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

Supporting Information

High efficiency, low efficiency roll-off fluorescence/phosphorescence hybrid white organic light-emitting diodes based on AIEgens with hot exciton property by strategically managing triplet excitons

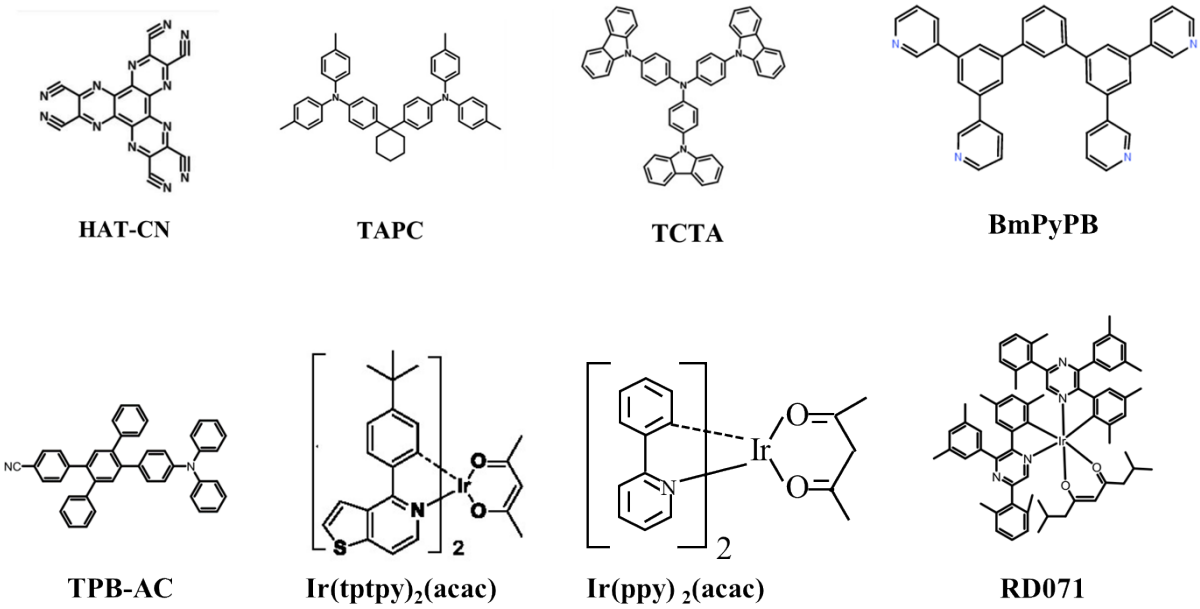

Figure S 1. Molecular structures of the used organic materials in this study.

