



Amateur Radio Class

GETTING TO KNOW HAM RADIO

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Getting to Know Ham Radio

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Welcome to Amateur Radio

Congratulations on entering a whole world of new and exciting capabilities for recreation, emergency preparedness, experimentation and just plain fun.

Amateur radio goes WAY beyond just chatting with someone a few miles away on a walkie-talkie or CB radio in your car. As you will discover, it holds a lifetime of possibilities and enjoyment.

From talking to astronauts on the International Space Station, to sending emails from a sailboat in the middle of the Pacific to bouncing signals off a satellite or even the Moon – the more you explore the greater the possibilities of Amateur Radio become!

At the most basic level, just having access to mountain-top repeaters all over the world will extend your battery-operated radio's reach by hundreds of miles. For example, a Ham driving around Petaluma can pick up the microphone and talk to someone as far away as Monterey or Fresno. And that's only the beginning.

Again, welcome!



A Big Hobby with Many Possibilities

Socializing, ‘Rag-Chewing’ and learning from an ‘Elmer’.

Hams are friendly, helpful, welcoming and very polite on the air. This is a hallmark of Amateur Radio that you won't find on CB Radio, or using walkie-talkies bought at the local sporting goods store. You will also find seasoned experts (affectionately known as “Elmers”) who are ready to help.

Because all operators are licensed and must follow basic rules of etiquette to be on the air, you will find that a sense of community and camaraderie – as well as international goodwill – exists on ham frequencies. This makes it a very inviting place to ask questions, share information and just have a friendly chat with someone on the air.

In all cases **it's a good idea to listen a lot before keying up** on a frequency that your license permits. This gives you an idea of the etiquette and manners shared by most Hams. It also helps you to form good habits and make sure your radio is operating properly before jumping in yourself.

Once you're ready, there are a few ways to get on the air with other Hams:

Via Simplex (radio-to-radio)

The 2M “**National Calling Frequency**” for Technician Class and above to use on VHF is **146.52 Mhz**. This is a radio-to-radio *Simplex* call, not using any repeater in between. This mostly works when your radio is “line of sight” with the other radio, so being outdoors in a higher location is best. But you will also find that indoor use and even operating in a valley is often possible.

Just tune your radio to 146.52 and listen. If nothing is heard, key up and give your call sign and ask, “Is this frequency in use?” If no one responds, you can ask for any station on frequency to come back to you.

The **UHF calling frequency** is **446 Mhz**

Via Repeaters (using mountain-top repeater stations)

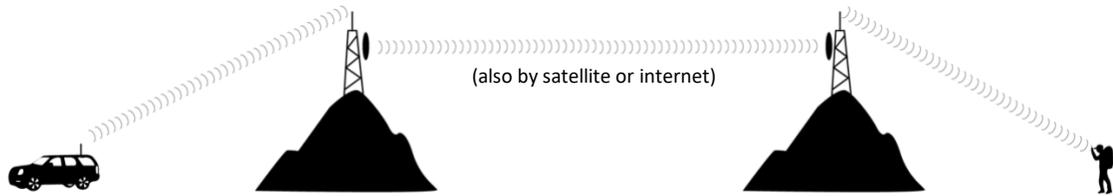
Repeaters greatly extend the range of your VHF or UHF radio. For example, a 5W Handy Talkie (or HT for short), will generally max out at 25 miles line-of-sight. But using a repeater, it can easily extend your range to 100+ miles that are not necessarily line-of-sight from your location.

For example, a person using a hand-held radio in Pt. Reyes, CA can easily contact a station in San Rafael, CA (even though there's rugged terrain in between) using a repeater on Big Rock Ridge above Novato.

