Supporting Information

Thiazolothiazole Donor-Acceptor Conjugated Polymer Semiconductors for Photovoltaic Applications

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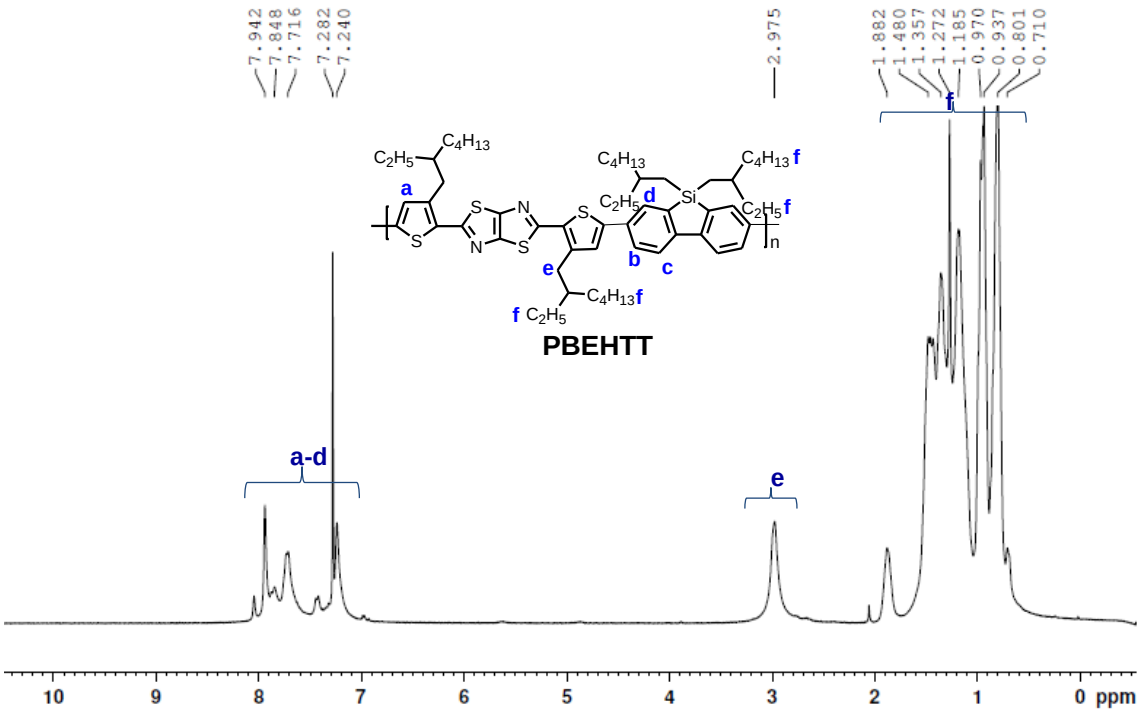

Figure S1. 1H NMR spectra (300 MHz, $CDCl_3$) of PBEHTT.

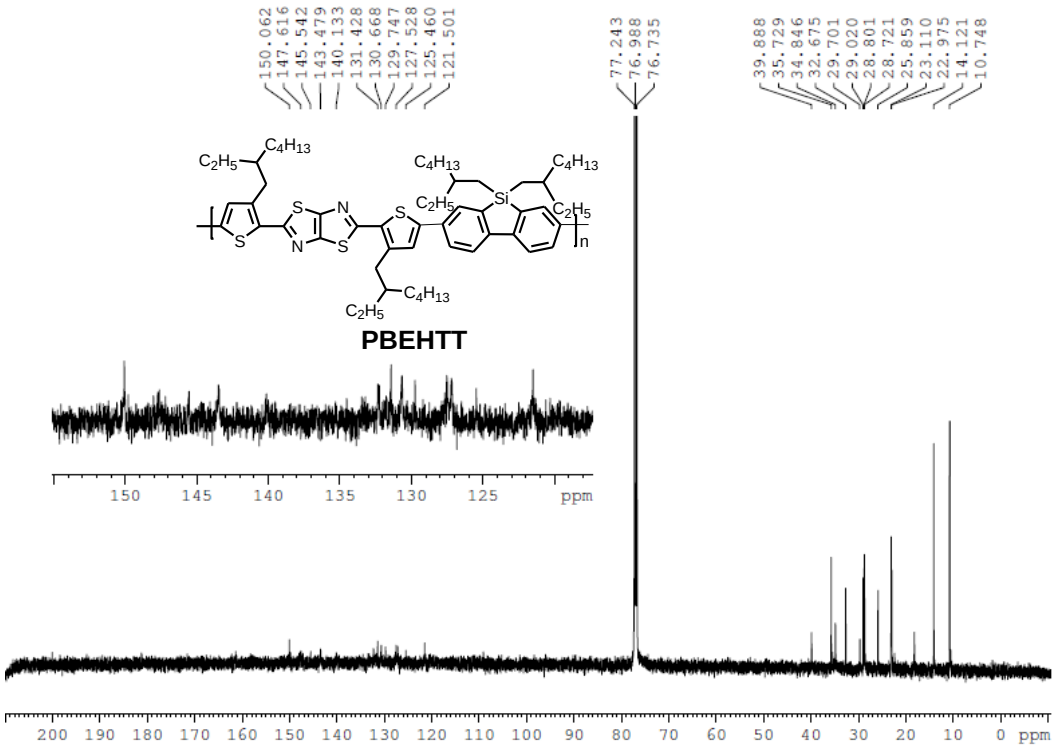

Figure S2. ^{13}C NMR spectra (75 MHz, $CDCl_3$) of PBEHTT.

