SOUTH AFRICAN RESERVE BANK

NOTICE 3144 OF 2025

PURSUANT TO SECTION 4B OF THE INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA ACT, 2000 (ACT NO. 13 OF 2000) ("THE INQUIRY").

HEREBY ISSUES A NOTICE REGARDING ITS FINDINGS ON THE "CONSULTATION ON THE PROPOSED NEW LICENSING FRAMEWORK FOR SATELLITE SERVICES".

The Independent Communications Authority of South Africa ("the Authority") has conducted an inquiry into the proposed new licensing framework for satellite services. This Government Gazette notice presents the findings and recommendations based on extensive stakeholder submissions and consultations.

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CHAIRPERSON

TABLE OF CONTENTS

1. DEFINITIONS

1.1. **Authority** – The Independent Communications Authority of South Africa, also referred to as ICASA.

1.2. **Blanket Licensing** - A regulatory approach where a single licence covers multiple user terminals or devices, provided they meet specified technical and operational standards, without requiring individual licences for each terminal.

1.3. **Broadcasting Satellite Service (BSS)** - A radiocommunication service in which signals transmitted or re-transmitted by Space Stations are intended for direct reception by the general public.

1.4. **Co-ordination** - as described in Section II, Article 9 of International Telecommunication Union (ITU) Radio Regulations, is a formal regulatory obligation both for an administration seeking recognition of a frequency assignment for its network and for an administration whose existing or planned services may be affected by that assignment.

1.5. **Direct-to-Home (DTH)** - A satellite service that delivers television or other content directly to consumers' homes via a satellite dish and receive.

1.6. **Earth Station in Motion (ESIM)** - Earth stations placed on moving platforms that communicate with geostationary-orbit (GSO) satellite or non-GSO systems operating in the fixed-satellite service (FSS).

1.7. **Electronic Communications Network Services (ECNS)** – Services involving the provision of electronic communications networks, including infrastructure for transmitting signals.

1.8. **Electronic Communications Services (ECS)** - Services provided to end-users over electronic communications networks, such as voice, data, or video services.

1.9. **Fixed Satellite Service (FSS)** – A radiocommunication service between earth stations at given positions, when one or more satellites are used. The given position may be a specified fixed point or any fixed point within specified areas. In some cases, this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service. The fixed-satellite service may also include feeder links for other space radiocommunication service.

1.10. **Foreign Satellite System** - Satellite system that operates under the cover of a Satellite Network notified by a foreign Administration. The term is used to refer to operators providing Satellite Capacity in a country outside of the jurisdiction of the satellite operator's host country of ITU satellite registration.

1.11. **Gateway** - Gateway earth stations linking one or more terrestrial networks and satellites.

1.12. **Geostationary-Orbit (GSO) Satellite** - A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator, and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite remains approximately fixed relative to the Earth.

1.13. **Ground Segment** - The Ground Segment refers to the network of gateways. Gateway earth stations link one or more terrestrial networks and the satellites.

1.14. **Harmful Interference** - Interference that impairs the functioning of a Radiocommunication Service, or which materially degrades obstructs or repeatedly interrupts a Radiocommunication Service.

1.15. **High Throughput Satellites (HTS)** - are a new generation of communication satellites that use advanced technologies to provide higher data transmission capacity than traditional satellites. HTS use focused spot beams instead of wide beams, which can result in 10 to 100 times higher throughput.

1.16. **Internet of Things (IoT)** - A network of interconnected devices that communicate and exchange data, often using satellite or terrestrial networks for connectivity.

1.17. **ITU Radio Regulations** - are part of the Administrative Regulations of the legal framework of ITU that govern the global use of radio-frequency spectrum and satellite orbits. These have international treaty status and are thus binding on the ITU Member States.

1.18. **Landing Rights Permission/Authorisation** - Administrative act by which ICASA confers the right to a natural or legal person to exploit the rights of emission and reception of signals, including broadcasting television content, and frequency bands associated with Foreign Satellite Systems that cover and can provide services within the South African national territory.

1.19. **Mobile Satellite Services (MSS)** - A radiocommunication service between mobile earth stations and one or more Space Stations or between Space Stations used by this service; or between mobile earth stations using one or more Space Stations and includes any feeder links necessary for its operation.

1.20. **Non-Geostationary Orbit (NGSO, or non-GSO)** - An orbit that is not geostationary (GSO), and thus any spacecraft on such orbit will not be fixed to the Earth's rotation. There are many types of NGSO, such as Low Earth Orbit (LEO), Medium Earth Orbit (MEO), and High Elliptical Orbit (HEO). Some NGSOs can also be circular (radius is constant, or eccentricity is zero), or elliptical (eccentricity is greater than 0 and no more than 1).

1.21. **Non-Terrestrial Network (NTN)** - A network that uses satellite or other non-ground-based systems to provide connectivity, often complementing terrestrial networks in remote or underserved areas.

1.22. **Notification (ITU)** – means the Final stage of the procedure for assigning satellite orbits with their respective associated frequency

bands before the ITU, which is intended to be registered in the Master International Frequency Register.

1.23. **Orbit** - A path of a satellite around the Earth.

1.24. **Private Electronic Communications Network (PECN)** – An electronic communications network used primarily for providing electronic communications for the owner's own use.

1.25. **Power Flux Density (PFD)** - The amount of power flow through a unit area within a unit bandwidth. The units of power flux density are those of power spectral density per unit area, namely watts per hertz per square meter. These units are generally expressed in decibel form as dB(W/Hz/m2), dB(W/m2) in a 4 kHz band, or dB(W/m2) in a 1 MHz band.

1.26. **Radio Quiet Zone (RQZ)** - An area where radio transmissions are restricted to protect a radio telescope or communications station from radio frequency interference.

1.27. **Satellite Capacity** - Quantity of radioelectric spectrum, quantified in hertz, capable of being supplied by a satellite system to carry traffic of satellite services. Earth's surface, intended for either the transmission of radio signals to a Space Station or the reception of radio signals from a Space Station, or both.

1.28. **Satellite Capacity Provide** - means the satellite system registered by ICASA to provide satellite capacity over the Republic of South Africa, whereby licensed telecommunications service providers and/or telecommunications network operators must procure satellite capacities from Registered Satellite Capacity Providers.

1.29. **Satellite Network** - Configuration of one or more satellites that provide(s) controlled radio transmission facilities and which interconnect(s) with earth stations. These networks consist, at the very least, of the establishment of transmission lines:

- between Space Segment and fixed earth stations which provide the link to the terrestrial public networks (feeder links)
- between Space Segment and end-user earth stations which may be fixed or mobile (service links);
- one or more fixed earth stations may have the function of controlling the system and/or interconnecting with other networks. Also means a satellite system or a part of a satellite system consisting of only one satellite and the cooperating earth stations.

1.30. **Space Segment** – means the ground facilities providing the tracking, telemetry, and telecommand (TTC) functions and logistics support for the satellites.

1.31. **Space Station** - is a station located on an object that is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere.

1.32. **Spectrum Fees** - Charges levied by regulatory authorities for the use of specific radio frequency bands, typically based on bandwidth, frequency range, or other factors.

1.33. **Teleport Facility** - is two or more non-transportable fixed satellite earth stations that collectively provide access to or from an electronic communications network, which are located at a single, physically demarcated geographic location, and which collectively are capable of transmitting on more than one frequency to more than one Space Station simultaneously using steerable antennas.

1.34. **Terminal** - The equipment used by customers to access the licensed service. "TT&C" or "Telemetry, Tracking and Command" means the entirety of the facilities and necessary staff for the control of a Satellite System and to maintain its safe operations within its assigned orbital parameters.

1.35. **Telemetry, Tracking, and Command (TT&C)** - Subsystem for telemetry, monitoring, and control of a satellite with facilities on the ground. Telemetry consists of monitoring the status of the satellite through the collection, processing, and transmission of data from the various subsystems; tracking consists of determining the exact location of the satellite through the reception, processing, and transmission of tracking signals; and the adequate control of the satellite through the reception, processing, and implementation of commands transmitted from the Earth.

1.36. **Type Approval** - An administrative procedure of technical tests and vetting applied to items of telecommunication equipment, involving verification of the equipment's compliance with the applicable standards and other regulatory requirements, before they can be sold, used, imported, or interconnected with the public network.

2. TABLE OF ABBREVIATIONS

Abbreviation	Full Term
ACT	Association of Communications and Technology
ATU	African Telecommunications Union
B-BBEE	Broad-Based Black Economic Empowerment
BSS	Broadcasting Satellite Services
BTB	Business-to-Business
CNES	Centre National d'Etudes Spatiales
CPI	Consumer Price Index
CSIR	Council for Scientific and Industrial Research
DOD	Department of Defence
DTD	Direct-to-Device
DTH	Direct-to-Home
ECA	Electronic Communications Act
ECNS	Electronic Communications Network Services
ECS	Electronic Communications Services
EESS	Earth Exploration-Satellite Service
EO	Earth Observation
ESIM	Earth Station in Motion
FSS	Fixed Satellite Services
GES	Gateway Earth Station
GPS	Global Position System
GSO	Geostationary Orbit
GSOA	Global Satellite Operators Association
HTS	High Throughput Satellites
HTSF	High Throughput Satellite Factor
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communication Technology
I-ECS	Individual Electronic Communications Services
I-ECNS	Individual Electronic Communications Network Services
IoT	Internet of Things

ISPA	Internet Service Providers' Association
ISRO	Indian Space Research Organisation
ITU	International Telecommunication Union
JAXA	Japan Aerospace Exploration Agency
LDR	Low Data Rate
LEO	Low Earth Orbit
MNO	Mobile Network Operators
MSS	Mobile Satellite Services
MTN	Mobile Telephone Networks (Pty) Ltd
NAB	National Association of Broadcasters
NGSO	Non-Geostationary Orbit
NTN	Non-Terrestrial Network
OFCOM	Office of Communications
PECN	Private Electronic Communications Network
PFD	Power Flux Density
PPI	Producer Price Index
RIA	Regulatory Impact Assessment
RICA	Regulation of Interception of Communications and Provision of Communication-Related Information Act
RQZ	Radio Quiet Zone
SACF	South African Communications Forum
SANSA	South African National Space Agency
SARAO	South African Radio Astronomy Observatory
SEIA	Social and Economic Impact Assessment
SHT	Systems House Technologies (Pty) Ltd
SNG	Satellite News Gathering
SRS	Shock Response Spectrum
TT&C	Telemetry, Tracking, and Command
USAF	Universal Service and Access Fund
VSAT	Very Small Aperture Terminal

3. INTRODUCTION

3.1. Satellite technology has become a critical enabler of connectivity globally. Satellite services include Fixed Satellite Services ("FSS"), Mobile Satellite Services ("MSS"), and Broadcasting Satellite Services ("BSS"). In recent years, satellite services have been heralded as a pivotal role player in bridging the digital divide and providing essential communication services. Their wide application extends to Internet of Things ("IoT"), maritime and aeronautical communications, and emergency response systems, especially in disaster recovery efforts.

3.2. Since its inception, the satellite industry has experienced a major evolution, fuelled by breakthroughs like High Throughput Satellites ("HTS"), Non-Geostationary Orbit ("NGSO") constellations, and the growing adoption of higher frequency bands such as Ka-band and Q/V-band. These advancements have significantly enhanced the capacity, reach, and cost-effectiveness of satellite services. This has positioned satellite services as a practical solution and ideal mechanism for securing connectivity in and extending broadband access to remote, rural, and underserved areas where terrestrial networks are either unavailable or economically unviable.

3.3. South Africa, as a member of the International Telecommunication Union ("ITU") and the African Telecommunications Union ("ATU"), is committed to harmonising its regulatory framework with international best practices and ensuring that its domestic policies align with global standards. The ATU's Harmonised Model Framework for Licensing of Satellite Services in Africa, published in 2022, provides a guideline for Member States to streamline licencing processes, reduce regulatory barriers, and promote regulatory certainty. This framework emphasises the importance of transparent and predictable licencing regimes, reasonable Spectrum Fees, and the adoption of blanket licencing for user terminals to facilitate the rapid deployment of satellite services.

3.4. The Independent Communications Authority of South Africa ("the Authority") is responsible for regulating South Africa's telecommunications, broadcasting, and postal sectors. Its mandate is established under the Independent Communications Authority of South Africa Act 13 of 2000 ("ICASA Act") and the Electronic Communications Act 36 of 2005 ("ECA").

3.5. Under Section 4B of the ICASA Act, the Authority has the power to conduct inquiries into matters affecting the communications industry, including the regulation and licencing of satellite services. This provision enables the Authority to examine key issues, engage stakeholders, and make informed decisions on the management of radio frequency spectrum, orbital resources, and other aspects of electronic communications.

3.6. Additionally, Section 31 of the ECA prohibits any person from transmitting or receiving radio signals without obtaining a valid radio frequency spectrum licence from the Authority. This requirement ensures that all spectrum usage, including satellite communications, is properly authorised, co-ordinated, and managed to prevent interference and promote fair access to spectrum resources.

3.7. These legislative provisions form the basis of the Authority's regulatory authority and its ability to establish a licencing framework for satellite services that aligns with both national and international standards.

3.8. Against the backdrop of the Authority's commitment to harmonising its regulatory framework with international best practices, its mandate under the ECA and the ICASA Act, as well as the rapid advancement of the satellite industry, and the increasing demand for satellite connectivity in South Africa, the Authority launched an inquiry into a new satellite licencing framework with the aim of establishing an efficient regulatory environment that fosters

innovation, investment, and universal access to communication services.

3.9. The primary objectives of this inquiry were to develop a regulatory framework that ensures equitable access to spectrum, promotes competition, and supports the deployment of next-generation satellite technologies, while addressing the unique challenges of the South African context, such as the need to protect terrestrial services from Harmful Interference, the management of spectrum resources in higher frequency bands, and the facilitation of international coordination for satellite operations.

3.10. This is a finding document that details the contributions and proposal of stakeholders. The document is structured as follows:

2.10.1. An outline of the process followed;

2.10.2. Legislative framework;

2.10.3. Overview of the submissions;

2.10.4. A thematic analysis of submissions on general comments on the consultation document;

2.10.5. A thematic analysis of submissions on specific comments on the consultation document; and

2.10.6. General findings of the Authority.

4. AN OUTLINE OF THE PROCESS FOLLOWED

4.1. On 14 August 2024, the Authority published a notice of its intention to conduct an inquiry into the licencing framework for Satellite Services pursuant to Section 4B of the ICASA Act in the Government

Gazette No. 51044. This notice was accompanied by a Consultation Document on the Proposed Satellite Licensing Framework ("Consultation Document"), which outlined the scope, objectives, and key considerations of the inquiry, including the need to develop a transparent and streamlined regulatory framework for satellite services, review Spectrum Fees, and establish procedures for authorising user terminals, IoT terminals, and earth station user terminals communicating with Space Stations while in motion (ESIM/ESV). The Consultation Document also invited written representations from interested persons and parties, including satellite operators, service providers, industry associations, and other stakeholders, to submit their views on the proposed framework.

4.2. The deadline for submissions was set for 16h00 on 12 November 2024, providing stakeholders with a three-month period to prepare and submit their responses. During this period, the Authority received a total of thirty-eight (38) written submissions from a diverse range of stakeholders, including local and international satellite operators, telecommunications service providers, industry bodies, and academic institutions. A further nine (9) written submissions were received after the deadline and the Authority resolved to accept these submissions.

4.3. Following the closure of the submission period, the Authority hosted public hearings on 5, 6 and 7 February 2025 at its head office in Centurion. The public hearings also made provision for virtual attendance through the Microsoft Teams Platform. The public hearings provided an additional platform for stakeholders to present their views orally and engage in discussions with the Authority. The public hearings sessions were attended by representatives from key industry players, regulatory bodies, and civil society organizations, and these hearings facilitated a robust exchange of ideas and perspectives on the proposed licencing framework.

4.4. Stakeholders were also provided with the opportunity to, following their oral presentations and at their election, supplement their written submissions.

5. LEGISLATIVE FRAMEWORK

5.1. Section 4B of the ICASA Act grants the Authority the power to conduct inquiries into issues affecting the communications sector, including satellite service licencing and regulation. This process involves stakeholder consultations and technical assessments, enabling the Authority to issue informed findings and recommendations.

5.2. The legislative framework governing the regulation of satellite services in South Africa is grounded in the ECA. The ECA empowers the Authority to oversee the telecommunications, broadcasting, and postal sectors. Furthermore, Section 31 of the ECA mandates that no individual or entity may transmit or receive radio signals without a valid radio frequency spectrum licence issued by the Authority. Section 31 of the ECA ensures that spectrum usage, including for satellite communications, is properly authorised, co-ordinated, and managed to prevent Harmful Interference and promote fair access to spectrum resources.

5.3. The inquiry into the proposed new licencing framework for satellite services also took into account the National Radio Frequency Plan 2021, published in Government Gazette No. 46088 of 25 March 2022, which outlines the allocation of frequency bands for various services, including FSS, MSS, and BSS.

5.4. Additionally, the Radio Frequency Spectrum Regulations, 2015, published in Government Gazette No. 38641 on 30 March 2015 (as amended), set the rules for spectrum assignment and use. These regulations cover Satellite Network coordination and the protection of existing services from Harmful Interference. The Radio Frequency Spectrum Licence Fee Regulations, 2010, published in Government

Gazette No. 33495 on 27 August 2010 (as amended), outline the fee structure for spectrum usage, a crucial factor given the growing bandwidth demands of modern HTS and NGSO constellations

5.5. The inquiry also took into account the Astronomy Geographic Advantage Act 21 of 2007, which protects radio astronomy sites from interference. Furthermore, the Regulations on the Protection of the Karoo Central Astronomy Advantage Areas, 2017, published in Government Gazette No. 41321 on 1 December 2017, impose restrictions on radio frequency emissions in designated RQZs.

5.6. Beyond domestic legislation, the inquiry took into account international treaty documents such as the ITU Constitution, ITU Convention, and ITU Radio Regulations, which govern global radio frequency spectrum and satellite orbit usage. As a member of the ITU and the ATU, South Africa strives to harmonise its regulations with international best practices. The ATU's Harmonised Model Framework for Licensing of Satellite Services in Africa, published in 2022, highlights the need for transparent licencing processes, reasonable Spectrum Fees, and blanket licencing for user terminals to accelerate satellite service deployment.

5.7. This comprehensive legal and regulatory framework, supported by various Government Gazette publications, provides the foundation for the Authority's inquiry into a new satellite licencing regime. It ensures alignment with national and international standards while addressing the unique challenges and opportunities within South Africa's satellite industry.

