



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, MD 20910-3283

June 3, 2016

Marlene H. Dortch, Secretary
Office of the Secretary
Federal Communications Commission
445 12th Street SW
TW-A325
Washington, DC 20554

Re: In the Matter of Review of the Emergency Alert System and Wireless Emergency Alerts, PS Docket 15-94 and PS Docket 15-91, respectively, and as detailed in the Notice of Proposed Rulemaking released on Jan 29, 2016

Dear Madam Secretary:

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service welcomes the opportunity to provide inputs concerning the Emergency Alert System and Wireless Emergency Alerts, as detailed in the attachment.

Very respectfully,

A handwritten signature in blue ink that reads "Timothy J. Schott".

Timothy J. Schott
Meteorologist
Analyze, Forecast and Support Office

**National Weather Service comments to the NPRM PS Dockets 15-94 and 15-91
June 3, 2016**

¶16 EAS Protocol Alert Distribution Diagram

NWS COMMENT: The diagram omits NWS/NWR direct input to primary national radio/TV/cable. There are many EAS Participants monitoring NWR as the primary source. NWS recommends consideration for including NWR in this diagram.

- ¶32 Should FCC reestablish the National Advisory Council (NAC)?**
- Should NAC be charged with initial State EAS Plan approvals?
 - Should NAC perform outreach to SECCs?
 - What should NAC membership be? SECCs? NAB? SBE? NWS?

NWS COMMENT: The NWS urges the Commission to reestablish the National Advisory Committee (NAC) or similar group (e.g., a CSRIC Working Group) to facilitate communication between the SECCs, various EAS Participant organizational representatives, and the Federal agencies directly engaged with EAS. NWS was an active member of the NAC before it lapsed in the early 2000s and would welcome an invitation to participate—we found the NAC provided opportunities for open discussion of issues and timely resolution of some issues. Today's EAS is more than the traditional broadcast industry. A reestablished NAC should include organizational representation from all types of EAS Participants, state/local emergency management agencies, the Federal Emergency Management Agency, the National Weather Service, and other Federal agencies deemed necessary to further the mission of the NAC. The group's charter should establish scope, recognize constraints, provide resources and set reasonable expectations. Traditionally, SECC members and other EAS experts have served the EAS community admirably many times by volunteering to work on their personal time. Outreach and assistance to the SECCs in performing their respective duties and helping to resolve EAS issues may be reasonable expectations but initial approval of state EAS plans may be burdensome.

- ¶46 Are there examples of best practices from our federal ... partners for using crowdsourced information in an emergency situation? To what extent would it be possible to leverage this (Peta Jakarta) model as a best practice for automated crowdsourcing of reliable emergency response data?**

NWS COMMENT: The NWS is aware of the relative success in the information-gathering process demonstrated in the Peta Jakarta effort. Emergency managers frequently state the best data comes from the public at little or no expense. M-Ping (<https://mping.ou.edu/display>) is an early foray into public reporting. Researchers are looking at how to mine the atmospheric pressure as measured by millions of Android phones. At Oklahoma University, researchers are scraping Twitter (millions of tweets per day) for weather reports. We believe this is going to be huge in a few years, but we are a few years away from establishing methodologies. At the same time, we need to be sure that crowdsourced information is reliable and accurate. NWS often receives incorrect or misperceived information from the public among individuals who are not properly trained in identifying weather phenomena (e.g., a well-meaning citizen identifying a shelf cloud as a tornado). The NWS has long relied on a network of NWS-trained spotters through the SKYWARN program (<http://www.nws.noaa.gov/skywarn>) to provide reliable weather information back to the NWS.

¶160 Proposal to amend EAS rules to authorize EAS Participants to conduct periodic EAS exercises using live event header codes ... we further propose to amend Section 11.45 to exempt state-designed EAS live code exercises from our prohibition against false or misleading use of the EAS attention signal.

