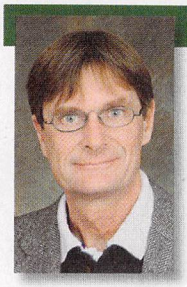

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Getting Started in Public Service — Part 1

Tips for taking your new license into the public service arena.

Here are some pointers to help you start off on the right foot as you take your first steps into Amateur Radio public service.

First Radio Basics

Most new hams begin their on-the-air activity on a local FM repeater. When considering your first radio, keep it simple by purchasing a basic handheld FM transceiver. Handheld radios can operate on one band or several. Most will be able to contact either 2 meter or 70 centimeter (144 or 440 MHz) machines (repeaters are often referred to as "machines"). Many areas have both 2 meter and 70 centimeter repeaters, so a dual-band radio is worth considering.

When researching your first handheld transceiver, talk to the hams you've met for their opinions, and also check *QST*'s "Product Review" column, which regularly features reviews of handheld transceivers. You can search for past reviews on specific radios on ARRL's website at **www.arrl.org/product-review**. Also, **www.arrl.org/what-rig-should-i-buy** has more information on buying radios in general. The ads found in any issue of *QST* will also be helpful.

Power output, battery packs, and optional antennas should be your first considerations. Another feature often mentioned are "memories" or "channels." These are used to store the frequencies you use often, and even today's inexpensive radios have plenty. Save the other bells and whistles for later, after you have garnered some basic operating experience.

Most handhelds generate 4 or 5 W of RF output. Many have outputs that are adjustable. This can be a useful feature. If you can maintain good communications at 1 W, you will significantly extend the life of your battery pack.

Most handheld transceivers come with a basic rechargeable battery pack and "wall wart" battery charger. Most have larger-capacity battery packs available for purchase. Some manufacturers also make desktop "drop-in" chargers that will charge your batteries faster (although faster charging rates tend to reduce the life of the battery). I recommend buying a second battery pack to use when you're charging your first battery, and as a backup for when you take your radio out to support an event. Some manufacturers also make an optional alkaline battery holder. The use of batteries for handheld and other types of radios was addressed in this column in the March 2015 issue of *QST*.[1]

When researching your first handheld transceiver, talk to the hams you've met for their opinions, and also check *QST*'s "Product Review" column.

Antennas

The flexible rubber antenna that comes with your handheld (often called a "rubber ducky"), while usable, is not very efficient. For enhancing your reception and transmitted signal, consider purchasing a telescoping ⅝ wavelength whip antenna. Such an antenna will give you higher gain (that is, it will output a stronger signal) to enable you to access more distant machines, and also "copy," — that is, reliably receive — more distant stations.

When purchasing a new antenna, make sure you check for connector compatibility with your radio. BNC or SMA style antenna connectors are most common. You'll need to purchase an antenna that matches your radio's connector, or purchase an appropriate adaptor.

Don't discard the flexible antenna that came with your handheld — it's suited for covering a small area, such as within and around a road rally checkpoint station. They're safer, too, when there are many people in a confined area, minimizing the risk of poking someone in the eye!

Power On

First, read the instruction manual — many manuals now come with a "Quick Start" chapter that will get you on the air quickly. The first thing you need to do is charge your battery. While it's charging, go through the manual and familiarize yourself with the controls. Basic operations that you'll want to learn right away include how to turn the radio on, how to adjust the volume, how to set the mode and frequency, and how to adjust the squelch and power output.

Once the battery is charged, turn on the radio. If you hear a hissing sound, the squelch is too low. The squelch sets the minimum signal level required to activate the receiver. Turn it up just enough to "quiet" the radio.

Arrange a contact with a local operator on simplex first to get accustomed to the radio. Set your radio to VFO mode, and tune it to a simplex frequency, such as 146.52 MHz. Set the power output to a low level, and push the PTT (push-to-talk) button keying on your transmitter.

