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

In the Matter of	)	
	)	
Access to Telecommunication Equipment and Services by Persons with Disabilities	)	CG Docket No. 13-46
	)	
Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets	)	WT Docket No. 07-250
	)	
Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations	)	WT Docket No. 10-254
	)	

REPORT AND ORDER AND ORDER ON RECONSIDERATION

Adopted: October 24, 2017 **Released: October 26, 2017**

By the Commission: Chairman Pai and Commissioner Clyburn issuing separate statements; Commissioners O'Rielly and Carr approving in part, dissenting in part, and issuing statements.

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I. INTRODUCTION

1. This hearing aid compatibility (HAC) proceeding is the next in a series of Commission proceedings that have implemented statutory directives over the course of several decades to ensure that millions of Americans with hearing loss have access to and can benefit from emerging communications technologies.[1] In this Report and Order, we modernize and improve the ways that Americans with hearing loss can access our nation's wireline and wireless communications services. We achieve this by approving a new wireline HAC volume control standard that better supports the aural experience of people with hearing loss; applying the wireline HAC standards to handsets used with advanced communications services (ACS), including Voice over Internet Protocol (VoIP) services; adopting a requirement for volume control in wireless handsets; and eliminating an obsolete standard for measuring and rating the radiofrequency (RF) interference reduction and inductive coupling capabilities of wireless handsets. In the Order on Reconsideration, we dismiss as moot a pending petition for partial reconsideration concerning a wireless rule that we eliminate in the Report and Order.

II. BACKGROUND

2. *Wireline Telephones.* Beginning in the 1980s, the Commission adopted a series of regulations to implement statutory directives requiring telephone handsets in the United States to be hearing aid compatible. Pursuant to the Telecommunications for the Disabled Act of 1982, the Commission adopted a limited set of HAC requirements, mandating that certain "essential" wireline telephones provide "inductive coupling."[2] Inductive coupling enables telephone conversations to be better heard and understood by hearing aid users.[3] In 1989, in response to directives in the Hearing Aid Compatibility Act of 1988,[4] the Commission adopted a broader rule requiring virtually all wireline

[1] In this proceeding, unless noted otherwise, we use the term "HAC" to refer collectively to inductive coupling, RF interference reduction, and acoustic coupling (including volume control).

[2] Telecommunications for the Disabled Act of 1982, Pub. L. No. 97–410, 96 Stat. 2043 (1982 TDA Act) (codified as amended at 47 U.S.C. § 610); *Access to Telecommunications Equipment by the Hearing Impaired and Other Disabled Persons*, Report and Order, 55 R.R.2d 531 (1983), 49 Fed. Reg. 1352-01 (Jan. 11, 1984) (*TDA Report and Order*). Congress defined "essential telephones" to include telephones that are coin-operated, provided for emergency use, and "frequently needed for use by persons using . . . hearing aids." 1982 TDA Act § 3 (codified at 47 U.S.C. § 610(b)(4)(A)). In 1983, the Commission defined the latter group to include, among other devices, certain wireline telephones used in hotels, motels, public buildings, and places of employment. *TDA Report and Order*, paras. 29-35.

[3] *See* 47 CFR § 68.316; *Access to Telecommunications Equipment and Services by the Hearing Impaired and Other Disabled Persons*, First Report and Order, 4 FCC Rcd 4596, 4596 n.3 (1989) (*1989 HAC Report and Order*). Because, for the purposes of this proceeding, users of cochlear implants generally will be affected by our rule changes to the same extent as users of hearing aids, references hereinafter to "hearing aid users" also refer to users of cochlear implants. *See Access to Telecommunications Equipment and Services by Persons with Disabilities et al.*, Notice of Proposed Rulemaking, 30 FCC Rcd 12219, 12221 n.3, 12235, para. 32 (2015) (*Notice*), *Erratum*, 31 FCC Rcd 11735 (CGB 2016); Stephen Julstrom & Linda Kozma-Spytek, *Subjective Assessment of Cochlear Implant Users' Signal-to-Noise Ratio Requirements for Different Levels of Wireless Device Usability*, 25 J. Am. Acad. Audiol. 952 (2014), abstract available at https://www.ncbi.nlm.nih.gov/pubmed/25514448 (last visited Aug. 8, 2017) (study showing that hearing aid users and cochlear implant users have very similar preferences for speech levels and signal-to-noise ratios). With inductive coupling, a telecoil in a hearing aid or cochlear implant receives directly the audio signal-based magnetic field generated by a handset. The hearing aid then converts this field back to sound that has reduced background noise. A cochlear implant converts it to appropriate electrical signals that are sent to the cochlea, which stimulate the cochlear nerve, causing it to send signals to the brain that are interpreted as sound.

[4] Hearing Aid Compatibility Act of 1988, Pub. L. No. 100-394, 102 Stat. 976 (1988 HAC Act) (codified as amended at 47 U.S.C. § 610).

telephones and eventually all cordless phones manufactured or imported for use in the United States to provide inductive coupling with hearing aids.[5]

3. In 1996, in response to a consensus by consumer, industry, and government stakeholders that grew out of a Commission-led negotiated rulemaking, the Commission added a requirement to the HAC rules to require wireline telephones to meet specified "acoustic coupling" standards for volume control.[6] With acoustic coupling, a hearing aid user simply holds a telephone up to the ear, and the sound from the telephone receiver is picked up and processed in the same manner as other sounds are received.[7] These rules enable hearing aid users and others with hearing loss to increase the sound level on their devices to address their unique needs.

4. *Wireless Phones*. In 2003, the Commission addressed the accessibility of wireless handsets by adopting inductive coupling rules for specified categories of mobile phone handsets and mandated that covered wireless handsets provide RF interference protection to hearing aids.[8] Subsequently, the Commission expanded the coverage of these wireless HAC requirements in orders adopted in 2008, 2010, and 2012.[9] In August 2016, based on a consensus proposal developed by industry and consumer stakeholders, the Commission again increased the number of hearing aid compatible handsets that wireless service providers and manufacturers must offer. The Commission also affirmed a commitment to pursuing and determining the achievability of making all handsets hearing aid compatible by 2024.[10] However, unlike the wireline rules, the Commission's rules governing wireless phones have never included a volume control requirement—a matter that is addressed in this proceeding.

5. *Twenty-First Century Communications and Video Accessibility Act (CVAA)*. In 2010, the CVAA amended section 710(b) of the Communications Act of 1934 (the Act) to apply the HAC requirements to certain customer premises equipment (CPE)[11] used with ACS, including VoIP

[5] *1989 HAC Report and Order*, 4 FCC Rcd at 4596, para. 1.

[6] 47 CFR § 68.317(a), (c) (incorporating ANSI/EIA-470-A-1987 (Telephone Instruments with Loop Signaling) as the standard for analog telephones, and ANSI/EIA/TIA-579-1991 (Acoustic-To-Digital and Digital-To-Acoustic Transmission Requirements for ISDN Terminals) as the standard for digital telephones); *Access to Telecommunications Equipment and Services by Persons with Disabilities*, Report and Order, 11 FCC Rcd 8249 (1996) (*1996 HAC Report and Order*).

[7] In "acoustic coupling" mode, a hearing aid receives sound through a microphone, and then amplifies the sound, which can include a telephone's audio signal as well as unwanted ambient noise. *Notice*, 38 FCC Rcd at 12220 n.2; Cellcom, *Hearing Aid Compatibility Chart*, https://www.cellcom.com/hearing-aid-compatibility.html (last visited July 25, 2017).

[8] *See Section 68.4(a) of the Commission's Rules Governing Hearing Aid–Compatible Telephones*, Report and Order, WT Docket No. 01-309, 18 FCC Rcd 16753 (2003) (*2003 Wireless HAC Report and Order*), *Erratum*, 18 FCC Rcd 18047 (2003); 47 CFR § 20.19; *see also Improvements to Benchmarks and Related Requirements Governing Hearing Aid-Compatible Mobile Handsets et al.,* Fourth Report and Order and Notice of Proposed Rulemaking, 30 FCC Rcd 13845, 13848 n.8 (2015) (*2015 Wireless HAC Improvements Order)*.

[9] *Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets et al.*, First Report and Order, 23 FCC Rcd 3406 (2008); *Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets*, Policy Statement and Second Report and Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 11167 (2010) (*August 2010 Report and Order*); *Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets*, Third Report and Order, 27 FCC Rcd 3732 (2012) (*2012 HAC Report and Order*).

[10] *Improvements to Benchmarks and Related Requirements Governing Hearing Aid-Compatible Mobile Handsets*, Report and Order, 31 FCC Rcd 9336, 9336-37, paras. 1-4 (2016) (*2016 Wireless HAC Order*).

[11] "Customer premises equipment" is defined in the Act as "equipment employed on the premises of a person (other than a carrier) to originate, route, or terminate telecommunications." 47 U.S.C. § 153(16); *see also* 47 CFR §§ 6.3(c), 7.3(c), 14.10(f).

telephones.[12] In accordance with this provision, in November 2015, the Commission amended the HAC rules to cover the full range of wireless handsets used with ACS, including VoIP handsets, to the extent that such devices are designed to be held to the ear and provide two-way voice communication via a built-in speaker.[13]

6. In 2015, the Commission proposed to: (a) amend the Commission's HAC rules to incorporate a revised industry standard for volume control on wireline phones; (b) apply the Commission's wireline HAC rules to handsets used with ACS; (c) adopt a wireless volume control rule; and (d) make certain technical amendments to the Commission's HAC rules that conform to current industry standards and technologies.[14] This Report and Order addresses these proposals.

III. REPORT AND ORDER

A. 2012 Wireline Volume Control Standard

1. Benefits and Adoption of the Standard

7. Manufacturers of wireline telephones are required to comply with the volume control technical standards incorporated in section 68.317 of the Commission's rules.[15] These standards have been developed and updated by the TR-41 Committee, which is currently affiliated with the Telecommunications Industry Association (TIA), a standards development organization (SDO) accredited by the American National Standards Institute (ANSI).[16] A few years ago, TIA found that the methods used by manufacturers to measure the sound amplification provided by telephones often resulted in discrepancies between the claimed and actual amplification being provided.[17] In response, TIA's TR-41 Committee developed a revised standard, referred to herein as the 2012 Wireline Volume Control Standard, which specifies improved amplification measurement techniques.[18] In the *Notice*, responding to a petition filed by TIA, the Commission proposed to update the Part 68 wireline volume control rules to incorporate this standard.[19]

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[12] Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, sec. 102, § 710(b), 124 Stat. 2751, 2753 (CVAA) (codified at 47 U.S.C. § 610(b)), *amended by* Pub. L. No. 111-265, 124 Stat. 2795 (technical corrections to the CVAA).

[13] *2015 Wireless HAC Improvements Order*, 30 FCC Rcd at 13857, para. 22.

[14] *Notice*, 30 FCC Rcd at 12220-21, paras. 2-5. The Commission also sought comment on certain other aspects of HAC regulation, including a proposal to streamline the HAC standards process, but we defer resolution of those matters.

[15] 47 CFR § 68.317.

[16] *Notice*, 30 FCC Rcd at 12223-24, paras. 9-10; TIA Comments at 3; TIA, *Technology and Standards*, http://www.tiaonline.org/standards/ (last visited Aug. 28, 2017). TR-41 is a committee of TIA that focuses on communication devices, and TR-41.3 is a subcommittee of TR-41. TR-41, *Performance and Accessibility for Communications Products*, http://www.tiaonline.org/all-standards/committees/tr-41 (last visited Sept. 5, 2017). TR-41.3.14 (mentioned further in this Report and Order) is a working group that focuses on accessibility issues. *Id.* ANSI facilitates standards development by accrediting the procedures of SDOs. Accreditation by ANSI means that the procedures used by the SDO meet ANSI's essential requirements for openness, balance, consensus, and due process. ANSI, *Introduction to ANSI*, https://www.ansi.org/about_ansi/introduction/introduction.aspx?menuid=1 (last visited July 25, 2017).

[17] *Notice*, 30 FCC Rcd at 12223-24, para. 9.

[18] TIA, *Receive Volume Control Requirements for Digital and Analog Wireline Handset Terminals, ANSI-TIA-4965-2012* (Oct. 2012) (2012 Wireline Volume Control Standard).

[19] *Notice*, 30 FCC Rcd at 12226, para. 14; TIA Petition for Rulemaking, CG Docket No. 13-46, at 17 (filed Oct. 25, 2012) (TIA Petition).

8. All commenters addressing this issue support the adoption of the 2012 Wireline Volume Control Standard for measuring volume control in wireline phones.[20] Based on this support and the record evidence, we find that the revised standard significantly improves the measurement of volume amplification in two ways. First, instead of measuring the volume received by the user with an IEC-318 coupler, which is designed to form a seal with the telephone handset,[21] the standard uses a Head and Torso Simulator (HATS), which takes into account the lack of a seal between a telephone receiver and the ears of users in real-life settings. Thus, the HATS more closely mirrors how handsets are actually used,[22] offering an improved measurement.[23]

9. Further, instead of measuring loudness in terms of Receive Objective Loudness Rating (ROLR), where gain is measured relative to each phone's normal unamplified, or nominal, sound level,[24] the new standard uses "conversational gain," where gain is measured relative to an absolute benchmark based on the sound of face-to-face conversation at a distance of 1 meter.[25] This approach eliminates the variation in maximum amplification levels that results from maximum amplification being measured relative to each telephone's nominal sound level. We agree with commenters that this standard will make it easier for consumers to compare handsets and select telephones with volume control to better meet their communication needs.[26]

10. Under TIA's 2012 Wireline Volume Control Standard, the specified volume levels are formulated to be approximately equivalent to those commonly achieved under the prior standard by older wireline telephones. Thus, telephones will be in compliance with the volume control requirements if they provide at least 18 dB and no more than 24 dB Conversational Gain at the maximum setting.[27] The 18 dB Conversational Gain minimum must be achieved without significant clipping of the speech signal used

[20] *E.g.*, Hearing Industries Association (HIA) Comments at 3; Consumer Groups and DHH RERC Comments at 2; ANSI ASC C63 Comments at 4; TIA Comments at 4.

[21] TIA Petition at 6; *see* 47 CFR § 68.317 (referencing, e.g., TIA, *Telephone Instruments with Loop Signaling, ANSI/EIA/TIA-470-A-1987*, at 13 (July 1987)).

[22] *See Notice*, 30 FCC Rcd at 12224, para. 11.

[23] HIA Comments at 3.

[24] ROLR is defined as the "ratio in dB of the voltage entering a loop and telephone to the sound pressure produced by the telephone's receiver." ATIS, *ATIS Telecom Glossary*, http://www.atis.org/glossary/definition.aspx?id=2223 (last visited July 25, 2017). The current volume control rule refers to ROLR. 47 CFR § 68.317.

[25] TIA Comments at 6. For example, 20 decibels (dB) Conversational Gain "means that a consumer will hear a voice 20 dB louder than if having a face-to-face conversation at a distance of 1 meter." *Id.* at 9. Doubling the sound intensity power level is expressed as a 3 dB increase, but this only has a slight increase in the loudness perception. Psychoacoustics experts have judged that a perception of twice as loud takes 10 times the sound intensity power, or a 10 dB increase. The loudness factor doubles for every 10 dB of sound intensity power level increase. A 20 dB increase in sound intensity is perceived as 4 times as loud by the normal human ear. An 18 dB sound intensity increase has a loudness factor change of between 3 and 4 times as loud as the original sound. *See* Eberhard Sengpiel, The Human Perception of Loudness, http://www.sengpielaudio.com/calculator-loudness.htm (last visited Oct. 19, 2017).

[26] Consumer Groups and DHH RERC Comments at 2.

[27] 2012 Wireline Volume Control Standard at 9.

for testing.[28] The upper limit of 24 dB Conversational Gain may be exceeded if the volume automatically resets to 24 dB Conversational Gain or below upon hang-up.[29]

11. Given the many advantages of the new standard and its strong backing by industry and consumer stakeholders, we amend our rules to incorporate this standard by reference.[30] We conclude that this action, by providing consumers with phones that have standardized, easy-to-understand volume amplification levels measured using a HATS, will improve telephone communications, including communication needed for emergencies,[31] for individuals with hearing loss.

2. Two-Year Phase-In for Compliance

12. In the *Notice*, the Commission proposed a two-year phase-in for compliance with the 2012 Wireline Volume Control Standard, as TIA requested in its Petition.[32] Consumer Groups and the Deaf and Hard of Hearing Technology Rehabilitation Engineering and Research Center (DHH RERC) support the two-year phase-in proposal,[33] and no commenter opposes it. Accordingly, we will require telephones manufactured or imported for use in the United States to comply with this standard two years after the date of publication of this Report and Order in the Federal Register.[34] Until then, telephones may comply with either the 2012 Wireline Volume Control Standard or prior standards that are referenced in section 68.317 of our rules.[35] This transition period will provide manufacturers time to obtain the necessary testing equipment and confirm that their products meet the new standard.[36]

13. Further, we will permit the existing inventory and installed base of telephones that comply with the current version of section 68.317 to remain in place until retired.[37] Although Consumer Groups and DHH RERC oppose the indefinite grandfathering of such telephones,[38] they have not quantified the cost of a requirement to bring existing wireline telephones into compliance with the revised standard. While we believe that such cost could be difficult to estimate, our best indication is that it is likely to be significant, with only incremental potential benefit. As of December 2015, there were approximately 124 million wireline retail voice telephone service connections,[39] of which approximately

[28] *Id*. Clipping occurs when a sound signal attempts to surpass its limit and the sound waveforms are chopped at the top and bottom. Ovni Labs, *Distortion, Clipping, and Square Waves*, http://www.ovnilab.com/articles/clipping.shtml (last visited July 25, 2017).

[29] 2012 Wireline Volume Control Standard at 9. The proposed section 68.317(i) incorrectly stated that the reset level must be less than 18 dB Conversational Gain. *Notice*, 30 FCC Rcd at 12257, App. A. To ensure that the rule reflects the level specified in the technical standard, the final rule corrects this inadvertent error, stating that the reset level must be no more than 24 dB Conversational Gain. *Infra* App. B (§ 68.317(h)).

