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

Supporting Information

Solution-processed dendrimer-based bis-tridentate iridium(III) complexes with red, green, and blue phosphorescence for white OLEDs

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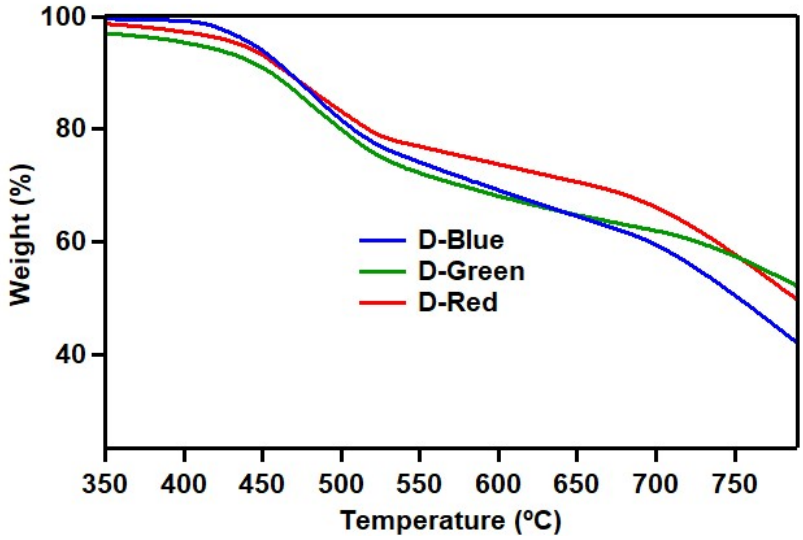


Figure S1. TGA traces for **D-Blue**, **D-Green**, and **D-Red**.

