capability designed to display closed-captioned video programming."[349] In the discussion that follows, we first provide our interpretation of the statutory term "apparatus."[350] We then analyze additional provisions of Section 203 of the statute, including the provisions that "apparatus" that use a screen of any size are covered and that our requirements only apply to the extent they are technically feasible.[351] Further, we address the statutory provisions for waivers of closed captioning obligations that are not "achievable" or are not appropriate given the primary purpose of the device being used to view video programming, as well as the statutory exemption for display-only monitors.[352] We then address the specific, functional requirements covered devices will be required to satisfy.[353] Additionally, we incorporate the statutory language regarding recording devices, including the obligations that they receive, store, and play back closed captioning,[354] address interconnection mechanisms,[355] and make minor changes to our existing closed captioning rules for analog and digital television receivers.[356] Finally, we address how parties may meet these requirements through alternate means of compliance,[357] specify the time frames by which manufacturers must meet their obligations under these rules,[358] and describe how consumers may file complaints for violations of these rules.[359]

A. Apparatus Subject to Section 203 of the Act

93. The CVAA does not define the term "apparatus," requiring the Commission to interpret the term to determine the exact meaning and extent of the statute's reach. Taking into account the statutory language and purpose, the record in this proceeding, and the conclusions the Commission reached in the *ACS Order*,[360] we interpret this language to apply to hardware (that is, physical devices

---

[349] 47 U.S.C. § 303(u)(1)(A). The statute continues that, notwithstanding this broad requirement, apparatus using a screen less than 13 inches in size is required to display closed captioning only if such a requirement is achievable, and that display only monitors with no playback capability are exempt from these requirements. 47 U.S.C. §§ 303(u)(2)(A)-(B). Section 203 further provides that the Commission may waive the requirements for apparatus primarily designed for activities other than receiving or playing back video programming and for equipment designed for multiple purposes that is capable of playing video programming but derives its essential utility from other purposes. 47 U.S.C. § 303(u)(2)(C).

[350] *See infra* Section IV.A (Apparatus Subject to Section 203 of the Act).

[351] *Id.*

[352] *See infra* Section IV.B (Achievability, Purpose-Based Waivers, and Display-Only Monitor Exemption).

[353] *See infra* Section IV.C (Display of Captions).

[354] *See infra* Section IV.D (Recording Devices).

[355] *See infra* Section IV.E (Interconnection Mechanisms).

[356] *See infra* Section IV.F (Changes to Television Rules and Movement of Device Rules to Part 79).

[357] *See infra* Section IV.G (Alternate Means of Compliance).

[358] *See infra* Section IV.H (Deadlines for Compliance).

[359] *See infra* Section IV.I (Complaints).

[360] The *ACS Order* applies the accessibility requirements of Section 716 of the CVAA to non-interconnected VoIP services, electronic messaging services, and interoperable video conferencing services. *ACS Order,* 26 FCC Rcd at 14564, ¶ 13, *implementing* Pub. L. No. 111-260 § 104; 47 U.S.C. §§ 617-619. In applying the provisions of the CVAA to entities that make or produce end user equipment, including tablets, laptops, and smartphones responsible for the accessibility of the hardware and manufacturer-provided software used for e-mail, SMS text messaging, and other advanced communications services, the Commission addressed many issues of first impression related both to the CVAA and to the regulation of high-tech devices not traditionally reached by the Commission's accessibility rules. We find the *ACS Order* a useful guide to interpreting similar provisions and issues in this proceeding. Accordingly, we refer to the *ACS Order* at various points in the following discussion.

such as set-top boxes, PCs, smartphones, and tablets) designed to receive or play back video programming transmitted simultaneously with sound and any integrated software (that is, software installed in the device by the manufacturer before sale or that the manufacturer requires the consumer to install after sale). Commenters unanimously agree that physical devices capable of displaying video are covered by the statutory term "apparatus."[361] Given the fact that the means by which a device actually displays video—the "video player"—may be comprised of hardware, software, or a combination of both, we do not believe that it would be appropriate to define "apparatus" solely in terms of hardware. Rather, in order to effectuate the statutory goals, we define "apparatus" to include the physical device and the video players that manufacturers install into the devices they manufacture (whether in the form of hardware, software, or a combination of both) before sale, as well as any video players that manufacturers direct consumers to install.[362] Thus, "apparatus" includes integrated video players, *i.e.,* video players that manufacturers embed in their devices, video players designed by third parties but installed by manufacturers in their devices before sale, and video players that manufacturers require consumers to add to the device after sale in order to enable the device to play video.[363] In addition, if a manufacturer offers updates or upgrades to a video player component of a device, it also must ensure that those updates or upgrades are capable of displaying closed captions.[364] Further, if a manufacturer selects a third-party operating system that includes a video player, that video player will also be considered part of the "apparatus."

94. Our approach is consistent with the statute, which uses broad terminology, applying to "apparatus designed to receive and play back video programming transmitted simultaneously with sound."[365] In addition to the statute's broad language, the legislative history suggests that the statute was intended to have a broad scope. For example, the House and Senate Committee Reports describe the goal of Section 203(a) as "ensur[ing] that devices consumers use to view video programming are able to

---

[361] *See* CEA Comments at 10 (noting that apparatus will have "memory" and "processing power," characteristics of devices); CTIA Comments at 5 (asking that physical mobile devices be exempted from the rules); Comments of the Entertainment Software Association at 1 ("ESA Comments") (discussing physical video game consoles); DIRECTV Comments at 4 (discussing the physical devices DIRECTV delivers services to); Microsoft Comments at 10; NCTA Comments at 24; Reply Comments of Research in Motion Ltd. at 5 ("RIM Reply") (discussing accommodations for work done on mobile devices); Comments of Ronald H. Vickery at 2 ("Vickery Comments"); TechAmerica Comments at 4; Comments of the Telecommunications Industry Association at 3 ("TIA Comments"); Consumer Groups Comments at 41.

[362] We note that manufacturers of covered apparatus pursuant to this section must also comply with the performance and display requirements set forth below. *See infra* Section IV.C (Display of Captions).

[363] As provided in the *ACS Order*, "[m]anufacturers are responsible for the software components of their [devices] whether they pre-install the software, provide the software to the consumer on a physical medium such as a CD, or require the consumer to download the software." *ACS Order,* 26 FCC Rcd at 14582, ¶ 69.

[364] We reject commenters' arguments that Section 203 is limited to enabling the display of closed captioning solely to video programming provided pursuant to Section 202 of the CVAA. *See* TIA Comments at 8; see also Microsoft Comments at 11-12 (arguing our Section 203 rules should only apply to apparatus that "display[] video programming delivered using Internet protocol that was published or exhibited on television with captions"). Neither the statute nor the legislative history limits the application of Section 203 in this manner. Section 203 broadly requires covered devices to be equipped and capable of displaying closed captioned video programming. 47 U.S.C. § 303(u)(1)(A). The legislative history states that the CVAA was enacted to "ensure that devices consumers use to view video programming are able to display closed captions." *See* Senate Committee Report at 13. Moreover, as a technical and practical matter, once a device implements the closed captioning capability for a particular format of content, then the origin of that content is immaterial. Under current technology, there would be no way for the device manufacturer to limit captioning only for a particular type of content.

[365] 47 U.S.C. § 303(u)(1)(A).

display closed captions."[366] As explained above, applying our rules solely to hardware would not fulfill this goal because the ability to display closed captions may be implemented through hardware, software or a combination of both.[367] Thus, defining apparatus to include "integrated software" is necessary to achieve Congress's goal to ensure individuals with disabilities are able to fully access video programming.[368] We recognize that this places the burden on manufacturers to ensure that all the software they choose to build into or preinstall in their devices complies with our closed captioning rules.[369] We conclude, however, that this is necessary to implement the statute and effectuate congressional intent. The approach we adopt is also consistent with the approach the Commission followed in the *ACS Order*.[370] We decline to include within the scope of our interpretation of the statutory term "apparatus" third-party software that is downloaded or otherwise added to the device independently by the consumer after sale and that is not required by the manufacturer to enable the device to play video.[371] Given our interpretation of the statute to cover integrated software, as well as our decision under Section 202 (as discussed above) that VPDs must ensure that any video player they provide to the consumer is capable of rendering or passing through closed captions, we believe that the rules we adopt will cover the majority of situations in which consumers view video, and therefore do not believe that it is necessary to hold manufacturers responsible for such "third-party software" or to regulate software companies directly.[372] In interpreting the scope of the statute in this manner, we have balanced

---

[366] *See* House Committee Report at 30; Senate Committee Report at 14.

[367] *See* Google Reply at 7-8 ("Google believes that to the extent a device requires software to direct the use and operation to receive, play back, and record video programming, it is an apparatus 'designed' to do so, and should be deemed apparatus for purposes of Section 203. Design necessarily includes software. Even where software is not preloaded but is downloaded by a user, the fact that the device has the capability to operate the downloaded software should be sufficient to make it an apparatus under the rules, particularly given that '[i]n very few, if any, situations does hardware alone serve as the enabler of reception, unlike in traditional analog television.' Consequently, not including software in the definition of apparatus likely would 'exclude virtually all modern video playback technology [and] directly contradict the CVAA's goal of encoding accessibility by design in video programming hardware.'") (footnotes omitted).

[368] *See* Senate Committee Report at 1-2.

[369] *See, e.g.,* Letter from Julie M. Kearney, Consumer Electronics Association, to Marlene H. Dortch, Secretary, FCC, at 1 (Dec. 21, 2011) ("To comply with Section 203, the manufacturer of a covered apparatus should only have to ensure that the principal means of viewing video programming . . . displays closed captions when provided in a standard format. In other words, device manufacturers are responsible only for software that is pre-loaded (by the manufacturer) on devices and included in the device at the time of sale.").

[370] In the *ACS Order*, the Commission adopted rules holding "entities that make or produce end user equipment, including tablets, laptops, and smartphones, responsible for the accessibility of the hardware and manufacturer-provided software used for e-mail, SMS text messaging, and other ACS. We also hold these entities responsible for software upgrades made available by such manufacturers for download by users." *See ACS Order*, 26 FCC Rcd at 14588-89, ¶ 13.

[371] *See also, supra,* Section III.A.2 (Responsibilities of Video Programming Owners, Distributors, and Providers). This is also consistent with the *ACS Order*, which stated "[a]dditionally, we conclude that, except for third-party accessibility solutions, there is no liability for a manufacturer of end user equipment for the accessibility of software that is independently selected and installed by the user, or that the user chooses to use in the cloud." *See ACS Order*, 26 FCC Rcd at 14588, ¶ 13. We expect, however, that to the extent that third-party software provides closed captioning support, the manufacturer will ensure that the device does not block the transmission of captioning.