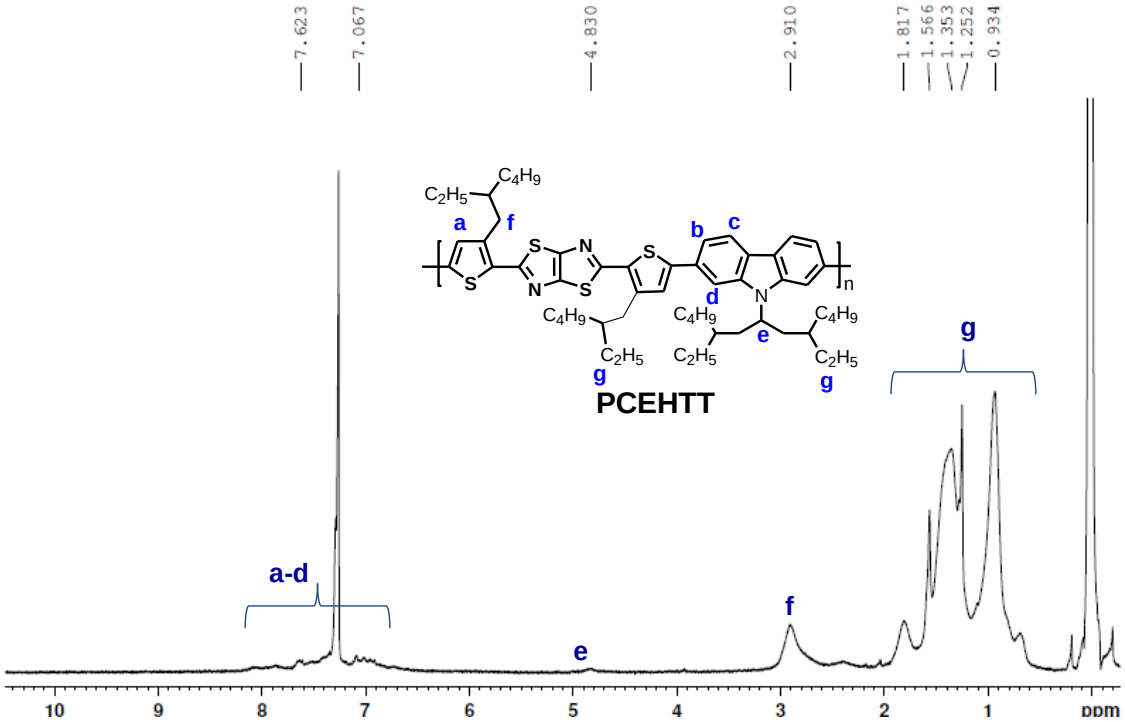

Figure S3. 1H NMR spectra (300 MHz, $CDCl_3$) of PCEHTT.

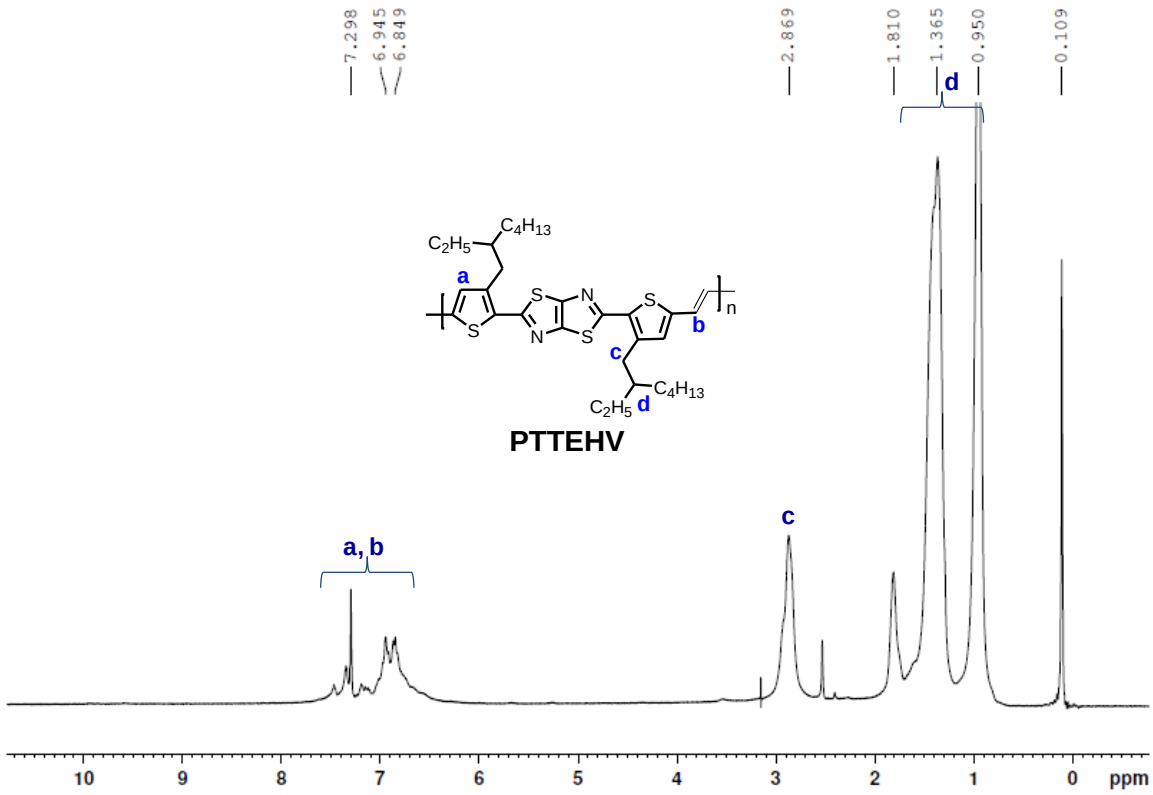

Figure S4. 1H NMR spectra (300 MHz, $CDCl_3$) of PTTEHV.

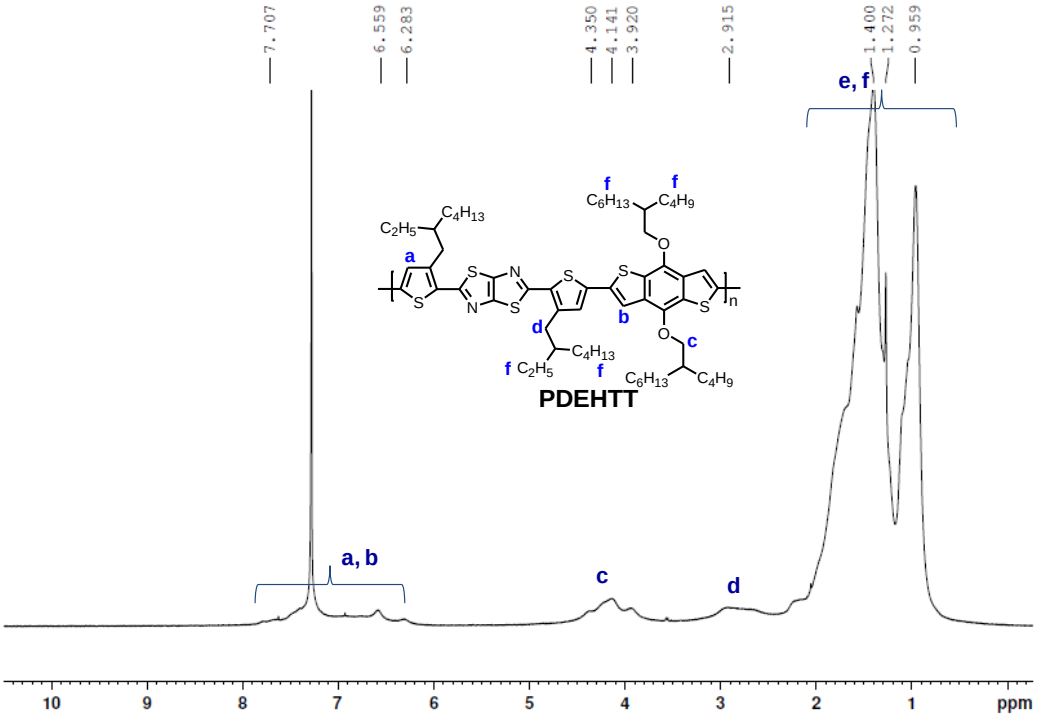

Figure S5. 1H NMR spectra (300 MHz, $CDCl_3$) of PDEHTT.

