

Electronic Supplementary Information

**Highly efficient white electroluminescence from dual-core
star-shaped single polymer: performance improved by changing the
non-emissive core**

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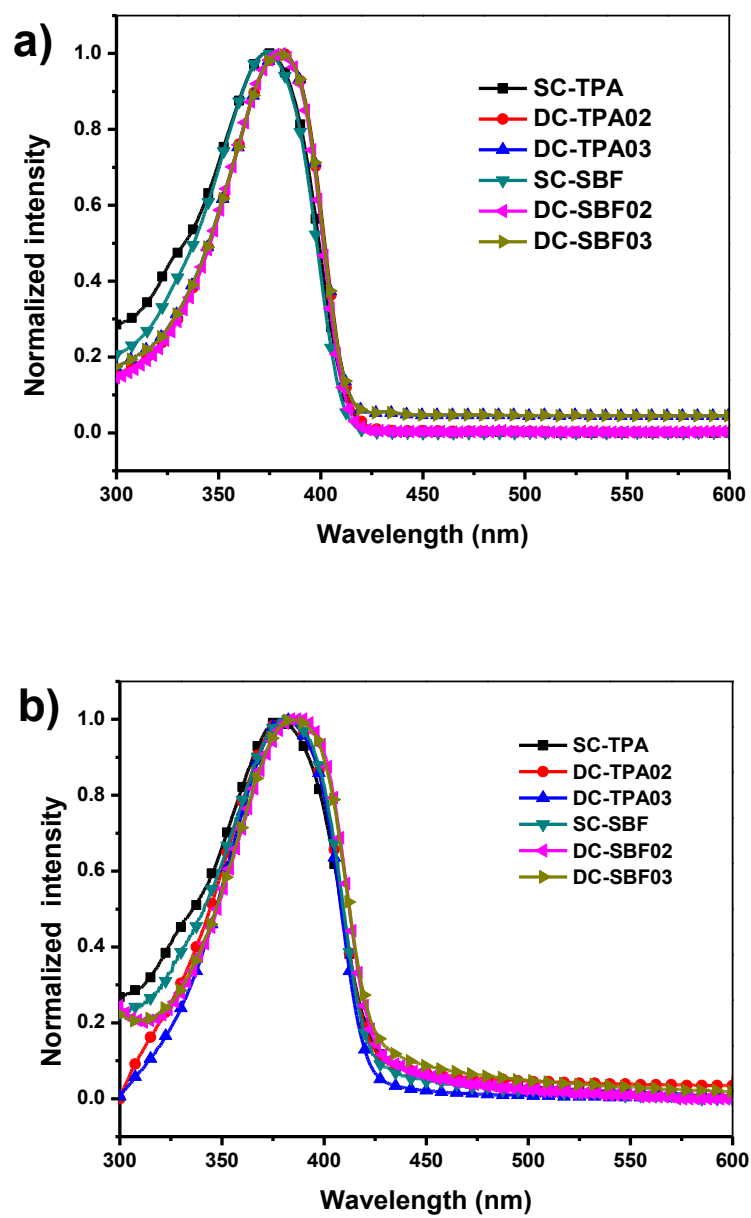


Fig. S1 Absorption spectra of DC-TPAs and DC-SBFs in toluene (a) and in film (b).

Table S1 Quantum yield (Φ) of polymers in toluene.

