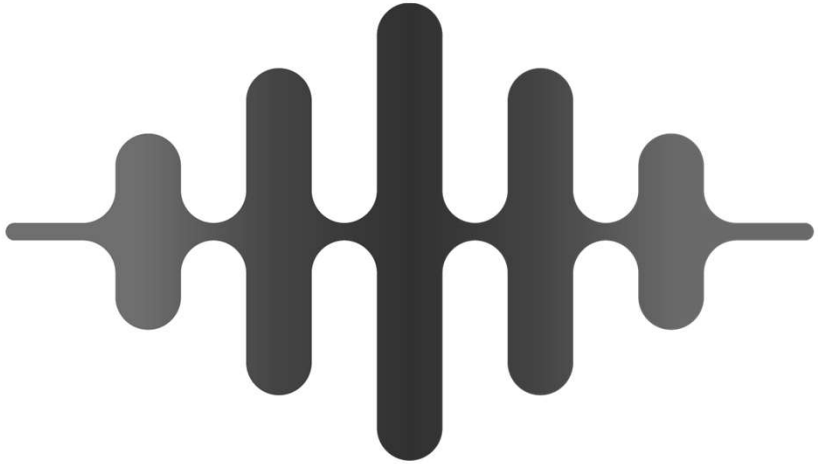


ITUWRS GENEVA2024

2–6 December 2024
Geneva, Switzerland

Overview of Space Services and Regulatory Framework

Mr. Alexandre Vallet
Chief, Space Services Department

2-6 December 2024, Geneva, Switzerland

SPUTNIK

launched on 4th October 1957

Geneva, 7 October - 8 November 1963

Only 6 years later

the Extraordinary Administrative Radio Conference allocated

