Guide to Choosing Your First Radio:

from Joseph M Durnal, N3PAQ on February 16, 2007
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You'll often hear that a handheld transceiver is not the best first radio for a new ham, and for good reason, handheld transceivers, while they are a completely functioning station in one device, are among the most limited transceivers available but often overlooked is the value of a handheld transceiver as a portable station that can be used at home, in the car, and in the field. Often the same folks that say that handheld transceivers aren't good starter radios, recommend alternatives such as HF/VHF/UHF all mode rigs, while a multi band all mode rig offers a wide range of operating possibilities, they are often out of the new ham's budget.

So, what makes a good first radio? It depends greatly on two things, what you will use the radio for, and your budget. People get amateur radio licenses for many reasons these days, some are interested in emergency communications, some, a technical hobby where building things and/or using cutting edge digital modes are most appealing, others just like to talk, and still some are lured to the hobby by tales of DX or from the short wave broadcast bands. Keeping these things in mind, different radio choices can be examined for their usefulness.

Handheld FM Transceivers

Handhelds tend to be fine transceivers for light emergency communications and public service events. The limited power of a handheld also means limited range, which may be OK for in town events, but problematic for more wide spread or regional events. Handheld range can be extended with aftermarket antennas and amplifiers, in fact a good aftermarket antenna is recommended for emergency communications, even if you can access the local repeater just fine on the stock antenna, a more efficient antenna may allow you to use lower power, and give you a greater simplex range.

Handhelds don't offer much in the way of technical challenges. They are mostly just a buy it, turn it on, and use it sort of thing. I suppose that one could build a few items such as an antenna, packet interface, or maybe a solar charger for their battery, but there is only so many technical projects you can squeeze out of a handheld.

One thing that handhelds are not good for is rag chewing. The reasons are obvious to the seasoned operator, short battery life, limited range, and most modern handhelds get pretty hot, especially when running from an external power source.

You wouldn't think a handheld would have anything to do with DX, but my very first DX (if you call Porto Rico DX) was with a dual band handheld via satellite. Operating satellites with a handheld typically means standing outside in the elements, which may not be appealing to some. There is also echolink, while calling echolink DX is up for debate, the fact that one could walk down the sidewalk in the US and have a QSO with a ham operating from Germany can't be denied.

Mobile FM Transceivers

Mobile FM transceivers don't necessarily have to be used in a vehicle, they can be used as fixed stations or even portable with the proper battery, still making a mobile a fine choice for emergency communications. Obviously, not as portable and easy to deploy as a handheld, mobiles deployed in vehicles and fixed stations often benefit from better antenna installations and power availability, which also means the added expense of installing the antennas and feed line, as well as the purchase of power supply.

While still limited in the technical aspect of amateur radio, mobile FM transceivers are often the choice for full time packet nodes for the data savvy. Interestingly enough, Ten-Tec still sells a 2 meter mobile kit, for those who would like to build their own gear, although, for what you get, it is rather expensive compared to what you can buy already made.

Most Mobiles are great for those who like to rag chew with other operators in their local area, from the fixed station, or the vehicle, they are much better at this task than a handheld, not only do they offer more power for direct communications, mobiles are designed with large heat sinks to dissipate the heat generated during those long winded conversations.

While I've enjoyed driving to a hill top and working stations around 100 miles away occasionally, mobile FM transceivers are not going to have range considered DX without linked repeaters or echolink nodes.

Mono Band, Dual Band, More?

Many say this is up to one's personal choice and budget. While dual and tri band radios are more expensive than mono band rigs, what a new ham should invest in isn't always so clear. For emergency communications, it would be best to check with your local ARES or RACES members, find out what repeaters and simplex frequencies are used, and avoided. I many to most areas, local communications are handled on 2 meters, but if the local emergency services are using VHF high band, it may be difficult to operate in shared locations or on shared towers, so the local amateur radio volunteers may have decided that 70 centimeters is best.

Multiband radios do offer more room for experimenting with antennas. I did enjoy making a six meter antenna to use the 1 watt carrier AM mode on the Yaesu VX-7R, and with the same radio, making a small 222 MHz yagi to get the most out of its 300 mw maximum output on that band.

Often we don't want to tie up a widely used 2 meter repeater in your area with a long conversation or big round table. Having another band option may make it easier to move to a repeater in the same location with similar coverage that doesn't see as much activity. Many clubs put repeaters on several bands at the same site, making the coverage fairly predictable.

Multiband Radios with 6 meters and a good external antenna can sometimes work DX via sporadic E propagation. While this won't happen all the time, especially for FM, it does happen, and you could find yourself talking to stations several hundred miles away.

