



# General License Class

## Chapter 3 Rules & Regulations

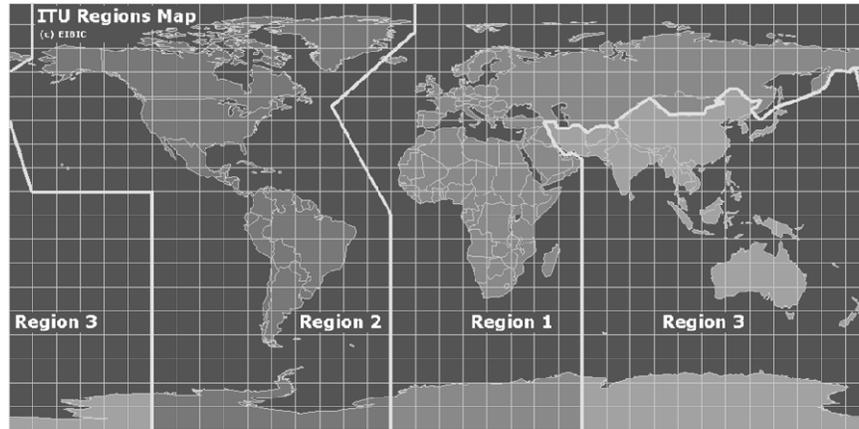


## Regulatory Bodies

- International Telecommunications Union (ITU)
  - United Nations Agency
  - Responsible for international radio regulations.
  - Responsible for radio frequency allocations.
  - Assigns call sign blocks.
  - World divided into 3 regions.
    - US is in Region 2.



# Regulatory Bodies



# Regulatory Bodies

- FCC Structure & Authority
  - Established by Communications Act of 1934.
  - Authority over all non-governmental communications in the United States & territories.



# Regulatory Bodies

- FCC Structure & Authority
  - Code of Federal Regulations (CFR) Title 47
    - Part 2 -- Frequency allocations and radio treaty matters; general rules and regulations
    - Part 17 – Antenna Structures
    - Part 97 – Amateur Radio Service
      - <http://arrl.org/part-97-amateur-radio>



# Regulatory Bodies

- FCC Structure & Authority
  - Amateur Radio Service is primarily self-policing.
    - ARRL Official Observer (OO) Program.
      - Amateurs who volunteer to monitor amateur radio operations & advise operators of potential rules violations.
        - Technical violations.
        - Operating violations.
    - Amateur Auxiliary
      - Consists of the ARRL OO's and the License Interference Committee (LIC).



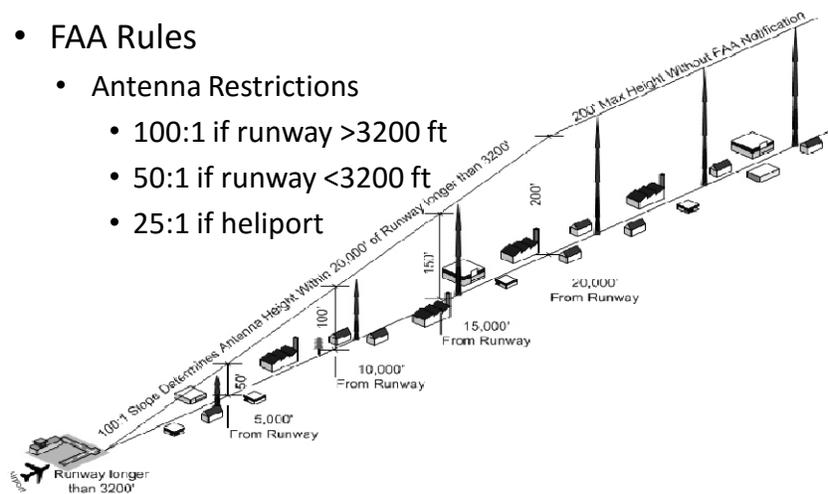
# Regulatory Bodies

- FAA Rules
  - FAA also has jurisdiction over the Amateur Radio Service with regards to antennas & antenna structures.
    - If your antenna structure exceeds specified heights, you must:
      - Notify FAA
      - Register with FCC



# Regulatory Bodies

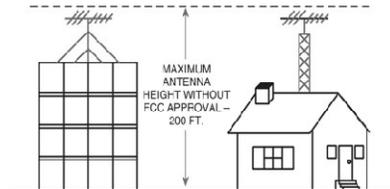
- FAA Rules
  - Antenna Restrictions
    - 100:1 if runway >3200 ft
    - 50:1 if runway <3200 ft
    - 25:1 if heliport





# Regulatory Bodies

- **FAA Rules**
  - Antenna Restrictions
    - If more than 200 ft above ground level or near public-use airport, must notify FCC & FAA.
    - Exceptions:
      - <20 ft above existing man-made structure.
      - <20 ft above ground.
      - Shielded by terrain or by taller structures in congested urban area.



