

Electronic Supplementary Information

Structural Effect of Phenylcarbazole-based Molecules on the Exciplex-Forming Co-Host System to Achieve High Efficient Phosphorescent OLEDs with Low Efficiency Roll-off

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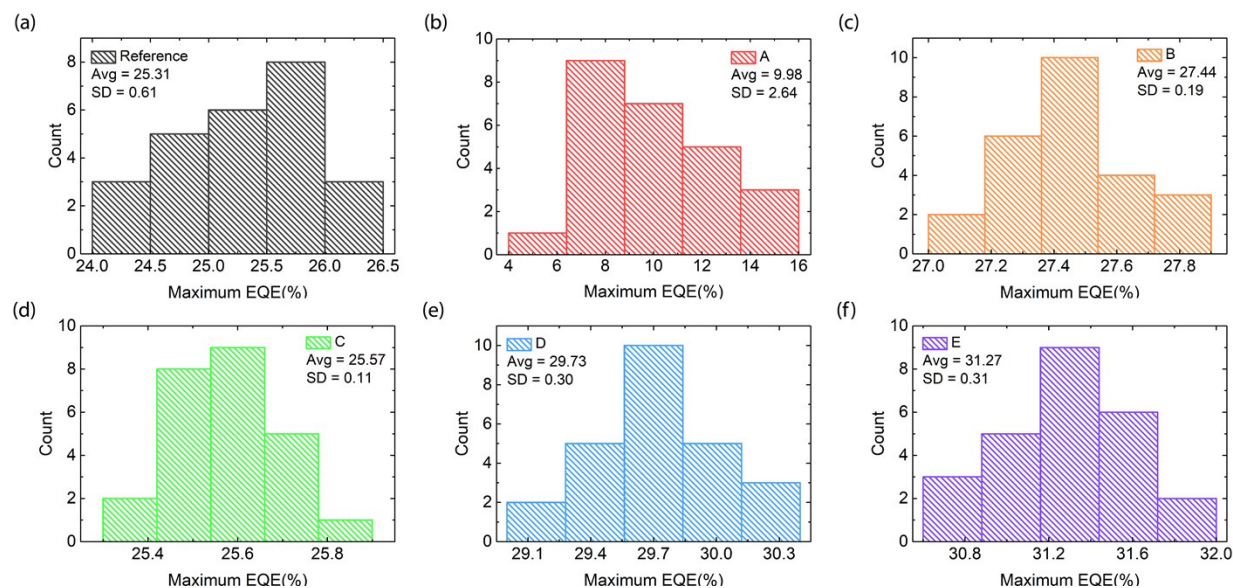


Figure S1. Stability data of the devices: (a) BCzPh denoted as reference device, (b) PhCNCzp-Me denoted as device A, (c) PhCzp-Me denoted as device B, (d) PHCNCzp-MeCzPh denoted as device C, (e) PhCzm-Me denoted as device D, and (f) PhCNCzm-MeCzPh denoted as device E

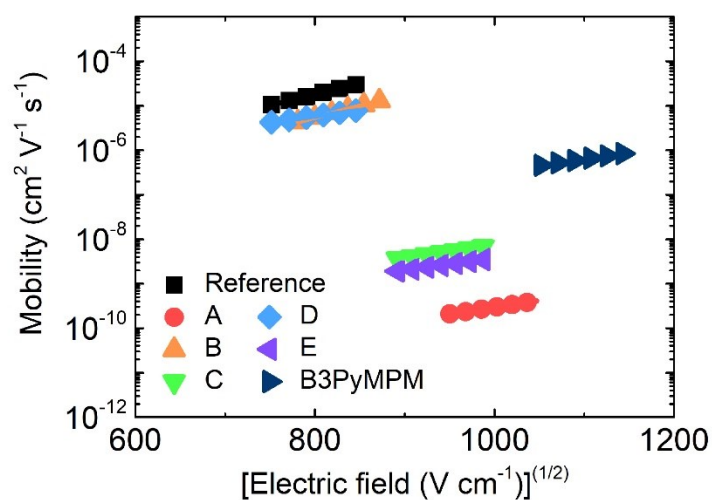


Figure S2. Hole and/or electron mobility of each material versus applied voltages.

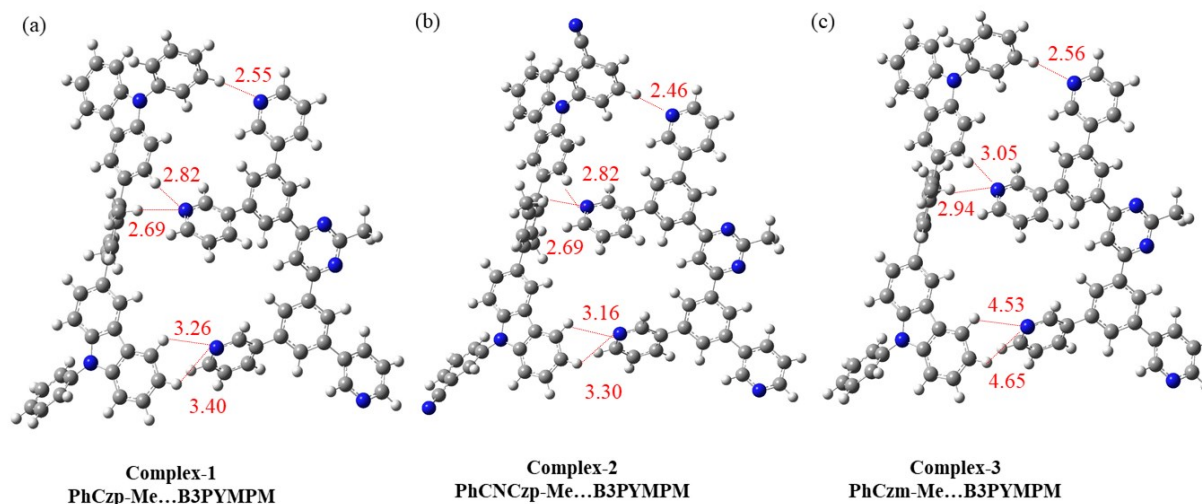


Figure S3. Bimolecular simulation for the structure of the exciplex formed by B3PyMPM and (a) PhCzp-Me, (b) PhCNCzp-Me, (c) PhCzm-Me.

