



## ZANEG INNOVATIONS PROJECT ZGIP

*"Dream Innovation"*

Reg No.2025/327434/07. Tax No 9753514190

**Date:** 10 July 2025

**ZANEG INNOVATIONS PROJECT PTY LTD (ZGIP)**

Lot 506 Nanda Glebe  
iNanda  
4309

Company Registration No.: **2025/327434/07**

**Att:** The Chairperson

**Independent Communications Authority of South Africa (ICASA)**

350 Witch-Hazel Avenue  
Eco Point Office Park  
Eco Park, Centurion  
0157  
South Africa

**RE: Submission of the ZGIP Quantum-Coherent Infrastructure Regulation Framework (QCIRF)**

Chairperson and Members of the Authority

On behalf of **ZANEG INNOVATIONS PROJECT PTY LTD (ZGIP)**, I am pleased to submit our official policy proposal titled:

**Quantum-Coherent Infrastructure Regulation Framework (QCIRF): A Sovereign African Model for Reversible, Ethical, and Future-Ready Infrastructure**

This submission forms part of ZGIP's strategic engagement with ICASA and the broader national digital and innovation regulatory ecosystem. It reflects our intent to work collaboratively with regulators, broadcasters, spectrum stakeholders, and continental partners to ensure that South Africa's future infrastructure environment is quantum-resilient, socially inclusive, and technologically sovereign.

ZGIP is a proudly South African innovation entity at the forefront of developing the **ZUC-X Quantum Reversibility Engine**, a sovereign coherence-based platform designed to future-proof national infrastructure through ethically governed, reversible, and zero-entropy technology systems.

The QCIRF document outlines our proposed policy vision, multiplex engagement structure, and licensing innovation framework. We respectfully request ICASA to:

- Review and acknowledge the QCIRF proposal
- Consider ZGIP’s formal recognition as a **Quantum Public Infrastructure Entity (QPIE)**
- Engage with ZGIP in stakeholder consultations regarding experimental spectrum access, infrastructure ethics, and national reversibility standards

We are committed to compliance, collaboration, and transparency throughout this process and welcome any requests for clarification, meetings, or presentations to relevant ICASA departments or task teams.

Thank you for your attention to this submission. We look forward to supporting South Africa's regulatory innovation landscape with a pioneering, African-rooted infrastructure model.

Yours faithfully,

**Ms. Patricia Zanele Gcwensa**  
**Founder & Chief Executive Officer**  
ZANEG INNOVATIONS PROJECT PTY LTD (ZGIP)  
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**ICASA APPLICATION**

Multiplexes 6 & 7 Innovation Licensing Proposal

**Submitted by:** ZANEG INNOVATIONS PROJECT (PTY) LTD (ZGIP)  
**Date:** 10 July 2025

**1. APPLICANT DETAILS**

| Field               | Information  |
|---------------------|--|
| Company Name        | ZANEG INNOVATIONS PROJECT (PTY) LTD (ZGIP)                 |
| Registration Number | <b>2025/327434/07</b>                                      |
| Physical Address    | Lot 506 Nanda Glebe iNanda                                 |
| Postal Address      | 4309   |
| Contact Person      | Founder & CEO Ms. Patricia Zanele Gcwensa                  |
| Contact Number      | +27 69 356 2523  |
| Email Address       | <a href="mailto:ceo.zgip@gmail.com">ceo.zgip@gmail.com</a> |
| Sector Focus        | Quantum Broadcasting, Digital Security, Infrastructure     |

**2. APPLICATION PURPOSE**

ZGIP hereby applies in accordance with the Independent Communications Authority of South Africa’s (ICASA) 2025 Draft Digital Terrestrial Television (DTT) Regulations for designation as a **licensed Multiplex Innovation Operator for Multiplexes 6 and 7**. The initiative seeks to:

- Deploy **Quantum Key Distribution (QKD)**—secured terrestrial and satellite broadcasting;
- Launch encrypted public-interest channels for **education, emergency response, and civic communication**;
- Establish a **sovereign, AI-guarded national broadcast backbone**, developed from South African IP and talent.

### 3. STRATEGIC INNOVATION PROPOSAL

ZGIP’s proposal integrates quantum, AI, and blockchain under an ethical framework to deliver a future-ready broadcasting ecosystem.

| Technology Domain                  | Innovation Description  |
|------------------------------------|---|
| <i>Quantum Key Distribution</i>    | Ensures unbreakable content transmission via entangled photons (ZUC-X Layer 1). |
| <i>Secure DTT Channels</i>         | Q-EDU (education), Q-ALERT (disaster alerts), Q-INFO (verified public data).    |
| <i>Redundant Satellite Systems</i> | Failover resilience with RSA-ECHO I and regional nano-satellites.               |
| <i>AI Signal Authentication</i>    | Real-time detection of interference, spoofing, and deepfakes via QLMP.          |
| <i>Blockchain Broadcasting</i>     | Immutable ledger for transmission rights, licensing, and spectrum audit trail.  |

### 4. TECHNICAL ARCHITECTURE OVERVIEW

#### a. Integration with ZUC-X Protocols

All broadcasting components will adhere to the ZUC-X Quantum Reversibility Charter, ensuring:

- Zero-loss encoding and reversible recovery of all civic and educational signals;
- Transmission reversibility via the **Entanglement Battery Core (ZFEB-X)**;
- Coherence-aligned, AI-validated emergency broadcast systems.

