Amateur Radio Technician Exam Prep Course

Module 7

Licensing Regulations

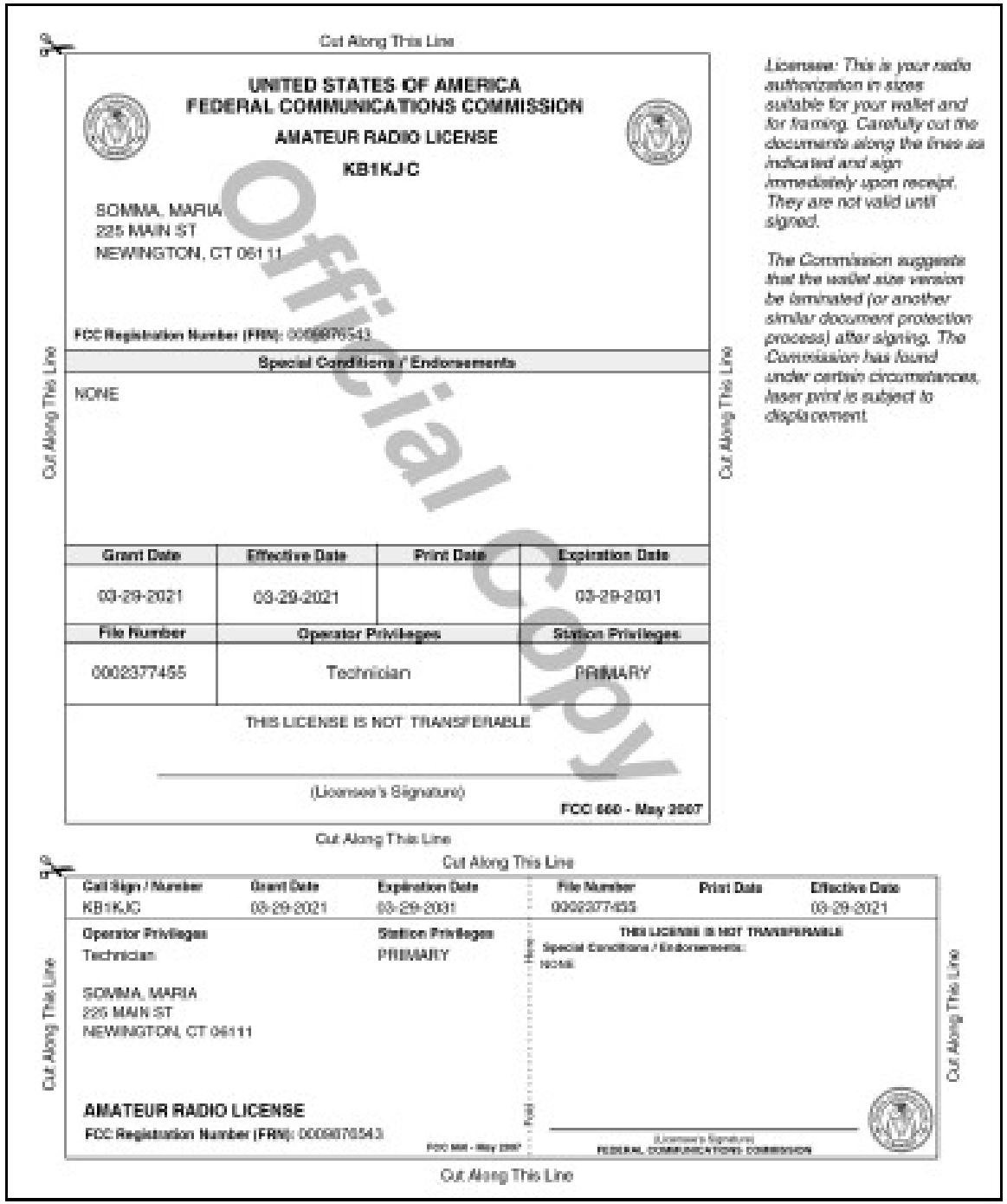
7.1 Licensing Terms
7.2 Bands and Privileges
7.3 International Rules
7.4 Call Signs

