



Consultative Document

on the

**Framework for the Authorisation
of Satellite Services in Trinidad and
Tobago**

(Version 0.1)

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Abbreviations

3GPP	3 rd Generation Partnership Project
ANATEL	Agência Nacional de Telecomunicações
API	Advance Publication Information
ATC	ancillary terrestrial component
BGAN	Broadband Global Area Network
BLE	Bluetooth Low Energy
BR IFIC	Radiocommunication Bureau's International Frequency Information Circular
BSS	broadcasting satellite service
CDEMA	Caribbean Disaster Emergency Management Agency
CONUS	contiguous United States
CR/C	Coordination Request
C-TVRO	commercial TV receive-only
D2D	direct-to-device
DFTN	domestic fixed telecommunications network
DMTN	domestic mobile telecommunications network
ELT	emergency locator transmitter
EOL	end of life
EPIRB	emergency position-indicating radio beacon
ESIM	earth station in motion
EW4ALL	Early Warnings for All
FCC	Federal Communications Commission
FSS	fixed-satellite service
GIA	geographically independent areas
GMDSS	Global Maritime Distress and Safety System
GSO	geostationary orbit
GSOA	Global Satellite Operators Association
GSMA	Global System for Mobile Communications Association
ICAO	International Civil Aviation Organization
INTN	international telecommunications network
IoT	Internet of things
ISED	Innovation, Science and Economic Development Canada
ITU	International Telecommunication Union
MIFR	Master International Frequency Register
MNO	mobile network operator
MSD	Maritime Services Division
MSS	mobile satellite service
NC-TVRO	non-commercial TV receive-only
NECP	National Emergency Communications Plan

NGSO	non-geostationary orbit
NTN	non-terrestrial networks
ODPM	Office of Disaster Preparedness and Management
PCS	personal communication service
PES	permanent earth station
PLB	personal locator beacon
RF	radio frequency
RR	Radio Regulations
SCS	supplemental coverage from space
SIDS	small island developing states
SOLAS	International Convention for the Safety of Life at Sea
TATT	Telecommunications Authority of Trinidad and Tobago
TEMA	Tobago Emergency Management Agency
TT&C	telemetry, tracking and command
TTCAA	Trinidad and Tobago Civil Aviation Authority
TTFAT	Trinidad and Tobago Frequency Allocation Table
TVRO	TV receive-only
UN	United Nations
UNOOSA	United Nations Office of Outer Space Affairs
URCA	Utilities Regulation and Competition Authority
USF	Universal Service Fund
VSAT	very small aperture terminal

Definitions

blanket licence: a licence for multiple earth stations in the FSS or MSS, or for SDARS terrestrial repeaters, that may be operated anywhere within a geographic area specified in the license or for multiple space stations in non-geostationary orbit (FCC 2026)

broadcasting-satellite service: a radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public (ITU 2024)

class licence: an authorisation which allows persons to use specific radiocommunication devices within specific technical and operational parameters, and which would generally apply to low-powered mass-market consumer devices (TATT 2022)

earth station: a station located either on the Earth's surface or within the major portion of the Earth's atmosphere and intended for communication:

- with one or more space stations, or
- with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space (ITU 2024)

fixed-satellite service: 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 services (ITU 2024)

geostationary 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 which remains approximately fixed relative to the Earth (ITU 2024)

interference: the effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy (ITU 2024)

mobile-satellite service: 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 by means of one or more space stations (ITU 2024)

satellite: a body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body (ITU 2024)

satellite link: a radio link between a transmitting earth station and a receiving earth station through one satellite. A satellite link comprises one up-link and one down-link (ITU 2024)

satellite network: a satellite system or a part of a satellite system, consisting of only one satellite and the cooperating earth stations (ITU 2024)

space operation service: a radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand (ITU 2024)

space station: a station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere (ITU 2024)

space telemetry: the use of telemetry for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of the spacecraft (ITU 2024)

station: one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service, or the radio astronomy service (ITU 2024)

telemetry: the use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument (ITU 2024)

terrestrial radiocommunication: any radiocommunication other than space radiocommunication or radio astronomy (ITU 2024)

1 Introduction

1.1 Background

The Telecommunications Authority of Trinidad and Tobago (the Authority) is mandated by the Telecommunications Act, Chap. 47:31 (the Act), in section 18(1)(i), to:

- plan, supervise, regulate and manage the use of the radio frequency spectrum, including—
 - (i) the licensing and registration of radiofrequencies and call signs to be used by all stations operating in Trinidad and Tobago or on any ship, aircraft, or other vessel or satellite registered in Trinidad and Tobago.

The Authority executes this mandate through the development of authorisation frameworks and spectrum plans that prescribe rules and terms and conditions for the orderly utilisation of radio frequency spectrum. Since the proclamation of the Act, the Authority has authorised the use of radio frequency spectrum by earth stations operating in the broadcasting satellite services (BSS), fixed-satellite services (FSS) and mobile satellite services (MSS) bands. The main instruments of authorisation are granted in the form of station licences for very small aperture terminals (VSATs), earth stations, portable satellite communication systems and commercial TV receive-only (TVRO) stations. Over the years, the satellite industry has seen tremendous growth with the emergence of new geostationary orbit (GSO) and non-geostationary orbit (NGSO) constellations and innovative applications, prompting the need for a structured approach to authorising new systems and services. One such new application is the provision of public satellite broadband services, which the Authority has authorised using a singular point-to-multipoint station licence incorporating both space and earth stations.

Satellite communications provide services in remote and rural areas where terrestrial radiocommunication infrastructure rollout would be costly, playing a significant role in bridging the digital divide. These networks support the Authority's universal service obligations to promote access to telecommunications services for all in Trinidad and Tobago. Additionally, as Trinidad and Tobago is among the small island developing states (SIDS) and therefore vulnerable to natural disasters intensified by climate change, satellite communications provide a critical advantage by maintaining connectivity when terrestrial infrastructure is affected during such events.

With the rapid evolution of satellite communications technologies and their capability for widespread coverage and resilience to natural disasters, it is imperative for a regulatory framework to be developed for the licensing and authorisation of such services on a national level.

Through this *Authorisation Framework for the Accommodation of Satellite Services in Trinidad and Tobago* (the Framework), the Authority will facilitate the operations of new and emerging

satellite stations in the BSS, FSS and MSS bands, in an effective manner that meets the needs of the general public.

1.2 Purpose

The purpose of this Framework is to establish a clear regulatory regime for the authorisation of satellite systems and services in Trinidad and Tobago.

1.3 Objectives

This Framework:

1. outlines the regulatory instrument(s) for the authorisation of satellite services and stations in Trinidad and Tobago.
2. outlines the regulatory instruments for the accommodation of new emerging satellite technologies.
3. aligns Trinidad and Tobago's approach to the authorisation of satellite services with international regulations, recommendations and best practices.
4. describes an effective mechanism for the accommodation and authorisation of satellite emergency communication stations, as well as universal access to public services in underserved communities in Trinidad and Tobago.

