Supplementary Information

One step deposition of PEDOT films by Plasma Radicals Assisted Polymerization via Chemical Vapour Deposition

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XPS analyses as well as Raman spectroscopy were carried out to check the chemical composition. According to the analyses a slightly amount of C1s was detected compare to the bare film, which can be attributed to adventitious carbon contamination, Figure S1. All main peaks of Raman spectroscopy did not suffer of any shift, confirming the stability of film, Figure S2. Finally conductivity measurements were monitored all along one year of measurements recorded value passed from $(1\pm0.2) \text{ S cm}^{-1}$ to $(0.85\pm0.2) \text{ S cm}^{-1}$, Figure S3. Finally no statistically significant degradation was observed on PEDOT films during the ageing study, confirming PRAP-CVD can be a good candidate to bypass all issues related to the degradation of PEDOT film.
Figure S1 - Atomic percentage trend of PEDOT-Br film collected at different time period by XPS analyses.

Figure S2 - Raman spectra of PEDOT-Br film recorded all along 1 year.
Figure S3 - Conductivity behaviour of one PEDOT-Br film measured in 1 year.