

**Statement of Karen Peltz Strauss
Deputy Chief
Consumer and Governmental Affairs Bureau
Federal Communications Commission**

**Before the
Committee on Health, Education, Labor and Pensions
U.S. Senate**

**The ADA and Entertainment Technologies: Improving Accessibility from the Movie
Screen to Your Mobile Device**

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INTRODUCTION

Good afternoon Chairman Harkin, Ranking Member Alexander, and Members of the committee, and thank you for the opportunity to appear today to address the Federal Communications Commission's (FCC or Commission) regulatory efforts on closed captioning.

I have been asked to speak today about my experiences and work with respect to captioning, video description and other accessible technologies, and how evolving accessible communications technologies can have an impact on improving access for people with disabilities. I would like to begin with two very brief stories. During the 1980s, while I was working for Gallaudet University's National Center for Law and Deafness, a legal service clinic for people who were deaf or hard of hearing, a deaf client came in, upset with the news that her routine medical tests had come back "negative." At the time, TV offered little in the way of closed captioning, and so, unlike hearing viewers who had heard the phrase countless times on medical TV shows, she was unaware that a "negative" test result was a good thing. Around the same time, a deaf college student sought our help after a run-in with the police. Not having ever been able to watch crime shows with captions, he was unaware that he had a right to an attorney. By the time he came to our law offices, he had already signed a document waiving that right.

We often take advantage of the ease with which we can acquire information and may not always stop to think about how the ability to get such information – often with the click of a button – facilitates so much of what we do in our daily lives. But the general lack of access to television shows, from the inception of TV in the 1950s, to the mid-1990s took its toll on Americans who were deaf or hard of hearing. As television began to flood the homes of Americans in the 1960s and 1970s, it not only provided entertainment; it informed hearing viewers about critical news and public affairs information, and more indirectly, exposed Americans to the cultural mores and societal norms of the times. But people with hearing loss who did not have access to this medium missed out on the medical terminology of Dr. Kildare and Marcus Welby, MD. They lacked the opportunity to learn legal jargon and courtroom procedures on Perry Mason. And, if they were children, they weren't able to benefit from the newscasts, dramas, and even comedies

that regularly introduced their hearing peers to professions to which they could one day aspire. In all, without captions, people who were unable to hear the soundtrack were excluded from a marvelous technology that was radically altering the way that hearing Americans acquired their information.

Communication technologies have the power to transform our lives in many positive ways. When technology is accessible for people with disabilities, it can bridge gaps, opening doors to jobs, education, recreation, and the commercial marketplace. By way of example, accessible broadband technologies can help level the playing field for people who cannot see, hear, or easily get around, and thereby break down not only physical, but attitudinal barriers for people with disabilities. However, when accessibility is forgotten or ignored, and physical or technical barriers create obstacles to technological innovations, the consequences can be dire. Without access, people with disabilities are prevented from having the tools they need to improve their productivity and self-sufficiency. Opportunities for growth and independence are cut off, access to Internet commerce is denied, and even exercising one's civic responsibilities can become a challenge.

At times, new innovations that are not accessible do not only deny the ability to use a future service or product; they inadvertently take away access once enjoyed. This occurred with the introduction of the "Talkies" in 1927. Prior to that time, people who were deaf or hard of hearing routinely accompanied their hearing relatives and friends on evening excursions to the silent movies shown on the big screen. But when Hollywood added audio tracks to their visual presentations, the new "talking" films enhanced movie-going for hearing Americans, but created a new barrier for those who had been relying on text to understand movie plots. Twenty years passed before Emerson Romero, the deaf brother of actor Caesar Romero, attempted to restore this lost access by splicing subtitles between the frames of new films. A few years later, using a more advanced technique that etched open captions right onto a film's finished print, a small enterprise called Captioned Films for the Deaf that operated out of Hartford, Connecticut, began distributing Hollywood movies to schools for the deaf around the country. In 1959, this program was assumed by the U.S. Department of Health, Education and Welfare's (HEW) Bureau of Education, which for many years, authorized the production, acquisition and distribution of captioned theatrical, documentary, and educational films and media equipment to schools and deaf organizations around the country.