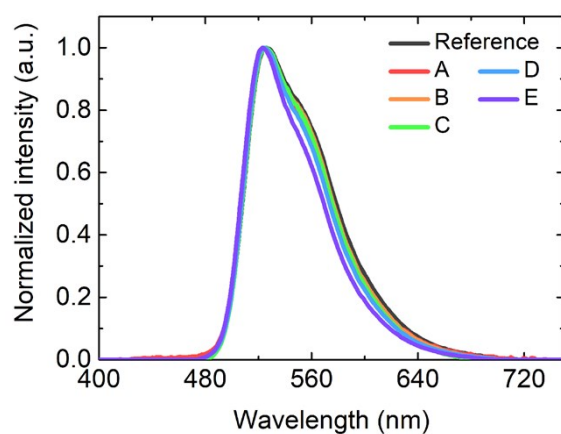


Figure S4. Normalized electroluminescence (EL) spectrum of the devices under test.

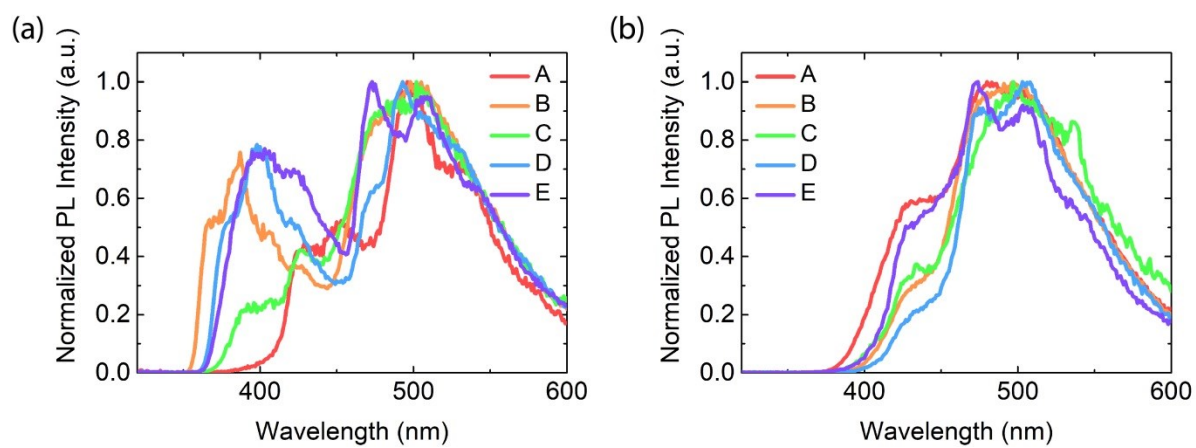


Figure S5. Low temperature PL spectrum of (a) PhCzs only, and (b) PhCzs:B3PyMPM blend.

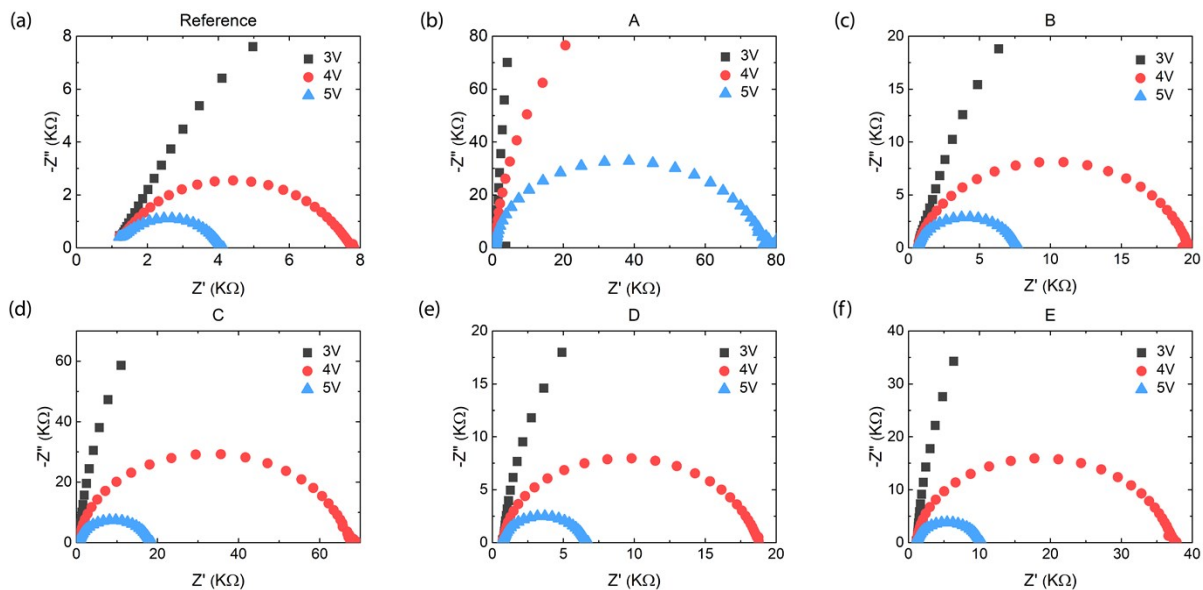


Figure S6. Impedance spectrum of: (a) reference device, (b) device A, (c) device B, (d) device C, (e) device D, and (f) device E.