frequency bands for

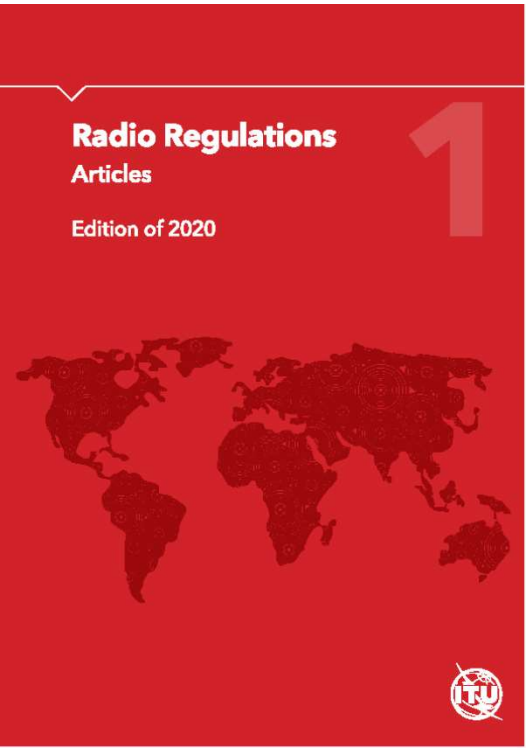
space radiocommunication purposes

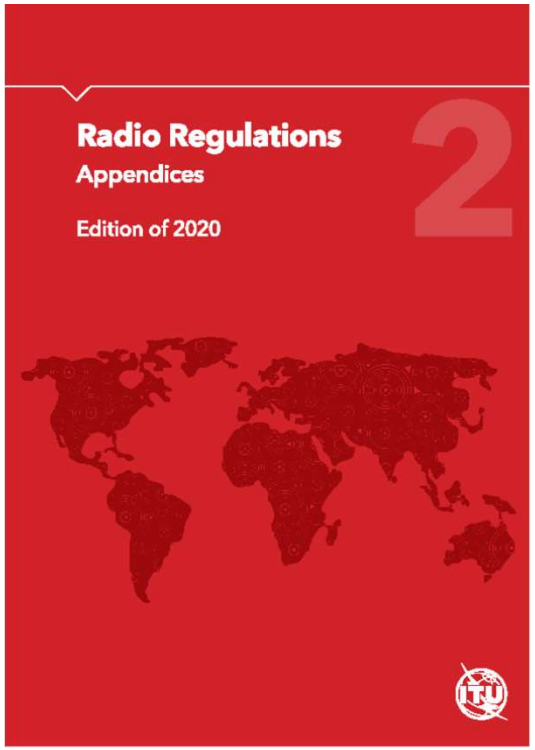
Satellites today

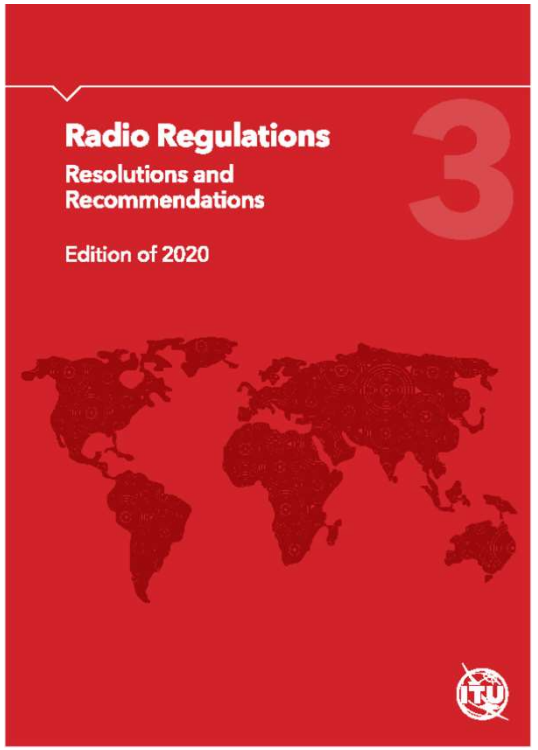
Global Space Economy
2023 revenues worldwide

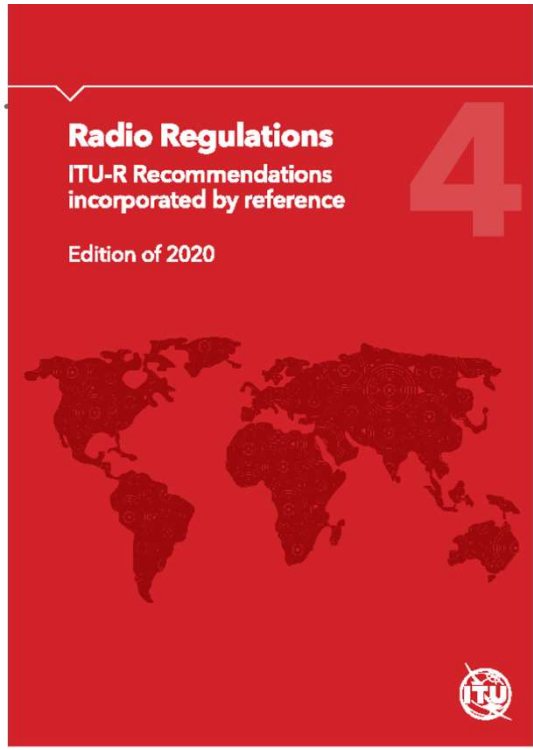
400 billions USD

Source: 2024 State of the Satellite Industry
(Satellite Industry Association)







