Supporting information

Linearly Polarized Electroluminescence from Ionic Iridium Complex-based Metallomesogens: The Effect of Aliphatic-Chain on Their Photophysical Properties

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NMR spectra and MALDI-MS spectra

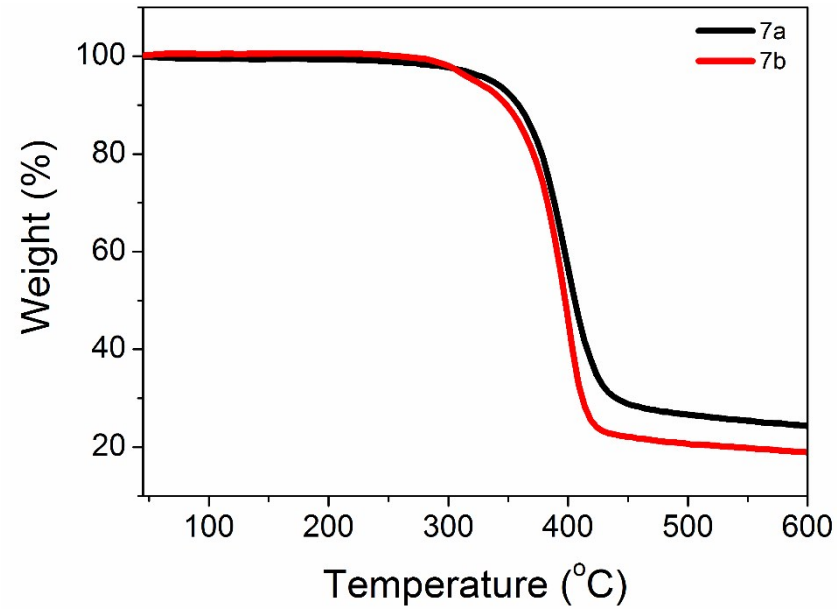


Figure S1. TGA curves of **7a** (black) and **7b** (red) measured at heating rate 10 °C/min under N_2

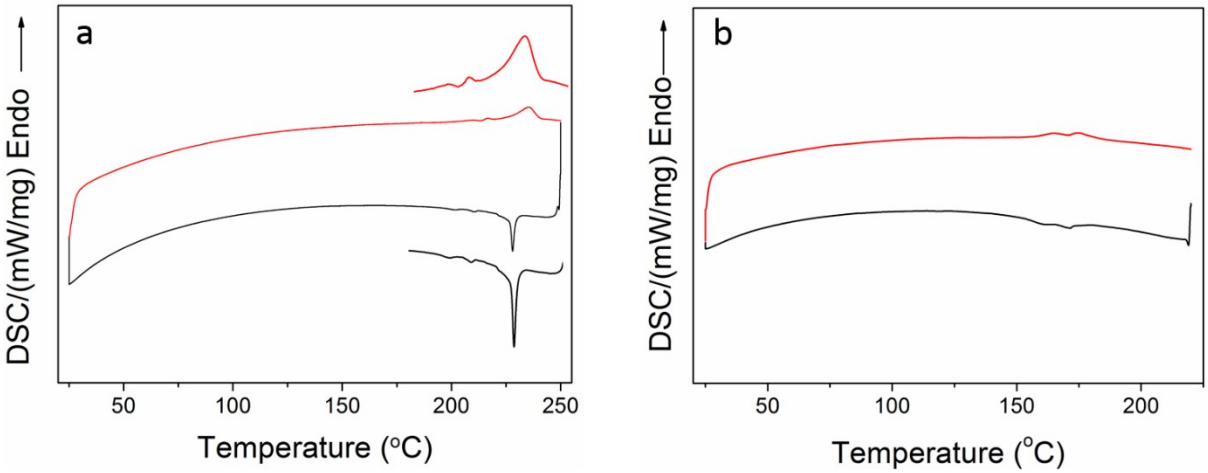


Figure S2. DSC traces of (a) **7a** and (b) **7b** (black: first cooling curve, scan: 10 °C/min; red: second heating curve, scan: 10 °C/min).

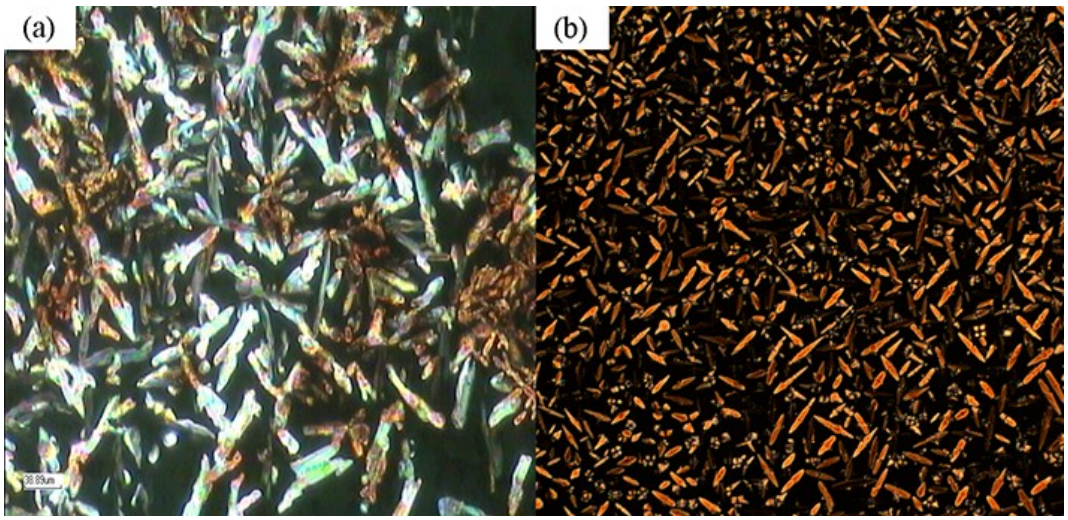


Figure S3. Photomicrographs of (a) **7a** at 225 ºC on cooling, (b) **7b** at 174 ºC on cooling.

