

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Closed Captioning of Video Programming)	CG Docket No. 05-231
)	
Telecommunications for the Deaf and Hard of Hearing, Inc.)	PRM11CG
Petition for Rulemaking)	

REPLY COMMENTS OF COMCAST CORPORATION

Comcast Corporation and NBCUniversal (collectively, “Comcast”) hereby file reply comments in response to Phase Two of the Further Notice of Proposed Rulemaking (“FNPRM”) in the above-captioned proceeding on closed captioning.¹

I. INTRODUCTION AND SUMMARY

The producers and distributors of video programming have been, and continue to be, committed to working with the Commission and the disabilities community in a collaborative and constructive manner on caption quality and other accessibility issues. Comcast appreciates that, in implementing accessibility-related rules, the Commission has provided industry with flexibility to build next-generation solutions by not limiting technological choices. This policy is playing a critical role in giving Comcast and other video programming distributors (“VPDs”) and programmers the space to develop innovative solutions for viewers with disabilities. Many of

¹ *Closed Captioning of Video Programming; Telecommunications for the Deaf and Hard of Hearing, Inc., Petition for Rulemaking, Report & Order, Declaratory Ruling, & Further Notice of Proposed Rulemaking*, 29 FCC Rcd. 2221 (2014) (“*Caption Quality Order*” or “FNPRM,” respectively). As the comment cycle for responding to the FNPRM was bifurcated, Comcast refers to the current pleading cycle as “Phase Two.”

these solutions are still nascent and will continue to evolve with ongoing improvements in technology and business practices.

Comcast has made accessibility an important aspect of its service and product planning, design, and implementation. Comcast engages people with disabilities to drive a customer-informed accessibility strategy; integrates accessibility into its products and services; delivers feature-rich, accessible services into the marketplace; and maximizes customer care services aimed at ensuring that customer questions and concerns related to Comcast's accessibility features are promptly resolved.

These efforts are already yielding positive results in a wide range of areas. Comcast is deploying new technology in its cable distribution networks that provides automated monitoring of program streams for caption impairments; is taking measures to improve the tracking and resolution of caption-related issues; and has established a Center of Excellence with customer care agents trained specifically to field and help resolve captioning and other accessibility-related issues. More generally, new accessible technologies and solutions are being tested and developed, with input from the disabilities community, at the Comcast Accessibility Lab.² Likewise, with respect to program-related efforts, there are steps that NBCUniversal and other programmers are already taking to improve caption quality, particularly with respect to live and near-live programming. As NCTA and other commenters pointed out, there are many technical

² As Comcast has discussed in other proceedings, it has established an Accessibility Lab to help product development teams incorporate assistive technologies into new products and services. Comcast supplements these product development activities with regular outreach to the disabilities community. These activities are producing a wide range of innovative accessibility solutions. For example, the remote control for the X1 platform – known as the XR2 – includes “soft keys” that a customer with a disability will be able to configure to enable quick access to closed captioning. The X1 user interface also provides a simple way for customers to activate and customize the settings for closed captions. Comcast also is enabling a similar user experience on Xfinity applications used to access Comcast's IP cable and TV Everywhere services on third-party consumer electronic devices, including tablets, smartphones, and desktops. *See, e.g.*, Applications and Public Interest Statement of Comcast Corp. and Time Warner Cable Inc., MB Docket No. 14-57, at 121-122 (Apr. 8, 2014); Comments of Comcast Corp., MB Docket No. 12-108, at 2-6 (July 15, 2013).

challenges to improving caption synchronicity, but industry is constantly investigating new ways to make further improvements in this area, particularly as the technology continues to develop.

These various initiatives are helping to advance the Commission's goals in the caption quality rulemaking. Comcast recognizes that there is more work to be done in this area, and is committed to collaborating with the Commission and stakeholders on additional ways to further improve the caption experience of consumers.

II. COMCAST IS COMMITTED TO IMPROVING THE CLOSED CAPTIONING EXPERIENCE.

Comcast shares the Commission's goals of minimizing closed captioning problems to the greatest extent possible and quickly fixing any caption-related problems that do arise. VPDs and programmers are already problem-solving and devoting significant resources to further the Commission's captioning goals, and solutions in this area are ripe for further collaboration and discussion as technology advances and as industry implements the initial caption quality rules adopted earlier this year.