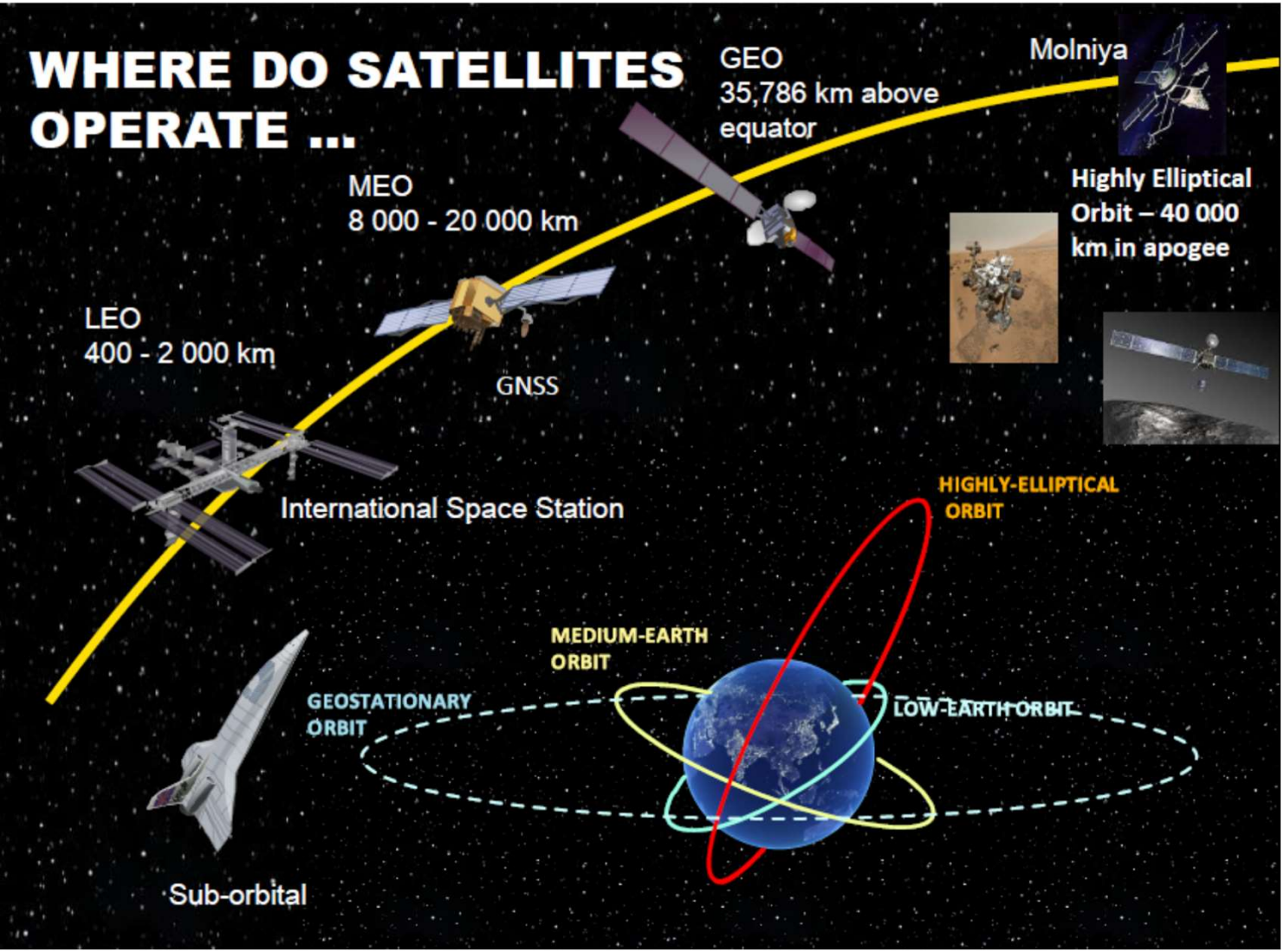


RADIO REGULATIONS

TODAY

More than 2000 pages of Radio Regulations regularly reviewed by World Radiocommunication Conferences

