

**Electronic Supplementary Information to**

**Improving the Efficiency of Organic Solar Cells via the  
Molecular Engineering of Simple Fused Non-Fullerene  
Acceptors**

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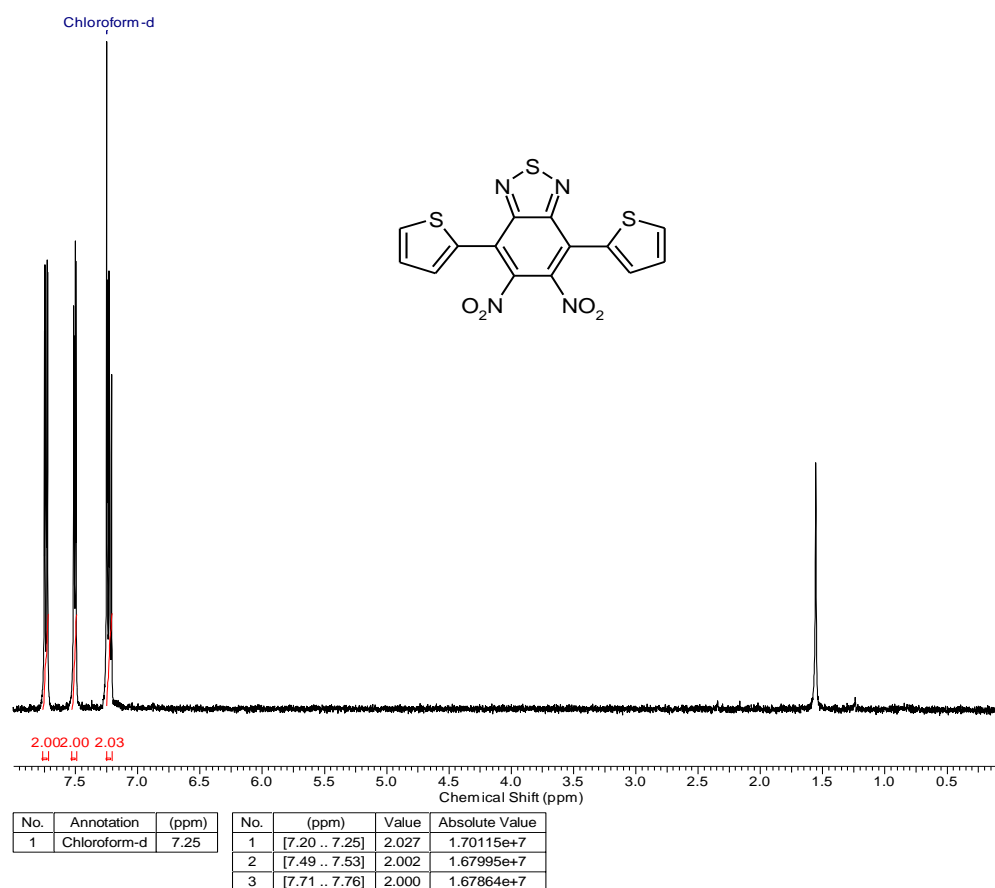
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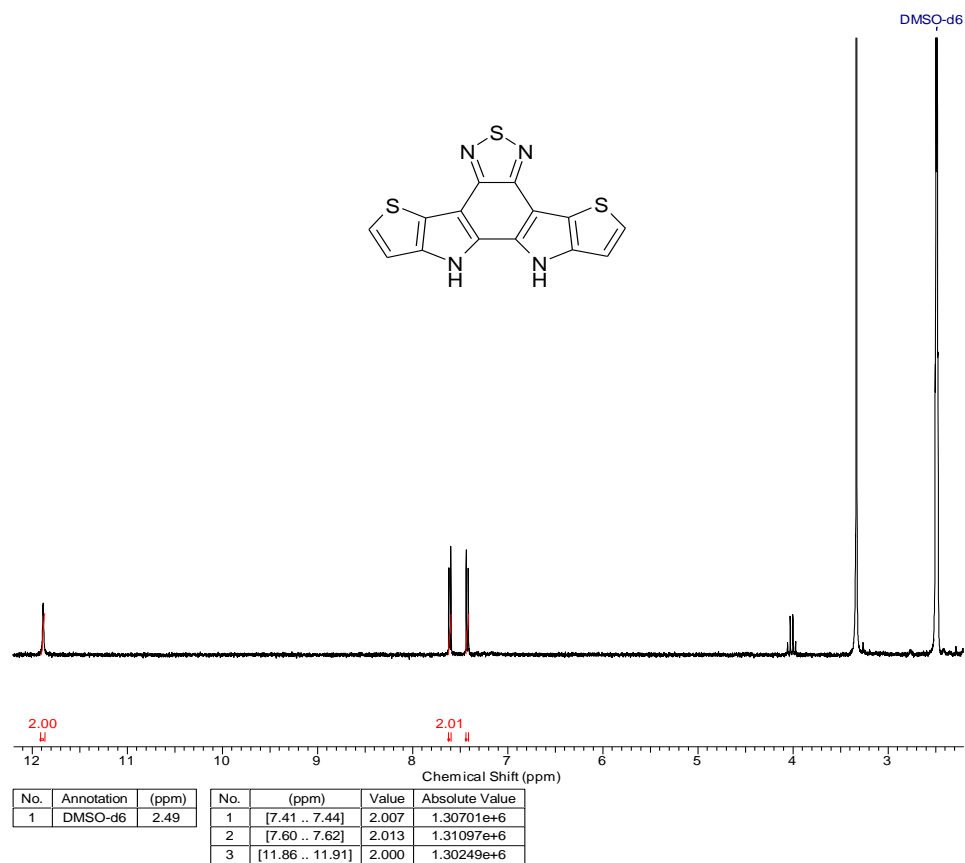
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## 1. $^1\text{H}$ and $^{13}\text{C}$ NMR Spectra