A. Automated Monitoring

Comcast appreciates the Commission seeking comment on new technologies that can monitor VPD systems for captioning compliance on an automated basis.³ Comcast has been a leader in this area, and believes that automated solutions hold promise for improving caption quality and addressing outages and other caption-related issues promptly and efficiently.

Comcast has started deploying a network monitoring tool that enables it to detect remotely impairments to its programming streams. This "probe" technology, which will eventually be used across Comcast's footprint, monitors programming streams for a variety of issues – from loss of video or audio, to more in-depth problems related to video impairments,

³ See FNPRM ¶ 137.

audio loudness, and closed captioning.⁴ The probes monitor a programming stream after it has already been processed by Comcast network equipment.⁵ When a probe detects an issue on a given channel, an alarm will be triggered for Comcast technicians, who can analyze the probe's data to begin troubleshooting efforts. The primary goal of the probe deployment is to enhance Comcast's quality of service for all of its customers, but the ability of the technology to help identify and resolve closed captioning problems and outages will provide significant benefits to customers who rely on captioning services.

Currently, the probes can detect when a program stream is noncompliant with industry captioning standards or when captions are "broken." In such cases, Comcast engineers will work to identify the source of the captioning problem – i.e., whether the source of the problem is upstream with the programmer or with equipment in Comcast's cable distribution network – and then proceed to rectify the situation. For example, if the investigation points to an equipment failure within its own network, Comcast can work to address the problem.

The probe technology provides an efficient and reliable way for Comcast to monitor program streams for caption impairments, particularly given the large volume of programming delivered across its cable footprint. There is no need for manual equipment checks when using the probe technology. Comcast recognizes that this tool may not be the right solution for every VPD. As NCTA explained in its comments, different VPDs will use different methods to comply with the Commission's monitoring requirements, and the Commission's rules should accommodate these different approaches.⁶ For example, other VPDs may find manual checks or

⁴ The probes cannot currently identify misspellings and other specific caption quality issues.

⁵ Comcast also tests new set-top box models prior to deployment to ensure compliance with closed captioning requirements, and shares testing methods with equipment vendors to use in their own quality control testing.

⁶ NCTA Comments at 10.

a combination of automated and manual checks to be the most efficient and productive solution, and that approach should also satisfy the rules.

The FNPRM also invites comment on whether to establish specific intervals by which equipment checks should take place. The probe technology that Comcast is deploying monitors for caption impairments on an ongoing basis, making periodic equipment checks unnecessary. To the extent that the Commission nonetheless elects to establish specific testing intervals, Comcast believes that any such requirement should reasonably account for the different approaches that VPDs will take with respect to equipment monitoring and should deem monitoring through probes to be a fully compliant alternative to periodic equipment checks.

The FNPRM asks questions related to caption outages, including whether VPDs should be required to notify consumers and the Commission of closed captioning outages of a certain duration.⁷ As pointed out by several commenters in the record, mandatory outage notifications and reporting would impose significant burdens on VPDs and create confusion for consumers.⁸ Rather, efforts in this area should be focused on ensuring that outages do not occur and correcting those that do occur as quickly as possible.⁹

B. Tracking and Resolution of Consumer Complaints

Comcast shares the Commission's goal of ensuring that consumers' captioning concerns are resolved promptly. The FNPRM seeks comment on NCTA's proposed Best Practices in this

⁷ FNPRM ¶¶ 144-145.

⁸ See AT&T Comments at 4-6; NCTA Comments at 12-13; NAB Comments at 14; Verizon Comments at 5-7. For example, a crawl notifying viewers of an outage would be visible to all viewers, not just those who had turned on closed captioning, which could be confusing and could block other graphical material on the screen.

⁹ The probe technology discussed above can assist with such remedial efforts by enabling the operator to identify and address outage issues promptly.

area.¹⁰ Comcast supports these Best Practices and has already taken steps to improve the customer experience – from tracking customer complaints to training dedicated care agents to address accessibility-related concerns. Comcast anticipates that industry will continue to collaborate with stakeholders as VPDs implement their various approaches to comply with the caption quality rules and implement the Best Practices.

Comcast currently tracks closed captioning quality or impairment problems escalated from customer care agents or received from the Commission. This includes information on the root cause and resolution of caption problems, and helps Comcast identify and address any patterns leading to reoccurring captioning problems. New technology will only make this type of tracking and analysis more efficient and more useful.