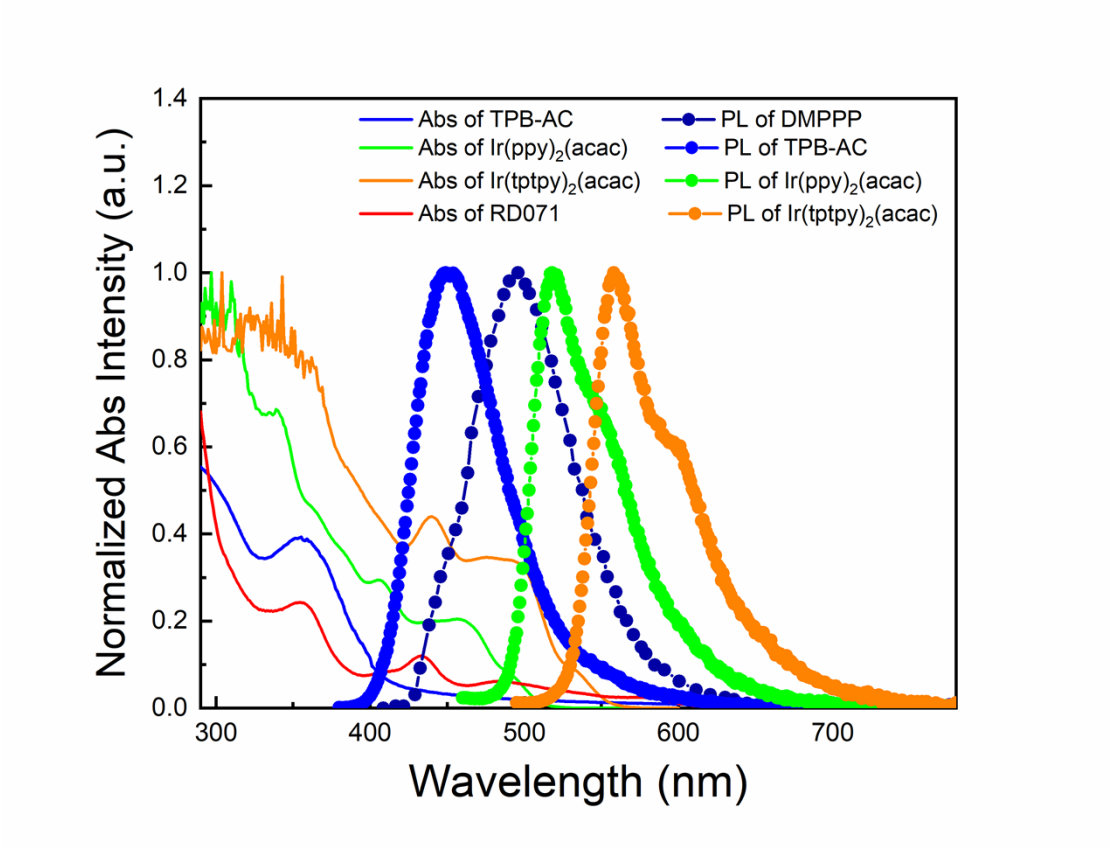

Figure S 2 Absorption spectra of TPB-AC and organe/green/red dopants and PL spectra of DMPPP and TPB-AC and green/organe dopants.

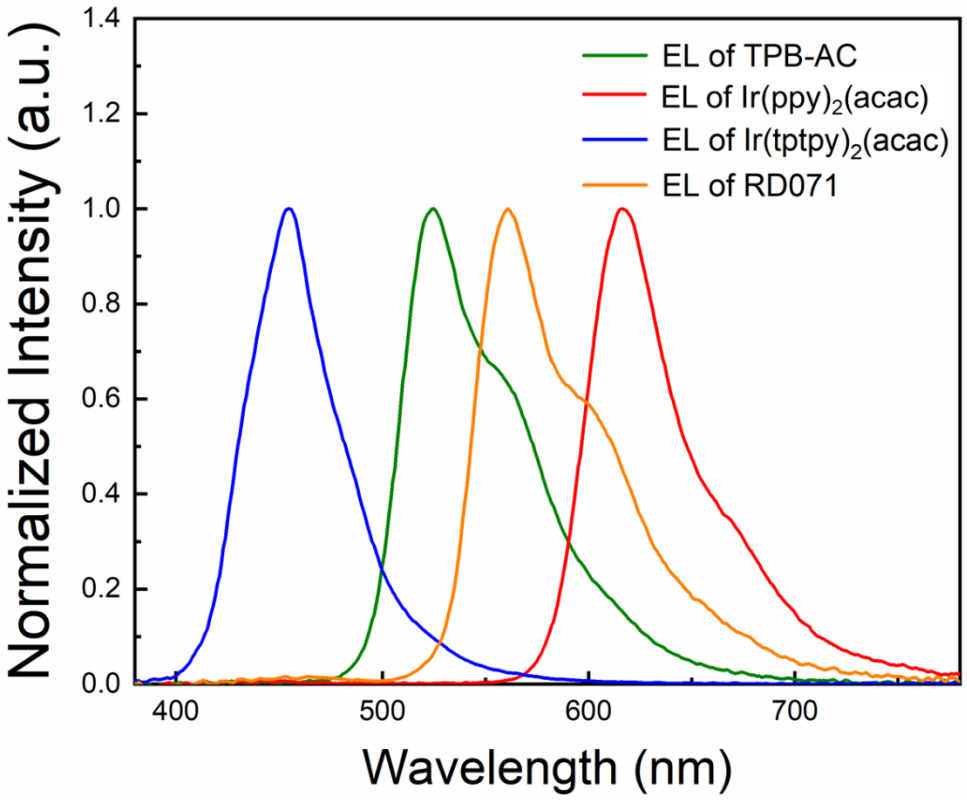

Figure S 3. Normalized EL spectra of TPB-AC, 5 wt% $Ir(ppy)_2(acac)$, 5 wt% $Ir(tptpy)_2(acac)$ and 3 wt% RD071 doped TPB-AC-based devices.

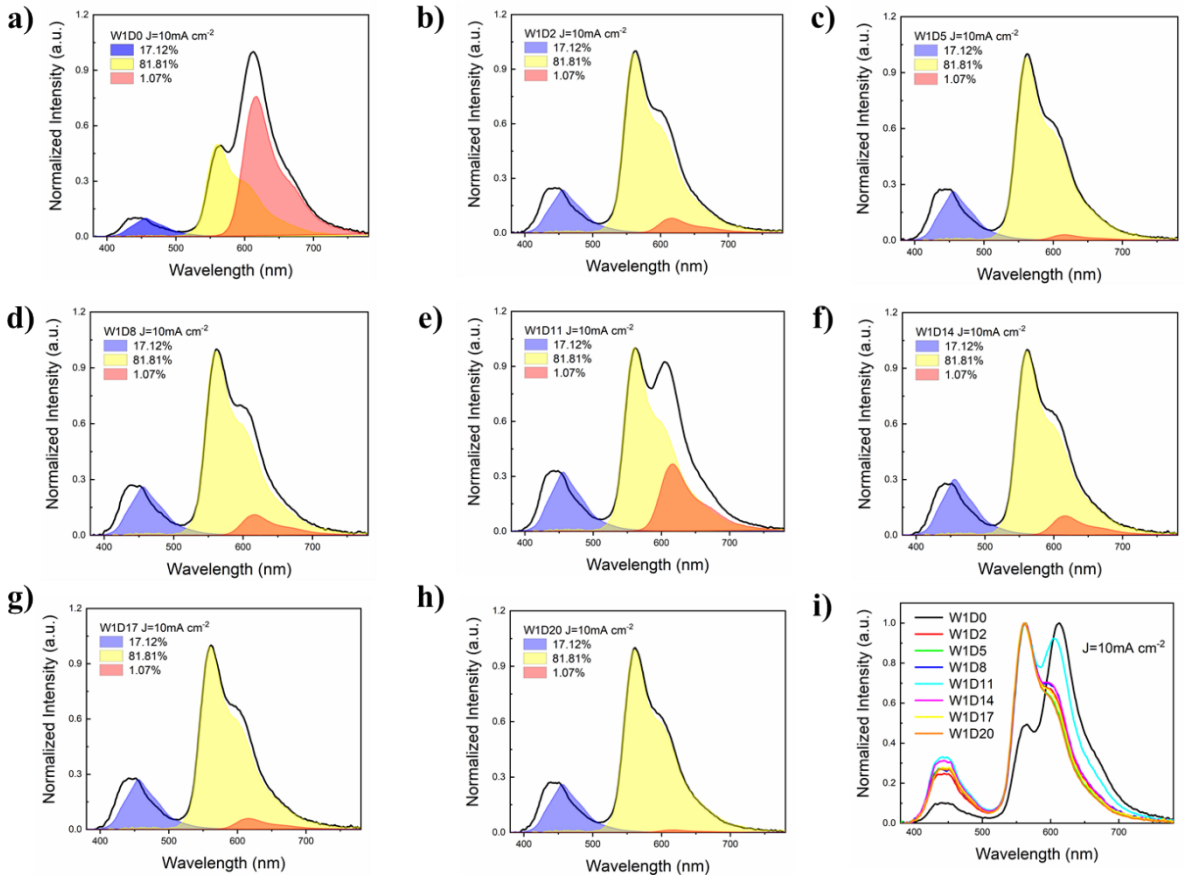

Figure S 4. Summary of the measured EL spectra of devices W1D0, 2, 5, 8, 11, 14, 17, and 20 at the current density of 10 mA cm^{-2}. The measured and fitted spectra of device (a) W1D0, (b) W1D2, (c) W1D5, (d) W1D8, (e) W1D11, (f) W1D14, (g) W1D17, and (h) W1D20 at the current density of 10 mA cm^{-2}.