40 Conferences since 1906



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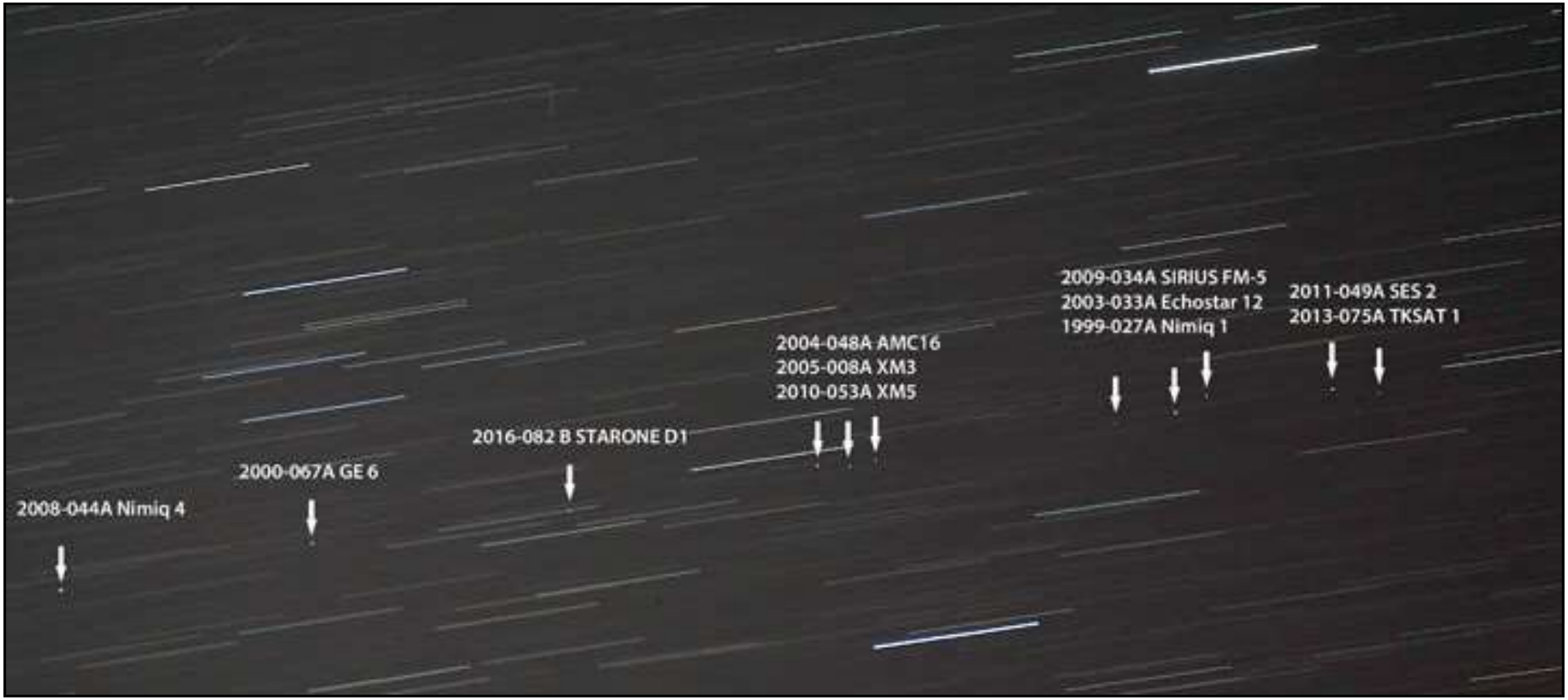
