



## Wildfire Communications Advisory

As the western United States continues to face challenging wildfire seasons, affected communities may seek information about emergency situations from official sources, such as federal and state agencies, and from unofficial sources, such as family, friends, and local community leaders.

For some communities, informal, ad-hoc communications networks can play an important role in disseminating real-time information concerning the location, severity, size, and trajectory of fires and other emergencies. Such networks can be useful when [traditional communications methods are not available](#).<sup>1</sup>

The Federal Communications Commission is committed to ensuring that affected communities can leverage communications services during such emergencies in order to save lives and protect property. The Commission encourages those in historically fire-affected areas to consider pre-fire communication planning to maximize opportunities for the public to receive and disseminate the vital information they need. Such planning should take into account that wildfires can cause damage to wireline and mobile communications systems, making it difficult for individuals to communicate with family, friends, and community members about fast-changing fire conditions or to contact emergency services.

In addition, pre-planning should be coordinated with public safety officials and emergency managers to balance the information goals of the public with official efforts to reduce fire losses.<sup>2</sup> Appropriate preparation is vital to ensure that individuals have the necessary equipment and knowledge to keep themselves safe and to request or provide aid when an emergency occurs without interfering with or impeding important public safety communication efforts during a disaster.

Below, the Commission provides additional information about communications services available to affected communities during a disaster, including options for ad-hoc networks. When home phones and cell phones are not working because of fire damage to the networks, these options may be used to communicate with family, neighbors, friends, and others to share information or obtain assistance in an emergency.

Some of these solutions are readily available through common retail outlets. Other solutions may involve obtaining licenses for higher-powered, longer-distance services, such as the Amateur Radio Service. It is important, however, that users know that most of these services may not be used to call 911.

**Handheld Devices.** Affected individuals can use mobile units that provide short-distance communications, including handheld devices that are similar to walkie-talkies.<sup>3</sup> These services are easy to acquire and do not require individual licenses from the Commission. They include:

- **CB Radios.** The CB Radio Service provides voice communications with other CB radio users and can be used to communicate over distances of up to approximately five miles but can reach greater distances depending upon the terrain. Further, in certain states, police monitor CB channel 9 and other communities of users monitor other channels (e.g., CB channel 19) for road information. While commonly associated with truck drivers, CB radios may be used by all consumers. CB equipment is readily available at electronics stores and online marketplaces, and equipment costs start at approximately \$50 for CB radios, with more expensive models offering additional features.
- **Family Radio Service and Multi-Use Radio Service.** The Family Radio Service (FRS) and Multi-Use Radio Service (MURS) allow for two-way voice and limited data capabilities with those who have the requisite equipment. FRS handhelds can be used to communicate over a range of approximately one mile but can reach up to three miles depending upon terrain. MURS equipment has a range of less than a few miles but can extend to 10 miles or more with an external antenna. FRS and MURS equipment are readily available at

electronics stores and online marketplaces.<sup>4</sup> Equipment costs start at \$15 for FRS handheld units and \$30 for MURS equipment, with more expensive models offering additional features.

**Individually Licensed Solutions.** The Commission also issues licenses to individuals to operate systems with more functionality for communicating over longer distances.<sup>5</sup>

- **General Mobile Radio Service.** The General Mobile Radio Service (GMRS) is similar to, but allows for higher power and more complex systems than, CB radio, FRS, and MURS and, therefore, requires licenses.<sup>6</sup> GMRS can be used for two-way voice and limited data from one to five miles depending upon the equipment used, but repeaters are allowed in this service which can extend communications to approximately 20 miles. Licenses are granted to individual users, through the Commission's Universal Licensing System (ULS),<sup>7</sup> for a ten-year term. While licenses are granted to individuals, immediate family members may also use the system and others may use the licensee's system to communicate during an emergency.<sup>8</sup> The application fee is \$70, and equipment, which is available at electronics stores and online, can range from \$30 for handheld units to \$200 or more for higher-power mobile units and repeater systems.<sup>9</sup>
- **Amateur Radio Service.** The Amateur Radio Service, commonly known as "Ham Radio," provides for higher-powered operations on a wide range of frequency bands for qualified licensees that have passed an examination. Amateur equipment provides two-way voice and data capabilities over both short and long distances. Licenses can be acquired through ULS after users have demonstrated the necessary skill and knowledge to a volunteer examiner (in order to meet the requirements of one of the three classes of operator licenses). People interested in the Amateur Radio Service can find information about preparing for and scheduling the exam, which can be done in person or online, on the FCC Amateur Radio Service website.<sup>10</sup> There currently is no fee to apply for an amateur license.<sup>11</sup> However, volunteer examiners may charge a nominal fee for out-of-pocket expenses incurred in preparing, processing, administering, or coordinating the exam session. These fees generally range from free to \$30. Amateur radios range in cost depending upon their capability. Handheld units can cost \$50 to \$200 and more complex systems that operate across many frequency bands can cost into the thousands.