NWS COMMENT: A number of NWS offices participate in live code tests, as fully coordinated with state broadcaster associations and state and local emergency communications committees. The NWS supports amending the EAS rules to authorize periodic tests using live event codes, as such testing supports our agency's mission to protect life and property. For example, following an inadequate response to the June 14, 2005 tsunami warning for the west coast of California, a 2006 Government Accountability Office Report on Tsunami Preparedness called for NOAA and the states to conduct end-to-end testing of the tsunami warning and alert system. In response, the California Governor's Office of Emergency Services formally requested that NOAA initiate annual end-to-end tests of the tsunami EAS. With FCC waiver, 2016 was the eighth year a live code Tsunami Warning Communications Test was planned and executed for the north coast of California.

¶161 Would expanding our Part 11 rules to permit live code testing facilitate opportunities for system verification, proficiency building, and raising public awareness about EAS?

NWS COMMENT: The NWS, in conjunction with state offices of emergency management/preparedness, conducts severe weather preparedness days/weeks, such as for tsunamis and tornadoes. NWS decisions to participate in live code tests are locally determined through respective NWS Regional Headquarters and local Weather Forecast Offices. When agreement has been reached for conducting live code testing, the use of live code testing can assess if live codes will work in an actual emergency. When a wide range of pre and post-public information materials and activities have been developed to reach and inform the greatest number of people possible, the NWS views live code testing as a key component of severe weather preparedness weeks. Live code testing as executed with NWR/SAME supplements our public education and outreach efforts by activating SAME-equipped NWR receivers for the public and at schools, houses of worship and workplaces.

¶162 FCC seeks comment on the methods used by EAS Participants to inform the public that the attention signal they hear does not indicate an actual emergency.

NWS COMMENT: In communities where NWS participates in live code testing, extensive community outreach activities are supported by the NWS prior to the test, to include public workshops, meetings, posters, web sites with frequently asked questions, NOAA news releases prior to the test and frequent Public Service Announcements over NOAA Weather Radio. The NWS has successfully conducted Required Monthly Tests over NOAA Weather Radio, in the hour immediately prior to live code tests, to further inform the public about the test. NWS also collects feedback via web sites, to learn if there was any public confusion during a test and how this might be mitigated for improved planning prior to future tests.

We note there is discussion in Paragraph 137 on the inclusion of additional data being added to the legacy encoding schema somewhere between the start of the header and the broadcast of the end of message. If such a change is approved, we suggest the inclusion of a simple flag indicating TEST MESSAGE be included in the additional decoding.

¶163 how often should live code testing occur?

NWS COMMENT: In communities where NWS participates in live code testing for weather-related events, the NWS would generally support such testing one time per year, in conjunction with annual awareness/preparedness weeks.

¶192-93 Seeks “comment on whether we should consider tablets that consumers use to access mobile services as ‘mobile devices’ under our Part 10 WEA rules.”

NWS COMMENT: There are important trends in cell phone and tablet hardware and sales to consider. According to the Pew Research Center (<http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015/>), 98% of US adults ages 18-29 own a cell phone, while 45% of these adults own a tablet computer. Numerous articles on the web suggest tablet sales are flat or waning due to their longer shelf life/life cycle compared to cell phones and because many smartphones are taking on the form of a phablet—cell phones with larger screens. WEA should focus on cell phones, but the FCC should also be careful about trying to distinguish between tablet and cell phones, given the convergence of the two in phablets.

¶194 Seeks “comment on the potential of new and emerging technologies to improve alert accessibility...the state of technology for machine-generated translation (i.e., the use of software to translate text or speech from one language to another), to provide emergency alerts in non-English languages, and whether and how such technology could be leveraged by both the EAS and WEA systems.”

¶196 Seeks comment on the feasibility of providing WEA messages in languages other than English and on the extent to which accessibility requirements would improve the presentation of multimedia content in WEA messages.

NWS COMMENT: It is not feasible for alert originators to transmit all possible languages that may be appropriate for a given area. Therefore, efforts should be made to study and observe best practices of successful emergency alerting services targeted to reach non-English speaking communities.

This is an opportunity for the WEA technologies community to further explore the development of an Application Program Interface (API). The API should then be made available to third party developers. Third party software/mobile applications could be developed which provide WEA in accessible formats customized to the accessibility and disability needs of the user.

