

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

In the Matter of:

**Consumer and Governmental
Affairs, Media, and Wireless
Telecommunications Bureaus Seek
Update on Commission's
Fulfillment of the Twenty-First
Century Communications and
Video Accessibility Act**

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Comments of Accessibility Advocacy and Research Organizations

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Summary

We applaud the Commission's initiative in launching a revisitation of its many rules under the Twenty-First Century Communications and Video Accessibility Act (CVAA) of 2010. The accessibility of communications services, video programming, and hearing devices is a decades-long legacy and the ten-year anniversary of the CVAA marks an ideal time for the Commission to take stock and chart its next course.

The accessibility of communications services has become more critical than ever following the rapid societal shifts of the COVID-19 pandemic. To address the accessibility barriers that remain, we urge the Commission to:

- Acknowledge the wide range of Internet-Protocol-based multimodal communications services that now intermediate cultural, democratic, social, and economic activity;
- Enforce its existing rules governing advanced communications services (ACS) to address accessibility issues with electronic messaging and VoIP components of these multimodal services;
- Clarify that the ACS rules apply to the video components of multimodal services;
- Update its ACS performance objectives to ensure that all features of modern multimodal services are accessible;
- Ensure that current and future forms of telecommunications relay services (TRS) are interoperable with ACS to comply with Section 225's mandate for functional equivalence and its requirement to encourage the use of evolving technologies;
- Complete the roll out of real-time text (RTT), including by launching a new rulemaking for RTT over wireline and interoperability, and update RTT-related and emergency access rules; and
- Ensure that broadband access service providers do not discriminate against people with disabilities in their use of multimodal services by preventing unjust and discriminatory fees and data caps.

Likewise, the Commission should update its video programming accessibility rules to ensure continued access to video as the technologies used to distribute and watch it continue to evolve. We urge the Commission to:

- Make necessary changes to reflect the shift in the television ecosystem toward online video distributors (OVDs) by updating the television closed captioning rules to include programming offered by the wide array of OVDs;
- Make corresponding updates to the allocation of responsibilities for caption provision, quality, pass-through, and rendering in light of the complex new OVD distribution ecosystem;
- Revisit the nearly quarter-century-old economic assumptions underlying the categorical exemptions from the television captioning rules;
- Act on a pending petition to adopt live captioning metrics and clarify the application of the caption quality standards to captions produced using automatic speech recognition (ASR);
- Overhaul accessibility barriers that persist in user interfaces for video programming apparatus by updating requirements for caption activation, persistence, customization settings, and interconnection mechanisms;
- Extend its approach to captioning rule updates to audio description; and
- Launch an inquiry into the extent of the Commission's jurisdiction over the accessibility of other video programming- and communication-related mediums, such as podcasts and video games.

Safeguarding access to communication services by people who use hearing devices, including hearing aids and other hearing assistive technologies, also remains a critical priority. We urge the Commission to:

- Ensure connectivity to wireless phones for people using hearing devices remains reliable, affordable, and accessible;

- Implement the Disability Advisory Committee (DAC)'s 2016 recommendation on standards for amplification measurement procedures and performance criteria for amplified telephone handset acoustics in telephone devices to ensure the usability and availability of such devices by people who rely on them; and
- Launch an inquiry into wideband and ultra-wideband audio to improve the accessibility of Voice over Internet Protocol (VoIP) and related services for users with hearing loss.

A variety of unique circumstances face communities of people who are deaf or hard of hearing and have multiple disabilities, older people who are deaf or hard of hearing, and people who are deaf or hard of hearing and living on rural or tribal lands or in U.S. territories. We urge the Commission to undertake dedicated inquiries into the accessibility of communications, video programming, and hearing devices for these communities.

Finally, the Commission should take a multifaceted approach as this rulemaking unfolds. In particular, the Commission should:

- Continue its tradition of supervised multistakeholderism by convening stakeholders through bodies such as the Disability Advisory Committee (DAC);
- Center the civil rights of people with disabilities by migrating the Disability Rights Office to a new Office of Civil Rights and underscoring other civil rights such as privacy and security in conducting its accessibility rulemaking activities;
- Vigorously enforce its rules; and
- Go beyond the CVAA to consider the full range of statutory authority under the many accessibility provisions of the Communications Act of 1934, comprehensively review its accessibility rules, and report to Congress if it finds its authority lacking to address the many critical accessibility challenges facing people with disabilities.

Table of Contents

Summary	v
Discussion	1
I. The Commission should overhaul its advanced communications service and relay rules for modern IP-based multimodal communications platforms.	3
A. Modern IP-based multimodal communications platforms are ubiquitous in American society but replete with accessibility problems.	4
B. The Commission should enforce its existing ACS rules to address problems with the electronic messaging and audio components of multimodal services. ...	8
C. The Commission should clarify the application of the ACS rules to the video components of multimodal services.	11
D. The Commission should adapt its ACS performance objectives for modern multimodal services.	14
E. The Commission should revisit Section 225’s functional equivalence mandate to facilitate the development of interoperable next-generation relay services. ..	16
F. The Commission should improve access to multimodal and 9-1-1 services by accelerating the availability of real-time text (RTT) services and updating its emergency access rules.	17
G. The Commission should ensure that broadband services can accommodate bandwidth-intensive multimodal services without unjust or discriminatory fees or data caps.	21
II. The Commission should overhaul its closed captioning rules for a modern OVD-centric ecosystem.	22
A. The television ecosystem has changed radically since the CVAA’s implementation.....	22
B. The Commission should adjust its television closed captioning rules to include OVDs.....	25
C. The Commission should revisit the allocation of responsibility for caption provision, quality, pass through, and rendering.	31
D. The Commission should revisit and revise or eliminate the categorical exemptions from the television rules.....	36
E. The Commission should adopt captioning quality metrics for live programming and clarify how the existing quality standards apply to ASR.....	37

F.	The Commission should revisit caption activation, persistence, settings, and interconnection requirements for apparatus.	39
G.	The Commission should take a similar approach to expanding and overhauling its audio description rules.	45
H.	The Commission should launch an inquiry into captioning for other aural mediums.	46
III.	The Commission should continue to press ahead on communications access for people with hearing loss.....	47
A.	The Commission should ensure that connectivity to wireless phones for people using hearing devices remains reliable, affordable, and accessible.	47
B.	The Commission should implement the DAC’s recommendation on standards for amplification measurement procedures and performance criteria for high-gain amplified telephone handset acoustics in telephone devices.	50
C.	The Commission should launch an inquiry into wideband and ultra-wideband audio.	50
IV.	The Commission should launch dedicated inquiries into the accessibility of communications, video programming, and hearing devices for people who have multiple disabilities, for older Americans, and those who live on rural and tribal lands and U.S. territories.....	51
V.	The Commission should take a holistic approach to this proceeding and emphasize supervised multistakeholderism, centering the civil rights of people with disabilities, vigorous enforcement, and reporting to Congress.....	53
A.	The Commission should follow its tradition of supervised multistakeholderism in developing accessibility rules.	54
B.	The Commission should continue to center the civil rights of people with disabilities.....	55
C.	The Commission should continue to vigorously enforce its rules.	57
D.	The Commission should conduct a comprehensive review of its authority and rules under all relevant provisions of the Communications Act of 1934 and report shortcomings to Congress.....	59
	Appendix A—Related Dockets	62
	Appendix B—Video Programming Entities and Key Captioning Responsibilities	65
	Appendix C—Technical Standards Across the Captioning Rules	67
	Appendix D—Statutory Compendium	68
	Appendix E—FCC Accessibility Regulations	71

Discussion

The above-signed Accessibility Advocacy and Research Organizations respectfully respond to the Commission’s Public Notice inviting comment in the above-referenced docket (“*Accessibility Revitalization PN*”).³ The Advocacy Organizations collectively advocate for equal access to video programming, communications, and other technology for the more than 48 million Americans who are deaf, hard of hearing, DeafBlind, or who have those and additional disabilities. The Research Organizations work in conjunction with the Consumer Groups to address the technical challenges faced in securing access to video programming, communications, and other technology. Many of the Organizations played a significant role in the Commission’s implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA),⁴ including taking part in the foundational Video Programming Accessibility Advisory Committee (VPAAC) and subsequent iterations of the Commission’s Disability Advisory Committee (DAC), as well as the drafting and implementation of the numerous accessibility-focused measures taken by the Commission dating back to the late 1970s.⁵

In signing the CVAA into law, President Barack Obama underscored its importance for the civil rights of people with disabilities, explaining its goal as “ensur[ing] full participation in our democracy and our economy for Americans with disabilities.”⁶ We

³ *Consumer And Governmental Affairs, Media, And Wireless Telecommunications Bureaus Seek Update On Commission’s Fulfillment Of The Twenty-First Century Communications And Video Accessibility Act*, Public Notice, GN Docket No. 21-140 (Apr. 7, 2021) (“*Accessibility Revitalization PN*”), <https://docs.fcc.gov/public/attachments/DA-21-405A1.pdf>.

⁴ Pub. L. 111-260 (Oct. 8, 2010).

⁵ See generally Karen Peltz Strauss, *A New Civil Right: Telecommunications Equality for Deaf and Hard of Hearing Americans* (2006).

⁶ Remarks by the President at the Signing of the 21st Century Communications and Video Accessibility Act of 2010 (Oct. 8, 2010), <https://obamawhitehouse.archives.gov/the-press-office/2010/10/08/remarks-president-signing-21st-century-communications-and-video-accessib>; see also CSPAN, *21st Century*

commend the Commission’s tireless work in shepherding the implementation and rollout of the CVAA over the past decade.

While the enactment and implementation of the CVAA were landmark achievements in the fight for disability rights, accessibility, like democracy, “is not a state”—“[i]t is an act” that requires “each generation [to] do its part.”⁷ We applaud the Commission’s acknowledgement in the *Accessibility Revitalization PN* that many of its implementing regulations “have been in effect now for many years, and many of them have not been revisited recently.”⁸ Indeed, there have been drastic “changes in technology and industry practices” and “consumer experiences;” many “requirements [are] not serving their intended purpose [and/or] have been overtaken by new technologies,” and many “improvements are needed.”⁹ It is time to plant the seeds for a new generation of communications, video programming, and hearing device accessibility initiatives to flourish, and we commend the Commission for taking the initiative to do so here.

We identify below specific priorities that the Commission should address in the areas of communications, video programming, and access for people with hearing loss, as well as call for dedicated inquiries into accessibility issues facing the communities of people who are deaf or hard of hearing and have multiple disabilities, older people who are deaf or hard of hearing, and people who are hard of hearing and living on rural or tribal lands or in U.S. territories. We also urge the Commission to take a multifaceted approach to this proceeding by continuing to convene stakeholders through supervised multistakeholder forums such as the DAC, centering the civil rights of people with

Communications and Video Act Signing (Oct. 8, 2010), <https://www.c-span.org/video/?295897-2/21st-century-communications-video-act-signing> (“CVAA Signing Ceremony”).

⁷ Cf. John Lewis, *Together, You Can Redeem the Soul of Our Nation*, NY Times (July 30, 2020), <https://www.nytimes.com/2020/07/30/opinion/john-lewis-civil-rights-america.html>.

⁸ *Accessibility Revitalization PN* at 2.

⁹ *Id.* at 2.

disabilities, vigorously enforcing its rules, and looking beyond the CVAA and its implementation to the past four decades of legislation on and implementation of accessibility policy to better identify shortcomings in its rules so Congress can address them.

We acknowledge that this agenda is broad in scope and deep in its ambition. However, we believe that the Commission, working with disability communities and our colleagues in the industry, is well suited to continue to move the ball forward for the civil rights of people with disabilities to access technology on equal terms, consistent with the promise of and ideals enshrined in the CVAA and the wide array of federal accessibility laws that preceded it.

I. The Commission should overhaul its advanced communications service and relay rules for modern IP-based multimodal communications platforms.

The advanced communications services and devices that the Commission addressed in implementing the CVAA have radically evolved over the past decade into a set of ubiquitous but often inaccessible multimodal communications services. The Commission should enforce its existing ACS rules to address problems with the electronic messaging and audio components of multimodal services, then clarify the application of the ACS rules to the video components of multimodal services. The Commission should also adapt performance objectives for modern multimodal services, including first-party captioning services, compatibility with third-party captioning and relay services, and user control of captioning. The Commission should also revisit Section 225's functional equivalence mandate to facilitate the development of interoperable next-generation relay services. The Commission should fill gaps in the accessibility of multimodal communications and meet the CVAA's requirement for accessible emergency access by addressing unmet needs in the RTT transition and updating its emergency access rules. Finally, the Commission should ensure that broadband services accommodate

bandwidth-intensive multimodal services without unjust or discriminatory fees or data caps.

A. Modern IP-based multimodal communications platforms are ubiquitous in American society but replete with accessibility problems.

The communications accessibility problem most cited by members of the Advocacy Organizations since the beginning of the COVID-19 pandemic has been the inaccessibility of modern IP-based multimodal platforms that offer an array of video, audio, and text communications functionality,¹⁰ including:

- Multiparty meeting services such as Zoom, Google Meet, Cisco WebEx, LogMeIn GoToMeeting, and BlueJeans Meetings;
- Video and audio services built into team-based collaboration tools, such as Microsoft Teams, Discord, and Slack;
- Direct communications services including Apple FaceTime, Google Duo, Skype, Facebook Messenger, Signal, and WhatsApp; and
- Multimedia social media platforms, including audio-only services such as Clubhouse and an array of related competitors.¹¹

¹⁰ The Commission referenced “systems that provide multiple modes of communication” in initially crafting the ACS rules. *Implementation of Sections 716 and 717 of the Communications Act of 1934*, Report and Order and Further Notice of Proposed Rulemaking, CG Docket Nos. 10-213 and WT Docket No. 96-198, 26 FCC Rcd. 14,557, 14,578, ¶ 50 (Oct. 7, 2011) (“2011 ACS Order”), <https://www.fcc.gov/document/accessibility-rules-advanced-communications-services-0>.

¹¹ See Ashley Carman, *Clubhouse defined a format—now it has to defend it*, The Verge (Apr. 2, 2021), <https://www.theverge.com/22362980/clubhouse-social-audio-facebook-twitter-android> (describing the newly evolving “social audio” format).

Since the beginning of the pandemic, these platforms have become a ubiquitous mode of communications for work,¹² healthcare,¹³ education,¹⁴ socializing,¹⁵ and more.¹⁶ As these platforms have become an inescapable part of the social and economic fabric of American life, access for people who are deaf or hard of hearing has gone by the wayside.¹⁷

Essentially none of the prominent multimodal platforms natively interoperate with relay services, such as video relay service (VRS) and Internet Protocol Captioned Telephone Service (IP CTS), on which people who are deaf and hard of hearing rely for the telephone calls that these platforms have quickly come to supplant. While some platforms allow for interconnection with the public switched telephone network

¹² See generally Heather Kelly, *The most maddening part about working from home: video conferences*, Washington Post (Mar. 16, 2020), <https://www.washingtonpost.com/technology/2020/03/16/remote-work-video-conference-coronavirus/>.

¹³ See generally Jane E. Brody, *A Pandemic Benefit: The Expansion of Telemedicine*, NY Times (May 11, 2020), <https://www.nytimes.com/2020/05/11/well/live/coronavirus-telemedicine-telehealth.html>.

¹⁴ See generally Heather Kelly, *Kids used to love screen time. Then schools made Zoom mandatory all day long.*, Washington Post (Sept. 4, 2020), <https://www.washingtonpost.com/technology/2020/09/04/screentime-school-distance/>.

¹⁵ See generally Jura Koncius, *The six do's and don'ts of Zoom Happy Hours* (May 15, 2020), https://www.washingtonpost.com/lifestyle/home/the-six-dos-and-donts-of-zoom-happy-hours/2020/05/14/e173af4e-93a0-11ea-82b4-c8db161ff6e5_story.html.

¹⁶ See *2020 Biennial Report to Congress as Required by the Twenty-First Century Communications and Video Accessibility Act of 2010*, CG Docket No. 10-213, 35 FCC Rcd. 11,227, 11,238–39, ¶ 24 (Oct. 7, 2020) (“*2020 Biennial Report*”), <https://www.fcc.gov/document/2020-cvaa-biennial-report-congress> (“Commenters agree that new video calling and conferencing services have become enormously important in all aspects of life”).

¹⁷ See generally Blake E. Reid, Christian Vogler, and Zainab Alkebsi, *Telehealth and Telework Accessibility in a Pandemic-Induced Virtual World*, Colo. L. Rev. Forum (Nov. 9, 2020), <https://lawreview.colorado.edu/digital/telehealth-and-telework-accessibility-in-a-pandemic-induced-virtual-world/>.

(PSTN),¹⁸ others do not.¹⁹ For those that do, the integration of relay providers or captioners via the PSTN can create an untenably complex user experience, requiring a participant who is deaf or hard of hearing in a meeting or call to attend to multiple screens or windows—in some cases, requiring a second separate PC, tablet, or smartphone—with the meeting or call on one screen and the interpreter and/or captions on another.²⁰ And for meetings with multiple participants who are deaf or hard of hearing, multiple relay communications assistants may be needed to facilitate communication for each participant on the call who needs those services rather than shared access, raising concerns about redundant costs to the TRS Fund.²¹

Some platforms have begun to experiment with native accessibility features, including captions using automatic speech recognition (ASR), and user interface improvements such as integrations with third-party captioning providers²² and

¹⁸ E.g., Zoom, *Joining a meeting or webinar by phone*, <https://support.zoom.us/hc/en-us/articles/201362663-Joining-a-meeting-by-phone> (last visited May 17, 2021); Microsoft, *Set up Audio Conferencing for Microsoft Teams*, <https://docs.microsoft.com/en-us/microsoftteams/set-up-audio-conferencing-in-teams> (last visited May, 2021).

