Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting information

For

Novel Yellow Thermally Activated Delayed Fluorescence Emitters for Highly Efficient Full-TADF WOLEDs with Low Driving Voltages and Remarkable Color Stability

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Supplementary Figures

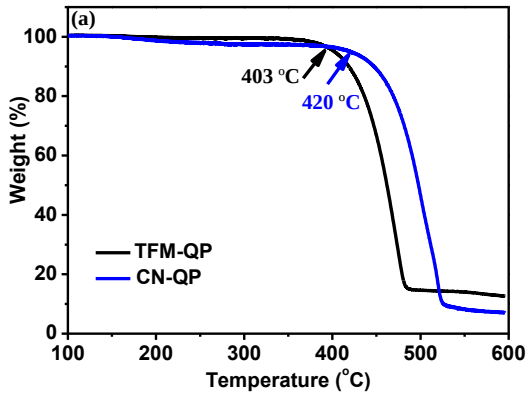


Fig. S1. TGA thermograms of TFM-QP and CN-QP recorded under nitrogen at a heating rate of 10 °C min^{-1}.

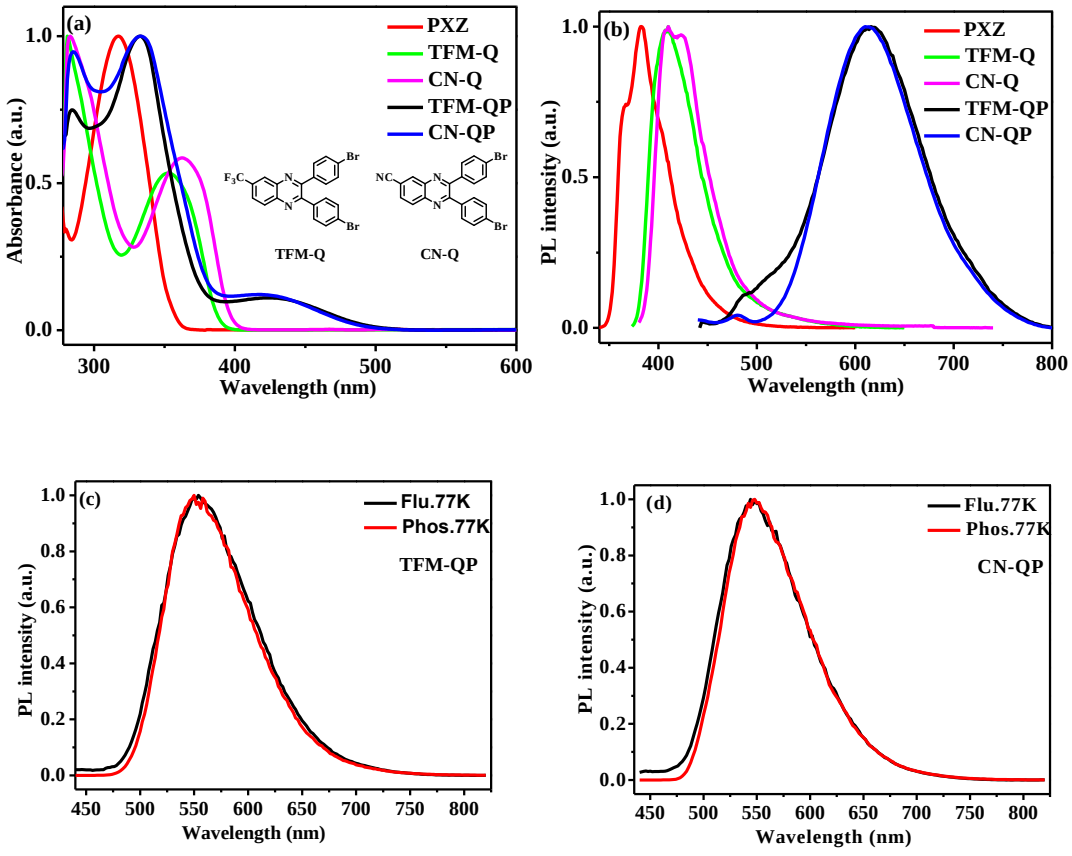


Fig. S2. Absorption (a) and PL (b) spectra of fragments and TADF compounds in dilute toluene solutions at RT, and LT-PL spectra of TFM-QP (c) and CN-QP (d) in frozen 2-methyl-tetrahydrofuran matrix at 77 K.