Figure S4. Photomicrographs of 7b at 171ºC on cooling process after shearing

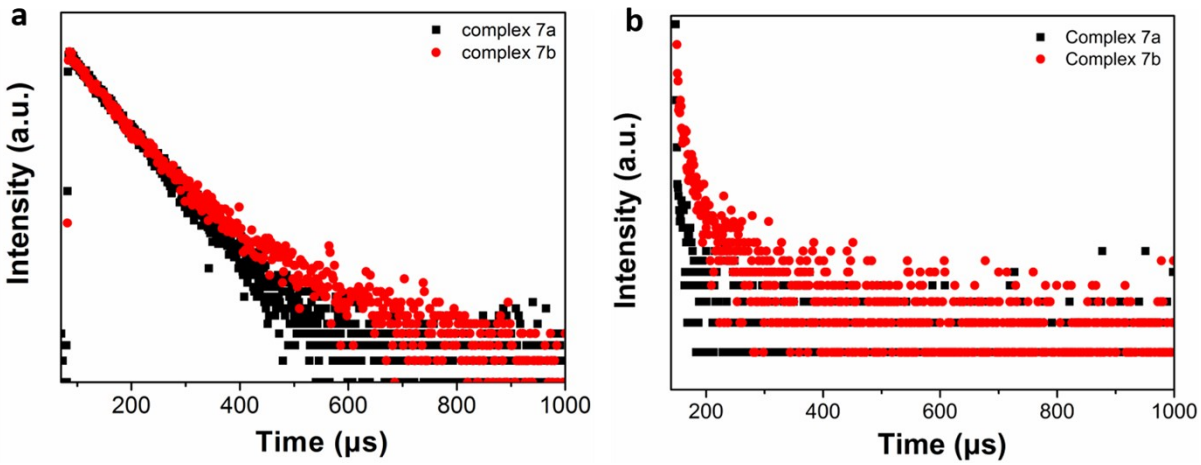


Figure S5. Luminescence decay time of complex in solution (a) and neat film (b) after degassed

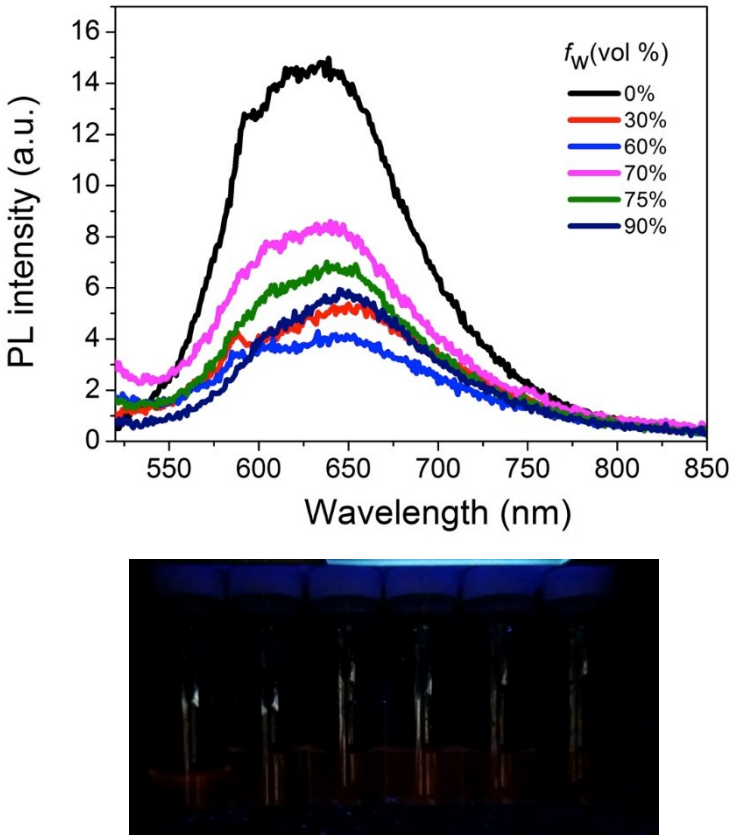


Figure S6. Emission spectra of **7b** in THF–water mixtures. The concentration of pure THF is 10^{-4} M. Excitation wavelength is 510 nm. Photographs of **7b** in THF–water mixtures with different f_w values (from left to right: 0%, 30%, 60%, 70%, 75% and 90%) taken under UV illumination at 365 nm.

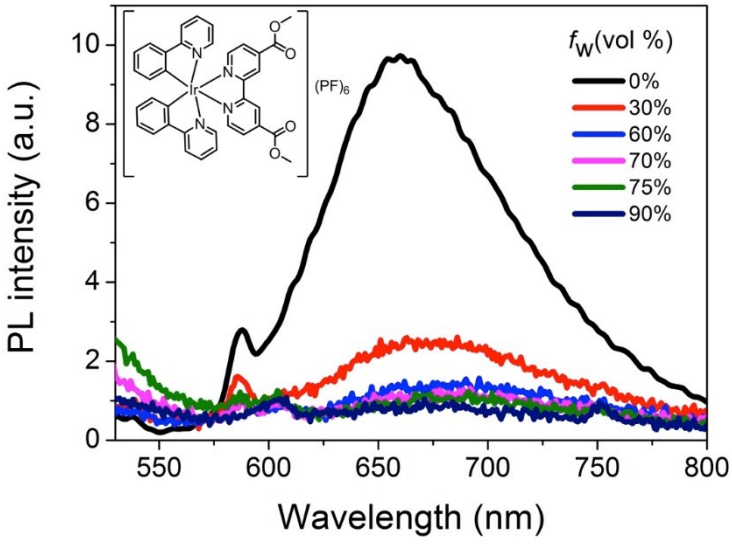


Figure S7. Emission spectra of $[Ir(ppy)_2(deeb)][PF_6]$ in THF–water mixtures. The concentration of pure THF is 10^{-4} M. Excitation wavelength is 510 nm.

Figure S8 The emission of complex 7a under UV light (365 nm) at room temperature. The solution is the CH_2Cl_2:hexane (V/V = 1:1, 10^{-3} M). After the CH_2Cl_2 volatized, the sample was self-assembled in hexane solution

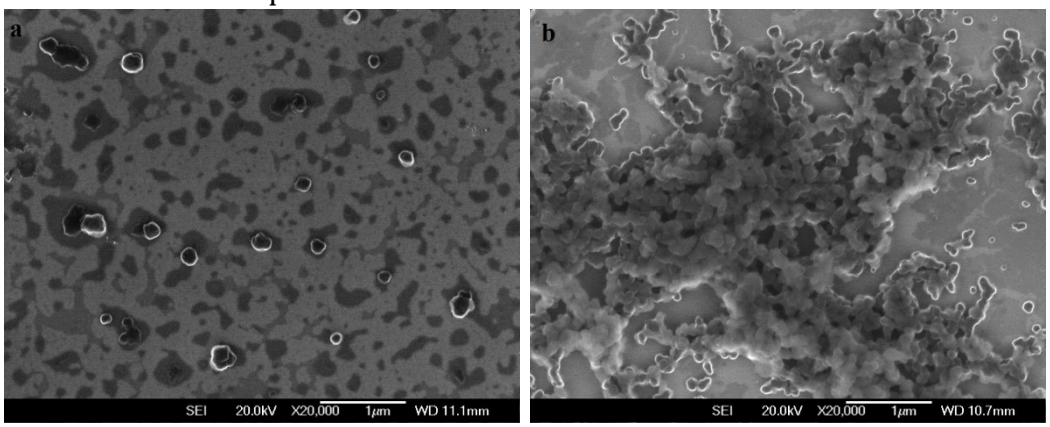


Figure S9. SEM images of **7a**, prepared in a THF–water mixture with (a) 30% and (b) 90% water content.

