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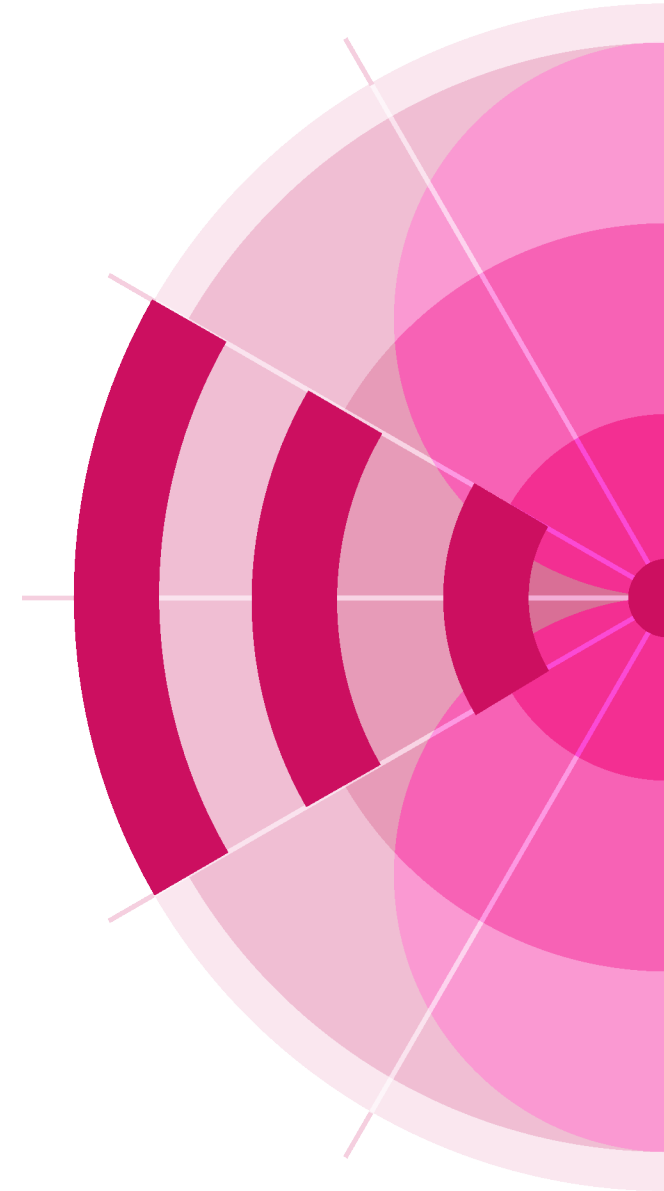
29TH WORLD RADIOCOMMUNICATION SEMINAR
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Orbit-Spectrum International Regulatory Framework

Alexandre Vallet
Chief, Space Services Department
Radiocommunication Bureau

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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
2019 revenues worldwide
366 billions USD

Source: 2020 State of the Satellite Industry
(Satellite Industry Association)