Licensing Terms

- The *Federal Communications Commission* or FCC makes and enforces the rules for the Amateur Radio service in the United States
- Detailed list of rules & regulations at …
  - http://www.arrl.org/part-97-amateur-radio
- Amateur radio is *non-commercial* … hams aren't allowed to be paid for their services (with a few exceptions) … voluntary
- Hams use various events to train to operate radio equipment in useful ways and to keep their emergency response skills sharp, such as …
  - Competitive operating events, chasing awards, and station-building

Types and Classes of Licenses

- An Amateur Radio license consists of two parts — an *operator license* and a *station license*
  - Operator license gives you permission to operate an amateur station
  - Station license authorizes you to have an amateur station
  - Each person can have only **ONE** such license
- There are three classes of Amateur Radio licenses being granted today: Technician, General, and Amateur Extra
  - Each carries a different set of *frequency* and *operating privileges*
- Clubs can also be license holders
  - Clubs must have at least **FOUR** members to be organized … see rule 97.5 (b)



Sample license

Figure 7.1 — An FCC Amateur Radio license is both an operator and a station license. The printed license shown here has two sections: one for posting in your station and one to carry with you. For information on obtaining a copy of your license, see www.arrl.org/obtain-license-copy.

Examinations

- Amateur volunteers run their own exam sessions
  - *Volunteer Examiner Coordinators* (VEC): An organization or group that administers exams
  - *Volunteer Examiner* (VE): An individual amateur radio operator that actually gives the exam (reports to a VEC) … General class or higher (however, Technicians can assist)
- Exams are referred to by *elements* …
  - Element 2 … Technician (35 questions, 26 required to pass)
  - Element 3 … General (35 questions, 26 required to pass)
  - Element 4 … Extra (50 questions, 37 required to pass)
- Test forms are filed with the FCC by the VEC administering the exam
- Once your information shows up in the FCC ULS database, you are fully authorized to operate

Term of License and Renewal

- Amateur licenses are good for a *10-year term*, renewable without reexamination
- If your license expires, you are supposed to stop transmitting because your license is no longer valid
- You have a *two-year grace period* to apply for a new license

- To find an exam location …
  - https://www.arrl.org/find-an-amateur-radio-license-exam-session
- Bring to the exam …
  - Two forms of ID (one a photo ID)
  - FCC Registration Number (FRN) …
    - https://apps2.fcc.gov/fccUserReg/pages/createAccount.htm

After Examination!

Finding Your Call Sign!

Once your forms are processed by the VEC, granting your license takes only a few days. You can check the FCC database yourself and as soon as the new call or privileges are listed, you can begin using them!

Log on to the FCC's Universal Licensing System (**wireless.fcc.gov/uls**), then click the "Licenses" button next to "Search." Click "Amateur" under "Service Specific Search." The Amateur License Search page will appear. Enter just your last name in the "Name" window and your ZIP code in that window. Scroll to the bottom of the page and click "Search." The ARRL also offers a "Call Sign / Name Search" service on the home page of the ARRL website.

When your license has been granted, your name will appear with a brand-new call sign next to it! Check all of your information to be sure it's correct, then get on the air!

