By this Public Notice, the Wireless Telecommunications Bureau (Wireless Bureau) and the Consumer and Governmental Affairs Bureau (CGB) request updated information to assess whether the Commission’s hearing aid compatibility rules for wireless handsets\(^1\) effectively meet the needs of individuals who are deaf and hard of hearing. Since the Wireless Bureau last developed the record on these issues in 2012, a number of developments have occurred, including the deployment of LTE networks and LTE only handsets, wider use of and reliance on Wi-Fi calling, increasing consumer demand for data-centric mobile services on wireless devices, and continued growth in the number of wireless-only households.

The Wireless Bureau and CGB therefore seek updated information to better understand the current consumer experience, to explore technical or other barriers to the provision of hearing aid compatible devices on new wireless technologies, and to consider recommending changes to the Commission’s rules that may be necessary to ensure that wireless handsets used with advanced communications services are accessible in light of directives contained in the Twenty-First Century Communications and Video Accessibility Act (CVAA)\(^2\). Accordingly, we seek to refresh the record on two principal issues. First, should the Commission revise the hearing aid compatibility requirement to apply in a technologically neutral way to all mobile wireless devices that can be used for voice communications? Second, should the Commission consider moving away from the fractional compliance regime that exists today and implement a requirement that all mobile wireless devices must comply with the hearing aid compatibility rules?

\(^{1}\) 47 C.F.R. § 20.19.

II. BACKGROUND

3. In 2003, the Commission adopted rules to ensure that all wireless handset manufacturers and service providers offer consumers a selection of handsets that are compatible with hearing aids. Under these rules, which were amended in 2008, manufacturers and wireless service providers are currently required to meet the Commission’s wireless hearing aid compatibility standards only to the extent that handsets are associated with digital CMRS networks that “offer real-time, two-way switched voice or data service that is interconnected with the public switched network and utilize an in-network switching facility that enables the provider to reuse frequencies and accomplish seamless hand-offs of subscriber calls.” These rules require mobile service providers and handset manufacturers to offer only a certain number of digital wireless handset models that are hearing aid compatible through reductions in radio frequency (RF) interference and through an internal capacity for inductive coupling with a telecoil.

4. In the 2007 Hearing Aid Compatibility NPRM, the Commission sought comment on whether to apply the hearing aid compatibility rules to wireless handsets that may fall outside the scope of covered CMRS, including handsets that offer voice services on non-cellular unlicensed Wi-Fi networks. In the 2010 Further NPRM, the Commission proposed to apply hearing aid compatibility requirements to “all customer equipment used to provide wireless voice communications over any type of network among members of the public or a substantial portion of the public via a built-in speaker where the equipment is typically held to the ear, so long as meeting hearing aid compatibility standards is technologically feasible and would not increase costs to an extent that would preclude successful marketing.”

5. Subsequent to the release of the 2010 Further NPRM, the CVAA amended the Hearing Aid Compatibility Act (HAC Act) in several relevant respects. First, the CVAA defined the class of equipment that is generally required to be hearing aid compatible to include, in addition to telephones, “all 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.” The CVAA defines “[a]dvanced communications services” to

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6 See 47 C.F.R. § 20.19(b) (specifying American National Standards Institute C63.19 as the standard for measuring hearing aid compatibility); id. at §§ 20.19(c)-(e) (establishing compliance benchmarks).


include, among other things, interconnected and non-interconnected VoIP services.\textsuperscript{11} Second, the CVAA defines “telephones” for purposes of the public mobile and private radio services exemptions to include “telephones and other customer premises equipment used in whole or in part with” various wireless communications services, including unlicensed services that are functionally equivalent to licensed services.\textsuperscript{12} Third, Congress directed the Commission to reassess the appropriateness of existing exemptions using a four-part test.\textsuperscript{13} Finally, in implementing the hearing aid compatibility requirements applicable to customer premises equipment (CPE) used with advanced communications services, Congress directed the Commission to “use appropriate timetables or benchmarks to the extent necessary (1) due to technical feasibility, or (2) to ensure the marketability or availability of new technologies to users.”\textsuperscript{14}

