**Before the**

Federal Communications Commission

Washington, D.C. 20554

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| In the Matter ofAccessible Emergency Information, and ApparatusRequirements for Emergency Information andVideo Description: Implementation of the Twenty-First Century Communications and VideoAccessibility Act of 2010 | **)****)****)****)****)****)****)** | MB Docket No. 12-107 |

Memorandum opinion and order

**Adopted: May 26, 2023 Released: May 26, 2023**

By the Chief, Media Bureau:

# introduction

1. In this Memorandum Opinion and Order (Order), we address the National Association of Broadcasters (NAB) petition for an extension of the existing waiver of the requirement that television broadcasters aurally describe visual but non-textual emergency information, such as maps or other graphic displays.[[1]](#footnote-3) That requirement is based on section 79.2(b)(2)(ii) of the Commission’s rules, which requires that emergency information provided visually during non-newscast video programming be made audibly accessible to individuals who are blind or visually impaired through the use of a secondary audio stream (the Audible Crawl Rule).[[2]](#footnote-4) For the reasons discussed below, we grant the petition in part, subject to the conditions set forth herein.

# Background

1. Congress, through the Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA), directed the Commission to identify methods to convey emergency information in a manner accessible to individuals who are blind or visually impaired, and to promulgate rules requiring video programming providers, distributors, and program owners to convey emergency information in a manner accessible to individuals who are blind or visually impaired.[[3]](#footnote-5) Pursuant to that directive, on April 8, 2013, the Commission adopted a rule requiring that emergency information[[4]](#footnote-6) provided visually during non-newscast programming be made accessible to individuals who are blind or visually impaired through the use of a secondary audio stream that provides such information aurally.[[5]](#footnote-7) The rule states that a video programming provider or video programming distributor[[6]](#footnote-8) that creates visual emergency information content and adds it to a programming stream must provide an aural description of the information on a secondary audio stream, accompanied by an aural tone.[[7]](#footnote-9) The rule applies to visual emergency information content that is either textual, e.g., an on-screen crawl, or non-textual, e.g., maps or other graphic displays. If visual but non-textual emergency information is shown during non-newscast programming, the aural description of this information must accurately and effectively convey the critical details regarding the emergency and how to respond to the emergency.[[8]](#footnote-10)
2. The rule includes a compliance deadline of May 26, 2015.[[9]](#footnote-11) With respect to textual emergency information, the Bureau granted NAB’s request for a six-month waiver of this deadline.[[10]](#footnote-12) Thus, broadcasters had until November 30, 2015 to come into compliance with the requirement to provide an aural description on the secondary audio stream of textual emergency information presented during non-newscast programming. With respect to visual but non-textual emergency information, the Bureau granted NAB’s initial waiver request, finding that a waiver of the requirement to pass through non-textual visual information would not unduly disrupt the availability of emergency information while the industry developed a reliable technical solution, but it limited the waiver to 18 months as requested by the American Council of the Blind (ACB) and the American Foundation for the Blind (AFB).[[11]](#footnote-13) The Bureau subsequently granted a joint request of ACB, AFB, and NAB to extend the waiver for an additional 18 months,[[12]](#footnote-14) followed by a joint request of ACB, AFB, and NAB to extend the waiver for an additional five years.[[13]](#footnote-15) The current waiver is scheduled to expire on May 26, 2023.
3. In its Petition, NAB states that, despite its efforts to coordinate with entities potentially capable of developing a technical solution during the current waiver period, it has been unable to identify a workable solution based on existing technology.[[14]](#footnote-16) NAB explains that the software used to create non-textual graphics, such as dynamic radar maps, does not contain metadata text files that can be converted into text, and in turn, used to create aural descriptions.[[15]](#footnote-17) Moreover, NAB notes that once a solution is developed, it has yet to be determined how such solution could be integrated into the existing broadcast system.[[16]](#footnote-18) NAB requests a two-year extension of the waiver to explore alternative technical solutions, including possible solutions afforded by artificial intelligence (AI)-based systems or the ongoing adoption of ATSC 3.0 in more television markets.[[17]](#footnote-19) NAB also states that critical details of an emergency provided in a visual, non-textual graphic are usually duplicative of the information provided in accompanying textual crawls, which are already aurally described and accessible.[[18]](#footnote-20)
4. ACB and AFB indicate in their joint comments that while they supported NAB’s prior waiver requests, they do not support a further extension of the waiver at this time due to concerns about “the lack of proactive efforts being taken to procure or develop a solution to this known and longstanding issue.”[[19]](#footnote-21) The Society of Broadcast Engineers (SBE) filed comments in support of NAB’s waiver request.[[20]](#footnote-22) Reply comments in support of the waiver request were filed by NAB, CMG Media Corporation, Gray Television, Inc., and four television Affiliates Associations.[[21]](#footnote-23)
5. We evaluate the waiver request in the Petition pursuant to the general waiver authority in section 1.3 of the Commission’s rules.[[22]](#footnote-24) Waiver of the Commission’s rules is appropriate only if both (i) special circumstances warrant a deviation from the general rule, and (ii) such deviation will serve the public interest.[[23]](#footnote-25)

