

Rescue Radio Package

Cost-Effective Radio System Suggestions for 'Prep'

UV5R or UV5R+

Click on picture for referral to Amazon for the product pictured.



1. BaoFeng UV5R radio ~\$40
 - a. Frequency Range: 136-174 (2 Meter HAM band) / 400-480MHz. (440 HAM band) Dual-Band Display, Dual Freq. Display, Dual-Standby
 - b. Output Power: 4 /1Watts. 128 Channels 50 CTCSS and 104 CDCSS. Built-in VOX Function. 1750Hz Burst Tone.
 - c. FM Commercial Radio reception (65.0MHz-108.0MHz). LED Flashlight. Large LCD Display. High /Low RF Power Switchable. 25KHz/12.5KHz Switchable
 - d. I'm cheap enough that I don't consider ~\$40 to be 'disposable' but I'm certainly not going to lose sleep over it. Compares favorable in features and specifications with Wouxoun (~\$100) and with more 'refined' radios such as Kenwood, Icom, and Yaesu. The comparable Yaesu (FT60R) will cost \$172 and Kenwood, Alinco, and Icom make similar radios for similar prices. There are completely waterproof radios made by Yaesu (can last 8 hours underwater!), but these cost about 10 times as much... On a SAR mission, if a BaoFeng radio is broken, dropped in water, or lost, it is significantly cheaper to replace. We simply include a couple of extra radios in our SAR go packs.
 - e. The manual is NOT user friendly. Much easier to program with CHIRP. We have printed out a cheat sheet for programming, for field use and have this laminated and in our go-pack. (It also has our pre-programmed frequencies listed by channel numbers.)
 - f. The **BaoFeng UV3R** (\$30) is able to be recharged by 5v USB power supply, is as programmable, and has substantially less power. It is also smaller. It now costs about the same as the UV5R, so I'm unsure of any advantages. Also programmable with CHIRP. We have a couple of UV3R radios...but now recommend the UV5R.



UV3R

2. Spare 5R battery ~\$15.
 - a. Extra power is good!
 - b. They make a 'high capacity' version that fits well but extends the radio by 2 inches.
3. 5R AA battery pack ~\$10
 - a. This is how you use your rechargeable batteries that your solar system is driving.
 - b. Don't use/get the AAA version – often not well made and way too underpowered.



4. USB Programming Cable for Baofeng UV-5R UV-3R+ Two way Radio With Driver CD ~\$10
- This is how you use CHIRP below.



5. CHIRP (available for both Windows and Mac) \$FREE
- CHIRP is a multipurpose radio cloning and programming software to be used with the USB programming cable. It's available for multiple operating systems and works well for Yaesu, Wouxoun, BaoFeng, and many other handheld radios.
 - This software can be used to program a number of radios to the same frequencies very rapidly. The frequencies can be set up so that you can listen and not transmit on some frequencies (we have NOAA weather programmed into the radios so that we can't possibly transmit on the weather frequencies.) Out of band frequencies for HAM bands can also be programmed in, but these would be illegal to use. Such frequencies include FRS/GMRS frequencies and local police and EMS frequencies. (Won't work for digital/trunked radios and encrypted radios). Remember that you don't need a HAM license to buy or use the radio as a receiver, but if you transmit, you need a license. FRS operation does not need a license, but this isn't a legal FRS radio because the antenna is removable, the radio hasn't been type certified, and radio is capable of a higher than legal power output. By FCC regulation, in a life-threatening emergency, a licensed ham can use any frequency, and any power to communicate to save the patient's life.
 - The CHIRP software can also be used to program different manufacturer's radios to the same frequency sets, too. (Our Wouxoun and UV3R radios are programmed to have the same frequencies on the same channel numbers so that ...say GMRS channel 9 reception is on channel number 69 for all that are capable. The Yeasus can be programmed, but aren't able to transmit out of band... unless you do some complex modifications.)
 - All appropriate frequencies should be pre-programmed and tested prior to deployment. (It's always a good idea to check commo before you deploy!)
6. BaoFeng BF-UV-5R 12V Car Charger ~\$10



- The BaoFeng radio uses a wall-wart power supply to a cradle that holds either radio and battery or battery alone. This connector allows you to connect the charging cradle to a 12 v power supply with the standard 12v DC cigarette lighter plug. You can use the radio and charge a battery at the same time, but you have to keep it in the cradle and connected to power to charge. It also allows you to charge your spare batteries from 12 volt power supplies.
 - There is also a 12 battery replacement. This is useful if you are going to have the radio on for a long time and have access to 12v power supplies, but does nothing to recharge the batteries for mobile use. We don't consider this as useful as the 12V car charger described above, for obvious reasons.
7. A list of local repeater stations for HAM use. One such can be found at: <http://www.repeaterbook.com/>. Repeaters can greatly extend the range of even a very small handheld to 70+ miles. Use of repeaters is limited to licensed hams and the directions for use are covered in almost every license course given for hams. We can't recommend these courses enough. Preprogram the local repeaters using CHIRP into the radio, together with appropriate offsets and CTSS frequency if required.

Optional items that could improve usefulness.

8. ExpertPower® 14.5" DUAL BAND 144/430Mhz U/V SMA-F Antenna For BAOFENG UV-5R WOUXUN KG-UVD1P by ExpertPower \$11.55
 - a. This improves reception/transmission of the little handheld considerably over the supplied small dual band antenna.
 - b. We each carry one of these in our go bags.



9. NAGOYA NA-701 8.5" DUAL BAND 144/430Mhz U/V SMA-F Antenna For BAOFENG UV-5R WOUXUN KG-UVD1P \$7.20
 - a. This improves reception/transmission of the little handheld considerably over the supplied small dual band antenna – but not as much as the longer antenna, of course.
 - b. We have this installed on our BaoFeng radios.



10. DHT Handheld Antenna Cable for Wouxun Baofeng Quasheng Linton - Adapter for UHF Base and Mobile Antennas - SMA... ~\$7.50
 - a. This allows you to connect to most antenna systems such as the J-pole antenna or mag-mount antenna described below.



11. J-Pole or similar antenna with appropriate connecting cables. You get significant additional range from these radios by using a better antenna and a higher elevation. There are multiple plans on the 'net for J-pole and similar roll-up antennas made from 2 wire TV reception flat cable and for dipole antennas. A bit of 550 nylon cord can haul a flat J-pole into the air and substantially improve the radio's performance. The antenna can be set up quickly and easily by hanging it out of a window, attaching it to a ceiling, or tossing a lead sinker over a tree branch with 550 cord and hoisting it up. Look at <http://www.kb3kai.com/j-pole> or similar web sites for pre-made. Multiple websites show plans for making these and it takes only about 1 hour to make them... We built a rapid deployment base station J-pole system from a bird-feeder pole and circular base that extends 15 feet into the air. Designs for much more complex (and more effective) antennas are also available, but these are beyond the scope of this list. 2 meters (lower frequency band for UV5R) has been used for earth-moon-earth (moonbounce) communications, but 5 watts is a bit lean on the power requirement for transmitting EME.
12. Magnetic mount external antenna. Again these can range from simple ¼ wave antennas to dual or triband antennas costing well over \$100. Even the simple ¼ wave antenna will substantially improve your reception/transmission when it is mounted on a metallic roof (functions as the ground plane for the antenna). One such antenna is: the Tram 1185 Dual band mag mount antenna for ~\$16

Tram Dual Band Antenna for Baofeng



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