



# 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 radiommunication 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

Allocation to services		
Region 1	Region 2	Region 3
	220-225	
223-230 BROADCASTING Fixed Mobile	AMATEUR FIXED MOBILE Radiolocation 5.241	223-230 FIXED MOBILE BROADCASTING
5.243 5.246 5.247	225-235 FIXED MOBILE	AERONAUTICAL RADIONAVIGATION Radiolocation 5.250
230-235 FIXED MOBILE		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250
5.247 5.251 5.252		
235-267	FIXED MOBILE 5.111 5.252 5.254 5.256 5.256A	

Primary  
Secondary

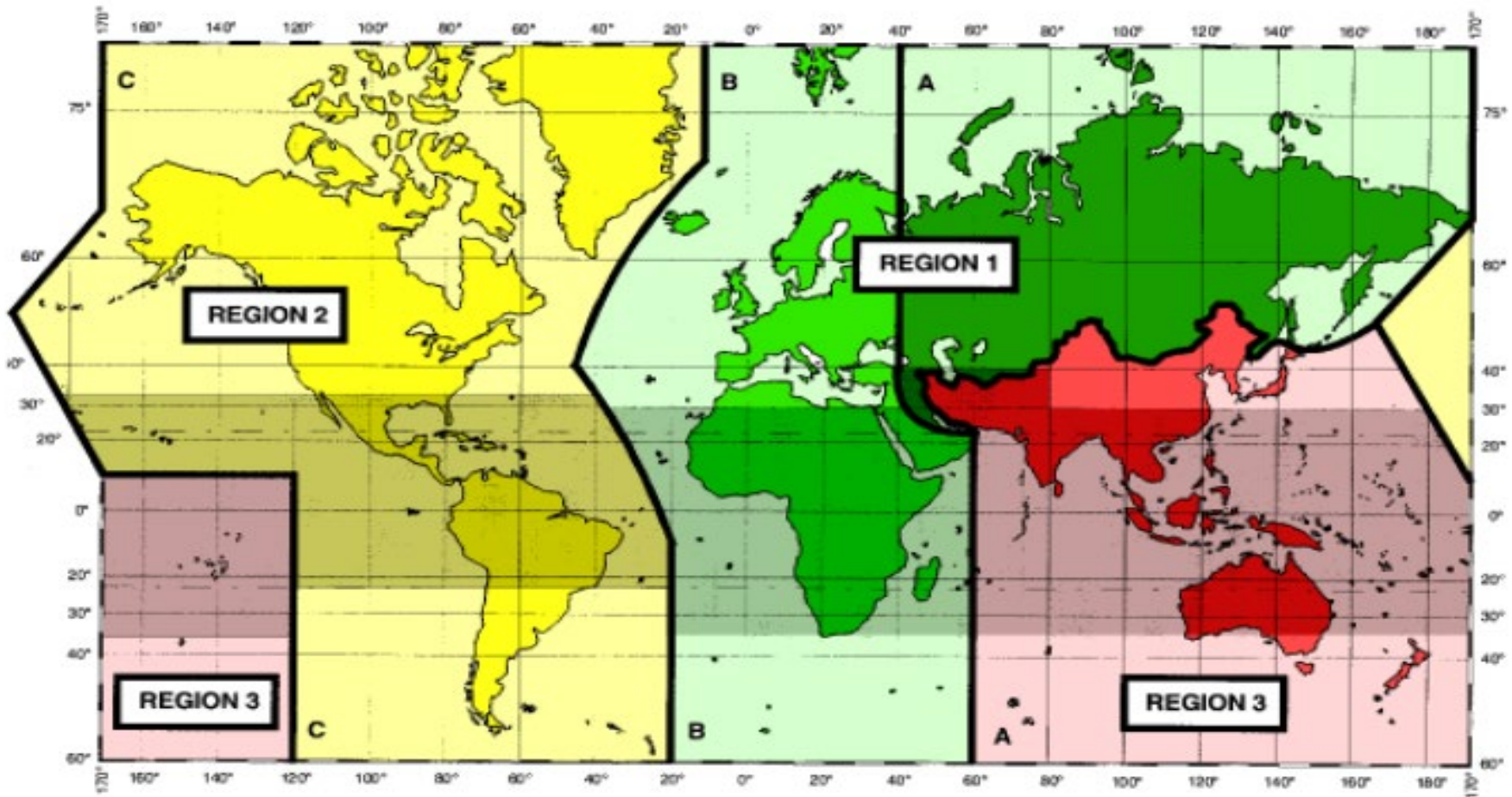
Primary

Secondary

Primary

Footnotes

# 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

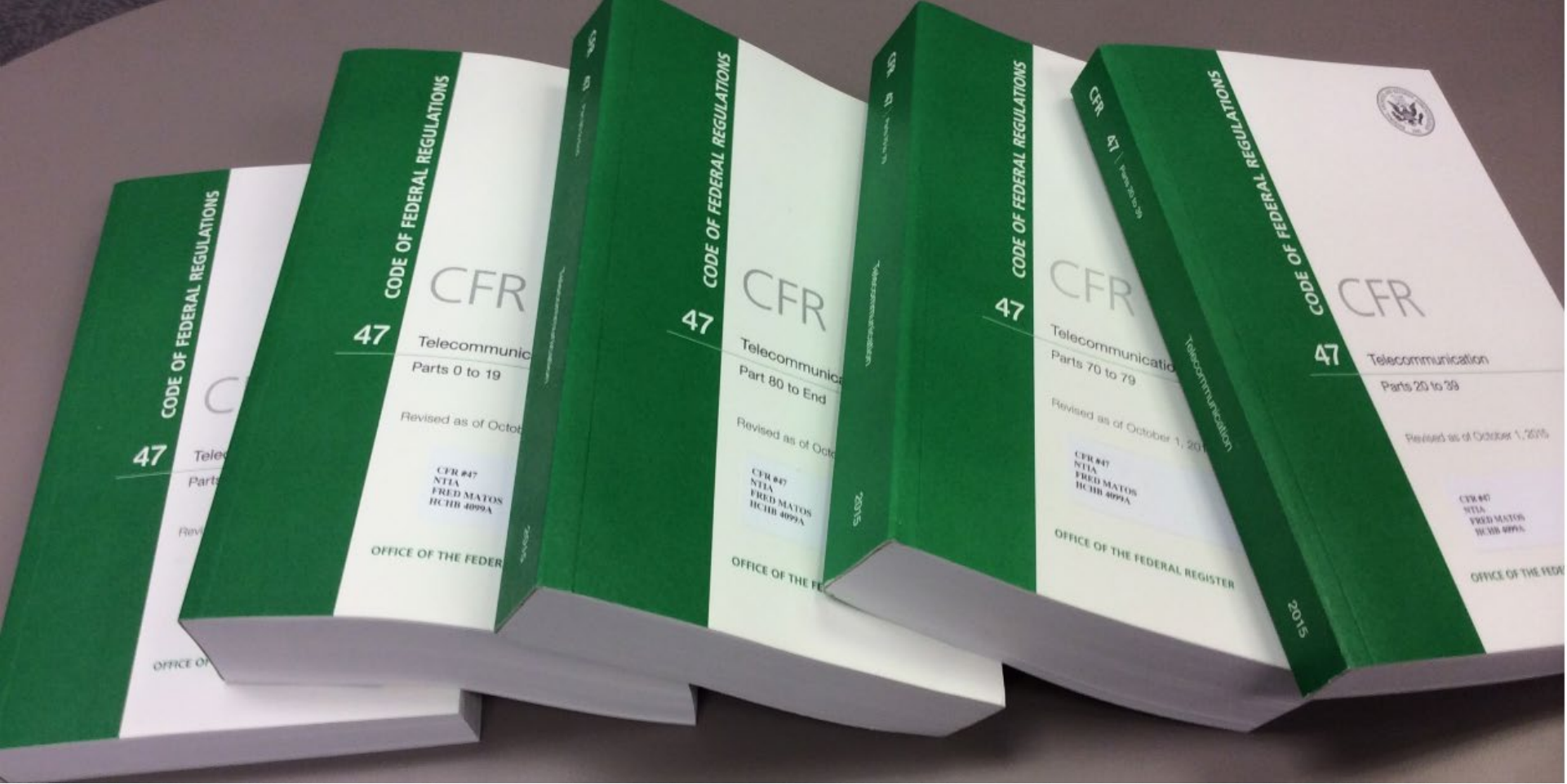
ITU

NTIA

FCC

Table of Frequency Allocations			941-1525 MHz (UHF)		Page 31
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	(See previous page)	(See previous page)	941-944 FIXED	941-944 FIXED	Public Mobile (22) Aural Broadcast Auxiliary (74E) Fixed Microwave (101)
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING	US268 US301 G2 944-960	US268 US301 NG30 NG120 944-960 FIXED NG120	Public Mobile (22) Aural Broadcast Auxiliary (74E) Low Power Auxiliary (74H) Fixed Microwave (101)
5.323 960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328		5.320	960-1164 AERONAUTICAL RADIONAVIGATION 5.328 US224 US400		Aviation (87)
1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B			1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)		
5.328A 1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active)			5.328A US224 1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) G132 SPACE RESEARCH (active)	1215-1240 Earth exploration-satellite (active) Space research (active)	
5.330 5.331 5.332 1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur			5.332 1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION	1240-1300 AERONAUTICAL RADIONAVIGATION Amateur Earth exploration-satellite (active) Space research (active)	Amateur Radio (97)
5.282 5.330 5.331 5.332 5.335 5.335A 1300-1350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space)			5.332 5.335 1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2	5.282 1300-1350 AERONAUTICAL RADIONAVIGATION 5.337	Aviation (87)
5.149 5.337A 1350-1400 FIXED MOBILE RADIOLOCATION	1350-1400 RADIOLOCATION 5.338A		US342 1350-1390 FIXED MOBILE RADIOLOCATION G2	US342 1350-1390	
			5.334 5.339 US342 US385 G27 G114	5.334 5.339 US342 US385	

# FCC Regulations



# NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management