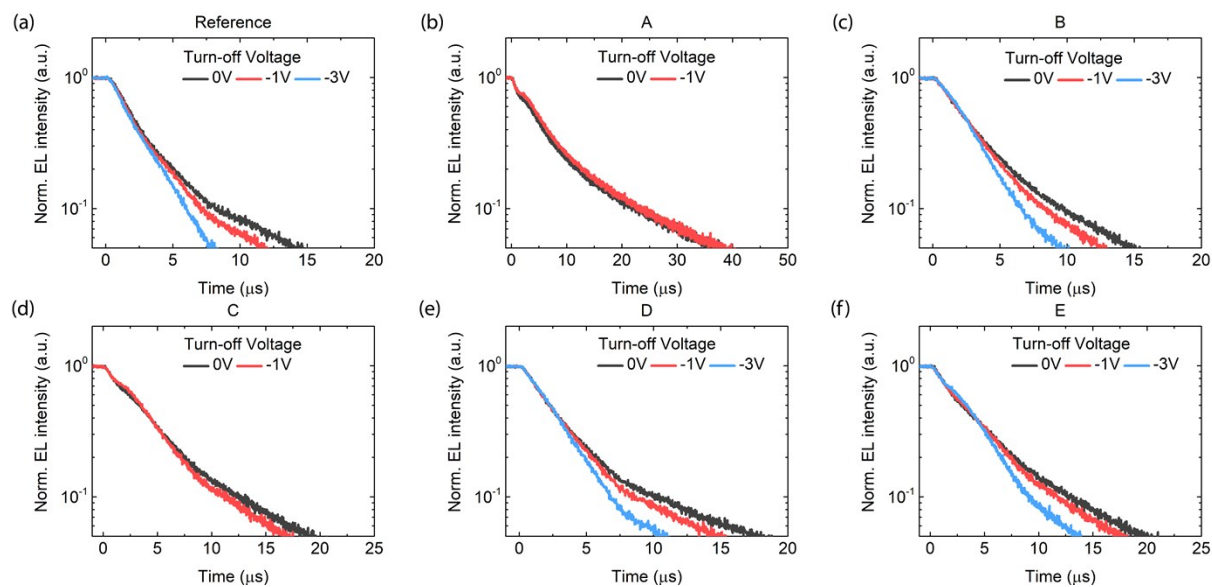


Figure S7. Transient electroluminescent (TREL) data of: (a) reference device, (b) device A, (c) device B, (d) device C, (e) device D, and (f) device E.

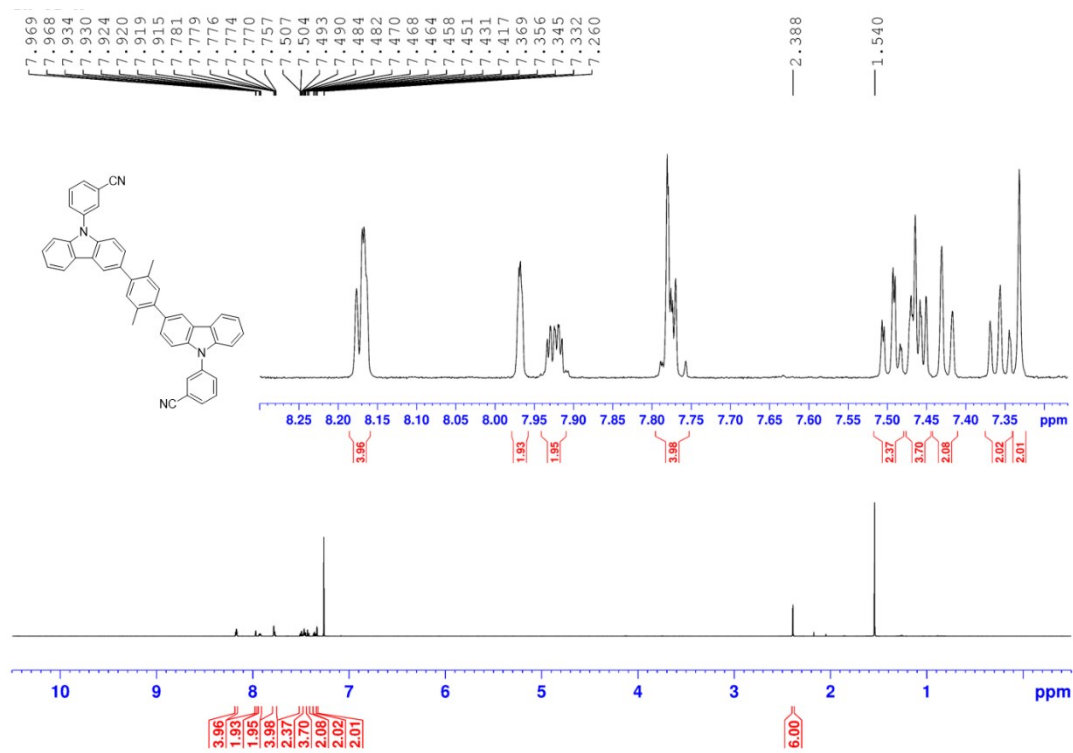


Figure S8. ¹H NMR spectrum of isolated compound PhCNCzp-Me in CDCl₃.

