

# Report: October 4, 2023 Nationwide Emergency Alert Test

June 2024



WIRELESS  
EMERGENCY  
ALERTS



Public Safety  
and Homeland  
Security Bureau

Federal Communications Commission • 45 L St. NE • Washington, DC 20554

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## I. SUMMARY

The Integrated Public Alert and Warning System (IPAWS) Modernization Act requires the Federal Emergency Management Agency’s (FEMA’s) IPAWS Program Management Office to conduct tests of the public alert and warning system.<sup>1</sup> On October 4, 2023, FEMA, in coordination with the Federal Communications Commission (Commission or FCC), conducted nationwide tests of Wireless Emergency Alerts (WEA) and the Emergency Alert System (EAS).<sup>2</sup> The purpose of these tests was to ensure that WEA and EAS “continue to be effective means of warning the public about emergencies, particularly on the national level.”<sup>3</sup>

The following report presents the Public Safety and Homeland Security Bureau’s (PSHSB) analysis of how the EAS and WEA performed during the nationwide test, based on the information we have available.<sup>4</sup>

### **WEA Performance**

Based on stakeholders’ survey data shared with the Commission, most respondents reported successful receipt of the WEA test message.<sup>5</sup> The test also highlighted areas where WEA delivery can be improved, such as ensuring more consistent delivery and resolving issues concerning alert message audio tone and vibration cadence.

### **EAS Performance**

The nationwide test demonstrated that the large majority of EAS Participants – radio and television stations, cable television systems, direct broadcast satellite (DBS), Satellite Digital Audio Radio Service (SDARS), digital audio broadcasting systems, and wireline video systems<sup>6</sup> – reported successful receipt and retransmission of the nationwide test. The test demonstrated that the national EAS distribution architecture is largely effective as designed. As anticipated, the test also shed light on

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<sup>1</sup> Integrated Public Alert and Warning System Modernization Act of 2015, Pub. Law No. 114-143, 130 Stat 327 (2016).

<sup>2</sup> *Public Safety and Homeland Security Bureau Announces Nationwide Tests of the Emergency Alert System (EAS) and Wireless Emergency Alerts (WEA) on October 4, 2023*, PS Docket Nos. 15-91, 15-94, Public Notice, DA 23-653, <https://www.fcc.gov/document/fcc-announces-nationwide-emergency-alerting-tests-october-4-2023> (PSHSB Aug. 3, 2023) (*Nationwide Test PN*).

<sup>3</sup> FEMA, *FEMA and FCC Plan Nationwide Emergency Alert Test for Oct. 4, 2023*, (Aug. 3, 2023), <https://www.fema.gov/press-release/20230803/fema-and-fcc-plan-nationwide-emergency-alert-test-oct-4-2023#:~:text=The%20purpose%20of%20the%20Oct,In%20case%20the%20Oct> (*FEMA Press Release*).

<sup>4</sup> FEMA partnered with the RAND Corporation to collect over 80,000 responses from the public. This effort included working with Georgia Tech’s Center for Advanced Communications Policy, which “assembled a nationwide panel of about 10,000 people with disabilities to learn more about whether they received the test, in what format, and their location, among other things, to better understand access challenges.” See Georgia Tech, School of Public Policy, Ivan Allen College of Liberal Arts, *Georgia Tech Researches Studying National Wireless Alert Test to Improve Access* (Sept. 28, 2023), <https://spp.gatech.edu/news/item/670023/georgia-tech-researchers-studying-national-wireless-alert-test-improve> (Ga. Tech Article). The final data collected by FEMA and the Rand Corporation has not been shared publicly or with the Commission and, as such, is not included in this analysis.

<sup>5</sup> New York City Emergency Management; 2023 National WEA Test Results: Wednesday, October 4<sup>th</sup>, 2023: Feedback Survey Administered by New York City Emergency Management; at 3 (2024), <https://www.fcc.gov/ecfs/document/1117723520375/1> (NYCEM Report).

<sup>6</sup> See 47 CFR § 11.11(a).

operational readiness failures that prevented some EAS Participants to receive and/or retransmit the test alert. The overall results of the 2023 nationwide EAS test, based upon data collected from the FCC’s EAS Test Reporting System (ETRS) and outreach to FEMA and State Emergency Communication Committee (SECC) representatives, demonstrate the following:

- The test message was received by 96.6% of EAS Participants (increase from 89.3% in 2021). The overall retransmission success rate was 93.6% (increase from 87.1% in 2021). This significant improvement is likely due to initiation of the 2023 test alert via Common Alerting Protocol (CAP), which introduced additional resiliency that was not available during the over-the-air-only 2021 nationwide test.
- While test participants reported less than one-third as many performance complications as compared to 2021, more test participants reported equipment configuration issues and equipment failures.
- At the time of the test, approximately 23% of EAS equipment units representing over 4,500 EAS Participants, were either using outdated software or were using equipment that no longer supported regular software updates. Test results demonstrated that fully up-to-date equipment had the highest receipt and retransmission rates (97% and 95%, respectively), whereas equipment with software that is no longer supported had the lowest receipt and retransmission rates (90% and 85%, respectively).
- Five of the six poorest-performing geographic regions were territories of the United States. These territories were the Northern Mariana Islands (20.0% retransmission success), Guam (33.3% retransmission success), American Samoa (66.7% retransmission success), the U.S. Virgin Islands (88.9% retransmission success), and Puerto Rico (89.7% retransmission success).

Based on these results, PSHSB recommends that the Commission adopt rules to improve the operational readiness of EAS Participants and Participating CMS Providers, as well as ensure that EAS Participants are installing software updates in a timely manner and have plans for replacing equipment that is no longer supported by the manufacturer. PSHSB also recommends actions that EAS Participants and Participating Commercial Mobile Service Providers should take to improve the reliability and reach of WEA and the EAS, including in the territories of the United States. PSHSB also recommends that Congress require all CMS Providers to support WEA.

## **II. BACKGROUND**

WEA and EAS are invaluable communications alerting tools. They provide the President with a means to address the American public during times of national emergency. They also provide authorized federal, state, and local alert originators an effective means to transmit local and/or statewide emergency alerts,<sup>7</sup> such as severe weather alerts and America’s Missing: Broadcast Emergency Response (AMBER) Alerts.<sup>8</sup> The Commission, in conjunction with FEMA, implements WEA and EAS at the federal level.

*Wireless Emergency Alerts.* WEA is a tool for authorized federal, state, local, Tribal and

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<sup>7</sup> The term “alert originator” refers to a federal, state, territorial, tribal, or local entity authorized by FEMA to use IPAWS to issue critical public alerts and warnings in emergency situations. See FEMA, *Alerting Authorities*, <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public-safety-officials/alerting-authorities/agencies-organizations> (last updated Oct. 31, 2023).

<sup>8</sup> The AMBER program is a nationwide alerting program designed to help bring missing children to safety. See Office of Justice Programs, *AMBERAlert.gov*, <http://www.amberalert.gov/about.htm> (last visited Jan. 3, 2024).

territorial government entities to geographically target alerts and warnings to the WEA-capable mobile devices of participating commercial mobile service providers' subscribers.<sup>9</sup> The Warning Alert and Response Network (WARN) Act<sup>10</sup> establishes WEA as a voluntary system in which commercial mobile service (CMS) Providers may elect to participate and gives the Commission authority to adopt "relevant technical standards, protocols, procedures and other technical requirements necessary to enable commercial mobile service alerting capability for commercial mobile service providers that voluntarily elect to transmit emergency alerts."<sup>11</sup> While participation by wireless providers is voluntary, those commercial mobile service providers that choose to offer the service (Participating CMS Providers) must adhere to the technical and operational requirements established by the Commission.<sup>12</sup> For example, the Commission's rules require Participating CMS Providers to receive and transmit four classes of Alert Messages: National Alert (formerly known as a "Presidential Alert"); Imminent Threat Alert; Child Abduction Emergency/AMBER Alert; and Public Safety Message.<sup>13</sup> The Commission's rules also require that National Alerts must always be presented,<sup>14</sup> by WEA-capable mobile devices, i.e., unlike the other three classes of alerts, which mobile devices can be opted out of receiving.<sup>15</sup>

Since its launch in 2012, WEA has been used to issue more than 86,000 emergency alerts, including severe weather warnings, evacuate and shelter-in-place alerts, and AMBER alerts.<sup>16</sup> More information about WEA can be found in the Appendix to this report.

*Emergency Alert System.* The Commission's rules require EAS Participants to have the capability to receive and transmit a National Emergency Message (EAN), formerly known as a Presidential Alert, disseminated over the EAS.<sup>17</sup> There are two methods by which EAS alerts may be distributed. Under the traditional broadcast-based distribution structure, the EAS transmits an alert through a pre-established hierarchy of broadcast, cable, and satellite systems, starting with the initial delivery to 72 National Public Warning System (NPWS) stations, also known as Primary Entry Point (PEP) stations. This first method is the EAS Protocol, a messaging protocol that delivers basic alert elements over the air.<sup>18</sup> The EAS Protocol lacks the capability to deliver separate audio and non-English

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<sup>9</sup> *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, Third Report and Order, FCC 23-88, 2023 WL 8543463, at \*2 (Oct. 20, 2023) (*2023 WEA Accessibility Report and Order*).

<sup>10</sup> Warning, Alert and Response Network (WARN) Act, Title VI of the Security and Accountability for Every Port Act of 2006, 120 Stat. 1884, 1936 (codified at 47 U.S.C. § 1201 *et seq.*).

<sup>11</sup> 47 U.S.C. § 1201(a); 47 CFR § 10.10(d) (defining as CMS Provider as an "FCC licensee providing commercial mobile service as defined in section 332(d)(1) of the Communications Act of 1934."). Section 332(d)(1) defines the term commercial mobile service as any mobile service (as defined in 47 U.S.C. 153) that is provided for profit and makes interconnected service available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission. *See* 47 U.S.C. § 332(d)(1).

<sup>12</sup> The Commission's rules define a Participating CMS Provider as a Commercial Mobile Service Provider that has elected voluntarily to transmit WEA Alert Messages. *See* 47 CFR § 10.10(d), (f).

<sup>13</sup> *See* 47 CFR § 10.400.

<sup>14</sup> *See* 47 CFR § 10.500(f).

<sup>15</sup> *See* 47 CFR § 10.280.

<sup>16</sup> *2023 WEA Accessibility Report and Order* at \*1, para. 1.

<sup>17</sup> *See* 47 CFR §§ 11.2(a), 11.31.

<sup>18</sup> *See* Appendix, *infra*. *See also* 47 CFR § 11.31.

text files and is dependent on radio reception for the quality of the audio,<sup>19</sup> but it serves as a reliable means of disseminating alerts to the public in situations in which IP-based services may not be available.<sup>20</sup> The second method of distribution is over IPAWS, which is a FEMA-operated alert aggregator that authorized alert originators use to send WEA alert messages to Participating CMS Providers and EAS alerts to EAS Participants. IPAWS alerts are formatted in the more sophisticated Common Alerting Protocol (CAP). CAP-formatted alerts initiated through IPAWS can include audio, video or data files, images, non-English translations of alerts, and links providing detailed information.<sup>21</sup> The Appendix to this report contains additional information about the EAS, including a description of how the alerts are disseminated over the EAS.

