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Chapter 1 COMMISSION RULES

1.1 Purpose of Amateur Radio Service

The Amateur Radio Service, as defined by the Federal Communications Commission (FCC), serves several fundamental purposes. The primary goal is to advance skills in the technical and communication phases of the radio art. This includes fostering innovation, experimentation, and the development of new technologies within the radio community. Additionally, the service aims to provide a pool of trained operators who can assist in emergency communications when needed.

The FCC plays a crucial regulatory role in overseeing the Amateur Radio Service. It ensures that amateur radio operators adhere to the rules and regulations set forth in Part 97 of the FCC regulations. These rules are designed to maintain order, prevent interference, and promote the efficient use of the radio spectrum.

Amateur Radio Service Structure

Figure 1.1: Amateur Radio Service Structure

Amateur Radio Service Characteristics

| Aspect | Amateur Radio Service | Other Radio Services |
|-------------------|---|---------------------------|
| Purpose | Technical advancement, emergency communications | Commercial, public safety |
| Regulation | FCC Part 97 | Various FCC parts |
| Operator Training | Required | Varies |

Table 1.1: Amateur Radio Service Characteristics

Questions

T1A01

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

- A) Providing personal radio communications for as many citizens as possible
- B) Providing communications for international non-profit organizations
- C) **Advancing skills in the technical and communication phases of the radio art**
- D) All these choices are correct

The correct answer is **C**. The primary purpose of the Amateur Radio Service is to advance skills in the technical and communication phases of the radio art, as outlined in FCC Part 97. Options A and B are not part of the fundamental purposes defined by the FCC.

T1A02

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

- A) FEMA
- B) Homeland Security
- C) **The FCC**
- D) All these choices are correct

The correct answer is **C**. The Federal Communications Commission (FCC) is the agency responsible for regulating and enforcing the rules for the Amateur Radio Service in the United States. FEMA and Homeland Security are not involved in this regulatory process.

T1A10

What is the Radio Amateur Civil Emergency Service (RACES)?

- A) A radio service using amateur frequencies for emergency management or civil defense communications
- B) A radio service using amateur stations for emergency management or civil defense communications
- C) An emergency service using amateur operators certified by a civil defense organization as being enrolled in that organization
- D) **All these choices are correct**

The correct answer is **D**. RACES is a comprehensive service that includes all the aspects mentioned in options A, B, and C. It is designed to provide emergency communications using amateur radio frequencies, stations, and certified operators.

Summary

The Amateur Radio Service is governed by the FCC and serves to advance technical and communication skills within the radio community. The FCC's regulatory authority ensures that amateur radio operators comply with the rules set forth in Part 97 of the FCC regulations. The Radio Amateur Civil Emergency Service (RACES) is an integral part of the Amateur Radio Service, providing critical emergency communications during times of need.

- **Purpose and basis of Amateur Radio Service:** The primary purpose is to advance technical and communication skills, and to provide emergency communications.
- **FCC regulatory authority:** The FCC regulates and enforces the rules for the Amateur Radio Service.
- **RACES (Radio Amateur Civil Emergency Service):** A service that uses amateur radio for emergency management and civil defense communications.

1.2 License Requirements

Obtaining an Amateur Radio License

To obtain an amateur radio license, an individual must pass an examination administered by a Volunteer Examiner Coordinator (VEC). The examination tests the applicant's knowledge of radio theory, regulations, and operating practices. Once the exam is successfully completed, the results are submitted to the Federal Communications Commission (FCC) for processing. The FCC then issues a license grant, which authorizes the individual to operate an amateur radio station. The license grant is recorded in the FCC's Universal Licensing System (ULS) database, which serves as the official record of the license.

FCC's Universal Licensing System (ULS)

The FCC's Universal Licensing System (ULS) is an online database that manages all amateur radio licenses. The ULS allows licensees to apply for, renew, and modify their licenses. It also provides public access to license information, including call signs, license class, and expiration dates. The ULS is an essential tool for ensuring compliance with FCC regulations and for maintaining accurate records of amateur radio operators.