polymers	Φ
SC-TPA	76
DC-TPA02	78
DC-TPA03	77
SC-SBF	74
DC-SBF02	76
DC-SBF03	74

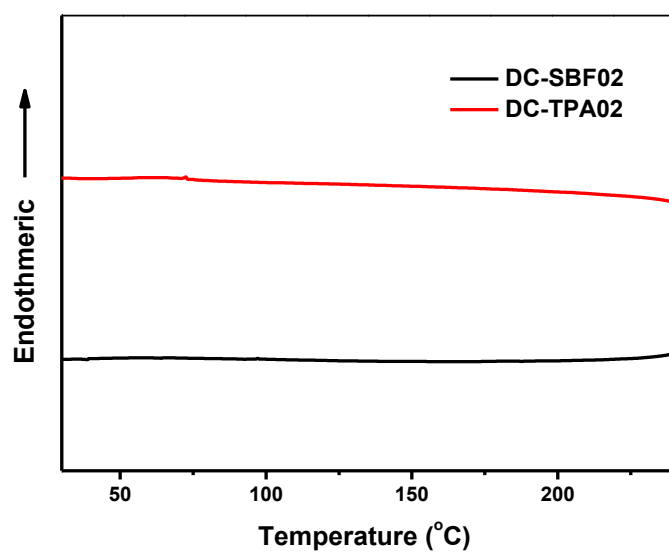


Fig. S2 DSC curves of DC-SBF02 and DC-TPA02 polymers.

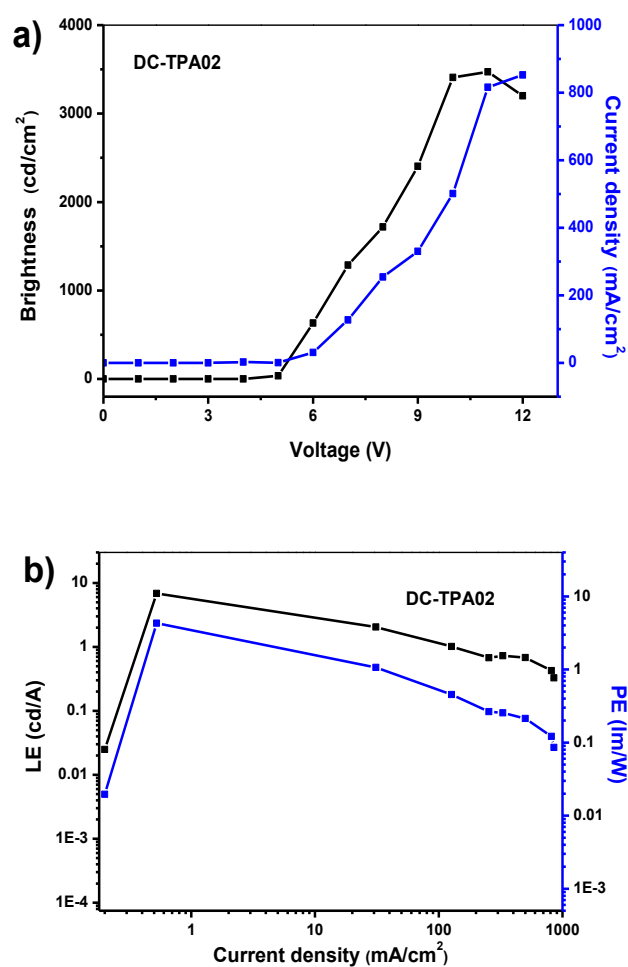


Fig. S3 Brightness-voltage-current density (a) and efficiency- current density (b) characteristics of the device based on DC-TPA02.

