Supporting Information

Napthalimide End-Capped Diphenylacetylene: A Versatile Organic Semiconductor for Blue Light Emitting Diodes and Donor or Acceptor for Solar Cells

*Thu-Trang Do,[a] Jegadesan Subbiah,[b] Sudam Chavan,[c] Tsu-Hao Ou,[c] Sergei Manzhos,[d] David Jones, [b] John M. Bell,[a] JwoHuei Jou [c] and Prashant Sonar[a]**

[a]School of Chemistry, Physics and Mechanical Engineering, Queensland University of Technology (QUT), 2 George Street, Brisbane, QLD-4001, Australia.

[b]School of Chemistry, University of Melbourne, Bio21 Institute, 30 Flemington Road, Parkville, Victoria 3010, Australia

[c]Department of Materials Science and Engineering, National Tsing-Hua University, 101 Sec-2 Kuang -Fu Road, Hsinchu -30013 Taiwan

[d]Department of Mechanical Engineering, Faculty of Engineering, National University of Singapore, Block EA #07-08, 9 Engineering Drive 1, Singapore 117576.

*E-mail: sonar.prashant@qut.edu.au.

KEYWORDS: Napthalimide, Electron Acceptors, Electron Donor, Wide Band-gap Molecules, Organic Solar Cells.