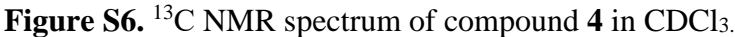


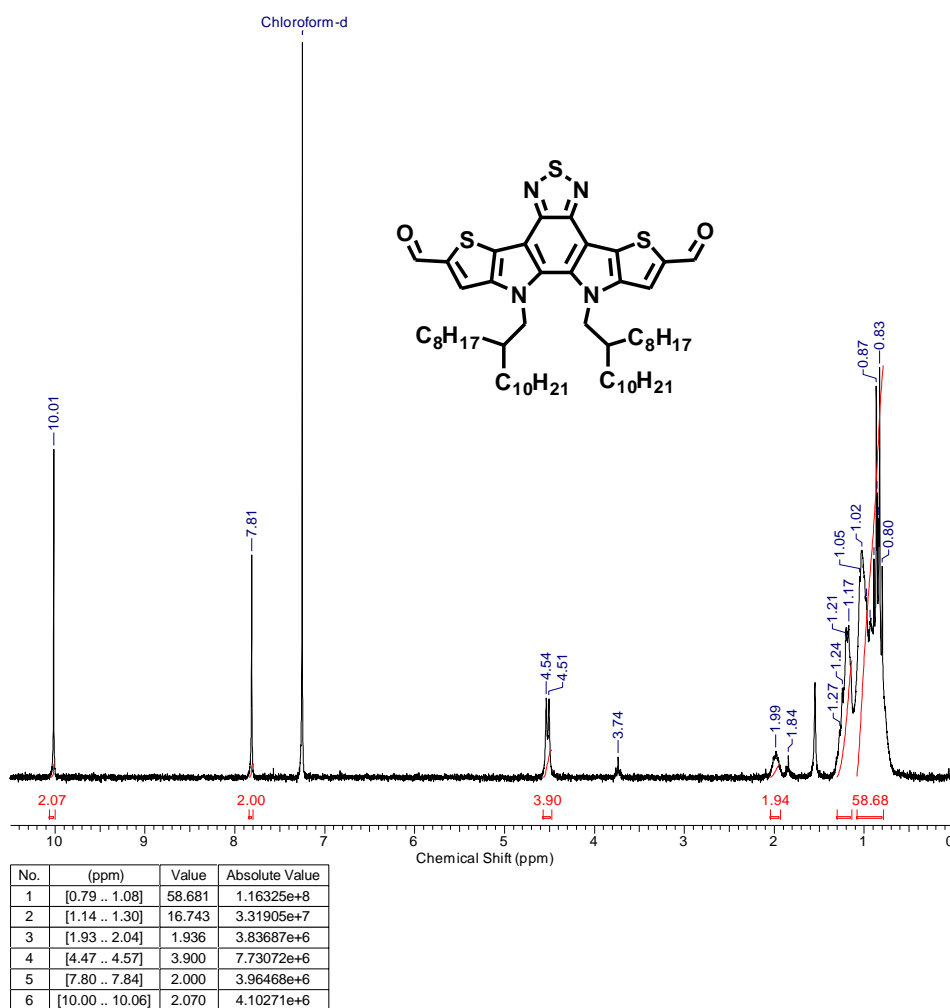
**Figure S1.**  $^1\text{H}$  NMR spectrum of compound **2** in  $\text{CDCl}_3$ .