[30] *Infra* App. B (§ 68.317(h)). In addition, we update the methods by which the public may obtain access to standards. *Infra* App. B (§ 68.317(i)).

[31] Rehabilitation Engineering Research Center for Wireless Technologies and the Center for Advanced Communications Policy, Georgia Institute of Technology Comments at 3 (Wireless RERC).

[32] *Notice*, 30 FCC Rcd at 12229, para. 21; TIA Petition at 11.

[33] Hearing Loss Association of America, Telecommunications for the Deaf and Hard of Hearing, Inc., National Association of the Deaf, Deaf/Hard of Hearing Technology RERC Comments at 3 (Consumer Groups and DHH RERC).

[34] *Infra* App. B (§ 68.317(a)).

[35] *See Notice*, 30 FCC Rcd at 12230, para. 22 (citation omitted).

[36] TIA Petition at 10-11; *see* Consumer Groups and DHH RERC Comments at 4 (supporting a two-year phase-in). For example, some manufacturers may need time to update testing equipment. TIA Petition at 11.

[37] *Infra* App. B (§ 68.317(a)); *see also Notice*, 30 FCC Rcd at 12230, para. 23.

[38] Consumer Groups and DHH RERC Comments at 4.

[39] FCC, *Voice Telephone Services: Status as of December 31, 2015* at 2 (Nov. 2016).

56 million were business telephone connections.[40] Requiring that all noncompliant devices attached to these phone connections be identified and replaced to accommodate a new volume control standard would appear to involve significant costs. Consumer Groups and DHH RERC estimate that the average life cycle of a wireline handset is eighteen months to two years, suggesting that the number of existing telephones that would have to be retrofitted or replaced to comply with the new standard may be relatively low.[41] However, it also would be necessary to identify which of the telephones remaining in inventory and the installed base would need retrofitting or replacement—a task that is likely to impose significant additional costs, especially because wireline telephones generally are purchased separately from the service to which they are connected. Further, assuming that the Consumer Groups and DHH RERC's average life cycle estimate is reasonable, it would appear that any negative effect of grandfathering these phones (in terms of delays in potential benefits to consumers) would be negligible, given that consumers replace these phones in a relatively short span of time. In sum, the record does not support a determination that the potential benefits of requiring existing telephones to comply with the 2012 Wireline Volume Control Standard are greater than the potential costs.

3. Manufacturer and Consumer Testing

14. In the *Notice*, the Commission asked whether, after the 2012 Wireline Volume Control Standard goes into effect, covered manufacturers should be required to test a sample of products that they make available for purchase to assess "whether these products are providing a uniform and appropriate range of volume to meet the telephone needs of people with hearing loss" in compliance with the new standard.[42] The Commission also proposed to require wireline telephone manufacturers to consult with consumers and their representative organizations under a specified timetable, for the purpose of assessing the effectiveness of the 2012 Wireline Volume Control Standard after it goes into effect.[43] TIA opposes both proposals, arguing that testing is already required in order for the equipment to be certified and that wireline manufacturers currently consult with the disability community about product testing and their experiences with handsets.[44] No other commenter addresses the testing issue. As to consumer consultations, the Consumer Groups and the DHH RERC state that consultation is necessary but they do not believe there needs to be a specific consultation timeline for this standard, noting that under the CVAA, there has been improved collaboration between industry and consumer groups.[45]

15. We do not adopt the proposed testing requirement because there does not appear to be sufficient need or support for such a requirement at this time. We are convinced that the new standard is an improvement, and believe it will be sufficient for manufacturers to conduct testing on wireline telephones for compliance with the new standard and conduct any fine-tuning necessary for putting a marketable product into the stream of commerce in the usual course, prior to placing their products into the marketplace.[46] Commenters appear to recognize this, and the record reflects no input to the contrary. Because HAC technical standards are subject to revision over time, we expect that there will be regular opportunities for industry and consumer stakeholders to confer with one another in the course of further

[40] *Id*. at 3.

[41] Consumer Groups and DHH RERC Comments at 4.

[42] *Notice*, 30 FCC Rcd at 12230, para. 25.

[43] *Id.*, para. 24.

[44] TIA Comments at 8.

[45] Consumer Groups and DHH RERC Comments at 4.

[46] Such testing is required by Part 68 of the Commission's rules. *See, e.g.*, 47 CFR § 68.162(b). Moreover, Telecommunication Certification Bodies (TCBs)—which certify equipment for compliance with standards—are required to perform surveillance activities, including "type testing a few samples of the total number of product types which the [TCB] has certified." 47 CFR § 68.162(g)(2).

reevaluation of the 2012 Wireline Volume Control Standard.[47] We expect that any significant problems that surface after stakeholders have experience with the standard can be effectively addressed in such opportunities for industry-consumer dialogue.[48]

B. Application of HAC Requirements to Wireline Telephones Used for Advanced Communications Services

16. Section 710(b)(1)(C) of the Act, as amended by the CVAA, requires that "[a]ll customer premises equipment used with advanced communications services that is designed to provide 2-way voice communication via a built-in speaker intended to be held to the ear in a manner functionally equivalent to a telephone" must "provide internal means for effective use with hearing aids that are designed to be compatible with telephones which meet established technical standards for hearing aid compatibility."[49] The Act defines "advanced communications services" to include interconnected and non-interconnected VoIP service.[50] In the *Notice*, the Commission proposed to amend the Commission's rules to specify that VoIP telephones and other wireline equipment described in section 710(b)(1)(C), which were collectively termed "ACS telephonic CPE," must comply with the HAC requirements for wireline telephones.[51]

17. The record indicates broad support for the Commission's proposal, and no commenter opposes this approach.[52] Therefore, to fulfill our mandate under section 710 of the Act, we amend Part 68 to subject ACS telephonic CPE to the same HAC requirements that apply to other wireline telephones.[53] Such obligations include compliance with the 2012 Wireline Volume Control Standard discussed in the previous section,[54] as well as compliance with the inductive coupling rule in section 68.316.[55]

18. We also adopt the Commission's proposal to amend Part 68 to apply to ACS telephonic CPE, for purposes of HAC compliance, the same testing, attestations of compliance, registration, labeling, and complaint handling requirements that currently apply to CPE that is directly connected to the public

[47] Consumer Groups and DHH RERC Comments at 4.

[48] Real-life observations of consumers with hearing loss using telephones after the initial volume control standards were adopted led to the development of the 2012 Wireline Volume Control Standard. 2012 Wireline Volume Control Standard at 11-13 (describing how customer complaints about inadequate amplification and customer confusion about how much amplification their telephones were providing led to the development of new methods of measuring volume, including the use of conversational gain).

[49] 47 U.S.C. § 610(b).

[50] 47 U.S.C. § 153(1). Interconnected VoIP services enable people to make and receive calls to and from the public switched telephone network (PSTN). Non-interconnected VoIP includes services that enable real-time voice communications that either originate or terminate on the PSTN (but not both) or that neither originate nor terminate on the PSTN. *See* 47 U.S.C. § 153(25), (36); 47 CFR § 9.3.

[51] *Notice*, 30 FCC Rcd at 12231, 12255, para. 28, App. A (proposing the modification of 47 CFR § 68.3).

[52] Consumer Groups and DHH RERC Comments at 5; HIA Comments at 3; TIA Comments at 6-7 (noting that the 2012 Wireline Volume Control Standard includes test procedures for VoIP telephones); Wireless RERC Comments at 4 (stating "[i]f it looks like a phone and functions like a phone, it should be covered under the rules and consumer experiences across different phone technologies should be consistent").

[53] *See infra* App. B (§ 68.2, cross-referencing 47 CFR §§ 68.4, 68.6).

[54] *Infra* App. B (§ 68.317).

[55] 47 CFR § 68.316; *see* Letter from James R. Bress, AST Technology Labs, Inc., to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46, at 2 (filed Oct. 13, 2016) (stating that one could "apply the analogy of analog and digital signal levels provided in [section] 68.317 to the testing required for [section] 68.316"); Letter from Stephen R. Whitesell, Whitesell Consulting LLC, to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46, at 3 (filed Oct. 13, 2016) (stating that "the magnetic coupling requirements in [section] 68.316 can be applied to VoIP telephones").

switched telephone network (PSTN).[56] These rule amendments require "responsible parties" for ACS telephonic CPE[57] to: (1) have the equipment tested for HAC compliance, with certification of such compliance by a Telecommunication Certification Body (TCB)[58] or, in the alternative, by a Supplier's Declarations of Conformity;[59] (2) register such equipment in the ACTA terminal equipment database;[60] and (3) provide appropriate labels and other information to consumers regarding HAC compliance.[61] The rules also set forth procedures for complaints alleging violations of HAC requirements to be addressed by state public utility commissions or the Commission.[62] No commenter addresses these proposals. Because we continue to believe that these requirements will promote accountability and compliance with the HAC requirements and thus effectively serve people with hearing loss,[63] we adopt the rules as proposed.[64]

19. The CVAA requires the Commission to apply timetables or benchmarks for implementation of the requirement for ACS telephonic CPE to be HAC compliant "to the extent necessary (1) due to technical feasibility, or (2) to ensure the marketability or availability of new technologies to users."[65] Although the Commission sought comment on this matter in the *Notice*,[66] no commenter addresses this issue. We will require manufacturers to ensure that their ACS telephonic CPE manufactured or imported for use in the United States two years or more after the date of publication of

[56] *See Notice*, 30 FCC Rcd at 12231-32, para. 28.

[57] The "responsible party" under Part 68 is the entity responsible for ensuring that CPE complies with the Part 68 rules and is usually, but not always, the manufacturer of the CPE. *See* 47 CFR § 68.3. To help clarify the roles of TCBs, Supplier's Declarations of Conformity, and the Administrative Council for Terminal Attachments (ACTA) vis-à-vis ACS telephonic CPE, we make minor changes to the definition of "responsible party." *Notice*, 30 FCC Rcd at 12255, App. A; *infra* App. B (§ 68.3).

[58] *See infra* App. B (§ 68.501(b), cross-referencing 47 CFR §§ 68.160-68.162, 68.354).

[59] *See infra* App. B (§ 68.501(c), cross-referencing 47 CFR §§ 68.320-68.350).

[60] *See infra* App. B (§ 68.504, cross-referencing 47 CFR §§ 68.354, 68.610, 68.612). The ACTA database, access to which is free of charge, contains information about all approved terminal equipment, including information about HAC compliance, and permits the Commission, providers of telecommunications, and consumers to identify equipment that is in compliance with the Commission's HAC rules. *See* 47 CFR § 68.610(a); *2000 Biennial Regulatory Review of Part 68 of the Commission's Rules and Regulations*, Report and Order, 15 FCC Rcd 24944, 24983, para. 108 (2000). Consumers also can use this database to make inquiries regarding the identity of the manufacturer of a particular piece of equipment. *Id.* at 24983, para. 107; ACTA, *TTE Main*, https://www.part68.org/tteMain.aspx (last visited July 25, 2017) (providing access to the database).

[61] *See infra* App. B (§ 68.502). This provision incorporates the applicable requirements of 47 CFR §§ 68.218, 68.224, 68.300.

[62] 47 CFR §§ 68.414-68.423.

[63] *See Notice*, 30 FCC Rcd at 12232, para. 28.

[64] To make the requirements for ACS telephonic CPE easier to follow, we create a new Subpart F of Part 68 with rules specifically applicable to ACS telephonic CPE, which mirror or cross-reference the corresponding Part 68 provisions applicable to terminal equipment. *See infra* App. B (adding a new Subpart F (§§ 68.501-68.504)). ACS telephonic CPE is generally used with IP-based services and generally is not connected directly to the PSTN. *See* 47 U.S.C. § 153(1). Therefore, the provisions of Part 68 that address only the protection of the PSTN but not HAC compliance are not generally applicable to ACS telephonic CPE. *See infra* App. B (§§ 68.2, 68.3) (adding definitions of ACS and ACS telephonic CPE, and indicating which sections of Part 68 apply to such CPE). Further, we revise section 68.1 to incorporate the 1988 HAC Act's statement of purpose and to replace the reference to "persons with hearing aids" with "persons with hearing loss." *Infra* App. B (§ 68.1); 1988 HAC Act § 2. No commenter opposes these rule changes. Finally, a minor housekeeping change is made to section 68.224, to correct a reference to a rule provision that no longer exists to refer to section 68.218(b)(2). *Infra* App. B (§ 68.224).

[65] 47 U.S.C. § 610(e) (as amended by the CVAA).

[66] *Notice*, 30 FCC Rcd at 12232, para. 28.

this Report and Order in the Federal Register complies with the HAC requirements for wireline telephones.[67] We believe that this timeline is reasonable because it is consistent with the implementation periods for various prior rules adopted by the Commission to implement federal accessibility mandates. Most notably, in 2011, the Commission adopted a two-year phase-in for general mandates directing ACS manufacturers and service providers to make their products and services accessible to people with disabilities, noting that this would "give all covered entities the time to incorporate their new obligations into their development processes."[68] We further note that this timeline is consistent with the two-year timeline recommended by TIA and adopted in this Report and Order for application of the new 2012 Wireline Volume Control Standard for wireline telephones.[69]

20. To ensure that ACTA's database will be able to receive and make available the information required for registration of ACS telephonic CPE as of the two-year compliance deadline, we request that ACTA submit, within 180 days of publication of this Report and Order in the Federal Register, a report explaining: (a) the progress of any modifications necessary to accommodate ACS telephonic CPE in the database, including any changes to how ACTA will administer the database; (b) the pertinent information that ACTA will request from responsible parties for ACS telephonic CPE, especially for the HAC and volume control features; and (c) any procedures for submitting or accessing information on ACS telephonic CPE that will differ from the existing procedures for currently registered terminal equipment.[70] Responsible parties for ACS telephonic CPE that is manufactured in or imported for use in the United States two years or more after the date of publication of this Report and Order in the Federal Register, will be required to submit all information required by ACTA (or a successor entity) for inclusion in the database within 30 days after the date that the equipment is manufactured in or imported into the United States.

C. Volume Control in Wireless Handsets

21. *Background*. For well over a decade, the Commission has explored the need for volume control in wireless handsets.[71] When the Commission first considered this issue in 2003, it refrained from adopting a volume control requirement because it expected that newly adopted performance standards for inductive coupling and reduced RF interference would be sufficient to improve wireless handset audio quality for people with hearing loss.[72] The Commission next initiated a review of this issue in a notice of proposed rulemaking in 2007, but in 2010, again determined that it was premature to take action because the Alliance for Telecommunications Industry Solutions (ATIS) had formed a working group to investigate the interaction between the audio output from wireless phones and modern digital hearing aids.[73] The Commission expected that "the findings of this investigation, including recommendations for achieving adequate listening levels for consumers who wear hearing aids while using wireless phones

[67] *Infra* App. B (§ 68.2(a)).

[68] *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 et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 14557, 14602-03, para. 110 (2011) (*2011 ACS Report and Order*); *see also Closed Captioning Requirements for Digital Television Receivers*, Report and Order, 15 FCC Rcd 16788, 16807, para. 56 (2000); *Technical Requirements to Enable Blocking of Video Programming Based on Program Ratings*, Report and Order, 13 FCC Rcd 11248, 11257, para. 23 (1998).

[69] TIA Petition at 11-12.

[70] ACTA was required to file a similar report when the database first was implemented. 47 CFR § 68.610(d).

[71] *See Notice*, 30 FCC Rcd at 12233, paras. 29-30 (noting proceedings in 2003, 2007 and 2010).

[72] *2003 Wireless HAC Report and Order*, 18 FCC Rcd at 16778, para. 57.

[73] *August 2010 Report and Order*, 25 FCC Rcd at 11191-92, paras. 69-70; *see Notice*, 30 FCC Rcd at 12232-33, para. 29; ATIS Hearing Aid Compatibility Compliance Efforts – Status Report #7, WT Docket No. 01-309, at 6 (filed Nov. 19, 2007) (noting that the working group began in 2007).

[would] be shared with the Commission upon the completion of this group's efforts."[74] Later that year, in December 2010, and again in 2012, the Commission's Wireless Telecommunications Bureau (WTB) once again raised questions about the need for and feasibility of rules requiring acoustic coupling of wireless handsets for people with hearing loss.[75] At some point in time between these two notices, the ATIS working group ceased activities without producing recommendations on this matter.[76]

22. This Report and Order follows the Commission's most recent exploration into the need for a wireless volume control rule to address the needs of people with hearing loss, initiated in the 2015 *Notice*.[77] Since the release of this *Notice*, two SDOs, i.e., the ANSI Accredited Standards Committee C63 Subcommittee 8's (ANSI ASC C63) C63.19 working group[78] and TIA's TR-41.3.14 working group, have made considerable progress on the completion of a standard for this purpose.[79] It is our understanding that ANSI/TIA-PN-5050, developed by TIA's TR-41.3.14, is now under consideration by TIA[80] and by ANSI.[81]

23. The record in this proceeding confirms that the public interest and the objectives mandated by section 710 of the Act will be served by modifying the Commission's acoustic coupling HAC rules for wireless handsets to include a volume control requirement designed to accommodate

[74] *August 2010 Report and Order*, 25 FCC Rcd at 11191-92, para. 69.

[75] *Comments Sought on 2010 Review of Hearing Aid Compatibility Regulations*, Public Notice, 25 FCC Rcd 17566, 17576-77 (WTB 2010) (also seeking comment on whether consumers and hearing aid manufacturers have adequate information about wireless phone volume settings and sound quality, and whether wireless technology could cause some hearing aids not to receive magnetic signals needed to activate certain acoustic coupling modes); *Updated Information and Comment Sought on Review of Hearing Aid Compatibility Regulations*, Public Notice, 27 FCC Rcd 13448, 13452 (WTB 2012) (also seeking comment on application of the TIA wireline volume control standard adopted in this Report and Order).