# discussion

1. We recognize the critical importance of making emergency information accessible to individuals who are blind or visually impaired. With the attachment of certain conditions, we find good cause to waive the requirement that broadcasters aurally describe visual but non-textual emergency information for an additional 18 month period ending November 26, 2024. It is undisputed that the broadcast industry still has not been able to identify an automated technical solution to ensure timely, accurate, and reliable descriptions of images and dynamic video conveying visual emergency information over existing broadcast systems.[[24]](#footnote-26) While ACB and AFB question whether the broadcast industry has made a good faith effort to achieve the accessible emergency information requirements,[[25]](#footnote-27) according to NAB, it has engaged with stakeholders both inside and outside the broadcast industry over the course of the current five-year waiver period in an effort to find a viable technical solution for automated creation and delivery of aural descriptions for visual non-textual emergency information.[[26]](#footnote-28) NAB indicates that it has surveyed the largest television groups about their practices for ensuring the accessibility of emergency information and their awareness of any potential approaches to complying with the Audible Crawl Rule and has had discussions with NAB’s Technology Committee, which includes chief technology officers and senior engineers from television groups.[[27]](#footnote-29) Outside the broadcast industry, NAB has investigated options with weather software and graphics providers because the most common use of automated technical solution would be to aurally describe radar maps of hurricanes, high winds, and other shifting weather emergencies.[[28]](#footnote-30) Although NAB has identified new AI-based systems and apps that can convert static images into text and voice, to date, there is currently no such system or app that can automatically convert dynamic, live video into text that can then be aurally described, and do so in the timely, accurate, and reliable manner needed to ensure access during an emergency.[[29]](#footnote-31) While there is disagreement in the record over the extent of outreach conducted, the record demonstrates that a viable technical solution for automated descriptions of emergency information presented in graphic form does not currently exist.[[30]](#footnote-32)
2. Moreover, we note that the record indicates that the critical details of an emergency provided in graphic form are in most instances duplicative of information conveyed in textual crawls, which are already aurally described and accessible to individuals who are blind or visually impaired. NAB explains that to its knowledge “broadcasters usually display a radar map or similar graphic to complement or reinforce the emergency information in an accessible accompanying crawl, or verbalized by a reporter” and that “it is extremely rare that a graphic image would convey any distinct or additional information.”[[31]](#footnote-33) Other commenters confirm that broadcasters make the majority of emergency content provided in graphic form accessible to consumers who are blind or visually impaired.[[32]](#footnote-34) The Commission found in the *Emergency Information Order* that if visual but non-textual emergency information is shown during non-newscast programming, the aural description of this information must accurately and effectively convey the critical details of the emergency and how to respond.[[33]](#footnote-35) Thus, as we previously have stated, broadcasters do not need to take further steps to be in compliance with the Audible Crawl Rule if the critical information conveyed in graphic images is duplicative of emergency information provided in a crawl and transmitted aurally on a secondary audio programming stream.[[34]](#footnote-36) It appears therefore that in at least some instances television broadcasters do not in fact need to invoke the waiver. Accordingly, based on the record in this proceeding, we conclude that special circumstances warrant a further temporary waiver from this aspect of the Audible Crawl Rule and that affording interested parties additional time to develop a technical means to ensure compliance in the future will serve the public interest. Yet, given the number of waivers already granted, we decline to grant the waiver for the full two years requested, and instead find that 18 months is appropriate.