1.4 Scope

This Framework defines the appropriate policies, rules and regulations for the authorisation of satellite services and stations in Trinidad and Tobago. It provides guidance to satellite operators and service providers interested in the provision of satellite radiocommunications systems utilising orbiting satellites to relay radio frequency (RF) signals across vast distances, supplementing terrestrial infrastructure.

This document forms part of the Authority's legislative framework and serves to allow the use of the RF spectrum for the provision of fixed, mobile and broadcasting satellite services without causing harmful interference to adjacent services. It does not address the provision of public mobile telecommunications services, terrestrial fixed services nor the specific fees associated with public and private radiocommunications services.

1.5 Relevant Legislation

The following sections of the Act inform this Framework:

Section 18. (1)(i):

Subject to the provisions of this Act, the Authority may exercise such functions and powers as are imposed on it by this Act and in particular—

- (i) plan, supervise, regulate and manage the use of the radio frequency spectrum, including – (i) the licensing and registration of radio frequencies and call signs to be used by all stations operating in Trinidad and Tobago or on any ship, aircraft, or other vessel or satellite registered in Trinidad and Tobago; (ii) the allocation, assignment and reallocation or reassignment of frequency bands where necessary.

Section 21. (1):

No person shall operate a public telecommunications network, provide a public telecommunications service or broadcasting service, without a concession granted by the Minister.

Section 32:

Any terminal equipment may be connected to a public telecommunications network where the Authority, after consultation with the concessionaire, has certified such terminal equipment as—

- (a) being safe for the user;
- (b) being in compliance with international standards, and environmental health and safety standards including standards for electromagnetic radiation and emissions;
- (c) meeting requirements of electromagnetic compatibility if specified;
- (d) not posing a risk of harm to the network
- (e) effectively utilising the electromagnetic spectrum and preventing interference between satellite and terrestrial-based systems and between terrestrial systems; and
- (f) being compatible with the network.

Section 36. (1):

Subject to subsection (2), no person shall—

- (a) establish, operate or use a radio-communication service;
- (b) install, operate or use any radio-transmitting equipment;
- (c) or establish, operate or use any radio communication service on board any ship, aircraft, or other vessel in the territorial waters or territorial airspace of Trinidad and Tobago, other than a ship of war or a military aircraft or satellite registered in Trinidad and Tobago, without a licence granted by the Authority.

Section 38:

Notwithstanding section 36(1), a ship or aircraft being a ship or aircraft not registered in Trinidad and Tobago while operating in the territorial waters or airspace of Trinidad and Tobago, is not required to have authorisation from the Authority for the establishment, operation or use of any telecommunications network or service or radio-communication equipment as long as the service or equipment is operated or used under a valid authority or licence issued elsewhere than in Trinidad and Tobago in accordance with international agreements relating to telecommunications or radio-communication in respect of ships or aircraft.

Section 40:

Radio-communication equipment shall not be operated in a manner likely to cause harmful interference to any other means of telecommunication.

Section 41. (1):

The Authority shall regulate the use of the spectrum in order to promote the economic and orderly utilisation of frequencies for the operation of all means of telecommunications and to recover the cost incurred in the management of the spectrum.

1.6 Other Relevant Documentation

Other relevant policies, plans and regulations, currently in effect, to be read along with this document, include:

- i. *Spectrum Management Framework*
- ii. *Authorisation Framework for the Telecommunications and Broadcasting Sector of Trinidad and Tobago*
- iii. *The Trinidad and Tobago Frequency Allocation Table (8.3 kHz–3000 GHz) (TTFAT)*
- iv. *Equipment Standardisation and Certification Framework for the Telecommunications and Broadcasting Sectors*
- v. *Spectrum Plan for the Accommodation of Non-Terrestrial Networks in Mobile Satellite Service Bands*
- vi. *Framework for the Authorisation of Standalone Ancillary Terrestrial Component (ATC) Systems*
- vii. *Procedures for Consultation in the Telecommunications Sector of Trinidad and Tobago (TATT 2021)*
- viii. *Telecommunications (Fees) Regulations, 2006*
- ix. *Cybersecurity Framework for Public Telecommunications Networks and Broadcasting Facilities*

These documents can be found on the Authority's website, www.tatt.org.tt.

1.7 Review Cycle

This Framework will be reviewed at least once every four years to meet the needs of the satellite industry and align with international best practices but may be reviewed at any time at the discretion of the Authority based on proposals for modification submitted by stakeholders or members of the public. The Authority will review the document and, if necessary, make modifications, in consultation with stakeholders, to ensure that the Framework remains guided by appropriate policy guidelines and objectives.

Questions or concerns regarding the maintenance of this Framework may be directed to the Authority via e-mail at consultation@tatt.org.tt.

1.8 The Consultation Process

In accordance with its *Procedures for Consultation in the Telecommunications and Broadcasting Sectors of Trinidad and Tobago (TATT 2021)*, the Authority will seek the views of stakeholders and the general public on the rules proposed in this Framework. The Framework will undergo two rounds of public consultation. Each round shall be at least four weeks in duration. Comments from each round will be reviewed and those determined to be relevant and useful to the development of the local telecommunications sector will be incorporated.

2 Current Satellite Authorisation Regime for Trinidad and Tobago

2.1 Satellite Coordination

International satellite coordination is essential for preventing harmful interference and ensuring the efficient, equitable and regulated use of spectrum and orbital resources among both GSO and NGSO satellite systems. The Authority is committed to actively participating in coordination activities as required in accordance with the Radio Regulations (RR) Appendix 30B Article 6 Nos. 6.5 and 6.6. These activities are initiated through coordination requests published in the Radiocommunication Bureau's International Frequency Information Circular (BR IFIC).

2.2 Landing Rights

Satellite operators currently do not require landing rights for their signals to be received by earth stations within Trinidad and Tobago. Communication with satellite space stations is permitted, provided that the associated earth stations are licensed in accordance with the Authority's current authorisation regime.

2.3 Operator and Service Provider Authorisation

Satellite operators or service providers who wish to own a public network or provide a public service within Trinidad and Tobago will require a concession, as per section 21 of the Act. Table 1 shows the five types of concessions granted by the Authority.