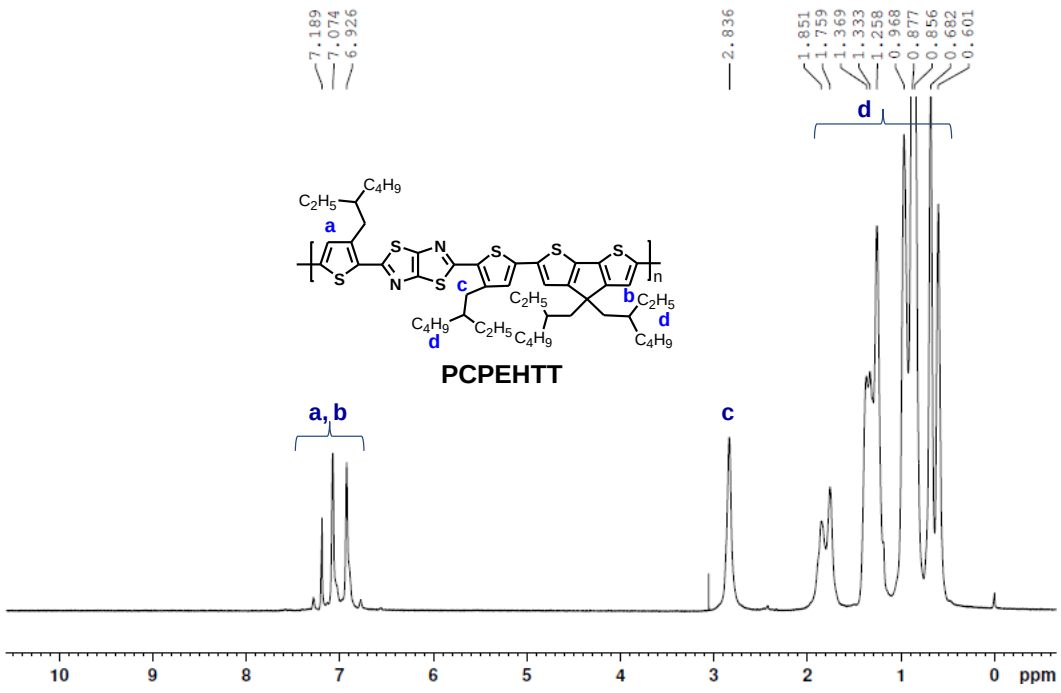

Figure S6. ^{1}H NMR spectra (500 MHz, $CDCl_3$) of PCPEHTT.

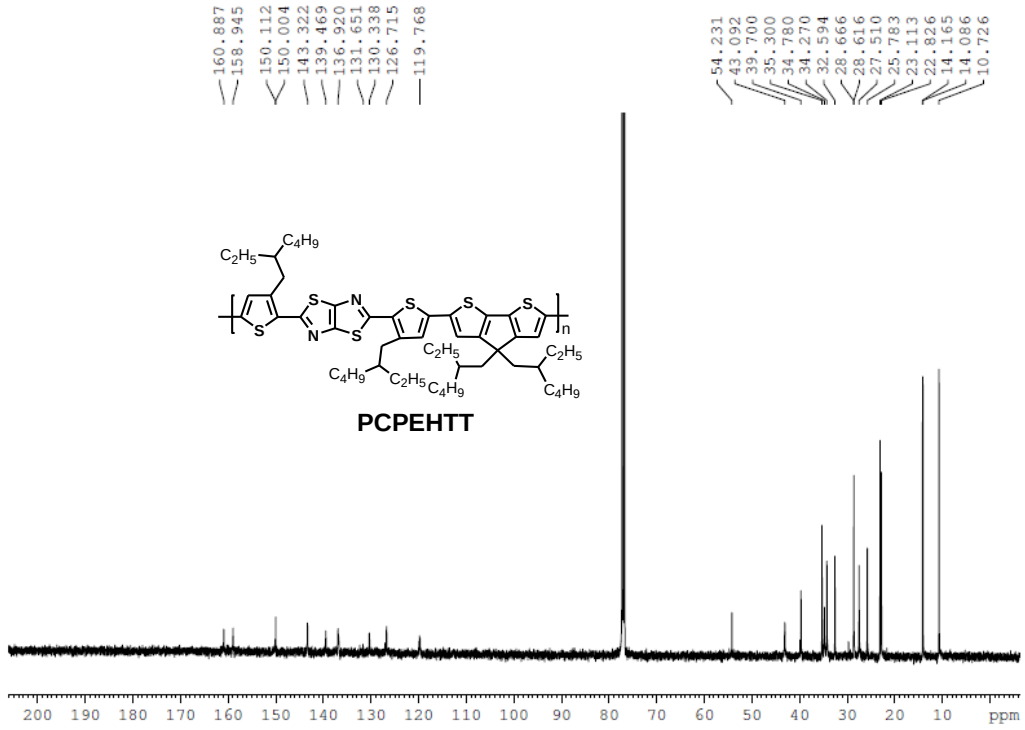

Figure S7. ^{13}C NMR spectra (125 MHz, $CDCl_3$) of PCPEHTT.

