

Supporting information

Non-phosphors-doped fluorescent/phosphorescent hybrid white organic light-emitting diodes with a sandwich blue emitting layer simultaneously achieving superior device efficiency and color quality

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Section S1

ITO glass substrates were scrubbed and sonicated consecutively with detergent water, deionized water, and acetone, dried in drying cabinet, and then exposed to a UV ozone environment for 10 min. After these processes, the cleaned ITO glass substrates were loaded in a vacuum chamber, a base pressure of $\leq 5 \times 10^{-4}$ Pa, for film deposition using thermal evaporation technology. The deposition rate and film thickness were monitored controlled by the calibrated crystal quartz sensors, e.g., the deposition rates of organic materials, MoO₃, LiF, and cathode Al were controlled at about 1 Å/s, 0.3 Å/s, 0.1 Å/s, and 3–6 Å/s, respectively. Organic films for PL measurements were fabricated with the same method as device fabrication. The EL spectra and CIE coordinates of all OLEDs were measured by a computer controlled PR-655 spectra scan spectrometer. The J-V-L characteristics, CE, and PE were recorded by a computer-controlled Keithley 2400 source integrated with a BM-70A luminance meter. The EQE was calculated from the J-V-L curve and spectra data.

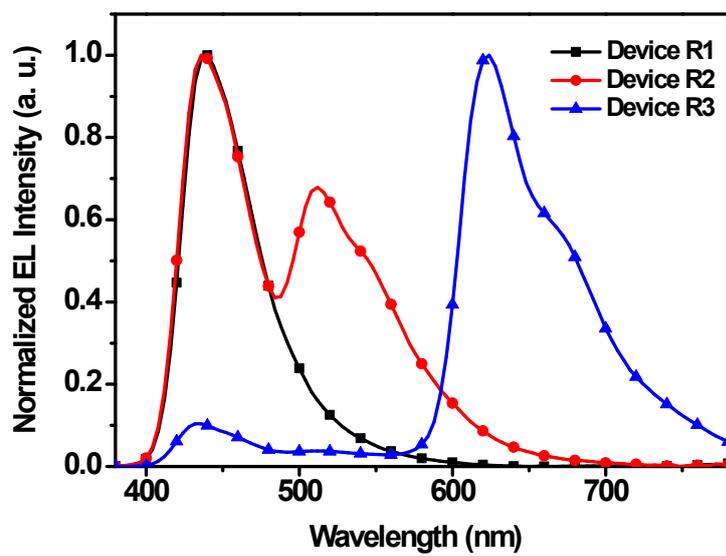


Fig. S1 The normalized EL intensity of the reference devices R1–R3 at a voltage of 5 V.