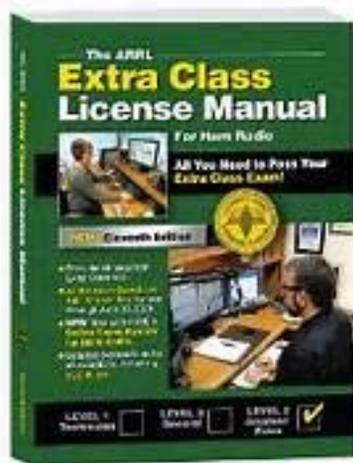


# FCC RULES AND REGULATIONS

## CHAPTER 3

### Extra Class License Manual



- 3.1 Operating Standards
- 3.2 Station Restrictions
- 3.3 Station Control
- 3.4 Amateur Satellite Service
- 3.5 Volunteer Examiner Program
- 3.6 Miscellaneous Rules



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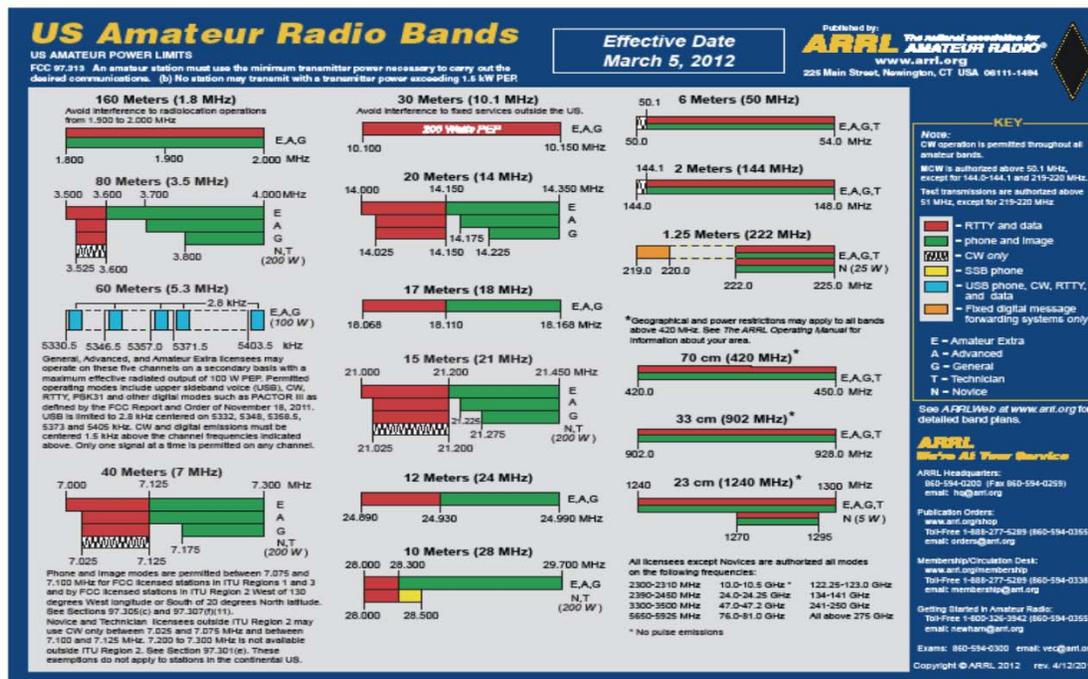
# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-1

# Frequency and Emission Privileges

All of the frequency privileges available in Amateur Radio. Watch your signal's footprint!



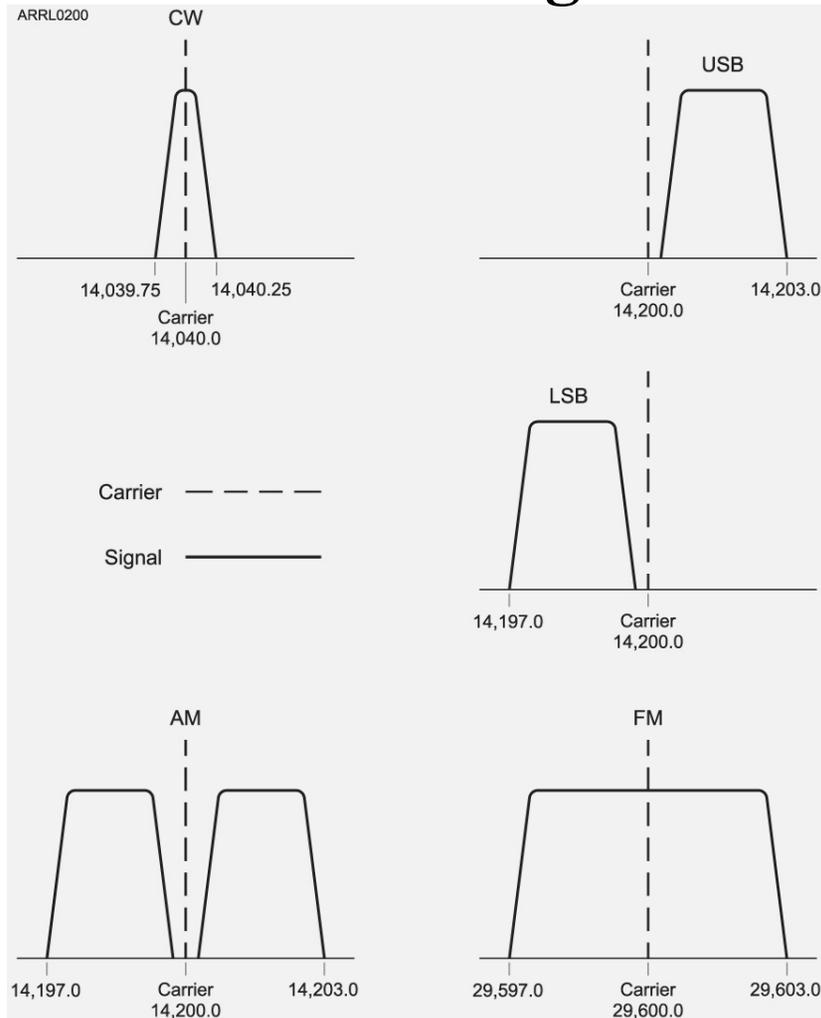
# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-5

### Frequency and Emission Privileges

Your signal's size (foot print) depends on what mode you're operating.

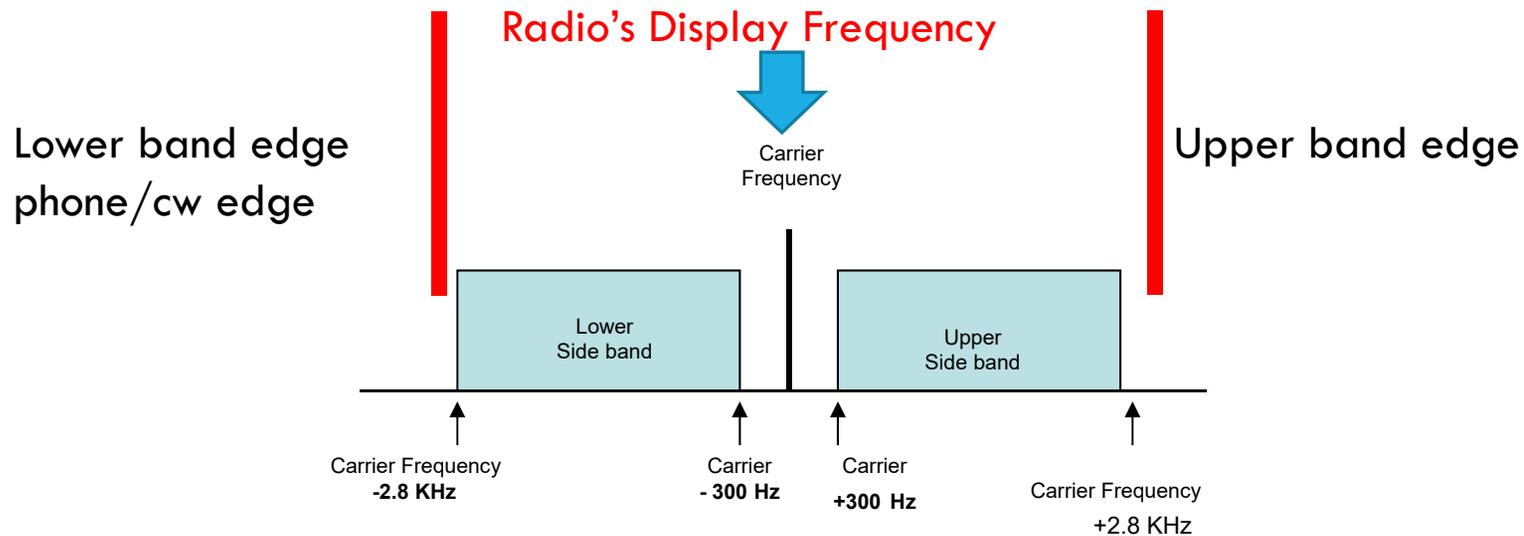


# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-2

### Frequency and Emission Privileges



- Do not cause harmful interference.
- Stay 3 kHz away from the band edges.
- Don't QSO with a stn within 3 kHz band edge.
- Stay 3 kHz away from phone/cw sub-band edge.

# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-2

### Special Restrictions

#### 30 Meters

- Restricted to CW/Data signals.
- No phone or image signals allowed.
- Limited to 200 W output power.

#### 60 Meters [E1A05, E1A06, E1A07, E1A14]

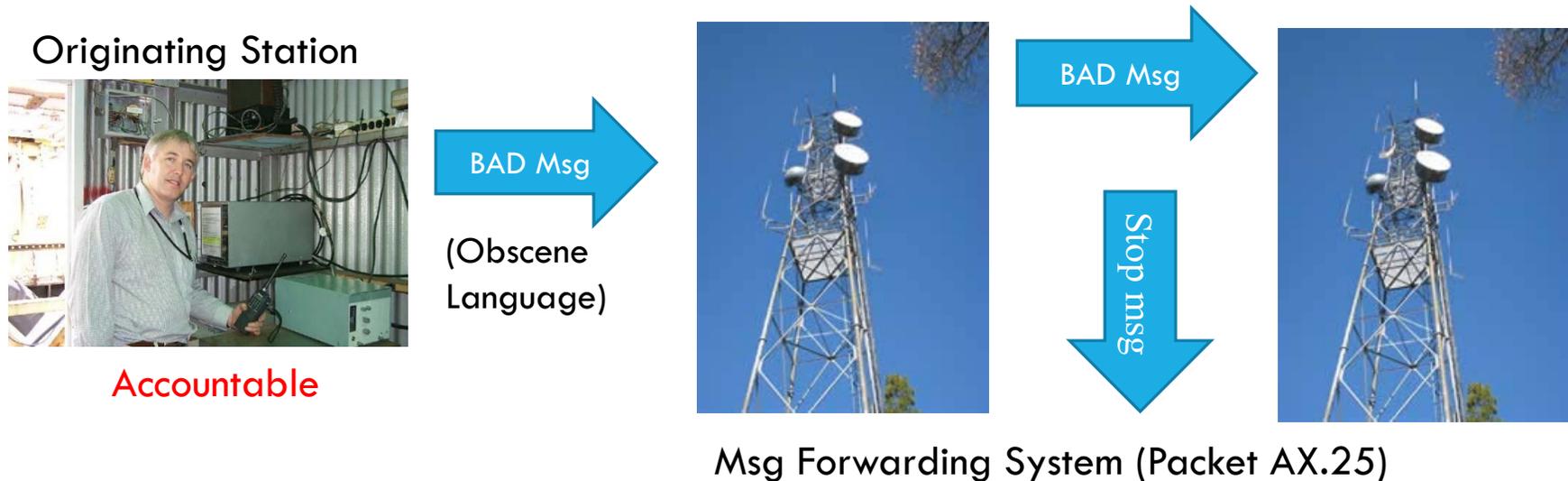
- Power limited to 100 W Eff. Radiated Power relative to a dipole (reduce power if using a Yagi)
- Five 2.8 kHz-wide Channels
- Only USB phone emission allowed
  - 5330.5, 5346.5, 5357, 5371.5, and 5403.5 kHz
- RTTY or DATA - No automatic control
- CW, RTTY and DATA centered on
  - 5332, 5348, 5358.5, 5373, and 5405 kHz

# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-5

### Automatic Message Forwarding



The control operator of the originating station primarily accountable for the rules violation.