Contents

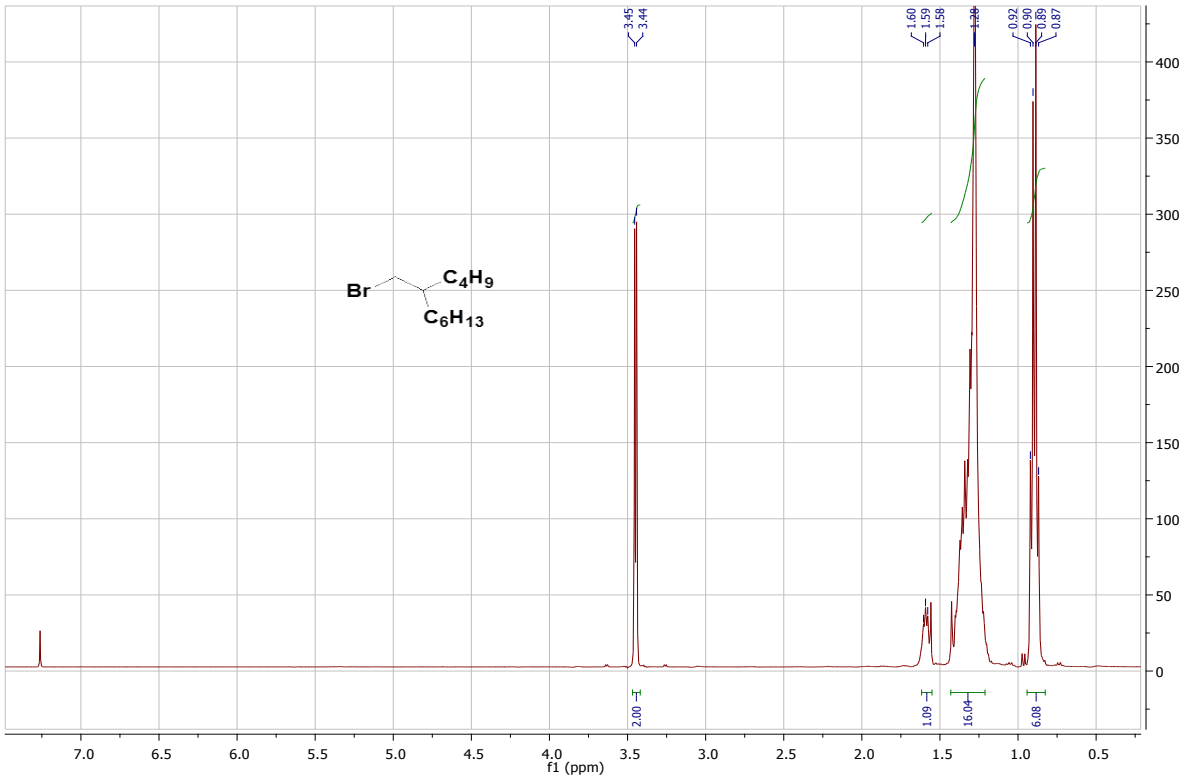

Figure S1. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of compound **1**

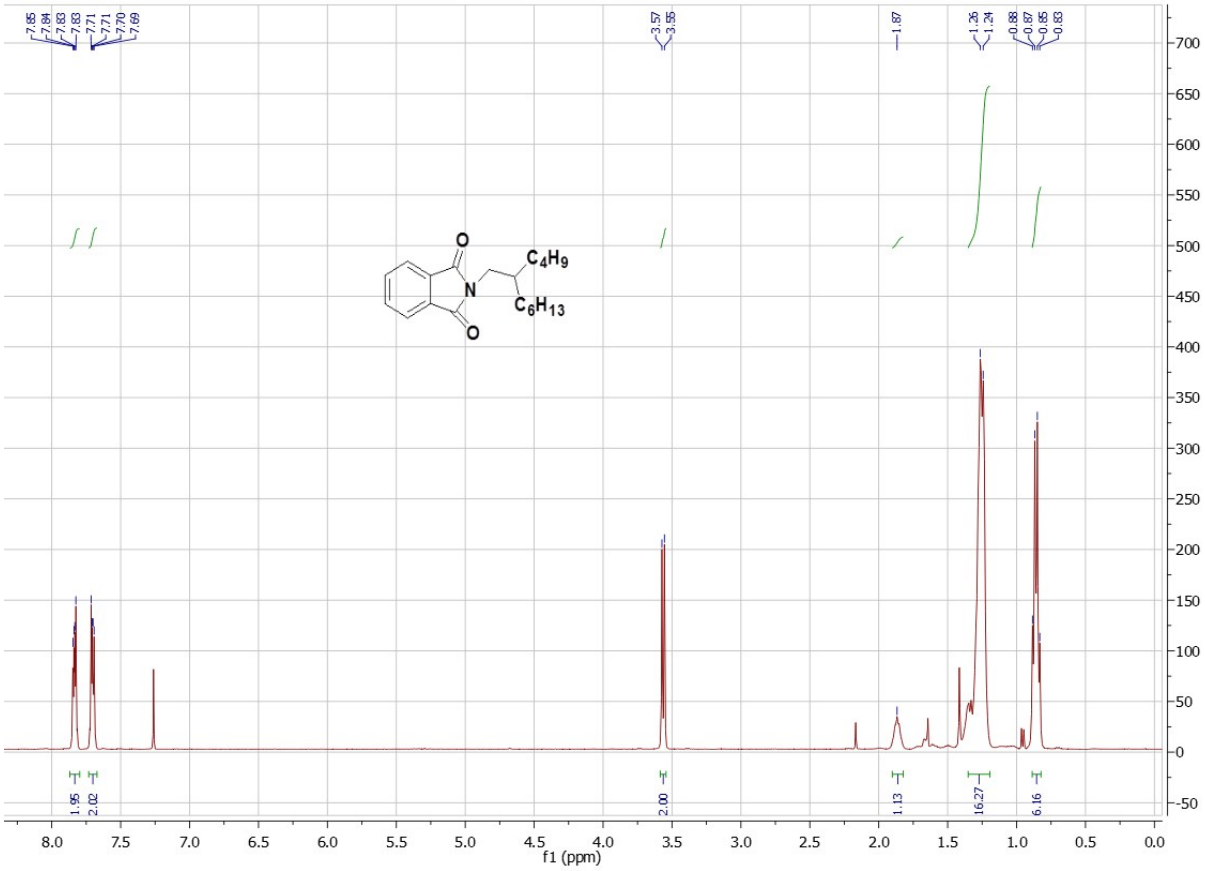