3. We decline at this time to require that broadcasters implement an interim manual solution at this time, as suggested by ACB and AFB.[[35]](#footnote-37) As discussed above, NAB alleges that in most instances emergency content provided in graphic displays is duplicative of emergency information provided in textual crawls and transmitted aurally on a secondary audio programming stream.[[36]](#footnote-38) We recognize concerns raised by commenters that mandating a manual solution could lead some broadcasters—particularly, broadcasters that serve smaller communities and may not have adequate staffing or resources—to forego the use of non-textual graphic displays altogether rather than risk a possible FCC penalty.[[37]](#footnote-39) Therefore, a requirement that broadcasters implement a manual solution could effectively result in the provision of less emergency information to the public.[[38]](#footnote-40) Nevertheless, we strongly encourage broadcasters to provide the critical details of graphically displayed emergency information through non-automated means whenever possible during the pendency of this waiver.
4. *Conditions:* To better assist us in monitoring the continued need for a waiver and the broadcast industry’s efforts and progress in developing a technical solution, we require NAB to submit quarterly status reports to the Media Bureau and the Consumer and Governmental Affairs Bureau.[[39]](#footnote-41) These reports shall, at a minimum, include the following elements: (1) Information detailing the extent to which broadcasters need to invoke the waiver. NAB may assess broadcasters’ continued need for the waiver, for example, by monitoring an appropriate sample size of broadcasters and determining the number or percentage of instances among this sample where a radar map or other graphic image used during the presentation of emergency information conveys critical details that are notprovided in an accompanying crawl and transmitted aurally on a secondary audio programming stream. (2) Description of NAB’s outreach to the disability community and its efforts, in consultation with the disability community, to develop standards or best practices to be used by broadcasters in ensuring that the critical details of non-textual images displaying emergency information are accurately provided to viewers who are blind or visually impaired and to train broadcasters on the use of such standards or best practices. (3) Description of NAB’s efforts, in consultation with broadcast industry experts and relevant non-broadcast technical experts, to develop automated solutions for complying with the requirement to aurally describe visual, non-textual emergency information, such as solutions afforded by AI-based systems or the ongoing adoption of ATSC 3.0 in more television markets, and any progress made toward the development of such solutions. (4) Description of training and best practices for broadcasters to offer effective communication of critical emergency information conveyed in graphic images in textual crawls and aural transmissions on secondary audio programming streams even if the critical emergency information is in a different form than the description of visual material, as well as tangible efforts by NAB to conduct or encourage such training and best practices for specific broadcasters. (5) If at any time during the course of the waiver period, the industry, in consultation with the disability community, determines that there is a preferred and effective alternative to an automated technical solution, any subsequent reports should explain what steps are being or will be taken, using such alternative solution, to ensure that viewers who are blind or visually impaired will have access to the same critical details that are provided in a non-textual manner.

# ORDERING CLAUSES

1. Accordingly, **IT IS ORDERED** that, pursuant to the authority found in sections 4(i), 4(j), and 713 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 154(j), and 613, and sections 0.61, 0.283, and 1.3 of the Commission’s rules, 47 CFR §§ 0.61, 0.283, and 1.3, this Memorandum Opinion and Order **IS ADOPTED**.
2. **IT IS FURTHER ORDERED** that the petition for waiver of section 79.2(b)(2)(ii) of the Commission’s rules, 47 CFR § 79.2(b)(2)(ii), filed by the National Association of Broadcasters **IS GRANTED IN PART**, subject to the conditions described herein.
3. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer and Governmental Affairs Bureau at 202-418-0530.