[E1A08]

Discontinue forwarding the communication as soon as you become aware of it.

[E1A09]

# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-6

### Races Operation

**ARES** is administered by ARRL to support public safety and **nongovernmental** organizations.

**RACES** is an amateur stations **registered with local civil defense organization** communicating with **governmental** agencies. The agencies can be Local, regional, or national dealing with civil emergencies. [E1B09]

**ARES AND RACES** amateurs must follow operator privileges granted by their license. [E1B10]

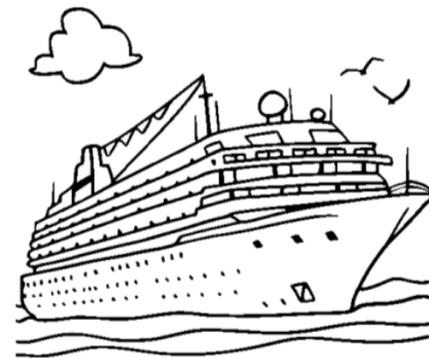
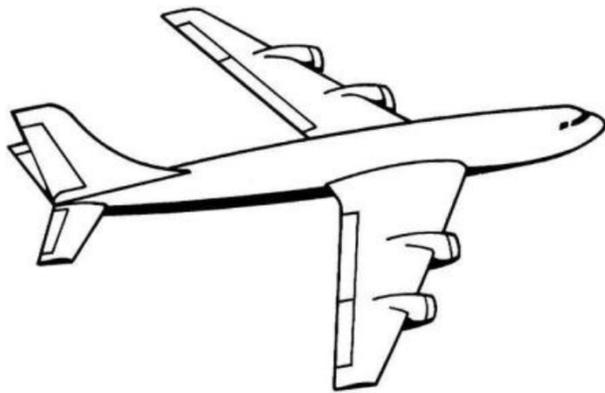
# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-7

### Stations Aboard Ships or Aircraft

In **USA** air space or waters



- Must have the Captain's approval.
- FCC License, or alien amateur - reciprocal permit. [E1A11, E1A13]
- Must have radio installation approved by aircraft or ship's Captain. [E1A10]

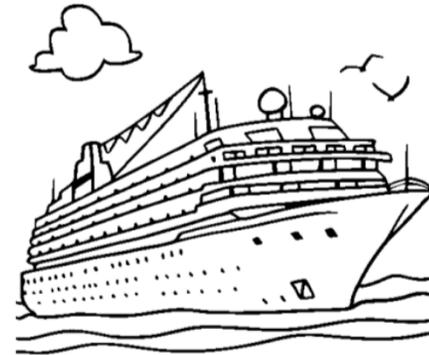
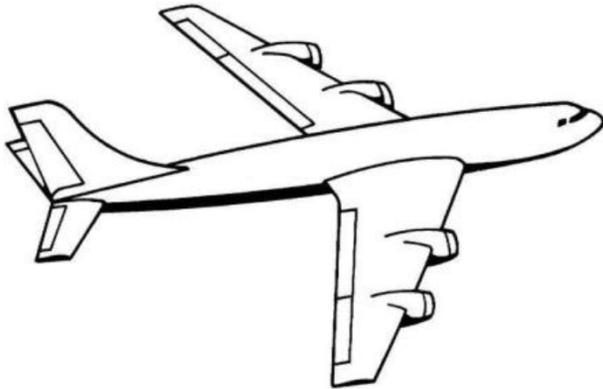
# FCC RULES AND REGULATIONS

## 3.1 OPERATING STANDARDS

3-7

### Stations Aboard Ships or Aircraft

In **International** air space or waters



- Must have the Captain's approval.
- FCC license and obey ITU Regional frequency restrictions for the region you are operating in. [E1A13]

# FCC RULES AND REGULATIONS

## 3.2 STATION RESTRICTIONS

3-7

### Operating Restrictions



Properly Operating  
Amateur Station

Interference to  
broadcast  
signals



Other Licensed Services with  
RX good engineering design  
Adequate selectivity

**FCC may impose  
Quite Periods.  
[E1B08]**

**The amateur station must avoid transmitting during certain hours on frequencies that cause the interference.**

*“The amateur station shall not be operated during the hours of 8 p.m to 10:30 p.m. local time, and on Sunday for an additional period of 10:30 a.m. and 1 p.m., local time upon the frequency or frequencies used when interference is created”.*

# FCC RULES AND REGULATIONS

## 3.2 STATION RESTRICTIONS

3-8

### Operating Restrictions



Because of stringent price constraints  
Manufacturers omit interference-  
rejection features  
Particularly filtering.

Other Licensed Services with  
RX good engineering design  
Adequate selectivity

Therefore, Quiet Periods are rarely imposed by the FCC.

# FCC RULES AND REGULATIONS

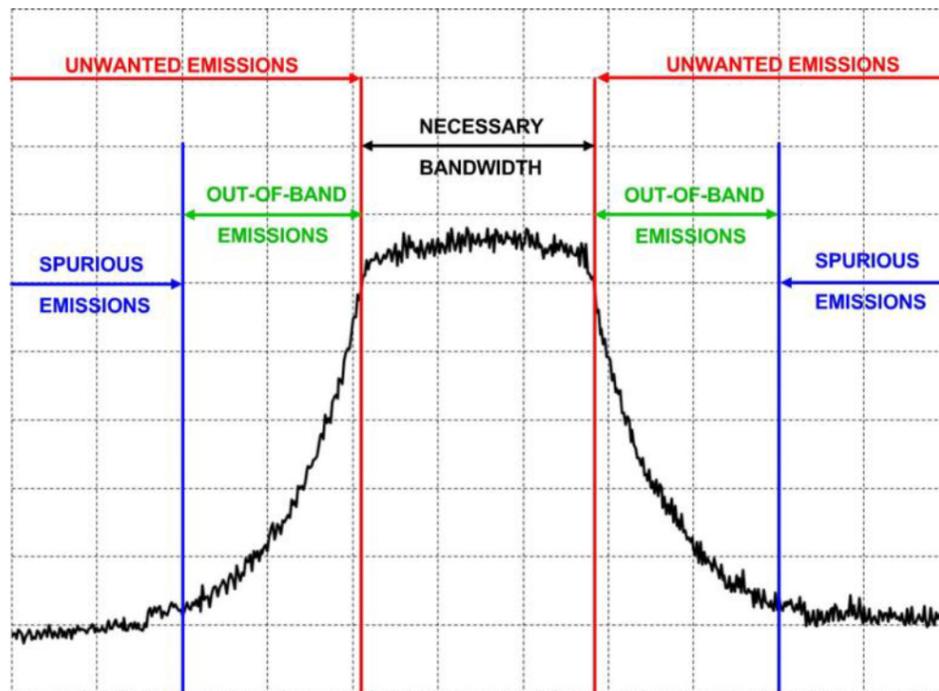
## 3.2 STATION RESTRICTIONS

3-8

### Operating Restrictions

## Spurious Emissions

### Spurious Domain



A spurious emission is an emission outside its necessary bandwidth that can be reduced or eliminated without affecting the information transmitted. [E1B01]

43 dB below fundamental signal's mean power. [E1B11]

# FCC RULES AND REGULATIONS

## 3.2 STATION RESTRICTIONS

3-8

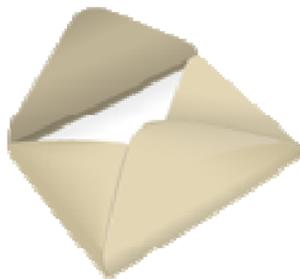
### Restrictions on Location



If your station is on land that has environmental importance, architecture, cultural, or significance in American History, you may need to submit an Environmental Assessment to the FCC. [E1B02, E1B04]



Environmental Assessment



# FCC RULES AND REGULATIONS

## 3.2 STATION RESTRICTIONS

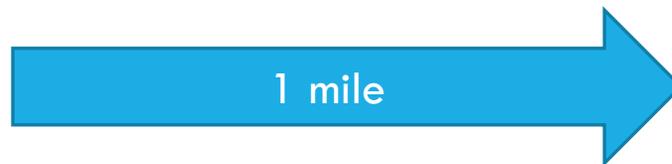
3-8

### Restrictions on Location



Your station

If your station is within 1 mile of an FCC monitoring facility, you must protect that facility from harmful interference. [E1 B03]



FCC MONITORING FACILITY

FCC Engineer in Charge may impose operating restriction on your station.

Allegan, MI  
Belfast, ME  
Canandaigua, NY  
Douglas, AZ  
Ferndale, WA  
Grand Island, NE  
Kenai, AK

Kingsville, TX  
Laurel, MD  
Livermore, CA  
Powder Springs, GA  
Santa Isabel, PR  
Vero Beach, FL  
Waipahu, HI

# FCC RULES AND REGULATIONS

## 3.2 STATION RESTRICTIONS

3-8

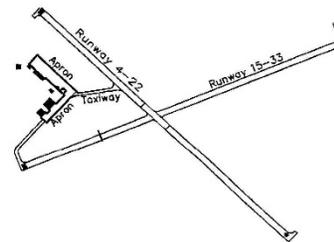
### Restrictions on Antenna Structures

You may not build an antenna structure and antenna higher than **200 feet**, without prior **FCC approval** and Federal Aviation Administration (**FAA**) **notification**.

Antennas near an airport may have further height limitations based on distance from nearest active runway. [E1B06]

Antennas 20 feet or less does not need approval. [www.wireless.fcc.gov/antenna/](http://www.wireless.fcc.gov/antenna/)

### Aviation Safety



# FCC RULES AND REGULATIONS

## 3.3 STATION CONTROL

3-10

### Local control



If you are present at the station and control its operation, that's local control. [E1 C07]

# FCC RULES AND REGULATIONS

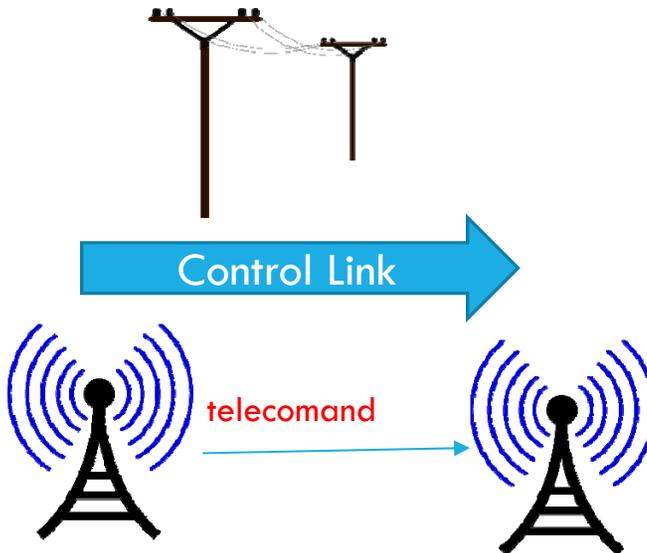
## 3.3 STATION CONTROL

3-10

### Remote Control



Control Point is no longer at the radio; it's where the control operator is. [E1C01, E1C06]



Control Link Fails:  
3 min Shut-down of TX. [E1C08]



Remote  
Controlled  
Amateur  
Radio Station

# FCC RULES AND REGULATIONS

## 3.3 STATION CONTROL

3-12

### Automatic Control

“The use of devices and procedures for control of a station when it is transmitting so that compliance with the FCC Rules is achieved without the control operator being present at the control point.” [E1C02,E1C03]

Table 3.5 frequencies on which automatic control is allowed. [E1C09]

Repeater Controller co-located with the repeater.



