



PUBLIC NOTICE

Federal Communications Commission
45 L Street NE
Washington, DC 20554

News Media Information 202-418-0500
Internet: www.fcc.gov
TTY: 888-835-5322

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PUBLIC SAFETY AND HOMELAND SECURITY BUREAU SEEKS PARTNERS TO TEST EXPANSION OF COVERAGE FOR WIRELESS EMERGENCY ALERTS WHEN CELL SITES ARE DOWN, INCLUDING THROUGH THE USE OF SATELLITE

PS Docket No. 22-160

Filing Date: December 18, 2023

Through this Public Notice, the Public Safety and Homeland Security Bureau (PSHSB) seeks to assess how we might leverage complementary technologies to help fill in wireless coverage gaps and promote continuity of Wireless Emergency Alerts (WEA) during disasters. WEAs provide alerts and warnings directly to people's mobile devices, making them an integral part of our nation's emergency preparedness and response infrastructure.¹ WEAs can provide immediate, life-saving information when a mobile device user is in harm's way.² The utility of this critical tool, however, can be significantly reduced or eliminated when the infrastructure needed to deliver WEAs, such as cell towers, is damaged or disabled due to disaster circumstances. The loss of cell towers creates "dead spots" in cell phone coverage, potentially depriving people from receiving timely and potentially lifesaving warnings.³ Most recently, wildfires in Maui, Hawai'i, disabled and destroyed numerous cell towers.⁴ The need for additional coverage options to help ensure continuity of WEA messages is becoming more pressing as the

¹ *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, Further Notice of Proposed Rulemaking, FCC 22-30, 2023 WL 3152054, at *1 (Apr. 21, 2023) (*WEA Presentation and Performance NPRM*); Heather Kelly, *How to never miss an emergency alert from shootings to wildfires*, Washington Post, (Feb. 11, 2022) <https://www.washingtonpost.com/technology/2022/02/11/emergency-alerts-smartphones/> ("[O]ur phones have also made speedy emergency warnings the norm, whether they're about an active shooter, wildfire, chemical spill, or abducted child.").

² Federal Emergency Management Agency, *Wireless Emergency Alerts*, <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public/wireless-emergency-alerts> (last visited Sep. 1, 2023).

³ Ray Sanchez, *Hawaii has a robust emergency siren warning system. It sat silent during the deadly wildfires*, CNN, (Aug. 13, 2023) <https://www.cnn.com/2023/08/12/us/hawaii-emergency-warning-system-maui-wildfires/index.html> ("Unfortunately these days the alerts come on our cell phones. But we also know that there was no cell phone coverage." While Maui's warning sirens were not activated, emergency communications with residents were largely limited to mobile phones and broadcasters at a time when most power and cell service was already cut."); Christina Jedra, *Maui Emergency Chief Defends Decision Not To Activate Warning Sirens*, Honolulu Civil Beat, (Aug. 16, 2023) <https://www.civilbeat.org/2023/08/maui-emergency-chief-defends-decision-not-to-activate-warning-sirens/> ("At least some residents received cellphone notifications to evacuate after 4 p.m., according to the New York Times, but many did not. Electrical power and cell service was down in much of the area last Tuesday when the first sparked and spread.").

⁴ "The total number of cell sites serving Kapalua, Napili-Honokowai, Kaanapali, Lahaina, Launiupoko, and Olowalu is 21. As of 8/12/23 at 6:00 a.m. (EDT) all are out of service." The Communications Status Report for Areas Impacted by Hawaii Wildfires (Aug. 12, 2023) <https://www.fcc.gov/HawaiiWildfires>.

number of wildfires and the areas susceptible to them appear to be increasing.⁵ One study estimated that “one in four people in the United States lives in an area serviced by cellular towers at risk of an outage caused by wildfires.”⁶ In addition, other natural or man-made disasters may similarly have widespread impacts on terrestrial cell infrastructure, limiting the ability of emergency response officials to use WEA in instances when it is arguably needed most.⁷

PSHSB seeks to partner with any entities that have a technology, method, or other solution for delivering a WEA to a mobile device when the device is not connected to a functioning cell tower. PSHSB anticipates starting such testing in the second quarter of 2024. PSHSB seeks to assess the viability of alternative delivery methods that could be used to replace inoperable cell phone infrastructure, for the purposes of ensuring the continuity of WEA availability during an emergency. Further, PSHSB seeks to understand whether such technology can be implemented with mobile devices currently being used by the general public.⁸ We anticipate this might include satellite technologies or High Altitude Platform Systems (HAPS), e.g. using balloons or unmanned aircraft systems (UAS), but further recognize

