

FREQUENTLY ASKED QUESTIONS

WHAT IS AMATEUR RADIO?

Amateur Radio is a non-commercial radio communication service whose primary aims are public service, technical training, experimentation, and communication between private persons. Amateur Radio operators are commonly called hams. Ham radio operators often communicate with each other recreationally but also provide communications for others at public events or in times of emergency or disaster. Anyone with a scanner can receive and listen to Ham radio transmissions. In order to make Ham transmissions, the Federal Communications Commission (FCC) requires that you obtain a license.

The Federal Communications Commission (FCC), the governmental agency that regulates all broadcasting, has recently changed its rules to allow persons to obtain amateur radio licenses WITHOUT learning Morse code, often referred to as CW which stands for continuous wave, for all license classes. Anyone who has had a basic physics or electronics class, you may already know enough theory to pass the tests. If you haven't had this kind of class, the material is extremely easy to learn on your own.

WHEN AND WHY WAS AMATEUR RADIO STARTED?

Nobody knows when Amateur Radio operators were first called "hams", but we do know that Amateur Radio is as old as the history of radio itself. In 1912, Congress passed the first laws regulating radio transmissions in the US. By 1914, amateur experimenters were communicating nation-wide, and setting up a system to relay messages from coast to coast. That's how the name, American Radio Relay League or ARRL, which the National Association for Amateur Radio, got its name.

Although the main purpose of Amateur Radio is recreational, it is called the "Amateur Radio Service" because it also has a serious function. The FCC created the "Service" to fill the need for a pool of experts who could provide backup emergency communications in times of need. In addition, the FCC acknowledged the ability of the hobby to advance communication and technical knowledge, and enhance international goodwill.

In 1928, Paul Segal(W9EEA), wrote a set of standards for Amateur Radio operators which is accepted as our credo. It states, HAMS SHOULD BE:

- CONSIDERATE to others operating enjoyment;
- LOYAL by offering encouragement to other hams by club participation and by supporting those representing amateurs' legal interests;
- PROGRESSIVE by keeping his/her station state-of-the-art, well maintained, and efficient. A ham's operating habits must be above reproach.
- FRIENDLY by offering advice and counsel to the beginner by providing assistance, cooperation and consideration for the interest of others;
- BALANCED by remembering that radio is a hobby, not allowing it to interfere with duties to home, job, school, or community;
- PATRIOTIC by offering his/her knowledge and station for the service of country and community.

WHO CAN BECOME A HAM?

In the USA, anyone who is not a representative of a foreign government can be an Amateur Radio operator. You do not have to be a citizen to obtain a license. There are tests that you must pass to get a license.

HOW DO I BECOME A HAM?

You need to pass a Ham Radio license test, file an application with the FCC. Your license is issued for ten years. There are various license classifications which permit the holder to have specific privileges such as using certain frequencies and transmitting with increased power levels. Amateur Radio clubs are located all over the United States and are eager to help anyone get started. The tests are administered by local Ham radio operators and there is usually a nominal charge to cover the cost of test materials. (currently \$14.00 although it may increase with the cost of living)

WHAT ARE THE DIFFERENT US AMATEUR CLASSES AND WHAT CAN EACH OF THEM DO?

Technician Class

Hams enter the hobby as Technicians by passing a 35-question multiple-choice examination. No Morse code test is required. The exam covers basic regulations, operating practices, and electronics theory, with a focus on VHF (Very high frequency) and UHF (Ultra high frequency) applications. Technician Class operators are authorized to use all amateur VHF and UHF frequencies (all frequencies above 50 MHz). Technicians who use Morse Code (also known as CW for Continuous Wave) may operate on the HF (High frequency) 80, 40, and 15 meter bands using CW, and on the 10 meter band using CW, voice, and digital modes.

General Class

The General Class is a giant step up in operating privileges. The high-power HF privileges granted to General licensees allow for cross-country and worldwide communication. Some people prefer to earn the General Class license as their first license, so they may operate on HF right away. Technicians may upgrade to General Class by passing a 35-question multiple-choice examination. The written exam covers intermediate regulations, operating practices, and electronics theory, with a focus on HF applications. In addition to the Technician privileges, General Class operators are authorized to operate on any frequency in the 160, 30, 17, 12, and 10 meter bands. They may also use significant segments of the 80, 40, 20, and 15 meter bands.

Extra Class

The HF bands can be awfully crowded, particularly at the top of the solar cycle. Once one earns HF privileges, one may quickly yearn for more room. The Extra Class license is the answer. General licensees may upgrade to Extra Class by passing a 50-question multiple-choice examination. In addition to some of the more obscure regulations, the test covers specialized operating practices, advanced electronics theory, and radio equipment design. Extra Class licensees are authorized to operate on all frequencies allocated to the Amateur Service.

WHERE AND WHEN CAN I TAKE THE HAM LICENSE TEST ON THE MENDONOMA COAST?

Contact your local Anchor Bay Amateur Radio Club to find out when and where you can take the test to become a Ham.

