



Module 2

POLICY AND REGULATORY GUIDELINES FOR SATELLITE SERVICES



1- Radio regulation organizations

National spectrum management

Governments control the use made of radio by stations within their jurisdiction, typically by making spectrum management a function of a civil service department or by setting up an agency for the purpose. These national regulating bodies are known as ‘administrations’.

A key function in spectrum management is the assignment of carrier frequencies to transmitting and receiving stations, to be used for approved purposes and within stated parameters. In making these assignments, an administration aims to enable radio operating organizations to achieve their objectives without suffering or causing interference while using the spectrum efficiently, so that subsequent applicants will also be able to get access to the radio spectrum. When it is necessary to take account of cross-frontier interference liabilities, these administrations collaborate with equivalent agencies in neighbouring countries.



1- Radio regulation organizations

ITU

Where good use of the spectrum requires wider consultation or agreement to permanent policies and procedures, the administrations use the International Telecommunication Union (ITU) as their global forum.

Main decisions on policies and procedures are made at periodical World Radiocommunication Conferences (WRCs), held under the aegis of the ITU.

These conferences were called World Administrative Radio Conferences (WARCs) prior to 1993. The ITU *Radio Regulations* (RR) bring together the decisions of past WRCs and WARCs, with any subsequent amendments.

A major revision of the RR was agreed at WRC-95.



1- Radio regulation organizations

Policy Making bodies on Satellite communications

Communications satellites are an important delivery platform for information society services as diverse as interactive TV and mobile broadband internet access.

Communications satellites are particularly useful in rural and undeveloped regions, where other systems are difficult to deploy on a commercial basis.

Satellites can play a crucial role in ensuring that individuals, companies, organizations and Governments around the world can access and disseminate high quality information services.

1- Radio regulation organizations

Policy Making bodies on Satellite communications

Federal Communications Commission (FCC)

The Federal Communications Commission (FCC) is an independent agency of the United States government, created, directed and empowered by Congressional statute , and with the majority of its commissioners appointed by the incumbent President.

The FCC works towards goals in the six following areas:

- Broadband
- Competition
- The spectrum
- The media
- Public safety and homeland security
- And modernizing the FCC.





1- Radio regulation organizations

Policy Making bodies on Satellite communications

FCC Goals

These are:

Broadband: "All Americans should have affordable access to robust and reliable broadband products and services. Regulatory policies must promote technological neutrality, competition, investment, and innovation to ensure that broadband service providers have sufficient incentives to develop and offer such products and services."

Competition: "Competition in the provision of communication services, both domestically and overseas, supports the Nation's economy. The competitive framework for communications services should foster innovation and offer consumers reliable, meaningful choice in affordable services."

Spectrum: "Efficient and effective use of non-federal spectrum domestically and internationally promotes the growth and rapid development of innovative and efficient communication technologies and services."



1- Radio regulation organizations

Policy Making bodies on Satellite communications

FCC Goals

Media: "The Nation's media regulations must promote competition and diversity and facilitate the transition to digital modes of delivery."

Public Safety and Homeland Security: "Communications during emergencies and crisis must be available for public safety, health, defense, and emergency personnel, as well as all consumers in need. The Nation's critical communications infrastructure must be reliable, interoperable, redundant, and rapidly restorable."

Modernize the FCC: "The Commission shall strive to be highly productive, adaptive, and innovative organization that maximizes the benefits to stakeholders, staff, and management from effective systems, processes, resources, and organizational culture."



