

# Telecommunications Laws, Regulations, and Organizations

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**USTTI**

**Radio Frequency Spectrum Management Course**

**June 12, 2023**

**11:00am - 12:00pm**

# Outline

- Introduction
- Foundational Exercise
  - Why laws and regulations in spectrum management?
  - What is being regulated? (What is “spectrum”?)
- Legal Concepts
  - Elements of Successful Laws and Regulations
  - Roles of Regulators and Regulated
  - Hierarchy of Laws
- Basic laws and institutions of international and U.S. spectrum management

# My Propositions

- Spectrum doesn't exist.
- Spectrum management creates and enforces rights under the licensing approach.
- Spectrum management by a government is law.
- You all have jobs working with the law.

# Spectrum Regulation

- Why government regulation? Possible reasons:
  - Spectrum is scarce
  - Protection from harmful interference
  - Efficiency = more users
  - Highest value users
  - Access for many/more



# On Spectrum

- Does spectrum exist in nature?
- Is there “ether”?
- Is spectrum tangible or is it a description of something? If a description, what does it describe? Rights to operate?
- Is spectrum like any other resource? Is it like land? A parking lot? A ship channel or a highway?
- Does spectrum management require directive laws and regulations?

# Costs of Regulation

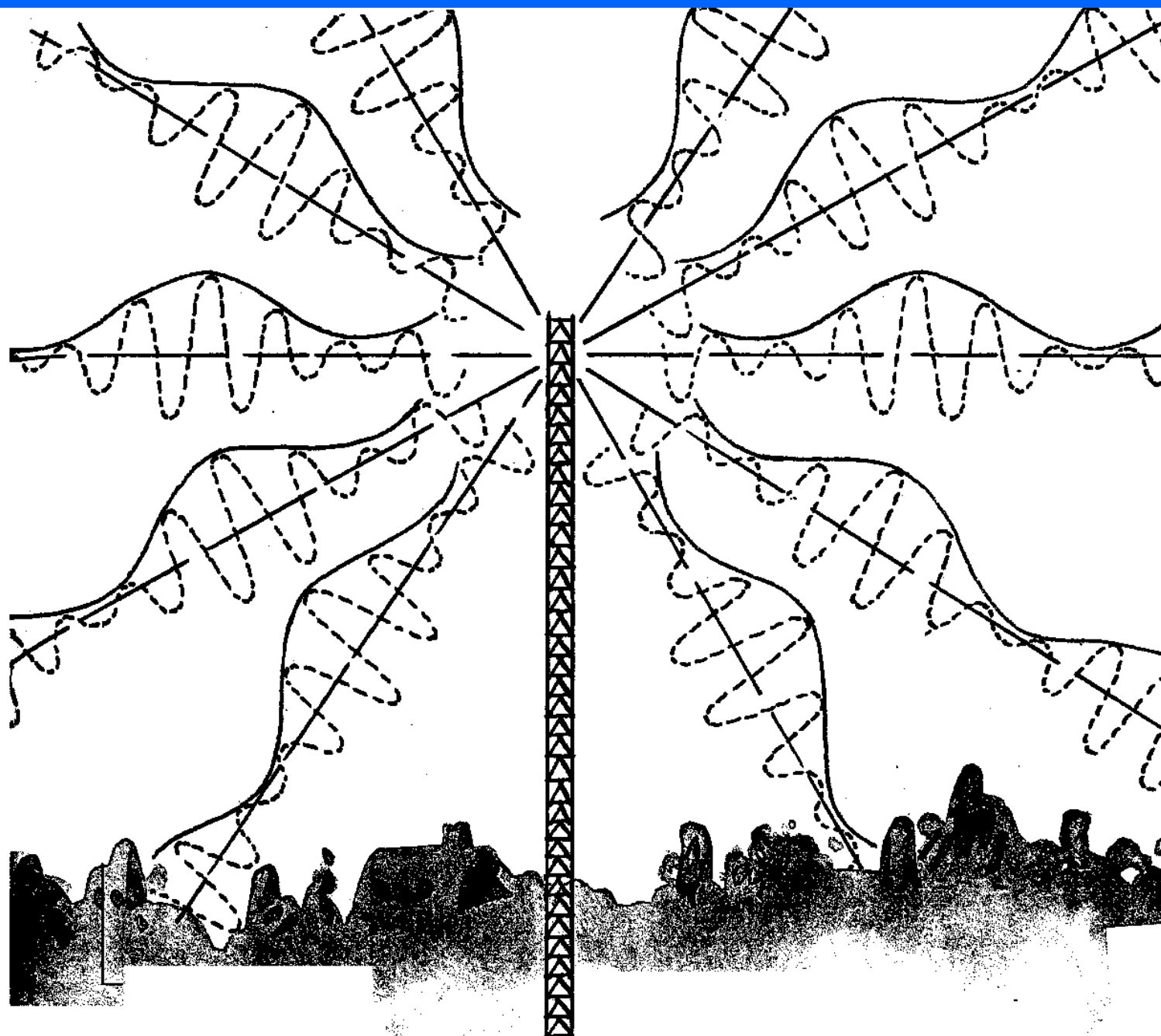
- Incorrect judgments
  - From an often inflexible and centralized process
- Slow and expensive decision-making
  - Delays services and adds costs
- Actual cost of regulating
  - Increases tax burden and prices
- Distortion to market
  - Leads to inefficient results
- Interference with free speech