To use a repeater, you must first look up its output frequency, its input offset (plus or minus) and its PL Tone. Then you need to enter these into your radio before the repeater will recognize your signal. This is known as a *Duplex* connection as the input and output frequencies are operating simultaneously. *See the illustration below for an idea of how this works.*



In addition, **some repeaters are linked** over microwave, satellite or the internet. Services such as Echolink the WIN System and the AllStar Link Network allow for networks of repeaters – making it possible for a Ham in California with a hand-held radio to contact a Ham in New Zealand walking her dog on the beach with her HT radio. See below:



There are **Repeater Directories** on the internet and in print that you can refer to for local repeater information. On VHF most repeaters are “Open”, meaning available for general amateur radio use – but on UHF many of them are private or “Closed” repeaters. Check out <http://repeaterbook.com> or buy an ARRL Repeater Directory for reference. See the section on **Programming Your Radio** for more information.

Via HF Single-Sideband (mostly for General Class and above)

Technician Class operators can only use HF on portions of the 10M band to operate Single Side Band (SSB) to contact distant stations using HF. These contacts don’t need to be line-of-sight as the signal can skip off the ionosphere and travel well beyond the horizon – *indeed world-wide* – when the conditions are good. This small allocation of 10M is enough for a Technician to at least get a taste of HF.

These are *Simplex* HF connections where the voice answering you may be several states away or even overseas. The 10M band is usually open only after sunspot activity – commonly at the high point of the solar cycle (the next high point will begin in 2024) – but there are random openings even when the Sun is quiet. Because HF radio gear with larger antennas are necessary for these HF contacts, most Technician Class operators stick to VHF and UHF in the beginning.

Emergency Communications

A very important capability that Amateur Radio provides is **communication when the power grid and/or internet is down**. These communications are also important for emergencies outside of cell phone coverage.

Using Amateur Radio capabilities, **voice communications, email messages, positions reports and slow-scan images can be sent using battery or standby power**. Most of the mountain-top repeaters have generator or battery back-up power and will operate for several days after the power goes out. Also, in some emergency situations only a portion of the power grid may go down, so Amateur Radio can simply reach as far as necessary to get to an area that still has power.

Many lives have been saved by Amateur Radio, and Hams have responded in virtually every major disaster in the last 75 years. If you are prepared to provide communications when an emergency strikes, your capabilities may become very important!

CW (Continuous Wave, or Morse Code)

CW operation (typically on HF) allows a clear signal to get through even in very difficult conditions. Because of this, thousands of Hams keep the skill alive internationally. It takes a significant effort to learn CW, but even Technician Class operators who make this effort can use most of the HF bands if they operate in continuous wave mode.

DX (making long distance contacts)

SOTA (Summits on the Air)

Summits on the Air operators earn points for activating peaks or by chasing such activations from their home stations. This is a fun activity that mixes radio skill, exercise and the beauty of nature. If you get enough points, there are awards for either activating peaks, contacting the activations from the home shack or even for non-amateur shortwave listeners logging enough activations.

Sporadic E Skip

Certain weather and solar conditions can open up **tropospheric ducting** known as “**Sporadic E Skip**” that allow 2M contacts as far as Hawaii from California. Occasionally stations as far away as 500-1200 miles away from each other can establish brief contacts when these conditions occur. There are even computer modeling programs that can predict these openings, allowing Hams to work distant repeaters to make thrilling DX contacts.

HF (10M for Technician class, many more for General and Amateur Extra Classes)

High Frequency (HF) bands have the ability to skip off of sun-charged regions of the ionosphere to travel not only far beyond the horizon, but all the way around the world. For stations with HF privileges (mostly General Class and Amateur Extra operators), **it’s possible to rag-chew with international amateur stations overseas, at sea or in the air – using only battery power.** It can be very exciting to have a DX conversation with a scientist in Antarctica, a sailor in the South Pacific or another Ham in Australia, South America or Europe. HF radio gear and larger antennas are needed for this, but a home-brew wire antenna suspended from a tree in your backyard may suffice!

