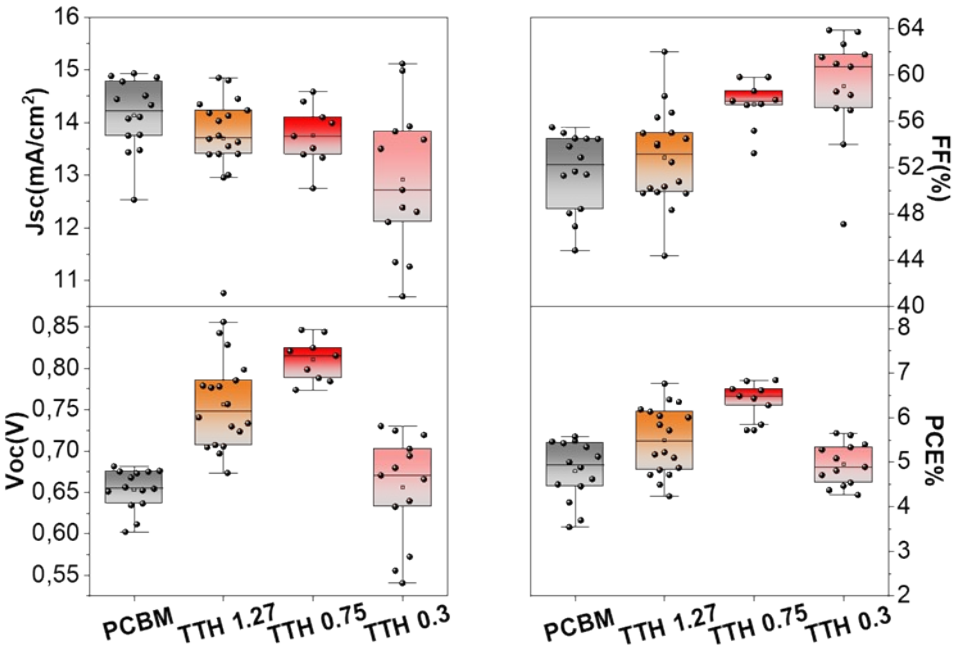
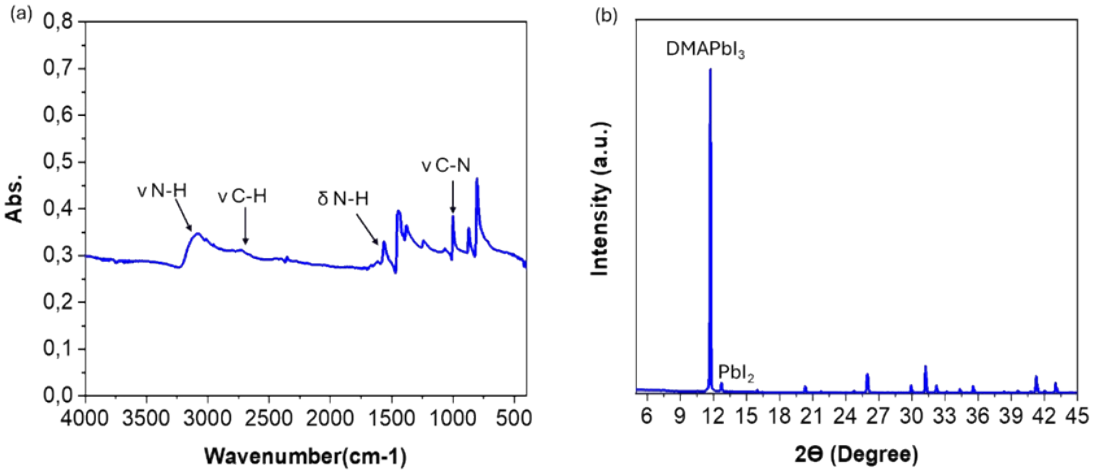
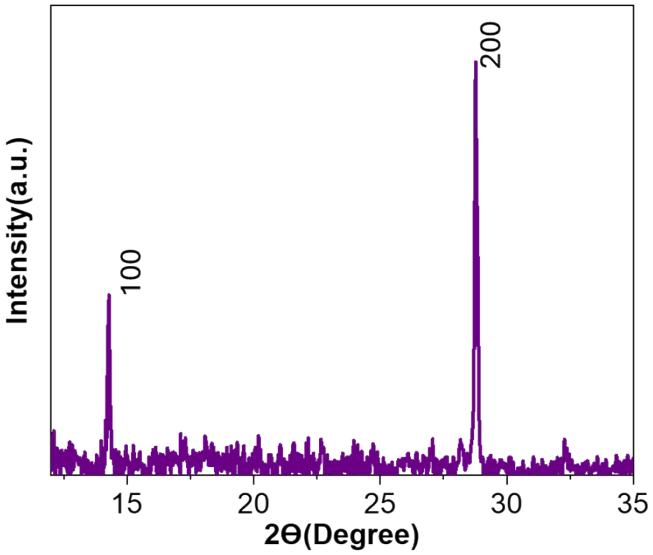
Supporting Information