While, in this manner, some commercial movies were again made available to people with hearing loss (though no longer in cinema houses), television in the 1950s and 1960s remained entirely inaccessible to people who were deaf or hard of hearing. This began to change in 1971, when HEW contracted with Boston's public television station, WGBH, to produce open captioned reruns of its most popular program, *The French Chef*, with Julia Child. One and a half years after the program was first aired with captions on August 6, 1972, deaf viewers also had the opportunity to watch an open captioned version of President Richard Nixon's second inauguration only a few hours after it aired to the rest of the public, on January 20, 1973.

The use of open captions began to afford some access to viewers who were deaf or hard of hearing, but the television industry's general resistance to this technology, which did not allow individual viewers to turn captions on and off, prompted television networks, engineers, educators, consumers, and the federal government to explore other strategies for making television visually accessible. These efforts culminated in the development of closed captioning, achieved by inserting captions – in the form of an electronic code – into line 21 of the 525 lines making up the vertical blanking interval of analog television pictures. Many television network executives and producers liked the new “closed” method because it allowed captions to be turned on only by people who wanted to see them. As a result, it enabled expansion of their viewing audiences to people who could not hear, without potentially losing viewers who didn't want to use captions.

In December 1976, after receiving significant support for the Line 21 technology, including encouragement in the form of a letter from President Gerald Ford, the FCC amended its rules to authorize broadcasters to voluntarily use the new technology for the provision of closed captions. This action paved the way for ABC, NBC, and PBS to enter into an agreement a few years later, to provide 16 to 20 hours of closed captioned television programming each week. The agreement also called for Sears to oversee the production and sale of standalone television decoders, needed at the time for caption viewing. In the years to come, CBS also began captioning, and the U.S. Department of Education, which had since assumed responsibility for the federal captioned film program, took on the role of distributing federal grants to help provide financial support for captions on television.

As a result of these various efforts, the 1980s witnessed considerable growth in the number of closed captioned television programs, especially during the evening hours on broadcast channels. However, the sale of caption decoders remained stagnant. Although introduced in 1980, eight years later, only 200,000 decoders had been purchased. Fearing that the small viewing audience might hurt captioning efforts, concern began to grow that the future of captioning was in jeopardy. Without a sizeable market, some predicted that television producers and advertisers would pull back on the funding support they had been contributing to add captions to their programs. A “Catch-22” ensued: producers grew increasingly reluctant to invest money into captioning new television shows until they witnessed a growth in decoder sales, while consumers remained hesitant to spend hundreds of dollars on decoder equipment until more television programs became captioned.

This was not the first time, nor would it be the last, that people with disabilities would not be able to exercise sufficient market strength to achieve access to a new communications technology. Although the number of people with disabilities in the United States is said to hover around 50 million, each individual disability group – i.e., individuals who are deaf, blind, mobility disabled, etc. – typically has not been large or strong enough to exert the market pressures needed to incentivize industry to include accessibility features in their products and services. Often lower incomes that are common within the disability community and the need

for expensive and hard-to-find adaptive equipment have exacerbated the problem – that is, without the expendable income to buy new-to-the-market products or the physical ability to use them without assistive devices, people with disabilities often have not been able to exert the necessary influence to convince companies to incorporate accessible features. Often, when market forces have failed in the past, the government has stepped in with regulatory measures to ensure that people with disabilities have the access that they need. It had been for this reason that the Department of Education had been providing assistance in the form of captioning grants. However, because these funds only covered a portion of total captioning costs, the lack of market incentives for the television industry to continue contributing its share signaled the possible need for additional federal action.

