

Battery Management for Portable Radios

An important key to success in providing public service and emergency communications using portable radios is having enough battery capacity to work for the entire operational period. If you run out of battery during your assigned shift, so you're not able to complete your assignment, the agency or organization you are helping will not be well served and you and your communications group may be embarrassed.

Here are some tips on battery management for portable radios.

1. Make sure your batteries are fully charged before the event. Some battery technologies, particularly nickel metal hydride (NiMH) and older nickel-cadmium (NiCD) batteries, have notoriously high self-discharge rates. So if it's been a while since you last charged the battery, even if you haven't used it, there's a pretty good chance it is not fully charged. Lithium-Ion and Lithium-Polymer batteries tend to have lower self-discharge rates.
2. Have spare fully-charged batteries or radios. A spare radio is nice to have in case your main radio fails, or is incorrectly programmed, etc., and obviously, it has a battery, so the spare radio may itself provide the spare capacity you may need. Spare batteries or radios are especially important in cold weather when batteries do not perform as well as they would at more moderate temperatures. If you can keep your batteries in a warm (but not hot) place while you are not using them at the event, that may improve their performance.
3. Some radio manufacturers offer a high-capacity battery pack for certain radios. These are often larger than the regular pack and some people find them inconvenient for daily use, but their form-factor may be suitable for a spare, occasionally-used pack, and they can offer a lot more operating time.
4. Some manufacturers provide battery holder packs which mechanically interface to the radio as would any other battery pack, but can accept AA-sized cells, which may be rechargeable or conventional non-rechargeable batteries. A battery holder populated with conventional alkaline batteries is a good choice for spare capacity because alkaline cells have a shelf life of several years, and are readily and inexpensively available at retail in a pinch. Some served agencies will even have a supply of them.
5. Another potential solution is a battery booster pack, which is typically a rechargeable battery in a portable case that interfaces to your radio via a cable, and can recharge the radio's main battery, power the device directly, or both. There are a lot of these commercially available for cell phones, cameras, video recorders, and the like. If you repurpose a commercial device that was not designed to work with your radio, make sure the device supplies the right voltage and polarity. I have seen homebrew designs that use sealed-lead-acid batteries intended for camcorders; those batteries were once readily available, though perhaps not any more.
6. If your assignment permits, you might consider bringing a separate charger to the event to allow you to charge a spent battery. The charger could work from your car's 12V or 120V power outlet, a building power socket, or the like. On a sunny day, a photo-voltaic (solar) cell might work, if it's big enough.