



**VIA ECFS**

December 17, 2012

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: 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 No. 12-107]**

Dear Ms. Dortch:

Enclosed for filing in the above referenced Notice of Proposed Rulemaking are comments of 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,

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Enclosure

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

In the Matter of )  
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Accessible Emergency Information, and )  
Apparatus Requirements for Emergency ) MB Docket No. 12-107  
Information and Video Description: )  
Implementation of the Twenty-First Century )  
Communications and Video Accessibility Act )  
of 2010 )

**NOTICE OF PROPOSED RULEMAKING**

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

The Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC), hereby submits comments in the above-referenced Notice of Proposed Rulemaking released on November 19, 2012. The Wireless RERC<sup>1</sup> mission is to research, evaluate and develop innovative wireless technologies and products that meet the needs, enhance independence, and improve the quality of life and community participation of people with disabilities. As such, we are pleased that the FCC is taking steps to ensure that people with vision loss have parity of access to emergency information. Among the Wireless RERC's policy research, consumer research and development projects are a focus on emergency lifelines for people with disabilities. This includes addressing how emergency communications, emergency alerting, the Emergency Alert System (EAS), the Commercial Mobile Alert System (CMAS), communications with 911 services, and e-911 can be inclusive of people with disabilities. We

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<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.

have conducted on-line surveys, field trials and focus groups with people with disabilities that gather qualitative and quantitative data on the user's experience with receiving and reacting to public alerts. Currently, the Wireless RERC is running the *2012 Survey on Emergency Communications and People with Disabilities*.<sup>2</sup> The survey questions address emergency services, public alerts and warnings, and social media use during emergencies. We are dedicated to the continued provision of evidenced-based recommendations that inform the development of inclusive emergency communications rules and regulations. The comments respectfully submitted below are based on subject matter expertise developed over the 11 years of the Wireless RERC's existence. Findings from our consumer and policy research and development efforts inform the recommendations made herein.

#### **A. ACCESSIBLE EMERGENCY INFORMATION**

¶7: *We propose to require covered entities to make emergency information that is provided visually during programming that is not a newscast (such as that provided via crawls) accessible to individuals who are blind or visually impaired by using a secondary audio stream to provide that emergency information aurally and concurrently with the emergency information being conveyed visually.*

The Wireless RERC agrees with the simultaneous provision of aural and visual emergency information. Consistently, our research with people with vision loss has revealed a need for both televised emergency information and SMS based emergency information to include an audio version of the on-screen text. Most recently, our *National EAS Test On-line*

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<sup>2</sup> Wireless RERC (2012). *Just Launched!: 2012 Survey on Emergency Communications and People with Disabilities*. Available at <http://www.wirelessrerc.org/content/newsroom/just-launched-2012-survey-emergency-communications-and-people-disabilities>.

*Survey and Focus Group* found that eighty-two percent (82%) of blind respondents did not have access to EAS messages ‘received’ in the past because the station or cable system carried no audio of the text crawl.<sup>3</sup> Regarding the nationwide EAS test message, specifically, the survey respondents who are blind or have low vision experienced some access barriers. The majority (65.3 %) of respondents with vision loss were able to hear the *attention signal*; yet more than half (60.8%) of those with vision loss did not hear the *audio message*. Following is a sample of the explanations given as to why they could not hear the attention signal or audio message:

- There was no audio and since I'm totally blind that's not good.
- It was only a beep, no voice message.
- The message was not announced. I didn't know there was any message on the TV since nothing was stated. There was only an auditory alert.
- I saw the words go by but it is not possible for me to read them even when I am very close to my TV. They move too fast and are not large enough. I wish that I could have heard someone read the message.
- No alert sounds and no speech explaining what was on the screen.
- The video crawl message went too fast. Not all stations were describing the crawl message and the signal was not loud enough. I also have a wireless phone that does not talk or have large print or vibrates an emergency signal, should one ever have to be given by the EAS.
- In the past the speakers have talked too fast for me to be able to understand what was

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<sup>3</sup> Wireless RERC (2012). *Report on the National EAS Test On-line Survey and Focus Group Findings*, 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.

said, and since we have an old television it makes seeing messages across the screen difficult.