NMR spectra and MALDI-MS spectra

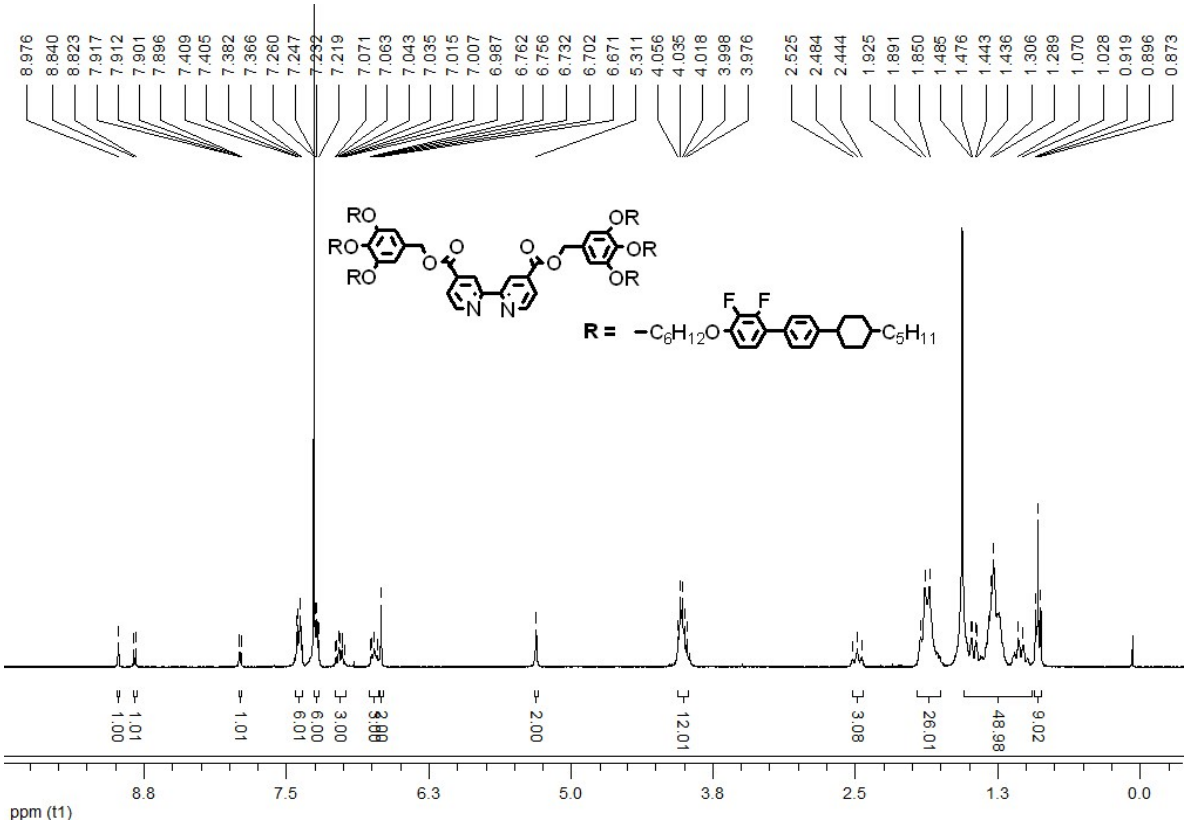


Figure S7. ^{1}H NMR spectra of **6a** in $CDCl_3$

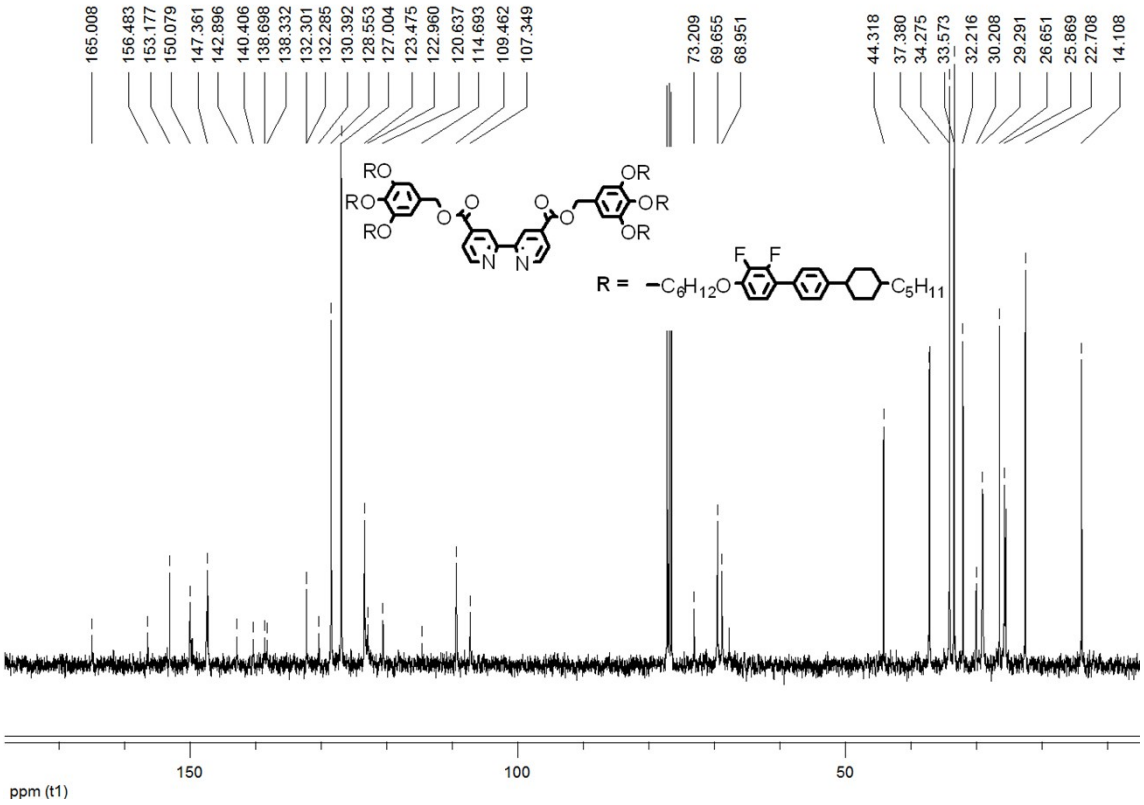
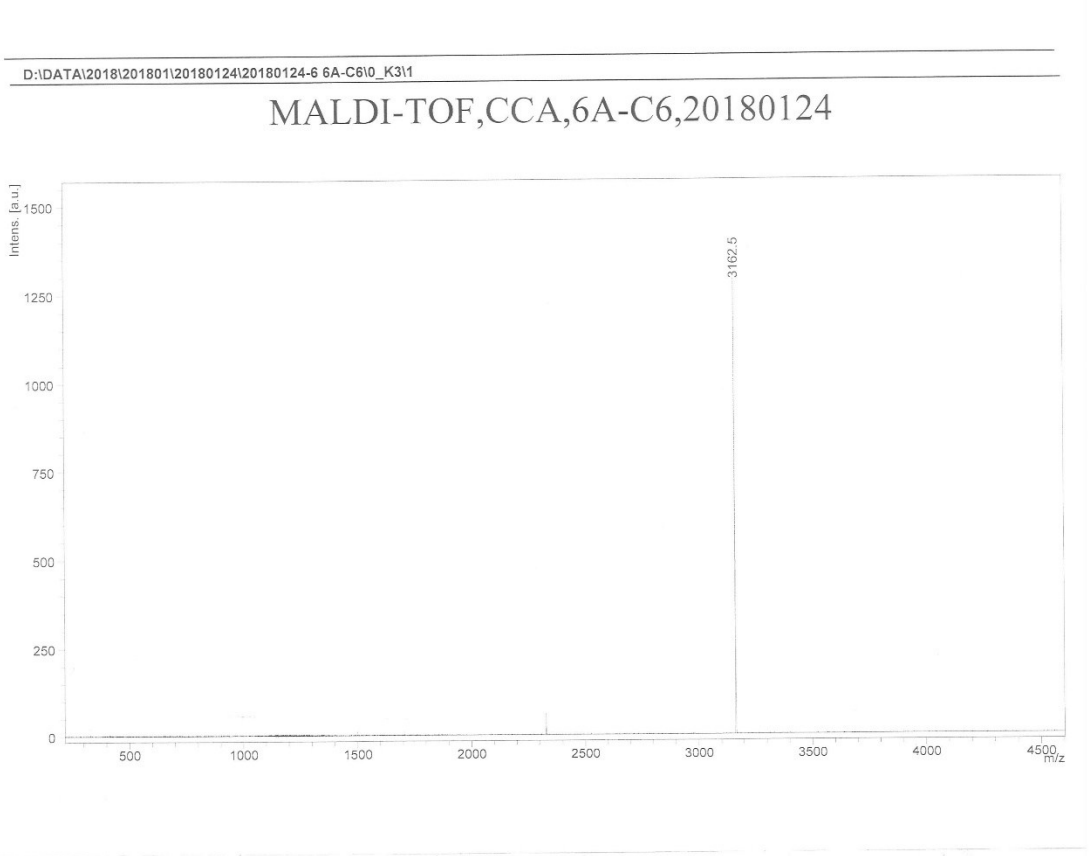