### III. THE 2023 NATIONWIDE WEA TEST

#### **The Parameters of the Nationwide WEA Test**

This test marks the third nationwide WEA test, but only the second directed to all WEA-capable cellular devices.<sup>22</sup> To reach all mobile devices the WEA portion of the test was sent as a National Alert,<sup>23</sup> which subscribers cannot opt out of receiving.<sup>24</sup> The test message was sent to all consumer cellphones in the United States and its territories.<sup>25</sup> The test 90-character message read: “THIS IS A TEST of the National Wireless Emergency Alert System. No action is needed.”<sup>26</sup> The 360-character message read: “THIS IS A TEST of the National Wireless Emergency Alert System. The purpose is to maintain and improve alert and warning capabilities at the federal, state, local, tribal and territorial levels and to

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<sup>19</sup> The EAS Protocol uses a four-part message for an emergency activation of the EAS. The four parts are: Preamble and EAS Header Codes; audio Attention Signal; message; and Preamble and EAS End Of Message (EOM) Codes. See 47 CFR § 11.31. These parts can inform the public as to the nature, location, effective times, and originator of the alert. See FCC, PSHSB, Report: September 28, 2016 Nationwide EAS Test at 3 (2016), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-344518A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-344518A1.pdf) (discussing the value added from Internet-based alert distribution).

<sup>20</sup> *Review of the Emergency Alert System; Independent Spanish Broadcasters Association, the Office of Communication of the United Church of Christ, Inc., and the Minority Media and Telecommunications Council, Petition for Immediate Relief; Randy Gehman Petition for Rulemaking*, EB Docket No. 04-296, Fifth Report and Order, 27 FCC Rcd 642, 655, para 27 (2012).

<sup>21</sup> The Commission’s rules require EAS Participants to be able to receive alerts from both IPAWS and the broadcast-based EAS structure. See 47 CFR §§ 11.52(d), 11.56(a). EAS Participants can deliver to the public the rich data contained in a CAP-formatted message received directly from the IPAWS Internet feed, but when the alert is rebroadcast over the daisy chain, the CAP data are lost, and EAS Participants receiving the alert over the air cannot transmit CAP-based features, such as digital audio or multiple languages, to the public.

<sup>22</sup> See *FEMA Press Release*.

<sup>23</sup> See 47 CFR § 10.400(a).

<sup>24</sup> See 47 CFR §§ 10.280, 10.500(f).

<sup>25</sup> See *FEMA 2023 Waiver Request* at 1. Mobile device users in Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands did not receive the WEA portion of the test because they do not have a CMS provider who participates in WEA. See *Guam Homeland Security: Office of Civil Defense, Nationwide Emergency Alert System Test Planned* (Oct. 2, 2023), <https://www.ghs.guam.gov/nationwide-emergency-alert-system-test-planned-1>.

<sup>26</sup> See *FEMA 2023 Waiver Request* at 1.

evaluate the nation's public alert and warning capabilities. No action is required by the public.”<sup>27</sup> The test message also was sent in Spanish, in both a 90-character version and a 360-character version.<sup>28</sup> Per the Commission’s rules at the time of the test, Participating CMS Providers were required to transmit the alert message in both English and Spanish.<sup>29</sup> The test alert message should be displayed in the device’s default language. The Spanish-language versions of alerts should only be displayed to wireless subscribers whose device settings specify Spanish as the preferred language.<sup>30</sup>

### **Key Observations from the Nationwide WEA Test**

*NYCEM Survey.* Following the nationwide EAS test, the New York City Emergency Management Department (NYCEM) administered a survey via the Notify NYC emergency communications program, social media, and partner engagement.<sup>31</sup> NYCEM reported that of 1,405 responses received, 94.2% of respondents reported receiving the WEA test message.<sup>32</sup> The 5.8% of respondents who reported they did not receive the WEA test message provided a number of explanations, including: spotty service; on the subway/lacking cellular coverage; mobile phone turned off; phone in airplane mode; phone on “Do Not Disturb”; and using the phone for a voice call. 44% of respondents cited no known reason for not receiving the message.<sup>33</sup> For those respondents who did not receive a WEA message, 7.7% listed AT&T as their wireless provider, 18.5% listed T-Mobile, 33.8% listed Verizon, 15.4% listed “Other,” and 24.6% provided no response.<sup>34</sup> NYCEM’s survey also revealed approximately 19.4% of respondents who received the WEA test did not receive the full WEA test with complete sounds/haptics, of which 49.2% did not have their devices set on vibrate and/or silent.<sup>35</sup>

*FCC Complaints.* The Commission received seventy-seven informal complaints from the public in response to the nationwide test. The complaints included: (1) non-receipt of the test alert message; (2) the inability to opt out of receiving the test; (3) the loudness of the audio attention signal; and (4) missing tone and/or vibration. The Commission also received several informal complaints that the test alert message was received in Spanish when the device user expected to receive it in English.

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<sup>27</sup> See PBS WARN, <https://warn.pbs.org/> (last visited Feb. 9, 2023) (*PBS WARN on 10/04/2023*). To find the correct alert message, run a search with the following parameters: All Alerts; Start Date 10/04/2023; End Date 10/05/2023. Click on “Expired National Test” or the alert over the entire United States.

<sup>28</sup> See *PBS WARN on 10/04/2023*.

<sup>29</sup> See 47 CFR § 10.480 (2023). In October 2023, the Commission adopted rules requiring Participating CMS Providers to support WEAs in thirteen languages, as well as English and ASL. *2023 WEA Accessibility Report and Order*, 2023 WL 8543463, at \*1, 7.

<sup>30</sup> See Federal Communications Commission, *Multilingual Alerting for the Emergency Alert System and Wireless Emergency Alerts*, [https://www.fcc.gov/MultilingualAlerting\\_EAS-WEA](https://www.fcc.gov/MultilingualAlerting_EAS-WEA) (last visited Feb. 21, 2024).

<sup>31</sup> New York City Emergency Management; 2023 National WEA Test Results: Wednesday, October 4<sup>th</sup>, 2023: Feedback Survey Administered by New York City Emergency Management; at 3 (2024), <https://www.fcc.gov/ecfs/document/1117723520375/1> (NYCEM Report).

<sup>32</sup> *Id.* at 4.

<sup>33</sup> *Id.* at 6.

<sup>34</sup> *Id.* at 7. “Other” mobile service providers include: CREDO; Text Now; Xfinity; Spectrum; JMP; Straight Talk; and, US Mobile. *Id.*

<sup>35</sup> See *Id.* at 5.

*PSHSB Letters to Wireless Providers.* On September 11, 2023, the Chief of the Public Safety and Homeland Security Bureau sent letters to the nine largest cellular providers that participate in WEA: AT&T; Best Buy Health; Cellcom; C Spire; DISH; Google Fi; T-Mobile; US Cellular; and Verizon. The letters requested written responses regarding the performance of carriers' networks during the test. The letters to Best Buy Health; Cellcom; C Spire; DISH; Google Fi; and, US Cellular asked if the provider (1) received the test alert message and transmitted it to its subscribers; (2) experienced any complications or anomalies with its WEA capability; and (3) took any efforts to observe or evaluate WEA performance during the test.<sup>36</sup> The letters to AT&T, T-Mobile, and Verizon asked those questions as well as several additional questions about WEA performance.<sup>37</sup> The responses to the Bureau's letters revealed the following information:

- The providers reported receiving the test alert from FEMA IPAWS as early as 14:18:03 EDT and as late as 14:18:12 EDT.<sup>38</sup>
- The providers transmitted the test alert message as early as 14:18:04 EDT and as late as 14:18:19 EDT.<sup>39</sup>
- Several providers experienced “anomalies” during the test:
  - AT&T reported a fiber cut that affected nearly thirty (30) physical sites in the Dallas/Fort Worth and West Texas markets. Service was restored approximately seven (7) minutes after the initiation of the test. Once service was restored, the alert would have been transmitted to those subscribers that did not receive it.<sup>40</sup>
  - Best Buy reported that eight subscribers did not receive the test alert message.<sup>41</sup> One of its Jitterbug Flip 2 devices in San Diego, CA did not emit the audio attention signal and vibration cadence.
  - T-Mobile subscribers (and subscribers to Mobile Virtual Network Operators who take service from T-Mobile) reported receiving the WEA test alert message in Spanish even though they had not changed the device's default language of English.<sup>42</sup> The issue was limited to Android devices running the Android R or newer Operating System, which have since been patched to address this issue.

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<sup>36</sup> See e.g., Letter from Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, to Dara Franklin, Associate Counsel, Google North America Inc., <https://docs.fcc.gov/public/attachments/DOC-396857A1.pdf>, (Sept. 11, 2023) (filed in PS Dockets Nos. 15-91 , 15-94).

<sup>37</sup> See, e.g., Letter from Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, to Rhonda J. Johnson, Executive Vice President, AT&T Services, Inc., <https://docs.fcc.gov/public/attachments/DOC-396846A1.pdf>, (Sept. 11, 2023) (filed in PS Dockets Nos. 15-91, 15-94). *Id.*

<sup>38</sup> Verizon Letter at 1.

<sup>39</sup> See Letter from Steve Sharkey, VP, Government Affairs, T-Mobile USA, Inc., to Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, PS Docket Nos. 15-91, 15-94, <https://www.fcc.gov/ecfs/document/10180461827208/1>, at 1 (Oct. 18, 2023) (T-Mobile Letter).

<sup>40</sup> See Letter from Joseph P. Marx, Assistant Vice President, AT&T, to Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, PS Docket Nos. 15-91, 15-94, <https://www.fcc.gov/ecfs/document/1018302207927/1>, at 3 (Oct. 18, 2023) (AT&T Letter).

<sup>41</sup> Best Buy Letter at 2-3.

<sup>42</sup> See T-Mobile Letter at 3.



- US Cellular reported that some of their test devices displayed “Presidential Alert” rather than “National Alert.”<sup>43</sup>
- Verizon reported that 1.663 seconds elapsed between receipt of the test alert message from FEMA IPAWS and Verizon’s transmission of the test alert message to subscribers due to the large number of cell sites in their network and the need for the two mated Cell Broadcast Entity facilities to coordinate the delivery of the English and Spanish versions of alert.<sup>44</sup>

To the extent a nationwide WEA activation can be compared to the multiple local activations used during the 2022 WEA Performance exercise, the responses from AT&T, T-Mobile, and Verizon revealed that the issues seen in the 2022 WEA Performance Exercise did not recur during the 2023 nationwide test. For example, during the 2022 test, Verizon reported that two redundant Virtual Private Network paths between FEMA IPAWS and Verizon failed.<sup>45</sup> Meanwhile AT&T reported that it observed five instances where FEMA IPAWS incorrectly sent the alert to AT&T’s inactive Cell Broadcast Center (CBC) in Allen, TX, rather than the correct CBC in Bothell, WA.<sup>46</sup> Neither provider reported a similar occurrence during the 2023 Nationwide Test.<sup>47</sup>

#### IV. THE 2023 NATIONWIDE EAS TEST

##### **The Parameters of the 2023 Nationwide EAS Test**

This test marks the seventh nationwide EAS Test.<sup>48</sup> For this test, the nationwide test alert was disseminated as a Common Alerting Protocol (CAP) message via FEMA’s IPAWS.<sup>49</sup> The test message audio and text, which was designed to be identical to the greatest extent possible, was as follows: “This is a nationwide test of the Emergency Alert System, issued by the Federal Emergency Management Agency, covering the United States from 14:20 to 14:50 hours ET. This is only a test. No action is required by the public.”<sup>50</sup> Each EAS Participant received the alert either directly from IPAWS by polling the IPAWS

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<sup>43</sup> See Letter from Adriana Rios Welton, General Counsel and Chief of Government Affairs, US Cellular, to Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, PS Docket Nos. 15-91, 15-94, <https://www.fcc.gov/ecfs/document/1018171601180/1>, at A-2 (Oct. 18, 2023) (US Cellular Letter).

<sup>44</sup> Verizon Letter at 3.

<sup>45</sup> See Letter from Robert G. Morse, Associate General Counsel Federal Regulatory and Legal Affairs, Verizon, to Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, PS Docket Nos. 15-91, 15-94, <https://www.fcc.gov/ecfs/document/1001215579176/1>, at 3 (Sept. 30, 2022).

