Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Request for Updated Information and Comment on Wireless Hearing Aid Compatibility Regulations	WT Docket No. 10-254 WT Docket No. 07-250

REPLY COMMENTS OF APPLE INC.

For more than twenty years, Apple has provided innovative solutions that empower people with disabilities to not just access, but to love, its devices. This strong and longstanding commitment extends to the iPhone, which includes a long list of industry-leading assistive technologies as standard features in every phone at no extra charge.[1] Apple is proud of and humbled by recognition of these efforts, including the FCC Chairman's Award for Advancement in Accessibility.[2]

Apple's most powerful accessibility features have been outside-the-box innovations, not iterations of existing technologies. For example, with VoiceOver on iOS, Apple introduced the world's first gesture-based screen reader for individuals who are blind or have low vision; FaceTime enables seamless, easy-to-use video calls with high quality video and fast frame rates that are ideal for sign language; and Switch Control provides complete switch access to iPhones,

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1 *See* APPLE INC., Accessibility, iOS: A Wide Range of Features for a Wide Range of Needs, https://www.apple.com/accessibility/ios/ (last visited Feb. 13, 2015) ("iOS Accessibility Overview").

2 *See* FCC, Public Notice: FCC Chairman Julius Genachowski Joins Commissioner Michael Copps to Honor Innovators in Accessibility Communications Technologies (rel. Oct. 28, 2011), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-310717A1.pdf.

iPads, and iPod Touch devices for those with extreme physical motor limitations.[3] Importantly, if government regulations had strictly defined the technical details of how Apple had to approach these accessibility challenges *ex ante*, it might never have brought these features to consumers. The result would have been substantially less accessibility than we have today.

Apple therefore commends the Commission for considering ways to update its hearing-aid compatibility (HAC) rules. In doing so, the FCC should keep its eye on the goal of substantially improving consumer's experiences rather than merely iterating existing rules. This means working to create incentives for future innovation by allowing new HAC solutions that advance accessibility beyond the state of the art to be compliant with FCC rules, even if they do not fit neatly into the existing American National Standards Institute ("ANSI") rating framework.

The comments of the Georgia Institute of Technology Center for Advanced Communications Policy and the Rehabilitation Engineering Research Center for Wireless Technologies ("CACP/Wireless RERC") offer a promising proposal to help realize this goal.[4] Although CACP/Wireless RERC support retaining the existing HAC rating system in the short term, they also recommend that the FCC "consider revising the HAC Act requirements to specify the desired outcome from a user-experience perspective" rather than standardized technical requirements based on RF interference.[5]

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3 *See* iOS Accessibility Overview.

4 Comments of Georgia Institute of Technology (Georgia Tech), Center for Advanced Communications Policy (CACP), and the Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC) at 12, WT Docket Nos. 07-250 and 10-254 (filed Jan. 22, 2015) ("CACP/Wireless RERC Comments").

5 *Id.*

As CACP/Wireless RERC explain, regulatory efforts that "encourage wireless handset manufacturers to partner with hearing aid manufacturers to produce devices that are designed to work together" rather than simply mandating technical specifications could be very effective in producing innovative solutions.[6] Apple agrees. Indeed, CACP/Wireless RERC specifically cite Apple's Made for iPhone ("MFi") hearing aid platform as "a successful model of this approach."[7]

1. The MFi Hearing Aid Platform.

iPhones comply with FCC hearing aid compatibility requirements.[8] But Apple had to work outside the existing Part 20 framework to advance its goal of dramatically improving the user experience for individuals with hearing loss. Specifically, Apple built a new wireless protocol at the heart of the MFi hearing aid platform that incorporates Bluetooth Low Energy technology to enable compatible hearing aids to interact directly with iPhones and other supported devices via a digital wireless connection.[9]

The digital link enabled by the MFi hearing aid platform delivers high-quality, power-efficient direct audio access for telephone call output and other iPhone features. For example, individuals with MFi hearing aids can access audio from FaceTime, VoiceOver, Siri (Apple's intelligent personal assistant), turn-by-turn navigation, stereo music and movies, and output from third party apps, including games, audiobooks, and educational programs. As one recent MFi

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6 *Id.*

7 *Id.*

8 *See* APPLE INC., About Hearing Aid Compatibility (HAC) Requirements for iPhone, https://www.apple.com/support/hac (last visited Feb. 13, 2015).

