Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

High Brightness Solution-Processed OLEDs Employing Linear, Small Molecule Emitters

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Supporting Information

Figure S1: Thermogravimetric analysis of **Green 1**.

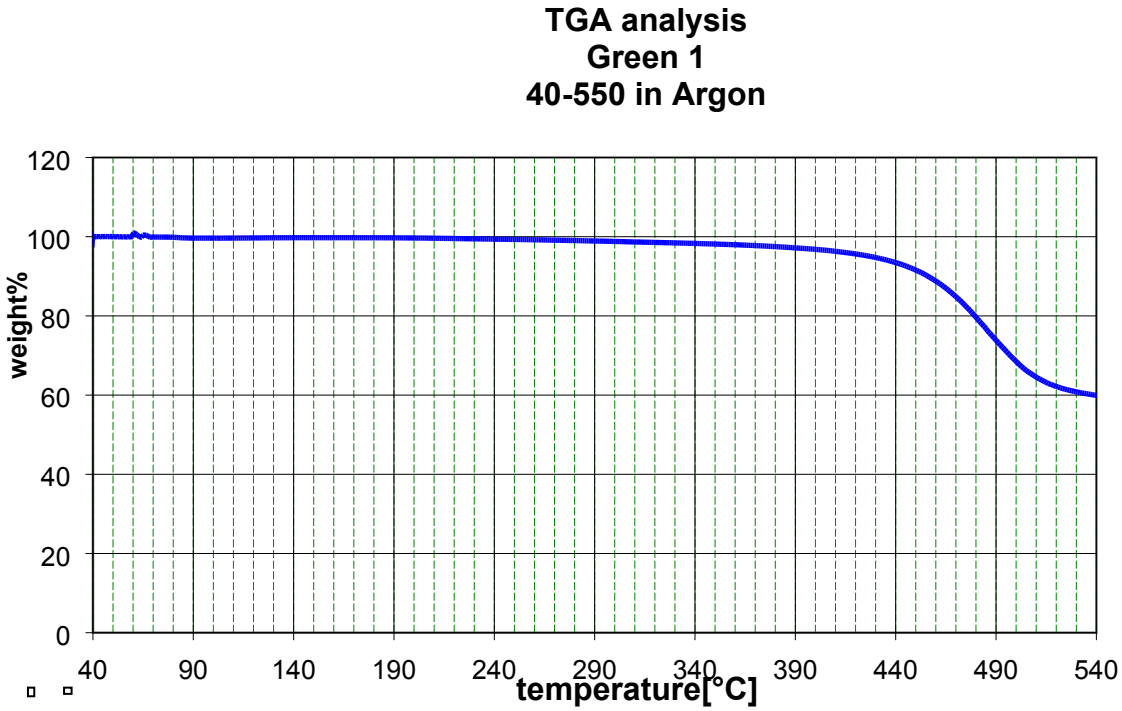

Figure S2: Thermogravimetric analysis of **Green 2**.

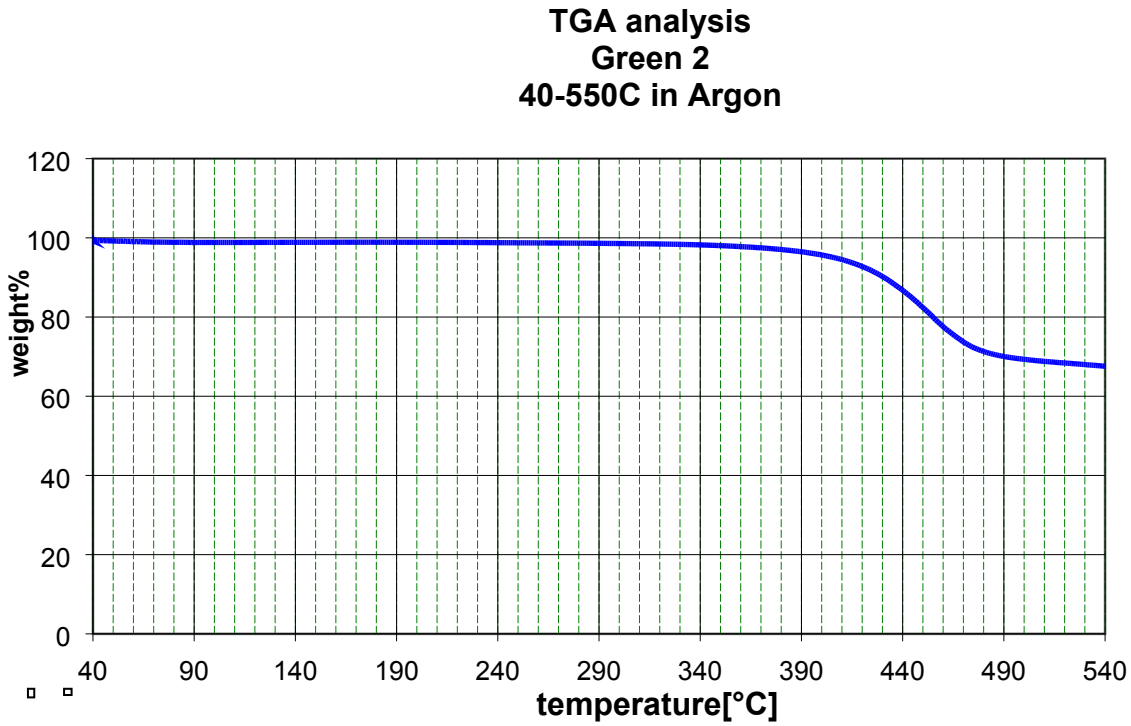

Figure S3: Differential scanning calorimetry of **Green 1**.