HOW MUCH DOES IT COST TO JOIN THE HOBBY?

To take the tests for any class of amateur radio license, there is a small charge (around \$14 currently) to cover copying costs and running the testing sessions. The cost of a radio is really dependent on what you want to do. You can buy a used single-band radio for \$75-\$300. A new entry-level radio costs about \$150 to \$1000 depending on the type, power and frequency coverage you want. You can buy a new multi-band multi-mode radio with all the doodads for \$2000-\$7000. Learn about ham radio, talk to local hams, and find out what you want to do with ham radio first before spending a lot of money on equipment.

WHAT CAN I DO WITH A HAM LICENSE?

There are so many things, it's a difficult question to answer, but here's some ideas:

- * Help in emergencies by providing communications.
- * Provide radio services to your local Civil Defense organization thru ARES (Amateur Radio Emergency Service) or RACES (Radio Amateur Civil Emergency Service).
- * Aid members of the US military by joining MARS (Military Affiliate Radio System).
- * Help other people become hams.
- * Build radios, antennas, learn some electronics and radio theory.
- * Talk to people in foreign countries either by ionospheric propagation or via amateur satellites.
- * Talk to people (both local and far away) on your drive to work.
- * Hook your computer to your radio and communicate by computers.
- * Collect QSL cards (cards from other hams) from all over the United States and foreign countries and receive awards.
- * Participate in contests or Field Day events.

WHAT CAN'T I DO WITH A HAM LICENSE?

The most important thing you can't do is transact business using ham radio. Interference to other hams or services, as well as obscene, profane or indecent language is not tolerated and is illegal. Music and broadcasting is not allowed on ham radio. Personal conversations, though not illegal may not be appropriate for Amateur Radio. Do you really want the whole world to hear about your family problems?

WHAT ARE THE USA CALL SIGN DISTRICTS?

The United States is divided into 10 geographic areas for call sign assignments by the FCC. Originally, all licenses were issued based on the physical location of the transmitter. When a licensee moved, his callsign was updated to reflect the new area. However, new licenses are now issued based on the licensee's state home address. When you move, you call sign no longer changes. Call signs are now issued sequentially by date of issuance within an area. The 10 areas are:

- 0 CO, NE, KS, MO, IA, MN, SD, ND
- 1 ME, NH, VT, MA, RI, CN,
- 2 NY, NJ
- 3 PA, DL, MD
- 4 KY, VA, NC, SC, GA, FL, AL, TN
- 5 TX, LA, MS, AR, OK, NM
- 6 CA, HI*
- 7 AK*, AZ, NV, UT, WY, MT, ID, OR, WA
- 8 MI, OH, WV

9 WI, IL, IN

* Hawaii and Alaska have some special considerations. The FCC periodically changes the regulations affecting call sign assignments. For the latest information go to the FCC Universal Licensing site at : <http://wireless.fcc.gov/uls/index.htm?job=home>

WHAT ARE THE HAM FREQUENCY BANDS AND HOW ARE THEY USED?

Radio wave frequencies are measured in cycles per second, also referred to as Hertz (Hz) which is the basic unit of frequency measurement. A one kilohertz (KHz) signal makes 1000 cycles per second. A one megahertz (MHz) signal makes 1,000,000 cycles per second. The HF (high frequency) band is from 3 MHz to 30 MHz (3,000,000 to 30,000,000) cycles per second. The VHF (Very High Frequency) band is from 30 MHz to 300 MHz (30,000,000 to 300,000,000) cycles per second. The UHF (Ultra High Frequency) band is from (300 MHz to 3 Gig Hertz GHz (300,000,000 to 3,000,000,000) cycles per second.

The wavelength is the distance a radio wave travels in one cycle. Wavelengths relate to frequency. The higher the frequency, the shorter the wavelength. A frequency band is a continuous group of frequencies used for a specific purpose, for example the 2 meter band common used in the Mendonoma area with the Anchor Bay Amateur Radio Club repeater.. Hams often refer to a group of frequencies by the wavelength rather than the frequency. Each Ham frequency band has unique characteristics and uses. Some of the commonly used ham bands are:

160 meters	1.8 to 2.0 MHz	200-2500 miles
75-80 meters	3.5 to 4.0 MHz	250-2500 miles
40 meters	7.0 to 7.3 MHz	750-10,000 miles
30 meters	10.1 to 10.15 MHz	CW and Digital world wide
20 meters	14 to 14.35 MHz	world wide
17 meters	18.068 to 18.168 MHz	world wide
15 meters	21 to 21.45 MHz	world wide
10 meters	28 to 29.5 MHz	multi state repeaters
6 meters	50 to 52 MHz	100 miles
2 meters	144 to 148 MHz	Line of sight; repeaters
1.25 meters	220 to 222 MHz	Line of sight; repeaters
70 Centimeters	440 to 445 MHz	Line of sight, repeaters

Note: Above distances exclude skip and impact of solar influence of radio waves causing deviation in distances.