Table 1. Concession types

Type	Name	Category	Authorisation
1	Network-only concession	Network-based	Own or operate a public telecommunications network without providing public telecommunications or broadcasting services
2	Network-service concession	Network-based	Own or operate a public telecommunications network over which public telecommunications services are provided
3	Virtual network-service concession	Service-based	Provide public telecommunications services without an authorisation to own and/or operate a physical public telecommunications network, in a manner that is transparent to the end user. This category is applicable to entities that offer multiple service types, such as data, voice, video or

Type	Name	Category	Authorisation
			image services, using a single transmission medium obtained from an authorised network operator
4	Telecommunications service concession	Service-based	Provide a specific public telecommunications service(s) without an authorisation to own and/ or operate a telecommunications network
5	Broadcasting service concession	Service-based	Provide a broadcasting service without an authorisation to operate a telecommunications network

Private satellite services do not require a concession but relevant licence(s) are required to operate transmitting radiocommunications equipment for service provision.

Three types of networks are considered for the granting of a concession in accordance with the Act:

1. Domestic fixed telecommunications network (DFTN) - any network within Trinidad and Tobago that comprises fixed-location end user equipment.
2. Domestic mobile telecommunications network (DMTN) - any network within Trinidad and Tobago that comprises an end user whose position is not limited to a stationary position at any point in time.
3. International telecommunications network (INTN) - any network that enables the provision of international telecommunications services between Trinidad and Tobago and destinations outside its geographic borders through an international gateway.

A domestic concession is required for the operation of a public satellite network with a gateway located within Trinidad and Tobago. A Type 1 INTN concession is required to operate a public satellite network where there is no gateway locally.

The Authority has published its *Framework for the Authorisation of Standalone Ancillary Terrestrial Component (ATC) Systems*, which authorises the use of ATC systems in the 2.4 GHz S-band in Trinidad and Tobago to support private networks and services. This Framework facilitates the enhancement of services by applicable satellite operators. Additionally, the Authority, in its *Cybersecurity Framework for Public Telecommunications Networks and Broadcasting Facilities* (the Cybersecurity Framework), outlines requirements and recommendations for operators of public telecommunications networks and broadcasting facilities to protect consumers and their information from cyber threats. Satellite operators and service providers who provide public networks and services are expected to adhere to the Cybersecurity Framework.

2.4 Licensing

A licence is required for the operation of any transmitting radiocommunications equipment for both public and private services. Three types of licences are granted by the Authority for the use of any radio transmitting equipment or for the operation of any radiocommunications service:

1. Spectrum licence – allows for the operation of radiocommunication systems within a specified frequency band on a technology-neutral basis, with flexibility in the range of services provided.
2. Station licence – allows for the operation of a designated station within specific technical operating parameters, such as antenna characteristics, transmitted power, polarisation, bandwidth and modulation techniques.
3. Class licence – allows for the use of specific radiocommunication devices with specific technical and operational parameters. This is generally applicable to low-powered mass-market consumer devices.

Currently, a fee is charged on the uplink for satellite earth station licences based on bandwidth usage. Commercial TVROs are charged on their downlink bandwidth usage. Table 2 shows the licences currently granted for the provision of satellite services in Trinidad and Tobago, in keeping with the *Telecommunications (Fees) Regulations, 2006* (the Fees Regulations).

Table 2. Licences applicable to satellite services granted by the Authority

Licence Grant	Applicable Satellite Service/ Station Type
Point-to-multipoint station licence	Point-to-multipoint satellite network (gateway to user terminals via satellite)
Earth station station licence	Gateways, telemetry, telecommand and control ground station
VSAT – telecommunications station licence	VSATs for enterprise and corporate networks; VSATs for broadband provision, streaming
VSAT – Control/telemetry station licence	VSATs used in the energy sector for data collection
Commercial TVRO station licence	TVRO's used to provide public services
Portable satellite communication system station licence	Flyaway terminals (excluding VSATs)
Class licence	Satellite phones, low-power tracking devices, mass-consumer devices
Non-objection	Foreign-registered earth stations in motion (ESIMs), non-commercial TVROs (NC-TVROs)

Additionally, the *Equipment Standardisation and Certification Framework* mandates that all equipment, which includes satellite systems, meets specific technical standards to withstand various disruptions.

2.4.1 Spectrum Authorisation for Public Satellite Services

Due to the high data rates required for high bandwidth applications such as the provision of public Internet services using satellite networks, the Authority has licensed such networks using point-to-multipoint station licences. The gateway and all associated stations are licensed under this single authorisation.

2.4.2 VSATs

VSATs are licensed individually by the Authority under a VSAT – Telecommunications Station Licence or a VSAT – Control/Telemetry Station Licence. Licences for VSATs are granted annually or temporarily for special events. Different fees apply to VSATs that are used in remote monitoring applications (control/telemetry station licence) compared to other telecommunications applications, as shown in Table 2.

2.4.3 ESIMs

ESIMs on foreign-registered aircraft and vessels operating within the national airspace and territorial waters of Trinidad and Tobago are issued a non-objection by the Authority, provided they are licensed in their home countries, in accordance with section 38 of the Act. ESIMs are required to operate in conformance with parameters set out in the International Telecommunication Union (ITU) Resolutions 121, 123, 156 and 169 (WRC-23).

2.4.4 Commercial Television Receive-Only (TVRO) Stations

The Authority classifies TVRO stations into two categories:

- Non-commercial TVRO (NC-TVRO) station, which can be:
 - a TVRO station intended for personal use by an individual and his/her immediate family members or a group of individuals.
 - TVRO stations operated by government agencies, instrumentalities or offices, provided no fees are charged or collected from the public.

- TVRO stations owned/operated by a foreign government, entities or UN agencies, provided use is limited to their premises only.
- Commercial TVRO (C-TVRO) station – a TVRO station operated for monetary or material considerations.

Currently, C-TVROs are licensed under commercial TVRO station licences as per the Fees Regulations, whereas NC-TVROs do not require licences.

2.4.5 Emerging Technologies

In December 2025, the Authority published its *Spectrum Plan for the Accommodation of Non-Terrestrial Networks (NTNs) in Mobile Satellite Service Bands (V1.0)* (the Spectrum Plan for the Accommodation of NTNs in MSS Bands), which sets out the frequency planning principles, assignment plans, spectrum caps and related conditions that govern NTN operations in the 2 GHz MSS band. This spectrum plan and the licensing process therein accommodate the deployment of emerging technologies, including direct-to-device (D2D) and satellite Internet of things (IoT), operating in the MSS bands. The Authority recognises the importance of such technologies in providing seamless connectivity as an extension of terrestrial networks in rural and remote areas.

2.5 Emergency Communications

The Authority supports the drafting of the *Consultative Document on the National Emergency Communications Plan (V0.2)* (NECP), which is currently in its second consultative draft, with the Office of Disaster Preparedness and Management (ODPM) and Tobago Emergency Management Agency (TEMA). Satellite communications technologies are well integrated into the NECP.

In Trinidad and Tobago, key secondary emergency communications systems include Inmarsat Broadband Global Area Network (BGAN) terminals and Iridium satellite phones. ODPM uses BGAN terminals for emergency Internet connectivity and satellite phones to communicate with internal and external stakeholders, while TEMA uses fixed satellite services for emergency Internet connectivity. Class licensing supports the immediate use of satellite phones during emergencies and the technology-neutral approach to licensing allows the most suitable communications technologies to be deployed for an effective and timely response.

