Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Transition from TTY to Real-Time Text Technology	)	CG Docket No. 16-145
	)	
Petition For Rulemaking To Update The Commission's Rules For Access To Support The Transition From TTY To Real-Time Text Technology, And Petition For Waiver Of Rules Requiring Support Of TTY Technology	)	GN Docket No. 15-178
	)	

To: The Commission

COMMENTS OF CTIA

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Vice President, Regulatory Affairs

Matthew B. Gerst
Director, Regulatory Affairs

Kara D. Romagnino
Director, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

July 11, 2016

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY. 2

II. THE COMMISSION SHOULD RECOGNIZE REAL-TIME TEXT AS A SOLUTION THAT MEETS ACCESSIBILITY OBLIGATIONS AND RELIEVE WIRELESS PROVIDERS AND MANUFACTURERS OF ANY MANDATE TO SUPPORT TTY FOR NEW WIRELESS SERVICES AND EQUIPMENT. 3

- A. The Wireless TTY Obligations Are Technologically Obsolete and Unnecessary to Meet the Needs of Today's Consumers. 3
- B. By Mandating Support for RTT, the Commission's Rules Must Clearly Relieve Wireless Providers and Manufacturers of Obligations to Support Wireless TTY for New Services and Equipment. 7

III. THE COMMISSION'S RTT RULES SHOULD BE FLEXIBLE, TECHNOLOGY-NEUTRAL, AND PERFORMANCE-BASED TO SPUR INNOVATION IN ACCESSIBILITY SOLUTIONS. 8

- A. Flexible, Technology-Neutral Rules Are Essential to Spur Innovative Accessibility Solutions. 8
- B. The Commission Should Refrain from Declaring Only a Single RTT Implementation or Standard as Satisfying the Rules. 9
- C. While the Commission May Recognize RFC 4103 As an Interoperability Safe Harbor, the Commission's Rules Must Remain Flexible and Recognize That Other Standards and Specifications Are Necessary to Support RTT End-to-End. 12

IV. THE COMMISSION'S PROPOSED RULES SHOULD BE MODIFIED TO ENSURE RTT CAN EVOLVE CONSISTENT WITH TECHNOLOGY AND CONSUMER NEEDS. 14

- A. A Sufficient Transition Period Beyond December 31, 2017 is Necessary for Various Affected Entities to Meet the Commission's RTT Requirements. 14
- B. The Commission's Rules Should Provide the Flexibility to Support RTT As Either an Application or Native Function. 16
- C. Consistent with the Commission's Implementation of the CVAA, the Scope of Covered Equipment Should Focus on Devices Intended for Voice Communications and Avoid Prematurely Mandating Support for Video Communications. 17
- D. In Light of the Commission's Text-to-911 Requirements, the Commission Should Ensure Covered Entities Have the Flexibility Needed to Comply with the Proposed 9-1-1 Obligations. 19

V. GIVEN CONSUMER ADOPTION OF APPLICATIONS AND THE WIRELESS INDUSTRY'S EXTENSIVE OUTREACH EFFORTS, THE COMMISSION NEED NOT IMPOSE FURTHER OUTREACH AND NOTIFICATION REQUIREMENTS. 19

VI. CONCLUSION. 20

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Transition from TTY to Real-Time Text Technology	)	CG Docket No. 16-145
	)	
	)	
Petition For Rulemaking To Update The Commission's Rules For Access To Support The Transition From TTY To Real-Time Text Technology, And Petition For Waiver Of Rules Requiring Support Of TTY Technology	)	GN Docket No. 15-178

To: The Commission

COMMENTS OF CTIA

CTIA[1] respectfully submits these comments in the above-captioned proceedings[2] to request that the Commission act expeditiously to remove the outdated, technology-specific rules that require new wireless services and products to support text telephone technology (TTY). Specifically, CTIA urges the Commission to acknowledge Real-Time Text (RTT) as a solution that meets the Commission's accessibility requirements for wireless services and equipment and to adopt flexible, technology-neutral rules that permit the wireless industry to offer other innovative accessibility solutions – such as RTT – as alternatives to wireless TTY for new services and equipment.

---

[1] CTIA® (www.ctia.org) represents the U.S. wireless communications industry. With members from wireless carriers and their suppliers to providers and manufacturers of wireless data services and products, the association brings together a dynamic group of companies that enable consumers to lead a 21st century connected life. CTIA members benefit from its vigorous advocacy at all levels of government for policies that foster the continued innovation, investment and economic impact of America's competitive and world-leading mobile ecosystem. The association also coordinates the industry's voluntary best practices and initiatives and convenes the industry's leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

[2] *Transition from TTY to Real-Time Text Technology; Petition for Rulemaking To Update The Commission's Rules For Access To Support The Transition From TTY to Real-Time Text Technology, And Petition For Waiver Of Rules Requiring Support Of TTY Technology*, Notice of Proposed Rulemaking, CG Docket No. 16-145, GN Docket No. 15-178, FCC 16-53 (Apr. 29, 2016) ("*Notice*").

