



Technician License Course

The background features a stack of colorful papers in shades of purple, red, orange, yellow, green, and blue. Overlaid on the left is a yellow-bordered sign with a black background. The sign contains the call sign 'A 2000 R' and a stylized graphic of a radio antenna and a battery symbol.

Technician License Course

Chapter 7 – Part 1

License Regulations

License Regulations

- Licensing authority for Amateur Radio
 - Federal Communications Commission
 - FCC rules published in Part 97 of Title 47 – Code of Federal Regulations.
 - Usually referred to as “Part 97”

Why Is There Ham Radio? (Part 97.1)

- Providing emergency communication capability.
- Advancement of the art and science of radio.
- Advance communication and technical skills of radio.
- Provide a trained reservoir of operators, technicians and electronics experts.
- Promote and enhance international goodwill.

Some Definitions

- Amateur Service – no pecuniary interest (private and personal, non commercial).
- Amateur Operator – the person holding authorization (license) to operate an Amateur Radio station.
- Amateur Station – equipment capable of transmitting on frequencies authorized for Amateur Service.



The Amateur License

- No age limit or citizenship restrictions.
 - One exception – foreign representatives
- License actually contains two parts.
 - Operator license
 - Station license (the call sign)
- Three levels of operator privileges:
Technician, General, Amateur Extra.

Licensing Examinations

- Volunteer Examiners (VEs)
- Volunteer Examiner Coordinators (VECs)
- Preparation
 - Study the content
 - Question Pool

The background features a vibrant, multi-colored wavy pattern resembling a rainbow or liquid paint in shades of purple, red, orange, yellow, green, and blue. On the left side, there is a large, dark, semi-transparent graphic of a ham radio call sign 'A 2000 R' with a stylized antenna and a battery symbol, all enclosed within a yellow-bordered triangular shape.

Licensing Examinations

- Taking the exam
 - Proctored exam
 - Multiple choice
 - What the fee pays for

License Term and Renewal

- The license is free and good for 10 years.
 - Renewable within 90 days of the expiration date.
- Some personal identification information is required.
 - Tax ID (Social Security Number).
 - Current Mailing Address.
 - Federal Registration Number (FRN).



Responsibilities of Licensee

- Prevent unauthorized operation of your station.
- Provide personal information as required
 - keep a current mailing address on file.
- Make your station available for FCC inspection upon request.



FCC ULS Web Site

www.wireless.fcc.gov/uls

- Register for on-line access to your license information.
- Make changes to your address and other information.
- Renew your license.
- Search for other station information.



Practice Questions

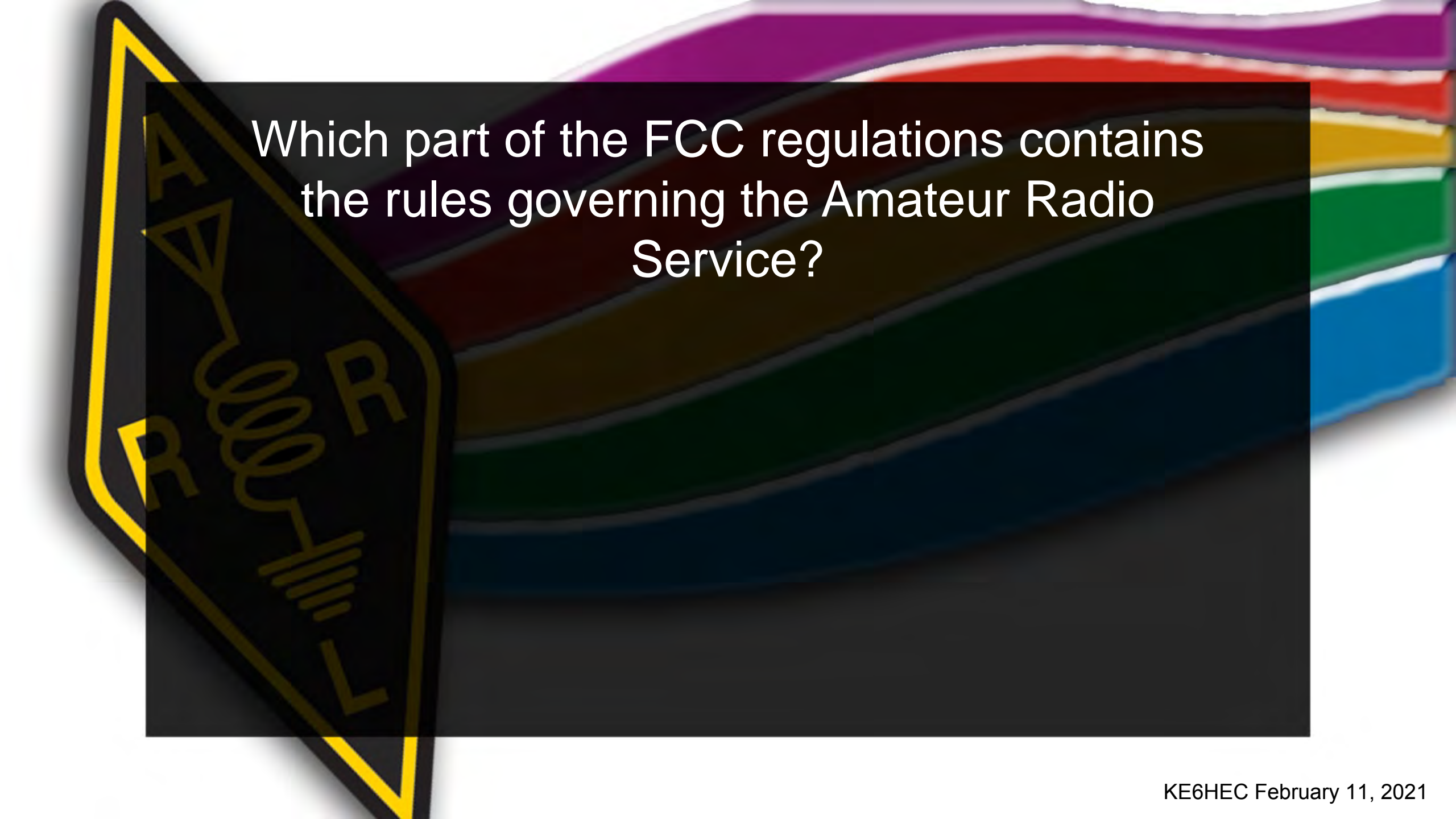


Which agency regulates and enforces the
rules for the Amateur Radio Service in the
United States?

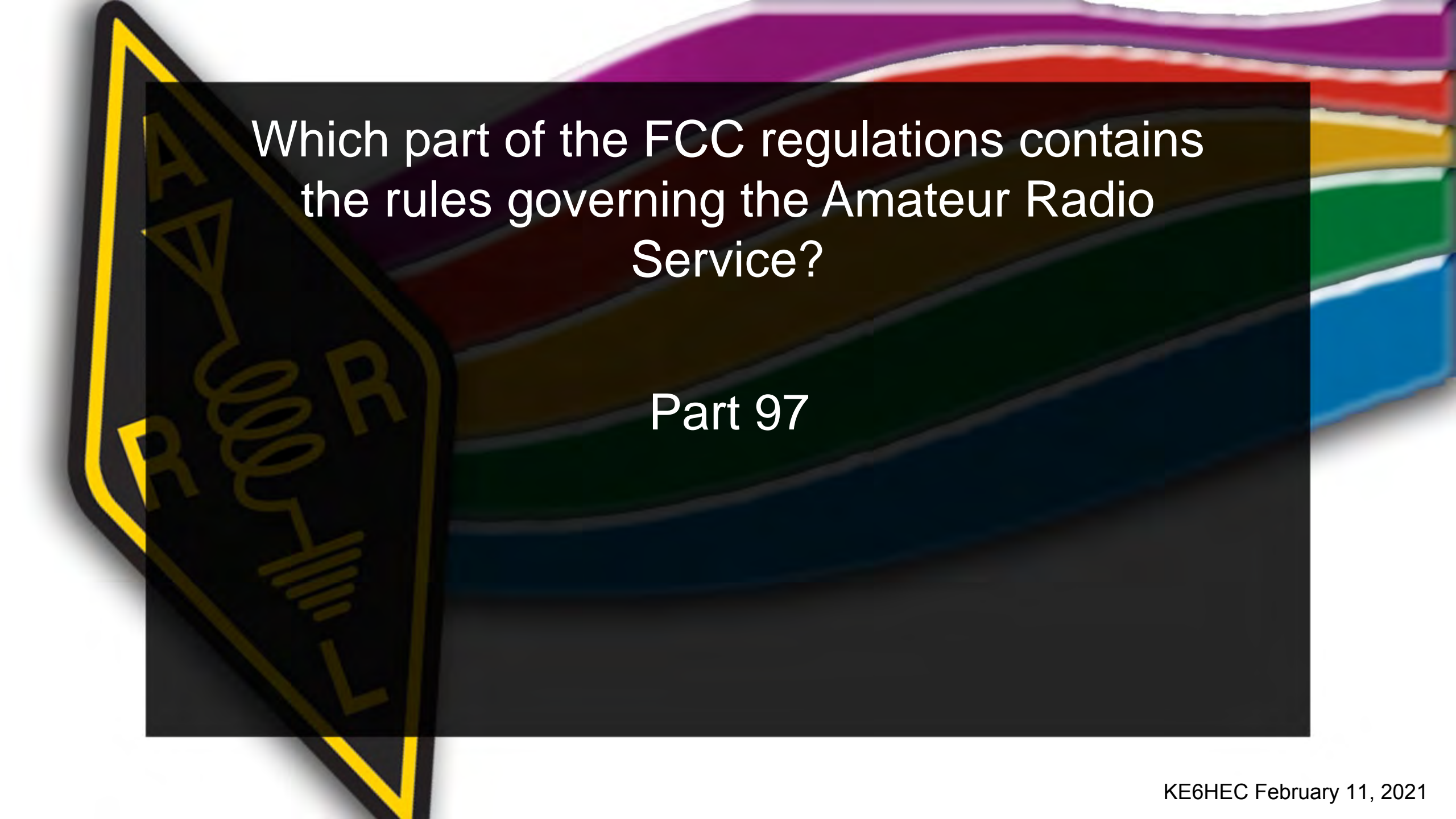


Which agency regulates and enforces the
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The FCC

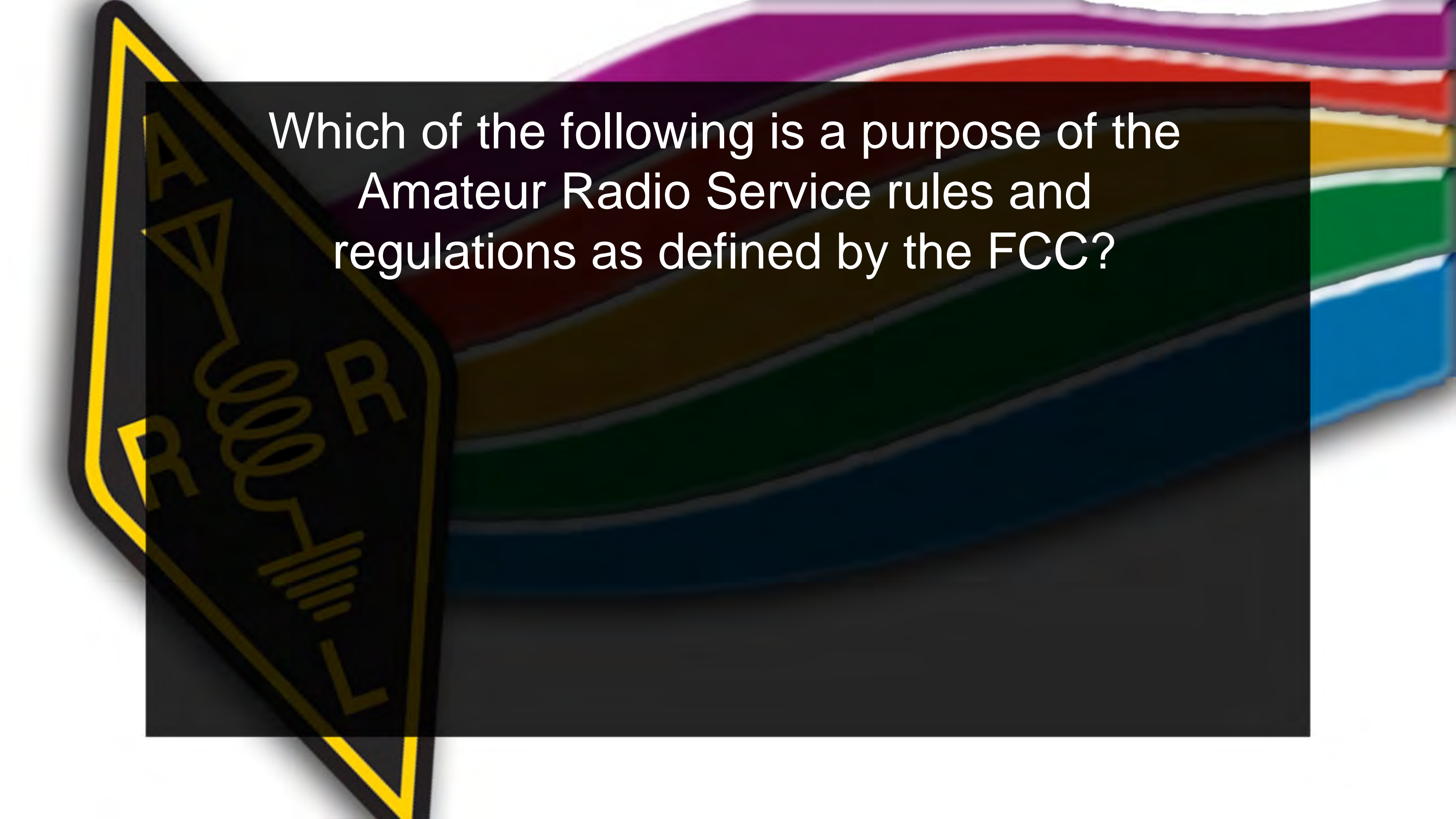


Which part of the FCC regulations contains
the rules governing the Amateur Radio
Service?

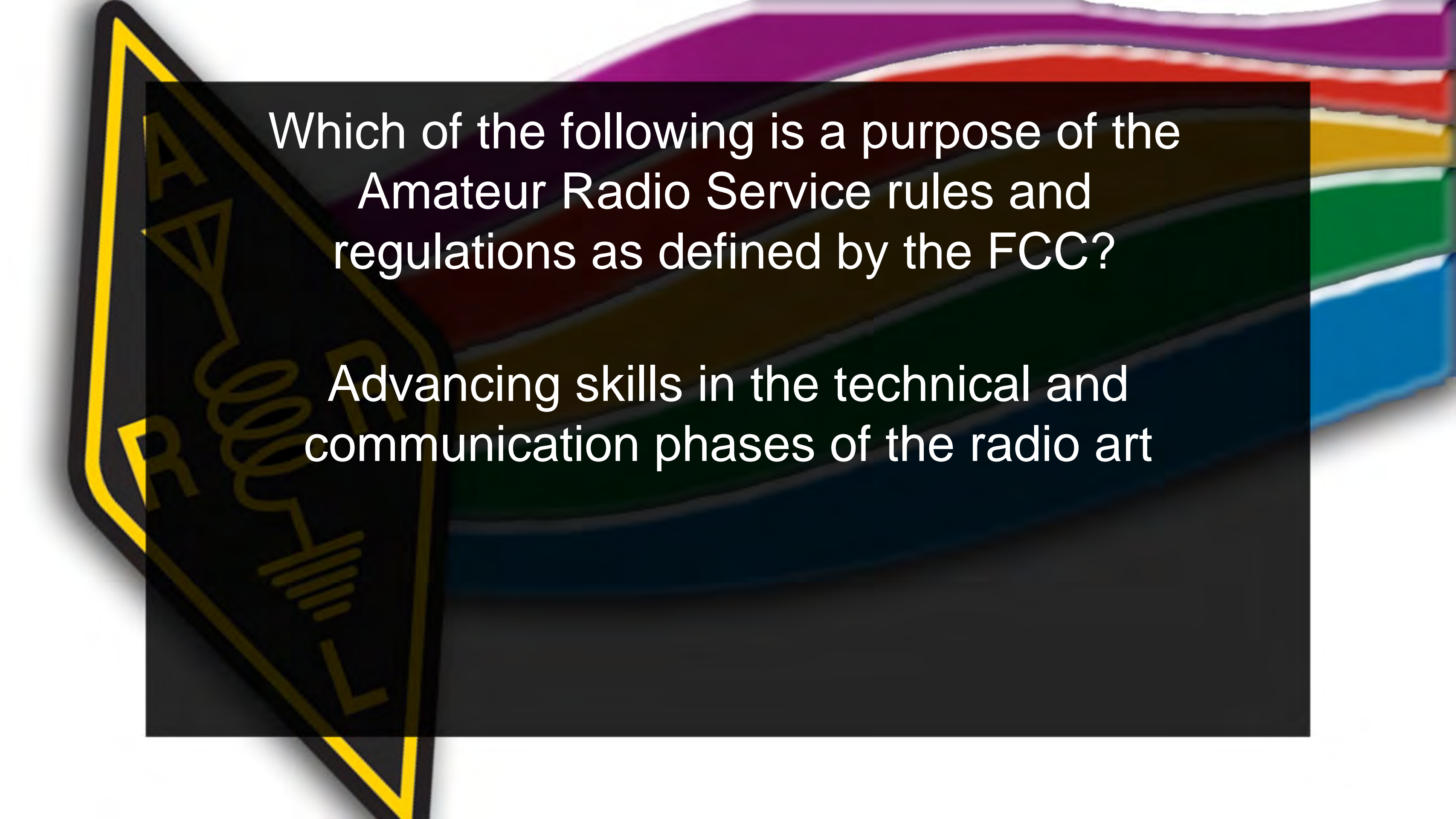
The background of the slide features a stack of several books with colorful spines in shades of purple, red, orange, yellow, green, and blue. On the left side, there is a large, stylized logo for the Amateur Radio Service. The logo is yellow and black, featuring a triangle with the letters 'A' and 'R' and a coiled wire symbol.

Which part of the FCC regulations contains
the rules governing the Amateur Radio
Service?

Part 97




Which of the following is a purpose of the
Amateur Radio Service rules and
regulations as defined by the FCC?



Which of the following is a purpose of the Amateur Radio Service rules and regulations as defined by the FCC?