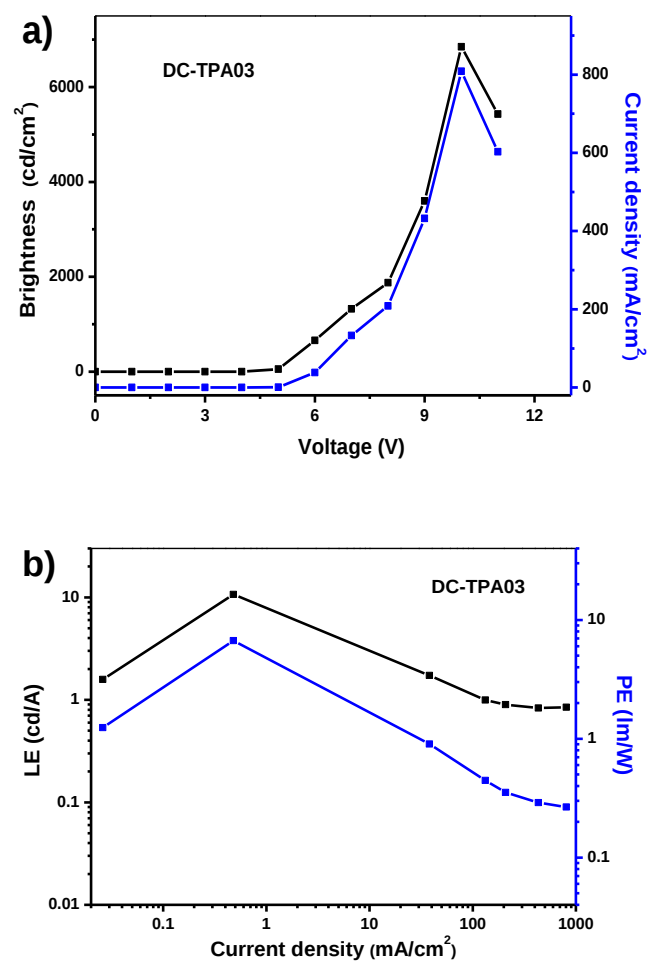


Fig. S4 Brightness-voltage-current density (a) and efficiency- current density (b) characteristics of the device based on DC-TPA03.

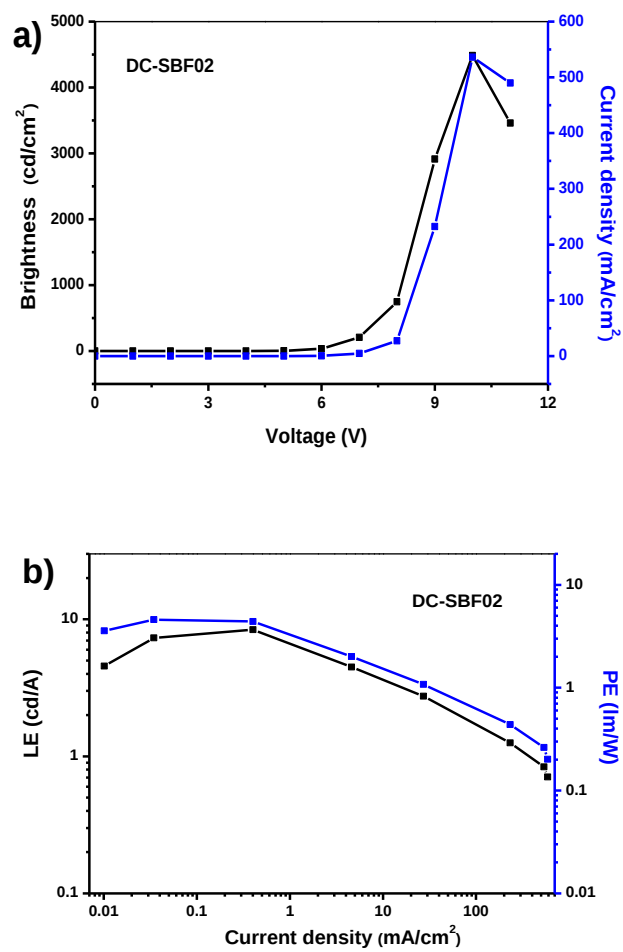


Fig. S5 Brightness-voltage-current density (a) and efficiency- current density (b) characteristics of the device based on DC-SBF02.

Table S2 Summary on the EL performance of WPLEDs based on the single fluorescent or phosphorescent polymers.

