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Supplementary Information for

Strong coupling and energy funnelling in an electrically conductive organic blend

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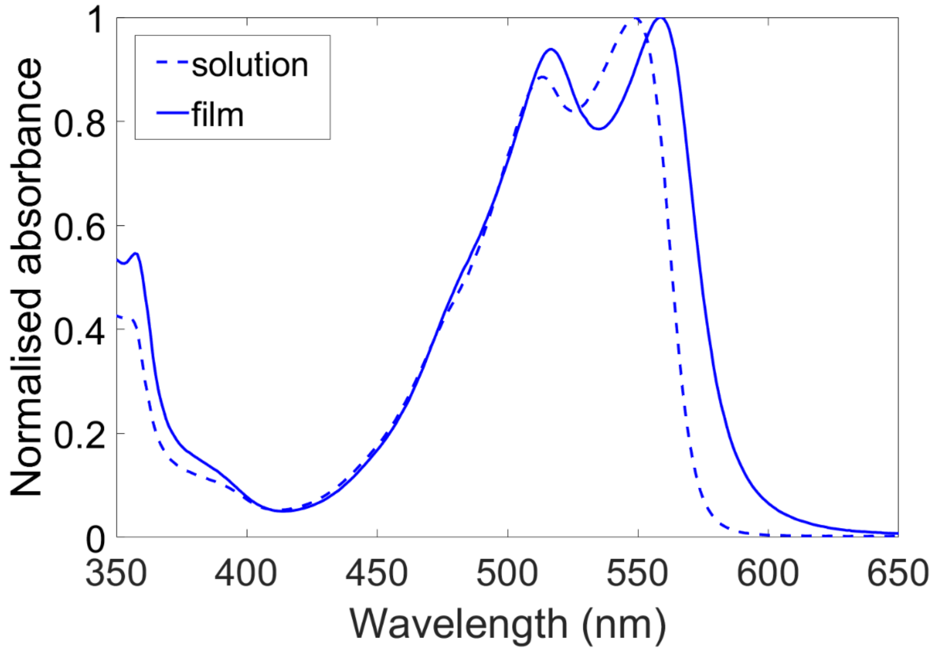

Figure S1. Solution (in chloroform) and film (in PMMA) absorption spectra for DT-DPP. Only a minor shift in peak position is observed.

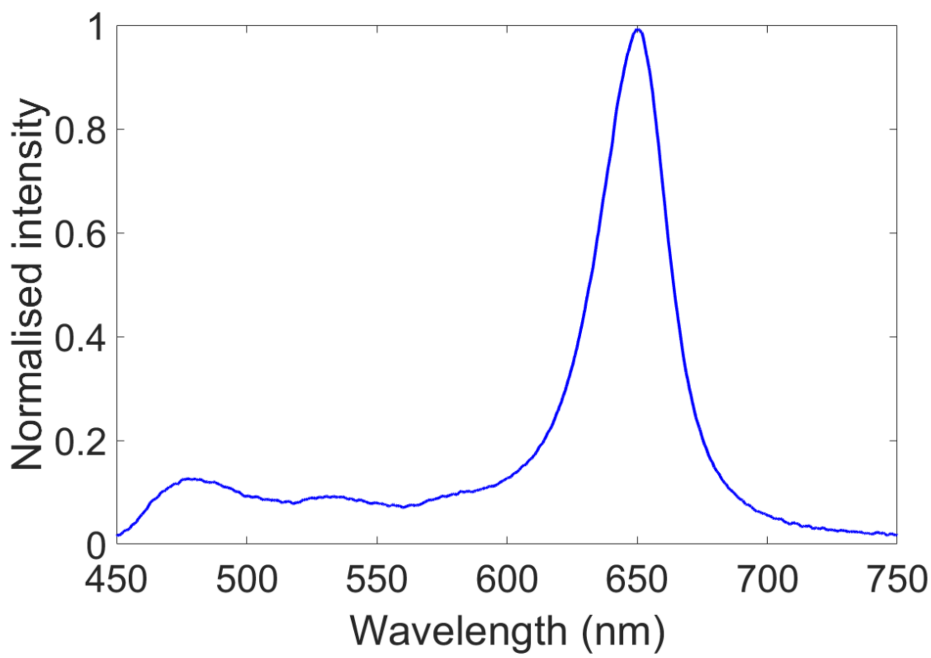

Figure S2. Transmission measurement for a control silver mirror device containing PMMA. Measurement is taken at $\theta = 0^{o}$ and shows a cavity Q-factor of 8.6.