6. OVERVIEW OF SUBMISSIONS

6.1. The Authority received submissions from a diverse range of stakeholders, including satellite operators, telecommunications service providers, industry associations, academic institutions, and

government entities. The following stakeholders submitted written submissions to the Consultation Document:

6.1.1. Anglo-American PLC ("Anglo-American");

6.1.2. Association of Communications and Technology ("ACT");

6.1.3. Avanti Group ("Avanti");

6.1.4. Council for Scientific and Industrial Research ("CSIR");

6.1.5. Department of Defence ("DOD");

6.1.6. Eskom Holdings SOC Ltd ("Eskom");

6.1.7. Amazon.com Services LLC ("Amazon");

6.1.8. Afriforum;

6.1.9. Leaf Space SA (Pty) Ltd ("Leaf Space");

6.1.10. Liquid Telecommunications South Africa (Pty) Ltd ("LIT");

6.1.11. Kyle Spence;

6.1.12. Intellspace;

6.1.13. Internet Service Providers' Association ("ISPA");

6.1.14. Imbila Africa (Pty) Ltd ("Imbila Africa");

6.1.15. Iridium Satellite (Pty) Ltd ("Iridium");

6.1.16. Globalstar Inc. ("Globalstar");

6.1.17. Global Policy Partners (Pty) Ltd ("GPP");

6.1.18. Pinkmatter Solutions (Pty) Ltd ("Pinkmatter");

6.1.19. Plan-S;

6.1.20. National Association of Broadcasters ("NAB");

6.1.21. Paratus Telecommunications (Pty) Ltd ("Paratus");

6.1.22. Myriota (Pty) Ltd ("Myriota");

6.1.23. Meta Economic Development Organisation (NPC) ("MEDO");

6.1.24. Mobile Telephone Networks (Pty) Ltd ("MTN");

6.1.25. Mopalema Communications (Pty) Ltd ("Mopalema");

6.1.26. Maziv (Pty) Ltd ("Maziv");

6.1.27. MultiChoice (Pty) Ltd ("MultiChoice");

6.1.28. South African Radio Astronomy Observatory ("SARAO");

6.1.29. SpaceX Internet Services South Africa (Pty) Ltd ("SpaceX");

6.1.30. South African Communications Forum ("SACF");

6.1.31. South African National Space Agency ("SANSA");

6.1.32. Skylo Technologies ("Skylo");

6.1.33. South African Broadcasting Corporation ("SABC");

6.1.34. Rivada Space Networks ("Rivada");

6.1.35. Satelio IoT Services, S.L ("Sateliot");

6.1.36. Sentech SOC Ltd ("Sentech");

6.1.37. Western Cape Government;

6.1.38. Viasat Inc. ("Viasat");

6.1.39. Systems House Technologies (Pty) Ltd ("SHT");

6.1.40. Stefan Rhedeer ("Stefan");

6.1.41. Telkom SOC Ltd ("Telkom");

6.1.42. Telemedia (Pty) Ltd ("Telemedia");

6.1.43. Vodacom (Pty) Ltd ("Vodacom");

6.1.44. Global Satellite Operators Association ("GSOA");

6.1.45. Kinéis;

6.1.46. Cape Peninsula University of Technology; and

6.1.47. Eutelsat Group ("Eutelsat").

6.2. In addition to the written submissions, the Authority hosted public hearings from 5 to 7 February 2025, during which the following stakeholders made oral presentations:

6.2.1. Myriota;

6.2.2. ACT;

6.2.3. MEDO;

6.2.4. MultiChoice;

6.2.5. Skylo;

6.2.6. Satellot;

6.2.7. Globalstar;

6.2.8. Plan-S;

6.2.9. Eutelsat;

6.2.10. Pinkmatter;

6.2.11. MTN;

6.2.12. Ariforum;

6.2.13. SARAO;

6.2.14. Rivada;

6.2.15. Amazon;

6.2.16. Viasat;

6.2.17. Telkom;

6.2.18. Stephan Rhedeer;

6.2.19. GSOA;

6.2.20. Kinéis;

6.2.21. Intellspace;

6.2.22. SACF; and

6.2.23. Leaf Space.

6.3. The submissions and oral presentations provided a wide range of perspectives on the proposed new licencing framework for satellite services. These inputs have been carefully analysed and considered in the development of the findings outlined in this document.

6.4. Many stakeholders expressed appreciation for the Authority's consultative approach to the licencing of Satellite Services. Some acknowledging the importance of developing a comprehensive regulatory framework that fosters innovation, improves service quality, and strengthens South Africa's position in satellite communications across Africa. The proposed framework was seen as an opportunity to modernise the satellite communications landscape, address connectivity gaps, and make affordable communication accessible to all South Africans, particularly in bridging the digital divide between urban and rural areas.

6.5. Some stakeholders, however, raised concerns about the proposed licencing framework, arguing that the contemplated licencing regime should benefit all sectors in telecommunications, not just the satellite industry/sector. Others questioned the need for a new framework and submitted that satellite services have been operational in South Africa for decades without issues and the existing regulatory structure under the ECA, which is said to be technology-neutral and already covers satellite services.

6.6. A number of stakeholders generally supported measures to ensure proper licencing of satellite services, particularly those providing broadband, but questioned the need for a new framework given the

existing regulatory structure. In the context of technological convergence and neutrality, some viewed the proposed satellite-specific licencing framework as regressive. Additionally, there were concerns that the proposed framework might not adequately consider the constraints of South Africa's current legislative framework, regulatory structures, or ITU co-ordination processes.

6.7. Despite these concerns, most stakeholders supported the Authority's efforts to develop a Satellite Licensing Framework, particularly its alignment with global trends and its potential to attract international operators and infrastructure investment to South Africa. Stakeholders emphasised the importance of regulatory certainty, transparency, and harmonisation with global best practices, particularly those endorsed by the ATU and the ITU.

6.8. The submissions also highlighted the need for a balanced approach that considers both the unique needs of South Africa and the rapid pace of technological innovation in the satellite industry. Stakeholders called for a regulatory framework that promotes competition, encourages investment, and ensures equitable access to spectrum resources, while also addressing the challenges of interference management, spectrum efficiency, and the protection of critical services such as radio astronomy.

6.9. In summary, the feedback from stakeholders reflects a broad consensus on the importance of developing a clear, transparent, and flexible regulatory framework for satellite services in South Africa. The submissions and oral presentations provided valuable insights into the current regulatory challenges, the potential for satellite services to contribute to South Africa's digital transformation, and the need for a regulatory framework that balances the interests of all stakeholders while promoting innovation, investment, and universal access to communication services.

6.10. In what follows, the Authority has set out a synopsis of the oral and written submissions of interested parties and stakeholders in response to the questions outlined in the Consultation Document. It must be noted that, in responding to the Consultation Document, some of the stakeholders did not explicitly state their views on the central questions and on every aspect of the inquiry. Consequently, where a stakeholder did not explicitly make submissions on a central aspect, no reference will be made to their response or lack thereof. Further, the position of the stakeholders will not be implied under circumstances where their position has not been expressed or is unclear.

7. ANALYSIS OF SUBMISSIONS ON GENERAL COMMENTS ON THE CONSULTATION DOCUMENT

7.1. *Question 1*

These are the policy principles from the ATU that ICASA seeks to align with. Kindly provide comment(s) on the proposed policy principles and any further recommendations listed in the above section?

7.1.1. The stakeholders emphasised the importance of harmonising satellite licencing frameworks, particularly within the context of the ATU, while acknowledging the unique regulatory environment and national priorities of South Africa. Some of the stakeholders, such as NAB, Amazon, Intellspace, Globalstar, and others, support the alignment of South Africa's policies with international best practices, particularly those endorsed by the ATU, to ensure regional coherence and reduce regulatory fragmentation.

7.1.2. Harmonisation of satellite licencing frameworks is crucial for simplifying regulatory compliance, streamlining operations, and reducing administrative burdens, especially for satellite operators targeting multiple markets across the region. It would

also help foster investment, innovation, and sustainable growth in Africa's satellite services sector.

7.1.3. Despite the general support for harmonisation, some stakeholders emphasise the importance of allowing flexibility in adhering to ITU Radio Regulations. The stakeholders argued that the rapid pace of technological innovation, particularly with NTNs, requires a more adaptable regulatory framework. For example, the United States Federal Communications Commission has already adapted its regulations to accommodate emerging technologies, and similar flexibility could benefit South Africa.

7.1.4. SARAO submitted that while it understands ATU's position with respect to the harmonisation of the licencing process aimed at promoting international cooperation and reducing regulatory burden on the satellite operators, South Africa's national security, economic priorities, and national strategic goals should remain the central focus of its regulatory framework. National needs, such as spectrum management and operational restrictions, may differ from those of neighbouring countries, making a one-size-fits-all approach challenging.

7.1.5. Avanti submitted that a clear and consistent regulatory environment is essential for supporting long-term growth in satellite services, particularly by providing industry players with the confidence to invest. This should include a framework that is compliant with ITU regulations but is also adaptable to local needs.

7.1.6. While the ATU's regional approach is beneficial, Vodacom and others argued that South Africa's satellite licencing framework should also take into account the country's specific needs. This may involve deviating from the ATU framework in certain areas to ensure fair competition between satellite and mobile

operators. Additionally, international best practices from non-African countries should also be considered in the development of the new framework.

7.1.7. Further, Vodacom submitted that satellite operators should be held to the same standards as terrestrial operators, particularly in terms of local ownership, control, social obligations, performance, and sanctions. It points out that mobile operators already comply with B-BBEE requirements in South Africa, such as equity ownership and control limitations, as well as ICT Sector Code obligations. Additionally, Vodacom emphasised that satellite operators should similarly adhere to B-BBEE standards for both ground stations and service provision. Further, Vodacom suggested that if the Authority decides to amend the local presence or B-BBEE requirements, this should be done transparently and applied equally to all market participants, including mobile operators.

7.1.8. MultiChoice was of the view that the Authority did not appear to have considered the extent to which the recommendations are consistent with the ECA and the ICASA Act. MultiChoice further suggested that the Authority apply the principles of the ATU in a manner that is in conformity with the existing laws of South Africa.

7.1.9. With regards to the licencing of satellite networks or services provision to follow the ITU instruments and regulatory procedures that govern the use of radio spectrum and associated orbital resources, some stakeholders support the licencing of Satellite Networks or services provision to follow the ITU instruments. SARAO, in its submission, stated that the licencing process should follow the procedures described in Article 9 and other provisions contained in the ITU Radio Regulations. Telemedia strongly supports the alignment of Satellite Network licencing and service provision with ITU instruments and

regulatory procedures. Further, Telemedia submitted that this alignment is especially crucial, given that LEO satellite-based broadband networks frequently have hundreds of satellites in their constellations. South Africa can guarantee that its regulatory structure is in accordance with international standards and efficiently handle the complexity of these massive Satellite Networks by following these international recommendations.

7.1.10. While Intellspace noted that aligning with ITU regulations ensures compatibility with global standards, reduces interference risks and strengthens international cooperation, Intellspace further recommended that South Africa should retain flexibility to tailor its policies to local socio-economic conditions. According to Intellspace, this will help ensure that the satellite regulatory environment remains inclusive and relevant to the needs of South Africa's population. Further, Intellspace recommended providing training for regulatory staff and operators on ITU co-ordination procedures and engaging with international satellite operators to facilitate the exchange of knowledge and intellectual property.

7.1.11. Skylo supports the Authority’s alignment with ATU policy principles for satellite licencing frameworks and encouraged the adoption of a flexible, light-touch regulatory approach for mobile-satellite services licencing. Skylo submitted that in most countries, there is no regulatory framework for the Type Approval or certification of devices being deployed, particularly for DTD services using the 3GPP Release-17 NTN standards. This regulatory gap can lead to delays in obtaining the required licences or certifications for devices that are being deployed continuously. Skylo strongly recommended that the Authority adopt a more flexible regulatory approach, allowing all compatible cellular devices to participate in DTD/NTN services. This could be achieved by implementing a blanket licencing

model, similar to the current licencing of terrestrial-only cellular devices. DTD services are crucial for improving connectivity throughout South Africa, particularly in areas where terrestrial networks are either absent or not economically viable. Further, Skylo encouraged the Authority to implement a regulatory framework for DTD using MSS spectrum that will enable efficient deployment and widespread availability of new devices.

7.1.12. Vodacom, in its written submissions, emphasised that to ensure fairness and a level playing field with mobile operators, the Authority must also assess whether satellite operators should be subject to similar regulatory obligations as terrestrial mobile operators, avoiding overly burdensome requirements for satellite services.

7.1.13. Concerning the transparent regulatory frameworks with clear rules to establish regulatory certainty to support durable investment, Eutelsat commended the Authority for adopting a transparent framework that allows flexibility while maintaining regulatory certainty. There is a general support amongst the stakeholders for a transparent regulatory framework, emphasising a clear and effective framework that will ensure regulatory certainty, build investor confidence, and encourage long-term investments in the sector. A transparent framework will contribute to the growth of the Satellite Services sector. Various stakeholders also noted that transparency will promote a competitive market in the sector.

7.1.14. SARAO supports the transparent licencing process, while acknowledging the need for a balance between the protection of national interests and safeguarding national strategic targets.

7.1.15. Vodacom agreed, in general, that there should be transparent regulatory frameworks with clear rules to establish regulatory certainty. However, Vodacom noted that, given the uncertain

impact of mobile satellite operators on the mobile sector, a more cautious approach to licencing satellite operators may be necessary at the outset. This is because it could be challenging for the Authority to implement a light-touch approach towards licencing, only to have it reversed at a later stage.

7.1.16. Intellspace stated that transparency is critical to ensuring legal certainty and made the following recommendations:

7.1.18.1. Developing a comprehensive long-term regulatory roadmap which will outline satellite service priorities, anticipated changes and policy objectives for the next decade;

7.1.18.2. Host regular forums to engage industry stakeholders, including academia, civil society, and businesses, in discussions about regulatory updates and changes. Active participation will ensure that the framework meets the diverse needs of all involved parties; and

7.1.18.3. Publish annual updates on the progress of satellite licencing, regulatory developments, and strategic plans. Regular reports will enhance transparency.

7.1.17. Regarding the principle that domestic user terminals are to be licenced without the need for individual terminal-by-terminal authorisation (e.g. on a blanket licencing basis), blanket licencing for user terminals is seen by the stakeholders as an effective approach to promoting the widespread adoption of satellite services. Several stakeholders, including Eutelsat, Telemedia, Telkom, and Vodacom, have expressed strong support for the introduction of a blanket licencing approach for user terminals provided they meet certain operational and technical requirements. Stakeholders were of the view that blanket licencing has several benefits such as streamlining the

regulatory process, enabling quicker rollout of satellite services and expanding coverage to areas lacking connectivity, which is crucial for bridging the digital divide. Further benefits which were highlighted by the stakeholders are that the blanket licencing strategy aligns with global best practices, including the European Union's approach, and will facilitate market entry for satellite service providers by minimizing regulatory obstacles. By setting a clear policy with basic technical standards for user terminals, blanket licencing can simplify the process, easing administrative burdens for both the Authority and operators. Intellspace proposed that the guidelines clearly define the types of equipment covered under blanket licences, technical compliance requirements, and reporting obligations for operators. Additionally, Intellspace recommended reducing bureaucratic delays to facilitate quicker deployment of Satellite Networks, especially in underserved areas.

7.1.18. Telkom raised a concern and suggested that the Authority ought to examine the issue of blanket licencing of user terminals further. Telkom suggested that the definition of "user terminals" needs to be clarified, and not all user terminals may be eligible for blanket licencing. This should be assessed on a case-by-case basis, considering factors such as frequency bands and the need for co-ordination with other services. User terminals operating under blanket licencing should be regarded as secondary services, therefore they must not cause Harmful Interference to primary services and should not seek protection from other licensed services.

7.1.19. Vodacom noted that the approach of blanket licencing is almost identical to the mobile/cellular environment, where devices are exempt from individual licencing. Vodacom recommended that the Authority establish minimum interoperability standards for satellite terminals (FSS and MSS) to prevent vendor lock-in and promote economies of scale, ultimately benefiting consumers.

Vodacom suggested that for blanket licencing to apply, satellite gateways should be located within South Africa and operated by licensed entities.

7.1.20. With respect to Member States' obligation to take appropriate actions to publish in a timely manner, procedures for authorising user terminals operations in their countries, the principle of publication of procedures for authorisation in a timely manner is supported by several stakeholders. Eutelsat stated that such procedures are crucial for providing regulatory certainty and stability. Myriota concurred during its oral representation. Intellspace recommended that the Authority establish clear timelines for reviewing and updating authorisation processes to ensure predictability for operators.

7.1.21. Vodacom agreed that the Authority should prioritize the prompt publication of user terminal authorisation procedures. Delays in making these procedures available could pose barriers to market entry and stifle innovation, especially in a sector characterized by rapid technological advancements. Intellspace recommended that stakeholders be regularly updated on any changes to the authorisation process and proposed expedited approvals for operators who are compliant with ITU co-ordination procedures. SARAO also supports the call for ATU Member States to publish these procedures, viewing it as an important move toward promoting transparency and reducing the burden on satellite operators.

7.1.22. Relating to the designation of the relevant frequencies for use by satellite user terminals on a domestic, regional, or international basis consistent with Radio Regulations frequency allocation table, Intellspace stated that allocating and harmonising frequencies supports interoperability, efficient spectrum use and economies of scale for operators. Intellspace suggested national frequency updates and collaborative

frequency management. South Africa's National Radio Frequency Plan should be updated to align with ITU allocations, emerging technologies, and industry demands and South Africa to work with Member States to harmonise spectrum allocations.

7.1.23. Myriota recommended that regular reviews of frequency allocation requirements be conducted. These reviews, in consultation with industry stakeholders, will help ensure that the country's frequency allocations stay aligned with ITU standards and effectively support both current and future satellite technologies.

7.1.24. Telemedia argued that when addressing issues related to frequency bands, especially for global Satellite Networks, it is important to recognize that these assignments are co-ordinated and finalized by the ITU through the World Radio Conference. Further, Telemedia stated that there is minimal benefit for ATU Member States to attempt to alter or modify these decisions in their own radio regulations, as doing so would create unnecessary administrative burdens for all regulatory authorities. Additionally, failing to align with ITU World Radio Conference allocations could result in ATU Member States being excluded from global networks, as it is unlikely that global operators will produce equipment for custom frequency bands.

7.1.25. With reference to reasonable spectrum fees, taking into account the increasing amount of bandwidth used by satellite systems operating in higher frequency bands, Vodacom supports the principle that satellite operators should pay reasonable Spectrum Fees but stressed the importance of ensuring that these fees are both fair and harmonised across all operators offering similar services. The Authority is urged to consider a fee framework that ensures a level playing field when assigning spectrum to satellite operators offering services that directly compete with those of terrestrial networks. Additionally, further

fees for satellite providers may need to be considered if they are allocated a disproportionate amount of spectrum, which could provide a competitive advantage. The Authority should also evaluate the need for appropriate spectrum caps for satellite services.

7.1.26. Myriota submitted that setting reasonable Spectrum Fees is essential to ensure affordability, while still generating revenue for the Authority to support its regulatory functions. A tiered fee structure based on bandwidth usage and frequency band characteristics would allow smaller operators to enter the market without being burdened by excessive fees, while larger operators would contribute more in line with their usage. Additional recommendations included promoting regional co-ordination for cross-border satellite services, which would simplify regulatory requirements for operators serving multiple countries.

7.1.27. Telemedia strongly advocated for moderate, if not minimal Spectrum Fees to encourage broadband penetration, particularly in areas that are difficult to reach with traditional mobile or fibre infrastructure. Further, Telemedia noted that satellite spectrum, especially for next-generation broadband services like OneWeb and Starlink, is co-ordinated globally, unlike mobile cellular spectrum, which is managed and assigned at a national level. Satellite spectrum typically does not face the same level of competing demands that cellular spectrum does, making it less necessary to impose high fees. In this context, the introduction of excessive cost barriers for satellite broadband services should be avoided. Telemedia recommended adopting a model similar to that of OFCOM, where Gateway licences are a flat rate of £500 and Service Licences are for an unlimited number of end-user terminals is a flat rate of £200 annually. This approach would simplify the licencing process and make satellite services more affordable and accessible.

7.1.28. Eutelsat suggested that Spectrum Fees based on bandwidth may not be appropriate for modern high-throughput satellite systems, which provide managed capacity rather than offering spectrum in MHz. A bandwidth-based fee structure may impose unnecessary constraints on operators and fail to align with the evolving nature of satellite services. The shared nature of satellite spectrum further complicates the application of bandwidth-based fees.

7.1.29. Furthermore, the definition of a "reasonable fee" may remain subjective and could potentially conflict with the principle of harmonisation and transparency that the Authority aims to achieve. Consequently, Eutelsat proposed a flat fee for blanket licencing of user terminals, replacing bandwidth-based Spectrum Fees. This approach would better accommodate the evolving satellite industry, allowing for more affordable service and products.

7.1.30. MTN does not support the principle of reasonable Spectrum Fees, suggesting that it applies only when broadband services are offered, as many satellite-based services do not rely on high-speed or high traffic volumes. MTN recommended that point (g) in the Consultation Document be revised to be more neutral regarding the types of services provided by satellite.

7.1.31. Moreover, Anglo-American suggested that, for South Africa’s needs, the ATU should be expanded to acknowledge the rapid development of such technology.