1- Radio regulation organizations

Policy Making bodies on Satellite communications

National Regulation Agencies (NRAs) in Africa:

Eastern Africa

| | |
|----------|---|
| Uganda | www.ucc.co.ug |
| Kenya | www.cck.go.ke |
| Tanzania | http://www.tcra.go.tz/ |
| Sudan | http://www.ntc.org.sd/ |
| Rwanda | www.rura.gov.rw |
| Ethiopia | http://www.telecom.net.et/ |

Southern Africa

| | |
|--------------|---|
| Botswana | http://www.bta.org.bw/ |
| Lesotho | http://www.lta.org.ls/ |
| Malawi | http://www.macra.org.mw/ |
| Mozambique | http://www.incm.gov.mz/ |
| Namibia | http://www.ncc.org.na/ |
| South Africa | http://www.icasa.org.za/ |
| Zambia | http://lirne.net/test/ |
| Swaziland | http://www.swazi.net/ |
| Angola | http://www.inacom.og.ao/ |
| Madagascar | http://www.omert.mg/ |
| Mauritius | http://www.icta.mu/ / |



1- Radio regulation organizations

Policy Making bodies on Satellite communications

National Regulation Agencies (NRAs) in Africa

West Africa

| | |
|---------------|--|
| Nigeria | www.ncc.gov.ng |
| Burkina Faso | http://www.artel.bf/ |
| Côte d'Ivoire | http://www.atci.ci/ |
| Ghana | http://www.nca.gov.gh/ |
| Senegal | http://www.artp-senegal.org/ |
| Togo | http://www.artp.tg/ |
| Sierra Leone | http://www.natcom.sl/ (under construction) |
| Niger | http://www.arm-niger.org |
| Mali | http://mali-reforme-telecom.mctmtl.com/ |
| Liberia | http://www.lta.org.lr/index.php (under construction) |
| Guinea Bissau | http://www.icgb.org/ |
| Benin | http://www.haacbenin.org/ |
| Gambia | http://www.pura.gm |



1- Radio regulation organizations

Policy Making bodies on Satellite communications

National Regulation Agencies (NRAs) in Africa

Northern Africa

| | |
|------------|---|
| Algeria | http://www.arpt.dz/ |
| Tunisia | http://www.intt.tn/ |
| Egypt | http://www.tra.gov.eg/ |
| Morocco | http://www.anrt.net.ma/ |
| Libya | http://www.gptc-Libya.com |
| Mauritania | http://www.are.mr/ |

Central Africa

| | |
|--------------------------|---|
| Chad | http://www.otrt.td/ |
| Democratic Rep. of Congo | http://www.arptc.cd/ |
| Congo | http://www.dgacpt.com |
| Equatorial Guinea | http://www.getesa.gq/ |
| Gabon | http://www.artel.ga/ |
| Cameroon | http://www.art.cm |



1- Radio regulation organizations

Policy Making bodies on Satellite communications

ITU

The International Telecommunication Union is an agency of the United Nations which regulates information and communication technology issues. As one of the most important organizations regulating telecommunications, the International Telecommunication Union (ITU) has a strong influence on the activities of National Regulatory Authorities (NRA)s.



In 2013 ITU had:

- 193 member countries
- More than 700 sector members
- More than 164 associates



1- Radio regulation organizations

Policy Making bodies on Satellite communications

ITU Organization

The ITU comprises four sectors, each managing a different aspect of the matters handled by the Union:

- **Radiocommunication (ITU-R)** Managing the international radio-frequency spectrum and satellite orbit resources is at the heart of the work of the ITU Radiocommunication Sector (ITU-R).
- **Standardization (ITU-T)** ITU-T's standards-making efforts are its best-known – and oldest – activity; known prior to 1992 as the International Telephone and Telegraph Consultative Committee or **CCITT** (from its French name "Comité **C**onsultatif **I**nternational **T**éléphonique et **T**élégraphique")
- **Development (ITU-D)** Established to help spread equitable, sustainable and affordable access to information and communication technologies (ICT).
- **ITU TELECOM** organizes events such as exhibitions.

A permanent **General Secretariat**, headed by the Secretary General, manages the day-to-day work of the Union and its sectors.



1- Radio regulation organizations

Policy Making bodies on Satellite communications

ITU Mission

ITU's mission is to enable the growth and sustained development of telecommunications and information networks, and to facilitate universal access so that people everywhere can participate in, and benefit from, the emerging information society and global economy. The ability to communicate freely is a pre-requisite for a more equitable, prosperous and peaceful world. And ITU assists in mobilizing the technical, financial and human resources needed to make this vision a reality.