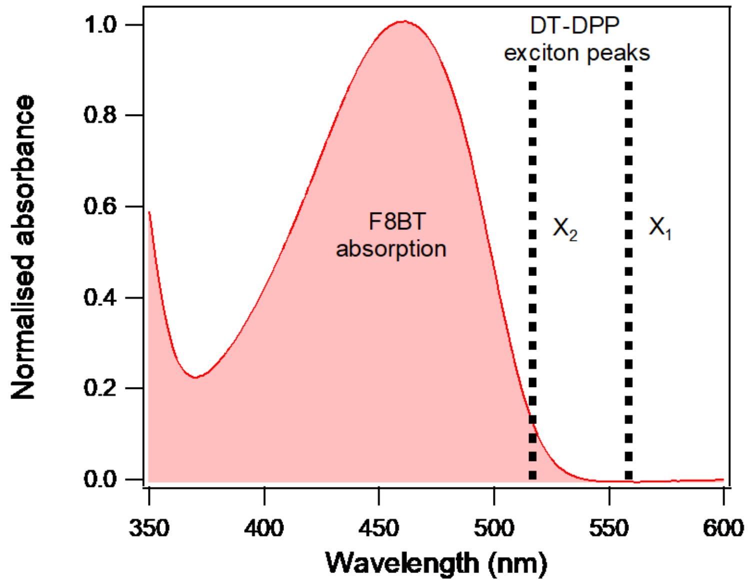

Figure S3. Absorption spectrum of F8BT film with the two exciton peaks of DT-DPP:PMMA marked. From the overlay, it is clear that F8BT absorbs at the wavelength of X_2 but not at X_1.

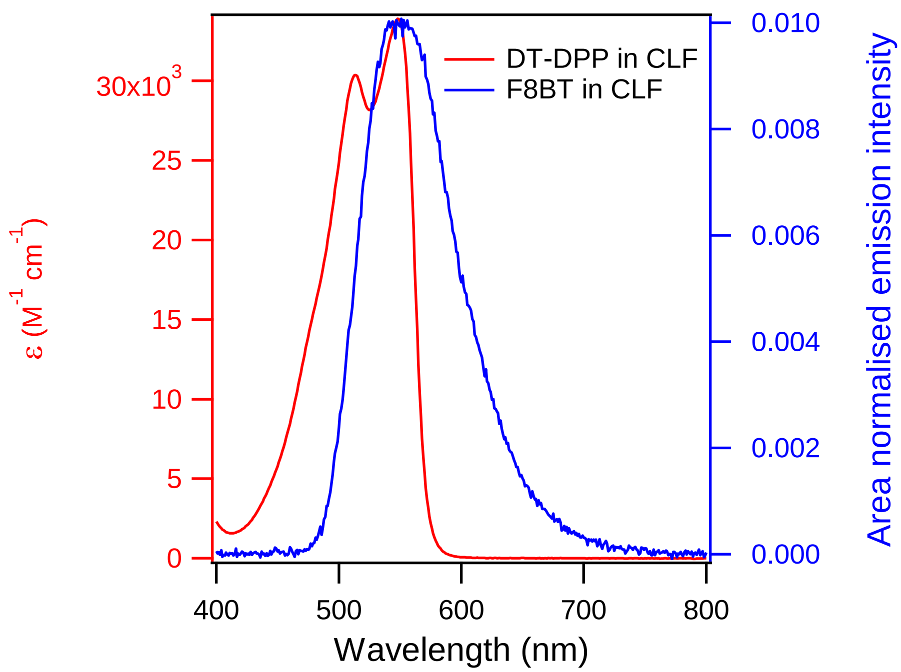

Figure S4. Molar absorptivity values of DT-DPP in chloroform (CLF) and normalised emission intensity of F8BT in chloroform (*i.e.* integrated intensity = 1). The overlap integral, J, is calculated using the following equation:

$$J = \int f_D(\lambda)\varepsilon_A(\lambda)\lambda^4 d\lambda,$$

where $f_D(\lambda)$ is the normalised emission intensity of the donor, $\varepsilon_A(\lambda)$ is the molar absorptivity of the acceptor, and λ is the wavelength.