Advancing skills in the technical and communication phases of the radio art




What is the FCC Part 97 definition of an
amateur station?

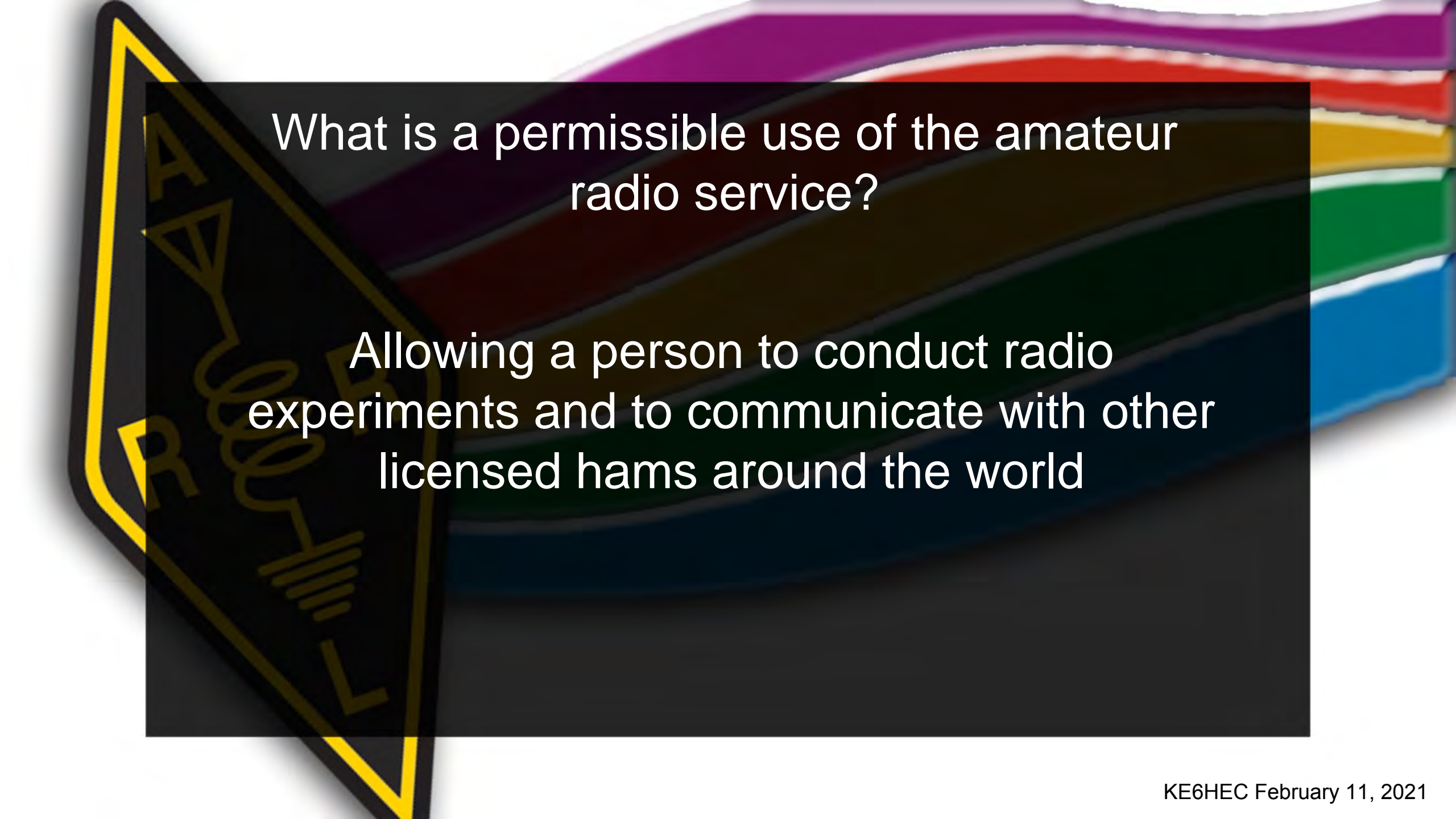


What is the FCC Part 97 definition of an amateur station?

A station in the Amateur Radio Service consisting of the apparatus necessary for carrying on radio communications

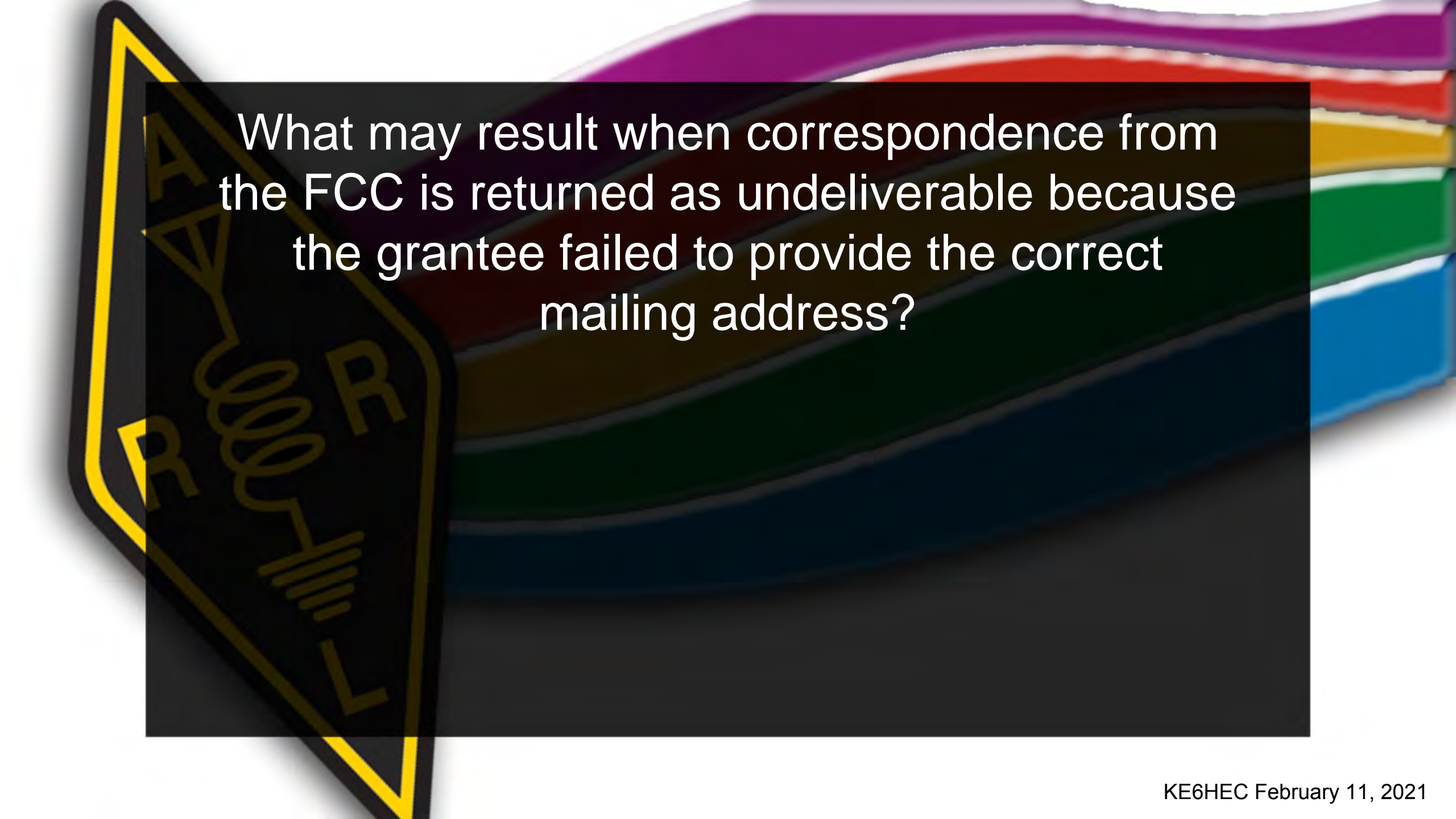


What is a permissible use of the amateur
radio service?

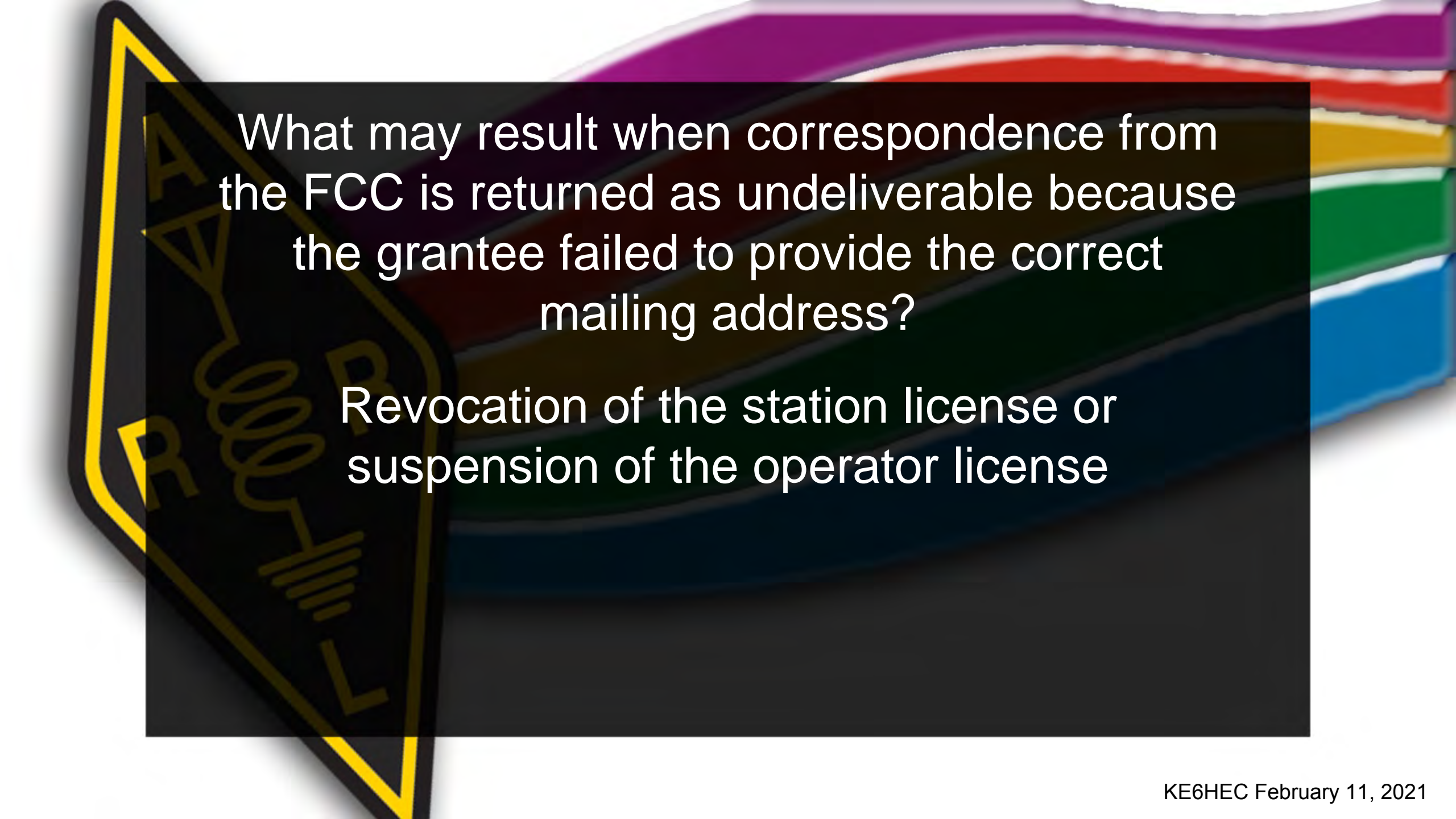


What is a permissible use of the amateur
radio service?

Allowing a person to conduct radio
experiments and to communicate with other
licensed hams around the world

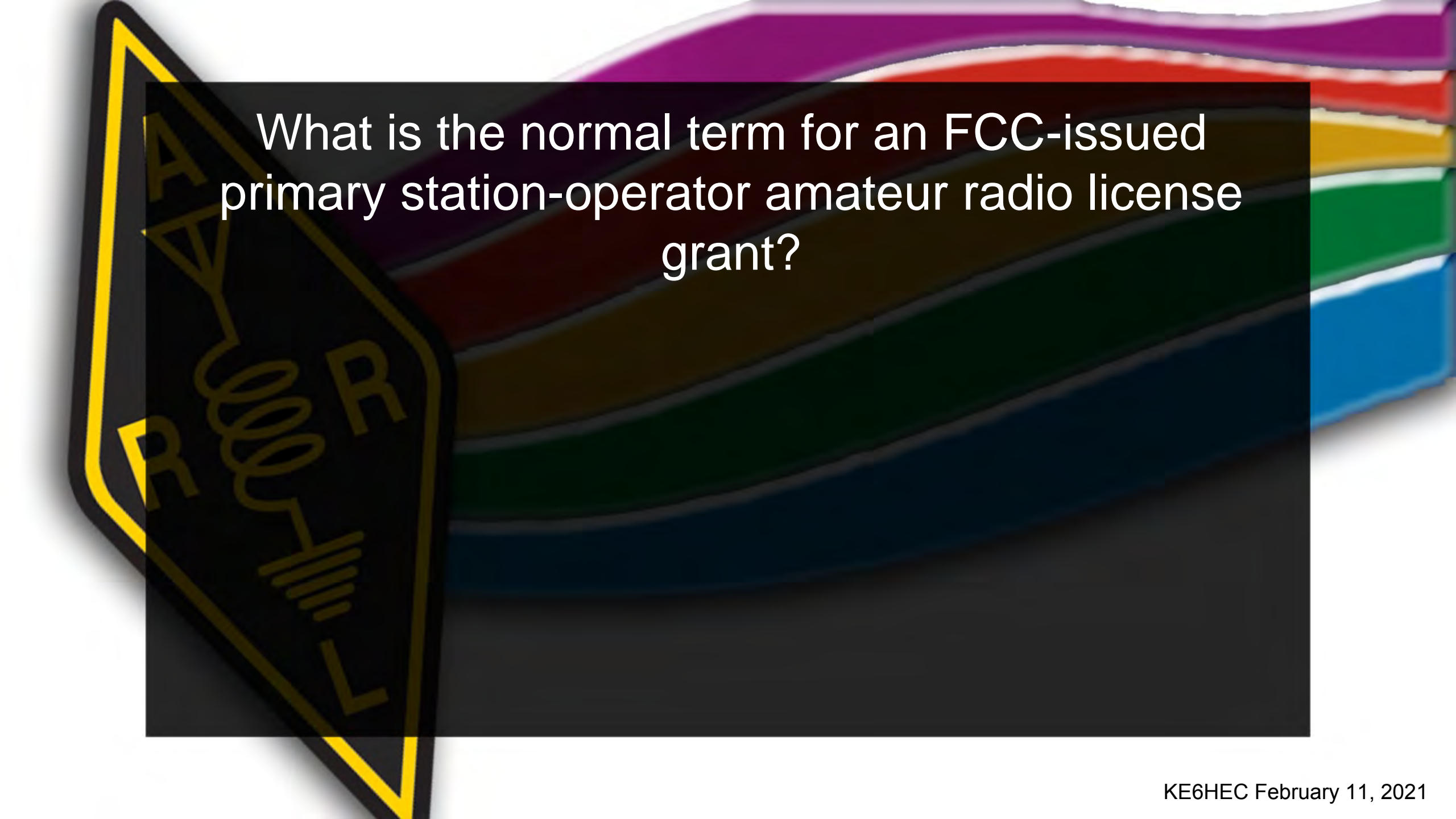
The background features a vibrant, multi-colored rainbow with wavy, layered bands of purple, red, orange, yellow, green, and blue. Overlaid on the left side is a large, semi-transparent yellow stamp with a black border. The stamp contains the word 'RETURN' in a bold, sans-serif font, with 'TO SENDER' written in a smaller font below it. A stylized graphic of a return arrow is also visible within the stamp.

What may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct mailing address?




What may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct mailing address?

Revocation of the station license or suspension of the operator license


The background features a vibrant, multi-colored rainbow with horizontal bands of purple, red, orange, yellow, green, and blue. On the left side, there is a large, stylized yellow-outlined symbol on a dark background. This symbol is a combination of the letters 'A' and 'R' with a coiled line representing an antenna and a battery symbol at the bottom, indicating an amateur radio station.

What is the normal term for an FCC-issued
primary station-operator amateur radio license
grant?




What is the normal term for an FCC-issued
primary station-operator amateur radio license
grant?

