Supporting Information for;

Synthesis and Green Phosphorescent OLED Device Performance of Cyanofluorene-Linked Phenylcarbazoles as Host Material

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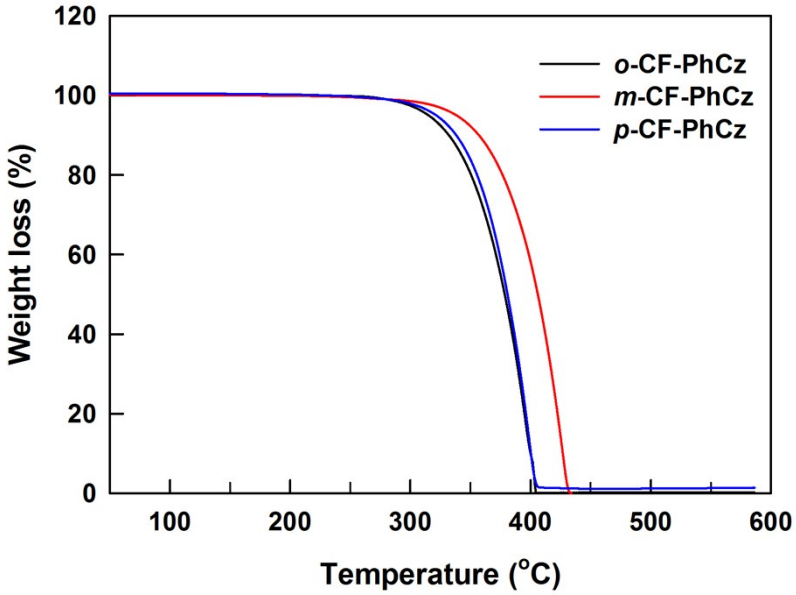


Figure S1. TGA thermograms of *o*-CF-PhCz, *m*-CF-PhCz and *p*-CF-PhCz under a heating rate of 10 °C/min..

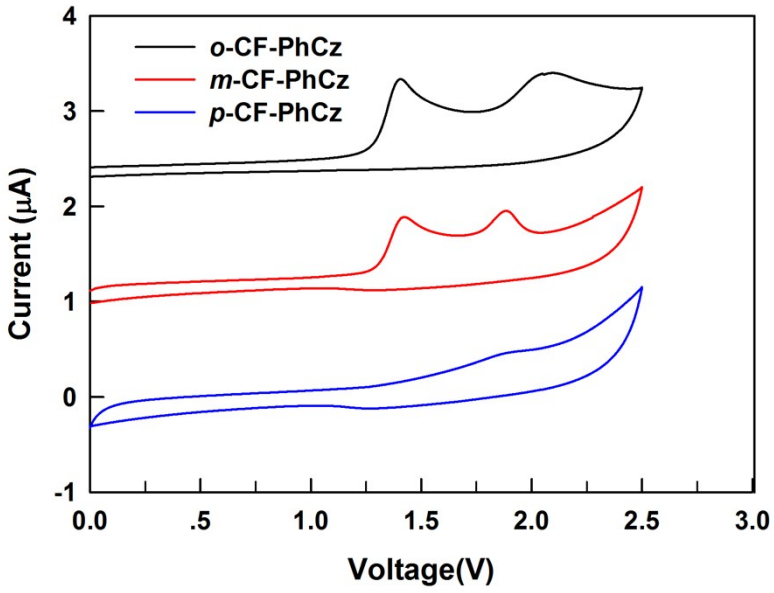
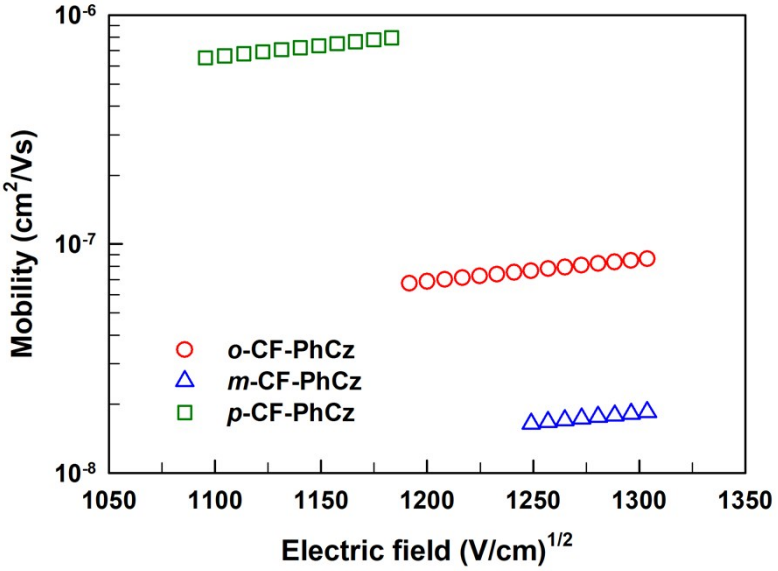
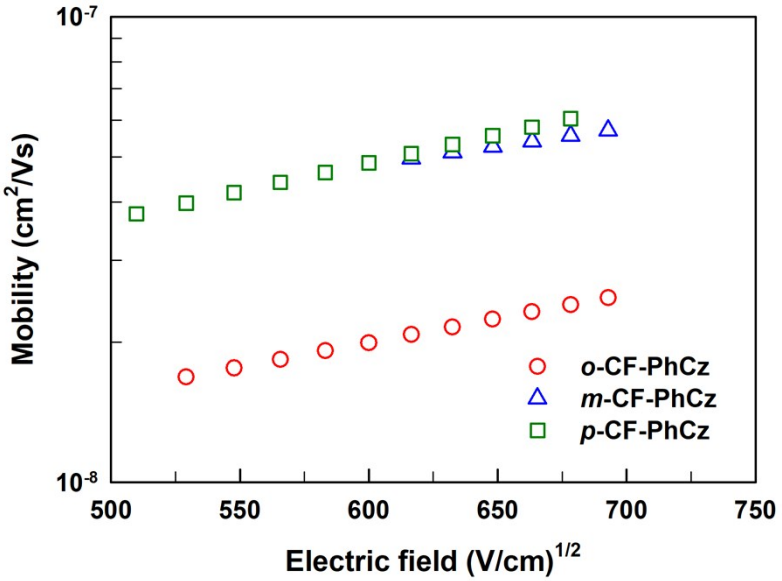


