

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20544**

In the Matter of:

Structure and Practices of the Video Relay
Service Program

CG Docket No. 10-51

Telecommunications Relay Services and
Speech-to-Speech Services for Individuals
with Hearing and Speech Disabilities

CG Docket No. 03-123

**PETITION OF ASL SERVICES HOLDINGS, LLC DBA GLOBAL VRS, CSDVRS, LLC
DBA ZVRS, CONVO COMMUNICATIONS, LLC, PURPLE COMMUNICATIONS,
INC., AND SORENSON COMMUNICATIONS, LLC FOR SUSPENSION OF THE RUE
PROFILE AND VIDEO ACCESS TECHNOLOGY REFERENCE PLATFORM
IMPLEMENTATION DEADLINE**

Gabrielle Joseph
Chief Executive Officer
ASL SERVICES HOLDINGS, LLC
DBA GLOBALVRS
gabrielle@aslservices.com

Jeff Rosen
General Counsel
CONVO COMMUNICATIONS, LLC
jeff@convorelay.com

Michael Maddix
Director, Government and Regulatory Affairs
SORENSON COMMUNICATIONS, LLC
MMaddix@sorenson.com

Gregory Hlibok
Chief Legal Officer
ZVRS HOLDING COMPANY
Parent Company of CSDVRS, LLC
d/b/a ZVRS and Purple
Communications, Inc.
ghlibok@zvrs.com

February 8, 2019

TABLE OF CONTENTS

I.	INTRODUCTION AND EXECUTIVE SUMMARY.....	1
II.	BACKGROUND	2
III.	DISCUSSION	5
	A. Waiver Standard.....	5
	B. The Current Schedule Leaves Little or No Time for Implementation.....	5
	1. The RUE Profile Must Be Subject to Notice and Comment Before It Is Adopted.....	5
	2. It Is Not Possible for Providers To Comply with the Current Deadline	7
	C. The VATRP App Would Create Security and Safety Risks If Released to the Public	9
	D. The Public Interest Will Be Served by Suspending the Deadline	12
IV.	CONCLUSION.....	14

I. INTRODUCTION AND EXECUTIVE SUMMARY

In this Joint Petition, the VRS providers—ASL Services Holdings, LLC d/b/a Global VRS; Convo Communications, LLC; Purple Communications, Inc.; Sorenson Communications, LLC; and CSDVRS, LLC d/b/a ZVRS (“Joint Providers”)—request a suspension of the April 29, 2019 deadline to be fully interoperable with the Video Access Technology Reference Platform (“VATRP”) and its technical specification, the RUE Profile. The Joint Providers continue to believe that the VATRP and RUE Profile are unnecessary, legally deficient, and ill-suited for their intended purposes. Notwithstanding their position that the VATRP and RUE Profile must be rethought and brought into compliance with the law, the Joint Providers request this suspension of the implementation deadline pursuant to 47 C.F.R. § 1.3 given the possibility that the Commission may not resolve the Joint Providers’ larger concerns before the end of April.

There are several reasons to suspend the implementation deadline for the VATRP and RUE Profile. First, per the procedures adopted by the Consumer and Governmental Affairs Bureau (“Bureau”) in 2017, any update to the RUE Profile requires a notice and comment proceeding before it can be finalized and made mandatory. This process has not occurred, and it is highly unlikely that the process could be completed by the deadline. Second, with only 11 weeks until the April 29, 2019 implementation deadline, the VATRP and RUE Profile scope remain unclear with no final versions available. As the providers understand it, MITRE has not been working on the project since early January, so the drafts remain unfinished as the deadline approaches. In addition, as the Joint Providers have consistently told the Commission, they require a year for implementation and testing *after* the RUE Profile and VATRP are finalized; once the notice and comment process is complete and the Bureau has issued an order, there will

be little if any time for implementation and testing before April 29. Finally, if the VATRP is intended for use for anything but a restricted interoperability testing tool, it is a hazard to the Joint Providers' systems and to any consumers or others who might use it. It prescribes E911 requirements ahead of the Commission's decisions in the *Kari's Law NPRM*, and it does not appropriately handle security of VATRP-incorporated open source code or authentication of RUE-based applications, creating opportunities for spoofing, phishing, and brute force attacks. It will not foster the type of customer service currently provided, such as remote endpoint updates, and it remains unclear who if anyone will be responsible for updates and fixes.

