



TELECOMMUNICATIONS  
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October 29, 2013

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 Twelfth St., S.W.  
Washington, DC 20554

Re: *CG Docket No. 13-46*

Dear Ms. Dortch:

On Friday, October 25, 2013, the Telecommunications Industry Association ("TIA") met with Federal Communications Commission's ("Commission") Consumer and Governmental Affairs Bureau ("CGB") Disability Rights Office ("DRO"), at FCC headquarters (445 Twelfth St., S.W., Washington, DC 20554). During this meeting, the attendees discussed TIA's pending Petition for Rulemaking<sup>1</sup> which requests that the Commission expeditiously take an important step towards improving the access and experience of hard-of-hearing users of terminal equipment ("TE"), such as analog and digital wireline telephones, by undertaking a rulemaking to update references in Part 68 of the FCC's rules to TIA standards<sup>2</sup> which set hearing aid compatibility ("HAC") volume control requirements.<sup>3</sup> In attendance on behalf of TIA were: Brian Scarpelli, TIA; Stephen Whitesell, Whitesell Consulting LLC and TIA TR-41 (Performance and Accessibility for Communications Products) Engineering Committee<sup>4</sup> Chair. In addition, the following TIA

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<sup>1</sup> TIA, Access to Telecommunications Equipment and Services by Persons with Disabilities, RM-11682, Petition for Rulemaking (filed Oct. 25, 2012) ("TIA Petition").

<sup>2</sup> See ANSI/TIA-4965, *Receive Volume Control Requirements for Digital and Analog Wireline Terminals* (October 24, 2012) available at [http://global.ihs.com/search\\_res.cfm?RID=TIA&INPUT\\_DOC\\_NUMBER=ANSI/TIA-4965](http://global.ihs.com/search_res.cfm?RID=TIA&INPUT_DOC_NUMBER=ANSI/TIA-4965).

<sup>3</sup> Part 68 of the Commission's rules govern the connection of terminal equipment to the telephone network. While responsibility for most of the technical requirements in Part 68 was turned over to industry in 2000, the HAC volume control gain requirements for terminal equipment were retained in Part 68. The rules specify that gain is measured in terms of the change in ROLR level, and currently refers to two TIA standards which specify ROLR measurements: ANSI/EIA-470-A-1987 (Telephone Instruments With Loop Signaling) for analog TE, and ANSI/EIA/TIA-579-1991 (Acoustic-To-Digital and Digital-To-Acoustic Transmission Requirements for ISDN Terminals) for digital TE. See 47 C.F.R. § 68.317.

<sup>4</sup> TIA Engineering Committee TR-41 develops and maintains voluntary standards for the performance and accessibility of communications products. The products addressed by these standards include telephones with handsets, headsets, and speakerphones, communications gateways, and other products that are typically installed at the user's premises. TR-41's standards may include performance requirements for voice, video, and other

members participated in this meeting via conference call: Al Baum, Uniden America Corporation; and James Bress, AST Technology Labs, Inc. and TR-41.3.14 Accessibility Working Group<sup>5</sup> Chair. Attendees from the Commission included Greg Hlibok, DRO Chief; Cheryl King, DRO Associate Chief; and Elaine Gardner, DRO Attorney Advisor.

During this meeting, TIA discussed its positions that are detailed in the attached presentation slides. Notably, during this meeting, TIA:

- Provided a detailed and technical description of how ANSI/TIA-4965 (*Receive Volume Control Requirements for Digital and Analog Wireline Terminals*) came to be developed and finalized, and the benefits of using Conversational Gain to measure HAC volume control as opposed to the currently-referenced Receive Objective Loudness Rating (“ROLR”) requirements.
- Noted that this new standard by TIA covers digital and analog wireline terminal equipment only.<sup>6</sup> TIA has indicated to the Commission that TIA-4965 does not cover wireless handsets, and that any consideration of conversational gain in wireless HAC requirements should be appropriately channeled through the ANSI C63.19.<sup>7</sup>
- Discussed that a two-year phase-in period is the appropriate time period before compliance would be required. Such a time period would provide ample time for the design, engineering, and marketing needs of TE manufacturers who are not already

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features that are associated with communications services. They cover requirements for a product’s performance related to signal transmission, environmental impacts, interfacing to networks and other equipment, accessibility, and usability. TR-41 addresses issues pertaining to administrative aspects of regulatory product approval processes and develops criteria for preventing harm to the telephone network, which become mandatory when adopted by the Administrative Council for Terminal Attachments (ACTA). TR-41 is a point of contact for expert technical opinions, advice, and actions for standards development for government agencies that deal with communications including the FCC. It also provides input to other organizations that develop and publish product safety standards. See <http://tiaonline.org/all-standards/committees/tr-41>.