Amateur  
Radio Station  
(repeater)

# FCC RULES AND REGULATIONS

## 3.3 STATION CONTROL

3-12

### Automatic Control

Retransmitting the signals of other amateur stations is permitted only for auxiliary and space stations. [E1C10]



Auxiliary Station

Retransmitting



Space Stations

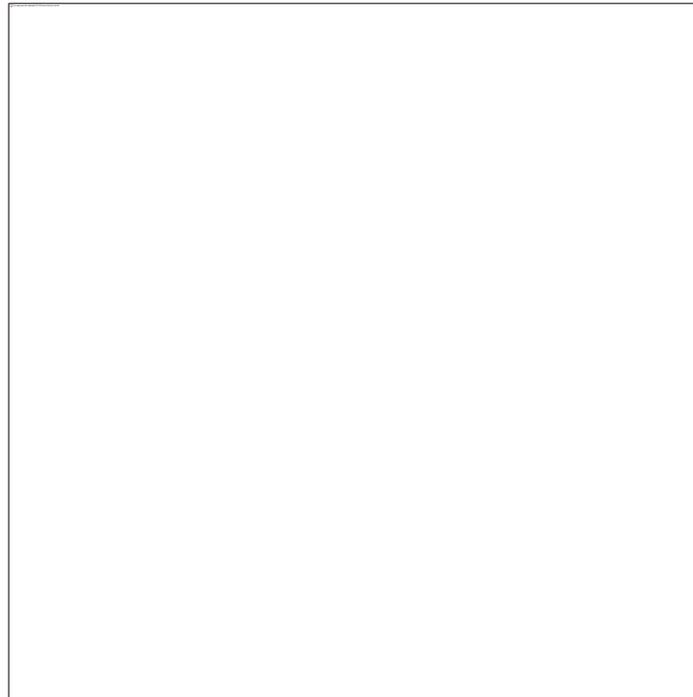
Automatically controlled stations may only relay third-party communications as RTTY or data emissions and are never allowed to originate the messages. [E1C05]

# FCC RULES AND REGULATIONS

## 3.4 AMATEUR SATELLITE SERVICE 3-12

Amateur-satellite service is a radio service using Amateur stations on satellites orbiting the Earth providing Amateur Radio communications. [E1D02]

Amateur-satellite service stations engaging in satellite communications that are on or within 50km of the Earth's surface are called Earth stations. [E1D04]



# FCC RULES AND REGULATIONS

## 3.4 AMATEUR SATELLITE SERVICE

3-12

### Telemetry



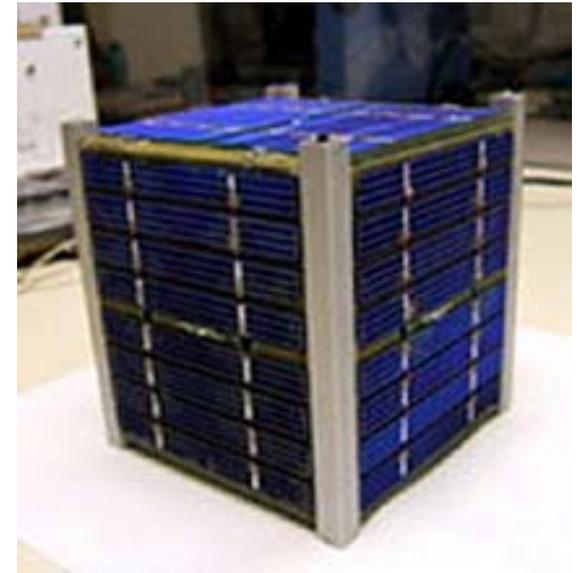
WX Telemetry

(Wind speed  
Wind direction)



Ocean Telemetry

(Wind speed, Wind  
direction, Water temp)



Space Telemetry  
(Battery voltage)

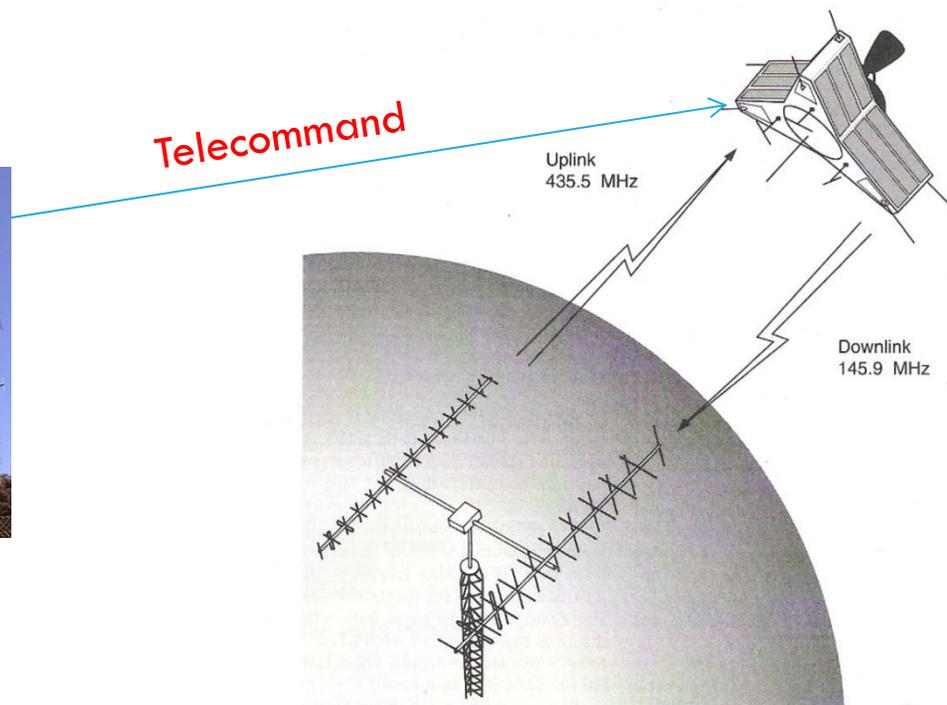
Telemetry is [Receiving] One-Way transmission of measurements [data] at a distance from the measuring instrument. [E1D01]

# FCC RULES AND REGULATIONS

## 3.4 AMATEUR SATELLITE SERVICE

5-13

### Telecommand



Telecommand is [Transmitting] A One-Way transmission to **initiate, modify, or terminate** functions of a device at a distance. [E1D03]

# FCC RULES AND REGULATIONS

## 3.4 AMATEUR SATELLITE SERVICE

3-14

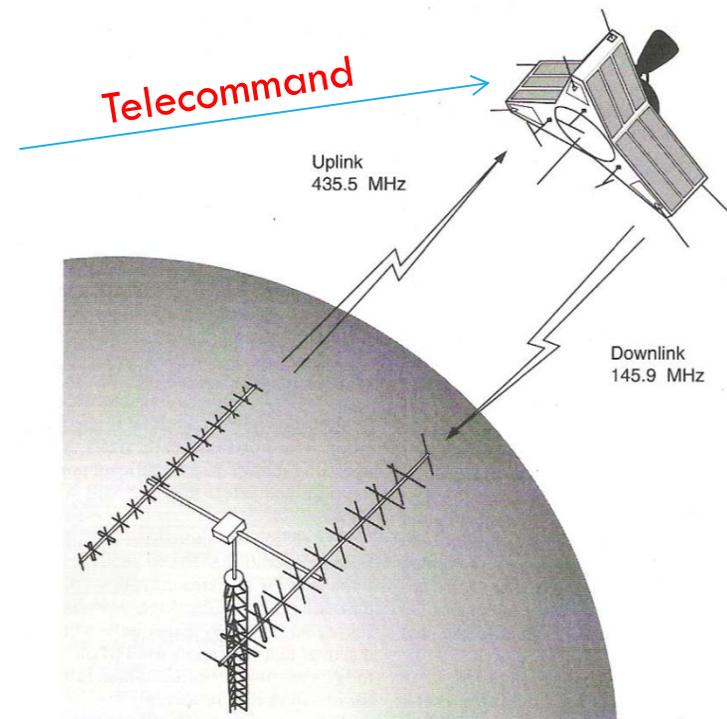
### Satellite Licensing and Frequency Privileges

Any licensed Amateur Radio operator may be the control operator of a space station – no special license is required. [E1D05]

Any amateur station may be a satellite telecommand station subject to the control operator's license class. [E1D10]

A space station must have incorporated the ability for its transmitter to be turned off by telecommand. [E1D06]

Any amateur station can operate as an Earth station if the privileges of the license allow the operator to use the frequencies and modes on which the satellite operates. [E1D11]

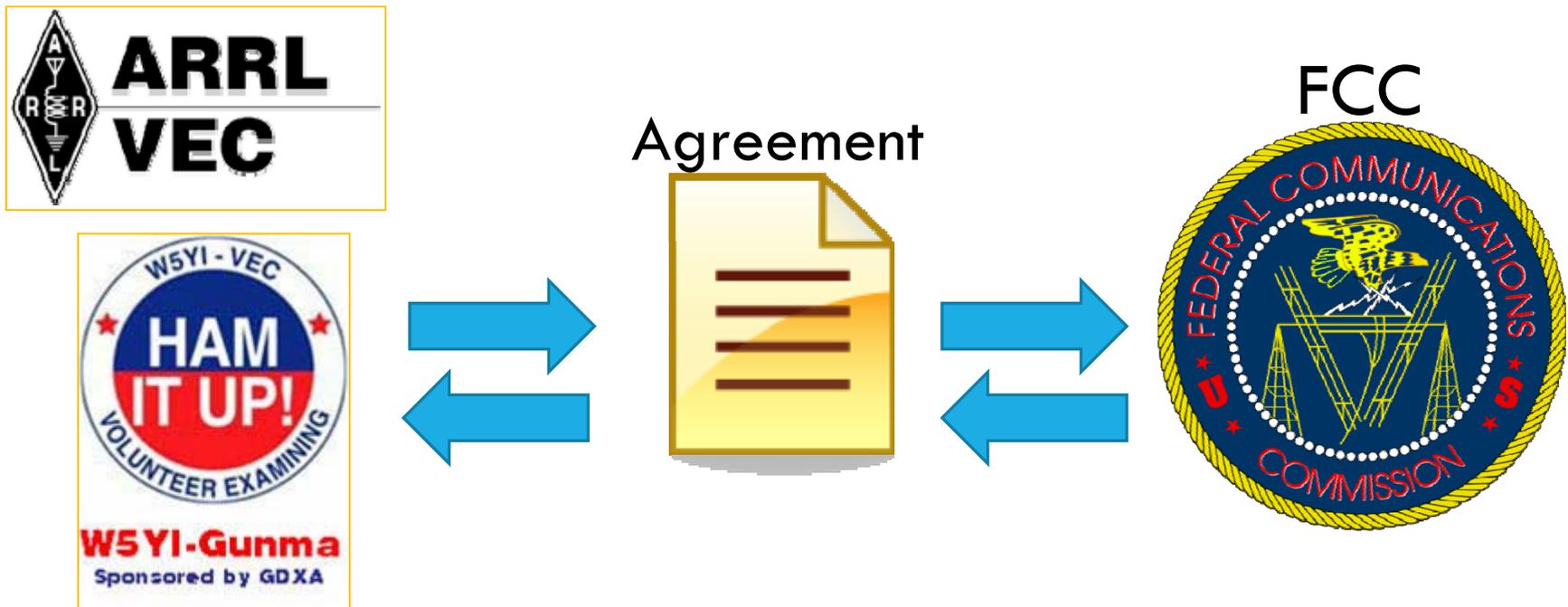


# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-14

### The Volunteer Examiner Coordinator



A Volunteer Examiner Coordinator (VEC) is an organization that has entered into an agreement with the FCC to coordinate amateur license examinations. [E1E03]

# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-14

### The Volunteer Examiner

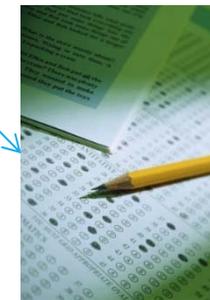
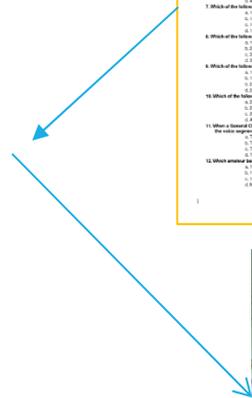


VECs must cooperate in the development and maintenance of the questions used on the exams.

### Question Pool



Build exams from question pool.



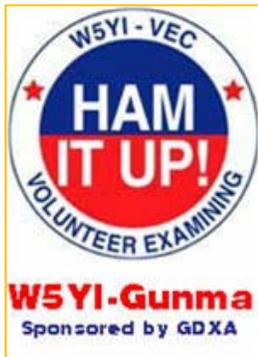
The VEC accredits licensed Amateur Radio Operator – the Volunteer Examiners (VEs) – to administer exams.

# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-15

### Accreditation



### Accreditation Process

- Age: 18+
- Valid Ham License
- License never been revoked
- General or above license
- Open book test



VE Applicant

The accreditation process is simply the steps that each VEC takes to ensure their VEs meet all the FCC requirements to serve in the Volunteer Examiner program. [E1E04]

# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

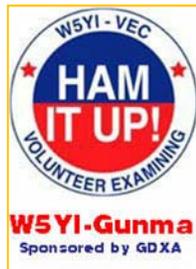
3-15

### Exam Preparation

The set of all the questions available to be asked on an exam is called the question pool. [E1E02]



Question Pool



- Create test
- Make copies
- Give to VEs



Administer test



Administer test



Administer test



# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-17

### Exam Session Administration

- Three or more VEs must administer the test session. [E1D01]
- Cannot give exam to relatives. [E1E08]
- Give exam credit (CSCE) for each exam element passed.
- VEs must hold a license higher than the exam being administered.
- VEs holding an Extra class or higher may give the Extra Class exam.



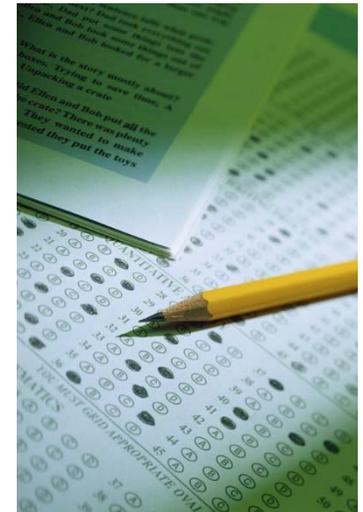
VE



VE



VE

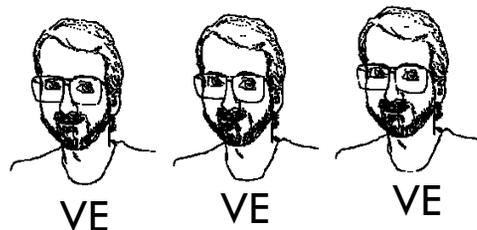


# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-17

### During the Exam



← Physically present →

← Monitor via Skype →



- VEs must supervise and be present during entire exam. [E1E06]
- VEs may monitor using real-time video link (Skype). [E1E13]
- Students must follow directions or terminate their exam. [E1E07]
- Grade test immediately. Passing score of 74% passes. [E1E05]
- Pass ... verify between VEs ... issue CSCE. [E1E11]
- Fail ... Return applications ... inform they failed. [E1E12]

# FCC RULES AND REGULATIONS

## 3.5 VOLUNTEER EXAMINER PROGRAM

3-18

### After the Exam



Pass



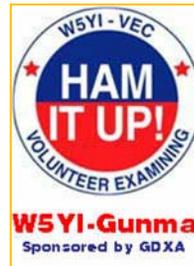
VE



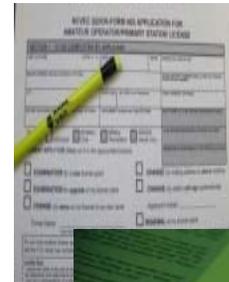
VE



VE



Form 605 & test results



FCC



VEs Submit application forms and test papers within 10 days to VEC. [E1E10]

VEC Review paperwork accuracy and submit to FCC.

FCC database

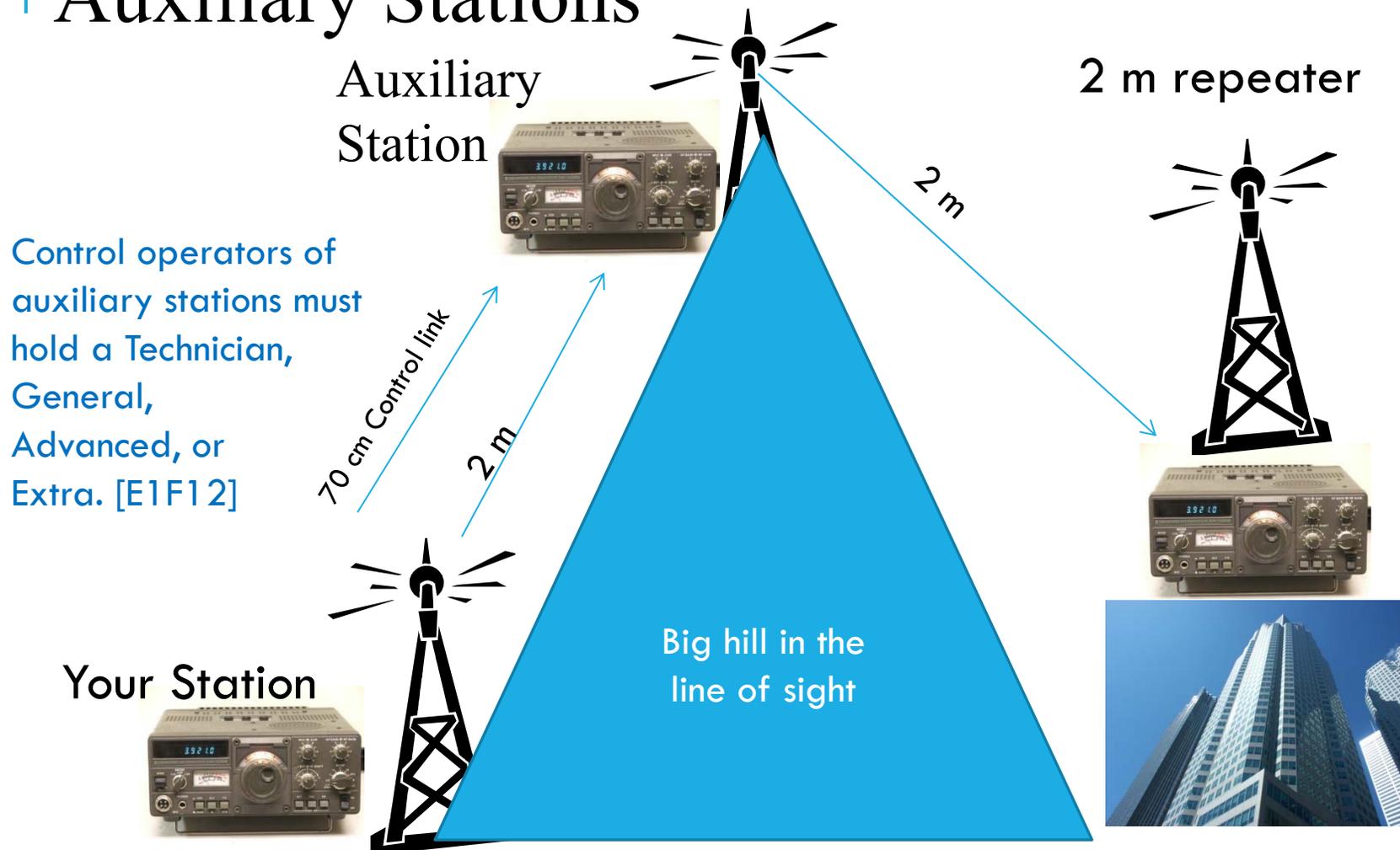


# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-19

### Auxillary Stations

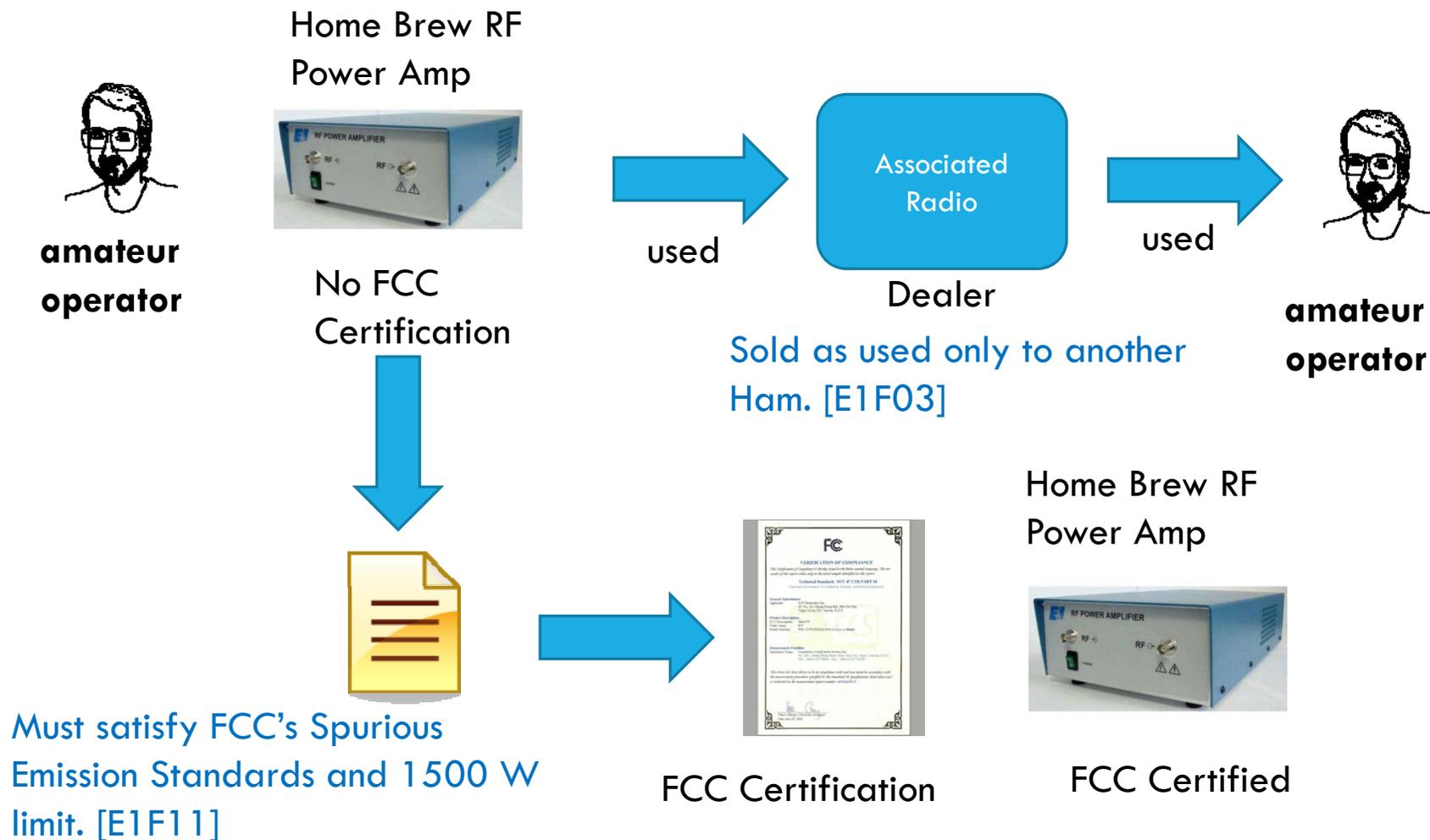


# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-19

### External Power Amplifiers



# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-20

### Line A and National Quiet Zones

An imaginary line, called Line A, runs parallel to and just south of the US/Canadian border. [E1F04]

