

Supplementary Information

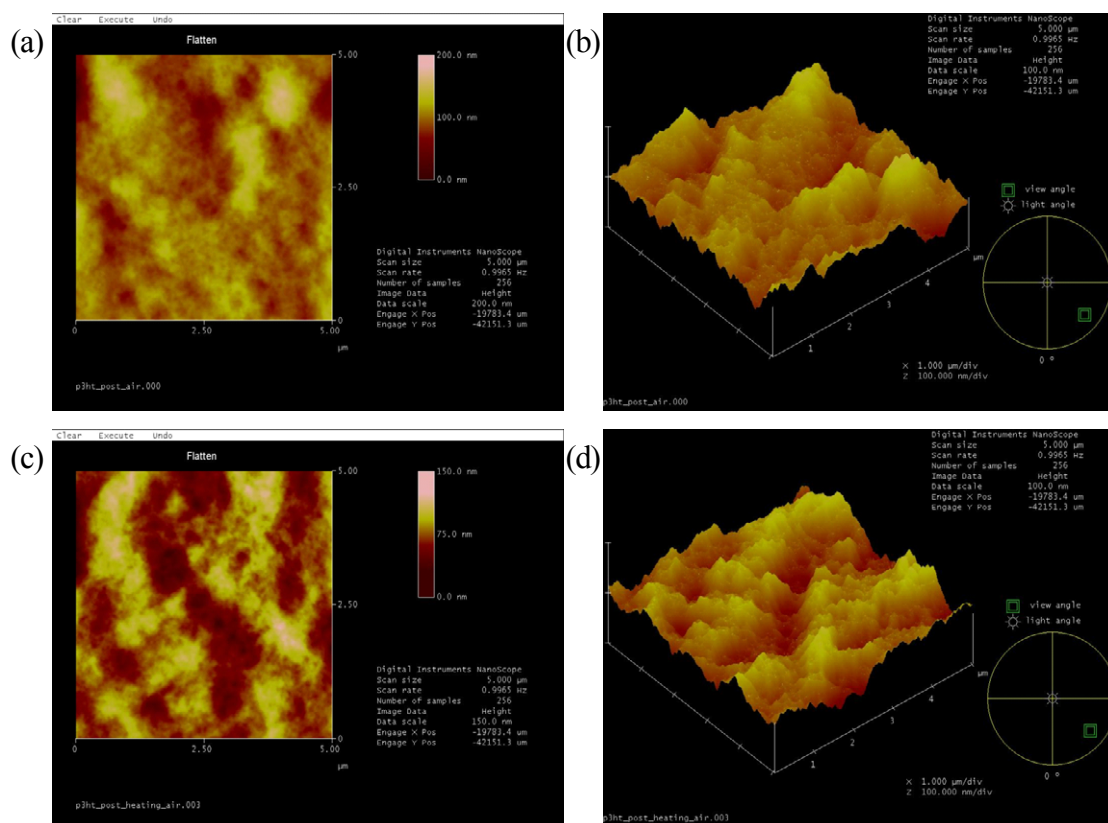


Figure S1. AFM 2-D and 3-D images of the morphology of ((a) and (b)) the P3HT layer after 100 h at room temperature in air and ((c) and (d)) the P3HT layer at alternating temperature change from 80 °C (storage time: 12 h) to 25 °C (storage time: 12 h) after 200 h in air. The P3HT layer at alternating temperature change from 80 °C (storage time: 12 h) to 25 °C (storage time: 12 h) reveal a similar surface morphology of the P3HT layer with storage at room temperature because of the absence of any PCBM aggregation.