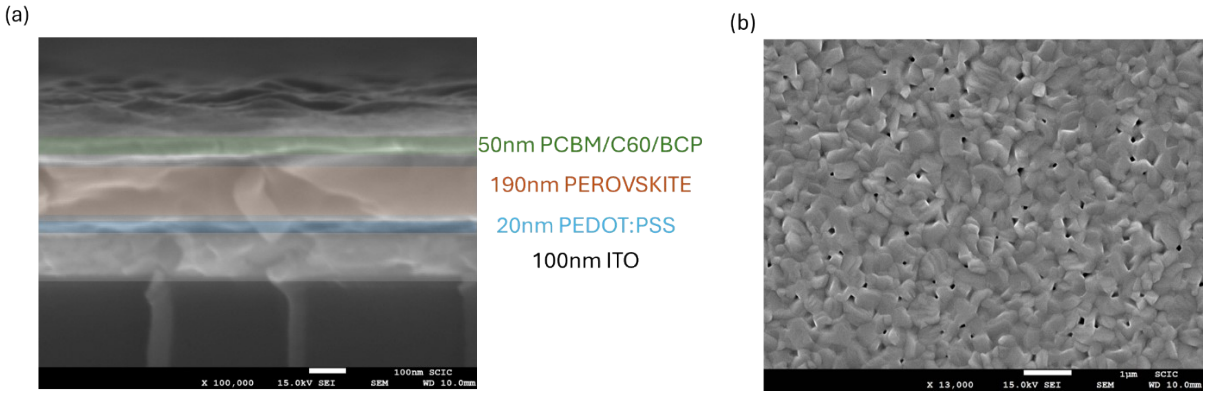
Supplementary Figure S1 I Statistical photovoltaic parameters obtained for PCBM and TTH at different concentrations 1,27mg/ml; 0,75mg/ml and 0,3mg/ml in CB.



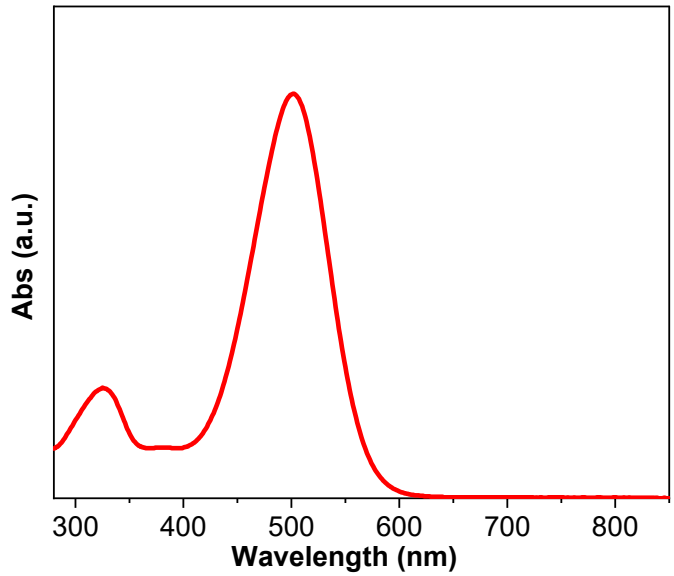
Supplementary Figure S2 I The ATR-FTIR (a) and XRD patterns (b) of synthesizing $DMAPbI_3$ powder precursor.



