

GSMA Satellite Regulatory Playbook

The Global System for Mobile Communications Association (GSMA) in collaboration with Access Partnership has released the Satellite Regulatory Playbook¹, a practical guide for telecommunications administrations and other regulators. It defines the main aspects of satellite industry regulation and policy considerations related to satellite broadband systems, including D2D services.

Today, the issue of regulating satellite communications constellations is more pressing than ever: the regulatory framework lags behind the development of services and technologies. Direct-to-Device (D2D) systems are being deployed, sometimes regardless of partnerships with ground-based operators. The World Radiocommunication Conference WRC-27, which will be held in Shanghai in October – November 2027, has already unofficially received a satellite status. Its agenda is 80% devoted to the allocation of frequencies for satellite services, in particular for direct communication services with D2D subscriber devices.

The document released by the GSMA is positioned as a collection of recommendations and practical guidance for updating the regulatory framework for the adequate operation of LEO systems (including D2D) that do not involve partnerships with mobile network operators. It is not mandatory: the authors advise regulators to adapt the provisions of the Guide to the specifics of their domestic market.

The document is intended for policymakers and government agencies responsible for regulating satellite systems, as well as for satellite operators, so that they understand the requirements they face when entering new markets.

The core idea of this Playbook is technological neutrality and a level playing field: new satellite services are becoming widespread and competing with terrestrial networks, so the same requirements should apply to them as to mobile network operators. If the service is the same for the user, the rules should be the same. Regardless of whether it is delivered via satellite or tower. This is necessary for fair competition, consumer protection and safety.

Space regulatory obligations

These obligations exist independently of telecommunications regulation and are designed to address legal, safety and sustainability issues related to activities in outer space.

So far, space regulations have been applied primarily by a small group of developed spacefaring nations, while other countries have yet to begin to seriously address satellite oversight.

¹ https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/gsma_resources/satellite-regulatory-playbook/

International space law, developed within the United Nations system, provides an international legal framework that is complemented by national regulation of space activities. Although the content and application of national space laws vary, they generally comply with these international principles: registration and notification of space objects; commitments to ensure the sustainable development of the space industry; requirements for reducing the amount of space debris; rules for the disposal and deorbit of satellites at the end of their service life; measures for space traffic management and collision avoidance.

However, in many parts of the world these requirements remain limited or absent altogether, and national regulations focus primarily on the coordination of orbital and frequency resources. As a result, only a small number of countries actively implement and take into account such obligations in their satellite system planning.

At the same time, global satellite systems are subject to the coordination rules established by ITU.

Five principles of regulation

These five principles are set out in the document: GSMA “Regulatory Preparedness for Satellite Services. Direct-to-users LEO connectivity services”². They make it possible to create a balanced policy framework for low-orbit satellite services.

Principle 1: Transparency and predictability.

Clear and transparent regulatory requirements are needed to facilitate efficient market entry and build trust in the industry.

Principle 2: Regulatory equality.

Ensure that industry laws and regulations are applied equally to all service providers.

Where similar services are regulated differently, this can lead to uneven consumer protection, unfair competitive advantages, gaps in service reliability, and inconsistencies in areas such as legal access and security.

The regulatory framework must be technologically neutral and proportionate to the nature and scale of the services provided. Where satellite operators offer services directly to users, equivalent obligations should apply, regardless of differences in network architecture.

Principle 3: Harmonisation.

Coordinate regional and international policies to reduce fragmentation and improve regulatory effectiveness.

² <https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/wp-content/uploads/2026/02/Regulatory-Preparedness-for-Satellite.pdf>

Principle 4: Cooperation and consultations.

Strengthen dialogue between governments, regulators and industry stakeholders to make informed policy decisions.

Principle 5: Balance of innovation and regulation.

Building trust requires encouraging technological progress while ensuring regulatory compliance, consumer protection and national security.

New business — new regulations

Initially, satellite communications operated on a wholesale model: operators owned satellites, ground infrastructure owners purchased resources under long-term contracts and, in turn, sold services either to corporate clients or service providers. Regulations were configured for this model. But around the 2010s, satellite operators became interested in value-added services. High-throughput satellites (HTS) with high-energy beams and low-orbit systems emerged, and operators became interested in the user market. The previous simple and familiar scheme broke down: vertically integrated structures, corporate resellers and partnerships with ground operators emerged. The old system of industry regulation, focused on the wholesale model, ceased to be effective.

Today, regulators should consider satellite communications as two separate but complementary aspects. The space and ground segments are different (albeit interconnected) elements of the system and are regulated differently. For the space segment, the regulator determines “landing rights” — permission for the satellite system to provide bandwidth within the country. This permit itself does not grant the right to provide telecommunications services, but it allows the use of the earth segment, where the operator can create and operate communications networks, as well as provide services to end consumers.

D2D as a separate category of services

Direct-to-device (D2D) communication technology has become one of the most significant factors that has necessitated regulatory changes. And here the regulatory model depends on who provides the final service.

First model: The D2D operator works in partnership with a mobile network operator, using its network and spectrum. The satellite here serves as an extension of terrestrial communications. The retail service provider is a mobile network operator. It is responsible for licensing, consumer protection and compliance with local laws. The satellite operator is only responsible for licensing gateway stations.

In land mobile communications (IMT) spectrum sharing, it is critical to ensure that existing mobile services are free of interference from D2D.

Second model: The satellite system is independent of terrestrial networks, the D2D operator provides direct connection of devices without using the spectrum or network of a mobile network operator. The end consumer enters into an agreement directly with the satellite operator. This model does not fit into the existing categories of mobile or satellite communications. This type of service will require a separate category and new regulations.