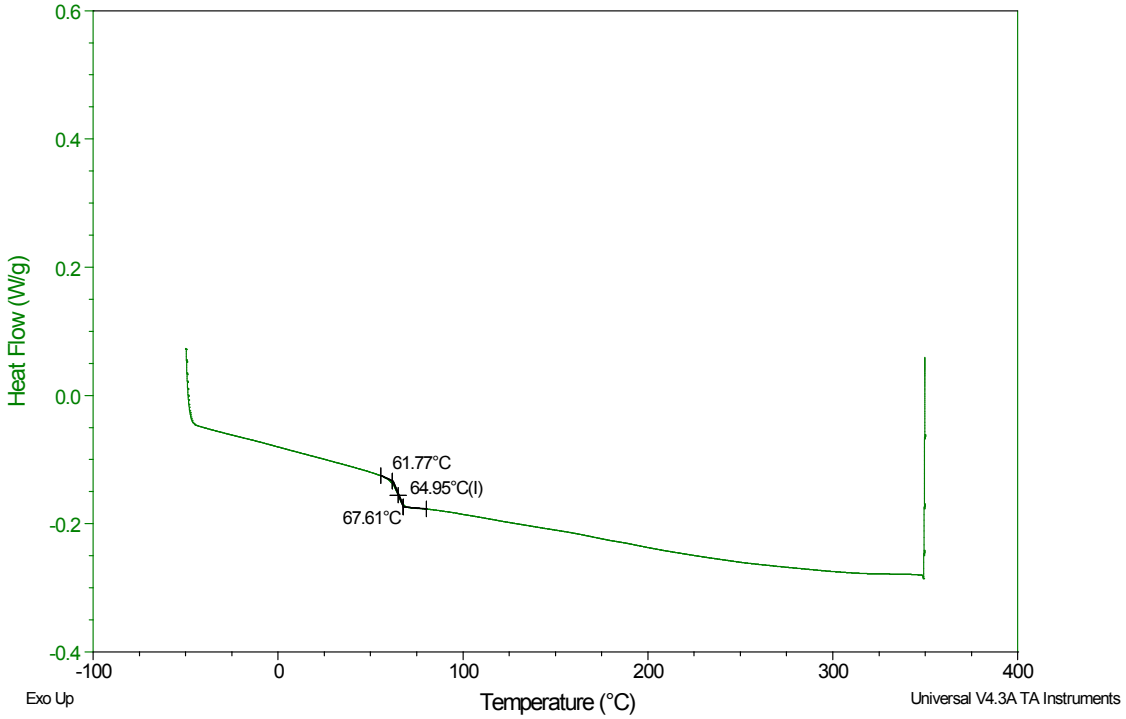

Figure S4: Differential scanning calorimetry of **Green 2**.

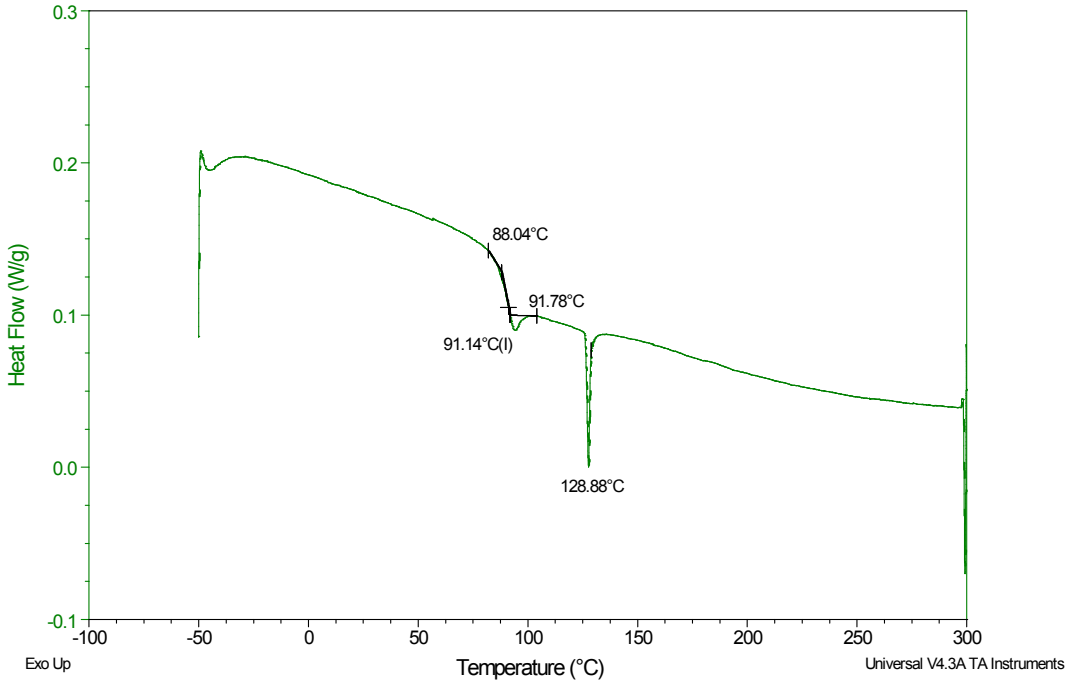

Figure S5: Oxidation profile of **Green 1** in dichloromethane (10^{-4} M), using a glassy carbon, platinum wire and Ag wire as the working, counter and pseudo-reference electrodes respectively, with $(nBu)_4PF_6$ as the electrolyte in dichloromethane solution (0.1 M) at a scan rate of 100 mV/s. The data were referenced to the Fc/Fc^+ redox couple, which has a HOMO of -4.8 eV.