**G1A14 -- In what ITU region is operation in the 7.175 to 7.300 MHz band permitted for a control operator holding an FCC issued General Class license?**

- A. Region 1
- ➔ B. Region 2
- C. Region 3
- D. All three regions



**G1B01 -- What is the maximum height above ground to which an antenna structure may be erected without requiring notification to the FAA and registration with the FCC, provided it is not at or near a public use airport?**

- A. 50 feet
- B. 100 feet
- C. 200 feet
- D. 300 feet



**G2D01 -- What is the Amateur Auxiliary to the FCC?**

- A. Amateur volunteers who are formally enlisted to monitor the airwaves for rules violations
- B. Amateur volunteers who conduct amateur licensing examinations
- C. Amateur volunteers who conduct frequency coordination for amateur VHF repeaters
- D. Amateur volunteers who use their station equipment to help civil defense organizations in times of emergency



**G2D02 -- Which of the following are objectives of the Amateur Auxiliary?**

- A. To conduct efficient and orderly amateur licensing examinations
- ➔ B. To encourage amateur self regulation and compliance with the rules
- C. To coordinate repeaters for efficient and orderly spectrum usage
- D. To provide emergency and public safety communications



**G2D03 -- What skills learned during hidden transmitter hunts are of help to the Amateur Auxiliary?**

- A. Identification of out of band operation
- ➔ B. Direction finding used to locate stations violating FCC Rules
- C. Identification of different call signs
- D. Hunters have an opportunity to transmit on non-amateur frequencies



## Amateur Licensing Rules

- License Elements
  - To qualify for an amateur radio license, must pass or receive credit for certain exam elements.
    - Technician – Element 2
      - Element 2 = Technician Class 35-question written exam.
    - General – Elements 2 & 3
      - Element 3 = General Class 35-question written exam.
    - Amateur Extra – Elements 2, 3, & 4
      - Element 4 = Amateur Extra Class 50-question written exam.



## Amateur Licensing Rules

- License Element Credit
  - Under certain circumstances you can receive credit for examination elements 3 & 4.
    - Element 3 – Present proof of:
      - Technician-class license issued prior to March 23, 1987.
      - Having previously held a General-class license.
      - Having previously held an Advanced-class license.
      - Having previously held an Extra-class license.
    - Element 4 – Present proof of:
      - Having previously held an Extra-class license.



## Amateur Licensing Rules

- Examination Rules
  - Volunteer Examiner Coordinator (VEC)
    - Created by signed agreement with the FCC.
    - Accredits Volunteer Examiners (VE's).
    - Coordinates exam sessions.
    - Maintains records of all exam sessions, including passes & failures.
    - Forwards successful applications to the FCC for processing.



## Amateur Licensing Rules

- Examination Rules
  - Volunteer Examiner Coordinator (VEC)
    - Currently 14 VEC's nationwide.
      - ARRL-VEC
        - Administers more exams than other 13 VEC's combined.
        - Exam Fee = \$15
      - W5YI-VEC
        - Administers more exams than remaining 12 VEC's combined.
        - Exam Fee = \$14
      - Laurel VEC
        - Administers more exams than remaining 11 VEC's combined.
        - No Exam Fee



## Amateur Licensing Rules

- Examination Rules
  - National Conference of Volunteer Examiner Coordinators (NCVEC)
    - Organization of VEC's.
    - Coordinates actions of the VEC's.
    - Provides liaison between the FCC & the VEC's.
    - Establishes the Question Pool Committee (QPC)
  - Exam Preparation
    - Question Pools maintained by NCVEC.
    - All VEC's are responsible for question pools.



## Amateur Licensing Rules

- Examination Rules
  - Volunteer Examiner (VE) Requirements
    - At least 18 years of age.
    - Never had license suspended or revoked.
    - General or higher class license to prepare/administer Element 2 (Technician) written exam.
    - Advanced or higher class license to prepare/administer Element 3 (General) written exam.
    - Amateur Extra class license to prepare/administer Element 4 (Amateur Extra) written exam.



## Amateur Licensing Rules

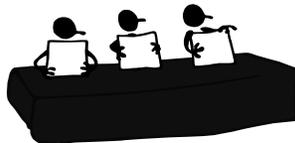
- Examination Rules
  - Volunteer Examiner (VE) Requirements

VE License Class	Can Prepare & Administer
General	Element 2 (Technician)
Advanced	Element 2 (Technician) Element 3 (General)
Amateur Extra	Element 2 (Technician) Element 3 (General) Element 4 (Amateur Extra)



## Amateur Licensing Rules

- Examination Rules
  - Team of 3 VE's required.
  - Conduct local exam sessions in accordance with policies adopted by the coordinating VEC.
  - Forwards all exam session paperwork to VEC for processing.