Figure 1.2: Amateur Radio Licensing Process

Table 1.2: Amateur Radio License Requirements

| Requirement | Description |
|---------------|--|
| Examination | Pass a written exam administered by a VEC |
| License Grant | Issued by the FCC and recorded in the ULS |
| Call Sign | Assigned by the FCC, can be requested under vanity rules |
| License Class | Determines operating privileges |

Questions

T1A03

What do the FCC rules state regarding the use of a phonetic alphabet for station identification in the Amateur Radio Service?

- A) It is required when transmitting emergency messages
- B) **It is encouraged**
- C) It is required when in contact with foreign stations
- D) All these choices are correct

The use of a phonetic alphabet is encouraged by the FCC for clarity in communication, but it is not mandatory except in specific situations. The correct answer is **B**.

T1A04

How many operator/primary station license grants may be held by any one person?

- A) **One**
- B) No more than two
- C) One for each band on which the person plans to operate
- D) One for each permanent station location from which the person plans to operate

The FCC rules state that an individual may hold only one operator/primary station license grant. The correct answer is **A**.

T1A05

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

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

The official proof of an FCC-issued license is its appearance in the ULS database. The correct answer is **C**.

T1C02

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

- A) Only a licensed amateur with a General or Amateur Extra Class license
- B) Only a licensed amateur with an Amateur Extra Class license
- C) Only a licensed amateur who has been licensed continuously for more than 10 years
- D) **Any licensed amateur**

Any licensed amateur may request a vanity call sign, provided the desired call sign is available and meets FCC requirements. The correct answer is **D**.

T1C04

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

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

If the FCC cannot reach a licensee by email, it may result in the revocation of the station license or suspension of the operator license. The correct answer is **B**.

Summary

This section covered the essential requirements for obtaining and maintaining an amateur radio license. Key concepts include:

- **License grant requirements:** Passing an exam administered by a VEC and having the license recorded in the ULS database.
- **ULS database system:** The FCC's online system for managing amateur radio licenses.
- **Call sign requirements:** Call signs are assigned by the FCC and can be requested under vanity rules.
- **License limitations:** An individual may hold only one operator/primary station license grant.

1.3 License Privileges and Terms

This section discusses the privileges associated with different amateur radio license classes, as well as the terms and procedures for license renewal and modification. Understanding these aspects is crucial for maintaining compliance with FCC regulations and ensuring uninterrupted operation.

License Privileges

Amateur radio licenses in the United States are divided into three main classes: Technician, General, and Extra. Each class grants specific operating privileges, with the Technician class being the entry-level license. The privileges increase as you progress to higher license classes, allowing access to more frequency bands and modes of operation. For a detailed comparison of the privileges, refer to Table 1.3.

License Terms and Renewal

An FCC-issued amateur radio license is typically valid for ten years. After expiration, there is a two-year grace period during which the license can be renewed without retaking the examination. However, transmitting is not permitted during the grace period until the license is renewed. For more information on the renewal process, see the FCC's guidelines.

License Modifications

License modifications, such as changes to call signs or operator information, can be requested through the FCC's Universal Licensing System (ULS). It is important to keep your license information up to date to avoid any issues with compliance.

Operating Restrictions

Certain operating restrictions apply to amateur radio operators, depending on their license class and the specific frequency bands they are using. These restrictions are outlined in FCC Part 97 regulations.

Figure 1.3: Amateur License Class Structure

Table 1.3: License Class Privileges

| License Class | Frequency Bands | Operating Modes |
|---------------|-------------------|------------------|
| Technician | VHF/UHF | FM, CW, Digital |
| General | HF, VHF/UHF | SSB, CW, Digital |
| Extra | All amateur bands | All modes |

Questions

T1C05

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

- A) **KF1XXX**
- B) KA1X
- C) W1XX
- D) All these choices are correct

The correct format for a Technician class call sign is **KF1XXX**. The other options either do not follow the FCC's call sign structure or are not specific to the Technician class.

T1C08

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

- A) Five years
- B) Life
- C) **Ten years**
- D) Eight years

An FCC-issued amateur radio license is valid for ten years. This is standard across all license classes.

T1C09

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

- A) **Two years**
- B) Three years
- C) Five years
- D) Ten years

The grace period for renewing an expired amateur radio license is two years. During this time, you cannot transmit until the license is renewed.

