

Supplementary Materials: Two-Color Pixel Patterning for High Resolution Organic Light-Emitting Displays Using Photolithography

Yu Min Choi ¹, Han Young Shin ¹, Jongchan Son ², Chunhee Park ², Keun-Woo Park ², Jin-Kyun Lee ^{2,*} and Byung Jun Jung ^{1,*}

¹ Department of Materials Science and Engineering, University of Seoul, Seoul 02504, Republic of Korea; ccwe1001@naver.com (Y.M.C.); tlgksdud24@naver.com (H.Y.S.)

² Department of Polymer Science and Engineering, Inha University, Incheon 22212, Republic of Korea; thshwdcks1@naver.com (J.S.); nhd8991@naver.com (C.P.); rmsdn0112@naver.com (K.-W.P.)

* Correspondence: jkl36@inha.ac.kr (J.-K.L.); jungbj@uos.ac.kr (B.J.J.); Tel.: +82-32-860-7481 (J.-K.L.); +82-2-6490-2412 (B.J.J.)

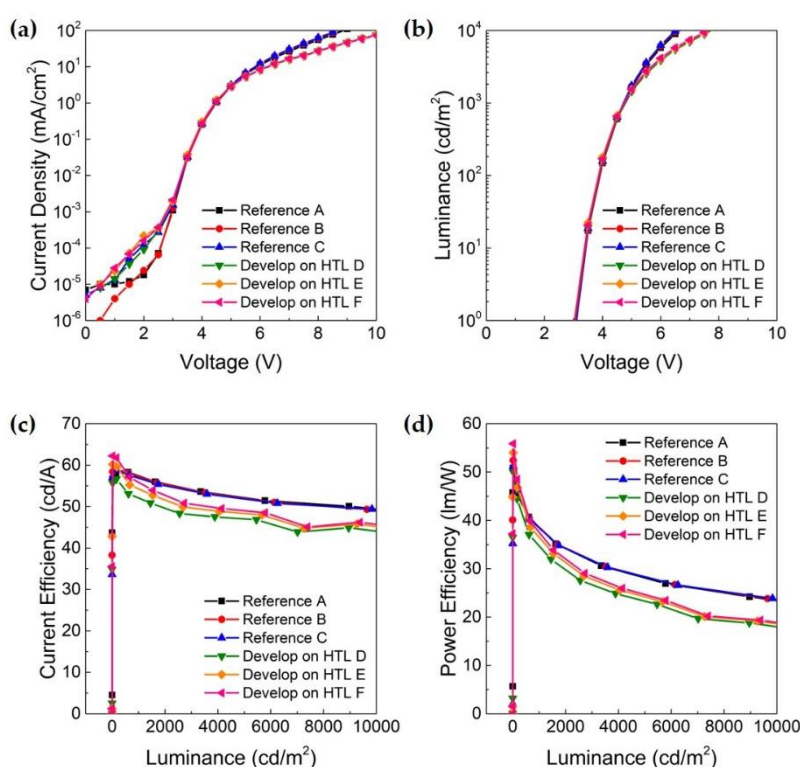


Figure S1. Additional comparison of the current-voltage-luminance (JVL) characteristics of the OLED patterned on the HTL devices and the reference devices: (a) current density-voltage; (b) luminance-voltage; (c) current efficiency-luminance; (d) power efficiency-luminance.

Table S1. Additional performance summary of reference devices and develop processed devices.

Device	Current efficiency ¹ (cd/A)	Power efficiency ¹ (lm/W)	External quantum efficiency ¹ (%)	Driving voltage ¹ (V)	Turn on voltage ² (V)
Reference A	57.4	38.6	16.5	4.7	3.0
Reference B	57.3	39.0	16.4	4.7	3.0
Reference C	57.0	38.5	16.3	4.7	3.0
Develop on HTL D	52.1	34.7	15.0	4.7	3.0
Develop on HTL E	54.3	36.5	15.6	4.7	3.0
Develop on HTL F	55.9	37.6	16.0	4.7	3.0

¹ at 1000 nit, ² at 1 nit.

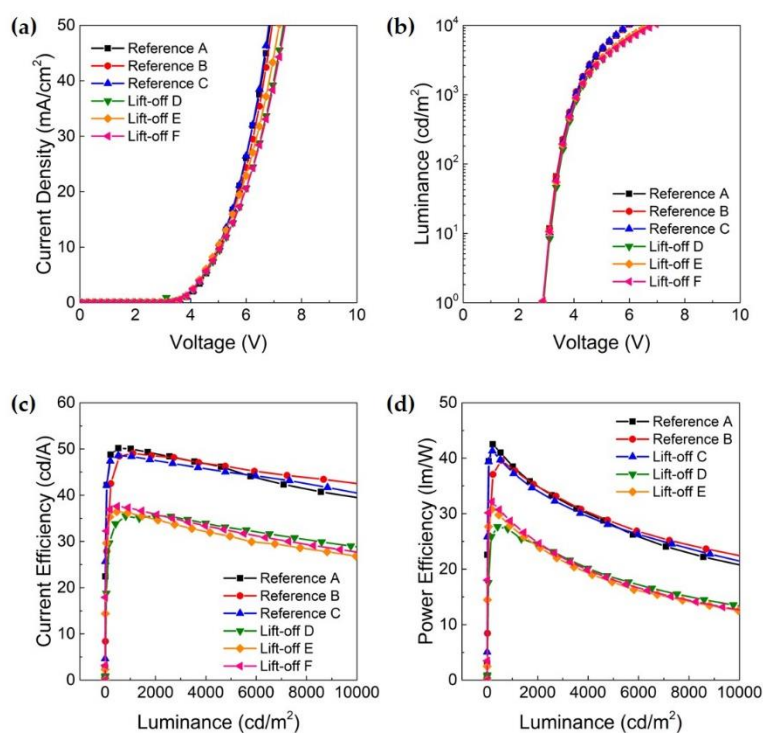


Figure S2. Additional comparison of the current-voltage-luminance (JVL) characteristics of the OLED subjected to the lift-off process devices and the non-processed reference devices: (a) current density-voltage; (b) luminance-voltage; (c) current efficiency-luminance; (d) power efficiency-luminance.

Table S2. Additional performance summary of reference devices and lift-off devices (slight different conditions for exposure time and stripper concentration).

Device (exposure time at 20 mW/cm², stripper concentration)	Current efficiency ¹ (cd/A)	Power efficiency ¹ (lm/W)	External quantum efficiency ¹ (%)	Driving voltage ¹ (V)	Turn on voltage ² (V)
Reference A	50.0	38.6	14.5	4.0	2.8
Reference B	49.0	38.6	14.6	4.1	2.9
Reference C	48.4	37.5	14.1	4.1	2.9
Lift-off D (30s exposure, 3.0%(v/v))	35.3	26.7	10.3	4.2	2.9
Lift-off E (30s exposure, 2.5%(v/v))	36.1	27.5	10.5	4.1	2.8
Lift-off F (50s exposure, 3.0%(v/v))	37.2	28.4	11.0	4.1	2.9

¹ at 1000 nit, ² at 1 nit.