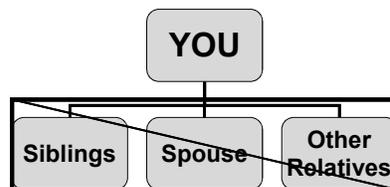




## Amateur Licensing Rules

- Examination Rules

§97.511(d) -- No VE may administer an examination to his or her spouse, children, grandchildren, stepchildren, parents, grandparents, stepparents, brothers, sisters, stepbrothers, stepsisters, aunts, uncles, nieces, nephews, and in-laws.



## Amateur Licensing Rules

- Examination Rules

- During the Exam

- All 3 VE's must be present & observing the candidates during the exam.
- Candidates must follow instructions of VE team or have exam terminated.
- All 3 VE's must immediately grade exam & notify candidate whether pass or fail.
- If fail, return application to candidate.
- If pass, all 3 VE's must sign application & issue CSCE.



# Licensing Terms

- Examinations.
  - Certificate of Successful Completion of Examination (CSCE).
    - Issued to certify that applicant has passed examination elements and/or earned a specific class of license.
    - Signed by 3 VE's.
    - Signed by applicant.
    - Valid for upgrade credit for 365 days from issue date.



# Licensing Terms

**American Radio Relay League VEC**  
**Certificate of Successful Completion of Examination**

**ARRL** License number: \_\_\_\_\_

Test No. (Call Sign) \_\_\_\_\_ Test Date: \_\_\_\_\_

**CREDIT FOR ELEMENTS PASSED MAILED FOR 90 DAYS**  
 You may request that we mail appropriate information to you. We will mail you a copy of this certificate.

**LICENSE UPGRADE NOTICE**  
 If you are eligible for an FCC license upgrade, please provide the Certificate of Successful Completion of Examination (CSCE) to your exam coordinator. The CSCE is valid for 90 days from the date of issue. If you are not eligible for an upgrade, you may request that we mail you a copy of this certificate.

**ISSUANCE OF LICENSE**  
 You will receive a license from the FCC. You may request that we mail you a copy of this certificate. The license is valid for 365 days from the date of issue.

**CONDUCTOR'S SIGNATURE**  
 \_\_\_\_\_

**DATE**  
 \_\_\_\_\_

**TESTER'S SIGNATURE**  
 \_\_\_\_\_

**DATE**  
 \_\_\_\_\_

**APPLICANT'S SIGNATURE**  
 \_\_\_\_\_

**DATE**  
 \_\_\_\_\_

**CALL SIGN**  
 \_\_\_\_\_

**TEST CENTER**  
 \_\_\_\_\_

**TEST CENTER ADDRESS**  
 \_\_\_\_\_

**TEST CENTER CITY**  
 \_\_\_\_\_

**TEST CENTER STATE**  
 \_\_\_\_\_

**TEST CENTER ZIP**  
 \_\_\_\_\_

**TEST CENTER PHONE**  
 \_\_\_\_\_

**TEST CENTER FAX**  
 \_\_\_\_\_

**TEST CENTER E-MAIL**  
 \_\_\_\_\_

**TEST CENTER WEBSITE**  
 \_\_\_\_\_

**TEST CENTER COMMENTS**  
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**TEST CENTER NOTES**  
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**TEST CENTER REMARKS**  
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**TEST CENTER OBSERVATIONS**  
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**TEST CENTER RECOMMENDATIONS**  
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**TEST CENTER SUGGESTIONS**  
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**TEST CENTER OBSERVATIONS**  
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**TEST CENTER RECOMMENDATIONS**  
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**TEST CENTER SUGGESTIONS**  
 \_\_\_\_\_

**CERTIFICATE OF SUCCESSFUL COMPLETION OF EXAMINATION**  
 Licensed Amateur Radio Club, Inc. PO Box 8146, Laurel, Maryland 20721-0146

Date: \_\_\_\_\_ VE Test Name: \_\_\_\_\_ Test site: \_\_\_\_\_

The Applicant Named Below Has Passed The Indicated Elements:				The Applicant Is Eligible To Receive The Indicated Class License:			
Technician	General	Extra	Novice	Technician	General	Extra	Novice
2	3	4	None				

This certificate is not valid unless all elements other than the ones requested are completed. This certificate is valid for 365 days from the date of issue. Please retain this certificate for your records.

Listing of the license grant on the FCC Universal Licensing System (ULS) establishes you as an amateur operator and covers your authority to operate. If you hold a valid FCC-issued Amateur Radio license, this certificate allows you to operate with all privileges of your exam operator class until your license has been granted by the FCC for a period of 365 days from the date of issue of this certificate, whichever comes first.

