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Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

RE: Reply Comments for Public Notice Seeking Additional Comment on Structure and Practices of the Video Relay Service (VRS) Program and Proposed VRS Compensation Rates, CG Docket Nos. 03-123 and 10-51

Dear Ms. Dortch,

AST Technology Labs (AST) would like to reply to the comments filed by the Consumer Groups¹ on November 14, 2012, in response to the Public Notice by the Federal Communications Commission's ("FCC" or "Commission") Consumer and Governmental Affairs Bureau seeking additional comment on proposed improvements to the structure and practices of the Video Relay Service ("VRS") program and proposed VRS compensation rates, CG Docket Nos. 03-123 and 10-51, DA 12-1644 (rel. October 15, 2012).

AST is filing these reply comments based on AST's experience in telecommunications system and device testing, standards development, and experience with telecommunications protocols. AST's comments are focused primarily on the questions raised for VRS Access Technology and technology related questions raised regarding Enhanced iTRS Database Operations.

A. VRS Access Technology

AST agrees with the Consumer Groups that there should not be a single VRS access technology application. Developing a comprehensive interoperability standard with related testing standards will enable competition among VRS system providers and foster innovation for "add-on" features and services. Over time if an "add-on" feature proved to be significantly useful it could be considered for being added to the interoperability standard.

¹ The comments were filed by the following organizations: Telecommunications for the Deaf and Hard of Hearing, Inc., Association of Late-Deafened Adults, Inc., National Association of the Deaf, Deaf and Hard of Hearing Consumer Advocacy Network, California Coalition of Agencies Serving the Deaf and Hard of Hearing, National Black Deaf Advocates, Inc., Cerebral Palsy and Deaf Organization, Alexander Graham Bell Association for the Deaf and Hard of Hearing, and American Society for Deaf Children (collectively, the "Consumer Groups").

AST recommends a SIP based protocol with at least these features addressed:

- The ability for a VRS user to connect to any FCC approved VRS provider.
- The ability of the user-based system to connect to any FCC approved VRS provider thereby eliminating the need for pre-registering with any one VRS provider (i.e., the user selects the VRS provider and incoming calls are automatically routed to the selected VRS provider).
- Optionally, a load management system could be developed whereby VRS calls are optionally routed to the VRS provider with the most available CAs. Users could still be given an option to select a preferred provider rather than automatic selection.
- Centralized per-call billing and fraud monitoring
- Centralized per-call system performance monitoring and reporting

The key ingredients for making a multi-vendor standardized technology work are:

- 1) A comprehensive protocol standard including:
 - a. Connectivity and call set-up
 - b. Call maintenance
 - c. Billing
 - d. Performance measurements and centralized reporting built in to the protocols
 - e. Optionally, a protocol capability for auditors to access a live call to enable sampling audits (“spot checking”) which should significantly cut down on fraud.
- 2) Comprehensive interoperability test standard including
 - a. Stand-alone protocol verification tests
 - b. Stand-alone protocol stress tests
 - c. Pair-wise system interoperability tests
 - d. Billing, auditing, and performance measurements system features tests
 - e. Development of a reference system platform to support pair-wise interoperability testing
- 3) Comprehensive system performance requirements and testing standards including:
 - a. Transmission stress tests (e.g., jitter, packet loss and re-sequencing, bandwidth limitations)
 - b. Camera performance requirements including environmental stresses (e.g., lighting, glare, depth of field, etc.)
 - c. Audio device performance (e.g., distortion, noise, frequency response, amplitude)
 - d. Video and audio synchronization

B. Enhanced iTRS Database Operations

The Public Notice seeks comment for an enhanced “iTRS database” that could provide features such as user registration and validation, call routing, and usage accounting. AST believes that currently available IP protocols, extensions, or minor additions to these protocols, could be integrated into the overall system operations requirements for auditing and billing. These are critical elements of the system to enable monitoring for, and minimizing, fraud. A central database system could be developed that interoperates with all VRS provider systems.

It is a fact that attempting to require user authorization with requires user logins, passwords, etc. is cumbersome and restrictive. The restrictions do not lend well to providing a system and services that are easy to use. A much better plan for managing fraud is by sampled auditing of live calls. Although there will be some security and privacy issues to overcome, the currently available technology should be able to be used effectively to manage these concerns. A simplified description of a possible implementation is as follows:

- 1) All VRS provider systems must be registered with the “central billing and auditing database” (CBAD). This database would be administered by the FCC and registration by VRS providers is essential for VRS providers to bill the FCC for services rendered.
- 2) When each VRS call is started, the VRS provider system sends a “call started” billing record to the CBAD database. A similar record is sent at the end of each call. VRS reimbursements are handled automatically based on database records. This is similar to well-known telephone billing systems.
- 3) To manage fraud, in addition to the “call started” record, the message at the start of a call includes the addressing means for an auditor to “tap” into a live VRS call for the sole purpose of verifying the validity of the call.
 - a. The auditors would need to be bonded for security and a very short time limit allowed for call observation. It is possible the auditing process could be automated not requiring a live person auditor.
 - b. Using sampling theory, which is well known in quality control and quality assurance, only a very small number of calls would need to be audited to effectively minimize fraudulent calls. The costs of implementing and operating a VRS call auditing process would be a small fraction of the cost of fraud which occurs without auditing.
 - c. Call auditing would eliminate the need for user logins and authentications.
 - d. The VRS system protocols would need to be designed to include a monitoring capability.
- 4) Testing requirements and testing capabilities would need to be implemented to verify the billing and auditing features of the VRS systems.

In conclusion, AST Technology Labs respectfully requests that the FCC consider the points emphasized in these reply comments when considering improvements to the VRS program.

Sincerely,

/s/ electronically signed

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