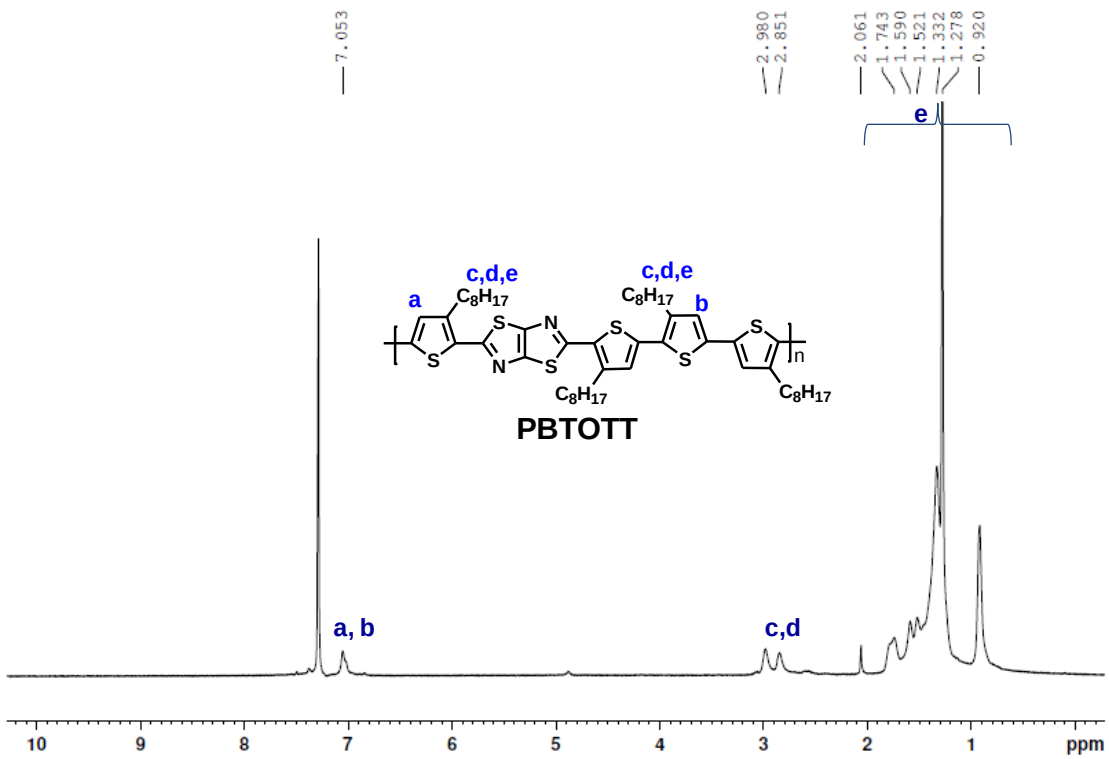

Figure S8. ^{1}H NMR spectra (500 MHz, $CDCl_3$) of PBTOTT.

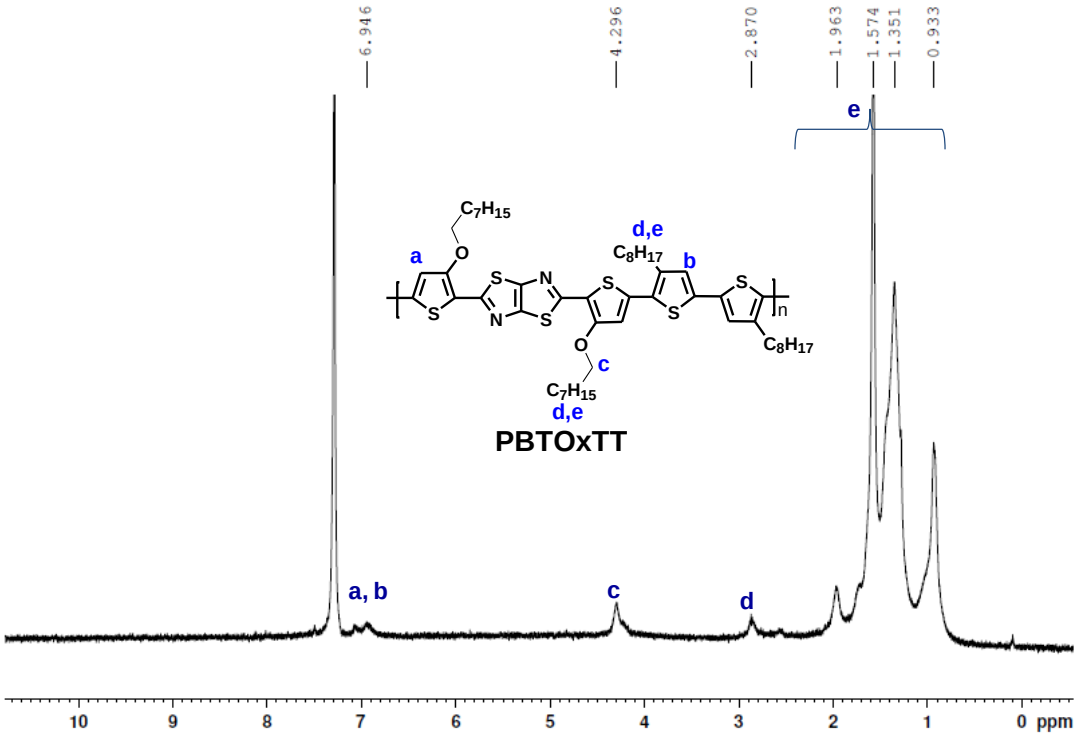

Figure S9. ^{1}H NMR spectra (500 MHz, $CDCl_3$) of PBTOxTT.

