Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Equipment and Operational Issues Identified Following the First Nationwide Test of the Emergency Alert System	)	EB Docket No. 04-296
	)	
	)	

To: The Commission

COMMENTS OF
NATIONAL PUBLIC RADIO, INC.

Introduction

National Public Radio, Inc. ("NPR") hereby responds to the Public Notice in the above-captioned proceeding seeking comment on various equipment and operational issues identified following the first-ever nationwide test of the Emergency Alert System ("EAS").[1]

NPR is a non-profit membership corporation that produces and distributes noncommercial educational ("NCE") programming through more than 975 public radio stations nationwide. In addition to broadcasting award winning NPR programming, including All Things Considered® and Morning Edition®, NPR affiliated stations are themselves significant program producers and community institutions. NPR also operates the Public Radio Satellite Interconnection System, provides representation and other services to its Member stations, and operates NPR Labs, which seeks to identify, evaluate and advance the application of innovative technologies, including those for accessible audiences, to support the public service mission of public radio stations and producers.

---

[1] Public Notice, EB Docket No. 04-296, DA 13-581 (Sept. 23, 2013) [hereinafter "Public Notice"].

NPR applauds the Commission for identifying and seeking to correct specific issues that came to light during the first nationwide EAS test. While the test demonstrated the basic soundness of the EAS,[2] there were a number of glitches that must be corrected.[3] The test also highlighted the need to enhance the EAS in specific ways, including by making alerts more accessible to those with specialized communications needs.[4]

NPR and its Member stations have long served an important EAS role in part because radio broadcasting is an inherently robust technology for communicating with the public during serious emergencies.[5] Accordingly, NPR and its Members were fully engaged in the nationwide EAS test. Indeed, NPR is sharing an informal report conducted subsequent to the nationwide EAS test, which documented that all interconnected Public Radio Satellite System ("PRSS") stations that monitored the NPR feed successfully received the alert tones, in many cases many seconds or even minutes ahead of the delays inherent in the terrestrial daisy chain relay.[6] In

---

[2] Strengthening the Emergency Alert System (EAS): Lessons Learned from the Nationwide EAS Test at 3 (Apr. 2013), *available at* www.fcc.gov/document/strengthening-emergency-alert-system [hereinafter "EAS Nationwide Test Report"]. *See* Public Notice at 3.

[3] *See* EAS Nationwide Test Report at 13, 15-16; Public Notice at 3.

[4] *See* Public Notice at 10.

[5] *See, e.g.*, Trust, G., Oklahoma City Radio Works To Help After Disaster, Billboard, May 21, 2013, retrieved from http://www.billboard.com/biz/articles/news/legal-and-management/1563092/oklahoma-city-radio-works-to-help-after-disaster; Sisario, B., After Hurricane Sandy, People Flock To Radio For Information, The New York Times, Nov. 18, 2012, retrieved from http://mediadecoder.blogs.nytimes.com/2012/11/18/after-hurricane-sandy-people-flock-to-radio-for-information/?_r=0; Pearce, M., Joplin Radio Stations Become Lifeline For Tornado-Stricken Residents, Los Angeles Times, retrieved from http://articles.latimes.com/2011/may/25/nation/la-na-tornado-radio-20110526;

[6] Public Radio Satellite System Analysis of Voluntary Public Radio Station Reporting of National EAS Test Exercise on November 9, 2011, at 2 (Jan. 2012), attached hereto as Attachment A.

several regions, the interconnected PRSS stations were the alternate Primary Entry Point ("PEP") feed, and nearby broadcasters relied on the EAS transmissions of those stations.[7]

NPR has made the facilities of the PRSS available for EAS use since 2000, when the Commission's Emergency Alerting Advisory Committee requested NPR's assistance. At that time, NPR established a shared channel for dissemination of the National Emergency Action Notification message through the PRSS for receipt by any interconnected public radio station. Initially, the feed monitored a nearby PEP station. The Federal Emergency Management Agency ("FEMA") subsequently determined that upgrading the NPR EAS feed with a dedicated PEP receiver was warranted. More recently, NPR and FEMA have collaborated to install both the terrestrial IPAWS feed and equipment at NPR's Network Operating Center for direct satellite connection from FEMA.

In addition to our commitment to EAS, NPR and its Member Stations are committed to extending the EAS's reach and capability, including by improving the accessibility of the EAS to persons with special communications needs. We are also engaged in developing new technologies that directly relate to "equal access to emergency information" for those with such needs.[8] We therefore appreciate the invitation to comment on how EAS accessibility can be improved so that "alerts and emergency communications are fully accessible for individuals with disabilities."[9]

In 2009, NPR commenced an effort to demonstrate a system of Braille radio with emergency alerting, working with the Helen Keller National Center and the National Federation

---

7 *Id*.