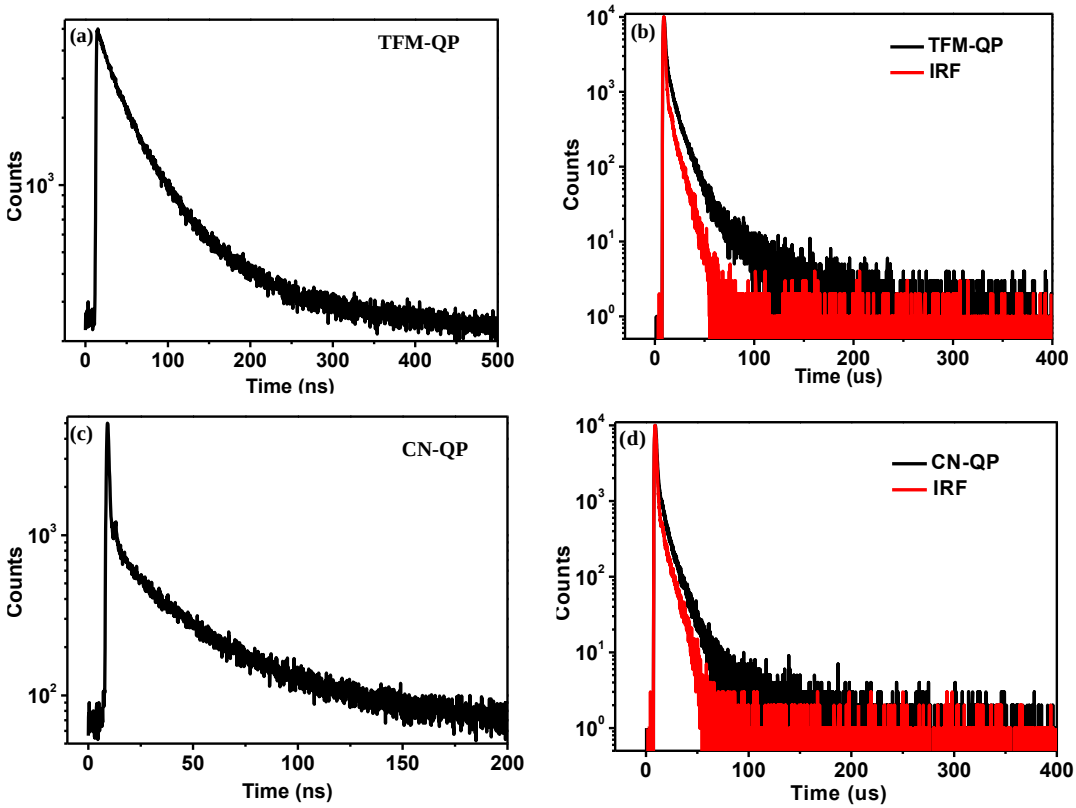


Fig. S3. Transient PL decay curves of 5wt% TFM-QP and CN-QP doped CBP films at room temperature. The short-time-range decay curves (a, c) were measured using TCSPC technique, while the long-time-range decay curves (b, d) were measured using MCS technique.

Table S1. The fitted data of TFM-QP and CN-QP films doped in CBP.

compounds	Temperature	τ_1(ns)	A_1	τ_2(us)	A_2	τ_3(us)	A_3
TFM-QP	300K	168	63.2	4.9	27.2	24.1	9.63
	250K	149	67.3	5.6	21.4	35.2	11.3
	200K	148	69.7	6.9	17.3	52.1	12.8
	150K	154	73.4	7.5	13.8	63.9	12.8
	100K	144	78.8	7.8	11.1	84.2	10.1
CN-QP	300K	255	79.9	7.9	20.1	-	-
	250K	157	73.3	3.8	18.9	18.9	7.8
	200K	183	76.2	5.0	16.3	28.4	7.5
	150K	154	77.4	5.49	14.0	37.1	8.6
	100K	155	79.7	5.2	11.8	46.2	8.6