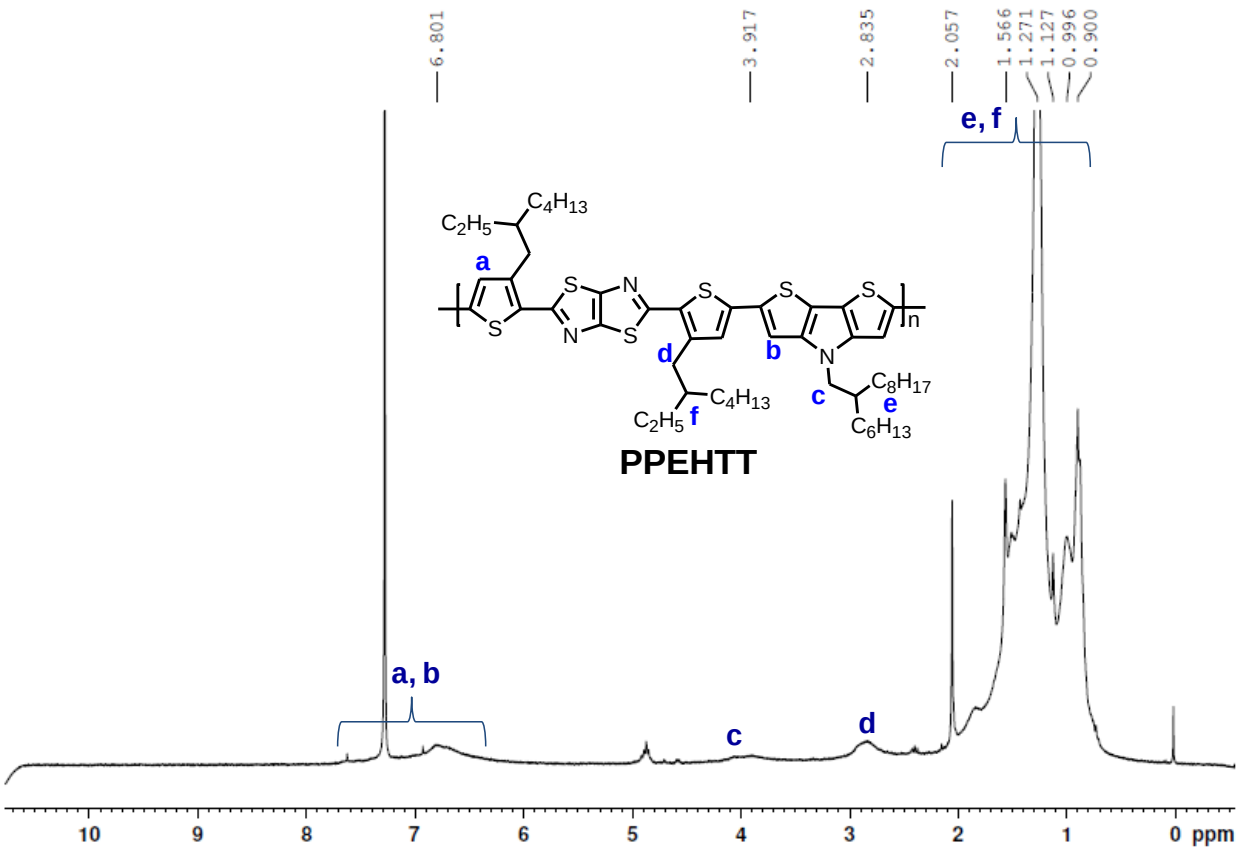

Figure S10. ^{1}H NMR spectra (500 MHz, $CDCl_3$) of PPEHTT.

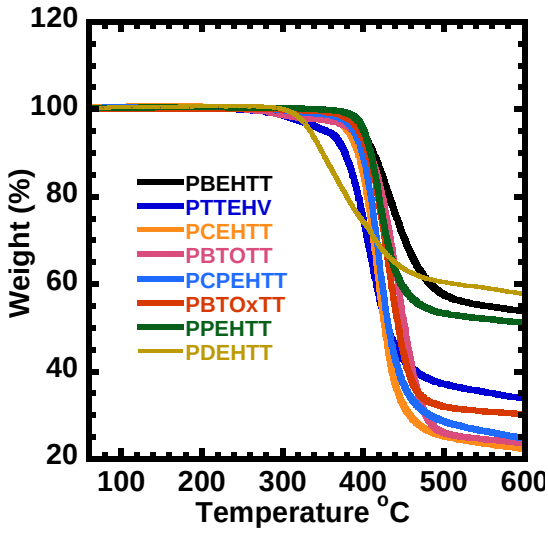

Figure S11. TGA thermograms of thiazolothiazole copolymers in N_2.

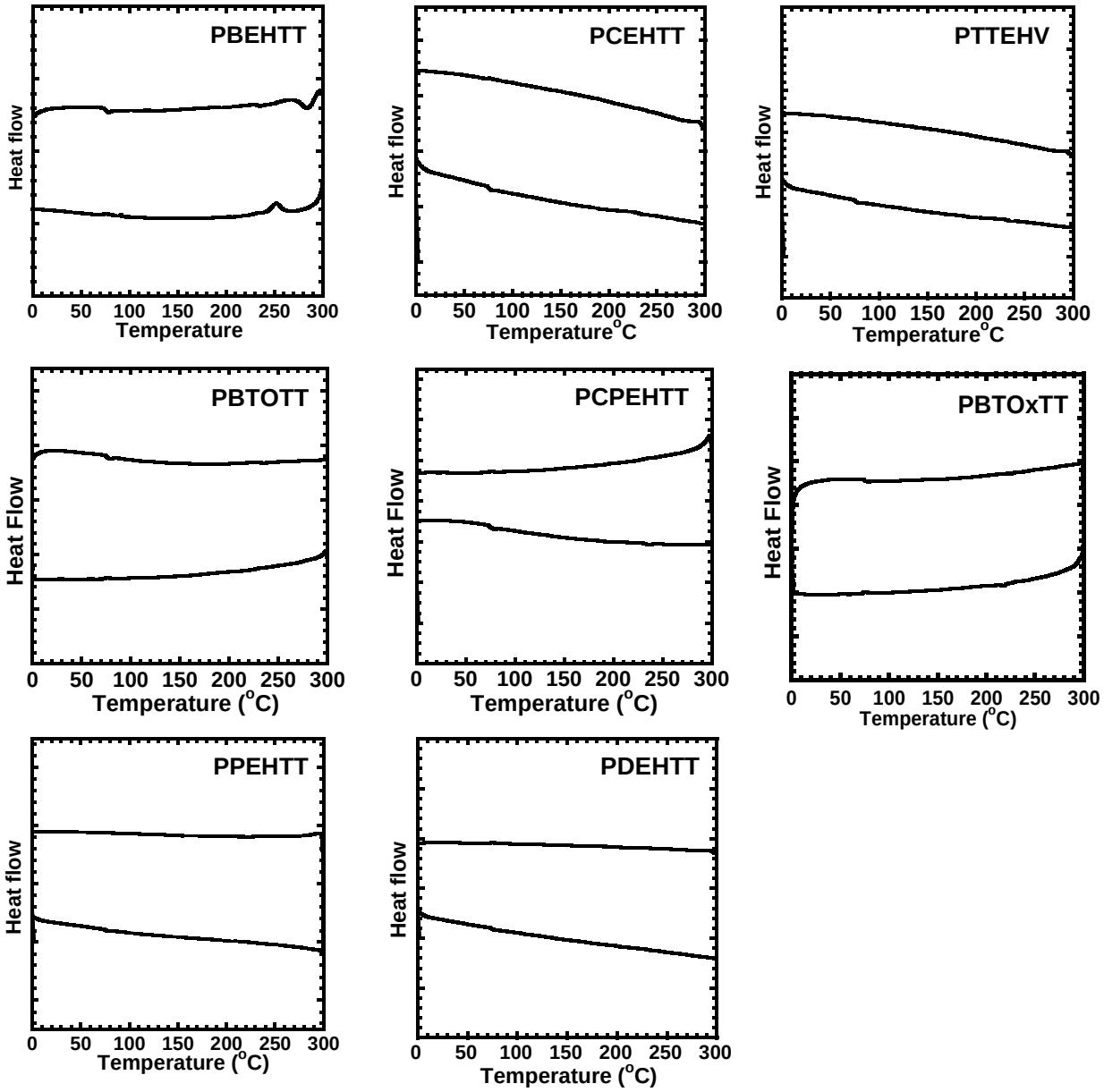

Figure S12. DSC scans of thiazolothiazole copolymers in N_2.