¹⁹ See, e.g., Apple, *Make a FaceTime audio call using Messages on Mac*, <https://support.apple.com/guide/messages/facetime-audio-calls-icht1091/mac> (last visited May 17, 2021) (explaining that participants in FaceTime video and audio calls must use a Mac or iOS device).

²⁰ See Deaf/Hard of Hearing Technology Rehabilitation Engineering Research Center (DHH Tech RERC), *Accessible Remote Work Meetings for Deaf and Hard of Hearing Employees* § 3 (May 29, 2020), <https://www.deafhhtech.org/lerc/accessible-remote-work-meetings-for-deaf-and-hard-of-hearing-employees/>.

²¹ Conversely, participants who are deaf or hard of hearing often encounter resistance from meeting organizers when they request both captioning and sign language interpretation during the same meeting.

²² Zoom, *Closed captioning and live transcription*, <https://support.zoom.us/hc/en-us/articles/207279736-Closed-captioning-and-live-transcription> (last visited May 17, 2021).

pinning/spotlighting of multiple speakers to better integrate ASL speakers.²³ But problems persist. One meeting service provider even initially gated its ASR captions behind a paywall, relenting only after pressure from the deaf and hard of hearing community, including a class-action lawsuit, forced it to change its position.²⁴

Routine complaints from the Advocacy Organizations' members also underscore that accuracy limitations associated with ASR in the television²⁵ and IP CTS²⁶ contexts persist on these multimodal meeting platforms. In addition, bugs persist in third-party caption application programming interfaces (APIs),²⁷ making them unreliable for regular use. Many platforms lack integrated accessibility features or support for accessibility features

²³ See Zoom, *Pinning participants' videos*, <https://support.zoom.us/hc/en-us/articles/201362743-Pinning-participants-videos> (last visited May 17, 2021).

²⁴ Julia Métraux, *The Problem With Zoom Adding Free Captions After Getting Called Out*, Gizmodo (Feb. 25, 2021), <https://gizmodo.com/the-problem-with-zoom-adding-free-captions-after-gettin-1846353898>.

²⁵ See, e.g., Reply Comments of TDI, et al., CG Docket No. 05-231, MB Docket No. RM-11065, Docket No. RM-11848 at 5-7 (Oct. 30, 2019) ("2019 Caption Quality Reply Comments"), <https://www.fcc.gov/ecfs/filing/10300821916482> (detailing hundreds of caption quality concerns filed as comments in response to a pending petition on closed captioning quality metrics and guidance).

²⁶ See, e.g., Ex Parte of TDI, CG Docket Nos. 03-123, 10-51, and 13-24 at 1-2 & nn.1-3 (Mar. 3, 2021) (summarizing ASR-related filings by several of the Advocacy and Research Organizations) (internal citations omitted).

²⁷ E.g., User skinner.cheng, *Delayed Caption in Zoom when using Closed Captioning API*, Zoom Developer Forum (Sept. 2020), <https://devforum.zoom.us/t/delayed-caption-in-zoom-when-using-closed-captioning-api/30373>.

altogether,²⁸ and some have even taken hostile actions toward users for attempting to address the lack of accessibility themselves.²⁹

B. The Commission should enforce its existing ACS rules to address problems with the electronic messaging and audio components of multimodal services.

While the video components of multimodal platforms will require an update to the Commission's rules as discussed in the next subsection,³⁰ the Commission should publicly affirm that its existing ACS rules already require the accessibility of audio communication and chat components of multimodal services. Many of these services specifically allow for audio-only communications without video being enabled³¹ or are

²⁸ E.g., Steven Aquino, *Clubhouse Is A Club So Exclusive, It Excludes Disabled People By Design*, Forbes (Feb. 8, 2021), <https://www.forbes.com/sites/stevenaquino/2021/02/08/clubhouse-is-a-club-so-exclusive-it-excludes-disabled-people-by-design/?sh=790b3a660082>. See generally HLAA, *Position Statement: Free Access to Automatic Captioning for People with Hearing Loss* (Mar. 5, 2021), <https://www.hearingloss.org/wp-content/uploads/postion-paper-asr-final.pdf>.

²⁹ See, e.g., Rachel Charlton-Dailey, *Clubhouse suspended a blind man for providing a live transcript to help deaf people*, Business Insider (Apr. 20, 2021), <https://www.businessinsider.com/clubhouse-banned-this-man-for-providing-a-transcript-for-deaf-people-2021-4> (describing Clubhouse's actions to suspend a blind user for providing a live transcript of a live audio chat).

³⁰ See discussion *infra*, Part I.C.

³¹ See, e.g., Zoom, *Hosting a Personal Audio Conference meeting*, <https://support.zoom.us/hc/en-us/articles/205172455-Hosting-a-Personal-Audio-Conference-meeting> (last visited May 17, 2021); Apple, *Use FaceTime with your iPhone, iPad, or iPod touch*, <https://support.apple.com/en-us/HT204380> (last visited May 17, 2021).

specifically designed for such communications,³² sometimes with complementary text-based chat services enabled.³³

The Part 14 rules for advanced communications services specifically require accessibility³⁴ for interconnected VoIP services, non-interconnected VoIP service, and electronic messaging services.³⁵ Depending on their configurations, the audio components of platforms are covered as interconnected VoIP services³⁶ and/or non-

³² See, e.g., Clubhouse, *Check 1, 2, 3... Is this thing on?* (July 10, 2020), <https://www.joinclubhouse.com/blog/check-1-2-3> (“Clubhouse is a new type of network based on voice. . . . Clubhouse is voice-only, and we think voice is a very special medium.”).

³³ Zoom, *Using in-meeting chat*, <https://support.zoom.us/hc/en-us/articles/203650445-In-meeting-chat> (last visited May 17, 2021).

³⁴ See 47 C.F.R. § 14.20(a)(2) (requiring providers of “advanced communications services” to make them accessible unless doing so is not “achievable”); see also 47 U.S.C. § 617(b)(1) (parallel statutory requirements).

³⁵ 47 C.F.R. § 14.10(c)(1)-(3) (defining “advanced communications services” to include interconnected VoIP service, non-interconnected VoIP service, and electronic messaging services); see also 47 U.S.C. § 153(1) (parallel statutory definitions).

³⁶ Audio components of multimodal services such as Zoom that allow PSTN interconnection are covered as ACS *qua* interconnected VoIP service. See 47 C.F.R. §§ 14.10(l) (incorporating by reference the definition from Rule 9.3); 9.3 (defining “interconnected VoIP service” as a service meeting a number of qualifications that are met by audio-only aspects of multimodal platforms, including “[e]nabl[ing] real-time, two-way voice communications,” “[r]equir[ing] a broadband connection from the user’s location,” “[r]equiring [IP]-compatible customer premises equipment,” and “[p]ermit[ing] users generally to receive calls that originate on the public switched telephone network and to terminate calls to the [PSTN]”). See generally *2011 ACS Order*, 26 FCC Rcd. at 14,570–71, ¶¶ 33-35 (explaining the Commission’s development of the interconnected VoIP definition).

interconnected VoIP services,³⁷ and their chat components are covered as electronic messaging services.³⁸

The Commission should take action to make clear that such electronic messaging and audio components of multimodal services are already covered by the CVAA and must therefore be accessible to people with disabilities. In its 2020 biennial report, the Commission acknowledged problems with the accessibility of multimodal services,³⁹ and called for more product design and user testing of these services.⁴⁰ While we agree on

³⁷ Audio components of multimodal services that connect users via IP are covered as ACS *qua* non-interconnected VoIP service. See 47 C.F.R. § 14.10(q) (defining “non-interconnected VoIP service” as a non-interconnected-VoIP service meeting a number of qualifications that are met by audio-only aspects of multimodal platforms, including “[e]nabl[ing] real-time voice communications that originate from or terminate to the user’s location using [IP] or any successor” and “[r]equir[ing] Internet protocol compatible customer premises equipment”). See generally 2011 ACS Order, 26 FCC Rcd. at 14,574-75, ¶¶ 40-41 (explaining the Commission’s development of the non-interconnected VoIP definition). Of importance to services that can operate in both interconnected and/or non-interconnected modes, the Commission also “clarif[ied] that a non-interconnected VoIP service is not exempt simply because it is bundled with an interconnected VoIP service.” See *id.* at 14,574, ¶ 41 & n.77.

³⁸ Chat components of multimodal services are also covered as ACS *qua* electronic messaging. See 47 C.F.R. § 14.10(i) (defining “electronic messaging service” as a service, like those typically provided with multimodal services, that “provid[e] real-time or near real-time non-voice messages in text form between individuals over communications networks”). See generally 2011 ACS Order, 26 FCC Rcd. at 14,574–75, ¶¶ 42-43 (explaining the Commission’s development of the definition of the electronic messaging definition). Of note, the Commission clarified that the rule includes “two-way interactive services” offered by social networking platforms. See *id.* at 14,574–75, ¶ 43. The Commission also implied that electronic messaging components included as part of multimodal services, including video components, are treated as individual components separately subject to the CVAA’s accessibility obligations—a critical issue for ensuring that chat functionality is compatible with screen readers for users who are DeafBlind. See *id.* at 14,578, ¶ 50.

³⁹ See 2020 Biennial Report, 35 FCC Rcd. at 11,238-39, ¶ 24.

⁴⁰ See *id.* at 11,239, ¶ 24 & n.90. Indeed, more community involvement in product design and testing is part of manufacturers’ and service providers’ obligations under the CVAA. See 47 C.F.R. § 14.20(c).

the need for technological improvements to enhance the accessibility of these offerings, the time has come for specific Commission action to compel such access. As noted above, the Commission should make clear that audio and chat features on multimodal services fit into its existing authority and commence enforcement when it finds that platform developers have failed to meet their product design, development, and evaluation,⁴¹ information pass-through,⁴² and information, documentation, and training obligations⁴³ under the Commission’s existing rules.

C. The Commission should clarify the application of the ACS rules to the video components of multimodal services.

The Commission must also address the video functionality of multimodal systems. The Commission should do so by resolving its decade-long open proceeding on the coverage of video components of multimodal services under the ACS rules.⁴⁴

The text of CVAA’s definitions neatly cover the video components of many multimodal services. The CVAA specifically covers “interoperable video conferencing service[s]” as ACS.⁴⁵ “Interoperable video conferencing service” is in turn defined as “a service that provides real-time video communications, including audio, to enable users to share information of the user’s choosing.”⁴⁶ Indeed, it would be hard to articulate a better umbrella definition for the video functionality of multiparty meeting services, team-based collaboration tools, direct communications services, and multimedia social networks than services offering “real-time video communications” that enable their users to “share information of [their] choosing.”

⁴¹ See 47 C.F.R. § 14.20(b)(1)–(2).

⁴² See 47 C.F.R. § 14.20(c).

⁴³ See 47 C.F.R. § 14.20(d).

⁴⁴ See *2011 ACS Order*, 26 FCC Rcd. at 14,684–87, ¶¶ 301–305.

⁴⁵ 47 U.S.C. § 153(1).

⁴⁶ 47 U.S.C. § 153(27).

As the Commission has made clear, “webina[r] and webcas[t]” functionalities that multimodal systems often offer also count as “video conferencing services” so long as they “provide real-time video communications, including audio, *between two or more users . . .*, even if they can also be used for video broadcasting purposes (*only from one user*).”⁴⁷ Many modern multimodal services appear to meet this definition because they can be configured for two or more users—even in modes where those users are “broadcasting” to others.⁴⁸

However, in implementing the ACS rules in 2011, the Commission focused on the umbrella ACS definition’s inclusion of the term “interoperable.”⁴⁹ The Commission implied that the term imposed a meaningful limitation on its authority but determined that the record was insufficient to define it,⁵⁰ and teed up a number of alternative definitions for consideration in a further notice of proposed rulemaking.⁵¹ The Commission has never resolved the “interoperability” issue or ruled on the *2011 ACS FNPRM*. It last acknowledged the pendency of the *2011 FNPRM* in a pair of footnotes in its 2016 biennial report on the CVAA to Congress,⁵² and its last two biennial reports did not mention the issue.

Over the past year and a half, the urgency of making the video components of multimodal services accessible has transitioned from a high accessibility priority to an emergency as the COVID-19 pandemic made video conferencing services a primary mode

⁴⁷ See *2011 ACS Order*, 26 FCC Rcd. at 14,578, ¶ 50 (emphasis in original).

⁴⁸ See, e.g., Zoom, *Roles in a webinar* (last visited May 31, 2021), <https://support.zoom.us/hc/en-us/articles/360000252726-Roles-in-a-webinar>.

⁴⁹ *Id.* at 14,577, ¶ 47 & n.94

⁵⁰ *Id.* at 14,577, ¶ 47.

⁵¹ *Id.* at 14,686, ¶¶ 303–04.

⁵² *2016 Biennial Report to Congress as Required by the Twenty-First Century Communications and Video Accessibility of 2010*, 31 FCC Rcd. 11065, 11,070, 11,086 ¶¶ 7, 51 & nn. 34 & 196, <https://www.fcc.gov/document/2016-cvaa-biennial-report>.

of communication for millions of Americans. Fortunately, the Commission has a straightforward solution before it: simply clarify that the CVAA’s definition of “interoperable video conferencing service”—“a service that provides real-time video communications, including audio, to enable users to share information of the user’s choosing”⁵³—is an exhaustive articulation of what Congress intended to be covered under the rubric of video conferencing services. Because the Commission’s existing rules already adopt this statutory definition,⁵⁴ the Commission would only need to revise its approach in the *2011 ACS Order* and conclude that the CVAA’s text and obvious intent govern.⁵⁵

⁵³ 47 U.S.C. § 153(27).

⁵⁴ 47 C.F.R. § 14.10(m).

⁵⁵ The Commission could also consider the alternate definitions of “interoperable” in the *2011 ACS FNPRM*—“(1) “interoperable” means able to function inter-platform, inter-network, and inter-provider; (2) “interoperable” means having published or otherwise agreed-upon standards that allow for manufacturers or service providers to develop products or services that operate with other equipment or services operating pursuant to the standards; or (3) “interoperable” means able to connect users among different video conferencing services, including VRS,” *see* 26 FCC Rcd. at 14,686, ¶ 303—or develop another definition to cover the video components of modern multimodal services. However, the Commission must reconsider this approach in light of its decision not to extend the ACS rules to third-party software installed by users. *See* 47 C.F.R. § 14.20(a)(1) *2011 ACS Order*, 26 FCC Rcd. at 14,581, ¶ 58. Several of the Accessibility Advocacy and Research Organizations petitioned the Commission to reconsider its decision to standalone software. *See* Petition for Reconsideration of TDI, et al. CG Docket No. 10-213 (Jan. 29, 2012), <https://www.fcc.gov/ecfs/filing/6016983584>. Hopes for standalone software applications designed to connect users to open multimodal services with accessibility in mind have given way to siloed, integrated, proprietary services accessed via self-developed apps that are replete with accessibility problems. The Commission should not let this dynamic stand in the way of ensuring the accessibility of integrated modern multimodal services, though we do generally support the Commission’s efforts to spur the development of cross-platform video calling. *See, e.g.,* North American Numbering Council (NANC) Interoperable Video Calling Working Group (IVC WG), *Report on Interoperable Video Calling* (July 28, 2020), <https://docs.fcc.gov/public/attachments/DOC-365871A1.pdf>.

The Commission should reach the sensible and obvious conclusion that it is a critical legal imperative to address the accessibility of the most fundamentally important communications modality in modern American life—the accessibility of everything from remote work to remote education to telehealth for people who are deaf or hard of hearing relies upon this result. If the Commission concludes to the contrary, however, we urge it to swiftly request that Congress remove the term “interoperable” from the definition of ACS in the Communications Act.⁵⁶

D. The Commission should adapt its ACS performance objectives for modern multimodal services.

Ensuring that modern multimodal services are properly classified as ACS and subject to the applicable accessibility requirements is an important start. However, the Commission should also revisit ACS performance objectives to ensure that they address the accessibility challenges posed by such services, including the need for built-in captioning capability, interoperability with third-party captioning and relay services, and user control over captioning features.

The CVAA broadly requires the Commission to “include performance objectives to ensure the *accessibility, usability, and compatibility*” of ACS.⁵⁷ In the initial ACS rules, the Commission declined to adopt specific performance objectives, instead incorporating only high-level general performance objectives from the Commission’s legacy rules for telecommunications services, voicemail, and interactive menu services.⁵⁸ The Commission promised to revisit these specific performance objectives following the release of updated Section 255 guidelines by the Access Board and a report by the

⁵⁶ Specifically, the text at 47 U.S.C. § 153(1)(D) should be modified to read “(D) video conferencing service.”

⁵⁷ See 47 U.S.C. § 617(e)(1)(A) (emphasis added).

⁵⁸ See *2011 ACS Order*, 26 FCC Rcd. at 14,646–48, ¶¶ 210–212.