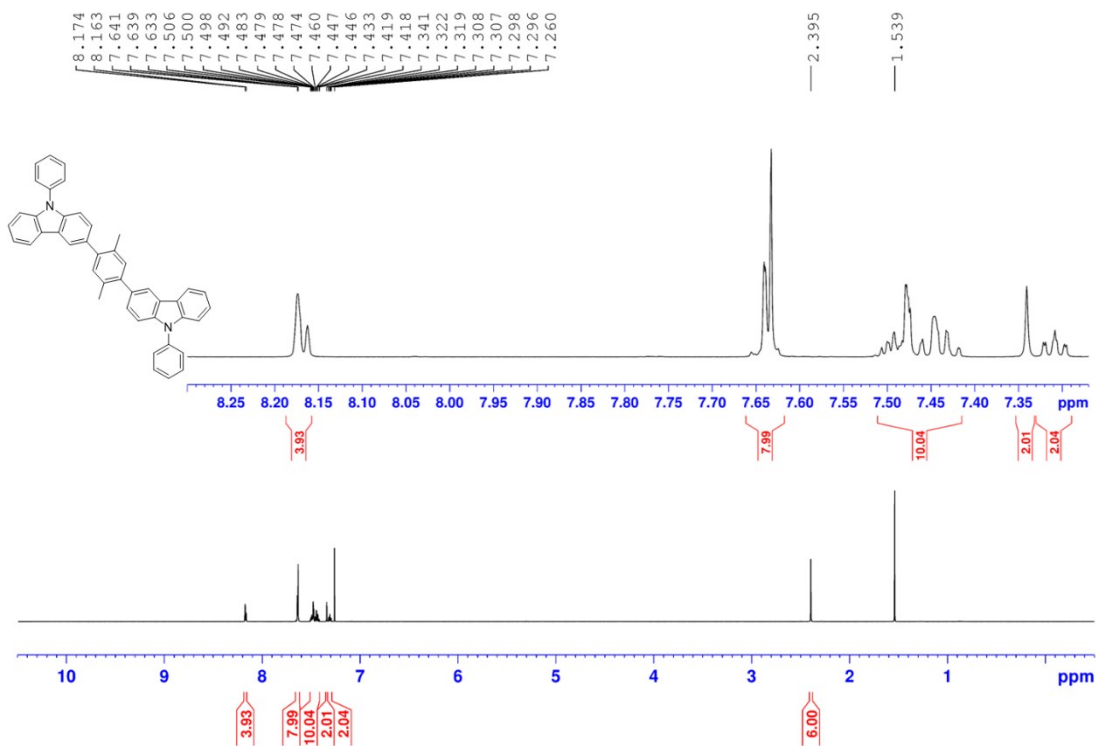


Figure S9. ¹H NMR spectrum of isolated compound PhCzp-Me in CDCl₃.