9 *See generally* APPLE INC., Accessibility, Made for iPhone Hearing Aids, at https://www.apple.com/accessibility/ios/hearing-aids/ (last visited Feb. 13, 2015).

hearing aid review summed up, "in an age where we are listening to remote audio for hours a day, wearing [MFi] hearing aids is actually a *convenience*!"[10]

Moreover, as CACP/Wireless RERC explain, the MFi hearing aid platform enables several additional benefits for users with compatible hearing aids, including providing the capability to control hearing aid settings directly on the iPhone, and enabling individuals "to switch between audiologist-prescribed preset configurations for different environments."[11]

Finally, because Apple designed the MFi hearing aid platform to be extensible and flexible, Apple anticipates that developers will use the platform to develop additional assistive technology solutions. For example, Apple created a feature called "Live Listen," which enables an individual to use her iPhone's microphone to pick up directed sound and deliver it to the MFi hearing aid, thereby using the iPhone as an assistive listening device that extends the range of the hearing aid (*e.g.*, by placing the iPhone near a presenter in a meeting) without relying on any third party equipment. And hearing aid manufacturers have created iOS apps that use the platform to enable features such as "geotagging" locations so that the hearing aid automatically adjusts to preferred settings when the iPhone arrives at a particular place, and providing assistance in locating misplaced hearing aids by indicating whether the iPhone is getting closer or farther away from the hearing aid.

As CACP/Wireless RERC observe, although Apple officially launched the MFi hearing aid platform a little over a year ago, 11 different hearing aid models are already available.[12]

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[10] *See* Anthony Wing Kosner, Made for iPhone Hearing Aids: Hands On With Halo, A Mission-Critical Wearable, FORBES (Aug. 16, 2014), *available at* http://www.forbes.com/sites/anthonykosner/2014/08/16/made-for-iphone-hearing-aids-hands-on-with-halo-a-mission-critical-wearable/ (emphasis in original).

[11] CACP/Wireless RERC Comments at 12.

[12] *Id*.

2. Additional Rule Flexibility to Encourage Innovation.

Because of the usefulness of the ANSI system in creating easy-to-understand standard ratings, Apple agrees with CACP/Wireless RERC that these ratings should remain the foundation of the FCC's HAC regulations—at least in the short term.[13] But as technologies such as the MFi hearing aid platform demonstrate, we can clearly do better.

Apple devoted considerable time, effort, and expense to create the MFi hearing aid platform, and believes that it represents a substantial improvement to consumers over devices that are deemed accessible by today's HAC rules. Nonetheless, the FCC's current regulations do not recognize Apple's efforts or these improvements. Consequently, manufacturers have little incentive to make the risky and costly investments in innovations that the country needs to move handset accessibility for individuals with hearing loss from mediocrity to excellence. As long as manufacturers are only rewarded by the FCC rules for meeting the existing technical specifications for RF interference, we will not see the progress we all want.

Therefore, consistent with CACP/Wireless RERC's recommendations, the FCC should keep the ANSI standards as a "safe harbor" for handset compliance—but the HAC rules should also reward innovators for finding other, better solutions that result in real accessibility even if they do not meet the ANSI standards.[14] By doing so, the Commission will encourage Apple and other manufacturers to think broadly and creatively about the best ways to enhance handset accessibility for individuals with hearing loss, and to bring those ideas to market.

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[13] *Id.*

[14] *See also Comment Sought on 2010 Review of Hearing Aid Compatibility Regulations*, Public Notice, DA 10-2388, 25 FCC Rcd. 17,566, 17,572 (2010) ("Do handsets that are rated less than M3 or T3 provide effective compatibility for some users of hearing aids and cochlear implants, and if so should the Commission's rules recognize their performance?").

Respectfully submitted,

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