After gaining experience with simplex operation, you will be ready to try repeater operation. Again, your local ham friend can help you make your first contact over a repeater. Most radios automatically incorporate the standard *offset* (the difference between the repeater's receiver and transmitter frequency for duplex operation). Many repeaters require a subaudible tone (known as the Continuous Tone Coded Squelch System, or CTCSS) to access them. CTCSS helps to reduce interference from distant stations operating on the same frequency, or to other incidental signals or noise that cause unintentional interference to the repeater. To program this tone, check your manual, under "repeater operations."

As you become more active on more frequencies and repeaters, it will be convenient to program them into your radio's "memory channels." Typically, you tune your VFO to the desired frequency, set the tone frequency, and push a "Memory Write" or "MW" key to save this information to a memory channel.

To find a local repeater, you can program your radio to "scan" the repeater subbands (for example, on 2 meters, repeaters are in the 145 – 148 MHz subband) to find one in use, or consult the *ARRL Repeater Directory*. An excellent tutorial on basic repeater operating can be found at **www.arrl.org/files/file/Technology/tis/info/pdf/repeater1.pdf**. Also, refer to the article "Analog FM Repeaters — an Overview," in the February 2015 issue of *QST*.[2]

Mobile Operation

Your new handheld is well-suited for mobile operation with the addition of an antenna on top of your vehicle's roof, which serves as a great ground plane.

The easiest way to start out is to purchase a magnetically-mounted ("mag mount") ⅝ wavelength whip antenna. You simply "stick" it on top of the roof, run the cable through an opening in a window (a piece of foam pipe insulation split lengthwise and put on the glass will protect the cable), and connect it to your radio. Again, you'll need to keep the compatibility of connectors in mind. Most mag-mount antennas come with a PL-259 connector, with most handhelds having a BNC or SMA connector. You will need an adaptor to get them to work together.

You can use your handheld's internal battery pack for power, but a better and more efficient source is your vehicle's battery. Purchase a dc power adaptor that can be connected directly to your car battery (or via the cigarette lighter socket). This arrangement will run your transceiver for many hours. (Remember, when operating stationary for long periods, run your car's engine periodically to maintain your car battery's charge.)

Finding Local Clubs and ARES Groups

Your key to learning about local activities, including on-the-air nets, meetings, and public service event opportunities, is to find a local ham radio club and/or Amateur Radio Emergency Service® (ARES®) group. ARES groups consist of licensed amateurs who register with their local ARES leadership for communications duty in the public service when disaster strikes. Every licensed amateur, regardless of membership in ARRL or any other local or national organization, is eligible to apply for membership in ARES. As your interest grows, various training programs will help you improve your public service abilities.

You can get involved with ARES by filling out a registration form at **www.arrl.org/files/file/ARESRegistrationForm9-15.pdf** and submitting it to your local Emergency Coordinator. To learn of ARES leaders in your area, check **www.arrl.org/sections**. Local ham radio clubs can be found by searching for them on **www.arrl.org/find-a-club**.

Your Local ARES Net

You can find a local ARES net, usually held on a repeater, by asking a ham friend or searching the online ARRL Net Directory. Go to **www.arrl.org/arrl-net-directory-search**, then select "Local Nets" and your state for a list of nets.

When you find one, listen at first (perhaps for several sessions) to get a feel for how the net is run. You will hear a net control station (NCS), who directs the net. The NCS will call for check-ins, or conduct a roll call. With stations checked in, the NCS may call for any emergency or priority messages and then make any announcements pertaining to ARES, such as the next meeting.

The NCS may then discuss plans for an upcoming event to be supported by ARES, and ask for volunteers. He or she may take questions and comments from the check-ins. Finally, the NCS will check to see if there is any further business for the net before closing it, and then will close it by thanking the repeater trustees for the use of the repeater and a brief description of the net's purpose for casual repeater users who might be listening.

Next month I'll discuss net and deployment procedures in more detail.

Notes

[1]R. Palm, K1CE, "Power to the Public Service Operator," *QST*, Mar 2015, pp 87 – 88.

[2]S. Sant Andrea, AG1YK, "Analog FM Repeaters — an Overview," *QST*, Feb 2015, pp 82 – 83.