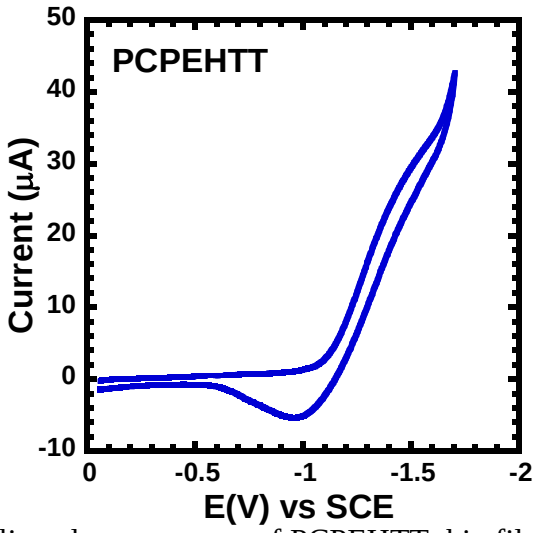

Figure S13. Reduction cyclic voltammograms of PCPEHTT thin films in 0.1 M Bu_4NPF_6 solution in acetonitrile at a scan rate of 40 mVs^{-1}.

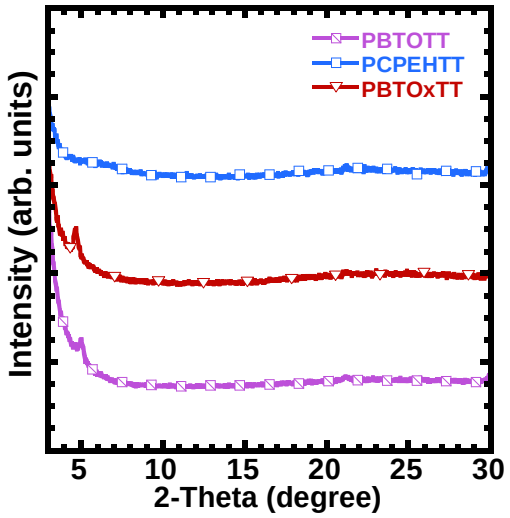

Figure S14. XRD spectra of thiazolothiazole copolymer thin films.

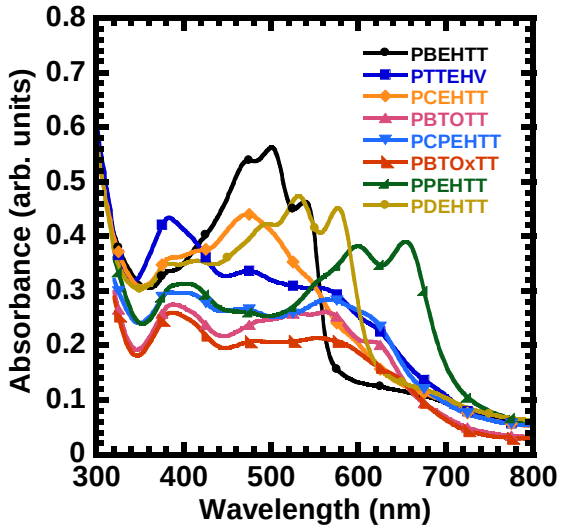

Figure S15. Optical absorption spectra of polymer:$PC_{71}BM$ (1:2) blend films on glass/ITO/PEDOT substrates.

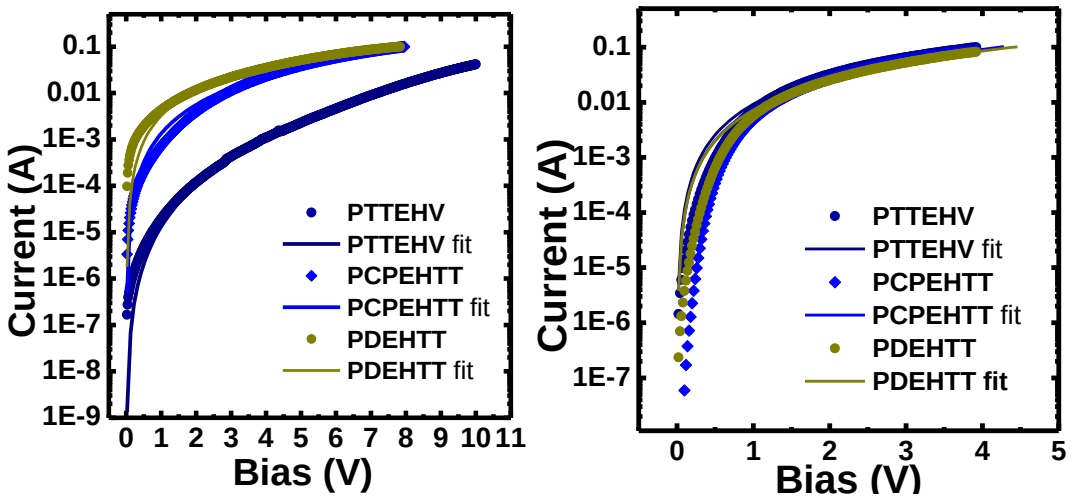

Figure S16. Current (*I*)-voltage (*V*) characteristics and space-charge-limited current (SCLC) fittings of devices measured in ambient conditions. (a) Hole-only SCLC devices: ITO/PEDOT:PSS/blend/MoO_3/Au. (b) Electron-only SCLC devices: ITO/ZnO/blend/LiF/Al.