CNSA Submission on Draft Regulations for Innovation Spectrum (3800–4200 MHz and 5925–6425 MHz)

A submission to the Independent Communications Authority of South Africa submitted by:

- Community Networks South Africa
- Black Equations

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Executive Summary

Community Networks South Africa (CNSA) operates telecommunications infrastructure serving markets that commercial operators cannot reach profitably. We request ICASA establish a dedicated licensing class for community networks to access Innovation Spectrum (3800–4200 MHz and 5925–6425 MHz), enabling technology upgrade from constrained Wi-Fi operations to scalable fixed wireless broadband delivery.

Current Operations: CNSA coordinates community-owned networks serving thousands of users across South Africa using cost-recovery models with local reinvestment. These networks already demonstrate spectrum efficiency and sustainable service delivery in underserved areas.

Regulatory Request: Create community network licensing with R2,000 annual fees, 47dBm urban power allocations, and immediate affordable test license access for 2025 deployment. Current R500,000 test licensing excludes legitimate small-scale operators.

Market Justification: 55% of South Africans live below the poverty line, excluded from commercial telecommunications pricing. Community networks address this gap through locally-managed infrastructure and community-based governance, directly supporting ICASA's Innovation Spectrum objectives.

Implementation: Proposed framework includes spectrum warehousing safeguards, transparent allocation criteria, and revenue contribution mechanisms ensuring sustainable spectrum management while enabling service expansion critical to national digital inclusion.

About Community Networks South Africa (CNSA)

Community Networks South Africa (CNSA) is a national coordination body representing a growing number of community centred connectivity initiatives across the country. These networks are built and managed by local residents to serve areas that are typically overlooked by commercial operators. CNSA was formally established to unify the voice of community networks, coordinate regulatory engagement, promote skills development, and advocate for affordable, meaningful access to communications infrastructure in underserved communities.

CNSA members operate in both rural and urban areas, providing internet access, local digital services, and socio-economic support through community owned infrastructure. Our approach is based on community participation, affordability, and sustainability. Most of our networks are operated on a cost recovery basis, reinvesting earnings locally into infrastructure, training, and service expansion. We are guided by a commitment to public benefit, digital inclusion, and local development.

Community Networks vs Commercial Internet Service Providers

Community networks are fundamentally different from large internet service providers. We are governed by the communities we serve. We reinvest surplus directly into local development, and we prioritise affordable access and real socio-economic outcomes over extracting profit. We are not distant corporations, we are part of the very communities we serve. These are our families, our neighbours, and the very streets we grew up on.

In underserved areas, community networks deliver meaningful connectivity as a tool for development. We often do so at no cost or for very low fees, in places where commercial operators find no business case. In 2018, the community of Ocean View erupted in a service delivery protest (https://elitshanews.org.za/2018/08/20/ocean-view-under-siege/)(https://www.facebook.com/share/v/1DDjXY2USX/) People were frustrated, disconnected, and unheard. Since then, through digital literacy workshops with the University of Cape Town, a shift has taken place. Residents have formed WhatsApp and Facebook groups to share information, log municipal faults, and hold authorities accountable. Crime has decreased. Service delivery complaints are being logged systematically. There has not been another protest of that magnitude. This was not because government changed overnight, it was because community members educated themselves, used their own data, and began engaging differently. So we have to ask:

- Was the real problem government responsiveness? Or
- Was it digital exclusion that keeps low-income communities from the public participation process?

During the COVID-19 lockdown in Ocean View, Black Equations, as a member of the community, witnessed the desperation first-hand. People could not go to work, children could not attend school, and families were completely disconnected while surrounding suburbs continued with online learning and remote work. In response, we opened our community network to the public and

allowed the community to access valuable education resources on our locally hosted server for free. We did not profit. We made no money from this time. We did it because we live here, and we could not stand by while our people were cut off from the world. That difficult period left a lasting impact, especially on the mind-sets of our youth and school learners, who are still catching up today. Before this Covid period the high school drop-out rate from grade 8 to 12 was already at 49% with less than 5% of the population attaining tertiary education. Classroom sizes range between 40 and 80 learners. Most of the teaching and learning time is spent managing classroom discipline. So we must ask:

- Is there a need for recorded online lessons, as low-income parents cannot afford tutors?
- Would it help if students could revise lessons and concepts from the comfort of their homes, and then approach educators for help when they encounter learning barriers?