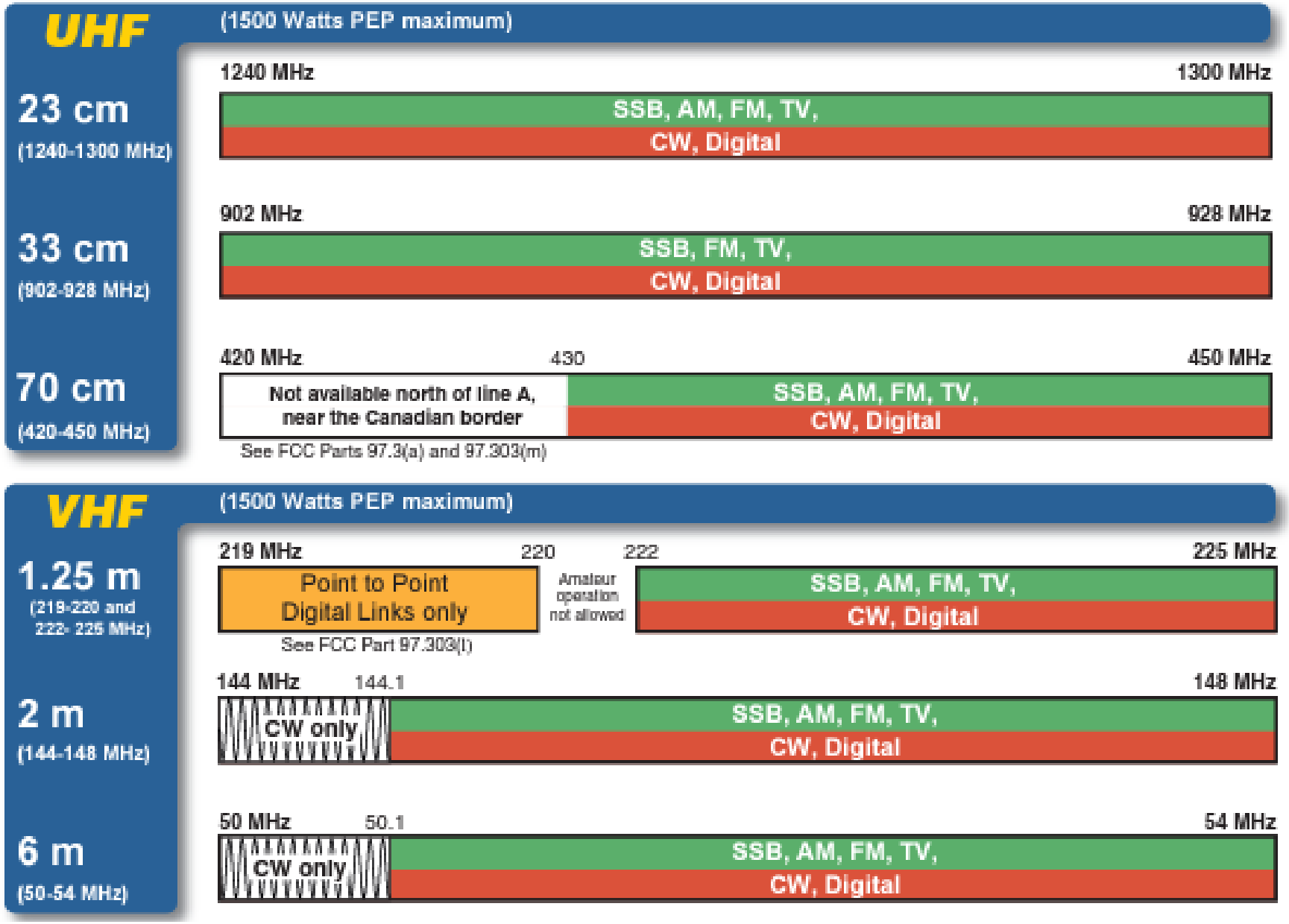
Your Responsibilities

- The FCC requires you to provide and maintain a valid current mailing and email address in their database at all times
  - Your license can be suspended or revoked and removed from the database
- You are obligated to make your station available for inspection upon request by an FCC representative
  - Keep your original license available for inspection