Ten years

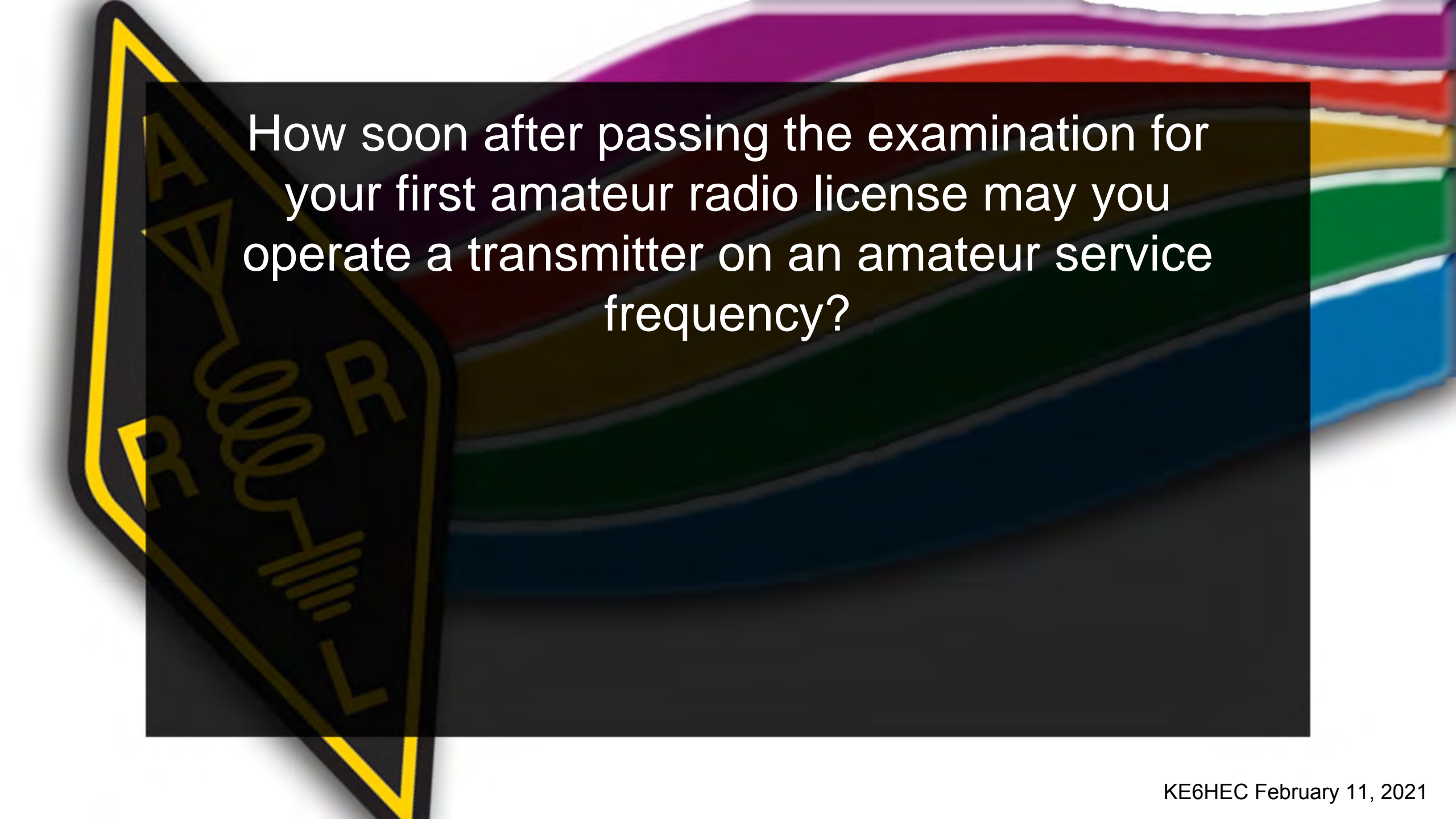


What is the grace period following the expiration of an amateur license within which the license may be renewed?

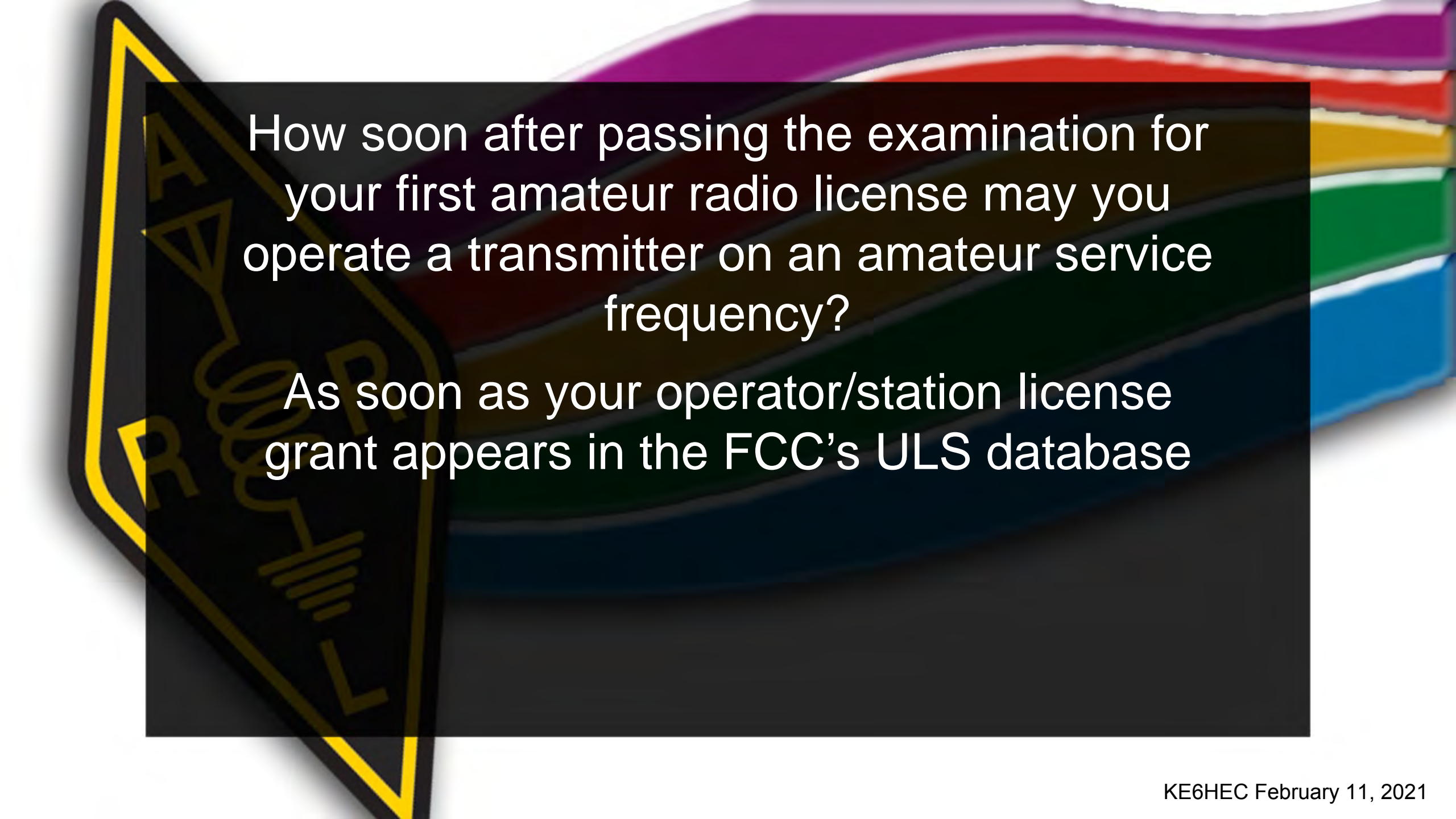


What is the grace period following the expiration of an amateur license within which the license may be renewed?

Two years

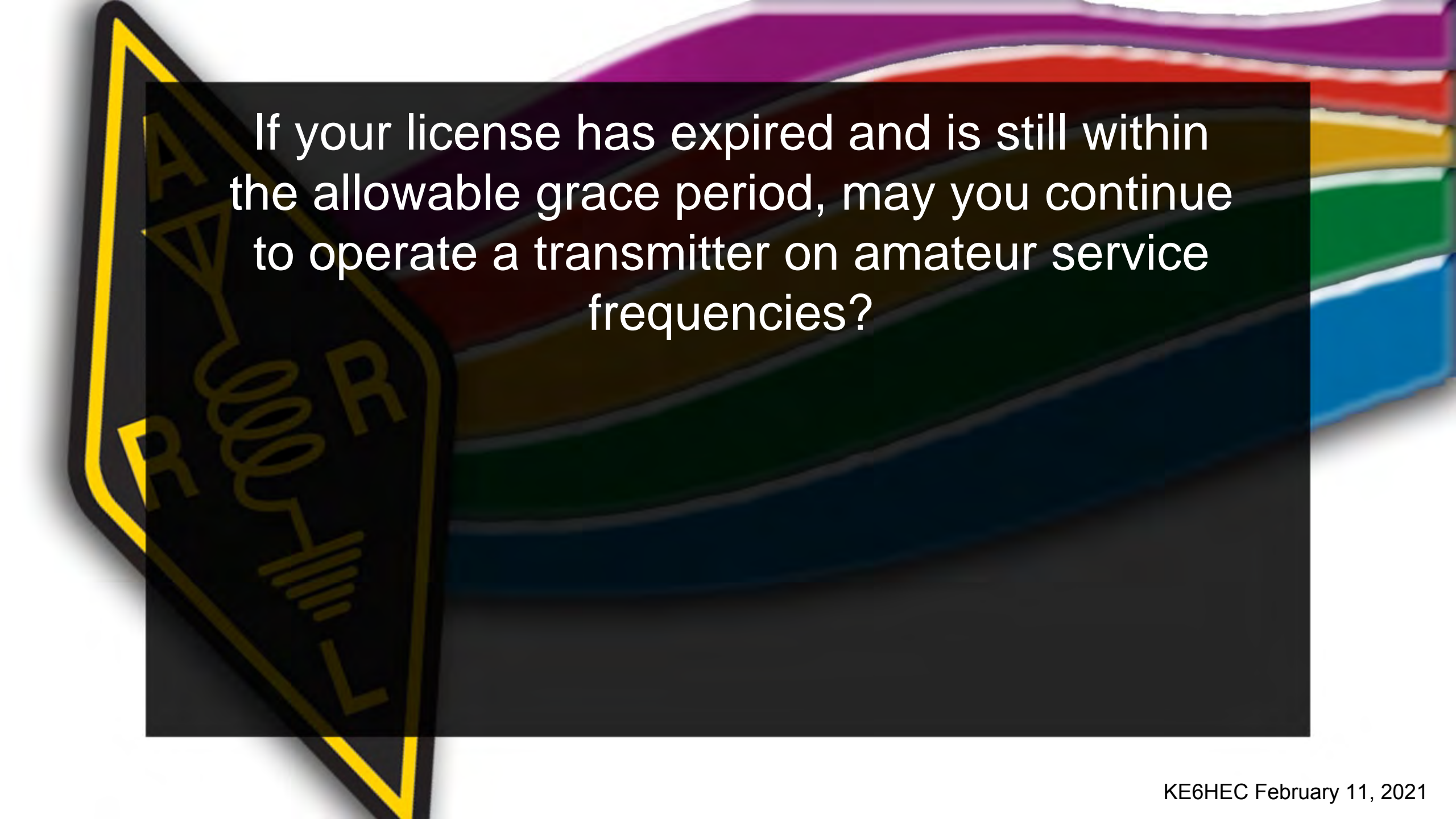
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How soon after passing the examination for
your first amateur radio license may you
operate a transmitter on an amateur service
frequency?




How soon after passing the examination for your first amateur radio license may you operate a transmitter on an amateur service frequency?

As soon as your operator/station license grant appears in the FCC's ULS database

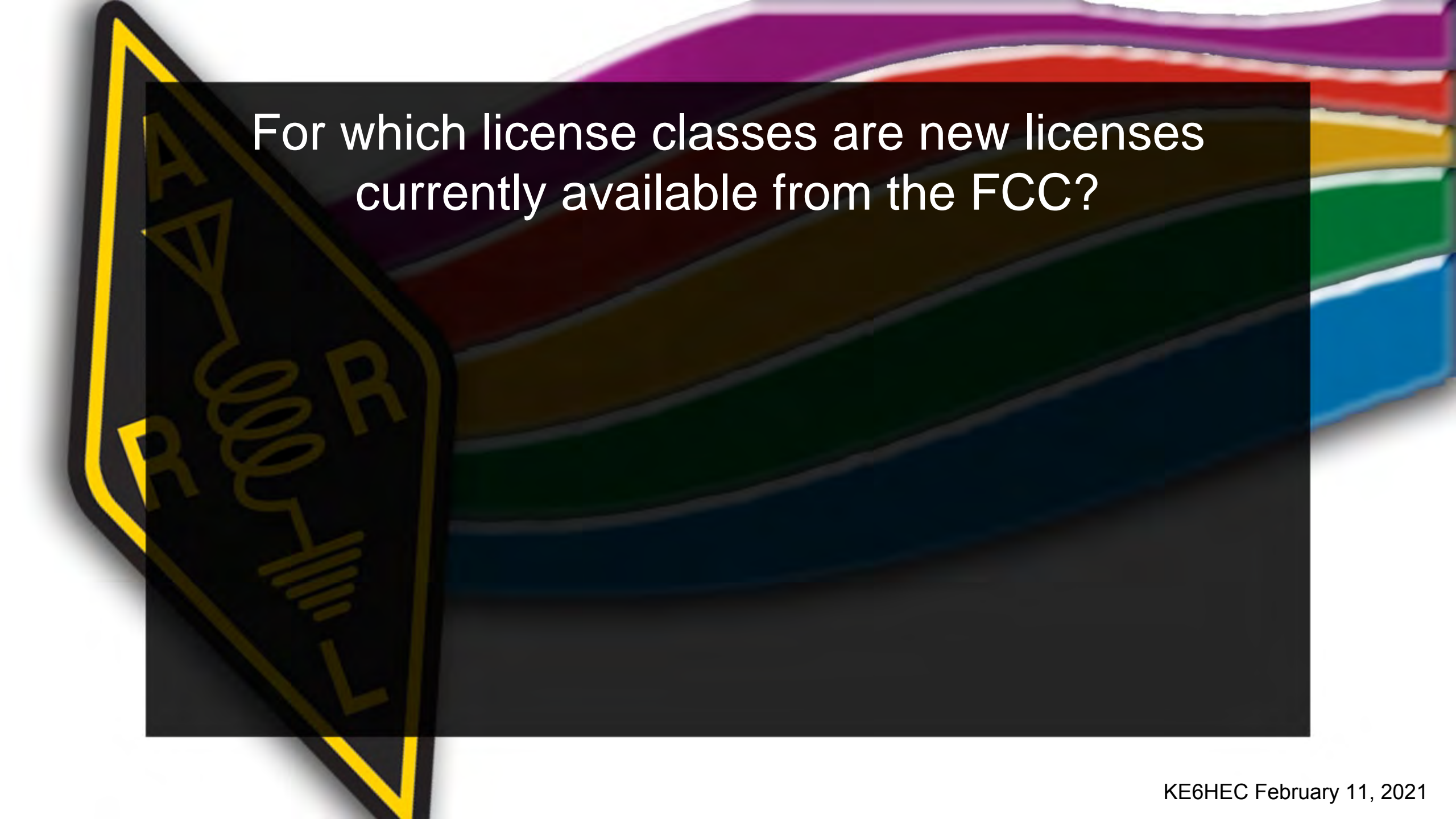
The background features a vibrant rainbow with wavy, layered bands of color (purple, red, orange, yellow, green, blue) on the right side. On the left, there is a stylized logo for a ham radio, consisting of a yellow triangle with a black border. Inside the triangle, the letters 'A' and 'R' are visible, along with a coiled spring and a battery symbol.

If your license has expired and is still within the allowable grace period, may you continue to operate a transmitter on amateur service frequencies?

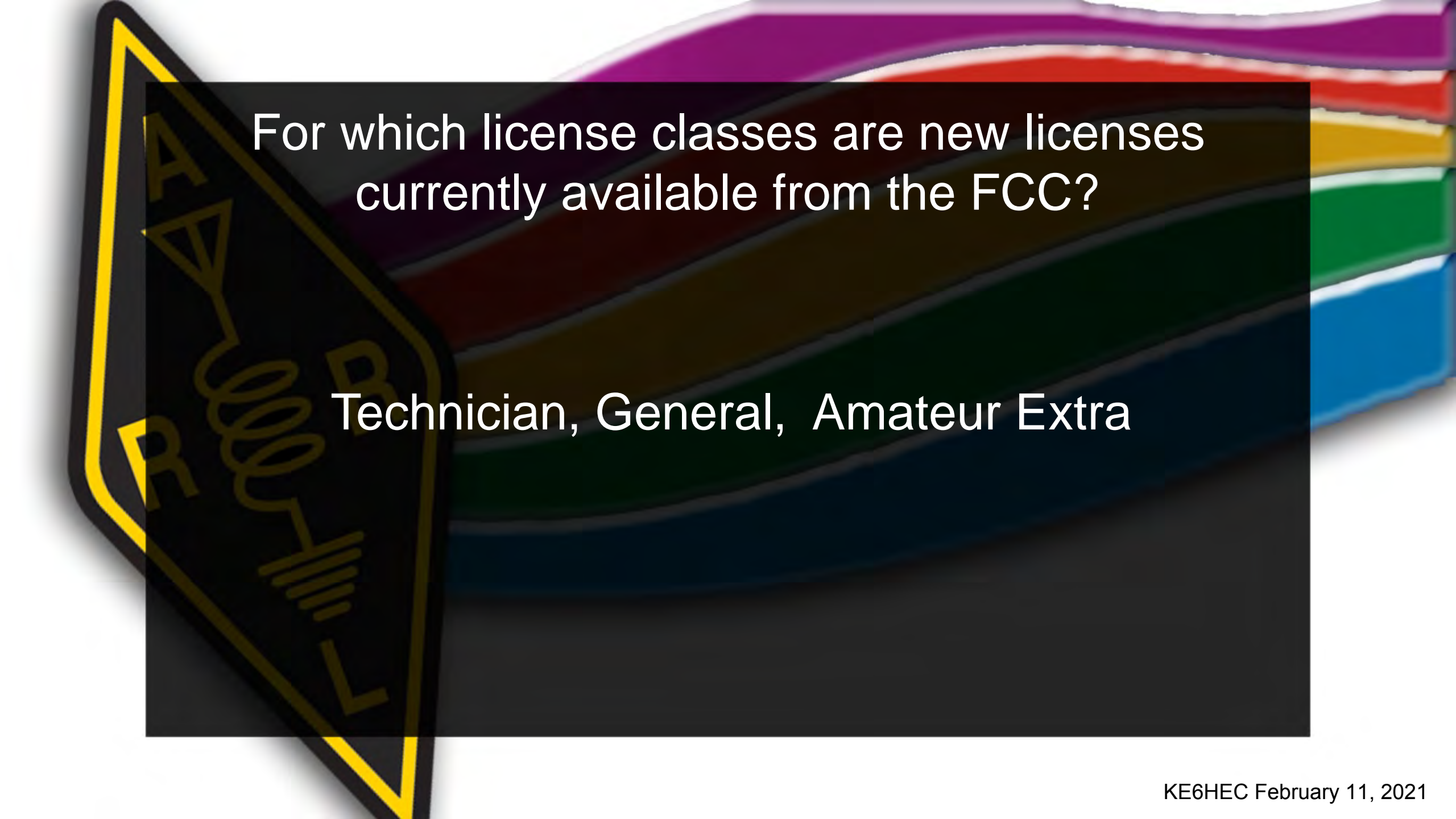


If your license has expired and is still within the allowable grace period, may you continue to operate a transmitter on amateur service frequencies?

No, transmitting is not allowed until the FCC database shows that the license has been renewed

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For which license classes are new licenses
currently available from the FCC?



For which license classes are new licenses
currently available from the FCC?

