

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

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| In the Matter of |) | |
| |) | |
| Misuse of Internet Protocol (IP) Captioned |) | CG Docket No. 13-24 |
| Telephone Service |) | |
| |) | |
| Telecommunications Relay Services and Speech- |) | CG Docket No. 03-123 |
| to-Speech Services for Individuals with Hearing |) | |
| and Speech Disabilities |) | |
| |) | |

COMMENTS OF CAPTIONCALL, LLC

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COMMENTS OF CAPTIONCALL, LLC

CaptionCall, LLC submits these comments regarding potential performance metrics for IP CTS in response to the Commission’s *Notice of Inquiry* in the above-captioned docket.¹

INTRODUCTION AND SUMMARY

The Americans with Disabilities Act (“ADA”) provides Americans with hearing- and speech-related disabilities with a civil right to telephone relay services (“TRS”) that enable them “to communicate with other[s] in a manner that is functionally equivalent to a hearing individual’s ability to communicate using voice communications services.”² For individuals who have some residual hearing and can speak, Internet-Protocol Captioned Telephone Service

¹ *In re Misuse of Internet Protocol (IP) Caption Telephone Service*, Report and Order, Declaratory Ruling, Further Notice of Proposed Rulemaking, and Notice of Inquiry, CG Docket Nos. 13-24 and 03-123, FCC 18-79 (rel. June 8, 2018) (“*Notice of Inquiry*”).

² *See In re Misuse of Internet Protocol (IP) Captioned Telephone Service*, Order and Notice of Proposed Rulemaking, 28 FCC Rcd 703, 704-05 ¶ 4 (2013) (internal quotation marks omitted) (“*2013 Interim Order*”), *vacated in part by Sorenson Commc’ns Inc. v. FCC*, 755 F.3d 702 (D.C. Cir. 2014).

(“IP CTS”) comes closest among TRS to achieving this functional equivalence.³ IP CTS allows individuals to communicate in their own voices and to hear what they can, facilitating communication with family and friends, with financial advisors, with doctors, and with emergency services, among others.⁴

As the Commission evaluates potential IP CTS metrics, it should build upon the proposed service quality framework submitted by Hamilton, InnoCaption, ClearCaptions, Sprint, and CaptionCall (together the “IP CTS Providers”).⁵ This proposal (the “Industry Proposal”) includes metrics on accuracy and latency,⁶ and proposes periodic testing, which involves testing performed by a third party and designed to ensure consistent measurement and reporting of performance metrics across providers.⁷ These proposals were carefully constructed to address a number of issues that could bias, skew, or otherwise undermine the integrity of any service-quality regime. In this way, the Industry Proposal will help ensure consistent application of performance metrics across providers.

As explained in the Industry Proposal, the Commission should only be prepared to consider quantitative performance *standards*⁸ after engaging in a methodical assessment of

³ See CaptionCall, LLC Comments on Further Notice of Proposed Rulemaking, CG Docket Nos. 03-123, 13-24 (Sept. 17, 2018) (“*CaptionCall FNPRM Comments*”) Part II.

⁴ See *id.* Part II.A.

⁵ See IPCTS Quality Metrics: Provider Recommendations (Aug. 21, 2018) attachment to letter from CaptionCall, InnoCaption, ClearCaptions, Hamilton Relay, and Sprint, to Marlene Dortch, Secretary, FCC, CG Docket Nos. 13-24, 03-123 (Aug. 21, 2018) (“*Industry Proposal*”).

⁶ *Id.* at 3-6.

⁷ *Id.* at 6-10.

⁸ For purposes of these comments, CaptionCall uses the term “performance metric” to mean an aspect of caption content or delivery that can be measured to assess service quality, such as accuracy or latency. CaptionCall uses the term “performance standard” to refer to a quantitative performance requirement for a particular metric.

providers with respect to the proposed metrics, using the proposed testing criteria.⁹ Moreover, before adopting any performance metrics, testing protocols, or performance standards, the Commission must engage in a careful cost benefit analysis. It is critical that the Commission conclude that various aspects of any framework for evaluating service quality are necessary and that benefits outweigh the burdens and new costs imposed on providers.

Additionally, the Commission must be careful to implement a service quality framework that is technology neutral. Doing so is not only required under the ADA—which mandates that the Commission encourage the use of existing technology and prohibits the Commission from discouraging the development of new technology¹⁰—but also good policy. A technology-neutral approach will allow providers to explore and adopt a wide range of approaches to delivering functionally equivalent telephone communications and ensure that the Commission does not interfere in the market by choosing winners and losers based on how companies deploy new and existing technology.

Finally, adopting the Industry Proposal’s service quality framework will further the Commission’s interest in efficiency. In short, CaptionCall believes that adopting service quality metrics and standards can benefit the Commission, consumers, and providers, if done properly. That means ensuring that any service quality regulations adequately balance the benefits of service quality measures, on the one hand, and burdens on the Commission and providers, on the other. The service quality framework set forth in the Industry Proposal does just that.

⁹ *Industry Proposal* at 10.

¹⁰ 47 U.S.C. § 225(d)(2).

I. The Commission Should Focus on the Statutory Goal of Functional Equivalence and Properly Calibrated Service Quality Requirements Can Help to Achieve That Goal.