Radio Regulations

Articles

Edition of 2020

1

Radio Regulations

Appendices

Edition of 2020

2

Radio Regulations

Resolutions and
Recommendations

Edition of 2020

3

Radio Regulations

ITU-R Recommendations
incorporated by reference

Edition of 2020

4

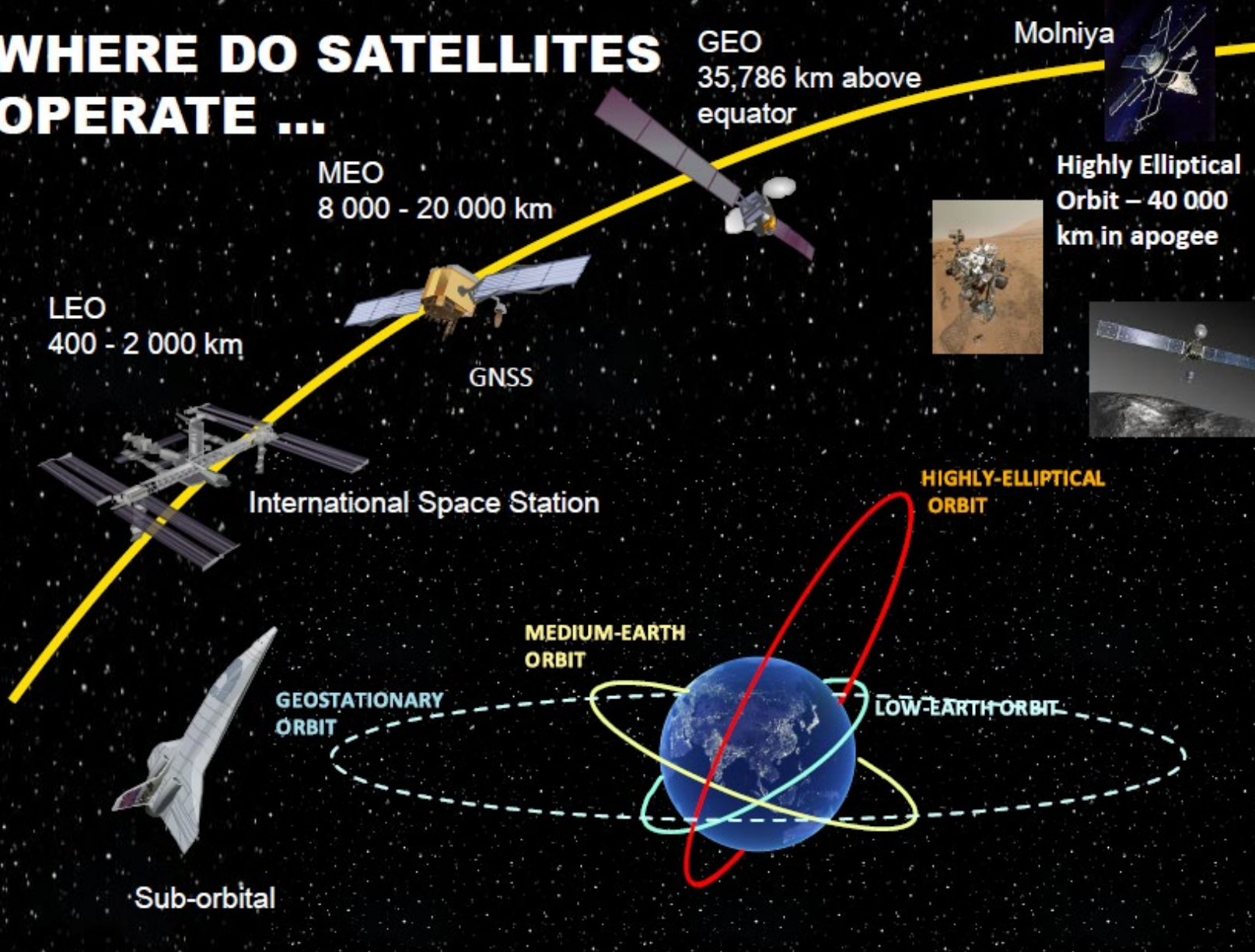


RADIO REGULATIONS

- **TODAY**
- More than 2000 pages of Radio Regulations regularly reviewed by World Radiocommunication Conferences
- **39 Conferences since 1906**



WHERE DO SATELLITES OPERATE ...