The Joint Providers respectfully request that the Commission suspend the April 29, 2019 implementation deadline as quickly as possible to reflect that the deadline is not achievable. Doing so will increase regulatory certainty and avoid wasting resources to implement a moving target. The Joint Providers also renew and underscore their prior position—shared by the Consumer Groups—that everyone's efforts would be better directed to other priorities, including an encryption standard, 911 geolocation, clearing a way for certified Deaf interpreters and skills-based routing, and mainstream video interoperability.¹

II. BACKGROUND

In 2013, the Commission conceived of the VATRP App as a “reference platform”—a fully compliant and functioning app that VRS providers could use to test interoperability.² The

¹ See Letter from Tamar Finn and Danielle Burt, Counsel for Telecommunications for the Deaf and Hard of Hearing, Inc., on behalf of National Association for the Deaf, Cerebral Palsy and Deaf Organization, Deaf Seniors of America, and Rehabilitation Engineering Research Center on Technology for the Deaf and Hard of Hearing, to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 10-51 & 03-123 (Oct. 31, 2018) (“Consumer Groups Oct. 31, 2018 *Ex Parte*”).

² See *Structure and Practices of the Video Relay Service Program et al.*, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd. 8618, 8644 ¶ 53 (2013) (“*VRS Reform*”).

Commission directed, among other things, that the VATRP App comply with interoperability standards including the Provider Interoperability Profile (“PIP” or “SIP Profile”), with which all VRS providers were required to be compliant last year.³ The Commission also noted, as a secondary purpose, that the VATRP could be modified by third party developers and used as VRS “software” by end users,⁴ but the Joint Providers understand that the current focus is on interoperability testing. The Commission’s rules provide that after April 29, 2019, no provider will receive reimbursement for any minute of VRS unless the provider’s platform is interoperable with the VATRP App.⁵

Over three years ago, the Commission awarded a \$10 million contract to VTC Secure to develop the VATRP App, and more recently it has engaged MITRE and other contractors. The Commission staff and vendors proceeded to develop the VATRP App as a bespoke endpoint rather than a simple interoperability testing tool that could be based simply on the SIP Profile. As a result, staff and MITRE have developed the updates to the RUE Profile to govern how providers interoperate with the VATRP App, despite the Commission’s direction that standards be developed by a voluntary, consensus standard organization and that staff limit their role to

Order”), vacated in part on other grounds sub nom. Sorenson Commc’ns, Inc. v. FCC, 765 F.3d 37 (D.C. Cir. 2014).

³ See *VRS Reform Order* at 8644 ¶ 55 (directing the VATRP App to be compliant with standards developed to further interoperability); 47 C.F.R. § 64.621(b)(1), (c)(1)(i).

⁴ See *VRS Reform Order* at 8646 ¶ 56.

⁵ See 47 C.F.R. § 64.621(a)(3). The rule sets the deadline for compliance with the VATRP App as April 27, 2018, which the Bureau suspended until April 29, 2019. See *Structure and Practices of the Video Relay Service Program et al.*, Order, 33 FCC Rcd. 4042, 4044 ¶ 6 (Consmr. & Govt’l Affs. Bur. 2018).

that of “active observer” in the process.⁶ The VATRP App and RUE Profile have been expanded beyond the original scope indicated by MITRE in July 2018 to include multiple costly requirements.⁷ In early meetings with providers, MITRE reported that the intent was to use the VATRP solely as an interoperability testing tool; however, the current VATRP and the language of the RUE Profile reflect requirements and features that are wholly unnecessary to that purpose. At the same time, the expanded app is in no way suitable for public use due to safety and security gaps discussed below.⁸

On January 2, 2019, MITRE released an updated version of the VATRP,⁹ and on January 10, MITRE released to the Joint Providers an updated draft of the RUE Profile.¹⁰ To the best of our knowledge, MITRE’s work on this project has not restarted since the Commission reopened on January 28, 2019.

⁶ *VRS Reform Order* at 8642-46 ¶¶ 47-49 & n.48.