Emergency Access Advisory Committee (EAAC)⁵⁹ and raised them for consideration in an FNPRM.⁶⁰

Now that the EAAC has issued its report⁶¹ and the Access Board has released its final rules,⁶² it is critical that the Commission move forward to ensure that modern multimodal services are accessible to users who are deaf or hard of hearing. At a minimum, the Commission should specify three specific requirements for all multimodal services with interconnected VoIP, non-interconnected VoIP, and/or interoperable video conferencing components:

1. All multimodal services must include built-in closed captioning functionality, whether through the use of human captioners, ASR solutions, hybrid solutions, or other approaches that may be developed;
2. All multimodal services must integrate support for third-party captioning services, third-party video interpreting services, and current and next-generation relay services; and
3. All multimodal services must allow users to control the activation and customize the appearance of captions and video interpreters, including ASL interpreters and cued language transliterators, on their own clients instead of leaving that control to meeting hosts.

⁵⁹ *Id.* at 14,647–48, ¶ 212.

⁶⁰ *Id.* at 14,689–90, ¶ 310.

⁶¹ See EAAC, *Report on TTY Transition* (Mar. 2013), <https://docs.fcc.gov/public/attachments/DOC-319386A1.pdf>.

⁶² Architectural and Transportation Barriers Compliance Board, *Information and Communication Technology (ICT) Standards and Guidelines*, Final Rule, 36 Fed Reg. 5790, (Jan. 18, 2017), <https://www.federalregister.gov/documents/2017/01/18/2017-00395/information-and-communication-technology-ict-standards-and-guidelines>. The final guidelines are codified at Appendix B to 36 C.F.R. pt. 1194, <https://www.access-board.gov/ict/#C101-general>.

Establishing these requirements will ensure that deaf and hard of hearing users can participate in the interactions facilitated by multimodal services on equal terms to people without disabilities, consistent with the CVAA’s mandate, both by including out-of-the-box captioning and video interpreting solutions and by allowing users to leverage relay services that are better tailored for them.

E. The Commission should revisit Section 225’s functional equivalence mandate to facilitate the development of interoperable next-generation relay services.

In conjunction with requiring multimodal services to integrate support for third-party relay services, the Commission also should encourage and support the development and deployment of relay services and features that are capable of interoperating with modern multimodal services. Doing so would be in keeping with the Commission’s obligations under Section 225 of the Communications Act (1) to ensure the availability of telecommunications relay services that are “functionally equivalent” to modern “voice communication services by wire or radio” used by hearing people,⁶³ and (2) to “encourage the use of existing technology and . . . not discourage or impair the development of improved technology.”⁶⁴

As a general matter, it has been many years since the Commission revisited the scope of its functional equivalence mandate, save for limited contexts aimed at adjusting the compensation rates for relay providers.⁶⁵ This is despite a decade-old request from many of the Accessibility Advocacy Organizations to reexamine the types of services and

⁶³ 47 U.S.C. § 225(a)(3).

⁶⁴ 47 U.S.C. § 225(d)(2).

⁶⁵ See, e.g., Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Notice of Proposed Rulemaking and Order, CG Docket Nos. 03-123 and 10-51 at 7-8, ¶ 13 (May 21, 2021), <https://www.fcc.gov/document/fcc-seeks-comment-compensation-plan-video-relay-service-0>.

features that should define functional equivalency.⁶⁶ Though the efficiency of the TRS Fund is an important consideration for determining TRS rates, the Commission should answer the calls by many of the Accessibility Advocacy and Research Organizations to prioritize functional equivalence by updating its understanding of the meaning of the term in a modern, IP-based, multimodal world.⁶⁷ In doing so, it should ensure—*outside and independent of ratemaking considerations*—that relay services serve their intended purpose under Title IV of the Americans with Disabilities Act.

Developing a robust set of policies to ensure and promote the development and deployment of next-generation, multimodal-service-integrated relay features and offerings will require coordination and evolution of both the Commission’s ACS and relay rules. However, while the details of the necessary modifications to the Commission’s relay rules are beyond the scope of this comment, the Commission should act quickly to allow and incentivize relay providers to collaborate with multimodal service providers on the development and deployment of integrated next-generation relay services, further ensuring that the Commission is meeting Section 225’s functional equivalence mandate.

F. The Commission should improve access to multimodal and 9-1-1 services by accelerating the availability of real-time text (RTT) services and updating its emergency access rules.

In addition to ensuring the compliance of wireless providers with their various accessibility obligations under sections 255 and 716 of the Communications Act,⁶⁸ the

⁶⁶ Ex Parte of TDI, et al., CG Docket Nos. 03-123 and 10-51 (April 12, 2011), <https://ecfsapi.fcc.gov/file/7021237819.pdf> (“Consumer Groups’ TRS Policy Statement—Functional Equivalency of Telecommunications Relay Services: Meeting the Mandate of the Americans with Disabilities Act”). For example, the Commission should investigate allowing VRS users to request a cued language transliterator or deaf interpreter.

⁶⁷ E.g., Ex Parte of DHHCAN, CG Docket Nos. 03-123 & 10-51 (May 13, 2021), <https://www.fcc.gov/ecfs/filing/10513103386803>.

⁶⁸ See 47 U.S.C. §§ 255(c), 617(b).

effective roll out of RTT is necessary for the Commission to meet its obligation under the CVAA “to achieve reliable, interoperable communication that ensures access . . . to an [IP]-enabled emergency network.”⁶⁹ While the Commission has made some progress in this direction, including expanding its text-to-911 registry to include a list of public safety answering points that are ready to receive calls via RTT,⁷⁰—a wide array of problems remain. As of November 2020, four years after the Commission’s Order approving RTT as an alternative to TTY for wireless carriers, many wireless carriers had yet to achieve compliance.⁷¹

While we appreciate the Commission’s ongoing work with wireless carriers and network vendors to enable the provision of RTT, the Commission should also follow through on its commitment to “conduct continued exploration” of “a universal, integrated text solution for voice service accessibility on wireline IP-based voice services and end user devices.”⁷² It should commence a rulemaking for this purpose—in part, to address the ongoing denial of access to incarcerated people with disabilities.⁷³ The

⁶⁹ *Transition from TTY to Real-Time Text Technology*, Report and Order and Further Notice of Proposed Rulemaking, CG Docket No. 16-145 and GN Docket No. 15-178, 31 FCC Rcd. 13,568, 13,578–79, ¶ 16 (Dec. 16, 2016) (“*2016 RTT Order*”), <https://www.fcc.gov/document/adoption-real-time-text-rtt-rules> (citing 47 U.S.C. § 615c(g)).

⁷⁰ *Public Safety and Homeland Security Bureau Announces Availability of Updated PSAP Text-to-911 Certification and Readiness Form and Registry to Facilitate Real-Time Text*, Public Notice, PS Docket Nos. 10-255 and 11-153, CG Docket No. 16-145, and GN Docket No. 15-178 (Mar. 12, 2021), <https://docs.fcc.gov/public/attachments/DA-21-301A1.pdf>.

⁷¹ See *Ex Parte of TDI, et al.*, CG Docket No. 16-145 and GN Docket No. 15-178 at 1-3 (Nov. 4, 2020), <https://www.fcc.gov/ecfs/filing/1104003906838>. It is also not clear to us the extent to which carriers have modified data-only wireless plans specifically designed for people with disabilities to accept incoming RTT calls.

⁷² See *2016 RTT Order*, 31 FCC Rcd. at 13,577–78, ¶ 13.

⁷³ *Rates for Interstate Inmate Calling Services*, Third Report Third Report and Order, Order on Reconsideration, and Fifth Further Notice of Proposed Rulemaking, WC Docket No. 12-375 at 125–26, ¶ 269 & nn.854–856 (May 24, 2021) (“*2021 Carceral*”).

Commission should also act on the numerous items teed up in the FNPRM portion of the *2016 RTT Order*:

- The Commission proposed a sunset date for RTT-TTY backward compatibility of 2021, concluding that “by such date, [it] expect[ed] to have data sufficient to assess adoption of RTT technology” and seeking comment “on the type of data and metrics that can be used to monitor the availability, adoption, and acceptance of RTT services and devices.”⁷⁴ To the extent that the Commission has collected data or metrics on the RTT rollout, it should make such data public, along with any current plans to gather updated information on moving forward with a sunset of TTY technology and RTT-TTY compatibility.
- The Commission should address the wide range of issues around TRS access to RTT raised in the FNPRM.⁷⁵
- The Commission should take action on the compatibility of RTT with refreshable Braille displays.⁷⁶
- The Commission should take action on the availability of “block mode,” which allows users to delay sending a text communication while composing it—and a critical issue for 911 operators, for example, when a block of instructions may need to be sent all at once.⁷⁷

Acting swiftly to complete the wide array of outstanding issues with the roll-out of RTT and the TTY-to-RTT transition will ensure that people who are deaf or hard of hearing have a fully functional, fully accessible text backstop after TTYs are phased out.

Communications Order”), <https://www.fcc.gov/document/fcc-lowers-interstate-and-international-prison-phone-rates-0>.

⁷⁴ *2016 RTT Order*, 31 FCC Rcd. at 13,606–07, ¶ 76–77.

⁷⁵ *See id.* at 13,607–10, ¶¶ 78–87.

⁷⁶ *See id.* at 13,610, ¶ 88.

⁷⁷ *See id.* at 13,610–11, ¶ 89.

We also urge the Commission to examine and update its emergency access rules more broadly, as well as to coordinate with other agencies with joint jurisdiction over emergency access issues. In particular, the Commission should:

- Revisit and implement the 2013 Recommendations of EAAC Working Group 3 on Media Communications Line Services (MCLS) to better ensure equally effective access to 9-1-1 for callers who are deaf or hard of hearing;⁷⁸
- Coordinate with the Department of Justice to ensure that its regulations under Title II of the Americans with Disabilities Act are updated to take into account modern technologies, including text-to-9-1-1 compatibility and other Next-Generation 9-1-1 (NG-911) features, to ensure the accessibility of 9-1-1;⁷⁹ and
- Continue its ongoing work to ensure the accessibility of emergency notifications, including notifications provided by the Emergency Alert System (EAS) and Wireless Emergency Alerts (WEAs).⁸⁰

⁷⁸ *Current 9-1-1 and Next Generation 9-1-1: Media Communication Line Services Used to Ensure Effective Communication with Callers with Disabilities* (Mar. 1, 2013), <https://docs.fcc.gov/public/attachments/DOC-319394A1.pdf>.

⁷⁹ In 2017, the Department of Justice (DOJ) withdrew a 2010 Advance Notice of Proposed Rulemaking on Next-Generation 9-1-1. *Nondiscrimination on the Basis of Disability*, Notice of Withdrawal, CRT Docket No. 138, 82 Fed. Reg. 60,932, 60,933 (Dec. 26, 2017), <https://www.govinfo.gov/content/pkg/FR-2017-12-26/pdf/2017-27510.pdf> (withdrawing *Accessibility of Next Generation 9-1-1*, CRT Docket No. 111, RN 1190-AA62, 75 Fed. Reg. 43,446 (July 26, 2010), <https://www.govinfo.gov/content/pkg/FR-2010-07-26/pdf/2010-18336.pdf>). More than a decade later, it is critical that the Commission work with DOJ to reinstate the ANPRM and ensure that NG 9-1-1 adoption continues apace. In particular, DOJ should update Rules 35.161(a) and 35.162 to require effective communication via voice, video, text, and data technologies including RTT, SMS, and ACS and IoT devices such as vehicle telematics.

⁸⁰ See, e.g., *Amendment of Part 11 of the Commission's Rules Regarding the Emergency Alert System; Wireless Emergency Alerts*, Notice of Proposed Rulemaking and Notice, PS Docket Nos. 15-94 and 15-91 (Mar. 19, 2021), <https://www.fcc.gov/document/fcc-proposes-further-strengthen-emergency-alerting-0>. For further discussion of these issues, see Comments of TDI, et al. PS Docket Nos. 15-94 and 15-91 (Apr. 20, 2021),

G. The Commission should ensure that broadband services can accommodate bandwidth-intensive multimodal services without unjust or discriminatory fees or data caps.

Finally, the Commission should ensure that the broadband networks atop which multimodal services ride can accommodate them without imposing unjust or discriminatory fees, data caps, or other practices on deaf or hard of hearing users. As many of the Accessibility Advocacy and Research organizations have commented, people with disabilities rely more on high-bandwidth IP-based applications than other users.⁸¹ That reliance makes people who are deaf or hard of hearing especially sensitive to network provisioning, management, and pricing practices.⁸² The adverse impacts that such practices have on people who are deaf or hard of hearing have only increased as video-centric multimodal services have become increasingly central to work, healthcare, education, and social interactions.

Users who are deaf or hard of hearing—including those who rely on services like Lifeline—are increasingly squeezed by high prices, low data caps, and an increasing need for bandwidth to maintain fidelity for the use of sign language and lip-reading with video-based services.⁸³ Accordingly, the Commission should address accessibility as part of any revisitation of the rules governing broadband Internet access services promulgated under the *Restoring Internet Freedom Order*⁸⁴—in addition to its ongoing priorities to ensure the affordability of broadband to all Americans.

<https://www.fcc.gov/ecfs/filing/104211772717963> and Comments of Richard Ray, PS Docket No. 15-91 (Oct. 15, 2018), <https://www.fcc.gov/ecfs/filing/10151460514877>.

⁸¹ Comments of TDI, et al., GN Docket No. 14-28 and WC Docket No. 17-108 at 2-4 (Jul. 17, 2017), <https://www.fcc.gov/ecfs/filing/1071783345674>.

⁸² *Id.* at 4-7.

⁸³ See generally Comments of TDI, et al., WC Docket No. 11-42 (Apr. 19, 2021), <https://www.fcc.gov/ecfs/filing/10419942909274>.

⁸⁴ See *Restoring Internet Freedom*, Declaratory Ruling, Order, Report and Order, WC Docket No. 17-108 (Dec. 14, 2017), <https://www.fcc.gov/document/fcc-releases-restoring-internet-freedom-order>.

II. The Commission should overhaul its closed captioning rules for a modern OVD-centric ecosystem.

It is also critical that the Commission revisit its rules requiring access to video programming. The television ecosystem has evolved radically since the CVAA's implementation, with an explosion of online video distributors (OVDs) now delivering a significant array of video.

The Commission should respond by adjusting its television closed captioning rules to include OVDs and by revisiting the allocation of responsibilities for caption provision, quality, pass through, and rendering. The Commission also should revisit and revise or eliminate decades-old categorical exemptions from the television rules, adopt captioning quality metrics for live programming, and clarify that existing quality standards apply to all forms of captioning, regardless of whether they are provided via automatic speech recognition (ASR), by human captioners, by hybrid methods, or by other technologies that have not yet been developed. The Commission should revisit caption activation, persistence, settings, and interconnection requirements for apparatus used to view video. Finally, the Commission should take a similar approach to expanding and overhauling its audio description rules and launch an inquiry into the need for accessibility of other video programming and communications-related mediums such as podcasts and video games.

A. The television ecosystem has changed radically since the CVAA's implementation.

In the decade since the Commission initially implemented the CVAA's IP closed captioning mandate in 2012,⁸⁵ the Commission has recognized a radical shift in the

⁸⁵ *Closed Captioning of Internet Protocol-Delivered Video Programming*, Report and Order, MB Docket No. 11-154, 27 FCC Rcd. 787 (Jan. 13, 2012) (“2012 IP Captioning Order”), <https://www.fcc.gov/document/closed-captioning-internet-protocol-delivered-video-programming-1>.

television ecosystem from programming delivered by broadcast television stations and multichannel video programming distributors (MVPDs) systems to OVDs.⁸⁶ Nearly as many households—74%—now subscribe to OVDs as subscribe to traditional MVPD services.⁸⁷ Fewer than half of all TV sets in use are connected to an MVPD’s set-top box, and only about a quarter of households still receive broadcast television with an antenna.⁸⁸ It is undeniable that a large proportion of viewers are “cutting the cord” and shifting toward a myriad of OVDs delivered via public IP networks and displayed via applications on a wide array of smart TV sets and set-top boxes to meet the viewing and economic needs of their households.

Since 2012, the OVD market has fragmented significantly. Initially dominated by a small number of services, today’s OVD market includes a wide array of generalized streaming services including Netflix, Hulu, and Amazon Prime, studio-specific services such as Disney Plus, HBO Max, Showtime, Paramount Plus, Peacock, Epix Now, Starz, Discovery+, and Apple TV+, live-TV-focused services such as Sling TV and YouTube TV, specialized offerings such as Acorn, Britbox, ESPN, PBS Passport, Smithsonian Channel Plus, video content delivered by prominent news sites such as the New York Times and Washington Post, and many more.⁸⁹ The Commission has taxonomized these OVD services into “Advertising-based Video On Demand (AVOD); Subscription Video On

⁸⁶ See *2020 Communications Marketplace Report*, GN Docket No. 20-60 at 103, ¶ 150 (Dec. 31, 2020), <https://www.fcc.gov/document/fcc-releases-2020-communications-marketplace-report>

⁸⁷ Leichtman Research Group, *75% of TV Households Subscribe to a Pay-TV Service* (Nov. 5, 2019), <https://www.leichtmanresearch.com/75-of-tv-households-subscribe-to-a-pay-tv-service/>.

⁸⁸ *Id.*

⁸⁹ See, e.g., Josef Adalian, *Which Streaming Service Do You Actually Want?*, *Vulture* (Mar. 4, 2021), <https://www.vulture.com/article/best-streaming-services-guide.html>. See generally *2020 Communications Marketplace Report* at 113–119, ¶¶ 177–188.