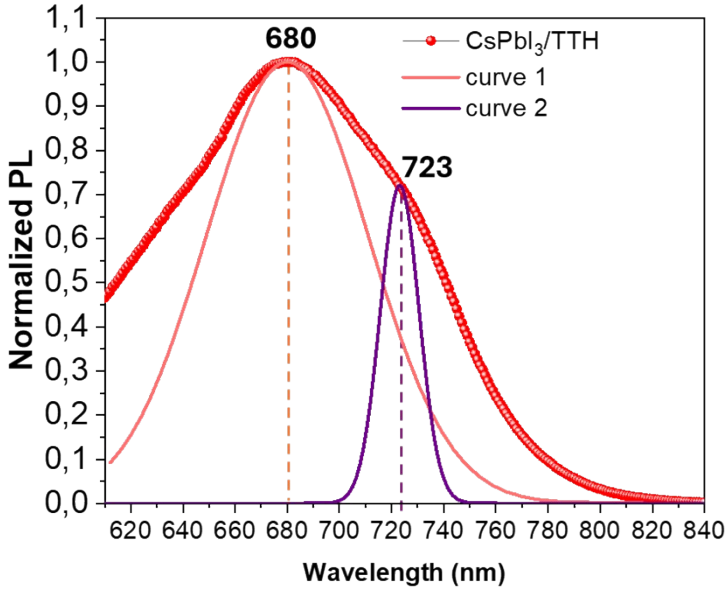
Supplementary Figure 3 I XRD patterns of $CsPbI_3$ powder precursor.



Supplementary Figure 4 I The cross-section and surface SEM images of the stack cell (a) and $CsPbI_3$ perovskite film (b).



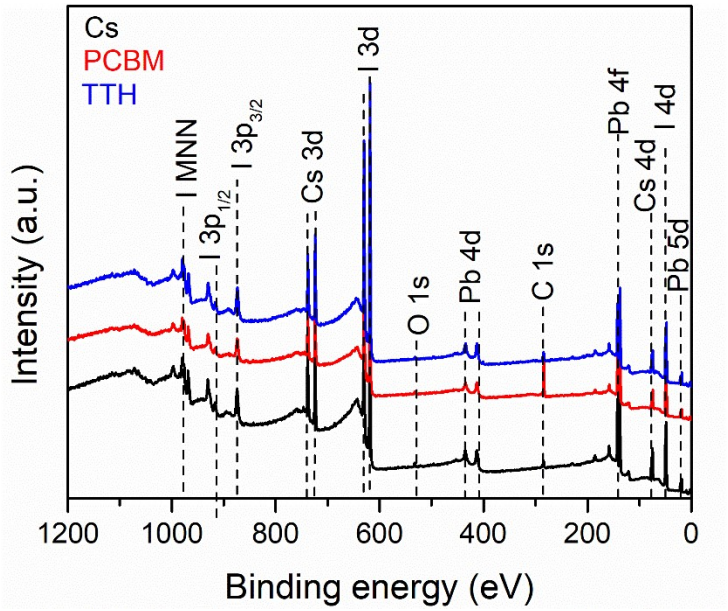
Supplementary Figure 5 I Absorption spectra of TTH molecule.