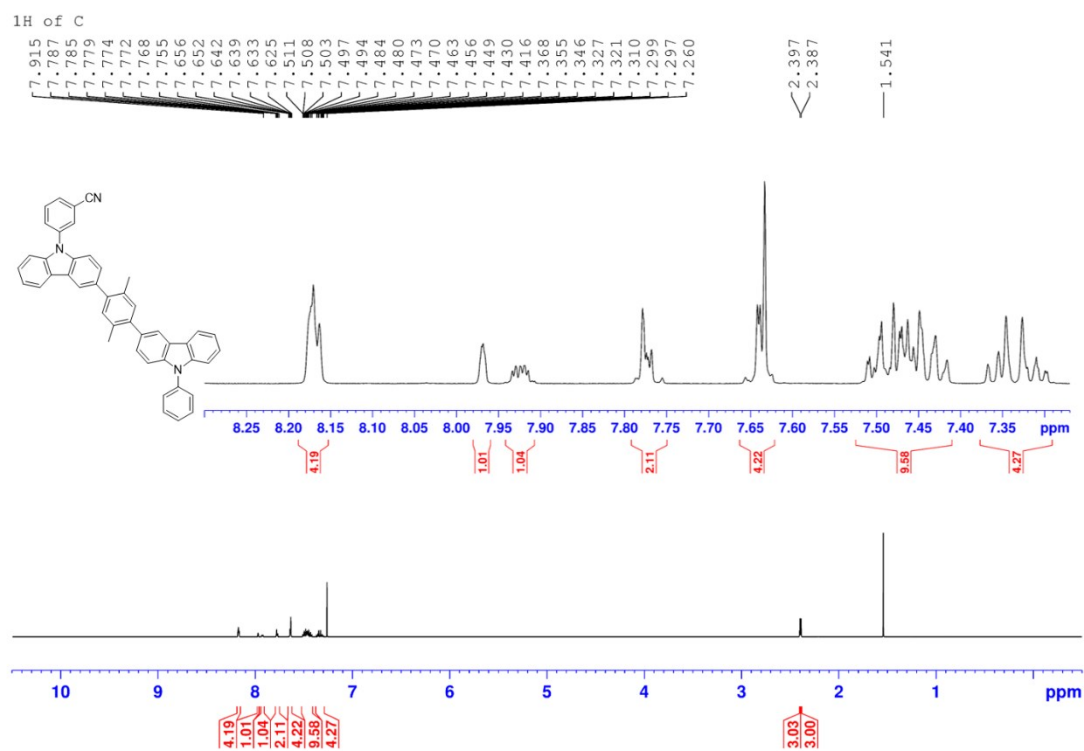


Figure S10. ¹H NMR spectrum of isolated compound PhCNCzp-MeCzPh in CDCl₃

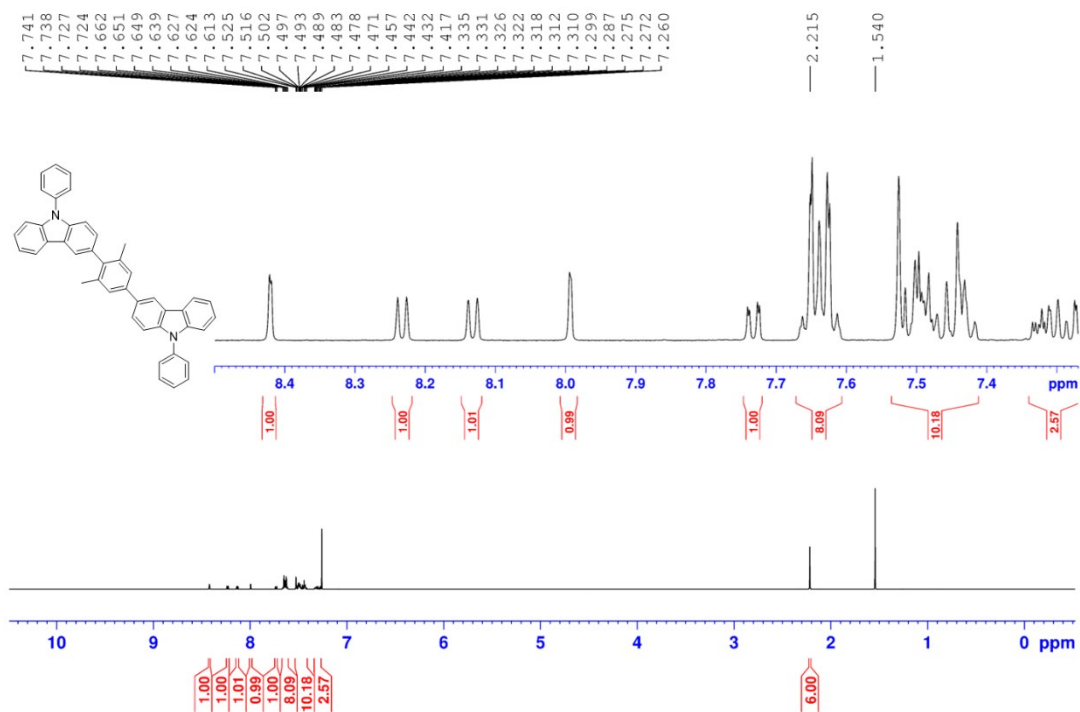


Figure S11. ¹H NMR spectrum of isolated compound PhCzm-Me in CDCl₃

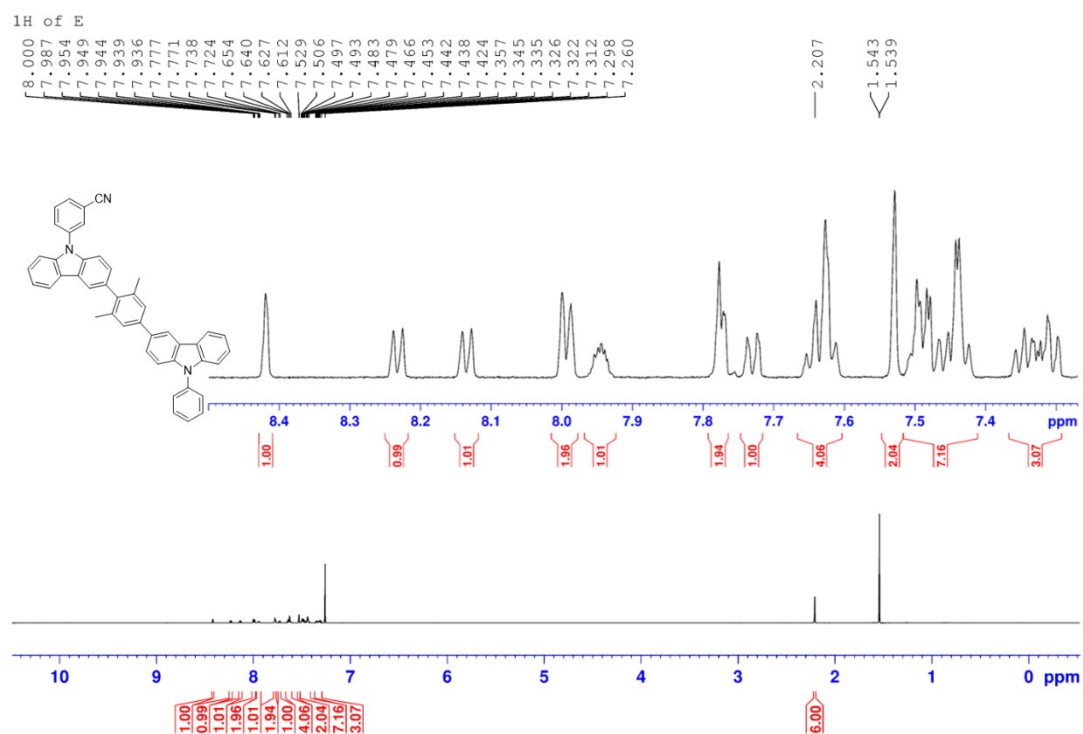