Furthermore, third party applications of various forms (e.g. graphics, text, audio, multiple languages, etc.) could be developed to supplement WEA, expedite delivery of life-saving information, and result in overall advancements in public alerting. Developers would not necessarily need FCC rulings to make improvements to their applications. The removal of this administrative requirement would help to keep the application technologies up-to-date and most useful to the communities being served. While the NWS appreciates concerns over regulations and cybersecurity, the NWS believes a standard certifying mechanism for applications, or something along those lines, could address some issues. The NWS does note that this would not solve all issues, but could be one solution.

To reach increasingly diverse populations, similar types of technologies investigations and flexible operational transfers should be pursued for future programmatic updates for the EAS

¶134-¶143 Alert authentication, unique ID, and alert validation

¶137 Need authentication in EAS protocol messages. Monroe Electronics suggests its AFSK “TDX” solution following header code; lasts 2-4 seconds. To confirm the authenticity, Monroe suggests its AFSK “TDX” solution; lasts 2-4 seconds; adds a unique message ID or authenticator after the existing EAS header codes. FCC feels all previous false alerts would have been prevented by this.

¶139 Seeks comment on feasibility of including a unique message ID and/or authenticator ancillary to the EAS Protocol header codes. Should one, two or all of methods be required?

¶140-¶143 Seeks comment on feasibility of adding year to header code. Costs? Seeks comment on requiring validation of Station ID code.

NWS Comment: In reference to paragraphs 134 to 139, the NWS urges the Commission to convene an appropriate group of EAS and NOAA Weather Radio stakeholders to oversee research and testing to assess potential solutions. Exploration of potential solutions should include not only issues related to alert authentication but also another long-standing, known issue, that of the shortcomings in EAS duplicate message handling. We concur with the discussion and recommendations in section 6.3, EAS Duplicate Message Handling, of the Commission's [Communications Security, Reliability and Interoperability Council III, Working Group 9, CAP Implementation, Final Report – Part 4, dated March 2013](#). In their report, the working group offered four potential solutions.

As with any proposed changes to the EAS Protocol, at minimum any solution will require thorough testing as recommended by the CSRIC III WG9 to 1) validate EAS duplicate messages are properly filtered and 2) ensure legacy EAS devices and legacy radio receivers, including those used as inputs to EAS devices and in consumer devices, are not adversely impacted by the solution. The NWS notes that more than 280,000 NWR Public Alert Receivers were distributed to preschools, Head Start programs, K-12 schools and post-secondary 2 and 4 year schools between 2005 and 2008, supported by special Congressional funding in collaboration between the Departments of Commerce, Education, Health and Human Services, and Homeland Security.

Paragraph 141 suggests, as do the proposed rules in Appendix A at 5, “Amend § 11.31 by revising paragraph (c) to read as follows” specifically shows inserting a year parameter “YYYY” in the time stamp portion of the EAS Protocol. The NWS believes this action will likely doom to failure the SAME alerting feature of all legacy EAS devices and legacy radio receivers, including those used as inputs to EAS devices. We reiterate the comment above on paragraphs 137 and 139 that any proposed changes to the EAS Protocol, at a minimum, will require testing to ensure legacy EAS devices and legacy NOAA Weather Radio receivers and Public Alert™ devices meeting CEA-2009 industry-wide standards, including those used as inputs to EAS devices and in consumer devices, are not adversely impacted by the solution and minimize the impact on EAS Participants and other stakeholders. Any modification of the SAME encoded message must be planned and tested to ensure the change is backwards compatible to existing SAME decoding devices including NWR and Public Alert™ receivers.

With respect to these considerations to alter the EAS protocol, the NWS recommends, as we previously stated in our response to Paragraph 62, the inclusion of a simple flag indicating TEST MESSAGE, to provide notification that a test message is truly a test. In addition, because Certainty, Severity and Urgency are used to populate CAP-formatted messages, consideration should be afforded to include these parameters in the legacy SAME message; in this way, this filtering capability on these parameters

that are added to EAS boxes would be the same, regardless of whether the box is processing a CAP message or a legacy SAME message.

¶175-178 Preserving EAS Defense through Planned Diversity

¶175 Seeks comment if FCC should keep both traditional EAS and IPAWS-based EAS for resiliency?

Can traditional EAS be sufficiently secured?

Do EAS Participants in rural areas have Internet access?

If migrating to one system, on what timetable?