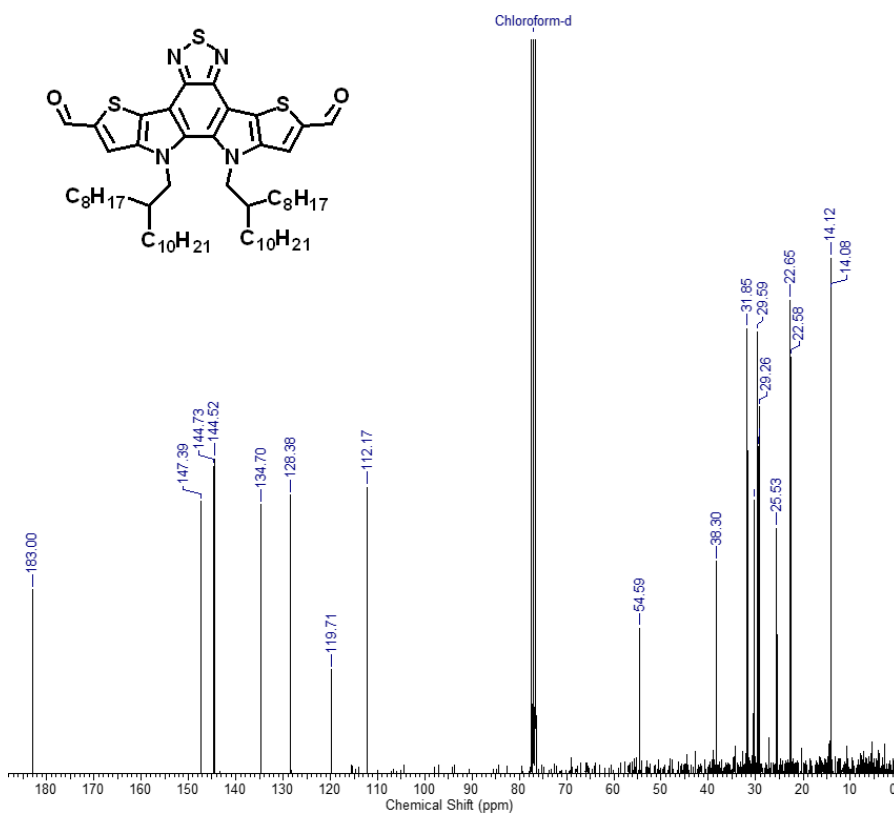
**Figure S2.**  $^{13}\text{C}$  NMR spectrum of compound **2** in  $\text{CDCl}_3$ .