[372] To the extent, in the future, there is evidence to suggest that our rule no longer ensures that the goals of the statute are met – for example, if video programming is increasingly provided using third-party software unaffiliated with both VPDs and device manufacturers – we may revisit this issue. *See ACS Order*, 26 FCC Rcd at 14586, ¶ 72 ("[T]he Commission will have an occasion to examine whether application of the CVAA's requirements directly to (continued....)

the needs of consumers with the need to minimize burdens on the industry to ensure that our rules do not impede innovation in the device and software markets.

95. *Designed to Receive or Play Back Video Programming.* Our decision to cover "integrated video players" is consistent with the statutory language of Section 203 of the CVAA which covers those apparatus "designed to receive or play back video programming transmitted simultaneously with sound."[373] Under our interpretation, if a device is sold with (or updated by the manufacturer to add) an integrated video player capable of displaying video programming, that device is "designed to receive or play back video programming" and subject to our rules adopted pursuant to Section 203. Some commenters argue that we should evaluate whether a device is covered by focusing on the original design or intent of the manufacturer of the apparatus and not the consumer's ultimate use of that apparatus.[374] We disagree. We believe that to determine whether a device is designed to receive or play back video programming, and therefore covered by the statute, we should look to the device's functionality, *i.e.* whether it is capable of receiving or playing back video programming.[375] We are persuaded that adopting this bright-line standard based on the device's capability will provide more certainty for manufacturers.[376] In any event, to the extent a device is built with a video player, it would be reasonable to conclude that viewing video programming is one of the intended uses of the device. From a consumer perspective, it would also be reasonable to expect that a device with a video player would be capable of displaying captions.

96. *Picture Screen of Any Size.* The statute applies to apparatus "if such apparatus . . . uses a picture screen of any size."[377] We interpret the term "use" to mean that the apparatus works in conjunction with a picture screen. We reject the argument that Section 203 applies only to devices that include screens,[378] as neither the statute nor the legislative history compels such a narrow construction.

(Continued from previous page)
developers of consumer-installed software is warranted, and make any necessary adjustments to our rules to achieve accessibility in accordance with the intent of the CVAA.").

[373] 47 U.S.C. § 303(u)(1)(A). "Video programming" is defined by the CVAA as "programming by, or generally considered comparable to programming provided by a television broadcast station, but not including consumer-generated media." 47 U.S.C. § 613(h)(2).

[374] *See, e.g.,* CEA Comments at 12; CTIA Comments at 13 (arguing that focusing on post-market uses, which may be unforeseen by the manufacturer, would deprive manufacturers of the certainty they need to determine whether a device will be subject to closed captioning requirements well in advance of introducing a product).

[375] *See* Google Reply at 9-10 ("Clearly, any device that is capable of being used to receive, play back, and record video programming from an external source has been designed to do so, and therefore is 'apparatus.'"); *see also* Consumer Groups Reply at 27 ("In other words, if an apparatus is capable of playing back video, it necessarily was designed for that purpose.").

[376] *See* Google Comments at 8. As noted above, our rules cover manufacturer-provided updates and upgrades to devices; thus, a device that originally included no video player but that the manufacturer requires the consumer to update or upgrade to enable video reception or play-back will be covered by our rules (our rules, of course, equally cover updates or upgrades to existing video players). Looking solely at the manufacturer's original intent, therefore, would be too narrow an approach. However, we would not hold manufacturers liable for failure to include closed captioning capability in devices manipulated or modified by consumers in the aftermarket to provide services not intended by the manufacturer. *See, e.g.,* David Carnoy, Hack Turns Nook Color into Kindle, CNET News (2010), available at http://news.cnet.com/8301-17938_105-20026799-1.html (discussing consumer modifications and manipulations of the underlying software of an e-book reader to expose previously unavailable functionality and consequently enable it to play video).

[377] *See* 47 U.S.C. § 303(u).

[378] *See* Microsoft Comments at 10 ("under the statute it is necessary for an 'apparatus' to 'use[] a picture screen of any size.' Of course, only a physical device may possess a picture screen.") (footnote omitted); *see also* TIA Comments at 9 (mobile devices that do not include physical screens should be exempted from the rules).

The original Television Decoder Circuitry Act's captioning requirement covered an apparatus only if "its television picture screen is 13 inches or greater in size."[379] The Commission previously interpreted the narrower phrase used in the Television Decoder Circuitry Act ("*its* television screen") to permit coverage of devices that are not connected to a picture screen. In the *2000 DTV Closed Captioning Order*, the Commission explained that separating the tuning and receive function from the display function of a device is common, allows consumers to customize their systems, and should not eliminate the obligation to provide closed captioning.[380] Commenters have failed to persuade us that this reasoning should not apply here as well.[381] Moreover, we find that reading Section 203(a) to apply only to devices with built-in screens would undermine the goals of the statute, as it would exclude one of the most common means by which consumers view programming.[382] Thus, we find that it is reasonable to conclude that Congress's intent in Section 203(a) of the CVAA was to eliminate the screen-size limitation, not to narrow the classes of apparatus covered. Therefore, devices designed to work in conjunction with a screen, though not including a screen themselves, such as set-top boxes, personal computers, and other receiving devices separated from a screen must be equipped with closed caption decoder circuitry or capability designed to display closed-captioned video programming, unless that device is otherwise exempted pursuant to the limitations and exceptions described below.

97. *Technically Feasible.* Under the CVAA, the requirements of Section 203 only apply to the extent they are "technically feasible."[383] Because neither the statute nor the legislative history provides guidance as to the meaning of "technically feasible,"[384] the Commission is obligated to interpret the term to best effectuate the purpose of the statute. To assist us in our analysis, we look to how the Commission in the past has interpreted this and other, similar terms in the context of accessibility for people with disabilities. For example, in the context of Section 255 of the Act, the Commission defined "readily achievable" to mean, in part, "technically feasible," and then defined that term by rulemaking to encompass a product's technological and physical limitations.[385] The Commission further found that a

---

[379] Pub. L. No. 101-431, 104 Stat. 960 (1990). Previously codified at 47 U.S.C. §§ 303(u), 330(b).

[380] *In the Matter of Closed Captioning Requirements for Digital Television Receivers, Closed Captioning and Video Description of Video Programming, Implementation of Section 305 of the Telecommunications Act of 1996, Video Programming Accessibility,* Report and Order, 15 FCC Rcd 16788 at 16805, ¶ 46-47 (2000) ("*2000 DTV Closed Captioning Order*") (implementing the previous version of 47 U.S.C. § 303(u)).

[381] We note that a separate provision of the CVAA provides that apparatus "that use a picture screen that is less than 13 inches in size" be subject to closed captioning requirements only if such requirements are "achievable," 47 U.S.C. § 303(u)(2)(a), but we interpret the reference to "a picture screen that is less than 13 inches in size" in that provision to express Congress's intent to recognize the potential difficulties of achieving compliance with respect to devices that use small screens, and do not find it to be inconsistent with the reasoning set forth above.

[382] MVPDs deploy approximately 1.5 set-top boxes per subscribing household, or nearly 100 million set-top boxes in the United States. *See* FCC Form 325, 2010 available at http://www.fcc.gov/coals. Regarding content delivered via IP, numerous set-top boxes exist to allow consumers to retain their existing televisions, including IP-specific devices from companies such as Roku and Western Digital, video game consoles, and physical-media players.

[383] 47 U.S.C. § 303(u).

[384] *See* House Committee Report at 30-31 (addressing Section 203); Senate Committee Report at 14 (addressing Section 203).

[385] *See Implementation of Section 255 and 251(a)(2) of the Communications Act of 1934, as enacted by the Telecommunications Act of* 1996, Report and Order and Further Notice of Inquiry, 16 FCC Rcd 6417, at 6444-6445, ¶ 63 (1999) ("*Section 255 Report and Order*") ("[W]hile technical infeasibility is a consideration, we agree with commenters that it does not exist merely because a particular feature has not yet been implemented by any other manufacturer or service provider. We also caution that technical infeasibility should not be confused with cost factors. In other words, a particular feature cannot be characterized as technically infeasible simply because it would be costly to implement. . . . We also agree with several commenters that technical infeasibility encompasses (continued....)

requirement should not be considered technically infeasible simply because it would be costly to implement, or that it involved physical modifications or alterations to the design of a product.[386]

98. We find that for the "technically feasible" qualifier to be triggered, it must be more than merely difficult to implement captioning capability on the apparatus;[387] rather, manufacturers must show that changes to the design of the apparatus to incorporate closed captioning capability are not physically or technically possible.[388] We believe that, as a general matter, if it is technically feasible for a manufacturer to include a video player in an apparatus, it is technically feasible for that manufacturer to include closed captioning functionality as well. That is, if an apparatus includes the complex functionality of a video player, which requires a relatively significant amount of processing power, it is technically feasible to include a significantly less computationally demanding functionality such as closed captioning, which requires significantly less processing power.[389] We recognize that at least some models of apparatus of all classes that provide video in the market today -- for example, televisions, set-top boxes, computers, smartphones, and tablets -- also enable the rendering or pass through of closed captioning.[390] On the strength of this marketplace evidence, we reject CTIA's argument that there is

(Continued from previous page)
not only a product's technological limitations, but also its physical limitations. We note, however, that manufacturers and service providers should not make conclusions about technical infeasibility within the "four corners" of a product's current design. Section 255 requires a manufacturer or service provider to consider physical modifications or alterations to the existing design of a product. Finally, we agree with commenters that manufacturers and service providers cannot make bald assertions of technical infeasibility. Any engineering or legal conclusions that implementation of a feature is technically infeasible should be substantiated by empirical evidence or documentation.").

[386] *Id.*

[387] We therefore reject CEA's proposal that insufficient processor or memory, or lack of appropriate standards such as for 3D video, may make implementing captioning or a particular feature of captioning on a particular apparatus technically infeasible. *See* CEA Comments at 10-11. Under the interpretation of technically feasible established by the Commission in the *Section 255 Report and Order*, expanding the processor or memory or developing standards for a new product such as 3D video would be technically feasible absent additional evidence demonstrating the technical barriers to doing so.

[388] Our approach to technical feasibility is also consistent with uses of that term in the direct broadcast satellite and common carrier context. *See Implementation of the Satellite Home Viewer Improvement Act of 1999: Broadcast Signal Carriage Issues; Retransmission Consent Issues,* Report and Order, 16 FCC Rcd 1918 at 1966-67 (2000) (implementing 47 C.F.R. § 76.66 and noting that while there would be significant costs and challenges in designing, constructing, and launching new satellites, it was nevertheless technically feasible to carry program-related material, including closed captioning, as required by statute); 47 C.F.R. § 54.5 ("'Technically feasible' [in universal service context] means capable of accomplishment as evidenced by prior success under similar circumstances. . . . A determination of technical feasibility does not consider economic, accounting, billing, space or site except that space and site may be considered if there is no possibility of expanding available space."); 47 C.F.R. § 51.5 ("Interconnection, access to unbundled network elements, collocation, and other methods of achieving interconnection or access to unbundled network elements at a point in the network shall be deemed technically feasible absent technical or operational concerns that prevent the fulfillment of a request by a telecommunications carrier for such interconnection, access, or methods."). We disagree with CTIA's statement that these definitions can be synthesized here to mean "demonstrably capable of accomplishment without technical or operational concerns" because the definitions cited herein for technical feasibility all call for overcoming technical and operational concerns when it is possible to do so. *See* CTIA Comments at 14-15.