**Applicant Information**

Name: \_\_\_\_\_ FT \_\_\_\_\_

Call Sign: \_\_\_\_\_ CCL Sign \_\_\_\_\_

Address: \_\_\_\_\_ CCL Sign \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Zip: \_\_\_\_\_

Applicant's Signature: \_\_\_\_\_ CCL Sign \_\_\_\_\_

Signature: \_\_\_\_\_ CCL Sign \_\_\_\_\_

**TEST CENTER**  
 \_\_\_\_\_

**TEST CENTER ADDRESS**  
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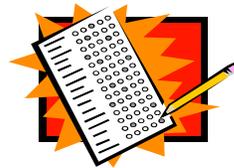
**TEST CENTER RECOMMENDATIONS**  
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**TEST CENTER SUGGESTIONS**  
 \_\_\_\_\_



## Amateur Licensing Rules

- Examination Rules
  - After the Exam
    - VE team must forward session paperwork to VEC within 10 days after exam session.



## Amateur Licensing Rules

- Examination Rules
  - After the Exam
    - New licensees can operate as soon as their call sign appears in the FCC Universal Licensing System (ULS).
      - <http://wireless.fcc.gov/uls>
    - Amateurs who upgraded to a higher license class can start using their new privileges immediately.
      - When using new privileges, must use special station identification until new license class appears in the FCC Universal Licensing System (ULS).
        - New General = <call>/AG
        - New Amateur Extra = <call>/AE



## Amateur Licensing Rules

- Re-Administration of Examinations
  - FCC can re-administer any exam element to any licensee at any time.
    - FCC can designate a VEC to re-administer the exam.
    - Licensee **MUST** appear or license will be cancelled or amended.
  - If FCC determines that a VE fraudulently administered or certified an exam, his/her station license can be revoked & operator license suspended.



### **G1D01 -- Who may receive credit for the elements represented by an expired amateur radio license?**

- ➔ A. Any person who can demonstrate that they once held an FCC issued General, Advanced, or Amateur Extra class license that was not revoked by the FCC
- B. Anyone who held an FCC issued amateur radio license that has been expired for not less than 5 years and not more than 15 years
- C. Any person who previously held an amateur license issued by another country, but only if that country has a current reciprocal licensing agreement with the FCC
- D. Only persons who once held an FCC issued Novice, Technician, or Technician Plus license



**G1D02 -- What license examinations may you administer when you are an accredited VE holding a General Class operator license?**

- A. General and Technician
- B. General only
- ➔ C. Technician only
- D. Extra, General and Technician



**G1D03 -- On which of the following band segments may you operate if you are a Technician Class operator and have a CSCE for General Class privileges?**

- A. Only the Technician band segments until your upgrade is posted on the FCC database
- B. Only on the Technician band segments until your license arrives in the mail
- ➔ C. On any General or Technician Class band segment
- D. On any General or Technician Class band segment except 30 and 60 meters



**G1D04 -- Which of the following is a requirement for administering a Technician Class operator examination?**

- ➔ A. At least three General Class or higher VEs must observe the examination
- B. At least two 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 Extra Class
- D. At least three VEs of Technician Class or higher must observe the examination



**G1D05 -- Which of the following must a person have before they can be an administering VE for a Technician Class license examination?**

- A. Notification to the FCC that you want to give an examination
- B. Receipt of a CSCE for General Class
- C. Possession of a properly obtained telegraphy license
- ➔ D. An FCC General Class or higher license and VEC accreditation



**G1D06 -- When must you add the special identifier "AG" after your call sign if you are a Technician Class licensee and have a CSCE for General Class operator privileges, but the FCC has not yet posted your upgrade on its Web site?**

- ➔ A. Whenever you operate using General Class frequency privileges
- B. Whenever you operate on any amateur frequency
- C. Whenever you operate using Technician frequency privileges
- D. A special identifier is not required as long as your General Class license application has been filed with the FCC



**G1D07 -- Volunteer Examiners are accredited by what organization?**

- A. The Federal Communications Commission
- B. The Universal Licensing System
- ➔ C. A Volunteer Examiner Coordinator
- D. The Wireless Telecommunications Bureau



**G1D08 -- Which of the following criteria must be met for a non-U.S. citizen to be an accredited Volunteer Examiner?**

- A. The person must be a resident of the U.S. for a minimum of 5 years
- ➔ B. The person must hold an FCC granted Amateur Radio license of General Class or above
- C. The person's home citizenship must be in the ITU region 2
- D. None of these choices is correct; a non-U.S. citizen cannot be a Volunteer Examiner



**G1D09 -- 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



**G1D10 -- What is the minimum age that one must be to qualify as an accredited Volunteer Examiner?**

- A. 12 years
- ➔ B. 18 years
- C. 21 years
- D. There is no age limit



**G1D11 -- If a person has an expired FCC issued amateur radio license of General Class or higher, what is required before they can receive a new license?**

- A. They must have a letter from the FCC showing they once held an amateur or commercial license
- B. There are no requirements other than being able to show a copy of the expired license
- C. The applicant must be able to produce a copy of a page from a call book published in the USA showing his or her name and address
- ➔ D. The applicant must pass the current element 2 exam



**G1E09 -- What language must be used when identifying your station if you are using a language other than English in making a contact using phone emission?**

- A. The language being used for the contact
- B. Any language recognized by the United Nations
- C. English only
- D. English, Spanish, French, or German



# Break





## Control Operator Privileges

- Frequency Privileges
  - US Amateur HF Bands

Band	Frequency Range
160m	1.800 MHz to 2.000 MHz
80m	3.500 MHz to 3.600 MHz
75m	3.600 MHz to 4.000 MHz
60m	5 Specific Channels
40m	7.000 MHz to 7.300 MHz
30m	10.100 MHz to 10.150 MHz
20m	14.000 MHz to 14.350 MHz
17m	18.068 MHz to 18.168 MHz
15m	21.000 MHz to 21.450 MHz
12m	24.890 MHz to 24.990 MHz
10m	28.000 MHz to 29.700 MHz



## Control Operator Privileges

- Frequency Privileges
  - 60m Frequency Assignments

Center Frequency	Carrier Frequency
5332.0 kHz	5330.5 kHz
5348.0 kHz	5346.5 kHz
5358.5 kHz	5357.0 kHz
5.373.0 kHz	5371.5 kHz
5405.0 kHz	5403.5 kHz



## Control Operator Privileges

### General Class HF Band Segments

160m	CW	1.800 MHz to 2.000 MHz	17m	CW	18.068 MHz to 18.110 MHz
	SSB	1.800 MHz to 2.000 MHz		SSB	18.110 MHz to 18.168 MHz
80m	CW	3.525 MHz to 3.600 MHz	15m	CW	21.025 MHz to 21.200 MHz
75m	SSB	3.800 MHz to 4.000 MHz		SSB	21.275 MHz to 21.450 MHz
60m	Any	(5 specified channels)	12m	CW	24.890 MHz to 24.930 MHz
40m	CW	7.025 MHz to 7.125 MHz		SSB	24.930 MHz to 24.990 MHz
	SSB	7.175 MHz to 7.300 MHz	10m	CW	28.000 MHz to 28.300 MHz
30m	CW	10.100 MHz to 10.150 MHz		SSB	28.300 MHz to 29.700 MHz
20m	CW	14.025 MHz to 14.150 MHz			
	SSB	14.225 MHz to 14.350 MHz			



## Control Operator Privileges

- Frequency Privileges
  - When entire CW portion of the band is not available to a control operator holding a General class license, bottom 25 kHz is reserved for Amateur Extra class operators.
  - When entire phone portion of the band is not available to a control operator holding a General class license, the upper end of the band is available.



## Control Operator Privileges

- Frequency Privileges
  - Beacons.
    - Used for observation of propagation and reception.
    - Limited to 100 Watts PEP output power.
    - Only one beacon per band at any one location.
    - Restricted to specified frequency segments in each band.



## Control Operator Privileges

- Frequency Privileges
  - Repeater Operations.
    - Restricted to 29.500 MHz to 29.700 MHz on HF.
    - Repeater Coordinators work with repeater operators in selecting frequencies to minimize interference.
      - If interference occurs between a coordinated repeater and an uncoordinated repeater, the licensee of the uncoordinated system is responsible for resolving the interference.



## Control Operator Privileges

- Frequency Privileges
  - Special circumstances.
    - Amateurs are required to take special steps to avoid interference in the following circumstances:
      - When operating within 1 mile of an FCC monitoring station.
      - When transmitting spread spectrum emissions.
      - When operating on a band where the Amateur Service is secondary.



## Control Operator Privileges

- Frequency Privileges
  - Primary versus Secondary.
    - Amateurs have primary status on most bands.
      - Exceptions: 60m, 30m, 70cm, & several microwave bands.
    - Amateurs can use bands where the Amateur Radio Service is secondary ONLY if they do not cause harmful interference to primary users.
    - Secondary users MUST take any necessary steps to avoid interfering with primary users.
      - Change frequency.



## Control Operator Privileges

- Third-Party Traffic
  - Message sent by licensed amateur radio operators on behalf of a "third party".
  - Third Parties:
    - A non-licensed individual.
    - An organization.
    - A licensed amateur radio operator who is not eligible to be the control operator of the station sending/receiving the message.
  - The third party may or may not be at either station location.



## Control Operator Privileges

- Third-Party Traffic
  - The third party may participate in sending/receiving the message.
    - May speak into microphone.
    - May manipulate key or keyboard.
  - Third Party traffic can **NEVER** be sent to/from any individual whose amateur radio license has been suspended or revoked.



## Control Operator Privileges

- Third-Party Traffic
  - International Considerations.
    - Messages on behalf of a third party can ONLY be sent internationally under the following circumstances:
      - Message must be non-commercial and of a personal and inconsequential nature.
      - Country involved specifically allows third-party traffic to/from US amateurs.
    - During an emergency, special temporary agreements can be established to permit third-party traffic while the emergency exists.