Under the ADA,¹¹ and the D.C. Circuit’s interpretation of that statute,¹² the Commission’s primary goal in overseeing IP CTS must be to make functionally equivalent telephone service available to those who need it to communicate in the same manner as consumers without hearing loss. The Commission can help to effectuate this goal by adopting performance metrics, measurement and testing procedures, and performance standards,¹³ provided that the Commission adopts metrics, procedures, and standards that are based on record evidence and build upon the industry’s consensus efforts.

For this reason, CaptionCall supports the Commission’s decision to seek comment on “establishing objective, quantifiable, and measurable performance goals and service quality metrics to evaluate the efficacy of the IP CTS program.”¹⁴ As discussed in the Industry Proposal, it is important that the Commission establish a common set of appropriate performance metrics and standards.¹⁵ In addition to promoting the delivery of functionally equivalent service, performance metrics and standards that are properly structured and balance benefits and burdens on providers can help advance the Commission’s objective to “ensure that consumers are provided with the information they need to make informed choices in their selection of provider

¹¹ *Id.* § 225(a)(3), (b)(1).

¹² *Sorenson Commc’ns, LLC v. FCC*, 897 F.3d 214, 227 (D.C. Cir. 2018).

¹³ As explained below, the Commission should only consider adopting quantitative service quality standards after it conducts baseline testing along the lines described in the Industry Proposal. *See infra* Part I.D.

¹⁴ *Notice of Inquiry* ¶ 155.

¹⁵ *Industry Proposal* at 3. To date, the IP CTS Providers have relied on their own internal quality metrics, quality assurance testing, and performance evaluations to assess the sufficiency of their services. *Id.* at 2.

services,”¹⁶ and the Commission’s objective to develop data needed to help policy makers “craft rules for effective implementation and oversight of the IP CTS program.”¹⁷ Additionally, establishing performance metrics and standards applicable to all providers could promote competition, enhance transparency, and help ensure that the introduction of new technologies does not diminish the quality of service available to consumers, who rely on IP CTS to maintain relationships, connect with medical professionals, and communicate effectively in situations that affect their safety and security.¹⁸

A. A Service Quality Framework Should Be Implemented in an Objective, Consistent, and Neutral Manner.

Any performance metrics or standards must be identified, defined, measured, and reported in a manner consistent with the following key principles:

- *Objectivity.* To effectively assess performance, the Commission should identify metrics and testing procedures that can be, and are, applied in a consistent and unbiased manner that puts providers on equal footing.
- *Consistency.* To enable apples-to-apples comparisons among providers, by both the Commission and consumers, it is critical that performance be assessed in a consistent fashion. To that end, performance measurement must be implemented through a robust, repeatable, and uniform testing procedure using a statistically valid and representative sample.

¹⁶ *Notice of Inquiry* ¶ 161.

¹⁷ *Id.*

¹⁸ *See CaptionCall FNPRM Comments* Part II.A (discussing the importance of IP CTS to consumers who have hearing loss and rely on the service to communicate).

- *Neutrality.* To evaluate service quality, the Commission should adopt a common set of performance metrics and standards that are technology neutral and require providers to deliver the requisite level of service whether they rely on CAs, ASR, some combination of the two, or altogether different technology.
- *Transparency.* To enable consumers to make more informed decisions,¹⁹ increased transparency about providers' relative performance could be helpful. However, any information concerning service quality must be released in a manner that does not reveal confidential or proprietary information. Moreover, to address anomalies that might otherwise skew results, the Commission should allow providers to review and provide feedback on the results of performance testing before any publication.

Finally, to help provide clear, neutral, and objective requirements for service quality, and enable the Commission and consumers to readily compare performance across providers, the Commission should adopt quantitative performance standards. Before setting quantitative standards, the Commission should engage in a round of testing that will generate data about how existing services perform, make that information available to relevant stakeholders, and permit relevant stakeholders to evaluate and comment on the information.

The IP CTS Providers' proposed service quality framework comports with these principles and can help advance the ADA's mandate to provide functionally equivalent telephone service to the growing population of hearing-impaired Americans that require it.

¹⁹ See *Notice of Inquiry* ¶ 155.

B. Performance Metrics Should Be Defined in an Objective, Consistent, and Neutral Manner.

The Commission seeks comment on potential metrics for IP CTS performance, such as transcription accuracy, transcription synchronicity, transcription speed, and service outages.²⁰ CaptionCall urges the Commission to build upon the Industry Proposal in evaluating potential performance metrics. Doing so will help mitigate the risk that any service quality obligations will have unintended and adverse consequences for the IP CTS program. Doing so will also help generate a framework that can assist the Commission, consumers, and providers in evaluating the quality of service.

1. Transcription Accuracy.

In the *Notice of Inquiry*, the Commission seeks comment on several proposed metrics for transcription accuracy, including the Disability Advisory Committee’s (“DAC”) proposal to define accuracy based on errors that change the meaning of a caption, and on MITRE’s proposal to define accuracy in a manner that distinguishes correctness and completeness.²¹ Consistent with the Industry Proposal,²² a definition of transcription accuracy should focus on errors that significantly alter, obscure, or reverse the meaning of the original text. Accordingly, CaptionCall supports the IP CTS Providers’ proposed definition of transcription accuracy:

Accuracy for IP CTS is defined as 100% [accuracy] minus the Major Word Error Rate on the final displayed captions, where the Major Word Error Rate is the number of word substitutions, deletions, and insertions that significantly alter, obscure or reverse the meaning of the original speech divided by the total number of words in the original speech.²³

²⁰ *Id.* ¶ 164.