Figure S2. Cyclic voltammograms of *o*-CF-PhCz, *m*-CF-PhCz and *p*-CF-PhCz.

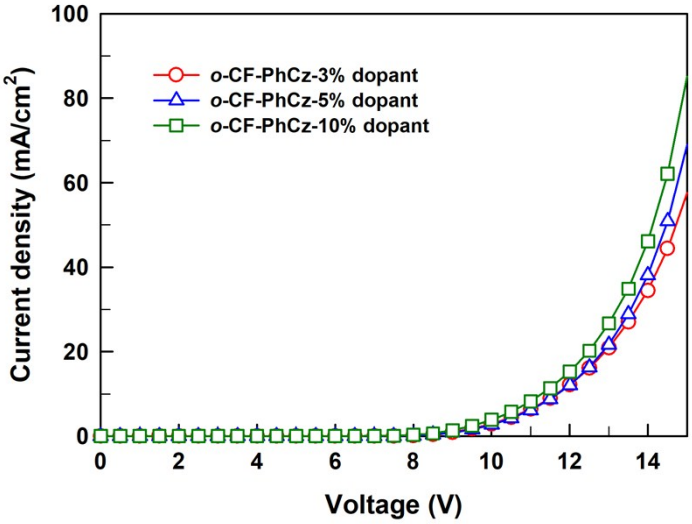


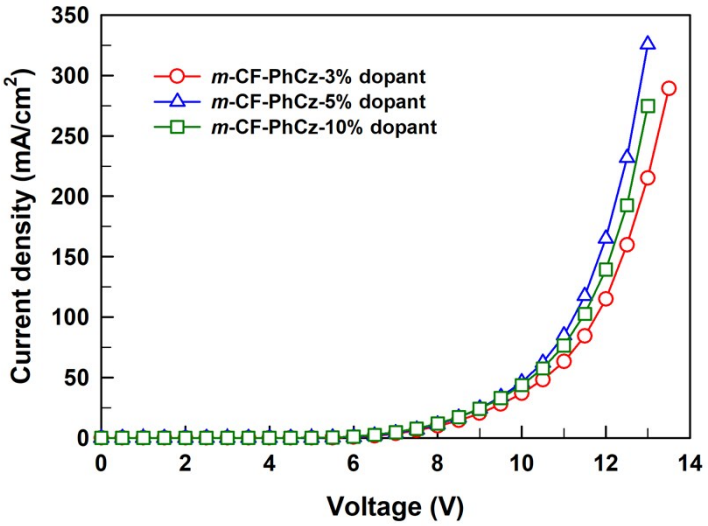
(A)



(B)

Figure S3. Plot of hole (A) and electron (B) mobilities of single devices with *o*-CF-PhCz, *m*-CF-PhCz and *p*-CF-PhCz against the electric filed: HOD device [PEDOT:PSS(60 nm)/host(50 nm)/Al(200 nm)], EOD single device [PEDOT:PSS(60 nm)/TSPO1(10 nm)/host(50 nm)/LiF(1.5 nm)/Al(200 nm)].


