

The 220 MHz Guys Amateur Radio Club  
What is “Amateur Radio” and what can it do?

# What is “Amateur Radio” and what can it do?

## What is “Amateur Radio” and what can it do?

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## What is "Amateur Radio" and what can it do?

### What is "Amateur Radio"?

**Amateur radio** (also called **ham radio**) describes the use of radio frequency spectrum for purposes of non-commercial exchange of messages, wireless experimentation, self-training, private recreation, radio sport, contesting, and emergency communication. The term "amateur" is used to specify "a duly authorized person interested in radio electric practice with a purely personal aim and without pecuniary interest;" (either direct monetary or other similar reward) and to differentiate it from commercial broadcasting, public safety (such as police and fire), or professional two-way radio services (such as maritime, aviation, taxis, etc.).

The amateur radio service (*amateur service* and *amateur-satellite service*) is established by the International Telecommunication Union (ITU) through the Radio Regulations. National governments regulate technical and operational characteristics of transmissions and issue individual stations licenses with an identifying call sign. Prospective amateur operators are tested for their understanding of key concepts in electronics and the host government's radio regulations. Radio amateurs use a variety of voice, text, image, and data communications modes and have access to frequency allocations throughout the RF spectrum to enable communication across a city, region, country, continent, the world, or even into space.

Amateur radio is officially represented and coordinated by the International Amateur Radio Union (IARU), which is organized in three regions and has as its members the national amateur radio societies, which exist in most countries. According to an estimate made in 2011 by the American Radio Relay League, two million people throughout the world are regularly involved with amateur radio, About 830,000 amateur radio stations are located in IARU Region 2 (the Americas) followed by IARU Region 3 (South and East Asia and the Pacific Ocean) with about 750,000 stations. A significantly smaller number, about 400,000, are located in IARU Region 1 (Europe, Middle East, CIS, and Africa).



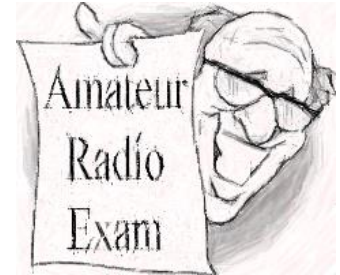
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### What are “Amateur Radio Operators”?

Amateur Radio Operators are a group of people who have earned a license from the federal government to operate radio transmitters in the amateur frequencies portion of the radio spectrum.

#### Technician class license:

- Exam Requirement: 35-question Technician Written Exam (Element 2).
- Privileges: All VHF/UHF Amateur bands (frequencies above 30 MHz).  
Limited operations in certain HF bands.
- Up to 200 watts of output power to the antenna on HF bands.
- Up to 1500 watts PEP output on VHF and UHF bands.



The FCC Technician License exam covers basic regulations, operating practices and electronics theory, with a focus on VHF and UHF applications. **Morse code is not required for this license.** With a Technician Class license, you will have all ham radio privileges above 30 MHz. These privileges include the very popular 2-meter band. Many Technician licensees enjoy using small (2 meter) hand-held radios to stay in touch with other hams in their area. Technicians may operate FM voice, digital packet (computers), television, single-sideband voice and several other interesting modes. You can even make international radio contacts via satellites, using relatively simple station equipment. Technician licensees now also have additional privileges on certain HF frequencies. Technicians may also operate on the 80, 40 and 15 meter bands using CW, and on the 10 meter band using CW, voice and digital modes.

#### General class license:

- Exam Requirements: 35-question General written exam (Element 3).
- License Privileges: All VHF/UHF Amateur bands and most HF privileges (10 through 160 meters).
- Up to 1500 watts of output power to the antenna on most bands.

The General Class license is the second of three US Amateur Radio licenses. To upgrade to General Class, you must already hold a Technician Class license (or have recently passed the Technician license exam). Upgrading to a General license—which conveys extensive HF privileges—only requires passing a written examination. **No Morse code test is required.** Once you do, the entire range of operating modes and the majority of the amateur spectrum below 30 MHz become available to you.