I. INTRODUCTION AND SUMMARY.

In this proceeding, the Commission has a unique opportunity to recognize RTT as a wholly new service that holds significant potential and promise for consumers, including the deaf, hard of hearing, and speech impaired. However, realizing this opportunity requires sufficient flexibility for industry and reasonable expectations from consumers. Therefore, the goal of this rulemaking should be to recognize wireless text-based communications, such as RTT, as compliant with the Commission's accessibility rules and to move away from the technology-specific rules that mandate new wireless services and products exclusively support TTY, which is outdated and unnecessary for these offerings.

CTIA appreciates that the *Notice* expressly acknowledges RTT as a solution that meets the goals of the existing wireless TTY rules, and encourages the Commission to modify the proposed rules, as described below, to provide the certainty, clarity, and flexibility that the wireless industry will need to implement RTT. While the *Notice* describes the technical framework for RTT interoperability and backward compatibility with TTY, much work remains to determine how the wireless network and handset elements necessary to support a service like RTT can fully support the features and capabilities described in the *Notice*.

The Commission can best enable wireless service providers and manufacturers to usher in new services, such as RTT, that offer superior capabilities to TTY by adopting flexible, technology-neutral rules with a phased-in framework of RTT features and capabilities. Doing so will significantly benefit consumers who are deaf, hard of hearing, or speech-impaired by better enabling them to "utilize and benefit from twenty-first century communications technologies as our nation migrates from legacy analog systems to IP-based networks and services."[3]

---

[3] *Notice* ¶ 3.

II. THE COMMISSION SHOULD RECOGNIZE REAL-TIME TEXT AS A SOLUTION THAT MEETS ACCESSIBILITY OBLIGATIONS AND RELIEVE WIRELESS PROVIDERS AND MANUFACTURERS OF ANY MANDATE TO SUPPORT TTY FOR NEW WIRELESS SERVICES AND EQUIPMENT.

In the *Notice*, the Commission recognizes TTY's unsuitability for innovative IP-based wireless technologies[4] and the availability of other services that meet or exceed the intended purpose of TTY. The Commission should therefore adopt its tentative conclusion that "deployment of RTT on IP networks will offer functionality greatly superior to that of TTY technology"[5] and will meet the goals of the Commission's TTY obligations. In so doing, the Commission should clearly and expressly relieve wireless service providers and manufacturers of the requirement to support TTY in new wireless services and equipment and affirm RTT or other text-based solutions that meet the FCC's RTT performance objectives as alternatives to wireless TTY for all services and equipment.

A. The Wireless TTY Obligations Are Technologically Obsolete and Unnecessary to Meet the Needs of Today's Consumers.

Regulations first adopted nearly 20 years ago, as wireless voice communications were starting to enter the mainstream and text-based wireless communications were nascent, continue to require Commercial Mobile Radio Service (CMRS) providers and equipment manufacturers to support TTY, specifically for purposes of 9-1-1 (emergency services) and 7-1-1 (toll-free dialing to relay services).[6] As explained in the *Notice*, however, TTY over wireless services and

---

4 *See Notice* ¶ 15.

5 *Notice* ¶ 33.

6 *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, Notice of Proposed Rulemaking, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676, 18700 (1996), *recon.*, 12 FCC Rcd 22665 (1997) (noting the importance of 9-1-1 access to the millions of Americans with hearing and speech disabilities and, accordingly, requiring wireless carriers to transmit TTY calls to 9-1-1 services); *The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, First Report and Order and Further Notice of Proposed Rulemaking, 12 FCC Rcd 5572, 5606 ¶ 55 (1997) (assigning 7-1-1 for use to reach telecommunications relay services); *The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, Second Report and

equipment is an outmoded technology that consumers who are deaf, hard of hearing, or speech impaired have effectively abandoned for other text and video communications technologies.[7] Indeed, despite significant and ongoing investments on the part of the wireless industry to support TTY on wireless handsets and over wireless networks, there is little evidence to suggest that consumers have used TTYs with wireless services since the Commission imposed this technology-specific mandate.[8]

Instead, consumers who were expected to use wireless TTY have adopted or have access to other services that address the underlying purposes of the wireless TTY mandate for 9-1-1 and relay services. Following the recommendations of the Commission's Emergency Access Advisory Committee (EAAC), the Commission declared Text-to-911 as a superior solution to wireless TTY for direct communication with 9-1-1 and Public Safety Answering Points (PSAPs).[9] Today, wireless carriers support Text-to-911 across their networks, and more than

---

Order, 15 FCC Rcd 15188, 15201-02 ¶¶ 26-28 (2000) (requiring nationwide implementation of access to relay service via 7-1-1); *see also* 47 C.F.R. §§ 6.3(b), 7.3(b), 20.18(c), 64.603.

[7] *Notice* ¶¶ 11-12; *see also Petition for Waiver of Rules Requiring Support of TTY Technology*, Order, 30 FCC Rcd 10855, 10859 ¶ 11 (2015) (determining that the impact of waiving the Commission's TTY obligations would be "insignificant") ("*AT&T TTY-RTT Transition Waiver Order*").

[8] *See* Emergency Access Advisory Committee, *Report on TTY Transition*, 11-13 (Mar. 2013), https://apps.fcc.gov/edocs_public/attachmatch/DOC-319386A1.pdf ("EAAC TTY Report") (finding that wireless TTY is "very little used" and that overall TTY use is declining by approximately ten percent each year – figures that do not distinguish between users of wireline and wireless TTY).

