

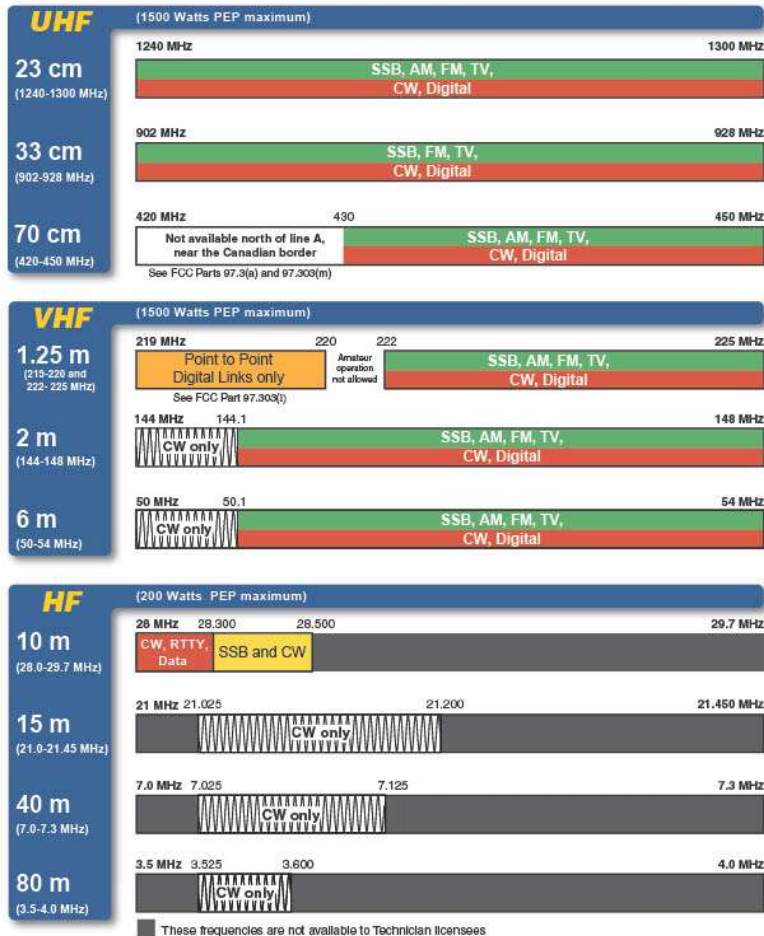
US Amateur Radio Technician Privileges

This chart shows privileges and band plan recommendations for each of the frequencies, as granted by the FCC to the Technician licensee. It is good amateur practice to follow the band plan established by the Amateur Radio community. The band plan is developed so that spectrum allocated for our use is used most effectively. You'll find a complete description of the band plan online at www.arrl.org/band-plan.



Published by
ARRL The national association for
 www.arrl.org **AMATEUR RADIO®**

Effective Date March 5, 2012



Notes:
 Technician Licenses may use up to 1500 Watts PEP on the VHF and higher bands, but are limited to 200 Watts on the HF bands.
 You also have privileges to explore these microwave bands with CW, Digital, SSB, AM, FM and TV:
 2300-2310 MHz 2390-2450 MHz 3300-3500 MHz 9650-9925 MHz 10.0-10.5 GHz 24.0-24.25 GHz
 47.0-47.2 GHz 76.0-81.0 GHz 122.25-123.0 GHz 134-141 GHz 241-250 GHz All above 275 GHz rev. 10/20/10



New Ham Guide

Information to help get you "On the Air"

“Rag-chew” .General chit-chat over the airwaves is termed a rag-chew. It could be talk about the weather, grandchildren, vacations, or anything else. There are even some with no specific purpose other than to let the participants rag-chew.

“What’s your QTH?” There are a number of “Q-codes” that date back to the earlier days of amateur radio and Morse code. Most Q-codes are not used much in the amateur bands open to Technician class hams—plain English is preferred—but QTH is an exception. In context, it means location or home. “What is your QTH?” means “Where you located?”

Some Closing Thoughts

Amateur radio can be as exciting a hobby for where ever your interests take you. There is no one-size-fits-all definition for what hams do. Some like to talk to people around the world while others are far more content to chat within their local area. Some hams like to build things, like antennas or radio equipment. Others just want to be prepared for some emergency situation.

