

Supplementary Information

A wide-band gap polymer based on indacenodithieno[3,2-b]thiophene for high- performance bulk heterojunction polymer solar cells

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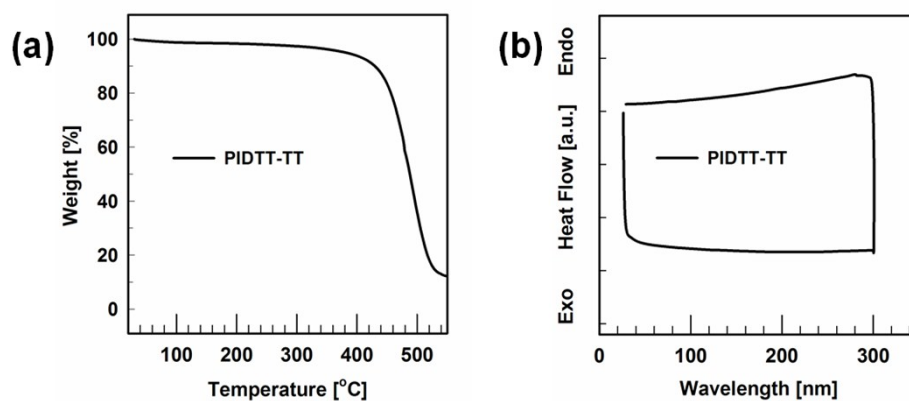


Figure S1. (a) TGA and (b) DSC trace of PIDTT-TT.

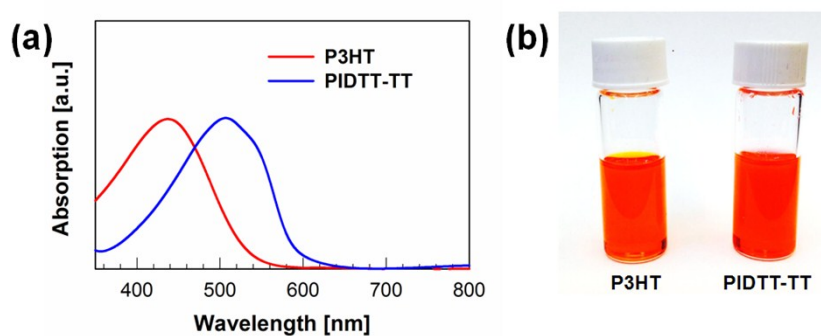


Figure S2. (a) UV-Vis absorption spectra and (b) photograph of dilute solution of PIDTT-TT and P3HT in CHCl_3 .

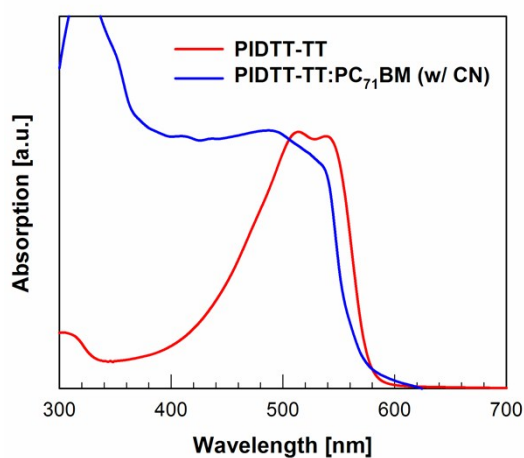


Figure S3. UV-Vis absorption spectra of PIDTT-TT and PIDTT-TT:PC₇₁BM (1:2.5 in weight ratio, with 2.0 vol% CN).

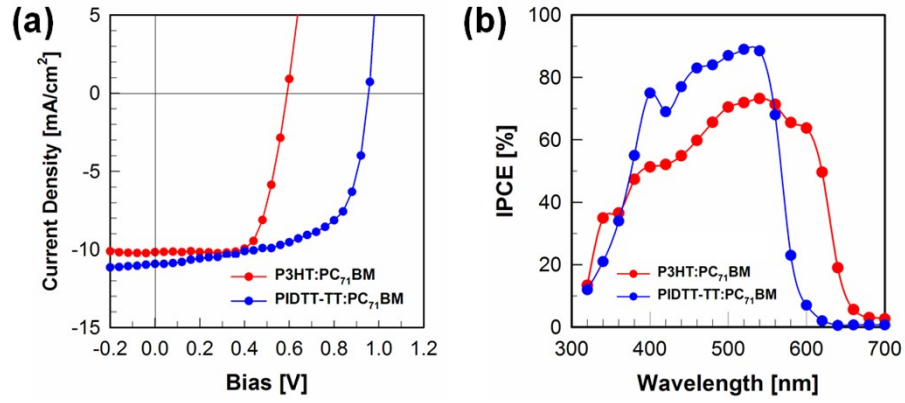


Figure S4. (a) J–V curves, (b) IPCE spectra of the devices from P3HT:PC₇₁BM and PIDTT-TT:PC₇₁BM.