Frequency spectrum

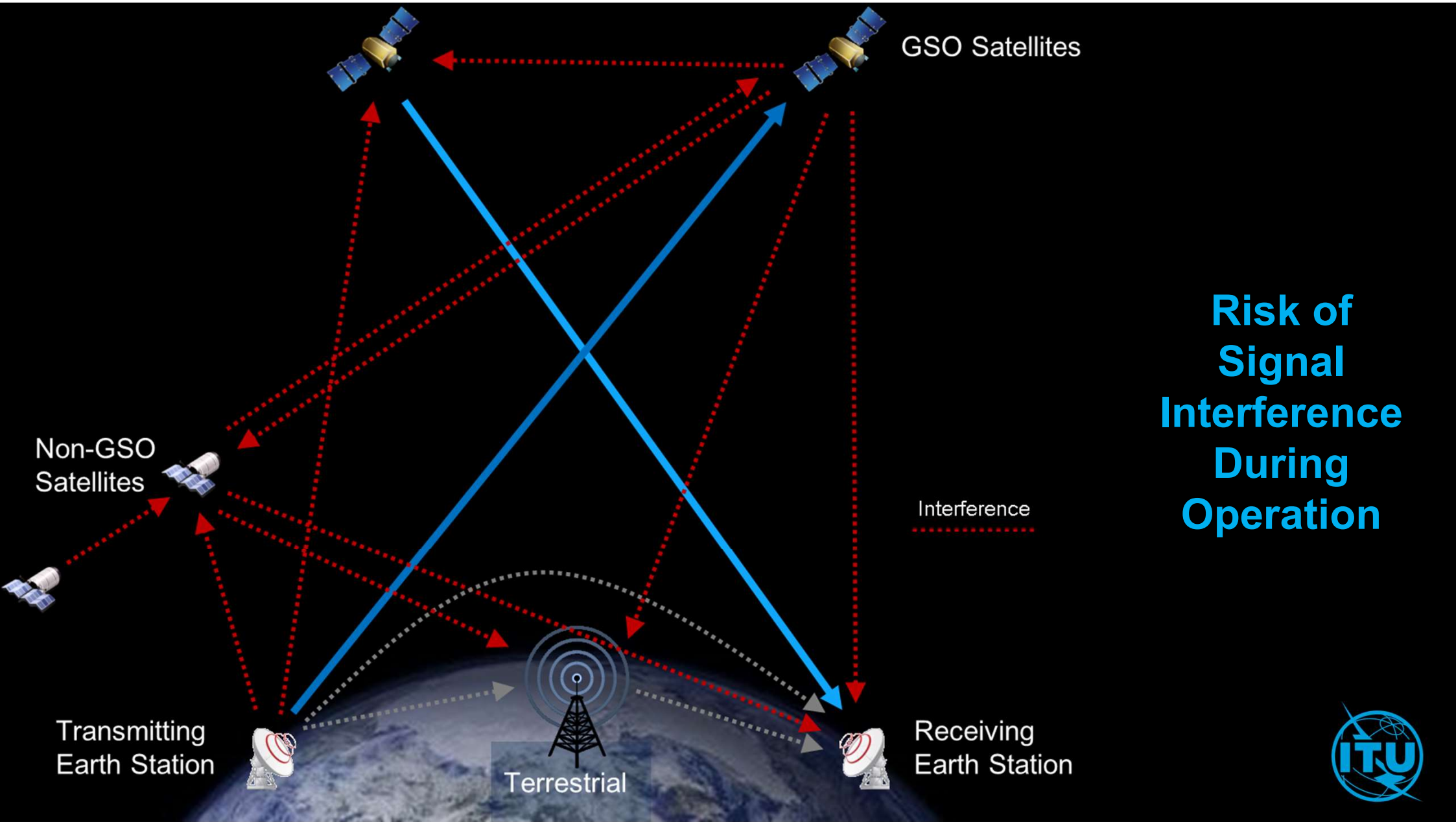
Examples of frequency bands commonly used for satellite applications