[9] *See Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications*, Report and Order, 28 FCC Rcd 7556 (2013) (requiring covered text providers to provide consumers attempting to send a text to 911 with an automatic bounce-back message when the service is unavailable); *Facilitating the Deployment of Text-to-911 and Other Next Generation 911 Applications*, Second Report and Order and Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 9846, 9855 n.54 (2014) ("[W]e believe that the adoption of a text-to-911 requirement provides an important interim step in responding to the emergency access needs of people who are deaf, hard of hearing, or speech disabled."); EAAC, *Report on Emergency Calling for Persons with Disabilities Survey Review and Analysis 2011* (July 2011), https://transition.fcc.gov/cgb/dro/EAAC/EAAC-REPORT.pdf (conducting a national survey consisting of 12,766 fully- and partially-completed surveys of people with disabilities on the most effective and efficient technologies and methods to enable next-generation 911); EAAC, *Report and Recommendations* (2011), https://apps.fcc.gov/edocs_public/attachmatch/DOC-312161A1.pdf (recommending, among other things, that the Commission remove the requirement for TTY support for new IP-based consumer devices that implement IP-based text communications).

600 PSAPs have elected to accept Text-to-911.[10] Moreover, relay services, such as IP-based relay service, are also available through mobile wireless services and equipment without the need for wireless TTY and are widely used by consumers with disabilities.[11]

Even more, Congress contemplated the eventual sunset of TTY in the Twenty First Century Communications and Video Accessibility Act of 2010 (CVAA) when requiring the Commission to direct the EAAC to consider the issue.[12] It has now been six years since Congress directed its inquiry and the further evidence of TTY's limited use, if any, among wireless users is even more compelling.[13] In the *Notice*, the Commission proposes to enable

---

[10] FCC, Text 911 Master PSAP Registry, https://transition.fcc.gov/pshs/911/Text911PSAP/Text_911_Master_PSAP_Registry.xlsx (last visited June 24, 2016).

[11] *See, e.g.*, Rolka Loube, *Interstate TRS Fund Performance Status Report* (Jan. 2016), http://media.wix.com/ugd/455e4d_d1c1ca078b2e45948dd003e71fbe4c42.pdf (showing that the Interstate TRS Fund Administrator projected that the Interstate TRS fund would pay for over half a million IP-Relay minutes, nearly 16 million IP Captioned Telephone Service minutes, and nearly 11 million Video Relay Service ("VRS") minutes in January 2016 alone); *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, E911 Requirements for IP-Enabled Service Providers*, Report and Order and Further Notice of Proposed Rulemaking, 23 FCC Rcd 11591 (2008) (adopting a system for assigning users of Internet-based TRS ten-digit telephone numbers linked to the North American Numbering Plan); Colorado Commission for the Deaf and Hard of Hearing, Telecommunications Equipment Distribution Program, http://www.ccdhh.com/pdf_2016/tedp/TEDP%20brochure.pdf (last visited July 7, 2016) (noting that Colorado provides wireless smartphones to "enable deaf and hard of hearing mobile access without requirement home phone service" among other options including TTY); Texas Department of Assistive and Rehabilitative Services, Specialized Telecommunications Assistance Program (STAP), FY 2015 Voucher Values, http://www.dars.state.tx.us/dhhs/vouval.shtml (last visited June 24, 2016) (explaining that Texas provides support for over three dozen assistive communication technologies in addition to TTY); Missouri Assistive Technology, TAP Wireless Pilot, http://at.mo.gov/telecom-access-program/tap-wireless.html (last visited June 24, 2016) (making available several non-TTY assistive devices); *see also*, Matt Simon, *The Remarkable Tech Bringing the Deaf and Hearing Worlds Together*, WIRED (June 27, 2016), http://www.wired.com/2016/06/remarkable-tech-bringing-deaf-hearing-worlds-together (explaining how a San Francisco pizzeria uses VRS to take phone orders and conduct business).

[12] *See* CVAA, Pub. L. No. 111-260, 47 U.S.C. § 615c(a) (providing the FCC Chairman with authority to establish the EAAC to make recommendations to the Commission on achieving equal access to emergency services "as a part of the migration to a national Internet protocol-enabled emergency network"); *id*. § 615c(c)(6) (explicitly providing for consideration of "the possible phase out of the use of current-generation TTY technology to the extent that this technology is replaced with more effective and efficient technologies and methods to enable access to emergency services by individuals with disabilities").

[13] *See* EAAC TTY Report at 43 (finding as of 2013 that wireless TTY usage "is close to zero").

potential RTT users to communicate with existing TTY users through a requirement that wireless networks must be backwards compatible with TTY until TTY is sunset.[14] While CTIA understands the Commission's goal of facilitating RTT-TTY backwards compatibility until TTY is sunset,[15] which may be necessary in the near-term for 9-1-1 emergency communications with PSAPs that have not transitioned to IP-based services, the Commission must also recognize the availability of Text-to-911 services that offer a superior ability over wireless TTY to directly contact PSAPs, and, as previously noted, the lack of evidence to suggest that wireless TTY is used for non-emergency communications today. For this reason, the appropriate timeframe for sun-setting the RTT-TTY backwards compatibility requirement should be tied to PSAPs' ability to directly receive RTT, and the Commission should also establish a date-certain to incent PSAPs to move beyond TTY.