#### Extra class license:

- Exam Requirement: 50-question Extra written exam (Element 4).
- License Privileges: All Amateur band privileges.
- Up to 1500 watts of output power to the antenna on most bands.

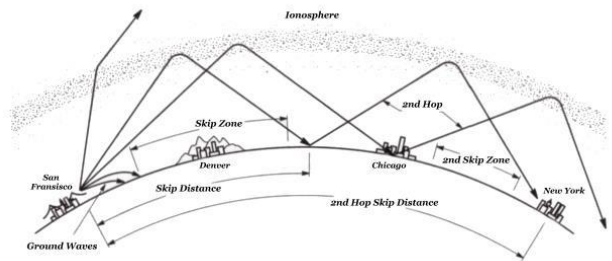


General licensees may upgrade to Extra Class by passing a 50-question multiple-choice examination. **No Morse code test is required.** In addition to some of the more obscure regulations, the test covers specialized operating practices, advanced electronics theory and radio equipment design. Non-licensed individuals must pass Element 2, Element 3 and Element 4 written exams to earn an Extra License.

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**What can I do with “Amateur Radio”?**

- You can talk to fellow Amateurs across your neighborhood, or around the world.
- You can transmit voice, pictures, digital data, and even Morse code if you wish.
- You can assist in emergency communication.
- You can help at public events.
- You can participate in contests (seeing how many areas you can talk to.)
- You can experiment with electronic radio and antenna designs.

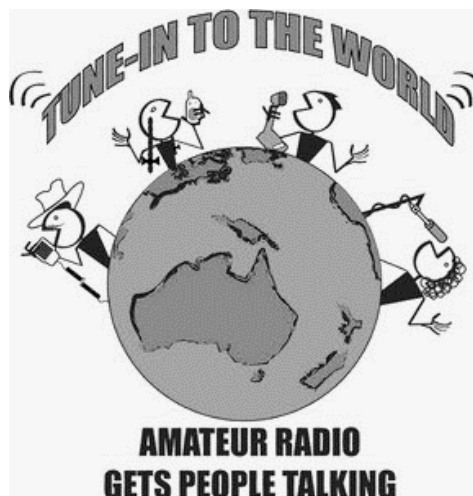


**What can “Amateur Radio” do for me?**

- It can help you relax by being an enjoyable hobby.
- It can give you incentive to increase your knowledge of radio and antenna theory.
- It will give you pride in accomplishing an earned license.
- It will give you an opportunity to assist others as were not possible before.
- It will give you another means to communicate when the normal systems fail.
- It will give you the opportunity to build your own radio gear.



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## What is “Amateur Radio” and what can it do?

### What does “Amateur Radio” cost?

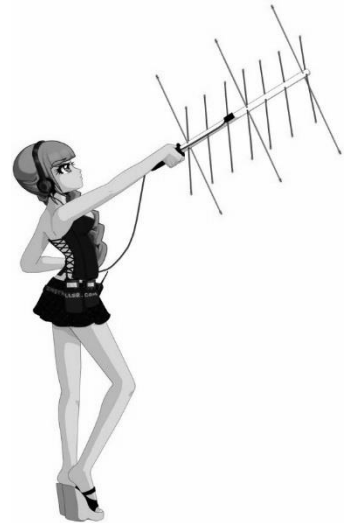
- To prepare to get your license (Book, class, study material) - \$0 to \$35
- To take the test to get your license - \$15

#### Low cost Technician

- Echo link for your cell phone - \$0
- Inexpensive new hand held radio - \$40 to \$60
- Build or buy a better antenna - \$10 to \$50

#### High cost Technician

- Echo link for your cell phone - \$0
- Name brand hand held radio - \$200 to \$600
- New or used HF radio - \$200 to \$1200
- Build or buy a better antenna - \$50 to \$300



The cost will depend on what you can afford, and what you want to do. A newly licensed amateur can spend as little as 55 dollars or more than several thousand dollars. Once you get your foot in the amateur radio door, you can decide on how far you want to walk in. As a Technician, you can use Echo link to talk until you purchase a radio.