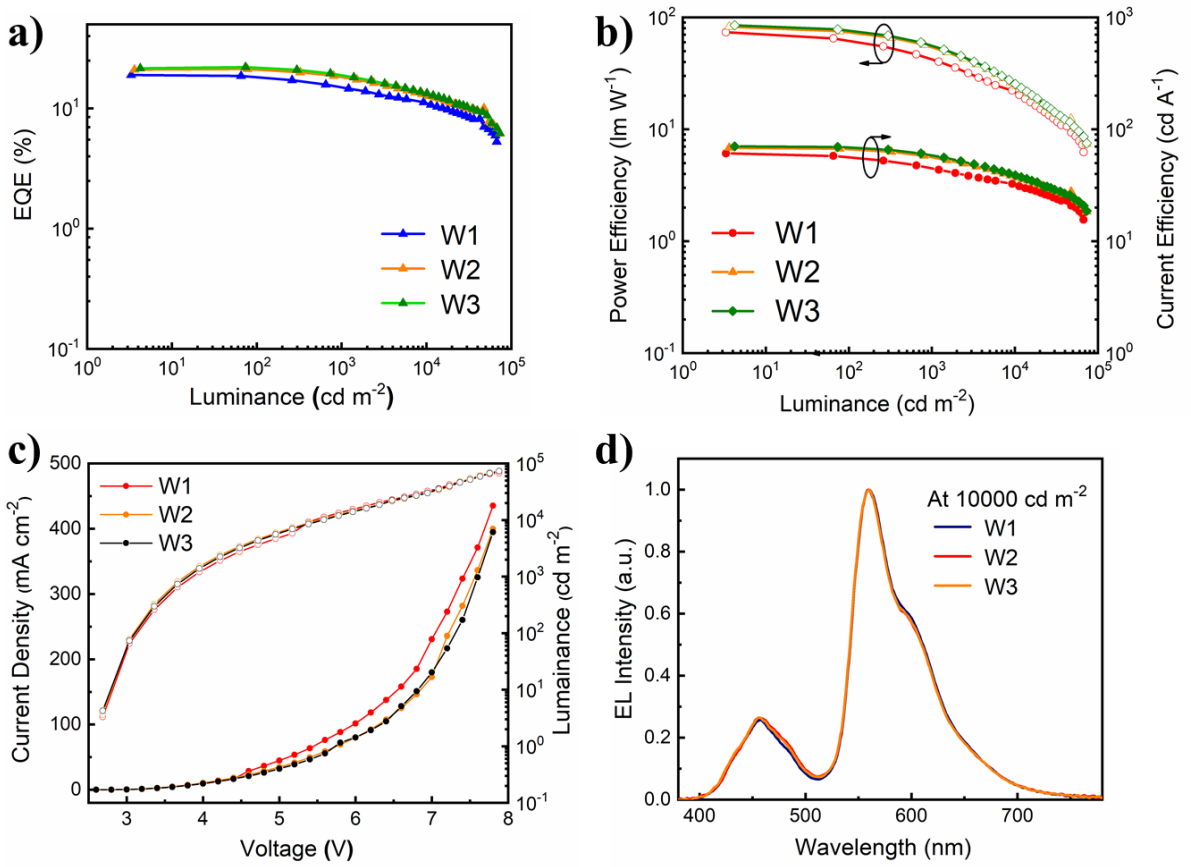

Figure S 5. EL performances of devices W1-W3. (a) EQE-luminance (EQE-L) characteristics. (b) Power efficiency-current efficiency-luminance (PE-CE-L) characteristics. (c) Current density-luminance-voltage (J-V-L) characteristics. (d) Normalized EL spectra at the luminance of 10000 cd m^{-2}.

