Recommendation of the FCC Disability Advisory Committee
Technology Transitions Subcommittee
RTT on Refreshable Braille Displays
Adopted October 3, 2018

1. WHEREAS, the Federal Communications Commission's (FCC's or Commission's) Report and Order on real-time text (RTT)[1] does not outline specific requirements on manufacturers of RTT technologies or telecommunications carriers to ensure compatibility of RTT with refreshable Braille displays and similar assistive technologies; and

2. WHEREAS, the corresponding Further Notice of Proposed Rulemaking requests comment on how best to support the use of refreshable Braille displayed with RTT; and

3. WHEREAS, the Technology Transitions Subcommittee has been asked to explore the technical and practical challenges of supporting the compatibility of RTT with refreshable Braille displays and similar assistive technologies; and

4. WHEREAS, the Technology Transitions Subcommittee submitted a recommendation to the Commission in October 2017 that further study was needed, and recommended that the FCC host a workshop; and

5. WHEREAS, with the assistance of the Commission's Consumer and Governmental Affairs Bureau, the Technology Transitions Subcommittee subsequently held a workshop in April 2018 to explore compatibility of RTT and refreshable Braille displays, which included hands-on demonstrations to gather information from DeafBlind experts. This workshop resulted in the take-aways listed in the Attachment; and

6. WHEREAS, it is in the best interests of the DeafBlind community for best practices on this issue to provide manufacturers and service providers the flexibility to innovate; and

7. WHEREAS, as a result of its review of this issue and knowledge acquired at the April 2018 workshop, the Subcommittee has developed some recommended best practices for parties to consider.

NOW, THEREFORE, IT IS --

1. RECOMMENDED that the FCC encourage the communications industry (including braille display manufacturers, screen reader manufacturers, wireless device manufacturers, app developers and service providers) to consider a set of best practices for support of RTT on refreshable Braille devices that may include the following:

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[1] *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*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 13568 (2016).

a. Providing a seamless user experience for consumers when using RTT with different Braille devices, which may be achieved through standardization or through clear educational materials that explain how to use RTT on each Braille device.
b. Building in text transmittal processes that allow for autocorrect and word prediction functions.
c. Providing an alert indicator in the event that a call disconnects as well as a simple process to reestablish the call.
d. Considering how connectivity options between the phone and the refreshable braille display will operate reliably in emergency situations. A single option by itself may not be enough.
e. Including DeafBlind consumers in testing and development.

Attachment

Take-Aways from the April 9, 2018 Technology Transitions Subcommittee Workshop on
RTT and Refreshable Braille Devices

- Several workshop participants emphasized the importance of consistency across devices so that DeafBlind users do not have to learn how to use different buttons, commands, functions, interfaces, etc. for each phone model. Having a standard system with universal features that will work with many different Braille displays will go a long way toward ease of use and having a seamless user experience, rather than requiring consumers to adapt to different technologies used by different pieces of equipment.

  o To benefit competitors, one participant suggested that all the manufacturers partner together and collectively develop an app that would implement RTT consistently among the different providers.

  o Some recommended that more education for DeafBlind users would be helpful– especially on how to use RTT with different Braille devices. They also suggested that thought should be given to educating the DeafBlind user community more broadly.

  o It was suggested that a standard button to answer a call on a Braille device would be desirable, so that the Braille user does not need to scroll to find the on-screen control for this function. The reason given was that lack of such an option can lead to dropped calls, particularly among slower Braille users.

  o It was agreed that DeafBlind consumers are seeking a way to control not only the speed of Braille but also Braille tracking. With such features available, consumers would be able to refresh cells as needed so that they will not get lost in a conversation.

- The workshop participants explored the functionality of autocorrect/word prediction for typing errors. One potential solution is to have the sending app refrain from making the RTT transmission until the word has been completed, after which the app would transmit the word. This solution requires the sending app to be aware that it needs to delay the transmission. It may be possible to accomplish this by using the extension mechanism in T.140, which is the character representation layer in RFC 4103. Another option is to have the receiving side hold back sending information to the screen reader/Braille display, which would not require network protocol adjustments. One DeafBlind participant suggested that some screen readers may already support this and there should be a configuration switch for this in the driver.

- RTT uses the same connectivity that VoLTE calls use (cellular plus Wi-Fi calling, if supported). However, the workshop participants explained that many DeafBlind users use only Wi-Fi.

- The workshop participants encouraged the implementation of an alert indicator that can make a DeafBlind user aware of a disconnected RTT call, so that the call can be reestablished promptly, in an easy and simple fashion. This is especially important for emergency calls.

- Rather than "reinvent the wheel," it was suggested that mobile phone service providers and device manufacturers accelerate their efforts to investigate existing solutions for people who are DeafBlind via other company products and incorporate such features that works well. One example is an existing product that displays different font colors to identify specific callers in multi-party calls, which has been beneficial for DeafBlind users with low vision.

- Participants expressed concern about the pairing reliability of some connection technologies between a Braille device and a mobile wireless device; they noted that Braille device users seek accessible improvements or options for such connectivity.

- Some workshop participants explained that to support RTT-to-RTT communication with all its benefits and features, the network's call control and setup mechanisms must be not only compliant with RFC 4103, but also IP interoperable.

- It was agreed that ultimately, DeafBlind consumers should be part of any test plan.