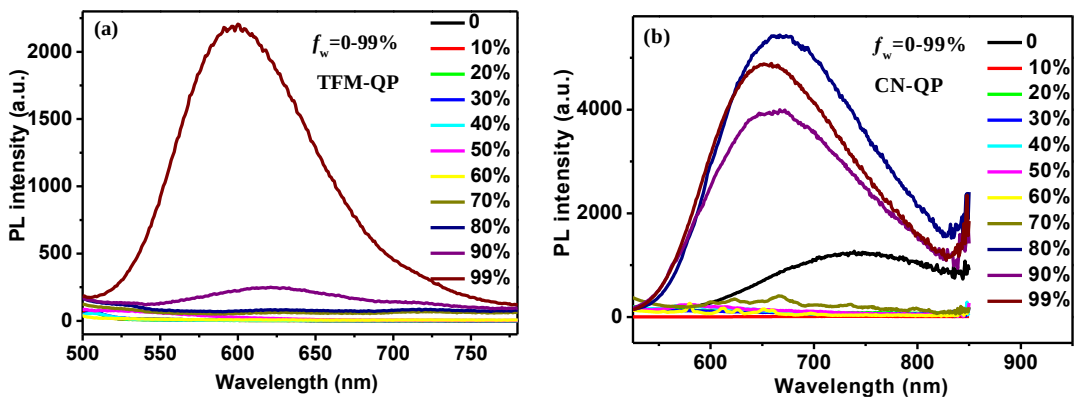


Fig. S4. PL spectra of TFM-QP (a) and CN-QP (b) in THF/water mixtures.

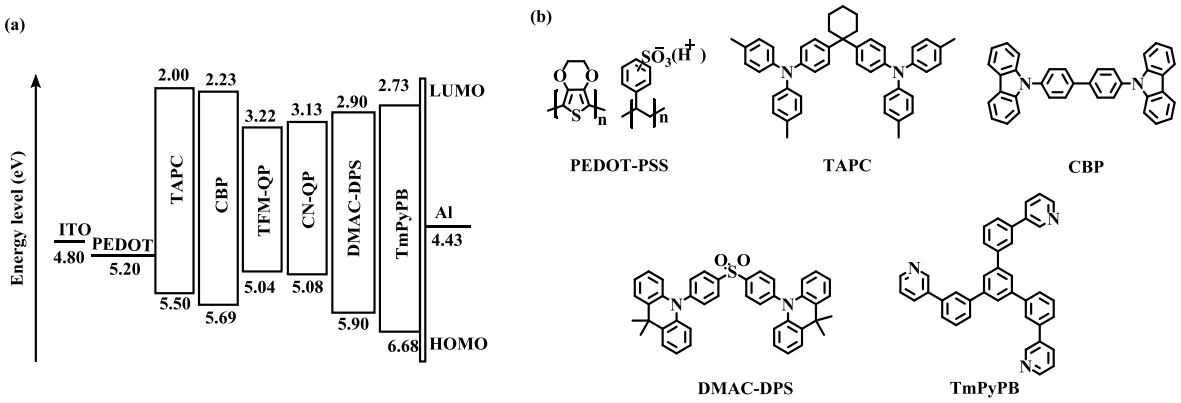


Fig. S5 Energy level diagram for the monochromic and WOLEDs and the chemical structures of related materials used in all OLEDs in present study.

