Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting information

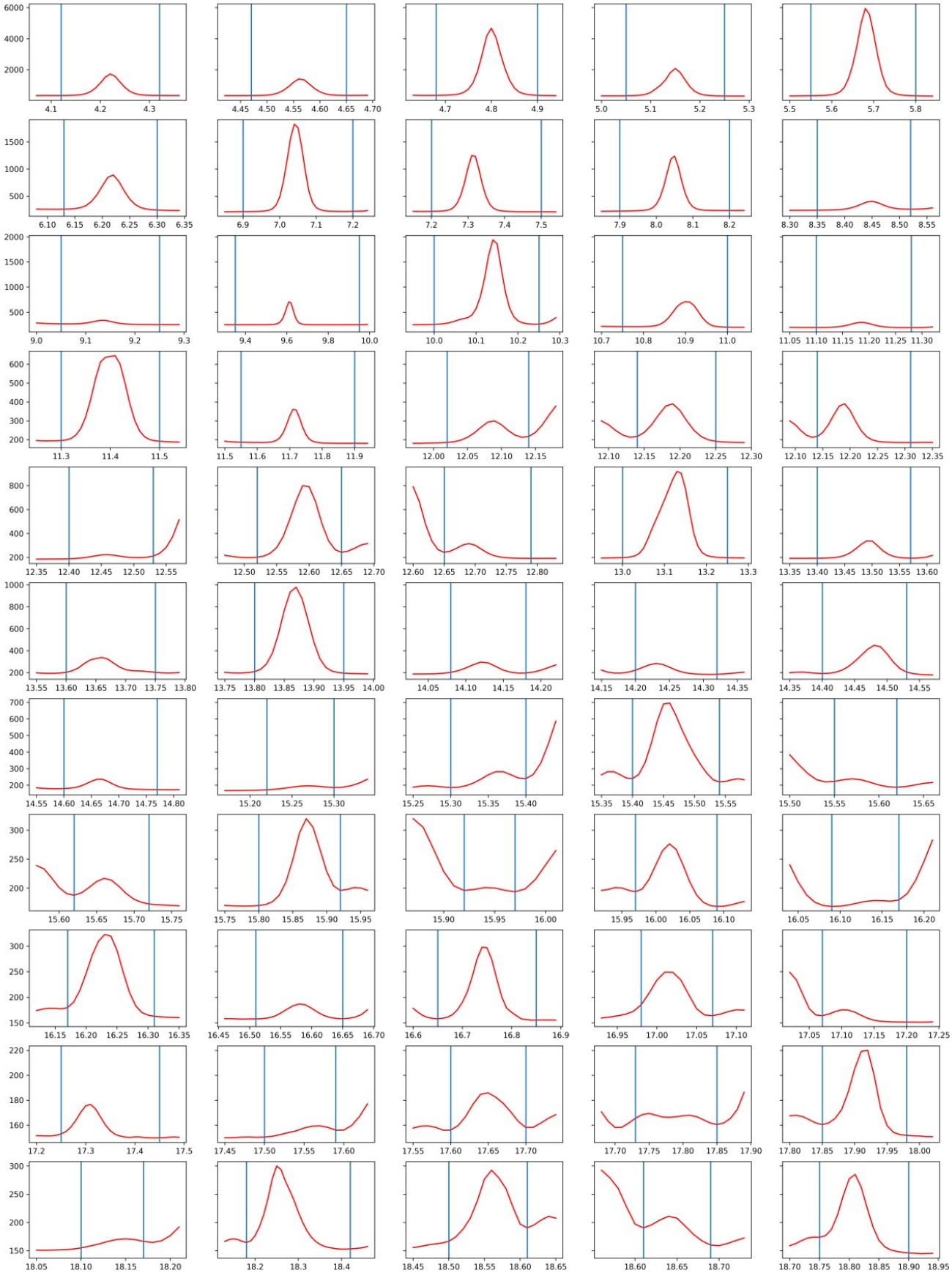

Figure S1: All of the significant reflections in the diffractomgram obtained in a single slice of the anode during the experiment. The vertical lines indicate the borders used to calculate the aggregated intensities for the given peak.