Figure S2. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of compound **2**

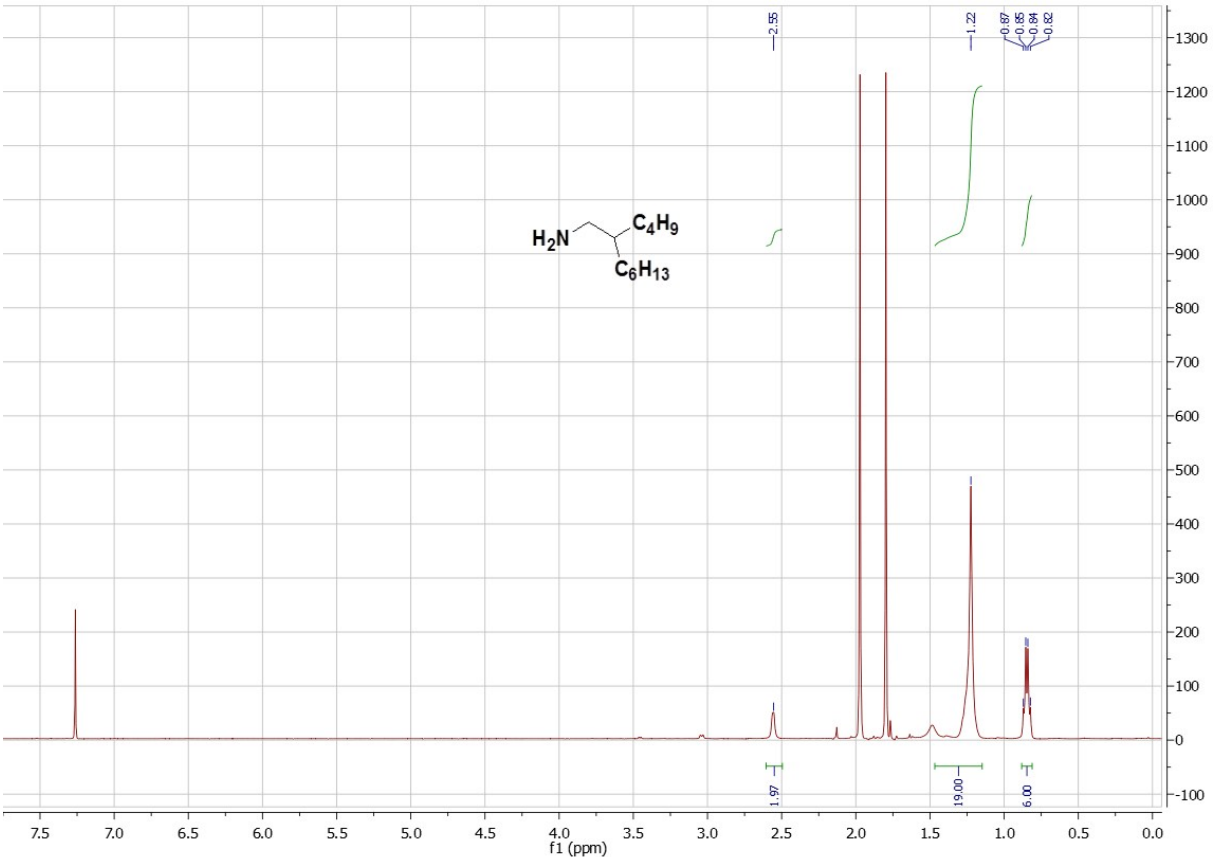