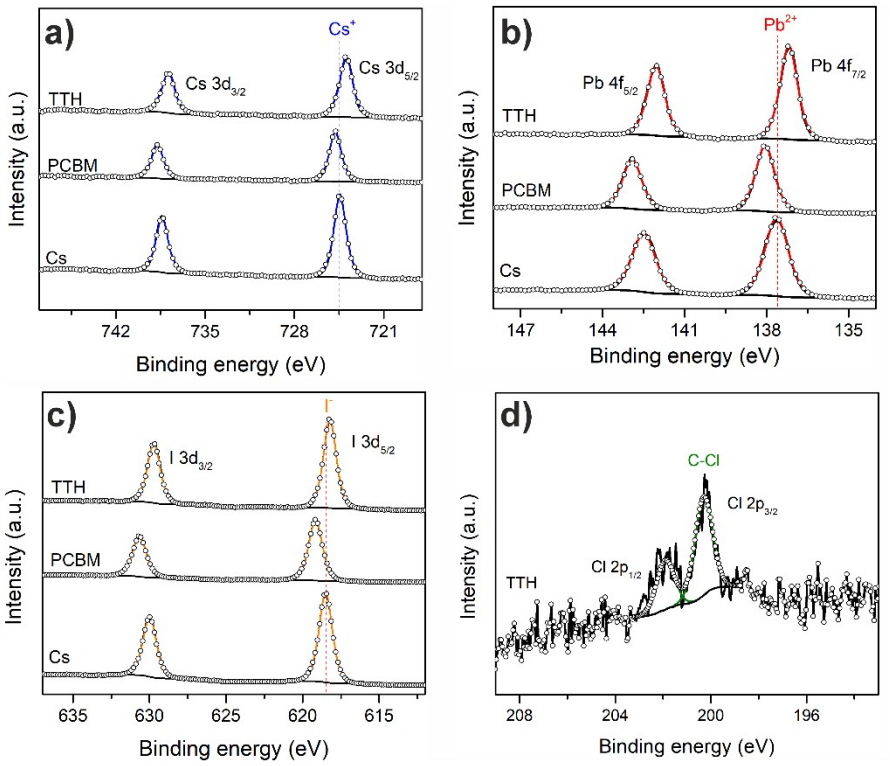
Supplementary Figure 6 I Deconvolution of photoluminescence from $CsPbI_3$/TTH sample.

Supplementary Table 1 I Elemental quantification of $CsPbI_3$ (Cs), $CsPbI_3$ + PCBM (PCBM) and $CsPbI_3$ + TTH (TTH) perovskites by XPS.

Sample Identifier	Atomic concentration [%]						
	C	**O**	**I**	**Pb**	**Cs**	**Cl**	**N**
Cs	24.98	4.96	42.61	10.70	16.75	-	-
Cs+PCBM	56.66	3.25	23.88	6.06	8.05	-	2.10
Cs + TTH	28.00	2.82	41.32	9.99	13.05	1.58	3.25



Supplementary Figure 7 I XPS survey spectra of $CsPbI_3$ (Cs), $CsPbI_3$ + PCBM (PCBM) and $CsPbI_3$ + TTH (TTH) perovskites.



Supplementary Figure 8 I XPS high-resolution spectra of $CsPbI_3$ (Cs), $CsPbI_3$ + PCBM (PCBM) and $CsPbI_3$ + TTH (TTH) samples, a) Cs 3d, b) Pb 4f, c) I 3d and d) Cl 2p.

Calculated Adsorption Energies (ΔE_{ads})

Supplementary Table 2 I Adsorption Energies for one ETL molecule (PCBM and TTH) with and without D3 dispersion interactions for the half and full coverage interfaces.

Coverage	System	ΔE_{ads} w D3	ΔE_{ads} w/o D3
Half	CsPbI3@1TTH	-0.80	0.00
	CsPbI3@1PCBM	-1.49	-0.14
Full	CsPbI3@2TTH	-0.84	-0.01
	CsPbI3@2PCBM	-1.81	-0.13

As we can see, by moving from the half to full coverage the ΔEads per molecule is increasing indicating a stabilizing effect due to the molecules packing. This effect is more pronounced in the PCBM case.