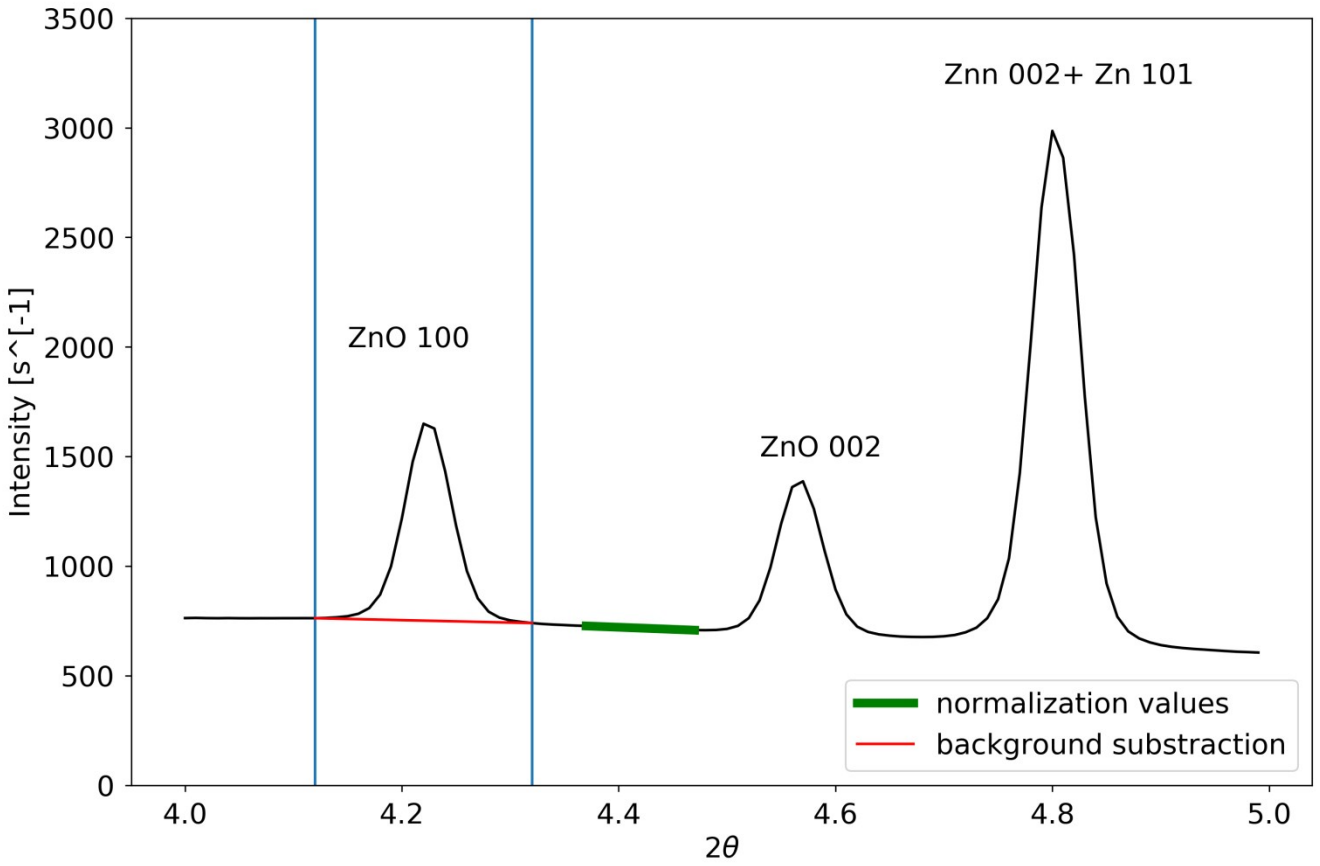

Figure S2. Example of XRD data show a peak is identified at the points used for normalization.

The pixel detectors have some challenges with "after glow", i.e. higher intensity parts of the detector are not entirely cleared in the read-out process, and may contribute in the following images. With regular intervals (10 minutes) a dark image was collected and used to partially compensate for this effect.