Figure S3. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of **3**

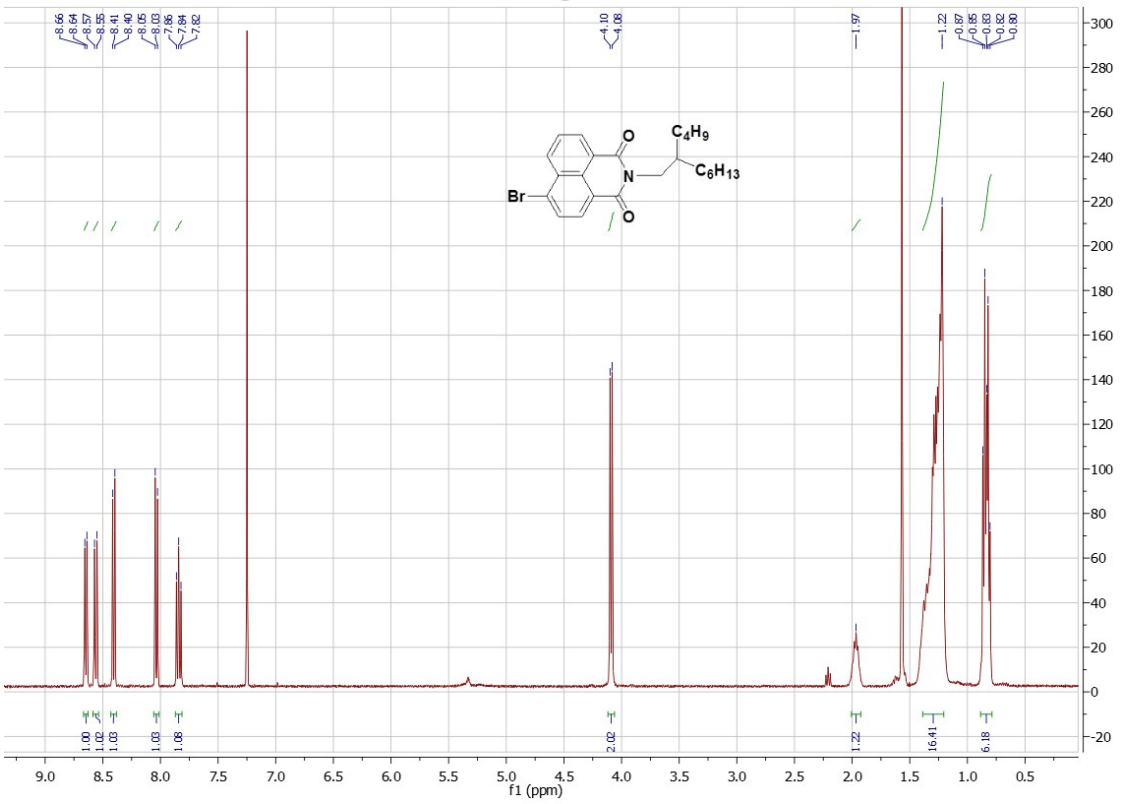

Figure S4. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of compound **5**