A key priority lies in bridging the so called Digital Divide by building information and communication infrastructure, promoting adequate capacity building and developing confidence in the use of cyberspace through enhanced online security. Achieving cybersecurity and cyberpeace are amongst the most critical concerns of the information age, and ITU is taking concrete measures through its landmark Global Cybersecurity Agenda.



1- Radio regulation organizations

Policy Making bodies on Satellite communications

ITU Mission

ITU also concentrates on strengthening emergency communications for disaster prevention and mitigation. While both developing and developed countries are equally vulnerable to natural disasters, poorer nations are hardest hit because of their already fragile economies and lack of resources.

Whether through developing the standards used to create infrastructure to deliver telecommunications services on a worldwide basis, through equitable management of the radio-frequency spectrum and satellite orbits to help bring wireless services to every corner of the world, or through providing support to countries as they pursue telecommunication development strategies, all the elements of ITU's work are centred around the goal of putting every human being within easy and affordable reach of information and communication and to contribute significantly towards economic and social development of all people.

ITU remains dedicated to helping the world communicate.



1- Radio regulation organizations

Policy Making bodies on Satellite communications

Some ITU Mission

Specific objectives include:

- Regulation of satellite communications
- Coordinate and develop international communications
- Harmonizing national policies
- Technical assistance to developing countries in the domain of telecommunications and information access

Some ITU Tasks

Amongst the tasks assigned to ITU we can mention:

- Electromagnetic spectrum frequency band allocation
- Register space orbital position of satellites
- Control of Radio interferences



1- Radio regulation organizations

Policy Making bodies on Satellite communications



ITSO is the continuation of INTELSAT, the intergovernmental organization established by treaty in 1973. On July 18, 2001, the satellite fleet, customer contracts and other operational assets of the Organization were transferred to Intelsat Ltd, a new private company now registered in Luxembourg and various amendments to the ITSO Agreement took effect.

Under the ITSO Agreement, as amended, ITSO's primary role is that of supervising and monitoring Intelsat's provision of public telecommunications satellite services as specified in the Public Services Agreement (PSA) entered into between ITSO and Intelsat. In addition, the Director General, on behalf of the Organization, must consider all issues related to the Common Heritage. ITSO currently has 149 Member States.



1- Radio regulation organizations

Policy Making bodies on Satellite communications

ITSO



For this purpose, ITSO transferred its global satellite system, including the geostationary-orbital locations, “landing rights” and the brand-name of “Intelsat,” to Intelsat, Ltd. Since this transfer in 2001 up to 2010, Intelsat has invested US\$ 2.6 billion to substantially improve the global connectivity and coverage that it offers. As a result, Intelsat's global communications network, which was composed of 19 satellites in 2001, has expanded to 53 satellites through new launches and acquisitions, while Intelsat simultaneously has expanded its terrestrial facilities, including teleports, points of presence and fiber connectivity.