⁷ See Letter from Gabrielle Joseph, CEO, ASL Services Holdings LLC dba GlobalVRS; Jeff Rosen, General Counsel, Convo Communications, LLC; Michael Maddix, Director, Government and Regulatory Affairs, Sorenson Communications, LLC; and Greg Hlibok, Chief Legal Officer, ZVRS Holding Company, to Eliot Greenwald, Deputy Chief, Disability Rights Office, Consumer & Governmental Affairs Bureau, FCC, CG Docket Nos. 10-51 & 03-123, Attach. (Oct. 17, 2018) (“Joint Providers Oct. 17, 2018 *Ex Parte*”). The features in the Attachment are not necessary to interoperability testing. The current draft of the RUE Profile has removed one of these features – the Mail Waiting Indicator.

⁸ See *infra* Section III.C.

⁹ VATRP Public Release 1.0.0, <https://github.com/mitrefccace/fcc-vatrp/releases> (last visited Jan. 28, 2019).

¹⁰ Interoperability Profile for Relay User Equipment, draft-rosen-rue-00 (Dec. 19, 2018) (“January 2019 Draft RUE Profile”).

III. DISCUSSION

A. Waiver Standard

Under 47 C.F.R. § 1.3, “[a]ny provision of the rules may be waived by the Commission . . . on petition if good cause therefor is shown.” In *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990), the D.C. Circuit explained that good cause exists where “special circumstances warrant a deviation from the general rule and such deviation will serve the public interest.” *Id.* at 1166. In other words, the Commission “has authority . . . to waive requirements not mandated by statute where strict compliance would not be in the public interest[.]”¹¹

B. The Current Schedule Leaves Little or No Time for Implementation

1. The RUE Profile Must Be Subject to Notice and Comment Before It Is Adopted

To change a rule, the Administrative Procedure Act requires notice and an opportunity for public comment,¹² and the Bureau’s stated procedures for updating the RUE Profile adhere to this mandate. In 2017, the Bureau codified the requirement to comply with the original RUE Profile.¹³ The Bureau also recognized that it may be necessary to update the RUE Profile (or other standards) from time to time. The Bureau adopted the following procedure:

¹¹ *Nat’l Ass’n of Broad. v. FCC*, 569 F.3d 416, 426 (D.C. Cir. 2009).

¹² 5 U.S.C. § 553.

¹³ *See Structure and Practices of the Video Relay Service Program; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd. 687, 691 ¶ 11 (Consumer & Gov’tl Affs. Bur. 2017) (“*SIP & RUE Profile Order*”), *pet. for recon. pending*, Sorenson Communications, LLC, Petition for Partial Reconsideration, or in the Alternative, Suspension of the RUE Implementation Deadline, CG Docket Nos. 10-51 & 03-123 (May 30, 2017) (“*Sorenson Petition for Reconsideration*”); 47 C.F.R. § 64.621(a)(3), (c)(2)(i). The Joint Providers continue to believe that the original RUE Profile was not lawfully adopted or

CGB will make the updated standard available to the public online and issue a public notice seeking comment on such modifications, followed by an order incorporating into the VRS rules amendments or changes by reference if justified based on the resulting record. When such revised standards are completed and accepted by the Bureau, a second public notice will be issued containing information on how to access the modified standards and establishing an implementation schedule.¹⁴

The Joint Providers generally support this process as the appropriate manner in which to modify standards, such as the SIP Profile, that were developed in a voluntary, consensus standard organization (which the MITRE process is not).¹⁵ As a practical matter, however, the process will take many weeks or potentially months to complete. The initial public notice must be published in the Federal Register and offer a reasonable amount of time for the public to comment on the revised RUE Profile. The Bureau must then analyze the comments. If the Bureau decides to direct changes to the RUE Profile based on the record, that development

codified in the Code of Federal Regulations, among other issues detailed in the pending Petition for Reconsideration.

¹⁴ *SIP & RUE Profile Order* at 693 ¶ 17.