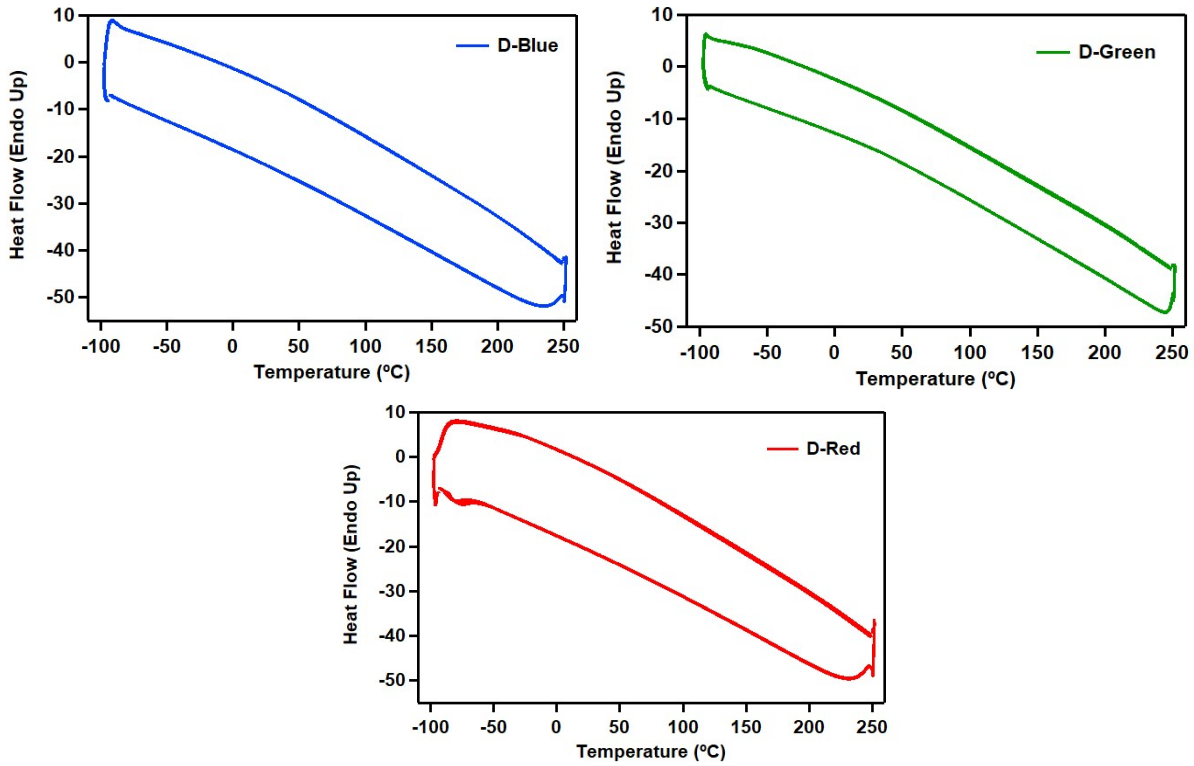


Figure S2. DSC traces for **D-Blue**, **D-Green**, and **D-Red** between -100 °C and 250 °C with a heating and cooling rate of 200 °C min^{-1}.

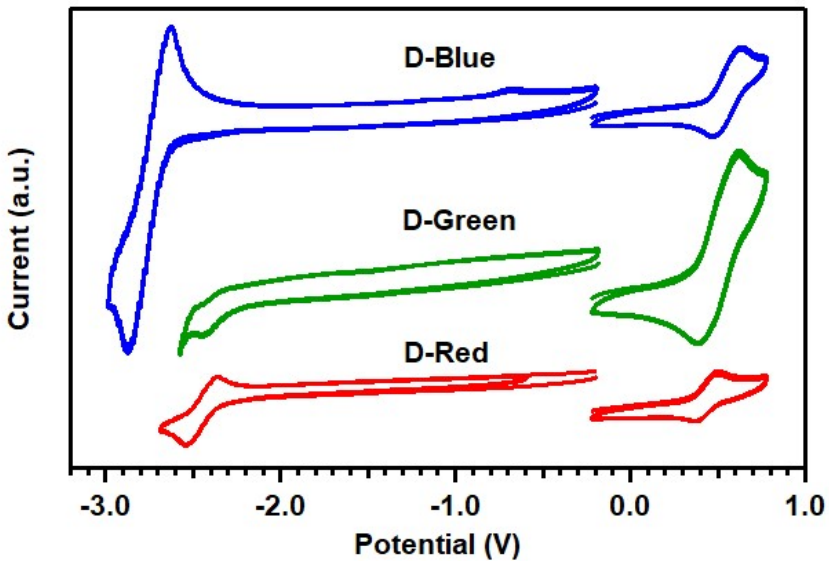


Figure S3. Cyclic Voltammograms of **D-Blue**, **D-Green**, and **D-Red** in dichloromethane (oxidations) and tetrahydrofuran (reductions) in the presence of 0.1 M tetra-*n*-butylammonium perchlorate at room temperature. The potentials are referenced to the ferrocene/ferrocenium couple.

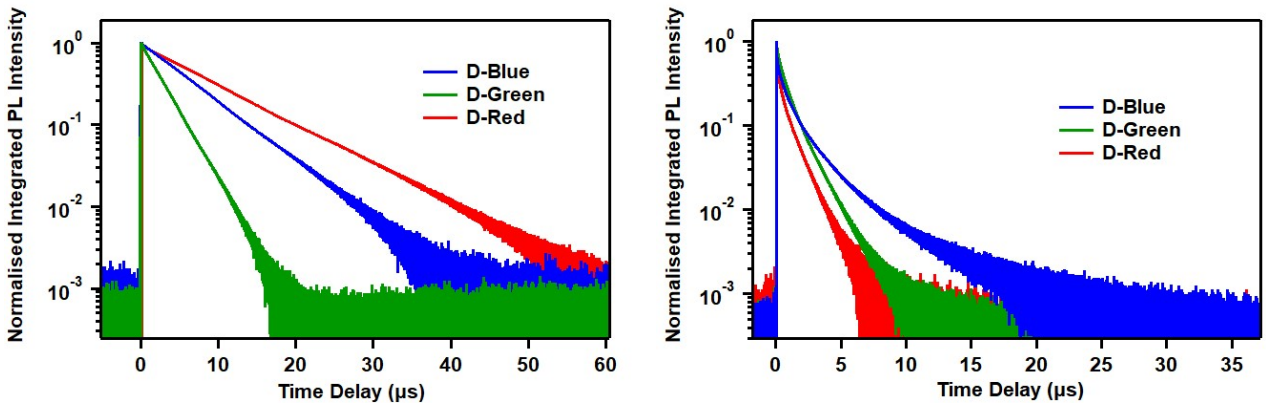


Figure S4. PL decay curves for the dendrimers in solution (deoxygenated toluene – left) and neat film (right).