Technician, General, Amateur Extra



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

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

At any time upon request by an FCC representative



End of Part 1



Technician License Course

KE6HEC February 11, 2021



Technician License Course

Chapter 7 – Part 2

License Privileges

License Privileges

- What can you do with a Technician license?
- Power privileges
 - Maximum of 1500 watts peak envelope power (PEP)
 - Don't use excessive power for the purpose

License Privileges

- Some special cases where power is restricted
 - 200 watts on 80, 40, 15, 10 meters
 - 50 watts on 219–220 MHz
 - See § 97.313 for other restrictions

Technician HF Privileges

200 watts PEP maximum output

<i>Band (Wavelength)</i>	<i>Frequency (MHz)</i>
80 meters	3.525-3.600 (CW only)
40 meters	7.025-7.125 (CW only)
15 meters	21.025-21.200 (CW only)
10 meters	28.000-28.300 (CW, RTTY and data) 28.300-28.500 (CW and SSB)

What Can You Do with a Technician Class License?

- Frequency Privileges:
Band versus frequency.

$$\text{Band} \approx \frac{300}{\text{Freq(MHz)}}$$

VHF and UHF Technician Amateur Bands

ITU Region 2

Band (Wavelength)	Frequency Limits
-------------------	------------------

VHF Range

6 meters	50 – 54 MHz
2 meters	144 – 148 MHz
1.25 meters	219 – 220 MHz
1.25 meters	222 – 225 MHz

UHF Range

70 centimeters	420 – 450 MHz
33 centimeters	902 – 928 MHz
23 centimeters	1240 – 1300 MHz
13 centimeters	2300 – 2310 MHz
13 centimeters	2390 – 2450 MHz

What Can You Do with a Technician Class License?

- Emission Privileges:

Amateur Emission Types

<i>Emission</i>	<i>Description</i>
CW	Morse code telegraphy
Data	Computer-to-computer communication modes, usually called digital modes
Image	Television (fast-scan and slow-scan) and facsimile or fax
MCW	Tone-modulated CW, Morse code generated by keying an audio tone
Phone	Speech or voice communications
Pulse	Communications using a sequence of pulses whose characteristics are modulated in order to carry information
RTTY	Narrow-band, direct-printing telegraphy received by automatic equipment, such as a computer or teleprinter
SS	Spread-spectrum communications in which the signal is spread out over a wide band of frequencies
Test	Transmissions containing no information

Primary and Secondary Allocations

- Some authorized amateur frequencies are shared.
 - Primary Users
 - Secondary Users – must avoid interfering with users of the primary service

Band Plans

- Voluntary arrangements that apply under normal band loading conditions

10 Meters (28-29.7 MHz)


28.000-28.070	CW
28.070-28.150	RTTY
28.150-28.190	CW
28.200-28.300	Beacons
28.300-29.300	Phone
28.680	SSTV
29.000-29.200	AM
29.300-29.510	Satellite Downlinks
29.520-29.590	Repeater Inputs
29.600	FM Simplex
29.610-29.700	Repeater Outputs

Frequency Coordinators


- Elected by local or regional amateurs
- Repeaters approved by the coordinators are *coordinated*
- FCC considers frequency coordination “good amateur practice.”
- Groups that help allocate repeater channels to minimize interference



Practice Questions

The background features a vibrant, multi-colored rainbow with horizontal bands of purple, red, orange, yellow, green, and blue. On the left side, there is a yellow-bordered triangular graphic containing a black silhouette of a ham radio antenna and the call sign 'A73R' in a stylized font.

What entities recommend transmit/receive channels and other parameters for auxiliary and repeater stations?



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Frequency Coordinator

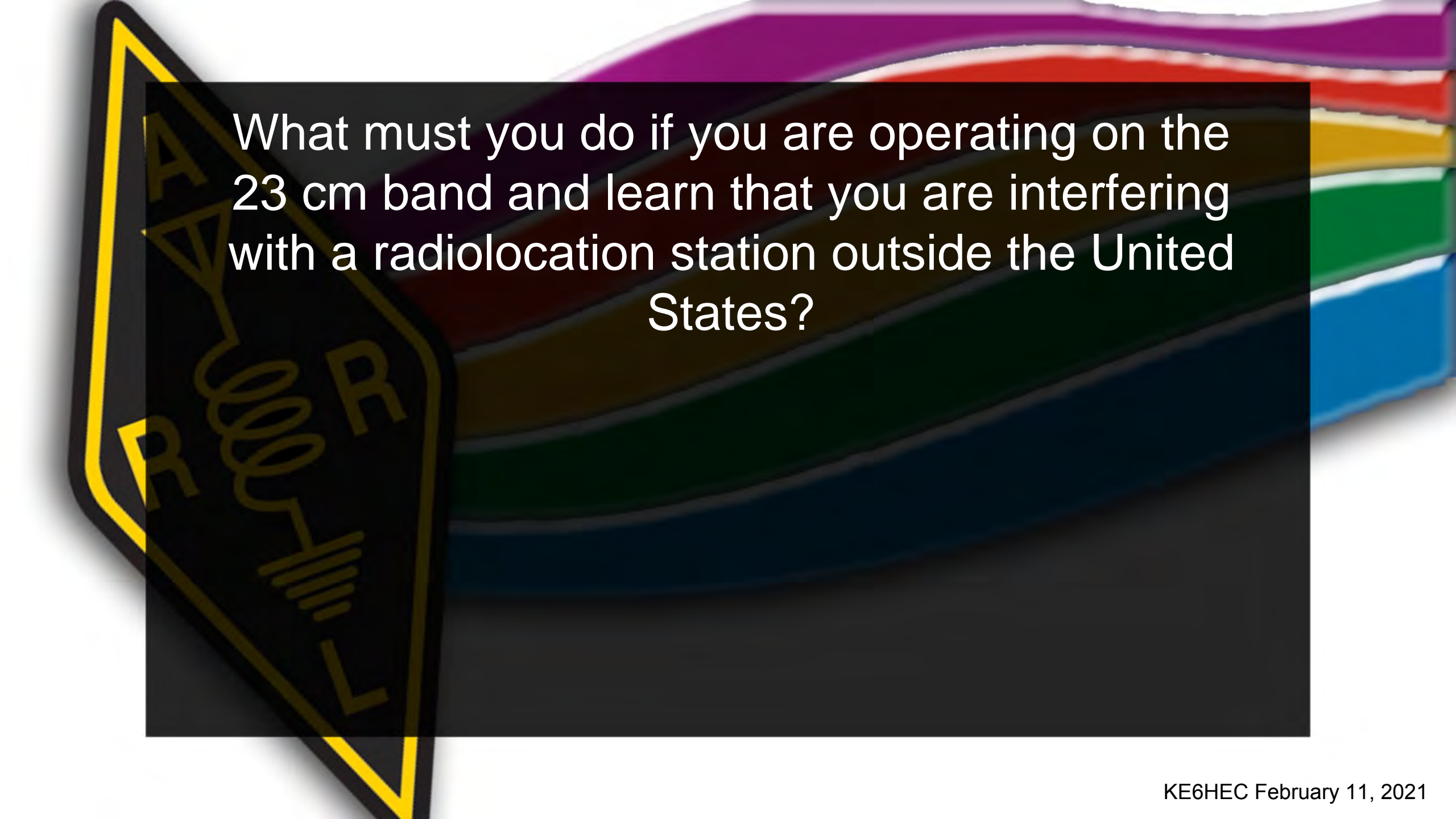


Who selects a Frequency Coordinator?

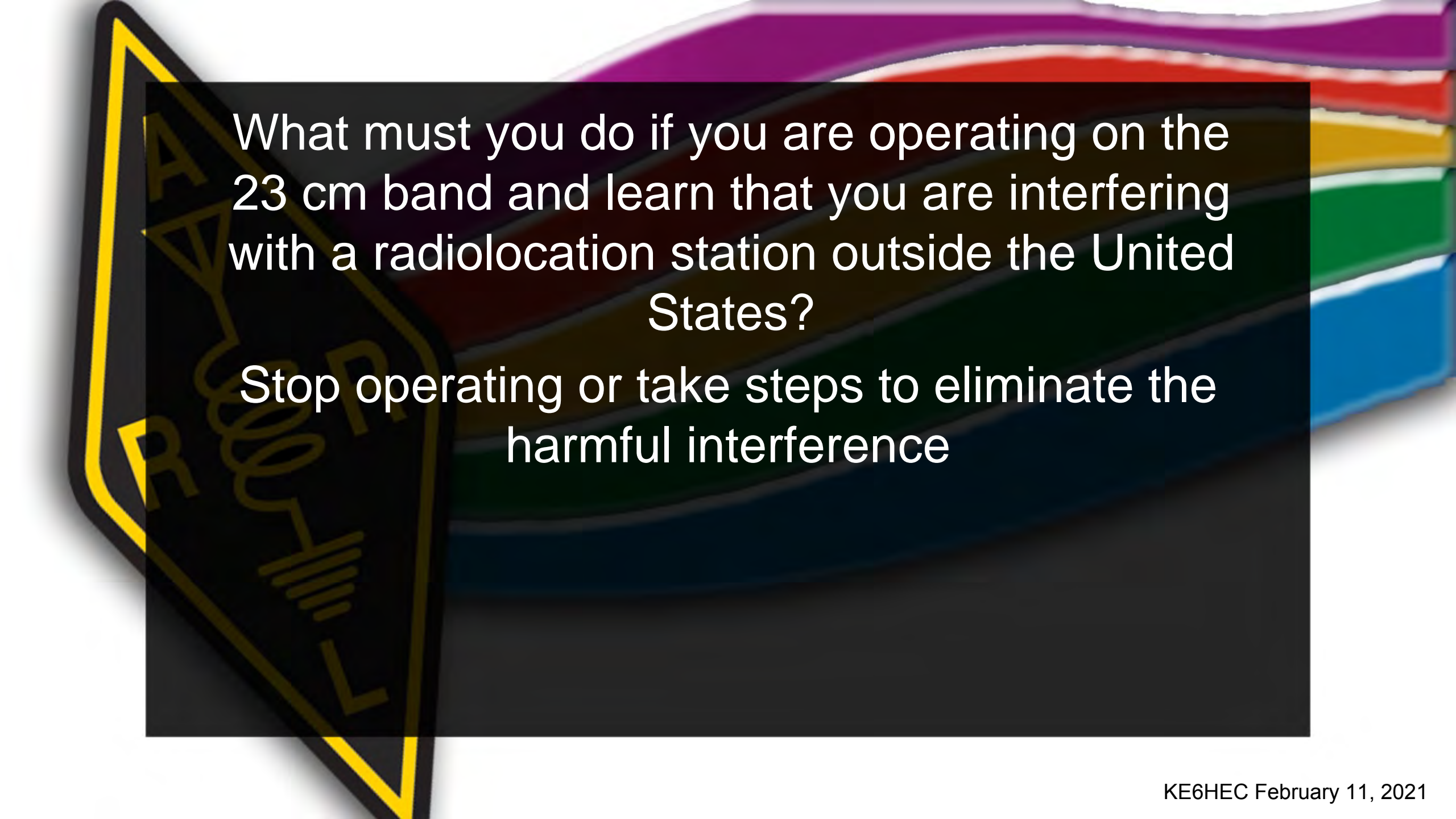
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Who selects a Frequency Coordinator?

Amateur operators in a local or regional area whose stations are eligible to be auxiliary or repeater stations

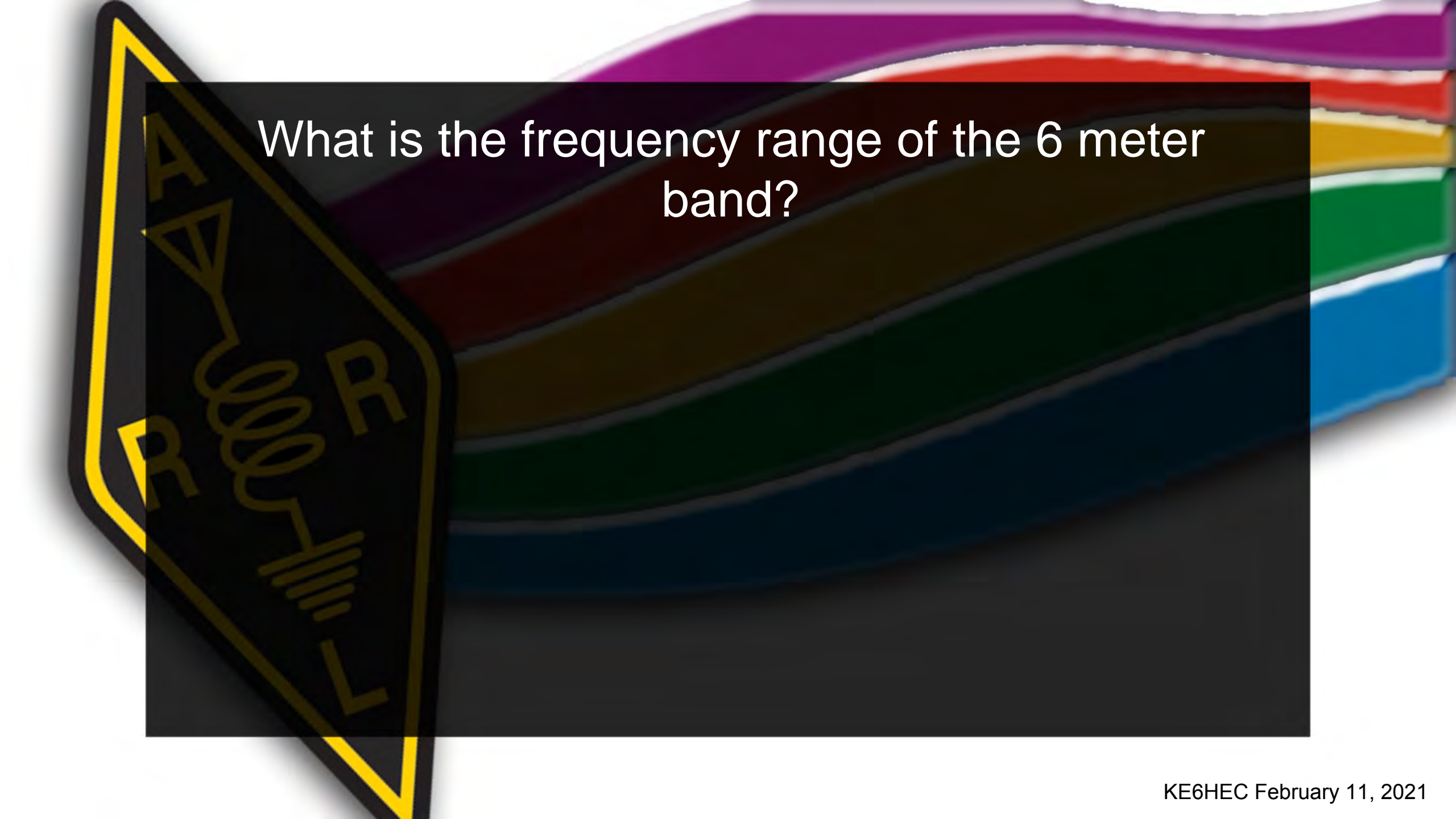
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What must you do if you are operating on the 23 cm band and learn that you are interfering with a radiolocation station outside the United States?

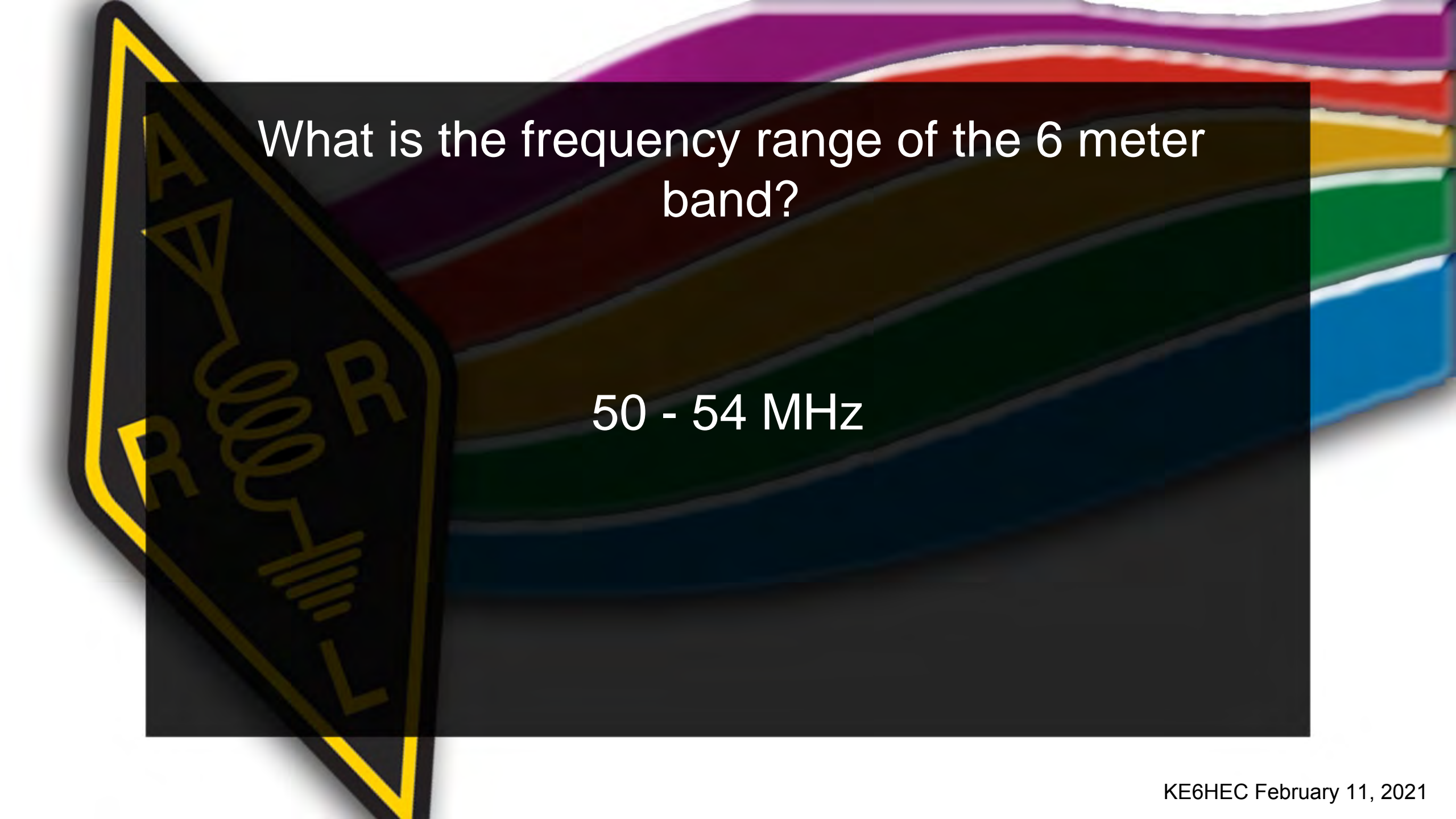
The background features a vibrant rainbow with wavy, layered bands of purple, red, orange, yellow, green, and blue. On the left side, there is a yellow triangular sign with a black border and a black diagonal line. The word 'NO' is written in large, bold, black letters, and the word 'PROPER' is written in smaller, black letters below it. The sign is tilted and appears to be a warning or prohibition sign.