<sup>46</sup> See Letter from Jamie M. Tan, Director, Federal Regulatory, AT&T Services, Inc., to Debra Jordan, Chief, FCC Public Safety and Homeland Security Bureau, PS Docket Nos. 15-91, 15-94, <https://www.fcc.gov/ecfs/document/10930171316553/1>, at 3 (Sept. 30, 2022).

<sup>47</sup> See Verizon Letter at 2-3; AT&T Letter at 2-3.

<sup>48</sup> See *FEMA Press Release*. Previous EAS national tests were conducted in November 2011, September 2016, September 2017, October 2018, August 2019 and August 2021.

<sup>49</sup> See *FEMA Press Release*.

<sup>50</sup> See Letter from Ward Hagood, Engineering Manager, Testing and Evaluation, IPAWS Program Office, National Continuity Programs, Department of Homeland Security – FEMA, to Marlene H. Dortch, Office of the Secretary, Federal Communications Commission (Aug. 2, 2023) (on file in PS Docket No. 15-91 et al.)

Internet feed, or via a re-broadcast of the alert by the source that it monitors in the EAS “daisy chain.”<sup>51</sup> In this approach to relaying emergency alerts, a group of selected EAS Participants in each of the 72 NPWS stations’ broadcast area, known as Local Primary (LP) stations, monitor these NPWS stations. When LP stations receive an alert they, in turn, broadcast the alert in their listening areas. The remaining broadcasters, cable television facilities, and other EAS Participants receive the alerts from NPWS, LP, or other stations they are required to monitor and deliver the alerts to the public.

### **Participation in the Nationwide EAS Test**

At the time of the 2023 nationwide EAS test, there were approximately 25,306 EAS Participants in the United States and its territories.<sup>52</sup> This estimate includes analog and digital radio broadcast stations (including AM, FM, and Low Power FM (LPFM) stations); analog and digital television broadcast stations (including Low Power TV (LPTV)); analog and digital cable systems; wireless cable systems; wireline video systems;<sup>53</sup> DBS services; and SDARS.<sup>54</sup>

**Table 1** summarizes the participation rate in the 2023 nationwide EAS test.<sup>55</sup> Excluding duplicate filings,<sup>56</sup> EAS Participants made 20,682 unique filings,<sup>57</sup> with a participation rate of 81.7% up from 75.3%, in 2021.<sup>58</sup> Radio broadcasters had a participation rate of 85.1%, up from 79.9% in 2021,

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<sup>51</sup> Participants’ EAS equipment polls the IPAWS server to check for new alerts at regular intervals. If an EAS Participant receives an over-the-air alert before it checks IPAWS, the over-the-air alert is retransmitted. Beginning in December 2023, EAS Participants are required, upon receiving a legacy EAS alert message, to check whether a CAP version of an over-the-air alert is available by polling the IPAWS feed for CAP-formatted EAS messages. If a CAP version is available, EAS Participants must transmit the CAP version rather than the legacy version. Because this category applies to all EAS alerts except those with the EAN, NPT, or Required Weekly Test (RWT) event codes, this requirement is not applicable to nationwide tests. *See* 47 CFR § 11.55(c)(2).

<sup>52</sup> This total consists of the 17,363 radio broadcasters and 4,029 television broadcasters in the FCC’s Consolidated Database System, and the 3,914 headends active in the FCC’s Cable Operations and Licensing System. This methodology likely overestimates the number of radio and television broadcasters that participate in the EAS, as some are exempted from the Commission’s rules that govern EAS. For example, if a hub station satisfies the EAS requirements, an analog or digital broadcast satellite station that rebroadcasts 100% of the hub station’s programming would not be required to file in the EAS Test Reporting System (ETRS). *See* 47 CFR § 11.11(b).

<sup>53</sup> Wireline video systems are the systems of a wireline common carrier used to provide video programming service. *Id.* at § 11.2(c).

<sup>54</sup> *Id.* at § 11.11.

<sup>55</sup> Throughout this report, data are calculated to the nearest tenth, which, in some instances, results in percentage totals just slightly under or over 100%.

<sup>56</sup> EAS Participants submitted 25,805 filings in 2023. 5,123 of these filings duplicated facilities for which EAS Participants had already filed. The total number of filings include the cumulative tabulation for all forms received from a filer. For example, if a test participant submitted Forms One, Two and Three through ETRS, this would be recorded as one filing, rather than three separate filings.

<sup>57</sup> Unique filings are a set of filings that represent the report of a single EAS Participant facility, such as a radio station or a cable headend, with any duplicate filings removed. Most duplicate filings were submitted for cable systems. To the extent that EAS Participants’ filings indicate that a headend serves alerts using multiple, independent sets of EAS equipment, each set of equipment is considered as a unique headend for purposes of this report.

<sup>58</sup> *See 2021 Nationwide EAS Test* at 6. For purposes of this report, participation rate is defined as the number of unique filings received from a specified EAS Participant type divided by the total number of EAS Participants of that type.

while television broadcasters’ participation rate was 74.5% up from 62.6%, in 2021.<sup>59</sup> Cable systems, Internet Protocol Television (IPTV), and wireline video system participants had a participation rate of 73.8% up from 67.9%, in 2021.<sup>60</sup> No wireless cable systems filed in 2023, while four wireless cable system participated in 2021.

**Table 1. Overview of Filings Received in ETRS<sup>61</sup>**

| <b>EAS Participant Type</b>  | <b># of EAS Participants</b> | <b>Filings Received</b> | <b>Unique Filings Received</b> | <b>Filing Rate (Unique Filings)</b> |
|------------------------------|------------------------------|-------------------------|--------------------------------|-------------------------------------|
| Radio Broadcasters           | 17,363                       | 17,404                  | 14,780                         | 85.1%                               |
| Television Broadcasters      | 4,029                        | 3,763                   | 3,002                          | 74.5%                               |
| Cable Systems                | 3,914                        | 3,785                   | 2,513                          | 73.8%                               |
| IPTV Providers <sup>62</sup> |                              | 779                     | 328                            |                                     |
| Wireline Video Systems       |                              | 60                      | 46                             |                                     |
| Other                        | n/a                          | 14                      | 13                             | n/a                                 |
| <b>All Total</b>             | <b>25,306</b>                | <b>25,805</b>           | <b>20,682</b>                  | <b>81.7%</b>                        |

**Table 2** provides an overview of the form types submitted in ETRS. Form One asked EAS Participants to report basic identifying information, such as ownership or licensee contact information, EAS designation as identified in their State EAS Plan, and the make, model, and software version of their EAS equipment. Form Two asked EAS Participants to report “day of test” results, including whether they had successfully received and retransmitted the test alert. Form Three asked EAS Participants to report more detailed test results, such as the first source from which the alert was received, the language in which the alert was received, and details of any issues experienced during the test. 89.3% of test participants completed Forms One, Two, and Three, as required by the Commission’s rules, which is up from 87.8% in 2021.<sup>63</sup> 4.4% of test participants submitted “day of test” results in Form Two but failed to submit the detailed results required by Form Three, which is a smaller percentage than 2021’s 8.9% that

<sup>59</sup> See *id.*

<sup>60</sup> *Id.*

<sup>61</sup> The Commission has determined that test result data submitted by EAS Participants be treated as presumptively confidential. See *Review of the Emergency Alert System*, EB Docket No. 04-296, Sixth Report and Order, 30 FCC Rcd 6520, 6533, para. 27, note 90 (2015) (noting that test data received from EAS Participants or any reports that contain individual test data shall be treated as presumptively confidential). Accordingly, Table 1 and others in this report reflect aggregated test result data so that no confidential information is revealed. As referenced throughout this Report, PSHSB does not provide data for very small groups of EAS Participants and does not include them among the total number of filings. The omission of this data does not change the assessment of the test in any significant way.

<sup>62</sup> Internet Protocol Television (IPTV) providers and cable resellers are not defined in Part 11 of the rules and are considered voluntary participants in the test in the EAS Test Reporting System (ETRS), the online system used by the Commission to collect and analyze the results of nationwide EAS tests. See 47 CFR § 11.61(a)(3)(iv).

<sup>63</sup> Public Safety and Homeland Security Bureau, Federal Communications Commission, Report: August 11, 2021 Nationwide EAS Test at 7 (2021), <https://docs.fcc.gov/public/attachments/DOC-378861A1.pdf> (2021 *Nationwide EAS Test Report*).

filed Form Two but not Form Three. 6.3% of test participants failed to submit any test results, filing only their identifying information required by Form One. Cable Systems had the highest Form Three completion rate of 93.1%, while the Other group had the lowest Form Three completion rate of 69.2%.

**Table 2. Overview of Filings Received in ETRS by Form Type**

| EAS Participant Type    | Unique Filings | Form One Filed Only |             | Forms One and Two Filed Only |             | Forms One, Two, and Three Filed |              |
|-------------------------|----------------|---------------------|-------------|------------------------------|-------------|---------------------------------|--------------|
|                         |                | Unique Filings      | %           | Unique Filings               | %           | Unique Filings                  | %            |
| Radio Broadcasters      | 14,780         | 1,051               | 7.1%        | 654                          | 4.4%        | 13,075                          | 88.5%        |
| Television Broadcasters | 3,002          | 130                 | 4.3%        | 148                          | 4.9%        | 2,724                           | 90.7%        |
| Cable Systems           | 2,513          | 88                  | 3.5%        | 85                           | 3.4%        | 2,340                           | 93.1%        |
| IPTV Providers          | 328            | 22                  | 6.7%        | 17                           | 5.2%        | 289                             | 88.1%        |
| Wireline Video Systems  | 46             | 12                  | 26.1%       | 0                            | 0.0%        | 34                              | 73.9%        |
| Other                   | 13             | 2                   | 15.4%       | 2                            | 15.4%       | 9                               | 69.2%        |
| <b>All Total</b>        | <b>20,682</b>  | <b>1,305</b>        | <b>6.3%</b> | <b>906</b>                   | <b>4.4%</b> | <b>18,471</b>                   | <b>89.3%</b> |

**Table 3** compares the filing rate of Low Power broadcasters to that of all broadcasters and non-LPFM/TV broadcasters.<sup>64</sup> LPFM participation in the test (61.6%) was lower than that of non-LPFM broadcasters (87.5%) and radio broadcasters overall (84.6%), but higher than 2021’s participation rate (49.5%). Similarly, LPTV participation (68.0%) was lower than that of non-LPTV broadcasters (78.6%) and television broadcasters overall (73.6%), but higher than 2021’s participation rate (47.4%). As with the 2021 test, the low participation rate of Low Power broadcasters reduced the overall participation rate of broadcasters. Of the 2,680 radio broadcasters that were expected to file but failed to do so, 759 (28.3%) were LPFM Broadcasters. Of the 1,063 television broadcasters that were expected to file but failed to do so, 604 (56.8%) were LPTV broadcasters.<sup>65</sup>

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<sup>64</sup> Tables 3 through 12 exclude EAS Participants that report to be silent, *e.g.* pursuant to a special temporary authorization granted by the Commission. *See also infra* Table 7 (describing the test results of Low Power participants).

<sup>65</sup> *See also infra* Table 7 (describing the test results of Low Power participants).