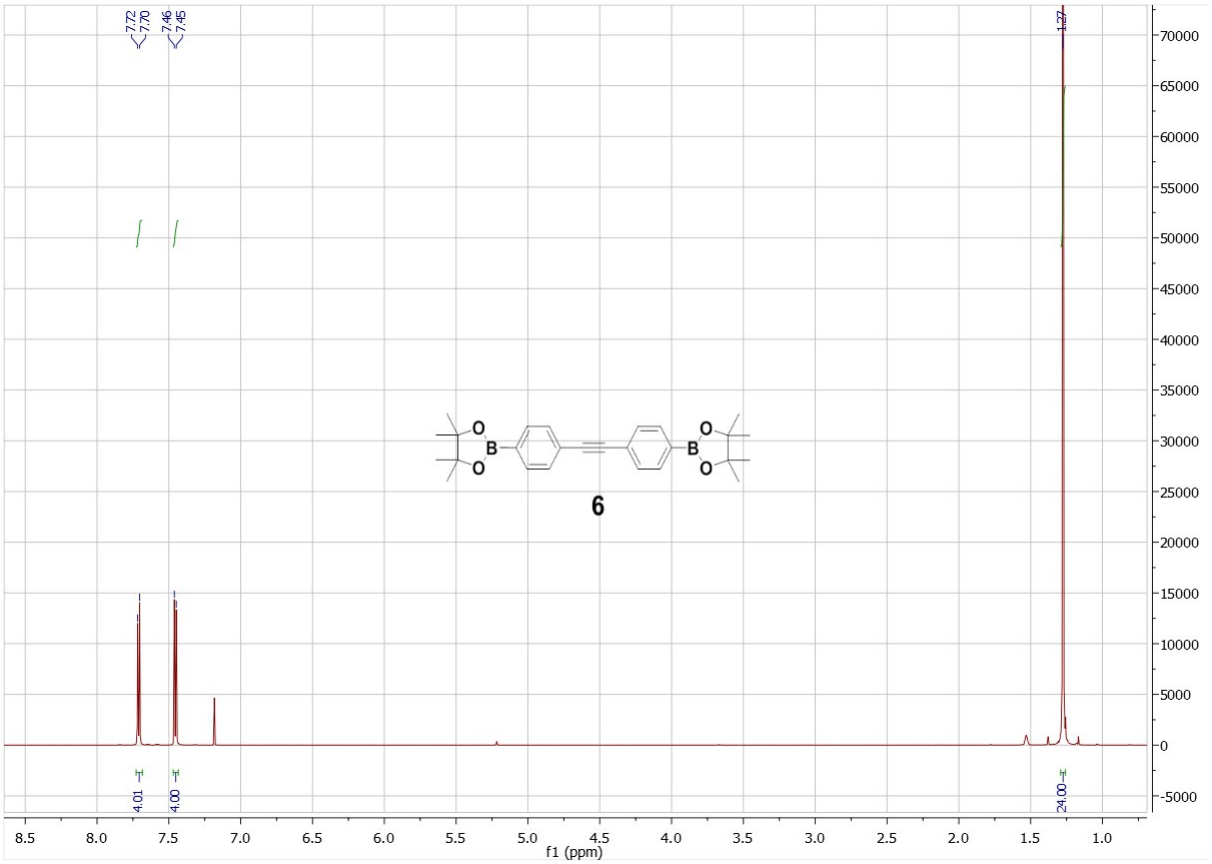

Figure S5. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of compound **6**

