

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

In the Matter of)	
)	
Access to Telecommunications Equipment and Services by Persons with Disabilities)	CG Docket No. 12-32
)	
Petition for Rulemaking Filed by the Telecommunications Industry Association Regarding Hearing Aid Compatibility Volume Control Requirements)	CG Docket No. 13-46
)	
Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets)	WT Docket No. 07-250
)	
Comments Sought on 2010 Review of Hearing Aid Compatibility Requirements)	WT Docket No. 10-254
)	

COMMENTS OF THE HEARING INDUSTRIES ASSOCIATION

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TABLE OF CONTENTS

SUMMARY	iii
BACKGROUND	1
DISCUSSION.....	2
A. The 2012 ANSI Wireline Volume Control Standard Should be Adopted.....	3
B. Inductive Coupling and Volume Control Requirements Are Necessary for Wireline VOIP Telephones.....	3
C. The Commission Should Adopt Volume Control and Acoustic Coupling Requirements for Wireless Handsets, with Handset Output Expressed in Conversational Gain and a Minimum DC Magnetic Field Specified	4
D. The 2011 ANSI Wireless HAC Standard Should be Adopted Exclusively.....	9
E. The Current ANSI Procedures Are Sufficient	10
CONCLUSION.....	11

SUMMARY

The Hearing Industries Association (“HIA”) supports the Commission’s efforts to adopt updated standards to ensure that people with hearing loss who use hearing aids may access the full range of wireline and wireless phones as well as the newest of technologies. HIA urges the Commission to:

- Adopt the 2012 ANSI Wireline Volume Control Standard;
- Require consumer premises equipment used for VOIP to meet Part 68 inductive coupling, volume control, and other HAC requirements;
- Adopt a rating system for wireless handsets acoustic output level and frequency response, volume control range, and distortion;
- Require certain acoustic output specifications for narrowband LTE handsets;
- Require that acoustic output be measured by conversational gain;
- Require that wireless handsets have an adequate DC magnetic field of at least 20 Gauss;
- Require that adequate information be provided to hearing aid manufacturers so that wireless handset programs can be written for hearing aids;
- Eliminate the 2007 ANSI Wireless HAC Standard, leaving the 2011 Standard as the exclusive standard; and
- Not impose additional requirements on ANSI.

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COMMENTS OF THE HEARING INDUSTRIES ASSOCIATION

The Hearing Industries Association (“HIA”) hereby comments on the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rulemaking (“NPRM”) issued in the above-captioned proceedings.¹

BACKGROUND

HIA is the trade association of hearing aid manufacturers and represents manufacturers of approximately 85% of the hearing aids sold in the United States. HIA members make every effort to design their devices to meet all the needs of people with hearing loss, including ensuring

¹ *Access to Telecommunications Equipment and Services by Persons with Disabilities; Petition for Rulemaking Filed by the Telecommunications Industry Association Regarding Hearing Aid Compatibility Volume Control Requirements; Amendment to the Commission’s Rules Governing Hearing Aid-Compatible Mobile Handsets; Comments Sought on 2010 Review of Hearing Aid Compatibility Regulations, Notice of Proposed Rulemaking, CG Docket No. 12-32 et al. (rel. Oct. 30, 2015) (“NPRM”).*

compatibility with as many electronic products as possible. HIA seeks to advance the goal of ensuring that people with hearing loss who wear hearing aids are able to participate to the maximum extent possible in all activities – both at work and at play – that persons with full hearing can enjoy.

Hearing aids are vital to many Americans as a means of staying connected and involved with the world around them. Nearly twenty-five percent of those aged 65 to 74 and fifty percent of those aged 75 and older have disabling hearing loss.² Studies have shown that untreated hearing loss is linked to higher rates of depression and falls, and is correlated with increased rates of dementia.³ Adequately addressing hearing loss can therefore lead to reduced health impairments and health care costs for many Americans.