**Table 3. Overview of Filings Received from Broadcasters**

| EAS Participant Type        | Filings Expected | Filings Rec'd | Filing Rate | Form One Filed Only |       | Forms One and Two Filed Only |      | Forms One, Two, and Three Filed |       |
|-----------------------------|------------------|---------------|-------------|---------------------|-------|------------------------------|------|---------------------------------|-------|
|                             |                  |               |             | #                   | %     | #                            | %    | #                               | %     |
| All Radio Broadcasters      | 17,363           | 14,683        | 84.6%       | 1,052               | 7.2%  | 654                          | 4.5% | 12,977                          | 88.4% |
| Non-LPFM Broadcasters       | 15,385           | 13,464        | 87.5%       | 685                 | 5.1%  | 561                          | 4.2% | 12,218                          | 90.7% |
| LPFM Broadcasters           | 1,978            | 1,219         | 61.6%       | 367                 | 30.1% | 93                           | 7.6% | 759                             | 62.3% |
| All Television Broadcasters | 4,029            | 2,966         | 73.6%       | 132                 | 4.5%  | 148                          | 5.0% | 2,686                           | 90.6% |
| Non-LPTV Broadcasters       | 2,140            | 1,681         | 78.6%       | 20                  | 1.2%  | 94                           | 5.6% | 1,567                           | 93.2% |
| LPTV Broadcasters           | 1,889            | 1,285         | 68.0%       | 112                 | 8.7%  | 54                           | 4.2% | 1,119                           | 87.1% |

**EAS Participant Monitoring of IPAWS**

All EAS Participants are required to monitor IPAWS.<sup>66</sup> ETRS Form One asked EAS Participants to confirm whether their facility’s equipment complied with this requirement. **Table 4** shows that 97.5% of test participants reported that they are complying with the IPAWS monitoring requirement—a slight increase from 97.4% in 2021.<sup>67</sup> However, the raw number of participants monitoring IPAWS increased from 18,036 in 2021 to 18,747 in 2023.<sup>68</sup>

**Table 4. IPAWS Monitoring by Participant Type**

| EAS Participant Type    | Test Participants | Monitoring IPAWS |              |
|-------------------------|-------------------|------------------|--------------|
|                         |                   | #                | %            |
| Radio Broadcasters      | 13,631            | 13,314           | 97.7%        |
| Television Broadcasters | 2,834             | 2,775            | 97.9%        |
| Cable Systems           | 2,423             | 2,327            | 96.0%        |
| IPTV Providers          | 304               | 291              | 95.7%        |
| Wireline Video System   | 34                | 33               | 97.1%        |
| Other                   | 9                 | 7                | 77.8%        |
| <b>All Total</b>        | <b>19,235</b>     | <b>18,747</b>    | <b>97.5%</b> |

<sup>66</sup> 47 CFR § 11.52(d)(2).

<sup>67</sup> 2021 Nationwide EAS Test Report at 10. Possible explanations for test participants reporting that they do not monitor IPAWS include a lack of broadband access, lack of familiarity with EAS equipment functions, and noncompliance with the Commission’s rules.

<sup>68</sup> 2021 Nationwide EAS Test Report at 11.

**Source of Alert**

On ETRS Form Three, EAS Participants identified the first source from which they received the test alert. **Table 5** compares the sources from which the different types of test participants received the test alert. A majority (63.6%) of test participants reported to have first received the alert from IPAWS and a minority (36.4%) first received the alert over-the-air. Television Broadcast providers reportedly first received the alert via IPAWS more frequently than other participant types (70.6%).

**Table 5. Source of Alert by Participant Type**

| EAS Participant Type    | Test Participants That Reported Source of Alert | First Received From IPAWS |              | First Received Over-the-Air |              |
|-------------------------|---|---------------------------|--------------|-----------------------------|--------------|
|                         |   | #                         | %            | #                           | %            |
| Radio Broadcasters      | 12,631  | 7,848                     | 62.1%        | 4,783                       | 37.9%        |
| Television Broadcasters | 2,571   | 1,815                     | 70.6%        | 756                         | 29.4%        |
| Cable Systems           | 2,219   | 1,454                     | 65.5%        | 765                         | 34.5%        |
| IPTV Providers          | 286   | 167                       | 58.4%        | 119                         | 41.6%        |
| Wireline Video Systems  | 34  | 9                         | 26.5%        | 25                          | 73.5%        |
| Other                   | 7   | 3                         | 42.9%        | 4                           | 57.1%        |
| <b>All Total</b>        | <b>17,748</b>                                   | <b>11,296</b>             | <b>63.6%</b> | <b>6,452</b>                | <b>36.4%</b> |

**Breakdown of Test Performance by EAS Participant Type**

In ETRS Form Two, the Commission asked EAS Participants whether they had successfully received and retransmitted the test alert on October 4, 2023. **Table 6** shows test participants’ success rates for alert receipt and retransmission. When compared to performance during the 2021 test, a majority of EAS Participant categories saw a noticeable improvement. This is due in large part to the inclusion of CAP messaging in the 2023 test. The 2021 test only utilized over-the-air messaging to distribute the EAS message. With the inclusion of CAP in the 2023 test, EAS Participants were also able to receive the message over the Internet.

This data indicates that, overall, 96.6% of test participants successfully received the alert which is an increase from the 2021 success rate of 89.3%. The overall retransmission success rate of 93.6% is an increase from 87.1% reported in 2021. 97.0% of radio broadcasters successfully received the alert an increase from 88.8% in 2021, and successful retransmissions improved to 94.7% when compared to the 87.0% success rate in 2021. Television broadcasters reported that 95.6% (up from 90.1% in 2021) successfully received the alert and 89.3% (up from 86.0% in 2021) successfully retransmitted it. Similarly, 95.0% (up from 90.8% in 2021) of cable systems successfully received the alert and 92.7% (up from 88.7% in 2021) successfully retransmitted it.

**Table 6. Test Performance by Participant Type**

| EAS Participant Type    | Test Participants | Successfully Received Alert |              | Successfully Retransmitted Alert |              |
|-------------------------|-------------------|-----------------------------|--------------|----------------------------------|--------------|
|                         |                   | #                           | %            | #                                | %            |
| Radio Broadcasters      | 13,631            | 13,226                      | 97.0%        | 12,902                           | 94.7%        |
| Television Broadcasters | 2,834             | 2,710                       | 95.6%        | 2,530                            | 89.3%        |
| Cable Systems           | 2,423             | 2,301                       | 95.0%        | 2,247                            | 92.7%        |
| IPTV Providers          | 304               | 302                         | 99.3%        | 285                              | 93.8%        |
| Wireline Video Systems  | 34                | 34                          | 100.0%       | 27                               | 79.4%        |
| Other                   | 9                 | 9                           | 100.0%       | 7                                | 77.8%        |
| <b>All Total</b>        | <b>19,235</b>     | <b>18,582</b>               | <b>96.6%</b> | <b>17,998</b>                    | <b>93.6%</b> |

**Table 7** shows the performance of Low Power broadcasters in the 2023 nationwide EAS test. LPFM broadcasters had an alert receipt success rate of 90.1%, approximately 6.9 and 7.4 percentage points lower than the success rate of all radio broadcasters and non-LPFM broadcasters, respectively, and an alert retransmission success rate of 84.7%, approximately 10 and 10.6 percentage points lower than the success rate of all radio broadcasters and non-LPFM broadcasters, respectively. 91.5% of LPTV broadcasters successfully received the alert, which is approximately 4.1 and 7.1 percentage points less than the rate of all television broadcasters and non-LPTV broadcasters, respectively. 82.4% of LPTV broadcasters successfully retransmitted the alert, which is approximately 6.9 and 11.8 percentage points less than the rate of all television broadcasters and non-LPTV broadcasters, respectively.

**Table 7. Test Results of Low Power Broadcasters**

| EAS Participant Type        | Test Participants | Successfully Received Alert |       | Successfully Retransmitted Alert |       |
|-----------------------------|-------------------|-----------------------------|-------|----------------------------------|-------|
|                             |                   | #                           | %     | #                                | %     |
| All Radio Broadcasters      | 13,631            | 13,226                      | 97.0% | 12,902                           | 94.7% |
| Non-LPFM Broadcasters       | 12,779            | 12,458                      | 97.5% | 12,180                           | 95.3% |
| LPFM Broadcasters           | 852               | 768                         | 90.1% | 722                              | 84.7% |
| All Television Broadcasters | 2,834             | 2,710                       | 95.6% | 2,530                            | 89.3% |
| Non-LPTV Broadcasters       | 1,661             | 1,637                       | 98.6% | 1,564                            | 94.2% |
| LPTV Broadcasters           | 1,173             | 1,073                       | 91.5% | 966                              | 82.4% |

### **Equipment Performance**

An analysis of equipment and software information within ETRS filings revealed that as of early October 2023, over 4,500 EAS Participants, approximately 23% of EAS equipment units, were either using outdated software (17%) or operating equipment that were no longer supported with regular software updates (6%). The remaining 77% of EAS equipment units reported by EAS Participants were fully up-to-date.

Fully up-to-date equipment had the highest performance results, whereas equipment using software that is no longer supported had the lowest performance results. Of the EAS Participants that reported using EAS equipment units that PSHSB determined are no longer supported with software patches, 90% reported successfully receiving the alert and approximately 85% reported successfully retransmitted the alert. Notably, approximately 5% of these EAS participants reported successful receipt of the alert but failed to retransmit the alert, likely indicating an equipment-related complications occurred. Of the EAS Participants that reported using EAS equipment units that PSHSB determined are outdated but can receive software patches, 95% reported successfully received the alert and approximately 90% reported successfully retransmitted of the alert. EAS Participants with fully up-to-date EAS equipment units reported that approximately 97% successfully received the alert and approximately 95% successfully retransmitted the alert.

### **Language of Alert**

Form Three asked EAS Participants to report the languages in which they received and retransmitted the test alert. **Table 8** shows the language of the alerts that were received and retransmitted by test participants. The test alert message was sent in both English and Spanish. The table below reflects the number of test participants who elected to transmit the alert to their audience in Spanish.<sup>69</sup> More radio and television broadcasters reported receiving and retransmitting the test alert in either Spanish only or both Spanish and English than reported such receipt or retransmission in 2021. The most marked increases were in radio broadcasters that received and retransmitted the test alert in English and Spanish, which were reported by three and eight radio broadcasters, respectively, in 2021, compared to 25 and 33 radio broadcasters, respectively, in 2023.

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<sup>69</sup> Certain EAS equipment has the capability to generate a text crawl from the header code data provided in the English language EAS message.



**Table 8. Spanish Versus English Language Alerts by Participant Type**

| EAS Participant Type    | Received Alert |            |                     | Retransmitted Alert |            |                     |
|-------------------------|----------------|------------|---------------------|---------------------|------------|---------------------|
|                         | English        | Spanish    | English and Spanish | English             | Spanish    | English and Spanish |
| Radio Broadcasters      | 12,503         | 100        | 25                  | 12,192              | 106        | 33                  |
| Television Broadcasters | 2,487          | 41         | 40                  | 2,318               | 45         | 35                  |
| Cable Systems           | 2,157          | 0          | 60                  | 2,059               | 0          | 107                 |
| IPTV Providers          | 277            | 0          | 9                   | 263                 | 0          | 7                   |
| Wireline Video Systems  | 34             | 0          | 0                   | 27                  | 0          | 0                   |
| Other                   | 7              | 0          | 0                   | 5                   | 0          | 0                   |
| <b>All Total</b>        | <b>17,465</b>  | <b>141</b> | <b>134</b>          | <b>16,864</b>       | <b>151</b> | <b>182</b>          |

Test participants also reported the primary languages in their service area. **Table 9** tallies the three highest reported service area languages or combination of languages. Of the 13,966 responses received from EAS Participants, 13,297 (95.2%) reported English as the primary language in the service area, while 398 (2.8%) reported both English and Spanish, and 226 (1.6%) reported Spanish only as the primary language in the service area. This year, 18 other languages were reported in smaller numbers, including Russian, Chinese, Korean, Samoan, Navajo, Portuguese, Polish, Vietnamese, Creole, French, Hebrew, Hindi, Arabic, Amharic, Somali, Yup'ik/Cup'ik and Inupiaq/Yup'ik.