6. Shortly after passage of the CVAA, the Wireless Bureau released a Public Notice seeking comments on the effect that the new legislation might have, if any, on the hearing aid compatibility rules that had been proposed in the 2010 Further NPRM.\textsuperscript{15} In December 2010, the Wireless Bureau issued a second Public Notice to initiate a comprehensive review of the wireless hearing aid compatibility regulations (2010 Review PN), including reassessment of deployment benchmarks and consideration of whether all wireless handsets should be required to meet hearing aid compatibility standards.\textsuperscript{16} Subsequently, in November 2012, due to intervening market, technical, and regulatory developments since the 2010 Review PN, the Wireless Bureau sought updated and additional comment on these matters (2012 Refresh PN).\textsuperscript{17}

\textsuperscript{11} See id. § 153(1). Other “advanced communications services” include electronic messaging service and interoperable video conferencing service. Id. Interconnected VoIP service is defined by reference to Section 9.3 of the Commission’s rules as a service that enables real-time, two-way voice communications; requires a broadband connection from the user’s location; requires Internet protocol-compatible CPE; and permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network. Id. § 153(25); see 47 C.F.R. § 9.3. Non-interconnected VoIP service means a service other than an interconnected VoIP service that enables real-time voice communications that originate from or terminate to the user’s location using Internet protocol or any successor protocol and requires Internet protocol-compatible customer premise equipment (CPE). 47 U.S.C. § 153(36).

\textsuperscript{12} See 47 U.S.C. § 610(b)(4)(B) (defining telephones used with public mobile radio services to include equipment used with air-to-ground radiotelephone services, cellular radio telecommunications services, offshore radio, rural radio service, public land mobile telephone service, or other common carrier radio communication services covered by the Commission’s rules, or any functionally equivalent unlicensed wireless services); id. § 610(b)(4)(C) (defining telephones used with private radio services to include equipment used with private land mobile radio services and other communications services characterized by the Commission in its rules as private radio services).

\textsuperscript{13} Id. § 610(b)(2)(B). Specifically, the four factors the Commission must consider are: (1) whether revoking the exemption is in the public interest; (2) whether continuing the exemption would have an adverse effect on individuals with hearing loss; (3) whether compliance with the hearing aid compatibility requirements would be technologically feasible; and (4) whether the cost of compliance would make wireless handsets unmarketable.

\textsuperscript{14} Id. § 610(e).


III. REQUEST FOR COMMENT

A. Applying the Rules in a Technologically Neutral Manner

7. Section 20.19 of the Commission’s rules currently imposes hearing aid compatibility requirements based on the underlying network technology, not on a device’s functionality. Consumers, however, may focus more on a particular handset’s functionality than on the network technology that it utilizes. Additionally, a technologically neutral approach may encourage innovation in the design of hearing aid compatible mobile wireless devices. Accordingly, we renew the Commission’s request for comment on whether to require compatibility in a technologically neutral manner.18

8. To keep pace with consumer expectations and the evolution of wireless technologies, we seek comment on whether consumers are aware that the hearing aid compatibility rules currently apply only to digital CMRS services with certain functionalities and, relatedly, whether Section 20.19 should apply to all wireless handsets, regardless of the service, frequency, or technology with which they are used. In other words, if a wireless handset includes a built-in speaker and is typically held to the ear in a manner functionally equivalent to a telephone, then should the hearing aid compatibility requirements apply?19 If the Commission were to take this course of action, how should it define “functionally equivalent”? What would be the costs and benefits of revising Section 20.19 along these lines -- for handset manufacturers, service providers, hearing aid manufacturers, and consumers? We seek comment on whether this approach would be more consistent with consumer expectations, especially the expectations of persons with hearing loss, and if so, why.

