Supporting information

Tailoring the Surface Morphology and Phase Distribution for Efficient Perovskite Electroluminescence

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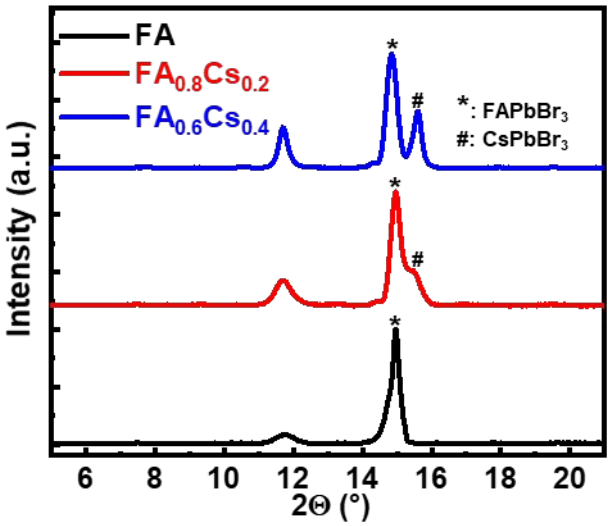

Figure S1. X-ray diffraction (XRD) patterns of FA, $FA_{0.8}Cs_{0.2}$ and $FA_{0.6}Cs_{0.4}$ films.

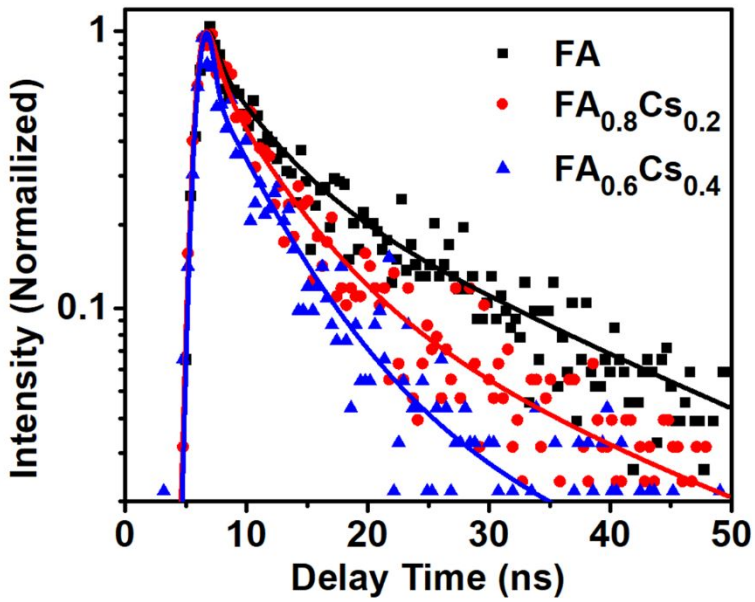

Figure S2. Time-resolved photoluminescence (TRPL) of FA, $FA_{0.8}Cs_{0.2}$, and $FA_{0.6}Cs_{0.4}$ films.

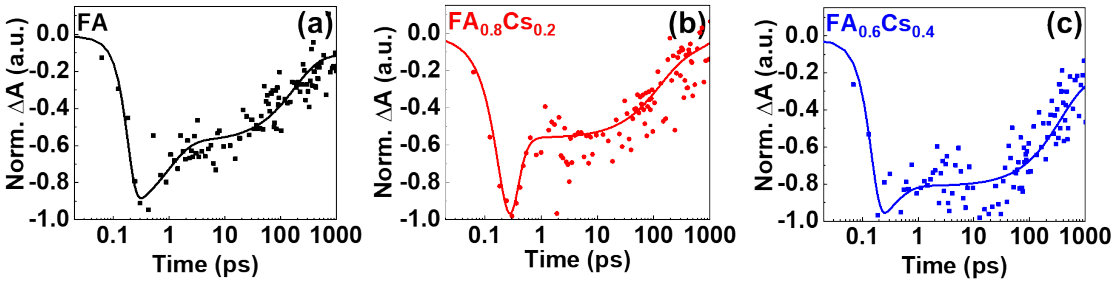

Figure S3. Bleaching kinetics of *n*=2 peak in TA spectra of (a) FA, (b) $FA_{0.8}Cs_{0.2}$, (c) $FA_{0.6}Cs_{0.4}$ films.

Table S1. Effective lifetimes of *n*=2 peaks in TA spectra of various perovskite films.

	FA	$FA_{0.8}$	$FA_{0.6}$
Lifetime (ps)	143	133	618

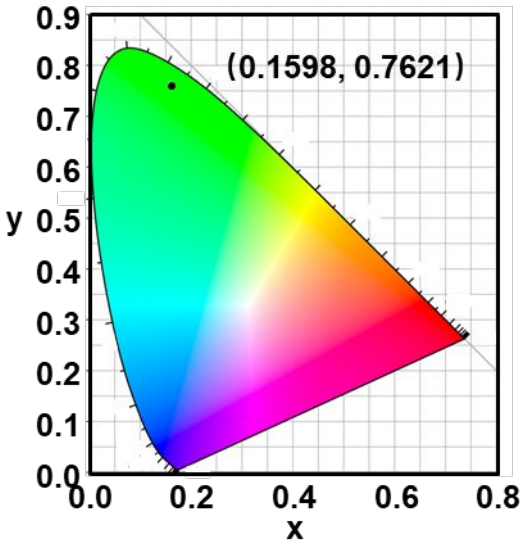

Figure S4. Commission Internationale de l'Eclairage (CIE) coordinate of the best-performance PeLED.