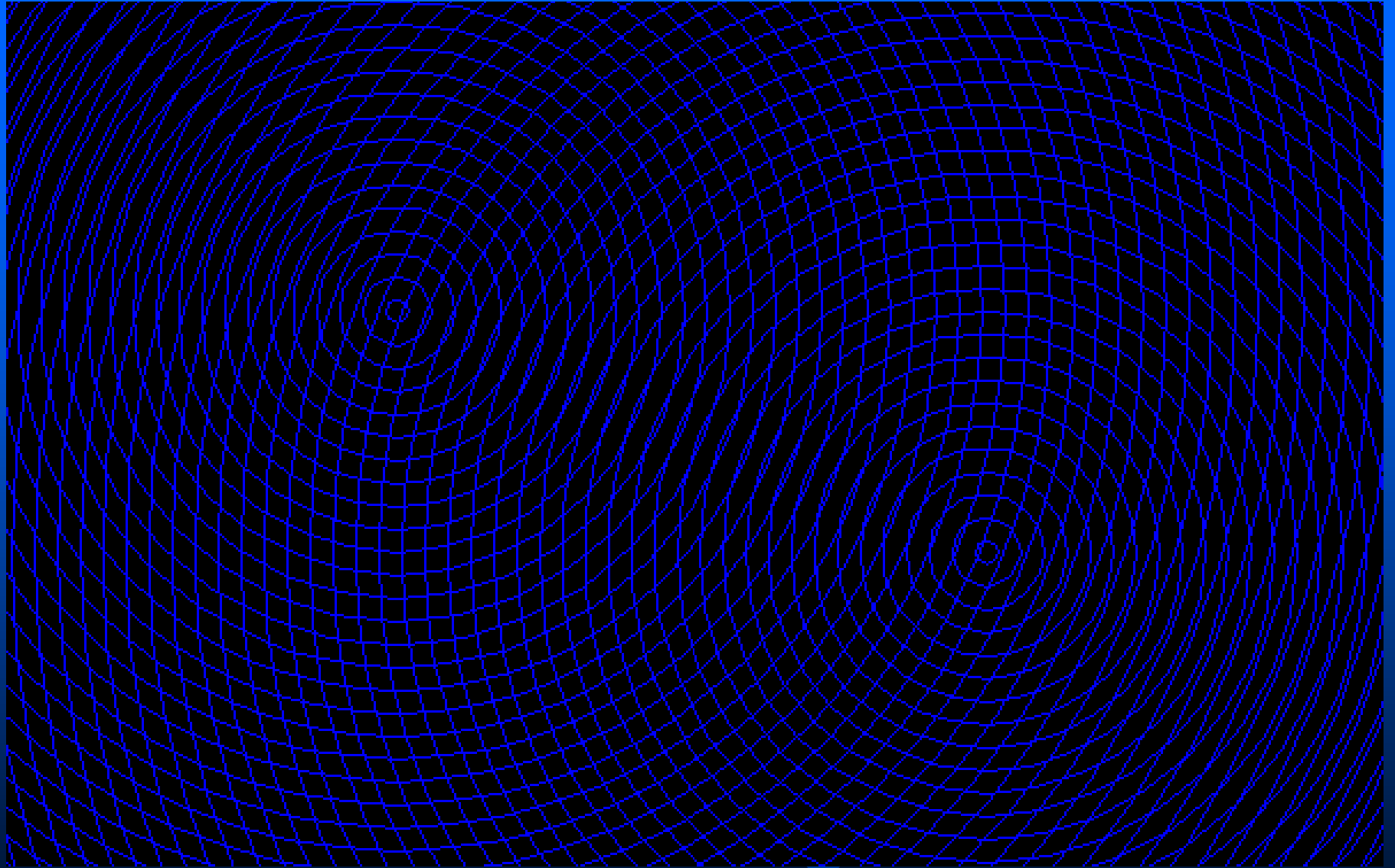
# Additional Possible Reasons to Regulate (Discuss)