Figure S12. ¹H NMR spectrum of isolated compound PhCNCzm-MeCzPh in CDCl₃

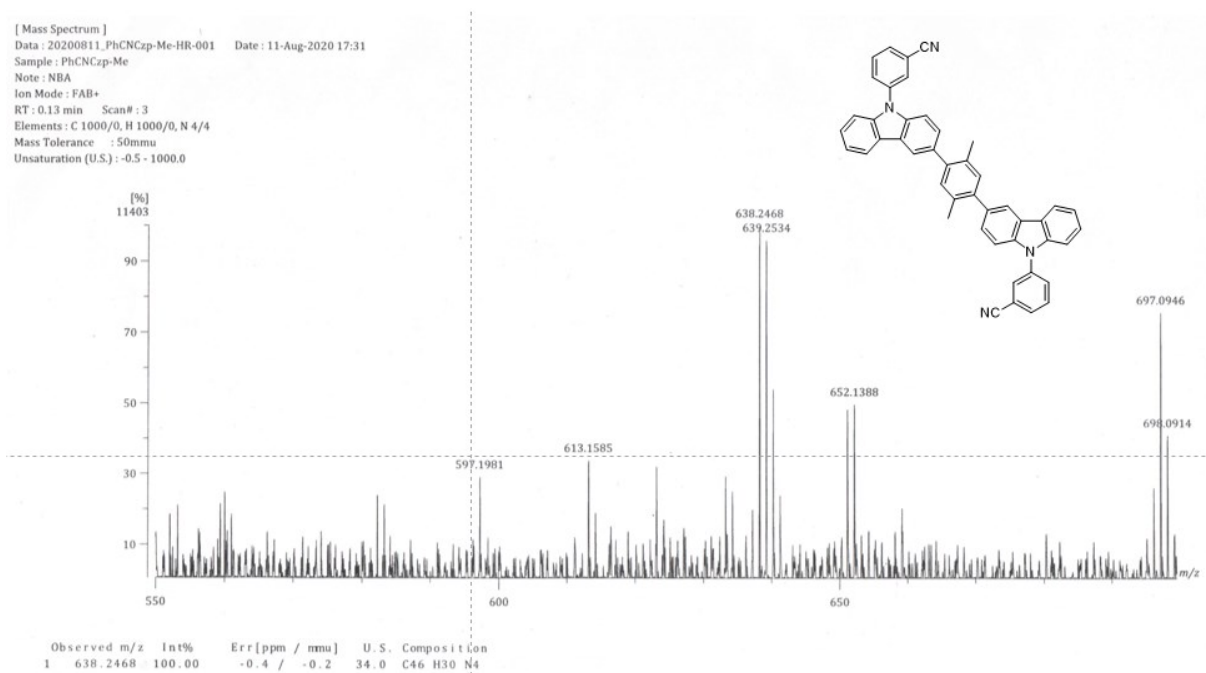


Figure S13. Mass spectrum of compound PhCNCzp-Me

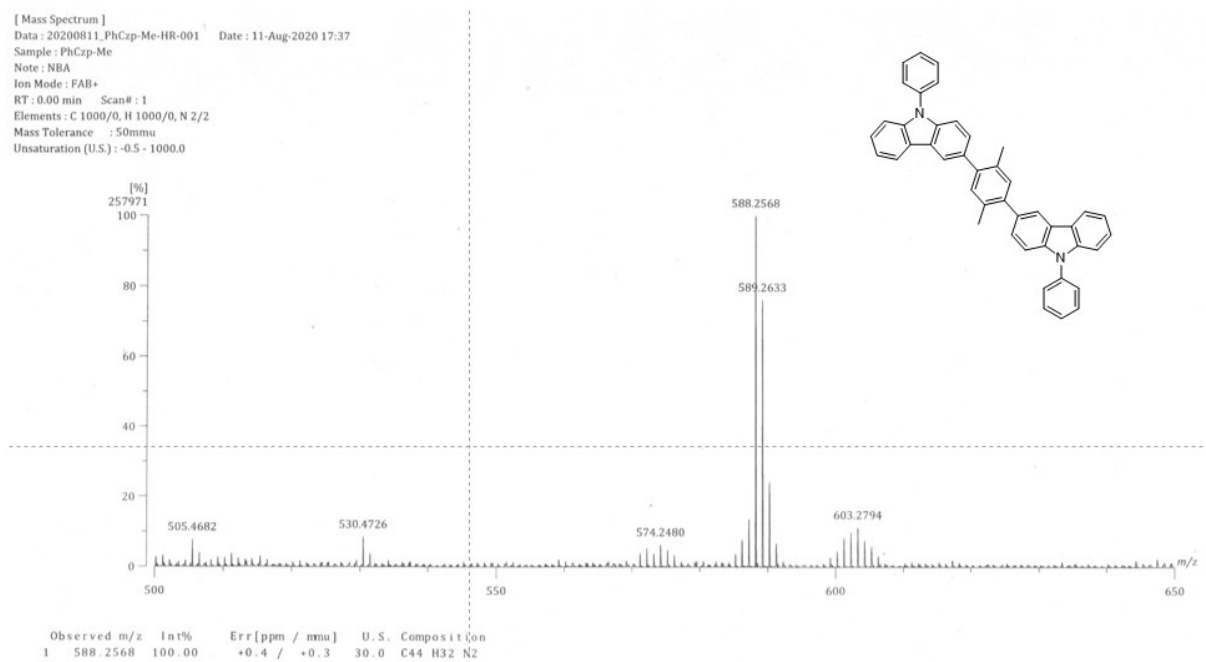


Figure S14. Mass spectrum of compound PhCzp-Me.