[76] *See Notice*, 30 FCC Rcd at 12233, para. 29 & n.102; ATIS News Release, *ATIS Applauds the 21st Century Communications and Video Accessibility Act* (Oct. 29, 2010), https://www.atis.org/PRESS/pressreleases2010/102910_vaa.html (stating that the group completed its original mission, and not listing volume control as one of its accomplishments).

[77] *Notice*, 30 FCC Rcd at 12222, para. 6.

[78] ANSI ASC C63 is the accredited SDO whose working group, C63.19, is responsible for developing and maintaining ANSI C63.19, a wireless HAC standard discussed further below. ANSI ASC C63 Comments at 1-2.

[79] *See* Letter from James R. Bress, AST Technology Labs, Inc., Chair, TIA TR-41, to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46, at 2 (filed Nov. 18, 2016) (TR-41 *Ex Parte*) (stating that TIA's TR-41 subcommittee will be addressing wireless volume control); ANSI ASC C63 Comments at 2 (citing an issue regarding "[a]dequacy of volume control" as one of a number of developments that reportedly has led the group to consider the advisability of revising and updating the IEEE, American National Standard Methods of Measurement of Compatibility Between Wireless Communications Devices and Hearing Aids, ANSI C63.19-2011 (May 27, 2011) (2011 Wireless RF Interference/Inductive Coupling Standard)); ANSI ASC C63, PINS: Project Initiation Notification System Form (Nov. 9, 2015), http://www.c63.org/documents/misc/pins/C63_19_PINS_20151110.pdf (listing volume control as an issue to be addressed by the ANSI ASC C63.19 working group).

[80] TR-41.3, ANSI/TIA-PN-5050 Draft 1.0 Ballot at 1 (Aug. 8, 2017) (ANSI/TIA-PN-5050 Draft Ballot), http://ftp.tiaonline.org/TR-41/TR-41.3.14/Public/2017-09-SantaCruz/TR41.3.14-17-09-004-ANSI-TIA-PN-5050-Mobile-Volume-Control-Draft1.0-ballot,JBress,AST-Pointer.docx (providing a link to the ballot version of the draft Receive Volume Control Requirements for Wireless (Mobile) Devices standard).

[81] ANSI, Standards Action, at 5 (Aug. 25, 2017), https://share.ansi.org/Shared%20Documents/Standards%20Action/2017-PDFs/SAV4834.pdf (referenced as BSR/TIA 5050-201x).

people with hearing loss.[82] Given the significantly expanded reliance on wireless telephone communications—and concomitant decline in wireline phone usage[83]—we affirm our belief that a volume control requirement that specifies certain levels of amplification as an element of hearing aid compatibility is just as necessary for wireless handsets as it is for wireline phones, to ensure the provision of effective telecommunications for people with hearing loss.[84] This is especially true in emergency situations where having access to a phone—be it one's own device or a device belonging to someone else on the scene—can mean the difference between life and death.[85] Further, a volume control requirement will not only improve communications for those using hearing aids and cochlear implants, it also will help millions of Americans with hearing loss who do not use these devices.[86]

24. Our conclusion is supported in the record. Surveys reveal that the existing volume control features contained in wireless handsets often do not produce sufficient amplification to enable people with hearing loss to comprehend wireless telephone conversations through acoustic coupling.[87] For example, in a 2014 survey conducted by the Hearing Loss Association of America (HLAA), 49 percent of the respondents reported that even after adjusting their hearing aids and cell phones, the speech they heard was at a "'correct'" volume only half the time, occasionally, or rarely.[88] Similarly, a survey conducted by the Wireless RERC in 2014 revealed that 25 percent of people who use either hearing aids or cochlear implants also use extra technologies, such as amplifiers or neck loops, to enhance the clarity

[82] Referencing the Act's universal service mandate, the drafters of the 1988 HAC Act explained that "[a]dvances in technology have made communication possible and it is time that [people with hearing loss] are included in 'all the people.'" H.R. Rep. No. 100-674, at 6 (1988) (1988 House Report) (*citing* 47 U.S.C. § 151).

[83] *See, e.g.*, Felix Richter, *Landline Phones Are a Dying Breed* (May 10, 2017), https://www.statista.com/chart/2072/landline-phones-in-the-united-states/ (using data from the Centers for Disease Control and Prevention to show that the percentage of households with a landline telephone has decreased from 92.7% in 2004 to 45.9% in 2016, while the percentage of households with only a cell phone has risen from 5% in 2004 to 50.8% in 2016); *see also* Monica Anderson, *Technology Device Ownership: 2015*, Pew Research Center (Oct. 29, 2015), http://www.pewinternet.org/2015/10/29/technology-device-ownership-2015/ (reporting significant and steady growth in the percentage of Americans with cell phones); *Notice*, 30 FCC Rcd at 12235, para. 32 (noting "the greatly expanded role of wireless voice communications in our society").

[84] *Notice*, 30 FCC Rcd at 12235, para. 32. *See generally 1996 HAC Report and Order*, 11 FCC Rcd at 8278-79, paras. 68-69 (establishing a mandate for volume control on wireline handsets).

[85] *See, e.g.*, *Access to Telecommunications Equipment and Services by Persons with Disabilities,* Notice of Proposed Rulemaking, 11 FCC Rcd 4338, 4348, para. 17 (1995) (explaining that quick access to compatible phones could "save a life"); *Access to Telecommunications Equipment and Services by Persons with Disabilities*, Order on Reconsideration, 12 FCC Rcd 10077, 10079, para. 4 (1997) (stating that the 1988 HAC Act supports wireline volume control to minimize the risk of persons with hearing loss lacking access to usable telephones in emergencies); *see also* Consumer Groups and DHH RERC Comments at 6.

[86] HIA Comments at 4-5; *see also* Consumer Groups and DHH RERC Comments at 6 (noting that "volume control in wireless telephones would make them more usable to a person using a hearing aid without a telecoil, or a person with a slight hearing loss who does not use a hearing aid"). The number of people with hearing loss who do not use hearing aids is significant. For example, NIH reports that there are 28 million Americans between the ages of 20 and 69 with high frequency hearing loss due to exposure to noise at work or during leisure activities. But only about 16 percent of adults aged 20 to 69 who could benefit from wearing hearing aids have used these devices. NIH – National Institute on Deafness and Other Communication Disorders, *Quick Statistics About Hearing* (Dec. 15, 2016), https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing.

[87] *Notice*, 30 FCC Rcd at 12235, para. 32; *see also* HIA Comments at 5 (stating that "the acoustic output from many wireless devices is too soft for users to hear communications via the hearing aid microphone").

[88] HLAA, Can You Hear Me Now? HLAA Cell Phone Survey (Oct. 1, 2014) (2014 HLAA Survey), https://ecfsapi.fcc.gov/file/10202770606498/HAC%20Survey%2010_2014%20filed%20copy.pdf, *reprinted in* Letter from Lise Hamlin, Dir. of Public Policy, HLAA, to Marlene H. Dortch, Secretary, FCC, Attach. (filed Feb. 2, 2017); *Notice*, 30 FCC Rcd at 12235 n.117.

and volume of the sound provided by wireless handsets.[89] Further, in response to a question about volume control, 27 percent of these respondents said they were "dissatisfied" or "very dissatisfied" with their phones.[90] And in answer to an open-ended question as to what individuals would change about their cell phones to make them work better for them, 29 percent stated that they would increase the loudness or improve the volume control.[91]

25. We do not find industry's objections to a wireless volume control requirement persuasive. First, TIA and CTIA dispute the significance of the HLAA and Wireless RERC survey results,[92] noting that less than 30 percent of their complaints about wireless phones pertained to "loudness" or "volume."[93] TIA adds that 50 percent of respondents in the Wireless RERC's survey indicated they were "satisfied" or "very satisfied" with amplification on phones.[94] Notwithstanding the ability of some phones to meet the needs of certain individuals with hearing loss, however, we find that even where 29 percent of respondents report dissatisfaction with handset volume controls, these results provide persuasive evidence that current wireless handset volume controls are insufficient to ensure that wireless handsets can be effectively used with hearing aids and that people with hearing loss have effective access to the wireless phone network.[95] The number of Americans with hearing loss is estimated to be approximately 48 million.[96] Even if only 29 percent of this population were able to benefit from wireless volume control, we conclude that the resulting benefits to some 13.9 million people are sufficient to justify a requirement for wireless phones to provide effective communication through amplification.[97]

26. Second, TIA asserts that wireless handsets already allow users to adjust the volume on wireless handsets, and that these devices are designed to "provide an acceptable, comfortable user experience."[98] However, TIA provides no specific or quantitative information on the extent to which amplification levels in wireless handsets have improved since 2010, nor how these levels have been effective in enabling individuals with hearing loss to receive and understand speech received through wireless handsets.[99] Moreover, HLAA states that it continues "to receive reports directly from consumers. . . who are frustrated that they cannot boost the volume on their wireless phones enough to allow them to adequately hear a conversation."[100] Likewise, a coalition of consumer groups, including representatives of Telecommunications for the Deaf and Hard of Hearing (TDI), the National Association of the Deaf, Communication Service for the Deaf, HLAA and Gallaudet University, claims that "many

[89] Wireless RERC Comments at 4-5.

[90] *Id*. at 5.

[91] *Id*. at 6-7.

[92] CTIA Reply Comments at 3-4; TIA Reply Comments at 4-5.

[93] CTIA Reply Comments at 3-4.

[94] TIA Reply Comments at 4-5.

[95] *See* 47 U.S.C. § 610(b)(1); *see also* 1988 HAC Act, § 2 (finding that "to the fullest extent made possible by technology and medical science, [people with hearing loss] should have equal access to the national telecommunications network").

[96] *See, e.g.*, HLAA, *Basic Facts About Hearing Loss*, http://www.hearingloss.org/content/basic-facts-about-hearing-loss (last visited July 25, 2017); *Notice*, 30 FCC Rcd at 12226, para. 13 (citing a 2013 *ex parte* letter giving an estimate of 36 million Americans with hearing loss).

[97] .29 * 48,000,000 =13,920,000.

[98] TIA Comments at 10. However, there is nothing cited to support this assertion.

[99] *See Notice*, 30 FCC Rcd at 12235, para. 32 (seeking comment on this matter).

[100] Letter from Lise Hamlin, Dir. of Pub. Policy, HLAA, & Linda Kozma-Spytek, Co-Dir., Deaf/Hard of Hearing Tech. RERC, Gallaudet Univ., to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46, at 2 (filed Aug. 22, 2016) (HLAA & DHH Tech RERC *Ex Parte*).

people with hearing loss are not able to fully utilize [cell phone] technology—often for the simple reason their phones are not capable of making the volume loud enough to be useful."[101] The record in this proceeding thus compels us to conclude that the available volume control in existing wireless handsets does not ensure sufficient amplification for people with hearing loss to communicate effectively.

27. Third, industry commenters suggest that wireless volume control rules are unnecessary because such requirements already exist.[102] Along these lines, TIA contends that volume control standards for wireless handsets would be duplicative of standards already required for wireless devices, namely TS 26.131 and TS 26.132, conformity with which "is necessary in order for wireless handsets to obtain device certification with wireless carriers in both Europe and North America."[103] However, while the standards to which TIA refers address a number of acoustic issues,[104] there is no indication in the record that these standards were formulated to specifically address the needs of consumers with hearing loss.[105] Instead, as TIA acknowledges, these linked standards are intended to provide only "safety caps and maximum thresholds for volume control and unintentional acoustic shocks."[106] For example, for narrowband handsets, TS 26.131/TS 26.132 do not set a lower limit of the allowed range of amplification

[101] Letter from Drew Simshaw, Institute for Public Representation, Georgetown Law, Counsel for Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI), to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46 et al., at 3 (filed Nov. 23, 2016) (TDI *Ex Parte*).

[102] CTIA Reply Comments at 2, 3 n.7. Although CTIA states that a wireless volume control rule is "unnecessary in light of modern wireless handset capabilities and regulatory requirements," it does not explain the capabilities and regulations to which it refers, nor how they would ensure the provision of service to people with hearing loss.

[103] TIA Comments at 10-11. The more complete names of these standards are 3GPP TS 26.131 and 3GPP TS 26.132, also known as ETSI TS 126.131 and ETSI TS 126.132, where 3GPP and ETSI are European and Asian standards organizations. TS 26.132 provides the measurement methodology for TS 26.131. For the current versions of the standards, see ETSI, Terminal Acoustic Characteristics for Telephony, 3GPP TS 26.131 Ver. 14.1.0 Rel. 14 (July 2017) (TS 26.131), http://www.etsi.org/deliver/etsi_ts/126100_126199/126131/14.01.00_60/ts_126131v140100p.pdf; ETSI, Speech and Video Telephony Terminal Acoustic Test Specification, 3GPP TS 26.132 Ver. 14.1.0 Rel. 14 (July 2017) (TS 26.132), http://www.etsi.org/deliver/etsi_ts/126100_126199/126132/14.01.00_60/ts_126132v140100p.pdf; *see also* ETSI, 3GPP, http://www.etsi.org/about/what-we-do/global-collaboration/3gpp (last visited July 25, 2017).

[104] *E.g.*, TS 26.131 § 6.2 (volume control parameters for wideband telephony).

[105] *See* HLAA & DHH Tech RERC *Ex Parte* at 2 (noting that neither of these standards, when being developed, took into consideration the specific needs of people with hearing loss). TIA also references the "'Australian Standard AS/CA S042.1, Release 2010'" but does not explain how that standard benefits users with hearing loss. TIA Comments at 11-12; Communications Alliance Ltd, Australian Standard AS/CA S042.1:2010 (2010) (AS/CA S042 2010 Standard), http://www.commsalliance.com.au/__data/assets/pdf_file/0009/2430/S042-1_2010.pdf. Indeed, that 2010 version of the Australian standard and the more recent 2015 version provide sound pressure level limits for acoustic safety, but a handset could comply simply by generating extremely low volume, which would not benefit people with hearing loss. AS/CA S042 2010 Standard § 5.5 (Acoustic Safety); Communications Alliance Ltd, Australian Standard AS/CA S042.1:2015 (2015), http://www.commsalliance.com.au/__data/assets/pdf_file/0017/50138/S042-1_2015.pdf. TIA also refers to the "'EN 60950-1:2006+A12:2011, EN 50332-1 and EN 50332-2 Clause 5.1'" standards, which TIA admits are "required to protect the user from unintentional acoustic outputs." TIA Comments at 11. Again, TIA does not explain how the standards would benefit people with hearing loss.

[106] TIA Comments at 10 (referencing TS 26.131); *see also* CTIA Reply Comments at 3 (noting that there are regulations to control unintentional acoustic shocks, but not specifying those regulations, and generally referencing "other technical standards," without specifying how they benefit people with hearing loss). Acoustic shock is "'any temporary or permanent disturbance of the functioning of the ear, or of the nervous system, which may be caused to the user of a telephone earphone by a sudden sharp rise in the acoustic pressure [(volume)] produced by it.'" Janice Milhinch, *Acoustic Shock Injury: Real or Imaginary?*, Audiology Online (June 17, 2002), http://www.audiologyonline.com/articles/acoustic-shock-injury-real-or-1172.

levels that may be reached when a volume control is turned up to the maximum level.[107] Also for wideband and superwideband handsets, these standards provide a minimum level for the maximum volume that is substantially below the minimum level for the maximum volume provided for effective communication by people with hearing loss in the 2012 Wireline Volume Control Standard (adopted by the industry).[108]

28. Industry stakeholders put forth other arguments against adopting a volume control requirement for wireless handsets, which we similarly find unconvincing. First, CTIA suggests that consumer concerns about volume control can be addressed with "enhanced consumer education," adding that the wireless industry is working to investigate best practices for making HAC ratings more discoverable and accessible by consumers.[109] However, we note that the record provides no basis for finding that consumer education is sufficient, and HAC ratings for wireless handsets currently are available only for RF interference reduction and inductive coupling capability, not volume amplification. Next, TIA asserts that it would not be practical to improve the loudness on speakerphones due to the impact on the handset size and power availability.[110] This is irrelevant to the issue at hand, however, because the Commission's volume control proposal addresses the volume that can be achieved when a handset is held to the ear, not the volume available from a handset's speakerphone function.[111] Finally, we reject the suggestion by CTIA that consumers needing greater volume amplification should simply select a different handset.[112] This is not a viable option if wireless handsets with effective amplification are not available.

29. Although the Commission sought comment on costs and benefits associated with its rule proposals,[113] commenters did not supply specific cost data. For example, TIA makes the general claim that a wireless volume control requirement would result in "additional testing and design limitations for manufacturers," but it does not quantify the costs involved, describe the additional testing that would be required, or provide any facts or data that quantify how extensive such testing might be.[114] Similarly, TIA fails to substantiate the claimed design limitations or provide any basis for evaluating this claim.[115] In

[107] TS 26.131 § 5.2.2; TIA Reply Comments at 5. In this Report and Order, this is referred to as the "minimum level of the maximum volume." The 2012 Wireline Volume Control Standard also specifies a "maximum level of the maximum volume," which is the upper limit of the allowed range of amplification levels that may be reached when a volume control is turned up to the maximum level.

[108] The 2012 Wireline Volume Control standard sets the minimum acceptable maximum volume at 18 dB Conversational Gain, which is equivalent to 88 dB SPL. *See Notice*, 30 FCC Rcd at 12229, para. 19; TIA Petition at 8-10 (stating that 0 dB Conversational Gain is equivalent to 70 dB SPL for a telephone being held to the ear, and that the minimum level for the maximum volume required to be achievable under the 2012 Wireline Volume Control Standard would increase that level by 18 dB). By contrast, the TS 26.131/TS 26.132 standards specify a minimum level for the maximum volume (according to HIA) of only 81 dB SPL in a user's ear, a volume level that HIA claims "will not be sufficient for persons with hearing loss to communicate well." TS 26.131 §§ 6.2.2, 7.2.2; HIA Comments at 5-6.

[109] CTIA Reply Comments at 4 & n.11 (referencing M- and T-ratings provided under the RF interference reduction and inductive coupling standards, respectively, which are set forth in 47 CFR § 20.19); *see also infra* notes 162 and 167 (explaining these ratings).

[110] TIA Comments at 11.