T1C10

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

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

You may begin transmitting as soon as your license grant appears in the FCC's license database. This is the official record of your license status.

T1C11

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

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

Transmitting is not allowed during the grace period until the license is officially renewed. This is to ensure compliance with FCC regulations.

Summary

This section covered the following key concepts:

- **License privileges:** Different license classes grant varying levels of access to frequency bands and operating modes.
- **License terms and renewal:** Licenses are valid for ten years, with a two-year grace period for renewal.
- **License modifications:** Changes to call signs or operator information can be made through the FCC's ULS.
- **Operating restrictions:** Specific restrictions apply based on license class and frequency bands.

1.4 Basic Operating Rules

Permitted Communications

Amateur radio stations are permitted to engage in various types of communications, including but not limited to:

- Exchanging messages with other amateur stations.
- Retransmitting manned spacecraft communications.
- Transmitting control commands to space stations or radio-controlled craft.
- Notifying other amateurs of the availability of equipment for sale or trade, provided it is not done on a regular basis.

Prohibited Transmissions

Certain types of transmissions are strictly prohibited under FCC regulations. These include:

- Broadcasting, which refers to one-way transmissions intended for the general public.
- Transmissions encoded to obscure their meaning, except when sending control commands to space stations or radio-controlled craft.
- Transmissions containing indecent or obscene language.
- Communications with countries that have notified the ITU of their objection to such exchanges.

Communication Guidelines

The following table summarizes the permitted and prohibited communications:

Table 1.4: Communication Guidelines

| Permitted | Prohibited |
|---|---|
| Exchanging messages with other amateur stations | Broadcasting |
| Retransmitting manned spacecraft communications | Obscured transmissions |
| Transmitting control commands to space stations or radio-controlled craft | Indecent or obscene language |
| Notifying other amateurs of equipment for sale or trade (non-regular basis) | Communications with countries that have notified the ITU of their objection to such exchanges |

Permissible Communications Guide

The decision tree in Figure 1.4 provides a visual guide to determining whether a communication is permissible under FCC regulations.

Figure 1.4: Permissible Communications Guide

Questions

T1D01

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

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

FCC Part 97 prohibits communications with countries that have notified the ITU of their objection to such exchanges. This ensures compliance with international regulations.

T1D02

Under which of the following circumstances are one-way transmissions by an amateur station prohibited?

- A) In all circumstances
- B) **Broadcasting**
- C) International Morse Code Practice
- D) Telecommand or transmissions of telemetry

One-way transmissions are prohibited when they constitute broadcasting, which is intended for the general public. Other one-way transmissions, such as telecommand or telemetry, are permitted.

T1D03

When is it permissible to transmit messages encoded to obscure their meaning?

- A) Only during contests
- B) Only when transmitting certain approved digital codes
- C) **Only when transmitting control commands to space stations or radio control craft**
- D) Never

Encoded messages are only permitted when transmitting control commands to space stations or radio-controlled craft. This ensures that the primary purpose of amateur radio—communication—is not undermined.

T1D04

Under what conditions is an amateur station authorized to transmit music using a phone emission?

- A) **When incidental to an authorized retransmission of manned spacecraft communications**
- B) When the music produces no spurious emissions
- C) When transmissions are limited to less than three minutes per hour
- D) When the music is transmitted above 1280 MHz

Music transmissions are only permitted when they are incidental to retransmitting manned spacecraft communications. This ensures that amateur radio is not used for entertainment purposes.

T1D05

When may amateur radio operators use their stations to notify other amateurs of the availability of equipment for sale or trade?

- A) Never
- B) When the equipment is not the personal property of either the station licensee, or the control operator, or their close relatives
- C) When no profit is made on the sale
- D) **When selling amateur radio equipment and not on a regular basis**

Amateur radio operators may notify others of equipment for sale or trade, provided it is not done on a regular basis. This prevents the amateur radio service from being used as a commercial platform.

T1D06

What, if any, are the restrictions concerning transmission of language that may be considered indecent or obscene?

