

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

In the Matter of)	
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Transition From)	
TTY to Real-Time Text)	CG Docket No. 16-145
Technology)	
)	
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**COMMENTS OF THE ALLIANCE FOR
TELECOMMUNICATIONS INDUSTRY SOLUTIONS**

The Alliance for Telecommunications Industry Solutions (ATIS) submits these comments in response to the *Notice of Proposed Rulemaking (NPRM)* released May 25, 2016, in the above-referenced docket. In the *NPRM*, the Federal Communications Commission (Commission) proposes amendments to its rules to facilitate a transition from outdated text telephone (TTY) technology to real-time text (RTT) communication. As noted below, ATIS supports the Commission’s proposal to replace its rules governing the obligations of wireless service providers and equipment manufacturers to support TTY technology with rules defining similar obligations to support RTT. ATIS notes that significant industry work has been completed or is underway to address technical issues associated with the implementation of RTT and cautions that the addition of new RTT functions or features by the Commission could delay the completion of this work.

I. Introduction and Background

ATIS is a global standards development and technical planning organization that leads, develops and promotes worldwide technical and operations standards for information, entertainment, and communications technologies. ATIS' diverse membership includes key stakeholders from the Information and Communications Technologies (ICT) industry – wireless and wireline service providers, equipment manufacturers, broadband providers, software developers, consumer electronics companies, public safety agencies, and internet service providers. ATIS is also the North American Organizational Partner of the Third Generation Partnership Project (3GPP), the global collaborative effort that has developed the Long Term Evolution (LTE) and LTE-Advanced wireless specifications. Nearly 600 industry subject matter experts work collaboratively in ATIS' open industry committees and incubator solutions programs.

A significant focus of ATIS work is on emergency services, including key work programs within its Emergency Services Interconnection Forum (ESIF), Packet Technologies and Systems Committee (PTSC), and Wireless Technologies and Systems Committee (WTSC). ATIS' comments on this matter reflect input from these committees.

- **ESIF** serves as the primary forum for the telecommunications industry, public safety and other stakeholders to identify and resolve recognized technical and operational interconnection issues related to the delivery of E9-1-1 and NG9-1-1 services. ESIF is also the lead on a joint industry standards project related to the definition of the ATIS IMS-based NG9-1-1 Service Architecture. ESIF liaises with standards and government organizations to apprise them of its deliberations and decisions. ESIF also works closely with the National Emergency Number Association (NENA), which currently manages the technical evolution of the 9-1-1 system and emergency communications process.
- **PTSC** develops and recommends standards and technical reports related to services, architectures, and signaling. PTSC's work programs focus on issues such as Emergency Telecommunications Service (ETS), cybersecurity, IP-to-IP interconnection, lawfully-authorized electronic surveillance and the evolution of the public switched telephone network (PSTN). PTSC provides input to 3GPP for the above services, including those in

support of RTT use cases from ATIS' Technical Report on the Support of TTY Service over IP Using Global Text Telephony (ATIS-1000068, October 2015).¹ This document is being aligned with other RTT related work underway within ATIS (i.e., RTT end-to-end service description specification and RTT mobile device behavior specification).

- **WTSC** coordinates, develops and recommends standards and technical reports relating to wireless/mobile telecommunications networks. WTSC is the primary industry committee within ATIS that focuses on next generation wireless issues, including those wireless issues that are specific to the implementations of LTE in the U.S. WTSC is also the lead on multiple joint industry standards projects, including work on Short Message Service (SMS) to 9-1-1, coexistence and interference issues, Wireless Emergency Alerts, and public safety mission critical Push to Talk (PTT) voice interoperation between Land Mobile Radio (LMR) and Long Term Evolution (LTE) systems.

II. Comments

In the *NPRM*, the Commission proposes to replace its rules governing the obligations of wireless service providers and equipment manufacturers to support TTY technology with rules defining the obligations of these entities to support RTT over IP-based wireless voice services.² ATIS supports the Commission's proposal and agrees that the replacement of TTY with RTT will improve access to emergency services by persons with disabilities while eliminating the need for specialized end user devices.