Demand (SVOD); Transactional Video On Demand (TVOD); and vMVPD [virtual MVPD].”⁹⁰

As the Commission recently acknowledged, many of these services are increasingly developing exclusive content,⁹¹ meaning that a growing amount of programming is only available on a single streaming service.⁹² This results in “subscription fatigue” as more streaming services hit the market and viewers’ preferred content migrates away from services they already have.⁹³ As a result, many viewers—including those who are deaf or hard of hearing—subscribe to an array of different services to access the content they want.

Moreover, OVD services are no longer limited to large studios and distributors. In addition to subscribing to and viewing traditional show- and feature-length programming on these multiple services, viewers now also widely consume video on social media. People can log into Facebook, Twitter, Instagram, TikTok, and Snapchat, for example, on a variety of PC, tablet, smartphone, and other devices, and find video content from a variety of professional and amateur sources—but often confront significant accessibility barriers.⁹⁴

⁹⁰ 2020 Communications Marketplace Report at 113, ¶ 177.

⁹¹ See *id.* at 119–121, ¶¶ 189–91.

⁹² Kevin Westcott, et al., *Digital media trends: A look beyond generations*, Deloitte (Oct. 30, 2019), <https://www2.deloitte.com/us/en/insights/industry/technology/digital-media-trends-consumption-habits-survey/video-streaming-wars-redrawing-battle-lines.html>.

⁹³ *Id.*

⁹⁴ See generally Rachel Lerman, *Social media has upped its accessibility game. But deaf creators say it has a long way to go.*, Washington Post (Mar. 15, 2021), <https://www.washingtonpost.com/technology/2021/03/15/social-media-accessibility-captions/>.

B. The Commission should adjust its television closed captioning rules to include OVDs.

It is vital that all types of video, delivered via all types of distribution channels, viewed on all types of different devices, be accessible to viewers who are deaf or hard of hearing through the ubiquitous provision of high-quality closed captions. Unfortunately, full accessibility is not the norm in the OVD market. Viewers who are deaf or hard of hearing routinely report missing or poor-quality captions across a variety of online-exclusive content not subject to the Commission’s IP captioning rules—even from OVDs that purport to provide captions pursuant to lawsuit settlements or other voluntary commitments.⁹⁵ Accordingly, we urge the Commission to expand the scope of its television captioning rules to encompass OVD programming.

Fortunately, doing so is within the Commission’s statutory authority. The Telecommunications Act of 1996 specifically vests the Commission with the authority—and the obligation—to ensure that “video programming . . . is fully accessible through the provision of closed captions.”⁹⁶ The ’96 Act’s delegation of authority to the Commission is technology-neutral and does not quantify “video programming” by reference to any specific technology, suggesting that Congress intended the Commission to be able to update its regulations as technology evolved.

Indeed, the Commission even acknowledged when it initially implemented the television captioning rules in 1997 that “there [were] issues that need[ed] to be

⁹⁵ Compare, e.g., Disability Rights & Education Fund (DREDF), *NAD and Netflix Reach Historic Agreement* (Oct. 10, 2012), <https://dredf.org/2012/10/10/nad-netflix-reach-historic-agreement/> (noting Netflix’s commitment to caption 90% of its programming by 2014) with Katie Kilkenny & Patrick Shanley, *Behind the Fight to Improve Netflix’s Closed Captioning*, *The Hollywood Reporter* (Aug. 2, 2018), <https://www.hollywoodreporter.com/news/general-news/behind-fight-improve-netflixs-closed-captioning-1126721/> (describing an array of captioning problems on Netflix and other streaming services).

⁹⁶ P.L. 104-104 § 305 (codified at 47 U.S.C. § 613(b)(1)).

addressed relating to the convergence of television receivers and computers and the growth of Internet video like programming,”⁹⁷ implying its understanding that its authority to require closed captioning of “video programming” would extend to Internet-delivered programming in the future. The Commission can and should use its authority under the ’96 Act to meet Congress’s intent and ensure that video programming delivered via the Internet is accessible to people who are deaf or hard of hearing.

The CVAA compels the Commission to take additional action using its authority under the ’96 Act to require captioning for IP-delivered programming.⁹⁸ Specifically, the CVAA compels the Commission to “require the provision of closed captioning on video programming delivered using Internet protocol that was published or exhibited on television with captions.”⁹⁹ Although the CVAA rightly led the Commission to develop a separate set of captioning rules for IP-delivered programming,¹⁰⁰ the CVAA’s mandate is better understood as Congress imposing a specific obligation for the Commission to exercise its authority under the ’96 Act to cover a certain subset of IP-delivered programming by a time certain specified by the statute¹⁰¹—not as a limitation on its

⁹⁷ *Closed Captioning and Video Description of Video Programming*, Report and Order, MM Docket No. 95-176, 13 FCC Rcd. 3272, 3386, ¶ 249 (Aug. 22, 1997) (“1997 TV Captioning Order”), <https://transition.fcc.gov/Bureaus/Cable/Orders/1997/fcc97279.txt>. The Commission also acknowledged a 1996 petition for rulemaking from NAD and TDI, among others, urging the Commission to adopt caption capability requirements for personal computers, using its authority under the Television Decoder Circuitry Act. *See id.* at 3386, ¶ 249 & n.787 (citing Petition for Rulemaking of NAD, TDI, et al., Docket No. ET RM-8785 (Jan. 9, 1996, <https://www.fcc.gov/ecfs/filing/153810>)).

⁹⁸ *See* 47 U.S.C. § 613(c)(2)(A).

⁹⁹ *Id.*

¹⁰⁰ *See generally* 2012 IP Captioning Order, 27 FCC Rcd. at 791-92, ¶ 5.

¹⁰¹ *See* 47 U.S.C. § 613(c)(2)(A) (requiring adoption of IP captioning regulations within six months of the issuance of the report required by Section 201(e)(1) of the CVAA).

broad, technology-neutral statutory authority to cover all video programming, including from OVDs, under the '96 Act.

Even if the Commission conceptualizes the CVAA as narrowing the contours of its authority under the '96 Act, the Commission still retains the authority to treat OVDs as “television” that can be covered under its television captioning rules. The CVAA’s delegation of authority to require captioning for IP-delivered programming “published or exhibited on *television* with captions” makes clear that there must be a core of “television” programming that can be subject to the Commission’s captioning requirements under the '96 Act.¹⁰²

Given the Commission’s acknowledgement that the CVAA’s legislative history and the record developed around the *2012 IP Captioning Order* do not speak to the meaning of the term “television,”¹⁰³ the Commission should revisit the term through the lens of what “television” means to viewers. As the foregoing discussion establishes, it is undeniable that viewers understand “television” to include the wide array of online programming that they receive via online platforms and displayed—often directly—on their smart televisions and other devices.¹⁰⁴

The Commission need not rely solely on the perspective of viewers; considering the term from the perspective of the television industry will yield similar results. Not only do a variety of online services explicitly bill themselves as “TV”—e.g., Apple TV+ and YouTube TV—but industry commenters also acknowledged the shift in the popular conception of “television” from traditional broadcast and MVPD networks to online services in a variety of comments on the Commission’s *2020 Communications Marketplace Report*:

¹⁰² See 47 U.S.C. § 613(c)(2)(A) (emphasis added).

¹⁰³ *2012 IP Captioning Order*, 27 FCC Rcd. at 814-15, ¶ 41 (“The Senate and House Committee Reports did not elaborate on the term ‘video programming,’ and commenters generally did not further explore the meaning of the term.”)

¹⁰⁴ See discussion *supra*, Part II.A.

- The National Association of Broadcasters (NAB) acknowledged observations “that online services have become the dominant players in *television*” and concluded that the view “that broadcast TV stations are in a distinct market” is no longer viable, noting that “[f]ederal agency regulation must catch up to the reality of audiences’ media consumption habits.”¹⁰⁵
- NCTA, which represents a wide array of MVPDs, described viewers’ ability to “choose among a multitude of traditional and online service providers, access vast quantities of linear and on-demand programming, and view all of this content using TVs, TV-connected devices, computers, tablets, smartphones, and other devices they own” as evidence of significant “competition in the video marketplace.”¹⁰⁶
- Google Fiber acknowledged that its customers so strongly prefer OVD services, even for linear television programming traditionally provided by broadcasters and MVPDs, that it no longer sells new linear television subscriptions.¹⁰⁷
- In describing the “television set sales and content consumption” aspects of the “video sector,” the Consumer Technology Association observed that 90% of televisions sold in 2020 were expected to be “Smart TVs with internet connectivity” to keep up with a 23% annual increase in consumer spending on subscription video streaming services.¹⁰⁸

¹⁰⁵ Comments of National Association of Broadcasters, GN Docket No. 20-60 at 3, 33 (Apr. 27, 2020) (“NAB Communications Marketplace Comments”), <https://www.fcc.gov/ecfs/filing/10427012000913> (emphasis added) (internal citation omitted).

¹⁰⁶ Comments of NCTA—The Internet & Television Association, GN Docket No. 20-60 at 13 (Apr. 27, 2020) (“NCTA Communications Marketplace Comments”), <https://www.fcc.gov/ecfs/filing/1042700221723>.

¹⁰⁷ Comments of Google Fiber, GN Docket No. 20-60 at 7 (Apr. 27, 2020), <https://www.fcc.gov/ecfs/filing/10427052126243>.

¹⁰⁸ Ex Parte of CTA, GN Docket No. 20-60 at 2 (Sept. 4, 2020), <https://www.fcc.gov/ecfs/filing/10904508314312>.

- The Free State Foundation noted that “virtual MVPDs,” including many of the OVDs described above, “provide a comprehensive substitute to cable, DBS, and Telco TV packages” and are even being offered as direct substitutes for “traditional TV” by facilities-based providers.¹⁰⁹

The television industry likewise is recognizing OVDs as part of the “television” fold by recognizing OVDs for providing critically acclaimed television content. For example, Netflix took home 21 total Emmy awards in 2020, while Amazon brought home four and Disney+ seven.¹¹⁰

Moreover, it poses no barrier to the Commission’s regulatory treatment of services under its television closed captioning rules that OVD programs are delivered via IP. Indeed, the Commission concluded in the *2012 IP Captioning Order* that the television captioning rules could be applied even where an entity that can properly be conceived as a “television” provider, such as an MVPD, uses IP-based delivery mechanisms.¹¹¹ The Commission more recently adopted a similar conclusion in authorizing broadcasters to deploy IP-based ATSC 3.0 transmissions—also described as “Next Gen TV”—reaching the uncontroversial decision that the television captioning rules would apply¹¹² even though as a technical matter ATSC 3.0 delivers caption data in an IP-based format.¹¹³

¹⁰⁹ Comments of Free State Foundation, GN Docket No. 20-60 at 20, 22-23 (Apr. 27, 2020), <https://www.fcc.gov/ecfs/filing/10427015717828> (emphasis added).

¹¹⁰ Anna Menta, *HBO Dominates The Emmys, While Netflix and Amazon Fall Behind*, Decider (Sept 21, 2020), <https://decider.com/2020/09/21/emmys-2020-streaming-wins-hbo/>.

¹¹¹ See *2012 IP Captioning Order*, 27 FCC Rcd. at 795–96, ¶ 11.

¹¹² See *Authorizing Permissive Use of the “Next Generation” Broadcast Television Standard*, GN Docket No. 16-142, 32 FCC Rcd. 9930, 9972, ¶ 81 (emphasis added) (applying 47 C.F.R. § 79.1, the television captioning requirements, to ATSC 3.0 broadcasts).

¹¹³ See *id.* at 9972, ¶ 81 & n.243.

Conversely, traditional “television” service providers covered under the rules, including broadcasters and MVPDs,¹¹⁴ have migrated to delivery modalities that are effectively indistinguishable from their OVD competitors. As NCTA has described in detail, “[a]ll of the nation’s largest MVPDs support apps that can be used to watch their content on hundreds of millions of [viewer]-owned devices, such as smart TVs; tablets; streaming sticks and devices such as Apple TV, Roku, Google Chromecast, and Amazon Fire; smartphones; game consoles; and personal computers”—the same “devices used to access [both] MVPD and [online] services.”¹¹⁵ Indeed, content originally sourced from broadcasters and MVPDs is increasingly viewed on the same devices, via the same types of distribution channels, on the same devices as OVD services.

The core question for the Commission is simply this: can an OVD service properly be considered “television” under the meaning of the CVAA? The foregoing discussion demonstrates that from the perspective of viewers and industry alike, the answer for a wide range of OVDs is “yes.” The Commission should reach the common-sense conclusion that a wide range of OVDs are now “television” and subject them to the full force of its captioning rules, consistent with its obligations under the ’96 Act and the CVAA.¹¹⁶

¹¹⁴ The Commission’s current television rules apply to broadcasters, multichannel video programming distributors defined in Rule 76.1000(e), and “any other distributor of video programming for residential reception that delivers such programming to the home and is subject to the jurisdiction of the Commission.” 47 C.F.R. § 79.1(a)(11).

¹¹⁵ NCTA Communications Marketplace Comments, *supra* note 106 at 21–23 (internal citation omitted).

¹¹⁶ The Commission must also contend with the scope of “video programming” that can come within the scope of its plenary television rules, which under the CVAA’s amendments to the ’34 Act must be (1) “by, or generally considered comparable to programming provided by a television broadcast station” and (2) not “consumer-generated media.” *See* 47 U.S.C. § 613(h)(2). However, the vanishing distinctions between broadcast and other types of content mean that the broadcast comparability limitation poses few barriers for covering OVD content under the plenary television

C. The Commission should revisit the allocation of responsibility for caption provision, quality, pass through, and rendering.

A new OVD-centered ecosystem with a range of new players and a complex chain of distribution makes it essential that the Commission reassess its television and IP captioning rules to ensure that high-quality captions are created for all programs and reach viewers fully intact. The Commission should launch an inquiry aimed at reassessing the appropriate allocation of responsibility among different entities in the distribution chain.

The Commission’s rules currently apportion responsibility for the provision, quality, and pass-through of captions among a complex and difficult-to-map array of entities. The

captioning rules. See discussion *supra*, Part II.A; see also NAB Communications Marketplace Comments, *supra* note 105 at 28-34 (describing the extent to which broadcast and OVD content are widely regarded as substitutes); NCTA Communications Marketplace Comments, *supra* note 115 at 18 (noting that consumers “have an abundance of choice for sources of video programming—many of which resemble traditional MVPD services” and “can also watch this programming nearly everywhere and on any screen”).

The consumer-generated media (CGM) limitation also poses no significant barriers to the Commission’s coverage of OVD content under the television rules. The CVAA and the Commission’s rules define CGM as “[c]ontent created and made available by consumers to online [websites] and services on the Internet, including video, audio, and multimedia content,” 47 U.S.C. § 153(14); C.F.R. § 79.4(a)(11); neither the CVAA’s legislative history nor the *2012 IP Captioning Order* grapple significantly with the contours of the term. See 27 FCC Rcd. at 815–16, ¶ 42. While a full discussion of the scope of the CGM limitation is beyond the scope of this comment, we note that the CGM limitation does not exclude “amateur” video in the “professional” vs. “amateur” divide recently articulated by the Commission. See *2020 Communications Marketplace Report* at 113, ¶ 176, n.512. Indeed, YouTube plays host to well-resourced individual users called “YouTubers” that earn up to tens of millions of dollars in revenue per year. See Ryan Simon, *The Top 20 Richest YouTubers of 2021*, Groovewallet (updated April 7, 2021), <https://www.groovewallet.com/richest-youtubers/>. While we acknowledge that the Commission will need to address Congress’s intent to draw some distinction between “consumer”- and non-“consumer”-generated media, we urge the Commission to acknowledge and reflect in its rules that all major OVD platforms that openly host user-generated video indisputably distribute content outside the scope of CGM that should be subject to the television rules.

television rules cover video programmers (TV VPs), video programming distributors (TV VPDs), video programming owners (TV VPOs), video programming providers (TV VPPs) and video programming producers (TV VPPRs), while the IP rules separately define allocate responsibilities to video programming owners (IP VPOs), video programming distributors (IP VPDs), and video programming providers (IP VPPs).¹¹⁷

The Commission’s allocation of responsibility across these entities was last reassessed for the television rules in the *2016 Caption Responsibility Order*¹¹⁸ and has not been reassessed for the IP rules since their initial adoption in the *2012 IP Captioning Order*.¹¹⁹ While a detailed plan for allocating responsibility is beyond the scope of this comment, the Commission should approach reassessing responsibility with the following approaches and goals in mind:

- **Consider Primary Control and Ease of Enforcement.** In the *2016 Caption Responsibility Order*, the Commission concluded that it would look to “those aspects of closed captioning” over which each relevant entity “primarily ha[s] control.”¹²⁰ Similarly, the Commission noted in the *2012 IP Captioning Order* that a complex delivery chain and the broad array of IP VPDs warranted allocating responsibility for aspects of caption provision to entities in the best position to handle them directly.¹²¹ The “primary control” doctrine is a potentially useful starting point for ensuring that the Commission can easily enforce the rules for caption provision, quality, and pass-through/rendering against the entity in the best position to quickly resolve problems.

¹¹⁷ A visualization of these entities and a non-exhaustive list of their key responsibilities with citations is provided in Appendix B.

