

KNW-140

Choosing a Radio for Emergency Communications

Adapted and modified for the Gulf Coast area by Earl Pack – AE5PA. Base material from an 11/15/2008 article by “Disaster Radio in Hawaii”. Used with permission from Disaster Radio in Hawaii.

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This article offers criteria for choosing a radio for emergency communications. The most likely scenario for emergency communications is a ham radio operator stationed at a fixed site, such as a supply point, community shelter, or served agency location. The operator could be inside a building, possibly surrounded by other buildings, with or without commercial power. They will be in contact with a net control station, with luck via a repeater, otherwise via simplex. So, what equipment do you need?

A Radio with:

- A band to match net control; better yet a dual-bander
- Enough power to communicate via simplex, if need be
- A low power setting to conserve electrical power, such as a battery
- Continuous Tone-Coded Squelch System (CTCSS) capability to match the repeater, if need be
- Small enough to be easily transported by hand

A reasonable choice is a dual band mobile VHF/UHF 2M/70cm radio

A Power source

- If commercial power is available
 - An AC power supply
 - Preferably a switching power supply for light weight
 - A 25 or 50 feet extension cord (the outlet is always across the room)
 - A power strip (someone will always want the outlet and unplug you)
- If no commercial power
 - One or more batteries
 - Gel-cell batteries preferred to prevent spillage
 - Deep cycle batteries preferred to provide extended power
 - Enough amp-hour capacity to last several days
 - A power cord with connector to match the radio

An Antenna

- Quarter-wave or larger
- Vertical with minimum radials
- A good choice is a 1/2 or 5/8 wave mobile dual band vertical with a UHF connector base
- One or more mounts
 - Magnetic mount - attach to any steel surface, car, refrigerator top, file cabinet, steel beam, baking pan, etc.
 - L-shaped clamp - attach to railing or improvised mast (stick, light pole, etc.)
- Coax - at least 50 feet, 100 feet better, RG8 for low loss, RG8X as best compromise for weight and bulk
- PL259 connectors on coax

- SO239 barrels to interconnect coaxes

Miscellaneous

- Headphones with full ear muffs - it can get extremely noisy in an operational area.
- Other usual supplies for operations, from your 72-hour kit (you DO have one, don't you?)

Notes and suggestions:

- Standardize all power connectors on your equipment to Anderson Powerpoles.
- Standardize on PL259/SO239 connections for radio, antennas and antenna mounts
- If you use an NMO mount on your car, get an NMO-UHF adapter so you can replace the car antenna with the one described above.
- Make a 10 feet power cord with a standard power connector on one end and big clamp on the other, in case you need to draw power from a "commandeered" car battery.

Notes on HandiTalkies:

- Get an alkaline cell adapter for your HT and lots of AA cell batteries
- Make / buy a power cord for the HT with a standard power connector at least 6 feet long (12 feet better) for battery use.
- Get an adapter for your HT antenna connection - from BNC or SMA to UHF-SO239.
- Get an amplifier (called a "brick") to boost the 3-5 watts of the HT to 35-50 watts.
- Ensure the amplifier has standard power connectors.
- Ensure you have a cable to connect the HT to the amplifier.
- A dual band amplifier has obvious advantages, but it costs more.

Final comment for mobile radio users

In an emergency, can you detach your mobile radio from your car and move it into a building in a reasonably short period of time?

- Do you have the appropriate tools in the car to detach the radio?
- Do you have an appropriate power cord to operate from either an AC power supply or 12 VDC battery away from the car?
- Do you have coax and an antenna to operate away from the car?

Test out your capability and time yourself. Especially if you have a remote head mount in the car. Can you re-assemble the radio quickly in the building ready for operation? This is the time to find out, not during the real emergency.