 FEDERAL COMMUNICATIONS COMMISSION

 Holly Saurer

 Chief, Media Bureau

1. Petition for Extension of Waiver of the National Association of Broadcasters, MB Docket No. 12-107, filed Apr. 5, 2023 (Petition). The Media Bureau (Bureau) issued a Public Notice seeking comment on the Petition on April 10, 2023. *Media Bureau Seeks Comment on National Association of Broadcasters Petition for Extension of Waiver of Accessible Emergency Information Requirements*, MB Docket No. 12-107, Public Notice, DA 23-308 (rel. Apr. 10, 2023). [↑](#footnote-ref-3)
2. 47 CFR § 79.2(b)(2)(ii). [↑](#footnote-ref-4)
3. Pub. L. No. 111-260, 124 Stat. 2751 (2010) (as codified in various sections of 47 U.S.C.). *See also* Amendment of Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-265, 124 Stat. 2795 (2010) (making technical corrections to the CVAA); 47 U.S.C. § 613(g)(1)-(2). [↑](#footnote-ref-5)
4. “Emergency information” is defined in section 79.2 of the Commission’s rules as “[i]nformation, about a current emergency, that is intended to further the protection of life, health, safety, and property, *i.e.*, critical details regarding the emergency and how to respond to the emergency. Examples of the types of emergencies covered include tornadoes, hurricanes, floods, tidal waves, earthquakes, icing conditions, heavy snows, widespread fires, discharge of toxic gases, widespread power failures, industrial explosions, civil disorders, school closings and changes in school bus schedules resulting from such conditions, and warnings and watches of impending changes in weather.” 47 CFR § 79.2(a)(2). [↑](#footnote-ref-6)
5. *Id*. § 79.2(b)(2)(ii); *Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010; Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, MB Docket Nos. 12-107 and 11-43, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 4871 (2013) (*Emergency Information Order*). [↑](#footnote-ref-7)
6. A “video programming provider” is “[a]ny video programming distributor and any other entity that provides video programming that is intended for distribution to residential households including, but not limited to broadcast or nonbroadcast television network and the owners of such programming.” 47 CFR § 79.1(a)(13). A “video programming distributor” is “[a]ny television broadcast station licensed by the Commission and any multichannel video programming distributor as defined in § 76.1000(e) of this chapter, and any other distributor of video programming for residential reception that delivers such programming directly to the home and is subject to the jurisdiction of the Commission.” *Id*. § 79.1(a)(11). [↑](#footnote-ref-8)
7. *Id*. § 79.2(b)(2)(ii). *See also* *Emergency Information Order*, 28 FCC Rcd at 4899, para. 36. In addition, video programming distributors are responsible for ensuring that the aural description of the emergency information and the accompanying aural tone get passed through to consumers. 47 CFR § 79.2(b)(2)(ii). *See also* *Emergency Information Order*, 28 FCC Rcd at 4899-900, para. 36. [↑](#footnote-ref-9)
8. *Emergency Information Order*, 28 FCC Rcd at 4891-92, para. 24. “Critical details include, but are not limited to, specific details regarding the areas that will be affected by the emergency, evacuation orders, detailed descriptions of areas to be evacuated, specific evacuation routes, approved shelters or the way to take shelter in one’s home, instructions on how to secure personal property, road closures, and how to obtain relief assistance.” Note to 47 CFR § 79.2(a)(2). [↑](#footnote-ref-10)
9. 47 CFR § 79.2(b)(2)(ii). *See also Emergency Information Order*, 28 FCC Rcd at 4900-01, para. 37. [↑](#footnote-ref-11)
10. *Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010; Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, MB Docket Nos. 12-107 and 11-43, Memorandum Opinion and Order, 30 FCC Rcd 5012, 5021-22, para. 16 (MB 2015) (*2015 Waiver Order*). [↑](#footnote-ref-12)
11. *Id*. at 5022-23, para. 17. [↑](#footnote-ref-13)
12. *See* *Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, MB Docket No. 12-107, Memorandum Opinion and Order, 31 FCC Rcd 12540 (MB 2016) (*2016 Waiver Order*). [↑](#footnote-ref-14)