**Table 9. Primary Language(s) in Service Area**

| English |       | English and Spanish |      | Spanish |      |
|---------|-------|---------------------|------|---------|------|
| #       | %     | #                   | %    | #       | %    |
| 13,297  | 95.2% | 398                 | 2.8% | 226     | 1.6% |

**V. ANALYSIS OF MOST SIGNIFICANT ISSUES**

**The Nationwide EAS Test: Complications**

Test participants reported complications with the test that included equipment configuration issues, performance issues, audio quality issues, alerting source issues, and clock errors. As in previous years, EAS Participants reported the complications they experienced in two ways. First, ETRS Form Three provided a series of checkboxes that allowed EAS Participants to assign categories to the issues they experienced. These categories were based on the complications observed in previous nationwide EAS tests, which included audio quality issues, equipment performance issues, software update issues, and user error.<sup>70</sup> Second, Form Three allowed EAS Participants to offer more detailed descriptions of the complications through the use of explanatory text fields.

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<sup>70</sup> FCC, PSHSB, Report: August 7, 2019 Nationwide EAS Test at 14 (2020), <https://docs.fcc.gov/public/attachments/DOC-364279A1.pdf>. FCC, PSHSB, Report: September 27, 2017 Nationwide EAS Test at 13 (2017), <https://www.fcc.gov/document/report-2017-nationwide-emergency-alert-system-test>. 2021 Nationwide EAS Test Report at 14.

**1. Complications Reported in Checkboxes**

Of the 18,334 test participants, 17,187 reported through checkboxes that they experienced no complications during receipt (93.7%). 16,338 (89.1%) test filers reported they experienced no complications during retransmission. In 2021, 12,275 (64.0%) reported by checkbox that they experienced no complications during receipt, and 13,328 (69.5%) test filers reported the same during retransmission. **Table 10** shows the categories of complications reported by test participants through checkboxes. Of the 18,334 test participants, 1,147 reported through checkboxes that they experienced at least one issue during receipt 1,996 test participants reported that they experienced at least one issue during retransmission. In all, participants reported 612 issues in receipt and 909 issues in retransmission through checkboxes.

**Table 10. Complications Reported by Test Participants Through Checkboxes**

| Complication                   | Experienced During Receipt |      | Experienced During Retransmission |       |
|--------------------------------|----------------------------|------|-----------------------------------|-------|
|                                | #                          | %    | #                                 | %     |
| Audio Quality Issues           | 121                        | 0.7% | n/a                               | n/a   |
| Equipment Configuration Issues | 133                        | 0.7% | 182                               | 1.0%  |
| Equipment Failure              | 79                         | 0.4% | 432                               | 2.4%  |
| Software Outdated              | 20                         | 0.1% | 27                                | 0.1%  |
| User Error                     | 11                         | 0.1% | 9                                 | 0.05% |
| Other                          | 248                        | 1.4% | 259                               | 1.4%  |

**2. Complications Reported by Test Participants in Explanatory Text Fields**

**Table 11a** categorizes the responses received in explanatory text fields for the group of 1,064 test participants that reported they experienced complications in the receipt of the test message. **Table 11b** categorizes the responses received in explanatory text fields for the group of 1,711 test participants that reported they experienced complications in retransmitting the alert.

**Table 11a. Explanations Reported by Test Participants Experiencing Complications on Receipt<sup>71</sup>**

| Receipt Explanations         | Number of Test Participants Reporting this Explanation | Percentage of Explanations | Percentage of All Unique Filings |
|------------------------------|--|----------------------------|----------------------------------|
| Equipment Issues             | 348  | 32.7%                      | 1.9%                             |
| Transmission Not Received    | 205  | 19.3%                      | 1.1%                             |
| Audio Issues                 | 159  | 14.9%                      | 0.9%                             |
| Configuration Issues         | 98   | 9.2%                       | 0.5%                             |
| Clock Issues                 | 84   | 7.9%                       | 0.5%                             |
| Internet Issues              | 65   | 6.1%                       | 0.4%                             |
| Power Issues                 | 35   | 3.3%                       | 0.2%                             |
| Signal Issues                | 30   | 2.8%                       | 0.2%                             |
| XML Digital Signature Issues | 23   | 2.2%                       | 0.1%                             |
| Lightning                    | 10   | 0.9%                       | 0.1%                             |
| Antenna Issues               | 7  | 0.7%                       | 0.04%                            |
| <b>Total</b>                 | <b>1,064</b>   | <b>100.0%</b>              | <b>5.8%</b>                      |

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<sup>71</sup> Data reflected in **Tables 11a** and **11b** is based on data reported by test participants in explanatory text fields and does not correlate to the data reported by test participants through checkboxes as reported in **Table 10**. Similarly, the data reported in **Tables 11a** and **11b** is based on data reported by test participants that may not lend itself to one-to-one comparisons. Consequently, there may be variations or differences between the respective data sets.

**Table 11b. Explanations Reported by Test Participants Experiencing Complications on Retransmission**

| Retransmission Explanations  | Number of Test Participants Reporting this Explanation | Percentage of Retransmission Explanations | Percentage of All Unique Filings |
|------------------------------|--|---|----------------------------------|
| Equipment Issues             | 832  | 48.6%                                     | 4.5%                             |
| Transmission Not Received    | 248  | 14.5%                                     | 1.4%                             |
| Audio Issues                 | 204  | 11.9%                                     | 1.1%                             |
| Configuration Issues         | 182  | 10.6%                                     | 1.0%                             |
| Clock Issues                 | 93   | 5.4%                                      | 0.5%                             |
| Internet Issues              | 39   | 2.3%                                      | 0.2%                             |
| Text Crawl Issues            | 38   | 2.2%                                      | 0.2%                             |
| Power Issues                 | 28   | 1.6%                                      | 0.2%                             |
| XML Digital Signature Issues | 17   | 1.0%                                      | 0.1%                             |
| Lightning                    | 12   | 0.7%                                      | 0.1%                             |
| Low Power                    | 11   | 0.6%                                      | 0.1%                             |
| Antenna Issues               | 5  | 0.3%                                      | 0.03%                            |
| Signal Issues                | 2  | 0.1%                                      | 0.01%                            |
| <b>Total</b>                 | <b>1,711</b>   | <b>100.0%</b>                             | <b>9.3%</b>                      |

**3. Monitoring Source Issues**

ETRS filings revealed that of 72 NPWS stations, two stations (approximately 3%) experienced technical issues receiving and retransmitting the alert on the test day, a decrease from seven of 76 NPWS stations in 2021 (approximately 9%). ETRS filings also revealed that these stations failed to receive the CAP alert via IPAWS as a result of Internet issues. One station specifically cited that their broadband Internet service provider was experiencing an outage, and the other cited that the Internet was “very slow.” These stations did not successfully receive the nationwide alert from the over-the-air sources that they monitored.

**Table 12** shows EAS Participant performance by state and territory. Five of the six poorest-performing geographic regions were territories of the United States. These territories were the Northern Mariana Islands (20% retransmission success), Guam (33.3% retransmission success), American Samoa (66.7% retransmission success), the U.S. Virgin Islands (88.9% retransmission success), and Puerto Rico (89.7% retransmission success). The majority of explanations reported by these territories cited the following complications: equipment performance issues, transmission not received, equipment configuration issues, and Internet issues. Notably, approximately 35% of the equipment used in these five US territories was outdated, which we believe could be a contributing factor to poor performance. Rhode Island was the state with the highest number of alert receipt complications in the explanatory fields with 33.3% of the filings indicating either audio or equipment issues. States with the highest performance results for both alert receipt and retransmission were reported by Vermont (VT) and Delaware (DE) which both reported 100% successful receipt, and 98.9% and 100% successful retransmission, respectively.

**Federal Communications Commission**

**Table 12: Performance Test Results by State/Territory**

| Transmitter State | Number of Test Participants | Successfully Received Alert |        | Successfully Retransmitted Alert |        |
|-------------------|-----------------------------|-----------------------------|--------|----------------------------------|--------|
|                   |                             | #                           | %      | #                                | %      |
| AK                | 177                         | 168                         | 94.9%  | 162                              | 91.5%  |
| AL                | 438                         | 430                         | 98.2%  | 419                              | 95.7%  |
| AR                | 419                         | 410                         | 97.9%  | 379                              | 90.5%  |
| AS                | 9                           | 7                           | 77.8%  | 6                                | 66.7%  |
| AZ                | 315                         | 303                         | 96.2%  | 291                              | 92.4%  |
| CA                | 1,214                       | 1,140                       | 93.9%  | 1,114                            | 91.8%  |
| CO                | 379                         | 361                         | 95.3%  | 347                              | 91.6%  |
| CT                | 127                         | 126                         | 99.2%  | 124                              | 97.6%  |
| DC                | 24                          | 23                          | 95.8%  | 23                               | 95.8%  |
| DE                | 45                          | 45                          | 100.0% | 45                               | 100.0% |
| FL                | 803                         | 773                         | 96.3%  | 742                              | 92.4%  |
| GA                | 543                         | 531                         | 97.8%  | 514                              | 94.7%  |
| GU                | 12                          | 7                           | 58.3%  | 4                                | 33.3%  |
| HI                | 124                         | 119                         | 96.0%  | 115                              | 92.7%  |
| IA                | 501                         | 491                         | 98.0%  | 474                              | 94.6%  |
| ID                | 176                         | 165                         | 93.8%  | 158                              | 89.8%  |
| IL                | 673                         | 655                         | 97.3%  | 617                              | 91.7%  |
| IN                | 478                         | 471                         | 98.5%  | 467                              | 97.7%  |
| KS                | 330                         | 327                         | 99.1%  | 313                              | 94.8%  |
| KY                | 417                         | 386                         | 92.6%  | 380                              | 91.1%  |
| LA                | 358                         | 348                         | 97.2%  | 335                              | 93.6%  |
| MA                | 247                         | 239                         | 96.8%  | 230                              | 93.1%  |
| MD                | 186                         | 185                         | 99.5%  | 184                              | 98.9%  |
| ME                | 162                         | 159                         | 98.1%  | 155                              | 95.7%  |
| MI                | 599                         | 592                         | 98.8%  | 577                              | 96.3%  |
| MN                | 516                         | 500                         | 96.9%  | 488                              | 94.6%  |
| MO                | 511                         | 495                         | 96.9%  | 473                              | 92.6%  |
| MP                | 5                           | 1                           | 20.0%  | 1                                | 20.0%  |
| MS                | 315                         | 301                         | 95.6%  | 291                              | 92.4%  |
| MT                | 219                         | 213                         | 97.3%  | 208                              | 95.0%  |
| NC                | 564                         | 539                         | 95.6%  | 530                              | 94.0%  |
| ND                | 182                         | 179                         | 98.4%  | 178                              | 97.8%  |
| NE                | 288                         | 284                         | 98.6%  | 275                              | 95.5%  |
| NH                | 115                         | 115                         | 100.0% | 112                              | 97.4%  |
| NJ                | 171                         | 166                         | 97.1%  | 165                              | 96.5%  |
| NM                | 260                         | 249                         | 95.8%  | 247                              | 95.0%  |
| NV                | 168                         | 158                         | 94.0%  | 152                              | 90.5%  |