⁵ Maddie Stone, *Wildfires Are Burning Up Cell Towers and Leaving Responders in the Dark*, Medium, (Oct. 9, 2020) <https://futurehuman.medium.com/wildfires-are-burning-up-cell-towers-and-leaving-responders-in-the-dark-e1238c2e8ad0> (“With millions of Americans now relying exclusively on their cellphones to make 911 calls, receive emergency alerts, and stay connected during disasters wireless carriers and emergency managers on the front lines of the West’s burgeoning fire crisis are discovering that cellular infrastructure is alarmingly vulnerable.”); Carly Severn, *During a Wildfire, Your Phone Might Stop Working. How Can You Communicate?*, KQED, (Sep. 29, 2020) <https://www.kqed.org/news/11840047/during-a-disaster-your-phone-might-stop-working-how-can-you-communicate> (“Cellphone service can be reduced or vanish altogether during emergencies, as cell towers go down amid power shutoffs, or when overhead fiber lines on utility poles are damaged by fire itself. Service interruptions like these ... prevent [people] from receiving the very emergency alerts they’re relying on for evacuation updates.”); Leila Miller, Rong-Gong Lin II, *California suffered widespread cellphone outages during fires. A big earthquake would be much worse*, (Nov 5, 2019) <https://www.latimes.com/california/story/2019-11-05/mass-cellphone-outages-during-blackouts-and-fires-are-a-grim-preview-of-life-after-a-major-earthquake> (Reporting 57% of Marin County’s cellphone tower sites were out of service during a fire.); Mallory Moench, *California wildfires: Cell companies can’t promise indefinite service*, San Francisco Chronicle, (Sep. 24, 2019), <https://www.sfchronicle.com/business/article/California-wildfires-Cell-companies-can-t-14464734.php> (“During the Camp Fire, ‘we lost 17 cell towers,’ said Cindi Dunsmoor, emergency services officer for Butte County, triggering a communication problem.”).

⁶ Chris Barncard, *Cellular networks vulnerable to wildfires across U.S.*, University of Wisconsin-Madison News, (Oct. 27, 2020), <https://news.wisc.edu/cellular-networks-vulnerable-to-wildfires-across-u-s/>; see also Christopher Flavelle, Nadja Popovich, *Here Are the Wildfire Risks to Homes Across the Lower 48 States*, NY Times, (May 16, 2022) <https://www.nytimes.com/interactive/2022/05/16/climate/wildfire-risk-map-properties.html>. (Finding that half of all addresses in the lower 48 states face some degree of wildfire risk and that “[i]n some rural states, including Wyoming and Montana, more than 90 percent of properties already face some risk.”).

⁷ For example, after Hurricane Maria struck Puerto Rico and the United States Virgin Islands, 95.2% and 76.6%, respectively, of cells were knocked out of service. Communications Status Report for Areas Impacted by Hurricane Maria at 3-4, (Sept. 21, 2017) <https://docs.fcc.gov/public/attachments/DOC-346840A1.pdf>. Outages from hurricanes “highlight the vulnerability of cellular networks at a time when hurricanes are intensifying and more people than ever rely on cellphones to communicate and receive emergency notices.” Thomas Frank, *Cell Phone Service Must Be Restored Quicker after Hurricanes; Officials pressure wireless companies so first responders and residents can communicate and save lives*, Scientific American, (Oct. 8 2019). <https://www.scientificamerican.com/article/cell-phone-service-must-be-restored-quicker-after-hurricanes/>.

⁸ We note that the Commission is currently considering the use of satellites transmitting on terrestrial frequencies to provide supplemental coverage from space (SCS). *Single Network Future Supplemental Coverage from Space, Space Innovations*, GN Docket No. 23-65, IB Docket No. 22-271, Notice of Proposed Rulemaking, FCC 23-22 (Mar. 17, 2023). In that NPRM, the Commission sought comment on the use of this technology to provide WEA. In the event test partners use high-altitude transmissions on terrestrial frequencies, the results of those tests will be entered in the record of GN Docket No. 23-65 and IB Docket No. 22-271 to inform any further action(s) in those dockets.

that communication technologies designed to enable device-to-device (D2D) communication or other technology innovations may also offer a possible way to deliver WEA alert messages when cell towers have been rendered inoperable.⁹

Interested parties should submit a detailed description of their technology/solution and how it might be used to supplement WEA coverage when cell service is down. The description should include how the technology/solution would work with or supplement a Participating Commercial Mobile Service (CMS) Provider's provisioning of WEA, including how the technology would receive the WEA from the Federal Emergency Management Agency's Integrated Public Alert and Warning System (IPAWS). Would the technology/solution work with mobile devices currently being used by consumers, or would specialized devices be required? Could the proposed technology/solution deliver the test alert message outside of the intended target area and, if so, how might this geographic overshoot be mitigated or limited?¹⁰ Could the technology/solution cause co-channel or adjacent channel interference, and how would this be addressed? For example, we expect that certain satellite technologies or HAPS, e.g. using balloons or UAS, may be tested in a remote environment to reduce the need for coordination and the potential for interference.¹¹ Are there any other test conditions or variables that should be controlled to conduct the test more efficiently? Interested parties should describe relevant test parameters, including how and what data might be collected and provided to PSHSB for analysis, whether any special temporary authorization or other authority might be required in connection with the proposed test, and the extent to which any assistance from PSHSB would be necessary to complete the test.¹²

PSHSB will review all submissions filed in response to this request. PSHSB intends to partner with as many providers as practical to test solutions that seem technically feasible and capable of implementation without introducing significant costs or burdens to consumers, e.g., not requiring major changes to the current WEA delivery system or requiring consumers to purchase new devices. The selection process may require PSHSB staff to request additional information from any party that submits a response to this Public Notice, and parties should be prepared to apply for and obtain any necessary authority (e.g., Special Temporary Authority (STAs), experimental licenses, etc.) prior to any actual testing.