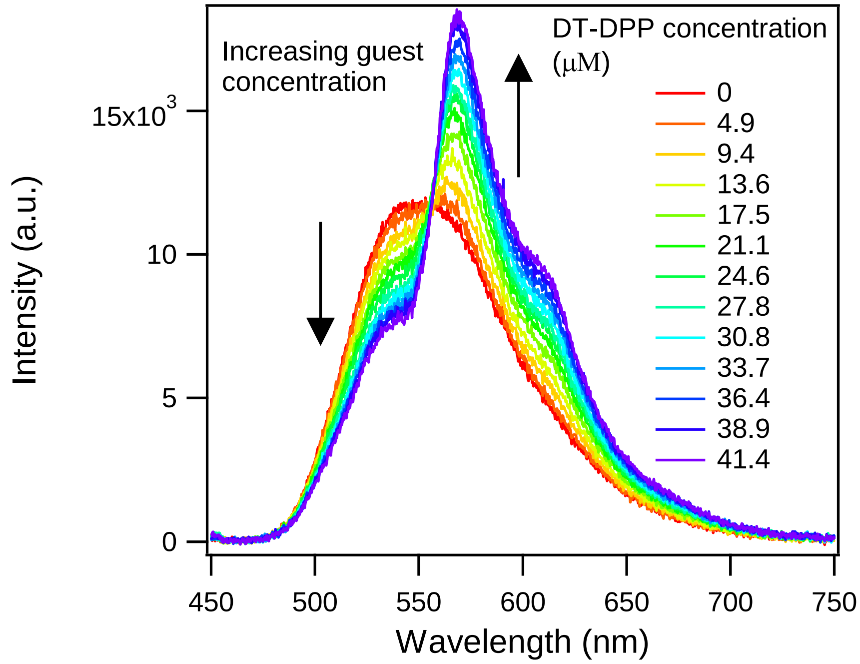

Figure S5. Emission of F8BT in chloroform, as DT-DPP is introduced. The concentration of F8BT was kept constant. The F8BT emission is quenched as the DT-DPP concentration is increased, owing to FRET.

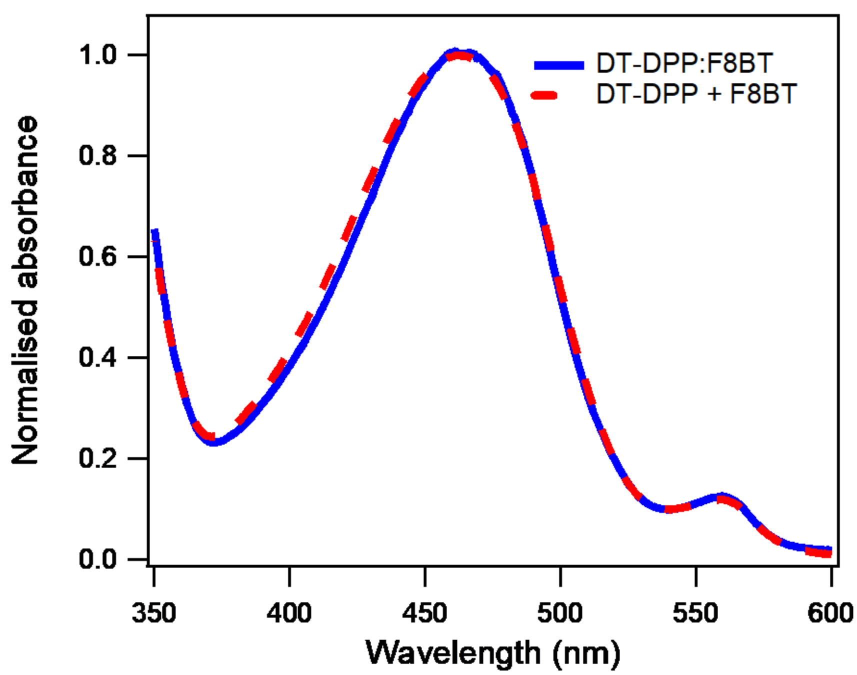

Figure S6. Comparison of the absorption spectrum of DT-DPP:F8BT film to the sum of the two individual components. The good agreement shows that no complex is formed upon mixing.