- Difficulty reading due to low vision. I could have stood up and walked to the TV to read it but because of mobility problems AND because I knew the probable content, I did not bother. When an alert of unknown type does appear I DO get up to read the message.
- In Kalamazoo the test message was partially broadcast and as I'm blind, I cannot see the video message, but my wife said that the screen was blank during the test.

From the respondent comments listed above, it's clear that for people living with vision loss the emergency alerts as currently provided are not accessible. The content of the message must be provided audibly, not just visually. It is not enough to provide the alert signal without the audio content. The survey data shows that the national EAS test message delivered by TV and radio stations varied and therefore the message was not consistent in both audio and visual formats. Additionally, it revealed issues with not only the presence and quality of the audio, but with the text crawl itself; primarily that it needed to be larger and slower. It is critical to note that all elements of the alert messages must be accessible and utilize a multi-format approach for conveying televised emergency information. If this does not occur, a portion of the population will not have access to potentially lifesaving instructions. Though this proceeding aims to develop rules for non-EAS, televised emergency information, the findings, nonetheless, are applicable. Therefore, the Wireless RERC supports a requirement to make televised emergency information accessible to people with vision loss via the use of aural and visual formats.

¶10: *If a video programming distributor does not currently make available a secondary audio stream, but it has the technical capability to do so, should the Commission require it to make available a secondary audio stream that could be used to provide emergency information?*

Television is the most commonly used medium for receiving and verifying emergency information for people with vision loss. Consequently, it is essential that emergency information delivered via the television be fully accessible. The Wireless RERC's *Emergency Communications and People with Disabilities: 9-1-1 Communication, Public Alerts, and Social Media: Summary Report from the 2010-2011 Emergency Communications Survey* reports that people with severe visual loss (blindness or extremely low vision even when using corrective lenses) rely on television more than any other medium, such as broadcast radio, sirens and alarms, phone calls, direct observation, email, internet news and text messaging for receiving emergency information.<sup>4</sup> Respondents to the survey who are blind rely almost equally on radio (46%) as they do with television (41%) for receiving emergency alerts. However there is a greater disparity for respondents with extremely low vision, which tend to rely on television (45%) more so than radio (29%) for receiving emergency alerts.<sup>5</sup> For people with low vision, television is the most commonly used medium for verifying alert information. Therefore, the Wireless RERC recommends that if the video programming distributor has the technical capability to provide a secondary audio stream for the provision of emergency information then they should be required to utilize their secondary audio stream.

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<sup>4</sup> Wireless RERC (2011). *Emergency Communications and People with Disabilities: 9-1-1 Communication, Public Alerts, and Social Media: Summary Report from the 2010-2011 Emergency Communications Survey*. Available at <http://wirelessrerc.org/content/publications/emergency-communications-survey-full-report-june-2011>.

<sup>5</sup> Ibid.

*Should aurally accessible emergency information always be provided on the audio stream containing video description, rather than on a stream dedicated to aurally accessible emergency information or containing other program-related material, such as a Spanish or other language audio stream?*

The Wireless RERC recommends that emergency information should always be provided on the audio stream containing video description (ViD) because people with vision loss who use ViD for regular programming would be familiar with accessing this stream. For people with vision loss that have not used ViD, carrying emergency information on the same stream would allow for simultaneous education and outreach to late adopters regarding accessing ViD for regular programming and emergency information. Other language audio streams, such as Spanish should contain ViD and translated emergency information, as viewers with English as a second language, would go to the station they normally watch as a primary source of information during an emergency.

*We seek comment on whether and how the proposals contained herein should apply to EAS alerts. For example, to what extent is emergency information provided as visual-only EAS alerts?*

As discussed earlier, findings from the Wireless RERC's research regarding the nationwide test of EAS revealed that people with vision loss encountered challenges in accessing the content of the emergency alert. This was due, in large part, to the fact that the EAS alerts via television broadcasts were inconsistent in their use of audio and therefore not reliably accessible to people with vision loss. Respondents and participants with hearing loss also found that the national EAS test message was not fully accessible, reporting problems with the attention signal

and audio quality of the EAS message. While we realize the nationwide EAS test was created to evaluate the effectiveness of the system, it served to highlight the potential negative effect on delivering EAS alerts that would be inaccessible to millions of Americans with vision loss. The Wireless RERC believes that the voluntary nature of the system resulted in the inconsistent implementation of the rules and regulations regarding state and local participation in EAS. Many stakeholders representing the interests of people with disabilities have recommended that EAS participation should be made mandatory.<sup>6</sup> The Wireless RERC maintains that participation in EAS be made mandatory. If the outcome of this rulemaking is mandatory requirements for Multichannel Video Programming Distributors (MVPD) to provide televised emergency information in accessible formats, then the mandate should extend to EAS messages. It would simplify compliance for industry and regularize the appearance and accessibility of televised emergency information for people with disabilities regardless if it is an EAS message or non-newscast emergency information.

*¶12: To what extent should the Commission permit the use of text-to-speech (“TTS”) technologies? We also seek comment on other concerns related to this issue.*

Covered entities should be allowed to use TTS technology to provide audio description of emergency information. In many cases, this is the fastest way to provide the information to the public. The Wireless RERC’s Wireless Emergency Communications (WEC) development project used TTS technology in the development of prototype mobile emergency alerts. To accommodate users with vision loss, a mobile client was constructed featuring an auditory user

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<sup>6</sup> See comments filed by American Foundation for the Blind, RERC on Telecommunications Access and Telecommunications for the Deaf and Hard of Hearing Inc, et al in *EAS Further Notice of Proposed Rulemaking*, (EB Docket No. 04-296)

interface. As with all of WEC's client software, users were notified of incoming emergency alerts with the standard attention signal of the EAS consisting of the combination of 853 Hz and 960 Hz sine waves. Synthesized speech was used to read emergency alerts to the user and for user interaction with simple spoken menus and prompts. TTS synthesis was provided by Flite<sup>7</sup> an open source speech synthesis engine designed for embedded devices.

Field trials of the prototype messages revealed that people with vision loss are extremely diverse in their preference for how the TTS should sound. Some preferred a male or female voice and quick speech over slow.<sup>8</sup> However, all agreed that it should be a high-quality, human-sounding voice. The FCC should not only allow the use of TTS technology, but should require that the TTS technology be of a certain caliber to ensure that the audio information is clear and understandable. This will not only impact people with vision loss, but also people who are deaf-blind that have some residual hearing and sight, and others with access and functional needs that may have temporary or circumstantial hearing and/or sight loss due to injury or illness.

In order to provide guidance on TTS quality, we recommend that the Video Programming Accessibility Advisory Committee (VPAAC) be tasked with identifying and examining extant standards on the provision of TTS to determine quality assurance parameters. Ideally the quality assurance standards for TTS would be vetted and tested among a diverse group of people with disabilities to ensure they accommodate the greatest number of people possible.

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<sup>7</sup> Black, A., & Lenzo, K. (2001). "Flite: a small fast run-time synthesis engine", *Proceedings of the 4th ISCA Tutorial and Research Workshop on Speech Synthesis*. Perthshire, Scotland.

<sup>8</sup> Wireless RERC (2011). Ex Parte Comments filed in the *Open proceedings of the Emergency Alert System [04-296] and the Commercial Mobile Alert System [07-287]*. Federal Communications Commission: Washington, DC, April 25, 2011.

¶13: *Should we require emergency information presented aurally to be identical to that presented textually? Should the emergency information provided aurally be abbreviated where the information presented textually is particularly lengthy, for example, where it lists many school district closings in the viewing area? Is visual but non-textual emergency information – such as a map showing the path of a storm – sometimes provided during programming that is not a newscast. What requirements should apply to the aural description of visual but non-textual emergency information?*

To ensure equivalent access, the Wireless RERC recommends that the information provided aurally be identical to what is provided textually. Abbreviations should not be used because they may impede understanding of the content. Imagine listening to the abbreviations of all counties under tornado watch; it would sound like a foreign language and defeat the purpose of providing an audible format.