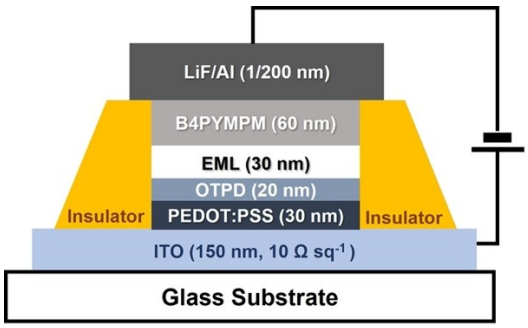


Figure S5. Schematic of the OLED architecture.

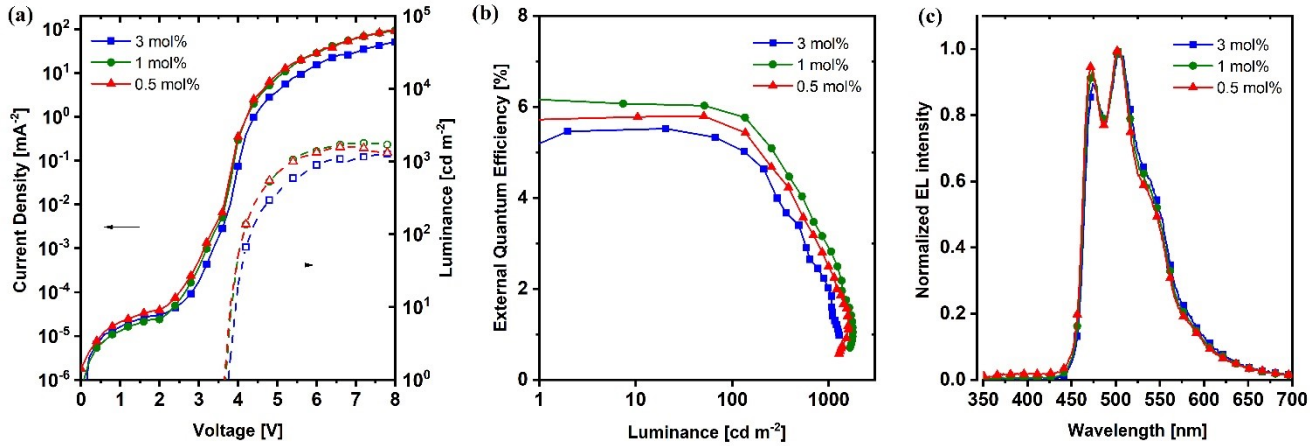


Figure S6. Electroluminescence (EL) characteristics of OLEDs composed of **D-Blue**:bis(*N*-carbazolyl)benzene (MCP) blended films with different guest concentrations. (a) Current density–Voltage–Luminance (J–V–L) (b) External Quantum Efficiency (EQE) *versus* Luminance (c) EL spectra.