<sup>5</sup> TR-41.3.14, a subcommittee of TR-41, develops standards for telephone devices, including handsets, headsets, and speakerphones, for performance pertaining to features used by persons with hearing impairments and other disabilities. See *Id.*

<sup>6</sup> The Commission has adopted ANSI Standard C63.19-2011, the most current hearing aid compatibility technical standard for wireless handsets. Under the recently adopted rules, beginning August 16, 2013, newly introduced multi-band and multimode handset models that include operations not covered under ANSI Standard C63.19-2007 must be tested under ANSI Standard C63.19-2011 in order to be considered hearing aid-compatible. See Amendment of the Commission’s Rules Governing Hearing Aid-Compatible Mobile Handsets, WT Docket No. 07-250, *Third Report and Order*, 27 FCC Rcd 3732 (2012). The updated 2011 version of this standard expands the operating frequency range for covered wireless devices to 698 MHz - 6 GHz, establishes a direct method for measuring the RF interference level of wireless devices to hearing aids, and exempts from testing certain low power transmitters that are unlikely to cause unacceptable RF interference to hearing aids and deems those transmitters to meet an acceptable M rating. See Accredited Standards Committee C63® – Electromagnetic Compatibility, *American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids*, ANSI C63.19-2011 (May 27, 2011), available at <http://www.ieee.org>.

<sup>7</sup> See Comments of TIA, WT Docket No. 10-254 (Jan. 28, 2012) at 6-8.

using TIA's new standard to phase in compliance with it. During this period, TE manufacturers should be able to certify to either version of the HAC volume control requirements.

- Urged the Commission continue engaging the TE industry through the Administrative Council for Terminal Attachments ("ACTA")<sup>8</sup> as well as participate in TR-41 to ensure that the standards developed related to HAC for TE can reflect any concerns the Commission may have.
- Requested that the Commission affirm that an appropriate authority within it be able to revise references to the volume control standards for TE to account for further iterations of the standard when such changes are administrative in nature, i.e. would not have a substantive effect on manufacturers complying with the new standards.
- Discussed the public policy benefits that would be realized if the TIA Petition's request is granted, including improved consumer ability to compare TE, improved access to emergency services for hard-of-hearing consumers, and increased market certainty and fairness for manufacturers of TE.
- Noted that the open docket for the TIA Petition shows support from two key stakeholder groups impacted by TIA's request, and contains no opposition to TIA's request of the Commission.
- Noting our efforts to engage all stakeholders including consumer representatives in the development of the new standard, urged for the Commission to let the undersigned know of any questions or concerns. TIA looks forward to working with the Commission on this matter and generally towards ensuring that hard of hearing populations have improved access to communications products and services.

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<sup>8</sup> The ACTA was formed in 2001 through the co-sponsorship and support of the Alliance for Telecommunications Industry Solutions ("ATIS") and TIA by Commission mandate with the mission to (1) adopt technical criteria for terminal equipment to prevent network harms through the act of publishing such criteria developed by the ANSI-accredited Standards Development Organizations ("SDOs"); and (2) establish and maintain database(s) of equipment approved as compliant with the technical criteria. See *In the Matter of 2000 Biennial Regulatory Review of Part 68 of the Commission's Rules and Regulations*, CC Docket No. 99-216, Report and Order, FCC 00-400 (rel. Dec. 21, 2000). See also ACTA, *About ACTA*, available at <http://www.part68.org/aboutMain.aspx> (last visited Jul. 5, 2012).

Pursuant to the Commission's rules,<sup>9</sup> this letter is being electronically filed via ECFS and a copy of this submission is being provided electronically to the meeting attendees.

Respectfully submitted,

**TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

By: /s/ Danielle Coffey

Danielle Coffey

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Brian Scarpelli

Senior Manager, Government Affairs

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October 25, 2013

cc: Greg Hlibok, DRO Chief  
Cheryl King, DRO Associate Chief  
Elaine Gardner, DRO Attorney Advisor

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<sup>9</sup> 47 C.F.R. § 1.1206.



