Observations of the 2016 National EAS Test

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Introduction

The Emergency Alert System (EAS) is a national warning system in the United States put into place in 1997 by the Federal Communications Commission (FCC) to alert the public of local weather emergencies as well as national security incidents. The first ever national EAS test was conducted on November 9, 2011, at 2 p.m. EST. The most recent National EAS Test was performed on September 28, 2016, at 2:20 PM EDT (FCC Public Notice Report, 2016). The second test was planned as part of National Preparedness Month (FEMA and FCC Key Points One Pager, 2016).

In preparation for the 2016 test, many of the recommendations in the Commission's 2013 EAS Report *Strengthening the Emergency Alert System (EAS): Lessons Learned from the Nationwide EAS Test*, the FCC concluded that a number of technical changes could improve EAS and the national alerting system. Among other things, new for the 2016 test, the FCC required:

- EAS participants to be able to receive and process a national location code. For many operators using legacy hardware, this will require moving to new decoders/encoders as they cannot be upgraded to accomplish both the modified response of an "NPT" Event Code nor can they be upgraded to recognize the new FIPS National Location Code. Specifically, the Commission has adopted "six zeroes" (000000) as the national location code pertaining to every state and county in the U.S. to make EAS consistent with Common Alerting Protocol ("CAP") standards (Indiana, 2015).
- EAS participants must comply with minimum accessibility rules to ensure that EAS visual messages are accessible to all members of the public, including those with disabilities. Specifically, they mandate compliance in three operational areas in particular: (1) display legibility; (2) completeness; and (3) placement. Regarding display legibility, the FCC

amended its rules to require that displays be "in a size, color, contrast, location, and speed that is readily readable and understandable." For completeness, the FCC amended its rules to require that the EAS visual message "be displayed in its entirety at least once during any EAS alert message."

- Finally, for placement, the FCC reiterated its requirement that the EAS visual message "be displayed at the top of the television screen or where it will not interfere with other video messages," and amended its rules to require that the visual message not "(1) contain overlapping lines of EAS text or (2) extend beyond the viewable display except for crawls that intentionally scroll on and off of the screen" (Cicelski, 2016).

The Wireless RERC has conducted research and development projects for more than a decade to promote inclusiveness and accessibility of emergency communications activities for people with disabilities. During the 2011 EAS test, we collected qualitative and quantitative data on how people with sensory disabilities experienced EAS. We found that the EAS alerts via television broadcasts were inconsistent in their use of audio and therefore not reliably accessible to people with vision loss. The 2011 test message was not fully accessible to people with hearing loss as research participants reported problems with the attention signal and audio quality. While the purpose of the test was to evaluate the effectiveness of the system's national reach, it served to highlight that there were inconsistencies in delivering the message content.

As a follow-up to the 2011 EAS study, we collected data on the 2016 test to observe improvements (or not) since 2011.

Methodology

Data for the 2016 EAS test were collected from YouTube videos of the test. The search term was "2016 NPT Nationwide EAS Test." The reviewer identified multiple records of test video (TV) and audio (radio stations). Fifty (50) videos were

identified, though five were excluded from the sample due to duplicates of the same broadcast by different YouTube contributors. Two reviewers then independently coded the data by the following criteria:

- Crawl placement at the top of the screen.
- Screen override with EAS slide, crawl, and audio.
- Crawl and audio only, no screen override.
- Crawl no audio.
- Clarity of audio an issue (Operationalized not by volume, but if the audio contained other noises within the track).
- Other observations not listed above.

A third reviewer compared the data sheets for each reviewer to identify and resolve any discrepancies in observations.

Results

The sample consists of 45 EAS tests (41 televisions, four radio).

- 43 (95.6%) tests presented English audio only, and none had audio in English and another language.
- 35 (85.4%) television tests included a text crawl component. Of these, 30 television tests (73.1%) presented the crawl at the top of the screen (FCC compliant) versus 5 (12.2%) at the bottom of the screen (non-compliant).
- 31 (75.6%) tests presented the crawl in English only.
- 20 (48.8%) tests presented with crawl and audio only.
- 18 (43.9%) of tests included the slide, crawl, and audio.
- 10 (22.2%) tests were reported with audio comprehension difficulties (e.g. static on the track, regular programming audio continued while the EAS test was active).
- 6 (14.6%) presented the crawl in English and Spanish.
- 6 (14.6%) television tests had a delay of 30+ seconds of either the National Periodic Test (NPT) slide visual or test audio.

- 2 (4.8%) tests were reported with crawl reading difficulties (text obscured by regular programming, too fast, etc.).

Findings and Recommendations

According to our sample of 45 2016 EAS tests (41 televisions, four radio), many challenges to universal compliance persist from the 2011 test. In our sample, less than 44% of television tests had the slide, text crawl and audio components of the EAS test. A small percentage of the sample presented the crawl at the bottom of the screen which could cause interference with other visual material commonly shown in the space during programming. However, though some issues remain regarding the readability of the crawl and audio quality, all of the tests presented audio and visual elements. This simultaneous provision is an improvement from the 2011 test where the inconsistent presentation of audio and visual components was a barrier to access.

Recommendations:

- Raters did not observe a universal EAS test graphic for televisions. Uniformity may increase automatic recognition of the test and enhance the trust of the system.
- Television broadcasters should present the test utilizing the NPT slide, crawl, and audio components.
- Likewise, the crawl should be uniformly presented across the top of the screen.
- Reduce the speed of the text crawl, and increase the size of the text font and improve audio quality.
- Conduct the test in English and Spanish audio as well as bilingual text.
- Ensure regular television audio is muted during EAS tests.

Conclusion

In the five years since the first National EAS test, there remain access barriers; mostly due to the inconsistent presentation of the alert components. The 2016 National EAS test revealed continued technical and compliance-related

challenges. Some of the technical issues may be a result of operators using legacy hardware. The EAS alerts via television were inconsistent and therefore not reliably accessible to people with vision or hearing loss. Particular attention should be paid to text readability and audio quality. Fine tuning the timing of the audio so that it is synchronous with the crawl could further enhance message comprehension, especially for people with limited English proficiency or low literacy. On the upside, the sample showed 100% compliance with the FCC's requirement to present audio and visual components.

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