**Federal Communications Commission**

| Transmitter State | Number of Test Participants | Successfully Received Alert |        | Successfully Retransmitted Alert |       |
|-------------------|-----------------------------|-----------------------------|--------|----------------------------------|-------|
|                   |                             | #                           | %      | #                                | %     |
| NY                | 696                         | 681                         | 97.8%  | 664                              | 95.4% |
| OH                | 572                         | 560                         | 97.9%  | 548                              | 95.8% |
| OK                | 342                         | 327                         | 95.6%  | 320                              | 93.6% |
| OR                | 370                         | 353                         | 95.4%  | 346                              | 93.5% |
| PA                | 755                         | 746                         | 98.8%  | 728                              | 96.4% |
| PR                | 146                         | 136                         | 93.2%  | 131                              | 89.7% |
| RI                | 36                          | 34                          | 94.4%  | 34                               | 94.4% |
| SC                | 321                         | 301                         | 93.8%  | 291                              | 90.7% |
| SD                | 204                         | 197                         | 96.6%  | 193                              | 94.6% |
| TN                | 520                         | 504                         | 96.9%  | 490                              | 94.2% |
| TX                | 1,267                       | 1,205                       | 95.1%  | 1,137                            | 89.7% |
| UT                | 153                         | 150                         | 98.0%  | 139                              | 90.8% |
| VA                | 414                         | 407                         | 98.3%  | 393                              | 94.9% |
| VI                | 9                           | 8                           | 88.9%  | 8                                | 88.9% |
| VT                | 93                          | 93                          | 100.0% | 92                               | 98.9% |
| WA                | 406                         | 390                         | 96.1%  | 372                              | 91.6% |
| WI                | 495                         | 489                         | 98.8%  | 485                              | 98.0% |
| WV                | 213                         | 201                         | 94.4%  | 198                              | 93.0% |
| WY                | 159                         | 145                         | 91.2%  | 140                              | 88.1% |

As a practical matter, one way for EAS Participants to reduce complications due to failure to receive the test alert, such as the complications discussed above, is to ensure that they monitor several independent sources of alerts. Multiple monitored sources add redundancy to the system so that when one source fails, a test participant can still successfully receive the alert from elsewhere and retransmit it. We note that the Commission’s rules require EAS Participants to monitor two EAS sources for EAS messages that are formatted in accordance with the EAS Protocol, in addition to requiring monitoring of IPAWS. We are aware that many EAS Participants already monitor multiple broadcast-based sources. However, we continue to emphasize the importance of multiple monitoring sources as required by our rules. We also recommend that stations located far from NPWS stations consider the viability, technically and otherwise, of satellite sources of the broadcast alert.

**4. Equipment Performance Issues**

There were 348 test participants that reported equipment performance issues on receipt and 832 on retransmission involving non-working equipment. Participants cited that the equipment was out for repair, failed during the test, was missing, malfunctioned, was damaged/broken, outdated, or was in the process of being replaced. Approximately 30% of the test participants that reported equipment performance issues on receipt, and approximately 20% of test participants that reported equipment performance issues on retransmission, were using EAS equipment units with either outdated software or operating equipment that no longer supports software updates. Specific examples of equipment performance issues that were observed by outdated or no longer supported EAS equipment units included failure to connect to IPAWS, the ability to receive the alert but failure to retransmit the alert, and explanations that older equipment was not functional or compatible with other system components. As

evidenced by these results, it is critically important that EAS Participants that are widely monitored use testing to ensure their EAS equipment is in reliable working order and outdated equipment and/or software is updated to the latest version or replaced to mitigate performance related complications and safeguard against security vulnerabilities.

### **5. Accessibility Issues**

Individuals with disabilities and organizations representing people with disabilities submitted observations to the FCC regarding issues relating to the accessibility of alerts. Informal feedback was also obtained from input directly emailed to the Commission.<sup>72</sup> Filers noted that the manner in which the EAS test message was displayed in some cases was not accessible to people with disabilities.<sup>73</sup> Specifically, filers reported that some EAS text crawls were overlapping with closed captions, too fast, not accessible due to a low contrast ratio between the text color and background color, too small, or unclear/blurry. One informal complaint was received regarding a station's selection of visually inaccessible font and background colors, and this complaint was resolved by the station to the satisfaction of the filer. While these issues largely mirrored those identified in the 2021 Nationwide EAS Test Report,<sup>74</sup> there were fewer complaints regarding specific television stations.

### **6. Text Crawl Issues**

There were 38 participants on retransmission that cited experiencing text crawl issues during retransmission. Test participants cited no onscreen crawl and audio only but no text crawl.

### **7. Audio Issues**

There were 159 test participants on receipt and 204 on retransmission that explained their station experienced complications with receipt or retransmission of the alert due to audio issues. Many test participants reported background noise, static, no tone/audio, low volume audio, only tones and no message, multiple audio tones, short audio duration, and/or unintelligible/distorted audio.

### **8. Equipment Configuration**

There were 103 test participants on receipt and 94 on retransmission that provided explanations of EAS equipment configuration issues. Participants in this category cited user-related configuration problems, including invalid firmware and improper connection to monitoring sources, incorrect tuning, and lack of software upgrades. Most test participants that reported complications related to equipment configuration also reported that they had successfully identified and corrected the cause of those complications or were fixing it immediately.

### **9. Clock Issues**

There were 84 test participants on receipt and 93 on retransmission who explained that an incorrect time setting within the EAS equipment caused complications with the ability to receive or

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<sup>72</sup> See, e.g., Partnership for Inclusive Disaster Strategies, *Access Survey Report: IPAWS National Test 2023* (Dec. 14, 2023), <https://disasterstrategies.org/wp-content/uploads/2023/12/Report-IPAWS-2023-Survey-Report-accessible.pdf>. In this survey with over 400 respondents, the majority of respondents who received the WEA and EAS messages found them easy to understand. The survey also provides anecdotal reports of barriers to accessibility by some respondents.

<sup>73</sup> See 47 CFR § 11.51.

<sup>74</sup> 2021 Nationwide EAS Test Report at 19.

retransmit the EAS message. Test participants noted that the time or time zone was set incorrectly, equipment clock was off, and/or the incorrect date was configured. For example, if the EAS equipment's time was not correctly synchronized to real time, it would not receive nor retransmit the EAS message, as the equipment would consider the message to have expired.

**10. Internet Issues**

There were 65 test participants on receipt and 39 on retransmission that had internet outages during the test. Participants in this category cited IP provider being down, Internet service down, Internet connection issues, and Internet firewall problems.

**11. Power Issues**

There were 35 test participants on receipt and 28 on retransmission that explained they were having power outages or issues during the time of the test. Most respondents citing power issues stated these outages were a result of local power outages at tower site, power supply failure/malfunction, or battery failure.

**12. Signal Issues**

There were 30 test participants on receipt and two on retransmission that reported complications receiving or retransmitting the test message due to poor signal. Test participants attributed the poor signal reception issues, or weak signal from their monitoring source.

**13. XML Digital Signature Issues**

There were 23 test participants on receipt and 17 on retransmission that cited their station experienced complications due to XML digital signature issues that caused complications with receiving or retransmission of the alert. Most respondent cited that the IPAWS XML certification was invalid/expired or failed due to an invalid XML digital signature.

**14. Lightning**

There were 10 test participants on receipt and 12 on retransmission that explained their station was affected by lightening which hindered their ability to received and/or retransmit the test. Lightning issues included damaging equipment necessary for broadcasting.

**15. Antenna Issues**

There were seven test participants on receipt and five on retransmission that reported they experienced complications with receipt and/or retransmission of the test signal because the antenna failed, was damaged, or was improperly positioned to receive the monitoring source.

**16. Low Power**

There were 11 test participants on retransmissions stated that they were a Low Power station and did not have a responsibility to retransmit. Low power stations are required to broadcast the alert, though they are not required to have equipment capable of generating the EAS codes and Attention Signal.<sup>75</sup>

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<sup>75</sup> See 47 CFR 11.51(a), (e) and 11.61(a)(3)(1).



## VI. NEXT STEPS

The Bureau will continue to take measures to improve the EAS. To help address areas for improvement highlighted by the 2023 nationwide WEA and EAS tests, the Bureau will continue to address commonly reported operational complications and improve participation in the nationwide test. Specifically:

- PSHSB recommends that the Commission adopt rules to improve the operational readiness of EAS Participants. The 2023 nationwide test revealed that 6.4% of EAS participants failed to retransmit the alert. Additionally, 4.5% of EAS participants reported experiencing some kind of equipment related complication during retransmission of the alert. It is essential that the entire public be able to successfully receive alerts in order to take protective action during emergencies. Failure to transmit an alert and deliver life-saving information to affected communities during a real emergency puts the public at risk.
- PSHSB recommends that Commission adopt rules to ensure that EAS Participants are updating their EAS equipment's software and have a plan for replacing equipment that is no longer supported. As of early October 2023, over 4,500 EAS Participants, approximately 23% of EAS equipment units, were either using outdated software or operating equipment that no longer supported regular software updates. The 2023 test also revealed that fully up-to-date equipment had the highest receipt and retransmission performance results (97% and 95%, respectively), whereas equipment with equipment that is no longer supported had the lowest receipt and retransmission performance results (90% and 85%, respectively). The use of equipment with older software or equipment that no longer receives manufacturer support increases the risk of alert failure as well as poses major security risks.
- PSHSB recommends that its staff engage with EAS Participants in the territories of the United States to improve EAS performance. The 2023 nationwide test results showed that EAS Participants reporting from these territories, including the Northern Mariana Islands, Guam, American Samoa, the U.S. Virgin Islands, and Puerto Rico were among the lowest performers for both alert receipt and retransmission. These territories in particular have been plagued by multiple tropical storms and typhoons in recent years including Super Typhoon Mawar affecting Guam and the Northern Mariana Islands in late May 2023,<sup>76</sup> and Hurricane Fiona affecting Puerto Rico and the U.S. Virgin Islands and Puerto in September 2022.<sup>77</sup> PSHSB will work closely with EAS Participants and SECCs, and if necessary help reinvigorate SECCs and pursue enforcement actions, to ensure that EAS is effective in these territories.
- PSHSB recommends that its staff work with FEMA to evaluate ways to improve the accessibility of EAS text crawl. Filers reported that some EAS text crawls were not accessible due to circumstances such as overlapping with closed captions, scrolling too fast, having a low contrast ratio between the text color and background color, were too small, or were unclear/blurry. It is important that EAS Participants take steps to identify and correct these issues before EAS is needed during an emergency.
- PSHSB recommends that Congress require all CMS Providers to support WEA.<sup>78</sup> As discussed above, 44% of respondents who reported they did not receive the WEA test message did not know why the alert was not received. Requiring all CMS Providers to support WEA would

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<sup>76</sup> FCC, *Super Typhoon Mawar*, <https://www.fcc.gov/mawar> (last visited Mar. 6, 2024).

<sup>77</sup> FCC, *Hurricane Fiona*, <https://www.fcc.gov/fiona> (last visited Mar. 6, 2024).

<sup>78</sup> *Contra* 47 U.S.C. § 1201.

enhance public safety by ensuring greater consistency in the delivery of life-saving alerts to the public, making it a more reliable and effective warning tool for alerting authorities nationwide.

- PSHSB recommends that the Commission adopt rules to improve the operational readiness and software updating practices of Participating CMS Providers. Similar to the performance observed for EAS, 5.8% of respondents to NYCEM's survey reported they did not receive the WEA test message and some providers reported that they experienced technical failures during the test that prevented members of the public from receiving the alert. Just like in receiving EAS messages, it is essential that the entire public be able to successfully receive WEA alerts in order to take protective action during emergencies, and PSHSB finds that further action is necessary to ensure WEA's availability and reliability.

## **VII. CONCLUSION**

The 2023 nationwide WEA and EAS test successfully demonstrated the effectiveness of WEA and the EAS as alerting tools, as well as the capability of IPAWS to disseminate these alerts to the public through the nation's alert and warning infrastructure. This year's test also highlighted several areas in which WEA and the EAS can continue to improve and additional actions that should be taken to ensure that these systems are as effective as they can be. The Bureau will continue to work with FEMA, EAS Participants, and other EAS stakeholders to improve the system and ensure that it remains effective and can transmit timely and accurate nationwide alerts to the public when they are needed the most.