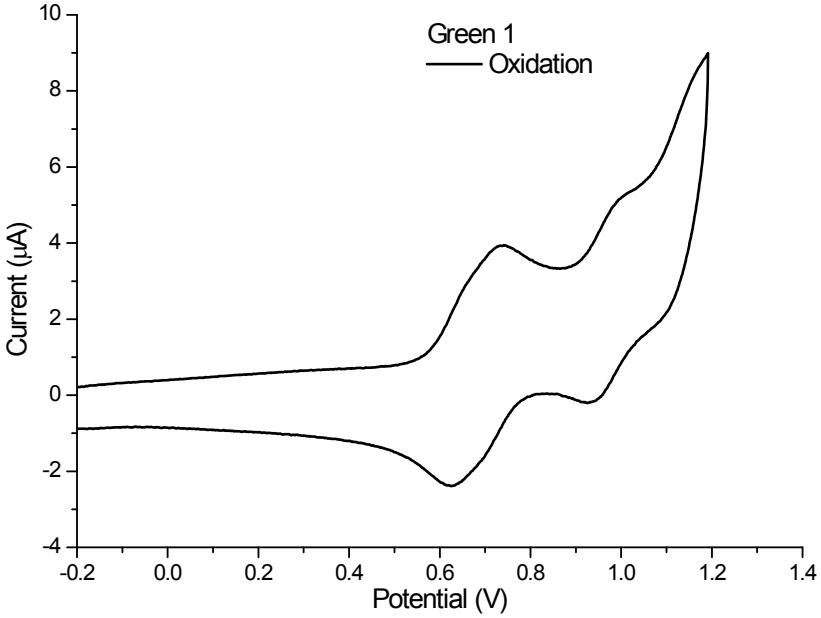

Figure S6: Reduction profile of **Green 1** in dichloromethane (10^{-4} M), using a glassy carbon, platinum wire and Ag wire as the working, counter and pseudo-reference electrodes respectively, with $(nBu)_4PF_6$ as the electrolyte in dichloromethane solution (0.1 M) at a scan rate of 100 mV/s. The data were referenced to the Fc/Fc^+ redox couple, which has a HOMO of -4.8 eV.

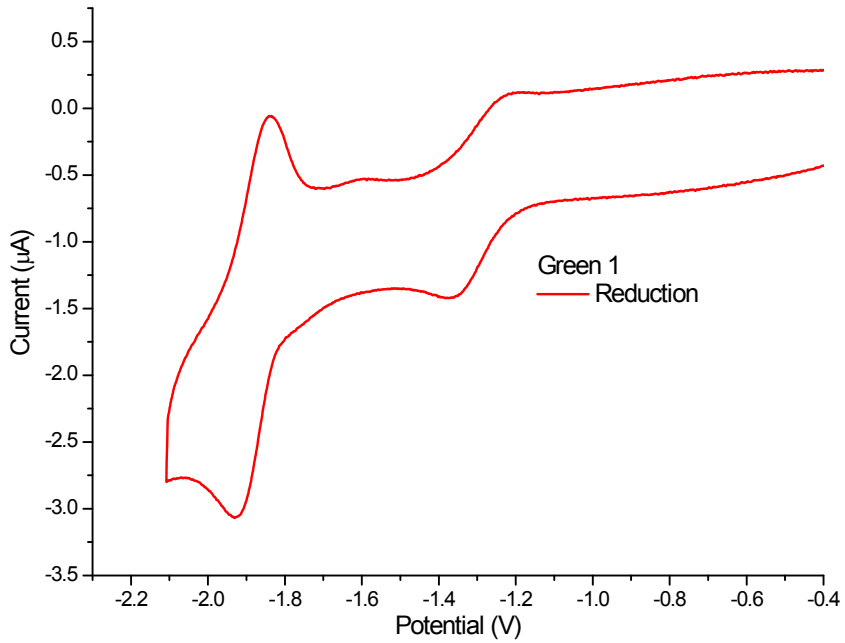

Figure S7: Oxidation profile of **Green 2** in dichloromethane (10^{-4} M), using a glassy carbon, platinum wire and Ag wire as the working, counter and pseudo-reference electrodes respectively, with $(nBu)_4PF_6$ as the electrolyte in dichloromethane solution (0.1 M) at a scan rate of 100 mV/s. The data were referenced to the Fc/Fc^+ redox couple, which has a HOMO of -4.8 eV.

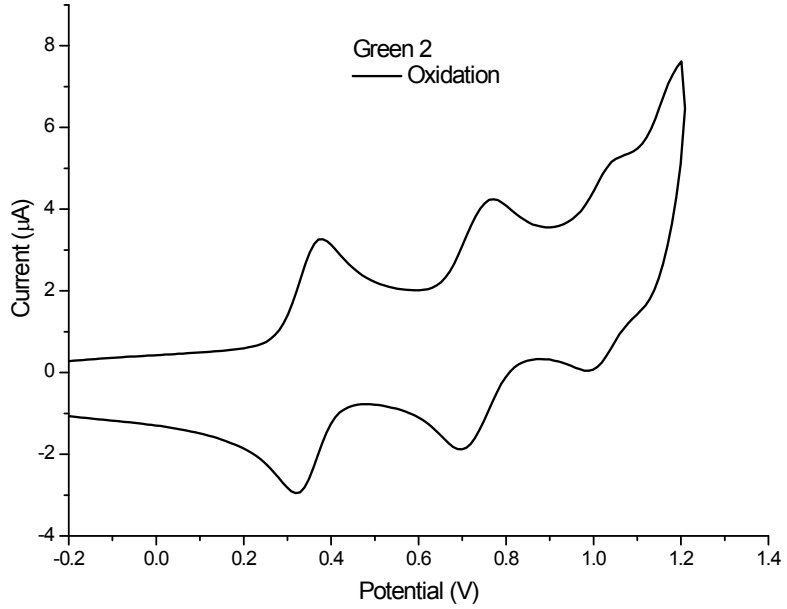

Figure S8: Reduction profile of **Green 2** in dichloromethane (10^{-4} M), using a glassy carbon, platinum wire and Ag wire as the working, counter and pseudo-reference electrodes respectively, with $(nBu)_4PF_6$ as the electrolyte in dichloromethane solution (0.1 M) at a scan rate of 100 mV/s. The data were referenced to the Fc/Fc^+ redox couple, which has a HOMO of -4.8 eV.