Single polymers	Device structure	LE (cd/A)	PE (lm/w)	CIE (x, y)	Publication year ^{Ref.}
DC-SBF03	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	17.4	10.9	0.37, 0.43	/ (This work)
DC-PFM02	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	15.8	6.29	0.33, 0.36	2017 ¹
SPF-PM02	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	10.3	5.68	0.28, 0.30	2017 ²
WDP-1	ITO/PEDOT:PSS/polymer/TPBi/ LiF/Al	7.82	/	0.31, 0.33	2017 ³
PFPM03	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	8.14	3.93	0.34, 0.41	2016 ⁴
P1	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	6.13	3.85	0.21, 0.25	2016 ⁵
FBPAN 0.5	ITO/PEDOT:PSS/polymer/Al	7.56	5.32	0.32, 0.31	2016 ⁶
TN-R3G4	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	2.41	1.33	0.34, 0.35	2016 ⁷
PF-T5SO15	ITO/PEDOT:PSS/polymer/CsF/ Al	2.34	/	0.27, 0.39	2016 ⁸
R4G4	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	1.59	/	0.31, 0.34	2015 ⁹
PFCzSDF10DBT 10	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	4.27	1.45	0.32, 0.26	2015 ¹⁰
P2	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	1.45	0.60	0.33, 0.33	2015 ¹¹
SPPs	ITO/PEDOT:PSS/polymer /CsF/Al	3.91	/	0.46, 0.42	2015 ¹²
PF-Ir(piq) ₃ 50	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	3.08	/	0.28, 0.23	2015 ¹³
HBP4	ITO/PEDOT:PSS/polymer/CsF/ Ca/Al	0.21	/	0.27, 0.35	2015 ¹⁴
PCz–SO–BT7	ITO/PEDOT:PSS/polymer /CsF/Al	8.2	8.0	0.32, 0.41	2014 ¹⁵
PFO–DBT5	ITO/PEDOT:PSS/polymer /LiF/Ca/Al	3.34	/	0.37, 0.36	2013 ¹⁶
S-WP-002TPB3	ITO/PEDOT:PSS/polymer/Ca/Al	16.62	7.73	0.33,	2012 ¹⁷

				0.36	
S-WP-002TPB6	ITO/PEDOT:PSS/polymer/Ca/Al	18.01	9.85	0.33, 0.35	2011 ¹⁸
WP-B5G5R2	ITO/PEDOT:PSS/polymer/ PF-EP/LiF/Al	15.7	11.4	0.37, 0.42	2010 ¹⁹
MF001	ITO/PEDOT:PSS/polymer/TPBI /LiF/Al	7.2	3.48	0.23, 0.33	2010 ²⁰
ECP	ITO/polymer/TPBI/LiF/Al	6.7	2.4	0.33, 0.35	2010 ²¹
S-WP-003	ITO/ PEDOT:PSS /polymer/Ca/Al	7.06	4.43	0.35, 0.39	2008 ²²
P4	TO/PEDOT:PSS/PVK/ polymer/Ca/Ag	/	/	0.33, 0.34	2008 ²³
WP-B5O3	ITO/ PEDOT:PSS /polymer/Ca/Al	12.8	8.5	0.31, 0.36	2007 ²⁴
WP-B2G5R5	ITO/ PEDOT:PSS /polymer/Ca/Al	9.0	5.7	0.39, 0.40	2007 ²⁵
PFO-R010- G018	ITO/ PEDOT:PSS /PVK/ polymer/Ba/Al	6.20	/	0.35, 0.34	2007 ²⁶
Pir05PF	ITO/PEDOT:PSS/polymer/Ca/Al	4.49	2.35	0.44, 0.32	2007 ²⁷
W3	TO/PEDOT:PSS/ polymer /CsF/Al	8.2	7.2	0.35, 0.38	2007 ²⁸
WP-P1	ITO/PEDOT:PSS/polymer/Ca/Al	10.66	6.68	0.30, 0.40	2007 ²⁹
WRGB-P1	ITO/PEDOT:PSS/polymer/Ca/Al	7.30	4.17	0.31, 0.32	2007 ³⁰
PFirR1G03	ITO/PEDOT:PSS/PVK/ polymer/CsF/Al	3.9	/	0.33, 0.34	2006 ³¹
WPF-BT-3	ITO/PEDOT:PSS/polymer/Ca/Al	7.30	3.34	0.35, 0.32	2006 ³²
P1-0.5	ITO/PEDOT:PSS/polymer/Ca/Al	3.80	2.01	0.32, 0.36	2006 ³³
WPF-G2R3	ITO/PEDOT:PSS/polymer/Ca/Al	1.59	0.83	0.31, 0.34	2005 ³⁴
P1-0.05	ITO/PEDOT:PSS/polymer/Ca/Al	5.3	2.8	0.25, 0.35	2004 ³⁵