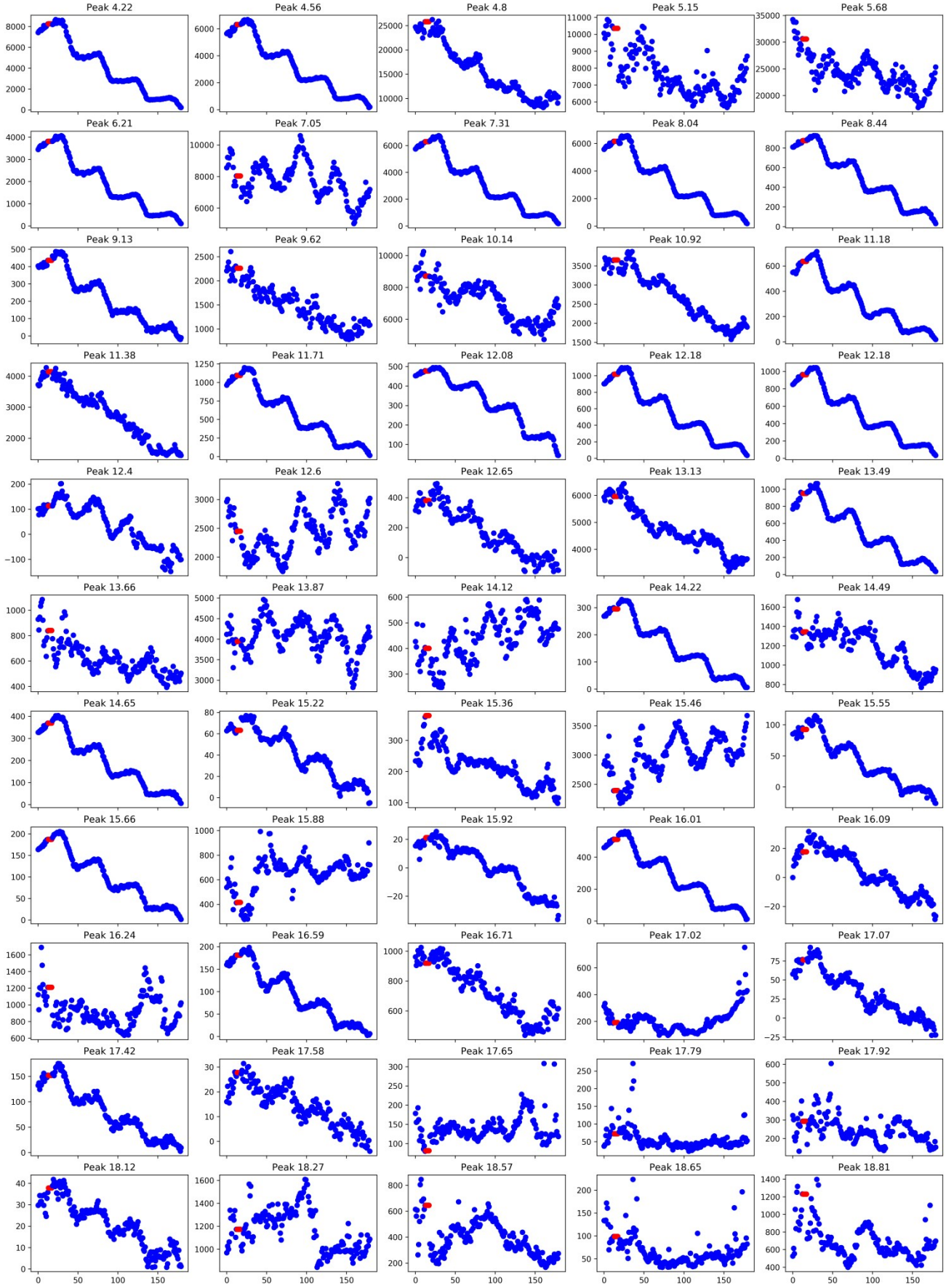

Figure S3: The aggregated intensities of each reflection in a single slice of the anode during the entire experiment. Red points indicates placeholder data, due to incorrect dark image correction.

