Supplementary Material (ESI) for Journal of Materials Chemistry

High Performance All-Solid-State Dye-Sensitized Solar Cells Based on Cyanobiphenyl-Functionalized Imidazolium-Type Ionic Crystals

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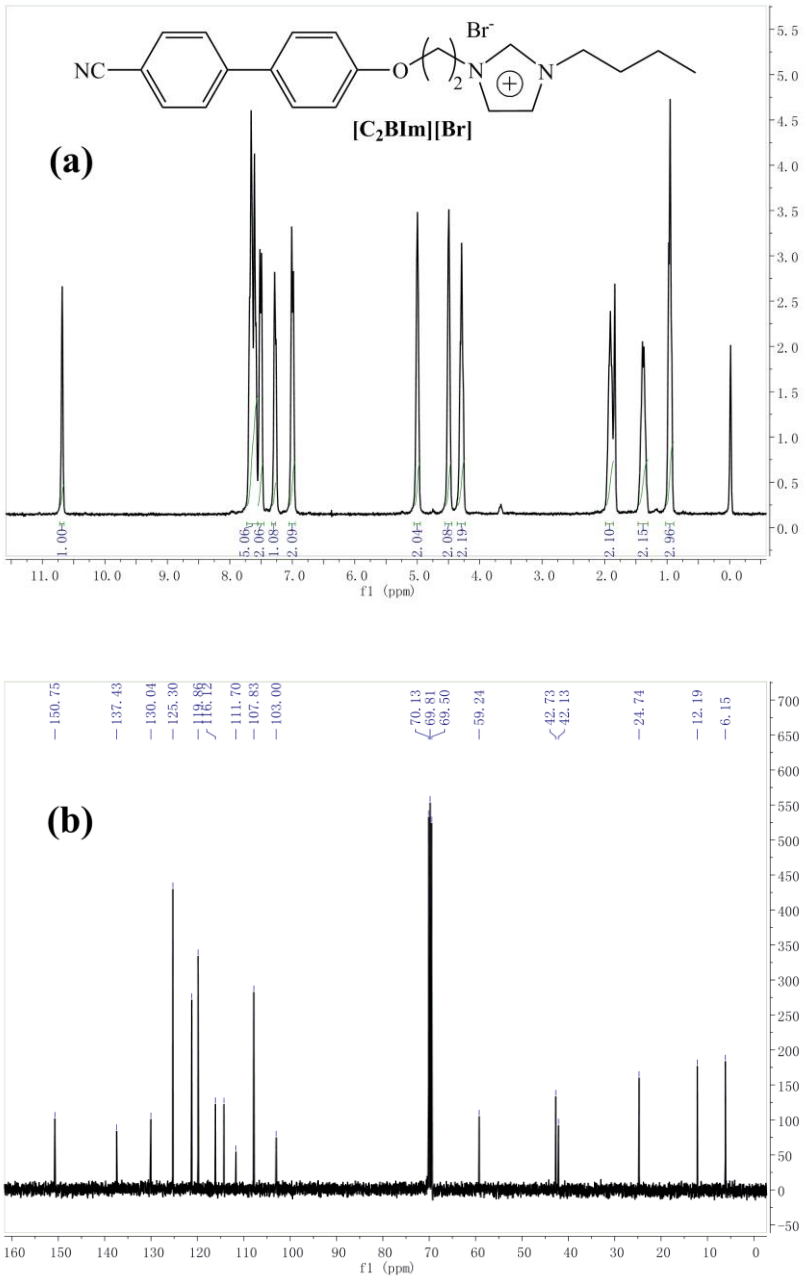

Figure S1. Full (a) ^{1}H- and (b) ^{13}C-NMR spectra for [C_2BIm][Br].