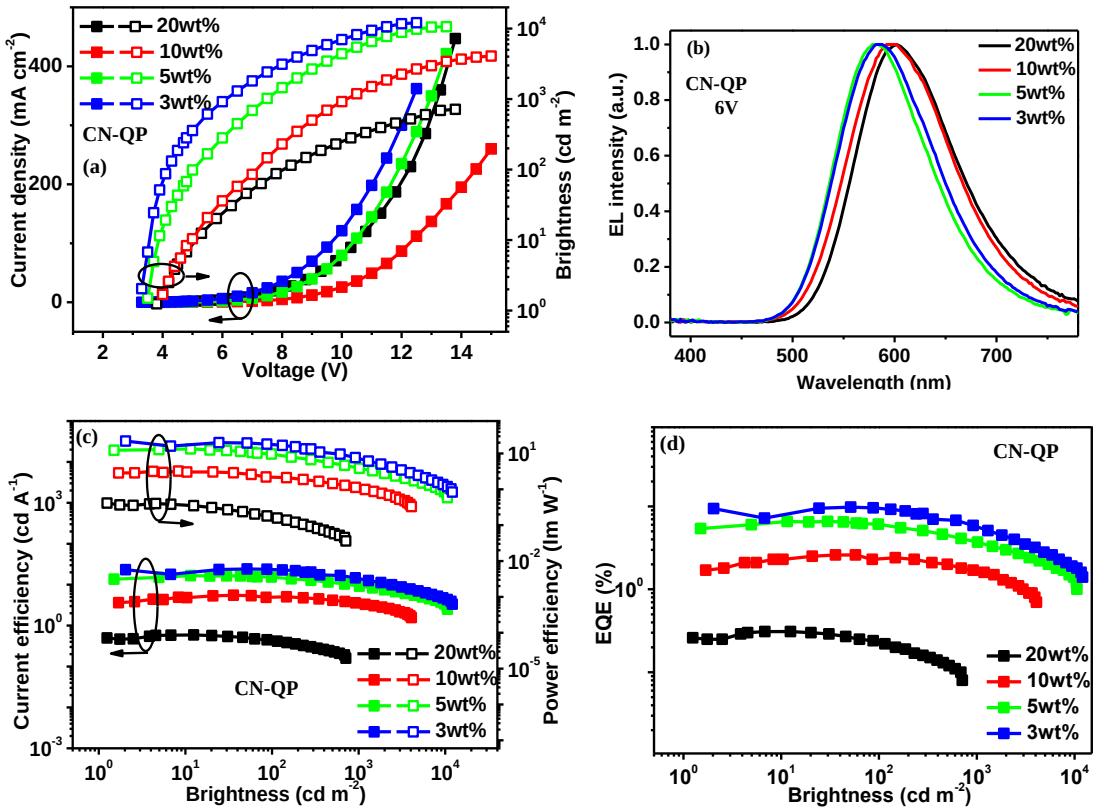
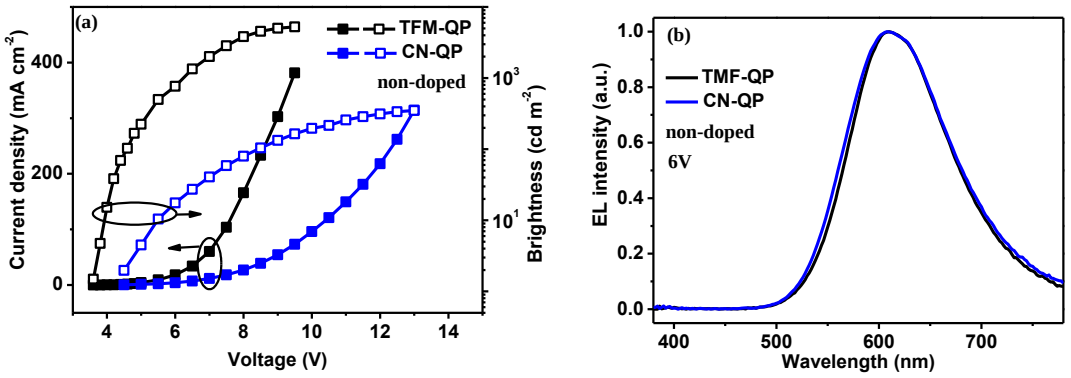


Fig. S6. Current density-voltage-brightness (*J-V-B*) characteristics, EL spectra, and the efficiency curves for CN-QP based monochromic devices at various doping concentrations.



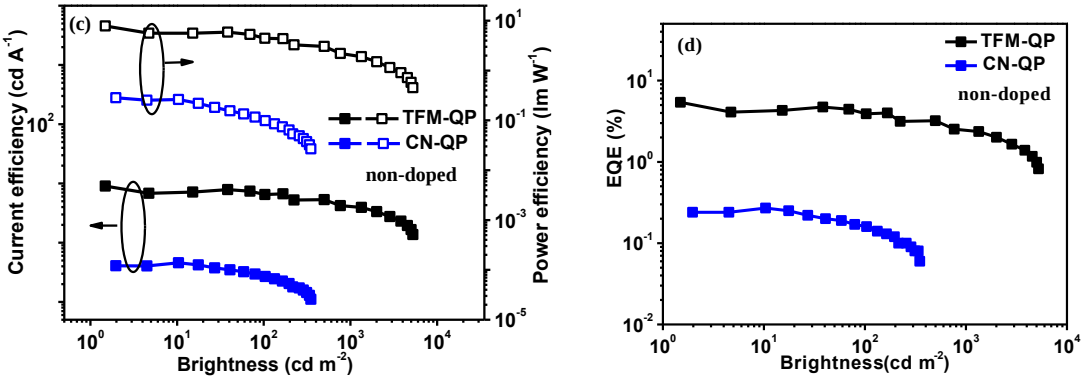


Fig. S7. *J-V-B* characteristics (a), EL spectra (b), and efficiency curves (c,d) of the monochromatic OLEDs with non-doped TFM-QP and CN-QP emitting layers.