13. *See* *Accessible Emergency Information, and Apparatus Requirements for Emergency Information and Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, MB Docket No. 12-107, Memorandum Opinion and Order, 33 FCC Rcd 5059 (MB 2018) (*2018 Waiver Order*). The Commission’s Disability Advisory Committee (DAC) found that there were no solutions available to ensure timely, accurate, and reliable descriptions of images and dynamic video displayed as part of an emergency information crawl over existing legacy broadcast systems for the foreseeable future, and recommended that the Commission extend the existing waiver for five years to allow time for the industry to develop a technical solution. Recommendation of the Disability Advisory Committee, Best Practices for Graphical Emergency Alerts, MB Docket No. 12-107 (Feb. 28, 2018) (DAC Recommendation). The DAC also recommended that consumer groups and industry leaders work together in the interim “to ensure that best practices are communicated to stations for potential use when stationary and dynamic images displaying emergency information are broadcast” in accordance with the Commission’s accessible emergency information rule. *Id*. at 2. [↑](#footnote-ref-15)
14. Petition at 2-3. [↑](#footnote-ref-16)
15. *Id.* at 2. [↑](#footnote-ref-17)
16. *Id*. [↑](#footnote-ref-18)
17. *Id*. at 4-9. [↑](#footnote-ref-19)
18. *Id*. at 9-11. [↑](#footnote-ref-20)
19. American Council of the Blind and American Federation for the Blind (ACB and AFB) Comments at 1-2. *See also* Letter from Clark Rachfal, Director of Advocacy and Government Affairs, American Council of the Blind, and Sarah Malaiel, Senior Advisor, Public Policy and Research, American Federal for the Blind, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 12-107, at 1 (filed May 11, 2023) (discussing the need for frequent reports from NAB on steps taken to advance research and development into a technical solution, broadcasters’ progress toward compliance, regular community engagement, and training and best practices for broadcasters to offer effective communication). [↑](#footnote-ref-21)
20. Society of Broadcast Engineers, Inc. (SBE) Comments at 1. [↑](#footnote-ref-22)
21. NAB Reply at 1; CMG Media Corporation (CMG) Reply at 1; Gray Television, Inc. (Gray Television) Reply at 1; ABC Television Affiliates Association, CBS Television Network Affiliates Association, FBC Television Affiliates Association, and NBC Television Affiliates (Affiliates Associations) Reply at 1. *See also* Letter from Andrea Cummis, SBE President, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 12-107, at 1-2 (filed May 23, 2023) (expressing support for NAB’s suggestion, raised in its reply comments, to convene a working group of stakeholders to allow all interested parties to come together to seek real-world solutions to the challenge of providing audio description of non-textual images and ensure that critical emergency information is accurately and effectively conveyed to all television consumers). [↑](#footnote-ref-23)
22. 47 CFR § 1.3 (“The provisions of this chapter may be suspended, revoked, amended, or waived for good cause shown, in whole or in part, at any time by the Commission, subject to the provisions of the Administrative Procedure Act and the provisions of this chapter. Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefor is shown.”). We note that the Commission generally delegated authority to the Media Bureau and the Consumer and Governmental Affairs Bureau to consider waiver requests of the rules adopted in the *Emergency Information Order*. *Emergency Information Order*, 28 FCC Rcd at 4932, para. 99. *See* 47 CFR §§ 0.61, 0.283, and 1.3. [↑](#footnote-ref-24)
23. *NetworkIP, LLC v. FCC*, 548 F.3d 116, 127 (D.C. Cir. 2008); *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990). [↑](#footnote-ref-25)
24. Petition at 4-9; SBE Comments at 1; CMG Reply at 2; Affiliates Associations Reply at 2; Gray Television Reply at 1; Letter from Rick Kaplan, Chief Legal Officer and Executive Vice President, Legal and Regulatory Affairs, NAB, to Marlene H. Dortch, Secretary, FCC, MB Docket No. 12-107, at 1 (filed May 11, 2023) [↑](#footnote-ref-26)
