

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

In the Matters of)	
)	
Closed Captioning of Video)	CG Docket No. 05-231
Programming)	
)	
Telecommunications for the Deaf and)	
Hard of Hearing, Inc. Petition for)	
Rulemaking)	
)	
Telecommunications for the Deaf and)	RM-11848
Hard of Hearing, Inc. et al. Petition for)	
Declaratory Ruling and/or Rulemaking)	
on Live Closed Captioning Quality)	
Metrics and the Use of Automatic Speech)	
Recognition Technologies)	

REPLY COMMENTS OF APPTEK

AppTek, by its undersigned counsel, hereby submits these reply comments on the Telecommunications for the Deaf and Hard of Hearing Inc., *et al.*, Petition for Declaratory Ruling and/or Rulingmaking on Live Closed Captioning Quality Metrics and the Use of Automatic Speech Recognition Technologies.¹

I. The Record Demonstrates Further Engagement and Education Is Needed and Justifies ASR Providers Should Be Added to the DAC

In response to the petition for rulemaking, the Federal Communications Commission (“Commission”) received feedback from a variety of stakeholders. The record demonstrates that the Commission can play a vital role in fostering engagement with leaders in automatic speech

¹ *Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI), et al.*, Petition for Declaratory Ruling and/or Rulemaking on Live Closed Captioning Quality Metrics and the Use of Automatic Speech Recognition Technologies, CG Docket No. 05-231 (filed July 31, 2019), <https://www.fcc.gov/ecfs/filing/10801131063733> (“Petition”); and see AppTek Comments, <https://www.fcc.gov/ecfs/filing/101585639283> (filed October 15, 2019).

recognition (“ASR”) technologies and dramatically improve the stakeholder’s knowledge of the capabilities ASR possesses. Generally, consumer advocates and users of captioning support the Commission initiating a proceeding to assess the quality of current closed captioning techniques and developing technology-neutral metrics.² Further, technical analysis of local news and captioning generally demonstrated numerous problems with current captioning that mirror the Petition’s concerns with caption quality.³ Trade groups representing broadcasters (NAB) and cable providers (NCTA) remain optimistic about the potential of ASR, but understandably do not want prescriptive captioning rules or mandated use of particular captioning technologies.⁴ Current ASR providers (like AppTek) recognize the opportunities for ASR technologies to improve caption quality and fill gaps where current captions are lacking.⁵ Regardless of the disagreement in the record, commenters support the continued investigation of ASR uses and consensus exists that the Disability Advisory Committee (“DAC”) should focus on current caption quality and how ASR can be used to improve captioning.⁶ The DAC provides the best forum to engage and educate the key stakeholders with representatives across captioning users, broadcasters, and video providers. Accordingly, the DAC can engage with ASR and current captioning quality to determine the best path forward to incorporate ASR to improve captioning.

Appointing ASR providers to the DAC will benefit both the current DAC membership and ASR providers. AppTek has benefited from continued engagement with the community of captioning users by incorporating their experience to ensure captions are better translating the

² Dicapta & Advisory Groups Comments at 1; Dr. Pablo Romero Fresco Comments at 1-2.

³ Captioning DRRP Comments at 2.

⁴ National Association of Broadcasters (“NAB”) Comments at 1-4; NCTA Comments at 1-2.

⁵ Ai-Media Comments at 2-5; AppTek Comments at 9-10; VITAC Comments at 2-6.

⁶ NCTA Comments at 1-2, 6; NAB Comments at 14; AppTek Comments at 10.

meaning of the content. This engagement has proven critical in developing more robust ASR captioning. However, the record demonstrates that other members of the DAC would benefit from interaction with ASR to understand where it can improve their current captioning process and fill gaps where captions are not being provided. Adding ASR providers to the DAC membership will allow for shared education across the committee on where ASR can and should be incorporated.

