

TO:

Mr. Mandla Mchunu
Independent Communications Authority of South Africa
350 Witch-Hazel Avenue
Eco Point Office Park Eco Park,
Centurion South Africa

By Email: satlicensing@icasa.org.za

Our ref: SpaceOps/Michael Kabai

Your ref:

02 December 2024

**RE: WRITTEN REPRESENTATIONS TO ICASA ON THE PROPOSED NEW LICENSING
FRAMEWORK FOR SATELLITE SERVICES**

Dear Mr Mchunu

1. We acknowledge receipt of your letter of 27 November 2024 in response to our request for confidentiality, the contents of which we have noted.
2. Attached please find the redacted version of SANSA's written submissions.
3. When you have an opportunity to do so, please advise us when we can expect ICASA's decision on SANSA's exclusion request, as set out in paragraph 2.1 of SANSA's written submissions. In this regard, we trust that ICASA will still consider what SANSA set out in the now redacted paragraph 3.14 of our original submission, when making its decision.

Kind regards



Michael Kabai

Manager: Legal and Compliance Services

SANSA

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**SANSA's WRITTEN REPRESENTATIONS TO ICASA ON THE PROPOSED NEW
LICENSING FRAMEWORK FOR SATELLITE SERVICES**

1. **AD QUESTION 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?

- 1.1 We are in general agreement with the proposed policy principles.

2. **AD QUESTION 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.

- 2.1 Yes, we agree with all services listed under exclusions and **request that 'Space Operations Services "Telemetry, Tracking & Command (TT&C)"** be included to the list of exclusions. The request extends exclusively to systems that operate as a TT&C ground segment and not to any combined TT&C and Gateway Earth Station systems.

- 2.2 The term Space Operations service is defined in the ITU-R Radio regulations Vol 1, Art, S3, 1.23 under Radio services as “a *radiocommunication service* concerned exclusively with the operation of *spacecraft*, in particular *space tracking*, *space telemetry* and *space telecommand*”.
- 2.3 Space Operations service also features as a service under the ITU-R Study group 7 which include Space Research Service (SRS), Earth Exploration Satellite Service (EESS), Meteorological Satellite Service (MSS) including links used in the inter-satellite service.
- 2.4 “TT&C” is defined under the list of “Interpretations” found in the ICASA notice concerned.
- 2.5 The SANSA Space Operations programme holds several RF licences for the provision of specialised TT&C services and that share portions of the frequency band allocations that fall within the scope of the inquiry.
- 2.6 The SANSA Space Operations programme use the frequency bands referred to in 2.5 above exclusively for the provision of TT&C services and not a combined GES and TT&C services. The shared frequency bands and associated services are expressed (for illustrative purposes only) in the table below:

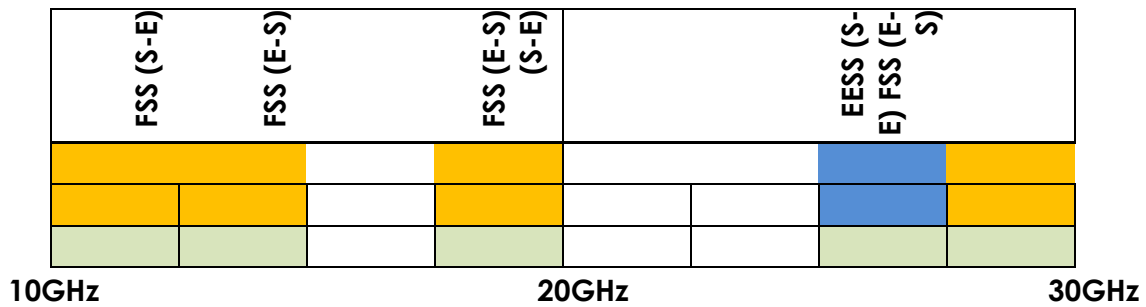


Table 1: FSS and TT&C shared frequency bands (10GHz thru 31.5GHz)

Legend

- Earth Exploration Satellite Services
- Fixed Satellite services
- TT&C services
- (S-E)** Space-to-Earth
- (E-S)** Earth-to-Space

2.7 TT&C Earth-Stations provide non-satellite specific services, using discrete frequencies and narrow channel widths across a wide spectrum band, depending on which satellite or satellite network the TT&C services are being provided to.

2.8 A TT&C Earth Station may be used on a multitude of satellites belonging to one or more satellite operators and is thus not necessarily dedicated to a specific satellite. It can typically operate the narrow bandwidth TT&C carriers within a very large segment of bandwidth (several GHz for high bands).

3. RATIONALE FOR REQUEST TO ADD SPACE OPERATIONS SERVICE 'TT&C' TO LIST OF EXCLUSIONS

3.1 **TT&C SERVICE OFFERINGS:** The type of services offered in the frequency bands under the "Inquiry" by Space Operations includes Transfer-orbit support (TOS), Launch and Early-orbit Phase (LEOP) support, In-Orbit Testing (IOT), Emergency support and housekeeping or life-cycle support.

