

**Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.**

In re:)	
)	
Telecommunications Relay Services and)	
Speech-to-Speech Services for Individuals)	CG Docket No. 03-123
With Hearing and Speech Disabilities)	
Application for TRS Certification to)	
Provide IP Captioned Telephone Service)	
)	
Misuse of Internet Protocol (IP) Captioned)	CG Docket No. 13-24
Telephone Service)	

Reply Comments of MachineGenius, Inc.

MachineGenius, Inc. (“MachineGenius,” “Company,” or “Applicant”) respectfully submits these reply comments to the comments submitted regarding its Application to provide Internet Protocol Captioned Telephone Service (“IP CTS”).

I. Introduction and Executive Summary

Almost two-years ago, on October 13, 2017, MachineGenius filed its Application to be certified as an IP CTS provider¹, utilizing Automated Speech Recognition, commonly known as “ASR” in order to generate captions to telephone conversations without the use of Communications Assistants (“CAs”). Since then, after submitting its application, Olelo, to MITRE for testing, the Company has met with stakeholders and members of the Commission to help advance the idea that ASR-only based IP CTS is a functionally equivalent means to providing this vital service on a cost-effective basis to the Americans who will need such services.

¹ See Application of MachineGenius, Inc., CG Docket No. 03-123 (filed October 13, 2017) (“Application”). Given that the Application was submitted 24 months ago, MachineGenius will submit an Addendum to our Application that will address changes in the Rules that have occurred since that time, as well as advances in MachineGenius technological capability.

On June 8, 2018, the Commission issued its Report and Order and Further Notice of Proposed Rulemaking, and Notice of Inquiry, which included a Declaratory Ruling, declaring that IP CTS services that utilize ASR is eligible for compensation from the Telecommunications Relay Service (“TRS”) Fund “if provided in compliance with applicable TRS mandatory minimum standards.”²

The Company’s Application was put out for comment on August 26, 2019. Comments closed on September 25, 2019, with six different entities, representing two stakeholder groups and four current providers of IP CTS services offering comments on this Application and two other similar applications.³ In response to these comments, we address three main points:

- MachineGenius meets or exceeds IP CTS minimum mandatory standards;
- MachineGenius meets IP CTS privacy standards; and
- MachineGenius provides functionally-equivalent access to emergency services.

I. MachineGenius Meets or Exceeds IP CTS Minimum Mandatory Standards

MachineGenius is seeking waivers for rules pertaining to CAs in order to provide IP CTS service, but not for the underlying mandatory minimums of service quality.⁴ Beyond these waiver requests, MachineGenius has agreed to comply with all of the current rules and standards applicable to the provision of IP CTS.⁵

Hamilton claims that “each ASR-only applicant seeks waivers of numerous important mandatory minimum standards.”⁶ The mandatory minimums that MachineGenius seeks waiver

² *In the Matter of Misuse of Internet Protocol Captioned Tel. Serv.*, Declaratory Ruling, 33 FCC Rcd. 5800, 5827 (rel. June 8, 2018). https://ecfsapi.fcc.gov/file/1014215719459/IPCTS%20Application_%20PUBLIC%20NON-CONFIDENTIAL.pdf.

³ Comments were concurrently sought on similar ASR-based applications filed by VTC and Clarity.

⁴ See Application Petition for Waiver, CG Docket No. 03-123, filed Oct. 13, 2017. https://ecfsapi.fcc.gov/file/1014215719459/IPCTS%20Waiver%20Request_PUBLIC.pdf

⁵ Application at 12-14.

⁶ Comments of Hamilton Relay, Inc., CG Docket No. 03-123 (Sept. 25, 2019) (“Hamilton” or “Hamilton Comments”) at 3.at 3.

from are specific to CA-assisted captioning, and Company agrees with Sprint that these are rules “that could not rationally be applied”⁷ to an ASR-only service. MachineGenius does not seek waiver of the underlying objectives of these rules, and in multiple cases is able to provide a higher quality of service than CAs.

Sprint⁸, Ultratec⁹, Hamilton Relay¹⁰, and CaptionCall¹¹ all state that the Commission must establish distinct “ASR-only” standards prior to certifying an ASR-only IP CTS provider, and Clear2Connect suggests that the Commission impose separate accuracy standards applicable to ASR-only providers of IP CTS.¹² However, all IP CTS providers have been operating under the same requirements since their inception, and MachineGenius has agreed to meet or exceed these same existing minimum standards, and commits to meet any future standard set forth by the Commission.

