

### Supporting Information

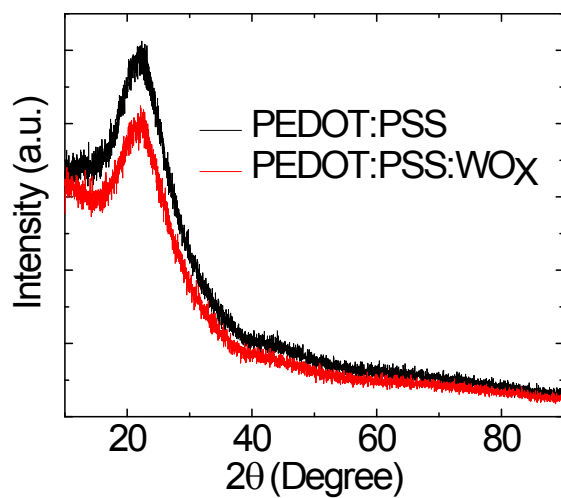


Fig. S1. XRD patterns of PEDOT:PSS and PEDOT:PSS:WO<sub>x</sub> layers.

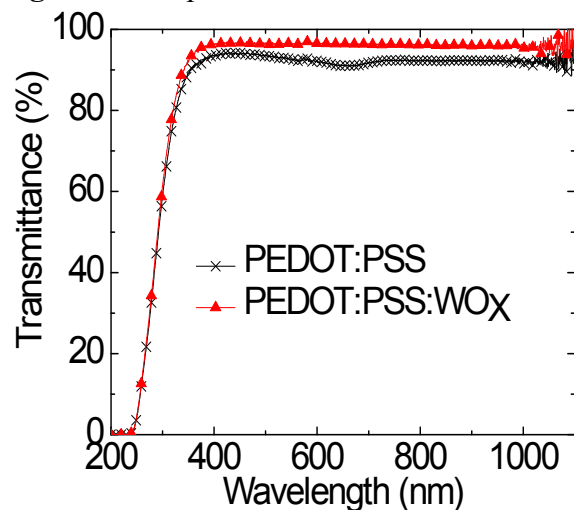


Fig. S2. Transmission of the investigated hole extraction layers.

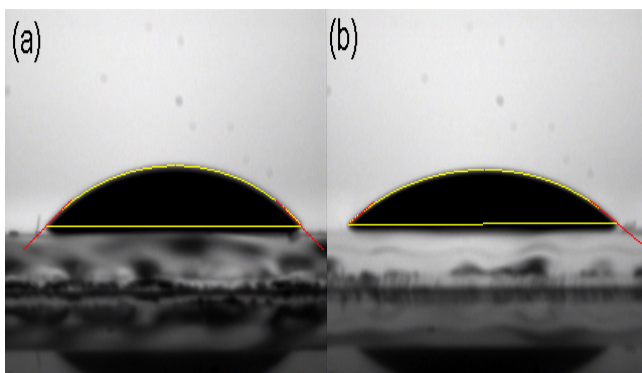


Fig. S3. The water contact angle for (a) PEDOT:PSS and (b) PEDOT:PSS:WO<sub>x</sub> layer with 29° and 36°, respectively.

**Table S1.** Reproducibility of inverted OPVs with different HTLs.

HTL	Total devices	The best PCE (%)	Average PCE (%)
P:WO <sub>x</sub>	40	5.44	5.37
P	4	4.02	3.93