HF, VHF, & UHF in one all mode radio

You may only have a technician license, and think that you aren't yet able to use the HF bands right away, recent rule changes have given Technicians voice, data, & CW on 10 meters, and CW on some other HF bands and the upgrade to General no longer requires a Morse code proficiency exam, which makes the upgrade fairly easy. HF has a unique place in regards to emergency communications, making contact beyond the range of the local repeater, assuming it is still operating in a disaster, or beyond line of site for simplex is often accomplished by HF. Many states and regions have daily nets on set HF frequencies for passing routine traffic, these nets and frequencies become the backbone for regional amateur radio communications during disasters that may damage other communications infrastructure, including the amateur repeaters in the area. With VHF & UHF in that same radio, it makes a convenient platform for just about any situating.

For the experimenter, it is hard to go wrong, there are thousands of possibilities, from world wide digital HF communications with low power and low bandwith PSK31, to high speed computer controlled CW for VHF scatter of of meteor trails, air planes, the aurora, etc. There are many modes to experiment with, classic digital using RTTY, to SSTV & Fax. With a radio like this, your antenna projects for HF, VHF, & UHF will never end.

For those who want to rag chew beyond the range of the local repeater, you'll need to run SSB on VHF or HF. Tuning around the HF bands you'll hear many discussions between regional hams, and occasionally some not so regional, with the DC to daylight all mode rig, there is nothing stopping you from joining the discussion on the local 2 meter repeater.

Here is where the DX will be found. Weather it is on 6 meters with sporadic E, 2 meters via tropospheric ducting, or HF F layer propagation taking your signal half way around the world, a good HF/VHF/UHF radio is defiantly the choice for the new ham who really wants to work the world. This is true even if you haven't upgraded yet, because you know you will, and until you do, there is a lot to hear on the bands. Who knows, you might even decide you want to learn the code and work CW.

Summary

The sections above are essentially in the order of what what it will cost you to get on the air. The single band handheld will be the least expensive method to get on the air, but most limited, while the HF/VHF+ rig will require a larger budget, but offers possibilities to operate many aspects of amateur radio. With all radios, there will be extra expenses beyond the cost of the radio, with handhelds, you'll probably want an extra battery, and charger, and probably an aftermarket antenna. With everything else you'll need to add an antenna(s) and feedline, and power supply for fixed station use. Every ham should have at least a basic SWR meter and a multimeter to test their equipment, this is even more important when you are building your own antennas!

Appendix

Here I'll share some other thoughts I've had on this subject.

Thought 1

In my area, almost all, if not all local ARES & RACES activity is on two meters, making dual band rigs not very valuable for this purpose. Putting together a new shack with a dual band radio with power supply, feedline, & antenna, will run from around $400 (Icom IC-208H as example) to $550 (Yaesu FT-8800R as example). The same can be done for a 2 meter rig (using FT-1802M as example) for about $250, taking into consideration that it is a lot easier to make a good performing 2 meter antenna than a dual band antenna. For another $150 you could put a 2 meter radio in your vehicle with a simple 1/4 wave magnetic antenna, and for another $150 you could add a 2 meter handheld with an extra battery. I'm not anti-UHF, and this scenario might not work for everyone, but it is intended to give you some ideas on what you can do with your budget.

Thought 2

The most economical HF/VHF/UHF rigs are designed primarily for mobile use. While these can certainly be used for fixed stations, they aren't the best tool for the job, and many seasoned operators won't hesitate to tell you so. Don't let that stop you from buying one if it is within your budget. If you were recently licensed or upgraded, you want to get on the air, so any radio is better than no radio! As time passes you might find that the mobile rig is just fine for the way you operate your fixed station, or you may decided that it is time to invest in a full sized fixed station HF transceiver and move the mobile to the car for just that, mobile. You may even want to keep that rig in the shack as a backup, or in a go kit with some battery power for emergencies. If nothing else, they generally have decent resale value.

Thought 3

Used radios can be a great deal, or a nightmare. I wouldn't recommend a beginner to buy a radio that they haven't seen work first. While online classifieds and auctions might seem like good deals, you just can't be

sure. Hamfests and face to face meetings are the best way to buy. Turn it on, hit the local repeater, take a dummy load and watt meter to test the output of that HF rig, whatever you do don't spend a couple hundred dollars on something that is damaged beyond repair. Even better, take someone you trust with experience along, they may know via the grape vine that some radio models tend to develop specific problems, and how to spot those problems before you buy.

73 de N3PAQ