7.1.32. The DOD submitted that it is necessary to clarify the exact criteria related to Government and Defence user terminals, including whether individual terminal authorisation is required (e.g. on a blanket licencing basis) as the current provisions apply to Domestic user terminals. The DOD suggested that Government Services be clearly specified as a separate category.

7.1.33. Sateliot highlighted the importance of massive deployment to ensure affordable connectivity, especially in areas where terrestrial networks are economically unfeasible. Sateliot emphasise that 3GPP standards play a critical role in achieving this, and satellite operators like Sateliot should be allowed to service IoT devices without further registration. Sateliot requested access to limited portions of MSS spectrum in the S-band, as identified under 3GPP Release 17, to support their NB IoT system. Sateliot also requested that Spectrum Fees be appropriately set based on the bandwidth requirements for LDR systems. Sateliot urged the Authority to consider reserving portions of the spectrum for LDR MSS systems, a practice already implemented in other global jurisdictions.

7.1.34. SACF raised concerns regarding the Minister's authority and the role of the Authority in the telecommunications sector. SACF questions whether the Minister has approved certain policies/principles as anticipated in Section 3(1) of the ECA. SACF states that if the Authority proposes any changes to existing framework, it should be explained as part of the Authority's duty as an administrative body subject to the Promotion of Administration of Justice Act. SACF noted that the Authority has not clarified any perceived gaps in the existing licencing framework. ACT also maintains the same stance that the Authority has not clarified the reasons for a Section 4B Inquiry approach for new licencing framework.

7.1.35. MEDO, during its oral representations, urged the Authority to simplify licencing for satellite services in order to accelerate deployment and called for the rapid deployment of technology in remote areas with minimal infrastructure requirements. MEDO, in its written submissions, noted that several African countries have adopted policies supporting satellite services, which enable rapid, high speed internet deployment in areas that face

difficulties in establishing reliable connectivity. MEDO is of the view that the Authority should closely align with ATU's recommendations while highlighting the urgency of connecting the rural and undeserved communities.

7.2. *Question 2*

Do you agree with the exclusions of radio navigation satellite services, amateur satellite services, earth exploration, space research satellite services and radio astronomy services indicated above and others if applicable? If not, please explain your reasoning and propose an alternative to this proposal

7.2.1. The licencing framework proposed by the Authority essentially focuses on FSS, MSS and BSS, which essentially support commercial telecommunications and broadcasting activities. The Authority has excluded satellite services such as radio navigation satellite services, amateur satellite services, earth exploration, and space research satellite services.

7.2.2. Leaf Space supports the exclusion of certain satellite services. Further, Leaf Space proposed that the frequencies allocated to the space operation service, which overlap with allocations for EESS and SRS, should also be excluded. Leaf Space and Intellspace both concur and emphasise that while excluding certain services from this inquiry simplifies the regulatory framework for commercial services, it is crucial that no regulatory gaps are created, ensuring a balanced approach that avoids misaligned priorities for satellite operations.

7.2.3. Intellspace noted that each service has definite operational and regulatory requirements that differ materially from commercial telecommunication services. The exclusion of these services will provide for a framework that addresses the unique needs effectively. Intellspace further submitted that including all satellite services in a single framework could lead to overly

complex regulations which will in turn create administrative burdens for regulators and operators. Many countries regulate the excluded services separately to better address their distinct needs. Intellspace also puts forward arguments against the exclusion of these satellite services, stating that excluding the services may increase the risk of interference between services. As such, Intellspace recommended that the Authority considers adopting a framework that encompasses Sections for the exclusion of the listed services. Intellspace further states that if an integrated regulatory framework is not feasible, then the Authority should consider initiating a complementary regulatory framework, ensuring no gaps or overlaps in policy coverage. GPP concurred with Intellspace regarding adopting a regulatory framework for the excluded services.

7.2.4. SABC also advocated for a similar regulatory framework that will apply to those services excluded in the inquiry to ensure a level playing field for all role players and to further eliminate any interference and prospective barriers to entry into those services.

7.2.5. Telkom generally agreed with the exclusion of the listed services mainly because these services are not provided under Chapter 3 of the ECA. However, Telkom recommended that the Authority consider whether radio navigation satellite services such as GPS should be included as it may be necessary to incorporate into the blanket licencing regime or exempt them from, given the nature and extent of their use. Telkom as with other stakeholders recommended that a regulatory framework for the excluded services be developed in parallel with the current process as this will help in understanding which of these satellite services allocated in the ITU Radio Regulations are being provided over South Africa.

7.2.6. Telkom further states that including radio astronomy services in the list of services is inappropriate as it is not classified as a "satellite service" as per the ITU Radio Regulations. Radio astronomy is neither considered a terrestrial nor a space radiocommunication service within the definition of "allocation." The inclusion of radio astronomy services in this context should be reconsidered or clarified.

7.2.7. Based on Telkom's reading of the Draft Satellite Licensing Framework, it assumes the intention is to issue these licences/authorizations under Section 31 of the ECA, not under Chapter 3 of the ECA. Chapter 3 governs ECS and ECNS licences, which are required under Section 32 of the ECA, in addition to a spectrum licence issued under Section 31. This is also acknowledged in the Draft Satellite Licensing Framework. Without an ECS or ECNS license, it is understood that a spectrum licence cannot be issued for the proposed service categories. The exception to the above is the registration of the Space Segment, which is neither classified as a "license" under Chapter 3 nor as a spectrum licence under Chapter 5 of the ECA. This distinction is also reflected in the Draft Satellite Licensing Framework.

7.2.8. MEDO states that, while it supports the Authority's exclusion of certain satellite services from the licencing framework, MEDO recommended maintaining flexibility for future inclusion of earth exploration and space research satellite services, especially when they benefit educational or research institutions. Additionally, providing a simplified regulatory process for amateur satellite services and ensuring the protection of existing critical services like radio navigation and radio astronomy is essential for the long-term stability of the satellite ecosystem in South Africa. Lastly, MEDO proposed that the exclusions listed be periodically reviewed in order to ensure that the regulatory framework can adapt to an ever-evolving technological landscape.

7.2.9. SARAO agreed with the proposed exclusion of certain satellite services from this inquiry. SARAO is of the view that radio astronomy, being a terrestrial service should not be considered for this consultation process. With regard to the registration of a Space Segment, SARAO supports the idea of maintaining a list of registered Space Segments to promote transparency and awareness of space transmissions operating within South Africa. However, SARAO suggested that the procedure can be integrated with the response to the special Section of the Broadcasting, Radio Frequency, and Information Communications publication. Once co-ordination with the registering Space Station is complete, the Space Station can be automatically registered to operate within South Africa's territory.

7.2.10. Skylo strongly recommended that the Authority align with the global ITU allocation for MSS in the 2 GHz band, which includes the full 1980-2010 MHz and 2170-2200 MHz bands. Adding the 2010-2020 MHz band would provide South Africa with the flexibility to incorporate part of the Region 2 allocation that is under review for a global allocation by the ITU ahead of World Radio Conference-27.

7.2.11. Skylo currently operates mobile-satellite services in the L-band and S-band using the band pairings outlined Table A7 of Appendix A.Skylo is also interested in offering mobile-satellite services in additional frequencies that could be eligible for allocation either now or in the near future, as per Table A8 of Appendix A. Skylo encourages the Authority to include the frequency bands set out in Table A7 and Table A8 of Appendix A for assignment to GSO/NGSO-based mobile-satellite services as soon as possible, in order to expand the spectrum available for NTN DTD services.

7.2.12. Skylo is also interested in offering mobile-satellite services in additional frequencies that could be eligible for allocation either now or in the near future. See Table A8 of Appendix A. Skylo encourages the Authority to include the frequency bands set out in Table A7 and Table A8 of Appendix A for assignment to GSO/NGSO-based mobile-satellite services as soon as possible, in order to expand the spectrum available for NTN DTD services.

7.2.13. SANSA requested that the Authority exclude TT&C services from the inquiry to maintain operational flexibility, ensure competitiveness, and streamline the licencing process. SANSA emphasised the need for efficiency in regulatory procedures to support both emergency and regular satellite operations, especially as South Africa collaborates on international space missions. The rationale for SANSA'S request is that TT&C services support critical satellite operations like transfer-orbit support, Launch and Early-Orbit Phase support, and emergency operations. These services are essential for dealing with unforeseen satellite issues, often at short notice, requiring rapid response times and flexibility.

7.2.14. SANSA noted that TT&C services are usually needed for emergency satellite support and is typically requested through agreements with space agencies like CNES (France), ISRO (India), and commercial partners. Adding new regulatory rules or registration requirements could disrupt this responsiveness, which is vital for emergency support.

7.2.15. Further, SANSA states that it uses RF block licences for TT&C operations, which ensures fast, responsive support without bureaucratic delays. A study by JAXA (Japan) revealed that stations with streamlined licencing procedures are preferred for TT&C operations. SANSA suggested the Authority adopts a similar simplified, standardized approach in line with global best practices. Additionally, TT&C operations are usually brief, lasting

anywhere from minutes to several days. A complex regulatory framework could impede this short-term, time-sensitive service. SANSA's TT&C antenna systems are already licensed, with the Authority being aware of their locations and technical specifications, making them easier to regulate.

7.2.16. SANSA submitted that TT&C is a specialized service that requires careful regulation. SANSA suggested that applying broad regulations to TT&C could lead to inefficiencies, similar to the challenges faced by other services like Space Science and Radio Astronomy.

7.2.17. SANSA's partnership with NASA to build a station at Matjiesfontein (MTJ) for lunar missions underscores the importance of an efficient and simplified licencing process. As more international partnerships emerge, the regulatory process must be flexible enough to accommodate these complex communication systems. Introducing new regulations for TT&C could harm SANSA's competitiveness. Since TT&C typically uses small bandwidth, adding extra fees or requirements could lead to financial losses and hamper SANSA's ability to provide critical emergency services.

7.2.18. On the other hand, SHT highlighted that TT&C operations to any space vehicles for any application should not be excluded as it is vital for the Authority to maintain information on all transmitters and transmitter locations.

7.2.19. Some stakeholders such as the ACT, Amazon, Paratus, SACF, Rivada, Sentech, Viasat and SHT raise concerns and seek further clarity from the Authority on certain aspects.

7.2.20. ACT submitted that the exclusions may be acceptable if the Authority explicitly stipulates that such services cannot be provided on a commercial basis. Further, ACT request the

Authority to provide an explanation for its decision to exclude these particular services. ACT states that if the exclusion is solely to focus on FSS, MSS or BSS, the Authority should clarify why the exclusion of Meterological Satellite Services, Search and Rescue Satellite Services (Cospas-SARSAT), Space Operation Services and Scientific Satellite Services. These are specialised functions that do not directly fall under FSS, MSS and BSS.

7.2.21. Amazon agreed with the proposed exclusions. However, it requested clarity from the Authority as to why the certain parts of the Ka-band (17.3–18.3 GHz and 18.8–19.7 GHz) are not listed as available frequencies for Global and Non-Global Satellite Services (GSO and NGSO FSS). Amazon submitted that these frequency bands are already allocated in the National Radio Frequency Spectrum Plan, 2021.

7.2.22. Paratus noted that the excluded services are mainly for scientific or governmental and research purposes and excluding them ensures that the Authority remains streamlined and aligned with international agreements under the ITU. Paratus expresses concern regarding the exclusion of the C-band Spectrum from the spectrum assignment table and states that the exclusion would disrupt essential services such as emergency communications, business continuity and government operations. The stakeholder recommended the Authority to include C-band Spectrum in the licencing framework to ensure the continuation of critical services.

7.2.23. Paratus recognises the importance of amateur satellite services for educational, experimental and hobbyist purposes. However, Paratus noted that there is growing concern regarding these services evolving into commercial operations without regulatory oversight. Paratus emphasised the need for the Authority to provide clear definition of what constitutes amateur satellite services in the licencing framework and provide clearer

regulations to prevent the growth of these services into commercial operations that could unfairly compete with operators such as Paratus.

7.2.24. SACF states that the new licencing framework does not provide sufficient information to sector for SACF to be able to critically assess the reasoning behind the proposed exclusions. SACF requested confirmation from the Authority as to whether these services would only be exempt from licencing if they are provided on a commercial basis. Additionally, whether the technology neutral approach in the ECA requires all these principles to be applied consistently across all technologies and not just satellite services. Sentech concurred with SACF with respect to the Authority not expressing reasons for the proposed exclusions.

7.2.25. Rivada seeks clarification with respect to the exclusion of the frequency ranges 17.3-18.3 GHz and 18.8-19.7 GHz from this consultation. Considering the significance of these frequencies for NGSO satellite systems operating in the Ka-band, Rivada respectfully requested that these frequency ranges be included and made available, as appropriate, for use by NGSO systems in the new licencing framework.

7.2.26. Viasat takes no definitive stance with the Authority's proposed exclusions. It points out that the terms used in Column 1 of the table ("Service Category") are not aligned with the terms used in Article 1 of the ITU Radio Regulations and should be harmonised accordingly. Further, the L-band MSS frequency range listed under "Voice MSS and narrowband MSS" in the table does not cover all relevant band segments. The full L-band MSS frequency range should include the 1518 – 1525 MHz and 1668 – 1675 MHz segments, and this should be updated. The frequency range for "2 GHz MSS" is incorrectly listed. According to the National Radio Frequency Plan 2021, the correct range is

1980 – 2010 MHz and 2170 – 2200 MHz. The table should reflect this adjustment. The C-band frequency range (3600 – 4200 MHz and 5725 – 7075 MHz) is missing from the table. These bands should be added, in line with the National Radio Frequency Plan 2021. The GSO FSS frequency range under "GSO & NGSO FSS" does not include all relevant portions of the Ka-band. The entries in the "Ka-band" column should be updated to reflect the ranges 17.3 – 21.2 GHz and 27.5 – 31 GHz, in accordance with the National Radio Frequency Plan 2021. The GSO and NGSO FSS entries in the "Q & V-band" column are incomplete. The full ranges, as per the National Radio Frequency Plan 2021, should be 37.5 – 42.5 GHz, 42.5 – 43.5 GHz, 47.2 – 50.2 GHz, and 50.4 – 51.4 GHz for GSO and NGSO FSS. Additionally, 51.4 – 52.4 GHz is allocated to GSO FSS. These changes should be incorporated into the table.

7.2.27. SHT requested clarity as to why C band satellite services are excluded and noted that 3600 – 4200MHz are currently allocated to FSS C band Downlink and 5725 – 6429MHz and 6700 – 7075MHz are currently allocated to FSS C-band Uplink. SHT advises the Authority to include the C-band spectrum in the licencing authorisation process. Globalstar calls for the Authority to add a column for the C-Band Spectrum so that it is included in the revised spectrum pricing models and in the rules the Authority will ultimately adopt. GSOA supports the inclusion of C-Band more particularly the following frequency bands:

- 3400-4200 MHz;
- 4500-4800 MHz;
- 5091- 5250 MHz;
- 5850-7075 MHz; and
- 7250-8400 MHz.

7.2.28. Further, Eutelsat noted in its submissions that the C-band frequencies (3400-4200 MHz, 4500- 4800 MHz, 5091-5250 MHz,

5850-7075 MHz and 7250-8400 MHz) are not included, and proposed that the frequencies be included in this inquiry.

7.2.29. Further, Globalstar proposed that the table set out at table A1 of Appendix A should replace the one contained in the Consultation Document.

7.2.30. Skylo is also interested in offering mobile-satellite services in additional frequencies that could be eligible for allocation either now or in the near future, as per Table A8 of Appendix A. Skylo encourages the Authority to include the frequency bands set out in Table A7 and Table A8 of Appendix A for assignment to GSO/NGSO-based mobile-satellite services as soon as possible, in order to expand the spectrum available for NTN DTD services.

7.2.31. Plan-S and Eutelsat advocate for the inclusion of the services that are proposed to be excluded. Kinéis submitted that the Authority should include all satellite frequencies in its satellite licencing regulations. Eutelsat is of the opinion that the inclusion of these services is essential and if it is decided that they should be excluded in this licencing framework then provisions should be made to address cases of conflict and/or interference resolution processes. Plan-S submitted that an inclusive will guarantee that all types of satellite services benefit from South Africa’s strategic location. For instance, the licencing of gateway stations for Earth Exploration Satellite Services operating in frequency bands such as 8025-8400 MHz and 25500-27000 MHz should be considered under the Satellite GES Licence. Further, Plan-S noted that South Africa’s existing teleport sites currently support these services allowing efficient data relay for Earth Observation and other critical satellite operations. Kinéis emphasised that the framework should be updated following each World Radio Conference, which revises the Radio Regulations. This would ensure that South Africa's regulatory landscape remains aligned with international developments and

fosters the growth of satellite services, including ground station development. Kinéis is the operator of the Argos Program which has been in place since the 1980's. Kinéis encourages the Authority to incorporate the following frequency bands into its satellite licencing framework to ensure proper regulatory oversight and facilitate the introduction of satellite services:

- 401-403 MHz for Argos Data Collection Platforms, which is essential for the Argos Program's environmental monitoring services.
- 2200-2290 MHz for Space Operations and EESS feeder links, which support Kinéis' global ground station operations and satellite communications.

7.2.32. MTN states that including all satellite services in the same framework allows for effective co-ordination ensuring that various can operate together without Harmful Interference. MTN further argued that including non-commercial services, particularly in areas like space research and radio astronomy could result in more flexible and supportive licencing terms. MTN suggested that the following frequency spectrum bands be included: 3GPP's Release 17 identified two bands with existing MSS allocations for 5G NTN provision namely:

- band 255 (1525 MHz – 1559 MHz and 1626.5 MHz – 1660.5 MHz) and
- band 256 (1980 MHz – 2010 MHz and 2170 MHz – 2200 MHz)

7.2.33. SpaceX is of the view that the Authority should consider authorising the following additional bands to support satellite services:

- 12.7-12.75 GHz
- 13.75-14 GHz

- 14.5-14.75 GHz
- 14.75-14.8 GHz
- 15.43-15.63 GHz
- 24.75-25.25 GHz
- 29.1-29.5 GHz
- 30-31 GHz
- 50.4-51.4 GHz
- 51.4-52.4 GHz
- E-band (71.0-76.0 and 81.0-86.0 GHz)
- 90 GHz bands (92-94, 94.1-95, 95-100, 102-109.5, 111.8-114.25 GHz).

7.2.34. Pinkmatter endorses for the due consideration of Earth Observation within this consultation. If not considered within this process, then Earth Observation should be deliberated in a similar process.

7.2.35. Myriota emphasised the importance of sub -1 GHz band for non-voice NGSO MSS for the IoT services over satellite. The stakeholder highlighted the critical role of these bands in providing for efficient connectivity in remote and rural IoT devices. According to Myriota, South Africa should align with the Table of Frequency Allocations of ITU Radio Regulations Article 5.

7.2.36. MultiChoice submitted that if the proposed framework is intended to address technological developments in the provision of broadband services, particularly via non-geostationary satellite systems, it is unclear why the Authority includes FSS and BSS within the scope of the proposed framework. MultiChoice noted that any challenges that the Authority anticipates in respect of the provision of broadband services via non-geostationary satellite systems are unlikely to arise. MultiChoice proposed that FSS and BSS be explicitly excluded from the proposed framework. Any regulatory framework the

Authority considers implementing should be aimed at addressing issues that need resolving.

8. ANALYSIS OF SUBMISSIONS ON SPECIFIC COMMENTS ON THE CONSULTATION DOCUMENT

8.1. Types of licences/authorisations (where applicable) for Satellite Communications

8.1.1. *Question 3*

Do you agree with the proposed approach of having a separate licence/authorisation (where applicable) for each segment of the Satellite Communication value chain? Please elaborate.

8.1.1.1. The Authority proposes three (3) types of licences/authorisations which are namely, Satellite GES Licence, User-Terminal Network Licence and the registration of Space Segment. The Authority proposes to licence each Satellite Network segment separately, as mentioned hereinabove.