[111] *See* TIA Comments at 11; 47 U.S.C. § 610. Similarly, the volume control proposal does not address the loudness of the sound heard via a headphone jack, such as when the user is playing music.

[112] CTIA Reply Comments at 4.

[113] *See Notice*, 30 FCC Rcd at 12235, para. 33 (seeking comment on the costs and benefits of adopting a wireless volume control requirement for manufacturers, service providers, and consumers).

[114] TIA Comments at 12.

[115] *Id*.

contrast, the major benefits to people with hearing loss from increased access to the telephone network—whether achieved by improvements in inductive coupling, RF interference reduction, or volume control—while hard to quantify, are well documented. The 1988 HAC Act itself contains a Congressionally enacted finding that "universal telephone service for hearing-impaired persons will lead to greater employment opportunities and increased productivity,"[116] and recognition of the importance of telephone access for people with disabilities has only increased since then. For example, being able to use the telephone is critical in the working world, and people with hearing loss and other disabilities face significant disadvantages in that regard, absent accessible technology.[117] By adding volume control to wireless HAC requirements, we further increase access to these benefits for people with hearing loss whether or not they have hearing aids. Based on the record as noted above, our volume control rule will directly address the problems of those who use either hearing aids or cochlear implants, an estimated 13.9 million of whom experience dissatisfaction with handset volume controls. We further conclude on this record, including the absence of any quantification of costs, that these benefits, while not fully quantified, are sufficient to justify the adoption of a volume control rule,[118] consistent with the Commission's prior rulings and with our statutory mandate to ensure that "to the fullest extent made possible by technology and medical science, [persons with hearing loss] have equal access to the national telecommunications network."[119]

30. Finally, there is an added potential benefit in that improving the ability of people with hearing loss to directly access the wireless telephone network through this volume control requirement could reduce the costs associated with support of telecommunications relay services (TRS).[120] Relay services, to which people with hearing loss must turn when direct telephone access is ineffective, are far more costly than direct communications.[121] To the extent that effective volume control is provided on wireless handsets, many Americans who, because of advancing hearing loss, have been turning to TRS,

[116] 1988 HAC Act § 2(4).

[117] *See, e.g.*, S. Rep. No. 111–386 at 1-2 (2010); H.R. Rep. No. 111-563 at 19 (2010) (finding, in recommending enactment of the CVAA, that people with disabilities face disproportionately higher rates of unemployment and poverty than those without disabilities). In 2011, the Commission noted that "[r]ecent surveys confirmed this finding, showing a gap of 38 percentage points in the rates of employment of working-age people with disabilities and those without disabilities (21% v. 59%)." *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*, Notice of Proposed Rulemaking, 26 FCC Rcd 3133, 3135, para. 2 (2011); *2015 Wireless HAC Improvements Order,* 30 FCC Rcd at 13863-64, para. 39.

[118] In addressing the accessibility of television programming for people who are blind and visually impaired, the Commission similarly found that "it is difficult to quantify in monetary terms the intrinsic benefits" of providing such access. *Video Description: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010*, Report and Order, 32 FCC Rcd 5962, 5969, para. 13 & n.50 (2017).

[119] 47 U.S.C. § 610(a); 1988 HAC Act § 2(1).

[120] *See generally* 47 U.S.C. § 225 (requiring the Commission to ensure that TRS are available "to the extent possible and in the most efficient manner" to enable people with hearing and speech disabilities to communicate in a manner functionally equivalent to voice telephone service).

[121] For example, Internet Protocol Captioned Telephone Service (IP CTS) is a form of TRS that permits people with hearing loss to speak directly to another party on a telephone call and use their residual hearing to simultaneously listen to the other party, while reading captions of what that party is saying. IP CTS, which is funded entirely from compulsory contributions collected from wireline and wireless voice service providers, currently costs the Interstate TRS Fund almost $2 for each minute of use, and expenditures on IP CTS in the current year are expected to exceed $700 million. *See* Rolka Loube, Interstate TRS Fund Performance Status Report (Mar. 2017), http://media.wix.com/ugd/455e4d_ba0da422867b45a18a803826ecc3e453.pdf.

may return to making telephone calls on their own.[122] This not only provides greater privacy, accuracy, and independence for such individuals; it also enables the Commission to support telephone access more efficiently.

31. We also believe that any costs associated with meeting certain levels of volume control in wireless handsets will be mitigated by the flexibility afforded by this order. Rather than relying on a government-mandated technical solution, we adopt a general volume control requirement that provides standards setting organizations with an opportunity to submit for Commission approval a technical standard that they believe will enable a phone to meet this general requirement and can be implemented in a cost-effective manner.[123] And if the standard is sufficient for a phone to pass muster under this requirement, the Commission will codify it through appropriate processes (including, where applicable, notice-and-comment rulemaking). Indeed, as noted above, a private sector SDO has recently developed a draft volume control standard that it appears to be very close to adopting.[124] Additionally, as discussed in more detail below, because our extended timeline for implementation of the requirement will apply only to handsets newly submitted for HAC certification, volume control meeting the standard we approve can be incorporated into the mobile handset environment in a cost-effective manner.

32. *Legal Authority*. No commenter disputes our legal authority to adopt a volume control requirement for wireless phones. We note that this authority stems from section 710(a) and the stated purposes of the HAC provisions of the Act, which direct the Commission to "establish such regulations as are necessary to ensure reasonable access to telephone service by persons with . . . hearing [loss]" such that, "to the fullest extent made possible by technology and medical science, [persons with hearing loss] have equal access to the national telecommunications network."[125] A volume control requirement on wireless phones also is authorized by section 710(b) as an "internal means for [providing] effective use with hearing aids,"[126] because, as the Commission has previously noted, volume control "help[s] the many hearing aid wearers whose hearing aids are not equipped with an electro-magnetic coil"[127] and because "technologies other than the electro-magnetic coil are contemplated in the definition of hearing aid compatibility," including volume control technology.[128]

33. The Commission previously found in the *1996 HAC Report and Order* that both these provisions authorize the adoption of volume control requirements for wireline telephones,[129] and the

[122] Providers of IP CTS are compensated for this service at a rate of $1.9458 per minute. In the coming year, support for IP CTS is expected to require more than $700 million in expenditures from the Interstate TRS Fund. *See id.; see also* 47 U.S.C. § 225 (requiring nationwide TRS).

[123] *See* Letter from Savannah P. Schaefer, Senior Manager, Government Affairs, Telecommunications Industry Association, to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-46 et al., at 1 (filed Oct. 17, 2017) (suggesting "that the focus of the requirement should remain tied to desired outcomes").

[124] ANSI/TIA-PN-5050 Draft Ballot at 1 (providing a link to the ballot version of Receive Volume Control Requirements for Wireless (Mobile) Devices); *supra* para. 22.

[125] 47 U.S.C. § 610(a); 1988 HAC Act § 2.

[126] 47 U.S.C. § 610(b)(1).

[127] *1996 HAC Report and Order,* 11 FCC Rcd at 8276, para. 63.

[128] *1996 HAC Report and Order,* 11 FCC Rcd at 8277, para. 65 (citing 1988 House Report at 12 and S. Rep. No. 100-391 at 10 (1988) (1988 Senate Report) and noting that the 1988 Senate Report specifically mentions telephone amplification as a technology that is useful to people with hearing loss); *see also 1996 HAC Report and Order,* 11 FCC Rcd at 8282, para. 78 (concluding that the statutory requirement for "internal means for effective use with hearing aids" (section 710(b) "is broadly written, to encompass many types of evolving technology, including volume control").

[129] *1996 HAC Report and Order,* 11 FCC Rcd at 8276-77, para. 65 (*citing* 47 U.S.C. § 610(a)). The Commission concluded that "volume control requirements will make telephones more accessible for a significant portion of the population, including hearing aid wearers and others with hearing [loss]." *Id.* at 8278, para. 69.

Commission's 1996 analysis applies equally to wireless telephones.[130] In the *1996 HAC Report and Order*, the Commission concluded that "volume control requirements will make telephones more accessible for a significant portion of the population, including hearing aid wearers and others with hearing [loss]."[131] The Commission further concluded that "market forces alone would [not] supply volume controlled telephones in sufficient quantity."[132] The same is true today for wireless handsets, i.e., a requirement to provide adequate volume control in wireless handsets will make these communication devices more accessible to millions of people with hearing loss and, as has been demonstrated above, market forces alone have not met this need. Finally, our action today comports with the requirement under section 710(e) of the Act, which directs the Commission to ensure that its HAC regulations "encourage the use of currently available technology, and do not discourage or impair the development of improved technology."[133]

34. *Implementation Timeline*. In the *Notice*, the Commission sought comment on whether 18 months would provide enough time for the development of a volume control standard for wireless phones that ensures "effective use of [volume control] with hearing aids."[134] As noted above, since then, significant developments have led to the development and potential near-term approval of a standard by the TIA TR-41.3 standards committee. This standards development effort began approximately six months ago.[135] Given this head start, we conclude that one year will be sufficient for the completion and adoption of a technical standard for wireless volume control by an SDO, and adoption by the Commission. By setting the initial compliance deadline at three years after the date of publication of this Report and Order in the Federal Register, we will allow an additional two years for manufacturers to implement such technical standard in new handset models submitted for HAC certifications through the Commission's existing equipment authorization process.[136] The three-year compliance interval thus accords with various determinations made by the Commission that a two-year transition period for manufacturers and service providers to implement certain general accessibility obligations rules was appropriate,[137] while providing additional time in this case for finalizing and codifying the technical

[130] While the 1988 HAC Act did not initially apply to wireless phones, the Commission lifted that exception in 2003. *2003 Wireless HAC Report and Order*, 18 FCC Rcd at 16753, para. 1.

[131] *1996 HAC Report and Order,* 11 FCC Rcd at 8278, para. 69.

[132] *Id.*

[133] 47 U.S.C. § 610(e).

[134] *Notice*, 30 FCC Rcd at 12236, para. 36.

[135] TR-41.3.14, Meeting Notice and Agenda (Mar. 29, 2017), http://ftp.tiaonline.org/TR-41/TR-41.3.14/Public/2017-03-Melbourne/TR41.3.14-17-03-001-Melbourne-Meeting-Notice-Agenda.pdf (listing the working group's review of the ANSI/TIA-PN-5050 draft.

[136] *See infra* App. B (§ 20.19(b)(1)). In the unlikely event that a wireless volume control technical standard is not approved by the Commission within one year after the date of publication of this Report and Order in the Federal Register, and additional time is needed for implementation of the new volume control rule, we delegate authority to WTB, in consultation with the Consumer and Governmental Affairs Bureau (CGB) and Office of Engineering Technology, to extend the compliance deadline as necessary to address a reasonably justified need for additional time to complete development and ensure that equipment is designed to meet such standard.

[137] *See Accessibility of User Interfaces, and Video Programming Guides and Menus et al.*, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 17330, 17400, para. 112 (2013) ("recogniz[ing] that the Commission has generally afforded manufacturers two years to comply with accessibility requirements under the CVAA"); *2011 ACS Report and Order*, 26 FCC Rcd at 14602-03, para. 110 (noting that a two-year phase-in is "consistent with the Commission's approach in other complex rulemakings").

parameters of a volume control standard. As with comparable efforts in the past, we will provide all necessary support to standards development work to implement this requirement.[138]

35. Accordingly, we amend our rules and adopt a volume control requirement, which applies to all wireless handset models newly submitted for HAC certification beginning three years after the date of publication of this Report and Order in the Federal Register. On or after the three-year deadline, new wireless handset models submitted for certification as hearing aid compatible for RF interference reduction and inductive coupling must also comply with the new volume control rule (including technical standards approved by the Commission).[139] We grandfather all hearing aid compatible handsets that were certified as HAC compliant without volume control provided they were submitted for certification prior to the applicable compliance deadline.[140]

36. Upon the completion of a wireless volume control technical standard, we anticipate that the Commission can expeditiously begin a rulemaking process to evaluate the standard and incorporate it by reference into the wireless HAC rules. We will monitor developments in this regard and take appropriate steps if standards development and adoption do not proceed as expected. We conclude that the adopted timeframe will provide ample opportunity for informed development of a wireless volume control technical standard and the incorporation of such standard into our rules, as well as for manufacturers to obtain the necessary testing equipment, and to implement design alterations needed to ensure that their new products meet the standard. We further find that this approach will afford manufacturers and service providers the flexibility to work through their inventories of older models to meet their M- and T-rating HAC deployment benchmarks, while ensuring that in the ensuing years effective volume control will increasingly become a standard feature as new hearing aid compatible models universally incorporate volume control. In this manner, our approach will not require companies to retrofit or recertify any HAC-compliant grandfathered models or drop any such models from their portfolios prematurely to comply with the volume control requirements.

37. *Labeling*. The 1988 HAC Act instructs that the Commission "shall establish requirements for the labeling of packaging materials . . . to provide adequate information to consumers on the compatibility between telephones and hearing aids."[141] This expresses Congress's intent for the Commission not only to establish regulations to ensure access to telephones, but also to ensure that consumers have the information necessary to make informed decisions when purchasing phones.[142] The Commission's rules contain various labeling and disclosure requirements, including mandates for HAC ratings to be contained on labels of a wireless handset's packaging[143] and for manufacturers and service

[138] *See, e.g., Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets*, Third Report and Order, 27 FCC Rcd 3732, 3739, para. 17 (OET & WTB 2012) (stating that "[w]e expect that during the next 12 months, industry members will work with the standards bodies to finalize all guidance necessary . . . and we will provide all possible support to this endeavor").

[139] The "refresh" requirement ensures that a minimum number or proportion of handset models introduced by a manufacturer in each calendar year comply with the RF interference reduction standard. 47 CFR § 20.19(c)(1)(ii); *see 2015 Wireless HAC Improvements Order,* 30 FCC Rcd at 13869-72, paras. 46-53. As an example of how the benchmarks would apply to wireless volume control, if Federal Register publication of this Order occurs on December 1, 2017, then in general, a manufacturer would become subject to the wireless volume control requirement three years later, on December 1, 2020. At that time, pursuant to the *2016 Wireless HAC Order*, a manufacturer offering six or more handset models per air interface will be subject to the benchmark requiring that at least 66 percent of its handset models for each interface comply with the Commission's RF interference reduction and inductive coupling standards. 47 CFR § 20.19(c)(1)(i)(C). The benchmarks would apply in like manner to implementation of the new volume control requirement.

[140] *See infra* App. B (§ 20.19(b)(1)).

[141] 47 U.S.C. § 610(d).

[142] *2003 Wireless HAC Report and Order*, 18 FCC Rcd at 16785, para. 84.

[143] 47 CFR § 20.19(f).

providers to disclose "by clear and effective means" those handsets that have not been rated for hearing aid compatibility.[144] In the *Notice*, the Commission asked about the type of information that consumers need regarding wireless handset volume control levels to make informed purchasing decisions.[145] The Commission also stated that in surveys conducted by HLAA in 2011 and 2014, consumer organizations had raised concerns about the difficulties consumers experience in trying to find wireless handsets that are compatible with their hearing aids, especially ones that provide sufficient volume.[146]

38. Adoption of a requirement for wireless handset packages to be labeled with volume amplification information is supported by the record. In response to the *Notice*, Consumer Groups and the DHH RERC continue to express their frustration when sufficient information is not provided on a handset's packaging: the consumer must first order and wait for delivery of the handset, and only then test it to assess whether its amplification meets the consumer's hearing needs. If such amplification is not suitable, the consumer must return it and start the process again.[147] We further note that although service providers are required to allow consumers to try out handsets in service provider stores,[148] consumers who shop at other types of retail establishments or shop online do not have the same capability. Further, because during the transitional years following the compliance deadline for the rules, only certain handset models will be required to meet the new volume control requirement, consumers with hearing loss will need labeling information to inform them as to which wireless handsets are suitable for them.

39. To rectify this, and to achieve consistency with the current Commission requirements in section 20.19(f) of the rules for HAC labeling and disclosure for wireless handsets,[149] we require manufacturers of wireless handsets and service providers to ensure that packaging on each handset covered by the volume control requirement adopted herein clearly displays information to enable consumers to determine the handset's amplification capabilities. We believe that this will assist consumers with varying degrees of hearing loss to make informed wireless phone purchases, and thereby further Congress's goal of ensuring that such individuals have "equal access to the national telecommunications network."[150] We require compliance with this labeling requirement to be concurrent with the implementation of the volume control requirement—i.e., volume control labeling will be required for wireless handsets newly submitted for certification as compliant with HAC requirements beginning three years after the date of publication of this Report and Order in the Federal Register. We also encourage wireless manufacturers and service providers to provide information about which of their handsets have amplification by other means, such as by providing such information on their call-out cards in retail stores and websites.[151]

40. At this time, we do not specify either the format or language for the volume control label. However, beginning with the three-year compliance deadline discussed above, if a handset is certified as compliant with a HAC technical standard relating to volume control that specifies acceptable numerical

[144] *Id*. § 20.19(f)(2)(i). The rules list "the inclusion of call-out cards or other media, revisions to packaging materials [and] supplying of information on Web sites" as examples of what would constitute "clear and effective means." *Id*.

[145] *Notice*, 30 FCC Rcd at 12237, para. 37.

[146] *Id.* n.128; *see also, e.g.*, 2014 HLAA Survey at 26-27; HLAA & DHH Tech RERC *Ex Parte*, Attach. at 27-28.

[147] Consumer Groups and DHH RERC Comments at 3.

[148] 47 CFR § 20.19(c)(4).

[149] *Id*. § 20.19(f).

[150] 1988 HAC Act § 2(1); 1988 House Report at 3, 7.