1- Radio regulation organizations

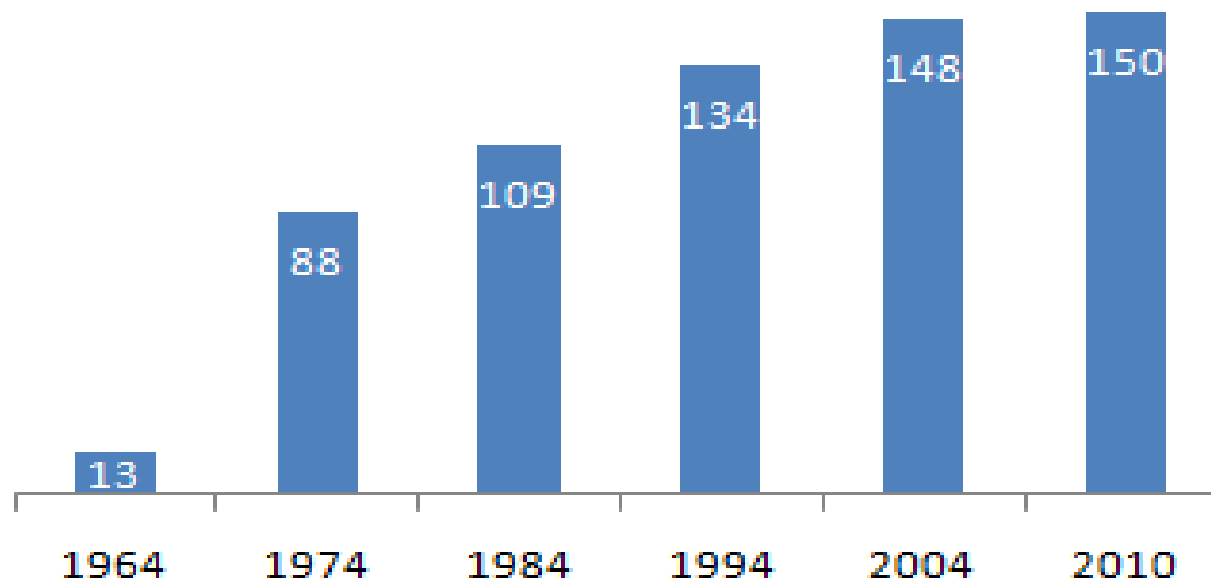
Policy Making bodies on Satellite communications

ITSO



Member Countries

Since its creation, the Organization has increased its membership to 150 States.





2- Satellite policy principles

Non Discriminatory Market Entry

The first prerequisite for an open, competitive market is a legal and regulatory structure that does not discriminate in favour of existing service providers, or otherwise limit the number of independent service providers that are permitted to provide satellite and telecommunications services to consumers.

Vigorous competition between a large number of market entrants encourages investment in infrastructure, provision of new services, improvements in quality and availability of lower prices.



2- Satellite policy principles

Non Discriminatory Market Entry

Many countries have already agreed to provide unlimited market access for satellite and other telecommunications services as a part of their commitments in the WTO GATS and its Fourth Protocol on Basic Telecommunications Services.

Despite these advances, some countries still restrict the number of licensed satellite networks that are permitted to provide services in a market, either because the government has a residual ownership interest in a monopoly or dominant carrier, or because old policies remain in place that were developed before liberalization became a consideration and based upon the erroneous view that limiting the number of telecommunications carriers in a market encourages those carriers to make capital investments in improved infrastructure.



2- Satellite policy principles

Open borders for competitive access

The second necessary measure for an open, competitive market is providing nondiscriminatory market access for both domestic and non-domestic satellite and telecommunications service providers. This is often referred to as an “Open Skies” policy.

It is important for countries to eliminate regulations that, although not discriminatory on their face, may have the unintended effect of preventing access by non domestic service providers.



2- Satellite policy principles

Open borders for competitive access

For example, satellite service operators should not be required to have a corporate presence in a country in order to provide services in that country. Furthermore, if a satellite operator has already received a license for its space segment from its home country and has coordinated the satellite through the ITU, then no duplicate licensing requirement should be imposed on the use of that space segment to provide services in any other country.



2- Satellite policy principles

Transparency of Telecommunication Rules and Policies

Another important principle included in the WTO Agreement is the need for countries to employ transparency in telecommunications regulation.

In compliance with the WTO Agreement, a significant number of regulators have undertaken the task of publishing regularly their laws and regulations on satellite licensing and permits. Making this information readily available to the public is an extraordinary step in advancing the transparency of a country's policies.



2- Satellite policy principles

Transparency of Telecommunication Rules and Policies

Some countries have developed Internet websites, which they use to post their regulatory framework, the list of licensed providers, technical standards and even to facilitate on-line filing of satellite and/or earth station authorizations. The advantages of making data readily accessible on the Internet are clear: Posting regulatory requirements is inexpensive, reduces the burden on Administrations (by reducing the need to respond to numerous individual inquiries), enables industry to more effectively provide services, and serves as an effective platform from which to promote regulatory harmonization.

