

May 30, 2025

Ms. Pumla Ntshalintshali
Independent Communications Authority of South Africa (ICASA)
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CC: PNtshalintshali@icasa.org.za; rmakgotlho@icasa.org.za

RE: Comments on ICASA Draft Regulations on Dynamic Spectrum Access and Opportunistic Spectrum Management

Dear Ms. Ntshalintshali,

Federated Wireless is pleased to submit these comments on the Independent Communications Authority of South Africa's (ICASA) Draft Regulations on Dynamic Spectrum Access (DSA) and Opportunistic Spectrum Management within the Innovation Spectrum bands (3800–4200 MHz and 5925–6425 MHz). We applaud ICASA's leadership and forward-thinking approach in introducing a regulatory framework that embraces dynamic, technology-neutral spectrum access — a model that has demonstrated significant success in other leading regulatory jurisdictions and holds tremendous promise for accelerating digital inclusion, rural connectivity, and wireless innovation in South Africa.

We are particularly encouraged by ICASA's emphasis on inclusivity, local empowerment, and the enablement of small and emerging network operators through non-exclusive, automated access to valuable mid-band spectrum. The proposed framework aligns closely with global best practices and reflects a forward-leaning, pragmatic approach to managing increasing demand for wireless connectivity while preserving protections for incumbent services.

In this submission, Federated Wireless offers specific recommendations focused on the Unified Spectrum Switch (USS) and the operational and regulatory model for Unified Spectrum Switch Providers (USSPs). These components are central to the realization of ICASA's objectives. Their successful implementation will determine the scalability, fairness, and technical viability of South Africa's Innovation Spectrum strategy. Drawing on our extensive experience as a certified operator of dynamic spectrum systems in the United States and Canada, and our participation in similar regulatory initiatives internationally, we offer these comments in support of a robust, competitive, and secure USS ecosystem that maximizes public benefit.

I. Federated Wireless Background and USSP Intent

Federated Wireless is a recognized global pioneer in automated spectrum management systems, drawing on more than a decade of hands-on innovation and trusted operations. We've been certified by the U.S. Federal Communications Commission (FCC) to operate a Spectrum Access System (SAS) in the 3550–3700 MHz Citizens Broadband Radio Service (CBRS) band and an Automated Frequency Coordination (AFC) system for the 5925–7125 MHz band. We currently manage over 240,000 commercial radios in the U.S., supporting

mobile operators, ISPs, utilities, and enterprises while maintaining a record of non-interference to incumbents.

Our AFC system, which was certified in 2024, powers both indoor and outdoor connectivity. It is deployed in collaboration with global leaders such as Cisco, HPE Aruba, and Tarana, delivering the high-speed performance and reliable interference protection.

Building on this proven foundation, we are expanding globally by actively participating in technical trials and regulatory consultations across the United Kingdom, Canada, Saudi Arabia, and Australia. These efforts demonstrate how our cloud-native spectrum systems can scale reliably and securely across different regulatory environments.

With this background, Federated Wireless formally expresses its intent to become a USSP under the regulatory framework proposed by ICASA. We are enthusiastic about contributing to the successful rollout of the USS platform and supporting South Africa's leadership in dynamic spectrum innovation. We welcome the opportunity to work in partnership with ICASA, South African stakeholders, and local operators to build a competitive, secure, and scalable USS ecosystem that reflects global best practices while addressing local connectivity needs.

2. Support for the USS Architecture

We strongly support ICASA's vision of a centralized USS platform, operated by one or more certified USSPs, to assign Operational Parameters (OPs) dynamically based on real-time environmental, incumbent, and device data. We note this model closely aligns with AFC architectures in the U.S. and Canada and represents global best practice for managing shared spectrum.

We commend the Authority for mandating:

- Machine-to-machine protocols (CPAUSS)
- Location-based coordination
- Interference protection for incumbents
- Time-valid operational grants
- Secondary-use-only operation under USS control

These are essential building blocks of a trustworthy and adaptable shared spectrum regime.

3. Recommendations for Strengthening the USSP Framework

Enable Multiple USSPs

To ensure innovation, competition, and resilience, we strongly recommend that ICASA:

- Authorize multiple USSPs
- Avoid single-provider dependencies
- Ensure each USSP meets uniform certification and compliance requirements

This multi-operator model has worked successfully in the U.S. AFC and SAS contexts, where independent providers operate under harmonized rules without requiring inter-provider coordination.

Support Internationally Certified Operators

We recommend ICASA adopt a streamlined approval pathway for AFC/SAS providers already certified by authorities such as the U.S. FCC or ISED Canada. This would:

- Lower market entry barriers
- Accelerate time-to-deployment
- Enable alignment with global device and software ecosystems

ICASA could maintain equivalence criteria to ensure technical compatibility and regulatory compliance without duplicating efforts.

Standardize Interfaces and Protocols

We encourage ICASA to align CPAUSS and related USS-device communication protocols with Wi-Fi Alliance, Wireless Innovation Forum, and FCC AFC KDB 987594 standards. This will:

- Reduce device costs and firmware fragmentation
- Ensure interoperability across regions
- Encourage rapid device certification

Allow Flexible System Architectures

AFC/USS platforms are inherently cloud-native and globally distributed. ICASA should:

- Permit international or hybrid hosting, unless national security dictates otherwise
- Emphasize system outcomes (e.g., uptime, data security, responsiveness) rather than prescribe architectural constraints

This will help attract technically capable USSPs with robust global infrastructure while ensuring compliance with local obligations.

4. Technical Considerations for USS Operation

Federated Wireless recommends ICASA ensure the following elements are incorporated into USS technical operations:

- Reliable incumbent databases: Accessible via secure APIs with mandatory data refresh cycles
- Environmental modeling: Standardized access to terrain, building, and clutter datasets to support propagation analysis
- Device validation: Enforcement of geo-location accuracy (e.g., 95% confidence) and optional professional installation where needed
- Interference resolution: Multi-step reporting and resolution workflow to handle harmful interference while protecting privacy
- Graceful revocation: Time-limited OPs, automated renewal, and immediate shutdown on OP expiry or conflict
- Auditability: Logging and traceability of OP assignments and interference events

Together, these capabilities create a foundation of trust — protecting incumbents, enabling new entrants, and ensuring long-term sustainability of the USS framework.

5. Proposed Enhancements to the Draft Regulations

We respectfully recommend the following enhancements to ICASA's Draft Regulations:

- Add a transparent application process and qualification criteria for USSP designation (Reg. 13)
- Clarify the process for updating OPs and notifying ISDs of revocation (Reg. 7)
- Include explicit support for AFC-based frequency agility and real-time reassignment across ISFR 1 and ISFR 2
- Add provisions to recognize foreign certifications (e.g., FCC, ISED) for Type Approved ISDs or USSP software

6. Conclusion

ICASA has laid a strong foundation for dynamic spectrum access in South Africa. The USS and USSP frameworks are essential to ensuring secure, equitable, and scalable use of mid-band spectrum. Federated Wireless brings deep operational and policy experience to this effort, and we stand ready to work with ICASA and South African stakeholders to realize the full promise of shared spectrum.

We appreciate the opportunity to provide input and would be pleased to engage further as ICASA advances its implementation strategy.

Respectfully submitted,

/s/ Kurt Schaubach

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