US stations north of Line A may not transmit on 420-430 MHz. [E1F05]



These areas are known as the National Radio Quiet Zone. [E1B05]

National Radio Astronomy Observatory in Green Bank, West Virginia.

Naval Research Lab at Sugar Grove, West Virginia.

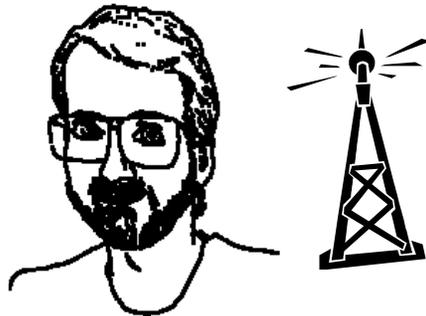
# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

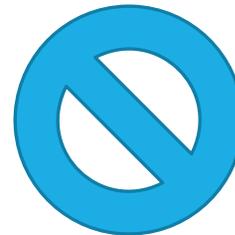
3-20

### Business and Payment

Yes! I accept the position for \$\$\$.



amateur operator



Business

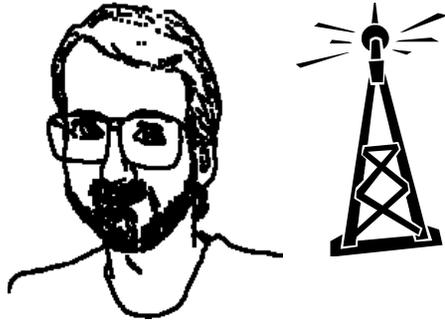
Money interest! Msg NOT allowed.

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-20

### Business and Payment



**amateur operator**

- Spouse doing shopping
- What to pick up from store
- I'd like to order a pizza



As long as you don't do it regularly and as part of your normal income-making activities. E1F07



**Business**

## No money interest then MSG is allowed.

When contacting stations in other countries, communications are limited to remarks of a person nature or incidental to Amateur Radio. [E1C12]

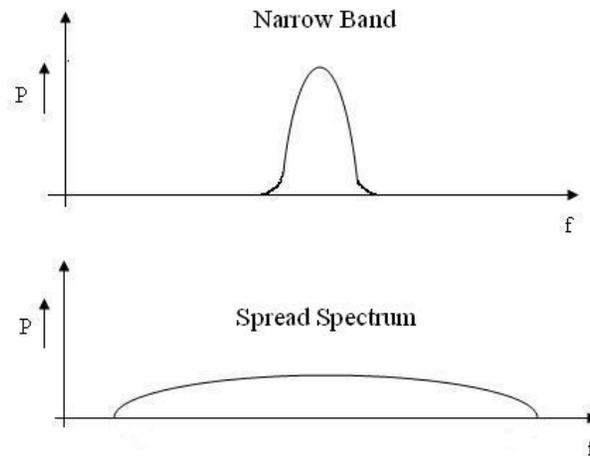
Cannot accept payment or accept equipment for Amateur Radio communications. [E1F08]

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-21

### Spread Spectrum Operation



- **Frequencies above 222 MHz. [E1F01]**
- **SS emission must not cause harmful interference.**
- **Area regulated by the FCC or in a country that permits SS emissions.**
- **Must not be used to obscure the meaning of any communication. [E1F09]**
- **Limited to 10 W power. [E1F10]**

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-21

### Non-US Operating Agreements



#### European Conference of Postal and Telecommunications Administrations

- 48 European countries cooperating to regulate posts, radio spectrum and communications networks

CEPT allows US amateurs to travel to and operate from most European countries and their overseas territories without obtaining an additional license or permit. [E1C11]

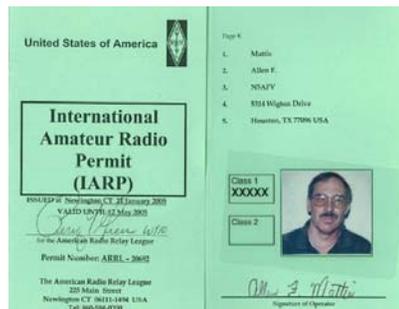
You must also carry with you a copy of FCC Public Notice DA 11-221. [E1C13]

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-21

### Non-US Operating Agreements



South Americas

IARP allows US amateurs to operate without seeking a special license or permit to enter and operate from that country. [E1C04]

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-21

### Non-US Operating Agreements



ITU Reciprocal Permit – a reciprocal agreement between the US and a country that does not participate in either CEPT or IARP agreements.

Complete rules and procedures for obtaining permission see these web sites.

[www.arrl.org/international-operating](http://www.arrl.org/international-operating)

[www.arrl.org/international-regulatory](http://www.arrl.org/international-regulatory)

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-21

### Non-US Operating Agreements

Foreign Amateurs operating in the US with a (CERT, IARP, or ITU) agreement, will have Amateur Extra privilege in the US if they hold a full-privilege license from their country. They must adhere to our band plan. [E1F02]

# FCC RULES AND REGULATIONS

## 3.6 MISCELLANEOUS RULES

3-22

### Special Temporary Authority



amateur operator

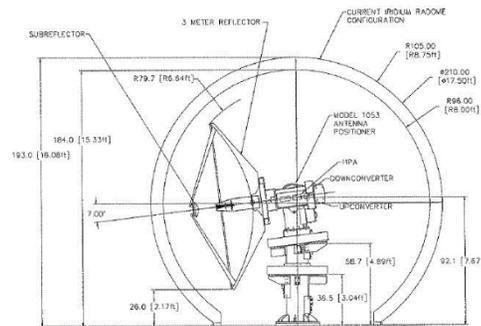


Figure 2 Iridium FLT Outline Drawing



## Experimental Purposes

- Really good reasons provided to FCC, a Special Temporary Authority may be granted to provide experimental amateur communications. [E1F06]
- Special Temporary Authority (STA) permits are temporary.
- Does not grant exclusive rights to a frequency.
- Does not waive all rules ... just specifically spelled out on the STA.
- STA terminated any time by FCC.
- May result in changes to FCC rules, but are not permanent waivers.

# FCC RULES AND REGULATIONS

## Questions & Answers

## E1A01

When using a transceiver that displays the carrier frequency of phone signals, which of the following displayed frequencies represents the highest frequency at which a properly adjusted USB emission will be totally within the band?

- A. The exact upper band edge
- B. 300 Hz below the upper band edge
- C. 1 kHz below the upper band edge
- D. 3 kHz below the upper band edge

# E1A01

3-4

E1A01

When using a transceiver that displays the carrier frequency of phone signals, which of the following displayed frequencies represents the highest frequency at which a properly adjusted USB emission will be totally within the band?

- A. The exact upper band edge
- B. 300 Hz below the upper band edge
- C. 1 kHz below the upper band edge
- D. 3 kHz below the upper band edge



E1A02

When using a transceiver that displays the carrier frequency of phone signals, which of the following displayed frequencies represents the lowest frequency at which a properly adjusted LSB emission will be totally within the band?

- A. The exact lower band edge
- B. 300 Hz above the lower band edge
- C. 1 kHz above the lower band edge
- D. 3 kHz above the lower band edge

E1A02

When using a transceiver that displays the carrier frequency of phone signals, which of the following displayed frequencies represents the lowest frequency at which a properly adjusted LSB emission will be totally within the band?

- A. The exact lower band edge
- B. 300 Hz above the lower band edge
- C. 1 kHz above the lower band edge
- D. 3 kHz above the lower band edge



# E1A03

3-4

E1A03

With your transceiver displaying the carrier frequency of phone signals, you hear a station calling CQ on 14.349 MHz USB. Is it legal to return the call using upper sideband on the same frequency?

- A. Yes, because you were not the station calling CQ
- B. Yes, because the displayed frequency is within the 20 meter band
- C. No, the sideband will extend beyond the band edge
- D. No, U.S. stations are not permitted to use phone emissions above 14.340 MHz

# E1A03

3-4

E1A03

With your transceiver displaying the carrier frequency of phone signals, you hear a station calling CQ on 14.349 MHz USB. Is it legal to return the call using upper sideband on the same frequency?

- A. Yes, because you were not the station calling CQ
- B. Yes, because the displayed frequency is within the 20 meter band
- C. No, the sideband will extend beyond the band edge 
- D. No, U.S. stations are not permitted to use phone emissions above 14.340 MHz

# E1A04

3-4

E1A04

With your transceiver displaying the carrier frequency of phone signals, you hear a DX station calling CQ on 3.601 MHz LSB. Is it legal to return the call using lower sideband on the same frequency?

- A. Yes, because the DX station initiated the contact
- B. Yes, because the displayed frequency is within the 75 meter phone band segment
- C. No, the sideband will extend beyond the edge of the phone band segment
- D. No, U.S. stations are not permitted to use phone emissions below 3.610 MHz

# E1A04

3-4

E1A04

With your transceiver displaying the carrier frequency of phone signals, you hear a DX station calling CQ on 3.601 MHz LSB. Is it legal to return the call using lower sideband on the same frequency?

- A. Yes, because the DX station initiated the contact
- B. Yes, because the displayed frequency is within the 75 meter phone band segment
- C. No, the sideband will extend beyond the edge of the phone band segment 
- D. No, U.S. stations are not permitted to use phone emissions below 3.610 MHz

# E1A05

3-4

E1A05

What is the maximum power output permitted on the 60 meter band?

- A. 50 watts PEP effective radiated power relative to an isotropic radiator
- B. 50 watts PEP effective radiated power relative to a dipole
- C. 100 watts PEP effective radiated power relative to the gain of a half-wave dipole
- D. 100 watts PEP effective radiated power relative to an isotropic radiator

# E1A05

3-4

E1A05

What is the maximum power output permitted on the 60 meter band?

- A. 50 watts PEP effective radiated power relative to an isotropic radiator
- B. 50 watts PEP effective radiated power relative to a dipole
- C. 100 watts PEP effective radiated power relative to the gain of a half-wave dipole
- D. 100 watts PEP effective radiated power relative to an isotropic radiator



# E1A06

3-2

E1A06

Where must the carrier frequency of a CW signal be set to comply with FCC rules for 60 meter operation?