# The Telecommunications Industry Association's

## Petition for Rulemaking to Update Part 68.317 Volume Control Requirements

October 25, 2013



# Agenda

- **Overview of TIA** – *Brian Scarpelli*
- **Current Part 68 Volume Control Requirements** – *Steve Whitesell*
- **Conversational Gain** – *Al Baum*
- **How We Got Here & TIA's Petition for Rulemaking** – *Brian Scarpelli*
- **Questions?**



# Telecommunications Industry Association

- Trade association in representing the information and communications technology (ICT) manufacturer and vendor community.
  - TIA has approximately 500 companies that manufacture ICT equipment.
- TIA is a Standards Developing Organization (SDO) accredited by ***American National Standards Institute (ANSI)***.
- Represents the global ICT industry through
  - Standards development
  - Advocacy
  - Business opportunities
  - Market intelligence
  - Environmental regulatory compliance



# TIA Accessibility Mission

**TIA SUPPORTS A PRO-COMPETITIVE ENVIRONMENT** that encourages the development of new technologies and innovative features, facilitating access to information by all Americans—including those with disabilities.

## **TIA CONTINUES TO:**

- ▶ **ENGAGE IN PROACTIVE DISCUSSIONS WITH THE DISABILITY COMMUNITY** and incorporate accessible solutions into member companies' product development process.
- ▶ **DEVELOP VOLUNTARY INDUSTRY STANDARDS TO ADDRESS ACCESSIBILITY NEEDS,** such as TIA-1083, which reduces magnetic interference on digital cordless phones for users with hearing aids.
- ▶ **PROMOTE PRO-COMPETITIVE POLICIES THAT ENCOURAGE MARKETPLACE SOLUTIONS** and rapid deployment of accessible technologies.





# Steve Whitesell

TR-41 Chair

Whitesell Consulting LLC



# Part 68 Volume Control Requirements

The need for updated references



# §68.317 Requirements

Minimum 12 dB gain relative to normal unamplified level.

Automatic reset required if gain exceeds 18 dB.

Gain is specified as change in Receive Objective Loudness Rating (ROLR) level and refers to two outdated TIA standards.

Normal unamplified level must also meet ROLR requirements specified in these two outdated standards.

However, both the ROLR metric and the artificial ear specified for these tests have been replaced over time.



# §68.317 References

For analog telephones, the reference is to ANSI/EIA-470-A-1987.

This standard was replaced by

- ANSI/TIA/EIA-470-B-1997
- ANSI/TIA-470.110-C-2004
- ANSI/TIA-470.110-C-1-2007 (addendum)

TIA-470.110-D has successfully completed the ballot process and is expected to be approved for publication at the November TR-41 meeting.



# §68.317 References (cont)

For digital telephones, the reference is to ANSI/EIA/TIA-579-1991.

This standard was replaced by

- ANSI/TIA/EIA-579-A-1998
- TIA/EIA/IS-810-1999
- ANSI/TIA/EIA-810-A-2000
- ANSI/TIA-810-B-2006

There is also a standard for wideband telephones

- TIA-920-2002
- TIA-920.110-A-2011

Currently working on ANSI/TIA-920.110-B to replace both TIA-920.120-A-2011 and ANSI/TIA-810-B-2006.



# Metric Changes

Receive Objective Loudness Rating (ROLR) per IEEE Std 661-1979 was specified in original 470-A-1987 and 579-1991 references.

Receive Loudness Rating (RLR) per ITU-T Recommendation P.79 introduced in Annex B of 470-B-1997.

RLR became specified metric in 579-A-1998 and 470.110-C-2004, with RLR to ROLR correlation info in annexes.

Conversational Gain is being introduced as the measure for receive volume control in the “D” revision to 470.110 and will be propagated through other TIA standards, including “B” version of 920.110.



# Artificial Ear Changes

IEC 318 coupler for supra-aural earphones (also known as ITU-T Recommendation P.57 Type 1 ear) was specified for original 470-A-1987 and 579-1991 measurements.

Transition to RLR metric in 579-A-1998 added a frequency-dependent assumed ear leakage factor  $L_E$  to the response measured on the IEC 318 coupler.

Use of a Head and Torso Simulator (HATS) with P.57 Type 3.3 artificial ear having a soft rubber pinna introduced in 470.110-C-2004 and 810-B-2006.

- High leak condition (10 N force) intended to simulate normal use
- Low leak condition (18 N force) intended to approximate  $L_E$  corrected IEC 318 response



# Artificial Ear Changes (cont)

Use of HATS with P.57 Type 3.3 artificial ear and high leak condition only is identified as the preferred test method in 920.110-A-2011 wideband digital standard.

This combination will be required by 470.110-D and will be propagated to other TIA standards.





# TSB-31 Guidance

TIA TSB-31-B-1998, Part 68 Rationale and Measurement Guidelines, provided suggested test methods for showing compliance with 470-A-1987 and 579-1991.