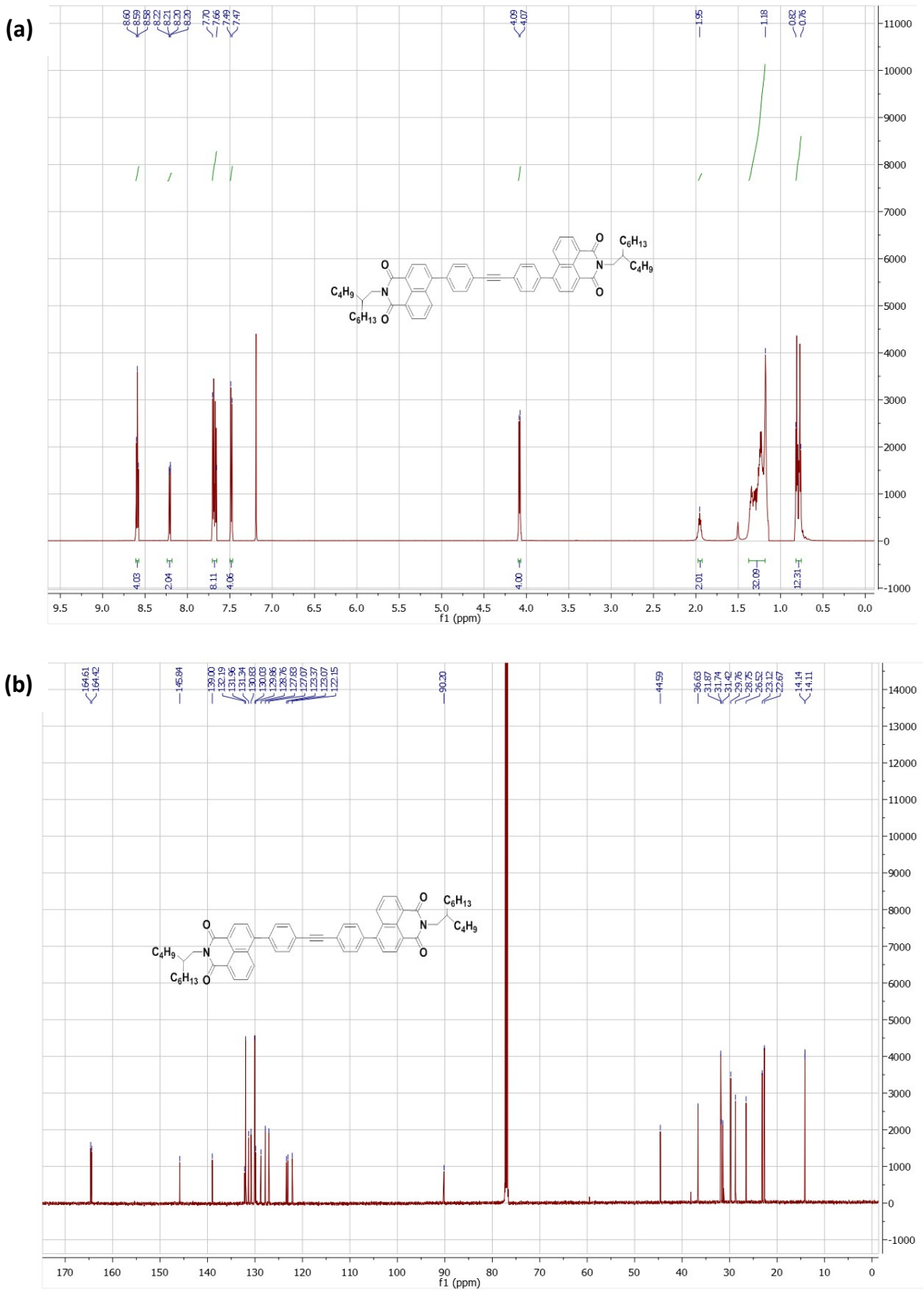

Figure S6. (a) ^{1}H NMR (600 MHz, $CDCl_3$) spectrum and (b) ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **NAI-PVP-NAI**