What must you do if you are operating on the
23 cm band and learn that you are interfering
with a radiolocation station outside the United
States?

Stop operating or take steps to eliminate the
harmful interference



What is the frequency range of the 6 meter band?



What is the frequency range of the 6 meter band?

50 - 54 MHz



Which amateur band are you using when
your station is transmitting on 146.52 MHz?



Which amateur band are you using when
your station is transmitting on 146.52 MHz?

2 meter band

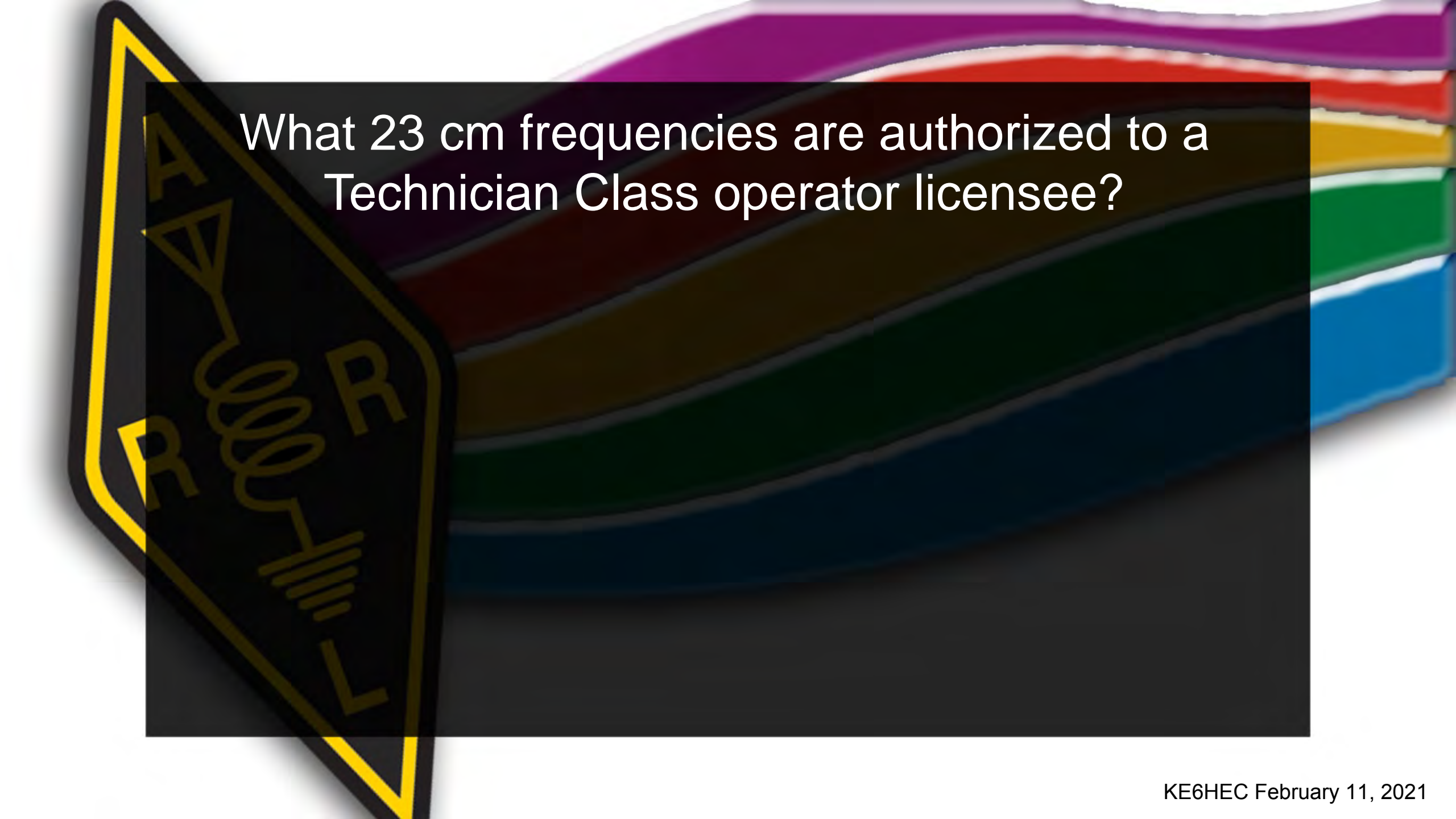


What 70 cm frequencies are authorized to a Technician Class license holder operating in ITU Region 2?

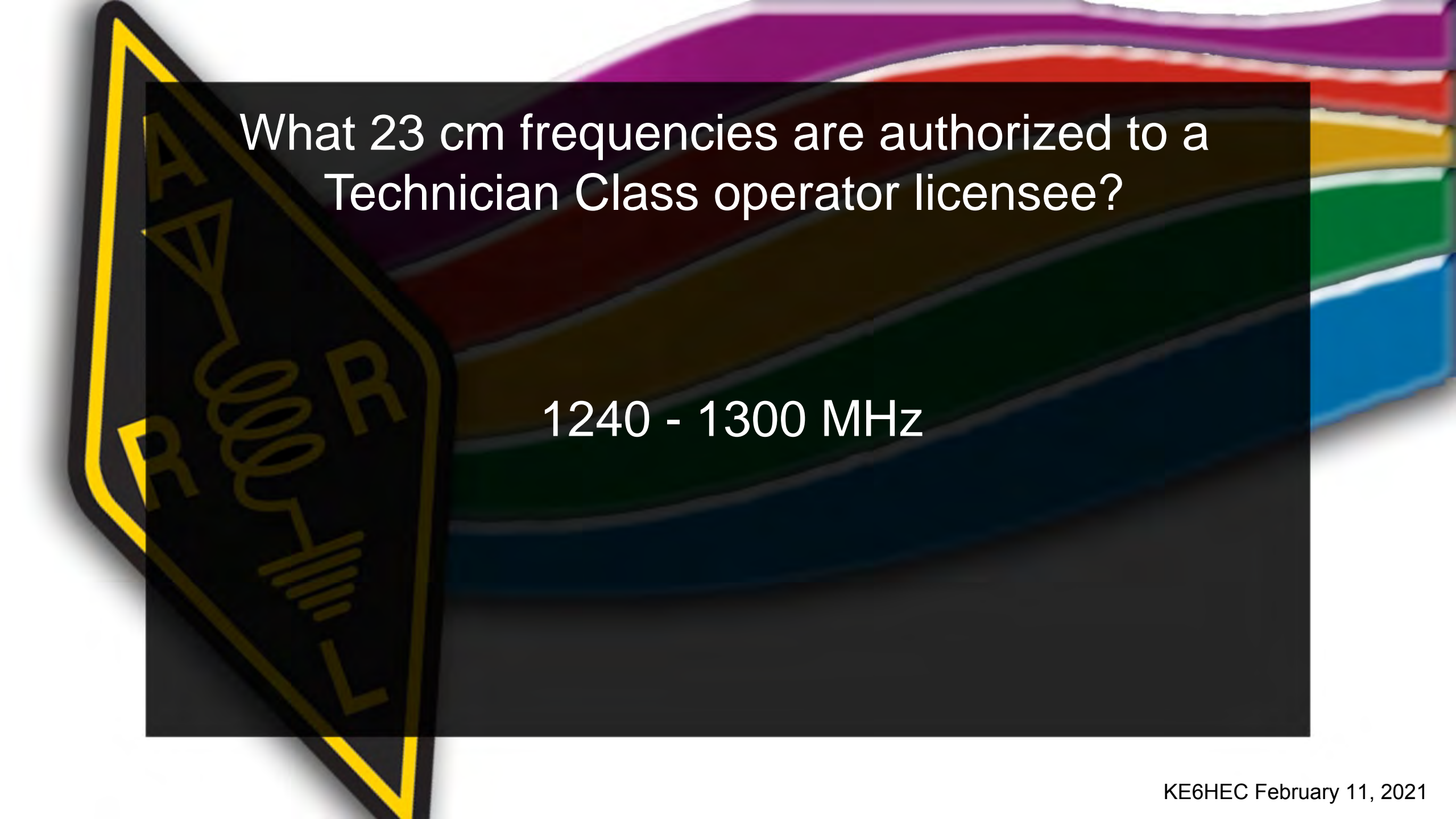
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What 70 cm frequencies are authorized to a
Technician Class license holder operating in
ITU Region 2?

420 - 450 MHz

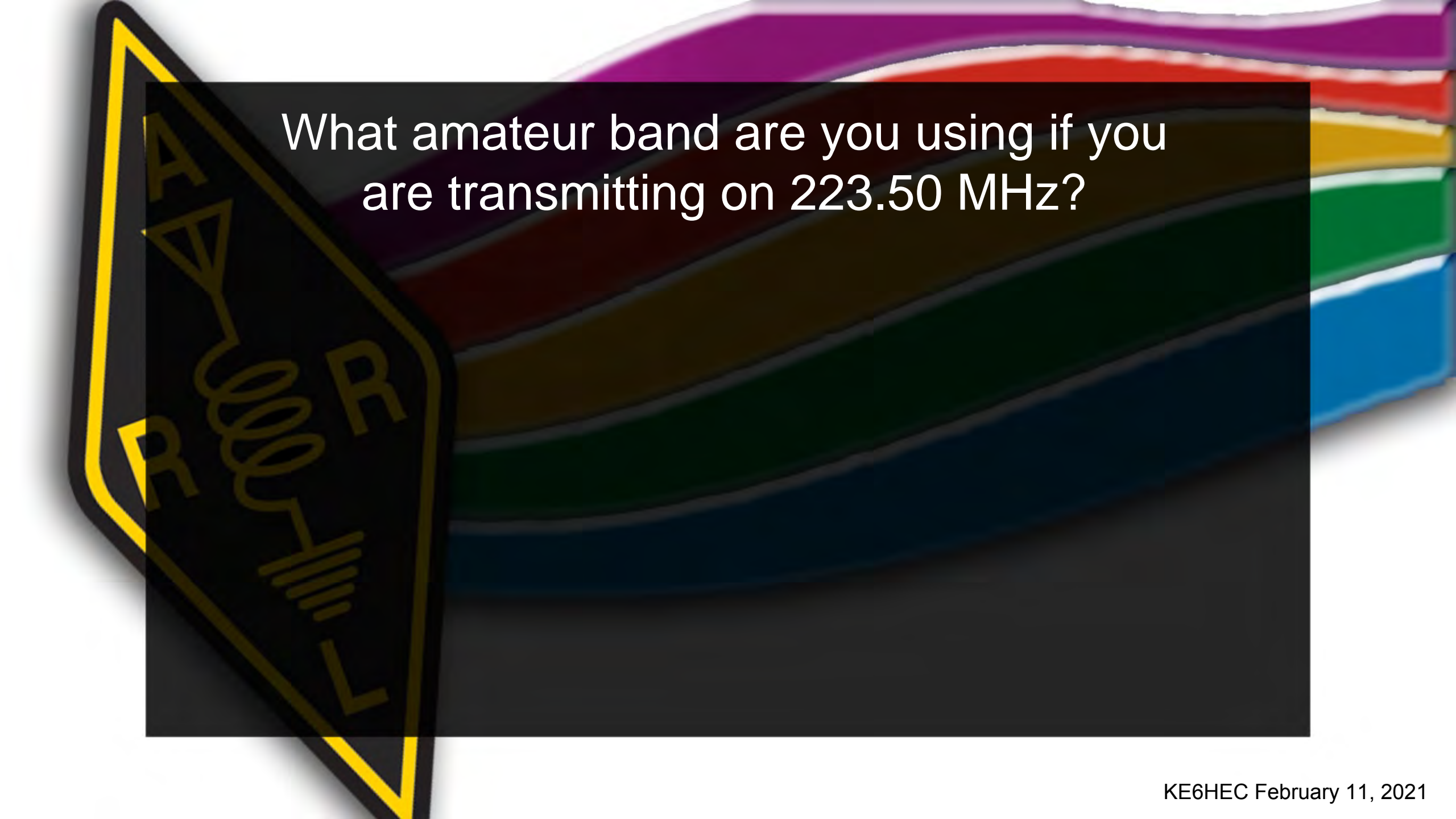


What 23 cm frequencies are authorized to a Technician Class operator licensee?

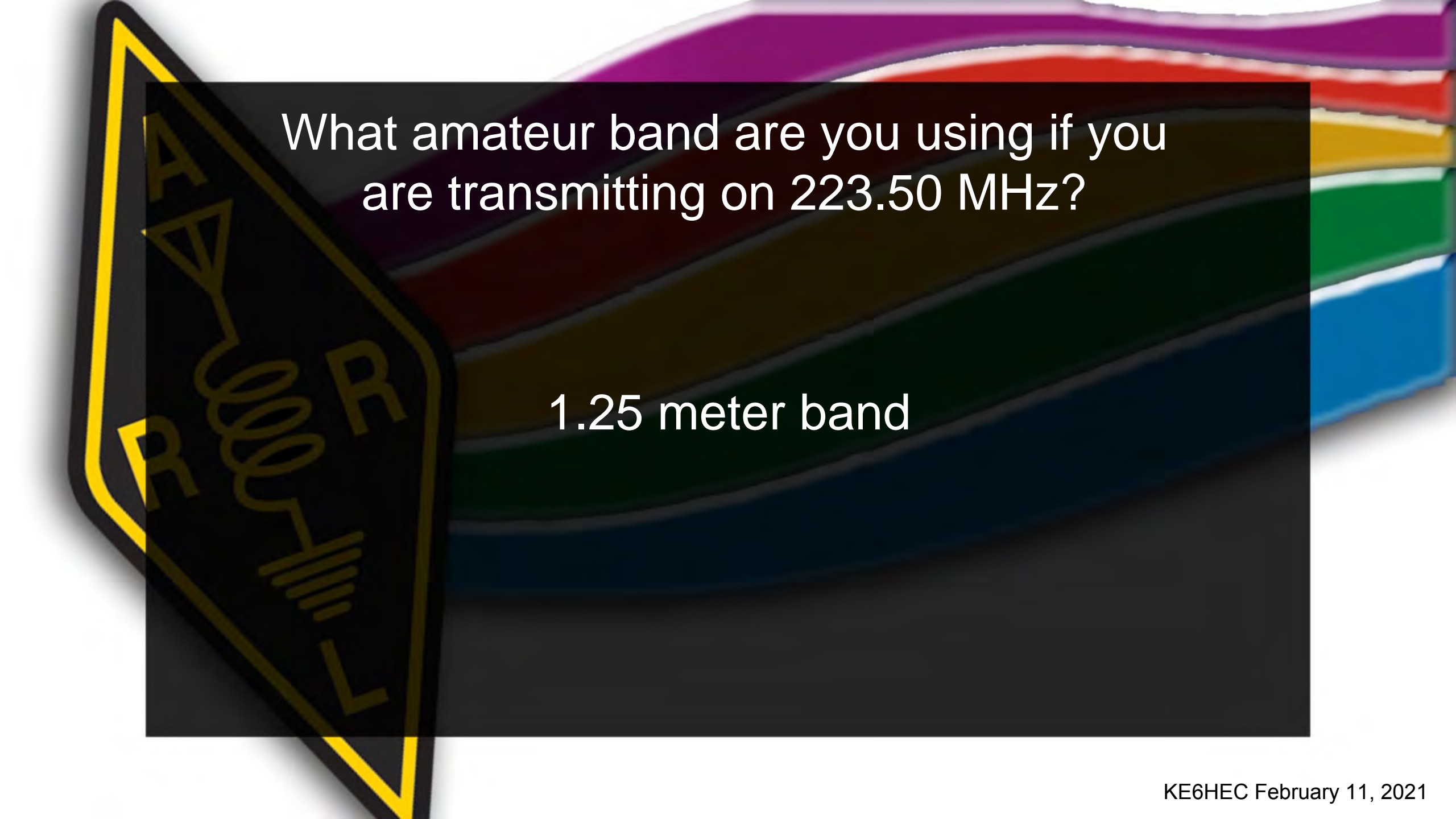


What 23 cm frequencies are authorized to a Technician Class operator licensee?

1240 - 1300 MHz




What amateur band are you using if you
are transmitting on 223.50 MHz?