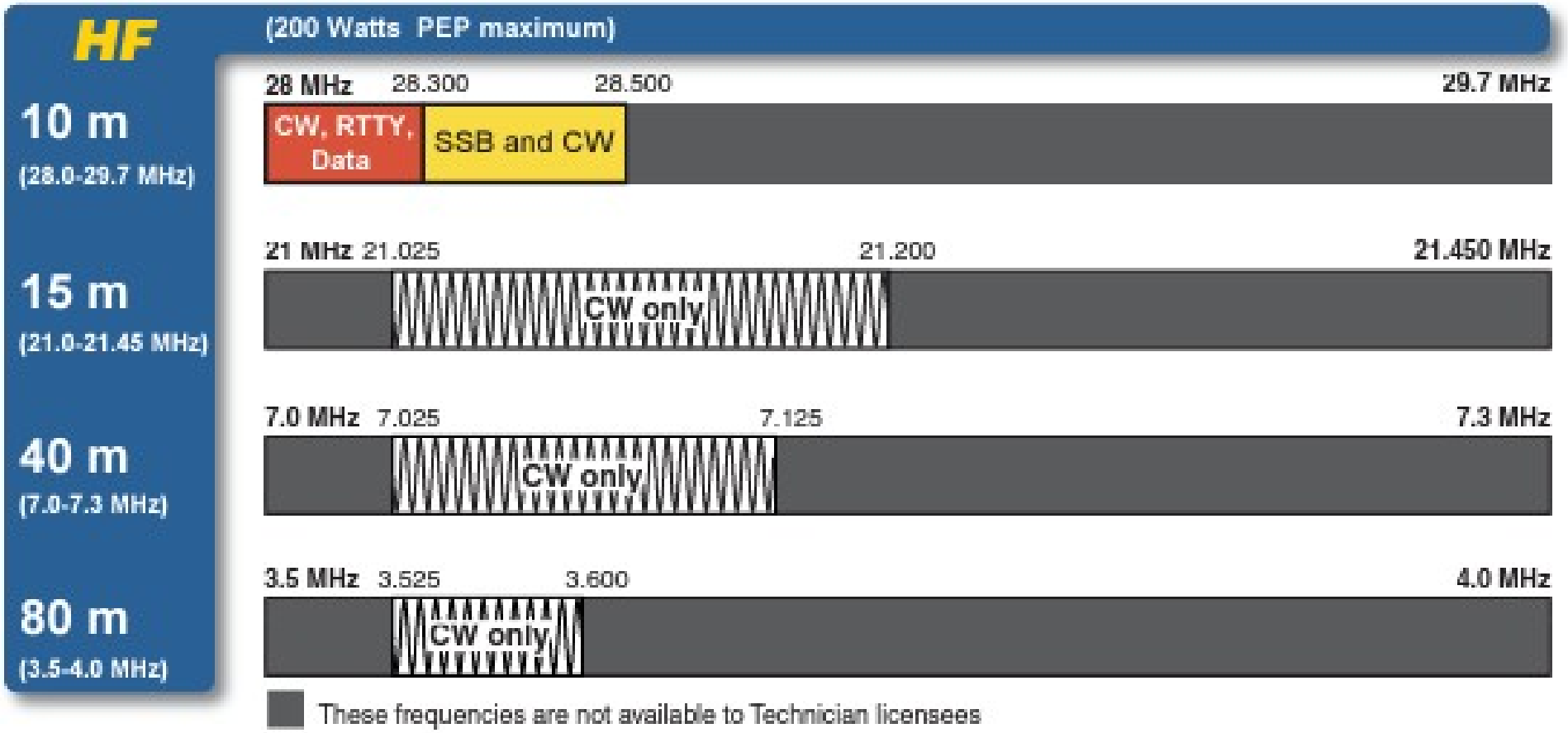
Bands and Privileges

- There are hundreds of bands and dozens of different types of radio spectrum users
- The frequency privileges granted to the various services are called *allocations*
- Most common bands used by Technicians …
  - 6 meters (50 – 54 MHz)
  - 2 meters (144 – 148 MHz)
  - 70 cm (420 – 450 MHz)
  - See Table 7.2, Table 7.3, and Figure 7.3 in your text
- Technician privileges at …
  - http://www.arrl.org/files/file/Tech%20Band%20Chart/US%20Amateur%20Radio%20Technician%20Privileges.pdf

Technician Privileges



Technician Privileges (cont.)