[389] *See supra* ¶ 93 (discussing video players).

[390] *See, e.g., WGBH's National Center for Accessible Media and Research in Motion Enable Close-Captioning Support for BlackBerry Smartphones* (press release March 23, 2010) (*available at* http://ncam.wgbh.org/about/news/ncam-and-research-in-motion-en); *Apple iPhone Accessibility*, http://www.apple.com/accessibility/iphone/hearing.html (last visited Nov. 14, 2011) ("iPhone supports the playback of open captions, closed captions, and subtitling. Captions appear onscreen just like the closed captions you see on (continued....)

insufficient evidence that closed captioning capabilities are "technically feasible for all mobile devices capable of video playback across a diverse IP-delivered video programming ecosystem."[391] CTIA did not substantiate its claims with any specific evidence to support its claim of technical infeasibility. Thus, we find no justification in the record to exempt *all* mobile devices capable of video playback from the closed captioning requirements. If new apparatus or classes of apparatus for viewing video programming emerge on which it would not be technically feasible to include closed captioning, parties may raise that argument as a defense to a complaint or, alternatively, file a request for a ruling under Section 1.41 of the Commission's rules *before* manufacturing or importing the product.[392]

99. *Removable media players.* We decline to exclude removable media play back apparatus,[393] such as DVD and Blu-ray players, from the scope of the rule. Section 203 covers "apparatus designed to receive or *play back* video programming transmitted simultaneously with sound."[394] Section 203 of the CVAA amends Section 303(u) of the Act, which previously limited the decoder capability mandate only to those "apparatus designed to receive television pictures broadcast simultaneously with sound."[395] The phrase "or play back" in Section 203 makes clear that Congress no longer intended to only cover devices that receive programming. Section 203 expands the prior statutory mandate to include not only apparatus that "receive" programming, but also apparatus designed to "play back" programming, whether or not such apparatus is also capable of receiving the programming. Some commenters argue that the word "transmitted" indicates content that is streamed, downloaded, or broadcast via "wire or radio," thus excluding such removable media devices.[396] We are not persuaded by this argument. The reading these commenters advocate ignores Congress's use of the word "*or*," and instead would require devices to both "receive *and* play back" video programming in order to be covered under the statute. We think the better interpretation of the word "transmitted" in context is that Congress's substitution of the words "television pictures broadcast…" with the corresponding words "video programming transmitted…," while retaining the phrase "simultaneously with sound," was intended to expand the scope of the statute beyond devices that receive broadcast television without narrowing the statute's prior coverage. For these reasons, we believe the better reading of the phrase "transmitted simultaneously with sound" in this context is to describe how the video programming is conveyed from the device (*e.g.,* DVD player) to the end user (simultaneously with sound), rather than describe how the video programming arrived at the device (*e.g.,* DVD player). Accordingly, we agree with the Consumer Groups and Ronald H. Vickery that the better interpretation of Section 203 is that it covers removable media play back

(Continued from previous page)
TV."); *Setting on your Videos App, Watching on Your Android Tablet,* http://support.google.com/androidmarket/bin/answer.py?hl=en&answer=1266211 (last visited Dec. 12, 2011) ("From here, you can manage your downloading and streaming settings, enable and disable warning messages, and adjust the size of closed captioning text."); *Show Closed Captions or Subtitles in Windows Media Center,* http://windows.microsoft.com/en-US/windows-vista/Show-closed-captions-or-subtitles-in-Windows-Media-Center (last visited Nov. 14, 2011).

[391] CTIA Comments at 14.

[392] *See* 47 C.F.R. § 1.41 (permitting parties to file informal requests for Commission action, based on a clear and concise showing of the facts relied on and relief sought, among other requirements).

[393] "Removable" media describes a form of media storage, such as DVDs and flash drives, which can be removed from a computer or other equipment while the system is running.

[394] 47 U.S.C. § 303(u)(1) (emphasis added).

[395] 47 U.S.C. § 303(u).

[396] *See, e.g.,* CEA Comments at 13 ("In the case of playback-only fixed-media players, no video programming is 'transmitted' within the meaning of the statute. . . . Such devices . . . cannot tune, decode, or display television signals, or IP-delivered video programming of any kind."); ITI Reply at 3.

apparatus, such as DVD players, which are commonly used by consumers to view video programming.[397] In this regard, we note that even though not required by law,[398] many video programs on DVDs contain closed captions, and our interpretation will ensure that those captions can be viewed.

100. Although we recognize that DVDs and other removable media often contain subtitles, we do not believe that subtitles generally meet the functional requirements necessary to accomplish the goals of the statute. Specifically, we recognize that some removable media include either subtitles or "subtitles for the deaf and hard of hearing" ("SDH") in place of closed captions.[399] Subtitles are similar to closed captions in that they display the dialogue of a program as printed words on the screen, but often do not also identify speakers and background noises, such as sound effects, or the existence of music and laughter, information that is often critically important to understanding a program's content.[400] SDH are a version of subtitles that sometimes includes visual text to convey more than just the program's dialogue, for example, speaker identification. However, when these subtitles are viewed on removable media devices, such devices do not typically offer consumers the user controls available when closed captions are provided in accordance with the EIA-708 technical standard used for digital television programming.[401] We agree that these user control features for manipulating closed captions must be supported in all devices, including those that use removable media, and accordingly require built-in closed caption capability designed to display closed-captioned video programming in these devices in accordance with our rules.[402]

101. *Professional and commercial equipment.* We agree with CEA that we should exclude commercial video equipment, including professional movie theater projectors, and similar types of professional equipment, from our Section 203 rules.[403] The legislative history of the CVAA explains that Section 203(a) was intended to "ensure[] that devices consumers use to view video programming are able

---

[397] Consumer Groups and Ronald H. Vickery strongly disagree with arguments to exclude removable media from coverage of the statute. Consumer Groups Reply at 28; Reply Comments of Ronald H. Vickery at 1-2.

[398] Multimedia, including video programming, which is made available for sale or rent on removable media, is not required to be accessible to individuals with disabilities, such as through the provision of closed captioning. *See* 28 C.F.R. § 36.307 (the Americans with Disabilities Act of 1990 ("ADA"), as amended, does not require public accommodations to alter their inventory to include accessible goods that are designed for or facilitate use by individuals with disabilities, such as closed captioned video tapes). Nonetheless, when such multimedia is used for the provision of covered services, such as educational services, the covered entity must ensure that those services are accessible. *See, generally,* 42 U.S.C. §§ 12181-12189 (Title III of the ADA). *See also* http://www.dcmp.org (under a grant from the U.S. Department of Education, the Described and Captioned Media Program describes and captions multimedia for use by K-12 students).

[399] Subtitles may be provided in one or more languages, including English.

[400] *See 1997 Closed Captioning Order*, 13 FCC Rcd at 3273, ¶ 2; *Closed Captioning of Video Programming, Closed Captioning Requirements for Digital Television Receivers*, Declaratory Ruling, Order, and Notice of Proposed Rulemaking, 23 FCC Rcd 16674, 16675, ¶ 2 (2008).

[401] Section 15.122 of the Commission's rules incorporates by reference EIA-708-B, "Digital Television Closed Captioning," Electronics Industries Alliance (Dec. 1999) ("EIA-708-B"), which provides comprehensive instructions for the encoding, delivery, and display of closed captioning information for digital television systems. The standard provides for a larger set of captioning user options than the analog captioning standard, EIA-608, permitting users to control the size, font, color and other caption features. 47 C.F.R. § 15.122. *See also, 2000 DTV Closed Captioning Order*, 15 FCC Rcd 16788. As discussed below and indicated in Appendix B, we are relocating Section 15.122 to Section 79.102.

[402] *See infra* Section IV.C (Display of Captions).

[403] *See* CEA Comments at 19-20.

to display closed captions . . . ."[404] We believe that based on the legislative history, Congress intended the Commission's regulations to cover apparatus that are used by consumers. Accordingly, we find that because professional or commercial equipment is not typically used by the public, it is beyond the scope of this directive. Significantly, no commenters argued that the Commission's rules should cover this equipment. We note, however, that other federal laws may impose accessibility obligations to ensure that professional or commercial equipment is accessible to employees with disabilities,[405] or enables the delivery of accessible services.[406]

B. Achievability, Purpose-Based Waivers, and Display-Only Monitor Exemption

102. As noted above, except for an exemption for display-only monitors, we decline to grant blanket waivers or exempt any device or class of devices from our rules as requested by several industry coalitions.[407] Other than making broad assertions, no commenters that urge us to make such exceptions provide any technical basis or other evidence to support their contentions that certain classes of devices warranted an exemption.[408] We believe Congress intended the rules implementing Section 203 to cover a broad range of consumer devices,[409] and we agree with the Consumer Groups that it would be inappropriate to waive the rules for broad classes of devices, many of which have already demonstrated the ability both to receive video programming and display closed captioning.[410] In fact, the very purpose

---

[404] *See* House Committee Report at 30; Senate Committee Report at 14.

[405] Title I of the Americans with Disabilities Act (ADA) requires employers with more than fifteen employees to provide reasonable accommodations to applicants and employees with disabilities. *See* 42 U.S.C. §§ 12111-12117.

[406] For example, the U.S. Department of Justice has an open proceeding to determine the extent to which Title III of the ADA requires movie theaters to make their services accessible through the provision of captions. *See Nondiscrimination on the Basis of Disability; Movie Captioning and Video Description*, RIN 1190-AA63, DOJ-CRT-2010-0007, 75 FR 43467 (July 26, 2010). *See also* 42 U.S.C. §§ 12181-12189.

[407] *See supra* Section IV.A (Apparatus Subject to Section 203 of the Act).

[408] *See, e.g.*, TechAmerica Comments at 5-6 (suggesting that the Commission grant categorical waivers to smartphones and demonstrate flexibility when considering whether a device, such as a tablet computer, is subject to the closed captioning rules, especially considering the nascent stages of the tablet marketplace); TIA Comments at 9-10 (stating that the Commission should grant waivers to devices, such as cellular telephones and tablets, in order to provide manufacturers and industry participants with much-needed certainty that will spur innovation as "application of closed captioning requirements to multi-purpose devices that are not used primarily for the viewing of video would result in an unacceptable viewing experience, and may degrade the overall experience of the device"). Granting such blanket waivers would defeat the purpose of the CVAA to expand the ability of people who are deaf or hard of hearing to access video programming on modern devices used in the twenty-first century.

[409] *See* House Committee Report at 30; Senate Committee Report at 14 ("The Committee recognizes that many devices consumers use to view video programming are smaller and often portable.").

[410] *See, e.g.,* Reply Comments of dotSUB at 6 ("dotSUB Reply"), quoting Mobile Internet Content Coalition Comments in WT Docket No. 08-7, March 9, 2011, available at http://fjallfoss.fcc.gov/ecfs/document/view?id=7021033944 (strongly opposing TechAmerica's proposal that a blanket waiver be granted for smartphones and similar devices, as mobile devices are becoming a primary means of consuming media); Consumer Groups Comments at 42 (opposing "any blanket waiver, whether temporary or permanent, for a device" and noting that the "CVAA does not obligate the Commission to grant waivers, temporary or otherwise"); Apple iPhone Accessibility, http://www.apple.com/accessibility/iphone/hearing.html (last visited Nov. 14, 2011) ("iPhone supports the playback of open captions, closed captions, and subtitling. Captions appear onscreen just like the closed captions you see on TV. You can buy or rent captioned movies on the iTunes Store and sync them to iPhone to watch on the go. You can also create your own using a variety of tools and applications, including Compressor, one of the products in the Final Cut Studio 2 production suite (sold separately)."); *WGBH's National Center for Accessible Media and Research in Motion Enable Close-Captioning Support for BlackBerry* (continued....)

of Section 203 was to expand coverage of the original Television Decoder Circuitry Act's captioning requirement covering television sets with screens greater than 13 inches, to include consumer devices of various sizes and types (both wired and wireless), whose usage is rapidly expanding.[411] Moreover, we lack a record on which to grant a blanket waiver or exemption for any particular model of device or class of equipment.

103. Congress, however, included two limitations in Section 203. First, for devices using screens less than 13 inches in size, only those features that are "achievable" must be implemented.[412] Second, the statute provides that manufacturers may seek waivers based on the primary purpose or essential utility of the device. We will follow the model established in the *ACS Order* and take a flexible, case-by-case approach in addressing any waiver requests.[413] As discussed below, we also implement the statute's categorical exemption for display-only monitors.

104. *Achievability.* Section 203 amends Section 303(u) of the Communications Act to require that, "notwithstanding [the provisions of Section 303(u)(1)], apparatus described [in Section 303(u)(1)] that use a picture screen that is less than 13 inches in size [must] meet the requirements of [these regulations] only if the requirements of such subparagraphs are achievable (as defined in section 716)."[414] Section 716 of the CVAA defines achievability as, "with reasonable effort or expense, as determined by the Commission" based on four factors: (1) the nature and cost of the steps needed to meet the requirements of this section with respect to the specific equipment or service in question; (2) the technical and economic impact on the operation of the manufacturer or provider and on the operation of the specific equipment or service in question, including on the development and deployment of new communications technologies; (3) the type of operations of the manufacturer or provider; and (4) the extent to which the service provider or manufacturer in question offers accessible services or equipment containing varying degrees of functionality and features, and [those services or equipment are] offered at differing price points.[415]

105. In the *ACS Order*, the Commission applied the Section 716 achievability standard to advanced communications services and equipment and discussed each of the four factors.[416] There, the Commission concluded that it is appropriate to weigh each of the four factors equally, and that achievability should be evaluated on a case-by-case basis. We agree with CEA that we should adopt the same approach for closed captioning as it will provide the greatest possible flexibility for manufacturers.[417] When faced with a complaint for violation of our rules under Section 203, a manufacturer may raise as a defense that a particular apparatus does not comply with the rules because compliance was not achievable under the statutory factors. Alternatively, a manufacturer may seek a determination from the Commission *before* manufacturing or importing the apparatus as to its claims that

(Continued from previous page)
Smartphones (press release March 23, 2010) (*available at* http://ncam.wgbh.org/about/news/ncam-and-research-in-motion-en).

[411] Pub. L. No. 101-431, 104 Stat. 960 (1990).

[412] *See* 47 U.S.C. § 303(u)(2)(A).

[413] *See ACS Order,* 26 FCC Rcd at 14608, ¶ 123.

[414] 47 U.S.C. § 303(u)(2)(A).

[415] 47 U.S.C. § 617(g).

[416] *See ACS Order*, 26 FCC Rcd at 14610-14619, ¶¶ 127-148.

[417] Commenters broadly support the Commission exercising such flexibility. *See, e.g.,* CEA Comments at 14; TIA Comments at 11. *See also* DiMA Comments at 9 (discussing the need to couple the achievable exemption with a flexible implementation); DISH Network Reply at 7 (requesting a broad interpretation of the exceptions).

compliance with all of our rules is not achievable.[418] In evaluating evidence offered to prove that compliance was not achievable, the Commission will be informed by the analysis in the *ACS Order*.[419] To the extent that implementation of particular aspects of closed captioning functionality is not achievable on a particular apparatus for a particular manufacturer, it does not necessarily follow that no part of our closed captioning rules is achievable for that manufacturer on that apparatus. Rather, seeking to bring as much of the captioning experience to the greatest number of consumers possible, we will treat the functional captioning requirements we discuss below as severable, and require manufacturers to seek exemptions based on the achievability of individual features.[420] We remind parties that the achievability limitation is applicable only with regard to apparatus using screens less than 13 inches in size. For apparatus that use a screen size that is 13 inches or larger, a manufacturer may seek relief from the Commission based on a showing of technical infeasibility, which applies to apparatus of any size.[421]

106. *Purpose-Based Waivers.* Section 203 grants the Commission the discretion to waive the requirements of Section 203 for any apparatus or class of apparatus that are "*primarily designed* for activities other than receiving or playing back video programming transmitted simultaneously with sound" or "for equipment designed for multiple purposes, capable of receiving or playing video programming transmitted simultaneously with sound but whose *essential utility* is derived from other purposes."[422] The statute does not define "primarily designed," nor does it define "essential utility" except to state that it may be derived from more than one purpose.[423] Both the House and Senate Committee Reports state that waiver under these provisions is available "where, for instance, a consumer typically purchases a product for a primary purpose other than viewing video programming, and access to such programming is provided on an incidental basis."[424] We expect that such waiver requests will be highly fact specific and unique to each device presented. Accordingly, we will address any waivers under these sections on a case-by-case basis. We expect that, over time, the Commission will develop a body of precedent that will prove instructive to manufacturers and consumers alike.

107. Based on our analysis above, we reject the broad, unspecific requests made by several commenters. CTIA, for example, requests that all mobile devices be exempted from these regulations until such time as the market for video to mobile devices "becomes stable," and in order to promote the growth of the mobile video market.[425] We decline to do so here, as the mobile marketplace is incredibly diverse, and while the above assertion may be true for a particular device, it is unsupported with regard to the entire mobile industry. TechAmerica requests that the Commission "exercise its waiver authority freely," and grant blanket waivers to smartphones "as their essential utility is to function as a

---

[418] Any such requests should follow the procedures for an informal request for Commission action pursuant to Section 1.41 of our rules and the requirements of Section 79.103(b)(3). 47 C.F.R. § 1.41, App. B § 79.103(b)(3).

[419] *See ACS Order,* 26 FCC Rcd at 14607-14619, ¶¶ 119-148.

[420] *See infra* Section IV.C (Display of Captions). For example, we can envision that in certain circumstances it may not be achievable to implement variable opacity for captions or the caption background on specific devices, but it would nevertheless be achievable to implement the ability to change the caption color and the font size over an opaque or transparent background, depending on the specific capabilities and characteristics of a device's screen and processing power.

[421] *See* 47 C.F.R. § 1.41 (Informal requests for Commission action); *See supra* ¶¶ 97-98.

[422] 47 U.S.C. § 303(u)(2)(C) (emphasis added).

[423] *See id.*

[424] House Committee Report at 30-31; Senate Committee Report at 14.

[425] *See* CTIA Comments at 5-14.

communications device," and to consider similar treatment for tablets.[426] We disagree, as TechAmerica's request conflates the primary purpose waiver standard for single-purpose devices with incidental video capability and the essential utility standard, under which both communications and viewing video programming may be purposes which comprise a device's essential utility. Further, TechAmerica makes a sweeping request, asking the Commission to view all smartphones equivalently, which as we discuss above, does not comport with the fact-based, case-by-case approach we adopt. In addition, TechAmerica's request is in opposition to notable marketplace evidence that many mobile devices already support captioning.[427] TIA comments that the Commission should grant broad, categorical waivers, in an effort to give manufacturers certainty, to "gaming consoles, cellular telephones, and tablets."[428] Based on our reasoning above, we find that this request too is overbroad and lacks the facts and circumstances necessary to grant a waiver. Nevertheless, we reiterate that these waivers are available prospectively, for manufacturers seeking certainty prior to the sale of a device.[429]

108. *Display-Only Monitor Exemption.* Section 203(a)(2)(B) states that "any apparatus or class of apparatus that are display-only video monitors with no playback capability are exempt from the requirements" to implement closed captioning.[430] We conclude this requirement is self-explanatory and that in most instances the operation of this provision will be clear. Accordingly, we incorporate the language of the statutory provision directly into our rules. Consumer Groups proposed that we define display-only monitors as monitors that are dependent on another device subject to our closed captioning rules.[431] This proposed definition is too narrow, however, because it fails to account for display-only monitors that work in conjunction with devices not subject to our closed captioning rules, such as commercial video equipment.[432] CEA suggested that devices that can accept "only a baseband or uncompressed video stream,"[433] such as many computer monitors, are appropriately classified as display-only monitors.[434] This definition is also too narrow, because a monitor could conceivably accept a compressed video stream and still be considered a display-only monitor. We therefore decline to adopt these qualifications. To the extent a manufacturer would like a Commission determination as to whether its device qualifies for this exemption it may make such a request.[435]

C. Display of Captions

109. Section 203 of the CVAA requires that the Commission's rules "provide performance and display standards for such built-in decoder circuitry or capability designed to display closed captioned

---

[426] TechAmerica Comments at 5-6.

[427] *See supra* n. 410.

[428] TIA Comments at 10.

[429] *See* 47 C.F.R. § 1.41 (Informal requests for Commission action).

[430] 47 U.S.C. § 303(u)(2)(B).

[431] Consumer Groups Comments at 46-47.

[432] *See supra* Section IV.A (Apparatus Subject to Section 203 of the Act).