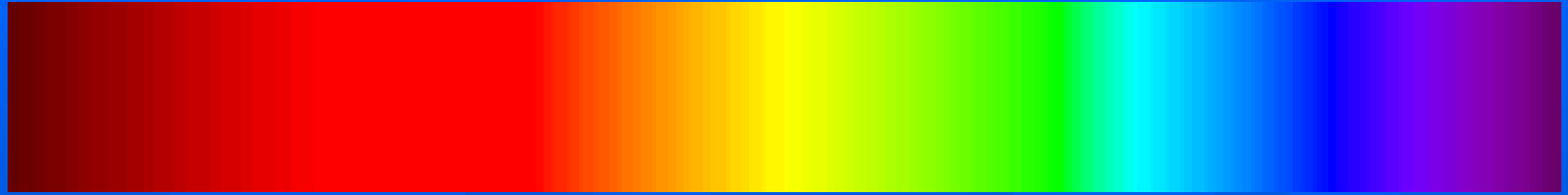
- Additional possible reasons:
  - Promote investment and economic development
  - Create affordable service for all
  - Ensure competition
  - Protect national defense and public safety
  - Preserve free flow of information
  - Protect public from inappropriate material
  - Make money for government

# What is Spectrum?

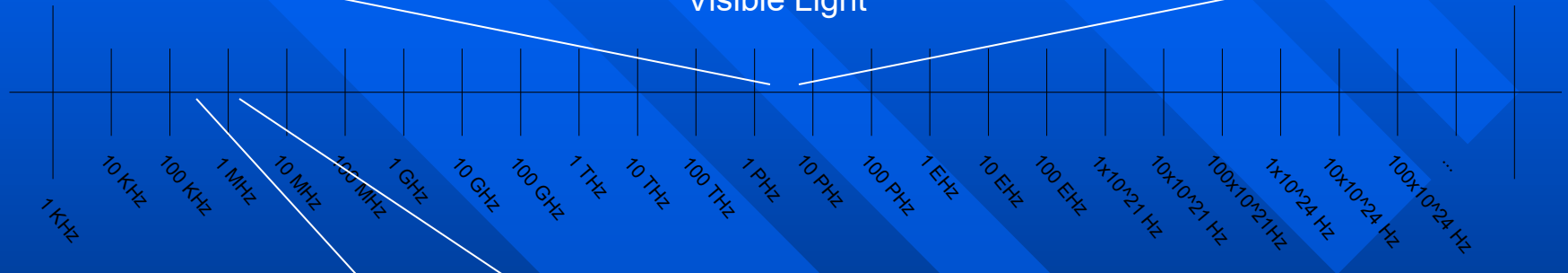
- Does spectrum exist in nature?
- Is there “ether”?
- Is spectrum tangible or is it a description of something? If a description, what does it describe? Rights to operate?
- Is spectrum like any other resource? Is it like land? Oil? A parking lot? A ship channel or a highway?



