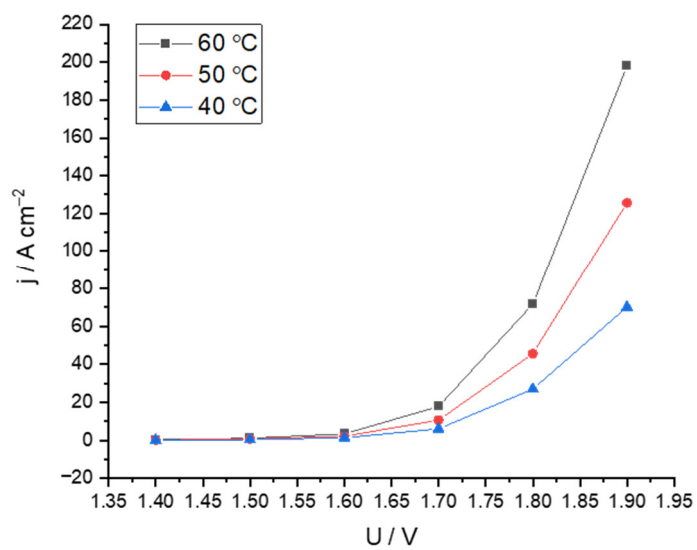


**Figure S1.** The Bode plots of AEM water electrolyzer EIS.



**Figure S2.** Polarization curves plotted with the pre-EIS stabilized currents at different operational conditions.