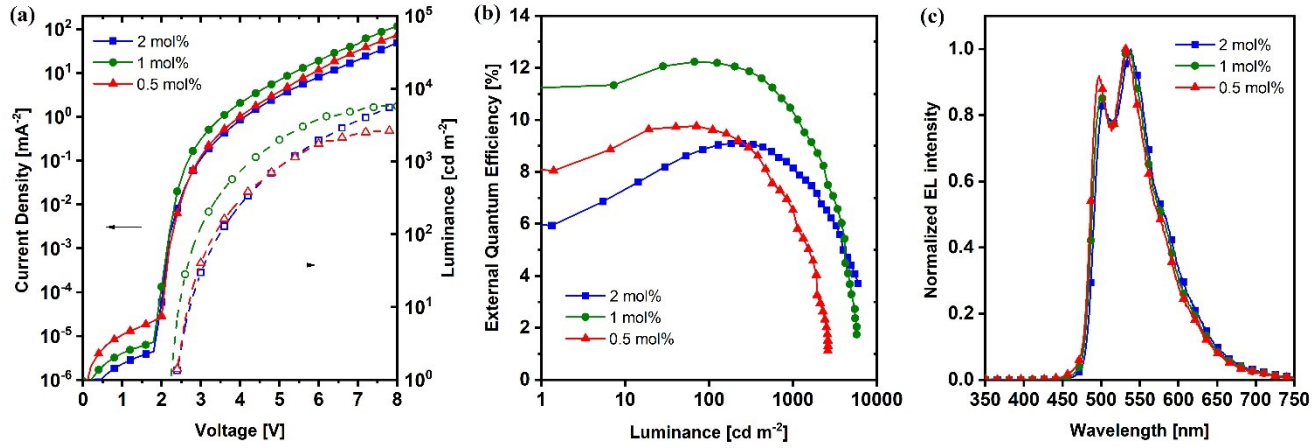


Figure S7. EL characteristics of OLEDs composed of **D-Green**:TCTA blended films with different guest concentrations. (a) J–V–L (b) EQE *versus* Luminance (c) EL spectra.

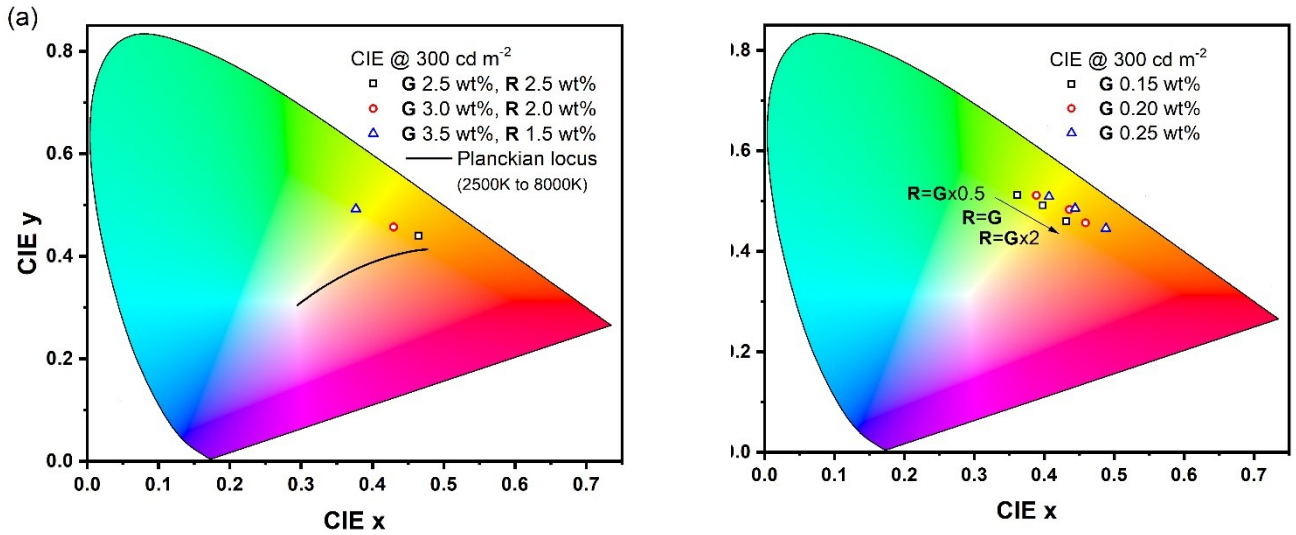
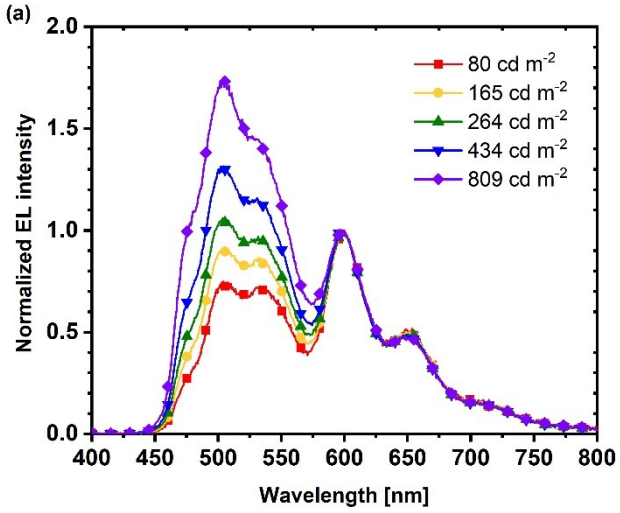
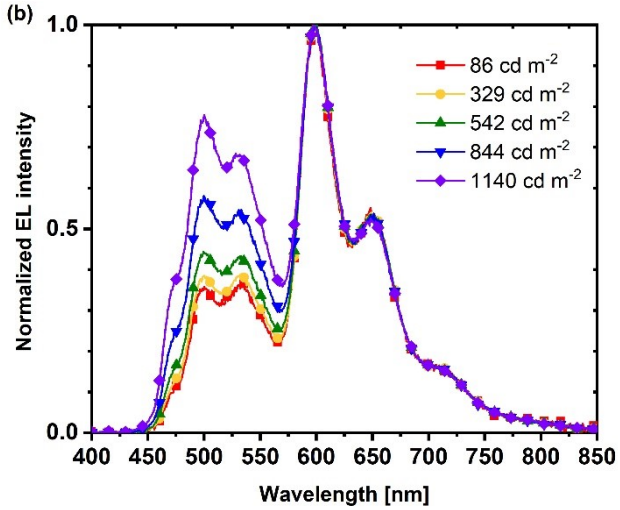