In further recognition that the existing TTY requirements are unnecessary, the Commission's Disability Advisory Committee (DAC) also recommended that "newly manufactured and offered wireless equipment and services that support interoperable RTT consistent with [RTT-TTY interoperability recommendations] need not support TTY services and equipment."[16] The Commission's proposed RTT-TTY backwards compatibility requirements should be sufficient to ensure that existing wireless TTY support for legacy services and equipment will be maintained until the Commission expressly sunsets TTY

---

[14] *Notice* ¶ 65-66 (proposing to sunset the RTT-TTY backward compatibility requirement when Next Generation 911 has been transitioned nationwide, but raising concerns about the ability of people with disabilities to make text emergency and non-emergency communications).

[15] The Commission should also consider whether the record supports carrier's ability to maintain backwards compatibility dependent on unique network architectures.

[16] Disability Advisory Committee, Recommendation of the FCC Disability Advisory Committee Technology Transitions Subcommittee, at 3 (Feb. 23, 2016), https://ecfsapi.fcc.gov/file/60001518532.pdf ("DAC February Recommendation").

services. For these reasons, the Commission should find that the wireless TTY mandate is unnecessary to meet the needs of today's consumers.

B. By Mandating Support for RTT, the Commission's Rules Must Clearly Relieve Wireless Providers and Manufacturers of Obligations to Support Wireless TTY for New Services and Equipment.

As the *Notice* observes, several Commission rules require CMRS providers and manufacturers to support TTY technology, including: Section 20.18(c), regarding TTY access to 9-1-1 services; Section 64.603, regarding support for toll-free dialing to relay services via the 7-1-1 dialing code; and a variety of rules implementing Sections 255 and 716 of the Communications Act of 1934 (the Act) regarding TTY support where "readily achievable" or "achievable," respectively.[17] In light of the benefits of RTT for IP-based services and equipment, and the proposed backward compatibility requirements with TTY, it would be an unnecessary burden to require wireless service providers and manufacturers to support both TTY and RTT capabilities in new wireless equipment. Accordingly, the Commission should modify the proposed rules to make clear that new wireless services and handsets are relieved from the existing wireless TTY rules.

In the *Notice*, the Commission proposes only to exempt Wireless VoIP services and equipment or CMRS providers transmitting over IP facilities from obligations to support TTY.[18] The *Notice* and proposed rules thus appear to leave open the question of whether CMRS service providers and manufacturers, generally, must support wireless TTY in new services or equipment. Given the previous discussion about the limited utility of wireless TTY for consumers today, the Commission should clearly and expressly relieve wireless services and equipment – whether CMRS providers, wireless VoIP providers, or manufacturers of equipment

---

[17] *Notice* ¶ 5.

[18] *Notice*, App. A.

capable of supporting either CMRS or wireless VoIP – from any obligations to support TTY in ***new***[19] wireless services and equipment.[20] As described below, new wireless VoIP services and equipment could instead have obligations to support other text-based communications consistent with the Commission's new requirements for RTT.

III. THE COMMISSION'S RTT RULES SHOULD BE FLEXIBLE, TECHNOLOGY-NEUTRAL, AND PERFORMANCE-BASED TO SPUR INNOVATION IN ACCESSIBILITY SOLUTIONS.

A. Flexible, Technology-Neutral Rules Are Essential to Spur Innovative Accessibility Solutions.

The current wireless TTY mandate is based on wireless technology as it existed almost two decades ago. When considering RTT or a similar text-based communications service, the Commission should learn from the wireless TTY experience and avoid adopting rules based on a snapshot of technology that will invariably lead to an outdated mandate. Instead, the Commission should adopt flexible, technology-neutral rules that permit the wireless industry to offer innovative solutions to meet consumers' accessibility needs. Adopting a flexible approach to RTT, rather than mandating a particular means of implementation, would enable manufacturers and service providers to use new technologies and update technologies as they evolve – and ensure that people with disabilities benefit from innovation. Flexible rules also recognize the complexity of developing and deploying RTT throughout wireless networks and onto devices that must work successfully on those networks.

---

[19] Consistent with other accessibility regulations that the Commission has adopted pursuant to the CVAA, "new" services and equipment should be those first offered or manufactured after the end of the compliance period for implementing RTT regulations pursuant to the *Notice*. *See, e.g.*, 47 C.F.R. § 79.103(a), Note 1 (Closed caption decoder requirements for apparatus); *id*. § 79.107 (a)(1), Note 2 (User interfaces provided by digital apparatus).

[20] As explained below, CTIA understands that some consumers continue to rely on wireline TTY and does not intend TTY relief for *new* wireless services and equipment to affect continued wireless or wireline TTY support on *existing* services or equipment (to the extent it is currently required) or to affect the proposed support for backwards compatibility between RTT and TTY.

B. The Commission Should Refrain from Declaring Only a Single RTT Implementation or Standard as Satisfying the Rules.

There are multiple possible implementation solutions for RTT, including several technical specifications and standards, some of which have existed for years and others which are not yet finalized or widely adopted. The Commission should therefore decline to treat a single RTT implementation or standard as the sole means by which wireless service providers and equipment manufacturers can satisfy their RTT obligations. Instead, the Commission's rules should remain flexible enough to allow industry to develop the standards and specifications necessary to support RTT across wireless technologies and handsets.