Filing Requirements. Interested parties should submit expressions of interest within 60 days of publication of this Public Notice. Submissions may be made in any format, and may contain any additional information that may be relevant to our consideration of potential partner(s). Expressions of interest may be filed using the Commission's Electronic Comment Filing System (ECFS).¹³ All

⁹ See e.g., Donny Jackson, *LTE ProSe direct-mode communications works with limited range, Samsung official says*, Urgent Communications, (Sep. 2, 2020) <https://urgentcomm.com/2020/09/02/lte-prose-direct-mode-communications-works-with-limited-range-samsung-official-says/>.

¹⁰ If a Participating CMS Provider's infrastructure is technically capable, a "Participating CMS Provider must deliver any Alert Message that is specified by a circle or polygon to an area that matches the specified circle or polygon. A Participating CMS Provider is considered to have matched the target area when they deliver an Alert Message to 100 percent of the target area with no more than 0.1 of a mile overshoot." 47 CFR §10.450(a).

¹¹ In particular, interested parties whose technologies/solutions involve novel uses of spectrum may wish to test in remote areas far from international borders in order to minimize international coordination issues.

¹² For the 2022 WEA test, PSHSB enlisted emergency management agencies to solicit, organize, and train volunteers to respond to an online survey created by PSHSB, as well as issue the WEA test alert message. PSHSB then collected and analyzed the data. If needed, PSHSB may ask local emergency management agencies to issue a test message, and also provide volunteers who can be used to conduct a test. See *Public Safety and Homeland Security Bureau Seeks Partners to Help with WEA Performance Testing*, Public Notice, DA 22-445, 2022 WL 1238359, (PSHSB, Apr. 21, 2022).

¹³ See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

expressions of interest must reference PS Docket No. 22-160.¹⁴

- Electronic Filers: Expressions of interest may be filed electronically using the Internet by accessing the ECFS: <https://www.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.
- Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, NE Washington DC 20554.¹⁵
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19. *See FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, DA 20-304 (March 19, 2020), <https://www.fcc.gov/document/fcc-closes-headquarters-open-window-and-changes-hand-delivery-policy>. After COVID-19 restrictions are lifted, the Commission has established that hand-carried documents are to be filed at the Commission's office located at 9050 Junction Drive, Annapolis Junction, MD 20701. This will be the only location where hand-carried paper filings for the Commission will be accepted.¹⁶

To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice).

Confidentiality. PSHSB recognizes that some submissions could contain information that the filer believes should not be made available to the general public because of commercial or national security reasons. Parties may request that such information be kept confidential, identifying the specific information sought to be kept confidential, providing the reasons for the request, and otherwise following the procedures set forth in section 0.459 of our rules.¹⁷ If a party requests confidential treatment of a submission, it should contact Commission staff, David Kirschner, Cybersecurity and Communications Reliability Division, Public Safety and Homeland Security Bureau, (202) 418-0695, or by email to david.kirschner@fcc.gov, to arrange delivery of the confidential version. It must also submit a public version of the filing that omits only the confidential information and is otherwise identical to the confidential version, using either the electronic filing or the filing-by-paper procedures above.

Exemption. This Public Notice also provides a limited exemption from our *ex parte* rules pursuant to section 1.1200(a).¹⁸ The exemption is limited to communications between PSHSB staff and interested parties that may partner with PSHSB to conduct these tests. The purpose of the exemption is to facilitate the identification of test partners and the development of test parameters. To the extent the Commission relies on new factual information obtained through such communications in any proceeding, the information will be disclosed by the Commission no later than at the time of release of the

¹⁴ *Id.*

¹⁵ *FCC Announces Change in Headquarters Location*, Public Notice, 35 FCC Rcd 11534 (OMD 2020); *Amendment of the Commission's Rules of Practice and Procedure*, Order, 35 FCC Rcd 7867 (OMD 2020), 85 Fed. Reg. 64404 (Oct. 13, 2020).

¹⁶ *See Amendment of the Commission's Rules of Practice and Procedure*, Order, 35 FCC Rcd 5450 (OMD 2020).

¹⁷ 47 CFR § 0.459.

¹⁸ 47 CFR § 1.1200(a).

Commission's decision.

Additional Information. For further information regarding this Public Notice, please contact David Kirschner, Cybersecurity and Communications Reliability Division, Public Safety and Homeland Security Bureau, (202) 418-0695, or by email to david.kirschner@fcc.gov.