6M (The “Magic Band”)

The **6-meter band** is a portion of the VHF radio spectrum allocated to amateur radio use. Although located in the lower portion of the VHF band, it occasionally displays propagation characteristics of the HF bands. This normally occurs close to sunspot maximum, when solar activity increases ionization levels in the upper atmosphere. The appearance of HF characteristics on this VHF band has inspired amateur operators to dub it the “**magic band**”.

AmSAT and Contacting the ISS Space Station

VHF and UHF frequencies can be used to **bounce signals off of amateur radio cube-sat satellites** in orbit to briefly **contact stations several states away.** This is a thrilling DX experience that is helped by free satellite tracking apps and websites. There are many satellites in orbit capable of doing this, and Hams are adding more every year.

It’s also possible to contact the **International Space Station (ISS)** during special events when certain Ham astronauts make themselves available. The ISS also has an automated Packet station as well as a voice repeater – so even when the astronauts aren’t on the air, you can still contact the space station.

EME (Earth-Moon-Earth bounce) and Meteor Skip

EME contacts can be made using 50 MHz to 47 GHz frequencies to **bounce a signal off the Moon** to contact another station **halfway around the world.** These contacts require higher power levels and very focused antennas, but never the less such a rare DX contact can be a memorable experience.

Similar to EME, during meteor showers, amateur radio operators have been able to **bounce signals off of approaching dust and debris in outer space** to distant stations on Earth.

DX (making long distance contacts) *continued*

Auroral Skip

The Aurora Borealis, or Northern Lights in the Northern hemisphere and the Aurora Australis in the Southern hemisphere can be similarly used to **skip signals to distant stations**. These signals have a distinctive flutter or water-like sound, and can be very surprising when DX stations from unexpected locations come in.

Digital Radio

Digital Voice (Encoding and decoding voice signals for more efficient use of the RF spectrum)

D-Star, DMR and System Fusion are all emerging digital systems that allow for voice, texting and data over a narrower band of VHF or UHF than conventional FM voice radio. These systems require special equipment but in the cases of D-Star and Fusion, the gear is proprietary and not universal or open-source. Many repeaters in these systems are interlinked, extending the reach to different cities or countries.

Digital Computer Modes (keyboard-to-keyboard, images, message forwarding, position reporting)

A number of computer programs and mobile apps interfacing with a radio give extended capabilities for transferring data and images. **FLDigi (FLMsg on Android) is a program that allows dozens of different modes** to be transmitted and received over any radio. **APRS is a position reporting system** that shows mobile stations on a Google map and tracks their course, speed, altitude, weather data and more using GPS precision. **Packet Radio allows email-style text messages** to be stored and forwarded with error correction and networking features. **Winlink takes this farther** by allowing the messages to be forwarded and received as **regular email messages** once the signal reaches a computer gateway with internet access.

Two popular DX modes, **PSK31 and RTTY**, allow keyboard-to-keyboard contacts that do well in weak signal conditions. There are also slower “whisper” modes such as JT-65, JT-9 and FT-8 that are used in extremely weak signal conditions. When voice can’t quite get the job done, these modes often can.

Contests (seeing how many contacts can be logged during a contest period)

Every mode and many aspects of amateur radio have contests. Some are regional, and many are international. **Field Day** is a national contest where stations set up portable and mobile stations out in the field and fill their logs with contacts from all over the world. There too many contests to list here, but all are a chance to fill your log with interesting contacts, whether you do it competitively or casually. Many Hams who don’t care to go after contest awards still enjoy collecting new states and countries for their log – and contests are perfect opportunities for this with many stations on the air at once.

Engineering, Hacking and Maker’s Projects

One of the greatest aspects of amateur radio is the experimentation and innovation it encourages. Home-brew antennas, **Maker’s projects** such as drones and robotics to software-driven projects using Raspberry Pi, Arduino, BeagleBone, etc., are bringing students, inventors and younger enthusiasts into the hobby. **Software-defined radio (SDR)** is growing by leaps and bounds and is combining computer coding and radio skills in exciting new ways.