8.1.1.2. Globalstar, Paratus, and Imbila Africa support the approach of having a separate licence for each segment of the Satellite Communication value chain. This approach, as expressed by stakeholders, aims to provide regulatory clarity and ensure that each segment is overseen according to its specific operational needs. Globalstar recommended that the Authority clearly specify in its rules that there are no restrictions on the right of a single entity or operator to apply for and be granted multiple licences across different categories. While market segmentation is a common practice, many operators also integrate their value chains, and the new rules should not restrict their ability to do so.

8.1.1.3. Imbila Africa submitted that, in line with global best practices, they believe the following licencing approach would best serve the needs of modern satellite systems:

8.1.1.3.1. Satellite Service Licence: This would enable the direct provision and sale of internet services to end consumers. Note: The ownership restrictions currently applied to the I-ECS Licence should be aligned with the ICT Sector Code.

8.1.1.3.2. Satellite Network Licence: This would permit the operation of GES s (similar to a mobile operator's backhaul, which is not licensed separately) and user terminal networks. Note: The I-ECNS Licence should also align with the ICT Sector Code.

8.1.1.3.3. Satellite Spectrum Licence: This would authorise the use of spectrum needed to operate the end-to-end network. Further, it would also authorise an unlimited number of devices.

8.1.1.4. Anglo-American advocated for the proposed approach and recommended that the approach should offer integrated as well as standalone licences for each segment, with special provisions for exemptions and trial licences to facilitate technology testing.

8.1.1.5. The DOD confirms that licences are vital for launching, operating, and offering radio communication services, urging clarity on whether separate criteria should be applied for government services such as Defence. The DOD suggested that the review of previously issued licences should be done annually to ensure unutilized frequency spectrum is reallocated to new users. Further, it states that

the approach to link the licence of remote terminals with the earth station is preferred.

8.1.1.6. The proposal to separately licence the Satellite Network's various segments—Satellite GES, User-Terminal networks, and the registration of the Space Segment is supported by Amazon, which further clarifies that the three segments should be spectrum licences, not service licences, to avoid confusion. Amazon requested the Authority to clarify whether these two licences (Satellite Gateway Earth Station and User-Terminal Network) are distinct spectrum licences or service licences, as this distinction is unclear in the current documentation. Amazon assumes that both licences are for different types of spectrum licences and that the relevant entities that provide service will also be required to obtain the requisite service licences. Additionally, Amazon recommended that foreign entities not be required to establish local operations in South Africa for the registration of the Space Segment, facilitating a more inclusive, streamlined process.

8.1.1.7. Pinkmatter agreed with the proposal and highlighted the potential benefits of incorporating a Space Segment concept, specifically tailored for EO. Referring to Section 10.1, Pinkmatter submitted that the Authority's initiative to create a "List of Authorised Space Stations" is deemed advantageous. This list, as described, would simplify the registration process, ensuring that it does not equate to a licencing or permit for the provision of telecommunication services or operation of telecommunications networks in South Africa. Additionally, a one-time nominal fee may be charged to cover administrative costs associated with maintaining the "List of Authorised Space Stations" for the satellite network's duration.

8.1.1.8. Furthermore, Pinkmatter recommended the establishment of a ring-fenced "Space Segment" for EO teleport facilities. According to Pinkmatter, the goal is to streamline the licencing framework related to site approvals, spectrum allocation, and Type Approval, ensuring a more efficient and simplified process.

8.1.1.9. MultiChoice and NAB submitted that the proposed approach to licencing/authorisation in the proposed framework is vague, unclear and inconsistent with the ECA. MultiChoice highlighted that under Section 5 of the ECA, the Authority can issue individual and class licences for electronic communications and broadcasting services. If required, a frequency spectrum licence can be issued as per Section 31(1) of the ECA. MultiChoice further raised the concern that it is unclear how the proposed approach by the Authority in this Section is intended to fit into the licencing framework prescribed in the ECA.

8.1.1.10. NAB stressed that no additional licences, authorizations, or registrations should be issued by the Authority beyond what is already provided for in the ECA. NAB suggested that the satellite communications value chain should be located within these existing statutory categories.

8.1.1.11. SACF submitted that the ECA already includes a licencing framework for satellite and without a clear understanding of why the Authority does not regard the existing framework to be adequate, they are not in a position to comment on the proposed new licencing approach. MultiChoice concurred and submitted that it is uncertain why a new licencing framework is required when the ECA already sets out a clear licencing framework.

8.1.1.12. LIT points out that the current framing of the proposed licencing regime is ambiguous. It risks conflating radio frequency spectrum licencing with service licencing under Chapter 3 of the ECA. LIT points out that the Inquiry doesn't sufficiently acknowledge the role of ECNS, which refers to services involving the provision of electronic communications networks. These networks are either for the provider's use, another person's use, or for resale to other licensees. It is noted that those holding radio frequency spectrum licences also need appropriate ECNS licencing or an exemption. LIT urged the Authority to implement a framework that facilitates the deployment of satellite services, reduces costs associated with spectrum licencing, and simplifies administrative procedures for both licensees and the Authority. Further, LIT acknowledges the Authority's powers to make or amend regulations under the ECA, but noted that the Authority cannot amend the ECA itself, meaning it cannot change the licencing framework established by the ECA's Chapter 3. LIT doesn't view the current licencing framework as a barrier to the growth of satellite services. They support adding new forms of ECNS service licencing, but caution that these should not replace or undermine existing licencing frameworks. Additionally, the Authority's existing framework under Chapter 3 of the ECA covers satellite services with various geographic scopes. Given the long timeframes needed to amend the ECA, LIT suggested that revisions to the radio frequency spectrum licencing regulations provide the best opportunity to improve the satellite service segment.

8.1.1.13. Leaf Space supports the clarity that would result from having separate licences for each segment. This approach would provide greater flexibility, especially when multiple operators or stakeholders are involved throughout the value chain. Intellspace expresses its commitment to

collaborating with the Authority and stakeholders to ensure the success of this licencing framework, fostering digital inclusion and national growth. Intellspace states that the proposal to have separate licences for each segment aims to recognize the unique needs of each satellite communication segment, promoting specialization and easing market entry. Intellspace submitted that segmentation provides the flexibility to tailor regulations to specific needs, encourages innovation, simplifies market entry, and improves spectrum management while aligning with international norms. Further, for effective implementation, that the Authority must streamline processes, incentivize investment in underserved areas, and ensure that the framework aligns with South Africa's development goals.

8.1.1.14. ISPA broadly supports the approach of having separate licences for each segment. ISPA and others believe that the current interpretation of satellite communications under the ECA is not accurate. They emphasise that satellite services should be classified as involving both ECNS and ECS. Further, ISPA suggested that the word "spectrum" be included in the licence name in order to clearly define the nature of the proposed licences.

8.1.1.15. A common theme in the submissions is the importance of establishing consistent licencing requirements for all operators, including both incumbents and new entrants, to ensure fair competition and avoid regulatory loopholes. Skylo submitted that aligning with this global trend promotes international cooperation and interoperability. Additionally, separate licences help smaller companies and new entrants by allowing them to focus on specific market segments, reducing the financial and regulatory burdens associated with a comprehensive licence. This approach

fosters increased competition and participation, benefiting consumers in the long run. GPP and Paratus emphasised the importance of the requirements being uniformly applied to all operators. Further, there is a call for mechanisms to ensure the efficient use of spectrum, such as reclaiming unused spectrum and addressing potential barriers created by incumbent operators.

8.1.1.16. While many support the registration of Space Segments, stakeholders such as Myriota and Rivada, caution against introducing unnecessary registration procedures for foreign-registered Space Segments, which might hinder competition and contradict the Open Skies policy promoting cross-border satellite access. Rivada states that by adhering to the Open Skies approach, the Authority would encourage further competition and innovation which will inevitably attract more satellite operators and service providers to the South African market. Myriota goes on to suggest that a separate licencing approach such as a blanket licence approach for user terminals would streamline access for large volumes of terminals while still ensuring compliance with regulatory standards. Myriota reiterated in its oral submissions, that it disagreed with the registration of Space Segments and how the jurisdictions that already have that process in place tend to extend the timeframe of the application process which in turn creates regulatory uncertainty.

8.1.1.17. Kinéis also endorses the blanket licencing approach for user terminals, highlighting that the satellite service market involves multiple stakeholders and additional administrative burdens should be minimized. Kinéis emphasised that the satellite service market involves various stakeholders, and it is crucial to avoid imposing additional administrative burdens. Once a satellite operator

(whether national or foreign) is licensed, they should be able to provide services to integrators, value-added resellers, or end-users without requiring individual device authorizations. This would be particularly beneficial for industries with a global presence that wish to deploy satellite-based solutions across multiple locations.

8.1.1.18. ACT stated that several licensees have adhered to the current licencing framework and invested millions of rands to ensure compliance with local legislation and regulations. A sudden shift in the regime could render these investments sunk, placing existing licensees at a disadvantage compared to new market entrants.

8.1.1.19. MEDO advocated for a streamlined and cost-effective licencing process, particularly for projects focused on providing satellite connectivity to underserved communities, schools, and rural areas. Simplifying these processes would help accelerate service deployment and foster broader internet access.

8.1.1.20. Sateliot submitted that the old licencing regime has become outdated due to industry innovation. Sateliot, a BTB connectivity provider, does not manufacture IoT devices or operate gateways. Instead, it collaborates with local MNOs, who engage directly with end-users. The IoT devices connected to Sateliot's network are typically third-party devices, which are not controlled by the MNOs either. Sateliot recommended that the Authority refine its satellite licencing framework by creating more specific categories that account for emerging satellite operator and service models, particularly for infrastructure and BTB connectivity service providers. Sateliot suggested further enhancement by incorporating TN-NTN collaboration at the application

stage, particularly on service delivery and network handover conceptualisation.

8.1.1.21. CSIR partly agreed with the proposal, suggesting that the user terminal earth station licence appears to significantly overlap with existing telecommunications service provider licences. In this context, the upstream access technology appears irrelevant, as the end-user does not need to be aware of the specific access mechanism being used, particularly with LEO networks that offer relatively low latency.

8.1.1.22. Vodacom's submissions highlighted several key concerns and suggestions regarding the licencing framework and its alignment with existing practices in South Africa. Vodacom emphasised the importance of ensuring a level playing field and suggested Satellite operators should adhere to the same ECNS and ECS licencing framework under Chapter 3 of the ECA. This would help ensure that satellite operators are subject to the same obligations and costs as terrestrial operators, such as coverage requirements, B-BBEE compliance, and Spectrum Fees. Further, Vodacom questions whether the Authority intends to licence satellite operators separately from the ECNS/ECS framework or if satellite operators will be regulated under the existing regime. Vodacom disagreed with creating a separate licencing framework for Earth Gateway Stations. In particular, there is no clear reason why satellite operators should be exempt from requiring ECNS/ECS licences if they wish to offer electronic communication services in South Africa.

8.1.1.23. Vodacom is of the opinion that there is no need for a separate category of spectrum licence for satellite communications, as this would create unnecessary legal

and administrative complexity and an unlevel playing field. Vodacom confirms that it supports the blanket licencing approach for user terminals, provided that gateways are located within South Africa and operated by licensed entities. Vodacom stated that it is critical to take into account the international and fast evolving nature of technology. It further warns against taking premature decisions on licencing which could potentially restrict the possibilities of Satellite Communications for South Africa in the longer term. Decisions made by the ITU could impact South Africa's regulatory approach, particularly with regard to Agenda Item 1.5 at World Radio Conference-27. Vodacom recommended that any registrations made by the Authority include suspensive conditions, allowing the terms of registration to be modified if required post- World Radio Conference-27. Vodacom requested the Authority to clarify the reason for requiring a registration rather than licencing, nor how the requirements for registration would differ from the requirements of a licence.

8.1.1.24. Avanti makes several suggestions in its submissions. Avanti suggested using more generic terms for the operator delivering end-user services thereby eliminating any confusion with terminology. Avanti also recommended that Gateway Earth Station licences be issued separately, with each licence clearly outlining the operational scope, conditions, and assigned frequencies. For Space Segment operators that only provide Satellite Capacity, Avanti proposed a streamlined registration process rather than a complex licencing procedure. The foreign Space Segment operator should simply notify the regulator and register to land its traffic in the country. A prompt acknowledgment of landing permits would help prevent delays for new entrants who have already fulfilled regulatory requirements. Additionally, the list of approved Space

Segment operators should be automated and updated quickly, ideally within 24 hours.

8.1.1.25. Sentech agreed in principle with the proposed new licencing approach. Sentech is of the view that there are more than three (3) types of categories that the Authority should recognise for licencing:

8.1.1.25.1. Satellite Control Earth Station;

8.1.1.25.2. Communications Traffic Earth Station;

8.1.1.25.3. Very Small Aperture Terminal;

8.1.1.25.4. Direct-to-Home (DTH) Terminal; and

8.1.1.25.5. Satellite News Gathering

8.1.1.26. A Satellite Control Earth Station is a ground-based facility responsible for managing and monitoring satellites in orbit. It ensures satellite health and proper functioning through communication links with operators, using radio frequencies to send commands and receive telemetry data. The key functions include TT&C, Orbit and Altitude Control, Health Monitoring, and Contingency Management. The Satellite Control Earth Station plays a crucial role in both the Upstream (monitoring satellite deployment) and Downstream (relaying operational data) segments, ensuring continuous oversight throughout the satellite's lifecycle.

8.1.1.27. A Communications Traffic Earth Station is a specialized ground station that handles high-volume communication traffic between satellites and terrestrial networks. Unlike the Satellite Control Earth Station, which focuses on

satellite management, teleport stations manage actual data communication services, such as internet, TV, and telephony. These stations are key to the Downstream segment, enabling data distribution to end-users and facilitating connections between satellite systems and terrestrial networks. Teleports and gateway stations are essential for services like remote internet access, media broadcasting, military communications, and disaster response, bridging the gap between space and terrestrial infrastructure.

8.1.1.28. Sentech believes that the satellite communications value chain should include additional licencing categories to address the complexities and unique roles of each component in the satellite industry. Specifically, SNG should be treated separately from user-terminal systems like VSAT and DTH, as its specialized function for content generation and transmission distinguishes it from typical user terminal applications.

8.1.1.29. GSOA supports the differentiation between various types of licencing in the satellite communications sector, emphasizing the need for clear and distinct processes for each component. GES should undergo a licencing process to ensure proper coordination of spectrum use, especially in relation to terrestrial services. User terminals should be treated separately from GES. For terminals operating in satellite-exclusive frequency bands, blanket licencing is recommended. However, for terminals that need coordination with terrestrial services (such as those in C-band), individual licencing may be necessary. The process for Space Segment registration should be simple, requiring only registration with the Authority, and should be separate from the licencing of Gateway and user terminals. Finally, GSOA recommended that the Authority differentiate

between Gateway stations, user terminals eligible for blanket licencing, and those requiring individual licencing. This would help to clarify the requirements for different types of services within the satellite value chain. GSOA also suggested that the Authority should differentiate between Gateway stations, user terminals eligible for blanket licencing, and those requiring individual licencing. Additionally, a strict timeframe is recommended for issuing licenses: 2 weeks for assessing application completeness and, if complete, issuing the licence within 6 weeks. For cases requiring international coordination, the process could extend up to 4 months. For Space Segment registration, GSOA proposed that the Authority add registered satellites to a "List of Authorized Space Stations" within a week of receiving the required information.

8.1.1.30. SpaceX has no issue with the approach to have separate licencing for satellite GES and user terminal networks. Regarding Space Segment registration, SpaceX is of the opinion that this appears unnecessary as a separate step. Instead, it can be incorporated as a notification of the system(s) used in relation to earth stations and/or user terminals when an applicant seeks authorisation for either. Viasat emphasised the importance of Space Segment authorisation and recommended a more rigorous Space Segment authorisation process for large constellation NGSO systems.

8.1.1.31. MTN agreed with the new licencing approach and suggested that the satellite licencing framework for commercial satellite telecommunication services should be structured to address the key segments of this value chain. MTN is of the view that the satellite licencing framework be divided into the following Sections:

8.1.1.31.1. Frequency Spectrum Licensing which will focus on the assignment and regulation of radio frequencies used by satellite operators (e.g., Ku-band, Ka-band) for transmitting and receiving signals. The existing framework for frequency spectrum licencing under Chapter 5 of the ECA and the required service licence under Chapter 3 are already in place. However, unlike terrestrial IMT spectrum assignments, sharing this spectrum among satellite providers requires careful attention to interference management and co-ordination, particularly for cross-border issues.

8.1.1.31.2. MTN supports the idea that the licence for ground stations should include specific details such as the station's location, authorised spectrum, and any relevant conditions that address both national and international obligations. This ensures that the operations of these stations comply with regulatory standards and contribute to efficient satellite communication services.

8.1.1.31.3. Furthermore, MTN supports the licencing of a "User-Terminal network license," but believes the definition of a terminal should be clarified and aligned with the definition of subscriber equipment in the ECA.

8.1.1.32. MTN also proposed that the Authority clarify whether the licencing pertains to the certification of subscriber equipment or the licencing of each individual user-terminal. The framework should require the Authority to consider the purpose of these terminals and their potential to cause interference with other services. In cases where equipment has the potential to interfere with existing terrestrial infrastructure, MTN believes individual licencing should be preferred.

8.1.1.33. Overall, the stakeholders advocated for regulatory clarity, a flexible and fair licencing structure, and extended licencing periods to attract and sustain investment in South Africa's satellite communications sector.

8.2. **Satellite Gateway Earth Stations**

8.2.1. *Question 4*

Please provide your comments on the proposals in the preceding paragraph and the duration of the Gateway Earth Station licences.

8.2.1.1. The Authority proposes that the GES licence be valid for five (5) years with an option of renewal for a further five (5) years at each instance of renewal. The Authority also stated that holders of the GES licence are legible to be treated under the PECN licence regime.

8.2.1.2. Stakeholders have differing views regarding the duration of the GES licences. Telkom agreed with the proposed five (5) year period, provided that it can be extended by a further five (5) years, with no limit on the number of extensions. Further, Telkom accepts that spectrum licence fees will be paid annually, even if the licence is awarded for five (5) years. Telkom proposed that this should be confirmed and explicitly included in the Satellite Licensing Framework.

8.2.1.3. Amazon supports the five (5) year term, with the possibility of successive renewals, and advocated for GES licences to be granted in a way that allows stations to be located outside of South Africa, which would reduce infrastructure costs and promote cost-effective service delivery.

8.2.1.4. MTN supports the proposed five (5) year licence term for GES, with the right to renew. This provides both stability

and flexibility for operators. MTN agreed that any satellite licencing framework should not allow for direct provision of telecommunications or broadcasting services to end-users. A separate license, as defined in Chapter 3 of the ECA, is required from the Authority to provide such services. Licensing for GES is crucial for the satellite communication value chain, as these stations provide the interface between satellites and terrestrial networks, facilitating uplink and downlink of data. Given the high demand for high-frequency bands used by GES, MTN suggested non-exclusive licencing with interference management mechanisms to allow multiple satellite operators to share the same frequencies, provided they comply with interference limits. MTN proposed that the Authority simplify licencing for low-power or small GES, such as those used by LEO satellites like Starlink and OneWeb. This could include a batch licencing mechanism, allowing large constellation operators to obtain licences for multiple gateways in one application.

8.2.1.5. The DOD also agreed to the five (5) year term. However, the DOD raised concerns regarding the coordination time period, which can take up to four months to mitigate the risk of cross-border interference. The Western Cape Government indicates that the research conducted by them indicates that developed nations typically implement transition periods ranging from five to twenty (5 to 20) years, with ten (10) years being the most common duration. However, given that the market has increasingly shifted toward a five (5) year period, they are of the view that a five (5) year period with an option for renewal strikes a balanced approach, aligning with the practices of progressive, developed markets.

8.2.1.6. Pinkmatter, Paratus, SpaceX, Intellspace, Globalstar advocate for a ten (10) year licence period for GES. Intellspace argued that this extended duration provides the stability necessary to foster investment and innovation in South Africa's satellite communications sector and is a progressive step toward aligning South Africa's regulatory framework with global best practices. Paratus concurred with this, stating that such alignment with global best practices, South Africa remains competitive in attracting investment in satellite technologies therefore ensuring operators such as Paratus can continue to expand in the country. Further, Paratus noted that many countries, countries such as Ghana and India offer longer licencing terms. Paratus submitted that by aligning the GES licence duration with the existing I-ECNS and I-ECS licences, the Authority would create a consistent and integrated regulatory framework.

