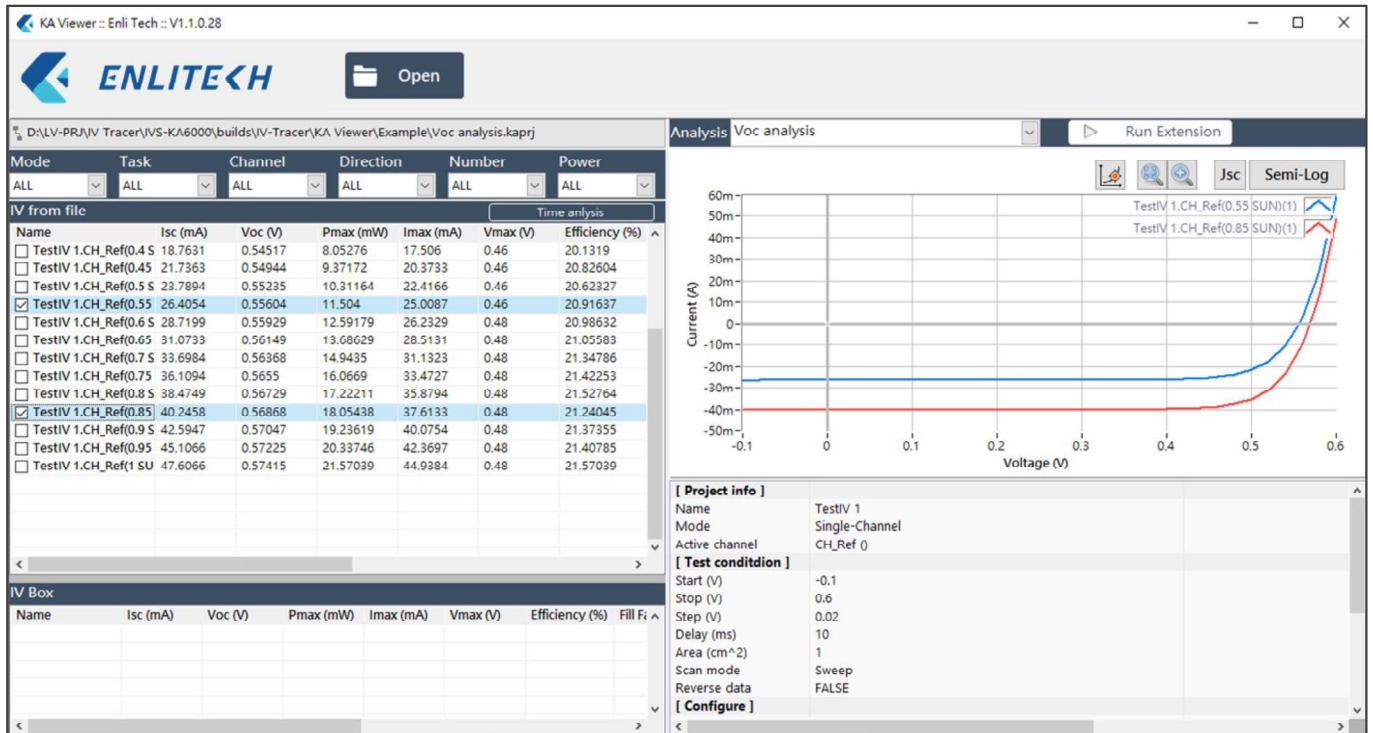


PV IV analyzing software: KA-Viewer

Introduction

Most Powerful Perovskite IV Measurement Analysis Software

For the study of the IV results of solar cells, KA-Viewer can quickly calculate the IV results and analyze the relevant device parameters according to different testing standards (such as IEC standards) and device physics models. In addition to significantly reducing the user's data processing time, it can speed up the overall manufacturing process improvement timeline.



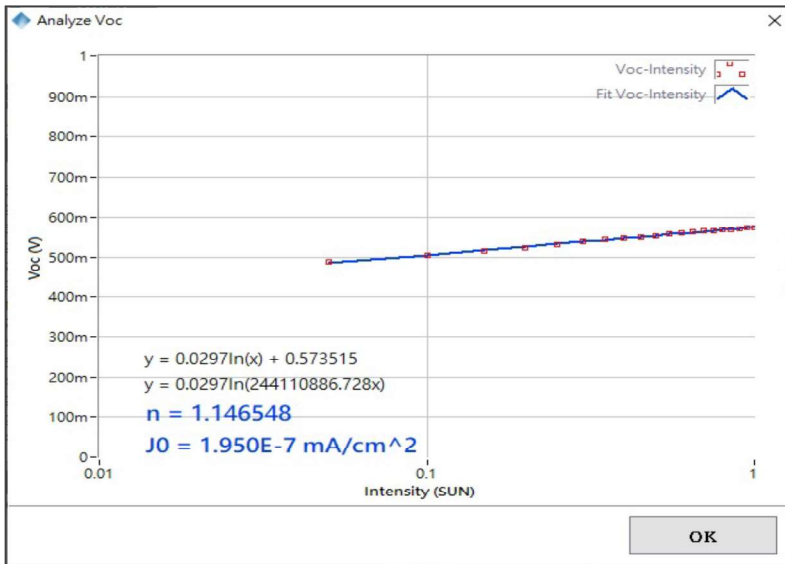
KA-Viewer software screenshot. With data batch management design, KA-Viewer can list the IV raw data and draw/display the IV curve chart. KA-Viewer has a variety of analysis functions, including ideality factor n analysis, reverse saturation current J_0 analysis, SCLC fitting, etc., covering the most important device physics parameters required for PV.

