



# Chapter 3

## Rules and Regulations

Licensing Rules  
Control Operator and Privileges  
Technical Rules and Standards



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# Regulatory Bodies (ITU)

## International Telecommunications Union

- Governing Agreements between countries
- Three Regions
  - USA is in Region 2.
  - Frequency rules differ by region.
- Callsign Prefix allocations
- Technical Standards



# Regulatory Bodies (FCC)

## Federal Communications Commission

- Writes and administers rules for US Amateurs
- Part 97, Code of Federal Regulations (CFR)
- FCC Amateur Auxiliary
  - Amateurs assisting FCC
  - To encourage Amateur self-regulation and compliance
- ARRL Official Observers provide feedback to Amateurs about:
  - Operating practices
  - Signal quality



# Regulatory Bodies (FAA)

Federal Aviation Administration sets rules for antenna height.

- Towers higher than 200 feet must be registered with FCC and FAA
- Towers within 4 miles of public airports are limited in height and have marking requirements.



# Licensing Rules

## License Elements

- Technician: Element 2
- General: Element 3
- Amateur Extra: Element 4

## Volunteer Examiners

- Must be Accredited by a Voluntary Examiner Coordinator.
- At least 18 years of age and General Class
- Have never had license suspended or revoked



# Examination Rules

Exams conducted by three Accredited Volunteer Examiners who grade exams, determine correct answers, and supply necessary paperwork.

A Certificate of Successful Completion of Examination (CSCE) is given.

- CSCE is good for 365 days for credit.
- Use CSCE until new license is received.
- ID station with current callsign and “/AG” for General until new license is received.
- Don’t operate until you receive a call sign.



# Control Operator

Control Operator – the licensed amateur responsible for making sure transmissions comply with FCC rules.

- Transmissions are made only under the control of the Control Operator.
- The Control Operator must have the ability to start and stop transmitting. (The Control Point)
- The Control Operator's license class must be valid for the transmitting frequency.



# General Class Frequencies

Your privileges will include all Technician Class Frequencies and segments of all High Frequency (HF) bands. Know the basics. Consult the Chart.

- Where restricted, General Class segments are at the top of the Data segment or Voice segment.
- 160, 80, 40, 20, 15, and 10 Meters are harmonically related: 1.8, 3.5, 7.0, 14.0, 21.0, 28.0 MHz
- WARC bands: 30, 17, and 12 Meters
- Frequency in MHz =  $300 / \text{Wavelength in Meters}$
- Wavelength in Meters =  $300 / \text{Frequency in MHz}$





# General Class Frequencies

No Privileges on:

- 3.500MHz – 3.525MHz (Extra Class CW)
- 3.600MHz – 3.800MHz (Extra/Advanced Phone)
- 7.000MHz – 7.025MHz (Extra Class CW)
- 7.125MHz – 7.175MHz (Extra/Advanced Phone)
- 14.000MHz – 14.025MHz (Extra Class CW)
- 14.150MHz – 14.225MHz (Extra/Advanced Phone)
- 21.000MHz – 21.025MHz (Extra Class CW)
- 21.200MHz – 21.275MHz (Extra/Advanced Phone)



# Frequency Choices

When a General is acting as the Control Operator of a station of a higher class licensee, only General Class privileges are authorized.

Know where your emissions are when operating near band edges.

- LSB – At least Three KHz above lower limit.
- USB – At least Three KHz below upper limit.
- You might be emitting unsupressed sidebands or products outside the band. Have someone monitor on the opposite sideband and in the adjacent channels.



# Guest Operations

Non-licensed people can use your ham radio but only when a control operator is present.

- The control operator is solely responsible for station operation.
- A licensed operator that you designate may act as control operator.

Licensed guests can use your ham radio.

- Both the control operator and the guest ham are responsible for station operation.
- Frequency privileges controlled by station license or by call sign used.



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# Station Identification (ID)

Normal ID may be given by voice or in Morse.

- Say your call sign every ten minutes during and at the end of the contact (QSO).
- Must use English or English alphabet.

Tactical Call Signs may be used to identify but:

- Does not substitute for proper station ID.
- Good practice to say your call sign at end of QSO and/or every ten minutes.