In order to determine next steps, in 1989, the Department of Education conducted an assessment of the benefits of its continued investments into captioning services. The survey confirmed that deaf viewers and parents of deaf children strongly supported captioning as a critical means of acquiring information that was essential to full participation in American society. But it also revealed that many, if not most, Americans who were deaf or hard of hearing remained unaware of the availability of decoders, including where to buy them (at the time, there were few closed captioned advertisements on TV and the Internet did not yet exist). In addition, it confirmed that, at approximately \$200 per device, consumers considered the decoders too expensive for the limited programming choices available, and many found this equipment too complicated to connect to their television sets. When it became clear that a better means of providing consumers with easy access to closed captions would be necessary to sustain the service, Congress responded with bipartisan legislation, the Television Decoder Circuitry Act of 1990, which directed that all television sets manufactured or imported into America with screens 13 inches or larger had to be capable of decoding and displaying closed captions as of July 1993. The goal of this “Decoder Chip” bill was to encourage programmers and producers to include closed captions on more of their television programs in order to benefit from the expanded audience. As chief sponsor of the legislation, Senator Harkin, in his opening remarks, affirmed the bill’s importance, noting that television was a pervasive means of sharing information in our society, and therefore a vital link to our world. In 1991, the FCC implemented the new law in a timely fashion, with the adoption of performance and display specifications that defined the color, placement, size, font, and intelligibility of the line 21 captions.

Prior to passage of the Decoder Chip bill, some in the electronics industry had resisted the law’s provisions. However, shortly after the legislation was enacted, industry quickly came on board with an enthusiastic response by several companies that recognized the potential for a new market of individuals who might buy their television devices. By November 1991, scarcely a year after the legislation was adopted and well before the implementation deadline, Zenith demonstrated its eagerness to get a jump on these new purchasers with the release of five decoder-equipped TV models. And as the deadline of July 1993 neared, the Electronics Industry Association (EIA) launched a nationwide campaign called “CaptionVision” at electronic trade

shows, stores, and in mainstream publications, which suggested to the public that closed captioning could benefit far more than the community for which these services were originally designed, and revealed the industry's intent to tap huge new markets of television viewers who wanted to be able to "read" television. EIA's marketing efforts were in full swing at a kick-off event for the new legislation held at Gallaudet University on July 1, 1993, at which large screen televisions blared the music of Michael Jackson and Paula Abdul, accompanied by captions that beat to the timing of their music. Against this backdrop were eye-catching posters that demonstrated the expanded benefits of closed captioning: One had a magician pointing to magic words announcing "Your Kid's New Reading Tutor," another touted the ability to learn English quickly "in the privacy and comfort of [your] homes." Yet another targeted sports enthusiasts who wanted to follow every play, even "when noisy relatives, including loud Uncle Leo show up for dinner during the big game." Another EIA poster, proclaiming that "CaptionVision is for Everyone!" was correct in its prediction; in the years that followed, this accessibility feature, originally intended for people with hearing loss, became ubiquitous in bars, gyms, and other noisy public places. This was just one of many times that a technology or feature created to provide accessibility for the disability community, proved to be beneficial to the public at large.

Although some increase in the number of closed captioned programs did occur on broadcast television by the time the Decoder Act became effective in 1993, the percentage of basic cable television shows with captions still hovered around only 5 to 10 percent. As it became increasingly clear that the promises of larger audiences would not be sufficient to motivate these programmers to caption their shows, Congress again stepped in, this time with mandates for television programs to be shown with captions. Specifically, the 1996 Amendments to the Communications Act directed the FCC to adopt rules requiring new television programming to be fully accessible through the provision of closed captioning and to maximize the accessibility of older television programming. In response, the Commission adopted comprehensive mandates that set forth a schedule of deadlines for the provision of closed captioning on English and Spanish language television programs. In addition, the Commission adopted new rules in 2000 to ensure that digital television receivers would be capable of displaying closed captions. Those rules created specifications that took advantage of new digital technologies to allow users to tailor captions to their individual needs, by controlling the font, size, color, opacity, and other captioning features.