Since then, community networks like ours have continued to offer affordable internet options, from as little as one rand for thirty minutes, to five rand for an entire day. In places like Khayelitsha, flexible pricing models and decisions led by the community have allowed networks to serve clinics, schools, and local shops in ways commercial internet providers have not. While major operators either maintained their prices or turned their backs on these communities, community networks worked around the clock to keep people online, enabling children to study, families to stay connected, and health workers to access vital information during that difficult time.

We also train young people from our own communities to build and maintain the network. That is not just capacity building. It is dignity, it is ownership, and it is sustainability.

Food Security and Digital Exclusion

This social purpose is entirely aligned with ICASA and government's stated goals to support small enterprises and expand connectivity in rural and low-income communities. We exist because the normal business model has no place for those who cannot afford the current market prices for connectivity, including devices. In South Africa today, over 55% of the population lives below the Upper-Bound Poverty Line (UBPL), which was R1,634 per person per month as of May 2024 (Statistics South Africa, 2024). For the majority of these households, simply putting food on the table is a daily struggle. According to the April 2025 Household Affordability Index, the average monthly cost of a household food basket is R5,420.30 (Pietermaritzburg Economic Justice & Dignity Group, 2025).

Yet, a minimum wage worker earns R4,376.08 per month, and this income often supports four family members, leaving only R1,094.02 per person, well below the UBPL. After covering transport and electricity, the average worker has just R1,813.11 left for food and everything else, which is 52.5% less than what is required to afford a basic, nutritious food basket (Pietermaritzburg Economic Justice & Dignity Group, 2025). This means the majority of South Africans are not just excluded from digital access, they are unable to meet even the most basic nutritional needs.

It is under these conditions that community networks operate. These are the realities we face: households that cannot afford R5 for a daily internet voucher, let alone installation fees, monthly contracts, or device costs. We do not exist in the luxury of market opportunity; we exist out of necessity. Our networks are not driven by profit but by the urgent need to bridge a widening divide, where the cost of food and the cost of data are competing line items in a survival budget. Our goal is not to replace or compete with anyone. Our goal is to help our communities use spectrum for socio-economic development.

So we must ask:

- Do we leave behind the majority of the South African population living below the breadline simply because they cannot afford it?
- And if we do, how does this impact government, the poor, and the future of our economy?

We are sure we will face resistance to this concept. However, we have always done what we can to connect our communities because it is the right thing to do, and we have done so with and against means. Over the years, we have connected our people to the best of our ability, not for gain, but for dignity, access, and hope.

Our work will have a far greater impact if we are also allowed to use the spectrum and technologies that have enabled large internet providers to grow and succeed. The hotspot model we are currently forced to rely on is not sustainable, but we use it because our target market cannot afford the installation costs associated with Wi-Fi, and community networks cannot afford to carry these costs and recover them over ten to twelve months. We are pushing for special access unashamedly, as we now understand that our hotspot model is contributing to the digital divide. We are forced to walk to a hotspot, often outside in unfavourable weather conditions. These hotspots are located in low-income areas where ordinary citizens fear the gangs, criminals and at times distrust the police, we have to stand alert, risking our personal

safety and belongings. How much time can one really spend outside in a hotspot, how much time can a caregiver or mother taking care of children spend there, a student that needs to attend a lesson? A young girl exposed to the elements and unsavoury characters. For our communities to grow and develop, we need to give our people access from the comfort of their homes, and the technology to do this has been around for a very long time but, only accessible through spectrum auction and the MVNO model.

At present, installing Wi-Fi in a single household costs at least four thousand five hundred rand. That does not include the cost of installing multiple high sites, which are necessary due to Wi-Fi's limited range, sensitivity to environmental obstacles, and its requirement for line of sight. It also excludes the cost of backhaul.

