Radio Regulations and Table of Frequency Allocations

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Topics to Be Covered

• Overview of the Radio Regulations
  – Instruments of the ITU
  – Guiding principle of RR
  – International recognition and protection from interference

• Table of Frequency Allocations
  – Spectrum apportionment definitions
  – Allocations hierarchy
  – Footnotes

• Sovereign right of states to manage spectrum use
Radio Regulations

• Principle regulatory framework within which Member States undertake to operate radio services and the basic tool for international spectrum use
• International treaty status and binding on all Member States
• Revised by WRCs
• Supplement the Constitution and Convention of the ITU
Legal Instruments of the ITU

• Constitution
• Convention
• Administrative Regulations
  – Radio Regulations (RR)
  – International Telecommunication Regulations (ITRs)
Radio Regulations Define:

- Frequency allocations to different categories of radiocommunication services
- Mandatory technical parameters to be observed by radio stations, especially transmitters
- Procedures for the **coordination** and **notification** of frequency assignments made to radio stations by national governments
  - Coordination: ensuring technical compatibility
  - Notification: formal recording and protection in the Master International Frequency Register (**MIFR**)
- Other procedures and operational provisions
Master International Frequency Register

• ITU-maintained database of satellite and terrestrial frequency assignments
• Recording in the MIFR is the final stage of the frequency coordination process
  – Notifications of frequency assignments from administrations are examined and published in the BR IFIC
• Confers international recognition and protection from interference
RR Structure

Volume 1 – Articles
  – Art 1: Terms and definitions
  – Art 5: Frequency allocations

Volume 2 – Appendices
  – App 7: coordination methods
  – App 30: BSS Plan; App 30B: FSS Plan

Volume 3 – Resolutions and Recommendations

Volume 4 – ITU-R Recommendations incorporated by reference
Frequency Allocations

• Allocation and regulation of the radio frequency (RF) portion of the electromagnetic spectrum
  – RF ranges from 3 Hz to 3000 GHz (3 THz)
• Allocated radio spectrum: 8.3 kHz - 275 GHz
  – Use of 275-1000 GHz is subject to No. 5.565
• Allocations are made to radiocommunication services defined in RR Article 1
• Frequency bands are allocated to different services either worldwide or regionally
Spectrum Apportionment Definitions

- **Allocation** – (of a frequency band): Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more radiocommunication services. (RR)

- **Allotment** – (of a radio frequency or radio frequency channel): Entry of a designated frequency channel in an agreed plan. (RR)

- **Assignment** – (of a radio frequency or radio frequency channel): Authorization given for a radio station to use a radio frequency or a radio frequency channel under specified conditions. (RR)
Int’l Table of Frequency Allocation

• Band allocations are set out in the **International Table of Frequency Allocations**

• Each band may be allocated to one or more services, with equal or different rights

• Two categories of service: **PRIMARY** and **secondary**

• Exceptions or restrictions on allocations are covered in **footnotes** to the Table
## Partial Page from Allocations Table

<table>
<thead>
<tr>
<th>Allocation to services</th>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
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ITU Regions
ITU Administrative regions

CITEL – Americas
CEPT – Europe
ASMG – Middle East
ATU – Africa
RCC – Russian Commonwealth
APT – Asia Pacific
Partial List of Radiocommunication Services

Amateur service (AS)
fixed service (FS)
fixed-satellite service (FSS)
inter-satellite service
space operation service (SRS)
mobile service (MS)
mobile-satellite service (MSS)
land mobile service (LMS)
land mobile-satellite service (LMSS)
maritime mobile service (MMS)
maritime mobile-satellite service (MMSS)
aeronautical mobile service (AMS)
aeronautical mobile (R) service (AM(R)S)
aeronautical mobile (OR) service (AM(OR)S)
broadcasting service (BS)
broadcasting-satellite service (BSS)
radiodetermination service (RDS)
radiodetermination-satellite service (RDSS)
radionavigation service (RNS)
radionavigation-satellite service (RNSS)
maritime radionavigation service (MRNS)
maritime radionavigation-satellite service (MRSS)
aeronautical radionavigation service (ARNS)
radiolocation service (RLS)
radiolocation-satellite service (RLSS)
meteorological aids service (MAS)
Earth exploration-satellite service (EESS)
meteorological-satellite service (MetSat)
space research service (SRS)
Footnotes

• 5. prefix
  – Examples: 5.149, 5.282, 5.388

• Used to cover
  – Different category of service
  – Additional allocation
  – Alternative allocation
  – Incorporation by Reference
  – Technical/Operational Restrictions
Sovereign Right of States to Manage Spectrum Use

• ITU recognizes sovereign right of States to manage the radio spectrum.
• RR allows each State the greatest possible flexibility with regard to spectrum use.
• Services allocated in the Table are not necessarily compatible locally; each State can select those it wishes to implement on its territory.
• However, exercise of sovereign right should not conflict with the principle of promoting efficient and economical use of the spectrum and should not result in barriers to trade in services.
• Non-conformance with the international radio regulations should not result in cross-border interference.
## U.S. Table of Frequency Allocations Sample

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<tr>
<th>ITU</th>
<th>NTIA</th>
<th>FCC</th>
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<tbody>
<tr>
<td><strong>Region 1 Table</strong> (See previous page)</td>
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FCC Regulations