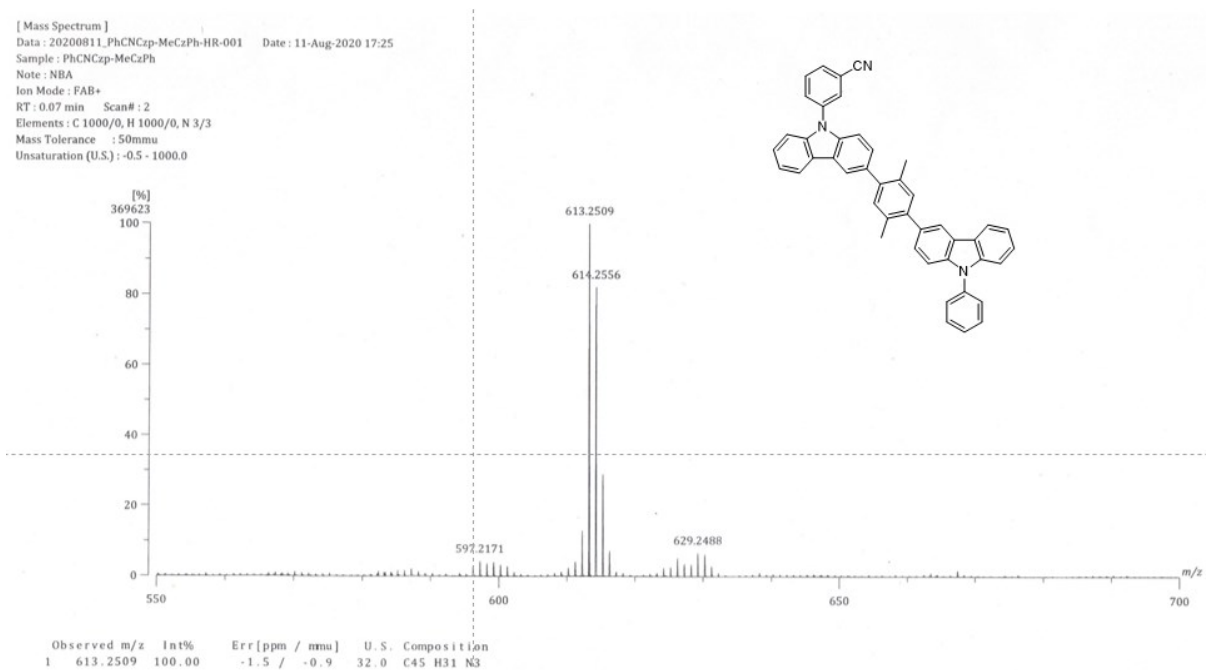


Figure S15. Mass spectrum of compound PhCNCzp-MeCzPh.

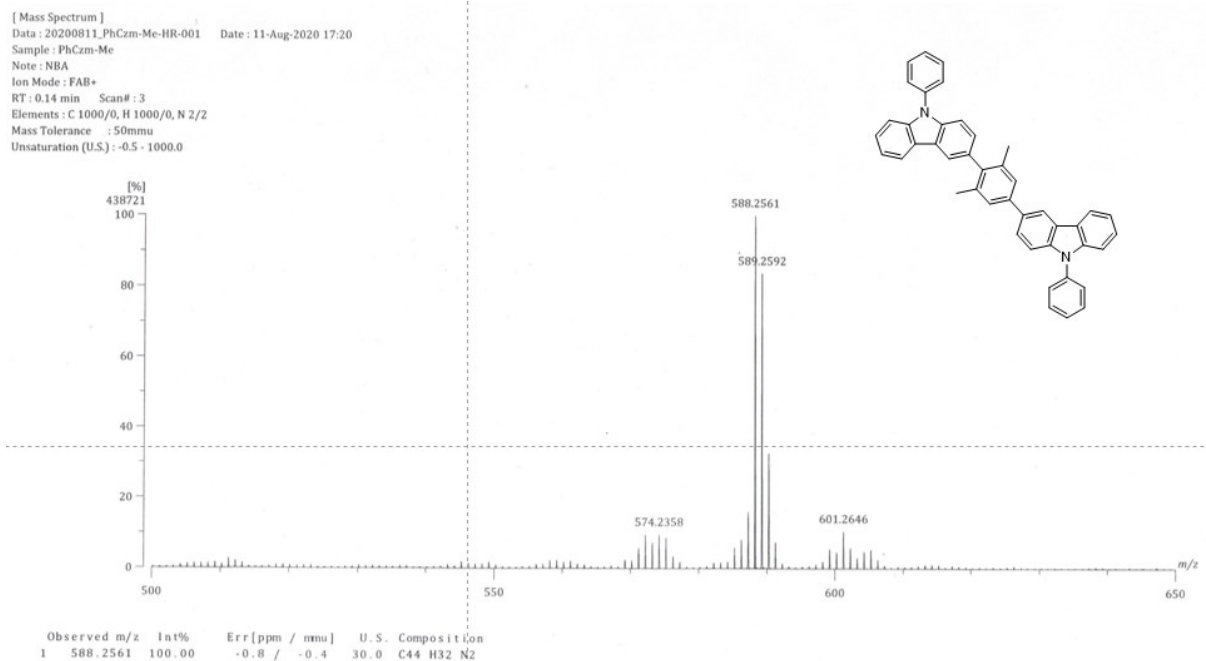


Figure S16. Mass spectrum of compound PhCzm-Me.