Fibre, while promising, presents a different set of challenges. Municipal trenching rules and fees make fibre deployment difficult and expensive. Established corporations are moving away from Wi-Fi. They are now pushing into the fibre and mobile virtual network operator spaces, where pricing structures are already set in ways that exclude emerging innovators and keep prices unaffordable for those on the poverty line.

It is for all these reasons that we respectfully request government and ICASA to grant community networks special access to the innovation spectrum. We further ask that ICASA make test licence applications in other IMT bands more accessible to community networks. How can innovation thrive when a 12-month test licence costs half a million rand per full power (47dBm) cell site operating from 1.8 – 5 GHz ?

We need a separate licensing class for community networks, one that recognises our unique role and enables innovation to flourish. We also call on ICASA and government to officially recognise Community Networks South Africa (CNSA) as the national coordination body for community networks. CNSA represents a collective of legitimate, proven grassroots initiatives across South Africa, and should be the designated representative in matters of policy consultation, innovation spectrum planning, and licensing for community-centred connectivity initiatives (CCCis). From that innovation, development will follow. If we do not act now, we remain a country at the mercy of others who shape the technologies we rely on. We need African technology for Africans, built by African innovators who understand our challenges and are committed to real solutions that serve our people. Do not leave us behind. Afford us also a chance. It is the next natural step in using spectrum for socio-economic development.

Alignment with the Objectives of the Draft Regulations on Dynamic Spectrum Access

ICASA Objective	CNSA Alignment	CNSA Position	CNSA Recommendation
Improve spectrum efficiency	Community networks currently operate over unlicensed Wi-Fi spectrum, deploying it in highly targeted, community-specific ways. While our use of Wi-Fi has demonstrated social efficiency and impact, our networks remain constrained by its technical limitations. Our goal is to transition to more robust and scalable spectrum use under the Innovation Spectrum to meet growing community needs.	We have used Wi-Fi spectrum to serve thousands in our communities despite severe constraints. However, to truly achieve scale and efficiency, we must be allowed to move beyond Wi-Fi into the licensed Innovation Spectrum where broader and more stable deployments are possible.	Recognise the proven efficient use of spectrum by CNs through a dedicated licensing framework and allows dynamic spectrum access and/or shared local licenses that prioritises community benefit.
Support innovation	Community Networks partners with Universities hosts community workshops focused on local content creation, digital literacy, gender-based access to the internet, network building, and launching community-driven online radio stations. These initiatives have laid the	Despite this readiness and capability, the current regulatory framework prevents us from participating meaningfully in IMT spectrum and Innovation Spectrum. Prohibitive licensing	Introduce an urgent and accessible test licence framework for community networks for immediate access in 2025. This should be part of a special class of low-cost, flexible licences for CNSA and its affiliates, or a designated exemption

	foundation for real, scalable innovation. We operate community-based data centres and host locally relevant content. These are not small experiments, they are structural interventions addressing systemic digital exclusion. With access to the Innovation Spectrum, we are ready to extend these foundations into full-scale, sustainable infrastructure that supports LTE, and cloud-based platforms.	costs, such half a million rand test fee, create a barrier that directly contradicts the stated purpose of the regulations.	pathway. Ensure these measures are implemented ahead of finalisation of the regulations to allow innovation to be demonstrated and validated in real time.
Promote access to spectrum for new entrants and underserved areas	CNSA exists precisely because our communities are underserved. We have already brought some connectivity to places that commercial ISP has deemed non-viable.	We are the new entrants and the underserved. Without structural inclusion in this regulatory framework, the promise of access will not extend to us.	Guarantee spectrum access for CNSA by creating a simplified, community-led licensing category under the innovation spectrum regulations. Spectrum should be allocated not merely on a first-come or capital-driven basis, but on the basis of the measurable socio-economic benefit delivered to communities. Officially recognise Community Networks South Africa (CNSA) as the national coordinating body for community networks.