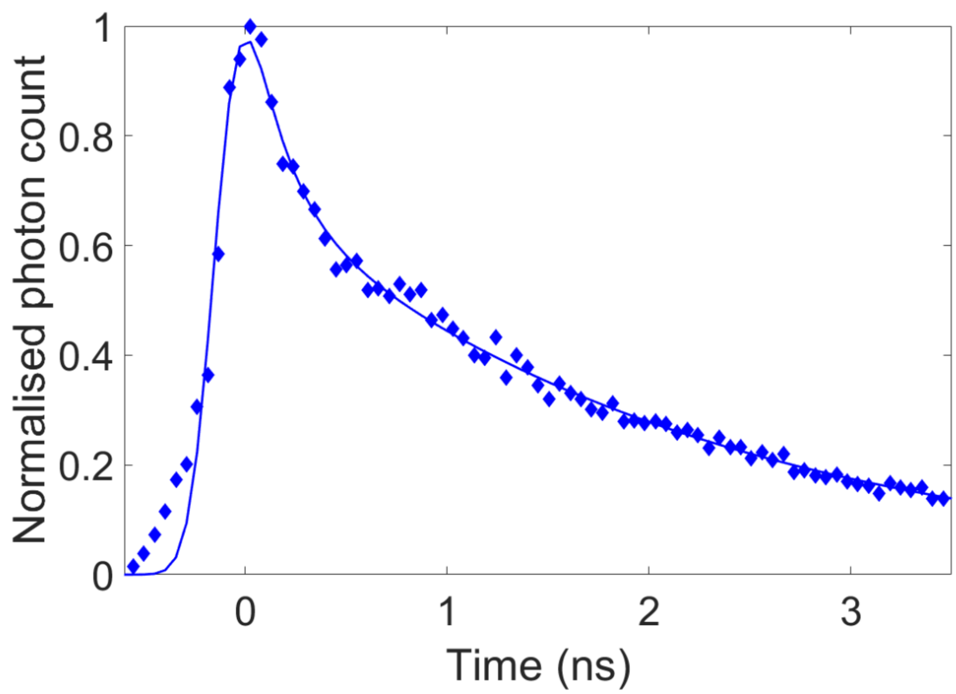

Figure S7. DT-DPP:PMMA lifetime and fitted trace for emission measured at 450 nm. DT-DPP emission is relatively weak at this wavelength resulting in a higher level of noise.

Table S1. Calculated lifetimes for various film TCSPC measurements.

Material	Shorter lifetime (ns)	Error (ns)	Longer lifetime (ns)	Error (ns)
DT-DPP in PMAA	0.17*	0.03	2.15	0.08
F8BT	0.558	0.014	-	-
5% DT-DPP in F8BT	0.38	0.06	1.2	1.6
25% DT-DPP in F8BT	0.27	0.4	1.1	0.8

*Fast component in DT-DPP fell within instrument response.