Many electrical **engineering and robotics professors are encouraging their students** to get licensed, so they can put their ideas on the air. Hackers and entrepreneurs are finding new ways to create solutions and products by **experimenting with the higher power RF** that amateur radio lets them legally access.

As you can see, there are many aspects to Amateur Radio!

Your First Radio

Should I get a “Handy-Talkie” (HT), a Mobile or a Base Station?

Let’s start with the differences:

An HT is a hand-held radio that looks like a ‘walkie-talkie’ but is so much more. Firstly, it’s about 5-10x more powerful (usually 5 watts) than an FRS radio you might buy at a sporting goods store. This gives it a line-of-sight range of up to 25 miles or so. Secondly, it can be programmed to operate amateur radio repeaters, which can extend its range to 100+ miles. Thirdly, it can monitor emergency services frequencies, marine bands, aeronautical transmissions and much more.

An HT is good for portable operation but won’t work very well in a car or in most other mobile situations. If you do initially use an HT in your car, make sure you comply with distracted driver rules. Also, the range will be greatly improved if you get a roof-mounted external antenna. An HT is only good for indoor use if the repeater or receiving station is fairly close by. Here again, a roof-top antenna on your house, office or apartment will make a huge difference.

A mobile radio is generally more powerful (usually 50 watts) and this will increase your line-of-site range to 50-100 miles. This will allow you to work more distant repeaters, possibly extending your range to 200 miles or more. Again, although these radios may look like automotive CB radios, they are vastly better in many ways. They operate conventional and optionally digital repeaters. They also can be set up to scan emergency frequencies, monitor marine and aeronautical traffic, and also some can be used themselves as portable repeaters.

A base station radio will be in a fixed position with better antennas and possibly more power. It also may have added features, computer control, rotating antennas, HF capabilities and much more. Sometimes these are just mobile radios with hardware like better antennas and controllers added. But often the station grows into a ‘shack’ with multiple radios, devices, computers and high-quality microphones and headsets. As the hobby ‘takes hold’, there’s no telling what new toys may appear in your shack!

It’s a good idea to ask for the help of more experienced Hams to assist in setting up your first station. There are many considerations for powering the radios, providing a good grounding system and arranging antennas and feedlines for top performance. Most local repeaters will have friendly Hams eager to help get you started, and it’s not unheard of to organize an “antenna party” where several Hams will come and help you set everything up.



HT



Mobile



Base Station

What radio should I start with?

If you ask 10 different Hams what radio is best, you will probably get 11 different answers. But a good piece of advice is to start with a less expensive basic radio and see where your interest takes you from there.

The typical places to purchase a radio in the Bay Area are **Ham Radio Outlet** in Oakland or on the internet at **DX Engineering, GigaParts, Radioddity** or **Amazon**. Ebay is a crap shoot as a transmitter can be damaged by improper feedlines and antennas, lightning and abuse. Insist on seeing full output on a watt meter. Caveat Emptor.

Radio Manufacturers (most common)

- Icom
- Kenwood
- Yaesu
- Alinco
- Baofeng (Pofung)
- Wouxin
- SainSonic
- TYT
- BTech
- Leixen
- Powerwerx

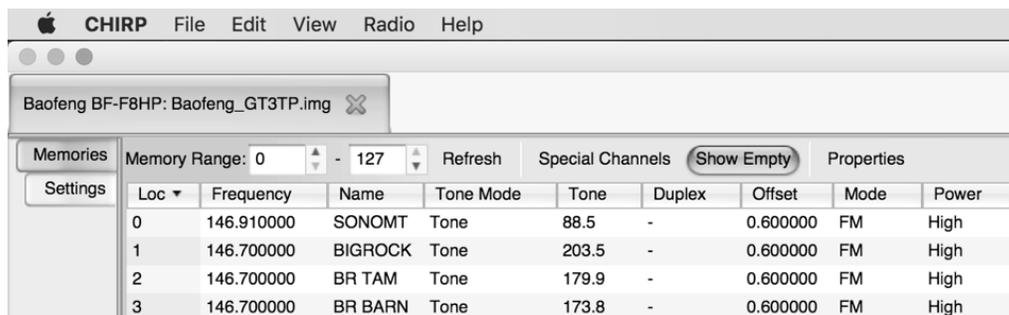
Programming the radio

If you're a new Ham, **programming your radio is a key step** – because if you get it right, the fun starts right away. But if you don't, the frustration will hamper you. Our advice is to ask a Ham for help (see below). If that's not possible, check YouTube by typing in your model.