Beyond tracking initiatives, Comcast is committed to improving its interactions with customers with disabilities in addressing caption-related complaints. In this regard, Comcast has established a dedicated customer support team in the Comcast Accessibility Center of Excellence (“COE”). The COE provides full-time support for closed captioning and other accessibility-related concerns relating to service, equipment, and bills. This enables Comcast to flag and escalate closed captioning-related problems in a targeted, efficient manner; resolve any problems as quickly as possible; and communicate that information back to the consumer. To help improve the overall customer experience, Comcast technicians communicate with COE representatives about caption-related issues, so that when a customer does call the COE, a COE representative can provide the customer with accurate information about when and how a problem will be resolved.

¹⁰ FNRPM ¶¶ 138-140.

C. Improving the Quality of Captions for Live and Near-Live Programming

On the programming side, the FNPRM seeks comment on measures to improve the quality of captions for live and near-live programming, with a particular focus on problems related to caption synchronicity and “cut-off” captions (i.e., situations where, due to delays inherent in the real-time captioning of live and near-live programming, the captions of the program feed audio cut off before the captions are finished displaying when the program breaks for a commercial).¹¹ This is an area particularly ripe for further collaboration and technological innovation, and Comcast looks forward to being an active participant in those initiatives.

As NCTA explained in its comments, the Commission’s specific proposals for handling cut-off captions are not currently technologically feasible.¹² This does not mean that the issue will never be resolved. Comcast is investing in developing technologies, such as voice-recognition software, that hold great promise for reducing captioning delays and improving the overall customer experience, but these technologies need further time to mature. In the interim, consistent with the Best Practices adopted in the *Caption Quality Order*, programmers are taking steps to reduce delays by, among other things, limiting use of real-time captioning to live programming and certain unavoidable circumstances,¹³ and improving the accuracy and timing of the real-time captioning process.¹⁴

Beyond the Best Practices, programmers and their captioning partners are investigating other methods that are feasible with existing technology for further reducing delays in real-time

¹¹ FNPRM ¶¶ 131-135. The Commission recognized in the *Caption Quality Order* that real-time captioning of live and near-live programming has certain inherent limitations. *Caption Quality Order* ¶ 38.

¹² NCTA Comments at 3-5.

¹³ These include, for example, late-delivered programs, technical problems with captioning files, changes made to later network feeds due to unforeseen circumstances, and last-minute editorial changes to news content.

¹⁴ *See id.* at 3.

captioning. For example, in NBCUniversal's experience, a few seconds of delay can be eliminated by providing the audio feed to the captioning vendor before the program material is sent through an encoder, uplinked to the satellite, downlinked to the receive site, and run through a decoder. NBCUniversal also endeavors to correct or re-caption live programs captioned in real time when they are re-aired at least seven days after the original broadcast.

Accuracy and synchronization in the captioning of near-live programming also can be improved with common-sense measures that are available now. For example, in the case of programs that are taped live in the afternoon before a same-day late evening broadcast, such as "The Tonight Show Starring Jimmy Fallon," real-time captioning can be avoided by providing the captioning vendor with an audio feed of the live afternoon taping for creation of a captioning file, which the captioner can use to correct mistakes and improve synchronization in the interval between the taping and the broadcast.¹⁵ The resulting captions, which are presented using the live display method, exhibit a very high degree of accuracy, completeness, and synchronicity. While practices like these may result in additional costs and require additional coordination, they also result in real improvements in captioning quality, all within the limits of currently available technology.

¹⁵ NBCUniversal follows a similar practice with respect to the live broadcast of "Saturday Night Live." The captioning vendor is provided an audio feed of the dress rehearsal, which takes place at 8:00 PM ET on the night of the live broadcast, from which the vendor creates a transcript. Because numerous changes may be made between the dress rehearsal and the live broadcast, the actual live program is captioned in real-time, but the transcript from the dress rehearsal enhances accuracy.

III. CONCLUSION

Comcast supports the Commission's policy of providing industry with the flexibility it needs to innovate to meet consumers' needs, and is committed to working collaboratively with the Commission and stakeholders to further improve caption quality. Comcast looks forward to participating actively in these efforts.

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