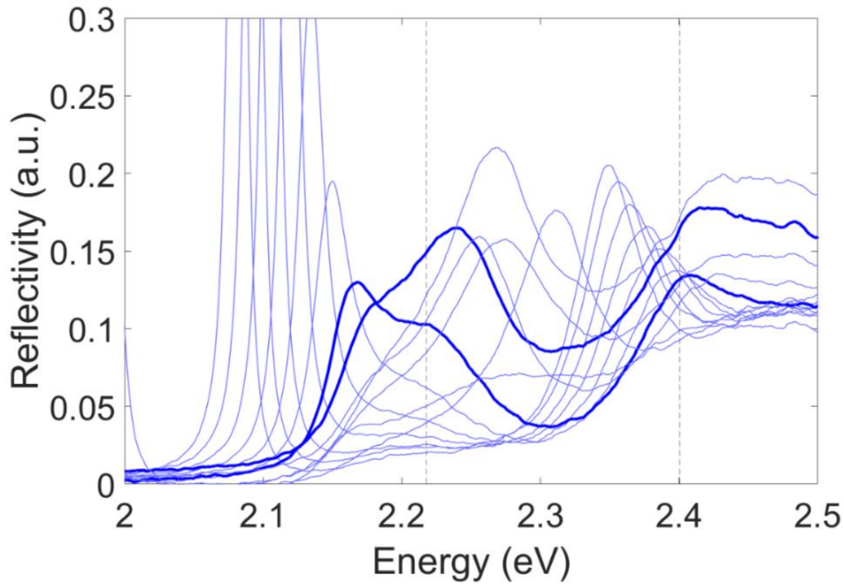

Figure S8. Reflection data for DT-DPP in an F8BT matrix. Dark blue spectra show clear splitting around the first exciton peak. The exact energies of the peaks were resolved using curve fitting of two Gaussian functions. Note that peaks actually represent dips in reflection but have been inverted for clarity. Each spectrum is taken at a different angle of incidence.

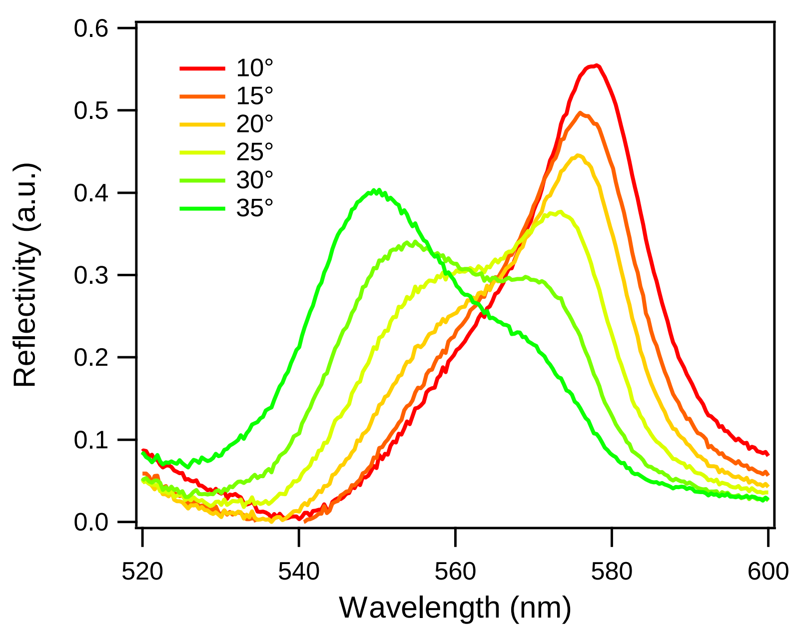

Figure S9. Zoomed-in reflection data for another DT-DPP:F8BT device. Note that peaks actually represent dips in reflection but have been inverted for clarity. Each spectrum is taken at a different angle of incidence. When analysing all samples measured in the study (both PMMA and F8BT), the resulting value for $\Omega \,/\, \sqrt{\alpha_0 L}$ was found to be 150 +/- 9, which indicates good reproducibility, regardless of the matrix.

