Supporting Materials

Fluorine Substituted Thiophene-Quinoxaline Copolymer to Reduce HOMO Level and Increase Dielectric Constant for High Open-circuit Voltage Organic Solar Cell

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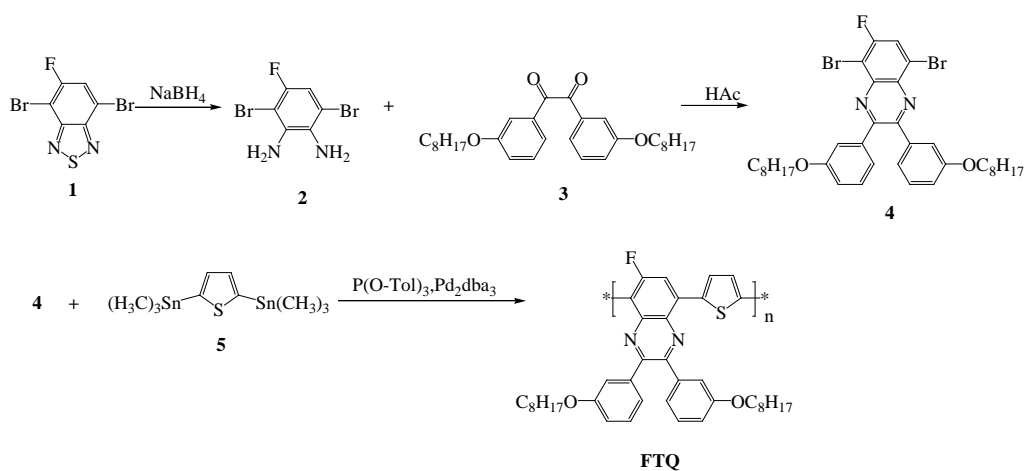
Contents