Additionally, the Global Maritime Distress and Safety System (GMDSS) is licensed for use on eligible marine vessels registered in Trinidad and Tobago. Many GMDSS technologies rely on satellite communications for emergency alerts and distress signalling.

2.6 Universal Service

The Authority supports universal access to telecommunications services for all persons in Trinidad and Tobago. This is executed through the Universal Service Fund (USF), which is used to provide telecommunications services, including those provided via satellite, to underserved areas. The Authority recognises the importance of satellite communications as a key enabler of universal service, helping to bridge the digital divide by extending connectivity to underserved areas. The Authority has utilised satellite communication solutions in its TTWiFi initiative, which provides Internet access in public spaces throughout Trinidad and Tobago.

3 New Authorisation Regime for Satellite Services in Trinidad and Tobago

3.1 Satellite Filing

National regulators submit satellite filings to ITU on behalf of operators, in the form of an Advance Publication Information (API) or Coordination Request (CR/C) filing, which contains technical information such as orbital characteristics, frequency bands and intended service areas to be recorded in the Master International Frequency Register (MIFR). The MIFR is ITU's official database of frequency assignments and associated technical and administrative details, maintained in accordance with Article 11 of the RR. Satellite networks that are not recorded in the MIFR will not be formally recognised, may cause harmful interference to other systems and will have no protection from interference caused by other systems.

Capacity-building efforts to fully equip the Authority for the submission of satellite filings have commenced and will continue.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Satellite Filing)

- 1. The Authority shall build capacity for the submission of satellite filings to ITU and submit such filings on behalf of satellite operators once fully equipped.*

3.2 Satellite Coordination

When an administration submits a satellite filing to ITU in the form of an API, it is published in a bi-weekly notice known as the BR IFIC for other countries to review and provide comments to protect their satellite systems. ITU uses these comments and the procedures of Article 8 of ITU's RR to determine the initial list of satellite systems that need to be coordinated. Once comments are received on the API in the BR IFIC, but no sooner than six months after the receipt of the initial filing, ITU will publish the CR/C. Once the CR/C is published, the filing administration and applicant or satellite operator will review the comments from the other countries and will begin to negotiate a set of operational parameters for the filed satellite network with each of those administrations to ensure interference-free operation. When coordination is completed successfully, a notification is sent to ITU by the national regulator. If not subject to coordination, a notification can be sent to ITU after the API is published in the BR IFIC. Once notifications are approved, they are published in the MIFR.

The Authority, to date, has participated in satellite coordination matters and will remain committed to doing so for future coordination requests under RR Appendix 30B Article 6 Nos. 6.5 and 6.6. RR Appendix 30B Article 6 No. 6.5 identifies administrations which are affected by a satellite network assignment and No. 6.6 identifies administrations who are partially or completely within the intended service area of the assignment.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Satellite Coordination)

2. *The Authority shall continue to adhere to satellite coordination requirements in response to coordination requests published in the BR IFIC.*

3.3 Satellite Operators and Service Providers

The Authority recognises the importance of distinguishing between operators and service providers when considering the authorisation of satellite services. Satellite operators oversee the administration and operational control of satellite system infrastructure. They usually coordinate frequency usage with national administrations as well as ITU to prevent harmful interference to other systems. Service providers, by contrast, leverage satellite infrastructure to provide services to end users. In some instances, satellite operators use their own infrastructure to provide services. In such cases, they act as both the operator and provider.

Satellite service providers deliver services to both public and private customers. Public services are those that are available to the general public, while private services are those only available to a single entity or closed-user group. Examples of public satellite services include television broadcasting, satellite Internet and voice services, while private services include private VSAT networks and maritime fleet communications.

3.3.1 Satellite Operator Landing Rights

In many jurisdictions, satellite operators are required to obtain landing rights – a sovereign permission to transmit signals, broadcast or provide broadband service within a geographical territory. Landing rights are separate from spectrum licensing and authorise the satellite's coverage footprint, while operators must also secure approvals for ground devices, user terminals and local spectrum usage. Countries such as Brazil, Ghana, India and Mexico require such authorisation for a satellite operator to make use of their spectrum resources. In some instances, local ownership is deemed relevant. Thailand and Turks and Caicos, for example, proposed in their draft frameworks

that the majority of the operator's shareholdings should be domestically owned for an operator to use spectrum within their countries.

The light touch approach to licensing space stations does not require strict landing rights and has little administrative burden. In South Africa, it is proposed that the operator be registered in their "List of Authorised Space Stations" which includes a nominal processing fee. The Federal Communications Commission (FCC) in the United States adopts an "open skies" approach where they do not license foreign space stations that are authorised in their home countries. Instead, foreign licensed space stations are granted access to locally authorised earth stations. Ofcom, the regulator and competition authority for the United Kingdom's communications industries, has adopted a similar approach, where landing rights are not required for foreign operators. Instead, earth stations are licensed to communicate with satellite stations.

To reduce administrative overheads, the Global Satellite Operators Association (GSOA) recommends the use of ITU's MIFR to authorise satellite network operators, providing they operate in accordance with the RR as well as the parameters in the MIFR. This aligns with the "open skies" approach.

As landing signals require use of the country's national spectrum resources, the Authority proposes that satellite operators apply for registration of their space stations in the official "Registry of Authorised Space Stations with Landing Rights in Trinidad and Tobago", to be able to provide capacity to earth stations in Trinidad and Tobago. Space stations that are registered in ITU's MIFR or have commenced registration are eligible for inclusion in the list of authorised space stations. During the coordination process for new satellite filings, where Trinidad and Tobago is listed in the BR IFIC under RR Appendix 30B Article 6 No. 6.6, the Authority shall inform the notifying administration of the requirement to be registered in the Registry.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Satellite Landing Rights Authorisation)

- 3. Satellite operators are required to register their space stations in the "Registry of Authorised Space Stations with Landing Rights in Trinidad and Tobago", in order to provide capacity to any earth station(s) in Trinidad and Tobago.*
- 4. An administrative registration fee shall be charged for each filing.*

3.3.2 Satellite Operator Network and Service Concession Provisions

A satellite operator with landing rights authorisation who provides satellite capacity to a public service provider with whom it has a contractual agreement will require a concession(s), as per the Authority's *Authorisation Framework for the Telecommunications and Broadcasting Sector of Trinidad and Tobago*. Satellite networks are assessed by their gateway location in addition to capacity provision, as follows:

1. Gateway located outside of Trinidad and Tobago: this is considered an international network as traffic is routed through a gateway outside of Trinidad and Tobago's geographic borders.
2. Gateway located within Trinidad and Tobago: this is considered a domestic network as traffic is routed through a local gateway.