Manually vs Software

If you took your licensing exam at SMRS, we will help you program your first radio! Ask Steve K6ETA for help or call him at 415.407.6719 (he lives in Petaluma and has most programming cables).

There are two ways to program your radio: Using the menus on your radio; and using a computer and programming cable. While it's useful to know how to program your radio without a computer, it's much easier to do it with a cable and software. **There's a free program called [Chirp](#)** that can program most radios – and it operates on Windows, Mac and Linux. There's also a more expensive but easier program called **[RT Systems](#)**. Lastly, many manufacturers have their own programs, some free but most at an additional cost.



If you decide to program the radio directly without a computer, follow the directions in your radio's manual. This is a good skill to have in an emergency, and it's a good idea to keep the manual in your car as you probably won't remember how to do it in an emergency.

Getting on the Air

Here are some pointers that will help you create a good name for yourself, which will make other Hams more likely to want to talk to you:

1. Make sure the frequency is clear before transmitting. Listening is a key skill in this hobby!
2. **Consider what you're going to say before speaking.** Many scanner listeners and other hams are listening. Watch what you say, be polite and respectful. Keep it rated G for the younger Hams.
3. Use the call letters of the station you are calling, then your callsign, i.e., "KM6XYZ, this is [MYCALL]". Or just put your callsign out there to see who comes back.
4. When on a repeater, let the repeater stop transmitting and **leave a gap** before you start transmitting. This allows for emergency break-ins and ensures you don't hog the repeater.
5. Do not "ker-chunk" the repeater – just announce your call.
6. Use clear text and skip the "Q" signals used in CW messages. There's no need to use phonetics or shorthand codes on FM unless someone is having trouble hearing you. This is not CB radio, so don't use CB terms like "What's your 20?" **Just speak plain, clear English.**
7. **Use short transmissions** because repeaters have time-out timers to shut down long transmissions or stuck-on transmitters due to an open mic or malfunction. This is another reason to let the repeater fully drop before responding – because if you "tailgate" on another person's last transmission, the timer will keep going and eventually you will be cut off.
8. When possible, use low power into the repeater.
9. **If reporting an emergency, say " I have emergency traffic"** If you hear someone else do so, always break for emergency traffic and only respond if you can be of more assistance than others on the air. You may be able to relay their traffic to 911 if someone isn't already helping do that.
10. **ID your call every ten (10) minutes** and after your last transmission. A good habit is to ID whenever you hear the repeater automatically ID – it's a good reminder and should happen every 10 minutes.
11. If someone is having trouble understanding you due to marginal signals, **use the proper ITU Phonetic Alphabet** when spelling words or to more clearly identify your call letters. *See the back cover of this pamphlet for proper phonetics.*
12. **Politics and religion are better discussed off the air.** Ham radio is neutral territory for everyone.
13. Do not transmit confidential information.
14. Check frequently to **see if others may want to use the frequency.** If a Net is running, ask Net Control for permission to join the net and follow their instructions. Never hog the repeater.
15. Participate in organized and disciplined nets. It's good experience, which will pay dividends in an emergency. See the reference section below for a list of local nets.