ATIS has been actively working to resolve technical issues that will allow for the consistent implementation of RTT. ATIS' Technical Report on the Support of TTY Service over IP Using Global Text Telephony, for example, explains how Global Text Telephony (GTT)³ can be provided over service providers' IP Multimedia Subsystem (IMS) networks. This resulted in modifications to 3GPP TS 24.229 and GSMA IRs (Industry Requirements) for devices to signal their media capabilities to the network. This information is used for determining whether circuit switched (CS) Baudot tone to IP RTT text media interworking is required. There are also two

¹ Available from the ATIS Document Center at < <https://www.atis.org/docstore/product.aspx?id=28244> >.

² *NPRM* at ¶15.

³ GTT enables simultaneous audio and/or video with a text media stream (RTT) over IMS networks.

open work items within ATIS that address key elements of RTT. The ATIS RTT end-to-end service description specification will facilitate a consistent use of RTT among multiple service providers by describing the service interactions between RTT and IMS. The specification will define end-to-end RTT service requirements such as character error rate, transmission delay, and transmission rate, and include an analysis of a variety of RTT use cases. ATIS is also working on an RTT mobile device behavior specification, targeted for publication in 2016. This specification will identify behavior requirements of a device performing RTT user-to-user communication within and between service provider networks, including: (1) minimum requirements for RTT-capable device user interfaces; (2) mobile device behavior in support of emergency services requirements; and (3) minimum RTT user options.

The Commission proposes that, in order for wireless service providers' and equipment manufacturers' support of RTT to be deemed sufficient for compliance with its rules, RTT communications must be interoperable across networks and devices.⁴ The Commission further recommends Internet Engineering Task Force (IETF) Request for Comments (RFC) 4103, Real-time Transport Protocol Payload for Text Conversation (2005), as the appropriate standard to which covered entities should adhere as a safe harbor to demonstrate conformity with the Commission's interoperability requirements and performance objectives. ATIS supports RTT interoperability and believes that the FCC Safe Harbor should be based on ATIS standards which are based on 3GPP TS 29.163 and TS 24.229, as well as define a North American profile of RFC 4103.

The Commission also proposes in the *NPRM* that RTT communications must be backward compatible with TTY technology until the Commission determines that such

⁴ *NPRM* at ¶45.

compatibility is no longer necessary.⁵ Assuming that some Public Safety Answering Points (PSAPs) and Telecommunications Relay Service (TRS) providers will not be able to receive RTT calls by the Commission's deadline, ATIS agrees that backwards compatibility between RTT and TTY for E9-1-1 and TRS 711 services would be beneficial.⁶ However, ATIS cautions against any requirement for compatibility of TTY and RTT devices in support of non-emergency calling due to a significant concern related to transcoder overloading and resulting potential for denial of service to RTT users of E9-1-1 and TRS 711 services. Network transcoding overloading can occur due to the proposed backward compatibility with TTY requirements. When RTT-enabled phones are configured to accommodate all incoming calls from the CS network as TTY calls, the network must reserve a transcoder in case it may be needed because there is no way of knowing the true nature of the CS calls. As RTT-enabled devices making 911 or 711 calls may also require a transcoder, a denial of service could be caused by a flood of transcoder reservations from non-emergency CS voice calls to RTT enabled devices.⁷ There is no feasible way to close this security hole other than restricting TTY to RTT interoperability to E9-1-1 and TRS 711 services.

The Commission, in the *NPRM*, proposes an implementation deadline of December 31, 2017, for Tier I wireless service providers and for manufacturers of handsets and other text-capable end user RTT devices.⁸ As explained more fully above, ATIS is actively working on

⁵ *NPRM* at ¶62.

⁶ *NPRM* at ¶62. The Commission states in its proposal that they "...believe it will remain possible for consumers to use their TTYs to communicate with a TRS call center that is set up to receive RTT calls and for consumers who use RTT technology to communicate with a TRS call center that is set up to provide traditional TTY-based TRS." ATIS agrees with the ability to provide backward compatibility for consumers using TTY provided that it is solely through the use of gateways at TRS call centers.