¶176 Are EAS stakeholders confused by having two systems?

Is current system appropriate considering technological advancements like social media alerts and WEA alerts?

NWS COMMENT: The alert and warning enterprise associated with EAS should be proactive in assessing CAP use for improving alerting capabilities in the existing infrastructure, as well as opportunities new technologies and developments may present. However, the NWS encourages the Commission to remain mindful of the important roles of traditional EAS. Particularly in rural areas, there are EAS Participants which continue to rely on NWR as their primary input for EAS, in part because of spotty or unreliable internet services.

WEA and EAS are essential parts of our nation's larger warning network. However, the technological and geo-targeting limitations of EAS often make it less relevant to the public. The NWS has been providing the public with richer and more meaningful warning information— such as through the use of warning polygons since 2007— than EAS is capable of conveying to the public. The current EAS paradigm features a mismatch between large broadcaster footprints and the level of specificity to which the NWS warns. This has been particularly acute in the southwest US. Broadcasters are unable to geotarget NWS warnings at the polygon or even the county level. Instead, broadcasters must make a choice to broadcast/render the alert on all televisions/radios in their broadcast footprints or none at all, thereby not conveying potentially life-saving information to the public.

The inability to convey alerts at the polygon level goes well beyond weather alerts—it also extends to Non-Weather Emergency Messages as authorized in the Part 11 Rules. It is likely that emergency managers will increasingly issue CAP messages with polygons. Because of the inability to geotarget alerts, emergency management authorities face messaging challenges connected with today's EAS. This is a particular challenge for areally-large counties, many of which are located in the western US. For example, a toxic spill might result in an Evacuation Order, issued by appropriate emergency management officials, applicable to all persons within one half mile of a spill. When an Evacuation Immediate /EVI/ EAS Event Code is invoked and broadcast via EAS, the entire county in which the toxic spill occurred is effectively alerted; thus, the public located safely away from the toxic spill area may perceive the Evacuation Order applies to their immediate community as well. Misunderstood or misperceived messaging may result in unintended public responses during these emergencies.

Noting the technical challenges as detailed above, the NWS strongly encourages the Commission to actively engage stakeholders, technologists, and policymakers to develop a comprehensive plan to provide long term solutions to upgrade or potentially overhaul today's EAS. Such a wholistic process must ensure changes are consistent with current legacy EAS technologies, yet able to advance with emerging technologies and warning capabilities. Perhaps discussions would be most productive through the formation of a CSRIC Working Group. The NWS would be very interested in participating in such an effort. As the NWS works to fulfill the vision of a Weather-Ready Nation, a key service delivery

area is our need to communicate our warnings quickly and effectively over the EAS before, during and after a high-impact weather event to reach as broad an audience as possible.

¶177 Seeks comment on concerns of relying on “broadband (i.e. IP)”.
Main concern is security. Is current testing adequate in IP environment?

NWS COMMENT: NWS strongly urges the Commission to undertake a multi-year engagement of public alerting stakeholders, technologists, and policymakers to develop a comprehensive plan for upgrading the EAS to a system consistent with the current and emerging technologies of the 21st century

Concerning the use of “internet access ... to participate in the CAP-formatted system,” we are aware of many areas with poor or no internet access... We note that in the state of Montana, for example, there are 273 television and radio stations that use NWR as their primary EAS input.

¶178 Seeks comment on protecting EAS devices and their networks. Need redundant paths, equipment, power and services to maintain operation.
Should FCC maintain traditional EAS in addition to IPAWS EAS?

NWS COMMENT: Until a comprehensive upgrade or overhaul of EAS is accomplished, the NWS believes the need for reliability and resilience of the EAS, especially during or after a catastrophe, demands building on the “transitional approach” the Commission adopted in the *Second Report and Order* in 2007 and reaffirmed in the *Fifth Report and Order* in 2012. The combined RF-based SAME audio plus IP-based CAP message approach allows alerts to be transmitted in SAME through the legacy system, triggering alerts through the “daisy-chain” of participants or through state relay networks, providing backup to the IP-based CAP system. The legacy network still has benefits including the ability to function during power outages and events compromising internet capacity or connectivity, which could disable a wholly CAP-based system when Internet access or other IP network access is impaired or disabled.