Supplementary Information

Insights into ALD Al_2O_3 Growth on Hybrid Organic-Inorganic Perovskite

Dibyashree Koushik[1], *Lotte Hazendonk*[1], *Valerio Zardetto*[2], *Wilhelmus M. M. Kessels*[1,2], *and Mariadriana Creatore*[1,2]

[1]Department of Applied Physics, Eindhoven University of Technology (TU/e), P.O. Box 513, 5600 MB Eindhoven, The Netherlands

[2]TNO- Solliance, High Tech Campus 21, 5656AE Eindhoven, The Netherlands

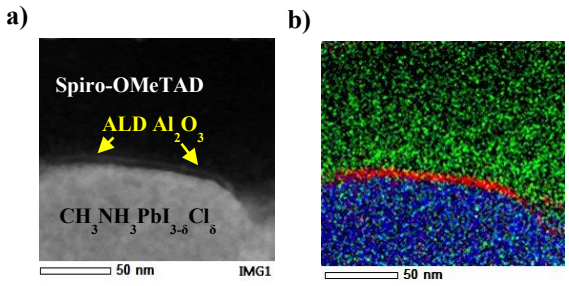

Figure S1. (a) High angle annular dark field (HAADF) scanning TEM image of the enlarged perovskite/ALD Al_2O_3/Spiro-OMeTAD interface. (b) Corresponding overlapped elemental mapping image.

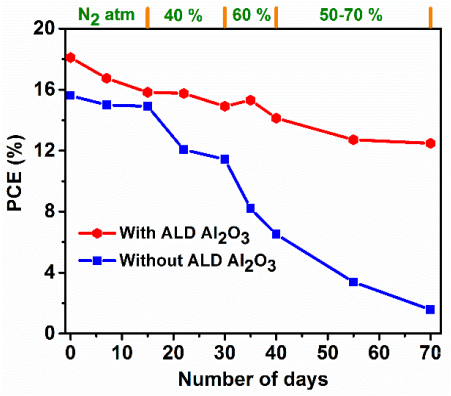

Figure S2. PCE of the champion perovskite devices with and without ALD Al_2O_3 as a function of storage time under different humidity conditions.

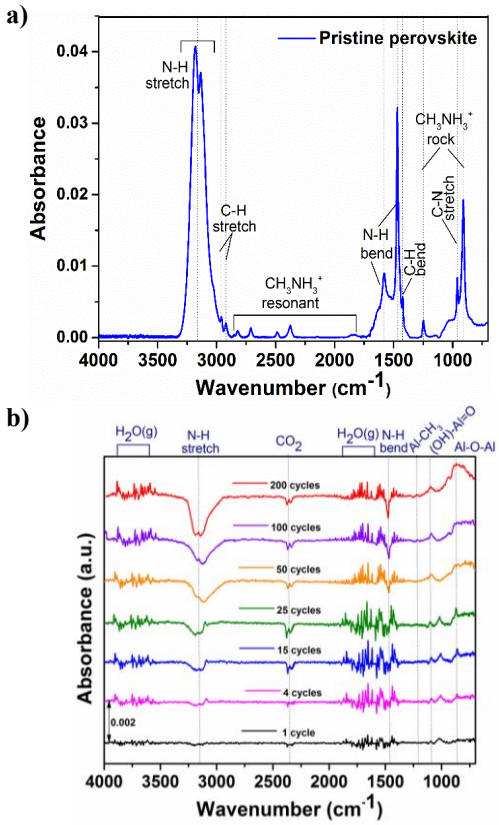

Figure S3. (a) *In situ* FTIR spectrum of pristine perovskite. (b) Difference spectra of perovskite + Al_2O_3/ perovskite pristine with increasing cycles of ALD Al_2O_3.

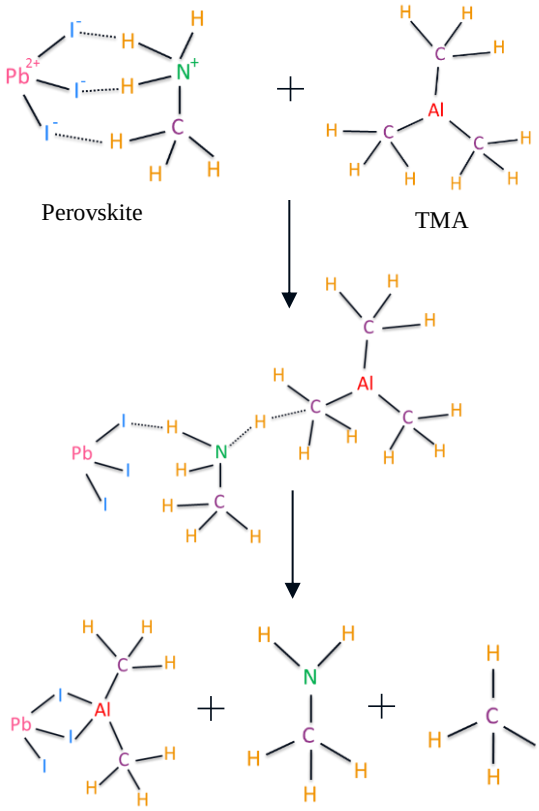

Figure S4. Proposed reaction mechanism between TMA and perovskite.