²¹ *Id.* ¶ 166.

²² *Industry Proposal* at 3-4.

²³ *Id.* at 3. This definition of accuracy is consistent with a metric predicated on the “semantic error rate.” *Notice of Inquiry* ¶ 166.

This definition is consistent with the DAC’s September 2016 recommendation.²⁴ Moreover, it will allow the Commission and providers to focus on errors likely to affect a user’s ability to extract the intended meaning from captions.²⁵ That is because, under the proposed definition, an accuracy rate does not include minor errors, which should be defined to include any “incorrect word that is not essential to understanding the text or does not alter or obscure the meaning of the text.”²⁶ The IP CTS Providers—working collaboratively—have compiled a preliminary list of minor errors, which is consistent with recommendations from MITRE and was included in the Industry Proposal.²⁷

The IP CTS Providers likewise agree on the mechanics of calculating an accuracy percentage based on the above definition. Doing so would require the following steps:

²⁴ See Disability Advisory Committee, *Recommendation of the FCC Disability Advisory Committee: IP CTS Quality Standards*, at 1 (Sept. 22, 2016). Because the definition also encompasses completeness—by counting omissions as errors—it is unnecessary to adopt a distinct performance metric for this element of captioning accuracy and doing so would introduce unneeded complexity and expense. *Cf. Notice of Inquiry* ¶ 166.

²⁵ The Commission also requests comment on whether the accuracy regulations applicable to closed captioning on television are appropriate for IP CTS. *Notice of Inquiry* ¶ 165. In addition to assessing errors based on incorrect words—in the form of substitutions, deletions, and additions—the Commission should consider drawing from its Closed Captioning framework and supplementing the Industry Proposal to assess errors based on the failure to correctly identify speakers and the failure to caption the existence of certain context indicators, such as laughter, music, and other non-verbal auditory signals. See 47 C.F.R. § 79.1(j)(3)(i) (defining accuracy standard for closed captioning and requiring that captions “provide nonverbal information that is not observable . . . to the greatest extent possible”). Assessing the failure to correctly caption speakers and context indicators would require minor adjustment of the IP CTS Providers’ proposed definition of accuracy.

²⁶ *Industry Proposal* at 4. Because the Industry Proposal’s accuracy definition does not count minor errors, and generates an accuracy percentage, it will facilitate a more useful and precise assessment of service quality than would a definition imported from the closed captioning context. See *Notice of Inquiry* ¶ 165.

²⁷ See *Industry Proposal* at 4-5; accord MITRE Corp., *Internet Protocol Caption Telephone Service (IP CTS) Devices: Summary of Phase I Activities*, at 4-5 (July 24, 2017) (explaining that decision regarding whether to count certain issues as errors, or not, was designed to “provide a consistent, realistic assessment of accuracy”).

- (1) Begin with the final caption transcript, after any corrections have been applied by a CA or other technology, and a verbatim transcript that includes each word that was actually spoken by the hearing party.²⁸
- (2) Calculate a traditional word error rate—defined as an error rate that accounts for all errors regardless of whether they are defined as major or minor—between the final caption transcript and the verbatim transcript. This process is accomplished by counting each error including word substitutions, deletions, and insertions in the caption transcript as compared to the verbatim transcript.
- (3) For each of the errors identified in the list generated by the previous step, classify each error as “major” or “minor” based on the relevant definitions and on the list of minor errors.
- (4) Determine the “Major Word Error Rate” by counting the number of errors classified as “major” and divide that number by the total number of words in the verbatim transcript.
- (5) Calculate the accuracy percentage by performing the calculation of 100% minus the major word error rate.²⁹

The IP CTS Providers are continuing to collaborate in an effort to refine the proposal.

For example, the providers are currently working to develop a more complete list of minor

²⁸ As set forth below, the IP CTS Providers have proposed that the hearing party be a remote individual employed by a third party that is designated to perform testing and does so using a broad and representative library of pre-recorded test calls. *See infra* Part I.C. This proposal, among its many advantages, would address concerns about confidentiality, facilitate consistent and controlled testing, and help ensure that testing reveals any variation in results with respect to a particular demographic of speaker or type of call.

²⁹ *Industry Proposal* at 5. The Commission sought comment on whether it should “adjust accuracy measurements or standards to take account of the type of call measured,” including 911 calls. *Notice of Inquiry* ¶ 165. Given the critical importance of emergency 911 calls, CaptionCall urges the Commission to test for performance on pre-recorded simulations of emergency calls and that the Commission should consider whether to set a heightened performance *standard* for emergency 911 calls. *See infra* Part I.D (concerning performance standards). Indeed, testing and assessing the appropriate performance standard for specific categories of calls—like emergency 911 calls—will help the Commission evaluate whether providers are handling all types of calls appropriately. CaptionCall notes, however, that the Commission should avoid creating a different performance *metric* for accuracy, or different procedures for *measuring* accuracy, for different types of calls. Doing so would be needlessly complex, confusing, and inefficient.

errors.³⁰ The providers are likewise working to produce additional scoring guidelines that will address complications like the need to account for both the amount of time and number of words that pass before an error is corrected.³¹ This type of framework, if adopted by the Commission, will provide consumers with valuable information about providers' performance.