The hobby has so many aspects and possibilities. Whatever your interests, do what is right for you. As your interests evolve and expand, so, too, can your enjoyment of amateur radio.

And one final note: Under no circumstances let someone else dictate to you what you should do to be a ham. Some hams get stuck in their ways and resistant to new technologies. “That’s not real ham radio” is the refrain of these curmudgeons.

Ignore them.



Please note: This document was adapted from the *New Ham Kit* information packet developed by the East Greenbush Amateur Radio Association. The East Greenbush Amateur Radio Association provided its kind permission for use of its intellectual property to produce this derivative work. Information about the East Greenbush club is available online at <https://egara.org>.

East Greenbush Amateur Radio Association, © 2023 on original content.
John Fisher, © 2024 on derivative work.

Version 1.1, November 10, 2024, john@w2jsf.com

Contents

Congratulations on Getting Your License!	1
...Ok, but Now What?	1
Join the Club!.....	1
Amateur Radio Repeaters	2
Offsets and PL Tones.....	2
Area Repeaters	4
Repeater First Use	4
Repeater Etiquette.....	5
Repeater How-To	6
What are These Net Things?.....	8
Ham Vocabulary	9
Some Closing Thoughts	10

Checking in is important even if you intend to listen and not otherwise participate. Knowing how many hams are part of the net, even if only listening, is important to evaluate the worth of the net. An explicit way check-in with listener-only status is to say “in and out” at the end of your check-in. **“This is...KE2DXS, Mary in Albany, in and out.”** That way, the net control will know you are present, but will not call on you.

Net Name	When and where	Purpose
Ladies' Social Net	Mondays at 8:00pm, 145.310 MHz	Informal gathering of all female hams (and non-hams assuming a licensed “control operator” is nearby). Topics are varied and are always free of male interference.
The Radio Monitoring Net	Tuesdays at 7:00pm, 146.940 MHz	The mission of the net is to monitor the radio spectrum from DC to daylight, looking for the usual and the expected as well as the weird, the strange, the anomalous, the pirates, and the outlaws; to share that information with Net participants.
The Trader Net	Wednesdays at 8:00pm, 146.940 MHz	Clean up your shack by selling or trading that unused radio or accessory! Join net control Peter W2FW every Wednesday evening at 8pm on TheBig94 repeater 146.940 to buy swap and trade amateur radio and related gear.
TARA Social Net	Thursdays at 8:00pm, 145.170 MHz and 447.075 MHz	“Directed-informal” in which the participants decide what they want to talk about as long as it's friendly and follows proper operator etiquette.

Ham Vocabulary

“Let me let this roll.” Repeaters have a time limit for how long you may transmit continuously to it before it will cut you off. Usually it set by the repeater owner to be around two minutes. If you find yourself waxing poetically for an extended period, it is a good idea to pause the transmission temporarily to reset the timeout timer. Others may interpret your pause as marking the end of you transmission, announcing you intend to continue with, “Let me let this roll” or similar, lets others know your intention.

“That was a double.” If two stations transmit at the same time on the same frequency, their signals interfere. It does happen sometimes on repeaters, especially when one or more stations are disregarding Rule #2. The statement, “That was a double”, is another station letting the offending stations know that their transmissions collided.

Use plain language then talking on a repeater. If you want to know someone's location, just ask directly, "What is your location?" (Admittedly, some hams ask, "What is your QTH?", but plain English should be preferred.) If you want to know whether someone with whom you are talking is using a mobile rig or a hand-held radio, just ask, "What kind of radio are you using?" You get the idea. Most repeaters are local, so signal quality is very good. There is no reason to introduce obscure ham radio Q-codes or other jargon when plain English will suffice.

Expanding on Rule 6, prohibiting CB lingo, an especially bad thing to say is **breaker** or any variant. The CB-isms like "10-4" and "what's your 20" have no place in ham radio, but "break" has a very special meaning making it a very bad thing to say casually. The word "break" is never used at the beginning of a transmission unless it is an emergency.

If a station indicates it needs to report an emergency, **stop transmitting immediately** to allow the other station access to the frequency.

What are These Net Things?

Much of the communications on a repeater are discussions between two people or a small group of hams. They usually develop spontaneously and spark a conversation over whatever topic pops up.

Still, there are times repeaters are used for more specific, scheduled purposes. It could be for conducting club business related to emergency preparedness, or it could be as casual as a group of hams gathering to talk about cookie recipes.