## What is “Amateur Radio” and what can it do?

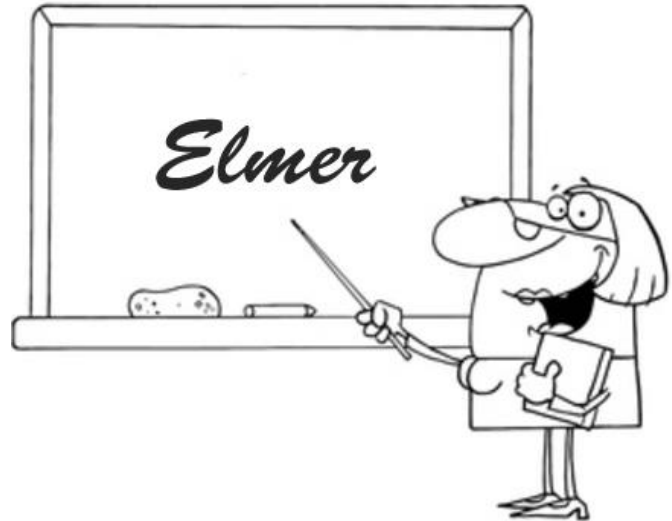
### Where can I find assistance with “Amateur Radio”?

Assistance can be found in many different places.

- In a library, where many books on the subject be found.
- At an Amateur Radio club.
- At a Hamfest.
- At the ARRL (Amateur Radio Relay League.)
- Ask an Elmer.

### What is an “Elmer”?

An Elmer is an Amateur Operator who uses his or her skill and knowledge to assist less experienced Amateur.



### What is a “Hamfest”?

A “Hamfest” is a flea market run by an Amateur Radio club where you can buy, sell, or trade new or used amateur radio equipment. A Hamfest is a great place to meet other amateur radio operators, and to see the different types of radio equipment.

### What is the “ARRL”?

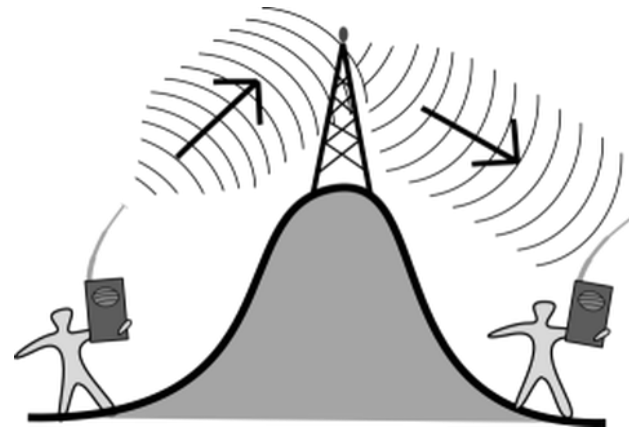
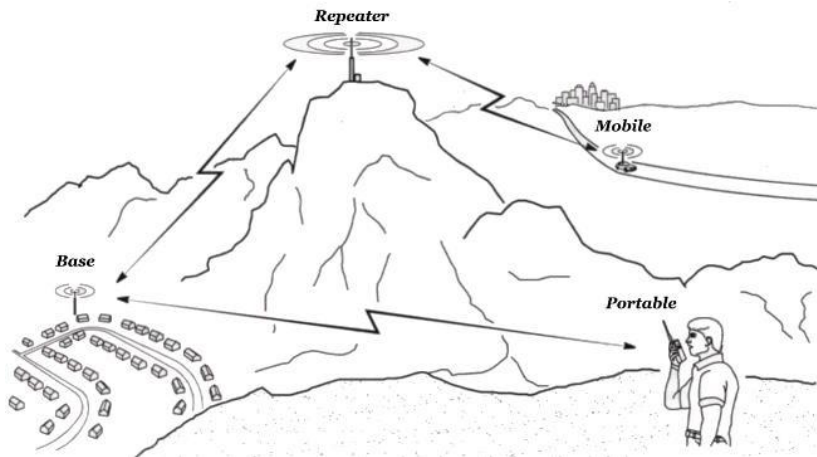
The ARRL (Amateur Radio Relay League) is an organization that has many resources for the amateur radio operator. They publish books on just about any subject concerning amateur radio. They run audio CW sessions for those interested. They promote amateur radio, and help protect our radio spectrum. You can take practice tests on their website so you can be ready for your next test.