2. Transcription Synchronicity and Speed.

The Commission seeks comment on whether it should “measure the synchronicity of communications during an IP CTS call as a measure of functional equivalency.”³² Recognizing that “there is necessarily some delay during IP CTS calls that are handled by third-party CAs,” the Commission asserts that delay should be “kept to a minimum.”³³

While CaptionCall agrees that delay should be minimized, any mandate to do so must account for how minimizing delay will affect other aspects of performance and should not require reducing delay beyond the point at which it affects user comprehension. Additionally, efforts to minimize delay must be informed by a careful assessment of any associated costs imposed on providers.

With those principles in mind, CaptionCall believes that delivering captions in a timely fashion is a critical component of functional equivalence.³⁴ As set forth in the Industry Proposal, a performance metric for synchronicity must reflect the different ways in which delay affects functional equivalence. For example, a user's tolerance for delay may vary during the course of

³⁰ *Industry Proposal* at 5.

³¹ *Id.* The IP CTS Providers agree that when corrections are delayed or displayed later in the captioning text, the corrections may become less valuable. *Id.*

³² *Notice of Inquiry* ¶ 168.

³³ *Id.*

³⁴ *Industry Proposal* at 6.

a call.³⁵ As a result, tolerance may be especially small at the outset of a call, when participants convey important information that contextualizes the conversation, such as the name of the person calling and the purpose of the call.³⁶ By contrast, tolerance may be more substantial at other points in a call, when critical information has already been conveyed. Additionally, if delay increases throughout the length of a call, communication may become more difficult as the call progresses.³⁷ For these reasons, a definition of delay should facilitate its measurement at several intervals during a call. To that end, and as the IP CTS Providers suggested in the Industry Proposal, the Commission should adopt the following definition of delay:

Delay is defined as the time that elapses between the utterance of a word by the person on the far-end of an IP CTS user’s phone call and the final displayed appearance of that word in the stream of captions on the IP CTS user’s primary display.³⁸

Any measurement of delay should be expressed in seconds.³⁹ And evaluating delay based on the time that elapses between the utterance of a word and display of a caption—rather than the time that elapses between the moment “when an IP CTS user hears the other party’s voice” and “when captions of that speech are displayed on the phone’s screen”⁴⁰—will provide the most accurate assessment of latency because doing so will ensure that any audio buffering by a provider is included in the assessment of delay.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Notice of Inquiry* ¶ 168.

In addition to seeking comment on how to define delay, the Commission seeks comment on methods for evaluating it. As elaborated below,⁴¹ the IP CTS Providers propose that a third-party designee test for delay using a library of pre-recorded test calls that are representative of all types of IP CTS calls. The IP CTS Providers further propose that the third-party designee perform testing at regular intervals throughout the course of a call. These measures will help ensure consistency and allow the Commission to obtain data about how providers perform when captioning different call types, in different circumstances, and with different callers.

Finally, testing for delay as defined above and in this manner obviates any need for the Commission to adopt a performance metric for transcription speed. Transcription speed contributes to functional equivalence only insofar as it ensures that transcription can occur at the same pace at which words are spoken. Under the IP CTS Providers' proposed definition of delay, any variance between the pace of speech and production of captions would be reflected in the latency metric. As a result, there is no need to monitor or evaluate transcription speed, which would not provide additional insight into the capacity to deliver synchronous captions, or provide insight into other core aspects of functionally equivalent service.

3. Service Outages.

A resilient and reliable service is an important aspect of functional equivalence. For example, ensuring captioning service is available during extreme weather events is critical for providing users with an experience that approximates the experience of hearing users. The Commission's rules already require that providers notify the Commission if there is an unplanned service outage or a planned service outage of less than thirty minutes.⁴² Commission

⁴¹ See *infra* Part I.C.

⁴² 47 C.F.R. § 64.606(h)(3).

rules likewise require that providers “seek advance approval for voluntary interruptions of longer” than thirty minutes.⁴³ CaptionCall believes these rules are sufficient to ensure that providers deliver resilient and reliable service. Indeed, the Commission points to no evidence that the existing rules are insufficient for policing this important aspect of service quality. As a result, CaptionCall does not believe it is necessary for the Commission to adopt a performance metric that assesses whether “the frequency and extent of IP CTS service outages and interruptions” exceed “that of outages and interruptions occurring on transmission services used by hearing people.”⁴⁴ Doing so would be redundant and impose needless expense on both the Commission and providers.

C. To Advance Functional Equivalence, the Commission Should Require Periodic Testing That Is Conducted by a Third Party and Designed to Ensure Consistent Application across Providers.

To assess compliance with any performance standards that the Commission may adopt,⁴⁵ it is critical to have a consistent testing methodology. A consistent testing methodology will help ensure repeatable application across providers and yield results that are more useful to the Commission, to consumers, and to providers. An approach that instead permits providers to create their own testing methodology could result in the use of self-serving protocols and, accordingly, in the development of data that is inconsistent across providers and of little value to relevant stakeholders. This would be problematic. As the IP CTS Providers explained in the Industry Proposal: “The integrity of testing is crucial when the results will be relied upon to justify changes to federal rules and regulations. . . . Rule changes based on poor testing designs

⁴³ *Notice of Inquiry* ¶ 173 (citing 47 C.F.R. § 64.606(h)(3)).