Emission Privileges

- *Emission* is the formal name for any radio signal from a transmitter
- An *emission privilege* is permission to communicate using a particular mode (phone, CW, data, image, etc.)
- *Beacons* are found on 10 meters between 28.2 and 28.3 MHz and in the lower segments of the VHF, UHF, and microwave bands

Power Limits

- Output power from a transmitter or amplifier is defined in terms of *peak envelope power* (PEP)
- Amateurs are allowed the full legal limit of 1500 watts PEP output (some exceptions)
- Below 30 MHz, Novice and Technician licensees are limited to 200 watts PEP on HF bands

Primary and Secondary Allocations

- Many amateur bands are exclusively allocated to hams
- Occasionally two services receive *shared allocations* (even ham bands)
  - One group is generally given priority … called *primary allocation*
  - Lower priority is called *secondary allocation*
- The primary service is *protected* from harmful interference by signals from secondary services
  - For example, amateurs have a secondary allocation in the 70 cm band and must avoid interfering with radiolocation stations that have primary status
- Part 97.303 lists all of the frequency-sharing requirements for US hams (see www.arrl.org)

Repeater Coordination (includes Auxiliary Stations)

- Hams have developed a system of regional frequency coordination to ensure that repeaters use amateur bands wisely and avoid interference to the greatest degree possible (not FCC controlled)
- Repeaters' input and output frequency pairs are fixed and have a common offset in each region
- A committee of volunteers known as a *frequency coordinator* recommends transmit and receive frequencies
- Frequency coordinator representatives are selected by local or regional amateurs whose stations are eligible to be repeater stations
- Uncoordinated repeaters are strongly discouraged because they often cause interference

PRACTICE QUESTIONS

Which agency regulates and enforces the rules for the Amateur Radio Service in the United States?

- ARRL
- Homeland Security
- The FCC
- All these choices are correct

T1A02 C 97.1 7-1

Which of the following is part of the Basis and Purpose of the Amateur Radio Service?

- Providing personal radio communications for as many citizens as possible
- Providing communications for international contesting
- Advancing skills in the technical and communication phases of the radio art
- All these choices are correct

T1A01 C 97.1 7-2

How do you receive official notification of your new license and call sign after passing the exam?

- Email from the FCC with a link to download the license grant
- USPS First-Class Mail from the FCC
- Email from the lead volunteer examiner
- USPS First-Class Mail from the lead volunteer examiner

T1A04 A 97.5(b)(1) 7-3

For which classes of amateur radio licenses does the FCC currently issue new licenses?

- Novice, Technician, General, Amateur Extra
- Technician, Technician Plus, General, Amateur Extra
- Novice, Technician Plus, General, Advanced
- Technician, General, Amateur Extra

T1C01 D 97.9(a), 97.17(a) 7-3

On which of the following HF frequencies can automatically controlled amateur propagation beacons be found?

Anywhere in the Technician portion of 10 meters

Anywhere, if they are registered with the FCC

In a specific portion of each of the HF Technician bands

On ten meters, between 28.200 MHz and 28.300 MHz

T1A06 D 2026-2030

Which of the following is a requirement for the issuance of a club station license grant?

- The trustee must have an Amateur Extra Class operator license grant
- The club must have at least four members
- The club must be registered with the American Radio Relay League (ARRL)
- All these choices are correct

T1F11 B 97.5(b)(2) 7-3

What proves that the FCC has issued an operator/primary license grant?

- A printed copy of the certificate of successful completion of examination
- An email notification from the NCVEC granting the license
- The license appears in the FCC ULS database
- All these choices are correct

T1A05 C 97.7 7-5

How soon after passing the examination for your first amateur radio license may you transmit on the amateur radio bands?

