

Recommendation of the FCC Disability Advisory Committee
Relay and Equipment Distribution Subcommittee
Internet Protocol Captioned Telephone Relay Service Metrics
Adopted October 3, 2018

1. WHEREAS, the Subcommittee has been asked to develop recommendations on criteria, metrics, and measurements methods for assessing the quality of Internet Protocol Captioned Telephone Service (IP CTS), including the quality of interpretation and transcription (accuracy, synchronicity, etc.), interoperability, and continuity of service, with an eye toward integrating automated speech recognition (ASR) into IP CTS.
2. WHEREAS, IP CTS is a form of Telecommunications Relay Services (TRS) that allows individuals with hearing loss to both read captions and use their residual hearing to understand a telephone conversation. IP CTS providers who are eligible for compensation from the TRS Fund must meet mandatory minimum standards to ensure that the service is functionally equivalent to the provision of voice telecommunications services used by persons without disabilities.
3. WHEREAS, mandatory minimum standards set forth in 47 CFR § 64.604 were drafted when TTYs and Voice Carry Over (VCO) were the backbone of TRS; TRS providers “must relay all conversation verbatim unless the relay user specifically requests summarization . . .”¹ and must meet speed of answer standards.² Currently, the mandatory minimum standards do not include specific metrics for assessing the quality of the transcription produced by IP CTS providers.
4. WHEREAS, according to the National Institute on Deafness and Other Communication Disorders (NIDCD), approximately 15 percent of American adults (37.5 million) aged 18 and over report some trouble hearing.³ Many of these individuals with hearing loss benefit from captioned telephone services as they otherwise are unable to discern speech over the telephone with amplification alone.
5. WHEREAS, quality metrics and measurements are needed to ensure all IP CTS providers, regardless of method or platform, reach a level of performance that can provide, to the extent possible, a functionally equivalent experience for users. A high level of accuracy and speed, with captions displayed and synched as closely as possible to the spoken word, is necessary for the technological solutions used in the relay service to be effective and truly useful.
6. WHEREAS, the Disability Advisory Committee (DAC) shares the Federal Communications Commission’s (Commission’s) objective to set performance metrics to ensure high quality IP

¹ 47 CFR § 64.604(a)(2)(ii).

² 47 CFR § 64.604(b)(2).

³ NIDCD, Quick Statistics About Hearing (December 15, 2016), <https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing>.

CTS for all users of the service so that the Commission continues to fulfill its requirement to ensure functionally equivalent TRS for all relay users.

7. WHEREAS, the DAC recognizes that additional access to IP CTS equipment is needed by individuals who are DeafBlind and assurance that any quality metrics established are inclusive of the needs of DeafBlind IP CTS users.
8. WHEREAS, the DAC has used the following documents as resources in the drafting of this recommendation: the MITRE Reports,⁴ the July 26, 2018 ex parte letter filed by consumer groups,⁵ provider recommendations on IP CTS quality metrics,⁶ and previous DAC recommendations related to IP CTS quality standards.⁷
9. WHEREAS, the Commission has recognized ASR technology as a potential method to produce IP CTS captions and the DAC supports creative solutions and innovation for IP CTS.

NOW THEREFORE IT IS --

1. RECOMMENDED that before a full shift in IP CTS technology takes place, current IP CTS quality (as well as ASR quality) be measured and quality metrics established to create minimum performance standards for IP CTS, regardless of the platform or technology used. This is of paramount importance when it is recognized that the end-user may utilize IP CTS to place emergency calls during situations in which their personal safety may be at risk.
2. RECOMMENDED that the Commission adopt the metrics (quantifiable measures) outlined in the June 8, 2018, NOI as key performance indicators for assessing the quality of IP CTS:
 - Transcription accuracy;
 - Transcription synchronicity;
 - Transcription speed;
 - Speed of answer;
 - Dropped or disconnected calls – Additional clarity is needed as to what should be measured in this category; and

⁴ MITRE Corporation *Assessments of Quality Metrics and Associated Usability of Internet Protocol Captioned Telephone Service*, Public Notice, DA 18-359 (CGB Apr. 11, 2018).

⁵ Letter from Blake E. Reid, Counsel to Telecommunications for the Deaf and Hard of Hearing, Inc., to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 13-24, 03-123 (filed July 26, 2018).

⁶ Letter from Bruce Peterson, Vice President, CaptionCall, LLC et. al. to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 13-24, 03-123 (filed Aug. 21, 2018) (IP CTS Quality Metrics: Provider Recommendations).