TIA TSB-31-C-2008 discussed use of the Type 3.3 artificial ear in the low leak condition for handsets that do not seal on the Type 1 ear and added guidance on mapping RLR values to ROLR requirements.

TSB-31-C-1-2009 (addendum) changed to the use of the high leak condition for handsets using the Type 3.3 ear, but did not alter the RLR to ROLR conversion relationship.

TSB-31-D-2011 made no further changes to the artificial ear specifications or RLR to ROLR conversion relationship.



# Industry Canada

CS-03 (IC equivalent to Part 68) references the requirements of 470-B-1998 for analog phones and 579-A-1998 for digital phones but specifies the use of the Type 3.3 artificial ear per 470.110-C and 810-B (i.e., the latest published standards).



# Al Baum

Al Baum

Sr. Director Engineering and Quality

Uniden America Corporation



# Conversational Gain

The new amplification metric for the 21<sup>st</sup> century



# Product Demos Reveal a Problem

Manufacturers demonstrated telephones during 2005-2007 HLAA National Conventions.

During these demos manufacturers discovered that many people believe they need more amplification than they actually need.

Why?



# 2008

## Investigation

Amplification was measured for seven phones advertised as providing above average amplification.

These phones represented five major brand names from four different manufacturers.

The advertised amplification claims for these phones were compared to their measured gain using the industry standard measurement method.



# 2008 Investigation Results

Industry standard amplification measurements were less than the claimed values for all seven samples.

In fact, one sample claiming “Up to 40dB” only had about 4 to 5dB more amplification than a typical retail phone.

(Ref: TR41.3-08-08-016)



# 2008 Investigation Results

What does this mean?

The consumer's assumption is not correct.

All manufacturers are NOT measuring amplification the same way.

Therefore consumers cannot simply use the manufacturer's amplification claims as a safe guide to determine how much amplification they need.

So how do we correct this problem?





# CONVERSATIONAL GAIN

A New More Rational and Intuitive  
Way To Measure Telephone Speech  
Amplification



# Getting Back to Basics

The Reference:

Two people talking face-to-face 1 meter apart.

Conversational Gain =

How loud a voice is compared to a typical face-to-face conversation.

0dB conversational gain means that the voice heard from the telephone is the same level as would occur if they were speaking face-to-face 1 meter apart.



# How Loud is 0dB Conversational Gain?

0dB = 64 dBSPL in each ear

(Ref: IEEE Std 269-2010)

However, when listening with only one ear, a sound must be 6dB louder in order to be perceived to be at the same level as a sound that is heard with both ears.

Therefore:

0dB = 64 dBSPL in both ears (Speakerphone)

0dB = 70 dBSPL in one ear (Handset)



# Benefits of Using Conversational Gain

- Uses an Intuitive Reference  
20dB gain means that I will hear your voice 20dB louder than if we were speaking face-to-face.
- Permits easy determination of absolute dBSPL  
Simply add 64 (speakerphone) or 70 (handset) to the conversational gain.
- Permits a valid comparison to the sound levels produced by other devices  
Results in meaningful gain measurements that can be used by consumers to help them select a phone that meets their specific needs. Can also be applied to other devices that produce an acoustic speech output.

# The Old Reference



## **Basic “500-type” telephone from the 1950s and 1960s**

- Has no receive volume control
- Provides 6 dB of Conversational Gain
- Establishes the reference condition from which the 12 to 18 dB gain requirement in the present Part 68 rules is to be measured.



# TIA-4965 Completed

**TR-41 fast tracked a new standard specifying Conversational Gain requirements for analog and digital phones.**

- Require minimum 18 dB Conversational Gain, (equivalent to old requirement of 12 dB above normal unamplified level).
- Require automatic reset if Conversational Gain is greater than 24 dB, (equivalent to old requirement of 18 dB).
- No need to specify output at normal unamplified level since requirement is based on 6 dB Conversational Gain at that level.
- Closes loophole that allowed normal unamplified level to be biased toward low end of spec in order to more easily meet 12 dB gain requirement.

**TR-41 has drafted an addendum to TSB-31-D providing test procedures for Conversational Gain – expected issuance: early November 2013.**



# Brian Scarpelli

TIA



# TIA's Petition for Rulemaking

## How we got here:

- TIA met with numerous consumer advocates on **September 4, 2012**, to familiarize stakeholders with our Part 68 Petition for Rulemaking and collect input, also in preparation for the public release of TIA-4965.
- TIA published TIA-4965 on **October 19, 2012**.
- TIA's Petition for Rulemaking was filed with the FCC on **October 25, 2012**.
- On **March 6, 2013**, TIA reminded the FCC of our outstanding Part 68 Petition for Rulemaking under the 2012 Biennial Review Public Notice (CG Docket No. 13-29, WC Docket No. 13-33).
- In **early April 2013**, TIA was notified that our Petition for Rulemaking had been given the docket number 13-46.
- Public Notice on TIA's Petition released on **July 19, 2013**.
- Comments were due **August 19, 2013** and reply comments were due **September 9, 2013**.