DISCUSSION

Inductive coupling, volume control, and acoustic output in communications devices that employ any type of technology are important aspects of the hearing aid user's experience, and standards are necessary to allow full access to these communications by people with hearing loss who use hearing aids. HIA supports the Commission's proposals to incorporate updated standards into its rules. In particular, HIA supports the use of conversational gain to express handset output and requiring an adequate DC magnetic field of at least 20 Gauss. HIA believes that the current standards setting processes are sufficient to allow for robust consumer involvement, and there is no need for the FCC to impose additional requirements.

² Blackwell DL, Lucas JW, Clarke TC., *Summary Health Statistics for U.S. Adults: National Health Interview Survey 2012*, National Center for Health Statistics, Vital Health Stat. 10 (260) (2014).

³ Metter J, O'Brien RJ, Resnick SM, Zonderman AB, Ferrucci L., *Hearing Loss and Incident Dementia*, 3 Lin FR, Arch Neurol, 68(2):12-28 (2011).

A. The 2012 ANSI Wireline Volume Control Standard Should be Adopted.

The Commission seeks comment on a Petition for Rulemaking filed by the Telecommunications Industry Association (“TIA”) to modify Part 68 to reference an updated ANSI volume control standard for wireline phones.⁴ HIA supports the proposed rule change. Adoption of the 2012 ANSI Wireline Volume Control Standard will improve the experience of people with hearing loss who use hearing aids when they use wireline telephones. The new test method will better consider how handsets are used, *i.e.*, held to the ear. This, in turn, provides for a better measure of the sound heard by the user, and provides for a better user experience by people who use hearing aids.

B. Inductive Coupling and Volume Control Requirements Are Necessary for Wireline VOIP Telephones.

The Commission proposes to require consumer premises equipment (“CPE”) used with both interconnected and non-interconnected VOIP services, and intended to be “held to the ear,” to meet existing inductive coupling and volume control requirements, as well as other Part 68 HAC requirements.⁵

HIA has long supported the application of HAC standards to new technologies and to any device that is held to the ear, and supports the Commission’s proposals. Telephony has migrated away from plain old telephone service (or “POTS”), and many Americans have dropped wireline telephones in favor of newer technologies, including VOIP. Handsets designed for VOIP services should be subject to HAC because the Commission needs to ensure that all devices used for telecommunications are subject to the same rules that are designed to improve the lives and access to communications for people with hearing loss. The proposed rules here will do that,

⁴ NPRM at ¶¶ 14-26.

⁵ NPRM at ¶ 28.

ensuring that people with hearing loss who use hearing aids will have access to HAC-compatible devices, regardless of the technology behind the communications in which they engage.

C. The Commission Should Adopt Volume Control and Acoustic Coupling Requirements for Wireless Handsets, with Handset Output Expressed in Conversational Gain and a Minimum DC Magnetic Field Specified.

The Commission seeks to extend volume control and acoustic coupling requirements to wireless handsets.⁶ HIA supports: 1) adding an overall rating for wireless device acoustic output level and frequency response, volume control range, and distortion – a rating that would go along with the currently-required M and T HAC ratings; 2) requiring certain acoustic output specifications for narrowband LTE handsets; 3) requiring handset output expressed in conversational gain; 4) requiring a minimum DC magnetic field of at least 20 Gauss; and 5) requiring that wireless handset manufacturers provide certain information about handsets so hearing aid programs can be written to account for the acoustics of the handsets. These actions will allow people with hearing loss who use hearing aids to select and adjust their wireless handsets so that they can communicate the same as people without hearing loss. Without such changes, many wireless handsets will continue to have ineffective amplification adjustment mechanisms and acoustic coupling.

The Commission seeks updates on the need to impose volume control and acoustic coupling requirements.⁷ HIA strongly agrees that wireless handsets must have a specified level of volume control to make communications accessible to people with hearing loss who use hearing aids. It is clear, for the reasons cited by the FCC, that wireless handsets are not adequately serving hearing aid users due to lack of volume control.⁸ Not all hearing aids

⁶ NPRM at ¶ 31.

⁷ NPRM at ¶¶ 31 and 32.