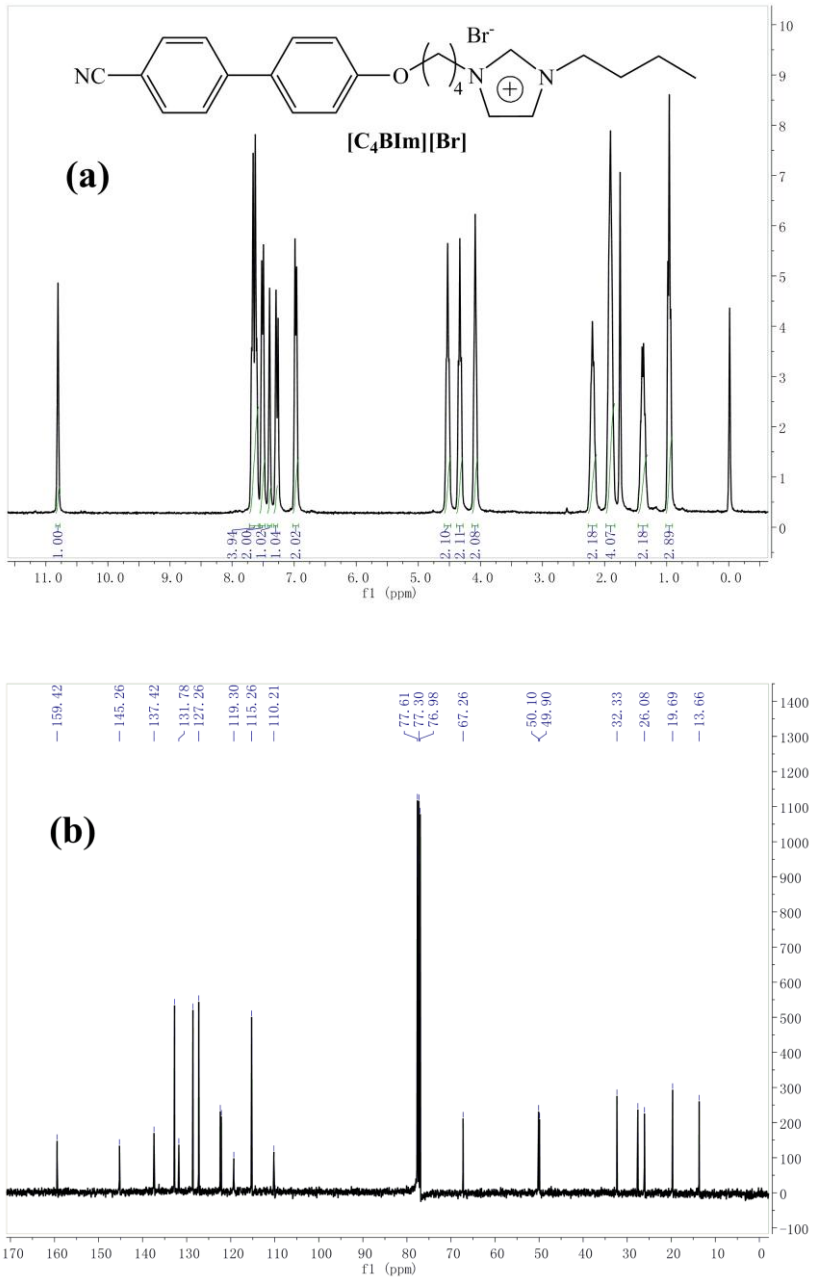

Figure S2. Full (a) ^{1}H- and (b) ^{13}C-NMR spectra for [C_4BIm][Br].