Reference

Local 2M Repeaters

North Bay

WB6TMS 146.910 -88.5 Located on Sonoma Mountain
Marin Amateur Radio Society K6GWE 146.700 -203.5 on Big Rock Ridge, Novato
W6SON 147.315 -88.5 on English Hill, near Sebastopol
K6ACS 146.730 -88.5 on Sonoma Mountain with coverage into Sonoma Valley
More on *repeaterbook.com*

East Bay

W6CX 147.060 +100.0 Located on Mt. Diablo
KB6LED 145.290 -131.6 on Grizzly Peak, Berkeley
K6MVR 147.000 -136.5 Vacaville, Mt. Vaca
WA6KQB 145.110 -82.5 San Pablo

South Bay

WR6ABD 146.640 -162.2 Loma Prieta Peak, Los Gatos
W6TI 147.360 +110.9 Palo Alto, Black Mountain

Digital Repeaters

D-Star K6ACS 145.040
DMR NN6J 444.0375

Simplex Frequencies

146.520 National Call Frequency
147.495 South County Sonoma ACS
146.420 Rohnert Park CERT
147.585 North Marin RACES
147.510 Central Marin RACES
147.555 South Marin RACES

Packet Frequencies

144.910 BBS and Mailbox Forwarding Stations
144.390 APRS Frequencies and iGates
144.910 Winlink RMS Gateways, Packet Radio
145.050 Unproto Packet (keyboard to Keyboard), Winlink
145.630 Winlink (East Bay)

National Radio Member Organizations

ARRL | Amateur Radio Relay League
NTS | National Traffic System

Local Radio Clubs

SMRS | Sonoma Mountain Repeater Society | <http://smrs.us>
SCRA | Sonoma County Radio Amateurs | <http://sonomacountyradioamateurs.com>
MARS | Marin Amateur Radio Society | <http://w6sg.net>
CCCC | Contra Costa Communications Club | <http://wa6kqb.org>
VOMARC | Valley of the Moon Amateur Radio Club | <http://vomarc.org>
LPRC | Loma Pioneers Radio Club | <http://lprc.net>

Emergency Communications Organizations

Sonoma ACS | Sonoma Auxiliary Communications Service
Marin RACES/ACS | Part of the Radio Amateur Civil Emergency Service
SATERN | Salvation Army Team Emergency Radio Network
VIP | Cal Fire's Volunteers In Prevention
CERT/NERT | Community / Neighborhood Emergency Response Team
American Red Cross (not necessarily using amateur radio)

Website Links

Repeater Directory | <http://repeaterbook.com/repeaters>
American Radio Relay League (ARRL) | <http://arrl.org>
Winlink (email over radio) | <http://winlink.org>
Chirp radio programming software | <http://chirp.danplanet.com>
Sonoma ACS | <http://sonomacounty.ca.gov/FES/Emergency-Management/Auxiliary-Communications-Service/>
Marin RACES | <http://marinraces.org>
North Bay Packet Nodes Map | <http://tinyurl.com/marindigi>
Salvation Army | <http://www.saturn.org>
APRS Maps | <http://aprs.fi>
Ham Radio Outlet | <http://hamradio.com>
DX Engineering | <http://dxengineering.com>
GigaParts | <http://gigaparts.com>
Radioddity | <http://radioddity.com>

Local 2 Meter Nets (open to guest check-ins by licensed amateurs)

Sonoma ACS County-Wide Net	146.730 -88.5	<i>Mondays at 7pm (1900 hours)</i>
Sonoma South County ACS Net	146.910 -88.5	<i>Mondays at 7:15pm (1915 hours)</i>
Sonoma County Radio Amateurs	147.315 -88.5	<i>Tuesdays at 7pm (1900 hours)</i>
Marin RACES Emergency Comms Net	146.700 -203.5	<i>Tuesdays at 7:30pm (1930 hours)</i>
Community Emergency Response Net	146.910 -88.5	<i>Tuesdays at 8pm (2000 hours)</i>
Kid's Net	146.910 -88.5	<i>Tues at 8pm after CERT (2000 hours)</i>
Valley of the Moon Club Net	145.350 -88.5	<i>Wednesday at 7:30pm (1930 hours)</i>
Marin Amateur Radio Society	146.700 -205.5	<i>Sundays at 10:15am (1015 hours)</i>
Dillon Beach Emergency Response Net	146.865 -88.5	<i>Sundays at 5pm (1700 hours)</i>