The concessions required are highlighted in Table 3.

Table 3. Concessions required by satellite operators based on gateway location

Gateway Location	Concession Required
Outside of Trinidad and Tobago	1. Type 1 (network-only) - public international telecommunications network 2. Type 2 (network-service) - public domestic fixed telecommunications network and service (where the satellite operator is also the service provider)
Within Trinidad and Tobago	1. Type 1 (network-only) - public domestic fixed telecommunications network <u>or</u> 2. Type 2 (network-service) - public domestic fixed telecommunications network and service (where the operator is also the service provider)

As concessions are explicitly for the provision of public services, satellite operators providing services to a private entity or closed-user group do not require a concession. Similar to public service, private and closed-user groups operate on specific frequencies to communicate with the relevant space station(s). As such, the appropriate equipment certifications and licences are required. A local presence is not a requirement.

***Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements
(Satellite Network and Service Authorisation)***

- 5. Satellite operators with landing rights authorisation and operating an international gateway used to provide services to an authorised concessionaire shall require a Type 1 (network-only) concession – public international telecommunications network concession(s).*
- 6. Satellite operators with landing rights authorisation and operating an international gateway used in the provision of public services shall require a Type 1 (network-only) concession – public international telecommunications network concession(s) and Type 2 (network-service) concession – public domestic fixed telecommunications network and services.*
- 7. Satellite operators with landing rights authorisation and operating a local gateway used to provide services to an authorised concessionaire shall require a Type 1 (network-only) concession – public domestic fixed telecommunications network concession(s).*
- 8. Satellite operators with landing rights authorisation and operating a local gateway used in the provision of public services shall require a Type 2 (network-service) concession – public domestic fixed telecommunications network and services.*
- 9. Satellite operators with landing rights authorisation, providing services to a private entity or closed-user group, do not require a concession.*
- 10. Equipment certification and the relevant licences shall be required for the equipment used for private or closed-user group operation in Trinidad and Tobago.*

3.4 Satellite Licensing Provisions

Satellite earth stations are located on the Earth or within a large part of its atmosphere and are designed to communicate with space stations or indirectly with similar stations through satellites or other spaceborne reflectors. These include gateways, VSATs, portable earth stations, ESIMs and satellite user terminals. These stations occupy the earth segment of satellite systems.

The Authority's Fees Regulations outlines the following satellite earth station licences in the BSS, FSS and MSS bands:

- VSAT – Telecommunications Station Licence
- VSAT – Control/Telemetry Station Licence
- Earth Station – Station licence
- Portable Satellite Communication System Station Licence

- Commercial TVRO Station Licence

Licensing for the following additional satellite systems shall be accommodated:

- i. Gateways
- ii. Telemetry, Tracking and Command stations
- iii. ESIMs (aeronautical, maritime and land)
- iv. Satellite end user terminals
- v. IoT sensor networks
- vi. D2D networks

The Authority's *Technical Specifications Satellite Station Radiocommunications Systems (Form TS-SS)* shall be amended where appropriate for the licensing of these stations.

3.4.1 Gateways

Gateway earth stations are large, fixed, high-power stations in the ground segment that provide backhaul for satellite networks, connecting them to terrestrial networks. They are critical points of data aggregation before being routed to external networks.

In the United States, under FCC Part 25, gateways are licensed individually and are tied to a specific site. Canada follows a similar approach, authorising gateway facilities as earth stations requiring site approval under a dedicated spectrum licence. In the United Kingdom, Ofcom licenses gateway stations under the permanent earth station (PES) licence for gateways communicating with GSO satellites and NGSO earth stations). These licences permit multiple stations to be authorised under a single licence within a 500-metre radius of a nominated centre point. Due to NGSO gateways' increased potential for causing interference, the NGSO earth station licence has stricter requirements for technical coordination. In March 2026, Ofcom, in its "Decision to amend Satellite Gateway fees", implemented an administered incentive pricing (AIP) model where NGSO gateways are charged at a factor of 1.2 of the rates for GSO gateways, accounting for their higher capability of causing interference.

The Authority recognises the unique characteristics of gateway stations and the need for site-specific licensing. Given their nature, stations are required to operate within the limits prescribed in Article 22 of the RR to comply with radiofrequency exposure requirements and avoid harmful interference to other stations and services. The site shall meet safety requirements and the gateway shall be lawfully established at the location. The earth station station licence in the Fees Regulations accounts for these types of stations.

The following types of gateway stations are recognised:

1. Standalone gateways: gateways that exclusively provide services outside of Trinidad and Tobago or provide international connectivity for an authorised concessionaire.
2. Gateways that are part of a public domestic network: gateways that are part of a public domestic network which is used to provide connectivity to end-user terminals within or neighbouring Trinidad and Tobago.

The Authority will authorise standalone gateway earth stations under the existing earth station licence with considerations for GSO and NGSO types. Gateways that are part of a public network which is used to provide domestic services within Trinidad and Tobago, serving end-user terminals, shall continue to be authorised under the point-to-multipoint station licence. The Authority recognises the unique characteristics of these stations and the need for site-specific licensing. Given their nature, they must operate within the limits prescribed in Article 22 of the RR to comply with radiofrequency exposure requirements and avoid harmful interference to other stations and services. The site must also meet safety requirements and the gateway must be lawfully established at the location.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Gateway Earth Stations)

- 11. The Authority shall authorise standalone gateways under an earth station licence with considerations for GSO and NGSO operations.*
- 12. The Authority shall authorise gateways that are part of a public telecommunications network serving user terminals within or neighbouring Trinidad and Tobago under a point-to-multipoint station licence.*

3.4.2 Telemetry, Tracking and Command Stations

Telemetry, tracking and command (TT&C) stations in the space operation service are essential in monitoring satellites' real-time health, performance and orbital positions, as well as enabling satellite operators to send commands to space stations remotely. These stations, similar to gateway earth stations, are fixed on particular sites and require site approval prior to operation.

FCC and Innovation, Science and Economic Development Canada (ISED) license TT&C stations similarly to gateways, where the licences are site-specific and require approval for operation at a geographical location.

earth station station licence. Similar to the authorisation of gateway earth stations, site approval is part of the licensing process.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (TT&C Earth Stations)

13. The Authority shall license TT&C stations under an earth station station licence, with consideration for GSO and NGSO operations.

3.4.3 Portable Earth Stations

Portable earth stations are designed for use other than in fixed locations. These stations can be moved and operated in different stationary locations. They include non-VSAT flyaway terminals, which are critical in emergency communications.

Portable earth stations will be authorised under the existing portable satellite communication system station licence when used for private or closed-user group services. Stations which are part of a public service would not require separate authorisation from the provider.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Portable Earth Stations)

14. The Authority shall license portable earth stations used for private or closed user group services under a portable satellite communication system station licence.

3.4.4 ESIMs

ESIMs are satellite terminals mounted on moving platforms that operate in the FSS bands. They are generally categorised as:

- i. Aeronautical ESIMs (A-ESIMs): those that operate on aircraft
- ii. Maritime ESIMs (M-ESIMs): those that operate on ships or other maritime vessels or platforms
- iii. Land ESIMs (L-ESIMs): those that operate on land vehicles

As ESIMs move frequently, they pose higher risks of interference. ITU in the RR and Resolutions 121, 123, 156 and 169 (WRC-23) specify frequencies and respective power limits for ESIM

operations. Based on the ITU RR and international frameworks like the International Civil Aviation Organisation (ICAO) Chicago Convention, the state of registry or flag of the aircraft, vessel or vehicle is responsible for the licensing and certification of systems onboard.

ESIMs, particularly A-ESIMs and M-ESIMS, can be mounted on either locally registered platforms or foreign-registered platforms.

For locally registered platforms, provided that Internet services are being sought from an authorised concessionaire and that the terminals are identical in technical specifications as recommended by ITU, the Authority shall use class licensing, which aligns with the concept of blanket licences, for ESIMs. Aircraft are required to have a certificate of airworthiness granted by the Trinidad and Tobago Civil Aviation Authority (TTCAA), and maritime vessels are required to have a certificate of seaworthiness granted by the Maritime Services Division (MSD). If a platform or fleet owner is seeking ESIM services from an operator who is not an authorised concessionaire, they would require authorisation through a point-to-multipoint station licence for their ESIM or ESIM fleet.

As required by ITU, foreign-registered platforms must be authorised for ESIM operation in their home countries. Once this requirement is satisfied, providers can apply for a non-objection, which would allow operation as they enter Trinidad and Tobago's borders. Foreign ESIMs are not allowed to interconnect with any public telecommunications network in Trinidad and Tobago.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (ESIMs)

- 15. The Authority shall authorise ESIM operation on locally registered platforms under the class licensing regime if services are being provided by an authorised concessionaire and all terminals adhere to the regulatory limits set by ITU in Resolutions 121, 123, 156 and 169 (WRC-23).*
- 16. The Authority shall authorise ESIMs on a locally registered platform or fleet under a point-to-multipoint station licence if services are not being provided by an authorised concessionaire and terminals adhere to the regulatory limits set by ITU in Resolutions 121, 123, 156 and 169 (WRC-23).*
- 17. The Authority shall authorise ESIM operation on a foreign-registered platform that adheres to the regulatory limits set by ITU in Resolutions 121, 123, 156 and 169 (WRC-23) through the grant of a non-objection certificate/letter.*

3.4.5 VSATs

In some use cases, a single VSAT is used to communicate with other stations locally or internationally via a satellite space station. Individual licensing is practical in these scenarios, where bandwidth capacity is provided by a satellite operator with landing rights authorisation in Trinidad and Tobago. However, VSAT networks are becoming larger, with hundreds of communicating terminals, which would cause administrative burden if licensed individually. The Authority has taken into account CITELE's Recommendation, PCC.II/REC. 68 (XLIII-24) for blanket licensing, provided that terminals have identical operating parameters.

As such, the Authority proposes the following licensing types:

- i. VSAT telecommunications station licence – for a private VSAT station that is used to communicate with other stations as part of a private or business operation.
- ii. Point-to-multipoint station licence – where multiple VSATs in an enterprise network operate on the same frequencies and use different time slots to transmit data. VSATs operating on different frequencies will require individual station licensing under the VSAT telecommunications station licence.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (VSATs)

18. The Authority shall utilise the following licence types for VSAT authorisation:

- i. VSAT telecommunications station licence – for a VSAT station that is communicating with other earth stations as part of a private or business operation.*
- ii. Point-to-multipoint station licence – authorises a satellite operator to provide service to multiple VSATs in an enterprise network that operate on the same frequency and use different time slots to transmit data.*

3.4.6 TVROs

Currently, TVROs used in the provision of a subscription broadcasting service are licensed under a commercial TVRO station licence, as per the Fees Regulations. The Authority proposes to maintain the use of this licence for all TVROs used in the provision of subscription broadcasting services or as part of a business operation. Non-commercial TVROs do not require licences.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (TVROs)

19. TVROs used in the provision of a subscription broadcasting service or as part of a business operation shall be licensed under a commercial TVRO station licence.

3.4.7 Satellite End-User Terminals

In this Framework, “satellite user terminals” refers to low-power, low interference and mass-market end-user devices used in satellite communications. Some examples are Internet-user terminals and satellite phones. Satellite operators using end-user terminals such as satellite phones for the provision of public services are authorised via a concession, as outlined in section 3.3.2.

The FCC uses a single blanket licence for the authorisation of consumer broadband user terminals and enterprise terminals with identical technical specifications. The ISED similarly uses a generic licence to cover all user terminals with the same technical operating parameters.

Satellite operators that provide public satellite services, such as broadband Internet and satellite telephony, in Trinidad and Tobago supply customers with specific end-user devices or terminals to access their network and services. These operators are required to obtain a relevant concession and an applicable point-to-multipoint station licence which covers spectrum use for their network, including all user terminals. Customers do not require individual licences and terminals are authorised for use in keeping with the Authority’s class licensing regime. Satellite end user terminals can only access service from an authorised concessionaire.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Satellite End-User Terminals)

20. Satellite operators providing public telecommunications services to satellite end user terminals, including satellite phones, shall be granted a relevant concession and an applicable point-to-multipoint licence for the spectrum use.

21. Satellite end-user terminals associated with an authorised concessionaire’s network shall be authorised in keeping with the Authority’s class licensing regime.

3.4.8 Satellite Internet of Things (IoT)

IoT sensors and devices, many of which have satellite communications capability, are deployed in large numbers for applications such as weather monitoring, vessel monitoring, agriculture and fisheries management, and asset tracking. These devices are usually low power with little potential to cause harmful interference. For such devices, it would be administratively difficult to license each individually.

Blanket licensing of IoT terminals is beneficial, such as with ISED's generic earth station licence and Ofcom's earth station network licence, which cater for sensors in specific frequency bands with identical operating parameters. Ghana's National Communications Authority licenses IoT devices under a portable satellite terminals blanket authorisation with a validity period of five years. Regulatory fees are determined by the number of terminals, which are divided into different price brackets. South Africa also proposed a satellite user-terminal network licence which caters to IoT applications under similar blanket authorisation and fee structures. The Utilities Regulation and Competition Authority (URCA) in the Bahamas, in its *Second Consultation Document on the Regulatory Framework for Satellite-based Electronic Communications Services in the Bahamas*, proposed the authorisation of IoT services using class licensing for low data rate devices and individual or class spectrum licensing for providers of broadband and industrial IoT solutions. They also proposed the use of partnerships between mobile network operators (MNOs) and satellite operators who wish to use the terrestrial mobile bands, as well as standalone operators who wish to use MSS bands.

