

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
)	
Petition for Waiver of Rules Requiring)	GN Docket No. 15-178
Support of TTY Technology)	
)	

REPORT

On November 13, 2015, the Commission granted Verizon’s request for a waiver of applicable TTY-related requirements for its IP-enabled wireless services in the same manner and with the same conditions as the waiver the Commission previously granted to AT&T.¹ In granting Verizon’s request, the Commission’s order required Verizon to file “a preliminary report with the Commission, describing with greater specificity ... its initial plans for meeting its commitment to develop and deploy RTT or an alternative text-based solution that is accessible, interoperable with other carriers’ accessibility solutions, and backward compatible with TTY technology.”² Additionally, as in the *AT&T Waiver Order*, the *Verizon Waiver Order* conditionally waived sections 6.5, 7.5, 14.20, 20.18(c), and 64.603 of the Commission’s rules “and any other Commission rules that require support of TTY technology as an accessible solution for VoIP networks,” subject to customer notification, progress reporting, and duration conditions.³ We provide Verizon’s preliminary report below.

¹ *Petition for Waiver of Rules Requiring Support of TTY Technology*, 30 FCC Rcd 12755, Order (Nov. 13, 2015) (“*Verizon Waiver Order*”).

² *Verizon Waiver Order* at ¶ 13.

³ *Id.* ¶¶ 18-21, 25-26.

I. VERIZON HAS IMPLEMENTED INDUSTRY STANDARDS THAT WILL SUPPORT INTEROPERABLE REAL-TIME TEXT SOLUTIONS

Verizon has implemented industry standard capabilities in its 4G LTE wireless network that it will use to support interoperable RTT solutions. As noted in its waiver petition, Verizon is committed “to develop and deploy during the waiver period RTT technology that will be accessible, interoperable with other RTT services and applications, and compatible with other providers’ networks and users that may continue to rely on TTY technology in the future.”⁴ By basing its transmission protocol for real-time text transmission on recognized industry standards, Verizon’s development of RTT will promote the wider availability interoperable RTT.

Verizon has included in its 4G LTE network such industry standards as the Internet Engineering Task Force (IETF) standard RFC 4103. This standard is recognized and supported by leading consumer advocates as beneficial for the development of interoperable RTT solutions across communications providers.⁵ AT&T has also specified it plans to use this standard in its development of RTT.⁶

⁴ *Petition for Waiver of Rules Requiring Support of TTY Technology*, GN Docket No. 15-178, Verizon Petition for Waiver, (Oct. 23, 2015) (“*Verizon Petition*”).

⁵ See Letter from Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI) et al., GN Docket No. 15-178 at 2 (Oct. 19, 2015) (stating that “the Consumer Groups support the adoption of the RFC 4103 standard – which is a non-proprietary, open standard – to ensure that RTT services are compatible regardless of the network on which the service is operating.”); Letter from Telecommunications Access Rehabilitation Engineering Research Center, *Proposal R1v3 for Implementation of Real-Time Text Across Platforms, Version 3.0*, GN Docket No. 15-178 (Nov. 17, 2015) (*RERC Proposal*). See also Architectural and Transportation Barriers Compliance Board, *Information and Communication Technology (ICT) Standards and Guidelines*, Notice of Proposed Rulemaking, 80 Fed. Reg. 10880 (Feb. 27, 2015) (“proposing to require that ICT interoperating with VoIP products using SIP must support the transmission of RTT that conforms to RFC 4103.”)

⁶ See AT&T Petition for Rulemaking, PS Docket Nos. 11-153, 10-255, WC Docket No. 04-36, CG Docket Nos. 03-123, 10-213 (filed June 12, 2015) (AT&T Petition for Rulemaking) at note 1 (defining RTT to mean IETF RFC 4103).

As a widely adopted standard, IETF standard RFC 4103 provides a common transmission protocol for real-time text transmission for transporting the standardized ITU T.140 text presentation used for TTY in modern VoIP networks.⁷ IETF standard RFC 4103 has been incorporated as a part of several other industry standards for the development of 4G LTE and other wireless networks, including 3GPP standard, *Technical Specification Group Services and System Aspects, Global Text Telephony (GTT)*, and 3GPP TS 23.226 v.12.0.0, as the specified transport for text.⁸ IETF standard RFC 4103 is also incorporated into several standards for emergency calling capabilities, including Next Generation Emergency services.⁹ Verizon plans to build on its existing implementation of RFC 4103 and other related industry standards in its wireless network to support RTT transmissions.