9. We note that amended rules could cover, among other things, handsets that operate over Wi-Fi systems and private internal networks. In light of this potential scope, we seek comment on whether the Commission should consider applying the hearing aid compatibility rules to handsets and other CPE used for wireless voice communications regardless of whether they are interconnected with the public switched telephone network (PSTN).20 Similarly, should the rules apply to other packet-based modes of voice access such as Voice over LTE (VoLTE) that may not use an in-network switching facility? How would amending the hearing aid compatibility rules in this manner affect a consumer’s ability to use his or her device in a variety of situations, such as for communicating in a moving vehicle (which requires access to multiple base stations), in a Wi-Fi hot-spot, or through a satellite? Additionally, should the Commission expand the hearing aid compatibility rules to include handsets and CPE used solely over internal networks?

10. The CVAA directs the Commission to consider technical feasibility, marketability, and the availability of new technologies in connection with its hearing aid compatibility rules.21 Thus, we seek comment on how difficult it would be for handsets that offer voice communication capability but may not presently be subject to Section 20.19 to comply with a hearing aid compatibility technical standard, and whether devices used primarily or exclusively on internal networks pose unique technical challenges.22 Could manufacturers and service providers achieve compliance for these devices in a relatively short period of time?23 Are there technical impediments or other considerations of which we

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18 See 2010 Hearing Aid Compatibility Further NPRM, 25 FCC Rcd at 11194 ¶ 77; see also 2007 Hearing Aid Compatibility NPRM, 22 FCC Rcd at 19699-700, 19702-705 ¶¶ 79, 89-94.


20 Id. at 11195-96 ¶¶ 82-83.

21 47 U.S.C. § 610(e); see para 6, supra.

22 See CVAA PN, 25 FCC at 14280.

23 2010 Hearing Aid Compatibility Further NPRM, 25 FCC Rcd at 11199 ¶ 93.
should be aware? If there are technical impediments or other considerations, what are they and how long
would it take for manufacturers and service providers to overcome them? How much lead time would
manufacturers need in order to come into compliance and what would be the costs of complying?

11. Along these same lines, do testing laboratories have the equipment and software needed
to test the compatibility of handsets that offer voice communication capability but may not be presently
subject to Section 20.19? Could laboratories upgrade existing equipment to test devices that operate on
other interfaces, or would they need to purchase new equipment and software? What are the costs of
updating existing equipment and software or purchasing new equipment and software?

12. Would technical impediments, testing costs, or other challenges support exempting
certain technologies or services from the rules, either indefinitely or for a specified period?24 If so, what
technologies or services would merit an exemption and why? What impact would exemptions have on
people with hearing loss? What standard should the Commission utilize to determine if a technology or
service should be exempted? Finally, how frequently should the Commission review such exemptions?25

B. Fractional Deployment Benchmarks

13. In enacting the HAC Act, Congress found that individuals with hearing loss should have
access to the telecommunications network "to the fullest extent made possible by technology and medical
science."26 Likewise, the CVAA directs the Commission to adopt rules that expand consumer access to
hearing aid compatible handsets in line with advanced communication technologies.27 The Commission’s
existing hearing aid compatibility rules, however, require covered handset manufacturers and service
providers to achieve compliance only for a percentage of the total number of handset models that they
offer.28 These fractional deployment benchmarks have been in place for a number of years and they have
remained static, despite significant progress among certain manufacturers in achieving compliance.29
Moreover, we note the increasing trend among consumers to reside in wireless only households and rely
exclusively on wireless services for communications.30 In such households, wireless handsets may be the
only way for consumers to contact essential services, such as 911 emergency services. Given the

24 Id. at 11199 ¶ 91.

25 The CVAA and its predecessor statute require the Commission to periodically assess the appropriateness of
continuing in effect exemptions for telephones and other customer premises equipment that are subject to the
hearing aid compatibility requirements. 47 U.S.C. § 610(b)(2)(B); see also id. § 610(e).