- Immediately on receiving your Certificate of Successful Completion of Examination (CSCE)
- As soon as your operator/station license grant appears on the ARRL website
- As soon as your operator/station license grant appears in the FCC's license database
- As soon as you receive your license in the mail from the FCC

T1C10 C 97.5a 7-5

What is the normal term for an FCC-issued amateur radio license?

- Five years
- Eight years
- Ten years
- Life

T1C08 C 97.25 7-5

What is the grace period for renewal if an amateur license expires?

- Two years
- Three years
- Five years
- Ten years

T1C09 A 97.21(a)(b) 7-5

If your license has expired and is still within the allowable grace period, may you continue to transmit on the amateur radio bands?

- Yes, for up to two years
- Yes, as soon as you apply for renewal
- Yes, for up to one year
- No, you must wait until the license has been renewed

T1C11 D 97.21(b) 7-5

What may happen if the FCC is unable to reach you by email?

- Fine and suspension of operator license
- Revocation of the station license or suspension of the operator license
- Revocation of access to the license record in the FCC system
- Nothing; there is no such requirement

T1C04 B 97.23 7-8

How long before the expiration date may an amateur radio license renewal be requested?

- 30 days
- 90 days
- 6 months
- 1 year

T1C07 B 97.23 7-8

Which of the following frequency ranges are available for phone operation by Technician licensees?

- 28.050 MHz to 28.150 MHz
- 28.100 MHz to 28.300 MHz
- 28.300 MHz to 28.500 MHz
- 28.500 MHz to 28.600 MHz

T1B01 C 97.301 (e) 7-9

Which of the following statements is true about using your amateur radio license when operating aboard a vessel or craft in international waters?

- Amateur operation is prohibited in international waters
- You may only operate during maritime emergencies
- You need special FCC authorization for maritime mobile operation
- You may operate from a US-documented vessel with the master's permission

T1C06 D 97.5(a)(2) 7-15

Which frequency is in the 6-meter amateur band?

- 49.00 MHz
- 52.525 MHz
- 28.50 MHz
- 222.15 MHz

T1B03 B 97.301(a) 7-9

Which amateur band includes 146.52 MHz?

- 6 meters
- 20 meters
- 70 centimeters
- 2 meters

T1B04 D 97.301(a) 7-9

On which HF bands does a Technician class operator have phone privileges?

- None
- 10-meter band only
- 80-meter, 40-meter, 15-meter, and 10-meter bands
- 30-meter band only

T1B06 B 97.301(e), 97.305 7-9

Which of the following bands include frequencies where Technicians are authorized to use digital modes such as FT8?

- 10 meters
- 6 meters
- 2 meters
- All these choices are correct

T1B05 D 97.305(c) 7-11

Which of the following VHF/UHF band segments are limited to CW only?

- 50.0 MHz to 50.1 MHz and 144.0 MHz to 144.1 MHz
- 219 MHz to 220 MHz and 420.0 MHz to 420.1 MHz
- 902.0 MHz to 902.1 MHz
- All these choices are correct

T1B07 A 97.305(a), (c) 7-11

What is the maximum peak envelope power output for Technician class operators in their HF band segments?

- 200 watts
- 100 watts
- 50 watts
- 10 watts

T1B11 A 97.313 7-12

Except for some specific restrictions, what is the maximum peak envelope power output for Technician class operators using frequencies above 30 MHz?

- 50 watts
- 100 watts
- 500 watts
- 1500 watts

T1B12 D 97.313(b) 7-12

How are US amateurs restricted in segments of bands where the Amateur Radio Service is secondary?

- U.S. amateurs may find non-amateur stations in those segments, and must avoid interfering with them
- U.S. amateurs must give foreign amateur stations priority in those segments
- International communications are not permitted in those segments
- Digital transmissions are not permitted in those segments

T1B08 A 97.303 7-13

Who recommends transmit/receive channels for repeater and auxiliary stations?