Figure S8. ^{13}C NMR spectra of **6a** in $CDCl_3$



MALDI-MS spectra of ligand 6a

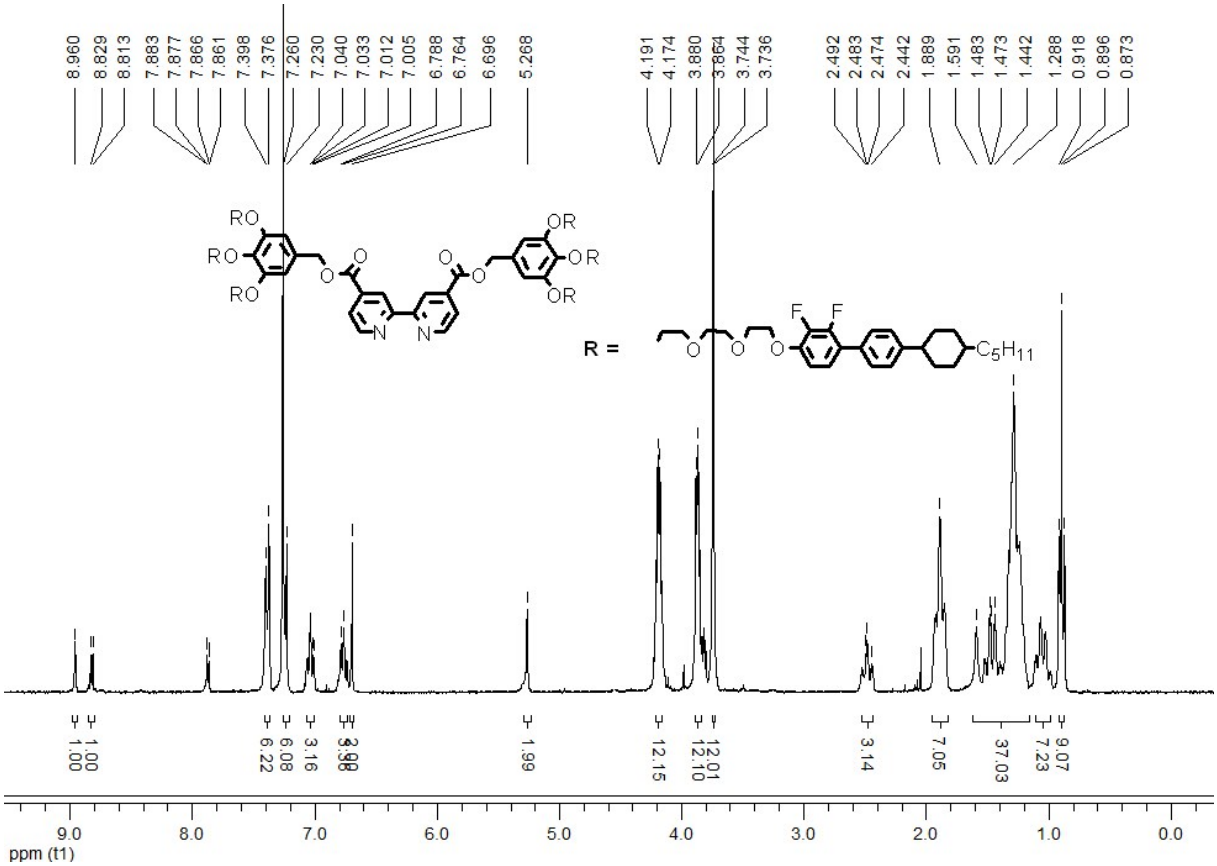