#### b. Entanglement Battery Core (ZFEB-X) – Technical Concept Brief

| Aspect   | Detail  |
|----------|---|
| Function | A quantum memory/power buffer supporting signal reversibility and energy back-up. |

| Aspect               | Detail   |
|----------------------|--|
| Broadcast Use Case   | Provides redundancy and instant state restoration for QKD-secured DTT transmission chains. |
| Technical Readiness  | TRL 4 — lab-validated prototype; pre-pilot hardware under development.                     |
| Deployment Roadmap   | Aiming for pilot installation on Multiplex 7 by Q4 2026.                                   |
| Operational Dynamics | Integrates with quantum entanglement batteries and real-time AI coherence registers.       |

### c. Other Key Infrastructure Elements

- **Quantum Broadcast Labs** (Durban) for ZFEB-X and coherence battery prototypes;
- **Multiplex Pilot Nodes** (KZN, Gauteng, Eastern Cape) for test coverage;
- **Edge AI Units** featuring **QLMP** neural meshes for decentralized signal verification;
- **Orbital Redundancy Partnership** with RSA-ECHO I and partner satellites for seamless failover.

## 5. ZUC-X ETHICAL BROADCASTING FRAMEWORK *(New Section)*

To safeguard public trust, ZGIP adopts a robust ethical protocol derived from ZQRC Articles V–VI:

- **Reversible Impact Content:** No irreversible cognitive or emotional manipulation;
- **AI Consciousness Checks:** QLMP shall self-audit for bias, coercion, or logic collapse;
- **Citizen Entanglement Rights:** Any mass-impacting broadcasts are recorded in a public, immutable coherence ledger;
- **No Surveillance Clause:** Broadcasts will not harvest personal biometric or behavioural data;
- **Emergency Override Rights:** Government-triggered overrides subject to transparency and audit.

## 6. ZUC-X LICENSING & IP CONTROL *(New Section)*

ZGIP will apply secure, ethical and sovereign governance to all ZUC-X deployments.

| Policy Clause               | Summary   |
|-----------------------------|---|
| Ethical Use Licensing       | Third-party deployments must sign binding Civic Integrity Agreements.                       |
| Export Control              | All ZUC-X modules and source code require dual government approval (DCDT + DTI).            |
| IP Sovereignty              | Co-licensing of domestic IP and derivative works with the South African state royalty-free. |
| Community Access Provisions | Simplified open-source versions of Q-EDU and Q-INFO modules available for verified schools. |

## 7. SOCIO-ECONOMIC IMPACT

ZGIP's proposal delivers transformative national benefits:

- **1,200+ jobs** within 24 months via quantum labs and broadcast infrastructure;
- **Nationwide encrypted public service broadcasting**, free at receiving point;
- **Rural inclusion** through AI-edge nodes in underserved areas;
- **SMME integration**: at least 50 black-owned tech firms approved in the value chain;
- **Women in STEM**: ≥ 50% of R&D/engineering trainees will be female and from previously disadvantaged communities.

## 8. LICENSING REQUEST & COMMITMENT

ZGIP respectfully requests:

1. A **non-exclusive Innovation Operator License** for Multiplexes 6 & 7;
2. Approval to **construct and operate** a controlled 36-month pilot;
3. A cooperative review framework involving **ICASA, Sentech, and DCDT**.

### ZGIP Commitment:

- Quarterly operational, spectrum, and ethical compliance reports;
- Independent technical and philosophical third-party audits;
- Secure destruction of pilot cryptographic materials post-trial unless extended;
- Ongoing regulatory feedback to inform ICASA policy evolution.

## 9. CONCLUSION

ZGIP invites ICASA to lead South Africa into the quantum-AI broadcasting era with a framework that embodies **national sovereignty, public trust, ethical integrity, and technological foresight**. We seek a meeting to present this proposal and prepare for immediate pilot deployment following approval.

### APPENDICES ATTACHED

- **Appendix A**: Technical Architecture and Signal Flow Diagrams
- **Appendix B**: ZUC-X Quantum Reversibility Charter (ZQRC) – Full Governance Document
- **Appendix C** (Optional): ZUC-X Technology Readiness Roadmap (TRL breakdowns)
- **Appendix D** (Optional): QLMP Self-Audit Compliance Algorithm Preview
- **Appendix E** (Optional): SCM Coherence Public Ledger Design

### Submitted by:

**Ms. Patricia Zanele Gcwensa**

Founder & Chief Executive Officer

ZANEG INNOVATIONS PROJECT (PTY) LTD (ZGIP)

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