Regulators should also brief their Commercial Attaches in their Diplomatic Missions to have them respond to petitions from satellite or network providers desiring access to their market.



2- Satellite policy principles

Transparency of Telecommunication Rules and Policies

A few countries, however, still seem reluctant to engage in this activity, possibly because of financial difficulties or because their regulations still favour the incumbent or monopoly providers. This difficulty is so severe that in many cases an aspiring service provider has to devote tremendous amounts of time, money and effort in an attempt to determine what regulations apply to satellite systems and services.

The lack of transparency in some countries constitutes a significant barrier to entry by new competitors, particularly since many service providers are forced to abandon plans to provide services in certain countries rather than shoulder the significant expense of ascertaining the regulatory requirements.



2- Satellite policy principles

Content neutral regulation

Satellite networks can be effectively used to provide all forms of telecommunications services. As a result, administrations that regulate “content” often apply those regulations to satellite operators. For example, some countries still maintain limits on the number of carriers that are permitted to provide international voice traffic.

Other countries restrict the provision of private line resale services, call-back services, or international carriage of Voice over Internet (VoIP) protocol.



2- Satellite policy principles

Content neutral regulation

In any event, content restrictions that are imposed by a country should be technology-neutral - applying equally to satellite-based and wireline telecommunications service providers.

Since satellite networks can be used to provide all forms of telecommunications services, no country should limit the number of satellite licenses that are issued in an attempt to restrict certain types of content.



2- Satellite policy principles

Technology-Neutral Regulations and Licensing Requirements

Modern telecommunications services are being provided to consumers using a number of different technologies, such as wireline, satellite and terrestrial wireless networks. In order to facilitate fair competition between these technologies, regulators must strive, to the extent possible, to make their regulations, licensing requirements and regulatory fees technically neutral.

In order to ensure that regulations are technology-neutral, regulators should strictly limit their regulations and licensing requirements for satellite services, using them solely to (1) protect the public safety and (2) manage scarce public resources, such as frequency spectrum when there is more than a negligible risk of harmful interference.

3- Legal framework

Legal framework

- United Nations Outer Space Treaty (1967)
 - Outer space free for exploitation and use by all states in conformity with international regulations
 - States retain jurisdiction and control over objects they have launched into outer space

3- Legal framework

Legal framework

- United Nations Outer Space Treaty (1967)
- International Telecommunication Union
 - Allocation of frequency bands
 - Instruments (CS, CV, RR, RoPs, Recs)
 - Procedures, Plans, operational measures



4- Key regulatory and licensing trends

The public policy principles discussed above provide a clear road map for administrations seeking to establish a licensing and regulatory structure for satellite services, or to reform existing regulatory structure in order to facilitate competition.

Non-discriminatory licensing requirements provide a country with a useful tool to ensure safety and keep up to date with technology developments and demands. Licensing requirements and their associated costs vary worldwide, but a significant trend has emerged toward adopting more streamlined, publicly accessible licensing arrangements for satellite network operators and service providers.

This trend reflects the fact that - as discussed above - licensing of satellite services should be used solely for two purposes -to protect public safety and to manage spectrum resources in order to prevent unreasonable interference.



4- Key regulatory and licensing trends

Space segment (Landing rights)

In the past, governments have developed policies to protect their countries' satellite systems. These “Closed Skies” policies required service providers to use only locally-owned satellite capacity when providing VSAT services.

But in the long run, governments are realizing that tremendous demand for Internet, data, voice, video and other essential services is best addressed by policies that permit open and direct access to all satellite resources assuming that they have been properly co-ordinated through the ITU.



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

The spectrum used via a satellite was historically distributed between the incumbent, military and related public service providers (police and emergency services).

As countries began implementing ‘Open Skies’ policies, licensing of spectrum became an issue nationally. In particular, interference had to be minimized in the best interests of society.