Figure S9. ^{1}H NMR spectra of **6b** in $CDCl_3$

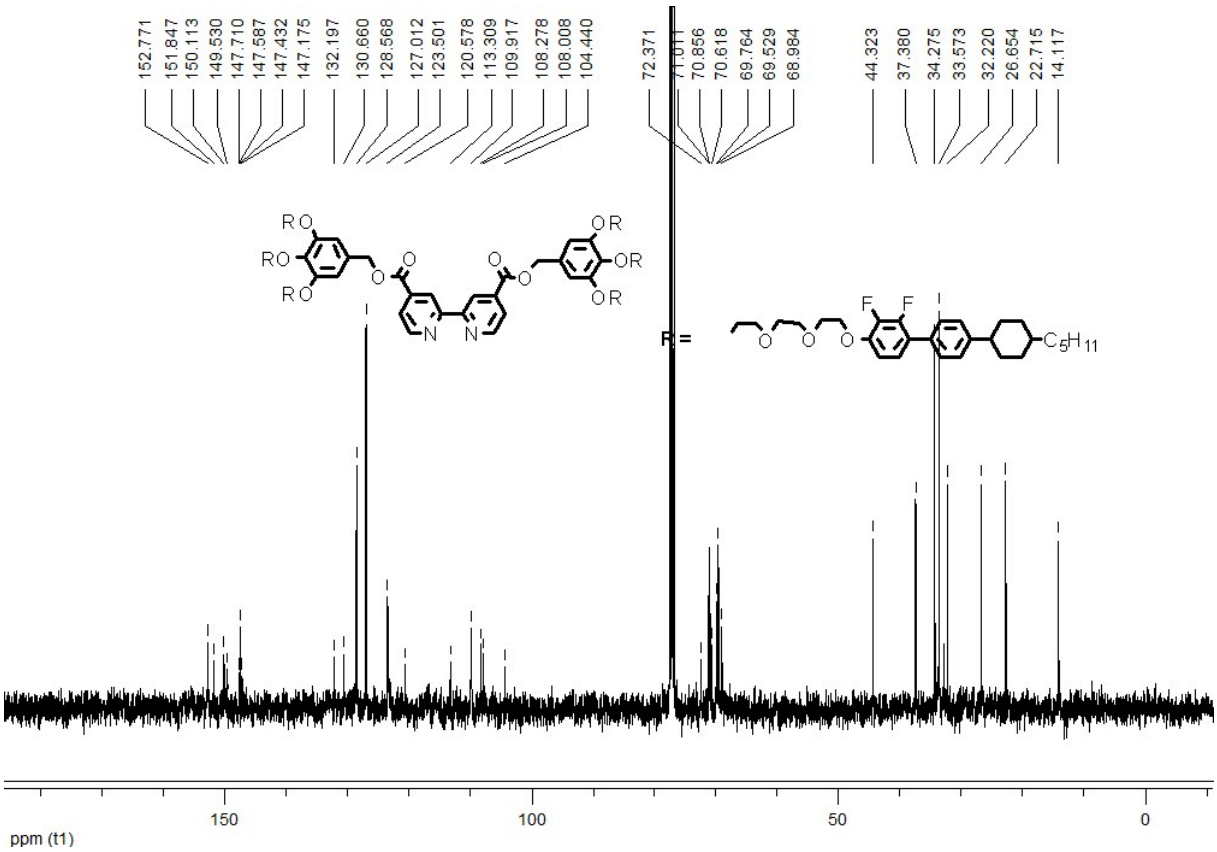
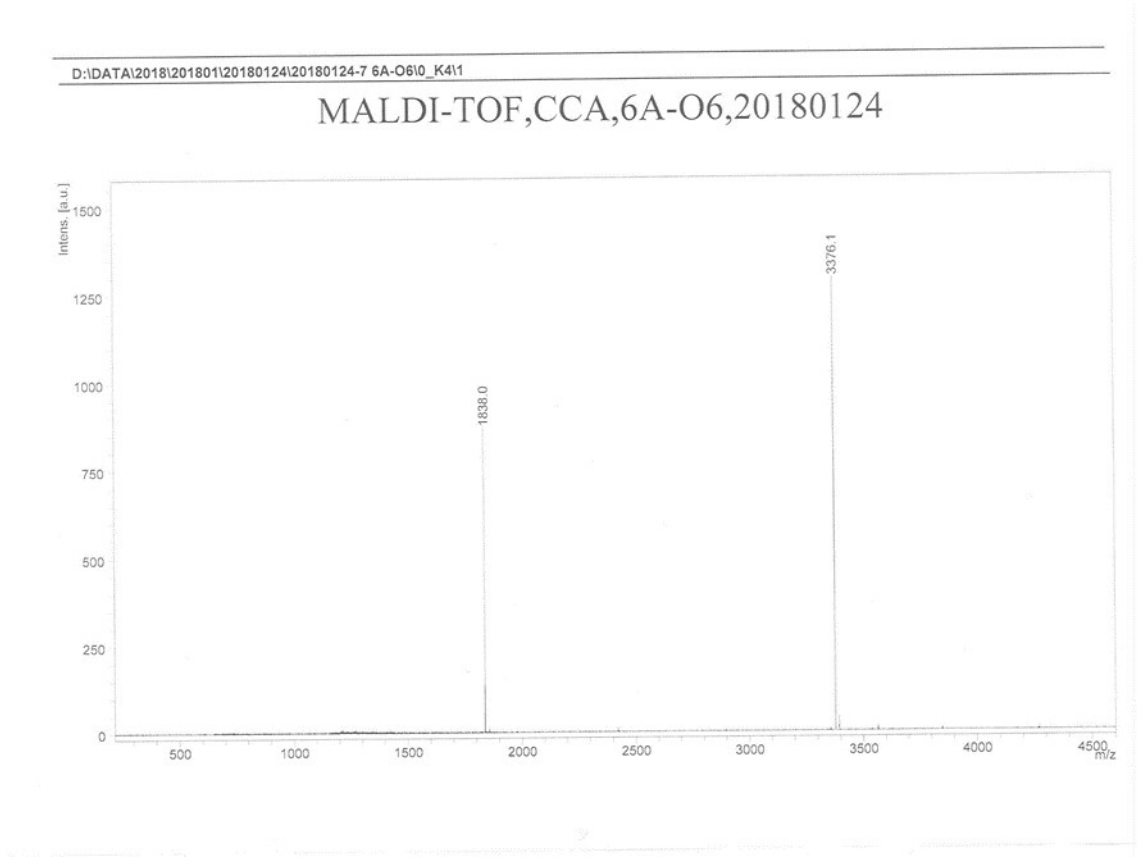