Application

- ◆ Analyzing ideality factor n
- ◆ Reverse saturation current J_0
- ◆ Spectral Mismatch Factor MMF correction on IV
- ◆ SCLC fitting
- ◆ One Diode Model Fitting
- ◆ Two Diode Model Fitting
- ◆ Temperature correction on IV
- ◆ 4T tandem solar cell IV calculator

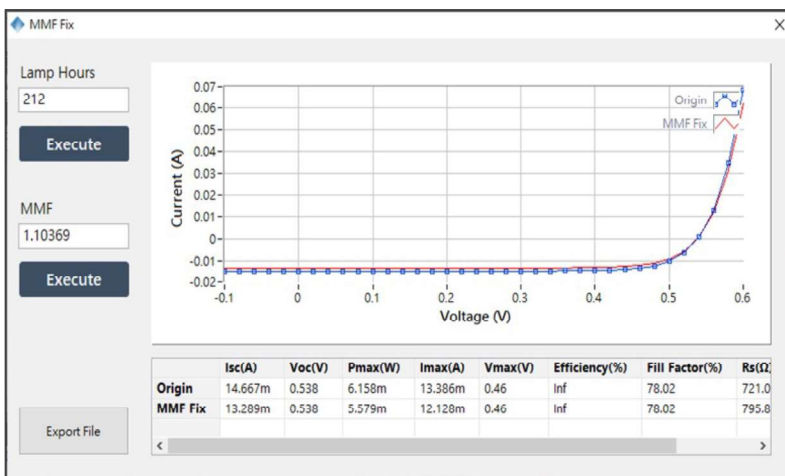
Software Interface

KA-Viewer can load all test data of IVS-KA6000. After the IVS-KA6000 is loaded with the Sun-Voc curve of the SS-X solar simulator with automatic variable light intensity and loaded into the KA-Viewer, the ideality factor n and the reverse saturation current density J_0 can be automatically fitted according to the theoretical physical formula of the diode.



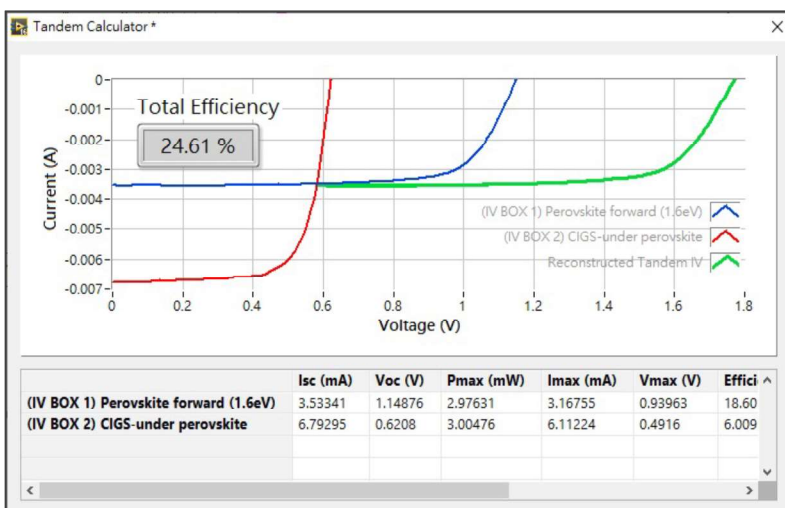
Ideality factor n and J_0 analyzing

KA-Viewer can load all IV raw data tested by IVS-KA6000. Ideality factor n and reverse saturation current density J_0 can be fitted from Sun-Voc IV curves from device physics model. When combining IVS-KA6000 with Enlitech's SS-X solar simulator, Sun-Voc IV curves under different irradiance levels can be automatically proceeded and tested. After Sun-Voc curves are loaded into KA-Viewer, it can automatically do the fitting and calculation of ideality factor n and J_0 based on the theoretical formula of the device diode model.



MMF correction on IV curve

For more accurate characterizing solar cell PCE values, it is necessary to correct the spectral mismatch based on IEC 60904-1 when using the solar simulator to test IV performance. KA-Viewer can automatically correct the spectral mismatch of the IV curve according to the formula of IEC 60904-1. Load the IV raw data tested by IVS-KA6000 into KA-Viewer, activate the spectral mismatch factor correction function, and complete the related correction work with one click.



4T tandem solar cell conversion efficiency calculation from independent IV curves.

The IV curves of top and bottom cells are independent in 4T tandem solar cell device structure. Therefore, the total and final power conversion efficiency of the 4T tandem solar cell needs to be calculated from the independent IV raw data of sub-cells. It can be done by KA-Viewer automatically by a single click as shown in the figure. The total efficiency and the other parameters are delivered at the same time.