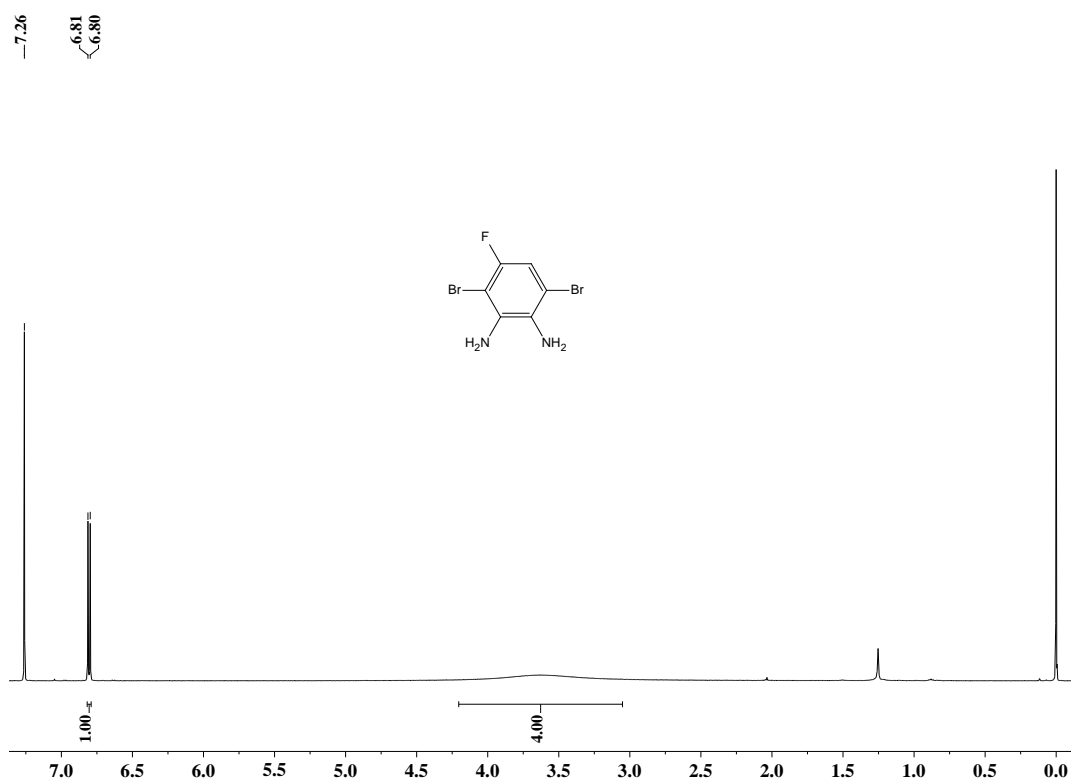Scheme 1. Synthesis routine of FTQ

Figure S1. ^{1}H NMR spectrum of compound 2.
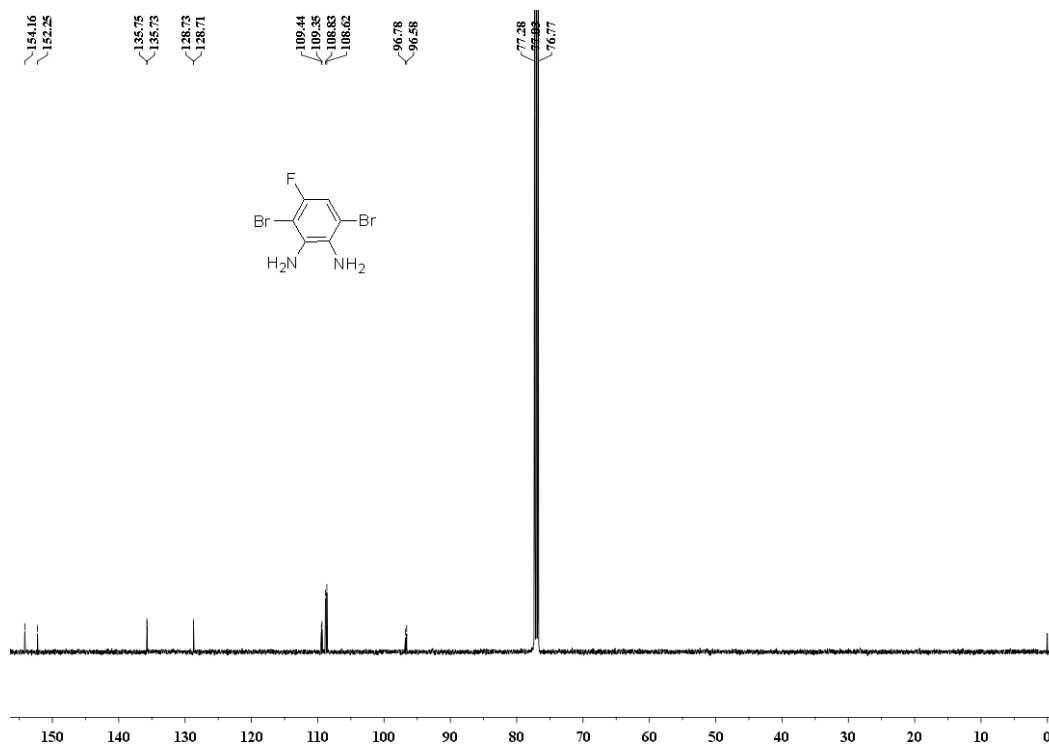