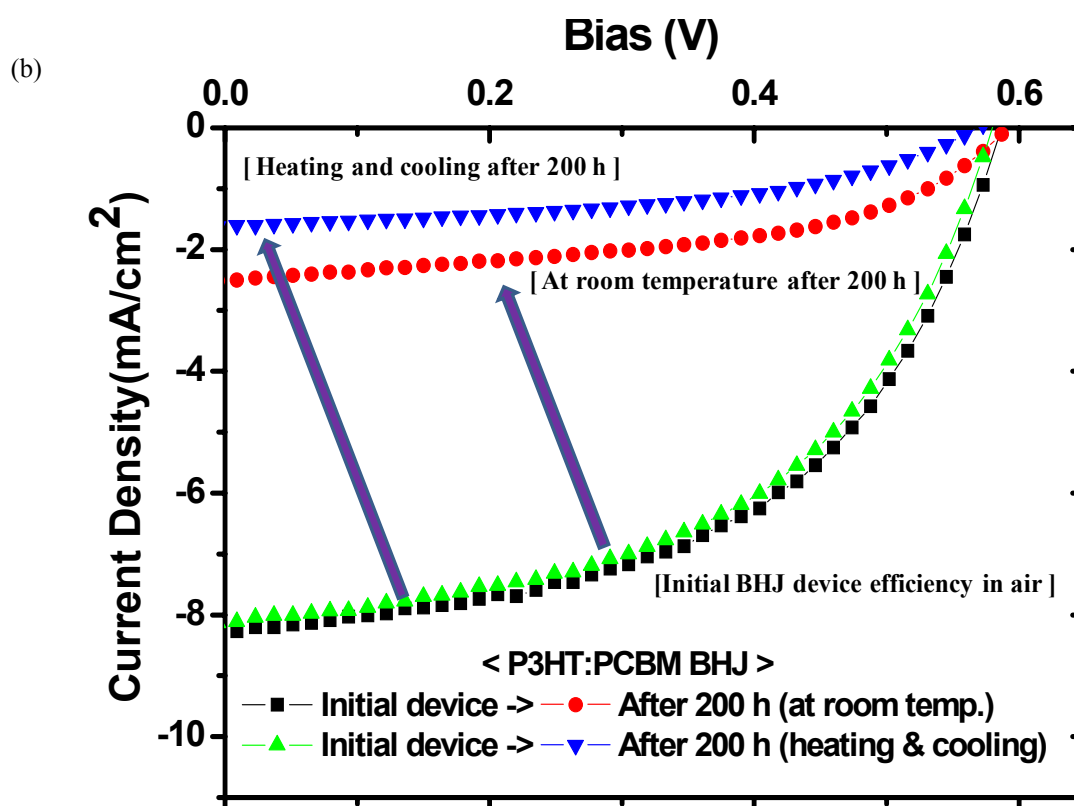
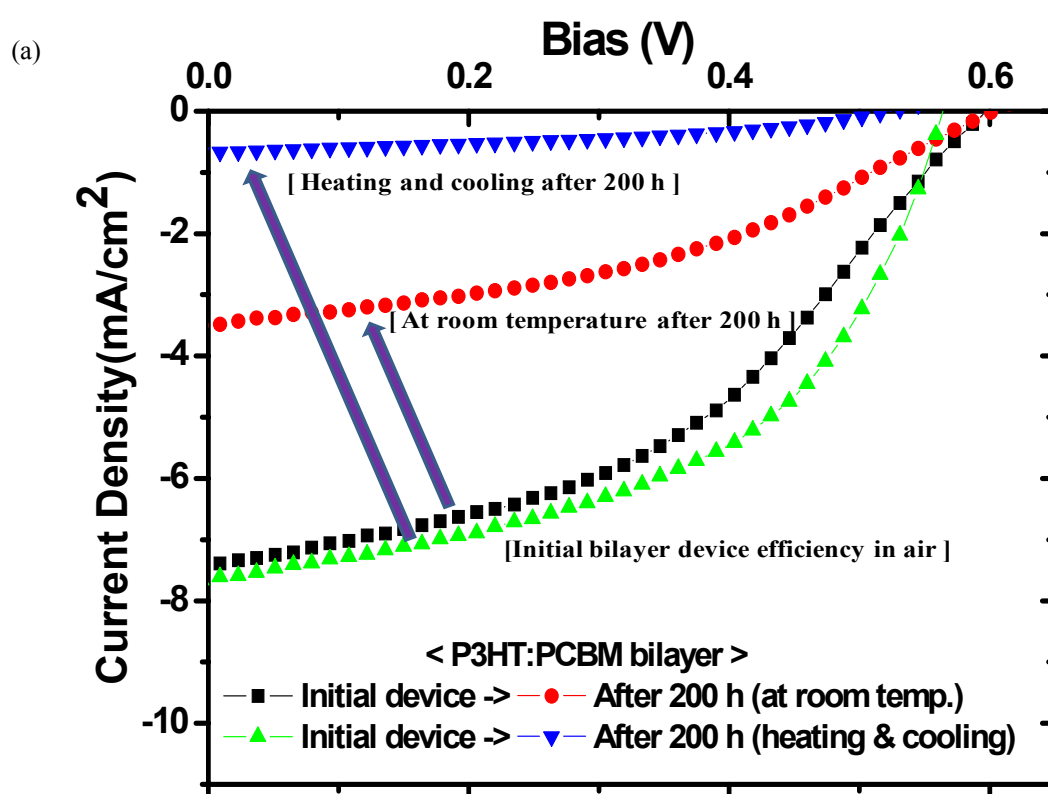