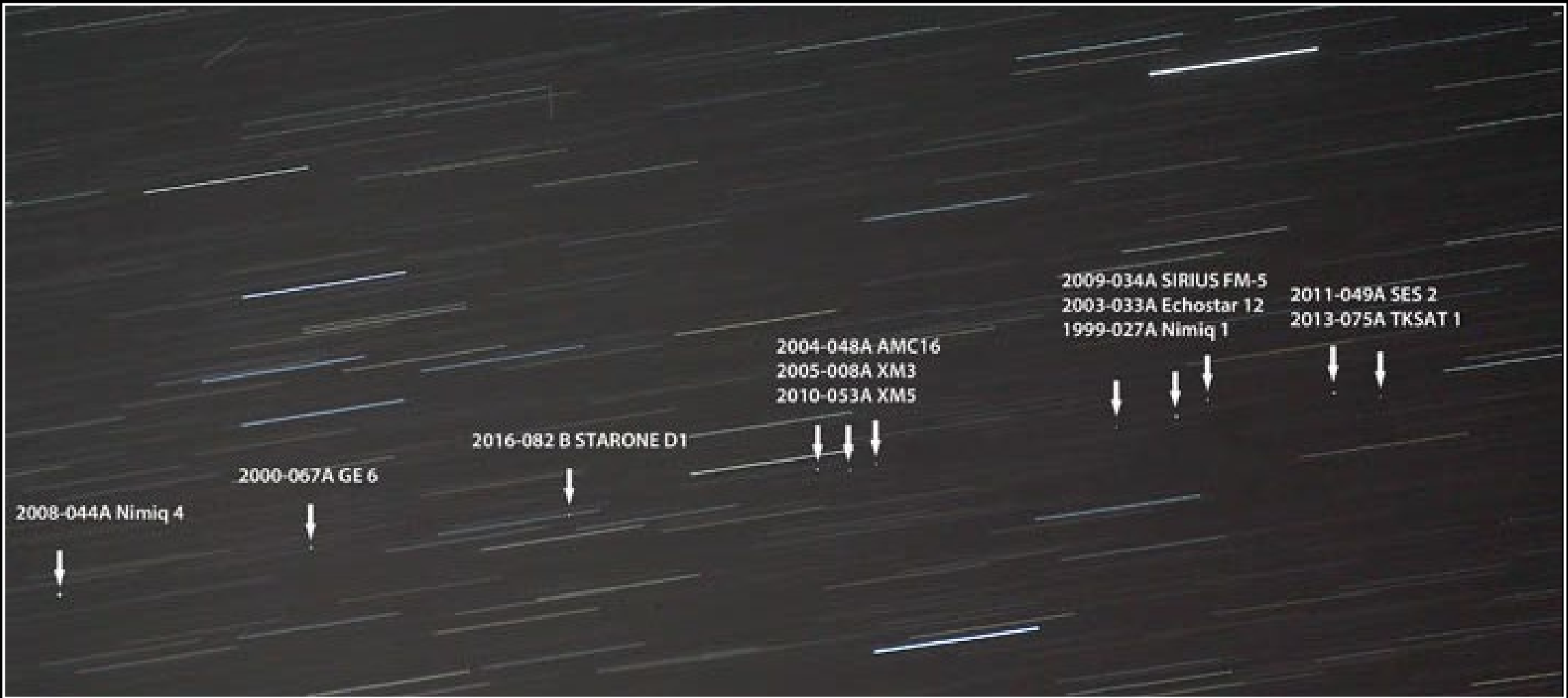


Frequency spectrum

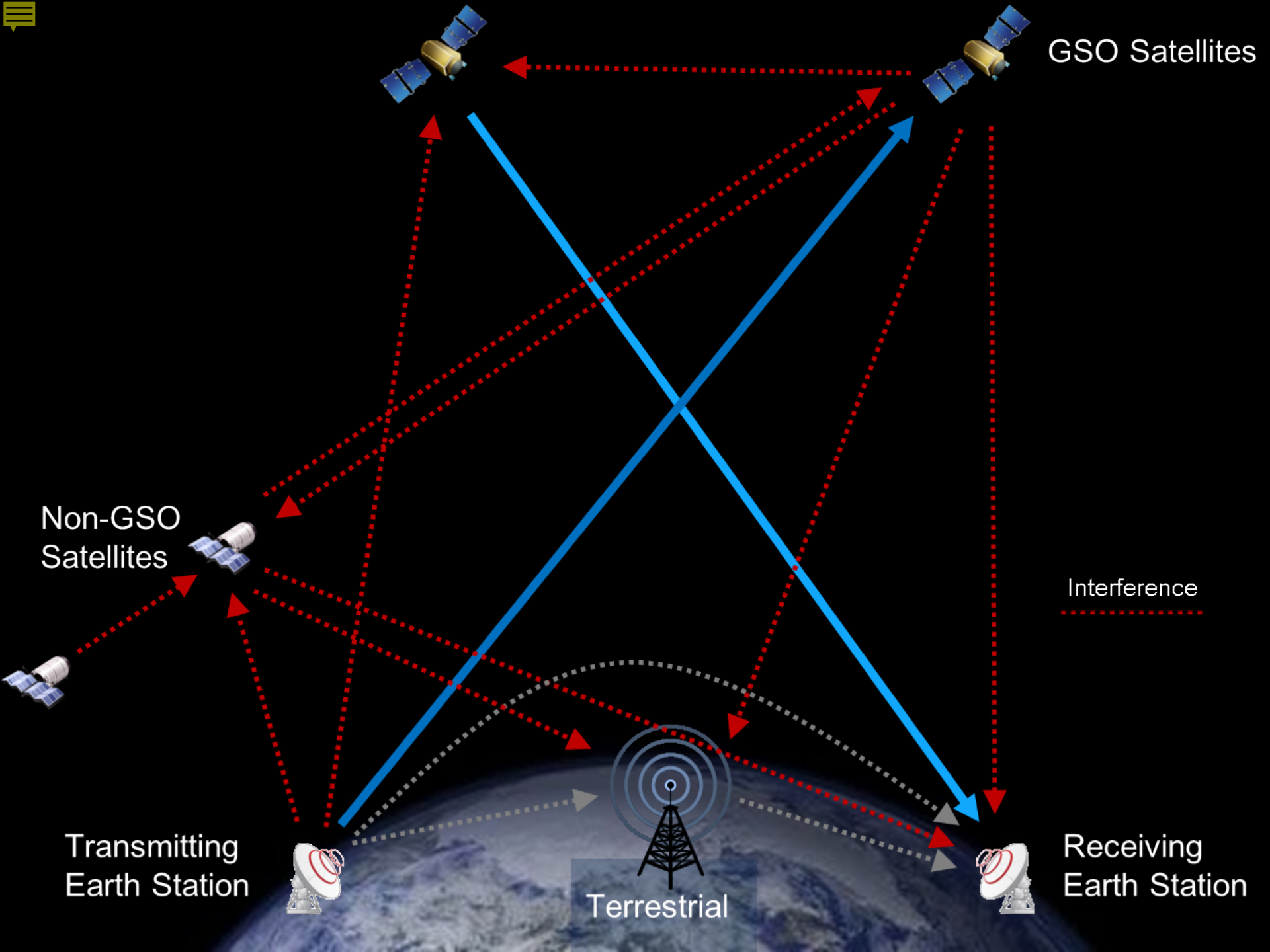
Examples of frequency bands commonly used for satellite applications

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



GSO Satellites

Non-GSO Satellites

Transmitting Earth Station

Terrestrial

Receiving Earth Station

Risk of Signal Interference During Operation

Interference



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

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

MONITORING

International monitoring system

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

Percentage of spectrum assigned to satellite networks which was free from reported harmful interference in 2019

99.95%

Key points



Use of radio frequencies in space
is regulated by the Radio Regulations



This Treaty is regularly reviewed
to accompany technical evolutions



Please contact the BR
if you have any questions



BRMAIL@ITU.INT

Thank you!

ITU – Radiocommunication Bureau

Questions to brmail@itu.int or alexandre.vallet@itu.int