For the replication of non-textual, visual information exact audio might not be suitable for people with vision loss. First, it could be too wordy, and therefore impede comprehension. Also, individuals that are congenitally blind (blind since birth) have more limited spatial reasoning skills, and may not understand directional information such as compass directions (cardinal directions north, south, east and west; and inter-cardinal directions, northeast, etc.) or physical directions (up, down, left, right). User research (focus groups and in-depth interviews) are required to fully understand directional information for congenitally blind individuals. In the meantime, non-textual emergency information such as maps and images should use the attributes of alternative text (alt text) to describe what is being shown and why.<sup>9</sup> For example, if a map of

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<sup>9</sup> See Web Accessibility in Mind (WebAIM) for guidance on the provision of alt text. Available at [http://webaim.org/techniques/images/alt\\_text#purpose](http://webaim.org/techniques/images/alt_text#purpose)

Georgia is shown depicting the direction a storm is moving, and that information is not provided in the text-crawl and simultaneous audio, then the map should be described, noting the areas impacted by the path of the storm. It is not necessary to describe in full, the entire map, noting all the counties, colors, borders, etc. Such a lengthy description would slow down comprehension of the message. As a rule of thumb the alt text should be "...consistent with the purpose of the image. Remember that the *purpose* of the image is not necessarily the same as the *appearance* of the image."<sup>10</sup>,

¶14: *Proposed language: "Any video description provided should not block any emergency information." Should this proposal be expanded to require such aural emergency information to supersede any content that may be present on the secondary audio stream (e.g., video description, Spanish or other languages, a duplicate of the main audio, or silence)?*

Yes, the Wireless RERC agrees that emergency content in the secondary audio stream should take precedence over video description of regular programming.

¶18: *Alternative methods to convey emergency information in a manner accessible to individuals who are blind or visually impaired, other than the use of a secondary audio stream: (1) including a shortened audio version of the textual emergency information on the primary stream; or (2) broadcasting a 5 to 10 second audio message after the three high-pitched tones announcing the start of a textual message, to inform individuals who are blind or visually impaired of a means by which they could access the emergency information, such as a telephone number or radio station. Should we require (on an interim basis) or permit covered entities to*

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<sup>10</sup> Ibid, *Communicating the Purpose of the Graphic*.

*use one or more of these alternative approaches in concert with the use of the secondary audio stream that we propose above?*

If alternative methods are permitted, the Wireless RERC recommends that only the first alternative noted above be allowable; we want to avoid requiring people with vision loss to access an alternate technology to get the same information the sighted get from the television. Covered entities should be required to use the primary program stream to transmit both the video and audio of an alert if they do not use a secondary audio stream. Given that television is an affordable, ubiquitous technology and the predominant way in which emergency information is disseminated to the public, it is essential that every effort be made to make this primary method fully accessible to people with vision loss. Seeking complete information through a secondary source will inevitably slow down reaction time, in the event of a tornado, seconds could be the difference between life and death.

## **B. APPARATUS REQUIREMENTS FOR EMERGENCY INFORMATION AND VIDEO DESCRIPTION**

### **2. Apparatus Subject to Section 203 of the CVAA**

*¶30: We propose that the apparatus requirements discussed herein would not be triggered by apparatus' display of IP-delivered video programming that is not part of a television broadcast service or MVPD service. We invite comment on this proposal and analysis. How should this proposal apply to different types of apparatus, for example, to tablet devices that enable users to view television programming as part of an MVPD service? Under this proposal, how would the new requirements we adopt in this proceeding apply to apparatus beyond conventional television equipment, such as televisions and cable boxes, to devices such as video game consoles (e.g.,*

*Xbox) to the extent an MVPD enables its subscribers to access its MVPD service through those devices?*

People are increasingly watching television via mobile devices, with the younger population leading the trend.<sup>11</sup> If this continues, we may one day live in a world where IP TV is the norm. The Wireless RERC commends the Commission for advancing the dialogue on the policy implications of live IP-delivered programming, especially as it relates to accessible emergency information. Many video content providers, including some television broadcast stations, now provide some amount of their programming block via IP delivery for both computers as well as mobile, wireless devices. These services are real-time, live video, the same as being broadcast over the air (delayed by a few seconds due to network latency and buffering). Consumers may not draw a distinction between these services and regular television broadcasts, therefore these services may need to provide emergency information and video description because consumers will expect it to be there, especially given the Commission's closed captioning requirements for IP-video. Unlike the closed captioning rules, any requirement for emergency information to be included in IP-video should be applicable *only* to live on-line programs. This caveat introduces a different set of technical considerations.