As a result of the FCC's rules, since January 2006, all new, non-exempt English language programming, defined as analog programming first published or exhibited on or after January 1, 1998, and digital programming first aired on or after July 1, 2002, have been captioned. In addition, since January 1, 2008, 75 percent of English language "pre-rule" programming, which was first shown before January 1, 1998, and digital programming first shown before July 1, 2002, have been subject to the captioning requirements. Spanish language programming was given a longer period for compliance – January 1, 2010 for all new, non-exempt programming and 75 percent of pre-rule programming by January 1, 2012. The Commission's rules exempt

certain categories of programming from these requirements, including overnight programming, local non-news programs without repeat value, non-vocal music, programs on new networks, and advertisements under five minutes. In addition, channels producing annual revenues under \$3 million need not spend any funds to caption their programs (although they still have an obligation to pass through video programming already captioned), and no video programming provider need spend more than two percent of its prior year's gross revenues on captioning expenses. Finally, individual exemptions may be granted upon a showing that the provision of closed captioning is economically burdensome to a covered entity.

In 2000, the Commission also adopted rules specifically governing access by people with hearing and vision disabilities to televised information about emergencies, where such information is intended to further the protection of life, health, safety, and property. In these rules, the Commission established, without exception, requirements for all programming distributors to provide access to critical details about emergencies that are provided during newscasts, whether regularly scheduled or those that interrupt programming. Time after time, Americans have been witness to the importance of having such information – whether during bouts of extreme weather, such as tornadoes in the mid-west and the recent hurricanes in the northeast – or during severe public disturbances, including the events of September 11, 2001 and the more recent Boston bombings. One can hardly imagine not having instantaneous access to information during such events – information that is needed to instruct viewers on taking necessary precautions. Most recently, as noted below, the Commission expanded its emergency information access rules even further, to require audio access to emergency information provided visually during non-newscast programming – e.g., provided through on-screen crawls.

Twenty-First Century Communications and Video Accessibility Act

While the above regulatory measures made significant strides in providing people with disabilities with the information tools needed to achieve full access to video programming during the 1990s, more recently it became clear that these laws were not keeping up with evolving digital and Internet technologies. As with earlier technological advances, these new innovations promised enormous opportunity for the American public, but threatened to create new barriers that could leave people with disabilities behind if they did not include accessibility features. To prevent this from occurring, and with the recognition that the competitive marketplace was not likely to protect such access, in 2010, Congress stepped in with the passage of the Twenty-First Century Communications and Video Accessibility Act (CVAA) to address the accessibility challenges of these emerging technologies. The new law lays out a series of directives for the Commission to ensure the inclusion of accessibility features during the design and development of these new innovations, so that costly and burdensome retrofits are not needed later on. The remainder of this testimony provides a summary of the FCC's implementation of these new CVAA requirements.

Captioning of Internet Programming

On January 12, 2012, the FCC adopted rules setting forth a schedule of deadlines that require closed captioned programs shown on television to be captioned when shown on the Internet. The following deadlines, adopted by the Commission, apply to video programming that is newly added to the distributor's inventory of Internet video programming:

- September 30, 2012: Prerecorded programming that is not “edited for Internet distribution” must be captioned when delivered via Internet protocol if it has been shown on TV with captions since September 30, 2012. This applies to television programming that has not been substantially edited before being posted to the Internet. Examples of substantial edits include deleting scenes or altering musical scores.
- March 30, 2013: Live and near-live programming must be captioned when delivered via Internet protocol if it has been shown on television with captions since March 30, 2013. Near-live programming is defined as video programming that is performed and recorded less than 24 hours before being shown on television for the first time.
- September 30, 2013: Prerecorded programming that is substantially edited for Internet distribution must be captioned if it is shown on TV with captions on or after September 30, 2013.