- A. At the lowest frequency of the channel
- B. At the center frequency of the channel
- C. At the highest frequency of the channel
- D. On any frequency where the signal's sidebands are within the channel

# E1A06

3-2

E1A06

Where must the carrier frequency of a CW signal be set to comply with FCC rules for 60 meter operation?

- A. At the lowest frequency of the channel
- B. At the center frequency of the channel 
- C. At the highest frequency of the channel
- D. On any frequency where the signal's sidebands are within the channel

# E1A07

3-2

E1A07

Which amateur band requires transmission on specific channels rather than on a range of frequencies?

- A. 12 meter band
- B. 17 meter band
- C. 30 meter band
- D. 60 meter band

# E1A07

3-2

E1A07

Which amateur band requires transmission on specific channels rather than on a range of frequencies?

- A. 12 meter band
- B. 17 meter band
- C. 30 meter band
- D. 60 meter band



E1A08

If a station in a message forwarding system inadvertently forwards a message that is in violation of FCC rules, who is primarily accountable for the rules violation?

- A. The control operator of the packet bulletin board station
- B. The control operator of the originating station
- C. The control operators of all the stations in the system
- D. The control operators of all the stations in the system not authenticating the source from which they accept communications

E1A08

If a station in a message forwarding system inadvertently forwards a message that is in violation of FCC rules, who is primarily accountable for the rules violation?

- A. The control operator of the packet bulletin board station
- B. The control operator of the originating station 
- C. The control operators of all the stations in the system
- D. The control operators of all the stations in the system not authenticating the source from which they accept communications

E1A09

What is the first action you should take if your digital message forwarding station inadvertently forwards a communication that violates FCC rules?

- A. Discontinue forwarding the communication as soon as you become aware of it
- B. Notify the originating station that the communication does not comply with FCC rules
- C. Notify the nearest FCC Field Engineer's office
- D. Discontinue forwarding all messages

E1A09

What is the first action you should take if your digital message forwarding station inadvertently forwards a communication that violates FCC rules?

- A. Discontinue forwarding the communication as soon as you become aware of it
- B. Notify the originating station that the communication does not comply with FCC rules
- C. Notify the nearest FCC Field Engineer's office
- D. Discontinue forwarding all messages

# E1A10

3-7

## E1A10

If an amateur station is installed aboard a ship or aircraft, what condition must be met before the station is operated?

- A. Its operation must be approved by the master of the ship or the pilot in command of the aircraft
- B. The amateur station operator must agree not to transmit when the main radio of the ship or aircraft is in use
- C. The amateur station must have a power supply that is completely independent of the main ship or aircraft power supply
- D. The amateur operator must have an FCC Marine or Aircraft endorsement on his or her amateur license

# E1A10

3-7

E1A10

If an amateur station is installed aboard a ship or aircraft, what condition must be met before the station is operated?

- A. Its operation must be approved by the master of the ship or the pilot in command of the aircraft
- B. The amateur station operator must agree not to transmit when the main radio of the ship or aircraft is in use
- C. The amateur station must have a power supply that is completely independent of the main ship or aircraft power supply
- D. The amateur operator must have an FCC Marine or Aircraft endorsement on his or her amateur license



E1A11

Which of the following describes authorization or licensing required when operating an amateur station aboard a U.S.-registered vessel in international waters?

- A. Any amateur license with an FCC Marine or Aircraft endorsement
- B. Any FCC-issued amateur license
- C. Only General class or higher amateur licenses
- D. An unrestricted Radiotelephone Operator Permit

# E1A11

3-7

E1A11

Which of the following describes authorization or licensing required when operating an amateur station aboard a U.S.-registered vessel in international waters?

- A. Any amateur license with an FCC Marine or Aircraft endorsement
- B. Any FCC-issued amateur license 
- C. Only General class or higher amateur licenses
- D. An unrestricted Radiotelephone Operator Permit

# E1A12

3-4

E1A12

With your transceiver displaying the carrier frequency of CW signals, you hear a DX station's CQ on 3.500 MHz. Is it legal to return the call using CW on the same frequency?

- A. Yes, the DX station initiated the contact
- B. Yes, the displayed frequency is within the 80 meter CW band segment
- C. No, one of the sidebands of the CW signal will be out of the band
- D. No, U.S. stations are not permitted to use CW emissions below 3.525 MHz

# E1A12

3-4

E1A12

With your transceiver displaying the carrier frequency of CW signals, you hear a DX station's CQ on 3.500 MHz. Is it legal to return the call using CW on the same frequency?

- A. Yes, the DX station initiated the contact
- B. Yes, the displayed frequency is within the 80 meter CW band segment
- C. No, one of the sidebands of the CW signal will be out of the band 
- D. No, U.S. stations are not permitted to use CW emissions below 3.525 MHz

E1A13

Who must be in physical control of the station apparatus of an amateur station aboard any vessel or craft that is documented or registered in the United States?

- A. Only a person with an FCC Marine Radio
- B. Any person holding an FCC issued amateur license or who is authorized for alien reciprocal operation
- C. Only a person named in an amateur station license grant
- D. Any person named in an amateur station license grant or a person holding an unrestricted Radiotelephone Operator Permit

# E1A13

3-7

E1A13

Who must be in physical control of the station apparatus of an amateur station aboard any vessel or craft that is documented or registered in the United States?

- A. Only a person with an FCC Marine Radio
- B. Any person holding an FCC issued amateur license or who is authorized for alien reciprocal operation
- C. Only a person named in an amateur station license grant
- D. Any person named in an amateur station license grant or a person holding an unrestricted Radiotelephone Operator Permit



# E1A14

3-2

E1A14

What is the maximum bandwidth for a data emission on 60 meters?

- A. 60 Hz
- B. 170 Hz
- C. 1.5 kHz
- D. 2.8 kHz

# E1A14

3-2

E1A14

What is the maximum bandwidth for a data emission on 60 meters?

- A. 60 Hz
- B. 170 Hz
- C. 1.5 kHz
- D. 2.8 kHz



E1B01

Which of the following constitutes a spurious emission?

- A. An amateur station transmission made at random without the proper call sign identification
- B. A signal transmitted to prevent its detection by any station other than the intended recipient
- C. Any transmitted signal that unintentionally interferes with another licensed radio station
- D. An emission outside its necessary bandwidth that can be reduced or eliminated without affecting the information transmitted

# E1B01

3-8

E1B01

Which of the following constitutes a spurious emission?

- A. An amateur station transmission made at random without the proper call sign identification
- B. A signal transmitted to prevent its detection by any station other than the intended recipient
- C. Any transmitted signal that unintentionally interferes with another licensed radio station
- D. An emission outside its necessary bandwidth that can be reduced or eliminated without affecting the information transmitted



## E1B02

Which of the following factors might cause the physical location of an amateur station apparatus or antenna structure to be restricted?

- A. The location is near an area of political conflict
- B. The location is of geographical or horticultural importance
- C. The location is in an ITU Zone designated for coordination with one or more foreign governments
- D. The location is of environmental importance or significant in American history, architecture, or culture

## E1B02

Which of the following factors might cause the physical location of an amateur station apparatus or antenna structure to be restricted?

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- C. The location is in an ITU Zone designated for coordination with one or more foreign governments
- D. The location is of environmental importance or significant in American history, architecture, or culture 

# E1B03

3-8

E1B03

Within what distance must an amateur station protect an FCC monitoring facility from harmful interference?

- A. 1 mile
- B. 3 miles
- C. 10 miles
- D. 30 miles

# E1B03

3-8

E1B03

Within what distance must an amateur station protect an FCC monitoring facility from harmful interference?

- A. 1 mile
- B. 3 miles
- C. 10 miles
- D. 30 miles



E1B04

What must be done before placing an amateur station within an officially designated wilderness area or wildlife preserve, or an area listed in the National Register of Historical Places?

- A. A proposal must be submitted to the National Park Service
- B. A letter of intent must be filed with the National Audubon Society
- C. An Environmental Assessment must be submitted to the FCC
- D. A form FSD-15 must be submitted to the Department of the Interior

E1B04

What must be done before placing an amateur station within an officially designated wilderness area or wildlife preserve, or an area listed in the National Register of Historical Places?

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- C. An Environmental Assessment must be submitted to the FCC 
- D. A form FSD-15 must be submitted to the Department of the Interior

E1B05

What is the National Radio Quiet Zone?

- A. An area in Puerto Rico surrounding the Arecibo Radio Telescope
- B. An area in New Mexico surrounding the White Sands Test Area
- C. An area surrounding the National Radio Astronomy Observatory
- D. An area in Florida surrounding Cape Canaveral

E1B05

What is the National Radio Quiet Zone?

- A. An area in Puerto Rico surrounding the Arecibo Radio Telescope
- B. An area in New Mexico surrounding the White Sands Test Area
- C. An area surrounding the National Radio Astronomy Observatory
- D. An area in Florida surrounding Cape Canaveral



## E1B06

Which of the following additional rules apply if you are installing an amateur station antenna at a site at or near a public use airport?

- A. You may have to notify the Federal Aviation Administration and register it with the FCC as required by Part 17 of FCC rules
- B. No special rules apply if your antenna structure will be less than 300 feet in height
- C. You must file an Environmental Impact Statement with the EPA before construction begins
- D. You must obtain a construction permit from the airport zoning authority

## E1B06

Which of the following additional rules apply if you are installing an amateur station antenna at a site at or near a public use airport?

- A. You may have to notify the Federal Aviation Administration and register it with the FCC as required by Part 17 of FCC rules 
- B. No special rules apply if your antenna structure will be less than 300 feet in height
- C. You must file an Environmental Impact Statement with the EPA before construction begins
- D. You must obtain a construction permit from the airport zoning authority

## E1B08

What limitations may the FCC place on an amateur station if its signal causes interference to domestic broadcast reception, assuming that the receivers involved are of good engineering design?

- A. The amateur station must cease operation
- B. The amateur station must cease operation on all frequencies below 30 MHz
- C. The amateur station must cease operation on all frequencies above 30 MHz
- D. The amateur station must avoid transmitting during certain hours on frequencies that cause the interference

E1B08

What limitations may the FCC place on an amateur station if its signal causes interference to domestic broadcast reception, assuming that the receivers involved are of good engineering design?

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- B. The amateur station must cease operation on all frequencies below 30 MHz
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- D. The amateur station must avoid transmitting during certain hours on frequencies that cause the interference



E1B09

Which amateur stations may be operated under RACES rules?

- A. Only those club stations licensed to Amateur Extra class operators
- B. Any FCC-licensed amateur station except a Technician class
- C. Any FCC-licensed amateur station certified by the responsible civil defense organization for the area served
- D. Any FCC-licensed amateur station participating in the Military Auxiliary Radio System (MARS)

# E1B09

3-6

E1B09

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# E1B10

3-6

E1B10

What frequencies are authorized to an amateur station operating under RACES rules?

- A. All amateur service frequencies authorized to the control operator
- B. Specific segments in the amateur service MF, HF, VHF and UHF bands
- C. Specific local government channels
- D. Military Auxiliary Radio System (MARS) channels

# E1B10

3-6

E1B10

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- C. Specific local government channels
- D. Military Auxiliary Radio System (MARS) channels

# E1B11

3-8

E1B11

What is the permitted mean power of any spurious emission relative to the mean power of the fundamental emission from a station transmitter or external RF amplifier installed after January 1, 2003 and transmitting on a frequency below 30 MHz?