			Enable CNSA to administer or co-administer these special licensing frameworks and exemptions for its affiliated community-centred connectivity initiatives (CCCis). This will ensure spectrum is used for meaningful development, not hoarded or left underutilised.
Ensure fair, transparent assignment of spectrum resources	CNSA supports transparency.	If "competitive processes" like auctions are used, community networks will never stand a chance. Fairness must account for structural and financial exclusion.	Rule out innovation spectrum from future auction-based allocation to existing large MNOs. Implement criteria that prioritise public interest and impact.
Encourage participation in dynamic spectrum access models through USS and licensing	CNSA is willing to participate in coordinated spectrum management through structured systems like the USS, but we need direct access and tools designed to include, not exclude, community networks.	Requiring access through third parties or unaffordable software tools excludes community networks from participation. We support the use of the USS, as long as the pricing model does not exclude community networks.	Ensure that community networks have direct and affordable access to the USS and its licensing systems. ICASA should also ensure that affordable equipment compatible with the USS is available, or that open-source tools are accessible to modify existing hardware for USS compliance.

			This would allow CNSA to develop a shared spectrum proxy client or cloud server to interface with the USS on behalf of its members. This system could be offered to CNSA affiliates at no cost, and made available to other service providers for an annual fee. These funds could then be reinvested into CNSA's operations and development programs. It is also critical that the USS pricing and access model is not only transparent, but explicitly inclusive of non-profit and cost-recovery networks like those under CNSA.
Facilitate spectrum for socio-economic development	This is the core of CNSA's existence, connectivity for education, healthcare, dignity, and local opportunity.	What sets us apart from commercial ISPs is our deep integration within the communities we serve. Our networks are designed and maintained by local people, hosted on community-owned infrastructure, and	Empower CNs as strategic national development actors. Make spectrum access policy reflect the economic, developmental, and social value CNs provide.

		shaped by the needs of residents. We do not extract value; we circulate it. We create opportunities for local employment, technical training, content hosting, and service provision where no one else will.	

Potential Risks of Spectrum Monopolization and Recommended Safeguards

Risk	Description	CNSA Recommendation
Channel hoarding by dominant players	Large operators may request multiple channels per license area, reducing availability for smaller networks, using the spectrum for maximum extraction of profit, defeating the purpose of the whole innovation spectrum implementation.	CNSA must be allocated usable spectrum. A single 10 MHz channel is simply not enough to deliver meaningful connectivity, especially in densely populated or under-resourced urban areas. At 10 MHz, typical LTE deployment efficiency results in only 30 to 50 Mbps of shared throughput across multiple households. That becomes inadequate very quickly for modern services like online learning, telehealth, and small business operations. The purpose of the Innovation Spectrum is not just to connect, but to enable socio-economic development. Therefore, spectrum allocation must not be based solely on who applies first or who can pay the most. It should be assigned based on demonstrated or potential public benefit, particularly the socio-economic impact on the specific communities being served. Spectrum should be granted on merit, prioritising operators who are clearly working in the public interest and delivering measurable outcomes for education, health, employment, and local development.

		This approach prevents spectrum hoarding and discourages strategic partnerships that serve no one but large incumbents. It places the public interest at the centre of spectrum management. It ensures that national resources are used to uplift communities, not just drive profit. It also provides ICASA with clear, measurable criteria to assess eligibility and monitor impact, which is essential for transparency and accountability. Real innovation is not defined by speed or power, it's defined by inclusion, localisation, and community-centred use. That's how we close the digital divide. For this reason, we propose that urban areas be afforded the same maximum allocation of spectrum (40 MHz) as rural areas. Urban poverty is no less urgent. The need is the same, if not greater, and should be met with the same tools.
Strategic partnerships used to occupy spectrum	Large operators could partner with intermediary organisations (such as WISPs) to reserve spectrum without immediate deployment.	Monitor and publish spectrum use data per entity. Define rules that invalidate unused allocations regardless of partnership structures.
Lack of public transparency	Without a publicly available spectrum assignment record, it is difficult to detect and address monopolistic patterns.	Publish a real-time, public spectrum usage map and audit logs per license area.
Exclusion from quality channels	More resourceful players may quickly occupy the least-interference or highest-performance channels.	Reserve a portion of channels within each area for community and public-interest use. However, we recognise that not all areas

due to first-come-first-serve		currently have active community network presence. In such cases, commercial operators may proceed to occupy spectrum to deliver connectivity. But where CNSA or its affiliates are active or ready to deploy, preference should be given to these operators, provided they demonstrate measurable socio-economic benefit. This ensures that the innovation spectrum remains aligned with its intended purpose and keeps all operators accountable, discouraging extraction-only models and encouraging development-led use.