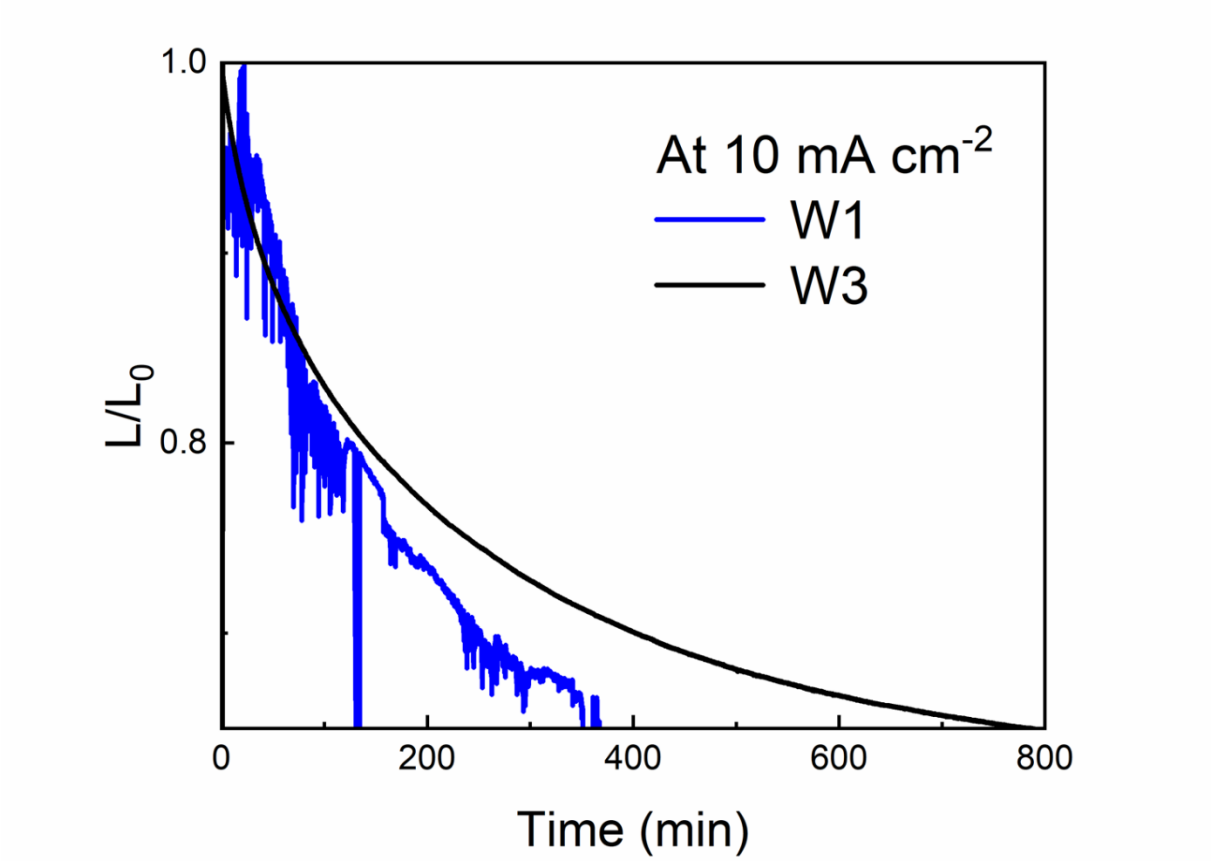

Figure S 6. Lifetime curves of devices W1 and W3 at the current density of 10 mA cm^{-2}.