- A. At least 43 dB below
- B. At least 53 dB below
- C. At least 63 dB below
- D. At least 73 dB below

# E1B11

3-8

E1B11

What is the permitted mean power of any spurious emission relative to the mean power of the fundamental emission from a station transmitter or external RF amplifier installed after January 1, 2003 and transmitting on a frequency below 30 MHz?

- A. At least 43 dB below
- B. At least 53 dB below
- C. At least 63 dB below
- D. At least 73 dB below



E1C01

What is a remotely controlled station?

- A. A station operated away from its regular home location
- B. A station controlled by someone other than the licensee
- C. A station operating under automatic control
- D. A station controlled indirectly through a control link

E1C01

What is a remotely controlled station?

- A. A station operated away from its regular home location
- B. A station controlled by someone other than the licensee
- C. A station operating under automatic control
- D. A station controlled indirectly through a control link



## E1C02

What is meant by automatic control of a station?

- A. The use of devices and procedures for control so that the control operator does not have to be present at a control point
- B. A station operating with its output power controlled automatically
- C. Remotely controlling a station's antenna pattern through a directional control link
- D. The use of a control link between a control point and a locally controlled station

E1C02

What is meant by automatic control of a station?

- A. The use of devices and procedures for control so that the control operator does not have to be present at a control point
- B. A station operating with its output power controlled automatically
- C. Remotely controlling a station's antenna pattern through a directional control link
- D. The use of a control link between a control point and a locally controlled station



## E1C03

How do the control operator responsibilities of a station under automatic control differ from one under local control?

- A. Under local control there is no control operator
- B. Under automatic control the control operator is not required to be present at the control point
- C. Under automatic control there is no control operator
- D. Under local control a control operator is not required to be present at a control point

E1C03

How do the control operator responsibilities of a station under automatic control differ from one under local control?

- A. Under local control there is no control operator
- B. Under automatic control the control operator is not required to be present at the control point 
- C. Under automatic control there is no control operator
- D. Under local control a control operator is not required to be present at a control point

E1C04

What is meant by IARP?

- A. An international amateur radio permit that allows U.S. amateurs to operate in certain countries of the Americas
- B. The internal amateur radio practices policy of the FCC
- C. An indication of increased antenna reflected power
- D. A forecast of intermittent aurora radio propagation

E1C04

What is meant by IARP?

- A. An international amateur radio permit that allows U.S. amateurs to operate in certain countries of the Americas
- B. The internal amateur radio practices policy of the FCC
- C. An indication of increased antenna reflected power
- D. A forecast of intermittent aurora radio propagation



E1C05

When may an automatically controlled station originate third party communications?

- A. Never
- B. Only when transmitting RTTY or data emissions
- C. When agreed upon by the sending or receiving station
- D. When approved by the National Telecommunication and Information Administration

E1C05

When may an automatically controlled station originate third party communications?

- A. Never 
- B. Only when transmitting RTTY or data emissions
- C. When agreed upon by the sending or receiving station
- D. When approved by the National Telecommunication and Information Administration

E1C06

Which of the following statements concerning remotely controlled amateur stations is true?

- A. Only Extra Class operators may be the control operator of a remote station
- B. A control operator need not be present at the control point
- C. A control operator must be present at the control point
- D. Repeater and auxiliary stations may not be remotely controlled

E1C06

Which of the following statements concerning remotely controlled amateur stations is true?

- A. Only Extra Class operators may be the control operator of a remote station
- B. A control operator need not be present at the control point
- C. A control operator must be present at the control point 
- D. Repeater and auxiliary stations may not be remotely controlled

E1C07

What is meant by local control?

- A. Controlling a station through a local auxiliary link
- B. Automatically manipulating local station controls
- C. Direct manipulation of the transmitter by a control operator
- D. Controlling a repeater using a portable handheld transceiver

E1C07

What is meant by local control?

- A. Controlling a station through a local auxiliary link
- B. Automatically manipulating local station controls
- C. Direct manipulation of the transmitter by a control operator
- D. Controlling a repeater using a portable handheld transceiver



E1C08

What is the maximum permissible duration of a remotely controlled station's transmissions if its control link malfunctions?

- A. 30 seconds
- B. 3 minutes
- C. 5 minutes
- D. 10 minutes

E1C08

What is the maximum permissible duration of a remotely controlled station's transmissions if its control link malfunctions?

A. 30 seconds

B. 3 minutes 

C. 5 minutes

D. 10 minutes

E1C09

Which of these ranges of frequencies is available for an automatically controlled repeater operating below 30 MHz?

- A. 18.110 MHz - 18.168 MHz
- B. 24.940 MHz - 24.990 MHz
- C. 10.100 MHz - 10.150 MHz
- D. 29.500 MHz - 29.700 MHz

E1C09

Which of these ranges of frequencies is available for an automatically controlled repeater operating below 30 MHz?

- A. 18.110 MHz - 18.168 MHz
- B. 24.940 MHz - 24.990 MHz
- C. 10.100 MHz - 10.150 MHz
- D. 29.500 MHz - 29.700 MHz



E1C10

What types of amateur stations may automatically retransmit the radio signals of other amateur stations?

- A. Only beacon, repeater or space stations
- B. Only auxiliary, repeater or space stations
- C. Only earth stations, repeater stations or model craft
- D. Only auxiliary, beacon or space stations

# E1C10

3-12

E1C10

What types of amateur stations may automatically retransmit the radio signals of other amateur stations?

- A. Only beacon, repeater or space stations
- B. Only auxiliary, repeater or space stations 
- C. Only earth stations, repeater stations or model craft
- D. Only auxiliary, beacon or space stations

## E1C11

Which of the following operating arrangements allows an FCC-licensed U.S. citizen to operate in many European countries, and alien amateurs from many European countries to operate in the U.S.?

- A. CEPT agreement
- B. IARP agreement
- C. ITU reciprocal license
- D. All of these choices are correct

E1C11

Which of the following operating arrangements allows an FCC-licensed U.S. citizen to operate in many European countries, and alien amateurs from many European countries to operate in the U.S.?

- A. CEPT agreement 
- B. IARP agreement
- C. ITU reciprocal license
- D. All of these choices are correct

## E1C12

What types of communications may be transmitted to amateur stations in foreign countries?

- A. Business-related messages for non-profit organizations
- B. Messages intended for connection to users of the maritime satellite service
- C. Communications incidental to the purpose of the amateur service and remarks of a personal nature
- D. All of these choices are correct

## E1C12

What types of communications may be transmitted to amateur stations in foreign countries?

- A. Business-related messages for non-profit organizations
- B. Messages intended for connection to users of the maritime satellite service
- C. Communications incidental to the purpose of the amateur service and remarks of a personal nature
- D. All of these choices are correct



## E1C13

Which of the following is required in order to operate in accordance with CEPT rules in foreign countries where permitted?

- A. You must identify in the official language of the country in which you are operating
- B. The U.S. embassy must approve of your operation
- C. You must bring a copy of FCC Public Notice DA 11-221
- D. You must append "/CEPT" to your call sign

## E1C13

Which of the following is required in order to operate in accordance with CEPT rules in foreign countries where permitted?

- A. You must identify in the official language of the country in which you are operating
- B. The U.S. embassy must approve of your operation
- C. You must bring a copy of FCC Public Notice DA 11-221 
- D. You must append "/CEPT" to your call sign

E1D01

What is the definition of the term telemetry?

- A. One-way transmission of measurements at a distance from the measuring instrument
- B. Two-way radiotelephone transmissions in excess of 1000 feet
- C. Two-way single channel transmissions of data
- D. One-way transmission that initiates, modifies, or terminates the functions of a device at a distance

E1D01

What is the definition of the term telemetry?

- A. One-way transmission of measurements at a distance from the measuring instrument
- B. Two-way radiotelephone transmissions in excess of 1000 feet
- C. Two-way single channel transmissions of data
- D. One-way transmission that initiates, modifies, or terminates the functions of a device at a distance



E1D02

What is the amateur satellite service?

- A. A radio navigation service using satellites for the purpose of self training, intercommunication and technical studies carried out by amateurs
- B. A spacecraft launching service for amateur-built satellites
- C. A radio communications service using amateur radio stations on satellites
- D. A radio communications service using stations on Earth satellites for public service broadcast

E1D02

What is the amateur satellite service?

- A. A radio navigation service using satellites for the purpose of self training, intercommunication and technical studies carried out by amateurs
- B. A spacecraft launching service for amateur-built satellites
- C. A radio communications service using amateur radio stations on satellites 
- D. A radio communications service using stations on Earth satellites for public service broadcast

E1D03

What is a telecommand station in the amateur satellite service?

- A. An amateur station located on the Earth's surface for communication with other Earth stations by means of Earth satellites
- B. An amateur station that transmits communications to initiate, modify or terminate functions of a space station
- C. An amateur station located more than 50 km above the Earth's surface
- D. An amateur station that transmits telemetry consisting of measurements of upper atmosphere

E1D03

What is a telecommand station in the amateur satellite service?

- A. An amateur station located on the Earth's surface for communication with other Earth stations by means of Earth satellites
- B. An amateur station that transmits communications to initiate, modify or terminate functions of a space station 
- C. An amateur station located more than 50 km above the Earth's surface
- D. An amateur station that transmits telemetry consisting of measurements of upper atmosphere

E1D04

What is an Earth station in the amateur satellite service?

- A. An amateur station within 50 km of the Earth's surface intended for communications with amateur stations by means of objects in space
- B. An amateur station that is not able to communicate using amateur satellites
- C. An amateur station that transmits telemetry consisting of measurement of upper atmosphere
- D. Any amateur station on the surface of the Earth

E1D04

What is an Earth station in the amateur satellite service?

- A. An amateur station within 50 km of the Earth's surface intended for communications with amateur stations by means of objects in space 
- B. An amateur station that is not able to communicate using amateur satellites
- C. An amateur station that transmits telemetry consisting of measurement of upper atmosphere
- D. Any amateur station on the surface of the Earth

E1D05

What class of licensee is authorized to be the control operator of a space station?

- A. All except Technician Class
- B. Only General, Advanced or Amateur Extra Class
- C. Any class with appropriate operator privileges
- D. Only Amateur Extra Class

E1D05

What class of licensee is authorized to be the control operator of a space station?

- A. All except Technician Class
- B. Only General, Advanced or Amateur Extra Class
- C. Any class with appropriate operator privileges
- D. Only Amateur Extra Class



E1D06

Which of the following is a requirement of a space station?

- A. The space station must be capable of terminating transmissions by telecommand when directed by the FCC
- B. The space station must cease all transmissions after 5 years
- C. The space station must be capable of changing its orbit whenever such a change is ordered by NASA
- D. All of these choices are correct

E1D06

Which of the following is a requirement of a space station?

- A. The space station must be capable of terminating transmissions by telecommand when directed by the FCC
- B. The space station must cease all transmissions after 5 years
- C. The space station must be capable of changing its orbit whenever such a change is ordered by NASA
- D. All of these choices are correct



E1D07

Which amateur service HF bands have frequencies authorized for space stations?

- A. Only the 40 m, 20 m, 17 m, 15 m, 12 m and 10 m bands
- B. Only the 40 m, 20 m, 17 m, 15 m and 10 m bands
- C. Only the 40 m, 30 m, 20 m, 15 m, 12 m and 10 m bands
- D. All HF bands

# E1D07

3-14

E1D07

Which amateur service HF bands have frequencies authorized for space stations?

- A. Only the 40 m, 20 m, 17 m, 15 m, 12 m and 10 m bands
- B. Only the 40 m, 20 m, 17 m, 15 m and 10 m bands
- C. Only the 40 m, 30 m, 20 m, 15 m, 12 m and 10 m bands
- D. All HF bands



# E1D08

3-14

E1D08

Which VHF amateur service bands have frequencies available for space stations?