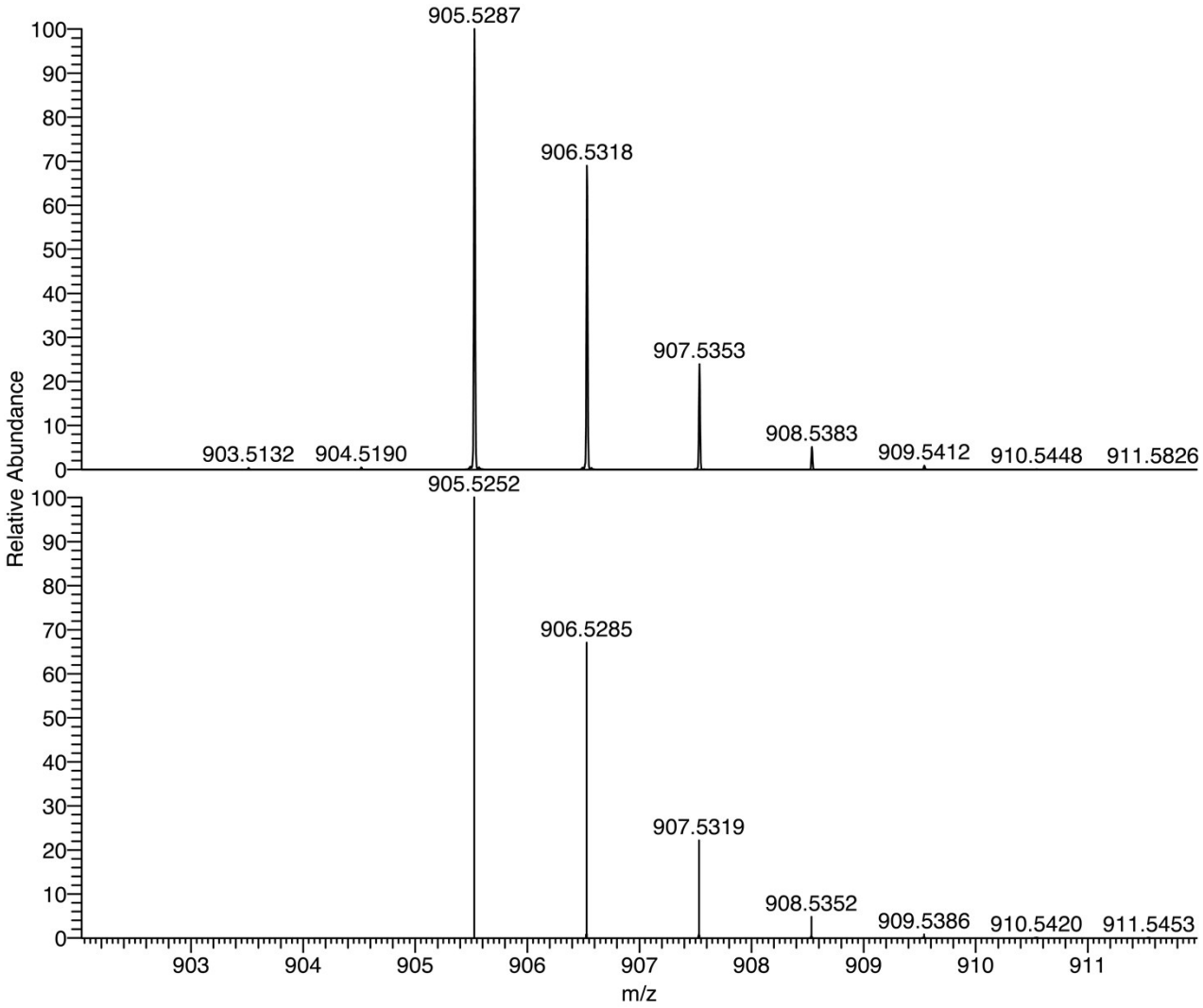

Figure S7. HRMS spectrum of **NAI-PVP-NAI**

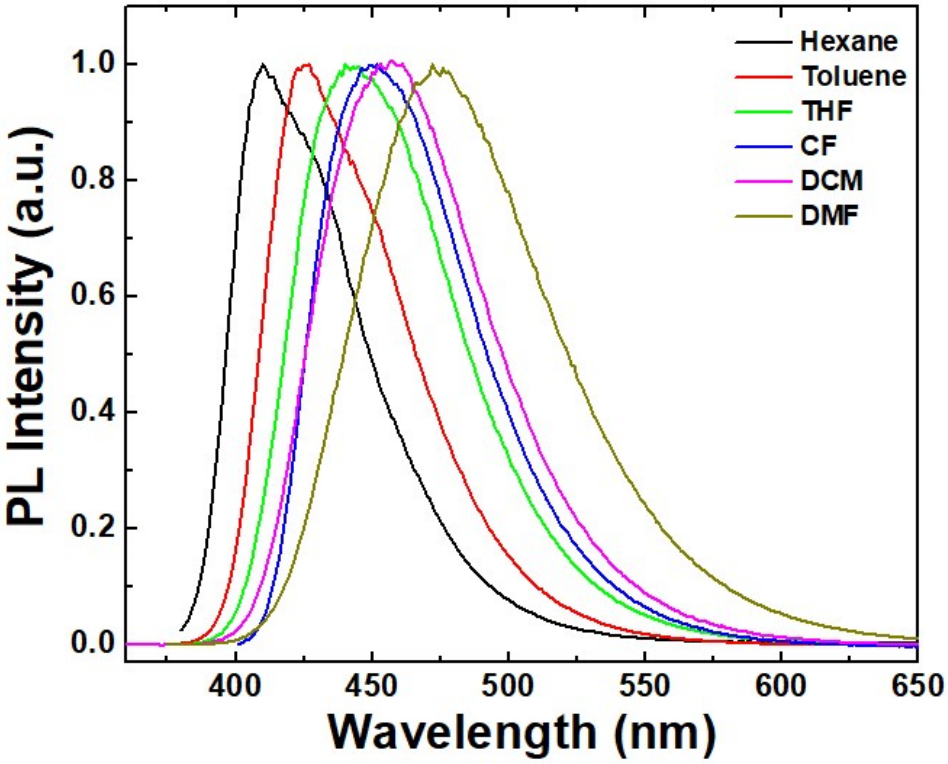

Figure S8. Emission spectra of **NAI-PVP-NAI** in various solvents

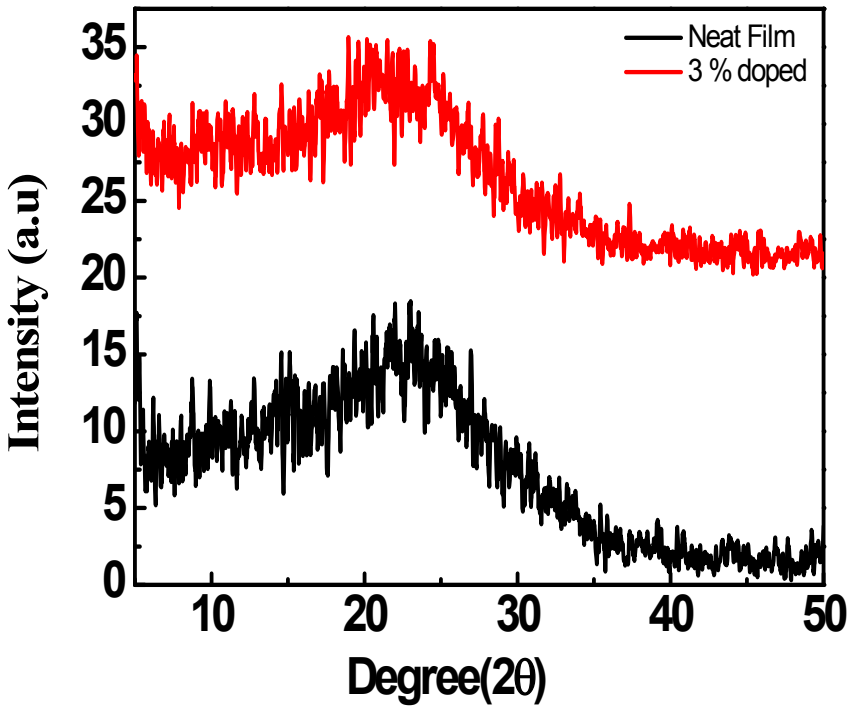