- A Frequency Spectrum Manager appointed by the FCC
- A Volunteer Frequency Coordinator recognized by local amateurs
- An FCC Regional Field Office
- The International Telecommunication Union

T1A08 B 97.3(a)(22) 7-13

Who selects a Frequency Coordinator?

- The FCC Office of Spectrum Management and Coordination Policy
- The local chapter of the Office of National Council of Independent Frequency Coordinators
- Amateur operators in a local or regional area whose stations are eligible to be repeater or auxiliary stations
- The FCC Regional Field Office

T1A09 C 97.3(a)(22) 7-13

International Rules

- Every country has its equivalent agency to the FCC
- The *International Telecommunication Union* (ITU) coordinates allocations across international borders
- The ITU divides the world into the three regions … US is region 2 (except for some territories in the Pacific … region 3)
- Unless specifically prohibited by the government of either country, any ham can talk to any other ham
  - International communications must be limited to the purposes of the amateur service or remarks of a personal nature
- The FCC can prohibit contacts between US citizens and those of specific other countries by notifying the ITU of its objections (uncommon!)

International Operating

- The foreign country must permit amateur operation (some don’t)
- You must have permission when you are inside a country’s national boundaries (and territorial waters)
  - You are required to operate according to their rules
- You may also operate from any vessel or craft that is documented or registered in the United States
  - If the vessel is in territorial waters, regulations of the host country and those of the vessel’s registry both apply

Call Signs

- Amateur call signs have a prefix and suffix
  - Prefix: One or two letters and one numeral
  - Suffix: One to three letters
- Technician class license holders may choose their own *vanity* call sign (from Groups C or D)

US Amateur Call Sign Formats

Group	*License Class*	*Format*
Group A	Amateur Extra	Prefix K, N or W with two-letter suffix (1×2), or two-letter prefix beginning with A, N, K or W and one-letter suffix (2×1), or two-letter prefix beginning with A and a two-letter suffix (2×2)
Group B	Advanced	Two-letter prefix beginning with K, N or W and a two-letter suffix (2×2)
Group C	General, Technician	One-letter prefix beginning with K, N or W and a three-letter suffix (1×3)
Group D	Technician, Novice, and Club	Two-letter prefix beginning with K or W and a three-letter suffix (2×3)

US Call Districts

You are assigned the numeral part of your call by the FCC, based upon where you live. If you move, this number stays with you. HOWEVER, you may request (and obtain) a vanity call outside your district!



PRACTICE QUESTIONS

What types of international communications are FCC-licensed amateur radio stations permitted to make?

- Communications incidental to the purposes of the Amateur Radio Service and remarks of a personal character
- Communications incidental to conducting business or remarks of a personal nature
- Only communications incidental to contest exchanges; all other communications are prohibited
- Any communications that would be permitted by an international broadcast station

T1C03 A 97.117 7-15

With which countries are FCC-licensed amateur radio stations prohibited from exchanging communications?

- Any country whose administration has notified the International Telecommunication Union (ITU) that it objects to such communications
- Any country whose administration has notified the American Radio Relay League (ARRL) that it objects to such communications
- Any country banned from such communications by the International Amateur Radio Union (IARU)
- Any country banned from making such communications by the American Radio Relay League (ARRL)

T1D01 A 97.111(a)(1) 7-15

Who may select a desired call sign under the vanity call sign rules?

- Only a licensed amateur with a General or Amateur Extra Class license
- Only a licensed amateur with an Amateur Extra Class license
- Only a licensed amateur who has been licensed continuously for more than 10 years
- Any licensed amateur

T1C02 D 97.19 7-17

Why should you not set your transmit frequency to be exactly at the edge of an amateur band or sub-band?

To allow for calibration error in the transmitter frequency display

So that modulation sidebands do not extend beyond the band edge

To allow for transmitter frequency drift

All these choices are correct

T1B09 D 2026-2030

Which of the following is a valid Group D call sign format for Technician class?

- KF1XXX
- KA1X
- W1XX
- All these choices are correct

T1C05 A 7-17