- A) The FCC maintains a list of words that are not permitted to be used on amateur frequencies
- B) **Any such language is prohibited**
- C) The ITU maintains a list of words that are not permitted to be used on amateur frequencies
- D) There is no such prohibition

The FCC prohibits the transmission of any indecent or obscene language on amateur frequencies. This ensures that amateur radio remains a respectful and professional communication medium.

Summary

This section covered the basic operating rules for amateur radio stations, including:

- **Permissible communications:** Exchanging messages, retransmitting spacecraft communications, and notifying others of equipment for sale or trade.
- **Prohibited transmissions:** Broadcasting, obscured transmissions (except for control commands), indecent or obscene language, and communications with objecting countries.
- **Basic operating restrictions:** Ensuring compliance with FCC regulations and international agreements.

1.5 Advanced Operating Rules

International Communications

Amateur radio operators must adhere to specific rules when engaging in international communications. These rules ensure that transmissions are conducted in a manner that respects international agreements and avoids interference with other services. For instance, operators must avoid transmitting on frequencies allocated to other services unless explicitly permitted. Additionally, operators should be aware of the regulations of the country they are communicating with, as these may differ from their own.

Emergency Communications

In emergency situations, amateur radio operators play a crucial role in providing communication support. The procedures for emergency communications are designed to ensure that messages are transmitted efficiently and without unnecessary delay. Operators should prioritize messages related to the safety of human life and the protection of property. A flowchart illustrating the emergency communication procedures is provided in Figure 1.5.

Figure 1.5: Emergency Communications Flow

Broadcasting Restrictions

Amateur radio stations are generally prohibited from engaging in broadcasting, which is defined as transmissions intended for reception by the general public. However, there are exceptions, such as when the communication is directly related to the immediate safety of human life or the protection of property. These restrictions are in place to prevent amateur radio from being used for commercial purposes or for general entertainment.

Equipment Testing

Amateur radio operators are allowed to test their equipment, but they must do so in a manner that does not cause interference with other services. This includes ensuring that the transmitted power is within the limits set by the regulations and that the transmissions are not of a nature that could be mistaken for a distress signal.

Table 1.5: International Communication Guidelines

| Rule | Description |
|----------------------|---|
| Frequency Allocation | Avoid frequencies allocated to other services. |
| Power Limits | Ensure transmitted power is within regulatory limits. |
| Interference | Avoid causing interference with other services. |

Questions

T1D07

What types of amateur stations can automatically retransmit the signals of other amateur stations?

- A) Auxiliary, beacon, or Earth stations
- B) Earth, repeater, or space stations
- C) Beacon, repeater, or space stations
- D) **Repeater, auxiliary, or space stations**

Repeater, auxiliary, and space stations are permitted to automatically retransmit the signals of other amateur stations. This is in accordance with FCC regulations, which allow these types of stations to facilitate communication over greater distances or through obstacles.

T1D08

In which of the following circumstances may the control operator of an amateur station receive compensation for operating that station?

- A) When the communication is related to the sale of amateur equipment by the control operator's employer
- B) **When the communication is incidental to classroom instruction at an educational institution**
- C) When the communication is made to obtain emergency information for a local broadcast station
- D) All these choices are correct

The control operator of an amateur station may receive compensation when the communication is incidental to classroom instruction at an educational institution. This is an exception to the general rule that amateur radio operators cannot receive compensation for their services.

T1D09

When may amateur stations transmit information in support of broadcasting, program production, or news gathering, assuming no other means is available?

- A) **When such communications are directly related to the immediate safety of human life or protection of property**
- B) When broadcasting communications to or from the space shuttle
- C) Where noncommercial programming is gathered and supplied exclusively to the National Public Radio network
- D) Never

Amateur stations may transmit information in support of broadcasting, program production, or news gathering only when such communications are directly related to the immediate safety of human life or protection of property. This is a critical exception that allows amateur radio to be used in emergencies.

T1D10

How does the FCC define broadcasting for the Amateur Radio Service?

- A) Two-way transmissions by amateur stations
- B) Any transmission made by the licensed station
- C) Transmission of messages directed only to amateur operators
- D) **Transmissions intended for reception by the general public**

The FCC defines broadcasting for the Amateur Radio Service as transmissions intended for reception by the general public. This definition helps to distinguish amateur radio from commercial broadcasting services.