All of these solutions help enable communications during emergencies, but CB Radios, FRS, MURS, and GMRS cannot be used to contact 911 directly. Some Amateur Radio Service devices with certain functionality can be used to contact 911 via other amateur stations that remain connected to the traditional telephone network (e.g., via base or fixed stations).

The Commission notes that individuals who wish to transmit emergency communications during disasters using the General Mobile Radio Service or the Amateur Radio Service need to have the appropriate license and, in the case of the Amateur Radio Service, also have the proper training. More than 838,000 people currently hold FCC-issued Amateur Radio Service licenses, and licensed amateurs have a long history of establishing life-saving communications during emergencies, including on September 11, 2001, during Hurricane Katrina, and for recent wildfires. Because amateur equipment allows for higher power and operates on many frequencies, operators must possess a thorough knowledge of the radio art or they can potentially interfere with cellular networks, Wi-Fi networks, public safety and military communications, and more. Therefore, the Commission emphasizes that transmitting without a license or in violation of FCC rules is a serious matter.<sup>12</sup>

**Satellite Services.** People in wildfire-prone areas can also use a variety of satellite services to contact family, friends, and emergency personnel. While these services bypass local communications infrastructure and can generally be used anywhere, satellite signals can be interrupted due to terrain and certain weather events. Satellite providers offer various voice and data services, including satellite phones that can be used to call anyone, including 911. Satellite calls are routed through a call center. Satellite offerings also include broadband internet and light-weight data devices that provide emergency signaling capabilities, along with other features such as GPS and text messaging. Individuals need to subscribe to these services and may acquire the necessary equipment at electronics stores and online marketplaces. Certain light-weight data devices can also be purchased at outdoor-oriented and sporting goods retailers.

All of these services operate independent of wireless and landline systems, so they provide alternatives if your mobile or home phone is out of service because of fire damage to wireline or wireless facilities (e.g., fiber, cell

towers, antenna, and power supplies). These options have varying capabilities, regulatory requirements, and price points, so consumers are able to pick a service that works best for them. The FCC understands the serious risk that wildfires pose and works to support those affected by assisting communications providers as much as possible during such events.

For more information on how to prepare for wildfires or other emergencies, visit the FCC Emergency Communications Tips website at <https://www.fcc.gov/emergency> or the FEMA website at <https://www.ready.gov/wildfires>.

## Consumer Help Center

For more information on consumer issues, visit the FCC's Consumer Help Center at [www.fcc.gov/consumers](http://www.fcc.gov/consumers).

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<sup>1</sup> <https://www.ready.gov/get-tech-ready>

<sup>2</sup> For example, consumers should communicate with state and local emergency management agencies to become familiar with frequencies and radio channels that may be available for consumer use during emergencies. Consumers can pre-program those frequencies and channels in alternative communications equipment that can be used in place of 911 services when conventional communications are not available.

<sup>3</sup> Personal Radio Services, <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/personal-radio-services>.

<sup>4</sup> While CB and FRS radios may be available at electronics stores, MURS radios are more likely to be available mostly at radio shops. More complex and expensive equipment is likely to be located at radio specialty shops.

<sup>5</sup> Users must be aware that operating a radio that requires a license without receiving one from the Commission may result in enforcement action and can result in fines, imprisonment, and/or equipment confiscation. Additionally, all the equipment must be certified by the FCC. Users can identify certified equipment by the physical or electronic label on the unit.

<sup>6</sup> GMRS allows for portable, mobile, base/fixed, and repeater stations; CB radio and MURS allow for portable, mobile, and base/fixed stations; and FRS is only permitted portable stations.

<sup>7</sup> FCC, Universal Licensing System, <https://www.fcc.gov/wireless/universal-licensing-system>.

<sup>8</sup> 47 C.F.R. § 95.1705.

<sup>9</sup> The equipment for more complex GMRS systems is most likely found at radio shops and can run into the thousands of dollars.

<sup>10</sup> FCC, Amateur Radio Service, <https://www.fcc.gov/amateur-radio-service>.

<sup>11</sup> Federal law will require a small fee for amateur licenses in the future.

<sup>12</sup> We note that FCC rules contain guidance about use of the Amateur Radio Service in emergency situations. Pursuant to Section 97.403, an amateur station may use "any means of radiocommunication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available." 47 C.F.R. § 97.403. In addition, Section 97.405 clarifies that "[n]o provision of these rules prevents the use by any amateur station in distress of any means at its disposal to attract attention, make known its condition and location, and obtain assistance." These rules clarify that when normal communications are not available and the immediate safety of human life or protection of property is involved, amateur licensees may use any method of communication to communicate and resolve the emergency. For example, an amateur licensee may need to operate outside of their licensee class to use higher class privileges in response to certain emergencies. However, these provisions do not address use by persons without an amateur license.