For consumer-grade devices operating under an authorised concessionaire, the Authority proposes the use of class licensing where the IoT devices would not require individual licences.

The Authority, in its Spectrum Plan for the Accommodation of NTN in the MSS Bands, outlines the frequency bands available for narrow-band IoT services. Satellite IoT networks shall operate using either the 3rd Generation Partnership Project (3GPP) band n252 or n256 on issuance of a point-to-multipoint spectrum licence.

For large enterprises' IoT networks that require protection from harmful interference, and receive services from a private satellite operator, the Authority proposes the use of a point-to-multipoint station licence. This includes IoT devices used in fleet tracking, commercial asset tracking, vessel monitoring systems and aircraft position tracking.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Satellite IoT)

22. *The Authority shall authorise low-power consumer-grade satellite IoT devices under the class licensing regime.*
23. *The Authority shall issue point-to-multipoint spectrum licences for narrow-band IoT devices operating in accordance with its Spectrum Plan for the Accommodation of NTN in MSS Bands.*
24. *For large enterprises' IoT networks operating in bands outside of the Spectrum Plan for the Accommodation of NTN in MSS Bands, the Authority shall issue a point-to-multipoint station licence in spectrum bands authorised for use by satellite IoT.*

3.4.9 Direct-to-Device (D2D)

D2D extends cellular mobile service in areas outside of the reach of terrestrial infrastructure. D2D offerings use terrestrial IMT bands or MSS bands, operating on a no-interference, no protection basis relative to mobile networks. This demands coordination with the national mobile spectrum plan and safeguards for MNOs.

In 2024, the FCC in Part 25 made available provisions for supplemental coverage from space (SCS). The bands allocated for SCS use are 600 MHz, 700 MHz, 800 MHz, broadband personal communication service (PCS) (1850–1915 MHz and 1930–1995 MHz) and the AWS–H Block (1915–1920 MHz and 1995–2000 MHz). The FCC has updated its Frequency Allocation Table to allow secondary usage of these bands by satellites. The use of the SCS bands is only allowed in geographically independent areas (GIA)¹. MNOs interested in SCS must lease spectrum from one or more satellite operators with whom they have an agreement for extending their services. The operator must have a GSO or NGSO licence for access to the US market.

In 2025, Canada's ISED released its *Decision on a Policy, Licensing and Technical Framework for Supplemental Mobile Coverage by Satellite*. The frequency bands allowed for D2D use are 600 MHz, 700 MHz, 800 MHz, PCS (1850–1915 MHz/1930–1995 MHz), AWS-1 (1710–1755 MHz/2110–2155 MHz) and AWS-3 (1755–1780 MHz/2155–2180 MHz) bands. These bands were added to the Canadian Frequency Allocation Table as secondary allocation for MSS via footnotes. Satellite operators, whether Canadian or foreign, need to have an agreement with an MNO to qualify for a spectrum licence or foreign satellite approval for D2D operations. MNOs

¹ Contiguous United States (CONUS), Alaska, Hawaii, American Samoa and Puerto Rico/U.S. Virgin Islands

who have an agreement with operators qualify for generic earth station spectrum licences. SCS may be operated in areas for which the MNO has terrestrial licences.

In 2025, Ofcom invited MNOs who wish to implement D2D services to apply for variation requests for the relevant wireless telegraphy licence. The use of additional spectrum will be under the MNO's existing licence. The spectrum bands allowed for D2D use are 700 MHz, 800 MHz, 900 MHz, 1.4 GHz, 1.8 GHz, 2.1 GHz and 2.6 GHz. In 2026, Ofcom exempted mobile handsets and SIM-enabled devices in authorised D2D services from licensing requirements.

In Trinidad and Tobago, the *Spectrum Plan for the Accommodation of NTN in MSS Bands* facilitates the authorisation of D2D networks in the 2 GHz band. Authorisation for D2D services is granted under a point-to-multipoint spectrum licence and Type 1 concession. An established agreement between the satellite operator and a local terrestrial network operator is a requirement for the issuance of a licence in the 2 GHz band. The spectrum allocated for use is 3GPP's bands n252 and n256.

Although the *Spectrum Plan for the Accommodation of NTN in MSS Bands* is currently used to guide the assignment of spectrum in the 2GHz MSS band for D2D services, consideration may be made for the assignment of spectrum in other bands such as IMT and L bands. For IMT bands in particular, a Type 1 concession will be required along with collaboration with a terrestrial network operator for D2D deployment.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (D2D)

- 25. The Authority shall authorise the use of MSS spectrum for D2D services, in keeping with its Spectrum Plan for the Accommodation of NTN in MSS Bands.*
- 26. A Type 1 concession shall be a prerequisite for the assignment of spectrum use in the operation of a public telecommunications network to provide D2D services.*
- 27. The Authority shall facilitate D2D deployment by satellite operators in IMT bands through a Type 1 concession, in collaboration with a terrestrial network operator.*
- 28. A satellite operator shall require an established agreement between the satellite operator and a local terrestrial network operator to provide D2D services.*

3.5 Emergency Communications

3.5.1 Satellite Safety Locator Devices

Satellite communications are of critical use for location tracking in disasters and emergencies. Satellite safety locator devices operate in the 406.0–406.1 MHz band and include:

- Personal locator beacons (PLBs) – location trackers carried on a person
- Emergency position-indicating radio beacons (EPIRBs) – location trackers used on maritime vessels
- Emergency locator transmitters (ELTs) – location trackers used on aircraft

All maritime vessels to which Chapter IV of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, applies require carriage of an EPIRB. As such, EPIRBs are licensed as part of a maritime station licence that covers all maritime radio equipment related to a vessel. Similarly, all aircraft for which Parts I, II and III of Annex 6 of the Convention on International Civil Aviation apply require carriage of an ELT. ELTs are authorised under an aeronautical station licence under which all aircraft communications equipment is covered.

PLBs are class licensed by the Authority in the 406.0–406.1 MHz band and require equipment registration.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Satellite Safety Locator Devices)

- 29. The Authority shall authorise satellite EPIRBs on maritime vessels under a maritime station licence which covers all maritime radio equipment on the vessel.*
- 30. The Authority shall authorise satellite ELTs on aircraft under an aeronautical station licence which covers all radio equipment on an aircraft.*
- 31. The Authority shall authorise satellite PLBs under the class licensing regime, and equipment registration is required.*

3.5.2 Deployment of Emergency Communications

Satellite technologies are critical to emergency communications as space stations remain unaffected by terrestrial events. In times of disaster, satellite equipment must be quickly deployed for restoring critical communication links, coordinating emergency response efforts and ensuring the timely flow of information to affected areas. The Tampere Convention is a multilateral treaty

that encourages the rapid deployment of telecommunications during disasters, by simplifying the establishment and use of reliable, flexible communication systems. This includes removing regulatory barriers such as frequency licensing requirements and import restrictions on telecommunications equipment. Trinidad and Tobago has not yet ratified the Tampere Convention. However, the NECP recognises the need to ratify the Convention and to establish prior arrangements with the relevant authorities for the importation and operation of transmitting equipment.

