

Credibility Decision Record

HPT Blade Thermal Analysis

Context of Use	Take-off transient peak temperature
System Class	Class II (safety-critical propulsion)
Model Risk Level	MRL 3 (Medium-High)
Decision	ACCEPTED (with conditions)
Decision Date	March 20, 2026
Criteria Set	NASA-STD-7009B
Decided By	Dr. A. Patel, Propulsion Credibility Board

Rationale

The model is ACCEPTED for preliminary screening at MRL 3 with conditions:

1. Mesh convergence: GCI 0.8% at mid-span is adequate. Tip region NOT assessed. Board requires tip mesh study before MRL 4.
2. Cascade validation: Mean error 1.8%, max 4.2%. Hot spot within 2mm. Acceptable.
3. Results uncertainty: Monte Carlo done for cascade but NOT for engine COU. Board requires probabilistic UQ on peak temperature before MRL 4.
4. Numerical solver error scoped out with justification. Acceptable at MRL 3.

Conditions for MRL 4: tip mesh convergence, probabilistic UQ, engine test validation.