Figure S8. (a) CIE 1931 colour coordinates of host-free WOLEDs with different concentrations of **D-Green** and **D-Red** to **D-Blue** (b) CIE 1931 colour coordinates of 1 mol% guest:TCTA WOLEDs with the relative concentrations of **D-Green** and **D-Red** varied and the amount of **D-Blue** changed to ensure that total guest concentration in the blend films was the same.


(a)
Normalized EL intensity
Wavelength [nm]
80 cd m-2
165 cd m-2
264 cd m-2
434 cd m-2
809 cd m-2


(b)
Normalized EL intensity
Wavelength [nm]
86 cd m-2
329 cd m-2
542 cd m-2
844 cd m-2
1140 cd m-2

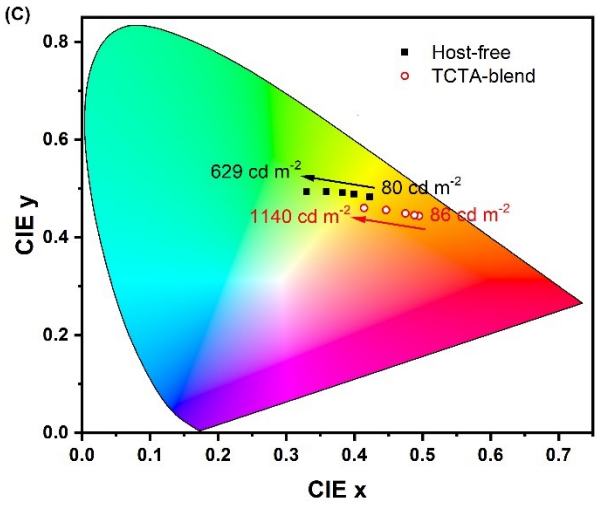

(C)
CIE y
CIE x
Host-free
TCTA-blend
629 cd m-2
80 cd m-2
1140 cd m-2
86 cd m-2

Figure S9. Changes in the EL spectra versus luminance for (a) host-free and (b) host-containing WOLEDs. The spectra were normalised at 600 nm to show the relative increase in the blue emission. (c) Changes in the CIE 1931 colour coordinates versus luminance for the two device types.