Rather than prescribing detailed specifications that must accompany RTT, the Commission should follow the proven technology-neutral performance objective approach adopted in the Commission's accessibility rules for Section 255 (telecommunications) and Section 716 (advanced communications services (ACS)) of the Act. Specifically, the Commission should codify a basic performance objective for RTT that new wireless services and equipment shall, if achievable,[21] provide RTT capabilities so that RTT users have access to core functions and features that are provided to voice-based users.[22]

Some of the requirements listed in proposed Section 67.2 of the rules[23] are also sufficiently broad performance objectives to provide manufacturers and service providers with

---

[21] The Commission should adopt the same definition of "achievable" as used in the ACS regulations adopted pursuant to the CVAA, 47 C.F.R. § 14.10(b). Use of the "achievable" standard recognizes the flexibility needed by wireless service providers and manufacturers to implement RTT.

[22] CTIA notes that the Commission should ensure the final rules are consistent with the scope of the Commission's existing requirements. For example, the Commission's 9-1-1 and Text-to-911 requirements apply only to *interconnected* VoIP and text providers, respectively. *See e.g.*, 47 C.F.R. § 20.18(a)(1), (n) (describing the scope of 9-1-1 and Text-to-911 requirements). The Commission's final RTT rules should consider that support for interoperable RTT may not be achievable or consistent with other mandates for providers and manufacturers offering or supporting non-interconnected services.

[23] *See Notice* App. A. For example, Sections 67.2(b)(2) (RTT-TTY interoperability) and 67.2(d)(1) and (2) (telephone numbering and PSAP delivery) are potential broad performance criteria.

guidance without restricting their flexibility. The Commission should permit the wireless industry to deploy RTT consistent with these performance objectives rather than mandating a specific way to achieve those objectives.

However, the Commission should not micromanage specific RTT features and functionalities. These should develop over time, in response to consumer demand. For example, proposed Section 67.2(d) of the rules could be construed to include an overly prescriptive requirement to exclusively support character-by-character consumer input and to prohibit the use of keyboards on touchscreens that allow individuals to swipe – *i.e.*, forming words with one action – or utilize predictive text – *e.g.*, autocorrect – in addition to typing character-by-character. Some individuals, such as those who may not speak English as a first language (because American Sign Language is their first language) or with cognitive disabilities, may find these input methods superior to letter-by-letter input because they are less sensitive to spelling mistakes. Similarly, it would be far too prescriptive for the Commission to require RTT to support emojis and similar characters,[24] especially assuming RTT-TTY backward compatibility will be required, because TTY does not support such characters. Section 67.2(d) thus should be modified to permit implementations that enable innovative features and capabilities that will benefit all consumers, including people with disabilities.

Imposing undefined and open-ended mandates are potentially as problematic as micromanaging features. For example, the proposed Section 67.2(d)(7) – "transmit caller identification and conduct similar telecommunications functions with RTT communications" – provides insufficient guidance to covered entities.[25] The wide variety of consumers that may take advantage of RTT will have different expectations, and the Commission must clearly

---

[24] *See Notice* ¶ 79.

[25] *Notice* at App. A.

communicate reasonable expectations to both covered entities and consumers. Consumers may interpret "caller identification" to mean the telephone number of the caller or contact name or the ability to retrieve such information with a code. And, the phrase "similar telecommunications functions" is so vague as to fail to provide reasonable guidance. Any final rules regarding RTT should therefore set forth reasonable and circumscribed performance objectives.

There is ample precedent for adopting an approach based on reasonable performance objectives. Section 716 of the Act, for instance, requires equipment used for ACS to be "accessible to and usable by individuals with disabilities," if achievable. ACS equipment manufacturers can satisfy this obligation through flexible, demand-driven solutions. In implementing this statutory provision, the Commission was specifically barred from prescribing regulations that mandated particular technical standards.[26] Section 255 takes a similar approach.[27] In addition, the U.S. Access Board's Telecommunications and Electronic and Information Technology Advisory Committee (TEITAC) Report takes a flexible approach that references functional performance criteria that describe the use cases for technologies rather than adopting a technology-specific mandate.[28]

---

[26] CVAA, 124 Stat. at 2756-57 ("[T]he Commission shall … not mandate technical standards, except that the Commission may adopt technical standards as a safe harbor for such compliance if necessary…"), codified at 47 U.S.C. § 617.

[27] *See* 47 U.S.C. § 255 (directing the Access Board to develop guidelines for accessibility of telecommunications equipment and customer premises equipment in conjunction with the Commission); *Implementation of Sections 255 and 251(a)(2) of the Communications Act of 1934, as enacted by the Telecommunications Act of 1996, Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities*, Report and Order and Further Notice of Inquiry, 16 FCC Rcd 6417 (1999) (defining "accessible" for the purposes of the Commission's rules implementing Section 255 according to performance objectives).

[28] *See* Telecommunications and Electronic and Information Technology Advisory Committee, U.S. Access Board, *Report to the Access Board: Refreshed Accessibility Standards and Guidelines in Telecommunications and Electronic and Information Technology* at 6-A.2.c Note 1 (Apr. 2008), http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/background/teitac-report/6-the-recommendations.