28 Manufacturers, other than those subject to the de minimis exception, must meet at least an M3 rating for RF
interference reduction for at least one-third of their models (rounded down) over each air interface, with a minimum
of two models, and meet a T3 rating for inductive coupling capability for at least 25 percent of their models
(rounded down) over each air interface, with a minimum of two models. 47 C.F.R. §§ 20.19(c)(1), (d)(1). Service
providers must meet an M3 rating for at least 50 percent of their models or 10 models over each air interface, and
must meet a T3 rating for at least one-third of their models or seven models over each air interface. 47 C.F.R. §§
20.19(c)(2), (3), (d)(2), (3).

29 See Apple Inc. FCC Form 655 filing dated July 15, 2014 available at
Telecommunications America FCC Form 655 filing dated July 16, 2014 available at

30 See http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201407.pdf (last visited Oct. 9, 2014);
http://www.pewresearch.org/fact-tank/2014/07/08/two-of-every-five-u-s-households-have-only-wireless-phones/
(last visited Oct. 9, 2014).
evolution in wireless technology and handset manufacturing, and evolving consumer expectations and
use, we seek comment on whether the current fractional deployment approach effectively meets the
communication needs of people with hearing loss.  

14. We renew our request for comment on how consumers with hearing loss would benefit if all
newly manufactured handsets were hearing aid compatible – i.e., have ratings of M3 and T3 or
better. For example, to what extent would this improve the ability of consumers to select phones that
meet their communication needs and reduce consumer confusion when shopping at retail establishments?
To the extent that consumers currently have difficulty finding handsets that work effectively with their
hearing aids or implants, would this change meaningfully address the difficulty?

15. To what extent would requiring compliance for all handsets make it easier for consumers
with hearing loss to purchase handsets not just from manufacturers and service providers but from
distributors, third-party vendors, kiosks, and websites? We note that, in the past, consumers have
requested an in-store testing requirement for independent retailers. Would expanding the hearing aid
compatibility requirement to all handsets render this request moot? Given the increasing number of
wireless-only households, to what extent would this change improve access to emergency services for
individuals with hearing loss? We seek comment on these issues and on other ways consumers with
hearing loss could benefit if all future handsets were hearing aid compatible.

16. We also seek comment on challenges that may be associated with ensuring that all future
handsets are compliant. Are there any technologies for which this would be technically infeasible?
How much lead time would manufacturers need to achieve this, while ensuring the marketability and
availability of their new technologies? Does the transition away from GSM and towards VoLTE
remove some technological hurdles that slowed progress towards making all handsets hearing aid
compatible? Commenters advocating maintaining the existing benchmarks should clearly explain why
their position is consistent with the HAC Act and the CVAA, and also why this decision would not
adversely impact persons who are deaf or hard of hearing. Are there some wireless technologies for
which the Commission should grant exemptions from an all-inclusive rule, because of their nascent status
or for other reasons? Commenters advocating specific exemptions should clearly state the basis for any
exemption, its expected impact on the affected population, whether it should be temporary or permanent,
and if temporary, whether and how frequently it should be reevaluated by the Commission.

17. Finally, we seek comment on the costs and benefits associated with requiring all handsets
to be hearing aid compatible. In particular, would this change eliminate the need for a number of the
compliance requirements associated with the present fractional approach, such as annual status reports on

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31 See 2010 Review PN, 25 FCC Rcd at 17570-71 (“Should the benchmarks be increased in future years or
restructured in any way?”); 2012 Refresh PN, 27 FCC Rcd at 13451. See also Hearing Aid Compatibility Second
Report and Order, 25 FCC Rcd at 11173-74 ¶17 (authorizing a comprehensive review of the hearing aid
compatibility provisions, “including possible increases in the deployment benchmarks”).