⁴⁴ *Id.*

⁴⁵ *See infra* Part I.D.

and unrealistic testing conditions will have a direct negative impact on the quality of life of consumers who are dependent on captions to use the phone effectively.”⁴⁶

In the Industry Proposal, the IP CTS Providers advocate for testing procedures that would satisfy these conditions.⁴⁷ Testing would be conducted using a broad sample of pre-recorded test calls and transcripts that is representative of all types of calls and developed through the collaborative efforts of IP CTS Providers.⁴⁸ This approach would yield repeatable and dependable test results. It would also help to ensure that results reflect variations in conversational pace, conversational volume, and other factors that might vary across speakers or call types. In this regard, relying on pre-recorded test calls may provide the most effective way to mitigate factors that can distort test results and, therefore, provide the most effective way to generate service quality data that is representative of actual performance.

If developed appropriately, pre-recorded test calls would also help advance other important testing guidelines, including that testing mimic proper use of the service, approximate a natural telephone conversation, and reflect other critical components of a sound testing methodology, such as reliance on audio that closely resembles what consumers encounter when they use IP CTS.⁴⁹ And developing a library of pre-recorded test calls that reflect a broad and representative sample of speakers and call types is important, because doing so will enable the

⁴⁶ *Industry Proposal* at 7.

⁴⁷ *Id.* at 6-10.

⁴⁸ *Id.* at 7. Although relying on live calls would be ideal because doing so would measure actual performance, relying on pre-recorded test calls will protect the confidentiality of IP CTS users. And while pre-recorded test calls may not perfectly replicate live calls—which involve spontaneous and unstructured speech—pre-recorded test-calls can capture most aspects of use, so long as they are generated properly and representative of the variety of speakers, circumstances, and subjects that must be captioned.

⁴⁹ *See id.*

Commission to assess performance across all types of calls.⁵⁰ Although provider self-testing may have some role in performance measurement, relying on a library of pre-recorded test calls would enable an independent and objective third party to play a role in administering performance measurement, with less risk of biasing, skewing, or otherwise distorting results.⁵¹

The use of test calls must be executed in a careful fashion designed to ensure that test calls are representative of actual calls.⁵² And test calls are only one element of a proper testing procedure. Rather than reiterate each element in these comments, CaptionCall urges the Commission to consider the Industry Proposal, which includes a statement of general guidelines for testing,⁵³ a statement of the features and conditions needed to approximate a user experience during testing,⁵⁴ and a statement outlining procedural safeguards to facilitate needed review, comment, and revision of any testing program.⁵⁵

⁵⁰ See *id.* Because service quality may vary across speakers of different ages or backgrounds, across conversations on different subjects or in different settings, or based on a host of other factors, the Commission should consider requiring that performance be reported in distinct categories. Doing so may enable the Commission to develop a more precise assessment of whether providers can handle all types of calls.

⁵¹ In this respect, the proposed procedure comports with the Commission’s belief that “calculations resulting from IP CTS performance measures will have greater efficacy if they are conducted independently.” *Notice of Inquiry* ¶ 162.

⁵² To ensure that CAs or ASR systems do not adapt to or become familiar with the test calls—a development that would undermine the utility of the test results—test calls may need to be replenished on a regular basis.

⁵³ *Industry Proposal* at 7.

⁵⁴ *Id.* at 7-9.

⁵⁵ *Id.* at 9.

D. The Commission Should Defer Setting Quantitative Performance Standards for Accuracy and Latency, until after It Conducts Baseline Testing.

In the *Notice of Inquiry*, the Commission seeks comment on establishing “quantifiable” performance standards.⁵⁶ Quantitative performance standards hold great promise, but only if they are set through close collaboration between relevant stakeholders and through a process with sufficient safeguards. As explained in the Industry Proposal, quantitative performance standards that are set through appropriate procedures “can protect IP CTS users from inferior service.”⁵⁷ Quantitative performance standards set through appropriate procedures may also enable the Commission to effectively evaluate the IP CTS program, now and going forward.⁵⁸ Indeed, the Commission could use such standards to establish mandatory minimum requirements for service quality.⁵⁹ Used in this fashion, quantitative performance standards established through sound processes could advance many of the interests described above, such as facilitating consumer choice, service improvements, and informed policymaking. Moreover, the standards could also help to ensure that when new providers seek to enter the market, the Commission has the data needed to confirm that prospective providers will deliver quality commensurate with existing services, protecting consumers from poor performance.

In the Industry Proposal,⁶⁰ the IP CTS Providers outlined an appropriate process for setting quantitative performance standards. More specifically, the Industry Proposal explains

⁵⁶ *Notice of Inquiry* ¶ 155.

⁵⁷ *Industry Proposal* at 10.

⁵⁸ *Notice of Inquiry* ¶ 155.

⁵⁹ In the event a provider failed to satisfy the mandatory minimum requirements, the Commission could pursue suspension or termination in accordance with established procedures. See 47 C.F.R. § 64.604(c)(5)(iii)(L).

⁶⁰ *Industry Proposal* at 10.

that quantitative performance standards should be set following the methodical application of objective performance metrics through objective testing criteria, both of which are described above. This initial round of baseline testing is pivotal.⁶¹ It would supply the Commission with the data needed to formulate appropriate expectations.⁶²

E. The Commission Should Adopt Procedures to Ensure the Accuracy and Reliability of Performance Data before It Is Disseminated to Consumers.