Further, the analysis provided by Captioning DRRP shows that current captioning has many areas that can be improved:

- Missing captions for sports and weather
- Overall accuracy and quality problems
- Missing speaker identification
- Captions out of sync
- Missing captions of background noises
- Programs incompletely captioned
- Placement issues⁷

There are areas where ASR can immediately be put to use to help improve captioning, like providing captions where none currently exist (sports and weather) or assisting live captioning professionals in capturing background noises and punctuation.⁸ The Commission can instruct the DAC to investigate captioning and issue recommendations on where best to immediately put ASR to use and where further investigation is needed. Further, the with ASR providers on the DAC, the conversation can be truly informed to the capabilities of current ASR technologies and what improvements to these technologies would be most beneficial.

⁷ Captioning DRRP Comment at 5.

⁸ *Id.* at 5-6, 23.

II. The Commission should promote flexible, technology-neutral, and forward-looking captioning rules and standards

The Commission's current framework has improved captioning quality,⁹ yet there is more work to be done as significant issues exist with live captioning that impact the viewer's understanding.¹⁰ Forward-looking and technology-neutral captioning rules and quality metrics will foster continued improvements to captioning, especially for live programming. ASR has been deployed to help improve live captioning¹¹ and any rule or quality metric should continue to foster the use of ASR, especially as that technology improves and overtakes the abilities human captioning professionals. Indeed, it is important to recognize ASR will continue to improve in quality and capability. Captioning rules and any quality metrics should be focused on overall quality of the captions and not preferring a particular captioning process over another. To accomplish this, objective evaluation of captioning will ensure whatever captioning process is being used meets the Commission's goal of ensuring access to video content. The record points to "Number, Edition, Recognition" ("NER") as the principle model for an objective, technology-neutral metric.¹² AppTek continues to support NER as a quality metric, but any objective, technology-neutral metric would allow the Commission and the DAC to review the overall quality of captioning and see where improvements can be made.

While the DAC and stakeholders continue to investigate possible uses of ASR to improve captioning, the Commission should not impede current uses of ASR for captioning. It is clear from

⁹ NAB Comments at 2; NCTA Comments at 10-11.

¹⁰ Captioning DRRP Comment at 5.

¹¹ Petition at 18; NAB Comments at 3; NCTA Comments at 10-11.

¹² Ai-Media Comments at 3; Pablo Romero-Fresco Comments at 2-3; AppTek Comments at 9;

the record assisted-ASR captioning methods can improve quality of live captioning.¹³ Further, Captioning DRRP's comments identify immediate areas where ASR can provide captioning where live captioning professionals are unavailable or captions are not being provided.¹⁴ Put simply, some captions that accurately capture the words and meaning of the video content are better than no captions at all. ASR systems can be immediately employed where captions are lacking, like weather, sports, and breaking news, when no other captioning method is available. This is most prevalent in live/ad-libbed content that often contains time-sensitive information like weather alerts, in-the-field reporting and interviews, and the ad-libbed content and banter of live programming that adds to the overall meaning and context.¹⁵ ASR has improved through technology advances and community engagement. ASR adoption should be encouraged by the Commission, the DAC, and the larger stakeholder community. Finally, ASR can fill current gaps in captioning to immediately improve overall availability of captioned content.

¹³ Petition at 18; NAB Comments at 3; NCTA Comments at 10-11; VITAC Comments at 2-3.

¹⁴ Captioning DRRP Comment at 5.

¹⁵ *Id.* at 6.

III. Conclusion

For the foregoing reasons, AppTek respectfully requests the Commission consider these proposals in any forthcoming action in this proceeding.

Respectfully submitted,

/s/ William B. Wilhelm Jr.

Mudar Yaghi

CEO
AppTek
1356 Beverly Road, Suite 300
McLean, VA 22101

William B. Wilhelm, Jr.
Christian E. Hoefly, Jr.

Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, N.W.
Washington, DC 20004
Bus.: 202.373.6000
Fax.: 202.739.6001

Counsel to AppTek

Dated: October 30, 2019