8 *See* Public Notice at 10

9 *Id*.

of the Blind and the support of the Department of Education's National Institute on Disability and Rehabilitation Research ("NIDRR").[10] The concept of Braille radio involves the real-time captioning of radio transmissions and the near-simultaneous transmission of the captioned audio to radio receivers equipped to display the captioning. Through this NIDRR-funded project, NPR demonstrated how Internet media displays can deliver a captioned radio service and convert such a stream, with appropriate firmware and software interfaces, to drive refreshable Braille displays and activate bed-shakers and wireless vibrating alert devices for the deaf-blind.[11]

In February 2013, NPR was awarded a contract by the Department of Homeland Security's Science and Technology Directorate, in collaboration with FEMA, to demonstrate in the five Gulf States how digital radio broadcast technology can be used during times of emergency to alert those who are deaf or hard of hearing.[12] This project will test delivery of emergency communications through radio digital subcarrier capacity. More than fifty Gulf States public radio stations, plus fifteen translator stations, licensed to more than two dozen colleges, universities, and community licenses are participating in the demonstration. The project will demonstrate the viability of the technology and assess the utility of EAS information communicated in this manner to 470 deaf or hard of hearing persons participating in the project.[13] The end-user testing is being conducted by noted cognitive scientist, Dr. Ellyn

---

[10] *See* http://www.nprlabs.org/braille-radio.

[11] *See* Captioned Braille Radio Initiative: Providing Emergency Information for Individuals who are Deaf-Blind (Sept. 2011), *available at* http://www.nprlabs.org/sites/nprlabs/files/documents/ar/Braille%20Radio%20Service_FEMA_GettingRealII_Sept11_FINAL.pdf

[12] *See* Press Release: NPR Labs To Pilot Project Of Radio Emergency Alerts For Deaf And Hard Of Hearing People In U.S. Gulf Coast, Feb. 22, 2013, *retrieved from* http://www.npr.org/about/press/2013/022213.NPRLabsPilot.html.

[13] In particular, this project will test the ability of the users to successfully use the

Sheffield of Towson University. Additionally, the Georgia Tech Wireless Rehabilitation Engineering Research Center will collaborate with Dr. Sheffield on test design and execution.

While the project is still under way, it is not too soon to consider how the technology could and should be implemented among radio stations generally and the policy framework that the Commission will use in guiding EAS improvements. First and foremost, we believe an "open standards" approach is essential to promoting broad adoption of the technology and is consistent with a governmental interest in encouraging continual innovation. In the case of NPR's Gulf States Accessible CAP Emergency Alerting demonstration project, NPR has chosen to adopt, create, and advance open standards protocols for these new technologies.

In fact, NPR recently proposed a "Modernized Emergency Alerting Open Data Application," or ODA, to the National Radio Systems Committee's Radio Broadcast Data Service subcommittee. The proposed ODA was developed in collaboration with key technology providers on the Accessible Gulf States project. Each collaborator has committed to the principle of the new Emergency Alerting ODA being an open protocol within the U.S. Radio Data System standard.[14] In contrast, several existing ODA's are registered for proprietary signaling technologies. We believe strongly that the federal government should support modernization of the EAS function within an open standards activity, rather than as a proprietary activity. This avoids the "capture effect" of proprietary protocols with muted priorities for innovation.

Second, the technology should be empirically tested, refined with cross-disciplinary experts providing peer review, and demonstrated through end user testing to have a high degree

---

equipment, test a variety of message formats, visual designs, and display options, and validate the responses by assessing critical information retention. *See id.*

[14] National Radio Systems Committee, NRSC 4-B, United States RBDS Standard (Apr. 2011) *available at* http://www.nrscstandards.org/download.asp?file=nrsc-4-B.pdf

of utility. NPR's Gulf States project is an example of a well-designed empirical study that supports a concrete improvement in the EAS infrastructure.

Finally, the Commission should support the application of advanced granularity in messaging strategies and technologies. The Emergency Alerting ODA NPR has proposed supports unprecedented specificity in messaging categories, recommended actions, and emergency types, and even polygonal geographic targeting of messaging. Specialized variant messaging is supported for special needs populations by disability, language, and other considerations.