[433] A "baseband signal" is defined as "transmission of a digital or analog signal at its original frequencies, *i.e.*, a signal in its original form, not changed by modulation." *See* H. Newton, *Newton's Telecom Dictionary* 101 (20th ed. 2004). An "uncompressed signal" is a signal that has not been compressed. "Compression" is defined as "the art and science of squeezing out unneeded information in a picture, or a stream of pictures (a movie) or sound before sending or storing it." *See* H. Newton, *Newton's Telecom Dictionary* 199 (20th ed. 2004).

[434] CEA Comments at 15-16.

[435] A manufacturer may seek a Commission declaration that a monitor is exempt under this provision pursuant to Section 1.41 of the Commission's rules. *See* 47 C.F.R. § 1.41.

video programming . . . ."[436] We adopt functional requirements that will ensure that consumers' online captioning experience is equivalent to their television captioning experience.[437] When the Commission adopted the digital closed captioning standards, it noted the "substantial benefits for consumers" that are provided when video programming apparatus support user options that enable closed caption displays to be customized to suit the needs of individual viewers.[438] For example, the Commission explained that "the ability to alter colors, fonts, and sizes . . . can benefit a person with both a hearing disability and a visual disability in a way not possible with the current analog captions."[439] After also noting the benefits that adjustable caption sizes can afford younger children learning how to read,[440] the Commission concluded that "[o]nly by requiring decoders to respond to these various features can we ensure that closed captioning will be accessible for the greatest number of persons who are deaf and hard of hearing, and thereby achieve Congress's vision that to the fullest extent made possible by technology, people who are deaf and hard of hearing have equal access to the television medium."[441] More than a decade ago, consumers urged the Commission to "ensure that the promised benefits of [DTV] actually accrue to persons who are deaf, late deafened, hard of hearing or deaf-blind" and to create a "level viewing field" through the adoption of the EIA-708 captioning standard.[442] Most recently, the Consumer Groups reiterated that the Commission should consider ways to ensure that caption users are able to benefit from advanced technologies in designing our rules for apparatus to have captioning capability under Section 203.[443]

110. To assist the Commission in interpreting this provision, Congress directed the VPAAC to identify "performance requirement[s] for protocols, technical capabilities, and technical procedures needed to permit content providers, content distributors, Internet service providers, software developers, and device manufacturers to reliably encode, transport, receive, and render closed captions of video programming . . . delivered using Internet protocol."[444] The VPAAC Report identifies the rules, technologies, and procedures necessary to provide consumers with a captioning experience equivalent to the experience provided when the content was aired on television using the CEA-608/708 standard.[445] Specifically, the VPAAC identified four components that make up the television "caption experience," seven technical requirements necessary to implement that experience, and a list of optional best practices that may be implemented to deliver the highest possible captioning experience.[446]

---

[436] 47 U.S.C. § 330(b)(2). We therefore disagree with CBS's contention that there is no statutory basis for adopting "quality" standards for online captioning." CBS Reply at 16-17.

[437] *See* VPAAC Report at App. B.

[438] *2000 DTV Closed Captioning Order*, 15 FCC Rcd at 16793, ¶ 7.

[439] *Id.* at 16794, ¶ 11. For example, the ability to change the font and both background and foreground colors can make a difference in whether a person who is partially deaf and blind can access a video program. *See also* Consumer Groups Dec. 15 *Ex Parte* Letter at 3-4.

[440] *2000 DTV Closed Captioning Order*, 15 FCC Rcd at 16794, ¶ 12.

[441] *Id.* at 16794, ¶ 13.

[442] Reply Comments of Telecommunications for the Deaf, Inc., *Closed Captioning Requirements for Digital Television Receivers*, ET Docket No. 99-254 at 2-3 (filed Nov. 15, 1999).

[443] *See* Consumer Groups Dec. 15 *Ex Parte* Letter at 4.

[444] Pub. L. No. 111-260 § 201(e)(1)(B).

[445] *See* VPAAC Report at 13. CEA-608 is the technical standard used for analog closed captioning, and CEA-708 is technical standard for digital closed captioning. *See* App. B 47 C.F.R. §§ 79.101 (previously 47 C.F.R. § 15.119, CEA-608), 79.102 (previously § 15.122, CEA-708) for the current captioning requirements, respectively.

[446] *See* VPAAC Report at 13, 16, App. B.

111. The VPAAC identified the four components of the captioning "experience" as:

- The presentation format of the captioning; *e.g.*, within or on separate caption "windows," text that appears all at once (pop-on), text that scrolls up as new text appears (roll-up), or the display of each new letter or word as it arrives (paint-on);
- Semantically significant formatting, such as italics, colors, and underlining;
- The timing of the presentation of caption text with respect to the video; and
- The consumer's ability to control the caption display, including the ability to turn it on and off, and to select font sizes, styles, and colors, and background color and opacity.[447]

The VPAAC further identified specific technical requirements as necessary to implement the captioning experience detailed in the VPAAC Report:

- Support for displaying fonts in the full CEA-708 64-color palette and allowing users to override the default font color with one of the eight standard caption colors.[448]
- Support for users to vary character opacity between at least three settings, including opaque (100% opacity) and semi-transparent (at 75% or 25% opacity);
- Support for the various font types contained in CEA-708 as well as the ability for users to assign fonts from the selection included with their device to each of these default fonts;
- Support for displaying the caption background in the full CEA-708 64-color palette and allowing users to override the default caption background color with one of the eight standard colors, and support for users to vary the caption background opacity between at least four settings, opaque (100% opacity), semi-transparent (at 75% or 25% opacity), and transparent (0% opacity);
- Support for character edge attributes including: none, raised, depressed, uniform, or drop shadowed;
- Support for displaying the caption window in the full CEA-708 64-color palette and allowing users to override the default caption background window with one of the eight standard colors, and support for users to vary the caption window opacity between at least four settings, opaque (100% opacity), semi-transparent (at 75% or 25% opacity), and transparent (0% opacity);
- Support for selecting among multiple language tracks, where available, and a requirement that simplified or reduced caption text be identified as such or as "easy reader" captions.

Additionally, the VPAAC Report states that video player tools must permit the user to preview setting changes, remember settings between viewing sessions, and provide the ability to turn captions on and off as easily as muting the audio or adjusting the volume.[449]

112. The VPAAC Report represents the consensus view of a wide, diverse cross-section of the industry and consumer interests.[450] Therefore, their consensus approach to these issues provides a compelling guide for our actions here. Specifically, based on the consensus view that online captioning

[447] *See* VPAAC Report at 13.

[448] The eight standard caption colors are: white, black, red, green, blue, yellow, magenta, and cyan. VPAAC Report at 15.

[449] *See* VPAAC Report at 16.

[450] *See* VPAAC Members at http://vpaac.wikispaces.com/Members.

must, at minimum, replicate the television experience, and absent any guidance in the statute or legislative history,[451] and absent any comment on the record indicating that some other goal should be used, we adopt that goal as the Commission's goal here.[452] However, we find that we need not specifically incorporate into our rules all four components of the captioning experience detailed in the VPAAC Report. Instead, we find that all but one of the components is subsumed in the specific technical requirements also set forth in the VPAAC Report. First, we find that the second and fourth components, support for semantically significant formatting and control of caption appearance, are encompassed by and expanded on by the seven technical requirements. Therefore, to avoid redundancy, we do not include them in our rules. We find that it is inappropriate to include the third component of the experience, addressing the timing of captions with video, here. We conclude that ensuring that timing data is properly encoded and maintained through the captioning interchange and delivery system is an obligation of Section 202 VPDs, and not of device manufacturers.[453] Therefore, we incorporate into our rules the first component of the caption experience, the presentation of captions on the screen, as a discrete rule in addition to the seven technical requirements.[454]

113. We believe that by incorporating the precise language of the VPAAC Report, we will ensure that manufacturers will clearly understand their obligations regarding the features they are required to implement and support. The *NPRM* proposed to incorporate into our rules these functionality requirements in a slightly simplified form and without specifying the exact nature of the support for each requirement.[455] Some commenters advocate that we adopt rules that merely state that captioning should be "functionally equivalent" to that on television.[456] AT&T contends that the NPRM's proposed rules were too specific and should be more flexible.[457] CEA, however, argues that a mandate of "at least the same quality" as television would be ambiguous, preferring instead that the Commission adopt minimum technical requirements that will help ensure functional equivalency, preserve flexibility, and provide certainty to manufacturers.[458] In the context of Section 203 of the CVAA, we are persuaded by CEA's argument and find that it is necessary to adopt a set of specific minimum functional requirements rather than the simplified language of the *NPRM*. By doing so, we believe that we will make it easier for

[451] *See* 47 U.S.C. § 330(b)(2).

[452] *See* VPAAC Report at 13.

[453] *See supra* Section III.A.3 (Quality of IP-Delivered Video Programming). The VPAAC Report expands on the timing requirements, explaining, "all processing through the distribution chain, including transcoding, must provide a timing experience that is equal to or an improvement to the timing of captions provided in the captioning shown on television." VPAAC Report at 14. We find that this direction from the VPAAC Report places no responsibility on device manufacturers, and so we do not include any such requirement in our rules for devices.

[454] We find it necessary to make a small change to the text regarding presentation of captions. As the VPAAC Report describes the experience as requiring the use of one of the presentation styles, where no more than one style is in use at a time, it delimits the list with an "or." VPAAC Report at 13. However, manufacturers must support all three styles in order to enable such choice, and therefore our rule delimits the list with an "and." App. B 47 C.F.R. § 79.103(c)(1). *See also* AT&T Comments at 18.

[455] *See NPRM*, 26 FCC Rcd at 13762-13763, ¶ 56.

[456] *See, e.g.,* APTS/PBS Reply at 9; Microsoft Comments at 13-16; AT&T Comments at 10-11; DiMA Comments at 10-11. APTS and PBS also list the challenges of replicating television captioning in online programming, explaining that not all online video players currently include all features available for broadcast television, television captions are more simple to implement than IP captions, it is substantially more challenging to bring uniform functionality to the IP environment, and the timing of captions can be affected by variations in user's broadband speeds. *See* APTS/PBS Reply at 9-10.

[457] *See* AT&T Comments at 18.

[458] *See* CEA Comments at 4.

manufacturers to determine how to comply with our rules as well as facilitate the ability of the Commission to evaluate compliance in the event of a complaint. We agree with Consumer Groups that the record contains no evidence that specifying what functions devices must implement will negatively impact the ability of captions to be delivered to those devices.[459] CTIA expresses concern that some features will not be supportable on devices with limited screen sizes, low resolutions, or limited processing.[460] However, as discussed above, parties can seek relief for any features that they believe can not be implemented.[461]

D. Recording Devices

114. In addition to devices that consumers use to directly view video programming, those that record video programming must also have closed-captioning capability. Specifically, Section 203(b) of the CVAA directs the Commission to "require that, if achievable . . ., apparatus designed to record video programming transmitted simultaneously with sound, . . . [must] enable the rendering or the pass through of closed captions . . . ."[462] Commenters largely did not address recording devices, except to caution the Commission against regulating the subcomponents of recording devices, rather than the devices themselves.[463] Therefore, we adopt the proposal in the *NPRM* to incorporate the statutory language of Section 203(b) directly into our rules.[464] Consistent with our discussion above, we expect identifying apparatus designed to record to be straightforward.[465] We note that when devices such as DVD, Blu-ray, and other removable media recording devices are capable of recording video programming, they also qualify as recording devices under Section 203(b) and therefore must enable viewers to activate and de-activate the closed captions as video programming is played back.