Figure S10. ^{13}C NMR spectra of **6b** in $CDCl_3$



MALDI-MS spectra of ligand 6b

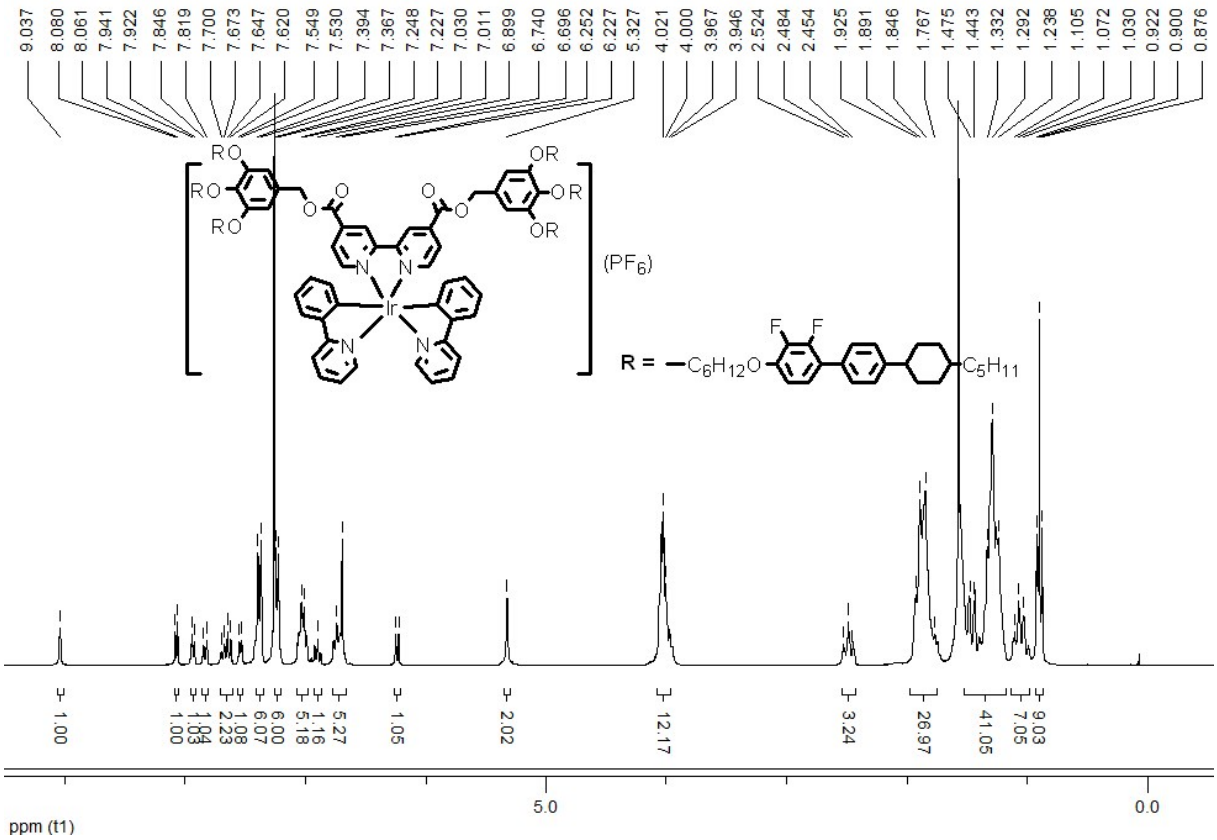


Figure S11. ^{1}H NMR spectra of **7a** in $CDCl_3$

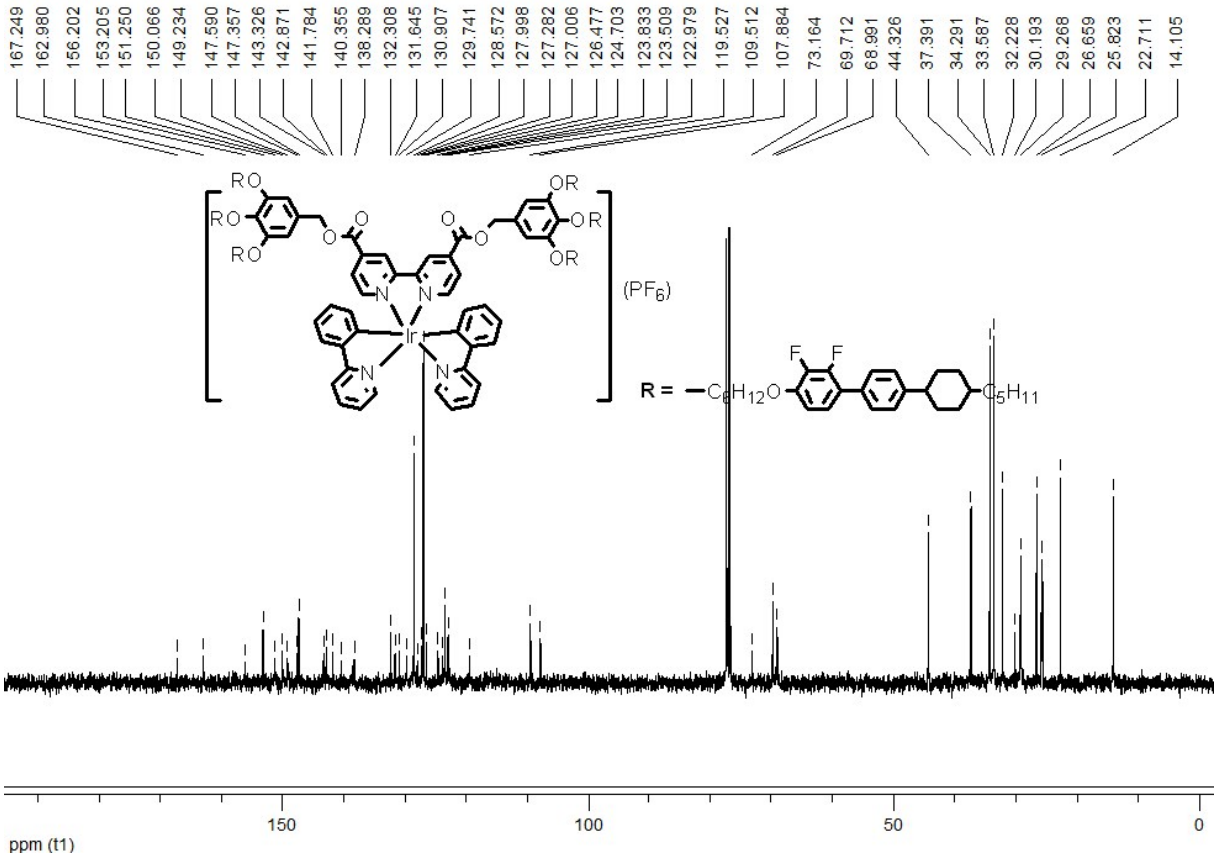
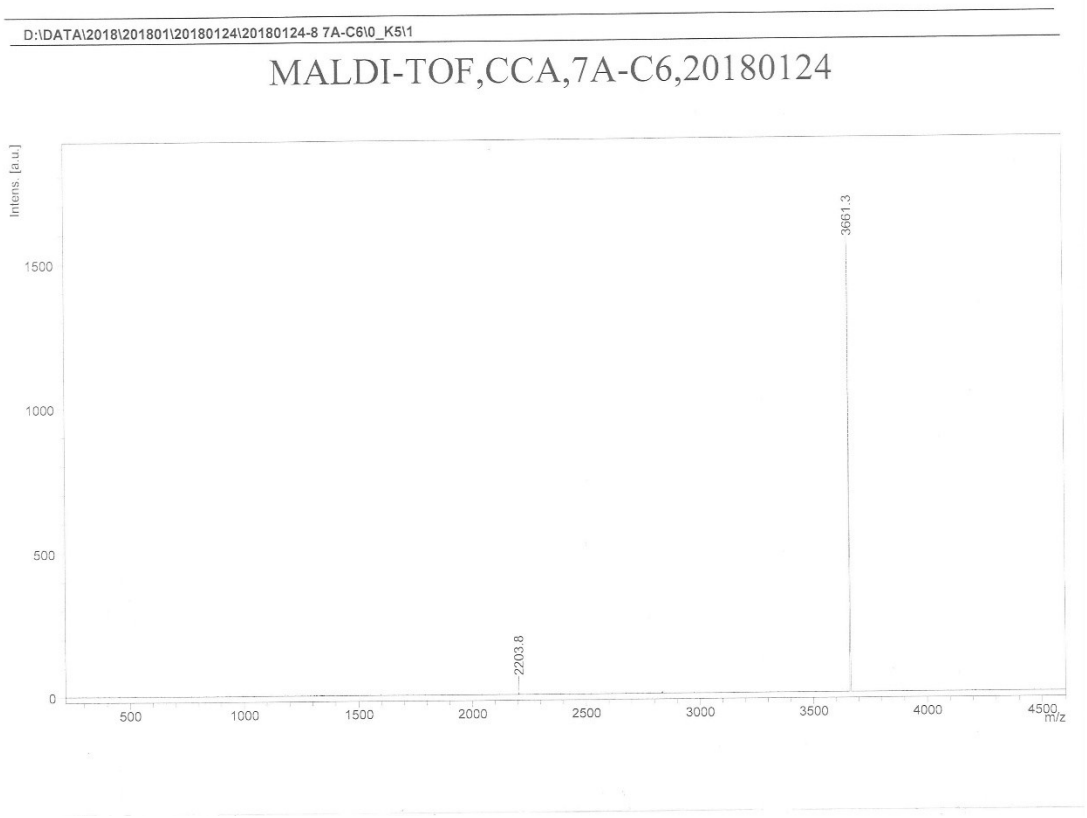