[151] Currently, manufacturers and service providers that operate publicly accessible websites must make available on such sites lists of all hearing aid compatible models that they offer, along with the ratings for those models and explanations of the rating system. 47 CFR § 20.19(h). Because the *Notice* did not seek comment on adding information about volume control to this requirement, we do not modify this rule at this time; however, we encourage the provision of such information given its anticipated usefulness to the public.

metrics or qualitative ratings for handset volume control (comparable to the M- and T-ratings provided under the RF interference reduction and inductive coupling standards),[152] the labeling for handsets granted HAC certification for volume control must include the relevant amplification metrics or ratings. In addition, as is currently required for M- and T-ratings, an explanation of such amplification metrics or ratings must be included in the device's user manual or as an insert in the packaging material for the handset.[153]

41. *Volume control functional components*. As noted above, industry approval of a technical volume control standard appears to be nearing completion. To the extent that such standard (or any future standard) is approved by an SDO and adopted or authorized by the Commission, compliance with the standard will constitute compliance with the Commission's new wireless volume control rule. Based on current information about volume control and related technical standards, we suggest that a wireless volume control standard could include: (a) the use of conversational gain for measuring receive loudness;[154] (b) the establishment of minimum value(s) for the acceptable maximum volume(s);[155] (c) the use of a Head and Torso Simulator (HATS);[156] and (d) the use of two pressure measurements for holding the handset next to the ear—one for people who use hearing aids, and one for people who do not use hearing aids.

D. Wireless RF Interference/Inductive Coupling Standard

42. In this section, we adopt the Commission's proposal to eliminate the 2007 version of ANSI C63.19[157] (2007 Wireless RF Interference/Inductive Coupling Standard) as an option for measuring and rating the HAC compliance of wireless handsets, and require the use of ANSI C63.19-2011 (2011 Wireless RF Interference/Inductive Coupling Standard), which has been available as an option for many handsets since 2012.[158]

43. For a wireless handset to be deemed compatible with hearing aids under the Commission's rules, it must meet both the RF interference reduction and inductive coupling criteria of the 2007 Wireless RF Interference/Inductive Coupling Standard or the 2011 Wireless RF Interference/Inductive Coupling Standard.[159] In 2003, as a component of the Commission's rules governing the compatibility of wireless phones with hearing aids, the Commission adopted ANSI C63.19-2001 as the technical standard for inductive coupling and limitations on RF interference for wireless

[152] This would be the case if section 20.19 has been further amended, after this Report and Order, to incorporate such a technical standard.

[153] *See infra* App. B (Final Rules); 47 CFR § 20.19(f)(1) (requiring such explanation for HAC rating systems in user manuals or package inserts).

[154] *See* 2012 Wireline Volume Control Standard at 9 (using conversational gain); Aug. 25 ANSI Standards Action at 5 (referenced as BSR/TIA 5050-201x, and stating "[t]he method in this standard uses conversational gain, the acoustic output signal from a device relative to the signal level that would be present in a face-to-face conversation at a distance of 1 meter").

[155] A minimum value for the acceptable maximum volume was included in several portions of the TS 26.131/TS 26.132 standards. *E.g.*, TS 26.131 § 6.2.2.

[156] *See* TIA Petition at 6 (explaining the use of a HATS for the 2012 Wireline Volume Control Standard). The HATS has been used in other standards as well, including the ANSI/TIA-4953-A standard for amplified telephones and the TS 26.131/TS 26.132 standards mentioned by TIA. TIA, Telephone Terminal Equipment; Amplified Telephone Measurement Procedures and Performance Requirements, ANSI/TIA-4953-A § B.8.1 (Oct. 2015) (ANSI/TIA-4953-A); TS 26.132 § 5.1.

[157] ANSI C63.19 refers to the standard adopted by ANSI ASC C63's C63.19 working group.

[158] *Notice*, 30 FCC Rcd at 12239, para. 44; *2012 HAC Report and Order*, 27 FCC Rcd at 3734, para. 9.

[159] 47 CFR § 20.19(b).

handsets operating in the radio frequencies then allocated for cell phone services.[160] In 2007, the Commission adopted a revised version of this standard, ANSI C63.19-2007.[161] The 2007 Wireless RF Interference/Inductive Coupling Standard specifies testing procedures for determining the M-rating (RF interference reduction) and T-rating (inductive coupling capability) of digital wireless handsets that operate over the air interfaces that, at the time the standard was promulgated, were commonly used for wireless services in the 800-950 MHz and 1.6-2.5 GHz bands.[162]

44. In 2011, after the Commission allocated new wireless services to a frequency band in the 698 MHz–6 GHz range, ANSI ASC C63 revised the 2007 Wireless RF Interference/Inductive Coupling Standard to support the application of inductive coupling requirements to include the 700 MHz and higher frequency bands.[163] The resulting 2011 Wireless RF Interference/Inductive Coupling Standard expanded the range of frequencies over which inductive coupling can be tested to include frequencies between 698 MHz and 6 GHz (to take into account other new technologies), and it established a direct method for measuring the RF interference level of wireless devices to hearing aids, enabling testing procedures to be applied to operations over any RF air interface or protocol.[164] WTB incorporated this 2011 Wireless RF Interference/Inductive Coupling Standard by reference into the Commission's wireless HAC rules in 2012.[165]

45. Currently, for operations in frequency bands covered by the 2007 Wireless RF Interference/Inductive Coupling Standard, a handset is considered compatible for preventing RF interference with hearing aids if it achieves a rating of at least M3 under either the 2007 Wireless RF Interference/Inductive Coupling Standard or the 2011 Wireless RF Interference/Inductive Coupling Standard.[166] A handset also is considered to provide sufficient inductive coupling capability with hearing aids (i.e., the provision of an audio signal-based magnetic field of sufficient intensity for inductive

[160] *2003 Wireless HAC Report and Order*, 18 FCC Rcd at 16779, para. 63.

[161] IEEE, American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids, ANSI C63.19-2007, at iv (June 8, 2007) (2007 Wireless RF Interference/Inductive Coupling Standard). In the *Notice*, the Commission referred to this standard as the "2007 ANSI Wireless HAC Standard." In this Report and Order, we use a technically more specific title for this standard.

[162] 2007 Wireless RF Interference/Inductive Coupling Standard at 1. To use a digital wireless phone with a hearing aid or cochlear implant in acoustic coupling mode, RF interference and other electromagnetic interference from the wireless phone must be controlled. The ANSI C63.19 standard specifies ratings for digital wireless phones, M1 through M4, based on their RF emission levels, with M1 being the highest emissions and M4 the lowest emissions. The standard also provides a methodology for rating hearing aids from M1 to M4 based on their immunity to interference, with M1 being the least immune and M4 the most immune. To determine whether a particular digital wireless phone is likely to interfere with a particular hearing aid, the immunity rating of the hearing aid is added to the RF emissions rating of the wireless phone. A sum of 4 indicates that the wireless phone will be usable; a sum of 5 indicates that the wireless phone will provide normal use; and a sum of 6 or greater indicates that the wireless phone will provide excellent performance with that hearing aid. These ratings are used by consumers in order to help determine which wireless phone would work well with their hearing aids or cochlear implants in acoustic coupling mode. 2007 Wireless RF Interference/Inductive Coupling Standard at 5, 54.

[163] IEEE, American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids; ANSI C63.19-2011, at iv (May 27, 2011) (2011 Wireless RF Interference/Inductive Coupling Standard). Just as TIA is an ANSI-accredited SDO, the ANSI Accredited Standards Committee (ASC) C63 is an ANSI-accredited SDO operated by the Institute of Electrical and Electronics Engineers (IEEE). *See generally* IEEE, *News & Events: Press Releases* (Aug. 18, 2015), http://standards.ieee.org/news/2015/fcc_c63.html. In the *Notice*, the Commission referred to this standard as the "2011 ANSI Wireless HAC Standard." In this Report and Order, we use a more specific title for this standard.

[164] *See 2012 HAC Report and Order*, 27 FCC Rcd at 3741-42, paras. 21-23.

[165] *See id*. at 3735, para. 9.

[166] 47 CFR § 20.19(b)(1).

coupling with a hearing aid or cochlear implant telecoil) if it achieves a rating of at least T3 under either of these standards.[167] In other words, manufacturers currently have the option to obtain certification for new handsets as compliant with either the 2007 or the 2011 Wireless RF Interference/Inductive Coupling Standard.[168]

46. For the reasons stated above, in the *Notice* the Commission found that use of the 2011 Wireless RF Interference/Inductive Coupling Standard provides the most accurate available RF interference reduction and inductive coupling ratings for handsets generally.[169] Parties that commented on this issue agree.[170] Accordingly, we amend our rules to require that manufacturers use the 2011 Wireless RF Interference/Inductive Coupling Standard exclusively to obtain certification for future wireless handsets as HAC compliant, subject to future modification or supersession.[171]

47. *Power-Down Exception*. For technical reasons, the Commission has permitted some GSM handsets operating at 1900 MHz to meet the HAC requirements under the 2007 Wireless RF Interference/Inductive Coupling Standard at a reduced power level, while other handsets have been subject to testing at maximum power.[172] This has been called the "power-down" exception, and, while not included in the 2007 standard, has been permitted because the 2007 standard was not effective in addressing all of the specific characteristics of certain GSM devices.[173]

48. The 2011 Wireless RF Interference/Inductive Coupling Standard now provides revised measurement methodologies that can be used effectively for these GSM handsets.[174] Commenters confirm that the revised standard eliminates the need for the power-down exception on a going-forward basis.[175] Accordingly, we amend our rules to eliminate this exception.[176]

49. As proposed in the *Notice*, we will allow service providers and manufacturers six months after the date of publication of this Report and Order in the Federal Register to transition to the 2011

[167] *Id*. § 20.19(b)(2). Handsets and hearing aids are rated from T1 to T4 for inductive coupling capability in an analogous manner to the M-ratings. By obtaining the combined T-ratings for a wireless handset and a hearing aid, consumers can make more informed decisions about purchasing a handset that they plan to use for inductive coupling.

[168] *Id*. § 20.19(b).

[169] *Notice*, 30 FCC Rcd at 12239, para. 43.

[170] *See, e.g.*, ANSI ASC C63 Comments at 4 (stating that the improved test methodology in the 2011 edition allows us to directly measure certain parameters, as compared to previous editions which made conservative assumptions about those parameters); Consumer Groups and DHH RERC Comments at 7 (noting that the 2011 Wireless RF Interference/Inductive Coupling Standard makes "more wireless handsets usable to people with hearing loss by expanding the range of frequencies" over which HAC compliance can be tested, and expanding "the number of devices . . . that will be tested and labeled for use by people with hearing loss"); *see also* HIA Comments at 9.

[171] We amend section 20.19(b)(1)-(2) to remove the reference to the 2007 Wireless RF Interference/Inductive Coupling Standard. *Infra* App. B (§ 20.19(b)(1)-(2)). We amend section 20.19(k)(2) to add a reference to volume control. *Infra* App. B (§ 20.19(k)(2)). We also amend section 20.19(l) to update the methods for obtaining copies of standards through the IEEE website. *Infra* App. B (§ 20.19(l)).

[172] *See Notice*, 30 FCC Rcd at 12240, para. 45.

[173] *Id*.; 47 CFR § 20.19(e)(1)(iii).

[174] *See* ANSI ASC C63 Supplemental Report and Comments, WT Docket No. 07-250, Annex A at ii (filed June 24, 2011).

[175] HIA Comments at 10 (stating that the 2011 version of ANSI C63.19 essentially serves as a technical substitute for the power-down exception); ANSI ASC C63 Comments at 4 (stating that by removing conservative assumptions and measuring parameters directly, GSM handsets can more easily qualify for a category 3 rating or above).

[176] *Infra* App. B (§ 20.19(e)(1)(iii)(C)-(D)).

Wireless RF Interference/Inductive Coupling Standard.[177] Finally, we will grandfather handsets previously certified under the 2007 Wireless RF Interference/Inductive Coupling Standard or any previous RF interference reduction or inductive coupling standard, including GSM handsets that operate in the 1900 MHz band that were previously certified under the power-down exception.

E. Outreach

50. Throughout this and prior HAC proceedings, various consumer groups have requested that the Commission and industry do more to educate consumers about proposed HAC rule changes, and specifically urge that HAC information be made available on manufacturers' websites and the Commission's Accessibility Clearinghouse.[178] To ensure that consumers with hearing loss have the information they need to make informed choices about the phones they purchase, we remind manufacturers and service providers that our rules require them generally to ensure that consumers have the information they need about the availability of hearing aid compatible wireline and wireless phones and the accessibility features of these phones. Specifically, we remind these entities of the following obligations:

- *Manufacturers and service providers*: As provided under section 255 of the Act, which requires the usability of telecommunications products if readily achievable,[179] and section 716 of the Act, which requires the usability of products used with advanced communications services unless not achievable,[180] manufacturers and service providers must: (a) make their product information, including information about accessibility features, usable, in part by providing written manuals and instructions in accessible formats, such as large print, and Braille;[181] (b) provide usable and accessible customer and technical support in their call and service centers;[182] and (c) include in their general product materials contact information for obtaining information about the products and their accessibility features.[183] To this end, we expect service providers and manufacturers to have trained staff available during their business hours to answer questions about how their equipment complies with applicable HAC standards, and how to operate features of wireline and wireless handsets to make them accessible to and usable by people with hearing loss.

[177] *Notice*, 30 FCC Rcd at 12239, para. 44. HIA, the only party that commented on an appropriate timeline for this transition, agrees with the six-month timeline "because most wireless handsets are being certified under the 2011 standard." HIA Comments at 9.

[178] *See, e.g.*, Consumer Groups and DHH RERC Comments at 3; HLAA Comments, WT Docket No. 10-254, at 3-6, 8-10 (filed Feb. 14, 2011); HLAA Comments, CG Docket No. 10-213, at 3 (filed July 25, 2012) (stating that the training of customer service personnel regarding hearing aid compatible wireless handsets "appears to be problematic"); Consumer Groups Comments, WT Docket Nos. 07-250 and 10-254, at 4-5 (filed Feb. 5, 2015); Consumer Groups Reply Comments, WT Docket Nos. 07-250 and 10-254, at 4 (filed Feb. 20, 2015).

[179] 47 U.S.C. § 255.

[180] *Id*. § 617.

[181] 47 CFR §§ 6.3(l) (defining "usable" to mean that "individuals with disabilities have access to the full functionality and documentation for the product, including instructions, product information (including accessible feature information), documentation, bills and technical support which is provided to individuals without disabilities"), 6.11(a) (requiring manufacturers and service providers to ensure "access to information and documentation it provides to its customers, if readily achievable"), (a)(1)-(2) (requiring the provision of descriptions of the accessibility and compatibility features and end-user product documentation "in alternate formats or alternate modes at no additional charge"), 14.21(c) (defining "usable" similarly to 47 CFR § 6.3(l)).

[182] *Id*. §§ 6.11(a)(3), 14.20(d).

[183] *Id*. § 6.11(b); *see also id*. § 14.20(d).

- *Wireless service providers* must permit consumers to test out handsets in any retail store owned or operated by the service provider.[184]
- *Wireless manufacturers and service providers* must ensure that hearing aid compatible handsets clearly display the ratings on the packaging material of the handsets.[185]
- *Wireless manufacturers and service providers with publicly accessible websites* must post a list of all hearing aid compatible models offered, their ratings, and an explanation of the rating system; and provide information about the levels of functionality defined by the service provider and how the functionality of handsets varies at different levels.[186]

51. Finally, we remind consumers that they may also obtain information about hearing aid compatible wireless handsets from the Hearing Aid Compatibility Status Reports filed by wireless manufacturers and service providers and the Commission's summaries of those reports.[187] Additional information about hearing aid compatible wireless handsets, although not associated with specific service providers, is available from the Global Accessibility Reporting Initiative (GARI), which can be accessed from the Commission's Accessibility Clearinghouse.[188]

IV. ORDER ON RECONSIDERATION

52. On October 8, 2010, several manufacturers of wireless handsets filed a Petition for Partial Reconsideration of the *August 2010 Report and Order* requesting the Commission to apply the power-down exception uniformly to all manufacturers of GSM handsets that operate in the 1900 MHz band.[189] In the *August 2010 Report and Order*, the Commission had stated that the power-down exception applies to "companies that, but for their size, would be eligible for the amended de minimis exception."[190] In the accompanying Report and Order, we eliminate the optional use of the 2007 Wireless RF Interference/ Inducting Coupling Standard, and eliminate the corresponding power-down exception. We therefore conclude that the LG Petition is moot, and accordingly, dismiss the petition.

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

53. *Final Regulatory Flexibility Analysis*. Pursuant to the Regulatory Flexibility Act of 1980,[191] the Commission's Final Regulatory Flexibility Analysis (FRFA) is contained in Appendix C.

[184] *Id*. § 20.19(c)(4).

[185] *Id*. § 20.19(f)(1).

[186] *Id*. § 20.19(h).

[187] *See* FCC, Wireless Telecommunications Bureau, *Hearing Aid Compatibility Status Reporting*, http://wireless.fcc.gov/hac/index.htm?job=home (last visited Oct. 23, 2017); *Hearing Aid Compatibility Reports: Device Manufacturers,* http://wireless.fcc.gov/hac/index.htm?job=reports_dm (last visited Oct. 23, 2017); *Hearing Aid Compatibility Reports: Service Providers,* http://wireless.fcc.gov/hac/index.htm?job=reports_sp (last visited Oct. 23, 2017).

[188] *See* Global Accessibility Reporting Initiative, *Find Accessible Devices & Apps,* https://www.gari.info/findphones.cfm (last visited Oct. 22, 2017); FCC, *Accessibility Clearinghouse – Products and Services*, https://ach.fcc.gov/products-and-services/ (last visited Aug. 24, 2017); FCC, *Accessibility Clearinghouse – Hearing, Language and Speech Disabilities,* https://ach.fcc.gov/resources-by-disability/hearing-language-and-speech-disabilities/ (last visited Aug. 24, 2017).

[189] Petition of LG Electronics MobileComm U.S.A., Inc., Motorola, Inc., Nokia Inc., Research in Motion Corp., Samsung Information Systems America, Inc., and Sony Ericsson Mobile Communications (USA) Inc. for Partial Reconsideration, WT Docket No. 07-250 (filed Oct. 8, 2010) (LG Petition); *see Notice*, 30 FCC Rcd at 12241 n.157.

[190] *August 2010 Report and Order*, 25 FCC Rcd at 11186, para. 52.