## Control Operator Privileges

- Prohibited & Restricted Communications
  - Unidentified transmissions.
  - False or deceptive communications.
    - False distress signals.
    - Using someone else's call without their permission.
  - Codes & ciphers to obscure meaning.
    - Exception: When used to control a space station or model craft.
    - Standard procedural signals & codes are allowed.
      - Q-signals, 10-codes, etc.



## Control Operator Privileges

- Prohibited & Restricted Communications
  - Excessive tuning & testing.
  - Obscene, indecent, or profane language or meaning.
  - Broadcasting.
    - Exception: Bulletins of interest to and intended for amateur radio operators.
  - Music.
    - Exception: Incidental to communications with a manned spacecraft.



## Control Operator Privileges

- Prohibited & Restricted Communications
  - Business communications.
    - It is okay to notify other amateurs that you have for sale equipment normally used in an amateur radio station as long as it is not done on a regular basis.
    - It is okay to send a message to a business as long as neither the operator nor his employer have a financial interest in the communications.



## Control Operator Privileges

- Prohibited & Restricted Communications
  - Cross-Band Repeaters.
    - Is it legal for a Technician class operator to transmit on a 2m frequency to activate a repeater with an output on 10m?



## Control Operator Privileges

- Written Records
  - A complete log of your station operations is useful.
    - Legal proof of when you were or were not operating.
    - Contests, awards, QSL's, etc.
  - Only the following records are required:
    - Call signs of other amateurs operating your station.
    - If using an antenna other than a dipole on 60m, manufacturer's specifications or gain calculations for the antenna used.



**G1A01 -- On which of the following bands is a General Class license holder granted all amateur frequency privileges?**

- A. 60, 20, 17, and 12 meters
- B. 160, 80, 40, and 10 meters
- C. 160, 60, 30, 17, 12, and 10 meters
- D. 160, 30, 17, 15, 12, and 10 meters



**G1A02 -- On which of the following bands is phone operation prohibited?**

- A. 160 meters
- B. 30 meters
- C. 17 meters
- D. 12 meters



**G1A03 -- On which of the following bands is image transmission prohibited?**

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



**G1A04 -- Which of the following amateur bands is restricted to communication on only specific channels, rather than frequency ranges?**

- A. 11 meters
- B. 12 meters
- C. 30 meters
- ➔ D. 60 meters



**G1A05 -- Which of the following frequencies is in the General Class portion of the 40 meter band?**

- ➔ A. 7.250 MHz
- B. 7.500 MHz
- C. 40.200 MHz
- D. 40.500 MHz



**G1A06 -- 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



**G1A07 -- Which of the following frequencies is within the General Class portion of the 20-meter phone band?**

- A. 14005 kHz
- B. 14105 kHz
- C. 14305 kHz
- D. 14405 kHz



**G1A08 -- Which of the following frequencies is within the General Class portion of the 80-meter band?**

- A. 1855 kHz
- B. 2560 kHz
- C. 3560 kHz
- D. 3650 kHz



**G1A09 -- Which of the following frequencies is within the General Class portion of the 15-meter band?**

- A. 14250 kHz
- B. 18155 kHz
- C. 21300 kHz
- D. 24900 kHz



**G1A10 -- Which of the following frequencies is available to a control operator holding a General Class license?**

- A. 28.020 MHz
- B. 28.350 MHz
- C. 28.550 MHz
- D. All of these choices are correct



**G1A11 -- When General Class licensees are 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 frequency end
- ➔ B. The upper frequency end
- C. The lower frequency end on frequencies below 7.3 MHz and the upper end on frequencies above 14.150 MHz
- D. The upper frequency end on frequencies below 7.3 MHz and the lower end on frequencies above 14.150 MHz



**G1A12 -- Which of the following applies when the FCC rules designate the Amateur Service as a secondary user on a band?**

- A. Amateur stations must record the call sign of the primary service station before operating on a frequency assigned to that station
- B. Amateur stations are allowed to use the band only during emergencies
- ➔ C. Amateur stations are allowed to use the band only if they do not cause harmful interference to primary users
- D. Amateur stations may only operate during specific hours of the day, while primary users are permitted 24 hour use of the band



**G1A13 -- What is the appropriate action if, when operating on either the 30-meter or 60-meter bands, a station in the primary service interferes with your contact?**

- A. Notify the FCC's regional Engineer in Charge of the interference
- B. Increase your transmitter's power to overcome the interference
- C. Attempt to contact the station and request that it stop the interference
- ➔ D. Move to a clear frequency or stop transmitting



**G1B02 -- With which of the following conditions must beacon stations comply?**

- A. A beacon station may not use automatic control
- B. The frequency must be coordinated with the National Beacon Organization
- C. The frequency must be posted on the Internet or published in a national periodical
- ➔ D. There must be no more than one beacon signal in the same band from a single location