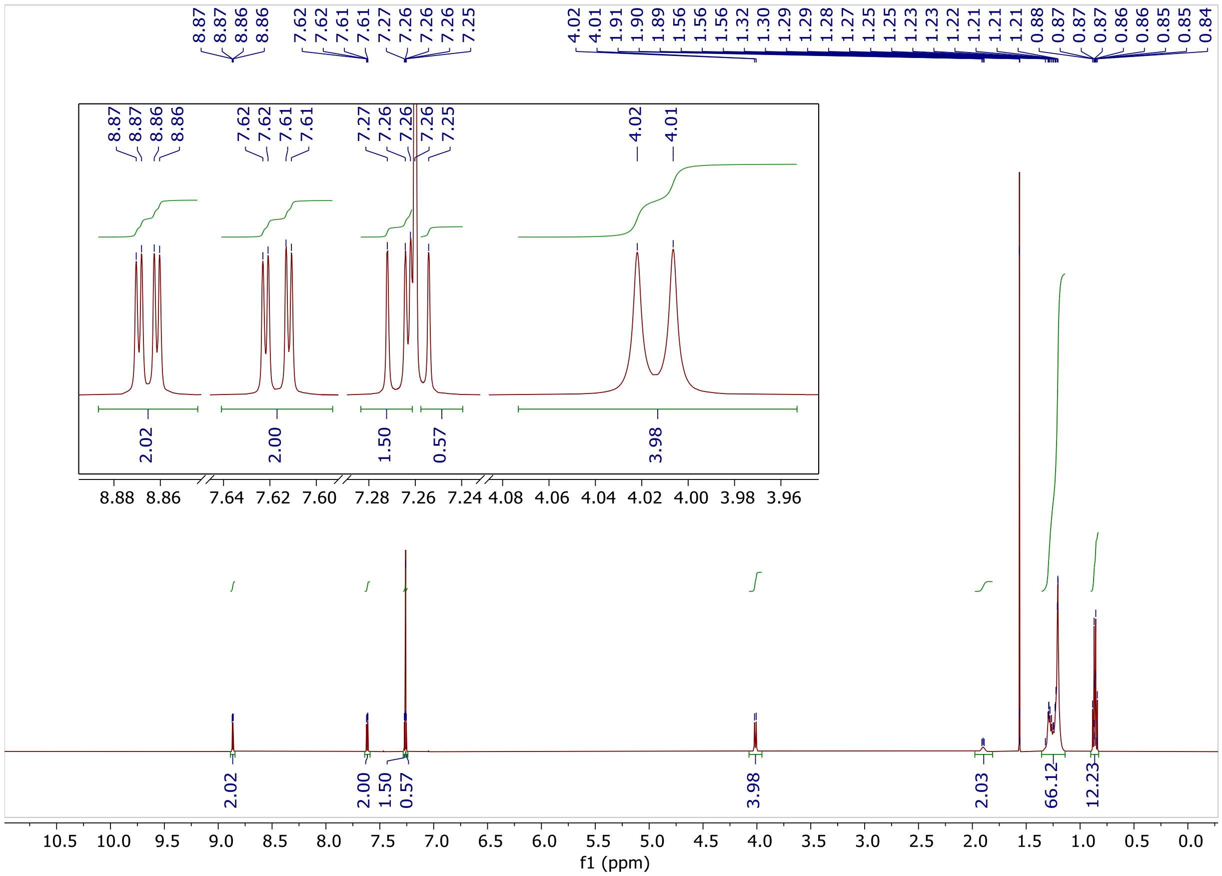

Figure S10. ^{1}H NMR of DT-DPP (500 MHz, $CDCl_3$).