Uplink frequency	Downlink frequency	Regulatory service
1.6 GHz	1.5 GHz	MSS
2 GHz	2 GHz	MSS/SOS
6 GHz	4 GHz	FSS
8 GHz	7 GHz	FSS
13-14 GHz	10-12 GHz	FSS/BSS
30 GHz	20 GHz	FSS/BSS/ MSS

RR Article 5 allocates regulatory services to frequency bands



Geostationary-satellite orbit



Risk of Signal Interference During Operation

Legal framework – ITU Constitution

Article 1 – Purposes of the Union

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 of **any associated characteristics of satellites in other orbits**, in order **to avoid harmful interference** between radio stations of different countries

coordinate efforts **to eliminate harmful interference** between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radiocommunication services and of the geostationary-satellite and other satellite orbits

Article 44 – Use of the Radio-Frequency Spectrum and of the Geostationary-Satellite and Other Satellite Orbits

Orbit/spectrum resources are **limited natural resources**
Must be used **rationally, efficiently and economically**
Equitable access

Article 45 – Harmful Interference

Not to cause harmful interference

Both Member States and operating agencies (see also Article 6)

Legal framework – Radio Regulations

Intergovernmental treaty
governing the use of spectrum/orbit resources by Member States

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

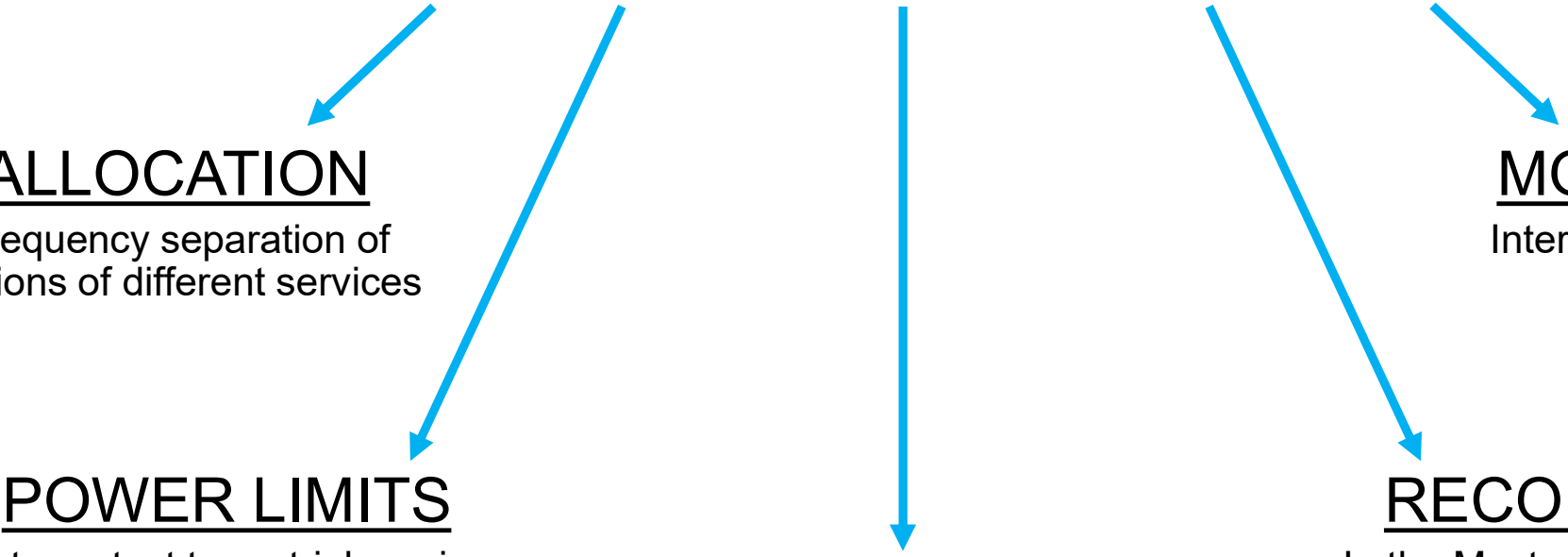
Recording of a frequency assignment in the Master Register (MIFR) provides international recognition

Updated every 4 years by World Radiocommunication Conferences (WRC)

Complemented by Rules of Procedure adopted by the Radio Regulations Board

Radio Regulations – Regulatory and technical solutions

5 Mechanisms to control interference and ensure equitable access



ALLOCATION

Frequency separation of stations of different services

MONITORING

International monitoring system

POWER LIMITS

pfd to protect terrestrial services
eirp to protect space services
epfd to protect geostationary satellites from non-geostationary systems

COORDINATION

between Administrations to ensure interference-free operations

RECORDING

In the Master International Frequency Register (MIFR)

International recognition

Radio Regulations – Access to orbit/spectrum resources

Two approaches for recording in MIFR

Coordination Approach

Based on requirements as they come

Non-plan Services

Planning Approach

A priori planning for future use

Plan Services

Rational, Efficient, Economical Use

Equitable Access

Radio Regulations – Guaranteeing investments while preventing warehousing

When a frequency is recorded in the MIFR

Several mechanisms to prevent warehousing

Based on transparency of usage

Guaranteeing investments

Possibility to temporarily keep a record even with no usage (3 years)

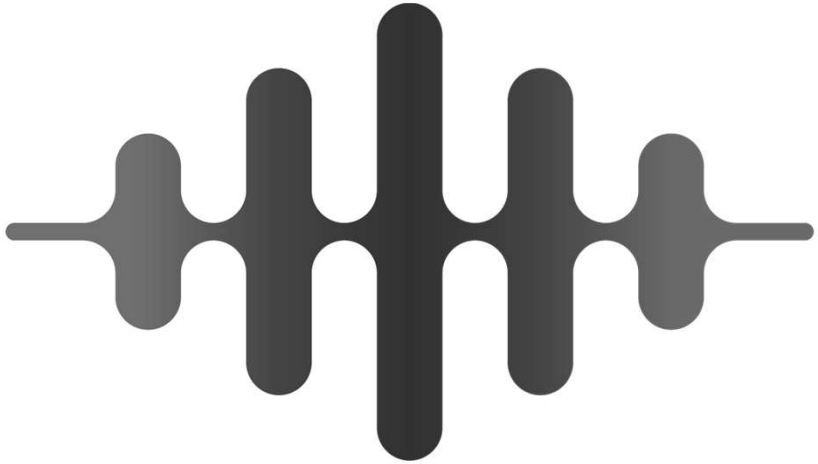
Possible waivers from the RRB

Nos. 11.44, 13.6 and Resolutions 4, 35, 40, 49, 552

No. 11.49
(or equivalent for the Plans)

Percentage of spectrum assigned to satellite networks which was free from reported harmful interference in 2023

99.94%



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