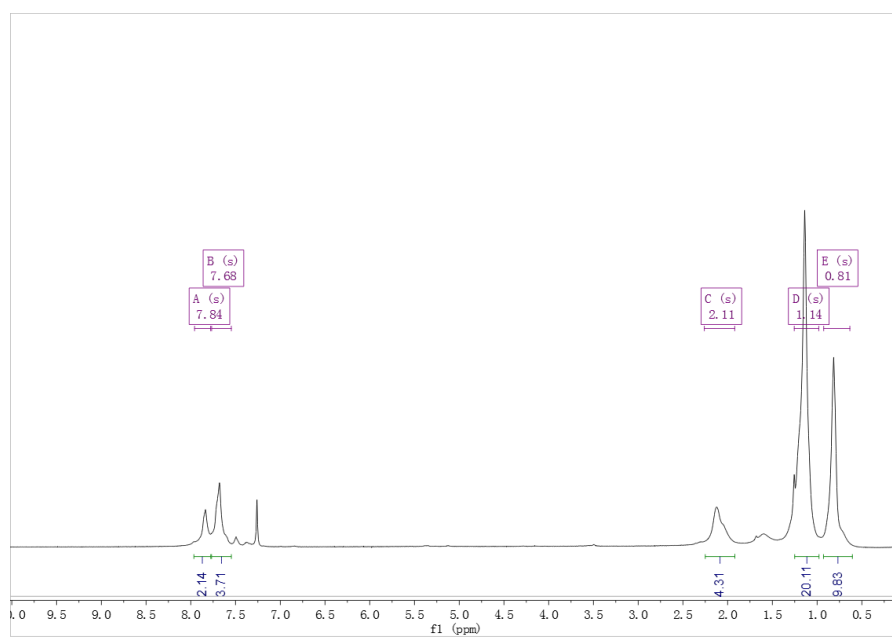


Fig. S6 ¹H NMR spectrum SC-TPA.

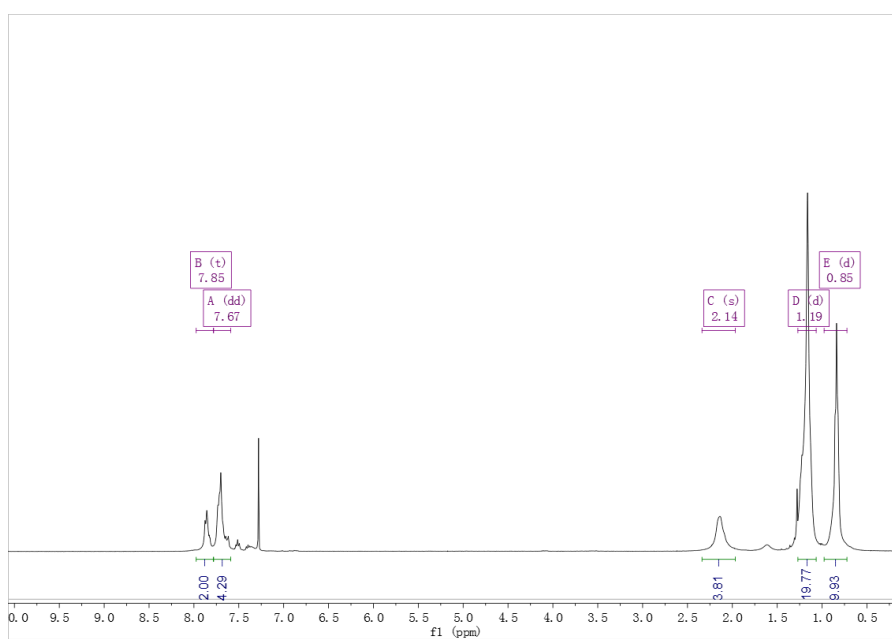


Fig. S7 ¹H NMR spectrum DC-TPA02.