Ham Guests

- May identify with their own call sign when acting as Control Operator.



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# Interference

## QRN

- Natural interference (thunderstorms).
- Man-made (appliances and power lines).

## QRM

- Interference from signals on adjacent frequencies..
- Other hams or other users of the frequencies.

Control operators must avoid and prevent interfering with other users of the frequency.



# Interference

## Harmful Interference

- Interference that is disruptive but not intentional.
- Deal with it as best you can and help others avoid harmful interference.

## Willful Interference

- Intentionally causing interference.
- A legal and/or a law enforcement issue.
- There are procedures to deal with this (ARRL Official Observers can help).
- Avoid arguing or discussing it on the air.



# Preventing Interference

Remember that Amateur Radio is for two-way communications, not for showing off. Use common sense and courtesy.

- No one owns a frequency, be a good neighbor and share.
- Yield to special operations and special circumstances.
- Keep equipment in proper operating order.
- Use only the power level and bandwidth necessary for communications.



# Third-Party Communications

Third-party means that a non-ham is involved in communication via ham radio.

- The non-ham could be speaking on the air.
- You could be passing a message on behalf of a non-ham.

Two situations with different rules.

- Communications within the US.
- Communications that cross international borders.





# Third-Party Within US

There are no special rules within the US. Just make sure the message is non-commercial in nature.

OK:

- Sending greetings to friends and family
- Health and welfare messages
- Supporting an event for a non-profit organization.

Not OK:

- Asking for donations
- Advertising for a business



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# Third-Party Across Borders

Third-party across borders is OK if the third-party is a licensed amateur. Otherwise you may only do so if a third-party agreement exists with the United States.

- Check for current third-party agreements from FCC sources.
- There are many countries that we do not have third-party agreements with. France, Italy, Germany, ...
- After exchanging third-party traffic, identify with both stations' call signs. i.e., "DL1GR this is KB6USA"



# Remote and Automatic Control

Some stations such as repeaters and beacons operate without the control operator physically present at the control point.

- These stations must still comply with control operator requirements.
- The control operator of a repeater is the user.
- Beacon stations are automatic operation. The control operator must be able to stop the beacon
  - Beacons are limited to 100 Watts PEP
  - Only one Beacon station at a location



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# Prohibited Transmissions

Unidentified transmissions.

- Not giving your call sign

False or deceptive signals.

- Using someone else's call sign

False distress or emergency signals.

- Fake calls for help

Obscene or indecent speech.

- Up to interpretation

Music.



# No Business Communications

You cannot receive financial benefit through the use of transmissions made via ham radio.

- An exception is teachers using ham radio in their classrooms.
- A recent rule allows use by employees of medical facilities to use ham radio to participate in training exercises while on the job.



# No Encrypted Transmissions

Encryption involves encoding information for transmission that must be decoded upon reception to interpret the information. This is okay if:

- Coding is open source.
- There is no intention to hide the message or deceive.



# No Broadcasting

Broadcasting is sending one-way transmissions with no expectation of getting a response.

- News
- Music

Hams may send a one-way transmission for:

- Code practice.
- Ham radio related bulletins.
- Re-transmission of shuttle communications.



# Special Circumstances

Ham communication is generally intended for hams. Communications with non-ham stations may sometimes be allowed.

- Emergencies and critical situations create special circumstances.
- Special commemorative events may qualify as special circumstances.
- Normal rules return when the situation returns to normal.





# Good Amateur Practice

Covers situations not spelled out in Part 97.

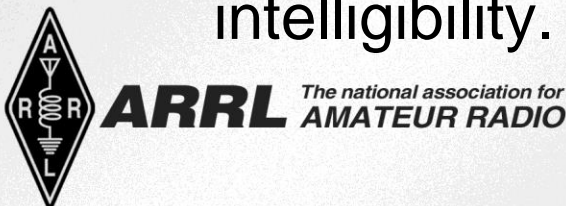
- Final determination is by FCC.
- Allows for experimentation and innovation
- Governed by “Gentlemen’s Agreements”

## Power

- Use minimum power required to communicate.
- Use a non-radiating (Dummy) load to tune up.