For these reasons, the Commission should decline to mandate a particular means of RTT implementation and instead follow the proven, technology-neutral performance objective approach adopted elsewhere in the Commission's rules. Such an approach will enable wireless service providers and manufacturers to better ensure that services like RTT can evolve to facilitate accessible communications for consumers with disabilities.

C. While the Commission May Recognize RFC 4103 As an Interoperability Safe Harbor, the Commission's Rules Must Remain Flexible and Recognize That Other Standards and Specifications Are Necessary to Support RTT End-to-End.

Although CTIA agrees with the Commission's proposal to recognize RFC 4103 as a safe harbor for RTT interoperability, a network interoperability specification alone does not ensure that a service can be supported end-to-end across the array of available network and handset technologies. The Commission's final rules should recognize that RTT deployment requires a variety of interdependent standards and specification efforts to support RTT across the multiple wireless networks and mobile devices available in the United States.

This is true for any service offered by wireless service providers and supported on wireless equipment. For example, connecting a voice call from one handset to another handset through a wireless network requires a complex system of interconnected standards and specifications, of which interoperability is only one issue to address. Likewise, device and network RTT capabilities must be carefully coordinated by industry participants to ensure that the service functions as desired.

The standards and specifications necessary to support RTT end-to-end are being actively developed,[29] but the Commission's exclusive focus on RFC 4103 in the rules – to the exclusion

[29] For example, the Alliance for Telecommunications Industry Solutions ("ATIS") published its ATIS-100068, "Support of TTY Service over IP over Global Text Telephony" in December, and continues work on two standards: "Real Time Text Mobile Device Behavior Specification" and "Real

of other standards and specifications – could unintentionally inhibit further development of the standards and specifications necessary to support RTT end-to-end and thwart continued enhancement and innovation. For example, RFC 4103 will not determine how or whether a particular device supports RTT or works on different networks, and it would be inappropriate to rely on RFC 4103 to guarantee any device portability requirement.[30] Further, the Commission's proposed rules generally appear to blur the distinct abilities of service providers and OEMs to support a service such as RTT. The Commission's rules should therefore remain flexible enough to allow industry to develop the standards and specifications to support the Commission's RTT performance objectives across the broad variety of wireless technologies and handsets.

The Commission must also recognize that RFC 4103 is an evolving specification, which means the Commission's rule should provide the flexibility for providers and manufacturers to adopt amendments to the specification that may improve RTT interoperability. At a minimum, the Commission's rules should recognize that implementations conforming to any subsequent versions of RFC 4103, including implementations that conform to published errata, will be deemed compliant.[31] Importantly, the Commission should refrain from codifying any URL in its rules, as URLs often change and may not display the most current information, such as errata.

Time Text End-to-End Service Description Specification." *See* Presentation of Aaron Bangor, Lead Accessible Technology Architect, AT&T Corporate Accessibility Technology Office attached to Letter from Linda Vandeloop, AVP-Federal Regulatory, AT&T, to Marlene H. Dortch, Secretary, FCC, CG Docket No. 16-145 and GN Docket No. 15-178 (June 16, 2016); Comments of CTIA-The Wireless Association, GN Docket No. 15-178, at n.17 (filed Aug. 24, 2015) (describing standards efforts to enable RTT).

ATIS and other standards organizations such as 3GPP are also engaged in standards efforts that address accessibility in an IP-based environment.

[30] *Notice* ¶¶ 87-88.

[31] *See, e.g.*, Reply Comments of CTIA, CG Docket Nos. 12-32, 13-46, WT Docket Nos. 07-250, 10-254, at 5-7 (filed Mar. 28, 2016) (supporting the Commission's proposal to permit the industry to rely on ANSI HAC standards prior to their formal adoption by the Commission, which is a more efficient process that would enable consumers to obtain more advanced, innovative HAC wireless handsets more quickly).

Moreover, in adopting RFC 4103 as an interoperability safe harbor, the Commission must also ensure there is a sufficient record that more than one vendor can offer service providers support for RTT based on RFC 4103. Given the Commission's previous experience with TTY, the Commission should avoid creating a *de facto* technology mandate that will necessitate additional waiver requests.[32]

Finally, as previously discussed, if the Commission adopts RFC 4103 or an industry-accepted successor as a safe harbor, it should not require RTT to conform to any specific technology mandate to meet the performance objectives described above. Mandating a particular form of implementation would ignore the complexity of developing and deploying RTT throughout the variety of wireless networks and devices and would only serve to limit wireless manufacturers' and service providers' abilities to facilitate accessible communications.

IV. THE COMMISSION'S PROPOSED RULES SHOULD BE MODIFIED TO ENSURE RTT CAN EVOLVE CONSISTENT WITH TECHNOLOGY AND CONSUMER NEEDS.

A. A Sufficient Transition Period Beyond December 31, 2017 is Necessary for Various Affected Entities to Meet the Commission's RTT Requirements.

Implementing new RTT rules for the entire wireless industry, including manufacturers and service providers of all sizes, is a complex undertaking that is far more complicated than implementing the carrier-specific waivers that the Commission has granted to date, which are based on a compliance date of December 31, 2017. The Commission should acknowledge this complexity when establishing a timeline for implementation of ubiquitous RTT support for the rest of the industry that extends beyond December 31, 2017.