⁷ Recommendation of the FCC DAC, *Methods for Assessing the Quality of IP Captioned Telephone Service* (Oct. 16, 2017), <https://www.fcc.gov/file/13126/download> (DAC 2017 IP CTS Recommendation); Recommendation of the FCC DAC, *IP CTS Quality Standards*, CG Docket Nos. 03-123 and 13-24 (filed Sept. 23, 2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-341497A1.pdf (DAC 2016 IP CTS Recommendation).

- Service outages.⁸
3. RECOMMENDED that in order to expeditiously establish performance standards for IP CTS providers for all of these metrics, the Commission define the terminology associated with each of the following metrics: (1) transcription accuracy; (2) transcription synchronicity; (3) transcription speed; (4) speed of answer; (5) dropped or disconnected calls and (6) service outages.
 4. RECOMMENDED that for each metric listed above, the Commission give instructions on how the metric is to be measured and provide guidance on how testing for each metric should be undertaken. In order to define metrics and establish measurement and testing methodology on an expedited basis, it is further RECOMMENDED that the Commission consider directing any stakeholder proposals for defining metric terminology and measurement and testing methodology be filed with the Commission no later than January 31, 2019.
 5. RECOMMENDED that, using information generated from comments and provider information that are received and analyzed as a result of the IP CTS NOI, in addition to data from studies conducted by MITRE and their subcontractors, the Commission establish measurement methodology no later than December 2019.
 6. RECOMMENDED that the Commission work with current IP CTS providers and all other stakeholders to develop testing, measuring, and scoring procedures so that a baseline performance standard for each quality metric can be established.⁹ To ensure ongoing compliance with quality performance standards, IP CTS providers and independent third party testers can follow these procedures quarterly, or potentially monthly, no matter how captions are produced and with full cooperation by service providers, who, among other things, should provide the third party entity with any end-use equipment necessary to carry out the testing process.
 7. RECOMMENDED that, in order to establish performance standards on an expedited basis, the Commission peg the standards to current performance by communications assistant-based IP CTS providers. This will help, among other things, to ensure that the introduction of ASR results in service to consumers that is at least comparable to that offered by current providers.
 8. RECOMMENDED that, using information generated from comments and provider information that is received and analyzed as a result of the IP CTS NOI, in addition to data

⁸ *Misuse of Internet Protocol (IP) Captioned Telephone Service; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order, Declaratory Ruling, Further Notice of Proposed Rulemaking, and Notice of Inquiry, FCC 18-79, at 72-74, paras. 165-173 (June 8, 2018) (IP CTS NOI).

⁹ See IP CTS Quality Metrics: Provider Recommendations, at 10.

from studies conducted by MITRE and their subcontractors, the Commission will establish these quality performance standards no later than December 2019.

9. RECOMMENDED that IP CTS provider quality results as reported to the Commission, be made public after performance metrics are defined, measurement and testing methodology is established, and performance standards are specified.
10. RECOMMENDED that the Commission ensure that any prospective IP CTS provider meet the minimum performance standards of quality prior to approval of any application to provide service.
11. RECOMMENDED that, in light of changing technology and continued improvement in IP CTS, the Commission continue to study these metrics and measurement methods as part of an ongoing and continuing assessment of quality performance standards with a goal of ensuring a truly functional equivalent service going forward. It is further RECOMMENDED that the Commission expeditiously update quality metrics, measurement methodologies, and performance standards for IP CTS as technology changes or more data is available.
12. RECOMMENDED that the Commission continue to perform research, specifically working to address the issues and questions raised in previous DAC recommendations,¹⁰ including:
 - Conduct a study to determine the amount of delay that is generally acceptable to the average IP CTS user, but that still provides a functionally equivalent experience for the consumer.
 - Define what a perfect/ideal call would consist of:
 - a. Latency/Delay
 - b. Accuracy/Verbatim
 - c. Speed of captions
 - d. Other factors
 - Using definitions provided in earlier studies by MITRE, determine at what point latency is problematic for understanding of a phone conversation by consumers using both the audio and captions provided by IP CTS.
 - Using definitions of accuracy in earlier studies by MITRE, determine the baseline accuracy and completeness that all providers should reach to allow for understanding of conversations by consumers using IP CTS.
 - Does the ability of the consumer to understand a conversation change as the number of errors increase in a given conversation?
 - Does the ability of the consumer to understand a conversation change with the length of a conversation, despite the errors?
 - Is weighing some words as more essential than others important to our definition of accuracy?

¹⁰ See DAC 2017 IP CTS Recommendation; DAC 2016 IP CTS Recommendation.

- Does proximity of errors contribute to users' experience of accuracy? For example, do multiple errors close together contribute to a greater sense of confusion and/or frustration?