MachineGenius disagrees with the commenters. The Commission’s Rules are not prescriptive about the methodology used to generate captions. To hold ASR-only providers of IP CTS to a separate set of “ASR-only” standards is both arbitrary and superfluous, especially given that all but one other providers of IP CTS currently utilize ASR to generate captions. The only meaningful distinction between the ASR-only and the ASR-revoicing methods is that revoicing by a CA is not needed in ASR-only caption generation – this is not a distinction that requires new rulemaking. ASR-only IP CTS introduces a streamlined method of generating IP CTS captions. It is not a “new form of relay,” as Hamilton suggests.¹³

⁷ Comments of Sprint Corporation, CG Docket No. 03-123 (Sept. 25, 2019) (“Sprint” or “Sprint Comments”) at 8.

⁸ Sprint Comments at 3-6.

⁹ Comments of Ultratec, Inc. CG Docket No. 03-123 (Sept. 25, 2019) (“Ultratec” or “Ultratec Comments”) at 3.

¹⁰ See Hamilton Comments at 5.

¹¹ Comments of CaptionCall, LLC, CG Docket No. 03-123 (Sept. 25, 2019) (“CaptionCall” or “CaptionCall Comments”) at 6.

¹² Clear2Connect Comments at 4.

¹³ Hamilton Comments at 5.

Commenters in general are concerned that ASR-only IP CTS providers will not meet the current applicable operational standards for the provision of these services. However, outside of the rules governing the provision of IP CTS service, there are no additional standards applicable to IP CTS services.¹⁴

A. ASR-ONLY IP CTS IS NOT FOR ALL USERS

MachineGenius believes in consumer choice, and the virtues of the marketplace.

MachineGenius is expressly not trying to support all possible users, nor every category of user, nor every conceivable call type. Rather, MachineGenius believes that a significant segment of the hard-of-hearing community will prefer the functionally-equivalent solution that MachineGenius provides, and find it superior for their particular needs.

MachineGenius is not seeking nor would the Company support a mandate that “ASR-only” captioning be used program-wide.

In its comments, Ultratec states “[T]here currently is no adequate evidence to verify that ASR-only IP CTS can provide functional equivalence to all users under real-world conditions.”¹⁵

MachineGenius does not seek to provide functional equivalence to ALL users, and the Company acknowledges that some users, and classes of users, will prefer other service providers. While MachineGenius agrees that IP CTS as a program *in toto* should meet the needs of all users, no one provider of any one form of TRS is mandated to serve all users under all conditions.¹⁶ IP CTS only represents one segment of services available to those who are deaf or

¹⁴ See Internet Protocol Working Group *ex parte*, CG 03-123 (Sept. 20, 2019), at 1, which provides, in part, “Although the Commission has issued a Notice of Inquiry on IP CTS quality of service issues, to date, the Commission has not adopted objective and quantifiable metrics, measurement tools and standards for IP CTS which provide a meaningful understanding of the quality of service experienced by IP CTS users.” <https://ecfsapi.fcc.gov/file/10920068352051/Join%20Provider%20Ex%20Parte%20on%20Quality%20of%20Service%20-%202020SEP2019%20FINAL.pdf>

¹⁵ Ultratec Comments at 3.

¹⁶ *Declaratory Ruling* at 5829, ¶52.

hard-of-hearing to place and receive telephone calls.¹⁷ Different services and providers are available for those with differing abilities and needs. MachineGenius does not, for example, support landline-based IP CTS. We believe that consumers can capably make the choice of which service best suits their needs.

B. ACCURACY AND FUNCTIONAL EQUIVALENCE

MachineGenius supports quantitative testing of all IP CTS providers by third parties. This will ensure that all users of IP CTS services are receiving the quality service regardless of the service provider.

Sprint¹⁸ and CaptionCall¹⁹ both suggest additional Commission-supervised testing of ASR-only IP CTS services prior to approval of a company's application to provide ASR-based IP CTS services. However, absence of third-party testing of any IP CTS service should not be a barrier to entry to any provider that is able to meet the current standards. MachineGenius believes that consumers should be the arbiters of the overall user experience that suits them best.

Ultratec states that “absent the continuing involvement of CAs with IP CTS calls, there will be no rigorous means of monitoring the efficacy of ASR-only IP CTS on a day-to-day basis under real-world conditions.”²⁰, and CaptionCall asserts that “MachineGenius acknowledges that ASR is ‘approaching human-level transcription.’ By conceding that ASR-only service is merely

¹⁷ Ultratec suggests that “[I]P CTS should meet the needs of *all* deaf and hard-of-hearing users, including those with profound deafness or multiple health challenges under *all* conditions that they face in their daily lives, including the adverse conditions under which IP CTS calls are frequently made.” Ultratec Comments at 5 (emphasis in original). MachineGenius takes issue with this observation, as it presumes that users of TRS services would not utilize the services that best suit their individual needs, *i.e.*, users that rely primarily on the use of American Sign Language would likely not utilize an IP CTS service, but rather one of the other TRS services available.