o-CF-PhCz-3% dopant
o-CF-PhCz-5% dopant
o-CF-PhCz-10% dopant
Current density (mA/cm2)
Voltage (V)
0
20
40
60
80
100
0
2
4
6
8
10
12
14


m-CF-PhCz-3% dopant
m-CF-PhCz-5% dopant
m-CF-PhCz-10% dopant
Current density (mA/cm2)
Voltage (V)
0
50
100
150
200
250
300
350
0
2
4
6
8
10
12
14

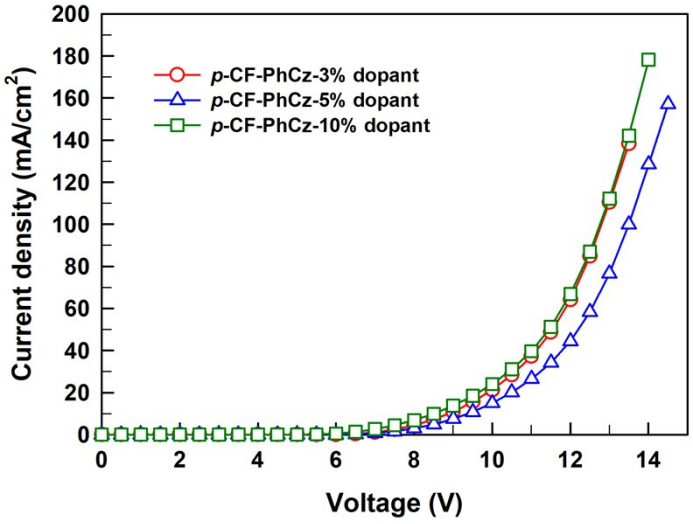

p-CF-PhCz-3% dopant
p-CF-PhCz-5% dopant
p-CF-PhCz-10% dopant
Current density (mA/cm2)
Voltage (V)
0
20
40
60
80
100
120
140
160
180
200
0
2
4
6
8
10
12
14

Figure S4. Current density-voltage curves of the green PhOLED devices with *o*-CF-PhCz, *m*-CF-PhCz and *p*-CF-PhCz according to the doping concentration of dopant.

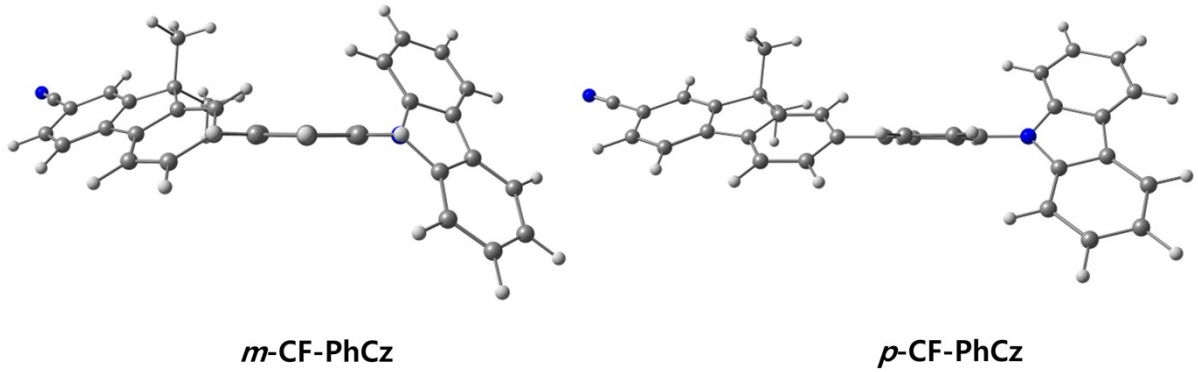


Figure S5. The optimized chemical structure of *m*-CF-PhCz and *p*-CF-PhCz.