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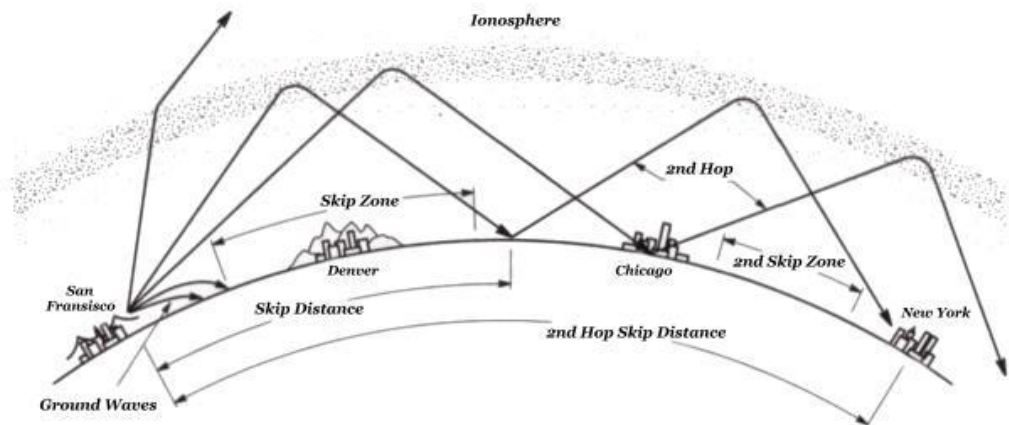
### What is a “Repeater”

A repeater is a remote transceiver (transmitter/receiver) stationed in a central location with its antenna mounted up high on a building or tower. The repeater retransmits what it hears on a different frequency than it is listening to. This allows a small hand held radio to talk to a much larger area than it could by itself. Repeaters are usually owned and operated by an amateur radio club. Some repeaters are owned and operated by individual amateur radio operators.



### What is “Skip”?

Skip is when you bounce the radio signals off the upper atmosphere back to Earth. This is similar to skipping a rock in a pond.



# AMATEUR RADIO

## What is Amateur Radio?

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Most of the time, it's the most fun you can have with a radio. It's a way to talk with people around the world, or even orbiting the world; to send e-mail without any sort of internet connection, and to keep in touch with friends across town or across the country. But it is called the "Amateur Radio Service" because it also has a serious face. It is also a very important public safety communications system. When cell phones, land line phones, the internet, and other systems are down or overloaded, Amateur Radio still gets the message through. Radio amateurs, often called “hams,” enjoy radio technology as a hobby –that’s the fun part. But it is also a service –a vital service that has saved lives again and again when regular communication systems fail.

Amateur Radio kept New York City agencies in touch with each other on September 11th. When hurricanes Katrina, Rita and Wilma destroyed other communications, ham radio provided vital life-and-death capabilities until systems could be rebuilt. Countless lives have been saved where skilled hams acted as emergency communicators to render aid, whether it is during fires, floods, earthquakes or a tornado. But most of the time, hams do what they do because it is just plain fun!

## What is the license needed?

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**Morse code (CW) is no longer mandatory to get an Amateur Radio license!**

**Technician class:** 35 question test on basic rules, regulations, theory, and operating procedures.

**General class:** 35 question test on advanced rules, regulations, and theory.

**Amateur Extra class:** 50 question test on higher advanced rules, regulations, and theory.

**The higher the class license you have, the more radio privileges you can use.  
*See the other side of this sheet.***

**You can try a practice test at one of these sites to test your knowledge:**

<http://aa9pw.com/radio/> or <https://hamexam.org/exam/12-Technician> or <http://www.eham.net/exams/>

**Have fun    Learn    Help others    Join a club**

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