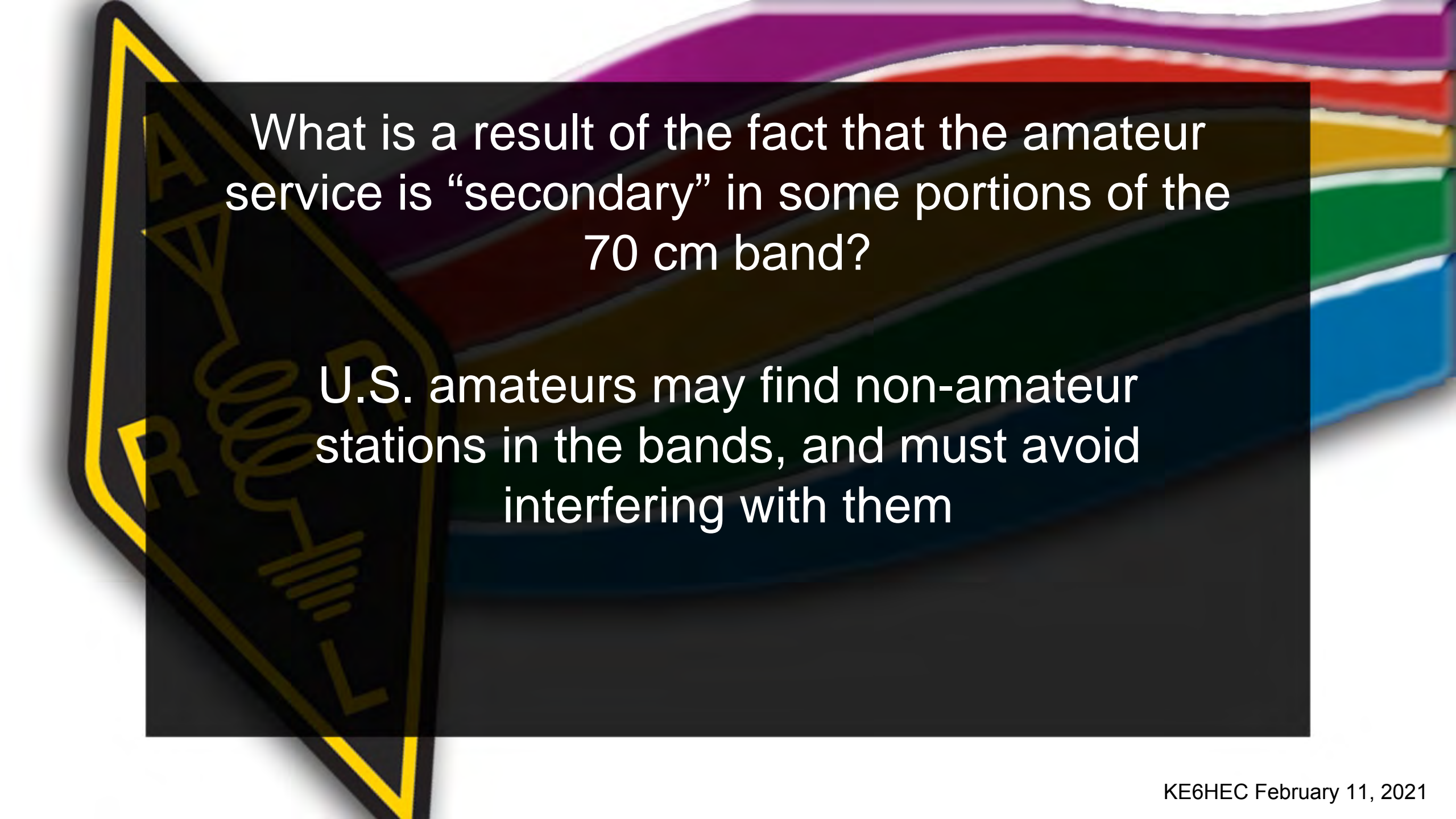


What amateur band are you using if you
are transmitting on 223.50 MHz?

1.25 meter band




What is a result of the fact that the amateur service is “secondary” in some portions of the 70 cm band?

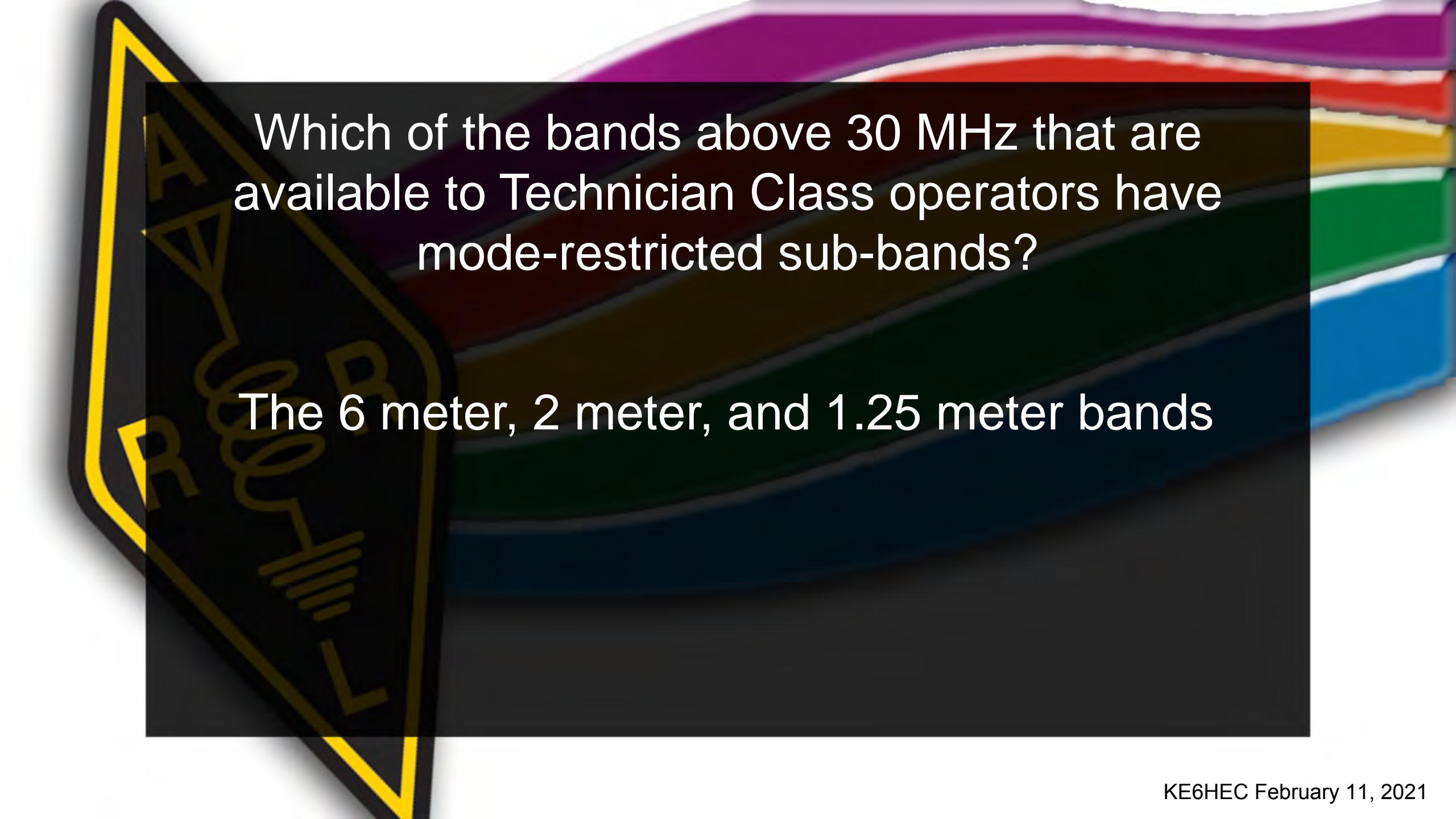


What is a result of the fact that the amateur service is “secondary” in some portions of the 70 cm band?

U.S. amateurs may find non-amateur stations in the bands, and must avoid interfering with them

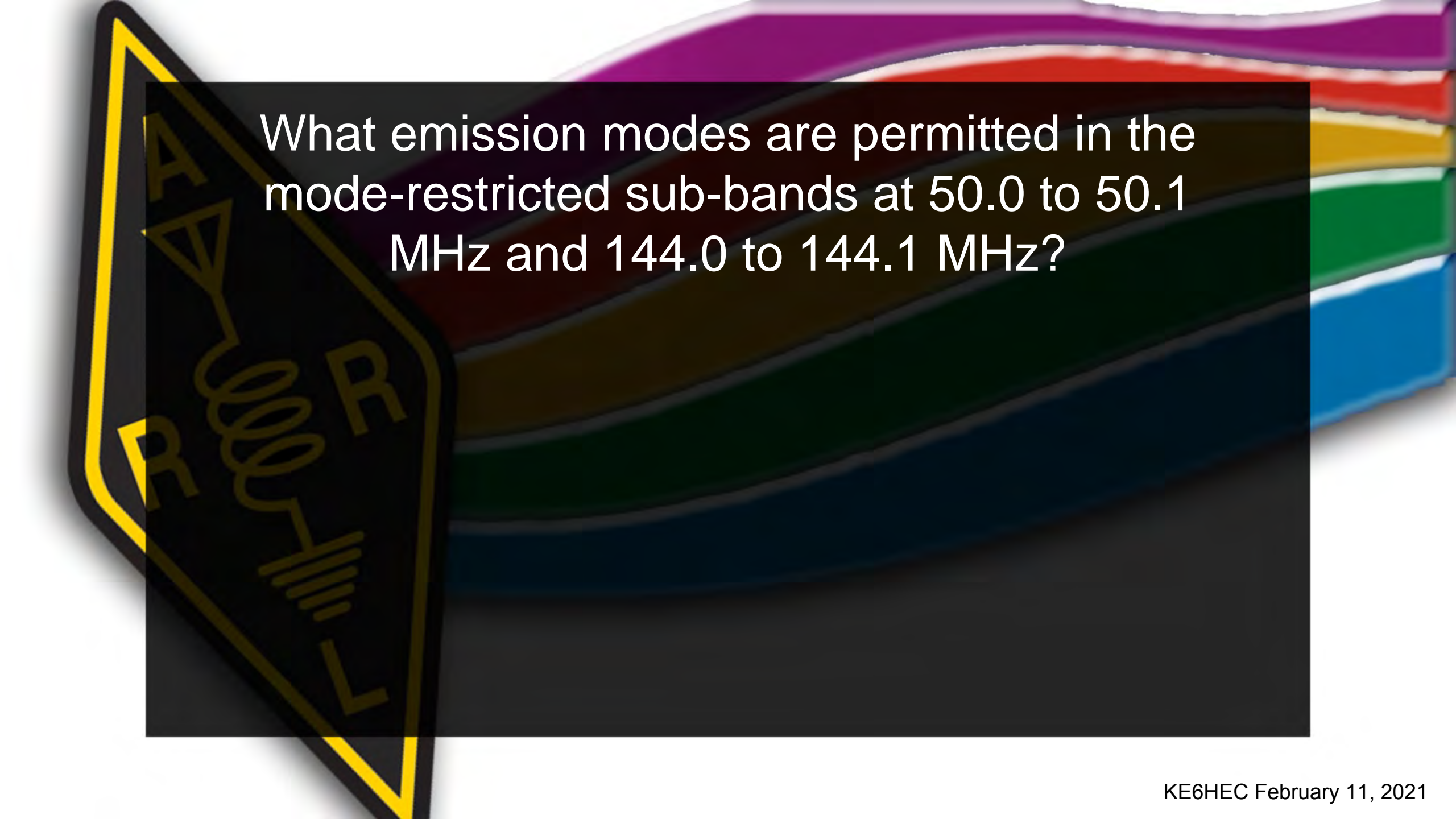


Which of the bands above 30 MHz that are available to Technician Class operators have mode-restricted sub-bands?

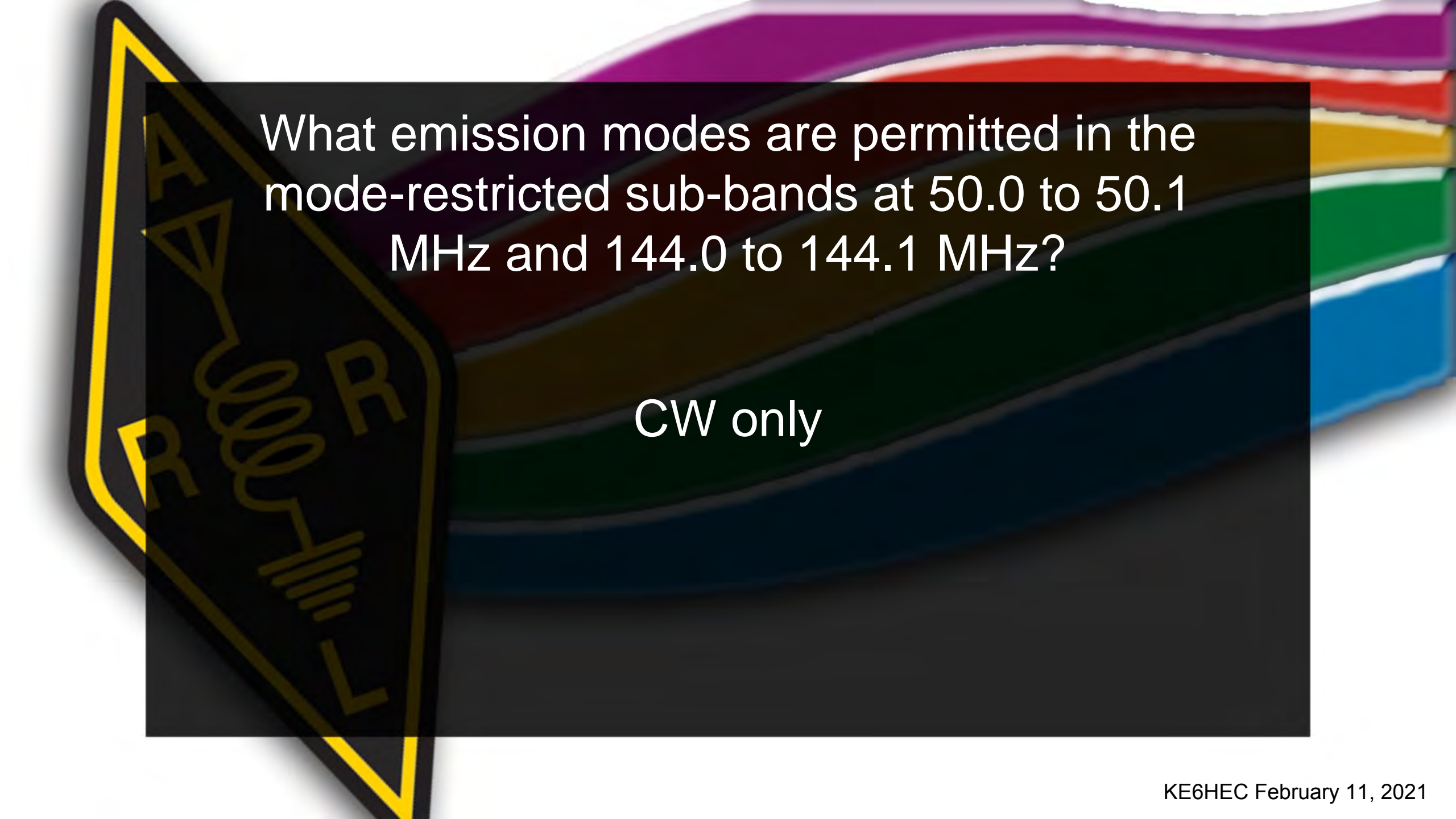
The background features a vibrant, multi-colored wavy band resembling a rainbow, with shades of purple, red, orange, yellow, green, and blue. On the left side, there is a yellow triangular warning sign with a black border. Inside the sign, the word 'DANGER' is written in a stylized, jagged font. Below the word, there is a graphic of a lightning bolt striking a power plug symbol.

Which of the bands above 30 MHz that are available to Technician Class operators have mode-restricted sub-bands?

The 6 meter, 2 meter, and 1.25 meter bands

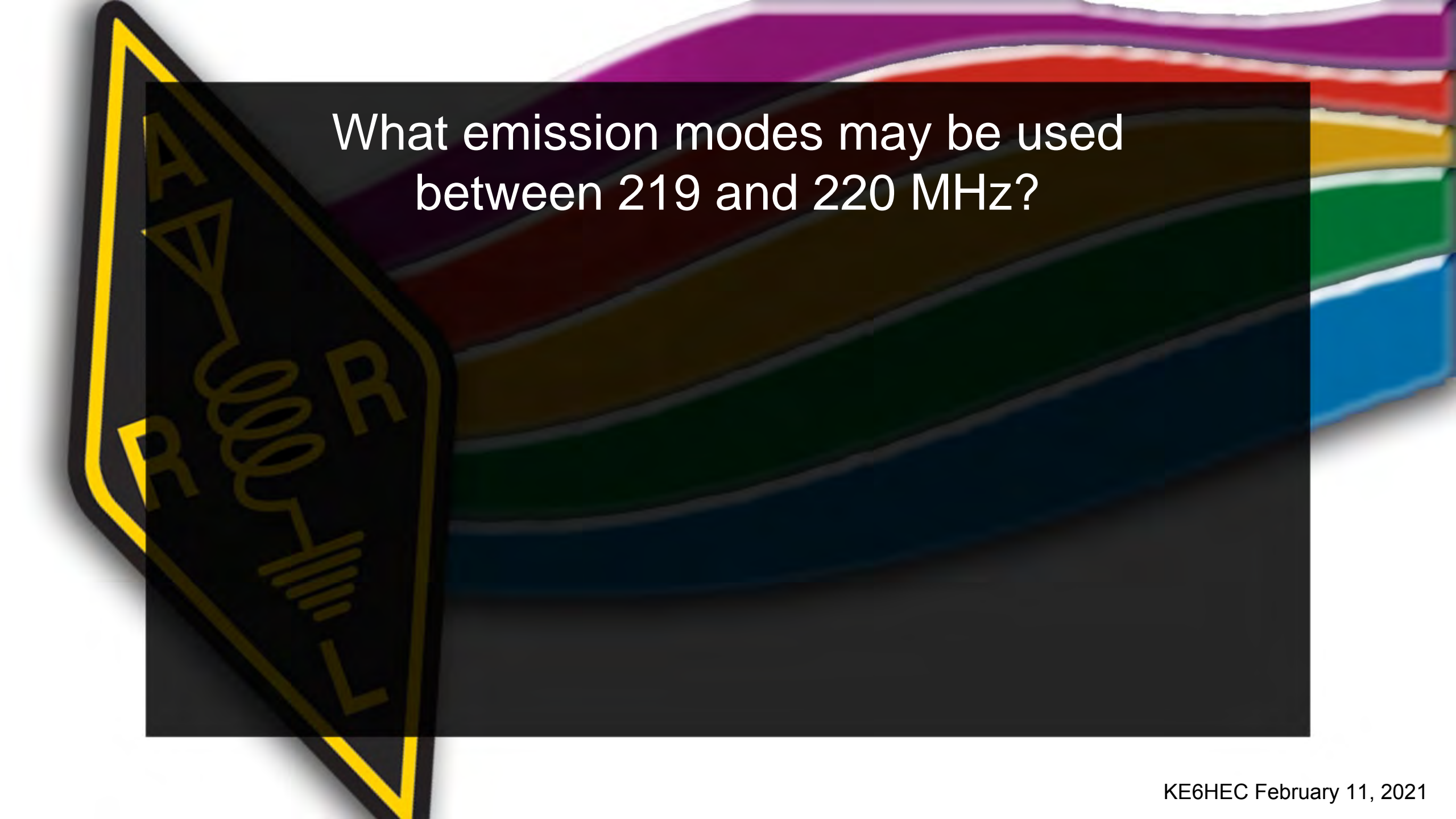


What emission modes are permitted in the mode-restricted sub-bands at 50.0 to 50.1 MHz and 144.0 to 144.1 MHz?

