

# Experimental Protocol Document

## Introduction

This protocol describes the experimental validation procedure for the Illumination Chip integrated with the Harmonic Nexus Core (HNC).

It ensures reproducibility, safety, and accurate measurement of energy extraction performance.

## Objectives

- Validate stable zero-point energy (ZPE) extraction.
- Record stable DC power output between 350–400 V.
- Confirm coherence factor  $\Gamma \geq 0.95$  during operation.

## Required Equipment

- Illumination Chip prototype and support frame.
- Power conditioning unit (DC/DC converters).
- Oscilloscopes, spectrum analyzers, photon counters.
- Thermal probes and coherence meters.
- Shielded laboratory bench (Faraday cage).

## Bill of Materials (BOM) Cross-Reference

- Quartz substrate (5 mm, AT-cut).
- Gold-plated copper conductor plane (1.5 mm).
- Graphene trace layer with photonic lattice (3 mm).
- Bio-Matrix resonance layer (10 mm).
- I/O manifold with control logic (5.5 mm).

## Safety Notes

- Operate strictly within a shielded environment.
- Handle output carefully; system generates up to 400 V DC.
- Follow plasma containment protocols to prevent leakage.
- Monitor thermal conditions to avoid runaway ( $>5^\circ\text{C}$  rise).

## Experimental Procedure

- Step 1: Initialize system with P1 spark injection.
- Step 2: Establish resonance and confirm frequency stabilization.
- Step 3: Record photon generation from DCE (P3).
- Step 4: Adjust nonlinear amplification (P4) and monitor gain vs. loss.
- Step 5: Validate stabilization (P5) with coherence factor  $\Gamma \geq 0.95$ .
- Step 6: Measure conditioned DC output at 350–400 V (P6).

## Data Recording Template

Data table includes time, input conditions, measured output voltage/current, coherence factor, and thermal data.

## Validation & Checks

- Confirm output within  $\pm 5\%$  of specification.
- Cross-check results with redundant measurement instruments.
- Independent reviewer must sign off for protocol integrity.

## Conclusion

The protocol ensures safe, reliable, and reproducible results.  
Prepared for multi-lab replication and peer-reviewed verification.

## Example Data Recording Template

Time (s)	Input Conditions	Output Voltage (V)	Output Current (A)	Coherence ( $\Gamma$ )	Temperature (°C)
0	Init Spark	0	0	—	25
2	Resonance Build	120	0.3	0.93	26
5	Amplification	280	0.7	0.95	27
10	Stabilization	365	0.9	0.97	28
15	Conditioned Output	380	1.0	0.98	29