8.2.1.7. Paratus suggested incorporating provisions for automatic licence renewal upon compliance with regulatory obligations, subject to periodic reviews. This would reduce administrative burdens for both operators and the Authority, ensuring that only operators who meet compliance standards are eligible for automatic renewals. This proposal aims to streamline the process while maintaining regulatory oversight.

8.2.1.8. Intellspace stated that extending the licence term to ten (10) years provides stability, encourages investment, and aligns with global practices observed in countries like Brazil and the United States. It supports innovation, long-term planning, and the ability to adapt over time. Mid-term reviews and clear renewal criteria would ensure that operators maintain compliance and meet national objectives, without sacrificing the long-term stability

needed for investment and technological advancement. Intellspace recommended Introducing pilot licences for startups, reduce fees, and simplified application processes, offer short-term licences with performance-based renewals, establish innovation hubs, encourage partnerships with established companies, provide grants, loans, and tax incentives for research and development R&D in underserved areas, partnering with universities for training and organize industry-focused workshops and creating testing environments for startups to innovate with relaxed regulations. Additionally, Intellspace suggested setting up a one-stop online licencing platform with clear guidelines and offering fee reductions and fostering public-private partnerships for expanding rural connectivity.

8.2.1.9. Kinéis agreed with the Authority's approach on the PECN licence and supports a ten (10) year licence term for GES operators, given the significant investment required to deploy ground infrastructure. A longer licence term would ensure returns on such investments.

8.2.1.10. SpaceX points out that while the Authority refers to the Q and V-bands as operating "in the future," these bands are currently being used by GES. Additionally, the E-band (71-76 and 81-86 GHz) is already providing high-capacity backhaul for satellite services. These bands should be included in the proposed licencing regime. SpaceX also supports a minimum licencing period of ten (10) years, as this is consistent with international best practices.

8.2.1.11. SABC advises that it may be beneficial to extend the proposed duration of the licence to ten (10) years. This extension would provide current users with ample time to acquire new equipment, should the changes affect their ability to continue using existing technology or equipment.

8.2.1.12. Imibila Africa supports a period of fifteen (15) years for the duration of the GES. GPP proposed an ideal licence duration of ten to fifteen (10 to 15 years), balancing regulatory oversight with the investment security required for large-scale infrastructure projects. They argue that such a term aligns with the typical amortization period for infrastructure investments, enabling operators to recover costs and reinvest in future upgrades. International examples further support the case for a ten to fifteen (10-15 year) licence term as it provides long-term stability for satellite operators.

8.2.1.13. Mopalema endorses the proposed duration to be increased to fifteen (15) years with a provision for further fifteen (15) years at instance of renewal.

8.2.1.14. Telemedia argued that a five (5) year licence period is insufficient for global operators to recover the large investments they would make, especially if the Authority intends to levy additional fees such as unnecessary Spectrum Fees, or fees on a "per end-user terminal basis". Telemedia emphasised that if the Authority charges per terminal or additional Spectrum Fees for ground stations, the ground station licence duration should span fifteen to twenty (15 to 20) years, as individual ECNS licences last twenty (20) years. The lifespan of LEO satellites of five to seven (5 to 7 years) should not affect the ground station's licence duration, as the ground station can outlast the satellite. Finally, Telemedia stressed that a short licence duration could hinder the viability of satellite services by creating barriers to consumer uptake, which would ultimately affect the businesses' ability to generate revenue.

8.2.1.15. MEDO stated that to encourage long-term investment and ensure the stability of operations, it is recommended that the licencing term be extended to forty (40) years, similar to other infrastructure-heavy industries like mining. MEDO emphasised the need for GES licence conditions to prioritize community connectivity, affordability, and digital inclusion. MEDO suggested that the licencing framework should include clear goals for expanding broadband access to underserved areas, supporting education, and bridging the digital divide. These objectives should be monitored during each audit cycle to ensure progress. MEDO proposed for a five (5) year audit process. Affordability of spectrum and licence fees is another major recommendation MEDO makes, calling for a reduction in Spectrum Fees and the adoption of a cost-recovery pricing model to make satellite connectivity more affordable and economically sustainable for underserved communities.

8.2.1.16. ACT references Section 43 of the ECA, which promotes the leasing of facilities and mentions GES as essential facilities (though not yet declared as such). ACT suggested that GES in South Africa may need to comply with essential facility requirements, potentially requiring an I-ECNS licence. Section 43(10) also indicates that satellite services may lack exclusivity, implying they are unlikely to qualify as PECNs.

8.2.1.17. ACT recommended that the Authority consider the economic benefits of building GESs locally, which include improved connectivity and job creation. They urge the Authority to clarify whether a PECN licence is needed in addition to the I-ECNS licence for GES operators and whether existing I-ECNS licence holders must exchange their licences for PECN licences. They emphasise that a

clear regulatory framework would reduce administrative burdens for operators.

8.2.1.18. SACF submitted that, according to Section 43 of the ECA, GES are essential facilities and must provide access to other licensees, unless the network is used primarily for the owner's own use, in which case it can be categorized as a PECN. The ECA does not allow GES to be categorized as PECNs (which are exempt from licencing) because they are part of a larger ECNS, which requires a specific licence. SACF further noted that the ECA clearly mandates that GES must be licensed under ECNS when used for commercial purposes, such as providing wholesale services to other networks. The SACF argue that the Authority's current proposal does not align with the existing provisions of the ECA. Specifically, the proposal seems to suggest that GESs could operate as PECNs, but this contradicts the ECA's definitions and regulations. As such, the SACF requested that the Authority elaborate and clarify the intended approach behind its proposal for GES to ensure that the framework aligns with the legal and regulatory requirements set out in the ECA.

8.2.1.19. Sentech supports bundling GES licencing with feeder link spectrum and highlighted that the ECA doesn’t grant ownership rights to frequency spectrum, which must be licensed separately. Sentech stressed that GES should be located within South Africa for compliance with data sovereignty, security, and privacy regulations.

8.2.1.20. GSOA agreed with the Authority that the GES licence should not confer any right of ownership over the frequency spectrum. This ensures that the spectrum remains a shared resource and avoids any exclusivity claims by licensees. Furthermore, GSOA agreed that GES licensees

should be treated under the PECN regime unless they are directly providing connectivity to end-users. If a GES licensee is not in a contractual relationship with end-users, it should indeed be treated under the PECN regime, even if the GES is used by another provider offering satellite services to end-users.

8.2.1.21. Avanti adds that the Authority should recognize early market entrants and avoid penalizing them for operating under the old regulatory framework. Further, Avanti requested clarification on what constitutes an "end-user", and which operators can receive services from GES licence holders. Avanti proposed a more flexible licencing structure, allowing the GES licence to be renewed annually, providing long-term security and encouraging investment.

8.2.1.22. Eutelsat supports the introduction of a new licencing category for Satellite GES, which would permit these stations to operate in South Africa. This move would allow South Africa to host essential infrastructure for satellite services, such as feeder links and TT&C. The introduction of the PECN licence regime has raised concerns due to uncertainties about requirements for potential licensees. Both Eutelsat and Vodacom express concerns about the proposed licencing framework and urge the Authority to provide more clarity on the terms and requirements for GES licences. Eutelsat supports the notion that a GES licence should not grant the right to offer telecommunications services directly to end-users, aligning with the view that direct broadcasting services are exempt from licencing. Eutelsat also highlighted that GES located outside South Africa should not be subject to South African licencing regulations, although it believes satellite operators with external GES should be regulated under ECNS or ECS licences when providing services within South Africa.

8.2.1.23. The consultation paper mentions "service link licences," but Eutelsat requested more clarification on the application and requirements for these licences. Additionally, Eutelsat seeks more details about the rights and obligations associated with GES licencing, including timelines, fees, and renewal options. Eutelsat agreed with the findings contained in the report by DOTECON but argued that the proposed five (5) year licence duration for GES is too brief, considering the long-term investments needed for infrastructure like ground stations. Eutelsat proposed extending the licence validity to ten (10) years or fifteen (15) years or, ideally, aligning it with the satellite or satellite constellation's lifespan.

8.2.1.24. Eutelsat, during its oral presentation, stated that there are different types of GES which utilize radio spectrum resources to communicate with satellites. These stations are subject to limitations and must coordinate with other networks. The three examples of gateway stations to explain how licencing should be structured:

8.2.1.24.1. Example A: A gateway station providing direct services within South Africa, which would be covered under an ECNS licence.

8.2.1.24.2. Example B: A gateway station offering indirect services (i.e., services are provided to other parties in South Africa) but where the satellite operator holds a PECN license, while the retail service provider holds an ECS licence for end-user services.

8.2.1.24.3. Example C: A gateway station not involved in service provision within South Africa. This station would be covered by a PECN gateway licence.

8.2.1.25. Eutelsat concludes by stating that they welcome the use of a PECN licence for GES, particularly for examples B and C, as it seems to be an appropriate regulatory framework.

8.2.1.26. Vodacom, however, disagreed with applying the PECN regime to GES licences, arguing that the ECA exempts PECN services for internal operations rather than commercial services. It claims that using the PECN regime for commercial services would contradict the ECA and create regulatory inconsistencies. Vodacom further asserts that the ECA requires a separate ECNS licence for operators offering wholesale services and that GES operators providing commercial services to end-users should hold both ECNS and ECS licences.

8.2.1.27. Vodacom also criticised the proposal for licencing GES located outside South Africa, emphasizing that the Authority would lack control over these external facilities and could not ensure compliance with local laws or effectively terminate services if needed. Vodacom argued that the regulatory framework should mandate that GES be located within South Africa to guarantee local oversight and compliance.

8.2.1.28. MultiChoice criticised the proposal for being vague and unclear, particularly regarding the details of the new licencing category for Satellite GES. MultiChoice noted that the proposal states that a Satellite GES Licence will allow the installation and operation of a satellite earth station using a specified frequency band. However, it is unclear why a new licencing category is required when it seems that these stations could be licensed under the existing framework. This raised questions about why the current licencing framework is not sufficient for GES. Further, they

state that there is confusion because it is not clear whether the gateway earth station is actually a PECN or merely treated as one. This distinction is important because it is not clear on what grounds the Authority would classify a person under a PECN licence category if they don't meet the necessary criteria. The proposal lacks an explanation regarding why the Satellite GES licence should prevent the licensee from providing services to end-users. This raised concerns about the rationale behind such a restriction and whether it is necessary for the operation of the gateway. MultiChoice submitted that the proposed five (5) year licence term is seen as arbitrary. If the satellite GES licence is meant to be treated under the PECN regime, it would typically operate under a licence exemption, meaning there would be no need for renewal after a certain validity period. This raised questions about the logic behind imposing a fixed-term renewal if the licence is essentially exempt under PECN.

8.2.1.29. LIT submitted that a reasonable interpretation of the phrases "own use" and "internal operations of the network owner" should be guided by the references to the provision of ECNS for "commercial purposes" in Sections 5(3)(a) and 5(5)(a) of the ECA. LIT submitted that the inquiry may have unintentionally blurred the distinction between PECNS and ECNS as defined in the ECA. LIT encourages the Authority to adopt policies that create a commercially favourable environment, which would incentivize foreign investment and promote the future development of teleports and GES in South Africa. Additionally, LIT wishes to emphasise the administrative burden placed on both licensees and the Authority due to the requirement for annual renewal of radio frequency spectrum licenses.

8.2.1.30. Plan-S's written submissions highlighted South Africa's strategic advantage in hosting GESs due to its geographical location, which is ideal for NGSO operators to transmit traffic. Plan-S aligns with DOTECON's recommendations on the need for longer radio spectrum licence terms and the inclusion of renewal options for GES licences. Plan-S, during its oral presentation outlined the challenges it faces in deploying gateway stations in Pretoria due to licencing barriers. Although they initially planned to install these stations, they encountered difficulties with the required individual ECN or ECS licences. The licencing requirements, which mandate the establishment of a local entity and the employment of at least thirty (30) people, are hard to fulfil. As a result, the company has put its plans on hold and is awaiting the outcome of public consultations and possible updates to the licencing framework in South Africa. They remain hopeful that a revised framework will streamline the process, enabling them to apply for the necessary licences and move forward with their gateway station installation plans.

8.2.1.31. Additionally, Plan-S recommended for the removal of the restriction that only ECN licensees can apply for Earth station licences. This change would expand opportunities for other operators and further establish South Africa as a competitive hub for NGSO operators.

8.2.1.32. The proposals and responses regarding the GES licencing framework demonstrate a wide range of perspectives on the ideal licence duration and regulatory framework. Additionally, the regulatory approach to licencing, particularly with regard to the PECN regime and the location of GES, remains contentious. Ultimately, the varied feedback highlights the importance of finding a balanced approach that took into account both the need for

regulatory oversight and the encouragement of investment and innovation.

8.3. **National and International Coordination**

8.3.1. *Question 5*

Please comment on the above-mentioned alternative proposals to levy the Spectrum Fees for Gateway Earth Stations and indicate your preferred option. The Authority understands that there are other spectrum fee calculation methodologies used elsewhere in the world. Please give details of the methodologies which you believe would be most suitable for South Africa.

8.3.1.1. Myriota, MEDO, Globalstar, Skylo, Eutelsat; Pinkmatter, MTN, GSOA, Intellspace, Paratus, GPP, Imbila Africa, Avanti, ISPA and Mopalema support the proposal for the development of the proposed regulatory frameworks that makes provision for the levying of Spectrum Fees for GES.

8.3.1.2. Myriota further submitted that the proposed framework should be harmonised with the regional approach for regulatory certainty and innovation, and that the frequency bands that are sought to be regulated should be extended to include UHF bands allocated for mobile satellites in national frequency plans.

8.3.1.3. Pinkmatter proposed that the levy structure be extended to Earth Observation spectrum.

8.3.1.4. ACT, SACF, Vodacom and Sentech do not support the proposal for the development of the proposed regulatory framework for satellite services specific Spectrum Fees on the basis that such an approach fosters unfair competition and places terrestrial operators at a disadvantage. They advocated for technological neutrality where Spectrum Fees are concerned.

8.3.1.5. SACF, Vodacom and Sentech further proposed that the Authority adopt the general approach of reviewing and revising all Spectrum Fees, including GES fees, within the existing Regulations on Radio Frequency Spectrum Fees to ensure consistency in its licencing model.

8.3.1.6. SABC submitted that it should be exempt from paying Spectrum Fees as it has ECNS licences which are solely used for broadcasting services of special events and programmes of national interest.

8.3.1.7. The Western Cape Government, in contrast with other stakeholders, requested that the Authority make their research on this topic available for inspection and for general consideration, prior to commenting. MultiChoice also elected not comment on this aspect as it did not understand the Authority's rationale for creating a new licencing regime to begin with.

8.3.1.8. Regarding the radio frequency spectrum fee pricing and the preferred methodologies of calculation, Amazon, GSOA, Intellspace and DOD support the Authority's proposed HTSF model, which is based on the unit price x bandwidth in MHz formula and introduces a discount for high through-put satellite systems, for spectrum free calculation.

8.3.1.9. Telkom and MTN proposed that the formula for spectrum fee calculation take into account the following factors: GEO factor; SHR factor; ASTER factor; and FREQ factor, which will achieve the key objective of administrative incentive pricing. Avanti also proposed that the formula for spectrum fee calculation includes the Spectrum Efficiency Coefficient (SEC) factor for satellite services.

8.3.1.10. SACF, Telkom and MTN do not support the proposal that discounts be granted to some services for costs associated with the use of radio frequency spectrum as it may create an unfair competitive advantage. They proposed that there be uniformity regardless of technology or service.

8.3.1.11. Globalstar, Plan-S, Eutelsat, GPP, ISPA and Paratus support the alternative radio spectrum fee model, which is based on variable fees per MHz, as it ensures a fairer, more balanced spectrum fee structure, can be easily adjusted and better accounts for the unique characteristics of different frequency ranges.

8.3.1.12. SABC proposed a combination of HTSF model and the variable fees per MHz model be used to determine Spectrum Fees as it permits flexibility and caters specifically to the unique operational demands of HTSF.

8.3.1.13. SpaceX does not support either of the proposed models and submitted that bandwidth (per MHz) should not be a factor used to set fees for GES owing to their operational functions (their uplink and downlink are not equally paired) as this approach would result in exorbitantly high fees that hamper growth for incumbents and repelling new entrants and discourage competition and quality service.

8.3.1.14. Kinéis proposed a fee calculation model in Table A3 of Appendix A, that also considers a simplex frequency arrangement as opposed to a duplex arrangement.

8.3.1.15. Vodacom, SACF and ACT proposed that spectrum fee calculation be based on the aggregate amount of spectrum (i.e. MHz) used nationally, irrespective of the frequency band, as this approach would incentivise reuse of spectrum nationally, and in so doing encourage more efficient use of

spectrum, without providing an unfair advantage to certain backhaul providers.

8.3.1.16. CSIR proposed that a simpler numerical model based on the ratio between the centre frequency of the band concerned to the amount of bandwidth. Under the proposed model, an operator using 1 GHz of bandwidth at 10 GHz (10:1 ratio) would pay a similar fee to an operator using 4 GHz of bandwidth at 40 GHz (also a 10:1 ratio).

8.3.1.17. Plan-S further proposed another methodology for calculating spectrum fees. The proposed formula is based on the BNetzA model (0.8 × t × B), where "t" represents the number of years and "B" is the bandwidth in MHz. Plan-S posits that this approach is similar to the one suggested by the Authority, though it lacks a frequency band factor.

8.3.1.18. LIT proposed that the Authority conduct a RIA and cost modelling exercise to explore both the proposed and other radio frequency spectrum licence fee methodologies.

8.3.1.19. Generally, most of the stakeholders proposed that the fee structure contemplated must ensure that South Africa remains an attractive destination for satellite operators looking to install and operate Earth Stations. Plan-S submitted that the contemplated structure must also not be solely focused on advantages for HTS, but rather be defined to maintain South Africa's competitive edge over other countries in the region.

8.3.1.20. Regarding GES spectrum licence fees pricing, GSOA supports the fee structure proposed by the Authority, being a fee structure based on the amount in Rands per MHz paired.

8.3.1.21. Stakeholders such as MEDO, Telemedia, Imbila Africa, Viasat and Pinkmatter proposed that the contemplated fee structure be fixed to reduce financial barriers, help foster long-term investment and ensure that costs are not passed on to consumers. MEDO and Imbila Africa proposed that annual fees be less than R150 000.00, with MEDO proposing that annual increases be based on the South African PPI and CPI, as well as the providers' home nation PPI.

8.3.1.22. MEDO, Imbila Africa, Viasat, GSOA and SpaceX supports a cost-recovery based, approach which would cover administrative costs and, as this approach aligns with international best practices globally, does not impose prohibitive fees on operators and averts the needless inflation of deployment costs and increased expenses for consumers.

8.3.1.23. GSOA, Pinkmatter, Telemedia, and MEDO further proposed that this fee structure be levied per annum.

8.3.1.24. SpaceX, Eutelsat, Amazon, Telkom and Skylo support the levying of spectrum licencing fee per licence rather than an individual Gateway Earth Station antenna level, as one Gateway Earth Station may be connected to multiple antennas.

8.3.1.25. Globalstar, SHT and Viasat support the levying of spectrum licencing fee per Gateway Earth Station, rather than per licence or antenna.

8.3.1.26. Telkom and Amazon proposed that, with respect to cluster Gateway Earth Station, where the is an operation of several GES with the same technical characteristics,

communicating with the same NGSO Satellite Network system and using the same spectrum, the spectrum licencing fee may be levied per licence. Cape Peninsula University of Technology also advocated for lowered spectrum licencing fees for cluster Gateway Earth Station.