---

[32] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, Fourth Report and Order, 15 FCC Rcd 25216 (1997) (approving final extension of the digital systems TTY compliance deadline to June 30, 2002).

A phased-in approach to RTT implementation is necessary to reflect the interdependencies of Tier 1 and non-Tier 1 service providers, manufacturers, and software developers. Even a flexible, technology-neutral approach to RTT will require significant investment and rigorous testing by industry participants. Importantly, RTT implementation costs will not be limited to end-user devices. As noted above, service provider networks also must be engineered to support RTT.[33] As in other Commission accessibility proceedings, the transition period must be appropriate for the multiple entities subject to the rules.[34]

Also related to the compliance deadline, the Commission should not impose a requirement to introduce RTT compatibility into legacy devices in service at the deadline.[35] These devices, which presumably already are TTY-compliant, should not be subject to an RTT requirement when they receive software updates or are upgraded. RTT, particularly any "native" RTT, represents a fundamental change in handset and network capabilities. In contrast, maintenance of legacy devices, for security and other purposes, requires frequent updates and upgrades to ensure constant quality of service. Service providers and manufacturers must have the flexibility to push out updates and upgrades on legacy devices without triggering new responsibilities for deploying RTT.

---

[33] *See Notice* ¶ 24 (focusing on the costs of implementation in end-user hardware).

[34] *See, e.g.*, *First User Interface Order*, 28 FCC Rcd at 17399 ¶ 111 (adopting a compliance deadline three years after the publication of the order in the *Federal Register* for new accessibility requirements that impose requirements jointly on manufacturers and multichannel video programming distributors); *Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets*, First Report and Order, 23 FCC Rcd 3406, 3418-20 ¶¶ 35-36 (2008) (adopting rules that phased in HAC requirements for both manufacturers and service providers over five years).

[35] *See Notice* ¶ 29 (asking whether there should be "a requirement to add RTT capability to end user devices already in service at the compliance deadline" at "natural opportunities").

B. The Commission's Rules Should Provide the Flexibility to Support RTT As Either an Application or Native Function.

The Commission should adopt its tentative conclusion that "use of an over-the-top application as an interim solution … will be sufficient to constitute compliance with the RTT requirement by December 31, 2017."[36] Consumers are embracing smartphones that allow them to download applications (apps) to add functionality to devices.[37] Widespread use of downloaded apps demonstrates that consumers will utilize multiple technologies and migrate to the technologies that perform best for them. Therefore, as applied to RTT, CTIA believes that the Commission should provide the flexibility to comply with the requirements through applications.

However, the Commission should also acknowledge that downloadable applications may not be able to support all of the proposed requirements detailed in the *Notice*. For example, legacy devices may not be capable of supporting RTT, even through a downloadable application. The *Notice* suggests that downloadable apps may be one way to provide some measure of device portability, but the *Notice* overlooks that device portability also depends on whether different networks are compatible.[38] With the subscriber identity module (SIM) card example,[39] the Commission must recognize the fact that cellphone unlocking and SIM swapping do not

---

[36] *Notice* ¶ 31. The Commission should clarify the term "over-the-top" because it is unclear if the Commission is referring to applications that are downloadable and/or an application that is operating on an unmanaged, best efforts network. Any rules adopted by the Commission must recognize that RTT applications on a handset that may otherwise work on a wireless licensee's managed network may nevertheless have functional limitations if operated on an unmanaged network (*e.g.*, a Wi-Fi network).

[37] PN Comments of CTIA – Accessibility of Communications Technologies, CG Docket No. 10-213, 17-22 (filed June 22, 2016) (describing numerous first-party and third-party apps that enhance the accessibility of wireless products and services).

[38] *See Notice* ¶ 87 (seeking comment on whether apps can support RTT functionalities); *see also* Michael Mandel and Judith Scherer, The Geography of the App Economy, at 4 (Sept. 20, 2012) (explaining successful apps may start on one platform and then extend to "new operating systems, add new capabilities, and respond to customer questions"), http://files.ctia.org/pdf/The_Geography_of_the_App_Economy.pdf.

[39] *See Notice* ¶ 86.

guarantee full use of all phone capabilities when a subscriber uses a handset specifically designed for one network on another network.[40] Thus, the Commission must provide the flexibility for wireless service providers and manufacturers to support RTT through either native functionality or OTT applications.

So long as apps can support the RTT performance objectives adopted in the final rules, covered equipment that supports RTT applications should be deemed compliant with the Commission's rules. As described below, there is no reason to be "concerned that the advantages of RTT as a universal text solution will not be achieved until RTT is incorporated as a native function in end user devices, or at a minimum, pre-installed by the manufacturer or service provider as a 'default' application."[41] Rather, the Commission should be concerned about locking in a technology that consumers may abandon in favor of a more effective technology in just a few years. For these reasons, CTIA urges the Commission to be flexible and technology-neutral by permitting provisioning of either "native" functionality or downloadable apps to support RTT.[42]

C. Consistent with the Commission's Implementation of the CVAA, the Scope of Covered Equipment Should Focus on Devices Intended for Voice Communications and Avoid Prematurely Mandating Support for Video Communications.