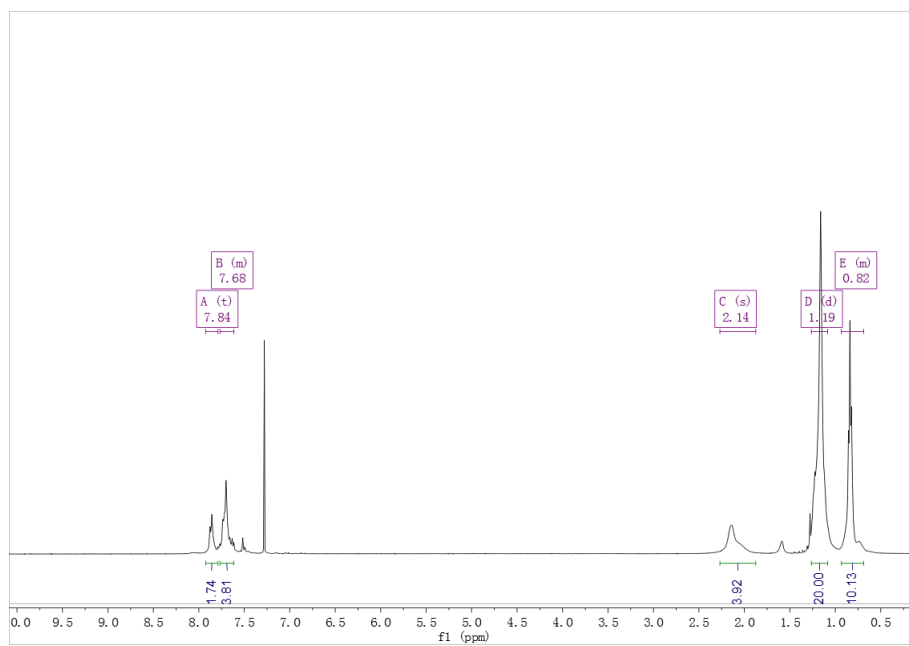


Fig. S8 ¹H NMR spectrum DC-TPA03.

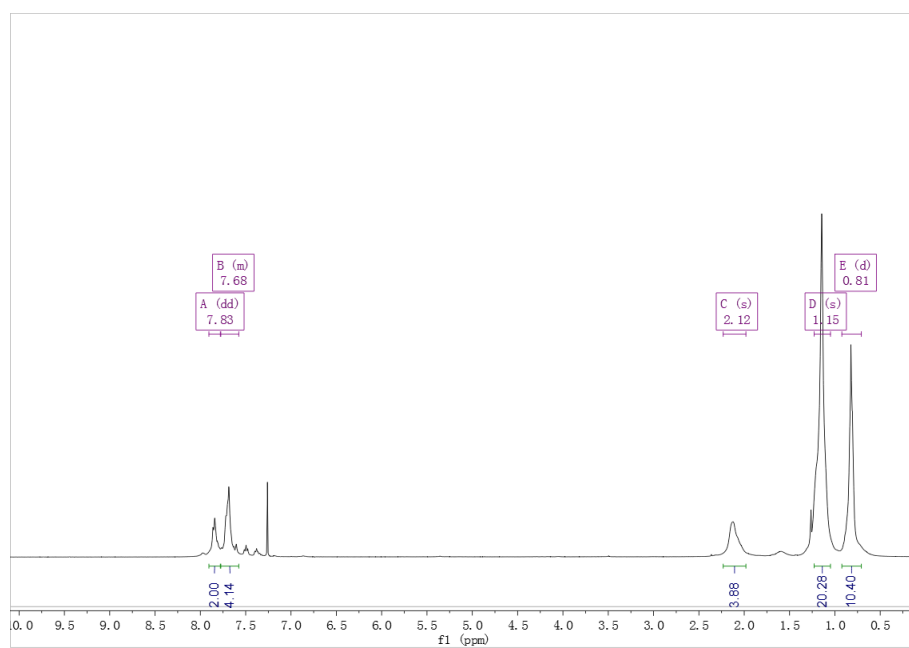


Fig. S9 ¹H NMR spectrum SC-SBF.

