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November 19, 2018

Via ECFS

The Honorable Ajit V. Pai
Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: WC Docket No. 17-97

Dear Chairman Pai:

On behalf of TDS Telecommunications LLC ("TDS Telecom"), thank you for your letter of November 5, 2018, regarding our shared desire to eliminate unwanted robocalls made to consumers in violation of federal law.

TDS Telecom, which is headquartered in Madison, Wisconsin, is committed to the highest standards of service for our customers. We provide service to these customers in nearly 900 rural, suburban and metropolitan regions throughout the United States, and we take seriously our commitment to serve these customers reliably, safely and lawfully. Taking action to protect our customers from unlawful robocalls—without undermining legitimate call completion—is a core part of that commitment. While a single solution to eliminate unlawful robocalls in all circumstances remains elusive, we nevertheless are encouraged by recent advances in technology that could go a long way toward addressing and reigning in the problem, all to the benefit of consumers. It is with this goal in mind that we stand alongside you in your efforts to encourage the most optimal development and adoption of these technologies.

We agree that tackling the vexing problem of illegal robocalls depends in part on ending Caller ID spoofing through a robust and comprehensive call authentication framework. To that end, TDS Telecom has been pursuing mechanisms that would enable it to engage in such call authentication. For example, TDS Telecom has worked with multiple vendors that market call authentication solutions to explore alternatives that would enable it to reliably detect spoofing. In our experience, however, the Caller ID-based solutions that we have reviewed to date do not appear to provide the same degree of robust call authentication that SHAKEN/STIR solutions are expected to provide.

We believe the SHAKEN/STIR framework holds greater promise in authenticating calls, notably in the context of IP networks. Although not all vendors have released SHAKEN/STIR solutions, we have commenced discussions with a vendor that has and look forward to additional conversations with vendors in 2019. We also commit to testing a SHAKEN/STIR solution in our

network in 2019. It is our hope and expectation that this testing will enable us to determine the circumstances and specific timetable under which SHAKEN/STIR can be implemented as a robust call authentication solution in our network.

As we look forward to commencing this testing, one major area of concern is the deployment of SHAKEN/STIR in a network like TDS Telecom's that includes significant TDM technology. As the Commission itself has explained, "the SHAKEN/STIR proposals apply to SIP-based, but not SS7-based systems."¹ Aware of this limitation, the Call Authentication Trust Anchor Working Group of the North American Numbering Council (the "CATA WG") likewise explained in its May 2018 report to the Commission that "[m]any voice calls are still transported over TDM networks and ubiquitous deployment of IP networks, particularly in rural areas, is many years away."² The CATA WG accordingly advised the Commission to facilitate the development of SHAKEN/STIR in non-SIP environments.³

Like other carriers with a substantial presence in less densely-populated (and thus costly) areas to serve, TDS Telecom's network consists of a hybrid of IP- and TDM-based solutions. Although TDM often is described as "legacy" equipment, the TDM infrastructure in TDS Telecom's network continues to enable us to deliver critical communications services to rural consumers, businesses, and other institutions. It therefore is in our customers' interests that we maintain this equipment. Given the hybrid nature of our network, we expect our implementation of SHAKEN/STIR to occur on a different timetable for us (and for the many other rural, wireline carriers with substantial TDM deployments) than for carriers that employ all-IP networks.

With this information as background, we below answer the specific questions set forth in your letter of November 5.

- *What is preventing or inhibiting you from signing calls today?*

TDS Telecom is committed to evaluating and employing solutions that will improve the ability to validate the authenticity of incoming calls without undermining legitimate call completion. Vendors are in the process of releasing their SHAKEN/STIR solutions and we understand that these solutions may evolve. TDS Telecom has been and is engaged in vendor discussions to explore SHAKEN/STIR solutions. TDS Telecom will continue work with our vendors and looks forward to testing a vendor solution in our IP network in 2019. Testing will allow TDS Telecom to validate that solutions function in our IP network and provide information necessary to determine broader implementation plans.

¹ *In re Call Authentication Trust Anchor*, WC Docket No. 17-97, Notice of Inquiry, 32 FCC Rcd 5988, 5999, para. 39 (rel. July 14, 2017).