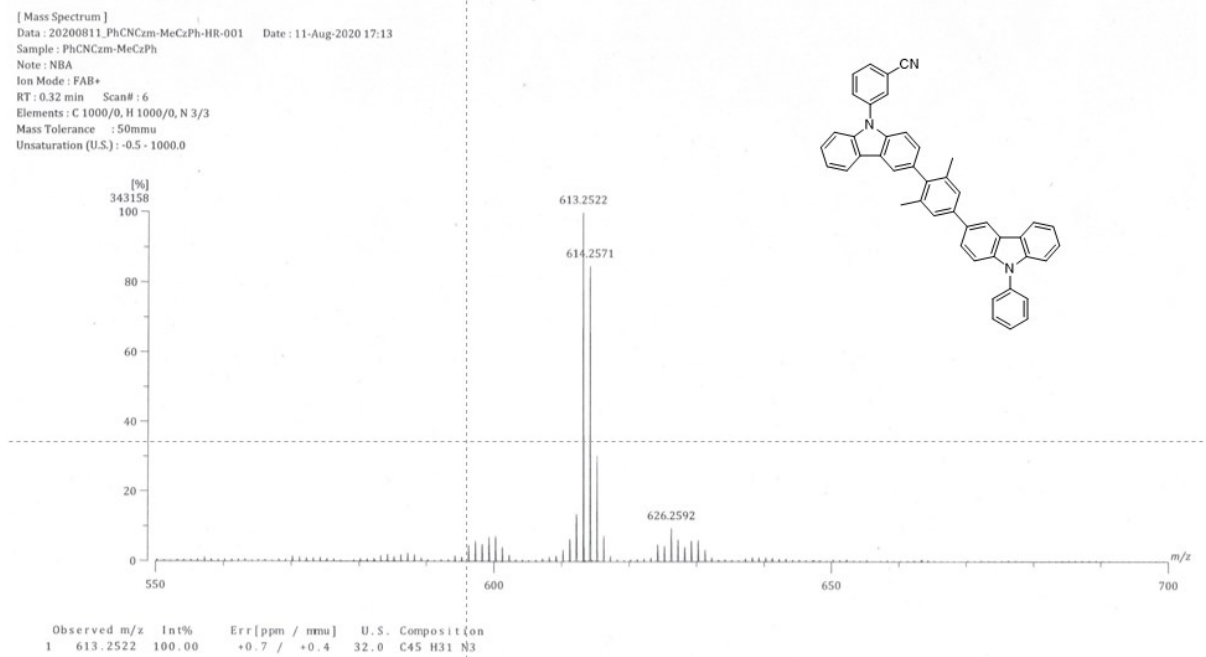


Figure S17. Mass spectrum of compound PhCNCzm-MeCzPh.

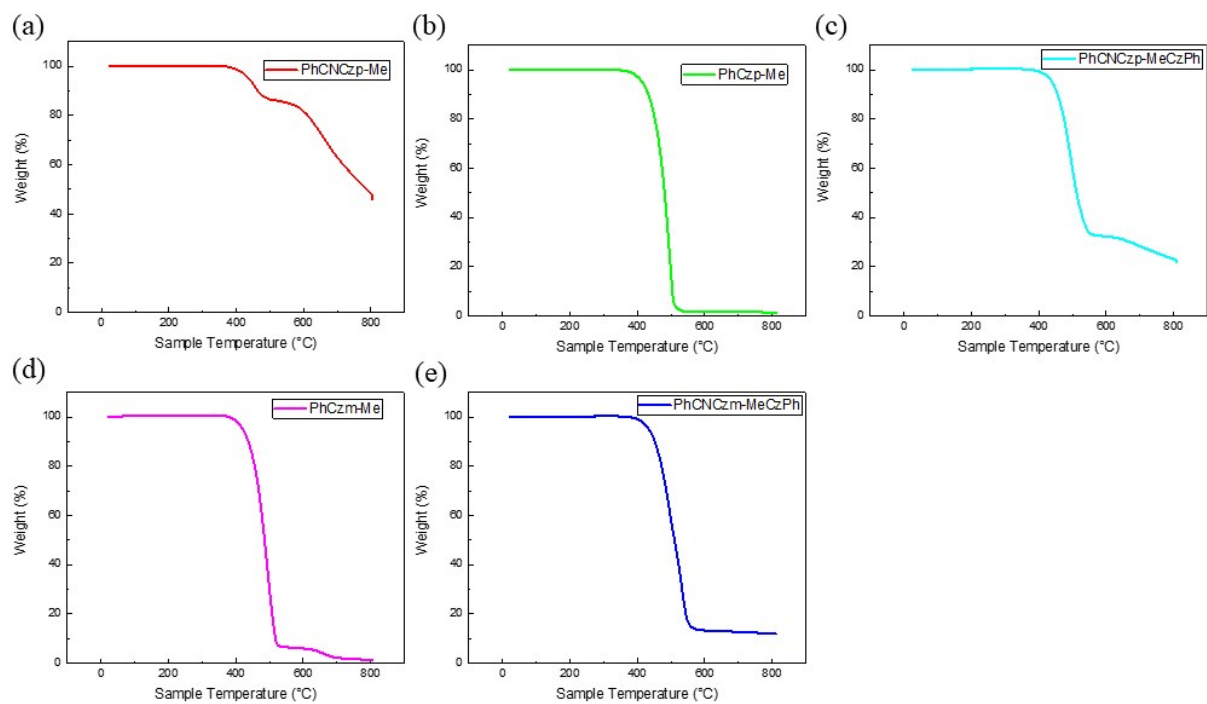


Figure S18. The TGA thermogram of (a) PhCNCzp-Me, (b) PhCzp-Me, (c) PhCNCzp-MeCzPh, (d) PhCzm-Me, (e) PhCNCzm-MeCzPh.