⁸ *Id.* at ¶ 32 and n.117 – 119.

incorporate a telecoil to pick up a telephone signal magnetically. Additionally, many hearing aid users seek to use wireless handsets and communications devices like others, meaning while held to the ear. Without a telecoil, a hearing aid user can pick up the acoustic output of a wireless device with the hearing aid microphone. However, the acoustic output from many wireless devices is too soft for users to hear communications via the hearing aid microphone, rendering these devices essentially useless to people who use hearing aids. For these reasons, HIA has long advocated that standards for wireless HAC should include volume control levels and range for acoustic output.

The Commission specifically asks “to what extent have the amplification levels achievable with wireless handsets improved since 2010, and to what extent are they effective in enabling individuals with hearing loss to hear and understand speech received through wireless handsets?”⁹ With regard to LTE narrowband handsets, the 3GPP and ETSI standards do not require that these handsets have a specific level of volume control, though this is required for wideband, full band and super wideband handsets.¹⁰ The FCC should require that LTE narrowband handsets meet acoustic output specifications, and in particular specifications that consumers can rely upon. 3GPP sets out maximum LTE narrowband volume control specifications for manufacturers that wish to meet the standards. But the specified output, between -3 and -13 receive loudness rating (“RLR”), is a fairly wide range that does not guarantee a good consumer experience. For LTE narrowband handsets, the volume range needs to be able to extend from a nominal RLR of 2 to -3 to -13 dB above that, which represents a gain of between 5 and 15 dB. HIA calculates that the 3GPP LTE narrowband optional requirement for wireless handsets equates to an upper range acoustic output of between 81 dB sound pressure

⁹ NPRM at ¶ 32.

¹⁰ Compare 3GPP TS 26-131 Section 5.2.2 to Sections 6.2.2, 7.2.2 and 8.2.2.

level (“SPL”) (5 dB of gain) and 91 dB SPL (15 dB of gain).¹¹ Taking into account leakage due to loosely-coupled handsets, the lower end of this 81 to 91 dB SPL calculated range will not be sufficient for persons with hearing loss to communicate well.

The Commission seeks comment on whether to require volume control for all wireless devices or only for a subset of wireless devices.¹² HIA supports volume control standards for all wireless devices. This is in line with HIA’s support for 100% HAC for all wireless devices. For too long, the lack of standardization and regulatory requirements for HAC volume control and acoustic output has caused poor user experiences. Standards for all communications devices will lead to more universal and more high-quality access by people with hearing loss who use hearing aids. Applying the standards to all devices also will alleviate consumer confusion when shopping for wireless devices.

The Commission seeks input on whether new methods for volume control that have been developed for wireline handsets (*i.e.* HATS, conversational gain) should be considered for volume control standards for wireless handsets.¹³ HIA supports standards for wireless handsets based on conversational gain. Hearing aids characterize the level of acoustic input signals in terms of SPL, while the acoustic output of wireless devices is expressed in terms of the RLR. RLR is a negative number that expresses path loss in the wireless link, and does not clearly convey the intensity of the acoustic output signal in easily-understood physical terms. Use of RLR has caused considerable confusion for consumers when purchasing amplified telephones. By using conversational gain, however, the acoustic output of handsets is expressed as the amount that the handset acoustic output level is greater than 70 dB SPL, the typical SPL produced by

¹¹ For reference, the acoustic safety forbids output of more than 120 dB SPL.

¹² NPRM at ¶33.

¹³ NPRM at ¶ 34.

speech at 1 meter distance from a source. This concept can be extended to wireless devices with acoustic output that could be characterized relative to the same dB SPL reference, *i.e.*, 70 dB SPL.¹⁴

The Commission seeks comments on the status of development of a standard; on whether ANSI C63-EMC is the appropriate forum or whether there is a need for a new working group; and on whether there are any relevant studies or additional information regarding the status of standards development.¹⁵ HIA supports ANSI C63.19 (“ANSI”) as the appropriate group to develop the wireless handset volume control standard. ANSI has a long history of including all stakeholders, including those representing consumer interests, in its processes. HIA is confident that ANSI will continue to engage in this inclusive approach going forward. In addition, more than eight years ago, HIA members of the ANSI/ASA S3-WG48 committee on hearing aid measurement standards provided hearing aids to the Alliance for Telecommunications Industry Solutions (“ATIS”) AISP.4-HAC incubator working group for a study on wireless device acoustic output. However, the outcome of this study has not been made available either publicly or to the FCC. The FCC should require the wireless device industry to share with HIA technical data such as the range (from loosely coupled to tightly coupled) of wireless device acoustic output level and the frequency response; and the acoustic output distortion levels at loud speech input levels, and at maximum and minimum volume control settings.¹⁶

¹⁴ See Comments of HIA, WT Docket No. 10-254 (filed Feb. 14, 2011).