¹¹⁸ See generally *Closed Captioning of Video Programming*, CG Docket No. 05-231, 31 FCC Rcd. 1469 (Feb. 19, 2016) (“*2016 Caption Responsibility Order*”), <https://www.fcc.gov/document/closed-captioning-second-report-and-order>.

¹¹⁹ See generally 27 FCC Rcd. 787.

¹²⁰ 31 FCC Rcd. at 1478, ¶ 17.

¹²¹ 27 FCC Rcd. at 802–03, ¶¶ 21–22.

- **Revisit VPD Responsibility for Caption Provision and Quality.** However, the Commission should resist the assumption that VPs or VPOs are necessarily in the sole or best position to provide captions. The relationships and power dynamics between the originators and distributors of video have become widely varied over the past decade,¹²² and the shift toward ASR-based captioning may better situate large distribution platforms to generate captions in some circumstances. This is particularly true for platforms like YouTube, which distribute content originated from sources that range from the largest studios¹²³ to individual amateurs.¹²⁴ These platforms can and should be required to integrate ASR engines, caption authoring tools, and user interface nudges¹²⁵ to ensure the captioning of the hundreds of hours of video that are uploaded every minute.¹²⁶
- **Eliminate the Video Clip Grace Periods and Archival Loophole.** The IP captioning rules currently allow eight- and twelve-hour grace periods, respectively, for the provision of captions for video clips of near-live and live programming,¹²⁷ and exclude pre-rule clips.¹²⁸ These grace periods complicate the ability for consumers to complain and potentially deprive them of timely information conveyed in near-live

¹²² See, e.g., NCTA Communications Marketplace Comments, *supra* note 106 at 13.

¹²³ E.g., Disney, YouTube, https://www.youtube.com/channel/UC_5niPa-d35gg88HaS7RrIw (last visited May 21, 2021).

¹²⁴ See discussion *supra*, note 116.

¹²⁵ The Commission should use its Title I ancillary authority to extend automatic captioning and authoring tool requirements to OVDs that host user-generated content to the extent that it excludes videos hosted by those OVDs from the television captioning rules, see discussion *supra*, note 116.

¹²⁶ James Hale, *More Than 500 Hours Of Content Are Now Being Uploaded To YouTube Every Minute*, tubefilter (May 7, 2019), <https://www.tubefilter.com/2019/05/07/number-hours-video-uploaded-to-youtube-per-minute/>.

¹²⁷ 47 C.F.R. § 79.4(b)(2)(ii).

¹²⁸ See 47 C.F.R. § 79.4(b)(2).

and live-programming. Moreover, it is not clear that there remains any technical or practical need for these grace periods. Thus, as part of ensuring that entities best situated to provide captions are responsible for doing so, the Commission should ensure that entities engaged in the generation and distribution of video clips maintain the captions that are required for full-length programming by eliminating the grace periods. The Commission should relatedly require entities to begin addressing uncaptioned clips in their archives, as is required for full-length programming under the IP rules¹²⁹ and pre-rule programming under the TV rules.¹³⁰

- **Impose Pass-Through Obligations Throughout the Distribution Chain, Eliminate the Third-Party Loophole, and Harmonize Technical Standards for Caption Delivery.** The TV and IP captioning rules contemplate a relatively simple distribution ecosystem, with generally no more than a single distribution entity standing between the entity that originates the program and the viewer.¹³¹ Presently, the IP rules also limit the captioning requirement for video clips to those clips that are posted to an IP VPD’s website or application.¹³² But the video distribution ecosystem has evolved significantly since the CVAA’s implementation; many viewers favor watching video content, often in clip format that has been redistributed via sometimes complex and lengthy distribution chains to third-party platforms such as Facebook and YouTube, as opposed to first-party sites and applications such as those offered by CNN or Fox

¹²⁹ See 47 C.F.R. § 79.4(b)(1)(iv).

¹³⁰ See 47 C.F.R. § 79.1(b)(2).

¹³¹ See 47 C.F.R. § 79.1(c)(1) (obliging TV VPDs to “deliver all programming received from the [VP] containing closed captioning to receiving television households”); 47 C.F.R. § 79.4(c)(2)(i)–(ii) (contemplating that IP VPDs will license video programming from IP VPOs and pass through required captions to the end user—or render them, in the case that the IP VPD provides “applications, plug-ins, or devices” to view the programming). *But see* 47 C.F.R. § 79.1(a)(11), (e)(9) (addressing the slightly more complicated distribution scheme for retransmitted broadcast and other content).

¹³² 47 C.F.R. § 79.4(b)(2).

News.¹³³

Unfortunately, captions are frequently lost, removed, or garbled as video—whether clipped or full-length prerecorded or near-live programming or live programming—moves through the OVD ecosystem. This problem is exacerbated by the wide variation across the Commission’s rules for the pass-through and rendering of captions, which allow for different technical standards—or in some cases, provide no guidance on standards at all—for TV VPs and VPDs, IP VPOs, VPDs, and VPPs, analog TV receivers, digital TV receivers, and digital apparatus and recording devices.¹³⁴ It is critical to ensure that captions be reliably and inseparably packaged with video as it passes through the distribution ecosystem. The Commission should address these issues by requiring all entities involved in the chain of distribution to pass through captions, eliminating the loophole that permits the distribution of uncaptioned clips via third-party websites and applications, and convening the development of common technical standards for exchange and rendering of caption files.¹³⁵

- **Extend Contact Information and Complaint-Handling Obligations Throughout the Distribution Chain.** Both the TV and IP captioning rules require covered VPDs to make publicly available contact information for the handling of captioning

¹³³ See generally Blake Droesch, *Social Video Ad Spending Will Grow 44% by 2021*, eMarketer (Mar. 11, 2019), <https://www.emarketer.com/content/social-video-ad-spending-will-grow-44-by-2021>.

¹³⁴ A visualization of the different technical standards allowed under the Commission’s rules is attached as Appendix C.

¹³⁵ The Commission sought comment on updating technical standards for television captions in 2014 but has yet to rule on the issue. *Closed Captioning of Video Programming*, Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, CG Docket No. 05-231, 29 FCC Rcd. 2221, 2309–10, ¶¶ 160–161 (Feb. 24, 2014) (“*2014 Caption Quality Order*”), <https://www.fcc.gov/document/closed-captioning-quality-report-and-order-declaratory-ruling-fnprm>.

complaints;¹³⁶ the TV rules also require TV VPDs to provide contact information for the resolution of immediate concerns¹³⁷ and to register that contact information with the Commission's VPD registry.¹³⁸ The TV rules also require covered VPDs to forward complaints to responsible upstream parties.¹³⁹ The Commission should extend contact information requirements for the resolution of immediate concerns and complaints and the VPD registry requirement to all user-facing video programming entities, and oblige all entities involved in the video programming distribution chain to investigate and forward complaints and cooperate with the Commission in investigations as appropriate.

D. The Commission should revisit and revise or eliminate the categorical exemptions from the television rules.

In implementing the television captioning rules in 1997, the Commission adopted a range of categorical exemptions on the basis of economic burden.¹⁴⁰ Several of the Advocacy Organizations urged the Commission to revise or eliminate many of the categorical exemptions in their *2011 Universal Captioning Petition*.¹⁴¹ The Commission clarified the application of the \$3 million exemption to multicast broadcast signals and sought comment more generally on the categorical exemptions in the *2014 Caption*

¹³⁶ 47 C.F.R. §§ 79.1(i)(2) (TV), 79.4(c)(2)(iii) (IP).

¹³⁷ 47 C.F.R. § 79.1(i)(1).

¹³⁸ 47 C.F.R. § 79.1(i)(3).

¹³⁹ 47 C.F.R. § 79.1(g)(5)(ii).

¹⁴⁰ See *1997 TV Captioning Order*, 13 FCC Rcd. 3342–51, ¶¶ 143–168. Most of the exemptions are codified at 47 C.F.R. § 79.1(d)(3)–(13); advertisements of five minutes or less are separately carved out of the definition of video programming, see 47 C.F.R. § 79.1(a)(10).

¹⁴¹ Petition for Rulemaking of TDI, et al., CG Docket No. 05-231, PRM-CG-11 (Jan. 26, 2011), <https://www.fcc.gov/ecfs/filing/6016167106>.

Quality Order,¹⁴² but has otherwise not substantially altered or revisited the exemptions in the nearly quarter-century since initially adopting them.

Though a full discussion of each of the categorical exemptions is beyond the scope of this comment,¹⁴³ it should suffice to note that the economic circumstances upon which the Commission based the existing exemptions nearly twenty-five years ago¹⁴⁴ have evolved quite radically across all types of video providers, which collectively generated nearly \$200 billion in annual revenue in 2019.¹⁴⁵ The Commission should revisit the extent to which categorical exemptions are warranted on the basis of economic burden and eliminate or narrow the current exemptions accordingly.

E. The Commission should adopt captioning quality metrics for live programming and clarify how the existing quality standards apply to ASR.

Despite the landmark introduction of quality standards in the Commission's *2014 Caption Quality Order*,¹⁴⁶ quality problems persist with closed captioning, particularly for

¹⁴² *2014 Caption Quality Order*, 29 FCC Rcd. at 2283–84, 2308, ¶¶ 107 (multicast), 159 (categorical exemptions).

¹⁴³ See Ex Parte of TDI, et al., MB Docket Nos. 18-202 & 17-105, CG Docket No. 05-231 at 4 & n.20 (June 17, 2019), <https://www.fcc.gov/ecfs/filing/10627122716203> (internal citations omitted) (discussing and citing many of the Accessibility Advocacy and Research Organizations' prior comments on the categorical exemptions and the *2011 Universal Captioning Petition*).

¹⁴⁴ The Commission acknowledged even in 1997 that it faced “difficulty in determining general criteria as to when a captioning requirement is economically burdensome in a particular situation.” *1997 TV Captioning Order*, 13 FCC Rcd. at 3342, ¶ 144.

¹⁴⁵ See generally *2020 Communications Marketplace Report* at 109, ¶ 167 (noting that MVPDs earned video revenues of \$105 billion in 2019 and local advertising revenue of \$4.5 billion), 122, ¶ 194 (noting that AVODs brought in more than \$20 billion in advertising revenue), 122–23, ¶ 195 (noting that SVODs brought in more than \$16 billion in subscription revenue), ¶ 196 (noting that TVODs brought in more than \$1.7 billion in rental revenue), 123, ¶ 197 (noting that OVDs overall brought in more than \$2 billion in movie and TV sales), 124, ¶ 198 (noting that vMVPDs brought in more than \$6 billion in subscriber revenue), 131–32, ¶¶ 215–216 (noting that broadcasters brought in near \$22 billion in advertising revenue and nearly \$12 billion in retransmission consent).

¹⁴⁶ See generally 29 FCC Rcd. 2221.

live programming.¹⁴⁷ Many of the Accessibility Advocacy and Research Organizations petitioned the Commission in the *2019 Live Caption Quality Petition* to:

- a. Initiate an inquiry into the state of the art of closed captioning techniques for live television programming;
- b. Use the record to develop rules requiring live television programming to be captioned at a level that meets or exceeds technology-neutral metrics;
- c. Immediately issue a declaratory ruling and/or expedited rule change with near-term guidance and policy on the use of ASR technologies for captioning of live television programs.¹⁴⁸

While a full recount of quality issues is beyond the scope of this comment, the issues raised in the *2019 Live Caption Quality Petition* all remain live and pending.¹⁴⁹ We urge the Commission to act on the *Petition* and ensure that quality metrics are applied to all video programming, including on OVD services that are migrated to the television captioning rules.¹⁵⁰

¹⁴⁷ See generally *Petition for Declaratory Ruling and/or Rulemaking of TDI, et al.* CG Docket No. 05-231, MB Docket No. RM-11065, RM-11848 (July 31, 2019), <https://www.fcc.gov/ecfs/filing/10801131063733>.

¹⁴⁸ See *id.* at iv.

¹⁴⁹ See generally *Ex Parte of TDI, et al.* CG Docket Nos. 05-231, RM-11848 (April 24, 2020), <https://www.fcc.gov/ecfs/filing/104241653802221>; Reply Comment of TDI, Docket No. 05-231, RM 11848 (October 30, 2019), <https://www.fcc.gov/ecfs/filing/10300821916482>.

¹⁵⁰ The IP captioning rules require program files to be distributed and rendered or pass through with “at least the same quality” as the captions for the corresponding television programming. See 47 C.F.R. § 79.4(c)(1)(i), (2)(i). When OVD entities currently covered under the IP captioning rules are migrated to the television captioning rules, see discussion *supra* Part II.B, the Commission should ensure that the same quality standards and metrics apply to all programming subject to the television rules.

F. The Commission should revisit caption activation, persistence, settings, and interconnection requirements for apparatus.

Though the Commission took significant steps in implementing the CVAA toward improving the accessibility of the user interfaces for the devices and applications on which captions are rendered, significant problems remain. Interfaces for activating captions remain confusing and often depart from the CVAA’s “button, key, or icon” standard,¹⁵¹ users are required to manipulate caption settings across an array of devices and applications because of insufficient apparatus persistence settings, caption customization settings remain buried in inscrutable menus, and common interconnection standards like HDMI still lack closed captioning pass-through capability. To address these issues, the Commission should take action to shore up the state of accessibility across video programming devices by revisiting its rules for caption activation, persistence, settings, and interconnection.

The Commission initially adopted its user interface rules with a focus on “innovation” and “flexibility.”¹⁵² In the intervening seven years, captioning interfaces have not reached their full potential. We begin by highlighting one example from Apple here—not to single Apple out, but because Apple is widely regarded as offering high-caliber and accessible user interfaces for its products, and because this example illustrates a broader set of problems across the industry for accessible user interfaces.

Caption Activation. Specifically, Apple recently released its long-awaited, years-in-the-making second-generation Siri Remote for the Apple TV set-top box.¹⁵³ Critics lauded

¹⁵¹ See 47 U.S.C. § 303(aa)(3) (for apparatus), (bb)(2) (for navigation devices).

¹⁵² *Accessibility of User Interfaces, and Video Programming Guides and Menus*, Report and Order and Further Notice of Proposed Rulemaking, MB Docket Nos. 12-107 and 12-108, 28 FCC Rcd. 17,330, 17,380–81, ¶¶ 79–80 (Oct. 31, 2013) (“*2013 User Interfaces Order*”), <https://www.fcc.gov/document/fcc-adopts-new-video-device-accessibility-rules> (codified at 47 C.F.R. § 79.109(a)(1) (digital apparatus), (b) (navigation devices)).

¹⁵³ Apple, *Siri Remote*, <https://www.apple.com/shop/product/MJFM3LL/A/siri-remote> (last visited May 24, 2021).

the remote as “pushing all the right buttons,” highlighting its “precise” hybrid button/trackpad navigation surface “satisfying click” of its buttons, and the careful inclusion of buttons (power, volume, and mute).¹⁵⁴ Another prominent Apple commentator noted that the six-year-old first-generation Siri Remote, which came out around the time of the Commission’s initial user interface rules, was “so clearly a bad design” that he’d “grown to truly resent it,” but that the changes Apple made to the new remote were cause to “break out the champagne” for Apple TV users and that it was “easily his favorite Apple TV remote ever,” in part because of “clever” changes to the button layout.¹⁵⁵



Despite all Apple’s changes to the remote, including the addition of new and modified buttons for adjusting audio settings, it did not add a physical caption activation button, despite leaving ample blank space throughout the remote’s layout. The diagram to the left highlights in red thirteen distinct locations where Apple could have placed a caption activation button consistent with the remote’s existing design.

Apple did not eschew a simple button in favor of an unexpected or novel approach to caption activation emblematic of the kind of innovation the Commission envisioned in allowing flexibility under its activation rules. Instead, Apple’s instructions for activating captioning during playback rely on an unintuitive, multi-step approach that is not obviously discoverable and does not appear to be described in the included printed manual.¹⁵⁶ A viewer who navigates to Apple’s website eventually may find the following procedure:

1. Press the down button on the remote;

¹⁵⁴ E.g., Chris Welch, *Apple TV Siri Remote Review*, The Verge (May 21, 2021), <https://www.theverge.com/22446699/apple-tv-4k-hd-siri-remote-review-features-price>.

¹⁵⁵ Jon Gruber, *The New Siri Remote (and Updated Apple TV 4K)* (May 20, 2021), https://daringfireball.net/2021/05/the_new_siri_remote_etc.

¹⁵⁶ On file with counsel.

2. Press the right button as necessary to select “Subtitles” (not labeled as captions);
3. Press the down button again to enter the list of possible “Subtitles;”
4. Repeatedly press the right button on the remote to navigate through subtitles of other languages to eventually discover “English (US) CC,” which initially might not be displayed on the screen;
5. Press the center button on the remote to enable captions.¹⁵⁷

This result suggests that the Commission should make modifications to its caption activation rules. In the *2013 User Interfaces Order*, the Commission required covered entities to provide access to closed captioning “through a mechanism that is reasonably comparable to a button, key, or icon,” but declined to adopt a requirement that closed captioning features be able to “be activated in a single step,” instead adopting a “flexible” approach that focuses on “the simplicity and ease of use of the mechanism”¹⁵⁸

While it is reasonable to allow for some degree of flexibility and innovation, the Commission should not allow for complex mechanisms that are objectively worse and more difficult to use than a dedicated physical button—particularly on a remote control with lots of physical buttons and plenty of room for more. While full details are beyond

¹⁵⁷ Apple, *Control what’s playing in the Apple TV app: Turn on subtitles and closed captioning (if available)*, <https://support.apple.com/guide/tvapp/control-whats-playing-atvbfbcc3987/1.0/web/1.0#atvbac97b2e7> (last visited May 24, 2021). It is also possible to enable captions by voice using the dedicated Siri button on the remote, Apple, *Other things you can ask Siri on Apple TV*, <https://support.apple.com/en-nz/guide/tv/atvbb96a3e3f/tvos> (last visited May 24, 2021), though that is not an accessible solution for deaf or hard of hearing viewers who have speech disabilities. Moreover, the Commission has made clear that voice-only solutions are not sufficient to fulfill the Commission’s rules. *Accessibility of User Interfaces, and Video Programming Guides and Menus*, Second Report and Order, Order on Reconsideration, and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd. 13,914 (FCC Record pincites unavailable), ¶¶ 23-30 (Nov. 20, 2015) (“*2016 User Interfaces Order*”), <https://www.fcc.gov/document/commission-adopts-user-interfaces-accessibility-item>.

