



Radio Merit Badge Workbook - Amateur Radio

SCOUTMASTER BUCKY

Requirement 9a - Amateur Radio

REQUIREMENT 9a1: Tell why the FCC has an amateur radio service.

Notes:

REQUIREMENT 9a1: Describe activities that amateur radio operators can do on the air, once they have earned an amateur radio license.

Notes:



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REQUIREMENT 9a2: Explain differences between the Technician, General, and Extra Class license requirements and privileges.

The FCC currently issues three Amateur Radio Service (ham radio) licenses: Technician, General, and Extra licenses. Technician is considered the "entry level" license, while Extra is the top-level license. You must earn each license in sequence, Tech, Gen, Extra. Each step up in license type provides expanded privileges to transmit on the variety of radio bands allocated by the FCC for the Amateur Radio Service.

The Technician license grants transmitting privileges on the VHF and UHF bands most commonly used for local area communications. The signals using these frequency ranges do not typically travel beyond the radio horizon, the distance limiting signal propagation due to the curvature of the earth and local terrain features. However, repeater stations positioned atop towers, hills and mountains, or tall buildings are highly effective at instantaneously retransmitting your VHF and UHF signals greater distances due to the expanded horizon produced by those high vantage points and usually by increased power of the retransmissions. Further, repeater stations at disparate locations can be linked together through internet connectivity or using auxiliary radio relays, potentially providing hundreds of miles of coverage for your VHF/UHF transceiver.

The Tech license also provides transmitting privileges on small segments of some HF bands allowing communication around the world via skip propagation using the earth's ionosphere. HF signals are bent back toward the earth by the charged particles in the ionosphere, sending your signals over the horizon thousands of miles. Multiple skips of a transmitted radio signal can literally send it completely around the planet. The Tech license provides limited privilege to transmit by voice (phone mode) on one HF band and by continuous wave (CW, using Morse Code) on additional bands.

The General license maintains all the Tech license privileges and expands your transmitting privileges to limited segments of all of the HF bands allocated to the Amateur Radio Service. Essentially, the General license opens the world of long-distance, international communication to you, as well as greatly increasing the voice mode operations on the HF bands. With access to the range of HF bands, you can communicate with operators around the globe, across the continent, or right next door using voice, CW, or digital modes of radio signals. The General license requires increased knowledge of the common operating modes and practices for HF communications as well as more advanced digital communications techniques and electronics competency.

The Extra license adds privileges to operate on additional segments of the HF bands beyond those provided by the General license. This license upgrade provides full access to the range of bands allocated to the Amateur Radio Service. The Extra license represents a significant increase in knowledge of radio science, electronics, and operating techniques

TECHNICIAN LICENSE:

Requirements:

Privileges:



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GENERAL LICENSE:

Requirements:

Privileges:

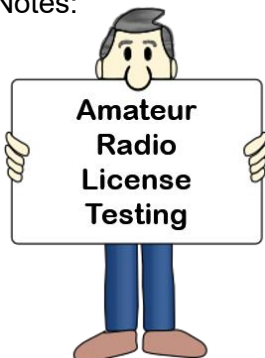
EXTRA CLASS LICENSE:

Requirements:

Privileges:

REQUIREMENT 9a2: Explain who administers amateur radio exams.

Notes:





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REQUIREMENT 9a3: Explain at least five Q signals or amateur radio terms.

Originally intended for use only by radiotelegraph operators, Q-Codes (also called Q-Signals) are three letter combinations that begin with the letter Q that CW operators use in place of common phrases.

QR CODE OR TERM #1:

Code / Term:

What it means sending:

What it means receiving:

QR CODE OR TERM #2:

Code / Term:

What it means sending:

What it means receiving:

QR CODE OR TERM #3:

Code / Term:

What it means sending:

What it means receiving:

QR CODE OR TERM #4:

Code / Term:

What it means sending:

What it means receiving:

QR CODE OR TERM #5:

Code / Term:

What it means sending:

What it means receiving:



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REQUIREMENT 9a4: Explain how you would make an emergency call on voice or Morse code.

Notes:

REQUIREMENT 9a5: Explain the differences between handheld, mobile, and base station transceivers and their uses.

Handheld:

Mobile:

Base Station:



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REQUIREMENT 9a5: Explain the use of amateur radio repeaters.

Notes:

REQUIREMENT 9a6: Using proper call signs, Q signals, and abbreviations, carry on a 10-minute real or simulated amateur radio contact using voice, Morse code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with five amateur radio operators. Properly log the real or simulated ham radio contact, and record the signal report.).

Consider using the [Radio Merit Badge Pamphlet](#) for preparation information

This requirement must be reviewed with your merit badge counselor.

BE PREPARED!

Notes: