



**VIA ECFS**

August 14, 2014

Marlene H. Dortch, Secretary  
Office of the Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
TW-A325  
Washington D.C. 20554

**Re: Notice of Proposed Rulemaking In the Matter of Review of the Emergency Alert System (EAS) [04-296]**

Dear Ms. Dortch:

Enclosed for filing in the above referenced Notice of Proposed Rulemaking are comments of Georgia Tech's Center for Advanced Communications Policy and the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC).

Should you have any questions concerning this filing, please do not hesitate to contact me via email at [helena.mitchell@cacp.gatech.edu](mailto:helena.mitchell@cacp.gatech.edu).

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "H Mitchell".

Helena Mitchell  
Principal Investigator, Wireless RERC  
Center for Advanced Communications Policy  
Georgia Institute of Technology

Enclosure

---

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Review of the Emergency Alert System ) EB Docket No. 04-296  
 )  
 )

COMMENTS OF  
REHABILITATION ENGINEERING RESEARCH CENTER FOR  
WIRELESS TECHNOLOGIES (WIRELESS RERC)

**INTRODUCTION**

Georgia Tech’s Center for Advanced Communications Policy (CACP) in collaboration with the Rehabilitation Engineering Research Center for Wireless Technologies<sup>1</sup> (Wireless RERC) hereby submits comments in the above-referenced Notice of Proposed Rulemaking released on June 26, 2014. CACP is recognized at the state and national level as a neutral authority that monitors and assesses technical developments, identifies future options, and provides insights into related legislative and regulatory issues. CACP evaluates technological trends that can impact areas as diverse as emergency communications, vulnerable populations and social media. CACP is the home of the Wireless RERC. The Wireless RERC mission is to research, evaluate and develop innovative wireless technologies and products that meet the needs, enhance the independence, and improve the quality of life and community participation of people with disabilities. Since 2004, both CACP and the Wireless RERC have been actively involved with research and regulatory issues concerning accessible alerts and emergency

---

<sup>1</sup> The Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC) is sponsored by the National Institute on Disability and Rehabilitation Research (NIDRR) of the U.S. Department of Education under grant number H133E110002. The opinions contained in this filing are those of the authors and do not necessarily reflect those of the U.S. Department of Education or NIDRR.

---

communications. Together, we believe it is essential that the needs of persons with disabilities be an intrinsic element in the implementation of emergency alerts, communications and procedures.

The Wireless RERC commends the FCC's efforts to ensure access to EAS by people with disabilities. As is documented in the NPRM, the nationwide test of EAS revealed some issues with the accessibility of the visual crawl; namely that for some, it was too fast and too small to read. We maintain earlier comments that standards should be set to ensure uniformity and accessibility of the visual crawl, however we caution against haste. While we appreciate that a solution should be provided as soon as possible, in order for it to be appropriate for people with a variety disabilities, it is critical that they be involved in the standards making process. Otherwise you run the risk of creating a standard that falls short of providing true accessibility.

#### **¶ 34: Approaches to EAS Text Crawl Accessibility**

Discussed in the background section of the NPRM are the different approaches industry stakeholders recommended for achieving accessibility: voluntary best practices, industry collaborations, and refinement of formats via the weekly and monthly tests. However, these recommendations are geared towards addressing the technical considerations for the provision of an accessible EAS crawl and do no account for the human factors consideration. A balance must be struck between the two. As Sage recommends, the testing environment provides an opportunity to improve the system, with "text presentation [being] fine-tuned with weekly and monthly tests."<sup>2</sup> We agree, but recommend that user feedback needs to be gathered in response to national level tests to ensure nationwide consistency and compliance with the resultant accessibility standards. Having stations independently fine-tune text presentation could end-up being more costly and is counter-intuitive to setting a national standard. Implementing data collection in response to national tests will allow for researchers to gather input from the nationwide population of people with disabilities; allowing for

---

<sup>2</sup> See FCC 14-93, Footnote 119, p. 18.

---

generalizable and valid findings to inform the development of standards or guidelines which would be applicable across EAS participants.