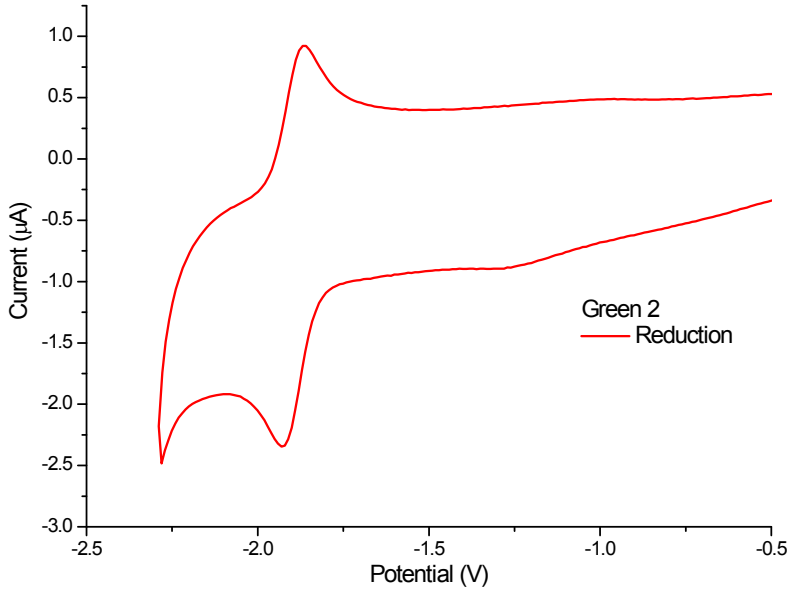

Figure S9: schematic energy level diagram of **Green 1** and **Green 2** device architectures.

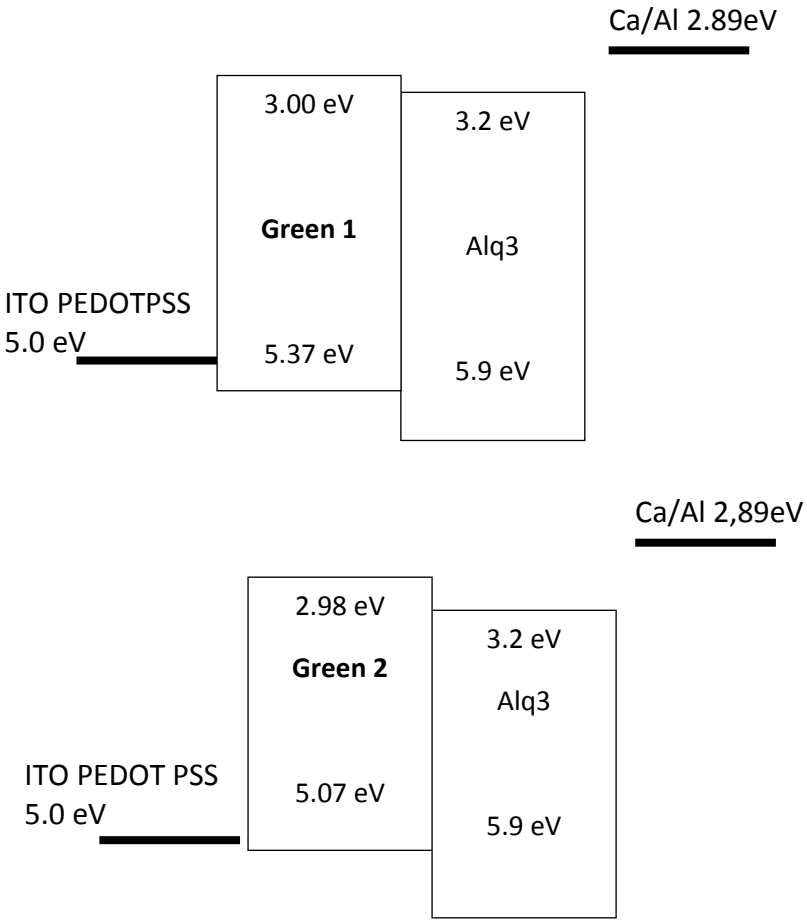

Figure S10: log - log plot of JV characteristics of **Green 1** and **Green 2** devices.

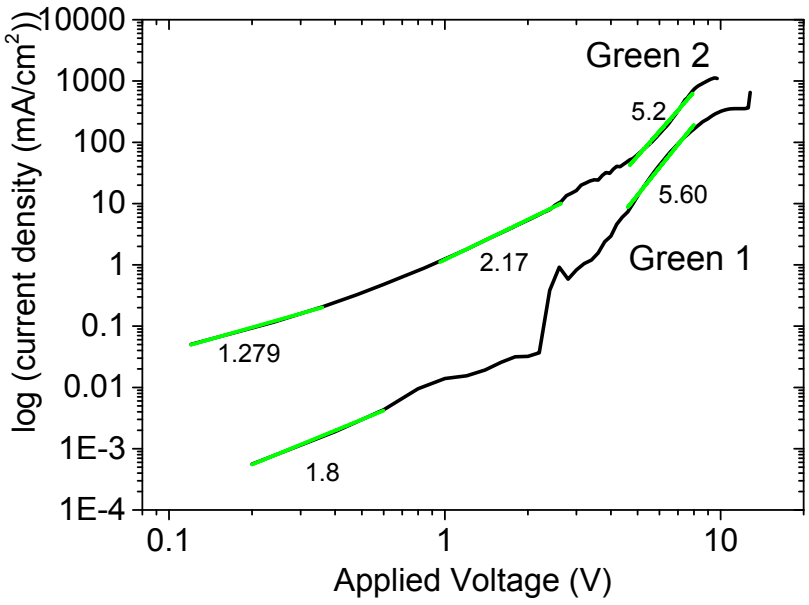

Figure S11: Current density – voltage - electroluminescence (JVL) characteristics of unannealed and annealed **Green 1** with device architectures of ITO/PEDOT-PSS/**Green1/** Ca/Al.