- 3.2 Provision of **Emergency TT&C support** operations for a satellite or satellite constellation currently fall within the suite of offerings of the Space Operations programme. The nature of the support is that a partner space agency, stakeholder or customer will issue a request for Emergency TT&C support for an unforeseen satellite anomaly or emergency at very short notice. It will in turn require that the station configure and ready itself usually within tens of minutes and respond to the request. It therefore requires a high degree of preparedness or readiness, responsiveness as well as flexibility by the ground station.
- 3.3 Some Emergency support arrangements flow from contractual obligations like frame agreements currently in place between SANSA and some space agencies or satellite operators. By imposing new or additional regulations or rules like registration or authorisation requirements, it will invariably hinder the Space Operations' ability to be responsive and deliver the support as is expected.
- 3.4 Emergency support is presently contracted by Space Operations through inter-agency agreements as with the French Space agency (aka CNES), Emirati Space centre, Indian Space Research Organisation (ISRO) as well as through several commercial agreements. SANSA are and remain fully committed to expanding its international collaborations and partnerships and foresee similar agreements being entered into with other Space agency partners in the future within the framework of broader inter-agency agreement(s).
- 3.5 **USE OF RF BLOCK LICENCES** facilitates the process of providing support easily, promptly and without any formal administrative

requirements. The process has contributed to the ground-station to be considered as a “provider of choice” in the country and region.

3.5.1 A study by the Japan Aerospace Exploration Agency (JAXA) of RF licensing procedures at various space agencies was surveyed and tracking stations capable of providing prompt TT&C support were identified. The study revealed that stations with the shortest lead and processing times for acquiring the requisite RF licenses were preferred and is considered in alignment with Industry best practice. The study recommends similar, simplified, standardized processes be adopted across the satellite TT&C industry.

3.6 **SUPPORT DURATION:** Generally, TT&C support campaigns are short and limited in duration. The support can range from a few minutes of a day up to several days. An emergency support operation could be of the order of some tens of minutes whilst a Transfer-orbit Support (TOS) operation will typically commence shortly after a launch and station release is issued +/- 2 weeks later.

3.7 **ANTENNA LOCATIONS AND SPECIFICATIONS:** Space Operations' TT&C antenna systems are licensed and the respective technical specifications, baseline satellite station network particulars and geographic locations are known to ICASA.

3.8 **USE OF “BLANKET REGULATIONS”** TT&C as an application of the Space Operations Service is specialised, so care and diligence should be exercised in the application of blanket regulations. The same should be relevant to any Space Science, Radio

Astronomy, Radio Navigation Satellite Service, Amateur Radio applications or services.

3.9 **SANSA-NASA PARTNERSHIP** - The SANSA-NASA partnership for the establishment of the Matjiesfontein (MTJ) station is now official. The station will initially host an 18m LEGS (Lunar Exploration Ground Station) antenna for NASA and is scheduled to commence operations by mid-2027. The scope of the agreement includes site expansion to host a NASA Deep space station afterward.

3.10 For full-fledged operations of future lunar missions, a timely and simplified RF licensing procedure is required to help facilitate smooth joint operations within the multifaceted organizational structures and operated with a complex communications network system.

3.11 Manned lunar exploration missions involve more participating nations and the private sector, and such missions are developing complex communication systems consisting of a lot of communication nodes of participating nations and private sectors.

3.12 **FINANCIAL IMPLICATIONS**

Should Space Operations' request for "exclusion" not be acceded to which will result in new regulatory requirements being introduced for TT&C services. This will adversely affect the SANSA Space Operation's business competitiveness and ability to attract or retain customers, stakeholders we provide Emergency services that may result in irreversible losses of revenue.

Note: TT&C spectrum licence fees - A typical TT&C operation utilises approximately 1 MHz or less of Uplink/Downlink BW per given assignment. The current ICASA billing practice is that the TT&C RF license fees are calculated based on the maximum carrier bandwidth envisaged for the TT&C operations, as opposed to the total bandwidth capability of the TT&C Earth Station. It is however subject to Space Operations articulating this clearly and unambiguously in the cover letter for new RF licence applications. It is necessary that this be maintained.

[The financial implications of the new licensing framework for Satellite Services are dependent on the manner in which ICASA ultimately decides to implement the framework.]

3.13 **LEGAL IMPLICATIONS:** There are presently no known or envisaged legal implications to the proposed new licensing framework for Satellite Services since 'TT&C services' do not fall within the scope of this Inquiry.

4. **AD QUESTION 3**

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.

4.1 Yes, it is considered a rational and reasonable approach to have separate license authorizations for each segment of the satellite communications chain. Whilst the Space Segment

registration (SSR) seeks to cover a satellite network, distinct license categories will provide for the GES and UT of the respective ground segments. Regulations should furthermore provide for whether a GES is located inside the country or not and if not, then only a UT license should be required.

- 4.2 The Authority is also proposing to license each satellite network segment separately within a proposed Space Segment registration (SSR) process.

5. **AD QUESTION 9**

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.

- 5.1 There exists a multitude of technical advantages pertaining to the provision or utilisation of satellite networks for backhaul of cellular or fixed wireless services which has been proven over time. Technological advances in the satellite, mobile and fixed wireless sectors are more than able to meet the demand to providing reliable, ubiquitous, low latency services to remote, unserved or underserved areas.

- 5.2 The ICASA could consider a collaborative programme involving government and the private sector to jointly invest in procuring

User Terminals, Community Gateways and deliver to provide broadband connectivity services in remote, unserved or underserved locations economically.

5.3 A new licencing framework would establish the framework regulations for private sector participation. The framework could potentially involve an arrangement where the costs associated with establishment of a community GES, UT's be offset by offering service or spectrum licence fee concessions or exemptions for services associated with it.

5.4 The regulatory authority should examine which constraints or barriers to entry to the RSA market access exist and are viable or sustainable in serving or delivering on our National developmental agenda goals and which are not. This is particularly applicable with NGSO broadband Satellite Operators for providing services in South Africa, explore the existing device ecosystem in such underserved areas which is a critical factor to adoption and the associated feasibility for MNO's.