[191] 5 U.S.C. § 601 *et seq*.

The Commission will send a copy of this Report and Order, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

B. Paperwork Reduction Act

54. *Paperwork Reduction Act of 1995 Analysis*. The Report and Order adopts new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA).[192] The new information collection requirements will be submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the PRA.[193] OMB, the general public, and other Federal agencies are invited to comment on the new information collection requirements contained in this proceeding. In this present document, we have assessed the effects of various requirements adopted in the Report and Order and Order on Reconsideration and clarified the effect of certain recordkeeping, retention, and reporting requirements for wireline and wireless manufacturers and service providers. We find that these actions are in the public interest because they reduce the burdens of these recordkeeping, retention, and reporting requirements without undermining the goals and objectives behind the requirements. The amendments we adopt today will reduce the burden on businesses with fewer than 25 employees.

C. Congressional Review Act

55. The Commission will send a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act.[194]

D. Materials in Accessible Formats

56. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, or audio format), send an email to fcc504@fcc.gov, or call the Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (844) 432-2275 (videophone), or (202) 418-0432 (TTY).

VI. ORDERING CLAUSES

57. Accordingly, IT IS ORDERED, pursuant to sections 4(i), 303(r) and 710 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 610, this Report and Order and Order on Reconsideration ARE HEREBY ADOPTED.

58. IT IS FURTHER ORDERED that the rule amendments set forth in Appendix B WILL BECOME EFFECTIVE 30 days after publication in the Federal Register, except that those amendments containing new or modified information collection requirements that require review by the OMB under the PRA WILL BECOME EFFECTIVE after OMB review and approval, on the effective date specified in a notice that the Commission will publish in the Federal Register announcing such approval and the relevant effective date.

59. IT IS FURTHER ORDERED that the Petition for Partial Reconsideration filed October 8, 2010 by LG Electronics MobileComm U.S.A., Inc., Motorola, Inc., Nokia Inc., Research in Motion Corp., Samsung Information Systems America, Inc., and Sony Ericsson Mobile Communications (USA) Inc. in WT Docket No. 07-250 IS DISMISSED.

[192] Pub. L. No. 104-13, 109 Stat. 163 (1995); 44 U.S.C. §§ 3501-3520.

[193] 44 U.S.C. § 3507(d).

[194] 5 U.S.C. § 801(a)(1)(A).

60. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center SHALL SEND a copy of the Report and Order and Order on Reconsideration to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Commenters and *Ex Parte* Notices

Comments

American National Standards Institute Accredited Standards Committee C63® Subcommittee 8 (ANSI ASC C63)
Courtney Smith
Hearing Loss Association of America, Telecommunications for the Deaf and Hard of Hearing, Inc., National Association of the Deaf, Deaf/Hard of Hearing Technology RERC (Consumer Groups and DHH RERC)
Hearing Industries Association (HIA)
Mark Kirk
Telecommunications Industry Association (TIA)
Rehabilitation Engineering Research Center for Wireless Technologies and the Center for Advanced Communications Policy, Georgia Institute of Technology (Wireless RERC)

Reply Comments

CTIA
TIA

Ex Parte Notices

Avonne Bell, TIA, and Kara Romagnino, CTIA – Aug. 19, 2016
Drew Simshaw, Institute for Public Representation, Georgetown Law, Counsel for Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI) – Nov. 23, 2016
James R. Bress, AST Technology Labs, Inc. – Oct. 13, 2016
James R. Bress, AST Technology Labs, Inc., Chair, TIA TR-41 – Nov. 18, 2016
James R. Bress, AST Technology Labs, Inc., Chair, TIA TR-41 – Jan. 21, 2017
James Reid, Telecommunications Industry Association – Jan. 19, 2017
Laura Stefani, Fletcher, Heald & Hildreth, Counsel to the Hearing Industries Association – Jan. 18, 2017
Lise Hamlin, Hearing Loss Association of America (HLAA) – Jan. 18, 2017
Lise Hamlin, HLAA – Jan. 19, 2017
Lise Hamlin, HLAA – Jan. 19, 2017
Lise Hamlin, HLAA – February 2, 2017
Lise Hamlin, HLAA, & Linda Kozma-Spytek, Deaf/Hard of Hearing Tech. RERC, Gallaudet Univ. – Aug. 22, 2016
Stephen R. Whitesell, Whitesell Consulting LLC – Oct. 13, 2016
Thomas Goode, ATIS (for ACTA) – Sept. 14, 2016
Thomas Goode, ATIS (for ACTA) – Nov. 18, 2016
Thomas Goode, ATIS (for ACTA) – Jan. 19, 2017
William Maher, Wilkinson, Barker, Knauer, LLP, Counsel to CTIA and the Consumer Technology Association – Jan. 19, 2017

APPENDIX B

Final Rules

Parts 20 and 68 of Title 47 of the Code of Federal Regulations are amended as follows:

1. The authority citation for Part 20 continues to read as follows:

AUTHORITY: 47 U.S.C. 151, 152(a), 154(i), 157, 160, 201, 214, 222, 251(e), 301, 302, 303, 303(b), 303(r), 307, 307(a), 309, 309(j)(3), 316, 316(a), 332, 610, 615, 615a, 615b, 615c, unless otherwise noted.

2. Section 20.19(b)(1) is revised to read as follows:

(b) *Hearing aid compatibility; technical standards* – (1) *For radio frequency interference and volume control.* A wireless handset submitted for equipment certification or for a permissive change relating to hearing aid compatibility on or after [INSERT DATE THAT IS SIX MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION] must meet, at a minimum, the M3 rating associated with the technical standard set forth in the standard document "American National Standard Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids," ANSI C63.19-2011. Any grants of certification issued before [INSERT DATE THAT IS SIX MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION], under ANSI C63.19-2011, or previous versions of ANSI C63.19, remain valid for hearing aid compatibility purposes. Beginning [INSERT DATE 36 MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION], a wireless handset submitted for equipment certification or for a permissive change relating to hearing aid compatibility must also be equipped with volume control that produces sound levels suitable for persons with hearing loss (including persons with and without hearing aids). Any grants of certification issued to handsets not equipped with such volume control that were submitted for certification before [INSERT DATE THAT IS 36 MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION] remain valid for hearing aid compatibility purposes.

3. Section 20.19(b)(2) is revised to read as follows:

(b)(2) *For inductive coupling*. A wireless handset submitted for equipment certification or for a permissive change relating to hearing aid compatibility on or after [INSERT DATE THAT IS SIX MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION] must meet, at a minimum, the T3 rating associated with the technical standard set forth in the standard document "American National Standard Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids," ANSI C63.19-2011. Any grants of certification issued for handsets submitted for such certification before [INSERT DATE THAT IS SIX MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION], under ANSI C63.19-2011, or previous versions of ANSI C63.19, remain valid for hearing aid compatibility purposes.

4. Section 20.19(e)(1)(iii) is revised by amending paragraphs (B) and (C) and by adding a new paragraph (D), as follows:

(B) The handset would comply with paragraph (b)(1) of this section if the power as so reduced were the maximum power at which the handset could operate;

(C) Customers are informed of the power reduction mode as provided in paragraph (f)(3) of this section. Manufacturers and service providers covered by this paragraph must also comply with all other requirements of this section; and

(D) The handset was certified as meeting the requirements of paragraph (b)(1) of this section with the power reduction prior to [INSERT DATE THAT IS SIX MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION].

5. Section 20.19(f)(1) is revised by renaming it (f)(1)(i) and by adding a paragraph (f)(1)(ii) to read as follows:

(i) *Inductive coupling and RF interference reduction*.

***

(ii) *Volume control*. Beginning [INSERT DATE THAT IS 36 MONTHS AFTER DATE OF FEDERAL REGISTER PUBLICATION], manufacturers and service providers shall ensure that handsets that are hearing aid compatible, as defined in paragraph (b) of this section, clearly display information indicating the handset's amplification capabilities on the packaging material of the handset. If the handset has been certified as compliant with a technical standard that specifies acceptable numerical metrics or qualitative ratings for handset volume control, the labeling shall include the relevant volume control metrics or ratings. In the event that such a handset achieves different metrics or ratings over different air interfaces or different frequency bands, the volume control metrics or ratings displayed shall be the lowest metrics or ratings assigned to that handset for any air interface or frequency band. An explanation of such volume control metrics or ratings shall be included in the device's user manual or as an insert in the packaging material for the handset.

6. Section 20.19(k) is revised by revising paragraph (2) to read as follows:

(k) *Delegation of rulemaking authority.*

***

(2) The Chief of the Wireless Telecommunications Bureau and the Chief of the Office of Engineering and Technology are delegated authority, by notice-and-comment rulemaking if required by statute or otherwise in the public interest, to issue an order amending this section to the extent necessary to approve any version of the technical standards for radio frequency interference, inductive coupling, or volume control adopted subsequently to ANSI C63.19-2007 for use in determining whether a wireless handset meets the appropriate rating over frequency bands and air interfaces for which technical standards have previously been adopted either by the Commission or pursuant to paragraph (k)(1) of this section. This delegation is limited to the approval of changes to the technical standards that do not raise major compliance issues. Further, by such approvals, the Chiefs may only permit, and not require, the use of such subsequent versions of the technical standards to establish hearing aid compatibility.

7. Section 20.19(l) is amended to read as follows:

(l) The standards required in this section are incorporated by reference into this section with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. All material associated with the standards listed in this paragraph is available for inspection at the Federal Communications Commission (FCC), 445 12th St. SW., Reference Information Center, Room CY-A257, Washington, DC 20554, (202) 418-0270, and is available from the source indicated below.

(1) The following standards are available from the IEEE Standards Association (IEEE-SA), 445 Hoes Lane, Piscataway, NJ 08854-4141, (732) 981-0060, email to stds-info@ieee.org, and http://standards.ieee.org/.

(i) ANSI C63.19-2007, American National Standard Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids, June 8, 2007.

(ii) ANSI C63.19-2011, American National Standard Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids, May 27, 2011.

(2) [Reserved]

8. The authority citation for Part 68 is amended to read as follows:

AUTHORITY: 47 U.S.C. 154, 303, 610.

9. The authority citation for Part 68, Subpart A, is amended to read as follows:

AUTHORITY: Secs. 4, 5, 303, 710, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303, 610).

10. Section 68.1 is amended to read as follows:

§ 68.1 - Purpose

The purpose of the rules and regulations in this part is to provide for uniform standards for the protection of the telephone network from harms caused by the connection of terminal equipment and associated wiring thereto, and for the compatibility of hearing aids and telephones so as to ensure that, to the fullest extent made possible by technology and medical science, people with hearing loss have equal access to the national telecommunications network, including advanced communications services.

11. Section 68.2(a) is amended to read as follows:

(a) Except as provided in paragraphs (b) and (c) of this section, and excluding Subpart F, which applies only to ACS telephonic CPE, the rules and regulations of this Part apply to direct connection of all terminal equipment to the public switched telephone network for use in conjunction with all services other than party line services. Sections 68.4, 68.5, 68.6, 68.112, 68.160, 68.162, 68.316, 68.317, and other sections to the extent they are made applicable by Subpart F, also apply to ACS and ACS telephonic CPE that is manufactured in the United States or imported for use in the United States on or after [INSERT DATE THAT IS TWO YEARS AFTER DATE OF FEDERAL REGISTER PUBLICATION].

12. Section 68.3 is amended by adding definitions of "ACS telephonic CPE" and "advanced communications services" and by revising the definitions of "hearing aid compatible" and "responsible party" to read as follows:

ACS telephonic CPE. Customer premises equipment used with advanced communications services that is designed to provide 2-way voice communication via a built-in speaker intended to be held to the ear in a manner functionally equivalent to a telephone, except for mobile handsets.

Advanced communications services. Interconnected VoIP service, non-interconnected VoIP service, electronic messaging service, and interoperable video conferencing service.

Hearing aid compatible. Except as used at §§ 68.4(a)(3), 68.414, and Subpart F, the terms hearing aid compatible or hearing aid compatibility are used as defined in § 68.316, unless it is specifically stated that hearing aid compatibility volume control, as defined in § 68.317, is intended or is included in the definition.

Responsible party. The party or parties responsible for the compliance of terminal equipment or protective circuitry intended for connection directly to the public switched telephone network, or of ACS telephonic CPE, with the applicable rules and regulations in this part and with any applicable technical criteria published by the Administrative Council for Terminal Attachments. If a Telecommunications Certification Body certifies the terminal equipment or ACS telephonic CPE, the responsible party is the holder of the certificate for that equipment. If the terminal equipment or ACS telephonic CPE is the subject of a Supplier's Declaration of Conformity, the responsible party shall be: the manufacturer of the equipment, or the manufacturer of protective circuitry that is marketed for use with terminal equipment that is not to be connected directly to the network, or if the equipment is imported, the importer, or if the equipment is assembled from individual component parts, the assembler. If the equipment is modified by any party not working under the authority of the responsible party, the party performing the modifications, if located within the U.S., or the importer, if the equipment is imported subsequent to the modifications, becomes the new responsible party. Retailers or original equipment manufacturers may enter into an agreement with the assembler or importer to assume the responsibilities to ensure compliance of the terminal equipment or ACS telephonic CPE and to become the responsible party.

13. Section 68.224 is amended to read as follows:

Every non-hearing aid compatible telephone offered for sale to the public on or after August 17, 1989, whether previously registered, newly registered or refurbished shall:

(a) Contain in a conspicuous location on the surface of its packaging a statement that the telephone is not hearing aid compatible, as is defined in §§ 68.4(a)(3) and 68.316, or if offered for sale without a

surrounding package, shall be affixed with a written statement that the telephone is not hearing aid compatible, as defined in §§ 68.4(a)(3) and 68.316; and

(b) Be accompanied by instructions in accordance with § 68.218(b)(2) of the rules.

14. The authority citation for Part 68, Subpart D, is amended to read as follows:

AUTHORITY: Secs. 4, 5, 303, 710, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303, 610).

15. Section 68.317 is amended by redesignating paragraphs (a) through (f) as (b) through (g), redesignating paragraph (g) as (i), redesignating the "Note to paragraph (a)" as "Note to paragraph (b)".

16. Section 68.317 is further amended by revising paragraph (i) and adding new paragraphs (a) and (h), to read as follows:

§ 68.317 - Hearing aid compatibility volume control: technical standards.

(a) (1) A telephone manufactured in the United States or imported for use in the United States prior to [INSERT DATE THAT IS TWO YEARS AFTER THE DATE OF FEDERAL REGISTER PUBLICATION], complies with the volume control requirements of this section if it complies with:

(A) The applicable provisions of paragraphs (b) through (g) of this section; or

(B) Paragraph (h) of this section.

(2) A telephone manufactured in the United States or imported for use in the United States on or after [INSERT DATE THAT IS TWO YEARS AFTER THE DATE OF FEDERAL REGISTER PUBLICATION] complies with the volume control requirements of this section if it complies with Paragraph (h) of this section.

***

(h) A telephone complies with the Commission's volume control requirements if it is equipped with a receive volume control that provides, through the receiver in the handset of the telephone, at the loudest volume setting, a conversational gain greater than or equal to 18 dB and less than or equal to 24 dB Conversational Gain when measured as described in ANSI/TIA-4965-2012 (Telecommunications – Telephone Terminal Equipment – Receive Volume Control Requirements for Digital and Analog Wireline Telephones). A minimum of 18 dB Conversational Gain must be achieved without significant clipping of the speech signal used for testing. The maximum 24 dB Conversational Gain may be exceeded if the amplified receive capability automatically resets to a level of not more than 24 dB Conversational Gain when the telephone is caused to pass through a proper on-hook transition, in order to minimize the likelihood of damage to individuals with normal hearing.

(i) The standards required in this section are incorporated by reference with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR Part 51. All approved material is available for inspection at the Federal Communications Commission (FCC), 445 12th St. SW, Reference Information Center, Room CY-A257, Washington, DC 20554, (202) 418-0270, and is available from the source indicated below.

(1) The following standards are available from the Telecommunications Industry Association (TIA), 1320 North Courthouse Road, Suite 200, Arlington, VA 22201, (877) 413-5184, email to smontgomery@tiaonline.org, and http://www.tiaonline.org/standards/catalog.

(i) Paragraph 4.1.2 (including table 4.4) of American National Standards Institute (ANSI) Standard ANSI/EIA–470–A–1987, Telephone Instruments with Loop Signaling, July 13, 1987.

(ii) Paragraph 4.3.2 of ANSI/EIA/TIA–579–1991, Acoustic-to-Digital and Digital-to-Acoustic Transmission Requirements for ISDN Terminals, February 20, 1991.

(iii) ANSI/TIA-4965-2012, Telecommunications; Telecommunications Terminal Equipment; Receive Volume Control Requirements for Digital and Analog Wireline Handset Terminals, October 19, 2012.

(2) [Reserved]

17. Section 68.320(e) is amended to read as follows:

(e) No person shall use or make reference to a Supplier's Declaration of Conformity in a deceptive or misleading manner or to convey the impression that such a Supplier's Declaration of Conformity reflects more than a determination by the responsible party that the device or product has been shown to be capable of complying with the applicable technical criteria.

18. The title for Subpart F is amended to read as follows:

Subpart F – ACS Telephonic CPE

19. New sections 68.501 to 68.504 are added as follows:

Section 68.501 - Authorization Procedures

(a) *Authorization required*. Unless exempt from the requirements of §§ 68.4 and 68.6, ACS telephonic CPE manufactured in or imported into the United States after [INSERT DATE THAT IS TWO YEARS AFTER DATE OF FEDERAL REGISTER PUBLICATION] shall be certified as hearing aid compatible by a Telecommunications Certification Body or the responsible party shall follow the procedures in this part for a Supplier's Declaration of Conformity to establish that such CPE is hearing aid compatible.

(b) *Certification*. The requirements of §§ 68.160 and 68.162 shall apply to the certification of ACS telephonic CPE as hearing aid compatible.

