

“Orbit/Spectrum Allocation Procedures”

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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

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)

ITU Constitution

Article 44



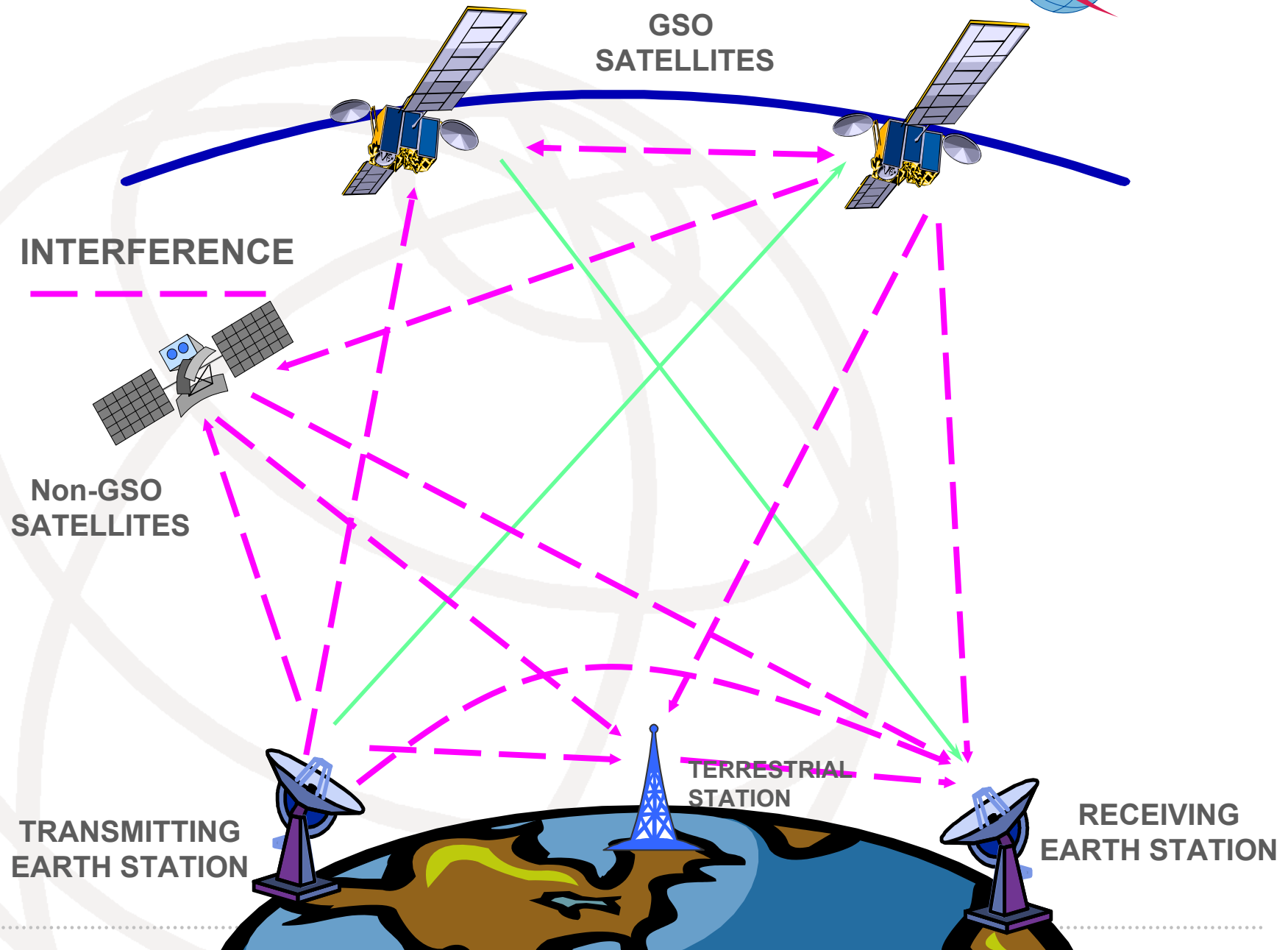
Radio frequencies & satellite orbits
are limited natural resources



Rational, Efficient, Economical Use



Equitable Access



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**



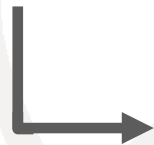
The Radio Regulations
(international *treaty*)
incorporates the decisions of
the World Radiocommunication
Conferences, including all
Appendices, Resolutions,
Recommendations and
ITU-R Recommendations
incorporated by reference.



- Frequency block **allocations** to defined radio services (Article 5)
- Mandatory or voluntary **regulatory procedures** (coordination, plan modification, notification, recording) that are adapted to the allocation structure

Radio Regulations

- Lengthy & complex procedure



Decided by Administrations

- + 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



ALLOCATION

Frequency separation of
stations of different services

POWER LIMITS

PFD to protect TERR services
/ EIRP to protect SPACE
services / EPFD to protect
GSO from Non-GSO

REGULATORY PROTECTION

e.g. No. 22.2: Non-GSO to
protect GSO (FSS and BSS)

COORDINATION

between Administrations to
ensure interference-free
operations conditions

Radio Regulations

- 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

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
- Continuing responsibility for the networks

Efficient & Rational Utilization

Article 9 (Sect.I, II)
(Coordination procedure)

Article 11
(Notification procedure)

Article 21, 22
(Limits)

App. 4
App. 5

Res 49

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Procedural Approach
Objectives

**Exchange of
information**



Coordination



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