Recommendations

The Playbook recommendations are divided into eight sections, each covering a key aspect of satellite communications regulation:

1. Local establishment rules.
2. National security.
3. Consumer protection and operational measures.
4. Infrastructure and facility requirements.
5. End user terminal deployment.
6. Fiscal considerations.
7. Emergency services and public safety.
8. Enforcement.

Each clause specifically emphasizes that any requirements imposed by regulators on satellite operators that provide services directly to the public should not differ from those imposed on terrestrial mobile network operators.

Local establishment rules

Satellite operators providing services directly to users must have local legal representation, either a local subsidiary, a registered branch or an officially appointed local representative.

Satellite system gateways may be recognized as critical infrastructure and subject to foreign ownership restrictions, such as ownership caps.

National security

Satellite operators must comply with data governance regulations — data protection, storage, privacy and localization — as well as cybersecurity and law enforcement data access requirements. The Lawful Intercept (LI) system must be implemented within national jurisdictions, meaning the regulator can require that user traffic originating outside the country be routed through internal gateways. And the importance of this requirement especially

increases in the case of a satellite operator working directly with the public. As a rule, the regulator does not introduce any separate laws on the "lawful intercept" of traffic; these requirements are usually included in the licensing conditions or market access permits.

The regulator may impose special requirements on personnel with access to classified information and critical infrastructure facilities.

Measures to protect consumer rights and operational support

Consumer protection obligations should be determined by the type of service provided, rather than the technology used. Consumers using satellite services should receive the same protections as users of terrestrial services: pricing transparency, service quality guarantees, claims procedures, etc.

Key consumer protection measures include billing accuracy, clear payment presentation and pricing transparency. The operator must provide the subscriber with information that clearly indicates what service the subscriber will receive, what features it includes and how much it will cost. Consistency in QoS monitoring and reporting across technologies should provide consumers with clear and transparent information to make informed decisions. Methods for assessing the quality of the same service delivered through different technologies should not differ from each other.

Regulation should develop towards technologically neutral approaches not only for reasons of maintaining the equal position of operators in the market. It is necessary to adapt those regulations that are focused on mobile services using SIM cards to the specifics of satellite communications.

Effective complaints handling mechanisms are required. In some countries, the current requirements for combating fraudulent information disseminated on the operator's network should also be taken into account.

Infrastructure and facility requirements

Policymakers must establish clear and transparent conditions for the approval and deployment of satellite infrastructure, including user terminals, gateway ground stations and points of presence (PoP).

Infrastructure and equipment requirements are a key component of the regulatory framework applicable to low-orbit satellite networks, as they govern the deployment and operation of those system elements that underpin service delivery.

Typically, to deploy terminals and ground gateway stations, an operator must obtain the following permits:

- License for the ground station, equipment and apparatus. It may cover location, antenna parameters, radiation and power limits, and non-interference obligations;
- Certificate for equipment that is necessary to protect health and safety, ensure electromagnetic compatibility and prevent harmful interference;
- Installation permits: planning, land use and building;
- National licenses for telecommunications services. In some countries, operators are required to declare or register the locations of their points of presence.

End user terminal deployment

Satellite operators must ensure that their user equipment is safe, does not cause harmful interference, and complies with national standards.

Regulators should take into account that certification requirements may change for new services such as D2D. Therefore, the certification regime should be established taking these conditions into account. For now, for D2D services, smartphones are usually certified as radio equipment. However, as services evolve, regulators will need to evaluate the need for additional certification testing and changes to certification.

Fiscal considerations

Fiscal obligations directly impact investment incentives, pricing flexibility and service availability.

In financial terms, the GSMA also advocates the principle of equality: all fiscal obligations of satellite operators working directly with subscribers must be identical to those of terrestrial mobile network operators.

Financial obligations applicable to satellite broadband and D2D services may automatically arise from the classification of the service as a licensed telecommunications activity. As low-orbit satellite services move into retail telecommunications delivery, regulators in many countries are extending existing fiscal regimes to these services.

Emergency services and public safety

Access to emergency services and public safety are critical components of telecommunications regulation. As low-orbit satellite communications systems develop to provide coverage in remote areas, their role in supporting emergency communications is growing. Satellite services should provide access to emergency numbers and public alert systems.

Internet service providers that do not provide voice services are generally not required to give access to emergency services.

It is not yet clear to what extent public information requirements apply to D2D services. Regulators are considering whether devices equipped with satellite communications should be required to receive public warning messages. And to what extent this requirement is applicable in areas with limited or no ground coverage.

Enforcement

Effective enforcement of legislation is crucial to the credibility of any telecommunications regulatory regime. Without it, consumer protection, safety guarantees and competition rules are virtually worthless. Satellite operators providing services directly to the public should be subject to the same penalties for violations as terrestrial operators.

Given the transboundary nature of low-orbit satellite systems, ensuring compliance with the law can be challenging, particularly in cases where the operator's head office or technical management is located outside national jurisdiction. Governments should therefore require a strong local legal presence to enable regulators to investigate non-compliance, effectively enforce sanctions and compel operators to remediate the situation.

Since regulators have either limited or no technical control over the network, their only remaining leverage is to ensure market access. For example, the regulator may restrict the sale and activation of terminals by the offending operator. In serious cases, regulators may suspend or revoke licenses.

Close international cooperation and information exchange between regulators is crucial to addressing cross-border operator non-compliance issues.

The Playbook sets out the basics of regulation of low-orbit satellite communication systems that provide services directly to users. To better understand the fundamentals of regulation, the Playbook includes brief explanations and descriptions of key terms and concepts.

The full text of the Playbook in English can be found at the link below.

https://www.gsma.com/solutions-and-impact/connectivity-for-good/public-policy/gsma_resources/satellite-regulatory-playbook/