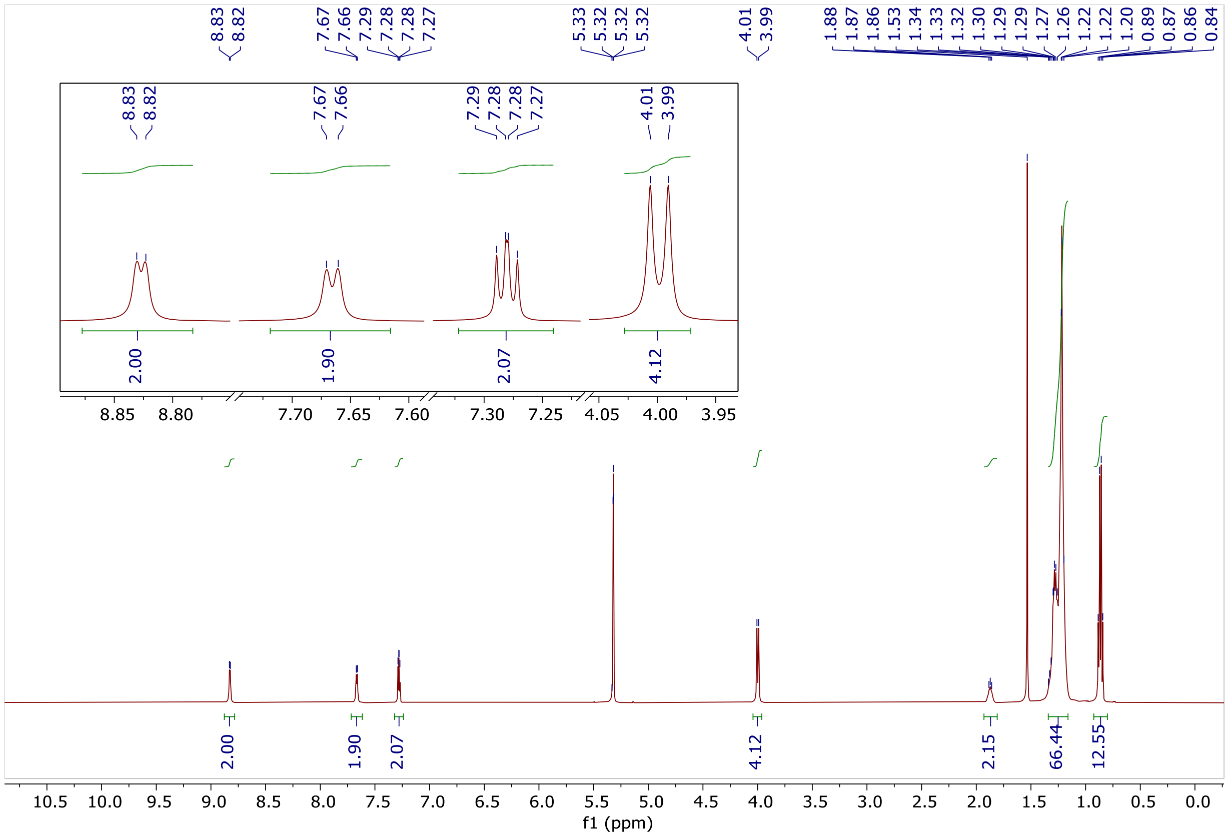

Figure S11. ^{1}H NMR of DT-DPP (500 MHz, CD_2Cl_2).

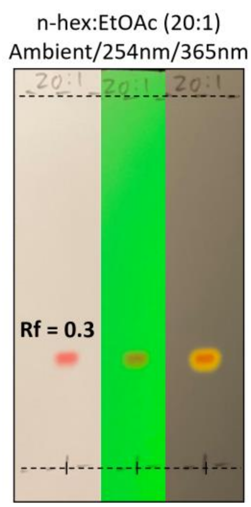

Figure S12. Thin layer chromatography (TLC) of DT-DPP. A single spot is observed under ambient, short (254 nm) and long (365 nm) wavelength UV illumination, indicating a single compound (*i.e.* without other impurities).

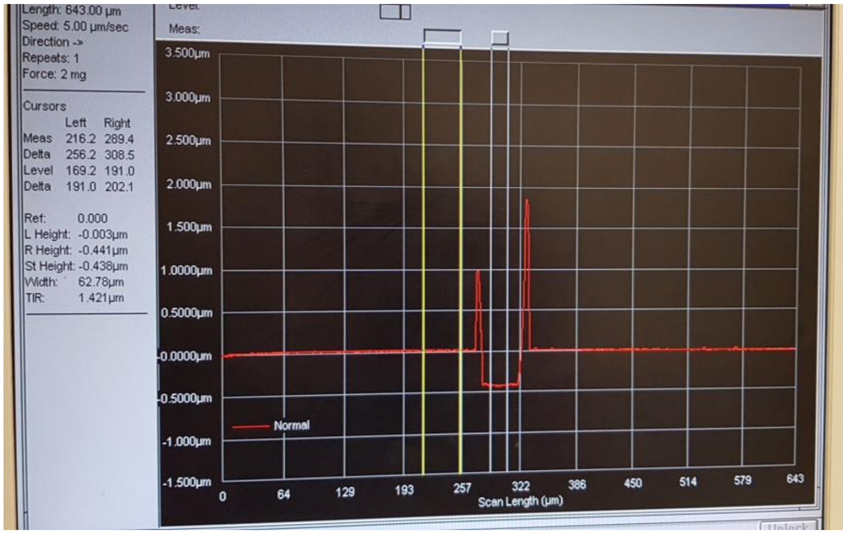

Figure S13. Representative height and roughness for a DT-DPP:F8BT film. A razor blade was used to mark a line in the film. The “snowplough” effect of using the razor blade causes the large spikes in thickness near the line. Since the surface profiler was attached to an old computer, this required a picture to be taken of the data (versus exporting data and plotting).