## Bandwidth

- Use the minimum bandwidth which allows intelligibility.



# Transmitted Power

General Class Licensees are allowed to use up to 1500 Watts Peak Envelope Power (PEP).

- Power is measured at output of transmitter stage which connects to the antenna system.

Power is restricted on two bands

- 30 Meters: 200 Watts PEP
- 60 Meters: 50 Watts ERP (based on antenna gain)

Technician and Novice Licensees are allowed up to 200 Watts PEP on HF bands.



# Digital Transmission Standards

Must use Public protocols so that any amateur can monitor the communication.

Symbol Rate (Baud) determines bandwidth.

Limited to:

- 300 Baud below 10 Meters
- 1200 Baud on 10 Meters
- 19.6 KBaud on 6 Meters and 2 Meters
- 56 KBaud on 1.25 Meters and 0.7 Meters
- No Limit above 33 centimeters



# G1D01 [97.119(f)(2)]

**What is the proper way to identify when transmitting on General class frequencies if you have a CSCE for the required elements but your upgrade from Technician has not appeared in the ULS database?**

A. Give your call sign followed by the words "General class"

B. No special identification is needed, since your license upgrade would already be shown in the FCC's database

C. Give your call sign followed by the words "temporary AG"

D. Give your call sign followed the abbreviation "CSCE"



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# G1D04 [97.509(a)(b)]

**Which of the following are requirements for administering a Technician Class operator examination?**

- A. At Least three VEC-accredited General Class or higher VEs must be present
- B. At least two VEC-accredited General Class or higher VEs must be present
- C. At least two General Class or higher VEs must be present, but only one need be VEC accredited
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# G1D07 [97.509(h)]

**Who is responsible at a Volunteer Exam Session for determining the correctness of the answers on the exam?**

A. The FCC

B. The administering VEs

C. The VEC

D. The local VE team liaison



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# G1D09 [97.3(a)(15)]

**How long is a Certificate of Successful Completion of Examination (CSCE) valid for exam element credit?**

A. 30 days

B. 180 days

C. 365 days

D. For as long as your current license is valid



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# G1A01 [97.301(d)]

**On which of the following bands is a General Class license holder granted all amateur frequency privileges?**

A. 20, 17, and 12 meters

B. 160, 80, 40, and 10 meters

C. 160, 30, 17, 12, and 10 meters

D. 160, 30, 17, 15, 12, and 10 meters

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# G1A03 [97.305]

On which of the following bands is image transmission prohibited?

- A. 160 meters
- B. 30 meters
- C. 20 meters
- D. 12 meters

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# G1A04 [97.303(s)]

**Which amateur band restricts communication to specific channels, using only USB voice, and prohibits all other modes, including CW and data?**

A.11 meters

B.12 meters

C.30 meters

D.60 meters



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Which of the following frequencies is within the General class portion of the 75 meter phone band?

- A. 1875 kHz
- B. 3750 kHz
- C. 3900 kHz
- D. 4005 kHz

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# G1A12 [97.301]

**When a General Class licensee is not permitted to use the entire voice portion of a particular band, which portion of the voice segment is generally available to them?**

- A. The lower end
- B. The upper end
- C. The lower end on frequencies below 7.3 MHz and the upper end on frequencies above 14.150 MHz
- D. The upper end on frequencies below 7.3 MHz and the lower end on frequencies above 14.150 MHz



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# G1A16 [97.303(s)]

**Which of the following operating restrictions applies to amateur radio stations as a secondary service in the 60 meter band?**

- A. They must not cause harmful interference to stations operating in other radio services
- B. They must transmit no more than 30 minutes during each hour to minimize harmful interference to other radio services
- C. They must use lower sideband, suppressed-carrier, only
- D. They must not exceed 2.0 kHz of bandwidth



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# G1B08 [97.113(a)(4), 97.113(e)]

**Which of the following is prohibited by the FCC Rules for amateur radio stations?**

- A. Transmission of music as the primary program material during a contact
- B. The use of obscene or indecent words
- C. Transmission of false or deceptive messages or signals
- D. All of these answers are correct





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