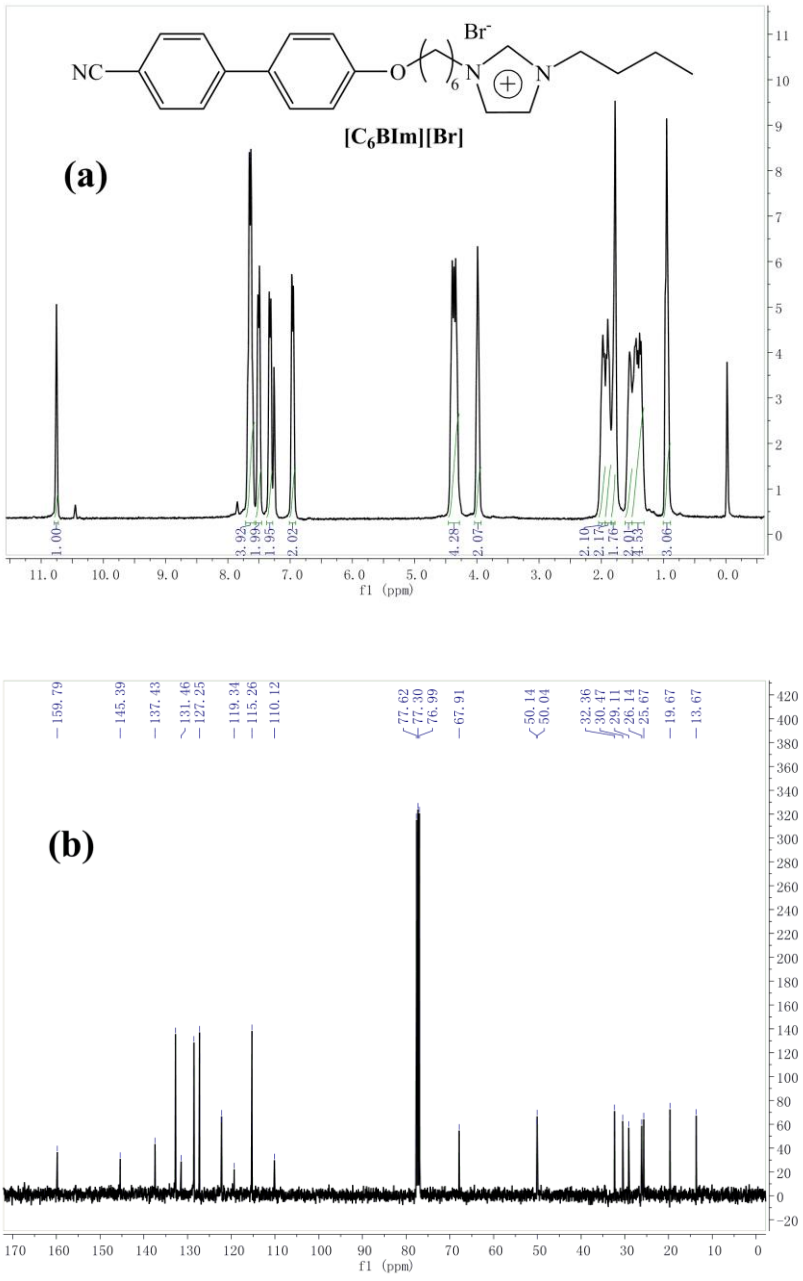

Figure S3. Full (a) ^{1}H- and (b) ^{13}C-NMR spectra for [C_6BIm][Br].