Today, the ITU coordination process serves to avoid technical problems such as interference among global operators.



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

Exclusive bands are often allocated for FSS and MSS services and spectrum sub-segments are assigned to different operators through coordination.

In such cases, it is not necessary to issue duplicate licenses to a foreign satellite operator or the spectrum associated with the foreign satellite because it has been coordinated and assigned by a foreign administration and no infrastructure is being installed or operated in the country.

Once inter-satellite co-ordination is accomplished at the ITU level, there is no further need to license spectrum use by networks operating in these exclusive bands.

4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

Radio Regulations

Lengthy & complex procedure

- Decided by Administrations during WRC
- Governed by:
 - More sophisticated use of spectrum
 - Individual requirements of administrations
- Trend towards simplification /improvement to certain procedures



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

Radio Regulations

Lengthy & complex procedure

- Efficient use of spectrum
- Equitable access
- Opportunity to resolve interference before operation
- Prevents loss of investment, customers & revenue by minimizing unusable capacity due to interference

4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

Rights & obligations + applicable procedures

Two mechanisms of sharing orbit /spectrum:

Coordination Approach

- Efficiency \Leftrightarrow First come, first served for actual requirements

Planning Approach

- Equitable access \Leftrightarrow Plan for future use



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

First Come, First Served Procedure

- Rights acquired through coordination with administrations concerning actual usage
- Efficient spectrum / orbit management
- Dense/irregular orbital distribution of space stations
- Continuing responsibility for the networks

Planning Procedure

- Congestion of the GSO
- Frequency / orbital position plans
- Guarantee for equitable access to the spectrum / orbital resources
 - Spectrum set aside for future use by all countries
 - Predetermined orbital position & frequency spectrum



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

ORBITAL SLOT REGISTRATION

The UN agency that regulates the use of geosynchronous orbits is the International Telecommunications Union. Regulation of these satellites is necessary, because there are a limited number of places to put them in orbit without the risk of interference with other satellites or collision with space debris.

In addition, the “orbital slots” (where the satellites are placed) over industrialized areas are in much more demand than in less developed areas. Slots over lesser developed countries with a location that would give a satellite coverage of industrialized countries are also in demand.



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

ORBITAL SLOT REGISTRATION

In 1988, the ITU acknowledged that all countries, including less developed countries, have an equal right to orbital slots. However, Article II of the Outer Space Treaty forbids any claim of sovereignty by any country in space, which would not allow countries to establish dominion over the orbital slots above their territory. At conferences in 1985 and 1988, the ITU did give all countries the rights over an orbital slot directly over their territory, which would ensure at least some access to these satellites to all countries.

The actual orbital slots themselves are dispensed on what could be described as a first come, first served basis with some consideration given to the country making the request. There is no mandatory system to deal with disputes over orbital slots, but there are countries that have entered into an optional method to deal with disputes within the ITU.



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

FREQUENCY REGISTRATION

The orbital slots issue is just one of the issues that the ITU addresses. The frequencies on which the satellites broadcast are also regulated by the ITU.

This aspect is important, because satellites that broadcast on the wrong frequencies can interfere with neighboring satellites or even radio or television transmissions on the ground.

Currently, the ITU has assigned about 87,000 frequencies to about 600 satellite networks in orbit (some of which are geosynchronous satellites).



4- Key regulatory and licensing trends

Space segment (Spectrum Management and Licensing)

INTERSYSTEM COORDINATION

Another important organ of the ITU is the International Frequency Registration Board (IFRB), which is responsible for intersystem coordination at an international level.

This applies to the coordination of terrestrial systems with satellite systems, and to the coordination of a new satellite system with existing ones or systems simply registered at the IFRB at the time the new system is submitted to IFRB.