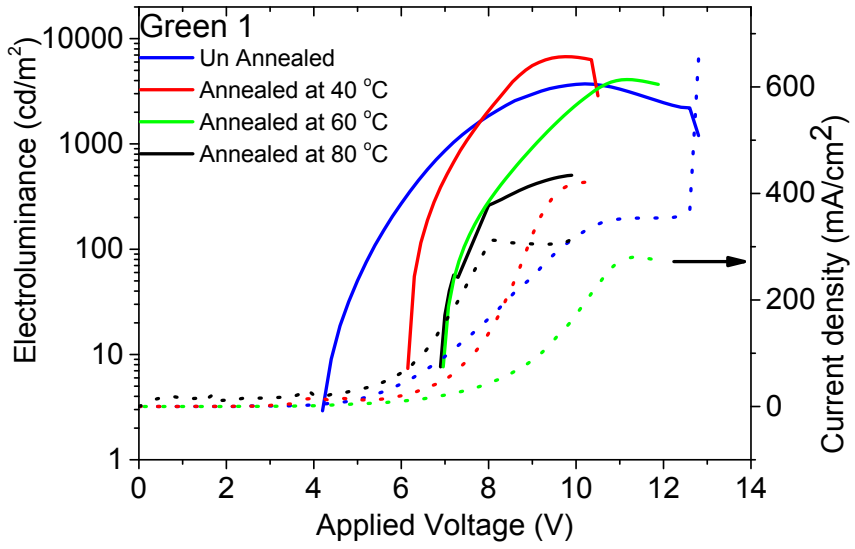

Figure S12: Current density – voltage - electroluminescence (JVL) characteristics of of unannealed and annealed **Green 2** with device architectures of ITO/PEDOT-PSS/**Green2**/Ca/Al.

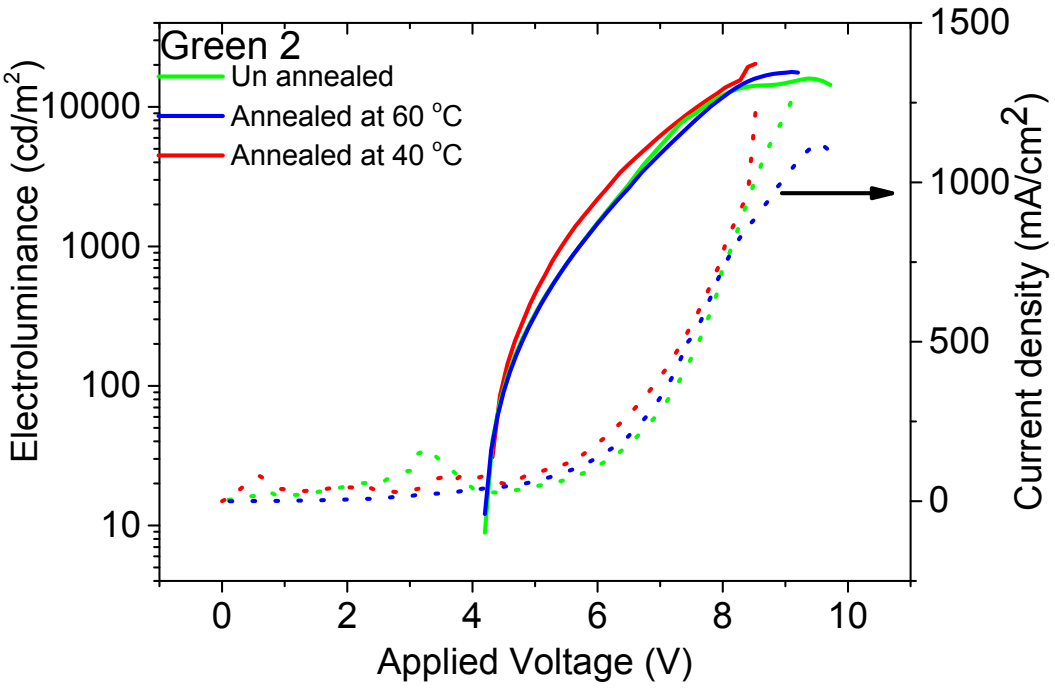

Figure S13a: Current efficiency – voltage characteristics of unannealed and annealed **Green 1** devices with device architectures of ITO/PEDOT-PSS/**Green1**/Ca/Al.

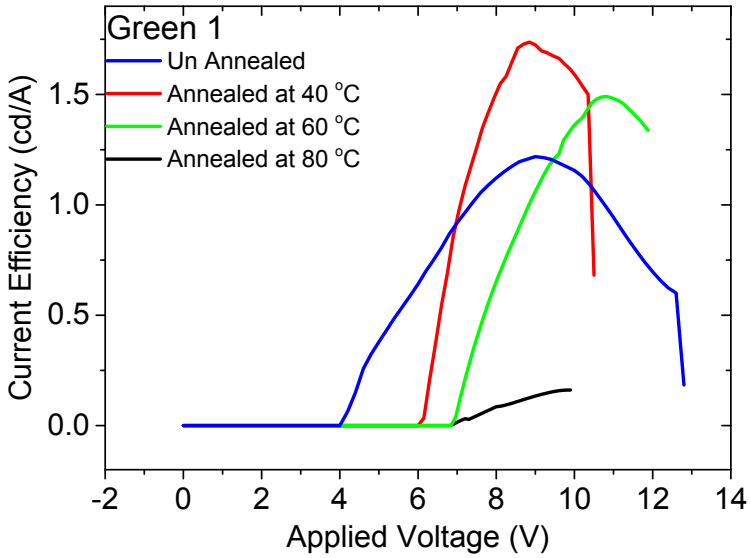

Figure S13b: External quantum efficiency (EQE) – current density characteristics of un-annealed and annealed **Green 1** devices with device architectures of ITO/PEDOT-PSS/**Green 1**/Ca/Al.