- A. 6 meters and 2 meters
- B. 6 meters, 2 meters, and 1.25 meters
- C. 2 meters and 1.25 meters
- D. 2 meters

# E1D08

3-14

E1D08

Which VHF amateur service bands have frequencies available for space stations?

- A. 6 meters and 2 meters
- B. 6 meters, 2 meters, and 1.25 meters
- C. 2 meters and 1.25 meters
- D. 2 meters 

# E1D09

3-14

E1D09

Which UHF amateur service bands have frequencies available for a space station?

- A. 70 cm only
- B. 70 cm and 13 cm
- C. 70 cm and 33 cm
- D. 33 cm and 13 cm

# E1D09

3-14

E1D09

Which UHF amateur service bands have frequencies available for a space station?

- A. 70 cm only
- B. 70 cm and 13 cm
- C. 70 cm and 33 cm
- D. 33 cm and 13 cm



# E1D10

3-14

E1D10

Which amateur stations are eligible to be telecommand stations?

- A. Any amateur station designated by NASA
- B. Any amateur station so designated by the space station licensee, subject to the privileges of the class of operator license held by the control operator
- C. Any amateur station so designated by the ITU
- D. All of these choices are correct

# E1D10

3-14

E1D10

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- B. Any amateur station so designated by the space station licensee, subject to the privileges of the class of operator license held by the control operator
- C. Any amateur station so designated by the ITU
- D. All of these choices are correct



# E1D11

3-14

E1D11

Which amateur stations are eligible to operate as Earth stations?

- A. Any amateur station whose licensee has filed a pre-space notification with the FCC's International Bureau
- B. Only those of General, Advanced or Amateur Extra Class operators
- C. Only those of Amateur Extra Class operators
- D. Any amateur station, subject to the privileges of the class of operator license held by the control operator

# E1D11

3-14

E1D11

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E1E01

What is the minimum number of qualified VEs required to administer an Element 4 amateur operator license examination?

- A. 5
- B. 2
- C. 4
- D. 3

E1E01

What is the minimum number of qualified VEs required to administer an Element 4 amateur operator license examination?

- A. 5
- B. 2
- C. 4
- D. 3



E1E02

Where are the questions for all written U.S. amateur license examinations listed?

- A. In FCC Part 97
- B. In a question pool maintained by the FCC
- C. In a question pool maintained by all the VECs
- D. In the appropriate FCC Report and Order

E1E02

Where are the questions for all written U.S. amateur license examinations listed?

- A. In FCC Part 97
- B. In a question pool maintained by the FCC
- C. In a question pool maintained by all the VECs
- D. In the appropriate FCC Report and Order



E1E03

What is a Volunteer Examiner Coordinator?

- A. A person who has volunteered to administer amateur operator license examinations
- B. A person who has volunteered to prepare amateur operator license examinations
- C. An organization that has entered into an agreement with the FCC to coordinate amateur operator license examinations
- D. The person who has entered into an agreement with the FCC to be the VE session manager

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E1E04

Which of the following best describes the Volunteer Examiner accreditation process?

- A. Each General, Advanced and Amateur Extra Class operator is automatically accredited as a VE when the license is granted
- B. The amateur operator applying must pass a VE examination administered by the FCC Enforcement Bureau
- C. The prospective VE obtains accreditation from the FCC
- D. The procedure by which a VEC confirms that the VE applicant meets FCC requirements to serve as an examiner

E1E04

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E1E05

What is the minimum passing score on amateur operator license examinations?

- A. Minimum passing score of 70%
- B. Minimum passing score of 74%
- C. Minimum passing score of 80%
- D. Minimum passing score of 77%

E1E05

What is the minimum passing score on amateur operator license examinations?

- A. Minimum passing score of 70%
- B. Minimum passing score of 74%
- C. Minimum passing score of 80%
- D. Minimum passing score of 77%



E1E06

Who is responsible for the proper conduct and necessary supervision during an amateur operator license examination session?

- A. The VEC coordinating the session
- B. The FCC
- C. Each administering VE
- D. The VE session manager

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E1E07

What should a VE do if a candidate fails to comply with the examiner's instructions during an amateur operator license examination?

- A. Warn the candidate that continued failure to comply will result in termination of the examination
- B. Immediately terminate the candidate's examination
- C. Allow the candidate to complete the examination, but invalidate the results
- D. Immediately terminate everyone's examination and close the session

E1E07

What should a VE do if a candidate fails to comply with the examiner's instructions during an amateur operator license examination?

- A. Warn the candidate that continued failure to comply will result in termination of the examination
- B. Immediately terminate the candidate's examination 
- C. Allow the candidate to complete the examination, but invalidate the results
- D. Immediately terminate everyone's examination and close the session

E1E08

To which of the following examinees may a VE not administer an examination?

- A. Employees of the VE
- B. Friends of the VE
- C. Relatives of the VE as listed in the FCC rules
- D. All of these choices are correct

E1E08

To which of the following examinees may a VE not administer an examination?

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E1E09

What may be the penalty for a VE who fraudulently administers or certifies an examination?

- A. Revocation of the VE's amateur station license grant and the suspension of the VE's amateur operator license grant
- B. A fine of up to \$1000 per occurrence
- C. A sentence of up to one year in prison
- D. All of these choices are correct

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E1E10

What must the administering VEs do after the administration of a successful examination for an amateur operator license?

- A. They must collect and send the documents to the NCVEC for grading
- B. They must collect and submit the documents to the coordinating VEC for grading
- C. They must submit the application document to the coordinating VEC according to the coordinating VEC instructions
- D. They must collect and send the documents to the FCC according to instructions

E1E10

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## E1E11

What must the VE team do if an examinee scores a passing grade on all examination elements needed for an upgrade or new license?

- A. Photocopy all examination documents and forward them to the FCC for processing
- B. Three VEs must certify that the examinee is qualified for the license grant and that they have complied with the administering VE requirements
- C. Issue the examinee the new or upgrade license
- D. All these choices are correct

## E1E11

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E1E12

What must the VE team do with the application form if the examinee does not pass the exam?

- A. Return the application document to the examinee
- B. Maintain the application form with the VEC's records
- C. Send the application form to the FCC and inform the FCC of the grade
- D. Destroy the application form

E1E12

What must the VE team do with the application form if the examinee does not pass the exam?

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## E1E13

Which of these choices is an acceptable method for monitoring the applicants if a VEC opts to conduct an exam session remotely?

- A. Record the exam session on video tape for later review by the VE team
- B. Use a real-time video link and the Internet to connect the exam session to the observing VEs
- C. The exam proctor observes the applicants and reports any violations
- D. Have each applicant sign an affidavit stating that all session rules were followed

## E1E13

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## E1E14

For which types of out-of-pocket expenses do the Part 97 rules state that VEs and VECs may be reimbursed?

- A. Preparing, processing, administering and coordinating an examination for an amateur radio license
- B. Teaching an amateur operator license examination preparation course
- C. No expenses are authorized for reimbursement
- D. Providing amateur operator license examination preparation training materials

# E1E14

3-17

E1E14

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E1F01

On what frequencies are spread spectrum transmissions permitted?

- A. Only on amateur frequencies above 50 MHz
- B. Only on amateur frequencies above 222 MHz
- C. Only on amateur frequencies above 420 MHz
- D. Only on amateur frequencies above 144 MHz

# E1F01

3-21

E1F01

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- B. Only on amateur frequencies above 222 MHz
- C. Only on amateur frequencies above 420 MHz
- D. Only on amateur frequencies above 144 MHz



E1F02

What privileges are authorized in the U.S. to persons holding an amateur service license granted by the Government of Canada?

- A. None, they must obtain a U.S. license
- B. All privileges of the Extra Class license
- C. The operating terms and conditions of the Canadian amateur service license, not to exceed U.S. Extra Class privileges
- D. Full privileges, up to and including those of the Extra Class License, on the 80, 40, 20, 15, and 10 meter bands

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E1F03

Under what circumstances may a dealer sell an external RF power amplifier capable of operation below 144 MHz if it has not been granted FCC certification?

- A. It was purchased in used condition from an amateur operator and is sold to another amateur operator for use at that operator's station
- B. The equipment dealer assembled it from a kit
- C. It was imported from a manufacturer in a country that does not require certification of RF power amplifiers
- D. It was imported from a manufacturer in another country and was certificated by that country's government

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E1F04

Which of the following geographic descriptions approximately describes "Line A"?

- A. A line roughly parallel to and south of the U.S.-Canadian border
- B. A line roughly parallel to and west of the U.S. Atlantic coastline
- C. A line roughly parallel to and north of the U.S.-Mexican border and Gulf coastline
- D. A line roughly parallel to and east of the U.S. Pacific coastline

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# E1F05

3-20

E1F05

Amateur stations may not transmit in which of the following frequency segments if they are located in the contiguous 48 states and north of Line A?

- A. 440 MHz - 450 MHz
- B. 53 MHz - 54 MHz
- C. 222 MHz - 223 MHz
- D. 420 MHz - 430 MHz

# E1F05

3-20

E1F05

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- A. 440 MHz - 450 MHz
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- C. 222 MHz - 223 MHz
- D. 420 MHz - 430 MHz



E1F06

Under what circumstances might the FCC issue a Special Temporary Authority (STA) to an amateur station?

- A. To provide for experimental amateur communications
- B. To allow regular operation on Land Mobile channels
- C. To provide additional spectrum for personal use
- D. To provide temporary operation while awaiting normal licensing

E1F06

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- B. To allow regular operation on Land Mobile channels
- C. To provide additional spectrum for personal use
- D. To provide temporary operation while awaiting normal licensing



E1F07

When may an amateur station send a message to a business?

- A. When the total money involved does not exceed \$25
- B. When the control operator is employed by the FCC or another government agency
- C. When transmitting international third-party communications
- D. When neither the amateur nor his or her employer has a pecuniary interest in the communications

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E1F08

Which of the following types of amateur station communications are prohibited?

- A. Communications transmitted for hire or material compensation, except as otherwise provided in the rules
- B. Communications that have a political content, except as allowed by the Fairness Doctrine
- C. Communications that have a religious content
- D. Communications in a language other than English

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- C. Communications that have a religious content
- D. Communications in a language other than English



E1F09

Which of the following conditions apply when transmitting spread spectrum emission?

- A. A station transmitting SS emission must not cause harmful interference to other stations employing other authorized emissions
- B. The transmitting station must be in an area regulated by the FCC or in a country that permits SS emissions
- C. The transmission must not be used to obscure the meaning of any communication
- D. All of these choices are correct

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# E1F10

3-21

E1F10

What is the maximum permitted transmitter peak envelope power for an amateur station transmitting spread spectrum communications?

- A. 1 W
- B. 1.5 W
- C. 10 W
- D. 1.5 kW

# E1F10

3-21

E1F10

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- C. 10 W
- D. 1.5 kW



E1F11

Which of the following best describes one of the standards that must be met by an external RF power amplifier if it is to qualify for a grant of FCC certification?

- A. It must produce full legal output when driven by not more than 5 watts of mean RF input power
- B. It must be capable of external RF switching between its input and output networks
- C. It must exhibit a gain of 0 dB or less over its full output range
- D. It must satisfy the FCC's spurious emission standards when operated at the lesser of 1500 watts or its full output power

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E1F12

Who may be the control operator of an auxiliary station?

- A. Any licensed amateur operator
- B. Only Technician, General, Advanced or Amateur Extra Class operators
- C. Only General, Advanced or Amateur Extra Class operators
- D. Only Amateur Extra Class operators

E1F12

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