(c) *Supplier's Declaration of Conformity*. The requirements of §§ 68.320-68.350 (except § 68.324(f)) shall apply to the use of the Supplier's Declaration of Conformity procedure to establish that ACS telephonic CPE is hearing aid compatible.

(d) *Revocation Procedures*.

(1) The Commission may revoke the authorization of ACS telephonic CPE under this section, where:

(i) The equipment approval is shown to have been obtained by misrepresentation;

(ii) The responsible party willfully or repeatedly fails to comply with the terms and conditions of its equipment approval; or

(iii) The responsible party willfully or repeatedly fails to comply with any rule, regulation or order issued by the Commission under the Communications Act of 1934 relating to terminal equipment.

(2) Before revoking such authorization, the Commission, or the Enforcement Bureau under delegated authority, will issue a written Notice of Intent to Revoke Part 68 Authorization, or a Joint Notice of Apparent Liability for Forfeiture and Notice of Intent to Revoke Part 68 Authorization, pursuant to §§ 1.80 and 1.89 of this chapter. The notice will be sent to the responsible party for the equipment at issue at the address provided to the Administrative Council for Terminal Attachments. A product that has had its authorization revoked may not be reauthorized for a period of six months from the date of revocation of the approval. A responsible party for ACS telephonic CPE that has had its authorization revoked and/or that has been assessed a forfeiture may request reconsideration or make administrative appeal of the decision pursuant to part 1 of the Commission's rules: Practice and Procedure, part 1 of this chapter.

Section 68.502 - Labeling, Warranty, Instructions, and Notice of Revocation of Approval

(a) *Labeling*.

(1) *Hearing Aid Compatible Equipment*. All ACS telephonic CPE manufactured in the United States (other than for export) or imported for used in the United States after [INSERT DATE THAT IS TWO YEARS AFTER DATE OF FEDERAL REGISTER PUBLICATION] that is hearing aid compatible, as defined in §§ 68.316 and 68.317, shall have the letters "HAC" permanently affixed thereto. "Permanently

affixed" means that the label is etched, engraved, stamped, silkscreened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

(2) *Non-Hearing Aid Compatible Equipment*. Non-hearing aid compatible ACS telephonic CPE offered for sale to the public on or after [INSERT DATE THAT IS TWO YEARS AFTER DATE OF FEDERAL REGISTER PUBLICATION] shall contain in a conspicuous location on the surface of its packaging a statement that the ACS telephonic CPE is not hearing aid compatible, as defined in §§ 68.4(a)(3), 68.316, 68.317, or if offered for sale without a surrounding package, shall be affixed with a written statement that the telephone is not hearing aid compatible, as defined in §§ 68.4(a)(3), 68.316 and 68.317; and be accompanied by instructions in accordance with § 68.218(b)(2) of the rules.

(b) *Warranty*. In acquiring approval for equipment to be labeled and otherwise represented to be hearing aid compatible, the responsible party warrants that each item of equipment marketed under such authorization will comply with all applicable rules and regulations of this part and with the applicable technical criteria.

(c) *Instructions*. The responsible party or its agent shall provide the user of the approved ACS telephonic CPE the following:

(1) Any consumer instructions required to be included with approved ACS telephonic CPE by the Administrative Council for Terminal Attachments;

(2) For ACS telephonic CPE that is not hearing aid compatible, as defined in § 68.316 of these rules:

(i) Notice that FCC rules prohibit the use of that handset in certain locations; and

(ii) A list of such locations (see § 68.112).

(d) *Notice of Revocation*. When approval is revoked for any item of equipment, the responsible party must take all reasonable steps to ensure that purchasers and users of such equipment are notified to discontinue use of such equipment.

Section 68.503 – Complaint Procedures

The complaint procedures of §§ 68.414-68.423 shall apply to complaints regarding the hearing aid compatibility of ACS telephonic CPE.

Section 68.504 – Administrative Council on Terminal Attachments

The database registration and labeling provisions of §§ 68.354, 68.610, and 68.612 shall apply to ACS telephonic CPE that is approved as hearing aid compatible and is manufactured in or imported to the United States on or after [INSERT DATE THAT IS TWO YEARS AFTER DATE OF FEDERAL REGISTER PUBLICATION]. After that date, the information required by the Administrative Council on Terminal Attachments shall be submitted within 30 days after the date that the equipment is manufactured in or imported into the United States.

APPENDIX C

Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980 (RFA),[1] as amended, the Commission incorporated an Initial Regulatory Flexibility Analysis (IRFA) into the *Notice of Proposed Rule Making* (*Notice*).[2] The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA.[3] No comments were received on the IRFA. This Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[4] A copy of the Report and Order and Order on Reconsideration and FRFA (or summaries thereof) will also be published in the Federal Register.[5]

A. Need For, and Objectives of, the Report and Order and Order on Reconsideration

2. In this Report and Order and Order on Reconsideration, the Commission amends the hearing aid compatibility (HAC)[6] rules with the goal of ensuring that Americans with hearing loss are able to access wireline, wireless and advanced communications services (ACS) through a wide array of phones, including voice-over-Internet-protocol (VoIP) telephones. The Commission takes the following actions to ensure that individuals who rely on HAC technologies will have access to emerging communications technologies in accordance with the objectives of the Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA) and its legislative predecessors.[7] In the Report and Order, the Commission:

- adopts a new standard to improve the method used to measure volume control on wireline handsets that will be phased in over two years;

[1] *See* 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] *Access to Telecommunications Equipment and Services by Persons with Disabilities et al.*, Notice of Proposed Rulemaking, 30 FCC Rcd 12219 (2015) (*Notice*), *Erratum*, DA 16-1201 (CGB Oct. 21, 2016).

[3] *Notice*, 30 FCC Rcd at 12251, para. 77, 12261, App. C (Initial Regulatory Flexibility Analysis).

[4] *See* 5 U.S.C. § 604.

[5] *See id*. § 604(b).

[6] In this proceeding, unless noted otherwise, the Commission uses the term "HAC" to refer to "RF interference reduction," "inductive coupling capability," and "acoustic coupling" (including volume control), as these terms have been described herein. "RF interference" is electromagnetic radiation which is emitted by electrical circuits carrying rapidly changing signals, as a by-product of their normal operation, and which causes unwanted signals (interference or noise) to be induced in other circuits. *See Improvements to Benchmarks and Related Requirements Governing Hearing Aid-Compatible Mobile Handsets*, Report and Order, 31 FCC Rcd 9336, 9337-38 n.2 (*2016 Wireless HAC Order*); *Improvements to Benchmarks and Related Requirements Governing Hearing Aid-Compatible Mobile Handsets et al.,* Fourth Report and Order and Notice of Proposed Rulemaking, 30 FCC Rcd 13845, 13848 n.8 (2015); Free On-Line Dictionary of Computing, *Radio Frequency Interference,* http://foldoc.org/Radio%20Frequency%20Interference (last visited July 25, 2017). With "inductive" coupling, a telecoil in a hearing aid or cochlear implant receives directly the audio signal-based magnetic fields generated by a telephone or wireless handset, enabling users of such assistive devices to more effectively hear telephone conversations with reduced background noise. *See* 47 CFR § 68.316; *Access to Telecommunications Equipment and Services by the Hearing Impaired and Other Persons with Disabilities*, First Report and Order, 4 FCC Rcd 4596, 4596 n.3 (1989). In acoustic coupling mode, a hearing aid receives sound through a microphone, and then amplifies the sound, which can include a telephone's audio signal as well as unwanted ambient noise. Cellcom, *Hearing Aid Compatibility Chart*, https://www.cellcom.com/hearing-aid-compatibility.html (last visited July 25, 2017).

[7] Twenty-First Century Communications and Video Accessibility Act of 2010, Pub. L. No. 111-260, 124 Stat. 2751 (CVAA), *amended by* Pub. L. No. 111-265, 124 Stat. 2795 (technical corrections to the CVAA).

- adopts rules to require certain customer premises equipment (CPE) used with ACS, including VoIP telephones, to be HAC compliant;
- adopts a rule requiring volume control on wireless handsets sufficient to meet the communications needs of people with hearing loss;
- eliminates two superseded rules—the inductive coupling standard (2007 Wireless RF Interference/Inductive Coupling Standard) and a power-down exception for certain GSM handsets— and adopts a deadline after which all wireless handsets submitted for new certifications of hearing aid compatibility must adhere to the 2011 Wireless RF Interference/Inductive Coupling Standard; and
- reminds manufacturers and service providers of their existing obligations to provide consumers with sufficient information to make informed decisions about their wireless handset purchases.

In the Order on Reconsideration, the Commission dismisses as moot a pending Petition for Partial Reconsideration concerning the power-down rule, section 20.19(e)(1)(iii),[8] because we eliminate the rule in the Report and Order. The above rules reflect adjustments, such as transition times prior to new rules taking effect, that may be particularly helpful to small entities.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

3. In the *Notice*, the Commission solicited comments on how to minimize the economic impact of the Commission's proposals on small businesses.[9] The Commission received no comments directly addressing the IRFA.

C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

4. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.[10] The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

D. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

5. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the rule changes.[11] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[12] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[13] A "small business concern" is one that:

[8] 47 CFR § 20.19(e)(iii).

[9] *Notice*, 30 FCC Rcd at 12261, App. C (Initial Regulatory Flexibility Analysis).

[10] 5 U.S.C. § 604(a)(3).

[11] *Id*. § 603(b)(3).

[12] *Id*. § 601(6).

[13] *Id*. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). The statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." *Id*.

(1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[14]

6. *Small Entities*. The Commission's actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive small entity size standards that encompass entities that could be directly affected by the proposals under consideration.[15] As of 2011, small businesses represented 99.9% of the 28.2 million businesses in the United States, according to the SBA.[16] Additionally, a "small organization" is generally any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.[17] Nationwide, as of 2007, there were approximately 1,621,215 small organizations.[18] Finally, the term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[19] Census Bureau data for 2011 indicate that there were 90,056 local governmental jurisdictions in the United States.[20] We estimate that, of this total, as many as 89,327 entities may qualify as "small governmental jurisdictions."[21] Thus, we estimate that most local governmental jurisdictions are small.

7. *Wireless Telecommunications Carriers (except satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.[22] The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers (except satellite). For that category a business is small if it has 1,500 or fewer employees.[23] For this category, census data for 2007 show that there were 1,383 firms that operated for the entire year.[24] Of this total, 1,368 firms had employment of fewer than 1,000 employees.[25] Thus

[14] *Id*. § 632.

[15] *See id*. § 601(3)-(6).

[16] *See* SBA, Office of Advocacy, "Frequently Asked Questions" (March 2014), *available at* <https://www.sba.gov/advocacy/frequently-asked-questions-about-small-business> (last visited Oct. 28, 2015).

[17] 5 U.S.C. § 601(4).

[18] INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC AND DESK REFERENCE (2010).

[19] 5 U.S.C. § 601(5).

[20] *See* SBA, Office of Advocacy, "Frequently Asked Questions".

[21] The 2011 U.S Census data for small governmental organizations are not presented based on the size of the population in each organization. As stated above, there were 90,056 small local governmental organizations in 2011. As a basis for estimating how many of these 90,056 local organizations were small, in 2011 we note that there were a total of 729 cities and towns (incorporated places and minor civil divisions) with populations over 50,000. *See* http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk. If we subtract the 729 cities and towns that exceed the 50,000 population threshold, we conclude that approximately 89,327 are small.

[22] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 517210; http://www.census.gov/cgi-bin/sssd/naics/naicsrch (last visited Oct. 28, 2015).

[23] *See* 13 CFR § 121.201, NAICS Code 517210.

[24] U.S. Census Bureau, *2007 Economic Census of the United States*, Table EC0751SSSZ5, Information: Subject Series - Estab and Firm Size: Employment Size of Firms for the United States: 2007, NAICS Code 517210, *available at* http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodType=table (last visited Oct. 28, 2015).

[25] *Id*. Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "1,000 employees or more."

under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carrier (except satellite) firms are small.

8. *All Other Telecommunications*. "All Other Telecommunications" is defined as follows: "This U.S. industry comprises establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry."[26] The SBA has developed a small business size standard for All Other Telecommunications, which consists of all such firms with gross annual receipts of $32.5 million or less.[27] For this category, census data for 2007 show that there were 2,383 firms that operated for the entire year. Of those firms, a total of 2,346 had gross annual receipts of less than $25 million.[28] Thus, a majority of All Other Telecommunications firms potentially affected by the proposals in the Notice can be considered small.

9. *Telephone Apparatus Manufacturing*. The Census Bureau defines this category to comprise "establishments primarily engaged in manufacturing wire telephone and data communications equipment." The Census Bureau further states: "These products may be stand alone or board-level components of a larger system. Examples of products made by these establishments are central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, LAN modems, multi-user modems, and other data communications equipment, such as bridges, routers, and gateways."[29] In this category the SBA deems a telephone apparatus manufacturing business to be small if it has 1,000 or fewer employees.[30] For this category of manufacturers, Census data for 2007 showed that there were 398 such establishments that operated that year. Of those 398 establishments, 393 had fewer than 1,000 employees.[31] Thus, under this size standard, the majority of establishments in this industry can be considered small.

10. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*. The Census Bureau defines this industry as comprising "establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by the establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[32] The SBA has established a size standard for this industry that classifies any business in this industry as small if it has 750 or fewer employees.[33] Census Bureau data for 2007 indicate that in that year 939 such businesses operated. Of that number, 912

[26] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 517919. *See* http://www.census.gov/cgi-bin/sssd/naics/naicsrch (last visited Oct. 28, 2015).

[27] *See* 13 CFR § 121.201, NAICS Code 517919.

[28] *See* http://factfinder.census.gov/faces/tableservices/productview.xhtml?pid=-ECN-20007_US-51SSSZ1&prodType=table (last visited Oct. 28, 2015).

[29] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 334210. *See* http://www.census.gov/cgi-bin/sssd/naics/naicsrch (last visited Oct. 28, 2015).

[30] 13 CFR § 121.201, NAICS Code 334210.

[31] *See* http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?-ECN_20007-US_31SG3&prodTypw-table (last visited Oct. 28, 2015).

[32] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 334220. *See* http://www.census.gov/cgi-bin/sssd.naics/naicsrch (last visited Oct. 28, 2015).

[33] 13 CFR § 121.201, NAICS Code 334220.

businesses operated with less than 500 employees.[34] Based on this data, we conclude that a majority of businesses in this industry are small by the SBA standard.

11. *Electronic Computer Manufacturing*. This category "comprises establishments primarily engaged in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers. Computers can be analog, digital, or hybrid. Digital computers, the most common type, are devices that do all of the following: (1) store the processing program or programs and the data immediately necessary for the execution of the program; (2) can be freely programmed in accordance with the requirements of the user; (3) perform arithmetical computations specified by the user; and (4) execute, without human intervention, a processing program that requires the computer to modify its execution by logical decision during the processing run. Analog computers are capable of simulating mathematical models and contain at least analog, control, and programming elements. The manufacture of computers includes the assembly or integration of processors, coprocessors, memory, storage, and input/output devices into a user-programmable final product."[35] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[36] According to Census Bureau data for 2007, there were 425 establishments in this category that operated that year. Of these, 419 had less 1,000 employees.[37] Consequently, we estimate that the majority of these establishments are small entities that may be affected by the Commission's action.

12. *Computer Terminal Manufacturing*. This category "comprises establishments primarily engaged in manufacturing computer terminals. Computer terminals are input/output devices that connect with a central computer for processing."[38] The SBA has developed a small business size standard for this category of manufacturing; that size standard is 1,000 or fewer employees.[39] According to Census Bureau data for 2007, there were 43 establishments in this category that operated that year. Of this total, all 43 had less than 500 employees.[40] Consequently, we estimate that the majority of these establishments are small entities that may be affected by the Commission's action.

13. *Software Publishers*. This category "comprises establishments primarily engaged in computer software publishing or publishing and reproduction. This industry comprises establishments primarily engaged in computer software publishing or publishing and reproduction. Establishments in this industry carry out operations necessary for producing and distributing computer software, such as

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[34] *Id.*

[35] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 334111. *See* http://www.census.gov/cgi-bin/sssd/naics/naiacsrch (last visited Oct. 28, 2015).

[36] 13 CFR § 121.201, NAICS Code 334111.

[37] http://factfindercensus.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_31SG3&prodType=table, (last visited Oct. 28, 2015).

[38] U.S. Census Bureau, *2007 NAICS Definitions*, 334113 Computer Terminal Manufacturing, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=334113&search=2007 NAICS Search> (last visited Oct. 28, 2015). As of December 2, 2014, the category "Computer Terminal Manufacturing, NAICS Code 334113, was superseded by a new NAICS Code classification, "Computer Terminal and Other Computer Peripheral Manufacturing," NAICS Code 334118. *See* 13 CFR § 121.201. However, since this rule making concerns only computer terminal manufacturing, only national data from the 2007 Census has been used to provide information about that industry. The SBA size standard, defining a firm within that industry as small if it has 1,000 or less employees, remained unchanged when NAICs Code 334113 was changed to NAICs Code 334118.

[39] 13 CFR § 121.201, NAICS code 334113.

[40] http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_31SG3&prodType=table (last visited Oct. 28, 2015).

designing, providing documentation, assisting in installation, and providing support services to software purchasers. These establishments may design, develop, and publish, or publish only."[41] The SBA has developed a small business size standard for software publishers, which consists of all such firms with gross annual receipts of $38.5 million or less.[42] For this category, census data for 2007 show that there were 5,313 firms that operated for the entire year. Of those firms, a total of 4,956 had gross annual receipts less than $25 million.[43] Thus, a majority of software publishers potentially affected by the proposals in the Notice can be considered small.

E. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements.

14. Certain rule changes adopted in the Report and Order and Order on Reconsideration modify or add requirements governing reporting, recordkeeping, and other compliance obligations. As described above and below, the adoption of these requirements factors in the needs of small entities.

15. First, the Commission incorporates the 2012 Wireline Volume Control Standard into the wireline volume control rules and eliminates the currently applicable standard after a transition period. This action alters the compliance obligations of wireline telephone apparatus manufacturers, including small entities, by requiring them to use a different method for testing and evaluating compliance with the volume control requirement, and to do follow-up evaluations.