8.3.1.27. Additionally, MEDO proposed that the Authority engage with AU Member States regarding their successful negotiation of spectrum prices, with the view of adopting an approach that aligns with their practice, as this collaborative approach would ensure competitive pricing and promote alignment with regional norms in addition to broadening digital inclusion. Avanti also proposed that the Authority benchmark its fee structure with other jurisdictions' models, such as Nigeria.

8.4. **Satellite User Terminals**

8.4.1. *Question 6*

Kindly comment on the section above and on the proposal for blanket licencing with a fee for a set number of terminals under a new proposed licence regime to be referred to as "Satellite User Station Network Licence". If possible, please provide a breakdown of the number of terminals with the corresponding spectrum fee values in South African Rands.

8.4.1.1. Myriota, MEDO, Plan-S, Globalstar, Skylo, Sateliot, Eutelsat, GSOA, Intellspace, MTN, Rivada, SABC, DOD, GPP, Imbila Africa, Avanti, Amazon, Viasat, ISPA and SpaceX support the proposal for blanket licencing with a fee for a set number of terminals under a new proposed licence regime to be referred to as "Satellite User Station Network Licence", as the approach reduces the administrative and regulatory burden for licensees and the Authority and is easy to implement, while still ensuring that these networks operate within defined standards. The approach also aligns

with international best practices and will lower complexity and entry barriers.

8.4.1.2. Myriota further proposed that the Authority set out defined timelines for the authorisation process to ensure certainty for the business and recommended 30 days as a reasonable period.

8.4.1.3. Globalstar further recommended that the proposed licence regime be extended to include cross-border roaming principles for end-user terminals. Globalstar and Amazon also advocated for a technology neutral approach to user terminal licencing and proposed that the licence be named "Satellite User Terminal Network Licence" rather than "Satellite User Station Network Licence" to avoid any confusion and for clarity as the term 'station' could encompass GES as well as user terminals.

8.4.1.4. Skylo proposed that the licencing fee for wireless stations operating under satellite services should be per licence and not per station as the NTN component of these services might not use the satellite component nearly as much as the terrestrial component. Insofar as the 3GPP standardised NTN devices, Skylo proposed that the Authority does not assess additional fees (notwithstanding that these devices can provide both terrestrial cellular and satellite access.

8.4.1.5. Eutelsat proposed that individual licencing be retained for purposes of certain applications that must be assessed on a case-by-case basis, such as corporate networks, embassies or collectives that may not be registered entities, loose associations of individuals with a common interest in radio technology or a private individual seeking a private, non-commercial, service or to personally import

and install equipment from being able to obtain the licence required for importation and installation of satellite user terminal equipment in South Africa. Eutelsat further proposed that the Authority should consider enabling the possibility for foreign service providers (entities not registered in South Africa) to apply for a Radio Dealer Certificate.

8.4.1.6. MTN proposed that safeguards should be put in place within the proposed framework to mitigate against spectrum interference.

8.4.1.7. Rivada proposed that the definition of the licence be amended to include user terminals that communicate with satellites for data transport services, and not just broadband

8.4.1.8. Viasat recommended that the option to licence terminals individually in regulatory scenarios where there is reason to believe that the operation of such terminals could pose risks that warrant closer evaluation on a terminal-specific basis prior to licencing, such as those that are deployed within the vicinity of high priority facilities using the same or adjacent frequencies thereby risking interference, be retained.

8.4.1.9. The Western Cape Government cautioned that a blanket approach may not adequately consider the multitude of technical options that the FSS and MSS present.

8.4.1.10. Mopalema Communication proposed that the Authority have regard for the Draft Equipment Authorisation Regulations in deciding on whether and how to regulate the satellite services. Similarly, LIT proposed that the

Authority, in formulating a framework, have primary regard to the provisions of the ECA.

8.4.1.11. ISPA further proposed that the Authority clarify whether the proposed licencing would be accommodated under the ECA, under subscriber equipment.

8.4.1.12. ACT does not support the introduction of the proposed Satellite User Station Network Licence regime and believes that Type Approval provided for in the ECA (under Section 35) is sufficient to address what is contemplated by the proposed licence regime. ACT further proposed that the Authority provide further context for the intention behind creating a separate system for satellite terminals and that it conducts a SEIA on current satellite service providers and share its findings with the sector. Similarly, Iridium submitted that the proposed blanket licencing is redundant and creating an unnecessary barrier to entry as all satellite operators would obtain network authorization, service authorisation and equipment approval under Type Approval.

8.4.1.13. SACF proposed that the Authority use the existing framework, Chapter 3 categories in the ECA, to achieve the contemplated blanket licencing. SACF further proposed that the Authority provide clarification on why it crafted a new definition for terminal, considering that the ECA's definition of subscriber equipment might suffice. SACF cautioned that the ECA might not permit the Authority to create this new licence type.

8.4.1.14. Telkom submitted that the blanket licencing should be applied on a case-by-case basis as the satellite environment is distinct from the mobile/cellular environment as it shares many frequency bands used for

satellite services between satellites and terrestrial services. Telkom further submitted that, where the the Authority persisted with the application of the blanket licencing regime is applied to satellite user terminals, the satellite user equipment will need to operate on a secondary basis so as not to cause Harmful Interference to, or claim protection from, the primary services operating in the same band. Telkom further advised the Authority to consider the conditions for sharing as contained in the ITU Radio Regulations, which differ for each band. Additionally, Telkom proposed that the use of the term "satellite user terminal network licence" must be avoided and that the licence be named satellite user terminal spectrum licence" to make it clear that this is a spectrum licence and not a network licence, which can only be provided in terms of Chapter 3 of the ECA.

8.4.1.15. Vodacom, while accepting that the Authority's proposal to harmonise all satellite licence fees into a single model on a technology neutral basis., does not agree with the proposed framework. According to Vodacom, the proposed licencing regime will be a duplication of the current licencing regime with regard to terminal licencing (eg. ECNS licence). Vodacom called on the Authority to provide clarification on how the proposed licencing regime is distinct from the current regime.

8.4.1.16. MultiChoice supports the development of the proposed licence regime insofar as the framework will regulate DTH subscriber equipment that is not licenced under the ECA. MultiChoice, however, seek clarity from the Authority regarding its rationale for creating this new licencing category and a detailing of who will be licensed under the Satellite User Station Network Licence and for which activities.

8.4.1.17. Kinéis supports the development of the proposed licence regime and proposed that the proposed regime be adapted for LDR satellite services as the regulatory framework should not impede commercial development. Kinéis further proposed that foreign satellite operators be enabled to hold Satellite User Terminal Licences to enable them to deploy devices and offer services without additional ECS licencing. Alternatively, Kinéis proposed that a legal representative be designated by the satellite operators to hold the licence. Under this option, a service licence may be sought under a national ECS and not I-ECS.

8.4.1.18. Telemedia supports the separation of licencing or authorisation of Ground Station Gateways and User Terminals, from the provision of services. Telemedia proposed that the Authority authorise holders of I-ECS licences to sell end-user terminals from any Non-Geostationary Satellite service provider into South Africa.

8.4.1.19. SHT submitted that licences should not be required for the sale of end-user terminals other than the current radio dealer licence under the National Radio Frequency Spectrum Regulations, 2015, only for the provision of services to such terminals in which case a class or I-ECS/ECNS licence is required and all conditions associated with such licences apply as per any other technology.

8.4.1.20. Regarding the fee structure for licencing, Myriota and Imbila Africa support reasonable fees and proposed that the fee structure be based on a cost-recovery model for administrative costs. Imbila Africa further proposed that the fees be levied at less than R30 000.00 (thirty thousand rands) per licence.

8.4.1.21. SpaceX, Eutelsat and Viasat recommended that a uniform fee be applied, irrespective of the number of terminals, based a cost-recovery model for administrative costs. According to SpaceX, variable per user-terminal fee will only add additional financial burdens for service providers and create a disincentive to expand service.

8.4.1.22. Further, and in the alternative, Eutelsat, proposed that the fees for the higher number of terminals should be significantly reduced as these numbers of terminals would be achieved only with the introduction and uptake of IoT into the future which would not generate the revenues to sustain the per satellite terminal fees being proposed.

8.4.1.23. MEDO, LIT, and Intellspace proposed a tiered fee structure, with scales based on the number of terminals, as this approach would offer flexibility and balance. MEDO further proposed that the Authority subject the contemplated fee structure to a benchmark assessment against best practices in other AU Member States.

8.4.1.24. Intellspace further proposed that the fee structure be applied to all types of user terminals—fixed, mobile, and portable—under the blanket licence to accommodate evolving technologies and market needs. It further proposed that all user terminals be required to comply with technical standards to avoid interference and maintain network integrity and to submit periodic reporting on the number of deployed terminals to assist with spectrum management and regulatory oversight.

8.4.1.25. In addition to the foregoing, LIT has further recommended that the Authority conduct a RIA when considering the fee structure.

8.4.1.26. Plan-S and Avanti do not agree with a fee structure that is based on the number of devices as it would be challenging to accurately inspect the number of devices that satellite operators report to the Authority, potentially adding unnecessary workload for both the operators and the Authority. Further, Plan-S submitted that applying the same fee structure to all devices might be inappropriate as different terminals have varied deployment scales, bandwidth requirements, transmission frequencies, and revenue models.

8.4.1.27. Rivada supports a fee structure that balances revenue generation and affordability. Rivada further recommended that the fees should also accord with international benchmarks for similar licencing regimes.

8.4.1.28. GSOA proposed that the charges for Spectrum Fees be based on spectrum usage as opposed to user terminals and that there should be application of different fees depending on frequency ranges, decreasing the amount of fees based on frequency ranges. GSOA implored the Authority to use the Canadian model as an example.

8.4.1.29. Telemedia submitted that the Authority should consider an approach that promotes service uptake and return of investment for capital-intensive investments. Telemedia proposed a blanket flat rate licencing approach for end-user terminals and a flat rate fee payable by the authorised I-ECS licensees for an unlimited number of end-user terminal. The blanket fee may be paid annually and not linked to the number of end-user terminals deployed into the market so as to drive adoption.

8.4.1.30. SABC, DOD, GPP, and Paratus proposed that the blanket licencing fees be based on the number of terminals. Paratus cautioned that the fee structure should not become prohibitively expensive. Paratus further proposed that both local and international satellite operators be required to apply and pay for this license, as exemption of some satellite operators may create an uneven playing field, and that licensees that intend to provide services directly to consumers (end-users) must apply for an ECS licence. Paratus called on the Authority to provide clear guidelines on whether user terminal licence fees will be additional payments or integrated into the existing USAF contribution. If so, they proposed that all licensees under the contemplated regime be required to contribute to the USAF so as to avoid unfair competition. GPP proposed that the Authority provide clarity on how the terminal fees will be calculated.

8.4.1.31. The Western Cape Government proposed that an approach to the fee structure that aligns with global best practices be considered. Similarly, ISPA proposed that the model for fees be subject to comparative benchmarking.

8.4.1.32. CSIR proposed that, in considering an ideal fee structure, no requirement be imposed for the disclosure of user information as this might be too far reaching and a breach of privacy laws. CSIR proposed that operators undertake to disclose user information pursuant to a court order or warrant.

8.4.2. *Question 7*

Kindly comment on the appropriateness of using regulation 37 of the ICASA radio regulations ("Recognition of licences issued by other countries") to recognize ESIM licences issued by other countries.

8.4.2.1. MEDO, Globalstar, SACF, Skylo, Eutelsat, MTN, Imbila Africa, Avanti, Telkom, RVADA, Viasat, Amazon, GSOA, Intellspace, GPP, SABC, Paratus, CSIR and SpaceX supports the proposal for the usage of regulation 37 of the Authority's radio regulations to recognize ESIM licences issued by other countries, as the approach: aligns with international best practice; reduces administrative and regulatory complexities; promotes international and regional co-operation; removes deployment barriers; encourages competition and investment; and enables reliable communication for international travellers and freight operators, thereby supporting economic activities (tourism and trade).

8.4.2.2. MEDO proposed that the Authority consider incorporating clear conditions under-which foreign licences are recognized to ensure that compliance with South African safety and technical standards is maintained. MEDO further recommended that the Authority adopt a reciprocal approach where South African licences are also recognized by partner countries.

8.4.2.3. Globalstar proposed that the Authority make it clear that cross-border roaming rights for user terminals operating in both the FSS and MSS are broadly applied, and not strictly limited to ESIMs operating in the FSS.

8.4.2.4. SACF and MTN proposed that emphasis be made on the fact that the proposed ESIM licencing is authorised temporarily, as a transit and landing facility, and that there must be compliance with the ECA and radio regulations so as to avoid the circumvention of licencing requirements. SACF and Paratus further recommended that Regulation 37 be amended to state the nature and scope (time limit) of the

indulgence granted to ESIMs and to include protective measures to prevent circumvention of licencing requirements.

8.4.2.5. Skylo proposed that the contemplated indulgence be extended to other devices, such as NTN devices, that may be brought into SA for a short period of time.

8.4.2.6. Eutelsat proposed that the Authority should consider the possible inclusion of such exemption/non-objection directly (explicitly) in the contemplated new satellite regulatory framework to be issued by the Authority.

8.4.2.7. MTN and Telkom proposed that the indulgence be limited to where an ESIM that has been fitted onto an aircraft (or maritime vessels) has already been licensed in another country, whose vessel or aircraft is in transit and is temporarily within the borders of South Africa. Telkom further proposed that Regulation 37 not apply to satellite services provided within South Africa that are provided by an iECS or iECNS licensee to prevent circumvention of licence requirements under, Chapter 3 of the ECA.

8.4.2.8. Amazon and GSOA proposed that the indulgence be expanded to both maritime and land ESIM that are already licensed in another country and that are temporarily visiting South Africa, as it aligns with the ITU's recognition of three ESIM types (ESIM on board aircraft (aeronautical ESIM), ESIM on board ships (maritime ESIM), and ESIM on board land vehicles (land ESIM)). Amazon and Intellspace recommended that the Authority enter into mutual recognition agreements outside of the Communication Regulators' Association of Southern Africa (CRASA) region with as many jurisdictions as possible to better give effect to Regulation 37 of the Radio Frequency Spectrum

Regulations, 2015. Amazon further proposed the Authority clarify whether ESIM gate-to-gate and/or port-to-port services will be permissible, or whether these services will be subject to any restrictions regarding altitude or distance from shore.

8.4.2.9. GSOA proposed that service providers be mandated to inform the Authority of their intention to use ESIMs on aircraft or vessels and indicate which frequencies they will be using. Where the frequencies are assigned to satellite services, and no threat of frequency interference exists, the Authority should issue a non-objection letter. According to GSOA, this approach aligns with international best practices.

8.4.2.10. GPP proposed that there be a data-sharing protocol between and regular consultations between the regulatory partners to ensure compliance with South African standards and to maintain service quality

8.4.2.11. CSIR proposed that the ESIM operator notify the Authority of their presence, along with another requirement informing them through the flight plan system and that the ESIM details be contained in the Field 18 of the Air Traffic Control flight plan.

8.4.2.12. ACT supports this approach and proposed that this proposal be implemented with strict limitations in terms of which ESIMs are considered so as to avoid the use of ESIMs as a means to bypass the registration and licencing regime. ACT and SABC further proposed that the Authority undertake a review of its current regulatory framework to ensure alignment with the proposed approach.

8.4.2.13. Similarly, Intellspace and Avanti proposed that the Authority establish safeguards to protect national interests. This may be done by developing and publishing detailed guidelines outlining requirements for recognition under Regulation 37. Intellspace proposed that, as part of the requirements, ESIMs should undertake to: comply with South Africa's technical specifications to prevent interference with local services; adhere to frequency bands allocated for ESIM use in South Africa, avoiding conflicts with other services, including sensitive radio astronomy observations, particularly within RQZs established under the Astronomy Geographic Advantage Act; and comply with South African laws, including national security and data protection regulations. Additionally, Intellspace and Avant proposed that foreign ESIM operators be required to notify the Authority of their operations, providing details on frequencies, locations, and technical specifications, and that the Authority establish mechanisms to detect and address Harmful Interference promptly and secure its authority to revoke recognition for non-compliance or breaches of South African law.

8.4.2.14. MultiChoice does not support the proposed approach on the basis that it would be tantamount to creating an additional license, which would not be suitable as it would not align with the ECA and would undermine mutual recognition. MultiChoice proposed that the free circulation of foreign visiting ESIMs (Onboard vessels and aircrafts) should be based on mutual recognition authorisation issued in the country of origin. MultiChoice further proposed that the Authority provide a rationale for creating this new licencing category.

8.4.2.15. Vodacom does not support the proposed approach, that is the proposal to use regulation 37 to exempt ESIMS that are

registered in foreign jurisdictions and submitted that the approach is susceptible to challenge where such licencing may create conflict with the operations of local licensees and where no proper consultation process is followed before the issuing of such licences. Vodacom submitted that a blanket approach in this regard would be irrational and each case may have to be considered and determined on its own merits and that, as the terms and conditions of operation licensed by another country are likely to be different from that within South Africa, there could be a possibility of an unfair market advantage to those that may be freely allowed to operate under the regime of another country, but within South African territory.

8.4.2.16. Sentech and LIT do not support the proposed approach on the basis that Regulation 37 is not sufficient for the proposed undertaking. Sentech proposed that the Authority impose further minimum requirements based on ITU regulations and recommendations regarding ESIMs. It is further proposed that the approach for ESIMs must comply with power levels, interference mitigation, and spectrum use based on the distinctions between maritime, aeronautical, and land-mobile ESIMs. Moreover, Sentech recommended that ESIM operators should also be required to submit reports or to submit to inspections to verify that ESIMs are operating as licensed.

8.4.2.17. In addition to the foregoing, LIT proposed that the Authority must ensure that any proposed approach aligns with the ECA and that the regulation of ESIM requires further amendment to the ECA. Additionally, LIT proposed co-ordination with the Department of Communications and Digital Technologies, as they are in the process of finalising the draft Electronic Communications Amendment Bill,

2022, which might have implications for the proposed approach.

8.5. **Space Segment Authorisation**

8.5.1. *Question 8*

Please provide your comments and details of the best practices in other jurisdictions to fulfil the intentions of the Authority as indicated in the above section. Furthermore, considering the provision set out in the Astronomy Geographic Advantage (AGA) Act of 2007, and the requirements of the RQZ, what measures and techniques do you propose to be employed in mitigating the possible interference that may be caused by the satellites within the Astronomy radio frequency bands in South Africa?

8.5.1.1. Myriota, Rivada, Stefan, GSOA, Avanti, and Eutelsat support an "open skies" policy as the approach employs ITU coordination and removes the need for local registration or landing rights.

8.5.1.2. Plan-S, GSOA, Rivada, Leaf Space, Telkom, Skylo, Sateliot, DOD, Intellspace, Avanti, Imbila Africa, Amazon, Eutelsat, SHT, CSIR, and Globalstar support the proposed Authorised List of Space Stations registration regime concerning the operation of foreign satellite operators in South Africa, as it reduces operational complexity and promotes a more streamlined approach.

8.5.1.3. Plan-S, Rivada, Intellspace, Telkom and Eutelsat submitted that the registration process should be designed as a simple administrative process for registering Satellite Networks to downlink signals in South Africa.

8.5.1.4. Globalstar proposed that the Authority rename the "Authorized List of Space Stations" to the "Registered List

of Space Stations" to ensure clarity as there is no intention by the Authority to assess or authorise any Space Stations, but simply to establish an administrative process by which a Foreign Satellite System operator can register their Space Segment in South Africa and provide information that shows that it is already authorised by and compliant with international bodies such as the ITU and which provides its contact information. On this score, CSIR proposed that the term "List of Authorised Space Stations" be amended to "List of Authorised Space Networks" to reflect the intention to register entire constellations of satellites forming a unified system, as opposed to individual satellites.

8.5.1.5. Sateliot proposed that in the licencing of systems that provide for NTN supplemental coverage for terrestrial networks, there must be full consideration of the entire network system, particularly the interaction between the satellite operators and the MNOs in these systems, so as to avoid duplication in licencing, particularly on the ECS/ECN requirements.