T1D11

When may an amateur station transmit without identifying on the air?

- A) When the transmissions are of a brief nature to make station adjustments
- B) When the transmissions are unmodulated
- C) When the transmitted power level is below 1 watt
- D) **When transmitting signals to control model craft**

An amateur station may transmit without identifying on the air when transmitting signals to control model craft. This is a specific exception that allows for the operation of remote-controlled devices without the need for constant identification.

Summary

This section covered several key concepts related to advanced operating rules in amateur radio:

- **International communications:** Operators must follow specific rules to avoid interference and respect international agreements.
- **Emergency communications:** Amateur radio operators play a vital role in emergency situations, prioritizing messages related to safety and property protection.
- **Broadcasting restrictions:** Amateur radio is generally not allowed for broadcasting, with exceptions for emergencies.
- **Equipment testing:** Operators must test their equipment responsibly to avoid interference.

1.6 Control Operator Requirements

Control Operator Responsibilities

A control operator is essential for the proper functioning of an amateur radio station. The control operator is responsible for ensuring that all transmissions comply with FCC regulations. This includes verifying that the station operates within the authorized frequency bands and adheres to power limits. The control operator must also ensure that the station identifies itself properly and does not cause harmful interference to other communications.

Types of Station Control

There are several types of station control, each with its own set of rules and requirements. These include:

- **Manual Control:** The control operator is physically present at the station and directly manipulates the controls.
- **Remote Control:** The control operator is not physically present but operates the station through a remote link, such as the internet.

- **Automatic Control:** The station operates without direct human intervention, such as in the case of a repeater.

Figure 1.6: Station Control Types

Table 1.6: Station Control Comparison

| Control Type | Operator Presence | Example |
|-------------------|------------------------------|--------------------------------|
| Manual Control | Physically present | Directly operating the station |
| Remote Control | Not physically present | Operating via the internet |
| Automatic Control | No direct human intervention | Repeater operation |

Questions

T1E01

When may an amateur station transmit without a control operator?

- A) When using automatic control, such as in the case of a repeater
- B) When the station licensee is away and another licensed amateur is using the station
- C) When the transmitting station is an auxiliary station
- D) **Never**

An amateur station must always have a control operator. This is a fundamental requirement under FCC regulations to ensure compliance with all operational rules.

T1E02

Who may be the control operator of a station communicating through an amateur satellite or space station?

- A) Only an Amateur Extra Class operator
- B) A General class or higher licensee with a satellite operator certification
- C) Only an Amateur Extra Class operator who is also an AMSAT member
- D) **Any amateur allowed to transmit on the satellite uplink frequency**

Any licensed amateur who is authorized to transmit on the satellite uplink frequency can be the control operator. This ensures that the operator has the necessary privileges and knowledge to operate the station correctly.

T1E03

Who must designate the station control operator?

- A) **The station licensee**
- B) The FCC
- C) The frequency coordinator
- D) Any licensed operator

The station licensee is responsible for designating the control operator. This ensures that the licensee maintains control over the station's operations and compliance with regulations.

T1E04

What determines the transmitting frequency privileges of an amateur station?

- A) The frequency authorized by the frequency coordinator
- B) The frequencies printed on the license grant
- C) The highest class of operator license held by anyone on the premises
- D) **The class of operator license held by the control operator**

The class of the control operator's license determines the frequency privileges of the station. This ensures that the station operates within the authorized bands and power limits.

T1E08

Which of the following is an example of automatic control?

- A) **Repeater operation**
- B) Controlling a station over the internet
- C) Using a computer or other device to send CW automatically
- D) Using a computer or other device to identify automatically

Repeater operation is a classic example of automatic control, where the station operates without direct human intervention.

T1E09

Which of the following are required for remote control operation?

- A) The control operator must be at the control point
- B) A control operator is required at all times
- C) The control operator must indirectly manipulate the controls
- D) **All these choices are correct**

All the listed requirements are necessary for remote control operation to ensure proper station management and compliance with regulations.

T1E10

Which of the following is an example of remote control as defined in Part 97?