Whatever the purpose, these scheduled events are called "nets." The following table lists a few nets on local repeaters that are open to all and may be of interest to new hams. Most nets begin the person in charge of the net, "net control", making a few introductory remarks then asking for "check-ins." Check-ins are people announcing their presence by stating their call sign, (first) name, and usually their location and possibly other relevant information. For example, "**This is ... KE2DXS, Mary in Albany with an announcement.**"

(The "..." is an appropriate place to unkey the transmitter to listen for any other station that may have keyed up at the same time.) The net control will acknowledge each check-in. After the check-ins are complete, the net control then manages the discussion by calling on individuals when it is their turn.

Congratulations on Getting Your License!

...Ok, but Now What?

It is exciting to pass your licensing exam....and also a little intimidating for most. You are likely asking yourself a great many questions.

- How do I get on the air?
- Where can I get help and guidance?
- Who can answer my questions about radios and antennas?
- What gear do I need?
- What should I buy, and where can I buy it?
- How much do I have to spend?
- Once I get things set up, how do I operate it? What do I even say on the air?"

Well, do not worry. Just about every new ham has asked those very same questions since Amateur Radio first began. Luckily, there is plenty of help to get you up and running and comfortable with your new hobby. This guide will help to get you on your way!

Join the Club!

Most hams are extremely welcoming to newcomers to the hobby. For this reason alone, new hams should strongly consider joining a local amateur radio club. You will then be in contact with other local hams who are happy to lend a helping hand. You will get help getting started and your questions answered.



More importantly, most clubs have folks who have been hams for many years and that are very willing to share their knowledge and experience. They are affectionately known as *Elmers*. Unlike that white glue you may remember from kindergarten or the bumbling rabbit hunter of cartoon fame, Elmers hold a position of high esteem within amateur radio. Elmers are a great resource, and they stand ready to guide you.

So, which club should you join? There is no need to rush your decision. If you lack a reason to prefer one club to any other club in the area, then spend some time with several. Attend a few

club meetings. Get a sense of the club's interests and the people involved. When you find something you like, join the club. There is no rule against joining more than one.

The following table lists many of the amateur radio clubs in the greater capital region. Point your Internet browser at the provided URL for more information about each club.

Amateur Radio Club	Internet URL
Albany Amateur Radio Association	http://k2ct.org (note: not https)
East Greenbush Amateur Radio Association	https://egara.org
Schenectady Amateur Radio Association	https://k2ae.org
Schenectady Museum Amateur Radio Association	https://smara.com
Troy Amateur Radio Association	https://n2ty.org

Amateur Radio Repeaters

As a newly licensed ham with a Technician-class license, you will likely start your ham career in the VHF and UHF bands. Your Technician license authorizes you to use a few slices in the lower-frequency bands, but you have full operating privileges in the VHF and UHF bands.

Most new hams start out in VHF and UHF. (Some never leave.) Getting started is easy and very affordable. You can purchase a simple dual-band portable VHF/UHF hand-held radio for as little as \$25. You can get on the air without busting your budget and then upgrade your gear as you interests and abilities advance.

A downside to VHF and the higher bands is that communications is "line of sight." The radio waves travel in straight lines and do not reflect off the ionosphere layers the way HF signals do. Buildings and hills also can interfere with VHF (and higher) signals.

This is where *repeaters* come into play.

Repeaters extend the range of your VHF or UHF radio by relaying your relatively weak signal to other stations. They use higher-power transmitter systems, and their antennas are usually located at a high elevation (to maximize coverage).

Offsets and PL Tones

Repeaters work by receiving on one frequency and then re-transmitting at exactly the same time on a second frequency, offset from the first.

the same time as you. See Rule 4. Some operators also include a frequency to indicate which repeater they are using, as in "...listening on 146.94". (A listener may be using a scanner to receive signals from several repeaters. You including the frequency you are using may be useful to them to know where to respond.)

How to call a specific other ham: To ask for contact with someone, you can simply state the call sign of the other individual followed by your own. A few extra words are allowed, as in the following:

You: <their call sign> **this is** <your call sign>

At this point, you should apply Rule 1, above. If the other station does not reply, you may repeat your transmission, but at some point, you may need to accept that the other station is not able or not willing to communicate with you.