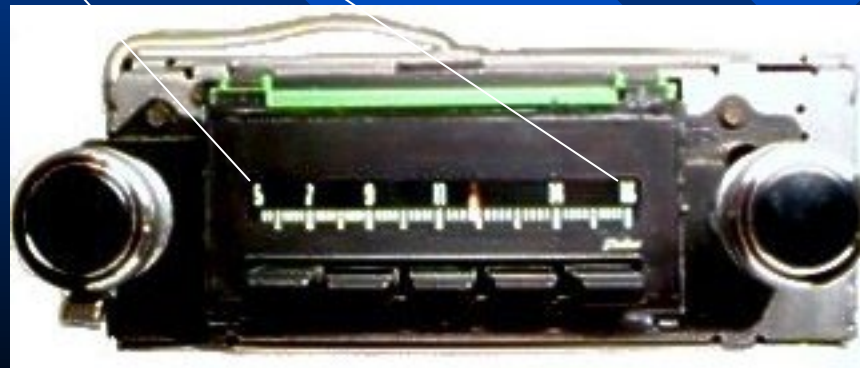




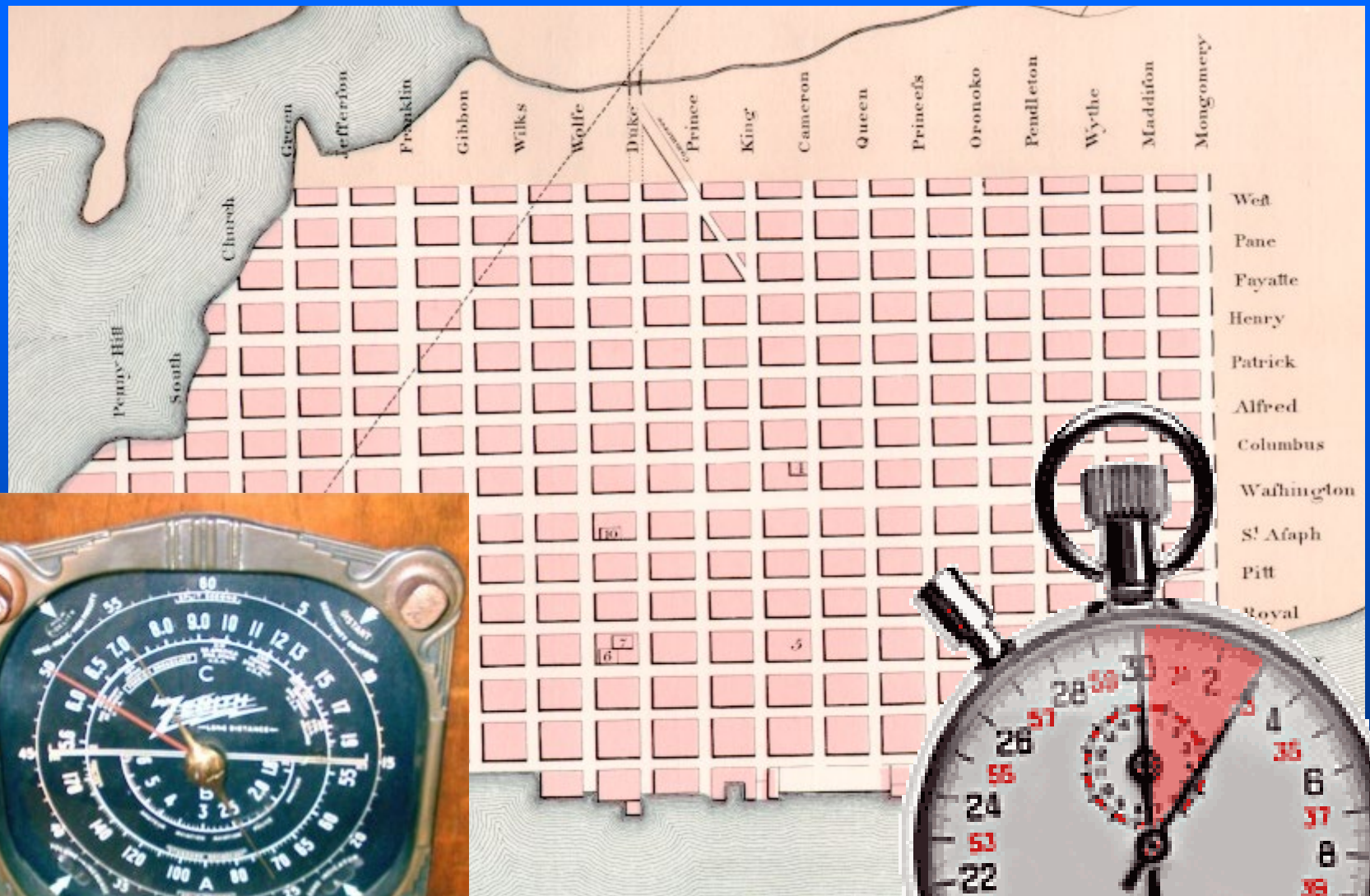
Visible Light



AM Radio









# UNITED STATES FREQUENCY ALLOCATIONS

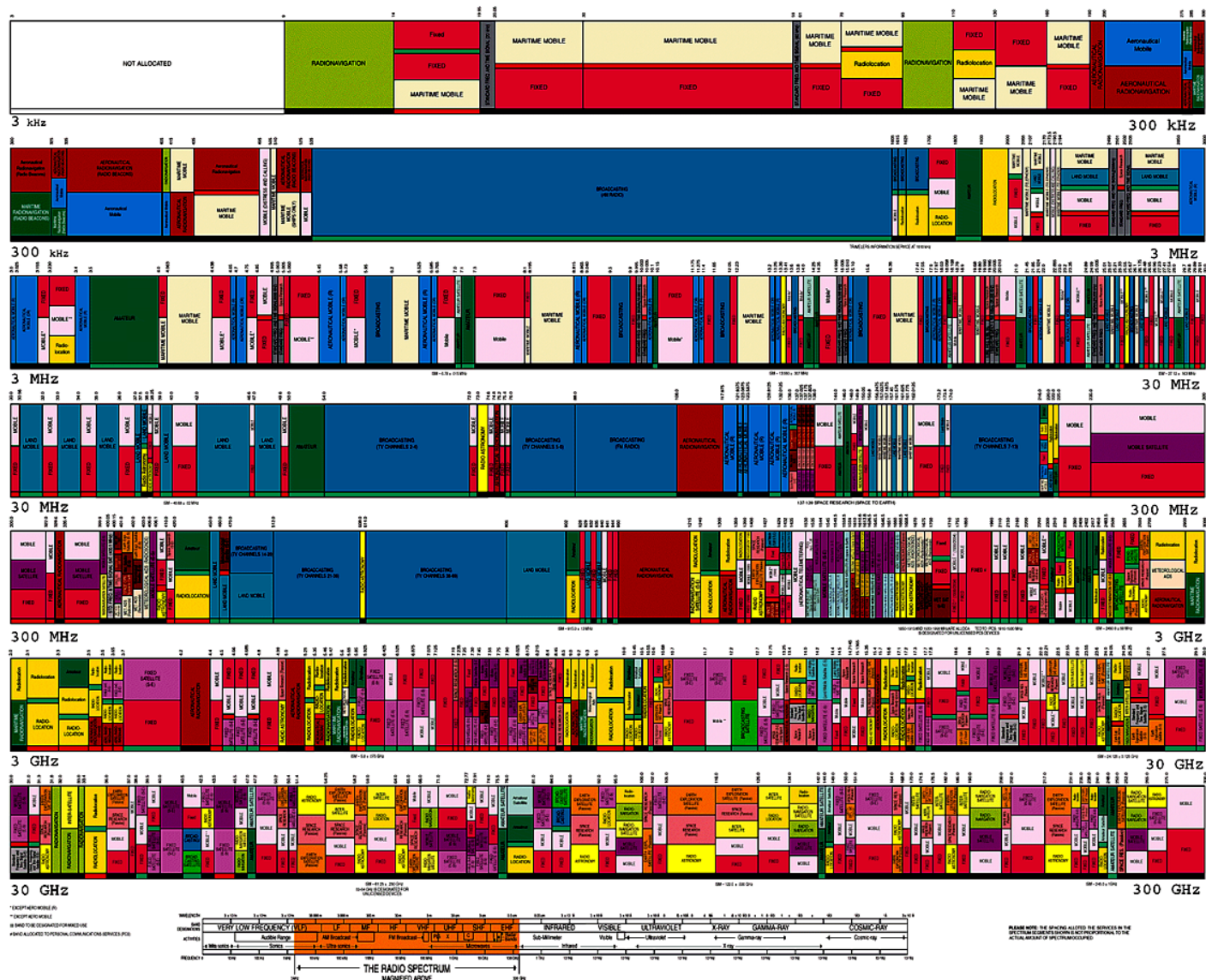
## THE RADIO SPECTRUM

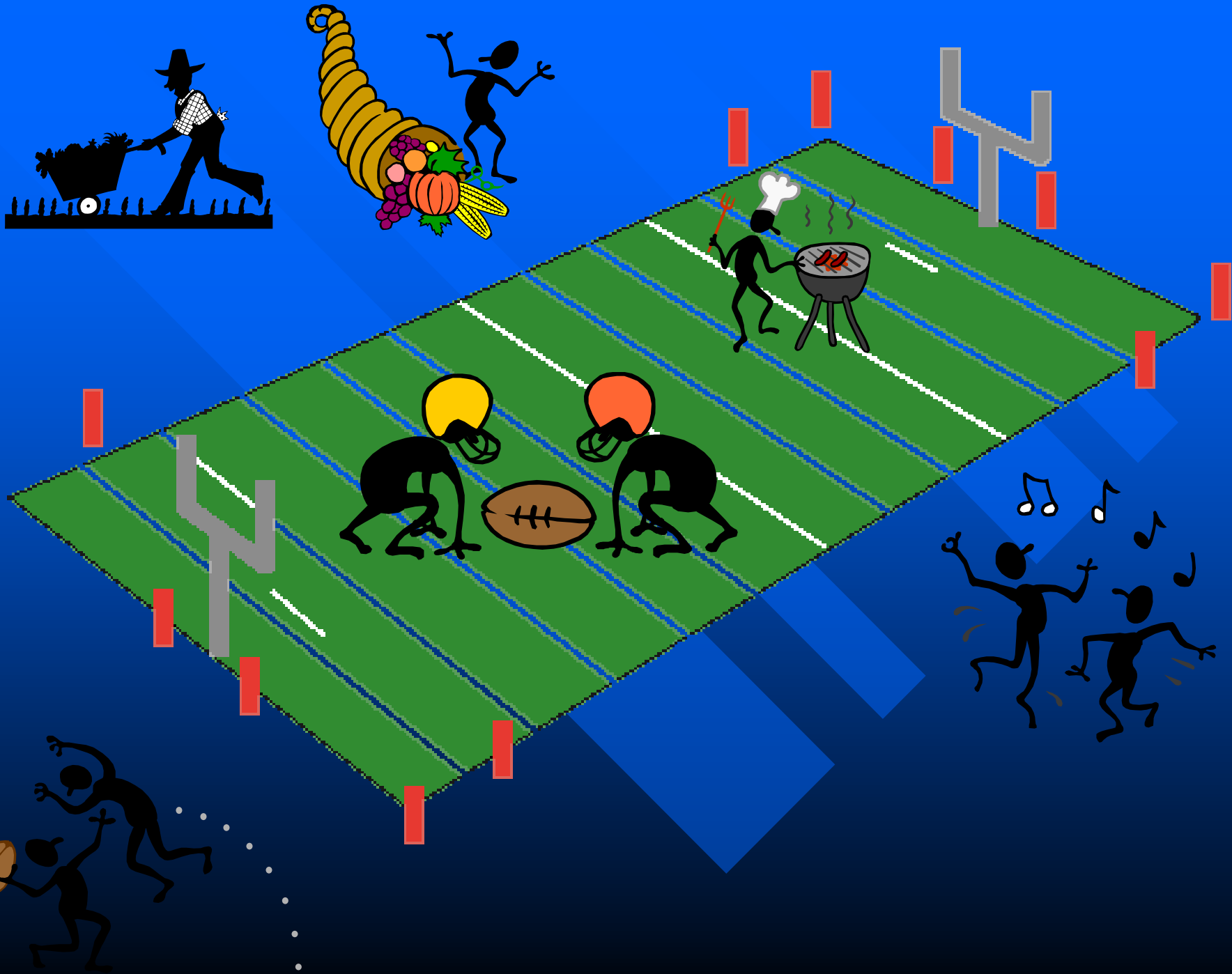
### RADIO SERVICES COLOR LEGEND


### ACTIVITY CODE


### ALLOCATION USAGE DESIGNATION

SERVICE	EXAMPLE	DESCRIPTION
Primary	F1ED	Coastal Loran
Secondary	S1ED	1st Class with lower class letters
Permitted	P1ED	Capital Letter between oblique strokes





# RIGHTS

- Compare license right to property right
  - Right to access and occupy
  - Right to proceeds
  - Right to trade or divest
  - Right to subdivide
  - Right to change service

