t +27 84 174 4000
e customerservice@cellc.co.za

Cell C Limited

Cnr Maxwell Dr & Pretoria Main Rd
Buccleuch, Johannesburg, 2020

Private BageX36, Benmore, 2010
Johannesburg, South Africa

cellc.co..za

Reg. No.: 1999/007722/06

30 May 2025

Mr Mothibi Ramusi
Chairperson of ICASA
350 Witch-hazel road
Centurion
Pretoria

Attention: Chairperson, Ms Pumla Ntshalintshali

By Email: PNtshalintshali@icasa.org.za
rmakgotlho@icasa.org.za

Dear Ms Pumla Ntshalintshali,

Draft Regulations on Dynamic Spectrum Access and Opportunistic spectrum Management in the Innovation Spectrum 3800-4200 and 5925-6425 MHz

1. ICASA issued Draft Regulations on Dynamic Spectrum Access and Opportunistic spectrum Management in the Innovation Spectrum 3800-4200 and 5925-6425 MHz in the Government Gazette 52415 published on 28 March 2025.

2. Cell C welcomes this engagement and is pleased to make this submission. Cell C thanks the Authority for the opportunity to make written comments to the document issued.

3. Cell C's submission addresses input relating to secondary spectrum allocation, use thereof, competition in relation to barriers to entry, technical observation on the identified bands as well as partnership for community Wi-Fi Access network. These issues are set out in the sections below in Annexure A.

4. Cell C hereby confirms its readiness to participate in any subsequent consultations and oral hearings, which may be called for by the Authority.

Yours sincerely

Mr Themba Phiri

Managing Executive: Regulatory and Policy Affairs

Draft Regulations on Dynamic Spectrum Access and Opportunistic Spectrum Management in the Innovation Spectrum 3800-4200 and 5925-6425 MHz ("the draft Regulations')

1. Background

The Authority intends to promulgate the draft Regulations in respect of Dynamic Spectrum Access and Opportunistic Management taking on board principles of dual allocation of single frequency use to one or more licensees in different geographic locations nationally ensuring optimum use of the assigned spectrum.

Cell C submitted a response to the Discussion Document issued by the Authority on 12 May 2023. Our understanding is that dynamic spectrum management is a form of spectrum sharing, targeting the mid-bands of 3800 MHz – 4200 MHz and 5925 MHz - 6425 MHz bands.

Cell C notes that the Authority has enabled the conducting of trials and experiments in line with the regulations, and sample simulations in urban and rural areas using available databases, which informed the drafting of the draft Dynamic Spectrum Access and Opportunistic Spectrum Management regulations in the specified Innovation Spectrum Frequency Ranges.

2. Legal and Regulatory Implications

The draft Regulation is issued pursuant to section 4 and read with sections 32 (1) and 33 of the Electronic Communications Act of 2005 ("ECA") as amended. These sections deal with control of possession of radio apparatus and specifically:

"32 (*1) No person may possess any radio apparatus unless he or she is-*

(a) in possession of a radio frequency spectrum (RFS) licence....; or

(b) exempted as prescribed in terms of section 31(6).

33 (1) holders of a radio frequency spectrum licence must in good faith, co-ordinate their respective frequency usage with other such licensees to –

(a) Avoid harmful interference among radio frequency spectrum licensees;
(b) Ensure efficient use of any applicable frequency band; and
(c) Allow for the provision of cost-efficient services."

The objectives of these regulations include expanding broadband access to rural, underserved and remote communities and further reducing barriers to entry, to promote equitable access to spectrum.

Other objectives include encouraging broader participation from non-dominant players, small micro and medium enterprises and communities in line with the NGN Radio frequency spectrum for Economic Development Policy.

Cell C is in principle, supportive of initiatives that reduce barriers to entry and foster greater competition. In the same breath, radio frequency spectrum is a scarce resource which is in high demand. It is a critical communications sector asset, the control of which is entrusted to the regulator to amongst other things, unlock future sector growth and to achieve these objectives.

In addition, the efficient use of radio frequency spectrum, coupled with fair regulations goes a long way to balance address competition bottlenecks. Ultimately, the regulator must provide for spectrum licensing with a view to achieving the goals of digital inclusion and digital transformation in the fourth industrial revolution age.

This approach aligns with the objectives of fostering a more inclusive and competitive network environment, where barriers to entry are minimized, and efficiency in spectrum utilization is maximized. By embracing a balanced and forward-thinking regulatory framework, these draft regulations pave the way for collaborative opportunities for existing operators and new entrants alike. This not only enriches service diversity but also accelerates connectivity efforts, particularly in underserved regions, ensuring that the benefits of technological advancements are equitably distributed across all segments of society, contributing to broader economic empowerment and digital inclusion.