¹⁵⁸ 28 FCC Rcd. at 17,380, ¶¶ 79–80 (codified at 47 C.F.R. § 79.109(a)(1) (digital apparatus), (b) (navigation devices)).

the scope of this comment, the Commission should revisit its rules to ensure that captioning activation mechanisms are sufficient to meet the CVAA’s “button, key, or icon” requirement.

Caption Persistence. In theory, it is possible for a user to avoid Apple’s complex process by setting captions on an Apple TV to be enabled by default in the Settings menu.¹⁵⁹ Of course, this approach is impossible to use in scenarios where a deaf or hard of hearing viewer who is traveling must enable captions on a device that is not their own, or in a family where different users have different preferences. But the setting also simply does not work consistently across different applications. In informal testing, some apps, such as Hulu, worked, but other apps, such as HBO Max, Amazon Prime, and even Apple’s own Apple TV+ app did not respect the global setting. Others, like YouTube, used an entirely different user interface for enabling the captions.

While some of these problems may be the result of implementation errors that merely require enforcement, the Commission should also modify its rules to address the problem of disparate caption persistence across applications on a digital apparatus. The *2013 User Interfaces Order* applies the Commission’s rules only to applications pre-installed by their manufacturers and specifically excludes third-party applications downloaded after sale.¹⁶⁰ This means that third-party OVDs are free to separately develop their own captioning interfaces for their applications that can disregard system-wide user settings, bound only by their rendering obligations under the IP captioning rules.¹⁶¹ While full details are again beyond the scope of this comment, the Commission should revisit its rules and require persistence across applications, including third-applications not pre-installed by manufacturers.

¹⁵⁹ Apple, *Use subtitles and captioning in the Apple TV app*, <https://support.apple.com/guide/tvapp/activate-subtitles-and-captioning-atvb5ca42eb9/web> (last visited May 24, 2021).

¹⁶⁰ 28 FCC Rcd. at 17,354–55, ¶ 39

¹⁶¹ See 47 C.F.R. § 79.4(c)(2).

Caption Settings Accessibility. It must also be easy for users to set consistent settings for their captions, including customizing color, opacity, size, fonts, background, edge attributes, and more. As the Commission noted in the FNPRM portion of the *2013 User Interfaces Order*, there is a long-running record of “ongoing problems that consumers have in finding and controlling [the] display features”¹⁶² that are required by the Commission’s implementation of Section 203 of the CVAA.¹⁶³ In the FNPRM portion of the *2016 User Interfaces Order*, the Commission noted that it “continue[s] to believe that there are important public interest considerations in favor of ensuring that consumers are able to readily access user display settings for closed captioning,” and sought comment on the possibility of using the TDCA as a source of authority to do so.¹⁶⁴ As many of the Accessibility Advocacy and Research Organizations noted in our comments on the FNPRM, the Commission indeed possesses the authority to require the availability and accessibility of caption settings under the TDCA, and should act swiftly to complete the proceeding initiated in that FNPRM.¹⁶⁵

Caption Interconnection. Finally, the Commission should attend to the reality that even if a user is able to successfully activate and customize captions on a set-top box such as the Apple TV, their caption settings will not carry over to other devices they use to view video on the same television—for example, a cable box or a broadcast tuner. This means that users with multiple devices must struggle to activate and customize captions

¹⁶² 28 FCC Rcd. at 17,416, ¶ 142.

¹⁶³ See 47 U.S.C. § 330(b); 47 C.F.R. § 79.103(c) (customization rules for digital apparatus). See generally *2012 IP Captioning Order*, 27 FCC Rcd. at 850–54, ¶¶ 109–113 (describing the details of the rules and associated VPAAC report).

¹⁶⁴ 30 FCC Rcd 13,914, ¶¶ 33–40.

¹⁶⁵ See Comments of TDI, et al., MB Docket No. 12-108 (Feb. 24, 2016), <https://www.fcc.gov/ecfs/filing/60001486622>; Reply Comments of TDI, et al., MB Docket No. 12-108 (Mar. 6, 2016) (“*2011 IP Captioning NPRM*”), <https://www.fcc.gov/ecfs/filing/60001497736>.

not only across a single application, or across multiple applications on a single apparatus, but across *multiple applications* on *multiple apparatuses* connected to a single television.

To address this problem, the Commission should revisit its implementation of the CVAA's interconnection requirements. The CVAA requires that the Commission ensure that "interconnection 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."¹⁶⁶ The plain language of the CVAA contemplates that viewers will be able to modify caption settings in one place in an interconnected system of equipment, and the Commission acknowledged in the *2011 IP Captioning NPRM* that it might need "to extend its regulations to manufacturers or standards bodies that develop and deploy these interconnection mechanisms to ensure that they are capable of conveying closed captioning information."¹⁶⁷

However, the HDMI licensing consortium effectively conceded that the HDMI standard had been developed without serious consideration of the possibility of carrying closed captioning data for customization of all sources on a user's TV set.¹⁶⁸ As a result, the Commission concluded that users would have to activate and customize captions at the source, hoping that technologies like HDMI Consumer Electronics Control (CEC) would serve as a stopgap.¹⁶⁹ The Commission nevertheless "noted the widespread

¹⁶⁶ 47 U.S.C. § 303(z)(2).

¹⁶⁷ See *Closed Captioning of Internet Protocol-Delivered Video Programming*, Notice of Proposed Rulemaking, MB Docket No. 11-154, 26 FCC Rcd. 13,734 13,762, ¶ 55 (Sept. 19, 2011), <https://www.fcc.gov/document/closed-captioning-internet-protocol-delivered-video-programming-2>.

¹⁶⁸ See Comments of HDMI Licensing, LLC, MB Docket No. 11-154 (Oct. 19, 2011), <https://www.fcc.gov/ecfs/filing/6016846164> ("The HDMI interface can today 'permit or render the display of closed captions' so long as source devices 'render' the captions into open captions").

¹⁶⁹ See *2012 IP Captioning Order*, 27 FCC Rcd. at 856–57, ¶ 118.

consumer reliance on HDMI” and “encourage[d] . . . the HDMI specification licensing agent, to include closed captioning provisions in future versions.¹⁷⁰

In the nearly full decade since the *IP Captioning Order*, two new standards of HDMI—2.0 and 2.1—have been developed, including a wide array of new video features such as resolutions up to 10k and a gobsmacking 48 Gbps of bandwidth.¹⁷¹ The latest standard even allows for bidirectional passage of audio between TVs and sources at high-bitrate formats up to 192 kHz and uncompressed surround-sound formats.¹⁷² But while it may be “easier than ever [for hearing people] to experience movie theater quality sound in a living room,”¹⁷³ TVs implementing the latest HDMI specifications still do not appear to include caption pass-through, and we are not aware of substantial progress by the HDMI standards body toward that end.¹⁷⁴ The Commission should require the industry to make progress toward caption pass-through by revising its interconnection rules.

G. The Commission should take a similar approach to expanding and overhauling its audio description rules.

Many of the foregoing issues arise in similar and related ways in the provision of audio description. While we defer to and are looking forward to reviewing and commenting in more detail in our replies on the topics raised by our colleagues who represent people who are blind or visually impaired, as a general matter we support the

¹⁷⁰ *Id.* at 857, ¶ 119.

¹⁷¹ See HDMI, HDMI 2.1 Specification Technology Overview, https://www.hdmi.org/spec/hdmi2_1 (last visited May 24, 2021).

¹⁷² See HDMI, HDMI Enhanced Audio Return Channel (eARC), <https://www.hdmi.org/spec21sub/enhancedaudioreturnchannel>, (last visited May 24, 2021).

¹⁷³ See *id.*

¹⁷⁴ A search of the HDMI standards site for “closed captions” yields only advertisements for captioning vendor services. HDMI, *Search Results*, <https://www.hdmi.org/search/index?q=closed%20captions> (last visited May 24, 2021).

modification of the Commission's rules governing audio description and related apparatus functionality consistent with the foregoing sections.

H. The Commission should launch an inquiry into captioning for other aural mediums.

Finally, the same challenges surrounding the provision, quality, pass-through, and rendering of captioning and associated user interfaces arise in many other aural media. Members of the Accessibility Advocacy Organizations routinely express concerns about the need for better accessibility, including the provision of captions and authoring tools to create them, for mediums including podcasts,¹⁷⁵ video games,¹⁷⁶ streaming music services,¹⁷⁷ virtual assistants,¹⁷⁸ and more. While many of these services sit on the boundaries of or beyond the scope of the Commission's authority, the Commission should leverage its decades of experience on captioning issues to investigate the extent of its jurisdiction over these evolving services.

¹⁷⁵ See generally Joshua Dudley, *Deaf and Hard Of Hearing People Are Helping to Fix The Podcast Accessibility Problem*, Forbes (Feb. 26, 2020), <https://www.forbes.com/sites/joshuadudley/2020/02/26/deaf-and-hard-of-hearing-people-are-helping-to-fix-the-podcast-accessibility-problem/?sh=aa1aa636b210>.

¹⁷⁶ See generally Morgan Baker, *Deaf Accessibility in Video Games*, Gamasutra (July 20, 2020), https://www.gamasutra.com/blogs/MorganBaker/20200720/366615/Deaf_Accessibility_in_Video_Games.php.

¹⁷⁷ See generally Avery Colyer, *Spotify for the Deaf & Hard-of-Hearing: Accessibility in UX*, Medium, <https://medium.com/carre4/spotify-for-the-deaf-hard-of-hearing-a-ux-case-study-929701e3dc80>.

¹⁷⁸ See generally Jason Rodolitz, Evan Gambill, Brittany Willis, Christian Vogler and Raja Kushalnagar, *Accessibility of Voice-Activated Agents for People who are Deaf or Hard of Hearing*, J. on Tech & Persons with Disabilities (2019), <https://scholarworks.calstate.edu/downloads/h415pf19f>.

III. The Commission should continue to press ahead on communications access for people with hearing loss.

We acknowledge and appreciate the Commission's long-standing commitment to ensuring the specific needs of people with hearing loss, including the highly anticipated recent adoption of the 2019 ANSI Standard.¹⁷⁹ Nevertheless, we urge the Commission to continue pressing ahead on communications access for people with hearing loss.

In particular, the Commission should take additional action to ensure that connectivity to wireless phones for people using hearing devices remains reliable, affordable, and accessible. The Commission should also implement the Disability Advisory Committee (DAC)'s 2016 recommendation on standards for amplification measurement procedures and performance criteria for amplified telephone handset acoustics in telephone devices to ensure the usability and availability of such devices by people who rely on them. Finally, the Commission should launch an inquiry into wideband and ultra-wideband audio to improve the accessibility of VoIP and related services for users with hearing loss and act on the 2014 petition of the Voice Communications Exchange Committee (VCXC) for HD Voice interoperability.¹⁸⁰

A. The Commission should ensure that connectivity to wireless phones for people using hearing devices remains reliable, affordable, and accessible.

Both the cell phone industry and hearing aid industry are pushing hard to adopt Bluetooth technology as a solution to connectivity between wireless phones and hearing devices. In general, we support a thoughtfully designed transition toward Bluetooth technology and recognize its potential for better communication by people with hearing loss over wireless phones. However, the Commission should continue to use its authority

¹⁷⁹ See generally Amendment of the Commission's Rules Governing Standards for Hearing Aid-Compatible Headsets, WT Docket No. 20-3 (Feb. 22, 2021), <https://www.fcc.gov/document/fcc-updates-hearing-aid-compatibility-rules>.

¹⁸⁰ See Petition for Notice of Inquiry (Feb 24, 2014), ("*VCXC Petition*") <https://www.fcc.gov/ecfs/filing/6017604148>.

under Section 102 of the CVAA¹⁸¹ to oversee the transition to Bluetooth and ensure that users who rely on telecoil connectivity are not left out—and that new Bluetooth-based technologies are fully accessible and available for any type of wireless phone model at all price points.

Telecoil functionality has long been one of the best ways to directly connect to a phone for people using hearing devices—whether hearing aids, cochlear implants, or Personal Sound Amplification Products (PSAPs). Hearing devices can be programmed to completely shut off the microphone input to the hearing device so that the listener can only hear the person speaking on the phone, and not the ambient acoustic noise in the environment. Many people, including members of the Accessibility Advocacy Organizations, are highly dependent on the telecoil for several reasons:

- Telecoils are interoperable with any telecoil-enabled technology used anywhere in the world. There is no proprietary telecoil and the same standard is used world-wide.
- Telecoil functionality is inexpensive.
- Telecoil does not place high power demands.
- For some people, the quality of sound through a telecoil is superior to other technologies.
- Telecoil functionality is easy to use and does not require complex pairing procedures.

Conversely, the Organizations and their members are observing a proliferation of Bluetooth connectivity only in expensive hearing aids and newer models of wireless phones. We are also hearing of significant usability problems with Bluetooth connectivity for users with multiple devices. For example:

¹⁸¹ 47 U.S.C. § 610(a)–(b).

- Some of our members have found trouble using Bluetooth hearing aids with multimodal advance communications services. They can successfully stream from computer to hearing aids until joining a meeting, when the audio will inexplicably cut out for several minutes.
- Bluetooth connections can be “stolen,” such that a user’s hearing device is at the mercy of a variety of other devices to which it is paired. Many hearing devices are not capable of fully managing the tasks of starting, synchronizing and ending communication when other devices are in use. For example, someone may have configured their hearing aids to pair with both a computer and their TV. But if someone else turns on a television while the user is connected to the computer, the TV will “steal” the Bluetooth connection and substitute what the user wishes to hear on the computer for the TV’s audio. Restoring the Bluetooth connection to the computer is extremely difficult after that happens.
- Some Bluetooth users find it challenging to stop their phones from defaulting to their hearing aids for calls if they would like to turn it on selectively, while others face significant challenges with pairing and switching between devices.

The Commission should take action to ensure that the next generation of Bluetooth devices that promise connectivity with a wide variety of devices will be seamless, reliable, and user-friendly for non-technologically savvy hearing aid users. In particular, connections must be secure and stable, and user interfaces must allow users to both easily enable and disable their hearing aids, and seamlessly switch between devices.

In addition, we are particularly concerned about proprietary solutions that may make it easier to switch between devices from a single manufacturer but that do not allow users to easily switch ecosystems. Though we expect that the cost of providing Bluetooth functionality in hearing devices will diminish with the introduction of the next generation of Bluetooth Low Energy (LE Audio), the Commission should affirmatively address these issues as well, including by ensuring that telecoil users can transition to all

models of wireless handsets, including affordable new phones, without sacrificing the reliability and ease of use to which they are accustomed.

B. The Commission should implement the DAC’s recommendation on standards for amplification measurement procedures and performance criteria for high-gain amplified telephone handset acoustics in telephone devices.

While the use of smartphones and hearing aids is the way of the future for some people with hearing loss, many people with and without hearing aids rely on high-gain amplified telephones beyond the specifications for landline and wireless phones in the HAC rules. In 2016, the DAC recommended a wide array of actions for high-gain amplified telephones.¹⁸² In particular, the DAC recommended the adoption of the TIA-4953 standard, which sets forth standards for amplification measurement procedures and performance criteria for amplified telephone handset acoustics in telephone devices and facilitates consistent labeling and information for the user about the performance of amplified telephones.¹⁸³ However, this standard was not adopted by the Commission and appears not to be receiving significant uptake from manufacturers or state equipment distribution programs. The Commission should act on the DAC’s recommendation to ensure that users of high-gain amplified telephones can better understand and compare the performance of different models and find telephones that will work for them.

C. The Commission should launch an inquiry into wideband and ultra-wideband audio.

The DAC indicated in their 2016 Recommendation on HD Voice audio (“High-Definition voice” or “wideband audio”) that standard definition voice quality associated

¹⁸² Recommendation of the DAC on Amplified Phones at 2 (Sept. 22, 2016), <https://docs.fcc.gov/public/attachments/DOC-341495A1.pdf>.

¹⁸³ See *id* at 1-2. See generally AST Technology Labs, *Amplified Telephones (ANSI-TIA-4953) (high gain)*, <http://www.asttechlabs.com/services/amplified-telephones-ansitia4953-high-gain-11.cfm> (last visited May 24, 2021).

with the public switched telephone network (PSTN) was becoming competitively obsolete.¹⁸⁴ Traditional analog telephone systems, as well as digital and IP systems that use narrow-band encoding, do not transmit sounds that are higher than approximately 3,400 Hz, which is problematic since some of the acoustic cues that are important for speech intelligibility exist at frequencies above that level. The DAC recommendation indicated that users who are deaf or hard of hearing generally have reduced access to or a reduced ability to extract the defining properties that distinguish speech sounds from each other.