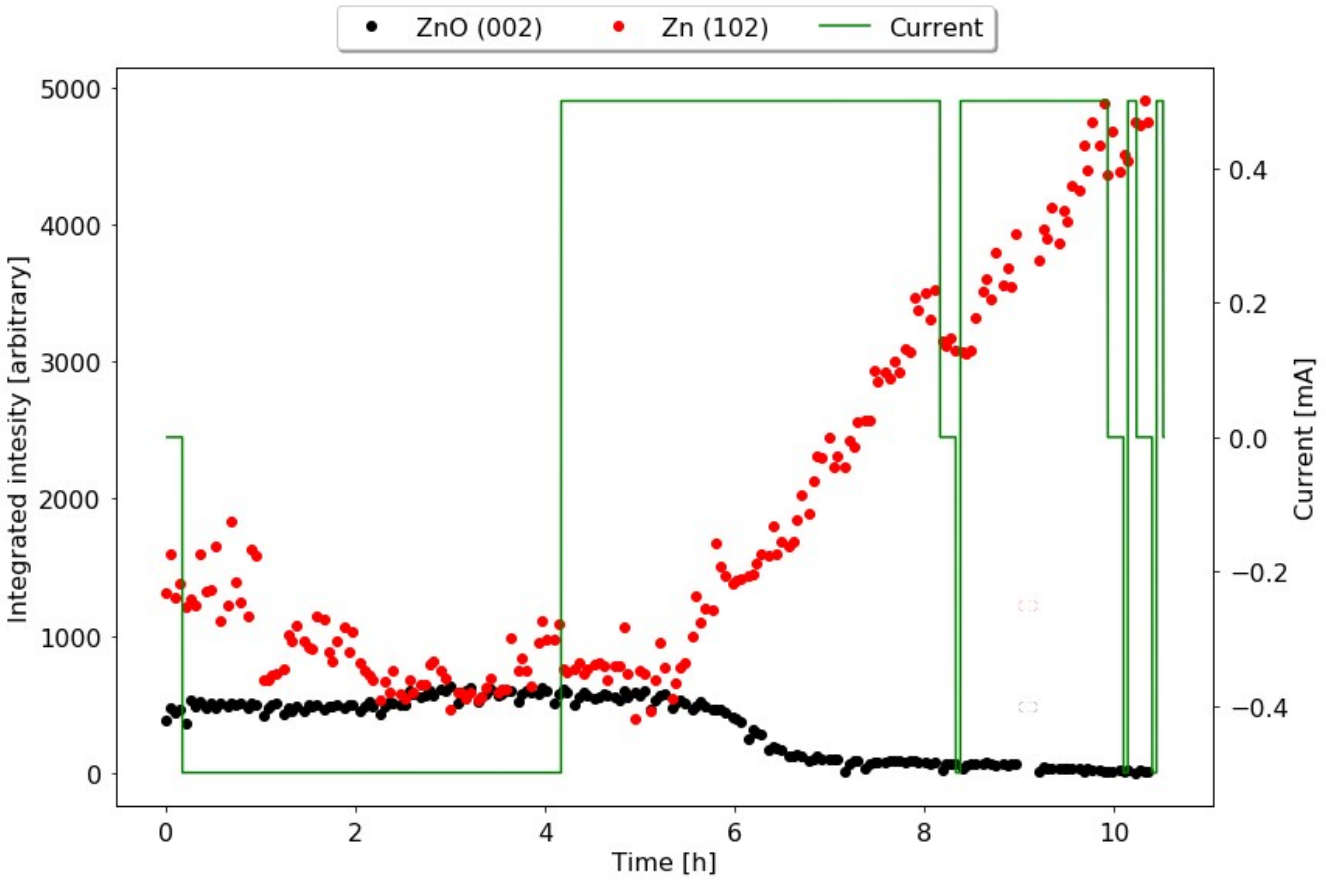

Figure S4 Integrated intensities of Zn (102) and ZnO (002) signal over time in Anode electrode interface in sample Zn1, green and purple points are placeholder data due to incorrect dark image correction.