Power Limitations and Socio-Economic Development in Urban Areas

Issue	Description	CNSA Recommendation
Low power limits in urban areas	The current draft regulations allow significantly lower transmission power for devices operating in urban areas compared to rural areas. This restriction severely limits the ability of CNSA members to use the Innovation Spectrum to its full potential. The power levels proposed for urban areas are comparable to those of Wi-Fi, which is already insufficient for wide-area, low-cost coverage.	Power regulations must reflect the realities on the ground, especially in low-income, high-density urban areas. Community networks operating in these environments should be granted the same higher power limits as those allowed in rural areas. This is essential to affordably cover larger areas and to deliver stable, meaningful connectivity that supports online learning, healthcare access, job-seeking, and local enterprise. Spectrum is a national development asset. Urban poverty should not be treated with any less urgency than rural poverty. The current 0.5 Watt power cap works for commercial operators focused on profit extraction, but it is completely inadequate for community networks whose purpose is social upliftment. We are not interested in short-term gain; we are working to transform lives. We propose allowing up to 47 dBm in urban areas for community networks, provided it does not cause interference to incumbents. This power level is necessary for indoor coverage, which is crucial for safe and accessible use. People need to connect from inside their homes, not only from street corners or shared outdoor hotspots. If interference is detected, power can be dynamically adjusted downwards to meet coexistence requirements. We are not asking for special treatment. We are

		asking for equitable tools to solve urgent problems, using spectrum to unlock opportunity, safety, and dignity in the places that need it most.

Proposed Licensing and Contribution Framework for Community Networks

Component	Details
Annual Licence Fee	R2000 per community network per year. A minimum of 50% (R1000) must be paid up front. The remaining balance may be paid over the following three months.
Revenue-Based Contribution	3% of all service-related (vouchers and subscriptions) revenue is to be contributed to a nationally managed development fund. The primary use of these contributions will be to support the sustainability of the Unified Spectrum System (USS), with remaining funds allocated to broader community development initiatives.
Fund Oversight	The fund will be jointly managed by ICASA, government, and CNSA.
Use of Funds	The first use of contributions will be to support the development, operation, and long-term sustainability of the Unified Spectrum System (USS), ensuring community networks have affordable, direct access to spectrum management tools. Remaining funds will be ring-fenced for reinvestment into connectivity infrastructure, digital literacy programs, and technical skills development in underserved communities.

As previously stated, CNSA and its affiliates do not need to be compelled by regulation to perform social good, this is our core mandate. The licensing and contribution model reflects our readiness to act as responsible, development-driven stewards of the Innovation Spectrum. It is not profit that drives us, but impact. This framework offers a proactive path for:

- Accountability
- Sustainability
- Reinvestment into the communities we serve

In conclusion, we must also recognise that the technology itself is not the issue; it works. The real question lies in how it is applied. For all these years, community networks operated with Wi-Fi, knowing there are better tools that would give greater impact to help our people, but we have not been able to access them.

We must ask ourselves an urgent question: Are we continuing with the norm to get the same results, or do we take a bold and transformative step toward inclusivity, development, and innovation?

It is time we stopped viewing community networks as fringe actors. We are already delivering where others will not. We are building infrastructure where there is none. We are training young people, enabling digital livelihoods, and reconnecting families long left behind. We are not a risk. We are not an experiment. We are the ones already doing the work.

We do not ask for favours. We ask for recognition, of our role, our contribution, and our potential. Let us use the Innovation Spectrum for what it was meant for: to uplift, to innovate, and to serve those most in need. The decisions made now will determine whether spectrum serves only markets, or whether it serves the people of South Africa.

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