The DAC noted that adoption of wideband audio would enhance the quality of voice communications for all users, but particularly those who are deaf or hard of hearing. The DAC recommended that the Commission consider the benefits and opportunities that HD Voice technologies can provide deaf and hard of hearing users as compared to standard definition voice services. We urge the Commission to take up this long overdue effort and launch an inquiry into wideband and ultra-wideband audio. In doing so, the Commission should also ensure different forms of audio are interoperable.¹⁸⁵

IV. The Commission should launch dedicated inquiries into the accessibility of communications, video programming, and hearing devices for people who have multiple disabilities, for older Americans, and those who live on rural and tribal lands and U.S. territories.

We acknowledge that the priorities above, while expansive, do not begin to cover the multitude of accessibility barriers facing people who are DeafBlind, who are deaf or hard of hearing and have multiple disabilities, including people who are deaf or hard of hearing and also have cognitive, intellectual, or motor disabilities, or older Americans.

For example:

¹⁸⁴ DAC Recommendation on HD Voice (June 16, 2016), <https://docs.fcc.gov/public/attachments/DOC-339903A1.pdf>.

¹⁸⁵ For example, although multiple wireless carriers offer wideband audio options, cross-carrier calls still may default to narrowband audio, as do any forms of TRS calls. See generally *VCXC Petition*, *supra* note 180.

- DeafBlind people and people who are deaf or hard of hearing and have motor disabilities such as cerebral palsy face significant barriers accessing relay services that have been exacerbated during the pandemic, including a need for in-person communications facilitators;¹⁸⁶
- The low-income limitation of the National Deaf-Blind Equipment Distribution Program has created significant constraints for DeafBlind people navigating countervailing employment and device needs;¹⁸⁷
- The compatibility of closed captioning with refreshable Braille displays and other equipment routinely used by DeafBlind people remains a perennial issue;
- People who are deaf or hard of hearing and have motor disabilities need both deaf interpreters and communications assistants to effectively communicate via relay;

¹⁸⁶ See Petition for Emergency Waiver of TDI, AADB, et al., CG Docket Nos. 03-123, 10-51, 10-210 (Apr. 2, 2020), <https://www.fcc.gov/ecfs/filing/1040206364837>; Reply Comments of TDI, AADB, et al., CG Docket Nos. 03-123, 10-51, 10-210 (May 11, 2020), <https://www.fcc.gov/ecfs/filing/10512267004158>; Ex Parte of TDI, et al., CG Docket Nos. 03-123, 10-51, 10-210 (June 15, 2020), <https://www.fcc.gov/ecfs/filing/10615286809570>. States have likewise begun to recognize this need. See Ore. Rev. Stat. § 759.694 (“It is recognized that a large number of people in [Oregon], through no fault of their own, are unable to utilize telecommunication equipment due to the inability to hear or speak well enough or due to other disabilities. It is also recognized that present technology and services are available, but at significant cost, that would allow these people to utilize telecommunication equipment in their daily activities. There is, therefore, a need to make available the technology and services in the form of assistive telecommunication devices, a telecommunications relay service and communication facilitators for people who are deaf, deaf-blind, hard of hearing or speech impaired or adaptive equipment for people with disabilities at no additional cost beyond normal telephone service.”).

¹⁸⁷ See 47 U.S.C. § 620(a); 47 C.F.R. § 64.6209(b). See generally Section 105, *Relay Services for Deaf-Blind Individuals*, Report and Order, CG Docket No. 10-210, 26 FCC Rcd. 5640, 5654–57, ¶¶ 33–37 (Apr. 6, 2011), <https://www.fcc.gov/document/national-deaf-blind-equipment-distribution-program>.

- People who are deaf or hard of hearing and have motor disabilities often need full-featured smartphones with larger screens than are typically available on the market.¹⁸⁸
- People with multiple disabilities frequently need training and supportive services that go beyond the accessibility or provision of devices and services themselves.
- Many “life-alert” buttons used to contact emergency services—for example, when their user falls and cannot get up—rely solely on voice communications and are not accessible to older people who are deaf or hard of hearing.

Likewise, many of the accessibility issues surrounding Internet-based technologies raised throughout these comments are exacerbated for people who are deaf or hard of hearing and live in rural areas, tribal lands, or U.S. territories that lack access to reliable broadband.

The Commission should launch dedicated inquiries to better understand and craft solutions to address the needs of these underserved and remote communities. As part of these inquiries, the Commission should coordinate with other federal and state agencies that serve these communities, including the Department of Health and Human Services, the Department of Labor, the Department of the Interior, and the Department of Education.

V. The Commission should take a holistic approach to this proceeding and emphasize supervised multistakeholderism, centering the civil rights of people with disabilities, vigorous enforcement, and reporting to Congress.

Finally, while the *Accessibility Revitalization PN* correctly focuses on a variety of issues needing “updates . . . to the [Commission’s] rules,”¹⁸⁹ we urge the Commission to take a holistic approach to this proceeding. In particular, we urge the Commission to follow its tradition of supervised multistakeholderism, to center the civil rights of people

¹⁸⁸ See *2020 Biennial Report*, 35 FCC Rcd. at 11,232, ¶ 11 & n.35.

¹⁸⁹ See *Accessibility Revitalization PN* at 1.

with disabilities, to engage in vigorous enforcement, and to report out to Congress any shortcomings in its authority.

A. The Commission should follow its tradition of supervised multistakeholderism in developing accessibility rules.

First, we urge the Commission to continue its critical role as a convener of people with disabilities, industry, and other stakeholders. For example, in compliance with the mandates of the CVAA, the Commission established and oversaw the development and operations of two advisory committees—the EAAC¹⁹⁰ and the Video Programming and Accessibility Advisory Committee.¹⁹¹ The EAAC’s and VPAAC’s reports proved influential on the Commission’s adoption of rules,¹⁹² and its convenings brought players from across the burgeoning Internet-based communications and video programming ecosystem together with digital accessibility advocates and researchers, forging relationships and paths of communication between people with disabilities and industry groups that continued throughout the remainder of the Commission’s implementation of the CVAA.

¹⁹⁰ CVAA § 106(a).

¹⁹¹ See CVAA § 201(a). While the statute calls for the creation of the Video Programming and Emergency Access Advisory Committee (VPEAAC), Chairman Julius Genachowski renamed the committee to the VPAAC. See *Video Programming and Emergency Access Advisory Committee*, Public Notice (Dec. 7, 2010), <https://docs.fcc.gov/public/attachments/DA-10-2320A1.pdf> (referring alternately to the VPAAC and VPEAAC); Erratum (Jan. 7, 2011) (changing a reference to “VPEAAC” to “VPAAC”). The change was apparently “to avoid confusion” between the names of the EAAC and the VPAAC. *First Report of the Video Programming Accessibility Advisory Committee* at 3, n.3 (July 13, 2011) (“VPAAC IP Captioning Report”), [https://transition.fcc.gov/cgb/dro/VPAAC/First VPAAC Report to the FCC 7-11-11 FINAL.pdf](https://transition.fcc.gov/cgb/dro/VPAAC/First_VPAAC_Report_to_the_FCC_7-11-11_FINAL.pdf).

¹⁹² See, e.g., *2012 IP Captioning Order*, 27 FCC Rcd. at 811–13, ¶¶ 36–37 (adopting, among other things, the VPAAC’s recommendation “that the consumer experience with captions of IP-delivered video programming . . . be ‘equal, if not better than,’ the television experience”).

The CVAA’s approach to multistakeholderism with significant Commission oversight and outcome mandates is a novel feature of administrative law that continued with the establishment and re-chartering of the Disability Advisory Committee (DAC).¹⁹³ The DAC yielded thirty-four distinct recommendations during its first three terms, spanning the breadth of the Commission’s accessibility portfolio.¹⁹⁴

The DAC has now been re-chartered for a fourth term,¹⁹⁵ and can serve as a useful forum to tackle some of the issues raised in this rulemaking. Continuing robust efforts to convene stakeholders will enable the Commission to continue building the connective tissue between industry stakeholders and people with disabilities. This will facilitate the collective development of regulations in a way that takes into account both the rights of people with disabilities and the complex details of novel technologies. The DAC can play a key role in ensuring that innovation in video programming, communications, and other technologies develops with accessibility as a first priority.

B. The Commission should continue to center the civil rights of people with disabilities.

Developing rules of the road for technology accessibility must continue to be coupled with an understanding that accessibility is not merely a dimension of consumer welfare, but a civil right codified in federal law. Deprivation of civil rights constitutes unacceptable structural discrimination that is no less pernicious than overt animus against people with disabilities.¹⁹⁶

¹⁹³ See *FCC Announces the Establishment of the Disability Advisory Committee*, Public Notice (Dec. 2, 2014), <https://docs.fcc.gov/public/attachments/DA-14-1737A1.pdf>.

¹⁹⁴ See *Disability Advisory Committee*, <https://www.fcc.gov/disability-advisory-committee> (last visited May 10, 2021).

¹⁹⁵ *Appointment of Membership for Fourth Term of Disability Advisory Committee and Announcement of First Meeting Date*, Public Notice (Jan. 13, 2021).

¹⁹⁶ See generally Samuel R. Bagenstos, “Rational Discrimination,” Accommodation, and the Politics of (Disability) Civil Rights, 89 Va. L. Rev. 825, 837-39 (2003)

The goal of the CVAA and its statutory siblings is not merely to ensure that video programming is provided with closed captions¹⁹⁷ or that a video conference can be configured for equal participation by a worker whose native language is American Sign Language (ASL) or who relies on cued language transliterators.¹⁹⁸ More broadly, the CVAA vests the Commission with the sacred responsibility to “dismantle [the] patterns of group-based social subordination” that result from less than full access to the cultural, democratic, social, and economic dimensions of modern society intermediated by the technological platforms under the Commission’s jurisdiction.¹⁹⁹

The Commission can strengthen its approach by shifting the framing of accessibility problems as consumer protection issues—as expressed by the current placement of the Disability Rights Office in the Consumer and Governmental Affairs Bureau—to civil rights violations. While many accessibility issues under the Commission’s jurisdiction flow from consumer-provider relationships, treating accessibility problems as civil rights violations can help highlight their more significant participatory impacts. The Commission should underscore the gravity and importance of these issues by establishing a dedicated Office or Bureau of Civil Rights and relocating the Disability Rights Office there,²⁰⁰ mirroring the approaches of other agencies that are responsible for oversight and enforcement of disability civil rights.²⁰¹

¹⁹⁷ See discussion *supra*, Part II.

¹⁹⁸ See discussion *supra*, Part I.

¹⁹⁹ Cf. Bagenstos, *supra* note 196 at 839.

²⁰⁰ *Id.* at 2-3.

²⁰¹ See, e.g., Department of Justice, Civil Rights Division, Disability Rights Section, <https://www.justice.gov/crt/disability-rights-section> (last visited May 11, 2021); Department of Education, Office for Civil Rights, *About OCR*, <https://www2.ed.gov/about/offices/list/ocr/aboutocr.html> (last visited May 11, 2021); Department of Health and Human Services, Office for Civil Rights, <https://www.hhs.gov/ocr/index.html> (last visited May 11, 2021).

Likewise, the Commission should be sensitive to the adjacent civil rights of people with disabilities, including privacy and security. Many entities subject to the Commission's rules collect significant, sensitive data about the disability status of their users—including as a prerequisite for accessing relay services that are eligible for the TRS fund. As part of its commitment to the civil rights of people with disabilities, the Commission should ensure throughout its rules that robust accessibility requirements are coupled with strong protections for the privacy and security of personal data of people with disabilities—and commit to doing so in future rulemakings.

C. The Commission should continue to vigorously enforce its rules.

Against that backdrop, it is critical that the Commission continue to engage in aggressive enforcement to avoid the consequences of this country's historical discrimination against people with disabilities when the Commission's rules are violated and inaccessible products and services result.²⁰² We encourage the Commission to take several specific steps to emphasize enforcement as it reviews and revitalizes its rules:

- **Task the Enforcement Bureau with vigorous, public, and sua sponte enforcement of the accessibility rules.** The Commission has engaged in relatively little public enforcement against violations of its accessibility rules. The Commission's many efforts to resolve violations of its rules through facilitated communications between users with disabilities and regulated entities as well as through non-public enforcement action has resulted in remediation of many problems. However, we urge the Commission to take actions that convey more broadly to people with disabilities and regulated entities that there are serious consequences for breaking the Commission's rules. Vigorous enforcement can lead to improved implementation of the Commission's rules, enhanced consumer trust in the

²⁰² See, e.g., 47 U.S.C. § 613(j) (vesting the Commission with the exclusive jurisdiction to resolve closed captioning complaints).

enforcement process, and further insights into the degree of problems that occur. To achieve this, the Commission should follow the lead of other agencies by establishing a regime for actively monitoring accessibility problems in the technologies under its jurisdiction,²⁰³ which are even occasionally reported in the technology and mainstream press. The Commission should request additional funding from Congress to staff such a regime, if necessary—and pursue vigorous action against violations of the rules that hold violators to public account.

- **Eliminate difficult enforcement regimes from the accessibility rules.** The Commission must also ensure that its rules do not stand in the way of strong enforcement. By way of example, the Commission’s closed captioning rules include a complex “enforcement ladder” that effectively precludes enforcement action until:²⁰⁴
 1. Enough viewers complain for the Commission to identify a “pattern or trend of possible noncompliance;”
 2. The Commission notifies the responsible entity of the pattern or trend;
 3. The responsible entity responds with any corrective measures it has taken;
 4. The Commission identifies further evidence of a “pattern or trend of noncompliance;”
 5. The Commission notifies the responsible entity for a second time;
 6. The responsible entity submits a written “action plan” for coming into compliance; and

²⁰³ See *Ex Parte of TDI, et al.*, CG Docket No. 05-231, et al. at 2-3 (Mar. 9, 2021) (“*2021 Accessibility Priorities Ex Parte*”), <https://www.fcc.gov/ecfs/filing/10310704909642>.

²⁰⁴ The Commission reserves the right to bypass the enforcement ladder in the case of “systemic closed captioning quality problem[s]” or “intentional and deliberate violation[s] of the Commission’s rules for the quality of closed captioning.” 47 C.F.R. § 79.1(g)(9)(iv). We are not aware of any publicly released instance in which the Commission has done so.

7. The Commission identifies further evidence of a “pattern or trend of noncompliance.”²⁰⁵

While we do not mean to single this particular enforcement mechanism out, this type of overtly complex compliance regime risks giving regulated entities latitude to ignore the problems of individual users with disabilities and to neglect more widespread problems until the Commission comes calling. The Commission should scour its accessibility rules for enforcement regimes that may hold barriers to enforcement and revise them to ensure that enforcement can be easily accomplished.

- **Simplify the complaint process.** Despite earnest efforts to improve it, the Commission’s intake process for handling consumer complaints remains complex and difficult to navigate.²⁰⁶ The Commission should engage technical and design expertise, whether from within or outside the agency, to overhaul its web-based complaint forms, develop a companion smartphone application, and make available public-facing application programming interfaces (APIs) that reduce the burden and friction for filing complaints and facilitate novel approaches for people with disabilities to highlight problems to the Commission.

D. The Commission should conduct a comprehensive review of its authority and rules under all relevant provisions of the Communications Act of 1934 and report shortcomings to Congress.

The *Accessibility Revitalization PN* focuses and seeks comment primarily on issues stemming from the Commission’s implementation of the CVAA.²⁰⁷ However, as the *PN* acknowledges, the CVAA is not a standalone statute, but one of many pieces of accessibility legislation enacted over the past four decades amending the Communications Act of 1934.²⁰⁸ The Commission should consider its statutory mandate

²⁰⁵ 47 C.F.R. § 79.1(g)(9)(i)–(iii).

²⁰⁶ *2021 Accessibility Priorities Ex Parte* at 4.

²⁰⁷ *Accessibility Revitalization PN* at 2.

²⁰⁸ *See id.* at 2 & n.6 (citing the Television Decoder Circuitry Act of 1990).

more broadly than the CVAA in revitalizing its accessibility rules, including the telecommunications accessibility provisions in Title II of the '34 Act, the technical accessibility requirements for devices in Title III, and other provisions in Title VII. As technology evolves and converges, the Commission should also consider how its statutory authority intersects and overlaps with the application of traditional disability laws to digital technologies, such as the application of the Americans with Disabilities Act to the web and applications.²⁰⁹ A compendium of relevant statutory provisions is attached as Appendix D.

Beyond what we have covered here, the Commission should *sua sponte* review its full suite of existing accessibility regulations; a list is attached as Appendix E. The Commission should also continue to consider accessibility issues that arise in other contexts using other sources of its authority that are not specific to accessibility, as it has done with respect to the provision of accessible communications services to incarcerated people with disabilities²¹⁰ and its oversight of Internet service providers.²¹¹

Finally, should the Commission find its authority insufficient to achieve critical accessibility goals that are consistent with the spirit of the CVAA and the other accessibility provisions '34 Act, it should issue a report to Congress outlining necessary statutory changes that it deems necessary to ensure that the Commission's implementing rules can keep pace with evolving technology.

²⁰⁹ See generally Blake Reid, *Internet Architecture and Disability*, 95 Ind. L.J. 591 (2020), <https://www.repository.law.indiana.edu/ilj/vol95/iss2/6/>

²¹⁰ See discussion *supra*, part I.F.