Figure S12. ^{13}C NMR spectra of **7a** in $CDCl_3$



MALDI-MS spectra of ligand 7a

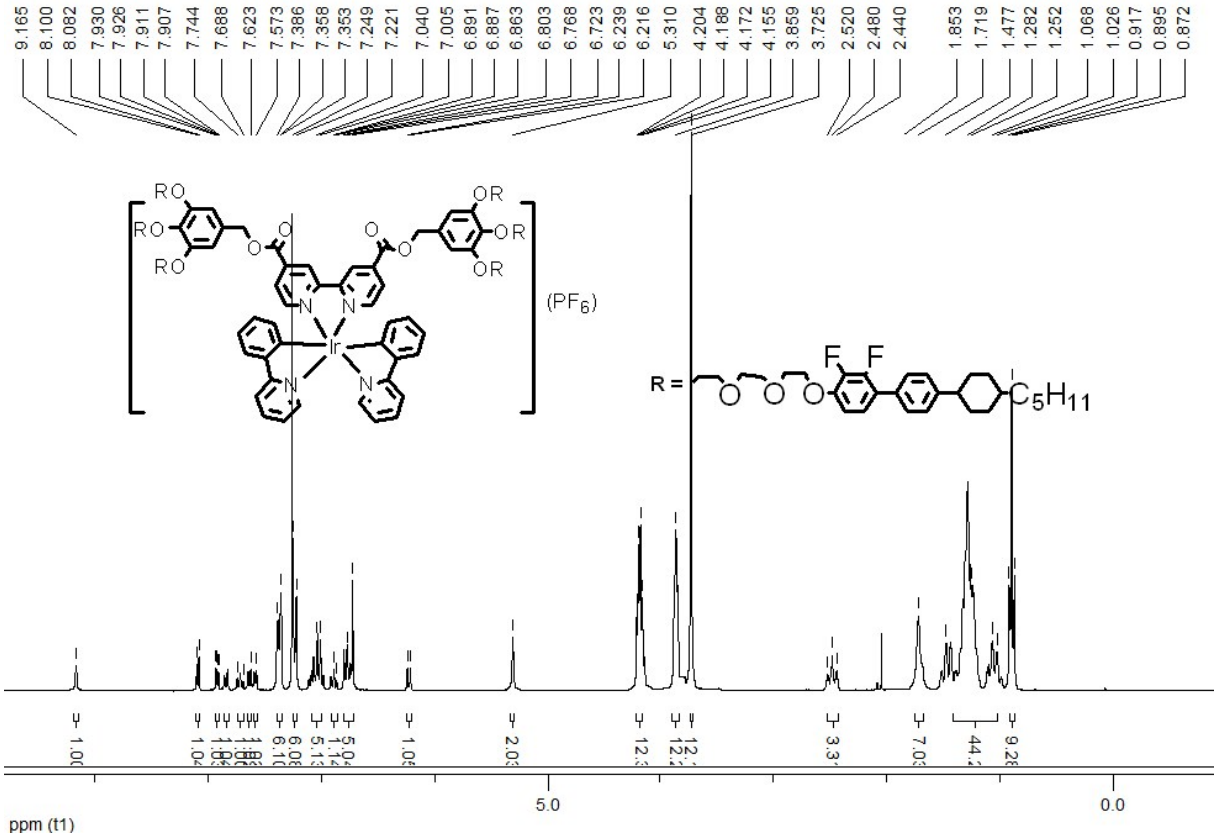


Figure S13. ^{1}H NMR spectra of **7b** in $CDCl_3$

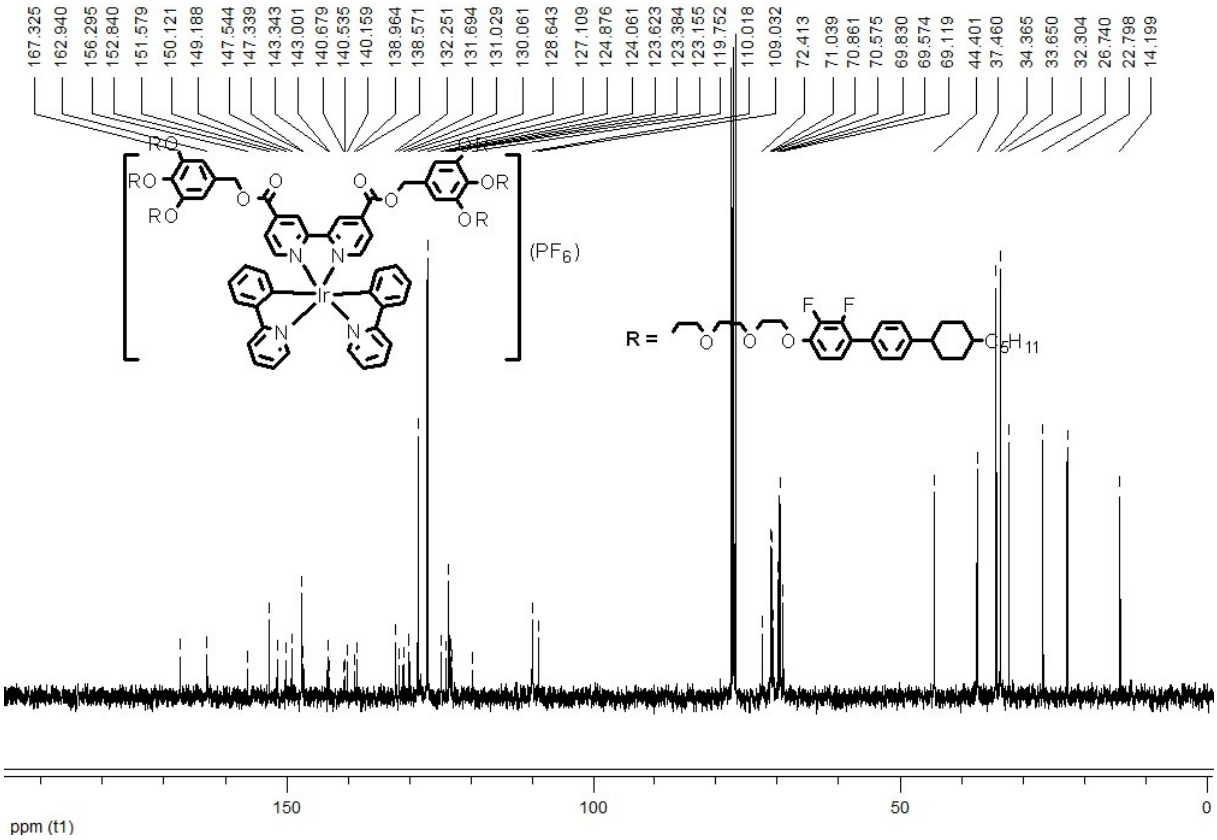
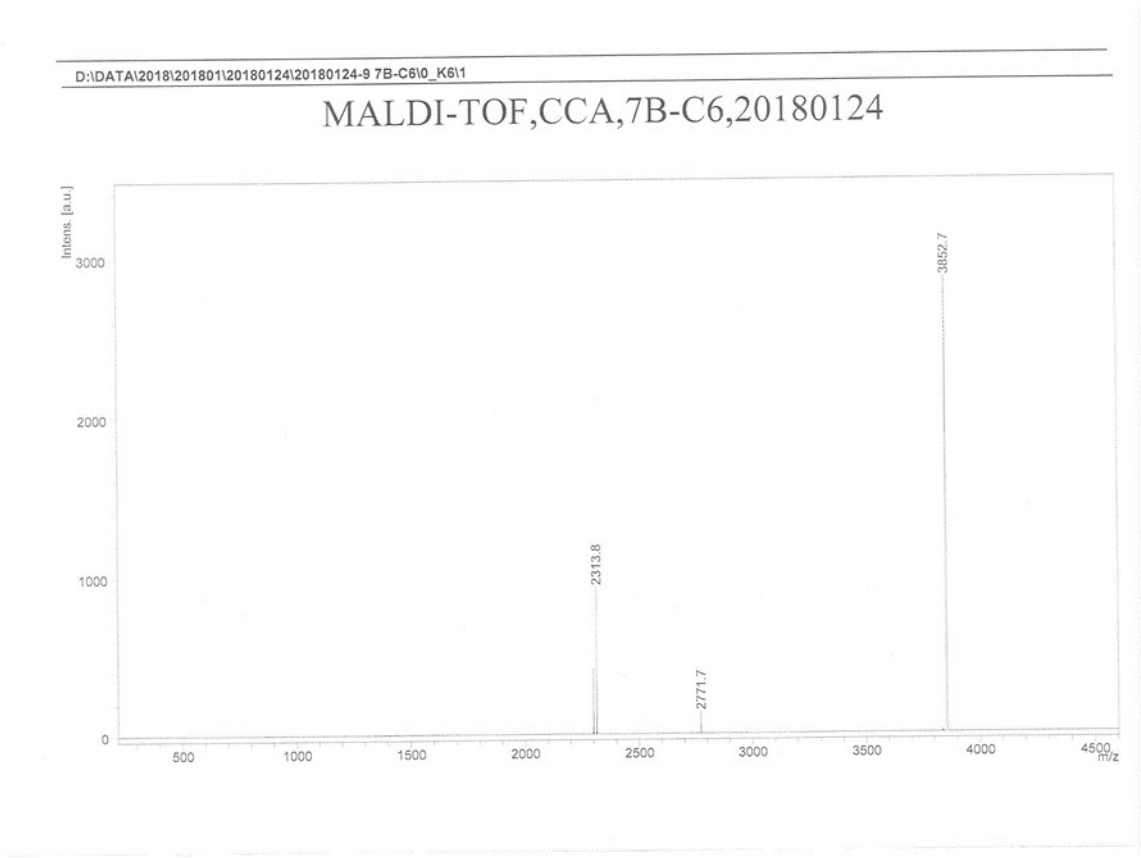


Figure S14. ^{13}C NMR spectra of **7b** in $CDCl_3$



MALDI-MS spectra of ligand 7b

Table S1. Electroluminescent data of EL devices.

Devices	Complex	Emission /nm	R	Luminance /cd m^{-2}	Current efficiency /cd A^{-1}	EQE %	$V_{turn\text{-}on}$ V
I							
	7a	640	N/A	2.5	0.01	0.03	8.8
	7b	647	1.1	2	0.04	0.01	9.2
II							
	7a	661	1.4	20	0.57	0.85	6
	7b	707	1.1	2	0.1	0.36	12
III							
	7a	641	1.2	5	1.1	1.1	8.5
	7b	642	N/A	34	0.1	0.09	5
IV							
	7a	640	1.1	4	0.03	0.04	12
	7b	678/660	4	1.2	0.01	0.01	5.5