The ITU & Spectrum Management
1959
Administrative Radio Conference
defined space service

1963
Extraordinary Administrative
Radio Conference allocated
frequency bands for space
Satellite Map (maps.esri.com/rc/sat2/index.html)
Degrades, obstructs, or interrupts radiocommunication services

HARMFUL INTERFERENCE

Endangers function of safety services including radionavigation

No. 1.169 of Article 1 of Radio Regulations
International Telecommunication Union

• Since 1865
• UN Agency for ICTs
• 193 Member States
• HQ in Geneva, Switzerland
• 3 Bureaus/Sectors - ITU-R, ITU-T, ITU-D
• ITU Constitution, Convention, Radio Regulations
• Manages global allocation of radio-frequency spectrum & satellite orbits
RADIO REGULATIONS

• To facilitate access/use of spectrum & orbit
• To ensure rational, equitable, efficient and economical use of spectrum
• To not cause harmful interference
• To exercise the utmost goodwill and mutual cooperation

RR Nos. 0.3, 0.4, 0.6, 7.8, 15.22
Radio Regulations
Articles
Edition of 2020

RADIO REGULATIONS

- Since 1906
- International treaty
- Define rights & obligations
- Updated every 4 years by WRC
- Balance between stability vs innovation
Radionavigation-Satellite Service (RNSS)

… to determine the position, velocity and/or other characteristics by radio waves propagation properties involving the use of one or more space stations for the purpose of radionavigation

Nos. 1.9, 1.41, 1.43 of Article 1 of Radio Regulations

Member States recognize that the safety aspects of radionavigation … require special measures to ensure their freedom from harmful interference …

No. 4.10 of Article 4 of Radio Regulations
<table>
<thead>
<tr>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
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<tbody>
<tr>
<td>1 164-1 215</td>
<td>AERONAUTICAL RADIONAVIGATION 5.328</td>
<td>PRIMARIO</td>
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<td>RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A</td>
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<td>1 215-1 240</td>
<td>EARTH EXPLORATION-SATELLITE (active)</td>
<td>SERVICES &amp; DIRECTION</td>
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<td>SPACE RESEARCH (active) 5.330 5.331 5.332</td>
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</tbody>
</table>

5.328A Stations in the radionavigation-satellite service in the band 1 164-1 215 MHz shall operate in accordance with the provisions of Resolution 609 (Rev.WRC-07) and shall not claim protection from stations in the aeronautical radionavigation service in the band 960-1 215 MHz. No. 5.328A does not apply. The provisions of No. 21.18 shall apply. (WRC-07)

Footnotes with conditions

Footnotes
EPFD Limits to protect ARNS in 1164-1215 MHz
(Resolution 609)

Non-GSO Satellites

GSO Satellites

Potential Interference

Transmitting Earth Station

Receiving Earth Station

PFD, EIRP, EIRP density, off-axis
EIRP, EPFD, min. antenna sizes
Articles 5 footnotes, 21, 22, Resolutions etc.
Negotiations for interference-free operations, notification & recording in Master Register (MIFR)

Articles 9, 11

Non-GSO Satellites

GSO Satellites

Potential Interference

Transmitting Earth Station

Receiving Earth Station

Terrestrial

© ITU
Report harmful interference to ITU/BR (RR Art.15):
- for info, or
- for assistance (RR No. 13.2), or
- to exchange info with up to 193 Administrations

www.itu.int/ITU-R/space/sirrs
WRC-23

- World Radiocommunication Conference
- Updates Radio Regulations
- Agreement by consensus
- 4 weeks every 4 years
- 20 Nov – 15 Dec 2023 in UAE

Source: https://www.itu.int/dms_pub/itu-s/md/21/sg/cir/S21-SC-CIR-0049!!PDF-E.pdf
WRC-23 CYCLE

ITU-R Study Group
- SG1 Spectrum management
- SG 3 Radiowave propagation
- SG 4 Satellite services
- SG 5 Terrestrial services
- SG 6 Broadcasting service
- SG 7 Science services

Finalize Study
CPM Text, Note to BR Directors
21 Oct

CPM23-2
27 Mar – 6 Apr

CPM Report
Jun (5m<WRC)

Updated Radio Regulations
Enter into force on 01.01.2025 (or end of WRC-23)

WE ARE HERE

WRC-19
CPM23-1

2019 2020 2021 2022 2023 2024

WRC-23
20 Nov - 15 Dec 2023

**KEY TAKEAWAYS**

**ITU**
Manages global allocation of spectrum/orbits

**RR**
Contains rights & obligations in using spectrum/orbits

**RNSS**
Needs measures to ensure freedom from harmful interference

**WRC**
Updates the RR