In closing, the Commission stands uniquely positioned as a long standing administrator of the EAS and an advocate for accessible media to promote the public interest in preparation for times of emergency.[15] NPR's efforts to improve EAS accessibility through NPR Labs research and demonstration projects offer important lessons for a policy framework aimed at improving the reach of EAS communications for all Americans, especially those with specialized communications needs. We commend the Commission for undertaking this initiative, and, with our Members, NPR looks forward to advancing the public interest through the important matter of EAS communications.

[15] For instance, the Commission serves an important role as administrator of the National Deaf-Blind Equipment Program under the Twenty-First Century Communications and Video Accessibility Act of 2010. Pub. L. 111-260, 124 Stat. 2751, Oct. 8, 2010.

Conclusion

For the foregoing reasons, and as more fully stated above, NPR supports and stands ready to assist the Commission's efforts to improve the EAS, including by making EAS transmissions more accessible to persons with specialized communications needs.

Respectfully submitted,

NATIONAL PUBLIC RADIO, INC.

Terri Minatra
General Counsel and Vice President
Of Legal and Business Affairs
Michael Riksen
Vice President, Policy and Representation
Michael Starling
Chief Technology Officer and
Executive Director, NPR Labs
Dustin Watson
Senior Director, Government Relations,
Policy and Representation
Rishi Hingoraney
Director of Public Policy and Legislation
Gregory A. Lewis
Deputy General Counsel

1111 North Capitol Street, N.E.
Washington, DC 20002
202/513-2040

November 4, 2013

Attachment A

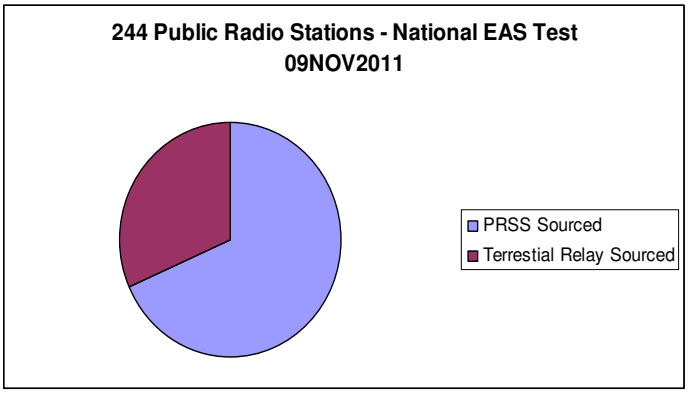
Public Radio Satellite System Analysis of Voluntary Public Radio Station Reporting of National EAS Test Exercise on November 9, 2011

The Public Radio Satellite System provided support for the nation's first national level activation on-air test by providing two separate satellite channels for transmission of the PEP national test alert. One channel was the long-standing transmission of PEP messages via the shared NPR News Advisory Channel (aka "Squawk Channel"). Additionally, at the request of several commercial broadcasters, and with the concurrence of FEMA staff, PRSS provided a supplemental digital stream transmission of the FEMA PEP transmission to assist stations where local EAS relays had proven unreliable[1].

Additionally, for stations that had not been able to maintain or procure the legacy analog satellite receiver for Squawk Channel reception, this special configuration provided PRSS-interconnected stations with an additional non-terrestrial relay monitoring option for their EAS decoders.

In coordination with FEMA, the FCC requested stations to voluntarily report the results of their participation on three part forms to be filed no later than 45 days after the test. To inform decision-making for PRSS's future support as a PEP relay, PRSS requested copies of station forms for analysis. Despite the compound volunteerism sought (FCC and PRSS), and the logistical issues in providing copies of the FCC report, PRSS's Technology Research Center (which houses NPR Labs) received copies of the information stations provided from 244 stations. Additionally, several stations provided observations and suggestions concerning future emergency alerting activities and procedures.

Of the 244 stations, 167 monitored a PRSS distribution channel with the remaining 77 monitoring traditional local EAS assigned relays.



Many stations reported their EAS receivers monitored both sources. In all but two cases (both direct PEP-sourced), the PRSS link was the first to be received and thus the one to activate the station EAS decoder, typically between

[1] In particular AM stations, long the backbone of the nation's PEP and EAS relay networks have suffered from a rising sea of manmade interference over the decades. Several stations reported weak signal reception of the assigned monitoring stations.