APPENDIX: HOW WEA AND EAS WORKS

**Wireless Emergency Alerts**

In 2008, pursuant to the Warning, Alert and Response Network (WARN) Act,<sup>79</sup> the Commission adopted rules allowing CMS Providers to voluntarily deliver timely and accurate emergency alerts over subscribers' mobile devices.<sup>80</sup> The WARN Act required that the Commission undertake a series of actions, including the establishment and convening of an advisory committee to recommend technical requirements for WEA.<sup>81</sup> Accordingly, the Commission formed the Commercial Mobile Service Alert Advisory Committee (CMSAAC).<sup>82</sup> The CMSAAC submitted its report to the Commission on October 12, 2007, as required by the WARN Act.<sup>83</sup> The Commission subsequently promulgated rules governing WEA, within the timeframes established by the WARN Act.<sup>84</sup> The WARN Act gives the Commission authority to adopt "relevant technical standards, protocols, procedures and other technical requirements based on the recommendations of such Advisory Committee necessary to enable commercial mobile service alerting capability for commercial mobile service providers that voluntarily elect to transmit emergency alerts."<sup>85</sup> The WARN Act also gives the Commission authority to adopt procedures whereby CMS Providers could specify their intent to the Commission to participate in WEA.<sup>86</sup> 76 CMS Providers

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<sup>79</sup> On October 13, 2006, the President signed the Security and Accountability for Every Port (SAFE Port) Act into law. Title VI of the SAFE Port Act, also known as the WARN Act, establishes a process for the creation of a national mobile alerting system, now known as WEA, whereby Participating CMS Providers transmit emergency alerts to their subscribers. *See* Warning, Alert and Response Network (WARN) Act, Title VI of the Security and Accountability For Every Port Act of 2006, 120 Stat. 1884, *codified at* 47 U.S.C. § 1200, *et seq.* (2006) (WARN Act).

<sup>80</sup> *See* 47 CFR Part 10.

<sup>81</sup> WARN Act §§ 603(a), (d), 47 U.S.C. § 1203(a), (d).

<sup>82</sup> *See* Notice of Appointment of Members to the Commercial Mobile Service Alert Advisory Committee, Agenda for December 12, 2006 Meeting, *Public Notice*, 21 FCC Rcd 14175 (PSHSB 2006).

<sup>83</sup> *See* Federal Communications Commission Commercial Mobile Service Alert Advisory Committee (CMSAAC), PMG-0035 Commercial Mobile Alert Service Architecture and Requirements, at 66 (2007) (*CMSAAC Report*).

<sup>84</sup> WARN Act § 602(a), 47 U.S.C. § 1202(a) (requiring the Commission to promulgate technical standards for WEA within 180 days of receipt of the CMSAAC's recommendations); *id.* at § 602(c), 47 U.S.C. § 1202(c) (requiring the Commission to promulgate requirements for noncommercial educational broadcast stations or public broadcast stations to enable the distribution of geographically targeted messages within 90 days of the publication of its technical standards); *id.* at § 602(b), 47 U.S.C. § 1202(b) (requiring the Commission to promulgate election procedures for CMS Providers within 120 days of the publication of its technical standards); *id.* at § 602(f), 47 U.S.C. § 1202(f) (requiring the Commission to require by regulation technical testing for commercial mobile service providers that elect to transmit emergency alerts and for the devices and equipment used by such providers for transmitting such alerts).

<sup>85</sup> *Id.* at § 602(a), 47 U.S.C. § 1202(a).

<sup>86</sup> *Id.* at § 602(b), 47 U.S.C. § 1202(b). Under the WARN Act, CMS Providers could elect to participate in whole, in part, or not at all. *Id.* at § 602(b)(1)(B), 47 U.S.C. § 1202(b)(1)(B). CMS Providers who intended to participate in WEA were required to specify their intent to the Commission in writing. *See id.* at § 602(B)(2)(A), 47 U.S.C. § 1202(B)(2)(A) (requiring that "within 30 days after the Commission issues its order under [Section 602(b)], each licensee providing commercial mobile service shall file an election with the Commission with respect to whether or not it intends to transmit emergency alerts").

elect to participate in WEA, at least in part.<sup>87</sup> Since its launch in 2012, the WEA system has been used more than 86,000 times to warn the public about dangerous weather, missing children, and other critical situations – all through alerts on compatible cell phones and other mobile devices.

The WEA system is a tool for authorized federal, state and local government entities to geographically target National Alerts, Imminent Threat Alerts, AMBER Alerts, and Public Safety Messages to the WEA-capable mobile devices of Participating CMS Providers' subscribers.<sup>88</sup> As depicted in Figure 1 below, a WEA Alert Message is sent by an authorized federal, state or local government entity using the Common Alerting Protocol (CAP) to the Federal Emergency Management Agency (FEMA)-operated Alert Aggregator via a secure, Internet-based interface (the A-Interface) where it is authenticated, validated and subsequently delivered to FEMA's Alert Gateway (the B-Interface).<sup>89</sup> At the FEMA Alert Gateway, the Alert Message is prepared for delivery to the Participating CMS Provider by being converted to Commercial Mobile Alert for C-Interface (CMAC) format to render it readable by WEA-capable mobile devices. The Alert Message is then disseminated across a secure Internet-based interface (the C-Interface) to the Participating CMS Provider's Alert Gateway (CMSP Gateway) for distribution to mobile customers over cell broadcast (CMSP Infrastructure).<sup>90</sup>

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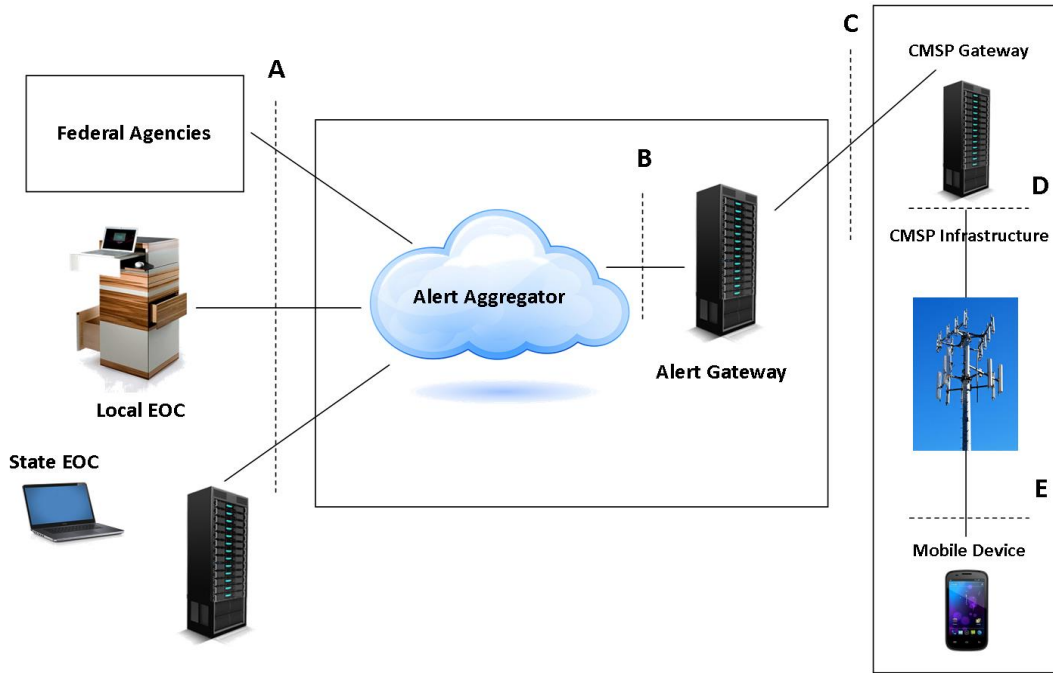
<sup>87</sup> See FCC, *Master WEA Registry*, <https://www.fcc.gov/files/weamasterregistry112019.xls>; PS Docket No. 08-146 (containing a record of all Participating CMS Providers' elections to participate in WEA).

<sup>88</sup> See, e.g., 47 CFR § 10.450 (geo-targeting); § 10.430 (character limit); § 10.400 (classification).

<sup>89</sup> See *infra* Figure 1 (WEA Architecture). CAP is an open, interoperable, XML-based standard that can include multimedia such as streaming audio or video. See OASIS CAP v1.2 (IPAWS Profile for the OASIS Common Alerting Protocol IPAWS USA). CAP messages contain standardized fields that facilitate interoperability between and among devices. See *id.*

<sup>90</sup> From a technical standpoint, the WEA system currently deployed by FEMA and Participating CMS Providers is based on standards created by the Alliance for Telecommunications Industry Solutions (ATIS), the Telecommunications Industry Association (TIA) (jointly, ATIS/TIA), and the 3rd Generation Partnership Project (3GPP). See *CSRIC IV WEA Messaging Report* at 7. We note that nothing in the WARN Act or the Commission's rules requires WEA to be a cell-broadcast-based service.

Figure 1. WEA Architecture



Currently, Participating CMS Providers’ WEA infrastructure removes Alert Message metadata, including a description of the geographic target area for the Alert Message and the Alert Message’s expiration time, and then transmits the Alert Message content to their subscribers’ WEA-capable devices. While the Commission’s WEA rules are technologically neutral, most Participating CMS Providers use cell broadcast technology to transmit WEA Alert Messages to their subscribers.<sup>91</sup> When the Alert Message is received by a WEA-capable mobile device, it is prominently presented to the subscriber as long as the subscriber has not opted out of receiving Alert Messages of that type.<sup>92</sup>

<sup>91</sup> See CSRIC V, Working Group Two, Wireless Emergency Alerts – Recommendations to Improve Geo-targeting and Offer Many-to-One Capabilities, Final Report and Recommendations 8 (2016); *but see* Letter from Rebecca Murphy Thompson, EVP and General Counsel, Competitive Carriers Association, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 2 (filed Oct. 10, 2017) (stating that some carriers offer WEA using a software application, rather than cell broadcast).

<sup>92</sup> See Joint ATIS/TIA CMAS Mobile Device Behavior Specification (ATIS-TIA-J-STD-100). Subscribers’ right to opt out of WEA Alert Message receipt extends to all but the National Alert. See 47 CFR § 10.280.

### The Emergency Alert System

The EAS is designed primarily to provide the President with the capability to communicate via a live audio transmission to the public during a national emergency.<sup>93</sup> The EAS is the successor to prior national warning systems Control of Electromagnetic Radiation (CONELRAD), established in 1951; and the Emergency Broadcasting System (EBS), established in 1963.<sup>94</sup> The FCC, in conjunction with FEMA and the NWS, implements EAS at the federal level.<sup>95</sup> The respective roles these agencies play are defined by a 1981 Memorandum of Understanding between FEMA, NWS and the FCC;<sup>96</sup> a 1984 Executive Order;<sup>97</sup> a 1995 Presidential Statement of EAS Requirements;<sup>98</sup> and a 2006 Public Alert and Warning System Executive Order.<sup>99</sup> As a general matter, the Commission and FEMA work closely with radio and television broadcasters, cable providers, and other EAS Participants and stakeholders – including state, local, territorial and tribal governments – to ensure the integrity and utility of the EAS.

FCC rules require EAS Participants to have the capability to receive and transmit National Emergency Message alerts (EANs) disseminated over the EAS, and generally govern all aspects of EAS participation.<sup>100</sup> EAS Participants also voluntarily transmit thousands of alerts and warnings issued annually by the NWS and state, tribal, and local governments, these alerts typically address severe weather threats, child abductions, and other local emergencies. As discussed in more detail below, non-National Emergency Message EAS alerts do not require that EAS Participants open a live audio feed from the alerting source, but rather transmit alerts with prerecorded messages that can be delivered at the discretion of the EAS Participant, rendering non-National Emergency Message alerts (and their related testing procedures) inappropriate for end-to-end testing of a nationwide alert.<sup>101</sup>

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<sup>93</sup> See Review of the Emergency Alert System, *Second Further Notice of Proposed Rulemaking*, 25 FCC Rcd 564, 565, para. 2 (2010).