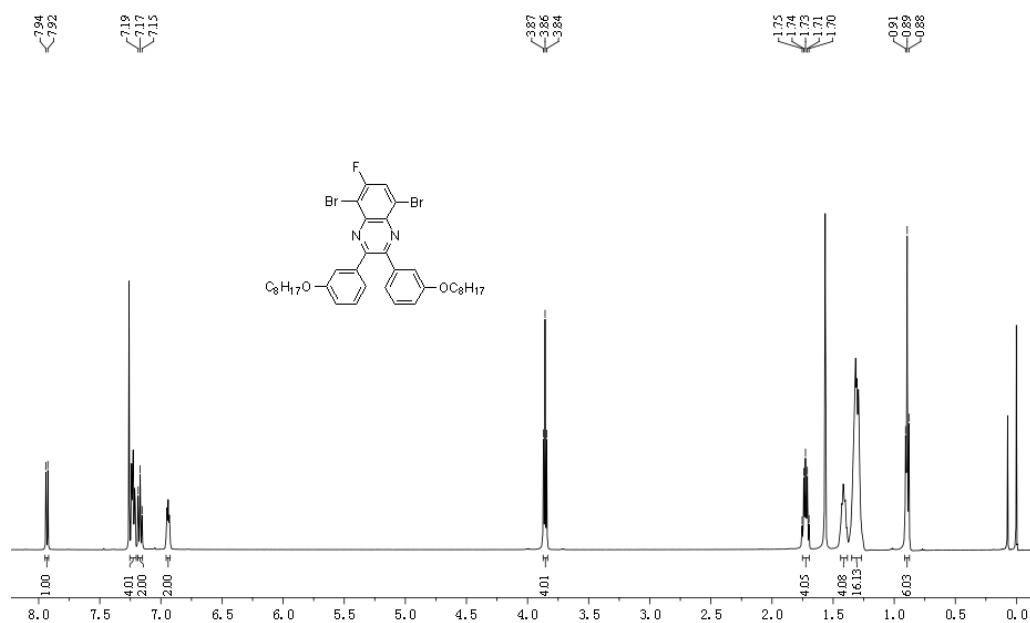**Figure S2. ^{13}C NMR spectrum of compound 2.**

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Figure S3. ^{1}H NMR spectrum of compound 4.
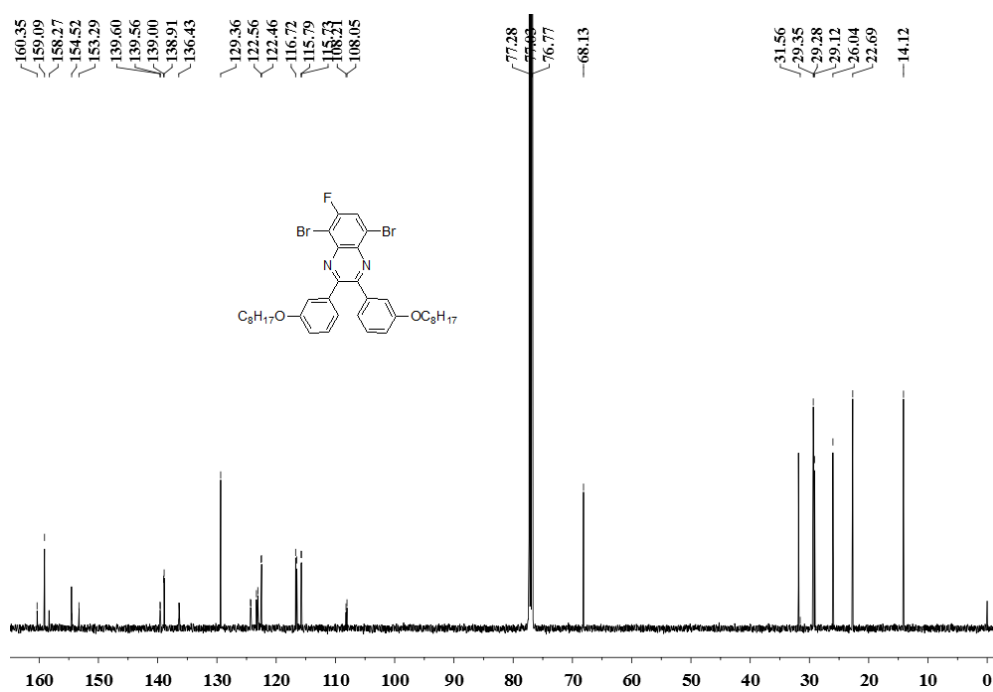