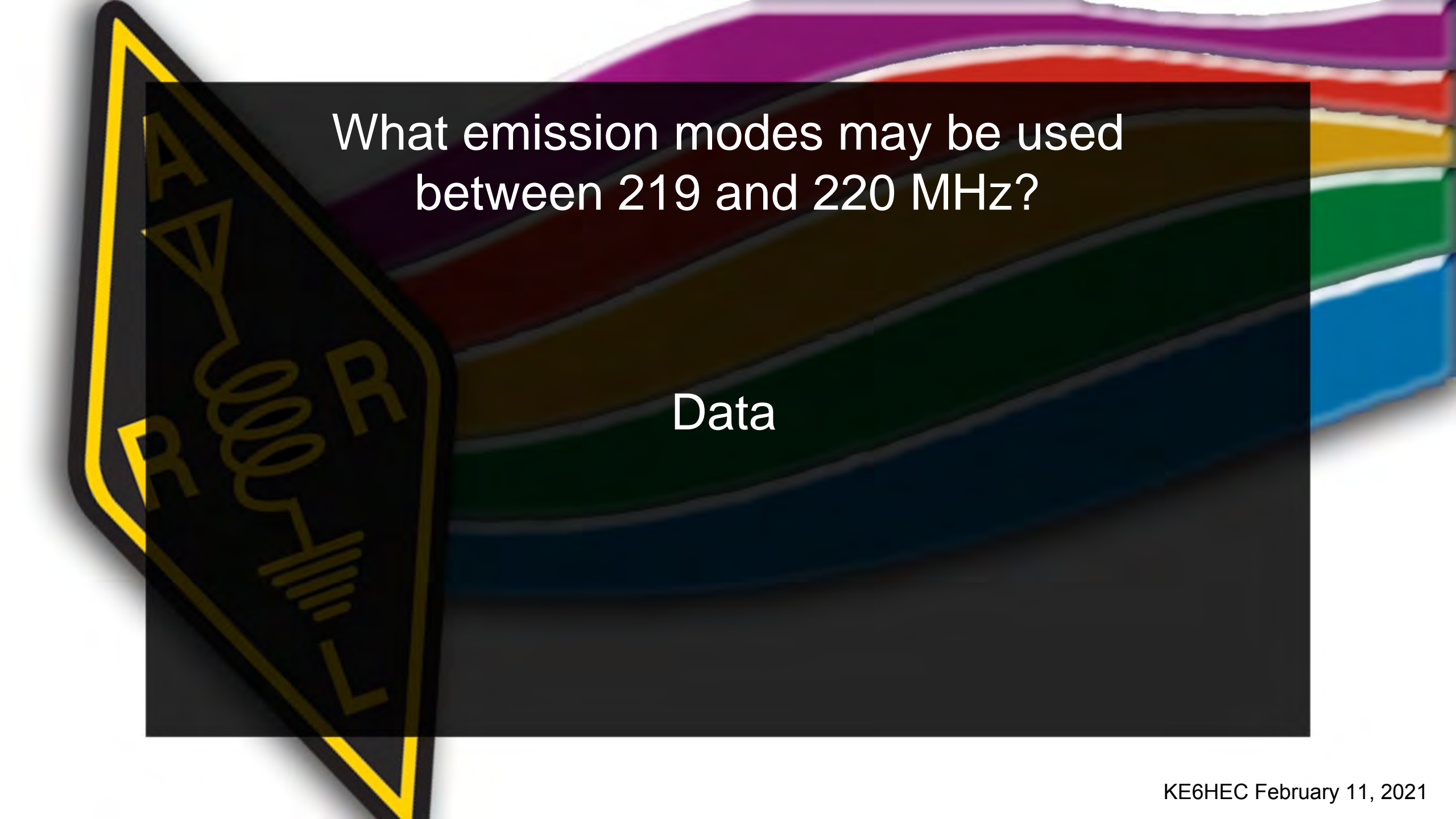
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What emission modes are permitted in the
mode-restricted sub-bands at 50.0 to 50.1
MHz and 144.0 to 144.1 MHz?

CW only




What emission modes may be used
between 219 and 220 MHz?

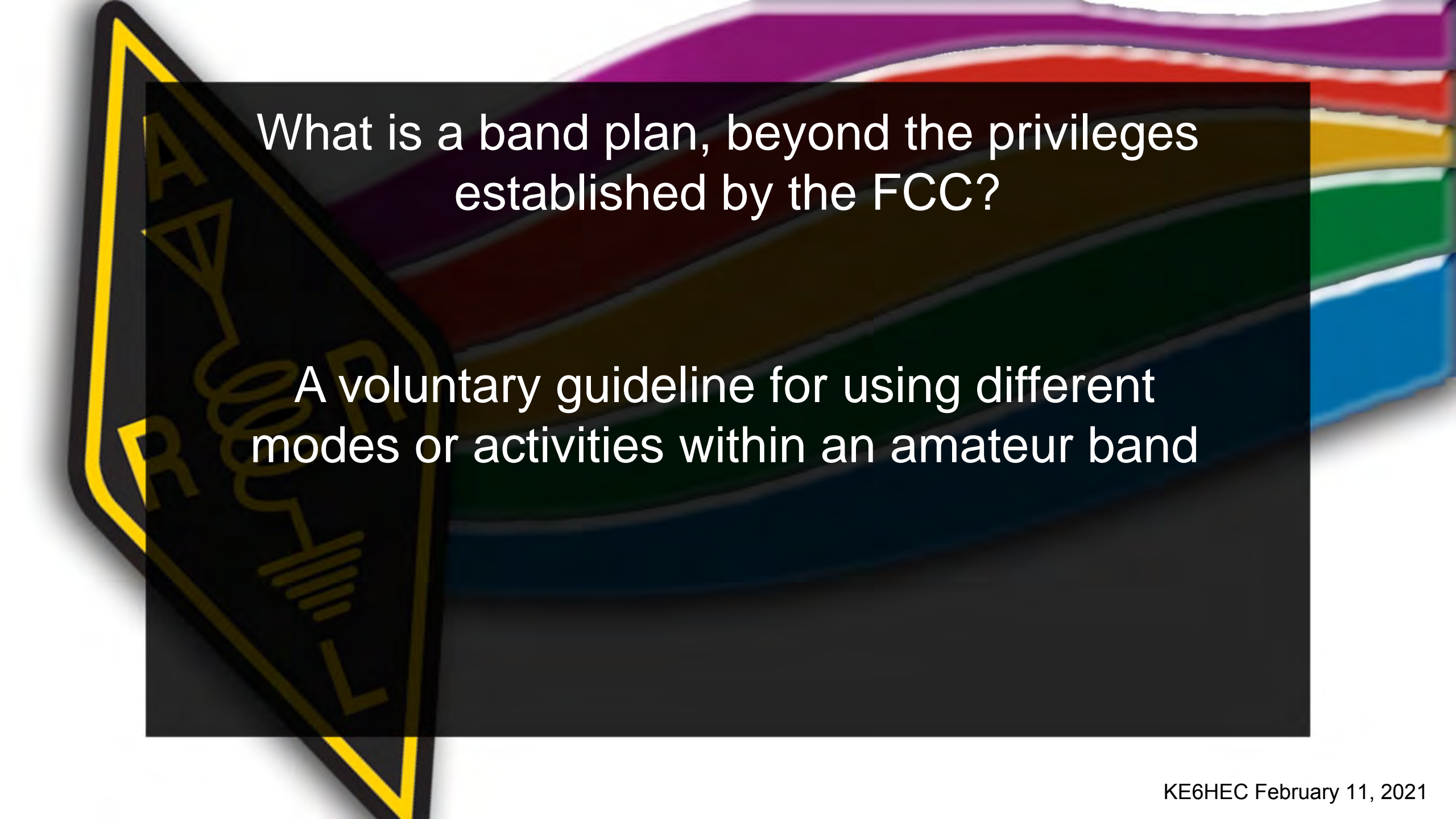
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What emission modes may be used
between 219 and 220 MHz?

Data

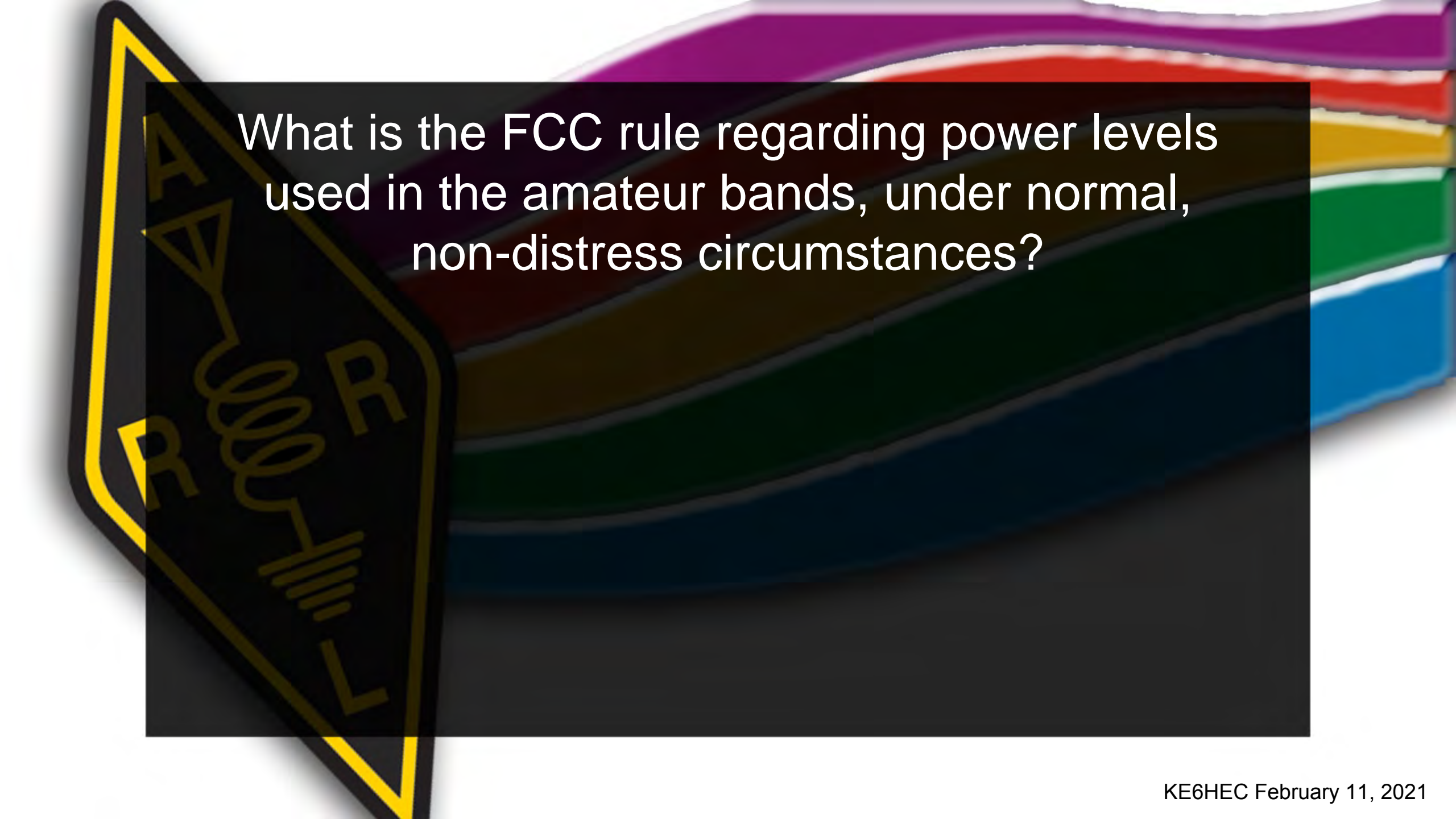


What is a band plan, beyond the privileges established by the FCC?

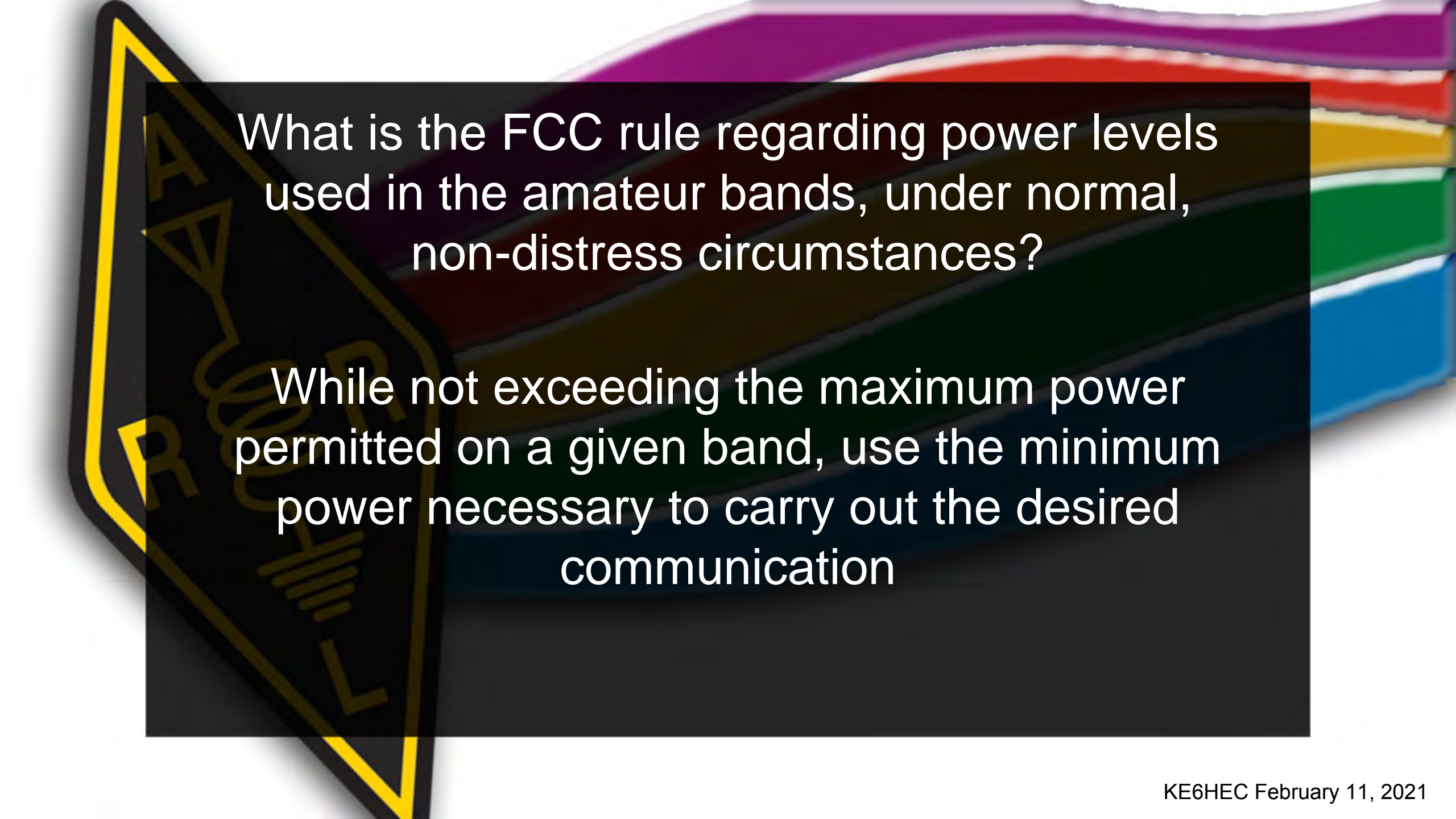


What is a band plan, beyond the privileges established by the FCC?

A voluntary guideline for using different modes or activities within an amateur band

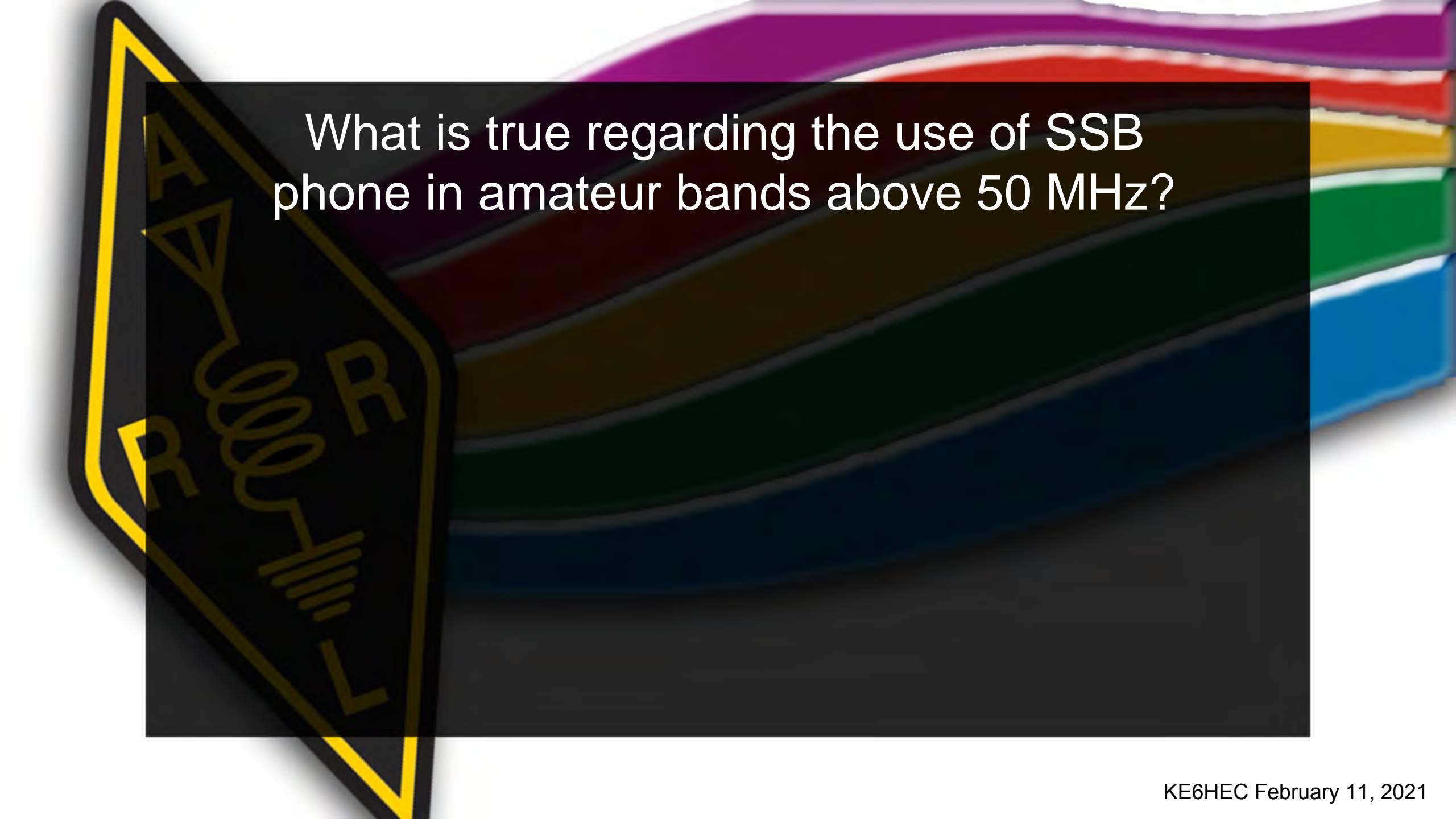
The background features a vibrant, multi-colored wavy line resembling a rainbow, transitioning from purple at the top to blue at the bottom. On the left side, there is a yellow-outlined triangular logo with a black interior. Inside the triangle, the letters 'A' and 'R' are positioned at the top corners, and a stylized ham radio symbol (a coil and a battery) is centered. The text 'What is the FCC rule regarding power levels used in the amateur bands, under normal, non-distress circumstances?' is overlaid in white on a dark rectangular area in the upper center.

