

Competition Corner: Evidence Has Boundaries

g11_u05_w20

Original fictional paper-model challenges. No device, material, or procedure is implied. Use $1 \text{ Wh} = 3600 \text{ J}$.

Challenge 21. Three fictional corrosion-rate cards report 0.031 ± 0.003 , 0.038 ± 0.004 , and $0.045 \pm 0.006 \text{ mm y}^{-1}$. List all three intervals. Which pair has no interval overlap? Give the strongest claim justified by that comparison, then name one environmental variable that still limits a broader conclusion.

Challenge 22. A fictional energy card reports $2.40 \pm 0.04 \text{ Ah}$ at $3.70 \pm 0.05 \text{ V}$. Calculate nominal energy in Wh, then estimate the largest relative uncertainty by adding relative uncertainties. Report a nominal-energy interval and explain why it cannot predict a particular device runtime.