The Wireless RERC recommends that the Commission investigate, via a Public Notice or Notice of Inquiry, the technical feasibility of providing emergency information in both aural and visual formats on *live* IP programs, requesting insight into how MVPDs could comply vs. IP-only video providers (e.g. YouTube Live Streaming<sup>12</sup>). The inquiry should include questions

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<sup>11</sup> Lafayette, J. (2012). *Viewers Show Interest in TV on Mobile Devices*. Available at <http://www.broadcastingcable.com/article/486420-Viewers-Show-Interest-in-TV-on-Mobile-Devices.php?rssid=20065>

<sup>12</sup> YouTube is Going Live (2011). Available at <https://sites.google.com/site/ypartnercommunications/Announcements/youtubelive>

(continued...)

specifically addressing if the Common Alerting Protocol (CAP) would be a viable method for integrating emergency information into live IP-programming; and how to identify if the viewing apparatus (i.e, smartphone, laptop, gaming console, PC) is within the geographic boundaries of the emergency in progress.

#### **4. Alternate Means of Compliance**

*¶37: We propose that, should an entity seek to use an “alternate means” to comply with the requirements for apparatus with regard to video description and emergency information, that entity could either (i) request a Commission determination that the proposed alternate means satisfies the statutory requirements through a request pursuant to Section 1.41 of our rules; or (ii) claim in defense to a complaint or enforcement action that the Commission should determine that the party’s actions were permissible alternate means of compliance. Given the nature of emergency information, should we impose certain standards that any permissible alternate means must meet?*

It is conceivable that the industry may develop a method, alternative to the secondary audio stream, which is viable for the provision of simultaneous audio of on-screen textual and pictorial emergency information. The Wireless RERC encourages industry to examine methods that may be more seamless, expedient and accessible. However, before employing the use of an “alternate means” we recommend a requirement that the Commission approve its use to assure the technology is compliant with disability access rules. Additionally, the Wireless RERC recommends that any “alternate means” for delivering accessible emergency information be tested on the target user to ensure that all of its elements are appropriate and accessible.

(Continued from previous page) \_\_\_\_\_

In closing, the Wireless RERC wishes to emphasize the importance of parity of access to emergency information by people with disabilities. We maintain previous recommendations<sup>13, 14, 15, 16, 17</sup> to the FCC stating all emergency messages must be delivered in multiple modalities (visual/auditory) and presented in formats that are uniformly comprehensible and accessible to persons with disabilities.

Respectfully submitted,



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Dated this 17th day of December 2012

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<sup>13</sup> Wireless RERC (2010). Comments filed in Public Notice [EB Docket No. 04-296]: *Public Safety and Homeland Security Bureau Seeks Informal Comments Regarding Provisions to the FCC's Part 11 Rules Governing the Emergency Alert System Pending Adoption of the Common Alerting Protocol by the FEMA*. Federal Communications Commission: Washington, DC, May 14, 2010.

<sup>14</sup> Wireless RERC (2010). Comment filed s in the *Second Further Notice of Proposed Rulemaking in the Matter of Review of EAS* [EB Docket No. 04-296]. Federal Communications Commission: Washington, DC, February 18, 2010.

<sup>15</sup> Wireless RERC (2007). Comments submitted to the FCC in response to *Review of the Emergency Alert System, Second Report and Order and Further Notice of Proposed Rulemaking* [EB Docket No. 04-296]. Federal Communications Commission: Washington, DC, December 3, 2007.

<sup>16</sup> Wireless RERC (2006). Comments filed in response to the *Further Notice of Proposed Rulemaking In the Matter of Review of EAS* [EB Docket No. 04-296]. Federal Communications Commission: Washington, DC, January 23, 2006.

<sup>17</sup> Wireless RERC (2004). Comments filed in response to the *Notice of Proposed Rulemaking in the Matter of Review of EAS* [EB Docket 04-296]. Federal Communications Commission: Washington, DC, October 29, 2004.