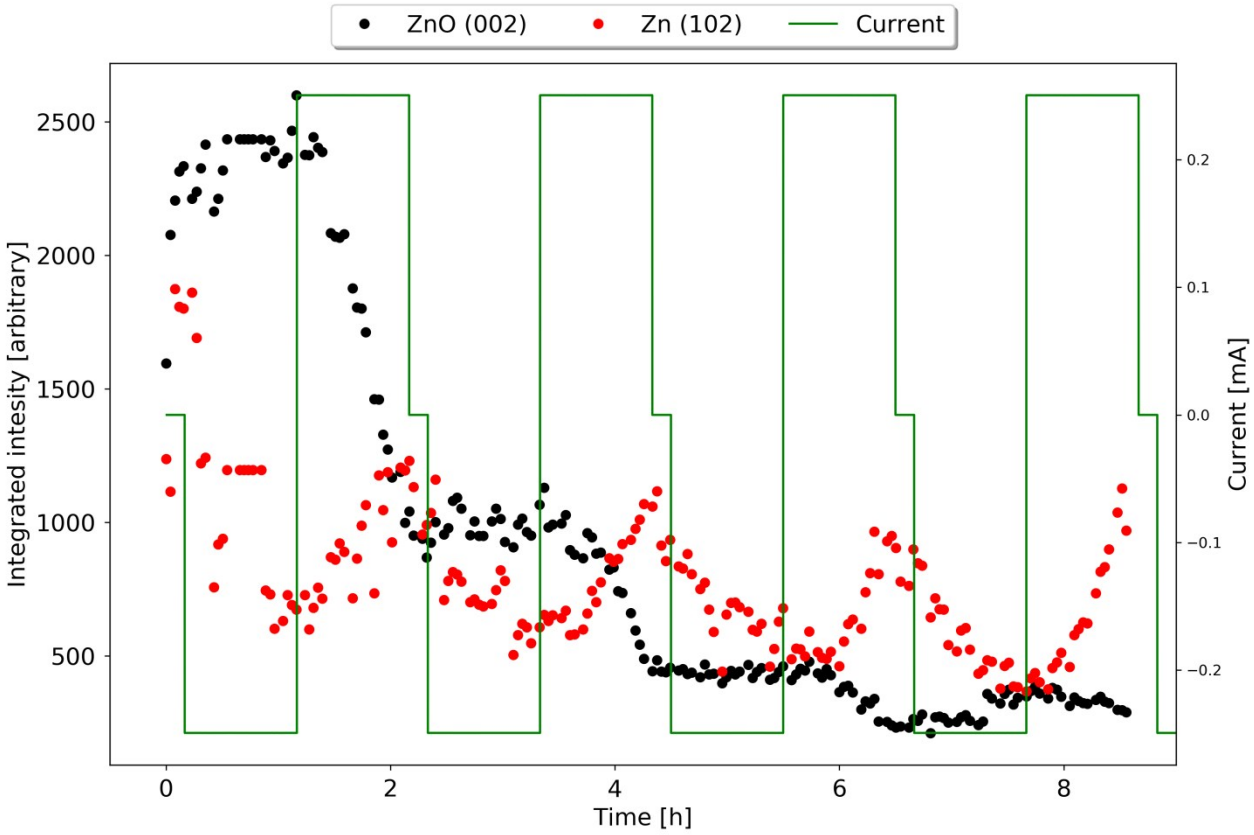

Figure S5 Integrated intensities of Zn (102) and ZnO (002) signal over time in Anode electrode interface in sample Zn2