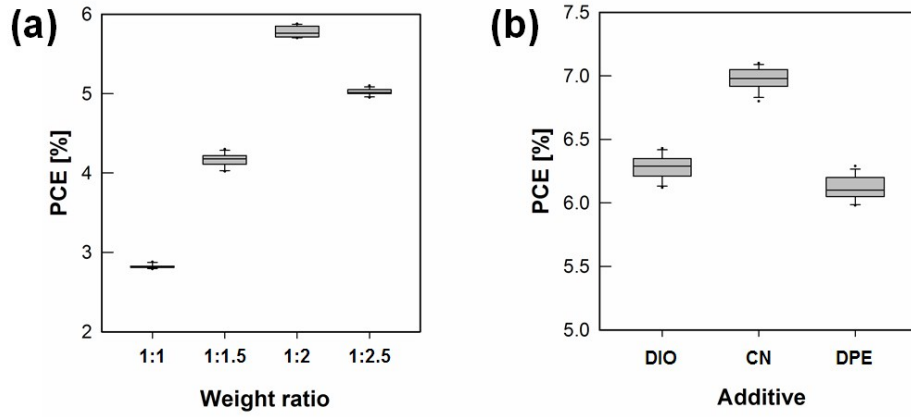


Figure S5. PCE distributions of the devices based on PIDTT-TT:PC₇₁BM fabricated in different weight ratio (a) and additives (b).

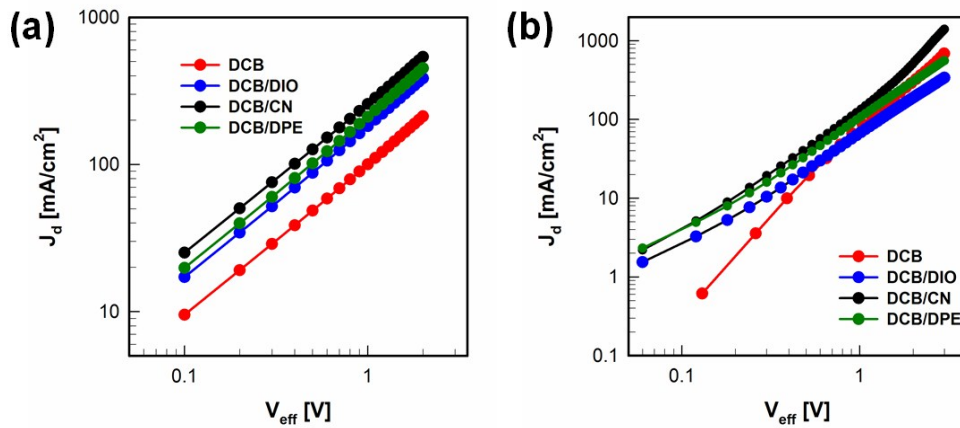


Figure S6. J_d–V_{eff} curves of SCLC carrier transport in the single carrier devices made of PIDTT-TT:PC₇₁BM blend with different additives for (a) hole and (b) electron.

Table S1. Photovoltaic parameters of the devices based on PIDTT-TT:PC₇₁BM with different amount of processing additives.

Active layer	Additives [vol%]	V_{oc} [V]	J_{sc} [mA/cm ²]	FF	PCE [%]	
PIDTT-TT:PC ₇₁ BM [1:2, w:w]	DIO	1.0	0.96±0.01	10.15±0.11	0.63±0.01	6.02±0.11
		2.0	0.96±0.01	10.18±0.07	0.62±0.01	6.07±0.09
		3.0	0.95±0.02	10.22±0.08	0.63±0.01	5.99±0.07
	CN	1.0	0.96±0.01	10.85±0.11	0.64±0.01	6.55±0.10
		2.0	0.96±0.01	10.96±0.11	0.65±0.02	6.98±0.10
		2.5	0.96±0.01	10.92±0.13	0.64±0.01	6.83±0.11
		3.0	0.96±0.01	10.88±0.10	0.62±0.02	6.52±0.09
	DPE	1.0	0.96±0.01	10.11±0.08	0.61±0.03	6.05±0.11
		2.0	0.96±0.01	10.15±0.10	0.61±0.02	5.99±0.09
		3.0	0.96±0.01	9.41±0.15	0.58±0.02	5.38±0.12