<sup>94</sup> CONELRAD was not an alerting system *per se* but was rather a Cold War emergency system under which most radio and television transmission would be shut down in case of an enemy missile attack to prevent incoming missiles from homing in on broadcast transmissions. The radio stations that were allowed to remain on the air, the CONELRAD stations, would remain on the air to provide emergency information. See “Defense: Sign-off for CONELRAD,” *Time Magazine*, Friday, July 12, 1963.

<sup>95</sup> FEMA acts as Executive Agent for the development, operation, and maintenance of the national-level EAS. See *Memorandum*, Presidential Communications with the General Public During Periods of National Emergency, The White House (September 15, 1995) (*1995 Presidential Statement*).

<sup>96</sup> See 1981 State and Local Emergency Broadcasting System (EBS) Memorandum of Understanding among the Federal Emergency Management Agency (FEMA), Federal Communications Commission (FCC), the National Oceanic and Atmospheric Administration (NOAA), and the National Industry Advisory Committee (NIAC), reprinted as Appendix K to Partnership for Public Warning Report 2004-1, *The Emergency Alert System (EAS): An Assessment*.

<sup>97</sup> See Assignment of National Security and Emergency Preparedness Telecommunications Function, Exec. Order No. 12472, 49 Fed. Reg. 13471 (1984).

<sup>98</sup> See *1995 Presidential Statement*.

<sup>99</sup> See *Public Alert and Warning System*, Exec. Order No. 13407, 71 Fed. Reg. 36975 (June 26, 2006) (*Executive Order*).

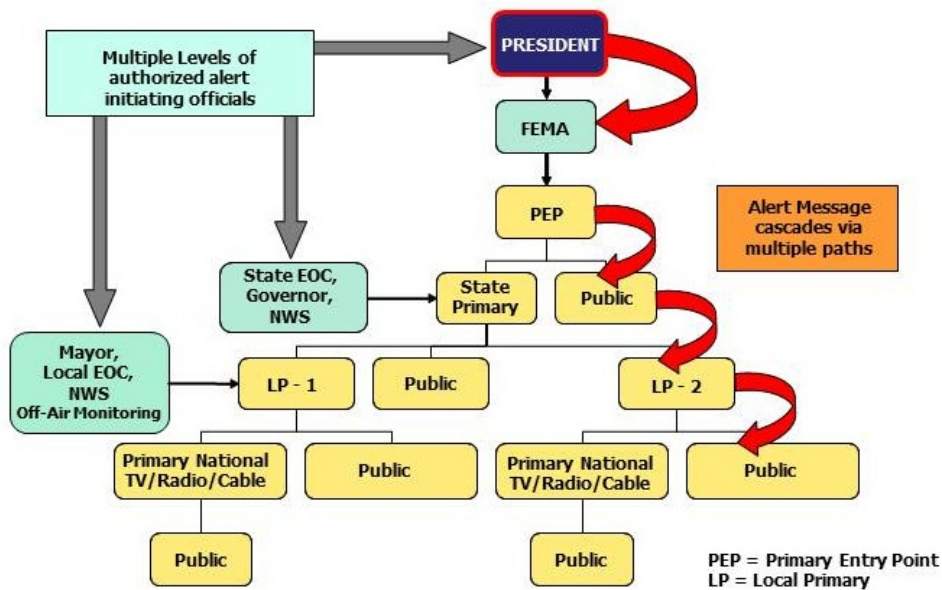
<sup>100</sup> See 47 CFR Part 11.

<sup>101</sup> See *2011 EAS Nationwide Test Report* at 7, n.13.

**Broadcast-Based Distribution of EAS**

There are two methods by which EAS alerts may be distributed. Under the broadcast-based distribution structure, illustrated in Figure 2 below, the EAS is designed to cascade the National Emergency Message through a pre-established hierarchy of broadcast, cable, and satellite systems. FEMA initiates a nationwide, National Emergency Message alert using specific encoding equipment to send the EAN code initially to the Primary Entry Point (PEP) stations over a secure telephone (wireline) connection.<sup>102</sup> PEP stations are privately owned commercial and non-commercial radio broadcast stations that cooperatively participate with FEMA to provide emergency alert and warning information to the public before, during, and after a national or local emergency.<sup>103</sup> Upon receipt of the code, the PEPs open a live audio channel to FEMA and broadcast the National Emergency Message throughout their listening areas. A group of selected EAS Participants in each PEP’s broadcast area, known as Local Primary (LP) stations, monitor these PEP stations. When LP stations receive the National Emergency Message, they, in turn, open up an audio channel to FEMA via the PEP, and broadcast the National Emergency Message in their listening areas. The remaining broadcasters, cable television facilities and other EAS Participants located in each LP’s broadcast footprint receive the alerts from the LP stations, transmit the alerts to the public (or in the case of cable, to customers’ set top boxes), and open up the audio channel to FEMA through their PEP and LP.

**Figure 2. EAS Architecture**



<sup>102</sup> The EAN and other EAS codes are part of the Specific Area Message Encoding (SAME) protocol used both for the EAS and NOAA weather radio. See National Weather Service, “NOAA Weather Radio All Hazards,” available at [https://www.weather.gov/sgf/nwr\\_same](https://www.weather.gov/sgf/nwr_same).

<sup>103</sup> See FEMA Fact Sheet, Primary Entry Point (PEP) Stations available at: <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/broadcasters-wireless> (last visited Jan. 3, 2024); see also information about PEP stations at <https://www.fema.gov/national-public-warning-system> (last visited Jan. 3, 2024). PEP stations serve as the primary source of initial broadcast for a national alert and are equipped with back-up communications equipment and power generators designed to enable them to continue broadcasting information to the public during and after an event. *Id.*

### Alerting via IPAWS

EAS and WEA alerts may be distributed over the Internet through the Integrated Public Alert and Warning System (IPAWS), illustrated in Figure 3 below.<sup>104</sup> As of June 30, 2012, EAS Participants are required to be able to receive EAS alerts formatted in Common Alerting Protocol (CAP)<sup>105</sup> from authorized emergency alert initiators over the Internet via IPAWS. CAP-formatted alerts can include audio, video or data files, images, multilingual translations of alerts, and links providing more detailed information than what is contained in the initial alert (such as streaming audio or video).<sup>106</sup> An EAS Participant that receives a CAP-formatted message can utilize the CAP-formatted content to generate messages in synchronous audio and visual formats, which then can be broadcast to local viewers and listeners.<sup>107</sup> CAP also provides each alert with a unique alert identifier and supports alert authentication

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<sup>104</sup> FEMA, Integrated Public Alert & Warning System, <https://www.fema.gov/integrated-public-alert-warning-system> (last visited Jan. 3, 2024).

<sup>105</sup> See *Review of the Emergency Alert System; Independent Spanish Broadcasters Association, the Office of Communication of the United Church of Christ, Inc., and the Minority Media and Telecommunications Council, Petition for Immediate Relief; Randy Gehman Petition for Rulemaking*, EB Docket 04-296, Fourth Report and Order, 26 FCC Rcd 13710, 13719, para. 20 (2011) (*Fourth Report and Order*). CAP is an open, interoperable standard developed by the Organization for the Advancement of Structure Information Standards (OASIS), and it incorporates an XML-based language developed and widely used for web documents. See *Review of the Emergency Alert System; Independent Spanish Broadcasters Association, the Office of Communication of the United Church of Christ, Inc., and the Minority Media and Telecommunications Council, Petition for Immediate Relief; Randy Gehman Petition for Rulemaking*, Fifth Report and Order, 27 FCC Rcd 642, 648, para. 10 (2012), *pet. denied in Multicultural Media, Telecom and Internet Council and the League of United Latin American Citizens, Petitioners, v. FCC*, D.C. Cir., 873 F3d 932 (Oct. 17, 2017). CAP messages contain standardized fields that facilitate interoperability between and among devices and are backwards-compatible with the EAS Protocol. See *id.*

<sup>106</sup> See *Review of the Emergency Alert System; Independent Spanish Broadcasters Association, the Office of Communication of the United Church of Christ, Inc., and the Minority Media and Telecommunications Council, Petition for Immediate Relief; Randy Gehman Petition for Rulemaking*, Fifth Report and Order, 27 FCC Rcd 642, 648, para. 10 (2012), *pet. denied in Multicultural Media, Telecom and Internet Council and the League of United Latin American Citizens, Petitioners, v. FCC*, D.C. Cir., 873 F3d 932 (Oct. 17, 2017). Any data contained in a CAP-formatted message beyond the EAS codes and audio message (if present), such as enhanced text or video files, can be utilized locally by the EAS Participant that receives it, but cannot be converted into the EAS Protocol and thus cannot be distributed via the broadcast-based distribution system, as reflected in the part 11 rules. See *e.g.*, 47 CFR § 11.51(d), (g)(3), (h)(3), (j)(2).

<sup>107</sup> See 47 CFR § 11.51(d), (g)(3), (j)(2).

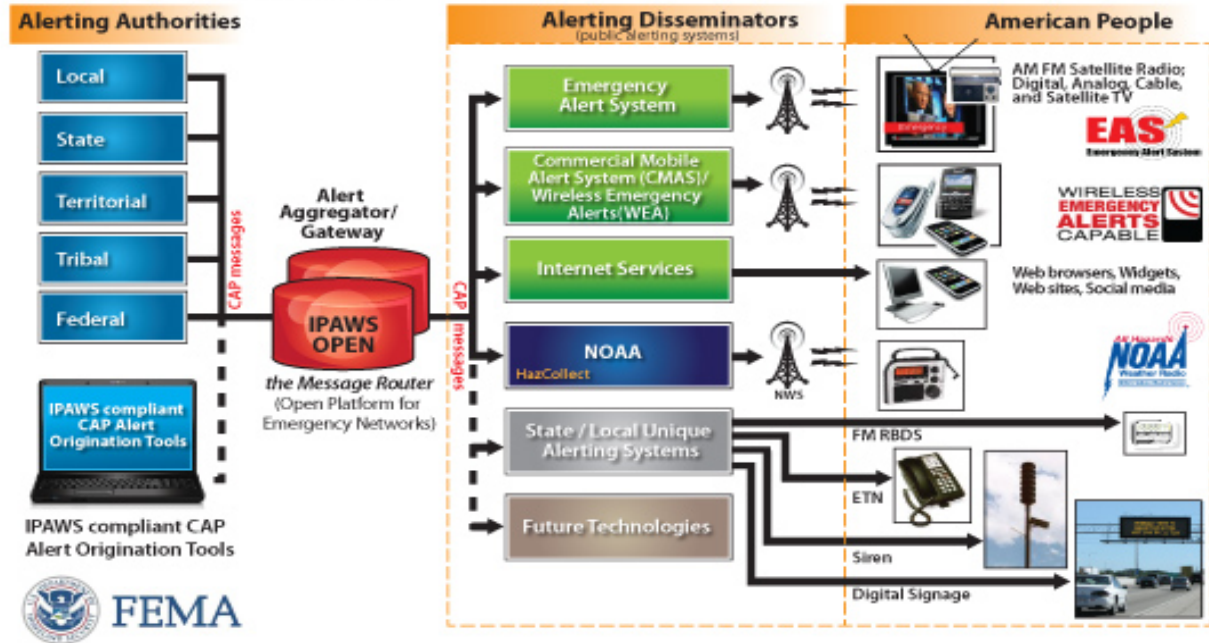


through the provision of a digital signature and an encryption field that enables greater protection of the CAP message.<sup>108</sup>

Figure 3. IPAWS Architecture

**IPAWS Architecture**

Standards based alert message protocols, authenticated alert message senders, shared, trusted access & distribution networks, alerts delivered to more public interface devices



<sup>108</sup> See OASIS, Common Alerting Protocol Version 1.2 (2010), available at <https://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.pdf> (last visited Jan. 3, 2024).