In essence "**technology agnostic"** means being unbiased and non-specific about the tools or methods used to solve a problem. It implies that the focus is on the solution itself, not on adhering to a particular technology or vendor. Cell C supports the objectives of these draft regulations which will foster innovation in network deployment in the targeted areas.

Cell C as a non-dominant, small-MNO supports the principle of sharing network capacity with new entrants to promote competition, industry growth, and economic development, facilitating access to internet to communities.

Some of the benefits of innovative-spectrum assignments based on agnostic technology include:

2.1. Flexibility and Openness:

Encourages developers and businesses to consider various technologies and solutions without being bound by pre-existing choices or biases.

2.2. Problem-Driven Approach:

Instead of forcing a solution to fit a specific technology, a technology-agnostic approach prioritizes understanding the problem and then selecting the most suitable technology to address it.

2.3. Avoiding Vendor Lock-in:

By not being tied to a specific technology, businesses avoid potential vendor lock-in and can freely switch between different solutions as needed.

3. Competition and addressing barriers to entry

Cell C has championed the entrants of MVNO in the telecommunications services market, effectively contributing to the growth of the sector, and specifically contributing to SMME growth. Cell C carries most of the MVNO entities on its network, affording small data providers access and opportunities for offering a variety of services and enhancing competition at the retail layer. The MNVO subscriber base is predicted to reach over 12 million subscribers over the next five years.

Competition is a critical factor in addressing affordable access to digital services, and as the broadband market continues to grow and embrace 5G technologies, Over-The-Top (OTTs) services continue to disrupt the data services market, through improved quality service offerings via multimedia platforms such as WhatsApp, google-based services, and fintech-based applications. These platforms offer affordable voice and data services in the retail services layer as a substitute to traditional circuit switched voice. These are mainly retail services, with the voice call market reducing significantly, and the broadband and data services market growing steadily over the past few years. Price-based competition is a key feature in the data services market.

The regulatory authorities play a key role in shaping the competition landscape. The Competition Commission recently conducted a broad study into the mobile market through the Data Market Services Inquiry in 2018 and released its findings in 2019.

In its data services market inquiry report, the Competition Commission finds that:

3.1. The markets are concentrated and continue to be dominated by the first movers, Vodacom and MTN. Whilst Cell C and others as late entrants have made some inroads, small MNOs still face challenges in competing effectively with the incumbents. This means that competition is not as effective as it should be, impacting negatively on data prices and broadband services in general.

3.2. The risk of margin squeeze by the two dominant mobile services operators as infrastructure providers remains, due to lack of adequate competition and lack of regulation redress in the infrastructure layer to address this market reality.

3.3. In terms of retail pricing, the Competition Commission's DSMI inquiry previously found that large MNOs are not responsive to price reductions by challenger networks, and that they achieve a much higher revenue per GB once free and promotional data offers are considered. It established

that wholesale markets with unequal bargaining relationships have historically contributed to the entrenchment of concentration levels.

3.4. The spectrum access constraints result in higher mobile data costs, which has continued even after the spectrum auction which resulted in spectrum access inequality, wherein smaller MNOs hold less spectrum post 2022.

3.5. The Authority is expected to address the spectrum inequality status and use administrative licensing methods to address this challenge and reduce investment costs downstream. The administrative assignment of spectrum will reduce costs and enhance competition. It also finds that the lack of systematic cost-orientated access to infrastructural facilities, due to strategic behaviour of operators and regulatory failure, unnecessarily raises costs overall and for later entrants.

4. Cell C's Express W-Fi Project (Public Access Wi-Fi) Initiative

As a company, Cell C has pioneered the Cell C Express WIFI Project in partnership with Facebook. This project was anchored in three areas, internet access to communities, access to network connectivity, and partnership with third parties in collaboration with interested stakeholders.

4.1. Wi-Fi Access Background

- Express Wi-Fi was a public access Wi-Fi internet service open to individuals to connect to the Internet or communicate wirelessly.
- The heart of this project was to connect more people across the country to the internet.
- Connecting to the express Wi-Fi network using any device that has Wi-Fi capabilities and where express Wi-Fi has been deployed.
- Facebook and Cell C have a long-standing partnership, with Cell C being the first mobile operator in SA to launch Facebook's, Free-Basics, bringing free access to South Africans with smartphones.
- Cell C now expands on this relationship and offers express Wi-Fi service in partnership with Facebook.