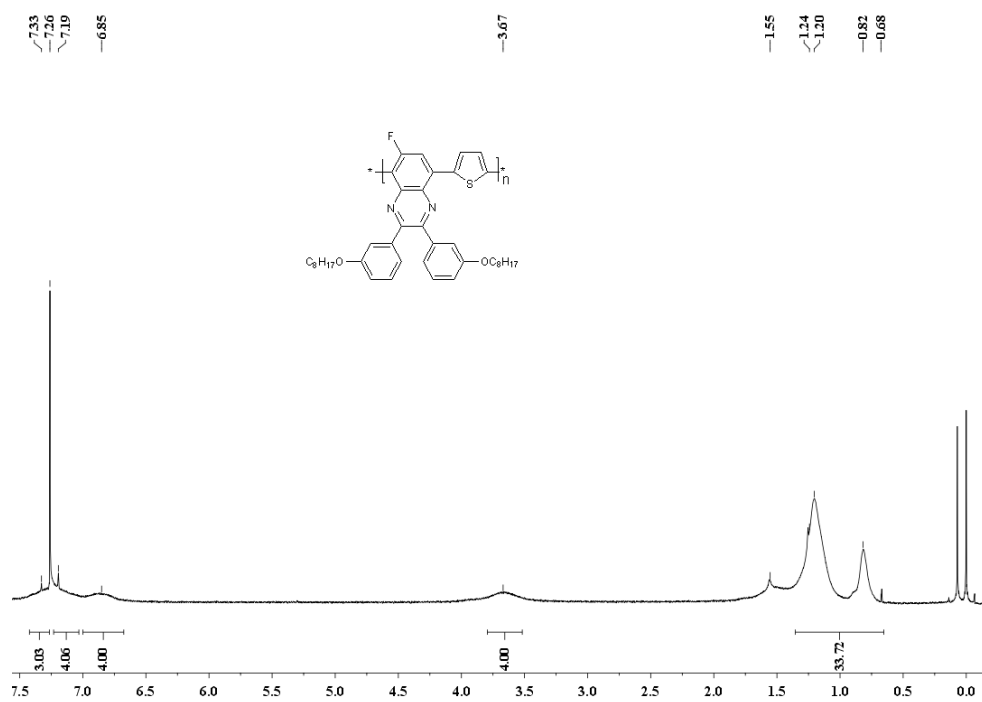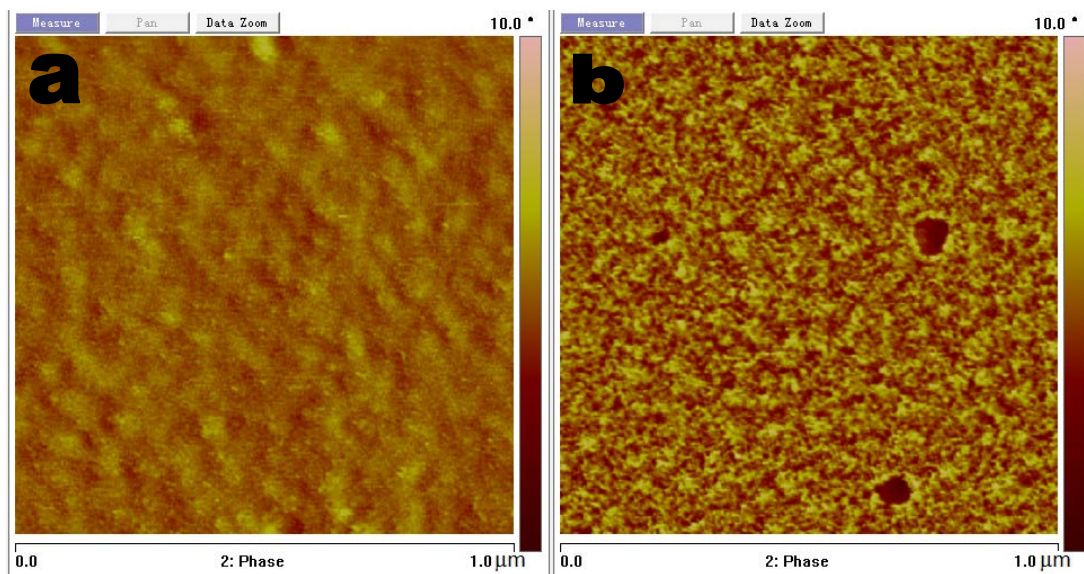
Figure S4. ^{13}C NMR spectrum of compound 4.

Figure S5. ^{1}H NMR spectrum of FTQ.

FigureS6. AFM phase images of blend film with 5 min (a) and 30 min (b) annealing (1 μm× 1μm).