4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

WRC 2012

World Radiocommunication Conferences (WRC) are held every three to four years. ITSO participated at the World Radiocommunication Conference (WRC-12), 23 January 2012 to 17 February 2012, Geneva, Switzerland

Under the terms of the ITU Constitution, a WRC can:

- revise the Radio Regulations and any associated Frequency assignment and allotment Plans;
- address any radiocommunication matter of worldwide character;
- instruct the Radio Regulations Board and the Radiocommunication Bureau, and review their activities;
- determine Questions for study by the Radiocommunication Assembly and its Study Groups in preparation for future Radiocommunication Conferences.



4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

Parties' Common Heritage

One of the concerns of African countries was the identification and labeling of the Parties' Common Heritage and secondly the protection of the Common Heritage orbital locations and associated frequency spectrum so as to ensure their continued future availability.

The conference was informed by both the UK and US Administrations that the matter of labeling of the Parties' Common Heritage in the ITU Master International Frequency Register was being successfully resolved between ITSO and the Notifying Administrations and therefore there was no need for the conference to take any action in response to the request contained in the African Common Proposal.



4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

Use of orbital positions and related frequencies

The conference adopted a resolution on: "Use of satellite orbital positions and associated frequency spectrum to deliver international public telecommunications services in developing countries" that laid specific emphasis on satellite technologies which can be found in ITSO documents such as AP-36-29 and also as WRC 12 resolution COM5/11.



4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

GEOSTATIONARY ORBIT

One contentious issue at WRC-12 concerned changes to the regulations governing satellite networks using the geostationary orbit.

The conference considered many proposals aimed at reducing the number of “paper satellites”, i.e., internationally coordinated orbital slots for systems that are not subsequently brought into use.

There was also debate on ensuring “equitable access” to the geostationary orbit.

The eventual outcome was some clarification of the definitions of “bringing into use” and other procedures.

4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

Resolve part

In particular under the "resolves" part:

- ITU-R is to continue to collaborate with and provide information to ITU-D on satellite technologies and applications that will help developing countries with development and implementation of satellite networks and services; and
- ITU-R is to undertake studies to determine whether it might be necessary to apply additional regulatory measures to enhance the availability of public international telecommunication services through satellite technology.
- The results of these studies are to be reported to WRC 15



4- Key regulatory and licensing trends

World Radio Communications Summit 2012 outcomes

Resolve part

The resolution also calls for organization of capacity building activities that will assist developing countries in building capacities in the development and use of satellite telecommunications



4- Key regulatory and licensing trends

Ground segment

In addition to licensing of the space segment, many administrations have attempted to create licensing regimes for the terrestrial segment of satellite networks.

Efforts to require licenses for the ground segment can be divided into two groups :

- authorization requirements for satellite service providers
- and individual licensing for earth station facilities.

Both approaches are discussed below.



4- Key regulatory and licensing trends

Ground segment (Network Operator and Service Provider Licensing)

Many countries require that public network operators hold licenses so that there is some quality assurance of the service being provided to their public. A few countries have adopted this rule also for private VSAT services. As the nature of private satellite services is being understood better, the requirement for this type of license is declining.

These types of licenses can also be referred to as Service Provider Licenses, Value Added Service Licenses and sometimes certain types of Class Licenses.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

Traditionally, most governments have required each VSAT or mobile terminal to be licensed individually; this was in addition to requiring a network operator's license.

But more than 10 years ago, a new approach to regulating VSATs - "blanket licensing" began to be implemented and it has been successful.

With this regulation, VSATs are configured based upon technical criteria involving power level, frequency, etc. - that eliminate the risk of unreasonable interference. Thus, a single blanket license can be issued covering a very large number of VSAT terminals.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

EARTH STATION AND VSAT REGISTRATION

The ITU controls frequency allocations, permitted power levels and modes of operation. These restrictions are intended primarily to prevent interference between all types of systems employing radio communications and to protect some telecommunications services, such as emergency services.

In addition to that, many governments currently impose restrictions and regulations on service providers and users. These national regulations are specific to each particular country.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

EARTH STATION AND VSAT REGISTRATION

Due to the increasing uptake of sophisticated telecommunications systems, that are sold and used in all countries, the licensing regime for end-user equipment (such as VSAT terminals) is becoming simpler and less costly.