Cell C's support for dynamic spectrum and innovation allocation methods is well informed by the need to ensure that all communities should receive digital services, connectivity that advances and promotes digital transformation. Not only has Cell C partnered with Facebook to roll out Wi-Fi access in various communities, but Cell C is also strongly committed to promoting MVNO's, MVNE's, SMMEs. These projects enrolled a lot of beneficiaries who were able to receive online services and data services.

5. The Government's Digital Transformation Roadmap

The Digital Transformation Roadmap was unveiled by the Minister of Communications and Digital Technologies on 13 May 2025. The plan focuses on modernising the delivery of services especially online services using technology. In this bold vision, business and communities will need access to radio frequency spectrum such as the bands identified in the draft Regulation and others.

The focus of the digital transformation roadmap has given priority to four catalytic areas:

5.1. A **Digital Identity System** which will allow South Africans a simple way to verify themselves and access services remotely.

5.2. A **Data Exchange Framework** which will eradicate the silo effect in government and allow greater efficiency and coordination in how the government operates.

5.3. A **Digital Payments System** that provides universal access to secure, low-cost payment options between government and citizens.

5.4. A single, zero-rated **Digital Services Platform**, where citizens can access all government services and information.

These priorities will foster cooperation with service providers and MNOs to support the vision for the four initiatives. It is our considered view that the Authority's plan to use dynamic spectrum access for secondary users and to allow access to spectrum to non-dominant players, SMMEs and community networks operators, is well placed to support the above- mentioned priorities.

Cell C aligns itself with the purpose of the draft Regulations, which is primarily to facilitate the use of innovative spectrum by secondary users. Whilst mitigating the risk of harmful interference amongst incumbent primary users and secondary users in the two innovation spectrum bands. Thus, supporting the legislative objectives of using the radio frequency spectrum efficiently.

6. Efficient Use of Radio Frequency Spectrum in terms of Legislation

The draft Regulations provide for Secondary users to activate available radio frequency spectrum in the proposed ISFR1 and ISFR2 frequency ranges. This approach allows for licensees and other users (licence exempt) to access radio frequency spectrum that they would not otherwise have access to within a compliant, cost effective and regulated framework. This approach supports the efficient use of nationally assigned spectrum and is aligned with the provisions and the objectives of the ECA, specifically section 2 of the ECA:

> Objects of the ECA:
>
> *"2(c) promote the universal provision of electronic communications networks and electronic communications services and connectivity for all;*
>
> *2(d) encourage investment, including strategic infrastructure investment, and innovation in the communications sector;*

2(e) ensure efficient use of the radio frequency spectrum;

2(p) develop and promote SMMEs and cooperatives;"

ICASA is empowered to facilitate spectrum coordination and encourage efficient use of frequencies amongst licensees in terms of section 33(1) which states:

"*Holders of a radio frequency spectrum licence must, in good faith, co-ordinate their respective frequency usage with other such licensees to –*

(a) avoid harmful interference among radio frequency spectrum licensees;

(b) ensure efficient use of any applicable frequency band; and

(c) allow for the provision of cost-efficient services."

7. Regulations Impacted by the Dynamic Spectrum Access and Opportunistic Spectrum Management

Currently, individual electronic communications network services and individual electronic communication services licensees who are assigned IMT mobile spectrum licences, have Universal Service Obligations ("USOs") attached to these spectrum licences. These USO's contribute substantially to society at a significant cost to the licensees. It must be noted that these costs directly and negatively impact the cost to communicate.

Therefore, Cell C supports the Authority's approach in excluding USOs (coverage, connectivity, hardware, software) on licensees and licence exempt users who are assigned dynamic spectrum in the ISFR1 band and participate in the ISM band, ISFR2. Cell C recommends that such position be reaffirmed in the draft Regulations to provide regulatory certainty.

7.1. The Standard Terms and Conditions for Individual Electronic Communications Network Service ("IECNS") and Individual Electronic Communications Service ("IECS")

regulations prescribe specific actions that relevant licensees must abide by to remain compliant and to avoid penalties for non-compliance. Some of the obligations include the filing of permanent tariffs by notification to the Authority at least seven business days before launch date and providing any information sought by the Authority in conducting its prescribed functions under the ECA. Cell C recommends that the draft Regulation be transparent to IECNS and IECS licensees, and that such requirements do not apply to the same category of IECNS and IECS licensees that participate in accessing spectrum in the ISFR1 and ISFR2 bands, a light touch regulatory approach.

