Supporting Information

White perovskite light-emitting diodes with a perovskite emission layer blended with Rhodamine 6G

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Figure S1. (a,b) Absorption spectra and (c) normalized photoluminescence spectra of Rhodamine 6G solutions and a Rhodamine 6G film. The magnified absorption spectrum of 10⁻⁷ M Rhodamine 6G solution is shown in (b).



Figure S2. Cross-sectional SEM images and XPS mapping images of MAPb(Br_{0.6}Cl_{0.4})₃ films with Rhodamine 6G of (a,b) 0 wt%, (c,d) 1 wt%, (e,f) 2 wt%, and (g,h) 3 wt%.



Figure S3. (a) Current density-voltage, (b) external quantum efficiency-voltage, (c) luminance-voltage, and (d) current efficiency-voltage curves.



Figure S4. (a,d) Electroluminescence spectra, (b,e) enlarged electroluminescence spectra, and CIE coordinates of the diodes with Rhodamine 6G of (a-c) 0 wt% and (d-f) 1 wt%.



Figure S5. Normalized electroluminescence spectra of the diodes with Rhodamine 6G of (a) 2 wt% and (b) 3 wt%.



Figure S6. (a) Current density-voltage, (b) external quantum efficiency-voltage, (c) luminance-voltage, and (d) current efficiency-voltage curves of the diodes with Rhodamine 6G of 2 wt%. EL spectra of the same device for the (e) first measurement, (f) third measurement, and (g) fifth measurements.



Figure S7. (a-c) SEM images, (d-f) device performance, (g-i) EL spectra, and (j) absorption spectra of the perovskite films and devices prepared by diluted perovskite precursor solutions of 0.75X, 0.5X, and 0.25X of its original concentration.

Voltage [V]	MAPb(Br _{0.6} Cl _{0.4}) ₃ + 2 wt% Rhodamine 6G CRI; color temperature	MAPb(Br _{0.6} Cl _{0.4}) ₃ + 3 wt% Rhodamine 6G CRI; color temperature
9	39.0; 5627 K	57.5; 2769 K
10	34.9; 7224 K	35.7; 4627 K
11	31.4; 7427 K	31.6; 4937 K
12	32.4; 7061 K	31.0; 5085 K
13	35.5; 6015 K	29.5; 3962 K
14	43.8; 6426 K	50.0; 5464 K

 Table S1. CRI and color temperature of the devices.