- A) Repeater operation
- B) **Operating the station over the internet**
- C) Controlling a model aircraft, boat, or car by amateur radio
- D) All these choices are correct

Operating the station over the internet is a clear example of remote control, where the operator is not physically present at the station.

T1E11

Who does the FCC presume to be the control operator of an amateur station, unless documentation to the contrary is in the station records?

- A) The station custodian
- B) The third party participant
- C) The person operating the station equipment
- D) **The station licensee**

The FCC presumes the station licensee to be the control operator unless there is documentation indicating otherwise. This ensures accountability and compliance with regulations.

Summary

This section covered the essential responsibilities of a control operator and the different types of station control. Key concepts include:

- **Control Operator Duties:** Ensuring compliance with FCC regulations, proper station identification, and avoiding harmful interference.
- **Control Types:** Manual, remote, and automatic control, each with specific requirements and examples.
- **Remote Operation:** Operating the station through a remote link, such as the internet, with all necessary controls in place.
- **Automatic Control:** Station operation without direct human intervention, exemplified by repeaters.

1.7 Station Identification

Station Identification Procedures and Timing

Station identification is a critical requirement for amateur radio operators to ensure compliance with FCC regulations. The station must be identified using the FCC-assigned call sign at specific intervals during communication. According to FCC Part 97, the station must transmit its call sign at least every 10 minutes during a communication and at the end of the communication. This ensures that the station is properly identified and traceable by regulatory authorities.

Additionally, when using tactical call signs such as "Race Headquarters," the FCC-assigned call sign must still be used at the end of each communication and every 10 minutes during the communication. This dual identification ensures clarity and compliance with regulations.

Language and Method Requirements for Station Identification

When operating in a phone sub-band, the station identification must be transmitted in English. This requirement ensures that the identification is universally understandable.

The call sign can be transmitted using either a phone emission or CW (Morse code) emission. Self-assigned indicators, such as "KL7CC/W3," are also acceptable as long as they follow the prescribed format.

Figure 1.7: Station Identification Timeline

Table 1.7: Station ID Requirements

| Requirement | Details |
|--------------------------|--|
| ID Timing | Every 10 minutes and at the end of communication |
| Language | English for phone sub-band |
| Method | Phone or CW emission |
| Self-Assigned Indicators | Acceptable (e.g., KL7CC/W3) |

Questions

T1F01

When must the station and its records be available for FCC inspection?

- A) At any time ten days after notification by the FCC of such an inspection
- B) **At any time upon request by an FCC representative**
- C) At any time after written notification by the FCC of such inspection
- D) Only when presented with a valid warrant by an FCC official or government agent

The station and its records must be available for inspection at any time upon request by an FCC representative. This ensures compliance with FCC regulations and allows for immediate verification of station operations.

T1F02

How often must you identify with your FCC-assigned call sign when using tactical call signs such as "Race Headquarters"?

- A) Never, the tactical call is sufficient
- B) Once during every hour
- C) **At the end of each communication and every ten minutes during a communication**
- D) At the end of every transmission

Even when using tactical call signs, the FCC-assigned call sign must be used at the end of each communication and every 10 minutes during the communication. This ensures proper identification.

T1F03

When are you required to transmit your assigned call sign?

- A) At the beginning of each contact, and every 10 minutes thereafter
- B) At least once during each transmission
- C) At least every 15 minutes during and at the end of a communication
- D) **At least every 10 minutes during and at the end of a communication**

The call sign must be transmitted at least every 10 minutes during and at the end of a communication. This is a key requirement under FCC Part 97.

T1F04

What language may you use for identification when operating in a phone sub-band?

- A) Any language recognized by the United Nations
- B) Any language recognized by the ITU
- C) **English**
- D) English, French, or Spanish

When operating in a phone sub-band, station identification must be in English. This ensures clarity and compliance with FCC regulations.

T1F05

What method of call sign identification is required for a station transmitting phone signals?

- A) Send the call sign followed by the indicator RPT
- B) **Send the call sign using a CW or phone emission**
- C) Send the call sign followed by the indicator R
- D) Send the call sign using only a phone emission

The call sign can be transmitted using either a phone emission or CW emission. This flexibility allows operators to choose the method that best suits their equipment and operating conditions.