Cell C specifically proposes that the Authority should not impose USO obligations such as schools connectivity, and free Wi-Fi in public facilities; in order to reduce barriers to entry. Options for such approach to be considered by the Authority are for example, reducing the prescribed tariff notification timeline from seven business days to one business day.

7.2. Annual Licence Fees, Universal Service Fund Fees and annual radio frequency spectrum fees.

The current ECA licensing framework and the prescribed fees regulations provide certainty on which licences are subject to these fees, the calculation methodology, the exclusions from the fee calculations, the applicability of the Consumer Price index ("CPI"), the due date for payments and it makes provision for interest payments on delayed payments.

Cell C recommends that the draft Regulation provide a transparent fee structure that supports and encourages the industry to grow. In other words, the licence fees should not be prohibitive as a barrier to entry or create a burden for spectrum holders in the identified bands.

7.3. Numbering and Number Portability

It is unclear whether the draft Regulations provide for participating licensees and licence exempt users from acquiring numbering from the National Numbering Plan and/or whether those numbers would be subject to number portability. If the electronic communication services such as voice utilise numbers from the National Numbering Plan, the Authority will need to clearly indicate such, as well as ensure there is sufficient numbering capacity to cater for such services.

7.4. Quality of Service (QoS) parameters, Consumer Protection, Dispute Resolution Procedures and Reporting

Cell C notes that the draft Regulations are silent with respect to consumer protection matters, specifically those prescribed in the End-User Subscriber and Service Charter Regulations ("EUSSCR"). The EUSSCR provides for:

7.4.1. Extreme Technical QoS parameters that licensees must achieve to be compliant, the biannual reporting thereof, notification of customers of service upgrades, notifying ICASA and customers of major network/service outages with resolution times.

7.4.2. Consumer protection in terms of reporting the top three complaints by category and mitigation procedures thereof, rebates for dropped calls, alternate escalated complaint dispute procedures, complaints handling procedures and dispute resolution procedures. It must be noted that the draft Regulations do not provide for a

process to manage disputes amongst the incumbent Primary users, the Secondary Users, Unified Spectrum Switch Provider ("USSP").

8. ISFR1 and ISFR2 in terms of ITU Radio Regulations and an updated National Radio Frequency Plan ("NRFP")

Cell C notes the proposed changes as captured in the draft NRFP (published in the Government Gazette 52449 on 4 April 2025), of which written comments are due on 30 May 2025.

Changes to the NRFP must be consulted upon, approved and published prior to drafting and finalising any related regulations that make use of assigned spectrum with new applications. This avoids unnecessary disputes and misinterpretation of regulations.

In this regard Cell C notes with concern the inclusion of band ***"BFWA (3600 – 3800 MHz)"*** in the second row, third column under the title "*Typical Applications*" as highlighted below in Table A. It is Cell C's understanding that IFSR1 range begins at 3800 MHz and stops at 4200 MHz and therefore recommend it should be removed.

Table A (Draft NRFP)

ITU Region 1 Allocations and Footnotes	***South African Allocations and Footnotes***	***Typical Applications***	***Notes and Comments***
3 600 - ~~4 200~~3 800 MHz *FIXED FIXED-SATELLITE (Space-to-Earth) ~~Mobile~~MOBILE except aeronautical mobile 5.433B 5.434A 5.434B 5.435A*	***3600 - 3 800~~4 200~~ MHz*** *FIXED FIXED-SATELLITE (Space-to-Earth) NF1409 MOBILE except aeronautical mobile 5.434A 5.434B*	*Fixed links (4 GHz) (3600 – 4200 MHz)* *C-band downlink (VSAT/SNG/PTP links) (3600 – 4200 MHz)* *BFWA (3600 – 3800 MHz)*	*~~The sub-band 3 600-3 800 MHz could be used for BFWA where frequency sharing with FS PTP and/or FSS is feasible.~~* *The band 3 600 - 3 800 MHz shall be used for IMT noting ITU-R Recommendation 1036-8.*

ITU Region 1 Allocations and Footnotes	***South African Allocations and Footnotes***	***Typical Applications***	***Notes and Comments***
		IMT (3600 – 3800 MHz)	*The channelling arrangement for PTP links in this band is based on ITU-R Recommendation F.635 latest version Annex 1.* *The sub-band 3 600 - 4 200 MHz is used for medium and high capacity PTP links and FSS.* *In the band 3 600 - 3 800 MHz, FS PTP and FSS applications will have to operate on a coordinated basis.* *Operators are encouraged to apply for spectrum licenses including registering all C-Band Earth stations on the ICASA online database.*