Figure S9: X-ray diffraction spectra of NAI-PVP-NAI neat film and CBP doped with 3-wt % **NAI-PVP-NAI** film.

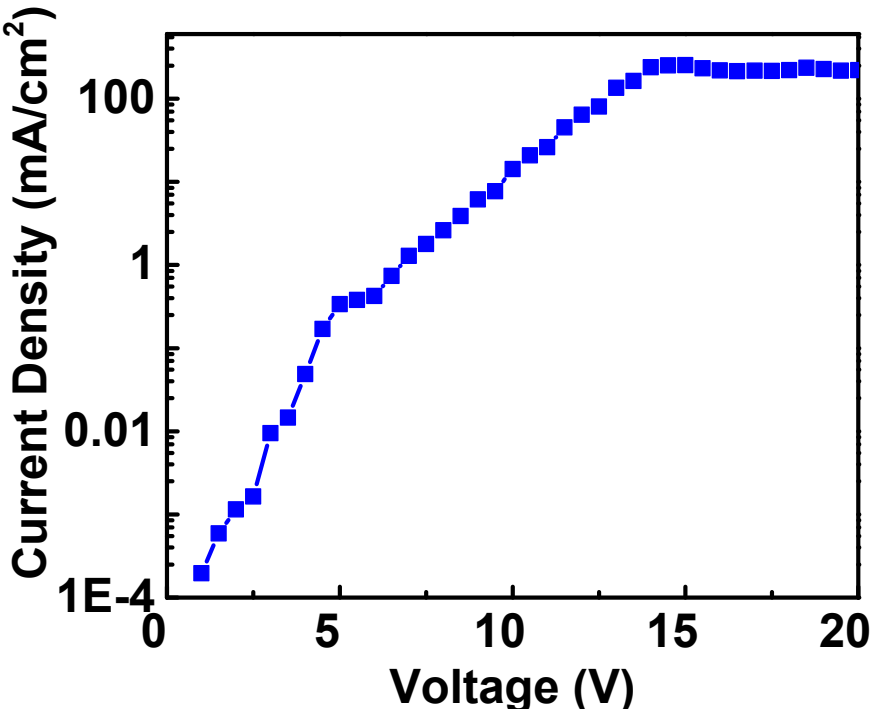

Figure S10. Current density –voltage curve of electron only device made up using **NAI-PVP-NAI**.