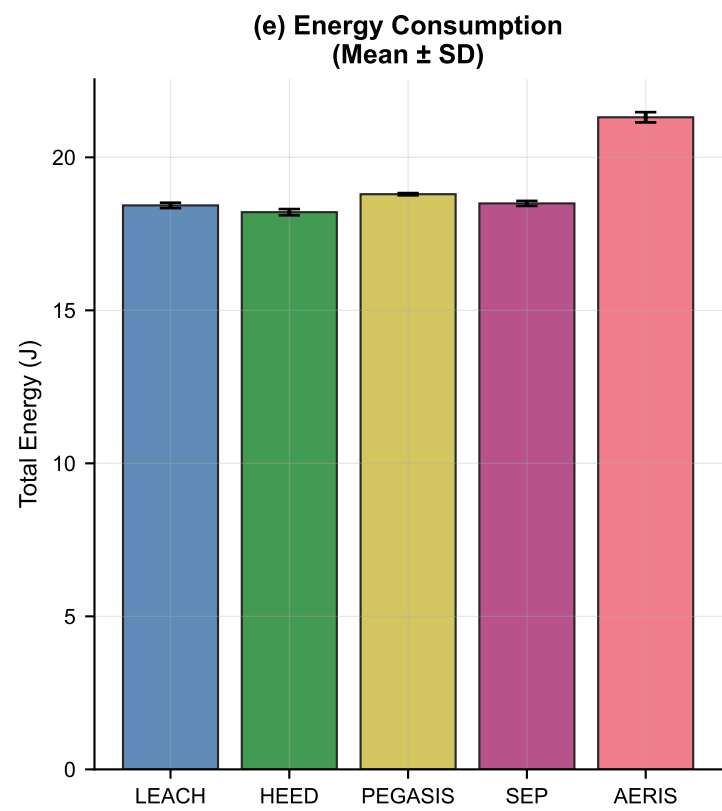
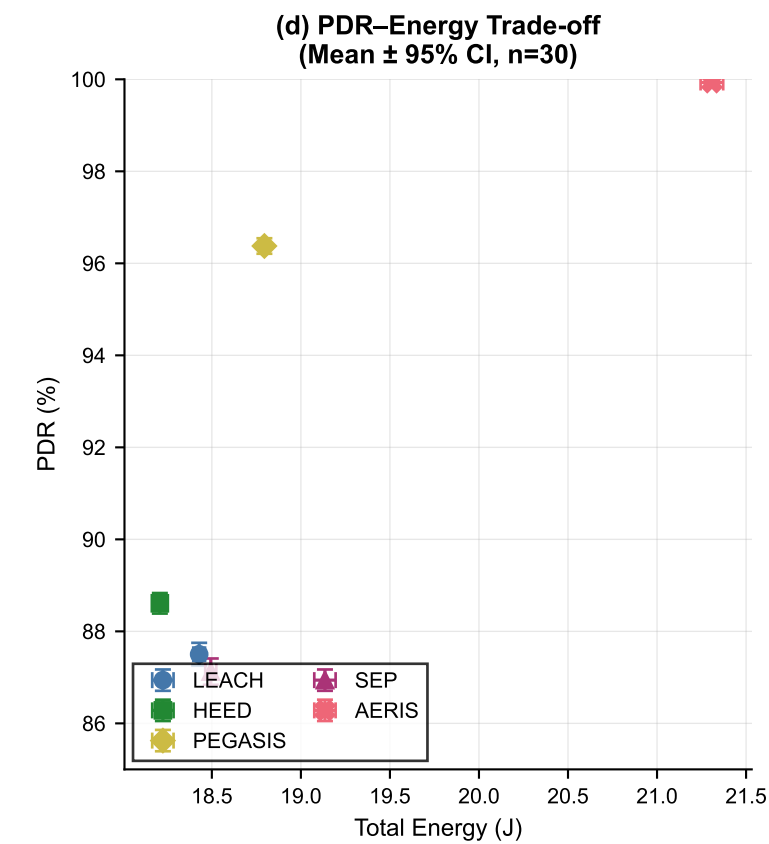
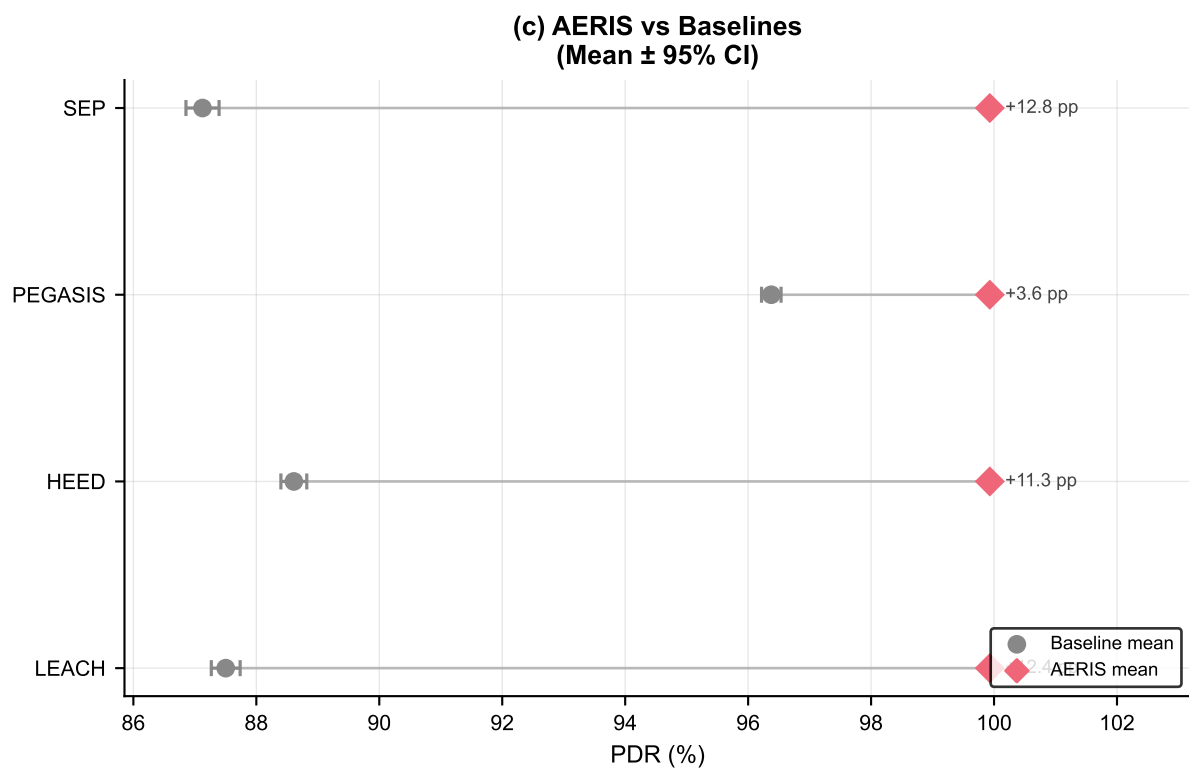
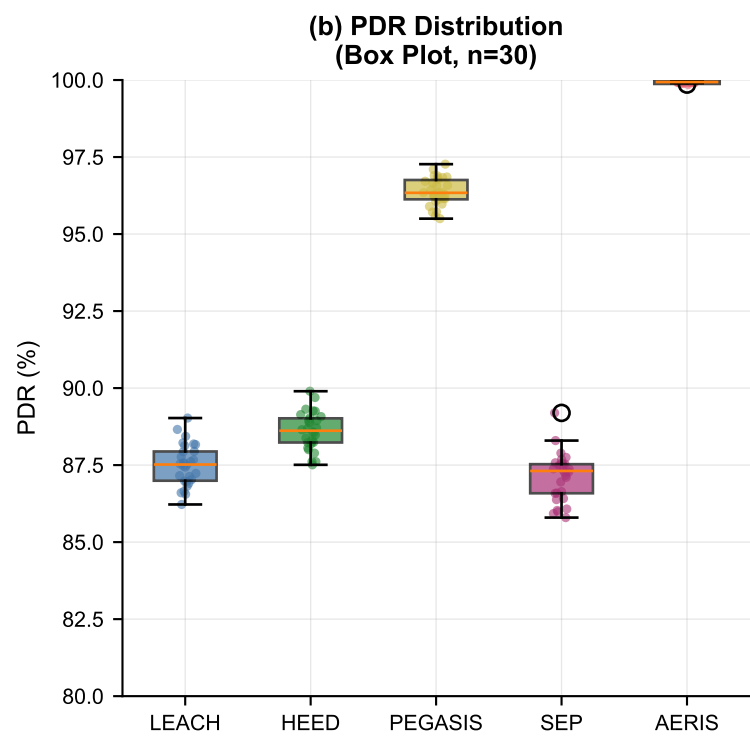
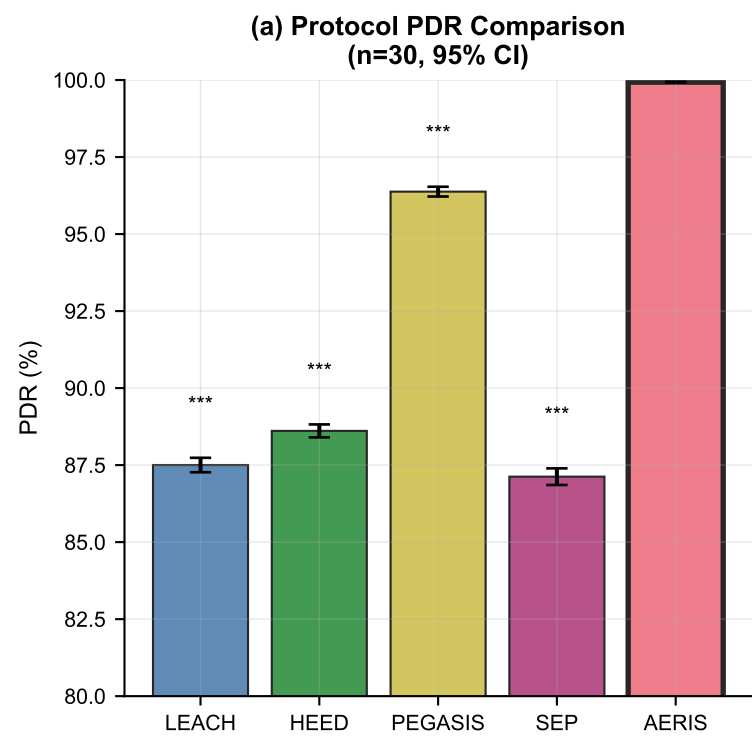


**AERIS: SOTA Protocol Comparison with Rigorous Statistical Testing**  
(Same geometry/energy model; AERIS includes full reliability stack, n=30 runs each)



**(f) Statistical Validation Summary**  
(Shapiro-Wilk  $\rightarrow$  Levene  $\rightarrow$  t-test)

Baseline	Test	p	$\Delta$ PDR (pp)	Direction
LEACH	Welch's t-test	1.0e-38	12.43	AERIS higher
HEED	Welch's t-test	6.2e-39	11.32	AERIS higher
PEGASIS	Welch's t-test	5.6e-28	3.55	AERIS higher
SEP	Welch's t-test	2.5e-37	12.81	AERIS higher