Local Meetings and Ham Gatherings (open to all guests)

SMRS Brunch – Every Wednesday, 10am, Hacienda Taqueria, 953 Lakeville St., Petaluma
SCRA Club Meetings – 1st Wed of the month, 6:30pm, Luther Burbank Art & Garden, Santa Rosa
Petaluma Hams Lunch – Every Thursday at Noon, 29er Diner, Petaluma Municipal Airport
Sonoma ACS Quarterly Face-to-Face – 1st Monday of the month, 7pm Lucchesi Center, Petaluma
Valley of the Moon (VOMARC) Club Meetings – 3rd Wed of the month, 175 1st St., Sonoma
VOMARC Breakfasts – 1st Saturday of the month, 8:30am, Black Bear Diner, Sonoma
Redwood Empire DX Association Dinner – 2nd Wed of the month, 6pm Boulevard Grill, Petaluma
Marin Amateur Radio Club – Informal “Bible Study” 8:30am – 11:30am, 27 Shell Rd. Mill Valley

Glossary

ACS Auxiliary Communications Service – a government authorized service on amateur radio for disaster or emergency communications

APRS – Automated Position Reporting System

ARES – Amateur Radio Emergency Service, sponsored by the ARRL.

ARRL – Amateur Radio Relay League (national organization to promote and protect amateur radio)

Band – A range of frequencies, i.e. 20M Band (meaning 20 meter wavelength or 14 Mhz)

Callsign – The FCC granted callsign letters used to identify a licensee

Class (License) – An FCC license (Technician, General and Amateur Extra) granting privileges to transmit on amateur radio frequencies according to level of test passed

Closed Repeater – A repeater which only operators may use

CondX – Shorthand for “Conditions”

Courtesy Tone – A tone or beep by a repeater indicating another station may begin transmitting

CW – Continuous Wave, which is another term for Morse Code

Dual Band – A dual band radio has two bands, usually VHF (2 meters) and UHF (440 or 70 centimeters)

Duplex – To use one frequency to transmit and another frequency to receive. Repeaters operate in duplex

DX – Long distance contact

Elmer – A mentor who teaches you ham radio skills and knowledge

Emcomm – Emergency communications (usually a volunteer effort using amateur radio operators)

HT – Handy-Talkie, a hand-held amateur radio (usually 5 watts)

HF – High Frequency, the range of frequencies from 30 Mhz down to 1.5 Mhz

MARS – Military Affiliate Radio Service, providing and interface between the military and amateur radio

Mobile Rig – A radio designed for use in a car, boat or aircraft.

Monitor – Listening on frequency

Net – A group of radio operators sharing a frequency or repeater in an organized fashion

NCS – Net Control Station, the station that manages net operation

NTS – National Traffic System, a network of Hams who pass traffic and emergency communications daily basis

Offset – The direction (plus or minus) of a .60 Mhz input frequency offset used by a repeater

Omni Antenna – An antenna that has the same signal strength in all 360 degrees

Open Repeater – A repeater that’s available for general amateur radio use

Packet Radio – A computerized message handling mode using digital audio tones, bulletin boards and digipeaters

Phone – another word for voice operation on the air

QRT – A short-hand “Q Code” for “Ending transmission and going off-air”

QRZ – A short-hand “Q Code” for “Can we have a conversation?”