T1F06

Which of the following self-assigned indicators are acceptable when using a phone transmission?

- A) KL7CC stroke W3
- B) KL7CC slant W3
- C) KL7CC slash W3
- D) **All these choices are correct**

All the listed self-assigned indicators (stroke, slant, slash) are acceptable when using a phone transmission. This provides flexibility in how operators identify their stations.

Summary

This section covered the following key concepts:

- **Station identification requirements:** The station must be identified using the FCC-assigned call sign at specific intervals.
- **ID timing rules:** Identification must occur every 10 minutes during communication and at the end of communication.
- **Language requirements:** English is required for identification in phone sub-bands.
- **Self-assigned indicators:** Acceptable formats include stroke, slant, and slash indicators.

1.8 Special Operations and Services

Beacon and Space Station Operations

In amateur radio, beacon operations and space station communications are specialized activities governed by FCC Part 97 regulations. A **beacon** is defined as an amateur station that transmits communications for the purpose of observing propagation or conducting related experimental activities. This is in contrast to other types of transmissions, such as weather bulletins or government markers, which are not considered beacons under Part 97.

A **space station**, on the other hand, is an amateur station located more than 50 km above Earth's surface. This definition excludes satellites that are not operated by amateur radio operators or those that do not meet the altitude requirement. Space stations are used for experimental and communication purposes, often involving amateur radio satellites.

Frequency Coordination

Frequency coordination is a critical aspect of amateur radio operations, particularly for repeater and auxiliary stations. A **Frequency Coordinator** is a volunteer recognized by local amateur operators to recommend transmit/receive channels and other operational parameters. This role is essential to prevent interference and ensure efficient use of the radio spectrum. The selection of a Frequency Coordinator is made by amateur operators in a local or regional area whose stations are eligible to operate as repeaters or auxiliary stations.

Third-Party Communications

Third-party communications involve messages transmitted by a control operator on behalf of another person. This type of communication is subject to specific restrictions, particularly when involving foreign stations. For example, the foreign station must be in a country with which the U.S. has a third-party agreement. Additionally, the licensed control operator is responsible for station identification during such communications.

Special Operations Overview

Figure 1.8: Special Operations Overview

Special Operations Requirements

| Operation Type | Requirements |
|----------------------------|---|
| Beacon | Transmit for propagation observation or experiments |
| Space Station | Located ≥ 50 km above Earth's surface |
| Frequency Coordination | Volunteer coordinator recommended by local amateurs |
| Third-Party Communications | Requires third-party agreement with foreign station |

Table 1.8: Special Operations Requirements

Questions

T1A06

What is the FCC Part 97 definition of a beacon?

- A) A government transmitter marking the amateur radio band edges
- B) A bulletin sent by the FCC to announce a national emergency
- C) A continuous transmission of weather information authorized in the amateur bands by the National Weather Service
- D) **An amateur station transmitting communications for the purposes of observing propagation or related experimental activities**

According to FCC Part 97, a beacon is an amateur station used for propagation observation or experimental activities. Options A, B, and C describe other types of transmissions that do not meet the definition of a beacon.

T1A07

What is the FCC Part 97 definition of a space station?

- A) Any satellite orbiting Earth
- B) A manned satellite orbiting Earth
- C) **An amateur station located more than 50 km above Earth's surface**
- D) An amateur station using amateur radio satellites for relay of signals

A space station, as defined by FCC Part 97, is an amateur station located more than 50 km above Earth's surface. Options A and B are incorrect because they do not specify the altitude requirement, and option D refers to the use of satellites rather than the station's location.

T1A08

Which of the following entities recommends transmit/receive channels and other parameters for auxiliary and repeater stations?

- A) Frequency Spectrum Manager appointed by the FCC
- B) **Volunteer Frequency Coordinator recognized by local amateurs**
- C) FCC Regional Field Office
- D) International Telecommunication Union

The Volunteer Frequency Coordinator, recognized by local amateur operators, is responsible for recommending transmit/receive channels and other parameters for auxiliary and repeater stations. Options A, C, and D are incorrect because they do not involve local amateur operators.