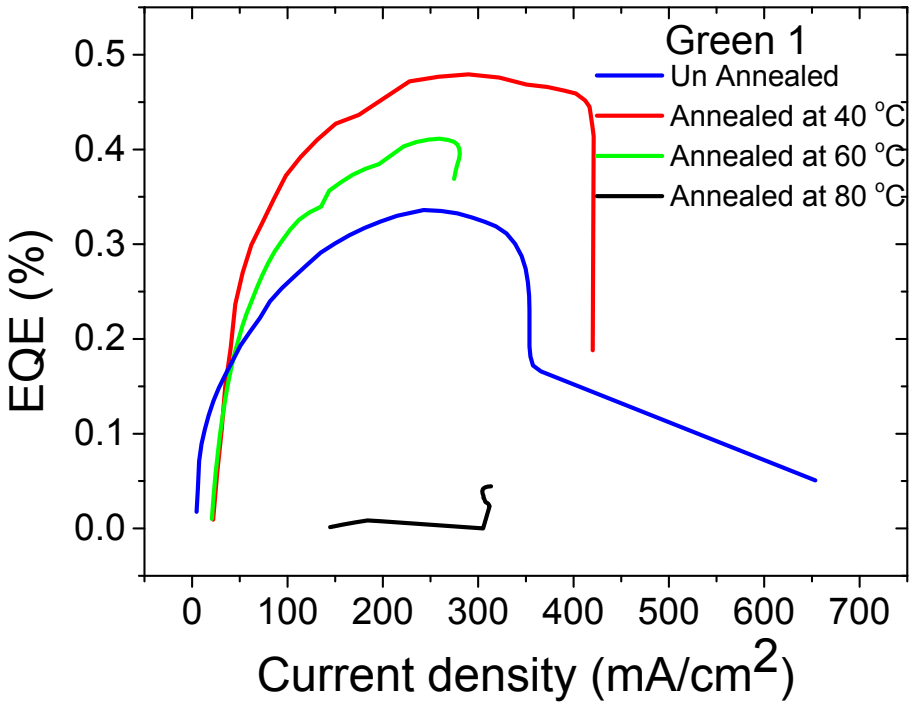

Figure S14a: Current efficiency – voltage characteristics of unannealed and annealed **Green 2 d**evices with device architectures of ITO/PEDOT-PSS/**Green2**/Ca/Al.

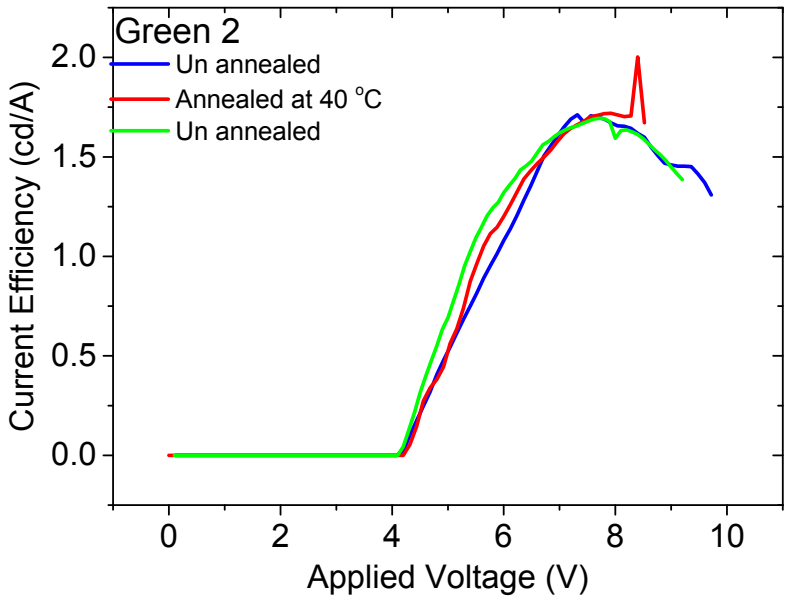

Figure S14b: External quantum efficiency (EQE) – current density characteristics of unannealed and annealed **Green 2** devices with device architectures of ITO/PEDOT-PSS/**Green 2**/Ca/Al.

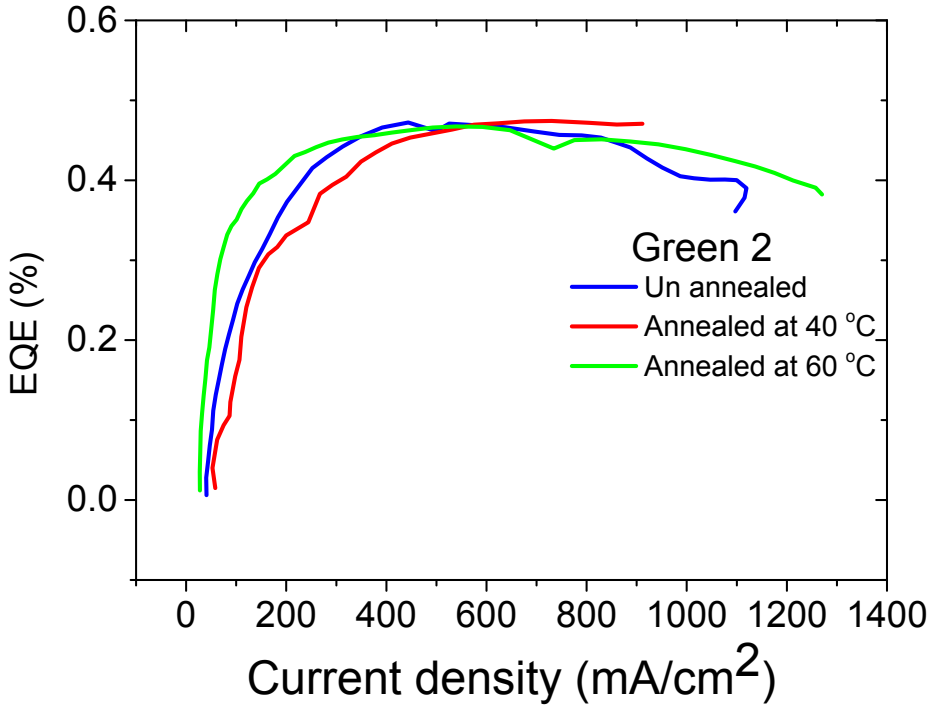

Figure S15: Current density – voltage - electroluminescence (JVL) characteristics of **Green 1** and **Green 2** with device architectures of ITO/PEDOT-PSS/**Green/Alq3**/Ca/Al.