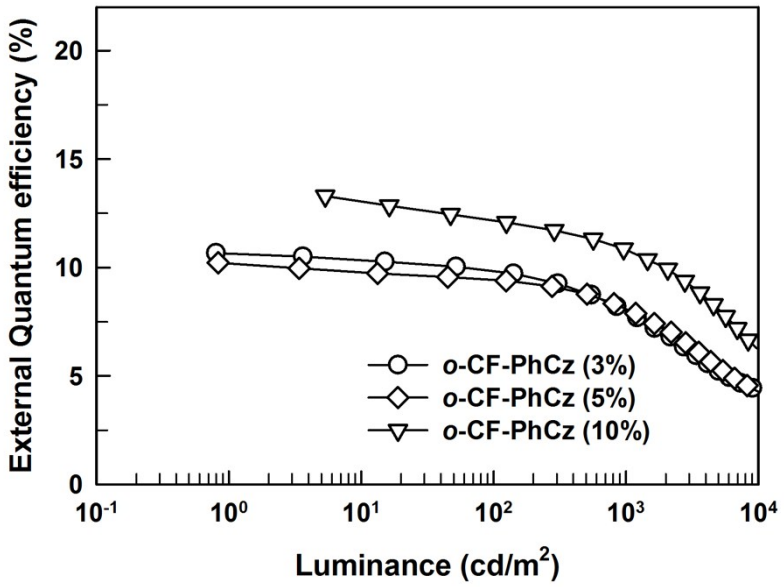


Figure S6. External quantum efficiency-luminance curves of *o*-CF-PhCz at 3, 5, and 10 % doping concentration of dopant.

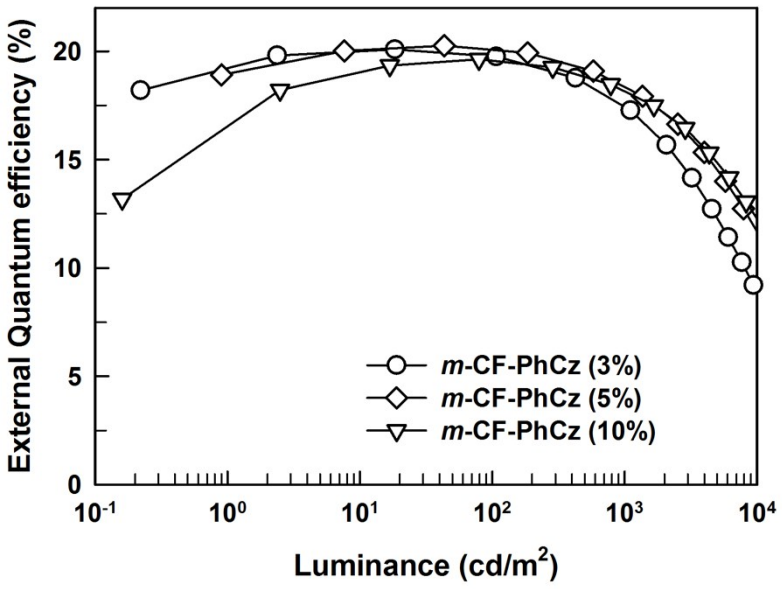


Figure S7. External quantum efficiency-luminance curves of *m*-CF-PhCz at 3, 5, and 10 % doping concentration of dopant.

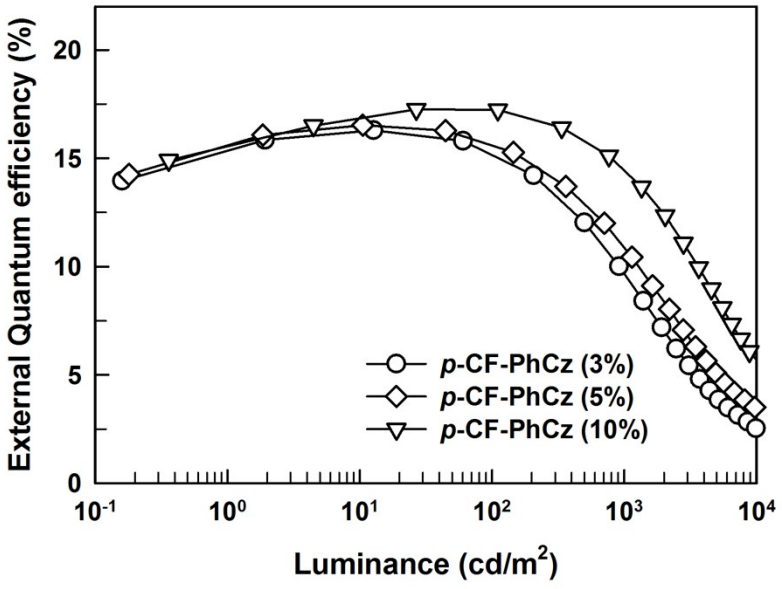


Figure S8. External quantum efficiency-luminance curves of *p*-CF-PhCz at 3, 5, and 10 % doping concentration of dopant.

Table S1. Molecular simulation results of *o*-CF-PhCz, *m*-CF-PhCz and *p*-CF-PhCz.

	***o*-CF-PhCz**	***m*-CF-PhCz**	***p*-CF-PhCz**
HOMO (eV)	-5.468	-5.458	-5.417
LUMO (eV)	-1.781	-1.891	-1.889
E_g (eV)	3.687	3.567	3.528
S_1 (eV)	-3.193	-3.192	-3.182
T_1 (eV)	-2.701	-2.656	-2.613