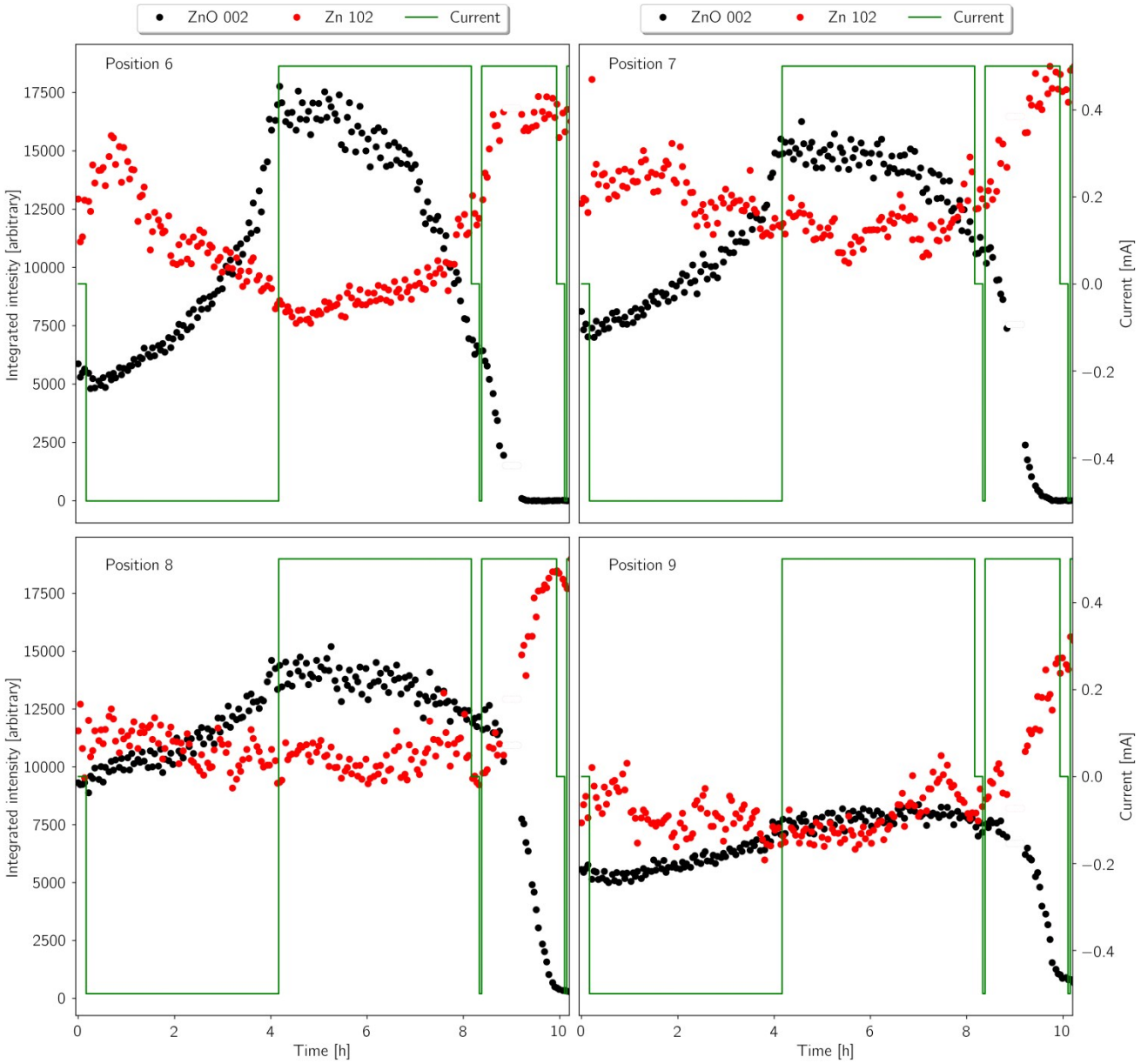

Figure S6. The bottom four position closest to the current collector for sample Zn1. Position 6 is between 1.0-1.2 mm below the electrolyte interface. Position 7 is between 1.2-1.4 mm below the electrolyte interface. Position 8 is 1.4-1.6 mm below the electrolyte interface. Position 9 is 1.6-1.8 mm below the electrolyte interface.