### ¶ 36: Crawl Speed

We concur in the Commission's statement (2014) that, "It is the Commission's statutory obligation to ensure that all members of the public, including those with disabilities, have access to emergency alerts." In this regard, the standard for EAS crawls should prescribe a maximum crawl speed. In order to determine what that crawl speed should be, we maintain the Wireless RERC's (2013) prior recommendation that you use an "iterative research, development and evaluation process that includes input from people with a variety of disabilities." It is important to note that these EAS crawl standards will make the information more accessible to people who are deaf, hard of hearing *and/or* have low vision. One researcher found that people who are deaf or hard of hearing were able to read captions at higher speeds than people who were not hearing impaired because they were more accustomed to reading captions (Jensema 1998). Therefore applying the reading rate of people who are deaf or hard of hearing to the standard would exclude those people that may require a slower crawl speed (i.e., people with low vision). In fact, in the Wireless RERC's 2011 survey on the accessibility of the nationwide EAS test, it was the respondents with low vision that indicated the crawl speed was too fast or too small to decipher. In the comments section some indicated that they were both low vision and hard of hearing so a slower, larger EAS crawl would be needed as an accommodation. Other researchers also found a correlation between visual acuteness and caption speed, noting that "...the caption speed had a significant effect on the participants with lowered visual acuity, and it acted as an obstacle to their reading comprehension. (Inoue, et al. 2008)"

The emergency access consideration of people who simultaneously experience vision and hearing loss is also reflected in the comments of the Rehabilitation Engineering Research Center on Telecommunications Access (RERC-TA) and Consumer Groups:

---

Sections 202 and 203 of the CVAA have provisions to address the needs of people who are blind or visually impaired, as well as people who are deaf and hard of hearing, for video programming. In particular, the IP Captioning Report and Order adopted regulations governing the closed captioning capabilities of certain apparatus on which consumers view video programming. The FCC also has been directed to promulgate regulations that address conveying emergency information to people who are blind or visually impaired, which are the subject of this NPRM. The RERC-TA and Consumer Groups are concerned that the NPRM overlooks the intersection of people who are both blind or visually impaired and deaf or hard of hearing – it makes no mention of this important constituency. Moreover, the proposed rules would ensure that emergency information made available via video programming remains inaccessible to them, even though this constituency comprises people who are blind or visually impaired, who happen to be deaf or hard of hearing. (RERC-TA et al. 2012)

While the above comments were made in the Emergency Information and Apparatus NPRM, they are germane to this discussion in their acknowledgement of this demographic, specifically related to accessible, televised emergency information.

### **¶ 36: Non-English Alerts**

American Sign Language, or ASL, is a distinct language used by individuals of the deaf community and is grammatically dissimilar to English (Neidle 2000). Some people who are deaf rely primarily on ASL for communication and have difficulty understanding written English; in a similar manner that a person whose primary language is French would have difficulty understanding text written in another language (Mitchell and Karchmer 2011, Schein 1989). Other people who are deaf are comfortable with written English and have no problem with the difference in grammar and syntax. Comparable to other groups of individuals, one size does not fit all; and in this case, English text as a sole means of communication is not entirely accessible. Hence, emergency alert messages are not always completely accessible for people who are deaf that rely on ASL. This suggests that hundreds of thousands of Americans may not be adequately receiving, understanding, and appropriately reacting to emergency messages; and that there is a need to consistently provide fully accessible messages for this population in the language they understand best.

---

Historically, people with sensory disabilities have not had access to emergency information due to lack of technology to do so in the language and modality that best accommodates their communication needs. This is no longer the case, the ability to alert/warn persons with sensory disabilities was proven in 2005 when the first accessible alert was successfully delivered to residents with disabilities in the Houston area before Hurricane Rita made landfall (Chiodo 2014). For this unique population the provision of accessible emergency alert messages in the form of ASL video interpretations, either pre-recorded or live, increases the effectiveness of the EAS messages by enabling better understanding. The Wireless RERC recommends that, as standard procedure, EAS alerts be made available in text, audio and ASL video interpretations.

### **¶ 38: Placement**

The Wireless RERC agrees with the FCC's recommendations regarding caption placement except for the statement, "utilize a text font that is sized appropriately for legibility." This is not precise enough. How would appropriateness be determined? Instead, we recommend that a minimum font size, informed by empirical research, be established. To that end we recommend that the FCC create a working group tasked with designing and deploying a research methodology to capture data on EAS crawl fonts and speeds that are most appropriate for people with low vision, that are deaf and that are hard of hearing. Since this is an area of our expertise, Georgia Tech's Center for Advanced Communications Policy (CACAP) and the Wireless RERC would volunteer our service if it would assist the process of creating accessible EAS crawl standards.

In addition to the end-user considerations discussed regarding the crawl speed and placement, further complicating the issue are technical and industry-based concerns. There are closed-captions available for many television programs, but depending on the model of television, the placement and size of these will vary. Captions may be displayed in a scrolling manner, or in a pop-up box. The placement on the screen can be changed to a few preset

---

locations. In addition, many TV stations now run one or more stock-ticker like caption streams along the bottom of the screen. Station identifier logos and the related graphics might also appear in the area that EAS captions would normally appear.<sup>3</sup> This variety of unexpected and unregulated text appearing on screen causes problems with the readability of EAS captions in many cases. Readability of the caption text is also impacted by the size of the screen and the encoding of the video source the caption is being overlaid on. A caption overlaid on a 480i video screen is much lower resolution than that appearing on a 720p or 1080i signal. The size of the screen will also have an effect of legibility for smaller text sizes.