ITU Region 1 Allocations and Footnotes	***South African Allocations and Footnotes***	***Typical Applications***	***Notes and Comments***
3 800 - 4 200 MHz *FIXED* *FIXED-SATELLITE (pace-to-Earth)* *Mobile*	***3 800 - 4 200 MHz*** *FIXED* *FIXED-SATELLITE (Space-to-Earth)* *Mobile*	*Fixed links (4 GHz) (3600 – 4200 MHz)* *C-band downlink (VSAT/SNG/PTP links) (3600 – 4200 MHz)* ***BFWA (3600 – 3800 MHz)***	*The channelling arrangement for PTP links in this band is based on ITU-R Recommendation F.635 latest version Annex 1.* *The sub-band 3 600 - 4 200 MHz is used for medium and high capacity PTP links and FSS.* *In the band 3 600 - 3 800 MHz, FS PTP and FSS applications will have to operate on coordinated basis.* *Operators are encouraged to apply for spectrum licenses including registering all C-Band Earth stations on the ICASA online database.*

9. User Cases and Opportunistic Benefits of Dynamic Spectrum Assignment in the C-Band and Lower 6 GHz Band (Wi-Fi 6E Band 5.925 GHz - 6.425 GHz)

9.1. 3.8 GHz Band (C-Band, 3.7– 4.2 GHz) Earmarked for ISFR1

9.1.1 Cell C conducted desktop research studies on the C-band and observed characteristics and uses of this band. This band provides for a variety of access services such as mobile broadband, Internet of Things ("IoT"), Fixed Wireless Services and IMT MOBILE (3600MHz - 3800MHz).

9.1.2 Our research findings indicate that the device ecosystem in this band is mature for both the mobile and FWA services. With regards to Narrowband -IoT (NB-IoT) and LTE-Machine Type Communication (LTE-M) services, some OEMs offer modules that are compatible and available for use in this band.

9.1.3 **Mobile Broadband** - the device ecosystem is highly mature for consumer smartphones and FWA, with growing maturity for IoT and enterprise devices. Over 90% of 5G devices launched since 2021 support n77/n78, driven by global harmonization and chipsets from Qualcomm (Snapdragon X series), MediaTek, and Samsung. Major manufacturers (e.g., Apple, Samsung, Google, Xiaomi, Oppo) include C-band support in flagship and mid-range devices. For example, iPhones (since iPhone 12, 2020) and Samsung Galaxy S series (since S21, 2021) support n77/n78, ensuring compatibility with U.S. band (n77) and international (n78) C-band networks.

9.1.4 **Internet of Things** (IoT) - Cellular IoT modules for applications like smart cities, industrial automation and healthcare, support C-band, particularly for NB-IoT and LTE-M in mid-band spectrum. Companies like Quectel, Sierra Wireless, and Telit offer modules with n77/n78 compatibility.

9.1.5 **Fixed Wireless Access** (FWA) - WA customer premises equipment (CPE), such as 5G routers and gateways, supports C-band for home and enterprise broadband. Nokia, Huawei, and ZTE produce CPEs are optimized for 3.7–3.98 GHz, and widely used by Verizon and AT&T for 5G home internet.

9.1.6 **3400Mhz – 3800Mhz Bands** - identified as IMT spectrum. ITU Region 1 (Europe, Africa, Middle East): the 3400–3800 MHz range is harmonized for IMT, with 3600–3800 MHz widely allocated and adopted for 5G. The device ecosystem is highly mature. The n78 band has

a high device ecosystem due to its global harmonization and widespread operator adoption. (https://www.5g-networks.net/5g-band-n78-3500mhz/)

9.2. Lower 6 GHz Band (Wi-Fi 6E Band 5.925 GHz- 6.425 GHz) Earmarked for ISFR2

9.2.1 Cell C conducted desktop research studies on the 5.925 GHz - 6.425 GHz band and observed the characteristics and uses of this band. This band provides for a variety of access services such as Wi-Fi 6E, IMT Mobile and Fixed Satellite services. It is noted that IMT Mobile services are to be provided on a secondary basis with protection to the primary users.

9.2.2 In addition to achieving a mature access and device ecosystem, Cell C is in support of the regulatory sandbox to be used a medium to test and trial these services in this band. The regulatory sandbox exercise may assist with finalising the draft Regulations.