**G1B03 -- Which of the following is a purpose of a beacon station as identified in the FCC Rules?**

- A. Observation of propagation and reception
- B. Automatic identification of repeaters
- C. Transmission of bulletins of general interest to Amateur Radio licensees
- D. Identifying net frequencies



**G1B05 -- When may music be transmitted by an amateur station?**

- A. At any time, as long as it produces no spurious emissions
- B. When it is unintentionally transmitted from the background at the transmitter
- C. When it is transmitted on frequencies above 1215 MHz
- D. When it is an incidental part of a manned space craft retransmission



**G1B06 -- When is an amateur station permitted to transmit secret codes?**

- A. During a declared communications emergency
- ➔ B. To control a space station
- C. Only when the information is of a routine, personal nature
- D. Only with Special Temporary Authorization from the FCC



**G1B07 -- What are the restrictions on the use of abbreviations or procedural signals in the Amateur Service?**

- A. Only "Q" codes are permitted
- ➔ B. They may be used if they do not obscure the meaning of a message
- C. They are not permitted
- D. Only "10 codes" are permitted



**G1B09 -- When may an amateur station transmit communications in which the licensee or control operator has a pecuniary (monetary) interest?**

- ➔ A. When other amateurs are being notified of the sale of apparatus normally used in an amateur station and such activity is not done on a regular basis
- B. Only when there is no other means of communications readily available
- C. When other amateurs are being notified of the sale of any item with a monetary value less than \$200 and such activity is not done on a regular basis
- D. Never



**G1B10 -- What is the power limit for beacon stations?**

- A. 10 watts PEP output
- B. 20 watts PEP output
- ➔ C. 100 watts PEP output
- D. 200 watts PEP output



**G1E01 -- Which of the following would disqualify a third party from participating in stating a message over an amateur station?**

- ➔ A. The third party's amateur license has been revoked and not reinstated
- B. The third party is not a U.S. citizen
- C. The third party is a licensed amateur
- D. The third party is speaking in a language other than English



**G1E02 -- When may a 10 meter repeater retransmit the 2 meter signal from a station having a Technician Class control operator?**

- A. Under no circumstances
- B. Only if the station on 10 meters is operating under a Special Temporary Authorization allowing such retransmission
- C. Only during an FCC declared general state of communications emergency
- ➔ D. Only if the 10 meter repeater control operator holds at least a General Class license



**G1E04 -- Which of the following conditions require a licensed Amateur Radio operator to take specific steps to avoid harmful interference to other users or facilities?**

- A. When operating within one mile of an FCC Monitoring Station
- B. When using a band where the Amateur Service is secondary
- C. When a station is transmitting spread spectrum emissions
- ➔ D. All of these choices are correct



**G1E05 -- What types of messages for a third party in another country may be transmitted by an amateur station?**

- A. Any message, as long as the amateur operator is not paid
- B. Only messages for other licensed amateurs
- ➔ C. Only messages relating to Amateur Radio or remarks of a personal character, or messages relating to emergencies or disaster relief
- D. Any messages, as long as the text of the message is recorded in the station log



**G1E06 -- Which of the following applies in the event of interference between a coordinated repeater and an uncoordinated repeater?**

- ➔ A. The licensee of the non-coordinated repeater has primary responsibility to resolve the interference
- B. The licensee of the coordinated repeater has primary responsibility to resolve the interference
- C. Both repeater licensees share equal responsibility to resolve the interference
- D. The frequency coordinator bears primary responsibility to resolve the interference



**G1E07 -- With which foreign countries is third party traffic prohibited, except for messages directly involving emergencies or disaster relief communications?**

- A. Countries in ITU Region 2
- B. Countries in ITU Region 1
- ➔ C. Every foreign country, unless there is a third party agreement in effect with that country
- D. Any country which is not a member of the International Amateur Radio Union (IARU)



**G1E08 -- Which of the following is a requirement for a non-licensed person to communicate with a foreign Amateur Radio station from a station with an FCC-granted license at which an FCC licensed control operator is present?**

- A. Information must be exchanged in English
- ➔ B. The foreign amateur station must be in a country with which the United States has a third party agreement
- C. The control operator must have at least a General Class license
- D. All of these choices are correct



**G2D05 -- When is it permissible to communicate with amateur stations in countries outside the areas administered by the Federal Communications Commission?**

- A. Only when the foreign country has a formal third party agreement filed with the FCC
- ➔ B. When the contact is with amateurs in any country except those whose administrations have notified the ITU that they object to such communications
- C. When the contact is with amateurs in any country as long as the communication is conducted in English
- D. Only when the foreign country is a member of the International Amateur Radio Union



**G2D07 -- Which of the following is required by the FCC rules when operating in the 60-meter band?**

- ➔ A. If you are using other than a dipole antenna, you must keep a record of the gain of your antenna
- B. You must keep a log of the date, time, frequency, power level and stations worked
- C. You must keep a log of all third party traffic
- D. You must keep a log of the manufacturer of your equipment and the antenna used



## Technical Rules & Standards

- Good Amateur Practices

**§ 97.101(a)** In all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice.

- Band plans.
- Repeater coordination.
- Courtesy.
- RFI.