Extended deadlines apply to captioned television programming that is already in the video programming distributor's or provider's inventory before it is shown on television with captions. The compliance timeline for these distributors requires closed captions on such programming as follows:

- Within 45 days after the date it is shown on TV with captions on or after March 30, 2014 and before March 30, 2015;
- Within 30 days after the date it is shown on TV with captions on or after March 30, 2015 and before March 30, 2016; and
- Within 15 days after the date it is shown on TV with captions on or after March 30, 2016.

Display of Captioning on Equipment Used to View Video Programming

On January 12, 2012, the Commission adopted rules implementing the CVAA's requirements to expand the types of video apparatus that are required to display closed captions. These rules expand the Decoder Chip Act's mandate for captioning capability (which had only required captions to be displayed on equipment that receives or plays back video programming using a picture screen of 13 inches or larger) to equipment with screens smaller than 13 inches, if doing so is technically feasible and achievable with reasonable effort or expense. In addition, if achievable with reasonable effort or expense, equipment that records video programming must either enable the display of closed captions or pass through closed captions to the equipment used to view the programming. Viewers must also be able to turn on and off the closed captions as the video programming is played. The equipment rules are applicable to both physical devices

designed to receive and play back video programming, including smartphones, tablets, personal computers, and television set-top boxes, as well as software integrated into devices that was installed by the manufacturer before the equipment is sold or that the manufacturer requires the consumer to install after the equipment is purchased. The rules further require covered devices to enable consumers to take advantage of the display specifications first adopted in the Commission's digital receiver regulations, namely the ability to adjust the color, size, fonts, opacity, and other caption display features. Finally, the rules require interconnection mechanisms (for example, cables) that carry information from a source device to consumer equipment (for example, a television set) to be capable of conveying the information necessary to permit or render the display of captions to viewers. Equipment manufacturers must comply with these new rules by January 1, 2014.

Video Description

In 2000, the FCC issued video description rules that followed up on a study and report authorized by the 1996 Amendments to the Communications Act. In 2002, although a federal court overturned these rules for lack of authority, some video programming providers, including CBS, PBS, TNT, and Fox continued to provide video description voluntarily. In October 2010, the CVAA authorized the Commission to restore the original video description rules, which the Commission put back into effect on July 1, 2012.

The restored video description rules require local TV station affiliates of ABC, CBS, Fox, and NBC located in the top 25 television markets to provide 50 hours per calendar quarter – approximately 4 hours per week – of video-described prime time and/or children's programming (programming directed to children 16 years or younger). Any programming aired with description must always include description if re-aired on the same station or MVPD channel. The rules also apply to the multichannel video programming distributor systems with more than 50,000 subscribers, with respect to the top 5 non-broadcast networks, presently: Disney Channel, Nickelodeon, TBS, TNT, and USA. The list of covered non-broadcast networks will automatically update every 3 years, based on Nielsen ratings for the prior year. Individual exemptions from the video description requirements may be granted upon a showing that the provision of video description is economically burdensome to the covered entity. The compliance date for mobile DTV broadcasts is delayed until October 8, 2013.

The video description requirements will be extended to local TV station affiliates of the covered national networks that are located in the top 60 television markets beginning July 1, 2015. Per the CVAA's directive, during the summer of 2013, the Commission will begin conducting an inquiry, and thereafter reporting to Congress on (1) the availability, use, and benefits of video description and (2) the technical and operational issues, costs, and benefits of providing video description for video programming delivered using Internet protocol. Based on the results of this report, the Commission may increase the total hour requirement for described programs by 75 percent, up to seven hours per week. A subsequent report by the Commission is due to Congress

nine years after the CVAA's enactment, on the types and amount of video described programming available, the costs, benefits, and uses of such programming, and the need for additional described programming in designated market areas outside the top 60 markets. In 2020, the Commission will have additional authority, based on the findings, conclusions, and recommendations contained in this report, to phase in the video description regulations for up to an additional 10 designated market areas each year, so long as the costs of implementing the regulations are reasonable for program owners, providers, and distributors in these additional markets.