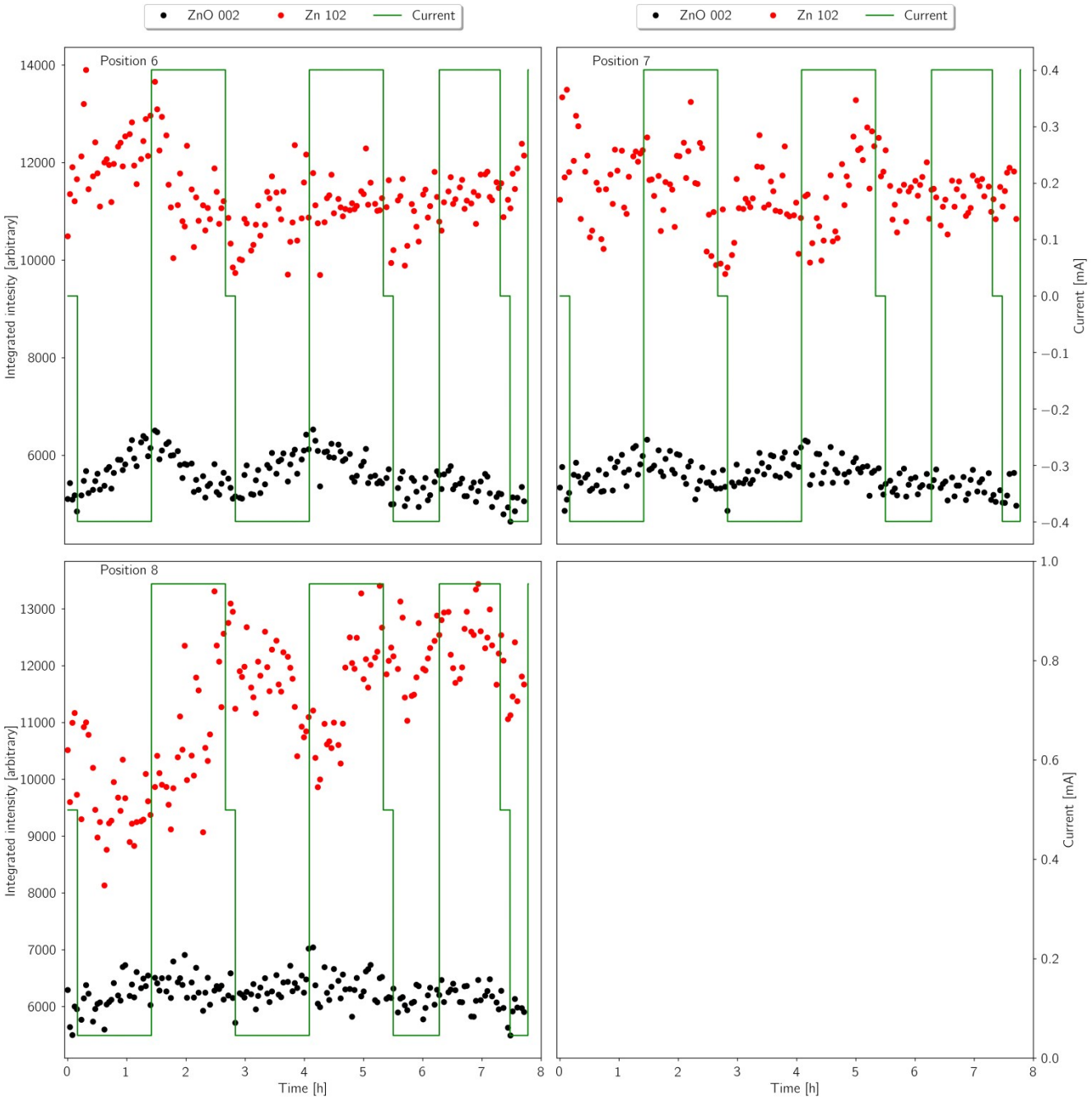

Figure S7. The three position closest to the current collector for sample Zn2. Position 6 is between 1.0-1.2 mm below the electrolyte interface. Position 7 is between 1.2-1.4 mm below the electrolyte interface. Position 8 is 1.4-1.6 mm below the electrolyte interface.