# Market Mechanisms that Come From Property Model

- Competitive bidding (Auctions)
  - To assign new licenses
  - To allocate spectrum?
- Flexibility (More decisions made by operator)
  - Re technology
  - Re service offering
- Leasing
- Trading

# U.S. Frequency Assignments: Competitive Bidding

- Authorized in 1993 by section 309(j) of Communications Act where “mutually exclusive” applications
  - Expired March 9, 2023 after 30 years, 100 spectrum auctions, and income of \$233 billion.
- Assignment-licensing tool only - - alternative to comparative hearings or lotteries
  - Not for allocation; no property rights
- Revenue to government, but cannot take revenue into account when determining public interest

# Property/Market Model Criticisms

- Over emphasis on money
- May cede too much control to user
- Difficult to apply to non-commercial spectrum
- Market failures may lead to under-use of spectrum
  - Speculation
  - Warehousing
  - Resistance to sharing
- Difficult to apply to non-commercial spectrum

# Commons - Unlicensed Model

- Spectrum is not necessarily scarce
- Interference is receiver error, not natural phenomenon
- Can share with technology:
  - Low power operation
  - Intelligent application of protocols, etiquette



# License Exempt Services ("Non-Licensed")

- Generally exist under "Part 15" of the FCC's rules
- Low Power
- Subject to "type acceptance" equipment certification
- General principle that must accept interference and must not cause interference from authorized operations and equipment



# Commons/Open Access Approach Criticisms

- Feudal commons caused tragedy: No limit on use of resource not a true commons.
- Does not provide incentives to users to be efficient and to invest.
- Cannot be uniformly applied to all spectrum

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LAW

# Elements of Successful Laws and Regulations

- Transparency
  - Public Input/Consultations by All Interested Parties
  - Publication/Explanation of Decisions
- Competency
  - Independent Regulator
  - Skilled Staff
  - Unbiased and Ethical Decisions
- Confidence
  - Appeal to Independent Body
  - Consistency and Rulemaking and Enforcement
  - Finality and Enforceable Rights