²¹¹ See discussion *supra*, part I.G.

* * *

We thank the Commission for its ongoing leadership on these issues and for taking the critical step of commencing this proceeding. We stand ready to collaborate with the Commission and our colleagues in industry and other stakeholders to ensure that the promise of the CVAA—equitable access to the full range of digital communications and video technologies that dominate twenty-first century American life—is reached.

Appendix A—Related Dockets

Consumer and Governmental Affairs Bureau

CG Docket No. 03-123, *Telecommunication Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*

CG Docket No. 05-231, *Closed Captioning of Video Programming; Telecommunications for the Deaf, Inc. Petition for Rulemaking*

CG Docket No. 10-51, *Structure and Practices of the Video Relay Service Program*

CG Docket No. 10-210, *Implementation of Relay Services for Deaf-Blind Individuals*

CG Docket No. 10-213, *Implementation of Sections 716 and 717*

CG Docket No. 13-24, *Misuse of Internet Protocol (P) Captioned Telephone Service*

CG Docket No. 16-145, *Transition from TTY to Real-Time Text Technology*

CG Docket No. RM-11848, *TDI et al. Petition for Declaratory Ruling and/or Rulemaking on Live Closed Captioning Quality Metrics and the Use of Automatic Speech Recognition Technologies*

Office of Engineering and Technology

ET Docket No. RM-8785, *NAD et al. Petition for Rulemaking on Closed Captioning Requirements for Computer Systems Used as Television Receivers*

Office of Economics and Analytics

OEA Docket No. 20-60, *OEA Seeks Comment on the State of Competition in the Communications Marketplace*

General / Multiple Bureaus

GN Docket No. 14-28, *Protecting and Promoting the Open Internet*

GN Docket No. 15-178, *Petition For Rulemaking To Update The Commission's Rules For Access To Support The Transition From TTY To Real-Time Text Technology, And Petition For Waiver Of Rules Requiring Support Of TTY Technology*

GN Docket No. 16-142, *Authorizing Permissive Use of the "Next Generation TV" Broadcast Television Standard*

Media Bureau

MB Docket No. 11-43, *Video Description*

MB Docket No. 11-154, *Closed Captioning of Internet Protocol-Delivered Video Programming*

MB Docket No. 18-202, *Children's Television Programming Rules*

MB Docket No. 12-107, *Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description*

MB Docket No. 12-108, *Accessibility of User Interfaces, and Video Programming Guides and Menus*

MB Docket No. 17-105, *Modernization of Media Regulation Initiative*

MB Docket No. RM-11065, *Closed Captioning and Video Description of Video Programming*

Mass Media Bureau

MM Docket No. 95-176, *Closed Captioning and Video Description of Video Programming*

Public Safety and Homeland Security

PS Docket No. 10-255, *Framework for Next Generation 911 Deployment*

PS Docket No. 11-153, *Facilitating the Deployment of Text-to-911 and other NG911 Applications*

PS Docket No. 15-91, *Wireless Emergency Alerts*

PS Docket No. 15-94, *Amendment of Part 11 of the Commission's Rules Regarding the Emergency Alert System*

Wireline Competition Bureau

WC Docket No. 11-42, *Lifeline and Link Up Reform and Modernization*

WC Docket No. 12-375, *Rates for Interstate Inmate Calling Services*

WC Docket No. 17-108, *Restoring Internet Freedom*

Wireless Telecommunications Bureau

WT Docket No. 96-198, *Implementation of Sections 255 and 251(a)(2): Access to Telecommunications Services, Telecommunications Equipment and Customer Premises Equipment By Persons With Disabilities*

WT Docket No. 20-3, *Amendment of the Commission's Rules Governing Standards for Hearing Aid-Compatible Handsets*

Appendix B—Video Programming Entities and Key Captioning Responsibilities

	Included Entities	Caption Provision	Caption Quality	Pass-Through/ Rendering (IP) ²¹²
TV Video Programmers (TV VPs)	Television program originators ²¹³	Jointly responsible (TV rules) ²¹⁴	Responsible (TV rules) ²¹⁵	N/A
TV Video Programming Distributors (TV VPDs)	Broadcasters & MVPDs ²¹⁶		N/A	Responsible (TV rules) ²¹⁷
IP Video Programming Owners (IP VPOs)	IP program licensors ²¹⁸	Responsible (IP rules) ²¹⁹		N/A
IP Video Programming Distributors/ Providers (IP VPDs/ VPPs)	IP-based video platforms ²²⁰	N/A	N/A	Responsible (IP rules) ²²¹
TV Video Programming Owner (TV VPOs)	Video licensors ²²²	N/A ²²³		
TV Video Programming Provider (TV VPPs)	TV VPDs + TV VPs ²²⁴			
TV Video Programming Producer (TV VPPRs)	Undefined			

²¹² The TV rules simply refer to the “pass through” of captions, *see* 47 C.F.R. § 79.1(c)(1), while the IP rules also refer to “rendering” of captions, contemplating the possibility that an IP VPDs will also have control over the application or device in or on which the viewer ultimately views the captions, *see* 47 C.F.R. § 79.4(c)(2)(i).

²¹⁵ *See* 47 C.F.R. § 79.1(j)(3) (requiring compliance with the quality standards under 47 C.F.R. § 79.1(j)(2)), (k)(1) (alternative Best Practices), (m) (certification requirements).

²¹⁴ The television rules are divided into obligations for TV VPDs to “ensure” that the programming they distribute “is closed captioned,” *see* 47 C.F.R. § 79.1 (b)(1)(i) (new (post-rule) programming), (2)(i) (pre-rule programming), and for TV VPs to “provide closed captioning,” 47 C.F.R. § 79.1 (b)(1)(ii) (new (post-rule) programming), (2)(ii) (pre-rule programming).

²¹⁵ *See* 47 C.F.R. § 79.1(j)(3) (requiring compliance with the quality standards under 47 C.F.R. § 79.1(j)(2)), (k)(1) (alternative Best Practices), (m) (certification requirements).

²¹⁶ VPDs are defined in the television captioning rules as “[a]ny television broadcast station licensed by the Commission and any multichannel video programming distributor as defined in [Rule] § 76.1000(e) . . . , and any other distributor of video programming for residential reception that delivers such programming directly to the home and is subject to the jurisdiction of the Commission.” 47 C.F.R. § 79.1(a)(11).

²¹⁷ 47 C.F.R. § 79.1(c)(1) (pass through obligations); *see also* 47 C.F.R. § 79.1(c)(2) (obligations to monitor and maintain equipment), (3) (recordkeeping obligations for monitoring and maintenance).

²¹⁸ IP VPOs are formally defined as “[a]ny person or entity that either: (i) [l]icenses the video programming to a video programming distributor or provider that makes the video programming available directly to the end user through a distribution method that uses Internet protocol; or (ii) [a]cts as the video programming distributor or provider, and also possesses the right to license the video programming to a video programming distributor or provider that makes the video programming available directly to the end user through a distribution method that uses Internet protocol.” 47 C.F.R. § 79.4(a)(4).

²¹⁹ *See* 47 C.F.R. § 79.4(c)(1)(i).

²²⁰ IP VPDs and VPPs are jointly, formally defined in the IP captioning rules as “[a]ny person or entity that makes available directly to the end user video programming through a distribution method that uses Internet protocol.” 47 C.F.R. § 79.4(a)(3).

²²¹ *See* 47 C.F.R. § 79.4(c)(2)(i).

²²² VPOs are formally defined as “[a]ny person or entity that either: (i) [l]icenses video programming to a video programming distributor or provider that is intended for distribution to residential households; or (ii) [a]cts as the video programming distributor or provider and also possesses the right to license linear video programming to a video programming distributor or provider that is intended for distribution to residential households.”

²²³ These terms are included in the TV rules for the purpose of allowing certain entities to apply for individual exemptions from the captioning rules. *See* 47 C.F.R. § 79.1(f)(1). TV VPPs are also used as a shorthand umbrella category to refer to the joint responsibility between TV VPs and VPDs for caption provision for the purpose of certain categorical exemptions, *see* 47 C.F.R. § 79.1(d)(2), (11), (12), and compliance determinations, *see* 47 C.F.R. § 79.1(e)(6), (7).

²²⁴ *See* 47 C.F.R. § 79.1(a)(13).

Appendix C—Technical Standards Across the Captioning Rules

	Standard
TV VPs and VPDs (caption creation)	Unspecified
TV VPDs (pass through)	Unspecified, but must be in a format that can be recovered and displayed by covered decoders ²²⁵
IP VPOs (caption creation)	Safe harbor for SMPTE ST 2052-1:2010; alternative formats allowed ²²⁶
IP VPDs and VPPs (pass through and rendering)	
Analog TV Receivers	Bespoke Commission standard for Line 21 captions; incorporates NCI <i>Television Captioning for the Deaf: Signal and Display Specifications</i> ²²⁷
Digital TV Receivers and Converter Boxes	EIA-708-B: “Digital Television (DTV) Closed Captioning” ²²⁸
Digital Apparatus	Bespoke Commission standard with safe harbor for SMPTE ST 2052-1:2010 ²²⁹
Recording Devices	

²²⁵ See 47 C.F.R. § 79.1(c)(1).

²²⁶ See 47 C.F.R. § 79.4(c)(1)(i).

²²⁷ See 47 C.F.R. § 79.101.

²²⁸ See 47 C.F.R. § 79.102(b)

²²⁹ See 47 C.F.R. § 79.103(c) & (c)(11); 79.104(b).

Appendix D—Statutory Compendium

- **The Telecommunications for the Disabled Act of 1982 and Hearing Aid Compatibility Act of 1988**, which added Section 710 to Title VII, requiring hearing aid compatibility (HAC) for telephone systems.²³⁰
- **Title IV of the Americans with Disabilities Act of 1990**,²³¹ which added:
 - Section 225 to Title II, establishing the telecommunications relay system;²³² and
 - Section 711 to Title VII, requiring closed captioning for federally funded public service announcements.²³³
- **The Television Decoder Circuitry Act of 1990**, which added new Section 330 and new provisions to Section 303 to Title III, requiring closed caption decoder circuitry for televisions greater than 13 inches in size.²³⁴
- **The Telecommunications Act of 1996**,²³⁵ which added:
 - Section 255 to Title II, addressing the accessibility of telecommunications services and equipment;²³⁶ and

²³⁰ P.L. 97-410 (Jan. 3, 1983); P.L. 100-394 (Aug. 16, 1988). The 1982 Act originally located these provisions in Section 610, which was subsequently renumbered to Section 710 by the 1984 Cable Act. P.L. 98-549 § 6(a). *See generally* Strauss, *supra* note 5, chs. 12–13 (describing the history of HAC legislation).

²³¹ P.L. 103-336 (July 26, 1990).

²³² *Id.* § 401 (codified at Section 225, Title II of the '34 Act) (July 26, 1990). *See generally* Strauss, *supra* note 5, chs. 4–7 (describing the history of relay-related legislation).

²³³ *Id.* § 402.

²³⁴ P.L. 101-431 (codified at Section 303(u) and 330 of the '34 Act). *See generally* Strauss, *supra* note 5, chs. 9–10 (describing various voluntary efforts surrounding captioning in the 1970s and 1980s and the development of the TDCA); Blake E. Reid, *Copyright and Disability*, ___ CALIF. L. REV. ___, draft at 33-42 (forthcoming 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3381201 (describing additional aspects of the historical development of captioning).

²³⁵ P.L. 104-104 (Oct. 15, 1990).

²³⁶ *Id.* § 101.

- Section 713 to Title VII, addressing the **accessibility of video programming**, including closed captioning requirements and an inquiry into audio (video) description.²³⁷
- **Title I of the CVAA**, which focuses on communications accessibility, includes:
 - Section 102, which updated the hearing aid compatibility requirements in Section 710;
 - Section 103, which updated and broadened the scope of relay services offered under Section 225 added Section 715 to Title VII, requiring Voice over IP (VoIP) providers to participate in and contribute to the Telecommunications Relay Services (TRS) Fund;
 - Section 104, which created new accessibility provisions for advanced communications services (ACS), adding new Section 716 to Title VII to require the accessibility of Voice over IP (VoIP), electronic messaging, and interoperable video conferencing, new Section 717 to create recordkeeping requirements and enforcement procedures for telecommunications and ACS services and equipment, and new Section 718 to address the accessibility of Internet browsers on wireless phones; and
 - Section 105 added new Section 719 to Title VII, authorizing the creation of the National Deaf-Blind Equipment Distribution Program.
- **Title II of the CVAA**, which focuses on video programming accessibility, includes:

²³⁷ *Id.* § 305. Though the CVAA refers to “video description,” the FCC ultimately updated its regulations to substitute the term “audio description” to better track consumer, industry, and governmental consensus. *Video Description: Implementation of the Twenty-First Century Communications & Video Accessibility Act of 2010*, Report and Order, Docket No. 11-43, 35 FCC Rcd. 12,577, 12,584-86, ¶¶ 14-15 (Oct. 27, 2020), <https://www.fcc.gov/document/fcc-expands-audio-description-video-content-more-tv-markets-0>.

- Section 202(a), which amended Section 713 to require the provision of **audio (video) description for certain television video programming**;
- Section 202(b), which amended Section 713 to add new requirements for the **closed captioning of television video programming delivered via Internet protocol**;
- Section 203 of the CVAA amended Section 303 and Section 330 of Title III to expand the requirements for closed captioning and video (audio) description for a wider array of video programming playback and recording devices;
- Sections 204 and 205 of the CVAA amended Section 303 of Title III to address **accessibility for the user interfaces of video playback devices and cable/satellite set-top boxes**.
- **Title I of the Americans with Disabilities Act**, which governs the accessibility of technology in many employment situations.²³⁸
- **Title II of the Americans with Disabilities Act**, which governs state and local government services, including those delivered via telephone and Internet.²³⁹
- **Title III of the Americans with Disabilities Act and related state laws**, which govern the accessibility of websites and mobile device applications.²⁴⁰
- **Section 504 of the Rehabilitation Act**, which applies to federal government and federally funded activities involving telecommunications and the Internet.²⁴¹
- **Section 508 of the Rehabilitation Act**, which applies to federal government procurement of information and communications technology.²⁴²

²³⁸ See 42 U.S.C. §§ 12111 et seq.

²³⁹ See 42 U.S.C. §§ 12131 et seq.

²⁴⁰ See 42 U.S.C. §§ 12181 et seq.

²⁴¹ See 29 U.S.C. § 794.

²⁴² See 29 U.S.C. § 794d.

Appendix E—FCC Accessibility Regulations

- **The accessibility of video programming** (Part 79(A)),²⁴³ including:²⁴⁴
 - Closed captioning of television programming (Rule 79.1);²⁴⁵
 - Closed captioning of television programming delivered via Internet Protocol (Rule 79.4);²⁴⁶
 - Video (audio) description of television programming (Rule 79.3);²⁴⁷
 - Accessibility of emergency television programming (Rule 79.2);
- **The accessibility of video programming devices** (“apparatuses”) (Part 79(B)), including:
 - Closed caption decoder requirements (Rules 79.101–79.104);²⁴⁸
 - Video (audio) description and emergency information device requirements (Rules 79.105–79.106);²⁴⁹
 - User interface accessibility (Rules 79.107–79.109);²⁵⁰
- The accessibility of **communications services and equipment**, including:
 - Accessibility of traditional telecommunications services and equipment (Part 6)²⁵¹ and voicemail and interactive menu services (Part 7);²⁵²

²⁴³ 47 C.F.R. pt. 79(A).

²⁴⁴ In 2013, the Commission reorganized its video accessibility rules into separate subparts for video programming itself—Part 79(A)—and video programming devices—Part 79(B). *2013 User Interfaces Order*, 28 FCC Rcd. at 17,413, ¶ 137.

²⁴⁵ 47 C.F.R. § 79.1(a).

²⁴⁶ 47 C.F.R. § 79.4.

²⁴⁷ 47 C.F.R. § 79.3.

²⁴⁸ 47 C.F.R. §§ 79.100–79.104.

²⁴⁹ 47 C.F.R. §§ 79.105–79.106.

²⁵⁰ 47 C.F.R. §§ 79.107–79.109.

²⁵¹ 47 C.F.R. pt. 6.

²⁵² 47 C.F.R. pt. 7.

- The accessibility of calls to 911 (Part 9);²⁵³
- The accessibility of advanced communications services (ACS) (Part 14);²⁵⁴
- The transition from TTY to real-time text (RTT) (Part 67);²⁵⁵
- The **relay system**, including:
 - Telecommunications relay services and the TRS Fund (Part 64(F));²⁵⁶ and
 - The National Deaf-Blind Equipment Distribution Program (Part 64(GG));²⁵⁷
- **Hearing aid compatibility**, including:
 - For mobile phones (Rule 20.19);²⁵⁸
 - For wireline telephone service (Part 68);²⁵⁹

²⁵³ 47 C.F.R. §§ 9.10(c) (addressing the accessibility of 911 calls via commercial mobile radio services using TTY and RTT), 9.13–9.14 (addressing 911 call handling requirements for relay providers).

²⁵⁴ 47 C.F.R. pt. 14

²⁵⁵ 47 C.F.R. pt. 67.

²⁵⁶ 47 C.F.R. pt. 64(F).

²⁵⁷ 47 C.F.R. pt. 64(GG).

²⁵⁸ 47 C.F.R. § 20.19.