Televised Accessible Emergency Information

As discussed above, since 2000, the Commission has had in place rules to require televised emergency information to be visually accessible to people with hearing disabilities. Those rules also have required aural access for people with vision disabilities to emergency information provided on newscasts, both regularly scheduled or those that interrupt regular programming. On April 8, 2013, pursuant to the CVAA, the Commission adopted new emergency information requirements for broadcasters, MVPDs, and any other distributor of video programming that delivers programming directly to the home, to provide an aural presentation of emergency information that is provided visually in non-newscast programming (i.e., typically through crawls that appear at the bottom of the screen during regularly scheduled programming) on a secondary audio stream. The rules further require that covered entities use an aural tone to precede the emergency information on both the main program audio and the secondary audio stream, and that such emergency information must supersede all other programming on that secondary stream. The rules will require compliance two years from the date of publication in the *Federal Register*.

Other Video Apparatus Requirements

On April 8, 2013, the Commission adopted rules requiring apparatus designed to receive, play back, or record video programming transmitted simultaneously with sound to support secondary audio streams, so that these streams can be used to provide video description and accessible emergency information to people who are blind and visually impaired. The new requirements, which apply as well to removable media players and mobile digital television apparatus, allow the use of text-to-speech technologies and require compliance two years from the date of *Federal Register* publication of the rules.

In addition, by October 2013, the Commission is directed to adopt rules requiring that user interfaces on digital apparatus and navigation devices used to view video programming be accessible to and usable by individuals who are blind or visually impaired. Among other things, this will require access to on-screen text menus and other visual indicators. Finally, the CVAA requires the promulgation of rules requiring that these devices provide easy activation of accessibility features that is "reasonably comparable to a button, key, or icon." The Commission is presently working on the rulemaking that will address these issues.

Requirements for Mobile Phone Internet Browsers

On April, 26, 2013, the Commission adopted rules implementing a CVAA requirement for mobile phone manufacturers and mobile service providers that include or arrange for the inclusion of an Internet browser on their mobile phones to ensure that the functions of the included browser are accessible to and usable by people who are blind and visually impaired, unless doing so is not achievable. These rules will ensure that people in these communities are able to use such browsers for any purpose, including accessing video programming.

CONCLUSION

Over the past few decades, Congress has adopted numerous directives to ensure that people with disabilities have access to emerging video programming technologies. The FCC has taken seriously its responsibility to ensure that these directives are timely and effectively implemented, beginning with the adoption of specifications for captioning decoders in TV sets in the early 1990s, to our more recent implementation of the CVAA's comprehensive provisions requiring access to video programming by both people with vision and hearing disabilities. We are proud to note that we have met every one of the CVAA's tight rulemaking deadlines, as reflected in the Biennial Report to Congress submitted on October 5, 2012. *See* <http://www.fcc.gov/document/cvaa-report-congress>.

The federal policy reflected in these many proceedings acknowledges that video programming can serve as a tool of learning, independence, and social integration. Tomorrow's video technologies are likely to continue to hold tremendous promise in terms of increased productivity, self-sufficiency, and empowerment for people with disabilities. Our challenge both now and into the future will be to make sure that our accessibility policies keep up with these emerging technologies. Incorporating access early on, during the design and development of products and services, ensures that people with disabilities are not left behind, and avoids the need to retrofit these offerings later on, which can be expensive and burdensome, and often not as effective. To achieve our goals, we will continue to seek out the assistance and collaboration of industry and consumer experts and stakeholders. Over time, we have seen increased consensus on mutually agreeable solutions among these interested parties, as reflected in various consumer-industry forums and advisory bodies that have helped us craft our video accessibility rules in recent years. We will continue working with stakeholders as technologies continue to evolve, to enhance our understanding of the needs of consumers and the way that these needs can best be addressed by innovative and competitive industries.