# Roles of Regulators and Regulated

- Government
  - Lawmakers: Basic law and policy
  - Regulators: Details and flexibility
  - Arbiters: Review decisions
- Private sector:
  - Operators: Manage service, including investment and service levels
- Others
  - Standards bodies
  - International Organizations

# Hierarchy of U.S. Laws

- Constitution -- *Highest law of the land*
- Treaties – *Second only to constitution*
  - *ITU Radio Regulations are treaty level*
- Legislative Acts – *Must be constitutional*
  - *Passed by Congress; signed by President*
- Executive (Presidential) Orders and Memoranda  
*Must be within presidential authority*
- Regulations (*Laws promulgated by agencies or commissions*)  
*Note: All laws subject to review by courts*

# International Spectrum Management

- International Telecommunication Union Radio Regulations
  - Govern use (allocation) of radio frequency spectrum and use of geostationary and non-geostationary orbits globally and regionally
  - World Radiocommunication Conferences (WRCs) held every 3-4 years to review and revise the Radio Regulations
  - Next WRC is November – December 2023 in Dubai
  
- In the United States, the Federal Communications Commission implements WRC Final Acts
  - Open proceedings.
  - Does so by amending U.S. Allocation Table
  - Recent proceeding on WRC15 and WRC19

# Evolution of U.S. Telecommunications Laws

- Radio Act of 1912:
  - Licenses for commercial radio stations issued by Commerce Department
  - No limit on number of licenses
  
- Radio Act of 1927/Communications Act of 1934/Telecommunications Act of 1996 (47 U.S.C.)
  - Establishment of independent commission
  - Public interest standard
  - Limited term license
  - Commission has authority over radio use, except government owned and operated stations (which are under authority of President)

# Evolution of U.S. Telecommunications Laws

- Communications Act (47 United States Code)
  - Title I Authority and Functions
  - Title II Common Carriage
  - Title III Radio Regulation
    - » Section 305 reserves assignment of U.S. government owned and operated “radio stations”
  - Additional Titles on administration, cable television, etc.
  - Amendments such as the Telecommunications Act of 1996 and many others, including 47 U.S.C. 309(j) Omnibus Budget Reconciliation Act (1993), allowing auctions.
- Code of Federal Regulations (47 C.F.R.)
  - » Well known “Part 15” allows non-licensed transmissions



# U.S. Government Organizations with Telecommunications Functions

- Congress/Congressional Committees
- POTUS; Executive Office of the President
- Federal and Independent Agencies subject to Presidential and Congressional Oversight:
  - NTIA
  - Federal Communications Commission (independent)
  - Federal Trade Commission (independent) ( but not common carriers)
  - Department of Justice -- Antitrust
  - Department of State – International agreements
  - Department of Agriculture (Rural Utilities Service)
- States: Regulatory Commissions; Attorneys General
- International: International Telecommunication Union; Organization of American States, APEC, World Bank, others

# U.S. Federal Communications Commission (FCC)

- Authority only as given by law
- Independent of three major branches of government
- Five commissioners, appointed by President (No more than three from President's political party)
- Subject to Administrative Procedures Act
- Decisions reviewable by court:
  - Must be constitutional
  - Cannot be “arbitrary and capricious”

# National Telecommunications and Information Administration

- NTIA Administrator is an Assistant Secretary of Commerce, but serves as president's principal adviser on telecommunications and information.
- Manages spectrum under President's authority held by Administrator, advised by Interdepartment Radio Advisory Committee (IRAC)
- Administers Broadband Grants
- Responsible for "FirstNet" – Public safety wireless licenses and grant program
- Has research laboratory – Institute for Telecommunication Sciences

## Are you convinced?

- There is no such thing as spectrum, only spectrum management.
- Spectrum management creates and enforces rights.
- Spectrum management by a government is law.

Congratulations, you are all lawyers!