E. Interconnection Mechanisms

115. Section 203(b) of the CVAA directs the Commission to require that "interconnection mechanisms and standards for digital video source devices are available to carry from the source device to the consumer equipment the information necessary to permit or render the display of closed captions and to make encoded video description and emergency information audible."[466] The NPRM sought comment on how to implement this provision.[467] Based on the record at this time, we conclude that current interconnection mechanisms satisfy the requirements of the CVAA, and clarify that the statute requires

---

[459] *See* Consumer Groups Reply at 14; *see also* NCAM Comments at 2 (noting that, "baseline [performance objectives] are essential for common user experiences and interoperability").

[460] *See* CTIA Comments at 19-20.

[461] Section 203 requires manufacturers only to implement captioning to the extent that it is technically feasible. Moreover, for small-screen devices, manufacturers need only include those features that are achievable. Finally, pursuant to Section 202, VPDs may seek exemptions if complying with any of these requirements would be economically burdensome. *See supra* Section III.C (Exemption Process).

[462] 47 U.S.C. § 303(z)(1).

[463] *See* ITI Reply Comments at 7 (noting that DLNA should not be covered, though a PC which uses DLNA to record content should be); CEA Reply Comments at 7 (suggesting the Commission adopt the statutory language without modification into its rules).

[464] *See NPRM*, 26 FCC Rcd at 13761-13762, ¶ 54.

[465] *See supra* Section IV.A (Apparatus Subject to Section 203 of the Act).

[466] 47 U.S.C. § 303(z)(2). The portions of 303(z)(2) which deal with video description and emergency information will be implemented separately by the Commission, 18 months after the submission of a separate VPAAC Report. *See* Pub. Law No. 111-260, § 203(d)(2).

[467] *See NPRM*, 26 FCC Rcd at 13761-13762, ¶ 54.

manufacturers to implement closed captioning on every video output of a covered device.[468] Thus, we adopt a rule requiring that all video outputs of covered apparatus shall be capable of conveying from the source device to the consumer equipment the information necessary to permit or render the display of closed captions. As discussed below, we find that it is sufficient, for purposes of this provision, if the video output of a digital source device renders the closed captioning in the source device. Accordingly, we find that the manner in which the HDMI connection carries captions satisfies the statutory requirement for interconnection mechanisms. At the same time, however, we note that other interconnection mechanisms, such as MoCA and DLNA, currently support the pass-through of closed captions to consumer display devices and we encourage this practice. Although we do not impose any additional regulations on interconnection mechanisms at this time, we note that we are interpreting an ambiguous statutory provision and, although we believe our interpretation is reasonable based on the record before us, we may revisit the issue if we find that our decision, in practice, does not provide the benefits to consumers that were intended by Congress.

116. As the statute states, "interconnection mechanisms" carry information from source devices to consumer equipment. Interconnection mechanisms consist of an output, a transmission path, and an input. We generally refer to these mechanisms by their output standard or the cable or cord they utilize, such as "coaxial cable," "Ethernet," or "HDMI." In discussing how to implement this statutory mandate, commenters predominantly focus on one particular digital output, the HDMI connector. HDMI is the preeminent audio-video interconnection standard used by manufacturers to enable uncompressed video signals to be carried from a source device (such as an MVPD set-top box) to consumer equipment (such as a television).[469] Industry commenters explain that with respect to the HDMI connector, "the captions and video are decoded in the source device and carried as *opened* captions to the display, which acts only as a monitor."[470] When captions are transmitted in an "open" manner, such as is the case with HDMI, they are "rendered" by the source device, embedded (decoded and mixed) into the video stream, then carried by the HDMI connector to the receiving device in a manner that does not allow the consumer to access or utilize the captioning decoding and rendering functionality of the receiving device.[471] When captions are "closed," they are transmitted as data alongside the video stream, and permit consumers to access and utilize the captioning functionality of the receiving device. Set-top boxes with standard definition analog outputs are generally capable of passing closed captions to consumer equipment for decoding and display by that device. However, high-definition analog outputs and HDMI were not developed with this capability, and as consumers increasingly transition to high-definition video sources and digital interconnection, standard definition analog outputs are declining in use. As a result, if an HDMI or high definition analog connection is being used, consumers must use their set-top box's closed captioning functionality rather than the functionality contained in their television or continue to watch video programming in standard definition.

117. The question is thus whether the manner in which the HDMI connector carries captions

---

[468] *See* Letter from Julie M. Kearney, Consumer Electronics Association, to Marlene H. Dortch, Secretary, Federal Communications Commission at 1-2 (Nov. 16, 2011) (requesting that the Commission clarify that interconnection requirements apply to video-capable interconnections (including analog video, compressed digital video, and uncompressed digital video interconnections), devices subject to Section 203 of the CVAA, and when the interconnection is delivering video programming, and that the requirements apply to every output).

[469] HDMI stands for "High Definition Multimedia Interface." Over 2 billion HDMI equipped devices have been deployed worldwide. *See* HDMI Licensing Reply at 2 *see also* http://www.hdmi.org/index.aspx.

[470] *See* CEA Comments at 21 (emphasis added); HDMI Licensing Comments at 5 (explaining that the source device renders the captions into open captions, which HDMI carries, to permit the display-only video monitor to display captions).

[471] *Id.*

satisfies the statutory requirement. For the reasons stated below, we conclude that it does. We find the CVAA's requirement that interconnection mechanisms be "available to carry from the source device to the consumer equipment the information necessary to permit or render the display of closed captions"[472] to be ambiguous. The statute does not expressly address what is meant by information necessary to "permit" the display of closed captions or information necessary to "render" the display of closed captions." In context, we interpret the language requiring carriage of information to "render" the display of closed captions to require that the interconnection mechanism carry the requisite data to allow caption functionality in the receiving device. In other words, the source device transmits captions in a closed manner to the receiving equipment (*e.g.,* a television set), which is capable of performing the rendering of the captions for display.[473] The use of the phrase "*or* permit" indicates an alternative means by which an interconnection device may satisfy the statute. Read in context, we believe Congress intended to give the term "permit" a different meaning than the term "render." We thus interpret the alternative requirement to "permit" the display of closed captions to mean that the interconnection mechanism may carry the information necessary for the rendered captions to be displayed on the receiving device, without regard to the receiving device's caption functionality. We believe that our interpretation is reasonable because we give effect to Congress's use of the disjunctive "or," and because our interpretation achieves the statutory purpose of ensuring consumer access to closed captions. Based on this interpretation, we find that rendering captions in the source device, then transmitting the captions in an open manner to the receiving device, such as in the case of HDMI, satisfies the statute because caption text is viewable on the video programming.[474] Further, we conclude that the availability of closed captioning should not be limited to particular outputs, as consumers should not be limited in their viewing of content due to the lack of closed captioning support on a particular output.

118. Although many consumers may prefer to use the closed captioning features of their display devices, we believe there are other considerations, raised in the record, that support our reading of the statute. The record shows that it may be impractical to require all interconnection mechanisms, including HDMI, to pass-through the closed captions to receiving equipment given commenters' concerns about the time and expense associated with such a requirement.[475] Our interpretation provides flexibility for manufacturers and avoids unnecessary burdens, while at the same time we believe it fulfills the statutory purpose of ensuring access to closed captions. Moreover, although we recognize that some consumers have had frustrations with using the caption functionality in the source device,[476] as HDMI Licensing notes, this is not an issue related to the HDMI interface, but rather caused by poor

---

[472] 47 U.S.C. § 303(z)(2) (emphasis added).

[473] For example, MoCA and DLNA, two standards gaining increasing prominence in home networking, both support the transmission of captioning in a closed manner today if manufacturers choose to implement those features. MoCA permits the transmission of bidirectional communications over a home's existing coaxial cables. *See* Multimedia over Coax Alliance, http://www.mocalliance.org/. DLNA is a protocol suite providing a wide array of functionality for networked consumer electronics devices. *See* Digital Living Network Alliance, http://www.dlna.org/home. *See also* ITI Reply at 7-8; NCTA Comments at 27.

[474] *See, e.g.*, CEA Nov. 14 *Ex Parte* Letter at 3.

[475] *See* HDMI Licensing Nov. 17 *Ex Parte Letter*; Letter from Julie M. Kearney, Consumer Electronics Association, to Marlene H. Dortch, Secretary, FCC, Jan. 5, 2012.

[476] Commenters argue that allowing the receiving device to act only as a monitor – as in the case of HDMI – is problematic because television captioning functionality is oftentimes higher quality than set-top box functionality. Additionally, some set-top boxes make the process for turning closed captioning on and off complex and unintuitive. Further, allowing the receiving device to act only as a monitor, rather than rendering the closed captions in the receiving devices, requires consumers to learn the menus and change the closed captioning settings on each device providing video programming, rather than only in the receiving device. *See, e.g.,* Letter of Dana Mulvaney to Marlene H. Dortch, FCC (Dec. 20, 2011) at 2-3; Consumer Groups Comments at 48; Vickery Comments at 2.

implementation in some set-top boxes.[477] In this regard, we note that all apparatus, including set-top boxes, are subject to the performance rules we adopt today.[478] We also note that the CVAA contains provisions to address the difficulty consumers face in enabling closed captioning on source devices.[479] Together, technologies like HDMI Consumer Electronics Control (or CEC)[480] and Commission implementation of the statutory provision requiring that "built in access to . . . closed captioning [be available through] a mechanism that is reasonably comparable to a button, key, or icon" may result in the resolution of at least one source of consumer complaints.[481] The record also shows that there are at least two interconnection mechanisms currently available in the market that already support caption functionality in receiving devices.[482]

119. In reaching our conclusion, we also note that the problems some consumers discussed in the record relating to HDMI may be ameliorated by the fact that all cable operator-provisioned HD set-top boxes are currently required to include a connection capable of delivering recordable HD video and closed captioning data in a closed manner.[483] In addition, although we refrain from requiring pass-through of closed captioning on HDMI, we recognize the widespread consumer reliance on HDMI and therefore we encourage HDMI Licensing, the HDMI specification licensing agent, to include closed captioning provisions in future versions.[484]

---

[477] HDMI Licensing Reply at 3.