9.2.3 The PRIMARY services allocated in this band are FIXED, Fixed-Satellite and MOBILE, for the In ITU Region 1 (Europe, Africa, Middle East, including South Africa). The band is also allocated to MOBILE services on a secondary basis specifically for International Mobile Telecommunications (IMT), which includes 5G. The footnote was introduced at the World Radiocommunication Conference (WRC-15) to balance the growing demand for IMT (e.g., 5G) in the 6 GHz band with the protection of existing FSS operations.

9.2.4 The band enables countries in Region 1, like South Africa, to explore IMT deployments in 5925 – 6425 MHz, provided they adhere to coordination requirements. The draft Regulations for 5925 – 6425 MHz align with Footnote 5.457 D by prioritizing protection of primary FSS users (e.g., satellite feeder links) while enabling secondary access for technologies like Wi-Fi 6E and potential IMT applications. The geo-location database proposed by the Authority ensures no interference with FSS, as mandated by the footnote's coordination requirements. The 5G device ecosystem in the 5925 – 6425 MHz band is virtually non-existent as of May 2025, with no commercial 5G devices or standardized 5G NR band defined for this range. The band is dominated by a mature Wi-Fi 6E/Wi-Fi 7 ecosystem.

9.2.5 ITU footnotes (5.457D, 5.457F) allow secondary IMT mobile use in Region 1, including South Africa. However, coordination requirements to mitigate against interference concerns and Wi-Fi's dominance limit 5G developments (see Table B below) in this band.

The Authority's draft Regulations and regulatory sandbox proposal explore secondary access, however no 5G devices are deployed yet. In contrast, bands like n78 and n77 have robust 5G ecosystems due to global harmonization and operator adoption. For efficient use of this band, the 5G ecosystem growth would require the following: a 3GPP standardization framework, regional coordination, and a shift from focusing on Wi-Fi prioritization, which is unlikely in the near term.

Table B (Draft NRFP)

ITU Region 1 allocations and footnotes	***South African allocations and footnotes***	***Typical Applications***	***Notes and Comments***
5850 - 5 925 MHz *FIXED* *FIXED-SATELLITE (Earth-to-Space)* *MOBILE*	***5 850 - 5 925 MHz*** *FIXED* *FIXED-SATELLITE (Earth-to-Space)* *MOBILE*	*PTP* *C-band uplink (VSAT/SNG links)* *ISM applications (5725 – 5875 MHz)* *Fixed-satellite uplinks (PTP/VSAT/SNG) (5850 - 6425 MHz)* *FIXED links (5850 - 5925 MHz)* *ISM (5725 - 5875 MHz)*	*FS could be used for temporary OB links.*
5 925 - 6 700 MHz *FIXED 5.457* *FIXED-SATELLITE*	***5 925 - 6 700*** *MHz* *FIXED 5.457 NF14* *FIXED-SATELLITE (Earth-to-space)*	*Fixed links - Lower 6 GHz (5925-6425 MHz)*	*Channelling plan for L6 GHz band in accordance with*

ITU Region 1 allocations and footnotes	***South African allocations and footnotes***	***Typical Applications***	***Notes and Comments***
(Earth-to-Space) 5.457A 5.457B *MOBILE 5.457C 5.457D 5.457E 5.457F*	*5.457A 5.457B MOBILE 5.149 5.440 5.458*	*BFWA Fixed-satellite uplinks (PTP/VSAT/SNG) (5850-6425 MHz) ESVs (5925 – 6425 MHz)* *Radio astronomy (observation of Methanol)*	*ITU-R Rec. F.383 latest version.* *Earth Station onboard vessels (ESV) also allowed under FSS. Resolution 902 (WRC-03)* *Consideration may be made for future License Exempt provided it is feasible for the protection of incumbent service.* *Radio Frequency Spectrum Regulations, 2015 – Annexure B (as amended)*
	6 425 - 6 429 MHz *FIXED 5.457 NF14 FIXED-SATELLITE (Earth-to-space) MOBILE 5.457E STANDARD FREQUENCY AND TIME SIGNAL-*	*Upper 6 GHz (6425 - 7110 MHz)* *BFWA Fixed-satellite uplinks*	*Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384 latest version.*

ITU Region 1 allocations and footnotes	***South African allocations and footnotes***	***Typical Applications***	***Notes and Comments***
	SATELLITE (6 427 MHz) (Space-to-Earth *5.149 5.440 5.458*	*(PTP/VSAT/SNG) (5850-6425 MHz)* *Radio astronomy (Observation of Methanol)* *IMT Identification (6425 -6429 MHz)*	*Resolution 150 (WRC-12) ITU-R* *Recommendation M1036.8*
	6 429 - 6700 MHz *5.149 5.440 5.458* *FIXED 5.457* *MOBILE 5.457E* *5.458*	*Upper 6 GHz (6425 - 7110 MHz)* *BFWA Radio astronomy (Observation of Methanol)* *IMT Identification (6429 -6700 MHz)*	*Channelling plan for U6 GHz band in accordance with ITU-R Rec. F.384 latest version.* *Resolution 150 (WRC-12) ITU-R* *Recommendation M1036.8*