² NANC Call Authentication Trust Anchor Working Group, *Report on Selection of Governance Authority and Timely Deployment of SHAKEN/STIR* at 20, http://www.nanc-chair.org/docs/mtg_docs/May_18_Call_Authentication_Trust_Anchor_NANC_Final_Report.pdf (last visited Nov. 16, 2018).

³ *See id.*

- *What is your timeframe for signing (i.e., authenticating) calls originating on your network?*

We are engaged in vendor discussions to deploy SHAKEN/STIR solutions and are committed to testing a solution in our IP network in 2019. Once that occurs, we will analyze the information accordingly and make necessary implementation plans.

- *What tests have you run on deployment, and what are the results?*

We will begin testing a SHAKEN/STIR solution in our IP network in 2019 and can share information on those results with the Commission after that testing is complete.

- *What steps have you taken to work with vendors to deploy a robust call authentication framework?*

As noted above, we are engaged in vendor discussions to deploy SHAKEN/STIR solutions and are committed to testing SHAKEN/STIR in our IP network in 2019. In addition, as noted above, we expect additional vendor solutions to become available in 2019 and look forward to exploring those, too.

- *How often is TDS [Telecom] an intermediate provider, and do you intend to transmit signed calls from other providers?*

TDS Telecom generally does not serve as an intermediate provider. Although we currently operate a very small number of TDM switches that perform tandem functions, we are not aware of providers currently routing signed calls through these switches. Without testing the handling of signed calls, it is not possible for TDS Telecom to comment on how signaling would be transmitted through these switches, though our intent would be to transmit other carriers' signaling unaltered.

- *How do you intend to combat and stop originating and terminating illegally spoofed calls on your network?*

TDS Telecom appreciates the Commission's continued focus to combat illegal robocalls and illegally spoofed calls. TDS Telecom supports ATIS's work to create the SHAKEN/STIR framework. We agree with others in the industry this framework represents the most promising call authentication solution to address this vexing problem. TDS Telecom believes that by working with vendors and learning from larger providers leading the way on SHAKEN/STIR solutions, the industry as a whole will make significant progress to combat the scourge of illegal robocalls through Caller ID spoofing. In addition to supporting ATIS and exploring vendor solutions for SHAKEN/STIR, TDS Telecom has evaluated Caller ID-based solutions. TDS Telecom also has been engaged in the fight against illegal robocalls and spoofing by assisting in industry investigations and providing responsive information on a timely basis to enforcement authorities. Eliminating illegally spoofed robocalls is a complex problem unlikely to be solved by one entity or with one solution. TDS Telecom believes in doing its part within the telecommunications ecosystem to help ensure the demise of illegal robocalls and spoofing.

- *The Commission has already authorized voice providers to block certain illegally spoofed calls. If the Commission were to move forward with authorizing voice providers to block all unsigned calls or improperly signed calls, how would you ensure the legitimate calls of your customers are completed properly?*

This is a central challenge of technologies designed to block illegal robocalls. Although we are hopeful SHAKEN/STIR can address these concerns without generating “false positives,” it seems reasonable to assume that some legitimate calls will come through networks unsigned. Although it is too soon for TDS Telecom to speak authoritatively on SHAKEN/STIR solutions, we have concerns about blocking legitimate calls that might appear illegitimate because they lack a signature. TDS Telecom has taken note of industry members calling for flexibility to develop other approaches and hopes the Commission will allow providers flexibility to experiment with different approaches to meet our shared goal of eliminating illegally spoofed robocalls without generating broader undesirable collateral effects.

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Thank you again for your letter and for your leadership in promoting call authentication solutions in an effort to eliminate the problem of unlawful robocalls. We are committed to doing all we can as responsible stewards to support these efforts, and we appreciate the opportunity to provide you with this information.

Respectfully submitted,



Ken Paker

Sr. Vice President & CTO – Information & Network Technologies



Andrew Petersen

Sr. Vice President – Corporate Affairs

cc: Deborah Salons, Wireline Competition Bureau (via e-mail)