The current wireless TTY rules are intended to allow people with disabilities to communicate through text in a way functionally equivalent with voice communications. The

---

[40] *See, e.g.*, FCC, Cell Phone Unlocking, https://www.fcc.gov/general/cell-phone-unlocking (last visited July 5, 2016) ("'[U]nlocking' a device will not make a device fully interoperable—a device designed for one network is not made technologically compatible with another network merely by 'unlocking' it. Additionally, 'unlocking' a device may enable some functionality of the device but not all (*e.g.*, an unlocked device may support voice services but not data services).").

[41] *Notice* ¶ 31.

[42] *See* DAC February Recommendation at 3 (urging the Commission to consider as part of the transition to support RTT, "downloadable applications that provide the RTT functionality should be permitted until the eventual phasing in of native RTT functionality").

Commission similarly should focus on getting RTT right as an accessibility solution for people, such as those with hearing disabilities, who have limited access to voice communications. Consistent with the intended use of wireless TTY as functionally equivalent with voice communications, the Commission's rules should focus on requiring RTT support on devices typically used with voice communications, rather than end user devices that are merely text capable.[43]

The Commission should also avoid mandating RTT support for simultaneous video communications at this time. If for no other reason, the Commission has not resolved the definition of "interoperable video conferencing services" in the ACS context.[44] The Commission should therefore not prematurely require video-related functionality from RTT that later may be altered depending on the scope of interoperable video conferencing services under the ACS rules, effectively imposing conflicting regimes on similar technology. More practically, CTIA is not aware that any standards or technical body has evaluated and recommended support for end-to-end support of simultaneous RTT and video communications. Therefore, supporting simultaneous video communications should not be a goal for RTT, certainly not within the time constraints envisioned in the *Notice*.

---

[43] Such an approach would be consistent with the Commission's rules in the Hearing Aid Compatibility context, where the requirements define a covered "handset" as one that "contains a built-in speaker and is typically held to the ear in any of its ordinary uses." *See* 47 C.F.R. § 20.19(3)(i).

[44] *See Implementation of Sections 716 and 717 of the Communications Act of 1934, as Enacted by the Twenty-First Century Communications and Video Accessibility Act of 2010; Amendments to the Commission's Rules Implementing Sections 255 and 251(a)(2) of the Communications Act of 1934, as Enacted by the Telecommunications Act of 1996; In the Matter of Accessible Mobile Phone Options for People who are Blind, Deaf-Blind, or Have Low Vision*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 14557, 14684-14687 ¶¶ 301-305 (requesting comment on the meaning of "interoperable" for interoperable video conferencing services).

D. In Light of the Commission's Text-to-911 Requirements, the Commission Should Ensure Covered Entities Have the Flexibility Needed to Comply with the Proposed 9-1-1 Obligations.

As previously described, the Commission has declared that Text-to-911 services are superior to the current wireless TTY mandate for purposes of 9-1-1 communications. Today, wireless providers support Text-to-911 across their networks, and PSAPs are increasingly adopting Text-to-911, including the ability to choose to receive texts through their legacy TTY services. For these reasons, providers and manufacturers should have flexibility in supporting 9-1-1 services for RTT, including location information, where achievable. Where compliance with the 9-1-1 rules is not achievable for a particular RTT implementation, providers and manufacturers should be able to rely on compliance with the Commission's Text-to-911 rules.[45]

V. GIVEN CONSUMER ADOPTION OF APPLICATIONS AND THE WIRELESS INDUSTRY'S EXTENSIVE OUTREACH EFFORTS, THE COMMISSION NEED NOT IMPOSE FURTHER OUTREACH AND NOTIFICATION REQUIREMENTS.

As described in the *Notice*, consumers will be able to access RTT services either through a downloadable application or native implementation. In other words, consumers who want to use RTT will be able to access a provider's RTT application the same way they would access any other application (such as an application to make a VoIP phone call) or the RTT service will already be embedded on their handset. Given consumers' general familiarity with downloading apps and the competitive nature of the wireless market, the Commission's proposal to mandate specific outreach and education about the availability of RTT services is unnecessary. As RTT services are developed and deployed, the wireless industry's outreach activities will include RTT in those efforts.[46]

---

[45] 47 C.F.R. § 20.18(n) (Text-to-911).

[46] Any such requirements should be, at most, temporary. *See, e.g.*, *AT&T TTY-RTT Transition Waiver Order*, 30 FCC Rcd at 10863 ¶ 18; *Petition for Waiver of Rules Requiring Support of TTY*

VI. CONCLUSION.

For the reasons discussed above, the Commission should adopt final rules that clearly and explicitly ensure outdated wireless TTY technologies are not required for new wireless services and equipment and provide flexible, technology neutral performance-based objectives that will begin a path towards more innovative accessibility solutions, such as RTT.

Respectfully submitted,

By: */s/ Matthew B. Gerst*

Matthew B. Gerst
Director, Regulatory Affairs

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Vice President, Regulatory Affairs

Kara D. Romagnino
Director, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081
www.ctia.org

July 11, 2016

Technology, Order, 30 FCC Rcd 12755, 12760 ¶ 14 (CGB PSHSB WTB WCB 2015) (Verizon waiver); *Petition for Waiver of Rules Requiring Support of TTY Technology*, 30 FCC Rcd 14404, 14408-09 ¶ 12 (CGB PSHSB WTB WCB 2015) (CellSouth waiver).