[478] *See supra* Section IV.C (Display of Captions).

[479] *See* Pub. L. No. 111-260, §§ 204 (User interfaces on digital apparatus), 205 (Access to video programming guides and menus provided on navigation devices).

[480] HDMI Licensing Nov. 17 *Ex Parte Letter* at 4.

[481] *See* 47 U.S.C. § 303(aa)(3).

[482] *See supra* n. 473 (describing MoCA and DLNA).

[483] In 2010, the Commission adopted a rule that replaced the requirement that cable set-top boxes include an IEEE 1394, or Firewire, connector with a requirement that they include an Ethernet connector in order to make the tuning functionality of the set-top box controllable by another device, and to make the outputted video programming recordable. 47 C.F.R. § 76.604(b)(4)(ii)(B), which became effective August 8, 2011. In addition, by December 1, 2012, cable operators must include "a connection capable of delivering recordable high definition video and closed captioning data in an industry standard format on all high definition set-top boxes, except unidirectional set-top boxes without recording functionality, acquired by a cable operator for distribution to customers." 47 C.F.R. § 76.604(b)(4)(iii)(B); *see also Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment; Oceanic Time Warner Cable, A subsidiary of Time Warner Cable, Inc.; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Kauai Cable System; Oceanic Time Warner Cable, a division of Time Warner Cable, Inc. Oceanic Oahu Central Cable System; Cox Communications, Inc. Fairfax County, Virginia Cable System; Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, Third Report and Order on Reconsideration, 25 FCC Rcd 14657 at 14680, ¶ 44 (2010).

[484] *See* Letter of Natalie G. Roisman, HDMI Licensing, LLC, to Marlene H. Dortch, FCC at 2 (Dec. 1, 2011) ("HDMI Licensing Dec. 1 *Ex Parte* Letter"). We recognize that HDMI was designed for a purpose other than carrying encoded information. We also note, however, that HDMI has already been modified to provide a data connection capable of transmitting encoded data between devices. See Frequently Asked Questions for HDMI 1.4, http://www.hdmi.org/manufacturer/hdmi_1_4/hdmi_1_4_faq.aspx. In addition, HDMI Licensing acknowledges that the HDMI standard could be updated to include this functionality within about three years. *See* HDMI Licensing Dec. 1 *Ex Parte* Letter.

F. Changes to Television Rules and Movement of Device Rules to Part 79

120. Section 203 of the CVAA replaces Section 303(u) of the Act,[485] which originally gave the Commission authority to require closed captioning on television receivers with a screen size 13 inches or greater. Under the revised provision, our television closed captioning rules are no longer limited to apparatus with screen sizes 13 inches or greater, though those with smaller screen sizes are required to comply only if compliance is achievable.[486] As proposed in the *NPRM,* we will revise our television captioning rules accordingly.[487] Additionally, as proposed in the *NPRM,*[488] we will relocate the closed captioning device rules, Sections 15.119 and 15.122, and their associated incorporations by reference, into Part 79 of the Commission's rules, which will also list the obligations of owners, providers, and distributors of video programming adopted pursuant to Section 202 of the CVAA.[489]

G. Alternate Means of Compliance

121. Section 203(e) of the CVAA provides that "an entity may meet the requirements of Sections 303(u), 303(z), and 330(b) of the [Act] through alternate means than those prescribed by regulations . . . if the requirements of those sections are met, as determined by the Commission."[490] Therefore, parties may meet all of the requirements we discuss in sections IV and V of this *Report and Order*, as well as our existing rules regarding television receivers and converter boxes, via alternate means.[491] Should an entity seek to use an "alternate means" to comply with the applicable requirements, that entity may 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;[492] or (ii) claim in

---

[485] 47 U.S.C. § 303(u). Section 203(b) of the CVAA also adds a new Section 303(z) to address recording devices and interconnection mechanisms. 47 U.S.C. § 303(z). Further, Section 203(c) of the CVAA revises Section 330(b) to address Sections 303(u) and (z), to provide authority for performance and display standards, and to address video description. 47 U.S.C. § 330(b).

[486] The prior version of 47 U.S.C. § 303(u) read, "Require that apparatus designed to receive television pictures broadcast simultaneously with sound be equipped with built-in decoder circuitry designed to display closed-captioned television transmissions when such apparatus is manufactured in the United States or imported for use in the United States, and its television picture screen is 13 inches or greater in size." The "technical feasibility" threshold requirement also now applies to all apparatus covered by the rule. *See* 47 U.S.C. § 303(u)(1).

[487] *See NPRM*, 26 FCC Rcd at 13760, ¶ 52; *see also* 47 C.F.R. §§ 15.119, 15.122.

[488] *See NPRM*, 26 FCC Rcd at 13764, ¶ 59.

[489] Part 15 of the Commission's rules requires devices to be authorized prior to the initiation of marketing, either through the Verification process or through a Declaration of Conformity or Certification. *See* 47 C.F.R. §§ 15.101, *et seq*. However, those rules are concerned only with the device's performance as an unintentional radiator into the radio-frequency spectrum. Since closed-captioning functionality exists separately from the RF receiving and tuning functionality of a device, and new IP-based devices may not include receivers of the type Part 15 regulates, we find it unnecessary to require a Declaration of Conformity or Certification regarding the closed-captioning functionality of the devices we cover here, or to trigger certification or verification for a device solely because it includes closed-captioning functionality. We therefore find it inappropriate to continue to house these rules in Part 15. Of course, to the extent that a Section 203 device is otherwise covered by Part 15, that device must continue to comply with the Commission's rules in Part 15.

[490] Pub. L. No. 111-260 § 203(e).

[491] *See supra* Section IV (Section 203 of the CVAA); *infra* Section V (Technical Standards for IP-Delivered Video Programming). Video programming providers, distributors, and owners may comply with the requirements of Section 202 of the CVAA via alternate means as pursuant to separate statutory authority as discussed in Section III.D (*De Minimis* Failure to Comply and Alternate Means of Compliance), *supra.*

[492] 47 C.F.R. § 1.41 (Informal requests for Commission action).

defense to a complaint or enforcement action that the Commission should determine that the party's actions were permissible alternate means of compliance. Rather than specify what may constitute a permissible "alternate means," we conclude that the best means of implementing this provision is to address any specific requests from parties when they are presented to us.

H. Deadlines for Compliance

122. We conclude that two years is the appropriate amount of time to design and implement the functionality required by Section 203 of the CVAA, as discussed in Section IV of this *Report and Order,* and to bring that functionality to market. The CVAA does not specify the time frame by which the Section 203 requirements must become effective,[493] but nearly all commenters who addressed the issue support a two-year implementation period.[494] As the Commission has repeatedly determined, manufacturers generally require approximately two years to design, develop, test, manufacture, and make available for sale new products.[495] Accordingly, we establish a compliance date for covered devices of January 1, 2014. We agree with Consumer Groups that incorporating captioning functionality later in the design cycle of a feature-rich device may prove more difficult than implementing such functionality at the commencement of design.[496] Although the compliance deadline is two years away, consistent with the *ACS Order,*[497] beginning on the effective date of these regulations, *i.e.,* 30 days after the date this *Report and Order* and rules are published in the Federal Register, we expect manufacturers to take accessibility into consideration as early as possible during the design process for new and existing equipment and to begin taking steps to bring closed captioning to consumers as required by our rules.

I. Complaints

123. Consistent with prior Commission practice and the Commission's television and IP closed captioning complaint rules,[498] we adopt the following procedures for the filing of written complaints alleging violations of the Commission's rules requiring apparatus designed to receive, play back, or record video programming to be equipped with built-in closed caption decoder circuitry or capability designed to display closed-captions.[499] Such complaints should include the following information:[500] (a) the name, postal address, and other contact information of the complainant, such as

---

[493] Pub. L. No. 111-260 § 203(d).

[494] *See, e.g.,* AT&T Reply at 12; CEA Comments at 22-23; CEA Reply at 2; DIRECTV Comments at 12-14; DISH Network Reply at 8; ESA Comments at 2; Microsoft Comments at 19; Verizon Comments at 6; Verizon Reply at 8-9. DiMA requested six to twelve months from the latest deadline imposed on VPOs to attain compliance. *See* DiMA Comments at 4.

[495] In the order adopting closed captioning requirements for DTV receivers, the Commission made its rules effective slightly less than 2 years after the order was adopted. *2000 DTV Closed Captioning Order,* 15 FCC Rcd at 16808. (The order was adopted on July 21, 2000, and released on July 31, 2000, and published in the Federal Register on September 29, 2000. The rules became effective on July 1, 2002.) *See also Television Decoder Circuitry Act of 1990*, Pub. L. No. 101-431, 104 Stat. 960 (1990) (codified at 47 U.S.C. §§ 303(u), 330(b)); *Amendment of Part 15 of the Commission's Rules to Implement the Provisions of the Television Decoder Circuitry Act of 1990*, Report and Order, 6 FCC Rcd 2419 (1991), *recon. granted in part*, Memorandum Opinion and Order, 7 FCC Rcd 2279 (1992), codified at 47 C.F.R. § 15.119 (The Decoder Act established deadlines for implementation requiring rules within 180 days (by April 1991) and implementation by July 1, 1993).

[496] *See* Consumer Groups Comments at 40.

[497] *See ACS Order,* 26 FCC Rcd at 14602, ¶ 108.

[498] *See* 47 C.F.R. §§ 79.1(g) and App. B 79.4(e).

[499] *See infra* App. B 47 C.F.R. §§ 79.101 – 79.104.

[500] We recognize that some of the requested information may not be readily ascertained by consumers, such as the contact information of the apparatus manufacturer. Accordingly, we provide that complaints should (but are not (continued....)

telephone number or e-mail address; (b) the name and contact information, such as postal address, of the apparatus manufacturer or provider; (c) information sufficient to identify the software or device used to view or to attempt to view video programming with closed captions; (d) the date or dates on which the complainant purchased, acquired, or used, or tried to purchase, acquire, or use the apparatus to view closed captioned video programming; (e) a statement of facts sufficient to show that the manufacturer or provider has violated or is violating the Commission's rules; (f) the specific relief or satisfaction sought by the complainant; and (g) the complainant's preferred format or method of response to the complaint.[501] A written complaint filed with the Commission must be transmitted to the Consumer and Governmental Affairs Bureau through the Commission's online informal complaint filing system, U.S. Mail, overnight delivery, or facsimile.[502] The Commission may forward such complaints to the named manufacturer or provider, as well as to any other entity that Commission staff determines may be involved, and may request additional information from any relevant parties when, in the estimation of Commission staff, such information is needed to investigate the complaint or adjudicate potential violations of Commission rules. After the closed caption decoder rules adopted in this *Report and Order* become effective, the Consumer and Governmental Affairs Bureau will release a consumer advisory with instructions on how to file complaints in various formats, including via the Commission's web site.[503]

V. TECHNICAL STANDARDS FOR IP-DELIVERED VIDEO PROGRAMMING

124. For the reasons set forth below, we adopt the Society of Motion Picture and Television Engineers ("SMPTE") Timed Text format (SMPTE ST 2052-1:2010: "Timed Text Format (SMPTE-TT)" 2010) ("SMPTE-TT") as a safe harbor interchange and delivery format. Section 202 of the CVAA requires that the Commission describe the responsibilities of video programming providers or distributors and video programming owners.[504] Section 203 of the CVAA requires that the Commission's rules "provide performance and display standards for such built-in decoder circuitry or capability designed to display closed captioned video programming . . . ."[505] We believe to best implement these statutory provisions, it is necessary to establish a safe harbor standard. IP-delivered video programming currently uses multiple closed captioning formats.[506] In contrast, the Commission requires CEA-608 as the technical standard for analog television closed captioning, and CEA-708 as the technical standard for digital television closed captioning.[507] As no such Commission requirement exists for IP closed

(Continued from previous page)

required to) include the specified information. The Commission will best be in a position to investigate complaints that include the maximum information requested.