The Commission seeks comment on whether it should publish each provider's performance "as it appears likely that making these results available to the public in a standard format will aid users in their selection of IP CTS providers."⁶³ CaptionCall supports transparency, so long as the Commission ensures that no proprietary and confidential information is disclosed.

In addition, once testing is complete, but before results are finalized and/or released to the public, the Commission should give providers an opportunity to review the results of testing, to explain factors that might have influenced the results of testing, and to engage in dialogue with

⁶¹ Although MITRE's early phase assessments of performance on accuracy and latency hold some promise, that research is not sufficient to provide a baseline for quantitative performance standards. As an initial matter, the research was by MITRE's own descriptions preliminary. Moreover, as CaptionCall has previously noted, the early phase assessments relied on calls involving limited subject matter, curated test conditions, and a small and unrepresentative sample of users. *See* Letter from John T. Nakahata, counsel to CaptionCall, LLC, to David Schmidt, TRS Fund Program Coordinator, Office of Managing Director, FCC, CG Docket Nos. 03-123, 13-24 Attach. 1 (Dec. 21, 2017). In any event, any baseline testing should involve application of accuracy and latency metrics as they are ultimately defined. This will ensure that data used to set performance standards is probative of performance under the operative metrics. To the extent definitions of accuracy and latency employed by MITRE depart from the definitions adopted by the Commission, the results of the MITRE studies will not provide a dependable basis for setting quantitative performance thresholds.

⁶² After setting initial performance standards, the Commission should reevaluate those standards at regular intervals, to ensure that service expectations are adjusted to reflect, among other things, technological change.

⁶³ *Notice of Inquiry* ¶ 163.

the entity responsible for administering testing, as well as the Commission. These procedural safeguards are critical because there are a number of exogenous factors that might affect provider performance. To take one example, latency may be affected by temporary underlying connectivity issues over which a provider has no control, including connectivity issues introduced by the voice provider or by the user's broadband service. Unless providers have the chance to identify these issues, and explain how they bear on results, aberrant performance data could deprive the Commission of sound information about the quality of a provider's service, and result in the dissemination of data that misleads consumers.⁶⁴

F. The Commission Should Conduct Careful Cost-Benefit Analysis of All Service Quality Regulations.

A robust cost-benefit analysis is a critical component of informed policymaking.⁶⁵ To that end, the Commission should carefully examine potential costs and benefits of any quality service regulations before adopting them.⁶⁶ In doing so, the Commission should evaluate

⁶⁴ Although providers actively monitor service quality, reporting results to providers at each stage of performance testing will enable them to more quickly identify and implement any service corrections that might be needed. For this additional reason, the Commission should provide the results of any testing to providers at the earliest possible time.

⁶⁵ See *In re Establishment of the Office of Economics and Analytics*, Order, 33 FCC Rcd 1539, 1543, Appendix Final Rules (2018) (establishing office of Economics and Analytics and requiring office to “[c]onduct[] economic, statistical, cost-benefit, and other data analysis of the impact of . . . proposed communications policies and operations”); see also *id.* at 1548 (statement of Chairman Pai) (observing that “thoughtful cost-benefit analysis has historically been a bipartisan tradition”); see also *id.* at 1551-52 (statement of Commissioner O’Rielly) (emphasizing importance of credible and accurate cost-benefit analysis).

⁶⁶ Cf. Exec. Order No. 13,777, 82 Fed. Reg. 12,285, 12,285 (Feb. 24, 2017) (requiring that certain agencies establish a task force to identify, among other things, regulations that impose costs that exceed benefits); Office of Management and Budget, *List of Agencies with Current Waivers under Executive Order 13,777*, at 1 n.1 (May 30, 2018) (acknowledging that independent regulatory agencies “are not subject to EO 13777 but are still encouraged to comply”), https://www.whitehouse.gov/wp-content/uploads/2018/06/EO13777_EnforcingRegulatoryReformAgenda.pdf.

whether service quality regulations are necessary and narrowly tailored to the Commission’s objectives, including the objectives to advance functional equivalence, provide consumers with data about performance, and develop data to inform policy makers. The Commission should ensure that the benefits of imposing a service-quality framework outweigh the costs that doing so will impose on providers. Doing so is necessary to ensure that new, potentially burdensome regulations are justified.⁶⁷

II. The Commission Should Adopt a Technology-Neutral Framework.

The Commission seeks comment on whether “the second goal of the IP CTS program should be to ensure that this program utilizes technological changes and advances in the telecommunications industry to the greatest extent possible, as needed to achieve functionally equivalent communication for this population.”⁶⁸ More specifically, the Commission asks whether it should adopt the goal of “ensur[ing] people with communication disabilities are able to take full advantage of innovative communications technologies, such as ASR,” as they develop.⁶⁹ The Commission also asks whether and when existing or emerging assistive technologies can provide an alternative mechanism for delivering functionally equivalent communications, or provide a useful supplement to IP CTS.⁷⁰

⁶⁷ Cf. Exec. Order No. 13,771, 82 Fed Reg. 9339, 9339 (Jan. 30, 2017) (observing that “it is essential to manage the costs associated with the governmental imposition of private expenditures required to comply with Federal regulations”). Moreover, to the extent the Commission moves to a submitted cost-based methodology for setting rates, which CaptionCall opposes, *see CaptionCall NPRM Comments* Part VI.A, the Commission must ensure that the costs of implementing and complying with a service-quality framework are considered allowable costs.