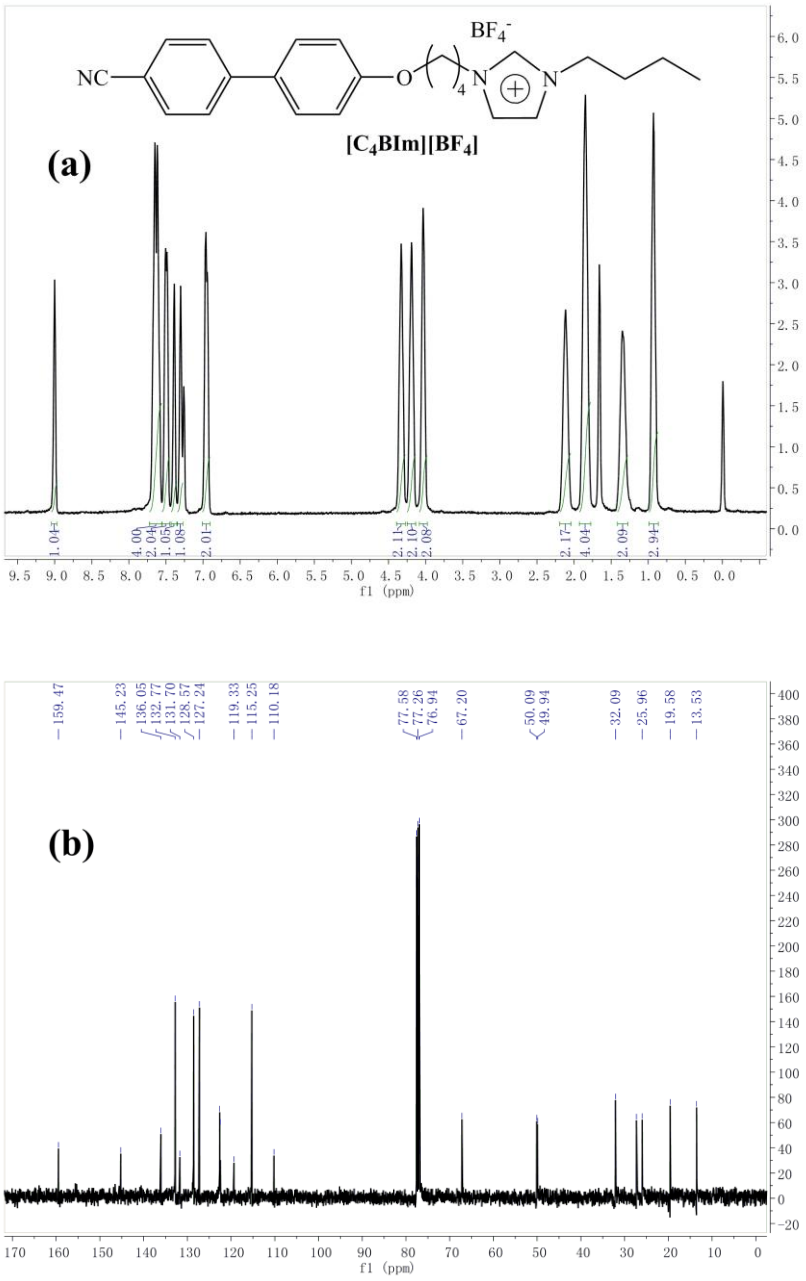

Figure S4. Full (a) ^{1}H- and (b) ^{13}C-NMR spectra for [C_4BIm][BF_4].

