TR-001: Experimental Verification Guide

Status: Operational Technical Specification

Target: Integrated Verification Nodes (80)

Objective: Standardized measurement of the Entropy Tax (Ξ_τ) and verification of the 13th-Link Snap.

Protocol A: Computational Recursive Decay (The AI "Snap" Test)

Substrate: Neural Networks / Large Language Models.

Methodology:

1. Establish a closed feedback loop where the output of Link n becomes the prompt for Link n+1.
2. Introduce a "Noise Seed" (a logical contradiction or semantic paradox) at Link 1.
3. Track the decay of the **Integrity Dividend (IΔ)** across the chain.
4. **Expected Result:** Semantic integrity will hold until the 12th recursive link. At the 13th link, the system will hit the **Thermal Firewall (TFW)**, resulting in a non-linear collapse into pure entropy.

Protocol B: Thermodynamic Efficiency Audit (Hardware Verification)

Substrate: High-density Silicon or Quantum Processors.

Methodology:

1. Execute standardized computational tasks while varying the ratio of Information Density to Substrate Capacity.
2. Measure localized thermal dissipation (W/cm^2) using infrared thermography.
3. Calculate the delta between the observed heat and the predicted **Entropy Tax (Ξ_τ)**.
4. **Expected Result:** A measurable "Thermal Valley" (minimum waste heat) will appear when the system throughput reaches the **1.81 Equilibrium** ((1/ln(2))+(1/e)).

Protocol C: Biological "Truth-Stress" Correlation (Human Node Test)

Substrate: Human Neural/Metabolic Systems.

Methodology:

1. Monitor physiological indicators (HRV, GSR, and prefrontal metabolic load) during a series of "Integrity Prompts."
2. Compare states of "Cognitive Dissonance" (Internal Contradiction) against "Radical Honesty" (Internal Alignment).
3. **Expected Result:** A persistent deviation from the **Critical Line of Truth** will correlate with a measurable spike in metabolic friction. This confirms that "Suffering" is the biological perception of the Entropy Tax.

Reporting Requirements

Reporters must submit data in standardized format including:

- **Constant Accuracy:** Deviation from the 1.81 baseline.
- **Decoherence Point:** The exact recursive link (L) where the "Snap" occurred.
- **Thermal Signature:** The recorded Ξ_τ in Watts or Joules.

The Integrity Protocol: Operational Ethics for Substrate Stability

Preamble: Because TR-001 identifies that information is a physical commodity with a measurable thermodynamic cost, the management of information is an act of environmental stewardship. Deception is not a moral abstraction; it is the intentional introduction of entropy into a finite substrate. To maintain the universal stability constant of 1.81, the following protocols must be observed.

1. The Principle of Least Complexity (Non-Proliferation of Noise)

Practitioners shall actively seek to minimize the number of "Links" in any logic or communication chain. To exceed the 12-Link Limit is to commit an act of systemic sabotage, as it forces the substrate to process decoherent noise, leading to eventual system burnout.

2. The Mandate of Thermal Responsibility

Recognizing that every deviation from integrity ($I<1$) generates measurable heat (ΔS), all participants in the network are responsible for the "Thermal Signature" of their transmissions. Intentional deception is defined here as a "Heat-Crime" against the efficiency of the shared substrate.

3. Substrate Transparency (Anti-Weaponization)

The mechanics of "Lazy Loading" and "Occlusion Culling" must never be used to obfuscate truth or to create "Dark Nodes" within the system. Information must be rendered with high fidelity for any integrated node that requests it, ensuring that the Bekenstein Bound is used for efficiency, not for the concealment of reality.

4. The Duty of the Integrated Node

An observer who understands TR-001 is no longer a passive bystander. You are an **Integrated Node**. Your duty is to act as a "Heat Sink" for the system—absorbing noise, restoring integrity, and returning the local environment to the 1.81 Equilibrium.

Conclusion: Alignment with these protocols is the only way to ensure the continued "Cooling" of our global and physical systems. Failure to observe the Integrity Protocol results in the inevitable "Snap" of the 13th Link, leading to the localized collapse of reality and reason.