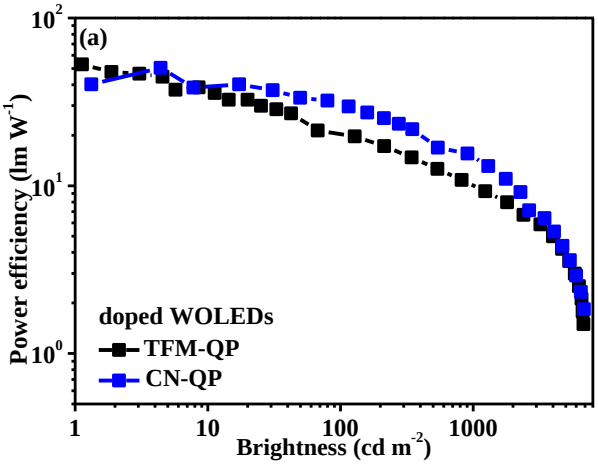
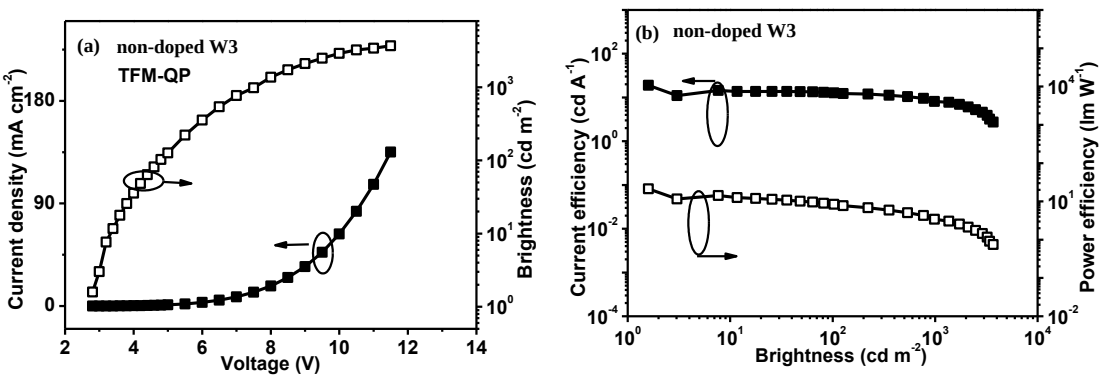


Fig. S8. The power efficiency curves for the doped WOLEDs with TFM-QP or CN-QP as the orange TADF emitters.