Other things to know: Many good operators recognize a new ham on the air almost instantly. They will approach you with patience, understanding, and possibly some good-natured prodding and poking at you to get you to relax and have fun with your new license.

He or she will welcome you to the hobby! A good operator will never make you feel unwanted on the air. They may ask you to repeat your call sign just to make certain he understood to whom they are talking. Be prepared to give your call sign using the phonetic alphabet.

Hams usually do not like to "talk to a call sign." If you did not volunteer the information, do not be surprised if you are asked for your name and possibly your location. Just your first name and your general location will suffice. "**The name here is Susan, and I am in Latham.**" If you make mistakes, the other station will most likely let you know in a friendly manner what you did wrong and inform you as to the correct way.

Do not be surprised if your first few new contacts ask you all the questions instead of the other way around. They are just trying to get you to feel relaxed on the air. As your experience grows in ham radio, please remember your first contact and how excited and nervous you were then. Someday it will be your turn responding to a new ham as their first contact! Make him or her feel at home. Be a good operator, hopefully as your first contact was!

others a chance to join in on the conversation or handle some important matter. It also reduces the odds of two stations' transmissions colliding.

Rule 3: Do not use "CQ" to request someone respond. "CQ" is ham radio slang for "calling anybody who wants to talk", but it is not used on repeaters. Instead, simply listen to be certain the repeater is not in use (Rule 1), then you just transmit your call sign possibly with a few extra words like "listening". If others happen to be listening as well, and they want to talk, they will respond.

Rule 4: Occasionally briefly pause during your transmission. Only one person at a time can be talking on a repeater. If two key up at the same time, the signals interfere with each other, so it is useful to be sure you are the only one that was transmitting.

Rule 5: Do not "kerchunk" the repeater. The practice of briefly keying up a transmitter (pressing the push-to-talk button) to see if a repeater responds with its courtesy tone is commonly known as kerchunking among hams (named after the sound it makes). It seems like an innocuous enough act. Just a simple key-up. Do not do it! Do not be a kerchunker! It is very annoying, and it is rude to others.

Rule 6: This is not CB radio. CB lingo is mostly inappropriate on ham radio. Singularly unacceptable is using the CB term "breaker" or variants of the word. (More on this later.)

Rule 7: Keep the airways family-friendly. As every radio amateur should be aware, foul or indecent language is not acceptable over the airwaves. Hams demonstrate a level of civility and respect not always found in interactions outside the hobby. With that in mind, it is usually a good idea to avoid topics like religion and politics as those tend to diminish civility in favor of heated, polarized discussion.

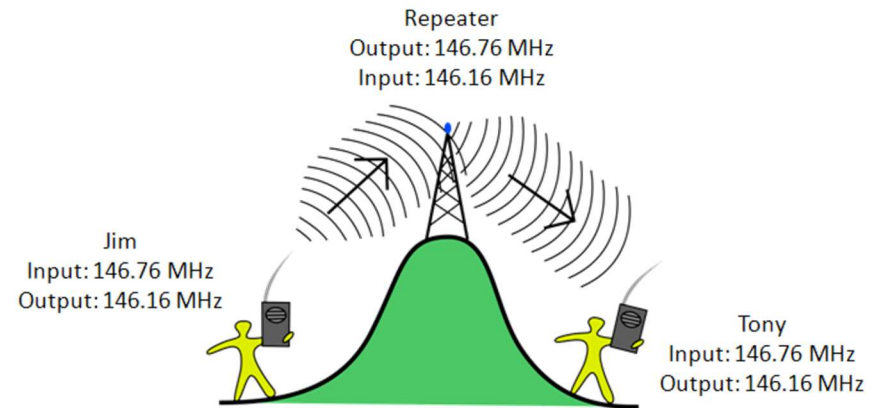
Repeater How-To

How to announce your presence: To announce that you are listening to the repeater and willing to engage in a conversation, you can say something like the following:

You: This is ... <your call sign> listening

The "this is" part are extra words you do not actually need, but it is a useful place to "unkey" your transmitter briefly before keying up again to continue. The brief pause lets you check if anyone else has keyed up at

For the 2 meter VHF band, the standard offset is 0.600 MHz; that is, the receive frequency and transmit frequency for a given repeater are 0.600 MHz apart. If the receive frequency for the repeater is higher than its transmit frequency, then it is referred to as a positive (or plus) offset; similarly, if it is the other way around, it is a negative (or minus) offset.