⁶⁸ *Notice of Inquiry* ¶ 159.

⁶⁹ *Id.*

⁷⁰ *Id.*

The Commission must take a technology-neutral approach to pursuing functional equivalence, rather than expressing a programmatic preference for developing technologies. Moreover, existing assistive technologies are insufficient to provide an alternative mechanism for delivering functionally equivalent communications. While CaptionCall supports the development of new assistive technologies that might benefit Americans who experience hearing loss, the potential impact of any new technology is too speculative to provide a basis for the Commission’s policymaking. CaptionCall elaborates on each of these points below.

A. The Commission Should Adopt a Technology-Neutral Approach Targeted to Achieve Functional Equivalence.

Under the ADA, the pursuit of functional equivalence must be the Commission’s primary objective,⁷¹ and its pursuit of that goal must be technology neutral. In requiring that the Commission “encourage . . . the use of existing technology,”⁷² and prohibiting the Commission from “discourag[ing] or impair[ing] the development of improved technology,”⁷³ Congress determined that technological improvement is no more than a mechanism for achieving functional equivalence. In other words, technological improvement is not an independent priority. This congressional determination—that technology is a means and not an end—reflects an important legislative judgment: that providers should be permitted to adopt and explore a wide range of existing and new technologies that can help make their services more functionally equivalent and, ultimately, help to achieve full equivalence.

To effectuate Congress’s directive, the Commission should encourage providers to invest in technologies with potential to more closely align the experiences of IP CTS users and hearing

⁷¹ See 47 U.S.C. § 225(a)(3), (b)(1); *accord Sorenson Commc’ns*, 897 F.3d at 227.

⁷² 47 U.S.C. § 225(d)(2).

⁷³ *Id.*

parties, without foreclosing providers from relying on existing platforms that deliver sufficient or superior service. Additionally, the Commission should aim to move to an NPRM and adopt rules in an expedited manner. Doing so will help the Commission apply mandatory minimum requirements in an objective and consistent fashion, whether IP CTS providers rely on human intervention, ASR, some combination of the two, or altogether different technology.

B. Other Assistive Technologies Are Insufficient to Support Effective Communications by Telephone.

The Commission seeks comment on the extent to which assistive technologies such as amplification, RTT, and other text or video based methods of communication can be used to provide functionally equivalent telephone communications.⁷⁴ For reasons explained in CaptionCall's comments on the *FNPRM*, amplification, RTT, and other text-based methods of communication are currently insufficient to enable effective, functionally equivalent communications.⁷⁵ And, for similar and additional reasons, video communications over phone, tablet, or personal computer are also unsuitable alternatives for IP CTS users. Indeed, even if IP CTS users were to adopt such communications for some calls,⁷⁶ it is not clear that they would or could do so for critical ones, including calls with doctors and other medical providers, with lawyers, with case workers, and with others.⁷⁷ Moreover, even within a given call, consumer

⁷⁴ *Notice of Inquiry* ¶¶ 159, 177.

⁷⁵ *CaptionCall FNPRM Comments* Part II.C.

⁷⁶ Because older Americans may not feel comfortable learning new devices, and because IP CTS users are often older Americans, IP CTS users may be hesitant to adopt video-based communications over smart phones, tablets, or personal computers. *Cf. CaptionCall FNPRM Comments* Part II.A, C, & 15 n.40.

⁷⁷ Other obstacles to the effective use of video communications may include, among others, lack of familiarity with ASL and inability to perceive critical articulatory expressions on a small screen.

needs may vary, such that the consumer may need captions rather than other assistive technologies in order to comprehend the call.

Although existing assistive technologies are of limited use to IP CTS users, CaptionCall supports innovation. Commitment to innovation led to the development of VRS and IP CTS, which have been life-changing for deaf and hard-of-hearing consumers. CaptionCall is dedicated to the development of new technologies that will enable it to offer better service to its customers and, for that reason, continues to invest in the development of new technologies.

At this time, CaptionCall is not aware of any new or forthcoming assistive technologies that can deliver functionally equivalent telephone communication across the highly differentiated and complex experiences of individuals with hearing loss. And while CaptionCall supports technological advancements to enable consumers with hearing loss and other disabilities to communicate effectively by telephone, the Commission cannot set current policy based on the potential effectiveness of unknown or hypothetical technologies. As the D.C. Circuit has explained in the context of evaluating an agency action under the National Environmental Policy Act, solutions that “sound like a promising approach . . . if the aspiration were matched with substance,” nonetheless fail to support “[r]ational” policymaking where the record is “devoid of information about” what those technologies are, when they will be implemented, or how they will perform. Following similar logic under the Administrative Procedure Act, the Commission must offer “details [and] specifications” about the technologies it believes will support effective communications—it may not just “reflexively embrace[them] as . . . sufficient” alternatives.⁷⁸

⁷⁸ *Am. Rivers v. FERC*, 895 F.3d 32, 53 (D.C. Cir. 2018); *see also id.* at 54 (describing FERC’s decision as “irrational” for relying on “some sort of mitigation measures, which [FERC] was content to leave as ‘TBD’”).