25. ACB and AFB Comments at 2. [↑](#footnote-ref-27)
26. Petition at 5. [↑](#footnote-ref-28)
27. *Id*. *See also* Status Report of the National Association of Broadcasters, MB Docket No. 12.107, at 5-7 (filed Nov. 24, 2020) (2020 Status Report) (discussing NAB’s outreach efforts during the first half of the current five-year waiver period). Notably, NAB states in the Status Report that “ACB and AFB have reviewed an advance copy of this report and informed NAB that they agree with the information and representations provided herein.” 2020 Status Report at 2. [↑](#footnote-ref-29)
28. Petition at 5; NAB Reply at 2-3; 2020 Status Report at 5-7. [↑](#footnote-ref-30)
29. Petition at 7-9; NAB Reply at 3. [↑](#footnote-ref-31)
30. Petition at 2; ACB and AFB Comments at 1-3; SBE Comments at 1; Gray Television Reply at 1; Affiliates Associations Reply at 2-4; CMG Reply at 2. [↑](#footnote-ref-32)
31. Petition at 10. [↑](#footnote-ref-33)
32. SBE Comments at 3 (“While automated technology is still unable to effectively convert dynamic non-text images for audio description, broadcasters nonetheless still succeed in aurally describing the majority of such content because the images are often duplicated by textual elements (which are then converted to audio and delivered by SAP), described live by commentators, or both.”); CMG Reply at 4-5 (“[W]hen CMG interrupts programming to alert viewers about an emergency, CMG anchors, reporters and meteorologists describe orally the prevailing conditions and impact areas, including the visual information that is presented. The visually impaired public is thus able to receive substantial information presented by live radar and traffic maps. In addition, CMG stations run text banners, information boxes and/or news-ticker crawls when a weather radar map or other emergency graphic is shown. Those text and information boxes and crawls are converted to aural output using text-to-speech (‘TTS’) technology and broadcast to viewers through a secondary audio programming stream (‘SAP’).”); Affiliates Associations Reply at 6 (“[W]hile a clear technical solution does not yet exist that would allow long-term compliance with the Audible Crawl Rule, consumers who are blind or visually impaired will continue to have access to the critical details about an emergency, including those that are conveyed by visual images, because in almost all cases such information is conveyed by the oral statements of the news reporter or meteorologist, which statements are included in accompanying text crawls, which are themselves aurally described.”). [↑](#footnote-ref-34)
33. *Emergency Information Order*, 28 FCC Rcd at 4891-92, para. 24. At that time, the Commission found that the record did not support a finding that requiring covered entities to provide an aural description of the critical details provided in a graphic display for the purpose of conveying emergency information (*e.g.*, a list of the counties, cities, or other locations affected by the emergency as shown on a map) would be overly burdensome. *Id*. [↑](#footnote-ref-35)
34. *2018 Waiver* Order, 33 FCC Rcd at 5065-66, para. 14; 2016 *Waiver Order*, 31 FCC Rcd at 12544, para. 10. [↑](#footnote-ref-36)
35. ACB and AFB Comments at 3. [↑](#footnote-ref-37)
36. *See supra* para. 8. [↑](#footnote-ref-38)
37. Petition at 4; SBE Comments at 3; CMG Reply at 3-4; Affiliates Associations Reply at 2-3; NAB Reply at 8. [↑](#footnote-ref-39)
38. SBE Comments at 3; CMG Reply at 4; Affiliates Associations Reply at 2-3; NAB Reply at 8. [↑](#footnote-ref-40)
39. The quarterly status reports will be due September 1, 2023, December 1, 2023, March 1, 2024, June 1, 2024, September 1, 2024, and a final report on December 1, 2024. The status reports should be filed electronically using the Commission’s Electronic Comment Filing System (ECFS) in MB Docket No. 12-107, with copies submitted via email to Maria Mullarkey, Chief, Policy Division, Media Bureau, Maria.Mullarkey@fcc.gov, and Suzy Rosen Singleton, Chief, Disability Rights Office, Consumer & Governmental Affairs Bureau, Suzanne.Singleton@fcc.gov. [↑](#footnote-ref-41)