Notice of NIST AI Risk Management Framework (RMF 1.0) Alignment

Standard Referenced: NIST AI Risk Management Framework (RMF 1.0)
Governing Entity: QH8 Technologies
Applicable Standards: v008-OBSIDIAN / v012-EQUILIBRIUM / POLARIZATION
Scope: Physical-State Governance for High-Density and 3D-IC AI Infrastructure

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Purpose of This Notice

This Notice of Alignment describes how QH8 Technologies' physical-state governance standards align with the principles and functions defined in the **NIST AI Risk Management Framework (RMF 1.0)**.

The NIST AI RMF is widely recognized as the foundational risk-management framework for AI systems within U.S. federal agencies, regulated enterprises, financial institutions, and critical infrastructure operators. This notice is intended to support audit, underwriting, and governance evaluations by demonstrating how QH8 standards address **hardware-layer risk**—a domain not explicitly covered by software-only AI controls.

This notice does not constitute certification by NIST, nor does it represent legal or regulatory approval.

Alignment Overview

QH8 Technologies provides **deterministic physical-state governance** for high-density AI hardware. Through the combined enforcement of **v008-OBSIDIAN** and **v012-EQUILIBRIUM / POLARIZATION**, QH8 addresses systemic risks arising from unmanaged thermodynamic behavior in modern AI infrastructure.

This alignment maps QH8 capabilities to the four core NIST AI RMF functions: **GOVERN, MAP, MEASURE, and MANAGE**.

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1. GOVERN — Institutional Culture of Risk

The NIST AI RMF emphasizes the establishment of organizational policies, accountability structures, and governance mechanisms that embed risk awareness into operational decision-making.

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v012-EQUILIBRIUM / POLARIZATION establishes a **Thermodynamic Governance Standard** that functions as a physical-state constitution for the facility. Under this framework:

- High-density silicon assets are prohibited from operating outside **admissible physical envelopes**

- Reactive mitigation is replaced with deterministic enforcement of safe state transitions

- Governance is embedded at the hardware layer, independent of workload intent or software logic

This ensures that physical risk is governed as a first-class institutional concern rather than an emergent operational artifact.

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2. MAP — Contextual Understanding of Risk

The NIST framework requires organizations to understand how AI systems interact with their operational, physical, and environmental context.

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Through **power–thermal co-governance**, QH8 maps the relationship between electrical workload behavior and physical entropy propagation within the silicon substrate. This mapping:

- Exposes latent hardware risks invisible to software-only monitoring

- Accounts for packaging complexity in HBM, chiplet, and 3D-IC architectures

- Establishes contextual awareness of how AI workloads translate into physical stress

This enables risk identification at the level where damage actually originates.

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3. MEASURE — Forensic Traceability and Evidence

NIST RMF requires that AI risks be observable, traceable, and auditable over time.

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The **v008-OBSIDIAN** enforcement layer provides sub-20 millisecond interception of destabilizing power–thermal events. In parallel:

- Each governed operational cycle generates a cryptographically sealed (SHA-256) forensic record

- Records are immutable, timestamped, and attributable to physical-state compliance

- These records function as a **hardware-layer "black box"** for audits, insurance review, and post-incident analysis

This establishes decision-grade traceability without exposing proprietary software or model IP.

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4. MANAGE — Active Risk Mitigation

The NIST framework requires continuous and proactive mitigation of identified risks.

QH8 Alignment

Rather than responding after instability occurs, v012-EQUILIBRIUM / POLARIZATION enforces **Polarization Integrity**—the deterministic alignment of internal energy transport. This approach:

- Suppresses transient gradient amplification before irreversible thresholds are crossed

- Reduces cumulative entropy accumulation across operational life

- Shifts the system from corrective intervention to **preemptive physical governance**

Risk is therefore managed at the point of origin, not at the point of failure.

Registry Status and Admissibility

Facilities operating under the **QH8 Registry** are recorded as governed in accordance with the v008 / v012 standards. Registry inclusion indicates that the hardware asset operates within documented admissible physical limits and maintains continuous forensic traceability.

Such facilities may be described as **"NIST AI RMF–aligned at the hardware layer"**, supporting U.S. institutional requirements for transparency, accountability, and risk disclosure.

Verification Status:
 Phase I deployment (v008–v010) completed.

Disclaimer

This notice describes alignment objectives with the NIST AI Risk Management Framework (RMF 1.0). It does not represent certification, endorsement, or approval by NIST or any U.S. government agency. This document is provided for informational and governance-alignment purposes only and does not constitute legal, regulatory, or compliance advice.