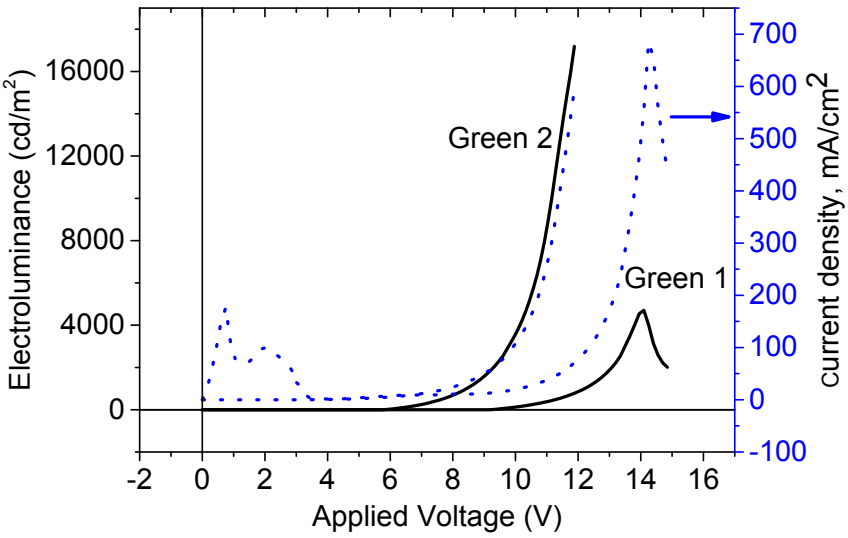

Figure S16a: Current efficiency – voltage characteristics of **Green 1** and **Green 2** with device architectures of ITO/PEDOT-PSS/**Green/Alq3**/Ca/Al.

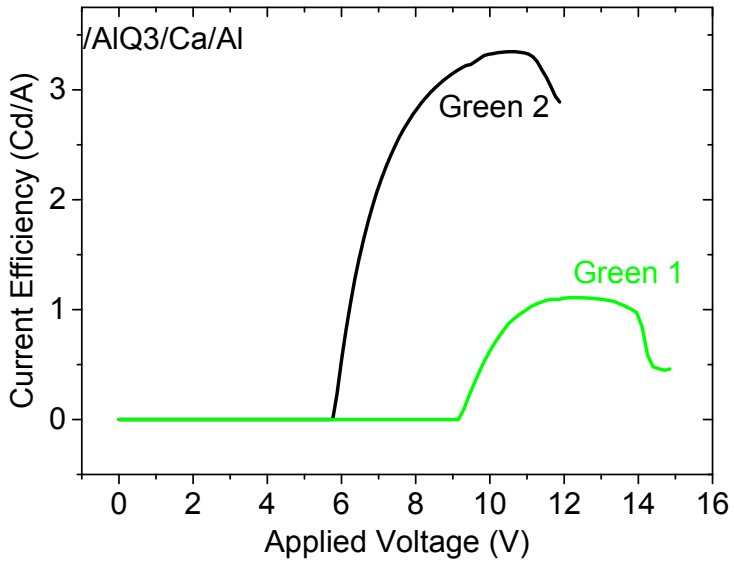

Figure S16b: External quantum efficiency (EQE) – current density characteristics of **Green 1** and **Green 2** with device architectures of ITO/PEDOT-PSS/**Green**/Alq3/Ca/Al.

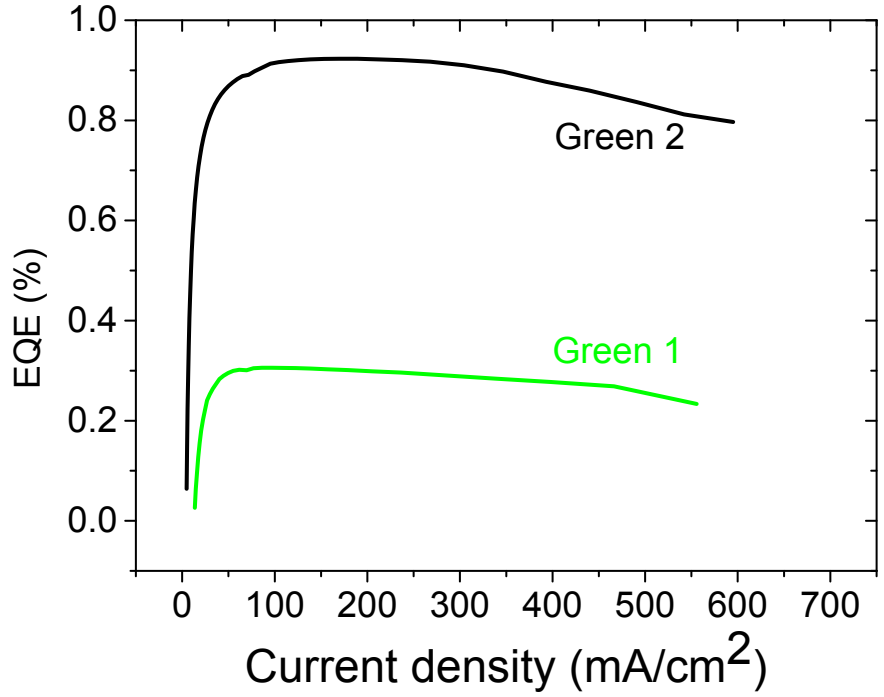

Table S1: Summary of absolute PLQY values (solid state) and CIE coordinates for **Green 1** and **Green 2** devices (ITO/PEDOT-PSS/**Green**/Ca/Al). PLQY recorded at excitation wavelengths of 346 and 365 nm for **Green 1** and **Green 2**, respectively.

Material	PLQY	CIE
Green1	90.4%	X = 0.424; Y = 0.555; Z = 0.021
Green 2	73.7%	X = 0.432; Y = 0.552; Z = 0.016

Table S2: Summary of maximum luminance vs annealing temperature for **Green 1** and **Green 2** devices with the device architecture of ITO/PEDOT-PSS/**Green 1** or **2**/**Alq3**/Ca/Al, with annealing at 40 °C.