¹⁵ NPRM at ¶ 35.

¹⁶ The acoustic output of wireless devices should be provided for their midpoint of the volume control range and for loud, nominal and soft speech input levels, and should be expressed in dB gain relative to 70 dB sound pressure level.

The Commission additionally seeks comment on a suggested reasonable timeline for development of the standard.¹⁷ As stated, HIA supports ANCI C63.19 as the appropriate group to develop the standard and believes that it will develop this new standard within a reasonable time frame.

Related to this, the Commission seeks comment on the adaptability of the 2012 ANSI wireless volume control standard to wireless handsets.¹⁸ It is possible to modify the wireline acoustic output and volume control range standard for wireless devices. The requirements can be converted to dB SPL, where the wireless device volume control is at the maximum setting, RLR is a minimum of 12 dB and a maximum of 18 dB below the acoustic output at nominal volume control position.¹⁹ HIA supports a standard with these specifications.

Finally, the Commission seeks input on additional factors, other than amplification, that affect the ability of consumers with hearing loss to hear and understand speech received over wireless handsets, including frequency response and distortion, and magnetic field strength.²⁰ Hearing aid manufacturers require better knowledge of such technical factors as wireless handset output level variations, frequency response variations, distortion and volume control range. This information will allow hearing aid manufactures to create hearing aid fitting software that specifies more appropriate parameters to better couple wireless device acoustic output signals into hearing aids. Additionally, the FCC should require that wireless devices have an adequate DC magnetic field of at least 20 Gauss, emanating axially from a point very close to the handset speaker, so the magnetic sensors in hearing aids can detect when wireless handsets are in close proximity to the hearing aid. Many wireless devices do not have sufficient DC magnetic field

¹⁷ NPRM at ¶ 36.

¹⁸ *Id.*

¹⁹ See Comments of HIA, WT Docket No. 10-254 (filed Feb. 14, 2011).

²⁰ NPRM at ¶ 38.

intensity close enough to the handset receiver location for hearing aid magnetic sensors to determine that a handset is in close proximity to the ear. This means that the automatic switching feature present in many hearing aids, which automatically switches the hearing aid from the default M mode to a modified M or T input mode, cannot operate, and hearing aid users must manually change the mode of their hearing aid each time they use the wireless handset. Newer, smaller magnets made of higher permeability material, such as neodymium-iron-boron or samarium-cobalt, can be added near the speaker of a wireless handset without a significant need for space.²¹

D. The 2011 ANSI Wireless HAC Standard Should be Adopted Exclusively.

The Commission proposes to eliminate the 2007 ANSI Wireless HAC Standard and exclusively require use of the 2011 standard, which covers an expanded range of frequencies.²² For certain frequency bands, manufacturers currently can choose whether to meet either the 2007 or 2011 standard, but the Commission proposes to eliminate the option of meeting the 2007 standard. HIA supports this. The proposed six month transition period is sufficient because most wireless handsets are being certified under the 2011 standard.

The Commission additionally suggests eliminating the “power-down” exception for GSM handsets operating at 1900 MHz.²³ HIA recently expressed:

Exceptions hurt people with hearing loss who use hearing aids, by limiting their access to new or certain technologies. Though necessary on occasion, HIA

²¹ This should be done with an axial magnetic field orientation (*i.e.* perpendicular to the handset speaker plane) for optimal coupling to hearing aids.

²² NPRM at ¶¶ 43-44.