There are no standards that cover this issue, outside of the regulations and standards around closed captioning of television programs. Likewise there is a dearth of research regarding (1) EAS text crawls specifically, and (2) audiovisual accessibility guidelines that could be applied to EAS text crawls. Without testing, the Wireless RERC is not convinced that the FCC's closed captioning rules would be directly applicable to EAS crawls. However, we have the utmost confidence that a working group that includes academics and experts in the field of disability access, industry and policy stakeholders could devise an appropriate solution.

#### **¶ 39: Audio Accessibility**

The Wireless RERC supports the mandatory use of the EAS CAP Industry Group (ECIG) guideline that the content of the audio message and text message be the same. In order to promote the consistent provision of both audio and visual content, it should be elevated from a guideline to a requirement.

#### **¶ 40: Text-to-Speech**

We recommend that the Commission encourage the use of text-to-speech (TTS) software when EAS participants transmit the EAS crawl from the EAS digital signal for an alert. This will provide the EAS digital portion of an alert in audio as well as video (crawl). For state

---

<sup>3</sup> While the rules require EAS crawls to be at the top of the screen, in practice, they often appear at the bottom.

---

and local EAS alerts, the Wireless RERC recommends that the Commission publish a recommended best practice document or guide for EAS participants concerning the presentation of state and local EAS alerts including the visual and audio portions. Some of the TTS issues that have occurred in the past may reside in the authoring of the alert content and not the technical capability of TTS. For example, the use of acronyms and abbreviations in the text version of the message may not be read intelligibly by some TTS software. This would point to the need for more training on crafting text messages that can be properly vocalized by TTS systems. Some TTS software requires acronyms to have dashes between each letter to ensure the letters are read individually and not phonetically (e.g. E-A-S vs. EAS). Finally, the EAS monthly tests should be transmitted with audio and video to ensure that people with vision disabilities are aware it is a test and not a real emergency.

In closing, the Wireless RERC and CACP wish to emphasize the importance of including an analysis of user needs prior to setting standards and codifying rules concerning the accessibility of EAS audio and visual formats. Doing so will be a proactive approach to better ensure that accessibility and parity of access is achieved while lessening the likelihood that future rulemakings will be required to remediate policy.

Respectfully submitted,



Salimah LaForce,  
Helena Mitchell, PhD,  
Frank Lucia, and  
Ed Price  
Wireless RERC / Center for Advanced Communications Policy  
Georgia Institute of Technology  
500 10th Street, 3rd Fl. NW  
Atlanta, GA 30332-0620  
Phone: (404) 385-4640

Dated this 14<sup>th</sup> day of August 2014

---

## REFERENCES

- Chiodo, K. (2014). Consultation with Kay Chiodo (Deaf Link) regarding accessible emergency messaging for people with sensory disabilities.
- Federal Communications Commission (2014). *Notice of Proposed Rulemaking In the Matter of Review of the Emergency Alert System*. Federal Communications Commission: Washington, DC, June 26, 2014, p. 16.
- Jensema, C. (1998). "Viewer Reaction to Different Television Caption Speeds." *American Annals of the Deaf*, Volume 143, Number 4, October 1998, pp 318-324.
- Mitchell, H., LaForce, S., Lucia, F. (2012). Ex Parte Comments filed in the *Open proceedings of the Emergency Alert System [04-296] In the Matter of the National EAS Test*. Federal Communications Commission: Washington, DC, March 22, 2012.
- Mitchell, Ross E, and Karchmer, M.A. (2011). "Demographic and Achievement Characteristics of Deaf and Hard-of-Hearing Students." *Oxford handbook of deaf studies, language, and education*. 1: 18-31.
- Neidle, C. J. (2000). *The Syntax of American Sign Language: Functional Categories and Hierarchical Structure*. MIT Press.
- Rehabilitation Engineering Research Center on Telecommunications Access (RERC-TA) and Consumer Groups (2012). *Comments filed in response to Notice of Proposed Rulemaking: In the Matter of Accessible Emergency Information and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010 [MB Docket 12-107]*. Federal Communications Commission: Washington, DC, November 19, 2012.
- Wireless RERC (2013). Comments filed in response to *Public Notice Regarding Equipment and Operational Issues Identified Following the First Nationwide Test of the Emergency Alert System [EB Docket No. 04-296]*. Federal Communications Commission: Washington, DC, October 23, 2013.