## Technical Rules & Standards

- Transmitters & Amplifier Power

§97.313(a) -- An amateur station must use the minimum transmitter power necessary to carry out the desired communications.

- Maximum power output = 1500 Watts PEP.
  - Exceptions:
    - 60m = 100 Watts ERP (referenced to a dipole).
    - 30m = 200 Watts PEP.
    - Spread Spectrum (SS) = 10 Watts PEP
    - Novice & Technician operators limited to 200 Watts PEP on HF.



## Technical Rules & Standards

- Digital Transmissions
  - Protocol must be public so that anyone can monitor.
  - Limits on symbol rate.
    - Higher symbol rate = wider bandwidth.

Band	Maximum Symbol Rate	Maximum Bandwidth
160m – 12m	300 baud	1 kHz
10m	1200 baud	1 kHz
6m & 2m	19.6 kilobaud	20 kHz
1.25m & 70cm	56 kilobaud	100 kHz
33cm & up	No limit	No Limit



**G1B11 -- How does the FCC require an amateur station to be operated in all respects not specifically covered by the Part 97 rules?**

- A. In conformance with the rules of the IARU
- B. In conformance with Amateur Radio custom
- ➔ C. In conformance with good engineering and good amateur practice
- D. All of these choices are correct



**G1B12 -- Who or what determines “good engineering and good amateur practice” as applied to the operation of an amateur station in all respects not covered by the Part 97 rules?**

- ➔ A. The FCC
- B. The Control Operator
- C. The IEEE
- D. The ITU



**G1C01 -- What is the maximum transmitting power an amateur station may use on 10.140 MHz?**

- ➔ A. 200 watts PEP output
- B. 1000 watts PEP output
- C. 1500 watts PEP output
- D. 2000 watts PEP output



**G1C02 -- What is the maximum transmitting power an amateur station may use on the 12-meter band?**

- A. 50 watts PEP output
- B. 200 watts PEP output
- ➔ C. 1500 watts PEP output
- D. An effective radiated power equivalent to 100 watts from a half-wave dipole



**G1C03 -- What is the maximum bandwidth permitted by FCC rules for Amateur Radio stations when transmitting on USB frequencies in the 60 meter band?**

- A. 2.8 kHz
- B. 5.6 kHz
- C. 1.8 kHz
- D. 3 kHz



**G1C04 -- Which of the following limitations apply to transmitter power on every amateur band?**

- A. Only the minimum power necessary to carry out the desired communications should be used
- B. Power must be limited to 200 watts when transmitting between 14.100 MHz and 14.150 MHz
- C. Power should be limited as necessary to avoid interference to another radio service on the frequency
- D. Effective radiated power cannot exceed 3000 watts



**G1C05 -- Which of the following is a limitation on transmitter power on the 28 MHz band for a General Class control operator?**

- A. 100 watts PEP output
- B. 1000 watts PEP output
- C. 1500 watts PEP output
- D. 2000 watts PEP output



**G1C06 -- Which of the following is a limitation on transmitter power on 1.8 MHz band?**

- A. 200 watts PEP output
- B. 1000 watts PEP output
- C. 1200 watts PEP output
- D. 1500 watts PEP output



**G1C07 -- What is the maximum symbol rate permitted for RTTY or data emission transmission on the 20 meter band?**

- A. 56 kilobaud
- B. 19.6 kilobaud
- C. 1200 baud
- D. 300 baud



**G1C08 -- What is the maximum symbol rate permitted for RTTY or data emission transmitted at frequencies below 28 MHz?**

- A. 56 kilobaud
- B. 19.6 kilobaud
- C. 1200 baud
- D. 300 baud



**G1C09 -- What is the maximum symbol rate permitted for RTTY or data emission transmitted on the 1.25 meter and 70 centimeter bands**

- A. 56 kilobaud
- B. 19.6 kilobaud
- C. 1200 baud
- D. 300 baud



**G1C10 -- What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 10 meter band?**

- A. 56 kilobaud
- B. 19.6 kilobaud
- C. 1200 baud
- D. 300 baud



**G1C11 -- What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 2 meter band?**

- A. 56 kilobaud
- ➔ B. 19.6 kilobaud
- C. 1200 baud
- D. 300 baud



**G2D10 -- What is QRP operation?**

- A. Remote piloted model control
- ➔ B. Low power transmit operation
- C. Transmission using Quick Response Protocol
- D. Traffic relay procedure net operation



# Questions?



# Next Week

## Chapter 4 Components & Circuits (Part 1)