¹⁸ Sprint Comments at 4-5, stating that such testing should be publicly developed and standardized.

¹⁹ CaptionCall Comments at 9.

²⁰ Ultratec Comments at 8.

“approaching” the quality of CA-assisted IP CTS, MachineGenius seemingly acknowledges that ASR-only service has not reached the point of functional equivalence.”²¹

The very assertion that MachineGenius is making is that state of the art ASR does not require this form of monitoring CAs. MachineGenius maintains the claim that ASR is approaching human-level transcription, however human-level transcription is very different from CA-assisted ASR transcription. CAs (with the exception of one provider) are not performing transcription; they are re-voicing utterances into an ASR program, and the caption output of these CAs is not the output of a human transcriptionist. In fact, there is no *prima facie* reason to believe that the output of human CAs is better than the output of ASR-only captions. MITRE found that CA-output transcripts ranged from 82%-89% correct.²² We have observed, along with MITRE, that ASR-only captions likewise fall into this accuracy range. We also conclude that the putative function of the CAs as “oversight” or correctors of captions is overstated; they themselves rely heavily on ASR output, and do not correct transcripts to a 100% accuracy level.

We do not acknowledge that ASR-only service has not reached the point of functional equivalence. In fact, we assert the opposite.

CaptionCall submits, via a letter from Richard Stern, that “IP CTS providers ... must be responsive to speech from any conceivable type of speaker in any conceivable environment with no constraint whatsoever on vocabulary, syntax, or topic under discussion”²³ Surely it is not the case that “any conceivable type of speaker” or “any conceivable environment” must be

²¹ CaptionCall Comment at 16.

²² While MITRE testing may be subject to methodological scrutiny, it did incontrovertibly establish that CA-assisted captioning is far from “verbatim”, and that at least one ASR service scored equally well versus CA-assisted captioning. This shows that a) verbatim transcripts are not a realistic standard, and b) that appropriate selection of an ASR engine can yield results comparable to CA-assisted ASR. It also showed that not all CA-assisted captions have uniform accuracy.

²³ *Id.*

accounted for in IP CTS. Rather, a range of realistic use-cases need to be accounted for, and this is the target at which MachineGenius aims. The commercial system that MachineGenius utilizes is specifically designed for long-form, unconstrained content, variable-speaker telephony that addresses these use cases.

We agree with Sprint that “[T]he Bureau must ensure that each certificated ASR-based offering is comparable in quality to current IP CTS offerings”²⁴, rather than set an as-yet-undefined bar for ASR-only IP CTS, while CA-assisted captioning has no such bar set.

We disagree, however, with Sprint’s assertion that the Commission needs to establish “more nuanced specifications”²⁵ for ASR-only IP CTS. Any specifications should be identical.

While Hamilton states that “if an ASR engine incorrectly captions a call, the conversation is nonetheless altered by a machine and results in a relay conversation that does not meet verbatim requirements.”²⁶, it is currently the case that current CA-based providers do not provide verbatim captioning (see MITRE results), and ASR-only providers would stand on equal footing with CA-assisted providers in this respect.

C. A FRAMEWORK EXISTS FOR EVALUATING ASR-BASED IP CTS SERVICES

CaptionCall asserts that the Commission “lacks a framework for evaluating ASR-based IP CTS services, including standards that reflect the differences between existing certified TRS services and ASR-based services”, and that “The Commission must adopt such a framework before the agency is able to accurately evaluate whether ASR-based services comply with the ADA.”

²⁴ Sprint Comments at 3.

²⁵ Sprint Comments at 4.

²⁶ Hamilton Comments at 6.

The Rules in §64.604 are precisely such a framework. These Rules have been sufficient to evaluate the current IP CTS providers, and apply in equal measure to ASR-only providers, *modulo* those rules which apply only to CAs, which we have already addressed.

MachineGenius agrees in the strongest terms that the Commission must ensure that individuals with hearing loss do not receive services that are not capable of enabling functionally equivalent communications by telephone. MachineGenius further agrees that a qualitative and quantitative methodology for assessing the functional equivalence of IP CTS is valuable. MachineGenius disagrees, however, with the idea that a framework does not already exist for evaluation of IP CTS Applications (namely, the Commission’s Rules). MachineGenius seeks only to be measured against the same criteria that apply to current providers.