8.5.1.6. With regards to the registration fees, Plan-S proposed that no fee should be required for this process as it would create a burden on market entry, especially if the fee is set higher than reasonable levels. Eutelsat and DOD proposed that a once-off nominal fee may be levied solely on an administrative cost recovery basis and that registration subsists for the duration of the lifespan of the satellite system. Any changes made to the system must be submitted to the Authority within four (4) months. Eutelsat proposed that the Authority clarifies that the satellite downlink is not subject to protection in South Africa, unless the associated receiving Earth Stations have been individually licensed.

8.5.1.7. MTN, CSIR, and Telkom supports the proposed registration regime, insofar as it only provides for registration and does not grant a right for satellite operators to offer services directly to the public in South Africa.

8.5.1.8. SHT proposed there be an undertaking by HTS/NGSO Satellite owners: to provide annual reports to the Authority per local reseller (assumed to be ECNS/ECS licensees) with the user information described in the preceding Section; and to implement South African court orders to suspend services to any local reseller's clients within 30 days of receipt of such court order.

8.5.1.9. Leaf Space proposed that the Authority consider not introducing successful international coordination as a requirement to be included in the registration process owing to the fact that satellite systems require advanced planning, with the certainty of access to a specific gateway or market being a pivotal need that can arise even years prior to reaching successful international spectrum coordination. Leaf Space further proposed that registration be subject to the operator committing to respecting ITU Radio Regulations prior to coordination being completed and committing to ensure interference avoidance, as well as ensure that their system will have the possibility to stop transmitting from/to any given location as soon as requested if the need arises. Additionally, Leaf Space proposed that the Authority allow third-party operators, such as Ground Segment service providers, to register a spacecraft on behalf of the satellite operator, rather than requiring the latter to complete the registration, to enable easy access to the South African Earth stations and the South African market, as it is done in Canada and Mexico.

8.5.1.10. With regards to the duration of the validity of the registration, Rivada proposed that the registration authorisation duration be valid for a maximum period of fifteen (15) years.

8.5.1.11. Avanti proposed that the Authority clearly distinguish between the duration of landing permits for existing and new satellites. For existing satellites, especially those nearing the end of their operational life, the landing permit should reflect the remaining lifespan of the satellite, including any potential renewals. New satellites should receive landing permits that align with their expected operational lifespan. Avanti further proposed that the Authority should clearly delineate and specify the various frequency spectrums allocated for satellite operations, including both Earth-to-Space and Space-to-Earth frequencies, in alignment with the ITU Radio Regulations.

8.5.1.12. Myriota, MultiChoice and SpaceX do not support the proposed Authorised List of Space Stations registration regime and submitted that the proposed separate registration for the Space Segment was redundant and duplicative owing to the fact that satellite operators are required to co-ordinate with the ITU and to secure authorisation from their home countries. According to Myriota and MultiChoice, the additional registration in South Africa would not secure any new protections of benefits, but would only impose an additional administrative burden (tracking, monitoring and updating the registry) and deter some service providers from entering the market, thereby reducing competition and risking higher prices for consumers and effectively undermining the objectives of providing connectivity to remote, rural and underserved areas.

8.5.1.13. SpaceX submitted that the redundancy of the proposed registration process is emphasised by the fact that, as part of either the ground station or satellite user station network licence application, the applicant can simply provide the pertinent information relating to the ITU filing and the national authorisation for the system(s). This information includes relevant technical information, and data will be contained in these filing, thus it need not be collected again. SpaceX further proposed that operators could simply be mandated to certify they will comply with protections for the Radio Astronomy Advantage Area and Articles 21 and 22 of the ITU Radio Regulations.

8.5.1.14. ACT does not support the proposed Authorised List of Space Stations registration regime and submitted that the proposal is not suitable for the South African environment.

8.5.1.15. MultiChoice does not support the proposed Authorised List of Space Stations registration regime as it is inconsistent with the ECA and international best practice, which favours the "open skies" policy. MultiChoice further submitted that the proposed registration serves no identifiable regulary objective as: the Authority is not authorised to register persons who would not be licensed under the ECA; registration would not prevent Harmful Interference or enable the Authority to take direct enforcement action; registration does not prevent the beaming of signals into South African borders and would thus lead to unregistered satellite services becoming rampant and ethical operators not providing services to South Africa owing to the onerous registration requirements and cost.

8.5.1.16. Vodacom does not support the proposed Authorised List of Space Stations registration regime as the proposal permits transmission over South African territory without direct

licencing of a local entity, does not provide any effective means for the Authority to manage unauthorised transmissions, which raised a national security concern, as terminals may be enabled (however unlawfully) to transmit to the satellite, with no local recourse available to the Authority (ITU processes are protracted and do not provide effective short-term restitution for non-compliance). Vodacom supports the landing rights regime, subject to the appropriate terms and conditions, as South Africa's only point of direct control and submitted that the Authority has conflated the issue of ITU authorisation for the Space Segment, with the concept of regulating landing rights in South Africa, which are two separate concepts. Vodacom submitted that relieving Satellite operators of the need for a local entity that is licensed, is also unfair to other (terrestrial) providers of connectivity services that have not been allowed to operate without local licencing, and have had to comply with regulations that are in part challenging to comply with, such as payment USAF fees, social obligations, and even payment of taxes to operate as a local commercial entity.

8.5.1.17. With respect to the proposal that parties seeking to be registered under the proposed Authorised List of Space Stations registration regime be governed by and comply with RICA, SACF and ACT submitted that RICA related issues do not fall within the regulatory purview of the Authority.

8.5.1.18. ACT further submitted the impact of RICA provisions on the proposed Authorised List of Space Stations registration regime should be considered. Additionally, ACT submitted that there should be parity in regulation particularly regarding lawful interception. ACT advanced that most countries across the world have the capability to intercept

communications of satellite operators when presented with a lawful order.

8.5.1.19. Plan-S proposed that the RICA legal interception requirements should not apply entirely to all services. Plan-S advocated for the exclusion of IoT services from legal interception requirements as it would impose unnecessary complexity and cost to operators without significant benefit owing to their low data usage, limited transmission frequency, and the nature of the applications they support.

8.5.1.20. Eutelsat and GSOA support the approach that the proposed registration regime should not be subject to compliance with RICA unless the Space Station operator intends to provide retail services directly to end-users.

8.5.1.21. Regarding the protection of the RQZ, the stakeholders have proposed the following approaches:

8.5.1.21.1. ACT, SACF, Intellspace, SARAO and MEDO proposed that RQZ, incorporating geographic protection zones around critical astronomy installations, be established and defined around major observatories, with strict controls on both satellite and terrestrial emissions within these zones;

8.5.1.21.2. ACT, Intellspace, SACF and MEDO proposed that strict power output limits and out-of-band emission standards, along with clear frequency allocations and boundaries, be enforced generally and in these RQZs;

8.5.1.21.3. SACF proposed the allocation of specific frequency bands exclusively for radio astronomy and designating "passive-only" bands to astronomy stakeholders.

8.5.1.21.4. ACT, Intellspace, SARAO, SACF and MEDO proposed that there be mandatory co-ordination between satellite operators and national regulatory authorities, observatories, astronomy stakeholders and international bodies like the ITU to mitigate interference;

8.5.1.21.5. ACT, Intellspace, SARAO, and MEDO proposed that directional controls, such as beam steering, spatial separation, and nulling, amongst other measures, be employed to avoid directly illuminating sensitive areas within RQZs;

8.5.1.21.6. ACT and MEDO proposed that real-time interference monitoring, data-sharing, and enforcement mechanisms be conducted by the Authority and the relevant affected bodies;

8.5.1.21.7. ACT, Intellspace, SACF, and MEDO proposed that time and/or spectrum sharing mechanisms be used to avoid satellite transmissions during critical radio astronomy observations;

8.5.1.21.8. MEDO proposed that, where connectivity is deemed necessary to serve schools or healthcare facilities within the RQZs, the regulatory framework should allow low-power satellite services to operate under restricted conditions to prevent interference;

8.5.1.21.9. MEDO further proposed that ground stations should be equipped with shielding to reduce any potential spurious emissions that might interfere with radio astronomy activities;

8.5.1.21.10. ACT, Intellspace, SARAO, and SACF proposed that the Authority and the relevant affected bodies engage in international cooperation, such as coordinating closely with the ITU and establishing international agreements to ensure that satellite operators adhere to interference mitigation standards;

8.5.1.21.11. SARAO proposed that licencing conditions that protect the astronomy activities and stakeholders be implemented to minimize the received power by telescopes in the KCAAA from satellite transmission; and

8.5.1.21.12. SHT proposed that HTS/NGSO satellite operator and local GSO Satellite Service Provider should be prohibited from offering services to any User Terminal located within the AGA, as their beam footprints are defined at the design stage and are normally not able to be altered once in orbit.

8.5.1.22. MEDO further recommended that a balance be struck between the radio astronomy installations with the critical need to connect millions of people in rural areas to essential services, as access to reliable connectivity is directly tied to the constitutional right of access to information, equal education, and economic opportunities.

8.5.1.23. Plan-S, Rivada, Viasat, Telkom, and Eutelsat proposed that RQZs protection mechanisms adopted should be those outlined in the ITU Radio Regulations and Recommendations as these guidelines outline the PFD limits that satellite operators must comply with to protect radio astronomy services in South Africa. ITU Radio Regulations and Recommendations strike a balance between compliance with international standards to

safeguard South Africa's valuable radio astronomy resources while still allowing satellite operators to provide services.

8.5.1.24. Sateliot proposed that tested standardised models, such as Release 17 by 3GPP, be adopted for the protection of RQZs as this would ensure that deployments are safe, sustainable, and efficient.

8.5.1.25. SABC proposed that the Authority ensure that access to DTH services for communities in the RQZs area, is maintained in the RQZsarea, and that relevant mitigation measures (at no cost to the communities) be implemented in cases where the DTH solution is found to be causing interference.

8.6. **The Satellite rollout obligations**

8.6.1. *Question 9*

Please provide proposals on the role the Satellite operators can play in ensuring that broadband connectivity reaches the areas of the country in terms of community networks with Satellite connectivity as a backhaul. Kindly provide a regulatory solution that can be applied by Satellite operators to address the shortcomings of terrestrial networks in providing to unserved and underserved areas of the country. This may include collaboration with government programs to reach out to those unserved and underserved areas of the country.

8.6.1.1. SpaceX, DOD, SABC, Imbila Africa, Avanti, Plan-S, Skylo, Sateliot, GSOA, CSIR, Vodacom, Globalstar, Amazon, Viasat, Intellspace, SHT, Western Cape Government, LIT, Paratus, SANSA and MultiChoice submitted that satellite services can play a significant role in eliminating (not just alleviating) the coverage gap as they are cost-effective and can provide certain additional benefits. These benefits include that satellite services can: be provided directly to

consumers using satellite broadband all over South Africa, including rural areas, where other systems are unaffordable or unavailable; be used to backhaul service to MNOs to allow base station deployment in areas where backhaul isn't currently available or economically feasible; and provide direct-to-cell service through partnerships with MNOs to provide service to existing MNO customers on unmodified handsets through an agreement to use the MNO's licensed spectrum in areas where terrestrial service is not currently offered.

8.6.1.2. Eutelsat, Rivada, and MTN submitted that, as satellite operators do not hold a licence to provide retail services to end users in South Africa, they cannot practically undertake any in-country rollout obligations. This, notwithstanding, Eutelsat submitted that roll-out obligations would also act as a burden and obstruct the efficient deployment of Satellite Networks.

8.6.1.3. ACT and LIT proposed that the Authority first conduct a formal process to review the universal service and access framework in the country before considering roll-out obligations. ACT further proposed that the Authority conduct a comprehensive review of the spectrum obligations, which include connectivity obligations to underserved communities, to determine a coherent rationale across users of spectrum for the promotion of satellite connectivity, given that the spectrum is technology neutral.

8.6.1.4. Similarly, SACF proposed that the Authority first conduct a SEIA and incorporate its findings in ECNS and ECS licence terms prior to consideration of satellite services. SACF further proposed that the assessment should include a review of the entire universal service and access landscape,

in particular the scope, reach, and cost of services provided in accordance with the existing licencing framework) in order to come to a meaningful conclusion. Additionally, SACF submitted that, as terrestrial mobile operators have for several years asked the government to assist with subsidies to deal with the rural access deficit, and that, before considering how a new entrant would fare with such subsidies, it may be more efficient for the government to consider how subsidies would further leverage the scale of terrestrial operators.

8.6.1.5. Vodacom proposed that satellite operators be considered as supplementary infrastructure providers to local licensees, with guardrails established in a manner in which satellite services integrate into terrestrial infrastructure without harming existing services to consumers or the associated infrastructure investments. Vodacom further proposed that to enhance mobile broadband availability in underserved areas, rather than imposing costly obligations on terrestrial networks to extend coverage to these regions, the Authority should clarify that satellite operators who intend to provide direct to end-user services need to gain the agreement of MNOs on mutually agreeable commercial terms, as this approach would allow for a more efficient and cost-effective solution to bridge the digital divide and balance the interests of advancing innovative network architectures to meet these coverage goals with the need to maintain the quality of existing terrestrial services, protect spectrum usage rights, and minimize the risk of Harmful Interference, both domestically and internationally.

8.6.1.6. SHT submitted that there is no specific regulatory solution required on the satellite side to address the provision of service to underserviced areas, other than ensuring that

the Spectrum Fees for User Terminals and Gateways, and Gateway licences are affordable.

8.6.1.7. Regarding the regulatory solutions that may be used by satellite operators to address the shortcomings of terrestrial networks in providing to unserved and underserved areas, the stakeholders have proposed for following approaches:

8.6.1.7.1. MEDO, GPP, and Intellspace proposed that Social Obligation Licence Conditions, in terms of which satellite operators would be required to, as part of their licencing, reserve a certain percentage of their capacity for non-commercial community-focused services especially in rural areas, be adopted;

8.6.1.7.2. MEDO, Paratus, Imbila Africa, GPP, Avanti, Intellspace, and Rivada proposed that satellite operators that provide connectivity to underserved areas should be incentivised through: tax breaks; grants or subsidies for deployment costs; reduced spectrum and licencing fees; extended licences for the community network support; or fast-tracked approval processes.

8.6.1.7.3. MEDO, Intellspace, CSIR, SANSA, DOD, Avanti, and Viasat proposed that satellite operators collaborate with existing community networks or government supported initiatives of local government agencies to provide backhaul services and to ensure that services reach rural areas. These stakeholders further proposed that preferential rates for these communities or groups should be mandatory;

8.6.1.7.4. MEDO and Intellspace proposed that Satellite operators should be obliged to implement educational

and community development initiatives alongside their connectivity services, focusing on digital literacy;

8.6.1.7.5. Amazon proposed that operators can also partner with locally licensed telecommunications operators and service providers (as they typically do) to increase competition and the variety and quality of services available to end users across South Africa; and

8.6.1.7.6. Viasat proposed that the USAF be leveraged to subsidize the deployment of satellite-based community networks, thereby ensuring that satellite operators receive the necessary financial support to expand their services to unserved and underserved communities.

8.7. **Other Submissions**

8.7.1. Some stakeholders made general submissions that do not address the central discussion questions, but that are thematically related to the proposed framework.

8.7.2. Afriforum and Stefan both support the introduction of a Satellite licencing framework, owing to the benefits of satellite services for rural and underserved areas.

8.7.3. Maziv supports the introduction of a satellite licencing framework and the payment of Spectrum Fees to ensure the efficient use of spectrum. Maziv proposed that the Authority: prioritise connectivity and bandwidth needs in rural areas; consider the inclusion of universal service obligations to Public Service Institutions in the satellite licencing framework, in view of the potential of satellites to provide broadband connectivity to large areas; adopt regulatory processes which are not so onerous and timeous so as to deter investment in South Africa; ensure

adherence to timelines for satellite licencing processes; maintain coordination between regulatory entities, government, regional and international organisations such ATU and ITU, and alignment with relevant radio regulations; and apply consistent application of licencing requirements to all similarly licensed entities, such as ownership by historically disadvantaged individuals and requirements for B-BBEE to ensure a level playing field in the ICT sector.

8.7.4. NAB submitted that satellite services have been operating seamlessly in South Africa for decades and that these services are catered for in the ECA. Thus, according to NAB, there is no need to create a new framework. NAB proposed that the issuing of a working document with the Authority's concerns would be beneficial for the industry. NAB also supports alignment with international best practices and proposed that any amendments to policy must be done with the objective of maintaining an even playing field for all affected parties, including new entries. NAB further submitted that the Authority should align the contemplated licencing regimes with the ECA in respect of frequency spectrum licencing. NAB supports exemptions for ESIMs, however, NAB proposed that the Authority ensure that such exemptions align with the regulatory framework.

8.7.5. Eskom supports the proposed framework development. Eskom submitted that that its emergency preparedness includes satellite communications and that satellite services help them bridge the gap where there is no coverage in remote areas. Eskom further extolls the benefits of satellite services to overcome geographic barriers, to support education in rural areas, and to unleash economic potential in rural areas.

8.7.6. Kyle Spence supports the proposed framework as it aligns well with the evolving needs of South African businesses and communities. Kyle Spence further supports the revision of

Spectrum Fees and the adoption of the HTSF approach, which will make it economically viable for operators to expand services in areas where connectivity remains a challenge. Additionally, Kyle Spence supports the proposed registration process for Space Segments as it will also enhance regulatory certainty while promoting a competitive and diverse satellite services market.

8.7.7. Additionally, several stakeholders, namely Plan-S, Afriforum, Stefan and Kinéis submitted that, while they supported the Authority's initiative regarding the contemplated regulation of satellite services, they caution the Authority against imposing requirements such as the requirement for an operator to register a local entity or for there to be 30% ownership by historically disadvantaged groups, as these may act as barriers to entry, deter foreign satellite operators from investing in South Africa and ultimately defeat the ends of promoting competition and richness in the telecommunications market.

9. THE AUTHORITY'S FINDINGS

9.1. General comments on the consultation document: alignment with ATU Policy Principles and exclusion of certain satellite services

9.1.1. The Authority has taken cognisance of the submissions and proposals made by stakeholders regarding the proposed alignment with ATU Policy Principles. A majority of stakeholders expressed support for aligning South Africa's satellite licencing framework with the ATU's Harmonised Model Framework. They emphasized the importance of regional coherence, reduced regulatory fragmentation, and alignment with international best practices such as transparent licencing processes, reasonable Spectrum Fees, and blanket licencing for user terminals. This approach was seen as critical to fostering investment,

simplifying compliance, and accelerating service deployment across underserved regions.

9.1.2. Some stakeholders stressed the need for flexibility to accommodate South Africa's unique regulatory environment, national security priorities, and socio-economic goals. Concerns were raised that rigid adherence to regional frameworks might overlook local challenges, such as spectrum management in higher frequency bands and protection of critical services like radio astronomy.

9.1.3. Other stakeholders advocated for a hybrid model that integrates ATU guidelines with tailored national provisions. For instance, stakeholders highlighted the importance of maintaining autonomy in spectrum allocation decisions while adopting blanket licencing models to streamline user terminal authorisation.

9.1.4. A subsect of the stakeholders argued for equitable regulatory obligations between satellite and terrestrial operators. These stakeholders emphasized that satellite operators should adhere to the same local ownership, B-BBEE, and social obligation requirements as mobile network operators to ensure a level playing field. Others advocated for the development of a long-term regulatory roadmap, regular stakeholder engagement forums, and annual progress reports to enhance transparency and adaptability.

9.1.5. Regarding the exclusion of certain satellite services in the inquiry, a majority of stakeholders agreed with the exclusion of non-commercial satellite services (e.g., radio navigation, amateur satellite, earth exploration, and space research services) from the licencing framework. These stakeholders argued that the exclusion simplifies regulatory complexity and

allows focused oversight of commercial FSS, MSS, and BSS operations.

9.1.6. A few stakeholders sought clarity on terminology and scope. Another stakeholder raised objections to classifying radio astronomy as a "satellite service," as it is a terrestrial activity under ITU definitions. Others highlighted inconsistencies in frequency band allocations (e.g., missing C-band entries) and urged alignment with the National Radio Frequency Plan 2021.