¹⁵ As detailed in several prior filings, the Joint Providers disagree that the Bureau had delegated authority to adopt the RUE Profile in the first instance and incorporate it into the Commission's rules, and therefore also disagree that the Bureau may modify the RUE Profile going forward without correcting the process used to adopt it. *See* Letter from Gabrielle Joseph, CEO, ASL Services Holdings, LLC; Jeff Rosen, General Counsel, Convo Communications, LLC; Michael Maddix, Director, Government and Regulatory Affairs, Sorenson Communications, LLC; Gregory Hlibok, Chief Legal Officer, ZVRS Holding Company, to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 10-51 & 03-123, at 1 & Attach. (filed Dec. 19, 2018); Letter from Andrew O. Isar, consultant to ASL Services Holdings, LLC; Jeff Rosen, General Counsel, Convo Communications, LLC; Michael Maddix, Director, Sorenson Communications, LLC; Gregory Hlibok, Chief Legal Officer, ZVRS Holding Company, to Marlene H. Dortch, Secretary, FCC, CG Docket Nos. 10-51 & 03-123, at 4-5 (filed Nov. 21, 2018); Joint Providers Oct. 17, 2018 *Ex Parte* at 3-4; Reply Comments of Sorenson Communications, LLC at 2, CG Docket Nos. 10-51 & 03-123 (filed Aug. 17, 2017); Comments of Sorenson Communications, LLC, at 6, 14 & n.31, CG Docket Nos. 10-51 & 03-123 (filed June 12, 2017); Sorenson Petition for Reconsideration at 6-13.

process will take time, but even if not, the Bureau must draft an order and issue a second public notice with an implementation schedule, both of which must also be published in the Federal Register.¹⁶

No matter how diligent and hard-working the Commission staff are, it is not reasonable to think that this process can be completed before the April 29 deadline. Moreover, should the Bureau agree to any proposed changes suggested in the comments, the process would almost certainly extend beyond the implementation deadline.

In addition, the Bureau's own process calls for it to establish an "implementation schedule" *after* it releases the Order adopting the revised RUE Profile.¹⁷ The Bureau should grant this petition and confirm that it will follow its own established process, preparing an implementation schedule after having finalized the RUE Profile per APA procedures rather than arbitrarily sticking to a predetermined deadline that no longer makes sense.

2. It Is Not Possible for Providers To Comply with the Current Deadline

With only 11 weeks until the April 29, 2019 implementation deadline, the VATRP and RUE Profile remain in flux with no final versions. Thus, it is not possible for the Joint Providers to complete their engineering designs and implement the necessary changes to their systems to ensure that they are fully interoperable with the VATRP pursuant to the *final adopted* RUE Profile. Indeed, the VATRP has not resolved several key issues including the ability to register with Purple's system, making it wholly unusable even for testing.

¹⁶ In addition, compliance with other requirements, such as the Regulatory Flexibility Act and the Paperwork Reduction Act, may add additional time before the requirements can be effective.

¹⁷ *SIP & RUE Profile Order* at 693 ¶ 17.

The Joint Providers have attended regular calls with MITRE to be informed about the latest changes to the VATRP and the corollary changes to the RUE Profile. Based on MITRE's own January report of changes between July and October 2018 and also taking into account changes between October and December, MITRE has *added 39 new provisions* to the RUE Profile and modified an additional 41. It has removed 16 provisions that were in the original RUE Profile, and 41 remain unchanged. Put another way, only 42 percent of the provisions in the original RUE Profile have remained the same since July 2018, and 16 percent of the original provisions have been removed. Of the provisions in the current draft, 40 percent are new since July. The RUE Profile has been gutted and rewritten. The providers could not know which provisions of the original RUE Profile would remain intact, and with over half of the provisions being changed or deleted, their efforts would have been largely wasted. In addition, providers now face implementation of *39 new provisions*, and providers have no way to know whether the current draft RUE Profile is stable or will continue to be modified by MITRE and Commission staff.

The Joint Providers have consistently told the Commission that they require a year for implementation and testing after the RUE Profile and VATRP are finalized.¹⁸ Yet once the

¹⁸ See Comments of Convo Communications, CSDVRS, Purple Communications, and Sorenson Communications, at 2, 8, CG Docket Nos. 10-51 & 03-123 (filed Sept. 14, 2016) (explaining that providers need at least one year for implementation after there is a fully compliant VATRP App); Comments of ASL Services Holdings, LLC dba GlobalVRS at 7, CG Docket Nos. 10-51 & 03-123 (filed Sept. 14, 2016) (“It is impossible to establish a provider compliance timeline in the absence of completed [VATRP] applications for testing.”); Sorenson Petition for Reconsideration at 18 (“To the extent that the Bureau presses forward with the RUE Profile and [VATRP] App, the implementation deadlines should be suspended until after the RUE Profile is corrected and the certified-compliant version or versions of the ACE App are released for testing. At that time, providers should have no less than one year for implementation and testing.”).

notice and comment process is complete and the Bureau has issued an order and a public notice establishing the implementation schedule, there will be little (if any) time for implementation and testing. By suspending the implementation deadline now, the Commission can establish a path forward that offers a reasonable implementation period without forcing VRS providers to waste engineering resources¹⁹ to implement requirements that remain in flux.