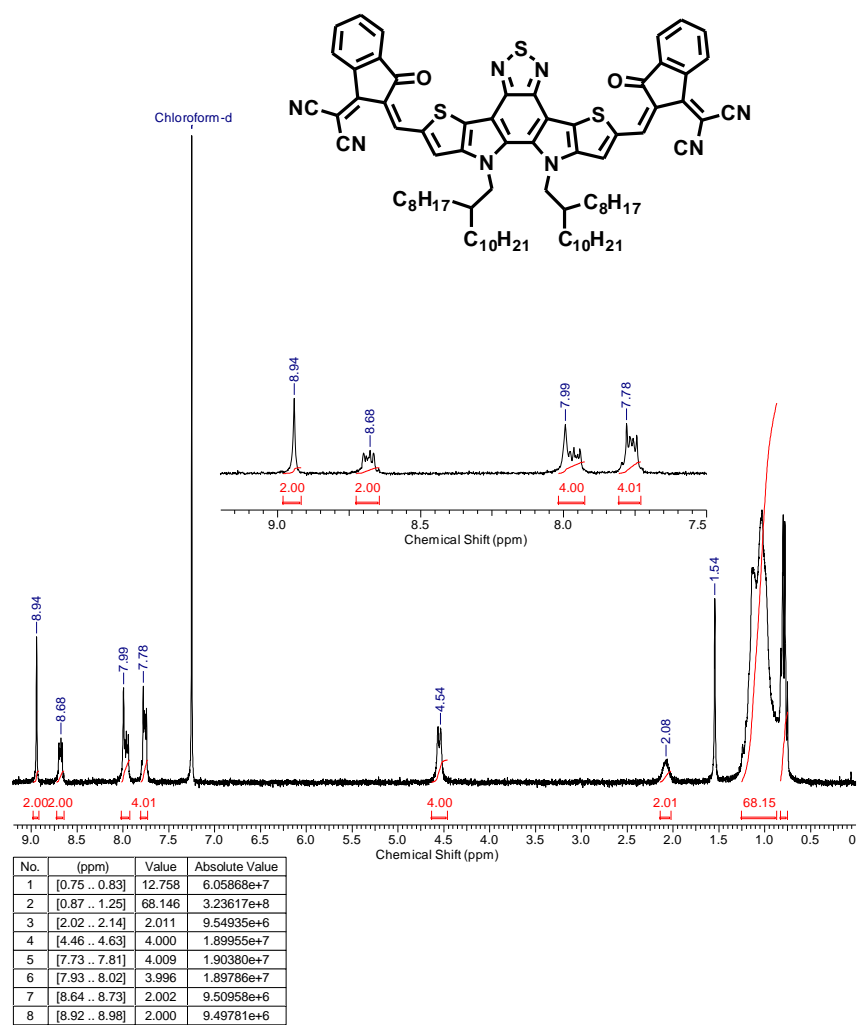




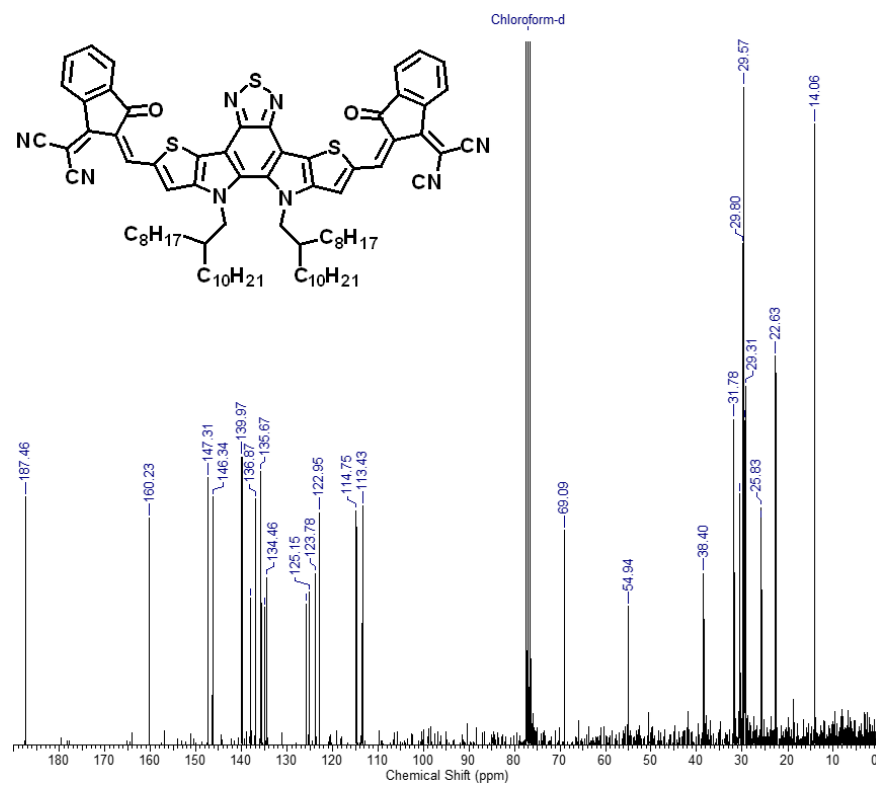
**Figure S7.**  $^1\text{H}$  NMR spectrum of compound **5** in  $\text{CDCl}_3$ .