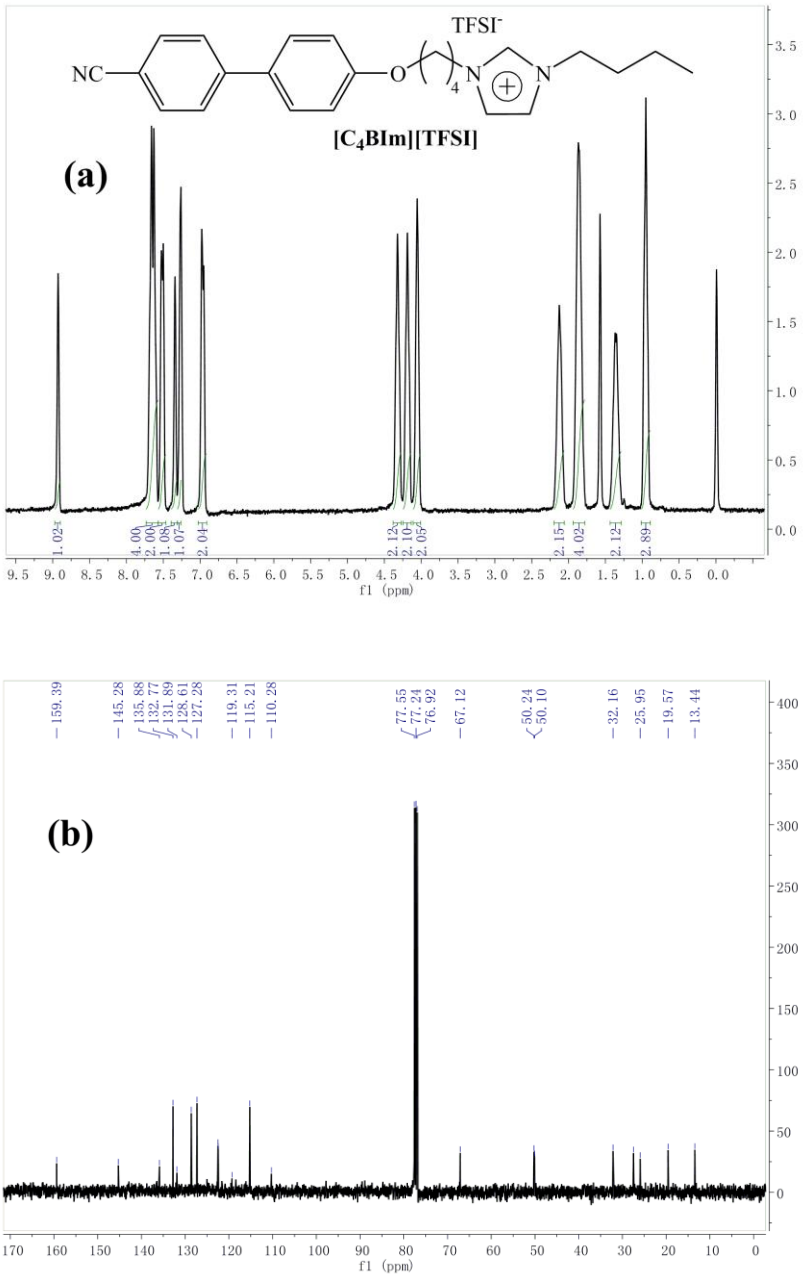

Figure S5. Full (a) ^{1}H- and (b) ^{13}C-NMR spectra for [C_4BIm][TFSI].

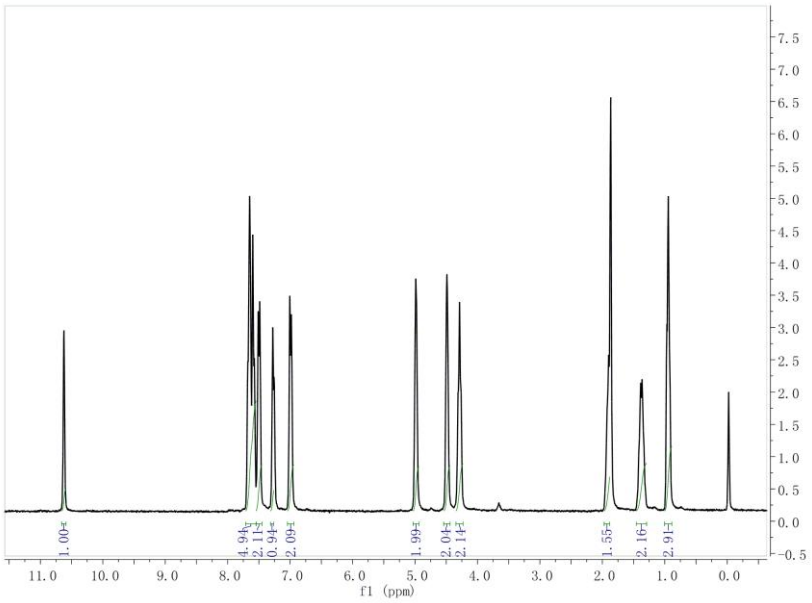

Figure S6. Full ^{1}H-NMR spectra for [C_2BIm][Br] after be heated at 150 °C for 0.5 h under a N_2 atmosphere.

Table S1. Device performances of DSSCs with different electrolytes at 55 °C under different sun light intensity illumination.

Device	Electrolytes[a]	J_{sc} [mA/cm^2]	V_{oc} [V]	FF	PCE [%]	Light Intensity [mW/cm^2]
I	EMII/I_2	10.89	0.575	0.626	3.92	100
		6.35	0.557	0.690	4.88	50
		1.69	0.527	0.717	4.26	15
II	EMII/I_2/[C_2BIm][Br]	13.88	0.536	0.581	4.33	100
		8.20	0.502	0.623	5.13	50
		2.08	0.467	0.681	4.41	15
III	EMII/I_2/[C_4BIm][Br]	14.57	0.568	0.617	5.11	100
		8.52	0.554	0.679	6.41	50
		2.22	0.522	0.711	5.49	15
IV	EMII/I_2/[C_6BIm][Br]	14.41	0.561	0.614	4.96	100
		8.45	0.546	0.668	6.16	50
		2.20	0.519	0.705	5.37	15
V	EMII/I_2/[C_4BIm][BF_4]	14.33	0.542	0.592	4.60	100
		8.39	0.534	0.645	5.78	50
		2.18	0.495	0.702	5.05	15
VI	EMII/I_2/[C_4BIm][TFSI]	14.08	0.540	0.588	4.47	100
		8.27	0.522	0.636	5.49	50
		2.10	0.489	0.691	4.73	15

[a] 20 wt% [C_nBIm][X] doped EMII electrolytes containing 0.1 M I_2.