9.1.7. Some stakeholders opposed the exclusions, arguing that integrated regulation of all satellite services would improve interference coordination and foster innovation. Others made proposals to expand the framework to cover EO and scientific missions, particularly those benefiting educational institutions.

9.1.8. A few stakeholders emphasized the need to exempt TT&C services from licencing due to their critical, time-sensitive nature in emergency satellite support. These stakeholders advocated for streamlined, short-term authorizations akin to global practice.

9.1.9. Ultimately, the Authority has noted that there is a broad consensus on the value of harmonising with ATU principles, provided the framework retains flexibility to address South Africa’s specific needs. Stakeholders underscored the importance of transparency, balanced competition, and alignment with both regional and global standards. The Authority further noted that, while the exclusion of non-commercial services was broadly accepted, stakeholders highlighted the need for clear definitions, periodic reviews, and complementary frameworks to address technical and operational nuances.

9.2. **Types of licences/authorisations (where applicable) for Satellite Communications**

9.2.1. The Authority has carefully considered the submissions and proposals made by stakeholders regarding the aspect of types of licences/authorisations for satellite communications. The majority of stakeholders supported the approach of having separate licences for each segment of the satellite communication value chain, namely the Satellite Gateway Earth Station Licence, User-Terminal Network Licence, and the registration of Space Segment. This approach was seen as providing regulatory clarity and ensuring that each segment is overseen according to its specific operational needs.

9.2.2. Some stakeholders who supported the segmentation of licences, noted that it would promote specialisation, ease market entry, and improve spectrum management. Another stakeholder broadly supported the approach but suggested that the word "spectrum" be included in the licence name to clearly define the nature of the proposed licences.

9.2.3. Some stakeholders recommended that the Authority clearly specify that there should be no restrictions on a single entity applying for multiple licences across different categories, as many operators integrate their value chains. It was also proposed that the Authority adopt a three-tier licencing approach: Satellite Service Licence, Satellite Network Licence, and Satellite Spectrum Licence, aligning with global best practices. Others had diverging views and advocated for integrated and standalone licences, with provisions for exemptions and trial licences to facilitate technology testing.

9.2.4. However, some stakeholders expressed concerns that the proposed approach was vague and inconsistent with the ECA. They argued that the existing framework under the ECA already provides for satellite services, and no additional licences or

authorisations should be required. Other stakeholders also questioned the need for a new licencing framework, suggesting that the current ECA framework is sufficient.

9.2.5. Notably, some of the dissenting stakeholders emphasised the importance of ensuring a level playing field between satellite and terrestrial operators, suggesting that satellite operators should adhere to the same ECNS and ECS licencing framework under Chapter 3 of the ECA. They also disagreed with creating a separate licencing framework for GES, arguing that satellite operators should not be exempt from requiring ECNS/ECS licences if they wish to offer electronic communication services in South Africa.

9.2.6. Some stakeholders who supported the segmentation of licences, noted that it would promote specialisation, ease market entry, and improve spectrum management. Another stakeholder broadly supported the approach but suggested that the word "spectrum" be included in the licence name to clearly define the nature of the proposed licences.

9.2.7. A few stakeholders cautioned against introducing unnecessary registration procedures for foreign-registered Space Segments, which might hinder competition and contradict the Open Skies policy. Others endorsed the blanket licencing approach for user terminals, highlighting the need to minimize administrative burdens for operators.

9.2.8. Generally, while there is broad support for the segmentation of licences, there are concerns about the alignment of the proposed framework with the existing ECA and the potential for regulatory duplication. The Authority notes the need for further clarity on how the proposed licences will interact with the current ECA framework and the importance of ensuring a level playing field between satellite and terrestrial operators.

9.3. **Satellite Gateway Earth Stations**

9.3.1. The Authority has reviewed the submissions regarding the licencing of Satellite GES. The proposed duration of the GES licence was a key point of discussion, with stakeholders expressing differing views. The Authority proposed a five (5) year licence term with an option for renewal, which was supported by a few stakeholders. However, several stakeholders advocated for a ten (10) year to fifteen (15) year licence term, arguing that it would provide the necessary stability to foster investment and innovation and align with infrastructure investment cycles. One of the stakeholders controversially proposed a 40-year term to mirror mining infrastructure models.

9.3.2. Concerns were raised about the classification of GES under the PECN regime, arguing that it contradicts the ECA's definitions and regulations. One of the stakeholders disagreed with applying the PECN regime to GES licences, arguing that it would create regulatory inconsistencies and that GES operators providing commercial services should hold both ECNS and ECS licences. Another stakeholder emphasised that GES must be licensed under ECNS when used for commercial purposes, and the Authority's proposal to treat GES under the PECN regime was seen as inconsistent with the ECA.

9.3.3. Some stakeholders criticised the proposal for being vague and unclear, particularly regarding the details of the new licencing category for GES. They questioned the rationale behind imposing a fixed-term renewal if the licence is essentially exempt under PECN.

9.3.4. Overall, while there is support for the proposed GES licencing framework, there are significant concerns about the duration of the licence term and the classification of GES under the PECN regime. The Authority notes the need for further clarity on the

regulatory framework for GES and the importance of aligning it with the ECA.

9.4. **National and International Coordination**

9.4.1. The Authority has considered the submissions on national and international coordination, particularly regarding the levying of Spectrum Fees for GES. The majority of stakeholders supported the proposal to develop a regulatory framework for Spectrum Fees. However, some stakeholders opposed the proposal, arguing that it would create unfair competition and place terrestrial operators at a disadvantage.

9.4.2. Several stakeholders supported HTSF model for spectrum fee calculation, which introduces a discount for high throughput satellite systems. Two stakeholders proposed a formula that includes factors such as GEO factor, SHR factor, ASTER factor, and FREQ factor to achieve administrative incentive pricing. By contrast, one of the stakeholders opposed the proposed models, arguing that bandwidth (per MHz) should not be a factor in setting fees for GES, as it would result in exorbitantly high fees that could hinder growth and discourage competition.

9.4.3. Other stakeholder formulated their own methodologies, with some proposing that spectrum fee calculation be based on the aggregate amount of spectrum used nationally, irrespective of the frequency band, to incentivize efficient use of spectrum. Another proposed a fee structure based on the BNetzA model ($0.8 \times t \times B$), where "t" represents the number of years and "B" is the bandwidth in MHz.

9.4.4. There was also a call for the Authority to conduct a RIA and cost modelling exercise to explore the proposed spectrum fee calculation and other radio frequency spectrum licence fee methodologies.

9.4.5. In summary, while there is support for the development of a regulatory framework for Spectrum Fees, there are differing views on the appropriate methodology for calculating fees. The Authority notes the need for a balanced approach that ensures South Africa remains an attractive destination for satellite operators while promoting efficient use of spectrum.

9.5. **Satellite User Terminals**

9.5.1. The Authority has reviewed the submissions on Satellite User Terminals, particularly the proposal for blanket licencing with a fee for a set number of terminals under a new licence regime referred to as the Satellite User Station Network Licence. The majority of stakeholders supported the proposal, noting that it would reduce administrative and regulatory burdens and align with international best practices.

9.5.2. Some stakeholders recommended that the proposed licence regime be extended to include cross-border roaming principles for end-user terminals. Others proposed that individual licencing be retained for certain applications, such as corporate networks or private individuals seeking non-commercial services.

9.5.3. A few stakeholders opposed the proposed blanket licencing, arguing that the existing Type Approval framework under the ECA is sufficient. Others suggested that the Authority use the existing framework under Chapter 3 of the ECA to achieve blanket licencing, rather than creating a new licence type.

9.5.4. Concerns were expressed that the proposed licencing regime would duplicate the current framework and create unnecessary regulatory burdens. One stakeholder supported the development of the proposed licence regime, but sought clarity on who would be licensed under the Satellite User Station Network Licence and for which activities.

9.5.5. With regard to the recognition of ESIM licences issued by other countries, the majority of stakeholders supported the use of Regulation 37 of the Authority's Radio Regulations to recognize ESIM licences issued by other countries. This approach was seen as aligning with international best practices, reducing administrative and regulatory complexities, and promoting international and regional cooperation. Stakeholders noted that recognizing foreign ESIM licences would remove deployment barriers, encourage competition and investment, and enable reliable communication for international travellers and freight operators, thereby supporting economic activities such as tourism and trade.

9.5.6. However, some stakeholders cautioned that the recognition of foreign ESIM licences should be subject to strict conditions to ensure compliance with South African safety and technical standards. Several stakeholders recommended that the Authority establish clear guidelines outlining the requirements for recognition under Regulation 37, including compliance with South Africa's technical specifications, adherence to allocated frequency bands, and notification of operations to the Authority.

9.5.7. A few stakeholders also proposed that the recognition of ESIM licences should be limited to temporary operations, such as those on aircraft or maritime vessels in transit through South Africa. These stakeholders argued that this approach would prevent the circumvention of licencing requirements and ensure that ESIM operations do not interfere with local services.

9.5.8. The satellite user terminal fee proposals from some respondents are contained in Tables A2, A4, A5, and A9 of Appendix A. Intellspace and Paratus proposed ZAR values in Tables A2 and A5 respectively. In Table A4, Kenéis suggested adding a category that has no limitation on the number of terminals, but only for terminals that are considered to be non-voice, non-broadband

internet access terminals. SABC proposed a change in the ranges for the number of terminals in Table A9.

9.5.9. Generally, while there is broad support for blanket licencing, there are concerns about the potential for regulatory duplication and the need for clarity on how the proposed licence regime will interact with the existing ECA framework. There is also a wide range of divergent views on how the licencing fees should be levied. Further, while there was strong support for the recognition of ESIM licences issued by other countries, stakeholders emphasised the need for safeguards to protect national interests and ensure compliance with South African regulations. The Authority notes the importance of ensuring that the proposed framework promotes competition and reduces barriers to entry while maintaining regulatory oversight and protecting national interests.

9.6. **Space Segment Authorisation**

9.6.1. The Authority has considered the submissions on Space Segment Authorisation, particularly the proposal for an Authorised List of Space Stations registration regime. The majority of stakeholders supported the proposal, noting that it would promote a streamlined and efficient approach.

9.6.2. Some stakeholders emphasised that the registration process should be simple and administrative, with no fee required, with one recommending renaming the "Authorised List of Space Stations" to the "Registered List of Space Stations" to ensure clarity.

9.6.3. A few stakeholders opposed the proposed registration regime, arguing that it would be redundant and duplicative, as satellite operators are already required to coordinate with the ITU and secure authorisation from their home countries. One stakeholder also opposed the proposal, noting that it would

permit transmission over South African territory without direct licencing of a local entity, raising national security concerns.

9.6.4. Concerns were raised about the impact of RICA provisions on the proposed registration regime. Some stakeholders supported the approach that the proposed registration regime should not be subject to compliance with RICA, unless the Space Station operator intends to provide retail services directly to end-users. A number of the stakeholders opposed the application of RICA provisions to any contemplated framework, citing the fact that the administration of RICA does not fall within the purview of the Authority as a basis for this opposition.

9.6.5. Regarding the protection of RQZs, a majority of stakeholders supported the establishment of strict controls on both satellite and terrestrial emissions within RQZs to protect critical astronomy installations from Harmful Interference.

9.6.6. Some stakeholders proposed several measures to mitigate interference within RQZs, including the establishment of geographic protection zones around major observatories, the enforcement of strict power output limits and out-of-band emission standards, and the allocation of specific frequency bands exclusively for radio astronomy, the implementation of directional controls, the use of time and spectrum sharing mechanisms, and real-time interference monitoring and data-sharing between regulatory authorities and astronomy stakeholders to detect and address Harmful Interference promptly. Many stakeholders also recommended mandatory coordination between satellite operators and national regulatory authorities, observatories, and international bodies, such as the ITU, to ensure that satellite transmissions do not interfere with radio astronomy observations.

9.6.7. A number of stakeholders stressed the need for a balanced approach in implementing protective measures for RQZs, such

that the safeguarding of the interests of radio astronomy resources should be weighed up against the need to facilitate satellite connectivity to underserved areas and compliance obligations insofar as international standards are concerned. Others further recommended that the Authority adopt a regulatory framework that aligns with ITU Radio Regulations.

9.6.8. Overall, while there is support for the proposed registration regime, there are significant concerns about its redundancy. The Authority notes the need for further clarity on how the proposed regime will interact with existing regulatory frameworks, including RICA. Additionally, the Authority notes that while there was broad support for the protection of RQZs, there is a need for a balanced approach that ensures the protection of radio astronomy resources and alignment with international standards, while still allowing satellite operators to provide connectivity to underserved areas.

9.7. **The Satellite rollout obligations**

9.7.1. The Authority has reviewed the submissions on Satellite Rollout Obligations, particularly the role satellite operators can play in ensuring broadband connectivity reaches unserved and underserved areas. The majority of stakeholders supported the use of satellite services to bridge the coverage gap, noting their cost-effectiveness and ability to provide connectivity in rural areas.

9.7.2. Some stakeholders argued that satellite operators should not be subject to rollout obligations, as they do not hold a licence to provide retail services to end-users in South Africa. Others proposed that the Authority first conduct a formal review of the universal service and access framework before considering rollout obligations.

9.7.3. One stakeholder proposed that satellite operators be considered as supplementary infrastructure providers to local licensees, with guardrails established to ensure that satellite services integrate into terrestrial infrastructure without harming existing services. Another suggested that no specific regulatory solution is required on the satellite side, other than ensuring that Spectrum Fees for user terminals and gateways are affordable.

9.7.4. Several stakeholders proposed that satellite operators be incentivized through tax breaks, grants, or reduced Spectrum Fees to provide connectivity to underserved areas. They further suggested that operators partner with locally licensed telecommunications operators to increase the variety of services available to end-users.

9.7.5. In summary, while there is broad support for the use of satellite services to address connectivity gaps, there are differing views on the role of rollout obligations. The Authority notes the importance of ensuring that satellite operators are incentivized to provide connectivity to underserved areas while maintaining a level playing field with terrestrial operators.

9.8. **Other submissions**

9.8.1. The Authority has reviewed all the other submissions that have been made by the various stakeholders and has taken them into account.

9.8.2. Generally, the Authority has noted that, while the adoption of a satellite services licencing framework was broadly endorsed, there is a need for regulatory agility, competitive neutrality, and incentives to address connectivity gaps without imposing undue barriers on operators.

10. CONCLUSION

10.1. The Authority has carefully considered the extensive submissions and proposals made by stakeholders regarding the contemplated licencing framework for satellite services. The feedback reflects a broad consensus on the importance of developing a clear, transparent, and flexible regulatory framework that aligns with international best practices while addressing the unique needs of South Africa.

10.2. Stakeholders emphasised the need for regulatory certainty, harmonisation with global standards, and a balanced approach that promotes competition, investment, and universal access to communication services. However, there are significant concerns about the potential for regulatory duplication, the alignment of the proposed framework with the existing ECA, and the need for further clarity on key aspects such as the licencing of Satellite GES and the registration of Space Segments.

10.3. The Authority notes the importance of addressing these concerns to ensure that whatever process it engages in fosters innovation, attracts investment, and bridges the digital divide in South Africa.

10.4. With the benefit of all the written and oral submissions from all the stakeholders who participated in this inquiry, the Authority will contemplate and decide upon an appropriate approach. The Authority will also continue to engage with stakeholders in the approach it decides to take and ensure that its approach strikes a balance between the needs of all parties and the applicable legal precepts, while promoting the growth of the satellite industry in South Africa.

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APPENDIX A: TABLES

***In Re*:**

FINDINGS DOCUMENT ON PROPOSED NEW LICENSING FRAMEWORK FOR SATELLITE SERVICES INQUIRY

TABLE OF CONTENTS

11. TABLE A1: GLOBALSTAR PROPOSED TABLE OF FREQUENCIES TO BE INCLUDED BY ICASA

Service Category	Below 1 GHz	L-Band	S-Band	C-Band	Ku-Band	Ka-Band	Q/V Band
Non-voice NGSO MSS	137.00 – 138.00 MHz						
	148.00 – 150.05 MHz						
	399.90 – 400.05 MHz						
	400.15 –						

	401.00 MHz						
Voice MSS & Narrowband MSS		1525.00 – 1559.00 MHz					
		1626.50 – 1660.50 MHz					
		1610.00 – 1626.00 MHz					
			2483.50 – 2500.00 MHz				
2 GHz MSS			2000.00 – 2020.00 MHz				
			2180.00 – 2200.00 MHz				
FSS NGSO Feeder Links for MSS				5091.00 – 5250.00 MHz			
				6875.00 – 7055.00 MHz			
GSO and NGSO FSS					10.70 – 12.20 GHz	18.30 – 18.80 GHz	40.00 – 42.00 GHz
					14.00 – 14.50 GHz	19.70 – 20.20 GHz	47.20 – 51.40 GHz

						27.50 – 30.00 GHz	
						19.70 – 20.20 GHz	
						29.50 – 30.00 GHz	

12. TABLE A2: INTELLSPACE PROPOSED FEE STRUCTURE MODEL FOR SATELLITE USER STATION NETWORK LICENSE

NUMBER OF TERMINALS (N)	PROPOSED FEE (ZAR)
$0 < N \leq 100$	5,000
$101 \leq N \leq 1{,}000$	10,000
$1{,}001 \leq N \leq 10{,}000$	25,000
$N > 10{,}000$	50,000

13. TABLE A3: KINÉIS PROPOSED SPECTRUM FEE CALCULATION MODEL

Item	Radio Frequency band	Amount in Rands per MHz	
		Simplex	Duplex
A	F<1 GHz	1000	2000
B	1GHz<= F <=3.3 GHz	250	500
C	3.3GHz<= F <=7.075 GHz	100	200
D	7.075GHz<= F <=17.3 GHz	75	150
E	17.3GHz<= F <=51.4 GHz	50	100
F	F <=51.4 GHz	25	50

CONTINUES ON PAGE 130 OF BOOK 2

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14. TABLE A4: KINÉIS PROPOSED FEE STRUCTURE MODEL FOR SATELLITE USER STATION NETWORK LICENSE

Services	Number of terminals	Fee per category of user terminal in South Africa (Rands)
Technology neutral	0<= n <= 100	A
Technology Neutral	100<= n <= 1000	B
Technology Neutral	1000<= n <= 10000	C
Technology Neutral	n > 10000	D
Restricted to non-voice, non-Broadband Internet access	Not limited	E*

15. TABLE A5 PARATUS PROPOSED FEE STRUCTURE MODEL FOR SATELLITE USER STATION NETWORK LICENSE

Item	Number of terminals	Fee per user terminal in Rands
B	0 <n ≤100	500
C	100 <n ≥1000	200
D	1000<n ≥ 10000	150
E	> 10000	100

16. TABLE A6 : SATELIOT PROPOSED TABLE OF FREQUENCIES TO BE INCLUDED BY ICASA

NTN Satellite Band	Uplink (UL) - UE Transmit	Downlink (DL) - UE Receive	Duplex mode	Space Duplex
255	1626.5 Mhz – 1660.5 Mhz	1525 Mhz – 1559 Mhz	FDD	101.5 Mhz
256	1980 Mhz – 2010 Mhz	2170 Mhz – 2200 Mhz	FDD	190 Mhz

17. TABLE A7: SKYLO TABLE OF OPERATIONAL FREQUENCIES

WG'Tz	WG'Vz
3747/377; "OJ |	38480/38820"OJ |
4392/4422"OJ |	3; : 2/4232"OJ |
43: 2/4422"OJ |	4222/4242"OJ |

18. TABLE A8: SKYLO TABLE OF FUTURE OPERATIONAL FREQUENCIES

UE Rx	UE Tx
2120-2160 MHz	2010-2025 MHz
2160-2170 MHz	
1518-1525 MHz	1668-1675 MHz

19. TABLE A9: SABC PROPOSED FEE STRUCTURE MODEL FOR SATELLITE USER STATION NETWORK LICENSE

Number of terminals (n)	**Fee per category of user terminal in ZAR**
0<n≤1 000	A
1 000<n≥10 000	B
10 000<n≥100 000	C
>100 000	D