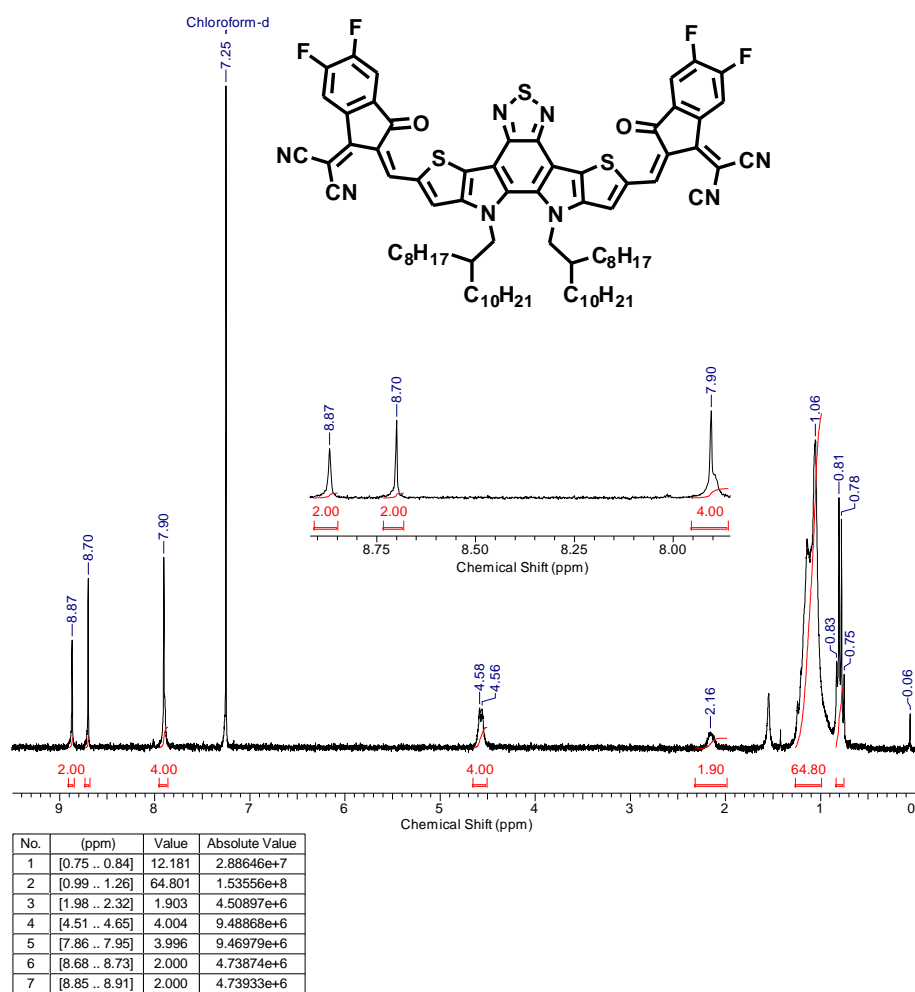
**Figure S8.**  $^{13}\text{C}$  NMR spectrum of compound **5** in  $\text{CDCl}_3$ .



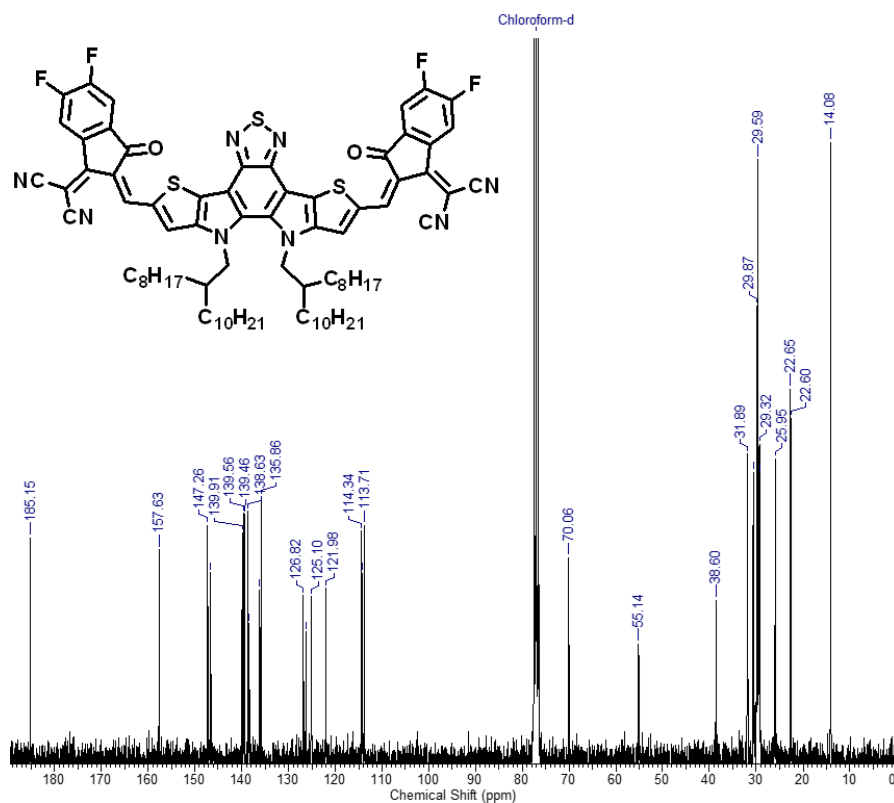
**Figure S9.**  $^1\text{H}$  NMR spectrum of BTPT-OD in CDCl<sub>3</sub>.