Regional harmonisation in emergency telecommunications procedures is also of particular importance, as Trinidad and Tobago is one of the Caribbean SIDS, vulnerable to natural disasters. Emergency response calls for coordinated and efficient communication among countries to provide support for relief efforts. The Caribbean Disaster Emergency Management Agency (CDEMA) provides a platform for such coordination in strengthening disaster response systems, including telecommunications, through unified policies, frameworks and procedures. Harmonisation strengthens resilience and preparedness by, among other things, enabling efficient information sharing and rapid deployment of emergency telecommunications, improving the effectiveness of overall disaster management operations.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statements (Emergency Communications – Deployment)

- 32. The Authority remains committed to recommending that Trinidad and Tobago ratifies the Tampere Convention to support the rapid availability of communications during an emergency.*
- 33. The Authority shall consult with regional telecommunications regulators and stakeholders, ensuring harmonisation in policies and regulations related to the use and deployment of satellite systems during emergencies, while also considering international best practices.*

3.5.3 Early Warning Systems

Satellite communications provide real-time data through imaging and earth observations, which are critical in detecting and predicting disaster events such as hurricanes. This supports efforts in the “preparedness” phase of the disaster management cycle. Satellite communications also support the dissemination of early warning alerts to populations in hard-to-reach areas, while contributing to the resilience of early warning systems. The Early Warnings for All (EW4ALL) initiative piloted by the United Nations (UN) aims to ensure that every person on Earth is protected by early warning systems by the end of 2027. Pillar 3 of the EW4ALL initiative, led by ITU, addresses “warning dissemination and communication”. ITU collaborates with stakeholders such as GSOA

to advance satellite-driven technologies, such as D2D, which can facilitate the dissemination of alerts directly to users' handsets, for more robust and reliable emergency alerting systems. ITU is also exploring emerging satellite-to-device alerting technologies, including space-based broadcast alerts using Bluetooth Low Energy (BLE) and the receipt of alerts by affordable user devices connected to mobile handsets.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Emergency Communications – Early Warnings)

34. The Authority shall support the deployment and use of satellite technologies in the implementation of early warning systems.

3.6 Universal Service

The Authority is committed to promoting universal access to telecommunications services for all in Trinidad and Tobago. Satellite communications play a major role in providing access in remote and rural areas. As of September 2025, the Global System for Mobile Communications Association (GSMA) estimated that 96% of the world's population is covered by mobile broadband, leaving a gap of 4% uncovered in rural and remote areas. This coverage gap can be supplemented by satellite technologies, with the need for minimal terrestrial infrastructure and lower cost. The deployment of ESIMs also provides communications on moving platforms, particularly for persons travelling by air and sea, decreasing connectivity gaps.

The GSOA recommends a technology-neutral approach to providing universal service solutions, facilitating the use of satellite technologies as well as integration with terrestrial networks. It also encourages partnerships between satellite and terrestrial operators to extend services, which is a key requirement in the Authority's Spectrum Plan for the Accommodation of NTN in MSS Bands.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Universal Service)

35. The Authority shall support the deployment of satellite services to meet universal service objectives, as applicable, encouraging partnerships between terrestrial and satellite operators.

3.7 Space Sustainability

With the increase in satellite constellations, orbital debris, interference and collision are possibilities in Earth's orbital space. As such, space sustainability is of importance. The United Nations Office of Outer Space Affairs (UNOOSA) sets international guidelines for the long-term sustainability of outer space activities, advocating for the stability and safety of the space environment to ensure equitable access to space resources for present and future generations. ITU also promotes the responsible use of space and its orbit-spectrum resources to ensure long-term sustainability. Resolution ITU-R 74 (2023) supports studies for safe end-of-life (EOL) disposal strategies, with a focus on spectrum and associated satellite-orbit resources. ITU hosts the Space Sustainability Gateway, which is a digital hub that consolidates global frameworks and best practices on satellite deorbiting and space debris mitigation, promoting the responsible and sustainable management of radio-frequency spectrum and satellite orbits in outer space.

Space debris mitigation plans are generally required for space station authorisation. Regulatory bodies such as the Brazil's Agência Nacional de Telecomunicações (ANATEL), FCC and ISED require the submission of comprehensive mitigation plans as part of the registration and licensing process. In jurisdictions where satellite operators must obtain landing rights, there are similar requirements. The Cayman Islands, for example, mandates that operators submit a debris mitigation plan aligned with RR Article 22 and ISO 24113 standards, verify end-of-life disposal during licence renewals and report any collision risks to OfReg within 72 hours.

Space sustainability plans will be taken into account by the Authority when assessing, during the satellite coordination process, applications for inclusion in the Authority's *Registry of Authorised Space Stations with Landing Rights in Trinidad and Tobago*.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Space Sustainability)

36. *The Authority shall advocate for space sustainability and request the submission of a debris mitigation plan when assessing applications for inclusion in the Registry of Authorised Space Stations with Landing Rights in Trinidad and Tobago during the satellite coordination process.*

3.8 Spectrum

The Authority's spectrum planning and management processes are guided by its *Spectrum Management Framework*. The *Trinidad and Tobago Frequency Allocation Table* (TTFAT) outlines spectrum bands allocated to various radiocommunication services including satellite

services, in accordance with Article 5 of the RR. Satellite-associated spectrum plans, such as the Spectrum Plan for the Accommodation of NTN in MSS Bands, outline the assignment plans and associated licensing conditions for specific satellite services.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Spectrum Plans)

37. The Authority shall develop spectrum plans to accommodate new and emerging satellite services in Trinidad and Tobago, and update relevant footnotes in the TTFAT as appropriate.

3.9 Fees

The *Telecommunications (Fees) Regulations, 2006* outlines the fee structure for radiocommunication systems and services in Trinidad and Tobago. The Authority intends to revise the document to reflect modern systems, as communications technologies and services have greatly evolved since these regulations were established. In the case of satellite communications, higher bandwidths are now being used to provide capacity for more data-intensive services. Fees will be modified as appropriate to include updated fees for the accommodation of new and emerging services. However, the current Fees Regulations will continue to be leveraged to accommodate services that may not be currently covered therein.

Authorisation Framework for Satellite Services in Trinidad and Tobago Policy Statement (Fees Regulations)

38. The Authority shall leverage the existing Telecommunications (Fees) Regulations, 2006 to accommodate emerging satellite services as they arise until the Fees Regulations are updated to reflect modern satellite systems and services.

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