²³ NPRM at ¶¶ 47-49.

opposes exceptions as a general rule, and believes that waivers granted under exceptional situations can provide any necessary regulatory relief.²⁴

GSM handsets will remain in use for a long time, given the wide deployment and the time that it will take to replace these networks and handsets.²⁵ The Fourth version of ANSI C63.19 has improved manufacturers' ability to measure the interference potential of an RF transmission, allowing some conservative assumptions to be eliminated and easing HAC compliance for GSM handsets.²⁶ This essentially serves as a technical substitute for the power-down exception. Continuing to allow the GSM "power down" option will impede the ability of individuals with hearing loss to achieve an "M3" or better HAC rating. It will also result in dropped calls when phones operate in this mode and cannot adjust their power sufficiently to reach the nearest base station, which is a public safety concern if consumers are unable to reach 911. HIA supports elimination of the power-down exception.

E. The Current ANSI Procedures are Sufficient.

Finally, the Commission seeks comment on proposals aimed at enabling industry to use updated standards prior to the Commission's approval of those standards, assuming there has been appropriate public and consumer participation in the standards setting process.²⁷ The

²⁴ *Improvements to Benchmarks and Related Requirements Governing Hearing Aid-Compatible Mobile Handsets; Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets*, Comments of the Hearing Industries Association, WT Docket Nos. 15-285 and 07-250 (filed Jan. 28, 2016).

²⁵ The most recent Commission HAC report indicates that during 2015 more than 1400 GSM-only handsets were offered. *See* Hearing Aid Compatibility Report, Service Provider Handset Totals by Air Interface, Reporting Period: January 1, 2015 - December 31, 2015 (rel. Feb. 23, 2016).

²⁶ The FCC Labs has accepted this new test method.

²⁷ NPRM at ¶ 24 and ¶ ¶ 53-58.

Commission also proposes rules to ensure public consultation in this process by people with hearing loss.²⁸

HIA does not oppose wireless handset manufacturers relying on standards that have been reviewed by but not yet adopted by the FCC, assuming those standards have been adopted by a standards setting committee, such as ANSI, which fairly involves all relevant stakeholders.

HIA members have participated extensively in ANSI C63-19, and see no need for additional requirements to be placed on the process by the Commission. The ANSI by-laws require the inclusion of all materially affected stakeholders in the standards development processes for all standards that it adopts. Members of consumer groups as well as other advocates for people with hearing loss have participated in the ANSI standards setting processes. HIA consults and works closely with the organizations representing people with hearing loss who wear hearing aids, and strives to represent those interests – HIA customers – before standards setting bodies, including ANSI. In HIA’s view, they have been adequately represented.

Imposing additional regulatory requirements on ANSI would add costs and procedural impediments, without providing meaningful benefits. While HIA supports the designation of interested consumer stakeholders to serve on the Disability Advisory Committee – and, in fact, HIA has requested to serve on this committee – there is no need to require a specific process for their consultation in the ANSI standards development process, as this already occurs under the ANSI by-laws.

²⁸ NPRM at ¶ 54.

The role of the Commission here is to encourage and facilitate communications between industries to ensure that communications products are developed for people with hearing loss who use hearing aids.

CONCLUSION

HIA supports the Commission's efforts to adopt updated standards to ensure that people with hearing loss who use hearing aids may access the full range of wireline and wireless phones as well as the newest technologies. HIA supports: 1) adopting the 2012 ANSI Wireline Volume Control Standard; 2) requiring consumer premises equipment used for VOIP to meet Part 68 inductive coupling, volume control, and other HAC requirements; 3) adopting a rating system for wireless handset acoustic output level and frequency response, volume control range, and distortion; 4) requiring certain acoustic output specifications for narrowband LTE handsets; 5) requiring that acoustic output be measured by conversational gain; 6) requiring that wireless handsets have an adequate DC magnetic field of at least 20 Gauss; 7) requiring that adequate information be provided to hearing aid manufacturers so that wireless handset programs can be written for hearing aids; 8) eliminating the 2007 ANSI Wireless HAC Standard, leaving the 2011 Standard as the exclusive standard; and 9) not imposing additional requirements on ANSI.

Respectfully submitted,



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