You will find the procedures and regulations that rule the installation and operation of VSAT terminals at regulations agencies in the countries or on ITU web site.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

EARTH STATION AND VSAT REGISTRATION

A licence is required by the national telecommunications authority of a country where any earth station as a part of a network, be it the hub, a control station or a VSAT, is planned to be installed and operated.

The concern reflected here is to ensure compatibility between radio networks by avoiding harmful interference between different systems.

By doing so, any licensed operator within a certain frequency band is recognized as not causing unacceptable interference to others, and is protected from interference caused by others.

In the past, national telecommunication authorities have required licensing of individual VSAT terminals in addition to requiring a network operator's license. Then, the US Federal Communication Commission (FCC) implemented with success a *blanket licensing* approach for VSATs operated within the US.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

EARTH STATION AND VSAT REGISTRATION

With blanket licensing, VSATs are configured based upon technical criteria (power level, frequency, etc.) to eliminate the risk of interference, so a single license can be issued covering a large number of VSAT terminals.

Blanket licensing has since gained interest among national telecommunications authorities all over the world, as a result of equipment manufacturers complying with the recommendations issued by international standardization bodies, such as the International Telecommunication Union (ITU) and the European Telecommunications Standard Institute (ETSI). Relevant documentation from these bodies is available at <http://www.itu.int/home/index.html> and <http://www.etsi.org/>.



4- Key regulatory and licensing trends

Ground segment (Individual and Blanket Earth Station Licensing)

EARTH STATION AND VSAT REGISTRATION

A licence usually entails the payment of a licence fee, which is most often in two parts: a one-time fee for the licensing work and an annual charge per station.

The licensing procedure is simpler when the network is national, as only one telecom authority is involved.

For transborder networks, licences must be obtained from the different national authorities where the relevant earth stations are planned to be installed and operated, and rules often differ from one country to another. To facilitate the access to these rules, telecommunications authorities around the world have begun posting data related to their nations' VSAT regulatory conditions on the World Wide Web.



4- Key regulatory and licensing trends

Establishing appropriate fees

The fundamental rationale for licensing fees is that they should compensate administrative costs to the regulator but should not be used as a source of real profit for the government.

In addition to publicising rules regarding satellite licensing, fee structures should be clearly defined for the public without discrimination.

Companies assess expected costs before market entry, so clarity and availability of this information is critical.

5- Means of monitoring and controlling the spectrum

In granting radio frequencies, the authority or agency verifies the applicant's planned location of radio equipment before installation and checks the authorized equipment for conformity with the licensing conditions.

The agency carries out pre-license and post - license conformity inspections with the aim to control the frequency usage consequently to detect any illegal (unlicensed) usage of the spectrum.

5- Means of monitoring and controlling the spectrum

The main tasks of the regulation agency will typically consist of :

- Verify applicant's planned location of radio equipment before installation.
- Check the authorized equipment for conformity with the licensing conditions.
- Carry out conformity inspection prior to and after granting licenses
- Carry out random checking on installations to verify compliance to assigned specifications as well as the real condition of equipment declared to be unused.
- Survey and inspect radio communication installations.
- Ensure compliance of equipment and stations with the national rules and regulations.

5- Means of monitoring and controlling the spectrum

- Check the frequency spectrum, in relation to enforcement and monitoring aspects.
- Ensure compliance with national conditions of licenses.
- Check the technical and operational characteristics of radio equipment.
- Verify the compatibility and the interference-free use of authorized emissions, to detect and identify the origin of interference and to resolve them.
- Detect and identify unauthorized transmissions.
- Determine channel and band usage, including assessment of channel availability.
- Assist to resolve interference problems

5- Means of monitoring and controlling the spectrum

The interferences and signal strengths can be measured using a measurement vehicle.





End of Module 2:

POLICY AND REGULATORY GUIDELINES FOR SATELLITE SERVICES

Thank You!

Questions?