10. Additional Technical Observations - Type Approval for Innovation Spectrum Devices (ISD) – Master ISD and Client ISD, Mobile devices, Standard-Power

All ISD (Master and Client) devices, mobile devices, and standard Power devices that are used for the purposes of accessing electronic communications services by use of radio frequency spectrum medium are discussed in the draft Regulation. Cell C supports the approach that such devices be type approved under the 26 August 2013 Type Approval Regulations - Government Gazette 36785,

(as amended). Cell C encourages the monitoring of the device industry developments for the identified bands, in order to ensure compliance and protection from harmful interference.

11. Comments on Specific Sections of Draft Regulations

11.1 Regulation 6: Registration of Network Operator and Spectrum Authorisation

Cell C notes that the Authority plans to establish an entity which will be designated to conduct spectrum authorisation services. The application procedure for the spectrum authorisation is provided in the draft Regulations, and applicants shall be required to register on the USSP portal. Cell C proposes that the Authority investigate the establishment of the USSP entity. The Authority is encouraged to consider the provisions of the ECA, where the Authority is the custodian of Spectrum Allocation and Management in South Africa on behalf of the state. The success of the Authority's approach to the National Number Portability Database ("NNPDB"), where this was established by a few licensees and managed independently of the regulator provides a strong basis to consider a similar approach for the USSP portal. The NNPDB model is built on a self-sustaining non-profit model principle and calculated on the successful number of successful ports to the recipient operator. As recommended above, these registration fees ought to be cost based.

11.2 Regulation 7: Access Requirements for Innovation Spectrum Devices

Cell C notes the provisions providing for the requirements of devices in terms of the communication protocol for USS. Cell C recommends that robust mechanisms be established to prevent cybersecurity attacks such as hacking and other software related criminal offences.

11.3 Regulation 11 and 12: Measures to Prevent Harmful Interference and Mitigation Protocol

The adoption of Automated Frequency Coordination ("AFC") as a mandatory interference mitigation framework for the 6 GHz unlicensed band operations should be implemented to ensure that the primary users are protected and that there is efficient use of the spectrum. Cell C proposes the enforcement of prescribed power limits and adoption of Listen Before Talk ("LBT") mechanisms for ISD's to mitigate against interference in dense deployments. Cell C recommends the support of ongoing spectrum monitoring and stakeholder collaboration to address emerging interference challenges as the 6 GHz adoption grows. The Regulator must ensure that primary and secondary users are properly protected through enforcement of compliance with the Authority's prescribed spectrum regulations and quality of standards expectations.

11.4 Regulation 18: Innovation Spectrum Licence Validity and Renewal

The Authority proposes a three-year period as the duration for the IS spectrum licences and that the licence may be renewed in the designated geographic area. Cell C recommends that the licence duration be increased to five years with supporting motivation. Such approach will provide assurance and encourage commitment for this innovation to grow and develop, providing certainty, confidence and protection to the IS licensees (secondary users) who inter alia, depend on external or foreign financial support and investors who provide such support.

11.5 Regulation 19: Commence of Operations

Cell C proposes the following changes to draft regulation 19, to accommodate later commencement of operations dates that may occur from time to time where there are justifiable reasons for later commencement of operations:

"The IS licensee must commence operations within 90 days (as defined in the Act) from ()from the date of issue of licence or another specified timeline as agreed in writing with the Authority."

12. Table of Cell C Recommendations

Cell C has considered the draft regulation's objectives, spectrum bands and technical parameters, and wish to submit the key recommendations discussed below:

No. and Subject Matter	Recommendation
1. Legal and Regulatory Implications	The Regulations must provide for efficient use of radio frequency spectrum, digital inclusion and digital transformation which aligns to the objects of the ECA.
2. Competition	Cell C supports the removal of barriers of entry experienced by new entrants and non-SMP licensees which hinder Competition in the ICT Sector, by ensuring in services are provided in the dynamic unused spectrum in both designated bands IFSR1 and IFSR2, subject to appropriate controls and requirements being met.
3. Cell C's Express Wi-Fi Project (Public Access Wi-Fi) Initiative	Cell C has experience in pioneering projects that are novel in the ICT Sector. An example is Cell C's Express Wi-Fi Project in partnership with Facebook. The focus was

	providing access to the internet using Wi-Fi bands and zero/reasonable charges to access content.
4. Government's Digital Transformation Roadmap	Cell C supports the use of modern digital technology for the delivery of online services especially online services using technology. However, business and communities will require access to radio frequency spectrum such as the bands identified in the draft Regulation.
5. Terms of the Licence and Licence Renewal	Cell C recommends the term of the spectrum licence be extended from three to five years. This is inter alia due the investment and commitment to technology installation as well as the time required to decommission installed network equipment and protection of the IS licensees (secondary users).
6. USO and EUSSCR	Cell C recommends that the Authority consider not imposing universal service obligations including the prescribed minimum standards as contained in the End User and Subscriber Service Regulations ("EUSSCR") when licensing these bands.
7. Economic Impact Assessment Study	7.1. The Authority should undertake a comprehensive economic impact assessment study to inform the business potential and spectrum efficiency benefit of the proposed Dynamic Spectrum Access and Opportunistic Management system model for South Africa. 7.2. The Authority is encouraged to release the Dynamic Spectrum Assignment Test Report to the public. In this regard, Cell C further encourages the Authority to ensure and receive confirmation from the incumbent primary users in the IFSR1 band that their services are protected from harmful interference emanating from the Dynamic Spectrum Assignment secondary users. The market will benefit from the results of the tests conducted to understand the findings and conclusion of the test results for dynamic spectrum assignment including device usage.

8. Technical Parameters	Technical parameters defined in the draft Regulation to address quality of service must be limited to the scope of the innovation band addressing interference amongst users.
9. Establishment of Unified Spectrum Switch Provider (USSP)	Cell C recommends that that the scope, terms of reference, system specifications, functional specifications and funding methodology be completed prior to the draft Regulations being finalised. The Authority is encouraged to look at our working National Number Portability Database model as a reference.
10. Community Networks and Non-Dominant Operators (Tier 2 Operators)	In considering the draft Regulations, the Authority is encouraged to promote spectrum access to SMMEs and encourage partnerships amongst all operators to ensure rural and underserved communities receive network infrastructure access as part of digital inclusivity.
11. Identified Spectrum Bands 3.8 to 4.2 MHz; and 5850 – 5925 MHz	11.1 The band 3.8 to 4.2 MHz is suitable for Mobile and Fixed Wireless Access for broadband services and Internet of Things services, however it will require proper and disciplined deployment and operations to avoid harmful interference amongst users in the band. 11.2 The 5850 – 5925 band is primarily allocated for Fixed Satellite Services and allocated for Mobile on a secondary basis, allowing for 5G deployment with coordination required to avoid harmful interference amongst users on this band. The device ecosystem for this band is at its early infancy, which should be taken into account in the final regulations. 11.3 The Authority should strongly consider the technology deployment plans in these bands and technology evolutions and should provide effective and efficient mechanisms for managing harmful interference in the band.
12. Alternative Dispute Resolution	12.1 Cell C recommends that the Authority establish a dispute resolution mechanism (DRM) to manage

Mechanisms and Innovation Spectrum Fees Charges	conflict when such disputes arise amongst parties in a cost-effective and expedited manner. 12.2 Fair and reasonable spectrum fee charges for the primary and secondary licensed users should be implemented in respect of the use of the band.

13. Conclusion

13.1 Cell C is pleased to submit these recommendations for the Authority's consideration in respect of the provisions contained in the draft Regulation.

13.2 The draft Regulations have provided clarity, more specifics and focus on the suggested spectrum bands. The objectives of the draft Regulations are aligned with the governing legislation, and albeit limited there is some evidence to demonstrate the benefits.

13.3 In considering the draft Regulations, the Authority is encouraged to promote spectrum access to SMMEs and to encourage partnerships amongst all operators to ensure rural and underserved communities receive the benefits of network infrastructure access as part of digital inclusivity.

13.4 The Authority is encouraged to release the Dynamic Spectrum Assignment Test Report to the public. In this regard, Cell C further encourages the Authority to ensure and confirm from the incumbent primary users in the IFSR1 band that their services are protected from harmful interference emanating from the Dynamic Spectrum Assignment Secondary users. The market can benefit from the results of the tests conducted to understand the findings and conclusion of the test results for dynamic spectrum assignment including device usage.

13.5 Cell C supports the pairing of non-dominant operators with smaller license operators for these bands.