What is the FCC rule regarding power levels used in the amateur bands, under normal, non-distress circumstances?

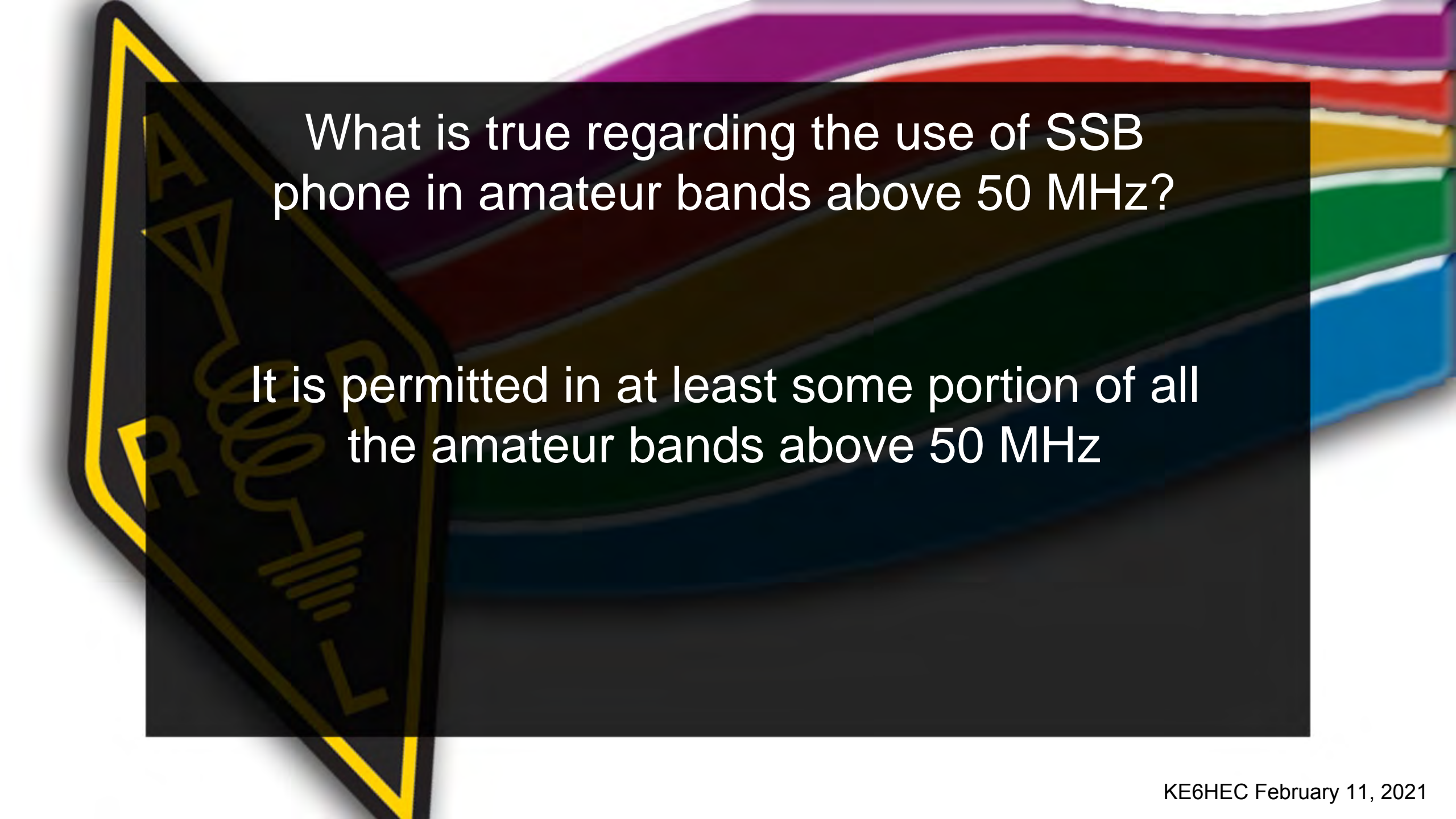


What is the FCC rule regarding power levels used in the amateur bands, under normal, non-distress circumstances?

While not exceeding the maximum power permitted on a given band, use the minimum power necessary to carry out the desired communication

The background features a vibrant, multi-colored wavy band resembling a rainbow, transitioning from purple at the top to blue at the bottom. On the left side, there is a yellow-outlined triangular logo with a black border. Inside the logo, the letters 'A' and 'R' are positioned at the top corners, and a stylized circuit diagram consisting of a coil and a battery symbol is centered.

What is true regarding the use of SSB
phone in amateur bands above 50 MHz?

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What is true regarding the use of SSB
phone in amateur bands above 50 MHz?

It is permitted in at least some portion of all
the amateur bands above 50 MHz



End of Part 2



Technician License Course



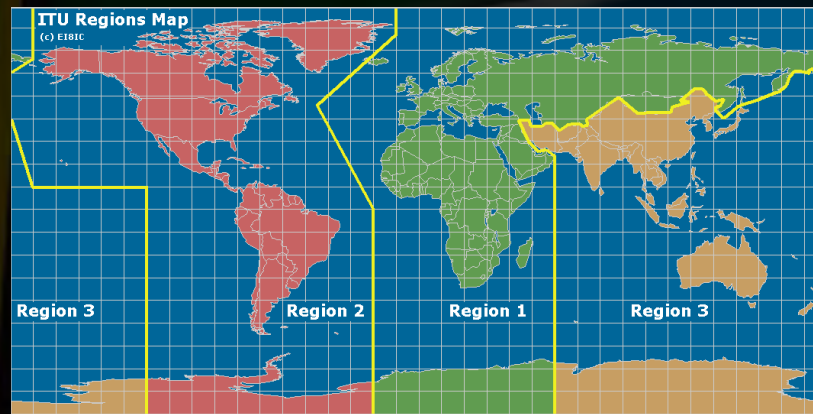
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Chapter 7 – Part 3

International Rules

Section 3 – International Rules

- International Telecommunication Union (ITU).
 - Regions 1, 2 and 3
 - Continental US hams are in Region 2
 - Some Pacific possessions in Region 3



International Operating Authorization

- Reciprocal operating authority
- International Amateur Radio Permit (IARP)
- CEPT licensing
- ARRL website on international operating
 - www.arrl.org/international-operating

International Operating Authorization

- Must comply with host country regulations
- May operate from US-flagged vessels
 - Host country's rules apply in territorial waters
- Contacts with other countries must be allowed by that country and by the US
 - Very rare for contacts to be prohibited!



Practice Questions




What is the ITU?


The background features a vibrant, multi-colored rainbow with wavy, layered edges. On the left side, there is a yellow-bordered triangular sign with a black background. The sign contains the word 'CAUTION' in a stylized, outlined font, and below it, a graphic of a radio tower with horizontal lines representing signal waves.

What is the ITU?

A United Nations agency for information and communication technology issues



Why are the frequency assignments for some
U.S. Territories different from those in the 50
U.S. States?

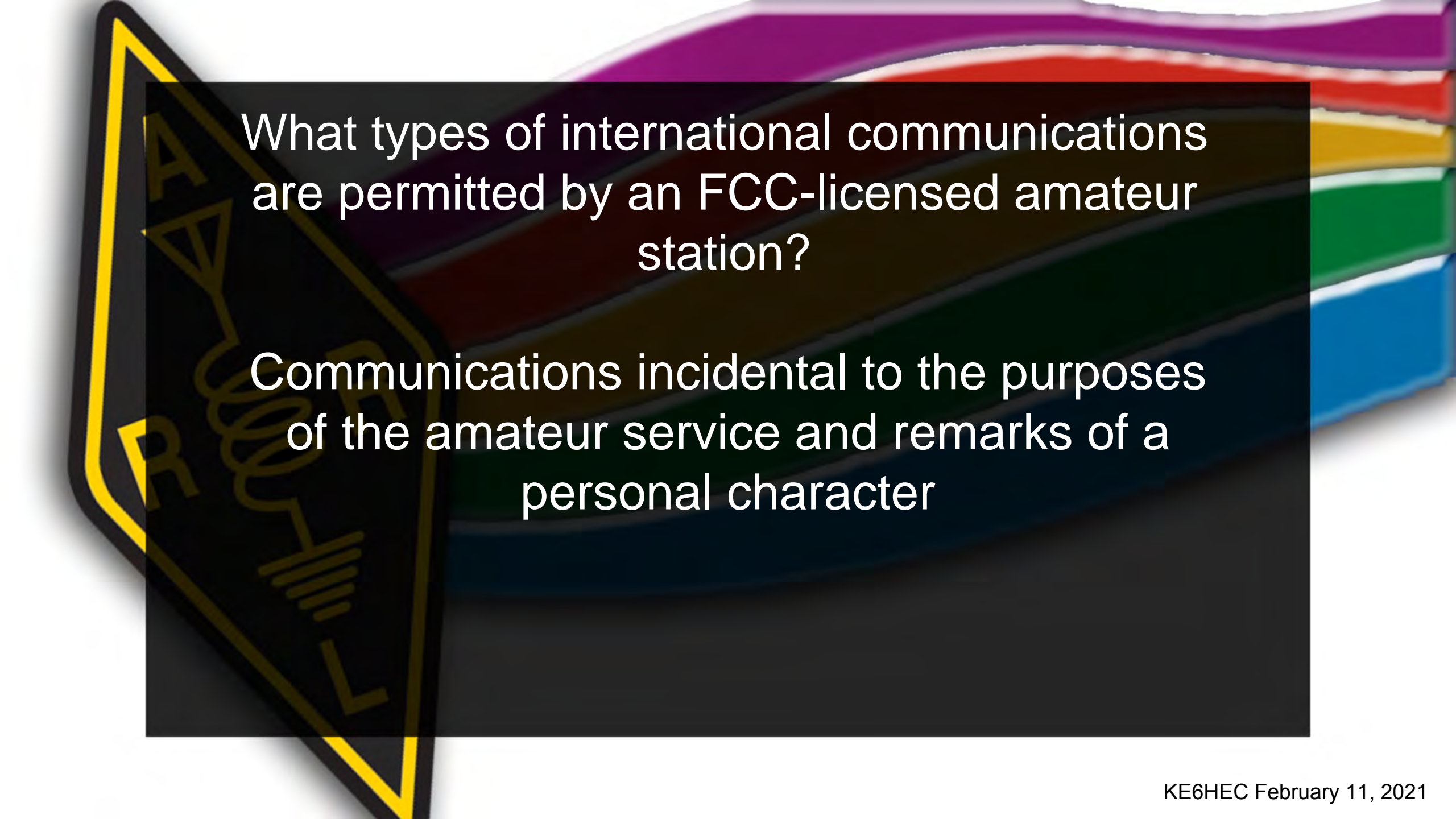


Why are the frequency assignments for some
U.S. Territories different from those in the 50
U.S. States?

Some U.S. Territories are located in ITU
regions other than region 2



What types of international communications
are permitted by an FCC-licensed amateur
station?



What types of international communications
are permitted by an FCC-licensed amateur
station?

Communications incidental to the purposes
of the amateur service and remarks of a
personal character




When are you allowed to operate your
amateur station in a foreign country?




When are you allowed to operate your
amateur station in a foreign country?

When the foreign country authorizes it

The background features a vibrant, multi-colored rainbow with distinct bands of purple, red, orange, yellow, green, and blue. On the left side, there is a yellow-bordered logo on a dark background. The logo contains the letters 'A' and 'R' at the top, a stylized coil representing an inductor in the center, and a battery symbol at the bottom. The text 'HAM RADIO' is partially visible within the logo's design.

From what locations may an FCC-licensed amateur station transmit, in addition to places where the FCC regulates communications?



From what locations may an FCC-licensed amateur station transmit, in addition to places where the FCC regulates communications?

From any vessel or craft located in international waters and documented or registered in the United States



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



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

Any country whose administration has
notified the ITU that it objects to such
communications



End of Module 15



Technician License Course



Technician License Course

Chapter 7 & 8

Lesson Plan Module – 16

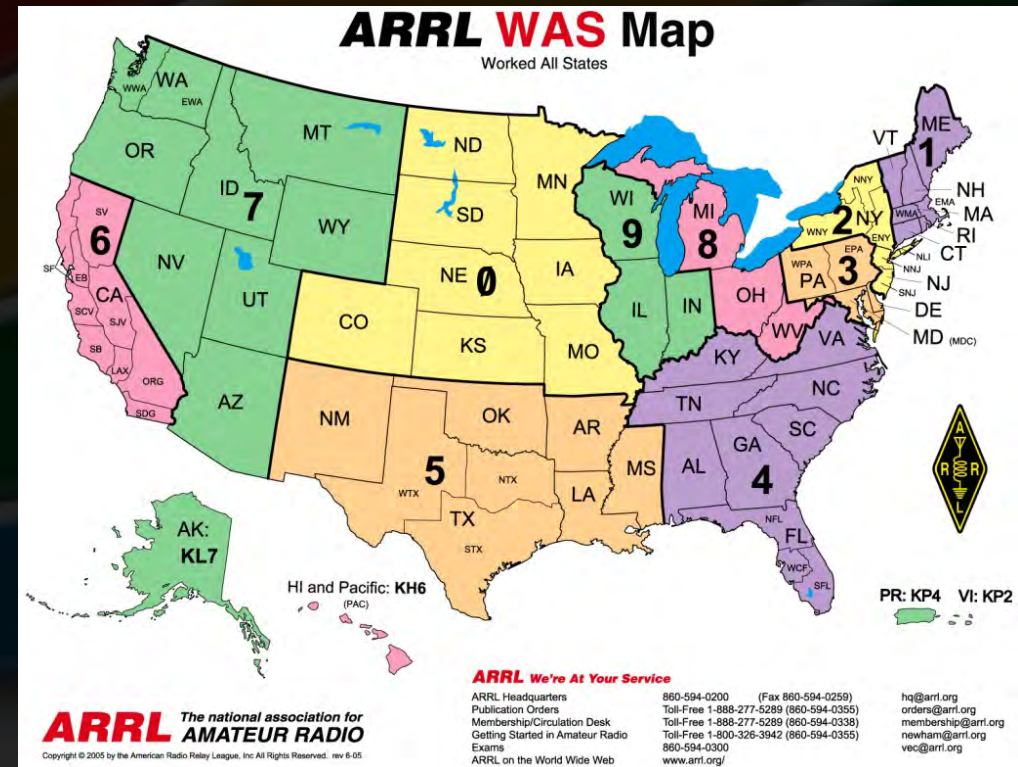
**Call Signs, Control Operators, Station
Identification and Third-Party
Communications**

Call Signs – Your “Radio Name”

- All amateur call signs have a prefix and a suffix
 - Prefix – indicates country of license
 - Suffix – indicates a specific licensee
- Prefix – generally two or three letters and numbers assigned by the ITU
- Suffix – one or more letters

Call Signs

- US call signs begin with: K, N, W, and AA–AL
- Ten US call sign districts indicated by 0–9 in prefix
- Pacific and Caribbean possessions have special prefixes



Call Signs

- U.S. call sign types for amateurs
 - 1x1 (W1W) Reserved for Special Event Stations
 - Group A - 1x2 (W1WW) or 2x1 (WW1W)
 - Group B - 2x2 (WW1WW)
 - Group C - 1x3 (W1WWW)
 - Group D - 2x3 (WW1WWW)

Call Signs

- Indicators – added to the call sign following a slash (/) or a word such as “portable”
- Portable – operating away from primary station location
- Mobile, aeronautical mobile, maritime mobile
- Upgrade indicators “AG” or “AE” or “KT”

Choosing Your Call Sign

- Vanity call signs – similar to vanity license plates
- Pick any call sign authorized for your license class
- Technicians can have 2x3 (Group D) or 1x3 (Group C) calls
- www.arrl.org/vanity-call-signs




Special Event and Club Calls

- Special event call signs: 1x1
- Reserved via administrators
(www.arrl.org/special-event-call-signs)
- Club calls
 - Must have a valid club
 - Application by club's trustee
 - www.arrl.org/club-call-signs



Practice Questions



What configurations are valid US amateur
radio station call signs?

The background features a vibrant rainbow with wavy, horizontal stripes in shades of purple, red, orange, yellow, green, and blue. On the left side, there is a stylized logo for a ham radio. It consists of a yellow triangle with a black border, containing the letters 'A' and 'R' in a bold, sans-serif font. Below the letters is a coiled spring representing an antenna, and at the bottom is a battery symbol. The entire logo is set against a dark grey background.

What configurations are valid US amateur
radio station call signs?

XX5XXX

X5XXX

XX5XX

X5XX

XX5X




What configuration of vanity call sign might a technician class amateur operator select if available?



What configuration of vanity call sign might a technician class amateur operator select if available?

XX5XXX

X5XXX



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



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

Any licensed amateur




Who may select a vanity call sign for a club station?


The background features a vibrant rainbow with wavy, layered bands of color (purple, red, orange, yellow, green, blue) on the right side. On the left, there is a dark, semi-transparent graphic of a ham radio logo, which includes a stylized antenna and the letters 'A', 'R', 'C', 'O', 'R' in a bold, sans-serif font.

Who may select a vanity call sign for a club station?

Only the person named as trustee on the club station license grant



When may an amateur station make transmissions without identifying?



When may an amateur station make transmissions without identifying?

Never



End of Part 4