By way of example, the K2RHI repeater in north Troy transmits on 146.940 MHz and has a negative offset. 146.340 MHz is therefore its receive frequency. Most of the better quality ham radios can automatically set the offset for a repeater once you enter its transmit frequency.

Most repeaters implement a *private line* feature. In addition to using the correct frequency and offset, the radio using the repeater may need to transmit the proper PL (for private line) tone. A PL tone is a sub-audible signal to trigger the repeater's function and filter out unwanted signals or interference.

("Private Line" is Motorola's proprietary name for a communications industry signaling scheme called Continuous Tone Coded Squelch System, or CTCSS. The correct name, therefore, is CTCSS, but it is harder to say, or even remember, so most hams prefer to call it PL tone.)

When setting up your radio to communicate with a repeater, you will need to set the appropriate operating frequency, the offset (if the radio does not do that automatically for you), and the PL tone for repeaters that use that feature.

Area Repeaters

There are a few of the amateur radio repeaters in the area on the VHF and UHF bands. Some have local club affiliations, but all listed here are generally available for amateur use, whether or not you are a member of any club.

Call Sign	Frequency	Offset	PL Tone	Location
Non-Club Affiliated Repeaters				
K2RHI	146.940 MHz	-0.600 MHz	none	North Troy
K2RHI	145.310 MHz	-0.600 MHz	94.8	Grafton
Albany Amateur Radio Association				
K2CT	145.190 MHz	-0.600 MHz	103.5	Albany
East Greenbush Amateur Radio Association				
KC2FCP	147.270 MHz	+0.600 MHz	94.8	Albany
KC2FCP	145.110 MHz	-0.600 MHz	94.8	Troy
W2EGB	224.800 MHz	-1.600 MHz	94.8	Troy
KC2FCP	447.700 MHz	-5.000 MHz	94.8	Albany
Schenectady Amateur Radio Association				
K2AE	147.060 MHz	-0.600 MHz	None	Schenectady
K2AE	444.200 MHz	+5.000 MHz	None	Schenectady
Schenectady Museum Amateur Radio Association				
W2IR	146.790 MHz	-0.600 MHz	110.9	Schenectady
W2IR	443.750 MHz	+5.000 MHz	110.9	Schenectady
Troy Amateur Radio Association				
N2TY	145.170 MHz	-0.600 MHz	127.3	Troy
N2TY	447.075 MHz	-5.000 MHz	127.3	Troy

Repeater First Use

Ok, you passed the Technician class examination, the FCC has issued you an amateur radio call sign, and you have set up your radio to communicate with an area repeater.

How do you make a contact on an amateur radio repeater?

Step one: **Listen.**

Step two: **Listen some more.**

This is to make sure the repeater is not already in use.

Ok, the repeater is not in use. What now? Well, a very simple thing to do at this point is to ask for a signal report. It is a simple request to anyone listening to respond back with some basic information about how you sound to the other person. A dialogue might go like this:

You: <your call sign> asking for a signal check.

Them: <your call sign> this is <their call sign>. Good audio with just a little static.

You: Thank you for responding. I am a new ham just testing out my equipment.

At this point, the other station may or may not want to engage in a conversation. The “I am a new ham” is usually a good lure, though, so do not be surprised if a dialogue begins. Other stations may choose to join in the conversation as well.



Enjoy whatever dialogue ensues, but please do not develop the bad habit of being a “quick keyer”. Quick keyers are those that key up their transmitters as soon as they think the other person has stopped talking. Instead, wait a second or three before transmitting. This gives others a chance to join in as well.

If nothing develops, you can always try again later, but remember that you need to “drop you call sign” at least every ten minutes and in your final communication. End with something like this:

You: <your call sign> clear

This would indicate you are concluding things for now.

Repeater Etiquette

In the previous section, two basic principles of repeater etiquette were introduced, and they are worth repeating here along with additional rules for acceptable behavior:

Rule 1: First listen, and then listen some more. It is a simple check on whether the repeater is in use. It is also a simple way for a new ham to get a sense for how more experienced hams conduct themselves on the repeater.

Rule 2: Do not “quick key.” It is easy to forget there are others besides you looking to use the repeater. When one station stops transmitting, pause a bit before starting your transmission. This gives