II. MachineGenius Meets IP CTS Privacy Standards

Privacy of communications is mandatory for a product to be a viable option to provide IP CTS services. MachineGenius is committed to maintaining customer privacy and has provided with its Application a Customer Proprietary Network Information policy.²⁷

Commenters express concerns that ASG-only IP CTS providers raise more privacy concerns than traditional IP CTS providers that utilize CAs. Clear2Connect cites an article relating to review of recordings captured by Amazon’s Alexa product;²⁸ HLAA claims that “call data must be stored and processed on a server where it may be sold, misused or breached,”²⁹ and CaptionCall submits that “companies like Amazon, Apple, Google, and Microsoft ... have every incentive to capture as much call content as possible for training purposes—unless they are somehow restricted from doing so. Users of IP CTS may not understand that their calls are being

²⁷ See Application Confidential Exhibit.

²⁸ Clear2Connect Comments at 5.

²⁹ HLAA Comments at 14.

recorded by an underlying ASR wholesale provider, compromising the privacy of their phone calls.”³⁰

MachineGenius’ ASR provider is, in fact, restricted from capturing call content for training or any other purposes beyond transcription. Our vendor is PCI and HIPAA compliant, and does not store any “at rest” audio or transcription data on its servers. MachineGenius likewise does not store any transcription data or audio data on its servers. We will maintain records, as all TRS providers do, of call details (“metadata”) in accordance with Commission rules,³¹ but call content is entirely private to the user and user-owned devices

IV. MachineGenius Provides Functionally-Equivalent Access to Emergency Services

MachineGenius appreciates and respects the role IP CTS providers fulfill in ensuring that all citizens have access to emergency services.³² Access to emergency services is paramount; public safety requires it, and a service that does not give reliable access to 911 is not in the public interest.³³

³⁰ CaptionCall Comments, Letter from Stern, at 19.

³¹ See, for example 47 C.F.R. §64.601(c)(5)(iii)(D)(2), requiring all TRS providers seeking compensation for calls to provide records detailing call duration, telephone numbers, call start and end times, and the like. In addition, under 47 C.F.R. § 64.601(c)(5)(iii)(D)(3)-(4) requires Internet-based TRS providers to supply call record and speed of answer data “automatically” and to submit such information electronically.

³² Similar to its comments concerning the testing of accuracy and other metrics, CaptionCall suggests that ASR-only applicants be required to test their 911 services prior to certification as an IP CTS provider. Similarly, MachineGenius suggests that this type of testing be required for all providers of IP CTS services to ensure quality and access to all users.

³³ MachineGenius recognizes that the Commission has granted a temporary, partial waiver of the emergency call-handling rules requiring IP CTS providers to: 1) deliver to PSAPs at the outset of an emergency call the name of the relay provider, the CA’s callback number, and the CA’s identification number; 2) immediately reestablish a disconnected emergency call, conditional on the provider assigning its registered users NANP telephone numbers that enable the PSAP to call the user back directly (while ensuring that the user receives captions when called back), and delivering the user’s NANP number to the PSAP with a 911 call. See, *In the Matter of Misuse of Internet Protocol Captioned Tel. Serv.* Report and Order, Further Notice of Proposed Rulemaking, and Order, CG No. 03-123, (rel. Feb. 15, 2019).

The Company reaffirms that MachineGenius' IP CTS service will accept and handle emergency calls and to direct calls to the appropriate PSAP based on the user's Registered Location, or as feasible, real-time dispatchable location based on mobile device geolocation.

Hamilton, in its comments, requests that ASR-based applicants at a minimum should be required to disclose their limitations of their services with regard to 911 services, in the interest of public safety.³⁴ MachineGenius supports this requirement, and as an analogue the Commission has long required interconnected VoIP providers to clearly disclose the limitations of their access to emergency services, as applicable, in their terms of service and has required these providers to include warning labels with handsets to put the public on notice of possible limitations.³⁵ All IP CTS providers should be required to disclose the known limitations of their emergency services, and MachineGenius will proactively do so.


V. CONCLUSION

MachineGenius contends that to deny or delay approval of ASR-only IP CTS providers is contrary to the public interest – not only that of the hard-of-hearing community, but also in terms of the sustainability and efficiency of the TRS Fund. We urge the Commission to undertake a responsible integration of ASR-only IP CTS providers into the TRS program.

³⁴ See Hamilton comments at 6.

³⁵ 47 C.F.R. §9.5(e).

Respectfully submitted,
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Certificate of Service

I, Katherine Barker Marshall, have caused the Reply Comments of MachineGenius, Inc. to be served via first-class and electronic mail on October 10, 2019.

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