**Figure S10.**  $^{13}\text{C}$  NMR spectrum of compound BTPT-OD in CDCl<sub>3</sub>.

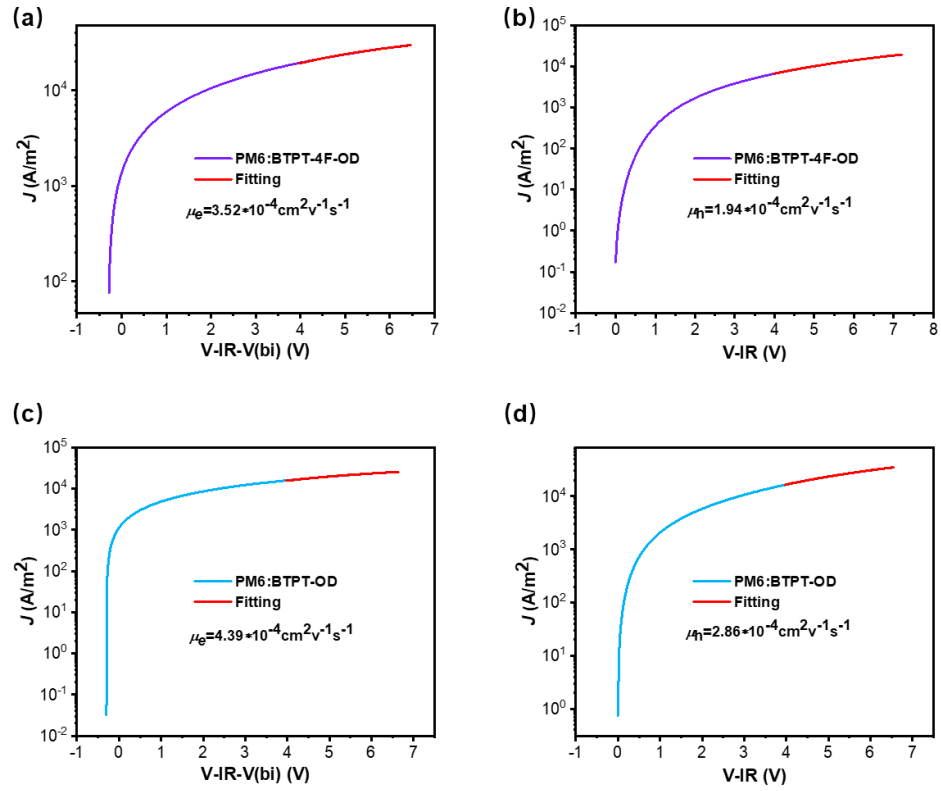


**Figure S11.**  $^1\text{H}$  NMR spectrum of **BTPT-4F-OD** in  $\text{CDCl}_3$ .



**Figure S12.**  $^{13}\text{C}$  NMR spectrum of compound **BTPT-4F-OD** in  $\text{CDCl}_3$ .

## 2. Photovoltaic Properties



**Figure S13.** The electron mobilities and hole mobilities of (a,b) PM6: BTPT-4F-OD and (c,d) PM6: BTPT-OD devices measured using the SCLC approach.