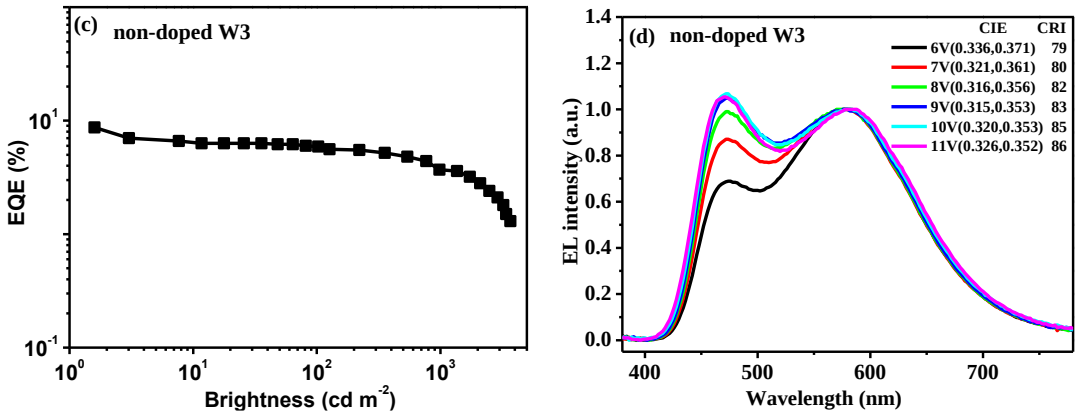
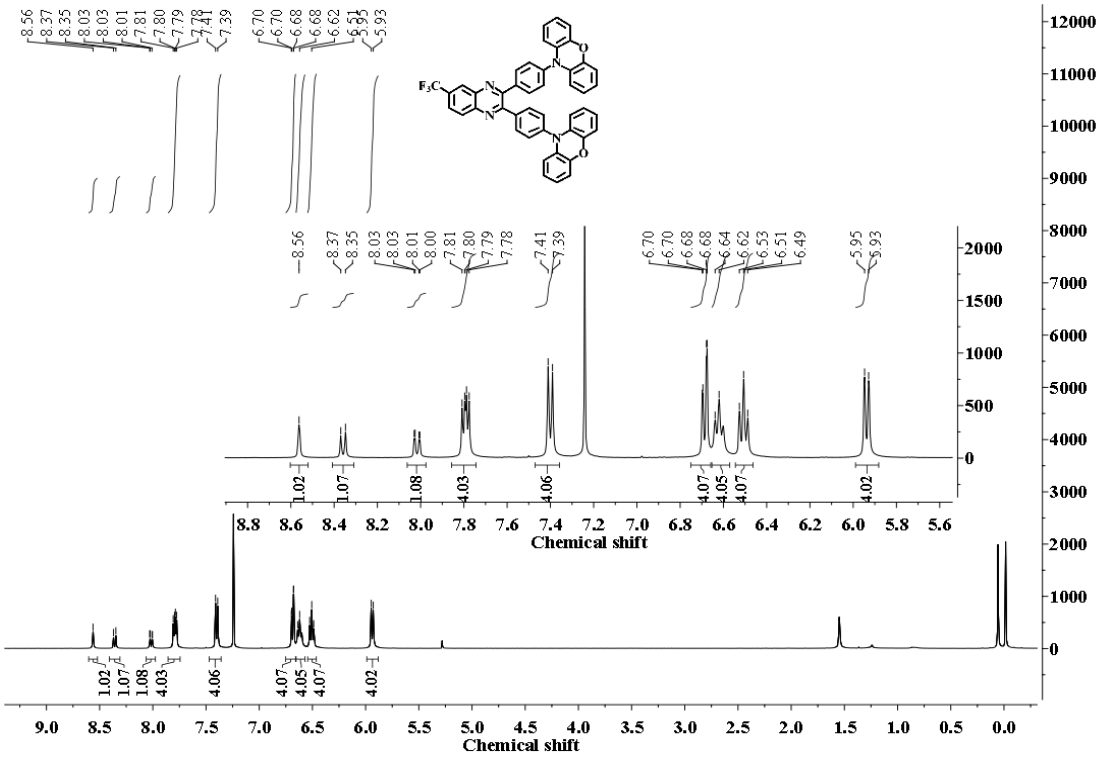
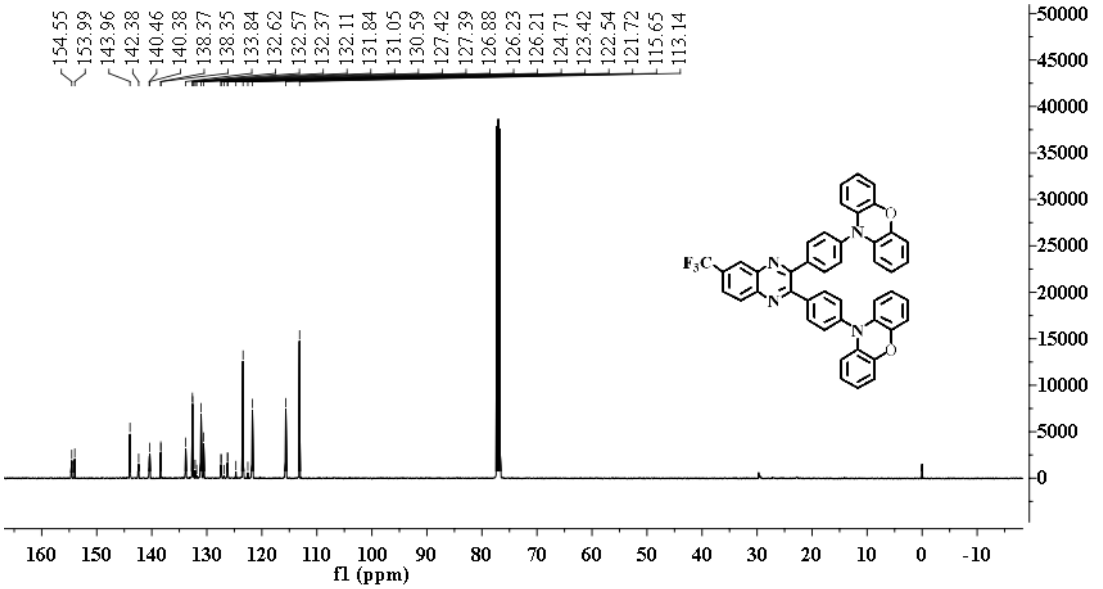


