

# Orbit/Spectrum International Regulatory Framework

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# United Nations Outer Space Treaties

1. **Principles Governing the Activities of States in the Exploration and Use of Outer Space**, including the Moon and Other Celestial Bodies – 1967
2. **The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies** – 1984
3. **The Agreement on the Rescue of Astronauts** -1968
4. **The Convention on International Liability for Damage Caused by Space Objects** (States retain jurisdiction and control over objects they launch into outer space) - 1972
- 5 **The Convention on Registration of Objects Launched into Outer Space** - 1976

# 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
- States shall be liable for damage caused by their space objects

# Legal Framework

- United Nations Outer Space Treaty (1967)

## International Telecommunication Union

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- Principles of use of orbit/spectrum
  - Allocation of frequency bands
  - Procedures, Plans, operational measures
  - Instruments (CS, CV, RR, RoPs, Recs)

- “The Union shall effect **allocation of bands** of the radio-frequency spectrum, the **allotment of radio frequencies** and the **registration of radio frequency assignments** and, for space services, of any associated orbital position in the geostationary-satellite orbit or any associated characteristics of satellite in other orbits, in order **to avoid harmful interference** between radio stations of different countries.”



# ITU Constitution

## Article 44

Radio frequencies & satellite orbits  
are limited natural resources

Rational, Efficient, Economical Use

Equitable Access

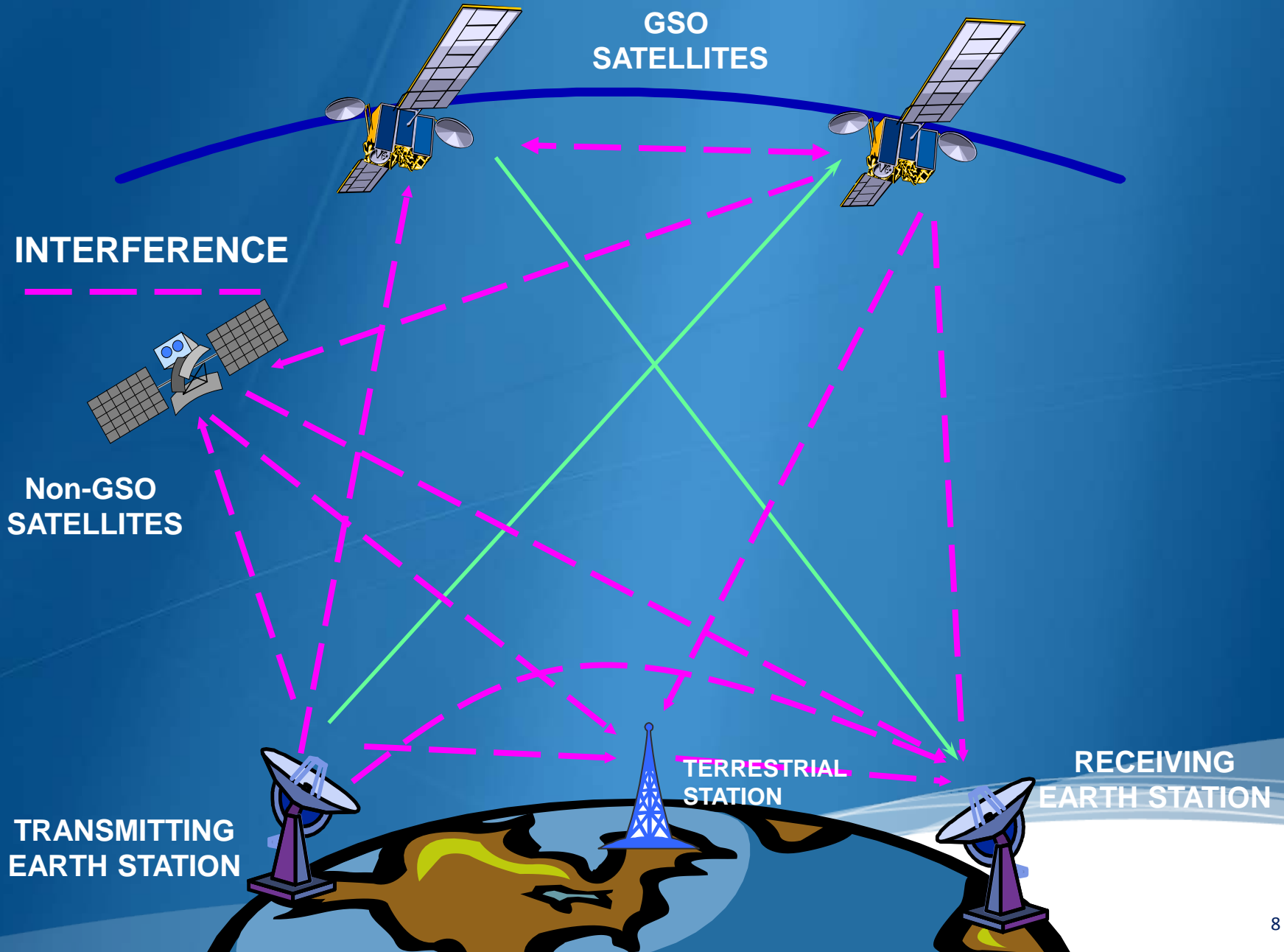
# Radio Regulations

Intergovernmental Treaty governing the use of spectrum/orbit resources by administrations