32 2010 Review PN, 25 FCC Rcd at 17570 (“[S]hould the Commission be moving toward a goal of ensuring that all
wireless handsets meet hearing aid compatibility standards? If the Commission were to institute a 100%
compatibility requirement, what would be the effects on investment and innovation?”).


34 2010 Review PN, 25 FCC Rcd at 17570 (“Should the Commission consider applying different benchmarks to
different technologies in light of the circumstances surrounding each technology?”).

35 As noted above, see para 6, supra, the CVAA directs the Commission, in implementing new hearing aid
compatibility requirements, to use appropriate timetables or benchmarks that take into consideration (1) technical
feasibility and (2) marketability or availability of new technologies. 47 U.S.C. § 610(e).
hearing aid compatibility, the product refresh rule, and the “different levels of functionality” rule? What would be the advantages and disadvantages of discontinuing these requirements for manufacturers, service providers and consumers? Are there other compliance requirements that could be discontinued? Would the potential reduction in compliance burdens provide a particular benefit or cost to discrete segments of the industry, such as smaller wireless providers? Would smaller providers benefit from the availability of a wider variety of the latest handset models? We note that some manufacturers now deploy hearing aid compatible handsets in a higher percentage than is required under the rules. What economies of scale and other benefits would accrue to manufacturers who design all of their handsets to be hearing aid compatible? We generally seek comment on other ways covered handset manufacturers and service providers could benefit if all wireless handsets were hearing aid compatible, as well as any obstacles to achieving this result.

IV. PROCEDURAL MATTERS

18. Interested parties may file comments within 30 days of the publication of this Public Notice in the Federal Register and reply comments within 45 days of the publication of this Public Notice in the Federal Register. All filings should refer to WT Docket Nos. 07-250 and 10-254. Comments may be filed using: (1) the Commission’s Electronic Comment Filing System (ECFS), or (2) by filing paper copies. See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/ecfs/. Filers should follow the instructions provided on the website for submitting comments. If multiple dockets or rulemaking numbers appear in the caption of this proceeding, filers must transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, Postal Service mailing address, and the applicable docket number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for email comments, filers should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, “get form <your e-mail address>.” A sample form and directions will be sent in response.

- Paper Filers: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

19. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.

- The Commission’s contractor will receive hand-delivered or messenger-delivered paper filings for the Commission’s Secretary at 236 Massachusetts Avenue, N.E., Suite 110, Washington, D.C.

36 47 C.F.R. § 20.19(i).
37 Id. at § 20.19(c)(1)(ii).
38 Id. at § 20.19(d)(4)(ii).
40 Id. at 17572.
41 See n.29, supra.
20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class mail, Express Mail, and Priority Mail should be addressed to 445 12th Street, SW, Washington, D.C. 20554.

20. One copy of each pleading must be delivered electronically, by e-mail or facsimile, or if delivered as paper copy, by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (according to the procedures set forth above for paper filings), to the Commission’s duplicating contractor, Best Copy and Printing, Inc., at FCC@BCPIWEB.COM or (202) 488-5563 (facsimile).

21. Copies of the Public Notice and any subsequently-filed documents in this matter may be obtained from Best Copy and Printing, Inc. in person at 445 12th Street, S.W., Room CY-B402, Washington, D.C. 20554, via telephone at (202) 488-5300, via facsimile at (202) 488-5563, or via e-mail at FCC@BCPIWEB.COM. The Public Notice and any associated documents are also available for public inspection and copying during normal reference room hours at the following Commission office: FCC Reference Information Center, 445 12th Street, S.W., Room CY-A257, Washington, D.C. 20554. The Public Notice is also available electronically through the Commission’s ECFS, which may be accessed on the Commission’s Internet website at http://www.fcc.gov.

22. To request information in accessible formats (computer diskettes, large print, audio recording, and Braille), send an e-mail to fcc504@fcc.gov or call the FCC’s Consumer and Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY).


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