C. The VATRP App Would Create Security and Safety Risks If Released to the Public

The Commission noted in 2013 that, as a secondary purpose, that the VATRP could be modified by third party developers and used as VRS “software” by end users.²⁰ For this reason, the VATRP is an “open source” application, meaning that the code itself is available to the public and to developers who wish to modify it. Equally, the Commission’s contracted developers have used a number of open source libraries in their code.²¹ Today it would be difficult for providers to evaluate whether these included open source elements add any security risks. The Joint Providers understand informally from MITRE that their current instructions are to develop the VATRP solely as a tool for testing interoperability and not as a downloadable app available to developers and consumers. The Joint Providers hope that this is also the Commission’s intent.

¹⁹ As the Joint Providers have explained, their implementation costs are reasonably treated as an exogenous cost adjustment and compensable by the TRS Fund. *See* Joint Providers Oct. 17, 2018 *Ex Parte* at 3 & n.7.

²⁰ *See VRS Reform Order* at 8646 ¶ 56.

²¹ <https://github.com/mitrefccace/fcc-vatrp/tree/master/ThirdParties>.

As previously explained, the VATRP is not suitable for use by the public.²² First, it gets out in front of the Commission with use of geolocation for E911²³ at a time when the Commission is currently considering how VRS providers and others should move forward as an industry to improve E911 location-finding.²⁴ The Commission, in its *Kari's Law NPRM*, has recognized that VRS providers will need flexibility with respect to determining a 911 caller's location.²⁵ It is premature to write mandatory technical specifications before establishing the underlying E911 requirements. Similarly, the VATRP poses a serious security risk to VRS systems and a safety risk to consumers if it is used in its current form outside a secure, confidential testing environment. The current draft RUE Profile calls for the use of a "client certificate," which allows providers to authenticate the particular instance of the app as legitimate. The VATRP, however, does not prescribe the procedure or mechanism for obtaining, validating, and protecting a client certificate. As a result, bad actors could use the VATRP source code (which is currently available online to the public) as a tool to attempt to spoof calls, to obtain information from genuine users, to impersonate providers, and to instrument "brute

²² See, e.g., Sorenson Petition for Reconsideration at 14-17.

²³ See January 2019 Draft RUE Profile § 6.2.5.

²⁴ See *Implementing Kari's Law and Section 506 of RAY BAUM'S Act et al.*, Notice of Proposed Rulemaking, FCC 18-132, PS Docket Nos. 18-261 & 17-239, ¶ 79-81 (rel. Sept. 26, 2018) ("*Kari's Law NPRM*"); see also Comments of Sorenson Communications, LLC, Regarding E911 for Video Relay Services, PS Docket Nos. 18-261 & 17-239 (filed Dec. 10, 2018).

²⁵ See *Kari's Law NPRM* ¶ 81 ("To enable TRS providers to balance technical feasibility, functionality, customer impact, and cost, we propose to allow TRS providers flexibility in implementing dispatchable location solutions, and to fall back to Registered Location options when real-time dispatchable location is not feasible.").

force” attacks.²⁶ Furthermore, no one would be able to address abusive customer practices, such as repeated false and harassing calls to 911.

The VATRP app will have no clearly responsible party for maintenance and management. If there are bugs or security issues, who will perform those updates and communicate with the users about them? Similarly, who will update the RUE Profile over time to reflect, for example, improvements to the SIP Profile?

VATRP users will also not experience the same active customer service. Today VRS providers update and repair endpoints remotely and log problems to identify patterns or the need for updates. These will not be available to VATRP users. Similarly, VRS providers will be unable to send critical messages directly to VATRP endpoints, such as the presence of an outage and how to reach 911 until normal service is restored.