Define the **rights and obligations** of Member States in respect of the use of these resources

Updated every 3-4 years by World Radiocommunication Conferences, WRCs







# Propagation of Radio waves



- Laws of physics
- Radio waves do not stop at national borders

## Interference



- possible between radio stations of different countries
- This risk is high in Space Radiocommunications

## Radio Regulations (RR)

- One of its main purposes - **Interference-free operation of Radiocommunications**

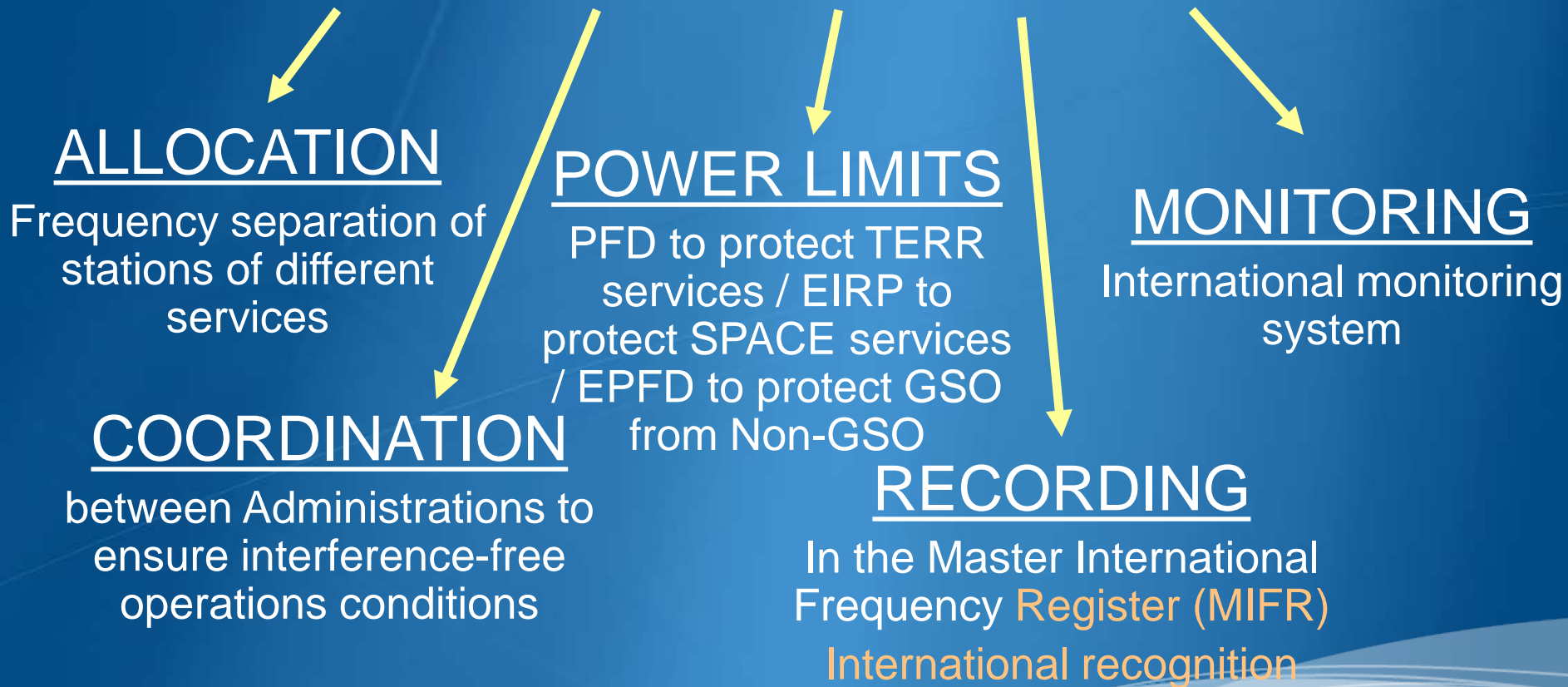
# Radio Regulations

## 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

# Radio Regulations Mechanisms

## Control of Interference



# Radio Regulations

- Rights & obligations + applicable procedures
- Two mechanisms of sharing orbit / spectrum:



## Coordination Approach

First come, first served for actual requirements

## Planning Approach

Equitable access  $\Leftrightarrow$  Plan for future use

# Efficient & Rational Utilization

## “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

# Summary for non-planned services ...

**API**

**Coordination**

**Notification**

Start the clock  
(7 years to bring into use)

**Valid up to 2 years**

Obligatory negotiation  
(Goal: interference-free operation)

**(3 ~ 6 years)**

Recording in Master Register  
(international recognition)

**(Bringing into use)**

# Equitable Access

## Plan 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