Finally, to the extent the Commission views other current or new assistive technologies as potential supplements or alternatives to TRS generally or IP CTS specifically, it must evaluate whether those technologies are too expensive, too difficult to use, too impersonal, or inadequately secure for IP CTS users. If practical obstacles prevent or impede access to or use of assistive technologies, then the Commission cannot rely on those alternatives to satisfy its obligation to ensure that TRS “are available, to the extent possible and in the most efficient manner” throughout the United States.⁷⁹ Unused technologies leave individuals with hearing loss unable to communicate by phone “in a manner that is functionally equivalent to the ability of a hearing individual.”⁸⁰

III. Delivering Functional Equivalence Should Be the Primary Objective of IP CTS, but the Commission Can Also Promote Efficiency through Several Complementary Approaches.

The Commission seeks comment on whether the third goal of the IP CTS program “should be to improve the efficiency of the IP CTS program and to reduce this program’s incidence of waste, fraud, and abuse.”⁸¹ The Commission’s premise that there has been waste, fraud, and abuse in the IP CTS program is flawed and not supported by the record.⁸² Moreover, under the ADA, the Commission cannot treat “program efficiency” as an objective commensurate with the Commission’s obligation to make functionally equivalent TRS

⁷⁹ Similarly, it was the practical inability of users to access TRS in some states that motivated adoption of Section 225 to establish national, uniform availability for individuals with hearing loss. *See* H.R. Rep. No. 101-485(IV), at 27-28 (1990), *as reprinted in* 1990 U.S.C.C.A.N. 512, 516-517 (discussing that adoption of new technologies was not progressing as rapidly in some states as in others and that interstate systems for such devices were virtually nonexistent).

⁸⁰ 2013 *Interim Order*, 28 FCC Rcd at 705 ¶ 4.

⁸¹ *Notice of Inquiry* ¶ 160.

⁸² *See CaptionCall FNPRM Comments* Part III.

“available” to the maximum extent possible.⁸³ As the D.C. Circuit recently observed, Section 225 “chiefly” tasks the Commission “with ensuring the provision of communications services for people who are deaf or speech-impaired in a manner that is ‘functionally equivalent’ to services available for hearing people.”⁸⁴ While the Commission must “balance several different factors” in implementing IP CTS, including cost recovery and efficiency, making functionally equivalent services available remains the Commission’s “primary objective.”⁸⁵ Thus, the Commission’s principal performance goal must be ensuring “the provision of a functionally equivalent conversational experience through IP CTS.”⁸⁶

Nevertheless, CaptionCall supports the Commission’s interest in promoting program efficiency and preserving the sustainability of the TRS Fund. To advance that interest, CaptionCall believes that the Commission should take two complementary steps. First, the Commission should adopt a price-cap methodology to set rates because doing so will create incentives for providers to become more productive, more innovative, and more efficient.⁸⁷ Second, the Commission should adopt the service quality proposals elaborated above and, once it adopts quantitative performance standards, condition the right to offer IP CTS on compliance

⁸³ Cf. Comments of Sorenson Communications, LLC Regarding Part III and Section IV.C-E and G-H of the Further Notice of Proposed Rulemaking, CG Docket Nos. 10-51 & 03-123, Ex. A, (May 30, 2017) (Samuel R. Bagenstos, *The Proper Interpretation of “In the Most Efficient Manner” in Title IV of the Americans with Disabilities Act* (2017)); Samuel Bagenstos, Caps on the TRS Fund, An Analysis Under the Americans with Disabilities Act (2017); Declaration of Samuel Bagenstos, CG Docket Nos. 13-24 & 03-123 (Sept. 23, 2013).

⁸⁴ *Sorenson Commc’ns, LLC*, 897 F.3d at 227.

⁸⁵ *Id.* at 227-28.

⁸⁶ Cf. *Notice of Inquiry* ¶ 160 (seeking comment on how the goal of improving efficiency “should be balanced against the performance goal of ensuring the provision of a functionally equivalent conversational experience through IP CTS”).

⁸⁷ See *CaptionCall FNPRM Comments* Part VI.A.

with those standards.⁸⁸ This will promote efficiency by ensuring that all IP CTS providers deliver service of sufficient quality for the compensation they receive.

Additionally, and although individuals with hearing loss are best positioned to understand their need for captions, if the Commission believes that the potential for waste, fraud, and abuse in the IP CTS program requires further measures, it should adopt regulations that restrict IP CTS to users who are certified as eligible, by a licensed health provider, under penalty of perjury. Doing so will build on existing rules, state laws, and professional codes that have prevented the introduction of waste, fraud, and abuse into the IP CTS program and therefore help to maintain efficiency.⁸⁹

⁸⁸ *See supra* Part II.

⁸⁹ *See CaptionCall FNPRM Comments* Part IV.A.

CONCLUSION

CaptionCall supports the Commission's goal of advancing functional equivalence by adopting performance metrics and standards, provided that any performance metrics, standards, and testing are based on record evidence and build upon the consensus efforts of IP CTS Providers. To achieve these goals, the Commission should adopt the Industry Proposal, which will enable the Commission to protect consumers and advance functional equivalence, while promoting innovation and making the IP CTS program more efficient.

Respectfully submitted,

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