# TIA's Petition for Rulemaking

## In our Petition, we ask:

- That the FCC adopt a **two-year phase-in period** before TE compliance is required with these standards.
  - We believe that this will provide ample time for the design, engineering, and marketing needs of TE manufacturers who are not already using TIA's new standards to phase in compliance with them.
  - Two years would be ample time to anticipate and redesign products as needed, change printed materials, and to allow for an orderly phasing out of existing telephones that do not use the new standard.
  - TE certified before or during this two-year period should be allowed to certify under the older version of the relevant volume control standard, and that only once this phase-in period has expired should all newly-certified TE be held to the new versions of the relevant TIA volume control standard.



# TIA's Petition for Rulemaking

## In our Petition, we ask:

- That the FCC **continue engaging the TE industry through the ACTA as well as participate in TR-41** to ensure that the standards developed related to HAC for TE can reflect any concerns the Commission may have.
  - TIA's ANSI-accredited process guarantees that any organization or individual – including a Federal agency – has the opportunity to engage in the process and work with other stakeholders to shape the standard as needed.
- The FCC should **affirm that the Office of Engineering and Technology chief has the authority to revise references to the volume control standards for terminal equipment** to account for further iterations of the standard when such changes are administrative in nature, i.e. would not have a substantive effect on manufacturers complying with the new standards.



# TIA's Petition for Rulemaking

## Updating Part 68 to Reflect Improvements Made to Hearing Aid Compatibility Standards is in the Public Interest:

- Improved Consumer Ability to Compare Terminal Equipment
  - Easier to determine if mass-market telephones are capable of meeting individual volume control needs, or a specialized high amplification telephone is required. [TIA has developed a standard (ANSI/TIA-4953) for specialized high amplification telephones that uses the same Conversational Gain measure]
  - More consistent experience of the amplified gain level.
  - Closes existing loophole that currently allows for a normal unamplified level to be biased towards the lower end of the specification in order to more easily meet the gain requirement.
  - The FCC should also respond to the industry's request to heighten enforcement of Part 68 rules generally.



# TIA's Petition for Rulemaking

## Updating Part 68 to Reflect Improvements Made to Hearing Aid Compatibility Standards is in the Public Interest (cont'd):

- Improved Access to Emergency Services for Hard-of-Hearing Consumers
  - Consistent with the Twenty-First Century Communications and Video Accessibility Act of 2010 (requires the FCC to create a Federal advisory committee to examine policies and practices for the purpose of achieving equal access to emergency services by individuals with disabilities).
  - Consistent with the Next Generation 911 Advancement Act of 2012 as a part of the Middle Class Tax Relief and Job Creation Act of 2012 (“ensuring 9-1-1 access for all citizens includes improving access to 9-1-1 systems for the deaf, hard of hearing, deaf-blind, and individuals with speech disabilities...”).
  - The FCC should not to let hard-of-hearing populations who rely on readily available TE to reach emergency services be left behind in enhanced 9-1-1 efforts. Based on available data from Nielsen and the U.S. Census Bureau as of 2009, we estimate the total number of households utilizing a landline telephone at approximately 90,246,436.



# TIA's Petition for Rulemaking

## Updating Part 68 to Reflect Improvements Made to Hearing Aid Compatibility Standards is in the Public Interest (cont'd):

- Increased Market Certainty and Fairness for Manufacturers of Terminal Equipment
  - The ANSI-accredited process used to develop this standard ensures that input from manufacturers and service providers that have had experience in deploying products and services under the current standards is reflected.
  - The requested changes will reflect stakeholder consensus and help level the playing field for industry members who manufacture and market TE.
  - Would lend to harmonization across agencies (US Architectural and Transportation Barriers and Compliance Board) and internationally (Canadian HAC requirements in CS-03 – Industry Canada is ready to move on adopting the TIA-4965 Conversational Gain requirements as soon as the FCC does).



# TIA's Petition for Rulemaking

## Current status:

- The record shows support from two stakeholder groups impacted by TIA's request, and notably contains no opposition to TIA's request of the Commission.
- Can TIA do anything further to help?



# TIA's Petition for Rulemaking

QUESTIONS?



# Contact

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