Figure S2. (a) Photocurrent-voltage curves of bilayer devices with initial device efficiencies (-■- and -▲-) in air, at room temperature after 200 h (-●-), at alternating temperature change from 80 °C (storage time: 12 h) to 25°C (storage time: 12 h) after 200 h (-▼-), (b) Photocurrent-voltage curves of BHJ devices with initial device efficiencies (-■- and -▲-) in air, at room temperature after 200 h (-●-), at alternating temperature change from 80 °C (storage time: 12 h) to 25°C (storage time: 12 h) after 200 h (-▼-)

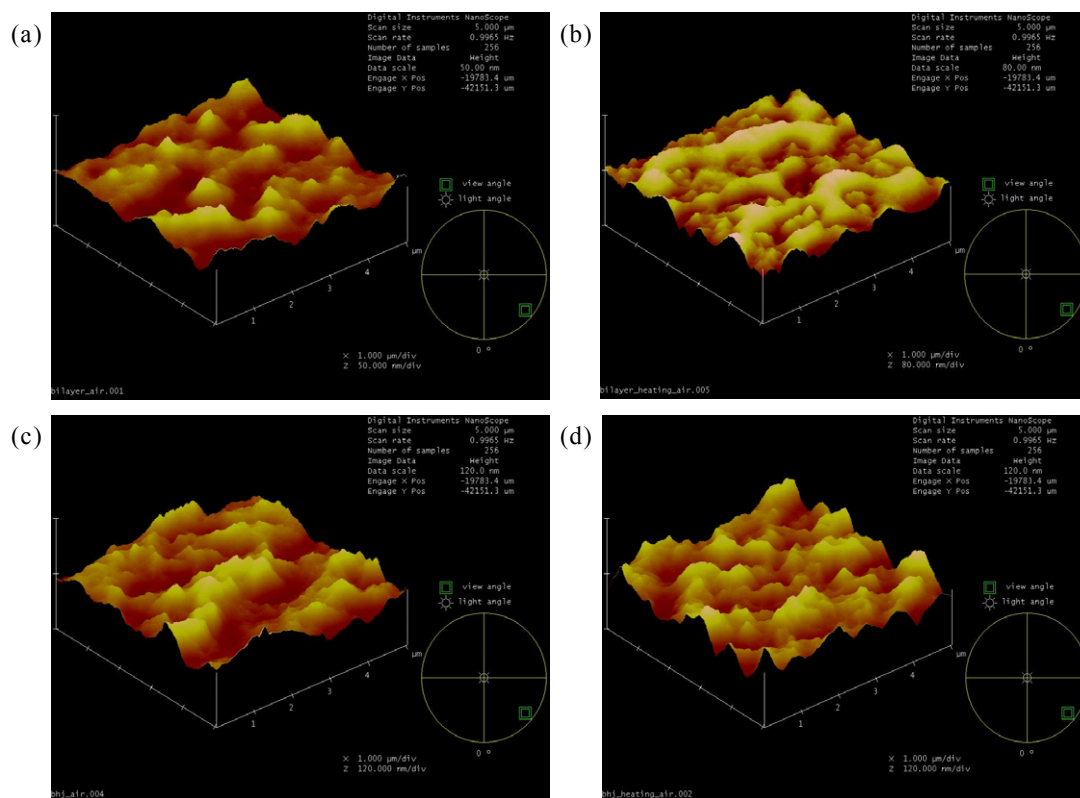


Figure S3. AFM 3-D images of the morphology of an annealed P3HT/PCBM bilayer and BHJ after 200 h of storage at room temperature or alternating temperature change from 80 °C (storage time: 12 h) to 25°C (storage time: 12 h) in air: (a) the bilayer and (c) the BHJ at room temperature after 200 h in air; (b) the bilayer and (d) the BHJ at alternating temperature change from 80 °C (storage time: 12 h) to 25°C (storage time: 12 h) after 200 h in air. The device with the P3HT/PCBM bilayer in (b) shows low durability and decreased device efficiency because of major morphological changes in the active layer with the micro-sized aggregated PCBM-rich region.