Fig. S9. *J-V-B* characteristics (a), efficiency curves (b and c), and EL spectra for the non-doped WOLED W3 containing TFM-QP as yellow TADF emitter.

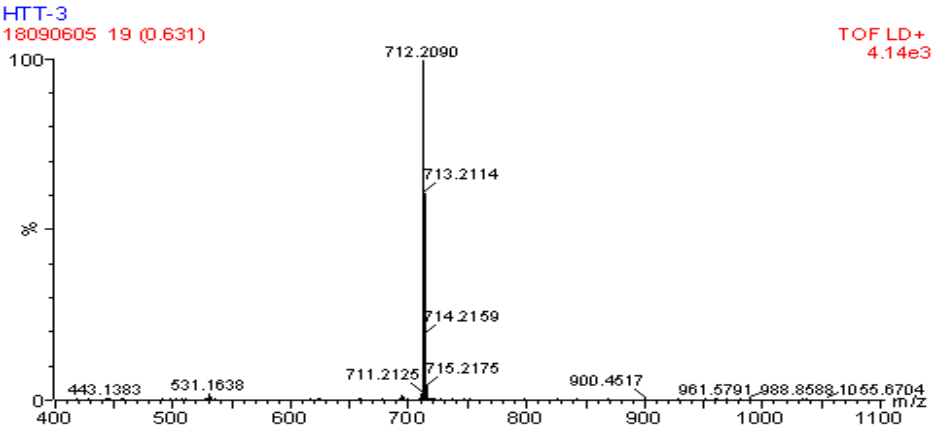
NMR and Mass spectra of New Compounds



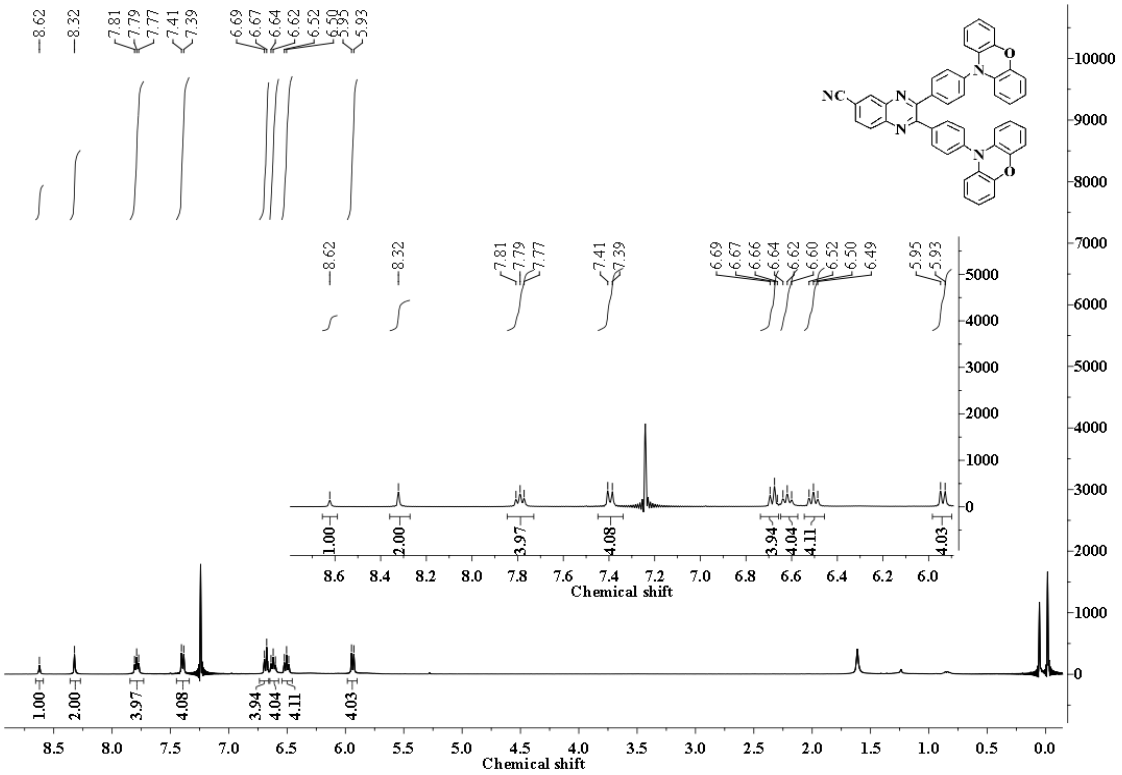