[501] The complainant's preferred format or method of response may be by letter, facsimile transmission, telephone (voice/TRS/TTY), e-mail, or some other method that would best accommodate the complainant.

[502] We clarify that, if a complainant calls the Commission for assistance in preparing a complaint (by calling either 1-888-CALL-FCC or 1-888-TELL-FCC (TTY)), and Commission staff documents the complaint in writing for the consumer, that constitutes a written complaint.

[503] The Commission further directs the Consumer and Governmental Affairs Bureau to revise the existing complaint form for disability access complaints (Form 2000C) in accordance with this *Report and Order*, to facilitate the filing of closed caption decoder complaints. Should the closed caption decoder rules adopted in this *Report and Order* become effective before the revised Form 2000C is available to consumers, closed caption decoder complaints may be filed in the interim by fax, mail, or e-mail.

[504] *See* 47 U.S.C. § 613(c)(2)(D)(iv). *See also supra* Section III.A.2.

[505] *See* 47 U.S.C. § 330(b)(2).

[506] *See* VPAAC Report at 11-12.

[507] *See id.* at 8-9. According to the VPAAC, CEA-708 "provides for a rich set of features and capabilities above and beyond those supported by CEA-608 captions. In addition, CEA-608 captions can be transported within 708." *See id.* at 9. CEA-608 captions remain relevant because millions of households continue to use analog television receivers that cannot decode CEA-708 captions. *See id.*

captioning, parties must agree on both an interchange format, in which the VPO sends a caption file to the VPD, and a delivery format, in which the VPD sends captions to an apparatus on which the end user views video programming if captions are to be usable by the receiving party.

125. The VPAAC proposed that the Commission require a single standard interchange format so that video programming does not need to be re-captioned to comply with different standards.[508] The VPAAC proposed SMPTE-TT as the standard interchange format.[509] For the delivery format, if a VPD is not affiliated with the manufacturer of the device on which the consumer views video programming, the VPAAC also recommended the use of SMPTE-TT.[510] The VPAAC recommended using the SMPTE-TT standard in each case because it "best meets all the requirements" established by the participants on the VPAAC and because it "is already being employed in production environments to repurpose television content for Internet use."[511] In the *NPRM*, contrary to the VPAAC's proposal, the Commission proposed not to adopt a specific interchange format, in an effort to foster technological innovation.[512] The *NPRM* additionally sought comment on whether the Commission should require a particular delivery format.[513] In response, a number of commenters argue that the Commission should specify SMPTE-TT as the mandatory interchange format.[514] For both the interchange and delivery format, several commenters propose various safe harbor approaches, under which use of SMPTE-TT as the interchange and/or delivery format would be deemed compliant.[515] Among the asserted benefits of adopting SMPTE-TT as a safe harbor interchange format is that it would minimize the need for VPOs to author multiple standards and potentially re-caption programming.[516] Similarly, CEA argues that "where IP-delivered video content is rendered by a consumer device using a standardized video player . . . a single minimum delivery format

[508] *See* VPAAC Report at 17.

[509] *Id.*

[510] *See id.* at 27. The VPAAC Report separates delivery of content where parties are affiliated and unaffiliated. Where parties are affiliated by contract or ownership, the VPAAC report determined that no standard-setting by the Commission was advisable. Where delivery is between unaffiliated parties, creation of a relationship may be more burdensome than adopting the recommendations of the Commission for exchanging captioning data.

[511] *Id.* at 26.

[512] *See NPRM*, 26 FCC Rcd at 13755, ¶ 40.

[513] *See id.* at 13763, ¶ 57.

[514] *See, e.g.,* NAB Comments at 30-31; NCAM Comments at 3; NCTA Comments at 6; Rovi Comments at 6-8 (supporting the adoption of SMPTE-TT as the interchange format, but against the adoption of SMPTE-TT as the delivery format); Starz Comments at 5; APTS/PBS Reply at 11; CBS Reply at 11-14; Reply Comments of Harris Corporation at 1-6 ("Harris Reply"); NAB Reply at 24-29; State Associations Reply at 3-5. *But see* Google Comments at 4-6 (opposing the mandatory use of SMPTE-TT); DIRECTV Reply at 8-9 (expressing concerns about the lack of a recommended practice for converting CEA-708 captions for IP delivery using SMPTE-TT).

[515] *See, e.g.,* CEA Comments at i, 5-7; MPAA Comments at 2-3, 10-11 (proposing that the Commission adopt SMPTE-TT as a baseline interchange format); NCAM Comments at 3 (supporting SMPTE-TT as a baseline technical standard); AT&T Reply at 11-12; CEA Reply at 3-4; DIRECTV Reply at 8; DISH Network Reply at 6-7; MPAA Reply at 8-9; CEA Nov. 4 *Ex Parte* Letter at 2-3; *see also* MPAA Comments at 10-11 ("While parties may mutually agree to use other formats, if negotiations reach an impasse, the parties should be permitted to fall back on SMPTE-TT as the default."); CEA Nov. 14 *Ex Parte* Letter at 2. *But see* Google Reply at 2 (disagreeing with the safe harbor approach, and arguing that web standards and consumer requirements are evolving rapidly). Some commenters also indicate their support for a safe harbor for use of SMPTE-TT as the interchange format if the Commission does not adopt it as the approved interchange standard. *See, e.g.,* NAB Comments at 31; NCTA Comments at 12; APTS/PBS Reply at 10-11; CBS Reply at 11, 13-14; Harris Reply at 5-6; State Associations Reply at 5.

[516] *See, e.g.,* CEA Comments at 7-8.

ensures that a manufacturer of such apparatus can readily support and render IP captions."[517] Further, unlike adopting SMPTE-TT as the mandatory interchange or delivery format, commenters explain that a safe harbor approach would balance goals of efficiency, certainty, and consumer access with needed flexibility to continue to innovate.[518]

126. Although some commenters advocate that we not specify an interchange or delivery format,[519] a large number of commenters from all segments of the industry argue that the complete absence of a standard would hinder the deployment of IP closed captioning because parties would lack certainty as to what is expected. In addition to the VPAAC's endorsement of the SMPTE-TT standard, many commenters confirm the benefits of SMPTE-TT, and the industry does not seem to have coalesced around any other standard in such a manner.[520] We find that the safe harbor approach for use of SMPTE-TT as the interchange and delivery standard, as numerous commenters propose, would provide certainty while enabling the industry to continue to innovate and permitting parties to agree to use an alternative standard. To use a different standard, parties would not need to first request Commission approval. We note, however, where use of an alternate standard results in noncompliant captions, both parties may be held responsible for violation of our rules. The flexibility in such a safe harbor approach will address many of the concerns expressed by parties against the adoption of a particular standard, because the parties will retain the option of using an alternative standard if that standard better meets their needs and achieves the required result. For all of the above reasons, we adopt SMPTE-TT as a safe harbor interchange and delivery format. Thus, we will provide in our rules that if a VPO provides captions to a VPD using the SMPTE-TT format, then the VPO has fulfilled its obligation to deliver captions to the VPD in an acceptable format. We will also provide in our rules that devices that implement SMPTE-TT will be deemed in compliance with our rules, while simultaneously allowing devices to achieve the same functionality without implementing that standard.[521] We intend to monitor the marketplace and, to the extent that additional open standards from recognized industry standard-setting organizations appear

---

[517] *Id.* at 8 (footnote omitted).

[518] *See, e.g.,* CEA Comments at 7-9; CEA Reply at 4; DIRECTV Reply at 9; DISH Network Reply at 7. We note that some commenters propose a variation on the safe harbor approach, under which the Commission would deem compliant the use of a standard adopted in an open process by a recognized industry standard-setting organization, without specifying the format. *See, e.g.,* DiMA Comments at 7-8, 11; Google Comments at 3; Microsoft Comments at 16-17; TIA Comments at 14; Verizon Comments at 7-8; ITI Reply at 4; Microsoft Reply at 4-5; RIM Reply at 7; TWC Reply at 3, 15 (supporting "a safe harbor for entities that rely on SMPTE-TT or a comparable industry standard"). TWC proposes another alternate approach to the interchange format, by which the Commission would specify functions that captions must support rather than specifying standards. *See* TWC Reply at 14. At this time, we decline to adopt any of the proposed alternative approaches, as we find that the adoption of SMPTE-TT as a safe harbor interchange and delivery format best provides the industry with both clarity and flexibility.

[519] *See, e.g.,* Consumer Groups Comments at 31; Google Comments at 4-6; Reply Comments of the Coalition of Organizations for Accessible Technology at 2 ("COAT Reply"); Google Reply at 1-3; Reply Comments of the World Wide Web Consortium at 3 ("W3C Reply"). *But see* Harris Reply at 5 ("First, interested parties always have the opportunity to engage in the SMPTE standards process to modify the SMPTE-TT standard as needed. Second, if video content and video distribution providers agree they would like to use an interchange format other than SMPTE-TT they can either [p]etition the Commission to amend the existing rules, or request a [w]aiver of the Commission's rules.").

[520] *See supra* n. 515.

[521] When implementing SMPTE-TT as a means of being deemed in compliance with the requirements for captioning functionality, we expect manufacturers will look to the practices of the industry, especially when standardized or adopted by an industry body, such as the recommended practice for conversion of CEA-608 data to SMPTE-TT to determine the reasonable extent to which features must be supported. *See* Society of Motion Picture Television Engineers recommended practice "Conversion from CEA-608 Data to SMPTE-TT," RP 2052-10-2010 (2010). We expect a similar recommended practice regarding the conversion of CEA-708 data to SMPTE-TT to be developed.