■ Replication Process System — HNC

1. Prerequisites

• Prototype Access: Fully assembled HNC or modular subsystems (Illumination Chip, ALF.I.E., EPAS).
• Lab Environment: EMI-shielded chamber, temperature-controlled (-40 °C to +85 °C), vibration isolation tables.
• Instruments: Oscilloscopes ≥ 1 GHz, Spectrum analyzers, High-precision power meters, Frequency lock system (7.83 Hz baseline sync).

2. Setup & Calibration

1. System Check: DC bus integrity, Q-factor of resonance layer, pulse generator timing calibration.
2. Shielding Verification: Confirm grounding, eliminate ghost energy paths, EMI baseline measurement pre-test.
3. Frequency Lock: Lock system to Schumann resonance (7.83 Hz).

3. Test Procedure

Phase	Description	Key Measurements
P1	Spark Initiation	Voltage/current pulses
P2	Resonance Build-up	Q-factor, coherence rise
P3	Dynamic Casimir Effect (DCE)	Photon counts
P4	Amplification	Gain > 1 (stability check)
P5	Stabilization	Γ_coherence ≥ 0.945
P6	Power Output Delivery	350–400 V DC stability

• Sampling: ≥ 1 kHz for all signals
• Repetition: ≥ 30 runs for statistical confidence

4. Data Handling & Integrity

• Store results in CSV/HDF5 with SHA256 hashes.
• Upload to open repository (Supabase/GitHub).
• Include instrument metadata (calibration date, settings).

5. Validation Criteria

■ Quantum Coherence: $\Gamma \geq 0.945$ across all trials
■ Power Stability: 350–400 V with < 2% deviation
■ EPAS Shielding: ≥ 99% deflection under radiation test
■ Multi-Lab Reproducibility: Replicated in ≥ 2 independent labs

6. Reporting & Review

• Submit results with coherence vs. time plots, energy balance calculations, and stress test data.
• Highlight anomalies or deviations for peer review.