Finally, the RUE Profile allows a single user to have multiple simultaneous log-ins with a single VRS provider using the same credentials. Currently with existing endpoints, if a single user were logged out by another endpoint at a different location, it could reflect that someone else has obtained unauthorized access to the user’s credentials. The RUE Profile, however, *requires* the capability for multiple simultaneous log-ins using the same credentials, creating the real possibility that users not eligible for VRS services will obtain access to those services.

²⁶ “A brute force attack is a trial and error method used by application programs to decode encrypted data such as passwords or Data Encryption Standard (DES) keys, through exhaustive effort (using brute force) rather than employing intellectual strategies. Just as a criminal might break into, or ‘crack’ a safe by trying many possible combinations, a brute force attacking application proceeds through all possible combinations of legal characters in sequence.” See TechTarget, SearchStrategy, brute force attack, <https://searchsecurity.techtarget.com/definition/brute-force-cracking> (last visited Feb. 4, 2019).

Therefore, it would be irresponsible to require implementation of the VATRP by April 29, 2019. Doing so would jeopardize the safety and security of VATRP users, other VRS users, the general public, and providers' own systems.

D. The Public Interest Will Be Served by Suspending the Deadline

Suspending the implementation deadline will serve the public interest. First, given the very lengthy process to develop the RUE Profile as it stands today, the voluminous changes to the prior version of the RUE Profile, and the lack of finality in its requirements, the deadline is an impossibility at this point. Suspending the deadline will establish regulatory certainty that allows the Joint Providers and the Commission to proceed forward on a reasonable path to resolving the remaining issues instead of wasting time and resources to attempt to comply with a deadline that no longer reflects the status of the relevant requirements.²⁷ In addition, a suspension will avoid wasteful and costly engineering efforts to implement a moving target, the RUE Profile which has not been accepted or approved by the FCC—costs that ultimately should be borne by the TRS Fund and, thus, the ratepayers who contribute to it.

²⁷ See *Rural Call Completion*, Third Report and Order and Order, FCC 18-120, WC Docket No. 13-39 ¶ 35 (rel. Aug. 15, 2018) (creating an exception to the rule to “provide[] regulatory certainty to covered providers in these limited circumstances where strict compliance with our rules would not be possible or in the public interest”); *Petitions for Declaratory Ruling on Regulatory Status of Wireless Messaging Service*, Declaratory Ruling, FCC 18-178, WT Docket No. 08-7 ¶ 44 n.145 (rel. Dec. 13, 2018) (“In light of the need for regulatory certainty for providers to address the threat of consumer harm . . . it is in the public interest for us to act now”); *Implementation of Further Streamlining Measures for Domestic Section 214 Authorizations*, Report and Order, 17 FCC Rcd. 5517, 5533 ¶ 28 (2002) (creating categories of section 214 applications “to provide potential applicants with greater regulatory certainty about the manner in which the Commission will process their applications, consistent with the public interest”).

Finally, the Joint Providers emphasize that the Consumer Groups have no objection to a pause in the implementation timeline.²⁸ This is significant, as the ultimate purpose of the VATRP was to benefit consumers by increasing choice and competition. Their position speaks volumes about the need to address the outstanding issues, as well as allowing providers to focus engineering resources on issues that are more important and pressing, rather than rushing to implement a flawed program.

²⁸ See Consumer Groups Oct. 31, 2018 *Ex Parte* at 1 (“Consumer Groups and RERC are not opposed to pausing development of the VATRP App and RUE Profile.”).

IV. CONCLUSION

The Commission should suspend the current April 29, 2019 deadline to implement the RUE Profile and interoperate fully with the VATRP. Doing so will create certainty, adhere to the processes that the Bureau established exactly for this purpose, and allow resources to focus on creating the best possible VRS experience for consumers.

Respectfully submitted,

/s/

Gabrielle Joseph
Chief Executive Officer
ASL SERVICES HOLDINGS, LLC
DBA GLOBALVRS

/s/

Jeff Rosen
General Counsel
CONVO COMMUNICATIONS, LLC

/s/

Michael Maddix
Director, Government and Regulatory Affairs
SORENSEN COMMUNICATIONS, LLC

/s/

Gregory Hlibok
Chief Legal Officer
ZVRS HOLDING COMPANY
Parent Company of CSDVRS, LLC
d/b/a ZVRS and Purple
Communications, Inc.

February 8, 2019