⁷ ATIS further notes that it would not be feasible to require the deployment of the number of transcoders required to support peer-to-peer RTT to TTY communications as suggested by other organizations beyond the Commission's proposed backward compatibility requirement. Additional study of the impact and feasibility of this scenario may be warranted.

⁸ *NPRM* at ¶ 25.

key RTT specifications. While ATIS is working diligently to complete these specifications so that the industry can begin implementation, it is aware that significant additional technical work must be completed before RTT is ready as a TTY replacement. ATIS will continue to update the Commission on the industry's progress in identifying and resolving RTT-related technical issues.

The Commission proposes to allow the use of over-the-top (OTT) applications as an interim solution for compliance with the proposed December 2017 deadline.⁹ ATIS supports the ability of service providers to meet their obligations under the proposed rules through the use of OTT applications.

The Commission notes in the *NPRM* that its Disability Advisory Committee (DAC) has recommended added RTT features such as the ability to transfer calls, establish multi-point conference calls, record and retrieve messages from voicemail systems, and access and operate menu-based automated attendant and interactive voice response (IVR) systems.¹⁰ ATIS is concerned that the addition of new functions, like voicemail and conferencing (without the inclusion of a relay officer) that are not currently supported for TTY on CS voiceband networks, could negatively impact the service providers' ability to implement and deploy RTT in their packet switched (PS) networks by the proposed December 2017 deadline. It should be noted that RFC 4103 is over 10 years old and is merely a protocol specification and not suite of services or even a service unto itself. The wireless industry has already spent significant resources developing, standardizing, implementing, testing, and deploying multimedia services that can provide the functionalities recommended by the DAC to the entire wireless market globally. It is unreasonable to expect the wireless industry to duplicate this effort to replicate these functionalities using a different protocol, RFC 4103, that was developed for the sole purpose of

⁹ *NPRM* at ¶30.

¹⁰ *NPRM* at ¶43 n.150.

supporting text conversations and not the multimedia features envisioned. These features do not need to be duplicated for a RTT. Also, as none of these additional functionalities are required (or even wanted by public safety) for E9-1-1 or supported for TRS 711 services, regulatory requirements to develop them will only distract industry resources away from the prime objective of providing wireless PS access to E9-1-1 and TRS 711 services. ATIS therefore recommends that the Commission not require support for these new functions in RTT as a consumer market for these functionalities cannot be created by regulation.

The Commission also seeks comment on whether to amend its rules to require wireline IP service providers to support RTT. ATIS believes it would be very premature to impose RTT support obligations on wireline IP services because the industry has not identified and researched potential use cases for implementing RTT in wireline networks. It is not yet clear how users would exercise this capability for devices that do not typically have a keyboard or screen interface that is capable of utilizing RTT functionality.

Finally, ATIS notes that the *NPRM* asks for input on the technical feasibility, costs, and benefits of requiring features such as emoticons, text control settings and/or the transmission of video and data simultaneously with voice.¹¹ ATIS notes that there are technical and practical challenges associated with supporting the capability to transmit emoticons and graphic symbols. While the industry is working to examine these issues, these features should not be required for RTT. For example, ATIS notes that it would be impractical to attempt to support multiple sets of international emoticons. ATIS further notes that there are significant technical issues associated with the transmission of video simultaneously with voice that warrant additional industry evaluation. As video services continue to mature, the industry will address the capability to transmit video simultaneously with voice, but this functionality will not be ready by December

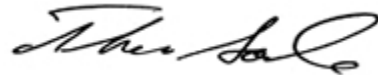
¹¹ *NPRM* at ¶¶ 79, 76.

2017. Given the impact that new features/functions may have on implementation timelines, ATIS recommends that the Commission carefully consider which RTT functions or features should be required. Implementation of functions such as support for video and graphic symbols, (e.g., emoticons) could make compliance with the December 2017 deadline difficult if not impossible to meet.

III. Conclusion

ATIS appreciates the opportunity to provide its input to the NPRM and urges the Commission to consider the recommendations above.

Respectfully submitted,



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July 11, 2016