16. Second, the Commission explicitly applies the Commission's wireline telephone volume control and other HAC rules to equipment used for ACS, which includes VoIP devices. The Commission also applies related labeling, certification, complaint processing, and registration requirements, to handsets used with ACS. These actions impose new compliance obligations and reporting and recordkeeping obligations on some wireline telephone apparatus manufacturers, electronic computer manufacturers, computer terminal manufacturers, and software publishers, including small entities.

17. Third, the Commission adopts a rule for wireless handsets to address volume control and other acoustic coupling issues. This action imposes new compliance obligations and may impose additional reporting and recordkeeping obligations on wireless telecommunications carriers and wireless communications equipment manufacturers, including small entities.

18. Fourth, the Commission eliminates the 2007 Wireless RF Interference/Inductive Coupling Standard and a power-down exception, and requires wireless handsets to comply with the existing 2011 Wireless RF Interference/Inductive Coupling Standard to achieve more effective coupling between handsets and hearing aids or cochlear implants. Previously, some manufacturers had the option of using either one standard or the other. This action could alter the compliance obligations of wireless telecommunications carriers and wireless communications equipment manufacturers, including small entities. However, such changes would not result in new regulatory burdens. In fact, it is the Commission's understanding that the 2011 Wireless RF Interference/Inductive Coupling Standard already is used almost exclusively.

19. Fifth, the Commission reminds manufacturers and service providers of their existing obligations to provide consumers with sufficient information to make informed decisions about their wireless handset purchases. These requirements are not new. So there are no new compliance obligations.

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[41] U.S. Census Bureau, North American Industry Classification System, Definition of NAICS Code 511210. *See* http://www.census.gov/cgi-bin/sssd/naics/naicsrch (last visited Oct. 28, 2015).

[42] *See* 13 CFR § 121.201, NAICS Code 511210.

[43] http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ4&prodType=table (last visited Oct. 28, 2015).

F. Steps Taken to Minimize Significant Impact on Small Entities, and Significant Alternatives Considered.

20. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[44]

21. The Commission considered ways to reduce potential burdens and/or allow sufficient transition time for new requirements, which may be especially helpful to small entities. First, regarding the Commission's incorporation of the 2012 Wireline Volume Control Standard[45] into the wireline volume control rules, the Commission notes that the 2012 Wireline Volume Control Standard is a performance standard, not a design standard, and therefore implements alternative (3) above. To minimize the difficulty of adjusting to the revised standard, the Report and Order allows a phase-in period during which manufacturers may comply with either the existing standard or the 2012 Wireline Volume Control Standard. To limit any potential burdens regarding the impact of the proposed rule change on previously manufactured telephones, the Commission allows the existing inventory and installed base of telephones that comply with the existing volume control standard to remain in place until retired.

22. In the *Notice*, the Commission asked for comment generally on the cost of incorporating the 2012 Wireline Volume Control Standard into the Commission's rules.[46] No commenter addresses this issue, and no commenter raises alternatives. Because this revised standard more accurately measures the amplification achievable by wireline telephone products, incorporation of this standard could lighten regulatory burdens by increasing market certainty, promoting a level playing field, and reducing the number of complaints made to manufacturers by consumers of their products.

23. Second, regarding the Commission's proposal to amend Part 68 of the Commission's rules to explicitly provide that wireline CPE used with VoIP or other ACS is subject to the wireline HAC and volume control requirements of Part 68, the Commission notes that the standards provided in the rules are performance standards, not design standards, and therefore implement alternative (3) above. To minimize the difficulty of adjusting to the revised standard, the Report and Order allows a two-year phase-in period before compliance is required. The Commission is aware that some manufacturers are already voluntarily complying with some of the standards. To limit any potential burdens regarding the impact of the proposed rule change on previously manufactured telephones, the Commission allows the existing inventory and installed base of ACS telephonic CPE to remain in place until retired. The Commission applies the relevant Part 68 rules regarding complaint handling, labeling, certifications, and Suppliers' Declarations of Conformity to ACS telephonic CPE.[47] Among other things, these rules provide for HAC consumer complaints to be filed with state public utility commissions or with the Commission, require labels to be affixed to telephones that are HAC compliant, permit equipment to be certified by Telecommunication Certification Bodies,[48] and in the alternative, permit suppliers to make their own

[44] 5 U.S.C. § 603(b).

[45] TIA, *Receive Volume Control Requirements for Digital and Analog Wireline Handset Terminals, TIA-4965* (Oct. 2012).

[46] *Notice*, 30 FCC Rcd at 12228, para. 18.

[47] *Id*. at 12231-32, para. 28. The relevant rule provisions can be found at*:* 47 CFR §§ 68.160-68.162, 68.201, 68.218-68.224, 68.300, 68.320-68.354, 68.414-68.423.

[48] Telecommunication Certification Bodies are organizations permitted—generally, by the federal government—to certify equipment as complying with Part 68 of the Commission's rules. 47 CFR § 68.160.

Declarations of Conformity.[49] In the *Notice*, the Commission sought comment on the costs of compliance.[50] No comment directly addresses this issue, and no commenter raises alternatives. The Commission continues to believe that these requirements will promote accountability and compliance with the HAC requirements and thus effectively serve people with hearing loss.[51] Finally, the Commission notes that the rule amendment could increase regulatory certainty and market fairness regarding the application of the wireline HAC rules because these rules would apply both to telephones connected to the public switched telephone network (PSTN) and ACS telephonic CPE used with VoIP services.

24. Third, regarding the Commission's adoption of rules requiring wireless handsets to provide volume control that produces sound levels suitable for persons with hearing loss (including persons with and without hearing aids), these rules also reflect a performance, not a design, standard, and therefore implement alternative (3) above. The introduction of new handsets that comply with a volume control standard is spread out over about seven years, which corresponds to the timeline of other HAC requirements recently adopted in the *2016 Wireless HAC Order*.[52] In addition, reduced requirements apply to smaller manufacturers and service providers, and a total exemption is applied to the smallest manufacturers and service providers. The record shows that many wireless handsets already need to comply with volume control standards adopted by European and Asian standards groups; thus, it is possible that in complying with those standards, much of the cost of complying with this rule is already being borne by wireless manufacturers and service providers.[53] Moreover, in the *Notice*, the Commission asked for comment on the costs and benefits of adopting a wireless volume control requirement, and whether there are any specific burdens associated with requiring handsets to achieve a specified amplification level for manufacturers and service providers. No commenter responds to this issue. The Commission has not identified any alternative to this rule that would have further lessened the economic impact on small entities while remaining consistent with its objectives.

25. Fourth, regarding the Commission's adoption of a requirement for manufacturers to use the 2011 Wireless RF Interference/Inductive Coupling Standard exclusively and to eliminate the power-down exception to the existing wireless HAC rule, the Commission notes that the 2011 Wireless RF Interference/Inductive Coupling Standard is a performance standard, not a design standard, and therefore implements alternative (3) above. The revised rule will be implemented for new HAC certifications, and all prior certifications are grandfathered. Further, while HAC certifications will be necessary for increasing portions of a manufacturer's offered handset models over the next seven years under requirements adopted in the *2016 Wireless HAC Order*, reduced requirements apply to smaller manufacturers and service providers, and a total exemption is applied to the smallest manufacturers and service providers.

26. In the *Notice*, the Commission asked for comment on the costs of compliance with the 2011 Wireless RF Interference/Inductive Coupling Standard and eliminating the power-down exception.[54] No commenter addresses this issue. The Commission has not identified any alternative to these measures that would have lessened the economic impact on small entities while remaining consistent with its objectives.

[49] *See Notice*, 30 FCC Rcd at 12231-32, para. 28.

[50] *Id*.

[51] *See id*.

[52] *2016 Wireless HAC Order,* 31 FCC Rcd at 9336-37, paras. 1-4.

[53] *Notice*, 30 FCC Rcd at 12235, para. 33.

[54] *Id*. at 12240, para. 44.

27. Fifth, regarding the Commission's reminder to manufacturers and service providers concerning their existing obligations to provide consumers with sufficient information to make informed decisions about their wireless handset purchases, these obligations include placing HAC information on handset packaging, posting information on websites, and providing accessible customer support. These are not new obligations, so there are no new costs. The Commission has not identified any alternative to these rules that would have further lessened the economic impact on small entities while remaining consistent with its objectives of improving the ways that Americans with hearing loss can access our nation's wireline and wireless communications services.

G. Report to Congress

28. The Commission will send a copy of the Report and Order and Order on Reconsideration, including this FRFA, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act.[55] In addition, the Commission will send a copy of the Report and Order and Order on Reconsideration, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

H. Federal Rules Which Duplicate, Overlap, or Conflict with, the Commission's Rules

29. None.

[55] *See* 5 U.S.C. § 801(a)(1)(A).

STATEMENT OF
CHAIRMAN AJIT PAI

Re: *Access to Telecommunications Equipment and Services by Persons with Disabilities, CG Docket No. 13-46; Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, WT Docket No. 07-250; Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations, WT Docket No. 10-254*

Ensuring that all Americans have access to communications is a top priority for this Commission. This extends to those in the hard-of-hearing community.

Approximately 13% of all Americans, or over 38 million people, are deaf or hard-of-hearing.[1] According to a new study from Johns Hopkins University, the number of Americans aged 20 and older who have hearing loss is expected to nearly double over the next 43 years.[2] Another report projects this number to rise "from 44.1 million people in 2020 dealing with 'moderate or greater' hearing loss (15% of people 20 and up) to 73.5 million in 2060 (22.6% [of people 20 and up])."[3]

Our decision here tackles this trend head-on. It improves the measurement of volume control in wireline phones, extends hearing aid compatibility requirements for wireline phones to consumer equipment for advanced communications services, and includes a volume control requirement for wireless phones. Given that a significant percentage of respondents to a 2014 survey reported dissatisfaction with handset volume controls,[4] this *Report and Order* will go a long way to addressing a glaring problem.

Thanks to the staff that contributed to this item: to Robert Aldrich, Susan Bahr, Suzy Rosen Singleton, Karen Peltz Strauss, and Patrick Webre from the Consumer and Governmental Affairs Bureau; to David Horowitz, Bill Richardson, and Anjali Singh from the Office of General Counsel; to Rashmi Doshi, Patrick Forster, William Hurst, Bruce Romano, and Jim Szeliga from the Office of Engineering and Technology; to Kirk Burgee and Cathy Zima from the Wireline Communications Bureau; to Saurbh Chhabra, Eli Johnson, Michael Rowan, and Peter Trachtenberg from the Wireless Telecommunications Bureau; and to Pamera Hairston, Jeremy Marcus, and Daniel Meyerson from the Enforcement Bureau.

[1] Gallaudet University Library, *Deaf Population of the U.S.*, http://libguides.gallaudet.edu/content.php?pid=119476&sid=1029190 (last visited Oct. 18, 2017).

[2] Meera Jagannathan, *U.S. Adults with Hearing Loss Projected to Nearly Double from 2020 to 2060* (Mar. 2, 2017), http://www.nydailynews.com/life-style/health/u-s-adults-hearing-loss-projected-double-article-1.2986829.

[3] *Id*., citing Adele M. Goman, Nicholas S. Reed, & Frank R. Lin, *Addressing Estimated Hearing Loss in Adults in 2060*, Journal of the American Medical Association Otolaryngology - Head & Neck Surgery (July 2017).

[4] *Access to Telecommunications Equipment and Services by Persons with Disabilities et al.*, CG Docket No. 13-46, WT Docket Nos. 07-250 and 10-254, Report and Order and Order on Reconsideration, para. 24 n.90 (Oct. 26, 2017) (citing a research survey conducted by the Rehabilitation Engineering Research Center for Wireless Technologies and the Center for Advanced Communications Policy, Georgia Institute of Technology (Wireless RERC)).

STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN

Re: Access to Telecommunication Equipment and Services by Persons with Disabilities, CG Docket No. 13-46, Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, WT Docket No. 07-250, Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations, WT Docket No. 10-254

I had the privilege, some seven years ago, of watching then-President Barack Obama, with the legendary Stevie Wonder by his side, sign into law the Twenty-First Century Communications and Video Accessibility Act or CVAA. I count that moment as one of the highlights of my FCC career because it aptly codified this agency's mission in the 21st Century: that regardless of circumstance or ability, every American is as deserving of access to emerging advanced technologies as the other.

In today's Order, we move a step closer to that goal by requiring the industry to develop a standard for volume control that meets the needs of those with hearing loss. This Report and Order will give those that wear hearing aids greater ability to control the volume of the sounds they hear when using a wide range of phones – from basic wireline phones, to wireless phones, and phones with VoIP and other advanced services.

Volume control is something most of us take for granted, and given how important it is to me to be able to lower the volume on my phone these days, I am pleased to be able to finally say to those who have struggled with volume controls for far too long that we are listening and moving forward.

The CVAA and today's Order are both possible because the commercial mobile industry, equipment manufacturers, and accessibility advocates realized that making real progress on behalf of 54 million Americans with hearing loss was more important than getting bogged down in litigation. There are a number of communications policy issues and players that could benefit by taking note of just how much progress we were able to make in just over seven years by collaborating on accessibility issues.

I want to thank Patrick Webre and his staff in the Consumer and Governmental Affairs Bureau for their presentations and the excellent work on this item.

STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY
APPROVING IN PART, DISSENTING IN PART

Re: Access to Telecommunication Equipment and Services by Persons with Disabilities, CG Docket No. 13-46, Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, WT Docket No. 07-250; Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations, WT Docket No. 10-254, Report and Order and Order on Reconsideration

For the millions of individuals with hearing loss, there are statutory obligations imposed on communications providers and equipment manufacturers "to ensure reasonable access to telephone service," which extends to many modern communications technologies.[1] Accordingly, I generally support most of the provisions within today's item.

I must reiterate, however, that I do not support adopting standards in our rules. Just because we have done it before doesn't mean that we should continue to do so going forward. While they can sometimes be effectively used as a safe harbor, standards set by appropriate industry bodies should be allowed to evolve without Commission involvement or approval, and stakeholders should be able to use updated standards, when appropriate, without waiting for Commission action.

In this vein, the Commission should not adopt rules without providing industry an opportunity to voluntarily implement a standard that could potentially eliminate the problem we are trying to solve. Today's item recognizes that industry is working on a standard for wireless volume control. So, I must ask: why are we implementing rules now? In fact, this standard was recently voted on earlier this month and is close to being finalized. While some may argue that the Commission has been contemplating action on and off for a while, we should allow industry to implement this standard and then see if there is evidence that problems persist. Only at that point would adopting rules be appropriate. Further, I also disagree with the clearly stated intention to codify this standard at a later date.[2]

For this reason, I dissent, in part, on mandating wireless volume control. Instead, the Commission should seek comment on this new standard and refresh the record on this topic. In fact, one survey shows that, while 27 to 29 percent of people are dissatisfied, 50 percent of the hearing-impaired respondents were satisfied or very satisfied with the volume on their cell phones. But, in regulating, we rely solely on the up to 29 percent who were dissatisfied in this one 2014 report; we don't have more current information.

Similarly, if we do not have sufficient information in the record, the Commission should perform the analysis or request the submission of further data regarding the costs and benefits of our regulations. A conclusory sentence that the benefits, "while not fully quantified, are sufficient to justify the adoption of a volume control rule" is not a cost-benefit analysis.[3] In this case, it is likely that better information about costs and benefits are available now that there is a proposed standard. For this reason, before regulating, the Commission should seek further information on this standard – whether it is necessary to mandate wireless volume control and the costs and benefits of doing so.

[1] 47 C.F.R. § 610(a), (b) (applying to "[a]ll customer premises equipment used with advanced communications services that is designed to provide 2-way voice communication via a built-in speaker intended to be held to the ear in a manner functionally equivalent to a telephone….").

[2] *Supra* ¶ 30.

[3] *Supra* ¶ 28.

Finally, today's item includes suggestions of what the already-created wireless volume control standard "could include." I don't support the inclusion of this language, even as pared down from the original posted draft. The Commission should not influence the standards setting process in any way.

STATEMENT OF
COMMISSIONER BRENDAN CARR
APPROVING IN PART AND DISSENTING IN PART

Re: *Access to Telecommunications Equipment and Services by Persons with Disabilities, CG Docket No. 13-46; Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, WT Docket No. 07-250; Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations, WT Docket No. 10-254*

Two weeks ago, I had the chance to speak at an ITU conference in Argentina about the FCC's efforts to promote accessibility in communications. It was heartening to hear the global consensus in favor of ensuring that every person and every community has access to advanced communications. And it was clear from the discussion that the United States and the FCC have been playing a lead role in this endeavor.

Today's decision is part of that effort. In this Order, we adopt an updated volume control standard for wireline phones, which will more accurately account for the way consumers with hearing loss use these devices. We also eliminate outdated and unnecessary standards that no longer reflect the most accurate testing methods for wireless handsets.

But unfortunately, I cannot support every part of today's decision. In particular, I have concerns with the portion of the Order that adopts a volume control requirement for wireless devices. While I appreciate the importance of volume control standards for the hearing loss community, as well as my colleagues' interest in addressing this issue, the Order does not adequately justify imposing this requirement.

For instance, the Order's cost-benefit analysis does not account for all of the costs associated with this new requirement. This might be because the relevant technical standard is still undergoing development. But in my view, this uncertainty means that we should seek additional comment, rather than proceeding directly to a rule. Indeed, the Order seems to acknowledge this point, at least implicitly, because it provides for a three-year implementation schedule in an effort to account for the additional standards-setting work that is yet to be done. And the Order states that the Commission will likely need to initiate another rulemaking after that standard is set. Given this built-in delay, and the Order's acknowledgment that key pieces of the requirement are still in flux, I think the better course would have been to move this entire discussion to a Further Notice of Proposed Rulemaking.

And in my view, I would have preferred for the Commission to steer much clearer of the standards-setting process in light of the work private sector stakeholders are engaged in. In light of these concerns, I will be voting to approve in part and dissent in part.