Material	Turn on at 10 cd/m^2 (V)	Maximum Luminance (cd/m^2)	Maximum current efficiency (cd/A)	Maximum EQE (%)
Green1	9.27	4702 @ 14.10 V	1.11 @ 12.18 V	0.31 @ 12.15 V
Green 2	5.87	17189@ 11.9 V	3.47 @ 10.68 V	0.92 @ 10.68 V

Figure S17: 1H NMR spectrum of **Green 1**.

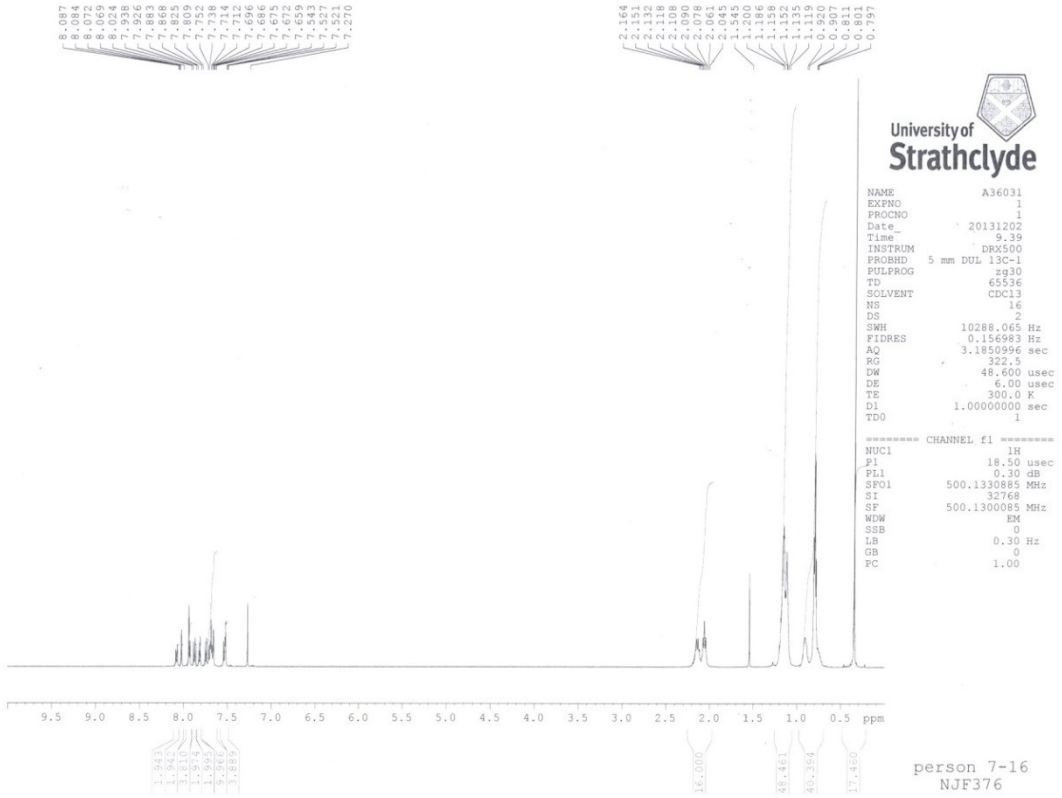

Figure S18: 1H NMR spectrum of **Green 2**.

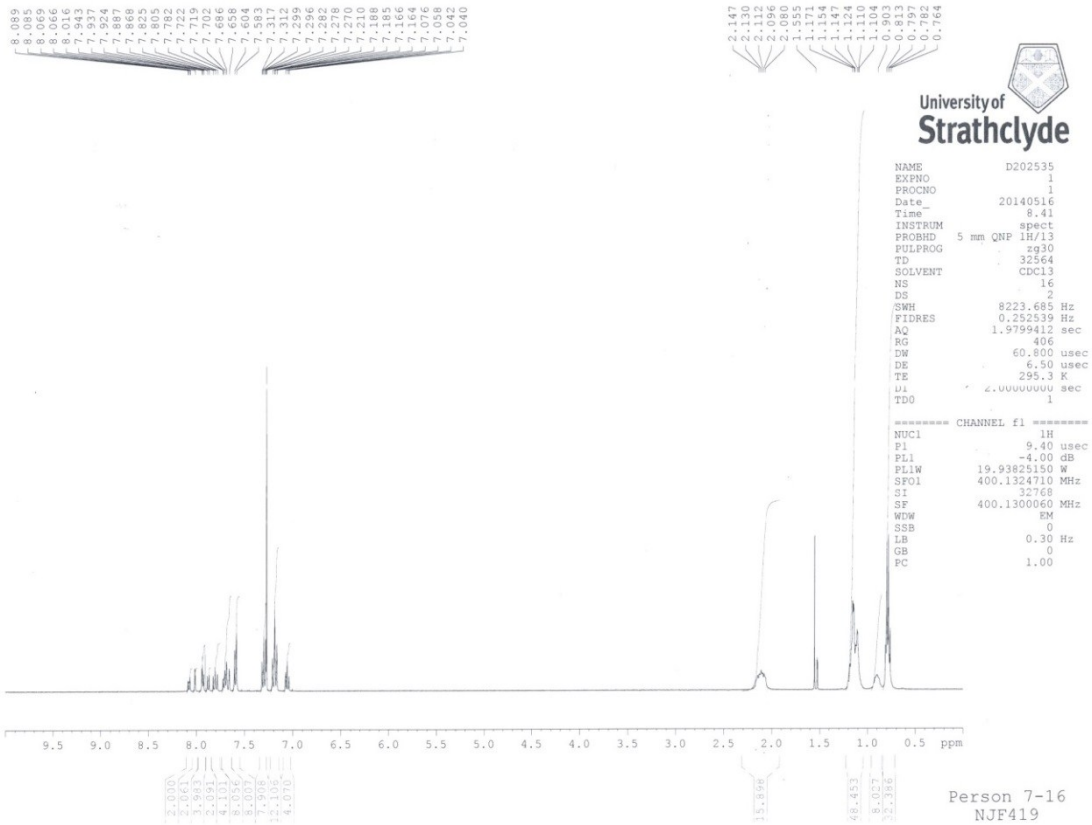

Figure S19: 1H NMR spectrum of compound **3**.