Verizon has also begun conducting informal and preliminary internal testing over its IP-based 4G voice-over-LTE (VoLTE) network relying on the IETF standard RFC 4103. While still preliminary, this initial testing included successful TTY calls between VoLTE devices with external TTY devices attached. Beyond these initial tests and prior to any commercial availability, we plan to conduct additional batteries of formalized, systematic tests to ensure that

⁷ See, e.g., Emergency Access Advisory Committee, *Report on TTY Transition at 23* (March 2013) (noting that these standards are collectively used for both SIP and IMS networks, including the GSM standards for LTE networks); GSMA IR.92, *IMS Profile for Voice and SMS*, Version 9.0 at 38 (April 2015).

⁸ See, e.g., AT&T Petition for Rulemaking at n.17 (describing the inclusion of IETF RFC 4103 as a part of industry standards including, among others, 3GPP standard, *Technical Specification Group Services and System Aspects, Global Text Telephony (GTT)*, 3GPP TS 23.226 v.12.0.0); *RERC Proposal at 22-23* (same); Alliance for Telecommunications Information Solutions, *Support of TTY Service Over IP Using Global Text Telephony*, ATIS-1000068 (October 2015).

⁹ See *RERC Proposal at 22* (citing IETF RFC 5012 (Requirements for Emergency Context Resolution with Internet Technologies); RFC 6881 (Best Current Practice for Communication Services in Support of Emergency Calling); NENA and EENA Next Generation Emergency services. NENA NG9-1-1 i3 (Next Generation Emergency services); EENA NG112 LTD (Next Generation Emergency services)).

TTY and RTT signals are transported successfully within its network, as well as between Verizon's network and other provider networks. This includes the complex "interworking" capabilities that enable functional communications between RTT and TTY, thus allowing the newer RTT technology to work with the existing base of TTY devices in the market.

In addition to development and testing of its network, we are also studying additional enhancements to ensure a quality user experience on RTT. Since RTT users seek high quality conversational ability, we are working to confirm that critical features and capabilities inherent in TTY can be implemented in RTT. These include testing to ensure that hearing carry over and voice carry over operate smoothly in connection with the new RTT capabilities. We are also working with device manufacturer partners to identify potential issues and opportunities in the development and deployment of RTT.

II. VERIZON HAS ASSEMBLED A CROSS-FUNCTIONAL TEAM TO DEVELOP ITS SOLUTION

As a part of its commitment to ensuring the development and support of RTT capabilities on its network, Verizon has assembled a cross-functional team with a variety of expertise to collaborate on the development of its solution. By creating a collaborative, cross-functional team, we hope to quickly address issues as they arise and to continue to move this project forward in a timely and efficient manner. Our team includes engineers and business managers focused on the wireless network, wireless devices, emergency calling capabilities, and the accessibility experience. This team meets at least weekly to advance the enablement of RTT and ensure that the project holistically addresses the needs of the business and its customers, and is working to finalize plans and timelines for development and testing consistent with its commitment to make RTT available on its network as set out in the *Verizon Waiver Order*.

III. VERIZON IS ON TARGET TO MEET ITS YEAR-END 2017 DEADLINE

As Verizon described in its Petition for Waiver, we plan to complete development and testing of RTT technology to succeed TTY by the end of 2017, and to ensure that accessible, interoperable RTT services will reliably function on new, IP-based wireless networks. Based on our implementation of industry standard-based technology in the network, and through the work of our cross-functional team, we are actively working to ensure functionality, accessibility, interoperability between networks, and interoperability with legacy TTY devices through the development and testing designed for completion in accordance with our contemplated schedule.

IV. CONCLUSION

Verizon remains on track to meet its commitment to provide RTT capability as set forth in the *Verizon Waiver Order*.

Respectfully submitted,

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