QST – A short-hand “Q Code” for “Stand by for an announcement”

QSY – A short-hand “Q Code” for “Moving to another frequency”

RACES – Radio Amateur Civil Emergency Service, a government authorized service for emergency communications

Repeater – high level transceiver to increase area of coverage

Rig – A radio

DX – Long-distance communications

SSB – Single Side Band, usually used on HF, a voice (phone) mode that uses a narrow bandwidth

Simplex – Receiving and transmitting on the same frequency

Transceiver – A radio capable of both receiving and transmitting radio signals

TX – Shorthand for “Transmit”

VFO – Variable Frequency Oscillator, the tuning dial and/or its circuit in the radio

VHF – Very High Frequency, the range of frequencies from 30-300 Mhz

UHF – Ultra High Frequency, the range of frequencies from 300-3,000 Mhz

Winlink – A FEMA-preferred email messaging system using Packet on VHF/UHF or various modems on HF

Yagi Antenna – A multiple element beam antenna that has stronger signal ‘lobes’ in certain directions

73 – A short-hand code for “Goodbye” or “Best Regards”.

Net Terminology

ARES – Amateur Radio Emergency Service – A service sponsored by the American Radio Relay League.

BREAK – Use 1 – to interrupt a conversation for providing important information.

Use 2 – to show the start of the text of formal message and the end of the text of the message.

BREAK, BREAK – Emergency information to follow`

COMING FROM – Identifying when is sending a message, usually an organization or official.

EMERGENCY TRAFFIC – messages with life or death urgency.

GOING TO – the recipient of the message about to be sent.

HEALTH AND WELFARE TRAFFIC – messages regarding the well being of persons in a disaster area. Sent only after emergency and priority traffic is completed.

HOURLY REPORT – quick status report of all stations on the net to see that all is OK.

LOGISTICAL NET – used for scheduling radio operators, meals, relief and supplies.

MESSAGE FROM – use of the correct message form. IC 213, HIC 213, etc.

MESSAGE NUMBER – a number to track a message. P

NCS – Net Control Station

NET – a group of stations working together on a frequency.

NTS – National Traffic System, a Nation-wide traffic message handling system.

PERMISSION TO MOVE TO (QSY) – to change frequency to another frequency.

PERMISSION TO LEAVE THE NET (CHECK OUT) – to close the station, it's polite to check-out.

PRIORITY TRAFFIC – important message other than emergency traffic above welfare or routine

RACES – Radio Amateur Civil Emergency Service – A government radio service defined in Part 97, FCC regulations.

REPEATER – high level transceiver to increase area of coverage.

ROLL CALL – calling net members by tactical callsign or amateur callsign

SIMPLEX – to receive and transmit on one frequency.

SITUATION REPORT – report on a particular problem with or without an incident commander.

STATUS REPORT – inventories of tactical locations and/or radio operators.

TACTICAL NET – handles emergency or priority messages first. Other messages are then handled.

TACTICAL CALL – usually a location identification or an identification of an official.

THIRD PARTY MESSAGE – a message sent by another organization or person.

WELFARE – checking on the welfare of a person, or reporting on the welfare of a person.

ZULU TIME – Greenwich Mean Time (GMT) is used if you don't know what time zone a station is in.

A full list of terms can be found here: <http://arrl.org/ham-radio-glossary>



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ITU Phonetic Alphabet

24 Hour Time

A	Alpha	1:00am	0100
B	Bravo	2:00am	0200
C	Charlie	3:00am	0300
D	Delta	4:00am	0400
E	Echo	5:00am	0500
F	Foxtrot	6:00am	0600
G	Golf	7:00am	0700
H	Hotel	8:00am	0800
I	India	9:00am	0900
J	Juliet	10:00am	1000
K	Kilo	11:00am	1100
L	Lima	12:00pm	1200
M	Mike	1:00pm	1300
N	November	2:00pm	1400
O	Oscar	3:00pm	1500
P	Papa	4:00pm	1600
Q	Quebec	5:00pm	1700
R	Romeo	6:00pm	1800
S	Sierra	7:00pm	1900
T	Tango	8:00pm	2000
U	Uniform	9:00pm	2100
V	Victor	10:00pm	2200
W	Whiskey	11:00pm	2300
X	X-Ray	12:00pm	2400
Y	Yankee		
Z	Zulu		