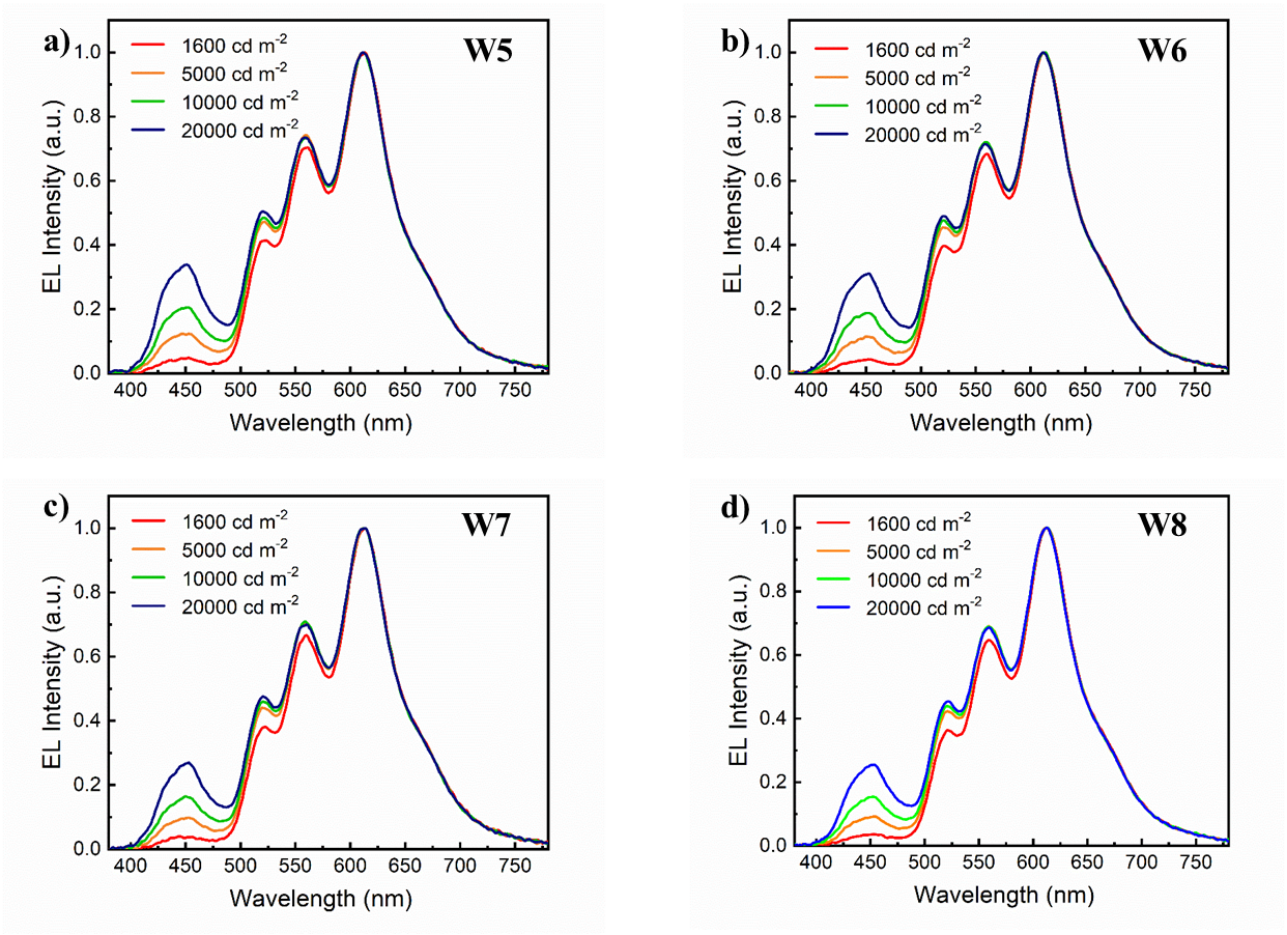

Figure S 7. EL spectra of device W5-W8 at different luminance. (a)device W5, (b) device W6, (c) device W7 from 1600 cd m^{-2} to 20 000 cd m^{-2}, and (d) device W8.

Table S 1. Summary of the EL performance parameters of the fabricated hybrid WOLEDs.

Device	**V_{on} (V)**	**EQE_{max} (%)**	**EQE_{1000} (%)**	**PE_{max} (lm W^{-1})**	**CE_{max} (cd A^{-1})**	**L_{max} (cd m^{-2})**	**CRI (6V)**	**CIE (6V)**
W1	2.6	18.9	15.7	73.15	60.87	66940	45	(0.42,0.43)
W2	2.6	21.2	18.7	82.43	68.25	72750	46	(0.41,0.43)
W3	2.6	22.0	19.5	84.89	70.29	72900	46	(0.41,0.43)
W4	2.6	23.2	21.1	78.70	70.20	68953	47	(0.41,0.43)
W5	2.6	21.5	19.3	49.10	46.51	56970	86	(0.42,0.39)
W6	2.6	21.8	19.4	48.01	45.62	54110	87	(0.42,0.40)
W7	2.6	21.4	18.7	45.92	43.60	55440	86	(0.43,0.40)
W8	2.6	24.9	21.7	51.94	49.68	58210	87	(0.44,0.40)