T1A09

Who selects a Frequency Coordinator?

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

Amateur operators in a local or regional area whose stations are eligible to operate as repeaters or auxiliary stations select the Frequency Coordinator. Options A, B, and D are incorrect because they do not involve local amateur operators.

T1F07

Which of the following restrictions apply when a non-licensed person is allowed to speak to a foreign station using a station under the control of a licensed amateur operator?

- A) The person must be a U.S. citizen
- B) **The foreign station must be in a country with which the U.S. has a third party agreement**
- C) The licensed control operator must do the station identification
- D) All these choices are correct

The primary restriction is that the foreign station must be in a country with which the U.S. has a third-party agreement. Option A is incorrect because citizenship is not a requirement, and option C is only partially correct as it does not address the third-party agreement requirement.

T1F08

What is the definition of third party communications?

- A) **A message from a control operator to another amateur station control operator on behalf of another person**
- B) Amateur radio communications where three stations are in communications with one another
- C) Operation when the transmitting equipment is licensed to a person other than the control operator
- D) Temporary authorization for an unlicensed person to transmit on the amateur bands for technical experiments

Third-party communications involve a control operator transmitting a message on behalf of another person. Options B, C, and D describe other scenarios that do not meet the definition of third-party communications.

Summary

This section covered key concepts in amateur radio special operations and services:

- **Beacon operations:** Transmissions for propagation observation or experiments.
- **Space station communications:** Amateur stations located more than 50 km above Earth's surface.
- **Frequency coordination:** Managed by volunteer coordinators to prevent interference.
- **Third-party communications:** Messages transmitted by a control operator on behalf of another person, subject to specific restrictions.

1.9 Repeater and Club Operations

Repeater Operations

A repeater station is a type of amateur station that simultaneously retransmits the signal of another amateur station on a different channel or channels. This is particularly useful for extending the range of communication, especially in areas with challenging terrain. Repeater stations operate under specific regulations to ensure they do not inadvertently violate FCC rules. The control operator of the originating station is accountable if a repeater retransmits communications that violate these rules.

Club Station Licensing and Operations

Club stations are licensed amateur radio stations operated by a group of individuals, typically a club. To obtain a club station license grant, the club must meet certain requirements. One of these requirements is that the club must have at least four members. The trustee of the club station does not need to hold an Amateur Extra Class operator license grant, and the club does not need to be registered with the American Radio Relay League.

Repeater and Club Station Requirements

The following table summarizes the key requirements for repeater and club station operations:

Table 1.9: Repeater and Club Station Requirements

| Requirement | Description |
|------------------|---|
| Repeater Station | Retransmits signals on different channels |
| Club Station | Must have at least four members |

Questions

T1F09

What type of amateur station simultaneously retransmits the signal of another amateur station on a different channel or channels?

- A) Beacon station
- B) Earth station
- C) **Repeater station**
- D) Message forwarding station

A repeater station is designed to retransmit signals on different channels, extending the range of communication. Beacon stations are used for propagation studies, earth stations are for satellite communications, and message forwarding stations are not typically used for retransmission in this manner.

T1F10

Who is accountable if a repeater inadvertently retransmits communications that violate the FCC rules?

- A) **The control operator of the originating station**
- B) The control operator of the repeater
- C) The owner of the repeater
- D) Both the originating station and the repeater owner

According to FCC regulations, the control operator of the originating station is responsible for ensuring that their communications comply with FCC rules, even if retransmitted by a repeater.

T1F11

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

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

The primary requirement for a club station license grant is that the club must have at least four members. The trustee does not need to hold an Amateur Extra Class license, and registration with the American Radio Relay League is not mandatory.

Summary

This section covered the essential aspects of repeater and club station operations. Key concepts include:

- **Repeater operations:** Repeater stations retransmit signals on different channels to extend communication range. The control operator of the originating station is accountable for any violations of FCC rules.
- **Club station requirements:** A club station must have at least four members to be eligible for a license grant.
- **Repeater responsibilities:** Repeaters must operate within FCC regulations, and the control operator of the originating station is responsible for compliance.

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