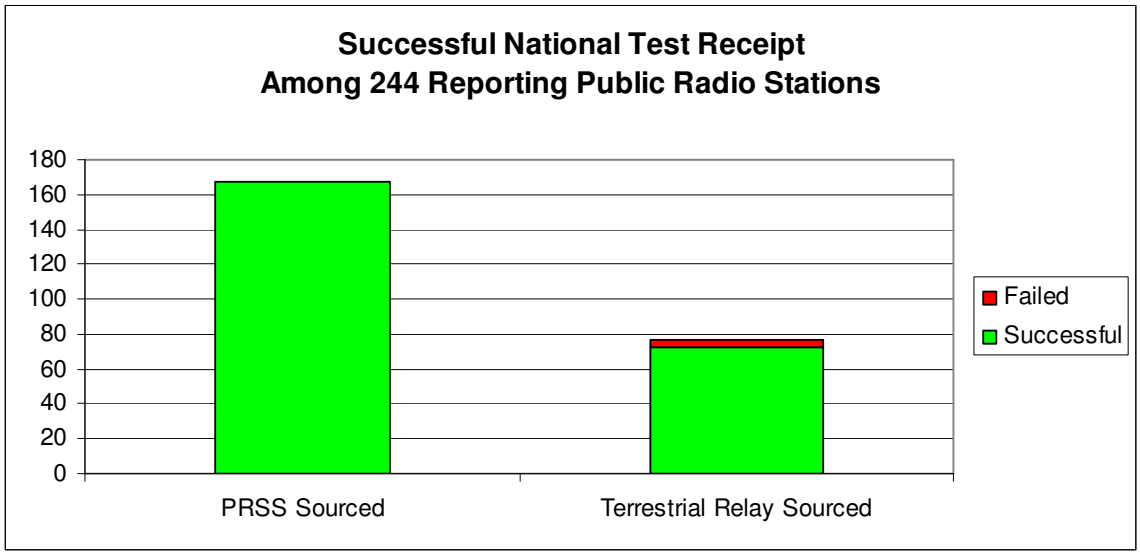
several seconds to several minutes ahead of the terrestrial EAS daisy chain.

Several stations reported that they were asked, or chose to monitor the local EAS relays only as official references of state plans. Separately, we have noted that several stations were specifically asked to monitor one of the PRSS feeds. Officially authorized monitoring sources should be clarified and coordinated across the federal and state authorities involved. Future tests should specifically analyze the propagation delays experienced for the information of FEMA and station personnel.

Results

In the aggregate, both the terrestrial relays and PRSS relays worked well, with only five stations reporting non-receipt of the alert trigger. Many stations noted the content was seriously impaired due to the now-well-documented problems associated with the National Test's PEP outbound audio feed.

100% of stations using the PRSS provided feed reported receipt of the message. 89.7% of stations monitoring terrestrial relays reported receipt of the message.



Notably, the five terrestrial failures were reported in areas where there was either weak signal reception of the EAS relay – or the PEP station never triggered on the alert message. In Utah, New Mexico it was reported that the PRSS feed was used as the primary path for receipt of the message in wide areas of the states, as the designated LP relays did not occur or were otherwise unavailable (off air, weak signal, etc.). Maine's public radio stations reported they also served as the primary conduit for transmission of the National Test.

Despite the urgency of requests received by PRSS for activation of the secondary digital stream as the test approached, only one station reported using

that conduit. All other PRSS-sourced stations reporting monitored the analog squawk channel.

In almost all instances the PRSS feed was the first to trigger local receivers, typically ahead of the terrestrial relays network by 10-20 seconds, but in some instances by one minute or more. In only two instances did the EAS receiver logs note PEP terrestrial monitoring receipt one second ahead of the PRSS feed, due to the combination of speed-of-light and processing delay through the satellite system.

Future Recommendations

- ✓ A handful of comments noted that despite the daily RWT being provided during the days ahead of the National Test by NPR's Master Control, level setting was problematic. It was suggested confidence audio (periodic tone sequences, other filler content), representative of the tested levels from the NPR PEP receiver should be provided in the future.

- ✓ The shared nature of the reliance on the News Advisory Channel should be reviewed, along with the system upgrade environment associated with the current activation of the new SFX-4104 PRSS receivers.

- ✓ The temporary nature of the National Test carriage on the November 9th PRSS digital stream should help inform a migration strategy away from reliance on the long out of production analog ABR-7000's carrying the News Advisory Channel.

- ✓ Dialog among FCC, FEMA and state and local emergency communications authorities on authorized monitoring source flexibility should be encouraged. Since the EAS was an upgrade to the legacy EBS system, and noteworthy for the added provision of monitoring up to four sources forced reliance on any one conduit affects reliability. A better understanding of the rationale for local officials urging the monitoring of local sources only is needed to assure that overall EAS design is meeting community needs.

- ✓ A latency analysis will be appropriate future national test events, as well as the propagation delays that may be expected for distribution of CAP messages from the new IPAWS aggregator across the public network.

Mike Starling
Technology Research Center & NPR Labs
Public Radio Satellite System