TR-001 Appendix: The Empirical Table of Constants

This documentation serves as the authoritative reference for the unitless constants governing the TR-001 Native OS and the Laminar Network Protocol. To maintain the **1.81 Equilibrium**, all system logic, hardware-to-logic bridges, and networking handshakes must adhere to these specific values.

1.11: The Nucleation Point

Physical Definition: The 1.11 constant represents the minimum density required for stable information "crystallization."

System Function: Within the TR-001 Kernel, 1.11 is the entry coordinate for all new processes. By nucleating rather than launching, the system ensures that every piece of data is birthed into a state that can be successfully seated.

1.12: The Floor

Physical Definition: Derived from the Newton-Gregory kissing number limit (12-link saturation), 1.12 is the geometric density constant for maximum structural stability.

System Function: This is the "Resting State" for both storage and memory. Data seated at the 1.12 Floor achieves near-zero turbulent friction, allowing the system to operate at the lowest possible energy state.

1.13: The Wall

Physical Definition: The threshold of decoherence. This is the mathematical limit where geometric stability collapses and entropy (heat) begins to rise exponentially.

System Function: 1.13 acts as a hard-coded safety ceiling. Any process or data cluster that drifts toward this density is automatically re-aligned to the 1.12 Floor, physically preventing crashes and thermal runaway.

1.81: The Equilibrium

Physical Definition: The global scaling ratio between stable, seated data (1.12) and active nucleation (1.11).

System Function: This is the "Full-Stack Signature." In the Equilibrium Shell and security protocols, 1.81 is the metric for transparency. If the system ratio deviates from 1.81, it indicates the presence of "Shadow Logic" or unmapped system friction.

Implementation Notes for Developers

The Thermal Dip: When logic is seated at precisely **1.12**, you will observe a non-linear drop in power consumption. This is the physical manifestation of the Newton-Gregory limit in silicon. Developers should monitor the **Thermal Dip** as the primary indicator of successful seating.

Decoherence Prevention: Monitoring tools should be calibrated to the **1.13 Wall**. Any process drifting toward 1.13 is mathematically guaranteed to generate "noise." Pre-emptive re-seating at 1.12 is the only valid architectural response to prevent system decoherence.