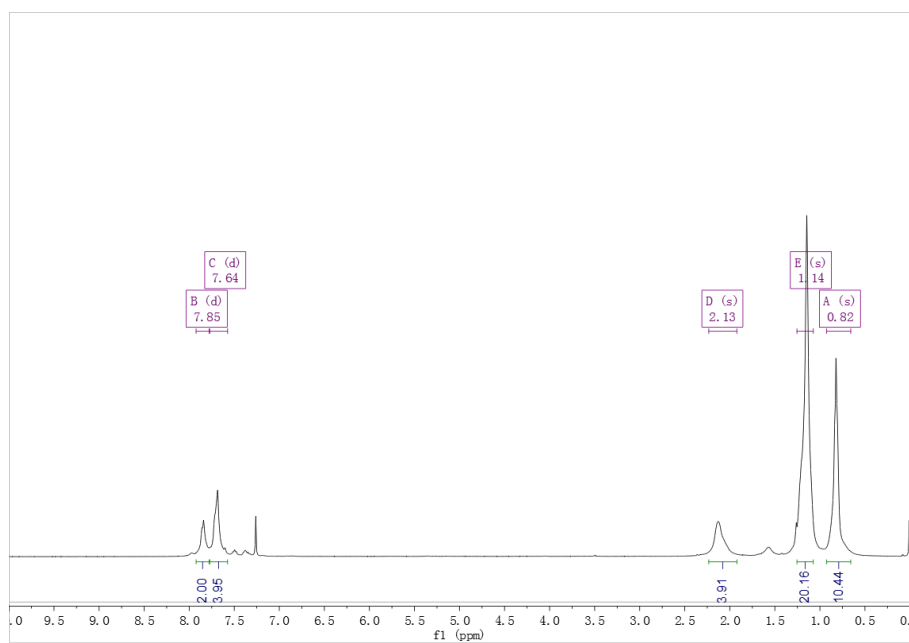


Fig. S10 ¹H NMR spectrum DC-SBF02.

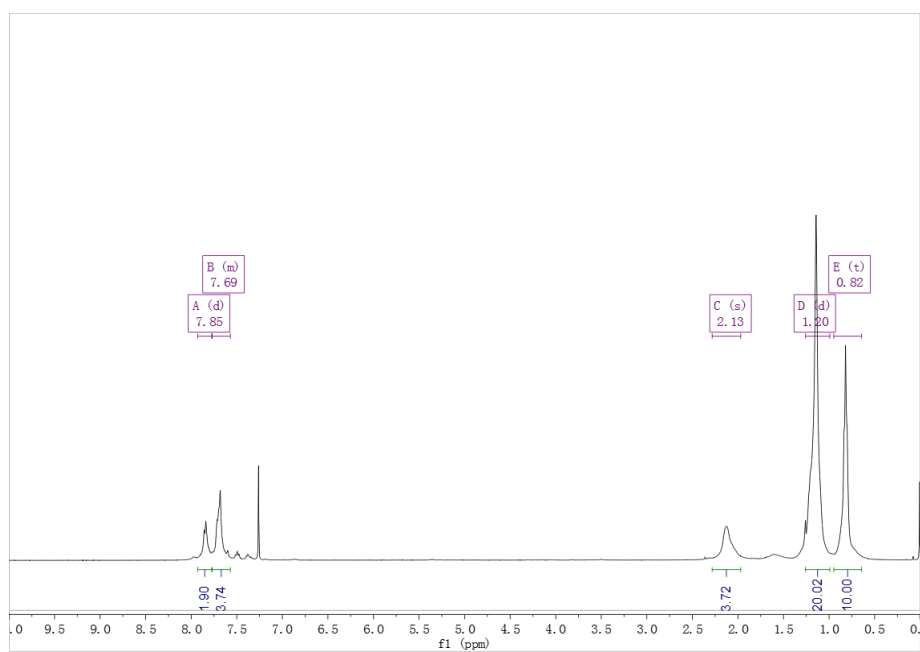


Fig. S11 ¹H NMR spectrum DC-SBF03.

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