^{1}H NMR of compound TFM-QP



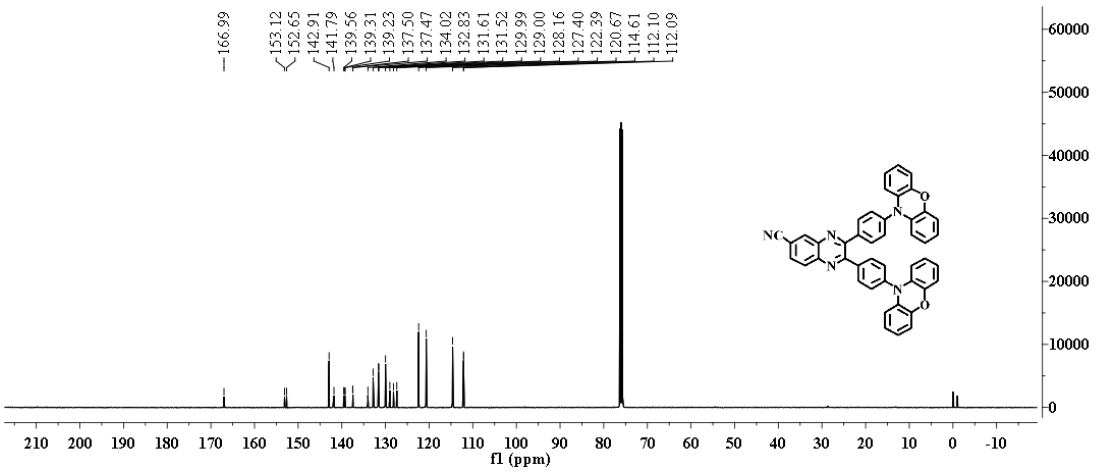
^{13}C NMR of compound TFM-QP



Mass spectrum of compound TFM-QP



^{1}H NMR of compound CN-QP



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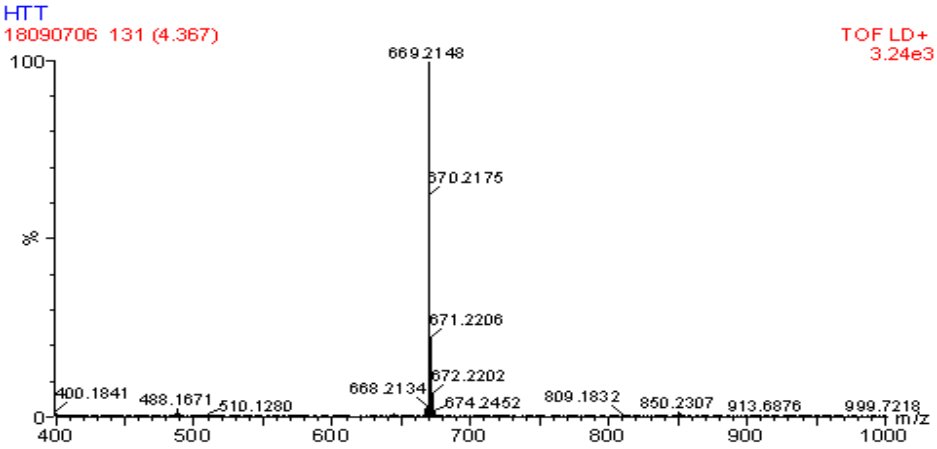

Mass spectrum of compound CN-QP